SY33-8572-4
File No. S370-20

Systems

DOS/VS Handbook
Volume 2

Release 34

IBM

Preface

This manual is the second in a series of two volumes. The reference information combined in these two manuals is provided as a DOS/VS serviceability aid and is, therefore, a summary of other DOS/VS documentation. These manuals are intended for use by persons involved in program support.

The two volumes contain the following information:

Volume 1, SY33-8571:
Chapter I : System/370 General Information
II : DOS/VS General Information
III: DOS/VS IOCS (General, SAM, DAM, ISAM)
IV: DOS/VS Supervisor Control Blocks and Areas
V : DOS/VS Service Aids

Volume 2, SY33-8572:
I : POWER/VS
II : VTAM Control Blocks
III: VSAM Control Blocks
IV: Model 20 Emulator
V : 14xx Emulator
VI: BTAM

If there is any discrepancy between the information contained in this manual and the DOS/VS optional programming material (for example, PLMs and listings), the latter is assumed to be correct.

Fifth Edition (July, 1977)

This is a major revision of, and obsoletes, SY33-8572-3. It applies to Version 5, Release 34, of the IBM Disk Operating System/Virtual Storage, DOS/VS, and to all subsequent versions and releases until otherwise indicated in new editions or Technical Newsletters. Changes are Continually made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest *IBM System/370 Bibliography,* GC20-0001, for the editions that are applicable and current.

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A handbook-sized binder, FE Part Number 453559, may be purchased from IBM. Customer may order it through their IBM marketing representative. IBM personnel should order it as an FE part from Mechanicsburg.

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TABLE OF CONTENTS

CHAPTER 1 POWER/VS

Programming Requirements 01
Relationship between Queue Set, Queue Records and Queue Entry 03
Free Queue Set 03
Class Chain and Queue Set 04
Interfaces and task structures 05
Operator command language 10
Remote operator command language 17
Job entry control language 23
Control blocks
- Control Address Table 28
- Wait Control Block 35
- Storage Control Block 36
- Message Control Block 38
- Disk Management Block 39
- Task Control Block 49
- Command Processor Control Block 60
- Physical Work Space 61
- Logical Data Record Area 63
- Module Control Block 64
- Tape Control Block 66
- Page Control Block 67
- Buffer Control Word 68
- Partition Control Block 69
- Queue Record Area 71
- SLI Work Space 73
- Account Control Block 74
- Line Control Block 76
- Buffer Control Area 80
- Open 3540 Diskette Work Space 83
- BSC Line Manager TCB Fields 85
- SNA Control Block 86
- SNA Remote Control Block 87
- SNA Logical Unit Control Block 88
- SNA Unit Control Block 91
- SNA Logon Request Control Block 93
- SNA Compaction Table Control Block 94
- SNA Work Area 95
- SNA Message Control Block 97
- SNA Manager TCB Fields 98

Service Aids 99

CHAPTER II VTAM CONTROL BLOCKS

Control block relationship 01
Control blocks
- ACB 04
- ACDEB 07
- AOT 12
- APT (ISTAPT) 14
- APT ((ISTAPTX) 16
- ATCVT 18
- AVT 39
- BPDIR 41
- BTU 43
- CCB 46
- COMRG 47
- CONFT 51

TABLE OF CONTENTS (continued)

CHAPTER II VTAM CONTROL BLOCKS (continued)

Control Blocks (continued)
- DEVCH 61
- DNCB (ISTNCB) 64
- DTFLT 68
- DVT (ISTDVT) 70
- DVT (ISTDVTE) 72
- FMCB 73
- FSB 87
- ICE 100
- LCCW 102
- LCBP 105
- NCB 109
- NCSPL (ISTNCSPL) 111
- NCSPL (NCSAPP) 127
- NCSPL (NCSUSSRU) 128
- PAB 129
- PIB 132
- RDT 141
- RH 143
- RPH 145
- RPL 150
- SNT 165
- TH (ISTTH) 166
- TH (ISTTH 2) 167
- TIE 169

Service Aids 171

CHAPTER III VSAM CONTROL BLOCKS

Control block relationship 01

Control blocks
- Access Method Block List (AMBL) 07
- Access Method Control Block (ACB) 09
- Access Method Control Block Structure Block (AMCBS) 13
- Access Method Data Statistics Block (AMDSB) 14
- Access Method Define the File (AMDTF) 18
- Address Range Definition Block (ARDB) 21
- Buffer Control Block 23
- Buffer Header 25
- Block Pool Header 26
- BLDVRP Parameter List (VRPPL) 27
- Buffer Subpool Header (BSPH) 27
- Catalog Auxiliary Work Area (CAXWA) 28
- Catalog Communications Area (CCA) 30
- Control Interval Work Area (CIW) 40
- Close Work Area (CLWAAD) 44
- Catalog Parameter List (CTGPL) 46
- DASDSM Parameter List 48
- Define the File Indexed Sequential (DTFIS) 49
- Exit List (EXLST) 52
- Extent Definition Block (EDB) 53
- Field Control and Data Block (FCDB) 54
- Field Parameter List (CTGFL) 55
- Field Vector Table (CTGFV) 56
- Logical-to-Physical Mapping Block (LPMB) 57
- OPEN AGB List (OAL) 58
- Open Work Area (IKQOPNWA) 59
- Placeholder (PLH) 66

TABLE OF CONTENTS (continued)

CHAPTER III VSAM CONTROL BLOCKS

Control blocks (continued)
- Resource Pool Header (RPHD) 73
- Request Parameter List (RPL) 74
- Resource Sharing Control Block (RSCB) 79
- Track Hold Block (THB) 80
- Upgrate Set Block (USB) 81
- VSAM Shared Resource Table (VSRT) 82

Service Aids 83

CHAPTER IV MODEL 20 EMULATOR

Flow of Initialization 01
Emulator layout 02
Communication Region CR1 04
EDB layout 16
Inter-routeline links
- Communication routines 22
- non-Communication routines 23

HF UNTAB entries 24
Problem determination aids 29
Model 20 sector to System/370 disk record correspondence 32
Data Interchange program
Overview 33
Overlay structure 34
Communication Region 35

CHAPTER V 14xx EMULATOR

Compatibility instructions 01
Tapes in spanned-format and 1400-format 03
Emulated storage layout 04
Compatibility feature 05
Program Organisation (1401/1440/1460) 06
Disk format (1401/1440/1460) 07
Addresses and corresponding machine codes 08
Problem determination aids (1401/1440/1460) 09
Register usage (1401/1440/1460) 11
Program Organisation (1410/7010) 13
Disk format (1410/7010) 14
Register usage (1410/7010) 15
Problem determination aids (1410/7010) 17

CHAPTER VI BTAM

Control Block Linkages 01
DTFBT-table 02
Line Control Block (LCB) 08
Data Event Control Block (DECB) 12

CHAPTER I
POWER/VS

CHAPTER II
VTAM CONTROL BLOCKS

CHAPTER III
VSAM CONTROL BLOCKS

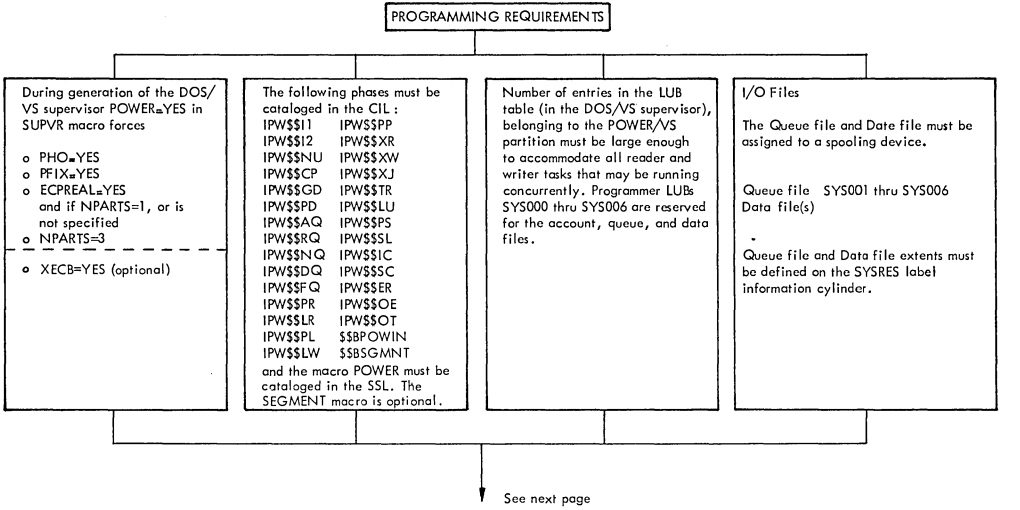
CHAPTER IV
MODEL 20 EMULATOR

CHAPTER V
14xx EMULATOR

CHAPTER VI
BTAM

CHAPTER 1
POWER/VS

PROGRAMMING REQUIREMENTS FOR POWER/VS



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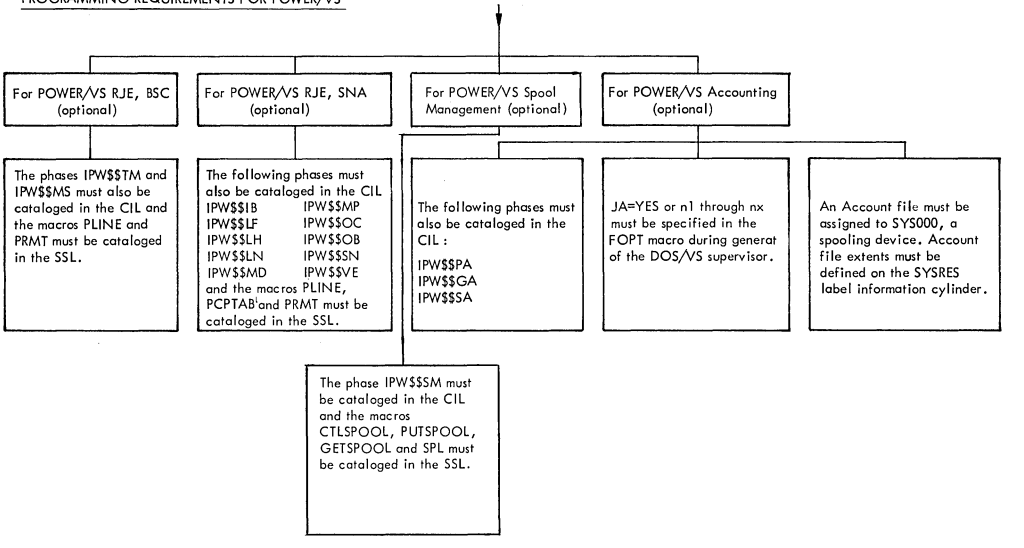
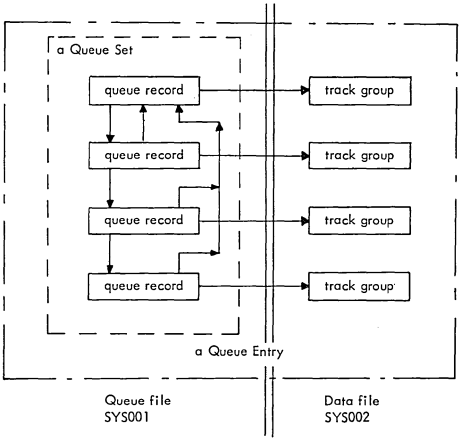
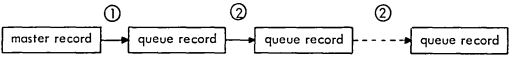
PROGRAMMING REQUIREMENTS FOR POWER/VS



RELATIONSHIP BETWEEN A QUEUE SET, QUEUE RECORDS, AND A QUEUE ENTRY



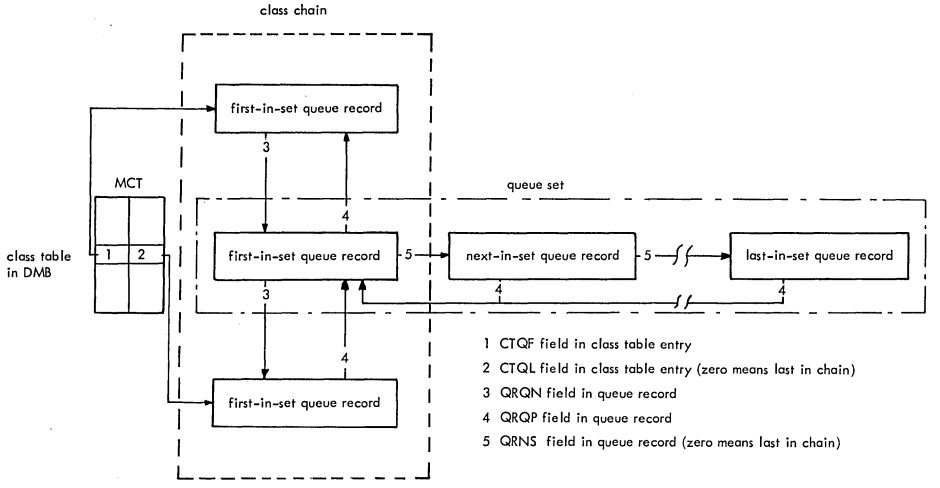
FREE QUEUE SET



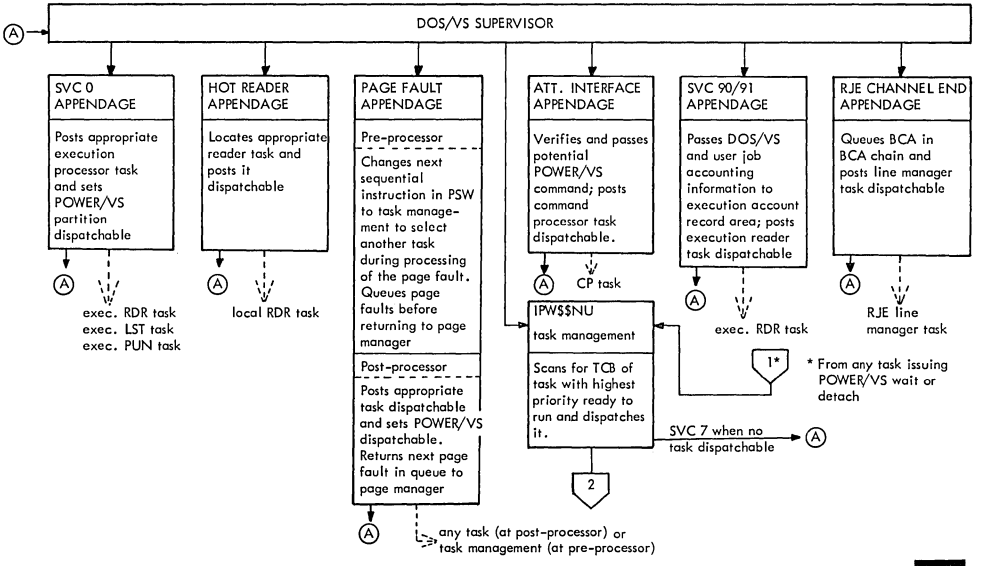
① MRQF field in master record

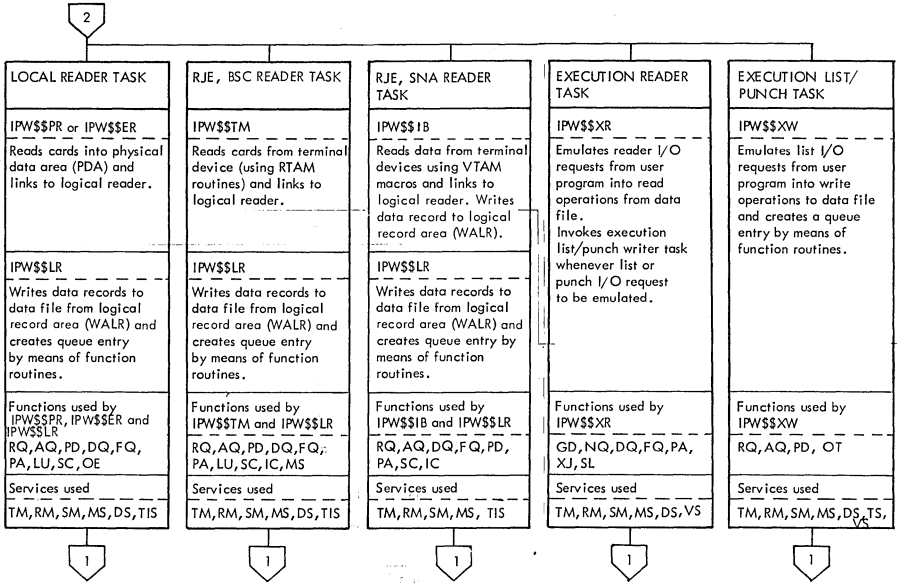
② QRNS field in queue record (zero=last)

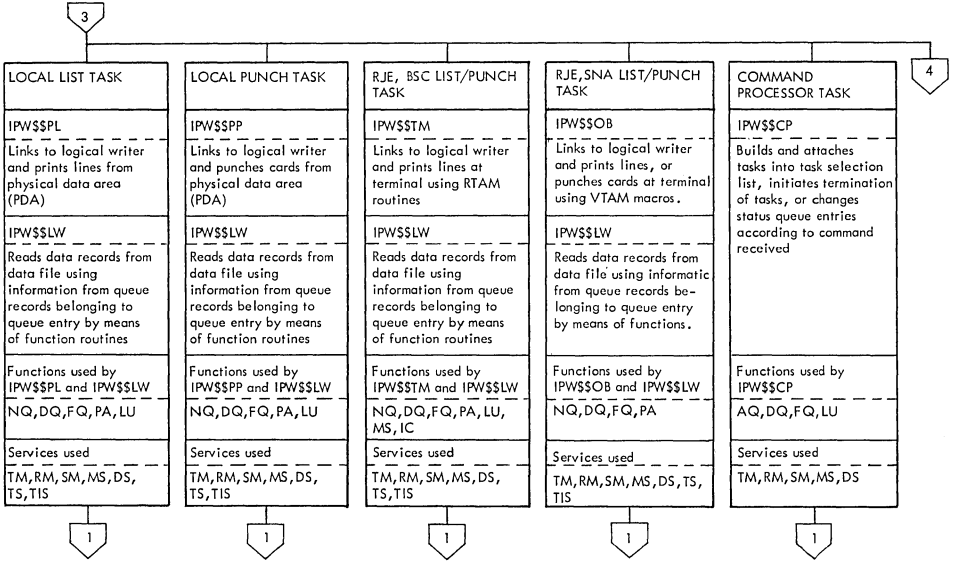
CLASS CHAIN AND QUEUE SET

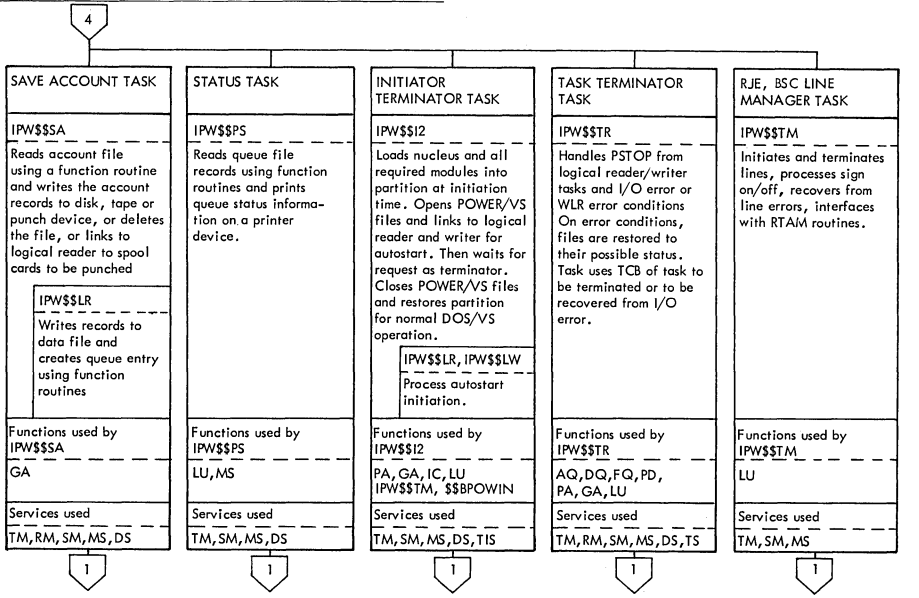


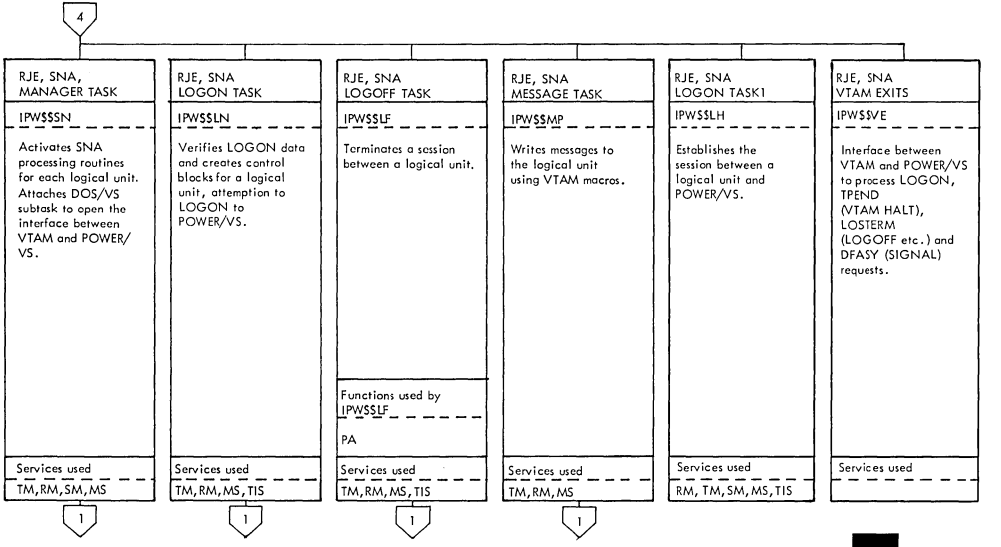
INTERFACES AND TASK STRUCTURES




2
LOCAL READER TASK
IPW$$PR or IPW$$ER
Reads cards into physical data area (PDA) and links to logical reader.
IPW$$LR
Writes data records to data file from logical record area (WALR) and creates queue entry by means of function routines.
Functions used by IPW$$PR, IPW$$ER and IPW$$LR
RQ,AQ,PD,DQ,FQ, PA,LU,SC,OE
Services used
TM,RM,SM,MS,DS,TIS
1
RJE, BSC READER TASK
IPW$$TM
Reads cards from terminal device (using RTAM routines) and links to logical reader.
IPW$$LR
Writes data records to data file from logical record area (WALR) and creates queue entry by means of function routines.
Functions used by IPW$$TM and IPW$$LR
RQ,AQ,PD,DQ,FQ, PA,LU,SC,IC,MS
Services used
TM,RM,SM,MS,DS,TIS
1
RJE, SNA READER TASK
IPW$$1B
Reads data from terminal devices using VTAM macros and links to logical reader. Writes data record to logical record area (WALR).
IPW$$LR
Writes data records to data file from logical record area (WALR) and creates queue entry by means of function routines.
Functions used by IPW$$1B and IPW$$LR
RQ,AQ,DQ,FQ,PD, PA,SC,IC
Services used
TM,RM,SM,MS, TIS
1
EXECUTION READER TASK
IPW$$XR
Emulates reader I/O requests from user program into read operations from data file.
Invokes execution list/punch writer task whenever list or punch I/O request to be emulated.
Functions used by IPW$$XR
GD,NQ,DQ,FQ,PA, XJ,SL
Services used
TM,RM,SM,MS,DS,VS
1
EXECUTION LIST/ PUNCH TASK
IPW$$XW
Emulates list I/O requests from user program into write operations to data file and creates a queue entry by means of function routines.
Functions used by IPW$$XW
RQ,AQ,PD, OT
Services used
TM,RM,SM,MS,DS,TS,
1


3
LOCAL LIST TASK
IPW$$PL
Links to logical writer and prints lines from physical data area (PDA)
IPW$$LW
Reads data records from data file using information from queue records belonging to queue entry by means of function routines
Functions used by IPW$$PL and IPW$$LW
NQ,DQ,FQ,PA,LU
Services used
TM,RM,SM,MS,DS, TS,TIS
LOCAL PUNCH TASK
IPW$$PP
Links to logical writer and punches cards from physical data area (PDA)
IPW$$LW
Reads data records from data file using information from queue records belonging to queue entry by means of function routines
Functions used by IPW$$PP and IPW$$LW
NQ,DQ,FQ,PA,LU
Services used
TM,RM,SM,MS,DS, TS,TIS
RJE, BSC LIST/PUNCH TASK
IPW$$TM
Links to logical writer and prints lines at terminal using RTAM routines
IPW$$LW
Reads data records from data file using information from queue records belonging to queue entry by means of function routines
Functions used by IPW$$TM and IPW$$LW
NQ,DQ,FQ,PA,LU, MS,IC
Services used
TM,RM,SM,MS,DS, TS,TIS
RJE,SNA LIST/PUNCH TASK
IPW$$OB
Links to logical writer and prints lines, or punches cards at terminal using VTAM macros.
IPW$$LW
Reads data records from data file using informatic from queue records belonging to queue entry by means of functions.
Functions used by IPW$$OB and IPW$$LW
NQ,DQ,FQ,PA
Services used
TM,RM,SM,MS,DS,TS, TIS
COMMAND PROCESSOR TASK
IPW$$CP
Builds and attaches tasks into task selection list, initiates termination of tasks, or changes status queue entries according to command received
Functions used by IPW$$CP
AQ,DQ,FQ,LU
Services used
TM,RM,SM,MS,DS
4
1
1
1
1
1


4
SAVE ACCOUNT TASK
IPW$$SA
Reads account file using a function routine and writes the account records to disk, tape or punch device, or deletes the file, or links to logical reader to spool cards to be punched
IPW$$LR
Writes records to data file and creates queue entry using function routines
Functions used by IPW$$SA
GA
Services used
TM,RM,SM,MS,DS
STATUS TASK
IPW$$PS
Reads queue file records using function routines and prints queue status information on a printer device.
Functions used by IPW$$PS
LU,MS
Services used
TM,SM,MS,DS
INITIATOR TERMINATOR TASK
IPW$$I2
Loads nucleus and all required modules into partition at initiation time. Opens POWER/VS files and links to logical reader and writer for autostart. Then waits for request as terminator. Closes POWER/VS files and restores partition for normal DOS/VS operation.
IPW$$LR, IPW$$LW
Process autostart initiation.
Functions used by IPW$$I2
PA,GA,IC,LU IPW$$TM, $$BPOWIN
Services used
TM,SM,MS,DS,TIS
TASK TERMINATOR TASK
IPW$$TR
Handles PSTOP from logical reader/writer tasks and I/O error or WLR error conditions On error conditions, files are restored to their possible status. Task uses TCB of task to be terminated or to be recovered from I/O error.
Functions used by IPW$$TR
AQ,DQ,FQ,PD, PA,GA,LU
Services used
TM,RM,SM,MS,DS,TS
RJE, BSC LINE MANAGER TASK
IPW$$TM
Initiates and terminates lines, processes sign on/off, recovers from line errors, interfaces with RTAM routines.
Functions used by IPW$$TM
LU
Services used
TM,SM,MS
1
1
1
1
1


4
RJE, SNA, MANAGER TASK
IPW$$SN
Activates SNA processing routines for each logical unit. Attaches DOS/VS subtask to open the interface between VTAM and POWER/VS.
Services used
TM,RM,SM,MS
1
RJE, SNA LOGON TASK
IPW$$LN
Verifies LOGON data and creates control blocks for a logical unit, attemption to LOGON to POWER/VS.
Services used
TM,RM,MS,TIS
1
RJE, SNA LOGOFF TASK
IPW$$LF
Terminates a session between a logical unit.
Functions used by IPW$$LF
PA
Services used
TM,RM,MS,TIS
1
RJE, SNA MESSAGE TASK
IPW$$MP
Writes messages to the logical unit using VTAM macros.
Services used
TM,RM,MS
1
RJE, SNA LOGON TASK1
IPW$$LH
Establishes the session between a logical unit and POWER/VS.
Services used
RM, TM,SM,MS,TIS
RJE, SNA VTAM EXITS
IPW$$VE
Interface between VTAM and POWER/VS to process LOGON, TPEND (VTAM HALT), LOSTERM (LOGOFF etc.) and DFASY (SIGNAL) requests.
Services used

POWER/VS OPERATOR COMMAND LANGUAGE (POCL)

POWER/VS provides an Operator Command Language (POCL) which allows the central system operator and the remote terminal operator to communicate with the system. Four types of command are provided.

- Task Management Commands allow the operator to initiate and terminate POWER/VS Tasks.

  Task management commands are only applicable to the RJE writer task. The reader task is started by the central operator when he brings up the line. Its operation is controlled by the system.

- Queue Management Commands allow the operator to display and modify the contents of POWER/VS Queue Entries.

  Queue management commands are only applicable to jobs that are submitted by or routed to the same remote ID as the one issuing the command.

- List control commands allow the operator to perform certain device-dependent operations on line printers.

Following table shows the abbreviated and extended command codes available to the central operator :

Type	Extended format	Abbreviated format	Function
Task management	PSTART	S	start a task or partition
	PSTOP	P	stop a task or partition
	PGO	G	activate a task or partition
	PEND *	–	end POWER/VS execution
	PCANCEL	C	cancel a POWER/VS status report
	PFLUSH	F	flush an active job entry
	PRESTART	T	restart a write task
Queue management	PDISPLAY	D	display a job status
	PALTER	A	alter attributes
	PDELETE	L	delete a job entry or a message
	PRELEASE	R	release a job entry
Miscellaneous	PBRDCST	B	transmit a message
	PINQUIRE	I	check terminal status
	PACCOUNT	J	process account file
	PSETUP	U	print page layout

* The one-character operation code for PEND(E), is not supported, since the operator might inadvertently end the execution of POWER/VS.

Task Management commands

Operation	Operand	Comments
{PSTART / S} (non-diskette)	{task, uraddr, [class] [,2] / task, uraddr, tapeaddr / partition [,[class], [auto-class], MT] / RJE, lineaddr [,password]}	task : RDR, LST, PUN or RJEline uraddr : Its format is either : cuu or X'cuu'. lineaddr : Its format is either : cuu or X'cuu'. tapeaddr : Its format is : X'cuu'. password : Any combination of up to eight alpha-numeric characters. class : The meaning of this parameter depends on the type of task to be started. For a write task, "class" defines the output class(es) upon which the task operates. Up to four classes can be designated by specifying one to four alphabetic characters from A through Z. The order specified is the order in which the classes will be processed. If no class parameter is specified, only class A is selected. For a read task, "class" defines the input class that is assigned to all jobs without a class specification in their * $$ JOB cards, when no CTL statement is in effect. It may be specified as an alpha-meric character from A through Z or from 0 through 4. If no class parameter is specified, class defaults to A.
{PSTART / S} (diskette data-mode processing)	RDR, uraddr1, class2, uraddr 2	
{PSTART / S} (diskette sysin-mode processing)	RDR, uraddr 2 [,class] [,file-id] [, 1 / , number-of-diskettes] [,S] [,V]	

Task Management commands (...continued)

Operation	Operand	Comments
PSTART, S (c'ntd)		class : For a partition, "class" (c'ntd) defines the input class(es) that can be executed in this partition. Up to four classes can be designated by specifying one to four alphameric characters from A through Z or from 0 through 4. The order specified is the order in which the classes will be executed. If no class is specified, only job entries with matching partition-type (0-4) input class are selected partition : BG, F1 through Fn. uraddr 1 : physical device address of cardreader in form X'cuu' or cuu uraddr 2: physical device address of 3540 diskette in form X'cuu' or cuu. file-id : File name as in HDR 1 label of the diskette. Can be specified with or without quotes. Blank characters are only allowed when filename specified within quotes. number-of-diskettes : Can be one to three digits, allowed values from 1 to 255 S : Volume sequence checking. Sequence numbers must start with 1 and be incremented by 1. When omitted, no checking will take place. V: File verification. When omitted, verify field in HDR1 label is ignored.

Task Management commands (...Continued)

Operation	Operand	Comments
{PSTOP / P}	{uraddr [,EOJ / ,RESTART] / partition / lineaddr [,EOJ] / RJE,SNA,Luname [,EOJ]}	uraddr : Format is : cuu or X'cuu'. RESTART: Applies only to output processing. partition : BG, F1 through Fn. lineaddr : Its format is either: cuu or X'cuu'.
{PGO / G}	{uraddr / partition, cuu}	uraddr : Its format is either cuu or X'cuu' partition, cuu : specifies the partition and unit record device address whose output is being spooled to tape.
PEND	[uraddr / KILL [,uraddr]]	uraddr : Its format is either cuu or X'cuu'. KILL : Terminates POWER/VS immediately. Partitions supported by POWER/VS are also cancelled.
{PCANCEL / C}	[STATUS]	STATUS : A confirmation message is issued.
{PFLUSH / F}	{uraddr [,HOLD] / partition [,HOLD]}	uraddr : Its format is either cuu or X'cuu'. HOLD : specifies that the corresponding job entry is not to be deleted, but put in the hold state. partition : BG, F1 through Fn.
{PRESTART / T}	uraddr [,n]	uraddr : Its format is either cuu or X'cuu' n : signed or unsigned value from 0 to 9999.

Queue Management commands

Operation	Operand	Comments
{PALTER / A}	queue, {jobname [,jobnumber] / ALL / *abc / class 1} [,PRI = priority] [,DISP = disposition] [,CLASS = class 2] [,COPY = number of copies] [,REMOTE = remid] [,CMPACT = name|no|*]	queue : LST, PUN or RDR jobname : can be 2 to 8 characters jobnumber : may be 1 to 5 digits long. *abc : requests to alter all job entries that have the first n characters of their jobnames in common. "abc" represents any combination of from one to seven alphameric characters. class 1: specifies class of job entries to be altered. Can be any alphabetic charcater (A-Z) and for input classes also from 0-4. priority : A single digit from 0 to 9. Nine is the highest priority. disposition : can be H,K,L or D. class 2: any alphabetic character (A-Z). Also,specifications from 0 through 4 are allowed for input classes. number of copies : can be from 0 to 99. remid : can be specified as any number from 0 to 200. '0' indicates the central location. name: specifies the name of the compaction table. no: no compaction is to be performed. * : the default compaction table is to be used (as specified in the PRMT Macro).

Queue Management commands (continued)

Operation	Operand	Comments
{PDELETE / L}	queue,jobname [,jobnumber] queue, ALL queue, class queue,*abc MSG [,n]	queue : LST, PUN or RDR. jobname:Can be 2 to 8 alphameric characters. jobnumber : Can be 1 to 5 digits long *abc : All job entries with the same first n charcater, are to be deleted. "abc" represents any combination of up to seven alphameric characters. MSG, n : ALL USERS-type message number n is to be deleted.
{PDISPLAY / D}	queue, jobname [,jobnumber] queue [,ALL] queue, HOLD queue, FREE queue, RJE [,remid] queue, LOCAL queue, *abc queue, class ALL [,listaddr] HOLD FREE RJE [,remid] LOCAL *abc MSG A M Q T	queue : LST, PUN or RDR jobname : Can be 2 to 8 characters. jobnumber : Can be 2 to 5 digits ALL : If queue parameter is not specified, status information on all entries in all queues is displayed on SYSLOG. listaddr : Its format is : cuu or X'cuu'. class : Can be specified as a character from A through Z or from 0 to 4 (input class only). *abc : specifies a request for the status of all job entries having the first n characters of their jobnames in common."abc" represents any combination of from one to seven alphameric characters. If the queue parameter is not specified, status information is displayed for all queues.
{PRELEASE / R}	queue, jobname [,jobnumber] queue [,ALL] queue, class queue, *abc	queue : LST, PUN or RDR. jobname : Can be 2 to 8 alphameric characters. jobnumber : Can be 1 to 5 digits long. *abc : all job entries with the same first n characters are to be released. "abc" represents any combination of up to seven alphameric characters. All: all jobs in H disposition will be released.

Miscellaneous commands

Operation	Operand	Comments
{PINQUIRE / I}	[luname / lineaddr / ALL]	luname: Name of a SNA logical unit. lineaddr : Its format is : cuu or X'cuu' ALL : Status of all supported lines are to be displayed
{PBRDCST / B}	{remid / ALLUSERS , 'text'}	remid : Can be from 1 to 200. A specification of ALLUSERS indicates all users. 'text': Can be 1 to max. characters. max.: 46 char. for ALLUSERS 49 char. for host to terminal 60 char. for terminal to host.
{PACCOUNT / J}	[tapeaddr[,filename] / DISK, filename / DEL]	If no operands specified, the account file is spooled to disk. tapeaddr : Can be : cuu X'cuu' cuu,ss X'cuu'ss cuu'X'ss X'cuu',X'ss' filename : If specified, the file created will be a standard labeled tape file. May be 1 to 8 alphameric characters long. DISK,filename : "filename" is 1 to 8 alphameric characters long
PSETUP	uraddr [,n]	uraddr : Its format is : cuu or X'cuu' n : one or two digits that specify the number of pages to be printed.

POWER/VS REMOTE OPERATOR COMMAND LANGUAGE (ROCL)

There are four types of commands :

- Terminal Control Commands allow the remote operator to initiate and terminate POWER/VS RJE tasks.
- Task Management Commands allow the operator to initiate and terminate POWER/VS Tasks.
- Queue Management Commands allow the operator to display and modify the contents of POWER/VS Queue Entries.
- List Control Commands allow the operator to perform certain device-dependent operations on line printers.

The following table includes all valid commands.

Type	Command	Function
Terminal control	LOGON	start an RJE,SNA user session
	* . . SIGNON	start an RJE,BSC user session
	* . . SIGNOFF	terminate an RJE,BSC or RJE, SNA user session
	LOGOFF	terminate an RJE, SNA user session
Task management	* . . START	start a writer task or message queuing
	* . . STOP	stop a writer task or message queuing
	* . . GO	re-activate a writer task
	* . . FLUSH	flush an activate job
	* . . RESTART	restart a writer task
Queue management	* . . DISPLAY	display a job status
	* . . ALTER	alter job attributes
	* . . DELETE	delete a job or message
	* . . RELEASE	release a job
	* . . BRDCST	transmit a message
List control	* . . SETUP	print page layout

Commands entered from a card reader must be submitted outside POWER/VS job boundaries otherwise they are treated a user data.
Format of RJE/BSC and RJE,SNA commands when entered from a card reader :

1. Identification field. Contains an *in column 1, blank in column 2, and . . (periods) in colums 3 and 4. Column 5 must be blank.
2. Operation field. Specifies the RJE command. At least one blank must separate this field from the following field.
3. Operand field. Contains one or more parameters, separated by commas. At least one blank must separate the operand field and the comments field.

4. Comments field. May contain any information considered helpful by the user. Continuation of the comments field is not allowed.

   The operation field, operand field, and comments field must be contained in columns 6 through 71. Column 72 must be blank.

5. Sequence field. Sequence numbers are useful when a number of commands with the same operation code are submitted from a terminal. Columns 73 - 80 are returned in diagnostic messages.

Notes :

1. When entered from an SNA terminal keyboard, the POWER/VS RJE terminal commands must be specified without the identification field (*..).

2. The short format of the POWER/VS RJE terminal commands may also be used by BSC-RJE, but must be preceeded by the ID field (*..).

Operation	Operand	Comments
LOGON	APPLID (POWER) LOGMODE (name) DATA'remid' [,password] [,user information]	APPLID (POWER) Enter as such LOGMODE (name) = name of an entry in the VTAM logon mode table defined at VTAM generation DATA'remid' = 1 through 200 password = up to 8 alphameric characters user information = up to 16 bytes
*..SIGNON	remid [,password] [,user information] (Only supported for SNA users if generated in VTAM. The parameter fields must be preceded and followed by a single quotation mark and kept in brackets)	remid : Remote users are identified by numbers from 1 to 200 password : Can be any combination of up to eight alphameric characters user information : Up to 16 bytes of user information, punched in columns 56 to 71.
* .. SIGNOFF	(No operand)	terminates a session by the remote BSC or SNA user.
LOGOFF	APPLID (POWER) TYPE [UNCOND] [COND]	APPLID(POWER) Enter as such TYPE (COND) Enter as such TYPE (UNCOND) Enter as such

Task management commands

Operation	Operands	Comments
* .. START * .. S	task task, class MSG	task : LST or PUN class : Up to four classes can be designated by specifying one to four alphabetic characters from A through Z. MSG : specifies that all subsequent broadcast messages directed to this terminal are to be accepted.
* .. STOP * .. P	task task, EOJ task, RESTART MSG	task : LST or PUN. EOJ : Stop until current entry has completed processing. RESTART : When the task is started again, processing will begin at the record following the last one processed before the STOP comment was issued. MSG : All subsequent broadcast messages directed to the terminal are to be ignored.
* .. GO * .. G	task	task : LST or PUN
* .. FLUSH * .. F	task task, HOLD	task : LST or PUN
* .. RESTART * .. T	task task, n	task : LST or PUN n : Signed or unsigned value from 0 to 9999.

Queue Management commands

Operation	Operands	Comments
* .. DISPLAY * .. D	queue, jobname [,jobnummer] queue [,ALL] queue, HOLD queue, FREE queue, *abc queue, class ALL HOLD FREE *abc MSG T	queue : LST, PUN or RDR jobname : Can be two to eight alphameric characters jobnumber : One to five digits long. class : Can be specified as an alphameric charcater from A through Z, or from 0 to 4. *abc : Requests the status of all entries having the first n characters of their jobnames in common. T : The time, date, the number of storage pages fixed and the number of tasks.

Queue Management commands (continued)

Operation	Operands	Comments
{* .. DISPLAY * .. D (continued)}		"abc" represents any combination of from one to seven characters. If the queue parameter is not specified, status information is displayed for all queues. MSG : Requests the display of all ALLUSERS-type messages that have been entered, together with their originators and all operator messages routed specifically to this remote-id. Operator messages are automatically deleted when they are displayed.
{* .. ALTER * .. A}	queue{jobname [,jobnumber] ALL *abc class1} [,PRI=priority] [,DISP=disposition] [,CLASS=class 2] [,COPY=number-of-copies] [,REMOTE=remid]	queue : LST, PUN or RDR. jobname : Can be two to eight alphameric characters. jobnumber : May be one to five digits long. priority : Specified as a single digit from 0 to 9. Nine is the highest priority. disposition : Can be specified as H, K, L, or D. class 1 : class of which all job entries are to be altered class 2 : can be specified as any alphabetic character from A through Z. Also, specifications from 0 through 4 are allowed for input classes. remid : can be specified as any number from 0 to 200. "0" indicates the central location. Only the "to" remote-id can be modified with an ALTER command; the "from" remote-id cannot be modified.

Queue Management commands (continued)

Operation	Operands	Comments
{* .. DELETE * .. D}	[queue, jobname[, jobnumber] queue, ALL queue, class queue, *abc MSG[,n]]	queue : LST, PUN or RDR. jobname : Can be two to eight alphameric characters. jobnumber : The jobnumber is from one to five digits long. The DISPLAY command can be used to obtain the jobnumber. *abc: All job entries with the same first n characters are to be deleted. "abc" represents any combination of up to seven alphameric characters. MSG,n: "n" is the message number. If n is omitted, all ALLUSERS-type messages that were entered from this remote-id are deleted.
{* .. RELEASE * .. R}	[queue, jobname[, jobnumber] queue [,ALL] queue, class queue, *abc]	queue : LST, PUN or RDR jobname : Can be two to eight alphameric characters. jobnumber : The jobnumber is one to five digits long. *abc : All job entries with the same first n characters are to be released. "abc" represents any combination of up to seven alphameric characters. ALL: All jobs in H-disposition will be released.

Miscellaneous commands

Operation	Operands	Comments
{* .. BRDCST * .. B}	remid, 'text'	remid : Remote users can be identified by numbers from 1 to 200. A specification of 0 indicates the central location, and a specification of ALLUSERS indicates all users. 'text': The message can consist of from 1 to 40 characters enclosed in single quotation marks. A single quotation mark within the message must be written as two quotation marks. (49 for SNA users)
{* .. SETUP * .. U}	LST [,n]	n : one or two digits that specify the number of pages to be printed.

POWER/VS JOB ENTRY CONTROL LANGUAGE (JECL)

The following table shows the JECL statements and their functions :

JECL Statement	Function
* $$ CTL	Specifies a default input class
* $$ JOB	Indicates the beginning of a POWER/VS job and provides handling information
* $$ EOJ	Indicates the end of a POWER/VS job
* $$ RDR	Inserts a diskette file into the input stream
* $$ LST/ * $$ PRT	Provides handling information for printed output
* $$ PUN	Provides handling information for punched output
* $$ SLI	Inserts data from a sublibrary into the job stream
* $$ /*	Used in a source statement library book to indicate the end of a DOS/VS job step (used for the SLI statement only)
* $$ /&	Used in a source statement library book to indicate the end of a DOS/VS job (used for the SLI statement only)
* $$ DATA	Inserts data into a book retrieved from a source statement library.

Each JECL statement consists of the following fields.

1. Identification field. Contains the characters * $$ (asterisk-blank-dollar-dollar) in columns 1 through 4.

2. Operation field. Specifies the JECL operation. It can directly follow the second dollar sign or be separated from the second dollar sign by one or more blanks. At least one blank must be placed between the operation field and the operand field.

3. Operand field. Contains one or more keyword or positional parameters, separated by commas. Keyword and positional parameters cannot be mixed within one statement.

4. Comments field. Can contain any information considered helpful by the user.

5. Sequence field. Contains up to eight characters of optional information used for control statement identification. If present, the sequence field is positionally dependent and must be coded starting in column 73.

Operation	Operand	Comments
*$$ CTL	CLASS = {A / Class}	Class : Can be specified as an alphameric character from A-Z or 0-4.
	keyword form :	
*$$ JOB	[JNM = {AUTONAME / jobname}] [,DISP = {D / disposition}] [,PRI = priority] [,CLASS = class] [,USER = user-information]	jobname : A JECL jobname specification can be from 1 to 8 alphameric characters, beginning with an alphabetic character. dispostion : D, H, K or L. priority : It is specified as a single digit from 0 to 9. Nine is the highest priority. class : It can be specified as an alphameric character from A-Z or 0-4. user-information : Up to 16 bytes of user information can be specified, within quotes.
	positional form	
*$$ JOB	[AUTONAME / jobname] ,[D / disposition] ,[priority] ,[class]	
*$$ EOJ	(no operand)	indicates the end of a POWER/VS job.
	keyword form :	
* $$ RDR	DEV = phys. unit number [,FEED=NO / YES] [,FID = file-id] [,NOD = 1 / number of diskettes] [,VSC = NO / YES] [,VER = NO / YES]	Physical-unit number : Parameter is used for Data-mode processing. Omitted for SYSIN-processing. Identifies the physical unit number of the diskette either in the form X'cuu' or cuu. FEED: Optional feed and eject of diskette at EOF. File id : Specific file name as appears in the HDR1 label on the diskette. Can be one to eight alphameric characters between quotes. Number of diskettes : One to three digits can be specified. VSC : Volume sequence numbers must start with 1. S : same as for VSC.
	positional form :	
* $$ RDR	Physical unit-number ,['file-id'] ,[1 / number of diskettes] ,[S]	

Operation	Operand	Comments
keyword form :		
* $$ {LST / PRT}	[DISP={D / disposition}]	disposition : D,H,K,L,N or T.
	[,CLASS={A / class}]	remid : Can be a number from 0 to 200. (0 is central installation.)
	[,REMOTE=remid]	forms-number : Can be one to four alphameric characters long.
	[,FNO={////// / forms-number}]	sep : Can be 0 to 9.
	[,JSEP=sep]	number-of-copies : Can be one or two digits long
	[,COPY={1 / number-of-copies}]	tapeaddr : Can be cuu (Note) X'cuu' cuu,X'ss' X'cuu',X'ss' cuu,ss X'cuu',ss
	[,RBM= (norbm 1, norbm 2)]	norbm 1 : This paramater is one to six digits long.
	[,LTAB = linetab]	norbm 2 : The number is one to six digits long.
	[,RBS=norbs]	linetab : This parameter is 26 digits long ; each subparameter is two digits. The format of linetab is : d0,d1,d2, ... d12
	[,UCS=(phasename[,option])]	
	[,FCB=phasename]	
	[,LST=listaddr]	
	[,TADDR=tapeaddr]	
	[,CMPACT=name/no]	
positional form:		
* $$ {LST / PRT}	[D / disposition [A / class]]	norbs : This parameter can be one to six digits long. A zero means that no segmentation will take place.
	[,[////// / forms-number]]	phasename : The format of the parameter is (phasename,option), where "option" can be specified as F, C, CF, or FC.
	[,[1 / number-of-copies / (tapeaddr)]]	listaddr : The address can be either in the form SYSxxx, where xxx is LST or any valid programmer logical un unit ; or in the form cuu (or X'cuu').
	[,norbm 1]	name: specifies the name of the compaction table.
	[,linetab]	

Note : The only acceptable form for positional (cuu).

Operation	Operand	Comments
	keyword form :	
* $$ PUN	[DISP = {D / disposition}] [,CLASS = {A / class}] [,REMOTE = remid] [,FNO={ffff / forms-number}] [,JSEP=sep] [,COPY={1 / number-of-copies}] [,TADDR=(tapeaddr)] [,RBM=(norbm 1,norbm 2)] [,PUN=punaddr] [,RBS=norbs] [,CMPACT=name|no]	disposition : D,H,I,K,L, N or T. class : Can be specified as any alphabetic character. remid : Can be a number from 0 to 200. Numbers 1 to 200 are specific remote users. If remid is 0, punch output is directed to the central installation. forms-number : One to four alphameric characters long. sep : Number of job separator cards (0 to 9). number-of-copies : One or two digits long. tapeaddr : Format : cuu (Note) X'cuu' cuu,X'ss' X'cuu',X'ss' cuu,ss X'cuu',ss. norbm 1 : One to six digits long. norbm 2 : One to six digits long. punaddr : The address can be either in the form SYSxxx where xxx is PCH or any valid programmer logical unit ; or in the form cuu (or X'cuu'). norbs : Can be one to six digits long. A zero means that no segmentation will take place. name: specifies the name of the compaction table.
	positional form :	
* $$ PUN	[D / disposition [A / class]] ,[ffff / forms-number] ,[1 / number-of-copies (tapeaddr)] ,[norbm 1]	
*$$ SLI	[sublid.] bookname	At execution time, the *$$ SLI (source library inclusion) statement causes the private and system source libraries to be searched for a book, which, when found, is inserted into the job stream.

Note : The only acceptable form for positional (cuu).

Operation	Operand	Comments
* $$ /*	(no operand)	indicates end of job step
* $$ /&	(no operand)	indicates end of job.
* $$ DATA	name	name : can be from one to eight alphameric characters, the first character must be alphabetic.

CONTROL ADDRESS TABLE (CAT)

Included by definition macro IPWS$DPA for the permanent area.

This table consists of a set of tables, addresses and constants in the permanent area of the POWER/VS partition, used to link the component routines of the POWER/VS subsystem during execution.

Bytes		Description/function of field
Dec	Hex	
		Control address table
00-15	00-0F	Storage descriptor (CAT)
16-19	10-13	POWER/VS master ECB
20-23	14-17	Start address POWER/VS partition
24-27	18-1B	Start address fixable area
28-31	1C-1F	Start address pageable area
32-35	20-23	End address POWER/VS partition + 1
36-39	24-27	Start address LTA
40-43	28-2B	End address LTA +1
44-47	2C-2F	Address of POWER/VS PIB
		Relocation constant
48-51	30-33	Relocation constant used by initiator to calculate the relocation factor for addresses in the following tables. (To enable POWER/VS to be loaded in any partition.) Value = X'170'.
		External interface addresses
52-55	34-37	Attention interface
56-59	38-3B	Page fault appendage
60-63	3C-3F	Hot reader routine
64-67	40-43	RJE CE appendage
68-71	44-47	SVC 0 appendage
72-75	48-4B	SVC 90/91 appendage
		Spool management cross-partition XECB information
		Internal reader cross-partition XECB
76-79	4C-4F	Internal reader XECB
80-80	50-50	Internal RDR user's PIK/TIK
81-83	51-53	XECBTAB ADDR of ICR XECB
		Spool/command manager cross-partition XECB
84-87	54-57	Spool/command MGR XECB
88-88	58-58	Spool/command MGR user's PIK/TIK
89-91	59-5B	XECBTAB ADDR of SPM XECB
		selecting the internal RDR task and/or the spool/command manager LST task

CONTROL ADDRESS TABLE (CAT) (...Continued)

Bytes		Description/function of field
Dec	Hex	
92-95	5C-5F	ADDR POWER'S internal reader XECB
96-99	60-63	ADDR POWER'S spool/command MGR XBCB
100-100	64-64	WAITM list delimiter
101-103	65-67	Reserved
		Resource control block addresses. These addresses are collectively referenced by label CAFR.
104-107	68-6B	Disk management block.
108-111	6C-6F	Account control block
112-115	70-73	Storage control block
116-119	74-77	Message control block (local)
120-123	78-7B	Message control block (remote)
124-127	7C-7F	SNA control block address
128-131	80-83	General purpose work area
		Module control block address table The addresses in this table are used by the disk services and are established when the POWER/VS disk files are opened at system start-up time.
132-135	84-87	Accounting module
136-139	88-8B	MCB queue file
140-143	8C-8F	MCB data file module 1
144-147	90-93	MCB data file module 2
148-151	94-97	MCB data file module 3
152-155	98-9B	MCB data file module 4
156-159	9C-9F	MCB data file module 5
160-163	A0-A3	MCB private SSL
164-167	A4-A7	MCB system SSL
		Task state values and addresses of state processing routines. These constants are used by the task management macro instructions to set values within the task selection fields of the task control blocks (except TMCW).
168-171	A8-AB	The task is inactive, task not selected Branch to TM10
172-175	AC-AF	Page fault in process, task not selected Branch to TM10
176-179	B0-B3	Wait for operator, task not selected Branch to TM10
180-183	B4-B7	Wait on locked resource, test lockword Branch to TM30

CONTROL ADDRESS TABLE (CAT) (Continued)

Bytes		Description/function of field
Dec	Hex	
184-187	B8-BB	Wait on LTA/PTA, test control blocks Branch to TM55
188-191	BC-BF	Wait on multiple posting, test control blocks Branch to TM50
192-195	C0-C3	Wait on class table posting, test control blocks Branch to TM50
196-199	C4-C7	Wait on single posting, test control blocks Branch to TM80
200-203	C8-CB	Wait on space posting, test control blocks Branch to TM80
204-207	CC-CF	Immediate dispatch, dispatch the task Branch to TM90
208-211	D0-D3	Wait state. Used for WCB only. Wait routine. Branch to TM20.
212-215	D4-D7	The task is running, no selection address
		Permanent TCB addresses
216-219	D8-DB	Wait control block
220-223	DC-DF	command processor TCB
224-227	E0-E3	Initialization/termination TCB
228-231	E4-E7	Line manager TCB
232-235	E8-EB	Spool manager TCB address
		Task control address table
236-239	0EC-0EF	Task identifying prefix (L) and the address of the TCB of the line manager (or of the wait control block if the line manager is not present)
240-243	0F0-0F3	Task identify prefix and address of most recently attached spool management TCB
244-247	0F4-0F7	Task identifying prefix (O) and the address of the TCB of the most recently attached auxiliary command processor (or of the permanent command processor if no auxiliary command processor presently exists).
248-251	0F8-0FB	Task identifying prefix (X) and the address of the TCB of the most recently attached remote (RJE) reader/writer.
252-255	0FC-0FF	Task identifying prefix (W) and the address of the TCB of the most recently attached local writer task.
256-259	100-103	Task identifying prefix (E) and the address of the TCB of the most recently attached execution processor task.
260-263	104-107	Task identifying prefix (R) and the address of the TCB of the most recently attached reader task.
264-267	108-10B	X'FF000000' (list delimiter)

CONTROL ADDRESS TABLE (CAT) (...Continued)

Bytes		Description/function of field
Dec	Hex	
		Module load addresses (listed as loaded in the pageable area). The first module is referenced by label CAFM. The number of modules is referenced by label CANM. The number of SNA modules is referenced by label CANS.
		Command processor module
268-271	10C-10F	Command processor
		Reader task modules
272-275	110-113	Physical reader
276-279	114-117	Put data record function
280-283	118-11B	Logical reader
284-287	11C-11F	Scan and check parameter function
		Writer task modules
288-291	120-123	Physical list
292-295	124-127	Get data record function
296-299	128-12B	Logical writer
300-303	12C-12F	Physical punch
		Execution processor modules
304-307	130-133	Execution reader
308-311	134-137	Get data record function (copy 2)
312-315	138-13B	Execution writer
316-319	13C-13F	Put data record function (copy 2)
320-323	140-143	JECL analysis
		Queue management modules
324-327	144-147	Reserve queue function
328-331	148-14B	Add to queue function
332-335	14C-14F	Get next from queue function
336-339	150-153	Delete from queue function
340-343	154-157	Free queue function
		Miscellaneous modules
344-347	158-15B	LUB/PUB update function
348-351	15C-15F	Print queue status report
352-355	160-163	Invoke command processor function

CONTROL ADDRESS TABLE (CAT) (...Continued)

Bytes		Description/function of field
Dec	Hex	
356-359	164-167	Open tape routine
360-363	168-16B	Task terminator
364-367	16C-16F	3540 Physical reader
368-371	170-173	3540 Open routine
372-375	174-177	Message handler
376-379	178-17B	Spool manager
		The following modules are optional
		Remote job entry BSC module
380-383	17C-17F	Remote job entry
		Reader exit module
384-387	180-183	User reader exit routine
		Accounting modules
388-391	184-187	Put account function
392-395	188-18B	Get account function
396-399	18C-18F	Save account function
		Source library include module
400-403	190-193	Get SSL function
		Remote job entry SNA modules
404-407	194-197	SNA manager
408-411	198-19B	SNA logoff processor
412-415	19C-19F	SNA message processor
416-419	1A0-1A3	SNA message definition
420-423	1A4-1A7	SNA inbound processor
424-427	1A8-1AB	SNA outbound processor
428-431	1AC-1AF	SNA VTAM Exit
432-435	1B0-1B3	SNA LOGON processor 1-IPW$$LH
436-439	1B4-1B7	SNA LOGON processor 2-IPW$$LN
440-447	1B8-1BF	Reserved
		Service routine branch table. The branch instructions are used to transfer control from service routine macro instructions to the appropriate service code.
448-451	1C0-1C3	Attach task
452-455	1C4-1C7	Detach task

CONTROL ADDRESS TABLE (CAT) (...Continued)

Bytes		Description/function of field
Dec	Hex	
456-459	1CB-1CB	Task selection
460-463	1CC-1CF	Initial task entry
464-467	1D0-1D3	Reserve resource
468-471	1D4-1D7	Release resource
472-475	1D8-1DB	Reserve work space
476-479	1DC-1DF	Release work space
480-463	1E0-1E3	Message service (local)
484-487	1E4-1E7	Message service (remote)
488-491	1E8-1D8	Set write command code
492-495	1EC-1EF	Disk service
496-499	1F0-1F3	Set read command code
500-503	1F4-1F7	Disk service
504-507	1F8-1FB	Tape service
508-511	1FC-1FF	Timer service
512-515	200-203	Validation service
		Block length table The table is used by the IPW$RSW macro instruction to identify the size of work space required to accomodate certain control blocks.
516-519	204-207	Data buffer - set by INIT (amount of storage required to accomodate the data block)
520-523	208-20B	Data block - set by INIT (size of record written to disk)
		Miscellaneous non-relocatable constants
524-527	20C-20F	Line control block address
528-531	210-213	BSC, RJE lockword
		Statistical information
532-533	214-215	Highest BSC remote ID
534-535	216-217	Number of BSC lines
536-539	218-21B	Total number of queue records
540-543	21C-21F	Number of free queue records
544-547	220-223	Maximum number of queue records used
548-551	224-227	Total number of tracks data file
552-555	228-22B	Number of times waiting for storage
556-559	22C-22F	Total number of pages allocated
560-563	230-233	Current number of pages allocated
564-567	234-237	Maximum number of pages allocated
568-571	23B-23B	Current number of tasks
572-575	23C-23F	Maximum number of tasks

CONTROL ADDRESS TABLE (CAT) (...Continued)

Bytes		Description/function of field
Dec	Hex	
		constants
576-579	240-243	F'1'
580-583	244-247	F'4'
584-587	248-24B	F'8'
588-591	24C-24F	F'10'
592-595	250-253	F'24'
		Translation tables
596-851	254-353	This table is used to scan sequences of blank characters for the first non-blank character and also as a source of blank characters for various program purposes.
852-1107	354-453	This table is used to scan sequences of non-blank characters for the first blank character and also as a source of zero characters for various program purposes.

WAIT CONTROL BLOCK (WCB)

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (WCB)
16-19	10-13	Reserved
20-23	14-17	Address of TCB belonging to task with highest priority in TSL
24-27	18-1B	Page fault request word - always zero
28-31	1C-1F	Task selection field Byte 0 : X'E6' Byte 1-3 : Address of routine that tests if a POWER/VS event is posted in main ECB. If no event, it places the POWER/VS partition in wait state by issuing an SVC 7 to DOS/VS supervisor.

How to Locate : Displacement X'D8-DB' of the CAT contains a pointer to the WCB.

STORAGE CONTROL BLOCK (SCB)

Definition macro : IPW$DSC

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (SCB)
16-19	10-13	Last permanent page
20-23	14-17	First fixed page
24-27	18-1B	Event control block
28-31	1C-1F	Lockword
32-35	20-23	Task register 14 ①
36-39	24-27	Task register 15 ①
40-43	28-2B	Task register 0 ①
44-47	2C-2F	Task register 1 ①
48-51	30-33	Task register 2 ①
52-55	34-37	Task register 3 ①
56-59	38-3B	Task register 4 ①
60-63	3C-3F	Task register 5 ①
64-127	40-7F	Storage assignment table ②
128-135	80-87	Constant to initialize the first BCW (see Figure 5.21) in a new fixed page in the fixable area.
136-143	88-8F	Constant to initialize the last BCW in a new fixed page in the fixable area (see Figure 5.21)
		Page fix/free work area ③
144-147	90-93	Page virtual address ③
148-151	94-97	Page length (-1) ③
152-155	98-9B	End-of-list indicator (X'FF000000')
156-159	9C-9F	Reserved

① Since the storage management routines are used to provide register save areas for task use, the storage control block must contain a register save area for use by the storage management routines.

② The storage assignment table is like a map of the fixable area within the POWER/VS address space in which each page control byte represents a single page of address space. Each byte within the table takes one of four values.

X'00' Page free (and not last page)
X'40' Page free (and last page)
X'80' Page in use (but not last page)
X'C0' Page in use (and last page)

STORAGE CONTROL BLOCK (SCB) (..Continued)

The storage assignment table is defined with all pages free and is properly initialized by the POWER/VS start-up routines to reflect the amount of real storage available to the POWER/VS partition at that time.

③ Three fullwords used as a work are by the page-fix and page-free routines. The first word is used to contain the address of the first byte of the page to be fixed or freed; the second word contains binary 2047 (page size minus one) ; and the third word contains X'FF' in its high-order byte to act as a list terminator.

How to Locate : Displacement X'70-73' of CAT contains a pointer to the SCB.

MESSAGE CONTROL BLOCK (MMB)

Definition macro : IPW$DMM

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (MMB)
16-23	10-17	Work Area
24-27	18-1B	Reserved
28-31	1C-1F	Lockword
		Register save area
32-35	20-23	Saved register 14
36-39	24-27	Saved register 15
40-43	28-2B	Saved register 0
44-47	2C-2F	Saved register 1
48-51	30-33	Saved register 2
52-55	34-37	Saved register 3
56-59	38-3B	Saved register 4
60-63	3C-3F	Saved register 5
64-67	40-43	Saved register 6
68-71	44-47	Saved register 7
72-75	48-4B	Saved register 8
76-79	4C-4F	Saved register 9
		CCB
80-81	50-51	Residual count
82-83	52-53	Communication bytes
84-85	54-55	Status bytes
86-87	56-57	LUB identifier
88	58	Flags
89-91	59-5B	Channel program address
92-95	5C-5F	DOS/VS internal use
		Channel program
96-103	60-67	Write CCW
104-111	68-6F	Read CCW
112-183	70-B7	Message output area
184-255	B8-FF	Reply input area
256-263	100-107	Reserved

How to locate : Displacement X'74-77' of the CAT contains a pointer to the MMB.

DISK MANAGEMENT BLOCK (DMB)

Definition macro : IPW$DQC

The disk management block area is used to control access to the POWER/VS queue file. It is located in the permanent area of the POWER/VS partition.

The disk management block is divided into the following areas :

- Resource control fields
- File control fields
- Record control fields
- Master record area
- Auxiliary account record area
- Auxiliary queue record area
- Master class table area .

Detailed Description of Fields :

Bytes		Description/function of field
Dec	Hex	
		Resource control fields They are used to manage the resources contained within the DMB
00-15	00-0F	Storage descriptor (DMB)
16-23	10-17	Reserved
24-27	18-1B	Event control block
28-31	1C-1F	Lockword
		File control fields They contain parameters relating to queue file, data file, and, if used, private and system SSL
32-35	20-23	Number of records/track queue file (1)
36-39	24-27	Number of tracks/cylinder queue file (2)
40-87	28-57	Queue file sector table
88-95	58-5F	Reserved
96-99	50-63	Number of records/track data file (1)
100-103	64-67	Number of tracks/cylinder data file (2)
104-135	68-87	Track group control table
136-167	88-A7	Data file sector table
168-171	A8-AB	Number of records/track SSL (1)
172-175	AC-AF	Number of tracks/cylinder SSL (2)
176-223	B0-DF	SSL sector table

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
		Record control fields They contain information used to read and write records to and from the master record area and auxiliary queue record area.
224-231	E0-E7	Master record seek address (MBBCCHHR)
232-235	E8-E3	Real master area address
236-239	EC-EF	Virtual master area address
240-247	F0-F7	Queue record seek address (MBBCCHHR)
248-251	F8-FB	Real auxiliary queue record area address
252-255	FC-FF	Virtual queue record area address
		Master record area The master record is written as the first physical record within the queue file extent. During POWER/VS execution a copy of the master record is maintained in this area. Whenever this copy is updated a replacement master record is at once written to the queue file so that, in the event of a failure of the system, warm start information can be recovered from the direct access device in question.
256-263	100-107	Date These eight bytes contain the date of POWER/VS execution in the format chosen at system generation (dd/mm/yy or mm/dd/yy).
264-267	108-10B	POWER/VS start time These four bytes contain the start time of POWER/VS execution in packed decimal format.
268-271	10C-10F	Reserved
272-275	110-113	Data block size This fullword contains a fixed-point binary value representing the date block size of the data blocks within the data file. This is the length of the physical records written to the data file.
276-279	114-117	Track group size This fullword contains a fixed-point binary value representing the number of tracks within each track group within the data file.

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
280-281	118-119	Version and modification level Two numeric characters representing the version and modification level of POWER/VS used.
		Programming Note: The following 6 switch bytes preserve the options established by the POWER/VS user at the time he generated his version.
282	11A	Source library switch This byte contains a single alphabetic character representing the source statement sublibrary to be associated, unless otherwise specified, with any JECL SLI statements encountered in the read queue.
283	11B	Job accounting switch This byte contains a single alphabetic character; the character A indicates that POWER/VS job accounting is required; a blank character indicates that POWER/VS accounting is not required.
284	11C	Reserved
285	11D	LOG option switch (set to character L if JLOG=YES and blank if JLOG=NO)
286	11E	Termination status. Contains character A for incomplete session or abnormal termination. Otherwise, it contains character N, meaning normal termination. Note: It will contain an A during the session.
287	11F	Reserved
		Programming Note: The following 14 bytes contain standard POWER/VS default values used when new queue records are created.
288-295	120-127	Default job name These eight bytes contain the character string 'AUTONAME' used as a default job name.
296-297	128-129	Master job number This halfword contains a fixed-point binary value representing the next job number to be assigned by POWER/VS. It is incremented by one each time it is used.

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
298	12A	Master queue identifier This byte contains the alphabetic character M to show that this is the master record.
299	12B	Default class attribute This byte contains the alphabetic character A representing the class attribute to be given by default to each RDR queue entry created within POWER/VS.
300	12C	Default priority attribute This byte contains numeric character 3 which defines the priority attribute to be given by default to each queue entry created by POWER/VS.
301	12D	Default cancel code This byte contains the hexadecimal characters X'10' representing normal end of job and task
302-303	12E-12F	Reserved
		Programming Note : Next 16-byte field contains the master line table, consisting of system default values used to analyse space and skip operations during printer control carriage simulation.
304-319	130-13F	Line table
		Programming Note : Next 16 bytes contain the master list values, which will be inserted by default in list queue records, unless overridden by a JECL statement. (Values are set by IPW$$I1 using those specified by user during POWER/VS generation (JSEP=, RBS=, STDLINE=))
320-335	140-14F	Master list values
320	140	Option byte X'01' - 3540 feed option X'02' - Mult. Chan. 12 option
321-322	141-142	Reserved
323	143	Number of separators
324-327	144-147	Records before segmentation
328-331	148-14B	Records before message
332-335	14C-14F	Records before message
		Programming Note : Next 16 bytes contain the master punch values, which will be inserted by default in punch queue records, unless overridden by a JECL statement. (Values set by IPW$$I1 using those specified by user during POWER/VS generation. (JSEP=, RBS=, STDCARD=))

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
336-338 339 340-343 344-347 348-351	150-152 153 154-157 158-15B 15C-15F	Reserved Number of separators Records before seqmentation Records before message Records before next message
		Programming Note : Next 10 bytes contain account file values.
352-359 360-361 362-375	160-167 168-169 16A-177	Account file seek address (MBBCCHHR) Contains the direct access storage seek address of the last record in the POWER/VS account file. Account file record maximum size Binary value representing the length of the longest record so far written to the account file. Reserved
		Programming Note : Next 32 bytes contain free queue pointers.
376-383 384-407	178-17F 180-197	First record in free queue (MBBCCHHR) Reserved
		Auxiliary account record area This area actually overlaps the auxiliary queue record area, because the account record consists of the first part of the queue record which is built in that area. All account records except execution account are transferred from here to the account file as standard variable length records.
408-415	198-19F	Block and record length This record control field is used for sequential access method.
		Auxiliary queue record area (152 bytes) This area is required as a work space for an additional queue record. For example, for updating class chain addresses during the add to queue function. The first part (96 bytes) of the Q record contains body fields (information pertinent to this particular queue entry and the user job which created it).

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
416-423	1A0-1A7	Date in format specified at SYSGEN (mm/dd/yy or dd/mm/yy)
424-427	1A8-1AB	Operation start time, in packed decimal (0HHMMSSF ; F = sign)
428-431	1AC-1AF	Operation end time (0HHMMSSF ; F = sign)
432-447	1B0-1BF	16 bytes user information
448-455	1C0-1C7	Job name Job name associated with this particular POWER/VS or DOS/VS job. If no job name is provided by the user the default value AUTONAME is set into this field.
456-457	1C8-1C9	Job number Contains a binary job number assigned to the job upon its entry into the system and thereafter available for further identification of jobs with a common job name.
458	1CA	Queue record identifier R = read queue record L = list queue record P = punch queue record F = free queue record D = dummy queue record.
459	1CB	POWER/VS cancel codes Cancel Code — Condition X'10' — Normal end of POWER/VS job or task (3) X'20' — PCANCEL has been issued X'30' — PSTOP has been issued (4) X'40' — PFLUSH has been issued X'50' — PDELETE has been issued X'60' — PFLUSH has been issued via RDREXIT X'70' — Canceled due to I/O error
460	1CC	Line identifier/device type
461-463	1CD-1CF	Channel and unit (line address)

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
464	1D0	From-terminal identifier
465	1D1	To-terminal identifier
466	1D2	Class (default = A)
467	1D3	Priority (default = 3) This single byte contains the priority value (numeric 0 to 9), assigned by the user to this job operation.
468-471	1D4-1D7	Record count Binary counter that represents the number of input or output data records associated with the read, list, or punch operation (data transfer and control operations).
472-473	1D8-1D9	Number of tracks for output storage Binary counter recording the number of tracks within the data file used to contain data input or output for this particular job operation.
474	1DA	Job suffix number Binary job suffix number assigned to each successive operation (read, list, or puch) performed on behalf of the job. It may be used to identify output sets produced by jobs handling segmented output.
475	1DB	Number of copies This single byte contains a binary value indicating the number of copies of printed or punched output that are to be produced when the output is processed by the writer tasks. It has no use within input-related queue records.
476-479	1DC-1DF	Forms identifier Alphameric forms or card identifier of any special stationery or card stock to be used when creating the physical output from the job. A blank value indicates that no special requirement exists. The field has no use within input-related queue records.
480-483	1E0-1E3	Number of additional records.

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
484-485	1E4-1E5	Number of pages (number of skips to channel 1)
486-487	1E6-1E7	Number of extra pages
488-491	1E8-1EB	Line/card counter (data transfers only)
492-495	1EC-1EF	Restart page counter (used when PRESTART command given)
496	1F0	Copies remaining (used when PRESTART command given)
497	1F1	Not used
498	1F2	Disposition (default = D)
499	1F3	Number of separators Binary value indicating the number of printed output separators to be produced. It has no use within input-related queue records.
500-503	1F4-1F7	Number of records before segmentation (count driven segmentation)
504-507	1F8-1FB	Records before message Binary value representing the maximum number of list or punch data records that is to be tolerated by this job. When the record count exceeds the maximum value a warning message is output to the system operator.
508-511	1FC-1FF	Records before next message Additional number of list or punch data records that is to be tolerated by the job each time the record count exceeds the maximum value specified in the preceding field and the system operator elects to continue execution of the job.
512-513	200-201	3540 Physical device addres (packed)
514-515	202-203	Saved job number for accounting
516-519	204-207	Compaction table name
		The second portion (56 bytes) of the queue record contain control fields (information relating to the status of the queue record and to its position within the POWER/VS queues).
520	208	Execution switch x = job in execution b = job not in execution
521	209	First in set switch

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hex	
522	20A	Segmentation type c = count driven segmentation p = program driven segmentation d = data driven segmentation b = no segmentation
523-535	20B-217	Reserved
536-543	218-21F	Next record in set (MBBCCHHR) M = index in module control block address table in CAT.
544-551	220-227	Pointer to previous queue record (MBBCCHHR) M = index in module control block address table in CAT. The meaning of this pointer depends on the value of the contents in field QCFS. (displ. X'201')
552-559	228-22F	Pointer to next queue sat of class chain (MBBCCHHR) M = index in module control block address table in CAT. The meaning of this pointer depends on the value of the contents in field QCFS. (displ. X'201')
560-567	230-237	Seek address of first data block (MBBCCHHR) M = index in module control block address table in CAT. Seek address of the first read, list, or punch data block associated with the input or output described by this queue record.
568-575	238-23F	Reserved
		Master class table area Defines the status of the POWER/VS queues.
576-723	240-2D3	Reader class area (37 entries, that is, 1 dummy entry and 36 entries 0-9 and A-Z)
724-873	2D4-367	List class area (37 entries, that is 11 dummy entries and 26 entries A-Z)
874-1019	368-3FB	Punch class area (37 entries, that is, 11 dummy entries and 26 entries A-Z)
1020-1024	3FC-400	Reserved

DISK MANAGEMENT BLOCK (DMB) (Continued)

Bytes		Description/function of field
Dec	Hec	
		Each entry is defined as a class list entry (DSECT=) and consists of the following two 2-byte fields : 1st field : Relative record number of first queue record in queue set in this class chain. 2nd field: Relative record number of last queue record in queue set in this class chain. The high-order bit in the last field indicates whether there is a queue entry in this class that can be dispatched.

① This fullword contains a fixed-point binary value, representing the number of records per track characterising the DASD on which the file is located.

② This fullword contains a fixed-point binary value, representing the number of tracks per cylinder characterising the DASD on which the file is located.

③ This code indicates that the corresponding queue entry was not affected by an abnormal POWER/VS termination. The DOS/VS jobs associated with the queue entry, however, could have been canceled via DOS/VS.

④ The PSTOP cancel code will not be stored in an account record if the EOJ option was specified with the PSTOP command.

How to Locate : Displ. X'68-6B' of CAT contains pointer to the DMB.

TASK CONTROL BLOCK (TCB)

Definition macro : IPW$DTC

The TCB is divided into the following main areas :

- Task management fields
- Task register save area (TRSA)
- File control words and general task work area ②③
- Linkage register save area (LRSA) ①②③

① The LRSA may be the first part of a double linkage register save area (DLRSA).

② When the TCB belongs to a command processor task, the file control words, general task work area, and linkage register save area are replaced by a command processor control block.

③ When the TCB belongs to an RJE line manager task, the file control words, general task work area, and linkage register save area are replaced by information for the line manager.

TCB - TASK MANAGEMENT FIELDS

Bytes in TCB		Description/function of Task management fields
Dec	Hex	
		The first 16 bytes contain the storage descriptor
00-03	00-03	Storage descriptor block ID (TCB)
04-07	04-07	Task ID
		X'D6' (C) TCB belongs to a command processor task. Remaining 3 bytes are 'ØCP'
		X'C9'(I) TCB belongs to an initiator. Remaining 3 bytes are 'ØIT'
		X'E3' (T) TCB belongs to a terminator task. Remaining 3 bytes are 'ØTT'.
		X'D9' (R) TCB belongs to a local reader.
		X'E6' (W) TCB belongs to a local writer.
		X'C5'(E) TCB belongs to an execution processor task. In this case the next byte contains X'40', and the remaining bytes in the field indicate the partition that requested the task. For example, X'C6F1' = foreground partition.
		X'F1' - 'F9' TCB belongs to an RJE task. In this case the three remaining bytes will indicate the type of task. For example, X'D9C4D9' = RDR.
		X'D3' (L) TCB belongs to a line manager task. Remaining 3 bytes are 'RLM'.
		X'D7' (P) TCB belongs to a status task. Remaining 3 bytes are 'ØPS'.
		X'40' (Ø) TCB belongs to an account task. Remaining 3 bytes are 'ACT'.
		X'D1' (J) TCB belongs to a spool management task, the three remaining bytes indicating the type of task (RDR, LST or SPM)
08-11	08-0B	Physical device ID Physical unit address. If byte 0 of the task ID field = X'F1' - X'F9' (1-9), then it contains the RJE line number. 'PSP' (for RDR task) and 'GSP' (for LST task) are used respectively for PUTSPOOL and GETSPOOL/CTLSPOOL processing.
12-15	0C-0F	Terminal ID Byte Ø = ID in binary format. Byte 1-3 = ID in character decimal format. Identifies the terminal ID requiring the task. When binary zeros (0000), then task started as result of command invoked by the central operator.

TCB - TASK MANAGEMENT FIELDS (Continued)

Bytes in TCB		Description/function of Task management fields
Dec	Hex	
		The following two fields form part of the task selection list (TSL).
16-19	10-13	Address of task control block belonging to previous task in task selection list.
20-23	14-17	Address of task control block belonging to the next task in task selection list. If the present is the last task control block in the chain, the address is that of the wait control block.
24-27	18-1B	Page fault request word. Contains page fault request information resulting from a page fault interrupt. Contents of GPR 13, passed from DOS/VS supervisor and saved for page management in the event of a page fault occurring during execution of the task. The field is set to binary zeros when no page fault request condition is present; hence, it will contain binary zeros during the time that the task is in control of the central processor.
28-31	1C-1F	Task selection field. Byte 0 (the first byte in the field) = Task State Value Task State Values At any time, each task within the POWER/VS must be in one or another of a set of task states. The state of each task is defined by the single alphameric character in byte 28 of the associated task control block, and this in turn determines what action the task management routines must take when the task is examined for dispatch. Task states are normally set by the task itself whenever one of the task management macros is issued. The task management routines and the command processing task are privileged, however, in that they may modify the task state of tasks other than themselves. Note : Task states can also be set by the page fault appendage routine.

TCB - TASK MANAGEMENT FIELDS (Continued)

<table>
<tr><th colspan="2">Bytes in TCB</th><th rowspan="2">Description/function of Task management fields</th></tr>
<tr><th>Dec</th><th>Hex</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Task states</th><th>Hex</th><th>Char</th><th>Task condition</th></tr>
<tr><td rowspan="3">Not dispatchable</td><td>C9</td><td>I</td><td>Task is inactive</td></tr>
<tr><td>D7</td><td>P</td><td>Page fault in process</td></tr>
<tr><td>D6</td><td>O</td><td>Waiting for operator response</td></tr>
<tr><td rowspan="6">Conditionally dispatchable</td><td>D3</td><td>L</td><td>Waiting for locked resource</td></tr>
<tr><td>C6</td><td>F</td><td>Waiting for the LTA or PTA</td></tr>
<tr><td>D4</td><td>M</td><td>Wait on multiple CCB or ECB posting (1)</td></tr>
<tr><td>D8</td><td>Q</td><td>As for M state, except event may never occur</td></tr>
<tr><td>C3</td><td>C</td><td>Wait on single CCB or ECB posting (2)</td></tr>
<tr><td>E2</td><td>S</td><td>As for C state, except event may never occur</td></tr>
<tr><td>Immediately dispatchable</td><td>C4</td><td>D</td><td>Dispatch task immediately</td></tr>
<tr><td>Running</td><td>D9</td><td>R</td><td>Task is running</td></tr>
</table>
(1) or for an RJE task, waiting for a single ECB posting.
(2) or for an RJE task, waiting for a multiple ECB posting.

Bytes 1-3 = Address of the routine in the nucleus that tests for the condition indicated by the task state.
</td></tr>
<tr><td>32-48</td><td>20-30</td><td>Task class list (plus a 1-byte field of X'FF')
Up to four different classes can be specified simultaneously for any task, except RDR. For each class identifying character an entry is made in this field. The first byte of each entry contains the class, and the remaining three bytes contain an address of an ECB in the master class table area (in DMB).</td></tr>
<tr><td>43</td><td>2B</td><td>Spool Management Switch

C'I' - Logical writer already initialized
C'O'- Open logical writer
C'C' - Close logical writer</td></tr>
<tr><td>44-47</td><td>2C-2F</td><td>Address of users cross partition XECB</td></tr>
</table>

TCB - TASK MANAGEMENT FIELDS (Continued)

Bytes in TCB		Description/function of Task management fields
Dec	Hex	
49	31	Termination type Hex Char 40 (b) Normal - continue execution E4 (U) Unrecoverable I/O error E7 (X) Task cancel condition C3 (C) PCANCEL command issued C6 (F) PFLUSH command issued C5 (E) Stop at end of job E2 (S) Stop immediately C8 (H) PFLUSH with hold issued D9 (R) Stop immediately and restart
50	32	Job boundary switch FF = Start of job 00 = Job boundary 80 = No job started yet
51	33	Function track indicator This indicator is used by the task terminator phase (TR) to determine the appropriate action in case of an I/O error on the queue file or the data file. The following entries are possible : On input : X'D5' N - Get next from queue X'C9' I - Open for input X'C7' G - Get in process X'C4' D - Delete in process X'C3' C - Free pending X'C6' F - Free in process X'C5' E - End of queue action, awaiting accounting action X'D3' L - Put account record in process X'00' 0 - No entry active or X'40' b - No entry active

TCB - TASK MANAGEMENT FIELDS (Continued)

Bytes in TCB		Description/function of Task management fields
Dec	Hex	
		Function track indicator (continued) On output : X'D9' R - Reserve queue in process X'D6' O - Open for output X'D7' P - Put in process X'01' A - Add to queue X'05' E - End of queue action, awaiting accounting action X'D3' L - Put account record in process X'00' 0 - No entry active or X'40' b - No entry active
52	34	Double buffering indicator
53-55	35-37	Double buffering ECB
		Each POWER/VS task that needs to perform input or output operations addressed to the system console must specify the operation required in the form of a message request word or a reply request word. These control fields are used to pass the necessary parameters for the operation of the message service routines.
56-59	38-3B	Message request word. Byte 0 : Hold flag and R5 flag. Byte 1-3 : Message address. The message address field contains the virtual address of the message control byte, that is, the byte that immediately precedes the test of the message to be output.
60-63	3C-3F	Reply request word Byte 0 : Binary 0. Byte 1-3 : Reply address. The reply address field contains the virtual address of the reply control byte, that is, the byte that immediately precedes the input area into which the reply is to be read. If no reply is to be made to the message, this field must contain binary zeros.

TCB - TASK REGISTER SAVE AREA (TRSA)

Bytes in TCB		Description/function of Fields in TRSA
Dec	Hex	
64-67	40-43	Register 12 - asynchronous address register ('task PSW') Register 12 contains the address of the first instruction to be executed when the task is despatched. The first byte contains the condition code and the program mask bits in the form in which they are loaded by BAL instructions. (This is also true when the information is provided by the page fault appendage routines.)
68-71	44-47	Register 13 - save area register Register 13 may contain the address of either the first (or only) or second linkage register save area depending on the hierarchy level of the caller.
72-75	48-4B	Register 14 - linkage register Register 14 is used to contain the linkage address, that is, the address to which return is to be made when an exit linkage is next performed. When not required for this purpose the register is available for general use.
76-79	4C-4F	Register 15 - entry point register Register 15 is used to address the entry point of the routine to be entered when an entry linkage is performed. This address is normally that of the storage descriptor which precedes the routine to be executed. The register may be conveniently used as the base register for the function to be executed. When not required for this purpose the register is available for general use.
84-87	54-57	Register 1 - parameter and work register Register 1 may address a control block or control block list on which the task is at present waiting. For a task in C or S state it will point to a conventional DOS/VS CCB or a POWER/VS ECB. For a task in M or Q state, it will point to an ACB or CCB list.

TCB - TASK REGISTER SAVE AREA (TRSA) (Continued)

Bytes in TCB		Description/function of Fields in TRSA
Dec	Hex	
88-91	58-5B	Register 2 - linkage and work register Register 2 is used by service routines to retain the return address of the requesting task. It also has machine usage when a translate and test instruction is executed. When not required for these purposes the register is available for general task use.
92-95	5B-5F	Register 3 - resource address register Register 3 may contain the address of a resource control block on which the task is at present waiting (task in L state). When not required for this purpose the register is available for general task use.
96-99	60-63	Register 4 - work register
100-103	64-67	Register 5 - work register If the task owns queue space, this register will address the queue record.
104-107	68-6B	Work register (may address the DMB).
108-111	6C-6F	Work register In an execution processor task this register addresses the user CCB.
112-115	70-73	Work register In an execution processor task this register addresses current channel command. In a physical routine, it points to PWS.
116-119	74-77	Base register for highest level of code used by task.
120-123	78-7B	Restart information This field contains an action type code in byte 0 and a value in bytes 1-3, as follows : Byte 0 : X'04' restart at specified record (card or page) * X'08' skip forward specified number of records * X'0C' skip back specified number of records * (* set by PRESTART command)

TCB - TASK REGISTER SAVE AREA (TRSA) (Continued)

Bytes in TCB		Description/function of Fields in TRSA
Dec	Hex	
		Restart information (continued) Byte 0 (continued): X'10' print specified number of pages (set by PSETUP command) X'14' restart a specified record (card or page) (set by PSTOP with RESTART option) Bytes 1-3 : The number of records (cards or pages) to be acted upon.
124	7C	Device type code
125	7D	Account track indicator This indicator is used by the task terminator phase (TR) to determine the appropriate action in case of an I/O error on the account file. It can contain the following : X'D6' O - Open for reading account file X'C1' A - Caller active X'C7' G - Get in process X'C3' C - Close in process X'D2' K - Keep account file in process X'C5' E - Erase account file in process X'00' 0 - No entry active or X'40' ⌀ - No entry active
126-127	7E-7F	Packed device address
128-131	80-83	Save area for service routines
132-135	84-87	Save area for service routines
136-139	88-8B	Reserved
140-143	8C-8F	Address of spool parameter list.

TCB - GENERAL TASK WORK AREA, LINKAGE REGISTER SAVE AREA, AND FILE CONTROL WORDS:

When the TCB belongs to a command processor task, this part of the TCB is replaced by command processor control fields, when it belongs to a BSC line manager task, it is replaced by BSC line manager control fields, and when it belongs to an SNA manager task, it is replaced by SNA manager control fields.

Bytes in TCB		Description/Function of Fields
Dec	Hex	
		General Task Work Area
		This area may be broken into fields in whatever way is required by a task (for example, logical reader and writer work areas). It can also contain the 3540 communication byte (LWER): X'01' = card reader with a 3540 attached X'02' = reading from 3540 X'04' = 3540 data file processing
144-159	90-9F	Used by logical routines
160-167	A0-A7	Spool management job name
168-171	A8-AB	Address of error exit return in IPW$$SM
172	AC	Switch byte
		Linkage Register Save Area (LRSA)
176-179	B0-B3	Task control block address
180-183	B4-B7	Previous save area address points to second or double LRSA
184-187	B8-BB	Saved register 14
188-191	BC-BF	Saved register 15
192-195	C0-C3	Saved register 0
196-199	C4-C7	Saved register 1
200-203	C8-CB	Saved register 2
204-207	CC-CF	Saved register 3
208-211	D0-D3	Saved register 4
212-215	D4-D7	Saved register 5
216-219	D8-DB	Saved register 6
220-223	DC-DF	Saved register 7
224-227	E0-E3	Saved register 8
228-231	E4-E7	Saved register 9
		Data File Control Words
232-239	E8-EF	Data file seek address (MBBCCHHR) M = index into the module load address table. For tape spooling, this 8 byte field is defined as follows: Bytes: 0 Tape flag (X'80') 1 Reserved 2 - 3 Length field 4 - 7 Address of tape control block

TCB - GENERAL TASK WORK AREA, LINKAGE REGISTER SAVE AREA, AND FILE CONTROL WORDS. (continued)

Bytes in TCB		Description/function of fields
Dec	Hex	
240-243 244-247	F0-F3 F4-F7	Real data area address (see Note 1) Virtual data area address
		Blocking Control Words
248-251 252-255	F8-FB FC-FF	Residual block count Previous record address
		Record Control Word (formed from CCW)
256 257-259 260	100 101-103 104	Record command code Record address (virtual) General purpose byte (see Note 2) X'00' = normal record X'02' = 3540 data record X'04' = end of data X'08' = break record X'10' = end of block X'20' = end of 3540 data
261	105	General purpose byte X'01' = TCB for read only operations X'08' = Device end occurred (reader)
262-263	106-107	Record length
		I/O (disk or tape) Request Word for Queue File
264-271	108-10F	Queue file seek address (MBBCCHHR) M = X'04' For tape spooling this 8 byte field is defined as follows : Bytes : 0 Tape flag 1 Reserved 2 - 3 Length field 4 - 7 Address of tape control block
272-275 276-279	110-113 114-117	Real queue space address (see Note 1) Virtual queue space address.

