SERIES 90 – OS/3

PROGRAM
PRODUCT
SPECIFICATION

Information Management System
(Single Thread)

Type Number: 6217-00

SECTION 1

The Sperry Univac Information Management System (IMS) Single Thread is an interactive, transaction processing system with integrated file management facilities. It allows a user to create an on-line transaction processing environment with little or no programming effort. Additional application programs can be developed as needed for more specific requirements. Further data access facilities are provided by a sophisticated defined record management capability and an interface to data contained in a DMS data base.

IMS supplies an inquiry/update language (UNIQUE) for general purpose file processing. UNIQUE is an easy-to-use language which requires no programming effort. User-written action programs written in COBOL, Report Program Generator (RPGII) or Basic Assembly Language (BAL) are also supported.

Startup/Shutdown procedures and restart/recovery support are also provided. A comprehensive audit trail capability, together with recovery utilities, is made available to facilitate restart/recovery. Automatic rollback of files occurs when a transaction is abnormally terminated or cancelled.

PRODUCT FEATURES

TRANSACTION ENVIRONMENT

IMS supports an interactive transaction environment.

An input message causes the scheduling of an action program to carry out the processing of that input and generate an output message. An action program may also be scheduled by being designated as an immediate successor or subprogram to another action program. Some action programs are supplied as a standard part of IMS. For example, UNIQUE is implemented as a series of action programs.

Programs may be written in Assembly, COBOL, or RPGII and may be either reentrant or serially reusable. The I/O areas or other main storage areas required by an action program are dynamically allocated from the IMS main storage pool. When IMS calls the action program, it establishes linkage to the dynamically allocated areas. Frequently used action programs or subprograms may be declared resident in main storage.

IMS provides several levels of editing for action program messages including simple or expanded editing of input messages and sophisticated screen formatting for input and output messages.

A test facility is also provided whereby an action program can request a print of its program and storage areas.

DATA MANAGEMENT SUPPORT

IMS provides support for conventional, already existing files; defined files; and DMS data bases. Action programs can process data files through IMS in a manner similar to standard data management. They can also process defined files which are dynamically composed of one or more files by the defined record management component of IMS. A defined record can come from a single record or from a group of records. In either case, the defined record need not contain all the items which comprise its source. A defined record can, thus, be composed of parts which come from different sources or files. The source for a defined file may also be a DMS data base. The technique of describing a defined file is very similar to that of compiling a COBOL program. Data definition specifications are processed by the data definition processor. The result is a data definition record which is used by IMS to control the construction of defined records from logical records. Thus, IMS can tailor different views of the same data depending on the needs of the application.

The data definition process also provides security and integrity through an optional password capability and by allowing users to specify whether or not defined files can be altered. Items can also be identified as modifiable and valid value ranges can be established.

IMS can also access DMS data bases by: writing COBOL action programs with embedded DMS data manipulation action statements; writing COBOL or BAL action programs which use Defined Record Management; or using the UNIQUE inquiry/update language. The data base can be used in its original form or it can be passed through defined record management, thereby providing all of the item level validity testing and control that is available to users of conventional files.

IMS provides a logical record capability used to protect records that are in the process of being updated from concurrent updating by other transactions. If a transaction abnormally terminates prior to completion, IMS automatically rolls back user data file changes initiated by that transaction. Action Programs may also explicitly request rollback.

A resident file facility allows frequently accessed files to remain resident for maximum performance.

WORKSTATION/TERMINAL SUPPORT

IMS receives input from any interactive workstation or terminal. Terminals can be dedicated to IMS or can dynamically attach/detach during an online session.

A powerful set of commands are available which assist with the administrative, operational and educational aspects of IMS.

There are two sets of commands: General Commands and Master Commands. The general commands are available to every IMS Terminal and affect the processing at that device only. Master commands may be employed only by the designated master terminal and control the total IMS environment. These are used to change the status of programs, files and terminals; and to request termination of online processing.

A terminal-to-terminal communications command, is also provided. This allows a terminal to send a message to any other IMS terminal. Messages can also be switched from an action program. A switched message can never destroy the destination terminal's screen since IMS provides a protocol in which the destination terminal is told of any messages sent to it and must specifically request them. A command is also provided to down-line load a programmable terminal.

To aid in the implementation of print transactions, the continuous output feature is available. This feature provides a recovery capability by returning status information about each output. It also assures that large volume print transactions do not degrade the response time of interactive transactions.

Printing can be directed to the terminal that originates the print transaction or to an attached auxiliary device. The printing can also be initiated at a different terminal, which can be an unattended or output-only interactive device.

A communications terminal can be disconnected from IMS 90 following the delivery of an action program's output message. This is available for single-station dial-in lines and allows another terminal to dial-in on the same line.

