

## Systems

# IBM Virtual Machine Facility/370: Data Areas and Control Block Logic

Release 3 PLC 1

This publication, along with the *IBM Virtual Machine Facility/370: System Logic and Problem Determination Guide*, is intended for system programmers responsible for updating VM/370. This publication contains descriptions of the major data areas and control blocks used by three of the components of VM/370: the Control Program (CP), the Conversational Monitor System (CMS), and the Remote Spooling Communications Subsystem (RSCS).

### Prerequisite Publications

To use this publication effectively and to understand it thoroughly, the following publications are prerequisite:

*IBM System/370: Principles of Operation*, Order No. GA22-7000  
*IBM OS/VS, DOS/VS, and VM/370 Assembler Language*,  
Order No. GC33-4010.

The IBM logo, consisting of the letters "IBM" in a bold, sans-serif font with a double outline.

First Edition (February 1976)

This edition corresponds to Release 3 PIC 1 (Program Level Change) of the IBM Virtual Machine Facility/370, and to all subsequent releases unless otherwise indicated in new editions or Technicals Newsletters (TNLS).

Changes are periodically made to the specifications herein; before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370 Bibliography, Order No. GC20-0001, for the editions that are applicable and current.

Requests for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, VM/370 Publications, 24 New England Executive Park, Burlington, Massachusetts 01803. Comments become the property of IBM.

## PREFACE

This publication contains reference information about control blocks and data areas associated with three major components of VM/370: CP, CMS, and RSCS.

This publication contains three sections and five appendixes:

- "Section 1. CP Data Areas and Control Blocks" contains information about CP data areas and control blocks.
- "Section 2. CMS Data Areas and Control blocks" contains information on CMS data areas and control blocks.
- "Section 3. RSCS Data Areas and Control Blocks" contains information on RSCS data areas and control blocks.
- "Appendix A: CP and RSCS Equate Symbols" contains assembler language equate symbols used by CP and RSCS to reference data.
- "Appendix B: RSCS Control Areas" contains RSCS control areas, which define constants and variables used during execution.
- "Appendix C: RSCS Request Elements" contains RSCS request elements, which are tables used by RSCS for task-to-task communication.
- "Appendix D: CMS Equate Symbols" contains CMS equate symbols.
- "Appendix E: Data Areas and Control Block References" contains information on modules that reference data areas and control blocks.

### OTHER VM/370 DATA AREAS AND CONTROL BLOCKS

Some data areas and control blocks relating to VM/370 service and support programs are not included in this publication. Information on these data areas and control blocks can be found in the IBM Virtual Machine Facility/370: Service Routines Program Logic manual, Order No. SY20-0882.

### RELATED PUBLICATIONS

This publication is intended to be used in conjunction with IBM Virtual Machine Facility/370: System Logic and Problem Determination Guide, Order No. SY20-0885. Users of the publication IBM Virtual Machine Facility/370: System Programmer's Guide, Order No. GC20-1807 will also find this publication useful.

For a glossary of VM/370 terms, see the IBM Virtual Machine Facility/370: Glossary and Master Index, Order No. GC20-1813.

The hardware and software support personnel or installation system programmer should use the IBM Virtual Machine Facility/370: Interactive Problem Control System (IPCS) User's Guide, Order No. GC20-1823, for information on how to use the facilities of IPCS.

### HOW TO USE THIS PUBLICATION

The CMS and RSCS components function under control of CP. Each component creates, updates, and erases its own control blocks and data areas.

Control blocks and data areas are generally blocks of related information applicable to one or more system functions. They are usually defined by the DSECT instruction. The blocks can reflect current status, history information, or combinations of both, applicable to VM/370 functions. Control blocks and data areas provide the linkage and information for the user, the hardware, and the programs to work as one entity for the successful execution of a job, task, or process.

This publication addresses and describes the major control blocks associated with CP, CMS, and RSCS. Generally, data areas, or scratch areas that are created and exist only during the execution of a particular module are not described in this publication. In this publication, the data areas and control blocks are arranged in alphabetical order by DSECT name.

For every data area or control block, a statement is given that defines the use of the data area or control block. This statement is followed by a formatted block showing the fields defined in the data area

or control block and the displacement into the DSECT of that field.

The formatted blocks for CP and CMS control areas are 8 bytes wide, showing two fullwords per line. RSCS control blocks are 4 bytes wide.

In the case where the name of a field is too large to fit into the formatted line, a pointer to the definition of the field is used instead of the name of the field. This pointer usually takes the form A\*1, A\*2, etc. When there is a particularly

large field (one that uses more than three or four lines of the formatted block), ellipses are used in the block to show that the displacement of this field is larger than can be shown in the block.

The formatted block is followed by listing-related information: the hexadecimal displacement of the field into the DSECT, the name of the field and its definition in the listing, and a brief description of the contents and meaning of the field.



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**FIGURES**

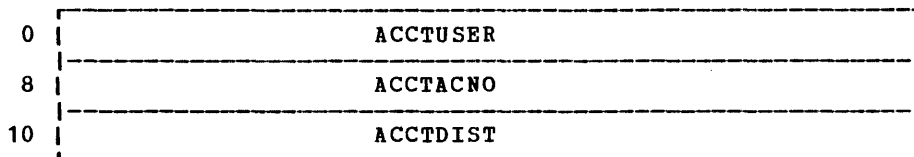
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ACCTBLOK, ACNTBLOK

ACCTBLOK: USER ACCOUNTING BLOCK

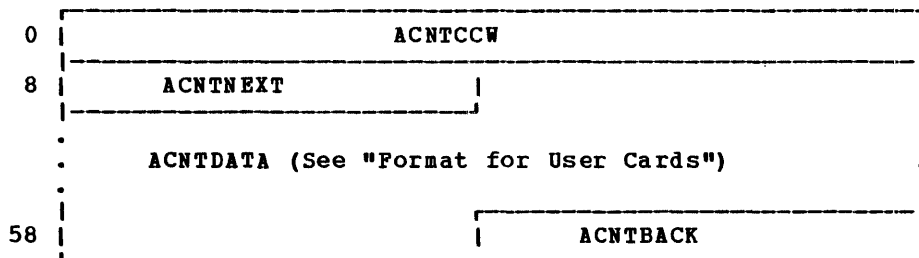
ACCTBLOK provides header information for spool files. The VMACOUNT field (hex 168) in the VMBLOK points to ACCTBLOK.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	ACCTUSER DS	CL8		Virtual machine identification
8	ACCTACNO DS	CL8		Virtual machine accounting number
10	ACCTDIST DS	CL8		Virtual machine distribution number
	ACCTLENG EQU	(*-ACCTBLOK)/8		Size of ACCTBLOK in doublewords (X'03')

ACNTBLOK: ACCOUNTING CARD BUFFER BLOCK

ACNTBLOK provides accounting and statistical information on each user that has used VM/370 facilities. The ARSPAC field (hex 39C) in the Prefix Storage Area (PSA) points to the start of the chain of ACNTBLOKs.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	ACNTCCW DS	D		Punch CCW for accounting card
8	ACNTNEXT DS	F		Address of next ACNTBLOK in chain
C	ACNTDATA DS	CL80		Accounting information (see "Format For User Cards")
5C	ACNTBACK DS	F		Address of previous ACNTBLOK in chain
	ACNTSIZE EQU	(*-ACNTBLOK)/8		Size of ACNTBLOK in doublewords (X'0C')

Format for User Cards

The fields below represent the 80 bytes defined by ACNTDATA in the preceding ACNTBLOK data area.

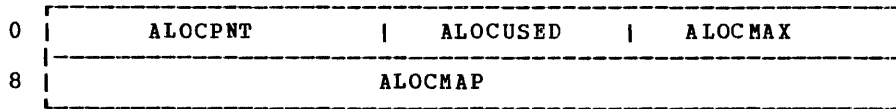
C	ACNTUSER	
14	ACNTNUM	
1C	ACNTSTOP	
.		.
.		.
20		ACNTCONT
2C	ACNTTIME	ACNTVTIM
34	ACNTPGRD	ACNTPGWT
3C	ACNTIOCT	ACNTPNCH
44	ACNTLINS	ACNTPNCH
4C	ACNTRSV1	
54	ACNTRSV2	ACNTCODE

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
		ORG	ACNTDATA	
C	ACNTUSER DS	CL8		Virtual machine identification
14	ACNTNUM DS	CL8		Virtual machine accounting number
1C	ACNTSTOP DS	CL12		Date and time of accounting MMDDYYHHSS
28	ACNTCONT DS	1F		Number of seconds connected
2C	ACNTTIME DS	1F		Milliseconds of CPU time used
30	ACNTVTIM DS	1F		Milliseconds of virtual CPU time used
34	ACNTPGRD DS	1F		Total page reads
38	ACNTPGWT DS	1F		Total page writes
3C	ACNTIOCT DS	1F		Virtual SIO count for nonspooled I/O
40	ACNTPNCH DS	1F		Virtual card count for spooled punch
44	ACNTLINS DS	1F		Virtual line count for spooled printer
48	ACNTPNCH DS	1F		Virtual card count for spooled reader
4C	ACNTRSV1 DS	2F		Reserved for IBM use
54	ACNTRSV2 DS	XL6		Reserved for IBM use
5A	ACNTCODE DS	1H		Accounting card identification code
	<u>Card Codes for ACNTCODE</u>			
		DC	C'C0'	User-formatted accounting card
		DC	C'x1'	User virtual machine accounting card
		DC	C'x2'	User dedicated device accounting card
		DC	C'x3'	User temporary disk space accounting card
				<u>where:</u>
				x = C if the card is initiated via a DIAGNOSE Code X'4C'
				x = 0 if the card is initiated via CP command processing.
		ORG	ACNTTIME	
2C	ACNTDEVC DS	XL4		Device code (CTFM). See DEVTYPE copy file
30	ACNTNCYL DS	1H		Number of cylinders of T-disk space

ALOCBLOK

ALOCBLOK: DASD CYLINDER ALLOCATION BLOCK

ALOCBLOK provides information on temporary disk space available to a virtual machine. The RDEVALLN field (hex 28) in the RDEVBLOK points to the ALOCBLOK.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	ALOCPNT DS 1F	Pointer to next ALOCBLOK on chain
4	ALOCUSED DS 1H	Number of cylinders currently in use
6	ALOCMAX DS 1H	Maximum number of cylinders available
8	ALOCMAP DS 0F	Cylinder allocation bit map

Bits defined in ALOCMAP

- 0 = Cylinder is available
- 1 = Cylinder has been allocated

Note: The size of the ALOCMAP is variable and depends on the number of cylinders on the device. Generally, the size of the ALOCBLOK is determined by the following formula:

$$ALOC\text{SIZE}(\text{doublewords}) = (((ALOC\text{MAX}+7)/8)+7)/8+1$$

where:

- ALOCMAX for 2305-1 = 48 cylinders
- for 2305-2 = 96 cylinders
- for 2314 = 203 cylinders
- for 3330-1 = 404 cylinders
- for 3330-2 = 404 cylinders
- for 3330-11 = 808 cylinders
- for 3333-1 = 404 cylinders
- for 3333-11 = 808 cylinders
- for 3340-35 = 349 cylinders
- for 3340-70 = 698 cylinders
- for 3350 = 555 cylinders

Any bits in the map that represent cylinders not present on the device are set to 1.

For Temporary Disk Allocation Blocks

	ORG	ALOCUSED	
4	ALOCCYL1 DS	1H	First cylinder of T-disk area
6	ALOCCYL2 DS	1H	Last cylinder of T-disk area
			Bytes defined in ALOCMAP
			X'00' = Cylinder is available
			X'AA' = Cylinder has been allocated

Note: The size of the T-disk ALOCMAP is variable and depends on the number of cylinders in the range ALOCCYL1 to ALOCCYL2. Generally, the size of a given block is determined by the following formula:

$$ALOC\text{SIZE}(\text{doublewords}) = ((ALOCCYL2-ALOCCYL1+8)/8)+1$$

Bytes for cylinders that are not available are marked allocated.

BSCBLOK: BINARY SYNCHRONOUS COMMUNICATION CONTROL BLOCK

BSCBLOK provides status, control information buffers (necessary for polling and addressing), and channel programs for 3270 remote equipment. The RDEVBSC field (hex 30) in the RDEVBLOK points to the BSCBLOK.

0	BSCSCCW1			
8	BSCSCCW2			
10	BSCSCCW3			
18	BSCPCCW1			
20	BSCPCCW2			
28	BSCPCCW3			
30	BSCPCCW4			
38	BSCECCW1			
40	BSCECCW2			
48	BSCUECCW			
50	BSCSEL		B*1	
58	B*2	B*3	BSCINDEX	BSCRESVD
60	BSCSPTR		BSCAUSER	
68	BSCUCOPY		BSCRSTRT	
70	BSCCNT	BSCSENSE	BSCRCVD	BSCSEND
78	BSCUSER1		BSCRROBN	
80	BSCTRQ		BSCRESP	
88	BSCREAD			
128				

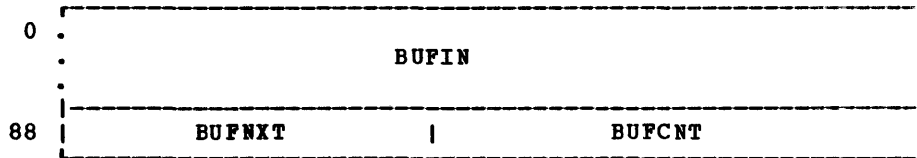
BSCBLOK

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	BSCSCCW1	DS	1D	CCW for write reset operation
8	BSCSCCW2	DS	1D	CCW for addressing or selection
10	BSCSCCW3	DS	1D	CCW for read response to selection
18	BSCPCCW1	DS	1D	CCW for write reset operation
20	BSCPCCW2	DS	1D	CCW for general/specific polling
28	BSCPCCW3	DS	1D	CCW for NOP command
30	BSCPCCW4	DS	1D	CCW for read text
38	BSCCECW1	DS	1D	CCW for write error response
40	BSCCECW2	DS	1D	CCW to transfer control to read CCW
48	BSCUECCW	DS	1D	CCW for read response on time-out
50	BSCSEL	DS	7X	Addressing/polling entry
57	BSCFLAG	DS	1X	B*1 BSCFLAG bits
<u>Bits defined in BSCFLAG</u>				
	BSCRVI	EQU	X'80'	Sending RVI response
	BSCENQ	EQU	X'40'	ENQ in data from station
	BSCCOPY	EQU	X'20'	COPY function is active
	BSCOPIED	EQU	X'10'	Initiate COPY function
	BSCREGEN	EQU	X'08'	Regeneration error
	BSCTSTRQ	EQU	X'04'	Ignore input processing
	BSCLOG	EQU	X'02'	Bypass force message at logoff
	BSCSCAN	EQU	X'01'	Second scan for write request
58	BSCFLAG1	DS	1X	B*2 BSCFLAG1 bits
<u>Bits defined in BSCFLAG1</u>				
	BSCETB	EQU	X'80'	Station transmitted block record
	BSCIGN	EQU	X'40'	Ignore block record
59	BSCLINE	DS	1X	B*3 Line coordinate for input area
5A	BSCINDEX	DS	1H	Index value for available space in input buffer
5C	BSCRESVD	DS	4X	Reserved for IBM use
60	BSCSPTR	DS	1F	Write CCW string address; address of buffer
64	BSCAUSER	DS	1F	Address of active resource
68	BSCUCOPY	DS	1F	Address of COPY requestor's NICBLOK
6C	BSCRSTRT	DS	1F	Address of restart CCW string
70	BSCCNT	DS	1H	Retry count
72	BSCSENSE	DS	1H	Sense bytes from remote station
74	BSCRCVD	DS	1H	Expected received ACK (ACK-0/ACK-1)
76	BSCSEND	DS	1H	Sending ACK (ACK-0/ACK-1)
78	BSCUSER1	DS	1F	Reserved for IBM use
7C	BSCRROBN	DS	1F	Address of active user in queue
80	BSCTMRQ	DS	1F	Pointer to TRQBLOK for poll delay
84	BSCRESP	DS	1H	Response buffer for selection
86	BSCREAD	DS	CL257	Head buffer for polling
	BSCSIZE1	EQU	*(BSCREAD+1)	Read buffer size in bytes
	BSCSIZE2	EQU	(BSCREAD-BSCBLOK)	BSC Header size in bytes
	BSCSIZE	EQU	(*-BSCBLOK+7)	18 BSC blocksize in doublewords



BUFFER

BUFFER is a buffer area that contains console input to be used by CP.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	BUFIN	DS	CL136	Input line
88	BUFNXT	DS	1F	Pointer to next byte in BUFFER
8C	BUFCNT	DS	1F	Count of characters in input line
<u>Bits defined in BUFCNT</u>				
	BUFINLTH	EQU	L'BUFIN	Size of input line in bytes (136)
	BUFSIZE	EQU	(*-BUFFER)/8	Size of input line in doublewords (X'12')

CCHREC

CCHREC: CHANNEL CHECK HANDLER RECORD

CCHREC provides statistical data for error recovery and/or error recording related to a previously performed channel operation that did not successfully complete.

0	B*1	B*2	B*3	B*4	CCSW2REV	B*5	B*6
8	CCDATE						
10	CCCPUID						
18	CCPROGID						
20	FAILADD						
28							
30	FAILCCW						
38	FAILCSW						
40	B*7	B*8	B*9	B*10	CCDEVTYP		
48	CCHANID		CCHCUA		CCHMP		
50	CCHLOG						

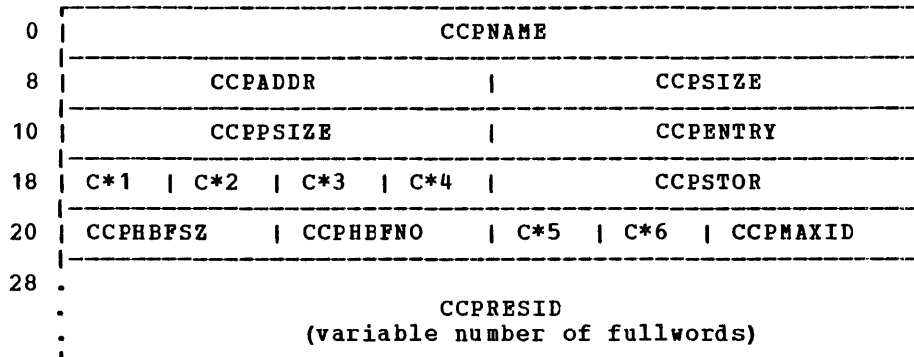
Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	CCRECTYP DS	1X	B*1	Record type	
1	CCOPSYS DS	1X	B*2	Operating system	
2	CCSW1 DS	1X	B*3	Switch 1	
3	CCSW2 DS	1X	B*4	Switch 2	
4	CCSW2REV DS	2X		Unused	
6	CCRECNT DS	1X	B*5	Record count	
7	CCRECNT1 DS	1X	B*6	Unused	
8	CCDATE DS	1D		Date and time	
10	CCCPUID DS	1D		CPU ID	
18	CCPROGID DS	1D		Userid	
20	FAILADD DS	8H		Active I/O units	
30	FAILCCW DS	1D		Failing CCW	
38	FAILCSW DS	1D		Failing CSW	
40	FAILECSW DS	0F		Failing ECSW	
40	IGPRGFLG DS	CL1	B*7	Program flag bits	
<u>Bits defined in IGPRGFLG</u>					
	CCHSI0B EQU	X'80'		Start I/O bit	
	CCHINTB EQU	X'40'		Interrupt bit	
	CCHTIO EQU	X'20'		Test I/O bit	
	CCHHIO EQU	X'10'		Halt I/O bit	
	CCHSNSB EQU	X'04'		Sense data stored bit	
	CCHCNTB EQU	X'02'		Count valid bit	
	CCHNRYB EQU	X'01'		No retry bit	

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
41	IGBLAME	DS	CL1	B*8	Probable source of error
	<u>Bits defined in IGBLAME</u>				
	CCHCPU	EQU	X'80'		CPU is source of error
	CCHCHNL	EQU	X'40'		Channel is source of error
	CCHSCUB	EQU	X'20'		Storage control unit is source of error
	CCHSTG	EQU	X'10'		Storage is source of error
	CCHINTFC	EQU	X'08'		I/O interface is source of error
42	IGVALIDB	DS	CL1	B*9	Validity indicator bits
	<u>Bits defined in IGVALIDB</u>				
	CCHINTFV	EQU	X'80'		Interface address valid
	CCHRCV	EQU	X'10'		Retry code valid
	CCHUSV	EQU	X'08'		Selective reset valid
	CCHCMDV	EQU	X'04'		Command address valid
	CCHCAV	EQU	X'02'		Channel address valid
	CCHDAV	EQU	X'01'		Device address valid
43	IGTERMSQ	DS	CL1	B*10	Termination/sequence code bits
	<u>Bits defined in IGTERMSQ</u>				
	COMPSYS	EQU	X'C0'		System reset
	COMPSEL	EQU	X'80'		Selective reset
	COMPFES	EQU	X'40'		Forced ending sequence
	COMPID	EQU	X'00'		Interface disconnect
	CCHDI	EQU	X'08'		Disconnect in sequence code bits
	<u>Sequence Code Bits</u>				
	RTCODE0	EQU	X'00'		Retry code values for the constructed ECSW
	RTCODE1	EQU	X'01'		
	RTCODE2	EQU	X'02'		
	RTCODE3	EQU	X'03'		
	RTCODE4	EQU	X'04'		
	RTCODE5	EQU	X'05'		
	RTCODE6	EQU	X'06'		
	RTCODE7	EQU	X'07'		
44	CCDEVTYP	DS	1F		CP device type
48	CCHANID	DS	CL1		Channel ID
49	CCHCUA	DS	CL3		Actual failing device address
4C	CCHMP	DS	1F		Not used
50	CCHLOG80	DS	0CL112		2880 channel - 112 bytes
50	CCHLOG70	DS	0CL24		2870 channel - 24 bytes
50	CCHLOG60	DS	0CL24		2860 channel - 24 bytes
	<u>Bit defined in CCHLOG60</u>				
	CCHSIZE1	EQU	(*-CCHREC)/8		Size in doublewords (X'0A')
50	CUHADDR	DS	1F		Unit address stored by integrated channel
	<u>Bit defined in CUHADDR</u>				
	CCHSIZE	EQU	(*-CCHREC)/8		Size in doublewords
54	CCHLOG45	DS	0CL96		Model 145 integrated channel (96 bytes)
54	CCHLOG35	DS	0CL24		Model 135 integrated channel (24 bytes)

CCPARM

CCPARM: COMMUNICATIONS CONTROLLER PARAMETER LIST

CCPARM provides control information used for loading and controlling the 3704/3705 Communication Controller NCP, EP, and PEP programs and their attached resources.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	CCPNAME	DS	CL8		NCPNAME specified in NAMECP macro
8	CCPADDR	DS	1F		Origin of control program image
2	CCPSIZE	DS	1F		Control program size in bytes
10	CCPPSIZE	DS	1F		Parameter list size in bytes
14	CCPENTRY	DS	1F		Control program entry point address
18	CCPTYPE	DS	1X	C*1	Control program type flag
<u>Bits defined in CCPTYPE</u>					
	CCPTNCP	EQU	X'01'		Network Control Program
	CCPTPEP	EQU	X'02'		270X Emulation Program
	CCPTPEP	EQU	X'03'		Partitioned Emulation Program
19	CCPCAONE	DS	1X	C*2	First channel adapter type flag
1A	CCPCATWO	DS	1X	C*3	Second channel adapter type flag
<u>Bits defined in CCPAONE and CCPATWO</u>					
	CCPTYPE1	EQU	X'01'		Channel adapter type 1
	CCPTYPE2	EQU	X'02'		Channel adapter type 2
1B	CCPRSV1	DS	1X	C*4	Reserved for IBM use
1C	CCPSTOR	DS	1F		3704/3705 storage size specified (bytes)
20	CCPHBFSZ	DS	1H		Buffer size from 'HOST' macro
22	CCPHBFNO	DS	1H		Number of buffers in read list
24	CCPPADO	DS	1X	C*5	First buffer pad count (bytes)
25	CCPPAD1	DS	1X	C*6	Subsequent buffer pad count
<u>HOST Values Required by VM/370 Support for 3704/3705</u>					
	CCPVPADO	EQU	34		34-byte pad in first BTU buffer
	CCPVPAD1	EQU	34		34-byte pad in subsequent buffers
26	CCPMAXID	DS	1H		Highest resource ID defined
28	CCPRESID	DS	1F		Resource ID definition
<u>Definition breakdown</u>					
28	CCPRSTYP	DS	1X	ORG CCPRESID	Resource type flag
29	CCPRSTAT	DS	1X		Resource initial status flags
2A	CCPRSTEP	DS	1H		Subchannel address when in EP mode

CHXBLOK AND CHYBLOK: VIRTUAL CHANNEL-TO-CHANNEL ADAPTER CONTROL BLOCKS

CHXBLOK and CHYBLOK provide the necessary control for a virtual machine using a virtual channel-to-channel adapter (CTCA).

0	CHXOTHR					CHYOTHR			
8	X*1	X*2	X*3	X*4		Y*1	Y*2	Y*3	Y*4
10	CHXNCCW					CHYNCCW			
18	CHXRCNT					CHYRCNT			
20	CHXSTAT	CHXYADD	CHYSTAT	CHXYADD					
28	CHXIDAW					CHYIDAW			
30	CHXCNCT					CHYCNCT			
38	CHXDATN					CHYDATN			

Note: As indicated in the illustrated block, the CHXBLOK and CHYBLOK are interleaved with a 4-byte displacement. The X-side VDEVBLK points to the +0 slot, the Y-side VDEVBLK points to the +4 slot; however, once the virtual connection is made, either side can be the X-side or the Y-side since this interleaved arrangement makes the control block references completely symmetrical. The dual DSECT definition allows the active adapter (defined to be the X-side, arbitrarily) to reference both adapter sides concurrently without knowing which is at +0 or at +4.

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	CHXOTHR	DS	2F		VMBLOK address of Y-side adapter user
8	CHXFLAG	DS	1X	X*1	Internal processing flags
	<u>Bits defined in CHXFLAG</u>				
	CHBMNOP	EQU	X'80'		Modified NOP command issued (also in CMDT)
	CHBM370	EQU	X'40'		CTCA operating in System/370 mode
	CHBATTN	EQU	X'20'		Attention pending from Y-side
	CHBREST	EQU	X'10'		CTCA has been reset X-side and Y-side
	CHBEOF	EQU	X'08'		Force EOF to next Read instruction
	CHBHIO	EQU	X'04'		HIO or HDV issued
	CHBWAIT	EQU	X'02'		CPEXBLOK available for channel reconnect
	CHBCENT	EQU	X'01'		Channel end has been preserved on SIO
9	CHXCMD	DS	1X	X*2	Active CCW command byte buffer
A	CHXCMDT	DS	1X	X*3	Active CCW command type (RD, WR, etc.)
	<u>Bits defined in CHXCMDT</u>				
	CHBCTNL	EQU	X'40'		Control, other than NOP
	CHBRDBK	EQU	X'20'		Read backward
	CHBWEOF	EQU	X'10'		Write EOF
	CHBSCMD	EQU	X'08'		Sense command byte
	CHBSADS	EQU	X'04'		Sense adapter status
	CHBREAD	EQU	X'02'		Read
	CHBWRT	EQU	X'01'		Write

CHXBLOK, CHYBLOK

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
B	CHXPKEY	DS	1X	X*4	Virtual CAW protection key
C		DS	4X		
10	CHXNCCW	DS	2F		Next CCW FETCH address (real)
18	CHXRCNT	DS	2F		Remaining CCW data count
20	CHXSTAT	DS	1H		Device status accumulation field
22	CHXYADD	DS	1H		Virtual address of Y-side adapter
24		DS	2H		
28	CHXIDAW	DS	2F		Active indirect data list word
30	CHXCNCT	DS	2F		CPEXBLOK for channel reconnect
38	CHXDATN	DS	2F		IOBLOK address for deferred attention interruption
	CHBSIZE	EQU	(*-CHXBLOK)/8		Total block size in doublewords (X'08')
	CHYBLOK				Y-side channel adapter block
0	CHYOTHR	DS	2F		VMBLOK address of X-side adapter user
8	CHYFLAG	DS	1X	Y*1	Internal processing flags
	<u>Bits defined in CHYFLAG</u>				
	CHBMNOP	EQU	X'80'		Modified NOP command issued (also in CMDT)
	CHBM370	EQU	X'40'		CTCA operating in System/370 mode
	CHBATTN	EQU	X'20'		Attention pending from Y-side
	CHBREST	EQU	X'10'		CTCA has been reset X-side and Y-side
	CHBEOF	EQU	X'08'		Force EOF to next READ
	CHBHIO	EQU	X'04'		Halt I/O or halt Device issued
	CHBWAIT	EQU	X'02'		CPEXBLOK available for channel reconnect
	CHBEENT	EQU	X'01'		Channel end has been presented on SIO
9	CHYCMDB	DS	1X	Y*2	Active CCW command byte buffer
A	CHYCMDT	DS	1X	Y*3	Active CCW command byte
	<u>Bits defined in CHYCMDT</u>				
	CHBCNTL	EQU	X'40'		Control, other than NOP
	CHBRDBK	EQU	X'20'		Read backward
	CHBWEOF	EQU	X'10'		Write EOF
	CHBSCMD	EQU	X'08'		Sense command byte
	CHBSADS	EQU	X'04'		Sense adapter status
	CHBREAD	EQU	X'02'		Read
	CHBWRT	EQU	X'01'		Write
B	CHYPKEY	DS	1X	Y*4	Virtual CAW protection key
C		DS	4X		
10	CHYNCCW	DS	2F		Next CCW fetch address
18	CHYRCNT	DS	2F		Remaining CCW data count
20	CHYSTAT	DS	1H		Device status accumulation field
22	CHYXADD	DS	1H		Virtual address of X-side adapter
24		DS	2H		
28	CHYIDAW	DS	2F		Active indirect data list word
30	CHYCNCT	DS	2F		CPEXBLOK for channel reconnect
38	CHYDATN	DS	2F		IOBLOK address for deferred I/O interrupt

CKPBLOK: TELECOMMUNICATIONS CHECKPOINT BLOCK

CKPBLOK provides checkpoint information needed for VM/370 warm start recovery for 3704/3705 Communication Controllers and enabled lines and resources.

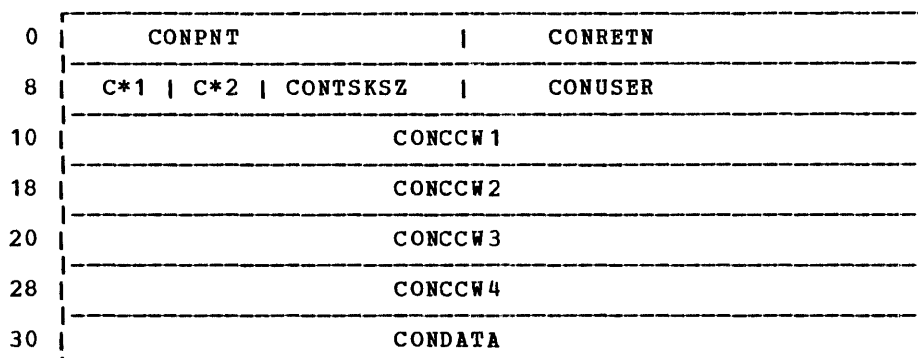
0	CKPSIZE		CKPRMAX		CKPRSV1
8	CKPNAME				
10	CKPBITS				

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	CKPSIZE DS 1H	Size of CKPBLOK in doublewords		
2	CKPRMAX DS 1H	Number of resources checkpointed		
4	CKPRSV1 DS 1F	Reserved for IBM use		
8	CKPNAME DS CL8	370X control program reference name		
A	CKPBITS DS 0D	Bit map of enabled lines or resources		
	CKPBKSZ EQU	(CKPBITS-CKPBLOK)/8 Header size in doublewords (X'02')		

CONTASK

CONTASK: CONSOLE I/O PACKAGE

CONTASK contains data and control information pertinent to the control and communication between virtual and real terminal console tasks and command streams.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	CONPNT	DS	1F		Pointer to next CONTASK
4	CONRETN	DS	1F		Pointer to savearea for return
8	CONSTAT	DS	1F	C*1	CONTASK status control flags
<u>Bits defined in CONSTAT</u>					
	CONOUTPT	EQU	X'80'		Output CONTASK
	CONRESP	EQU	X'40'		Response expected from this CONTASK
	CONACTV	EQU	X'20'		CONTASK is active on real device
	CONCNTL	EQU	X'10'		This is a control CONTASK only
	CONESCP	EQU	X'08'		CONTASK contains device dependent data
	CONRTRY	EQU	X'04'		Retry operation in progress
	CONSPLT	EQU	X'02'		Output data being split via RDEVLEN
	CONSYNC	EQU	X'01'		CONTASK for synchronization only
9	CONPARM	DS	1X	C*2	DMKQCN parameter flags (see Appendix A)
A	CONTSK SZ	DS	1H		CONTASK size in doublewords
C	CONUSER	DS	1F		Address of VMBLOK for destination user
10	CONCCW 1	DS	1D		First console I/O CCW
18	CONCCW 2	DS	1D		Second console I/O CCW
20	CONCCW 3	DS	1D		Third console I/O CCW
28	CONCCW 4	DS	1D		Fourth console I/O CCW
30	CONDATA	DS	0C		Output data area (variable length)
	CONTSIZE	EQU	(*-CONTASK)/8		CONTASK size in doublewords
		ORG	CONCCW 1		
10	CONADDR	DS	1F		CCW data address
14	CONFLAG	DS	1X		CCW flag bits
15	CONRSV 3	DS	1X		Reserved for IBM use
16	CONCNT	DS	1H		CCW byte count

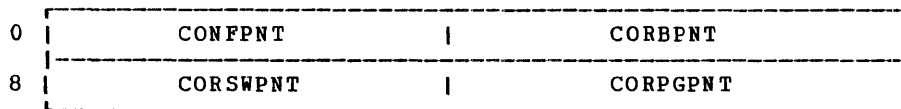


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
10	CONCOMND	ORG DS	CONADDR 1X	CCW command code
<u>Bits redefined in CONCCW for 3704/3705 Network Control Program</u>				
		ORG DS	CONCCW3+2	
22	CONSRID	DS	1H	Source identifier
24	CONDEST	DS	1H	Destination resource ID
26	CONRTAG	DS	1H	Request for this CONTASK
28	CONSYSR	DS	1X	3704/3705 system response byte
29	CONEXTR	DS	1X	3704/3705 extended response byte
2A	CONTCMD	DS	1H	BTU command modifier
2C	CONFUNC	DS	1X	BDU function control flags
2D	CONDFLG	DS	1X	BDU data control flags
2E	CONDCNT	DS	1H	Text data length
<u>Bits Redefined for 3270 Remote Support</u>				
		ORG DS	CONCCW4	
28	CONLABEL	DS	1X	Return index value
29	CONSTX	DS	1X	Start text character
2A	CONESC	DS	1X	Escape character
2B	CONCMD	DS	1X	Command code for remote station
2C	CONWCC	DS	1X	Write control character
2D	CONSBA	DS	1X	Start buffer address
2E		DS	1H	Buffer address

CORTABLE

CORTABLE: STORAGE ALLOCATION TABLE

CORTABLE maintains the status and ownership of each page frame of real storage for use by page management routines.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	CORFPNT	DS	1F	Pointer to next CORTABLE entry in queue
4	CORBPNT	DS	1F	Pointer to previous CORTABLE entry in queue
8	CORSWPNT	DS	1F	Pointer to SWPTABLE for page
C	CORPGPNT	DS	1F	Pointer to PAGTABLE for page

8	CORFLAG	DS	1X	ORG	CORSWPNT
---	---------	----	----	-----	----------

CORTABLE entry status flags

Bits defined in CORFLAG

CORIOLOCK	EQU	X'80'	Page locked for I/O, CORLCNT greater than 0
CORCFLCK	EQU	X'40'	Page locked by console function
CORFLUSH	EQU	X'20'	Page is in flush list
CORFREE	EQU	X'10'	Page is in free list
CORSHARE	EQU	X'08'	Page is shared
CORRSV	EQU	X'04'	Page is reserved
CORCP	EQU	X'02'	Page belongs to CP
CORDISA	EQU	X'01'	Page disabled, not available

Entry Definition if Page Is Locked

4	CORLCNT	DS	1F	ORG	CORBPNT
---	---------	----	----	-----	---------

Page lock count for CORIOLOCK

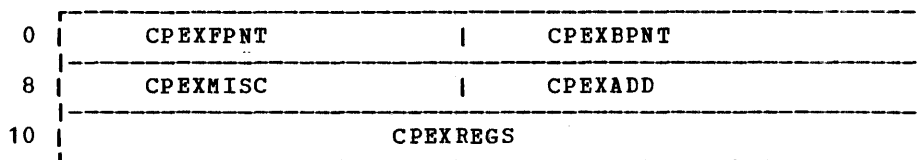
Entry Definition if Page Is In Transit

8	CORCODE	DS	1X	ORG	CORFLAG
---	---------	----	----	-----	---------

C\*1 DASD op code for DMKPAGIO

CPEXBLOK: CP EXECUTE BLOCK

CPEXBLOK maintains register values and a module address to handle a CP function that is queued for the dispatcher.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	CPEXFPNT DS 1F	Pointer to next CPEXBLOK		
4	CPEXPBNT DS 1F	Pointer to previous CPEXBLOK		
8	CPEXMISC DS 1F	Use varies with stacker		
C	CPEXADD DS 1F	Return address		
10	CPEXREGS DS 16F	Execute registers		
	CPEXSIZE EQU	(*-CPEXBLOK)/8	Size in doublewords (X'0A')	

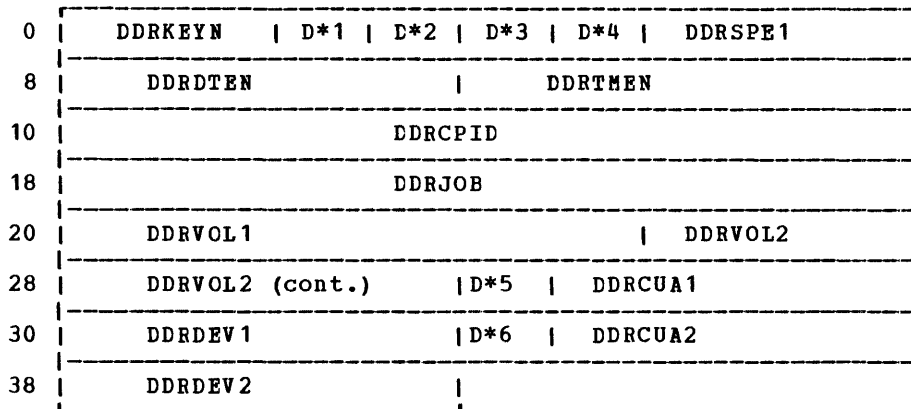
For CPEXREGS Area

		ORG	CPEXREGS
10	CPEXR0	DS	1F
14	CPEXR1	DS	1F
18	CPEXR2	DS	1F
1C	CPEXR3	DS	1F
20	CPEXR4	DS	1F
24	CPEXR5	DS	1F
28	CPEXR6	DS	1F
2C	CPEXR7	DS	1F
30	CPEXR8	DS	1F
34	CPEXR9	DS	1F
38	CPEXR10	DS	1F
3C	CPEXR11	DS	1F
40	CPEXR12	DS	1F
44	CPEXR13	DS	1F
48	CPEXR14	DS	1F
4C	CPEXR15	DS	1F

DDRREC

DDRREC: RECONFIGURATION MACRO

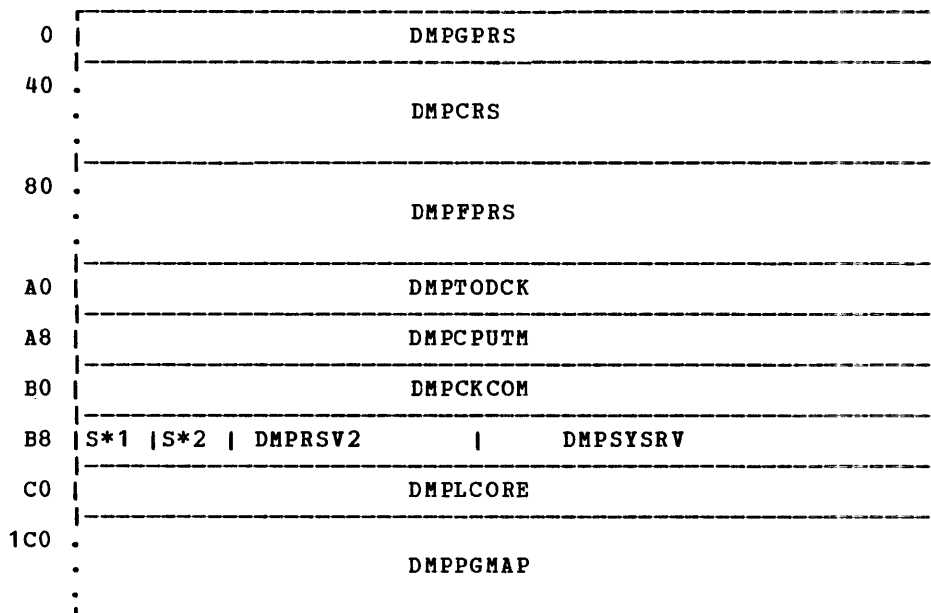
DDRREC is used in the SVC 76-initiated error recording process for type 60 DASD dump restore (DDR) dynamic device reallocation records. The reallocation records contain the replacement of the virtual "FROM" and "TO" control unit addresses (CUA) by the real addresses of the real DASD devices.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	DDRKEYN DS 1H			Type and operating system
2	DDRSWS1 DD 1C	D*1		Switch byte
3	DDRSWS2 DS 1C	D*2		Reserved for IBM use
4	DDRSWS3 DS 1C	D*3		Reserved for IBM use
5	DDRRECNT DS 1C	D*4		Reserved for IBM use
6	DDRSPE1 DS 1H			Reserved for IBM use
8	DDRDTEN DS 1F			Date
C	DDRTMEN DS 1F			Time
10	DDRCPID DS 2F			CPU ID and model
<u>Device Dependent Data</u>				
18	DDRJOB DS 8X			Job using FROM device
20	DDRVOL1 DS 6X			Volume serial FROM device
26	DDRVOL2 DS 6X			Volume serial TO device
2C	DDRDEVP1 DS 1X	D*5		Device ID of FROM DASD
2D	DDRCUA1 DS 3X			Primary CUA of FROM device
30	DDRDEV1 DS 4X			Device type FROM device
34	DDRDEVP2 DS 1X	D*6		Device ID TO DASD
35	DDRCUA2 DS 3X			Primary CUA of TO device
38	DDRDEV2 DS 4X			Device type of TO device

DMPINREC: DUMP FILE INFORMATION RECORD

DMPINREC retains vital system register and storage location values necessary for the CPDUMP file. See also DMPKYREC.

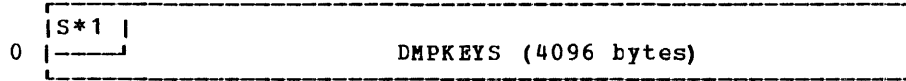


Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	DMPGPRS DS 16F	16 general registers		
40	DMPCRS DS 16F	16 control registers		
80	DMPFPRS DS 4D	4 floating-point registers (if floating-point feature is installed.)		
A0	DMPTODCK DS 1D	Time-of-day clock		
A8	DMPCPUTM DS 1D	CPU timer		
B0	DMPCKCOM DS 1D	Time-of-day clock comparator		
B8	DMPFLAG DS 1X S*1	Flag byte		
<u>Bits defined in DMPFLAG</u>				
	HALFPAGE EQU X'80'	Last record in DUMP file is 2K		
B9	DMPRSV1 DS 1X S*2	Reserved for IBM use		
BA	DMPRSV2 DS 1H	Reserved for IBM use		
BC	DMPYSYSRV DS 1F	System generated storage size		
C0	DMPLCORE DS 256X	Storage locations 0-256		
1C0	DMPPGMAP DS 4096B	Bit map indicating which pages appear in the DUMP file (each bit represents a 4K block)		

DMPKYREC

DMPKYREC: DUMP FILE KEY STORAGE RECORD

DMPKYREC contains the storage keys of each 2K block of main storage at the time of SVC 0 or a PSW restart condition. DMPKYREC and DMPINREC are used for debugging operations.



<u>Hexadecimal Displacement</u>	<u>Field Name</u>				<u>Field Description, Contents, Meaning</u>
0	DMPKEYS	DS	4096X		Main storage keys
0	DMPKEY	DS	1X	ORG DMPKEYS S*1	Storage key for each 2K block

ECBLOK: EXTENSION TO VMBLOK FOR VIRTUAL MACHINE WITH RELOCATE

ECBLOK provides an extension to the VMBLOK for virtual machine operation in System/370 extended control mode.

0	EXTCRO		EXTCR1
8	EXTCR2		EXTCR3
10	EXTCR4		EXTCR5
18	EXTCR6		EXTCR7
20	EXTCR8		EXTCR9
28	EXTCR10		EXTCR11
30	EXTCR12		EXTCR13
38	EXTCR14		EXTCR15
40	EXTSHCRO		EXTSHCR1
48	EXTSHLEN   EXTVSEGS		EXTSTOLD
50	EXTSHSEG		EXTSEGLN   EXTARCH
58	EXTPERAD		EXTPERCD   EXTCOPY
60	EXTCPTMR		
68	EXTCPTRQ		EXTCCTRQ

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	EXTCRO	DS	1F	Virtual control register 0; architecture controls
4	EXTCR1	DS	1F	Virtual control register 1; segment table pointer
8	EXTCR2	DS	1F	Virtual control registers 2 through 15
C	EXTCR3	DS	1F	
10	EXTCR4	DS	1F	
14	EXTCR5	DS	1F	
18	EXTCR6	DS	1F	
1C	EXTCR7	DS	1F	
20	EXTCR8	DS	1F	
24	EXTCR9	DS	1F	
28	EXTCR10	DS	1F	
2C	EXTCR11	DS	1F	
30	EXTCR12	DS	1F	
34	EXTCR13	DS	1F	
38	EXTCR14	DS	1F	
3C	EXTCR15	DS	1F	

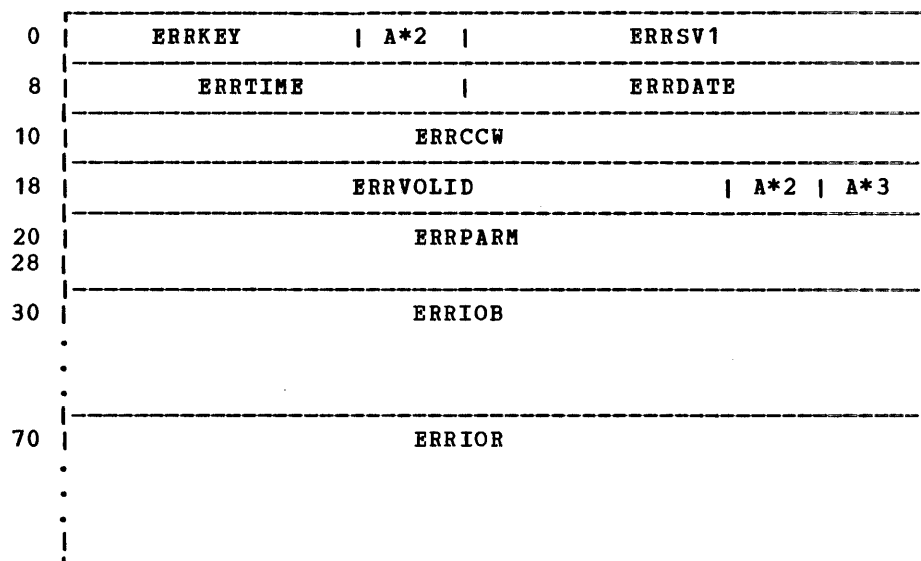
ECBLOK

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
40	EXTSHCR0	DS	1F	Shadow control register 0
44	EXTSHCR1	DS	1F	Shadow control register 1
48	EXTSHLEN	DS	1H	Length of shadow SEGTABLE in bytes
4A	EXTVSEGS	DS	1H	Length of virtual SEGTABLE in bytes
4C	EXTSTOLD	DS	1F	Control register 1 value corresponding to tables
50	EXTSHSEG	DS	1F	Real address of shadow SEGTABLE
54	EXTSEGLN	DS	1H	Length of shadow SEGTABLE in doublewords
56	EXTARCH	DS	1H	Architecture control index
58	EXTPERAD	DS	1F	PER interrupt address
5C	EXTPERCD	DS	1H	PER interrupt code to be reflected
5E	EXTCOPY	DS	1H	Length code from active SEGTABLE entry
60	EXTCPTMR	DS	1D	Virtual CPU timer
68	EXTCPTRQ	DS	1F	Address of TRQBLOK for CPU timer
6C	EXTCCTRQ	DS	1F	Address of TRQBLOK for clock comparator
	EXTSIZE	EQU	(*-ECBLOK)/8	ECBLOK size in doublewords (X'0E')



ERRBLOK: ERROR BLOCK USED TO BUILD OBR/MDR

ERRBLOK contains data describing an error condition such as a channel failure or a device failure.

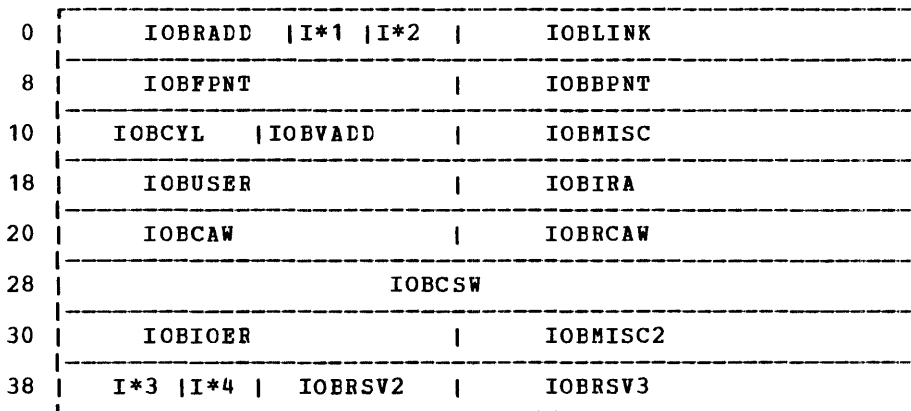


Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	ERRKEY	DS	3X		Key used to determine OBR/MDR processing
3	ERRSV1	DS	1X	A*1	Reserved for IBM use
4	ERRSV2	DS	1F		Reserved for IBM use
8	ERRTIME	DS	1F		Time record was built
C	ERRDATE	DS	1F		Date record was built
	ERRHEADR	EQU	(*-ERRBLOK)		Size of header in bytes
10	ERRCCW	DS	1D		Failing CCW
18	ERRVOLID	DS	6X		Valid of failing device
1E	ERRSDR	DS	1X	A*2	SDRFLAGS from SDRBLOK
1F	ERRCORR	DS	1X	A*3	Correlation count for MDR record
20	ERRPARM	DS	2D		Device dependent parameter string
30	ERRIOB	DS	(IOBSIZE)D		Copied IOBLOK
70	ERRIOER	DS	(IOERSIZE)D		Copied IOERBLOK
	ERRSIZE	EQU	(*-ERRSIZE)/8		Size of ERRBLOK in doublewords
		ORG	ERRCCW		
10	ERRMIOB	DS	(IOBSIZE)D		Copied IOBLOK
18	ERRMIOER	DS	(IOERSIZE)D		Copied IOERBLOK
		ORG	ERRCCW		
10	ERRCNT	DS	2X		Size of CONTASK data buffer
10	ERRCONT	DS	OC		CONTASK data buffer (variable length)

IOBLOK

IOBLOK: I/O CONTROL BLOCK

IOBLOK contains information required to perform I/O operations. The I/O request initiator for the I/O operation is either a CP-initiated or virtual machine-initiated event.

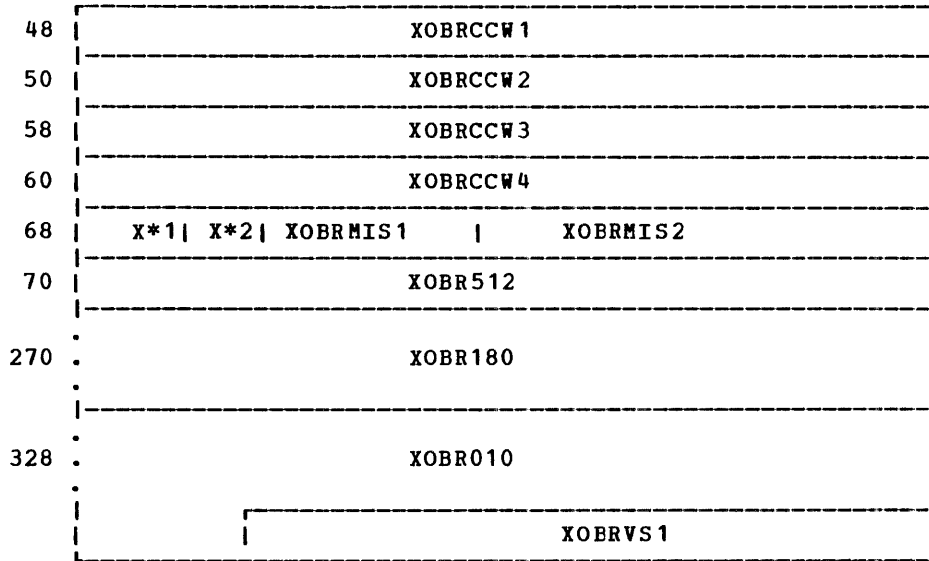


Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	IOBRADD	DS	1H		Real device address for SIO
2	IOBFLAG	DS	1X	I*1	IOBLOK flags
	<u>Bits defined in IOBFLAG</u>				
	IOBCP	EQU	X'80'		CP generated I/O operation
	IOBRSTRT	EQU	X'40'		Restarted operation - IOBRCAW
	IOBSPLT	EQU	X'20'		DASD - CP split seek operation
	IOBPAG	EQU	X'10'		IOBLOK created for paging I/O
	IOBRELCU	EQU	X'08'		Control unit released at initiation
	IOBERP	EQU	X'04'		I/O task is under control of ERP
	IOBRES	EQU	X'02'		I/O task has been reset
	IOBHVC	EQU	X'01'		I/O initiated via DIAGNOSE instruction
3	IOBSTAT	DS	1X	I*2	IOBLOK status
	<u>Bits defined in IOBSTAT</u>				
	IOBFATAL	EQU	X'80'		Uncorrectable error in this I/O operation
	IOBUC	EQU	X'40'		Unit check status
	IOBSNSIO	EQU	X'20'		Sense operation (IOBSNSE)
	IOBREQUE	EQU	X'10'		Restarted operation (IOBCAW)
	IOBWRAP	EQU	X'08'		I/O task for autopoll wrap list
	IOBCC0	EQU	X'00'		Processing I/O interrupt
	IOBCC1	EQU	X'01'		Processing CC 1, CSW stored
	IOBCC2	EQU	X'02'		Processing CC 2, channel busy
	IOBCC3	EQU	X'03'		Processing CC 3, not available

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
4	IOBLINK	DS	1F		Reserved for IBM use
8	IOBFPNT	DS	1F		Pointer to next IOBLOK in queue
C	IOBBPNT	DS	1F		Pointer to previous IOBLOK in queue
	IOBMSIZE	EQU	(*-IOBLOK)/8		Multiple path IOBLOK size in doublewords (X'02')
10	IOBCYL	DS	1H		DASD - seek cylinder for this IOBLOK
12	IOBVADD	DS	1H		Virtual device address
14	IOBMISC	DS	1F		Use varies according to caller
18	IOBUSER	DS	1F		Pointer to VMBLOK of user
1C	IOBIRA	DS	1F		IOBLOK interrupt return address
20	IOBCAW	DS	1F		Pointer to CCW chain
24	IOBRCAW	DS	1F		Pointer to restart CCW chain
28	IOBCSW	DS	1D		Real CSW for I/O operation
30	IOBIOER	DS	1F		Pointer to IOERBLOK
34	IOBMISC2	DS	1F		Use varies according to caller
38	IOBSPEC	DS	1X	I*3	IOBLOK special requests
	<u>Bits defined in IOBSPEC</u>				
	IOBTIO	EQU	X'80'		IOBLOK request for a TIO
	IOBHIO	EQU	X'40'		IOBLOK request for a HIO
	IOBSIOF	EQU	X'20'		Virtual SIO fast release
	IOBUNSL	EQU	X'08'		IOBLOK resulting from unsolicited interrupt
	IOBCOPY	EQU	X'04'		I/O block associated with a COPY request
39	IOBRSV1	DS	1X	I*4	Reserved for IBM use
3A	IOBRSV2	DS	1H		Reserved for IBM use
3C	IOBRSV3	DS	1F		Reserved for IBM use
	IOBSIZE	EQU	(*-IOBLOK)/8		IOBLOK size in doublewords (X'08')
	<u>For CP IOBLOKs</u>				
		ORG	IOBVADD		
12	IOBRCNT	DS	1H		Retry count

IOBR3211: EXTENDED OUTBOARD RECORDING BLOCK

IOBR3211 is appended to the IOERBLOK to contain sense data and other data associated with I/O errors and error recovery for devices that generate more than 24 bytes of sense information.



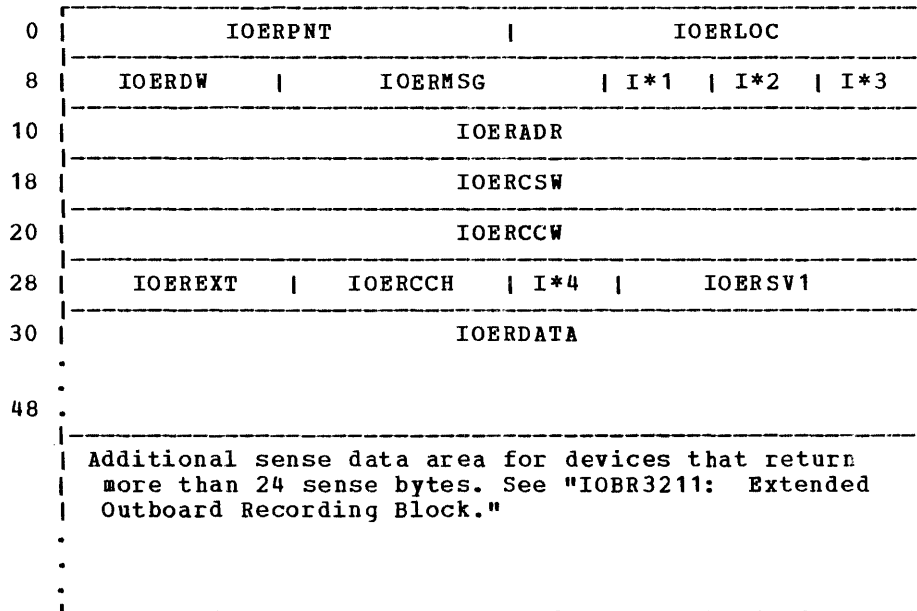
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
48	XOBRCW1 DS 1D			CCW used to read OBR information
50	XOBRCW2 DS 1D			CCW used to read OBR information
58	XOBRCW3 DS 1D			CCW used to read OBR information
60	XOBRCW4 DS 1D			CCW used to read OBR information
68	XOBRFLAG DS 1X X*1			XOBRFLAG field
	<u>Bits defined in XOBRFLAG</u>			
	XOBRRT1 EQU X'80'			T1 Buffer type information present
	XOBRRT2 EQU X'40'			T2 Buffer type information present
	XOBRRT3 EQU X'20'			T3 Buffer type information present
69	XOBRSTAT DS 1X X*2			XOBRSTAT field
	<u>Bits defined in XOBRSTAT</u>			
	XOBRRT1 EQU X'80'			Perform routine 1 in error module
	XOBRRT2 EQU X'40'			Perform routine 2 in error module
	XOBRRT3 EQU X'20'			Perform routine 3 in error module
	XOBRRT4 EQU X'10'			Perform routine 4 in error module
	XOBRRT5 EQU X'08'			Perform routine 5 in error module
	XOBRRT6 EQU X'04'			Perform routine 6 in error module
	XOBRRT7 EQU X'02'			Perform routine 7 in error module
	XOBRRT8 EQU X'01'			Perform routine 8 in error module

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
6A	XOBRMIS1	DS	1H	Used by the error routine
6C	XOBRMIS2	DS	1F	Used by the error routine
70	XOBR512	DS	CL512	Space for USCB data
270	XOBR180	DS	CL184	Space for FCB data
328	XOBR010	DS	CL10	Space for first ten error characters
332	XOBRSV1	DS	CL6	Reserved for IBM use
		ORG	XOBR180	
270	XOBR150	DS	CL150	Space for PLB check data
		ORG		
	XOBRSIZE	EQU	(*IOERBLOK)/8	Size of IOER and XOBR in doublewords (X'67')
	XOBRXT	EQU	(*XOERCCW1)/8	Size of XOBR3211 in doublewords (X'5E')

IOERBLOK

IOERBLOK: I/O ERROR INFORMATION BLOCK

IOERBLOK contains information related to I/O and channel errors. This entails error retry, operator message information, and SDR (Statistical Data Recording) IOERBLOK related to I/O equipment.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	IOERPNT DS 1F	Pointer to next IOERBLOK		
4	IOERLOC DS 1F	Address of CCWs used in recovery		
8	IOERDW DS 1H	Size (in doublewords) of storage needed to construct CCWs		
A	IOERMSG DS XL3	Communications with ERP and message writer		
	ORG IOERMSG			
A	IOERNUM DS 1X	Message number for message writer		
B	IOERIND3 DS 1X	Indicators for message writer		
<u>Bits defined in IOERIND3</u>				
	IOERIGN EQU X'80'	Allow IGNORE response		
	ICERETRY EQU X'40'	Allow RETRY response		
	IOERCAN EQU X'20'	Allow CANCEL response		
	IOEREC EQU X'10'	Error occurred during recovery action		
	IOERDASD EQU X'08'	Home address is present		
	IOERDEC EQU X'04'	Operator decision is necessary		
	IOERINFO EQU X'02'	Informational message		
	IOERACT EQU X'01'	Operator action is required		

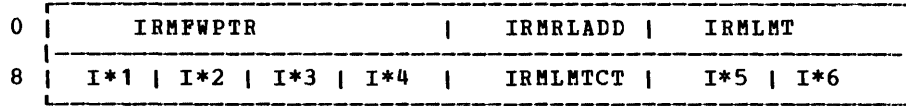
Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
C	IOERIND4 DS	1X			Indicators for message writer
	<u>Bits defined in IOERIND4</u>				
	IOERIGNR EQU	X'80'			Operator responded IGNORE
	IOERSTRT EQU	X'40'			Operator responded RETRY
	IOERCNCL EQU	X'20'			Operator responded CANCEL
D	IOERFLG1 DS	1X	I*1		IOERFLG1 field
	<u>Bits defined in IOERFLG1</u>				
	IOERPEND EQU	X'80'			Pending device end interrupt from interrupt request
	IOERCLN EQU	X'40'			Tape cleaning in progress
	IOERERP EQU	X'40'			Spooling - error routine in control
	IOERFSR EQU	X'20'			Forward space record being executed
	IOERDEPD EQU	X'20'			Spooling - waiting for device end
	IOERBSR EQU	X'10'			Backspace record being executed
	IOERDERD EQU	X'10'			Spooling - device end received
	IOERERG EQU	X'08'			Erase gap command in progress
	IOERXERP EQU	X'08'			Spooling - error routine getting OBR data
	IOERORA EQU	X'04'			Opposite recovery action in progress
	IOERSUPP EQU	X'02'			CCW has suppress data transfer bit on
	IOERVLD EQU	X'01'			Read opposite recovery successful
E	IOERFLG2 DS	1X	I*2		IOERFLG2 field
	<u>Bits defined in IOERFLG2</u>				
	IOERSTAT EQU	X'80'			Statistical data being unloaded
	IOERHA EQU	X'40'			DASD home address being read
	IOERCAL EQU	X'20'			Standalone recalibrate being executed
	IOERECF EQU	X'10'			Error correction function
	IOERRBK EQU	X'10'			Read backward command
	IOERREW EQU	X'08'			Tape rewind being executed
	IOERCYLR EQU	X'04'			Cylinder (in sense byte) has been relocated
	IOERMSW EQU	X'04'			Message written is active
	IOERCEMD EQU	X'02'			Intensive recording mode
	IOERVOL1 EQU	X'01'			DASD valid being read
F	ICERWRK DS	1X	I*3		Miscellaneous work area
10	IOERADR DS	1D			Home address for DASD devices
18	IOERCSW DS	1D			CSW associated with error
20	IOERCCW DS	1D			Sense CCW used to sense the real device
	ORG	IOERCCW			
20	IOERVSER DS	CL6			Volume serial number for statistical data
26	IOERLEN DS	1H			Number of sense bytes present
28	IOEREXT DS	1H			Size of extended sense area in doublewords
2A	IOERCCH DS	1H			Size of I/O extended logout
2C	IOERFLG3 DS	1X			Flag field
	<u>Bits defined in IOERFLG3</u>				
	IOERread EQU	X'80'			SDR READ operation flag
2D	IOERSV1 DS	3X			Reserved for IBM use
30	IOERDATA DS	3D			Sense bytes associated with error
	IOERSIZE EQU	(*-IOERBLOK)/8			IOERBLOK size in doublewords (X'09')
	ORG	IOERDATA			
30	IOEREC SW DS	1F			Breakdown for channel check handler
34	IOERCHAN DS	1X			ECSW information from channel logout Channel type flag

Note: Additional sense bytes may be appended to ERBLOK; their format is described in "IOBR3211: Extended Outboard Recording Block" in this section.

IRMBLOK

IRMBLOK: INTENSIVE ERROR RECORDING MODE BLOCK

IRMBLOK provides the information necessary for the implementation of intensive recording mode via CP SET RECORD command. Intensive recording mode allows the recording of unit check errors from a specified device whose SENSE data matches the values selected.

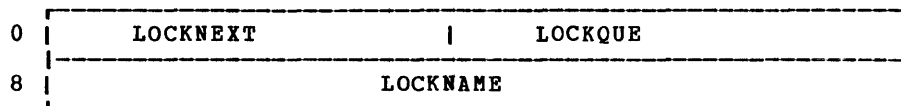


Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning			
0	IRMPWPTR DS 1F	Reserved for IBM use			
4	IRMLADD DS 1H	Device address			
6	IRMLMT DS 1H	Limit count - every 'nth' record is requested.			
8	IRMBYT1 DS 1X	I*1	First SENSE byte specified		
9	IRMBIT1 DS 1X	I*2	SENSE bit within first sense byte		
A	IRMBYT2 DS 1X	I*3	Second SENSE byte specified		
B	IRMBIT2 DS 1X	I*4	SENSE bit within second sense byte		
C	IRMLMTCT DS 1H	Temporary summary count for limit detection			
E	IRMMAXCT DS 1X	I*5	Count of recordings made for this request		
F	IRMFLG DS 1X	I*6	Flag byte		
<u>Bits defined in IRMFLG</u>					
	IRMAND EQU X'80'	AND condition specified			
	IRMOR EQU X'40'	OR condition specified			
	IRMSIZE EQU (*-IRMBLOK)/8	IRMBLOK size in doublewords (X'02')			



LOCKBLOK: USERID LOCK CONTROL BLOCK

LOCKBLOK is used to synchronize execution for sections of nonreenterable code. Locked users are returned to the CPEXBLOK queue when the function being executed completes or no longer requires nonreenterable resources.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	LOCKNEXT DS	1F		Pointer to the next lock control block
4	LOCKQUE DS	1F		Pointer to CPEXBLOK queue
8	LOCKNAME DS	1D		The name being locked
	LOCKSIZE EQU	(*-LOCKBLOK)/8		LOCKBLOK size in doublewords (X'02')

MCHAREA

MCHAREA: MACHINE CHECK SAVE AREA

MCHAREA provides CP with statistical data that relates to malfunctions of the real CPU, to its buffers, to processor storage for damage assessment, and to the recovery of VM/370.

0	MCDAMLEN	MCHRESEV
8	M*1   M*2   M*3   M*4   M*5   M*6   M*7   M*8	
10	MCHLSUM	
38	N*1   N*2   N*3   N*4   N*5   N*6   N*7   N*8	
40	MCHF SAR	MCHF SAV
48	MCHF SEAV	MCH PDARI
50	L*1   L*2   L*3   L*4   CPULIMIT	MCH RES1
58	BUFDIA55	
60	BUFENA55	
68	ECCDIS55	
70	ECCENA55	
78	BUFDIA65	
80	BUFENA65	
88	ECCDIS65	
90	ECCENA65	

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MCDAMASS DS 0D	Damage assessment
0	MCDAMLEN DS 1H	Length of the damage assessment field
2	MCHRESEV DS XL6	Reserved for IBM use
8	MCHDAMFL DS 0B18	Damage assessment data
8	MCHFLAGO DS 1X M*1	System status
<u>Bits defined in MCHFLAGO</u>		
	MCHOHDWR EQU X'80'	Hardware recovery
	MCHOSFTR EQU X'40'	Software recovery
	MCHOUSAD EQU X'20'	User aborted
	MCHOTERM EQU X'08'	Operating system termination
	MCHOQUIT EQU X'04'	Quiet mode in effect

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
9	MCHFLAG1	DS	1X	M*2	Damage area
	<u>Bits defined in MCHFLAG1</u>				
	MCH1MAIN	EQU	X'80'		Main storage
	MCH1BUFF	EQU	X'40'		Buffer
	MCH1COST	EQU	X'20'		Control storage
	MCH1PROC	EQU	X'08'		Processor
	MCH1TODC	EQU	X'02'		Time-of-day clock
	MCH1SYS	EQU	X'01'		System damage
A	MCHFLAG2	DS	1X	M*3	Damage area (continued)
B	MCHFLAG3	DS	1X	M*4	Error type
	<u>Bits defined in MCHFLAG3</u>				
	MCH3INTE	EQU	X'80'		Intermittent error
	MCH3SOLD	EQU	X'40'		Solid error
	MCH3DATA	EQU	X'20'		Data error
	MCH3PROT	EQU	X'10'		Protect error
C	MCHFLAG4	DS	1X	M*5	RMS Action data
	<u>Bits defined in MCHFLAG4</u>				
	MCH4TOLO	EQU	X'80'		Time-out loop
	MCH4REPA	EQU	X'40'		Repair
	MCH4STRE	EQU	X'20'		Storage reconfiguration
	MCH4BURE	EQU	X'10'		Buffer reconfiguration
D	MCHFLAG5	DS	1X	M*6	RMS information status
	<u>Bits defined in MCHFLAG5</u>				
	MCH5INLG	EQU	X'80'		Invalid logout
	MCH5INMC	EQU	X'40'		Invalid machine check interrupt code
	MCH5IPSA	EQU	X'20'		Invalid failing storage address
E	MCHFLAG6	DS	1X	M*7	RMS wait state suffix
F	MCHFLAG7	DS	1X	M*8	Reserved for IBM use
	<u>Bits defined in MCHFLAG7</u>				
	MCH7SMCR	EQU	X'80'		Second machine check recursion
	MCH7VRTM	EQU	X'40'		Terminate the virtual user
	MCH7OPSW	EQU	X'10'		Machine check old PSW in problem state
	MCH7VEQR	EQU	X'08'		Terminate the virtual=real user
10	MCHLSUM	DS	1X		Summary
38	MCHPDAR	DS	0BL8		
38	MCHPDAR0	DS	1X	N*1	Action taken
39	MCHPDAR1	DS	1X	N 2	Failure type
	<u>Machine check communication area must be cleared above this line</u>				
	<u>Bits defined in MCHPDAR1</u>				
	MCHP1SDE	EQU	X'80'		Solid storage data error
	MCHP1IDE	EQU	X'40'		Intermittent storage data error
	MCHP1SKE	EQU	X'20'		Solid SPF key error
	MCHP1IKE	EQU	X'10'		Intermittent SPF key error

MCHAREA

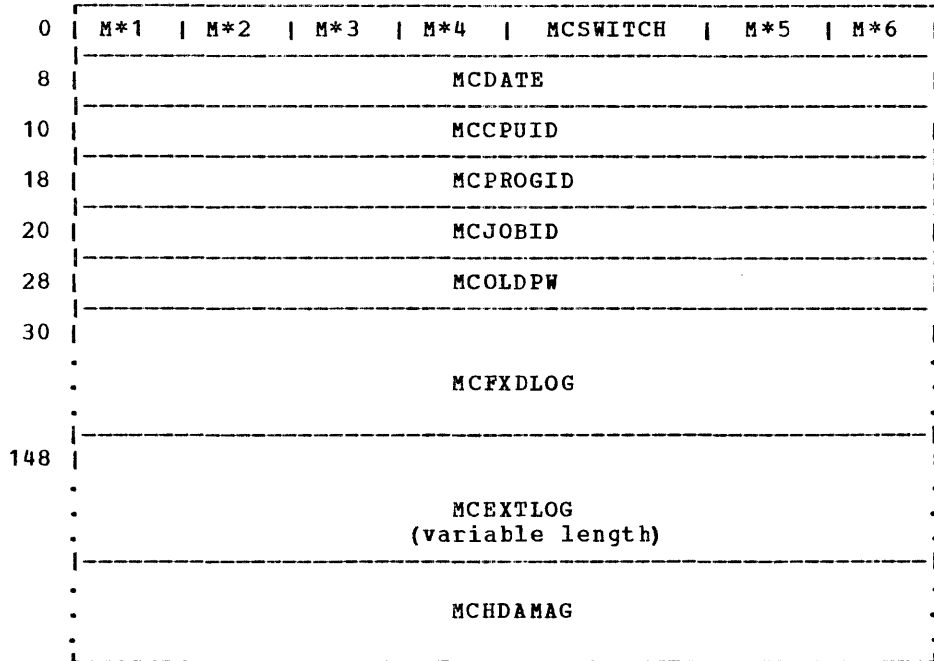
Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
3A	MCHPDAR2	DS	1X	N*3	Operating system status
3B	MCHPDAR3	DS	1X	N*4	Location of failure
3C	MCHPDAR4	DS	1X	N*5	Location of failure
3D	MCHPDAR5	DS	1X	N*6	Requested operator awareness
3E	MCHPDAR6	DS	1X	N*7	flag byte
<u>Bits defined in MCHPDAR6</u>					
	MCHP6CBA	EQU	X'80'		Change bit active
3F	MCHPDAR7	DS	1X	N*8	flag byte
<u>Bits defined in MCHPDAR7</u>					
	MCH7STCK	EQU	X'80'		Interfaces for DMSSTIKCP
	MCH7GSTR	EQU	X'40'		Interfaces for DMKFPRE
	MCH7PURG	EQU	X'20'		Interfaces for DMKPTRFT
	MCH7LOGO	EQU	X'10'		Reserved for IBM
	MCH7EXIT	EQU	X'08'		Interfaces for exit to CP
	MCH7RSRE	EQU	X'04'		Interfaces for DMKCFMBK and for DMKCFPRR and DMKPGSPO
	MCH7IOEM	EQU	X'02'		Interfaces for the recorder
40	MCHFSAR	DS	1F		Failing location real address
44	MCHFSAV	DS	1F		Instruction address at failure
48	MCHFSEAV	DS	1F		End of the failing location
4C	MCHPDARI	DS	1F		End of failing virtual storage address
	MCHLEN1	EQU	*-MCDAMASS		Length of damage assessment area
	MCHLEN	EQU	*-MCHRESEV		Length of area to be cleared
50	MCHMODEL	DS	1X	L*1	The model number for the machine
<u>Bits defined in MCHMODEL</u>					
	NOMODEL	EQU	X'00'		No support for machine
	MODEL135	EQU	X'04'		ID number for the Model 135
	MODEL145	EQU	X'08'		ID number for the Model 145
	MODEL155	EQU	X'0C'		ID number for the Model 155
	MODEL158	EQU	X'0C'		ID number for the Model 158
	MODEL165	EQU	X'10'		ID number for the Model 165
	MODEL168	EQU	X'10'		ID number for the Model 168
51	SWITCH	DS	1X	L*2	Main storage exercise switch
<u>Mode Command Communication Area</u>					
52	MODEFLAG	DS	1X	L*3	Flag field for MODE command
<u>Bits defined in MODEFLAG</u>					
	MODEQUIT	EQU	X'80'		ECC is in quiet mode
53	MODFLAG1	DS	1X	L*4	Flag field for message indicator in MODE command
<u>Bits defined in MODFLAG1</u>					
	MOD1RETY	EQU	X'80'		Message indicator for retry message
	MOD1QUIT	EQU	X'40'		Message indicator for quiet message

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
54	CPULIMIT	DS	1H	The count field for soft error
56	MCHRES1	DS	1H	Reserved for IBM use
<u>DIAGNOSE Support for all Machine Models</u>				
158		DS	0D	
158	BUFDA55	DC	X'0100D100'	Disable buffer for Model 155
160		DS	0D	
160	BUFENA55	DC	X'0200D100'	Enable buffer for Model 155
168		DS	0D	
168	ECCDIS55	DC	X'0300D100'	Disable ECC for Model 155
170		DS	0D	
170	ECCENA55	DC	X'0400D100'	Enable ECC for Model 155
178		DS	0D	
178	BUFDA65	DC	X'0300000000000000'	Disable buffer for Model 165
180	BUFENA65	DC	X'0300002000000000'	Enable buffer for Model 165
188	ECCDIS65	DC	X'0200000003000000'	Disable ECC for Model 165
190	ECCENA65	DC	X'0200000000000000'	Enable ECC for Model 165
1	MCHFIX	EQU	280+48	Length of the fixed logout and header record for machine check handler
1	MCHLEN2	EQU	*-MCDAMASS	Communication area length

MCRECORD

MCRECORD: MACHINE CHECK HANDLER RECORD

MCRECORD provides the necessary extended logout information for error recording of CPU and main storage.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MCRECCNT DS 1X	M*1 Machine check record type
1	MCOPSYS DS 1X	M*2 Operating system
2	MCSWONE DS 1X	M*3 Record independent switch
3	MCSWTWO DS 1X	M*4 Record dependent switch
4	MCSWITCH DS 2X	Unused switches
6	MCRECCNT DS 1X	M*5 Record count
7	MCRECCC DS 1X	M*6 Reserved for IBM use
8	MCDATE DS XL8	Date and time
10	MCCPUID DS XL8	CPU ID
18	MCPROGID DS XL8	Program identity
20	MCJOBID DS XL8	Job identity (unused)
28	MCOLDPW DS XL8	Machine check old PSW
30	MCFXDLOG DS 35D	Machine check fixed logout
	FXDLGLH EQU (*-MCFXDLOG)	
148	MCEXTLOG EQU *	Machine check extended logout (the extended logout length is variable length and machine dependent)
	MCHDAMAG EQU *	The damage assessment area (80 bytes)

MDRREC: MISCELLANEOUS DATA RECORDING RECORD

MDRREC retains information for the VM/370 error recording cylinders.