How to locate : Chaining of TCB's via 'previous' and 'next' pointers, task selection list is delimited by the WCB.

Note 1 : The high order byte of this field will contain the command code of the current or last executed operation.

Note 2 : Bit 7 of this byte may be set to 0 (to indicate no data transfer or card motion), or to 1 (to indicate data transfer or card motion).

COMMAND PROCESSOR CONTROL BLOCK (CPB)

This block replaces part of a command processor TCB, when a command is entered via the console keyboard by the central operator, and of its associated temporary command processor TCB when linkage is made via the IPW$ICP macro.

CPB replaces file control fields, general task work area, and LRSA of standard TCB.

The contents of the CPB are described below :

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (CPB)
16	10	RJF-userid (0 for local)
17-23	11-17	Command Code
24-95	18-5F	Operands (free format)
96-103	60-67	Sequence number (RJE only)
104-107	68-6B	Address of caller ECB
108-135	6C-87	Reserved

How to Locate : Displacements X'80' of the appropriate command processor TCB is the starting address of the CPB.

PHYSICAL WORK SPACE (PWS)

Definition macro : IPW$DPW.

Bytes		Description/function of field
Dec	Hex	
00-03	00-03	Virtual address of the first PDA
04-07	04-07	Real address of the first PDA
08-11	08-0B	Virtual address of the second PDA
12-15	0C-0F	Real address of the second PDA
16-19	10-13	Virtual address of the active PDA
20-23	14-17	Real address of the active PDA
24-25	18-19	Displacement of last CCW in string from beginning of PDA
26-27	1A-1B	Physical record length: to update the record pointer in the deblock routine
28-31	1C-1F	Device type information
28	1C	1 byte = single/double buffering (contains number of buffers)
29	1D	1 byte= device type of unit record device
30-31	1E-1F	2 bytes = LUB number
32-35	20-23	Virtual address of end of PDA
36-39	24-27	Real address of end of PDA
40-43	28-2C	Real address of the first CCW
44-55	2D-37	Reserved.

PHYSICAL WORK SPACE (PWS) 3540 EXTENTION

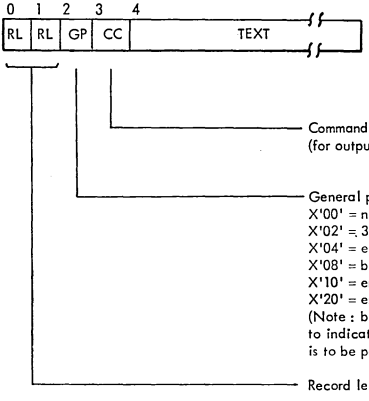
Bytes		Description/function of field
Dec	Hex	
		3540 Extension
56-59	38-3B	Real address of the physical work space. Device type indication.
60	3C	Reserved.
61	3D	Device type.
62-63	3E-3F	Programmer logical unit. Diskette parameters from PSTART.
64-71	40-47	File identification. PSTART parameters.
72	48	Reserved.
73	49	Number of diskettes to be read.
74	4A	Sequence check required.
75	4B	Verify requested.
76-79	4C-4F	Displacement between real and virtual CCB addresses.
80-83	50-53	Address of 3540 CCB or physical data area.
84-87	54-57	Virtual address of first 3540 data buffer.
88-91	58-5B	Real address of first 3540 data buffer.
92-95	5C-5F	Virtual address of second data buffer.
96-99	60-63	Real address of second data buffer.
100-103	64-67	Real address of forced pre-SEEK CCW.
104-107	68-6B	Seek address (00CCHHRR).
108-111	6C-6F	Overlap seek address (00CCHHRR).
112-115	70-73	Extent lower limit (00CCHHRR).
116-119	74-77	Next sector address (00CCHHRR)
120-121	78-79	Record length.
122-123	7A-7B	Number of buffers allocated in second data buffer. Sequence identification.
124	7C	Multivolume identification.
125	7D	Volume sequence number.
126	7E	Open return code.
127	7F	Number of opened diskettes.
128-135	80-87	Double word for conversion purposes.
136-151	88-97	Reserved.

How to Locate:

Reg. 8 in the TCB for a task that uses a physical routine.

LOGICAL DATA RECORD AREA (LDA)

The format of a data record is shown below :



How to Locate : Displ. X'88-8B' (I/O request words) of a TCB for R/W or XPtask contains a pointer to the LDA.

MODULE CONTROL BLOCK (MCB)

Definition macro : IPW$DMC

Description of Contents

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor MCB QFILE1 cuu (SYS001) Storage descriptor MCB DFILE2 cuu (SYS002) Storage descriptor MCB DFILE3 cuu (SYS003) Storage descriptor MCB DFILE4 cuu (SYS004) Storage descriptor MCB DFILE5 cuu (SYS005) Storage descriptor MCB DFILE6 cuu (SYS006) Storage descriptor MCB LFILE7 cuu (SSL) Storage descriptor MCB LFILE8 cuu (PVTSSL)
16-23	10-17	Module seek address (MBBCCHHR) ①
24-27	18-1B	Reserved
28-31	1C-1F	Lockword
		Command control block
32-33	20-21	Residual count
34-35	22-23	Communication bytes
36-37	24-25	Device status
38-39	26-27	EXCP real plus LUB index
40-43	28-2B	CCW address
44-47	2C-2F	CCW address in CSW
		Extent information
48-51	30-33	Low limit (CCHH)
52-55	34-37	High limit (CCHH)
56	38	Sector value
57-59	39-3B	Reserved
60-63	3C-3F	Sector table address
		Channel program
64-71	40-47	Seek CCW
72-79	48-4F	Set sector or TIC CCW
80-87	50-57	Search CCW
88-95	58-5F	TIC CCW
92-95	5C-5F	Virtual address of real buffer
96-103	60-67	Read or write CCW
104-111	68-6F	Reserved
112-179	70-B3	SLI Support
112-115	70-73	SSL-number of records/track
116-119	74-77	SSL-number of tracks/cylinder
120-179	78-B3	Extention to sector table SSL
180-183	B4-B7	Reserved

MODULE CONTROL BLOCK (MCB) (Continued)

① Seek and search address required by the channel program. Whenever an input or output operation is to be performed it is updated from the seek address pointer in the I/O Request Word that controls the operation.

How to Locate :

Displ.	X'88-8B'	of	CAT	contains	pointer	to MCB Q files
"	X'8C-8F'	"	"	"	"	Dfile 1
"	X'90-93'	"	"	"	"	Dfile 2
"	X'94-97'	"	"	"	"	Dfile 3
"	X'98-9B'	"	"	"	"	Dfile 4
"	X'9C-9F'	"	"	"	"	Dfile 5
"	X'A0-A3'	"	"	"	"	private SSL
"	X'A4-A7'	"	"	"	"	system SSL

TAPE CONTROL BLOCK (TBB)

Definition macro : IPW$DTB

Description of Contents

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (TBB)
16-27	10-1B	Reserved
28-31	1C-1F	Lockword
		Command control block
32-33	20-21	Residual count
34-35	22-23	Communication bytes
36-37	24-25	Channel and device status
38-39	26-27	EXCP real plus LUB index
40-43	28-2B	CCW address
44-47	2C-2F	CCW address in CSW
48-55	30-37	Write CCW

How to Locate: Displ. X'EC-EF' and X'10C-10F' of TCB (when initialised for tapespooling) contain pointers to TBB.

PAGE CONTROL BLOCK (PCB)

Definition macro : IPW$DPC

Bytes		Description/function of field
Dec	Hex	
00-03	00-03	Page real storage address Real storage address of the page described by this PCB.
04-07	04-07	Previous page virtual address Virtual storage address of the previous page in the fixed page list. If the present page is the first page in the fixed page list the word is set to binary zeros.
08-11	08-0B	This page virtual address This fullword contains the virtual storage address of the page described by this page control block.
12-15	0C-0F	Page control byte address Contains the virtual storage address of the byte within the storage assignment block in the storage control block which corresponds to the present page.
16-19	10-13	First buffer address This fullword contains the virtual storage address of the first storage buffer within the present page.
20-23	14-17	Next page virtual address This fullword contains the virtual storage address of the next page in the fixed page list. If the present page is the last page in the fixed page list the word is set to binary zeros.

How to locate :Each page in the fixable area starts with this control block, which occupies the first 24 bytes of the page.

BUFFER CONTROL WORD (BCW)

Bytes		Description/function of the field
Dec	Hex	
00-01	00-01	Length of previous buffer This halfword contains the binary length of the immediately-preceding storage buffer. If the buffer is in use its length is stored in twos complement form. If the buffer is not in use its length is stored in normal form. If the present buffer is the first in the page the word is set to binary zeros.
02-03	02-03	Length of next buffer This halfword contains the binary length of the present storage buffer, that is, the buffer which immediately follows this buffer control word in storage. If the buffer is in use its length is stored in twos complement form. If the buffer is not in use its length is stored in normal form. If the preceding buffer is the last in the page the word is set to binary zeros.
04-07	04-07	Owner (TCB virtual address) of next buffer. This fullword contains the address of the TCB belonging to the task which issued the request for buffer space. If a TCB is contained in the buffer, the owner address is that of the task which built the TCB.

How to locate : When a page is fixed in the fixable area, storage management assigns the first and last buffer control words. The first buffer control word is placed immediately after the page control block at the start of the page in real storage, and the last buffer control word is placed in the last two words of the page.

PARTITION CONTROL BLOCK (PDB)

Definition macro : IPW$DPD

Bytes		Description/function of fields
Dec	Hec	
00-15	00-0F	Storage descriptor PART.CONTR.BLOCK
16-17	10-11	Reserved
18-19	12-13	Partition identifier
20-23	14-17	Number of entries
24-27	18-1B	Partition comreg address
28-31	1C-1F	PIB address
32-35	20-23	First entry address
36-39	24-27	Boundary Box entry pointer
40-47	28-2F	Reserved
		Statistical information This information is destined for the execution account record and there is a pointer to the SLI work area
48-51	30-33	Pointer to SLI work area
52-55	34-37	Number of lines spooled
56-59	38-3B	Number of cards spooled
60-61	3C-3D	Number of pages spooled
62	3E	Default output class
63	3F	Multitasking indicator
		3540 Spool device entry
64-79	40-4F	Format same as for RDR device entry
		RDR device entry (maximum = 1)
80-83	50-53	Address of entry in the DOS/VS PUB for a card reader device
84-87	54-57	Address of execution reader TCB
88-91	58-5B	CCB address. The first byte of this field is the SVC code : X'00' = SVC 0 : I/O request by user program X'90' = SVC90 : accounting request by PA X'91' = SVC91 : accounting request by JCL
92	5C	Device type code
93	5D	Device class code Can be R = normal reader, or C = console
94-95	5E-5F	Requestor ID

PARTITION CONTROL BLOCK (PDB) (Continued)

Bytes		Description/function of fields
Dec	Hex	
		LST device entry (maximum = 8)
96-99	60-63	Address of entry in the DOS/VS PUB for a printer device
100-103	64-67	Address of the execution list TCB
104-107	68-6B	CCB address
108	6C	Device type code
109	6D	For list device entry this can be L = device is being spooled, N = device is not being spooled.
110-111	6E-6F	Requestor ID
Depends on number of LST entries		PUN device entry (maximum = 8) (same format as LST device entry)
		Address of entry in the DOS/VS PUB for a punch device Address of the execution punch TCB CCB address Device type code For punch device entry this can be P = device is being spooled, N = device is not being spooled. Requestor ID

How to Locate : Displ. X'A0 - A3' of the partition comreg and R6 in TRSA of a TCB.

QUEUE RECORD AREA (QRA)

Definition macro : IPW$DQR

Bytes		Description/function of field
Dec	Hex	
		Body Fields (first 96 bytes) The body of the queue record contains information pertinent to this particular queue entry and the user job which created it.
00-07	00-07	Date
08-11	08-08	Operation start time
12-15	0C-0F	Operation end time
16-31	10-1F	User information
32-39	20-27	Job name
40-41	28-29	Job number
42	2A	Queue record identifier
43	2B	POWER/VS cancel code
44	2C	Line identifier or device type
45-47	2D-2F	Channel and unit (line address)
48	30	From terminal identifier
49	31	To terminal identifier
50	32	Class
51	33	Priority
52-55	34-37	Record count
56-57	38-39	Number of tracks
58	3A	Job suffix number
59	3B	Number of copies
60-63	3C-3F	Forms identifier
64-67	40-43	Number of additional records
68-69	44-45	Number of pages
70-71	46-47	Number of extra pages
72-75	48-4B	Line/card counter
76-79	4C-4F	Restart page count
80	50	Copies remaining
81	51	Not used
82	52	Disposition
83	53	Number of separators
84-87	54-57	Number of records before split
88-91	58-5B	Maximum value of count
92-95	5C-5F	Additional count value
96-97	60-61	3540 Physical unit address in packed format
98-99	62-63	Save job number for accounting
100-103	64-67	Compaction table name

QUEUE RECORD AREA (QRA) (Continued)

Bytes		Description/function of field
Dec	Hex	
		Control Fields (56 bytes) The control portion of the queue record contains information relating to the status of the queue record and to its position within the POWER/VS queues.
104	68	Execution switch
105	69	First in set switch
106	6A	Segmentation type
107-119	6B-77	Reserved
120-127	78-7F	Next record in set
128-135	80-87	Previous set in queue
136-143	88-8F	Next set in queue
144-151	90-97	First block of data

How to locate : Displ. X'110-113' of a TCB (not being Comm. proc. or Line manager TCB).

SLI WORK SPACE (SLW)

Definition macro : IPW$DSL

Bytes		Description/function of field
Dec	Hex	
00-79	00-49	Logical record work area
80-239	50-E9	SSL block work area
		Disk request word
240-247	F0-F7	Seek address (MBBCCHHR) M= index in module control block address table in CAT.
248-251	F8-FB	Real address read-in area
252-255	FC-FF	Virtual address read-in area
256-259	100-103	Register 8 save area
		SLI sublibrary and bookname
260	104	Sublibrary name
261-268	105-10C	Bookname
269	10D	Read SSL switch
270	10E	Read RDR switch
271-279	10F-117	Filler for alignment

How to Locate

Displ. X'30'-X'33' of PDB.

POWER/VS CONTROL BLOCKS (...CONTINUED)

ACCOUNT CONTROL BLOCK (ACB)

Definition macro : IPW$DAC

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (ACB)
16-19	10-13	Event control block This ECB is posted when the account file is emptied
20-23	14-17	Extent lower limit
24-27	18-1B	Extent upper limit
28-31	1C-1F	Lockword
		Command Control Block
32-33 34-35 36-37 38-39 40 41-43 44 45-47	20-21 22-23 24-25 26-27 28 29-2B 2C 2D-2F	Residual count Communication bytes Device status Logical unit Reserved for LIOCS CCW real address Reserved for PIOCS CCW address in CSW
48-54 55	30-36 37	Current seek address (BBCCHHR) Reserved
56-63	38-3F	Count field
64-67	40-43	Maximum account file capacity
68-71	44-47	20% limit residual capacity
72-75	48-4B	Current residual capacity
76-79	4C-4F	Maximum track capacity
80-83	50-53	Residual capacity on current track
84-87	54-57	Number of tracks per cylinder
88-89	58-59	Sector values

ACCOUNT CONTROL BLOCK (ACB) (...CONTINUED)

Bytes		Description/function of field
Dec	Hex	
90-91	5A-5B	Tolerance
92-93	5C-5D	Overhead
94	5E	PUB device type code
95	5F	DTFPH device type code
		Channel Program
96-103	60-67	Seek CCW
104-111	68-6F	Set sector or TIC * +8 CCW
112-119	70-77	Search ID equal CCW
120-127	78-7F	TIC * -8 CCW
128-143	80-8F	WCKD CCWs (WCOUNT and WDATA)
144-151	90-97	Read sector CCW or not used
152-167	98-A7	Channel program modifiers RDATA and RCOUNT CCWs
168-171	A8-AB	Virtual address account work space buffer
172-183	AC-B7	Not used

How to Locate:

Displ. X'6C'- X'6F' of CAT.

LINE CONTROL BLOCK (LCB)

Definition macro : IPW$DLC

Bytes		Description/function of field
Dec	Hex	
00-07	00-07	LCB header (LCBbbcuu)
08-15	08-0F	System data in format specified at SYSGEN
16-19	10-13	SIGNON time in format 0HHMMSSF; F = sign in packed decimal
20-23	14-17	SIGNOFF time in format 0HHMMSSF; F = sign in packed decimal
24-39	18-27	User information
40-47	28-2F	Line password
48-49	30-31	Reserved
50	32	Line account record identifier (T)
51	33	SIGNOFF code
52	34	Terminal error count. This count is only maintained for intervention required and for specific timeouts. When the count reaches 10 a record is written to SYSREC (error recorder file). Then the count is reset to zero. When it reaches 10 again, the same sequence occurs.
53-55	35-37	Line address (in alpha)
56	38	Remote identifier (in binary)
57	39	Remote identifier (for compatibility)
58-59	3A-3B	Transmission count per session
60-61	3C-3D	Timeout count per session
62-63	3E-3F	Error count per session
64-67	40-43	Corresponding BCA address
68-71	44-47	LCB chain pointer. A chain of LCBs is maintained and is continuously scanned by the line manager. Up to 25 LCBs can be chained, the last LCB in the chain has 0 in this field.
72-75	48-4B	Work field
76-79	4C-4F	Remote identifier. This 4-byte field consists of remote ID in binary in first byte and remote ID in alpha in bytes 2, 3 and 4.
80-83	50-53	List output classes. Each byte in this 4-byte field contains a hex displacement in the LST part of the MCTA in the DMB. The displacement contained in one of the bytes therefore corresponds to a class. Up to four classes may be specified, being delimited by X'FF' in a similar manner to that in the TCCT field in the TCB.

Bytes		Description/function of field
Dec	Hex	
		For example, the command * .. START LST, B,C,D would result in the displacements 18, 1C, 20 being placed in this field. (Byte 3 would be X'FF'). If no START LST command is entered the first byte of this field is FF.
84-87	54-57	Punch output classes. Each byte in this 4-byte field is used in the same way as in field LCBLIST, displacements being in the PUN part of the MCTA.
88-89	58-59	Timeout counter. This field counts the number of timeouts (1 every 3 seconds) as long as the terminal is idle (no data transfer). When information is transmitted on the line it is set to zero. The count is compared with the timeout limit specified in the PLINE macro.
90-91	5A-5B	Timeout limit. The value in this field is specified by the TIMEOUT paramater in the PLINE macro. If the user specifies 1 (one minute) the value set in this field is binary 20. The maximum timeout that may be specified is 255 minutes. If the idle time on the line as counted in the field LCBTMCNT exceeds the value of field LCBTMOUT the terminal is signed off by POWER/VS. If TIMEOUT=NO is specified, this field is filled with binary zeros.
92	5C	Line features B'1XXX XXXX' ASCII code line B'X1XX XXXX' Transparent feature B'XXXX XXX1' Switched line B'XXYY YYYX' 00YY YYY0 is mode byte for 2701
93	5D	LCB flags X'80' Line stop X'40' Line start/restart X'20' An ETX has been received X'10' No messages wanted X'08' Remote is signed on X'02' SIGNOFF card has been read X'01' signoff (processing finished)
94	5E	Output switches X'80' = list output is ready and dispatchable for any of the classes started X'08' = punch output is ready and distpatchable for any of the classes started

LINE CONTROL BLOCK (LCB) (...CONTINUED)

Bytes		Description/function of field
Dec	Hex	
		On START LST, field LCBOUT is initiated with X'80'. On START PUN, field LCBOUT is initiated with X'08'.
95	5F	Message subchain index. This byte contains the entry number in the message queue that contains the first message queued for this LCB.
96-99	60-63	Reader TCB address. This field contains the reader TCB address as long as the reader is active. It is set to binary zero when an RDR TCB is detached. If an EOF is encountered in the middle of a job, TCB space is not released, and the field is not set to zero. After the user responds by placing more cards in the reader the reader TCB will be reactivated. To summarize : If the field is zero, a new TCB is created. If the field is nonzero, the original TCB is reactivated.
100-103	64-67	List forms
104-107	68-6B	Punch forms
108-109	6C-6D	Corresponding PUB address
110-111	6E-6F	Message counter. This field contains the number of messages for the user of this LCB in the remote message queue. Since this remote message queue contains 255 entries an overflow condition may occur. Should an overflow occur , the LCB with the highest value in this field is located, all messages for this user are removed from the message queue and replaced by message 1R201.
112-119	70-77	Not used.
Remote Block		
120	78	Default punch routing
121	79	Default list routing
122-123	7A-7B	Terminal buffer size Size of this buffer depends on type of terminal.

LINE CONTROL BLOCK (LCB) (...CONTINUED)

Bytes		Description/function of field
Dec	Hex	
124	7C	Terminal type plus line features X'80' Log every channel end ▷1 X'40' Transparency ▷2 X'20' ASCII code X'02' 3780 X'01' 2780 or 3741 X'00' 2770 or 3780 with component select
125	7D	Terminal features X'20' Hardware compress feature X'10' Multiple-record feature X'08' Horizontal format control X'02' Variable length records X'01' Blocked records
126	7E	Remote printer width
127	7F	Reserved

▷1. The byte is set X'80' if TRACE=YES has been specified in the REMOTE macro. It enables a wraparound I/O trace in the phase IPW$$TM.

▷2. Transparency enables user to transmit object decks over line. If no transparency is supported codes X'00' through X'40' are converted to binary zeros for output to the terminal.

Transparency on input (read) is determined by a switch on the terminal unit.

For print output to the terminal, non-transparency if forced by POWER/VS.

For punch output, transparency depends on whether it has been specified in the PLINE macro and the PRMT macro. If either one has not been specified for transparency, non-transparency is forced by POWER/VS.

How to Locate: Displacement X'20C'-'20F' of the CAT points to the LCB.

BUFFER CONTROL AREA (BCA)

Defintion macro : IPW$DBC

Bytes		Description/function of field
Dec	Hex	
		RJE CCB Initialized with a complete sense CCW to read sense information into the two sense bytes in the BCA. Byte 12 is initialized with bits 1 and 2 on indicating that channel-end appendages and private unit-check routines are being used.
00-01	00-01	Residual count
02	02	Communication byte
03	03	Communication byte
04-05	04-05	Status bytes from CSW
06-07	06-07	Logical unit number
08-11	08-0B	First CCW address
12	0C	Communication byte
13-15	0D-0F	Channel appendage address
16-23	10-17	RJE sense CCW
	RJE CCW string, dynamically set up by MCCWINIT routine	
24-31 32-39 40-47 48-55 56-63 64-71	18-1F 20-27 28-2F 30-37 38-3F 40-47	These six CCW fields constitute various channel programs that depend on the operation required. For example, a READ program consists of • An enable CCW • A write response CCW • A read text CCW. A WRITE program has a different CCW string and a PREP program consisting of : • A disable CCW • A set mode CCW • An enable CCW • A write enquiry CCW • A read response CCW
		EBCDIC/ASCII Code Table This table is moved from virtual storage at OPEN time for RDR, LST, or PUN to reflect one of the following four conditions: EBCDIC code transparency EBCDIC code non-transparency ASCII code transparency ASCII code non-transparency

Bytes		Description/function of field
Dec	Hex	
72-73	48-49	Multileaving sign-on sequence
74-75	4A-4B	Start of text sequence
76	4C	End of text block sequence
77	4D	End of text block character This 1-byte field is the second byte of the previous 2-byte field.
78-79	4E-4F	End of text sequence
80	50	Even acknowledgement sequence
81	51	Even acknowledgement character This 1-byte field is the second byte of the previous 2-byte field.
82	52	Odd acknowledgement sequence
83	53	Odd acknowledgement character This 1-byte field is the second byte of the previous 2-byte field
84	54	Negative acknowledgement sequence
85	55	Negative acknowledgement character This 1-byte field is the second byte of the previous 2-byte field.
86	56	Acknowledgement conversation character
87	57	CCW chaining character
88	58	Enquiry character
89	59	End of transmission character
90	5A	Wait before transmit
91-92	5B-5C	DLE-EOT characters
93-94	5D-5E	Saved write count
95	5F	Maximum retry count
		Other RJE Information
96-99	60-63	Restart address of channel program
100	64	Last remote output command code
101-102	63-67	Address of the last remote carriage control
104	68	Current remote output record count. Incremented at each PUT during a WRITE operation. The count is compared with the value in the field TPBMXREC. If they match, the PDA is written out.
105-107	69-6B	Remote data pointer. Address of the record in the PDA currently being processed.
108-111	6C-6F	Address of last data byte read. Address of the last byte read into the PDA (not necessarily the last byte in the PDA).
112-115	70-73	Address of the corresponding LCB
116-119	74-77	Address of the last CCW executed plus 8 (stored by the RJE channel appendage routine on every I/O interrupt).
120-123	78-7B	Displacement between the real and virtual address of the BCA (used to construct real addresses for the channel program).

BUFFER CONTROL AREA (BCA) (...CONTINUED)

Bytes		Description/function of field
Dec	Hex	
124-127	7C-7F	Address of next CCB completed. BCA chain pointer, set up by channel appendage routine, and processed by line manager.
128-131	80-83	Address of a list TCP or punch TCB as long as an RJE LST or PUN task is active. Otherwise, the field is 0. (Has same function as field LCBTCBAD in the LCB.
132-135	84-87	Real address of PDA. Address of current TP buffer. Updated whenever a new buffer is obtained.
136-139	88-8B	Virtual address of PDA. Address of current TP buffer. Updated whenever a new buffer is obtained.
140-143	8C-8F	Address of last TCB, as long as a form change is needed. Otherwise, the field is 0.
144	90	Remote mode byte (SDA mode byte). Set at line initialization time to X'04' for 2701, and to X'00' for 2703 TP control unit or ICA.
145	91	Remote next acknowledgement . For write response CCW
146-147	92-93	Remote response control block. Used for the write response to the terminal, and to read the response from the terminal
148	94	First sense byte (see TP manual)
149	95	Second sense byte (always 0)
150	96	Maximum output record count. Contains a value equal to the maximum record count for the output buffer at the terminal. Its value depends on the terminal type.
151	97	BCA flags X'01' end of transmission X'02' end of forms X'04' second entry to put routine.

How to Locate: Displacement X'40 - 43' of the LCB points to the BCA.

OPEN 3540 DISKETTE WORK SPACE

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor ('OEWS V6M0 cuu')
		3540 command control block
16-17	10-11	Residual count
18-19	12-13	Communications bytes
20-21	14-15	Device status
22-23	16-17	Device type and logical unit
24	18	Reserved for LIOCS
25-27	19-1B	First CCW
28	1C	Reserved for PIOCS
29-31	1D-1F	CCW address in CSW
32-87	20-57	Temporary register save area for the interface between functions
88-95	58-5F	Conversion work space
		3540 channel program
96-103	60-67	Define operations or NOP
104-111	68-6F	Seek
112-119	70-77	Read label
120-123	78-7B	Mode setting argument
124-127	7C-7F	Seek argument (00CCHHRR)
128-207	80-CF	3540 input area and label test area
		Message buffers and work areas
208	D0	Message length of first line First line of message output area
209-215	D1-D7	Message identity
216-263	D8-107	Message text of first line
264	108	Message length of second line Second line of message output area
265	109	Message identity
266-319	110-13F	Message text of second line
320	140	Not used
321	141	Reply length
322-327	142-147	Reply input area
328-329	148	Cylinder number save area
		Physical reader information indicators. The following indicators are copied from the physical work space to prevent them from being destroyed should the open be unsuccessful. On a successful open, the indicators in the physical work space are overwritten by these updated indicators. On an unsuccessful open, only the open indicator 'PEOC' will be updated with the stop code 'S'.

OPEN 3540 DISKETTE WORK SPACE (...CONTINUED)

Bytes		Description/function of field
Dec	Hex	
330-331	14A-14B	Record length (copy of PERL) Sequence ID (copy of PESI)
332	14C	Multivolume identification (copy of PEMI)
333	14D	Volume sequence number (copy of PESN)
334	14E	Number of opened diskettes (copy of PEOD)
335	14F	Number of diskettes to be read (copy of PEND)
336-343	150-157	Not used

BSC LINE MANAGER TCB FIELDS

Bytes		Description/function of field
Dec	Hex	
00-27	00-1B	Reserved
28-31	1C-1F	SYSREC header
32-87	20-57	BSC line manager save area
88-103	58-67	Reserved

SNA CONTROL BLOCK (SNCB)

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (SNCB)
16	10	SNA termination type
17	11	Termination type set by SNA exit routines
18	12	Flag byte: X'80' - SNA stop requested (SNSS) X'40' - Kill SNA requested (SNKS) X'20' - Subtask detach requested (SNST) X'10' - Subtask quiesce requested (SNRQ)
19	13	Maximum number of logical units
20-23	14-17	Address of first active SNA unit control block (SUCB)
24-27	18-1B	Address of SNA unit control block space
28-31	1C-1F	SNA control block lockword
32-35	20-23	Address of SNA remote control block (RMCB)
36-39	24-27	Lockword for general purpose work space (RMGP) in SNA remote control block
40-43	28-2B	Address of SNA manager TCB
	2C-2F	Subtask ECB
	30-33	SNA manager work ECB
	30-31	Unused
	32	Post byte
	33	Unused
	34-3B	Reserved
	3C-7B	VTAM ACB + 4 words for expansion
	7C-7F	Pointer to logon space pool for SUCB/LUCB, WACB and LRCBs
	80-83	Compaction table pool address
	84-87	Address first logon request control block (LRCB)
	88-8B	Address logon SUCB
	8C-8F	Address of compaction table
	90-93	LRCB chain - lockword 1
	94-97	LRCB chain - lockword 2
	98-9B	Compaction table lockword
	9C	IBW$$LH process byte X 80 - Request for IPW$$LH X 40 - IPW$$LH is active
	9D-B7	Unused

How to Locate:

Displacement X'7C - 7F' of CAT.

SNA REMOTE CONTROL BLOCK (RMCB)

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (RMCB)
16-19	10-13	Reserved
20-22	14-16	Reserved
23	17	Length of ACB password
24-31	18-1F	ACB password
32-1055	20-41F	General purpose work space This area is serially accessible by SNA tasks that cannot obtain vurtual storage via the DOS/VS GETVIS macro. Access is regulated by a lockword (SNRL) located in the SNA control block (SNCB).
1056-1311	420-51F	Translate table to convert EBCDIC characters to ASCII
1312-1439	520-59F	Translate table to convert ASCII characters to EBCDIC
		SNA Manager save area
1440-1567	5A0-61F	Subtask save area
1440-1447	5A0-5A7	C 'IPW$$SN' - Subtask name
1448-1567	5A8-61F	Register save area
1568-1639	620-667	VTAM RECEIVE Any save area
1640-1711	668-6AF	VTAM SETLOGON save area
1712	6B0	No. of SNA remote entries
1713	6B1	First SNA remote ID
1714	6B2	Last SNA remote ID
1715	6B3	Total no. of 1K blocks in GETVIS pool for compaction tables including COCB.
1716-	6B4-	Remote entries (The number of remote entries, which are 16 bytes long, depends on the number of SNA remote units specified in the PRMT macro at POWER/VS generation.)
		The following is a layout of a remote entry.
		Punch routing remote ID (1 byte) List routing remote ID (1 byte) Remote reference information Buffer size (1 byte) Terminal type (1 byte) Terminal features (1 byte) Console specified (1 byte) Reserved (7 bits) Reserved (1 byte) Length of password (1 byte) Password (8 bytes) Compaction table name (4 bytes) Number of LU names (1 byte) Address of first LU name in list (3 bytes) Session limit (2 bytes) Reserved (6 bytes)

How to Locate: Displacement X 20 - X 23 of SNCB.

SNA LOGICAL UNIT CONTROL BLOCK (LUCB)

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor
16-19	10-13	Previous address LUCB (pointer)
20-23	14-17	Address of next LUCB (Pointer)
24-27	18-1B	Address of SUCB
28	1C	Select indicator C S -select
29	1D	Termination type (C S - immediate)
30	1E	Termination type, set by exits
31	1F	Free session indicator X'80' - session in use
32-35	20-23	Reader 1 work space address
36-39	24-27	Reader 2 work space address
40-43	28-2B	VTAM CID
		Session Accounting Information
44-51	2C-33	Date = c MM/DD/YY
52-55	34-37	Signon time = X'0HHMMSSF'
56-59	38-3B	Signoff time = X'0HHMMSSF'
60-75	3C-4B	User information
76-83	4C-53	LU name
84-85	54-55	Reserved
86	56	c S - identifier for account record.
87	57	Session termination code X'01' - Normal (SIGNOFF or LOGOFF) X'02' - Abnormal
88-91	58-5B	Remote identifier
88	58	Binary format
89-91	59-5B	Character format
		Restart Information
92-95	5C-5F	Restart
92	5C	Restart function index
93-95	5D-5F	Restart page count
		List and Punch Characteristics
96-99	60-63	Pointer to device in SUCB
100	64	List output support X'00' - List output support X'80' - ASCII X'40' - Compression X'20' - Transparency X'10' - Spanning X'80' - Inter-record separator X'01' - Compaction

SNA LOGICAL UNIT CONTROL BLOCK (LUCB)

Bytes		Description/function of field
Dec	Hex	
101	65	Punch output support X'00' - Punch output support X'80' - ASCII X'40' - Compression X'20' - Transparency X'10' - Spanning X'08' - Inter-record separator X'01' - Compaction
102	66	PDIR information byte X'80' - PDIR outbound allowed
103	67	Card/document flow X'00' - Card/document flow X'80' - Card inbound allowed X'40' - Card outbound allowed X'08' - Document inbound allowed X'04' - Documend outbound allowed
104-111	68-6F	Current compaction table in use by outbound processor
104-107	68-6B	Compaction table name
108-111	6C-6F	Pointer to CDCB entry

Bytes		Description/function of field
Dec	Hex	
		Process Control Section
112-115	70-73	Start address of TCBs for LU
112-115	70-73	RDR, LGN, LGF, TCB address
116-119	74-77	LST, PUN TCB address
120-123	78-7B	Message TCB address
124-127	7C-7F	RDR 2 TCB address
128-131	80-83	LGH TCB address
132	84	Action byte X'80' - Request logon X'40' - Request start reader X'20' - Request interrupt LST/PUN on signal X'10' - Request interrupt LST/PUN for outbound message X'08' - Request interrupt inbound for inbound X'04' - Request stop session X'02' - Request GO/SETUP command X'01' - Request for restart command
133	85	Process byte X'80 - Logoff in process
134	86	Status byte one X'80' - BB reject indicator X'40' - Logon completed X'01' - 1 - BB reject by IPW$$OB C - BB reject by IPW$$MP
135	87	Status byte two X'80' - Change direction X'40' - LST/PUN suspended for msg X'20' - LST/PUN suspended for inbound X'10' - inbound suspended for inbound
136	88	Bracket state
137	89	Unused
138-139	8A-8B	Buffer size
140-141	8C-8D	Buffer size logon process
142-159	8E-9F	Unused

How to Locate:

Displacement X'A8-AB' of SUCB points to the first LUCB.

SNA UNIT CONTROL BLOCK (SUCB)

Bytes		Description/function of field
Dec	Hex	
0-15	00-0F	Storage descriptor (SUCB)
16-19	10-13	Address of next SUCB
		General Accounting Information
20-31	14-1F	General Information
20-27	14-1B	Date = c MM/DD/YY
28-31	10-1F	Remote Identifier
28	1C	- Binary format
29-31	1D-1F	- Character format
		List, Punch and Reader Device Characteristics
32	20	List routing remid
33	21	Punch routing remid
		Device status values for the following devices:
		X'80' - Device started X'40' - Device available X'20' - Output available
36-39	24-27	Printer 1 - C'LST1'
40	28	Device status
41-43	29-2B	Pointer to LUCB
44-47	2C-2F	Forms ID
48-51	30-33	List output classes
52-55	34-37	Printer 2 - C'LST2'
56	38	Device status
57-59	39-3B	Pointer to LUCB
60-63	30-3F	Forms ID
64-67	40-43	List output classes
68-71	44-47	Printer 3 - C'LST3'
72	48	Device status
73-75	49-4B	Pointer to LUCB
76-79	40-4F	Forms ID
80-83	50-53	List output classes
84-87	54-57	Punch - C'PUN1'
88	58	Device status
89-91	59-5B	Pointer to LUCB
92-95	5C-5F	Forms ID
96-99	60-63	Punch output classes
100-103	64-67	Reader - C'RDR1'
104	68	Device status
105-107	69-6B	Pointer to LUCB
108-111	6C-6F	Forms ID
112-115	70-73	Reader classes
116-119	74-77	Console - C'CON1'
120	78	Device status
121-123	79-7B	Pointer to LUCB
124-127	7C-7F	Forms ID
128-131	80-83	Console classes

SNA UNIT CONTROL BLOCK (SUCB) (...CONTINUED)

Bytes		Description/function of field
Dec	Hex	
132	84	Device List delimiter
133-134	85-86	Reserved
135	87	Device select indicator
136-143	88-8F	Default compaction table for outbound
136-139	88-8B	Name of default table
140-143	8C-8F	Address of default table virtual
144	90	Card/document flow X'80' - Card inbound allowed X'40' - Card outbound allowed X'08' - Document inbound allowed X'04' - Document outbound allowed
		Message Control Section
145	91	Message request status X'80' - Message processor for work station is active X'40' - Request to interrupt IPW$$OB for outbound message was issued
146-148	92-94	Pointer to the LUCB with the suspending IPW$$OB
149	95	Unused
150-151	96-97	No. of messages
152	98	Subchain index
153	99	Temporary delete chain index
154	9A	Terminal type
155	9B	Terminal features X'80' - Console specified
		Miscellaneous
156-159	9C-9F	Address of work station lockword
160-163	A0-A3	Inbound work space address
164	A4	Reserved
165-167	A5-A7	Pointer to LUCB. If set then workspace is in use by the LUCB being pointed to.
168-171	A8-AB	Pointer to first LUCB
172-173	AC-AD	No. of attached LUCBs
174-175	AE-AF	No. of active LUCBs
176-191	B0-BF	Unused

How to Locate:

Displacement X'14' - X'17' of SNCB; X'10' - X'13' of TCB

SNA LOGON REQUEST CONTROL BLOCK (LRCB)

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (LRCB)
16-19	10-13	Pointer to next LRCB
20-23	14-17	Reserved
24	18	Length of one LRCB
25	19	Length of one LRUB
26	1A	No. of total LRUBs in LRCB
27	1B	No. of active LRUBs in LRCB
28-31	1C-1F	Reserved
32-47	20-2F	First LRUB entry
32-35	20-23	ACB address
36-43	24-2B	LU-name
44	2C	Status (X 01 indicates active entry)
45-47	2D-2F	Length of logon message
48-127	30-7F	Remaining LRUB entries

How to Locate:

Displacement X'84'-X'87' of SNCB.

SNA COMPACTION TABLE CONTROL BLOCK (COCB)

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (COCB)
16-19	10-13	Address next COCB
20-21	14-15	Number of entries in COCB
22-23	16-17	Maximum number of GETVIS table entries (1K each)
24-25	18-19	Actual number of GETVIS
26-31	1A-1F	Reserved
32-47	20-2F	First Compaction Table Entry
32-35	20-23	Compaction table name
36-39	24-27	Compaction table address
40	28	Compaction table identifier
41	29	Reserved
42-43	2A-2B	Compaction table use counter
44-45	2C-2D	Compaction table length
46-47	2E-2F	Reserved
48-1023	30-3FF	Remaining Table Entries

How to Locate:

Displacement X'8C' - X'8F' of SNCB.

SNA WORK AREA (WACB)

Bytes		Description/function of field
Dec	Hex	
		Fixed part of SNA work space
00-15	00-0F	Storage descriptor (WACB) Buffer control fields
16-19	10-13	Residual count in buffer
20-23	14-17	Current position in buffer
24-27	18-1B	Address of buffer to SEND/RECEIVE
28-31	1C-1F	Address of buffer in process (FILL)
32-35	20-23	Logical record length
36-171	24-AB	Logical record
172	AC	Processing switches: X 02 - End of file X 01 - Logical interface open (WALI) As used by SNA inbound processor: X 80 - Processing console (WAIC) X 40 - Processing reader (WAIR) X 20 - Unconditional end bracket (WAUB) X 10 - Immediate termination required (WATI) X 08 - Resume data stream state requested (WASR). A resume FMH was received. As used by SNA outbound processor: X 80 - EOF reached (WAOF) X 40 - EOJ or chain reached (WAOJ) X 20 - End of logical record reached (WAOL) X 10 - End of RU reached (WAOR) X 08 - SETUP/GO in progress X 04 - FMH3 send indicator As used by SNA message processor: X 20 - Component not available (WAMC) X 10 - End of RU reached (WAMR)
173	AD	Status byte
174	AE	Data stream state byte: Data stream state flags: X 80 - Between data stream (WASB) X 40 - In data stream (WASI) X 20 - End of data stream pending (WASE) X 10 - Data stream abort (WASA)
175	AF	Chain state byte: Chain state flags: X 80 - Between chain (WACB) X 40 - In chain (WACI) X 20 - End of chain pending (WACL) X 10 - End of file (WACE)
176	B0	Processing options: X 80 - ASCII (WAAS) X 40 - Compression (WACM) X 20 - Transparency (WATR) X 10 - Spanning (WASP) X 08 - Inter-record separator (WARS) X 01 - Compaction support

SNA WORK AREA (WACB) (...CONTINUED)

Bytes		Description/function of field
Dec	Hex	
177	B1	Compaction indicator X 40 - Compaction table found X 80 - Indicates use count increased
178-179	B2-B3	Reserved
180-183	B4-B7	Save area for LUPH, used by interrupting processors
184-187	B8-BB	Error sense bytes
188	BC	Error message number
189-191	BD-BF	Reserved
192-195	C0-C3	Error routine address
196-307	C4-133	RPL (plus 12 bytes for expansion)
308-379	134-17B	Register save area
380-491	17C-1EB	PL/S dynamic area
492-503	1EC-1F7	Reserved
504-511	1F8-1FF	Function management header (plus 2 bytes for expansion)
504	1F8	FMH length byte
505	1F9	FMH type byte X 80 - Concatenation B 00111111 - FMH type 1
506	1FA	FMH select byte B 10000000 - Demand select B 01110000 - Device select B 00000000 - Console B 00100000 - Card reader B 00110000 - Printer B 00001111 - Logical address
507	1FB	FMH flag byte - FMH1 ADS sent on inbound data error X 80 - ADS send by receiver
508	1FC	FMH properties byte B 11100000 - Data stream state B 00000000 - Data stream resume B 00100000 - Data stream end B 01000000 - Data stream begin B 01100000 - Data stream begin and end B 10000000 - Data stream interrupt B 10100000 - Data stream abort B 00011111 - Data stream characteristics B 00010000 - Basic exchange B 00000100 - Compression B 00000010 - Compaction
509	1FD	FMH basic exchange length byte
512-1023	200-3FF	Two SNA buffers

How to Locate:

Displacement X'14' - X'17' of TCB and X'20' - X'27' of LUCB.

SNA MESSAGE CONTROL BLOCK (MSCB)

Bytes		Description/function of field
Dec	Hex	
00-15	00-0F	Storage descriptor (MSCB)
16-23	10-17	Work area
24	18	Free chain index
25	19	Function indicator
26-27	1A-1B	Reserved
28-31	1C-1F	Lockword
		Register save area
32-35	20-23	Register 14
36-39	24-27	Register 15
40-43	28-2B	Register 0
44-47	2C-2F	Register 1
48-51	30-33	Register 2
52-55	34-37	Register 3
56-59	38-3B	Register 4
60-63	3C-3F	Register 5
64-67	40-43	Register 6
68-71	44-47	Register 7
72-75	48-4B	Register 8
76-79	4C-4F	Register 9
80-87	50-57	Reserved

How to Locate :

Displacement X'74' - X'77' of CAT.

SNA MANAGER TCB FIELDS

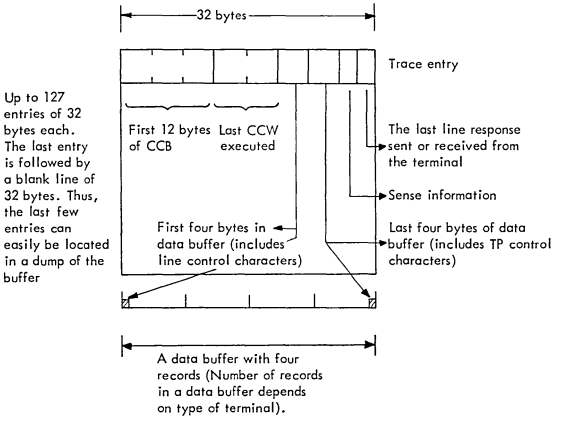
Bytes		Description/function of field
Dec	Hex	
		Wait ECB list
00-03	00-03	Receive any ECB address
04-07	04-07	Work ECB address
08	08	End of list (X'FF')
09-15	09-0F	Reserved
16-19	10-13	Address of SNA unit control block (SUCB)
20-23	14-17	Address of SNA work area (WACB)
24-27	18-1B	Save area for register 13
28-31	1C-1F	Reserved

SERVICE AIDS

RJE I/O TRACE

An I/O trace for an RJE line after SIGNON can be initiated by specifying TRACE = YES in the PRMT macro.

Entries are made in a wraparound buffer in the phase IPW$$TM. The following information is recorded at every I/O interrupt from this terminal.



The trace is to be used when RJE line errors occur or incorrect output is encountered which can be caused by the I/O operation.

POWER/VS FILE DUMP PROGRAM

This program enables any of the POWER/VS files (account, queue, data) to be dumped on a line printer assigned to SYSLST. An option is also provided to enable queue records and their associated track groups belonging to specific jobs to be dumped.

How to Execute

The program is requested by JCL commands entered either via SYSLOG or SYSIN, where SYSIN is assigned to a card reader. Before requesting ensure relevant assignments are made for the file to be dumped.

Example Job Stream

```
//JOBname
//ASSGN (SYS000     for Account file)
        (SYS001     for Queue file)
        (SYS002-6   for Data files)
//EXEC IPW$$DD
```

When the program is loaded successfully, the following message will be issued to SYSLOG :

DUMP FUNCTION =

At this point one of the following options can be entered via SYSLOG :

A (to specify the Account file)
Q (to specify the Queue file) ①
D (to specify the Data file)
Jobname, Jobnumber (,queue) ②
EOJ (to enable cancelation of the program or selection of a new option).

① The complete data file will be dumped.

② This enables (a) queue record(s) belonging to a specific job in the RDR, LST, or PUN queue plus its associated track group(s) to be dumped. Job name may be 8 characters, job number may be 6 characters. For the 'queue' option one of the following three entries can be specified :

L for LST queue (default)
P for PUN queue
R for RDR queue.

After the dump is completed, the message

DUMP FUNCTION =

is issued to SYSLOG again to enable either a new option to be specified or the program to be terminated by the option EOJ.

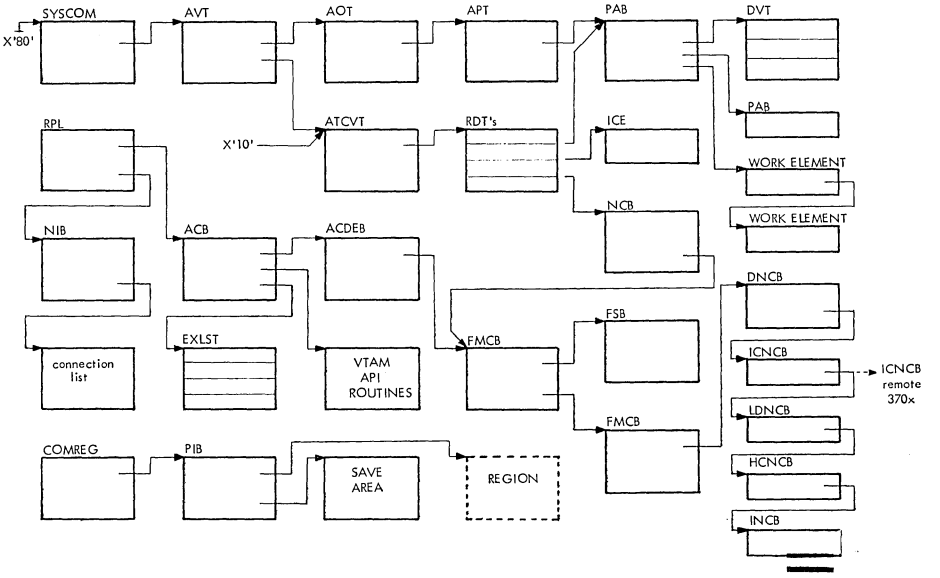
Format of Output

For every 100 bytes, a block of four lines is printed. Line 1 contains the printable characters in those bytes; line 2 contains the zone-part of each byte; line 3 contains the numeric part of each byte; line 4 contains a scale indicating the position of the bytes in the string.

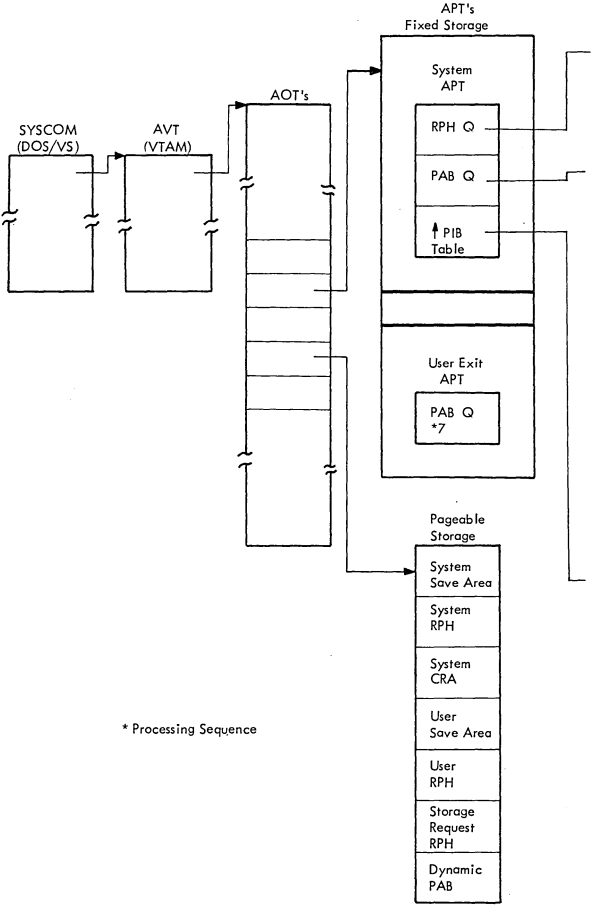
```
line 1 : CHAR   // JOB POWJOB01                        DATE 08/19/74,
line 2 : ZON    664DDC4DDEDDCFF4444444444    4444CCEC4FF6FF6FF6
line 3 : NUMR   1101620766162010000000000    0000413500811917 4B
line 4 :        01...5...10...15...20...25.  .85...90...95.....
```

CHAPTER II
VTAM CONTROL BLOCKS

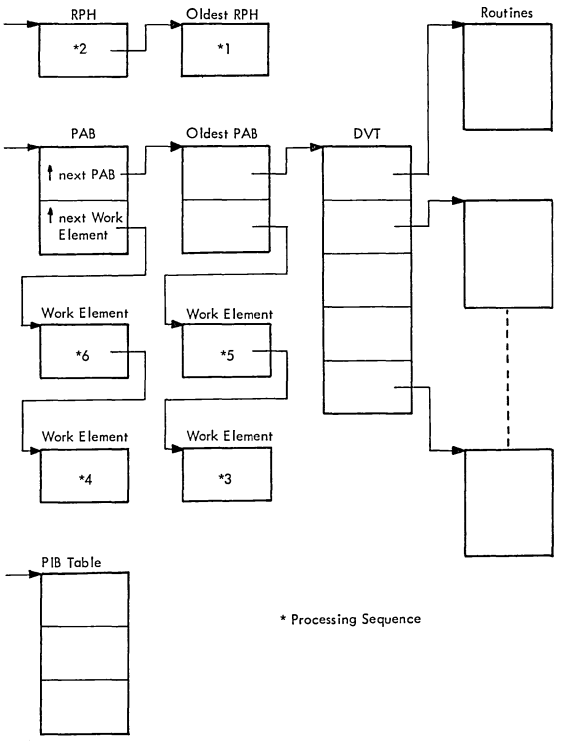
VTAM CONTROL BLOCK RELATIONSHIP



PROCESS SCHEDULING CONTROL BLOCK RELATIONSHIPS



* Processing Sequence


RPH
*2
Oldest RPH
*1
Routines
PAB
next PAB
next Work Element
Oldest PAB
DVT
Work Element
*6
Work Element
*5
Work Element
*4
Work Element
*3
PIB Table
* Processing Sequence

ACB (VTAM ACB)

Dec	Hex	0	1	2	3
0	0	@NM00008 ACB ID	@NM00009 ACB Subtype Field	ACBLEN2 ACB Length	
4	4	ACBAPID Application Indentifier Ptr.			
8	8	ACBINRTN Interface Routine Addr.			
12	C	@NM00010 Not used			
16	10	@NM00011 Not used		@NM00012 Not used	@NM00013 Flag Field ACBMACR2
20	14	ACBAM DTF type ACBDOSID	@NM00015 ACBOFLGS	@NM00017 Access Method ID	@NM00018 ACBERFLG
24	18	@NM00019 Reserved	ACBDEB DEB Pointer		
28	1C	@NM00020 ACB DDNAME			
36	24	ACBPASSW Password Pointer			
40	28	ACBRTN Branch Return to User			
44	2C			@NM00021 Not used	
48	30	ACBUEL Pointer User Exit List			

ACB (VTAM ACB) (...Continued)

Alphabetical List of Fields in @NM00007

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00008	0000	0000	@NM00017	0022	0016	ACBDEB	0025	0019
@NM00009	0001	0001	@NM00018	0023	0017	ACBINRTN	0008	0008
@NM00010	0012	000C	@NM00019	0024	0018	ACBLEN2	0002	0002
@NM00011	0016	0010	@NM00020	0028	001C	ACBPASSW	0036	0024
@NM00012	0018	0012	@NM00021	0046	002E	ACBRTN	0040	0028
@NM00013	0019	0013	ACBAM	0020	0014	ACBUEL	0048	0030
@NM00015	0021	0015	ACBAPID	0004	0004			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0013	@NM00013	Flag Field ACBMACR2	1...	ACBLOGON	LOGON Bit Flag 1= NLOGON,0=LOGON
			.111 1111	@NM00014	Not used
0015	@NM00015	ACBOFLGS	1...	ACBVOLMT	Verify volume mounted
			.1..	ACBVMSG	Message requested bit
			..1.	ACBEOV	EOV concatenation
			...1	ACBOPEN	ACB is open
			.... 1...	ACBCAT	ACT for AMO cat
			.... .1..	ACBEXFG	User Exit flag
			.... ..1.	ACBJRNL	JRNL was loaded by Open
			1	ACBLOCK	ACB is locked

Constants in the VTAM ACB

Label	Value	Meaning
DTF Type - stored in ACBAM		
ACBVTAM	X'60'	VTAM

The following equates are for the 'ACBERFLG' field, and should be used in addition to the ones previously defined above.

Open Equates

ACBNORM	X'00'	Normal completion
ACBOANAT	X'50'	VTAM Not active
ACBOAHLT	X'52'	VTAM active, but halting
ACBOAVFY	X'54'	APPL verification failed
ACBOANSN	X'56'	Non-APPLID name specified

ACB (VTAM ACB) (...Continued)

Constants in the VTAM ACB (...Continued)

Label	Value	Meaning
Open Equates (continued)		
ACBOAPAA	X'58'	Application active already
ACBOAPNM	X'5A'	No matching APPLID entry
ACBOVINA	X'5C'	VTAM in system but not active
ACBOAPSE	X'5E'	APPLID not in REQ's space
ACBOUNDF	X'60'	Indeterminant error
ACBOAPLE	X'62'	APPLID length invalid
ACBOPWSE	X'64'	Password not in REQ's space
ACBOPWLE	X'66'	Password length invalid
ACBRNOOF	X'68'	A primary POA issued an open ACB but another primary POA is currently active - open failed
Close Equates		
ACBNMAIN	X'46'	Open or close not issued in mainline
ACBMNJSTP	X'48'	Open or close not issued under jobstep TCB for non priviliged task
ACBCDSNR	X'42'	Destinations not released
ACBRNOCF	X'4C'	Close failed - POI queue not empty
ACBVTLEN	52	ACB length
ACBTYPE	X'23'	ACB type

ACDEB (ISTACDEB)

Dec	Hex	0	1	2	3
0	0	ACDTYPE Control Block Type	ACDLNGTH Control Block Length in Bytes	ACDSAF Flags	
4	4	ACDCHN Chain field			
8	8	ACDTSKID Task ID			
12	C	ACDRSV08 Reserved Preserve Alignment			
16	10	ACDDBPFX VTAM DEB Prefix Section			
24	18	ACDBASIC BASIC DEB Section			
40	28	ACDVTAM VTAM DEB Section			
128	80	ACDSIP SESSION Control Inbound PAB			
144	90	ACDSOP SESSION Control Outbound PAB			

ACDEB (ISTACDEB) (...Continued)

Dec	Hex	0	1	2	3
160	A0	ACDASFQ ADDR 1st FMCB on DFASY ANY Q			
164	A4	ACDREFQ ADDR 1st FMCB on RESP ANY Q			

ORG ACDTYPE

0	0	ACDOPNAD First byte of DEB for open			

ORG ACDDBPFX

16	10	ACDRSV01 Reserved			
20	14	ACDLENG Length for OS	ACDAMTYP Acces Method Type for OS	ACDRSV02 Reserved	ACDRSV03 Reserved

ORG ACDBASIC

24	18	ACDTCB Pointer to TCB owning this DEB		
28	1C	ACDDEB Pointer to next DEB on DEB Chain of TCB		
32	20	ACDPRLEN Prefix Length	ACDDEBID Owner DEB Identification	ACDRSV04 Reserved
36	24	ACDACBAD		

ORG ACDACBAD

36	24	ACDRSV10	ACDACB Pointer to Appl. ACB

ORG ACDVTAM

40	28	ACDLOCK Deblock Lock	

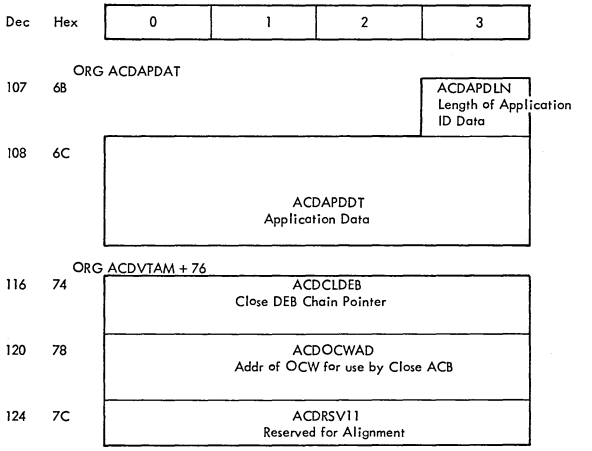
ACDEB (ISTACDEB) (...Continued)

Dec	Hex	0	1	2	3
44	2C	ACDRDTE Pointer to RDT Entry			
48	30	ACDFMCB Addr of 1st FMCB on FMCB queue of this DEB			
52	34	ACDRAFQ Addr of 1st FMCB on Readany FMCB Que			
56	38	ACDRARQ Addr of 1st RPL on readany RPL que			
60	3C	ACDPSST Addr of the PSS table			
64	40	ACDRSV33 Reserved			
72	48	ACDNEPAB PSS solicit/read any PAB			
88	58	ACDSSPAB PSS system services PAB			
104	68	ACDSSFLG System service flags			

ORG ACDVTAM+65

105	69	ACDRSV06 Reserved	ACDRSV07 Reserved
		ACDPAPDAT Application - ID section	

ACDEB (ISTACDEB) (...Continued)



Alphabetical List of Fields in ISTACDEB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
ACDACB	0037	0025	ACDLNGTH	0001	0001	ACDRSV06	0105	0069
ACDACBAD	0036	0024	ACDLOCK	0040	0028	ACDRSV07	0106	006A
ACDAMTYP	0021	0015	ACDNEPAB	0072	0048	ACDRSV08	0012	000C
ACDAPDAT	0107	006B	ACDOCWAD	0120	0078	ACDRSV10	0036	0024
ACDAPDDT	0108	006C	ACDOPNAD	0000	0000	ACDRSV11	0124	007C
ACDAPDLN	0107	006B	ACDPRLEN	0032	0020	ACDRSV33	0064	0040
ACDASFQ	0160	00A0	ACDPSST	0060	003C	ACDSAF	0002	0002
ACDBASIC	0024	0018	ACDRAFQ	0052	0034	ACDSIP	0128	0080
ACDCHN	0004	0004	ACDRARQ	0056	0038	ACDSAOP	0144	0090
ACDCLDEB	0116	0074	ACDRDTE	0044	002C	ACDSSFLG	0104	0068
ACDDBPFX	0016	0010	ACDREFQ	0164	00A4	ACDSSPAB	0088	0058
ACDDEB	0028	001C	ACDRSV01	0016	0010	ACDTCB	0024	0018
ACDDEBID	0033	0021	ACDRSV02	0022	0016	ACDTSKID	0008	0008
ACDFMCB	0048	0030	ACDRSV03	0023	0017	ACDTYPE	0000	0000
ACDLENG	0020	0014	ACDRSV04	0034	0022	ACDVTAM	0040	0028
						ACDVTPRX	0000	0000

ACDEB (ISTACDEB) (...Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0068	ACDSSFLG	System Service Flags	1...	ACDCACB	Close ACB in Progress
			.1..	ACDABEND	If ABEND or CANCEL in progress, used as flag to indicate that a dump must be taken
			..1.	ACDA1CLS	CLOSE issued in ISTRAAA1
			...1 1111	ACDRSV09	Reserved

Constants in ISTACDEB

Label	Value	Meaning
ACDID	X'0F'	VTAM Data Extent Block ID

AOT (ISTAOT)

Dec	Hex	0	1	2	3
0	0	AOTAPT Pointer to APT for this task			
4	4	AOTCNT Count of open ACBs for this task	AOTDSBYT Used by ISTAPCAS to disable via STNSM	AOTRSV02 Reserved	
8	8	AOTRSV03 Reserved			
12	C	AUTOFLAGB Flags	AOTRSV04 Reserved		

ORG AOTAPT

Dec	Hex	
0	0	AOTFLAGA Flags

ORG AOTAPT + 1

Dec	Hex	
1	1	AOTAPTA Same as AOTAPT

ORG AOTAPT

Dec	Hex	
0	0	AOTOBB

ORG AOTOBB

Dec	Hex	
0	0	AOTBVA Start Addr of VTAM Partition
4	4	AOTVEA End Addr of VTAM Partition

Alphabetical List of Fields in ISTAOT

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
AOTAPT	0000	0000	AOTFLAGA	0000	0000	AOTRSV03	0008	0008
AOTAPTA	0001	0001	AOTFLAGB	0012	000C	AOTRSV04	0013	000D
AOTCNT	0004	0004	AOTOBB	0000	0000	AOTVBA	0000	0000
AOTDSBYT	0005	0005	AOTRSV02	0006	0006	AOTVEA	0004	0004

Flag Meanings

Hex Disp	Flag-Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
000C	AOTFLAGB	Flags	1...	AOTTPEAL	TPIN macro has been issued, used only in Attention Task AOT
			.1..	AOTDUMP	Dump taken on termination, used on in a main task AOT
			..1.	AOTCNCL	Cancel postponed for APS to finish
			...1	AOTVTDLY	Timer exit delayed by VTAM AP
			.... 1...	AOTUE	User exit processing
			.... .1..	AOTVTSVC	VTAM SVC 53 or SVC49
			.... ..1.	AOTSWAP	VTAM process dispatching
			1	AOTSKEY	Supervisor key forced for this task VTAM
0000	AOTFLAGA	Flags	1...	AOTCAP	DOS dispatcher call to ISTAPCAS needed
			.111 1111	AOTRSV01	Reserved

APT (ISTAPT)

Dec	Hex	0	1	2	3
0	0	APTAPTX Pointer to pageable partion of APT			
4	4	APTRPH Posted RPH queue anchor			
8	8	APTPAB Scheduled PAB queue anchor			
12	C	APTUECB Scheduled user exit queue anchor			
16	10	APTLPSW PSW for VTAM dispatching of this task			
24	18	APTPIB Pointer to PIB for task			
28	1C	APTAOT Pointer to AOT for task			

ORG APTAPTX

0	0	APTFLAGA Flags	

ORG APTAPTX+1

1	1		APTAPTXA Pointer to pageable portion of APT

ORG APTPAB

8	8	@NM00001 Flags in CS Operation	APTPABA Scheduled PAB queue anchor

ORG APTLPSW

16	10	APTSYMSK	APTLAMWP	@NM00002
20	14	@ NM00002 (Cont)	APTLADDR	

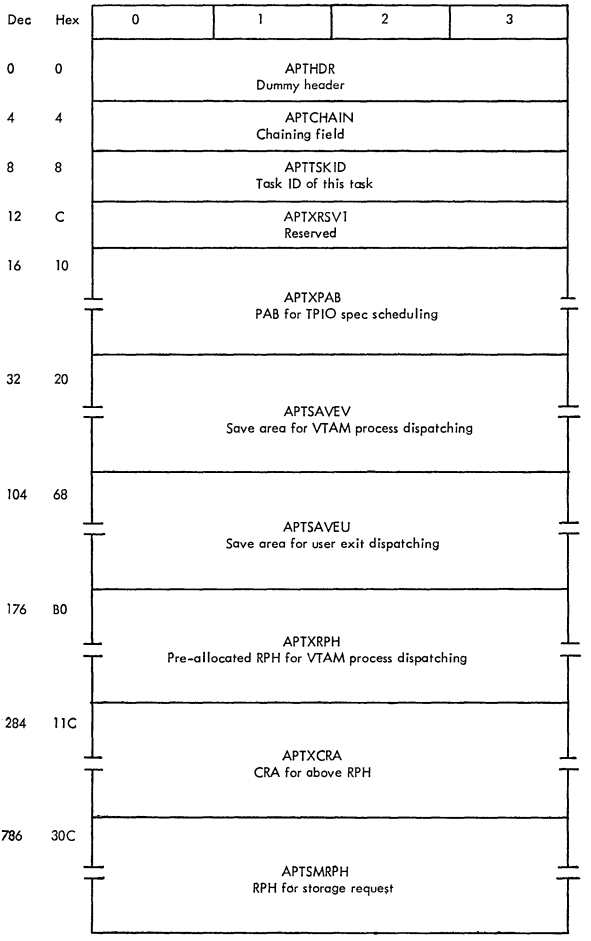
Alphabetical List of Fields in ISTAPT

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00001	0008	0008	APTFLAGA	0000	0000	APTPABA	0009	0009
@NM00002	0018	0012	APTLADDR	0021	0015	APTPIB	0024	0018
APTAOT	0028	001C	APTLAMWP	0017	0011	APTRPH	0004	0004
APTAPTX	0000	0000	APTLPSW	0016	0010	APTSYMSK	0016	0010
APTAPTXA	0001	0001	APTPAB	0008	0008	APTUECB	0012	000C

Flag Meanings

Hex Disp	Flag byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
000	APTFLAGA	Flags	1...	APTRPHBY	Pre-allocated RPH is in use
			.1..	APTSUSP	Waiting for Storage Request
			..1.	APTVSKEY	Status of Supervisor key bit on entry for VTAM Process Dispatch
			...1	APTUSKEY	Same for User exits
			.... 1...	APTUE	User exit being processed
			.... .111	APTRSV01	Reserved

APT (ISTAPTX)


Dec
Hex
0
1
2
3
0
0
APTHDR
Dummy header
4
4
APTCHAIN
Chaining field
8
8
APTTSKID
Task ID of this task
12
C
APTXRSV1
Reserved
16
10
APTXPAB
PAB for TPIO spec scheduling
32
20
APTSAVEV
Save area for VTAM process dispatching
104
68
APTSAVEU
Save area for user exit dispatching
176
B0
APTXRPH
Pre-allocated RPH for VTAM process dispatching
284
11C
APTXCRA
CRA for above RPH
786
30C
APTSMRPH
RPH for storage request

APT (ISTAPTX) (...Continued)

Dec	Hex	0	1	2	3
888	378	APTADRR Range of Storage for this Partition			
896	380	APTSVAR Range of shared Virtual Storage			

ORG APTHDR

0	0	APTTYPE Control Block Type	APTXRSV0 Reserved	APTLNGTH Length of ISTAPTX

ORG APTADRR

888	378	APTADRS Start of Range
892	37C	APTADRE End of Range

ORG APTSVAR

896	380	APTSVAS Start of Range
900	384	APTSVAE End of Range

Alphabetical List of Fields in ISTAPTX

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
APTADRE	0892	037C	APTSAVEV	0032	0020	APTXCRA	0284	011C
APTADRR	0888	0378	APTSMRPH	0780	030C	APTXPAB	0016	0010
APTADRS	0888	0378	APTSVAE	0900	0384	APTXRPH	0176	00B0
APTCHAIN	0004	0004	APTSVAR	0896	0380	APTXRSV0	0001	0001
APTHDR	0000	0000	APTSVAS	0896	0380	APTXRSV1	0012	000C
APTLNGTH	0002	0002	APTTSKID	0008	0008			
APTSAVEU	0104	0068	APTTYPE	0000	0000			

Constants in ISTAPTX

Label	Value	Meaning
APTXTYP	X'16'	Setting value for type.

ATCVT (ISTATCVT)

Dec	Hex	0	1	2	3
0	0	ATCCOM System Independent Fields			
268	10C		ATCMAXID Maximum number of major nodes, 0= number of *	ATCRSV16 not used	
272	110	ATCMNT PTR to major node table - set by Sys.Def.Ref. by ISTSDCCB (CBDEF), ISTSDCCI (CINDEXY)			
276	114	ATCCDADD PTR to CIDADD routine ISTSDDCA ref. by CIDCTL macro			
280	118	ATCCDDEL PTR to CIDDEL routine ISTSDCCD ref. by CIDCTL macro			
284	11C	ATCCDFND Ptr to CIDFND routine IATSDCCF ref. by CIDCTL macro			
288	120	ATCESC01 PTR to ESC01			
292	124	ATCESC02 PTR to ESC02			
296	128	ATCCSMR PTR to connection services master routine			
300	12C	ATCOCRT PTR to open/close routine			
304	130	ATCUEP Pointer to user exit			

* Entries in the MNT.

ATCVT (ISTATCVT) (Continued)

Dec	Hex	0	1	2	3
308	134	ATCSHRTN Name of VTAM shared RTN to be loaded			
316	13C	ATCSHRFG Attribute flags	ATCXRANG Number of bits in X-value portion of CID	ATCSAF Sub area address field	
320	140	ATCEPA Entry point addr of loaded			
324	144	ATCALERT Pointer to alert-routine ISTSDCAL			
328	148	ATCDVLOD Pointer to ISTSDCOD			
332	14C	ATCTRCPT Pointer to trace parm list			
336	150	ATCDVT Pointer to first DVT on chain			
340	154	ATCEPT Pointer to first EPT on chain			
344	158	ATCMSGP Pointer to TPMSG processor			
348	15C	ATCMSGM Pointer to TPMSG - message CSECT			
352	160	ATCTRPAB Address of trace writer PAB			
356	164	ATCVTLOD Address of VTAM load list			

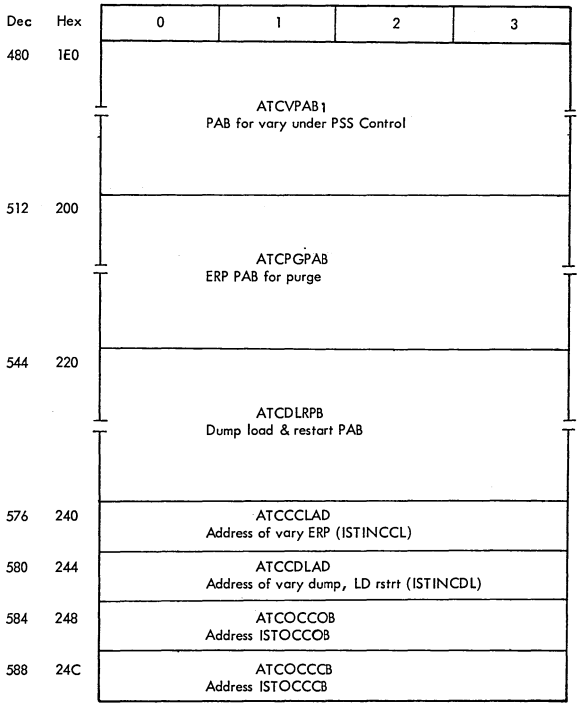
ATCVT (ISTATCVT) (Continued)

Dec	Hex	0	1	2	3
360	168	ATCECPRT ECB for trace file print			
364	16C	ATCZDVTB Address of ISTZCFBI			
368	170	ATCECTLP TOLTEP ECB			
372	174	ATCRVCHS Reserved			
380	17C	ATCCRME Vary PSS control mechanism			
384	180	ATCHPGM Buffer information			
388	184	ATCDEBCH Close DEB chain Pointer			
392	188	ATCTODVT The TOLTEP DVT ptr pointed to by 3rd word of PAB			
396	18C	ATCADEL A delete routine address			
400	190	ATCCDPTR Pointer to ISTOCCCD- DOS only			
404	194	ATCLDNCS Pointer to NCSPL for load/dump			
408	198	ATCLDECB ECB fo load/dump subtask			

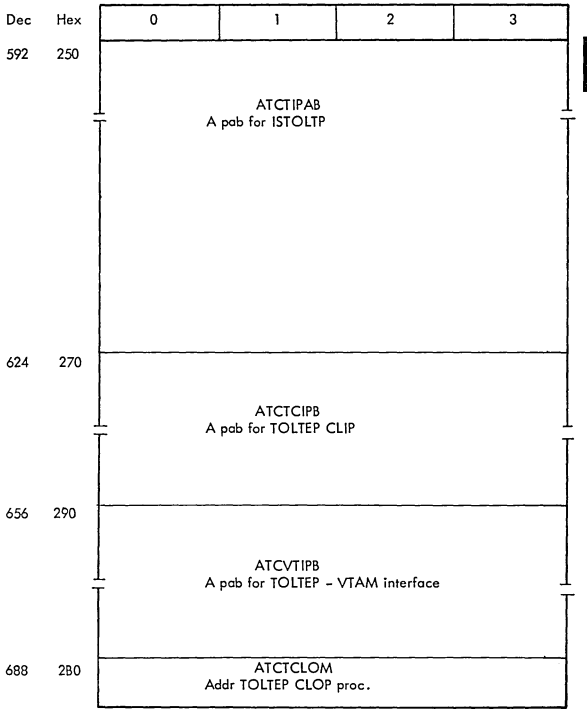
ATCVT (ISTATCVT) (Continued)

Dec	Hex	0	1	2	3
412	19C	ATCFESS Pointer to ISTCFESS			
416	1A0	ATCAPCR5 Pointer to ISTINCR5			
420	1A4	ATCNODEL VSAM Data Set name			
428	1AC	ATCNODDS Pointer to RPL			
432	1B0	ATCONFIG Start VTAM Config = Parameter			
440	1B8	ATCRSV99 Reserved for later pointers			
444	1BC	ATCAP33 Pointer to ISTAPC33			
448	1C0	ATCAP35 Pointer to ISTAPC35			
452	1C4	ATCAP36 Pointer to ISTAPC36			
456	1C8	ATCDVTLK Lock word for DVT lock			
460	1CC	ATCCDFIN Pointer to ISTSDCRR			
464	1D0	ATCCDFDN Pointer to ISTSDCCN			
468	1D4	ATCVOCLK VOCLOCK lock			
472	1D8	ATCRDTLK RDTLOCK lock			
476	1DC	ATCRSV97 DWORD alignment			

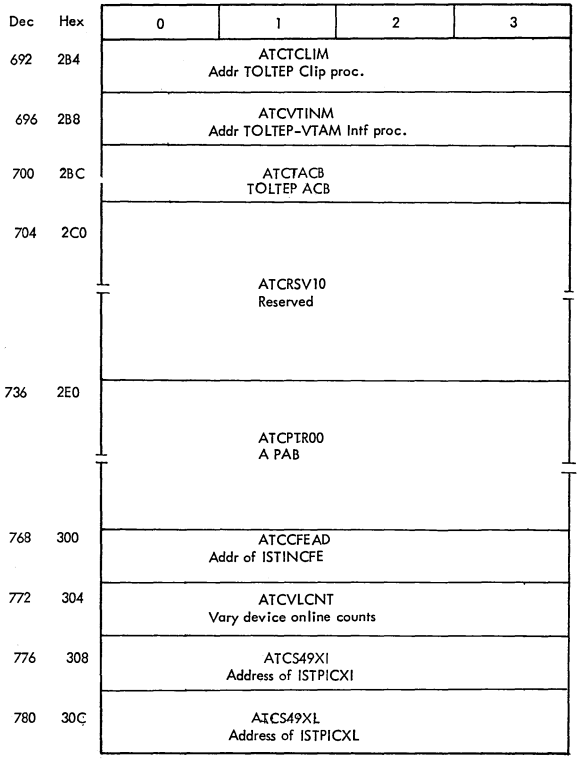
ATCVT (ISTATCVT) (Continued)



ATCVT (ISTATCVT) (Continued)

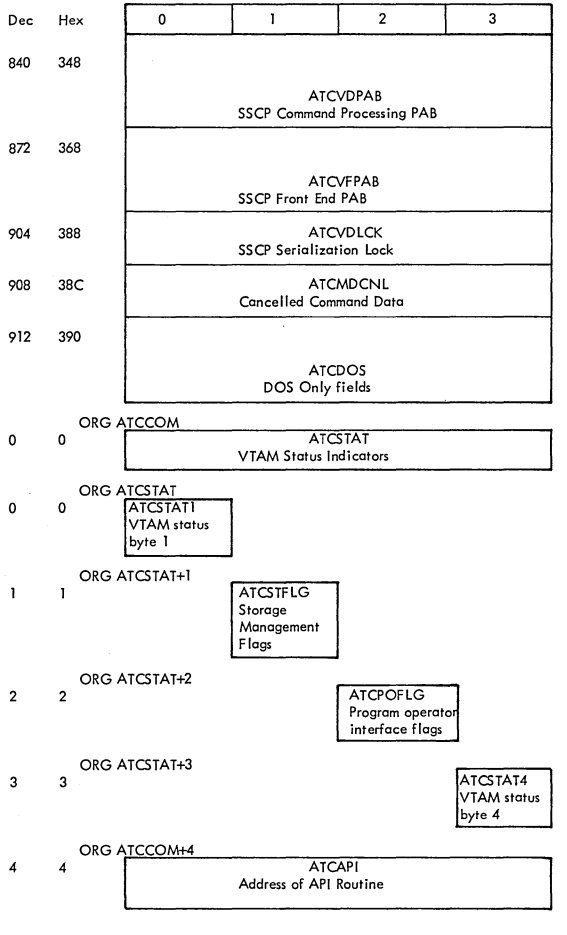


ATCVT (ISATCVT) (Continued)



ATCVT (ISATCVT) (...Continued)

Dec	Hex	0	1	2	3
784	310	ATCPODVT Pointer to Program Operator DVT			
788	314	ATCRNO			
792	318	ATCSOPD Session Control			
800	320	ATCSIPD Session Control			
812	32C	ATCSECST Session Controlsess Term			
816	330	ATCNMCTR Name Counter		ATCSTAT2 Trace flags	@NM00015 Reserved
820	334	ATCSRTAB Search LOGON Mode Table RTN Address (ISTINCSH)			
824	338	ATCUSSPT Default USS Definition Table Address (ISTINCDT)			
828	33C	ATCMODTB Default System LOGON Mode Table Address (ISTINCLM)			
832	340	ATCINCW3 Address of ISTINCW3			
836	344	ATCIOECB ECB Used by IOS - Pointed to by IOBECEPT			


Dec
Hex
0
1
2
3
840
348
ATCVDPAB
SSCP Command Processing PAB
872
368
ATCVFPAB
SSCP Front End PAB
904
388
ATCVDLCK
SSCP Serialization Lock
908
38C
ATCMDCNL
Cancelled Command Data
912
390
ATCDOS
DOS Only fields
ORG ATCCOM
0
0
ATCSTAT
VTAM Status Indicators
ORG ATCSTAT
0
0
ATCSTAT1
VTAM status
byte 1
ORG ATCSTAT+1
1
1
ATCSTFLG
Storage
Management
Flags
ORG ATCSTAT+2
2
2
ATCPOFLG
Program operator
interface flags
ORG ATCSTAT+3
3
3
ATCSTAT4
VTAM status
byte 4
ORG ATCCOM+4
4
4
ATCAPI
Address of API Routine

ATCVT (ISATCVT) (Continued)

Dec	Hex	0	1	2	3
8	8	ATCDCFRR Pointer to FRR of control layer, initialized by OPENDEST			
12	C	ATCRDT Pointer to first RDT			
16	10	ATCSRT Pointer to SRT directory			
20	14	ATCRSV70 Reserved			
24	18	ATCECMOD ECB for modify command proc.			
28	1C	ATCMODQ Pointer for output queue for modify command			
32	20	ATCECHLT ECB for halt command			
36	24	ATCHALTQ Pointer to output queue for halt command			
40	28	ATCECVRY ECB for vary command proc.			
44	2C	ATCVARYQ Pointer to output queue for vary command			
48	30	ATCECDSP ECB for display command			
52	34	ATCDSPLQ Pointer to output queue for display command			
56	38	ATCOCHA Pointer to OCT header			

ATCVT (ISATCVT) (Continued)

Dec	Hex	0	1	2	3
60	3C	ATCECSES ECB to Halt Session Mode			
64	40	ATCECVRQ ERP ECB for Vary Req. Info. Request Notification			
68	44	ATCVPARM Address of Vary Parameters			
72	48	ATCECOPC ECB to Indicate Operator Control Processing Complete			
76	4C	ATCECNET ERP ECB for Network Configuration Request			
80	50	ATCECPRM Pointer to QAB for ERP's ECB Parameters			
84	54	ATCHLTMS Pointer to Halt Command or Halt Return Message			
88	58	ATCFSB Pointer to Feedback Status Block			
92	5C	ATCRSV71 Reserved			
96	60	ATCRDTH Pointer RDT Header			
100	64	ATCACCTA Pointer to Installation Accounting Routine			
104	68	ATCAUTHA Pointer to Installation Authorisation Routine			
108	6C	ATCPTCHA Pointer to VTAM Patch Area			

ATCVT (ISATCVT) (Continued)

Dec	Hex	0	1	2	3
112	70	ATCCONFT Pointer to VTAM Configuration Table			
116	74	ATCFDVT Pointer to first DVT for O/C			
120	78	ATCFEPT Pointer to first EPT for O/C			
124	7C	ATCDVTPT Address of load mod for type = VTAM tracing			
128	80	ATCBPDA Pointer to buffer pool directory			
132	84	ATCADD Pointer to ADD procedure			
136	88	ATCREMOV Pointer to remove procedure			
140	8C	ATCIOTRC Pointer to I/O trace procedure			

Org ATCIOTRC

140	8C	ATCTHTRC Addr of TH trace routine			

Org ATCTHTRC

140	8C	ATCTPBUF TPIOS buffer trace (ISTRARTP)			

Org ATCCOM+144

144	90	ATCBFTRC Pointer to buffer trace procedure			
148	94	ATCFBRPH Addr of feedback proc RPH			
152	98	ATCBLDLA Addr of BLDL routine			

ATCVT (ISATCVT) (Continued)

Dec	Hex	0	1	2	3
156	9C	ATCALOAD Addr of Aload Routine			
160	A0	ATCREADA Addr of Source Read Routine			
164	A4	ATCGTSTR Addr of Getstor Routine			
168	A8	ATCFRSTR Addr of Freestor Routine			
172	AC	ATCSTMA Addr of SM Initialization Routine			
176	B0	ATCACDA Addr of First ACDEB			
180	B4	ATCSMRQ Addr of Request Storage Routine			
184	B8	ATCSMQU Addr of Queue Request Rtne			
188	BC	ATCSMRS Addr of Release Storage Routine			
192	C0	ATCSMRC Addr of Recover Storage Routine			
196	C4	ATCSMBQ Pointer to Q'ed Req. SMS Routine			
200	C8	ATCFIRA Addr of Feedback Initiation RPH			
204	CC	ATCSRTAD Pointer to SRTADD routine			

ATCVT (ISATCVT) (Continued)

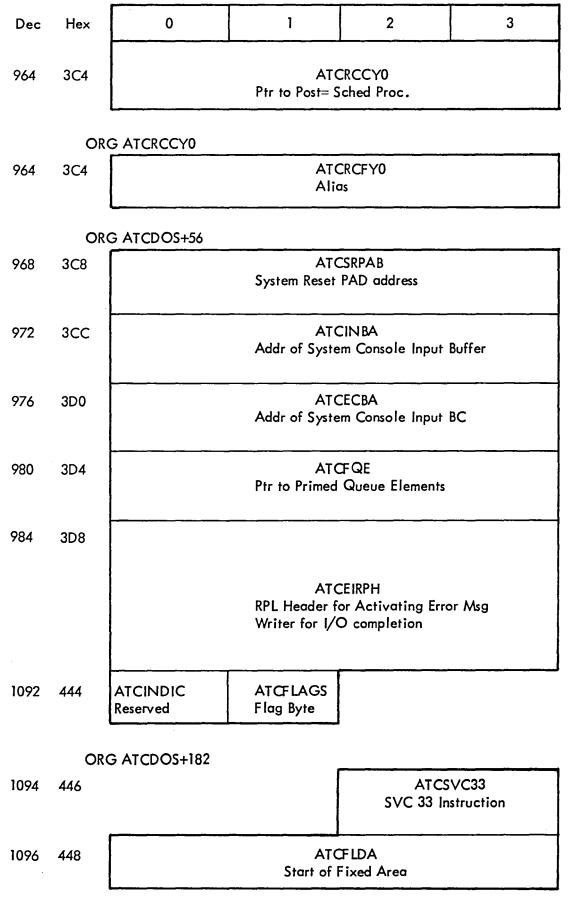
Dec	Hex	0	1	2	3
208	D0	ATCSRTDF Pointer to Setdele Routine			
212	D4	ATCDCC60 Pointer to ISTDCC60 - Ctl. layer move to user area			
216	D8	ATCDCC61 Pointer to ISTDCC61 - Ctl. layer move fixed to pagable			
220	DC	ATCNERST Pointer to ISTDCC00 - Request - ST			
224	E0	ATCNERCV Pointer to ISTRCC21 - Receive OB			
228	E4	ATCNERNE Pointer to ISTDCC25 - Read - ANY			
232	E8	ATCNERFN Pointer to ISTDCC02 - Request - FN			
236	EC	ATCAPOST Pointer to VTAM Post Routine			
240	F0	ATCVTMID Host major node I.D.		ATCRSV11 Reserved	
244	F4	ATCRCC63 HSKPANYQ Pointer			
248	F8	ATCRCC26 Send Response Pointer			
252	FC	ATCRCC65 Set RPL Pointer			
256	100	ATCNESAL Pointer to ISTDCC24 - Solicit - All			

Dec	Hex	0	1	2	3
260	104	ATCNERAP Pointer to ISTDCC85 - Read Any Purge			
264	108	ATCACTRM Count of Active Terminals		ATCCIDM CID Mask	
268	10C	ATCMSGSP Reserved for msg suppression			
		Org ATCCSMR			
296	128	ATCCSMA Pointer to connection Service Master Routine			
		Org ATCHPGM			
384	180	ATCHBFNO Number of buffs for channel		ATCHBSIZ Buffer size in bytes	
		Org ATCVLCNT			
772	304	ATCRNCNT 370X Count		ATCLCLCT 3270 Count	
		ORG ATCRNO			
788	314	@ NM00013	ATCPOIA Pointer to Program Operator Interface Area		
		Org ATCSOPD			
792	318	ATCSEC01 Outbound processing			
796	31C	ATCSEC10 DVT			
		Org ATCSIPD			
800	320	ATCSEC21 Inbound processing			
804	324	ATCSEC30 Feedback			
808	328	ATCSEC40 DVT			
		Org ATCSECST			
812	32C	ATCSEC51 Recovery DVT			
		Org ATCMDCNL			
908	38C	ATCMDCNT Size of buffer	ATCMDPTR Address of Buffer		

ATCVT (ISATCVT) (Continued)

