Customer Information Control System/OS-STANDARD V2 (CICS/OS-STANDARD V2)
Program Number 5734-XX7

This program, in conjunction with CICS/DOS-ENTRY (5736-XX6) and CICS/DOS-STANDARD (5736-XX7), forms an upward compatible family of data base/data communications (DB/DC) systems providing a common application program interface. They simplify the implementation of terminal-oriented applications and provide an upward migration path.

CICS/OS-STANDARD V2 is a general purpose DB/DC interface between OS and user-written application programs (either Assembler Language or appropriate high-level language). The system provides the user with the facilities to generate a CICS/OS-STANDARD V2 system configuration applicable to his needs and to define the environment in which the system is to execute. User exits are provided for optional processing as required for specific system operation. Also provided is a macro facility to communicate application program service requests.

Functions necessary to support a DB/DC system and those required to support other standard terminal applications are provided by the CICS/OS-STANDARD V2 system through the following management facilities:

Task Management -- Provides the dynamic multitasking facilities necessary for effective, concurrent transaction processing. Functions associated with this facility include priority scheduling, transaction synchronization, and control of serially reusable resources.

Storage Management -- Controls main storage allocated to CICS. Storage acquisition, disposition, initialization, and request queuing are among the services and functions performed by this component of CICS.

Program Management -- Provides a multiprogramming capability through dynamic program management while offering a real-time program fetch capability.

Program Interrupt Management -- Provides for the interception of program interrupts by CICS to prevent total system termination. Individual transactions that program check are terminated by CICS with a dump (if Dump Management is used), thus preventing the entire CICS partition/region from terminating.

Time Management -- Provides control of various optional task functions (system stall detection, run-away task control, task synchronization, etc.) based on specified intervals of time or the time of day.

Dump Management -- Provides a facility to assist in analysis of programs and transactions undergoing development or modification. Specified areas of main storage are dumped onto a sequential data set, either tape or disk, for subsequent off-line formatting and printing using a CICS utility program.

Terminal Management -- Provides polling according to user specified line traffic control as well as user requested reading and writing. This facility supports automatic task initiation to process new transactions. Optionally, the user can request that certain lines be under control of TCAM instead of BTAM. In this case, polling and other network control functions are performed by the TCAM message control program (user supplied), which resides with TCAM in a different partition/region. The testing of application programs is accommodated by the simulation of terminals through sequential devices such as card readers, line printers, disk, tape, etc.

File Management -- Provides a data base facility using direct access and indexed sequential data management. This function supports updates, additions, random retrieval, and sequential retrieval (browsing) of logical data on the data base. CICS/OS provides single-thread access to the Data Language/I Facilities of the IBM Information Management System/360 Version 2 (IMS/360, program product 5734-XX6). For complete information on the capabilities of DL/I, refer to the appropriate IMS/360 manuals (GH20-0765, SH20-0910, SH20-0911, SH20-0912, and SH20-0915). IMS/360 Version 2 Mod Level 2, program product 5734-XX6, is a prerequisite to the accessing of DL/I under CICS/OS.

Transient Data Management -- Provides the optional queuing facility for the management of data in transit to and from user defined destinations. This function has been included to facilitate message switching, data collection, and logging.

Temporary Storage Management -- Provides the optional general purpose "scratch pad" facility. This facility is intended for video display paging, broadcasting, data collection suspension, conservation of main storage, retention of control information, etc.

Additional management functions provided by CICS include the following:

Asynchronous Transaction Processing -- Provides the capability to read and queue (store) batched input from an appropriate device and to dequeue and write back to a time-dependent device the output data created by the processing of batched input. Asynchronous transaction processing is performed concurrently with other terminal activity.

3270 Basic Mapping Support -- Provides basic mapping support for use with the IBM 3270 Information Display System. The application programmer is provided access to both input and output 3270 data streams without being required to include or be aware of any 3270 device dependent logic. The 3270 data streams are mapped into screen formats which are defined and assembled by use of CICS macros.

2260 Compatibility -- Allows the user to run his currently operational 2260-based transactions from an IBM 3270 Information Display System. The Compatibility mode is specified by the user (by transaction and by terminal); operation can be intermixed with IBM 3270 Native mode. Two levels of compatibility are provided: a full screen operation or format mode. The latter is more efficient; however, not all 2260 operations are supportable within the format mode. The level of support can be selected by transaction. In most cases, the user is not required to make any changes to application programs.

In addition to the management functions described, CICS provides the system service programs listed below:

Sign On/Sign Off -- Provides terminal operator identification (security).

Master Terminal Function -- Provides dynamic user control of the system. The master terminal operator can change the status and values of parameters used by CICS and thereby alter the operation of the system.

Supervisory Terminal Function -- Performs many of the same services as the Master Terminal except that they are limited to terminals under a given supervisor's jurisdiction.