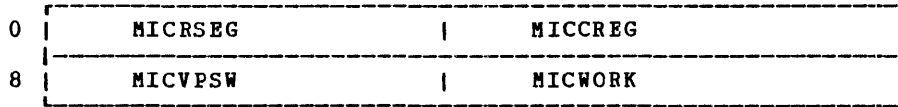
0	MDRKEYN	M*1	M*2	M*3	M*4	MDRSPE1
8	MDRDTEN			MDRTMEN		
10	MDRCPID					
18	MDRCUA1					MDRVOL
20	MDRSENS					
38						

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning			
<u>24-Byte Header</u>					
0	MDRKEYN DS 1H	Type and operating system			
2	MDRSWS1 DD 1C	M*1	Switch byte		
3	MDRSWS2 DS 1C	M*2	Reserved for IBM use		
4	MDRSWS3 DS 1C	M*3	Reserved for IBM use		
5	MDRRECNT DS 1C	M*4	Bits 0 through 3 indicate the sequence number; bits 4 through 7 indicate the record total		
6	MDRSPE1 DS 1H				
8	MDRDTEN DS 1F	Date			
C	MDRTMEN DS 1F	Time			
10	MDRCPID DS 2F	CPU ID and model			
<u>Device Dependent Data</u>					
18	MDRCUA1 DS 2X	Primary CUA of device			
1A	MDRVOL DS 6X	Volume serial of device			
20	MDRSENS DS 24X	Sense byte data			
<u>For 3270 Remote Support</u>					
18	DS 2X	Line address			
1A	DS 1X	Control unit address			
1B	DS 1X	Device address			
1C	DS 2X	Sense and status information			
1E	DS 2X	Resource identification			
20	DS 2X	Reserved for IBM use			

MICBLOK

MICBLOK: VIRTUAL MACHINE POINTER LIST FOR VIRTUAL MACHINE ASSIST FEATURE

MICBLOK contains pointers to control registers, the segment table, and other values required by the virtual machine assist feature. This information is needed for the handling of certain instructions and privileged operations requested by the virtual machine.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MICRSEG DS 1F	Real segment table pointer
4	MICCREG DS 1F	Virtual control register pointer
8	MICVPSW DS 1F	Virtual PSW pointer
C	MICWORK DS 1F	Workspace pointer
	MICSIZE EQU (*-MICBLOK)/8	Size of DSECT in doublewords (X'02')
8	MICVIP DS 1X	Virtual interrupt pending bit
	MICPEND EQU X'80'	Virtual interrupt is pending; therefore, the virtual machine assist feature is not to handle change of PSW channel masks or external mask from disabled to enabled. All other bits in this byte must be 0.
9	DS 3X	Address of virtual PSW



MIHREC: MISSING INTERRUPT HANDLER ERROR RECORD

MIHREC block is used in the SVC 76--initiated error recording process of type 70 MIH (Missing Interrupt Handler) records.

0	MIHKEYN	A*1	A*2	A*3	A*4	MIHSPE1
8	MIHDTEN			MIHTMEN		
10	MIHCPID					
18	MIHJOB					
20	MIHCUA2		MIHCUA1		MIHVOL	
28	MIHVOL (cont.)			MIHDEVT		
30	MIHINT					

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
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24-Byte Header

0	MIHKEYN	DS	1H		Type and operating system
2	MIHSWS1	DS	1C	A*1	Switch byte 0
3	MIHSWS2	DS	1C	A*2	Reserved for IBM use
4	MIHSWS3	DS	1C	A*3	Reserved for IBM use
5	MIHRECNT	DS	1C	A*4	Reserved for IBM use
6	MIHSPE1	DS	1H		Reserved for IBM use
8	MIHDTEN	DS	1F		Date
C	MIHTMEN	DS	1F		Time
10	MIHCPID	DS	2F		CPU ID and model

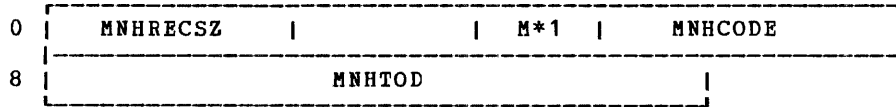
Device Dependent Data

18	MIHJOB	DS	8X		Job whose I/O request pending
20	MIHCUA2	DS	3X		CUA used to address the device
23	MIHCUA1	DS	3X		Primary device address
26	MIHVOL	DS	6X		Volume serial
2C	MIHDEVT	DS	4X		Device type
30	MIHINT	DS	8X		Time interval used to check pending interrupt

**MNHDR**

**MNHDR: VM MONITOR RECORD HEADER**

MNHDR provides header information for following monitor records.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	MNBHDLEN	EQU	4	Length of the block header (VB format)
0	MNHRECSZ	DS	1H	Record size
2		DS	1H	Reserved for IBM use
4	MNHCLASS	DS	1X	M*1 Monitor class
5	MNHCODE	DS	XL2	Monitor code
8	MNHTOD	DS	XL5	Current TOD value
	MNHDRLEN	EQU	*-MNHDR	Length of header record

MN000: VM MONITOR PERFORM CLASS RECORD

MN000 provides an area for the accumulation of records dealing with privilege operations, paging, dispatching, and interrupt activity.

0	MN000WID
8	MN000WPG
10	MN000WIO
18	MN000PRB
20	MN000PSI   MN000CPA
28	MN000NFL   MN000PSN
30	MN000PRC   MN000RPC
38	MN000SPC   MN000FLF
40	MN000CPT   MN000SS
48	MN000PFF   MN000PRF
50	MN000PCS   MN000NXR
58	MN000CPR   MN000CVI
60	MN000CCW   MN000ITI
68	MN000PTI   MN000CKI
70	MN000CSV   MN000CPG
78	MN000CIO   MN000CDS
80	MN000CDA   MN000CDB
88	MN000CSC   MN000EK
90	MN000IK   MN000MS
98	MN000LP   MN000DI

A0	MN000SI   MN000SF
A8	MN000TI   MN000CI
B0	MN000HI   MN000HD
B8	MN000TC   MN000MN
C0	MN000MO   MN000LR
C8	MN000CP   MN000CH
D0	MN000TE   MN000CE
D8	MN000CT   MN000PE
E0	MN000PT   MN000EP
E8	MN000IP   MN000PB
F0	MN000RR   MN000TCL
F8	MN000LCL   MN000CS
100	MN000CD   MN000HDI
108	MN000NDU   MN000NAU
110	MN000PRD   MN000PWR
118	MN000NPP   MN000SWS
120	MN000Q1N   MN000Q2N
128	MN000Q1E   MN000Q2E   MN000INT   MN000PPA
130	MN000PPC

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MN000WID DS XL8	Total system idle wait time
8	MN000WPG DS XL8	Total system page wait time
10	MN000WIO DS XL8	Total system I/O wait time
18	MN000PRB DS XL8	Total system problem state time
20	MN000PSI DS 1F	No. of paging SIOs
24	MN000CPA DS 1F	No. of calls to DMKPAG
28	MN000NFL DS 1F	No. of page frames currently on free list
2C	MN000PSN DS 1F	No. of pages currently being swapped
30	MN000PRC DS 1F	No. of pages flushed but reclaimed

MN000

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
34	MN000RPC	DS 1F	No. of reserved pages
38	MN000SPC	DS 1F	No. of shared system pages
3C	MN000FLF	DS 1F	No. of times the free list was empty
40	MN000CPT	DS 1F	No. of calls to DMKPTRFR
44	MN000SS	DS 1F	No. of pages stolen from in-queue users
48	MN000PFF	DS 1F	No. of pages swapped from the flush list
4C	MN000PRF	DS 1F	No. of pages examined in stealing a page
50	MN000PCS	DS 1F	No. of full scans done in stealing pages
54	MN000NXR	DS 1F	No. of real external interruptions
58	MN000CPR	DS 1F	No. of calls to DMKPRVLG
5C	MN000CVI	DS 1F	No. of calls to DMKVIOEX
60	MN000CCW	DS 1F	No. of calls to DMKCCW from DMKVIO
64	MN000ITI	DS 1F	No. of interval timer interruptions reflected
68	MN000PTI	DS 1F	No. of CPU timer interruptions reflected
6C	MN000CKI	DS 1F	No. of clock comparator interruptions reflected
70	MN000CSV	DS 1F	No. of SVC interruptions reflected
74	MN000CPG	DS 1F	No. of program interruption handled
78	MN000CIO	DS 1F	No. of I/O interruption handled
7C	MN000CDS	DS 1F	No. of calls to DMKDSP (main entry)
80	MN000CDA	DS 1F	No. of fast reflects in DMSDSP
84	MN000CDB	DS 1F	No. of dispatches for new PSWs
88	MN000CSC	DS 1F	No. of calls to DMKSCHDL
8C	MN000EK	DS 1F	Inst. count for X'08' SSK
90	MN000IK	DS 1F	Inst. count for X'09' ISK
94	MN000MS	DS 1F	Inst. count for X'80' SSM
98	MN000LP	DS 1F	Inst. count for X'82' LPSW
9C	MN000DI	DS 1F	Inst. count for X'83' DIAG
A0	MN000SI	DS 1F	Inst. count for X'9CX0' SIO
A4	MN000SF	DS 1F	Inst. count for X'9CX1' SIOF
A8	MN000TI	DS 1F	Inst. count for X'9DX0' TIO
AC	MN000CI	DS 1F	Inst. count for X'9DX1' CLRIO
B0	MN000HI	DS 1F	Inst. count for X'9EX0' HIO
B4	MN000HD	DS 1F	Inst. count for X'9EX1' HDV
B8	MN000TC	DS 1F	Inst. count for X'9F' TCH
BC	MN000MN	DS 1F	Inst. count for X'AC' STNSM
C0	MN000MO	DS 1F	Inst. count for X'AD' STOSM
C4	MN000LR	DS 1F	Inst. count for X'B1' LRA
C8	MN000CP	DS 1F	Inst. count for X'B202' STIDP
CC	MN000CH	DS 1F	Inst. count for X'B203' STIDC
D0	MN000TE	DS 1F	Inst. count for X'B204' SCK
D4	MN000CE	DS 1F	Inst. count for X'B206' SCKC
D8	MN000CT	DS 1F	Inst. count for X'B207' STCKC
DC	MN000PE	DS 1F	Inst. count for X'B208' SPT
E0	MN000PT	DS 1F	Inst. count for X'B209' STPT
E4	MN000EP	DS 1F	Inst. count for X'B20A' SPKA
E8	MN000IP	DS 1F	Inst. count for X'B20B' IPK
EC	MN000PB	DS 1F	Inst. count for X'B20D' PTLB
F0	MN000RR	DS 1F	Inst. count for X'B213' RRB
F4	MN000TCL	DS 1F	Inst. count for X'B6' STCTL
F8	MN000LCL	DS 1F	Inst. count for X'B7' LCTL
FC	MN000CS	DS 1F	Inst. count for X'BA' CS
100	MN000CD	DS 1F	Inst. count for X'BB' CDS
104	MN000HDI	DS 1F	Diagnose disk I/O simulation count
108	MN000NDU	DS 1F	No. of users dialed to a virtual machine
10C	MN000NAU	DS 1F	No. of users logged on
110	MN000PRD	DS 1F	No. of page reads
114	MN000PWR	DS 1F	No. of page writes
118	MN000NPP	DS 1F	No. of system pageable pages

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
11C	MN000SWS	DS	1F	Sum of working sets of in-queue users
120	MN000Q1N	DS	1F	No. of users in Q1
124	MN000Q2N	DS	1F	No. of users in Q2
128	MN000Q1E	DS	1H	No. of users eligible for Q1
12A	MN000Q2E	DS	1H	No. of users eligible for Q2
12C	MN000INT	DS	1H	MONITOR sampling interval (secs)
12E	MN000PPA	DS	1H	Pseudo-cylinders <sup>1</sup> of allocated temporary space
130	MN000PPC	DS	1H	Pseudo-cylinders of system temporary space

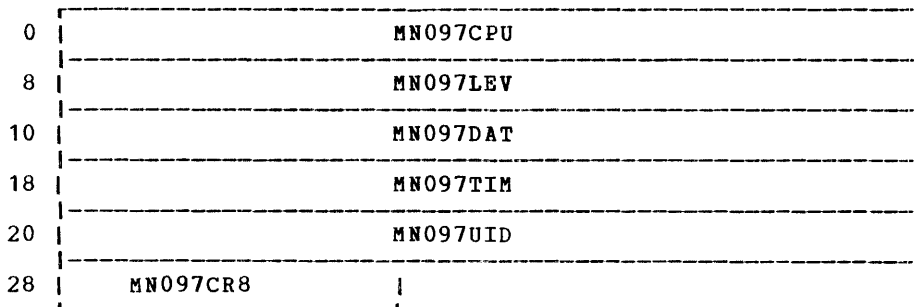
<sup>1</sup> A pseudo-cylinder comprises 100 available page slots for all system-owned volumes. The total of available pseudo-cylinders per device is determined by the formula:

$$\frac{\text{(number of cylinders} \times \text{number of records per cylinder for a device)}}{100}$$

MN097,MN098

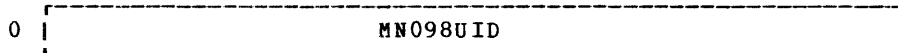
MN097 AND MN098: VM MONITOR TAPE HEADER AND TRAILER RECORDS

MN097 provides tape header information for data accumulated by VM monitor.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	MN097CPU	DS	XL8	CPU serial/model number
8	MN097LEV	DS	CL8	Program Level Change
10	MN097DAT	DS	CL8	Current date
18	MN097TIM	DS	CL8	Current time
20	MN097UID	DS	CL8	Userid of user who invoked MONITOR
28	MN097CR8	DS	1F	Value of control register 8
	MN097LEN	EQU	*-MN097	Length of the tape header record

MN098 contains the userid of the user who has terminated current VM monitor activity.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	MN098UID	DS	CL8	User stopping the VM monitor
	MN098LEN	EQU	*-MN098	Length of the tape trailer record

MN099: VM MONITOR SUSPENSION RECORD

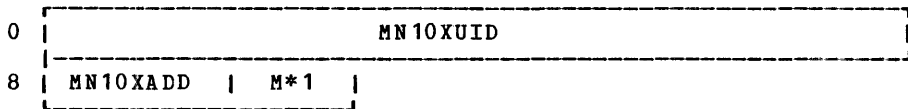
MN099 contains information recorded when monitor activity is suspended because of a tape busy condition.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MN099TOD DS XL5	TOD clock value at suspension
5	MN099CNT DS XL4	Count of suspensions
	MN099LEN EQU *-MN099	Length of the suspension record

MN10X: VM MONITOR RESPONSE CLASS RECORDS

MN10X contains information on the number of input or output console line transmissions for a given userid.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MN10XUID DS CL8	Userid
8	MN10XADD DS 1H	Terminal line address
	MN10XLEN EQU *-MN10X	Short record length
A	MN10YCNT DS 1X	M*1 Byte count for the following
	MN10YLEN EQU *-MN10X	Long record, header length
B	MN10YIO EQU *	Input/output line starts here

MN20X

MN20X: VM MONITOR SCHEDULE CLASS RECORDS

MN20X contains VM monitor data on CP's scheduler activity, dispatch queues, paging, and spool activity.

0	MN20XUID				
8	MN20XNPP		MN20XSWS		
10	MN20XQ1N		MN20XQ2N		
18	MN20XQ1E	MN20XQ2E	MN20XWSS	M*1	M*2
20	MN20YTTI				
28	MN20YVTI				
30	MN202PRI	M202PRG	MN202APR	MN202REF	
38	MN202RES	M202PST	MN202IOC		
40	MN202PNC		MN202LIN		
48	MN202CRD				

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	MN20XUID	DS	CL8	Userid being added/dropped from queue
8	MN20XNPP	DS	1F	No. of system pageable pages
C	MN20XSWS	DS	1F	No. of working sets of in-queue users
10	MN20XQ1N	DS	1F	No. of users in Q1
14	MN20XQ2N	DS	1F	No. of users in Q2
18	MN20XQ1E	DS	1H	No. of users eligible for Q1
1A	MN20XQ2E	DS	1H	No. of users eligible for Q2
1C	MN20XWSS	DS	1H	User's projected working set size
1E	MN20XQNM	DS	1X	M*1 Queue being added/dropped to/from
1F	MN2RSV1	DS	1X	M*2 Reserved for IBM use
	MN203LEN	EQU	*-MN20X	Length of class 2 code 3 Record (Add queue)
20	MN20YTTI	DS	XL8	Current VMTIME (CP simulation time)
28	MN20YVTI	DS	XL8	Current VMVTIME (user virtual time)
30	MN204PRI	DS	1F	Eligible list priority
	MN204LEN	EQU	*-MN20X	Length of class 2 code 4 Record (Drop queue)
		ORG	MN204PRI	Back up to priority field
30	MN202PRI	DS	1H	Dispatch priority
32	MN202PGR	DS	1H	Pages read while in queue
34	MN202APR	DS	1H	Av. no. of pages resident at each paging operation
36	MN202REF	DS	1H	No. of pages referenced while in queue
38	MN202RES	DS	1H	Current no. of pages resident
3A	MN202PST	DS	1H	No. of pages stolen while in queue
3C	MN202IOC	DS	1F	Virtual nonspooled SIO count
40	MN202PNC	DS	1F	Virtual cards punched
44	MN202LIN	DS	1F	Virtual lines printed
48	MN202CRD	DS	1F	Virtual cards read
	MN202LEN	EQU	*-MN20X	Length of class 2 code 2 Record (add to the eligible list)



MN400: VM MONITOR USER CLASS RECORD

MN400 provides user virtual machine statistics.

0	MN400UID
8	MN400TTI
10	MN400VTI
18	MN400PGR
1C	MN400PGW
20	MN400IOC
24	MN400PNC
28	MN400LIN
2C	MN400CRD
30	MN400RST   MN400DST   MN400OST   MN400QST
34	MN400PST   MN400EST   MN400TST   MN400MLV
38	MN400QLV   MN400CLV   MN400TLV   MN400PND
3C	MN400UPR   MN4RSV1   MN400RES
40	MN400WSS   MN400PDR
44	MN400PDK   MN400INT

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	MN400UID	DS	CL8	Userid
8	MN400TTI	DS	XL8	Current VMTIME (in VMBLOK); CP simulation time
10	MN400VTI	DS	XL8	Current VMVTIME (in VMBLOK); user simulation time
18	MN400PGR	DS	1F	Total page reads - this user
1C	MN400PGW	DS	1F	Total page writes - this user
20	MN400IOC	DS	1F	Virtual nonspooled SIO count
24	MN400PNC	DS	1F	Virtual cards punched
28	MN400LIN	DS	1F	Virtual lines printed
2C	MN400CRD	DS	1F	Virtual cards read
30	MN400RST	DS	1X	User running status
31	MN400DST	DS	1X	User dispatch status
32	MN400OST	DS	1X	User operating status
33	MN400QST	DS	1X	User queuing status
34	MN400PST	DS	1X	User processing status
35	MN400EST	DS	1X	User execution status
36	MN400TST	DS	1X	User tracing control status
37	MN400MLV	DS	1X	User message level
38	MN400QLV	DS	1X	User queue level

MN400

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
39	MN400CLV	DS	1X	User command level
3A	MN400TLV	DS	1X	User timer level
3B	MN400PND	DS	1X	Interrupt pending status
3C	MN400UPR	DS	1X	Directory or SET priority
3D	MN4RSV1	DS	1X	Reserved for IBM use
3E	MN400RES	DS	1H	Number of pages resident
40	MN400WSS	DS	1H	Estimated working set size
42	MN400PDR	DS	1H	Drum allocated page frames
44	MN400PDK	DS	1H	Disk allocated page frames
46	MN400LEN	EQU	*-NM400	Length of CL4 code 0 record
48	MN400INT	DS	1H	Monitor sampling interval (in seconds)

MN500: VM MONITOR INSTRUCTION SIMULATION CLASS RECORD

MN500 provides data on instructions simulated by CP.

0	MN500UID
8	MN500INS
C	MN500VAD
10	MN500OVH

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MN500UID DS CL8	Userid
8	MN500INS DS 1F	Privileged instruction
C	MN500VAD DS 1F	Virtual storage addr of the instruction
10	MN500OVH DS XL8	Current total of CP simulation time
	MN500LEN EQU *-MN500	Length of CL4 code 0 record

MN600DEV: VM MONITOR DASTAP CLASS DEVICE PORTION

MN600DEV provides I/O activity count for DASD and tape devices as invoked by CP monitor function.

0	MN600ADD	MN600TY	MN600SER
8			MN600CNT

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MN600ADD DS 1H	Device address
2	MN600TY DS 1H	VM/370 device type/codes
4	MN600SER DS CL6	Volume serial number
A	MN600CNT DS XL4	Device accumulated I/O count
	MN600DLN EQU *-MN600DEV	Length of each data record
	MN600MAX EQU (4096-MNBHDLEN-MNHDRLN-MN600HLN)/MN600DLN	Maximum device count

MN600HDR, MN700

MN600HDR: VM MONITOR HEADER RECORD FOR DEVICE PACKAGES

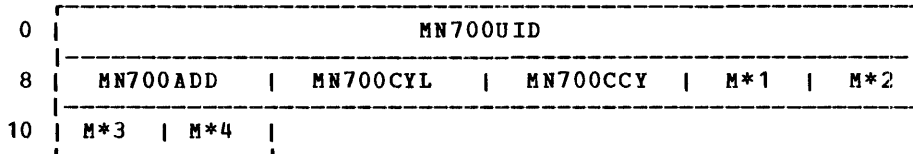
MN600HDR provides the number of device data packages.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MN600NUM DS H	Number of device data packages

MN700: VM MONITOR SEEKS CLASS RECORD

MN700 provides, via CP MONITOR, the I/O tasks and cylinder seek activity of a specified DASD device.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	MN700UID DS CL8	Userid
8	MN700ADD DS 1H	Device address
A	MN700CYL DS 1H	Cylinder seeking to
C	MN700CCY DS 1H	Current cylinder
E	MN700QDV DS 1X	M*1 I/O tasks queued on the device
F	MN700QCU DS 1X	M*2 I/O tasks queued on the control unit
10	MN700QCH DS 1X	M*3 I/O tasks queued on the channel
11	MN700DIR DS 1X	M*4 Seek direction; 00=lower, 01=higher
	MN700LEN EQU *-MN700	Length of class 7 code 0 record

MN802CTR: VM MONITOR SYSPROF CLASS RECORD

MN802CTR provides, via CP monitor function, additional system profile data. The monitor data includes: the I/O activity for each device, the number of logged on users, number of page read/writes, plus total system I/O, page wait, and problem state time.

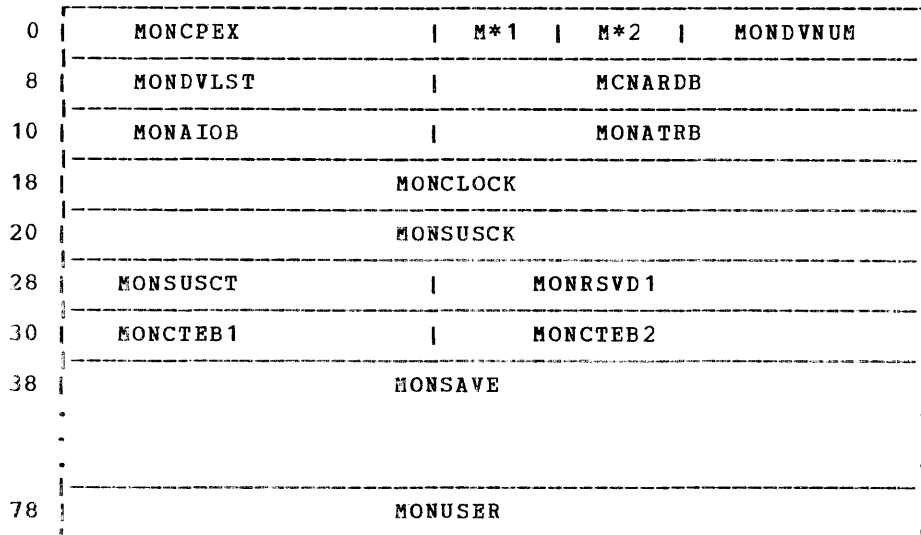
0	MN802NAU		MN802PGR
8	MN802PGW		MN802NPP
10	MN802WID		
18	MN802WPG		
20	MN802WIO		
28	MN802PRB		

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	MN802NAU DS	1F	No. of logged on users	
4	MN802PGR DS	1F	Total system page reads	
8	MN802PGW DS	1F	Total system page writes	
C	MN802NPP DS	1F	No. of system pageable pages	
10	MN802WID DS	XL8	Total system idle wait time	
18	MN802WPG DS	XL8	Total system page wait time	
20	MN802WIO DS	XL8	Total system I/O wait time	
28	MN802PRB DS	XL8	Total system problem time	
	MN802CLN EQU	*-MN802CTR	Length of each data entry	

MONCOM

MONCOM: VM MONITOR COMMUNICATIONS AREA

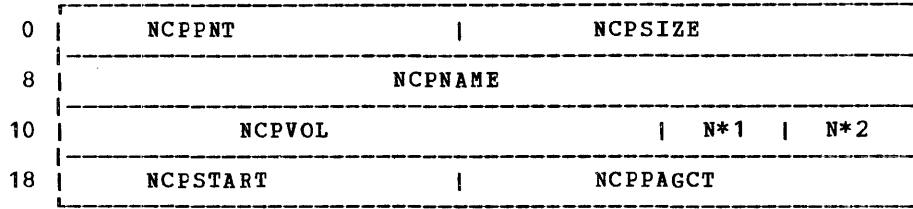
MONCOM provides the control link for CP's monitor activity, the user, and the tape drive.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	MONARDB DS	1F			Address of monitor tape real device block
4	MONFLAG1 DS	1X	M*1		Monitor flag
	<u>Bits defined in MONFLAG1</u>				
	TEBUSY EQU	X'80'			Tape is busy
	SUSPEND EQU	X'40'			Monitoring suspended
	CFSTOP EQU	X'20'			MONITOR STOP command has been issued
	TRUN EQU	X'10'			Tape rewind-unload CCW has been scheduled
	ERROR EQU	X'08'			Tape error has occurred - stop VM monitor
	MONTIINT EQU	X'04'			Handling timer interruption
5	MONFLAG2 DS	1X	M*2		Work byte
6	MONDVNUM DS	1H			Number of entries in real device list
8	MONDVLST DS	1F			Address of the real device list
C	MCNRSV1 DS	1F			Reserved for IBM use
10	MONAIOB DS	1F			Address of monitor tape I/O block
14	MCNATRB DS	1F			Address of monitor timer request block
18	MONCLOCK DS	1D			TOD clock stamp for each record
20	MONSUSCK DS	1D			TOD clock value at last suspension
28	MONSUSCT DS	1F			Suspension count
2C	MCNRSVD1 DS	1F			Reserved for IBM use
30	MONCTEB1 DS	1F			CORTABLE entry for buffer page 1
34	MONCTEB2 DS	1F			CORTABLE entry for buffer page 2
38	MONSAVE DS	16F			Monitor internal save area
78	MCNUSER DS	8C			User starting/stopping the VM monitor

NCPTBL: NAMED 3704/3705 CONTROL PROGRAM TABLE

NCPTBL retains the information requirements for loading the saved image 3704/3705 NCP, EP, or PEP program into a 3704 or 3705 communications controller.

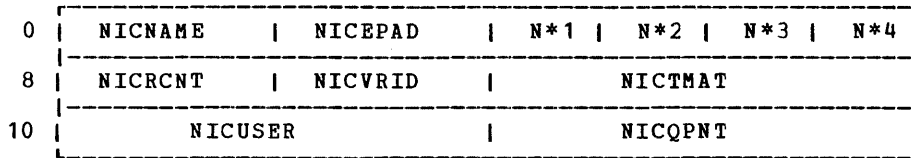


Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	NCPNT	DS	1F		Displacement to next entry
4	NCPSIZE	DS	1F		3704/3705 storage size required for load
8	NCPNAME	DS	CL8		Control program reference name
10	NCPVOL	DS	CL6		Valid of DASD containing saved image
16	NCPFLAG	DS	1X	N*1	CPTYPE flag byte
	<u>Bits defined in NCPFLAG</u>				
	NCPINCP	EQU	X'01'		Network Control Program
	NCPTCEP	EQU	X'02'		270X Emulation Control Program
	NCPTPEP	EQU	X'03'		Partitioned Emulation Program
17	NCPRSV1	DS	1X	N*2	Reserved for IBM use
18	NCPSTART	DS	1F		CCPD of first page on NCPVOL
1C	NCPPAGCT	DS	1F		Total number of pages saved

NICBLOK

NICBLOK: NETWORK INTERFACE CONTROL BLOCK

NICBLOK contains control information related to 3704/3705 resources, teleprocessing lines, and display screen status information.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	NICNAME	DS	1H		3704/3705 NCP resource name
2	NICEPAD	DS	1H		Subchannel address when in EP mode
4	NICSTAT	DS	1X	N*1	Resource status flags
	<u>Bits defined in NICSTAT</u>				
	NICERLK	EQU	X'80'		Device error lock is set
	NICNTRL	EQU	X'40'		Control operation is active
	NICDISA	EQU	X'20'		Resource inactive (offline)
	NICSWEP	EQU	X'10'		Resource is switchable to EP mode
	NICEPMD	EQU	X'08'		Resource now in emulator mode
	NICLTRC	EQU	X'02'		NCP line trace active
	NICDED	EQU	X'01'		Resource is dedicated
	NICTRQ	EQU	X'80'		Graphic device - timer request pending
	NICHLDD	EQU	X'10'		Graphic device - screen full in hold status
	NICMORE	EQU	X'08'		Graphic device - screen full in more status
	NICRUNN	EQU	X'04'		Graphic device - screen in running status
	NICREAD	EQU	X'02'		Graphic device - read pending for screen input
	NICCPNA	EQU	X'01'		Graphic device - last input not accepted
5	NICFLAG	DS	1X	N*2	Interface control flags
	<u>Bits defined in NICFLAG</u>				
	NICSESN	EQU	X'80'		Session is active for this device
	NICATTN	EQU	X'40'		Attention handling in progress
	NICPSUP	EQU	X'20'		Resource has print suppress feature
	NICATOF	EQU	X'10'		Suppress attention signal character
	NICENAB	EQU	X'08'		Resource is active and enabled
	NICDISB	EQU	X'02'		Resource to be disabled as soon as possible
	NICMTA	EQU	X'01'		Multiple terminal access resource
	NICFMT	EQU	X'80'		Graphic device - screen formatted VM/370 online
	NICDIAG	EQU	X'40'		Graphic device - screen written with DIAGNOSE
	NICALRM	EQU	X'10'		Graphic device - screen has an alarm message
	NICCARD	EQU	X'04'		Graphic device - data from card reader
	NICPROC	EQU	X'01'		Graphic device - process control now



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
6	NICLLEN	DS	1X	N*3	Terminal output line length
7	NICTYPE	DS	1X	N*4	Resource type/features
<u>Bits defined in NICTYPE</u>					
	NICCTLR	EQU	X'00'		Resource is the 3704/3705
	NICLINE	EQU	X'80'		Resource is a teleprocessing line
	NICTERM	EQU	X'40'		Resource is a terminal device
	NICLGRP	EQU	X'20'		Resource is a logical line group
	NICSDLC	EQU	X'08'		LINE - Synchronous data link control
	NICLBSC	EQU	X'04'		LINE - Binary synchronous line control
	NICSWCH	EQU	X'02'		LINE - Switched line interface
	NICMLTP	EQU	X'01'		LINE - Multiple-drop leased line
	NICTELE	EQU	X'10'		TERM - Telegraph line adapter
	NICCIEM	EQU	X'08'		TERM - Selectric based terminal
	NICRCPU	EQU	X'04'		TERM - Bisynch remote computer
	NICRSPL	EQU	X'02'		TERM - Bisynch remote spool device
	NICGRAF	EQU	X'01'		TERM - Bisynch remote graphics
	NIC3271	EQU	X'08'		Graphic device - 3271 control unit
	NIC3275	EQU	X'04'		Graphic device - 3275 control unit
	NICOPRDR	EQU	X'10'		Graphic device - card reader feature
8	NICRCNT	DS	1H		Retry count for BTU errors
A	NICVRID	DS	1H		Virtual resource ID when dedicated
C	NICTMAT	DS	1F		TOD clock value when attached
10	NICUSER	DS	1F		VMBLOK address of associated user
14	NICQPNT	DS	1F		Pointer to input BTU chain

Device Dependent Data - 3271 and 3275 on Binary Synchronous Lines

		ORG	NICEPAD		
2	NICCORD	DS	1X		Current line coordinates
3	NICTMCD	DS	1X		Terminal mode
<u>Bits defined in NICTMCD</u>					
	NICTABF	EQU	X'80'		Second scan of screen's input area
	NICSIO	EQU	X'40'		DIAGNOSE issued to input area
	NICAPL	EQU	X'20'		APL on for 3270 remote
<u>ORG NICRCNT</u>					
8	NICSELT	DS	1H		Remote station selection character
A	NICPOLL	DS	1H		Remote station polling characters
C	NICATRB	DS	1F		Timer request block address
	NICSIZE	EQU	(*-NICBLOK)/8		Size of block in doublewords (X'03')

Equate Symbols for VM/370 Support of the 3704/3705

WRITBRK	EQU	X'09'	Write break CCW op code
RDBUFLN	EQU	96	Length of host read buffers
RDBUFNO	EQU	6	Number of host read buffers

Sense Bits (sense byte 0) Peculiar to the 3704/3705

IPLREQ	EQU	X'02'	IPL required--3705 inactive
ABORT	EQU	X'01'	Buffer depletion--transfer terminated

OBRREC (long OBR)

OBRREC: UNIT CHECK ERROR RECORD (LONG OBR)

OBRREC provides error, sense, and other statistical data needed for error recording on a specified channel-attached I/O device.

0	OBRKEYN	OBRSWSN	OBRSP1
8	OBRDTEN	OBRTMEN	
10	OBRCPIDN		
18	OBRPGMN		
20	OBRFCCWN		
28	OBRCSWN		
30	S*1	OBRCUAIN	OBRDEVTN
38	S*2	OBRCUAPR	OBRRIORTY   OBRSCNCT
40	DEVICE DEPENDENT DATA		

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
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24-Byte Header Record

0	OBRKEYN	DS	1H	Record type
2	OBRSWSN	DS	1H	Switches

Bits defined in OBRSWSN and Byte 0

OBRMORE	EQU	X'80'	More records to follow
OBRTOC	EQU	X'40'	Time-of-day clock instruction issued
OBRTIME	EQU	X'08'	TIME macro used

Bits defined in OBRSWSN Byte 1

OBRDOD	EQU	X'80'	SDR counters dumped at ECD	
OBRTEMP	EQU	X'40'	Temporary error	
OBRSHOBR	EQU	X'20'	Short record	
OBRDEMNT	EQU	X'04'	Volume demount	
4	OBRSP1	DS	1F	Reserved for IBM use
8	OBRDTEN	DS	1F	Date
C	OBRTMEN	DS	1F	Time
10	OBRCPIDN	DS	2F	CPU ID and serial number

End of 24-Byte Header Record

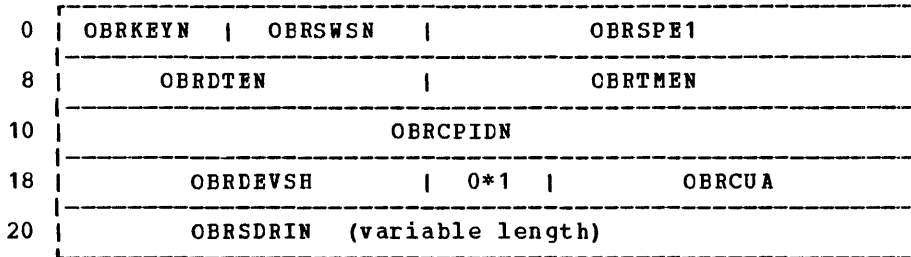
18	OBRPGMN	DS	2F	Job ID
20	OBRFCCWN	DS	2F	Failing CCW
28	OBRCSWN	DS	2F	Failing CSW
30	OBRDDCNT	DS	1X	S*1 Number of doublewords in record
31	OBRCUAIN	DS	3C	Address of failing device
34	OBRDEVTN	DS	1F	Device type
38	OBRSDRCT	DS	1X	S*2 Number of SDR work area bytes
39	OBRCUAPR	DS	3C	Primary unit address

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
3C	OBRICRTY	DS 2X	Number of retries
3E	OBRNSCT	DS 2X	Number of sense bytes
<u>Format of Device Dependent Data</u>			
<u>All DASD Devices Format</u>			
40	OBRVOLN	DS 8C	Volume ID
48	OBRLSKN	DS 8X	Last seek address
50	OBRHAN	DS 8X	Home address
<u>2314/2319 Format</u>			
58	OBRSDRWK	DS 10X	SDR work area
62	OBRSENSN	DS 24C	Sense data
7C	OBRSI OCT	DS 1F	Count of SIO's since last recording
<u>3350/3340/3330/2305 Format</u>			
58	OBR33SNS	ORG OBRSKN DS 24C	3350/3340/3330/2305 sense data
<u>Unit Record Format</u>			
40	OBRURST	ORG OBRVOLN DS 10X	SDR work area
4A	OBRURSNS	DS 1C	Unit record sense data
<u>3505/3525 Format</u>			
40	OBR3505S	ORG OBRVOLN DS 1C	3505/3525 sense data
<u>3211 Format</u>			
40	OBRCORL	ORG OBRVOLN DS 1X	Correlation number
41		DS 7X	Reserved for IBM use
48	OBRSDR32	DS 10X	SDR work area
52	OBR3211S	DS 6C	3211 sense data
<u>2400 Tape Format</u>			
48	OBR TAPST	ORG OBRSKN DS 10X	SDR work area
52	OBR TAPSN	DS 24C	Tape sense data
<u>3420/3410 Tape Format</u>			
48	OBRDVDEP	ORG OBRLSKN DS 16C	Device dependent data
58	OBR342ST	DS 20X	SDR work area
6C	OBR3420S	DS 24C	3420 sense data
<u>Short Outboard Record Format</u>			
18	OBRDEVSH	ORG OBRSDRWK DS 1F	Device type
1C	OBRSDRSH	DS 1X	No. of SDR work area bytes
1D	OBRCUA	DS 3X	Channel and unit address
20	OBRSDRIN	DS 20C	SDR work area

OBRREC (Short OBR)

OBRREC: UNIT CHECK ERROR RECORD (SHORT OBR)

OBRREC provides error, sense, and other statistical data needed for error recording on a specified channel-attached I/O device.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	OBRKEYN DS 1H	Record type		
2	OBRSWSN DS 1H	Switches		
<u>Bits defined in OBRSWSN</u>				
Byte 0	OBRMORE EQU X'80'	More records follow		
	OBRTOE EQU X'40'	Time-of-day clock instruction issued		
	OERTIME EQU X'08'	TIME macro used		
Byte 1	OBRDOD EQU X'80'	SDR counters dumped at EOD		
	OBRTEMP EQU X'40'	Temporary error		
	OBRSHOBR EQU X'20'	Short record		
	OBRDEMNT EQU X'04'	Volume demount		
4	OBRSP1 DS 1F	Date		
8	OBRDTEN DS 1F	Time		
C	OBRTMEN DS 1F	CPU ID and serial number		
10	OBRCPIDN DS 2F			
<u>End of 24-Byte Header Record</u>				
18	OBRDEVSH DS 1F	Device type		
1C	OBRSDRSH DS 1X	0*1	Number of SDR work area bytes	
1D	OBRCUA DS 3X	Channel and unit address		
20	OBRSDRIN DS 20C	SDR work area		

OWNDLIST: CP OWNED VOLUMES LIST

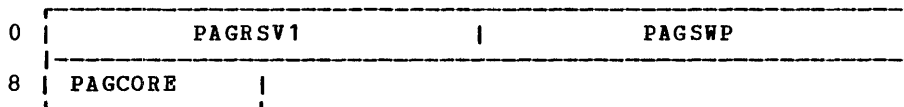
OWNDLIST contains a list of all the system owned DASD volumes that are used for paging, spooling, and temporary disk storage activity. Each entry specifies the volume identity and its preferred use (that is, paging/spooling/T-disk space). This block is generated by the SYSOWN macro at system generation time.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	OWNDVSER	DS	CL6	Volume serial number
6	OWNDRDEV	DS	1H	Displacement of RDEVBLK for the volume
		ORG	OWNDRDEV	
6	OWNDPREF	DS	1H	Allocation preference

PAGTABLE: PAGE TABLE

PAGTABLE is used by CP for allocating and referencing storage. It is referenced by the segment table (SEGTABLE) data area and contains a pointer to the swap table (SWPTABLE) which, in turn, is related to a DASD cylinder location.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
<u>8-Byte Header</u>				
0	PAGRSV1	DS	1F	Reserved to align PAGCORE on a doubleword
4	PAGSWP	DS	1F	Pointer to SWPTABLE
8	PAGCORE	DS	1H	Real page address; start of page table
<u>Bits defined in PAGCORE+1</u>				
	PAGINVAL	EQU	X'08'	PAGTABLE entry invalid
	PAGREF	EQU	X'01'	Page has been referenced

PGBLOK

PGBLOK: PSEUDO PAGE FAULT STACK BLOCK

PGBLOK is used by VM/VS Handshaking. The block is created and stacked when a multiprogramming or multitasking VS1 program interrupt occurs when a referenced page is not available in storage.



<u>Hexadecimal Displacement</u>	<u>Field Name</u>				<u>Field Description, Contents, Meaning</u>
0	PGPNT	DS	1F		Pointer to next PGBLOK on the stack
4	PGADDR	DS	1F		Virtual page fault address
	PGBSIZE	EQU	(*-PGBLOK)/8		PGBLOK size in doublewords

PSA: PREFIX STORAGE AREA (LOW STORAGE LOCATIONS)

PSA is the primary control block for controlling CP and virtual machine activity. This control block contains the normal low core IPL, logout and PSW information, the power and features of the processor, save areas used by BALR and FREER. This block also contains monitor and trace data and the necessary linkages to virtual machines, real devices, and spool files.

## Page 0, Machine Usage

0	IPLPSW	IPLCCW1
10	IPLCCW2	EXOPSW
20	SVCOPSW	PROPSW
30	MCOPSW	IOOPSW
40	CSW	CAW   QUANTUMR
50	TIMER   QUANTUM	EXNPSW
60	SVCNPSW	PRNPSW
70	MCNPSW	IONPSW
80	CPULOG	
100	FXDLOG	
160	FPRLOG	
180	GPRLOG	
1C0	CRLOG	
200	TEMPSAVE	
240	BALRSAVE	
280	FREESAVE	
2C0	FREEWORK	
2F0	DATE	TODATE
300	STARTIME	CPUID
310	IDLEWAIT	PAGEWAIT

320	IONTWAIT	PROBTIME
330	RUNPSW	RUNUSER   DSPLPSW
340	RUNCRO	RUNCR1   CPSTAT   CPRESTRT
350	PGREAD	PGWRITE   PGWAITIM
360	PGWAITPG	PSASVCCT   P*1   P*2
370	CPID	CPABEND   P*3   P*4   ASYSVM
380	ARSPPR	ARSPPU   ARSPRD   ARIOPU
390	ARIOPR	ARIORD   P*5   P*6   ARSPAC
3A0	AVMREAL	ASYSABND   ASYSLC   ASYSOP
3B0	ARIOCT	ARIOCH   ARIOCU   ARIODV
3C0	ARIOCC	ARIOUC   ARIODC   ACORETBL
3D0	APAGCP	CPCREG0   CPCREG8   PSARSV9
3E0	PSARSV10	PSARSV11   ADMKFVR   XVRINST
3F0	PAGECUR	MONNEXT   PAGEND   PAGENXT
400	TRACEFLG	PSARSV12   PSARSV15
430	INSTWRD1	INSTWRD2   INSTWRD3   INSTWRD4
440	Constants Pool	
4D0	APTRLK	NOADD   X4OFFS   XRIGHT24
4E0	XPAGNUM	XRIGHT16   AFREE   AFRET
4F0	AQCNT	ADSPCH   APTRAN   X2048BND

## PSA

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
<u>Machine Usage</u>				
0	IPLPSW	DS	1D	IPL start PSW
8	IPLCCW1	DS	1D	IPL CCW
10	IPLCCW2	DS	1D	IPL CCW
		ORG	IPLCCW1	
8	PSARV3	DS	1F	Reserved for IBM use
C	TRACSTRT	DS	1F	Address of start of trace table
10	TRACEND	DS	1F	Address of end of trace table
14	TRACCURR	DS	1F	Address of next available trace table entry
18	EXOPSW	DS	1D	External old PSW
20	SVCOPSW	DS	1D	SVC old PSW
28	PROPSW	DS	1D	Program old PSW
30	MCOPSW	DS	1D	Machine check old PSW
38	ICOPSW	DS	1D	I/O old PSW
40	CSW	DS	1D	Channel status word
48	CAW	DS	1F	Channel address word
4C	QUANTUMR	DS	1F	Interval timer value at last interrupt
50	TIMER	DS	1F	13-microsecond interval timer
54	QUANTUM	DS	1F	Interval timer value at last dispatch
58	EXNPSW	DS	1D	External new PSW
60	SVCNPSW	DS	1D	SVC new PSW
68	PRNPSW	DS	1D	Program new PSW
70	MCNPSW	DS	1D	Machine check new PSW
78	IONPSW	DS	1D	I/O new PSW
80	CPULOG	DS	16D	CPU and storage logout area

Definitions for the CPULOG

		ORG	CPULOG	
80		DS	1F	Reserved for IBM use
84	INTEXF	DS	1F	External interrupt code (fullword)
86	INTEX	EQU	INTEXF+2	External interrupt code (halfword)
88	INTSVCL	DS	1H	SVC instruction length code (ILC)
8A	INTSVC	DS	1H	SVC interrupt code
8C	INTPRL	DS	1H	Program instruction length code (ILC)
8E	INTPR	DS	1H	Program interrupt code
90	TREXADD	DS	1F	Translation exception address
94	MONCLASS	DS	1H	Monitor class
96	PERCODE	DS	1H	PER interrupt code
98	PERADD	DS	1F	PER interrupt address
9C	MONCODE	DS	1F	Monitor code
A0		DS	1D	Reserved for IBM use
A8	CHANID	DS	1F	Channel ID
AC	IOELPNTR	DS	1F	I/O extended logout (IOEL) pointer
B0	ECSWLOG	DS	1F	Limited channel logout (ECSW)
B4		DS	1F	Reserved for IBM use
B8	INTKFLIN	DS	1F	I/O interrupt key, flags, interface address
BA	INTTIO	EQU	INTKFLIN+2	I/O interrupt device address (halfword)
BC		DS	11F	Reserved for IBM use
E8	INTMC	DS	1D	Machine check interrupt code
F0		DS	1D	Reserved for IBM use



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
F8	FAILSTAD	DS	1F	Failing storage address
FC	REGNCODE	DS	1F	Region code
10	FXDLOG	DS	12D	Fixed logout area
16	FPRLOG	DS	4D	Floating-point register logout area
18	GPRLOG	DS	16F	General register logout area
1C	CRLOG	DS	16F	Control register logout area
20	CPUSAGE	DS	0H	End of machine usage, start of CP usage
		ORG	CPUSAGE	
200	TEMPSAVE	DS	16F	Temporary save area
		ORG	TEMPSAVE	
200	TEMPRO	DS	1F	Registers 0-15
204	TEMPR1	DS	1F	
208	TEMPR2	DS	1F	
20C	TEMPR3	DS	1F	
210	TEMPR4	DS	1F	
214	TEMPR5	DS	1F	
218	TEMPR6	DS	1F	
21C	TEMPR7	DS	1F	
220	TEMPR8	DS	1F	
224	TEMPR9	DS	1F	
228	TEMPR10	DS	1F	
22C	TEMPR11	DS	1F	
230	TEMPR12	DS	1F	
234	TEMPR13	DS	1F	
238	TEMPR14	DS	1F	
23C	TEMPR15	DS	1F	
240	BALRSAVE	DS	16F	BALR linkage save area
		ORG	BALRSAVE	
240	BALR0	DS	1F	Registers 0-15
244	BALR1	DS	1F	
248	BALR2	DS	1F	
24C	BALR3	DS	1F	
250	BALR4	DS	1F	
254	BALR5	DS	1F	
258	BALR6	DS	1F	
25C	BALR7	DS	1F	
260	BALR8	DS	1F	
264	BALR9	DS	1F	
268	BALR10	DS	1F	
26C	BALR11	DS	1F	
270	BALR12	DS	1F	
274	BALR13	DS	1F	
278	BALR14	DS	1F	
27C	BALR15	DS	1F	
280	FREESAVE	DS	16F	DMKFRE save area
		ORG	FREESAVE	
280	FREER0	DS	1F	Registers 0-15
284	FREER1	DS	1F	
288	FREER2	DS	1F	
28C	FREER3	DS	1F	
290	FREER4	DS	1F	
294	FREER5	DS	1F	
298	FREER6	DS	1F	
29C	FREER7	DS	1F	
2A0	FREER8	DS	1F	
2A4	FREER9	DS	1F	

## PSA

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
2A8	FREER10	DS	1F	
2AC	FREER11	DS	1F	
2B0	FREER12	DS	1F	
2B4	FREER13	DS	1F	
2B8	FREER14	DS	1F	
2BC	FREER15	DS	1F	
2C0	FREEWORK	DS	12F	DMKFRE work area
2F0	DATE	DS	CL8	Date - mm/dd/yy - edited EBCDIC
2F8	TODATE	DS	1D	TOD clock at 00.00.00 today - local time
300	STARTIME	DS	1D	Date and time started - TOD clock value
308	CPUID	DS	1D	CPU ID
		ORG	CPUID	
308	CPUVERSN	DS	1X	Version code
309	CPUSER	DS	3X	CPU serial number - packed unsigned
30C	CPUMODEL	DS	2X	CPU model number
30E	CPUMCELL	DS	1H	Maximum length in bytes of MCEL
310	IDLEWAIT	DC	X'7FFFFFFFFFFFFFFF000'	Total system idle wait time
318	PAGEWAIT	DC	X'7FFFFFFFFFFFFFFF000'	Total system page wait time
320	IONTWAIT	DC	X'7FFFFFFFFFFFFFFF000'	Total system I/O wait time
328	PROBTIME	DC	X'7FFFFFFFFFFFFFFF000'	Total system problem state time
330	RUNPSW	DS	1D	PSW last loaded by dispatcher
338	RUNUSER	DS	1F	Address of dispatched VMBLOK
33C	DSPLPSW	DS	1F	Load PSW instruction used to dispatch
340	RUNCRO	DS	1F	Control register 0 at dispatch
344	RUNCR1	DS	1F	Control register 1 at dispatch
348	CPSTAT	DS	1F	CP running status
		ORG	CPSTAT	
348	CPSTATUS	DS	1X	CP running status
	<u>Bits defined in CPSTATUS</u>			
	CPWAIT	EQU	X'80'	CP in wait state
	CPRUN	EQU	X'40'	CP running user in RUNUSER
	CPEX	EQU	X'20'	CP executing stacked request
	CPFVRUN	EQU	X'10'	Reserved for IBM use
349	XTNDLOCK	DC	X'00'	System extending free storage if = X'FF'
34A	CPSTAT2	DC	1X	Flag byte
	<u>Bits defined in CPSTAT2</u>			
	CPMICAVL	EQU	X'80'	Virtual machine assist available on CPU
	CPMICON	EQU	X'40'	Virtual machine assist is on for system
	CPSHRLK	EQU	X'20'	CP processing shared named system page
		ORG	TRACEFLAG	
34C	CPRESTRT	DS	1F	Restart address if external interrupt marks page invalid
350	PGREAD	DS	1F	Total number of page reads
354	PGWRITE	DS	1F	Total number of page writes
358	PGWAITIM	DS	1D	Time spent in page wait (TOD units)
360	PGWAITPG	DS	1D	Time spent in page wait, x pages waiting
368	PSASVCT	DS	1F	Total number of user SVCs
36C	PAGELoad	DS	1H	*1 Page wait percent, last measurement
36E	PAGERATE	DS	1H	*2 Paging rate, pages per second
370	PSENDCLR	DS	0F	End of area cleared by DMKCPINT
370	PID	DS	1F	CP running identifier
374	CPABEND	DS	1F	CP ABEND code
378	PSTARTSV	DS	0F	Start of save/restored code
378	SYSIPLDV	DS	1H	*3 device address of system IPL device

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
37A	PGSRATIO	DC	H'0'	P*4 Page steals/total replenished
37C	ASYSVM	DC	V(DMKSYSVM)	Address of system VMBLOK
380	ARSPPR	DC	V(DMKRSPPR)	Address of system printer file chain
384	ARSPPU	DC	V(DMKRSPPU)	Address of system punch file chain
388	ARSPRD	DC	V(DMKRSPRD)	Address of system reader file chain
38C	ARIOPU	DC	V(DMKRIOPU)	Address of system punch table
390	ARIOPR	DC	V(DMKRIOPR)	Address of system printer table
394	ARIORD	DC	V(DMKRIORD)	Address of system reader table
398	IPUADDR	DS	1H	P*5 Instruction processing address
39A	PSARSV6	DS	1H	P*6 Reserved for IBM use
39C	ARSPAC	DC	V(DMKRSPAC)	Address of system accounting chain
3A0	AVMREAL	DC	A(0)	VMBLOK address of Virtual=Real user
3A4	ASYSABND	DC	A(0)	Address of system ABEND printer
3A8	ASYSLC	DC	V(DMKSYSLC)	Address of SYSLOCS information
3AC	ASYSOP	DC	V(DMKSYSOP)	Address of system operator VMBLOK
3B0	ARIOCT	DC	V(DMKRIOCT)	Address of real channel index table
3B4	ARIOCH	DC	V(DMKRIOCH)	Address of first RCHBLOK
3B8	ARIOCU	DC	V(DMKRIOCU)	Address of first RCUBLOK
3BC	ARIODV	DC	V(DMKRIODV)	Address of first RDEVBLOK
3C0	ARIOCC	DC	V(DMKRIOCC)	Address of count of real system channels
3C4	ARIOUC	DC	V(DMKRIOUC)	Address of count of real system control units
3C8	ARIODC	DC	V(DMKRIODC)	Address of count of real system devices
3CC	ACORETBL	DC	V(DMKSYSCS)	Address of system CORTABLE
3D0	APAGCP	DC	A(X'FFFFFF')	Address of first pageable program
3D4	CPCREG0	DC	X'808008C0'	CP architecture control and external mask
3D8	CPCREG8	DC	F'0'	Monitor call enable mask
3DC	LASTUSER	DS	V(DMKSYSVM)	Last user to be dispatched
3E0	PSARSV10	DS	1F	Reserved for IBM use
3E4	PSARSV11	DS	1F	Reserved for IBM use
3E8	ADMKFVR	DC	F'0'	Reserved for IBM use
3EC	XVRINST	DC	F'0'	Reserved for IBM use
3F0	PAGECUR	DS	1F	Reserved for IBM use
3F4	MONNEXT	DS	1F	Reserved for IBM use
3F8	PAGEND	DS	1F	Reserved for IBM use
3FC	PAGENXT	DS	1F	Reserved for IBM use
400	TRACEFLG	DS	1F	Trace table flags
400	TRACFLG1	DS	1X	Trace table flag
<u>Bits defined in TRACFLG1</u>				
	TRAC01	EQU	X'80'	External interrupt tracing on
	TRAC02	EQU	X'40'	SVC interrupt tracing on
	TRAC03	EQU	X'20'	Program interrupt tracing on
	TRAC04	EQU	X'10'	Machine check tracing on
	TRAC05	EQU	X'08'	I/O interrupt tracing on
	TRAC67	EQU	X'04'	FREE/FRET call tracing on
	TRAC08	EQU	X'02'	Enter dispatch tracing on
	TRAC09	EQU	X'01'	Queue drop tracing on
401	TRACFLG2	DS	1X	Trace table flag
<u>Bits defined in TRACFLG2</u>				
	TRAC0A	EQU	X'80'	Run user tracing on
	TRAC0C	EQU	X'40'	Unstack I/O interrupt tracing on
	TRAC0D	EQU	X'20'	Virtual CSW stored tracing on
	TRACBEF	EQU	X'10'	SIO, TIO, HDV tracing on
	TRAC10	EQU	X'08'	Unstack IOBLOK or TRQBLOK tracing on
	TRAC11	EQU	X'04'	Trace BTU activity for 370X NCP
402	TRACFLG3	DS	1H	Reserved for IBM use
404	PSARSV12	DS	1F	Reserved for IBM use

## PSA

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning	
408	PSARSV15	DS	5D	Reserved for IBM use
430	INSTWRD1	DC	F'0'	Reserved for installation use
434	INSTWRD2	DC	F'0'	Reserved for installation use
438	INSTWRD3	DC	F'0'	Reserved for installation use
43C	INSTWRD4	DC	F'0'	Reserved for installation use

List of Frequently Used Constants

440	ZEROES	DC	6D'0'	
470	BLANKS	DC	8X'40'	
478	FFS	DC	8X'FF'	Also = -1
440	F0	EQU	ZEROES	
480	F1	DC	F'1'	
484	F2	DC	F'2'	
488	F3	DC	F'3'	
48C	F4	DC	F'4'	
490	F5	DC	F'5'	
494	F6	DC	F'6'	
498	F7	DC	F'7'	
49C	F8	DC	F'8'	
4A0	F9	DC	F'9'	
4A4	F10	DC	F'10'	
4A8	F15	DC	F'15'	Also = X'0000000F'
4AC	F16	DC	F'16'	
4B0	F20	DC	F'20'	
4B4	F24	DC	F'24'	
4B8	F60	DC	F'60'	Also = X'0000003C'
4BC	F240	DC	F'240'	Also = X'000000F0' = C'0'
4C0	F255	DC	F'255'	Also = X'000000FF'
4C4	F256	DC	F'256'	Also = X'00000100'
4C8	F4095	DC	F'4095'	Also = X'00000FFF'
4CC	F4096	DC	F'4096'	Also = X'00001000'
4D0	APTRLK	DC	V(DMKPTRLK)	Address of DMKPTR
4D4	NOADD	DC	X'FF000000'	Frequently-used work value
4D8	X4OFFS	DC	X'40FFFFFF'	Frequently-used work value
4DC	XRIGHT24	DC	X'00FFFFFF'	Isolate right 24 bits
4E0	XPAGNUM	DC	X'00FFF0006'	Isolate the page number
4E4	XRIGHT16	DC	X'0000FFFF'	Isolate the right 16 bits
4E8	AFREE	DC	V(DMKFREE)	Address of DMKFREE
4EC	AFRET	DC	V(DMKFRET)	Address of DMKFRET
4F0	AFRET	DC	V(DMKQCNWT)	Address of DMKQCNWT
4F4	ADSPCH	DC	V(DMKDSPCH)	Address of DMKDSPCH
4F8	APTRAN	DC	V(DMKPTRAN)	Address of DMKPTRAN
4FC	X2048BND	DC	X'00FFF800'	Locate a half-page boundary
500	PSAEND	DS	0D	End of page 0 usage.

## REAL I/O CONTROL BLOCKS

In order to control the activity of the I/O devices of the system and schedule I/O requests upon them, I/O control uses several types of control blocks. These blocks can be separated into two basic types:

- Static blocks that describe the components of the I/O system.
- Dynamic blocks that represent active and pending requests for I/O operations.

The I/O components of the real system are described by one control block for each channel, control unit, and device available to the control program. Units present but not represented by control blocks are not available for either user-initiated or control program-initiated operations.

RCHBLOK: For each channel attached to the system there exists a Real Channel Control Block (RCHBLOK) which contains:

- The channel portion of the address of its attached units,
- Status flags indicating the channel's availability for scheduling.
- A two-way queue anchor pointing to the list of I/O requests waiting to use the channel.

In addition, each RCHBLOK contains 32 half-word indexes, arranged in ascending address order, that represent the displacement into the Real Control Unit table of the control blocks for the control units attached to the channel. The 32 entries are required because the control unit address may be made up of five bits from the unit address. To locate the control block for a given unit:

1. Index into the table in the RCHBLOK a displacement equal to twice the control unit address.
2. Load the index value.
3. Add the value to the base address of the Real Control Unit Table.

RCUBLOK: The Real Control Unit Table is composed of Real Control Unit Blocks (RCUBLOK), one for each control unit on the system. These blocks are similar to the RCHBLOK in that they contain the control unit portion of the address and status flags, and a pointer to a queue of I/O requests. In addition, the RCUBLOK contains a pointer to the RCHBLOK for the

channel to which it is attached. The RCUBLOK contains a table of 16 halfword entries that represent the displacement into the Real Device Table of its attached devices. This table is referenced in the same manner as the table in the RCHBLOK.

RDEVBLOK: Each device and 3270 remote communications line in the system is represented by a Real Device Control Block (RDEVBLOK), contains the device portion of the unit address and status flags similar to those in RCHBLOK and RCUBLOK. There is also a pointer for those operations that are waiting for the device to become available. Fields that appear in the RDEVBLOK and not in the other blocks include a pointer to the I/O request that is currently active on the device, SIO counts, and a pointer to error and sense information. The RDEVBLOK contains a pointer to the RCUBLOK for the control unit to which it is attached and fields of device dependent information which do not affect the operation of I/O control.

If the RDEVBLOK is associated with 3270 remote communications line, then the RDEVBLOK contains a pointer to NICBLOKS that represents the resources on that line.

IOBLOK: I/O requests that are active in the system are represented by IOBLOKS. There is one IOBLOK for each operation (that is, channel program) to be executed. The IOBLOK is constructed by the requesting task and contains such information as:

- The identity of the requestor
- The address of the channel program to be executed
- The address to which control is to be returned upon completion of the operation

In addition, the IOBLOK contains status flags that indicate the current state of the operation (such as, whether or not an error has occurred, if an error recovery procedure (ERP) is in control, and the condition returned from the SIO) and the CSW associated with the interrupt that signals the end of the operation. Since IOBLOKS are queued off various I/O control blocks, they also contain forward and backward queue pointers. DMKIOS builds in them the real device address of the unit on which the operation is started.

In general, the IOBLOK representing a given operation progresses through the system by being queued, in turn, from device, control unit, and channel blocks until a path is at last free to the

device. A SIO is then issued. After the operation is complete, the IOBLOK is dequeued from the RDEVBLK and stacked on a queue maintained in the dispatcher, DMKDSP. Each time the dispatcher is entered, the entries on the queue are unstacked and control is passed to the point specified in the Interrupt Return Address (IOBIRA). After I/O control stacks the IOBLOK for the given task, it attempts to restart all of the components that have been freed by the completion of the operation.

NICBLOK: There is one Network Interface Control Block for each defined 3704 or 3705

and each resource attached to a 3270 bisync line. The NICBLOK provides the correspondence between the line or device address and the physical resource connected to that line. This block not only defines the identity of the terminal type, line, or control unit but it also contains flags and status information pertaining to that resource. If the defined resource is a remote 3270 component, the NICBLOK contains the current line co-ordinates, polling and selection characters information as well.

The remainder of this section describes the real I/O control blocks.

RCHBLOK: REAL CHANNEL BLOCK

RCHBLOK contains status and type information for the specified channel. The linkage to I/O tasks operated on by that channel and to the control units attached to that channel is also maintained.

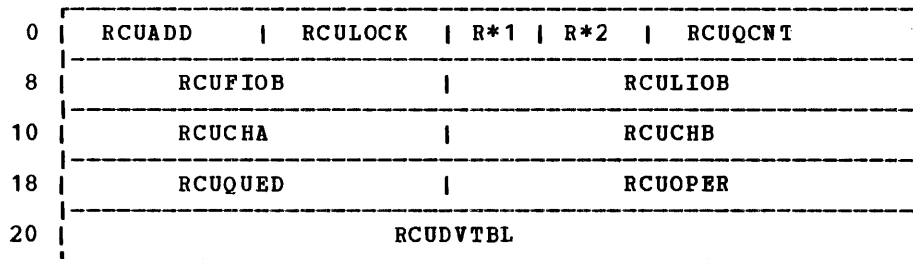
0	RCHADD	RCHLOCK	R*1	R*2	RCHQCNT
8	RCHFIOB			RCHLIOB	
10	R*3	R*4	R*5	R*6	RCHRSV2
18	RCHQUED			RCHOPER	
20	RHCUTBL				

Hexadecimal Displacement	Field Name					Field Description, Contents, Meaning
0	RCHADD	DS	1H		Channel address	
2	RCHLOCK	DS	1H		Channel lock	
4	RCHSTAT	DS	1X	R*1	channel status	
	<u>Bits defined in RCHSTAT</u>					
	RCHBUSY	EQU	X'80'		Channel busy	
	RCHSCED	EQU	X'40'		IOB scheduled on channel	
	RCHDISA	EQU	X'20'		Channel disabled	
	RCHDED	EQU	X'01'		Channel dedicated	
5	RCHTYPE	DS	1X	R*2	Channel type	
	<u>Bits defined in RCHTYPE</u>					
	RCHSEL	EQU	X'80'		Selector channel	
	RCHBMX	EQU	X'40'		Block multiplexer channel	
	RCHMPX	EQU	X'20'		Byte multiplexer channel	
	RCH370	EQU	X'01'		S/370 type channel (S/370 instruction support)	
6	RCHQCNT	DS	1H		Number of IOBLOKs queued off channel	
8	RCHFIOB	DS	1F		Pointer to first IOBLOK queued	
C	RCHLIOB	DS	1F		Pointer to last IOBLOK queued	
10	RCHDTCK	DS	1X	R*3	Channel data check count	
11	RCHCCCK	DS	1X	R*4	Channel control check count	
12	RCHIFCC	DS	1X	R*5	Interface control check count	
13	RCHCHCK	DS	1X	R*6	Channel chaining check count	
14	RCHRSV2	DS	1F		Reserved for IBM use	
18	RCHQUED	DS	1F		IOBLOK queued on channel time	
1C	RCHOPER	DS	1F		IOBLOK operational on channel time	
20	RHCUTBL	DS	32H		Control units attached - RCUSTART index	
	RCHSIZE	EQU	(*-RCHBLOK)/8		RCHBLOK size in doublewords (X'0C')	

RCUBLOK

RCUBLOK: REAL CONTROL UNIT BLOCK

RCUBLOK provides control and status information on a defined real control unit. Linkages are provided to IOBLOKs queued.

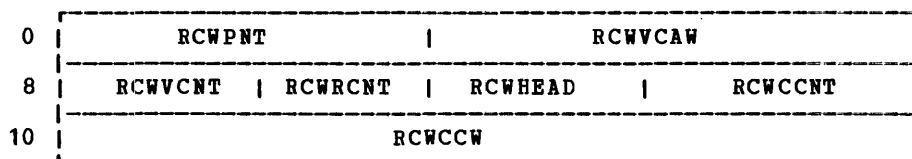


Hexadecimal Displacement	Field Name					Field Description, Contents, Meaning
0	RCUADD	DS	1H		Control unit address	
2	RCULOCK	DS	1H		Control unit lock	
4	RCUSTAT	DS	1X	R*1	Control unit status	
	<u>Bits defined in RCUSTAT</u>					
	RCUBUSY	EQU	X'80'		Control unit busy	
	RCUSCED	EQU	X'40'		IOB scheduled on control unit	
	RCUDISA	EQU	X'20'		Control unit disabled	
	RCUDED	EQU	X'01'		Control unit dedicated	
5	RCUTYPE	DS	1X	R*2	Control unit type	
	<u>Bits defined in RCUTYPE</u>					
	RCUSHRD	EQU	X'80'		This control unit can attach to only 1 subchannel	
	RCUSUB	EQU	X'40'		This is a subordinate control unit	
	RCU2701	EQU	X'01'		TCU is a 2701	
	RCU2702	EQU	X'02'		TCU is a 2702	
	RCU2703	EQU	X'03'		TCU is a 2703	
6	RCUQCNT	DS	1H		Number of IOBLOKs queued off control unit	
8	RCUFIOB	DS	1F		Pointer to first IOBLOK queued	
C	RCULIOB	DS	1F		Pointer to last IOBLOK queued	
10	RCUCHA	DS	1F		Pointer to RCHBLOK - interface A	
14	RCUCHB	DS	1F		Pointer to RCHBLOK - interface B	
18	RCUQUED	DS	1F		IOBLOK queued on control unit time	
1C	RCUOPER	DS	1F		IOBLOK operational on control unit time	
20	RCUDVTBL	DS	16H		Devices attached - RDVSTART index	
	RCUSIZE	EQU	(*-RCUBLOK)/8		RCUBLOK size in doublewords (X'08')	
		ORG	RCUCHA			
10	RCUPRIME	DS	1F		Pointer to the primary control unit	



RCWTASK: TRANSLATED VIRTUAL I/O CCW

RCWTASK contains the virtual-to-real CCW translation and other data related to a virtual machine's I/O operation. A pointer is maintained to the virtual CCW operation.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	RCWPNT DS 1F	Pointer to next RCWTASK		
4	RCWVCAW DS 1F	Virtual address of CCW chain		
8	RCWVCNT DS 1H	Virtual CCW count		
A	RCWRCNT DS 1H	Real CCW count		
C	RCWHEAD DS 1H	RCWTASK header mark X'FFFF'		
E	RCWCCNT DS 1H	RCWTASK size in doublewords		
10	RCWCCW DS 1D	One or more CCWs for device I/O		
	ORG RCWCCW			
10	RCWADDR DS 1F	CCW data address		
14	RCWFLAG DS 1X	CCW flag bits		
15	RCWCTL DS 1X	CCW CP-control bits		
	<u>Bits defined in RCWCTL</u>			
	RCWIO EQU X'80'	I/O data page locked		
	RCWGEN EQU X'40'	CP-generated CCW		
	RCWHMR EQU X'20'	DMKUNT must relocate home address/record R0		
	RCWREL EQU X'10'	CCW address relocatable if CCWs moved		
	RCWISAM EQU X'08'	ISAM modifying CCW		
	RCW2311 EQU X'04'	TYP2311T-B pseudo 2311 on 2314		
	RCWINVL EQU X'02'	CCW operation code or address is invalid		
	RCWSHR EQU X'01'	Shared user page was copied		
16	RCWCNT DS 1H	CCW byte count		
	ORG RCWADDR			
10	RCWCOMND DS 1X	CCW command code		

RDEVBLK

RDEVBLK: REAL DEVICE BLOCK

RDEVBLK is generated by the RDEV macro at system generation time. There is one RDEVBLK for each real device and one for each binary synchronous line. The block contains status and device parameters applicable to I/O instruction processing.