Dec	Hex	0	1	2	3
		ORG ATCDOS			
912	390	ATCPRTYQ Priority Msg Queue Anchor			
916	394	ATCSYSCN Address of SYSCON Routine			
920	398	ATCCIBPL Address of Lib Pool			
924	39C	ATCOACBA Address of Open ACB Routine			
928	3A0	ATCCACBA Address of Close ACB Routine			
932	3A4	ATCTET Address of VTAM TET			
936	3A8	ATCTETC Addr of Current Task Entry in TET			
940	3AC	ATCSV53T Addr of Function Table for SVC53T			
944	3B0	ATCSCHRT Address of Return to Asynchronous Processing Scheduler			
948	3B4	ATCAPESH Address of Module to schedule a PAB (ISTAPESH)			
952	3B8	ATCAPCST Address of ISTAPCST			
956	3BC	ATCSTATA Addr of Local Device Status Collector			
960	3C0	ATCLAHRA Addr of Local 3270 Attention Handler RPH			

ATCVT (ISATCVT) (Continued)



Dec	Hex	0	1	2	3
1100	44C	ATCDTFBL DTF Builder Routine Address			
1104	450	ATCTIMER Timer Subroutine Address			
1108	454	ATCR7SVE Save R7 for ISTAPEAS			
1112	458	ATCGVPAG Addr of Pageable Area in GETVIS Region			
1116	45C	ATCDCC3X Ptr to ISTDCC3X-Extn to ISTDCC30 for Performance			
1120	460	ATCRTDOS Return to DOS		ATCRVPTD Reserved	
1124	464	ATCNSECB ECB for Attaching NETSOL			

ORG ATCNSECB

1124	464	ATCNSPAD Alignment	ATCNSRC Return Code

ORG ATCDOS+216

1128	468	ATCNRMQ Normal Msg Queue Anchor
1132	46C	ATCAICTN Pointer to ISTAICTN
1136	470	ATCPOBAB PO DYPAB for reply processing, POI Termination, and VTAM Message Processor
1168	490	ATCSTXOC Pointer to first XOC on queue

Alphabetical List of Fields in ISTATCVT

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@ NM00013	0788	0314	ATCDVTLK	0456	01C8	ATCMODQ	0028	001C
@ NM00015	0819	0333	ATCDVTPT	0124	007C	ATCMODTB	0828	033C
ATCACCTA	0100	0064	ATCECBA	0976	03D0	ATCMSGM	0348	015C
ATCACDA	0176	00B0	ATCECDSP	0048	0030	ATCMSGP	0344	0158
ATCACTRM	0264	0108	ATCECHLT	0032	0020	ATCMSGSP	0268	010C
ATCADD	0132	0084	ATCECMOD	0024	0018	ATCNERAP	0260	0104
ATCADEL	0396	018C	ATCECNET	0076	004C	ATCNERCV	0224	00E0
ATCAICTN	1132	046C	ATCECOPC	0072	0048	ATCNERFN	0232	00E8
ATCALERT	0324	0144	ATCECPRM	0080	0050	ATCNERNE	0228	00E4
ATCALOAD	0156	009C	ATCECPRT	0360	0168	ATCNERST	0220	00DC
ATCAPCR5	0416	01A0	ATCECSES	0060	003C	ATCNESAL	0256	0100
ATCAPCST	0952	03B8	ATCECTLP	0368	0170	ATCNMCTR	0816	0330
ATCAPESH	0948	03B4	ATCECVRQ	0064	0040	ATCNODDS	0428	01AC
ATCAPI	0004	0004	ATCECVRY	0040	0028	ATCNODEL	0420	01A4
ATCAPOST	0236	00BC	ATCEIRPH	0984	03D8	ATCNRMQ	1128	0468
ATCAP33	0444	01BC	ATCEPA	0320	0140	ATCNSECB	1124	0464
ATCAP35	0448	01C0	ATCEPT	0340	0154	ATCNSPAD	1124	0464
ATCAP36	0452	01C4	ATCESC01	0288	0120	ATCNSRC	1127	0467
ATCAUTHA	0104	0068	ATCESC02	0292	0124	ATCOACBA	0924	039C
ATCBFTRC	0144	0090	ATCFBRPH	0148	0094	ATCOCCCB	0588	024C
ATCBLDLA	0152	0098	ATCFDVT	0116	0074	ATCOCCOB	0584	0248
ATCBPDA	0128	0080	ATCFEPT	0120	0078	ATCOCHA	0056	0038
ATCCACBA	0928	03A0	ATCFESS	0412	019C	ATCOCRT	0300	012C
ATCCCLAD	0576	0240	ATCFIRA	0200	00C8	ATCONFIG	0432	01B0
ATCCDADD	0276	0114	ATCFLAGS	1093	0445	ATCPGPAB	0512	0200
ATCCDDEL	0280	0118	ATCFLDA	1096	0448	ATCPODVT	0784	0310
ATCCDFDN	0464	01D0	ATCFQE	0980	03D4	ATCPOFLG	0002	0002
ATCCDFIN	0460	01CC	ATCFRSTR	0168	00A8	ATCPOIA	0789	0315
ATCCDFND	0284	011C	ATCFSB	0088	0058	ATCPOPAB	1136	0470
ATCCDLAD	0580	0244	ATCGTSTR	0164	00A4	ATCPRTYQ	0912	0390
ATCCDPTR	0400	0190	ATCGVPAG	1112	0458	ATCPTCHA	0108	006C
ATCCFEAD	0768	0300	ATCHALTQ	0036	0024	ATCPTR00	0736	02E0
ATCCIBPL	0920	0398	ATCHBFNO	0384	0180	ATCRCCY0	0964	03C4
ATCCIDM	0266	010A	ATCHBSIZ	0386	0182	ATCRCC26	0248	00F8
ATCCOM	0000	0000	ATCHLTMS	0084	0054	ATCRCC63	0244	00F4
ATCCONFT	0112	0070	ATCHPGM	0384	0180	ATCRCC65	0252	00FC
ATCCRME	0380	017C	ATCINBA	0972	03CC	ATCRCFY0	0964	03C4
ATCCSMA	0296	0128	ATCINCW3	0832	0340	ATCRDT	0012	000C
ATCCSMR	0296	0128	ATCINDIC	1092	0444	ATCRDTH	0096	0060
ATCDCC3X	1116	045C	ATCIOECB	0836	0344	ATCRDLTK	0472	01D8
ATCDCC60	0212	00D4	ATCIOTRC	0140	008C	ATCREADA	0160	00A0
ATCDCC61	0216	00D8	ATCLAHRA	0960	03C0	ATCREMOV	0136	0088
ATCDCFRR	0008	0008	ATCLCLCT	0774	0306	ATCRNCNT	0772	0304
ATCDEBCH	0388	0184	ATCLDECB	0408	0198	ATCRNO	0788	0314
ATCDLRPB	0544	0220	ATCLDNCS	0404	0194	ATCRSV10	0704	02C0
ATCDOS	0912	0390	ATCMAXID	0269	010D	ATCRSV11	0242	00F2
ATCDSPLQ	0052	0034	ATCMDCNL	0908	038C	ATCRSV16	0270	010E
ATCDTFBL	1100	044C	ATCMDCNT	0908	038C	ATCRSV70	0020	0014
ATCDVLOD	0328	0148	ATCMDPTR	0909	038D	ATCRSV71	0092	005C
ATCDVT	0336	0150	ATCMNT	0272	0110	ATCRSV97	0476	01DC

Alphabetical List of Fields in ISTATCVT (Continued)

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
ATCRSV99	0440	01B8	ATCSRT	0016	0010	ATCTIMER	1104	0450
ATCRTDOS	1120	0460	ATCSRTAB	0820	0334	ATCTIPAB	0592	0250
ATCRVCHS	0372	0174	ATCSRTAD	0204	00CC	ATCTODVT	0392	0188
ATCRVPTD	1122	0462	ATCSRTDF	0208	00D0	ATCTPBUF	0140	008C
ATCR7SVE	1108	0454	ATCSTAT	0000	0000	ATCTRCPT	0332	014C
ATCSAF	0318	013E	ATCSTATA	0956	03BC	ATCTRPAB	0352	0160
ATCSCHRT	0944	03B0	ATCSTAT1	0000	0000	ATCUEP	0304	0130
ATCSECST	0812	032C	ATCSTAT2	0818	0332	ATCUSSPT	0824	0338
ATCSEC01	0792	0318	ATCSTAT4	0003	0003	ATCVARYQ	0044	002C
ATCSEC10	0796	031C	ATCSTFLG	0001	0001	ATCVDLOK	0904	0388
ATCSEC21	0800	0320	ATCSTMA	0172	00AC	ATCVDPAB	0840	0348
ATCSEC30	0804	0324	ATCSTXOC	1168	0490	ATCVFPAB	0872	0368
ATCSEC40	0808	0328	ATCSVC33	1094	0446	ATCVLCNT	0772	0304
ATCSEC51	0812	032C	ATCSV53T	0940	03AC	ATCVOCLK	0468	01D4
ATCSHRFG	0316	013C	ATCSYSCN	0916	0394	ATCVPAB1	0480	01E0
ATCSHRTN	0308	0134	ATCS49XI	0776	0308	ATCVPARM	0068	0044
ATCSIPD	0800	0320	ATCS49XL	0780	030C	ATCVTINM	0696	02B8
ATCSMBQ	0196	00C4	ATCTACB	0700	02BC	ATCVTIPB	0656	0290
ATCSMQU	0184	00B8	ATCTCIPB	0624	0270	ATCVLOD	0356	0164
ATCSMRC	0192	00C0	ATCTCLIM	0692	02B4	ATCVTMID	0240	00F0
ATCSMRQ	0180	00B4	ATCTCLOM	0688	02B0	ATCXRANG	0317	013D
ATCSMRS	0188	00BC	ATCTET	0932	03A4	ATCZDVTB	0364	016C
ATCSOPD	0792	0318	ATCTETC	0936	03A8			
ATCSRPAB	0968	03C8	ATCTHTRC	0140	008C			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000	ATCSTAT1	VTAM Status Byte 1	1...	ATCSTART	VTAM is starting
			.1..	ATCACTIV	VTAM is active
			..1.	ATCSNHLT	VTAM session halt
			...1	ATCQKHLT	VTAM quick halt
			.... 1...	ATCNETSL	NETSOL= Yes specified on CMD
			.... .1..	ATCINHLT	Internal VTAM Halt Quick
			.... ..1.	ATCMDHLT	VTAM CMD proc halted
			1	@NM00011	Reserved

ATCVT (ISTATCVT) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0001	ATCSTFLG	Storage Management Flags	1...	ATCHSDMF	System slow down flag
0002	ATCPOELG	Program Operator Interface Flags	1...	ATCPOUNS	Application authorized to receive unsolicited messages, 1=YES
			.111 1111	@NM00012	Reserved
0003	ATCSTAT4	VTAM status byte 4	1...	ATCPRTAT	1= Trace Print active, 0 = not active
			.1..	ATCTPRT	When 1, TPRINT in process
			..1.	ATCMTST	When 1, Modify Test in process
			...1	ATCNCSD	NCS quiesced during halt
			.... 1...	ATCVTTRC	VTAM Trace, 1 = active
			.... .111	ATCRSV04	Reserved
013C	ATCSHRFG	Attribute Flags	1...	ATCLAST	Indicate this is last module
0332	ATCSTAT2	Trace Flags	1...	ATCTRAPI	API
			.1..	ATCTRESC	ESC
			..1.	ATCTRPSS	PSS
			...1	ATCTRLOK	LOCKS
			.... 1...	ATCTRSMS	SMS
			.... .111	@NM00014	Reserved
0445	ATCFLAGS	Flag Byte	1...	ATCSTOPF	Halt msg Recepit Flag
			.1..	ATCRNLUB	LUB is unassigned
			..11 1111	ATCRSV02	Reserved

AVT (ISTAVT)

Dec	Hex	0	1	2	3
0	0	ISTACVT Address of VTAM CVT			
4	4	ISTAS49 Address of SVC 49 Code			
8	8	ISTAS53 Address of SVC 53 code			
12	C	ISTAPSTA Address of APS table			
16	10	ISTTXTSZ Not used		ISTVTTIK VTAMRP Task ID	
20	14	ISTAPSEX Address of APS exit			
24	18	ISTPHNM Phase name of transient			
28	1C		ISTX1 Test field	ISTARID Address of RID	
32	20	ISTATRT Address of VTAM gates in RETAB		ISTAGTWT Address of GATEWAIT routine	
36	24	ISTVTTP Address of code to check for pending timer interrupt		ISTPDAVP Vector for PDAIDS SMS trace	
40	28	ISTPDAVP (Cont)			

ORG ISTA49

4	4	First Byte of ISTAS49

AVT (ISTAVT) (Continued)

Alphabetical List of Fields in ISTAVT

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
ISTACVT	0000	0000	ISTAS49	0004	0004	ISTTXTSZ	0016	0010
ISTAG TWT	0034	0022	ISTAS53	0008	0008	ISTVTTIK	0018	0012
ISTA P SEX	0020	0014	ISTATRT	0032	0020	ISTVTTP	0036	0024
ISTAPSTA	0012	000C	ISTPDAVP	0038	0026	ISTX1	0029	001D
ISTARID	0030	001E	ISTPHNM	0024	0018			

Flag Meanings

Hex Disp	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0004	First byte of ISTAS49	1...	ISTAHIP	Halt in progress

BPDIR (ISTBPDIR - BUFFER POOL DIRECTORY)

Dec	Hex	0	1	2	3
0	0	BPDIDSFA Buffer Pool ID for SFA			
4	4	BPDIRSFA A (Small Fixed Pool)			
8	8	BPDIDLFA Buffer Pool ID for LFA			
12	C	BPDIRLFA A (Large Fixed Pool)			
16	10	BPDIDSPA Buffer Pool ID for SPA			
20	14	BPDIRSPA A (Small Pageable Pool)			
24	18	BPDIDLPA Buffer Pool ID for LPA			
28	1C	BPDIRLPA A (Large Pageable Pool)			
32	20	BPDIDAPA Buffer Pool ID for ACE/ICE			
36	24	BPDIRAPA Addr. ACE/ICE Pool			
40	28	BPDIDWPA Buffer Pool ID for WS FMCB			
44	2C	BPDIRWPA Addr. WS FMCB Pool			
48	30	BPDIDPPA Buffer Pool ID for PD			

BPDIR (ISTBPDIR - BUFFER POOL DIRECTORY) (Continued)

Dec	Hex	0	1	2	3
52	34	BPDIRPPA Addr Pageable Data Buf Pool			
56	38	BPDIDNPA Buffer Pool ID for NW FMCB			
60	3C	BPDIRNPA Addr Non-Working Set FMCB Buffer Pool			
64	40	BPDIRVFA A (Variable Buffer Length Fixed Pool)			
68	44	BPDIRVPA A (Variable Buffer Length Pageable Pool)			
72	48	BPDIDUPA Buffer Pool ID-UECBS			
76	4C	BPDIRUPA Address UECB Buffer Pool			

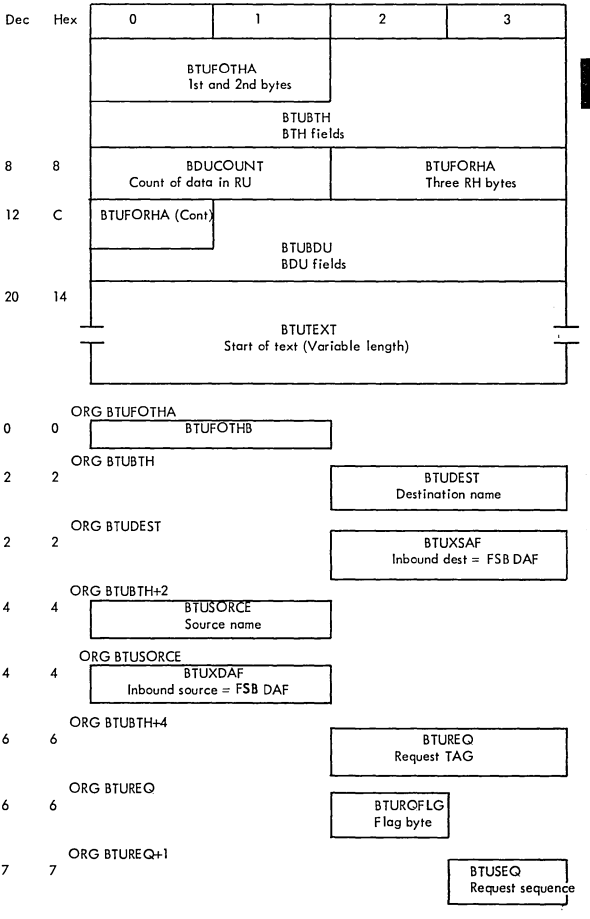
Alphabetical List of Fields in ISTBPDIR

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
BPDIDAPA	0032	0020	BPDIDUPA	0072	0048	BPDIRSFA	0004	0004
BPDIDLFA	0008	0008	BPDIDWPA	0040	0028	BPDIRSPA	0020	0014
BPDIDLPA	0024	0018	BPDIRAPA	0036	0024	BPDIRUPA	0076	004C
BPDIDNPA	0056	0038	BPDIRLFA	0012	000C	BPDIRVFA	0064	0040
BPDIDPPA	0048	0030	BPDIRLPA	0028	001C	BPDIRVPA	0068	0044
BPDIDSFA	0000	0000	BPDIRNPA	0060	003C	BPDIRWPA	0044	002C
BPDIDSPA	0016	0010	BPDIRPPA	0052	0034			

Displacement List of Fields in ISTBPDIR

Dec	Hex	Field	Dec	Hex	Field	Dec	Hex	Field
0000	0000	BPDIDSFA	0028	001C	BPDIRLPA	0056	0038	BPDIDNPA
0004	0004	BPDIRSFA	0032	0020	BPDIDAPA	0060	003C	BPDIRNPA
0008	0008	BPDIDLFA	0036	0024	BPDIRAPA	0064	0040	BPDIRVFA
0012	000C	BPDIRLFA	0040	0028	BPDIDWPA	0068	0044	BPDIRVPA
0016	0010	BPDIDSPA	0044	002C	BPDIRWPA	0072	0048	BPDIUPA
0020	0014	BPDIRSPA	0048	0030	BPDIDPPA	0076	004C	BPDIRUPA
0024	0018	BPDIDLPA	0052	0034	BPDIRPPA			

BTU (ISTBTU)


Dec
Hex
0
1
2
3
BTUFOTHA
1st and 2nd bytes
BTUBTH
BTH fields
8
8
BDUCOUNT
Count of data in RU
BTUFORHA
Three RH bytes
12
C
BTUFORHA (Cont)
BTUBDU
BDU fields
20
14
BTUTEXT
Start of text (Variable length)
ORG BTUFOTHA
0
0
BTUFOTHB
ORG BTUBTH
2
2
BTUDEST
Destination name
ORG BTUDEST
2
2
BTUXSAF
Inbound dest = FSB DAF
ORG BTUBTH+2
4
4
BTUSORCE
Source name
ORG BTUSORCE
4
4
BTUXDAF
Inbound source = FSB DAF
ORG BTUBTH+4
6
6
BTUREQ
Request TAG
ORG BTUREQ
6
6
BTUROFLG
Flag byte
ORG BTUREQ+1
7
7
BTUSEQ
Request sequence

BTU (ISTBTU) (...Continued)

Dec	Hec	0	1	2	3
		ORG BTUFORHA			
10	A			BTUFORHB	
12	C	BTUFHORB (Cont.)			

Alphabetical List of Fields in ISTBTU

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
BDUCOUNT	0008	0008	BTUFOTHA	0000	0000	BTUTEXT	0020	0014
BTUBDU	0013	000D	BTUFOTHB	0000	0000	BTUXDAF	0004	0004
BTUBTH	0002	0002	BTUREQ	0006	0006	BTUXSAF	0002	0002
BTUDEST	0002	0002	BTURQFLG	0006	0006			
BTUFORHA	0010	000A	BTUSEQ	0007	0007			
BTUFORHB	0010	000A	BTUSORCE	0004	0004			

Flag Meanings

Hex Dec	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000		First byte of BTUFOTHB	1111	BTUFID	Format ID
0006	BTURQFLG	Flag Byte	1...	BTURFIND	Request Feedback Indicator
			.1..	BTUACIND	Additional Command Indicator
			..1.	BTUFFIND	Functional Flag Generated
			...1	BTULBIND	Last Block Indicator
			.... 1...	BTUNONCB	No NCB for this Request
			.... .1..	BTUINPET	Invite Perpetual
			.... ..1.	BTUASBTU	Associate BTU to come
			1	BTUDTRCE	Device Trace Requested

Constants in ISTBTU

Label	Value	Meaning
BTUMDR	X'0A'	MDR Id'fier in SYS Resp. byte
BTUTHCON	X'0E00'	FIDO TH
BTURHCON	X'039000'	FIDO RH
BTUODFC	10	Difference between BDU and TH Count Flds

CCB (ISTCCB)

Dec	Hex	0	1	2	3
0	0	CCBCNT Residual Count		CCBCOM1 First Communication byte	CCBCOM2 Second Communication byte
4	4	CCBSTA CSW status		CCBCLS CCB class	CCBPUBNO Pub no in table
8	8	CCBCCW CCW address			
12	C	CCBCOM3 Third Communication byte	CCBCHAP Address of Channel Appendage		

ORG CCBCCW

8	8	CCBLIOCS LIOCS flags	CCBCPAD Real Address of CCW

Alphabetical List of Fields in ISTCCB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
CCBCCW	0008	0008	CCBCOM1	0002	0002	CCBLIOCS	0008	0008
CCBCHAP	0013	000D	CCBCOM2	0003	0003	CCBPUBNO	0007	0007
CCBCLS	0006	0006	CCBCOM3	0012	000C	CCBSTA	0004	0004
CCBCNT	0000	0000	CCBCPAD	0009	0009			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0002	CCBCOM1	First Communication Byte	1...	CCBTRABT	CCB Traffic bit
			.1..	@NM00009	Reserved
			..1.	CCBDISER	CCB Disaster bit area
0006	CCBCLS	CCB Class	1...	CCBREAL	Real CCB
			.111 1111	@NM00010	Reserved

COMRG (ISTCOMRG)

Dec	Hex	0	1	2	3
0	0	COMDATE Job date			
8	8	COMPPBEG End of supervisor		COMEOSSP End of storage protection	
12	C	COMSCRAT User scratch area			
20	14				COMUPSI UPSI byte
24	18	COMNAME Job name			
32	20	COMPPEND Address of last byte of PP area			
36	24	COMHIPHS Address of last fetch or load			
40	28	COMHIPRG Address of longest PP phase			
44	2C	COMLABLN Length of PP label area		COMPID Program interrupt key	
48	30	COMEOCA Address of end of core			
52	34	COMCONFG Machine configuration	COMLTACT Configuration options	COMSOB1 Standard option byte 1	COMSOB2 Standard option byte 2
56	38	COMJCSW1 Job control switch 1	COMLCTL Linkage control byte	CONJCSW3 Job control switch 3	CONJCSW4 Job control switch 4
60	3C	COMDALC Disk address of label cylinder		COMFOCL Address of FOCL	
64	40	COMPUBPT Address of PUB table		COMFAVP Address of FAVP	

Dec	Hex	0	1	2	3
68	44	COMJIBPT Address of JIB table		COMTEBPT Null TEB address	
72	48	COMFICL Address of FICL		COMNICL Address of NICL	
76	4C	COMLUBPT Address of LUB table		COMSYSLN System line count	
		COMSYSDT System date			
88	58	COMLIOCS LIOCS communication bytes		COMPIBPT Address of PIB table	
92	50	COMCHKID Last check point number		COMLTHID Length of LUB ID queue	
96	60	COMDIBPT Address of background DIB		COMERBL Address of transient CONREG	
100	64	COMPCPTR Address of PC option table		COMITPTR Address of IT option table	
104	68	COMOCPTR Address of OC option table		COMPWTIM Key of PGM with IT support	
108	6C	COMLUBID Address of LUB ID queue		COMLTK Logical transient key	
112	70	COMSYSPM SYSPARM field			
116	74	COMJAPT Address of job accounting table			
120	78	COMSYSCM Address of SYSCOM			
124	7C	COMPIB2 Address of PIB extension		COMMICR Address of MICR DTF	
128	80	@NM00003 Reserved			
132	84	COMBGCOM Address of background COMREG		COMOPTN Option indicator byte	@NM00005 Reserved

Dec	Hex	0	1	2	3
136	88	COMEXT Address of COMREG extension			
140	8C	@NM00006 Reserved			
144	90	@NM00007 Reserved			

ORG COMSYSDT

79	4F				COMMDD
80	50	COMMDD (CONT) MMDD or DDMM part			
		COMYYDDD YYDDD part			

Alphabetical List of Fields in ISTCOMRG

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00003	0128	0080	COMHIPHS	0036	0024	COMNICL	0074	004A
@NM00005	0135	0087	COMHIPRG	0040	0028	COMOCPTR	0104	0068
@NM00006	0140	008C	COMITPTR	0102	0066	COMOPTN	0134	0086
@NM00007	0144	0090	COMJAPT	0116	0074	COMPCPTR	0100	0064
COMBGCOM	0132	0084	COMJCSW1	0056	0038	COMPIBPT	0090	005A
COMCHKID	0092	005C	COMJIBPT	0068	0044	COMPIB2	0124	007C
COMCONFG	0052	0034	COMLABLN	0044	002C	COMPID	0046	002B
COMDALC	0060	003C	COMLCTL	0057	0039	COMPPBEG	0008	0008
COMDATE	0000	0000	COMLIOCS	0088	0058	COMPPEND	0032	0020
COMDIBPT	0096	0060	COMLTACT	0053	0035	COMPUBPT	0064	0040
COMEOCA	0048	0030	COMLTHID	0094	005E	COMPWTIM	0106	006A
COMEOSSP	0010	000A	COMLTK	0110	006E	COMSCRAT	0012	000C
COMERBL	0098	0062	COMLUBID	0108	006C	COMSOB1	0054	0036
COMEXT	0136	0088	COMLUBPT	0076	004C	COMSOB2	0055	0037
COMFAVP	0066	0042	COMMDD	0079	004F	COMSYSCM	0120	0078
COMFICL	0072	0048	COMMICR	0126	007E	COMSYSDT	0079	004F
COMFOCL	0062	003E	COMNAME	0024	0018	COMSYSLN	0078	004E

COMRG (ISTCOMRG) (Continued)

Alphabetical List of Fields in ISTCOMRG (Continued)

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
COMSYSPM	0112	0070	COMUPSI	0023	0017	CONJCSW3	0058	003A
COMTEBPT	0070	0046	COMYYDDD	0083	0053	CONJCSW4	0059	003B

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0035	COMLTACT	Configuration Options	1111 11..	@NM00001	Reserved
			.... ..1.	CCMASYNC	Asynchronous processing in operation
			1	@NM00002	Reserved
0086	COMOPTN	Option Indicator Byte	1111 111.	@NM00004	Reserved
			1	CCMANCHT	Partition Anchor Table exists.

CONFT (ISTCONFT)

Dec	Hex	0	1	2	3
0	0	CONCONFG Name of configuration table			
8	8	CONAPINM API Module name			
16	10	CONAPSNM APS Module name			
24	18	CONDMNM Device Management Control Layer Module Name			
32	20	CONFBPNM Feedback processing routine module name			
40	28	CONACB Pointer to VTAM ACB			
44	2C	CONCIBAD Pointer to command input buffer			
48	30	CONDISLA Display command parameter list address			
52	34	CONNCSLA NCS parameter list address			
56	38	CONHLTLA Halt command parameter list address			
60	3C	CONMODLA Modify command parameter list address			
64	40	CONVARLA Vary command parameter list address			
68	44	CONENDLA The last command processed parameter list address			

CONFT (ISTCONFT) (...Continued)

Dec	Hex	0	1	2	3
72	48	CONSTCIB Start command CIB address			
76	4C	CONRDBUF Buffer address used by read routine			
80	50	CONLDPRM Pointer to ISTLDPRM			
84	54	CONDCBOA Address of VTAMLIBDCB			
88	58	CONDCBLA Address of VTAMLIBDCB			
92	5C	CONDCBBA Address of VTAMLIBDCB			
96	60	CONTPNCS Pointer to TPRINT			
100	64	CONBUFSZ Size of buffer used by read routine		CONCID Operator terminal CID	
104	68	CONRES2 Reserved	CONLAST Last command code	CONHALT Halt flags	CONVARY Vary code
108	6C	CONDISPL Display code	CONMODFY Modify code		
112	70	CONFLAGS Flags			CONRSV17 Reserved for alignment
116	74	CONSFSBF Small fixed list			
128	80	CONSPSBF Small pageable list			
140	8C	CONLFSBF Large fixed list			

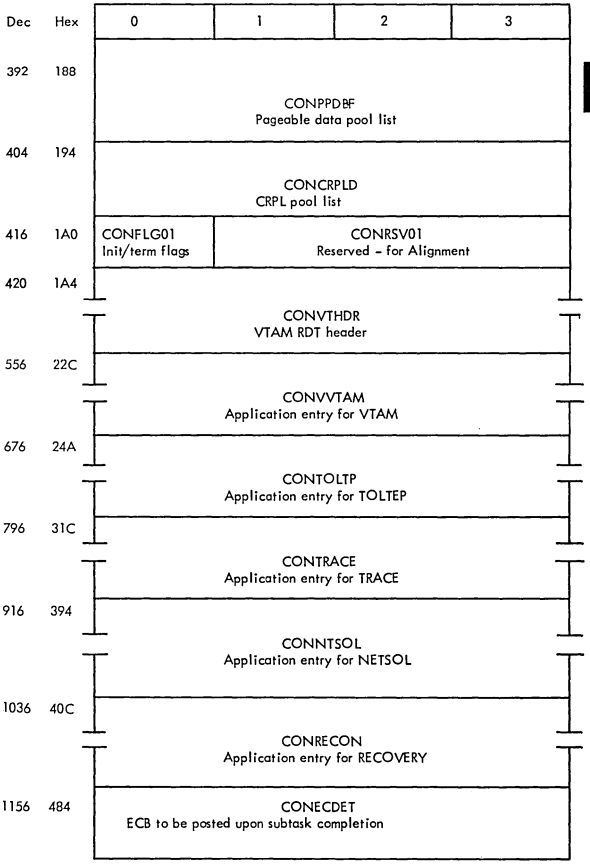
CONFT (ISTCONFT) (...Continued)

Dec	Hex	0	1	2	3
152	98	CONLPSBF Large pageable list			
164	A4	CONVFSBF Variable length fixed list			
176	B0	CONVPSBF Variable length oageable			
188	BC	CONIOSBF I/O Fixed list			
200	C8	CONWPSBF Working Set Pool list			
212	D4	CONAPSBF ACE/ICE pool list			
224	E0	CONNPSBF Non-working set list			
236	EC	CONPPSBF Pageable data pool list			
248	F8	CONCRPLS CRPL pool list			
260	104	CONSFDBF Small fixed list			

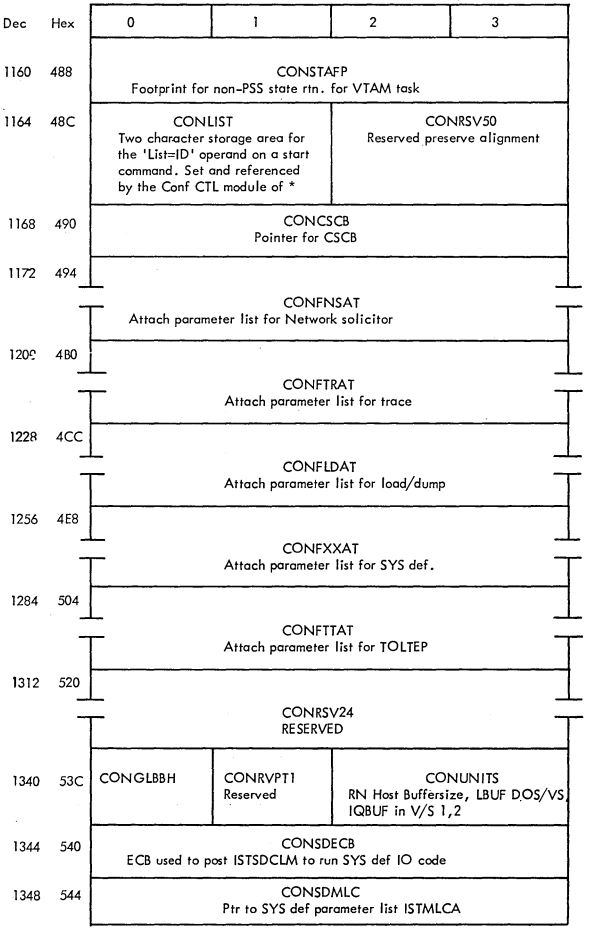
CONFT (ISTCONFT) (...Continued)

Dec	Hex	0	1	2	3
272	110	CONSPDBF Small pageable list			
284	11C	CONLFDBF Large fixed list			
296	128	CONLPDBF Large pageable list			
308	134	CONVFDBF Variable-length fixed list			
320	140	CONVPDBF Variable-length pageable			
332	14C	CONUEDBF UECB list			
344	158	CONIODBF I/O fixed list			
356	164	CONWPDBF Working set pool list			
368	170	CONAPDBF ACE/ICE pool list			
380	17C	CONNPDBF Non-working set pool list			

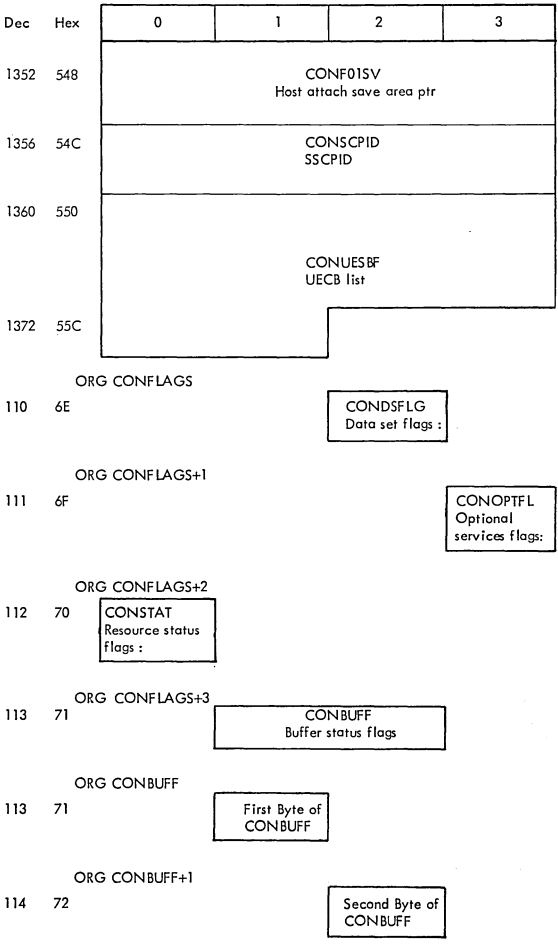
CONFT (ISTCONFT) (...Continued)



CONFT (ISTCONFT) (...Continued)



* INITIALIZATION (ISTINCCC)


Dec
Hex
0
1
2
3
1352 548
CONF01SV
Host attach save area ptr
1356 54C
CONSCPID
SSCPID
1360 550
CONUESBF
UECB list
1372 55C
ORG CONFLAGS
110 6E
CONDSFLG
Data set flags :
ORG CONFLAGS+1
111 6F
CONOPTFL
Optional
services flags:
ORG CONFLAGS+2
112 70
CONSTAT
Resource status
flags :
ORG CONFLAGS+3
113 71
CONBUFF
Buffer status flags
ORG CONBUFF
113 71
First Byte of
CONBUFF
ORG CONBUFF+1
114 72
Second Byte of
CONBUFF

CONFT (ISTCONFT) (Continued)

Dec	Hex	0	1	2	3
		ORG CONSCPID			
1356	54C	CONFCNL Function level	CONFILL Filler	CONBLKNO Block Number	CONSTFIL*
1360	550	CONSTVAR* Variable Portion of ID			

* CONSTFIL is a 4-bit field that is a station ID Filler. CONSTFIL and CONSTVAR together make up the field CONSTAID, which is a 20-bit station ID.

Alphabetical List of Fields in ISTCONFT

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
CONACB	0040	0028	CONFTTAT	1284	0504	CONRVPT1	1341	053D
CONAPDBF	0368	0170	CONFXXAT	1256	04E8	CONSCPID	1356	054C
CONAPINM	0008	0008	CONF01SV	1352	0548	CONSDECB	1344	0540
CONAPSBF	0212	00D4	CONGLBBH	1340	053C	CONSDMLC	1348	0544
CONAPSMN	0016	0010	CONHALT	0106	006A	CONSFDBF	0260	0104
CONBLKNO	1358	054E	CONHLTLA	0056	0038	CONSFSBF	0116	0074
CONBUFF	0113	0071	CONIODBF	0344	0158	CONSPDBF	0272	0110
CONBUFSZ	0100	0064	CONIOSBF	0188	00BC	CONSPSBF	0128	0080
CONCIBAD	0044	002C	CONLAST	0105	0069	CONSTAFP	1160	0488
CONCID	0102	0066	CONLDPRM	0080	0050	CONSTAID	1360	0550
CONCONFG	0000	0000	CONLFDBF	0284	011C	CONSTAT	0112	0070
CONCRPLD	0404	0194	CONLFSBF	0140	008C	CONSTCIB	0072	0048
CONCRPLS	0248	00F8	CONLIST	1164	048C	CONSTVAR	1360	0550
CONCSCB	1168	0490	CONLPDBF	0296	0128	CONTOLTP	0676	02A4
CONDCBBA	0092	005C	CONLPSBF	0152	0098	CONTPNCS	0096	0060
CONDCBLA	0088	0058	CONMODFY	0109	006D	CONTRACE	0796	031C
CONDCBOA	0084	0054	CONMODLA	0060	003C	CONUEDBF	0332	014C
CONDISLA	0048	0030	CONNCSLA	0052	0034	CONUESBF	1362	0552
CONDISPL	0108	006C	CONNPDBF	0380	017C	CONUNITS	1342	053E
CONDMNM	0024	0018	CONNPSBF	0224	00E0	CONVARLA	0064	0040
CONDSFLG	0110	006E	CONNTSOL	0916	0394	CONVARY	0107	006B
CONECDET	1156	0484	CONOPTFL	0111	006F	CONVFDBF	0308	0134
CONENDLA	0068	0044	CONPPDBF	0392	0188	CONVFSBF	0164	00A4
CONFBPNM	0032	0020	CONPPSBF	0236	00EC	CONVPDBF	0320	0140
CONFCNL	1356	054C	CONRDBUF	0076	004C	CONVPSBF	0176	00B0
CONFILL	1357	054D	CONRECON	1036	040C	CONVTHDR	0420	01A4
CONFLAGS	0110	006E	CONRES2	0104	0068	CONVVTAM	0556	022C
CONFLDAT	1228	04CC	CONRSV01	0417	01A1	CONWPDBF	0356	0164
CONFLG01	0416	01A0	CONRSV17	0115	0073	CONWPSBF	0200	00C8
CONFNSAT	1172	0494	CONRSV24	1312	0520			
CONFTRAT	1200	04B0	CONRSV50	1166	048E			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
006A	CONHALT	Halt Flags	1...	CONHLTQ	Quick flag
			.1..	CONHLTS	Session flag
006E	CONDSFLG	Data Set Flags	1...	@NM00003	Reserved
			.1..	@NM00004	Reserved
			..1.	@NM00005	Reserved
			...1	CONSYOBJ	SYS1. VTAMOBJ is open
			.... 1...	CONSYLIB	SYS1. VTAMLIB is open
			.... .1..	CONSYLST	SYS1. VTAMLST is open
006F	CONOPTFL	Option Services Flags	1...	CONWRMST	Warm specified on VTAM start command, 1= YES
			.1..	@NM0007	Reserved
			..1.	@NM0008	Reserved
			...1	@NM0009	Reserved
			.... 1...	CONBUFTR	Buffer Trace Requested
			.... .1..	CONBTUTR	BTU Trace Requested
			.... ..1.	CONMODTR	Module Trace Requested
			1	CONIOTR	I/O Trace Requested
0070	CONSTAT	Resource Status Flags	1...	@NM00010	Reserved
			.1..	@NM00011	Reserved
			..1.	@NM00012	Reserved
			...1	CONSTOR	VTAM has Storage
			.... 1...	CONDSOPN	Data Sets open
			.... .1..	CONLODED	VTAM routines loaded
			.... ..1.	CONVRYIN	Network varied in
			1	CONACTV	Operator active
0071		First byte of CONBUFF	1...	CONSFEX	Small fixed pool exists
			.1..	CONSPEX	Small paged pool exists
			..1.	CONLFEX	Large fixed pool exists
			...1	CONLPEX	Large paged pool exists
			.... 1...	CONVFEX	Variable fixed bfr pool (DOS) exists
			.... .1..	CONVPEX	Variable pg bfr pool (DOS) exists

CONFT (ISTCONFT) (Continued)

Flag Meanings (Continued)

0071 (Continued)		First byte of CONBUFF (Continued)	.... ..1.	CONUECB	UECB pool exists (VS1 & VS2)
			1	CONIOEX	I/O fixed pool exists
0072		Second byte of CONBUFF	1...	CONWPEX	Working set pool exists
			.1..	CONAPEX	ACE/ICE pool exists
			..1.	CONNPEX	Non-working set pool exists
			...1	CONPPEX	Pageable data pool exists
			.... 1...	CONCRPL	CRPL pool exists
01A0	CONFLG01	INIT/TERM flags	1...	CONFTSTM	Bit to indicate Set Timer
			.1..	CONFTTMR	Bit to indicate Timer is running
			..1.	CONFTEXS	Exits scheduled flag
			...1	CONFTNAC	No active connections flag
			.... 1...	CONFTNSA	Bit to indicate Network Solicitor active
			.... .1..	CONFTTA	To indicate TOLTEP active
			.... ..1.	CONFTPSA	Bit to indicate Port Solicitor active
			1	CONNSNEC	Indicate Network Solicitor is necessary

DEVCH (ISTDEVCH)

Dec	Hex,	0	1	2	3
0	0	DEVSHCH Dev.Sched.	DEVTCODE Device type Codes	DEVMCODE Device model Code	DEVFLAGS Use depends on DEVSHCH values
4	4	DEVPHYSA Physical Device Address	DEVRSV03 Reserved		

ORG DEVSHCH

0	0	DEVCHAR Compatibility Existing Code

ORG DEVTCODE

1	1	DEVCHAR2 Compatibility Existing Code

Alphabetical List of Fields in ISTDEVCH

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
DEVCHAR	0000	0000	DEVMCODE	0002	0002	DEVSHCH	0000	0000
DEVCHAR2	0001	0001	DEVPHYSA	0004	0004	DEVTCODE	0001	0001
DEVFLAGS	0003	0003	DEVRSV03	0005	0005			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000	DEVCHAR	Compatibility Existing Code	1...	DEVINPUT	Device is for Input
			.1..	DEVOTPUT	Device is for Output
			..1.	DEVCONVR	Device is Conversation RN definition
			...1	DEVSUBND	Device has schedulable Sub-Node
			.... 1...	DEVSPS	DEV is Start Print sensitive

DEVCH (ISTDEVCH) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000 (Cont)	DEVCHAR (Continued)		.... .1..	DEVNNSPT	Node has Netwrk Mngmnt Sprt.
			.... ..1.	DEVCCTL	Node has Conn. Cntrl Dependcs
			1	DEVRSV01	Reserved
0003	DEVFLAGS	Use depends on DEVSHCH values	1111	DEVFCCTL	Used if Device req. conn. ctrl
			1...	DEVCBSC	Reset orderly, Bi-Synch terminals except 3270's
			.1..	DEVCSSL	Reset at end of command.3270's and Start/Stop Except terms with Reverse Break feature
			..1.	DEVCRVB	Reset immediate. Start/Stop terms with Reverse Break feature
			...1	DEVCSWL	1=Higher Node is switch connection, 0=Leased connection
			 1111	DEVCHAR3	Compatibility existing code
			.... 1...	DEVCATTN	Terminal can interrupt with attention
			.... .1..	DEVCCHEK	Terminal has checking
			.... ..1.	DEVCSTCL	Terminal has Station Control
			1	DEVCSLPN	Terminal has Selector Pen

Constants in ISTDEVCH

Label	Value	Meaning
DEV2740	X'01'	Device is a 2740
DEV2741	X'02'	Device is a 2741
DEV1050	X'03'	Device is a 1050
DEVTWX	X'04'	Device is a TWX
DEVWTTY	X'05'	Device is a WTTY
DEV115A	X'06'	Device is a 115A
DEV83B3	X'07'	Device is an 83B3
DEV2715	X'08'	Device is a 2715
DEV2770	X'09'	Device is a 2770
DEV2780	X'0A'	Device is a 2780
DEV3735	X'0B'	Device is a 3735

DEVCH (ISTDEVCH) (Continued)

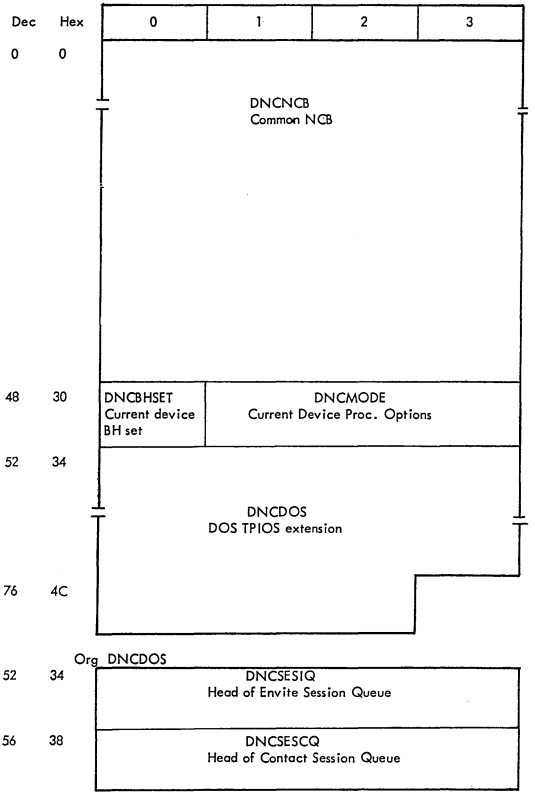
Constants in ISTDEVCH

Label	Value	Meaning
DEV3780	X'0C'	Device is a 3780
DEV1130	X'0D'	Device is an 1130
DEV1800	X'0E'	Device is an 1800
DEV3125	X'11'	Device a a 3125
DEV3135	X'12'	Device is a 3135
DEVSYS3	X'13'	Device is SYS 3
DEV2701	X'14'	Device is a 2701
DEV2703	X'15'	Device is a 2703
DEV3704	X'16'	Device is a 3704
DEV3705	X'17'	Device is a 3705
DEV2980	X'18'	Device is a 2980
DEV3277	X'19'	Device is a 3277
DEV3284	X'1A'	Device is a 3284
DEV3286	X'1B'	Device is a 3286
DEV3275	X'1C'	Device is a 3275
DEV3741	X'1D'	Device is a 3741
DEV3747	X'1E'	Device is a 3747
DEVMTA	X'28'	Device is an MTA
DEV2972	X'33'	Device is a 2972
DEV3271	X'34'	Device is a 3271
DEV3272	X'36'	Device is a 3272
DEVCC	X'35'	Device is a Physical Unit
DEV1052	X'64'	Device is a 1052
DEV1053	X'65'	Device is a 1053
DEV1054	X'66'	Device is a 1054
DEV1055	X'67'	Device is a 1055
DEV1056	X'68'	Device is a 1056
DEV1057	X'69'	Device is a 1057
DEV1058	X'6A'	Device is a 1058
DEV1092	X'6B'	Device is a 1092
DEV1093	X'6C'	Device is a 1093
DEVLU	X'6D'	Device is a Logical Unit
DEV545	X'78'	Device is a 545
DEV1017	X'79'	Device is a 1017
DEV1018	X'7A'	Device is a 1018
DEV2203	X'7B'	Device is a 2203
DEV2213	X'7C'	Device is a 2213
DEV2265	X'7D'	Device is a 2265
DEV2502	X'7E'	Device is a 2502
DEV50	X'7F'	Device is a 50
DEV1255	X'80'	Device is a 1255
DEV5496	X'81'	Device is a 5496

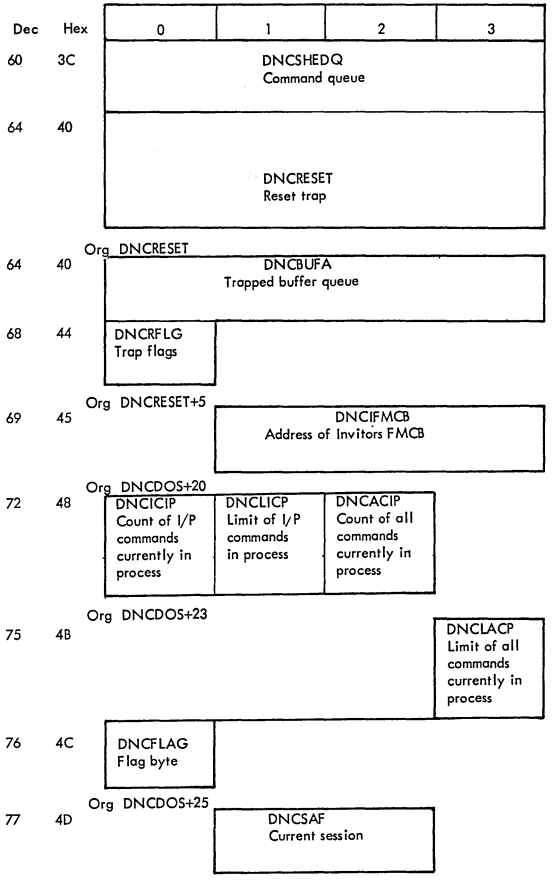
Model Codes

DEVMOD1	X'00'	Model 1
DEVMOD2	X'01'	Model 2

DNCB (ISTDNCB)



DNCB (ISTDNCB) (Continued)



Alphabetical list of Fields in ISTDNCB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
DNCACIP	0074	004A	DNCIFMCB	0069	0045	DNCRFLG	0068	0044
DNCBHSET	0048	0030	DCNLACP	0075	004B	DCNSAF	0077	004D
DN CBUFA	0064	0040	DCNLICP	0073	0049	DCNSESCQ	0056	0038
DNCDOS	0052	0034	DNCMODE	0049	0031	DCNSESIQ	0052	0034
DNCFLAG	0076	004C	DNCNCB	0000	0000	DNCSHEDQ	0060	003C
DNCICIP	0072	0048	DNCRESET	0064	0040			

Flag Meanings

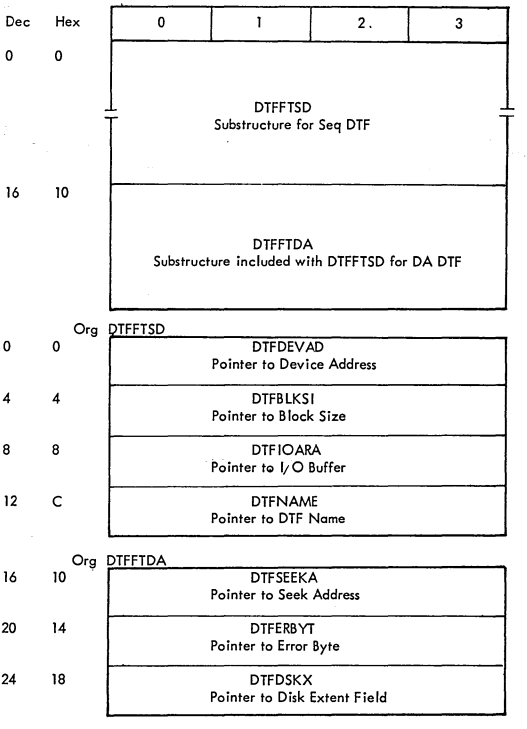
Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
004A	DNCACIP	Cnt of all commands currently in process	1...	DNCLCLP	Last command in LCP process
004C	DNCFLAG	Flag byte	1111	DNCSTAT	DNCB session status
			1...	DNCSESS	Resource in session
			.1..	DNCINVIT	Invite pending
			..1.	DNCCONT	Contact pending
			...1	DNCDISC	Disconnect pending
			.... 1...	DNCDHO	Don't honor open in progress
			.... .1..	DNCBSC	BSC sense status to come
			.... ..1.	DNCRMF	Record mode flag
			1	DNCSLOWQ	Requests queued due to slow down condition
0044	DNCRFLG	Trap Flags	1...	DNCSYNC	Synchronization flag
			.1..	DNCCRF	Contact reqrd for next command
			..1.	DNCTF1	TOLTEP Flag 1
			...1	DNCTF2	TOLTEP Flag 2
			.... 1...	DNCRSI	Reset suppressed Invite indicator
			.... .1..	DNCDFE	Disconnected feedback expected indicator
			.... ..1.	DNCPSOL	=1 indicates Dial in/port solicitor, =0 indicates Dial out
			1	DNCZF008	Data purge flag

DNCB (ISTDNCB) (continued)

Flags and Masks

Disp.	Flag	Contains	Mask	Value	Means
70(46)	DNCACIP	CNT of all CMNDS currently in process	DNCLCLP	X'80'	Last command in LCP process
72(48)	DNCFLAG	Flag byte	DNCSTAT	X'F0'	DNCB session status
			DNCSESS	X'80'	Resource in session
			DNCINVIT	X'40'	Invite pending
			DNCCONT	X'20'	Contact pending
			DNCDISC	X'10'	Disconnect pending
			DNCDHO	X'08'	Don't honor open in progress
			DNCBSC	X'04'	BSC sense status to come
			DNCRMF	X'02'	Record mode flag
			DNCSLOWQ	X'01'	Requests queued due to slow down condition
64(40)	DNCRFLG	Trap flags	DNCSYNC	X'80'	Synchronization flag
			DNCCRF	X'40'	Contact reqrd for nxt com'd
			DNCTF1	X'20'	Toltep flag 1
			DNCTF2	X'10'	Toltep flag 2
			DNCRSI	X'08'	Reset suppressed invite indicator
			DNCDFE	X'04'	Disconnect feedback expecte indicator
			DNCPSOL	X'02'	= 1 indicates dial in/port solicitor, = 0 indicates
			DNCZF008	X'01'	Data purge flag

DTFLT (ISTDTFLT)



DTFLT (ISTDTFLT (Continued)

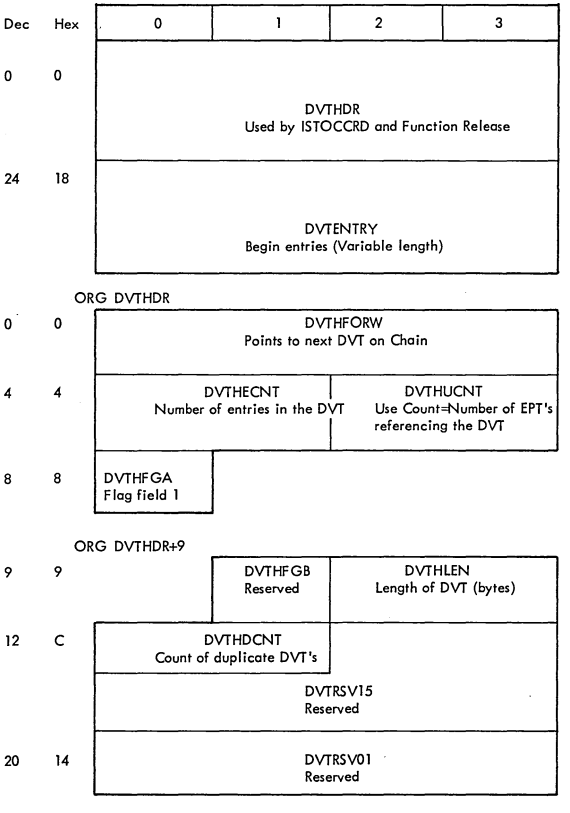
Displacement List of Fields in ISTDTFLT

Dec	Hex	Field	Dec	Hex	Field	Dec	Hex	Field
0000	0000	DTFDEVAD	0008	0008	DTFIOARA	0016	0010	DTFFTDA
0000	0000	DTFFTSD	0012	000C	DTFNAME	0020	0014	DTFERBYT
0004	0004	DTFBLKSI	0016	0010	DTFSEEKA	0024	0018	DTFDSKX

Alphabetical List of Fields in ISTDTFLT

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
DTFBLKSI	0004	0004	DTFERBYT	0020	0014	DTFIOARA	0008	0008
DTFDEVAD	0000	0000	DTFFTDA	0016	0010	DTFNAME	0012	000C
DTFDSKX	0024	0018	DTFFTSD	0000	0000	DTFSEEKA	0016	0010

DVT (ISTDVT)


Dec
Hex
0
1
2
3
0
0
DVTHDR
Used by ISTOCCRD and Function Release
24
18
DVTENTRY
Begin entries (Variable length)
ORG DVTHDR
0
0
DVTHFORW
Points to next DVT on Chain
4
4
DVTHECNT
Number of entries in the DVT
DVTHUCNT
Use Count=Number of EPT's referencing the DVT
8
8
DVTHFGA
Flag field 1
ORG DVTHDR+9
9
9
DVTHFGB
Reserved
DVTHLEN
Length of DVT (bytes)
12
C
DVTHDCNT
Count of duplicate DVT's
DVTRSV15
Reserved
20
14
DVTRSV01
Reserved

DVT (ISTDVT) (Continued)

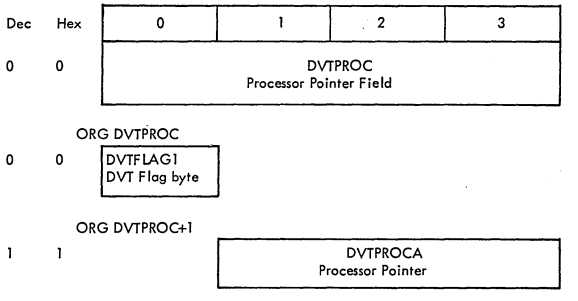
Alphabetical List of Fields

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
DVTENTRY	0024	0018	DVTHFGA	0008	0008	DVTHUCNT	0006	0006
DVTHDCNT	0012	000C	DVTHFGB	0009	0009	DVTRSV01	0020	0014
DVTHDR	0000	0000	DVTHFORW	0000	0000	DVTRSV15	0014	000E
DVTHECNT	0004	0004	DVTHLEN	0010	000A			

Flag Meanings

Hex Disp	Flag byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0008	DVTHFGA	Flag field 1	1...	DVTHFGA0	Flag byte :X'80'=a duplicate DVT has been built
			.1..	DVTHFGA1	Delete process module for this DVT
			..1.	DVTRSV02	Reserved
			...1	DVTRSV03	Reserved
			.... 1...	DVTRSV04	Reserved
			.... .1..	DVTRSV05	Reserved
			.... ..1.	DVTRSV06	Reserved
			1	DVTRSV07	Reserved

DVT (ISTDVTE)



Alphabetical List of Fields in ISTDVTE

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
DVTFLAG1	0000	0000	DVTPROC	0000	0000	DVTPROCA	0001	0001

Flag Meanings

Hex Disp	Flag byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000	DVTFLAG1	DVT flag byte	1...	DVTEXITF	End of DVT
			.1..	DVTRSV08	Reserved
			..1.	DVTRSV09	Reserved
			...1	DVTRSV10	Reserved
			.... 1...	DVTRSV11	Reserved
			.... .1..	DVTRSV12	Reserved
			.... ..1.	DVTRSV13	Reserved
			1	DVTRSV14	Reserved

FMCB (ISTFMCB)

Dec	Hex	0	1	2	3
0	0	FMCTYPE Control Type Block Code	FMCLNGTH Length in Bytes	FMCSAF ID of Source	
4	4	FMCNXTCB Address of next FMCB in ACDEB			
8	8	FMCTSKID Task Identifier OS - TCB Address, DOS - PIK			
12	C	FMCDVTA Address of DVT Entry Point Table			
16	10	FMCDNCBA Address of DNCB for this Node			
20	14	FMCFMCBA Address of next FMCB for this Node			
24	18	FMCUSFLD Use Information Field			
28	1C	FMCSTAT Source Status Information	FMCSTAT1 Status Information	@NM00002 Reserved	FMCCMDFL Command Flags
32	20	FMCDEBA Address of ADDEB			
36	24	FMCCMPS1			
40	28	FMCRPLH Address of Held RPL			
44	2C	FMCVWT RPH Address for Vary Wait			

FMCB (ISTFMCB) (Continued)

Dec	Hex	0	1	2	3
48	30	FMCPROCD Process Option from NIB			
52	34	FMCMODE Mode Name from NIB			
60	3C	FMCFASYA DFASY any Q Chain			
64	40	FMCPAB1 Control Layer Outbound PAB			
80	50	FMCPAB2 Control Layer Inbound PAB			
96	60	FMCPAB3 Synch with Outbound PAB			
112	70	FMCPAB4 TPIOCS Inbound PAB			
128	80	FMCBPAB5 TPIOCS all but Synch with Outbound PAB			

Dec	Hex	0	1	2	3
144	90	FMCEXLST Address of CEXLST			
148	94	FMCSIPA Address of Session Control Inbound PAB			
152	98	FMCNXOSQ Next Outbound Sequence nums.			
156	9C	FMCISSN Inbound Sync Sequence Number		FMCRVD01 Reserved	FMCSSTAT Session-CPM Status
160	A0	FMCPACE Pacing Counts			
164	A4	FMCCLEXT Basic Control Layer Extension			
184	B8		FMCBHSET BHSET ID Index for connected Application	FMCSTAT2 Purge flags	FMCLUSTR Count of Start CTLS Rec
188	BC	FMCIPSEQ Invite Perpetual Count	FMCMODEB Mode Byte	FMCCLSEQ CL Sequence Numbers	
192	C0	FMCCLSEQ (Cont.)		FMCCTLB Ctl. Type outstanding	FMCRRESP Respond Type expected
196	C4	FMCPSTRS Cnt Outstanding Post=RESP		FMCRSPLM RESPLIM Value	
200	C8	FMCSSEGQ Sync. Flow Segment Queue			

FMCB(ISTFMCB) (Continued)

Dec	Hex	0	1	2	3
204	CC	FMCLOCK FMCB Lock			
208	D0	FMCRDTPT Ptr to RDTE after FMCB Disconnect			
212	D4	FMCASEGQ ASYN Flow Segment Queue			
216	D8	FMCFBAS DFASY Data Q Pointer			
220	DC	FMCFBRE Resp.Data Q Pointer			
224	E0	FMCSNCTL Session Control Field			
228	E4	FMCFRESA Resp. Any Q Chain Ptr			
232	E8	FMCDOS DOS Extention			

ORG FMCCMPS1

36	24	FMCBUFLM Limit of Queued Buffers	FMCBUFNB Number of Queued Buffers

ORG FMCSIPA

148	94	FMCSIP Address of Session Control Inbound PAB

ORG FMCNXOSQ

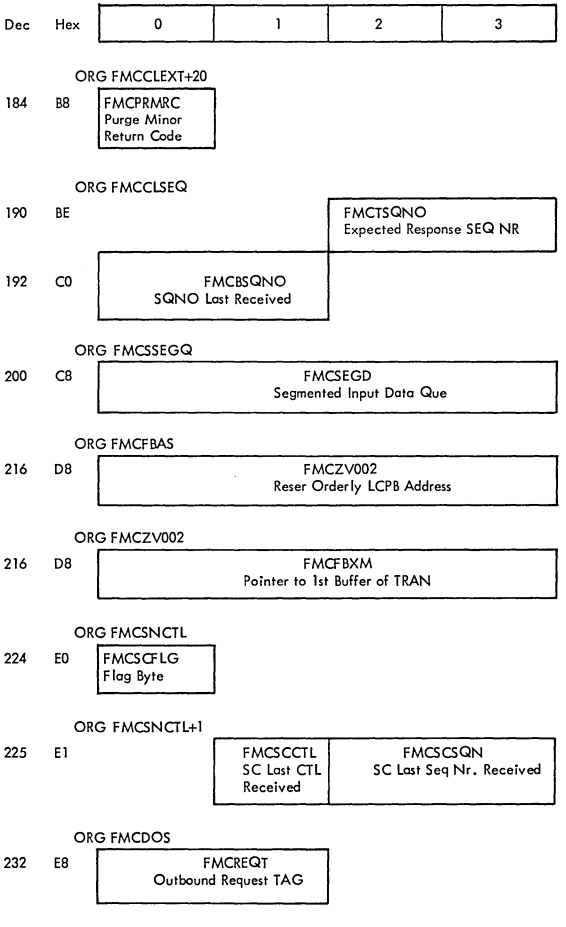
152	98	FMCNXCFM Next Outbound FM Seq. number

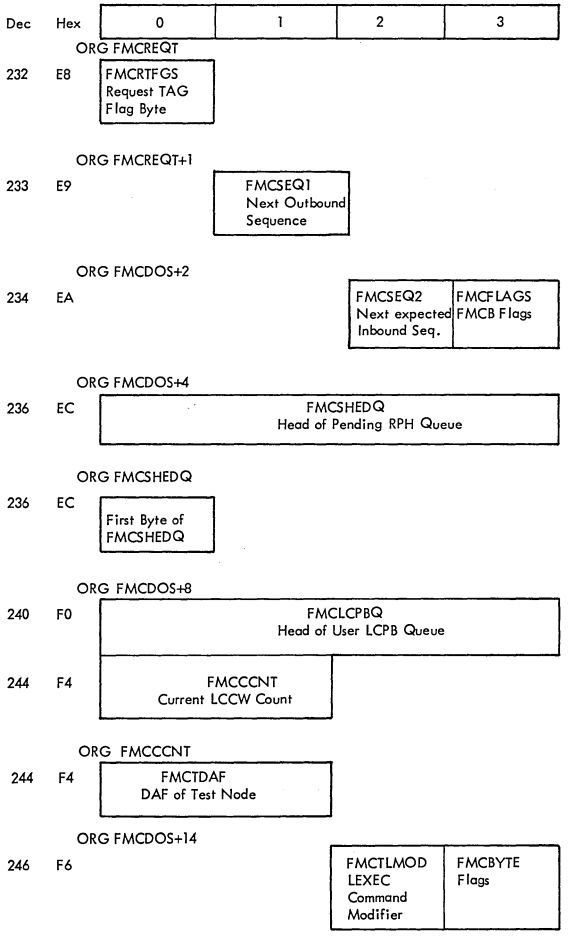
ORG FMCNXCEM

152	98	FMCOSSN

Dec	Hex	0	1	2	3
		ORG FMCNXOSQ+2			
154	9A			FMCNXOSC Next Outbound SC Seq. Number	
		ORG FMCNXOSC			
154	9A			FMCOASN	
		ORG FMCPACE			
160	A0	FMCPACEN N Value of Pacing			
		ORG FMCPACEN			
160	A0	FMCPCNT			
		ORG FMCPACE+1			
161	A1		FMCPACEM M Value of Pacing		
		ORG FMCPACEM			
161	A1		FMCMPCNT		
		ORG FMCPACE+2			
162	A2			FMCPACPC Current Pacing count	
		ORG FMCPACPC			
162	A2			FMCCPCNT	
		ORG FMCPACE+3			
163	A3				FMCCVAL Chain Values
		ORG FMCCLEXT			
164	A4	FMCRPLA Address of Application RPL			

Dec	Hex	0	1	2	3
		ORG FMCRPLA			
164	A4	FMCRPLRS Reserved	FMCRPLPT Pointer to RPL		
		ORG FMCCLEXT+4			
168	A8	FMCFBA Address of FSB Data Queue			
		ORG FMCFBA			
168	A8	FMCFBRSV Reserved	FMCFBPTR Pointer to FSB		
		ORG FMCCLEXT+8			
172	AC	FMCRAFM Address of FMCB on ACDEB Read Any Queue			
176	B0	FMCDCLOK Control Layer FMCB Lock			
180	B4	FMCCMPS2			
		ORG FMCCMPS2			
180	B4	FMCFLGA Flag Field 1 (Control Layer)			
		ORG FMCCMPS2+1			
181	B5		FMCFLGCL Flag Field 2 (Record Control Layer)		
		ORG FMCCMPS2+2			
182	B6			FMCPSCMD Port Outstanding Command Field	
		ORG FMCCMPS2+3			
183	B7				FMCPSTAT Port Solicitor Status Flags


Dec
Hex
0
1
2
3
ORG FMCCLEXT+20
184
B8
FMCPRMRC
Purge Minor
Return Code
ORG FMCCLSEQ
190
BE
FMCTSQNO
Expected Response SEQ NR
192
C0
FMCBSQNO
SQNO Last Received
ORG FMCSSEGQ
200
C8
FMCSEGD
Segmented Input Data Que
ORG FMCFBAS
216
D8
FMCZV002
Reser Orderly LCPB Address
ORG FMCZV002
216
D8
FMCFBXM
Pointer to 1st Buffer of TRAN
ORG FMCSNCTL
224
E0
FMCSCFLG
Flag Byte
ORG FMCSNCTL+1
225
E1
FMCSCCTL
SC Last CTL
Received
FMCSCSQN
SC Last Seq Nr. Received
ORG FMCDOS
232
E8
FMCREQT
Outbound Request TAG


Dec
Hex
0
1
2
3
ORG FMCREQT
232
E8
FMCRTFGS
Request TAG
Flag Byte
ORG FMCREQT+1
233
E9
FMCSEQ1
Next Outbound
Sequence
ORG FMCDOS+2
234
EA
FMCSEQ2
Next expected
Inbound Seq.
FMCFLAGS
FMCB Flags
ORG FMCDOS+4
236
EC
FMCSHEDQ
Head of Pending RPH Queue
ORG FMCSHEDQ
236
EC
First Byte of
FMCSHEDQ
ORG FMCDOS+8
240
F0
FMCLCPBQ
Head of User LCPB Queue
244
F4
FMCCCNT
Current LCCW Count
ORG FMCCCNT
244
F4
FMCTDAF
DAF of Test Node
ORG FMCDOS+14
246
F6
FMCTLMOD
LEXEC
Command
Modifier
FMCBYTE
Flags

Dec	Hex	0	1	2	3
		ORG FMCDOS+16			
248	F8	FMCPFCSQ Seq Number of Last 1st In Chain RU		FMCEXFIC First in Chain Sequence#Assoc. with Exception Resp	
252	FC	FMCCLRPH Ptr to CLS DST			
256	100	FMCLRC Lost Record Counts (TRACE)			
		ORG FMCLRC			
256	100	FMCOLRC Outbound Lost Record Count		FMCILRC Inbound Lost Record Count	
		ORG FMCDOS+28			
260	104	FMCLXOQ LCPB for Reset Orderly Awaiting Delayed Completion			
		ORG FMCPSCMD			
182	B6	FMCFLAG Additional Control Layer Flags			
		ORG FMCFLAG			
182	B6	FMCFLGB Flag Field 2 (Control Layer)			

Alphabetical List of Fields in ISTFMCB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00002	0030	001E	FMCFMCBA	0020	0014	FMCPSTRS	0196	00C4
FMCASEGQ	0212	00D4	FMCFRESA	0228	00E4	FMCRAFM	0172	00AC
FMCBHSET	0185	00B9	FMCILRC	0258	0102	FMCRDTPT	0208	00D0
FMCBSQNO	0192	00C0	FMCIPSEQ	0188	00BC	FMCREQT	0232	00E8
FMCBUFLM	0036	0024	FMCISSN	0156	009C	FMCRPLA	0164	00A4
FMCBUFNB	0038	0026	FMCLCPBQ	0240	00F0	FMCRPLH	0040	0028
FMCBYTE	0247	00F7	FMCLNGTH	0001	0001	FMCRPLPT	0165	00A5
FMCCCNT	0244	00F4	FMCLOCK	0204	00CC	FMCRPLRS	0164	00A4
FMCCLEXT	0164	00A4	FMCLRC	0256	0100	FMCRRESP	0195	00C3
FMCCLRPH	0252	00FC	FMCLUSTR	0187	00BB	FMCRSPLM	0198	00C6
FMCCLSEQ	0190	00BE	FMCLXOQ	0260	0104	FMCRTFGS	0232	00E8
FMCCMDFL	0031	001F	FMCMODE	0052	0034	FMCRVD01	0158	009E
FMCCMPS1	0036	0024	FMCMODEB	0189	00BD	FMCSAF	0002	0002
FMCCMPS2	0180	00B4	FMCMPCNT	0161	00A1	FMCSCCTL	0225	00E1
FMCCPCNT	0162	00A2	FMCNPCNT	0160	00A0	FMCSCFLG	0224	00E0
FMCCTLB	0194	00C2	FMCNXCFM	0152	0098	FMCSCSQN	0226	00E2
FMCCVAL	0163	00A3	FMCNXOSC	0154	009A	FMCSEGD	0200	00C8
FMCDCLOK	0176	00B0	FMCNXOSQ	0152	0098	FMCSEQ1	0233	00E9
FMCDEBA	0032	0020	FMCNXTCB	0004	0004	FMCSEQ2	0234	00EA
FMCDNCBA	0016	0010	FMCOASN	0154	009A	FMCSHEDQ	0236	00EC
FMCDOS	0232	00E8	FMCOLRC	0256	0100	FMCSIP	0148	0094
FMCDVTA	0012	000C	FMCOSSN	0152	0098	FMCSIPA	0148	0094
FMCEXFIC	0250	00FA	FMCPAB1	0064	0040	FMCSNCTL	0224	00E0
FMCEXLST	0144	0090	FMCPAB2	0080	0050	FMCSSEGQ	0200	00C8
FMCFASYA	0060	003C	FMCPAB3	0096	0060	FMCSSTAT	0159	009F
FMCFBA	0168	00A8	FMCPAB4	0112	0070	FMCSTAT	0028	001C
FMCFBAS	0216	00D8	FMCPAB5	0128	0080	FMCSTAT1	0029	001D
FMCFBPTR	0169	00A9	FMCPACE	0160	00A0	FMCSTAT2	0186	00BA
FMCFBRE	0220	00DC	FMCPACEM	0161	00A1	FMCTDAF	0244	00F4
FMCFBRSV	0168	00A8	FMCPACEN	0160	00A0	FMCTLMOD	0246	00F6
FMCFBXM	0216	00D8	FMCPACPC	0162	00A2	FMCTSKID	0008	0008
FMCFLAG	0182	00B6	FMCPFCSQ	0248	00F8	FMCTSQNO	0190	00BE
FMCFLAGS	0235	00EB	FMCPRMRC	0184	00B8	FMCTYPE	0000	0000
FMCFLGA	0180	00B4	FMCPROCD	0048	0030	FMCUSFLD	0024	0018
FMCFLGB	0182	00B6	FMCPSCMD	0182	00B6	FMCVWT	0044	002C
FMCFLGCL	0181	00B5	FMCPSTAT	0183	00B7	FMCZV002	0216	00D8

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
00A3	FMCCVAL	Chain values	1111	FMCOBCE	Current Outbound
			1...	FMCFIRST	First Piece
			.1..	FMCMIDLE	Middle Piece
			..1.	FMCLAST	Last Piece
			...1	FMCONLY	Only Piece
			.... 11..	FMCIBCE	Current Inbound
			11	FMCPRCLS	Presentation Class, 01= Record

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
00BA	FMCSTAT2	Purge flags	1...	FMCVPIP	Vary Purge in Progress
			.1..	FMCZF00A	Purge Succesfully completed
			..1.	FMCIAIO	Inhibit all I/O
			...1	FMCALIPR	Allocation in Progress
			.... 1...	FMCCPIP	CLSDST Purge in Progress
			.... .1..	FMCSEQI	SEQ/ID, 1= Sequence Number
			11	FMCRSV87	Reserved
00BD	FMCMODEB	Mode byte	1...	FMCHOLD	Buffer Flood Condition
			.1..	FMCCLEAR	Clear in progress
			..1.	FMCAPQ	Application quiesced
			...1	FMCLUQ	LU quiesced
			.... 1...	FMCRSTSR	Resetsr in progress
			.... .1..	FMCRESOT	Response outstanding
			.... ..1.	FMCIBPRG	I/B Purge chain
			1	FMCPBPRG	O/B Purge chain
00B4	FMCFLGA	Flag Field 1 (Control Layer)	1...	FMCFLGA0	Data expected
			.1..	FMCFLGA1	In Dialogue
			..1.	FMCFLGA2	FMCB on ACDEB for Read Any
			...1	FMCFLGA3	Incoming Data Flush
			.... 1...	FMCFLGA4	Purge in progress
			.... .1..	FMCFLGA5	Buffer Threshold Exceeded
			.... ..1.	FMCFLGA6	Read done to 3735 (On)
			1	FMCFLGA7	FMCB is Locked
00B5	FMCFLGCL	Flag Field 2 (Record Control Layer)	1...	FMCFLGB0	FMCB on ACDEB Dfasy any Q
			.1..	FMCFLGB1	FMCB on ACDEB Req any Q
			..1.	FMCFLGB2	Satisfy Dfasy Spec.
			...1	FMCFLGB3	Satisfy Resp. Spec.
			.... 1...	FMCFLGB4	Reserved
			.... .1..	FMCFLGB5	POST= Sched. Outstanding
			.... ..1.	FMCFLGB6	Hold Response Outstanding
			1	FMCFLGB7	Reserved

FMCB (ISTFMCB) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
00B6	FMCPSCMD	Port Outstanding Command Field	1...	FMCINVT	Invite
			.1..	FMCCNTCT	Contact
			..1.	FMCRESTI	Reset Immediate Command Outstanding
			...1	FMCPURGE	Purge (Reset)
			.... 1...	FMCDSEOC	Disconnect End of Call
			.... .1..	FMCRDBLK	Read Block (Start Input)
			11	FMCRSV88	Not defined
00B6	FMCFLGB	Flag Field 2 (Control Layer)	1...	FMCFLGA8	Reset Conditional is Active
			.111 1111	FMCFLRSV	Unused
00B7	FMCPSTAT	Port Solicitor Status Flags	1...	FMCELKST	Error Lock set
			.1..	FMCIDVFD	TPIOS could not find A
			..1.	FMCDDOCD	Dial disconnect occurred
			...1	FMCPCLSD	Port being closed by Port Solicitor
			 1111	FMCRSV09	Reserved
00C3	FMCRRESP	Respond Type Expected	1...	FMCFPE	1= Path End Response
			.1..	FMCFEX	1= Exception Response
			..1.	FMCFME	0= Function MNMT End Resp.
			...1	FMCFRRN	1= Reached Recovery Mode
			.... 1...	FMCTSLHA	1= Term Self Last has Arvd.
			.... .111	@NM00004	Reserved
00EB	FMCFLAGS	FMCB Flags	1...	FMCSIRP	Session Indication Req. pend.
			.1..	FMCUSIND	Potential Session Indicator
			..1.	FMCUSIN1	Copy of Pot.Sess. Indicator
			...1	FMCSIRE	Session Initiation Request ended. No queue

Flag Meanings (Continued)

Hex Disp.	Flag	Contents	Bit Pattern	Pattern Name	Pattern Meaning
00EB	FMCFLAGS (Continued)		.... 1...	FMCSTRE	Session Termination Request ended, no Queue posted
			.... .1..	FMCRESET	Reset Request in Progress, do not Post
			.... ..1.	FMCSIRQ	Session Initiation Request queued for Connection
			1	FMCSTPRT	Start Print bit
00EC		First byte of FMCSHEDQ	1...	FMCSHEDG	Gating bit
00E0	FMCSCFLG	Flag Byte	11..	FMCIBSAC	Save IBSQAC
			..11	FMCOBSAC	Save OBSQAC
			.... 1...	FMCLURO	LU owes Response
			.... .1..	FMCAPRO	Appl owes Response
			.... ..1.	FMCSCCLO	Clear outstanding
			1	FMCSTCTL	1=CLUS already Sched.
00E8	FMCRTFGS	Request TAG Flag Byte	111.	FMCRSV12	Reserved
			...1	FMCLBIND	Last Block Indicator
			.... 1...	FMCNONCB	No NCB Indicator
			.... .1..	FMCINPET	Invite Perpetual Ind.
			.... ..1.	FMCASBTU	Associated BTU to Come
			1	FMCRSV11	Reserved
00F7	FMCBYTE	Flags	1...	FMCCRF	Contact Required
			.1..	FMCSESAQ	PORTSOL session Acquired
			..1.	FMCEOTRQ	EOT Expected after RVI from Reset Orderly.
			...1	FMCSSREQ	Session Status Change Ind.
			.... 1...	FMCBRV4	Reserved
			.... .1..	FMCBRV5	Reserved
			.... ..1.	FMCBRV6	Reserved
			1	FMCBRV7	Reserved
001C	FMCSTAT	Source Status Info	1...	FMCPRMTR	FMCB is a Preemptor
			.1..	FMCPRMTE	FMCB is a Preemptee
			..1.	FMCDAPT	Device Accepted
			...1	FMCDEVOF	Device varied or set by Vary DSACT.