System Statistics -- Provides the capability to dynamically log system statistics.

Abnormal Condition -- Intercepts abnormal conditions (except those associated with a terminal) not handled directly by the operating system.

Terminal Abnormal Condition -- Intercepts terminal abnormal conditions not handled directly by the operating system.

System Termination -- Allows the user to terminate operation of CICS by gathering summary statistics, closing data sets, and returning control to the operating system.

Trace -- Provides a program debugging facility that reflects the execution of CICS macro instructions by CICS management programs and user-written application programs.

Dynamic Open/Close -- Allows the user to dynamically open/close his data sets during the real-time execution of CICS.

Time of Day Control -- Provides the capability for CICS to operate on a round-the-clock basis. CICS adjusts the expiration times it maintains in response to changes in the time of day maintained by the operating system, and then resets its time of day to the time of day maintained by the operating system.

Programming Systems

All CICS management programs and service programs are coded using System/360 Assembler language. Communication with CICS occurs via CICS macro instructions and the coding which is included in the user-written application programs.

CICS operates as a single task within a partition and may operate in a dedicated or multiprogramming environment. The selection of the environment is the user's responsibility, as is the selection of system options beyond those required for the operation of CICS.

If access to the Data Language/I (DL/I) facility of the IMS/360 Version 2 Data Base System is provided by the CICS/OS-STANDARD V2 system, the CICS-DL/I interface operates as a separate task within the CICS partition/region. In this case, the user must have a multiprogramming environment.

CICS/OS-STANDARD V2 operates under the IBM Operating System (OS). The following components of OS are required:

. Supervisor: MFT, 360S-CI-505, or MVT, 360S-CI-535
. Primary Data Management, 360S-DM-508
. Direct Access Method (BDAM), 360S-DM-509
. Basic Telecommunications Access Method (BTAM), 360S-CO-513, and/or Graphic Programming Services, 360S-IO-523, and/or Telecommunications Access Method (TCAM) Level 4, 360S-CQ-596
. Assembler F, 360S-AS-037 and/or Assembler H, 5734-AS1 Method (TCAM) Level 4, 360S-CQ-596
. Linkage Editor (E), 360S-ED-510 or Linkage Editor (F), 360S-ED-521
. Utilities, 360S-UT-506

The Multiple WAIT and Interval Timer options must be included in the OS system generation.

In addition to the above OS components, the user may require any of the following:

. Indexed Sequential Access Method (ISAM), 360S-IO-526
. Full ANS COBOL V4 Compiler, 5734-CB2, and Library, 5734-LM2
. Full ANS COBOL V3 Compiler and Library, 5734-CB1
. ANS COBOL, 360S-CB-545, and ANS COBOL Library, 360S-LM-546
. PL/I F, 360S-NL-511, and PL/I F Subroutine Library, 360S-LM-512
. PL/I Optimizing Complier and Libraries, 5734-PL3
. 3735 Form Description Macros and Utility, 360S-CQ-596
. A type 4 SVC number to be assigned to CICS for support of the 7770 Audio Response Unit
. IMS (Version 2, Modification Level 2 or later) Data Base System (5734-XX6) and OS system generation options required to handle an IMS Data Communication System

Note: To use the optional "browsing" feature of CICS File Management, the user must have an operating system at least as current as Release 20.1 of OS. To use the optional dynamic open/close function, the user must have an operating system at least as current as Release 20.0 of OS.

To use the optional CICS interface to the Data Language/I (DL/I) facility of the IBM Information Management System (IMS), the user must have installed the IMS Version 2, Modification Level 2 (or later) Data Base System (5734-XX6).

System Configurations

The minimum processing unit for the CICS/OS-STANDARD V2 system is a 2040 Model G (128K) using OS MFT, or, a 2040 Model H (256K) using OS MFT or MVT.

Unless incorporated as standard features on the processing units, the Decimal Arithmetic (3237) and Interval Timer (4760) features are required. The configuration must include sufficient I/O devices to support the OS requirements for: system console, system input, system output, system residence and system data sets. Sufficient direct access storage must be provided to satisfy user information storage requirements and may consist of 2311 Disk Storage Drives and/or the 2314/2319 Direct Access Storage facilities and/or the 2321 Data Cell Drives, and/or the 3330 Disk Storage.

The appropriate line adapters and telecommunications control units must be included in the system configuration.

Distribution and maintenance of the CICS System requires the availability of either one 9-track or one 7-track (with Data Conversion Feature) tape dirve.

The following terminals, terminal control units, and programmable special features are supported by CICS. The user should be aware that many terminal and control unit special features are transparent to programming, and are therefore readily usable even though not specifically identified.