UNIQUE

The inquiry/update language known as UNIQUE (Uniform Inquiry and Update Element) provides access to defined files without user programming. The UNIQUE language consists of easy-to-use commands which allow a terminal operator to display and update defined records. It is designed for ease-of-use and offers the following commands:

OPEN: Signifies the beginning of the UNIQUE dialog and makes the specified file available to the authorized user. Access rights are verified before the file is made available.

CLOSE: Signifies the termination of the UNIQUE dialog.

DISPLAY: Causes the display of the specified record.

DELETE: Provides the ability to delete a record after viewing the information in the record.

OK: Indicates a desire to complete the function associated with the previous command. Used with DELETE, ADD, or CHANGE commands.

CANCEL: Requests UNIQUE to cancel the previous update (DELETE, ADD, CHANGE) command. The file remains as it was before the updating command.

ADD: Initiates a dialog by which a record can be added to the file. There are two styles for this command: the video-display style and the hard-copy style. The video-display style uses a "fill-in-the-blanks" approach, whereas the hard-copy style requires the identification of each affected item by the operator.

NEXT: Selects the next identifier from the most recent DISPLAY, DELETE, ADD, or CHANGE command. The function performed on the identified record is determined by the previous command.

CHANGE: Initiates a dialog by which a record can be changed.

LIST: Selects certain records or parts of records for listing at the terminal, based on the text of the command.

DETAIL: Interrupts the processing of the previous LIST command to request the processing of a higher priority LIST. After the response to the DETAIL is completed, the previous LIST function can be resumed without reentering the LIST command.

MORE: Requests the next screen of data associated with the last LIST or DETAIL command.

SHOW: Provides a capsule data description of the defined file that is being accessed.

UNIQUE, by using Defined Record Management, assures that security and integrity are provided for data files.

BATCH PROCESSING

IMS also supports the processing of transactions in batch mode where input is received from a file and output is directed to the system printer. Batched transactions may be processed online (concurrent with a terminal network) or offline (no terminal network active).

The batch transaction processor is especially useful for testing or updating and displaying files at the end of a day's production.

OFF-LINE RECOVERY

The off-line recovery utility provides three recovery capabilities: forward recovery, backward recovery (file rollback), and quick recovery.

Forward recovery is used when any portion of a data file is destroyed. After-images previously written to a trace file are applied to security dump files.

Backward recovery may be used when data files are accessible but invalid. Before-images recorded on the IMS trace file are applied to a complete file rollback or to a specified date and time.

Quick recovery may be desirable in the case of system failure. The quick recovery rolls back all transactions that were active at the time of failure.

SOFTWARE REQUIREMENTS

IMS requires the following OS/3 software products for operation:

- SCS – OS/3 System Control Software

- ESS – OS/3 Extended System Software

- RPG II, COBOL or Assembly, if Action Programs are desired.

- DMS, if access to data base facilities is desired.

- ICAM Terminal support facility, if required.

HARDWARE REQUIREMENTS

IMS will operate on any 90/25, 30 or 40 model and configuration that meets the minimal hardware configuration requirement for that specific model and satisfies the main storage requirements specified in the software release documentation accompanying each release.

Additional main storage and/or peripheral devices may be required, depending on the user's selection of the system's supported features and the size of the user's programs, files and data bases.

SECTION II

CUSTOMER EDUCATION

Sperry Univac makes available customer education related to this program product. Course availability and schedules are contained in the published course catalog. Charges for courses will be at the then prevailing rates. Customers should contact their local Sperry Univac representatives for enrollment procedures.

PROGRAM PRODUCT SUPPORT

Sperry Univac will endeavor to correct any significant error in an unaltered current release of the Program Product, which the customer brings to the attention of Sperry Univac in accordance with established correction procedures. Sperry Univac does not represent or warrant that all errors will be corrected. This error correction service may result from time to time in update releases which the customer will install. Sperry Univac reserves the right to alter the classification of this Program Product to reflect changes in policy or support requirements.

ORDERING INFORMATION

This Program Product and its associated documentation may be leased from Sperry Univac at separately stated lease charges. Upon execution of a Supplement for Program Products (Form UD1-1306) or its equivalent for this Program Product, the following will be provided:

1. A magnetic tape, diskette(s) or removable disk media in OS/3 Operating System format containing:

   - IMS
   - Installation Verification Program

2. One copy of the associated documentation:

   - Software Release Documentation
   - IMS Terminal Command Summary, UP-8741
   - IMS System Support Functions User Guide and Programmer Reference, UP-8364
   - IMS Applications User Guide and Programmer Reference, UP-8614