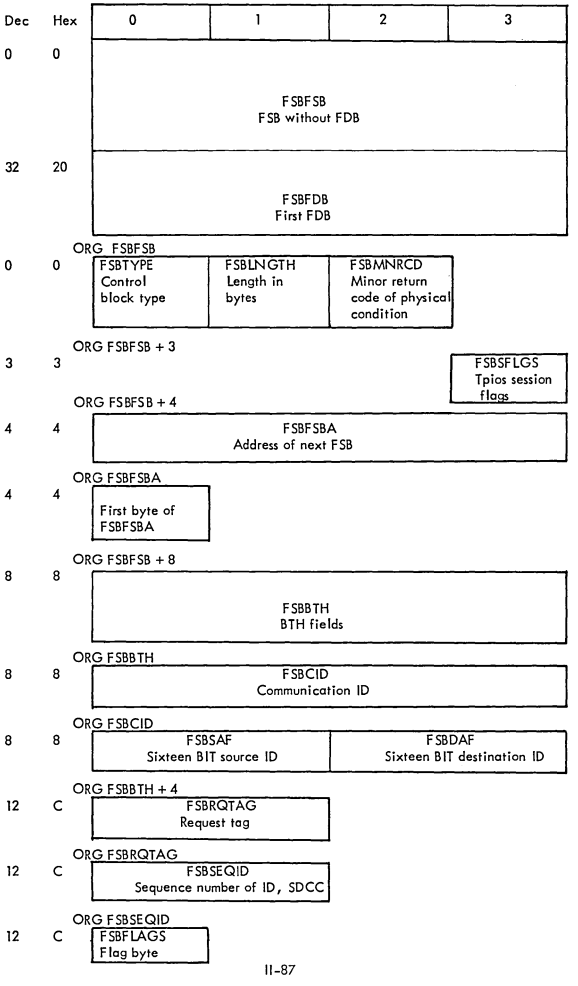
Flag Meanings (Continued)

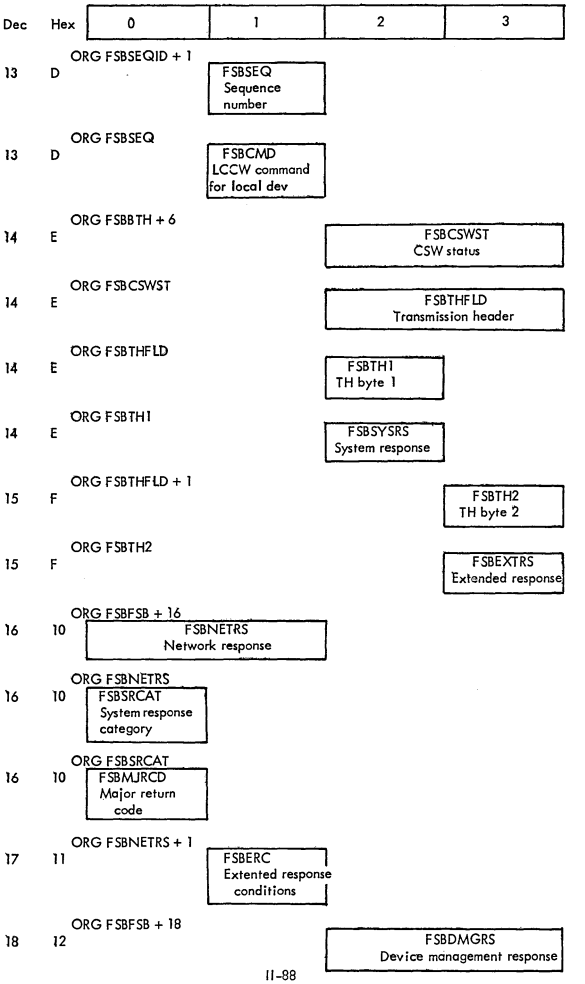
Hex Disp.	Flag	Contents	Bit Pattern	Pattern Name	Pattern Meaning
001C	FMCSTAT (Continued)		.... 1...	FMCDEDSC	Device disconnected
			.... .1..	FMCZF007	Buffer Trace Active flag
			.... ..1.	FMCLTEAS	Lost Term Exit scheduled for this FMCB
			1	FMCVSP1	Soft Purge in Progress
001D	FMCSTAT1	Status Information	1...	FMCVSP2	A User Request was Soft Purged
			.1..	FMCHPURG	Session has been Hard Purged
			..11 1111	@NM00001	Reserved
001F	FMCCMDFL	Command flags	1...	FMCCMDR	1= Initial Self Revd
			.1..	FMCVSNA	FMCB for Vary Session
			..1.	FMCSNA	User Session with New Dev's.
			...1 1111	@NM00003	Reserved
009F	FMCsstat	Session-CPM Status	1...	FMCSNBI	Session not Bound
			.1..	FMCCIPI	TPIOS Clear in Progress
			..1.	FMCUIPI	Unbind in Progress
			...1	FMCSDTR	SDT Required
			.... 1...	FMCBIP	Bind in Progress
			.... .1..	FMCNSALU	No Session exists between the Application and the LU
			.... ..1.	FMCPURCH	TPIOS Purging Chain start
			1	FMCCONF	Sick Flag

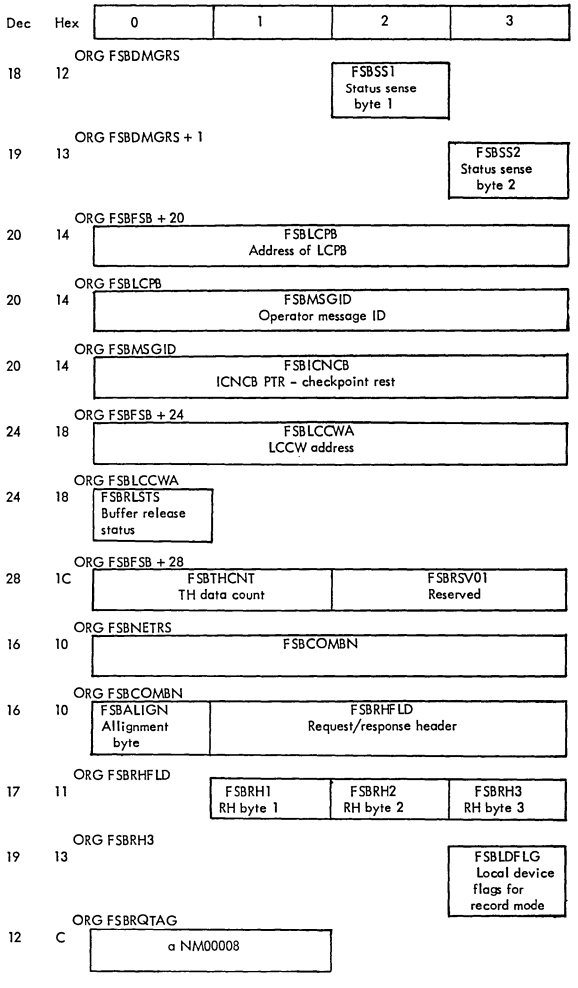
Constants in ISTFSB

Label	Value	Meaning
FMCZHRIP	X'1000'	RESYNCH in Progress
Common Constants Follow		
FMTYPE	X'03'	Type Code for FMCB
FMCOBCEI	B'0001'	
FMCIBCEI	B'11'	
FMCRCD	'RECORD'	Equate for Record Mode

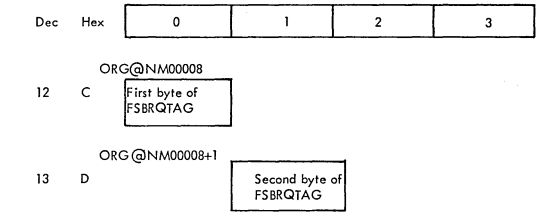
FSB (ISTFSB)


Dec
Hex
0
1
2
3
0
0
FSBFSB
FSB without FDB
32
20
FSBFDB
First FDB
ORG FSBFSB
0
0
FSBTYPE
Control
block type
FSBLNGTH
Length in
bytes
FSBMNRCD
Minor return
code of physical
condition
ORG FSBFSB + 3
3
3
FSBSFLGS
Tpios session
flags
ORG FSBFSB + 4
4
4
FSBFSBA
Address of next FSB
ORG FSBFSBA
4
4
First byte of
FSBFSBA
ORG FSBFSB + 8
8
8
FSBBTH
BTH fields
ORG FSBBTH
8
8
FSBCID
Communication ID
ORG FSBCID
8
8
FSBSAF
Sixteen BIT source ID
FSBDAF
Sixteen BIT destination ID
ORG FSBBTH + 4
12
C
FSBRQTAG
Request tag
ORG FSBRQTAG
12
C
FSBSEQID
Sequence number of ID, SDCC
ORG FSBSEQID
12
C
FSBFLAGS
Flag byte


Dec
Hex
0
1
2
3
ORG FSBSEQID + 1
13
D
FSBSEQ
Sequence number
ORG FSBSEQ
13
D
FSBCMD
LCCW command for local dev
ORG FSBBTH + 6
14
E
FSBCSWST
CSW status
ORG FSBCSWST
14
E
FSBTHFLD
Transmission header
ORG FSBTHFLD
14
E
FSBTH1
TH byte 1
ORG FSBTH1
14
E
FSBSYSRS
System response
ORG FSBTHFLD + 1
15
F
FSBTH2
TH byte 2
ORG FSBTH2
15
F
FSBEXTRS
Extended response
ORG FSBFSB + 16
16
10
FSBNETRS
Network response
ORG FSBNETRS
16
10
FSBSRCAT
System response category
ORG FSBSRCAT
16
10
FSBMJRCD
Major return code
ORG FSBNETRS + 1
17
11
FSBERC
Extented response conditions
ORG FSBFSB + 18
18
12
FSBDMGRS
Device management response


Dec
Hex
0
1
2
3
ORG FSBDMGRS
18
12
FSBSS1
Status sense byte 1
ORG FSBDMGRS + 1
19
13
FSBSS2
Status sense byte 2
ORG FSBFSB + 20
20
14
FSBLCPB
Address of LCPB
ORG FSBLCPB
20
14
FSBMSGID
Operator message ID
ORG FSBMSGID
20
14
FSBICNCB
ICNCB PTR - checkpoint rest
ORG FSBFSB + 24
24
18
FSBLCCWA
LCCW address
ORG FSBLCCWA
24
18
FSBRLSTS
Buffer release status
ORG FSBFSB + 28
28
1C
FSBTHCNT
TH data count
FSBRSV01
Reserved
ORG FSBNETRS
16
10
FSBCOMBN
ORG FSBCOMBN
16
10
FSBALIGN
Allignment byte
FSBRHFLD
Request/response header
ORG FSBRHFLD
17
11
FSBRH1
RH byte 1
FSBRH2
RH byte 2
FSBRH3
RH byte 3
ORG FSBRH3
19
13
FSBLDFLG
Local device flags for record mode
ORG FSBRQTAG
12
C
a NM00008

FSB (ISTFSB) (Continued)



Alphabetical List of Fields in ISTFSB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00008	0012	000C	FSBLCCWA	0024	0018	FSBSEQ	0013	000D
FSBALIGN	0016	0010	FSBLCPB	0020	0014	FSBSEQID	0012	000C
FSBBTH	0008	0008	FSBLDFLG	0019	0013	FSBSFLGS	0003	0003
FSBCID	0008	0008	FSBLNGTH	0001	0001	FSBSRCAT	0016	0010
FSBCMD	0013	000D	FSBMJRCD	0016	0010	FSBSS1	0018	0012
FSBCOMBN	0016	0010	FSBMNRCD	0002	0002	FSBSS2	0019	0013
FSBCSWST	0014	000E	FSBNSGID	0020	0014	FSBSYSRS	0014	000E
FSBDAF	0010	000A	FSBNETRS	0016	0010	FSBTHCNT	0028	001C
FSBDMGRS	0018	0012	FSBRHFLD	0017	0011	FSBTHFLD	0014	000E
FSBERC	0017	0011	FSBRH1	0017	0011	FSBTH1	0014	000E
FSBEXTRS	0015	000F	FSBRH2	0018	0012	FSBTH2	0015	000F
FSBFDB	0032	0020	FSBRH3	0019	0013	FSBTYPE	0000	0000
FSBFLAGS	0012	000C	FSBRLSTS	0024	0018			
FSBFSB	0000	0000	FSBRQTAG	0012	000C			
FSBFSBA	0004	0004	FSBRSV01	0030	001E			
FSBICNCB	0020	0014	FSBSAF	0008	0008			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
000C	FSBFLAGS	Flag Byte	1...	FSBRFIND	Request Feedback Indicator
			.1..	FSBACIND	Additional Command Indicator
			..1.	FSBFFIND	Function Flag Generated
			...1	FSBLBIND	Last Block Indicator
			.... 1...	FSBNONCB	No NCB for this Request
			.... .1..	FSBINPET	Invite Perpetual Response
			.... ..1.	FSBASBTU	Associated Response to Come
			1	FSBDTRCE	Device Trace Request

FSB (ISTFSB) (Continued)

Flag Meanings (Continued)

Hex Disp.	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
000C		First Byte of FSBRQTAG	1...	FSBRT00	Logical Error Flag
			.1..	FSBRT01	Contrl Block Error
			..1.	FSBRT02	End of Scheduling Block
			...1	FSBRT03	Write/Read Request
			.... 1...	FSBRT04	Feedback Requested
			.... .1..	FSBRT05	Decrement Sched Count on Dequeue
			.... ..1.	FSBRT06	Write Request
			1	FSBRT07	Scheduling Flag
000D		Second Byte of FSBRQTAG	1...	FSBRT08	Device End Notification
			.1..	FSBRT09	Critical Text Flag
			..1.	FSBRT0A	Contact
			...1	FSBRT0B	Disconnect Major Return Code Type Value
000E	FSBSYSRS	System Response	1...	FSBSERR	Error Flag
			.11.	FSBSPHSE	Response Phase
			...1 1111	FSBSCODE	Response Code
000F	FSBEXTRS	Extended Response	111.	FSBXFSTS	First Status
			1...	FSBXNORM	Off for Norm First Status
			...1 1111	FSBXCODE	Extended Response Code
			...1 111.	FSBXFINS	Final Status
			1	FSBXLCI	Leading Chars Indicated
0002	FSBMNRCD	Minor Return Code or Physical Condition Flags	1...	FSBMNELI	Error Lock Indicator
			.1..	FSBMNRVI	RVI Received
			..1.	FSBMNATN	ATTN Received
			...1	FSBMNDNU	Device not Usable
			.... 1...	FSBMNEOP	Output Error
			.... .1..	FSBMNDIF	Dialog Initiation Feature
			.... ..1.	FSBMNOA	Operation Aborted Due to Con
			1	FSBMNSDA	Sense Data Available
0003	FSBSFLGS	TPIOS Session Flags	1...	FSBPGBUF	Pageable Buffer
			.111 1111	FSBRSV02	Reserved
0004		First Byte of FSBFSBA	1...	FSBGATE	Gating Flag

FSB (ISTFSB) (Continued)

Flag Meanings (Continued)

Hex Disp.	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0011	FSBERC	Extended Response	1...	FSBEDI	End of LCP Indicator
		Conditions	.1..	FSBECI	End of Command Indicator
			..1.	FSBEBI	End of Block Indicator
			...1	FSBEMI	End of Message Indicator
			.... 1...	FSBETI	End of Transmission Indicator
			.... .1..	FSBFBMI	First Block in Message Indicator
			.... .1..	FSBLMRI	Logoff Message Received
			.... ..1.	FSBLGI	Leading Graphics Indicator
			1	FSBSOHI	SOH Indicator
0012	FSBSS1	Status Sense Byte 1	1111 1...	@NM00005	Reserved
			.... .1..	FSBSSUS	Unit Specify
			.... ..1.	FSBSSDE	Device End
			1	@NM00006	Reserved
0013	FSBSS2	Status Sense Byte 2	11..	@NM00007	Reserved
			..1.	FSBSSCR	Command Reject
			...1	FSBSSIR	Interv. Required
			.... 1...	FSBSSEC	Equipment Check
			.... .1..	FSBSSDC	Data Check
			.... ..1.	FSBSSCC	Control Check
			1	FSBSSOC	Operation Check
0013	FSBLDFLG	Local Device Flags for Record Mode	1...	FSBLDRMF	Record Mode Flag
			.1..	FSBLDSCF	Session Control Flag
			..1.	FSBLDFME	FME Requested Flag
			...1	FSBLDBBF	Begin Bracket Flag
			.... 1...	FSBLDEBF	End Bracket Flag
			.... .1..	FSBLDSOF	Send Output Command Flag
			.... ..1.	FSBLDSIF	Send Input Command Flag
			1	FSBLDCUF	Clear/Unbind Flag
0018	FSBRLSTS	Buffer Release Status	1...	FSBCFTX	Buffer Contains Confid Text
			.111 1111	FSBRLRSV	Reserved

Constants in ISTFSB

Label	Value	Meaning
FSTYPE	X'02'	Type Code for FSB
FSTRACE	X'8F'	Trace FSB
FSTYPEA	X'80'	FID1 FSB
FRREJBB	X'90'	Rejected Begin Bracket
FRREJBS	X'94'	Rejected Bracket Status
FSTHCON	X'1E00'	3270 Record TH Bytes 1,2
FRMNSALU	X'00'	No Session Exists
FRMRCDMP	X'29'	Reset Condl Reject- Error Lock Set
FSATHCON	X'1F00'	Asynchronous TH Constant
FRNORM	X'00'	Normal Feedback
FRCBLKE	X'04'	Control Block Error
FRLOGICE	X'08'	Logical Error in Access Method
FRPHYSC	X'0C'	I/O Error
FRPPRIEX	X'0D'	RU Purged Due to Exception on Prior Element on Chain
FRNEGRCC	X'10'	Condit Commnd Not Performed
FRESPEC	X'0C'	Special Condition
FRCMDRST	X'18'	Command Terminated by Reset
FRPURGE	X'1C'	Request Purged
FRDISCNT	X'28'	Device Disconnected
FRMLCCWS	X'04'	LCCW Synch Completion Code
FRNETP	X'80'	Network Processing
FRLINTR	X'84'	Line Trace
FRMDR	X'88'	MDR Record
FROLT	X'8C'	OLTT
FRNOTIFY	X'30'	Notify
FRCLRRSP	X'31'	Clear Response

Minor Return Codes for Normal Feedback

FRMOK	X'00'	OK So Far
FRMRCDPR	X'04'	Reset Condition Successful, Read Ahead Data Present
FRMLSYN	X'04'	LCCW Synchronization
FRMSRCTL	X'0C'	CTL Command Session Record
FRMIRCTL	X'10'	CTL Command Incident Record
FRMRSTEL	X'40'	Reset Error Lock Completed
FRMRSTQP	X'41'	Reset of Queue Complete
FRMRELCB	X'30'	Release CB
FRMNPCR	X'31'	Clear Response
FRMNPUR	X'32'	Unbind Response
FRMRSTSR	X'33'	Resetsr Response

Minor Return Codes for Control Block Error

FRMINVCF	X'81'	Invalid Chaining FLD in LCCW
FRMIECMD	X'87'	Invalid Escape CMD
FRMLGCNT	X'88'	Leading Graphics Count > 15
FRMESCNT	X'89'	Escape CMD Count <4
FRMCPCNT	X'8A'	Copy LCC Count NE 3
FRMINDAT	X'97'	Invalid Data Addr/Length
FRMINCNT	X'8B'	Invalid Data Count
FRMINDTR	X'17'	Invalid Data/CNT-Record Mode
FRMNSEGE	X'1C'	Segmenting Error

FSB (ISTFSB) (Continued)

Constants in ISTFSB (Continued)

Label	Value	Meaning
Physical Condition Minor Return Codes		
FRMDENOT	X'01'	3270 Device End Notification
FRMLOERR	X'88'	3270 Local Output Error Without Sense
FRMNRP	X'80'	Negative Response to Polling
FRMLERR	X'80'	3270 Loc I/O Error without Sense
FRMLOSNS	X'89'	3270 Loc Output Error with Sense
FRMLESNS	X'81'	3270 Loc I/O Error with Sense
Minor Return Codes for Logical Errors		
FRMVTAME	X'A0'	VTAM Error
FRMILRS	X'A1'	Incompatable Local/Remote Sysgens
FRMRDIP	X'A2'	Reset or Deactivate + Clear in Progress
FRMUSELE	X'A3'	User Logic Error
FRMINVL	X'A3'	User Logic Error
FRMCTLCF	X'A4'	Control Command
FRMOLTF	X'A5'	OLTT Failure
FRMCDITS	X'A6'	Conflicting Dialogue Initiation/Termination
FRMCRNF	X'A7'	Conversational Reply not Feasible
FRMELNV	X'A9'	Escape LCCW not Valid
FRMNELNV	X'AA'	Non Escape LCCW not Valid
FRMLCH	X'AB'	LCCW Count Exceeds 255
FRMNORD	X'AC'	No Read where Required
FRMINVBS	X'AD'	Invalid BTU System Response
FRMSEQER	X'AE'	Response Sequence Error
FRMERNR	X'AF'	Expected Response not Received
FRMTRUN	X'B0'	Data Truncation Occurred
FRMCPYE2	X'B1'	Attempt to Copy from Device on Different Cluster
FRMRELNP	X'B2'	Reset Error Lock not Performed
FRMCPYE1	X'B3'	Attempt to Copy from UNOP DEV
FRMCPYE3	X'B3'	Attempt to Copy from a Device
FRMPRM1	X'B4'	Attempt to Preempt Preempted FMCB
FRMPRM2	X'B5'	Attempt TP Preempt an FMCB with Preempt Pending
FRMBHNDG	X'B6'	Dialogue Entry Failed Due Invalid BH Set
FRMMDNDG	X'B7'	Dialogue Entry Failed Due Invalid Processing Options
FRMRCNA	X'B8'	Read Continuous not Allowed
FRMRDLGO	X'B9'	Read with Data Length GT Internal TPIOS only
Minor Return Codes for Conditional Command not Performed		
FRMNRCC	X'00'	Reset not Performed
FRMYTC	X'80'	Yielded to Contention
Minor Code for Command Reset		
FRMCDRST	X'00'	Command has been Reset

FSB (ISTFSB) (Continued)

Constants in ISTFSB (Continued)

Label	Value	Meaning
Minor Return Codes for Notify		
FRMPREMT	X'0B'	TOLTEP Preempt
FRMRESTR	X'0C'	Restore After Preempt
FRNCDTRM	X'0D'	Conditional Term Self
Minor Return Codes for Request Purged		
FRPRARSS	X'01'	3705 Abend, Restart Successful
FRPRABND	X'02'	Early Warn, Recov in Prog
FRPPCHFL	X'03'	Permanent Channel Failure
FRPRANSH	X'04'	Auto Network Shutdown
FRPAPABD	X'05'	Application Abended
FRPCLSDO	X'06'	CLSDST Occurred
FRPVRYOF	X'07'	Vary Offline Occurred
FRPDISCO	X'08'	Disconnect Occurred
FRPDBTEX	X'09'	Buffer Threshold Exceeded
FRPRTF	X'10'	Temp Record Device Failure
FRPRTS	X'11'	Terminate Self
FRPRAP	X'0A'	Appl Issued Clear
FRPRPR	X'0B'	Preempt
FRNFRE	X'0C'	Restore
FRPARSSL	X'81'	This is last Operation Purge for 3705 Abend, Restart
Minor Return Codes for Network Processing		
FRMMTAID	X'00'	MTA Device Identified
FRMNPLQ	X'04'	Neg Poll Limit Reached Queue Option
FRMNPDES	X'08'	Device End Status
FRMNPSE	X'80'	Error Sense/Status
FRMDEBSF	X'84'	Device Error - BSC Status to Follow
FRMBIDE	X'0C'	BSC ID Error
FRMMTABS	X'18'	MTA/BSC Verify Successful 370X
FRMBSCR	X'90'	BSC ID Verify Successful (in Host), Error Lock Set
FRMNUTRM	X'94'	BSC ID Verify Unsuccessful Error Lock Set
FRMNPHPS	X'10'	Hold - Pending Sense/ST
FRMNPRMD	X'20'	Request Manualdial
FRMBSCOK	X'1C'	BSC ID Association Success- Ful in TPIOS
FRMBSCKO	X'1E'	BSCID Successful in VS1 TPIOS
FRMUNID	X'14'	Unidentified Dial in Terminal
FRMNPRDV	X'42'	Reset Conditional Failed
FRMFIRM	X'10'	LU Failed
FRMTERM	X'11'	Terminate Received
Minor Return Codes for Line Trace		
FRMLINTR	X'00'	Line Trace
FRMLTRE	X'04'	Line Trace Terminated by ERR
Minor Return Codes for MDR Records		
FRMMDR	X'00'	MDR Records

Constants in ISTFSB (Continued)

Label	Value	Meaning
Minor Return Codes for OLTT		
FRMOLTR	X'80'	OLT Request Message
FRMOLTE	X'04'	OLTT CMD Terminated
FRMOLTNC	X'90'	No CCW String Queued
FRMOLTNT	X'91'	CCW String Queued - Not Test Mode Reqs
FRMOLTNS	X'92'	I/O not Started - HDV not Issued
***** Minor Return Code for Command Reset **** **		
FRMRSTRM	X'80'	Reset by Successful TRM
FRMRUTRM	X'81'	Reset by Successful TRM
**** Minor Return Codes for Physical Condition ****		
FRMUSDA	B'00000001'	Unsol Sense Data Avail
FRMSE	B'10000001'	Error Sense Data Avail
FRMUSE	B'10000001'	Error, Unsolicited, Sense
FRMDDR	X'90'	Asyn Dial Discon Received
FRMNCLR	X'0A'	Cleared by Clear
FRMCU	X'06'	Cleared by Clear/Unbind
FRMCUN	X'07'	Cleared by Clear/Unbind/Notfy
NCP System Response Field		
Response Phase		
NCPPHSE0	B'00'	Phase 0 Response
NCPPHSE1	B'01'	Phase 1 Response
NCPPHSE2	B'10'	Phase 2 Response
NCPPHSE3	B'11'	Phase 3 Response
Phase 0 Non Error Responses		
NCPDAC	B'00011'	Device Assyn Complete
NCPMTAID	B'00100'	MTA Device Identified
NCPCAPM	B'00101'	Channel Adapter to Prim Mode
NCPCASM	B'00110'	Channel Adapter Secondary Mode
NCPESYSS	B'00111'	Entering System Slowdown
NCPLSYSS	B'01000'	Leaving System Slowdown
NCPICOMP	B'01001'	Init Complete
NCPMDR	B'01010'	MDR Record
NCPANSCT	B'11011'	Auto Network Shutdown via Channel Timeout
NCPANSOP	B'11100'	Auto Network Shutdown via Operations Panel
NCPANSC	B'11101'	Auto Network Shutdown Complete
NCPMSLOG	B'11110'	Serviceability Aid Mass Storage Logging
NCPOFLO	B'11111'	Overflow Configuration
Phase 1, 2, 3 non Error Responses		
NCPOK	B'00000'	Command OK So Far
NCPLGR	B'00001'	Leading Graphics Received
NCPOKD	B'00010'	OK So Far with Date
NCPNPLQ	B'00011'	Negitive Poll Limit Queue Option
NCPOLTR	B'00100'	OLT Request
NCPNPLNW	B'00110'	Negative Poll Limit - Nowait Option
NCPLINTR	B'00111'	Line Trace
NCPBSTAT	B'00101'	BSC Status Message

FSB (ISTFSB) (Continued)

Constants in ISTFSB (Continued)

Label	Value	Meaning
Phase 0 Error Responses		
NCPCHERR	B'00000'	Channel Error
NCPIRID	B'00001'	Invalid Resource ID
NCPICMD	B'00010'	Invalid Command
NCPIMOD	B'00011'	Invalid Modifier
NCPRSIP	B'00100'	Reset or Deactivate Progress
NCPDIACT	B'00101'	Device Inactive
NCPLIACT	B'00110'	Line Inactive
NCPCNVR	B'00111'	Command not Valid for Resource
NCPCSXE	B'01000'	Command Syntax Error
NCPCNBS	B'01001'	Command did not Conform to BSC Specifications
NCPICDL	B'01010'	Invalid Control Data Leng
NCPRSNP	B'01011'	Reset not Performed
NCPGPA	B'01011'	Gen. Poll Aborted
NCPDNCR	B'01100'	Data not Core Resident
NCPDSQL	B'01101'	Dial Set Queue Limit Reached
NCPSDLI	B'01110'	Switched Device Line Incompatibility
NCPITXL	B'01111'	Invalid Text Length
NCPICOD	B'10001'	Invalid Control Data
NCPINBTU	B'10010'	Incomplete BTU
NCPDATIU	B'10100'	Data in Use
NCPICCM	B'10101'	Invalid Control Command or Modifier
NCPOLTRJ	B'10110'	OLT Command Rejected
NCPMULTD	B'11000'	Multiple Dial Requests
NCPMODI	B'11001'	Mode Inconsistency
NCPBUFNA	B'11010'	Buffer not Available
NCPSYSS	B'11011'	Command Rejected System in Shutdown
NCPERLS	B'11100'	Command Rejected Error Lock Set
NCPCNOP	B'11101'	Command Rejected---- Channel Inoperative
NCPCRS	B'11110'	Command Reset or Line Deactivated
NCPESC0	B'11111'	Phase 0 Error Escape
Extended Response (Final Status) for Phase 0 Error Escape		
NCPIPLE	B'00001'	IPL Lock on
NCPIVNE	B'00101'	Invalid Node
NCPTELE	B'00100'	Trunk Error Lock on
Phase 1, 2, 3 Error Responses		
NCPDACHK	B'00000'	Data Check
NCPPIVR	B'00001'	Possible Interventions Required
NCPIVR	B'00010'	Intervention Required
NCPNPLW	B'00011'	Negative Poll Limit--- Wait Option
NCPYCNT	B'00100'	Yield to Contention
NCPDEBF	B'00101'	Device Error--BSC Status to Follow
NCPBIDER	B'00110'	BSC ID Error
NCPLTRT	B'00111'	Line Trace Terminated
NCPOCT	B'01000'	OLT Command Terminated
NCPSSNS	B'01001'	Session not Started BSC Status Message

Constants in ISTFSB (Continued)

Label	Value	Meaning
NCPESTAT	B'01010'	BSC Error Status Message
NCPDCREC	B'01100'	Data Disconnect Received
NCPBRREC	B'10011'	Break Received
NCPCRJS	B'11000'	Contact Rejected ---- Session Started
NCPDDIC	B'11001'	Dial Data Inconsistency Command Reset ----
NCPIPLR	B'01101'	IPL Required
NCPTRNKE	B'01110'	Trunk Error
NCPBLKR	B'01111'	Remote Block Returned Host

NCP Extended Response Field Values
First Status Values

NCPXCNTL	B'000'	Control
NCPXTXT	B'001'	Text
NCPXTTXT	B'010'	Transparent Text
NCPXHEAD	B'011'	Heading
NCPXSPEC	B'100'	Special
NCPXHCHK	B'111'	Hardware Check

Final Status Values with Normal First Status i.e. Control, Text, Transparent Text or Heading

NCPXTIMT	B'0000'	Timeout
NCPXCUTF	B'0010'	Cutoff
NCPXABLK	B'0011'	Abort Block
NCPXEHE	B'0100'	EOT Halted ERP
NCPXDCE	B'0101'	DLE Control End
NCPXWRAK	B'0110'	Wrong ACK
NCPXRSBE	B'1000'	Received Sub Block End
NCPXETX	B'1001'	End of Text
NCPXETB	B'1010'	End of Block
NCPXENQ	B'1011'	Enquiry
NCPXEOT	B'1100'	End of Transmission
NCPXRVI	B'1101'	Reverse Interrupt
NCPXPACK	B'1110'	Positive ACK
NCPXWACK	B'1111'	Wait ACK

Final Status Values with Special First Status
Timeout-- same as Normal First Status

NCPXCREJ	B'0001'	Command Reject
NCPXBPE	B'0010'	Buffer Pool End
NCPXSLTD	B'0011'	Selected
NCPXRDS	B'0100'	Received Disconnect Signal
NCPXLDTA	B'0101'	Lost Data
NCPXRSET	B'0110'	Reset
NCPXPLLD	B'0111'	Polled
NCPXXSBE	B'1000'	Transmit Sub Block End
NCPXESWR	B'1001'	EOT Sent after Wack Received

FSB (ISTFSB) (Continued)

Constants in ISTFSB (Continued)

Label	Value	Meaning
NCPXRBT	B'1010'	Received Break in Text
NCPXPLLS	B'1011'	Polling Stop
NCPXEOTS	B'1100'	EOT Sent
NCPXRCB	B'1101'	Received Break
NCPXDSCT	B'1110'	Disconnected
NCPXCNTD	B'1111'	Connected

Final Status Values with Hardware Check First Status

NCPXEQUC	B'0000'	Equipment Check
NCPXCSBC	B'0010'	CSB Check
NCPXADC	B'0100'	Adapter Check
NCPXUSER	B'0110'	User Error
NCPXMODC	B'1000'	Modem Check
NCPXDTOC	B'1010'	DSR Turn on Check
NCPXDTFC	B'1100'	DSR Turn off Check
NCPXACUC	B'1110'	ACU Check

**** Miscellaneous Equates ****

FSBLCWMX	X'FF'	Max# LCCW's LCPB
FRMCRJSS	X'08'	Contact Rjcted, Sesn Started
FSBNRMST	X'0C'	Normal I/O Status of CE, DE

Session Flag Values

FSESCS	X'01'	Contact Successful
FSESIS	X'02'	Invite Successful
FSESCR	X'03'	Contact Rejected
FSESDS	X'04'	Disconnect Successful
FSESCWDS	X'05'	Contact/Write/Disconnect Successful
FSESIDS	X'06'	Invite/Disconnect Success
FSESIADS	X'07'	Invite W. Auto Restart Completed a Cycle
FSESDF	X'08'	Comm'd with Discon. Failed
FSESCF	X'09'	Write with Contact and Disconnect Failed
FSESIF	X'0A'	Invite with Connect Failed
FSESSSDF	X'0B'	Write with Contact and Disconnect Failed to End Session
FSESISDF	X'0C'	Invite Started Session but Disconnect Failed
FSESIR	X'0E'	Invite Rejected - Disc Sent

RH, TH, Sense Constants

FSSEQSNS	X'00000000'	SEQ Num Sense Field
FSSEQSLN	X'04'	Length of Above
FSEPRRH	X'930100'	Stand-Alone Pacing Response RH
FSDEONLY	X'0200'	DE Only Status
FSSNAMSK	X'3FFF'	Mask to Zero First Two Bits of Status

ICE (ISTICE)

Dec	Hex	0	1	2	3
0	0	ICESUBJ Address of ACDEB or RDT			
4	4	ICEOBJ Address of RDT or ACDEB			
8	8	ICESUBJQ Link Field for Sub Chain			
12	C	ICEOBJQ Link Field for OBJ Chain			
16	10	ICESIDE Field Link for Other Ices			
20	14	ICEDATA Address of Request Data			
24	18	ICERPHA Address of RPH			
28	1C	ICEFLAGS Flag Bytes	@NM00002 PAD to Full Word		
32	20	ICEUECBX Anchor for Chain of UECBS or ICX			
36	24	ICERSC2B Resource 2 Name from Initiate RU			

ICE (ISTICE) (Continued)

Alphabetical List of Fields in ISTICE

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00002	0029	001D	ICEOPJQ	0012	000C	ICESUBJ	0000	0000
ICEDATA	0020	0014	ICERPHA	0024	0018	ICESUBJQ	0008	0008
ICEFLAGS	0028	0010	ICERSC2B	0036	0024	ICEUECEX	0032	0020
ICEOBJ	0004	0004	ICESIDE	0016	0010			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
001C	ICEFLAGS	Flag Bytes	1...	ICESPEC	Specific Accept
			.1..	ICEICX	ICX is Present
			..1.	ICELGCN	Acquire is Logon Type
			...1	ICERSC2F	1=ICERSC2B is a name 0=no name
			.... 1...	ICESTAPR	Shoulder Tap
			.... .111	@NM00001	Slack

LCCW (ISTLCCW)

Dec	Hex	0	1	2	3
0	0	LCCWOP Operational Code-Control	LCCWFLAG Flag Byte	LCCWCNT Data Count	
4	4	LCCWDATA Data Address or Immed. Data			

Alphabetical List of Fields in ISTLCCW

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
LCCWCNT	0002	0002	LCCWDATA	0004	0004	LCCWFLAG	0001	0001
LCCWOP	0000	0000						

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000	LCCWOP	Operation Code -Control	1...	LCCWSI	Sess Init/Start Dialog Flg
			.1..	LCCWSD	Sess Discon/End Dialog Flg
			..11 1111	LCCWRWOP	Read/Write Operation Code
			..1.	@NM00001	Reserved
			...1	LCCWSOP	Special Operation Like Erase or Read Cont
			 1111	LCCWCTL	Control Type
			.... 11..	LCCWMODE	Mode Type
			11	LCCWTYPE	Operation Type
0001	LCCWFLAG	Flag Byte	1...	LCCWCD	Chain Data
			.1..	LCCWCC	Chain Command
			..1.	LCCWCKPT	Suppress 3705 Check Point Record
			...1	LCCWNTVC	Do not Perform Valchek
			.... 1...	LCCWIDAT	LCCWDATA Contains Data
			.... .1..	LCCWLSI	LCCW Synch Indicator
			.... .1..	LCCWPER	Post=Resp
			.... ..1.	LCCWRFI	Request Feedback Indicator
			1	LLCWACI	Addition Command Indicator

Constants in ISTLCCW

Label	Value	Meaning
LXDQ	X'3B'	Reset Device Queue
LXEC	X'4B'	Reset at End of Command
LXO	X'5B'	Reset Orderly
LCCWPRGE	X'6B'	Purge
LWH	X'0F'	Write Header Indi. 1st Block
LWRVI	X'1F'	Write RVI
LWNA	X'2F'	Write Negative Ack
LWAA	X'3F'	Write Alternate Ack
LWPLG	X'5F'	Write Ack Leading Graphics
LWNLG	X'6F'	Write Nack Ledaing Graphics
LSMDE	X'4F'	Set Mode
LIFBM	X'7F'	Indic 1st Block of Message
LTEST	X'FE'	Test LCCW
LPRMPT	X'13'	Preempt LCCW
LRSTR	X'43'	Restore LCCW
LEXEC	X'FF'	Special Control Operation
LREAD	B'10'	Read Type LCCW
LWRITE	B'01'	Write Type LCCW
LCNTRL	B'11'	Control Type LCCW
LRESET	B'1011'	Reset Commands
LTIC	X'08'	Logical Tic
LWR	B'000001'	Write Conversational
LWB	B'000101'	Write Block
LWM	B'001001'	Write Message
LWT	B'001101'	Write Transmission
LEWM	B'011001'	Erase/Write Message
LEWT	B'011101'	Erase/Write Transmission
LEAU	B'010001'	Erase All Unprotected
LRB	B'000110'	Read Block
LRM	B'001010'	Read Message
LRT	B'001110'	Read Transmission
LRMOD	B'010010'	Read Modified
LRBUF	B'010110'	Read Buffer
LRCONT	B'011010'	Read Continuous
LRPEP	B'011110'	Read Perpetual
LCPYM	B'101001'	Copy Message
LCPYT	B'101101'	Copy Transmission
LD	X'23'	Disconnect
LDEC	X'33'	Disconnect with End of Call
LEOC	X'53'	End of Call Command
LXEL	X'0B'	Reset Error Lock
LXC	X'1B'	Reset Conditional
LXI	X'2B'	Reset Immediate
LC	X'03'	Contact
LWPA	X'FD'	Write Positive Ack
LMT	B'11'	Transmission Mode
LMS	B'00'	Special Mode like Conv, EAU
LMB	B'01'	Block Mode
LMM	B'10'	Msg or Continuous Mode

LCCW (ISTLCCW) (Continued)

Constants in ISTLCCW (Continued)

Following Equates for - Port Solicitor (Dial)

Port Solicitor Command Codes

Label	Value	Meaning
PSOL	X'FE'	Special Port Solicitor Command
STCTL	X'01'	Start Control
RESTCTL	X'02'	Reset & Control - Redrive
STIPUT	X'03'	Start Input

Following Equates for SDLC Support

Label	Value	Meaning
LCCHOLD	X'01'	Hold
LCCRHOLD	X'02'	Release Hold
LSEND	X'F1'	Send
LCLEAR	X'F2'	Clear
LCRUD	X'F3'	Clear, Unbind
LCRUDNFY	X'F4'	Clear, Unbind, Notify
LNFY	X'F5'	Notify
LRELCB	X'F6'	Release CB
LRESTSR	X'F7'	Resetsr
LCLRNFY	X'F8'	Clear/Notify
LCHPUR	X'F9'	Purge
LCCWSIZE	8	LCCW size
LRDS	X'FF'	Record dev stats command
LQUIS	X'FE'	Quiesce Command

LCPB (ISTLCPB)

Dec	Hex	0	1	2	3
0	0	LCPTYPE Type Code	LCPLNGTH Length in Bytes	LCPFLAGS Flag Byte	LCPMNRCD LCP Minor Rejection Code
4	4	LCPCHAIN APS Chain			
8	8	LCPRUCNT Number of RU for this LCPB	LCPFLAG2 Second Flag Byte	LCPSEQ Outbound Sequence Number	
12	C	LCPCID Communication ID			
16	10	LCPNXLCW ADDR Next LCCW			
20	14	LCPFDBA BTU Address			
24	18	LCPTLBAD Address of TLB			
28	1C	LCPFOSN Sequence Number First BU		LCPFSNCH 1st SEQ Number in Ru Chain	
32	20	LCPRSV03 Reserved	LCPFLG1 Flags	LCPRRCCT Count of Responses Received	LCPRRCNT Count of Responses Requested
36	24	LCPFLCCW Internal DOS TPIOS Pointer to First LCCW			
40	28	LCPLCCW First LCCW			

Org LCPCHAIN

4	4	First Byte of LCPCHAIN

Org LCPCID

12	C	LCPSAF Source Identification	LCPDAF Destination Identification

LCPB (ISTLCPB) (Continued)

Dec	Hex	0	1	2	3
		Org LCPFLCCW			
36	24	LCPUBFSB Unbind FSB Address			
		Org LCPLCCW			
40	28	LCPRSTQA Reset LCPB Queue Header			
44	2C	LCPPABA PAB Pointer			
		Org LCPPABA			
44	2C	LCPRPHA RPH Pointer			
		Org LCPRPHA			
44	2C	First Byte of LCPPABA and LCPRPHA			

Alphabetical List of Fields in ISTLCPB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
LCPCHAIN	0004	0004	LCPLCCW	0040	0028	LCPRUCNT	0008	0008
LCPCID	0012	000C	LCPLNGTH	0001	0001	LCPSAF	0012	000C
LCPDAF	0014	000E	LCPMNRCD	0003	0003	LCPSEQ	0010	000A
LCPFDBA	0020	0014	LCPNXLCW	0016	0010	LCPTLBAD	0024	0018
LCPFLAGS	0002	0002	LCPPABA	0044	002C	LCPTYPE	0000	0000
LCPFLAG2	0009	0009	LCPRPHA	0044	002C	LCPUBFSB	0036	0024
LCPFLCCW	0036	0024	LCPRRCCT	0034	0022			
LCPFLG1	0033	0021	LCPRRCNT	0035	0023			
LCPFOSN	0028	001C	LCPRSTQA	0040	0028			
LCPFSNCH	0030	001E	LCPRSV03	0032	0020			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0002	LCPFLAGS	Flag Byte	1...	LCPLOGIC	LCP Logic Error
			.1..	LCPCBLK	LCP Control Block Error
			..1.	LCPFBIND	Free Block Indicator
			...1	LCPRJECT	LCPB Rejected Flag

LCPB (ISTLCPB) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
			...1	LCPCRFLG	Rejected Contact Request
			.... 1...	LCPMDRST	LCP has been reset
			.... .1..	LCPRESET	Reset Request LCP
			.... ..1.	LCPDTRCE	Device Trace Require
			1	LCPREQOK	Request Handled as NOOP, Completion O.K.
0004		First Byte of LCPCHAIN	1...	LCPCHNG	Gate Bit
0009	LCPFLAG2	Second Flag Byte	1...	LCPPRFLG	Pacing Required
			.1..	LCPASYN	Asynchronous LCPB
			..1.	LCPRSTRT	Restart LCPB
			...1	LCPTLBPI	TPIOS Block LCCW
			.... 1...	LCPFIDO	FIDO TH Indicator for Record
			.... .1..	LCPCPURG	Request may cause Following Requests to be Purged
			.... ..1.	LCPTPICB	LCPB owned by TPIOS
			1	LCPSPURG	Request Subject to Purging due to Prior Exception
002C		First Byte of LCPPABA and LCPRPHA	1...	LCPFTYPE	Feedback Type
0021	LCPFLG1	Flags	1...	LCPRSV04	Reserved for Alignment
			.1..	LCPINTER	Internal LCPB
			..1.	LCPREDRV	LCPB is for Redrive
			...1	LCPSTLB	TLB not to be Freed
			.... 1...	LCPDIRPT	Direct Post
			.... .111	LCPRSV05	Reserved

LCPB (ISTLCPB) (Continued)

Constants in ISTLCPB

Label	Value	Meaning
Constants for LCPTYPE		
LCRPHFT	B'1'	
LCPABFT	B'0'	
LCPBFIRM	X'10'	LU Failed, CLSDST, Sched Lost Term, OPNDST may be tried
LCPBTERM	X'11'	Term Received, CLSDST, Sched Lost Term
LCTYPE	X'04'	
LCPCLACB	X'04'	LCPB from Close ACB
PLCPTYPE	X'28'	Purge LCPB Type ID
LCPETYPE	X'40'	Extended LCPB Type ID
Minor Return Codes		
LCMCRSTR	X'F7'	Minor RC for Resetsr
LCPMNEW	X'02'	Early Warning, Recovery in Progress
LCPMNPF	X'03'	Perm. I/O Failure
LCPMNAS	X'04'	Auto Network Shutdown
LCPMNCL	X'06'	Close/CLSDST Occured
LCPMNVD	X'07'	Vary Deactivate
LCPMNTF	X'10'	Temp Record Device Failure
LCPMNSF	X'01'	Temp Basic Failure
LCPMNTS	X'11'	Terminate Self
LCPMNAP	X'0A'	Appl. Issued Clear
LCPMNPR	X'0B'	Preempt
LCPMNRE	X'0C'	Restore

NCB (ISTNCB)

Dec	Hex	0	1	2	3
0	0	NCBTYPE Control block type code	NCBLNGTH Length in bytes	NCBDAF ID of destination	
4	4	NCBRDTE Address of RDT entry			
8	8	NCBTSKID Task ID			
12	C	NCBNSNA Address of next schedulable node			
16	10	NCBFMCBA Address of first FMCB			
20	14	NCBNCBA CID of next same/lower level node		NCBNCSL CID of next same/level node	
24	18	NCBFLAGS Common NCB flags			
28	1C	NCBRVPT1 Count of last trace records		NCBLTRC Lost trace record count	
32	20	NCBFMCBP Address of port solicitor FMCB			
36	24	NCBDEVCH Node Dev Char			
44	2C	NCBSWDAF Real Network Address of Term in SW. Subarea		NCBRSV01 Reserved	

Org NCBFLAGS

24	18	NCBCSTAT Connection status flag	NCBFRAS RAS flag

Org NCBFRAS

25	19	NCBFTRIO I-O trace active this node

Org NCBFTRIO

25	19	NCBFLTIO I-O trace active this node

NCB (ISTNCB) (Continued)

Dec	Hex	0	1	2	3
		Org NCBFLAGS + 2			
26	1A			NCBFLAG1 NCB flags	
		Org NCBFLAGS + 3			
27	1B				NCBNMLLN Number of lower level nodes

Alphabetical List of Fields in ISTNCB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
NCBCSTAT	0024	0018	NCBFRAS	0025	0019	NCBRDTE	0004	0004
NCBDAF	0002	0002	NCBFTRIO	0025	0019	NCBRSV01	0046	002E
NCBDEVCH	0036	0024	NCBLNGTH	0001	0001	NCBRVPT1	0028	001C
NCBFLAGS	0024	0018	NCBLTRC	0030	001E	NCBSWDAF	0044	002C
NCBFLAG1	0026	001A	NCBNCBA	0020	0014	NCBTSKID	0008	0008
NCBFLTIO	0025	0019	NCBNCSL	0022	0016	NCBTYPE	0000	0000
NCBFMCBA	0016	0010	NCBNMLLN	0027	001B			
NCBFMCBP	0032	0020	NCBNSNA	0012	000C			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
001A	NCBFLAG1	NCB Flags	1...	NCBSNAI	Old Node
			.1..	NCBCONF	Node Sick flag
			..1.	NCBRSTRT	Recovery in progress
			...1	NCBRSYNC	C/R Resynch on first I/O required, 1=YES
			.... 1...	NCBTTF	C/R Ignore Trickle Traffic, 1= YES
			.... .1..	NCBFORCE	Forced Deact in progress
			11	a NM00001	Reserved

Constants in ISTNCB

Label	Value	Meaning
LDTYPE	X'07'	Type Code for LDNCB
ICTYPE	X'06'	Type Code for ICNCB
DNTYPE	X'05'	Type Code for DNCB
HCTYPE	X'14'	HCNCB Type
CCTYPE	X'15'	CCNCB Type Code
LUTYPE	X'25'	LUNCB Type Code
NCNOTRC	0	No Trace Required.

NCSPL (ISTNCSPL)

Dec	Hex	0	1	2	3
0	0	@ NM00009			
16	10	@ NM00011 Reserved	NCSPLVCD Verb Code	NCSPLVBF Verb Modifier Flags	
20	14	NCSPLVFL Command Flags	NCSPLVF1 Special Proc Flags	NCSPRMRC Purge Minor Return Code Field	NCS1ORC I/O or Restart Return Code
24	18	NCSPRRNPT Addr RN Entry for Line Trace			
28	1C	NCSPLRID ID = 'Nodename'			
36	24	NCSPLLID Logon = 'Nodename'			
44	2C	NCSDLID Offhook ID			
48	30			NCSCRCMD C/R I/O command code	NCSCRPID C/R Path ID (PID)
52	34	NCSPLRPT ID = 'Nodename' RDTE Address			

NCSPL (ISTNCSPL) (Continued)

Dec	Hex	0	1	2	3
56	38	NCSPLLPT Logon/Logoff = 'Nodename' RDTE Addr			
60	3C	NCSPLCMD 3705 Control Command Codes		NCSNCPEP EP Subchannel Addr	NCSMSGSP Reserved for Message Surpression
64	40	NCSPLUAD U = 'Unit Address'			NCSCRFLG Miscellaneous C/R Flags
68	44	NCSPLWRE WTOR ECB			
72	48	NCSPLWRF WTOR Reply Area			
144	90	NCSPLRAD RDTE PTR for Allocate/Deallocate			
148	94	NCSIOCID Current CID for DAF Lock Held			
152	98	NCSPLWKA NCS Work Area Address			
156	9C	NCSPLCVT Pointer to VTAM CVT			
160	A0	NCSPLRPH Pointer to RPH			

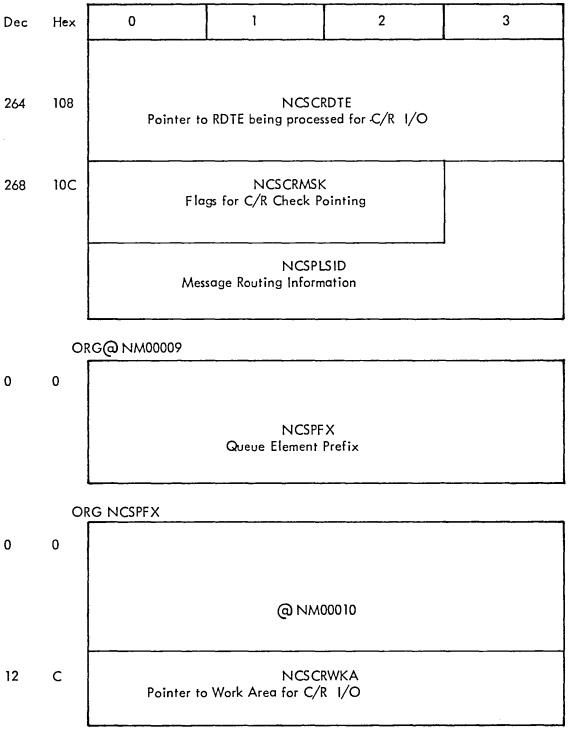
NCSPL (ISTNCSPL) (Continued)

Dec	Hex	0	1	2	3
164	A4	NCSPLECB ECB for Vary PGS			
168	A8	NCSPLFSB Address of USS-FSS FSB or RU			
172	AC	NCSPLRCR Address RDTE for CR			
176	B0	NCSPLFL1 Vary Flags	NCSPLFL2 Vary Flags	NCSPLFL3 Flag Byte	NCSPLFL4 Flag byte
180	B4	NCSDLRSN Dial Reason Codes	NCSPLFL5 Flag Byte	NCSPLOLN Length O/B RU	
184	B8	NCSPLP1 Addr Vary PAB			
188	BC	NCSPLP2 Addr D/L/R PAB			
192	C0	NCSPLP3 Addr ERP PAB			
196	C4	NCSPLSPL Addr Assoc. NCSPL			
200	C8	NCSPLWEL Addr Post RPH			
204	CC	NCSPLRRP Addr Remote RN RDTE in Local RDT			
208	Do	NCSPLRUO Addr O/B RU			

NCSPL (ISTNCSPL) (Continued)

Dec	Hex	0	1	2	3
212	D4	NCSPLRUI Addr Buffer for I/B RU			
216	D8	NCSPLAPP Addr NCSPL Appendage			
220	DC	NCSRNAME Rname=from Vary Activate			
228	E4	NCSPLSQN Sequence=Nr. for Response		NCSPLGID Binary Rep of GID Value	NCSPLPID Binary Rep of PID Value
232	E8	NCSPLMID Logmode = 'Modename'			
240	F0	NCSPLNSN RDTE NSNEA at CLSDST			
244	F4	NCSSENSE Sense			
248	F8	NCSCPWPT Address of CPWA			
252	FC	NCSMGLPT PTR to USS/FSS MSG Param List			
256	100	NCSUFMCB Pointer to SSCP-LU FMCB			
260	104	NCSPLRH Request RH			NCSPLRTY Type from RTGOH RU

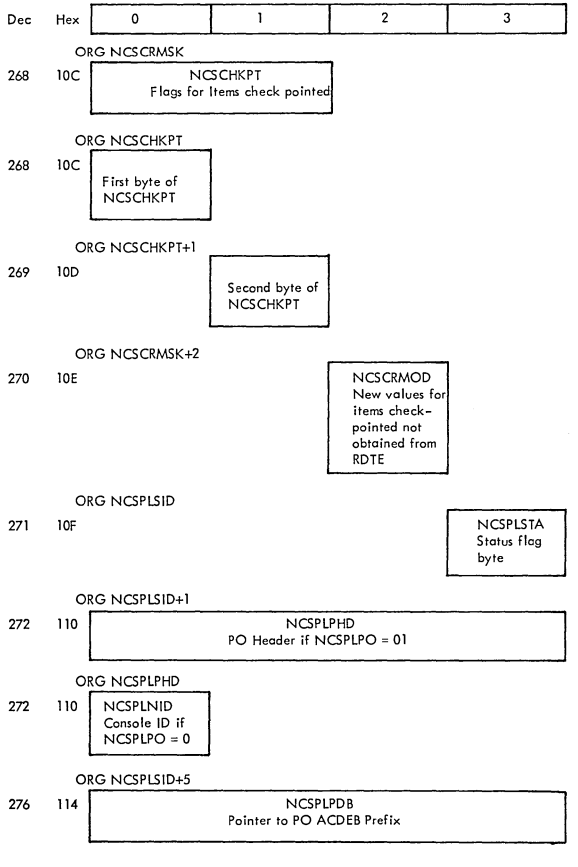
NCSPL 'ISTNCPSL) (Continued)



NCSPL (ISTNCSPL) (Continued)

Dec	Hex	0	1	2	3
		Org NCSPLVBF			
18	12			First Byte of NCSPLVBF	
		Org NCSPLVBF+1			
19	13				Second Byte of NCSPLVBF
		Org NCSPLCMD			
60	3C	NCSCMDA RH Flags			
		Org NCSPLCMD+1			
61	3D		NCSCMBD Command Field		
		Org NCSPLRAD			
144	90	NCSLSCMD Line Sched Command Type	NCSPLRCD Hex Value for Line Sched Param		
		Org NCS1OCID			
148	94	NCSPLCID Current CID for Daf Lock held			
		Org NCSPLCID			
148	94	NCSPLSAF Source Address		NCSPLDAF Destination Address	
		Org NCSSENSE			
244	F4	NCSSNS1 Sense Data Major Code	NCSSNS2 Sense Modifier Byte	NCSSENS2 User Sense Data	

NCCSPL (ISTNCSPL) (Continued)



Alphabetical List of Fields in ISTNCSPL

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00009	0000	0000	NCSPLDAF	0150	0096	NCSPLRPT	0052	0034
@NM00010	0000	0000	NCSPLECB	0164	00A4	NCSPLRRP	0204	00CC
@NM00011	0016	0010	NCSPLFL1	0176	00B0	NCSPLRTY	0263	0107
NCSCHKPT	0268	010C	NCSPLFL2	0177	00B1	NCSPLRUI	0212	00D4
NCSCMDA	0060	003C	NCSPLFL3	0178	00B2	NCSPLRUO	0208	00D0
NCSCMDB	0061	003D	NCSPLFL4	0179	00B3	NCSPLFSAF	0148	0094
NCSCPWPT	0248	00F8	NCSPLFL5	0181	00B5	NCSPLSID	0271	010F
NCSCRCMD	0050	0032	NCSPLFSB	0168	00A8	NCSPLSPL	0196	00C4
NCSCRDTE	0264	0108	NCSPLGID	0230	00E6	NCSPLSQN	0228	00E4
NCSCRFLG	0067	0043	NCSPILID	0036	0024	NCSPLSTA	0271	010F
NCSCRMOD	0270	010E	NCSPLLPT	0056	0038	NCSPLUAD	0064	0040
NCSCRMSK	0268	010C	NCSPLMID	0232	00E8	NCSPLVBF	0018	0012
NCSCRPID	0051	0033	NCSPLNID	0272	0110	NCSPLVCD	0017	0011
NCSCRWKA	0012	000C	NCSPLNSN	0240	00F0	NCSPLVFL	0020	0014
NCSDLID	0044	002C	NCSPLOLN	0182	00B6	NCSPLVF1	0021	0015
NCSDLRSN	0180	00B4	NCSPLPDB	0276	0114	NCSPLWEL	0200	00C8
NCSIOCID	0148	0094	NCSPLPHD	0272	0110	NCSPLWKA	0152	0098
NCSIORC	0023	0017	NCSPLPID	0231	00E7	NCSPLWRE	0068	0044
NCSLSCMD	0144	0090	NCSPLP1	0184	00B8	NCSPLWRF	0072	0048
NCSMGLPT	0252	00FC	NCSPLP2	0188	00BC	NCSPRMRC	0022	0016
NCSMSGSP	0063	003F	NCSPLP3	0192	00C0	NCSRNAME	0220	00DC
NCSNCPEP	0062	003E	NCSPLRAD	0144	0090	NCSRRNPT	0024	0018
NCSPFX	0000	0000	NCSPLRCD	0145	0091	NCSSENSE	0244	00F4
NCSPLAPP	0216	00D8	NCSPLRCR	0172	00AC	NCSSENS2	0246	00F6
NCSPLCID	0148	0094	NCSPLRH	0260	0104	NCSSNS1	0244	00F4
NCSPLCMD	0060	003C	NCSPLRID	0028	001C	NCSSNS2	0245	00F5
NCSPLCVT	0156	009C	NCSPLRPH	0160	00A0	NCSUFMCB	0256	0100

NCSPL (ISTNCSPL) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
			.... ..1.	NCSPLVIS	Vary IMM Start Caller of CVP
			1	NCSPLVIT	Vary IMM Term Caller of CVP
00B2	NCSPLFL3	Flag Byte	1...	NCSPLMOM	ERP Caused by Failure of Higher Node
			.1..	NCSEPP	1=EP Subchannel Present
			..1.	NCSPLANS	On for Act in Answer Mode Off for Act in Non-Answer Mode
			...1	NCSGID	On for Path with GID Parm
			.... 1...	NCSPID	On for Path with PID Parm
			.... .1..	NCSANS	On for Activate with ANS Parm
			.... ..1.	NCSFINAL	Final Parm Exists
			1	NCSEND	End Parm Exists
00B3	NCSPLFL4	Flag Byte	1...	NCSDLNID	ID Present in NCSPL - Off
			.1..	NCSPLRSO	Reset Only
			..1.	NCSPLVID	Orig CMD was Modify Dump
			...1	NCSDSPE	Display Every
			.... 1...	NCSDSPA	Display Act
			.... .1..	NCSDSPI	Display Inact
			.... ..1.	NCSDSPN	Display None
			1	NCSPL2AP	Second ACTPU to 320X
00B5	NCSPLFL5	Flag Byte	1...	NCSSCPPS	SSCP Work Area in PVT Storage
			.1..	NCSSDLK	On-SDLC Link Processed
			..1.	NCSFORCE	Forced Deact in progress
			...1 1111	@NM00013	Reserved
0012		First Byte of NCSPLVBF	1...	NCSVBF01	Unused
			.1..	NCSMSG	Modify Msg, ID=XXXXXXXX
			..1.	NCSVBF03	Modify MSG sup
			...1	NCSVBF04	Type=VTAM
			.... 1...	NCSVBF05	Linetrace=1
			.... .1..	NCSVBF06	I/O Trace=1
			.... ..1.	NCSVBF07	Buffer Trace=1
			1	NCSVBF08	Modify Tprint
0013		Second Byte of NCSPLVBF	1...	NCSVBF09	Modify Test
			.1..	NCSVBF10	Modify Trace=No
			..1.	NCSVBF11	Vay Internal Only & Modify Trace =Yes

NCSPL (ISTNCSPL) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
			...1	NCSVBF12	Vary Immediate & Modify Netsol=No
			.... 1...	NCSVBF13	Modify Netsol=Yes
			.... .1..	NCSVBF14	Vary Logon & Modify Change
			.... ..1.	NCSVBF15	Vary Deactivate & Vary Normal Close (ERP)
			1	NCSVBF16	Vary Activate & ERP Request & Modify Dump
0014	NCSPLVFL	Command Flags	1...	NCSVNCSA	NCSPL is Active
			.1..	NCSVDEL	Delete NCSPL
			..1.	NCSVSTAT	Indicate NCSPL was not Getmained
			...1	NCSDCONT	Do Disconact
			.... 1...	NCSABCON	Do Abandon Connection
			.... .1..	NCSDACLK	Do Activate Line
			11	NCSRSV02	Reserved
0015	NCSPLVF1	Special Proc Flags	1...	NCSOVFMC	Purge only Vary's FMCD
003C	NCSCMDA	RH Flags	1...	NCSPLSYS	On-System Off-FM
			.1..	NCSPLCTL	On-Control Off-Data
			..1.	NCSPLSYN	On=Synchr Off-Asynch
			...1	NCSPLFLO	On-with Flow Off-against Flow
			.... 1...	NCSPLUFM	On=Unformatted RU, Off=Formatted
			.... .111	@NM00010	Reserved
0043	NCSCRFLG	Miscellaneous C/R Flags	1...	NCSPLWRM	Command specified warm param, 1=Yes
			.1..	NCSPLCLD	Command specified cold param, 1=Yes
			..1.	NCSFMCLD	370X responded cold to ACTPU(ERP), 1=YES
			...1	NCSFMERP	370X responded ERP to ACTPU (ERP), 1=Yes

NCSPL (ISTNCSPL) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
			.... 1...	NCSCRDSE	0=C/R data set does not exist or is null 1=C/R data set exists and is not null
			.... .1..	NCSOPRQU	Operator requests REIPL, 1=Yes
			.... ..1.	NCSUSRNF	Early warning purge has already occurred, 1=yes
			1	NCSSTCMD	Activate is a result of Start VTAM command, 1=Yes
010C		First Byte of NCSCHKPT	1...	NCSACTV	Active/Inactive status changed 1=Yes
			.1..	NCSPACTV	Port Act/Inactive status changed 1=Yes
			..1.	NCSPOLD	Poll Delay Value changed, 1=yes
			...1	NCSNRPL	Negative response to Poll Limit Value changed, 1=Yes
			.... 1...	NCSESLM	Session Limit Value changed, 1 =Yes
			.... .1..	NCSDTRLM	Device Transmission Limit Value changed, 1=Yes
			.... ..1.	NCSLGAPL	Application Controller Name (LOGAPPL) changed, 1=Yes
			1	NCSLGMOD	Logon Mode (LOGMODE) changed 1=Yes
010D		Second Byte of NCSCHKPT	1...	NCSANSMD	Answer Mode Status changed, 1=Yes
			.1..	NCSCUA	CUA Value changed, 1=Yes
			..1.	NCSRNME	RNAME value changed, 1=Yes
			...1	NCSPTUSE	Path Use/Nouse Status changed, 1=Yes
			 1111	NCSRSVD1	Reserved

NCSPL (ISTNCSPL) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
010E	NCSCRMOD	New Values for Items checkpointed not obtained from	1...	NCSAIMOD	Active/Inactive Status, 1=Active
			.1..	NCSPTMCD	Port Act/Inact Status, 1=Active
			..11 1111	NCSRSVD2	Reserved
010F	NCSPLSTA	Status Flag Byte	1111 111.	NCSRSVD4	Reserved
			1	NCSPLP0	0=Console ID follows, 1=Program Operator Header follows

Constants in ISTNCSPL (Continued)

Label	Value	Meaning
Constants for Modify Command Modifiers–stored in NCSPLVBF		
NCSMDUM	X'0001'	Dump 3705
NCSMCHA	X'0004'	Change
NCSMNSY	X'0008'	Netsol = Yes
NCSMNSN	X'0010'	Netsol = No
NCSMTRY	X'0020'	Trace = Yes
NCSMVTRY	X'2020'	
NCSMVTRN	X'2040'	
NCSMTRN	X'0040'	Trace = No
NCSMTPR	X'0100'	Trace Print
NCSMTST	X'0080'	Modify Test
NCSDPF	X'0000'	Potential Fail
NCSDSTRT	X'0001'	Dial Start
NCSDOH1	X'0002'	Offhook 1
NCSDOH2	X'0004'	Offhook 2
NCSDDF	X'0010'	Dial Failed
NCSDLKS	X'0008'	Link Start
NCSDLKC	X'0020'	Link Completion
NCSDHU	X'0040'	Hangup
NCSDLK	X'0080'	Deallocate
NCSDGIVE	X'0100'	Give
NCSDINOP	X'0200'	Inop
NCSDLRST	X'0400'	Recovery SW Links after RN Failure
NCSEERRA	X'0001'	ERP Request
NCSECLOR	X'0002'	Vary Normal Close Request
NCSEDACT	X'0004'	ERP Deactivate Request
NCSERSTR	X'0008'	RSTRT Entry from DLR Proc
NCSVFORC	X'0802'	Forced Deact
NCSVRACT	X'1002'	Deact and React
Purge Minor Return Codes Constants - Stored in NCSPRMRC		
NCSAPABN	X'05'	Application Abend
NCSCLDST	X'06'	Close Dest Occured
NCSDDISC	X'08'	Dial Disconnect Occured - Conn no Longer Available
NCSBTHEX	X'09'	Buffer Threshold Exceeded
I/O or Restart Return Codes Constants-Stored in NCSIORC		
NCSIOSUC	X'00'	I/O Successful
NCSIOERR	X'04'	I/O Error
NCSIOPRG	X'08'	I/O Purged
NCSRSSUC	X'00'	Restart Successful
NCSRSERR	X'04'	Restart Error
NCSVAIPL	X'00'	IPL No Restart on Vary Actv
NCSVANRA	X'10'	IPL Successful, no Restart Available on Vary Active
NCSVAWMF	X'08'	Warm Start Failure for Vary Activate
NCSVAIPF	X'0C'	IPL Failed on Vary Activate
NCSDSIA	X'14'	Invalid Address Specified on Display Storage Cmnd
NCSVAISZ	X'08'	NCP Size too Large
NCSIPLSC	X'00'	IPL Successful
NCSIOER	X'0C'	I/O Error on Remote IPL
NCSNCPAC	X'04'	Remote NCP already active
NCSNCRPF	X'70'	Remote Power Off
NCSCRIOS	X'30'	Successful I/O

Constants in ISTNCSPL (Continued)

Label	Value	Meaning
NCSCRION	X'34'	Null D.S. opened
NCSCRIOF	X'38'	Failure on I/O
Constants for 3600 Support		
NCSES	X'0001'	End Session
NCSBF	X'0002'	Bind Failure
NCSUF	X'0004'	Unbind Failure
NCSINIT	X'0001'	
NCSTERM	X'0002'	
NCSTPPST	X'0001'	TPPST Command
NCSII	X'0002'	IPL Init Command
NCSIT	X'0004'	IPL Command
NCSIF	X'0008'	IPL Final Command
NCSDI	X'0010'	Dump Init Command
NCSDT	X'0020'	Dump Text Command
NCSDF	X'0040'	Dump Final Command
NCSCON	X'0080'	Contact Command
NCSDICON	X'0100'	Discontact Command
NCSMSFMD	X'0200'	Send FMD
NCSSEND	X'0400'	Send
NCSPURGE	X'0800'	PAB Purge
NCSMSSUP	X'2000'	Constants for MSG Sup
NCSCRDS	X'3023'	Record Dev Stats Command
NCSCQUIS	X'F01A'	Quiesce Command
NCSSNUSS	X'381F'	Send USS Message
NCSNC	X'04'	Not Contacted
NCSLD	X'00'	Contacted Loaded
NCSNLD	X'0C'	Contacted Needs Load
NCSNCD	X'08'	Not Contacted Due to Deact
NCSNCE	X'10'	Not Contacted Due to ERP
NCSNFME	X'24'	Negative FME
Constants for IORC for Display Storage		
NCSDSDEA	X'0C'	Prior Deact
NCSDSFAL	X'04'	Fail Other than Prior Deact
Type Codes for Configuration Restart		
NCSCTRLM	X'01'	Change Dev Trans Limit
NCSCNPOL	X'02'	Change Neg Poll Resp Limit
NCSCSESS	X'03'	Change Session Limit
NCSCPOLL	X'04'	Change Line Serv Seek Pause
FM Data Command Codes		
NCSAPU	X'D001'	Act Phys
NCSCDPU	X'D002'	Deact Phys
NCSCALU	X'D003'	Act Log
NCSCDLU	X'D004'	Deact Log
NCSCSDT	X'D005'	SDT

NCSPL (ISTNCSPL) (Continued)

Constants in ISTNCSPL (Continued)

Label	Value	Meaning
NCSCFME	X'2006'	Send Pos Resp
NCSCEXCP	X'2007'	Send Neg Resp
NCSCCON	X'3008'	Contact
NCSCDCON	X'3009'	Discontact
NCSCIPLI	X'300A'	IPL Init
NCSCIPLT	X'300B'	IPL
NCSCIPLF	X'300C'	IPL Final
NCSCDUMI	X'300D'	Dump Init
NCSCDUMP	X'300E'	Dump
NCSCDUMF	X'300F'	Dump Final
NCSCACTL	X'3010'	Act Link
NCSCDACL	X'3011'	Deact Link
NCSCSSV	X'3012'	Set State Vector
NCSCNSP	X'3013'	NS Proc Error
NCSCSTD	X'3019'	Set Time & Date
NCSCSEP	X'9014'	Switch to EP
NCSCSNC	X'9015'	Switch to NCP
NCSCLSD	X'3016'	Line Sched Parm
NCSCDS	X'3017'	Display Storage
NCSCPWO	X'3018'	Remote Power Off
NCSSNFMD	X'301C'	Send FMD
NCSCDIAL	X'301A'	Dial
NCSCADIL	X'301B'	Abandon Dial
NCSCEANS	X'301D'	Enable Ans Mode
NCSCAANS	X'301E'	Abandon Ans Mode
NCSCANA	X'301F'	Assign Net Address
NCSCFNA	X'3020'	Free Net Address
NCSCACON	X'3021'	Abandon Connection
NCSCSCV	X'3022'	Set Control Vector
NCSCNCPPG	X'FFFF'	Purge

New Values for NCSPLCMD

NCSCLCND	X'0041'	Load Conditionally
NCSCUCND	X'0042'	Load Unconditionally
NCSCRSRT	X'0043'	Restart 370X or Clus
NCSDUCMD	X'0044'	Dump 370X
NCSCERPP	X'0045'	Perform ERP Dump and Reload of 370X
NCSDOUT	X'0046'	Dial Out
NCSDCNT	X'0047'	Dial Contact
NCSDABDN	X'0048'	Dial Abandon
NCSDENAS	X'0049'	Dial Enable Answer

Values for NCSCMDB

NCSBFME	X'06'	Send POS Resp Command
NCSBEXC	X'07'	Send Neg Resp Command

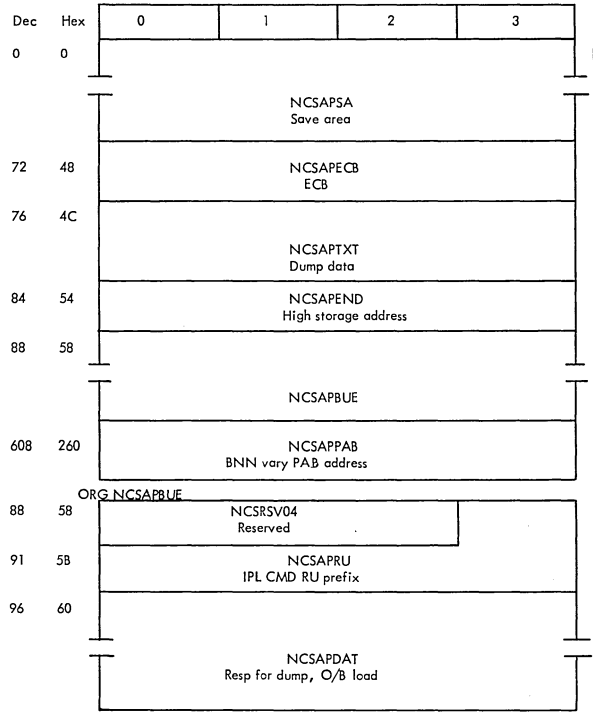
Constants for Dial Reason Codes - stored in NCSDLRSN

NCSDIRRD	X'01'	Redial
NCSDLRQT	X'02'	Quit

Constants in ISTNCSPL (Continued)

Label	Value	Meaning
New Values for NCSIORC		
NCSLDAOK	X'00'	Command Processed Success
NCSLDACT	X'04'	NCP Active-Load not Perf
NCSLDCAN	X'04'	Reload Declined by Oper
NCSLDIOP	X'08'	I/O Purged
NCSLDNOG	X'0C'	Command Failed
NCSDUCOM	X'14'	Dump Complete
NCSHALTD	X'18'	CMD Rejected, Halt in Prog
NCSUNREC	X'1C'	Command Unrecognized
NCSNOSTG	X'20'	CMD Rejected, Insuff Storage
NCSDOS	X'00'	Dial-Out Successful
NCSDOF	X'04'	Dial-Out Unsuccessful
NCSDOP	X'08'	Dial-Out Pending
NCSDCS	X'00'	Dial-Contact Loaded
NCSDCF	X'0C'	Dial-Contact Failed
NCSDAS	X'00'	Dial-Abandon Conn Complete
NCSDENSO	X'00'	Enable Answer Successful
NCSDOFHR	X'04'	Offhook Required
NCSDENSF	X'08'	Enable Answer Fail
New values for NCSPRMRC		
NCSFIRM	X'10'	Restart Successful Opendst Req
NCSEWRN	X'11'	Con Lost, Recov in Prog
Constants for Trace		
NCSACTLT	X'0820'	Activate Line Trace
NCSDACLT	X'0840'	Deactivate Line Trace
NCSCACLT	X'301D'	SSCP Act Line Trace
NCSCDCLT	X'301E'	SSCP Deact Line Trace
Display Command Modifier Constants		
NCSDPATH	X'0001'	Paths

NCSPL (NCSAPP)



Alphabetical List of Fields in NCSAPP

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
NCSAPBUE	0088	0058	NCSAPEND	0084	0054	NCSAPSA	0000	0000
NCSAPDAT	0096	0060	NCSAPPAB	0608	0260	NCSAPTXT	0076	004C
NCSAPECB	0072	0043	NCSAPRU	0091	005B	NCSRSV04	0088	0058

NCSPL (NCSUSSRU)

Dec	Hex	0	1	2	3
0	0	NCSRULEN Length of RU			
		NCSRUITS Start of RU (Variable Length)			

Alphabetical List of Fields in NCSUSSRU

Field	Dec	Hex	Field	Dec	Hex
NCSRUITS	0002	0002	NCSRULEN	0000	0000

Constants in ISTNCSPL

Label	Value	Meaning
Command Values for C/R Field NCSCRCMD		
NCSCRWR	0	Write to C/R Data Set
NCSCROPN	1	Open C/R Data Set
NCSCRCLS	2	Close C/R Data Set
NCSCRDEL	3	Delete C/R Data Set Record
NCSCROPQ	4	Operator Query
NCSDCID	1	Console ID Indicator
NCSCRIO	X'0800'	Indicates requests for VSAM I/O for C/R
NCSCRVIO	X'0C00'	VSAM I/O Operation
General Constants		
NCSWASZ	2032	NCSPL Work Area size
NCSRTGOH	X'1000'	VBF Value for Internal Command-RTGOH Recvd.
Constants for VERB Codes - Stored in NCSPLVCD		
NCSPLVC0	X'00'	Error
NCSPLVC1	X'01'	Vary
NCSPLVC2	X'02'	Modify
NCSPLVC3	X'03'	ERP
NCSPLVC4	X'04'	Display
NCSPLVC5	X'05'	Status to SM
NCSPLVC6	X'06'	Internal CMD
NCSPLVC7	X'07'	Init/Term Tusm
NCSPLVC8	X'08'	Dial
Constants for Vary Command Modifiers		
NCSVACT	X'0001'	Activate
NCSVDEA	X'0002'	Deactivate
NCSVLON	X'0004'	Logon
NCSVVPP	X'0080'	Vary Normal Cleanup Reqst
NCSVIMM	X'0010'	Immediate
NCSVINT	X'0020'	Internal Only
NCSVALO	X'0005'	Activate with Logon
NCSVDEI	X'0012'	Deactivate Immediate
NCSVDII	X'0032'	Deactivate Immediate Internal Only
NCSCNOTF	X'FFF8'	Notify Request
NCSVANON	X'0008'	Answer = On
NCSVANOF	X'0040'	Answer =Off
NCSVPUSE	X'0100'	Path = Usable
NCSVPNUS	X'0200'	Path = Not Usable
NCSVINOP	X'0400'	Inoperative

PAB (ISTPAB)

Dec	Hex	0	1	2	3
0	0	PABWQCHN CDS SWAP Field for NEQ&CHN			
8	8	PABOFFST Offset from Control Block	PABDVTA DVT Address		
12	C	PABRPHFG Sched Flags and RPH			

Org PABWQCHN

0	0	PABWEQA Work Element Queue Address

Org PABWEQA

0	0	First Byte of PABWEQA

Org PABWEQA+1

1	1	PABWEQP WKEL PTR

Org PABWQCHN+4

4	4	PABCHAIN APS Chain

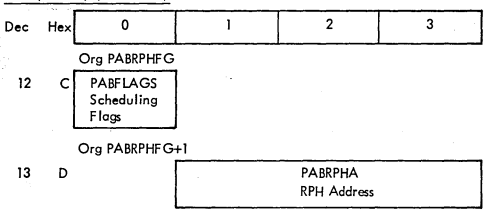
Org PABCHAIN

4	4	First Byte of PABCHAIN

Org PABCHAIN+1

5	5	PABCHNGP PSS Chain PTR

PAB (ISTPAB) (Continued)



Alphabetical List of Fields in ISTPAB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
PABCHAIN	0004	0004	PABOFFST	0008	0008	PABWEQP	0001	0001
PABCHNGP	0005	0005	PABRPHA	0013	000D	PABWQCHN	0000	0000
PABDVTA	0009	0009	PABRPHFG	0012	000C			
PABFLAGS	0012	000C	PABWEQA	0000	0000			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
000C	PABFLAGS	Scheduling Flags	1...	PABAPYP	Application is a User Exit
			.1..	PABPRIOR	Immediate Priority
			..1.	PABNORPR	Normal Priority - Reschedualable
			...1	PABDYNAM	Dynamic
			.... 1...	PABSSN	System Services
			.... .1..	PABERLCK	PAB Error Lock Flag
			.... .1..	PABERRLK	Error Lock
			.... .1..	PABERLOK	Error Lock
			.... ..1.	PABINHBT	1=Inhibit Traffic, 0=No
			1	PABNODQ	Do not DEQ Work Element
0000		First Byte of PABWEQA	1...	PABWEQG	Gating Bit
			.111 1111	PABRSV01	Reserved
0004		First Byte of PABCHAIN	1...	PABCHNG	Gating Bit
			.1..	PABRESCH	Reschedule PAB at TPEXIT
			..1.	PABCDP	Close DST/Change in Progress
			...1	PABUNCON	Unconditionally Reschedule PAB at TPEXIT
			.... 1...	PABRESET	Reset Issued on this PAB
			.... .1..	PABRUNNG	PAB running
			.... .1..	PABQUED	PAB is qued on APT
			11	PABRSV02	Reserved

PAB (ISTPAB) (Continued)

Constants in ISTPAB

Label	Value	Meaning
PABWEQG0	X'7FFFFFFF'	Turn PABWEQG Off
PABWEQG1	X'80000000'	Turn PABWEQG On
PABCHNG0	X'7FFFFFFF'	Turn PABCHNG Off
PABCHNG1	X'80000000'	Turn PABCHNG On
PABRESC0	X'BFFFFFFF'	Turn PABRESCH Off
PABRESC1	X'40000000'	Turn PABRESCH On
PABCDP0	X'DFFFFFFF'	Turn PABCDP Off
PABCDP1	X'20000000'	Turn PABCDP On
PABERLK0	X'FBFFFFFF'	Turn PABERRLK On
PABERLK1	X'04000000'	Turn PABERRLK Off
PABUNCO0	X'EFFFFFFF'	Turn PABUNCON Off
PABUNCO1	X'10000000'	Turn PABUNCON On
PABPRIR0	X'BFFFFFFF'	Turn PAB Prior Off
PABPRIR1	X'40000000'	Turn PAB Prior On
PABRST0	X'F7FFFFFF'	Turn PABRESET Off
PABRST1	X'08000000'	Turn PABRESET On

PIB (ISTPIB)

Dec	Hex	0	1	2	3
0	0	PIBFLG Flag byte	PIBCNCL Cancel code	PIBLOGID SYSLOG indentifier	
4	4	PIBDATFL Flags for VM support	PIBSAVE Address of SAVE area		
8	8	PIBNOC Number of core blocks	PIBORP Origin of partition		
12	C	PIBASS Assign flags	PIBLUBID User lub index	PIBLUBNO Nbr of user lubs	PIBFLG2 More flags

ORG PIBORP

9	9	PIBUSAVE For Attn rtn, PTR to user save area

Alphabetical List of Fields in ISTPIB

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
PIBASS	0012	000C	PIBFLG2	0015	000F	PIBNOC	0008	0008
PIBCNCL	0001	0001	PIBLOGID	0002	0002	PIBORP	0009	0009
PIBDATFL	0004	0004	PIBLUBID	0013	000D	PIBSAVE	0005	0005
PIBFLG	0000	0000	PIBLUBNO	0014	000E	PIBUSAVE	0009	0009

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000	PIBFLG	Flag Byte	1111 111.	@NM00005	Not used
			1	PIBIOCMP	I/O Completion
0004	PIBDATFL	Flags for VM Support	1...	PIBTRAM	Partition in virtual mode
			.111 1111	@NM00006	Reserved
000F	PIBFLG2	More Flags	1...	PIBFLG20	Reserved
			.1..	PIBFLG21	Reserved
			..1.	PIBFLG22	Reserved
			...1	PIBFLG23	Reserved
			.... 1...	PIBFEOJ	Fetch EOJ
			.... .1..	PIBTASK	Cancel Task
			.... ..1.	PIBFLG26	Reserved
			1	PIBFLG27	Reserved

Constants in ISTPIB

Label	Value	Meaning
DOS/VS VTAM Cancel Code Values		
PIBVFORC	X'40'	VTAM sympathetic forced cancel
PIEVSNOC	X'41'	Cancel due to VTAM should-not-occur condition
APE00000	X'C000'	Cancel code TPEXIT with lock attempted

VTAM cancel-should not-occur function codes

I denotes SNO in inbound code

O denotes SNO in outbound code

PIE denotes DOS/VS TPIOS module

The hex value of the code is structured

Constants (continued)

Label	Value	Meaning
	Where BIT-0 represents 0 = inbound, 1 = outbound	
	BIT - 1 represents 0 = TPIOS, 1 = non-TPIOS	
	BITS 2 - 3	00 = DOS/VS
		01 = VS/1
		10 = VS/2
		11 = Common
	BITS 4 - 15 = Function code value	
PIEI1242	X'04DA'	RTN code GT 0 from rest

ISTPICBA

None

ISTPICCA

PIEI2010	X'07DA'	RC>0 CIDCTL find
PIEI2015	X'07DF'	RC>0 CIDCTL finish
PIEI2020	X'07E4'	RC>0 CIDCTL find
PIEI2025	X'07E9'	RC>0 CIDCTL finish
PIEI2030	X'07EE'	RC>0 Relstore
PIEI2035	X'07F3'	RC>0 CIDCTL finish
PIEI2040	X'07F8'	RC>0 relstore
PIEI2045	X'07FD'	RC>0 CIDCTL finish
PIEI2050	X'0802'	RC>0 CIDCTL find
PIEI2060	X'080C'	RC>0 relstore
PIEI2070	X'0816'	RC>0 CIDCTL find
PIEI2080	X'0820'	Work element invalid
PIEI2090	X'082A'	RC>8 reqstore

ISTPICCE

None

ISTPICCF

PIEI0230	X'00E6'	RC>0 TPLOCK
PIEI0240	X'00F0'	CIDCTL find error
PIEI0250	X'00FA'	CIDCTL finish error
PIEI0260	X'0104'	REQSTORE failure
PIEI0270	X'010E'	RELSTORE failure

ISTPICCI

PIEI3510	X'0DB6'	LRA error

ISTPICCO

PIEO0020	X'8014'	RC>8 reqstore
PIEO0030	X'801E'	RC>8 reqstore
PIEO0040	X'8020'	RC>8 reqstore
PIEO0050	X'8032'	RC>8 reqstore

PIB (ISTPIB) (continued)

Constants (continued)

Label	Value	Meaning
ISTPICCO (continued)		
PIEO0055	X'8037'	RC>8 reqstore
PIEO0060	X'803C'	RC>8 reqstore
PIEO0065	X'8041'	RC>8 reqstore
PIEO0070	X'8046'	RC>8 reqstore
PIEO0080	X'8050'	CIDCTL find error
PIEO0090	X'805A'	CIDCTL finish error
PIEO0100	X'8064'	REQSTORE failure
ISTPICCS		
PIEO0120	X'8078'	RC>8 reqstore
PIEO0130	X'8082'	RC>8 reqstore
PIEO0140	X'808C'	RC>8 reqstore
PIEO0150	X'8096'	RC>8 reqstore
ISTPICCT		
None		
ISTPICCU		
PIEI0420	X'01A4'	RC>8 reqstore
PIEI0430	X'01AE'	CSOL FMCB not found
ISTPICDD		
PIEI1910	X'0776'	RC>8 reqstore
PIEI1920	X'0780'	RC>0 CIDCTL find
PIEI1930	X'078A'	RC>0 CIDCTL finish
ISTPICDR		
PIEI0510	X'01FE'	RC>8 reqstore
PIEI0520	X'0208'	RC>0 CIDCTL find
PIEI0530	X'0212'	RC>0 relstore
PIEI0540	X'0210'	RC>0 relstore
PIEI0550	X'0226'	RC>0 CIDCTL find
ISTPICEI		
PIEI0610	X'0262'	RC>8 reqstore
PIEI0620	X'026C'	RC>8 getstor
PIEI0630	X'0276'	RC>0 relstore
PIEI0640	X'0280'	RC>0 relstore
ISTPICES		
PIEI3450	X'0D7A'	Invalid input NCB
PIEI3460	X'0D84'	RC>8 reqstore
PIEI3470	X'0D8E'	RC>0 relstore
ISTPICF1		
PIEI0720	X'02D0'	RC>0 CIDCTL find
PIEI0730	X'02DA'	RC>0 CIDCTL find
PIEI0740	X'02E4'	RC>0 relstore
PIEI0750	X'02EE'	RC>0 CIDCTL finish
PIEI0760	X'02F8'	RC>0 CIDCTL finish
PIEI0770	X'0302'	RC>0 CIDCTL finish
PIEI0780	X'030C'	RC>0 relstore

Constants (continued)

Label	Value	Meaning
ISTPICGI		
PIEO0210	X'80D2'	RC>0 TPDVTS
PIEO0220	X'80DC'	RC>0 TPDVTS
PIEO0230	X'80E6'	RC>0 relstore
PIEO0240	X'80F0'	RC>8 reqstore
PIEO0250	X'80FA'	RC>0 CIDCTL finish
PIEO0260	X'8102'	RC>0 CIDCTL finish
ISTPICGP		
PIEI0810	X'032A'	RC>8 from reqstore
PIEI0815	X'032F'	RC>0 CIDCTL finish
PIEI0820	X'0334'	RC>0 TPDVTS
PIEI0825	X'0339'	RC>0 CIDCTL finish
PIEI0830	X'033E'	Dsconnect cmmd. in error
PIEI0835	X'0343'	RC>0 CIDCTL finish
PIEI0837	X'0345'	RC>0 CIDCTL find
PIEI0838	X'0346'	RC>0 CIDCTL finish
PIEI0840	X'0348'	RC>8 from reqstore
PIEI0845	X'034D'	RC>0 CIDCTL finish
PIEI0850	X'0325'	RC>0 CIDCTL find
PIEI0855	X'0357'	RC>0 CIDCTL finish
PIEI0860	X'035C'	RC>0 CIDCTL find
PIEI0865	X'0361'	RC>0 CIDCTL finish
PIEI0870	X'0366'	RC>0 CIDCTL find
PIEI0875	X'036B'	RC>0 CIDCTL finish
PIEI0880	X'0370'	RC>0 CIDCTL find
PIEI0885	X'0375'	RC>0 CIDCTL finish
PIEI0890	X'037A'	RC>0 CIDCTL find
PIEI0895	X'0384'	RC>0 from relstore
ISTPICGR		
PIEI0930	X'03A2'	RC>0 TPDVTS
PIEI0960	X'03C0'	RC>0 relstore
ISTPICIN		
PIEO0330	X'814A'	RC>8 reqstore
PIEO6340	X'8154'	RC>8 reqstore
PIEO0350	X'815E'	Invalid LCCW
PIEO0360	X'8168'	RC>8 relstore
ISTPICIT		
PIEO0430	X'81AE'	RC>8 reqstore
PIEO0440	X'81B8'	RC>0 from TPDVTS
PIEO0450	X'81C2'	RC>8 from reqstore
ISTPICLA		
PIEI1720	X'06B8'	RC>0 relstore
PIEI1730	X'06C2'	RC>0 relstore
PIEI1740	X'06CC'	RC>8 reqstore
PIEI1750	X'06D6'	Unexpected LCPB

Constants (continued)

Label	Value	Meaning
ISTPICLC		
PIEO1220	X'84C4'	Loop in test channel program
PIEO1230	X'84CE'	RC>8 reqstore
ISTPICLT		
PIEO0610	X'8262'	RC>8 reqstore
PIEO0620	X'826C'	RC>0 TPDVTS
ISTPICMA		
None		
ISTPICNR		
PIEI1120	X'0460'	RC>8 from reqstore
PIEI1125	X'0465'	RC>0 CIDCTL find
PIEI1130	X'046A'	RC = 0 or 12 CIDCTL find
PIEI1135	X'046F'	RC>0 CIDCTL finish
PIEI1140	X'0474'	RC>0 from relstore
PIEI1150	X'047E'	RC>0 from relstore
PIEI1160	X'0488'	RC>8 from reqstore
PIEI1170	X'0492'	RC>0 from relstore
PIEI1180	X'049C'	RC>0 from CIDCTL finish
PIEO0332	X'814C'	RC>0 CIDCTL find
PIEO0334	X'814E'	RC>0 CIDCTL finish
ISTPICQP		
PIEI1220	X'04C4'	RC>8 from reqstore
PIEI1230	X'04CE'	RC>0 from relstore
PIEI1240	X'04D8'	RC>0 from relstore
PIEI1250	X'04E2'	RC>0 from relstore
PIEI1260	X'04EA'	RC>0 from relstore
PIEI1270	X'04F4'	RC>0 from CIDCTL for obtaining a lock
PIEI1280	X'04FE'	RC>0 from CIDCTL for releasing a lock
PIEI1290	X'0508'	RC>0 from CIDCTL for releasing a lock
PIEI1295	X'050D'	RC>0 from CIDCTL for releasing a lock
ISTPICRI		
None		
ISTPICRP		
PIEI1320	X'0528'	RC>8 reqstore
ISTPICSC		
PIEO0510	X'81FE'	RC>8 from reqstore
PIEO0520	X'8208'	RC>8 from relstore
PIEO0530	X'8212'	RC>8 from reqstore
PIEO0540	X'821C'	RC>0 from relstore
PIEO0550	X'8226'	RC>8 from reqstore
PIEO0560	X'8230'	RC>0 from relstore
PIEO0570	X'823A'	RC>0 from relstore
PIEO0580	X'8244'	RC>0 from relstore
PIEO0590	X'824E'	RC>8 from reqstore

Constants (continued)

Label	Value	Meaning
ISTPICSO		
PIEO1310	X'851E'	RC>8 from reqstore
PIEO1320	X'8528'	RC>0 CIDCTL find
PIEO1330	X'8532'	RC>0 CIDCTL finish
ISTPICSS		
PIEO0710	X'82C6'	RC>8 from reqstore
PIEO0720	X'82D0'	RC>8 from reqstore
PIEO0730	X'82DA'	RC>8 from reqstore
PIEO0740	X'82E4'	RC>8 from reqstore
PIEO0750	X'82EE'	RC>0 from CIDCTL for obtaining a lock
PIEO0760	X'82F8'	RC>0 from CIDCTL for releasing a lock
ISTPICST		
PIEI3610	X'0E1A'	LRA error
PIEI3635	X'0E33'	Unidentifiable completion status
ISTPICSU		
PIEI1410	X'0582'	RC>0 from relstore
PIEI1420	X'058C'	RC>0 from relstore
PIEI1430	X'0596'	RC>8 from reqstore
PIEI1440	X'05A0'	RC>8 from reqstore
PIEI1450	X'05AA'	RC>0 from TPDVTS
PIEI1460	X'05B4'	RC>0 from CIDCTL find
PIEI1470	X'05BE'	RC>0 from CIDCTL finish
PIEI1480	X'05C8'	RC>0 from relstore
ISTPICTA		
PIEI1620	X'0654'	RC>0 relstore
PIEI1630	X'065A'	RC>8 reqstore
ISTPICTC		
PIEO1030	X'8406'	RC>0 from CIDCTL find
PIEO1040	X'8410'	RC>8 from reqstore
PIEO1050	X'841A'	RC>0 from CIDCTL finish
PIEO1060	X'8424'	RC>0 from CIDCTL finish
PIEO1070	X'842E'	RC>8 reqstore
ISTPICTF		
None		
ISTPICTH		
PIEI1810	X'0712'	RC>8 from reqstore
PIEI1820	X'071C'	RC>0 from relstore
PIEI1830	X'0726'	RC>0 from relstore
PIEI1840	X'0730'	RC>8 from reqstore
PIEI1850	X'073A'	RC>8 from reqstore
PIEI1860	X'0744'	RC>0 from TPDVTS

PIB (ISTPIB) (continued)

Constants (continued)

Label	Value	Meaning
ISTPIOTO		
PIEO0820	X'8334'	RC>8 reqstore
PIEO0830	X'833E'	RC>0 relstore
ISTPICTR		
PIEO0930	X'83A2'	Invalid LCCW
PIEO0940	X'83AC'	RC>8 reqstore
PIEO0950	X'83B6'	RC>0 relstore
ISTPICXP		
PIEI3660	X'0E4C'	LRA error
PIEI3670	X'0E56'	Invalid CB input
$$ABERV1		
None		
$$ABERV2		
PIEI3760	X'0EB0'	Valid CB not found
$$ABERV3		
PIEI3810	X'0EE2'	LRA error
PIEI3820	X'0EEC'	CCB not found in ICNCB
$$ABERV4		
PIEI3880	X'0F28'	Failing CCW not found
PIEI3860	X'0F14'	CCB not found in LONCB.
PIEI3870	X'0F1E'	CC and O APPR LRA
$$ABERV5		
PIEI3910	X'0F46'	LRA error
PIEI3920	X'0F50'	CCB not found in ICNCB
$$ABERV6		
PIEI3960	X'0F78'	LRA error
$$RAST14		
None		
$$RAST15		
None		
SMS		
None		

Constants (continued)

