IBM VSE/Advanced Functions Program Summary

Version 1 Release 3 Modification Level 5
Program Number 5746-XE8

General Product Description

Together with the DOS/VSE SCP (system control programming), VSE/Advanced Functions provides operating system support for IBM processing units listed in the "Machine Requirements" section. It provides computing services as follows:

* Support of operation in one of the following modes:

  - ECPS:VSE mode on an IBM 4300 series processing unit
  - System/370 mode on any of the supported processing units with a processor storage not exceeding eight megabytes.
  - In virtual machine (VM) mode for operation as a virtual machine under VM/370 or VM/System Product.

* Storage management

  A computing service that can manage up to 16 megabytes of virtual storage. The service requires a page data set, which may be defined in up to 15 extents, up to three extents per volume.

* Initial program load (IPL)

  This includes the required system initialization functions, which may be started interactively or automatically; it includes the loading of the operating system's supervisor into processor storage.

* Program assisted job initiation and automatic job-to-job transition

  This includes, for up to 12 partitions,

  - The setting of processing priorities for the various partitions. This is done in accord-

ance with user specifications or the defined partition balancing algorithm, if partition balancing is specified.
  - Within a partition, communication of up to 256 bytes of information from job step to job step and from job to job.
  - The loading of programs from the system's libraries and relocating these programs as required.

* Activation (attachment) of subtasks by user programs - Up to 208 tasks (up to 31 per partition) may be attached and active at any point in time.

* System-to-operator and operator-to-system communication - The system and the operator can communicate with each other through messages, responses to messages, and commands. Responses to messages can be delayed, and the operating system attempts to avoid situations that require a redisplay of messages needing a response.

* Accessing and servicing program libraries

To be operational, VSE/Advanced Functions requires the system core image library to be online; the use of private libraries is optional. Program libraries must be stored on supported disk devices, except IBM 2311. The available services include:

  - Cataloging and deleting library members to and from system and private libraries and also condensing such libraries.
  - Chaining (concatenating) libraries. Up to 15 libraries per library type (core image or relocatable, for example) may be defined in a search order chain. A search order chain may be defined to be valid only for the duration of a job (a temporary chain) or it may be defined to be valid until redefinition of the chain, deactivation of the associated

partition, or next IPL (a permanent chain).
For each of the system's partition, either or
both such chains may be defined.

- Sharing of program libraries and of data on
  disk

  Program libraries and data stored on disk can
  be shared between the partitions of a single
  system; they can be shared also across up to
  four computer systems that operate under
  control of Release 2 or a later release of
  VSE/Advanced Functions and in the product's
  specified operating environment.

  Program libraries or data to be shared may be
  stored on any supported IBM disk device
  whose control unit has a channel switch or a
  string switch. The required resource share
  control service is available through macros.

- Linking data on disk or tape to the programs
  that process this data

  To link such data with programs,
  VSE/Advanced Functions uses label informa-
  tion as supplied by the user. The service
  includes programmed assistance for the stor-
  ing of such label information on disk, except
  on a disk volume mounted on an IBM 2311.

- Link-editing programs into program phases

  The available linkage editor program link-edits
  separate program sections into one or more
  program phases. These phases can be loaded
  into storage for program invocation.

- Referring to I/O devices by logical unit names

  In any program, the address of an I/O device
  can be coded as a logical unit name. The
  address of the device to be used need not be
  defined until initiation of the job that uses the
  particular program. Up to 260 logical unit
  names are available for this purpose.

- Data input/output (data management) func-
  tions

  These are functions such as the defining of
  files on disk for direct or sequential access;
  the accessing of files on disk, sequentially or
  direct; the reading from and writing to unit
  record files, files on magnetic tape, and files
  on diskettes.

- Access control for programs and data

  If VSE/Interactive Computing and Control
  Facility is installed, access to programs and
  data may be restricted to certain users or
  groups of users. To gain access to programs
  and data defined as access controlled, a user
  must supply the correct password.

- Copying and restoring program libraries

  System and private libraries can be copied
  onto magnetic tape and restored to disk using
  the available online support.