Terminals Connected Via Non-Switched Lines Using BTAM

Start Stop Transmission

. 1030 Data Collection System with:
    1031 Control Unit/Input Station and, optionally:
    1033 Printer
    1035 Badge Readers

. 1050 Data Communication System with:
    1051 Control Unit Model 1 or 2
    1052 Printer-Keyboard with, optionally:
    1053 Printer Model 1
    1056 Card Reader

. 2260 Display Station Model 1 or 2 with:
    2848 Display Control Models 1, 2, or 3 with optionally:
    Line Addressing (4787), and/or
    1053 Printer Model 4

. 2265 Display Station with:
    2845 Display Control with, optionally:
    Line Addressing (4801), and/or
    Tab (7801), and/or
    1053 Printer Model 4

. 2740 Communication Terminal Model 1 with, optionally:
    Record Checking (6114), and/or
    Station Control (7479)

. 2740 Communication Terminal Model 2 with, optionally:
    Record Checking (6114), and/or
    Buffer Receive (1499)

. 2741 Communications Terminal

. 2760 Optical Image Unit attached to a
    2740 Communication Terminal Model 1 with:
    Record Checking (6114)

. System/7
    5010 Processor Module Models A2-A16 with:
    Asynchronous Communications Control (1610)

Binary Synchronous Communication

. System/360 or System/370 via:
    Integrated Communications Attachment (Model 25
    and Model 135)
    2701 Data Adapter Unit, or
    2703 Transmission Control

. System/360 Model 20 Processing Unit with:
    Binary Synchronous Communication Adapter
    (2074), and
    EBCDIC Transmission Code (9060), or
    ASCII Transmission Code (9061), and, optionally:
    Station Selection (7477)

. 2770 Data Communication System
    2772 Multipurpose Control Unit with:
    EBCDIC Transmission Code (9761), or
    ASCII Transmission Code (9762) and, optionally:
    WACK Response (9936), and/or
    Buffer Expansion (1490) and/or
    Conversational Mode (1910), and/or
    Multi-point Data Link Control (5010), and
    545 Output Punch, and/or
    1053 Printer, or
    2213 Printer, and/or
    2265 Display Station, and/or
    2502 Card Reader

. 2780 Data Transmission Terminal with:
    EBCDIC Code (9762), or
    ASCII Code (9761), or
    6-Bit Transcode (9760) and, optionally:
    Multi-point Line Control (5020)

. 1130 Computing System with:
    Synchronous Communications Adapter (7690)

. 2980 General Banking Terminal System
    2972 Terminal Control Unit Model 8 (RPQ
    858160), and/or
    2972 Terminal Control Unit Model 11 (RPQ
    858231) with, optionally:
    2980 Teller Station Model 1 (RPQ 835504), and/or
    2980 Administrative Station Model 2 (RPQ
    835505), and/or
    2980 Teller Station Model 4 (RPQ 858147) with
    optionally:
    Buffer Expansion (RPQ 858165) for Models 1, 2,
    and 4, and/or
    Auditor Key (RPQ 858188) for 2980 Model 2

. System/3 Models 6 and 10
    5406 Processing Unit Models B2-B4, or
    5410 Processing Unit Models A2-A16, with:
    Binary Synchronous Communications Adapter
    (2074) and, optionally:
    Station Selection (7477)

. 3270 Information Display System
    3271 Control Unit Model 1 or 2 with, optionally:
    ASCII Transmission Code (1087)
    3277 Display Station Model 1 or 2, and/or
    3284 Printer Model 1 or 2, and/or
    3286 Printer Model 1 or 2, and/or
    3275 Display Station Model 1 or 2 with:
    Printer Adapter (5550) for 3284 Printer Model 3
    and, optionally:
    ASCII Transmission Code (1087)
    Keyboard Numeric Lock (4690)
    Selector Pen (6350)
    Audible Alarm (1090)
    Security Keylock (6340)
    Copy (1550) for 3271 Control Unit

Terminals Connected Via Switched Lines Using BTAM

Start Stop Transmission

. 1050 Data Communication System with:
    1051 Control Unit Model 1 or 2
    1052 Printer-Keyboard with, optionally:
    1053 Printer Model 1
    1056 Card Reader

. 2740 Communication Terminal Model 1 with:
    Dial-up (3255) and, optionally:
    Record Checking (6114)

. 2741 Communications Terminal with:
    Dial-up (3255)

. 2760 Optical Image Unit attached to a
    2740 Communication Terminal Model 1 with:
    Dial-up (3255), and
    Record Checking (6114)

. System/7
    5010 Processor Module Models A2-A16 with:
    Asynchronous Communications Control (1610)
    Autocall (1310) on 2702 Transmission Control, or
    Autocall (1340) on 2703 Transmission Control

. TWX Common Carrier Teletypewriter Exchange
  Terminal Station
    (Model 33/35) eight-level code at 110 bps on
    common carrier switched 150-baud networks