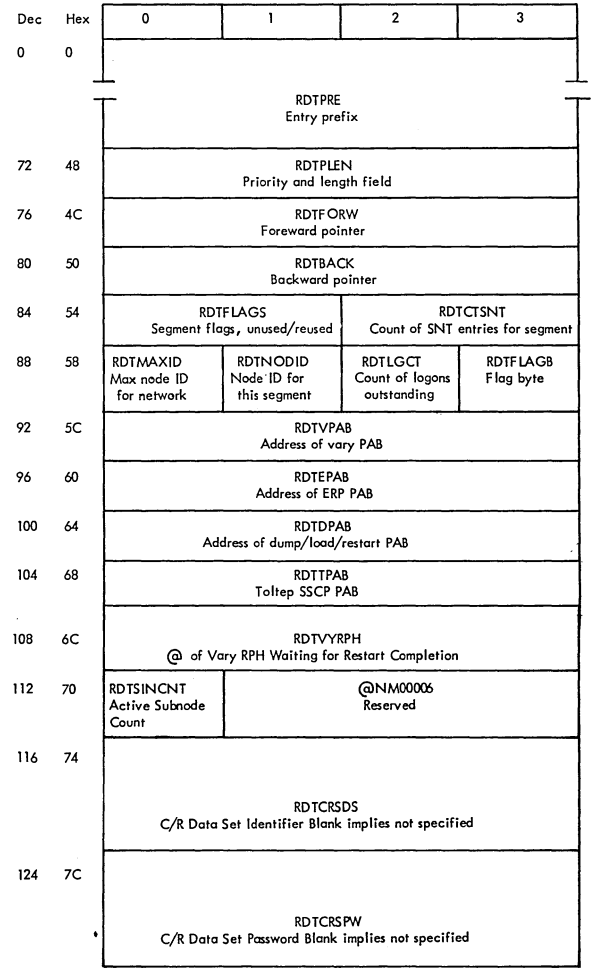
Label	Value	Meaning
PIE10192	X'00C0'	RC>0 TPDVTS
PIE10534	X'0216'	RC>0 TPDVTS
PIE10625	X'0271'	RC>0 CIDCTL finish
PIE10627	X'0273'	RC¬=0112 CIDCTL find
PIEO0202	X'80CA'	RC>0 TPDVTS within linkx
PIEO0204	X'80CC'	RC>0 TPDVTS
PIE10904	X'0388'	RC>0 TPDVTS within linkz
PIE11010	X'03F2'	ISTPICMA-relstore failed for MTA association FSB
PIE11144	X'0478'	RC>0 from CIDCTL find
PIE11145	X'0479'	RC>0 from CIDCTL finish
PIE11146	X'047A'	RC>0 from CIDCTL find
PIE11147	X'047B'	RC>0 from CIDCTL finish
PIEO0555	X'822B'	RC>0 from CIDCTL find
PIEO0557	X'822D'	RC>0 from CIDCTL finish
PIE13615	X'0E1F'	CCW at head of buffer not read/write/WRBP
PIE13620	X'0E24'	NOP preceded by write, not write BP
PIE13625	X'0E29'	Insufficient read CCWS or data-chained read
PIE13630	X'0E2E'	Unchained write CCW
ISTPICXO		
PIEO0224	X'80E0'	RC>0 CIDCTL find
ISTPIEIR		
PIEO4000	X'8FA0'	TPDVTS failure
ISTPLIEPB		
PIEO4005	X'8FA5'	Reqstore RC>8
PIEO4006	X'8FA6'	CIDCTL find error
PEIO4007	X'8FA7'	CIDCTL finish error
ISTPIEPA		
PIE14010	X'0FAA'	TPDVTS failure
ISTPIEIS		
PIEO4015	X'8FAF'	Reqstore RC>8
ISTPIESA		
PIE14017	X'0FB1'	Reqstore return CDE>8
ISTPIEIF		
ISTPIETT		
PIEO4020	X'8FB4'	CIDCTL find RC¬=0
PIEO4025	X'8FB9'	CIDCTL relese DAF look RC¬=0
ISTPIECP		
PIE14020	X'0FB0'	CIDCTL find error
PIE14025	X'0FB5'	CIDCTL finish error
ISTPIELO		
PIEO4030	X'8FBE'	Reqstore RC>8

PIB (ISTPIB) (continued)

Constants (continued)

Label	Value	Meaning
ISTPIELF		
PIEI4035	X'0FC3'	Reqstore RC>8
ISTPIELS		
PIEO4040	X'8FC8'	Reqstore>8
ISTPIERO		
PIEO4045	X'8FCD'	Reqstore>8
ISTPIERF		
PIEI4050	X'8FD2'	Reqstore>8
ISTPIESI		
PIEO4055	X'8FD7'	Reqstore>8
ISTPIESG		
PIEO4060	X'8FDC'	Reqstore RC>8
PIEO4061	X'8FDD'	Reqstore RC>0

RDT (ISTRDT)


Dec
Hex
0
1
2
3
0
0
RDTPRE
Entry prefix
72
48
RDTPLEN
Priority and length field
76
4C
RDTFORW
Foreward pointer
80
50
RDTBACK
Backward pointer
84
54
RDTFLAGS
Segment flags, unused/reused
RDTCTSNT
Count of SNT entries for segment
88
58
RDTMAXID
Max node ID for network
RDTNODID
Node ID for this segment
RDTLGCT
Count of logons outstanding
RDTFLAGB
Flag byte
92
5C
RDTVPAB
Address of vary PAB
96
60
RDTEPAB
Address of ERP PAB
100
64
RDTDPAB
Address of dump/load/restart PAB
104
68
RDTTPAB
Toltep SSCP PAB
108
6C
RDTVYRPH
@ of Vary RPH Waiting for Restart Completion
112
70
RDTSINCNT
Active Subnode Count
@NM00006
Reserved
116
74
RDTCRSDS
C/R Data Set Identifier Blank implies not specified
124
7C
RDTCRSPW
C/R Data Set Password Blank implies not specified

Dec	Hex	0	1	2	3
132	84	RDTVSRPL C/R Pointer to VSAM RPL			

ORG RDTPLEN

72	48	RDTPRIOR Determines segment type

ORG RDTPLEN+1

73	49	RDTLEN Length of RDT

ORG RDTVYRPH

108	6C	RRNVYRPH Q of Vary RPH waiting for Restart completion

ORG RDTSTCNT

112	70	RRNSTCNT Active subnode count

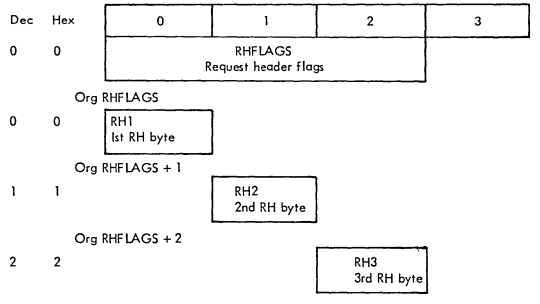
Alphabetical List of Fields in ISTRDT

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00006	0113	0071	RDTFLAGS	0084	0054	RDTPRIOR	0072	0048
RDTBACK	0080	0050	RDTFORW	0076	004C	RDTSTCNT	0112	0070
RDTCRSDS	0116	0074	RDTLEN	0073	0049	RDTTPAB	0104	0068
RDTCRSPW	0124	007C	RDTLGCT	0090	005A	RDTVPAB	0092	005C
RDTCTSNT	0086	0056	RDTMAXID	0088	0058	RDTVSRPL	0132	0084
RDTDPAB	0100	0064	RDTNODID	0089	0059	RDTVYRPH	0108	006C
RDTEPAB	0096	0060	RDTPLEN	0072	0048	RRNSTCNT	0112	0070
RDTFLAGB	0091	005B	RDTPRE	0000	0000	RRNVYRPH	0108	006C

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0048	RDTPRIOR	Determines Segment Type	111.	@NM00005	Not Used
			...1	RDTPRIAP	Application Segment
			.... 1...	RDTPRILC	Local Segment
			.... .1..	RDTPRIRN	RN Segment
			.... ..1.	RDTPRISW	Switched Segment
			1	RDTPRILS	Local Subarea Segment
005B	RDTFLAGB	Flag Byte	1...	RDTOUERP	1 = Repeat ERP
			.1..	RDTPRGDN	1 = Purge Issued
			..1.	RDTCTPGD	1 = Contact Purged
			...1	RDTCTCFL	Higher Failure-Contact Flushed
			.... 1...	RDTBHSET	BHSET Required
			.... .111	RDTRSV01	Reserved

RH (ISTRH)



Flags and masks

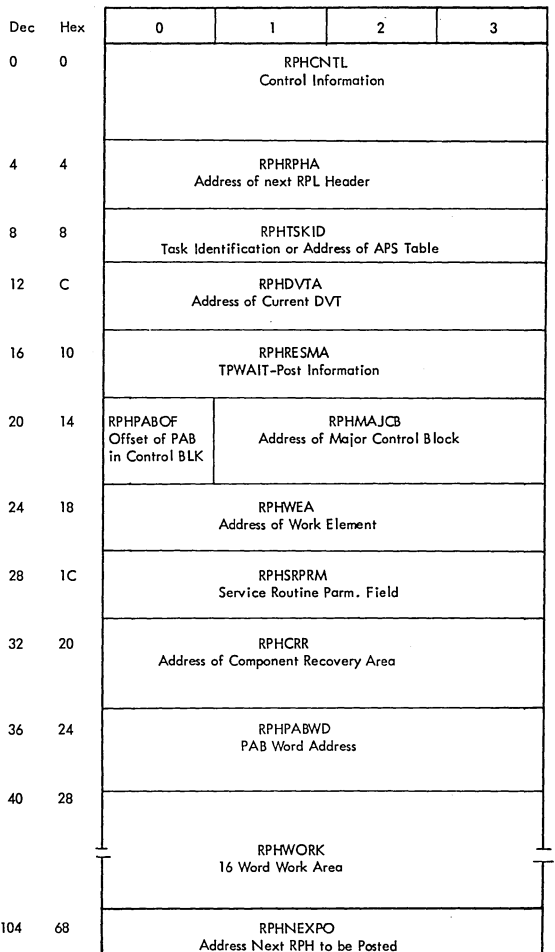
Disp.	Flag	Contains	Mask	Value	Means
0(0)	RH1	First RH byte	RHQS	X'80'	0 - request, 1 - response
			RHTYPE	X'40'	0 - data, 1 - control
			RHSCI	X'20'	0 - FM, 1 - system control
			RHDIRI	X'10'	0 - with, 1 - against
			RHFORMAT	X'08'	0 - unformatted, 1 - formatted
			RHSENSE	X'04'	0 - not included, 1 - included
			RHCHAIN	X'03'	Chaining control 0 - middle, 1 - last, 2 - first, 3 - only
1(1)	RH2	Second RH byte	RHFME	X'80'	Q - FME requested, S - FME
			RHPE	X'40'	Q - PE requested, S - PE
			RHRRN	X'20'	Q - RRN requested, S - RRN
			RHEXCEPT	X'10'	Q - exception responses only, S - error
			RHRETRY	X'08'	Q - retry
			RHBUSY	X'08'	S - busy
			RHRSVD1	X'04'	Q - reserved
			RHNIOP	X'04'	S - inoperative
			RHRSVD2	X'02'	Q - reserved, S - reserve
			RHPACE	X'01'	Q - pacing
2(2)	RH3	Third RH byte	RHBB	X'80'	Begin sequence
			RHFB	X'40'	End sequence
			RHCDIR	X'20'	Change direction
			RHRCDIR	X'10'	Request change direction
			RHRSVD3	X'08'	Reserved
			RHLOG	X'04'	Log
			RHRSVD4	X'02'	Reserved
			RHRSVD5	X'01'	Reserved

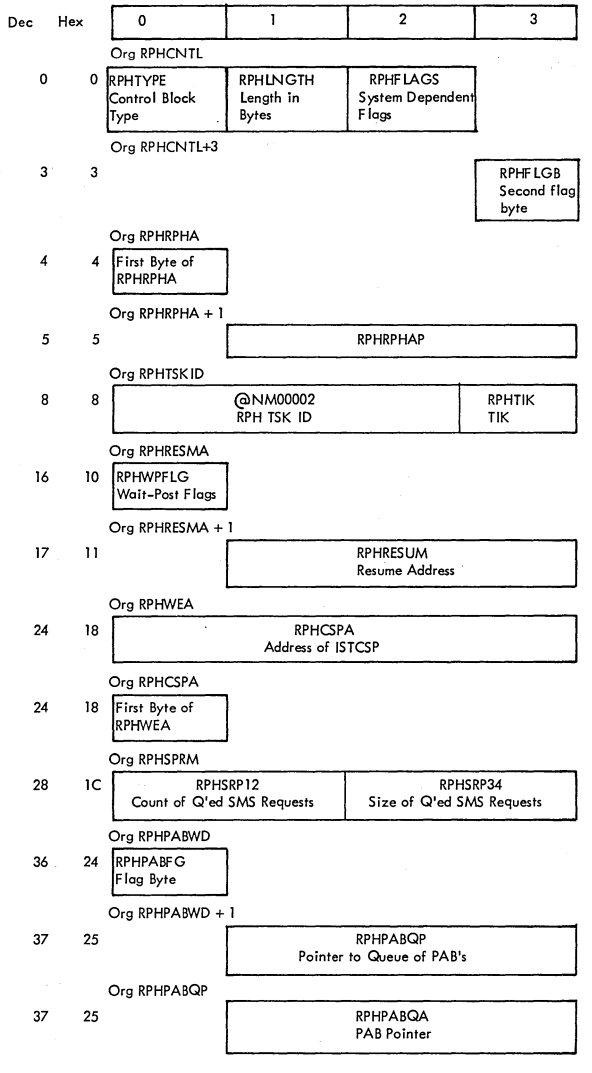
RH (ISTRH) (continued)

Constants in ISTRH

Label	Value	Meaning
RHFIRST	B'10'	First in chain
RHMIDLE	B'00'	Middle of chain
RHLAST	B'01'	Last in chain
RHONLY	B'11'	Only one in chain
RHRESP	X'938000'	RH response mask
RHREQ	X'030000'	RH request mask

RPH (ISTRPH)


Dec
Hex
0
1
2
3
0
0
RPHCNTL
Control Information
4
4
RPHRPHA
Address of next RPL Header
8
8
RPHTSKID
Task Identification or Address of APS Table
12
C
RPHDVTA
Address of Current DVT
16
10
RPHRESMA
TPWAIT-Post Information
20
14
RPHPABOF
Offset of PAB
in Control BLK
RPHMAJCB
Address of Major Control Block
24
18
RPHWEA
Address of Work Element
28
1C
RPHSRPRM
Service Routine Parm. Field
32
20
RPHCRR
Address of Component Recovery Area
36
24
RPHPABWD
PAB Word Address
40
28
RPHWORK
16 Word Work Area
104
68
RPHNEXPO
Address Next RPH to be Posted


Dec
Hex
0
1
2
3
Org RPHCNTL
0
0
RPHTYPE
Control Block Type
RPHLNGTH
Length in Bytes
RPHFLAGS
System Dependent Flags
Org RPHCNTL+3
3
3
RPHFLGB
Second flag byte
Org RPHRPHA
4
4
First Byte of RPHRPHA
Org RPHRPHA + 1
5
5
RPHRPHAP
Org RPHTSKID
8
8
@NM00002
RPH TSK ID
RPHTIK
TIK
Org RPHRESMA
16
10
RPHWPFLG
Wait-Post Flags
Org RPHRESMA + 1
17
11
RPHRESUM
Resume Address
Org RPHWEA
24
18
RPHCSPA
Address of ISTCSP
Org RPHCSPA
24
18
First Byte of RPHWEA
Org RPHSPRM
28
1C
RPHSRP12
Count of Q'ed SMS Requests
RPHSRP34
Size of Q'ed SMS Requests
Org RPHPABWD
36
24
RPHPABFG
Flag Byte
Org RPHPABWD + 1
37
25
RPHPABQP
Pointer to Queue of PAB's
Org RPHPABQP
37
25
RPHPABQA
PAB Pointer

RPH (ISTRPH) (Continued)

Dec	Hex	0	1	2	3
		Org RPHWORK			
40	28	RPHSAVE1			
		Org RPHSAVE1			
40	28	RPHSBYTE 1-Byte Save Field	RPHSBITS Save Field for Flag Byte		
		Org RPHSAVE 1 + 2			
42	2A			RPHSHALF Half Word Save Area	
		Org RPHWORK + 4			
44	2C	RPHSAVE2			
48	30	RPHSAVE3			
52	34	RPHSAVE4			
56	38	RPHSAVE5			
60	3C	RPHSAVE6			
64	40	RPHSAVE7			
68	44	RPHSAVE8			
72	48	RPHSAVE9			
76	4C	RPHSAVE10			
80	50	RPHSAVE11			
84	54	RPHSAVE12			
88	58	RPHSAVE13			
92	5C	RPHSAVE14			

RPH (ISTRPH) (Continued)

Dec	Hex	0	1	2	3
96	60	RPHSAVE15			
100	64	RPHSAVE16			

Alphabetical List of Fields in ISTRPH

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00002	0008	0008	RPHRESUM	0017	0011	RPHSAV14	0092	005C
RPHCNTL	0000	0000	RPHRPHA	0004	0004	RPHSAV15	0096	0060
RPHCRR	0032	0020	RPHRPHAP	0005	0005	RPHSAV16	0100	0064
RPHCSPA	0024	0018	RPHSAVE1	0040	0028	RPHSBITS	0041	0029
RPHDVTA	0012	000C	RPHSAVE2	0044	002C	RPHSBYTE	0040	0028
RPHFLAGS	0002	0002	RPHSAVE3	0048	0030	RPHSHALF	0042	002A
RPHFLGB	0003	0003	RPHSAVE4	0052	0034	RPHSRFRM	0028	001C
RPHLNGTH	0001	0001	RPHSAVE5	0056	0038	RPHSRP12	0028	001C
RPHMAJCB	0021	0015	RPHSAVE6	0060	003C	RPHSRP34	0030	001E
RPHNEXPO	0104	0068	RPHSAVE7	0064	0040	RPHTIK	0011	000B
RPHPABFG	0036	0024	RPHSAVE8	0068	0044	RPHTSKID	0008	0008
RPHPABOF	0020	0014	RPHSAVE9	0072	0048	RPHTYPE	0000	0000
RPHPABQA	0037	0025	RPHSAV10	0076	004C	RPHWEA	0024	0018
RPHPABQP	0037	0025	RPHSAV11	0080	0050	RPHWORK	0040	0028
RPHPABWD	0036	0024	RPHSAV12	0084	0054	RPHWPFLG	0016	0010
RPHRESMA	0016	0010	RPHSAV13	0088	0058			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0002	RPHFLAGS	System Dependent Flags	1...	RPHOGIND	Open Gate Indicator
			.1..	RPHSPGIN	Special Gate Open Indicator
			..1.	RPHAPTYP	APS is a User Exit
			...1	RPHSMQ	Indicator if RPH is to be Queued
			.... 1...	RPHSMTYP	Request Type is Buffer or Double-Word
			.... .1..	RPHSMCLR	Indicator if Buffer to be Cleared
			.... ..1.	RPHMLTCP	Used by Local 3270 Support when building Multiple Chan Program
			1	RPHFSTLC	Used by Local 3270 Support to Indicate First LCCW
			1	RPHFNFLG	LCCW Set Function Flags
0003	RPHFLGB	Second Flag Byte	1...	RPHLOCK	Locking Option
			.1..	RPHBSSP	System Services Progress

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
			..1.	RPHBAPS	STG. Obtained by APS
			...1 1111	RPHNRSAV	Do not Save on Activate
0004		First Byte of RPHRPHA	1...	RPHGATE	Gating Flag
			.111 1111	@NM0001	Reserved
0010	RPHWPFLG	Wait-Post Flags	1111	RPHRSKEY	Storage Protect Key to Resume Processing
			.... 1...	RPHWT	Wait Bit
			.... .1..	RPHPT	Post Bit
			11	@NM00003	Reserved for Wait/Post
0018		First Byte of RPHCSPA	1...	RPHWEGT	Gate for Work Element Proc.
0024	RPHPABFG	Flag Byte	1...	RPHDEACT	RPH has been De-activated VS/1 only
			.1..	RPHLKFRE	Locks held by Abended Process have been Freed (VS/1 only)
			.1..	RPHPGCMP	Purge Complete (VS/2 only)
			..1.	RPHRLCRA	Indicates that ISTAPC64 should free the CRA
			...1	RPHAUTEX	Exit to Authorized User VS/2 only
			.... 1...	RPHPURGE	RPH Flagged by Recovery to be purged by PSS VS/2 only
			.... .111	@NM00004	Reserved
0029	RPHSBITS	Save Field for Flag Byte	1...	RPHSBIT1	1st Save Field
			.1..	RPHSBIT2	2nd Save Field
			..1.	RPHSBIT3	3rd Save Field
			...1	RPHSBIT4	4th Save Field
			.... 1...	RPHSBIT5	5th Save Field
			.... .1..	RPHSBIT6	6th Save Field
			.... ..1.	RPHSBIT7	7th Save Field
			1	RPHSBIT8	8th Save Field

Constants in ISTRPH

Label	Value	Meaning
RPTYPE	X'01'	Type Code for RPH
RPHWT0	X'F7FFFFFF'	Turn RPHWT Off
RPHWT1	X'08000000'	Turn RPHWT On
RPHPT0	X'FBFFFFFF'	Turn RPHPT Off
RPHPT1	X'04000000'	Turn RPHPT On
RPHPABQ1	X'000000'	Turn RPHPBQ Gate

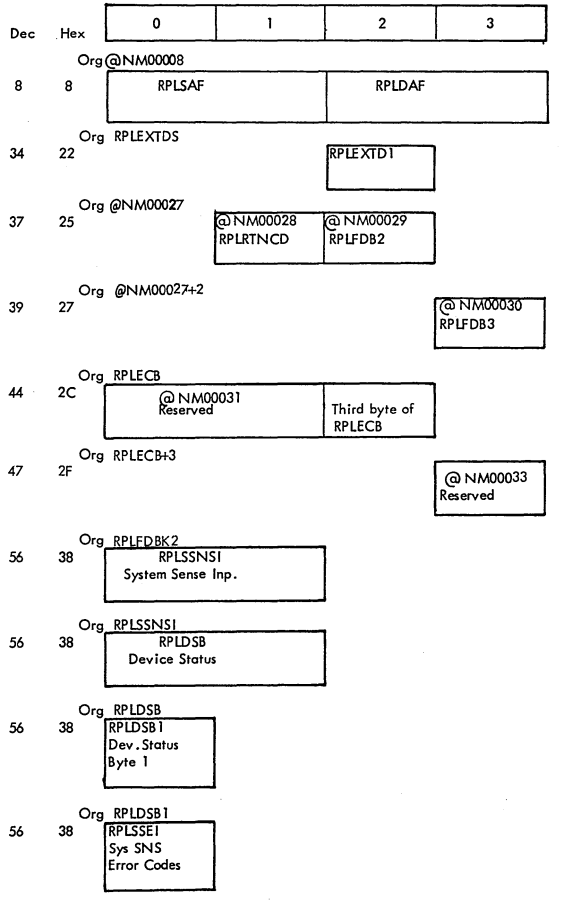
RPL (ISTRPL)

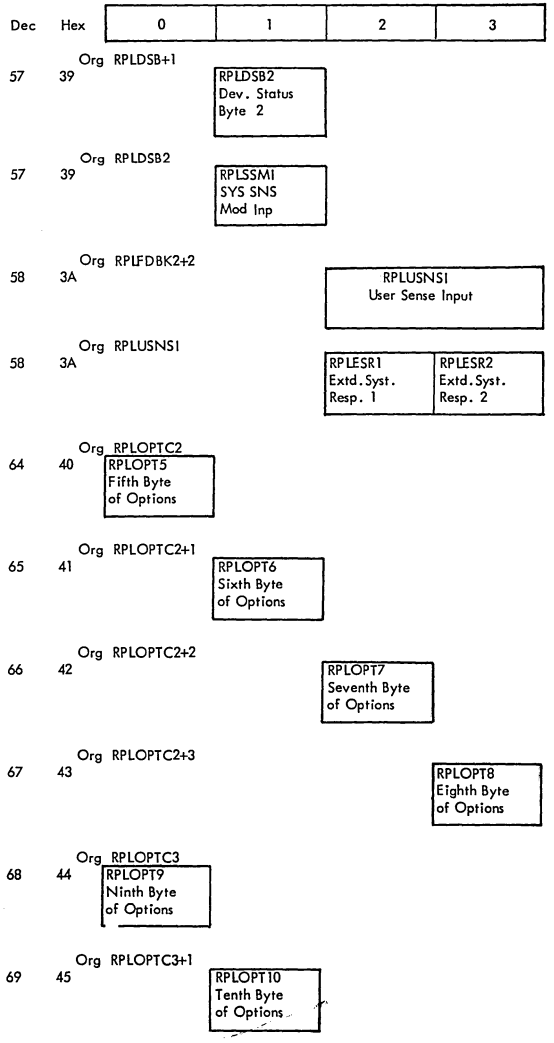
Dec	Hex	0	1	2	3
0	0	@NM00005 RPLID	@NM00006 RPL Subtype Field	@NM00007 Reserved	RPLLEN2 RPL Length
4	4	RPLPLHPT RPLH Pointer			
8	8	@NM00008 CID or NIB Pointer RPLARG			
12	C	@NM00009 Pointer to Area RPLAREA			
16	10	@NM00010 Record Length RPLRLEN			
20	14	@NM00011 Area Length RPLBUFL			
24	18	@NM00012 Pointer to ACB RPLDACB			
28	1C	@NM00013 Reserved	@NM00014 Request Code RPLREQ	@NM00015 Reserved	@NM00016 Reserved
32	20	@NM00017 RPLOPTI	@NM00021 Reserved	RPLEXTDS Exit Definition	@NM00025 Reserved
36	24	@NM00026 Reserved	@NM00027 Feedback RC RPLFDBK		
40	28	RPLAAREA Alternate Area Pointer			
44	2C	RPLECB ECB or Pointer to ECB/EXIT			
48	30	RPLAARLN Alternate Area Length			

RPL (ISTRPL) (Continued)

Dec	Hex	0	1	2	3
52	34	RPLARCLN Alternate Record Size			
56	38	RPLFDBK2 Feedback Word			
60	3C	RPLUSFLD User Field			
64	40	RPLOPTC2 Additional Option Codes			
68	44	RPLOPTC3 Move VTAM Options			
72	48	RPLRH3 Third RH Byte	RPLSRTYP Send or Receive Type	RPLVTFL1 VTAM Flags	RPLVTFL2 VTAM Flags
76	4C	RPLCHN Position in HU Chain	RPLCNTRL PU Control Code		
80	50	RPLOBSQV STSN Outbnd. Seq. Nr.		RPLIBSQV STSN Inbind. Seq. Nr.	
84	54	RPLOBSQ STSN Outb. Action Code	RPLIBSQ STSN Inbound Action Code	RPLSEQNO Sequence Number	
88	58	RPLOSENS Sense Output Data			
92	5C	RPLACTIV Subtype-X'FF' = Active, X'00' = Inact.	RPLRSV1		
96	60	RPLSIGDA Signal Data			

RPL (ISTRPL) (Continued)




Dec
Hex
0
1
2
3
Org RPLDSB+1
57
39
RPLDSB2
Dev. Status
Byte 2
Org RPLDSB2
57
39
RPLSSMI
SYS SNS
Mod Inp
Org RPLFDBK2+2
58
3A
RPLUSNSI
User Sense Input
Org RPLUSNSI
58
3A
RPLESR1
Extd. Syst.
Resp. 1
RPLESR2
Extd. Syst.
Resp. 2
Org RPLOPTC2
64
40
RPLOPT5
Fifth Byte
of Options
Org RPLOPTC2+1
65
41
RPLOPT6
Sixth Byte
of Options
Org RPLOPTC2+2
66
42
RPLOPT7
Seventh Byte
of Options
Org RPLOPTC2+3
67
43
RPLOPT8
Eighth Byte
of Options
Org RPLOPTC3
68
44
RPLOPT9
Ninth Byte
of Options
Org RPLOPTC3+1
69
45
RPLOPT10
Tenth Byte
of Options

Dec	Hex	0	1	2	3
		Org RPLOPTC3+2			
70	46			RPLOPT11 Eleventh Byte of Options	
		Org RPLOPTC3+3			
71	47				RPLOPT12 Twelvth Byte of Options
		Org RPLCNTRL			
77	4D		RPLCNTDF Data Flow Control Codes		
		Org RPLCNTRL+1			
78	4E			RPLCNTDC Data Flow Control CTD	
		Org RPLCNTRL+2			
79	4F				RPLCNTSC Session Control Codes
		Org RPLOSENS			
88	58	RPLSSNSO System Sense Output			
		Org RPLSSNSO			
88	58	RPLSSEO System Sense Error Code			
		Org RPLSSNSO+1			
89	59		RPLSSMO System Sense Mod Output		
		Org RPLOSENS+2			
90	54			RPLUSNSO User Sense Output	

Alphabetical List of Fields in ISTRPL

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
@NM00005	0000	0000	RPLCHN	0076	004C	RPLOPT6	0065	0041
@NM00006	0001	0001	RPLCNTDC	0078	004E	RPLOPT7	0066	0042
@NM00007	0002	0002	RPLCNTDF	0077	004D	RPLOPT8	0067	0043
@NM00008	0008	0008	RPLCNTRL	0077	004D	RPLOPT9	0068	0044
@NM00009	0012	000C	RPLCNTSC	0079	004F	RPLOSENS	0088	0058
@NM00010	0016	0010	RPLDAF	0010	000A	RPLPLHPT	0004	0004
@NM00011	0020	0014	RPLDSB	0056	0038	RPLRH3	0072	0048
@NM00012	0024	0018	RPLDSB1	0056	0038	RPLRSV1	0093	005D
@NM00013	0028	001C	RPLDSB2	0057	0039	RPLSAF	0008	0008
@NM00014	0029	001D	RPLECB	0044	002C	RPLSEQNO	0086	0056
@NM00015	0030	001E	RPLESR1	0058	003A	RPLSIGDA	0096	0060
@NM00016	0031	001F	RPLESR2	0059	003B	RPLSTYP	0073	0049
@NM00017	0032	0020	RPLEXTDS	0034	0022	RPLSSEI	0056	0038
@NM00021	0033	0021	RPLEXTD1	0034	0022	RPLSSEO	0088	0058
@NM00025	0035	0023	RPLFDBK2	0056	0038	RPLSSMI	0057	0039
@NM00026	0036	0024	RPLIESQ	0085	0055	RPLSSMO	0089	0059
@NM00027	0037	0025	RPLIESQV	0082	0052	RPLSSNSI	0056	0038
@NM00028	0037	0025	RPLLEN2	0003	0003	RPLSSNSO	0088	0058
@NM00029	0038	0026	RPLOBSQ	0084	0054	RPLUSFLD	0060	003C
@NM00030	0039	0027	RPLOBSQV	0080	0050	RPLUSNSI	0058	003A
@NM00031	0044	002C	RPLOPTC2	0064	0040	RPLUSNSO	0090	005A
@NM00033	0047	002F	RPLOPTC3	0068	0044	RPLVTFL1	0074	004A
RPLAAREA	0040	0028	RPLOPT10	0069	0045	RPLVTFL2	0075	004B
RPLAARLN	0048	0030	RPLOPT11	0070	0046			
RPLAVTIV	0092	005C	RPLOPT12	0071	0047			
RPLARCLN	0052	0034	RPLOPT5	0064	0040			

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
002E		Third Byte of RPLECB	1...	RPLPOST	Event Complete
			.111 1111	a NM00032	Reserved
0020	@NM00017	RPLOPT1	1111	@NM00018	Reserved
			.... 1...	@NM00019	RPLASY
			.... .11.	@NM00020	Reserved
			1	RPLECBIN	1 = External ECB
0022	RPLEXTD1		1...	RPLEXSCH	Exit Scheduled Indicator
			.1..	RPLNEXIT	No Exit Specified
			..1.	RPLEXIT	Exit
			...1	@NM00022	Reserved
			.... 1...	@NM00023	Reserved
			.... .1..	RPLNIB	1 = ARG Has NIB Pointer
			.... ..1.	RPLBRANC	1 = Branch Entry to Macro
			1	@NM00024	Reserved

Flag Meanings (Continued)

0026	@NM00029	RPLFDB2	1...	RPLERLK	Error Lock Set
			.1..	RPLRVID	RVI Received
			..1.	RPLATND	Attention Received
			...1	RPLDVUNS	Device Unuseable
			.... 1...	RPLIOERR	I/O Error Type (0-Input, 1-Output)
			.... .1..	RPLDLGFL'	Dialog Initiation Failed
			.... ..1.	RPLCUERR	Control Unit Failure
			1	RPLSTSAV	Sense Bytes Present
0027	@NM00030	RPLFDB3	1...	RPLUINPT	Unsolicited Input
			.1..	RPLTSV32	Reserved
			..1.	RPLREOB	End of Block
			...1	RPLREOM	End of Message
			.... 1...	RPLREOT	End of Transmission
			.... .1..	RPLLGFRC	Logoff Received
			.... ..1.	RPLRLG	Leading Graphics Received
			1	RPLRDSOH	SOH Received
0038	RPLSSEI	Sys.Sns Err.Codes	1...	RPLPATHI	SSENSEI Path
			.1..	RPLCPMI	SSENSEI CPM
			..1.	RPLSTATI	SSENSEI State
			...1	RPLFII	SSENSEI FI
			.... 1...	RPLRRI	SSENSEI RR
			.... .111	@NM00034	Reserved for VTAM
004A	RPLVTFL1	VTAM Flags	1...	@NM00045	Reserved
			.1..	RPLVTUSE	SWITCHC 0=APP/1=System
			..11 1111	@NM00046	Reserved for VTAM
004B	RPLVTFL2	VTAM Flags	1111	RPLOSTV	
			1...	RPLSCHED	Post 0=RESP/1=Sched
			.111	@NM00047	Reserved for VTAM
			 1111	RPLRESP	
			.... 1...	@NM00048	Reserved for VTAM
			.... .1..	RPLEX	Respond 0=NEX/1=EX
			.... ..1.	RPLNFME	Respond 0=FME/1=NFM
			1	RPLRRN	Respond 0=NRRN/ 1=RRN
004C	RPLCHN	Position in HU Chain	1...	RPLFIRST	Chain First
			.1..	RPLMIDLE	Chain Middle
			..1.	RPLLAST	Chain Last
			...1	RPLONLY	Chain Only
			 1111	@NM00049	Reserved for VTAM
004D	RPLCNTDF	Data Flow Cntrl Codes	1...	RPLDATA	Control Data
			.1..	RPLCNCEL	Control Cancel
			..1.	RPLQC	Control QC
			...1	RPLQEC	Control QEC
			.... 1...	RPLCHASE	Control Chase
			.... .1..	RPLRELQ	Control RELQ

RPL (ISTRPL) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
			.... ..1.	RPLQI	Reserved for VTAM
			1	@NM00050	Reserved for VTAM
004E	RPLCNTDC	Data Flow Control CTD	1...	RPLBID	Control BID
			.1..	RPLRTR	Control RTR
			..1.	RPLLUS	Control LUS
			...1	RPLSIGNL	Control Signal
			 1111	@NM00051	Reserved for VTAM
004F	RPLCNTSC	Session Control Codes	1...	RPLSDT	Control SDT
			.1..	RPLCLEAR	Control Clear
			..1.	RPLSTSN	Control STSN
			...1	RPLSHUTD	Control Shutd
			.... 1...	RPLSHUTC	Control Shutc
			.... .1..	RPLRQR	Control RQR
			.... ..1.	RPLRSHUT	Control RSHUTD
			1	@NM00052	Reserved for VTAM
0040	RPLOPT5	Fifth Byte of Options	1...	RPLDLGIN	Dialog Indicator 1 = CS, 0 = CA
			.1..	@NM00035	Reserved
			..1.	RPLPSOPT	Pass Option
			...1	RPLNERAS	Write No Erase
			.... 1...	RPLEAU	Write Erase Unprotected
			.... .1..	RPLERACE	Write Erase
			.... ..1.	RPLNODE	Node Indicator 1 = Any, 0 = Spec
			1	RPLWROPT	Write Option, 1 = Conv, 0 = Nconv
0041	RPLOPT6	Sixth Byte of Options	1...	RPLEOB	End of Block
			.1..	RPLEOM	End of Message
			..1.	RPLEOT	End of Transmission
			...1	RPLCOND	Reset Conditional
			.... 1...	RPLNCOND	Reset Unconditional
			.... .1..	RPLLOCK	Reset Lock
			.... ..1.	@NM00036	Reserved
			1	RPLRSV68	Reserved
0042	RPLOPT7	Seventh Byte of Options	1...	RPLCNNALL	Connect All
			.1..	RPLCNANY	Connect Any
			..1.	RPLCWYMM	Connect Immediate
			...1	RPLQOPT	Open Destination Q Opt
			.... 1...	RPLTPOST	1 = Already under
			.... .1..	RPLRLSOP	Release Option
			.... ..1.	RPLRSV77	Reserved
			1	RPLRSV78	Reserved

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0043	RPLOPT8	Eigth Byte of Options	1...	RPLODACQ	Acquire
			.1..	RPLODACP	Accept (Default)
			..1.	@NM00037	Reserved
			...1	RPLPEND	Pend (Default)
			.... 1...	RPLSESS	Session
			.... .1..	RPLACTV	Active
			.... ..1.	RPLUNCON	Uncondl
			1	RPLRSV88	Reserved
0044	RPLOPT9	Ninth Byte of Options	1...	RPLLOGON	INQ Logon MSG (Default)
			.1..	RPLDEVCH	INQ Device Char
			..1.	RPLTERMS	INQ Terms
			...1	RPLCOUNT	INQ Counts
			.... 1...	RPLAPPST	INQ Appstat
			.... .1..	RPLRNNM	INQ Rnname
			.... ..1.	RPLCIDE	INQ Cidxlate
			1	RPLTOPL	INQ Toplogon
0045	RPLOPT10	Tenth Byte of Options	1...	RPLBSCID	INQ BSC ID
			.1..	RPLDSPLY	INQ Display
			..1.	RPLSPARM	INQ Session
			...1	RPLRSV12	Reserved
			.... 1...	RPLRSV13	Reserved
			.... .1..	RPLRSV14	Reserved
			.... ..1.	RPLRSV15	Reserved
			1	RPLRSV16	Reserved
0046	RPLOPT11	Eleventh Byte of Options	1...	RPLQUIES	Setlogon Quiesce (Default)
			.1..	RPLSTART	Setlogon start
			..1.	RPLSTOP	Setlogon Stop
			...1	RPLRSVE4	Reserved
			.... 1...	RPLRSVE5	Reserved
			.... .1..	RPLRSVE6	Reserved
			.... ..1.	RPLRSVE7	Reserved
			1	RPLRSVE8	Reserved
0047	RPLOPT12	Twelvth Byte of Options	1...	@NM00038	Reserved
			.1..	RPLKEEP	Receive Keep
			..1.	RPLTRUNC	Receive Trunc
			...1	RPLNIBTK	Receive NIBTK
			.... 1...	@NM00039	Reserved
			.... .1..	@NM00040	Reserved
			.... ..1.	@NM00041	Reserved
			1	RPLFMHDR	0 = NFMHDR 1 = FMHDR
0048	RPLRH3	Third RH Byte	1...	RPLBB	Bracket 0 = NBB 1 = BB
			.1..	RPLEB	Bracket 0 = NEB 1 = EB

RPL (ISTRPL) (Continued)

Flag Meanings (Continued)

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
			..1.	RPLCMD	CHNGDIR 0 = NCMD, 1 = CMD
			...1	RPLCHREQ	CHNGDIR 0 = NREQ, 1 = REQ
			.... 1...	RPLCSI	Code Selection Indicator 0 = Basic Code/1 = Alternate Code
			.... .111	@NM00042	Reserved for VTAM
0049	RPLSRTYP	Send or Receive Type	1111	RPLSTYPE	Send Type
			1...	RPLSRESP	Stype 0 = REQ/ 1 = RESP
			.111	@NM00043	Reserved for VTAM
			 1111	RPLRTYPE	Receive Type
			.... 1...	RPLRRESP	Rtype 0 = NRESP/ 1 = RESP
			.... .1..	RPLNFSYN	Rtype 0 = DFSYN/ 1 = NDFSYN
			.... ..1.	RPLDFASY	Rtype 0 = NDFASY/ 1 = DFASY
			1	@NM00044	Reserved
0054	RPLOBSQ	STSN Outb. Action Code	1...	RPLOSET	OBSQAC Set
			.1..	RPLOTST	OBSQAC Testset
			..1.	RPLORSET	OBSQAC Reset
			...1	RPLOIGN	OBSQAC Ignore
			.... 1...	RPLOPOS	OBSQAC Testpos
			.... .1..	RPLONEG	OBSQAC Testneg
			.... ..1.	RPLOINV	OBSQAC Invalid
			1	@NM00053	Reserved for VTAM
0055	RPLIBSQ	STSN Inbound Act. Code	1...	RPLISET	IBSQAC Set
			.1..	RPLITST	IBSQAC Testset
			..1.	RPLIRSET	IBSQAC Reset
			...1	RPLIIGN	IBSQAC Ignore
			.... 1...	RPLIPOS	IBSQAC Testpos
			.... .1..	RPLINEG	IBSQAC Testneg
			.... ..1.	RPLIINV	IBSQAC Invalid
			1	@NM00054	Reserved for VTAM
0058	RPLSSEO	System Sense Err.CD/S	1...	@NM00055	Reserved for VTAM
			.1..	RPLCPMO	SSENSEO CPM
			..1.	RPLSTATO	SSENSEO State
			...1	RPLFIO	SSENSEO FI
			.... 1...	RPLRRO	SSENSEO RR
			.... .111	@NM00056	Reserved for VTAM

Constants in ISTRPL

Label	Value	Meaning
The following Equates are for the Various Request Codes that may be set		
RPLWRITE	X'11'	Write
RPLRESET	X'12'	Reset
RPLDO	X'13'	Do
RPLQUISE	X'15'	Quiesce
RPLSMLGO	X'16'	Simulated Logon
RPLOPNDS	X'17'	Open Destination
RPLCHNG	X'19'	Change
RPLINQIR	X'1A'	Inquire
RPLINTPT	X'1B'	Interpret
RPLREAD	X'1D'	Read
RPLSLICT	X'1E'	Solicit
RPLCLOSE	X'1F'	Close Destination
RPLCLACB	X'21'	Close ACB (Internal Only)
RPLSNDCD	X'22'	Send
RPLRCVCD	X'23'	Receive
RPLRSRCD	X'24'	Resetsr
RPLSSCCD	X'25'	Sessionc
The following are possible Return Codes to be mapped against RPLRTNCD		
RPLAOK	X'00'	Operation successfully completed
RPLCBLKE	X'04'	Invalid REQ or CTL Block
RPLLOGIC	X'08'	Logical Error
RPLPHYSC	X'0C'	Physical Error
RPLNGRCC	X'10'	Neg Response to Cond CMD
RPLSPECC	X'14'	Special Condition
RPLCMDRT	X'18'	Command Reset
RPLPURGE	X'1C'	Command Purged
RPLVTMNA	X'20'	VTAM Not Active
RPLSYERR	X'24'	System Error
RPLDEVDC	X'28'	Device Disconnected
RPLLIMEX	X'2C'	NIB Resplim Excd.
RPLEXRQ	X'30'	Except. REQ. Received
RPLEXRS	X'34'	Except. Resp. Received
RPLNOIN	X'38'	No Input Available
Reason Code equates for RPLFDB2 if RPLRTNCD = X'08'		
RPLCBERR	X'01'	Invalid Control Block
RPLRNORT	X'02'	No Rtype Specified
RPLCLSIP	X'03'	CLSDST in Progress
RPLSTEAM	X'03'	Sess. Team in Proc.
RPLCIDNG	X'05'	Invalid CID
RPLILDOP	X'06'	Bad LDO OP Code
RPLILSEQ	X'07'	Bad LDO Sequence
RPLWANCR	X'08'	Read not Chained
RPLSANOD	X'0C'	SOL Any + No Dev Conn
RPLSANDA	X'0D'	SOL Any + No Dev Avail
RPLSTOOD	X'0E'	SOL to Output Only
RPLSDE	X'0F'	SOL + Data Already Expected

Constants in ISTRPL (Continued)

Label	Value	Meaning
RPLRTOOD	X'10'	Read to Output Only
RPLWTOI	X'11'	Write to Input Only
RPLEWNS	X'12'	Era se to Non 2265/3270
RPLEWAU3	X'13'	EAU to Non 3270
RPLCWTOO	X'14'	Write Conv to Output Only
RPLCWB	X'15'	Erase + Conv
RPLCCCPY	X'16'	Copy LDO W/CCOR CD
RPLIDA	X'17'	Invalid Data Area or Length
RPLLILDOA	X'18'	Invalid LDO Address
RPLJTOJ	X'19'	Jump to Jump
RPLM255	X'1A'	Over 100 LDOS
RPLRILCP	X'1B'	Reset LDO + Other
RPLCRIRT	X'1C'	Invalid Request Type
RPLRIOCC	X'1D'	Read LDO W/CC
RPLEWBLK	X'1E'	Erase + Block
RPLCRSDC	X'1F'	SOL LDO W/CD
RPLDOFOD	X'20'	Device Offline or Discon
RPLIREST	X'21'	Invalid Reset Type
RPLINVAC	X'22'	Invalid ACB
RPLINVEX	X'23'	Invalid Exlst
RPLWBT32	X'24'	Write Block to 3270
RPLRMOBN	X'25'	Read Mod or Buf Non 3270
RPLCTN32	X'26'	Copy to Non 3270R
RPLWCNVR	X'27'	WRT CNV. Data Expec.
RPLRNFT3	X'28'	Read Not First to 3735
RPLRCINV	X'29'	Reset Cond Illegal
RPLINVRM	X'2A'	Invalid Read Mode
RPLATSFI	X'2B'	Area too smal for I + I
RPLIIINA	X'2C'	I Info not Available
RPLICNDN	X'2D'	Int could not DET Name
RPLILSIN	X'2E'	Invalid Logon SEQ Int
RPLIICBE	X'2F'	CB Error in I + I
RPLOLIPT	X'30'	Over Length 'Input' (Trunc)
RPLINTNA	X'31'	Int Info not Available
RPLRCLCK	X'32'	Reset Cond with Lock
RPLSDQT	X'32'	DFSYN Attempt Quies.
RPLSDEX	X'33'	Resp. = Ex in RPL
RPLSDNP	X'34'	Prev Sched Unpost.
RPLSCEM	X'35'	Chain Err Mid. Lst.
RPLSCEF	X'36'	Chain Err 1st Only
RPLSNQC	X'37'	Quis. send not Req.
RPLSINVC	X'38'	Inv. Cntr. of Option
RPLSDFR	X'39'	Send in DF Reset
RPLSNOS	X'3A'	Send in DF Ctl. Inv.
RPLSNOUT	X'3B'	Resp with 0 Outstn.
RPLSNMC	X'3C'	Chase but cncl Exp.
RPLSSEQ	X'3D'	Seq Nr not Expect.
RPLSINVS	X'3E'	Resp Option Error
RPLSINVR	X'3F'	Inv. Resp for Post
RPLOCE01	X'40'	Type not Support List
RPLOCE02	X'41'	Type Invalid

Constants in ISTRPL (Continued)

Label	Value	Meaning
RPLOCE03	X'42'	Acquire Invalid Parm
RPLOCE04	X'43'	Appl Never Accepts
RPLOCE05	X'44'	No Preempt Auth
RPLOCE06	X'45'	Preempt has Invalid OPT
RPLOCE07	X'46'	Invalid Nib Option
RPLOCE08	X'47'	Dest Unknown
RPLOCE09	X'48'	Dest Unopenable
RPLOCE10	X'49'	Not Auth to Opndst or Installation Provided Subroutine Failed to Provide Appl Name to Interpret
RPLOCE11	X'4A'	Dest Unavail - Offline
RPLOCE12	X'4B'	Dest Unavail - In Use
RPLOCE13	X'4C'	No Logon Found Accept
RPLOCE14	X'4D'	Opndst Canceled
RPLOCE15	X'4E'	Device/Mode Incomp.
RPLOCE16	X'4F'	Invalid Mode Name
RPLOCE17	X'50'	Bhset Name Unknown
RPLOCE18	X'51'	Bhset not on Local
RPLOCE19	X'52'	Multi Bhsets Specified
RPLOCE21	X'54'	Invalid Request Type
RPLOCE22	X'55'	Appl is Quiescing
RPLOCE25	X'58'	Invalid Logon Addr or Len
RPLOCE26	X'59'	Bhset ID Rejected
RPLOCE27	X'5A'	Duplicate Nodes
RPLOCE28	X'5B'	VTAM is Halting
RPLOCE29	X'5C'	VTAM not Active
RPLOCE30	X'5D'	Source Addr of CID
RPLOCE31	X'5E'	CID not Resoluable
RPLOCE32	X'5F'	CID DST not Opened
RPLOCE33	X'60'	No Auth for Pass
RPLOCE34	X'61'	Passer not Own Resource
RPLOCE35	X'62'	Resource not Owned
RPLOCE36	X'63'	Preempt Unopened Device
RPLOCE37	X'64'	Restore of Preempt Failed
RPLOCE38	X'65'	Bhset ID Rejected by NCP
RPLOCE39	X'66'	Invalid Setlogon
RPLOCE40	X'67'	Chnge Inv. for Sess.
RPLOCE41	X'68'	Opndst/Bind Fail.
RPLVACIN	X'69'	Invalid Action
RPLINVRT	X'6A'	Inv. Response Type
RPLRNOEL	X'6C'	Exceeded limit of outstanding RCVCMDS allowed
RPLRNONA	X'6D'	Application not authorized, POI inactive
RPLRNOSE	X'6E'	Reply rejected due to SYNTAX error
RPLRNOIA	X'6F'	Program Operator Interface inactive
RPLRNOCL	X'70'	RCVCMD rejected because program operator application is closing
RPLRNOCE	X'71'	Command rejected due to SYNTAX error
RPLINVL	X'80'	ASE Invalid LCCW Code
RPLINVCF	X'81'	ASE Invalid Chaining LCCW
RPLIECMD	X'87'	ASE Invalid Escape CMD
RPLLGCNT	X'88'	Leading Graphs over 15
RPLESCNT	X'89'	ASE Escape CMD Count
RPLCPCNT	X'8A'	Copy LCC Count NE 3
RPLINDAT	X'97'	Inv. Area or Length
RPLVTAME	X'A0'	ASE Miscellaneous
RPLILRS	X'A1'	Incompatible Sysgen
RPLRDIP	X'A2'	Reset in Progress
RPLUSELE	X'A3'	Miscellaneous User Error

Constants in ISTRPL (Continued)

Label	Value	Meaning
RPLCTLCF	X'A4'	ASE Control Command
RPLMOLTF	X'A5'	ASE Oltt Failure
RPLCDITS	X'A6'	ASE Conflicting Dialog
RPLCRNF	X'A7'	Conv. Reply not Possible
RPLNUTRM	X'A8'	ASE no Uterm Rdte
RPLELNV	X'A9'	ASE Escape LCCW
RPLNELNV	X'AA'	ASE Non-Escape LCCW
RPLLCH	X'AB'	ASE LCCW Count G255
RPLNORD	X'AC'	Read not First to BSC Dial in
RPLINVBS	X'AD'	ASE Invalid BTU Resp
RPLSEQER	X'AE'	ASE RSP SEQ Err
RPLERNR	X'AF'	ASE Expected RSP not Received
RPLOLIPX	X'B0'	Overlength Input (Trunc)
RPLCPYE2	X'B1'	Copy Wrong Cluster
RPLRELNP	X'B2'	Reset Lock not Allowed
RPLCPYE1	X'B3'	Copy Unopened from Device

Equates for RPLFDB2 if RPLRTNCD = X'10'

RPLRCWNP	X'00'	Reset C was Noop
RPLYTCTN	X'80'	Yielded to Contention
RPLYADIF	X'84'	Yielded + Dialog Init Failure

Reason Code equates for RPLFDB2 if RPLRTNCD = X'14'

RPLSTALF	X'01'	Storage Allocation Failure

Reason Code equates for RPLFDB2 if RPLRTNCD = X'18'

RPLUSRES	X'00'	User Reset
RPLRSTSR	X'00'	Resertsr
RPLSSTRM	X'01'	Successful TRM Reset
RPLUNTRM	X'02'	Unsuccessful TRM Reset

Reason Code equates for RPLFDB2 if RPLRTNCD = X'1C'

RPLNCPAO	X'01'	NCP Abend = Restart OK
RPLNCPAN	X'02'	NCP Abend = Restart NOK
RPLPCF	X'03'	Perm Channel Failure
RPLANS	X'04'	Auto Network Shutdown
RPLAPPAB	X'05'	ASE Appl Abended
RPLCLOCC	X'06'	CLSDST Occurred
RPLVOFOC	X'07'	Vary Offline Occurred
RPLDISCO	X'08'	Disconnect Occurred
RPLBTHEX	X'09'	Buffer Threshold Exceeded
RPLCLRED	X'0A'	Register Cleared
RPLCPAOL	X'81'	Last Operation Purged for NCP Abend - Restart OK

Reason Code equates for RPLFDB2 if RPLRTNCD = X'24'

RPLOCS01	X'01'	ASE Unexpected Error
RPLOCS02	X'02'	ASE Srt not Present
RPLOCS03	X'03'	ASE Controlling Mode Offline

Constants in ISTRPL (Continued)

Label	Value	Meaning
RPLOCS04	X'04'	ASE Rdt illegal
RPLOCS05	X'05'	ASE no process lock
RPLOCS06	X'06'	ASE no RDT lock
RPLOCS07	X'07'	ASE no allocation lock
RPLOCS08	X'08'	ASE no device lock
RPLOCS09	X'09'	ASE could not disconnect
RPLNFMLK	X'0A'	ASE, no FME lock
RPLOCS10	X'10'	Could not obtain EPT/DVT lock
RPLOCS11	X'11'	ASE, SDT sess.fail.

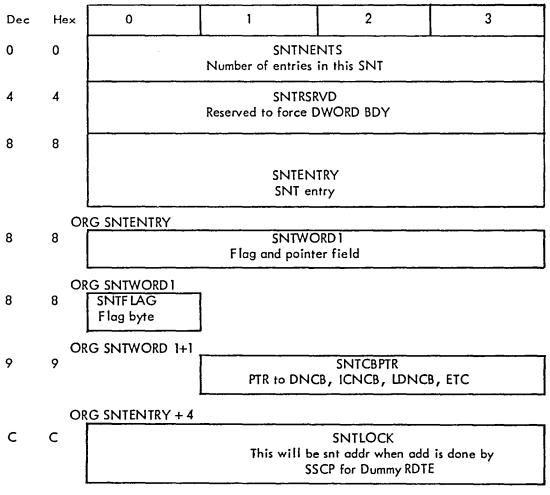
Reason Code equates for RPLFDB2 if RPLRTNCD= X'28'

RPLDIDOL	X'80'	Disconnect on Dial-Out line
RPLDIDIL	X'90'	Disconnect on Dial-In line

Inquire equates for RPLFDBK

RPLIACT	X'00'	APPL active
RPLIINA	Z'04'	APPL inactive
RPLINA	X'08'	APPL never accepts
RPLITNA	X'0C'	APPL temp not accepting
RPLIQUIE	X'10'	APPL quiescing

SNT (ISTSNT)



Alphabetical List of Fields in ISTSNT

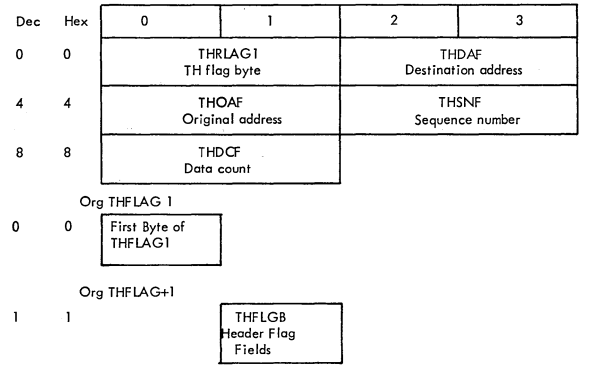
Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
SNTCBPTR	0009	0009	SNTLOCK	0012	000C	SNTWORD1	0008	0008
SNTENTRY	0008	0008	SNTNENTS	0000	0000			
SNTFLAG	0008	0008	SNTRSRVD	0004	0004			

Flag Meanings

Hex Disp	Flag Byte	Contents
0008	SNTFLAG	Flag Byte

Bit Pattern	Pattern Name	Pattern Meaning
1...	SNTRDTFG	RDT Entry Flag, 1 = RDTE, 0 = NCB
.1..	SNTSNTFG	This SNT Entry Contains a Pointer to an SNT Entry
..1.	SNTDUMFG	This is SNT for a Dummy RDTE it is never Locked
...1 1111	SNTRSVFG	Reserved

TH (ISTTH)



Alphabetical List of Fields in ISTTH

Field	Dec	Hex	Field	Dec	Hex
THDAF	0002	0002	THFLGB	0001	0001
THDCF	0008	0008	THOAF	0004	0004
THFLAG1	0000	0000	THSNF	0006	0006

Flag Meanings

Hex Disp	Flag Byte	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000		First Byte of THFLAG1	1111	THFID	Format ID
			 1111	THFLGA	Header Bit Flags
			.... 11..	THMPF	Mapping Field
			.... 1...	THRHI	RH Included Indicator
			.... .1..	THCMPLI	RU Complete Indicator
			.... ..1.	@NM00002	Reserved
			1	THAF1	Expedited Flow Indicator
0001	THFLGB	Header Flag Fields	1111	THPYF	Priority
			.... 11..	THSEF	Security
			11	THCDF	Reserved

TH (ISTTH2)

Dec	Hex	0	1	2	3
0	0	TH2FLAG1 Flag Bytes		TH2DAF Destination Address	TH2OAF Origin Address
4	4	TH2SNF Sequence Number			

Org TH2FLAG1

0	0	First Byte of TH2FLAG1

Org TH2FLAG1+1

1	1	Second Byte of TH2FLAG1

Alphabetical List of Fields in ISTTH2

Field	Dec	Hex	Field	Dec	Hex
TH2DAF	0002	0002	TH2OAF	0003	0003
TH2FLAG1	0000	0000	TH2SNF	0004	0004

Flag Meanings

Hex Disp	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0000	First Byte of TH2FLAG1	1111	TH2FID	Format ID
		.... 11..	TH2MPF	Mapping Field
		.... 1...	TH2RHI	RH Included Indicator
		.... .1..	TH2CMPLI	RU Complete Indicator
		.... ..1.	TH2PSI	Primary-Secondary Indicator
		1	TH2AFI	Expedited Flow Indicator
0001	Second Byte of TH2FLAG1	1111	TH2PYF	Priority Field
		.... 11..	TH2SEF	Security Field
		11	TH2CDF	Reserved

Constants in ISTTH2

Label	Value	Meaning
Values for Format ID Field		
THFID0	B'0000'	FID 0
THFID1	B'0001'	FID 1
THFID2	B'0010'	FID 2

TH (ISTTH2) (Continued)

Constants in ISTTH2 (Continued)

Values for Mapping Field

THCNOSEG	B'11'	No Segmenting
THONLY	B'11'	Only Segment
THFIRST	B'10'	First Segment
THMIDLE	B'00'	Middle Segment
THLAST	B'01'	Last Segment

Values for Primary-Secondary Indicator

THCPTOS	B'1'	Primary to Secondary Flow
THCSTOP	B'0'	Secondary to Primary Flow

Values for Priority Field

THCNOPYF	B'0000'	No Priority

Values for Security Field

THCNOSEF	B'00'	No Security

Values for Code Definition Field

THCNOCDF	B'00'	No Code Definition

Standard Values for Flag Bytes

THSYNREQ	X'1C00'	Normal Request
THASYREQ	X'1D00'	Expedited Request
THSYNRES	X'1E00'	Normal Response
THASYRES	X'1F00'	Expedited Response

TIE (ISTTIE)

Dec	Hex	0	1	2	3
0	0	TIETYPE Control block type code	TIELNGTH Length in bytes	TIERETCD Return code from TOLTEP	TIEREQ Tie usage code
4	4	TIETIEA Address of next tie			
8	8	TIESNA Address of symbolic name			
12	C	TIERPHA Address of RPL header			

Org TIETIEA

4	4	First Byte of TIETIEA

Org TIESNA

8	8	TIEPTR1 First Pointer

Org TIERPHA

12	C	TIEPTR2 Second Pointer

Alphabetical List of Fields in ISTTIE

Field	Dec	Hex	Field	Dec	Hex	Field	Dec	Hex
TIELNGTH	0001	0001	TIERETCD	0002	0002	TIETYPE	0000	0000
TIEPTR1	0008	0008	TIERPHA	0012	000C			
TIEPTR2	0012	000C	TIESNA	0008	0008			
TIEREQ	0003	0003	TIETIEA	0004	0004			

Flag Meanings

Hex Disp	Contents	Bit Pattern	Pattern Name	Pattern Meaning
0004	First Byte of TIETIEA	1...	TIEGATE	Gating Flag

Constants in ISTTIE

Label	Value	Meaning
TITYPE	X'18'	Type Code for TIE

Constants in ISTTIE (Continued)

Label	Value	Meaning
TIE Usage Codes		
TIEREQ0	0	RFT REQ Passed to TOLTEP
TIEREQ1	1	Vary Passed FSB to TOLTEP
TIEREQ2	2	Vary Passed NCSPL to TOLTEP
TIEREQ3	3	Req. for an End-CTL to Vary
TIEREQ4	4	Req. for Freeing Buffers
TIEREQ5	5	TOLTEP REQ Info from SSCP
TIEREQ6	6	TOLTEP Pass LCPB to Vary
TIEBASIC	0	Basic Support for Device RFT Received for
TIERCRD	4	Record Support for Device RFT Received for

SERVICE AIDS

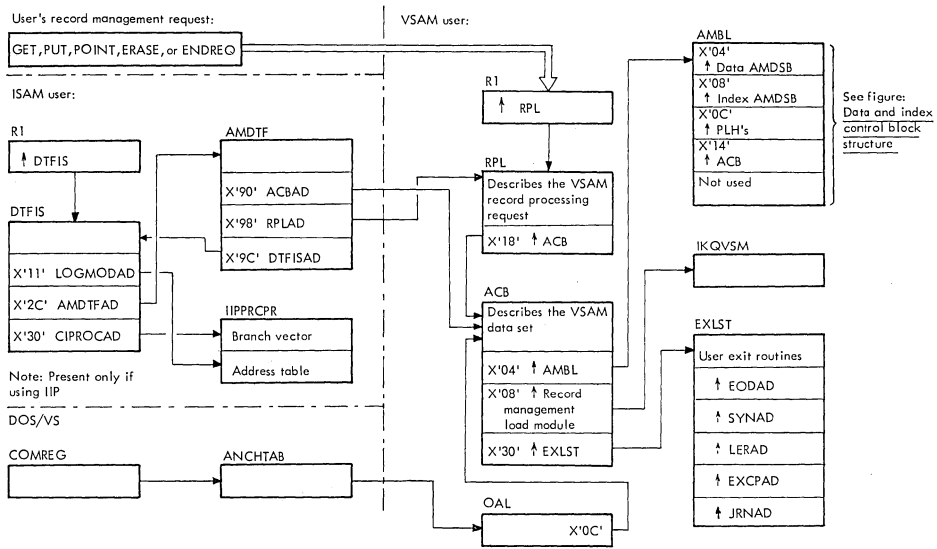
The following service aids are available for VTAM:

- Buffer Trace
- I/O Trace
- Line Trace
- NCP Dump
- VTAM Dump Facility

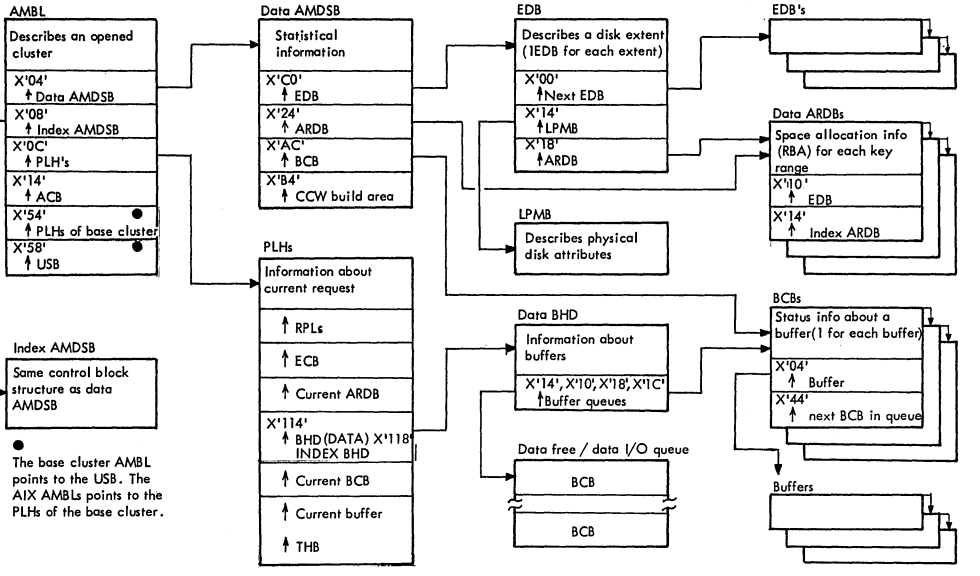
A complete description of these and other relevant service aids can be found in the DOS/VS VTAM Debugging Guide, GC27-0021.

CHAPTER III
VSAM CONTROL BLOCKS

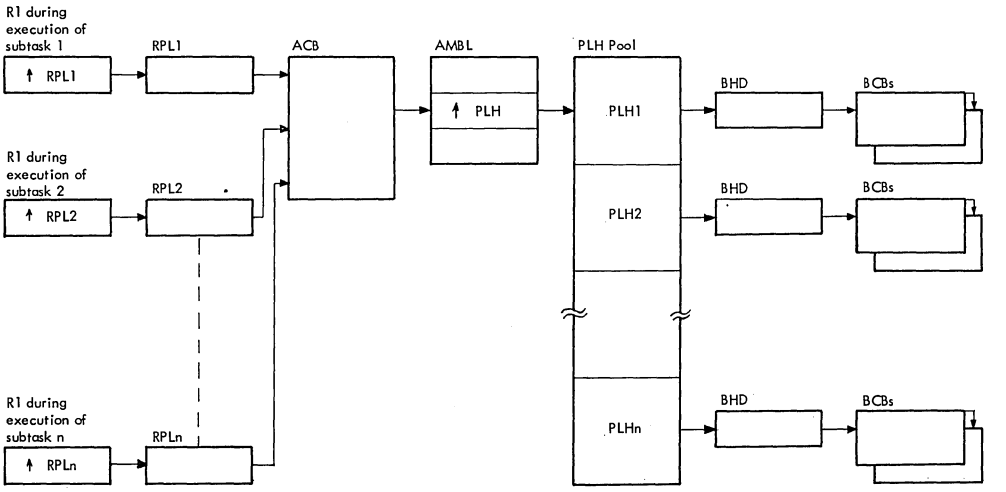
VSAM CONTROL BLOCK STRUCTURE FOR A KEY-SEQUENCED DATA SET



DATA AND INDEX CONTROL BLOCK STRUCTURE

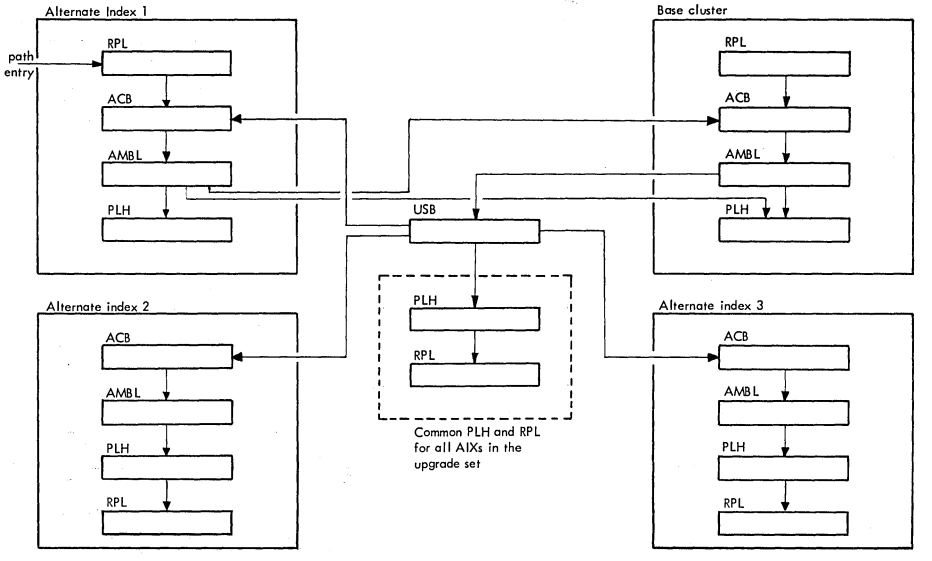


MULTIPLE STRING CONTROL BLOCK STRUCTURE

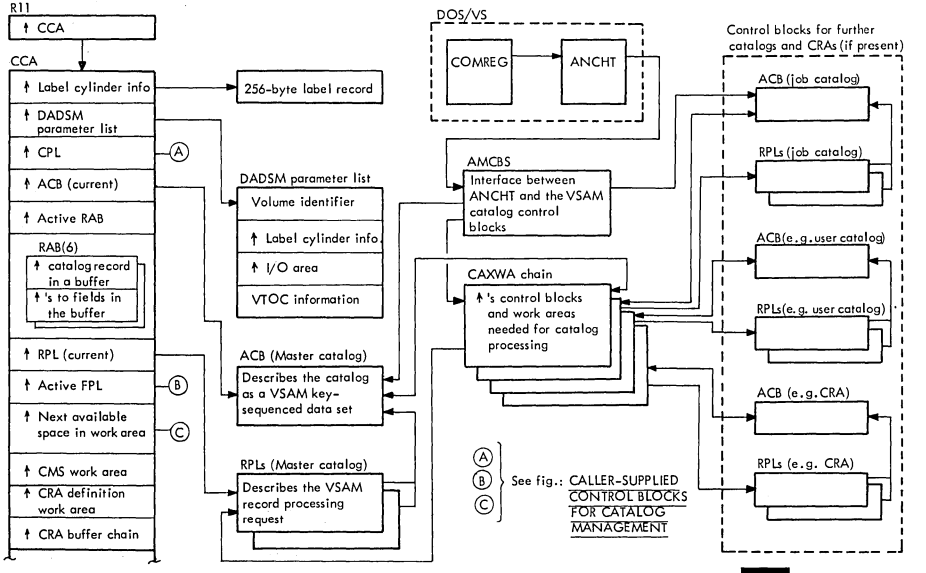


Note: PLH1 is not permanently assigned to RPL1, etc.
PLHs are assigned as required.

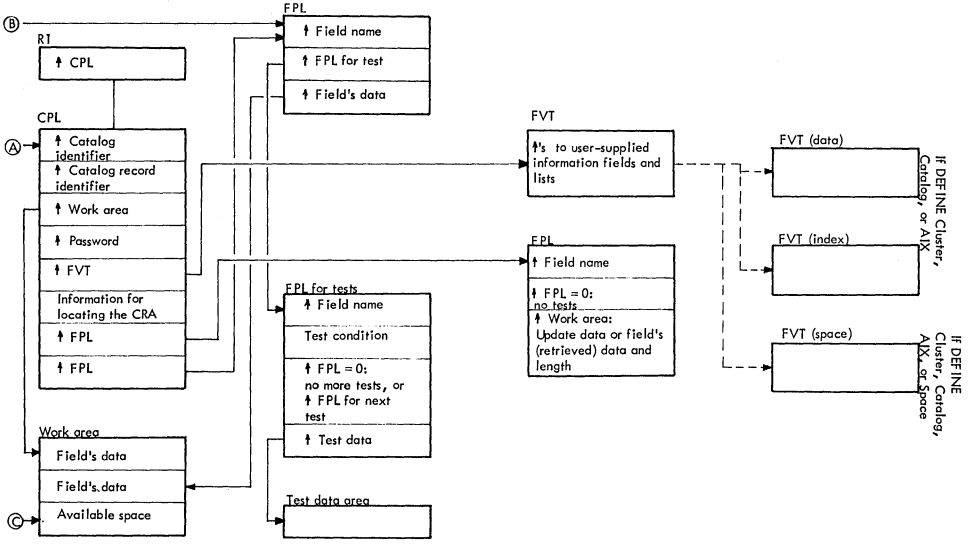
BASE CLUSTER TO ALTERNATE INDEX CONTROL BLOCK STRUCTURE



CATALOG MANAGEMENT CONTROL BLOCKS



CALLER-SUPPLIED CONTROL BLOCKS FOR CATALOG MANAGEMENT



ACCESS METHOD BLOCK LIST (AMBL)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0		AMBLST		Beginning of AMBL
0	0	1	AMBLID	X'11'	AMBL identifier
1	1	1	AMBLACT		AMBL active byte
2	2	2	AMBLLEN		Length of control block
4	4	4	AMBLDTA		Pointer to data AMDSB
8	8	4	AMBLIX		Pointer to index AMDSB
12	C	4	AMBLPLHF		Pointer to first PLH
16	10	4	AMBCHAIN		Reserved
20	14	4	AMBLACB		Pointer to ACB
24	18	2	AMBLPLHL		Length of PLH
26	1A	1	AMBLPLHN		Total number of strings
27	1B	1	AMBLFLAG		Flag byte
			AMBLPOST	X'80'	POST must be issued
28	1C	4	AMBAMBUF		Size of buffer space
32	20	2	AMBMACRF		Flags (copy of flags in ACBMACR1 and ACBMACR2)
32	20	1	AMBMACR1		First byte:
			AMBKEY	X'80'	Access data via index on RR #
			AMBADD	X'40'	Access via RBA
			AMBADR	X'40'	Access via RBA
			AMBCNV	X'20'	Control interval processing
			AMBSEQ	X'10'	Sequential processing
			AMBDIR	X'08'	Direct processing
			AMBIN	X'04'	GET, READ processing
			AMBOUT	X'02'	PUT, WRITE processing
			AMBUBF	X'01'	User buffers
33	21	1	AMBMACR2		Second byte:
			AMBLSR	X'80'	Localshared Resource
			AMBDFR	X'40'	Deferwriting OF Buffers
			AMBSKP	X'20'	Skip sequential accessing
			AMBRST	X'10'	Reusable Data Set
			AMBAIX	X'08'	AIX processing
			AMBJRACT	X'02'	JRNAD EXIT ENABLED
			AMBOPEN	X'01'	Open is in process
34	22	2	AMBLTLEN		Length of GETVIS for AMBL, PLH, etc.
36	24	2	AMBDBUF		Number of data buffers
38	26	2	AMBIBUF		Number of index buffers
40	28	4	AMBLOPWA		Pointer to open work area
					Split Control
44	2C	4	AMBSECB		Split/speudo-split ECB
44	2C	1	AMBS0		Reserved
45	2D	1	AMBS1		Reserved
46	2E	1	AMBSCOM		ECB post byte
			AMBSWAIT	X'80'	Wait bit share
47	2F	1	AMBSECBT		Share gate test and set byte
48	30	4	AMBBECB		ECB fo Buffer Manager
48	30	1	AMBB0		Reserved
49	31	1	AMBB1		Reserved
50	32	1	AMBBCOM		ECB Post byte
			AMBBWAIT	X'80'	Wait bit-buffer manager

ACCESS METHOD BLOCK LIST (AMBL) (...Continued)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
51	33	1	AMBBECBT		Buffer gate-test and set byte
52	34	4	AMBLORBA		Low RBA of control area being split
56	38	4	AMBHIRBA		High RBA of control area being split
60	3C	1	AMBSTRID		ID of string which holds control area
61	3D	3			RESERVED
64	40	4	AMBPLH		Address of PLH in control
					Pointers
68	44	4	AMBALIST		address of RSCB list
72	48	4	AMBLRPLS		Address of RPL causing split
76	4C	4	AMBLCLWA		Pointer to close work area
80	50	4	AMBLCIWA		Pointer to CI split work area
84	54	4	AMBLBC		Pointer to base cluster PLH Pool
88	58	4	AMBLUSB		Pointer to USB
92	5C	4	AMBBCACB		Pointer to BASECLUSTER-ACB
96	60	4	AMBPEACB		Pointer to PATH ENTRY-ACB
100	64	4	AMBLRPHD		Pointer to resource Pool Header

ACCESS METHOD CONTROL BLOCK (ACB)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	ACBID		ACB identifier = 'A0'
			ACBIDD	X'A0'	ACB equate
			ACBIDVAL	X'A0'	ACB equate
1	1	1	ACBSTYP		
					X'00' VSAM Release 1
					X'10' VSAM Release 2
					X'20' VTAM
2	2	2	ACBLEN		Length of ACB in bytes
2	2	2	ACBLENG		Length of ACB in bytes(1)
4	4	4	ACBAMBL		Address of the AMBL
8	8	4	ACBAM0		Pointer to VSAM code
12	C	1	ACBACT		ACB Active Byte
13	D	1	ACBINFLG		Catalog Recovery Flags
			ACBSCRA	X'80'	ACB is for a System-Initiated open of the CRA
			ACBUCRA	X'40'	ACB is for a User-Initiated open of the CRA
			ACBSTSKP	X'08'	SKIPUPDATING of statistics
14	E	2	ACBDBUF		Number of data buffers
14	E	2	ACBBUFND		Number of data buffers
16	10	2	ACBIBUF		Number of index buffers
16	10	2	ACBBUFNI		Number of index buffers
18	12	2	ACBMACRF		MACRF
18	12	1	ACBMACR1		MACRF first byte
			ACBKEY	X'80'	Access data via index or RR #
			ACBADD	X'40'	Access via RBA
			ACBADR	X'40'	Access via RBA
			ACBCNV	X'20'	Control interval processing
			ACBSEQ	X'10'	Sequential processing
			ACBDIR	X'08'	Direct processing
			ACBIN	X'04'	GET
			ACBOUT	X'02'	PUT
			ACBUBF	X'01'	User buffers
19	13	1	ACBMACR2		MACRF second byte
			ACBLSR	X'80'	Local Shared Resource
			ACBDFR	X'40'	Defer Writing of Buffers
			ACBSKPI	X'20'	Skip sequential access
			ACBRST	X'10'	Reusable data set
			ACBAIX	X'08'	AIX processing
				X'04'	Reserved
			ACBJRACT	X'02'	JRNAD Exit Active
				X'01'	Reserved for open AMBL
20	14	1	ACBDOSID		DOS DTF identifier
			ACBDTFID	X'28'	DTF type for VSAM
21	15	1	ACBOFLGS		Open/close flags
			ACBVOLMT	X'80'	Verify volume mounted
			ACBVMSG	X'40'	Message requested bit
			ACBEOV	X'20'	EOV detects completed
			ACBOPEN	X'10'	ACB is open
			ACBCAT	X'08'	ACB for VSAM catalog
			ACBEXFG	X'04'	User exit flag
			ACBSUB	X'02'	ACB is Suballocated

(1) If specified length is too small for a VSAM Release 2 ACB a Release 1 ACB is built (X'00' in byte 1).

Displacement Dec	Hex	Bytes	Field Name	Hex Digit	Description
			ACBKEYOK	X'01'	Key processing all right for this ACB
22	16	1	ACBNST		Number of strings
22	16	1	ACBSTRNO		Number of strings
23	17	1	ACBERFLG		Error flags
					Open error return codes :
			ACBOALR	X'04'	This ACB is already open
			ACBOLLUB	X'0E'	The symbolic unit in the DLBL statement is invalid
			ACBONJIB	X'0F'	No job information blocks (JIBs) are available from the label information cylinder.
			ACBOLIGN	X'11'	The address in the ASSIGN statement for the logical unit was IGN (assignment ignored).
			ACBOLUNA	X'12'	The address in the ASSIGN statement for the logical unit was UA (logical unit unassigned).
			ACBOCEXT	X'22'	The volume serial numbers specified in the EXTENT statement do not match those specified in the catalog entry.
			ACBOCDLD	X'32'	Unable to load VSAM modules via a CDLOAD macro instruction.
			ACBONMNT	X'50'	Attempt to mount two volumes on the same drive when direct or keyed processing was specified. Or the operator failed to mount the volume.
			ACBONCRA	X'5C'	CRA volume not mounted
			ACBOIERR	X'60'	Unusable input data set
			ACBOUEMP	X'64'	Empty upgrade AIX
			ACBOTMST	X'68'	The time stamp of the volume on which a data set is stored doesn't match the system time stamp in the volume catalog entry.
			ACBOTIME	X'6C'	The system time stamp of a data set and its index do not match, this indicates that the data has been updated separately. This test is greater than or equal, i.e., no warning is given if the index time stamp is greater than the data time stamp.
			ACBOEMPT	X'6E'	Open empty data set for read only.

ACCESS METHOD CONTROL BLOCK (ACB) (...Continued)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
			ACBODSNC	X'74'	Data set was not closed the last time it was processed
			ACBODEVT	X'75'	The symbolic unit specified in the EXTENT statements is not a valid VSAM device type.
			ACBONDLB	X'80'	The DLBL statement is missing or the filename in the DLBL doesn't match the ACB.
			ACBOIOER	X'84'	A permanent I/O error occurred while VSAM was reading label information from the label information cylinder.
			ACBONVRT	X'88'	Not enough virtual storage space is available in the partition for work areas, control blocks, or buffers.
			ACBOIOCA	X'90'	A permanent I/O error occurred while VSAM was reading or writing a catalog entry.
			ACBONCAT	X 94	N.ENTRY found in the catalog for this ACB.
			ACBOSECU	X'98'	Security verification failed; the password specified in the ACB for a specific level of access doesn't match the password in the catalog for that level of access.
			ACBOPARC	X'A0'	The operands specified in the ACB are inconsistent with each other or with the information in the catalog entry, for example, an open of an ESDS for keyed processing.
			ACBOKBUF	X'A1'	User-specified buffers with keyed access (user buffers can be specified only with CNV access).
			ACBOIOVL	X'A4'	A permanent I/O error occurred while VSAM was reading the volume label of the volume the data is set on.
			ACBONAVA	X'A8'	The data set is not available because it is being updated by (under the exclusive control of) another ACB or has been exported by Access Method Services.

ACCESS METHOD CONTROL BLOCK (ACB) (...Continued)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
			ACBONOCT	X'B4'	The VSAM catalog is not connected to the system on logical unit SYSCAT. or insufficient virtual storage available for OPEN
			ACBOACT	X'BC'	ACB was active
			ACBOOERR	X'C0'	Unusable output data set
			ACBOPEMP	X'C4'	Access via empty path
			ACBODSCB	X'C8'	DSCB format 4 error
			ACBOCNVP	X'E0'	Invalid control interval procedure
			ACBONRST	X'E8'	Non-reusable is not empty
			ACBOCTER	X'FF'	Unexpected return from catalog locate function.
					Close error return codes :
				X'02'	Invalid control block or ACB address not in OAL
			ACBCALR	X'04'	ACB already closed
			ACBCNVRT	X'88'	Insufficient space available in user's partition for work area
			ACBCIOCA	X'90'	Permanent I/O error occurred while VSAM was reading or writing a catalog entry.
			ACBCNCAT	X'94'	No catalog entry found
			ACBCIOER	X'B8'	Permanent I/O error occurred while VSAM was completing outstanding I/O requests.
			ACBCBUSY	X'BC'	ACB busy
24	18	4	ACBAMBUF		Length of buffer pool
28	1C	8	ACBDDNM		DDname
36	24	4	ACBPRTCT		Pointer to password
40	28	4	ACBUAPTR		Pointer to user work area
44	2C	4	ACBBFPL		Pointer to first data buffer in buffer pool
48	30	4	ACBEXLST		User exit list pointer
52	34	4	ACBNXT		Reserved
56	38	1			Reserved for BSTRNO
57	39	1			RESERVED
58	3A	2	ACBMSGLN		Message area length
60	3C	4	ACBMSGAR		Message area
64	40	4			RESERVED

ACCESS METHOD CONTROL BLOCK STRUCTURE BLOCK (AMCBS)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	CBSID	X'00'	AMCBS identifier
1	1	1	CBSFLAGS		AMCBS flags
			CBSJCAT	X'80'	Job catalog not present
2	2	2	CBSSIZ		Length of the AMCBS
4	4	4	CBSCRACB		Pointer to CRA ACB
8	8	4	CBSACB		Pointer to ACB (Master)
12	C	4	CBSCRAPL		Pointer to AMS CRAAP list
16	10	4	CBSSYSUC		Pointer to job catalog ACB
20	14	4	CBSCAXCN		Pointer to CAXWA chain
24	18	4	CBSCBMM		Pointer to control Block Manibulation Macro Load Module

ACCESS METHOD DATA STATISTICS BLOCK (AMDSB)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	96	AMDSBCOM		Common part
0	0	1	AMDSBID	X'60'	AMDSBidentifier
1	1	1	AMDATTR		Attributes of the data set
			AMDATTR1		Attributes (first byte):
			AMDDST	X'80'	Key-sequenced data set 1... .... Entry-sequenced data set 0... ....
			AMDWCK	X'40'	Check each record when it is written
			AMDSDT	X'20'	Sequence set is stored with the data
			AMDREPL	X'10'	Replication
			AMDORDER	X'08'	Use the volumes in the same order as the volume list
			AMDRANGE	X'04'	The data set is divided into key ranges
			AMDRRDS	X'02'	Relative record data set
			AMDSPAN	X'01'	Spanned records
2	2	2	AMDLEN		Length of AMDSB in the catalog
4	4	2	AMDNEST		Number of Entries in Index Section
4	4	2	AMDAXRKP		Rel. Key Position, AIX
6	6	2	AMDRKP		Rel. key Position, BASE
8	8	2	AMDKEYLN		Key length
10	A	1	AMDPCTCA		Percentage of free control intervals in the control area
11	B	1	AMDPCTCI		Percentage of free bytes in the control interval
12	C	2	AMDCIPCA		Number of control intervals in a control area
14	E	2	AMDFSCA		Number of free control intervals in a control area
16	10	4	AMDFSCI		Number of free bytes in a control interval
20	14	4	AMDCINV		Control interval size
24	18	4	AMDLRECL		Maximum record size
28	1C	4	AMDHLRBA		RBA of the high-level index record
28	1C	4	AMDNSLOT		Number of relative record slots
32	20	4	AMDSSRBA		RBA of first seq.record
32	20	4	AMDMAXRR		Max. relative record number
36	24	4	AMDPARDB		Pointer to first ARDB

ACCESS METHOD DATA STATISTICS BLOCK (AMDSB) (...Continued)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
40	28	1	AMDATTR3		Attributes
			AMDUNQ	X'80'	0=unique; 1=non-unique
				X'40'	Reserved
				X'20'	Reserved
				X'10'	Reserved
				X'08'	Reserved
				X'04'	Reserved
				X'02'	Reserved
				X'01'	Reserved
41	29	3			Reserved
44	2C	4			Reserved
					Statistics
48	30	4	AMDSTAT		Statistics
48	30	8	AMDSTMST		System time stamp
48	30	8	AMDSTSP		System time stamp
56	38	2	AMDNIL		Number of index levels
58	3A	2	AMDNEDB		Number of EDBs
58	3A	2	AMDNEXT		Number of extents in the data set
60	3C	4	AMDNLR		Number of user-supplied (logical) records in the data set
64	40	4	AMDDELR		Number of deleted records
68	44	4	AMDIREC		Number of inserted records
72	48	4	AMDUPR		Number of updated records
76	4C	4	AMDRETR		Number of retrieved records
80	50	4	AMDASPA		Number of bytes of free space in the data set
84	54	4	AMDNCIS		Number of times a control interval was split
88	58	4	AMDNCAS		Number of times a control area was split
92	5C	4	AMDEXCP		Number of times EXCP was issued by VSAM I/O routines
			AMDCOMM		
					General Continue
96	60	1	AMDSHOPT		Share option byte
			AMDSHR1	X'80'	Share option 1
			AMDSHR2	X'40'	Share option 2
			AMDSHR3	X'20'	Share option 3
			AMDSHR4	X'10'	Share option 4
97	61	4	AMDCDSN		Pointer to catalog ACB
101	65	3	AMDDSN		Catalog control interval number for data (index)
104	68	4	AMDHWRBA		High-water RBA for the data set

ACCESS METHOD DATA STATISTICS BLOCK (AMDSB) (...Continued)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
108	6C	1	AMDATTR2		Attributes (second byte):
			AMDREL	X'80'	Release unused space
			AMDLOAD	X'40'	Load mode
			AMDSPEED	X'20'	Speed option
			AMDINDX	X'10'	Index option
			AMDSHR	X'08'	Sharing
			AMDKR	X'04'	Key-range processing, duplicate of AMDRANGE
			AMDCAT	X'01'	AMDSB for catalog
109	6D	.1	AMDACT		AMDSB test and set byte
110	6E	..2	AMDFILT		User area (ISAM compatibility)
112	70	4	AMDPVOL		Pointer to volume list
116	74	1	AMDAMS		AMS flag byte
			AMDAIX	X'80'	Alternate index
			AMDPATH	X'40'	Access via path
			AMDBASE	X'20'	Access via base
117	75	1			Reserved
118	76	2	AMDAIRKP		AIX relative key position
					Local Statistics
120	78	4	AMDLSTAT		Local statistics
		2	AMDLNIL		Local number of index levels
122	7A	..2	AMDLNEST		Local number of entries in the index section
124	7C	4	AMDLNLR		Local number of user-supplied (logical) records
128	80	4	AMDLDELR		Local number of deleted records
132	84	4	AMDLIREC		Local number of inserted records
136	88	4	AMDLUPR		Local number of updated records
140	8C	4	AMDLRETR		Local number of retrieved records
144	90	4	AMDLASPA		Local bytes of free space
148	94	4	AMDLNCIS		Local number of control interval splits
152	98	4	AMDLNCAS		Local number of control area splits
156	9C	4	AMDLEXCP		Local number of EXCPs issued by VSAM I/O routines
					Exceptional Exit
160	A0	8	AMDEXEXT		Exception exit

ACCESS METHOD DATA STATISTICS BLOCK (AMDSB) (...Continued)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
					Buffer Management Information
168	A8	2	AMDBCBNO		Number of buffers
170	AA	2	AMDBFREE		Number of unassigned buffers
172	AC	4	AMDFSBCB		Address of the first BCB *
176	B0	4	AMDFFBCB		Address of the first free BCB
180	B4	4	AMDCCWA		Pointer to CCW build area
184	B8	8			Reserved
					EDB Header
192	C0	4	AMDFSEDB		Address of first EDB
196	C4	2			Reserved
198	C6	..2	AMDLEDB		Length of EDB

* For LSR: Address of the BSPH.