0	RDEVADD	RDEVLOCK	R*1	R*2	R*3	R*4
8	RDEVFIQB			RDEVLIQB		
10	RDEVCUA			RDEV CUB		
18	RDEVQUED					
20	RDEVIQCT			RDEVAIOB		
28	RDEVUSER		RDEVATT		RDEV CYL	
30		RDEVSER			RDEV LNKS	
38	RDEVTCTL					
40	RDEVTMAT		R*5	R*6	R*7	R*8
48	RDEVIOER			RDEVCTRS		
50	RDEVNAME	RDEVRSV1			RDEVRSV2	

Hexadecimal Displacement	Field Name					Field Description, Contents, Meaning
0	RDEVADD DS	1H			Device address	
2	RDEVLOCK DS	1H			Device lock	
4	RDEVSTAT DS	1X	R*1		Device status	
<u>Bits defined in RDEVSTAT</u>						
	RDEVBUSY EQU	X'80'			Device busy	
	RDEVSCED EQU	X'40'			IOB scheduled on device	
	RDEVDISA EQU	X'20'			Device disabled (offline)	
	RDEVRSVD EQU	X'10'			Device reserved	
	RDEVIRM EQU	X'08'			Device in intensive error recording mode	
	RDEVNRDY EQU	X'04'			Device intervention required	
	RDEVWAII EQU	X'02'			GRAF - IOBLOK pending, queue requests	
	RDEVDED EQU	X'01'			Dedicated device (attached to a user)	

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
5	RDEVFLAG	DS	1X	R*2	Device flags, device dependent
	<u>Bits defined in RDEVFLAG</u>				
	RDEVSKUP	EQU	X'80'		DASD - ascending order seek queuing
	RDEVPREF	EQU	X'40'		DASD - volume preferred for paging
	RDEVSYS	EQU	X'20'		DASD - volume attached to system
	RDEVOWN	EQU	X'10'		DASD - CP-owned volume
	RDEVMOUT	EQU	X'08'		DASD - volume mounted, not attached
	RDEVPSUP	EQU	X'80'		Console - terminal has print suppress
	RDEVPREP	EQU	X'40'		Console - terminal executing PREPARE command
	RDEVACTV	EQU	X'20'		Console - IOBLOK pending; queue request
	RDEVIDNT	EQU	X'10'		Console - 2741 terminal code identified
	RDEVENAB	EQU	X'08'		Console - device is enabled
	RDEVHIO	EQU	X'04'		Console - next interrupt from a halt I/O
	RDEVDISB	EQU	X'02'		Console - device is to be disabled
	RDEVEMPD	EQU	X'01'		Console - 370X NCP resource in EP mode
	RDEVDRAN	EQU	X'80'		Spooling - device output drained
	RDEVTERM	EQU	X'40'		Spooling - device output terminated
	RDEVACNT	EQU	X'20'		Spooling - device busy with accounting
	RDEVSPAC	EQU	X'10'		Spooling - force printer to single space
	RDEVSTR	EQU	X'08'		Spooling - restart current file
	RDEVBACK	EQU	X'04'		Spooling - backspace the current file
	RDEVSEP	EQU	X'02'		Spooling - print/punch job separator
	RDEVLOAD	EQU	X'01'		Spooling - UCS buffer verified
	RDEVLNCP	EQU	X'80'		Special - Network control program active
	RDEVLCPE	EQU	X'40'		Special - 270X Emulation program active
	RDEVSLOW	EQU	X'20'		Special - 370X in buffer slowdown mode
	RDEVAUTO	EQU	X'10'		Special - Automatic dump/load enabled
	RDEVWAIT	EQU	X'08'		Special - IOBLOK pending; queue requests
	RDEVPLN	EQU	X'04'		Special - Emulator lines in use by system
	RDEVRCVY	EQU	X'02'		Special - Auto dump/load process active
	RDEVTBTU	EQU	X'01'		Special - BTU trace requested
6	RDEVTPC	DS	1X	R*3	Device type class (See Appendix A)
7	RDEVTYPE	DS	1X	R*4	Device type (See Appendix A)
8	RDEVFI0B	DS	1F		Pointer to first IOBLOK queued
C	RDEVLI0B	DS	1F		Pointer to last IOBLOK queued
10	RDEVCUA	DS	1F		Pointer to RCUBLOK - interface A
14	RDEV CUB	DS	1F		Pointer to RCUBLOK - interface B
18	RDEVQUED	DS	1D		IOBLOK queued time - TOD clock units
20	RDEVIOCT	DS	1F		Device I/O count
24	RDEVAIOB	DS	1F		Active IOBLOK
28	RDEVUSER	DS	1F		Pointer to VMBLOK of dedicated user
2C	RDEVATT	DS	1H		Attached virtual address
2E	RDEV CYL	DS	1H		DASD - current cylinder location
30	RDEVSER	DS	CL6		Device volume serial number
36	RDEVLNKS	DS	1H		DASD - number of links to this disk
38	RDEVTCTL	DS	8X		Terminal control bytes
40	RDEVTMAT	DS	1F		Device attached time - TOD clock word 0
44	RDEVQCNT	DS	1X	R*5	Number of queued IOBLOKs
45	RDEVSTA2	DS	1X	R*6	Device status (byte 2)
	<u>Bits defined in RDEVSTA2</u>				
	RDEVRACT	EQU	X'80'		Active device is being reset
	RDEVBUCH	EQU	X'40'		Device is busy with the channel
	RDEVCONC	EQU	X'20'		Contingent connection present
46	RDEVMDL	DS	1X	R*7	Device model number
47	RDEVFTR	DS	1X	R*8	Device feature code
48	RDEVIOER	DS	1F		Pointer to IOERBLOK for last CP error
4C	RDEVCTRS	DS	1F		Pointer to statistical data counter control block

## RDEVBLK

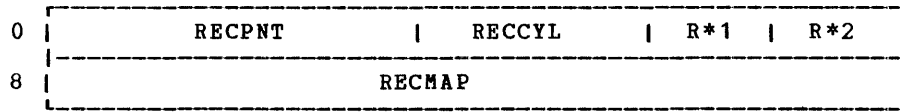
Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
50	RDEVNAME DS	1H	Real device name
52	RDEVRSV1 DS	1H	Reserved for IBM use
54	RDEVRSV2 DS	1F	Reserved for IBM use
	RDEVSZ EQU	(*-RDEVBLK)/8	RDEVBLK size in doublewords (X'0A')
<u>For CP-owned Devices</u>			
		ORG RDEVUSER	
28	RDEVALLN DS	1F	Anchor for ALOCBLK chain for this device
2C	RDEVCODE DS	1H	Device code - SYSOWNED index
		ORG RDEVTCTL	
38	RDEVPAGE DS	1F	Anchor for RECBLOK chain for paging
3C	RDEVRECS DS	1F	Anchor for RECBLOK chain for spooling
40	RDEVPNT DS	1F	Pointer to next RDEVBLK for allocation
<u>For Slotted 2301 Paging Devices</u>			
		ORG RDEVRECS	
3C	RDEVDCNTL DS	1F	Pointer to DRUMTABL control block
<u>For Graphic Devices</u>			
		ORG RDEVCYL	
2E	RDEVCORD DS	1H	Current line coordinates
<u>For Spooling Unit Record Devices</u>			
		ORG RDEVQUED	
18	RDEVSPPL DS	1F	Pointer to active RSPLCTL block
1C	RDEVCLAS DS	4C	Device class(es)
<u>For Terminal Devices</u>			
		ORG RDEVQUED	
18	RDEVCON DS	1F	Pointer to CONTASK list
1C	RDEVAIRA DS	1F	Attention interrupt return address
		ORG RDEVTCTL	
38	RDEVRCNT DS	1H	Start/stop line retry count
3A	RDEVTFLG DS	1X	Additional terminal flags
3B	RDEVRSV3 DS	1X	Reserved for IBM use
3C	RDEVLEN DS	1X	Device line length
3D	RDEVATNC DS	1X	Device attention count
3E	RDEVBASE DS	1H	370X base address for emulator line
		ORG RDEVMDL	
46	RDEVTMCD DS	1X	Terminal code
47	RDEVSA DN DS	1X	Terminal set-address number
<u>Bits defined in RDEVTFLG</u>			
	RDEVLOG EQU	X'80'	TERM and GRAF - Logon process has been initiated
	RDEVREST EQU	X'40'	TERM - Terminal in reset process
	RDEVATOP EQU	X'20'	TERM - Suppress attention signal
	RDEVMORE EQU	X'40'	GRAF - Screen full, more data waiting
	RDEV RUN EQU	X'20'	GRAF - Screen in running status
	RDEVREAD EQU	X'10'	GRAF - Read pending for screen input
	RDEVCPNA EQU	X'08'	GRAF - Last input not accepted
	RDEVTRQ EQU	X'04'	GRAF - Timer request pending
	RDEVCTL EQU	X'02'	GRAF - Control function interrupt pending
	RDEVHOLD EQU	X'01'	GRAF - Screen full, in hold status
3F	RDEVRSV3 DS	1X	Reserved for IBM use

<u>Hexadecimal Displacement</u>	<u>Field Name</u>		<u>Field Description, Contents, Meaning</u>
46	RDEVTMCD	ORG DS 1X	RDEVMDL Terminal code
	<u>Bits defined in RDEVTMCD</u>		
	RDEVPTTC	EQU X'00'	PTTC/EBCD keyboard
	RDEVCORR	EQU X'04'	Correspondence keyboard
	RDEVAPLP	EQU X'08'	APL PTTC/EBCD keyboard
	RDEVAPLC	EQU X'0C'	APL Correspondence keyboard
	RDEVUSC8	EQU X'10'	UASCII-8 level keyboard
47	RDEVSADN	DS 1X	Terminal set-address number
	<u>For Real 3704/3705 Communications Controller</u>		
1C	RDEVEPDV	ORG DS 1F	RDEVAIRA Start of free RDEVBL0K list for EP line
2E	RDEVMAX	DS 1H	Highest valid NCP resource name
30	RDEVNCP	DS CL8	Reference name of active 3704 NCP
38	RDEVNICL	DS 1F	Pointer to network control list
3C	RDEVCKPT	DS 1F	Pointer to CKPBLOK for re-enable
	<u>For 3270 Remote Support</u>		
30	RDEVBSC	ORG DS 1F	RDEVNCP Pointer to BSCBLOK
34	RDEV DLY	DS 1F	Poll delay timer interval

RECBLOK

RECBLOK: DASD PAGE (SLOT) ALLOCATION BLOCK

RECBLOK maintains the correlation of DASD storage pages to a specific cylinder location. Also maintained is a bit map to indicate the page slots available for data page storage.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	RECPNT	DS	1F		Pointer to next RECBLOK on chain
4	RECCYL	DS	1H		Cylinder address for pages in this block
6	RECUSED	DS	1X	R*1	Number of pages currently in use
7	RECMAX	DS	1X	R*2	Maximum number of pages available
8	RECMAP	DS	1L		Page allocation bit map (128 pages maximum)

Bits defined in RECMAP

- 0 - Page is available
- 1 - Page has been assigned

RECSIZE EQU (\*-RECBLOK)/8 RECBLOK size in doublewords (X'03')

Note: Although the size of RECMAP is fixed, the maximum number of pages available on a cylinder is device dependent. Bits corresponding to pages not physically present on a cylinder are set to 1.



RSPLCTL

RSPLCTL: REAL SPOOL CONTROL BLOCK

RSPLCTL is used in conjunction with SFBLOK for processing closed spool files.

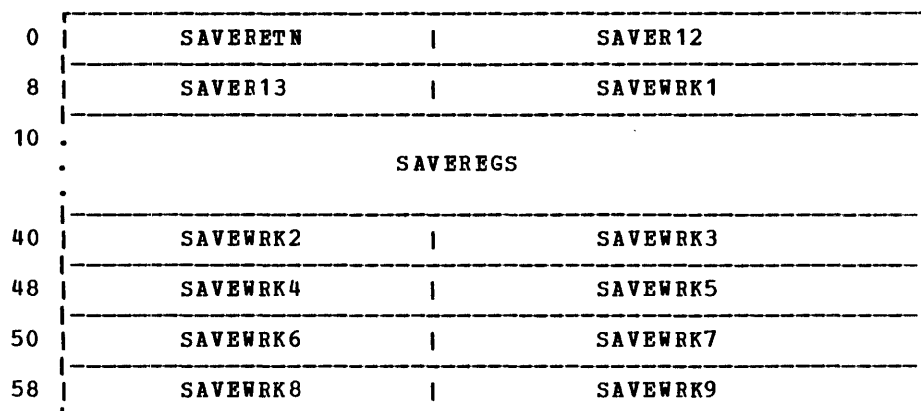


Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	RSPRSTRT DS	1F	Restart CAW - CCW address	
4	RSPDPAGE DS	1F	DASD location (DCHR) of current page buffer	
8	RSPVPAGE DS	1F	Virtual address of page buffer	
C	RSPRPAGE DS	1F	Real address of page buffer	
10	RSPMISC DS	1F	Use varies according to caller	
14	RSPSFBLK DS	1F	Pointer to SFBLOK for file	
	RSPSIZE EQU	(*RSPLCTL)/8	Size in doublewords (X'03')	



SAVEAREA

SAVEAREA is used to save the registers of a module when that module has called another module.

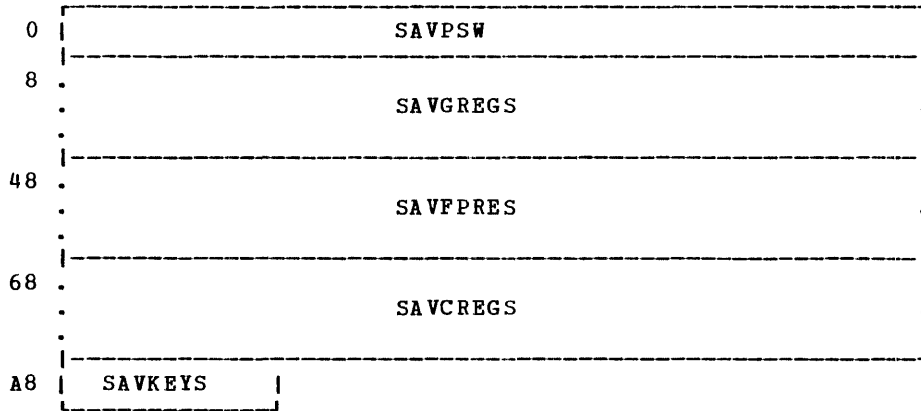


Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	SAVERETN DS 1F	ORG	SAVERETN	Active SAVEAREA (caller's return address)
0	SAVENEXT DS 1F			Inactive SAVEAREA (next SAVEAREA address)
4	SAVER12 DS 1F			Caller's base (R12)
8	SAVER13 DS 1F			Caller's SAVEAREA (R13)
C	SAVEWRK1 DS 1F			Called routine's work area
10	SAVEREGS DS 12F			Caller's registers (R0 to R11)
10	SAVER0 DS 1F	ORG	SAVEREGS	
14	SAVER1 DS 1F			
18	SAVER2 DS 1F			
1C	SAVER3 DS 1F			
20	SAVER4 DS 1F			
24	SAVER5 DS 1F			
28	SAVER6 DS 1F			
2C	SAVER7 DS 1F			
30	SAVER8 DS 1F			
34	SAVER9 DS 1F			
38	SAVER10 DS 1F			
3C	SAVER11 DS 1F			
40	SAVEWRK2 DS 1F			Called routine's work area (8 fullwords)
44	SAVEWRK3 DS 1F			
48	SAVEWRK4 DS 1F			
4C	SAVEWRK5 DS 1F			
50	SAVEWRK6 DS 1F			
54	SAVEWRK7 DS 1F			
58	SAVEWRK8 DS 1F			
5C	SAVEWRK9 DS 1F			
	SAVESIZE EQU		(*-SAVEAREA)/8	Size in doublewords (X'0C')

SAVTABLE

SAVTABLE: FIRST PAGE ON SAVED SYSTEM DASD

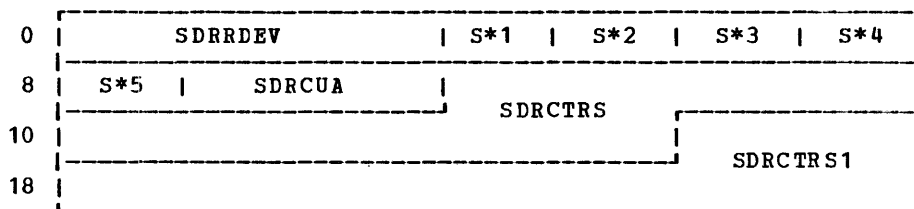
SAVTABLE is used in the initial program loading of saved virtual machine named systems. It is created by the name system generation process (SAVESYS macro/SAVESYS command).



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	SAVPSW DS 1D	PSW of virtual machine at SAVSYS table
8	SAVGREGS DS 16F	General registers
48	SAVFPRES DS 4D	Floating-point registers
68	SAVCREGS DS 16F	Control registers
A8	SAVKEYS DS 1H	2-byte entry for each saved page containing storage keys for each page

SDRBLOK: STATISTICAL DATA RECORDING BLOCK

Contains counters to record temporary errors on a given I/O device.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	SDRRDEV	DS	1F		Address of associated RDEVBLOK
4	SDRFLAGS	DS	1X	S*1	SDRBLOK flags
<u>Bits defined in SDRFLAGS</u>					
	SDRSHRT	EQU	X'80'		Short OBR to be written
	SDRFLCT	EQU	X'40'		Full byte counter
		EQU	X'20'		
		EQU	X'10'		
		EQU	X'08'		
		EQU	X'04'		
		EQU	X'02'		
		EQU	X'01'		
5	SDRPRMCT	DS	1X	S*1	Parameter list counter
6	SDRRSV1	DS	1H		Reserved for IBM use
8	SDRLNGTH	DS	1X	S*3	Length, in bytes, of SDR counters
9	SDRCUA	DS	3X		
C	SDRCNTS	DS	5F		SDR error counters

SEGTABLE

SEGTABLE: SEGMENT TABLE

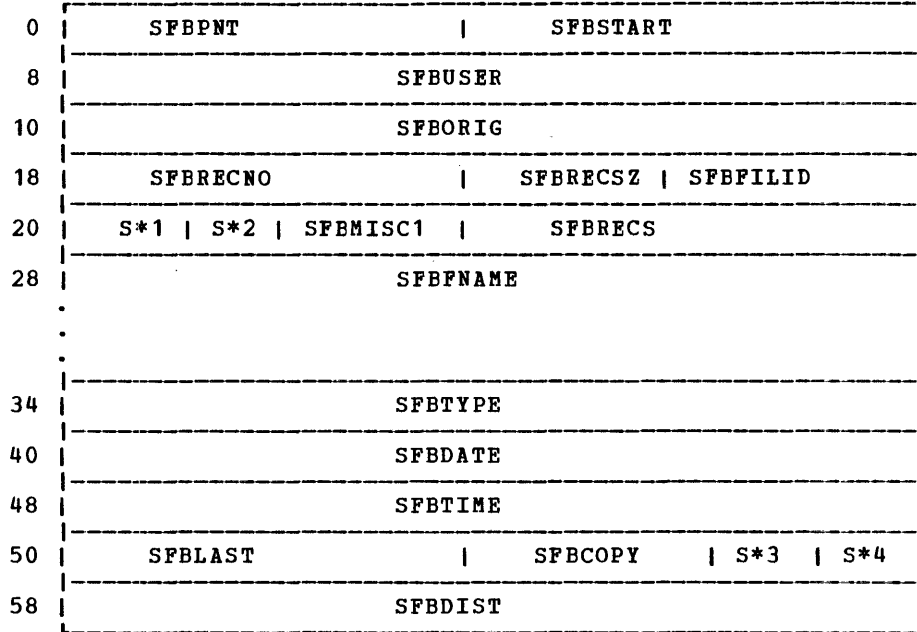
SEGTABLE is used in conjunction with the page table (PAGTABLE) and swap table (SWPTABLE) by the page management routines.



<u>Hexadecimal Displacement</u>	<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>
0	SEGPAGE DS 1F	Pointer to page table
	<u>Page Table Length</u>	
	ORG SEGPAGE	
0	SEGPLN DS 1X	Page table length (Total pages - 1) (in left half of byte)

**SFBLOK: SPOOL FILE BLOCK**

SFBLOK retains all the information relating to a spool file. A pointer provides a linkage to the next SFBLOK in the chain.



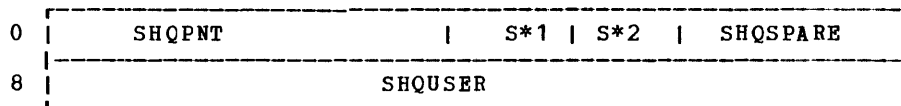
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	SFBPNT DS 1F	Pointer to next SFBLOK		
4	SFBSTART DS 1F	DASD location (DCHR) of last page buffer		
8	SFBUSER DS CL8	VMUSER identification of file owner		
10	SFBORIG DS CL8	VMUSER identification of file origin		
18	SFBRECNO DS 1F	Number of data records in file		
1C	SFBRECSZ DS 1H	Logical record size - excluding CCWs		
1E	SFBFILID DS 1H	Binary system file number		
20	SFBFLAG DS 1X	S*1	SFBLOK control bits	
<u>Bits defined in SFBFLAG</u>				
	SFBINUSE EQU X'80'		File being processed	
	SFBRECOK EQU X'40'		Allocation records complete	
	SFBUHOLD EQU X'20'		File in user hold status	
	SFBDUMP EQU X'10'		File is a CP system dump	
	SFBOPEN EQU X'08'		Input file has been opened	
	SFBSHOLD EQU X'04'		File in system hold status	
	SFBEOF EQU X'02'		Input file has reached EOF	
	SFBRECER EQU X'01'		SFBREC chain incomplete	
21	SFBTYPE DS 1X	S*2	Device type for output	
22	SFBMISC1 DS 1H		Use varies according to caller	
24	SFBRECS DS 1F		Pointer to RECBLOCKS for active file	
28	SFBFNAME DS CL12		Filename	

SFBLOK

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
34	SFBFTYPE	DS	CL12	Filetype
40	SFBDATE	DS	CL8	Creation date of spool file
48	SFBTIME	DS	CL8	Creation time of spool file
50	SFBLAST	DS	1F	DASD location (DCHR) of last page buffer
54	SFBCOPY	DS	1H	Number of copies requested
56	SFBCLAS	DS	1C	S*3 Spool output class
57	SFBFLAG2	DS	1X	S*4 SFBLOK flag byte 2
<u>Bits defined in SFBFLAG2</u>				
	SFBHOLD	EQU	X'80'	Save input file, or hold output file
	SFBNOHLD	EQU	X'40'	Delete input file, or do not hold output file
<u>Note:</u> SFBHOLD and SFBNOHLD override options in VDEVBLK.				
	SFBREQUE	EQU	X'20'	Re-queue spool file
	SFBRSTRT	EQU	X'10'	Restart in progress
	SFBTICER	EQU	X'08'	Buffer TIC error
	SFBPURGE	EQU	X'04'	Purge open spool file
	SFBFIRST	EQU	X'02'	Indicate first page written
58	SFBDIST	DS	CL8	Distribution code
	SFBFSIZE	EQU	(*-SFBLOK)/8	Size in doublewords (X'0C')

SHQBLOK: SPOOL HOLD QUEUE BLOCK

SHQBLOK provides a holding function for identified spool files to prevent output to another user or to a real output device.

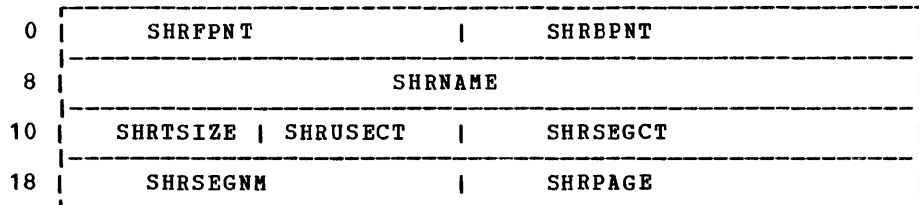


Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	SHQPNT DS	1F			Address of next SHQBLOK
4	SHQFLAGS DS	0CL4			Length
4	SHQUHOLD DS	1X	S*1		User USER HOLD flag byte
5	SHQSHOLD DS	1X	S*2		User SYSTEM HOLD flag byte
	<u>Bits defined in SHQUHOLD and SHQSHOLD</u>				
	TYPVRT				Used for printer type
	TYPVUN				Used for punch type (see Appendix A for DEVTYPES for both TYPVRT and TYPVUN)
6	SHQSPARE DS	2X			Reserved for IBM use
8	SHQUSER DS	CL8			VMUSER identification of file owner
	SHQBSIZE EQU	(*SHQBLOK)/8			Size in doublewords (X'02')

SHRTABLE

SHRTABLE: NAMED-SHARED SEGMENT SYSTEMS TABLE

SHRTABLE contains pointers to the segment locations of named systems for both the shared and nonshared user. This block is used in paging, IPL, and VMA operations.

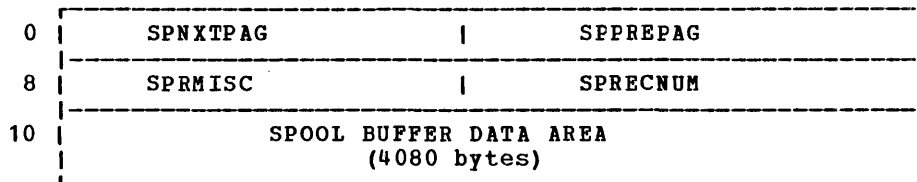


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	SHRFPNT	DS	1F	Pointer to next SHRTABLE
4	SHRBPNT	DS	1F	Pointer to previous SHRTABLE
8	SHRNAME	DS	CL8	Name of saved system
10	SHRTSIZE	DS	1H	Size of SHRTABLE in doublewords
12	SHRUSECT	DS	1H	Number of users using to this segment name
14	SHRSEGCT	DS	1F	Number of shared segments
18	SHRSEGNM	DS	1F	Contains shared segment numbers; up to four segment numbers per word.
1C	SHRPAGE	DS	1F	Pointers to each of the shared SEGTABLEs. There is one word for each shared segment. The entry is the same as S*1 SEGPAGE in "SEGTABLE: Segment Table."



SPLINK: SPOOL PAGE BUFFER LINKAGE BLOCK

SPLINK resides in auxiliary storage and contains one page (4096 bytes) of unit record spool information consisting of data and all required CCWs.

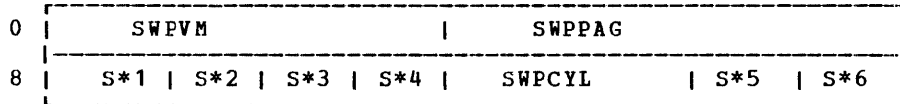


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	SPNXPAG DS	1F		DASD location (DCHR) of next page buffer
4	SPPREPAG DS	1F		DASD location (DCHR) of previous page buffer
8	SPRMISC DS	1F		Use varies according to caller
C	SPRECNUM DS	1F		Number of data records in buffer
	SPSIZE EQU	(*-SPLINK)		Size in bytes (X'10')

SWPTABLE

SWPTABLE: SWAP TABLE FOR VIRTUAL MACHINE PAGING

SWPTABLE is used in conjunction with the page table (PAGTABLE) and the segment table (SEGTABLE) by the CP page management routines for relating the virtual storage to DASD slots and real storage.

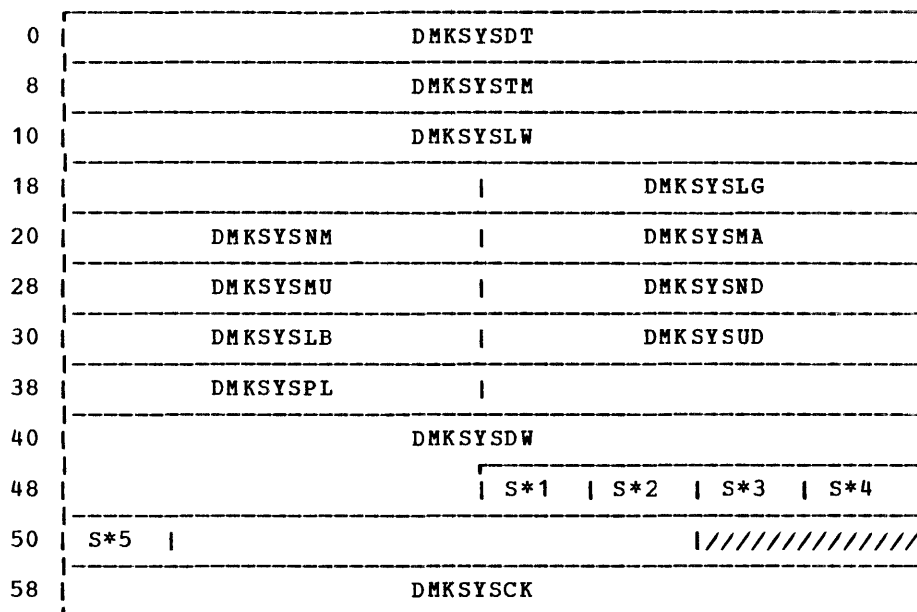


Hexadecimal Displacement	Field Name					Field Description, Contents, Meaning
0	SWPVM	DS	1F		Pointer to VMBLOK	
4	SWPPAG	DS	1F		Pointer to PAGTABLE	
8	SWPFLAG	DS	1X	S*1	SWPTABLE flag bits	
	<u>Bits defined in SWPFLAG</u>					
	SWPTRANS	EQU	X'80'		Page in transit	
	SWPRECMP	EQU	X'40'		Page permanently assigned	
	SWPALLOC	EQU	X'20'		Page enqueued for allocation	
	SWPSHR	EQU	X'10'		Page shared	
	SWPREF1	EQU	X'08'		First half page referenced	
	SWPCHG1	EQU	X'04'		First half page changed	
	SWPREF2	EQU	X'02'		Second half page referenced	
	SWPCHG2	EQU	X'01'		Second half page changed	
9	SWVPAGE	DS	1X	S*2	Virtual page number	
A	SWPKEY1	DS	1X	S*3	Virtual storage key	
B	SWPKEY2	DS	1X	S*4	Virtual storage key	
C	SWPCYL	DS	1H		DASD cylinder address	
E	SWDPAGE	DS	1X	S*5	Page number on cylinder	
F	SWPCODE	DS	1X	S*6	RDEVBLK device code (The device code is used as an index into the list of CP-owned paging volumes pointed to by DMKSYSOW)	

Note: For each SWPTABLE there is only one doubleword that consists of SWPVM and SWPPAG followed by 16 entries (one for each PAGTABLE entry) that consist of S\*1, S\*2, S\*3, S\*4, SWPCYL, S\*5, and S\*6. Thus, the total size of the SWPTABLE is 17 doublewords.

SYSLOCS: SYSTEM LOW STORAGE INFORMATION BLOCK

SYSLOCS contains user logon and dial statistics, time/date and log message data, TOD values, and line edit values.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	DMKSYSDT DC	CL8'MM/DD/YY' Date of system log message
8	DMKSYSTEM DC	CL8'HH:MM:SS' Time of system log message
10	DMKSYSLW DC	X'00',X'00',CL10' ' Weekday of system log messages
1C	DMKSYSLG DC	A(0) Pointer to first log message block
20	DMKSYSNM DC	F'0' Current number of users on the system
24	DMKSYSMA DC	F'0' Maximum number of users allowed on the system
28	DMKSYSMU DC	F'0' Maximum number of users on the system
2C	DMKSYSND DC	F'0' Number of dialed users on the system
30	DMKSYSLB DC	A(0) Pointer to user directory lock block
34	DMKSYSUD DC	A(0) Pointer to start of user directory on SYSRES
38	DMKSYSPL DC	A(0) Pointer to a list of virtual page buffers
3C	DC	A(0) Reserved for IBM use
40	DMKSYSDW DC	X'00',X'00', CL10' Day of week in hexadecimal and EBCDIC
4C	DMKSYSLE DC	X'7B' S*1 # default line-end (pound-sign)
4D	DMKSYSLE DC	X'4A' S*2 ¢ default line-delete (cent-sign)
4E	DMKSYSLE DC	X'7C' S*3 @ default character-delete (at-sign)
4F	DMKSYSLE DC	X'7F' S*4 " default edit escape (quotation mark)
50	DMKSYSLL DC	AL1(130,129,72) S*5 Default line lengths for 3210 and 3215 - 2741 and 1050 - TTY terminals
53	DC	XL5'0' Reserved for IBM use
58	DMKSYSCK DC	D'0' Time-of-day clock value last stored by accounting, DUMP or machine check

SYSTBL

SYSTBL: NAMED SYSTEM TABLE

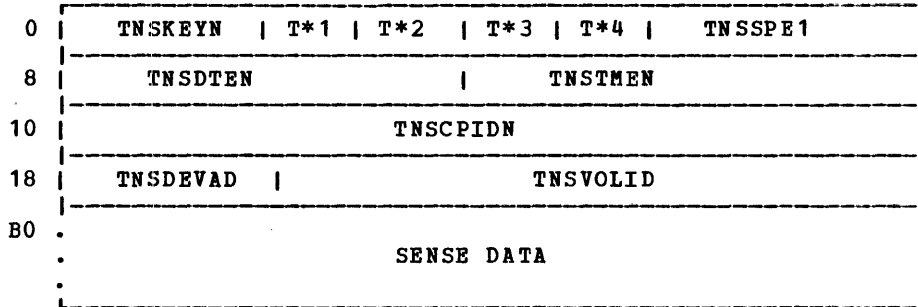
SYSTBL contains the system and DASD information required to load a saved system by name.

0	SYSPNT		SYSSIZE
8	SYSNAME		
10	VSYSRES		YSVADDR
18	SYSVOL		SYSCYL
20	SYSSTART		SYSPAGCT
28	SYSPAGLN	Unused	
	SYSPAGNM (variable)		
	SYSSEGLN		SYSHRSEG (variable)

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	SYSPNT	DS	1F	Chain pointer to next entry
4	SYSSIZE	DS	1F	Minimum storage size needed to run system
8	SYSNAME	DS	CL8	System name
10	VSYSRES	DS	CL6	Volume serial of DASD containing user's system
16	YSVADDR	DS	1H	Virtual address of VSYSRES
18	SYSVOL	DS	CL6	Volume serial of DASD containing saved pages
1E	SYSCYL	DS	1H	Cylinder on VSYSRES of user's system. Same as VDEVRELN
20	SYSSTART	DS	1F	CCPD of first page on SYSVOL
24	SYSPAGCT	DS	1F	Total number of pages saved
28	SYSPAGLN	DS	1H	Number of entries in SYSPAGNM
2C	SYSPAGNM	DS	1F	One fullword entry for each range of pages to be saved
30	SYSSEGLN	DS	1H	Numbers of entries in SYSHRSEG
32	SYSHRSEG	DS	1X	One byte for each segment to be shared

**TNSREC: 'T' TYPE RECORD FORMAT (ENVIRONMENTAL RECORDING)**

TNSREC is used by DMKIOE to record miscellaneous data records on CP's I/O error recording cylinders. The record contains sense data applicable to a specific I/O device.

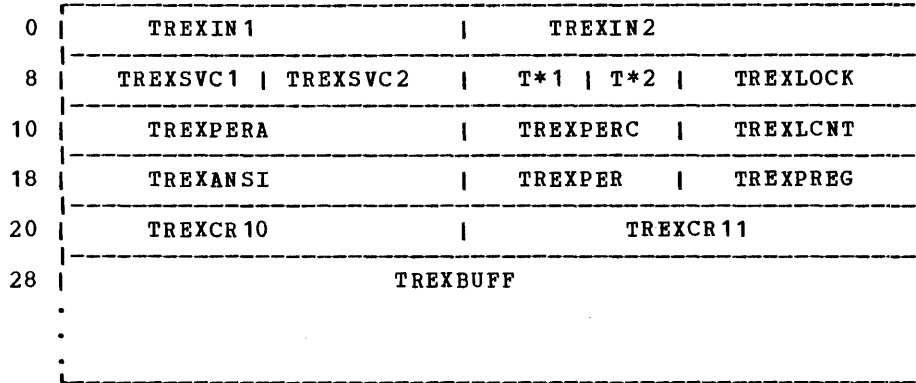


Hexadecimal Displacement	Field Name					Field Description, Contents, Meaning
<u>24-Byte Header Record</u>						
0	TNSKEYN	DS	1H		Class source 90=T type N/S NON TPER	
2	TNSSWS1	DS	1C	T*1	Switch byte	
3	TNSSWS2	DS	1C	T*2	Reserved for IBM use	
4	TNSSWS3	DS	1C	T*3	Reserved for IBM use	
5	TNSRECNT	DS	1C	T*4	Reserved for IBM use	
6	TNSSPE1	DS	1H		Reserved for IBM use	
8	TNSDTEN	DS	1F		Date	
C	TNSTMEN	DS	1F		Time	
10	TNSCPIDN	DS	2F		CPU ID and serial	
<u>Device Dependent Data</u>						
18	TNSDEVAD	DS	1H		Device address request is pending	
1A	TNSVOLID	DS	6C		Volume serial	
20	TNSSNS1	DS	24X		24 Sense bytes	
38	TNSSNS2	DS	24X		24 Additional sense bytes	
50	TNSSNS3	DS	24X		24 Additional sense bytes	
68	TNSSNS4	DS	24X		24 Additional sense bytes	
80	TNSSNS5	DS	24X		24 Additional sense bytes	
98	TNSSNS6	DS	24X		24 Additional sense bytes	
B0	TNSSNS7	DS	24X		Last 24 sense bytes	

TREXT

TREXT: VIRTUAL MACHINE TRACING EXTENSION TO VMBLOK

TREXT facilitates the tracing of virtual machine program instructions and interrupts. This block is used whenever the CP TRACE command is invoked.



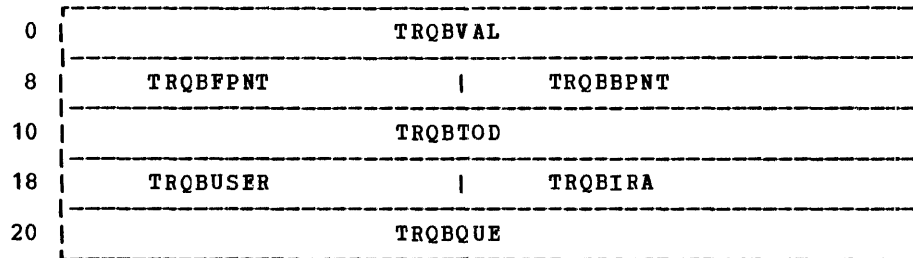
Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	TREXIN1	DS	1F	First address - replaced instruction
4	TREXIN2	DS	1F	Second address - replaced instruction
8	TREXSVC1	DS	1H	Displaced halfword - instruction 1
A	TREXSVC2	DS	1H	Displaced halfword - instruction 2
		ORG	TREXIN1	
0	TREXPSW	DS	1D	Old PSW for pending SVC interrupt
8	TREXINTL	DS	1H	Instruction length code
A	TREXINTC	DS	1H	Interrupt code for pending interrupt
C	TREXFLAG	DS	1X	T*1 Tracing control flags
	<u>Bits defined in TREXFLAG</u>			
	TREXRUN	EQU	X'80'	Prevent CFWAIT between events
	TREXVAT	EQU	X'40'	Call DMKVATR to put back virtual instruction
D	TREXOUT	DS	1X	T*2 Trace output controls
	<u>Bits defined in TREXOUT</u>			
	TREXPRT	EQU	X'80'	Output to the virtual printer
	TREXCON	EQU	X'40'	Output to user terminal
E	TREXLOCK	DS	1H	Indicates tracing when set
10	TREXPERA	DS	1F	PER event address on interrupt
14	TREXPERC	DS	1H	PER code bits from hardware event
16	TREXLCNT	DS	1H	Printed output line count
18	TREXANSI	DS	1A	Address of next (or last) sequential instruction
1C	TREXCR9	DS	0F	Shadow control registers for PER trace
1C	TREXPER	DS	XL2	PER control field
1E	TREXPREG	DS	1H	PER register mask field
20	TREXCR10	DS	1F	Address range starting value

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
24	TREXCR11	DS 1F	Address range ending value
28	TREXBUFF	DS 10D	Console/printer output buffer (80 bytes)
	TREXSIZE	EQU (*-TREXT)/8	TREXT size in doublewords (X'0F')
		ORG TREXPERA	Redefinition for TRACE use
10	TREXNSI	DS 6X	Actual next (or last) sequential instruction
		ORG TREXCR9	Redefinition for TRACE use
1C	TREXCTL	DS 0H	Halfword holding tracing control bits:
	TREXCTL1	DS 1X	First byte = same as VMTRCTL in VMBLOK
1D	TREXCTL2	DS 1X	Second byte = remaining control bits
	<u>Bits defined in TREXCTL2</u>		
	TREXCCW	EQU X'80'	Trace virtual and real CCWs
	TREXCSW	EQU X'40'	Trace virtual and real CSWs
	TREXBRAN	EQU X'20'	Trace successful branches
	TREXINST	EQU X'10'	Trace all instructions
1E	TREXPRNT	DS 1H	Printer flag bits corresponding to TREXCTL
20	TREXTERM	DS 1H	Terminal flag bits corresponding to TREXCTL
22	TREXRUNF	DS 1H	Run/norun flagbits corresponding to TREXCTL
24	TREXPNTR	DS 1F	Pointer to first stacked TRACE request, if any

**TRQBLOK**

**TRQBLOK: TIMER REQUEST BLOCK**

TRQBLOK manages the timing facilities of VM/370.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	TRQBVAL DS 1D	TOD clock comparator value for interrupt		
8	TRQBFPNT DS 1F	Pointer to next TRQBLOK		
C	TRQBBPNT DS 1F	Pointer to previous TRQBLOK		
10	TRQBTOD DS 1D	TOD clock value when TRQBLOK is queued		
18	TRQBUSER DS 1F	Address of VMBLOK for user		
1C	TRQBIRA DS 1F	Interrupt return address		
20	TRQBQUE DS 1D	Time left in queue; tracking virtual CPU timer		
	TRQBSIZE EQU (*-TRQBLOK)/8	Size in doublewords		

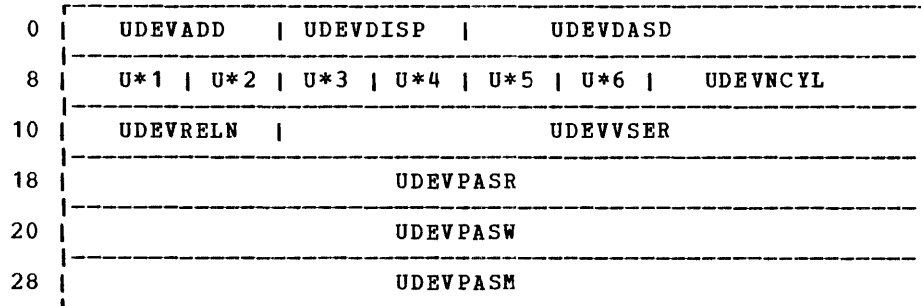




UDEVBLCK

UDEVBLCK: USER DEVICE BLOCK

UDEVBLCK supplies the information about the virtual machine's virtual devices, the operational parameters for its use, such as DASD access passwords, read/write link mode, spool device, T-disk space versus dedicated device space, as well as other parameters.



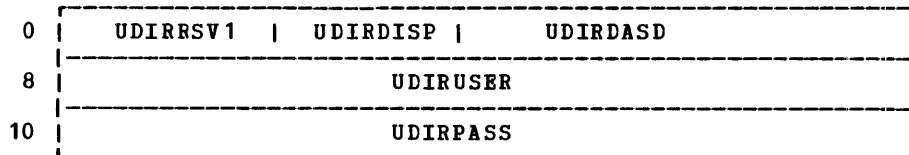
Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	UDEVADD	DS	1H		Virtual device address
2	UDEVDISP	DS	1H		Displacement of the next UDEVBLCK
4	UDEVNASD	DS	1F		DASD address of the next UDEVBLCK
8	UDEVSTAT	DS	1X	U*1	Status information
	<u>Bits defined in UDEVSTAT</u>				
	UDEVDED	EQU	X'80'		Device to be dedicated to this user
	UDEVTDISK	EQU	X'40'		T-disk to be allocated
	UDEVLONG	EQU	X'20'		Device block is full length (6 doublewords)
	UDEVLKDV	EQU	X'10'		Device is to be linked (at logon time)
	UDEVSP00	EQU	X'08'		Device is a spool device
	UDEV3158	EQU	X'04'		Device is a 3158 console
9	UDEVMODE	DS	1X	U*2	Access mode information
	<u>Bits defined in UDEVMODE</u>				
	UDEVLR	EQU	X'80'		Read links allowed
	UDEVLW	EQU	X'40'		Write links allowed
	UDEVLM	EQU	X'20'		Multiple write links allowed
	UDEVRR	EQU	0		Device to be in R link mode for owner
	UDEVRR	EQU	4		Device to be in RR link mode for owner
	UDEVW	EQU	8		Device to be in W link mode for owner
	UDEVWR	EQU	12		Device to be in WR link mode for owner
	UDEVW	EQU	16		Device to be in M link mode for owner
	UDEVMR	EQU	20		Device to be in MR link mode for owner
	UDEVMW	EQU	24		Device to be in MW link mode for owner
A	UDEVTPC	DS	1C	U*3	Device class
B	UDEVTYPE	DS	1C	U*4	Device type
C	UDEVFTR	DS	1C	U*5	Device feature mode
D	UDEVMDL	DS	1C	U*6	Device model number
E	UDEVNICYL	DS	1H		Virtual DASD size
10	UDEVRELN	DS	1H		Virtual DASD cylinder relocation
12	UDEVVSR	DS	6C		Volume serial number
18	UDEVNASR	DS	1D		Password for read access
20	UDEVNASW	DS	1D		Password for write access

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
28	UDEV PASH DS	1D		Password for multiple access
	UDEV SIZE EQU	(*-UDEVBLOK)/8		UDEVBLOK size in doublewords
		ORG	UDEVMDL	User device block (short)
D	UDEV CLAS DS	1C	C*6	Unit spool output class
E	UDEV LINK DS	1H		User link to disk
10	UDEV LKID DS	1D		User link to userid

UDIRBLOK

UDIRBLOK: USER DIRECTORY BLOCK

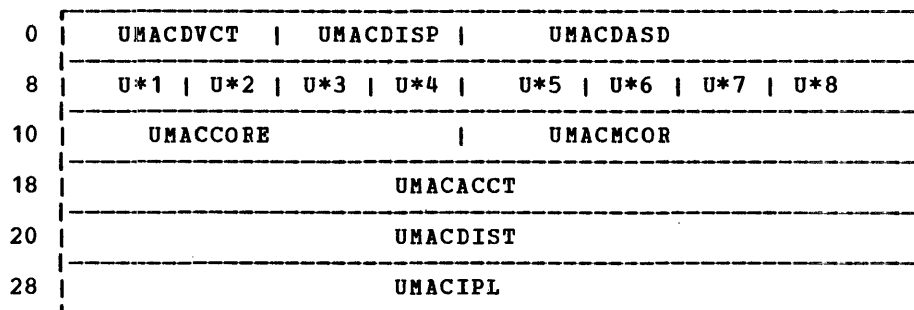
UDIRBLOK contains data describing the user's command privilege classes, special virtual machine options, terminal line edit values, and other values.



Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
0	UDIRRSV1 DS	1H	Reserved for IBM use
2	UDIRDISP DS	1H	Displacement of the user's UMACBLOK
4	UDIRDASD DS	1F	DASD address of the user's UMACBLOK
8	UDIRUSER DS	1D	Userid
10	UDIRPASS DS	1D	User password
	UDIRSIZE EQU	(*-UDIRBLOK)/8	UDIRBLOK size in doublewords (X'03')

UMACBLOK: USER MACHINE BLOCK

UMACBLOK contains the logon parameters for one virtual machine user. This block provides, in addition to the linkage to the user's defined virtual machine device UDEVBLOK, the command privilege class, assigned line edit values, as well as other virtual machine options.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	UMACDVCT DS	1H		Number of devices
2	UMACDISP DS	1H		Displacement of the user's first UDEVBLOK
4	UMACDASD DS	1F		DASD address of the user's first UDEVBLOK
8	UMACCLEV DS	1C	U*1	Command level
	<u>Bits defined in UMACCLEV</u>			
	UMACCLA EQU	X'80'		Class A functions
	UMACCLB EQU	X'40'		Class B functions
	UMACCLC EQU	X'20'		Class C functions
	UMACCLD EQU	X'10'		Class D functions
	UMACCLE EQU	X'08'		Class E functions
	UMACCLF EQU	X'04'		Class F functions
	UMACCLG EQU	X'02'		Class G functions
	UMACCLH EQU	X'01'		Class H functions
9	UMACPRIR DS	1X	U*2	Priority
A	UMACOPT DS	1X	U*3	Virtual machine options
	<u>Bits defined in UMACOPT</u>			
	UMACISAM EQU	X'80'		ISAM CCW checking option
	UMACECOP EQU	X'40'		Extended control mode option
	UMACRT EQU	X'20'		Real timer option
	UMACVROP EQU	X'10'		Virtual = Real storage option
	UMACACC EQU	X'08'		Accounting card option
	UMACRSV4 EQU	X'04'		Reserved for IBM use
	UMACNSVC EQU	X'02'		SVCs not handled by virtual machine assist feature
	UMACBMX EQU	X'01'		Virtual block multiplexer channel

UMACBLCK

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
B	UMACRSV1	DS	1C	U*4	Reserved for IBM use
C	UMACLEND	DS	1C	U*5	Terminal line end symbol
D	UMACLDEL	DS	1C	U*6	Terminal line delete symbol
E	UMACCDEL	DS	1C	U*7	Terminal character delete symbol
F	UMACES	DS	1C	U*8	Edit escape symbol
10	UMACCORE	DS	1F		Virtual storage size in bytes
14	UMACHCOR	DS	1F		Maximum virtual storage size in bytes
18	UMACACCT	DS	1D		Accounting information
20	UMACDIST	DS	1D		User machine distribution information
28	UMACIPL	DS	1D		Name of system to be IPLed at logon time
	UMACSIZE	EQU		(*-UMACBLOK)/8	UMACBLOK size in doublewords (X'06')

## VIRTUAL I/O CONTROL BLOCKS

The base for locating the I/O block structure is the user's Virtual Machine Block (VMBLOCK). The VMBLOCK contains a pointer to the start of three control block tables, and a table of 16 channel indexes. The control block tables contain one block for each of the virtual channels, control units, and devices that are defined for the user's virtual machine. The entries in the channel index table (VMCHTBL) contain the pointers to each channel defined for the user in the table of Virtual Channel Blocks (VCHBLOCKS). Each VCHBLOCK contains a table of pointers that point to the Virtual Control Unit Blocks (VCUBLOCKS) for the control units attached to that virtual channel. Each VCUBLOCK contains pointers to the Virtual Device Blocks (VDEVBLOCKS) attached to the control unit.

Thus, if given the unit address of any component in the form ccu, the appropriate control blocks representing each component in the subchannel path to the given unit is located via the indexing scheme.

VCHBLOCK: There is one VCHBLOCK for each virtual channel connected to the user's virtual CPU. Each VCHBLOCK contains the channel address and flag indicating the channel type (selector, byte multiplexer or block multiplexer). The status of the channel and its attached units are represented by several status and mask bytes, as follows:

1. A status byte (VCHSTAT) indicates whether the channel is busy or has a channel class interrupt pending.
2. A halfword unit address identifies the unit causing the channel-class interrupt (if it is present).

3. A halfword mask (VCHCUINT) contains a bit map of the attached control units that have interrupt status pending.

Following these status flags and masks is the table of indexes pointing to the attached VCUBLOCKS; index entries representing addresses at which no control unit is attached have a value of -1.

VCUBLOCK: There is one VCUBLOCK for each control unit in the virtual configuration. These blocks are arranged in a table, and each contains, in addition to its base address, status flags similar to those in the VCHBLOCK and a table of indexes to attached VDEVBLOCKS. The status flags defined for the VCUBLOCK differ from those for the VCHBLOCK in that they can contain status for the control unit and also for a subchannel.

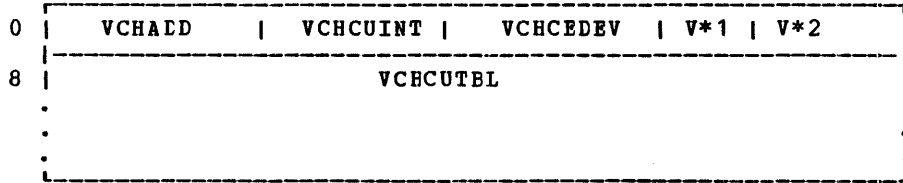
For example, if the VCUBLOCK representing a 2803 Tape Control Unit is attached to a virtual selector channel, both the VCHBLOCK and the VCUBLOCK are marked busy. However, if the VCUBLOCK is attached to a virtual byte multiplexer channel and is for a control unit on a selector subchannel of the multiplexer, the busy status of the channel is reflected in the VCUBLOCK only. Thus the virtual multiplexer appears nonbusy to operations on other, nonshared subchannels.

VDEVBLOCK: There is one VDEVBLOCK in the configuration for each virtual device defined by the user. Each VDEVBLOCK contains the device portion of the unit address, device status, and the virtual CSW for the last interrupt taken by the device. In addition, the VDEVBLOCK contains device type specific information that allows the I/O translation and simulation routines to interpret the channel programs presented by the user.

VCHBLOK

VCHBLOK: VIRTUAL CHANNEL BLOCK

VCHBLOK contains information providing linkage between the virtual machine and one of its virtual channels. Supplied in this block, in addition to channel status and type information, are the reflected interrupts from attached virtual control units.

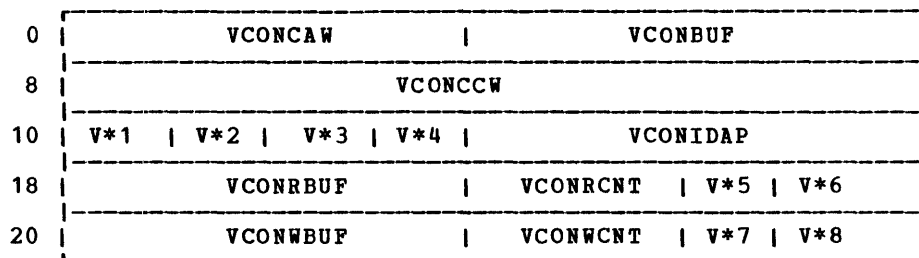


Hexadecimal Displacement	Field Name					Field Description, Contents, Meaning
0	VCHADD	DS	1H		Virtual channel address	
2	VCHCUINT	DS	1H		VCUBLOK with interrupt-bit map	
4	VCHCEDEV	DS	1H		Virtual device address with channel class interrupt	
6	VCHSTAT	DS	1X	V*1	Virtual channel status	
	<u>Bits defined in VCHSTAT</u>					
	VCHBUSY	EQU	X'80'		Virtual channel busy	
	VCHCEPND	EQU	X'40'		Virtual channel class interrupt pending	
	VCHDED	EQU	X'01'		Virtual channel dedicated	
7	VCHTYPE	DS	1X	V*2	Virtual channel type	
	<u>Bits defined in VCHTYPE</u>					
	VCHSEL	EQU	X'80'		Virtual selector channel	
	VCHBMX	EQU	X'40'		Virtual block multiplexer	
8	VCHCUTBL	DS	16H		Control units attached - VMCUSTRT index	
	VCHSIZE	EQU	(*-VCHBLOK)/8		VCHBLOK size in doublewords (X'05')	



VCONCTL: VIRTUAL CONSOLE CONTROL BLOCK

VCONCTL contains CCW and data buffer information for the communications of the virtual console.

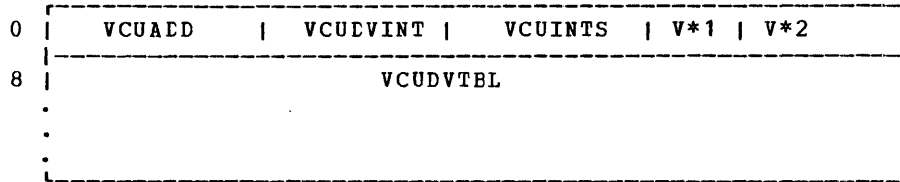


Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	VCONCAW DS 1F			Virtual address of user CCW
4	VCONBUF DS 1F			Pointer to data buffer
8	VCONCCW DS 1D			Current user CCW
10	VCONRSV1 DS 1X	V*1		Reserved for IBM use
11	VCONBFSZ DS 1X	V*2		Data buffer size in doublewords
12	VCONRSV2 DS 1X	V*3		Reserved for IBM use
13	VCONRSV3 DS 1X	V*4		Reserved for IBM use
14	VCONIDAP DS 1F			For IDA pointer to current IDAW
18	VCONRBUF DS 1F			Address of read data buffer
1C	VCONRCNT DS 1H			Data count in read buffer
1E	VCONRBSZ DS 1X	V*5		Read buffer size in doublewords
1F	VCONRSV6 DS 1X	V*6		Reserved for IBM use
20	VCONWBUF DS 1F			Address of write data buffer
24	VCONWCNT DS 1H			Data count in write buffer
26	VCONWBSZ DS 1X	V*7		Write buffer size in doublewords
27	VCONRSV8 DS 1X	V*8		Reserved for IBM use
	VCONSIZE EQU (*-VCONCTL)/8			VCONCTL size in doublewords (X'05')
	ORG VCONCCW			
8	VCONADDR DS 1F			CCW data address
C	VCONFLAG DS 1X			CCW flag bits
D	VCONRSV4 DS 1X			Reserved for IBM use
E	VCONCNT DS 1H			CCW byte count
	ORG VCONADDR			
8	VCONCMD DS 1X			CCW command code

VCUBLOK

VCUBLOK: VIRTUAL CONTROL UNIT BLOCK

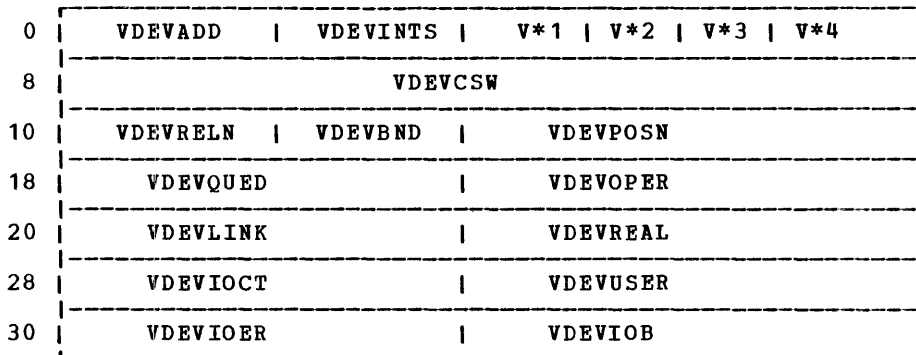
VCUBLOK contains status information relating to the virtual channel, the status and features of the virtual control unit.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	VCUADD	DS	1H		Virtual control unit address
2	VCUDVINT	DS	1H		VDEVBLK with interrupt-bit map
4	VCUINTS	DS	1H		Virtual control unit interrupt status
6	VCUSTAT	DS	1X	V*1	Virtual control unit status
	<u>Bits defined in VCUSTAT</u>				
	VCUCHBSY	EQU	X'80'		Virtual subchannel busy
	VCUCEPND	EQU	X'40'		Interrupt pending in subchannel
	VCUBUSY	EQU	X'20'		Virtual control unit busy
	VCUPEND	EQU	X'10'		Virtual control unit interrupt pending
	VCUCUEPN	EQU	X'08'		Virtual control unit end pending
	VCUACTV	EQU	X'04'		Virtual control unit active
7	VCUTYPE	DS	1X	V*2	Virtual control unit type
	<u>Bits defined in VCUTYPE</u>				
	VCUSHRD	EQU	X'80'		Virtual control unit on shared subchannel
	VCUCTCA	EQU	X'40'		Virtual control unit is a channel-to-channel adapter
8	VCUDVTBL	DS	16H		Devices attached - VMDVSTRT index
	VCUSIZE	EQU	(*VCUBLOK)/8		VCUBLCK size in doublewords (X'05')

VDEVBLK: VIRTUAL DEVICE BLOCK

VDEVBLK maintains status and interrupt conditions applicable to one virtual device.



Hexadecimal Displacement	Field Name					Field Description, Contents, Meaning
0	VDEVADD DS	1H			Virtual device address	
2	VDEVINTS DS	1H			Virtual device interrupt status	
4	VDEVTYPE DS	1X	V*1		Virtual device type class	
5	VDEVTYPE DS	1X	V*2		Virtual device type	
6	VDEVSTAT DS	1X	V*3		Virtual device status	
	<u>Bits defined in VDEVSTAT</u>					
	VDEVCHBS EQU	X'80'			Virtual subchannel busy	
	VDEVCHAN EQU	X'40'			Virtual channel interrupt pending	
	VDEVBUSY EQU	X'20'			Virtual device busy	
	VDEVPEND EQU	X'10'			Virtual device interrupt pending	
	VDEV CUE EQU	X'08'			Virtual control unit end	
	VDEVNRDY EQU	X'04'			Virtual device not ready	
	VDEV CATT EQU	X'02'			Virtual device attached by console function	
	VDEVDED EQU	X'01'			VDEVREAL is dedicated device RDEVBLK	
7	VDEVFLAG DS	1X	V*4		Virtual device flags	
	<u>Bits defined in VDEVFLAG</u>					
	VDEV RDO EQU	X'80'			DASD - read-only	
	VDEVENAB EQU	X'80'			Virtual 270X - line enabled	
	VDEV TDSK EQU	X'40'			DASD - T-disk space allocated by CP	
	VDEV DIAL EQU	X'40'			Virtual 270x - line connected	
	VDEVCSPL EQU	X'40'			Console - activity spooled	
	VDEV231T EQU	X'20'			DASD - 2311 simulated on top half of 2314	
	VDEV231B EQU	X'10'			DASD - 2311 simulated on bottom half of 2314	
	VDEVCCW1 EQU	X'10'			Console and spooling - processing first CCW	
	VDEV SAS EQU	X'08'			DASD - Executing standalone seek	
	VDEVPOST EQU	X'04'			Present attention with a single interrupt	

VDEVBLOK

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
	VDEVRSL EQU	X'02'	Reserve/release are valid CCW operation codes
	VDEVUC EQU	X'01'	Virtual device sense bytes present
8	VDEVCSW DS	1D	Virtual channel status word
10	VDEVRELN DS	1H	Virtual DASD cylinder relocation
12	VDEVEND DS	1H	Virtual DASD size (in cylinders)
14	VDEVPOSN DS	1F	Virtual DASD seek position
18	VDEVQUED DS	1F	Virtual SIO to real SIO queued time
1C	VDEVOPER DS	1F	Device operational time
20	VDEVLINK DS	1F	Link to virtual shared devices
24	VDEVREAL DS	1F	Pointer to real device RDEVBLOK
28	VDEVIOCT DS	1F	Virtual device I/O count
2C	VDEVUSER DS	1F	Pointer to VMBLOK of VDEVBLOK owner
30	VDEVIOER DS	1F	Pointer to IOERBLOK for last error
34	VDEVIOB DS	1F	Pointer to active IOBLOK
	VDEVSIZE EQU	(*-VDEVBLOK)/8	VDEVBLOK size in doublewords (X'07')
<u>For Spooling/Console Devices</u>			
		ORG VDEVRELN	
10	VDEVEXTN DS	1F	Pointer to VSPXBLOK
14	VDEVSPAR DS	1F	Reserved for IBM use
18	VDEVCON DS	1F	Pointer to VCONCTL console control
1C	VDEVSPPL DS	1F	Pointer to VSPLCTL spool control
20	VDEVCLAS DS	1C	Spool output class
21	VDEVKEY DS	1X	Storage key in user's CAW
22	VDEVUNIT DS	1H	Spool output directed device address
24	VDEVCOPY DS	1H	Number of copies requested
26	VDEVCFLG DS	1X	Console - virtual console flags
<u>Bits defined in VDEVCFLG</u>			
	VDEVATTN EQU	X'80'	User pressed Attention key more than once
	VDEVTIC EQU	X'40'	Last CCW processed was a TIC
	VDEVTRAN EQU	X'20'	Data transfer occurred during this channel program
	VDEVVCF EQU	X'10'	Virtual console function in progress
	VDEVAUCR EQU	X'08'	Auto carriage return on first read
27	VDEVSFGL DS	1X	Spool - virtual spool flags
<u>Bits defined in VDEVSFGL</u>			
	VDEVFEED EQU	X'80'	Spool reader - last command was a feed
	VDEVXFER EQU	X'80'	Spool output - transferred to VSPXXUSR
	VDEVCONT EQU	X'40'	Spool input - continuous reading
	VDEVHOLD EQU	X'20'	Hold output - save input
	VDEVFOR EQU	X'10'	Spool output - for user and distribution
	VDEVEOF EQU	X'08'	Spool input - set unit exception at EOF
	VDEVTERM EQU	X'08'	Terminal output required for spooled console
	VDEVCPCL EQU	X'04'	Device closed by console function
	VDEVPURG EQU	X'02'	Spool output - purge file at close
	VDEVDIAG EQU	X'02'	Spool input - device opened by DIAGNOSE
	VDEVSVCS EQU	X'01'	Spool device busy by CP
		ORG VDEVIOER	
30	VDEVSNSE DS	1F	Sense bytes for spool device
34	VDEVFCBK DS	1F	Address of forms control block (VFCBBLOK)
		ORG VDEVLINK	
20	VDEVTMAT DS	1F	T-disk attached time (TOD clock word 0)



VMBLOK

VMBLOK: VIRTUAL MACHINE CONTROL BLOCK

VMBLOK is used as the primary control block for almost all activities related to a single virtual machine. This block contains the following information: the dispatch and priority level of the virtual machine, the virtual machine's CPU registers, preferred virtual machine option values, other values significant to virtual machine operations.