Binary Synchronous Communication

. System/360 or System/370 via:
    Integrated Communications Attachment (Model 25
    and Model 135)
    2701 Data Adapter Unit, or
    2703 Transmission Control

. System/360 Model 20 Processing Unit with:
    Binary Synchronous Communication Adapter
    (2074), and
    EBCDIC Transmission Code (9060), or
    ASCII Transmission Code (9061) and, optionally:
    Automatic Calling (1315)

. 2770 Data Communication System
    2772 Multipurpose Control Unit, with:
    EBCDIC Transmission Code (9761), or
    ASCII Transmission Code (9762) and, optionally:
    WACK Response (9936), and/or

EBCDIC Transmission Code (9761) or
ASCII Transmission Code (9762) and optionally
Buffer Expansion (1490), and/or
Conversational Mode (1910), and/or
Automatic Answering (1340), and/or
Identification (4610), or
Security Identification (6310), and
545 Output Punch, and/or
1053 Printer, or
2213 Printer, and/or
2265 Display Station, and/or
2502 Card Reader

. 2780 Data Transmission Terminal with:
EBCDIC Code (9762), or
ASCII Code (9761), or
6-Bit Transcode (9760) and, optionally:
Automatic Answering (1340)

. 3735 Programmable Buffered Terminal with:

EBCDIC Transmission Code (9761) or ASCII
Transmission Code (9762)

. 1130 Computing System with:
Synchronous Communications Adapter (7690)

. System/3 Models 6 and 10
5406 Processing Unit Models B2-B4, or
5410 Processing Unit Models A2-A16, with:
Binary Synchronous Communications Adapter
(2074) with, optionally:
Automatic Calling (1315)

Terminals Connected Via Local Attachment Using BTAM

. 2260 Display Station Model 1 or 2 with:
2848 Display Control Models 1, 2, 3, 21, or 22
with, optionally:
Line Addressing (4787) and/or
1053 Printer Model 4

. 7770 Audio Response Unit Model 3
TOUCH-TONE (registered trademark of American
Telephone and Telegraph Company) telephone, or
equivalent equipment, and IBM 2721 Portable
Audio Terminal are supported through the 7770
Model 3 Audio Response Unit.

. 3270 Information Display System
3272 Control Unit, Model 1 or 2, with
3277 Display Station, Model 1 or 2, and option-
ally:
3284 Printer, Model 1 or 2, and/or
3286 Printer, Model 1 or 2, and optionally:
Keyboard Numeric Lock (4690)
Selector Pen (6350)
Audible Alarm (1090)
Security Keylock (6340)

Terminals Supported using TCAM

The following terminals are supported by CICS/OS using
TCAM. Only those terminal features supported by both
CICS/OS and TCAM are applicable for use by CICS
application programs which are associated with terminals
attached to TCAM. For more information regarding
terminals supported by TCAM, see the *OS TCAM
Programmer's Guide and Reference Manual*
(GC30-2024).

Switched and Non-Switched	Non-Switched	Local Attachment
1050	2260	2260
2740 Model 1	2265	3270
2741	2740 Model 2	7770
System/370	3270	
2770		
2780		
System/3		
TWX Model 33/35		

Note: The user should be aware that TCAM supports
some terminals and terminal control units not
supported by CICS/OS, and conversely.

Storage Considerations

CICS is distributed in the form of Assembly Language
source statements (80-column card images), and requires
that the system used for system generation must have
the necessary on-line storage devices and capacity to
assemble a 2400-statement program.

The distributed and generated libraries require up to 2.5
million bytes of direct access storage depending on
options and blocking factors, where applicable, which
are chosen by the user.

The system configuration required for use of CICS in a
data base/data communication system will be largely
determined by the scope of the environment to be
supported and the nature of the user's application.

CICS is designed in a modular fashion and includes
numerous options that can be included at system
generation. This allows the user to select those options
that are meaningful to his particular operation and thus
achieve maximum economy of main storage. While it is
possible to configure a minimum 64K (CICS/OS system,
the implementor should be aware that the optional CICS
features and management facilities would not be avail-
able.

For additional detail regarding storage considerations,
see the CICS General Information Manual (GH20-1028).

Compatibility

Application programs for CICS/DOS-ENTRY (5736-XX6), CICS/DOS-STANDARD (5736-XX7), and CICS/OS-STANDARD V1 (5736-U11, with Language/Terminal Feature) are upward compatible with CICS/OS-STANDARD V2 (5734-XX7). This compatibility exists at the source code level.

Programming Service Classification: A

The programming service classification assigned to any licensed program may be changed by IBM in accordance with the terms of the License Agreement for IBM Program Products, normally on six months notice. Some reclassifications may constitute a discontinuance of service.

Reference Material

General Information Manual (GH20-1028).