ACCESS METHOD DEFINE THE FILE (AMDTF) TABLE

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	72	SAVARPP		Used to store register contents of problem program
72	48	72	SAVARCI		ISAM interface program save area
144	90	4	ACBAD		Address of ACB (Used by IIPOPEN to open the ACB)
148	94	4		X'0A020000'	SVC 2
152	98	4	RPLAD		Address of RPL
156	9C		EREPL		Error exit parameter list
156	9C	4	DTFISAD		Address of DTFIS
160	A0	4	EPLRECAD		Address of record in error (not supported by IIP)
164	A4	8	EPLDASDA		DASD address of record in error (not supported by IIP)
172	AC	1	EPLRECID		Record identification
			EPLRECID	X'80'	Data record (VSAM data set)
			EPLXREC	X'40'	Index record (VSAM sequence set)
			EPLCXREC	X'20'	Cylinder index record (VSAM index set)
			EPLMXREC	X'10'	Master index record (VSAM index set)
			EPLREAD	X'02'	Read
			EPLWRITE	X'01'	Write
173	AD	1	EPLCMNDC	X'00'	Command code of failing CCW (not supported by IIP)
174	AE	2			UNUSED
176	B0		GENACB		GENCB information to generate the ACB
176	B0	4	GACBHAD		Address of header
180	B4	4	MACRFEAD		Address of MACRF element
184	B8	4	FILENEAD		Address of filename element
188	BC		GACBH		Header
188	BC	1	GACBBTC	X'A0'	Block-type code (ACB)
189	BD	1	GACBFTC	X'01'	Function-type code (GENCB)
190	BE	2	GACBNOC	X'0001'	Number of copies (1 copy)
192	C0	4	GACBWAAD		Address of work area set to 0; VSAM obtains space via GETVIS
196	C4	4	GACBWALN		Length of work area

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
200	C8		MACRFEL		MACRF element
200	C8	4	MACRFKTC	X'00120000'	Keyword-type code
204	CC	4	MACRFVAL		Value supplied by IIPOPEN
208	D0		FNAMEEL		File name (DDname) element
208	D0	4	FNAMEKTC	X'00090000'	Keyword-type code
212	D4	8	FNAMEACB		File name (inserted by IIPOPEN)
220	DC		GENRPL		GENCB information to generate the RPL
220	DC	4	GRPLHAD		Address of header
224	E0	4	ARLNEAD		Address of AREALEN element
228	E4	4	ACBEAD		Address of ACB element
232	E8	4	KEYLNEAD		Address of KEYLEN element
236	EC	4	RECLNEAD		Address of RECLEN element
240	F0		GRPLH		Header
240	F0	1	GRPLBTC	X'C0'	Block-type code (RPL)
241	F1	1	GRPLFTC	X'01'	Function-type code (GENCB)
242	F2	2	GRPLNOC	X'0001'	Number of copies (1 copy)
244	F4	4	GRPLWAAD		Address of work area set to 0; VSAM obtains space via GETVIS
248	F8	4	GRPLWALN		Length of work area set to 0
252	FC		ARLNEL		AREALEN element
252	FC	4	ARLNKTC	X'002D0000'	Keyword-type code
256	100	4	ARLNVAL		Area Length
260	104		ACBEL		ACB element
260	104	4	ACBKTC	X'002B0000'	Keyword-type code
264	108	4	ACBADI		Address of ACB
268	10C		KEYLNEL		KEYLEN element
268	10C	4	KEYLNKTC	X'00300000'	Keyword-type code
272	110	4	KEYLNVAL		Key length
276	114		RECLNEL		RECORDLEN element
276	114	4	RECLNKTC	X'00350000'	Keyword-type code
280	118	4	RECLNVAL		Record length
284	11C		SHOWCB		Information to show ACB or RPL
284	11C	4	SHHAD		Address of header
288	120	4	SHEAD		Address of element
292	124		SHH		Header
292	124	1	SHBTC	X'00'	Block-type code
293	125	1	SHFTC	X'03'	Function-type code (SHOWCB)
294	126	2	SHOTC	X'0000'	Object-type code
296	128	4	SHBAD		Address of block to be shown

ACCESS METHOD DEFINE THE FILE (AMDTF) TABLE (....Cont'd)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
300	12C	4	SHARAD		Address of area
304	130	4	SHARLN		Length of area
308	134	4	SHAR		Area where information is to be placed
312	138		SHEL		Element
312	138	4	SHKTC		Keyword-type code (set by IIP)
316	13C		MODRPL		MODCB information to modify the RPL
316	13C	4	MRPLHAD		Address of header
320	140	4	OPTCDEAD		Address of OPTCD element
324	144	4	AREAEAD		Address of AREA element
328	148	4	ARGEAD		Address of ARG element
332	14C		MRPLH		Header
332	14C	1	MRPLBTC	X'C0'	Block-type code (RPL)
333	14D	1	MRPLFTC	X'02'	Function-type code (MODCB)
334	14E	2			UNUSED
336	150	4	MRPLBAD		Address of block to be modified (supplied by IIPOPEN)
340	154		OPTCDEL		OPTCD element
340	154	4	OPTCDKTC	X'00340000'	Keyword-type code
344	158	4	OPTCDVAL		Bit pattern (supplied by IIP)
348	15C		AREAEL		AREA element
348	15C	4	AREAKTC	X'002C0000'	Keyword-type code
352	160	4	AREAAD		Address of area (supplied by IIP)
356	164		ARGEL		ARG element
356	164	4	ARGKTC	X'002E0000'	Keyword-type code
360	168	4	ARGAD		Address of ARG parameter (supplied by IIP)
364	16C		MSGOUT		Header
364	16C	16	MSCCB		CCB
380	17C	4			Zeros
384	180	8	MSCCW		CCW
392	188	6	ERRCDE		Error code of message
398	18E	5	ISAMCM		'ISAM'
403	193	9	ISCM		ISAM command area
412	19C	5	VSAMCM		'VSAM'
417	1A1	9	VCCM		VSAM command area
426	1AA	4	CRCM		'RC='
430	1AE	5	CRC1		Return code area
435	1B3	20	SHOWCBF		Area if SHOWCB failed
455	1C7	5	CRC2		Return code from SHOWCB
460	1CC	4	CRSCM		'EC='
464	1D0	4	CRSC		Error code area
468	1D4	1	BRKT		Closing bracket

ADDRESS RANGE DEFINITION BLOCK (ARDB)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	ARDID	X'AD'	Control block identifier
1	1	1	ARDTYPE		Identifies the type of space defined by the ARDB:
			ARDKR	X'80'	One key range of a key-range data set
			ARDHLI	X'40'	The total index of a key-sequenced data set that does not have the sequence set with the data, or The non-sequence set levels of a key-sequenced data set's index, when the sequence set is stored with the data
			ARDSS	X'20'	The sequence set of a key-sequenced data set, when the sequence set is stored with data
			ARDUOVFL	X'10'	Use overflow volumes for this key
			ARDEOD	X'08'	End of data ARDB
			ARDLGCC	X'04'	Device contains more than 256 cylinders
2	2	2	ARDLEN		Length of the ARDB
4	4	1	ARDPRF	X'80'	Address range definition preformat byte (this byte is a literal copy of the catalog byte called ITYPEXT)
			ARDPRFMT	X'40'	No preformat done indication
5	5	3			Reserved
8	8	4	ARDNPTR		Address of the next ARDB in the ARDB chain
12	C	4	ARDHRBA		The RBA of the next free-space control interval at the end of the data set (RBA of VSAM SEOF)
16	10	4	ARDEDBA		Pointer to the active EDB
20	14	4	ARDPREL		Pointer to related ARDB
24	18	4	ARDERBA		The RBA of the highest control interval allocated to the key range

ADDRESS RANGE DEFINITION BLOCK (ARDB) (....Cont'd)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
28	1C	4	ARDPKEYS		Pointer to ARDKEYS
32	20	4	ARDHKRBA		The RBA of the data set control interval containing the key range's high-key value
36	24	2	ARDVOLNM		Number of volumes in list
The following ten-byte entry, called an ARDB volume group, repeats for each volume in this ARDB.					
38	26	10	ARDVOLGP		Volume serial (VOLSER) list
38	26	6	ARDVOLSR		The serial number of the volume containing the highest RBA allocated to the key range
44	2C	2	ARDRELRP		Catalog relative replication number
46	2E	2	ARDSYMU		Symbolic unit
46	2E	1	ARDSUCLS		Symbolic unit class
47	2F	1	ARDSUNUM		Symbolic unit number
Variable (after last volume group)		Variable	ARDKEYS		Space reserved for the key range's low and high key values. The length of this field equals twice the key length

BUFFER CONTROL BLOCK (BCB)

Displacement Dec	Hex	Bytes	Field Name	Hex Digit	Description
0	0	4	BUFNBCB		Address of the next BCB entry
4	4	4	BUFCBAD		Buffer address
8	8	20	BUFRIODR		Read I/O driver block
8	8	2	BUFCURRU		Read symbolic unit number
			BUFCURU		Current logical unit
10	A	2	BUFBKSTR		Number of physical blocks to read
12	C	8	BUFRSEEK		Computed DASD address for read
12	C	1	BUFRM		M
13	D	2	BUFRBB		BB
15	F	2	BUFRCC		CC
17	11	2	BUFRHH		HH
19	13	1	BUFRR		R
20	14	4	BUFCRRBA		RBA for the read
24	18	4	BUFRLPMB		Address of the read LPMB
28	1C	20	BUFWIODR		Write I/O driver block
28	1C	2	BUFCURWU		Write symbolic unit number
30	1E	10	BUFCKIN		Write check initialize area
30	1E	2	BUFBKSTW		Number of physical blocks to write
32	20	8	BUFWSEEK		Computed DASD address for write
32	20	1	BUFWM		M
33	21	2	BUF WBB		BB
35	23	2	BUFWCC		CC
37	25	2	BUFWHH		HH
39	27	1	BUFWR		R
40	28	4	BUFCWRBA		RBA for the write
44	2C	4	BUFWLPMB		Address of the write LPMB
48	30	2	BUFFLAG		Flag bytes
48	30	1	BUFFLAG1		Flag byte 1:
			BUFCMW	X'80'	Write indicator
			BUFCFMT	X'40'	Format write indicator
			BUFCRRD	X'20'	Read indicator
			BUFRDAHD	X'10'	Read ahead request
			BUFPFMT	X'08'	Format remainder of control area
			BUFCVAL	X'04'	Buffer contents are valid
			BUFSSRCD	X'02'	Buffer is a sequence set record
			BUFRES1	X'01'	Available
			BUFFLAG2		Flag byte 2 :
49	31	1	BUFALL2	X'FF'	All Bits in BUFFLAG2
			BUFALL1	X'FF'	All Bits in BUFFLAG1
			BUFIOS	X'E8'	BUFCMW + BUFCFMT + BUFCRRD + BUFPFMT
			BUFPURG1	X'80'	Purge - must write or read
			BUFPURG2	X'40'	Purge - format
			BUFRIXRD	X'20'	Replicated index read

BUFFER CONTROL BLOCK (BCB) (....Cont'd)

Displacement Dec	Hex	Bytes	Field Name	Hex Digit	Description
			BUFFREP	X'08'	Return buffer by REPBUF
			BUFWRINV	X'10'	Control interval was written - another string
			BUFRES2	X'07'	Available
50	32	10	BUFBKTWI		Write initialize area
50	32	2	BUFBKTCK		Number of physical blocks to check
52	34	8	BUFWCKSK		Computed DASD address for check (not used in release 1)
52	34	1	BUFCM		M
53	35	2	BUFCBB		BB
55	37	2	BUFCCC		CC
57	39	2	BUFCHH		HH
59	3B	1	BUFCR		R
60	3C	4	BUFVCCHH		CCHH for index read
60	3C	4	BUFVCCB		CCB address
64	40	1	BUFERFLG		I/O error indicator
			BUFERAL1	X'FC'	All Bits in BUFERFLG Minus: BUFEDSK BUFGENTCM
			BUFEIOER	X'80'	I/O error on buffer
			BUFESRCH	X'40'	I/O error on search ID
			BUFESEEK	X'20'	I/O error on seek
			BUFEREAD	X'10'	I/O error on read
			BUFEWRT	X'08'	I/O error on write
			BUFERBCK	X'04'	I/O error on readback check
			BUFENTCM	X'02'	I/O operation complete
			BUFEDSK	X'01'	2314 seek incorrect
65	41	1	BUFSTRID		String ID of this set of buffers
66	42	2	BUFCNOI		No. of blocks in control interval to process
68	44	4	BUFNABCB		Next BCB in AMDSB chain
BCB Extension for Local Shared Resources					
72	48	4	BUFMDBTS		Modification Mask (One Bit per Transaction-See BSPH)
76	4C	4	BUFUCHUP		Address of previous BCB in Chain
80	50	4	BUFUCHDN		Address of next BCB in Chain
84	54	4	BUFBSPH		Address of BSPH
88	58	2			RESERVED
90	5A	1	BUFFLAG3		RESERVED
91	5B	1	BUFUSE		Buffer use Byte (X'FF' = in use)
92	5C	7	BUFHDSID		Catalog's ACB Address//CI No of the Catalog Record for this Data on Index Component
99	63	1			RESERVED
100	64	4	BUFAMDSB		Pointer to AMDSB
104	68	4	BUFACB		Pointer to ACB

BUFFER HEADER (BHD)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	2	BHDNO		Number of buffers
2	2	2	BHDLEN		Length of control block
4	4	2	BHDRMAX		Maximum number of buffers available
6	6	2	BHDRMIN		Minimum number of buffers available
8	8	2	BHDBRC		Read-ahead count
10	A	1	BHDHFLAG		Buffer header flag 1
			BHDRAHOK	X'80'	Read-ahead OK flag
			BHDIXREP	X'40'	Replicated index read indicator
			BHDNSKD	X'08'	I/O with wait for no-schedule queue (BCBNSKDQ)
			BHDSKD	X'04'	I/O with wait for schedule queue (BCBSKDQ)
			BHDMVBCB	X'02'	Free buffer is a move
11	B	1	BHDFLAG		Buffer header flag 2
12	C	4			Reserved
16	10	4	BHD1STF		Address of chain of free buffers
20	14	4	BHDSKDQ		Address of BCB chain with I/O scheduled
24	18	4	BHDNSKDQ		Address of BCB chain with pending I/O
28	1C	4	BHD1STW		Address of first BCB requiring I/O
32	20	1	BHDID	X'77'	BHD identification
33	21	1			Reserved
34	22	2	BHDIOCNT		I/O count of no-schedule queue (BCBNSKDQ)
36	24	2	BHDWMIN		Write threshold
38	26	2	BHDTRACT		Temporary read-ahead count
40	28	2	BHDQNO		Number of BCBs on queues
42	2A	2			Reserved
44	2C	4	BHDCCHH		CCHH of last held control area
48	30	4	BHDCCBCH		CCB chain pointer

BLOCK POOL HEADER (BKPHD)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
0	0	2	BKPLENG		Length of the pool of blocks
2	2	2			Available
4	4		BKPHDECB		Control allocation of blocks
4	4	2			Not used
6	6	1	BKPHDCOM		Communications byte
			BKPHWAIT	X'80'	Wait flag
7	7	1	BKPHDTS		Test and set byte allocation
8	8	32	BKPHRSAV		Space for saving registers-steal
8	8	4	BKPHRS13		Save register 13, swap PLH
12	C	4	BKPHRS14		Save register 14 during steal
16	10	4			Save register 15 during steal BCB
20	14	4	BKPHRS00		Save register 0 during steal BCB
24	18	4	BKPHRS01		Save register 1
28	1C	4			Save register 2
32	20	4			Save register 3
36	24	4			Save register 4
40	28	4	BKPHDBHD		Save data buffer header-steal
44	2C	4	BKPHIBHD		Save index buffer header - steal
48	30	4	BKPSPCHN		Address of next area of blocks
52	34	4	BKPERCCB		Address of CCB chain of errors (first error CCB in VSAM error queue
56	38	4	BKPFSTBK		Address of first avail. blocks
60	3C	4	BKPSTECB		ECB-steal BCB, other string
60	3C	2			Available
62	3E	1	BKPSTCOM		Communications byte
			BKPSWAIT	X'80'	Wait flag
63	3F	1	BKPSTTS		Test and set block

BLDVRP Parameter List (VRPPL)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
0	0	4	VRPBFLST		Address of buffer list
4	4	1	VRPKEYLN		Maximum keylength in VSAM Resource Pool
5	5	1	VRPSTRNO		String number of VSAM Resource Pool
6	6	6			Reserved
		VRP Buffer List			
The following 8 bytes are repeated for each subpool specified.					
12	C	4	VRPBFSZE		Size of buffers in subpool
16	10	1	VRPBFIND		Indicator byte
			VRPBLEND	X'80'	End of buffer list
17	11	1			Reserved
18	12	2	VRPBFCNT		Number of buffers in subpool

Buffer Subpool Header(BSPH')

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	BSPHID	X'72'	Control block identifier
1	1	1			Reserved
2	2	2	BSPHLEN		Length of BSPH
4	4	4	BSPHNM		Name BSPH
8	8	4	BSPHNBSP		Pointer to next BSPH in pool
12	C	2	BSPHBFNO		Number of buffers in this subpool
14	E	2			Reserved
16	10	4	BSPHMDBN		Number of modified buffers in this subpool
20	14	4	BSPHFRBN		Number of free buffers in this subpool
24	18	4	BSPHBCB		Address of first BCB in the subpool
28	1C	4	BSPHMDBT	32-BIT	Modification Mask. Each bit correspond to a transaction which has modified the buffer
32	20	4	BSPHBSZ		Length of each buffer in this subpool
36	24	4	BSPHCPLH		Address of the PLH currently in control of the BSPH
40	28	16			Reserved
56	38	4	BSPHUTOP		Pointer to the top of the use chain*
60	3C	4	BSPHUBTM		Pointer to the bottom of the use chain*
64	40	4	BSPHIST		Address of the first BSPH in the buffer pool
68	44	2	BSPHECB		Control bytes for changing use chain
70	46	1	BSPHCOM		Communications byte
			BSPHWAIT	X'80'	Wait flag
71	47	1	BSPHTS		Mask byte for test and set

* The use chain is a chain of all BCBs in the subpool. The least recently used BCB is at the bottom of the chain and the most recently used BCB is at the top.

CATALOG AUXILIARY WORK AREA (CAXWA)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
0	0	1	CAXID	Control Block identifier X"CA"
1	1	3		Reserved
4	4	4	CAXCHN	Address of the next CAXWA in the chain
8	8	1	CAXFLGS	Flags:
		1...	CAXBLD	Build request
		.1..	CAXOPN	The catalog is being opened
		..1.	CAXCLS	The catalog is being closed
		...1	CAXEOV	An end-of-volume routine is in control
		.... 1...	CAXCMP	Open /Close/EOV processing is
		.... .1..	CAXMCT	1=Master Catalog 0=User catalog
		.... ..1.	CAXCMR	Catalog management has been called by a catalog management routine
		1	CAXSCR	Reserved for OS
9	9	1	CAXFLG2	Flags:
		1...	CAXF2DT	The catalog has been deleted
		.1..	CAXF2NDD	No DLBL file name found
		..1.	CAXF2CCR	0=CCR needs to be read 1=CCR has been read
		...1	CAXF2CRA	CAXWA for CRA
		.... 1...	CAXF2REC	Recoverable catalog
		.... .1..	CAXF2EOV	End of volume flag
		.... ..x.		Reserved
		1	CAXF2CA	Free CAXWA if error
10	A	1		Reserved for OS
11	B	1	CAXACT	Catalog activity count
12	C	4	CAXATIOT	Reserved for OS
16	10	4	CAXSCHWA	Reserved for OS
20	14	4	CAXDRWP	Address of the catalog's DRWA
24	18	4	CAXACB	Address of the catalog's ACB
24	18	4	CAXCRACB	Address of CRA (ACB)
28	1C	4	CAXUCB	Address of the COMREG
32	20	12	CAXCCR	Catalog control record information
32	20	3	CAXHACI	Catalog interval number of the highest allocated control interval in the catalog
35	23	3	CAXNFCI	Control interval number of the next free control interval in the catalog
38	26	3	CAXCDCI	Number of deleted control intervals
41	29	3	CAXFDCI	Control interval number of the first deleted control interval in the catalog
44	2C	2		Reserved
46	2E	2	CAXRPLCT	Number of RPLs associated with the CAXWA
48	30	4	CAXRPL	Address of the first RPL in the CAXWA's RPL chain
52	34	44	CAXCNAM	Catalog name
96	60	4	CAXOPLST	Open/Close paramater list :
96	60	1	COPTS	Option flags:
		1...	CENLST	End-of-list indicator
		.xxx xxxx		Reserved
97	61	3	COPACB	Address of the catalog's ACB

CATALOG AUXILIARY WORK AREA (CAXWA) (...Continued)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
100	64	4	CAXOPEWA	Reserved for OS
104	68	4	CAXCCA	Address of the CCA
108	6C	4	CAXJDE	Reserved for OS
112	70	4	CAXCAT	Address of the catalog's ACB associated with CRA
115	74	6	CAXVOLCR	Volume serial of CRA volume
112	7A	2	CAXSYSCR	SYS-number of CRA volume
124	7C	6	CAXVOLRM	Volume Serial of REM volume
130	82	2	CAXSYSRM	SYS-number of REM volume
132	84	6	CAXOCPAR	O/C parameter list
132	84	4	CAXOCACB	ACB address
136	88	2	CAXOCEOL	End of list indicator (X'0A02')

CATALOG COMMUNICATIONS AREA (CCA)

Displacement Dec	Displacement Hex	Bytes and Bit Pattern	Field Name	Description
0	0	2	CCAID	Identifier - set to X'ACCA'
2	2	2	CCASZ	Size
4	4	1	CCACD1	Return code 1
5	5	1	CCACD2	Return code 2
6	6	1	CCAFLG1	Flag byte 1:
		1...	CCAF1LPS	Stop the loop
		.1..	CCAF1ARA	Assign RPL to ARA
		..1.	CCAF1LRD	Catalog control record read into virtual storage
		...1	CCAF1KEY	Retrieve the catalog record based on a DSNAME value
		.... 0...		Retrieve by CI number
		.... 1...	CCAF1KGE	Retrieve the next catalog record
		.... .1..	CCAF1CR	A checkpoint of the CCR is required
		.... ..1.	CCAF1UP	GET macro instruction issued for update
		1	CCAF1DK	When the caller is renaming a data set, this flag indicates that the data set's true-name record is to be deleted, but the data set's catalog record is not to be deleted.
7	7	1	CCAFLG2	Flag byte 2:
		1...	CCAF2SYS	Reserved for OS
		.1..	CCAF2NVC	No validity check on the caller's CTGFL or work area is required
		..1.	CCAF2CCT	Single catalog search
		...1	CCAF2XEQ	Exclusive enqueue
		...0		Shared enqueue
		.... 1...	CCAF2RHS	When a catalog management routine calls the VSAM Open routines to open a newly created catalog, and the Open routines call VSAM Catalog Management routines to obtain information about the catalog to be opened, the situation is called a "recursive call". The catalog cannot be dequeued when the Catalog Management routines return to the caller (VSAM Open routines).
		.... .xx.	CCAF2COB	Combination of catalog open and build:
		.... .1..	CCAF2CO	Catalog is being opened
		.... ..1.	CCAF2CB	Reserved for OS
		1	CCAF2SMO	Search master catalog only
8	8	1	CCAFLG3	Flag byte 3:
		1...	CCAEXGR1	Exit indicator
		.1..	CCAGC4	The catalog record contains a password group occurrence (identified by Group Code 4) (detected during IGGPSCNC processing)
		..1.	CCAGDSP	GENDSP
		...1	CCAEXGR2	Exit indicator

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
		.... 1...	CCANF	The group occurrence cannot be found
		.... .1..	CCAELC2	Exit indicator
		.... ..1.	CCALFT	First time
		1	CCAEGREC	Exit indicator
9	9	1	CCAFLG4	Flag byte 4:
		1...	CCAF4DRQ	The catalog must be dequeued after the request completes
		.1..	CCAF4BYS	Bypass the security verification
		..1.	CCAGVNC	The required variable-length field is not completely contained in the record currently in the buffer
		...1	CCAGVNF	The group occurrence identified by the caller-specified sequence number cannot be found
		.... 1...	CCAGVNBS	There is no buffer space available to contain an extension record
		.... .1..	CCAGVEX	Exit indicator
		.... ..1.	CCAGVNE	The field does not exist in the located group occurrence
		1	CCATCOMP	Test complete : all group occurrence pointers have been examined and all designated fields have been tested
10	A	1	CCAFLG5	Flag byte 5:
		1...	CCAMEX2	Exit indicator
		.1..	CCAMEX	Exit indicator
		..1.	CCAMEX1	Exit indicator
		...1	CCAMODPA	The catalog record's base record must be written (using IGGPPAD) into the catalog
		.... 1...	CCATHIT	Successful test : a group occurrence has be found that satisfies the test conditions
		.... .1..	CCATEX	Exit indicator
		.... ..1.	CCATEX1	Exit indicator
		1	CCATEX2	Exit indicator
11	B	1	CCAFLG6	Flag byte 6:
		1...	CCAMCODR	The catalog must be dequeued when the request completes
		.1..	CCADELP	A deleted group occurrence pointer was found
		..1.	CCAMNOSP	The catalog record's free space isn't large enough to contain all the new catalog information during the group occurrence move operation
		...1	CCAINIT	Insert switch for variable-length field being retrieved
		.... 1...	CCASUPFD	Suppress password field information during field retrieval
		.... .1..	CCAREUSE	The contents of the caller's record areas (buffers) can be used by IGGPEXT and IGGPMOD

Displacement Dec	Displacement Hex	Bytes and Bit Pattern	Field Name	Description
		.... ..1.	CCAEXT	Set when a catalog management routine calls the Extract routine (IGGPEXT)
		1	CCAMOD	Set when a catalog management routine calls the Modify routine (IGGPMOD)
12	C	1	CCALBLEN	Count field in units of 128 bytes
13	D	3	CCALBCYL	Address field
16	10	4	CCADPL	Address of the DADSM parameter list
20	14	4	CCACPL	Address of the caller's CTGPL
24	18	4	CCAACB	Address of the catalog's ACB
28	1C	4	CCANPCCB	Address of next PCCB
32	20	4	CCAURAB	Address of the record area block (RAB) currently in use
36	24	44	CCASRCH	Search argument (DSNAME of a cluster, data, index, catalog, or non VSAM data set, or a volume serial number)
36	24	3	CCASRID	Control interval number
36	24	3	CCASRCIN	Control interval number
80	50	20	CCARAB0	Record Area Block 0: Each record area block describes the catalog record contained in one of the six catalog management buffers available for the request. RABs 1 through 5 are identical in format to RAB 0. Note: "x" in each field name is replaced by "0" through "5" to indicate a particular RAB's field.
80	50	1	CCARxFLG	Flags: The following flag is used by IGGPEXT and IGGPMOD:
		1...	CCARxUR	The RAB is in use. It cannot be used by IGGPEXT or IGGPMOD
		.1..	CCARxU1	The RAB is temporarily in use by IGGPEXT or IGGPMOD. It cannot be overlaid
		..1.	CCARxU2	(Same as CCARxU1)
		...1	CCARxWR	The buffer must be written before another catalog record can be read into it
		.... 1...	CCARxPA	The buffer contains a new catalog record - PUT-add is required to add the record to the catalog
		.... .xx.		Reserved
		1	CCARxUPD	Update buffer not reused
81	51	1	CCARxRPL	Last assign, RPL index
82	52	2		Reserved
84	54	4	CCACPEIX	Address of the record in the buffer
88	58	12	CCARxSEG	Addresses of segments

Displacement Dec	Displacement Hex	Bytes and Bit Pattern	Field Name	Description
88	58	4	CCACPE2x	Address of the first byte after the fixed-length header fields
92	5C	4	CCACPE3x	Address of the first group occurrence
96	60	4	CCACPE4x	Address of the first free-space byte in the record
100	64	20	CCARAB1	Record Area Block 1 (See RAB 0 description)
120	78	20	CCARAB2	Record Area Block 2 (See RAB 0 description)
140	8C	20	CCARAB3	Record Area Block 3 (See RAB 0 description)
160	A0	20	CCARAB4	Record Area Block 4 (See RAB 0 description)
180	B4	20	CCARAB5	Record Area Block 5 (See RAB 0 description)
200	C8	1	CCARPLK	Assigned RPL count
201	C9	1	CCARPLF	Index to RPL found
202	CA	1	CCARPLX	Work byte for ARPL, RPLM
202	CA	1	LPINDX	Loop indexing control (counter)
202	CA	1	CCARPLX	Work byte for catalog RPL (mult.-use)
202	CA	1	XIOOPT	I/O options
		1...	XIOGET	1=GET, 0=PUT
		.1..	XIOERS	ERASE
		..1.	XIOARA	1=auxiliary record area required 0=user record area required
		...1	XIOKEY	1=keyed required 0=address required
		.... 1...	XIONUP	No update required
		.... .1..	XIONCK	No error check required
		.... ..1.	XIOTNE	1=true name entry 0=normal entry
		1	XIOKGE	GET NEXT (GET)
		1	XIOSEQ	PUT SEQ (PUT)
203	CB	1	CCARPLT	Work byte for ARPL, RPLM
204	CC	6	CCARPLAA	Indices to assigned RPLs
210	D2	2		Reserved
212	D4	4	CCARPL1	Address of the RPL in use
216	D8	132	CCADESA	Save area for the extent information returned by VSAM DADSM and Catalog Management : Suballocate
216	D8	1	CCANDEXT	Number of extents
217	D9	1	CCAIXEXT	Extent index value
218	DA	2	CCASSVOL	Sequence number of the data set directory entry in the volume catalog record
220	DC	128	CCAEXTDE	Sixteen 8-byte extent descriptors :
220	DC	2	CCAEXTSS	Sequence number of the Data Space group occurrence that this extent's space is a part of

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
222	DE	4	CCAEXTAD	The extent's starting physical address :
222	DE	2	CCAEXTCC	Cylinder number CC
224	E0	2	CCAEXTHH	Head number HH
226	E2	2	CCAEXTTH	Number of tracks in the extent
228	E4	120		Spale for remaining 15 extent descriptors
348	15C	1	CCAASCIK	Number of control intervals required to satisfy the caller's request
349	15D	1	CCACRRP	RPL used for reading CCR
350	15E	1	CCAASCIX	Used by the ASSIGN functions - points to the element in CCAASCI currently being processed
351	15F	1	CCASRPLX	Saved RPL flags
352	160	9	CCAASCI	Number of each assigned control interval
361	169	3	CCAUPGD	Control interval for UPG modification
364	16C	16	CCAEQDQ	Enqueue/Dequeue parameter list
364	16C	1	CCAEDXFF	End of parameter list, indicator byte =X'FF' (if list is empty)
365	16D	1	CCAEDRLN	Length of minor name
366	16E	1	CCAEDOPT	Enqueue/Dequeue Options
		1...	CCAEDSHR	1=Shared, 0=Exlusive
		.1..	CCARLSEB	Release control bit
		..xx xxxx		Other options (set by macro)
367	16F	1	CCAEDRCD	Enqueue/Dequeue return code
368	170	4	CCARTSAV	Save area for CCAMLRET
372	174	4	CCACOMRG	COMRG pointer
376	178	4	CCAEDUCB	Work area
380	17C	4	CCAMLRET	Address of the caller's save area used by IGG0CLAG
384	180	12	CCAMSSPL	GETVIS/FREEVIS parameter list area
384	180	4	CCAMNLEN	Number of bytes to process
388	184	4	CCAMNPTR	Address of the return address
392	188	1		Reserved for OS
393	189	1	CCAMNSPL	Reserved for OS
394	18A	2		Reserved for OS
396	18C	4	CCARPRM	Return parameters
400	190	8	CCACMS	Catalog Management Services work area
400	190	4	CCACMSWA	Address of the CMS calling routine's work area
404	194	4	CCAEXCMS	Address of a secondary CMS work area
The following fields are set and used by IGGPLOC, IGGPEXT, and IGGPTSTS, and catalog management subfunctions which these procedure call :				
408	198	0	CCALUME	
408	198	4	CCACPE5	Address of a selected group occurrence
412	19C	4	CCACPE51	(Same as CCACPE5)
416	1A0	4	CCACPE52	(Same as CCACPE5)
420	1A4	4	CCACPE53	(Same as CCACPE5)
424	1A8	4	CCACPE6	Address of a selected group occurrence
428	1AC	4	CCACPE61	(Same as CCAPE6)
			CCARABSE	Save extract caller URAB
432	1B0	4	CCACPE7	Address of field value
			CCAIDPT	Insert data address
436	1B4	4	CCACPE71	Alternate address to field value

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
440	1B8	2	CCAGOPLN	Length of the group occurrence pointer
442	1BA	2	CCASL	Length of sequence number field (RELREPN0) in the group occurrence
444	1BC	4	CCAILNG	Length of the selected retrieved field
448	1C0	4	CCAFLPT	Address of the requested-field CTGFL
			CCATFLPT	Address of the CTGFL-for-tests
452	1C4	4	CCARABPT	Address of the record area block
456	1C8	4	CCADICT	Dictionary information to describe the field, based on its field name
460	1CC	4	CCAXCPL	Address of the CTGPL built when
			CCAMCPL	IGGPEXT and IGGPMOD are called, so that information in the caller's CTGPL is not altered
464	1D0	4	CCARABB	Address of the RAB that identifies the base catalog record
468	1D4	4	CCARABF	Address of the RAB that identifies the first record area (buffer) that can be used by IGGPEXT or IGGPMOD
472	1D8	4	CCARABL	Address of the RAB that identifies the last record area (buffer) that can be used by IGGPEXT or IGGPMOD
476	1DC	3	CCACBASE	The control interval number of the base catalog record
479	1DF	1	CCAGC	Group code of the requested group occurrence
480	1E0	2	CCALREL	Relative repetition number of a selecte
			CCALREL1	group occurrence
482	1E2	2	CCASN	Sequence number of a selected group
			CCASN1	occurrence
484	1E4	1	CCAFLG8	CRA flags
		1...	CCARPUT	Inhibit CRA PUT
		.1..	CCALSTC	List cat request
		..1.	CCAEXTCR	Extend CRA in process
		...1	CCABLDCR	Open request for CRA build
		.... 1...	CCASPUCO	Special UCAT
		.... .1..	CCASCAX	1=CRA CAXWA search; 0= UCAT CAXWA search
		.... ..1.	CCAUPG	1=upgrade ; 0=no upgrade
		1	CCABUF	Output buffering flag
485	1E5	1	CCAFLGA	More flags
		1...	CCAUPGRR	RAB1 to be restored by upgrade module
		.1..	CCARGET	Get record for compare before update CRA
		..1.	CCALBFVT	1=Multiple file parameter search at define
		...1	CCACCARD	Indicate CCR for CRA has been reached
		.... 1...	CCAF1LSV	Save indicator flag CCAF1LRD
		.... .1..	CCACANIN	Cancel inhibit
		xx		Reserved
486	1E6	2	CCAIXFPL	Index to the current CTGFL being processed
488	1E8	2	CCAIXREL	Index for CCATREL
490	1EA	2	CCATNREL	The sequence number of the next group occurrence to perform tests against if CCATREL is full or if there are no buffers available to contain the catalog record's next extension

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
492	1EC	2	CCATNUM	Number of successful relative repetition numbers (cannot exceed 16)
494	1EE	32	CCATREL	Successful relative repetition numbers
526	20E	2	CCATNO	Total number of successful relative repetition numbers (might exceed 16)
528	210	4	CCATEST	Address of the test CTGFL
532	214	20	CCARBA	Work area for extent descriptors
532	214	2	CCASS	Sequence number of the Data Space group occurrence that contains the extent
534	216	4	CCACCHH1	Physical address -CCHH - of the extent's first track
538	21A	4	CCACCHH2	Physical address -CCHH - of the extent's last track
542	21E	2	CCATT	Number of tracks in the extent
544	220	4	CCARBA1	Low relative byte address (RBA)
548	224	4	CCARBA2	High relative byte address (RBA)
552	228	2	CCATLNG CCATLEN	Total length of the extent information that has been processed (CCATLNG); total length of the scanned field so far (CCATLEN)
554	22A	2	CCARBAL	RBA extent balance
556	22C	2	CCACNIX	Combination name index
558	22E	2	CCAREASN	Reason code
560	230	4	CCAIDPT2	Address of the available space in the caller's work area or of the caller-supplied update information
564	234	4	CCAIDPT3 CCARABSM	Address of the length-field of a variable length field in the user's return area
568	238	2	CCAGVCT	Number of group occurrence pointers processed so far
570	23A	2	CCANEVV	If the requested variable-length field is non-extent, this field is set to binary zero
572	23C	3	CCAGVEXT	Control interval number of the record's next extension record (not yet in a buffer)
575	23F	1	CCANEFV	If the requested fixed-length field is non-extent, this byte is set to X"FF".
576	240	1		Reserved
577	241	1	CCAGRGC	Group code of the requested group occurrence
578	242	2	CCAGRH1 CCAGRH11	High relative repetition number
580	244	2	CCAIXTPL	Index to test FPL
582	246	2	CCADLEN	Number of bytes to be deleted from the catalog record
584	248	2	CCADIFF	The difference between the insert length and the delete length (can be a negative number)
586	24A	2	CCAREPCT	Number of relative repetition numbers processed so far
588	24C	2	CCADISP	Displacement into variable-length field to the delete/insert location
590	24E	3	CCASVCI	Save area for the control interval number of the base catalog record
593	251	3	CCASVCI1	Save area for the control interval number

Displacement Dec	Displacement Hex	Bytes and Bit Pattern	Field Name	Description
596	254	4	CCADTA	Address of the dictionary
600	258	4	CCACDTA	Address of the index combination table
604	25C	2	CCADTCT	Number of dictionary entries
606	25E	2	CCACDTCT	Number of index combination entries
608	260	4	CCACWAP	Controller work area
612	264	4	CCAMNADR	Address of the virtual storage obtained by a GETVIS request
616	268	4	CCAILNG3	Save area for the insertion length
620	26C	4	CCAILNG2	Length of the user-supplied insert data
624	270	4	CCAALPTR	Address of the space management work area
628	274	4		Reserved
632	278	4	CCALCPL	Reserved for OS
636	27C	1	CCAFLG7	Flags:
		1...	CCALSP	Reserved for OS
		.1..	CCANRLSE	Release Control Bit
		..1.	CCACKDEL	Delete switch
		...1	CCASMFBR	Do GET for base record
		.... 1...	CCAONCE	Move only one occurrence
		.... .1..	CCAROREQ	Read only request
		.... ..1.	CCAFEOV	Force EOV
		1	CCAEQOPN	Enqueued on SYSOPEN
637	27D	3	CCARCI	CRA Record control interval number
640	280	4	CCALABSV	Saved address of IKQLAB area
644	284	4	CCARABSV	Saved address of RAB
648	288	2	CCAMODUL	Module name
650	28A	3	CCACHAIN	Control interval number save area
653	28D	3	CCACI1	Control interval number save are
656	290	3	CCACI2	(Same as CCACI1)
659	293	3	CCACI3	(Same as CCACI1)
662	296	2	CCAVARLN	Number of bytes to be inserted into the record
664	298	4	CCARRAB	Address of the RAB containing the group occurrence pointers where delete/insert processing is to begin
668	29C	4	CCARBASE	(Same as CCARRAB)
672	2A0	4	CCAVARPT	Address of the information to be inserted into the record
676	2A4	2	CCADELN	Number of bytes to be deleted from the record
678	2A6	20	CCAVAR	Insert information save area
698	2BA	20	CCAVAR1	(Same as CCAVAR)
718	2CE	3	CCADEL1	The control interval number of the first record in a series of records to be deleted
721	2D1	3	CCADEL2	The control interval number of the last record in a series of records to be deleted
724	2D4	40	CCAXLATE	Translation work area
764	2FC	4	CCAR14S	Register 14 save area
			CCABMINP	Input parameters to IGG0CLBR
768	300	2	CCABMTRK	Starting track
770	302	2	CCABMLIM	Check limit, nn for set
772	304	2	CCABMMIN	Conditional check minimum
774	306	1	CCABMFLG	State and function code

Displacement Dec	Displacement Hex	Bytes and Bit Pattern	Field Name	Description
		1...	CCABMST	This bit can be 0 or 1 and is the state for which an extent is to be checked (if bit 1 is on) or the state to which a map bit is to be set (if bit 2 is on).
		.1..	CCABMCHK	ON-Perform check
		..1.	CCABMSET	ON-Perform set
		...1	CCABMCCK	ON-Perform condition check
		.... 1...	CCABMLST	ON-Last set request (write)
		xxx		Reserved
775	307	1		Reserved
776	308	0	CCABMOUT	Output parameters from IGG0CLBR
776	308	2	CCABMONN	Track number
778	30A	2	CCABMOTR	Starting track
780	30C	1	CCABMOFG	Output flags
		1...	CCABMOST	State of bits
		.xxx xxxx		Reserved
781	30D	6	CCAVOLCR	CRA volume identification
787	313	1	CCABMPAD	Padding character
788	314	4	CCABMGOP	Current bit mask GOP
792	318	4	CCABMPTR	Address of current bit mask byte
796	31C	4	CCABMEND	End of current bit mask
800	320	2	CCABMBT1	Bit count, first byte
802	322	2	CCABMBTL	Bit count, last byte
804	324	2	CCABMBYT	Number of full bytes
806	326	2	CCABMSTR	Current bit mask, start track
808	328	4	CCABMWK1	Work field
812	32C	4	CCABMWK2	Work field
816	330	4	CCABMWK3	Work field
820	334	4	CCABMWK4	Work field
824	338	4	CCABMRB1	Address of first bit map RAB
828	33C	4	CCABMRB2	Address of second RAB
832	340	4	CCACARWA	Address of CRA definition work area
836	344	4	CCACRABF	Address of CRA buffer
840	348	4	CCASACB	Address of saved CCA, ACB field
844	34C	4	CCAEXC	Save address for CCA ACB
848	350	4	CCASRPL	Address of saved CCA, RPL field
852	354	4	CCAADBUF	Address of cluster record buffer, cluster record saved until CRA volume known
856	358	4	CCASCAXS	Address of search argument for CAXWA chain search
860	35C	4	CCASCAXA	Address of found CAXWA
864	360	4	CCADEVT	CRA volume device type
868	364	8	CCANMF1	Name field of variable open resource
876	36C	8	CCANMF2	Name field of variable open resource
884	374	8	CCANMF3	Name field of variable open resource
The following two fields are used by the no-upgrade/upgrade function, called by ALTER, DEFINE or DELETE				
892	37C	3	CCAXDCI	AIX data control interval number
895	37F	3	CCAXICI	AIX index control interval number
898	382	1	CCACATIN	CLAH indicator
899	383	1		Reserved
900	384	4	CCACOPTR	CLCO work area
904	388	4	CCADEVA	Address of device character return area
908	38C	4	CCAFARE	Address of file identification

CATALOG COMMUNICATIONS AREA (CCA) (...Cont'd)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
912	390	4	CCAAREA	Pointer to address of label record area
916	394	2	CCAMDSAV	Save area for CCA module
918	396	2	CCARSSAV	Save area for CCA
920	398	40	CCATEMPS	Temporary area for PLS
960	3C0	348	CCAREGS	Save area for registers
960	3C0	4		Address of user save area
964	3C4	8	CCAMODNM	Load module name
1308	51C	0	CCAEND	End CCA

CONTROL INTERVAL WORK AREA (CIW)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
		Register Save Area for IKQCIS		
0	0	48	CIWAVE	Register save area (12 Reg.)
0	0	4	CIWAVR14	Register 14
4	4	4	CIWAVR15	Register 15
8	8	4	CIWAVR0	Register 0
12	C	4	CIWAVR1	Register 1, RDF shift count on entry
16	10	4	CIWAVR2	Register 2, RDF modification offset
20	14	4	CIWAVR3	Register 3, RDF data work area
24	18	24		Reserved
48	30	4	CIWLNGTH	Length of work area
		Space Manager Save Area		
52	34	4	CIWSPA14	Register 14
56	38	4	CIWSPA15	Register 15
60	3C	4	CIWSPA03	Register 3
		IKQPFO Work Area		
64	40	4	CIWPFO14	Register 14
68	44	4	CIWPFO00	Register 0
72	48	4	CIWPFO01	Register 1
76	4C	4	CIWPFO02	Register 2
80	50	4	CIWPFO03	Register 3
84	54	4	CIWPFO04	Register 4
88	58	4	CIWACB	ACB pointer for TCLOSE call
92	5C	2	CIWSVC	SVC2 in TCLOSE call list
94	5E	2		UNUSED
		IKQRRP Work Area The work area for IKQRRP overlays the work area for IKQPFO		
64	40	4	CIWRRP14	Register 14
68	44	4	CIWRRP00	Register 0
72	48	4	CIWRRP01	Register 1
76	4C	4	CIWRRP02	Register 2
80	50	4	CIWRRP03	Register 3
84	54	4	CIWRRBA	Beginning of RBA in extent
88	58	4	CIWRRPLN	Preformat length
92	5C	2	CIWRSEOF	SEOF indicator
94	5E	2		UNUSED
		IKQNCA Work Area		
96	60	4	CIWNEW14	Register 14
100	64	4	CIWNEW01	Register 1
104	68	4	CIWNEW03	Register 3

CONTROL INTERVAL WORK AREA (CIW) (...Continued)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
108	6C	4	CIWCARBA	Low RBA of data control area (new control area)
112	70	4	CIWCIRBA	Index RBA of old sequence set record
116	74	4	CIWNXRBA	Index RBA of new sequence set record
120	78	4	CIWDARDBB	Address of data ARDB
		IKQCAS Work Area		
124	7C	4	CIWCAS14	Register 14
128	80	4	CIWCAS03	Register 3
132	84	4	CIWHINEW	High section of new control area
136	88	4	CIWSPTR	Pointer save section
140	8C	4	CIWHIOLD	High section of old control area
144	90	4	CIWEPTR	Entry pointer
148	94	4	CIWAKEY	Address of key save area
152	98	2	CIWEINC	Entry increment bytes
154	9A	2	CIWSRR	Offset of last section from the high section of the new control area
156	9C	4	CIWXBUFA	Address of new index buffer

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
		IKQCIR Work Area Control Interval Space Reclamation Work Area The work area for IKQCIR overlays the work areas for IKQNCA and IKQCAS			
96	60	4	CIWCIR14		Register 14
100	64	4	CIWCIR09		Register 9
104	68	4	CIWCIR03		Register 3
108	6C	4	CIWSAVP		Free data of pointer save for control interval
112	70	1	CIWCIRSW		Switch byte
			CIWNEXT	X'80'	Position to next entry index
			CIWSPAN	X'40'	Spanned entry index
			CIWRECL	X'20'	Space reclamation index
			CIWNOSPL	X'10'	No control area split indicator
113	71		CIWXWRT	X'08'	Write index indicator
116	74	3			Reserved
113	71	12	CIWLASMD		IKQLASMD parameter list
116	74	1	CIWLID		Request type
			CIWLTST	X'04'	Test request
117	75	7	CIWLDSID		Data set identification
117	75	3	CIWLDSCI		Control interval number
120	78	4	CIWLACB		Pointer to catalog ACB
124	7C	1	CIWLSOPT		Share option
125	7D	1	CIWLFLG		Flag byte
			CIWLIN	X'80'	Input indicator
126	7E	2	CIWLOUT		Output count
128	80	8	CIWRES		Resource name field
136	88	24			UNUSED

CONTROL INTERVAL WORK AREA (CIW) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			IKQCIS Work Area		
160	A0	32	CIWCIWA		Copy of PLH work area
192	C0	4	CIWRCDCT		Record count save for move
196	C4	4	CIWMODPT		Pointer to modification point
200	C8	4	CIWFPTR		Next address
204	CC	4	CIWFRDF		Next RDF
208	D0	4	CIWTCIL		Total data length of control interval
212	D4	4	CIWCLNUP		RBA of control interval requires an update
216	D8	4	CIWDCRDB		Save of current ARDB pointer
220	DC	4	CIWNIRBA		RBA of new sequence set
225	E0	2	CIWOLDCT		Save of RDF count
226	E2	1	CIWFLAGS		Flags
			CIWNTWO	X'80'	Two control intervals are needed for this split
			CIWNCAS	X'40'	Control area split needed to continue
			CIWCASDN	X'20'	Control area split has been executed
			CIWUHKR	X'10'	ARDHKRBA requires update
			CIWCLN	X'08'	Control intervals written require clearing
			CIWCIR	X'04'	Space reclamation executed
227	E3	1			UNUSED
			IKQIXE Entry Stack		
228	E4	4	CIWENTRY		Index entry data stack
228	E4	12	CIWENT1		
228	E4	4	CIWRBA1		RBA to be put in entry
232	E8	4	CIWKADD1		Address of key
236	EC	2	CIWKL1		Length of key
238	EE	1	CIWFLG1		Flag byte
			CIWENTOK	X'81'	These two bits are used as indicator
			CIWINC	X'40'	Index record in core
			CIWSPLIT	X'20'	Split entry to be done
			CIWNOIO	X'10'	No execution of input/output yet (I/O is required)
239	EF	1	CIWIXLV1		Index level
240	F0	12	CIWENT2		Second stack position
240	F0	4	CIWRBA2		RBA
244	F4	4	CIWKADD2		Key pointer
248	F8	2	CIWKL2		Key length
250	FA	1	CIWFLG2		
251	FB	1	CIWIXLV2		Index level
252	FC	0	CIWSTKND		End of stack
252	FC	4	CIWEKEYA		Address of index enter key

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			Scratch Buffer Parameter List		
256	100	20	CIWDCNV		Scratch CI descriptor
256	100	4	CIWDRBA		Scratch control interval RBA
260	104	8	CIWDBUF		Buffer paramater list
260	104	4	CIWDBCB		Address of control block
264	108	4	CIWDBAD		Address of buffers
268	10C	4	CIWDCIDF		CIDF descriptor
268	10C	2	CIWDFSO		Free space offset
270	10E	2	CIWDFSL		Free space length
272	110	1	CIWDSW		Switch byte
273	111	1			Reserved
274	112	2	CIWDCSZ		Length of buffer - 10
			IKQIXE Work Area		
276	114	4	CIWIXEBA		Caller base save
280	118	4	CIWIXERT		Return register save
284	11C	4	CIWIXER0		Save GETVIS length
288	120	4	CIWIXER1		Save GETVIS address
			Work Area for Linkage from IKQCIS to IKQCAS		
292	124	4	CIWCILST		CI List for Multi-String CA Split
296	128	4	CIWCISR8		Register save for linkage return
			AMDSB Save Area for Updates to AMDSB Control Fields		
300	12C	4	CSXHLRBA		AMDHLRBA index
304	130	2	CSXNIL		AMDNIL index
306	132	2			UNUSED
			IXFORMAT Work Space		
308	134	4	CIWIXFBA		Save callers base
312	138	4	CIWIXFRT		Save return register
316	13C	4	CIWLSEP		Entry pointer for last section
320	140	4	CIWANLSE		Entry address for last section
324	144	4	CIWANLE		Last entry address
328	148	2	CIWKEYL		Length of current key
330	14A	2	CIWNLSEL		Length of last section key
332	14C	2	CIWNLEL		Length of last entry key
336	150	4	CIWXNSA		Address of next section
340	154	4	CIWXSOP		Offset pointer of last section
344	158	2	CIWFCNT		Format count
346	15A	2	CIWCINL		Control entry length
The following field must be of the same length as PLHWAREA					
348	15C	44	CIWAREA		Work area for RDF build
392	188	*	CIWKEY		Index work area

* Length = 5 x keylength

CLOSE WORK AREA (CLWAAD)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
0	0		WACOMMON	Common Open/Close work area
0	0	1	WAFLAG	Flag byte:
		1...	TCLOSE	Work Area for TCLOSE
		.1..	CLOSE	Work Area for Close
		..1.	OPEN	Work area for Open
		...1	OPAMDINX	Index AMDSB is being processed
		.... 1...	VOLFOUND	Volume serial number is in label cylinder record
		.... .1..	SSFLAG	Sequence set with data
		.... ..1.	RETRY	Catalog should be reupdated by Close
		1	FILEPROT	DOS Supervisor DASD file protect
1	1	1	WAERCODE	Error condition code
2	2	2	WALEN	Length of GETVIS area
4	4	4	WAPIBSV	Address of USERSAVE field
8	8	4	WALISTP	Address of user ACB/DTF list
12	C	2	WACOMR	Address of DOS communication region
14	E	1	EDBCODE	One GETVIS obtains enough space for 3 EDBs:this field is used to count EDBs
15	F	1		Reserved
16	10	4	CATEXTPT	Pointer to extent information in order to build EDBs
20	14	2	CATEXTLN	Length of total extents
22	16	2	EXTNUMB	Number of extents
24	18	80	USERSAVE	Room to save user jobname, PSW, and registers (from partition save area)
104	68	0	WORKAREA	Close work area
104	68	8	TIME	Time used to update catalog
112	70	4	RETREG1	Return address of savearea 1
116	74	4	RETREG2	Return address of savearea 2
120	78	0	PARM	Parameter list to be passed to IKQLASMD
120	78	1	CALLERID	Caller ID
121	79	0	DSID	Data set ID
121	79	3	DSCI	CI number
124	7C	4	CTACBPTR	Address of catalog ACB
128	80	1	SHAREOPT	Share option from catalog
129	81	1		Reserved
130	82	2	OUTCNT	Number of output users returned from IKQLASMD
132	84	1	BITBANK	Close flags
		1...	ENQACT	USE macro was issued
		.1..	ENQOPN	Enqueue on SYSOPEN
		..1.	UPDOPN	Need to update OPEN indicator
		...x xxxx		Reserved
133	85	1	SETOFLG	Byte of zero for resetting OPEN indicator
134	86	2		Reserved
136	88	0	CLAIXWA	AIX work area
136	88	4	ACBREQ	Address of ACB for which CLOSE/TCLOSE is requested
140	8C	4	ACBBASE	Address of base cluster ACB
144	90	4	USBADDR	Address of USB

CLOSE WORK AREA (CLWAAD) (CONT'D...)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
148	94	4	ACBCURR	Address of ACB currently being processed
152	98	4	RPLCURR	Address of header RPL
156	9C	1	AIXATTR	AIX attribute of current ACB
		1...	AIXUPGRD	Member of upgrade set but not path entry
		.1..	AIXBASE	Base ACB
		..1.	AIXENTRY	Path entry ACB
		...x xxxx		Reserved
157	9D	1	AIXPROC	Processing status
		1...	UPGD2	First member of upgrade set has been processed
		.xxx xxxx		Reserved
158	9E	2	CLMSGFLG	IKQOCMSG flags
160	A0	8	FTAB	Resource name field for protection of file tab
168	A8	8	CAT	Resource name field for protection of file tab
176	B0	4	USBCURR	Address of current USB ACB
180	B4	72	REGSAVE	Close register savearea
252	FC	72	CATSAVE	Catalog register savearea
324	144	0	CATDATA	Catalog data
324	144	4	CATLSTP	Address of catalog list
328	148	2	CATLSTSZ	Catalog list size
330	14A	2	CATWASIZ	Catalog work area size
332	14C	4	CATWAPTR	Address of catalog work area
336	150	0	CATWA	Catalog work area
336	150	52	DUMMYRPL	Dummy RPL
388	184	16	DUMMY234	Save area for registers 2--5
404	194	540	DUMMYPLH	Dummy PLH for LSR
944	3B0	64	DUMLSRA	LSR savearea
1008	3F0	52	DUMDBHD	Dummy data buffer header
1060	424	52	DUMIBHD	Dummy index buffer header

CATALOG PARAMETER LIST (CTGPL)

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
0	0	1	CTGOPTN1	First option indicator :
		1...	CTGBYPSS	Bypass the catalog management security verification processing
		.1..	CTGMAST	Check the master password
		..1.	CTGCI	Check the control interval password
		...1	CTGUPD	Check the update password
		.... 1...	CTGREAD	Check the read password
		.... .1..	CTGNAME	The CTGENT field contains the address of a 44-byte DSNAME, or a 6-byte volume serial number (padded with binary 0's)
		.... .0..		The CTGENT field contains the address of a 3-byte control interval number
		.... ..1.	CTGCNAME	The CTGCAT field contains the address of a 44-byte catalog DSNAME
		.... ..0.		The CTGCAT field contains the address of a VSAM catalog's ACB
		x		Reserved
1	1	1	CTGOPTN2	Second option indicator :
		1...	CTGEXT	Extend option (with UPDATE)
		.1..	CTGERASE	Erase option (with DELETE)
			CTGREL	Release (with UPDATE). Release secondary extents when data set is opened as reusable data set.
		..1.	CTGPURG	Purge option (with DELETE)
			CTGVMNT	Volume mount caller
		...1	CTGGTNXT	Get-next option (with LISTCAT)
		.... 1...	CTGDISC	Disconnect option (with DELETE)
		.... .1..	CTGOVRID	Erase override option (with DELETE)
		.... ..1.	CTGSCR	Scratch space option (with DELETE)
		x		Reserved
2	2	1	CTGOPTN3	Third option indicator :
		xxx.	CTGFUNC	Specifies the caller-requested function :
		001.	CTGLOC	LOCATE
		011.	CTGUPDAT	UPDATE
		100.	CTGCMS	A Catalog Management Services function (see CTGOPTNS)
		...1	CTGMCE	Master Catalog exists
		.... x...		Reserved
		.... .1..	CTGSRH	Reserved for OS
		.... ..1.	CTGNUM	Reserved for OS
		1	CTGAM0	VSAM request versus non-VSAM
3	3	1	CTGOPTN4	Reserved for OS
4	4	4	CTGENT	Address of the catalog record identifier, as defines in CTGOPTN1
			CTGFVT	Address of the caller's CTGFV
8	8	4	CTGCAT	Address of the catalog's DSNAME or ACB, as specified in CTGOPTN1
12	C	4	CTGWKA	Address of the caller's work area

CATALOG PARAMETER LIST (CTGPL) (...Continued)

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
16	10	2	CTGOPTNS	Catalog Management Services request options :
		0000 1...	CTGDEFIN	DEFINE
		0001 0...	CTGALTER	ALTER
		0001 1...	CTGDELET	DELETE
		0010 0...	CTGLTCAT	LISTCAT
		xxx		Reserved
17	11	1	CTGCRFLG	CRA open flags
		1...	CTGLBCYL	Label cylinder information is passed for CRA
		.1..	CTGCTRBL	Control blocks are passed for CRA
		..xx xxxx		Reserved
18	12	1	CTGTYPE	Type of catalog record
		C'D'	CTGTDATA	Data
		C'I'	CTGINDX	Index
		C'A'	CTGALIN	Non-VSAM
		C'U'	CTGTUCAT	User catalog
		C'V'	CTGTVOL	Volume
		C'C'	CTGTCL	Cluster
		C'M'	CTGTMCAT	Master catalog
		C'G'	CTGTAIX	Alternate index
		C'R'	CTGTPTH	Path
		C'Y'	CTGTUPG	Upgrade set
		C'F'	CTGTFREE	Free Record
19	13	1	CTGNOFLD	Number of entries contained in CTGFIELD
20	14	4	CTGDDNM	Address of the DLBL statement ; if one is associated with this request
			CTGNEWMN	Address of the new DSNAME ; if the request is being changed
20	14	2	CTGFDBK	Module Name Feedback (Last 2 characters of Module Name)
22	16	1	CTGFBFLG	Reason Code Feedback
23	17	1		Reserved
24	18	4	CTGPSWD	Address of the caller-supplied password
28	1C	4	CTGDDUC	Address of UCAT file name
32	20	4	CTGDDCR	Address of CRA file name
36	24	4	CTGFIELD	Field pointers
40	28	4	CTGFLD2	Second field pointer
44	2C	4	CTGFLD3	Third field pointer

DADSM PARAMETER LIST

Offset Dec	Offset Hex	Bytes	Field Name	Hex. Digit	Description
0	0	6	DADVOLID		Volume identifier
6	6	2	DADSYSLN		Number of system LUB
8	8	2	DADSFLAG		Processing flags
					First byte:
			DADRF1	X'80'	Read format 1 label
			DADFR4	X'40'	Read format 4 label
			DADRADDR	X'20'	Address for read
			DADBYPS	X'10'	Bypass volume 1 checking
			DADNGV	X'08'	No GETVIS required
			DADLKLBK	X'04'	IKQLAB has been called
			DADSPROT	X'02'	Scratch/rename protected files
			DADSVTAD	X'01'	VTOC address is valid
					Second byte:
			DADSVTOP	X'80'	VTOC open indicator
			DADSMSG	X'40'	Message flag
			DADSKPF4	X'20'	DADSM Caller is DADSM
			DADBYEXT	X'10'	Extents bypassed
			DADSCNCL	X'08'	Operator reply was cancel
10	A	1	DADSRC		DADSM return code
11	B	1	DADSARC		Return code save area
12	C	4	DADSLADD		Address of label record
16	10	4	DADSAREA		Address of I/O area
20	14	44	DADEXIST		Old data set name
20	14	44	DADSRDSN		Returned data set name
64	40	44	DADCREAT		New data set name
108	6C	4	DADSEXIT		DADSM exit address
112	70	24	DADSWORK		Work area
112	70	4	DADSWA		Parameter 1
116	74	4	DADSAVE		Work area
116	74	4	DADPARM2		Parameter 2
120	78	5	DADSPTR		Work area
125	7D	1	DADCODEA		Work area
126	7E	2			Reserved
128	80	4	DADBLD		Work area
132	84	4	DADEXT		Work area
136	88	8	DADATE		Date
144	90	8	DADSVTOC		VTOC address
144	90	2			Reserved
146	92	4	DADSVST		CCHH of VTOC
150	94	2			Reserved
152	98	4	DADSVEND		CCHH of end of VTOC
156	9C	8	DADFLPTR		File name
164	A4	2	DADHH		Number of tracks on device
166	A6	4	DADSTN1		Save area for IKQRDS00

DEFINE THE FILE INDEXED SEQUENTIAL (DTFIS) TABLE

Displacement Dec	Displacement Hex	Bytes and Alignment	Field Name	Hex Digit	Description
0	0	16	DTFCCB		
2	2	1	DTFCCBB2		
2	2		ERREXT	X'10'	Accept physical I/O error
16	10	1	FLAGBYTE		
			AM0DTF	X'80'	VSAM bit set to 1 if DTF belongs to a VSAM data set
				X'20'	Assign "ignore" bit
17	11	.3	LOGMODAD		Address of logic module; if AM0DTF is set to 1, then address of branch vector
20	14	1	FILETYPE		File type
			LOAD	X'24'	LOAD-type DTF
			ADD	X'25'	ADD-type DTF
			RETRVE	X'26'	RETRIEVE-type DTF
			ADDRTR	X'27'	ADD-RETRIEVE type DTF
21	15	.1	OPTIONS1		Options byte 1 (ISAM options)
			BLKDRECS	X'08'	Blocked records
22	16	7	FNAMEDTF		File name (DDname)
29	1D	.1	OPTIONS2		Options byte 2 (not used by IIP)
30	1E	..1	FNAMEC		Status byte
			LOAD files:		
			UNCIOERR	X'80'	Uncorrectable DASD I/O error
			WRGLEN	X'40'	Wrong length record (not used by IIP)
			PDARFULL	X'20'	No more VSAM data space available
			CYLXFULL	X'10'	No more VSAM data space available
			MASXFULL	X'08'	No more VSAM data space available
			DUPREC	X'04'	Duplicate record
			SEQCHECK	X'02'	Sequence check
			PDAROVFL	X'01'	Prime data area overflow (not used by IIP)
			Non-LOAD files:		
			UNCIOERR	X'80'	Uncorrectable DASD I/O error
			WRGLEN	X'40'	Wrong length record (not used by IIP)
			EOF	X'20'	End of file
			NORECFND	X'10'	No record found
			ILLEGID	X'08'	Illegal identifier specified (not supported by IIP)

DEFINE THE FILE INDEXED SEQUENTIAL (DTFIS) TABLE (....Cont'd)

Displacement Dec	Displacement Hex	Bytes and Alignment	Field Name	Hex Digit	Description
			DUPREC	X'04'	Duplicate record
			OFARFULL	X'02'	No more VSAM data space available
			OVFLREC	X'01'	Overflow record (RETRVE) (not used by IIP)
31	1F	12			Not used by VSAM
43	2B	...1	RTRBYTE		RETRVE byte
			WORKR	X'80'	WORKR set to 1 if WORKR specified
			WORKS	X'40'	WORKS set to 1 if WORKS specified
44	2C	4	AMDTFAD		Address of AMDTF
48	30	4	CIPROCAD		Address if IIP processor
52	34	4	SAVERG		Save area for one register
56	38	4	PPRETAD		Return address to problem program if called from a $$B phase
60	3C	4	RECLOC		Address of record for LOAD IOREG
64	40	1	CISWITCH		IIP switches
			WNKA	X'80'	Write-new-key-add bit
			RKWK	X'40'	Read-key-write-key bit
			RK	X'20'	Read-key bit
			FIRWITE	X'08'	First write after SETFL
			FIWOK	X'04'	First write is all right
			LD	X'02'	LOAD
65	41	9			Not used by VSAM
74	4A	..2	LRECLEN		Logical record length
76	4C	2	KEYLEN		Key length
78	4E	16			Not used by VSAM
94	5E	..2	KEYLOC		Key location (not used by IIP)
96	60	4	KARGAD1		Address of KEYARG, moved from part 2 by IIPOPEN if RTR SEQ with KEY (POINT) or RTR RAN is specified
100	64	2	DSPLPRT2		Displacement of part 2 (ADD, RTR)
102	66	..2	DSPLPRT3		Displacement of part 3 (ADD, RTR)
104	68	4	LDIOREGS		For RTR SEQ : if WORKS=1, then NOP; if WORKS=0, then L IOREG, RECLOC
108	6C	4	LDIOREGR		For RTR RAN : If WORKR=1, then NOP; if WORKR=0, then L IOREG, RECLOC

DEFINE THE FILE INDEXED SEQUENTIAL (DTFIS) TABLE (....Cont'd)

Displacement Dec	Hex	Bytes and Alignment	Field Name	Hex Digit	Description
112	70	4	WORKAD1		Address of WORKR moved from part 2
116	74	4	IOASAD1		Address of IOAREAS moved from part 2
120	78	64	SAVAR1		For LOAD-type DTF, save area for IIPOPEN
184	B8	4	IOARLAD		Address of IOAREAL for LOAD
188	BC	4	DATIWLAD		Address of data in WORKL for LOAD
192	C0	4	KEY1WLAD		Address of key in WORKL for LOAD
196	C4	4			Not used by VSAM
200	C8	1	MIXEXT1		Master index extension indicator for LOAD
			CROREXT	X'10'	Create-extend bit (create=0; extend=1)
201	C9	3			Not used by VSAM
204	CC	4	WORKLAD		Address of WORKL for ADD
208	D0	16			Not used by VSAM
224	E0	2	KLM1		KEYLEN-1 for LOAD
Part 2 of DTF					
0	0	8			Not used by VSAM
8	8	4	IOASAD2		Address of IOAREAS
12	C	4	IOARAD		Address of IOAREAR
16	10	4	KARGAD2		Address of KEYARG
20	14	4	WORKRAD2		Address of WORKR
24	18	4	CURIOAAD		Address of current sequential I/O area
28	1C	4	LIOREGS		L IOREG, *4 or NOP (RTR SEQ)
32	20	36			Not used by VSAM
68	44	2	NTAGRECS		Number of records tagged for deletion
70	46	..2	LIOREGR		LR IOREG, 0 or NOP (RTR RAN)
Part 3 of DTF					
0	0	64	SAVAR2		Save area for IIPOPEN, not LOAD type

EXIT LIST (EXLST)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	EXLID		Control block identifier=X'81'
0	0	1	EXLIDD	X'81'	EXLST identifier equate
1	1	1	EXLSTYP		Release Indicator
				X'00'	VSAM Release 1
				X'10'	VSAM Release 2
				X'20'	VTAM
2	2	2	EXLLEN		Length of EXLST
4	4	1	EXACT		Active Byte
5	5	5	EXLEOD		EODAD entry
5	5	1	EXLEODF		Entry description bits
6	6	4	EXLEODP		Address of the EODAD exit routine
10	A	5	EXLSYN		SYNAD entry
10	A	1	EXLSYNF		Entry description bits
11	B	4	EXLSYNP		Entry of the SYNAD exit routine
15	F	5	EXLLER		LERAD entry
15	F	1	EXLLERF		Entry description bits
16	10	4	EXLLERP		Address of the LERAD exit routine
20	14	5	EXLIOEX		EXCPAD entry
20	14	1	EXLIOEXF		Entry description bits
21	15	4	EXLIOEXP		Address of the EXCPAD exit routine
25	19		EXLJRN		JRNAD entry
25	19		EXLJRNF		Entry description bits
26	1A		EXLJRNP		JRNAD pointer
Bits used in individual exit flags in bytes shown as entry description					
			EXENEXB	X'80'	Entry present bit
			EXENACTB	X'40'	Entry active bit
			EXENLEB	X'20'	Load bit
Minimum length EXLST for specified entry:					
				Dec. Digit	
			EXLEODL	10	Minimum length if EODAD
			EXLSYNL	15	Minimum length if SYNAD
			EXLLERL	20	Minimum length if LERAD
			EXLIOEXL	25	Minimum length if EXCPAD
			EXLJRN1	30	Minimum length if JRNAD
Minimum and maximum size of EXLST :					
			EXLMINL	10	Minimum length of EXLST
			EXLMAXL	30	Maximum length of EXLST

EXTENT DEFINITION BLOCK (EDB)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	4	EDBNEDB		Address of next EDB
4	4	2	EDBSYMU		Symbolic unit (for CCB)
4	4	1	EDBSUCLS		Symbolic unit class
5	5	1	EDBSUNUM		Symbolic unit number
6	6	2	EDBNUMTR		Number of tracks of extent
8	8	1	EDBFLGS		Flags
			EDBDWSS	X'80'	Data RBA with sequence set
			EDBSSWD	X'40'	Sequence set RBA with data
			EDBIXREP	X'20'	Index replication
			EDBMNT	X'10'	Volume mount flag
			EDBLGCC	X'08'	Device contains more than 256 cylinders
			EDBRPS	X'04'	Indicates RPS Device
9	9	3	EDBMBB		EDB
9	9	1	EDBM		Extent (M)
10	A	2	EDBBB		Bin number (BB)
12	C	8	EDBXTNT		Force low and high CCHH next to each other
12	C	4	EDBLCCHH		Low cylinder and head numbers
12	C	2	EDBLCC		Lowest cylinder
14	E	2	EDBLHH		Lowest head
16	10	4	EDBHCCHH		High cylinder and head numbers
16	10	2	EDBHCC		Highest cylinder
18	12	2	EDBHHH		Highest head
20	14	4	EDBLPMBA		Address of associated LPMB
24	18	4	EDBPARDB		Address of ARDB
28	1C	2	EDBVLSQ		Index to the VOLSER list
30	1E	2	EDBSTTRK		Relative track address of the start of the extent
32	20	8	EDBRBAS		Force low and high RBAs next to each other
32	20	4	EDBLORBA		Low RBA limit
36	24	4	EDBHIRBA		High RBA limit

FIELD CONTROL AND DATA BLOCK (FCDB)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
0	0	64	FCB		Maps the module FCB
0	0	56			Space for use in the block
56	38	1	FCBTIC		Reserved for a TIC operation code
57	39	3	FCBCHAIN		Pointer to next block
60	3C	1	FCBCFL		Reserved for chaining flag
61	3D	1	FCBALI		Allication indicator
			FCBPRVA	X'04'	Previous request allocated
			FCBPRVSV	X'08'	Previous request save
62	3E	2	FCBOFSET		Offset pointer in block

FIELD PARAMETER LIST (CTGFL)

Displacement Dec	Displacement Hex	Bytes and Bit Pattern	Field Name	Description
0	0	1	CTGFLDNO	Number of entries in CTGFLDAT
1	1	1	CTGFLDCD	Test condition :
		X'00'		The FPL describes a field to be updated or retrieved. The FPL is pointed to by the caller's CTGPL (CTGFIELD entry).
		X'non00'		The FPL describes a test condition. The FPL is pointed to by another FPL.
				Test condition :
		X'80'		Equal
		X'60'		Not equal
		X'20'		Greater than
		X'40'		Less than
		X'A0'		Greater than or equal
		X'C0'		Less than or equal
		X'80'		Test under mask for zeros
		X'10'		Test under mask for ones
		X'40'		Test under mask for mixed
2	2	1	CTGFLDGC	Group code number
3	3	1	CTGFLDRE	Test results :
		xxxx xxxx		Reserved
		0		Successful test
		1		Test failed
4	4	4	CTGFLDWA	Work area : contains information about the catalog record's field name from the dictionary
8	8	4	CTGFLDNM	Address of the field name
12	C	4	CTGFLCHN	Address of next field macro or zero
16	10		CTGFLDAT	Pairs of data length/address
16	10	4	CTGFLNG	Data length
20	14	4	CTGFLPT	address in the callers work area of • Each field that was retrieved, if the request was LOCATE or CMS LIST-CAT • New data to replace or add to data in the catalog record. The request was UPDATE, CMS DEFINE or CMS ALTER • Data used to compare to catalog record fields, if the FPL is a FPL-for-tests.

FIELD VECTOR TABLE (CTGFV)

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
0	0	1	CTGFVTYP	The CTGFV contains information used by the CMS Define routines to build a catalog record of the type :
		C"A"	CTGFVALN	NonVSAM
		C"C"	CTGFVCL	Cluster
		C"D"	CTGFVDTA	Data
		C"I"	CTGFVIDX	Index
		C"V"	CTGFVVOL	Volume
		C"G"	CTGFVAIX	Alternate Index
		C"R"	CTGFVPTH	Path
1	1	1	CTGFVPRO	CMS processing option flags :
		1...	CTGFVAVL	ALTER : Add volumes
		.1..	CTGFVRVL	ALTER : Remove volumes
		..1.	CTGFVNDC	Device type converted switch
		...x xxxx		Reserved
2	2	1	CTGFVELM	Element number of CMSPCATR
3	3	1		Reserved
4	4	4	CTGFVDCH	Address of the cluster's data set FVT
8	8	4	CTGFVICH	Address of the cluster's index FVT
12	C	4	CTGFVVCH	Address of the space vector table
16	10	4	CTGFVIND	Address of the associated DLBL statement
20	14	4	CTGFVENT	Address of the 44 byte entry name
24	18	4	CTGFVSTY	Address of the security information FPL (passwords, codewords, and number-of-tries)
28	1C	4	CTGFVOWN	Address of the owner odentification FPL
32	20	4	CTGFVEXP	Address of the expiration date FPL
36	24	4	CTGFVCRE	Address of the creation date FPL
40	28	4	CTGFVVLT	Address of the volume serial number list
44	2C	4	CTGFVRNG	Address of the key range list
48	30	4	CTGFVDVT	Address of the device type FPL (for NonVSAM DEFINE only)
52	34	4	CTGFVSPC	Address of the space allocation information FPL
56	38	4	CTGFVAMD	Address of the AMDSB FPL (if VSAM DEFINE)
56	38	4	CTGFVFSN	Address of the file sequence number (if NonVSAM DEFINE)
60	3C	4	CTGFVATR	Address of the data set attributes FPL
64	40	4	CTGFVBUF	Address of the buffer size FPL
68	44	4	CTGFVLRS	Address of the average record size FPL
72	48	4	CTGFVEXT	Address of exception exit
76	4C	4	CTGFVNAM	Address of related object
80	50	4	CTGFVUPG	Address of RGATTR FPL
84	54	4	CTGFVWKA	Address of CRA volume identification
88	58	4	CTGFVPWD	Relationship password

LOGICAL-TO-PHYSICAL MAPPING BLOCK (LPMB)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	LPMID	X'FF'	Control block identifier
1	1	1	LPMBDTF		Device type indicator
2	2	2	LPMLEN		Length of the LPMB
4	4	4	LPMBPTRK		Number of bytes per track
8	8	4	LPMCASZ		Number of bytes per control area
12	C	4	LPMBLKSZ		Physical block size
16	10	2	LPMTRKCA		Number of tracks per control area
18	12	2	LPMTPC		Number of tracks per cylinder
20	14	2	LPMBNQBK		Number of physical records per track
22	16	2	LPMBPBCI		Number of blocks per CI

OPEN ACB LIST (OAL)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	OALID		OAL identifier
			OALIDD	X'F0'	OAL FD equate
1	1	1			Reserved
2	2	2	OALLEN	X'0080'	Length of this block
4	4	4	OALNOAL		Pointer to next OAL
8	8	2	OALNOPN		No of open data sets or partitions
10	A	2	OALNENT	X'000E'	No. of OAL entries
12	C	4	OALSAVE		Save area for interrupt information during automatic close; data consists of interrupt length (2 bytes) and interrupt code (2 bytes)
16	10	0	OALENTRY		Entry description (repetitive)
16	10	4	OALACB		Address of opened ACB
20	14	1	OALSVC		Delimiter (X'0A')
21	15	1	OALFLG		Flag byte
			OALACT	X'80'	ACB is open
				X'40'	Reserved
				X'20'	Reserved
				X'10'	Reserved
				X'08'	Reserved
				X'04'	Reserved
				X'02'	Reserved
				X'01'	Reserved
22	16	2	OALCICHK		Value to check validity of cylinder no. of data set in catalog

OPEN WORK AREA (IKQOPNWA)

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
0	0		WACOMMON	Common Open/Close work area
0	0	1	WAFLAG	Flag byte :
		1...	TCLOSE	Work area for TCLOSE
		.1..	CLOSE	Work area for CLOSE
		..1.	OPEN	Work area for OPEN
		...1	OPAMDINX'	Index AMDSB is being processed
		.... 1...	VOLFOUND	Volume serial number is in label cylinder record
		.... .1..	SSFLAG	Sequence set with data
		.... ..1.	RETRY	Catalog should be reupdated by CLOSE
		1	FILEPROT	DOS Supervisor DASD file protect
1	1	1	WAERCODE	Error condition code
2	2	2	WALEN	Length of GETVIS area
4	4	4	WAPIBSV	Address of partition user save area, copy of user PSW, registers
8	8	4	WALISTP	Address of user ACB/DTF list
12	C	2	WACOMR	Address of DOS communication region
14	E	1	EDBCODE	One GETVIS obtains enough space for 3 EDBs; this field is used to count EDBs
15	F	1		Reserved
16	10	4	CATEXTPT	Pointer to extent information in order to build EDBs
20	14	2	CATEXTLN	Length of total extents
22	16	2	EXTNUMB	Number of extents
24	18	80	USERSAVE	Room to save user job name, PSW and registers
104	68	0	WACOMEND	End of common work area
104	68	0	OWA	Partial map of work area obtained by GETVIS issued by $$BOVSAM
104	68	4	WAVSLOD	Address of location where VSAM has been placed by CDLOAD (set by $$BOVSAM)
108	6C	4	WAIKQLAB	Address of location where IKQLAB has been placed by CDLOAD (set by $$BOVSAM)
112	70	4	WARACB	Pointer to ACB being opened
112	70	4	CLWAAD	Close work area address saved
116	74	1	LBLRCLEN	Length of work area pointed to by LABICPTR in multiple of 128
117	75	3	LABICPTR	Pointer to work area reserved for label record
120	78	4	SVCATACB	Pointer to catalog ACB
124	7C	4	CTGPLPTR	Pointer to catalog parameter list (CPL)
128	80	4	CATWKPTR	Pointer to catalog work area (CTGWA) (contents moved to CPL)
132	84	4	OLDEDB	Address of last EDB
136	88	4	NXTEDB	Address to next EDB

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
Catalog Field List for AMDSB				
140	8C	8	FLAMDSB	Catalog field list work area (CTGFLDWA) for AMDSB
140	8C	4	SAVERET1	Pointer to contents of return register (R14) if not catalog call
140	8C	4	RETREG1	Return address to save area 1
144	90	4	SAVERET2	Return address to save area 2
144	90	4	RETREG2	Return address to save area 2
148	94	4	FLAMDSBN	Pointer to catalog field name
148	94	4	RETREG3	AMDSBCAT
152	98	4	*	Next CTGFLCHN Number
156	9C	4	FLAMDSBL	Length of AMDSBCAT
160	A0	4	FLAMDSBA	Address of AMDSBCAT
Catalog Field List for Volume Entry(ies)				
164	A4	8	FLENTVOL	
164	A4	2	KRNKEYS	No. of key ranges equals number of ARDBs
166	A6	2	KRNVOLS	Number of volumes for this key range
172	AC	4	FLVOLNTN	Volume entry name VOLENT
176	B0	4	*	
176	B0	4	SVLENG	Length of ENTVOL
180	B4	4	VOLENTLN	Length of volume entry
184	B8	4	VOLGPPTR	Address of VOLENT data
Catalog Field List for Data Set Attributes				
188	BC	20	*	DSATTR field list
208	D0	4	FLDSATRA	Base of DSATTR
Catalog Field List for Open Indicator				
212	D4	8	FLOPNIND	Locate OPENIND and test for UPD
220	DC	4	FLOPNINN	Open indicator field list
224	E0	4	*	
228	E4	4	FLOPNINL	Length of OPENIND
232	E8	4	FLOPNINA	OPENIND address
Catalog Field List for Minimum Buffer Size				
236	EC	20	*	Flags, etc., for BUFSIZE
256	100	4	FLBUFSZA	Base of BUFSIZE
Catalog Field List for High-Used RBA per Data Set				
260	104	20	*	Miscellany for HURBADS
260	104	20	NVOLLIST	No. of volumes per key range
280	118	4	FLHURDSA	Base for HURBADS

* Multi-use field

Displacement Dec	Displacement Hex	Bytes and Bit Pattern	Field Name	Description
Catalog Field List for ISAM Compatibility (USERINFO)				
284	11C	20	*	CATFILE field list
304	130	4	FLFILTA	Base for CATFILE
Catalog Field List for Names of Related Data Sets				
308	134	8	FLNAMEDS	Flags for NAMEDS
308	134	8	PARMLIST	IKQVLAB parameter list
308	134	4	PARM1	ACB address
312	138	1	PARMLEN	Length of work area for IKQLAB
313	139	3	PARM2	Pointer to "LABICPTR"
316	13C	4	FLNAMDSN	Pointer to 'NAMEDS'
320	140	4	*	
324	144	4	FLNAMDSL	Length of associated names
324	144	4	NAMEDSLN	Length of associated names
328	148	4	NAMEDSPT	Address of NAMEDS entry
328	148	4	FLNAMDSA	Address of NAMEDS groups
Catalog Field List for Entry Type and Control Interval No.				
332	14C	8	*	CTGFLDWA for this field list
340	154	4	FLMISCLN	Pointer to 'DSTYPNAM'
344	158	4	*	
348	15C	4	FLMISCLL	Length of DSTYPNAM
352	160	4	FLMISCLA	Address of DSTYPNAM
Catalog Field List to Find Catalog ACB Address				
356	164	20	FLCATACB	Field list nr. 10 for catalog ACB
376	178	4	FLCTACBA	Pointer to catalog ACB pointer
Catalog Field List to Test for Write of Open Indicator				
380	17C	8	FLWOPNND	Update OPENIND field list
380	17C	4	TSTENTVL	Address of test ENTVOL (scan)
384	180	4	TSTENTLN	Address of end scan ENTVOL
388	184	4	FLWOPNNN	Pointer to 'OPENIND'
392	188	4	*	
396	18C	4	FLWOPNNL	Length of data
400	190	4	FLWOPNNA	Pointer to data
Catalog Field List for Volume Time Stamp				
404	194	24	FLTMSTVF	VOLTSTMP field list
404	194	20	*	
424	1A8	4	FLTMSTVA	Pointer to 'VOLTSTMP'

* Multi-use field

OPEN WORK AREA (IKQOPNWA) (...Cont'd)

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
End of Catalog Field List for Volume Time Stamp				
428	1AC	1	WARNFLG	Used to save warning error code
429	1AD	1		Reserved
430	1AE	2	I	Index for DO loops
432	1B0	2	LIMIT	Count of ENTVOLS (pointed to by VOL20PT)
434	1B2	2	RELGP	Relative group number in the catalog
436	1B4	2	TEMP	Local calculations (on same listing page)
438	1B6	2	IARDB	Index for ARDB list
440	1B8	4	SAVDEV	Used to save device type
444	1BC	4	SAVDEV2	Used to save sequence set device type
448	1C0	2	SAVTRKAU	Used to save number of tracks per allocation unit (control area) to help identify type of LPMB
450	1C2	2	SAVTRKA2	Same as SAVTRKAU but used only if sequence set with data
452	1C4	4	RLPMB2	Pointer to sequence set (index) LPMB
456	1CB	1	OWAFLAGS	Open flags and switches
		1...	OWFLAGZB	User did not specify buffer size in ACB
		.1..	OWFLAGBF	BCB building in process
		..1.	OWFLAGIB	Got buffer with AMBL for index
		...1	WARSOPEN	Use macro has been issued for SYSOPEN (RELEASE macro must subsequently be issued)
		.... 1...	DTACNT	Open count in look-aside table is bumped for data
		.... .1..	IDXCNT	Open count in look-aside table is bumped for index
		.... ..1.	WARSCTLG	USE macro has been issued for SYSCTLG (RELEASE macro must subsequently be issued)
		x		Reserved
457	1C9	3	INDEXSAV	Used to save index file name
460	1CC	1	SAVTYPE	Used to save entry type when entry is not a cluster
461	1CD	2		Reserved
463	1CF	4	TESTSV1	Save word for testing
467	1D3	1	SVOPNIN	Updated OPENIND for catalog
		1...	SVOPNINO	Flag open for output
		.xxx xxxx		Reserved
468	1D4	2	SVNEXTNT	Save number of EXTENT statements
470	1D6	2	SETNBUF	Count of buffers (used by SETADDR)
472	1D8	4	VOLSTPTR	Address of IDAVLST
476	1DC	4	VOLENTND	End of all ENTVOLs

* Multi-use field

OPEN WORK AREA (IKQOPNWA) (...Cont'd)

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
480	1E0	2	VOLENTCT	Count of volume entries
482	1E2	2	IVOLS	Working index of VOLENTs
484	1E4	4	VOL20PT	Pointer to volume entries to sort (address of VOLENT20 if less than 20)
488	1E8	80	VOLENT20	Volume entries to sort
568	238	4	VMTPTR	Pointer for right VOLSER
572	23C	4	REQBUFSP	Minimum buffer space required
576	240	4	CURBUFSP	Currently specified buffer space
580	244	4	CURBFSPD	Current buffer space specified for data
584	248	32	ADDAREA	Room to add without current specifications for index
584	248	4	CURBFSPI	Current buffer space specified for index
588	24C	1	SVLUBPUB	Save index of PUB
589	24D	1	NEXTJIB	Next JIB saved
590	24E	10	SVPUB	LUBs for mounted volumes
600	258	2	IPUB	Index for SVPUB
602	25A	4	WRKCINV	Control interval size used in pointing BCBs to buffers
606	25E	8	OWAPRTCT	Room to build password
614	266	2		Unused
616	268	12	PARM	Parameter list for IKQLASMD
616	268	1	CALLERID	Caller identification
617	269	7	DSID	Data set identification
617	269	3	DSCI	Control interval number
620	26C	4	CTACBPTR	Pointer to catalog ACB
624	270	1	SHAREOPT	Share option from catalog
625	271	1		Reserved
626	272	2	OUTCNT	Number of output users, returned from IKQLASMD
628	274	72	OWPLSAVE	Save area formatted according to PL/S standards
700	28C	72	OWPLSAV2	Save area 2 formatted according to PL/S standards
772	304	80	DUMCATPL	Room for catalog parameter list
852	354	512	OWACTWKA	Normal catalog work area
1364	554	8	CCWX	CCW definition
1364	554	1	CCWCODE	Write-to-console op code
1365	555	3	CCWDTA	Pointer to message buffer
1368	558	2	*	
1370	55A	2	CCWCNT	Length of message buffer
1372	55C	24	CCBX	CCB definition
1372	55C	9	*	
1381	565	3	CCWPT	Pointer to channel program (CCWX)
1384	568	12		Unused
1396	574	65	VMSG	Volume name is built and used as part of calling parameter when catalog is called to get the time stamp
1396	574	65	MSG	Volume time stamp built
1396	574	11	MSGID	Message identification

* Multi-use field

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
1407	57F	8	MSGDSN	Data set name
1415	587	46	MSGTXT	Message text
1461	5B5	3	*	
1464	5B8	4	OWSTRTGV	Start of GETVIS
1468	5BC	4	OWAOAL	Address of OAL section
1472	5C0	4	UACBAD	User's ACB address
1476	5C4	4	AIXACBAD	AIX cluster ACB address
1480	5C8	4	BCACBAD	Base cluster ACB address
1484	5CC	4	UPACBAD	ACB of upgrade member
1488	5D0	4	USBAD	Pointer to USB
1492	5D4	4	OWAUCPT	Pointer for IKQLAB
1496	5D8	24	FLRGATTR	Copy of CTGFL for "RGATTR"
1496	5D8	16	*	
1512	5E8	4	*	Length of "RGATTR" data
1516	5EC	4	FLRGATRA	Pointer to "RGATTR"
1520	5F0	24	FLEXCPEX	Copy of exception exit CTGFL
1520	5F0	16	*	
1536	600	4	FLEXCEPL	Length of exception exit data
1540	604	4	FLEXCEPA	Address of EXCPEXIT
1544	608	72	OWPLSAV3	Third level save
1616	650	80	INTCPL	Internal CPL
1696	6A0	4	RPLPAD	RPL pool just handled
1700	6A4	4	PLHADDR	Address of first PLH
1704	6A8	4	AIXBUFAD	Upgrade buffer pool
1708	6AC	4	AIXBUFLN	Length of upgrade buffer pool
1712	6B0	24	MSGPARMS	Parameter list for IKQOCMSG
1736	6C8	2	MSGFLGBT	Message flag byte
1738	6CA	2	NRPL	Number of user strings
1740	6CC	2	AIXBCLEN	GETVIS length for ACB/RPL
1742	6CE	2	UPGRM	Number of members in upgrade set
1744	6D0	2	UPGRCT	Upgrade set loop counter
1746	6D2	2	AIXUPLEN	Length of upgrade set (RPL+PLH)
1748	6D4	1	AIXFLG	Alternate index flags
		1...	AIXUPGR	Upgrade set available
		.1..	AIXBASE	Base cluster handled
		..1.	AIXPE	Path entry handled
		...1	AIXPEU	Path entry of upgrade set
		.... 1...	AIXPATH	Path structure open
		.... .1..	AIXMUS	Member of upgrade set handled
		.... ..1.	AIXEUO	AIX as end-use object
		1	AIXUSERR	Upgrade set error
1749	6D5	1	AIXFLG2	Alternate index flags 2
		1...	AIXTHB	THB is for upgrade set
		.1..	AIXPEUBF	One additional index buffer already present
		..xx xxxx		Reserved