0	VMQFPNT		VMQBPNT					
8	VMPNT		VMECEXT					
10	VMSEG		VMSIZE					
18	VMCHSTRT		VMCUSTRT					
20	VMDVSTRT		VMTERM					
28	VMVTERM	VMTRMID	V*1	V*2	V*3	V*4		
30	VMCHCNT	VMCUCNT	VMDVCNT	VMIOACTV				
38	VMCHTBL							
.								
.								
58	V*5	V*6	V*7	V*8	V*9	V*10	V*11	V*12
60	V*13	V*14	V*15	V*16	VMSLOCK	VMLLOCK		
68	V*19	V*20	VMIOINT		VMTIMER			
70	VMVTIME							
78	VMTHOUTQ							
80	VMTTIME							
88	VMTMINQ							
90	VMTODINQ							
98	VMINST	VMACTDEV	V*17	V*18				
A0	VMTREXT		VMADSTOP					
A8	VMPSW							
B0	VMGPRS							
F0	VMFPRS							

110	VMUSER				
118	VMACNT				
120	VMDIST				
128	VMPGREAD		VMPGWRT		
130	VMWCNT	VMSEGDSP		VMSTOR	
138	VMIOCNT		VMPNCH		
140	VMLINS		VMCRDS		
148	VMCOMND				
150	VMPDRUM	VMPDISK	VMPAGES	VMPRGIL	
158	VMDEDCH	VMQPRIOR	VMWSPROJ	VMSTEALS	
160	VMTIMEON		VMTRQBLK		
168	VMACOUNT		VMRDINQ		
170	VMPRGINQ		VMEPRIOR		
178	VMSTKO		VMMICRO		
180	VMPFUNC		VMPXINT		
188	VMDELAY		VMRPRIOR		
190	VMPGNT	VMNDCNT	VMSHRSYS		
198	V*21	VMRSVW4		VMASSIST	
1A0	VMRSVW1		VMRSVW2		
1A8	VMRSVW3		VMRSVW5		
1B0	VMUSER1		VMUSER2		
1B8	VMUSER1		VMUSER4		

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	VMQFPNT	DS	1F	Pointer to next VMBLOK in queue
4	VMQBPNT	DS	1F	Pointer to previous VMBLOK in queue
8	VMPNT	DS	1F	Pointer (CYCLIC) to next VMBLOK
C	VMECEXT	DS	1F	VMBLOK extended control pointer - ECBLOK
C	VMVCRO	EQU	VMECEXT	Virtual control register 0 for non-EC mode machine
10	VMSEG	DS	1F	Pointer to VMSEGTBL
14	VM SIZE	DS	1F	Virtual storage size in bytes
18	VMCHSTRT	DS	1F	Pointer to VCHBLOK table
1C	VMCUSTRT	DS	1F	Pointer to VCUBLOK table
20	VM DVSTRT	DS	1F	Pointer to VDEVBLOK table
24	VMTERM	DS	1F	Pointer to RDEVBLOK for user terminal
28	VMVTERM	DS	1H	Displacement to virtual console VDEVBLOK
2A	VMTRMID	DS	1H	Resource ID of real terminal if 370X
2C	VMTLEND	DS	1C	V*1 Terminal line end symbol
2D	VMTDEL	DS	1C	V*2 Terminal line delete symbol
2E	VMTCDEL	DS	1C	V*3 Terminal character delete symbol
2F	VMTESCP	DS	1C	V*4 Terminal escape symbol
30	VMCHCNT	DS	1H	Virtual channel count
32	VMCUCNT	DS	1H	Virtual control unit count
34	VMDCNT	DS	1H	Virtual device count
36	VMIOACTV	DS	1H	Active channel mask
38	VMCHTBL	DS	16H	Channels attached - VMCHSTRT index
58	V MRSTAT	DS	1X	V*5 Virtual machine running status

Bits defined in V MRSTAT

VMCFWAIT	EQU	X'80'	Waiting - Executing console function
VMPGWAIT	EQU	X'40'	Waiting - Paging operation(s)
VMIOWAIT	EQU	X'20'	Waiting - Scheduled IOBLOK start
VMPWAIT	EQU	X'10'	Waiting - Virtual PSW wait state
VMEXWAIT	EQU	X'08'	Waiting - Instruction simulation
VMLOGON	EQU	X'04'	User not logged on
VMLOGOFF	EQU	X'02'	User logging off
VMIDLE	EQU	X'01'	Virtual machine in idle wait state
VMCPWAIT	EQU	VMCFWAIT+VMPGWAIT+VMIOWAIT+VMEXWAIT+VMLOGOFF+VMLOGON	
VMNORUN	EQU	VMCPWAIT+VMPWAIT	
VMLONGWT	EQU	VMCFWAIT+VMLOGON+VMLOGOFF+VMIDLE	

59	V MDSTAT	DS	1X	V*6 Virtual machine dispatching status
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Bits defined in V MDSTAT

V MDSP	EQU	X'80'	Virtual machine is dispatched runuser
V MTSEND	EQU	X'40'	Virtual machine is compute bound
V MQSEND	EQU	X'20'	Virtual machine in-queue time slice end
V MTIO	EQU	X'10'	Virtual machine is in TIO/SIO busy loop
V MRUN	EQU	X'08'	Virtual machine runnable
V MINQ	EQU	X'04'	Virtual machine in a queue
V MELIG	EQU	X'02'	Virtual machine is in an eligible list
V MPAZAPL	EQU	X'01'	Reflect an external interrupt to a virtual machine

VMBLOK

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
5A	VMOSTAT	DS	1X	V*7	Virtual machine operating status
	<u>Bits defined in VMOSTAT</u>				
	VMSYSOP	EQU	X'80'		Virtual machine is system operator
	VMSHR	EQU	X'40'		Virtual machine running shared system
	VMSLEEP	EQU	X'20'		Virtual machine is in SLEEP state
	VMDISC	EQU	X'10'		Virtual machine console disconnected
	VMCFRUN	EQU	X'08'		Virtual machine running in CF mode
	VMVIRCF	EQU	X'04'		Virtual machine executing virtual CF
	VMCF	EQU	X'02'		Virtual machine executing CF
	VMKILL	EQU	X'01'		Virtual machine is to be logged off
5B	VMQSTAT	DS	1X	V*8	Virtual machine queueing status
	<u>Bits defined in VMQSTAT</u>				
	VMPRIDSP	EQU	X'80'		Eligible for queue 1
	VMAUTLOG	EQU	X'40'		Autologged user is in disconnect mode
	VMWSERNG	EQU	X'20'		Last working set error was negative; keep in queue 1 for terminal output
	VMWSCHG	EQU	X'08'		Force a new working set on queue entry
	VMCFREAD	EQU	X'02'		Virtual machine with console function read up
	VMPA2APL	EQU	X'01'		Reflects external interrupts to machine
5C	VMPSTAT	DS	1X	V*9	Virtual machine processing status
	<u>Bits defined in VMPSTAT</u>				
	VMISAM	EQU	X'80'		Virtual machine has ISAM CCW checking
	VMV37OR	EQU	X'40'		Virtual machine can use extended control
	VMPAGE	EQU	X'20'		Virtual machine can reserve pages
	VMREAL	EQU	X'10'		Virtual machine has V=R option
	VMNOTRAN	EQU	X'08'		No CCW translation for V=R user
	VMPNMCS	EQU	X'04'		Reserved for IBM use
	VMACOUN	EQU	X'02'		Virtual machine may punch account cards
	VMPAGEX	EQU	X'01'		Virtual machine receiving pseudo page faults
5D	VMESTAT	DS	1X	V*10	Virtual machine control status
	<u>Bits defined in VMESTAT</u>				
	VMSHADT	EQU	X'80'		Shadow tables are present
	VMPERCM	EQU	X'40'		Virtual CP PER active
	VMBADCRO	EQU	X'20'		Virtual control register 0 is invalid
	VMMICSVC	EQU	X'10'		User wants SVCs done by virtual machine assist feature
	VMEXTCM	EQU	X'08'		Virtual machine in extended control mode
	VMNEWCRO	EQU	X'04'		Virtual control register 0 has changed
	VMINVSEG	EQU	X'02'		All shadow tables invalid
	VMINVPAG	EQU	X'01'		Shadow page tables invalid
	VMECZAP	EQU	255-VMMICSVC		All bits except VMMICSVC
5E	VMTRCTL	DS	1X	V*11	Virtual machine tracing control
	<u>Bits defined in VMTRCTL</u>				
	VMTRPER	EQU	X'80'		Virtual PER tracing active
	VMTRSVC	EQU	X'40'		Trace user SVC instructions
	VMTRPRG	EQU	X'20'		Trace virtual program interrupts
	VMTRIO	EQU	X'10'		Trace virtual I/O interrupts
	VMTRES	EQU	X'08'		Trace external interrupts
	VMTRPRV	EQU	X'04'		Trace user privileged instructions
	VMTRSIO	EQU	X'02'		Trace virtual I/O instructions
	VMTRBRIN	EQU	X'01'		Trace successful branches or all instructions
	VMTRINT	EQU	VMTRSVC+VMTRPRG+VMTRIO+VMTRES		Trace all user interrupts



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
5F	VMMLEVEL DS	1X	V*12	Message level
	<u>Bits defined in VMMLEVEL</u>			
	VMSGON EQU	X'80'		Receiving messages
	VMWNGON EQU	X'40'		Receiving warnings
	VMMCODE EQU	X'20'		Receiving error message codes
	VMMTEXT EQU	X'10'		Receiving texts of error messages
	VMMLINED EQU	X'08'		Line editing on
	VMMACCON EQU	X'04'		Receiving accounting information
	VMMCPENV EQU	X'02'		Terminal in CP mode
	VMMSTMP EQU	X'01'		Time stamp desired on console output
60	VMQLEVEL DS	1X	V*13	Queue level
	<u>Bits defined in VMQLEVEL</u>			
	VMQ1 EQU	X'80'		Virtual machine is interactive
	VMCOMP EQU	X'40'		Virtual machine is compute bound
	VMHIPRI EQU	X'20'		Virtual machine is highest priority
	VMLOPRI EQU	X'10'		Virtual machine is lowest priority
	VMAEX EQU	X'08'		Virtual machine is assured execution
	VMAEXP EQU	X'04'		Virtual machine is assured percentage
	VMDROP1 EQU	X'02'		Virtual machine just dropped from Q1
61	VMCLEVEL DS	1X	V*14	Command level
	<u>Bits defined in VMCLEVEL</u>			
	VMCLASSA EQU	X'80'		Class A functions
	VMCLASSB EQU	X'40'		Class B functions
	VMCLASSC EQU	X'20'		Class C functions
	VMCLASSD EQU	X'10'		Class D functions
	VMCLASSE EQU	X'08'		Class E functions
	VMCLASSF EQU	X'04'		Class F functions
	VMCLASSG EQU	X'02'		Class G functions
	VMCLASSH EQU	X'01'		Class H functions
62	VMTLEVEL DS	1X	V*15	Timer level
	<u>Bits defined in VMTLEVEL</u>			
	VMTON EQU	X'80'		Virtual timer running
	VMRON EQU	X'40'		Virtual real timer running
	VMCPUTMR EQU	X'20'		Virtual CPU timer in real CPU timer
	VMSTMPI EQU	X'08'		Virtual interval timer request queued
	VMSTMPT EQU	X'04'		Virtual CPU timer request queued
	VMTHRINT EQU	X'01'		Interrupt from CPU real timer pending
	<u>Bits redefined for System VMBLOK</u>			
	VMTIDLE EQU	VMTON		CPU timer contains idle wait state time
	VMPAGE EQU	VMRON		CPU timer contains system page wait time
	VMTIONT EQU	VMSTMPI		CPU timer contains I/O wait state time
63	VMPEND DS	1X	V*16	Interrupt pending summary flag
	<u>Bits defined in VMPEND</u>			
	VMPERPND EQU	X'40'		Virtual PER interrupt pending
	VMPRGPND EQU	X'20'		Virtual program interrupt deferred
	VMSVCPND EQU	X'10'		Virtual SVC interrupt deferred
	VMPGPND EQU	X'08'		Virtual pseudo page fault pending
	VMIOPNPND EQU	X'02'		Virtual I/O interrupt pending
	VMEXTPNPND EQU	X'01'		Virtual external interrupt pending

VMBLOK

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
64	VMSLOCK	DS	1H		Short lock - reserved for IBM use
66	VMLLOCK	DS	1H		Long lock - reserved for IBM use
68	VMFSTAT	DS	1X	V*19	Virtual machine feature status
	<u>Bits defined in VMFSTAT</u>				
	VMFBMX	EQU	X'80'		Virtual block multiplexer channels
	VMMLVL2	DS	1X	V*20	Additional message handling information
	<u>Bits defined in VMMLVL2</u>				
	VMMMSG	EQU	X'80'		Receiving all informational messages
6A	VMIOINT	DS	1H		I/O interrupt pending flags
6C	VMTIMER	DS	1F		Virtual timer value - X'50'
70	VMVTIME	DS	1D		Virtual CPU time used
78	VMTMOUTQ	DS	1D		Time remaining in queue
80	VMTTIME	DS	1D		Total time while in supervisor state
88	VMTMINQ	DS	1D		VMTTIME value at entry to queue
90	VMTODINQ	DS	1D		TOD clock time stamp at queue entry
98	VMINST	DS	1F		Virtual machine privileged or tracing instruction
9C	VMACTDEV	DS	1H		Virtual device issuing last virtual SIO
9E	VMUPRIOR	DS	1H	V*17	User priority from directory
9F	VMPSWDCT	DS	1X	V*18	Invalid LINK password count
A0	VMTREXT	DS	1F		Address of extended trace control block
A4	VMADSTOP	DS	1F		Address of address stop control block
A8	VMPSW	DS	1D		Virtual machine PSW
B0	VMGPRS	DS	16F		Virtual machine general registers
F0	VMFPRS	DS	4D		Virtual machine floating pcint registers
110	VMUSER	DS	CL8		Virtual machine identification
118	VMACNT	DS	CL8		Virtual machine accounting number
120	VMDIST	DS	CL8		Virtual machine distribution code
128	VMPGREAD	DS	1F		Total page reads
12C	VMPGWRIT	DS	1F		Total page writes
130	VMWCNT	DS	1H		Page wait count
132	VMSEGDSP	DS	1H		Displacement of virtual machine SEGTABLE from start of block
134	VMSTOR	DS	1F		Permanent storage size (in bytes)
138	VMIOCNT	DS	1F		Virtual SIO count for non-spooled I/O
13C	VMPNCH	DS	1F		Virtual card count - spooled punch
140	VMLINS	DS	1F		Virtual line count - spooled printer
144	VMCRDS	DS	1F		Virtual card count - spooled reader
148	VMCOMND	DS	CL8		Last CP command executed
150	VMPDRUM	DS	1H		Reserved for IBM use
152	VMPDISK	DS	1H		Reserved for IBM use
154	VMPAGES	DS	1H		Number of pages currently resident
156	VMPRGIL	DS	1H		ILC for pending program interrupt
158	VMDEDCH	DS	1H		Dedicated channel mask
15A	VMQPRIOR	DS	1H		Priority in dispatching queue
15C	VMWSPROJ	DS	1H		Projected working set size
15E	VMSTEALS	DS	1H		Number of waits for stolen pages
160	VMTIMEON	DS	1F		Logon time -TOD clock word 0
164	VMTRQBLK	DS	1F		Address of TRQBLOK for real timer
168	VMACOUNT	DS	1F		Address of user ACCTBLOK
16C	VMRDINQ	DS	1F		Page read total (VMPGREAD) at queue entry
170	VMPGRINQ	DS	1F		Sum of VMPAGES count at each page read
174	VMEPRIOR	DS	1F		Eligible list priority
178	VMSTKO	DS	1F		Console function output stack pointer
17C	VMMICRO	DS	1F		Virtual machine assist - real control register 6

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
17C	VMPCR6	ORG DS	VMMICRO 1X	Control register 6 - hardware flag byte
	<u>Bits defined in VMPCR6</u>			
	VMMFE	EQU	X'80'	Virtual machine assist feature enabled
	VMMPROB	EQU	X'40'	Virtual machine in problem state
	VMMNOSK	EQU	X'20'	Virtual machine assist does not handle SSK, ISK
	VMM360	EQU	X'10'	S/360 operations only, no EC mode operations allowed
	VMMSVC	EQU	X'08'	Virtual machine assist does not handle SVCs
	VMMSHADT	EQU	X'04'	Shadow tables present (EC mode and translate)
	(Note: The last two bits in this byte must always be zeros.)			
17D	VMADDR	DS	3X	Control register 6 - address of virtual machine's pointer list (MICBLOK)
180	VMPFUNC	DS	1F	PFnn function table
184	VMPXINT	DS	1F	Extended external interrupt stack pointer
188	VMDELAY	DS	1F	TRQBLOK for delayed SLEEP or LOGOFF
18C	VMRPRIOR	DS	1F	Run list dispatching priority
190	VMPGPNT	DS	1F	Pointer to list of PGBLOKs
194	VMNDCNT	DS	1F	Non-deferred page read count
196	VMSHRSYS	DS	1H	Number of shared named systems
198	VMRBSC	DS	1X	V*21 Remote display line count
199	VMRSVW4	DS	3X	Reserved for IBM use
19C	VMASSIST	DS	1F	Pointer to list of VMABLOKs
1A0	VMRSVW1	DS	1F	Reserved for IBM use
1A4	VMRSVW2	DS	1F	Reserved for IBM use
1A8	VMRSVW3	DS	1F	Reserved for IBM use
1AC	VMRSVW5	DS	1F	Reserved for IBM use
1B0	VMUSER1	DS	1F	Reserved for installation use
1B4	VMUSER2	DS	1F	Reserved for installation use
1B8	VMUSER3	DS	1F	Reserved for installation use
1BC	VMUSER4	DS	1F	Reserved for installation use
	VMBSIZE	EQU	(*-VMBLOK)/8	VMBLOK size in doublewords (X'32')

**VMABLOK**

**VMABLOK: SHARED SYSTEMS RUNNING WITH VMABLOK**

VMABLOK contains the name of a shared system, a pointer to the share table (SHRTABLE), and a pointer to the next VMABLOK.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	VMAFPNT DS 1F	Forward pointer to next VMABLOK
4	VMASHRBK DS 1F	Address of share table (SHRTABLE)
8	VMANAME DS CL8	Identification of named shared system
	VMASIZE EQU (*-VMABLOK)/8	VMABLOK size in doublewords

VSPLCTL: VIRTUAL SPOOL CONTROL BLOCK

VSPLCTL is linked to the VDEVBLK and contains information for opened spool files.

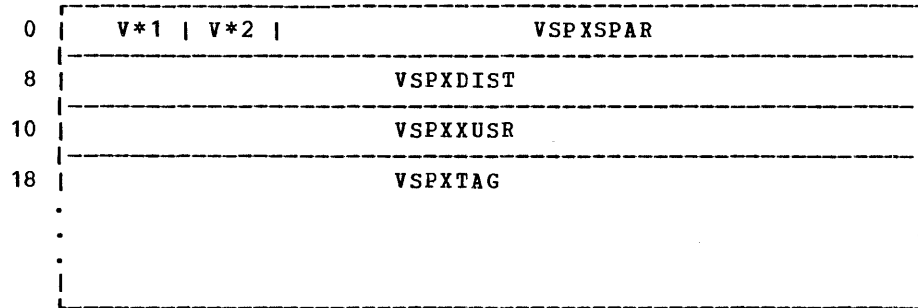
0	VSPCAW		VSPDPAGE
8	VSPVPAGE		VSPRECNO
10	VSPNEXT		VSPIDACT
			VSPSPBLK
18	VSPCCW		
20	VSPBUF BK		VSPMISC
28	V*1		VSPIDAL
			VSPIDAW2

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	VSPCAW	DS	1F	Virtual address of user CCW
4	VSPDPAGE	DS	1F	DASD location (DCHR) of current page buffer
8	VSPVPAGE	DS	1F	Virtual address of page buffer
C	VSPRECNO	DS	1F	Records remaining in current buffer
10	VSPNEXT	DS	1H	Displacement in buffer of next record start
12	VSPIDACT	DS	1H	Data byte count of IDA CCW
14	VSPSPBLK	DS	1F	Pointer to SFBLK for file
18	VSPCCW	DS	1D	Current user CCW
20	VSPBUF BK	DS	1F	Address of a buffer area
24	VSPMISC	DS	1F	Use varies according to caller
28	VSPIDASW	DS	1X	V*1 IDA work flag
29	VSPIDAL	DS	3X	Address of indirect data list
2C	VSPIDAW2	DS	1F	Contains IDAW2
	VSPSIZE	EQU	(*VSPLCTL)/8	Size in doublewords (X'06')
	VSPBUFSZ	EQU	(200)/8	Size in doublewords (X'19')

VSPXBLOK

VSPXBLOK: VIRTUAL SPOOL EXTENSION BLOCK

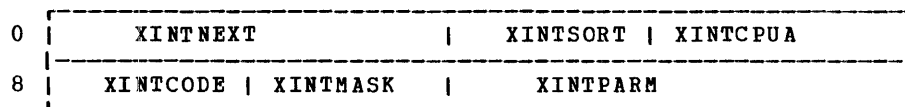
VSPXBLOCK serves as an extension to the virtual spool control block (VSPLCTL). It contains the user-named destination of the file as well as RSCS tag information used by the Remote Spooling Communications Subsystem.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	VSPXLEN DS	1X	V*1	VSPXBLOCK length (doublewords)	
1	VSPXTGLN DS	1X	V*2	VSPXTAG data length (doublewords)	
2	VSPXSPAR DS	XL6		Reserved for IBM use	
8	VSPXDIST DS	CL8		Virtual device distribution code	
10	VSPXUSR DS	CL8		Virtual machine user to whom the file is transferred	
18	VSPXTAG DS	CL136		Tag information data area	
	VSPXSIZE EQU	(*-VSPXBLOCK)/8		VSPXBLOCK size in doublewords (X'14')	

XINTBLOK: EXTERNAL INTERRUPT BLOCK

XINTBLOK saves the various types of external interrupts that are presented to the virtual machine. If multiple external interrupt conditions are simultaneously presented, as indicated by values presented in the block, code exists for handling the interrupts in their defined hierarchical order.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	XINTNEXT DS	1F			Address of next external interrupt block
4	XINTSORT DS	1H			Left half of interrupt collating key
6	XINTCPUA DS	1H			Right half of interrupt collating key
8	XINTCODE DS	1H			External interrupt code
A	XINTMASK DS	1H			Control register 0 mask (bits 16-31)
C	XINTPARM DS	1F			External interrupt parameter word
	XINTSIZE EQU	(*-XINTBLOK)/8			XINTBLOK size in doublewords (X'02')





## SECTION 2. CMS DATA AREAS AND CONTROL BLOCKS

This section contains CMS data areas and control blocks. Figure 2 shows the relationships between the control blocks and data areas of CMS.

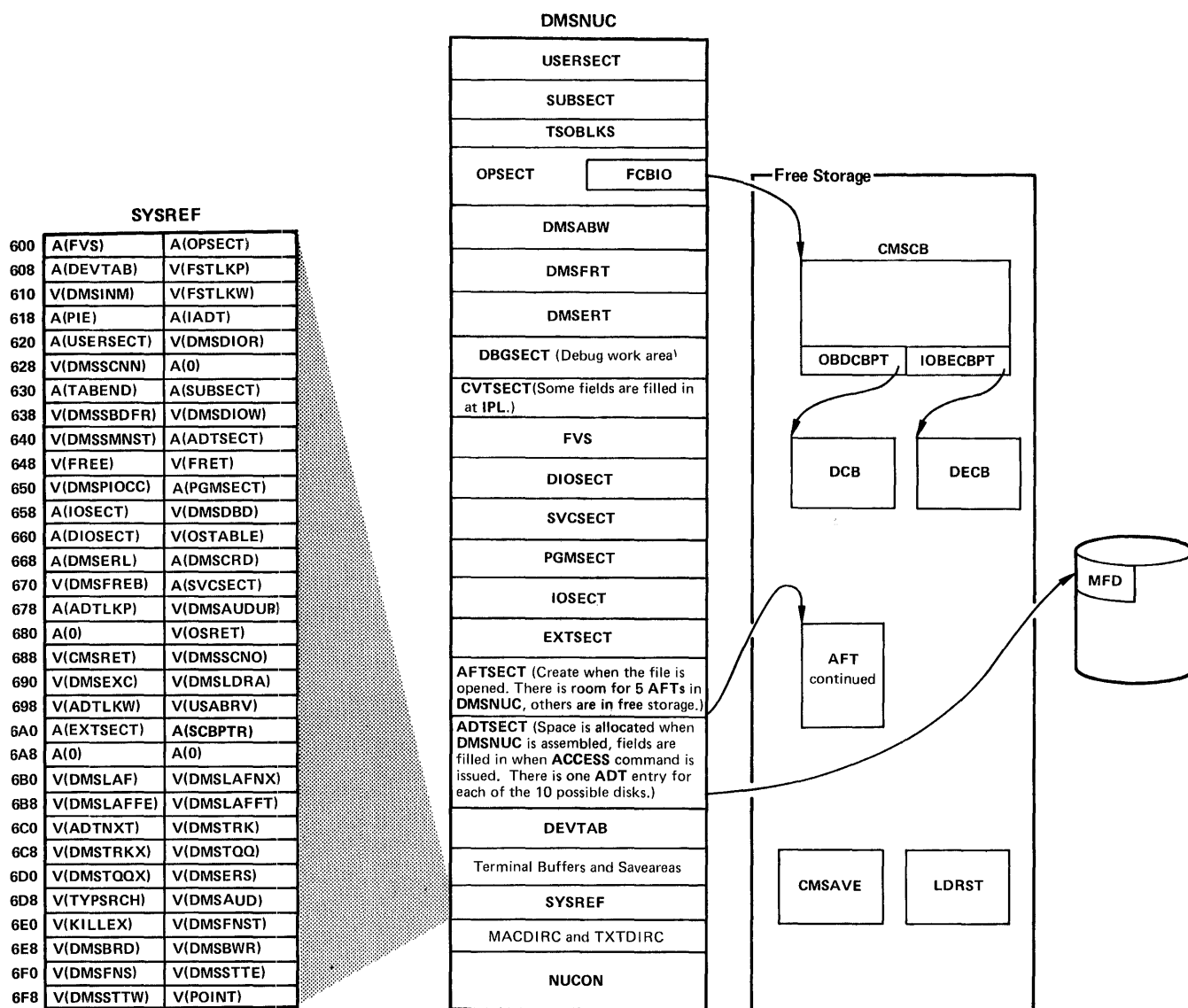


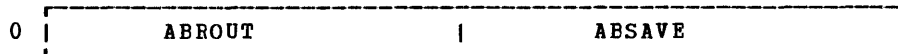
Figure 2. CMS Control Block Relationships

**ABTAB**

**ABTAB: ABEND TERMINATION OPTION TABLE**

ABTAB contains one 8-byte entry for the background partition. Bytes 0-3 contain the address of the entry point of the user's abnormal termination routine. Bytes 4-7 contain the address of a 72-byte save area used by the supervisor to store the interrupt status information and the contents of the general registers.

The IJBABTAB field (hex 54) in the SYSCOM block points to the ABTAB block.



<u>Hexadecimal Displacement</u>	<u>Field Name</u>			<u>Field Description, Contents, Meaning</u>
	ABTAB	EQU	*-8	ABEND option table
0	ABROUT	DC	F'0'	Address of user termination routine
4	ABSAVE	DC	F'0'	Address of supervisor save area



**ADTSECT**

**ADTSECT: ACTIVE DISK TABLE**

ADTSECT describes the attributes of virtual disks (A-Y) accessed by a virtual machine via the ACCESS command. Space is allocated for the ADT when DMSNUC is assembled. In the ADT, certain fields are defined for use by both CMS and OS. For example, field ADTHBCT at displacement 1C (hexadecimal) into ADTSECT is also defined as OSADTVTA for use by OS simulation routines. ADTSECT is invoked by the ADT macro.

0	ADTID		A*1		A*2
8	ADTPTR		ADTDTA		
10	ADTFDA		ADTMFDN		
18	ADTMFDA		ADTHBCT		
20	ADTFSTC		ADTCHBA		
28	ADTCFST		ADT1ST		
30	ADTNUM		ADTUSED		
38	ADTLEFT		ADTLAST		
40	ADTCYL		A*3		A*4   A*5   A*6
48	ADTMSK		ADTQOM		
50	ADTPQM1		ADTPQM2		
58	ADTPQM3		ADTLHBA		
60	ADTLFST		ADTNACW		ADTRES
68	ADTXNREC		ADTXAREC		

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
<u>Needed for Read-Only Disks and Read/Write Disks</u>					
0	ADTID	DS	CL6		Disk identifier (label)
6	ADTFLG3	DS	1X	A*1	Third flag byte
<u>Bits defined in ADTFLG3</u>					
	ADTFUPD1	EQU	X'80'		First half of DMSAUD has been called
	ADTFXCHN	EQU	X'40'		Extra chain link(s) to be returned
	ADTFRWOS	EQU	X'20'		Read/write OS or DOS disk
	ADTFSORT	EQU	X'10'		All FST hyperblocks and FST entries sorted
	ADTFORCE	EQU	X'08'		
7	ADTFTYP	DS	1X	A*2	Filetype flag byte
8	ADTPTR	DS	1A		Pointer to next ADT block in chain
	ADTDTA	DS	1A		Device table address in NUCON
10	ADTFDA	DS	1A		File directory (SSTAT) address
14	ADTMFDN	DS	1F		Number doublewords in MFD
18	ADTMFDA	DS	1A		Master file directory address
1C	OSADTVTA	DS	0F		VTOC address of OS pack
1C	ADTHBCT	DS	1F		FST hyperblock count
20	ADTFSTC	DS	1F		Number of FST 40-byte entries (files)
24	OSADTFST	DS	0F		Address of first OS FST
24	ADTCHBA	DS	1A		Pointer to current FST hyperblock
28	OSADTVTB	DS	0F		Upper VTOC address of OS pack
28	ADTCFST	DS	1F		Displacement of current FST entry
2C	ADT1ST	DS	1F		Displacement of first word in bit-mask with 'hole'
30	OSADTDSK	DS	0F		OS disk address (cuu)
30	ADTNUM	DS	1F		Number of records (NUMTRKS)
34	OSADTSV1	DS	0F		Save area
34	ADTUSED	DS	1F		Number of records in use (QTUSEDP)
38	ADTLEFT	DS	1F		Number of records left (QTLEFTP)
3C	ADTLAST	DS	1F		Displacement of last nonzero byte in bit-mask
40	ADTCYL	DS	1F		Number of cylinders on disk (NUMCYLP)
44	ADTM	DS	1C	A*3	Mode letter (A,B,C,...,S,Y, etc.)
45	ADTMX	DS	1C	A*4	Extension-of-mode letter (A,B,C, etc.)
46	ADTFLG1	DS	1X	A*5	First flag byte
<u>Bits defined in ADTFLG1</u>					
	ADTFSP	EQU	X'80'		ADT block in free storage
	ADTFRO	EQU	X'40'		CMS read-only disk (attached and ready)
	ADTFRW	EQU	X'20'		CMS Read/write disk (attached and ready)
	ADTFSTF	EQU	X'10'		First FST hyperblock is in free storage
	ADTFSTV	EQU	X'08'		FST hyperblocks are of varying length
	ADTFQQF	EQU	X'04'		200-byte QQMSK is in free storage
	ADTROX	EQU	X'02'		This disk has read-only extension(s)
	ADTFMIN	EQU	X'01'		ADT Block is minimum size
47	AFTFLG2	DS	1X	A*6	Second flag byte
<u>Bits defined in ADTFLG2</u>					
	ADTFMFD	EQU	X'80'		MFD is in storage
	ADTFALNM	EQU	X'40'		All filenames are in storage
	ADTFALTY	EQU	X'20'		All filetypes are in storage
	ADTFMDRO	EQU	X'10'		Modes 1-5 are in storage
	ADTFALMD	EQU	ADTFMDRO+X'08'		All modes (0-5) are in storage
	ADTFALUF	EQU	ADTFMFD+ADTFALNM+ADTFALTY+ADTFALMD		All UFD is in storage
	ADTSSTM	EQU	X'02'		ADT SSTAT chain modified
	ADTFROS	EQU	X'04'		Indicates this is an OS disk
	ADTFDOS	EQU	X'01'		Indicates this is a DOS disk
48	ADT2ND	DS	0D		

ADTSECT

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
<u>Needed for Read/Write Disks</u>				
48	ADTMSK	DS	1A	800-byte (QMSK) bit-mask address
4C	ADTQQM	DS	1A	200-byte (QQMSK) bit-mask address
50	ADTPQM1	DS	1F	PQMSIZ = number of bytes in QMSK > 215
54	ADTPQM2	DS	1F	PQMNUM = number of 800-byte records for QMSK
58	ADTPQM3	DS	1F	RONUM = number of doublewords in QMSK
5C	ADTLHBA	DS	1A	Pointer to last FST hyperblock
60	ADTLFST	DS	1F	Displacement of FST in last hyperblock
64	ADTNACW	DS	1H	Number of active write files - halfword
66	ADTRES	DS	1H	Reserve count (RESRVCNT) - halfword
68	ADTXNREC	DS	1F	Number doublewords of extra chain link records
6C	ADTXAREC	DS	1F	Address of block of extra chain link records
	ADTLBM	EQU	ADT2ND-ADTSECT	Length of minimum ADT block (bytes)
	ADTLDM	EQU	ADTLBM/8	Length of minimum ADT block in doublewords
	ADTLB	EQU	*-ADTSECT	Length of full ADT block (bytes)
	ADTLD	EQU	(ADTLB+7)/8	Length of full ADT block in doublewords
<u>Other Parameters</u>				
	ADTRL	EQU	800	Logical record length
	ADTMXBML	EQU	10	Maximum bit map length (number of records) for 3330
<u>NUCON Device Table Offsets</u>				
	DTAD	EQU	0	Device number
	DTADT	EQU	3	Device type byte
	DTAS	EQU	4	Symbolic device name

AFTSECT: ACTIVE FILE TABLE

AFTSECT is used to describe a file currently open for a read or write. The AFT is created when a file is opened. Space for up to five AFTs is available in DMSNUC; any others must reside in free storage. AFTSECT is invoked via the AFT macro.

0	AFTCLD	AFTCLN	AFTCLA
8	AFTDBD	AFTDEN	AFTDBA
10	AFTCLB		
60	A*1	AFTPFST	AFTIN   AFTID
68	AFTFCLA		AFTFCLX   AFTCLDX
70	A*2	AFTOCLDX	
78	AFTN		
80	AFTT		
88	AFTD	AFTWP	AFTRP
90	AFTM	AFTIC	AFTFCL   A*3   A*4
98	AFTIL		AFTDBC   AFTYR
A0	AFTADT		AFTPTR

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	AFTCLD DS H	Disk address of current chain link		
2	AFTCLN DS H	Number of current chain link		
4	AFTCLA DS F	Address of chain link buffer		
8	AFTDBD DS H	Disk address of current data block		
A	AFTDBN DS H	Number of current data block		
C	AFTDBA DS F	Address of current data block		
10	AFTCLB DS XL80	Chain link buffer from 1st chain link		
60	AFTFLG DS X	A*1	Flag byte	
<u>Bits defined in AFTFLG</u>				
	AFTUSED EQU X'80'	Active file table block in use		
	*** EQU X'40'			
	AFTICF EQU X'20'	First chain link in storage		
	AFTFBA EQU X'10'	Full buffer assigned		
	AFTDBF EQU X'08'	Data block in storage		
	AFTWRT EQU X'04'	Active write		
	AFTRD EQU X'02'	Active read		
	AFTFULD EQU X'01'	Full disk special case		

AFTSECT

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
61	AFTPFST	DS	3X	Pointer to (static) FST entry
64	AFTIN	DS	H	Current item number
66	AFTID	DS	H	Displacement of current item in data block
68	AFTFCLA	DS	F	Address of first chain link
6C	AFTFCLX	DS	H	Disk address of swapped FCL
6E	AFTCLDX	DS	H	Disk address of swapped chain link
70	AFTFLG2	DS	X	A*2 Second flag byte

Bits defined in AFTFLG2

AFTNEW	EQU	X'80'	New file
AFTOLDCL	EQU	X'40'	Current chain link existed previously
AFTCLX	EQU	X'20'	Alternate chain link assigned/implied

71		DS	1X	Reserved for IBM use
72	AFTOCLDX	DS	1H	Old value (if any) of AFTCLDX

Copy of FST Block Imbedded in AFT Block

78	AFTFST	DS	0D	
78	AFTN	DS	D	Filename
80	AFTT	DS	D	Filetype
88	AFTD	DS	F	Date/time last written
8C	AFTWP	DS	H	Write pointer (item no.)
8E	AFTRP	DS	H	Read pointer (item no.)
90	AFTM	DS	H	Filemode
92	AFTIC	DS	H	Item count
94	AFTFCL	DS	H	First chain link
96	AFTFV	DS	C	A*3 Fixed (F)/variable (V) flag
97	AFTFB	DS	X	A*4 FST flag byte
98	AFTIL	DS	F	(Maximum) item length
9C	AFTDEC	DS	H	800-byte data block count
9E	AFTYR	DS	H	Year
A0	AFTADT	DS	F	Pointer to active disk table
A4	AFTPTR	DS	F	Pointer to next AFT block in chain

Bit defined in AFTPTR

AFTFSF	EQU	X'40'	Indicates in free storage
--------	-----	-------	---------------------------

A8		DS	0D	End of DSECT
	AFTLB	EQU	*-AFTSECT	Length of AFT block in bytes
	AFTLD	EQU	AFTLB/8	Length of AFT block in doublewords
0	AFTSTART	DS	0D	
		ENTRY	AFTSTART	

Active File Table

0		DC	4F'0' -	First AFT block
A4		DC	A(*+4)	
A8		DC	41F'0' -	Second AFT block
14C		DC	A(*+4)	
150		DC	41F'0' -	Third AFT block
1F4		DC	A(*+4)	
1F8		DC	41F'0' -	Fourth AFT block
29C		DC	A(*+4)	
2A0		DC	41F'0' -	Fifth AFT block
344		DC	A(0) -	Addr of next AFT block (in free storage)
348		DC	2F'0' -	Reserved for IBM use



ANCHSECT: ANCHOR TABLE

ANCHSECT defines the DOS/VS anchor table. This DSECT is used by DMSDOS when a CDLOAD (SVC 65) is issued, and the phase is not found in either the CMSVSAM or CMSAMS segment. In this case, the specified phase is loaded either from a CMS DOSLIB or a DOS Core image library, and the name, load point, entry point, and the length in bytes, of the phase are saved in an available slot in the anchor table. ANCHSECT is invoked by the ANCHTAB macro.

0	ANCHENDA	Reserved for IBM use
8	ANCHCBS	ANCHOAL
10	ANCHPHNM	
18	ANCHLDPT	ANCHENTP
20	A*1   ANCHPHLN	

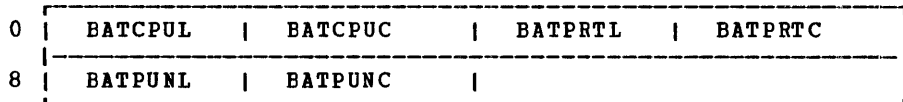
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	ANCHENDA DC	A(0)		End address of anchor table
4		DC	F'0'	Reserved for IBM use
8	ANCHCBS DC	A(0)		Pointer to VSAM AMCB table
C	ANCHOAL DC	A(0)		Pointer to VSAM OAL (OPEN ACB) table
<u>Followed by one or more Anchor Table Entries of the following format:</u>				
10	ANCHPHNM DC	CL8'	'	Phase name
18	ANCHLDPT DC	A(0)		Load point
1C	ANCHENTP DC	A(0)		Entry point
20	ANCHSTSW DC	X'00'	A*1	Status switch
<u>Bits defined in ANCHSTSW</u>				
	ANCHMLOD EQU	X'00'		Phase must be loaded
	ANCHINST EQU	X'7F'		Phase is already in storage
	ANCHRPJL EQU	X'FF'		Requested phase just loaded by another task (only if AP=YES)
	ANCHLENG EQU	20		Length of one anchor table entry
	ANCHSIZ EQU	1024		Default size of anchor table (in bytes)
21	ANCHPHLN DC	AL3(0)		Length of phase in bytes

**BATLSECT**

**BATLSECT: CMS BATCH USER JOB LIMITS**

BATLSECT describes the fields in the user job limits table for CMS batch jobs.

The ABATLIMT field (hex 45C) in NUCON points to the job limits table.

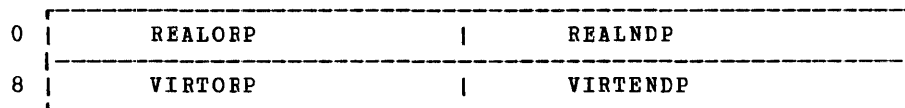


Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	BATCPUL DC H'32767'	Virtual CPU limit (second); can be reset		
2	BATCPUC DC H'0'	Current CPU count; do not reset		
4	BATPRTL DC H'32767'	Number printed lines limit; can be reset		
6	BATPRTC DC H'0'	Current line count; do not reset		
8	BATPUNL DC H'32767'	Number punched cards limit; can be reset		
A	BATPUNC DC H'0'	Current card count; do not reset		

BBOX: BOUNDARY BOX

BBOX contains the begin and end addresses of the virtual and real partitions, respectively.

The IJBBOX field (hex DC) in the SYSCOM block points to the BBOX block.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	REALORP DS XL4	Origin of real partition		
4	REALNDP DS XL4	End of real partition + 1		
8	VIRTORP DS XL4	Origin of virtual partition		
C	VIRTENDP DS XL4	End of virtual partition + 1		

Equates for First Entry in BBOX

ALTS DAR	EQU	REALORP	Address of alternate area
MINREALP	EQU	REALNDP	No. page frames in min. real partition
MPGEPool	EQU	REALNDP+2	No. page frames in main page pool
ORIGVIRT	EQU	VIRTORP	Origin of virtual storage
FINVIRT	EQU	VIRTENDP	End of virtual storage +1

BGCOM

BGCOM: DOV/VS PARTITION COMMUNICATION REGION

BGCOM simulates the DOS/VS Partition Communication Region (BGCOM). The ABGCOM field (hex 4E0) in NUCON points to the BGCOM block.

0	JOBDATE			
8	PPEG	EOSSP		
10				UPSI
18	COMNAME			
20	PPEND		HIPHAS	
28	HIPROG		LABLEN	PIK
30	EOCADR		A*1	A*2   A*3   A*4
38	A*5	A*6   A*7   A*8	DALC	FOCLPT
40	PUBPT	FAVPT	JIBPT	TEBPT
48	FICLPT	NICLPT	LUBPT	A*9
50	MMDD		YYDDD	
58	LIOCSOM	PIBPT	CHKPTID	JOBZON
60	DIBPT	Reserved	PCPTR	ITPTR
68	OCPT	PWTIMS	Reserved	LTK
70	SYSPAR		JAPART	
78	TODCOM		PIB2PTR	PDTABB
80	IJLQTTAD		BGCOMPT	A*10   A*11
88	COMEX		A*12   A*13   A*14	
90		PROCNAM		A*15
98		POVNAM		A*16

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	JOBDATE DC	C'00/00/00' Job date
8	PPBEG DC	S(0) Supervisor end
A	EOSSP DC	S(0) End of storage protection
C	DC	11X'00' User scratch area
17	UPSI DC	X'00' UPSI byte
18	COMNAME DC	CL8'CMS/DOS' Job name
20	PPEND DC	A(0) Highest storage address of partition

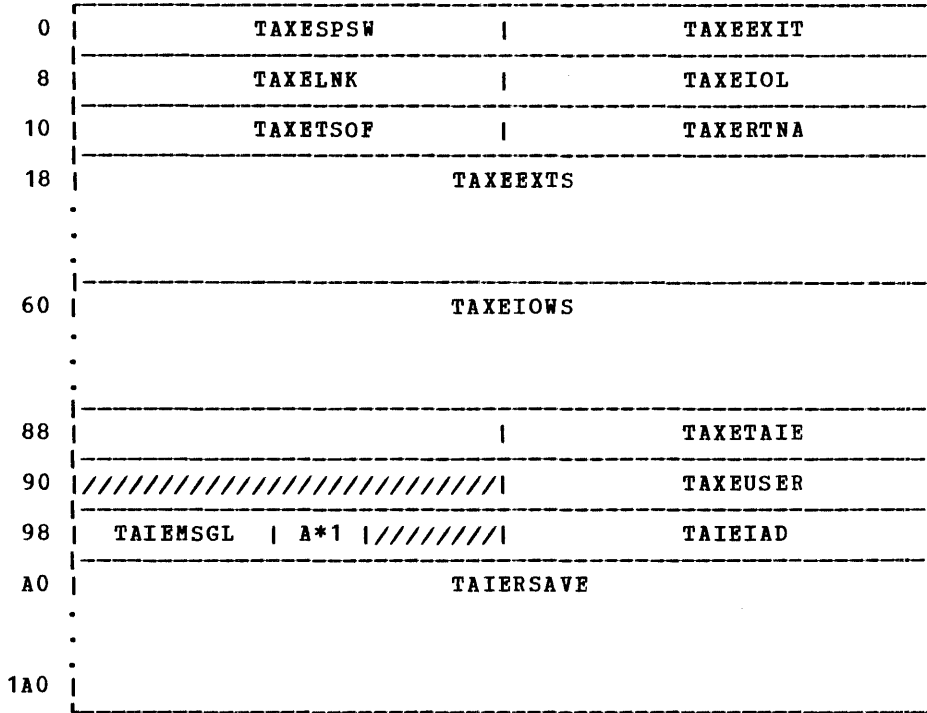
Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
24	HIPHAS	DC	A(0)	End address of last phase loaded
28	HIPROG	DC	A(0)	End address of longest phase loaded
2C	LABLEN	DC	H'0'	Length of problem program label area
2E	PIK	DC	X'0010'	Program interrupt key
30	ECCADR	DC	A(0)	End of virtual storage address
34	CONFIG	DC	B'11101000'A*1	Machine configuration byte
35	LTACT	DC	B'00010000'A*2	System configuration byte
36	SOB1	DC	B'11000100'A*3	Standard language translator options
37	SOB2	DC	B'11011010'A*4	Standard supervisor options
38	JCSW1	DC	B'11010000'A*5	Job control byte
39	JCSW2	DC	B'00000000'A*6	Linkage control byte
3A	JCSW3	DC	B'11000100'A*7	Nonstandard language translator options
3B	JCSW4	DC	B'10000000'A*8	Job duration indicator byte
3C	DALC	DC	H'0'	Disk address of volume label
3E	FOCLPT	DC	S(0)	Address of FOCL
40	PUBPT	DC	S(0)	Address of PUB
42	FAVPT	DC	S(0)	Address of FAVP
44	JIBPT	DC	S(0)	Address of JIB
46	TEBPT	DC	S(0)	Address of TEB
48	FICLPT	DC	S(0)	Address of FICL
4A	NICLPT	DC	S(0)	Address of NICL
4C	LUBPT	DC	S(0)	Address of LUB
4E	SYSLINE	DC	AL1(55) A*9	SYSLST line count
4F	SYSDATE	DS	0CL9	System date
4F	MMDD	DC	XL4'00'	MMDD or DDMM
53	YYDDD	DC	XL5'00'	YYDDD portion of date
58	LIOCSCOM	DC	2X'00'	LIOCS communication bytes
5A	PIBPT	DC	S(0)	Address of PIB
5C	CHKPTID	DC	H'0'	Last checkpoint number
5E	JOBZON	DC	S(0)	Job zone in minutes
60	DIBPT	DC	S(0)	Background DIB pointer
62		DC	H'0'	Reserved for IBM use
64	PCPTR	DC	S(0)	PC option table
66	ITPTR	DC	S(0)	IT option table
68	OCPT	DC	S(0)	OC option table
6A	PWTIMS	DC	X'0000'	Key of program with IT support
6C		DC	H'0'	Reserved for IBM use
6E	LTK	DC	S(0)	Logical transient key
70	SYSPAR	DC	F'0'	Address of SYSPARM
74	JAPART	DC	F'0'	Address of job accounting table
78	TODCOM	DC	A(0)	Address of TOD communications area
7C	PIB2PTR	DC	S(0)	Address of PIB extension
7E	PDTABB	DC	S(0)	Address of MICR DTF table
80	IJLQTTAD	DC	A(0)	Address of QTAM VECTOR table
84	BGCOMPT	DC	S(0)	Address of background COMREG
86	OPTNBYTE	DC	X'00' A*10	Option indicator byte
87	RMSROPEN	DC	B'00000000'A*11	System configuration byte 2
88	COMEX	DC	A(0)	Pointer to SYSCOM option table
8C	STDOPT	DC	B'01000000'A*12	Standard job control option byte
8D	TEMOPT	DC	B'01000000'A*13	Temporary job control option byte
8E	DISKCONF	DC	X'00' A*14	Disk configuration byte
8F	PROCNAM	DC	CL8' '	Procedure name
97	PSWTCH	DC	X'0' A*15	Interface byte for cat. procedure
98	POVNAM	DC	CL7' '	Save area for statement name
9F	INSIZE	DC	X'0' A*16	81-byte SYSIN indicator

CMSTAXE

CMSTAXE: TERMINAL ATTENTION EXIT ELEMENT

CMSTAXE defines the fields used in a Terminal Attention Exit Element (TAXE). The TAXE is used mainly by DMSCIT for processing attention interrupts. CMSTAXE is invoked via the TAXE macro.

The TAXEADDR field (hex 5D4) in NUCON points to CMSTAXE.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	TAXESPSW DS 1F	Left half PSW for ATTN return
4	TAXEEXIT DS A	ATTN exit address
8	TAXESTAT DS 0X	Status of exit return
	TAXEFREQ EQU X'80'	ATTN exit taken
8	TAXELNK DS A	Next TAXE on queue
C	TAXEIOL DS 1F	Left half I/O old PSW
10	TAXETSOF DS 1F	TSOFLAGS saved here
14	TAXERTNA DS A	Return address
18	TAXEEXTS DS 18F	ATTN exit return save area
60	TAXEIOWS DS 11F	DMSIOW save area

Also Attention Exit Parameter List

8C	TAXETAIE DS A	Address of TAIE
90	DS 1F	Reserved
94	TAXEDEF DS 0X	Defer indicator
94	TAXEUSER DS A	User PLIST address

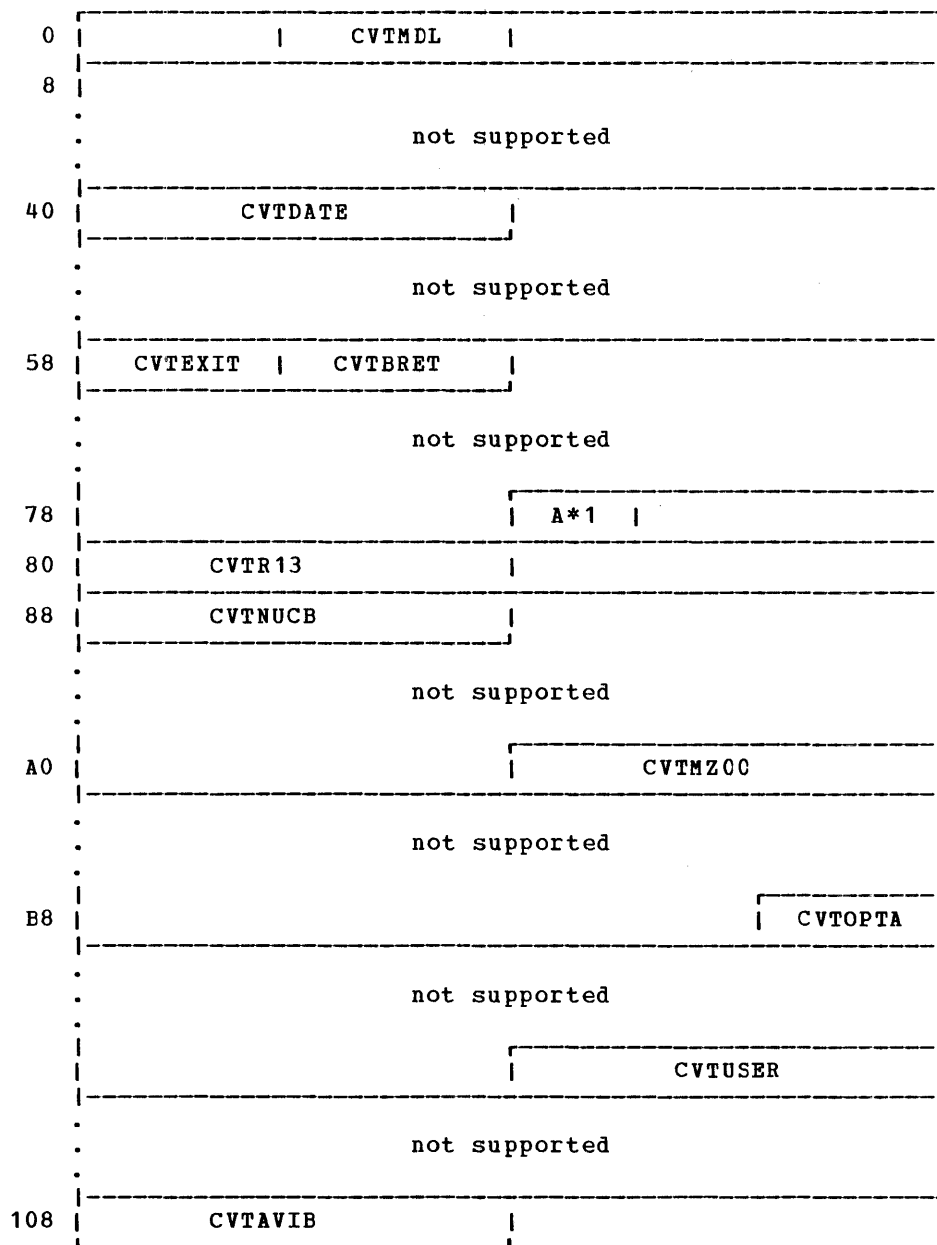
Terminal Attention Interrupt Element (TAIE)

98	TAIEMSGL DS 2X	Reserved for IBM use
9A	TAIETGET DS 1X	Reserved for IBM use
9B	DS 1X	Reserved for IBM use
9C	TAIEIAD DS A	Right half I/O old PSW
A0	TAIERSAV DS 64F	Register 0-15 of interrupted program

CVTSECT: COMMUNICATION VECTOR TABLE AS SUPPORTED BY CMS

CVTSECT simulates the OS Communication Vector Table. CVTSECT is invoked via the CMSCVT macro.

The ACMSCVT field (hex 10) in NUCON points to CMSCVT.



## CVTSECT

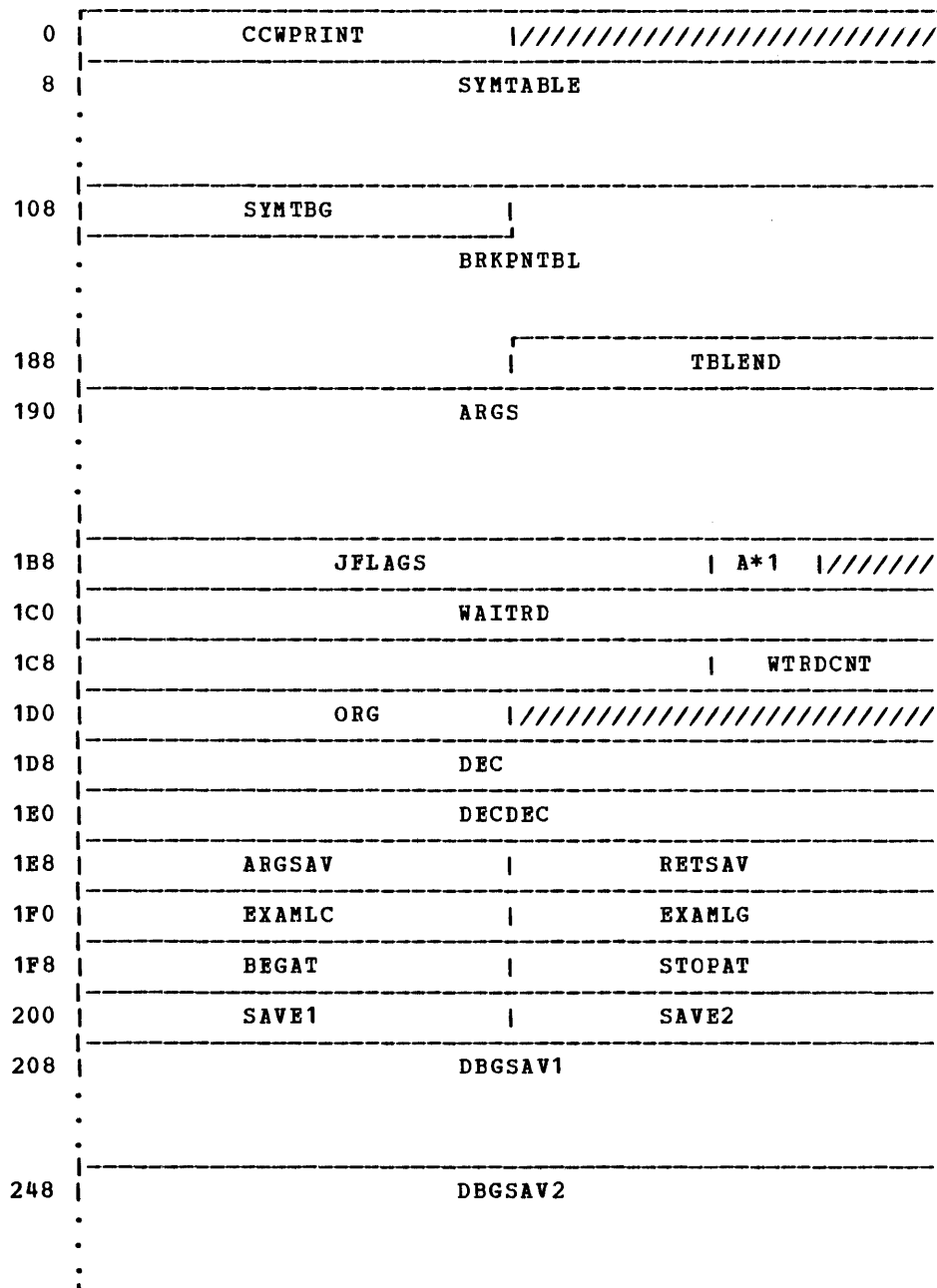
Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
<u>Communication Vector Table as Supported by CMS</u>				
0		DC	H'0'	Reserved for IBM use
2	CVTMDL	DC	H'0'	CPU model ID
4		DC	CL4'C3.0'	CMS release number
8	CMSCVT	DS	0D	CVT start
8		DC	14F'-1'	Not supported
40	CVTDATE	DC	PL4'0'	Current date in packed decimal
44		DC	3F'-1'	Not supported
50		DC	A(0)	Not supported
54		DC	F'-1'	Not supported
58	CVTEXIT	DC	XL2'0A03'	AN SVC 3 instruction (exit)
5A	CVTBRET	DC	XL2'07FE'	A BCR 15,14 instruction
5C		DC	8F'-1'	Not supported
7C	CVTDCB	DC	XL1'40'	A*1 System configuration = PCP
7D		DC	FL3'-1'	Not supported
80	CVTR13	DC	F'0'	R13 saved during 'OPEN'
84		DC	F'-1'	Not supported
88	CVTNUCB	DC	A(0)	Lowest storage address not in nucleus
8C		DC	8F'-1'	Not supported
AC	CVTMZ00	DC	A(0)	Highest storage address in machine
B0		DC	3F'-1'	Not supported
BC		DC	XL2'00'	Not supported
BE	CVTOPTA	DC	XL2'00'	Bit 7: extended precision floating point hardware
C0		DC	2F'-1'	Not supported
C8		DC	3A(0)	Not supported
D4	CVTUSER	DC	F'0'	Field available to user
D8		DC	12F'-1'	Not supported
108	CVTAVIB	DC	V(DMSVIB)	Address of VSAM interface bootstrap



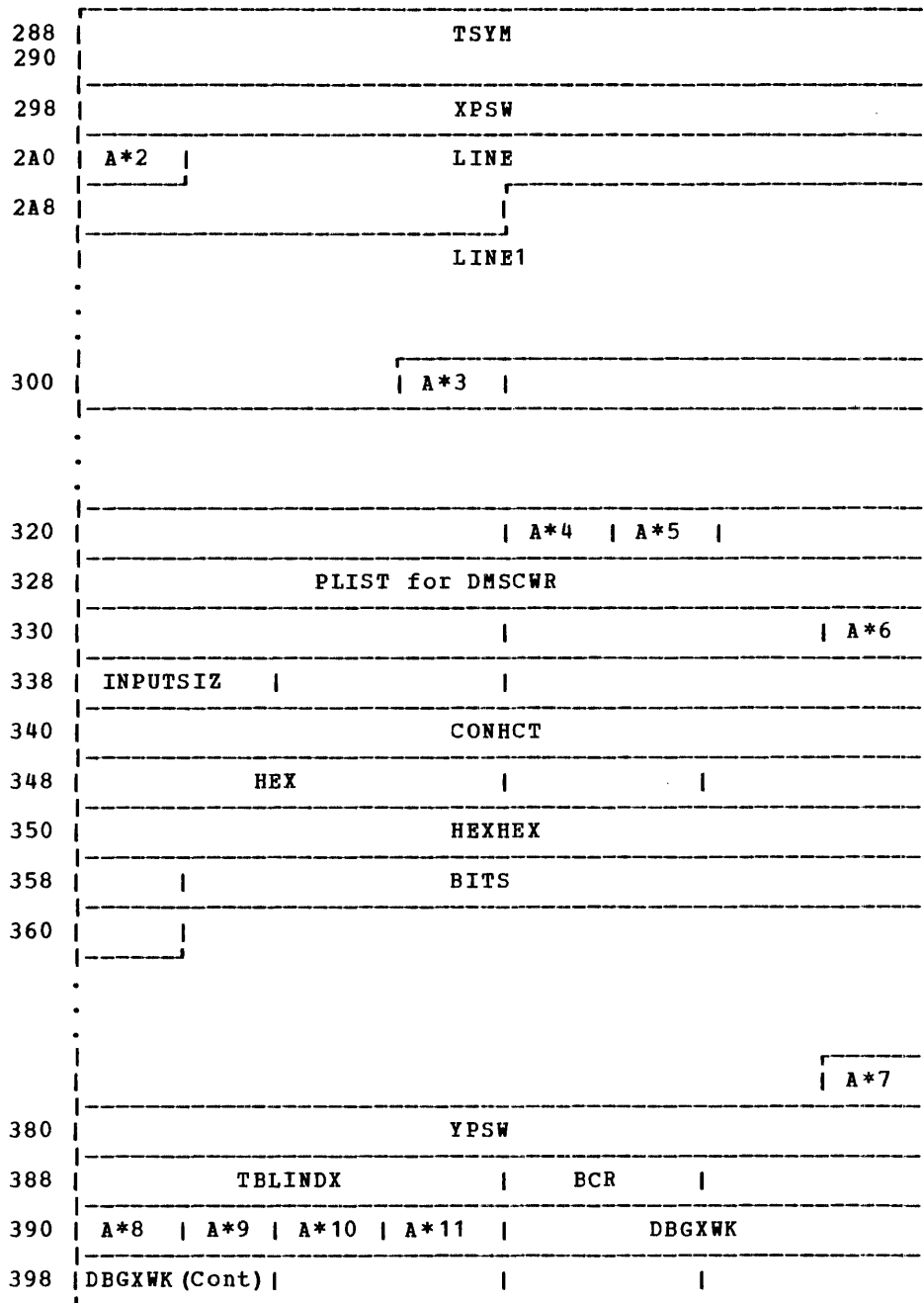
DBGSECT: DEBUG WORK AREA

DBGSECT contains the files used by DEBUG for saving registers, breakpoints, PSWs, and other data.

V-constants in DMSDBD, DMSDBG, and DMSITE point to the DEBUG work area.



DBGSECT



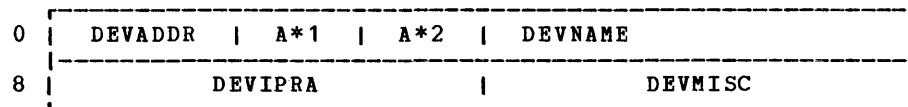
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	CCWPRINT	ENTRY	DBGSECT	Printer CCW for DEBDUMP
8	SYMTABLE	DS	32D	User-defined symbol table
108	SYMTBG	DC	F'0'	Symbol table entries
10C	BRKPTBL	DC	16F'0,-1'	Breakpoint table
18C	TBLEND	DC	A (TBLEND)	End address of breakpoint table
<u>Storage and Constants for NEWLIN and Control</u>				
190	ARGS	DS	0D	Arguments stored here
190	MVCNT1	EQU	*-ARGS	Number of bytes in args
	MVCNT	EQU	MVCNT1-8	Needed for set GPR command
	ARGMAX	EQU	*	End of argument area
1B8	JFLAGS	DS	6X	Flags corresponding to ARGS
<u>One Flag for Each Parameter</u>				
				00 = Numeric (0 - 9)
				F0 = Hex (A - F, 0 - 9)
				FF = Alphabetic (A - F)
1BE	ARGSCT	DS	1X	A*1 Number of arguments in command line
	MVCNT2	EQU	*-ARGS	For initializing to zero
1C0	WAITRD	DS	0D	Parameter list to get input line
1C0		DC	CL8'WAITRD'	A(input buffer)
1C8		DC	A (INPUT)	Clean up and logical carriage return
1CC		DC	C'U'	X'00'
1CD		DC	X'00'	Byte count filled in here
1CE	WTRDCNT	DC	H'0'	Origin of routine being examined
1D0	ORG	DC	F'0'	
<u>The Following Variables Are Used by DEBUG and DEBDUMP</u>				
1D8	DEC	DS	1D	Binary word
1E0	DECDEC	DS	1D	Decimal word
1E8	ARGSAV	DS	1F	Storage for argument location
1EC	RETSAV	DS	1F	Storage for return address
1F0	EXAMLC	DS	1F	First location to be examined
1F4	EXAMLG	DS	1F	Length of field to be examined
1F8	BEGAT	DS	1F	Beginning parameter being processed
1FC	STOPAT	DS	1F	Last parameter location
	LASTLINE	EQU	DECDEC	32 bytes for last line dumped
200	SAVE1	DS	1F	DEBDUMP uses for line count
204	SAVE2	DS	1F	
208	DBGSAV1	DS	16F	DEBUG BALR call save
248	DBGSAV2	DS	16F	Save area for CONWAIT/CONREAD
288	TSYM	DS	4F	Symbol entry

DBGSECT

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
298	XPSW	DS	1D		Execution PSW
2A0	OUTPT1	DC	1C'	A*2	Byte count
2A1	LINE	DC	CL11'		I/O buffer
2AC	LINE1	DC	87X'40'		Filler bytes
303	LINE1B	DC	C''	A*3	Filler bytes
304	LINE1A	DC	32X'40'		Filler bytes
324	LINE1C	DC	C''	A*4	Filler bytes
325	LINE1D	DC	X'40'	A*5	Filler bytes
	DBGOUT	EQU	LINE		Output buffer
	INPUT	EQU	LINE		Input buffer
	INPUT1	EQU	LINE+60		Hex pack area
328	CONWR	DS	0D		PLIST for DMSCWR to type output line
328		DC	CL8'TYPLIN'		PLIST continued
330		DC	AL1(1),AL3(DBGOUT)		PLIST continued
334		DC	CL1'B',AL2(0)		PLIST continued
337	CONWRL	DC	AL1(0)	A*6	PLIST continued
338	INPUTSIZ	DS	1H		Size of typed-in input line
33C		DC	F'0'		
340	CONHCT	DC	X'FAFBFCFDFF0000'		Translate table
348	HEX	DS	1F		Binary word
34C		DC	X'FFFFFFFF'		Fence
350	HEXHEX	DS	2F		Printer graphic word
358		DC	X'FF'		Extra translate byte
359	BITS	DC	X'COCOCOCOCOCOC0'		Scratch word
361		ORG	*+14		Translate table
36F		DC	C'0123456789'		Translate table
379		DC	C'ABCDEF'		Translate table
	CONHXT	EQU	CONHCT-C'A'		
37F	DBGSWTCH	DC	X'00'	A*7	Internal DEBUG status flags
	<u>Bits defined in DBGSWTCH</u>				
		EQU	X'80'		Reserved for IBM use
		EQU	X'40'		Reserved for IBM use
	DBDEXIT	EQU	X'20'		Signals exit from DEBDUMP
	DBDDMSG	EQU	X'10'		Signals duplicate msg in DEBDUMP
	DBGSET	EQU	X'08'		Signals SET command
	DBGPERM	EQU	X'04'		Reserved for IBM use
	DBGCOND	EQU	X'02'		Reserved for IBM use
	<u>The Following are Reserved for IBM Use</u>				
380	YPSW	DS	D		PSW containing NSI
388	TBLINDX	DS	F		Current BRKPT table index
38C	BCR	NOPR	0		NOPR to pad DBGXWK when needed
38E		NOPR	0		Additional NOPR (if needed)
390	ILC	DS	1C	A*8	ILC of instruction in DBGXWK
391	ILC11	DC	X'06'	A*9	3 halfword instructions (6 bytes)
392	ILC0110	DC	X'04'	A*10	2 halfword instructions (4 bytes)
393	ILC00	DC	X'02'	A*11	1 halfword instructions (2 bytes)
	BAL	EQU	X'45'		BAL op code
	BALR	EQU	X'05'		BALR op code
394	DBGXWK	DS	3H		Recreate instruction at BRKPT addr
39A		LPSW	48		Give control to NSI

DEVSECT: DEVICE TABLE DSECT

DEVSECT describes the device information required for input/output routines. DEVSECT is a DSECT corresponding to the data in a DEVTAB entry.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	DEVADDR	DS	1H		Virtual device address
2	DEVFLAG	DS	1X	A*1	Device flags
3	DEVTYPE	DS	1X	A*2	Device type
4	DEVNAME	DS	1F		Symbolic device name
8	DEVIPRA	DS	1F		Interrupt processing routine address
C	DEVMISC	DS	1F		Miscellaneous - device dependent
	DEVSIZE	EQU	*-DEVSECT		Device table size (in bytes)

DEVTAB

DEVTAB: DEVICE TABLE

DEVTAB contains the entries for the various devices handled by CMS (disks, tapes, reader, punch, printer, and console).

The device table is pointed to by V-constants in DMSIOW and DMSITI, and is also referenced indirectly by the ADEVTAB field (hex 608) in NUCON.

0	CONSOLE	A0	ZDISK
8		A8	
10	ADISK	B0	READER1
18		B8	
20	BDISK	C0	PUNCH1
28		C8	
30	CDISK	D0	PRINTER1
38		E0	READER2
40	DDISK	E8	
48		F0	PUNCH2
50	EDISK	F8	
58		100	PRINTER2
60	FDISK	108	
68		110	TAPE1
70	GDISK	118	
78		120	TAPE2
80	SDISK	128	
88		130	TAPE4
90	YDISK	138	
98		140	DUMMY
		148	

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	CONSOLE	DS	0D	Device table entry for console
0		DC	XL2'009'	
2		DC	XL2'0'	
4		DC	CL4'CON1'	
8		DC	VL4(CONSI)	
C		DC	XL4'0'	
10	ADISK	DS	0D	Device table entry for A-disk
10		DC	XL2'191'	
12		DC	XL2'0'	
14		DC	CL4'DSK1'	
18		DC	AL4(0)	
1C		DC	XL4'0'	
20	BDISK	DS	0D	Device table entry for B-disk
20		DC	XL2'000'	
22		DC	XL2'0'	
24		DC	CL4'DSK2'	
28		DC	AL4(0)	
2C		DC	XL4'0'	
30	CDISK	DS	0D	Device table entry for C-disk
30		DC	XL2'000'	
32		DC	XL2'0'	
34		DC	CL4'DSK3'	
38		DC	AL4(0)	
3C		DC	XL4'0'	
40	DDISK	DS	0D	Device table entry for D-disk
40		DC	XL2'192'	
42		DC	XL2'0'	
44		DC	CL4'DSK4'	
48		DC	AL4(0)	
4C		DC	XL4'0'	
50	EDISK	DS	0D	Device table entry for E-disk
50		DC	XL2'000'	
52		DC	XL2'0'	
54		DC	CL4'DSK5'	
58		DC	AL4(0)	
5C		DC	XL4'0'	
60	FDISK	DS	0D	Device table entry for F-disk
60		DC	XL2'000'	
62		DC	XL2'0'	
64		DC	CL4'DSK6'	
68		DC	AL4(0)	
6C		DC	XL4'0'	
70	GDISK	DS	0D	Device table entry for G-disk
70		DC	XL2'000'	
72		DC	XL2'0'	
74		DC	CL4'DSK7'	
78		DC	AL4(0)	
7C		DC	XL4'0'	
80	SDISK	DS	0D	Device table entry for S-disk
80		DC	XL2'190'	
82		DC	XL2'0'	
84		DC	CL4'DSK8'	
88		DC	AL4(0)	
8C		DC	XL4'0'	

DEV TAB

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
90	YDISK	DS	0D	Device table entry for Y-disk
90		DC	XL2'19E'	
92		DC	XL2'0'	
94		DC	CL4'DSK9'	
98		DC	AL4(0)	
9C		DC	XL4'0'	
A0	ZDISK	DS	0D	Device table entry for Z-disk
A0		DC	XL2'000'	
A2		DC	XL2'0'	
A4		DC	CL4'DSK0'	
A8		DC	AL4(0)	
AC		DC	XL4'0'	
B0	READER1	DS	0D	Device table entry for READER1
B0		DC	XL2'00C'	
B2		DC	XL2'0'	
B4		DC	CL4'RDR1'	
B8		DC	AL4(0)	
BC		DC	XL4'0'	
C0	PUNCH1	DS	0D	Device table entry for PUNCH1
C0		DC	XL2'00D'	
C2		DC	XL2'0'	
C4		DC	CL4'PCH1'	
C8		DC	AL4(0)	
CC		DC	XL4'0'	
D0	PRINTER1	DS	0D	Device table entry for PRINTER1
D0		DC	XL2'00E'	
D2		DC	XL2'0'	
D4		DC	CL4'PRN1'	
D8		DC	AL4(0)	
DC		DC	XL4'0'	
E0	READER2	DS	0D	Device table entry for READER2
E0		DC	XL2'012'	
E2		DC	XL2'0'	
E4		DC	CL4'RDR2'	
E8		DC	AL4(0)	
EC		DC	XL4'0'	
F0	PUNCH2	DS	0D	Device table entry for PUNCH2
F0		DC	XL2'013'	
F2		DC	XL2'0'	
F4		DC	CL4'PCH2'	
F8		DC	AL4(0)	
FC		DC	XL4'0'	
100	PRINTER2	DS	0D	Device table entry for PRINTER2
100		DC	XL2'010'	
102		DC	XL2'0'	
104		DC	CL4'PRN2'	
108		DC	AL4(0)	
10C		DC	XL4'0'	
110	TAPE1	DS	0D	Device table entry for TAPE1
110		DC	XL2'181'	
112		DC	XL2'0'	
114		DC	CL4'TAP1'	
118		DC	AL4(0)	
11C		DC	XL4'0'	
120	TAPE2	DS	0D	Device table entry for TAPE2
120		DC	XL2'182'	
122		DC	XL2'0'	
124		DC	CL4'TAP2'	
128		DC	AL4(0)	
12C		DC	XL4'0'	



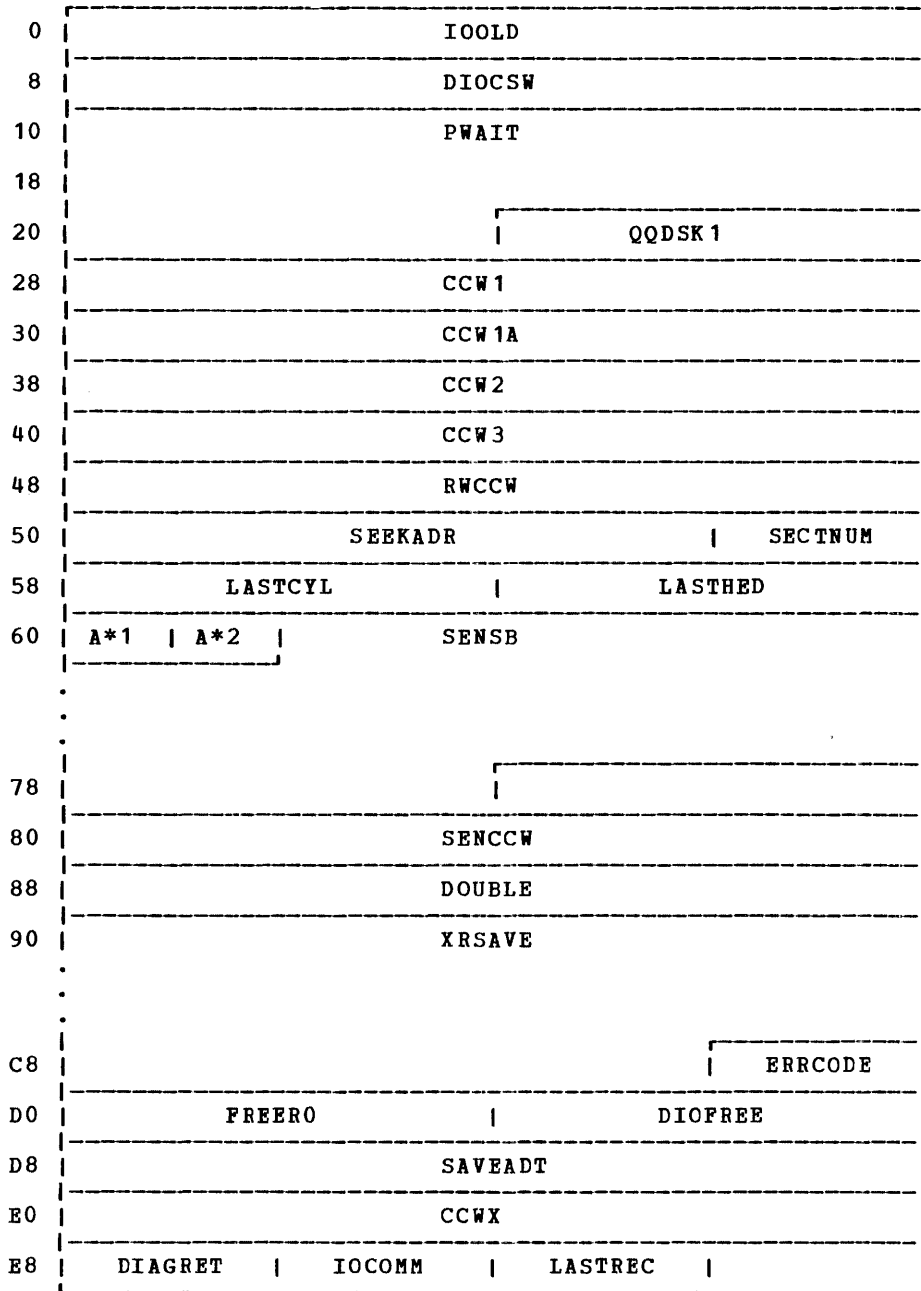
Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
130	TAPE3	DS	0D	Device table entry for TAPE3
130		DC	XL2'183'	
132		DC	XL2'0'	
134		DC	CL4'TAP3'	
138		DC	AL4(0)	
13C		DC	XL4'0'	
140	TAPE4	DS	0D	Device table entry for TAPE4
140		DC	XL2'184'	
142		DC	XL2'0'	
144		DC	CL4'TAP4'	
148		DC	AL4(0)	
14C		DC	XL4'0'	
150	DUMMY	DS	0D	Device table entry for DUMMY
150		DC	XL2'000'	
152		DC	XL2'0'	
154		DC	CL4'XXXX'	
158		DC	AL4(0)	
15C		DC	XL4'0'	
160	TABEND	DS	0D	

DIOSECT

DIOSECT: DISK I/O WORK AREA

DIOSECT describes the fields used by DMSDIO as a work area when reading and writing actual blocks of data on CMS disks.

The Disk I/O Work Area is pointed to by a V-constant in DMSNUC, and referenced indirectly by ADIOSECT (hex 660) in NUCON.



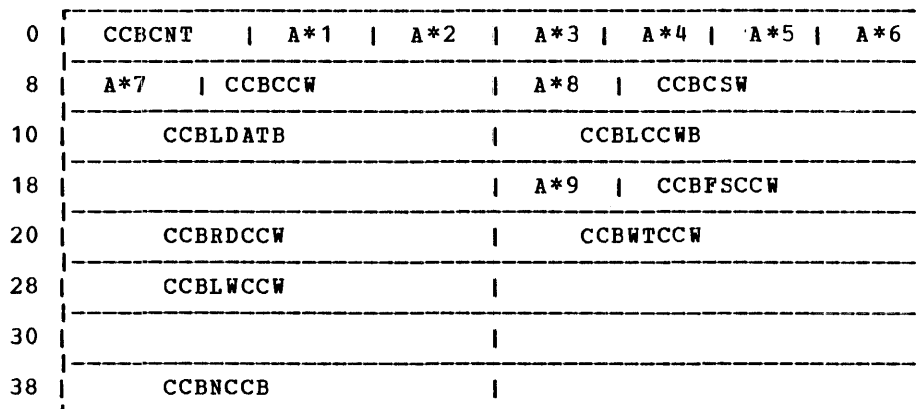
Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	DIOSECT	DSECT		
0	IOOLD	DC	1D'0'	I/O old PSW (from interrupt routine)
8	DIOCSW	DC	1D'0'	CSW (from interrupt routine) PLIST to call DMSIOW
10		DS	0F	
10	PWAIT	DC	CL8'WAIT'	
18		DC	C'DSK-	Filled in to correct symbolic disk no.
1C		DC	F'0'	
20		DC	F'0'	
24	QQDSK1	DC	F'0'	1st two bytes are always 0
	QQDSK2	EQU	QQDSK1+2	Halfword copy of 16th track disk-address
<u>CCW Chain</u>				
28	CCW1	CCW	X'07',SEEKADR,X'40',6	Seek
30	CCW1A	CCW	X'03',0,X'40',1	Seek or set sector
38	CCW2	CCW	X'31',SEEKADR+2,X'40',5	Search
40	CCW3	CCW	X'08',*-8,0,1	TIC back to search
48	RWCCW	CCW	X'00',*-,X'20',*-*	Read or write data
50	SEEKADR	DC	XL7'00'	Seek/search info (1st 3 bytes are 0)
57	SECTNUM	DC	X'00'	Sector number
<u>I/O Information</u>				
58	LASTCYL	DC	F'0'	Becomes last cylinder number used
5C	LASTHED	DC	F'0'	Becomes last head number used
60	DEV TYP	DC	X'00'	A*1 01=2311, 08=2314, 09=3330
61	DIOFLAG	DC	X'00'	A*2 RDTK/WRTK flag:
<u>Bits defined in DIOFLAG</u>				
	TOOBIG	EQU	X'04'	Byte count > 800
	WRTKF	EQU	X'02'	Writing first chain link
	QQTRK	EQU	X'01'	Handling first chain link
	DIAGNUM	EQU	24	Number assigned by CP for DIAGNOSE I/O
62	SENSB	DC	XL24'00'	Sense information
7C		DS	0F	
7C				
80	SENCCW	CCW	X'04',SENSB,X'20',24	READ 24 BYTES SILI
<u>Miscellaneous Storage</u>				
88	DOUBLE	DC	1D'0'	(Scratch area, for CVD use etc.)
<u>Keep the following three in order</u>				
90	XRSABE	DS	15F	Registers 0-14 saved here for RDTK/WRTK
CC		DC	AL3(0)	First 3 bytes of R15 error code
CF	ERRCODE	DC	AL1(*-*)	Error code (in R15 at exit)

DIOSECT

<u>Hexadecimal Displacement</u>	<u>Field Name</u>				<u>Field Description, Contents, Meaning</u>
<u>Keep the following two in order</u>					
D0	FREERO	DC	F'0'		No. doublewords of free storage (if any)
D4	DIOFREE	DC	F'0'		Add. of free storage for buffer or CCW'S
D8	SAVEADT	DC	F'0'		Handy place for an ADT address
DC					
E0	CCWX	CCW	X'23',SECTNUM,X'40',1		Set sector
E8	DIAGRET	DC	X'00'		Cps DIAGNOSE return code if nonzero
E9	IOCOMM	DC	X'00'		Set to read (06) or write (05)
EA	LASTREC	DC	X'00'		Number (1-14) of the last record processed

DMSCCB: COMMAND CONTROL BLOCK

DMSCCB describes all fields of a DOS Command Control Block (CCB). This DSECT is used by DMSXCP to map the CCB specified by a user for an SVC 0 (EXCP).



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
	CCBST	EQU	*		Start CCB
	CCBD	EQU	*		Command control block
0	CCBLEN	DS	0CL16		Map of the DOS CCB
0	CCBCNT	DS	XL2		Residual count
2	CCBERMAP	DS	0XL4		Four bytes used to check errors
2	CCBCOM1	DS	XL1	A*1	Communications byte 1
	<u>Bits defined in CCBCOM1</u>				
	CCBWAIT	EQU	X'80'		Traffic bit(set at CE)
	CCBEOF	EQU	X'40'		End-of-file
	CCBIOERR	EQU	X'20'		Unrecoverable I/O error
	CCBERROK	EQU	X'10'		Accept unrecoverable error
	CCBRDC	EQU	X'08'		Return data checks
	CCBPDE	EQU	X'04'		Post at device end
	CCBDCV	EQU	X'02'		Return data check RD/CHK
	CCBUERR	EQU	X'01'		User error routine
3	CCBCOM2	DS	XL1	A*2	Communications byte 2
	<u>Bits defined in CCBCOM2</u>				
	CCBDCCNT	EQU	X'80'		Data check in count area
	CCBTRKOV	EQU	X'40'		Track overrun
	CCBECC	EQU	X'20'		End of cylinder
	CCBDC	EQU	X'10'		Data check
	CCBNOREC	EQU	X'08'		No record found
	CCBRETRY	EQU	X'04'		Retry no record found
	CCBVER	EQU	X'02'		Verify error
	CCBCC	EQU	X'01'		Command chain (retry)

DMSCCB

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
4	CCBCSW1	DS	XL1	A*3	CSW status bit 1
	<u>Bits defined in CCBCSW1:</u>				
	CCBATTN	EQU	X'80'		Attention
	CCBSTMOD	EQU	X'40'		Status modifier
	CCBCUE	EQU	X'20'		Control unit end
	CCBBUSY	EQU	X'10'		Busy
	CCBCE	EQU	X'08'		Channel end
	CCBDE	EQU	X'04'		Device end
	CCBUC	EQU	X'02'		Unit check
	CCBUE	EQU	X'01'		Unit exception
5	CCBCSW2	DS	XL1	A*4	CSW status bit 2
	<u>Bits defined in CCBCSW2:</u>				
	CCBPCI	EQU	X'80'		Program-controlled interrupt
	CCBILEN	EQU	X'40'		Incorrect length
	CCBPROGM	EQU	X'20'		Program check
	CCBPROT	EQU	X'10'		Protection check
	CCBCHAND	EQU	X'08'		Channel data check
	CCBCHANC	EQU	X'04'		Channel control check
	CCBICTRL	EQU	X'02'		Interface control check
	CCBCHAIN	EQU	X'01'		Chaining check
6	CCBSYMU	DS	0XL2		Symbolic unit (SYSUN)
6	CCBSUCLS	DS	XL1	A*5	U - LUB class
7	CCBSUNUM	DS	XL1	A*6	N - LUB number within class
8	CCBLIOBS	DS	XL1	A*7	Reserved for LIOBS
9	CCBCCW	DS	XL3		Pointer to start of channel program
C	CCBCOM3	DS	XL1	A*8	Communication byte 3
	CCBAPEND	EQU	X'40'		Appendage exit at interrupt
D	CCBCSW	DS	XL3		Pointer to CSW or to appendage routine
10	CCBLDATB	DS	A		Address of last data block
14	CCBLCCWB	DS	A		Address of last CCW block
18		DS	F		Reserved for IBM use
1C	CCBUFLGS	DS	X	A*9	I/O manager CCB flags
	<u>Bits defined in CCBUFLGS:</u>				
	CCBUEAIC	EQU	X'80'		Error analysis in control
	CCBUEAC	EQU	X'40'		Error analysis complete
	CCBURDCW	EQU	X'20'		Read CCW active
	CCBRPS	EQU	X'10'		RPS channel program candidate
1D	CCBFSCCW	DS	XL3		Save area for first CCW address
20	CCBRDCCW	DS	F		Address of first read CCW
24	CCBWTCCW	DS	F		Address of first write CCW
28	CCBLWCCW	DS	F		Address of the last write CCW
2C		DS	3F		Reserved for IBM use
	CCBLWCCW chain field must have same displacement as FCBCHAIN in FCDB and BKPFSTBK in BKPHD.				
38	CCBNCCB	DS	A		Address of next CCB block
3C		DS	F		Reserved for IBM use

DOSSECT: DOS SIMULATION CONTROL BLOCK

DOSSECT simulates the CMS File Control Block (FCB) in the CMS/DOS environment. DOSSECT is invoked by the DOSCB macro.

The DOS Simulation Control Blocks are chained together. The DOSFIRST field (hex 4F0) points to the first DOSCB in the chain or if no chain exists contains zero.

0	DOSNEXT				DOSCBID			
8	DOSDD							
10	DOSOP							
18	DOSDSNAM							
20	DOSDSTYP							
28	DOSDSMD		DOSITEM		DOSBUFF			
30	DOSBYTE				DOSFORM		DOSCOUT	
38	DOSREAD				A*1	A*2	DOSBLKSZ	
40	DOSWORK							
48	A*3	A*4	A*5	A*6	DOSOSFST			
50	DOSOSDSN				DOSVOLTB			
58	DOSEXTTB				DOSSENSE		A*7	A*8
60	DOSBUFSP				DOSUCNAM			
68	DOSUCNAM (cont.)							
	DOSSAVE							
	.							
	.							
80					A*9	A*10		

DOSSECT

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	DOSINIT	DS	0X	DOSCB flag byte
	<u>Bits defined in DOSINIT</u>			
	DOSDDCAT	EQU	X'08'	User catalog data set
	DOSPERM	EQU	X'04'	Permanent control block
	DOSJCAT	EQU	X'02'	Search VSAM job catalog
	DOSUCAT	EQU	X'01'	Search VSAM user catalog
0	DOSNEXT	DS	A	AL3 (next DOSCB)
4	DOSCBID	DS	CL4	DLBL to distinguish from CMSCB
8	DOSDD	DS	CL8	Data definition name
10	DOSOP	DS	CL8	CMS operation
18	DOSTAPID	DS	0X	Tape identification
18	DOSDSNAM	DS	CL8	Data set name
20	DOSDSTYP	DS	CL8	Data set type
28	DOSDSMD	DS	CL2	Data set mode
2A	DOSITEM	DS	H	Item (record) number
2C	DOSBUFF	DS	F	A(input/output buffer)
30	DOSBYTE	DS	F	Size of buffer (data count)
34	DOSFORM	DS	CL2	File format: fixed/variable
36	DOSCOU	DS	H	Records per CMS physical block
38	DOSREAD	DS	F	Number of bytes actually read
3C	DOSDEV	DS	X	A*1 Device type code
	DOSDUM	EQU	0	Dummy device
	DOSDSK	EQU	2	Disk
3D	DOSTAPMD	DS	X	A*2 Tape mode set to save
3E	DOSBLKSZ	DS	H	Block size
40	DOSWORK	DS	D	Work area
48	DOSYSXXX	DS	0H	Logical unit for CMS/DOS
48	DOSSYS	DS	1X	A*3 SYS/PROG unit: X'00'=SYS, X'01'=PROG
49	DOSXXX	DS	1X	A*4 Number from 000-255 assoc with unit
4A	DOSEXT	DS	1X	A*5 Number DOS extents left to process
4B	DOSEXTCT	DS	1X	A*6 Current DOS extent
4C	DOSOSFST	DS	F	Pointer to OS FST
50	DOSOSDSN	DS	F	Pointer to OS dsname block
54	DOSVOLTB	DS	F	A(volume ID table)-VSAM multivolume data set
58	DOSEXTTB	DS	F	A(extent table) for VSAM data space
5C	DOSSENSE	DS	H	I/O sense data
5E	DOSVOLNO	DS	X	A*7 No. volumes (entries in DOSVOLTB)
5F	DOSEXTNO	DS	X	A*8 No. extents (entries in DOSEXTTB)
60	DOSBUFSP	DS	F	Size of VSAM I/O buffer(s)
64	DOSUCNAM	DS	CL8	VSAM user catalog ddname
6C	DOSSAVE	DS	6F	Temp save for re-entrant code
84	DOSEXTCX	DS	1X	Current extent (used by DMSXCP)
85	DOSTYPE	DS	1C	Data set type (SAM=S, VSAM=A)
86		DS	H	Reserved for IBM use
88	DOSEND	DS	0D	End address of this block
	DOSENSIZ	EQU	(* DOSSECT)/8	Size of block in doublewords



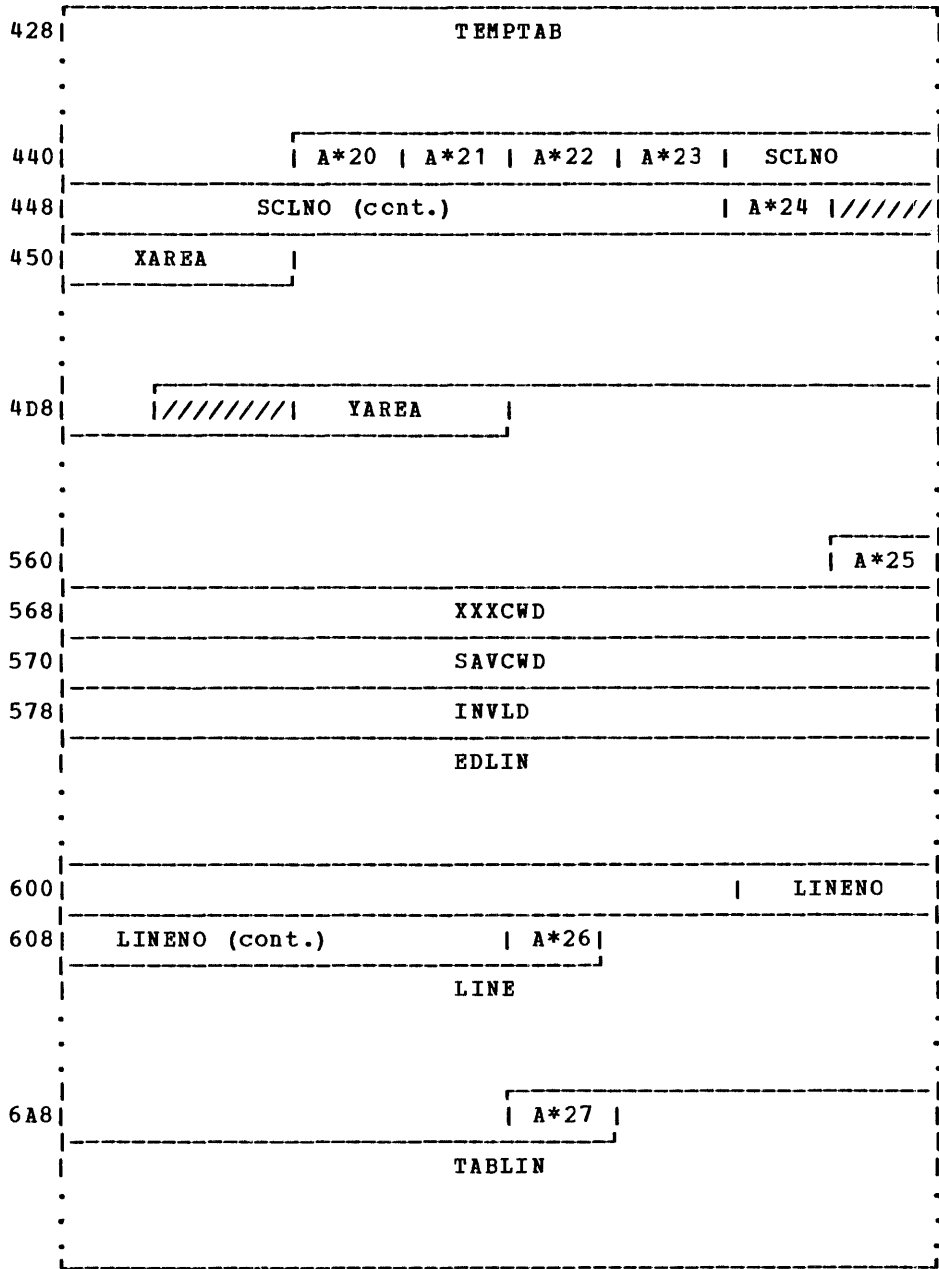
EDCB: EDIT CONTROL BLOCK

EDCB is used by all CMS EDIT modules to define common free storage control blocks. It is initialized by DMSIDX, the EDIT bootstrap routine.

0	FNAME			
8	FTYPE			
10	FMODE	A*1	A*2	TRUNCOL
18	ZONE2	VERCOL1	VERCOL2	VERLEN
20	SCRBUFAD		CARDINCR	
28	LMSTART	LIMINCR	A*3	A*4
.	TABS			
48	SEQNAME	A*5	PADBUF	
50	PADBUF (cont.)			
58	PTR1			
60	PTR2		PTR3	
68	AEXTEND		CORITEM	
70	SPARES		FPTR	
78	ITEM		AFSTFNRD	
80	FREELEN		FREEAD	
88	EDRET		EDMSK	
90	MAINAD			
.	AUTOREG			
.				
C8	CARDNO		COUNT	
D0	LMCURR			
D8	LMTEMP		BUFFL	
E0	BUFFA			
.	CANSAV			
.				
.				

108	DUALNOS	
1F8	DECIMAL	HALF
200	REGSAVE	
210		
218	REGSAVX	
220	REPCNT	
	SAVEAR	
260	XYCNT	CHNGNUM
268	TIN	
270	AEDLIN	A*6
278	TOUT	
280	A*7	
288	IOLIST	
290	IOID	
298		
2A0	IOMODE	IOAD
2A8		RECS
2B0		ALLIST
2B8	ALLIST (cont.)	EDWORK
2C0	EDWORK (cont.)	
2C8		ALTMODE
2D0	ALTMODE (cont.)	
2F0		STACKAT
2F8	STACKAT (cont.)	
300	STACKATL	ATTN

308	ATTN (cont.)			
310	ATTNLEN			RENLIST
318	RENLIST (cont.)			RPLIST
320	RPLIST			
328	STRNO			INCRNO
330	AINCORE			FSIZE
338	DECLTH			
340	RANGE			
348	CANCCW			
350	A*8		A*9   A*10	WRCOUNT
358	BUFFLOC			ALINELOC
360	ANUMLOC			AFLAGLOC
368	AUTOCNT		AUTOCURR   CHNGCNT	DITCNT
370	EDCT		LINELOC   NUMLOC	SAVCNT
378	TVERCOL1		TVERCOL2   A*11   A*12	AREA
380	AREA (cont.)			A*13   A*14
388	CHNGMSG			
390				
398	CMODE			
3A0	FILEMS			
3B8	A*15   A*16   A*17			
	JAR			
408	NEWNAME			
410	NEWTYPE			
418	NEWMODE			SERSAVE
420	SERSAVE (cont.)			SERTSEQ   A*18   A*19



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
		DS	0F	
	BLOC	EQU	*	
0	FNAME	DS	CL8	Filename
8	FTYPE	DS	CL8	Filetype
10	FMODE	DS	CL'	Filemode
12	FV	DS	CL1	A*1 Record format
13	CASESW	DS	CL1	A*2 Case setting
14	TRUNCOL	DS	H	Truncation column
16	ZONE1	DS	H	Initialized to first column
18	ZONE2	DS	H	End zone
1A	VERCOL1	DS	H	Verify column 1
1C	VERCOL2	DS	H	Verify column 2
1E	VERLEN	DS	H	Verify length
20	SCRBUFAD	DS	F	Addr of GETMAIN buffer
24	CARDINCR	DS	F	Increment for serialization
28	LMSTART	DS	H	Where line nums start
2A	LMINCR	DS	H	Auto. line nums default incr.
2C	FLAG	DS	CL1	A*3 Flags for line monitoring
2D	FLAG2	DS	CL1	A*4 Misc. flags
2E	TABS	DS	26A1	Maximum of 25 tabs is allowed
	ENDTABS	EQU	*	End of tabs
48	SEQNAME	DS	CL3	Name, if any, for serialization
4B	PADCHAR	DS	CL1	A*5 '0' on right, ' ' on left
	ENDBLOC	EQU	*	End of BLOCX
<b>Note: PADBUF must remain directly behind PADCHAR</b>				
4C	PADBUF	DS	9C	Pad characters
	PTRCONS	EQU	*	Same as PTRCONS in DMSEDI
58	PTR1	DS	2F	'TOP' pointer (for dummy top line)
60	PTR2	DS	F	Current line pointer
64	PTR3	DS	F	Pointer to bottom line
68	AEXTEND	DS	F	Pointer to end of used area of storage
6C	CORITEM	DS	F	Number of bytes for one line in storage
70	SPARES	DS	F	Number of spare lines
74	FPTR	DS	F	Free-list pointer
78	ITEM	DS	F	Item length
7C	AFSTPNRD	DS	F	Anchor for stacked lines upon entry
80	FREELN	DS	F	Length of free storage
84	FREED	DS	F	Address of free storage
88	EDRET	DS	F	CMS return address
8C	EDMSK	DS	F	DMSSCR edit mask
90	MAINAD	DS	F	LOADSYS adr; 0 if LOADMOD
	EPTRCONS	EQU	*	
94	AUTOREG	DS	13F	Autocheck save area
C8	CARDNO	DS	F	Save area for sequence number
CC	COUNT	DS	F	Number of chars in EDLIN
D0	LMCURR	DS	2F	Prompter current line no.
D8	LMTEMP	DS	F	WRTYPE/LINEMODE save area
DC	BUFFL	DS	F	Length of string (EDC)
E0	BUFFA	DS	F	Address of string (EDC)
E4	CANSAV	DS	9F	Register save (EDC)
108	DUALNOS	DS	CL240	Temp string buffer (EDC)
1F8		DS	0D	
1F8	DECIMAL	DS	F	Used by DECBIN & BINDEC
1FC	HALF	DS	F	BINDEC only edits 4 chars
200	REGSAV	DS	5F	Register save area
214	REGSAVX	DS	3F	Register save area

## EDCB

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
220	REPCNT	DS	F	FOR count
224	SAVEAR	DS	15F	DMSSCR save area
260	XYCNT	DS	F	X or Y execution count
264	CHNGNUM	DS	F	No. of lines to change
268	TIN	DS	0F	WAITRD PLIST
268		DS	CL8	'WAITRD'
270		DS	X	'1' for console no. 1
271	AEDLIN	DS	3X	A(EDLIN)
274	CASEREAD	DS	C	A*6 Default to uppercase
275		DS	3X	Length put here
278	TOUT	DS	0F	PLIST for call to DMSCWR
278		DS	CL8	'TYPLIN'
280		DS	X	'1' for console no. 1
281		DS	3X	Address goes here
284		DS	C	'B' for black ribbon
285	TYPFLG	DS	X	A*7 X'20' max length override
286		DS	H	Length goes here
	CRBIT	EQU	X'80'	Suppress carriage return
288	IOLIST	DS	0F	Initial for STATE of source
288		DS	CL8	STATE
290	IOID	DS	CL8	EDIT
298		DS	CL8	CMSUT1
2A0	IOMODE	DS	CL2	A1
2A2		DS	H	Item number for RDBUF
2A4	IOAD	DS	CL4	'****' Don't allow '*'s
2A8		DS	F	133 (XINSCRIPT use LINE)
2AC		DS	CL2	F/V and null record indicator
2AE	RECS	DS	H	1 (XINSCRIPT 1 line at a time)
2B0		DS	F	Number of bytes read from RDBUF
2B4	ALTLIST	DS	0F	
2B4		DS	CL8	RENAME
2BC	EDWORK	DS	CL8	EDIT
2C4		DS	CL8	CMSUT1
2CC	ALTMODE	DS	CL8	A1
2D4		DS	CL8	New filename
2DC		DS	CL8	New filetype
2E4		DS	CL2	New filemode
2E6		DS	CL6	New filemode
2EC		DS	8X	FF fence
2F4	STACKAT	DS	0F	PLIST to stack FIFO
2F4		DS	CL8	ATTN
2FC		DS	CL4	FIFO
300	STACKATL	DS	F	Length and address of line to stack
304	ATTN	DS	0F	
304		DS	CL8	ATTN
30C		DS	CL4	LIFO
310	ATTNLEN	DS	F	Length and address of line to stack
314	RENLIST	DS	0F	RENUM PLIST
314		DS	CL8	RENUM
31C	RPLIST	DS	CL12	Fileid
328	STRNO	DS	F	Starting number
32C	INCRNO	DS	F	Increment number
330	AINCORE	DS	F	In-storage copy address
334	FSIZE	DS	F	Record length
338	DECLTH	DS	D	DMSSCR work area
340	RANGE	DS	D	Message data areas
348	CANCCW	DS	D	Cancel screen CCW
350	CMDBLOK	DS	X	A*8 X19
351	BUFAD	DS	3X	Buffer address
354	FLG	DS	X	A*9 CCW flag
355	CTL	DS	X	A*10 Control byte

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
356	WRCOUNT	DS	H	Write count
358	GIOPLIST	DS	0F	DMSSCR PLIST for DMSGIO
358	BUFFLOC	DS	F	Buffer location
35C	ALINELOC	DS	F	A(LINELOC)
360	ANUMLOC	DS	F	A(NUMLOC)
364	AFLAGLOC	DS	F	A(FLAGLOC)
368	AUTOCNT	DS	H	Autosave parameter
36A	AUTOCURR	DS	H	Current modification count
36C	CHNGCNT	DS	H	Temp area for change
36E	DITCNT	DS	H	No. lines stacked by ditto
370	EDCT	DS	H	Next char in EDLIN
372	LINELOC	DS	H	Display line number
374	NUMLOC	DS	H	Display count
376	SAVCNT	DS	H	Spot to save count for ditto
	TVERCOL1	DS	H	Temporary area for verify col 1
37A	TVERCOL2	DS	H	Temporary area for verify col 2
37C	ALCHAR1	DS	C	A*11 Temporary byte used by ALTER
37D	ALCHAR2	DS	C	A*12 Temporary byte used by ALTER
37E	AREA	DS	CL8	EDIT instruction work
386	BYTE	DS	X	A*13 Temporary byte (used by GET)
387	CHNGFLAG	DS	X	A*14 Flag for change
388	CHNGMSG	DS	CL20	Lines changed msg
39C	CMODE	DS	CL4	Filemode for MODECHK routine
3A0	FILES	DS	CL26	Retry message
3BA	FLAGLOC	DS	X	A*15 Flag for DMSGIO
3BB	GETFLAG	DS	X	A*16 Flag for GETFILE
3BC	HOLDFLAG	DS	X	A*17 DMSSCR SCRFLGS
3BD	JAR	DS	(ENDELOC-BLOC)	AL1 Save area for preserve
409	NEWNAME	DS	CL8	Name area for FILE & SAVE
411	NEWTYP	DS	CL8	Type area for FILE & SAVE
419	NEWMODE	DS	CL2	Mode area for FILE & SAVE
41B	SERSAV	DS	CL8	Serial no. save area
423	SERTSEQ	DS	CL3	Temporary byte serial area
426	SERTSW	DS	X	A*18 Temporary byte used by serial
427	SIGNAL	DS	X	A*19 Signal between routines
428	TEMPTAB	DS	(ENDTABS-TABS)	AL1 Temporary spot for new tabs
442	UTILFLAG	DS	X	A*20 DMSSCR utility flags
443	XYFLAG	DS	X	A*21 X/Y active flag
444	SCRFLGS	DS	X	A*22 Screen function flags
445	SCRFLG2	DS	X	A*23 More screen function flags
446	SCLNO	DS	8C	Save LINEMODE seq no
44E	TWITCH	DS	X	A*24 Location flags
450	XAREA	DS	H	X length and request buffer
452		DS	CL135	(Same length as EDLIN)
4DA	YAREA	DS	H	Y length and request buffer
4DC		DS	CL135	(Same length as EDLIN)
563				
564		CNOF	6,8	Alignment for XXXCWD
566		DS	X	More alignment
567	BLANK1	DS	X	A*25 Blank for clearing XXXCWD
568	XXXCWD	DS	CL8	EDIT token buffer
570	SAVCWD	DS	CL8	Spot to save XXXCWD
578	INVLD	DS	CL7	?EDIT:
57F	EDLIN	DS	CL135	Terminal input buffer
606	LINENO	DS	CL5	Line no. for typeout
60B	BLANK2	DS	X	A*26 Blank for clearing line
60C	LINE	DS	CL160	Current line is held here
6AC	BLANK3	DS	X	A*27 Blank for clearing TABLIN
6AD	TABLIN	DS	CL160	Output from spread
750	EDCBEND	DS	0D	
	EDCBLTH	EQU	(EDCBEND-EDCB)	Length of EDCB

ERDSECT

ERDSECT: ERROR HANDLING ROUTINE DSECT

ERDSECT describes the fields in a work area used for giving responses and error messages via the DMSERR or LINEDIT macros.

A V-constant in DMSERR points to the DMSERT DSECT.

0	ERT1			
8	ERT2			
10	ERT2 (cont.)			
18	ERSAVE			
.	.			
.	.			
58	ERPAS13			
.	.			
.	.			
A0	A*1	A*2	ERPTXA	ERPHDR
A8	ERPNUM	A*3	ERPCS	////////////////
B0	ERPBFA		ERPSBA	
B8	ERSBD	A*4	A*5	ERSSZ
C0	ERSSZ(cont.)	////////////////		
C8	////////////////			
D0	ERMESS		ERSECT	ERNUM
D8	A*6	A*7		
E0	ERTEXT			
.	.			
.	.			
160	ERTPL			
168	ERTPLA		ERTPLL	



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
<u>Work Area for DMSERR Error Handling Routine</u>					
0	ERT1	DS	D		Doubleword workspace
8	ERT2	DS	2D		Two doublewords workspace
<u>Save Area</u>					
18	ERSAVE	DS	16F		
<u>Reconstructed PLIST Area</u>					
58	ERPAS13	DS	18F		Pass this save area in reg 13
A0	ERPF1	DS	B	A*1	First flag byte
<u>Bits defined in ERPF1</u>					
	ERF1TX	EQU	X'80'		Text address in PLIST
	ERF1HD	EQU	X'40'		Header in PLIST
	ERF1BF	EQU	X'20'		Buffer address in PLIST
	ERF1SB1	EQU	X'10'		One substitution
	ERF1SBN	EQU	X'08'		Multiple substitutions (>1)
A1	ERPF2	DS	B	A*2	Second flag byte
<u>Bits defined in ERPF2</u>					
	ERF2CM	EQU	X'80'		Blank compression wanted
	ERF2DT	EQU	X'40'		Dot at end of line wanted
	ERF2DI	EQU	X'20'		HALT=YES wanted
<u>Last 3 Bits Indicate DISP Field</u>					
	ERF2ER	EQU	0		Errmsg
	ERF2TY	EQU	1		Type
	ERF2SI	EQU	2		SIO
	ERF2NO	EQU	3		None
	ERF2PR	EQU	4		Print
	ERF2CP	EQU	5		CPCOMM
A4	ERPTXA	DS	A		Text address
A8	ERPHDR	DS	0CL6		Error message header
A8	ERPNUM	DS	H		Message number
AA	ERPLET	DS	C	A*3	Message letter
AB	ERPCS	DS	CL3		CSECT name
B0	ERPBFA	DS	A		Buffer address (for BUFFA)
<u>Fields for Substitutions</u>					
B4	ERPSBA	DS	A		Pointer to first (next) group of substitution parameter in original PLIST
B8	ERSBD	DS	A		Data addr/value or current substitution parameter
BC	ERSBF	DS	B	A*4	Flag byte for current substitution parameter
<u>Bits defined in ERSBF</u>					
	ERSFLST	EQU	X'80'		The last substitution parameter
	ERSFA	EQU	X'40'		A-type option
	ERSFL	EQU	X'20'		Length specified

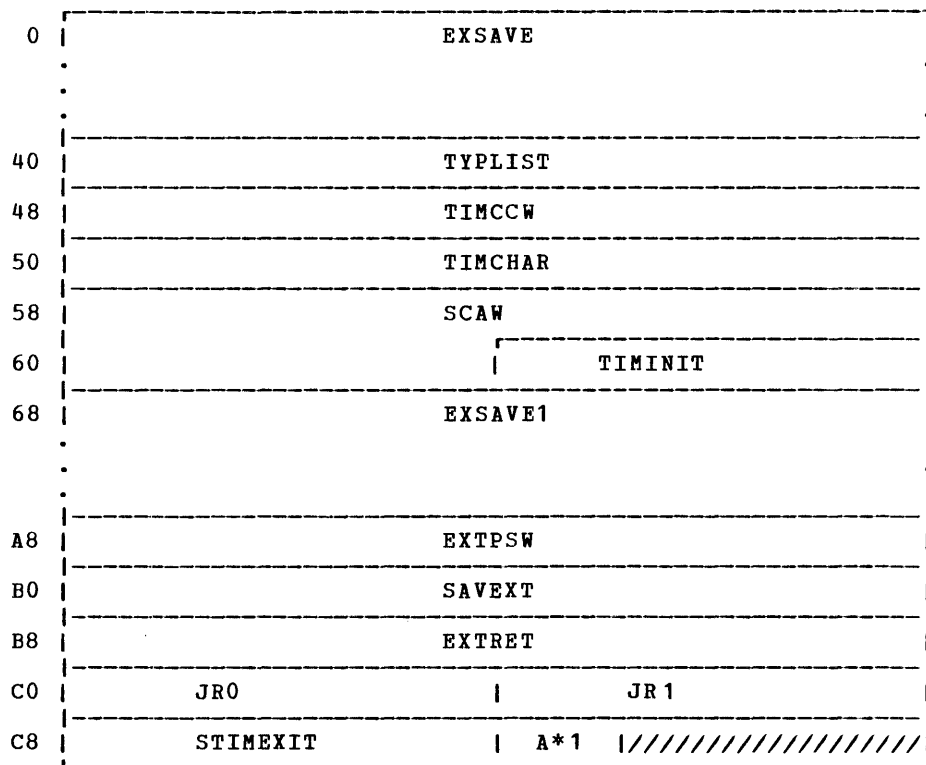
ERDSECT

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
	<u>Last 3 Bits Give Option Type</u>				
	ERSFH	EQU	0		HEX or HEXA
	ERSFD	EQU	1		DEC or DECA
	ERSFC	EQU	2		CHARA
	ERSFH4	EQU	3		HEX4A
	ERSFC8	EQU	4		CHAR8A
BD	ERSBL	DS	X	A*5	Byte length for current substitution parameter
C0	ERSSZ	DS	A		Size of substitution field (# dots - 1)
	<u>Message Construction Area</u>				
C8		DS	D		Need doubleword before text
D0	ERMESS	DC	C'DMS'		First letters of header
D3	ERSECT	DC	C'MMM'		DSECT name
D6	ERNUM	DC	C'NNN'		Message number
D9	ERLET	DC	C'L'	A*6	Message level letter
DA	ERBL	DC	C' '	A*7	Blank
	ERTSIZE	EQU	13		Maximum text size
DB	ERTEXT	DS	(ERTSIZE+1)C		Message text area
	<u>TYPLIN PRINTER PLIST Construction Area</u>				
160		DS	0F		
160	ERTPL	DC	CL8'TYPLIN'		
168	ERTPLA	DS	AL1(1),AL3(ERMESS)		Message text address
16C	ERTPLL	DS	C'R',AL3		Message length

EXTSECT: EXTERNAL INTERRUPT WORK AREA

EXTSECT describes the fields in the External Interrupt work area referenced by DMSITE.

EXTSECT is pointed to by the AEXTSECT field (hex 6A0) in NUCON.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
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Storage for Timer Interrupt

0	EXSAVE	DS	16F	Saved external old PSW
40	TYPLIST	DC	CL8'TYPLIN'	PLIST to type BLIP character
48	TIMCCW	DC	A (TIMCHAR)	
4C		DC	C'B',X'81',AL2(1)	
50	TIMCHAR	DC	X'FF',XL7'00'	BLIP character(s)
58	SCAW	DC	XL12'00'	Saved CSW/CAW
64	TIMINIT	DC	A(2000000/13)	Value to set timer = 2 seconds

Storage for External (Other Than Timer) Interrupt

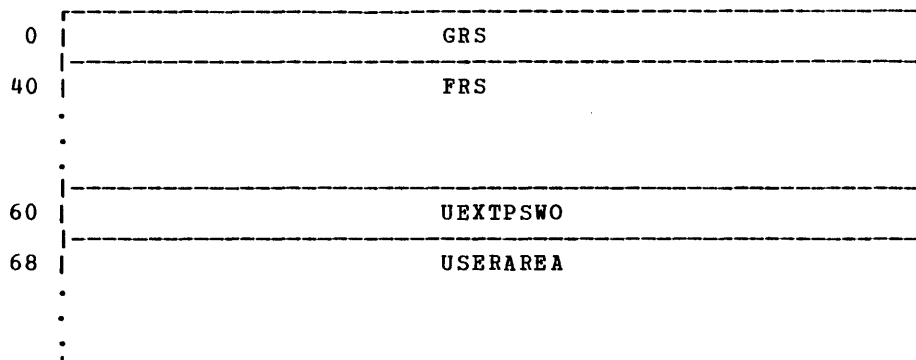
68	EXSAVE1	DS	16F	Saved registers
A8	EXTPSW	DC	X'80000000'	Filled-in PSW
AC		DC	A(0)	
B0	SAVEXT	DC	F'0'	Transfer address for external interrupt
B4		DC	V(DMSDBG)	Address in DEBUG for external interrupt

EXTSECT

<u>Hexadecimal Displacement</u>	<u>Field Name</u>				<u>Field Description, Contents, Meaning</u>
<u>Storage for External Interrupt Set Up By Trap</u>					
B8	EXTRET	DS	D		Saved external old PSW
C0	JR0	DC	F'22'		22 doublewords for floating point registers and user save area
C4	JR1	DC	A(0)		Address of free storage
C8	STIMEXIT	DC	A(0)		Address of STIMER exit routine
CC	EXTFLAG	DC	X'00'	A*1	Real timer indicator
	REALTIMR	EQU	X'80'		
CD		DC	AL3(0)		Reserved for IBM use

EXTUAREA: EXTERNAL USER AREA

EXTUAREA is a 96-byte user area generated by the CMSAVE macro. The pointer to the user area is passed to the user via register 13. The field USAVEPTR (hex 8C) in CMSAVE also points to the user area.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	GRS	DS	0D	Registers at time of interrupt
40	FRS	DS	16F	Floating-point registers at interrupt
60	UEXTPSWO	DS	4D	External old PSW at interrupt
68	USERAREA	DS	1D	User save area
B0	USEREAND	DS	18F	End user area
			0F	

FCBSECT

FCBSECT: SIMULATED OS CONTROL BLOCKS

FCBSECT consists of the CMS File Control Block (FCB) (used for file management under CMS), the simulated OS Job File Control Block (JFCB), Input/Output Block (IOB), and Data Extent Block (DEB). FCBSECT is invoked via the CMSCB macro.

0	FCBNEXT		FCBPROC								
8			FCBDD								
10			FCBOP								
18			FCBDSNAM								
20			FCBDSTYP								
28	FCBDSMD		FCBITEM		FCBBUFF						
30	FCBBYTE		FCBFORM		FCBCOUT						
38	FCBREAD		A*1		A*2		FCBXTENT				
40	FCBRECL		A*3		A*4		FCBMEMBR				
48	FCBMEMBR (cont.)				FCBOSFST						
50	FCBOSDSN				FCBR13						
58	FCBKEYS				FCBPDS						
60			JFCBMASK								
68	JFCBCRDT		JFCBXPDT		A*5		A*6				
70	A*7		A*8		JFCBUFL		A*9		A*10		A*11
78	JFCLIMCT (cont.)		JFCDSORG		A*12		A*13		JFCBLKSI		
80	JFCLRECL		A*14		A*15						
88	DEBTCBAD				SEBSAV						
90	DEBOFLGS				DEBOPATB						
98	IOBNXTAD				IOBECB						
A0	DEBDCBAD				IOBECBPT						
A8			IOBCSW								
B0	IOBSTART				IOBDCBPT						

Format of location X'24' for console device:

20			FCBIOOUT						
28	FCBIOOUT (Cont.)		FCBIOBUF						
30	A*16		A*17		A*18		FCBIOCNT		

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	FCBINIT	DS	0X	Initialization flag bytes
	<u>Bits defined in FCBINIT</u>			
	FCBOPCB	EQU	X'08'	OPEN acquired this CMS block
	FCBPERM	EQU	X'04'	Permanent control block
	FCBBATCH	EQU	X'02'	Special batch data set
	FCBCATML	EQU	X'01'	Concatenated MACLIB data set
	FCBOS	EQU	X'10'	FCB for OS formatted disk
	FCBDOSL	EQU	X'20'	Concatenated DOSLIB data set
0	FCBNEXT	DS	A	AL3 (next CMSCB)
4	FCBPROC	DS	A	A (special processing routine)
8	FCBDD	DS	CL8	Data definition name
10	FCBOP	DS	CL8	CMS operation
18	IHAJFCB	DS	0D	Job File Control Block
18	JFCBDSNM	DS	0X	44 bytes, data set name
18	FCBTAPID	DS	0X	Tape identification
18	FCBDSNAM	DS	CL8	Data set name
20	FCBDSTYP	DS	CL8	Data set type
	FCBPRPU	EQU	FCBDSTYP+4	Printer/punch command list
28	FCBDSMD	DS	CL2	Data set mode
2A	FCBITEM	DS	H	Item identification number
2C	FCBBUFF	DS	F	A (input/output buffer)
30	FCBBYTE	DS	F	Data count
34	FCBFORM	DS	CL2	File format: fixed/variable records
36	FCBCOUT	DS	H	Records per CMS physical block
38	FCBREAD	DS	F	Number of bytes actually read
3C	FCBDEV	DS	X	A*1 Device type code
	<u>Bits defined in FCBDEV</u>			
	FCBDUM	EQU	0	Dummy device
	FCBPTR	EQU	4	Printer
	FCBRDR	EQU	8	Reader
	FCBCON	EQU	12	Console terminal
	FCBTAP	EQU	16	Tape
	FCBDSK	EQU	20	Disk
	FCBPCH	EQU	24	Punch
	FCBCRT	EQU	28	CRT
3D	FCBMODE	DS	X	A*2 Mode: 1,2,3,4,5
3E	FCBXTENT	DS	H	Number of items in extent
40	FCBRECL	DS	H	DCB LRECL at open time
42	IOBIOFLG	DS	X	A*3 I/O Flags
43	FCBDCBCT	DS	X	A*4 No. of DCB's using this FCB
44	FCBMEMBR	DS	2F	OS PDS member name
4C	FCBOSFST	DS	F	Pointer to OS dsname
50	FCBOSDSN	DS	F	Pointer to OS dsname block
54	FCBR13	DS	F	Save area vector R13
58	FCBKEYS	DS	A	A (DDS in-storage key table)
5C	FCBPDS	DS	A	A (PDS in-storage directory)
60	JFCBMASK	DS	8X	Various mask bits
68	JFCBCRDY	DS	3C	Data set creation date (YDD)
6B	JFCBXPDT	DS	3C	Data set expiration date (YDD)
6E	JFCBIND1	DS	X	A*5 Indicator 1
6F	JFCBIND2	DS	X	A*6 Indicator 2
70	JFCBUFNO	DS	X	A*7 Number of buffers
71	JFCBFTEK	DS	X	Buffering technique
71	JFCBFALN	DS	X	A*8 Buffer alignment
72	JFCBUFL	DS	H	Buffer length

FCBS ECT

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
74	JFCEROPT DS	X	A*9	Error option
75	JFCKEYLE DS	X	A*10	Key length
76	DS	X		Reserved for IBM use
77	JFCLIMCT DS	3X	A*11	BDAM search limit
7A	FCBDSORG DS	0X		Data set organization
7A	JFCDSORG DS	2X		
7C	FCBRECFM DS	0X		
7C	JFCRECFM DS	X	A*12	Record format
7D	JFCOPTCD DS	X	A*13	Option codes
	JCBBLKSZ DS	0H		
7E	JFCBLKSI DS	H		Block size
80	FCBLRECL DS	0H		
80	JFCLRECL DS	H		Logical length record
82	FCBIOSW DS	X	A*14	I/O operation indicator
<u>Bits defined in FCBIOSW</u>				
	FCBCLOSE EQU	X'80'		During CLOSE
	FCBCLEAV EQU	X'40'		DISP=LEAVE during CLOSE
	FCBPROCC EQU	X'20'		GOTO FCBPROC during CLOSE
	FCBPROCO EQU	X'10'		GOTO FCBPROC during OPEN
	FCBCASE EQU	X'08'		ON=LOWER CASE console I/O
	FCBPVMB EQU	X'04'		PUT-MOVE-VAR-BLK
	FCBIOWR EQU	X'02'		WRITE/PUT
	FCBIORD EQU	X'01'		READ/GET
83	FCBIOSW2 DS	1X	A*15	I/O operation indicators
<u>Bits defined in FCBIOSW2</u>				
	FCBMVPDS EQU	X'01'		Switch for MOVEFILE with PDS option
	FCBMMV EQU	X'02'		Move PDS switch for FIND
84	DEBLNGTH DS	0X		L'DEB in doublewords
84	DS	F		Reserved for IBM use
88	IHADEB DS	0D		Data extent block
88	DEBTCBAD DS	A		A(move-mode user buffer)
8C	SEBSAV DS	F		SEB return address
90	DEBOFLGS DS	4X		Data set status flags
	DEBOPATB DS	4X		OPEN/CLOSE option byte
98	IOBFLG DS	0X		(Start of IOBPREFIX for normal scheduling
<u>Bits defined in IOBFLG</u>				
	IOBBFLG EQU	0X		Displacement of IOB flag in IOB
	IOBOUT EQU	X'40'		WRITE,PUT in process
	IOBIN EQU	X'20'		READ,GET in process
	IOBUPD EQU	X'10'		QSAM PUTX in process
98	IOBNXTAD DS	A		A(next buffer to be used)
9C	IOBECB DS	F		ECB for QSAM normal scheduling
A0	IHAIOB DS	0F		Input/output block
A0	DEBDEBID DS	0X		DEB identification
A0	DEBDCBAD DS	A		A(data control block)
A4	ICBECBCC DS	0X		ECB completion code
<u>Bits defined in IOBECBCC</u>				
	IOBBECBC EQU	12		Displacement of ECB code in IOB
	IOBBECBP EQU	12		Displacement of ECB pointer in IOB
A4	IOBECBPT DS	A		A(event control block)
A8	IOBFLAG3 DS	0X		I/O error flag
	IOBCSW EQU	16		Displacement of CSW in IOB
A8	IOBCSW DS	8X		Last CCW stored (i.e., residual count)



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
B0	IOBSTART	DS	A	X'ID-NEXT BUFFER',AL3 (INITIAL BUFFER)
B4	IOBDCBPT	DS	A	A(data control block)
B8	IOBEND	DS	0X	End of input/output block
B8	FCBEND	DS	0D	End of FCB,JFCB,DEB,IOB blocks
	FCBENSIZ	EQU	(*-FCBSECT)/8	Size of FCB entry, doublewords
B8		ORG	FCBDSTYP+4	
24	FCBIOOUT	DS	CL8	Special I/O command list
2C	FCBIOBUF	DS	A	A(data buffer)
30	FCBCONCR	DS	C	A*16 Console color code
31	FCBCONMS	DS	X	A*17 Console miscellaneous information
32	FCBIOCNT	DS	H	A*18 Length of data buffer

Data Event Control Block (DECB)

0	IHADECB	DSECT		
0	DECSDECB	DS	F	Event control block
4	DECTYPE	DS	H	Type of I/O request

Bits defined in DECTYPE

	DECBERD	EQU	X'80'	Read SF
	DECBWR	EQU	X'20'	Write SF
6	DECLNGTH	DS	H	Length of key and data
8	DECDCBAD	DS	A	V(data control block)
C	DECAREA	DS	A	V(key & data, buffer)
10	DECIOBPT	DS	A	V(IOB)

BDAM Extension

14	DECKYADR	DS	A	V(key)
18	DECRCPT	DS	A	V(block reference field)

Some Frequently Used Equates

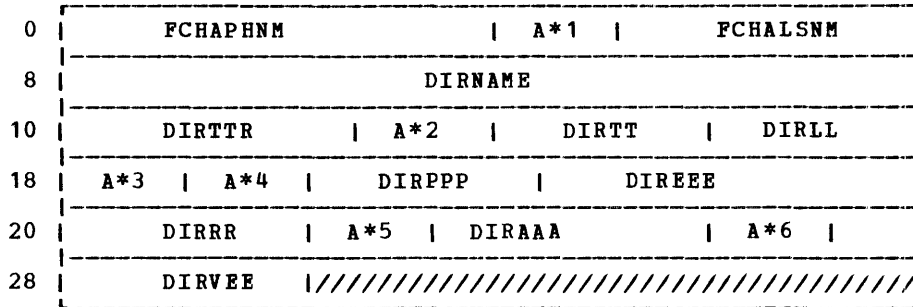
DDNAM	EQU	FCBDSTYP	Filetype = data set name
BLK	EQU	X'10'	RECFM=blocked records
BS	EQU	X'20'	MACRF=BSAM
DA	EQU	X'20'	DSORG=direct access
FXD	EQU	X'80'	RECFM=fixed-length records
IS	EQU	X'80'	DSORG=indexed sequential
LOC	EQU	X'08'	MACRF=locate mode
MOV	EQU	X'10'	MACRF=move mode
PS	EQU	X'40'	DSORG=physical sequential
PO	EQU	X'02'	DSORG=partitioned organization
PREVIOUS	EQU	X'80'	OFLGS=previous I/O operation
QS	EQU	X'40'	MACRF=QSAM
UND	EQU	X'C0'	RECFM=undefined format records
VAR	EQU	X'40'	RECFM=variable-length records

**FCHTAB**

**FCHTAB: FETCH TABLE**

FCHTAB contains a fetch/load parameter list that points to a 34-byte directory list. The fetch table is used when a DOS program issues a LOAD or FETCH request without the 'LIST=' parameter.

The IJBFTTAB field (hex F0) in the SYSCOM block points to the fetch table.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
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8-Byte Parameter List Pointing to Directory List

0	FCHAPHNM	DC	A (DIRNAME)	Address of phase name
4	FCHOPT	DC	X'00' A*1	Options
5	FCHALSNM	DS	AL3	Address of listname

34-Byte Directory List

8	DIRNAME	DS	CL8	Phase name
10	DIRTTR	DS	XL3	Phase TTR
13	DIRN	DS	XL1	A*2 No. halfwords in directory
14	DIRTT	DS	XL2	No. text blocks in phase
16	DIRLL	DS	XL2	Length last text block
18	DIRC	DS	XL1	A*3 Flag byte

Bits defined in DIRC

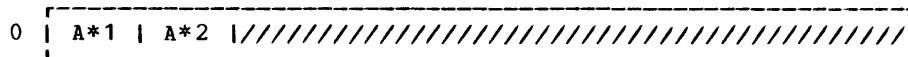
	SELFREL	EQU	X'80'	Phase self-relocatable
	RELPHSE	EQU	X'40'	Phase to be relocated
	SVAELIG	EQU	X'20'	Phase SVA eligible
	SVAPHSE	EQU	X'10'	Phase in SVA
	PCLPHSE	EQU	X'08'	Phase in priv CIL
	PNOTFND	EQU	X'04'	Phase not found
	DACTIVE	EQU	X'02'	Phase directory active
	NOTEXT	EQU	X'01'	TEXT=NO specified
19	DIRT	DS	XL1	A*4 Reserved for IBM use
1A	DIRPPP	DS	XL3	Phase load point
1C	DIREEE	DS	XL3	Phase entry point
20	DIRRR	DS	XL2	Number RLD items in phase
22	DIRR	DS	XL1	A*5 No. additional RLD blocks
23	DIRAAA	DS	XL3	Partition start address
26	DIRK	DS	XL1	A*6 Reserved for IBM use
27	DIRVEE	DS	XL3	Phase entry point in SVA
	FCHLENG	EQU	*-FCHTAB	Total length (42) in bytes
	FCHLENDW	EQU	(FCHLENG+7)/8	Total length in doublewords

FICL: FIRST IN CLASS BLOCK

FICL is a 2-byte table used in CMS/DOS to address system and programmer logical unit blocks.

Byte 0 of FICL points to the first system class logical unit in the LUB table. This is always the first entry in the LUB table. The second byte points to the first programmer class logical unit in the LUB table partition area.

The FICLPT field (hex 48) in the BGC0M block points to the FICL block.



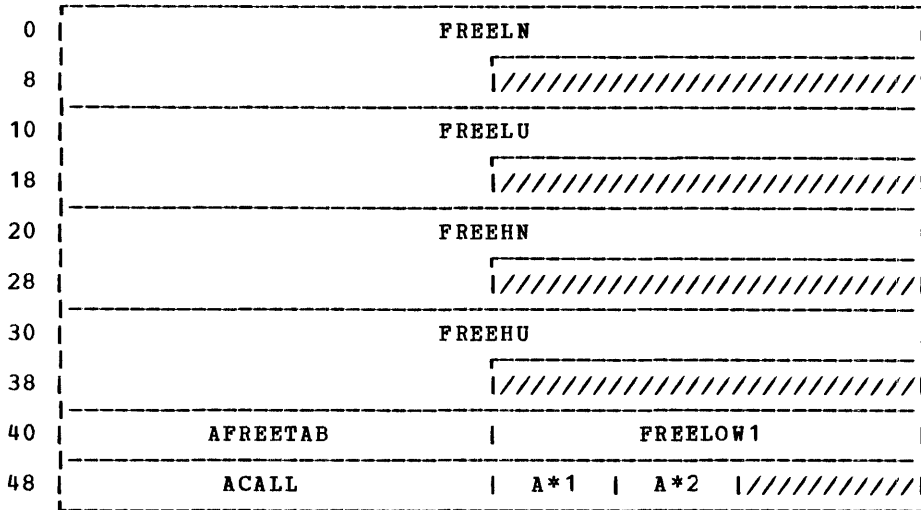
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning			
0	SYSINDX DC	AL1(0)	A*1	First BG system LUB index	
2	PROGINDX DC	AL1(14)	A*2	Programmer LUB index	

FRDSECT

FRDSECT: FREE CHAIN ELEMENT HEADER BLOCKS

FRDSECT describes the fields used by DMSFRE to reference the four free chain element header blocks. FRDSECT is invoked by the macro DMSFRT.

The DMSFRT DSECT is pointed to by a V-constant in DMSFREE, and also by the ADMSFRT field (hex 530) in NUCON.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
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The Following Are the Four Free Chain Element Header Blocks

0	FREELN	DC	3F'0',AL1 (FLNU+FLPA,NUCKEY,NUCCODE,0)	Low storage nucleus
10	FREELU	DC	3F'0',AL1 (0,USERKEY,USERCODE,0)	Low storage user chain
20	FREEHN	DC	3F'0',AL1 (FLNU+FLHC,NUCKEY,NUCCODE,0)	High storage nucleus
30	FREEHU	DC	3F'0',AL1 (FLHC,USERKEY,USERCODE,0)	High storage user chain

The Following Symbolic Equates Describe the Format of Each of the Four Free Chain Element Header Blocks

POINTER	EQU	0	Point to first free element
NUM	EQU	4	Number of elements in chain
MAX	EQU	8	Maximum size of an element
FLAGS	EQU	12	Flag byte

Bits defined in FLAGS

FLCLN	EQU	X'80'	Cleanup flag
FLCLB	EQU	X'40'	Clobbered chain flag
FLHC	EQU	X'20'	High storage flag
FLNU	EQU	X'10'	Nucleus flag
FLPA	EQU	X'08'	Page available on chain
SKEY	EQU	13	Storage key for this chain

Bits defined in SKEY

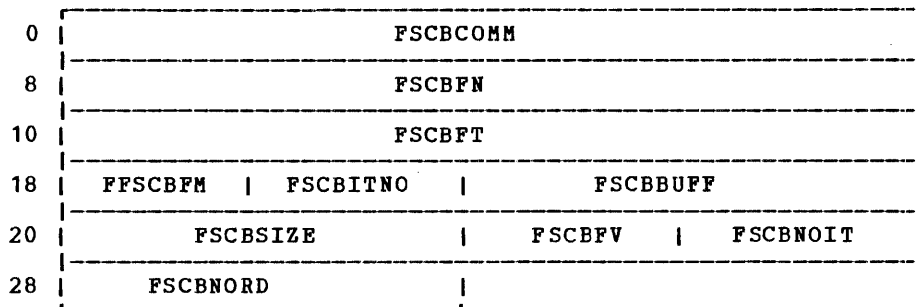
USERKEY	EQU	X'E0'	User storage key
NUCKEY	EQU	X'F0'	Nucleus storage key
TCODE	EQU	14	FREETAB table code

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
<u>Bits defined in TCODE</u>				
	USERCODE EQU	1		User free storage page
	NUCCODE EQU	2		Nucleus free storage page
	TRNCODE EQU	3		Transient area page
	USARCODE EQU	4		User area page
	SYS CODE EQU	5		System page
	MAXCODE EQU	5		Maximum possible code value
	*UNUSED EQU	15		
	BLOCKLEN EQU	16		Symbolic length of block
40	AFREETAB DC	A(0)		Address of FREETAB table
	FREELW1 DC	A(0)		Address of caller (for errors) (set by INIT2)
48	ACALL DS	A		Address of caller (for errors)
<u>Flags Set by Examining SVC 203 Halfword Code</u>				
4C	FREEFLG1 DC	BL1'0'	A*1	
<u>Bits defined in FREEFLG1</u>				
	FRF1C EQU	X'80'		Conditional request
	FRF1V EQU	X'40'		Variable request
	FRF1N EQU	X'20'		Nucleus request
	FRF1E EQU	X'10'		FREE (vs FRET) request
	FRF1L EQU	X'08'		Low storage is OK
	FRF1H EQU	X'04'		High storage is OK
	FRF1M EQU	X'02'		Messages wanted on error
	FRF1B EQU	X'01'		TYPICAL equals BALR in macro
<u>The Following Byte Holds Flags Internal to the DMSFRE Routine</u>				
04D	FREEFLG2 DC	BL1'0'	A*2	
<u>Bits defined in FREEFLG2</u>				
	FRF2CL EQU	X'80'		Cleanup flag
	FRF2SVP EQU	X'40'		SCHVPGE flag
	FRF2NOI EQU	X'20'		2nd initialization routine has not yet been called by DMSINS
	FRF2CKE EQU	X'10'		Do a CHECK each time FREE or FRET is called
	FRF2CKT EQU	X'08'		Do a check this time
	FRF2CKX EQU	X'04'		Executing CHECK routine now
<u>Free Chain Element Description</u>				
	POINTER EQU	0		Pointer to next FREE element
	SIZE EQU	4		Size of this element in bytes

FSCBD

FSCBD: FILE SYSTEM CONTROL BLOCK

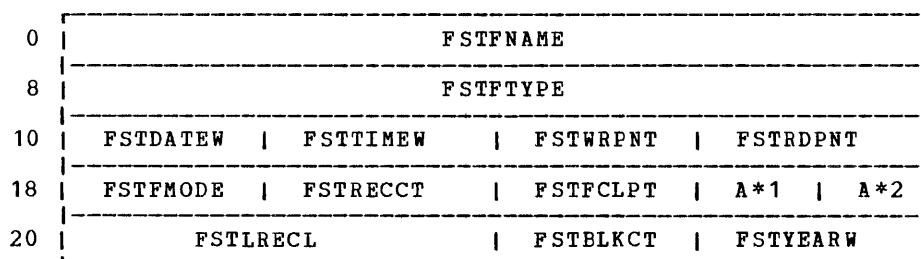
FSCBD is a PLIST defined for general use by routines that use the CMS file system. FSCBD is generated when the user invokes the FSCBD macro.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	FSCBCOMM	DS	CL8	File system command (RDBUF,WRBUF,etc.)
8	FSCBFN	DS	CL8	Filename
10	FSCBFT	DS	CL8	Filetype
18	FSCBFM	DS	CL2	Filemode
1A	FSCBITNO	DS	H	Relative record number to be read/written
1C	FSCBBUFF	AS	H	Address of R/W buffer or of STATEFST
20	FSCBSIZE	DS	F	Length of buffer
22	FSCBFV	DS	CL2	RECFM - C'F' or C'V'
24	FSCBNOIT	DS	H	Number of records to be read/written
28	FSCBNORD	DS	A	Number of bytes actually read

FSTD: FILE STATUS TABLE ENTRY DSECT

FSTD describes the fields in a 40-byte file status table entry as found by STATE, STATEW, DMSLFS or DMSLFSW. FSTD is functionally equivalent to the FSTSECT DSECT.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
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0	FSTFNAME DS	1D		Filename
8	FSTFTYPE DS	1D		Filetype
10	FSTDATEW DS	1H		Date last written - MMDD
12	FSTTIMEW DS	1H		Time last written - HHMM
14	FSTWRPNT DS	1H		Write pointer - item number
16	FSTRDPNT DS	1H		Read pointer - item number
18	FSTFMODE DS	1H		Filemode - letter and number
1A	FSTRECCT DS	1H		Number of logical records
1C	FSTFCLPT DS	1H		First chain link pointer
1E	FSTRECFM DS	1C	A*1	Record format (F or V)
1F	FSTFLAGS DS	1X	A*2	FST flag byte

Bits defined in FSTFLAGS

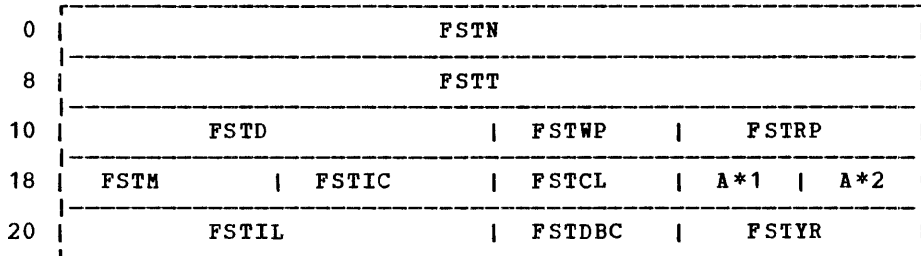
	FSTRWDSK EQU	X'80'		Read/write disk
	FSTRODSK EQU	X'00'		Read-only disk
	FSTXRDSK EQU	X'40'		Extension of R-0 disk
	FSTXWDSK EQU	X'C0'		Extension of R/W disk
	FSTACTRD EQU	X'04'		Active for reading
	FSTACTWR EQU	X'02'		Active for writing
	FSTACTPT EQU	X'01'		Active from a point
	FSTFILEA EQU	X'07'		File is active
20	FSTLRECL DS	1F		Logical record length
24	FSTBLKCT DS	1H		Number of 800-byte blocks
26	FSTYEARW DS	1H		Year last written
	FSTDSIZE EQU	(*FSTD)		FST size in bytes

FSTSECT

FSTSECT: FILE STATUS TABLE

FSTSECT defines the file status table (FST) which describes the attributes of a file on a CMS virtual disk. FSTSECT is invoked by the macro FST.

The file status tables for all files on the disk are grouped into 800-byte disk records referred to as file status table blocks (FSTBs). Each file status table block can accommodate up to 20 file status tables.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	FSTN	DS	1D	Filename
8	FSTT	DS	1D	Filetype
10	FSTD	DS	1F	Date/time last written
14	FSTWP	DS	1H	Write pointer (item no.)
16	FSTRP	DS	1H	Read pointer (item no.)
18	FSTM	DS	1H	Filemode
1A	FSTIC	DS	1H	Item count
1C	FSTFCL	DS	1H	First chain link
1E	FSTFV	DS	1C	A*1 Fixed(F)/variable(V) flag
1F	FSTFB	DS	1C	A*2 Flag byte (if used)

Bits defined in FSTCB (Applicable only to STATEFST of FST-entry after successful STATE or STATEW call)

	FSTFRO	EQU	X'00'	Read-only disk
	FSTFROX	EQU	X'40'	Read-only extension of read-only disk
	FSTFRW	EQU	X'80'	Read/write disk
	FSTFRWX	EQU	X'C0'	Read-only extension of read/write disk
	FSTFACT	EQU	X'07'	File "active" is one of the following:
	FSTFAR	EQU	X'04'	File active for reading
	FSTFAW	EQU	X'02'	File active for writing
	FSTFAP	EQU	X'01'	File active from a "point"
20	FSTIL	DS	1F	Maximum item length
24	FSTDBC	DS	1H	800-byte data block count
26	FSTYR	DS	1H	Year
	FSTL	EQU	*-FSTSECT	

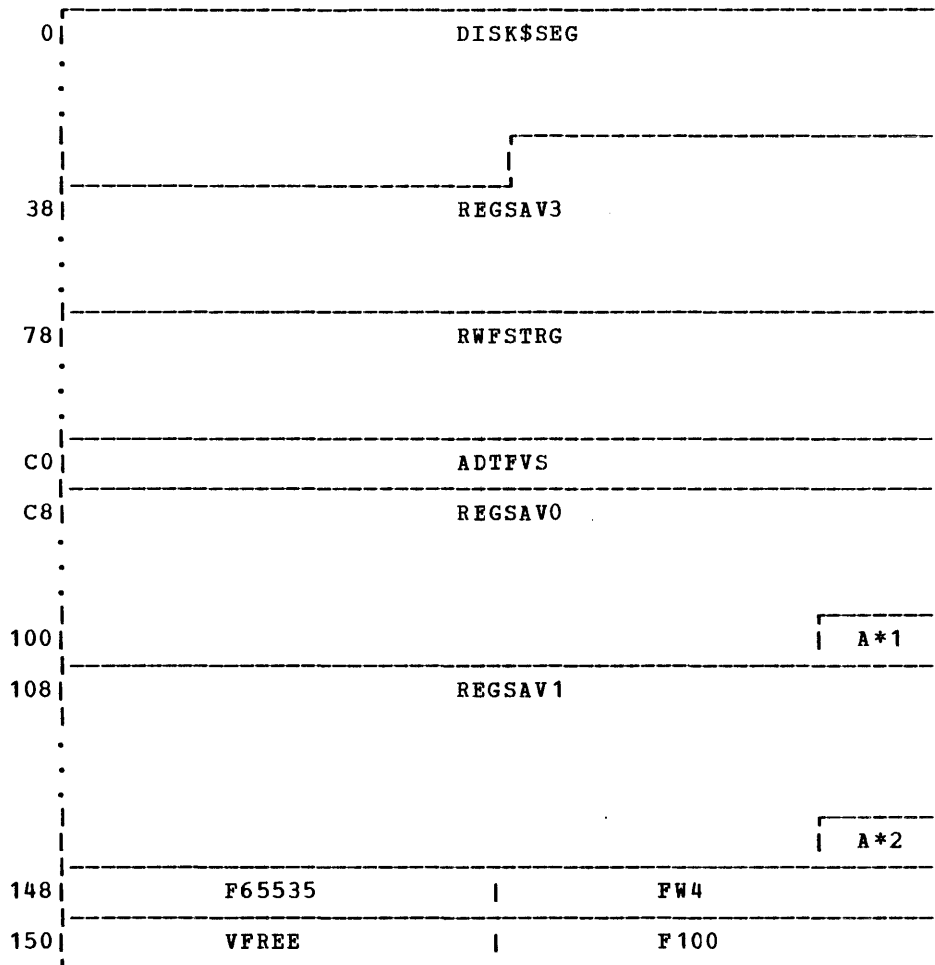
FST Hyperblock Parameters

	FSTFWDP	EQU	80	Forward pointer to next hyperblock in storage
	FSTBKWD	EQU	804	Backward pointer to previous hyperblock in storage



FVSECT: FIXED VARIABLE STORAGE WORK AREA FOR CMS FILE SYSTEM

FVSECT is used mainly by file management and I/O routines. FVS contains save areas, work areas, and commonly used constants. A typical use of FVS, is when a reentrant I/O routine requires a work area or save area, since the routine cannot modify itself. FVSECT is invoked by the FVS macro.



FVSECT

158	VFRET		JSR0	
160	JSR1		RWMFD	
168	F800			
170	FVSDSKA		DSKLOC	
178	RWCNT		DSKADR	
180	ADTADD			
188	FINISLST (cont.)			
.				
.				
198	FFF			
1A0	FFE	FFD	SIGNAL	A*3   A*4
1A8	A*5	A*6	A*7	FVSERAS0
1B0	FVSERAS1		FVSERAS2	
1B8	READCNT			
1C0	FVSFSTN			
1C8	FVSFSTT			
1D0	FVSFSTD		FVSFSTWP	FVSFSTRP
1D8	FVSFSTM	FVSFSTIC	FVSFSTCL	A*8   A*9
1E0	FVSFSTIL		FVFSTDB	FVSFSTYR
1E8	FVSFSTAD		FVSFSTAC	

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	DISK\$SEG	DS	15F	For FSTLKP, FSTLKW, ACTLKP, TRKLKP, QQTRK
3C	REGSAV3	DS	15F	For RDBUF, WRBUF, FINIS, STATE, POINT
78	RWFSTRG	DS	18F	Remaining storage for RDBUF, WRBUF, FINIS
C0	ADTFVS	DC	2F'0'	ADTLKP
<u>Save Area for Lowest-Level Routines</u>				
e.g. <u>REALMFD, RELUFD, UPDISK, TYPsrCH, ADTLKW</u>				
C8	REGSAV0	DS	15F	Saved R0-R15
104		DC	AL3(00)	First 3 bytes of return code
107	ERRCOD0	DC	AL1(*-*) A*1	Error code goes here
	TRKLSAVE	EQU	REGSAV0	For TRKLKP/X only when called by QQTRK/X
<u>Save Area for Next-to-Lowest Level Routines</u>				
e.g. <u>READFST, ERASE, ALTER, INTSVC-LOADMOD</u>				
108	REGSAV1	DS	15F	Register save area
144		DC	AL3(00)	
147	ERRCOD1	DC	AL1(*-*) A*2	Error code
148	F65535	DC	F'65535'	= X'0000FFFF'
14C	FW4	DC	F'4'	Constant value
	HW4	EQU	FW4+2	Constant value
150	VFREE	DC	V(FREE)	Constant value
154	F100	DC	F'100'	Constant value
158	VFRET	DC	V(FRET)	Address of FRET
15C	JSR0	DC	F'0'	R0 and
160	JSR1	DC	F'0'	R1 saved here for FRET calls.
<u>PLIST to Read/Write MFD</u>				
164	RWMFD	DC	A(*-*)	Address of MFD
168	F800	DC	F'800'	800 bytes
16C		DC	A(HW4)	
170	FVSDSKA	DC	A(*-*)	Address of the ADT
174	DSKLIST	DS	0F	All-purpose RDTK/WRTK PLIST
174	DSKLOC	DS	A(*-*)	Address of item to be read or written
178	RWCNT	DC	A(*-*)	Byte count (usually 800)
17C	DSKADR	DC	A(*-*)	Disk address of item to be read or written
180	ADTADD	DC	A(*-*)	Address of ADT now in use
184	FINISLST	DC	CL8'FINIS'	PLIST to close all files
18C		DC	CL8''	
194		DC	CL8''	
19C		DC	CL2''	
19E		DS	0H	Halfword constants
19E	FFF	DC	X'FFFF'	Means no significant data past 215th byte
1A0	FFE	DC	X'FFFE'	1968-era MFD still supported on input only
1A2	FFD	DC	X'FFFD'	Newest signal for 2314 handling

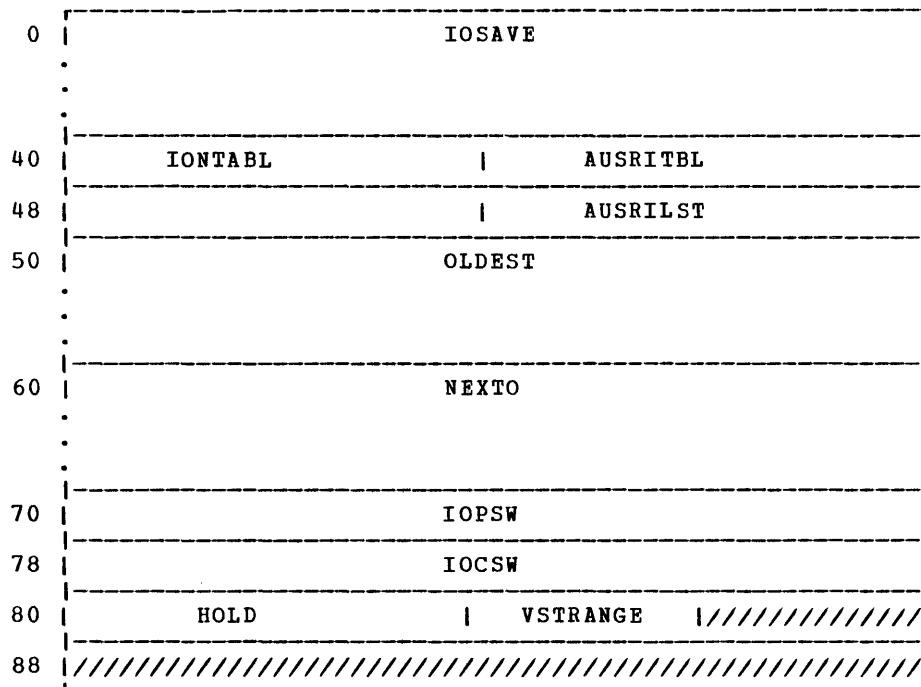
FVSECT

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
SIGNAL = Scratch halfword used by READMFD or ERASE				
1A4	SIGNAL DC	H'0'		= 0000, X'FFFF', X'FFFE', or X'FFFD'
	SWTCH EQU	SIGNAL+1		00, FF, FE, OR FD
1A6	UFDBUSY DC	X'00'	A*3	Nonzero means UFD is being updated
<u>Bits defined in UFDBUSY</u>				
	WRBIT EQU	X'80'		WRBUF
	UPBIT EQU	X'40'		UPDISK - READMFD
	FNBIT EQU	X'20'		FINIS
	ERBIT EQU	X'10'		ERASE - ALTER - READFST
	DIORBIT EQU	X'08'		RDTK/WRTK
<u>The following bits are for routines which do not update the disk, but which cannot be interrupted by an HX command</u>				
	ABNBIT EQU	X'02'		DMSABN (ABEND recovery routine)
	ITSBIT EQU	X'01'		DMSITS (SVC handling routine)
1A7	KXFLAG DC	X'00'	A*4	'HX' flags
	KXWANT EQU	X'80'		HX wanted as soon as possible
	KXWSVC EQU	X'01'		Hold HX until any SVC activity
1A8		DC		Reserved for IBM use
1A9	FLGSAVE DC	X'00'	A*5	For scratch use (e.g. by RELUPD)
1AA	FVSFLAG DC	X'00'	A*6	For general use (as needed)
<u>Miscellaneous Storage Used by ERASE (or RENAME)</u>				
1AB	ERSFLAG DC	X'00'	A*7	Flag for use by ERASE or RENAME
1AC	FVSERAS0 DC	F'0'		R0 to/from FSTLKW (for ERASE)
1B0	FVSERAS1 DC	F'0'		R1 to ACTLKP or FSTLKW (for ERASE)
1B4	FVSERAS2 DC	F'0'		Address of free storage used by ERASE
1B8	READCNT DC	F'0'		Current read count (DMSBRD)
1BC		DC		Reserved for IBM use
<u>File Status Table (FST) Copy from STATE</u>				
1C0	STATEFST DS	0D		Full FST of STATED file
1C0	FVSFSTN DC	D'0'		Filename
1C8	FVSFSTT DC	D'0'		Filetype
1D0	FVSFSTDTC DC	2H'0'		Date/time last written
1D4	FVSFSTWP DC	H'0'		Write pointer (item ID)
1D6	FVSFSTRP DC	H'0'		Read pointer (item ID)
1D8	FVSFSTM DC	H'0'		Filemode
1DA	FVSFSTIC DC	H'0'		Number of items in file
1DC	FVSFSTCL DC	H'0'		Disk address (first chain link)
1DE	FVSFSTFV DC	C' '	A*8	Fixed(F)/variable(V) indicator
1DF	FVSFSTFB DC	X'00'	A*9	Flag byte
1E0	FVSFSTIL DC	F'0'		Length of largest item in file
1E4	FVSFSTDB DC	H'0'		Number of data blocks
1E6	FVSFSTYR DC	2C' '		Year last written
1E8	FVSFSTAD DC	A(0)		A(ADT for this file)
	STATERO EQU	FVSFSTAD		
1EC	FVSFSTAC DC	A(0)		A(real FST entry for this file)
	STATERR1 EQU	FVSFSTAC		

IOSECT: I/O INTERRUPT SAVE AREA

IOSECT describes the fields used by DMSITI for save registers, I/O old PSW, and other data when handling I/O interrupts.

IOSECT is pointed to by the AIOSECT field (HEX 658) in NUCON.