* Multi-use field

OPEN WORK AREA (IKQOPNWA) (...Cont'd)

Displacement Dec	Hex	Bytes and Bit Pattern	Field Name	Description
1750	6D6	1	PATHFLG	Path flags, first byte
		1...	PFLUPD	Update option
		.xxx xxxx		Reserved
1751	6D7	1	*	Path flags, second byte
		1...	RESETSW	Switch for reset of data set at open time
		.1..	ESDSERR	ESDS error flag
		..1.	OALEFND	OAL entry found
		...1	JRNACT	JRNAD active
		.... 1...	CATOPEN	Catalog open in progress
		xxx		Reserved
1752	6D8	1	SAVAIX	Save area for AIXFLG
1753	6D9	2	AIXUSAV	Save area for ACB option
1755	6DB	3	AIXYENTR	Internal address of Y entry
1758	6DE	3	AIXDNAM	AIX data name
1761	6E1	3	AIXINAM	AIX index name
1764	6E4	3	BCDNAM	Base cluster data name
1767	6E7	3	BCINAM	Base cluster index name
1770	6EA	3	CLUNAME	Cluster name save area
1773	6EE	8	NAMEFLD	USE/RELSE parameter list
1781	6F5	5	INTWA	Internal catalog work area
1786	6FA	512	OWA2	Work area
1786	6FA	512	OWAUCAT	IKQCAT work area for UCAT
1786	6FA	512	USCTGWA	Catalog work area IKQOPNUS
1786	6FA	512	OWAMSGAR	Message work area
2298	8FA	4	OWAEND	Reserved
2302	8FE	2	LSRCNT	Number of Datasets using LSR
2304	900	4	AUROOT	Address of first control block in allocation unit
2308	904	4	CPAADR	Address of channel program area
2312	908	4	WAIKQSTM	Address of storage manager module

* Multi-use field

PLACEHOLDER (PLH)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			Standard Save Area		
0	0	72	PLHSAREA		Register save area
0	0	4			Reserved
4	4	4	PLHSADDR		Address of user's save area
8	8	4			Reserved
			Buffer Manager Save Area		
12	C	60	PLHSAVE		Save area for 15 registers (Reg.0-14)
			I/O Manager Save Area and JRNAD Extended Save Area		
72	48	44	PLHBSAVE		Buffer manager and I/O manager save area (Reg.9-14 and Reg 0-4)
116	74	48	PLHIXSSV		Index search and get next save area
164	A4	16	PLHJRNSV		JRNAD save area
			Return Register Stacks		
180	B4	8	PLHSTCK		Fixed return register stack
180	B4	4	PLHSTCK1		Return register from level 1
184	B8	4	PLHSTCK2		Return register from level 2
			RPL Pointers		
188	BC	4	PLHHRPL		Pointer to header RPL
192	C0	4	PLHCRPL		Pointer to current RPL
			PLH ECB		
196	C4	4	PLHECB		Event control block
196	C4	1			Reserved
197	C5	1	PLHAUSE		Request active on PLH
198	C6	1	PLHECOM		Communications byte
			PLHEWAIT	X'80'	Wait flag on ECB
199	C7	1	PLHECBT		Test and set byte for ECB
			PLH Work Area		
200	C8	44	PLHWAREA		PLH work area
			PLH Identification Byte		
244	F4	1	PLHID	X'55'	PLH identification byte
			PLH Use Gate		
245	F5	1	PLHUSE		PLH use gate

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			PLH Condition Flags		
246	F6	1	PLHFLAG		PLH condition flags
			PLHST	X'80'	PLH status flag (bit 0) 1 - PLH set 0 - PLH invalid
			PLHPOS	X'40'	PLH position flag (bit 1) 1 - Next record 0 - previous record
			PLHEOD	X'20'	PLH end-of-date-condition flag (bit 2) 1 - EOD reached 0 - Not EOD
			PLHWAIT	X'10'	PLH wait flag (bit 3) 1 - I/O pending 0 - No I/O pending
			PLHSKIP	X'08'	PLH skip flag (bit 4) 1 - Skip control interval 0 - Don't skip control interval
			PLHRST	X'04'	PLH restart flag (bit 5) 1 - Restart 0 - No restart
			PLHFST	X'02'	PLH first-time flag (bit 6) 1 - First time 2 - Not first time
			PLHRREAD	X'01'	PLH exclusive control reread flag (bit 7) 1 - Need reread 0 - Reread not needed
247	F7	1	PLHFLG		PLH spare condition flag
			PLH Communication Switches		
248	F8	1	PLHSWITCH		PLH communication switches
			PLHLOAD	X'80'	PLH load or resume load indicator
			PLHKRCH	X'40'	PLH key range change indicator
			PLHMSRT	X'20'	Mass insert indicator
			PLHFSR	X'10'	First request for data set indicator
			PLHSTBCB	X'04'	Demand a BCB from STEAL000 (IKQBFA00)
			PLHEC	X'02'	Exclusive control needed

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			Previous Request Characteristics		
249	F9	3	PLHPREQ		Previous request information
249	F9	1	PLHRTC		Previous request-type code
250	FA	2	PLHOPT		Previous request option bytes
250	FA	1	PLHOPT1		First option byte
251	FB	1	PLHOPT2		Second option byte
252	FC	4	PLHPKEYA		Pointer to save area for keyed
			Internal request characteristics for LSR		
256	100	4	PLHILTM		Test mask for WRTBFR
260	104	4	PLHILRM		Reset mask for WRTBFR
264	108	1	PLHPFRC		Percentage value for number of least recently used buffers
265	109	1	PLHIOPTI		Option byte for WRTBFR
			PLHIDSC	X 80	Data set processing for forced close
			PLHIDS	X 40	Write buffers for a data set
			PLHILRU	X 20	Write least recently used buffers
			PLHIALL	X 10	Write all buffers
			PLHITRN	X 08	Write buffers for specified transaction identifier
			PLHIBCB	X 04	Subpool contains at least one modified buffer
			PLHIFIO	X 02	Force I/O for buffer
266	10A	2			Reserved
268	10C	4	PLHDBSPH		Address of data buffer subpool
272	110	4	PLHIBSPH		Address of incex buffer subpool
276	114	4	PLHACB		Pointer to data set's ACB
280	118	4	PLHEACB		Address of ACB of buffer with error
284	11C	4	PLHLSRA		Address of LSR save area
			Multiple String Support		
288	120	1	PLHSTRID		PLH string ID (1-255)
289	121	1	PLHENDRQ		ENDREQ request gate byte
290	122	1	PLHINDS		Indicator byte
			PLHCLOSE	X'80'	Close-type ENDREQ request
291	123	1			Reserved
			EXCPAD Parameter List Pointer		
292	124	4	PLHPARML		EXCPAD parameter list
			JRNAD Parameter List Pointer		
296	128	4	PLHAJRN		JRNAD paramater list pointer

PLACEHOLDER (PLH) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			I/O Manager Entry Point		
300	12C	4	PLHIOMGR		I/O Manager (IKQIOA00) entry point
			Key Range Support Fields		
304	130	4	PLHDCRDB		Address current ARDB
308	134	4	PLHDTRDB		Address target ARDB
			Pointers to Buffer Headers (BHDs)		
312	138	4	PLHDBHD		Address of data BHD
316	13C	4	PLHIBHD		Address of index BHD
320	140	4	PLHBRPL		Save header RPL
324	144	4	PLHTHB		Address of THB (share option 4)
328	148	4			Reserved
			Data PLH		
332	14C	36	PLHDATA		Data PLH
332	14C	20	PLHDCNV		Data CNV information
332	14C	4	PLHDRBA		Data CNV RBA
336	150	8	PLHDBUF		Data buffer description
336	150	4	PLHDBCB		Address of data BCB
340	154	4	PLHDBAD		Address of data buffer
344	158	4	PLHCIDF		Data CNV CIDF
344	158	2	PLHDFSO		Data CNV free space offset
346	15A	2	PLHDFSL		Data CNV free space length
348	15C	1	PLHDSW		Data CNV switches
			PLHHOLD	X'80'	Track hold indication
			PLHHELD	X'40'	Track free indication
			PLHNORD	X'10'	No read indication
			PLHLOG	X'08'	Logical GETBUFF request
			PLHRAHD	X'04'	Read-ahead request
349	15D	1	PLHDSW1		Buffer request control switch
			PLHEHOLD	X'80'	Exclusive control desired
			PLHEHELD	X'40'	Exclusive control held
			PLHEACTV	X'20'	Exclusive control active
			PLHCATH	X'10'	CA SPLIT Track hold
			PLHCATF	X'08'	CA SPLIT Track free
			PLHDIRQ	X'04'	Indication to the buffer manager that this direct write request is to be deferred (set and reset by IKQMDY)
350	15E	2	PLHDCSZ		Data CNV size 10 (rightmost RDF)
			Data Record Description		
352	160	16	PLHDRCD		Data record description
352	160	2	PLHDRO		Data record offset
354	162	2	PLHDRDF		Data record RDF-offset
356	164	2	PLHDRIX		Data record RDF-index

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
358	166	2			Spare
360	168	4	PLHDRRBA		Data record RBA
364	16C	4	PLHDRL		Data record length
			Read-Ahead Data PLH		
368	170	24	PLHBDATA		Data read ahead PLH
368	170	4	PLHBRBA		RBA of next CNV to read ahead
			Read-Ahead Data CNV Description		
372	174	20	PLHBDCNV		Read-ahead data CNV information
372	174	4	PLHBDRBA		Data CNV RBA
376	178	8	PLHBDBUF		Data buffer description
376	178	4	PLHBDBCB		Address of data BCB
380	17C	4	PLHBDBAD		Address of data buffer
384	180	4	PLHBDCDF		Data CNV CIDF
384	180	2	PLHBDFSO		Data CNV free space offset
386	182	2	PLHBDFSL		Data CNV free space length
388	184	1	PLHBDSW		Data CNV switches
389	185	1	PLHBDSW1		Buffer request control switch
390	186	2	PLHBDCSZ		Data CNV size-10
			Alternate Index Record Information		
392	188	16	PLHAIX		AIX record information
392	188	4	PLHAIXPT		Address of base cluster pointer
396	18C	4	PLHAIXWA		Pointer to work area
400	190	4	PLHAIXWL		Reserved
404	194	2	PLHAIXPN		Counter of base cluster pointer
406	196	2	PLHAIXOP		RPL Option bytes
408	198	12	PLHUPG		Upgrade set information
408	198	4	PLHUPGP1		Current USB entry address
412	19C	4	PLHUPGP2		Last USB entry address
416	1A0	4	PLHUPGAD		Address of prime key (KSDS) or RBA (ESDS) of base cluster record
420	1A4	24	PLHAIXSV		AIX save area
			Spanned Record Flag Byte		
444	1BC	1	PLHSWT2		Spanned record switch byte
			PLHSPAN	X'80'	Spanned record indicator
			PLHSRU	X'40'	Called from IKQSRU
			PLHSRUF	X'20'	First call from IKQSRU
			PLHSRUL	X'10'	Last call from IKQSRU
			PLHSRCAS	X'08'	CA-split necessary
				X'04'	Reserved
			PLHSREC	X'02'	Exclusive control indicator
				X'01'	Reserved

PLACEHOLDER (PLH) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			JRNAD Flag Byte		
445	1BD	1	PLHJRN		JRNAD flag byte
			PLHJRACT	X'80'	JRNAD exit active
			PLHJRVSM	X'40'	JRNAD called from IKQVSM
			PLHJRMDY	X'20'	JRNAD called from IKQMDY
			PLHJRCIS	X'10'	JRNAD called from IKQCIS
			PLHJRCA1	X'08'	JRNAD first call from IKQCAS
			PLHJRCA2	X'04'	JRNAD second call from IKQCAS
			PLHJRSRG	X'02'	JRNAD called from IKQSRG
			PLHJRSRU	X'01'	JRNAD called from IKQSRU
			Spanned Record Information		
446	1BE	2	PLHSRCNT		Number of segments
448	1C0	22	PLHSPREC		Spanned record information
448	1C0	8	PLHRCD		Spanned record description
448	1C0	4	PLHAREA		Pointer to user area
452	1C4	4	PLHRLEN		Length of spanned record
456	1C8	4	PLHSRRBA		RBA of record
460	1CC	2	PLHX1E0		Index entry offset of 1.part
462	1CE	2	PLHXPTR		Pointer number
464	1D0	6	PLHSRRDF		Double RBF for spanned record
464	1D0	1	PLHSRR2		R byte 2
465	1D1	2	PLHSRLVL		Level number
467	1D3	1	PLHSSR1		R byte 1
			Additional PLH Switches		
468	1D4	2	PLHSRLL		Length of segment
470	1D6	1	PLHSWT1		PLH communication switch control
			PLHRSI	X'10'	RPL area switch indicator (indicates that the user RPL areas of an AIX and the base cluster have been switched)
			PLHUPRES	X'08'	AIX upgrade reset switch
			PLHPCI	X'04'	Previous control interval
			PLHBWD	X'02'	0=Forward, 1=backward
			PLHLRD	X'01'	0=any record, 1=last record
471	1D7	1	PLHFLG1		Flag byte continuation
				X'80'	Reserved
				X'40'	Reserved
				X'20'	Reserved
				X'10'	Reserved

PLACEHOLDER (PLH) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			PLHDUKEY	X'08'	Duplicate key in AIX record
			PLHAIXRP	X'04'	AIX repositioning flag
				X'02'	Reserved
				X'02'	Reserved
			Index PLH		
472	1D8	40	PLHINDEX		Index PLH
			PLHLESDS		Length of PLH for ESDS
			Index CNV Description		
472	1D8	20	PLHXCNV		Index CNV information
472	1D8	4	PLHXRBA		Index CNV RBA
476	1DC	8	PLHXBUF		Index buffer description
476	1DC	4	PLHXBCB		Address of index BCB
480	1E0	4	PLHXBAD		Address of index buffer
484	1E4	4	PLHXCIDF		Index CNV CIDF
484	1E4	2	PLHXFSO		Index CNV free space offset
486	1E6	2	PLHXFSL		Index CNV free space length
488	1E8	1	PLHXSW		Index CNV switches
489	1E9	1	PLHXSW1		Buffer request control
490	1EA	2	PLHXCSZ		Index CNV size-10
			Index Entry Description		
492	1EC	20	PLHXETRY		Index entry description
492	1EC	2	PLHXEO		Index entry offset
494	1EE	2	PLHXSEO		Next section entry offset
496	1F0	4	PLHXSOP		Last section entry offset pointer
500	1F4	2	PLHXLVL		Present index level in process
502	1F6	2	PLHXLEVP		Previous level index
504	1F8		PLHXPTRP		Previous entry-s p-field
504	1F8	2	PLHXEOP		Previous entry offset
506	1FA	2	PLHXSEOP		Previous section entry offset
508	1FC	4	PLHXRBAP		Previous index record RBA
			Read-Ahead Index PLH		
512	200	28	PLHBINDX		Read-ahead index PLH

PLACEHOLDER (PLH) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			Read-Ahead Index CNV Description		
512	200	20	PLHBXCNV		Read-ahead index CNV information
512	200	4	PLHBXRBA		Index CNV RBA
516	204	8	PLHBXBUF		Index buffer description
516	204	4	PLHBXBCB		Address of index BCB
520	208	4	PLHBXBAD		Address of index buffer
524	20C	4	PLHBXCDF		Index CNV CIDF
524	20C	2	PLHBXFSO		Index CNV free space offset
526	20E	2	PLHBXFSL		Index CNV free space length
528	210	1	PLHBXSW		Index CNV switches
529	211	1	PLHBXSW1		Buffer request control switch
530	212	2	PLHBXCSZ		Index CNV size-10
			Read-Ahead Index Entry Description		
532	214	2	PLHBXEO		Index entry offset
534	216	2	PLHBXSEO		Next section entry offset
536	218	4	PLHBXSOP		Last section entry offset pointer
			Previous Record Key Information		
540	21C	*	PLHPKEY PLHLKSDS		Key of previous record Basic length of PLH for KSDS

* Variable, equal to keylength

RESOURCE POOL HEADER (RPHD)

Offset Dec	Offset Hex	Bytes	Field Name	Hex. Digit	Description
0	0	2	RPHDASTR		Number of active strings
2	2	2	RPHDMSTR		Maximum number of strings ever simultaneously active
4	4	2			Reserved
6	6	2	RPHDSTNO		Total number of PLHs in the resource pool

REQUEST PARAMETER LIST (RPL)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	RPLID		Control block identifier= X'00'
0	0	1	RPLIDD	X'00'	RPL equate
1	1	1	RPLSTYP		Release Indicator X'00' VSAM Release 1 X'10' VSAM Release 2 X'20' VTAM
2	2	2	RPLLEN		Length of RPL
4	4	4	RPLRBA		RBA of last record processed
4	4	4	RPLDDDD		DD field
8	8	4	RPLARG		Pointer to search argument
12	C	8	RPLRCD		Record description
12	C	4	RPLAREA		Address of the caller's work area
16	10	4	RPLRLEN		Length of record
20	14	4	RPLBUFL		User buffer size
24	18	4	RPLACB		Address of the caller's ACB
24	18	4	RPLDACB		Catalog compatibility
28	1C	1	RPLSTRID		RPL string identifier
29	1D	1	RPLREQ		Request type
			RPLPOINT	X'00'	POINT request
			RPLGET	X'04'	GET request
			RPLERASE	X'08'	ERASE request
			RPLPUT	X'0C'	PUT request
			RPLUPDTE	X'0C'	Update request
			RPLINSRT	X'10'	Insert request
			RPLCHECK	X'14'	Check request
			RPLRCLSE	X'18'	RCLOSE request
			RPLENDRQ	X'1C'	ENDREQ request
			RPLFRCIO	X'1C'	FORCIO request
			RPLVERFY	X'20'	VERIFY request
			RPLPUTL	X'24'	PUT locate request
			RPLWRBFR	X'2C'	Write Buffer Request
30	1E	2	RPLKEYL		Key length
32	20	2	RPLOPTCD		Option codes
32	20	1	RPLOPT1		First byte of options
			RPLKEY	X'80'	Keyed access
			RPLADR	X'40'	Addressed access
			RPLSEQ	X'20'	Sequential
			RPLDIR	X'10'	Direct processing
			RPLASY	X'08'	Asynchronous
			RPLSKP	X'04'	Skip sequential access
			RPLCNV	X'02'	CNV access (RBA)
			RPLUPD	X'01'	Update
33	21	1	RPLOPT2		Second byte of options
			RPLKGE	X'80'	Search key greater than or equal
			RPLGEN	X'40'	Generic key request
			RPLNSP	X'20'	Note string position
			RPLNUP	X'10'	No update
			RPLLOC	X'08'	Locate mode
			RPLUBF	X'04'	User buffers
			RPLBWD	X'02'	0=Forwards, 1=backwards
			RPLLRD	X'01'	0=Any record, 1=Last record

REQUEST PARAMATER LIST (RPL) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
34	22	1	RPLHLD2	X'FF'	Second test and set byte (RPL not available)
				X'00'	RPL available
35	23	1	RPLHLD	X'FF'	Test and set byte (RPL held-request not completed)
				X'00'	Request completed
36	24	1	RPLFLAG		Flag byte
			RPLECBPR	X'80'	CMS ECB Indicator
37	25	3	RPLFDBK		Error feedback area
37	25	1	RPLFDB1		Error class (return) code
37	25	1	RPLRTNCD		Error class code
38	26	1	RPLFDB2		Function type code
39	27	1	RPLFDB3		Error type code
39	27	1	RPLERRCD		Error type code
39	27	1	RPLFDBKC		Error type code
Register 15 setting for error feedback code (Stores in RPLRTNCD) [Offset X'25']					
			RPLNOERR	X'00'	No error detected
			RPLNORPL	X'04'	RPL held by another request
			RPLLOGER	X'08'	Logical error
			RPLPHYER	X'0C'	Physical error
Register 15 setting for function type code (Stored in RPLFDB2) Offset X'26'					
			RPLFUPG	X'04'	UPGRADE Processing
			RPLFAFX	X'02'	AIX Processing
			RPLFINC	X'01'	UPGRADE Set is incorrect
Returns that are not errors (Register 15 = X'00')					
The following equates are for the various feedback returns that may be set for offset 39 (27). They fall into the four categories shown.					
			RPLEOV	X'04'	EOV called during request
			RPLDPKEY	X'08'	Duplicate key
			RPLNEWCA	X'10'	Index FULL-CA SPLIT Reserved
Logical errors (register 15 = X'08')					
			RPLEOFDS	X'04'	End of data set encountered
			RPLEODER	X'04'	End of data set encountered
			RPLDUPRC	X'08'	Duplicate record
			RPLDUP	X'08'	Duplicate record
			RPLSEQCK	X'0C'	Sequence error
			RPLNRFND	X'10'	No record found
			RPLNOREC	X'10'	No record found
			RPLEXCTL	X'14'	Data already in exclusive control
			RPLNVOLM	X'18'	Volume or extent unavailable
			RPLNRSPA	X'1C'	No DASD space available
			RPLNOEXT	X'1C'	No DASD space available
			RPLSPACE	X'1C'	No DASD space available
			RPLINRBA	X'20'	Invalid RBA specified
			RPLNKEYR	X'24'	No key range for new record
			RPLNOVIR	X'28'	Insufficient virtual storage

REQUEST PARAMETER LIST (RPL) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
			RPLWRKAS	X'2C'	User's work area not large enough
			RPLCDLOD	X'30'	CDLOAD failure
			RPLVLERR	X'34'	Internal VSAM logic error
			RPLNOPLH	X'40'	PLH in use (no string available)
			RPLNOPEN	X'44'	Access type not requested at Open
			RPLKEYES	X'48'	Keyed request for ESDS
			RPLADRKS	X'4C'	ADR or CNV insert for KSDS
			RPLINERS	X'50'	Illegal ERSAER request
			RPLINLOC	X'54'	Illegal locate mode specification
			RPLNOPOS	X'58'	Positioning error
			RPLNGUPD	X'5C'	No valid GET UPD issued
			RPLUPDKC	X'60'	Key change during update
			RPLLENCN	X'64'	Length change for addressed update
			RPLCONOP	X'68'	Improper or conflicting RPL options
			RPLIMRCL	X'6C'	Improper RECLEN specified
			RPLIMGKL	X'70'	Improper generic key length specified
			RPLINLD	X'74'	Illegal request during data set load
			RPLCATLG	X'80'	Internal catalog call failure
			RPLSRLOC	X'84'	Illegal locate mode
			RPLSRADR	X'88'	Illegal request for spanned record
			RPLINCSR	X'8C'	Inconsistent spanned record
			RPLNOBAS	X'90'	No base record
			RPLMAXPT	X'94'	Maximum of pointers exceeded
			RPLINVRR	X'C0'	Invalid relative record number
			RPLRRADR	X'C4'	Illegal address requested (RRDS)
			RPLIPATH	X'C8'	Illegal path access
			RPLINBWD	X'CC'	Illegal backward mode requested
Physical errors (register 15 = X'0C'					
			RPLRDERD	X'04'	Data read error
			RPLRDERI	X'08'	Index read error
			RPLRDERS	X'0C'	Sequence set read error
			RPLWTERD	X'10'	Data write error
			RPLWTERI	X'14'	Index write error
			RPLWTERS	X'18'	Sequence set write error

REQUEST PARAMATER LIST (RPL) (...Continued)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
40	28	4	RPLCHAIN		Pointer to next RPL
44	2C	1	RPLAIXID		AIX information byte
				X'80'	Reserved
				X'40'	Reserved
				X'20'	Reserved
				X'10'	Reserved
				X'08'	Reserved
				X'04'	Reserved
				X'02'	Reserved
			RPLAXPKP	X'01'	Prime key pointer
45	2D	1			Reserved
46	2E	2	RPLAIXPC		Number of base cluster pointer in the AIX record
48	30	1	RPLXID		Transaction ID
49	31	3			Reserved

RESOURCE SHARING CONTROL BLOCK (RSCB)

Offset Dec	Offset Hex	Bytes	Field Name	Hex. Digit	Description
0	0	4	RSCBRBA		RBA to be held in exclusive control
4	4	7	RSCBDSID		Data set identifier
4	4	4	RSCBCAT		Catalog ACB pointer
8	8	3	RSCBDSCI		CI number of data set component
11	b	1	RSCBCSID		ID of string using field RSCBGATE (for a control area split)
12	C	4	RSCBECB		ECB used by IKQBFA and IKQCAS
12	C	1			Reserved
13	D	1	RSCBSTID		ID of string (set by IKQBFA)
14	E	1	RSCBCOM		Communication byte
			RSCBWAIT	X'80'	Wait flag
15	F	1	RSCBGATE		Exclusive control byte: X'00'= ECB is free X'FF'= ECB is in use

TRACK HOLD BLOCK (THB)

Displacement Dec	Displacement Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	THBID	X'88'	Control block identification
1	1	1	THBFLAG		Flag byte
			THBACTV	X'80'	This THB is active
			THBPSUDO	X'40'	Track hold not issued
			THBREAL	X'20'	Track hold issued
2	2	2	THBLEN		Length of THB
4	4	2			Available
6	6	2	THBTID		Task ID
8	8	16	THBCCB		CCB area
24	18	8	THBCCW		CCW area
24	18	1	THBCCWOP		CCW operation code
25	19	3	THBCCWAD		CCW argument address
28	1C	1			CCWFLAGS
29	1D	1			Unused
30	1E	2	THBCCWCT		CCW byte count
32	20	20	THBIODRB		ODRB area
32	20	4			Available
36	24	8	THBARG		MBBCCHHR
44	2C	4			RBA to be held
48	30	4			Unused
52	34	48	THBSAVE		Save area for 12 registers
100	64	4	THBNTHB		Address of next THB

UPGRADE SET BLOCK (USB)

Offset Dec	Offset Hex	Bytes	Field Name	Hex Digit	Description
0	0	1	USBID		USB identifier
			USBIDD	X'E0'	USB equate
1	1	1	USBACT		Active byte, test and set
2	2	2	USBLEN		Length of this block
4	4	2	USBMAXDB		Max.data buffer in upgrade set
6	6	2	USBMAXIB		Max. index buffer in upgrade set
8	8	4	USBWAPTR		Pointer to work area pool
12	C	2	USBMIN		Min.required record length
14	E	2	USBWALEN		Work area length
16	10	4	USBPLH		Pointer to common USB PLH
Begin of first/only Index Entry					
32	20	0	USBAIX		
32	20	4	USBACB		Pointer to ACB
			USBLAST	X'80'	Last entry indicator
36	24	2	USBRKP		Relative key position
38	26	2	USBKL		Key length
Next Alternate Index Entry					
40	28	VARIABLE			
20	14	4	USBRPL		Pointer to RPL
24	18	4	USBDBHD		Pointer to data buffer header
28	1C	4	USBIBHD		Pointer to index buffer header

VSAM SHARED RESOURCE TABLE (VSRT).

Offset Dec	Offset Hex	Bytes	Field Name	Hex. Digit	Description
0	0	1	VSRTBKID	X'15'	Control block identifier
1	1	1			Reserved
2	2	2	VSRTLEN		Length of VSRT
4	4	4	VSRTID		Control block name VSRT
8	8	4			Reserved
12	C	1	VSRTFLG1		Flag byte 1
			LSR	X'40'	LSR pool indicator
13	D	1	VSRTFLG2		Flag byte 2
14	E	2	VSRTUNCT		Number of data sets opened with the LSR option
16	10	4	VSRTECB		ECB for the VSRT
18	12	1	VSRTCOM		Communication byte
			VSRTWAIT	X'80'	Wait flag
19	13	1	VSRTGATE		Exclusive control gate: X'00' = ECB is free X'FF' = ECB is in use
20	14	4	VSRTRP		Address of the control block part of the resource section of the VRP
24	18	4	VSRTRLEN		Length of the control block part
28	1C	4	VSRTPLHA		Address of the PLH spool in the resource section
32	20	1	VSRTSTRN		Total number of PLHs required for all data sets sharing the resource pool
33	21	1	VSRTKL		Maximum keylength of the data sets sharing the resource pool
34	22	2	VSRTPLHL		Length of each PLH in the PLH pool
36	24	4	VSRTSCB		Address of the RSCB
40	28	4	VSRTBUFH		Address of buffer pool
44	2C	4	VSRTISTB		Address of first buffer
48	30	4	VSRTMBSZ		Maximum buffer size in buffer pool
52	34	2	VSRTSPNO		Number of subpools in buffer pool
54	36	2	VSRTBFNO		Number of buffers in buffer pool
56	38	4	VSRTBFLN		Length of the buffer part of the resource section
60	3C	4	VSRTCPAH		Address of the channel program area pool in the resource section
64	40	4	VSRTCPAL		Length of the channel program area pool
68	44	4	VSRTTHBA		Address of the THB pool
72	48	4	VSRTTHBL		Length of the THB pool

SERVICE AIDS

Service aid phases are available for :

- Enabling and disabling snap dumps within the VSAM component.
- Obtaining snap dumps of control blocks .
- Using UPSI to obtain diagnostic information for the VSAM catalog.
- Maintaining DSCBs in the VTOC and VOL1 labels on DASD.
- Loading a VSAM phase or a program you have written.

The service aid phases IKQVDUMP and $$BCVS03 are included in the link-edit of VSAM. The other three phases, IKQVEDA, IKQVDU, and $$BCVS04 can be placed in the core image library by executing the following job.

```
//JOB          JOBNAME
//OPTION       CATAL
  INCLUDE      IKQCLNLK
/*
//EXEC         LNKEDT, REAL
/&
```

Enabling and Disabling Snap Dumps

The following snap points are available in VSAM. Each snap ID, if enabled with IKQVEDA, will produce the result indicated.

Snap number	Result of Enabling this Snap
0001	This snap allows Catalog Management diagnostic information to be obtained. (See section 'Using UPSI to obtain Diagnostic Information for the VSAM Catalog ' for details.) As snap 0001 uses the UPSI byte, it cannot be run when the user program in the partition also uses the UPSI byte.
0002	This snap enables the Buffer Manager trace, which provides the current usage of VSAM buffering.
0003	This snap enables the CLOSE control block dump at the beginning of CLOSE processing.
0004	This snap enables the VSAM I/O trace facility.
0005	This snap enables the I/O error trace.
0006	This snap enables the OPEN control block dump facility when open processing is complete.
0007	This snap enables the OPEN error trace. Control blocks are printed if an error occurs during open processing.
0008	This snap enables the Catalog Management I/O trace. All I/O operations done by catalog management are printed on SYSLST.
0009	This snap enables the VSAM Record Management error handler trace, allowing display of control blocks for any error detected by VSAM record management.

IKQVEDA is called by :

```
//EXEC IKQVEDA
```

The routine will print on SYSLOG :

```
ENTER FUNCTION ENABLE/DISABLE/END
```

You must enter either :

```
ENABLE SNAP = xxxx
              (where xxxx is one of the snap numbers)
```

or

```
DISABLE SNAP = xxxx
```

or

```
END (to terminate processing).
```

The program will look for a private core image library and print:

```
NO PRIVATE CORE IMAGE LIBRARY ASSIGNED
```

if it cannot be found and will than look in the core image library for the VSAM phase needed.
If the phase needed cannot be found in a library the program will inform you with the following message :

```
PHASE NOT FOUND IN THE SYSTEM PRIVATE
CORE IMAGE LIBRARY
```

Any error in input will result in the INVALID REPLY message and the ENTER FUNCTION message is reissued.

The program can only be ended by the END reply as noted earlier.

The following examples illustrate the use of IKQVEDA to enable and disable SNAP 0001 :

```
// EXEC IKQVEDA
   ENTER FUNCTION ENABLE/DISABLE/END
   ENABLE SNAP = 0001
   NO PRIVATE CORE IMAGE LIBRARY ASSIGNED
   SNAP 0001 ENABLED
   ENTER FUNCTION ENABLE/DISABLE/END
   DISBALE SNAP = 0001
   NO PRIVATE CORE IMAGE LIBRARY ASSIGNED
   SNAP 0001 DISABLED
   ENTER FUNCTION ENABLE/DISABLE/END
   END
```

Obtaining Snap Dumps of Control Blocks

IKQVDUMP enables you to print out snap dumps of record management and catalog control blocks. Code is provided at certain points in VSAM modules which is nonoperational so far as normal execution of the modules is concerned. Refer to 'Enabling and Disabling Snap Dumps'.

IKQVDUMP is called by the following sequence of instructions (See also 'Loading a VSAM phase or a Program You Have Written'):

```
            LA      1, PARMLIST
            SVC     2
            .
            .
            .
PARMLIST    DC      CL8'$$BCVS03'     B transient
            DC      CL8'IKQVDUMP'     phase that provides dump of
                                      control blocks
```

When the program has completed processing, $$BCVS03 returns the program to the instruction immediately following the SVC instruction.

Figure below shows the description and format of the parameter list that follows the two phase names in the above calling sequence.

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
0	0	1	PARMSW1	First byte of parameter list
		1...	PARMAMBL	Dump the AMBL
		.1..	PARMACB	Dump the ACB
		..1.	PARMAMDS	Dump the AMDSB
		...1	PARMARDB	Dump the ARDB
		.... 1...	PARMBCB	Dump the BCB
		.... .1..	PARMBUFE	Dump the buffer
		.... ..1.	PARMEDB	Dump the EDB
		1	PARMLPMB	Dump the LPMB
1	1	1	PARMSW2	Second byte of parameter list
		1...	PARMCCW	Dump the CCW
		.1..	PARMPLH	Dump the PLH
		..1.	PARMBHD	Dump the BHD
		...1	PARMRPL	Dump the RPL
		.... 1...	PARMEXCP	Dump the EXCPAD work area
		.... .1..	PARMCAT	Dump the catalog blocks
		.... ..1.	PARMDATA	Dump the non-catalog blocks
		1	PARMTHB	Dump the THB
2	2	1	PARMSW3	Third byte of parameter list
		1...	PARMOPEN	Dump the open work area
		.1..	PARMCLOS	Dump the close work area
		..1.	PARMCIW	Dump the control interval split area
		...1	PARMVLST	Dump the volume list
		.... 1...	PARMREGS	Dump the registers
		.... .1..	PARMCECL	Dump the control interval exclusive control list
		.... ..1.	PARMODLB	Dump the open DLBL
		1	PARMREQR	Dump the requester's registers

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
3	3	1	PARMSW4	Fourth byte of parameter list
		1...	PARMPAMB	1=Pointer to start dump is in parameter list (PARMAMBA) 0=Pointer to start dump is in register 11
		..1.	PARMCCAA	1=Pointer to CCA 0=Pointer to AMBL
		...1	PARMRTNA	Call the test routine
		.... 1...	PARMHDID	Dump the header ID
		.x.. .xxx		Available
4	4	4	PARMAMBA	Pointer to start dump
8	8	4	PARMID	Pointer to header
8	8	1	PARMIDLN	Length of the header
9	9	3	PARMIDAD	Address of the ID
12	C	1	PARMSW5	Fifth byte of parameter list
		1...	PARMCCA	Dump the CCA
		.1..	PARMCADL	Dump the CCA DLBL
		..1.	PARMCADP	Dump the CCA DADSM parameter list
		...1	PARMCARA	Dump the CCA record areas
		.... 1...	PARMCPL	Dump the catalog parameter list (CTGPL)
		.... .1..	PARMPLDN	Dump the CTGPL data set name
		.... ..1.	PARMPLNN	Dump the CTGPL new name
		1	PARMPLPW	Dump the CTGPL password
13	D	1	PARMSW6	Sixth byte of parameter list
		1...	PARMPLCN	Dump the CTGPL catalog name
		.1..	PARMPLCI	Dump the CTGPL control interval number
		..1.	PARMPLDL	Dump the CTGPL file CTGDDNM field
		...1	PARMPLWA	Dump the CTGPL work area
		.... 1...	PARMCFL	Dump the catalog field parameter list (CTGFL)
		.... .1..	PARMFLFD	Dump the CTGFL fields
		.... ..1.	PARMFLFN	Dump the CTGFL field name
		x		Available
14	D	1	PARMSW7	Seventh byte of the parameter list
		1...	PARMCFV	Dump the catalog field vector table (CTGFV)
		.1..	PARMFVDL	Dump the CTGFV file name
		..1.	PARMFVEN	Dump the CTGFV entry name
		...1	PARMFVKR	Dump the CTGFV key range list
		.... 1...	PARMFVVL	Dump the CTGFV volume serial list
		.... .1..	PARMDPDL	Dump the DADSM parameter list DLBL
		.... ..1.	PARMDPIO	Dump the DADSM parameter list I/O area
		1	PARMDPWA	Dump the DADSM parameter list work area

Obtaining Snap Dumps of Control Blocks (...Continued)

Offset Dec	Offset Hex	Bytes and Bit Pattern	Field Name	Description
15	F	1	PARMSW8	Eighth byte of parameter list
		1...	PARMDPSV	Dump the DADSM parameter list save I/O area
		.1..	PARMCBS	Dump the AMCBS
		..1.	PARMCAXW	Dump the CAXWA
		...1	PARMCXRL	Dump the CAXWA RPL
		.... 1...	PARMCXDR	Dump the CAXWA DSCB read-in work area (DRWA)
		.... .1..	PARMCMSW	Dump the CMS work area
		xx		Available
16	10	8	PARMRTNN	Name of test routine

Using the Test Routine Dump

IKQVDUMP allows a phase to be called before a dump is taken to see if a dump is desired. (The name of the test routine is in the parameter list at field name PARMRTNN.) The phase can use any logic to determine whether a dump is needed, and this logic will override a call for a dump if it is not needed. If a 0 is returned in register 15, the dump will be taken ; if register 15 holds a nonzero return, the dump will not be taken.

The registers on entry to the test routine have the following contents :

R2 = Pointer to the parameter list
R11 = Caller's register 11
R13 = Pointer to 18-word save area
R14 = Return address of calling phase
R15 = Address of entry point

Using UPSI to Obtain Diagnostic Information for the VSAM Catalog

Manipulation of the UPSI job control statement enables you to screen catalog return codes and obtain a snap dump, cancel a job (which causes a full dump to be taken), or simply continue processing. You must first use IKQVEDA to enable Snap = 0001. Otherwise the UPSI statement will be inoperative. As snap 0001 uses the UPSI byte, it cannot be run when the user program in the partition also uses the UPSI byte.

The purpose of this service aid is to diagnose catalog errors that occur while running any program that causes the VSAM catalog to execute. Typically this would be an Access Method Services module or a record management program you have written.

The //UPSI nnnnnnnn job control statement must precede the //EXEC [progname] statement. If no UPSI statement is included, the default is //UPSI 000 (see type 3 request below).

On exit from catalog management after processing, a message will be printed out depending on the type of UPSI bit setting you have selected. Some messages require a reply from the operator. The return codes in the message are obtained from register 15. The format is :

** NNN, MN, RRR, FFFF, CCCCCCCCCCCCCCC

where

NNN is the return code in decimal

MN are the last two characters of the module name which issued the error. This is blank in case of error code 0.

RRR is the reason code in decimal

FFFF is one of the following catalog management functions that had been processed :

DEFC	(define catalog)
DEFA	(define non-VSAM data set)
DEFS	(define space)
DEF	(define VSAM data set)
ALT	(alter)
DELC	(delete catalog)
DELS	(delete space)
DEL	(delete VSAM or non-VSAM data set)
LSTC	(list catalog)
UPD	(update or update-extend)
LOC	(locate)

C..C is either the control interval number in decimal or the first 16 characters of the date set name or volume serial number in EBCDIC.

If a reply is required from the system operator for certain types of requests, the operator must enter one of the following replies from the system console :

- Type in SNAP to get a snap dump by means of IKQVDUMP (see IKQVEDA for enabling snap dumps). The message will then be repeated and the operator should press the END key to continue processing
- Type in CANCEL to cancel the job and obtain a full dump.
- Press the END key to resume processing.

The following paragraphs describe the four types of UPSI settings you can use to elicit a message and/or to determine the degree of return code screening done :

Type 1 UPSI Setting. If you want to obtain an operator message for all VSAM catalog return codes (including 0), you must include one of the following statements :

// UPSI 11000000	No reply is required from the operator
// UPSI 01100000	A reply is required from the operator

Using UPSI to Obtain Diagnostic Information for the VSAM Catalog (...Continued)

Type 2 UPSI Setting. An operator message is issued only if the return code is not 0 for the following statements :

// UPSI 10000000	No reply is required from the operator
// UPSI 01000000	A reply is required from the operator

Type 3 UPSI Setting. An operator message is not issued if one of the following conditions exists:

1. the Access Method Services command being processed was a LISTCAT and the return code is 8, or
2. the return code is 0, 40, 68 or 160 (these code occur during normal processing and are, therefore, excluded).

If neither of these conditions exists, an operator message is issued for the following statements:

// UPSI 00000000	No reply is required from the operator
// UPSI 01110000	No reply is required from the operator

Type 4 UPSI Setting If you want an operator message on a specific return code, you must include the following statements :

// UPSI 00nnnnnn	nnnnnn is set to the value, in binary, of the code divided by 4. A reply is required from the operator.

Maintaining DSCB's in the VTOC and VOL1 Labels on DASD

A VSAM DADSM service aid has been provided to assist the programmer and operator in maintaining the VTOC and VOL1 labels on DASD devices.

The following procedures should be followed to use IKQVDU at the system console for such maintenance. The key difference in the three procedures is the presence, or absence, of a // UPSI job control statement. As IKQVDU uses the UPSI byte, it cannot be run when the user program in the partition uses the UPSI byte. Steps of the procedure in lower case letters are typed in at the console ; steps in upper case letters are printed out.

Procedure 1	Explanation
//assgn sys000,x'cuu' (press END key)	cuu points at the volume you want to use.
//upsi 1 (press END key)	This job control statement is optional. If it is included, the following events take place on the volume that was assigned to SYS000 : • The VSAM volume ownership bit and CRA TT pointer in the F4 DSCB are reset. • The entire VTOC is scratched, that is, empty DSCBs are written over existing F1, F2, and F3 DSCBs, with the exception of DSCBs that have names starting with the characters 'DOS', or 'PAGE'.

Procedure 1 (c'td)	Explanation
//upsi 1 (press END key) continued	• An operator authorization prompt is issued if the DSCB to be scratched is security protected
// exec ikqvdu, size=auto (press END key)	Start Execution of the IKQVDU phase

Procedure 2	Explanation
// assgn sys000,x'cuu' (press END key)	cuu points at the volume you want to use
// upsi 11 (press END key)	This job control statement is optional. If it is included, the following events take place on the volume that was assigned to SYS000 : • The VSAM volume ownership bit and CRA TT pointer in the F4 DSCB are reset. • The entire VTOC is scratched, that is, F0 DSCBs are written over existing F1, F2, and F3 DSCBs, with the exception of DSCBs that have names starting with the characters 'DOS' or 'PAGE'.
// exec ikqvdu,size=auto (press END key)	Start execution of the IKQVDU phase.

Procedure 3	Explanation
// assgn sys000,x'cuu' (press END key)	cuu points at the volume you want to use
// exec ikqvdu,size=30k (press END key)	Start execution of the IKQVDU phase.
Specify function or reply '?' for options ready ? (press END key)	The character ? causes a list af the various functions that IKQVDU performs to be printed out at the system console.

To set the Volume Ownership Flag	reply 'Set Ownership'
To set the CRA Pointer	reply 'Set Ownership'
To reset the Volume Ownership Flag and CRA Pointer	reply 'Reset Ownership' or 'Reset CRA'
To set the Security Flag in A F1 DSCB	reply 'Set Security'
To reset the Security Flag in A F1 DSCB	reply 'Reset Security'
To remove a DSCB from the VTOC	reply 'Scratch'
To rename a DSCB	reply 'Rename'
To allocate a DSCB	reply 'Allocate'
To reinitiate Processing	reply 'Restart'
To alter or display a DASD VOL1 label	reply 'CLIP LABEL=SER=N..N' or 'CLIP LABEL=DISPLAY'
To terminate Processing	reply 'End'

Ready

You can avoid printing out this list of functions simply by specifying the function you wish as follows :

Procedure	Explanation
Set Ownership (press END Key)	Causes the VSAM ownership bit to be set in the F4 DSCB and optionally allows the user to set the CRA TT pointer.
Reset CRA or Reset Ownership	Causes the VSAM ownership bit and CRA TT pointer to be reset in the F4 DSCB
Set Security (press END key)	Causes the security bit to be set in the F1 DSCB When the console responds with ENTER DSN, reply with the data set name of the DSCB to be modified.
Reset Security (press END key)	Causes the security bit in the F1 DSCB to be reset. When the console responds with ENTER DSN, reply with the data set name of the DSCB to be modified.
Scratch DSN=DSNAME (press END key)	Causes the DSCB with the specified data set name to be scratched.
Scratch VTOC (press END key)	Causes the entire VTOC to be scratched with the exception of data set names starting with the characters 'DOS' and 'PAGE'. In addition, an operator-authorization prompt will be issued if the DSCB is security-protected or describes a catalog.

Procedure	Explanation
Rename (press END key)	Causes the DSNAME portion of the F1 DSCB to be changed When the console responds with ENTER OLD DSN, reply with the data set name of the DSCB to be changed. When the console responds with ENTER NEW DSN, reply with the new data set name.
Allocate (press END key)	Causes a new DSCB to be created and written in the VTOC. In order to utilize this function, a DLBL/EXTENT job control statement must be provided (see 'DOS/VS System Control Statements GC33-5376'). When the console responds with ENTER Filename, reply with the same filename as that in the DLBL statement referred to above. When the console responds with ENTER NEW DSN, reply with the data set name of the data set to be created. When the console responds with DO YOU WISH TO SECURITY PROTECT THIS DATA SET? reply YES or NO. A reply of YES causes the data security bit to be set in F1 DSCB. A reply of NO causes the data security bit to be reset in the F1 DSCB.
Restart (press END key)	Causes processing to be reinitiated with a READY prompt. This keyword can be used as a response to any operator prompt.
CLIP LABEL=DISPLAY (press END key)	Causes the volume serial number to be displayed on the system console.
CLIP LABEL=SER=N..N (press END key)	Causes the existing volume serial number to be changed to the one specified as N..N.
End (Press END key)	Causes processing to terminate.

If an error occurs during execution of IKQVDU,

ERROR DADSM RETURN CODE IS nnn

prints out on the system console. The following shows the message code (nnn), the associated message, and the action required to correct the condition.

Example: **ERROR** DADSM RETURN CODE
IS 020 VTOC FULL

nnn	Message
004	I/O ERROR WHILE READING VOLUME LABEL Action: If the problem was not caused by a hardware error, restore the volume.
008	VOLUME NOT MOUNTED Action: Mount the correct volume.
012	I/O ERROR ON VTOC Action: If the problem was not caused by a hardware error, restore the volume.
016	DUPLICATE NAME ON VOLUME Action: Choose another filename or scratch the original file from the volume. If duplication is due to key ranges, ensure each UNIQUE key range is on a separate volume.
020	VTOC FULL Action: Delete any NON-VSAM files or VSAM data spaces no longer needed from the volume to make additional format 1 labels available, or reinitialize the volume with a larger VTOC.
024	EXTENT OVERLAPS EXPIRED FILE Action: Examine the VTOC listing to determine where the overlap occurred. Correct the EXTENT statement causing the error. To delete the expired file, open a DTF using the same file-ID as that of the expired file, and instruct the operator to reply DELETE to message 4n33A when it is issued.
028	EXTENT OVERLAPS UNEXPIRED FILE Action: Compare the high and low extent limits on the EXTENT statement or LSERV output with the file or data space limits on the VTOC display. If the extents overlap, correct the EXTENT statement in error.
032	EXTENT OVERLAPS PROTECTED UNEXPIRED FILE Action: Examine the VTOC to determine where the overlap occurred. Correct the EXTENT statement causing the error. If necessary, use another volume.

036 EXTENT OVERLAPS VTOC -

Action: Execute LVTOC. The Format 4 label (the first label in the VTOC display) contains the extent limits of the VTOC. If the program being executed uses a temporary label set and overlaps the VTOC, correct the EXTENT statements that overlap. If the job uses standard or partition standard labels, use the LSERV output to correct the extents of the overlapping file, VSAM data space, or UNIQUE VSAM file. Then rebuild the appropriate label tracks.

040 REQUIRED EXTENTS MISSING

Action: If temporary labels were used, match the extents on the incoming EXTENT card with the extents in the LVTOC output. If standard (permanent) labels were used, match the extents in the LSERV output with those in the LVTOC output.

044 DSCB NOT FOUND

Action: Use the LVTOC output to check for all file labels used in OPEN macros. If the file has been destroyed, it was probably due to deletion of overlapping extents on an unexpired file, and the file must be rebuilt.

056 EXTENT OVERLAPS PROTECTED EXPIRED FILE
Action: Examine the VTOC listing to determine where the overlap occurred. Correct the EXTENT statement causing the error. If it is not necessary to save the expired file, open a DTF using the same file-ID as that of the expired file, and instruct the operator to reply DELETE to message 4n33A when it is issued.

064 GETVIS FAILURE ENCOUNTERED

Action: Allocate GETVIS area.

072 CDLOAD FAILURE ENCOUNTERED

Action: Either the CDLOAD directory or the GETVIS area is full. Allocate more space.

080 OVERLAP AMONG NEW EXTENTS

Action: If DLBL and EXTENT statements are included in the program, determine the conflicting extents and correct them. If a standard label set is being used, use the LSERV output to locate and correct the conflicting file extents, and rebuild the standard label tracks.

Loading a VSAM Phase or a program You Have Written

If you want to load and transfer control to and from a selected VSAM phase or a program you have written, you can use B-transient $$BCVS03 without destroying any registers in the following calling sequence :

```
         LA    1,PARMLIST
         SVC   2
         .
         .
PARMLIST DC    CL8'$$BCVS03'        B Transient
RTNNAME  DC    CL8'XXXXXXXX'        Name of phase or program you have
                                    written
USERLIST DC                         Parameterlist for 'XXXXXXXX'
```

When control is received by 'XXXXXXXX', the registers have the following contents :

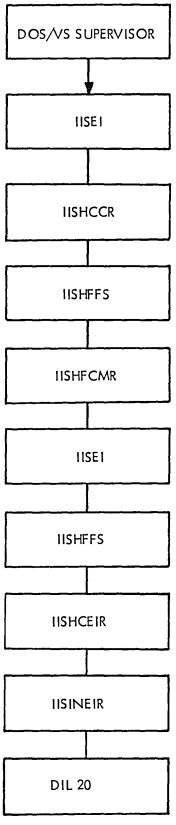
R0	=	Address of a work area (the size of the work area is specified by a halfword at offset 4 of 'XXXXXXXX' phase
R1	=	Pointer to user's parameter list (USERLIST)
R2-13	=	Remain the same as they were when SVC 2 was issued
R14	=	Return address of calling module
R15	=	Address of entry point in 'XXXXXXXX'

Control is returned from 'XXXXXXXX' by a BR 14 instruction.

CHAPTER IV
MODEL 20 EMULATOR

M 20 EMULATOR

Flow of initialization



- Performs Initialization for :
  - . Communication Region
  - . Buffers
  - . CCB's
- Issues STXITS for :
  - . Operator Communication
  - . Abnormal EOJ
  - . Program Check

- Loads 'EMUNAME H'

- Selects Communication Functions (Control card analysis)

- Reads and processes Emulator Control Statements
- Updates CRI and EDB's

- Checks validity of assigned devices

- Selects Communication Functions (Loading of EMUNAME U)

- Loads 'EMUNAME U'

- Prepares for ussuing DIL 20

- Beginning of Emulation
- Loading of M20 emulated storage

Emulator Layout

CCW and buffer for read ahead option on a 2501 (160 bytes)

Error recovery buffer on a 2540 (81 bytes)

CCW and buffer for printer (132 bytes)

Card reader buffer (160 bytes)

Emulated Model 20 storage (1) (from 4K to 32K, minus 144 bytes)

EDBs (2)

CCBs and buffers for communications routines

Communication region (3)

CCBs and buffers for communications routines

Fixed communication region data areas

Emulator routines

Resident

IISCP, IISCPS, IISDB, IISDD, IISDF, IISDFED, IISDI, IISDK, IISED, IISHC, IISTD, IISTP, IISTR.

Optional

IISTPH

Overlaid

emunameU (4)	emunameH (4)
IISCM	IISHF
IISCMS	
IISD1	
IISD2	
IISD3	
IISD4	
IISDE	
IISID	
IISMD2	
IISMF	
IISPD2	
IISIN (last routine)	

Emulator Layout (..Continued)

Device independence buffers (optional) Tape read ahead buffers (optional)
1 IISEI is loaded here and overlays itself at end of initialization 2 EDBs are also loaded in the disk area of the communication region when disk and device independence are not included in the emulator 3 The communications region is loaded and moved up to a 256-byte boundary by IISEI at initialization 4 The phases emunameU and emunameH overlay one another

COMMUNICATION REGION CR1

Dec	Hex				
0	0	CRBYTE12 1st 2 bytes M20 inst		CR5000 base reg ss inst	
4	4	CR6000 base reg ss inst			
8	8	CRDIL EA 20 3000 3100 DIL instruction			
12	C	CRM20PSW current M20 PSW			
16	10	CRMAPORG A (M20 address 0) relocation factor			
20	14	CRSIZE20 M20 core size - 1			
24	18	CRPEADD A(IISCPPE)			
28	1C	CRDCNTRT A(IISNEIR)			
32	20	CRM20INT A(IISINTIR)			
36	24	CRDILCNT current value		CRINTFLG pending interrupts •	
40	28	CRIRCAL current inst when error occurs		CRPECC20 M20 error code	
44	2C	CREOJCD			
48	30	CREOJCB			
56	38	CRDFADD A(IISDFED)			
60	3C	CRDKBUF1			
64	40	CRDKBUF2			
68	44	CRDKBFAD			
84	54	not used	CRDKBFWK	CRDKBFAC	CRDKOLDB
88	58	CRDKOLDR			
92	5C	CRBUFTP			
116	74	CRSAVM20 M20 register save area			
148	94	CRMAPEND A (last byte of emulated storage)			
152	98	CRLASTFW A (last full word of emulated storage) CRMAPEND-3			
156	9C	CRLSTCCW A (last possible M20 CCW) CRMAPEND-5			

• For further explanation : see end of the table

COMMUNICATION REGION CR1 (...Continued)

Dec	Hex	
160	A0	CRDEVTAB A (EDB of device to be emulated)
192	C0	CRINTCOD M20 interrupt code table
204	CC	
208	D0	CREDBDIS displacement into CRDEVTAB
220	DC	
224	E0	CRDELADD A (IISTDDL) delay routine
228	E4	CRIOACT • | CREMUFLG • | CREMUIND •
232	E8	CRSUBMOD M20 model • | CRSKIPSW • | CRLSTCNT last CRDILCNT before DIL
236	EC	CRHFPSW previous M20 PSW
240	F0	CRCMADD A (IISCM) or A(IISCMS)
244	F4	CRSIOTPE A(IISTP)
248	F8	CRSIODSK A(IISDK)
252	FC	CRBFTPL tape buffer size for read ahead
256	100	CRDISPTB used by DIL : 1 byte entry for each M20 inst byte configuration Index to CROPCODE table
508	1FC	
512	200	CROPCODE A(specific emulation routine) 13 full words
564	234	CREDFADD A(IISEDF)
568	238	CRSAVCPU save area for STXIT macro (program check while executing M20 instruction)
640	280	CRHFCWPK CCW for comm PK routines
648	288	CRCCWRD CCW for read card
656	290	CRCCWPN CCW for punch card

• For further explanation : see end of the table

COMMUNICATION REGION CR1 (..Continued)

Dec	Hex				
664	298	CRCCWPR CCW for print			
672	2A0	CRCCWWCP A(chain for M20 MFCM write card)			
676	2A4	CRCCWPKP A(chain for M20 PK ops)			
680	2A8	CRCCWTP A(chain for M20 tape ops)			
684	2AC	CRDIADD A(IISDB)			
688	2B0	CRHFLAG1 •	CRHFLAG2 •	CRHFLAG3 •	CRHFLAG4 •
692	2B4	CRHFMSGN msg number	CRHFINDP displacement in HFLINTAB of IISHFIN	CRHFCMDP displacement in HFUNTAB of IISCHFCHR	CRHFBRTB •
696	2B8	CRHFTYMG •	CRHFCX		
700	2BC	translation table char A-B to hex A-B			CRHFDISP •
704	2C0	CRHFFCAD A(HFUNTAB)			
708	2C4	CRHFASAD A(STOP address) •		CRHFMSGH •	CRCHKDSK •
712	2C8	CRHFSCRN screening mask for the latest msg issued			
716	2CC	CRHFPBFA A(print buffer for comm routines)			
720	2D0	CRHFRBFA A(read buffer for comm routines)			
724	2D4	CRHFCCRA A(IISHCCR) comm control routines			
728	2D8	CRHFRETA A(IISHCEIR) communications : exit routine			
732	2DC	CRHFIKAD A(IISHCIK) S/370 interrupt key routine			
736	2E0	CRHFTRAD A(IISHF)			
740	2E4	CRHFCCBA A (DOS/VS CCB's for communication routines)			
744	2E8	CRHFXC translation table hexa A-F to char A-F			
760	2F8	CRHFRTCD comm routines return code from B transient			
764	2FC	CRHFOVLH communication routine phase name			

• For further explanation : see end of the table

Dec	Hex				
772	304	CRHFOVLU unit record routine phase name			
780	30C	CRHFERTP error type for IISHFMSG		CRINDIMP	not used
784	310	CRDTFDI			
788	314	CRDIFSTB A(first buffer for device independence)			
792	318	CRDIBUFL device independence buffer size			
796	31C	CRDIBUFN A(second buffer for device independence)			
800	320	CRDIHBUF last byte of device independence buffers			
804	324	CRDIEDB A(EDB for device independence)			
808	328	CRDIERR •	CRDICD •	CRDIFLAG •	not used
812	32C	CRDICCT A(M20 carriage control tape)			
816	330	CRDIRD A(M20 read routine)			
820	334	CRDIPN A(M20 punch routine)			
824	338	CRDIPT A(M20 printer routine)			
828	33C	CRDIER A(M20 error routine)			
832	340	XIO displacement byte table			
876	36C				
880	370	CRDICM A(IISIDI) I/O decode			
884	374	CRDICMEN A(IISIDIEN) I/O decode			
888	378	CRDIMTSD A(IISTD) DOS tape/disk module			
892	37C	CRDIEDBC A(EDB control card reader)			
896	380	CRDILOAD A(M20 IPL)			
900	384	CRLNKSAV return to caller after IISINEIR			

• For further explanation : see end of the table

COMMUNICATION REGION CR1 (...Cont'd)

Dec	Hex	
904	388	CRSAVERR STXIT OC save area
976	3D0	EDB active list (16 words) CREDBACT
		I/O op in overlap or time sharing mode
1040	410	CRBINDEL last card delimiter read binary
1048	418	CRHFTRAC A(IISTR) trace routine
1052	41C	CR20CCW1 A(first M20 CCW used by IISTP)
1056	420	CRCARDEL last card character in DC of M20 CPU macro or EC control statement
1060	424	CRCHKCNT Record and file count for checkpoint
1084	43C	CRDATADD A(M20 tape CCW data address) used by IISTP
1088	440	CRSAVCCB A(CCW in CCB) used by IISTP
1092	444	CRSAVER area for count/file update used by IISTP
1096	448	CRCCWCNT M20 CCW record count used by IISTP
1100	44C	Table of indexes into CRXIOTAB
		CRXIODIS
		1 entry for each DAFS
1166	48E	Table of indexis into CRCIOTAB
		CRCIODIS
		1 entry for each DAFS
1238	4D6	Table of indexes into CRTIOTAB
		CRTIODIS
		1 entry for each DAFS
1310	51E	CRERR4 A(CPU error code 4 routine)
1318	526	CRERR5 A(CPU error code 5 routine)
1326	52E	CRERR6 A(CPU error code 6 routine)
1334	536	CRERR7 A(CPU error code 7 routine)

- For further explanation : see end of the table.

COMMUNICATION REGION CR1 (...Cont'd)

Dec	Hex				
1338	53A	CRERROR A(routine handling all M20 program error stops)			
1380	564	CREMUBGN A(first emulator byte)			
1384	568	CREMUEND A(last emulator byte)			
1388	56C	CRDILADD reserved for hardware			
1392	570	CRDKSTAS 1st sector in command		static CRDKLERF last error free sector	
1396	574	CRDKOBJS EXCP target sector		CRDKEOC end of cylinder sector	
1400	578	dynamic CRDKLDEF last error free sector		CRDKECD end of command sector	
1404	57C	CRDKRSCT residual count		CRDKLTCT last count used (head/record)	
1408	580	CRDKLSTO disk unit last op	CRDKFAST •	CRDKEFDT no error free data sectors	
1412	584	no bytes in sector in error CRDKLBDT		CRDKCCHR field used by ID....	
1416	588	CRDKCCHR ....conversion routine		not used	
1420	58C	CRDKIDPC / CRDKHTSR A(S/370 identifier) for partial case - Conversion routine - °			
1422	590	CRDKNSSK			
1428	594	S/370 seek field		CRDKCCHE cyl. number	
1432	598	CRDKHHHE head number		CRDKHRE record nbr	CRDKIND1 °
1436	59C	CRDKM20 •	CRDKEXCT •	CRDKEXC1 •	CRDKEXC2 °
1440	5A0	CRDKDFDB •	CRDKDDDB •	CRDKDSCT •	not used °
1444	5A4	CRDKCDTB A(chain descriptor table)			
1448	5A8	CRDKSKTB A(skeleton table)			
1452	5AC	CRDKMOTB A(modifier table)			

° For further explanation : see end of the table

COMMUNICATION REGION CR1 (...Cont'd)

Dec	Hex				
1456	5B0	CRDKCCWA A(S/370 CCW area)			
1460	5B4	CRDKKYAD A(S/370 key buffer for extra read)			
1464	5B8	CRDKDAAS A (data buffer for scan)			
1468	5BC	CRDKIDTB A(S/370 identifiers table) except for scan			
1472	5C0	CRDKIDAS A(S/370 identifiers table) for scan			
1476	5C4	CRDKDK A(IISDK)			
1480	5C8	CRDKDF A(IISDF)			
1484	5CC	CRDKDD A(IISDD)			
1488	5D0	CRDKCTLH M20 cnt field length	CRDKSCLH data sector length		
1492	5D4	CRDKBASE save area for base register			
1496	5D8	CRDKTOTS no of sectors given by DOS extents	CRTRSKPS •	CRPERF •	
1500	5DC	CRXIOTAB (variable length) A(DIL instruction)			
1504	5E0	CRPKADD A(IISDE) if PK is emulated, otherwise CRDIL			
1508	5E4	CRTDADD A(IISTDXIO) if Tape/disk is emulated, otherwise CRDIL			
1512	5E8	A(routines used to emulate M20 XIO ops)			
		4 bytes entry by emulated device			
		CRCIOTAB			
		A(routines to emulate M20 CIO ops)			
		CRTIOTAB			
		A(routines to emulate M20 TIO ops)			

• For further explanation : see next pages

COMMUNICATION REGION FLAG BYTES LAYOUT

Displacement Dec	Displacement Hex	Field name	Bytes	Field description
38	26	CRINTFLAG		Flags for pending M20 interruptions
		Byte 1	1...	2501 card read
		CRURINT	.1..	2520/2560 card read
			..1.	1403/2203 print
			...1	2560 card punch
			.... 1...	1442 card punch
			.... .1..	2560 card print
			.... ..1.	2520 card punch
			1	not used
		Byte 2	1...	tape
		CRTDPK	.1..	disk
			..1.	2152 read
			...1	2152 write or carrier return
			.... 1...	2152 inquiry request
			.... .1..	CC2 interrupt request
			.... ..1.	not used
			1	not used
160	A0	CRDEVTAB		Addresses of EDB's of M20 devices that can be emulated, as follows :
		CR2501AD	1- 4	2501 card reader
		CR1442AD	5- 7	1442 card punch
		CRPRINAD	8-12	1403 or 2203 printer
		CR2520AD	13-16	2520 card read-punch (or card punch) or 2560 MFCM (CR 2560 AD)
		CR2560BD	17-20	2560 2nd EDB address (IFD1 or 3505-3525)
		CR2152AD	21-24	2152 printer-keyboard
		CRIOCAD	25-28	I/O channel
		CRSCAD	29-32	Storage control
228	E4	CRIOACT		CRIOACT has same layout as CRINTFLAG. When a bit is 1, data transfer or interruption is pending.
		Byte 1	1...	2501 card read
			.1..	2520/2560 card read
			..1.	1403/2203 print
			...1	2560 punch
			.... 1...	1442 punch
			.... .1..	2560 card print
			.... ..1.	2520 punch
			1	not used
		Byte 2	1...	tape
			.1..	disk
			..1.	2152 read
			...1	2152 write or carrier return
			.... 1...	2152 inquiry request
			.... .1..	CC2 interrupt request
			.... ..1.	not used
			1	not used

COMMUNICATION REGION FLAG BYTES LAYOUT (...Cont'd)

Displacement Dec	Displacement Hex	Field name	Bytes	Field description
230	E6	CREMUFLG		Emulator program indicators
		CRCCFLAG	1...	M20 PSW condition code can be modified by current M20 instruction
		CRERRFLG	.1..	Error was detected while decoding current M20 instruction
		CREDBIN	..1.	An EDB is to be inserted in CREDBACT by IISINEIR
		CRDCNTIN	...1	A new DILCNT must be stored at CRDILCNT
		CRWAITIO	.... 1...	IISINEIR must complete all outstanding I/O operations
		CRHFOUT	.... .1..	IISINEIR must return to comm.routines
		CRETURN	.... ..1.	IISINEIR must return to caller
		CREIRBIT	1	IISINEIR has been called by an emulator routine
231	E7	CREMUIND		Emulator program indicators
		CRDELAYT	1...	IISINEIR must call IISTDDL to perform tape operation
		CRDELAYD	.1..	IISINEIR must call IISTDDL to perform disk operations
		CROVLUR	..1.	Unit record I/O operation must be treated in overlap mode
		CROVLTP	...1	Tape I/O operation must be treated in overlap mode
		CROVLDK	.... 1...	Disk I/O operation must be treated in overlap mode
		CRDELAYF	.... .1..	Delay ON must be performed by IISTDDL
		CRDELAYC	.... ..1.	Both a tape and a disk operation have been delayed
		CRM20TSS	1	M20 time sharing switch is being emulated.
232	E8	CRSUBMOD	xxxx xxxx	Hexadecimal F5 if M20 Submodel 5 or 6 is being emulated
233	E9	CRSKIPSW	xxxx xxxx	Skip indicator for trace
688	2B0	CRHFLAG1		Calls for processing :
		CRHFAS	1...	M20 address stop
		CRHFHPR	.1..	M20 HPR
		CRHFPE	..1.	M20 program error
		CRHFEM	...1	Emulator message
		CRHFSS	.... 1...	M20 instruction step
		CRHFTR	.... .1..	Trace to be made of all M20 instructions executed
		CRHFIK	.... ..1.	Interrupt key

COMMUNICATION REGION FLAG BYTES LAYOUT (...Cont'd)

Displacement Dec	Displacement Hex	Field name	Bytes	Field description
689	2B1	CRHFLAG2		Calls being processed :
		CRHFASP	1...	M20 address stop
		CRHFSYNP	.1..	M20 HPR or program error
		CRHFEMP	..1.	Emulator message
		CRHFSSP	...1	M20 instruction step
		CRHFIKP	.... 1...	interrupt key
690	2B2	CRHFLAG3		Indicates :
		CRHFICC	1...	Initialization control card
		CRFFDCC	.1..	Dynamic control card
		CRHFINIT	..1.	IISHFIN called
		CRHFCMP	...1	IISHFCMR called
		CRHFCHN	.... 1...	Control statement chaining
		CRHFTC	.... .1..	Count option for debugging
		CRHFTRCE	.... ..1.	Trace option for debugging
		CRHECIM	1	M20 decimal operation
		CRHFICER	1	Error in initialization control card
691	2B3	CRHFLAG4		Indicates :
		CRHFEMT	1...	IISHF has been loaded
		CRHFERSW	.1..	Error has been detected in a control statement keyword or operands
		CRHFDF	..11	Mask for emulator on M20 trace
		CRHFDFTT	..1.	Emulator contains routines for trace
		CRHFDFIO	...1	Emulator contains routines to execute keyword IOT of control statement DF
		CRHFTASW	.... 1...	M20 trace or address stop
		CRHFSTSW	.... .1..	M20 instruction step
		CRHFLC	.... ..1.	2501 last card has been read
		CRHFIKAC	1	M20 INTERRUPT key has been pressed during execution of IISINEIR
693	2B5	CRHFINDP	1... ...1	Displacement in HFUNTAB of IISHFIN
694	2B6	CRHFCMDP	xxxx xxxx	Displacement in HFUNTAB of IISHFCMR
695	2B7	CRHFBRTB	xxxx xxxx	B-transient area
696	2B8	CRHFTYMG		Type of message :
		CRHFINF	.1..	Information
		CRHFDEC	..1.	Decision
		CRHFACT	...1	Action
		CRHFAEOJ	.... 1...	Automatic End Of Job
		CRHFERMS	.... ..1.	Error
		CRHFCONT	1	Continuation
703	2BF	CRHFDISP	xxxx xxxx	Displacement of entry point of a control statement routine in HFUNTAB
708	2C4	CRHFASAD	xxxx xxxx xxxx xxxx	In address stop mode, address of M20 byte at which emulator is to stop
710	2C6	CRHFMSGH	xxxx xxxx	Number of the latest decision or action message issued

COMMUNICATION REGION FLAG BYTES LAYOUT (....Cont'd)

Displacement Dec	Displacement Hex	Field name	Bytes	Field description
711	2C7	CRCHKDSK	xxxx xxxx	Indicates whether checkpoint file is open
782	30E	CRINDIMP		Device independence switches
		CRDISCFL	X'80'	Screening flag for D.I. initialization
		CRDIGEN	X'40'	Device independence option generated
		CRDIGENT	X'20'	Device independence option for tapes
		CRDIGEND	X'10'	Device independence option for disks
		CRDIACT	X'08'	Device independence option active
		CRDIMESG	X'04'	Device indep.inf.message switch
		CRDICCTM	X'02'	Device indep. two messages switch
		CRDINTMG	X'01'	Device indep.initialization message
784	310	CRDTFDI		A(DTFDI for device independence routines)
		CRSTPH		A(IISTPH if read ahead on tape - No device independence)
808	328	CRDIERR	xxxx xxxx	Error return code
809	329	CRDICD		Buffer Allocation/Release flag
		CRDIALLC	X'80'	Allocation request
		CRDIRELS	X'40'	Release request
		CRDIRCLC	X'20'	DI off command
		CRDIRDIN	X'10'	RCC/INIT command
		CRDILD	X'08'	LD command
		CRDIEOJ	X'04'	EOJ command
		CRDIRET	X'02'	Return to caller via link reg.
810	32A	CRDIFLAG		DI working switches
		CRDIFST	X'80'	1st time switch for printer
		CRDICHAN	X'40'	No hole found in carriage control tape
		CRDIFSW	X'20'	Buffer allocation message switch
		CRDIRDM	X'10'	Read control cards in DI mode
		CRDIRPK	X'08'	Read from PK at initialization
		CRDIOPN	X'04'	OPEN issued for DTFDI
1409	581	CRDKFAST		Indicator for performance
		CRDKVRIF	X'80'	Verify option ON
		CRDKHTRY	X'40'	Hit occurred on last command
		CRDKSCAN	X'20'	Scan 6 SCTRS option ON
		CRDKRDBF	X'10'	Use buffer for read option ON
		CRDKMVDD	X'08'	Read and move SCTRS to M20
1420	58C	CRDKHTSR		Hit sector addr in scan buffer
1435	59B	CRDKINDI		M20 indicators for disk
		CRDKEEOC	X'80'	End of cylinder
		CRDKEDTA	X'40'	Data address error
		CRDKECTA	X'20'	Count address error
		CRDKEDDC	X'10'	Data check in data area
		CRDKEKDC	X'08'	Data check in count area
		CRDKSHIT	X'04'	Scan hit
		CRDKSNEQ	X'02'	LE or HE scan hit
1436	59C	CRDKM20		M20 control byte. Class of operation
		CRDKCTRL	X'80'	Control operation
		CRDKC10	X'40'	10 sector max operation
		CRDKC100	X'20'	100 sectors max operation
		CRDKSCCL	X'10'	Scan class
		CRDKCTDT	X'08'	Count and data class
		CRDKDTCL	X'04'	Data class

COMMUNICATION REGION FLAG BYTES LAYOUT (....Cont'd)

Displacement Dec	Displacement Hex	Field name	Bytes	Field description
1437	59D	CRDKEXCT		Control byte for building CCW's
		CRDKSCEQ	X'01'	Scan equal
		CRDKUSH	X'02'	Unshuffling to make
		CRDKWRCL	X'09'	Write class
		CRDKVRCL	X'0C'	Verify class
		CRDKCTDA	X'10'	Count and data class
		CRDKSHU	X'18'	Shuffling to make
		CRDKINCA	X'A0'	Increasing address command
		CRDKRDCD	X'B2'	Read count and data
		CRDKFFKY	X'C0'	S/370 search command with X'FF' in key area
1438	59E	CRDKEXC1		Control byte 1 of IISDF
		CRDKLP1	X'80'	First EXCP loop
		CRDKLSLP	X'40'	Last EXCP loop
		CRDKEXT2	X'20'	Extent 2 used
		CRDKRCSC	X'08'	Read count successful
		CRDKEXRD	X'04'	Extra read requested. Hit for LE or HE
		CRDKWAIT	X'02'	Wait requested
		CRDKNSID	X'01'	Indicator for identifier conversion
1439	59F	CRDKEXC2		Control byte 2 of IISDF
		CRDKDELY	X'80'	Delay routine called
		CRDKBDEX	X'40'	Bad extents information
		CRDKPART	X'20'	Data partially processed
		CRDKIOOP	X'10'	DOS I/O indicator
		CRDKEQUA	X'08'	Equality in compare routine
		CRDKHNEQ	X'04'	Hit not equal in compare routine
		CRDKINID	X'02'	Increasing ID addresses
		CRDK1EXT	X'01'	One extent already given
1440	5A0	CRDKDFDB		S/370 CCW control dispatching byte
		CRDKDFCW	X'80'	Caller wants CCW control
		CRDKDFID	X'40'	Caller wants ID conversion
1441	5A1	CRDKDDDB		IISDD control byte
		CRDKDDEX	X'80'	Caller wants EXCP
		CRDKDDOP	X'40'	Caller wants OPEN
1442	5A2	CRDKDSCT	xxxx xxxx	Description count for CCW builder
1498	5DA	CRTRSKPS	xxxx xxxx	Trace of first skip to channel 1
1499	5DB	CRPERF		Performance improvement
		CRTAPAH	X'80'	Read ahead for tape
		CR25AH	X'40'	Read ahead for 2501

EDB LAYOUT

2501 Card Reader and 2520 Card Reader Punch

Dec	Hex				
0	0	EDBCTLBK A(DOS/VS CCB or DTFPH)			
4	4	EDBINT A(end of operation routine)			
8	8	EDBCNTC Current DILCOUNT		EDBCNTS Standard DILCOUNT value	
12	C	EDBTYPE •	EDBINTMK Int. mask	EDBFLAG •	EDBSS Select stacker
16	10	EDBDATAL Data count		not used	
20	14	EDBRDBUF A(read card buffer)			
24	18	EDBDATAD Data address for read operation			

1442 Card Punch and 2520 Card Punch

0	0	EDBCTLBK A(DOS/VS CCB or DTFPH)			
4	4	EDBINT A(end of operation routine)			
8	8	EDBCNTC Current DILCOUNT		EDBCNTS Standard DILCOUNT value	
12	C	EDBTYPE •	EDBINTMK Int.mask	EDBFLAG •	EDBSS Select stacker
16	10	EDBPNBUF* Save area for ERP(address)			
20	14	EDBPNCNT* Count for ERP		not used *	

* When emulated by 2540 Card Read Punch

• See Flag bytes layout

EDB LAYOUT (....Cont'd)

2560 MFCM

Dec	Hex				
0	0	EDBCTLBK A(DOS/VS or DTFPH)			
4	4	EDBINT A(end of operation routine)			
8	8	EDBCNTC Current DILCOUNT		EDBCNTS Standard DILCOUNT value	
12	C	EDBTYPE ●	EDBINTMK Int. mask	EDBFLAG ●	EDBSSF1 SS feed1
16	10	EDBDATAL Data count		EDBSSF2 SS feed2	EDBSSPN SS punch
20	14	EDBRDBUF A(read card buffer)			
24	18	EDBDATAD Data address for read operation			
28	1C	EDBSTAT** Card position	EDBWCHSL** Head selection		
32	20	EDBWCHD** Head selection			

** MFCM with Print card

Storage Control

0	0	EDBCTLBK A(DTFPH)			
4	4	EDBINT A(end of operation routine)			
8	8	EDBCNTC Current DILCOUNT		EDBCNTS Standard DILCOUNT value	
12	C	EDBTYPE ●	EDBINTMK Int. mask	EDBFLAG ●	EDBFLAG2 ●
16	10	EDBLONG Length of EDB			
20	14	EDBCSW CSW for the device			
24	18	not used	EDBSENSE		
28	1C	Sense status		EDBMXCL Max cyl no	EDBHDSEL Last head
32	20	EDBSKCL Last seek			
36	24	EDBEXT1 Extent table nr 1			EDBRECTK S/370 records/ track
40	28	EDBEXT2 Extent table nr 2			
44	2C		EDBTKCYL S/370 track/ cyl	not used	

● See Flag bytes layout

EDB LAYOUT (....Cont'd)

I/O Channel

Dec	Hex				
0	0	EDBCTLBK A(DOS/VS CCB or DTFPH)			
4	4	EDBINT A(end of operation routine)			
8	8	EDBCNTC Current DILCOUNT		EDBCNTS Standard DILCOUNT value	
12	C	EDBTYPE ●	EDBINTMK Int.mask	EDBFLAG ●	EDBFLAG2 ●
16	10	EDBLONG Length of EDB			
20	14	EDBCSW CSW for the device			
24	18	EDBRECRD Record counter		EDBTM File counter	
28	1C	EDBSVREC Record and file counter when UC in CCB			

1403/2203 Printer

0	0	EDBCTLBK A(DOS/VS CCB or DTFPH)			
4	4	EDBINT A(end of operation routine)			
8	8	EDBCNTC Current DILCOUNT		EDBCNTS Standard DILCOUNT value	
12	C	EDBTYPE ●	EDBINTMK Int.mask	EDBFLAG ●	EDBDELOP Delay code
16	10	EDBLENG Line length		EDBRESPA Residual space	not used

2152 Printer Keyboard

0	0	EDBCTLBK A(DOS CCB)			
4	4	EDBINT A(end of operation routine)			
8	8	EDBCNTC Current DILCOUNT		EDBCNTS Standard DILCOUNT value	
12	C	EDBTYPE ●	EDBINTMK Int.mask	EDBFLAG ●	EDBNASAL ASA carrier return

● See Flag bytes layout

EDB LAYOUT (....Cont'd)

Extension for Device Independence

Dec	Hex			
0	0	EDBDIST ●	EDBDIST2 ●	EDBBLKF Blocking factor
4	4	EDBBLKSZ Block size		EDBCCTLG Length carriage ctl tape
8	8	EDBCTID Index of carriage tape image		
12	C	EDBDTFPT A(active DTF)		
16	10	EDBDTFIT A(input tape DTF)		
20	14	EDBDTFOT A(output tape DTF)		
24	18	EDBDTFID A(input disk DTF)		
28	1C	EDBDTFOD A(output disk DTF)		
32	20	EDBBFADD A(output device independence buffer)		
36	24	EDBIOREG A(last logical record in buffer)		
40	28	EDBDIASA ASA control character		

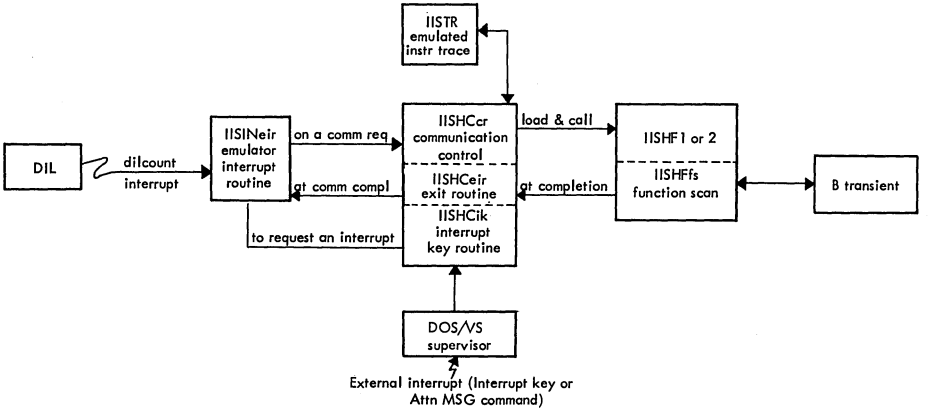
● See Flag bytes layout

EDB FLAGBYTES LAYOUT

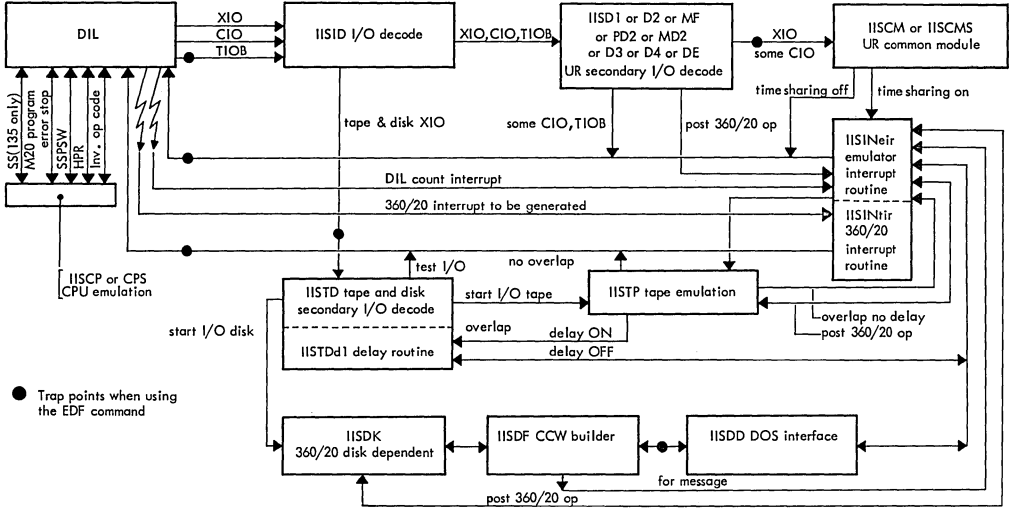
Displacement Dec	Displacement Hex	Field name	Bytes	Field description	
12	C	EDBTYPE		Definition of the M20 device:	
		EDBSC	1111 1111	Disk	
		EDB1442	1...	1442 Card Punch	
		EDB2501	.1..	2501 Card Reader	
		EDB2520	..1.	2520 Card Read Punch	
		EDB2520P	...1	2520 Card Punch	
		EDBMFCM1	.... 1...	2560 MFCM (feed 1)	
		EDBMFCM2	.... .1..	2560 MFCM (feed 2)	
		EDBPRINT	.... ..1.	1403/2203 Printer	
		EDBPK	1	2152 Printer Keyboard	
		EDBIDC	....	Tape	
14	E	EDBFLAG		M20 indicators for:	
		EDBLSTCP	1...	Last card	2520, 2540, 2501 Card Reader
		EDBFEED	.1..	Previous M20 operation included a feed for 2520 Card Read Punch	
		EDBTODEV	..1.	2520 Card Read Punch is emulated by 3525 Card Punch; or 2560 MFCM is emulated by 3525 Card Punch	
		EDBDIFIR	...1	First request to execute CIO SS instruction during device independence	
		EDBMESG	.... ..1.	Pending message	
		EDBDI	1	EDB includes device independence	
		EDBTODEV	..1.	1442/2520 Card Punch is emulated on 2520/3525 Card Punch	1442/2520 CP
		EDBPNER	.... .1..	1442/2520 punch error	
		EDBMESG	.... ..1.	Pending message	
		EDBDI	1	EDB includes device independence	
		EDBLSTCD	1...	Last card	2560 MFCM
		EDBFEED	.1..	Previous M20 operation included a feed for 2520 Card Read Punch	
		EDBTODEV	..1.	2520 Card Read Punch is emulated by 3525 Card Punch; or 2560 MFCM is emulated by 3525	
		EDBPNFIR	...1	First request for punch or punch-feed on 3505 Card Reader	
		EDBWCFIR	.... 1...	First request for write card on 3505 Card Reader	
		EDBPNER	.... .1..	Punch error	
		EDBMESG	.... ..1.	Pending message	
		EDBDI	1	EDB includes device independence	
		EDBCH9	1...	Channel 9	1403/2203 Printer
		EDBCH12	.1..	Channel 12	
		EDBCH9B	..1.	Channel 9 with dual feed carriage	
		EDBCH12B	...1	Channel 12 with dual feed carriage	
		EDBCH1	.... 1...	Channel 1	
		EDBNCM	.... .1..	No carriage motion	
		EDBMESG	.... ..1.	Pending message	
		EDBDI	1	EDB includes device independence	

EDB FLAGBYTES LAYOUT (....Cont'd)

Displacement Dec	Hex	Field name	Bytes	Field description	
		EDBREQPK	1...	Enable/disable	2152 Pr.KB
		EDBREQST	.1..	Request stored	
		EDBCNCL	..1.	Cancel	
		EDBMESG	.... ..1.	Pending message	
		EDBLSTBK	1...	Last EDB	IOC/SC
		EDBDEVB	.1..	Device busy	
		EDBDEVI	..1.	Device-end interrupt pending	
		EDBREQI	...1	First request	
		EDBCTLL	.... 1...	Long control operation	
		EDBCEIN	.... .1..	Channel-end interrupt pending	
		EDBDELN	.... ..1.	Delay on	
		EDBDELY	1	Delay off	
15	F	EDBFLAG2		M20 IOC/SC indicators for:	
		EDBCHBIT	1...	Chained IOC operation	
		EDBPGCHK	.1..	IOC program check	
		EDBSCFT	..1.	S/370 device has scan feature	
		EDBRDAH	..1.	Read ahead (IOC)	
		EDBOPEN	...1	DOS disk pack representing M20 disk pack is open	
		EDBCTOPT	.... 1...	Non standard disk count field found in M20 core during a write count and data or verify count and data operation	
		EDBUCBIT	.... .1..	Unit check on S/370 device during tape operation	
		EDBSNSDN	.... ..1.	Sense done for file protect (IOC)	
		EDBFILDPR	1	Tape in file protect (IOC)	
		EDBWDATA	1	Previous Write data set	
36	24	EDBDIST		Device independence	
		EDBDITP	1...	Generated for tape	
		EDBDIDK	.1..	Generated for disk	
		EDBDIACT	..1.	Active on tape	
		EDBDIAD	...1	Active on disk	
		EDBIOPN	.... 1...	File opened	
		EDBFNRD	.... .1..	Read	
		EDBFNPN	.... ..1.	Punch	
		EDBFNPT	1	Print	
37	25	EDBDIST2		Device independence indicators	
		EDBDICHG	1...	MFCM emulated by two 3525's	
		EDBSIZ	.1..	Input record size is 80	
		EDBDISS	..1.	Select stacker 2	
		EDDIMFC	...1	MFCM emulated by MFCM	


IISTR
emulated
instr trace
DIL
dilcount
interrupt
IISINeir
emulator
interrupt
routine
on a comm req
at comm compl
to request an interrupt
IISHCcr
communication
control
IISHCeir
exit routine
IISHCik
interrupt
key routine
load & call
at completion
IISHF1 or 2
IISHFfs
function scan
B transient
DOS/VS
supervisor
External interrupt (Interrupt key or
Attn MSG command)

INTER - ROUTINE LINKS - Except communication routines



HFUNTAB ENTRIES

Routine	Control Statement Handled	Entry in HFUNTAB for this routine						Displacement in HFUNTAB of entry	
		Bytes 1-2 Routine Identifier	Byte 3 Displacement in Branch table *		Byte 4	Byte 5	Byte 6		
					Displacement in HFUNTAB of entry for routine to be called when:				
		(in Hex)	Dec	Hex	return code= 0	return code= -1	return code= -2	Dec	Hex
IISHFIN		HF	4	4	194 (C2) (IISHFMSG)	205 (CD) (IISHCCR)	208 (D0) (IISHCEIR)	0	0
IISHFCMR		HF	12	C	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		6	6
IISHFS	S	HF	24	18	200 (CB) (IISHFEX)	208 (D0) (IISHCEIR)	194 (C2) (IISHFMSG)	11	0B
$$BIISLE	EOJ	LE	8	8	194 (C2) (IISHFMSG)	180 (B4) (IISDIBF)		17	11
$$BIISTS	I	TS	8	8	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		22	16
$$BIISCF	CF	CF			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		27	1B
IISHFSK	RCC keyword scanning	HF	16	10	32 (20) ($$BIISTS)			32	20
$$BIISTS	RCC	TS	0	0	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		36	24
$$BIISLE	SR	LE	4	4	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		41	29
IISHFCP	CP	HF	28	1C	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		46	2E

HFUNTAB ENTRIES (....Cont'd)

Routine	Control Statement Handled	Entry in HFUNTAB for this routine						Displacement in HFUNTAB of entry	
		Bytes 1-2 Routine Identifier	Byte 3 Displacement in Branch table •		Byte 4	Byte 5	Byte 6		
					Displacement in HFUNTAB of entry for routine to be called when:				
		(in Hex)	Dec	Hex	return code= 0	return code= -1	return code= -2	Dec	Hex
IISHFSK	LD keyword scanning	HF	16	10	55 (37) ($$BIISLE)			51	33
$$BIISLE	LD	LE	0	0	208 (D0) (IISHCEIR)	194 (C2) (IISHFMSG)	180 (B4) (IISDIBF)	55	37
IISHFDIC	HELP	HF	32	20	61 (3D) ($$BIISPR)	66 (42) ($$BIISDP)		61	3D
$$BIISPR	HELP (exept for device indep.)	PR			194 (C2) (IISHFMSG)			66	42
$$BIISDP	HELP (for dev. independence)	DP			194 (C2) (IISHFMSG)			70	46
IISHFSK	CCT keyword scanning	HF	16	10	78 (4E) ($$BIISCC)			74	4A
$$BIISCC	CCT	CC			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		78	4E
IISHFSK	CS keyword scanning	HF	16	10	87 (57) ($$BIISCS)			83	53
$$BIISCS	CS	CS			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		87	57
IISHFSK	DF keyword scanning	HF	16	10	96 (60) ($$BIISDF)			92	5C

HFUNTAB ENTRIES (....Cont'd)

Routine	Control Statement Handled	Entry in HFUNTAB for this routine						Displacement in HFUNTAB of entry	
		Bytes 1-2 Routine Identifier	Byte 3 Displacement in Branch table *		Byte 4	Byte 5	Byte 6		
					Displacement in HFUNTAB of entry for routine to be called when:				
		(in Hex)	Dec	Hex	return code= 0	return code= -1	return code= -2	Dec	Hex
$$BIISDF	DF	DF			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		96	60
IISHFSK	TS keyword scanning	HF	16	10	105 (69) ($$BIISTS)			101	65
$$BIISTS	TS	TS	4	4	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		105	69
IISHFSK	DK keyword scanning	HF	16	10	114 (72) ($$BIISTD)			110	6E
$$BIISTD	DK	TD	4	4	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		114	72
IISHFSK	TP keyword scanning	HF	16	10	123 (7B) ($$BIISTD)			119	77
$$BIISTD	TP	TD	0	0	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		123	7B
IISHFSK	UR keyword scanning	HF	16	10	132 (84) ($$BIISUR)			128	80
$$BIISUR	UR	UR			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		132	84
IISHFSK	EC keyword scanning	HF	16	10	141 (8D) ($$BIISTD)			137	89

HFUNTAB ENTRIES (....Cont'd)

Routine	Control Statement Handled	Entry in HFUNTAB for this routine						Displacement in HFUNTAB of entry	
		Byte 1-2 Routine Identifier	Byte 3 Displacement in Branch table*		Byte 4	Byte 5	Byte 6		
					Displacement in HFUNTAB of entry for routine to be called when:				
		(in Hex)	Dec	Hex	return code= 0	return code= -1	return code= -2	Dec	Hex
$$BIISTD	EC	TD	8	8	205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		141	8D
IISHFSK	EDF keyword scanning	HF	16	10	150 (96) (IISEDF)			146	92
IISEDF	EDF	HD			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		150	96
$$BIISCT	CNT	CT			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		155	9B
IISHFSK	DI keyword scanning	HF	16	10	164 (A4) ($$BIISDI)			160	A0
$$BIISDI	DI	DI			205 (CD) (IISHCCR	194 (C2) (IISHFMSG)	180 (B4) (IISDIBF)	164	A4
IISHFSK	DIA keyword scanning	HF	16	10	174 (AE) ($$BIISAS)			170	AA
$$BIISAS	DIA	AS			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)	(180 (B4) (IISDIBF)	174	AE
IISDIBF		HB			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		180	B4
IISHFSK	CD keyword scanning	HF	16	10	189 (BD) ($$BIISCD)			185	B9

HFUNTAB ENTRIES (....Cont'd)

Routine	Control Statement Handled	Entry in HFUNTAB for this routine						Displacement in HFUNTAB of entry	
		Byte 1-2 Routine Identifier	Byte 3 Displacement in Branch table •		Byte 4	Byte 5	Byte 6		
					Displacement in HFUNTAB of entry for routine to be called when:				
		(in Hex)	Dec	Hex	return code= 0	return code= -1	return code= -2	Dec	Hex
$$BIISCD	CD	CD			205 (CD) (IISHCCR)	194 (C2) (IISHFMSG)		189	BD
IISHFMSG		HF	20	14	205 (CD) (IISHCCR)	200 (C8) (IISHFEX)	211 (D3) ($$BIISLE)	194	C2
IISHFEX		HF	8	8	208 (D0) (IISHCEIR)	205 (CD) (IISHCCR)		200	C8
IISHCCR		HC						205	CD
IISHCEIR		HC						208	D0
$$BIISLE		LE	12	C				211	D3

Notes:

- For routines with a HF identifier, the branch table is HFRTNTAB (contained in IISHF)
  For routines with a LE identifier, the branch table is LDBRANCH (contained in $$BIISLE)
  For routines with a TD identifier, the branch table is TDTAB (contained in $$BIISTD)
  For routines with a TS identifier, the branch table is TSTAB (contained in $$BIISTS)

R8 contains a return code
R7 = HFBRTAB points to HFRTNTAB
R9 = HFUNCPTR points to HFUNTAB

PROBLEM DETERMINATION AIDS

Dynamic Service Aids (Depend on emulator generation option) - See notes

FORMAT OF COMMANDS

DF	TD= (X'hhhh',X'hhhh')	emulated core dump
	ED= (X'hhhhhh',X'hhhhhh')	emulator core dump
	TT	emulated instruction trace
	TTS	trace stop
EDF	IOT= (d,xct)	Unit record
	IOT= (n,st)	Disk or tape
	IOT= (X'hh',st)	---- id ----
	IOTS= y	stop list

d= device
x= list of emulator control blocks before and after execution of XIO
c= list of emulator control blocks before and after execution of CIO
t= list of emulator control blocks before and after execution of TIO
n= 1 to 4, M20 disk storage address
hh= 01 to FF, M20 magnetic tape address
s= list of emulator control blocks before and after execution of Start I/O
t= list of emulator control blocks before and after execution of Test I/O

Notes:

You can code TT only if you have coded DEBUG= TT or IOT in the EM20CPU macro instruction.