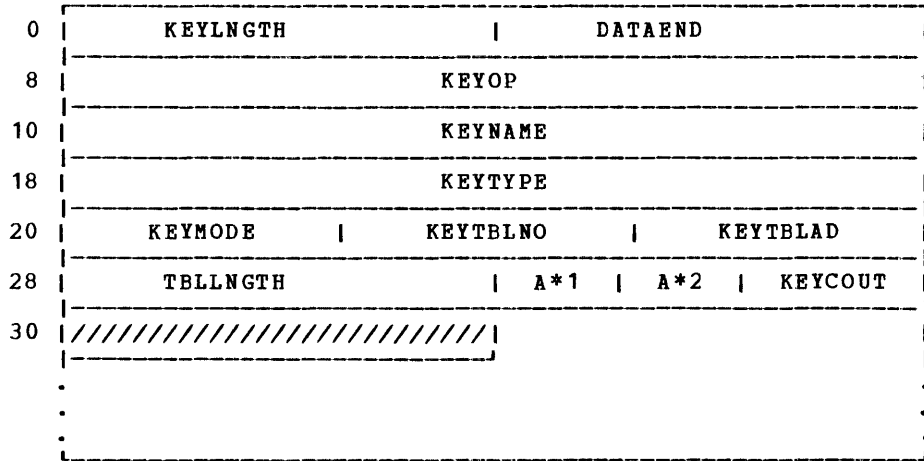


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	IOSAVE	DS	16F	Register save area
40	IONTABL	DC	F'0'	Size of user interrupt table (doublewords)
44	AUSRITBL	DC	A(0)	Address of user interrupt table
48		DC	F'28'	Length of each entry
4C	AUSRILST	DC	A(0)	Address of last entry in table
50	OLDEST	DS	4F	Oldest I/O old PSW and CSW
60	NEXTO	DS	4F	Next oldest I/O old PSW and CSW
70	IOPSW	DS	2F	Newest I/O old PSW
78	IOCSW	DS	2F	Newest CSW
80	HOLD	DC	F'0'	Holds entry pointer for device
84	VSTRANGE	DC	H'0'	Unknown device address saved here
86		DC	1H'0'	Reserved for IBM use
88		DC	2F'0'	Reserved for IBM use

KEYSECT

KEYSECT: DISK KEY TABLE DSECT FOR BDAM SIMULATION

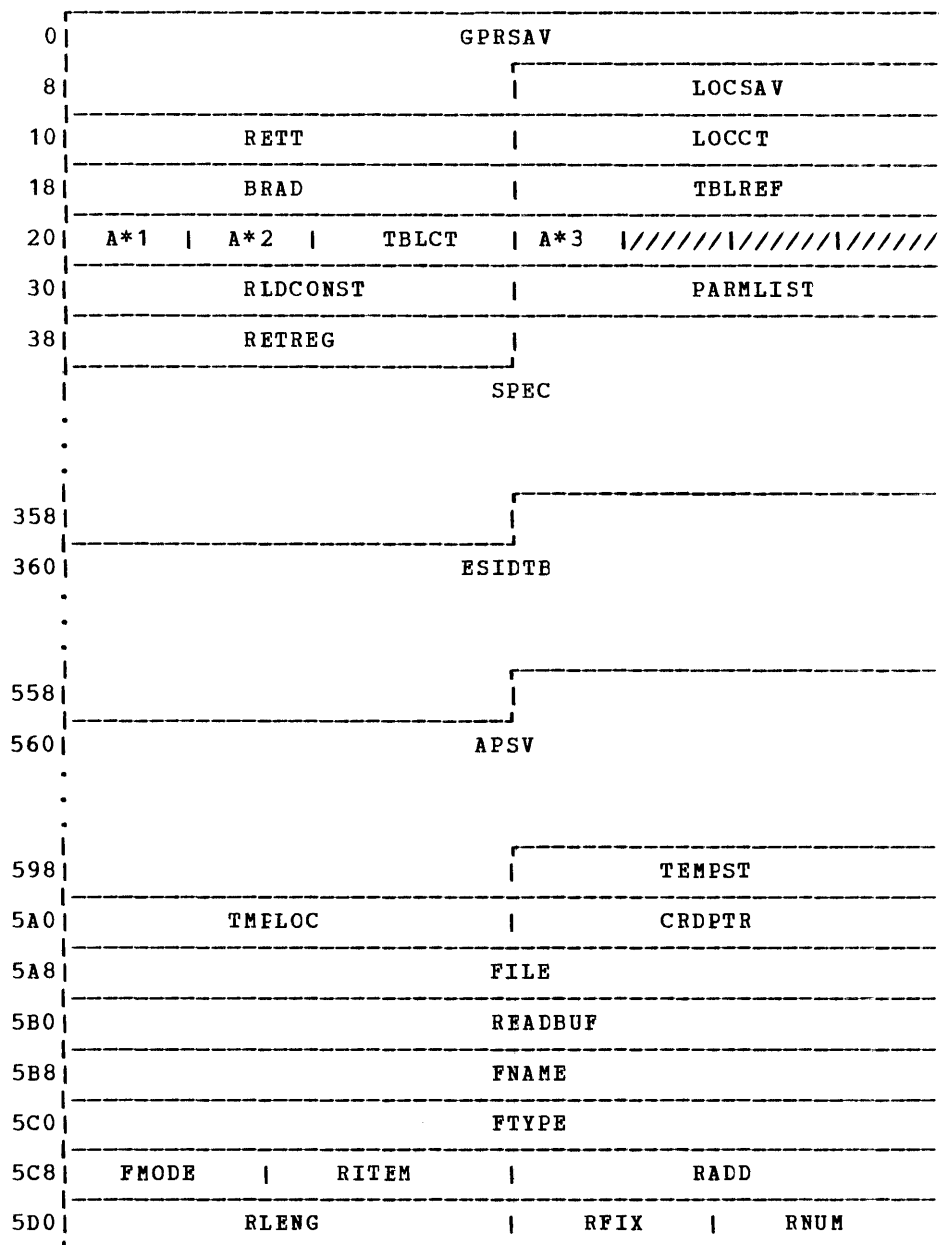
KEYSECT defines the key table used in OS simulation for I/O by key.

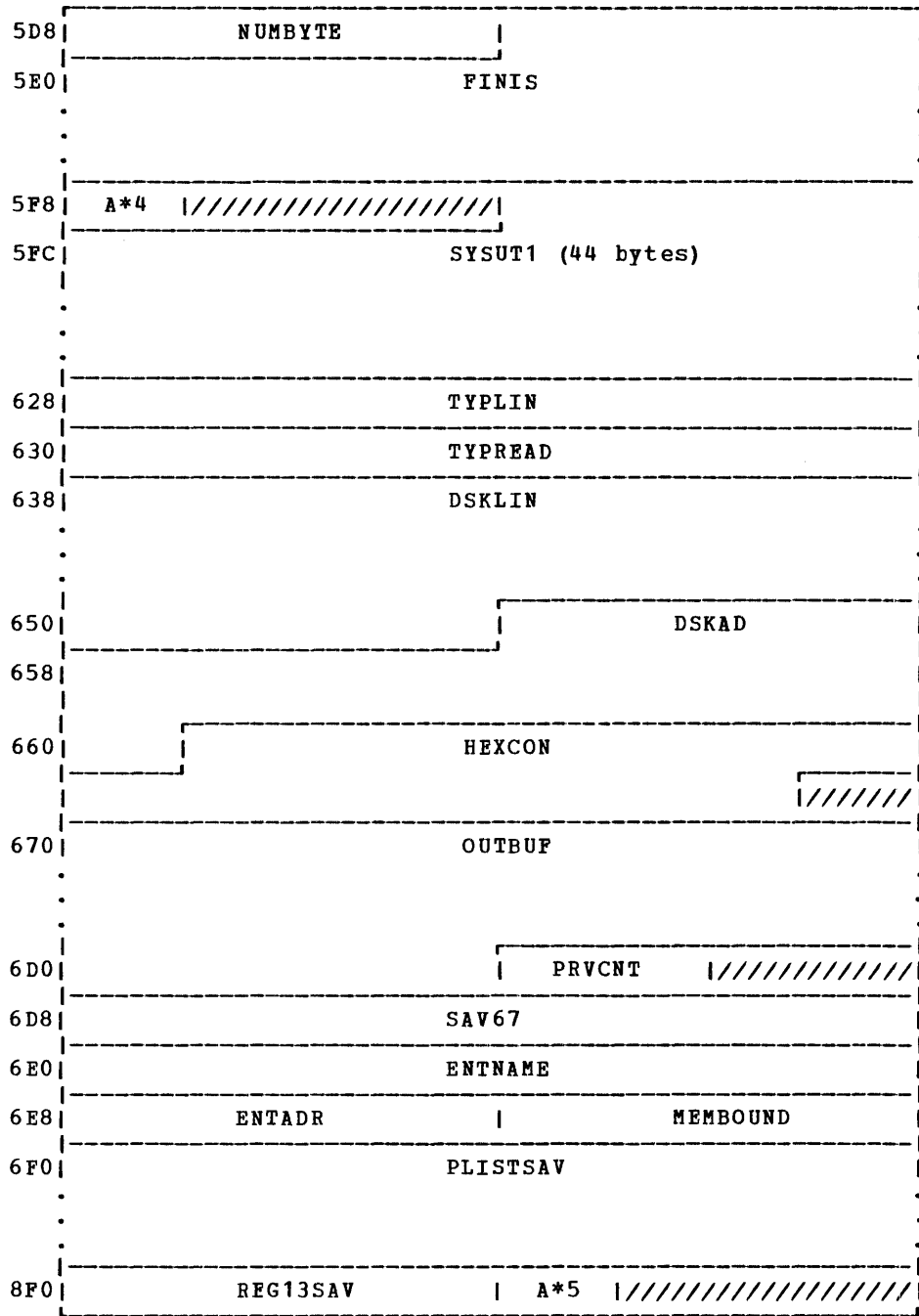


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
		KEYSECT		
		PUSH	PRINT	
		DSECT		
0	KEYLNTH	DS	1F	Key length
4	DATAEND	DS	1F	Item pointer to last data item in file
8	KEYOP	DS	2F	Start of PLIST for keys file
10	KEYNAME	DS	2F	Filename of keys file
18	KEYTYPE	DS	2F	Filetype of keys file
20	KEYMODE	DS	1H	Filemode of keys file
22	KEYTBLNO	DS	1H	Item no. of key table
24	KEYTBLAD	DS	1F	Address of key table
28	TBLLNGTH	DS	1F	Byte size of key table
2C	KEYFORM	DS	1X	A*1 Format of keys file
2D	KEYCHNG	DS	1X	A*2 Indicates change in key table
2E	KEYCOUT	DS	1H	Blocking factor of key table
30		DS	1F	No. of bytes read
34	KEYTABLE	DS	0F	Start of keys table (item number)

LDRST: LOADER STORAGE AREA

LDRST describes the fields of the work area used by the loader. The work area is obtained and built by DMSLDR.







Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	GPRSAV	DS	3F	Registers 9-12
C	LOCSAV	DS	F	Base register contains A (DMSLDRA)
10	RETT	DS	F	Return register for DMSLSB
14	LOCCCT	DS	F	(LOCCNT) next load location
18	BRAD	DS	F	(STRTADDR) start execution address
1C	TBLREF	DS	F	(ALDRTBL) top of loader table
20	FLAG1	DS	X	A*1 Loader switches (permanent)
	<u>Bits defined in FLAG1</u>			
	ABSOLUTE	EQU	X'80'	Absolute loading
	FSTXTADR	EQU	X'40'	First text address saved
	COMMONEX	EQU	X'20'	Common entries exist in loader table
	PREXIST	EQU	X'10'	PR entries exist in loader table
	ENDCDADR	EQU	X'08'	Allow end card address
	NOERASE	EQU	X'04'	Don't erase the load map
	WORKFILE	EQU	X'02'	Work file (SYSUT1) exists
	NODUP	EQU	X'01'	Do not type message DMSLI0202W
21	FLAG2	DS	X	A*2 Loader switches (permanent)
	<u>Bits defined in FLAG2</u>			
	STRINITC	EQU	X'80'	Call STRINIT in LOADMOD
	NOMAP	EQU	X'40'	Do not create a load map
	APRILB	EQU	X'20'	REP card processing control
	NOAUTO	EQU	X'10'	No automatic text deck checking
	TYPE	EQU	X'08'	Type load map at terminal
	NOREP	EQU	X'04'	NO REP card printing
	NOINV	EQU	X'02'	No invalid card typeout
	NOLIBE	EQU	X'01'	No automatic TXT library searching
22	TBLCT	DS	H	Number of entries in loader table
24	FLAG3	DS	X	A*3 More flags
	CMD	EQU	X'80'	Processing names from cmd list
25		DS	X	Reserved for IBM use
26		DS	5H	Reserved for IBM use
30	RLDCONST	DS	F	Relocation constant
34	PARMLIST	DS	F	Updated parameter list pointer
38	RETREG	DS	F	Return register
3C	SPEC	DS	200F	10-card input buffer
35C	ESIDTB	DS	256H	256 ESD entries/object deck
55C	APSV	DS	16F	Register save area for subroutine calls
59C	TEMPST	DS	F	Temporary RLD routine storage
5A0	TMPLOC	DS	F	Temporary storage
5A4	CRDPTR	DS	F	Input card pointer
5A8	FILE	DS	D	Save location for DMSLIB
5B0	READBUF	DS	2F	Input read parameter list
5B8	FNAME	DS	2F	Filename
5C0	FTYPE	DS	2F	Filetype
5C8	FMODE	DS	H	Filemode
5CA	RITEM	DS	H	Number of items
5CC	RADD	DS	F	Buffer address
5D0	RLENG	DS	F	Buffer length
5D4	RFIX	DS	H	Fixed/variable flag byte

## LDRST

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
5D6	RNUM	DS	H	Number of items
5D8	NUMBYTE	DS	F	Number of bytes actually read
5DC	FINIS	DS	7F	FINIS parameter list
5F8	FLAGS	DS	X	A*4 Loader switches (nonpermanent)
	START	EQU	X'80'	Start execution requested
	ONEDYNA	EQU	X'40'	One call to dynaload per text file
	ESD1ST	EQU	X'20'	First ESD data item this card
	NOSLCADR	EQU	X'10'	No address field in SIC card
	SETLIB	EQU	X'08'	Set up for library searching
	CLOSELIB	EQU	X'04'	Clear TXTLIB searching
	LUNDEF	EQU	X'02'	Undefined entries exist in loader table
	RESET	EQU	X'01'	Reset 'entry' specified
5F9		DS	3X	Library search work area pointer
5FC	SYSUT1	DS	11F	RLD work file PLIST
628	TYPLIN	DS	2F	TYPLIN PLIST
630	TYPEAD	DS	2F	TYPLIN buffer address
638	DSKLIN	DS	7F	Disk PLIST for load map
654	DSKAD	DS	13X	
661	HEXCON	DS	14X	Hexadecimal constant
	PACK	EQU	HEXCON	Hexadecimal constant
	UNPACK	EQU	HEXCON+5	Hexadecimal constant
66F	OUTPUT	DS	X	
670	OUTBUF	DS	100X	Output buffer for load map and terminal printing
6D4	PRVCNT	DS	H	Address of next PR load address
6D8	SAV67	DS	2F	Temporary save of regs 6 and 7
6E0	ENTNAME	DS	CL8	Entry name (reset ENTRY or entry control card)
6E8	ENTADR	DS	F	Entry name's loader table location
6EC	MEMBOUND	DS	F	Low extend of free storage (FREELOWE)
6F0	PLISTSAV	DS	64D	LOAD (INCLUDE) PLIST saved
8F0	REG13SAV	DS	F	Address of LDRST
8F4	FRSTSDID	DS	X	A*5 First section definition ID
8F8	ENDFREE	DS	0D	
	NEED	EQU	(ENDFREE-LDRST)/8	

The following equates refer to displacements and flags in the REFTABLE entry usually pointed to by register 12

REFNAME	EQU	0	Offset of 8-byte name field
REFLG1	EQU	8	Offset of flag byte 1
REFPRB	EQU	X'7C'	PR - byte alignment
REFPRH	EQU	X'7D'	PR - halfword alignment
REFPRF	EQU	X'7E'	PR - fullword alignment
REFPRD	EQU	X'7F'	PR - doubleword alignment
REFUND	EQU	X'80'	Undefined symbol
REFCXD	EQU	X'81'	Resolve CXD
REFCOM	EQU	X'82'	Define common area
REFWEX	EQU	X'83'	Weak external reference
REFNOB	EQU	X'90'	LIBE card - nonobligatory
REFLIB	EQU	X'10'	Single bit for nonobligatory LIBE card
REFINFO	EQU	9	Offset of relocation factor or max address
REFVAL	EQU	13	Offset of absolute or assigned value
REFLG2	EQU	16	Offset of flag byte 2
REFCMD	EQU	X'80'	Command line name - must resolve

LUBTAB AND LUBPR: LOGICAL UNIT BLOCK TABLE

LUBTAB is a device table that has a two-byte entry for each symbolic name used by CMS/DOS. The simulated LUB has 255 entries: 14 entries for the system logical units and 241 entries for programmer logical units. System devices (SYSRDR, SYSIPT, SYSPCH, SYSLSL, and SYSLOG) can be assigned to alternate devices. The system and programmer tables are defined with separate DSECTS: LUBTAB and PRTAB. LUBTAB is pointed to by the field LUBPT in BGC0M. The address of the first LUB entry is in the first byte of the FICL control block.

0	LUBRDR	LUBIPT	LUBPCH	LUBLST
8	LUBLOG	LUBLNK	LUBRES	LUBSLB
10	LUBRLB	LUBUSE	LUBREC	LUBCLB
18	LUBVIS	LUBCAT		
0	LUB000	LUB001	LUB002	LUB003
.	LUB004 through LUB239			
1E0	LUB240	LUB241		

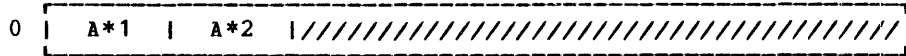
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
<u>System LUBs</u>				
0	LUBRDR DS XL2	System virtual reader		
2	LUBIPT DS XL2	System virtual input device		
4	LUBPCH DS XL2	System virtual punch		
6	LUBLST DS XL2	System virtual printer		
8	LUBLOG DS XL2	Terminal		
A	LUBLNK DS XL2	Reserved for IBM use		
C	LUBRES DS XL2	System residence volume		
E	LUBSLB DS XL2	Private source statement library		
10	LUBRLB DS XL2	Private relocatable library		
12	LUBUSE DS XL2	Reserved for IBM use		
14	LUBREC DS XL2	Reserved for IBM use		
16	LUBCLB DS XL2	Private core image library		
18	LUBVIS DS XL2	Reserved for IBM use		
1A	LUBCAT DS XL2	VSAM catalog		
0	LUB000 DS XL2	Programmer logical unit block		
2	LUB001 DS XL2	Programmer logical unit block		
4	LUB002 DS XL2	Programmer logical unit block		
6	LUB003 DS XL2	Programmer logical unit block		
.	.	LUB004 through LUB239 are defined as XL2		
1E0	LUB240 DS XL2	Programmer logical unit block		
1E2	LUB241 DS XL2	Programmer logical unit block		
	LUBP EQU 0	Displacement to PUB pointer		
	LUBJ EQU 1	Displacement to JIB pointer		
	LUBL EQU *-LUB241	LUB length		

NICL

NICL: NUMBER IN CLASS

Byte 0 of the Number In Class block (NICL) contains the number of system class logical units. The second byte contains the number of programmer class logical units for the partition.

The NICLPT field (hex 4A) in the BGC0M block points to the NICL block.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning			
0	NOSYS	DC	AL1(14)	A*1	Total number of system LUBs
2	NOPROG	DC	AL1(242)	A*2	Total number of programmer LUBs

NUCON: NUCLEUS CONSTANT AREA

The nucleus constant area (NUCON) represents the nucleus of CMS.

0	IPLPSW	
8	IPLCCW1	
10	IPLCCW2	
18	EXTOPSW	
20	SVCOPSW	
28	PGMOPSW	
30	MCKOPSW	
38	IOOPSW	
40	CSW	
48	CAWNPSW	NUCRSV1
50	TIMER	NUCRSV2
58	EXTNPSW	
60	SVCNPSW	
68	PGMNPSW	
70	MCKNPSW	
78	IONPSW	
80	CPULOG (NUCRSV3)	
.		.
.		.
.		.

NUCON

90	NUCRSV4	MONCLASS	PERCODE
98	PERADDR	MONCODE	
A0	NUCRSV5		
C0	LOWSAVE		
160	FPRLOG		
180	GPRLOG		
1C0	ECRLOG		
200	SYSTEMID		
220	INSTALID		
260	SYSNAME		
268	IPLADDR	SYSADDR	DEVICE
270	NUCRSV6		
278	FEIBM		
280	CURRDATE		
288	CURRTIME		
290	CURRVIRT		CURRCPUT
298	LASTVIRT		LASTCPUT
2A0	LASTCMND		
2A8	PREVCMD		
2B0	LASTEXEC		
2B8	PREVEXEC		

2C0	LASTLMOD	
2C8	LASTTMOD	
2D0	DATIPCMS	
2D8	CLKVALMD	
2E0	MACDIRC	
.		
.		
300	MACLIBL	
.		
.		
350		TXDIRC
358	TXLIBS	
.		
.		
3A0	GRS015	LOC076
3A8	FIRSTDMP	LASTDMP
3B0	FRS06	DMPTIT
3B8		
	DMPTITLE	
.		
.		
440	GLBLTABL	////////// SVC\$202
448	ERR\$202	
450	A*1   A*2  //////////	ABATPROC
458	ABATABND	ABATLIMT
460		
468		
	DOSDIRC	
.		
.		
490	DOSLIBL	
.		
.		

NUCON

4D8	A*3		A*4		/////////////////		ALTASAVE
4E0			ABGCOM				ASYSKOM
4E8			ADOSDCSS				SVC12SAV
4F0			DOSFIRST		DOSNUM		/////////////////
4F8			APPSAVE				DOSTRANS
500			MAINLIST				MAINSTRT
508			FREELIST				FREENUM
510			MAINHIGH				FREELWE
518			FREELWR				FREEUPPR
520			ANUCEND				AUSRAREA
528			CURRSAVE		CODE203		PCTCMSFS
530			ADMSFRT				VCADTLKP
538			VCADTNXT				VCADTLKW
540			CURRIOOP				PENDREAD
548			PENDWRIT				FSTFINRD
550			LSTFINRD				AINTRTBL
558			AOUTRTBL		NUMFINRD		NUMPNDWR
560			VMSIZE				ALDRTBLS
568			STRTADDR				FRSTLOC
570			LASTLOC				LOCCNT
578			LDRADDR				LDRRTCD
580					PSW		
588			LDRFLAGS				PRHOLD
590	TBENT		A*5		A*6		GET1
598					DSYM		
5A0			JSYM		A*7		
5A8							ALIASNT
5B0			DYNAEND		/////////////////		
5B8			/////////////////		/////////////////		
5C0			FCBFIRST		FCBNUM		A*8
5C8			/////////////////				LINKLAST



5D0	LINKSTRT		TAXEADDR
5D8	ATSOCPPL		DCBSAV
5E0	A*9   A*10   A*11   A*12		//////////  A*13   A*14
5E8	A*15   A*16   A*17		//////////  ASYSNAMS
5F0	ACMSSEG		ADMSLIO
5F8	VCFSTLKP		VCFSTLKW
600	AFVS		AOPSECT
608	ADEVTAB		AFSTLKP
610	AGETCLK		AFSTLKW
618	APIE		AIADT
620	AUSER		ARDTK
628	ASCANN		ASSTAT
630	ATABEND		ASUBSECT
638	AOSMODL		AWRTK
640	ASTRINIT		IADT
648	AFREE		AFRET
650	ADMSPIOC		APGMSECT
658	AIOSECT		ADMPEXEC
660	ADIOSECT		AABNSVC
668	ADMSERL		ADMSCRD
670	ADMSFREB		ASVCSECT
678	AATLKP		AUPUFD
680	ASTATEXT		AOSRET
688	ACMSRET		ASCANO
690	AEXEC		ASTART
698	AATLKW		AUSABRV
6A0	AEXTSECT		ASCBPTR
6A8	ADMSROS		LDMSROS   CDMSROS
6B0	AACTLKP		AACTNXT
6B8	AACTFREE		AACTFRET
6C0	AACTNXT		ATRKLKP

NUCON

6C8	ATRKLKPY		AQQTRK
6D0	AQQTRKY		AERASE
6D8	ATYPSRCH		AUPDISK
6E0	AKILLEX		ATFINIS
6E8	ARDBUF		AWRBUF
6F0	AFINIS		ASTATE
6F8	ASTATEW		APOINT
7A0	CONCCWS		
708			
710	CONINBLK		
718	CONINBUF		
.			
.			
7A0	CMNDLINE		
.			
.			
848	CMNDLIST		
.			
.			
A60	CONSTACK		
.			
.			
BE0	BALRSAVE		
.			
.			
C20	WAITSAVE		
.			
.			

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
<u>Machine Usage</u>				
000	IPLPSW	DS	1D	Initial program load PSW
008	IPLCCW1	DS	1D	Initial program load CCW1
010	IPLCCW2	DS	1D	Initial program load CCW2
		ORG	IPLPSW	
000	RSTNPSW	DS	1D	PSW restart new PSW
008	RSTOPSW	DS	1D	PSW restart old PSW
010	ACMSCVT	DS	1F	Address of simulated OS CVT
014	ASYSREF	DS	1F	Address of nucleus address table
018	EXTOPSW	DS	1D	External old PSW
020	SVCOPSW	DS	1D	Supervisor call old PSW
028	PGMOPSW	DS	1D	Program old PSW
030	MCKOPSW	DS	1D	Machine-check old PSW
038	IOOPSW	DS	1D	Input/output old PSW
040	CSW	DS	1D	Channel status word
048	CAW	DS	1F	Channel address word
04C	NUCRSV1	DS	1F	Reserved for IBM use
050	TIMER	DS	1F	Interval timer
054	NUCRSV2	DS	1F	Reserved for IBM use
058	EXTNPSW	DS	1D	External new PSW
060	SVCNPSW	DS	1D	Supervisor call new PSW
068	PGMNPSW	DS	1D	Program new PSW
070	MCKNPSW	DS	1D	Machine-check new PSW
078	IONPSW	DS	1D	Input/output new PSW
080	CPULOG	DS	48D	CPU logout area
		ORG	CPULOG	
080	NUCRSV3	DS	2D	Reserved for IBM use
090	NUCRSV4	DS	1F	Reserved for IBM use
094	MONCLASS	DS	1H	Monitor call class number
096	PERCODE	DS	1H	Program event recorder code
098	PERADDR	DS	1F	Program event recorder address
09C	MONCODE	DS	1F	Monitor call code
0A0	NUCRSV5	DS	4D	Reserved for IBM use
0C0	LOWSAVE	DS	XL160	Save area for 1st 160 bytes of storage
160	FPRLOG	DS	4D	Floating-point register logout area
180	GPRLOG	DS	16F	General-purpose register logout area
1C0	ECRLOG	DS	16F	Extended control register logout area
<u>System Usage</u>				
200	SYSTEMID	DS	CL32	System name and date
220	INSTALID	DS	CL64	Installation identification
260	SYSNAME	DS	CL8	Name of IPLed saved system
268	IPLADDR	DS	1H	Address of IPLed device
26A	SYSADDR	DS	1H	Address of system disk
26C	DEVICE	DS	1F	Name of device causing last I/O interrupt
270	NUCRSV6	DS	1F	Reserved for IBM use
274	FEIBM	DC	CL12'FEIBM154067'	FE service number
280	DIAGTIME	DS	CL24	Buffer for DIAGNOSE timer
		ORG	DIAGTIME	
280	CURRDATE	DS	CL8	Current date - MM/DD/YY
288	CURRTIME	DS	CL8	Current time - HH.MM.SS
290	CURRVIRT	DS	1F	Current elapsed virtual time used
294	CURRCPU	DS	1F	Current elapsed CPU time used
298	LASTVIRT	DS	1F	Previous elapsed virtual time used
29C	LASTCPU	DS	1F	Previous elapsed CPU time used
2A0	LASTCMND	DC	CL8' '	Last command issued
2A8	PREVCMND	DC	CL8' '	Next to last command
2B0	LASTEEXEC	DC	CL8' '	Last EXEC procedure
2B8	PREVEXEC	DC	CL8' '	Next to last EXEC procedure

NUCON

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
2C0	LASTLMD	DC CL8'	Last module LOADMOD into main storage
2C8	LASTTMD	DC CL8'ACCESS'	Last module LOADMOD into transient area
2D0	DATIPCMS	DC D'0'	Date (MM/DD/YY) at last IPL CMS
2D8	CLKVALMD	DC D'0'	Time (STCK form) at midnight (0000 hours)

Macro and Test Library Pointers

2E0	MACDIRC	DC 8A(0)	Address of MACRO library directories
300	MACLIBL	DC 18F'-1'	Current MACRO library names
348		DS 3F	Reserved for IBM use
354	TXTDIRC	DC A(0)	Address of TEXT library directories
358	TXTLIBS	DC 18F'-1'	Current TEXT library names

Debug Dump Parameters

3A0	DUMPLIST	DS 0D	DEBUG DUMP PLIST
3A0	GRS015	DC A(GPRLOG)	Address of GPR save area
3A4	LOC0176	DC A(LOWSAVE)	Address of low storage save area
3A8	FIRSTDMP	DC A(0)	Address of first location to dump
3AC	LASTDMP	DC A(0)	Address of last location to dump
3B0	FRS06	DC A(FPRLOG)	Address of FPR save area
3B4	DMPTIT	DC A(DMPTITLE)	Address of dump title line
3B8		DC 4X'FF'	Reserved for IBM use
3BC	DMPTITLE	DC CL132'	Dump title line
440	GLBLTABL	DC F'0'	Reserved for IBM use
444		DC H'0'	Used for alignment
446	SVC\$202	SVC 202	Common SVC for reentrant code
448	ERR\$202	DC A(*+4)	User will fill if necessary
44C		BR 14	Return to caller
44E		DC H'0'	Reserved for IBM use

Batch Monitor Information

450	BATFLAGS	DC 1X'00'	A*1	Batch flags
-----	----------	-----------	-----	-------------

Bits defined in BATRUN

BATRUN	EQU X'80'	Batch monitor running
BATLOAD	EQU X'40'	Loading batch processor
BATNCEX	EQU X'20'	Suppress user job execution
BATRERR	EQU X'10'	Batch reader error
BATCPEX	EQU X'08'	CP command executing
BATUSEX	EQU X'04'	User job executing
BATMOVE	EQU X'02'	MOVEFILE executing from terminal
BATTERM	EQU X'01'	User job being flushed

451	BATFLAG2	DC 1X'00'	A*2	More batch flags
-----	----------	-----------	-----	------------------

Bits defined in BATFLAG2

BATXLIM	EQU X'80'	User job limit exceeded	
BATXCPU	EQU X'40'	CPU time exceeded	
BATXPRT	EQU X'20'	No. printed lines exceeded	
BATXPUN	EQU X'10'	No. punched cards exceeded	
BATDCMS	EQU X'08'	Disabled CMS command called	
BATIPLSS	EQU X'04'	Batch IPLing saved system	
BATSTOP	EQU X'02'	Batch stopping after current job	
452		DC 2X'00'	Reserved for IBM use

Batch Processor Entry Points

454	ABATPROC	DC A(0)	Main entry
458	ABATABND	DC A(0)	User job ABEND entry
45C	ABATLIMT	DC A(0)	User job limits table
460		DC 4F'0'	Reserved for IBM use

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
<u>DOS Library Pointers</u>				
470	DOSDIRC DC	8A(0)		Address of DOS library directories
490	DOSLIBL DC	18F'-1'		Current DOS library names
4D8	DOSFLAGS DC	X'00'	A*3	DOS simulation flags
<u>Bits defined in DOSFLAGS</u>				
	DOSMODE EQU	X'80'		DOS environment flag
	DOSSVC EQU	X'40'		DOS SVC simulation flag
	DOSVSAM EQU	X'20'		DOS VSAM running flag
	DOSCOMP EQU	X'10'		DOS compiler running flag
	DOSPPIO EQU	X'08'		DOS printer indicator
	VSMINSTL EQU	X'04'		VSAM install flag to relocate DCSS table
4D9	DOSRC DC	X'00'	A*4	DOS return code to user
4DA		DC		Reserved for IBM use
4DC	ALTASAVE DC	V(LTASAVE)		Address of LTA save area
4E0	ABGCOM DC	V(BGCOM)		Address of partition communication region
4E4	ASYSKOM DC	V(SYSKOM)		Address of system communication region
4E8	ADOSDCSS DC	A(0)		Address of DOS DCSS
4EC	SVC12SAV DC	F'0'		Work area for SVC 12
4F0	DOSFIRST DC	A(0)		Address of first DOSCB in chain
4F0	DOSNUM DC	H'0'		Number of DOSCBs in chain
4F6		DS		Reserved for IBM use
4F8	APPSAVE DC	V(PPSAVE)		Address of problem program save area
4FC	DOSTRANS DC	A(0)		Address of DOS transient area
<u>Free Storage Pointers</u>				
500	MAINLIST DC	A(0)		Address of 1st block of user free storage
504	MAINSTRT DC	V(USERAREA)		Address of the start of user free storage
508	FREELIST DC	V(NUCEND)		Address of 1st block of system storage
50C	FREENUM DC	F'1'		Number of blocks of system storage
510	MAINHIGH DC	V(USERAREA)		High extend of user free storage
514	FREELOWE DC	V(NUCEND)		Low extend of system free storage
518	FREELOWR DC	V(TRANSAR)		Lower limit of system free storage
51C	FREEUPPR DC	A(0)		Upper limit of system free storage
520	ANUCEND DC	V(NUCEND)		Address of end of nucleus storage area
524	AUSRAREA DC	V(INITSUB)		Address of beginning of user area
528	CURRSAVE DC	A(0)		Address of current save area
52C	CODE203 DC	H'0'		Code number of last SVC 203
52E	PCTCMSFS DS	1H'04'		% of available user storage to reserve
530	ADMSFRT DC	V(DMSFRT)		DMSFRE work area
534	VCADTLKP DS	A(DMSLAD)		BALR equivalent of ADTLKP
538	VCADTNXT DC	A(DMSLADN)		BALR equivalent of ADINXT
53C	VCADTLKW DC	A(DMSLADW)		BALR equivalent of ADTLKW
<u>Console I/O Pointers</u>				
540	CURRIOOP DC	A(0)		Address of current I/O buffer
544	PENDREAD DC	A(0)		Address of pending read operation
548	PENDWRIT DC	A(CONSTACK)		Address of pending write operation
54C	FSTFINRD DC	A(0)		Address of finished read buffer
550	LSTFINRD DC	A(0)		Address of last finished read buffer
554	AINTRTBL DC	A(0)		Address of user input translate table
558	AOUTRTBL DC	A(0)		Address of user output translate table
55C	NUMFINRD DC	H'0'		Number of finished read buffers
55E	NUMPNDWR DC	H'0'		Number of pending write operations

NUCON

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
<u>Loader Information</u>					
560	VMSIZE	DS	1F		Virtual storage size
564	ALDRTBLS	DC	1F'0'		Address of loader tables
568	STRTADDR	DC	1F'0'		Module starting address
56C	FRSTLOC	DC	1F'0'		Module beginning address
570	LASTLOC	DC	1F'0'		Module ending address
574	LOCCNT	DC	1F'0'		Loader location counter
578	LDRADDR	DC	1F'0'		Loader return address
57C	LDRRTCD	DC	1F'0'		Loader return code
580	PSW	DC	1D'0'		User's starting PSW
588	LDRFLAGS	DC	1F'0'		Loader flags
58C	PRHOLD	DC	1F'0'		Pseudo register counter
590	TBENT	DC	H'0'		Initialize table entries to zeros
592	UNRES	DC	X'00'	A*5	Unresolved reference bit for CMS loader
593	MODFLGS	DC	1X'00'	A*6	Flags
<u>Bits defined in MODFLGS</u>					
	NOMAPFLG	EQU	X'80'		NOMAP flag
	CLEAROP	EQU	X'40'		CLEAR option flag
	MOD2	EQU	X'20'		Module generated with DOS option
	MOD3	EQU	X'10'		Module generated with ALL option
	MOD4	EQU	X'08'		Reserved for IBM use
	MOD5	EQU	X'04'		Reserved for IBM use
	MOD6	EQU	X'02'		Reserved for IBM use
	MOD7	EQU	X'01'		Reserved for IBM use
594	GET1	DC	1F'0'		DMSLSY R1 save location
598	DSYM	DC	2F'0'		DMSLSY work space
5A0	JSYM	DC	F'0'	A*7	DMSLSY unique symbol base
5A4	NXTSYM	DC	C'Z'		1st char of unique symbol
5A5		DC	XL7'0'		Rest of unique symbol
5AC	ALIASENT	DC	1F'0'		Alias entry point (dynamic load)
5B0	DYNAEND	DC	1F'0'		Max. load loc (dynamic load)
5B4		DS	3F		Reserved for IBM
<u>OS Simulation Pointers</u>					
5C0	FCBTAB	DS	0D		FCB chain anchor
5C0	FCBFIRST	DC	A(0)		Address of first FCB
5C4	FCBNUM	DC	H'0'		Number of FCBs in chain
5C6		DC	X'00'		Reserved for IBM
5C7	OSSFLAGS	DC	X'00'	A*8	OS simulation flags
<u>Bits defined in OSSFLAGS</u>					
	COMPSWT	EQU	X'80'		Compiler switch
	OSSMNU	EQU	X'40'		DMSSMN unconditional flag
	OSRESET	EQU	X'20'		
	OSWAIT	EQU	X'10'		
	DYLD	EQU	X'08'		Dynamic loading in process
	DYLIBO	EQU	X'04'		OMIT dynamic library scan
	DYLIBNOW	EQU	X'02'		Dynamic library scan
	DYMBRNM	EQU	X'01'		Linked via member name
5C8		DC	A(0)		Reserved for IBM
5CC	LINKLAST	DC	A(0)		Address of last OS linkage block
5D0	LINKSTRT	DC	A(0)		Address of entry point of last module
5D4	TAXEADDR	DC	A(0)		Terminal attention exit element address
5D8	ATSOCPL	DC	V(CPP)		Address of TMP PLIST for TSO programs
5DC	DCBSAV	DC	1F'0'		DCB restoration address

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
5E0	OPTFLAGS	DC	1X'00' A*9	Option flags
	<u>Bits defined in OPTFLAGS</u>			
	NOIMPEX	EQU	X'80'	No implied EXEC commands
	NOIMPCP	EQU	X'40'	No implied CP commands
	NOSTDSYN	EQU	X'20'	No standard synonyms
	NOABBREV	EQU	X'10'	No command abbreviations
	NOPAGREL	EQU	X'08'	No automatic page release
	NOVMREAD	EQU	X'04'	No automatic VM console read
5E1	MISFLAGS	DC	1X'00' A*10	Miscellaneous flags
	<u>Bits defined in MISFLAGS</u>			
	KXSWITCH	EQU	X'80'	Halt execution switch
	KOSWITCH	EQU	X'40'	Halt tracing switch
	REL PAGES	EQU	X'20'	Release pages switch
	GRAFDEV	EQU	X'10'	Graphics console
	QSWITCH	EQU	X'08'	Quiet switch console read
	NODDSK	EQU	X'04'	Don't access d disk
	NEGITS	EQU	X'02'	Negative return code from DMSITS
	MISFL01	EQU	X'01'	Reserved for IBM use
5E2	MSGFLAGS	DC	1X'00' A*11	Message flags
	<u>Bits defined in MSGFLAGS</u>			
	NOTYPOUT	EQU	X'80'	No typing- set by EXEC
	NOTYPING	EQU	X'40'	No typing - set by HT
	NORDYMSG	EQU	X'20'	No ready message to be typed
	NORDYTIM	EQU	X'10'	No time on ready message
	REDEERRID	EQU	X'08'	Error code to be typed in red
	NOERRMSG	EQU	X'04'	No error messages to be typed
	NOERRTXT	EQU	X'02'	No text on error messages
	SPECLF	EQU	X'01'	Linefeed for typewriter CCW
5E3	DBGFLAGS	DC	1X'00' A*12	DEBUG flags
	<u>Bits defined in DBGFLAGS</u>			
	DBGEXEC	EQU	X'80'	DEBUG executing
	DBGPGMCK	EQU	X'40'	Debug entered by a program check
	DBGEXINT	EQU	X'20'	Debug entered by an external interrupt
	DBGABN	EQU	X'10'	Debug entered from DMSABN
	DBGNSHR	EQU	X'08'	No shared segment present
	DBGSHR	EQU	X'04'	Shared segment present
	DBGRECUR	EQU	X'02'	Recursion flag
5E4		DC	2X'00'	Reserved for IBM use
5E6	EXECFLAG	DC	1X'00' A*13	EXEC flags
	<u>Bits defined in EXECFLAG</u>			
	EXECRUN	EQU	X'80'	EXEC command running
5E7	PROTFLAG	DC	1X'00' A*14	Storage protection flags
	<u>Bits defined by PROTFLAG</u>			
	PRFPOFF	EQU	X'80'	Storage protection is shut off
	PRFTSYS	EQU	X'40'	System routine in transient area
	PRFUSYS	EQU	X'20'	System routine in user area
5E8	TSOFLAGS	DC	1X'00' A*15	TSO flag byte
	<u>Bits defined in TSOFLAGS</u>			
	TSOATCNL	EQU	X'80'	Read canceled by attention
5E9	SUBFLAG	DC	1X'00' A*16	CMS subset flag byte

NUCON

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
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Bits defined in SUBFLAG

SUBREJ	EQU	X'08'		Subset command reject
SUBRTN	EQU	X'04'		Subset return
SUBINIT	EQU	X'02'		Subset initialization
SUBACT	EQU	X'01'		Subset active

5EA	DCSSFLAG	DC	X'00'	A*17	DCSS indicators
-----	----------	----	-------	------	-----------------

Bits defined in DCSSFLAG

DCSSAVAL	EQU	X'80'		CMSSEG segment exists
DCSSLDED	EQU	X'40'		CMSSEG loaded
DCSSCPNV	EQU	X'20'		CP or invalid command issued
DCSSLDS	EQU	X'10'		Loading S-disk
DCSSVTNA	EQU	X'08'		DMSSVT not available
DCSSVTLD	EQU	X'04'		DMSSVT is loaded
DCSSOVLP	EQU	X'02'		VM storage overlaid by DCSS

	DCSSJLNS	DC	X'01'		CMSSEG just loaded nonshared
5EB		DC	X'00'		Reserved for IBM use
5EC	ASYSNAMS	DC	V (SYSNAMES)		
5F0	ACMSSEG	DC	F'0'		Address of CMS saved segment
5F4	ADMSLIO	DC	V (DMSLIO)		
5F8	VCFSTLKP	DC	V (DMSLFS)		BALR equivalent of FSTLKP
5FC	VCFSTLKW	DC	V (DMSLFSW)		BALR equivalent of FSTLKW

Nucleus Address Table

600	SYSREF	DS	0D	
600	AFVS	DC	V (FVS)	
604	AOPSECT	DC	V (OPSECT)	
608	ADEVTAB	DC	V (DEV TAB)	
60C	AFSTLKP	DC	V (FSTLKP)	
610	AGETCLK	DC	V (DMSINM)	
614	AFSTLKW	DC	V (FSTLKW)	
618	APIE	DC	V (PIE)	
61C	AIADT	DC	V (IADT)	
620	AUSER	DC	V (USERSECT)	
624	ARDTK	DC	V (DMSDIOR)	
628	ASCANN	DC	V (DMSSCNN)	
62C	ASSTAT	DC	A (0)	
630	ATABEND	DC	V (TABEND)	
634	ASUBSECT	DC	V (SUBSECT)	
638	AOSMODL	DC	A (0)	
63C	AWRTK	DC	V (DMSDIOW)	
640	ASTRINIT	DC	V (DMSSMNST)	



Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
644	IADT	DC	V (ADTSECT)
648	AFREE	DC	V (FREE)
64C	AFRET	DC	V (FRET)
650	ADMSPIOC	DC	V (DMSPIOCC)
654	APGMSECT	DC	V (PGMSECT)
658	AIOSECT	DC	V (IOSECT)
65C	ADMPEXEC	DC	V (DMSDBD)
660	ADIOSECT	DC	V (DIOSECT)
664	AABNSVC	DC	V (DMSABNUA)
668	ADMSERL	DC	V (DMSERL)
66C	ADMSCRD	DC	V (DMSCRD)
670	ADMSFREB	DC	V (DMSFREB)
674	ASVCSECT	DC	V (SVCSECT)
678	AADTLKP	DC	V (ADTLKP)
67C	AUPUFD	DC	V (DMSAUDUP)
680	ASTATEXT	DC	A (0)
684	AOSRET	DC	V (OSRET)
688	ACMSRET	DC	V (CMSRET)
68C	ASCANO	DC	V (DMSSCNO)
690	AEXEC	DC	V (DMSEXC)
694	ASTART	DC	V (DMSLDRA)
698	AADTLKW	DC	V (ADTLKW)
69C	AUSABRV	DC	V (USAERV)
6A0	AEXTSECT	DC	V (EXTSECT)
6A4	ASCBPTR	DC	V (SCBPTR)
6A8	ADMSROS	DC	A (0)
6AC	LDMSROS	DC	H'0'
6AE	CDMSROS	DC	H'0'
6B0	AACTLKP	DC	V (DMSLAF)
6B4	AACTNXT	DC	V (DMSLAFNX)
6B8	AACTFREE	DC	V (DMSLAFFE)
6BC	AACTFRET	DC	V (DMSLAFFT)
6C0	AADTNXT	DC	V (ADTNXT)
6C4	ATRKLKP	DC	V (DMSTRK)
6C8	ATRKLKPX	DC	V (DMSTRKX)
6CC	AQQTRK	DC	V (DMSTQQ)
6D0	AQQTRKX	DC	V (DMSTQQX)
6D4	AERASE	DC	V (DMSERS)
6D8	ATYPSRCH	DC	V (TYPSCRCH)
6DC	AUPDISK	DC	V (DMSAUD)
6E0	AKILLEX	DC	V (KILLEX)
6E4	ATFINIS	DC	V (DMSFNST)
6E8	ARDBUF	DC	V (DMSERD)
6EC	AWRBUF	DC	V (DMSBWR)
6F0	AFINIS	DC	V (DMSFNS)
6F4	ASTATE	DC	V (DMSSTTE)
6F8	ASTATEW	DC	V (DMSSTTW)
6FC	APOINT	DC	V (POINT)

*1/8 row area used by DMSCT*

NUCON

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
<u>Terminal Buffers</u>				
700		DS	0D	
700	CONCCWS	CCW	0,0,X'60',0	Console read and write CCW
708		CCW	3,0,X'20',1	NOP to get CE and DE together
710	CONINBLK	DC	A(0)	
714		DC	XL1'0A'	
715		DC	AL1(134)	
716	CONINBUF	DS	CL134	
7A0		DS	0D	
7A0	CMNDLINE	DS	CL160	
840		DS	0D	
840		DC	CL8'EXEC'	
848	CMNDLIST	DS	CL536	
A60		DS	0D	
A60	CONSTACK	DS	CL320	
<u>Save Areas</u>				
BA0	FREESAVE	DS	16F	
BE0	BALRSAVE	DS	16F	
C20	WAITSAVE	DS	16F	
<u>VSAM and AMSERV Control Words</u>				
C60		DS	0D	
<u>Percent of available user storage to reserve for GETVIS/FREEVIS use when running VSAM</u>				
C60	PCTVSAM	DC	H'50'	50 percent for CMS/VSAM use
C62		DS	1H	Reserved for IBM use
C64		DS	1F	Reserved for IBM use
<u>Beginning and End of IKQLAB (when in storage)</u>				
C68	ADIKQLAB	DC	A(X'FFFFFF')	Set to A(IKQLAB) when it is in storage
C6C	NDIKQLAB	DC	A(0)	Set to end of IKQLAB when in storage
C70	ARURTBL	DC	V(RURTBL)	VSAM resource table address
C74	ADMSVIB	DC	V(DMSVIB)	Address of VSAM interface bootstrap
C78	AVIPWORK	DC	A(0)	Address of DMSVIP work area
C7C	VSAMFLG1	DC	X'00'	VSAM information flag
	VSAMRUN	EQU	X'80'	VSAM system loaded
	VSJOB CAT	EQU	X'40'	VSAM job catalog active
	VIPINIT	EQU	X'20'	DMSVIP has been initialized
	VSAMSERV	EQU	X'10'	CMSAMS system loaded (AMSERV running)
	VIPSOP	EQU	X'08'	OS interface SVC 2 call
	VIPTCLOS	EQU	X'04'	OS 'tclose' call
	VSAMSOS	EQU	X'0'	OS AMSERV running
C7D		DS	3X	Reserved for IBM use
C80	AVSAMSYS	DC	A(0)	Address of VSAM saved system
C84	AAMSSYS	DC	A(0)	Address of CMSAMS saved system
C88	AVSREOJ	DC	V(\$\$BEOJ4)	DMSVSR entry point from VSAM \$\$BACLOS
C8C	AVSRWORK	DC	A(0)	Address of DMSVSR work area
C90	ACBLIST	DC	A(0)	ACB list built by OPEN/CLOSE
C94		DS	3F	Reserved for IBM use
CA0		DS	0D	

OPSECT: MAJOR DSECT FOR ALL I/O OPERATION LISTS

OPSECT describes the fields used by several programs as parameter lists for reading and writing on disks and other devices.

The OPSECT DSECT is pointed to by the AOPSECT field (hex 604) in NUCON.

0	CMSOP		
8	FILENAME		
10	FILETYPE		
18	FILEMODE	FILEITEM	FILEBUFF
20	FILEBYTE	FILEFORM	FILECOUT
28	FILEREAD		SAVER 14
30	SAVER15		SAVER0
38	SAVER1		CMSNAME
40	CMSNAME (cont.)		CONREAD
48	CONREAD (cont.)		CONRDBUF
50	A*1	CONRDCNT	////////////////////////////////////
58	WAITLIST		
60	CONWRITE		
68	CONWRBUF	A*2	CONWRCNT
70	WAITLST		
78	WAITDEV		
80			READLST
88	READLIST (cont.)		RDBUFF
90	RDCCW	RDCOUNT	PUNCHLST
98	PUNCHLST (cont.)		PUNBUFF
A0	PUNCOUNT		PRINTLST
A8	PRINTLST (cont.)		PRBUF
B0	PRCNT		TAPELIST
B8	TAPELIST (cont.)		TAPEOPER
C0	TAPEOPER (cont.)		TAPEDEV
C8	A*3	TAPEBUFF	TAPESIZE

OPSECT

D0	TAPECOUT		CLOSIO
D8	CLOSIO (cont.)		CLOSIODV
E0	CLOSIODV (cont.)		
.			
.			
118	EXLEVEL		EXP1
120	EXNUM		EXADD
128			
130	FCBIO		A*4

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
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Main I/O Operation List

0	PLIST	DS	OD	
0	CMSOP	DS	CL8	I/O operation command word
8	FILENAME	DS	CL8	Filename
10	FILETYPE	DS	CL8	Filetype
18	FILEMODE	DS	CL2	Filemode
1A	FILEITEM	DS	H	Item identification number
1C	FILEBUFF	DS	F	Input output buffer
20	FILEBYTE	DS	F	Data Count
24	FILEFORM	DS	CL2	File format: fixed/variable records
26	FILECOUT	DS	H	Records per block
28	FILEREAD	DS	F	Read data count
	PCINTERS	EQU	FILEITEM	
	AFST	EQU	FILEBUFF	
	IOAREA	EQU	FILEBUFF	Buffer area location
	IOLENGTH	EQU	FILEBYTE	Buffer length

Immediate Register Save Area

2C	SAVER14	DC	F'0'	Temporary R14 save
30	SAVER15	DC	F'0'	Temporary R15 save
34	SAVER0	DC	F'0'	Temporary R0 save
38	SAVER1	DC	F'0'	Temporary R1 save
3C	CMSNAME	DC	CL8'FILE'	Default filename

Console Parameter Lists

44		DS	OF	
----	--	----	----	--

Read Console

44	CONREAD	DC	CL8'WAITRD'	Terminal read
4C	CONRDBUF	DC	V(CMNCLINE)	Address of input buffer
50	CONRDCOD	DC	C'U' A*1	Translate code
		DC	X'0'	
52	CONRDCNT	DC	AL2(0)	Data byte count
54		DC	F'0'	Reserved for IBM use

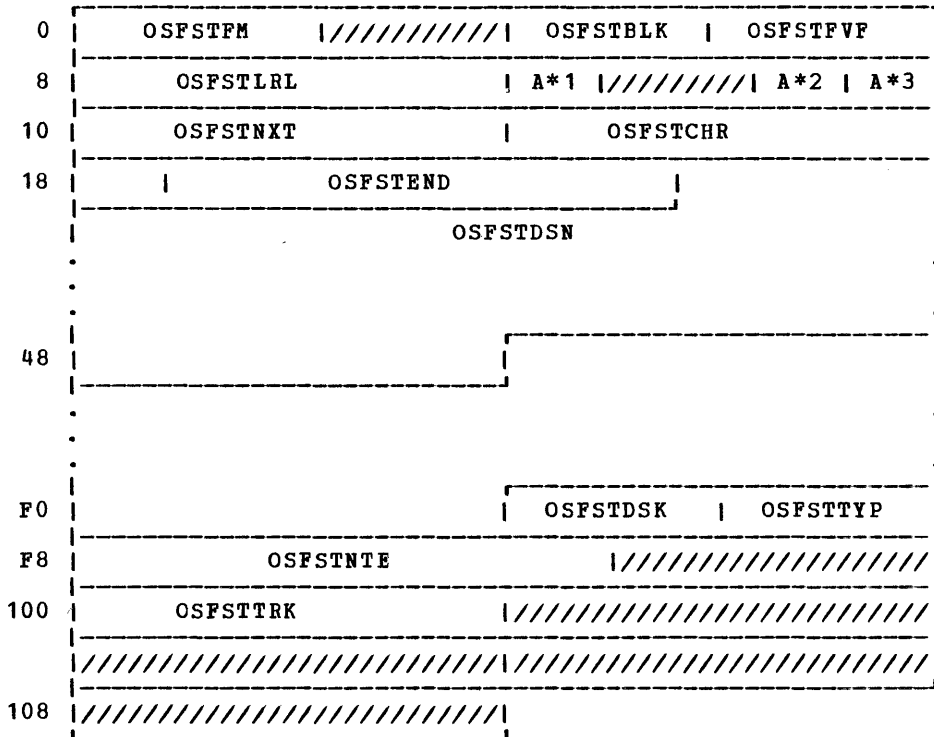
<u>Hexadecimal Displacement</u>	<u>Field Name</u>			<u>Field Description, Contents, Meaning</u>
<u>Console Wait List</u>				
58	WAITLIST DS	0F		
58	DC	CL8'CONWAIT'		
<u>Write Console</u>				
60	CONWRITE DS	0F		
60	DC	CL8'TYPLIN'		
68	CONWRBUF DC	A(0)	A*2	Location of message text
6C	CONWRCOD DC	C'B'		Color code
6E	DC	X'00'		
6E	CONWRCNT DC	AL2(0)		Length of message text
<u>Wait Parameter List</u>				
70	WAITLST DS	0F		
70	DC	CL8'WAIT'		Address of DMSCWT
78	WAITDEV DC	CL4'CON1'		Symbolic address of console
7C	DC	F'0'		
80	DC	F'0'		
<u>Reader Parameter List</u>				
84	DS	0F		
84	READLST DC	CL8'CARDRD'		
8C	RDBUFF DC	A(0)		Buffer address
90	RDCCW DC	H'0'		CCW byte count
92	RDCOUNT DC	H'0'		Bytes actually read
<u>Card Punch Parameter List</u>				
94	PUNCHLST DS	0F		
94	DC	CL8'CARDPH'		
9C	PUNBUFF DC	A(0)		Punch buffer address
A0	PUNCOUNT DC	A(0)		Punch CCW count
<u>Printer Parameter List</u>				
A4	PRINTLST DS	0F		
A4	DC	CL8'PRINTR'		
AC	PRBUF DC	A(0)		Printer buffer address
B0	PRCNT DC	A(0)		Printer data count
<u>Tape Parameter List</u>				
B4	TAPELIST DS	0F		
B4	DC	CL8'TAPEIO'		
BC	TAPEOPER DC	CL8' '		Tape operation command
C4	TAPEDEV DC	CL4'TAP1'		Tape symbolic device
C8	TAPEMASK DC	X'00'	A*3	Set mode
C9	TAPEBUFF DC	AL3(0)		Buffer location
CC	TAPESIZE DC	F'0'		
D0	TAPECOUT DC	F'0'		Tape counter

OPSECT

<u>Hexadecimal Displacement</u>	<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>		
<u>Close Out Device Dependent Data Set On Unit Record Equipment</u>				
D4	CLOSIO	DS	0F	
D4		DC	CL8'CLOSIO'	Operation
DC	CLOSIODV	DC	CL8' '	Device type
E4		DC	4X'FF'	
E8		DC	6D'0' -	Reserved for IBM use
<u>Storage for EXEC Bootstrap</u>				
118	EXLEVEL	DC	F'0'	EXEC level
11C	EXP1	DC	F'1'	Follows EXEC level
120	EXNUM	DC	F'0'	Number doublewords free storage
124	EXADD	DC	F'0'	Address of DMSEXT in storage
128		DC	2F'0' -	Reserved for IBM use
<u>Storage for OS Macro Simulation Routines</u>				
130	FCBIO	DC	A(0) -	Address of last FCB used during I/O
134	OSIOTYPE	DC	X'DD' - A*4	OS access method type

OSFST: OS FILE STATUS TABLE

OSFST describes the fields of an OS file status table. When an OS disk is accessed, DMSROS builds and fills in an OSFST block, which is comparable to a CMS FST block. This block is released by DMSALU.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	OSFSTFM DS 1H			Disk mode
2	DS 1H			Reserved for IBM use
4	OSFSTBLK DS 1H			Block size
6	OSFSTFVF DS 1H			Fixed/variable flag
8	OSFSTLRL DS 1F			Logical record size
C	OSFSTRFM DS 1X	A*1		OS record format
D	DS 1X			Reserved for IBM use
<u>Bits defined in OSFSTFLG</u>				
E	OSFSTFLG DS 1X	A*2		Flag byte
	OSFSTALT EQU X'80'			Alternate track indicator
	OSFSTMVL EQU X'08'			Multiple volume data set
	OSFSTDBK EQU X'40'			Block size not specified in DSCB
	OSFSTUMV EQU X'02'			Unmoveable data set
	OSFSTRSW EQU X'01'			Indicates point+1 just issued
F	OSFSTXNO DS 1X	A*3		Number of data extents on disk
10	OSFSTNXT DS 1F			Next OS FST
14	OSFSTCHR DS 5X			CCHHR of last I/O operation

OSFST

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
19	OSFSTEND	DS 5X	Current extent end
1E	OSFSTDSN	DS 44C	Data set name
4A	OSFSTXTN	DS 170X	Data extents description
	OSFSTEX4	EQU OSFSTXTN+30	Location of 4th extent from DSCB3
F4	OSFSTDSK	DS 1H	Disk address (OCUU)
F6	OSFSTTYP	DS 1H	Disk device type
			See OSADT for type flags
F8	OSFSTNTE	DS 5X	Used to save CCHHR for NOTE macro
FD		DS 3X	Reserved for IBM use
100	OSFSTRK	DS 1F	No. tracks per cylinder
104		DS 4F	Reserved for IBM use
118		DS 0D	
	OSFSTLTH	EQU (*-OSFST)/8	OS FST length in doublewords



OVSECT: DESCRIBES THE FIRST FEW LOCATIONS OF DMSOVS

OVSECT is used by module DMSOVS to provide trace information requested by SVCTRACE.

0	OVSGO		AERR
8	AWAIT		LENOVS

<u>Hexadecimal Displacement</u>	<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>
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This Macro Describes the First Few Words of the DMSOVS Module

0	OVSGO	B	*-*	Branch to this point for TRACE
4	AERR	DC	A(0)	Address of DMSERR
8	AWAIT	DC	A(0)	Address of CONWAIT
C	LENOVS	DC	A(0)	Length of DMSOVS doublewords

PCTAB: PROGRAM CHECK OPTION TABLE

PCTAB is used by DOS/VS routines in the event of a program check. The address of PCTAB is in bytes X'64' and X'65' of the partition communication region (BGCOM).

0	PCROUT		PCSAVE
---	--------	--	--------

<u>Hexadecimal Displacement</u>	<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>
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	PCTAB	EQU	*-8	
0	PCROUT	DC	F'0'	Program check routine
4	PCSAVE	DC	F'0'	Program check save area

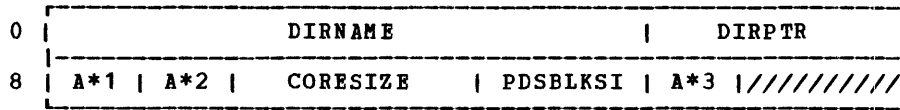
PCROUT can contain one of three values: zero (indicating that no STXIT macro was issued), the address of a user program check routine (indicating that th STXIT macro was issued), or the complement of the address of a user program check routine (indicating that the routine specified in the user STXIT macro was already in use).

PCSAVE can contain either zero (indicating that no STXIT macro was issued), or the address of the user save area (indicating that the STXIT macro was used).

PDSSECT

PDSSECT: DIRECTORY TABLE FOR BPAM SIMULATION

PDSSECT describes the fields of the in-storage directory that is used in OS simulation of BPAM.

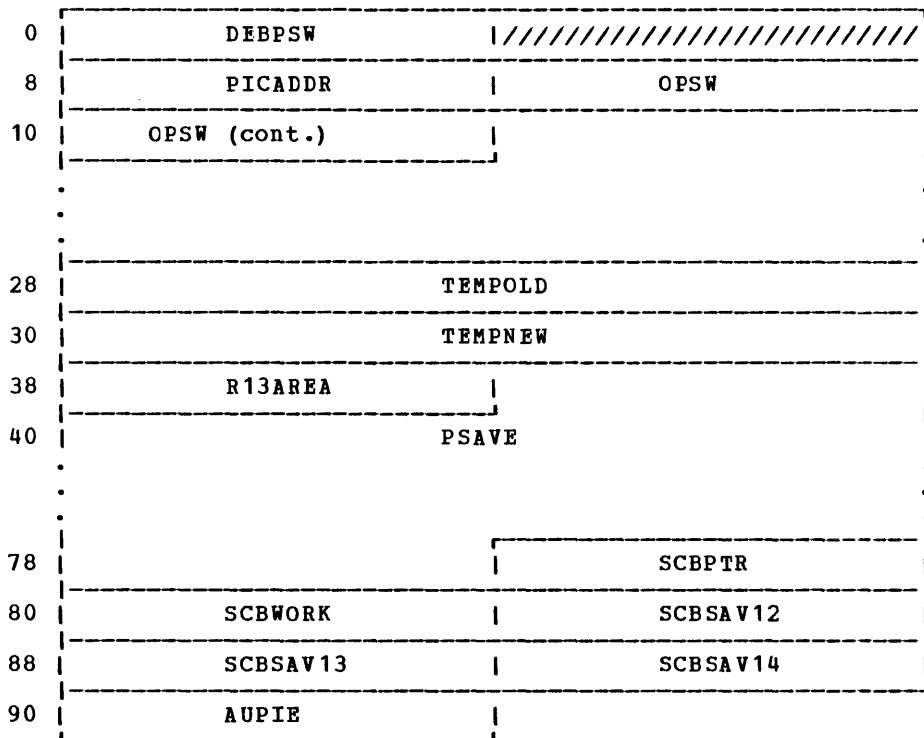


Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	DIRNAME DS 3H	MACLIB identifier
6	DIRPTR DS 1H	Item pointer to start of directory
8	TEMPBYTE DS 1X	A*1 If \$ , then PDS is in \$PDSTEMP file
9	NEWBLKS DS 1X	A*2 No. new blocks added to PDS by STOW
A	CORESIZE DS 1H	Size of dictionary in bytes
C	PDSBLKSI DS 1H	A*3 Block size of dictionary
E	CHNGBYTE DS 1X	Indicates updates to directory
F	DS 1X	Reserved for IBM use
10	PDSDIR DS 0F	Start of in-storage directory

PGMSECT: PROGRAM INTERRUPT WORK AREA

PGMSECT describes the fields used by DMSITP for saving registers, old PSW, and other data for handling program interrupts.

The PGMSECT DSECT is pointed to by the APMSECT field (hex 654) in NUCON.



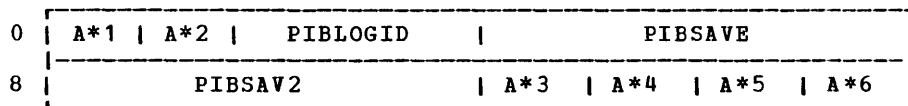
<u>Hexadecimal Displacement</u>	<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>		
<u>Storage for Program Interrupt Routine (DMSITP)</u>				
0	DEBPSW	DC	F'0',V(DMSDBG)	Point to debug
8	PIE	DS	0D	Program interrupt element
8	PICADDR	DC	F'0'	PICA address from recent SPIE
C	OPSW	DC	2F'0'	Old PSW after program interrupt
14		DC	5F'0'	Regs: R14,R15,R0,R1,R2
				End program interrupt element
28	TEMPOLD	DC	8X'00'	Work area
30	TEMPNEW	DC	8X'00'	
38	R13AREA	DC	F'0'	Saved R13
3C	PSAVE	DC	16F'0'	Regs saved at interrupt time

PGMSECT

<u>Hexadecimal Displacement</u>	<u>Field Name</u>			<u>Field Description, Contents, Meaning</u>
7C	SCBPTR	DC	F'0'	Pointer to first STAE control block
	<u>Bits defined in SCBPTR</u>			
	STAEBIT	EQU	X'80'	
	STAIBIT	EQU	X'40'	
	RETRYBIT	EQU	X'20'	
80	SCBWORK	DC	A(0)	Address of work area for STAE exit routine
84	SCBSAV12	DC	A(0)	Address of reg 12 save area for DMSSAB
88	SCBSAV13	DC	A(0)	Address of reg 13 save area for DMSSAB
8C	SCBSAV14	DC	A(0)	Address of reg 14 save area for DMSSAB
90	AUPIE	DS	A	Address of user's PIE, in SPIE exit

PIBADR: PROGRAM INFORMATION BLOCK

PIBADR contains a save area address and interrupt information. PIBADR is invoked by the PIBTAB macro and is often referred to by this macro name. The PIBPT field (hex 5A) in the BGC0M block points to the PIBADR block.



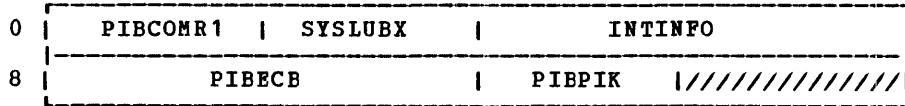
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning			
0	PIBFLG DS X	A*1	Flags		
1	PIBCNCL DS X	A*2	Cancel code		
2	PIBLOGID DS XL2	SYSLOG ID			
4	PIBSAVE DS XL4	Address of save area			
	ARFLG EQU PIBADR+8	Save area address			
8	PIBSAV2 DS XL4	Address of system save area			
C	PIBPUBAS DS X	A*3	PUB assign flags		
D	PIBLUBID DS X	A*4	LUB no. of first problem program LUB		
E	PIBLUBNO DS C	A*5	Number of LUBs		
F	PIBFLG2 DS C	A*6	More flags		
	ORG PIBADR	PIB extension DSECT			
0	PIBCOMRA DS XL2	Communication region address			
2	SYSLUBX DS XL2	System class LUB address			
4	INTINFO DS XL4	Interrupt information			
	SVCIC EQU INTINFOX3				
8	PIBECB DS XL2	Program interrupt key			
A	DS XL2	Reserved for IBM use			

PIB2TAB

PIB2TAB: PROGRAM INFORMATION BLOCK EXTENSION

PIB2TAB is an extension of the PIBTAB block. For each PIB table entry, an entry exists in the PIB table extension block (PIB2TAB).

The PIB2PTR field (hex 7C) in the BGCMB block points to the PIB2TAB block.

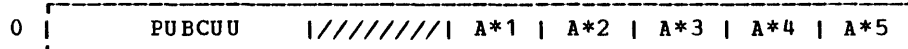


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	PIBCOMR1	DS	XL2	Address of communications region
2	SYSLUBX	DS	XL2	System IUB index
4	INTINFO	DS	XL4	Used for interruption code
	SVCIC	EQU	INTINFO+3	SVC interrupt code
8	PIBECB	DS	XL4	Address of termination ECB, if any
C	PIBPIK	DS	XL2	Program interrupt key
E		DS	XL2	Reserved for IBM use

PUBADR: PHYSICAL UNIT BLOCK TABLE

PUBADR is a table defining the physical devices being used by CMS/DOS. The simulated PUBADR has eighteen 8-byte entries, one for each device supported by CMS. Also included here is the DSECT used by DOS/VS routines. Both DSECTs define the same storage. The simulated PUBADR is invoked by the MAPPUB macro; the DOS/VS DSECT is invoked by the PUBTAB macro.

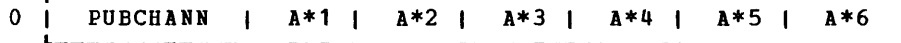
The address of the PUBADR is at displacement X'40' of BGC0M.



Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	PUBCUU	DS	XL2		Channel and device number
2		DS	X		Reserved for IBM use
3	PUBDSKM	DS	X	A*1	Disk mode if assigned DASD
4	PUBDEVT	DS	X	A*2	Device type code
5	PUBTAPM1	DS	X	A*3	CMS tape set mode attributes
6	PUBTAPM2	DS	X	A*4	DOS tape set mode attributes
7	PUBTAP7	DS	X	A*5	7-track indicator

PUBADR

PUBADR defines the fields of a physical unit block table as used in CMS/DOS. PUBADR is invoked by the PUBTAB macro.

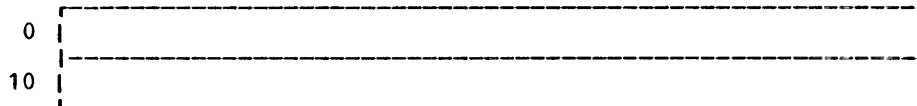


Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
0	PUBCHANN	DS XL2	Channel and device number
2	PUBCHQPT	DS X	A*1 Reserved for IBM use
3	PUBERR	DS X	A*2 Error retry counter or TEB point
4	PUBDEVTY	DS X	A*3 Device type code
5	PUBOPTN	DS X	A*4 Set mode command or other options
6	PUBCSFLG	DS X	A*5 Channel scheduler flags
7	PUBJCFLG	DS X	A*6 Job control flags
	PUBWIT	EQU *-PUBADR	Length of PUB table
	PUBPTR	EQU NEXTPUB	Pointer to original PUB



PUBOWNER: PHYSICAL UNIT BLOCK OWNERSHIP TABLE

PUBOWNER is comprised of a 2-byte entry for each entry in the PUB table. For CMS/DOS, there are eighteen 2-byte entries. The address of the PUBOWNER table is at displacement X'78' of the system communication table (SYSCOM).



<u>Hexadecimal Displacement</u>	<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>
	PUBOWNER DS      0H	PUB ownership table
	ENTRY PUBOWNER	
	DS      18X'000'	PUB owner

PUBOWNER entries have the following meanings:

<u>Byte</u>	<u>Value</u>	<u>Meaning</u>
0	X'00'	The physical unit is reserved.
	X'40'	CMS is waiting for the volume to be mounted.
1	X'01'	Background partition owns the physical unit.

SSAVE

SSAVE: SYSTEM SAVE AREA

SSAVE is used by DMSITS to save the value of the SVC old PSW, the caller's registers, and other necessary control information required to process the SVC and return to the caller. Since SVC calls can be nested, several of these save areas can exist at one time. The system save area is allocated in protected free storage. SSAVE is invoked via the CMSAVE macro.

0	A*1	A*2	CODE	CALLER
8	CALLEE			
10	OLDPSW			
18	NRMRET		ERRET	
20	EGPR0		EGPR1	
28	EGPR2		EGPR3	
30	EGPR4		EGPR5	
38	EGPR6		EGPR7	
40	EGPR8		EGPR9	
48	EGPR10		EGPR11	
50	EGPR12		EGPR13	
58	EGPR14		EGPR15	
60	EFPR0			
68	EFPR2			
70	EFPR4			
78	EFPR6			
80	CHKWRD1		SSAVENXT	
88	SSAVEPRV		USAVEPTR	
90	OSTEMP		A*3	KEYS
98	KEYS (cont.)		XGPR0	
A0	XGPR1		XGPR15	
A8	XCOUNT		CHKWRD2	

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
0	OVIND	DS	X	A*1	Override indicator: 0,1,2,3
	TYPFLAG	DS	BL1	A*2	SVC type byte
	<u>Bits defined in TYPFLAG</u>				
	TPFERT	EQU	X'80'		Error return desired
	TPFNS	EQU	X'40'		No save area allocated
	TPFR01	EQU	X'20'		Return callee's R0-R1 to caller
	TPFUSR	EQU	X'10'		User SVC call
	TPFACB	EQU	X'08'		OS VSAM SVC request
	TPFSV3	EQU	X'02'		SVC 203
	TPFSVO	EQU	X'01'		OS simulation SVC
2	CODE	DS	H		SVC 203 code value
4	CALLER	DS	A		Address of SVC caller
8	CALLEE	DS	D		Name of routine being called
10	OLDPSW	DS	D		SVC old PSW of caller
18	NRMRET	DS	A		Address for normal return
1C	ERRET	DS	A		Address for error return
20	EGPRS	DS	0F		General-purpose registers at entry
20	EGPR0	DS	F		R0
24	EGPR1	DS	F		R1
28	EGPR2	DS	F		R2
2C	EGPR3	DS	F		R3
30	EGPR4	DS	F		R4
34	EGPR5	DS	F		R5
38	EGPR6	DS	F		R6
3C	EGPR7	DS	F		R7
40	EGPR8	DS	F		R8
44	EGPR9	DS	F		R9
48	EGPR10	DS	F		R10
4C	EGPR11	DS	F		R11
50	EGPR12	DS	F		R12
54	EGPR13	DS	F		R13
58	EGPR14	DS	F		R14
5C	EGPR15	DS	F		R15
60	EFPRS	DS	0D		Floating-point registers at entry
60	EFPR0	DS	D		FPR0
68	EFPR2	DS	D		FPR2
70	EFPR4	DS	D		FPR4
78	EFPR6	DS	D		FPR6
80	CHKWRD1	DC	C'ABCD'		Check word 1
84	SSAVENXT	DS	A		Address of next SSAVE area
88	SSAVEPRV	DS	A		Address of previous SSAVE area
8C	USAVEPTR	DS	A		Address of corresponding user Save area
90	OSTEMP	DS	F		Temporary work area for OS simulation routines

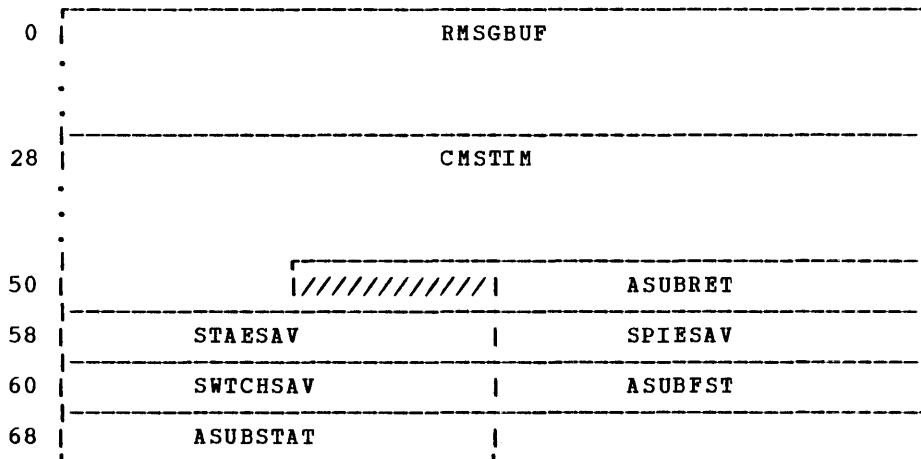
SSAVE

Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
<u>DMSKEY Key Stack</u>					
	KEYMAX	EQU	7		Maximum number of keys in stack
94	KEYP	DC	X'00'	A*3	Number of keys on stack
95	KEYS	DS	(KEYMAX)X		Key stack
<u>The following fields are filled in only by DMSOVS, the SVCTRACE subroutine</u>					
9C	XGPRO	DS	F		Extra copy of EGPRO
A0	XGPR1	DS	F		Extra copy of EGPR1
A4	XGPR15	DS	F		Extra copy of EGPR15
	XCOUNT	DS	F		Extra copy of SVCOUNT
AC	CHKWRD2	DC	C'EFGH'		Check word 2
	SSAVESZ	EQU	(*-SSAVE+7)/8		Size of system save area
<u>Format of User Save Area</u>					
0	USAVE	DSECT			
0		DS	12D		Scratch area passed to user via a pointer in register 13
	USAVESZ	EQU	(*-USAVE+7)/8		Size of user save area

SUBSECT: SUBSET WORK AREA

SUBSECT defines the fields in the SUBSET work area which is used by CMS SUBSET command processing and ABEND recovery.

The SUBSECT DSECT is pointed to by the ASUBSECT field (hex 634) in NUCON.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
	RMSGBUF	DS	10F	Buffer area for formatting time message
28	CMSTIM	DS	0F	PLIST to obtain time from DMSINM
28		DC	CL8'CMSTIME'	
30		DS	F	Virtual machine time used
34		DS	F	Total CPU time used (CP+CMS)
38		DS	A	Address of time buffer
3C		DS	F	Message length (filled in by CMSTIME)
40		DS	0F	PLIST for DMSLAF (used by SUBSET)
40	STARS	DC	CL8'**'	
48		DC	CL8'**'	
50		DC	CL2'**'	

Subset Address Storage Areas

54		DS	0F	
54	ASUBRET	DS	F	Return address to caller
58	STAESAV	DS	F	STAE save area
5C	SPIESAV	DS	F	SPIE save area
60	SWCHSAV	DS	F	
64	ASUBFST	DS	F	
68	ASUBSTAT	DS	F	
70	ERRNUM	DS	D	Work area for error return code
78	TIMBUF	DS	4D	Work area for DMSINM to store date and time

SVCSECT

SVCSECT: SVC INTERRUPT STORAGE

SVCSECT describes the fields used by DMSITS in handling SVC interrupts. SVCSECT is built dynamically when an SVC is issued. The first SVCSECT is pointed to by the ASVCSECT field (hex 674) in NUCON; if SVCs are nested, the chain of SVCSECT blocks is processed using the CURRALOC and LASTALOC fields.

0	JNUMB		JFIRST
8	JF4		JLAST
10	A*1	SVCAB	CURRALOC
18	LASTALOC		DEPTH
20	ADMSOVS		OVBPB   OVBTB
28	OVAPF	OVATF   A*2	unused
30	SVCSAVE		
78	NRMSAV		
158	unused		SVCOUNT
160	SVCSTOP		SVLAD
168	SVLADW		SVLFS
170			
1A8	MODLIST		
1B0	DUMCOM		
1B8	A*3	ZERO3	TRANSRT
1C0	TRANSRT (cont.)	A*4	ADTRANS
1C8	TEMPO2		
1D0	////////////////////////////////////		
1D8	////////////////////////////////////		
1E0	RGPRO		RGPR1
1E8	RGPR2		RGPR3
1F0	RGPR4		RGPR5

1F8	RGPR6		RGPR7
200	RGPR8		RGPR9
208	RGPR10		RGPR11
210	RGPR12		RGPR13
218	RGPR14		RGPR15
220	RFPR0		
228	RFPR2		
230	RFPR4		
238	RFPR6		
240	NRMUSAV		

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	USVCTBL DS OF	User SVC Table		
	<u>Keep next four in order</u>			
0	JNUMB DC F'0'	No. of doublewords in SVC number table		
4	JFIRST DC A(*-*)	Address of first item (if any) in table		
8	JF4 DC F'4'	Loop increment for BXLE		
C	JLAST DC A(*-*)	Address of last item in table		
	<u>Start-up flags -- Indicate System Parameter Flag for the Called Routine</u>			
10	SFLAG DC BL1'0' A*1	Flag byte		
	<u>Bits defined in SFLAG</u>			
	SFSYS EQU X'80'	System flag -- SVC protect key is zero		
	SFTRN EQU X'40'	Transient area routine -- system mask is off		
	SFNUC EQU X'20'	Nucleus routine -- system mask is off		
	SFREN EQU X'01'	Illegal re-entry flag		
11	DC X'00'	Reserved for IBM use		
12	SVCAB DC H'0'	SVC ABEND code, if any		
14	CURRALOC DC A(0)	Current allocated save area		
18	LASTALOC DC A(0)	Last allocated save area		
1C	DEPTH DC F'0'	Nested SVC depth		
	<u>Information for SVCTTRACE</u>			
20	ADMSOVS DC A(0)	Address of DMSOVS		
24	OVBPF DC BL2'0'	'Before print' flags		
26	OVBTf DC BL2'0'	'Before type' flags		
28	OVAPF DC BL2'0'	'After print' flags		
2A	OVATF DC BL2'0'	'After type' flags		

SVCSECT

The following equate symbols are associated with the first byte of the flag fields defined above

OVF10N	EQU	X'80'	Current option is set on
OVF1GB	EQU	X'40'	GPRs before call wanted
OVF1GA	EQU	X'20'	GPRs after call wanted
OVF1GS	EQU	X'10'	GPRs returned from SVC callee
OVF1PA	EQU	X'08'	PLIST wanted
OVF1F	EQU	X'04'	Floating-point registers wanted
OVF1FS	EQU	X'01'	Floating-point registers returned from SVC callee

The following equate symbols are associated with the second byte in the flag fields

OVF2ST	EQU	X'80'	STOP wanted
OVF2CM	EQU	X'40'	CMS SVC TRACE wanted
OVF2NR	EQU	X'20'	Normal return CMS SVCs wanted
OVF2OS	EQU	X'10'	OS SVCs wanted
OVF2WA	EQU	X'08'	WAIT CMS SVCs wanted

2C	OVSTAT	DC	B'0'	A*2	Current status of SVCTRACE
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Bits defined in OVSTAT

OVSON	EQU	X'80'	Overrides are on
OVSPREV	EQU	X'40'	SVCTRACE SAME' is legal
OVSAPT	EQU	X'20'	After bit, set by DMSITS
OVSHO	EQU	X'10'	HALT OVERRIDES flag
OVSSO	EQU	X'08'	SUSPEND OVERRIDES flag

2D		DC	XL3'0'	Unused
30	SVCSAVE	DC	18F'0'	DMSITS work area
78	NRMSAV	DC	28D'0'	Normal standard information
158		DC	F'0'	Reserved for IBM use
15C	SVCOUNT	DC	F'0'	Current SVC count
160	SVCSTOP	DC	F'0'	For DMSITS debugging
164	SVLAD	DS	F	Save reg 14 for DMSLAD
168	SVLADW	DS	F	Save reg 14 for DMSLDW
16C	SVLFS	DS	F	Save reg 14 for DMSLFS
170		DC	14F'0'	Reserved for IBM use

PLIST for Calling DMSLDR

1A8		DS	0F	
1A8	MODLIST	DC	CL8'LOADMOD'	Routine name
1B0	DUMCOM	DC	CL8'	Module filename filled in here
1B8	SSMON	DC	X'FF'	A*3 Fence, allows all interrupts
1B9	ZERO3	DC	AL3(0)	3-byte zero

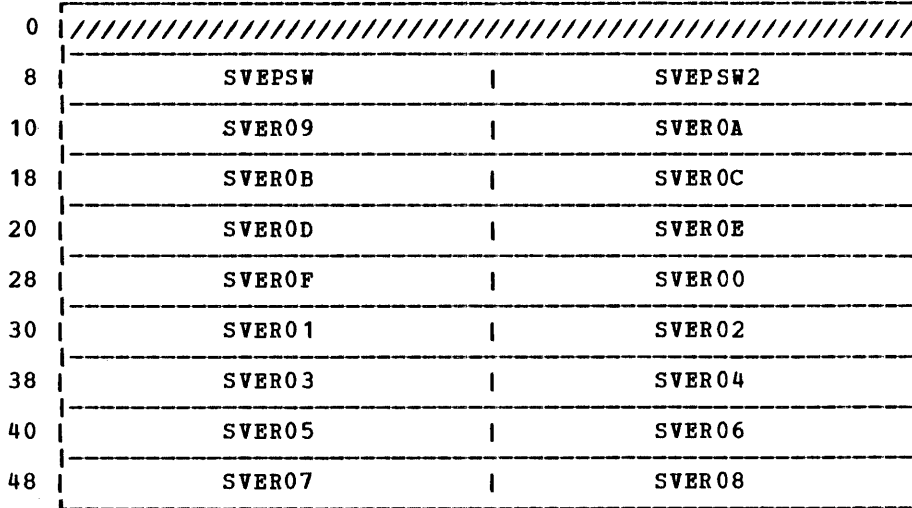


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
1BC	TRANSRT	DC	CL8'	Holds filename of transient routine
1C4	TRANMSK	DC	AL1(X'FF')A*4	
1C5	ADTRANS	DC	VL3(TRANSAR)	
1C8	TEMP02	DC	D'0'	For CVD and other scratch use
1D0		DC	4F'0'	Reserved for IBM use
1E0		DS	0F	
1E0	RGPRS	DS	0F	Returned general-purpose registers
1E0	RGPR0	DS	F	R0
1E4	RGPR1	DS	F	R1
1E8	RGPR2	DS	F	R2
1EC	RGPR3	DS	F	R3
1F0	RGPR4	DS	F	R4
1F4	RGPF5	DS	F	R5
1F8	RGPR6	DS	F	R6
1FC	RGPR7	DS	F	R7
200	RGPR8	DS	F	R8
204	RGPR9	DS	F	R9
208	RGPR10	DS	F	R10
20C	RGPR11	DS	F	R11
210	RGPR12	DS	F	R12
214	RGPR13	DS	F	R13
218	RGPR14	DS	F	R14
21C	RGPR15	DS	F	R15
220	RFPRS	DS	0D	Returned floating-point registers
220	RFPR0	DS	D	FPR0
228	RFPR2	DS	D	FPR2
230	RFPR4	DS	D	FPR4
238	RFPR6	DS	D	FPR6
240	NRMUSAV	DS	12D	NRMSAV user save area

SVEARA

SVEARA: LTA AND PP SAVE AREA DSECT

SVEARA describes the fields in a DOS/VS Logical Transient Area (LTA) or Problem Program (PP) save area. SVEARA is invoked via the DOSAVE macro. SVEARA is used by DOS/VS routines to save the value of the PSW and registers for purposes such as linkage to and from transient routines.

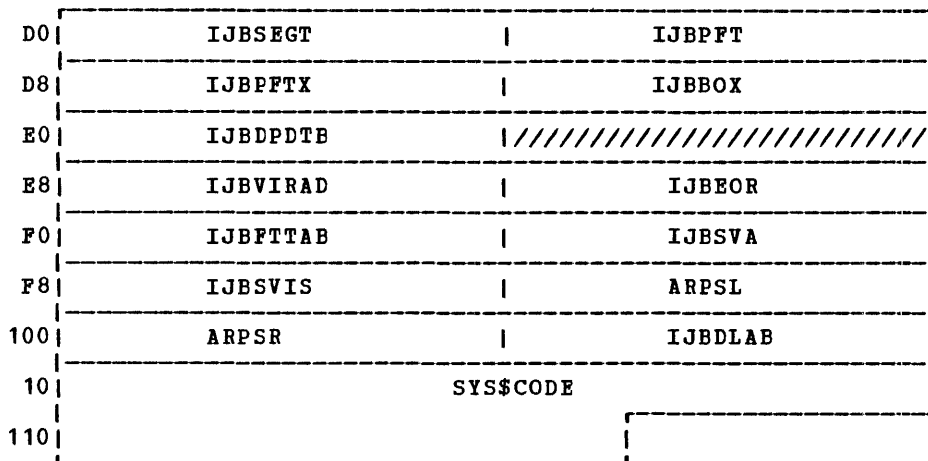


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0		DS	2F	LTA and PP save area DSECT
8	SVEPSW	DS	F	Reserved for IBM use
C	SVEPSW2	DS	F	First half PSW
10	SVER09	DS	F	Second half PSW
14	SVER0A	DS	F	Save area for register 9
18	SVER0B	DS	F	Save area for register 10
1C	SVER0C	DS	F	Save area for register 11
20	SVER0D	DS	F	Save area for register 12
24	SVER0E	DS	F	Save area for register 13
28	SVER0F	DS	F	Save area for register 14
2C	SVER00	DS	F	Save area for register 15
30	SVER01	DS	F	Save area for register 0
34	SVER02	DS	F	Save area for register 1
38	SVER03	DS	F	Save area for register 2
3C	SVER04	DS	F	Save area for register 3
40	SVER05	DS	F	Save area for register 4
44	SVER06	DS	F	Save area for register 5
48	SVER07	DS	F	Save area for register 6
4C	SVER08	DS	F	Save area for register 7

SYSCOM: SYSTEM COMMUNICATION REGION

SYSCOM is the CMS simulation of the DOS/VS System Communication Region (SYSCOM).  
 The ASYSCOM field (hex 4E4) in NUCON points to the SYSCOM block.

0	IJBERBLC		IJBAREX
8	IJBERR19	IJBERR24	IJBPUBRS
10	IJBFETCH		IJBINTRT
18	IJBEXTRT		IJBLTA
20	IJBPPBEG		IJBCHANQ
28	IJBQSIZE	IJEQLNG	IJBNPART  /////////
30	IJBRSAVE		IJBCONSP
38	IJBSAB		IJBCHNTB
40	A*1	A*2   A*3   A*4	IJBSTID   IJBEXIT
48	IJBPDADR		IJBTKHLD
50	IJBTIMER		IJBABTAB
58	IJBLIK	IJBTIK	IJBPWR
60	IJBTCAVT		IJBRTAB
68	IJBEUECB		IJBOLTEP
70	IJBASLNL		IJBTRTAB
78	IJBPEOWN		IJBJATAB
80	IJBPMGR		IJBCCWT
88	IJBASVSD		IJBLNSTB
90	IJBAMCOM		IJBAPTA
98	IJBSBLK0		IJBSBLKX
A0	A*5	A*6   A*7   A*8   A*9   A*10	//////////
A8	//////////		
B0	////////// IJBHVCAD		
B1	//////////		
C0	IJBMFCEP		
C8	A*11   IJBUBLN   IJBAPNO		



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	IJBBERBLC DC A(0)	Address of error block
4	IJBAREX DC A(0)	Exit address for attention
8	IJBERR19 DC H'0'	Cancel exit for attention
A	IJBERR24 DC H'0'	Cancel exit for attention
C	IJB PUBRS DC F'0'	SYSRES PUB address
10	IJB FETCH DC A(0)	Address of fetch routine
14	IJB INTRT DC A(0)	Address of I/O interrupt routine
18	IJB EXTRT DC A(0)	Address of external interrupt routine
1C	IJB LTA DC A(0)	Pointer to logical transient area
20	IJB PPBEG DC A(0)	Pointer to problem program area
	IJB FLPTR EQU *	Free list pointer
24	IJB CHANQ DC F'0'	Pointer to channel queue
28	IJB QSIZE DC H'0'	Number of channel queue entries
2A	IJB QLNG DC H'0'	Length of one error queue entry
2C	IJB NPART DC H'1'	Number of partitions
2E	DC H'0'	Reserved for IBM use
30	IJB RSAVE DC A(0)	Pointer to channel buckets
34	IJB CONSP DC A(0)	Address of CRT table
38	IJB SAB DC A(0)	Address of SAB table
3C	IJB CHNTB DC A(0)	Address of channel control table
40	IJB FLG01 DC X'00'	A*1 Flags and switches 125 RMS
41	IJB FLG02 DC X'00'	A*2 Switch byte
42	IJB FLG03 DC X'00'	A*3 Flags and switches
43	IJB FLG04 DC X'00'	A*4 Flags and switches
44	IJB STID DC H'0'	System task selection control field
	IJB SELCT EQU *-1	System task selection byte
46	IJB EXIT DC H'0'	Pointer to task selection
48	IJB PDADR DC A(0)	Pointer to PDAREA
	IJB THPTR EQU *-1	Track hold FLPTR
4C	IJB TKHLD DC F'0'	Address of track hold table

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
50	IJBTIMER	DC	A(0)	Address of timer request table
54	IJBABTAB	DC	A(0)	Address of AB option table
58	IJBBLIK	DC	H'0'	Key of task owning the LTA
5A	IJBTIK	DC	X'0010'	Task interrupt key
5C	IJBPWR	DC	A(0)	Pointer to power table
60	IJBTCAVT	DC	A(0)	Space for VTAM address
64	IJBRFTAB	DC	A(0)	Pointer to RF table
68	IJBUEECB	DC	A(0)	Pointer to EU and ECB table
6C	IJBOLTEP	DC	A(0)	Address of OLTEP bucket
70	IJBASLN	DC	A(0)	Pointer to RAS linkage area
74	IJBTRTAB	DC	A(0)	Address of ASCII table
78	IJBPBOWN	DC	A(0)	Address of PUB ownership table
7C	IJBJATAB	DC	A(0)	Address of job accounting comm. area
80	IJBPMGR	DC	A(0)	Base address of PMGR routines
84	IJBCCWT	DC	A(0)	Address of CCW trans work
88	IJBSAVSD	DC	A(0)	Pointer to SDAID comm. area
8C	IJBLNSTB	DC	A(0)	Address of line mode table
90	IJBAMCOM	DC	A(0)	Address of VSAM comm. reg.
94	IJBAPTA	DC	A(0)	Address of PTA
98	IJBSEBLK0	DC	A(0)	Pointer to first system task block
9C	IJBSEBLKX	DC	F'0'	Pointer to current system task
A0	IJBYSPT	DC	X'00'	A*5 For alignment
A1	IJBASPT	DC	AL1(0)	A*6 Pointer to RAS task block
A2	IJBPMRPT	DC	AL1(0)	A*7 Pointer for PMGR task block
A3	IJBSPPT	DC	AL1(0)	A*8 Pointer to SPVR task block
A4	IJB CRTPT	DC	AL1(0)	A*9 Pointer to CRT task block
A5	IJB ERPPT	DC	AL1(0)	A*10 Pointer to ERP task block
A6		DC	10X'00'	Reserved for IBM use
B0		DC	F'0'	Reserved for IBM use
B4	IJBMV CAD	DC	A(0)	Pointer to MVCFLD
B8		DC	F'0'	Reserved for IBM use
BC		DC	H'0'	Reserved for IBM use
BE		DC	H'0'	Reserved for IBM use
C0	IJBMF CER	DS	11X'00'	Information on MFCM and MFCU ERP
CB	IJBNERQ	DC	AL1(0)	A*11 Number of error queue entries
CC	IJB PUBLN	DC	S(0)	Length of PUB table
CE	IJBAPNO	DC	H'1'	Number of active partitions
D0	IJBSEGT	DC	A(0)	Address of segment table
D4	IJB PFT	DC	A(0)	Address of page frame table
D8	IJB PFTX	DC	A(0)	Pointer to page frame table extension
DC	IJBBOX	DC	A(0)	Pointer to boundary box
E0	IJB DPDTB	DC	A(0)	Pointer to DPD table
E4		DC	F'0'	Reserved for IBM use
E8	IJB VIRAD	DC	A(0)	Address of VIRTAD routine
EC	IJB EOR	DC	F'0'	End of real storage
F0	IJBFTTAB	DC	A(0)	Address of the fetch table
F4	IJB SVA	DC	A(0)	Address of the SVA start
F8	IJB SVIS	DC	A(0)	Address of SVA GETVIS area
FC	ARPSL	DC	A(0)	Reserved for IBM use
100	ARPSR	DC	A(0)	Reserved for IBM use
104	IJB DLAB	DC	A(SYS\$CODE)	Pointer to system code name
108	SYS\$CODE	DC	CL13'CMS/VSAM'	System code name

**SYSNAMES**

**SYSNAMES: SAVED SYSTEMS NAMES**

SYSNAMES defines the names of any saved systems which may be loaded by CMS routines. ASYSNAMES in NUCON (hex location 5FC) points to the SYSNAMES table.

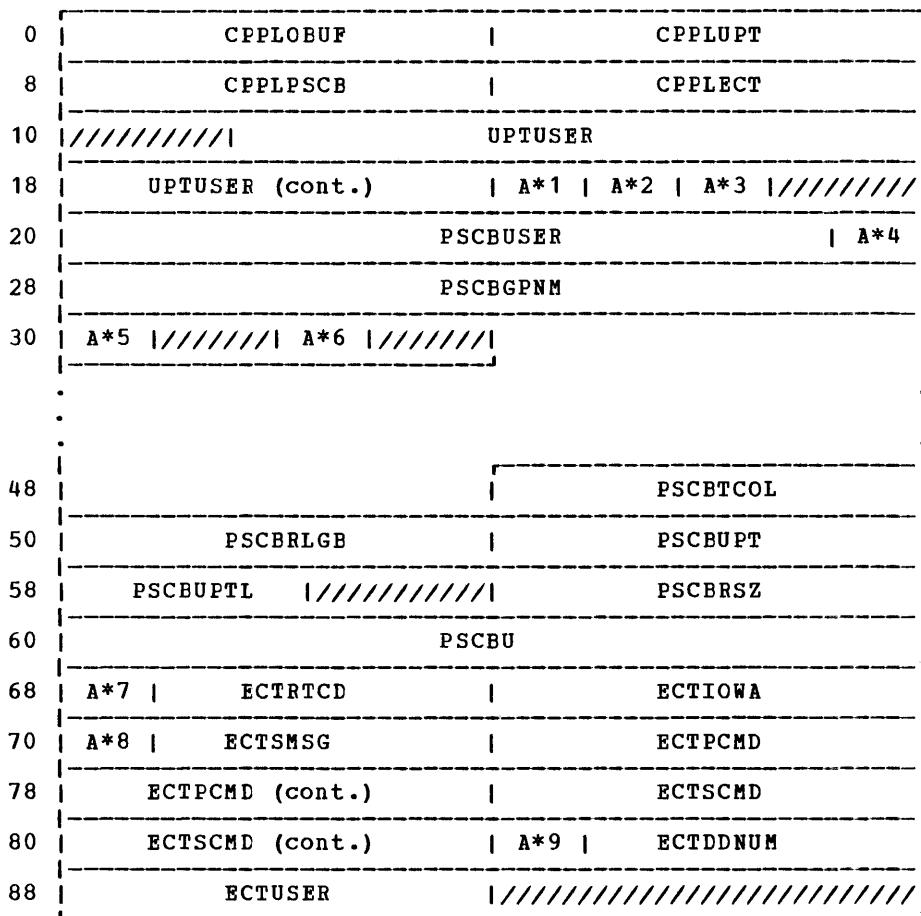
0	CMSSEG
8	CMSVSAM
10	CMSAMS
18	CMSDOS

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	CMSSEG	DC	CL8'CMSSEG'	CMS shared system name
8	CMSVSAM	DC	CL8'CMSVSAM'	VSAM shared system name
10	CMSAMS	DC	CL8'CMSAMS'	Access Method Services shared system name
18	CMSDOS	DC	CL8'CMSDOS'	DOS shared system name
20	SYSNEND	DS	0D	
	SYSNCNT	EQU	(SYSNEND-SYSNAMES)/8	

TSOBLKS: TSO CONTROL BLOCKS

TSOBLKS contains OS control information used by CMS, that is, the command program parameters list (CPPL), user profile table (UPT), protected step control block (PSCB), and the environment control table (ECT).

The ATSOCPPL field (hex 5D8) in NUCON points to TSOBLKS.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	CPPL DS OF	Temporary PLIST to CP programs		
0	CPPLOBUF DC AL4 (0)	Address of command line		
4	CPPLUPT DC AL4 (UPT)	Address of dummy UPT		
8	CPPLPSCB DC AL4 (PSCB)	Address of dummy PSCB		
C	CPPLECT DC AL4 (ECT)	Address of dummy ECT		
<u>User Profile Table (UPT)</u>				
10	UPT DS OF	Reserved for IBM use		
10	DS CL2	Reserved for installation use		
12	UPTUSER DS CL10	Reserved for installation use		

## TSOBLKS

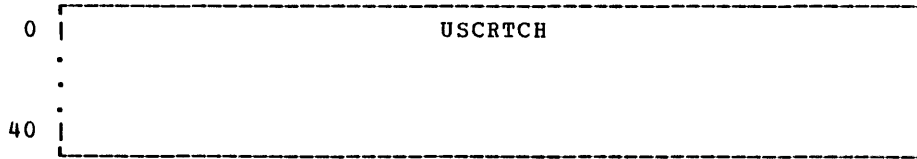
Hexadecimal Displacement	Field Name				Field Description, Contents, Meaning
1C	UPTSWS	DC	X'00'	A*1	User's environment switch
	<u>Bits defined in UPTSWS</u>				
	EQU		X'80'		Reserved for IBM use
	UPTNPRM	EQU	X'40'		No prompting is to be done
	UPTMID	EQU	X'20'		Print message identifiers
	UPTNCOM	EQU	X'10'		No user communication allowed via SEND
	UPTPAUS	EQU	X'08'		Pause for '?' when in non-interface mode
	UPTALD	EQU	X'04'		ATTN has been specified as line delete
1D	UPTCDEL	DC	X'00'	A*2	Character delete character
1E	UPTDEL	DC	X'00'	A*3	Line delete character
1F		DS	CL1		Reserved for IBM use
	<u>Protected Step Control Block (PSCB)</u>				
20	PSCB	DS	0F		
20	PSCBUSER	DC	CL7'		User ID padded with blanks
27	PSCBUSRL	DC	X'00'	A*4	Length of user ID
28	PSCBGPNM	DS	CL8		Esoteric group name initialized by logon
30	PSCBATR1	DS	X	A*5	15 bit string of user attributes
	PSCBCTRL	EQU	X'80'		Operator command user
	PSCBACCT	EQU	X'40'		Account command user
	PSCBJCL	EQU	X'20'		Submit command user
	*	BITS	3 15		Reserved for IBM use
31		DS	X		Reserved for IBM use
32	PSCBATR2	DS	X	A*6	15 bit string reserved for installation use
33		DS	X		
34		DC	6F'0'		6 fullwords used for TSO accounting; initialized to 0
4C	PSCBTCOL	DS	1F		
50	PSCBRLGB	DS	AL4(0)		
54	PSCBUPT	DC	AL4(UPT)		Pointer to the user profile table
58	PSCBUPTL	DC	AL2(16)		Length of the UPT
5A		DS	BL.16		Reserved for IBM use
5C	PSCBRSZ	DS	A		Region size requested in 2K units
60	PSCBU	DS	CL8		Reserved for installation use
	<u>Environment Control Table (ECT)</u>				
68	ECT	DS	0F		
68	ECTRCDF	DC	AL1(0)	A*7	High-order bit indicates CP abended
69	ECTRTCD	DC	AL3(0)		Return code from last control routine
6C	ECTIOWA	DC	AL4(0)		Address of I/O service routine work area
70	ECTMSGF	DC	X'00'	A*8	High-order bit means delete 2nd level messages (Must be initialized by user.)
71	ECTSMSG	DS	AL3		Address of second level message chain
74	ECTPCMD	DC	CL8'		Primary command name
7C	ECTSCHD	DS	CL8		Subcommand name
84	ECTSWS	DC	X'00'	A*9	ECT switch
	<u>Bits defined in ECTSWS</u>				
	ECTNOPD	EQU	X'80'		0 bit= on, no operands exist in command buffer
	ECTATRM	EQU	X'20'		CP terminated by TMP DETACH w/ STAE
	*	EQU	X'40'		Reserved for IBM use
	ECTLOGF	EQU	X'10'		Logon/off requested tmp to log off
	ECTNMAL	EQU	X'08'		No user messages received at logon
	ECTNNOT	EQU	X'04'		No broadcast notices to be received
85	ECTDDNUM	DC	AL3(0)		Counter for temporary DDNAMS
88	ECTUSER	DS	A		Reserved for iinstallation
8C		DS	A		Reserved for IBM use



USERSECT: USER WORK AREA

USERSECT defines a general scratch storage area provided for user-defined purposes. It may be redefined to suit installation requirements.

The USERSECT is pointed to by the AUSER field (hex 620) in NUCON.



<u>Hexadecimal Displacement</u>	<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>		
0	USCRTCH	DC	18F'0'	User scratch area



### SECTION 3. RSCS DATA AREAS AND CONTROL BLOCKS

This section describes in detail each of the data areas used by RSCS. Unlike the CP and CMS format blocks in this publication, the RSCS format blocks are on fullword boundaries.

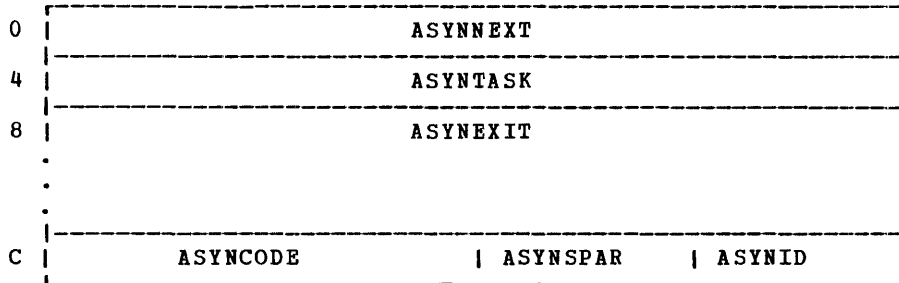
This section of the publication contains only DSECTs. Appendixes B and C contain other control areas used by RSCS.

ASYNE

ASYNE: ASYNCHRONOUS EXIT ELEMENT

ASYNE defines symbolic addresses for elements on an asynchronous exit queue. An asynchronous exit queue element contains information by which a task requests that it handle asynchronous interrupts.

IOEXITQ, EXTQ, and ALERTQ in SVECTORS are the heads of three asynchronous exit queues. Each of these queues is comprised of supervisor elements defined by the ASYNE DSECT. IOEXITQ points to requests for I/O exits, EXTQ points to requests for external exit requests, and ALERTQ points to requests for ALERT exits.



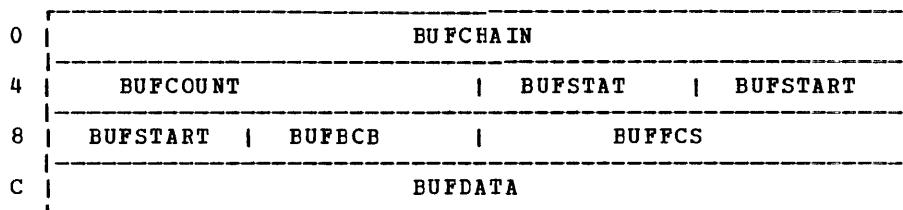
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	ASYNNEXT DS 1F	Address of the next asynchronous interrupt exit request element
4	ASYNTASK DS 1F	Address of task element describing the task that requested the asynchronous interrupt
8	ASYNEXIT DS 1F	Address of the requested asynchronous exit routine
C	ASYNCODE DS AL2	Address of the device for which asynchronous I/O interrupts are requested or interrupt bit code
E	ASYNSPAR DS 1X	Reserved for IBM use
F	ASYNID DS 1X	1-byte ID of the task owning the asynchronous exit routine

BUFDSECT: SML TELECOMMUNICATIONS BUFFER

BUFDSECT is used to transmit buffer control information and buffer data to and from programmable remote stations.

The buffer sent across the TP line starts at BUFSTART; the first 7 bytes of BUFDSECT are used by the SML line driver but are not transmitted.

\$BUFPOOL in SML points to a queue of available TP buffers; \$INBUF in SML points to a queue of TP buffers that have been received from a remote station and are waiting to be deblocked. \$OUTBUF in SML points to a queue of TP buffers that are ready for transmission to remote stations.



Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
0	BUFBEGIN	DS 0F	Beginning of the buffer
0	BUFCHAIN	DC A(0)	Buffer chain field
4	BUFCOUNT	DS 1H	Count of bytes to transmit
6	BUFSTAT	DS 1C	Buffer status byte
	<u>Bits defined in BUFSTAT</u>		
	BUFFAKE	EQU X'01'	Dummy buffer indicator
	BUFRESP	EQU X'02'	Response only in buffer
	BUFNAK	EQU X'04'	NAK response being sent
	BUFTXT	EQU X'08'	Buffer contains text information
	BUFUCHEK	EQU X'10'	Unit check expected
7	BUFSTART	DS CL2	Bisynch transmission control bytes
9	BUFBCB	DS 1C	Block control byte
A	BUFFCS	DS CL2	Function control sequence
C	BUFDATA	DS 0F	Data portion of TP buffer

COMDSECT

COMDSECT

COMDSECT defines address constants used as pointers to subroutines common to all RSCS modules. These subroutines are contained in module DMTCOM. COMDSECT is pointed to by TCOM in SVECTORS.

0	GLINKREQ
4	GPAGEREQ
8	FPAGEREQ
C	PMSGREQ
10	GMSGREQ
14	GTODEBCD

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	GLINKREQ DS 1A	Get link table entry routine
4	GPAGEREQ DS 1A	Get page of main storage
8	FPAGEREQ DS 1A	Free page of main storage
C	PMSGREQ DS 1A	Put message element into message stack
10	GMSGREQ DS 1A	Remove message element from message stack
14	GTODEBCD DS 1A	Convert S/370 TOD to EBCDIC

DEVTABLE: NPT DEVICE TABLE

DEVTABLE defines virtual device information for an I/O operation. This DSECT corresponds to the IOTABLE DSECT.

0	DEVLOCK		
4	DEVADDR	DEVSREQ	DEVTYPE
8	DEVSTART		
C	DEVCSW		
14	DEVSENSE		DEVFLAGS
18	DEVNAME		

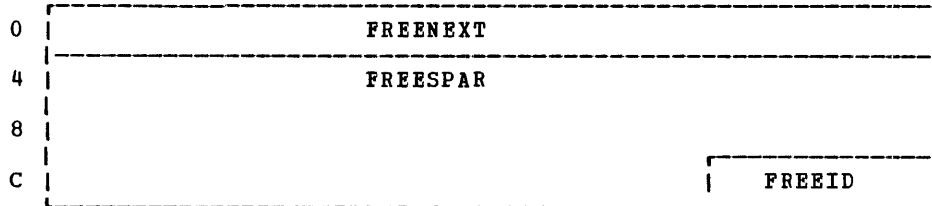
Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	DEVLOCK	DC	F'0'	I/O request synch lock
4	DEVADDR	DC	AL2(0)	CUU address of I/O device
6	DEVSREQ	DC	AL1(0)	Requested sense bytes
7	DEVTYPE	DC	X'00'	VM/370 device type code
8	DEVSTART	DC	F'0'	Address start channel program for I/O handling
C	DEVSIOCC	DC	0X'00'	Right-justified SIO condition code
C	DEVCSW	DC	2F'0'	Ending CSW from last I/O operation
14	DEVSENSE	DC	X'00'	Sense information on unit check
15	DEVFLAGS	DC	3X'00'	Device status flags
18	DEVNAME	DC	CL8' '	EBCDIC device address and name

FREEE

FREEE: A FREE ELEMENT ON THE SUPERVISOR ELEMENT QUEUE

The FREEE DSECT defines an element in the chain of elements that comprise the free element queue.

FREEQ in SVECTORS points to the chain of free elements, each of which is defined by the FREEE DSECT.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	FREENEXT DS 1F	Address of next element in free queue
4	FREESPAR DS CL11	Spare field
F	FREEID DS 1X	Standard taskid offset --ID=X'00'=> free element

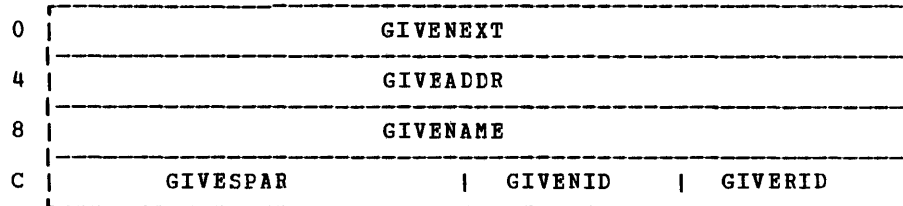


GIVEE: A GIVE ELEMENT

The GIVEE DSECT defines symbolic addresses for items used in processing a GIVE request.

GIVEQ in SVECTORS points to the queue of GIVE elements used in task-to-task communications.

The GIVEADDR field of this DSECT is the address of a GIVE request table, which, in turn, contains addresses of buffers for elements describing requests and responses to requests. These tables are described below; the elements that fill the buffers are described in Appendix C: "RSCS Request Elements."



Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
0	GIVENEXT	DS 1F	Address of next GIVE element
4	GIVEADDR	DS 1F	Address of GIVE request table in sending task's storage
8	GIVENAME	DS CL4	Task name of receiving task
C	GIVESPAR	DS AL2	Unused
E	GIVENID	DS 1X	1-byte ID of receiving task after TAKE
F	GIVERID	DS 1X	1-byte ID of sending task

GIVE/TAKE

GIVE REQUEST TABLE

The format of a GIVE Request Table is:

0	synch lock
4	task name or A(GIVE Element)
8	A(GIVE Request Buffer)
C	A(GIVE Response Buffer)

When a task requests the services of another task via a GIVE request, the second field of the table above contains the task name of the task to which the task is to be sent. When DMTGIV builds a GIVE element for the request, it overlays this task name with the address of the GIVE element.

The task performing the requested service, builds a table called the TAKE request table, which corresponds to the GIVE request table.

TAKE REQUEST TABLE

The format of a TAKE request table is:

0	Task name of GIVE requestor
4	A(TAKE Request Buffer)
8	A(TAKE Response Buffer)

IOE: AN I/O ELEMENT

The IOE DSECT defines symbolic addresses of elements and other information associated with an I/O operation requested by a task.

MPXIOQ and SELIOQ in SVECTORS point to queues of I/O elements for the multiplexer and selector channels, respectively.

The field IOTABLEA points to the address of an I/O table defined by DSECT IOTABLE, which is described in this section.

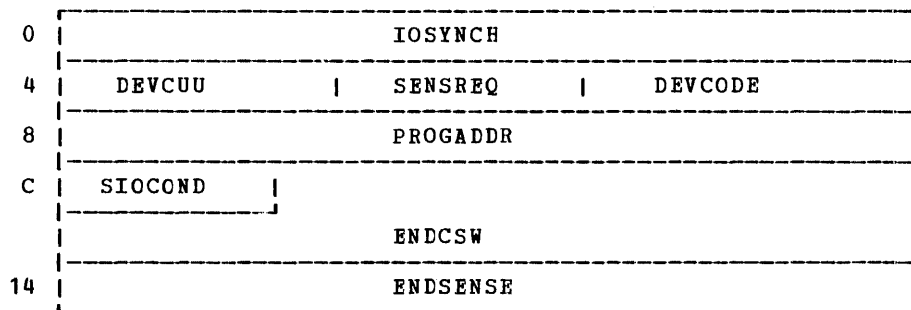
0	IONEXT		
4	IOSUBQ		
8	IOTABLEA		
C	IOADDR	IOSBCHAN	IOID

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
0	IONEXT	DS 1F	Address of next active I/O element
4	IOSUBQ	DS 1F	Address of next inactive I/O element for a given subchannel
8	IOTABLEA	DS 1F	Address of I/O request table in task storage
	IOSTAT	EQU *	Status flags for current I/O operation (First byte of IOTABLEA)
	<u>Bits defined in IOSTAT</u>		
	SENSING	EQU X'80'	Flag set to 1 while automatic sense is active
	CHANDONE	EQU X'40'	Flag set to 1 when subchannel terminates
C	IOADDR	DS AL2	Address (cuu) of the device requesting current I/O operation
E	IOSBCHAN	DS 1X	Subchannel address; 1-byte; assigned by MSUP
F	IOID	DS 1X	ID of task associated with this I/O operation; 1-byte; assigned by MSUP

IOTABLE

IOTABLE: AN I/O TABLE

The IOTABLE DSECT defines symbolic addresses for items used in processing an I/O interrupt request. The first five fields are filled in by the task to convey information about the I/O request to the supervisor. The last three fields are filled in by the supervisor to convey status information about the I/O operation to the task.



Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	IOSYNCH	DS	1F	Synchronization lock for I/O operation
4	DEVCUU	DS	AL2	Address (cuu) of device associated with this I/O operation
6	SENSREQ	DS	AL1	Number of sense bytes requested on unit check
7	DEVCODE	DS	AL1	1-byte VM/370 device type code (not used by I/O manager)
8	PROGADDR	DS	1F	Address of channel program for the I/O operation
	SIOCOND	EQU	*	1-byte SIO condition code return information
C	ENDCSW	DS	2F	Ending CSW with composite status return information
14	ENDSENSE	DS	AL1	Requested return sense information on unit check CSW status
	TYP PUN	EQU	X'80'	VM/370 type code for the punch
	TYP PRT	EQU	X'40'	VM/370 type code for the printer

LINKTABL DSECT

The LINKTABL DSECT describes the status of a single link in the RSCS network; collectively, all the links defined for the system are referred to as the link table.

0	LINKID			
4				
8	LDEFTNME			
C	LACTNME			
10	LDEFDRVR			
14				
18	LACTDRVR			
1C				
20	LDEFLINE		LACTLINE	
24	LDRVRVAR			
28	LACTCLS1		LACTCLS2	LACTCLS3   LACTCLS4
30	LTIMEZON		LFLAG	LRESERVD
34	LPENDING		LTAKEN	
38	LPOINTER			
3C	LMSGQ			
40	LTRNSCNT		LERRCNT	
44	LTOCNT		LSPARE	
48	LNKCLOCK			
4C				

An 8-byte header precedes the first entry in the link table (that is, the first link defined by the LINKTABL DSECT). The TLINKS field in SVECTORS points to this header, which has the following format:

0	4	6
Total links	max links	current
		links

where:

- total links is the total number of links defined for an RSCS installation via the GENLINK macro during system generation. (For information on the GENLINK macro, see the VM/370: System Programmer's Guide.)
- max links is the maximum number of concurrently active links allowable.
- current links is the number of links active in RSCS at a given time.

## LINKTABL

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	LINKID	DS	CL8	EBCDIC linkid
8	LDEFTNME	DS	CL4	Default task name
C	LACTNME	DS	CL4	Active task name
10	LDEFDRVR	DS	CL8	Default driver id
18	LACTDRVR	DS	CL8	Active driver id
20	LDEFLINE	DS	2X	Default virtual line address
22	LACTLINE	DS	2X	Active virtual line address
24	LDRVRVAR	DS	1F	Line driver variable information
28	LDEFCLS1	DS	CL1	Default spool file CLS 1
29	LDEFCLS2	DS	CL1	Default spool file CLS 2
2A	LDEFCLS3	DS	CL1	Default spool file CLS 3
2B	LDEFCLS4	DS	CL1	Default spool file CLS 4
2C	LACTCLS1	DS	CL1	Active spool file CLS 1
2D	LACTCLS2	DS	CL1	Active spool file CLS 2
2E	LACTCLS3	DS	CL1	Active spool file CLS 3
2F	LACTCLS4	DS	CL1	Active spool file CLS 4
30	LTIMEZON	DS	1X	2 comp time zone displacement from GMT
31	LFLAG	DS	1X	Link flag byte
	<u>Bits defined in LFLAG</u>			
	LACTIVE	EQU	X'80'	Link active
	LALERT	EQU	X'40'	AXS ALERT exit set
	LHOLD	EQU	X'20'	Link hold set
	LDRAIN	EQU	X'10'	Link drain in progress
	LTRALL	EQU	X'08'	Link transaction tracing (all)
	LTRERR	EQU	X'04'	Link transaction tracing (error)
	LHALT	EQU	X'01'	Link to be forced inactive
	LINKLEN	EQU	*-LINKTABL	Length of link table entry
32	LRESERVD	DS	1H	Count of tag elements reserved
34	LPENDING	DS	1H	Count of unaccepted tags
36	LTAKEN	DS	1H	Count of tag slots in use
38	LPOINTER	DS	1F	Address of start of the TAG queue for this RSCS link.
3C	LMSGQ	DS	1F	MSG queue pointer
40	LTRNSCNT	DS	1H	Link transaction count
42	LERRCNT	DS	1H	Error count
44	LTOCNT	DS	1H	Timeout count
46	LSPARE	DS	1H	Spare halfword
48	LNKLOCK	DS	8X	Clock comparator value for this link

REQBLOCK: NPT REQUEST BLOCK

REQBLOCK defines data and information for a request for file processing by the NPT line driver.

The first four fields (hex 0-F) of this DSECT form a GIVE request table, which is described in "GIVEE: A GIVE Element", in this section.

The next seven fields (hex 10-23) of this DSECT for a GIVE request buffer in the format of a File Request Element, which is described in "Appendix C: RSCS Request Elements."

0	RDEVSYNC			
4	RDEVREQN			
8	RDEVREQ			
C	RDEVRESP			
10	RDEVLEN	RDEVFUN	RDEVRESV	RDEVSOPT
14	RDEVTAG			
18	RDEVFIOA			
1C	RDEVLINK			
24	RDEVNAME			
28	RDEVSTYL			
2C	RDEVFLAGS			

Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
<u>Hex locations 0 through F comprise the NPT GIVE request table</u>				
0	RDEVSYNC	DC	F'0'	Synch lock
4	RDEVREQN	DC	CL4'AXS'	File access task
8	RDEVREQ	DC	A(0)	Request buffer address
C	RDEVRESP	DC	AL1(0),AL3(0)	Response buffer address
<u>Hex locations 0 through 1F comprise the NPT GIVE request buffer in the format of a file request element (as shown in Appendix C)</u>				
10	RDEVLEN	DC	AL1(0)	Request length
11	RDEVFUN	DC	AL1(0)	Request function
12	RDEVRESV	DC	AL1(0)	Reserved byte
13	RDEVSOPT	DC	AL1(0)	Sub option byte
14	RDEVTAG	DC	A(0)	Tag address
18	RDEVFIOA	DC	A(0)	File I/O area address
1C	RDEVLINK	DC	CL8' '	Link name
24	RDEVNAME	DC	C' '	Device name
27	RDEVSTYL	DC	C' '	Device style
2C	RDEVFLAGS	DC	AL1(0,0,0,0)	Device flags

SVECTORS

SVECTORS: LOW STORAGE DEFINITIONS

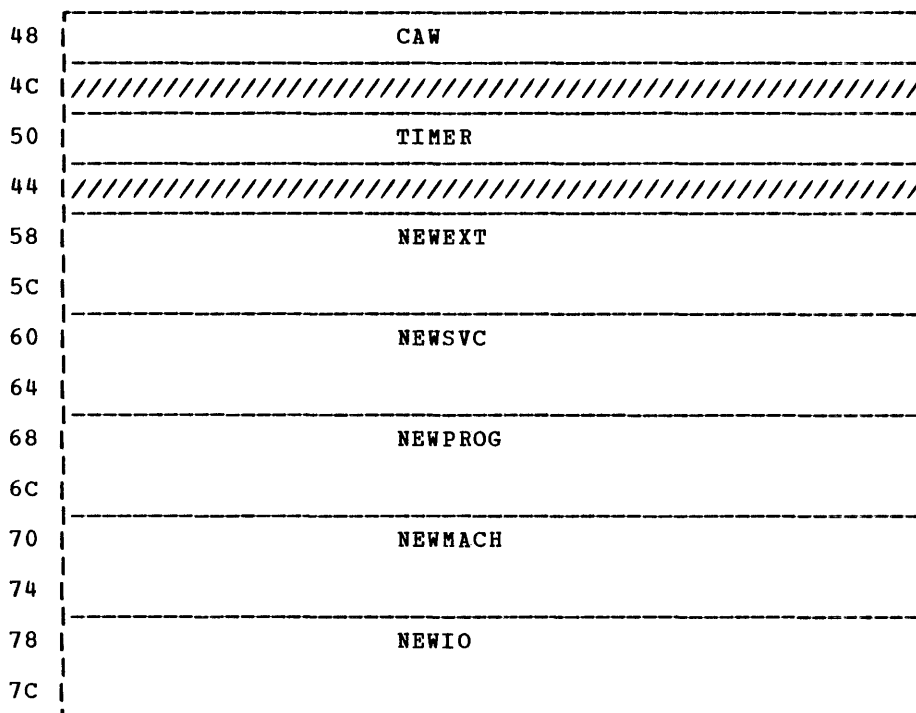
The SVECTORS DSECT defines low storage for the RSCS virtual machine. It includes two types of storage: machine-defined and RSCS-defined.

MACHINE-DEFINED LOW STORAGE

The SVECTORS machine-defined low storage defines machine status data referenced during program execution and required by System/370 architecture.

0	IPLPSW
4	
8	IPLCCW1
C	
10	IPLCCW2
14	
18	OLDEXT
1C	
20	OLDSVC
24	
28	OLDPROG
2C	
30	OLDMACH
34	
38	OLDIO
3C	
40	CSW
44	





Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
0	IPLPSW	DS	D	X'00040000',V (DMTINI)
8	IPLCCW1	DS	D	
10	IPLCCW2	DS	D	
18	OLDEXT	DS	D	External interrupt old PSW
20	OLDSVC	DS	D	Supervisor call old PSW
28	OLDPROG	DS	D	Program check old PSW
30	OLDMACH	DS	D	Machine check old PSW
38	OLDIO	DS	D	Input/output old PSW
40	CSW	DS	D	Channel status word
48	CAW	DS	F	Channel address word
4C		DS	F	Unused
50	TIMER	DS	F	4X'FF'
54		DS	F	Unused
58	NEWEXT	DS	D	X'00040000',V (DMTEXT)
60	NEWSVC	DS	D	X'00040000',V (DMTSVC)
68	NEWPROG	DS	D	X'00040000',A (REXOUCH)
70	NEWMACH	DS	D	X'00020000',A (OLDMACH)
78	NEWIO	DS	D	X'00040000',V (DMTIOMIN)

# SVECTORS

## RSCS-DEFINED LOW STORAGE

RSCS-defined low storage begins at hex location 200 and is defined specifically for the RSCS virtual machine. It contains pointers to modules that comprise the supervisor, to supervisor control queues, and to queues of requests for supervisor services.

200	NEWPSW	248	DISPATCH
204	NEWPSW	24C	WAITREQ
208	SSAVE	250	POSTREQ
20C	SSAVE	254	IOREQ
210	ACTIVE	258	TASKREQ
214	MAINMAP	25C	MAINREQ
218	MAINSIZE	260	ASYNREQ
21C	QUEUE	264	ALERTREQ
220	QUEUEEND	268	GIVEREQ
224	FREEQ	26C	TAKEREQ
228	TASKQ	270	TVECTOR0
22C	MPXIOQ	274	TVECTOR1
230	SELIOQ	278	TVECTOR2
234	IOEXITQ	27C	TVECTOR3
238	EXTQ	280	TVECTOR4
23C	ALERTQ	284	TVECTOR5
240	GIVEQ	288	TVECTOR6
244	QREQ	28C	TVECTOR7

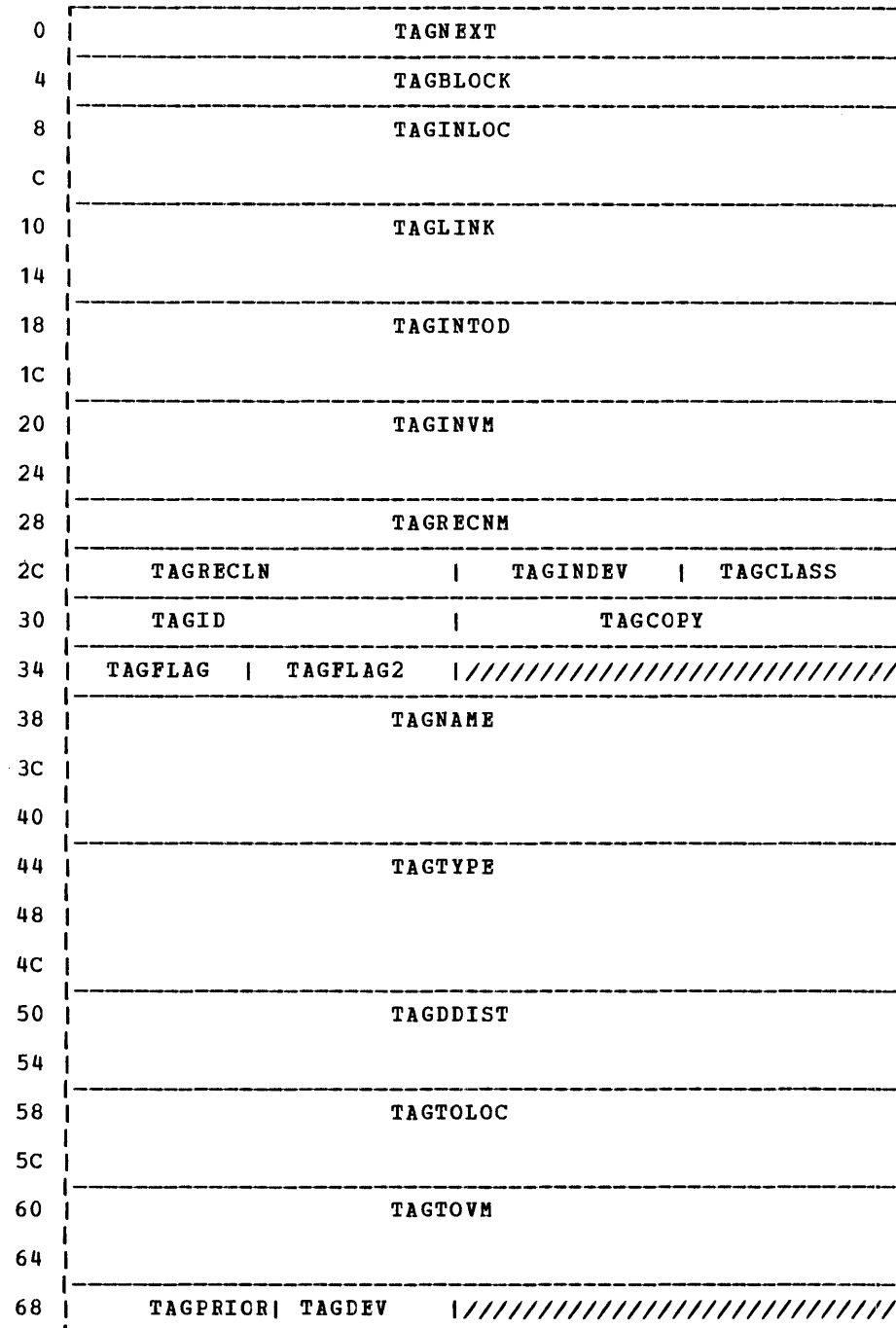
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning		
		ORG	SVECTORS+X'200'	Leave room for machine extensions
200	NEWPSW	DS	D	D'0' Dispatched PSW for last dispatcher
20C	SSAVE	DS	2F	2F'0' General-purpose low storage save area
210	ACTIVE	DS	X	X'00' ID of currently active task
		DS	AL3	AL3(0) Address of task element for last dispatchee
214	MAINMAP	DS	V (DMTMAPMS)	Address of start of main storage allocation map
218	MAINSIZE	DS	F	F'0' Total number of pages in main storage

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
21C	QUEUE	DS	V (QUEUE)	Address of start of supervisor queue
220	QUEUEEND	DS	V (QUEUEEND)	Address of end of last supervisor queue element
224	FREEQ	DS	A (0)	Address of start of free element queue
228	TASKQ	DS	A (0)	Address of start of task element queue
22C	MPXIOQ	DS	A (0)	Address of start of multiplexer I/O queue
230	SELIOQ	DS	A (0)	Address of start of selector I/O queue
234	IOEXITQ	DS	A (0)	Address of start of asynchronous I/O request element queue
238	EXTQ	DS	A (0)	Address of start of external request element queue
23C	ALERTQ	DS	A (0)	Address of start of task asynchronous request element queue
240	GIVEQ	DS	A (0)	Address of start of GIVE request element queue
244	QREQ	DS	V (DMTQRQ)	Supervisor queue allocation request entry address
248	DISPATCH	DS	V (DMTDSP)	Task dispatcher entry address
24C	WAITREQ	DS	V (DMTWAT)	Wait request entry address
250	POSTREQ	DS	V (DMTPST)	Post request entry address
254	IOREQ	DS	V (DMTIOMRQ)	I/O request entry address
258	TASKREQ	DS	V (DMTASK)	Task management request entry address
25C	MAINREQ	DS	V (DMTSTO)	Main allocation request entry address
260	SYNREQ	DS	V (DMTASY)	Asynchronous interrupt request entry address
264	LERTREQ	DS	A (DMTSIG)	Task asynchronous signal request A (ALERT) entry address
268	GIVEREQ	DS	V (DMTGIV)	Task request GIVE request entry address
26C	TAKEREQ	DS	V (DMTAKE)	Task request TAKE request entry address
270	TVECTOR0	DS	A (0)	Task defined field
274	TVECTOR1	DS	A (0)	Task defined field
278	TVECTOR2	DS	A (0)	Task defined field
27C	TVECTOR3	DS	A (0)	Task defined field
280	TVECTOR4	DS	A (0)	Task defined field
284	TVECTOR5	DS	A (0)	Task defined field
288	TVECTOR6	DS	A (0)	Task defined field
28C	TVECTOR7	DS	A (0)	Task defined field
	TLINKS	EQU	TVECTOR0	Link table address
	TROUTE	EQU	TVECTOR1	Reserved for IBM use
	TPORTS	EQU	TVECTOR2	Switchable port table address
	TTAGQ	EQU	TVECTOR3	Tag slot queue
	TCOM	EQU	TVECTOR4	Common routine chain

TAG

TAG: THE RSCS FILE DESCRIPTOR

The TAG DSECT describes a file enqueued for processing by RSCS. The data in this area is built from the TAG record associated with a file via the CP tag command and from the CP spool file block (SFB) that describes the file.

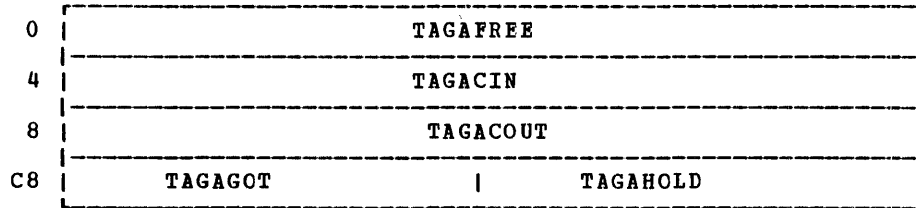


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	TAGNEXT	DS	1F	Address of next active queue entry
4	TAGBLOCK	DS	1F	Address of associated I/O area
8	TAGINLOC	DS	CL8	Originating location
10	TAGLINK	DS	CL8	Next location for transmission
18	TAGINTOD	DS	CL8	Time of file origin
20	TAGINVM	DS	CL8	Originating virtual machine
28	TAGRECNM	DS	1F	Number of records in file
2C	TAGRECLN	DS	1H	Maximum file data record length
2E	TAGINDEV	DS	1X	Device code of originating device
2F	TAGCLASS	DS	CL1	File output class
30	TAGID	DS	1H	File number at origin location
32	TAGCOPY	DS	1H	Number of copies required
34	TAGFLAG	DS	1X	VM/370 SFBLOK control flags (SFBFLAG)
35	TAGFLAG2	DS	1X	VM/370 SFBLOK control flags (SFBFLAG)
36		DS	1H	Spare halfword
3A	TAGNAME	DS	CL12	Filename
44	TAGTYPE	DS	CL12	Filetype
50	TAGDIST	DS	CL8	File distribution code
58	TAGTCLOC	DS	CL8	Destination location ID
60	TAGTOVM	DS	CL8	Destination virtual machine ID
68	TAGPRIOR	DS	CL2	Transmission priority
6A	TAGDEV	DS	2X	Active file's virtual device address
	TAGLEN	EQU	*-TAGNEXT	Length of the file TAG

TAGAREA

TAGAREA

The TAGAREA DSECT contains tag queue pointers and other tag control information. It is pointed to by TTAGQ in SVECTORS.

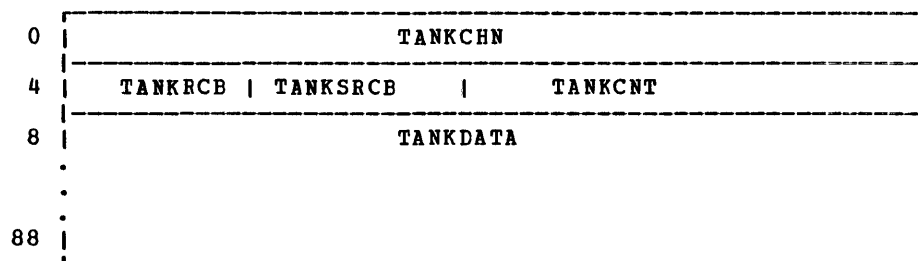


Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	TAGAFREE	DC	A(0)	Address of queue of free TAG slots (or elements)
4	TAGACIN	DC	A(0)	Pointer to queue of active input TAGs
8	TAGACOUT	DC	A(0)	Pointer to queue of active output TAGs
C	TAGAGOT	DC	H'0'	Number free slots left
E	TAGAHOLD	DC	H'0'	Number slots to be held

TANKDSEC: SML UNIT RECORD TANK

TANKDSEC is used to reference buffer data and control information contained in tanks, which are unit buffers used to deblock the larger TP buffers. (TP buffers are defined by the needs of an individual remote station and their size varies from station to station.)

\$TANKPOL in SML points to a queue of available tanks.



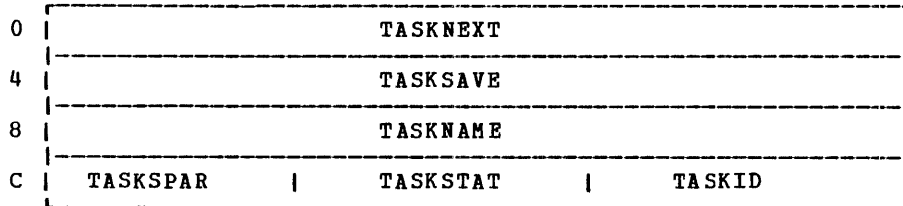
Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	TANKCHN DC A(0)	Tank chain field
4	TANKRCB DC 1C	Tank record control byte
5	TANKSRCB DS 1C	Tank subrecord control byte
6	TANKCNT DS 1H	Count of data bytes in tank
8	TANKDATA DS CL132	Data area in tank
8C	TANKEND DS 0F	Force next to word boundary

TASKE

TASKE: A TASK ELEMENT

The TASKE DSECT defines symbolic names of status information pertaining to an active task.

The TASKQ field of SVECTORS points to a queue of task elements, each of which is defined by this DSECT. The queue consists of one task element (TASKE) for each active task.



Hexadecimal Displacement	Field Name	Field Description, Contents, Meaning
0	TASKNEXT DS 1F	Address of the next element on the task element queue
4	TASKSAVE DS 1F	Address of this task's Task Save Area (TAREA)
8	TASKNAME DS CL4	Task name specified by the task; 4 bytes long
C	TASKSPAR DS AL2	Reserved for IBM use
E	TASKSTAT DS 1X	Status flags associated with the task
F	TASKID DS 1X	Number ID for the task; 1 byte is assigned by supervisor when task is made active
<u>Bits defined in TASKSTAT</u>		
	WAITING EQU X'80'	Flag set to 1 when task is non-dispatchable
	LOCKLIST EQU X'40'	Flag set to 1 while task is waiting for the synch lock list
	LIMBO EQU X'01'	Flag set to 1 when a task is being terminated



TCTDSECT: SML TASK CONTROL TABLE

TCTDSECT defines the format of six tables in SML storage which you can find at labels \$CCOM1, \$WCOM1, \$PCOM1, \$RCOM1, \$UCOM1, and \$JCOM1. Each table corresponds to an SML input/output processor and is used by that processor to perform its I/O function.

The GIVE request table and the GIVE request buffer used by SML are embedded in the task control table at hex locations 24 through 30 and 34 through 40, respectively.

14	TCTSAV1			
18	TCTNEXT			
1C	TCTFCS		TCTRCBR	TCTRCBT
20	TCTCOM			
24	TDEVSYNC			
28	TDEVREQN			
2C	TDEVREQ			
30	TDEVRESP			
34	TDEVLEN		TDEVFUN	TDEVRESV   TDEVSOPT
38	TDEVTAG			
3C	TDEVFIOA			
40	TDEVLINK			
44				
48	TSW1		TSW2	TSW3   TSW4
4C	TCTTOVM			
50				
54	TCTTANK			
58	TCTBUFFER			
5C	TCTTNKLM		TCTTNKCT	TCTBUFLM   TCTBUFCT

TCTDSECT

Hexadecimal Displacement	Field Name		Field Description, Contents, Meaning
0	TTCT	DS 0H	
0	TCTSTRT	DS CL2	Branch to proper processor entry
2	TCTENTY	DS CL2	Address portion modified by processor
4	TCTRTRN	DS CL4	Branch to next processor via commutator
8	TCTCCW	DS CL1	CCW for device operation code
9	TCTDATA	DS AL3	Address of data transferred
C	TCTFLAG	DS CL1	Flags on CCW
D	TCTOPCOD	DS CL1	Save area for CCW operation code
E	TCTCCWCT	DS AL2	CCW count of data transferred
10	TCTECB	DS CL1	Event control block
<u>Bits defined in TCTECB</u>			
	TCTBUSY	EQU X'10'	Device busy bit
11	TCTSTAT	DS CL1	Status flags
<u>Bits defined in TCTSTAT</u>			
	TCT1052	EQU X'10'	TCT status flags for 1052
	TCTREL	EQU X'04'	Interlock release request for console
	TCTOPEN	EQU X'80'	TCT open bit
	TCTACT	EQU X'40'	Action required on this TCT
12	TCTWFB	DS AL1	Waiting for buffers
14	TCTSAV1	DS 1F	Save area for processor routine
18	TCTNEXT	DS 1F	Next TCT in chain
1C	TCTFCS	DS AL2	Function control sequence mask
1E	TCTRCBR	DS CL1	RECV record control block
1F	TCTRCBT	DS CL1	Trans record control block
20	TCTCOM	DS 1F	Pointer back to commutator
<u>Hex locations 24 through 30 comprise the SML give request table</u>			
24	TDEVSYNC	DS 1F	Synch lock
28	TDEVREQN	DS CL4	File access name
2C	TDEVREQ	DS 1A	Request buffer address
30	TDEVRESP	DS 1A	Response buffer
<u>Hex locations 34 through 40 comprise the give request buffer in the form of a file request element (as shown in Appendix C)</u>			
34	TDEVLEN	DS AL1	Request length
35	TDEVFUN	DS AL1	Request function
36	TDEVRESV	DS AL1	Reserved byte
37	TDEVSOPT	DS AL1	Sub option byte
38	TDEVTAG	DS 1A	Tag address
3C	TDEVFIOA	DS 1A	File I/O area
40	TDEVLINK	DS CL8	Link name
48	TSW1	DS AL1	Device switch 1
49	TSW2	DS AL1	Device switch 2
4A	TSW3	DS AL1	Device switch 3
4B	TSW4	DS AL1	Device switch 4
4C	TCTTVM	DS CL8	VM output destination
54	TCTTANK	DS 1F	Next tank to output
58	TCTBUFFER	DS 1F	Address of current buffer
5C	TCTTNKLM	DS CL1	Maximum number of tanks assignable
5D	TCTTNKCT	DS CL1	Current number assigned
5E	TCTBUFLM	DS CL1	Maximum number of buffers assignable
5F	TCTBUFCT	DS CL1	Current number assigned

TAREA: A TASK SAVE AREA

TAREA an area associated with each task. This area is used to save the contents of the task's PSW and general registers and to flag whether or not a task has information ready to pass.

TAREA comprises the first 78 bytes of the storage area defined in each task's storage.

0	TPSW
4	TPSW
8	TGREG0
C	TGREG 1
10	TGREG2
14	TGREG3
18	TGREG4
1C	TGREG5
20	TGREG6
24	TGREG7
28	TGREG8
2C	TGREG9
30	TGREG 10
34	TGREG 11
38	TGREF 12
3C	TGREG 13
40	TGREG 14
44	TGREG 15
48	TREQLOCK

TAREA

Hexadecimal Displacement	Field Name			Field Description, Contents, Meaning
0	TPSW	DS	1D	PSW with which a temporarily interrupted task resumes execution
8	TGREG0	DS	1F	Save area for general register 0
C	TGREG1	DS	1F	Save area for general register 1
10	TGREG2	DS	1F	Save area for general register 2
14	TGREG3	DS	1F	Save area for general register 3
18	TGREG4	DS	1F	Save area for general register 4
1C	TGREG5	DS	1F	Save area for general register 5
20	TGREG6	DS	1F	Save area for general register 6
24	TGREG7	DS	1F	Save area for general register 7
28	TGREG8	DS	1F	Save area for general register 8
2C	TGREG9	DS	1F	Save area for general register 9
30	TGREG10	DS	1F	Save area for general register 10
34	TGREG11	DS	1F	Save area for general register 11
38	TGREG12	DS	1F	Save area for general register 12
3C	TGREG13	DS	1F	Save area for general register 13
40	TGREG14	DS	1F	Save area for general register 14
44	TGREG15	DS	1F	Save area for general register 15
48	TREQLOCK	DS	1F	Synchronization lock used to signal whether or not a task has information

The following appendixes supplement the information in this publication:

- "Appendix A: CP and RSCS Equate Symbols" contains assembler language equate symbols used in CP and RSCS to reference data.
- "Appendix B: RSCS Control Areas" contains areas containing constants and variables used during execution of RSCS tasks.
- "Appendix C: RSCS Request Elements" contains information on and formats of tables used during RSCS task-to-task communication.
- "Appendix D: CMS Equate Symbols" contains assembler language equate symbols used in CMS to reference data.
- "Appendix E: Data Areas and Control Blocks References" contains the names of CP, CMS, and RSCS control blocks. This appendix also contains information showing which modules reference the data areas or control blocks and, in some cases, gives information on how the data areas or control blocks are created and released.