You can code EDF only if you have coded DEBUG= IOT in the EM20CPU macro instruction.

INFORMATION OUTPUT

TD 1st line : 360/20 GPR's 8 to 15
2d line : 360/20 old PSW, 360/20 new PSW, stacker info, CSW
next lines : core contents

ED line 1-2 : S/370 GPR's 0 to 15
next lines : core contents

TT on the same line:
A (instruction in process)
instruction
current 360/20 PSW
360/20 GPR's 8 to 15
360/20 old PSW
360/20 new PSW
360/20 CSW

IOT See table on next page.

	Trace fields shown before (B) and after (A) execution of Model 20 I/O instruction															
	Unit Record				Tape				Disk							
	CIO XIO		TIOB		SIO		TIO		SIO[1]		SIO[2]		TIO			
S/370 registers	B	A	B	A	B	A	B	A	B	A	B		B	A		
M20 registers	B	A			B	A	B	A	B	A	B		B	A		
M20 instructions	B	A	B	A	B	A	B	A	B	A			B	A		
M20 PSW	B	A	B	A	B	A	B	A	B	A	B		B	A		
CRIOACT	B	A	B	A	B	A	B	A	B	A	B		B	A		
CRINTFLG	B	A	B	A	B	A	B	A	B	A	B		B	A		
EDB	B	A		A	B	A	B	A	B	A	B		B	A		
CCB	B	A				A		A		A	B			A		
CREMUIND	B	A								A	B					
S/370 CCW		A				A				A	B					
M20 CCW					B	A	B	A	B	A			B	A		
M20 CSW						A		A		A	B			A		
Communication region disk fields											A	B				
Disk count area									B							

1 A routine other than IISDD has control

2 IISDD has control

EMULATOR ROUTINE IN ERROR

If an emulator message has been issued, the explanation should give some idea as to the nature of the error. The PLM lists all the routines that can issue a particular message.

When an abnormal DOS/VS termination occurs, the DOS/VS PSW and GPR's are located in the communication region at CRSAVCPU.

Use:

- the address of the interrupted PSW
- the contents of registers 4, 14, 15
- the linkedit map

COMMUNICATION REGION

- GPR 3 should point to it, which is on a 256 byte boundary
- If GPR 3 does not point to the communication region, locate IISCR in the linkedit map; it is located at the next upper 256 byte boundary address

EMULATED MOD 20 MAIN STORAGE

Beginning address : CRMAPORG
Ending address : CRMAPEND
M20 main storage is bounded at the end by 98xxxxxx

CONTROL BLOCKS AND BUFFERS

- EDB's addresses : CRDEVTAB
- If M20 disks are emulated and device independence option is chosen at emulator generation, EDB's addresses are in the CSECT IISEDBCS
- If they are not, the EDB's for unit record devices are moved to the communication region at initialization time. Should there not be enough space, any remaining EDB's are generated in a separate CSECT (IISEDBCS)
- Pointers in EDB's locate CCBS and DTFS
- CCB or DTF for emulated disks are found in the first fullword of the EDB
- For device independence:
  Four fullwords in an extension of the EDB point to the DTFMT's and DTFSD's.
  The address of the buffer for the device is found in its EDB

REGISTER USAGE AND NAMES

Register 1 :	CCBREG	pointer to DOS CCB
Register 2 :	EDBPNT	pointer to EDB
Register 3 :	COMREG	pointer to the communication region
Register 4 :	BASOP	Base register
Register 5 :	EFFADD1	M20 operand 1 address
Register 6 :	EFFADD2	M20 operand 2 address
Register 7 :	MODIFIER	M20 instruction length or immediate field
Register 14 :	LINK	return address
Register 15 :		used as a base register for all B transient emulator routines

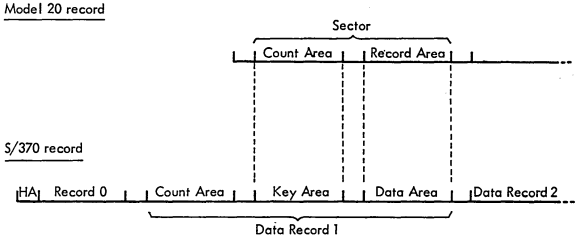
DIL macro instruction sets registers 4, 5, 6 and 7 before giving control to an emulator routine

EMULATOR DUMP

The following items can be found in COMREG :

- M20 address 0 (i.e. relocation factor) CRMAPORG
- Contents of M20 registers 8 to 15 CRSAVM20
- M20 PSW (address of the current instruction) CRM20PSW
- First two bytes of the previous M20 instruction CRBYTE12
- The contents of the I-recall register CRIRCAL

MODEL 20 SECTOR TO SYSTEM/370 DISK RECORD CORRESPONDENCE



MODEL 20 STANDARD MAIN STORAGE COUNT FIELD

Byte

1	2	3	4	5	6	7	8 9
0	0	Cylinder Address	0	Head Address	Record Number	0	Data Length 270

IISMS
Call IISCA
Load diname 2
Call IISEQ
OPT=DOC
no
yes
Call IISSC
Call IISTK
IISEQ
Model 20 File Initialization
IISSC
Copy Option Process
IISTK
Documentation Option Process
IISEOJ
End of process
Close files and volumes
EOJ
(cancel if eoj issued during card processing)
IISCA
Analyze Control Information
Check UDI
VERIFY=NO OPT=BACK
no
yes
Load diname 1
Check UM20, UDOS
Check UIS

diname : control among device independence routines, message processing, control card processing, DTFDAs for DPS files with verify, DTFCN, DTFDI, and DIMOD for SYSLST and SYSIPT, DAMOD
diname1 : DTFDAs for DPS files with verify specified
diname2 : DPS file initialization, DPS VTOC and volume processing, and documentation
diname3 : SAM file processing, DTFSDs, SDMODF0 (forward)
diname4 : SDMODF1 (backward only)
diname5 : DTFDAs, DAM processing
diname6 : DTFIS (load), ISMOD (load), forward
diname7 : DTFIS (retrieve), ISMOD (retrieve), backward

DATA INTERCHANGE COMMUNICATION REGION

Operation communication control block (CRHCB)

0	(0)	A (card buffer) CRHBFCDA			
4	(4)	A (print buffer) CRHBFPRA			
8	(8)	A (DTFCN) CRHDFCNA			
12	(C)	A (DTFDI SYSLST) CRHDFDIA			
16	(10)	• CRHMSGN		• CRHPMSGN	
20	(14)	A (beginning of variable data in card buffer) CRHVADD			
24	(18)	• CRHIMSGN		• CRHFLAGS	• CRHFLP2
28	(1C)	• CRHSCMSG	• CRHREPLY	• CRHERTYP	not used

Generation control block (CRGCB)

32	(20)	CRGDINAM		
36	(24)	Program name		
40	(28)	CRGNAMPT first blank in program name	• CRGDEV20	• CRGDEVDS

Control cards block (CRCCB)

44	(2C)	CRCFLID			
84	(54)	M20 file identifier			
88	(58)	CRCFLNM			
92	(5C)	File name for DOS representing a DPS file			
96	(60)	CRCFDOS			
100	(64)	File name for DOS file		not used	
104	(68)	CRCFLNP first blank in CRCFLNM		• CRCNEXPD	
108	(6C)	• CRCNEXPD	System date YDD	CRCSYSD	
112	(70)	CRCDDDM days in system year		• CRCTVNBR	
116	(74)	CRDBLK new block size for DOS file			
120	(78)	• CRCYLXVN		• CRCDFLVN	
124	(7C)	• CRCDDELP ISAM		• CRDELID ISAM	• CRCOPT • CRCINDIC

• For further explanation see the end of the table

Data interchange structure block (CRCSB)
1. locates DTFs
2.gives buffer allocation

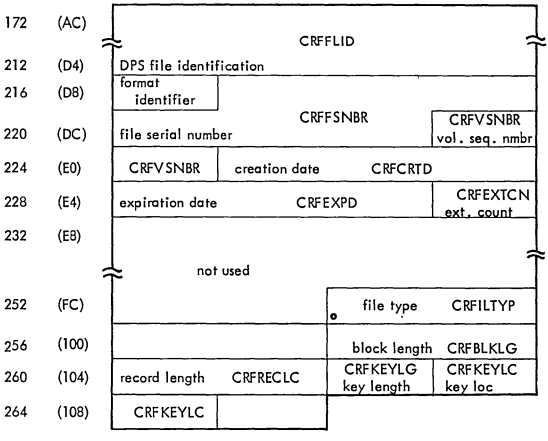
			before execution:
128	(80)	A (IISSn) DTFSD DOS file	CRSDDFSD
132	(84)	A (IISTn) DTFDA DOS file	CRSDDFDA
136	(88)	A (ISEQ parameter table)	CRISPTR
140	(8C)	A (IISLn) DTFIS load DOS file	CRSDFISL
144	(90)	A (IISRn) DTFIS retrieve DOS file	CRSDFISR
148	(94)	A (CRSBUFSC3)	CRSECTA
152	(98)	A (current DTF for DOS file)	CRSDDFA
156	(9C)	A (first DTFDA for M20 file)	CRSMDFA1
160	(A0)	A (current DTF for M20 file)	CRSMDFP
164	(A4)	A (second DTFDA for M20 file)	CRSMDFA2
168	(A8)	A (third DTFDA for M20 file)	CRSMDFA3

Data interchange structure block (CRSCB)

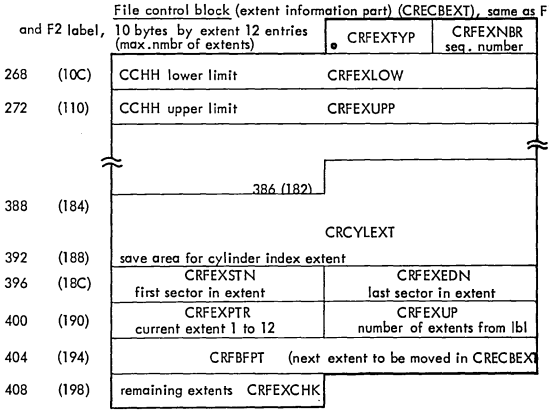
			during execution:
128	(80)	A (DPS block area)	CRSMBA
132	(84)	A (work area DPS cylinder index)	CRSMCYWA
136	(88)	A (ISEQ parameter table)	CRISPTR
140	(8C)	A (work area DPS track index)	CRSMTKWA
144	(90)	•	CRDOSIA
148	(94)	A (CRBUFSC3)	CRSECTA
152	(98)	A (DOS DTF) according to selected option	CRSDDFA
156	(9C)	•	CRSMDFA1
160	(A0)	A (current DTF for M20 file)	CRSMDFP
164	(A4)	•	CRSCYDFA
168	(A8)	•	CRSOVDFA

• For further explanation see the end of the table

File control block (CRFCB) (file identification part)
Has the same format as the M20 standard file label from bytes 0-92



File control block (extent information part) (CRECBEXT), same as F1 and F2 label, 10 bytes by extent 12 entries (max.nmbr of extents)



• For further explanation : see end of the table

File control block, VTOC information part (CRFCBVT)
Processing of the M20 VTOC label

		410 (19A)	CRFLEXLW first sector (DPS VTOC)
412	(19C)	last sector CRFCEXUP	CRFFMT1 first sector DPS F1 label
416	(1A0)	CRFCVTOC VTOC sector being processed	CRFVOLN DPS vol being processed
420	(1A4)	• VTOC indicators	

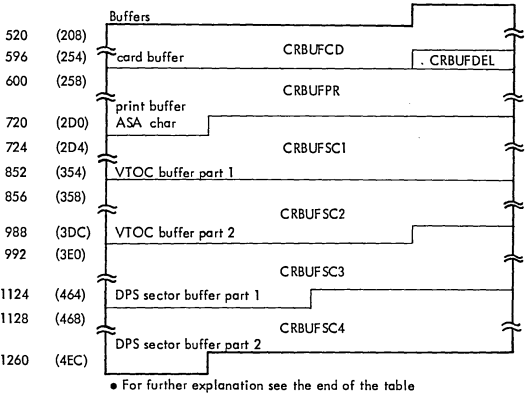
File control block, documentation part (CRFCBDOC)
Fields used in processing DPS files documentation

424	(1A8)	CRFVBLK block size max. allowed	CRFTRKC Dos file track capacity
428	(1AC)	CRFDOFLG offset last record	CRFMSTK sectors / tracks
432	(1B0)	key length CRFDKYLG	DOS tracks required CRFTRKN
436	(1B4)	number of records processed (DOS or DPS) CRFDRCC	
440	(1B8)	number of records left (extents too small) CRFDORCC	
444	(1BC)	CRFDOCLP extents-print line	CRFVOLAB
448	(1C0)	Vol. ser. number current DPS volume	
452	(1C4)	record size (current DPS file) CRFM20R	
456	(1C8)	CRFM20BK	
460	(1CC)	block size current DPS file	CRFDOSBK
464	(1D0)	max. block size for the device (DOS)	
468	(1D4)	DOS block size specified or default value CRFDPSPBK	
472	(1D8)	• CRFVDIND	not used

• For further explanation : see end of the table

File control block, file conversion part
(Fields related to forward and backward copies)

			• CRFDASTN
476	(1DC)	CRFDAEDN end of data area sector	CRFBNSCB number of sectors in DPS block
480	(1E0)	CRFBNRCB DPS blocking factor	CRFBFSCB beginning of DPS block
484	(1E4)	CRFBLSCB end DPS block	CRDNRCB DOS blocking factor
488	(1E8)	• CRMERBYT	• CRDERBYT
492	(1EC)	track reference in DTFDA for DPS file	CRFMREF
496	(1F0)	track reference in DTFDA for DOS file	CRFDREF
500	(1F4)	CRFDKEY	
504	(1F8)	•	
508	(1FC)	• A (first prime data track)	CRVF2D4
512	(200)	CRVF2D6 overflow tracks	CRVF2ADR sector number of F2 label
516	(204)	CRFDNTRK rec/track •	•



• For further explanation see the end of the table

DATA INTERCHANGE COMMUNICATION REGION FLAG BYTE LAYOUT

Displacement Dec	Displacement Hex	Field	Bytes	Field description
16	C	CRHMSGN	2	Internal number of next priority 1 message
24	18	CRHIMSGN	2	Internal number of entry in message directory
26	1A	CRHFLAGS	1	Message flags
		CRHTYI	10000000	Information
		CRHTYD	01000000	Decision
		CRHTYA	00100000	Action
		CRHTYB	00001000	Automati c EOJ
		CRHTYC	00000100	Another to be printed
		CRHTYP	00000010	Message on printer keyboard
		CRHTYS	00000001	Message on SYSLST
27	1B	CRHFLP2	1	Flags for priotity 2 messages
		CRHERMSG	00000010	Invalid response to action or decision message
		CRHPRMSG	00000001	HELP entered
28	1C	CRHSMSG	1	Screening mask for message directory
		CRHSCVRY	10000000	Any reply is valid
		CRHSCEOJ	01000000	EOJ is valid
		CRHSCSKP	00100000	SKIP is valid
		CRHSCIGN	00010000	IGN is valid
		CRHSCRTY	00001000	RETRY is valid
29	1D	CRHREPLY	1	Reply made by operator
		CRHRPVRY	10000000	Other than EOJ, SKIP, IGN, RETRY
		CRHRPEOJ	01000000	EOJ
		CRHRPSKP	00100000	SKIP
		CRHRPIGN	00010000	IGN
		CRHRPRTY	00001000	RETRY
30	1E	CRHERTYP	1	Control card error type
42	2A	CRGDEV20	1	DPS device specified at generation
		CRGM2011	10000000	2311
		CRGM2014	01000000	2314 or 2319
		CRGM2030	00100000	3330
		CRGM2040	00010000	3340
43	2B	CRGDEVDS	1	DOS device specified at generation
		CRGDOS11	10000000	2311
		CRGDOS14	01000000	2314 or 2319
		CRGDOS30	00100000	3330
		CRGDOS40	00010000	3340
106	6A	CRCNEXPD	3	New expiration date for M20 file YDD
114	72	CRCTVNBR	2	Number of DPS volume to be processed
120	78	CRCYLXVN	2	ISAM, DPS volume that contains the cylinder index. Default value is one
122	7A	CRCDFLVN	2	ISAM, DPS volume that contains the independent overflow. Zero if no overflow area.
124	7C	CRCDELP	2	ISAM copy. Position of delete byte in record zero if no record deletion
126	7E	CRDDELID	1	ISAM copy. Delete byte, X'FF' is default.

Displacement Dec	Hex	Field	Bytes	Field description
127	7F	CRCOPT	Half byte	Options
		CRCFWCY	1000	Forward
		CRCBWCY	0100	Backward
		CRCFDOC	0010	File documentation
		CRCVDOC	0001	Volume documentation
		CRCINDIC	Half byte	Indicators
		CRCVRFY	1000	Verify specified
		CRUISF	0100	UIS Card
144	09	CRDOSIA	4	A(DOS IOAREA) for SAM and DAM or DOS WORKL for ISAM forward
156	9C	CRSMDFA1	4	ISAM: A (DTF to process prime data area extent) Other file : A (DTF to process the extent)
164	A4	CRSCYDFA	4	Non Isam file: points to DFDA addressed by CRSMDFA1 ISAM Multivolume: A (DTFDA to process the cylinder index extent) except if cylinder index and independent overflow are on the same volume
168	A8	CRSOVDFA	4	ISAM file: A(DTFDA to process independent overflow extent A(DTFDA to process the independent overflow extent and the cylinder index extent) if they are on the same volume
254	FE	CRFILTYP	2	File type
		CRFISEQ	X'8000'	ISAM
		CRFSEQ	X'4000'	SAM
		CRFDA	X'2000'	DAM
266	10A	CRFEXTYP	1	Extent type
		CRCYLTYP	00000100	Cylinder extent
		CROVTYP	00000010	Overflow area
		CRPDTYP	00000010	Prime data or consecutive area
420	1A4	--------	1	VTOC indicators
		CRFVTOCF	10000000	First half of DPS sector being processed (bit 1=0 indicates second half)
		CRFVTOCE	01000000	End of DPSVTOC has been encountered
		CRFVNOF1	00100000	No format 1 label
		CRFVNOF3	00010000	No format 3 label
		CRFVOLNB	00001000	Incorrect volume number
		CRVOLF1	00000100	Next F1 label to be read
		CRVOLF3	00000010	Next F3 label to be read
		CRINITSW	00000001	File to be opened (DPS file initialization)
472	1D8	CRFVDIND	1	Documentation indicators
		CRFVDR2H	10000000	DPS record size greater than track capacity
		CRFVDB2H	01000000	DPS block size greater than track capacity
		CRFVDBDH	00100000	DOS block size greater than track capacity
		CRFVDBDM	00010000	DOS block size is not a multiple of DPS block size
		CRFVEXIN	00001000	No extent found in F1 label

DATA INTERCHANGE COMMUNICATION REGION FLAG BYTE LAYOUT (Cont'd)

Displacement Dec	Displacement Hex	Field	Bytes	Field description
474	1D4	CRFDASTN	2	Sector number beginning of data area SAM=DPS cylinder DAM=DPS extent ISAM=DPS prime data cylinder } data area
488	1E8	CRMERBYT	2	Error indicators from ERRBYTE DOS DTFDA defining the M20 file
490	1EA	CRDERBYT	2	Error indicators from ERRBYTE DOS DTFDA defining the DOS file (DAM only)
500	1F4	CRFDKEY	8	DOS file key (DA copy) which is the M20 ID (MBBCCHHR)

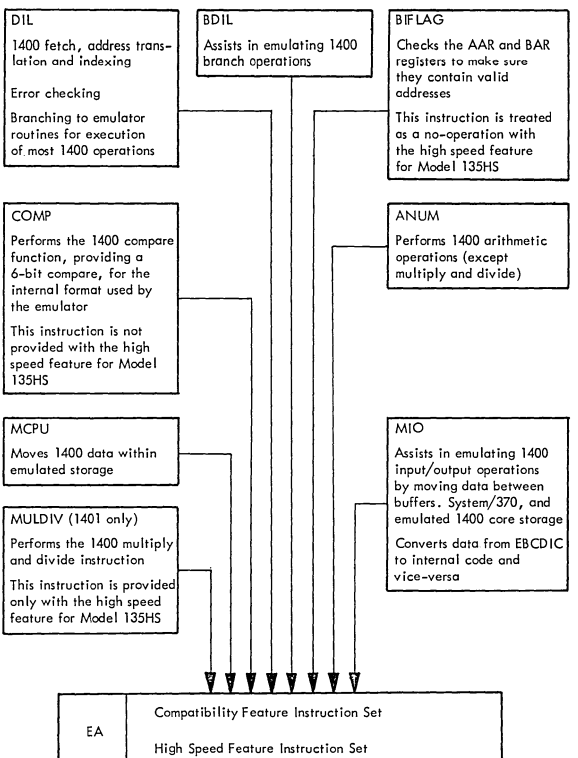
Note: GPR3 points to the data interchange communication region.

Problem determination aids: use the diagnostics facilities of DOS/VS

The DI Program is not dependent on the Hardware compatibility feature # 7520 and can run on any model supported by DOS/VS

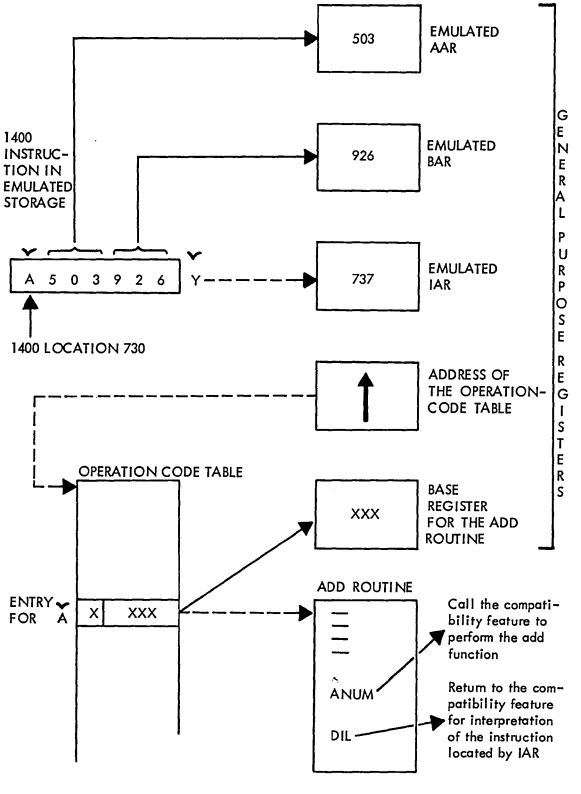
CHAPTER V
14xx EMULATOR

1401/1440/1460 AND 1410/7010 COMPATIBILITY FEATURE INSTRUCTIONS



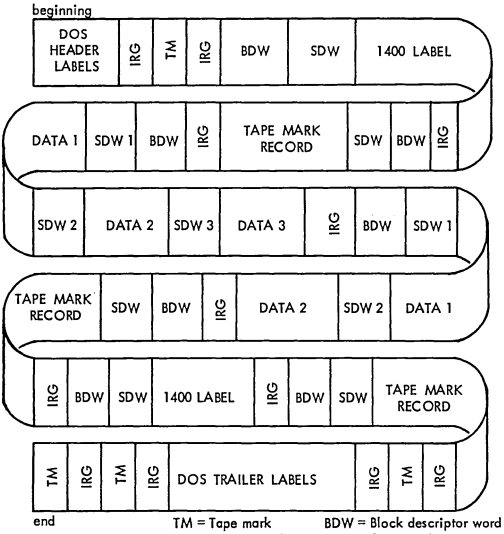
1401/1440/1460 AND 1410/7010

HOW DIL INSTRUCTION FETCHES 1400 INSTRUCTION



1401/1440/1460 AND 1410/7010

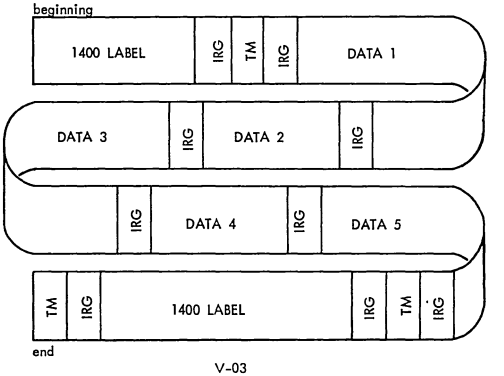
TAPES IN SPANNED FORMAT AND 1400 FORMAT



TM = Tape mark BDW = Block descriptor word

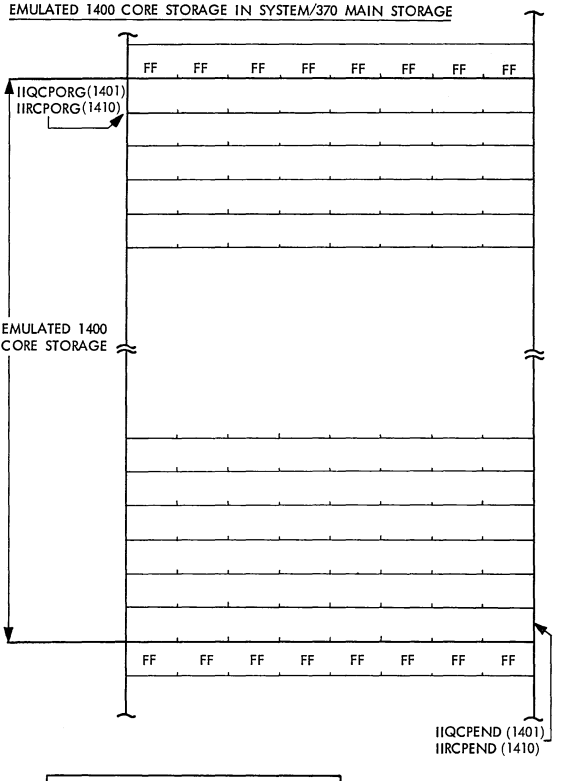
IRG= Inter-record gap SDW = Segment descriptor word

1400 FORMAT



1401/1440/1460 AND 1410/7010

EMULATED 1400 CORE STORAGE IN SYSTEM/370 MAIN STORAGE



SYSTEM/370 BYTE	1400 CHARACTER
0	bit 8
1	bit 4
2	bit 2
3	bit 1
4	bit B
5	bit A
6	bit W
7	bit always 0

EXAMPLE:
CWBA8421
in BCD format becomes:
8421BAWC
in internal format.

1401/1440/1460 AND 1410/7010 COMPATIBILITY FEATURE

REGISTER	BYTE 0	BYTES 1,2 AND 3	COMMENTS
2	Zero	Zero	Work register for compatibility feature
3(COMREG)	Zero for valid address	Communication region base register	Binary address of communication region
4 (BAR)	Zero for valid address	B - address register	Binary address of current 1400 B - field
5 (AAR)	Zero for valid address	A- address register	Binary address of current 1400 A - field
6 (IAR)	DILCNT	1400 instruction counter	Binary address of next 1400 instruction to be fetched
7(BASOP)	Control byte	Emulation routine base register	Binary address of emulation routine

Contents of GPR 2 through GPR 7 used by the compatibility feature

Emulator Unit Control Block (EUCB)

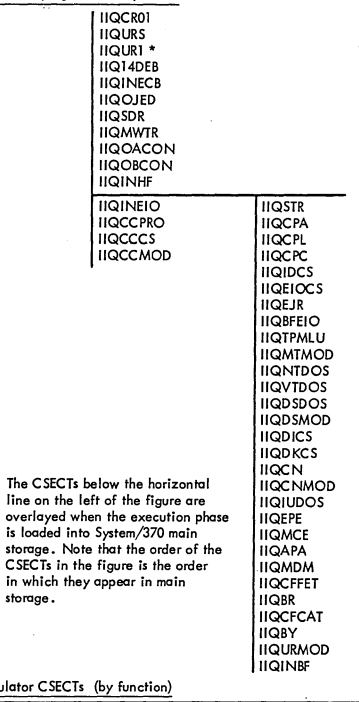
One for each device to be emulated.
Created at generation time, modified with emulator control statements.

- SUB — For tape drive and UR device.
- DUB — For each DA device. Followed by a disk extent table (DUBEXTPT) used to locate 1400 disks in CS format on S/370 disk pack.
- EMDTF — Interface between DOS logical or physical IOCS and emulation routines of the emulator. Contains: CCW and CCB or DTFPH for the file, EOF indicator, parity, error indicator, data address.

Emulator Channel Control Block (1410/7010 only) (ECCB)

For each emulated 1400 channel.
Contains: channel status indicator, device assignment table, EAR, FAR, GAR, or HAR

Emulator program overlay tree:



The CSECTs below the horizontal line on the left of the figure are overlayed when the execution phase is loaded into System/370 main storage. Note that the order of the CSECTs in the figure is the order in which they appear in main storage.

Emulator CSECTs (by function)

Initialization	CPU emulation	I/O emulation		Emulator services	Catalog and fetch
IIQINENT	IIQCPA	IIQURS	IIQDSMOD	IIQ14DEB	IIQCFFET
IIQINECB	IIQCPL	IIQIDCS	IIQDICS	IIQOJED	IIQCFCAT
IIQINHF	IIQCPC	IIQEIOCS	IIQDKCS	IIQSDR	
IIQINEIO	IIQEPE	IIQBFFIO	IIQCN	IIQMWTR	
IIQINBF	IIQMCE	IIQTPMLU	IIQCNMOD	IIQOACON	
	IIQAPA	IIQMTMOD	IIQIUDOS	IIQOBCON	
	IIQMDM	IIQNTDOS	IIQURMOD	IIQCCPRO	
	IIQBR	IIQVTDOS	IIQUR1 *	IIQCCCS	
	IIQBY	IIQDSDOS		IIQCCMOD	
				IIQSTR	
				IIQEJR	

* Note: IIQUR1 is created if a carriage control tape is to be used on the S/370 printer (CARRCTL=NO)

1401/1440/1460 DISK FORMAT

PP bb 2164 00	LL bb 108 00	EMUL CTL	SECTOR 1 100 bytes	⋯	LL bb 108 00	EMUL CTL	SECTOR20 100 bytes

Format of a System/370 record representing a 1301 or 1311 track (sector mode)

PP bb 2992 00	LL bb 2988 00	EMUL CTL		TRACK 2980 bytes

Format of a System/370 record representing a 1311 track (track mode)

PP bb 2555 00	LL bb 2551 00	EMUL CTL		TRACK 2543 bytes

Format of a System/370 record representing a 1301 track (track mode)

PP bb 1044 00	LL bb 208 00	EMUL CTL	SECTOR 1 200 bytes	⋯	LL bb 208 00	EMUL CTL	SECTOR 5 200 bytes

Format of a System/370 record representing a 1405 track

PP bb : The first two bytes contain the length of the System/370 physical record; the last two are set to zero.

LL bb : The first two bytes contain the length of a System/370 logical record; the last two are set to zero.

EMULCTL : This 4-byte field is set to zero except for the first bit of the first byte:
Bit 0 = 0 , move mode
Bit 0 = 1 , load mode

SECTOR AND TRACK : This field contains the 1400 data.

Disk format	Load mode	Move mode
1301 or 1311 sector mode	90	100
1301 track mode	2261	2543
1311 track mode	2682	2980
1405	176	200

Number of 1400 Characters in System/370 Disk Records

1400 ADDRESSES AND CORRESPONDING MACHINE CODES

	ADDRESSES 0000-3999		ADDRESSES 4000-7999 A-bit (0-Zone) over Units Position		ADDRESSES 8000-11999 B-bit (11-Zone) over Units Position		ADDRESSES 12000-15999 AB-bits (12-Zone) over Units Position	
	Addresses	Codes	Addresses	Codes	Addresses	Codes	Addresses	Codes
	0000-0099	000-099	4000-4099	00x-09Z	8000-8099	00p-00R	12000-12099	00g-09I
	0100-0199	100-199	4100-4199	10x-19Z	8100-8199	10p-19R	12100-12199	10g-19I
	0200-0299	200-299	4200-4299	20x-29Z	8200-8299	20p-29R	12200-12299	20g-29I
	0300-0399	300-399	4300-4399	30x-39Z	8300-8399	30p-39R	12300-12399	30g-39I
	0400-0499	400-499	4400-4499	40x-49Z	8400-8499	40p-49R	12400-12499	40g-49I
	0500-0599	500-599	4500-4599	50x-59Z	8500-8599	50p-59R	12500-12599	50g-59I
	0600-0699	600-699	4600-4699	60x-69Z	8600-8699	60p-69R	12600-12699	60g-69I
	0700-0799	700-799	4700-4799	70x-79Z	8700-8799	70p-79R	12700-12799	70g-79I
	0800-0899	800-899	4800-4899	80x-89Z	8800-8899	80p-89R	12800-12899	80g-89I
	0900-0999	900-999	4900-4999	90x-99Z	8900-8999	90p-99R	12900-12999	90g-99I
A-bit (0-Zone)	1000-1099	x00-x99	5000-5099	x0x-x9Z	9000-9099	x0p-x9R	13000-13099	x0g-x9I
	1100-1199	/00-/99	5100-5199	/0x-/9Z	9100-9199	/0p-/9R	13100-13199	/0g-/9I
	1200-1299	S00-S99	5200-5299	S0x-S9Z	9200-9299	S0p-S9R	13200-13299	S0g-S9I
	1300-1399	T00-T99	5300-5399	T0x-T9Z	9300-9399	T0p-T9R	13300-13399	T0g-T9I
	1400-1499	U00-U99	5400-5499	U0x-U9Z	9400-9499	U0p-U9R	13400-13499	U0g-U9I
	1500-1599	V00-V99	5500-5599	V0x-V9Z	9500-9599	V0p-V9R	13500-13599	V0g-V9I
	1600-1699	W00-W99	5600-5699	W0x-W9Z	9600-9699	W0p-W9R	13600-13699	W0g-W9I
	1700-1799	X00-X99	5700-5799	X0x-X9Z	9700-9799	X0p-X9R	13700-13799	X0g-X9I
	1800-1899	Y00-Y99	5800-5899	Y0x-Y9Z	9800-9899	Y0p-Y9R	13800-13899	Y0g-Y9I
	1900-1999	Z00-Z99	5900-5999	Z0x-Z9R	9900-9999	Z0p-Z9R	13900-13999	Z0g-Z9I
B-bit (11-Zone)	2000-2099	p00-p99	6000-6099	p0x-p9Z	10000-10099	p0p-p9R	14000-14099	p0g-p9I
	2100-2199	J00-J99	6100-6199	J0x-J9Z	10100-10199	J0p-J9R	14100-14199	J0g-J9I
	2200-2299	K00-K99	6200-6299	K0x-K9Z	10200-10299	K0p-K9R	14200-14299	K0g-K9I
	2300-2399	L00-L99	6300-6399	L0x-L9Z	10300-10399	L0p-L9R	14300-14399	L0g-L9I
	2400-2499	M00-M99	6400-6499	M0x-M9Z	10400-10499	M0p-M9R	14400-14499	M0g-M9I
	2500-2599	N00-N99	6500-6599	N0x-N9Z	10500-10599	N0p-N9R	14500-14599	N0g-N9I
	2600-2699	O00-O99	6600-6699	O0x-O9Z	10600-10699	O0p-O9R	14600-14699	O0g-O9I
	2700-2799	P00-P99	6700-6799	P0x-P9Z	10700-10799	P0p-P9R	14700-14799	P0g-P9I
	2800-2899	Q00-Q99	6800-6899	Q0x-Q9Z	10800-10899	Q0p-Q9R	14800-14899	Q0g-Q9I
	2900-2999	R00-R99	6900-6999	P0x-P9Z	10900-10999	R0p-R9R	14900-14999	R0g-R9I
AB-bits (12-Zone)	3000-3099	g00-g99	7000-7099	g0x-g9Z	11000-11099	g0p-g9R	15000-15099	g0g-g9I
	3100-3199	A00-A99	7100-7199	A0x-A9Z	11100-11199	A0p-A9R	15100-15199	A0g-A9I
	3200-3299	B00-B99	7200-7299	B0x-B9Z	11200-11299	B0p-B9R	15200-15299	B0g-B9I
	3300-3399	C00-C99	7300-7399	C0x-C9Z	11300-11399	C0p-C9R	15300-15399	C0g-C9I
	3400-3499	D00-D99	7400-7499	D0x-D9Z	11400-11499	D0p-D9R	15400-15499	D0g-D9I
	3500-3599	E00-E99	7500-7599	E0x-E9Z	11500-11599	E0p-E9R	15500-15599	E0g-E9I
	3600-3699	F00-F99	7600-7699	F0x-F9Z	11600-11699	F0p-F9R	15600-15699	F0g-F9I
	3700-3799	G00-G99	7700-7799	G0x-G9Z	11700-11799	G0p-G9R	15700-15799	G0g-G9I
	3800-3899	H00-H99	7800-7899	H0x-H9Z	11800-11899	H0p-H9R	15800-15899	H0g-H9I
	3900-3999	I00-I99	7900-7999	I0x-I9Z	11900-11999	I0p-I9R	15900-15999	I0g-I9I

Note : The symbols #, ! and ? have been replaced by the letters x, p and g, respectively since this is the method of display on the 1052 Printer-Keyboard.

Dynamic Service Aids, format of emulator commands :

IDENTIFI-CATION	KEYWORD AND OPERANDS	FUNCTION
DISPLAY	CONFIG	Assignment of all I/O devices.
	ADDR=nnnnn	40 Characters of 1400 core storage from 1400 decimal address nnnnn. WM are displayed as one underscore Word separator as 2 (--).
	XADDR=nnnnnn	4 Fullwords of S/370 main storage data from hex address nnnnnn.
	SENSE	Emulated sense switches from A to G.
	INQUIRY	Inquiry indicator.
	REG	IAR, AAR, BAR.
	STATUS	Switches and IAR, BAR, AAR.
	TAPE [=n]	Assignment of tape unit n. Default value is display all.
	DISK [=n]	Assignment of disk storage n. Default is display all.
	UR	Assignment of all UR devices
DEBUG		Emulates certain debugging functions. Only one is active at a given time. Next command cancels the effect of the previous one. DEBUG=YES must be coded in the EMSUP macro.
	ACTION= {SET / RESET / nnnnn}	SET= enables TYPE=SET or TYPE=TRACE RESET= disable TYPE action nnnnn= 1400 stop address
	TYPE= {ADSTOP / STEP / TRACE}	ADSTOP= 1400 stop address emulation STEP= I/E Mode switch emulation TRACE= lists on SYSLST all 1400 instructions executed and AAR, IAR, BAR.
DUMP		Dumps onto SYSLST the 1400 core storage or the S/370 main storage. Default value is all 1400 core storage dumped. DEBUG=YES must be coded in the EMSUP macro.
	FROM=a,TO=b	1400 Core storage. a and b are decimal from 1 to 5 digits long. Default value is all core dumped.
	XFROM=a, XTO=b	S/370 Main storage. a and b are hex from 1 to 6 digits long. Default value is all storage dumped.
RETRY		Used to reread a card that has just been corrected. May be used only if 1400 card are read on a 2540 or a 3505.

1401/1440/1460 PROBLEM DETERMINATION AIDS (....Cont'd)

Emulator Routine in Error

If an emulator message has been issued, the message explanation should give some idea as to the nature of the error. The Logic Manual lists all the routines that can issue a particular message.

- Determine which 1400 instruction was being emulated at error time.
- IAR normally points to the next 1400 instruction to be emulated.
- Use IAR, program listing or dump to locate the 1400 instruction to be emulated.
- The last 1400 I/O instruction emulated (M, L or U op-code) is stored at CCINSTSV.

Communication Region

GPR 3 should point to it which is on a 256 byte boundary (first 512 bytes are put on the same page).

- If GPR 3 does not point to the COMREG, locate IIQCR01 in the linkedit map. The COMREG is located at the next 256 byte boundary address.

Emulated 1400 Core Storage

- Beginning address : CRMAPORG
- Ending address : CRMAPEND
- 1400 core storage is bounded at each end by a double word containing X'FF'.

Control Blocks and buffers

- Buffers and DTF's can be located using pointers in the SUB or DUB of the emulated device.
- To find a SUB or DUB, find a displacement in the device assignment table at CCASNDEV in the COMREG (displacement 8D0) and the address of the UCB address list at CMUCBLST (displacement 888). Using the value from CCASNDEV multiplied by 4, as an index, get the address of the corresponding SUB or DUB,

  or : When control has been given to I/O emulation and DOS interface routines, get the address of the SUB or DUB involved from GPR 9 ,

  or : As the file name is in BCD in the SUB and DUB, find it in the dump between the COMREG and emulated 1400 core storage.

1400 Registers

The IAR, BAR, AAR are maintained in S/370 binary format, use emulator commands DISPLAY=REG or DISPLAY=STATUS to display the contents of those registers.

Note : COMREG stands for Communication Region.

1401/1440/1460 TABLE OF REGISTER USAGE

ROUTINE	REGISTER CONTENTS AT ENTRY EMULATOR ROUTINES
IIQEP	Same as IIQAP
IIQID	3 - Address of communication region 4 - BAR 5 - AAR 6 - IAR 7 - Base register for this routine 13 - Save area address provided by this routine
IIQIU	Same as IIQDS
IIQMC	Same as IIQAP
IIQMD	Same as IIQAP
IIQMW	0 - Address of variable text or zero 1 - Message number of message to be issued 13 - Address of caller's register save area 14 - Return address 15 - Entry point address
IIQNT	Same as IIQDS
IIQOA	0 - Address of variable text or zero, or length of operator's reply on return from IIQMW 1 - Message number of message to be issued or address of operator's reply on return from IIQMW
IIQOB	0 - Length of the emulator command or control statement 1 - Address of the emulator command or control statement
IIQOC thru IIQOK	0 - Address of a parameter list
IIQTP	3 - Address of communication region 9 - Address of SUB 13 - Address of caller's register save area 14 - Return address 15 - Entry point address and DILCNT interruption indication
IIQSD	3 - Address of communication region 13 - Address of caller's register save area 14 - Return address 15 - Entry point address
IIQST	3 - Address of communication region 7 - Base register for this routine
IIQUR	3 - Address of communication region 4 - BAR 13 - Address of caller's register save area 14 - Return address 15 - Entry point address and DILCNT interruption indication
IIQUR1	3 - Address of communication region 4 - BAR 9 - Address of printer SUB 13 - Address of caller's register save area 14 - Return address 15 - Entry point address

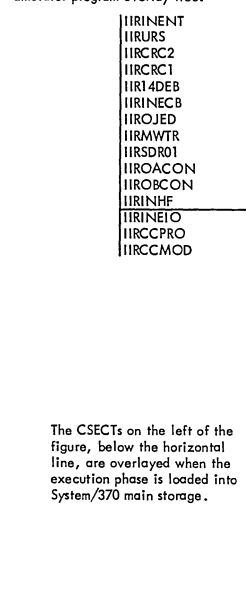
ROUTINE	REGISTER CONTENTS AT ENTRY EMULATOR ROUTINES
IIQVT	Same as IIQDS
IIQAP	3 - Address of communication region 4 - BAR 5 - AAR 7 - Base register for this routine
IIQCN	3 - Address of communication region 4 - BAR 9 - Address of SUB 14 - Return address 15 - Entry point address
IIQCP	3 - Address of communication region 4 - BAR 5 - AAR 7 - Base register for this routine
IIQDI	3 - Address of communication region 4 - BAR 5 - AAR 9 - Address of DUB 14 - Return address 15 - Entry point address
IIQDK	Same as IIQDI
IIQDS	0 - Code indentifying function to be performed 1 and 9 - Address of SUB 3 - Address of communication region
IIQEI	0 - Code indentifying function to be performed 1 - Address of SUB or DUB

- Note that the DILCNT, set by unit record and tape emulation routines for overlapped I/O operations, is in the seven leftmost bits of GPR 6.

- The compatibility feature DIL instruction sets GPR 4, GPR 5, GPR 6, and GPR 7 (BAR, AAR, IAR, and base register) before giving control to an emulator program routine. The compatibility feature also uses GPR 2 as a work register.

- Register usage remains the same throughout the execution of a given routine. In addition, note that GPR 15 is used for return codes by IIQEI, IIQDS, IIQIU, IIQMW, IIQNT, IIQVT, and IIQOC through IIQOI.

Emulator program overlay tree:

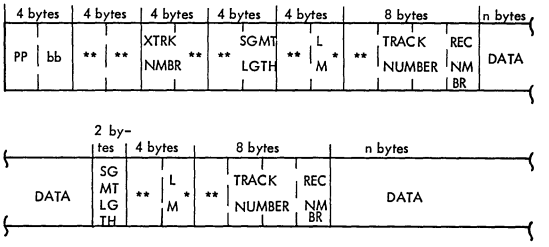


The CSECTs on the left of the figure, below the horizontal line, are overlayed when the execution phase is loaded into System/370 main storage.

Emulator Program CSECT Layout

INITIALIZATION	CPU EMULATION	I/O EMULATION	EMULATOR SERVICES
IIRINENT	IIRCP	IIRURS	IIROJED
IIRINECB	IIRFP	IIRIDCS	IIRMWTR
IIRINHF	IIRST	IIREIOCS	IIRSDR
IIRINEIO	IIRPR	IIRBFEIO	IIROACON
IIRINBUF	IIRMIM	IIRTPMLU	IIROBCON
	IIRMIC	IIRMTMOD	IIRCCPRO
		IIRNTDOS	IIRCCMOD
		IIRVTDOS	IIRSTR
		IIRDSMOD	IIR14DEB
		IIRDSDOS	IIREJR
		IIRDCC	
		IIRDK0	
		IIRIUDOS	
		IIRIS	
		IIRURMOD	
		IIRDK1	

1410/7010 DISK FORMAT



Each System/370 disk record represents one 1400 disk track.

PP	:	Length of the S/370 physical record 1301 Mod 1 and 2 : 2,828 bytes 1302 Or 2302 Mod 1 and 2 : 5,878 bytes
bb	:	Set to zero
XTRK NMBR	:	Hex number of the 1400 track (first trk is 0) First byte : bit 0 = 0 move mode = 1 load mode
SGMT LGTH	:	Sum of the length of the control information field (14 bytes) and the 1400 data field
LM	:	Bit 0 = 0 move mode = 1 load mode
TRACK NMBR	:	Decimal number of the 1400 track
REC NMBR	:	Decimal number of the record (first record is 0)
**	:	Not used

DISK FORMAT	LOAD MODE CHARACTERS	MOVE MODE CHARACTERS
1301 Models 1 and 2	2165	2800
1302 or 2302 Models 1 and 2	4533	5850

Number of 1400 characters in System/370 Disk Records

1410/7010 TABLE OF REGISTER USAGE

MODULE	REGISTER CONTENTS AT ENTRY
IIRCP	3 - Address of the communication region 4 - BAR 5 - AAR 7 - Base register
IIRDK	3 - Address of the communication region 4 - BAR 5 - AAR 9 - Address of the DUB 10 - Address of the ECCB 14 - Return address 15 - Entry point address
IIRDL	Same as IIRDK
IIRDS	0 - Code indentifying the function to be performed 1 and 9 - Address of the DUB or the SUB 3 - Address of the communication region
IIREI	0 - Code indentifying the function to be performed 1 - Address of a DUB or SUB
IIRID	3 - Address of the communication region 4 - BAR 5 - AAR 6 - IAR 7 - Base register 13 - Save area address
IIRIU	Same as IIRDS
IIRMI	Same as IIRCP
IIRFDP	Same as IIRCP
IIRPR	Same as IIRCP
IIRST	Same as IIRCP
IIRMW	0 - Address of variable text or zero 1 - Message number of message to be issued 13 - Address of caller's register save area 14 - Return address 15 - Entry point address
IIRNT	Same as IIRDS
IIROA	0 - Address of variable text or zero, or length of 68160r operator's reply on return from IIRMIO 1 - Message number of message to be issued or address of an operator's reply on return from IIRMIO
IIROB	0 - Length of the emulator command or control statement 1 - Address of the emulator command or control statement
IIROC thru IIROK	0 - Address of a parameter list

MODULE	REGISTER CONTENTS AT ENTRY
IIRTP	3 - Address of the communication region 9 - Address of the SUB 10 - Address of the ECCB 13 - Address of caller's register save area 14 - Return address 15 - Entry point address and DILCNT interruption indication
IIRSD	3 - Address of the communication region 13 - Address of caller's register save area 14 - Return address 15 - Entry point address
IIRST	3 - Address of the communication region 7 - Base register
IIRVT	Same as IIRDS

- Note that GPR 15 is used for return codes by IIREI, IIRDS, IIRIU, IIRMW, IIRNT, IIRVT, and IIROC through IIROI and IIROK.

- The compatibility feature DIL instruction sets up GPR 4, GPR 5, GPR 6, and GPR 7 (the BAR, AAR, IAR, and entry point address for the routine given control), before giving control to an emulator program routine. The compatibility feature also uses GPR 2 as a work register.

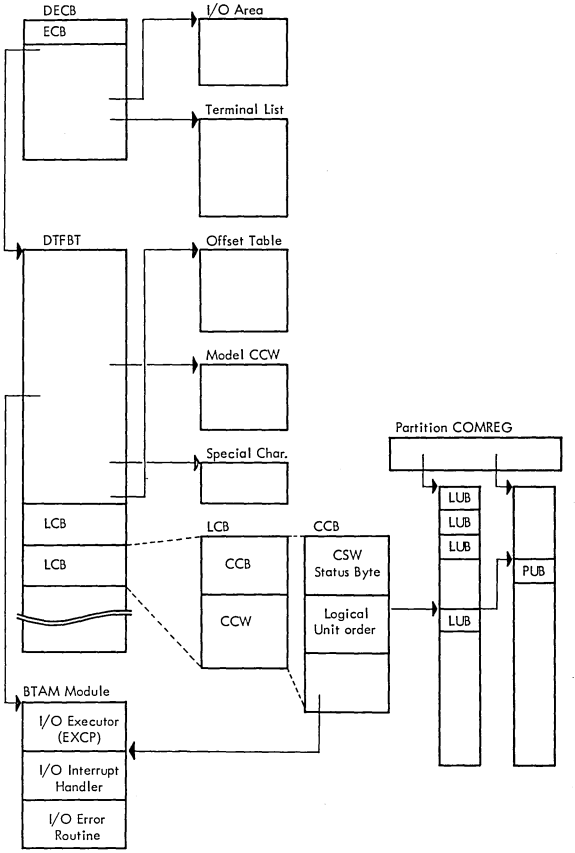
1410/7010 PROBLEM DETERMINATION AIDS

Dynamic Service Aids, format of emulator commands :

IDENTIFICATION	KEYWORD AND OPERANDS	COMMENTS
DISPLAY		Displays on SYSLOG
	SWITCH	Status of the inquiry indicator
	REG	IAR, AAR, BAR
	STATUS	Switches and IAR, AAR, BAR
	TAPE [=cn]	Assignment of tape unit cn (c=channel, n=unit) Default value is display all
	DISK[=cma]	Assignment of disk storage cma (c=channel, m=module, a=unit) Default value is display all
	UR	Assignment of all unit record devices
	CONFIG	Assignment of all I/O devices
	ADDR=nnnnn	40 Characters of 1400 core storage from 1400 decimal address 'nnnnn'. WM are displayed as one underscore Word separator as 2 (--)
	XADDR=nnnnnn	4 Fullwords of S/370 main storage data from hex address 'nnnnnn'
DEBUG		Emulates certain debugging functions. Only one is active at a given time. Next command cancels the effect of the previous one. DEBUG=YES must be coded in the EMSUP macro.
	ACTION= {nnnnn / SET / RESET}	'nnnnn' = 1400 stop address SET = enable TYPE=SET or TYPE=TRACE RESET = disable TYPE action
	TYPE= {ADSTOP / STEP / TRACE}	ADSTOP = 1400 stop address emulation STEP = I/E Mode switch emulation TRACE = lists on SYSLST all 1400 instructions executed and AAR, IAR, BAR
DUMP		Dumps onto SYSLST the 1400 core storage or the S/370 main storage. Default value is all 1400 core storage dumped. DEBUG=YES must be coded in the EMSUP macro
	FROM=a, TO=b	1400 core storage (a and b are decimal from 1 to 5 digits long. Default value is all core dumped.
	XFROM=a, XTO=b	S/370 main storage (a and b are hex from 1 to 6 digits long. Default is all storage dumped.

CHAPTER VI
BTAM

CONTROL BLOCK LINKAGES



DTFBT TABLE

	0	1	2	3
0(0)	LCB Count	LCB Size	Feature Flags	
4(4)	Flag Byte 1 or IAM	WRU	EOM	EOT
8(8)	DTFBT Flags	Buffer Control Block Address		
12(0C)	Device Code	Address of CCW Model Table		
16(10)	DTFBT Length / 16	Address of BTAM Logic		
20(14)	DTF Type + Code	Flag Byte 2	Message Length or Mondly	
24(18)	Retry Count	Address of Table of specific characters		
28(1C)	2x Retry Count	Line Error Block Address		
32(20)	Address of Table of Offsets			
36(24)	Reserved			
40(28)	CCB-LCB Area (See Line Control Blocks)			
	Buffer Pool (if any)			

DTFBT Table Explanation

Byte(s)	Description	
	Meaning	Source
0 (0) LCB Count	The number of LCB's in this DTFBT	Generated by the DTFBT macro by analyzing the LINELST keyword operand
1 (1) LCB Size	The number of bytes in each LCB in this DTFBT	Computed by DTFBT macro expansion from the DEVICE and FEATURE operands
2-3 (2-3) Feature Flags	Describes device features : First byte (2) Bit Configuration — Meaning B'10000000' SIX B'01000000' SXW B'11000000' SIW B'00100000' RIX B'00010000' RXW B'00110000' RIW B'00001000' SLV B'00000100' BSC B'00000010' Reserved B'00000001' OIU	DTFBT macro operand FEATURE

DTFBT Table Explanation

Byte(s)	Description	
	Meaning	Source
2-3 (2-3) Feature Flags (Cont'd)	Second byte (3) Bit Configuration — Meaning B'10000000' — Station Control (STC) B'01000000' — Transmit Control (TRC) B'00100000' — Checking (CHK) B'00010000' — PCI B'00001000' — Start-stop Auto Poll Bits 5-7 of the second byte are reserved	
4 (4) IAM or	Describes WTTA device feature	DTFBT macro operand FEATURE
Flag Byte 1	Local 2260/local 3270 Flags : Bit Configuration — Meaning B'10000000' — On-line Terminal Test Flag B'00010000' — Local 2260 and local 3270 RESTPL Inhibit Flag B'00001000' — Local 2260 and local 3270 NOP Wait Flag B'00001000' — BSC Valid First Character Flag (used by IJLM-ARTN) B'00000100' — Local 2260 and local 3270 Read Wait Flag B'00000010' — Local 2260 and local 3270 Res-can Flag B'00000001' — Loacl 2260 and local 3270 En-able-Read-in-Appendage Flag The remaining bits are reserved. When bit zero is on, the next three bytes contain On-line Terminal Test Information. For the local 2260 and local 3270, the next three bytes contain a pointer to the DECB	2260 local READ routine and Interruption handler/ BSC Message Analysis Routine
5 (5) WRU	Describes WTTA device feature	DTFBT macro operand FEATURE
6 (6) EOM	Character representing the end of a message (WTTA)	DTFBT macro operand EOM

DTFBT Table Explanation

Byte(s)	Description	
	Meaning	Source
7 (7) EOT	Character representing the end of a transmission (WTTA)	DTFBT macro operand EOT
8 (8) DTFBT Flags	Bit Configuration / Meaning B'00000001' DTFBT Open Flag B'00000010' Non-partitioned channel program flag B'00000100' Switched network flag B'00001000' Multipoint configuration (BSC) The remaining bits are reserved	The switched-network flag, the multipoint flag and the non-partitioned channel program flag are put in at assembly time. The open flag is maintained by the OPEN and CLOSE routines.
9-11 (09-0B) Buffer Control Block Address		Put in at assembly time by the DTFBT macro
12 (0C) Device Code	Numeric identifier of the type of device attached to the lines of this group Devices / Equated to 1030 1 1060 2 2848 3 83B3 4 115A 5 2260 6 1050 7 2740 8 TWX33 9 TWX35 10 1130 12 2780 13 WTTA 14 2020 15 3277 17	Put in by the DTFBT macro using the DEVICE keyword operand
13-15 (0D-0F) CCW Model Table Address		Put in by the Linkage Editor
16 (10) DTFBT Length 16		Put in at assembly time
17-19 (11-13) Address of BTAM Logic		Put in by the Linkage Editor
20 (14) DTF+CU	Numeric identifier of the DTF type and the control unit type	Initialized at assembly time from the CU keyword operand

DTFBT TABLE (....Cont'd)

DTFBT Table Explanation

Byte(s)	Description	
	Meaning	Source
20 (14) DTF+CU (Cont'd)	The DTF code is X'40' for a DTFBT. The following CU codes are OR'ed into the low-order 4 bits: Control Unit — Equated to 7770 — 1 2848 — 3 2701 — 4 2702 — 5 2703 — 6 3272 — 7	
21 (15) Flag Byte 2	Flags for ERP: Bit Configuration — Meaning B'00000100' — ERP requested B'00000010' — Read text retry B'00000001' — Write text retry The remaining bits are reserved	Flags are set by the ERROPT operand
22-23 (16-17) Message Length or		DTFBT macro operand MSGL
MONDLY	Number of pad characters (WTTA)	DTFBT macro operand MONDLY
24 (18) Retry Count	BSC Retry Ceiling	DTFBT macro operand RETRY
25-27 (19-1B) Address of Table of special Characters		Put in by Linkage Editor
28 (1C) 2x Retry Count	2x BSC Retry Ceiling	DTFBT macro operand RETRY
29-31 (1D-1F) Line Error Block Address		DTFBT macro operand LERBADR
32-35 (20-23) Table of Offsets	Pointers to the table of model CCW's corresponding to operation types defined for a particular device The displacement in the Table of Offsets corresponds to the operation code for the macro. An X'FF' at displacement 07 in the table, for example, means that optype X'07' (READ Repeat-TP) is not available. Operation Type Codes Code — Macro X'00' — WRITE DISCONNECT X'01' — READ INITIAL X'02' — WRITE INITIAL	Generated by the DTFBT macro from the DEVICE operand

DTFBT Table Explanation

Byte(s)	Description		
	Meaning		Source
32-35(20-23) Table of Offsets (Cont'd)	Code	Macro	
	X'03'	READ CONTINUE	
	X'04'	WRITE CONTINUE	
	X'05'	READ CONVERSATIONAL	
	X'05'	READ CONTINUE WITH GRAPHICS	
	X'06'	WRITE CONVERSATIONAL	
	X'07'	READ REPEAT	
	X'08'	WRITE ACK	
	X'08'	WRITE INIT TRANSPARENT BLOCK	
	X'09'	READ INITIAL INQUIRY	
	X'09'	READ SKIP	
	X'0A'	WRITE NAK	
	X'0A'	WRITE INITIAL TRANSPARENT TEXT	
	X'0B'	READ BUFFER	
	X'0B'	READ REPEAT WITH GRAPHICS	
	X'0C'	WRITE AT LINE ADDR.	
	X'0C'	WRITE INIT TRANSPARENT CONVERSATIONAL	
	X'0D'	READ SHORT	
	X'0D'	READ INQUIRY	
	X'0E'	WRITE ERASE	
	X'0E'	WRITE INITIAL CONVERSATIONAL	
	X'0F'	READ CONTINUE WITH IDENTIFICATION EXCHANGE (WT TELEGRAPH)	
	X'10'	WRITE INVITATIONAL	
	X'10'	WRITE TRANSPARENT BLOCK	
	X'11'	READ INTERRUPT	
	X'11'	READ MODIFIED	
	X'12'	WRITE TRANSPARENT TEXT	
	X'12'	WRITE INITIAL OPTICAL	
	X'12'	WRITE UNPROTECTED ERASE	
	X'13'	READ CONTINUE WITH LEADING ACKNOWLEDGEMENT	
	X'13'	READ CONNECT	
	X'13'	READ BUFFER FROM POSITION	

DTFBT TABLE (....Cont'd)

DTFBT Table Explanation

Byte(s)	Description	
	Meaning	Source
32-35 (20-23) Table of Offsets (Cont'd)	Code Macro X'14' WRITE TRANSPARENT CONVERSATIONAL X'14' WRITE INVITATIONAL OPTICAL X'15' READ CONNECT WITH TONE X'16' WRITE EOT X'16' WRITE CONVERSATIONAL OPTICAL X'18' WRITE WACK X'19' READ MODIFIED FROM POSITION X'1A' WRITE INQUIRY X'1B' CONTROL INITIAL X'1C' CONTROL DISABLE X'1D' CONTROL MODE X'1E' CALL SEGMENT X'1F' ANSWER X'20' WRITE CONNECT	
36-39 (24-27) Reserved		
40-XX (28-..) Line Control Blocks	Line control blocks describe the particular line (See Line Control Block for detailed description)	One LCB is generated at assembly time for each line in the LINELST operand sublist
XX-XX (..-..) Buffer Pool	(Optional)	

LINE CONTROL BLOCK

	0	1	2	3
0(0)	CCB			
16(10)	Flag Byte	DECB Address		
20(14)	Relative Line No	Send Ack / Rcve Ack Local 3270 Flag Byte	Reserved	Mode Byte(BSC)
24(18)	ERP Message Code and Status Save Area			
32(20)	CCW Area reserved for ERP and Audio			
40(28)	User Channel Program Area			
104(68)	Marker (BSC)	Total User CCW Retries (BSC)	User CCW Retries (BSC)	ERP CCW Retries (BSC)
108(6C)	BSC Flag Byte 1	BSC Flag Byte 2	BSC Flag Byte 3	Reserved
112(70)	BSC ERP CCW Area (3 double-words)			

Line Control Block Explanation

Byte(s)	Description	
	Meaning	Source
0-15 (00-0F) CCB	Command Control Block	Space is reserved by the DTFBT instruction. The contents of the block are maintained by the Supervisor, IJLCPGX and IJLBTIH.
16 (10) LCB Flag Byte	Used to indicate LCB Conditions Bit Configuration — Meaning B'10000000' — Last LCB in line group B'01000000' — Line error at Open (except for local 2260 and local 3270 B'01000000' — Local 2260 or local 3270 Read started from Appendage	These flags are initialized by the DTFBT macro instruction. IJLCPGX, IJLBTIH and OPEN maintain them.

Line Control Block Explanation

Byte(s)	Description		
	Meaning		Source
16 (10) LCB Flag Byte (Cont'd)	Bit Configuration	Meaning	
	B'00100000'	Halt I/O requested	
	B'00010000'	LCB Cancel flag (ERP)	
	B'00001000'	Write at Line Address (remote 2260), LCB Q-flag (local 2260 or local 3270)	
	B'00000100'	Attention flag (local 2260 or local 3270), Terminal Test flag (OIU)	
	B'00000010'	Skip flag (local 2260 or local 3270), Frame Change Test flag (OIU)	
	B'00000001'	Printer flag (local 2260 or local 3270), Message from OIU flag (OIU)	
	B'00000001'	Re-read flag (WTTA)	
	B'00000001'	Auto Poll channel program modified flag (BSC)	
17-19 (11-13) DECB Address			This field is set to zero by the completion logic; The address is supplied by IJLCPGX
20 (14) RLN	Relative Line Number		The relative line number is inserted by the DTFBT macro instruction
21 (15) Send ACK/ Reve ACK or			
Local 3270 Flag Byte	Bit Configuration	Meaning	
	B'10000000'	Printer busy flag	
	B'01000000'	Unreliable device buffer contents	
	B'00100000'	RFT in progress flag	
	B'00010000'	Start original READ flag (RFT flag)	
	B'00001000'	I/O request flag	

Line Control Block Explanation

Byte(s)	Description	
	Meaning	Source
22 (16) Reserved		
23 (17) Mode Byte	Used for Set Mode	Initialized at assembly time; Updated via CONTROL
24-31 (18-1F) ERP Code and	Error Message Code (byte 24)	The hex value (1-byte) of the error message number to be printed is inserted by the routine that determined the error condition
Status Save Area	CSW bytes 1-7 (but not byte 0) (bytes 25-31)	The CSW is saved for the last user (non-ERP) CCW that completed
32-39 (20-27) ERP CCW		CCW is set up and executed in an attempt to recover from the error condition
40-103 (28-67) CCW Space	Channel Program Area	IJLCPGX builds the channel program in this space
104-107 (68-68) Marker and Retry Bytes		
108 (6C) BSC Flag Byte 1	Bit 0: 1= ENQ can be legally received 0= ENQ an illegal response to text Bit 1: 1= Last response-to-text was NAK (i.e., NAK was sent to remote station as the response to the last received message) Bit 2: 1= No response was received to previous Write text Bit 3: 1= No retry flag Bit 4: 1= Error occurred on an ERP CCW Bit 5: 1= ERP in process (due to Unit Check) Bit 6: 1= Error occurred on a Read Response to text or a Read text in a conversational WRITE channel program Bit 7: 1= First retry of the error discussed for bit 6	

Line Control Block Explanation

Byte(s)	Description	
	Meaning	Source
109 (6D) BSC Flag Byte 2	For any READ/WRITE macro other than WRITE Inquiry (TQ) with entry coded 'S', the Operation flag byte 1 in the DECB is moved into the BSC flag byte 2 in the LCB For WRITE Inquiry (TQ) with entry not coded 'S' bit-2 (B'00100000') of the BSC flag byte 2 in the LCB is turned ON subsequent to the moving in of the DECB Operation flag byte 1 Note: For WRITE Inquiry (TQ) with entry coded 'S', the BSC flag byte 2 in the LCB Extension will contain the value set by IJLCPGX for the most recently issued macro (normally an initial-type WRITE for dial operation) that was not a WRITE TQ with entry coded 'S'	Initialized by IJLCPGX
110 (6E) BSC Flag Byte 3	Bit 0: BTAM initiates terminal test Bit 1: LCB in test flag Bit 2: X=0 flag for on-line test Bit 3: Invalid character in RFT Bit 4: RESETPL flag for TERM test Bit 5: Positive response to line bid has been received Bit 6: Remote 3270 RFT BSC flag Bit 7: Reserved	
111 (6F) Reserved		
112-135(70-87) BSC ERP CCW	BSC ERP CCW Area (3 double-words)	

DATA EVENT CONTROL BLOCK (DECB)

	0	1	2	3
0(0)	Completion Code	Reserved for DOS/BTAM internal use (See explanantion of bit 6 of the flag byte)		
4(4)	Optype Qualifier bits	Optype Code	Length	
8(8)	Response Information Byte	DTFBT Address		
12(0C)	Mode Byte	Input/Output Address		
16(10)	Sense Byte	Sense byte for Diagnostic Read/ Write	Residual Count	
20(14)	Command Code	List Address or Entry Address		
24(18)	Flag byte	Relative Line Number	Response to Addressing Field	Response to LRC and/or VRC
28(1C)	TP Code	Error Information	Status Bytes	
32(20)	Reserved	Addressing Pointer		
36(24)	Reserved	Polling or Scanning Pointer		
40(28)	Flag Bytes for extended DECB	Reserved	Auxlength	
44(2C)	Reserved	Auxarea Address		

–BSC only–

Note: The first four (4) bytes of the DECB are called the Event Control Block (ECB). The last eight (8) bytes of the DECB are called the DECB extension.

DECB Explanation

Byte(s)	Description	
	Meaning	Source
0 (0) Completion Code	X'00' Operation in progress X'7F' Normal completion X'41' I/O error X'44' Terminal ID non-comparison X'48' HALT I/O requested and completed X'50' Contention (BSC or WTTA) X'51' End-of-file condition X'52' Wrong length record X'54' Non-productive operation X'58' Cancel condition detected X'60' Wrong ACK-i received (i= 0 or 1) X'61' WACK received or RVI received in response to selection on a multipoint line X'62' ENQ received in response to ENQ X'64' Unreliable device buffer contents	Maintained by IJLCPGX and IJLBTIH

Byte(s)	Description	
	Meaning	Source
1-3 (1-3) Reserved	Reserved for DOS/BTAM internal use (See explanation of bit 6 of the flag byte)	
4 (4) Optype Qualifier bits	Flags are set according to the type of operation Bit Configuration — Meaning B'10000000' — Initial optype B'01000000' — Reset optype B'00100000' — 2260 local lock operation B'00010000' — Conversational flag B'00010000' — Skip buffer check flag (local 3270 for RFT) B'00001000' — Start-stop; Auto Poll used in current operation B'00000100' — Entry 'S' B'00000010' — Area 'S' B'00000001' — Length 'S'	Set by READ, WRITE and CONTROL
5 (5) Optype Code (See DTFBT Table)	Operation type code of the last executed I/O macro instruction	Set by READ, WRITE and CONTROL
6-7 (6-7) Length	The amount of data to be transmitted or received	Length operand of READ or WRITE macro instruct.
8 (8) Response Information byte	Bit Configuration — Meaning B'00000010' — An RVI has been received in response to selection	
9-11 (09-0B) DTFBT Address	Specifies the line group	Operand of READ, WRITE or CONTROL
12 (0C) Mode byte	Used for Set Mode	Set by IJLCPGX
13-15 (0D-0F) Input/Output Address		Area operand of READ, WRITE or CONTROL
16 (10) Sense byte	Bit Configuration — Meaning B'10000000' — Command reject B'01000000' — Intervention req'd B'00100000' — Bus-out check B'00010000' — Equipment check B'00001000' — Data check B'00000100' — Overrun or, for local 3270, unit specify	Stored by IJLBTIH when an unit check has occurred

Byte(s)	Description	
	Meaning	Source
16(10) (Continued)	Bit Configuration / Meaning B'00000010' Lost data or, for local 3270, control check B'00000001' Time out or, for local 3270, operation check	
17 (11) Sense byte for diagnostic READ/WRITE		
18-19 (12-13) Residual count	The remaining amount of data which was not transmitted	Stored by IJLBTIH from the CCB and CSW
20 (14) Command code	Contains the command code	Stored by IJLBTIH when completion has occurred
21-23 (15-17) Entry Address	Address of terminal list entry	Initialized from entry operand of READ or WRITE; maintained by IJLBTIH
24 (18) Flag byte	Flag set to determine the type of operation Bit Configuration / Meaning B'10000000' PCI occurrence B'01000000' EOT received (BSC or WTTA) B'00100000' DLE EOT received (BSC) or WRU (WTTA) B'00010000' Stop flag B'00010000' Error status message received (BSC) B'00001000' Enable flag B'00000100' Indicates read buffers on a conversational WRITE B'00000010' Indicates ECB bytes 1, 2 and 3 contain address of first unreleased buffer not used at completion of a READ with area 'S' B'00000001' Terminal test operation	Set by IJLCPGX

Byte(s)	Description	
	Meaning	Source
25 (19) Relative line number	Position of line entry in list	From macro instruction operand
26 (1A) Response to Addressing	Space reserved for response to addressing	Channel program reads into this field
27 (1B) Read response to redundancy check		
28 (1C) TP Code	TP code of last command	Maintained by IJLBTIH and IJLCPGX
29(1D) Error Information	ERP information Bit Configuration — Meaning B'01000000' — Should-not-occur error B'00100000' — Error in ERP B'00010000' — Diagnostic WRITE READ failed B'00000010' — ENQ received in text (BSC) B'00000001' — NAK response to text (BSC) NAK or ID-NAK response to ID-ENQ (BSC)	Set by IJLBTIH
30-31(1E-1F) Status bytes	Bytes are set when an event occurs	Set by IJLBTIH from the CSW
32 (20) Reserved		
33-35 (21-23) Addressing Pointer	Address of terminal being addressed	Set by IJLCPGX
36 (24) Reserved		
37-39 (25-27) Polling or Scanning pointer	Address of terminal being polled or scanned	Set by IJLCPGX
40 (28) DECB extension flag byte	Flags are set according to the type of operation using the DECB extension Bit Configuration — Meaning B'10000000' — Auxarea 'S'	READ/WRITE

Byte(s)	Description	
	Meaning	Source
41 (29) Reserved		
42-43 (2A-2B) Auxlength	The amount of data to be transmitted or received by operations using the DECB extension	READ/WRITE
44 (2C) Reserved		
45-47(2D-2F) Auxarea	Address of data to be transmitted or input area for operations using the DECB extension	READ/WRITE

INDEX

CHAPTER 1 POWER/VS

A

ACB (account control block) 1-74, 1-75

B

BCA (buffer control area) 1-80 to 1-82
BCW (buffer control word) 1-68
BSC (line manager TCB fields) 1-85
buffer control area (see BCA)
buffer control word (see BCW)

C

CAT (control address table) 1-28 to 1-34
class chain 1-04
command processor control block (see CPB)
control address table (see CAT)
CPB (command processor control block) 1-60

D

disk management block (see DMB)
DMB (disk management block) 1-39 to 1-48
dump, file 1-99, 1-100

F

free queue set 1-03

I

interfaces and task structure 1-05 to 1-09

J

JECL (job ebtry control language)
    overview 1-23
    commands 1-24 to 1-27

L

LCB (line control block) 1-76 to 1-79
LDA (logical data record) 1-63
line control block (see LCB)
logical data record (see LDA)

M

MCB (module control block) 1-64, 1-65
message control block (see MMB)
MMB (message control block) 1-38
module control block (see MCB)

O

open 3540 Diskette Work Space 1-83
operator command language (see POCL)
operator command language, remote (see ROCL)

P

page control block (see PCB)
partition control block (see PDB)
PCB (page control block) 1-67
PDB (partition control block) 1-69, 1-70
phases to be cataloged 1-01
physical work space (see PWS)
POCL (power/vs operator command language)
    miscellaneous commands 1-16
    queue management commands 1-14, 1-15
    task management commands 1-11 to 1-13
programming requirements 1-01
PWS (physical work space) 1-61

Q

QRA (queue record area) 1-71, 1-72
queue entry 1-03
queue record 1-03
queue record area (see QRA)
queue set 1-03, 1-04

R

remote operator command language (see ROCL)
requirements, programming 1-01
RJE I/O trace 1-94
ROCL (remote operator command language)
    miscellaneous commands 1-22
    overview 1-17, 1-18
    queue management commands 1-19 to 1-21
    task management commands 1-18, 1-19
    terminal commands 1-18

S

SCB (storage control block) 1-36, 1-37
service aids
    file dump program 1-99, 1-100
    RJE I/O trace 1-99
SLI Work Space 1-73
SNA control block 1-86
SNA remote control block 1-87
SNA unit control block 1-91
SNA work area 1-95
SNA message control block 1-97
SNA manager TCB fields 1-98
storage control block (see SCB)

CHAPTER I POWER/VS (continued)

T

tape control block (see TBB)
task control block (see TCB)
task structure, interfaces and I-05 to I-09
TBB (tape control block) I-66
TCB (task control block) I-49 to I-59
    file control words and general task work area I-58, I-59
    linkage registers save areas I-58
    task management fields I-50 to I-54
    task registers save area I-55 to I-57

W

wait control block (see WCB)
WCB (wait control block) I-35

CHPATER II VTAM CONTROL BLOCKS

A

ACB (VTAM ACB) II-04 to II-06
ACDEB (ISTACDEB) II-07 to II-11
AOT (ISTAOT) II-12 to II-13
APT (ISTAPT) II-14
APT (ISTAPTX) II-16, II-17
ATCVT (ISTATCVT) II-18 to II-38
AVT (ISTAVT) II-39 to II-40

B

BPDIR (ISTBPDIR - buffer pool directory) II-41, II-42
BTU (ISTBTU) II-43 to II-45

C

CCB (ISTCCB) II-46
COMRG (ISTCOMRG) II-47 to II-50
CONFT (ISTCONFT) II-51 to II-60
control block
    relationship II-01
    relationships, process scheduling II-02, II-03

D

DEVCH (ISTDEVCH) II-61 to II-63
DNCB (ISTDNCB) II-64 to II-67
DTFLT (ISTDTFLT) II-68, II-69
DVT (ISTDVT) II-70, II-71
DVT (ISTDVTE) II-72

F

FMCB (ISTFMCB) II-73 to II-86
FSB (ISTFSB) II-87 to II-99

I

ICE (ISTICE) II-100, II-101

L

LCCW (ISTLCCW) II-102 to II-104
LCPB (ISTLCPB) II-105 to II-108

CHAPTER II VTAM CONTROL BLOCKS (continued)

N

NCB (ISTNCB) II-109, II-110
NCSPL (ISTNCPSL) II-111 to II-126
NCSPL (NCSAPP) II-127
NCSPL (NCSUSSRU) II-128

P

PAB (ISTPAB) II-129 to II-131
PIB (ISTPIB) II-132 to II-140
process scheduling control block relationships II-02, II-03

R

RDT (ISTRDT) II-141, II-142
RH (ISTRH) II-143, II-144
RPH (ISTRPH) II-145 to II-149
RPL (ISTRPL) II-150 to II-164

S

Service Aids II-171
SNT (ISTSNT) II-165

T

TH (ISTTH) II-166
TH (ISTTH2) II-167, II-168
TIE (ISTTIE) II 169, II-170

CHAPTER III VSAM CONTROL BLOCKS

A

ACB (access method control block) III-09 to III-12
access method block list (AMBL) III-07, III-08
access method control block (ACB) III-09 to III-12
access method control block structure (AMCBS) III-13
access method data statistics block (AMDSB) III-14 to III-17
access method define the file table (AMDTF) III-18 to III-20
address range defintion block (ARDB) III-21, III-22
AMBL (access method block list) III-07, III-08
AMCBS (access method control block structure) III-13
AMDSB (access method data statistics block) III-14 to III-17
AMDTF (access method define the file table) III-18 to III-20
ARDB (address range defintion block) III-21, III-22

B

BCB (buffer control block) III-23, III-24
BHD (buffer header) III-25
BKPHD (block pool header) III-26
block pool header (BKPHD) III-26
buffer control block (BCB) III-23, III-24
buffer header (BHD) III-25

C

catalog auxiliary work area (CAXWA) III-28, III-29
catalog communications area (CCA) III-30 to III-38
catalog parameter list (CTGPL) III-46, III-47
CAXWA (catalog auxiliary work area) III-28, III-29
CCA (catalog communication area) III-30 to III-38
CIW (control interval work area) III-40 to III-43
Close Work Area (CLWAAD) III-44 to III-45
control block structure
    catalog management III-05
    catalog management, caller supplied cb's III-06
    base clust to alternate index III-04
    data and index III-02
    key-sequenced data set III-01
    multiple string III-03
control interval work area (CIW) III-40 to III-43
CTGFL (field parameter list) III-55
CTGFV (field vector table) III-56
CTGPL (catalog parameter list) III-46, III-47

D

DASDSM Parameter List III-48
define the file indexed sequential (DTFIS) table III-49 to III-51
diagnostic aids (see Service aids)
DTFIS (define the file indexed sequential) table III-49 to III-51
dump (see service aids)

E

EDB (extent definition block) III-53
EXLST (exit list) III-52
extent definition block (EDB) III-53
exit list (EXLST) III-52

F

FCDB (field control and data block) III-54
field control and data block (FCDB) III-54
field parameter list (CTGLF) III-55
field vector table (CTGFV) III-56

I

IKQOPNWA (open work area) III-59 to III-65
IKQVDU (see service aids)
IKQVDUMP (see service aids

L

logical-to-physical mapping block (LPMB) III-57
LPMB (logical-to-physical mapping block) III-57

O

OAL (open ACB list) III-58
open ACB list (OAL) III-58
open work area (IKQOPNWA) III-59 to III-65

CHAPTER III VSAM CONTROL BLOCKS (continued)

P

Placeholder (PLH) III-66 to III-72
PLH (placeholder) III-66 to III-72

R

request parameter list (RPL) III-74 to III-77
Resource Sharing Control Block (RSCB) III-78
RPL (request parameter list) III-74 to III-77

S

service aids
    enabling and disabling snap dumps III-82, III-83
    IKQVDU III-88
    IKQVDUMP III-84
        testing if dump required III-84
    loading a VSAM phase or program you have written III-90
    maintaining DSCBs and VOL1 labels (IKQVDU) III-86 to III-90
    obtaining snap dumps III-82 to III-84
    using UPSI to obtain diagnostic information III-84 to III-86

T

THB (track hold block) III-79
track hold block (THB) III-79

U

upgrade set block (USB) III-80
USB (upgrade set block) III-80

CHAPTER IV MODEL 20 EMULATOR

C

communication region CR1 IV-04 to IV-15
    flagbyte layout IV-11 to IV-15
communication region Data Interchange IV-35 to IV-42
    flagbyte layout IV-40 to IV-42

D

Data- Interchange program
    overlay structure IV-34
    overview IV-33
disk record correspondence, Model 20 to System/370 IV-32

E

EDB layout
    device independence extension IV-19

INDEX (continued)

CHAPTER IV MODEL 20 EMULATOR (continued)

E

EDB layout (continued)
flagbytes layout IV-20, IV-21
I/O channel IV-18
storage control IV-17
1403/2203 printer IV-18
1442 card punch IV-16
2152 printer keyboard IV-18
2501/2520/2560 card reader IV-16
2520/2560 card reader/punch IV-16
2560 MFCM IV-17

H

HFUNTAB entries IV-24 to IV-28

I

initialization, flow of IV-01
inter-routine links
communication routines IV-22
routines (except communication routines) IV-23

L

layout, emulator IV-02, IV-03

O

overlay structure, Data- Interchange IV-34
overview of the Data - Interchange program IV-33

P

Problem Determination aids IV-29 to IV-31

S

service aids IV-29 to IV-31

CHAPTER V 14xx EMULATOR

A

addresses and corresponding machine codes, 1400 V-08

C

compatibility feature
feature, 1401/1440/1460 and 1410/7010 V-05
instructions, 1401/1440/1460 and 1410/7010 V-01
core storage in system/370 main storage, Emulated 1400 V-04

INDEX (continued)

CHAPTER V 14xx EMULATOR (continued)

D

DIL instruction fetches 1400 instruction, How V-02
disk format
1401/1440/1460 V-07
1410/7010 V-14

I

instructions
1401/1440/1460 and 1410/7010 compatibility feature V-01
DIL instruction fetches 1400 instruction, How V-02

M

machine codes, 1400 addresses and corresponding V-08

P

problem determination aids
1401/1440/1460 V-09, V-10
1410/7010 V-17
program organization
1401/1440/1460 V-06
1410/7010 V-13

R

register usage
1401/1440/1460 V-11, V-12
1410/7010 V-15, V-16

S

storage in System/370 main storage, Emulated 1400 core V-04

T

tape format, spanned and 1400 V-03

CHAPTER VI BTAM

C

control block linkage VI-01

D

data event control block (DECB) VI-12 to VI-16
DECB (data event control block) VI-12 to VI-16
define the file BTAM (DTFBT) VI-02 to VI-07
DTFBT (define the file BTAM) VI-02 to VI-07

L

LCB (line control block) VI-08 to VI-11
line control block (LCB) VI-08 to VI-11

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