## APPENDIX A: CP AND RSCS EQUATE SYMBOLS

This appendix contains assembler language equate symbols used to reference CP and RSCS data for:

- VM/370 Device Classes, Types, Models and Features
- VM/370 Machine Usage
- VM/370 Extended Control Registers
- VM/370 CP Usage
- VM/370 Registers

VM/370 DEVICE CLASSES, TYPES, MODELS AND FEATURES

Field Name			Field Description, Contents, Meaning
-----			
CLASTERM	EQU	X'80'	Terminal device class
TYP2700	EQU	X'40'	2700 bisync line
TYP2955	EQU	TYP2700	2955 communications line
TYPTELE2	EQU	X'20'	Telegraph terminal control type II
TYPTTY	EQU	X'20'	Teletype terminal
TYPIBM1	EQU	X'10'	IBM terminal control type I
TYP2741	EQU	X'18'	2741 communications terminal
TYP1050	EQU	X'14'	1050 Ccommunications terminal
TYPUNDEF	EQU	X'1C'	terminal device type is undefined
TYPBSC	EQU	X'80'	Bisync line for 3270 remote stations
TYP3210	EQU	X'00'	3210 console
TYP3215	EQU	TYP3210	3215 console
TYP2150	EQU	TYP3210	2150 console
TYP1052	EQU	TYP3210	1052 console
CLASGRAF	EQU	X'40'	Graphics device class
TYP2250	EQU	X'80'	2250 display unit
TYP2260	EQU	X'40'	2260 display station
TYP2265	EQU	X'20'	2265 display station
TYP3066	EQU	X'10'	3066 console
TYP1053	EQU	X'08'	1053 printer
TYP3277	EQU	X'04'	3277 display station
TYP3284	EQU	X'02'	3284 printer
TYP3286	EQU	TYP3284	3286 printer
TYP3158	EQU	TYP3277	3158 console
FTROPRDR	EQU	X'80'	Operator ID card reader
CLASURI	EQU	X'20'	Unit record input device class
TYPRDR	EQU	X'80'	Card reader device
TYP2501	EQU	X'81'	2501 card reader
TYP2540R	EQU	X'82'	2540 card reader
TYP3505	EQU	X'84'	3505 card reader
TYP1442R	EQU	X'88'	1442 card reader/punch
TYP2520R	EQU	X'90'	2520 card reader/punch
TYPTIMER	EQU	X'40'	Timer device
TYPTR	EQU	X'20'	Tape reader device
TYP2495	EQU	X'21'	2495 magnetic tape cartridge reader
TYP2671	EQU	X'22'	2671 paper tape reader
TYP1017	EQU	X'24'	1017 paper tape reader
CLASURO	EQU	X'10'	Unit record output device class
TYPUN	EQU	X'80'	Card punch device
TYP2540P	EQU	X'82'	2540 card punch
TYP3525	EQU	X'84'	3525 card punch
TYP1442P	EQU	X'88'	1442 card punch
TYP2520P	EQU	X'90'	2520 card punch
TYPRT	EQU	X'40'	Printer type device
TYP1403	EQU	X'41'	1403 printer
TYP3211	EQU	X'42'	3211 printer
TYP1443	EQU	X'44'	1443 printer
TYPTP	EQU	X'20'	Tape punch device
TYP1018	EQU	X'24'	1018 paper tape punch



Field Name			Field Description, Contents, Meaning
FTRUCS	EQU	X'01'	UCS feature
CLASTAPE	EQU	X'08'	Magnetic tape device class
TYP2401	EQU	X'80'	2401 tape drive
TYP2415	EQU	X'40'	2415 tape drive
TYP2420	EQU	X'20'	2420 tape drive
TYP3420	EQU	X'10'	3420 tape drive
TYP3410	EQU	X'08'	3410 tape drive
TYP3411	EQU	TYP3410	3411 tape drive
FTR7TRK	EQU	X'80'	7-track feature
FTRDLDNS	EQU	X'40'	Dual density feature
FTRTRANS	EQU	X'20'	Translate feature
FTRDCONV	EQU	X'10'	Data conversion feature
CLASDASD	EQU	X'04'	Direct access storage device class
TYP2311	EQU	X'80'	2311 disk storage drive
TYP2314	EQU	X'40'	2314 disk storage facility
TYP2319	EQU	TYP2314	2319 disk storage facility
TYP2321	EQU	TYP2311	2321 Data cell drive
TYP3330	EQU	X'10'	3330 disk storage facility
TYP3333	EQU	TYP3330	3333 disk storage facility
TYP3350	EQU	X'08'	3350 disk storage facility
TYP2301	EQU	TYP2311	3201 parallel drum
TYP2303	EQU	TYP2311	2303 serial drum
TYP2305	EQU	X'02'	2305 fixed head storage device
TYP3340	EQU	X'01'	3340 disk storage facility
FTRRPS	EQU	X'80'	Rotational positional sensing (RPS) installed (3340)
FTRXTSN	EQU	X'40'	Extended sense bytes (24 bytes)
FTR2311T	EQU	X'20'	(= VDEV231T) Top half of 2314 used as 2311
FTR2311B	EQU	X'10'	(= VDEV231B) Bottom half of 2314 used as 2311
FTR35MB	EQU	X'08'	35 MB data module mounted (3340)
FTR70MB	EQU	X'04'	70 MB data module mounted (3340)
FTRRSRL	EQU	X'02'	Reserve/release are valid CCW OP codes
CLASSPEC	EQU	X'02'	Special device class
TYPCTCA	EQU	X'80'	Channel-to-channel adapter
TYP3704	EQU	X'40'	3704 Programmable comm. CTL unit
TYP3705	EQU	TYP3704	3705 Programmable comm. CTL unit
TYPRSV1	EQU	X'02'	Reserved for IBM use
TYPUNSUP	EQU	X'01'	Device unsupported by VM/370
FTRTYP1	EQU	X'10'	Type 1 channel adapter (3704/5)
FTRTYP2	EQU	X'20'	Type 2 channel adapter (3704/5)

VM/370 MACHINE USAGE

Field Name	Field Description, Contents, Meaning
<u>Bits defined in standard/extended PSW</u>	
EXTMODE EQU X'08'	Bit 12 - extended mode
MCHK EQU X'04'	Bit 13 - machine check ENABLED
WAIT EQU X'02'	Bit 14 - wait state
PROBMODE EQU X'01'	Bit 15 - problem state
<u>Bits defined in extended PSW</u>	
PERMODE EQU X'40'	Bit 01 - per enabled
TRANMODE EQU X'04'	Bit 05 - translate mode
IOMASK EQU X'02'	Bit 06 - summary IO mask
EXTMASK EQU X'01'	Bit 07 - summary external mask
<u>Bits defined in channel status word (CSW)</u>	
ATTN EQU X'80'	Bit 32 - attention
SM EQU X'40'	Bit 33 - status modifier
CUE EQU X'20'	Bit 34 - control unit end
BUSY EQU X'10'	Bit 35 - busy
CE EQU X'08'	Bit 36 - channel end
DE EQU X'04'	Bit 37 - device end
UC EQU X'02'	Bit 38 - unit check
UE EQU X'01'	Bit 39 - unit exception
PCI EQU X'80'	Bit 40 - program control interrupt
IL EQU X'40'	Bit 41 - incorrect length
PRGC EQU X'20'	Bit 42 - program check
PRTC EQU X'10'	Bit 43 - protection check
CDC EQU X'08'	Bit 44 - channel DATA check
CCC EQU X'04'	Bit 45 - channel control check
IFCC EQU X'02'	Bit 46 - interface control check
CHC EQU X'01'	Bit 47 - chaining check
<u>Bits defined in channel command word (CCW)</u>	
CD EQU X'80'	Bit 32 - chain data
CC EQU X'40'	Bit 33 - command chain
SILI EQU X'20'	Bit 34 - suppress incorrect length ind.
SKIP EQU X'10'	Bit 35 - suppress data transfer
PCIF EQU X'08'	Bit 36 - program-control interrupt FETCH
IDA EQU X'04'	Bit 37 - indirect data address
<u>Bits defined in sense byte 0 -- common to most devices</u>	
CMDREJ EQU X'80'	Bit 0 - command reject
INTREQ EQU X'40'	Bit 1 - intervention required
BUSOUT EQU X'20'	Bit 2 - bus out
EQCHK EQU X'10'	Bit 3 - equipment check
DATACHK EQU X'08'	Bit 4 - data check

VM/370 EXTENDED CONTROL REGISTERS

Field Name		Field Description, Contents, Meaning
<u>Bits defined in CREG 0</u>		
BYTE 0		
BLKMPX	EQU X'80'	Bit 00 - enable block multiplexing
SSMSUPP	EQU X'40'	Bit 01 - enable SSM suppression
BYTE 1		
PAGE4K	EQU X'80'	Bit 08 - use 4K pages
PAGE2K	EQU X'40'	Bit 09 - use 2K pages
SEG1M	EQU X'10'	Bit 11 - use 1M segments
BYTE 2		
CKCMASK	EQU X'08'	Bit 20 - mask on change clock comparator int.
CPTMASK	EQU X'04'	Bit 21 - mask on CPU timer int.
BYTE 3		
INTMASK	EQU X'80'	Bit 24 - mask on interval timer int.
KEYMASK	EQU X'40'	Bit 25 - mask on operator key int.
SIGMASK	EQU X'20'	Bit 26 - mask on external signals 2-7
<u>Bits defined in CREG 0</u>		
BYTE 0		
PERSUBR	EQU X'80'	Bit 00 - monitor successful branches
PERIFET	EQU X'40'	Bit 01 - monitor instruction fetches
PERSALT	EQU X'20'	Bit 02 - monitor storage alteration
PERGPRS	EQU X'10'	Bit 03 - monitor register alteration
<u>Bits defined in CREG 14</u>		
BYTE 0		
HARDstop	EQU X'80'	Bit 00 - check STOP control
SYNCLOG	EQU X'40'	Bit 01 - synchronous logout control
IOLOG	EQU X'20'	Bit 02 - I/O logout control
RECOVRPT	EQU X'08'	Bit 04 - recovery report mask
CONFRPT	EQU X'04'	Bit 05 - configuration report mask
DAMAGRPT	EQU X'02'	Bit 06 - external damage report mask
WARNGRPT	EQU X'01'	Bit 07 - warning condition report mask
BYTE 1		
ASYNELG	EQU X'80'	Bit 08 - asynchronous extended logout ctl
ASYNFLOG	EQU X'40'	Bit 09 - asynchronous fixed logout ctl

## VM/370 CP USAGE

<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>
-------------------	---

### Bits defined for TRANS macro

BRING EQU X'80'	Bring requested page
DEFER EQU X'40'	Defer execution until page in core
LOCK EQU X'20'	Lock page for IO operation
IOERETN EQU X'10'	Return I/O errors to caller
SYSTEM EQU X'08'	Call to DMKPTRAN for system V.M. space

### Equates for parm field for calls to DMKBLDRT/DMKBLDRL

DELSEGS EQU X'80'	Release the segment tables
DELPAGES EQU X'40'	Release the page/swap tables
NEWPAGES EQU X'08'	Build new page/swap table
NEWSEGS EQU X'04'	Build new segment table
KEEPSSEGS EQU X'02'	Retain informatin in old segment table
OLDVMSEG EQU X'01'	VMSEG pointer in VMBLOK Vvalid

### Bits defined for terminal I/O via DMKQCN

ERRMSG EQU X'0800'	Output - control program error message
NORET EQU X'0400'	Output - return immediately after call
DFRET EQU X'0200'	Output - FRET buffer after queueing
OPERATOR EQU X'0100'	Output - message for system operator
LOGDROP EQU X'80'	Output - logoff & drop line after message
LOGHOLD EQU X'40'	Output - logoff & hold line after message
PRIORITY EQU X'20'	Output - WRITE THIS message immediately
VMGENIC EQU X'10'	I/O request generated by virtual machine
NOAUTO EQU X'04'	Output - suppress auto carriage return
ALARM EQU X'02'	Output - sound the audible alarm
NOTIME EQU X'01'	Output - suppress time stamp on message
INHIBit EQU X'08'	Input - prevent display of this data
EDIT EQU X'04'	Input - edit input data for corrections
UCASE EQU X'02'	Input - translate data to uppercase

### Equates for spool file recovery routine - DMKCKS

RDRCHN EQU X'01'	SFBLOK goes on RDR chain
PCHCHN EQU X'02'	SFBLOK goes on punch chain
PRTCHN EQU X'04'	SFBLOK goes on print chain
ADDSFB EQU X'08'	Add new SFBLOK to recovery cyl
CHGSFB EQU X'10'	Change existing SFBLOK
DELSFB EQU X'20'	Delete SFBLOK from checkpoint
OPNSFB EQU X'40'	It is an open print-punch file
ACTSFB EQU X'80'	File being printed or punched
CHGRDV EQU X'0100'	Change attributes of real device
CHGSHQ EQU X'0200'	checkpoint a SHQBLOK

Field Name	Field Description, Contents, Meaning	
<u>Monitor Class and Code Definitions</u>		
MNCLPERF EQU	X'00'	Monitor perform class
MNCOSYS EQU	X'0000'	Perform class, system performance
MNCOTH EQU	X'0061'	Monitor tape header record
MNCOTT EQU	X'0062'	Monitor tape trailer record
MNCOSUS EQU	X'0063'	Monitor collection suspension
MNCLRESP EQU	X'01'	Monitor response class
MNCOBRD EQU	X'0000'	Response class, begin read code
MNCOWRIT EQU	X'0001'	Response class, write code
MNCOERD EQU	X'0002'	Response class, end read code
MNCLSCH EQU	X'02'	Monitor schedule class
MNCODQ EQU	X'0002'	Schedule class, drop queue code
MNCOAQ EQU	X'0003'	Schedule class, add to queue code
MNCOAEL EQU	X'0004'	Schedule class, add to eligible list code
MNCLuser EQU	X'04'	Monitor user class
MNCouser EQU	X'0000'	User class, user data
MNCLINST EQU	X'05'	Monitor instruction simulation class
MNCOSIM EQU	X'0000'	INST class, instruction simulation code
MNCLDAST EQU	X'06'	Monitor DASD/tape class
MNCODASH EQU	X'0000'	DASTAP class, first record
MNCODAS EQU	X'0001'	DASTAP class, data records
MNCLSEEK EQU	X'07'	Monitor DASD class
MNCOCYL EQU	X'0000'	DASD class, seeks code
MNCLSYS EQU	X'08'	Monitor system profile class
MNCODA EQU	X'0002'	SYS class, DASD data

## VM/370 REGISTERS

<u>Field</u> <u>Name</u> -----	<u>Field Description, Contents, Meaning</u> -----
--------------------------------------	--

### Symbolic register equates

R0	EQU	0
R1	EQU	1
R2	EQU	2
R3	EQU	3
R4	EQU	4
R5	EQU	5
R6	EQU	6
R7	EQU	7
R8	EQU	8
R9	EQU	9
R10	EQU	10
R11	EQU	11
R12	EQU	12
R13	EQU	13
R14	EQU	14
R15	EQU	15

General register definition

Y0	EQU	0
Y2	EQU	2
Y4	EQU	4
Y6	EQU	6

Floating point register definitions

C0	EQU	0
C1	EQU	1
C2	EQU	2
C3	EQU	3
C4	EQU	4
C5	EQU	5
C6	EQU	6
C7	EQU	7
C8	EQU	8
C9	EQU	9
C10	EQU	10
C11	EQU	11
C12	EQU	12
C13	EQU	13
C14	EQU	14
C15	EQU	15

Control register definitions

This appendix lists the control areas used during task processing. Information such as lists of synch locks, channel programs, TAKE request tables and buffers, and various work constants are included in these areas.

AXS MONITOR CONTROL AREA

The AXS Monitor Control Area is a data area used by DMTAXS to set up synch locks, a TAKE request table, a TAKE request and response buffer, and an input buffer.

<u>Field Name</u>		<u>Field Description, Contents, Meaning</u>
AXSNAME	DC 0F'0',CL4'AXS'	Task name for AXS routine
REXNAME	DC 0F'0',CL4'REX'	Task name for control monitor
AXSLOCKS	DC A (ARRLOCK) DC A (REQLOCK) DC X'80',AL3 (CMDLOCK)	File tag arrival synch lock address Request arrival synch lock address Command synch lock address
ARRLOCK	DC F'0'	File tag arrival synch lock
CMDLOCK	DC F'0'	Command synch lock
AXSTAKE	DC 0F'0' DC CL4' ' DC AL1(L'AXSREQ)AL3 (AXSREQ) DC A (AXSRESP)	TAKE request table Giver's task name Pointer to request buffer (input) Pointer to response buffer (output)
AXSREQ	DC XL140'00'	TAKE request buffer
AXSRESP	DC XL136'00'	TAKE response buffer
CHDIN	DC CL122' '	Input buffer for command element
CHDINPGS	DC X'00'	Command in progress switch
AXSCSAVE	DC 18F'0'	Common routine save area

REX MONITOR CONTROL AREA

The REX Monitor Control Area is a data area used by DMTREX to initialize the DMTAXS and DMTLAX modules, point to queues of system data (such as the link table chain and the chain of tag elements), set up a series of synch locks for REX processing function, set up a console element, read and write channel programs, a console table buffer, a message buffer, a TAKE request table, and buffer, and various work constants.

Field Name	Field Description, Contents, Meaning
REXREX	DC OF'0',CL4'REX' Task name
REXAXS	DC OF'0',CL8'DMTAXS' AXSname
REXLAX	DC OF'0',CL8'DMTLAX' LAXname
REXTVECT	DC OF'0' DC V(DMTSYSLK) Link table chain DC V(DMTSYSRT) Route table chain DC V(DMTSYSPT) Switchable port chain DC V(DMTSYSTQ) Tag slot queue DC V(DMTCOMVC) Common routine vector
REXEND	DC V(DMTSYSND) End of REX initial load
REXLOCKS	DC OF'0' Main REX wait list DC X'00',AL3(REQLOCK) Request arrival synch lock address DC X'00',AL3(ATTNLOCK) Console attention synch lock address DC X'40',AL3(REXCONSL) Console I/O synch lock address DC X'80',AL3(PROGLOCK) Program check synch lock address
ATTNLOCK	DC OF'0',X'00',AL3(0) Console attention lock
REXCONSL	DC F'0' Synch lock for I/O operation DC AL2(CONSADDR) CUU console device address DC AL1(1) One byte requested on unit check DC AL1(TYP3252) Console device type code DC A(0) Channel program address to be filled in DC 2F'0' SIO condition code and ending CSW return information DC X'00' Sense return information on unit check
DMTREXCN	DC 3X'00' Unused EQU REXCONSL External name
CONSADDR	EQU X'009' Default console CUU
REXREAD	CCW X'0A',REXIN,SILI,L'REXIN Reader operator response
REXWRITE	CCW X'09',REXOUT+2,SILI,0 Type a console message
REXIN	DC CL130' ' Console input buffer
REXMSG	DC CL11'M OP' MSG command start
DMTREXID	EQU REXMSG+2 Transfer user ID
REXOUT	DC CL130' ' Output buffer
REXTAKE	DC OF'0' Request TAKE table DC CL4' ' Sending task name filled in by TAKE manager DC AL1(L'REXREQ),AL3(REXREQ) Address and length of request buffer DC A(REXRESP) Address of response buffer
REXREQ	DC XL140'00' TAKE request buffer
REXRESP	DC AL1(0) Never any response messages



## SML MONITOR CONTROL AREA

The SML Monitor Control Area is used to define various constants, save areas, BSC control sequences, channel command words, and bit settings used during SML processing.

Field			<u>Field Description, Contents, Meaning</u>
<u>Name</u>			
CBUFFER	DC A(0)		Active communications buffer
CFCSSOUT	DC H'0'		Last FCS transmitted to HASP
CFCSSSTD	DC X'88'		Standard FCS
CTEMP	DC H'0'		Temporary storage
CMAXDUP	DC H'3'		Maximum repeated blocks
	DC AL1(0)		First byte of halfword
CBCBCNTO	DC AL1(X'80')		Block check count out
	DC AL1(0)		Spacer
CBCBCNTI	DC AL1(X'80')		Block count character expected
	DC H'0'		
CBUFLAST	DC 10X'00'		Save of start of last buffer
CRESP	DC AL1(0)		Response character received
CREGS	DS 3F		Register save area
CRETREGS	DS 3F	Save area	
\$COMEXIT	DC A(\$START)		COMSUD initial entry point
CBCB	DC X'00'		Last BCB sent for reset
CSETBCB	DC X'00'		
	DS 0F		Force fullword alignment
CCSW	DC XL8'00'		Temporary storage for CSW
COLDRCB	DC X'00'		Last RCB sent
CUNITCMD	DC X'00'		Command code storage
CLASTCAW	DC F'0'		CCW address save
BUFSYNSW	DC X'00'		Buffer synchronization switch
	<u>Bits defined in BUFSYNSW</u>		
\$TPPNONE	EQU X'80'		Stop all buffering
OFLSW	EQU X'40'		Flush buffer
GDQBUFS	EQU X'20'		Stop dequeuing buffers
\$COMBUSY	EQU X'10'		Communications inactive
CUWFAKE	EQU X'08'		Dummy read on for UE recovery
CACKSW	EQU X'04'		ACK received
ADAECB	DC F'0'		Synch lock
ADACUU	DC X'0000', AL1(1), AL1(TYP2700)		
A	DCCWA DC A(CCTCCW)		Adapter CCW addr
ADASIOCC	EQU *		SIO condition code
ADACSW	DC 2F'0'		Adapter ending CSW
ADASENSE	DC F'0'		Adapter sense byte
ADSAV	DC 8F'0'		\$SIO register save area
	<u>Control Sequences</u>		
XSTXSEQ	DC AL1(XLDR,XSTX)		Start-of-text sequence
XETBSEQ	DC AL1(XTRL,XETB)		End-of-text-block sequence
XACKSEQ	DC AL1(XDLE,XACKO)		Positive acknowledgement sequence
XNAKSEQ	DC AL1(XSYN,XNAK)		Negative acknowledgement sequence

<u>Field Name</u>	<u>Field Description, Contents, Meaning</u>	<u>Channel Command Words</u>
<u>Normal Data Write with Return Data Read</u>		
CCWA	CCW 1,0,CC+SILI,0	Write buffer
CCWB	CCW 1,XETBSEQ,CC+SILI,2	Write ending sequence
CCWC	CCW 2,0,SILI,0	Read return data
<u>Dummy read to turn off lost data sense</u>		
CCWD	CCW 2,0,SILI+SKIP,65000	Nonread a punch
<u>DISABLE command</u>		
CCWOFF	CCW X'2F',0,SIL,1	Disable
WRITE	EQU X'01'	Adapter write command code
READ	EQU X'02'	Adapter read command code
NOP	EQU X'03'	Adapter NOP command code
SENSE	EQU X'04'	Adapter sense command code

## APPENDIX C: RSCS REQUEST ELEMENTS

This appendix provides information on the format and use of RSCS request elements. These elements are used by RSCS tasks in task-to-task communication.

The information provided includes:

- The name of the module that builds the element.
- The function performed by the element.
- A brief description of the elements usage.
- The format of the element.
- Any operational notes that might be useful in understanding how the element is used.

COMMAND ALERT ELEMENT FORMAT A1

BUILT BY: DMTCMX

FUNCTION: Execute an AXS command

DESCRIPTION: This ALERT element is passed via ALERT to the AXS task (DMTAXS) to request second-level processing of ORDER and PURGE commands.

0	Length (n-1)	Function Code: X'10',X'11'	Response Code	Modifiers
4	linkid			
C	spoolid count (n-X'E')/2		spoolid	
10				
	spoolid		spoolid	

OPERATIONAL NOTES

The linkid field specifies the affected link. The spoolid fields are binary halfwords and specify the files enqueued on the specified link which are to be re-ordered or purged. The spoolid count field is a binary halfword and specifies the total number of spoolid fields present. The meanings of the other fields follow.

ORDER Command

Function Code: X'10'

Response Codes:

X'00' Element accepted for processing  
X'10' Element rejected, busy

Modifiers:

X'80' Response messages go to local RSCS operator  
X'00' Response messages go to specified link.

PURGE Command

Function Code: X'11'

Response Codes:

X'00' Element accepted for processing  
X'10' Element rejected, busy

Modifiers:

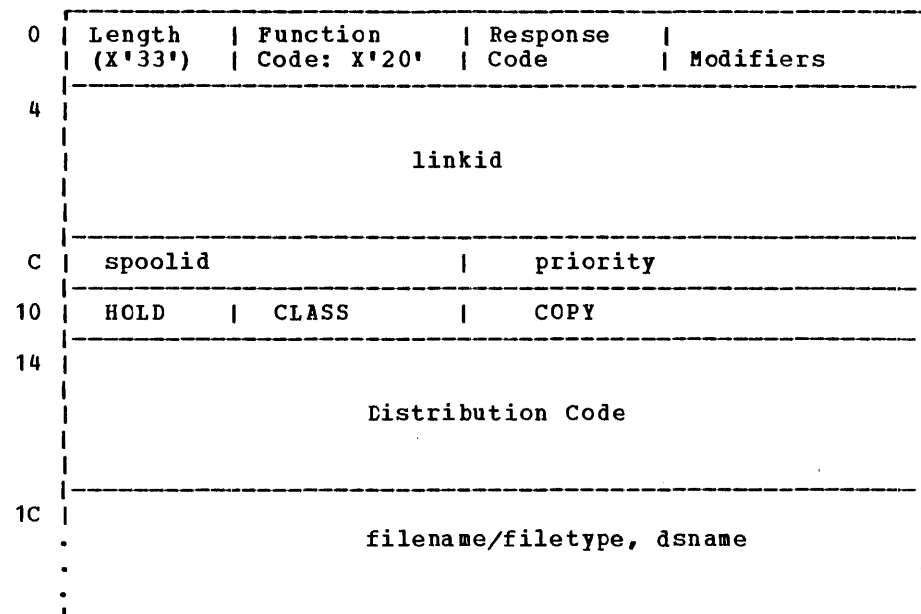
X'80' Response messages go to local RSCS operator  
X'40' Purge all files enqueued on the specified link  
X'00' Purge only specified files, response messages go to specified link

COMMAND ALERT ELEMENT FORMAT A2

BUILT BY: DMTCMX

FUNCTION: Execute AXS command

DESCRIPTION: This ALERT element is passed via ALERT to the AXS task (DMTAXS) to request second-level processing of CHANGE commands.



OPERATIONAL NOTES

The linkid field specifies the link on which the object inactive file is enqueued. The spoolid field is a binary halfword and specifies the object file's VM/370 RSCS identifier.

The following fields are specified only when the corresponding file attribute is to be changed. If the field is not specified, it is set to all 1 bits (X'FF...').

- Priority halfword binary priority 0-99
- HOLD X'7F' - set hold status  
X'3F' reset hold status (NOHOLD)
- CLASS 1-byte EBCDIC class, A-Z, 0-9
- COPY halfword binary copy count, 1-99
- Distribution code 8-byte EBCDIC spool file distribution code
- filename/filetype, dsname 24-byte EBCDIC spool file filename or filetype or dsname

CHANGE Command

Function Code: X'20'

Response Codes:

X'00' Element accepted for processing  
X'10' Element rejected, busy

Modifiers:

X'80' Response messages go to local RSCS operator  
X'00' Response messages go to specified link

COMMAND ALERT ELEMENT FORMAT LO

BUILT BY: DMTCMX

FUNCTION: Execute a line driver command

DESCRIPTION: This ALERT element is passed via ALERT to a line driver task (DMTNPT, DMTSML) to request second-level processing of START, DRAIN, FREE, HOLD, and TRACE commands.

0	Length (X'0B')	Function Code: X'80,X'81, X'82',X'83',X'84'	Response Code	Modifiers
4	locid			

OPERATIONAL NOTES

The locid specifies the location which is to receive response messages. The meaning of the other fields follow.

START Command

Function Code: X'80'

Response Codes:

- X'00' Element accepted for processing
- X'10' Element rejected, busy

Modifiers:

- X'80' Start updated classes
- X'00' Reset DRAIN status

DRAIN Command

Function Code: X'81'

Response Codes:

- X'00' Element accepted for processing
- X'10' Element rejected, busy

Modifiers: Unused

FREE Command

Function Code: X'82'



Response Codes:  
X'00' Element accepted for processing  
X'10' Element rejected, busy

Modifiers: Unused

#### HOLD Command

Function Code: X'84'

Response Codes:  
X'00' Element accepted for processing  
X'10' Element rejected, busy

Modifiers:  
X'80' HOLD Immediate  
X'00' HOLD after file processing

#### TRACE Command

Function Code: X'84'

Response Codes:  
X'00' Element accepted for processing  
X'10' Element rejected, busy

Modifiers:  
X'C0' TRACE end  
X'80' TRACE errors  
X'00' TRACE all

COMMAND ALERT ELEMENT FORMAT L1

BUILT BY: DMTCMX

FUNCTION: Execute a line driver command

DESCRIPTION: This ALERT element is passed via ALERT to a line driver task (DMTNPT, DMTSML) to request second-level processing of BACKSPAC and FWDSPACE commands.

0	Length (X'0F')	Function Code: X'90',X'91'	Response Code	Modifiers
4		locid		
C		Count		

OPERATIONAL NOTES

The locid specifies the location which is to receive response messages. The count field is a binary fullword, and specifies the number of units to be backspaced or forwardspaced. The meanings of the other fields follow.

BACKSPAC Command

Function Code: X'90'

Response Codes:

- X'00' Element accepted for processing
- X'10' Element rejected, busy

Modifiers:

- X'80' Backspace count
- X'00' Backspace file (restart)

FWDSPACE Command

Function Code: X'91'

Response Codes:

- X'00' Element accepted for processing
- X'10' Element rejected, busy

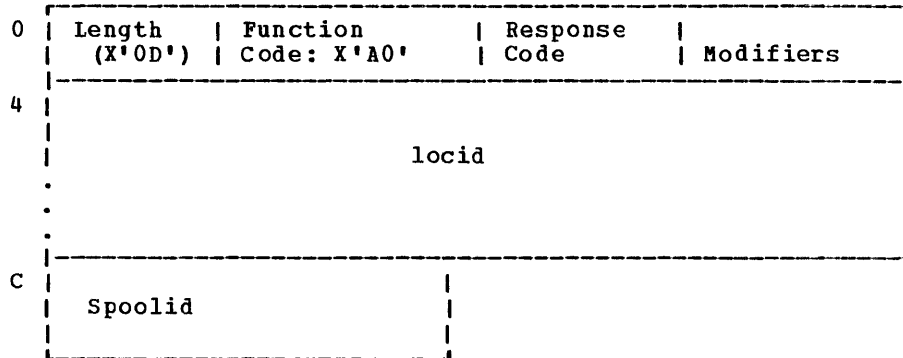
Modifiers: Unused

COMMAND ALERT ELEMENT FORMAT L2

BUILT BY: DMTCMX

FUNCTION: Execute a line driver command

DESCRIPTION: This ALERT element is passed via ALERT to a line driver task (DMTNPT, DMTSML) to request second-level processing of FLUSH commands.



OPERATIONAL NOTES

The locid specifies the location which is to receive response messages. The spoolid field is a binary halfword, and specifies the VM/370 RSCS identifier of the active file to be flushed. The meanings of the fields follow.

FLUSH Command

Function Code: X'A0'

Response Codes:

- X'00' Element accepted for processing
- X'10' Element rejected, busy

Modifiers:

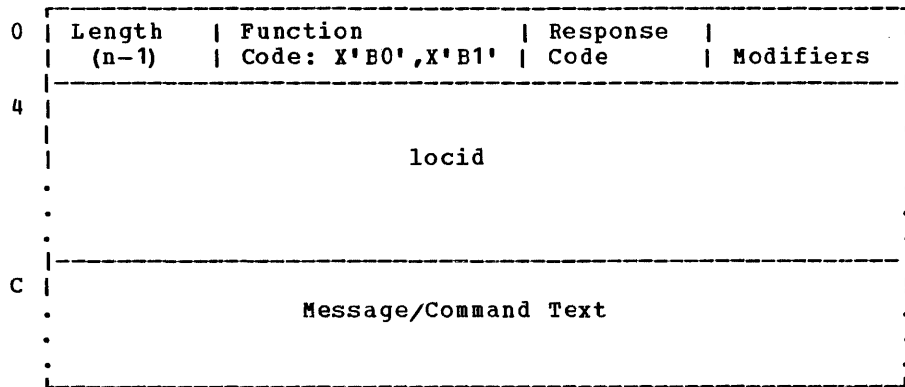
- X'80' Flush all copies, purge file
- X'40' Flush hold, keep file, do not decrement copy count
- X'00' Flush, decrement copy count, purge file if no copy count remains

COMMAND ALERT ELEMENT FORMAT L3 (ALSO MESSAGE ALERT ELEMENT)

BUILT BY: DMTCMX, DMTMGX

FUNCTION: Execute a line driver command

DESCRIPTION: This ALERT element is passed via ALERT to a line driver task (DMTNPT, DMTSML) to forward messages, and to request second-level processing of CMD commands.



OPERATIONAL NOTES

The locid specifies the location which is to receive the message or command text. The meanings of the other fields are listed below.

CMD Command

Function Code: X'B0'

Response Codes:

- X'00' Element accepted for processing
- X'10' Element rejected, busy

Modifiers: Unused

MSG Command

Function Code: X'B1'

Response Codes:

- X'00' Element accepted for processing
- X'10' Element rejected, busy

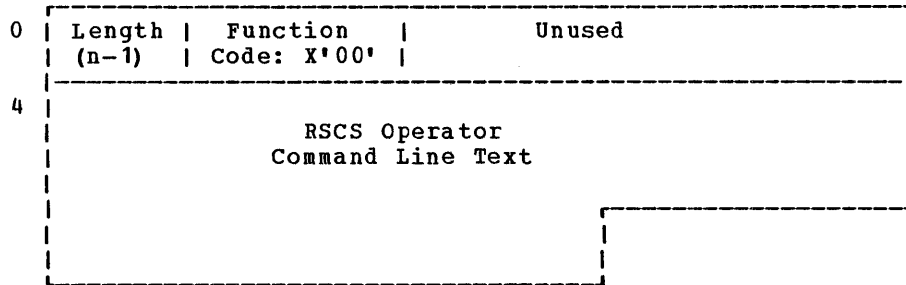
Modifiers: One-byte binary RSCS severity code

COMMAND REQUEST ELEMENT

BUILT BY: DMTNPT, DMTSML

FUNCTION: Execute an RSCS operator command

DESCRIPTION: This request element is passed by a line driver via GIVE/TAKE to the REX task in response to a command entry at a remote station.



OPERATIONAL NOTES

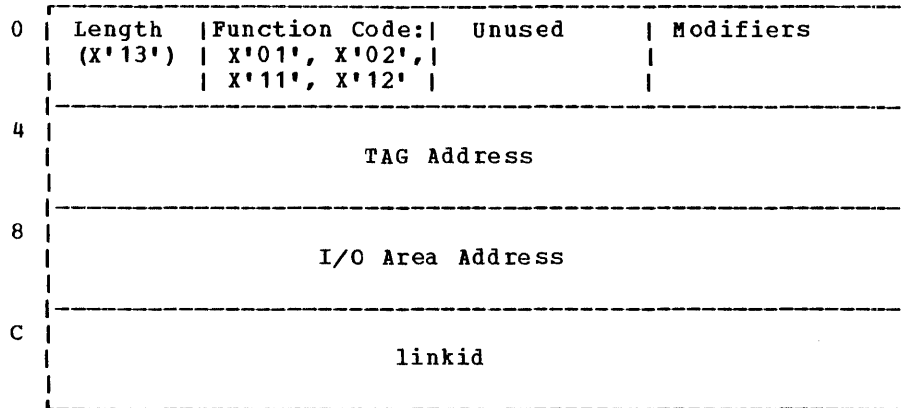
No response text is returned. Command responses are distributed via DMTMGX.

FILE REQUEST ELEMENT

BUILT BY: DMTNPT, DMTSML

FUNCTION: Initiates or terminates processing of an input or output file.

DESCRIPTION: This request element is passed via GIVE/TAKE to the AXS task by line drivers to effect lccal spool file access during communications with a remote station.



OPERATIONAL NOTES

The use and meaning of the various field depends on the requested function, as described below. Certain fields may be updated during request processing. The (updated) file request element is returned to the requestor as a GIVE response.

Open Input

Function Code: X'01'

Modifiers: Unused

Tag Address: Response field which points to the opened file's active TAG in DMTSYS

I/O Area Address: Response field which points to a virtual page buffer containing the opened file's first VM/370 spool data buffer.

linkid: Request field which specifies the requesting line driver's linkid.

Response Post Codes:

- X'08' Terminal system error
- X'04' No file available
- X'02' Undefined linkid
- X'01' Previously open file returned

### Open Output

Function Code: X'11'

Modifiers: X'80' Do not return possible previously opened file

Tag Address: Request field which points to a prototype file TAG for the output file, constructed by the calling line driver.

I/O Area Address: Response field which points to a virtual page buffer containing an I/O table, a write CCW, and a buffer for processing the output file.

linkid: Request field which specifies the requesting line driver's linkid.

Response Post Codes:

X'04' Error, file not opened

X'02' Undefined linkid

X'01' Previously open file returned

### Close Input

Function Code: X'02'

Modifiers:

X'80' Do not purge copy or file

X'40' Purge all copies, and purge file

Tag Address: Request field which points to the file's active TAG in DMISYS, as supplied by open input.

I/O Area Address: Unused

linkid: Unused

Response Post Codes:

X'04' TAG not found, close failed

### Close Output

Function Code: X'12'

Modifiers: Unused

Tag Address: Request field which points to a prototype file TAG for the output file, constructed by the calling line driver. This TAG is used to update the parameters to be set for the output file.

I/O Area Address: Request field which points to the file's I/O area, as supplied by open output.

linkid: Unused

Response Post Codes:

X'04' I/O area not found, close failed

LINE ALERT ELEMENT

BUILT BY: DNTCMX

FUNCTION: Request line port allocation

DESCRIPTION: This ALERT element is passed via ALERT to the LAX task (DMTLAX) to verify and reserve line ports for links being activated in response to a START command.

0	Length (X'0F')	Function Code: X'01'	Response Code	Unused
4	Line Address			Unused
8	linkid			

OPERATIONAL NOTES

The use and meaning of the fields are described below. Certain fields are updated during processing.

Response Codes:

- X'08' Specified line address not attached (CC=3)
- X'04' Specified line address not BSC port device type
- X'02' Line not available

Line Address: Request field specifying requested line address. Zero specification implies request for allocation of a switchable line from the port table. If successful, the port's line address is returned in this field as a response.

linkid: Response field specifying the ID of the link which has reserved the particular requested line address (with response code X'02').

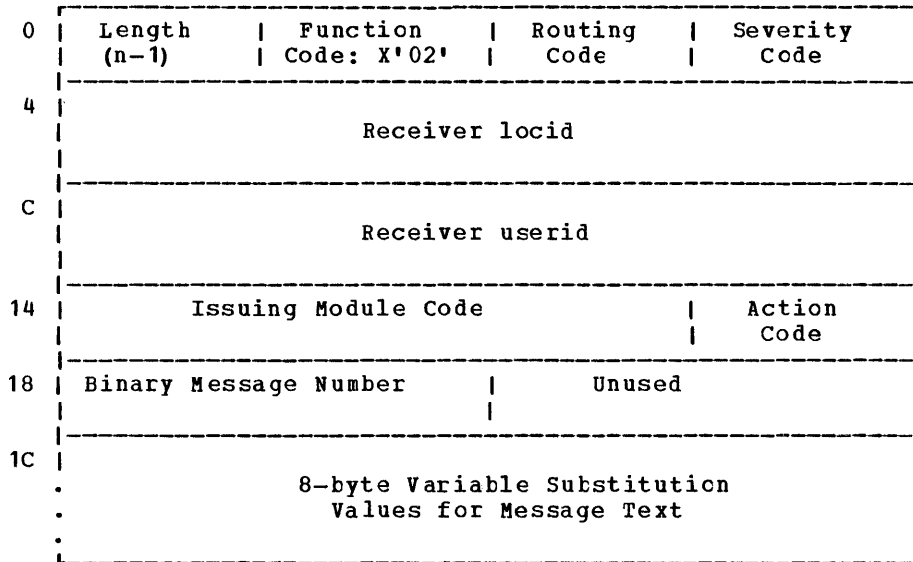


MESSAGE REQUEST ELEMENT

BUILT BY: DMTREX, DMTCMX, DMTAXS, DMTNPT, DMTSML

FUNCTION: Issue an RSCS message

DESCRIPTION: This request element is passed via GIVE/TAKE to the REX task, to specify the construction and distribution of an RSCS message (by DMTMGX).



OPERATIONAL NOTES

The routing code and severity code from the message definition (in DMTMSG) are used when not supplied in the message request element. If the message is not defined in DMTMSG, it is constructed using the specifications in the message request element, and the "variable substitution values" become the message text, unmodified.

- Routing codes:
- X'80' Local RSCS console
  - X'40' Remote addressee
  - X'20' Local user
  - X'10' Local VM/370 operator

No response text is returned.

PORT TABLE

BUILT BY: Assembly of DMTSYS at RSCS generation

FUNCTION: Record allocation status of switchable line ports available to RSCS

DESCRIPTION: The first doubleword of the table is reserved for control information. Each following halfword contains the virtual device address of a line port which may be dialed, and which is available to RSCS.

0	Number of Line Port Entries in Table	
4		
8	Virtual Line Address	Virtual Line Address
C	Virtual Line Address	Virtual Line Address
10		
.	.	.
.	.	.
.	.	.
	Virtual Line Address	Virtual Line Address

OPERATIONAL NOTES

The line port entries are marked "in use" by setting the high-order four bits of the entries to 1's.

TERMINATE REQUEST ELEMENT

BUILT BY: DMTNPT, DMTSML

FUNCTION: Terminate line driver task

DESCRIPTION: This request element is passed via GIVE/TAKE to the REX task, to terminate line driver operation in response to a DRAIN command.

0	Length	Function
	(1)	Code: X'03'

OPERATIONAL NOTES

There are no error conditions for the terminate function, so no response is made. However, line driver tasks must issue a WAIT request following a call to GIVE for terminate, because REX may not execute the request immediately.



## APPENDIX D: CMS EQUATE SYMBOLS

This appendix contains assembler language equate symbols used in CMS to reference data for:

- CMS usage
- CMS registers

CMS USAGE EQUATES

Field Name	Field Description, Contents, Meaning		
<u>Bits defined in the program status word (PSW)</u>			
CHAN0	EQU	X'80'	Bit 00 - channel 0 mask
CHAN1	EQU	X'40'	Bit 01 - channel 1 mask
CHAN2	EQU	X'20'	Bit 02 - channel 2 mask
CHAN3	EQU	X'10'	Bit 03 - channel 3 mask
CHAN4	EQU	X'08'	Bit 04 - channel 4 mask
CHAN5	EQU	X'04'	Bit 05 - channel 5 mask
CHANM	EQU	X'02'	Bit 06 - input/output mask
EXTM	EQU	X'01'	Bit 07 - external mask
ECMM	EQU	X'08'	Bit 12 - extended control mode mask
MCKM	EQU	X'04'	Bit 13 - machine check mask
WAIT	EQU	X'02'	Bit 14 - wait state mask
PROB	EQU	X'01'	Bit 15 - problem state mask
FOFM	EQU	X'08'	Bit 36 - fixed-point overflow mask
DOFM	EQU	X'04'	Bit 37 - decimal overflow mask
EUFM	EQU	X'02'	Bit 38 - exponent underflow mask
SIGM	EQU	X'01'	Bit 39 - significance mask
<u>Bits defined in the channel status word (CSW)</u>			
ATTN	EQU	X'80'	Bit 32 - attention
SM	EQU	X'40'	Bit 33 - status modifier
CUE	EQU	X'20'	Bit 34 - control unit end
EUSY	EQU	X'10'	Bit 35 - busy
CE	EQU	X'08'	Bit 36 - channel end
DE	EQU	X'04'	Bit 37 - device end
UC	EQU	X'02'	Bit 38 - unit check
UE	EQU	X'01'	Bit 39 - unit exception
PCI	EQU	X'80'	Bit 40 - program-controlled interrupt
ICL	EQU	X'40'	Bit 41 - incorrect length
PGC	EQU	X'20'	Bit 42 - program check
PTC	EQU	X'10'	Bit 43 - protection check
CDC	EQU	X'08'	Bit 44 - channel data check
CCC	EQU	X'04'	Bit 45 - channel control check
ICC	EQU	X'02'	Bit 46 - interface control check
CHC	EQU	X'01'	Bit 47 - chaining check

Field Name	Field Description, Contents, Meaning
------------	--------------------------------------

Common channel command codes

WRITE	EQU	X'01'	Write
READ	EQU	X'02'	Read
NOP	EQU	X'03'	No operation
SENSE	EQU	X'04'	Sense
WRDATA	EQU	X'05'	Write data
RDDATA	EQU	X'06'	Read data
SEEK	EQU	X'07'	Seek
TIC	EQU	X'08'	Transfer in channel
WRITE1	EQU	X'09'	Write and space 1
RDCONS	EQU	X'0A'	Read from console
SETSEC	EQU	X'23'	Set csector
SEARCH	EQU	X'31'	Search ID equal

Bits defined in a channel command word (CCW)

CD	EQU	X'80'	Bit 32 - chain data
CC	EQU	X'40'	Bit 33 - command chain
SILI	EQU	X'20'	Bit 34 - suppress incorrect length
SKIP	EQU	X'10'	Bit 35 - suppress data transfer
PCIF	EQU	X'08'	Bit 36 - cause program control interrupt
IDA	EQU	X'04'	Bit 37 - indirect data address

## CMS REGISTER EQUATES

<u>Field</u> <u>Name</u> -----	<u>Field Description, Contents, Meaning</u> -----
--------------------------------------	--

### General purpose registers

R0	EQU	0
R1	EQU	1
R2	EQU	2
R3	EQU	3
R4	EQU	4
R5	EQU	5
R6	EQU	6
R7	EQU	7
R8	EQU	8
R9	EQU	9
R10	EQU	10
R11	EQU	11
R12	EQU	12
R13	EQU	13
R14	EQU	14
R15	EQU	15

### Floating point registers

F0	EQU	0
F2	EQU	2
F4	EQU	4
F6	EQU	6

### Extended control registers

C0	EQU	0
C1	EQU	1
C2	EQU	2
C3	EQU	3
C4	EQU	4
C5	EQU	5
C6	EQU	6
C7	EQU	7
C8	EQU	8
C9	EQU	9
C10	EQU	10
C11	EQU	11
C12	EQU	12
C13	EQU	13
C14	EQU	14
C15	EQU	15



## APPENDIX E: DATA AREAS AND CONTROL BLOCKS REFERENCES

This appendix contains lists of CP, CMS, and RSCS control blocks. The lists contain information showing which modules reference the data areas or control blocks and, in some cases, information on how the data areas or control blocks are created and released.



DDRREC

Built by: DMKVER

Released by: DMKVER

Referenced by: DMKVER

DMPBREC

Built by: DMKDMP

Released by: DMKDMP

Referenced by: DMKDMP, DMKEDM

DMPINREC

Built by: DMKDMP

Released by: DMKDMP

Referenced by: DMKDMP, DMKEDM

DMPKYREC

Built by: DMKDMP

Released by: DMKDMP

Referenced by: DMKDMP

ECBLOK

Built by: DMKBLD

Released by: DMKCFS, DMKUSO

Referenced by: DMKBLD, DMKCDB, DMKCDS, DMKCFG, DMKCFP, DMKCFS, DMKDSP, DMKEDM, DMKLOG, DMKPRG, DMKPRV, DMKSCH, DMKTMR, DMKTRC, DMKUSO, DMKVAT

ERRBLOK

Built by: DMKIOE

Released by: DMKIOF

Referenced by: DMKIOF

IOBLOK

Built by: DMKACO, DMKCCW, DMKCFP, DMKCNS, DMKCPB, DMKCPI, DMKCPS, DMKCSO, DMKCSP, DMKCSU, DMKDGD, DMKDIA, DMKGIO, DMKGRF, DMKHVC, DMKIOS, DMKNLD, DMKRG, DMKRGB, DMKSPL, DMKTDK, DMKVCA, DMKVDR, DMKVIO

Released by: DMKCFP, DMKCNS, DMKCPB, DMKCPI, DMKCPS, DMKCSO, DMKDAS, DMKDGD, DMKDIA, DMKGIO, DMKGRF, DMKHVC, DMKIOS, DMKNLD, DMKPAG, DMKRG, DMKRGB, DMKRNH, DMKRSP, DMKSEP, DMKTDK, DMKVCA, DMKVIO

Referenced by: DMKACO, DMKBSC, DMKCCH, DMKCCW, DMKCFP, DMKCNS, DMKCPB, DMKCPI, DMKCPV, DMKCSO, DMKCSP, DMKCSU, DMKDAS, DMKDGD, DMKDIA, DMKDSP, DMKEDM, DMKGIO, DMKGRF, DMKHVC, DMKIOE, DMKIOS, DMKISM, DMKLOG, DMKMCC, DMKMON, DMKMSW, DMKNLD, DMKPAG, DMKPGT, DMKRGF, DMKRNH, DMKRSE, DMKRSP, DMKSEP, DMKSPL, DMKTAP, DMKTDK, DMKTRC, DMKUDR, DMKUNT, DMKVCA, DMKVDB, DMKVDR, DMKVIO

IOBR3211

Built by: DMKRSE

Released by: DMKIOE

Referenced by: DMKIOE, DMKRSE

IOERBLOK

Built by: DMKBSC, DMKCCH, DMKDAS, DMKDIA, DMKIOE, DMKIOS, DMKRSE, DMKTAP, DMKVCA

Released by: DMKBSC, DMKCCH, DMKCCW, DMKCFP, DMKCNS, DMKCPB, DMKDAS, DMKDGD, DMKDIA, DMKGIO, DMKGRF, DMKIOE, DMKIOS, DMKMON, DMKNLD, DMKRG, DMKRGB, DMKRNH, DMKRSE, DMKRSP, DMKTAP, DMKVIO

Referenced by: DMKBSC, DMKCCH, DMKCCW, DMKCFP, DMKCNS, DMKCPV, DMKDAS, DMKDGD, DMKDIA, DMKEDM, DMKEIG, DMKGIO, DMKGRF, DMKIOE, DMKIOS, DMKMSW, DMKNLD, DMKRGF, DMKRNH, DMKRSE, DMKRSP, DMKSEV, DMKSIX, DMKTAP, DMKUNT, DMKVCA, DMKVIO

IRMBLOK

Built by: DMKCFS

Released by: DMKCFS, DMKIOE

Referenced by: DMKCFS, DMKIOE

LOCKBLOK

Built by: DMKLOC

Released by: DMKLOC

Referenced by: DMKLOC

MCHAREA

Built by: DMKMCH

Released by: N/A

Referenced by: DMKCCH, DMKCFS, DMKIOG, DMKMCH

MCRECORD

Built by: DMKMCH  
Released by: N/A  
Referenced by: DMKMCH

MDRREC

Built by: DMKVER  
Released by: DMKVER  
Referenced by: DMKVER

MICBLOK

Built by: DMKCFS, DMKLOG  
Released by: DMKCFS, DMKLOG, DMKUSO  
Referenced by: DMKBLD, DMKCFS, DMKDSP,  
DMKLOG

MIHREC

Built by: DMKVER  
Released by: DMKVER  
Referenced by: DMKVER

MNHDR

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN000

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN097

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN098

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN099

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN10X

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN20X

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN400

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN500

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN600DEV

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN600HDR

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN700

Built by: DMKMON  
Released by: DMKMON  
Referenced by: DMKMON

MN802CTR

Built by: DMKMON

Released by: DMKMON

Referenced by: DMKMON

MONCOM

Built by: DMKMCC

Released by: DMKMON

Referenced by: DMKCPV, DMKDMP, DMKMCC, DMKMON

NCPTBL

Built by: DMKSNT

Released by: N/A

Referenced by: DMKNLD, DMKSNC

NICBLOK

Built by: DMKNLD

Released by: DMKNLD

Referenced by: DMKBLD, DMKCFD, DMKCKP, DMKCPI, DMKCQR, DMKHVD, DMKDIA, DMKHVD, DMKLOG, DMKNES, DMKNET, DMKNLD, DMKPSA, DMKQCN, DMKRGF, DMKRNH, DMKWRM

OBRREC (Long OBR)

Built by: DMKIOF

Released by: DMKIOF

Referenced by: DMKIOE, DMKIOF, DMKVER

OBRREC (Short OBR)

Built by: DMKIOF

Released by: DMKIOF

Referenced by: DMKIOF

OWNDLIST

Assembled into DMKSYS

Referenced by: DMKCKP, DMKCKS, DMKCPI, DMKDRD, DMKPAG, DMKPGT, DMKPTR, DMKSPL, DMKUDR, DMKVDB, DMKWRM

PAGTABLE

Built by: DMKBLD

Released by: DMKBLD, DMKPGS

Referenced by: DMKBLD, DMKCFG, DMKCFP, DMKPGS, DMKVMA

PGBLOK

Built by: DMKVAT

Released by: DMKCFP, DMKDSP

Referenced by: DMKCFP, DMKDSP, DMKVAT

PSA

Assembled as part of DMKSYS; part of CP nucleus.

Referenced by: DMKACO, DMKBLD, DMKBSC, DMKCCH, DMKCCW, DMKCDB, DMKCDS, DMKCFD, DMKCFG, DMKCFM, DMKCFP, DMKCFE, DMKCFD, DMKCKP, DMKCKS, DMKCNB, DMKCPB, DMKCPI, DMKCPV, DMKCQD, DMKQCP, DMKCSO, DMKCSF, DMKCSU, DMKCVT, DMKDAS, DMKDEF, DMKDG, DMKDIA, DMKDMP, DMKDRD, DMKDSP, DMKEDM, DMKEIG, DMKERM, DMKFMT, DMKFRE, DMKGIO, DMKGRF, DMKHVC, DMKIOE, DMKIOF, DMKIOG, DMKIOS, DMKISM, DMKLNK, DMKLOC, DMKLOG, DMKMCC, DMKMCH, DMKMID, DMKMON, DMKMSG, DMKMSW, DMKNES, DMKNET, DMKNLD, DMKOPR, DMKPAG, DMKPGS, DMKPGT, DMKPRG, DMKPRV, DMKPTR, DMKQCN, DMKRGF, DMKRNH, DMKRPA, DMKRSE, DMKRSP, DMKSAV, DMKSCH, DMKSCN, DMKSEP, DMKSEV, DMKSIX, DMKSNC, DMKSPL, DMKSSP, DMKSTK, DMKTAP, DMKTDK, DMKTHI, DMKTMR, DMKTRA, DMKTRC, DMKTRM, DMKUDR, DMKUNT, DMKUSO, DMKVAT, DMKVCA, DMKVCH, DMKVCN, DMKVDB, DMKVDR, DMKVD, DMKVER, DMKVIO, DMKVMA, DMKVM, DMKVSP, DMKWRM

RCBLOK

Assembled into CP nucleus module DMKRIO.

Released by: DMKRIO

Referenced by: DMKCCW, DMKCFP, DMKCKP, DMKCPB, DMKCPI, DMKCPV, DMKCQD, DMKDIA, DMKEDM, DMKIOG, DMKIOS, DMKMON, DMKNES, DMKSCN, DMKSSP, DMKVCH

RCUBLOK

Assembled into CP nucleus module DMKRIO.

Released by: DMKRIO

Referenced by: DMKCCW, DMKCFD, DMKCKP, DMKCPB, DMKCPI, DMKCPV, DMKCOP, DMKDIA, DMKEDM, DMKIOF, DMKIOS, DMKMON, DMKNES, DMKNLD, DMKSCN, DMKSSP, DMKVCH

RCWTASK

Built by: DMKCCW

Released by: DMKCCW, DMKUNT

Referenced by: DMKCCW, DMKHVC, DMKISM, DMKTRC, DMKUNT

RDEVBLK

Built by:

Released by:

Referenced by: DMKACO, DMKBLD, DMKBSC,  
DMKCCH, DMKCCW, DMKCFD, DMKCFG,  
DMKCFM, DMKCFP, DMKCFB, DMKCFE, DMKCFV,  
DMKCKS, DMKCKP, DMKCKR, DMKCKS, DMKCKP,  
DMKCKQ, DMKCKR, DMKCKQ, DMKCKR, DMKCKQ,  
DMKDEF, DMKDIA, DMKDMP, DMKDRD, DMKEDM,  
DMKGRF, DMKHVC, DMKHVD, DMKIOE, DMKIOF,  
DMKIOG, DMKIOS, DMKLNK, DMKLOG, DMKMCC,  
DMKMON, DMKMSW, DMKNES, DMKNET, DMKNLD,  
DMKOPR, DMKPAG, DMKPGT, DMKPSA, DMKPTR,  
DMKQCN, DMKRGF, DMKRNH, DMKRSE, DMKRSP,  
DMKSCN, DMKSEP, DMKSNC, DMKSPL, DMKSSP,  
DMKIAP, DMKTDK, DMKTRM, DMKUNT, DMKUSO,  
DMKVCH, DMKVCN, DMKVDB, DMKVDR, DMKVDS,  
DMKVER, DMKVIO, DMKWRM

RECBLOK

Built by: DMKCKS, DMKCPD, DMKPGT,  
DMKRSP, DMKVSP, DMKWRM

Released by: DMKPGT, DMKSPL, DMKUSO

Referenced by: DMKCKP, DMKCKS, DMKCPD,  
DMKEDM, DMKEDM, DMKPGT, DMKRSP, DMKSPL,  
DMKVSP, DMKWRM

RECPAG

Built by: DMKIOF

Released by: DMKIOF

Referenced by: DMKIOF, DMKIOG

RSPLCTL

Built by: DMKRSP

Released by: DMKRSP

Referenced by: DMKCKP, DMKQCP, DMKCSO,  
DMKEDM, DMKRSP, DMKSPL

SAVEAREA

Built by: DMKCPD, DMKPSA

Released by: DMKPSA

Referenced by: DMKACO, DMKBLD, DMKBSC,  
DMKCCH, DMKCCW, DMKCD, DMKCD, DMKCFD,  
DMKCFD, DMKCFG, DMKCFM, DMKCFP, DMKCFB,  
DMKCFE, DMKCFV, DMKCKS, DMKCKP, DMKCKR,  
DMKCKQ, DMKCKR, DMKCKQ, DMKCKR, DMKCKQ,  
DMKDEF, DMKDIA, DMKDMP, DMKDRD, DMKEDM,  
DMKGRF, DMKHVC, DMKHVD, DMKIOE, DMKIOF,  
DMKIOG, DMKIOS, DMKLNK, DMKLOG, DMKMCC,  
DMKMON, DMKMSW, DMKNES, DMKNET, DMKNLD,  
DMKOPR, DMKPAG, DMKPGT, DMKPSA, DMKPTR,  
DMKQCN, DMKRGF, DMKRNH, DMKRSE, DMKRSP,  
DMKSCN, DMKSEP, DMKSNC, DMKSPL, DMKSSP,  
DMKIAP, DMKTDK, DMKTRM, DMKUNT, DMKUSO,  
DMKVCH, DMKVCN, DMKVDB, DMKVDR, DMKVDS,  
DMKVER, DMKVIO, DMKWRM

DMKNEM, DMKNET, DMKNLD, DMKPGS, DMKPSA,  
DMKPTR, DMKQCN, DMKRGF, DMKRNH, DMKRPA,  
DMKRSE, DMKRSP, DMKSEP, DMKSEV, DMKSIX,  
DMKSNC, DMKSPL, DMKSSP, DMKTAP, DMKTDK,  
DMKTHI, DMKTRA, DMKTRC, DMKTRM, DMKUDR,  
DMKUNT, DMKUSO, DMKVAT, DMKVCA, DMKVCH,  
DMKVDB, DMKVDR, DMKVDS, DMKVER, DMKVMA,  
DMKVSP, DMKWRM

SAVTABLE

Built by:

Released by:

Referenced by: DMKCFG, DMKCFP

SDRBLOK

Built by: DMKIOF

Released by: DMKIOE

Referenced by: DMKIOE, DMKIOF

SEGTABLE

Built by: DMKBLD

Released by: DMKBLD

Referenced by: DMKBLD, DMKCPD, DMKPGS,  
DMKVMA

SFBLOK

Built by: DMKCKS, DMKNLD, DMKSPL, DMKWRM

Released by: DMKCKS, DMKRSP, DMKSPL,  
DMKUSO

Referenced by: DMKCKP, DMKCKS, DMKCPD,  
DMKQCP, DMKCSO, DMKCSO, DMKCSO, DMKCSO,  
DMKCSU, DMKEDM, DMKEDM, DMKEDM, DMKEDM,  
DMKRSP, DMKSEP, DMKSPL, DMKUSO, DMKVSP,  
DMKWRM

SHQBLOK

Built by: DMKCSO, DMKWRM

Released by: DMKCSO

Referenced by: DMKCKS, DMKQCP, DMKCSO,  
DMKSPL, DMKWRM

SHRTABLE

Built by: DMKCFG

Released by: DMKPGS, DMKVMA

Referenced by: DMKCFG, DMKCFP, DMKPGS,  
DMKVMA

SPLINK

Assembled into CP nucleus module DMKSYS.

Referenced by: DMKCKS, DMKDRD, DMKRSP, DMKSPL, DMKVSP

SWPTABLE

Built by: DMKBLD, DMKVMA

Released by: DMKBLD

Referenced by: DMKBLD, DMKCFG, DMKEDM, DMKPGS, DMKVMA

SYSLOCS

Assembled into CP nucleus module DMKSYS.

Referenced by: DMKACO, DMKBLD, DMKCFS, DMKCFT, DMKCKP, DMKLOC, DMKLOG, DMKUDR, DMKUSO

SYSTBL

Assembled into DMKSNT.

Referenced by: DMKCFG, DMKCFP

TNSREC

Built by: DMKIOF

Released by: DMKIOF

Referenced by: DMKIOF

TREXT

Built by: DMKTRA

Released by: DMKTRA, DMKTRC, DMKUSO

Referenced by: DMKCFG, DMKCFM, DMKCFP, DMKISP, DMKEDM, DMKPGS, DMKPRG, DMKPRV, DMKPSA, DMKTMR, DMKTRA, DMKTRC, DMKVIO

TRQBLOK

Built by: DMKBLD, DMKCFM, DMKCFP, DMKCFB, DMKCPV, DMKQCS, DMKQCN

Released by: DMKCFM, DMKCFP, DMKCFB, DMKMON, DMKQCN, DMKUSO

Referenced by: DMKBLD, DMKCFM, DMKCFP, DMKCFB, DMKCPV, DMKQCS, DMKQCN, DMKMON, DMKQCN, DMKUSO

UDBFBLOK

Built by: DMKDEF, DMKHVD, DMKSPL

Released by: DMKDEF, DMKHVD, DMKSPL

Referenced by: DMKDEF, DMKHVC, DMKLNK, DMKLOG, DMKSPL, DMKUDR

UDEVBLOK

Built by: DMKCSP, DMKUDR

Released by: DMKCSP, DMKUDR

Referenced by: DMKDEF, DMKDIR, DMKHVD, DMKLNK, DMKLOG, DMKSCN, DMKUDR, DMKVDB, DMKVDS

UDIRBLOK

Built by: DMKCSP

Released by: DMKCSP

Referenced by: DMKCSP, DMKDEF, DMKDIR, DMKHVC, DMKHVD, DMKLNK, DMKLOG, DMKSPL, DMKUDR

UMACBLOK

Built by: DMKDIR

Released by: DMKDIR

Referenced by: DMKDEF, DMKDIR, DMKHVC, DMKHVD, DMKLOG, DMKSPL, DMKUDR

VCHBLOK

Built by: DMKVDS

Released by: DMKUSO

Referenced by: DMKCFM, DMKCFP, DMKCKP, DMKCPB, DMKCPV, DMKQCS, DMKQCN, DMKDEF, DMKDG, DMKDIA, DMKDS, DMKEDM, DMKGIO, DMKLNK, DMKLOG, DMKPRV, DMKSCN, DMKSPL, DMKUSO, DMKVCH, DMKVCN, DMKVDB, DMKVDS, DMKVIO, DMKVSP

VCONCTL

Built by: DMKVDS

Released by: DMKVDR

Referenced by: DMKCFP, DMKGRF, DMKLOG, DMKRGF, DMKVCN, DMKVDR





CMS CONTROL BLOCK REFERENCES

ABTAB

Assembled as part of DMSNUC.

Referenced by: DMSBAB, DMSDOS, DMSITP

DMSDOS, DMSDSV, DMSFCH, DMSFET, DMSINS,  
DMSITP, DMSLLU, DMSOPL, DMSOPT, DMSPRV,  
DMSRRV, DMSSET, DMSSMN, DMSRV, DMSVSR,  
DMSXCP

ABWSECT

Assembled as part of DMSNUC

Referenced by: DMSABN, DMSDBG, DMSFRE,  
DMSITI, DMSITP, DMSITS

CMSTAXE

Built by: DMSSVT

Released by: DMSSVT

Referenced by: DMSCIT, DMSSVT

ADTSECT

Assembled as part of DMSNUC.

Referenced by: DMSABN, DMSACC, DMSACF,  
DMSACM, DMSALU, DMSAMS, DMSARE, DMSARN,  
DMSARX, DMSASM, DMSASN, DMSAUD, DMSBOP,  
DMSBOP, DMSBWR, DMSBOP, DMSBOP, DMSBOP,  
DMSDLB, DMSDLK, DMSDSK, DMSDSL, DMSERS,  
DMSERC, DMSERT, DMSFOR, DMSHSH, DMSINS,  
DMSLAD, DMSLAF, DMSLBM, DMSLDS, DMSLFS,  
DMSLKD, DMSLLU, DMSLST, DMSMVE, DMSOPN,  
DMSQRY, DMSRNM, DMSROS, DMSSET, DMSSOP,  
DMSSTT, DMSTQQ, DMSTRK, DMSUPD, DMSXCP

CVTSECT

Assembled as part of DMSNUC.

Referenced by: DMSINS

DBGSECT

Assembled as part of DMSNUC.

Referenced by: DMSDBD, DMSDBG, DMSITE.

AFTSECT

Assembled as part of DMSNUC; also  
created and released dynamically by  
DMSLAF.

Referenced by: DMSBRD, DMSBWR, DMSERS,  
DMSINT, DMSLAF, DMSPT, DMSRNM, DMSSOP,  
DMSSTT, DMSTPE

DEVSECT

Assembled as part of DMSNUC.

Referenced by: DMSTIO, DMSTPE

DEVTAB

Assembled as part of DMSNUC.

Referenced by: DMSASN, DMSDBD, DMSIDX,  
DMSINI

ANCHSECT

Built by: DMSSTG

Released by: Not released

Referenced by: DMSDOS, DMSSMN

DIOSECT

Assembled as part of DMSNUC.

Referenced by:

BATLSECT

Assembled as part of DMSBTP.

Referenced by: DMSCIO, DMSITE, DMSPIO

DMSCCB

Built by: N/A

Released by: N/A

Referenced by: DMSXCP

BBOX

Assembled as part of DMSNUC.

Referenced by: No CMS references. This  
block is used by the DOS supervisor.

DOSSECT

Built by: DMSDLB

Released by: DMSDLB, DMSABN

BGCOM

Assembled as part of DMSNUC.

Referenced by: DMSAMS, DMSASN, DMSBAB,  
DMSBOP, DMSCLS, DMSDLB, DMSDLK, DMSDMP,

Referenced by: DMSAMS, DMSBOP, DMSCLS,  
DMSDLB, DMSDLK, DMSDSV, DMSOPL, DMSRRV,  
DMSRV, DMSSVT, DMSVIP, DMSXCP

EDCB

Built by: DMSIDX  
Released by: DMSEDI  
Referenced by: DMSEDC, DMSEDI, DMSIDX, DMSGIO, DMSSCR

ERDSECT

Assembled as part of DMSNUC.  
Referenced by: DMSERR

EXTSECT

Assembled as part of DMSNUC.  
Referenced by: DMSINS, DMSINT, DMSIOW, DMSITE, DMSQRY, DMSSET, DMSSMN, DMSSVN, DMSSVT

EXTUAREA

Assembled as part of DMSNUC.  
No CMS references.

FCBSECT

Built by: DMSFLD  
Released by: DMSFLD, DMSABN  
Referenced by: DMSALU, DMSARN, DMSARX, DMSASM, DMSDSL, DMSFCH, DMSFLD, DMSHSM, DMSLDS, DMSMVE, DMSQRY, DMSROS, DMSSAB, DMSSBD, DMSSBS, DMSSCT, DMSSEB, DMSSOP, DMSSQS, DMSSVN, DMSSVT

FCHTAB

Assembled as part of DMSNUC.  
Referenced by: DMSDOS, DMSFET

FICL

Assembled as part of DMSNUC.  
Referenced by: No CMS references. This block is used by the DOS supervisor.

FRDSECT

Assembled as part of DMSNUC.  
Referenced by: DMSFRE

FSTD

Built by: N/A  
Released by: N/A  
Referenced by: DMSCPY, DMSIDX, DMSEXC, DMSGND, DMSNCP, DMSTPE

FSTSECT

Built by: DMSACF  
Released by: DMSALU  
Referenced by: DMSACF, DMSAMS, DMSARN, DMSARX, DMSASM, DMSBOP, DMSBRD, DMSBSC, DMSBWR, DMSCPY, DMSDLK, DMSDSK, DMSDSL, DMSERS, DMSHSM, DMSLAF, DMSLBM, DMSLKD, DMSMDP, DMSMVE, DMSRNM, DMSSTT, DMSTPE, DMSUPD, DMSZAP

FVSECT

Assembled as part of DMSNUC.  
Referenced by: DMSABN, DMSACC, DMSACF, DMSACM, DMSALU, DMSAUD, DMSBTB, DMSBTP, DMSBWR, DMSCIT, DMSCRD, DMSCWR, DMSJWT, DMSDIO, DMSDSK, DMSERS, DMSEXC, DMSFNS, DMSINT, DMSITE, DMSITI, DMSITP, DMSITS, DMSLFS, DMSMOD, DMSQRY, DMSRNM, DMSTPE, DMSTQQ

IOSECT

Assembled as part of DMSNUC.  
Referenced by: DMSABN, DMSHDI, DMSINT, DMSITI

KEYSECT

Built by: DMSSVT  
Released by: DMSSVT  
Referenced by: DMSSBD, DMSSVT

LDRST

Built by: DMSLDR  
Released by: DMSLDR  
Referenced by: DMSLDR, DMSLGT, DMSLIB, DMSLIO, DMSLSB

LUBTAB

Assembled as part of DMSNUC.  
Referenced by: DMSBOP, DMSCLS, DMSDLB, DMSFCH, DMSLLU, DMSOPL, DMSPRV, DMSRRV, DMSSET, DMSSRV, DMSXCP

NICL

Assembled as part of DMSNUC.

Referenced by: DMSBOP, DMSCLS, DMSDLB, DMSSELK, DMSDSV, DMSLLU, DMSPRV, DMSXCP

NUCON

Assembled as part of DMSNUC.

Referenced by: DMSABN, DMSACC, DMSACF, DMSACM, DMSALU, DMSAMS, DMSARE, DMSARN, DMSARX, DMSASM, DMSASN, DMSAUD, DMSBAB, DMSBOP, DMSBRD, DMSBSC, DMSBTB, DMSBTP, DMSBWR, DMSCAT, DMSCIO, DMSCIT, DMSCLS, DMSCMP, DMSCPF, DMSCPY, DMSCRD, DMSCWR, DMSCWT, DMSDBD, DMSDBG, DMSDIO, DMSDLB, DMSSELK, DMSDMP, DMSDOS, DMSDSK, DMSDSL, DMSDSV, DMSEDI, DMSEDX, DMSERR, DMSERS, DMSEXC, DMSEXT, DMSFCH, DMSFET, DMSFLD, DMSFNS, DMSFOR, DMSFRE, DMSGIO, DMSGLB, DMSGND, DMSHDI, DMSHDS, DMSHSM, DMSINA, DMSINI, DMSINM, DMSINS, DMSINT, DMSIOW, DMSITE, DMSITI, DMSITP, DMSITS, DMSLBM, DMSLBT, DMSLDR, DMSLDS, DMSLFS, DMSLGT, DMSLIB, DMSLIO, DMSLKD, DMSLLU, DMSLOA, DMSLSB, DMSLST, DMSLSY, DMSMDP, DMSMOD, DMSMVE, DMSOPL, DMSOPT, DMSOR1, DMSOVR, DMSOVS, DMSPIO, DMSPNT, DMSPR1, DMSPRV, DMSQRY, DMSRDC, DMSRNE, DMSRNM, DMSROS, DMSRRV, DMSSAB, DMSSBS, DMSSCN, DMSSCT, DMSSEB, DMSSET, DMSSLN, DMSSMN, DMSSOP, DMSSQS, DMSSRT, DMSSRV, DMSSSK, DMSSTT, DMSSVN, DMSSVT, DMSSYN, DMSTIO, DMSTPD, DMSTPE, DMSTQQ, DMSTYP, DMSUPD, DMSVIB, DMSVIP, DMSVSR, DMSXCP, DMSZAP

OPSECT

Assembled as part of DMSNUC.

Referenced by: DMSABN, DMSARX, DMSASM, DMSCRD, DMSCWR, DMSCWT, DMSDBG, DMSEXC, DMSEXT, DMSHSM, DMSINS, DMSINT, DMSROS, DMSSBD, DMSSBS, DMSSCT, DMSSEB, DMSSOP, DMSSQS, DMSSVN, DMSSVT

OSFST

Built by: DMSROS

Released by: DMSALU

Referenced by: DMSABN, DMSALU, DMSBOP, DMSDLK, DMSFCH, DMSMVE, DMSROS, DMSRRV, DMSSOP, DMSSRV, DMSSTT

OVSECT

Built by: N/A

Released by: N/A

DMSITS, DMSOVR

PCTAB

Assembled as part of DMSNUC.

Referenced by: DMSBAB, DMSDOS, DMSITP

PDSSECT

Built by: DMSSVT

Released by: DMSSVT

Referenced by: DMSSVT

PGMSECT

Assembled as part of DMSNUC.

Referenced by: DMSITP, DMSSAB, DMSSLN, DMSSMN, DMSSVT

PIBADR

Assembled as part of DMSNUC.

Referenced by: DMSBAB, DMSDOS, DMSITP

PIB2TAB

Assembled as part of DMSNUC.

Referenced by: DMSBAB, DMSDOS, DMSITP

PUBADR

Assembled as part of DMSNUC.

Referenced by: DMSBOP, DMSCLS, DMSDLK, DMSDSV, DMSLLU, DMSPRV, DMSXCP

SSAVE

Built by: DMSITS

Released by: DMSITS

Referenced by: DMSABN, DMSBSC, DMSDBG, DMSDLB, DMSERR, DMSFLD, DMSFRE, DMSITP, DMSITS, DMSLDR, DMSOVS, DMSSMN

SUBSECT

Assembled as part of DMSNUC.

DMSABN, DMSINM, DMSINT

SVCSECT

Assembled as part of DMSNUC.

Referenced by: DMSCIT, DMSFRE, DMSHDS, DMSINT, DMSOVR, DMSOVS, DMSSLN

SVEARA

Assembled as part of DMSNUC.

Referenced by: DMSBAB, DMSDOS, DMSITP

SYSKOM

Assembled as part of DMSNUC.

Referenced by: DMSBAB, DMSBOP, DMSDOS,  
DMSFET, DMSITP, DMSSMN

SYSNAMES

Assembled as part of DMSNUC.

Referenced by: DMSAMS, DMSBOP, DMSDOS,  
DMS~~EDX~~, DMSEXC, DMSINT, DMSSET, DMSVIB,  
DMSVSR

TSOBLKS

Assembled as part of DMSNUC.

Referenced by: DMSSET, DMSZAP

USERSECT

Assembled as part of DMSNUC.

No CMS references.

RSCS CONTROL BLOCKS REFERENCES

ASYNE

Built by: DMTASY

Released by: DMTASY, DMTASK

Referenced by: DMTASY, DMTEXT, DMTIOM, DMSIG

EUFDSECT

Built by: DMTSML

Released by: DMTSML

Referenced by: DMTSML

COMDSECT

Built by: DMTCOM

Released by: N/A

Referenced by: DMTAXS, DMTCMX, DMTMGX, DMTNPT, DMTREX, DMTSML

DEVTABLE

Built by: DMTNPT

Released by: DMTNPT

Referenced by: DMTNPT

FREEE

Built by: DMTQRQ

Released by: DMTQRQ

Referenced by: DMTASK, DMTINI, DMTQRQ

GIVVE

Built by: DMTGIV

Released by: DMTAKE, DMTASK

Referenced by: DMTAKE, DMTASK, DMTGIV

IOE

Built by: DMTIOM

Released by: DMTIOM

Referenced by: DMTASK, DMTIOM, DMTREX

IOTABLE

Built by: DMTIOM, DMTCRE, DMTNPT, DMTREX, DMTSML

Released by: DMTNPT, DMTSML

Referenced by: DMTAXS, DMTCMX, DMTCRE, DMTINI, DMTIOM, DMTREX, DMTSML

LINKTABL

Assembled into DMTSYS at system generation; also built by DMTCMX.

Released by: DMTCMX

Referenced by: DMTAXS, DMTCMX, DMTCOM, DMTCRE, DMTLAX, DMTMGX, DMTNPT, DMTREX, DMTSML

REQBLOCK

Built by: DMTNPT

Released by: DMTNPT

Referenced by: DMTNPT

SVECTORS

Assembled into DMTVEC at system generation; resides in the RSCS nucleus.

Referenced by: DMTAKE, DMTASK, DMTASY, DMTAXS, DMTCMX, DMTCOM, DMTCRE, DMTDSP, DMTEXT, DMTGIV, DMTINI, DMTIOM, DMTLAX, DMTMGX, DMTNPT, DMTQRQ, DMTREX, DMTSIG, DMTSML, DMTSTO, DMTSVC, DMTWAT

TAG

Built by: DMTAXS

Released by: DMTAXS

Referenced by: DMTAXS, DMTCMX, DMTNPT, DMTSML

TAGAREA

Built by: DMTAXS

Released by: n/a

Referenced by: DMTAXS

TANKDSEC

Built by: DMTSML

Released by: DMTSML

Referenced by: DMTSML

TASKE

Built by: DMTASK

Released by: DMTASK

Referenced by: DMTAKE, DMTASK, DMTASY,  
DMTAXS, DMTCOM, DMTDSP, DMTEXT, DMTGIV,  
DMTINI, DMTIOM, DMTPST, DMTREX,  
DMTSIG, DMTSML, DMTSTO, DMTSVC, DMTWAT

TCTDSECT

Built by: DMTSML

Released by: DMTSML

Referenced by: DMTSML

TAREA

Assembled into each task module.

Released by: DMTASK

Referenced by: DMTAKE, DMTASK, DMTASY,  
DMTCOM, DMTCRE, DMTDSP, DMTEXT, DMTGIV,  
DMTIOM, DMTREX, DMTSIG, DMTSTO, DMTSVC

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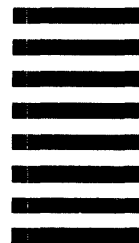
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