- System and program-product installation
  under program control

  The available installation and service tool pro-
  vides programmed assistance for the installa-
  tion of VSE/Advanced Functions and of IBM
  supplied program products; it provides this
  assistance for the installation of IBM supplied
  service changes.

  The tool records, in a history file, the installa-
  tion of all components of VSE/Advanced
  Functions and of any IBM program product,
  including components that are tailored at the
  user's installation. The tool automates prereq-
  uisite checking for the installation of IBM sup-
  plied service changes.

- Programmed assistance in performance tuning

  The available assist functions are:

  - Fast move of user-selected B- and C- tran-
    sient phases from the shared virtual area
    (on the page data set) into the storage
    areas within the supervisor, reserved for
    the execution of these phases.
  - Suppression of fast CCW translation for
    individual jobs.
  - A system directory list (SDL) index to
    reduce an SDL search to one, at most two,
    page-in operations.
  - Suppression of services that are provided
    by VM/370 (or VM/System Product) if
    VSE/Advanced Functions operates as a vir-
    tual machine.

- Automatic recovery from a machine malfunc-
  tion if the severity of the malfunction permits

  This programmed service also helps to reduce
  the impact of a malfunction whose severity

makes recovery impossible; the service collects event data and compiles statistics on hardware malfunctions.

- Error information gathering and event recording

These services assist in detecting and isolating machine and program malfunctions. Examples of these services are the various types of storage dumps and a program for the tracing of events.

New in this Release

Hardware Support

Note: The support for the following machines and I/O devices has been announced previously, but after the availability of the previous release of VSE/Advanced Functions:

IBM 3033 and 4321 processing units
IBM 3279, Model 2C, color console
IBM 3375 CKD disk storage device
IBM 3200 printing subsystem

IBM 3033: A processing unit; it is supported by VSE/Advanced Functions only for operation in single processor mode.
IBM 4321: A processing unit of the IBM 4300 series; it is equipped with ECPS:VSE.
IBM 3375: A CKD disk storage device; it is supported similar to an IBM 3350.
IBM 3430: A tape I/O device supported as a 3410 compatible tape unit. The support allows you to take advantage of IBM 3430's higher read/write density.
IBM 3279, Model 2C: A color display operator console for attachment to an IBM 4300 processor. VSE/Advanced Functions includes support for color display on this console device.
IBM 3200: A printing subsystem, similar to an IBM 3800, for which Kanji output support is available.
IBM 3262, Model 5, and IBM 4245: New printers that are supported as line printers of type PRT1.
FBA disk support also in System/370 mode: The FBA disk support available only in ECPS:VSE mode in the past is now also available in System/370 mode.

SIO improvement: System routines make use of the improved Start I/O Fast Release machine instruction, if this is implemented in the computer system's processing unit.
More virtual storage in System/370 mode: In System/370 mode, the virtual address range may overlap the real address range at the high end of processor storage.

Availability Improvement

End-of-task and error-exit handling: The task-to-supervisor linkage control allows a task to do its own error handling.

Usability Improvements

Defining system files by volume identifier: During system start-up, system files such as the page data set or the VSAM master catalog may be defined by volume identifier instead of device address.
Activating access control during system start-up: With the access control support being an IPL option, there is no longer a need for different supervisors, one with and one without this support.
Upper/lower case option: An option is available for controlling the output to SYSLST of the utilities PRINTLOG and LISTLOG. This output may be all upper case or as presented by the program that writes to this device.
Turn off fast CCW translation for all partitions: The option can be useful if, for example, no programs gaining by fast CCW translation are scheduled to run from one system start-up to the next.

Removed Support

The system utilities:

ALTBLK (Assign Alternate Block)
INTDK (Initialize Disk FBA)
SURFANAL (Surface Analysis for FBA)

The services of these utilities are available through *Device Support Facilities*, a corequisite SCP support for VSE/Advanced Functions.

OLTEP (online test executive program), which is now available as an SCP-class 2 program.

Operating Environment

Machine Requirements: VSE/Advanced Functions combines with DOS/VSE SCP (see "Programming Requirements" below" for operating system support on an IBM processing unit as follows:

- Any System/370 processing unit of Models 115 through 158 with a processor storage of at least 256K bytes. However, IBM recommends a processor storage of 512K bytes to accommodate *Device Support Facilities*, a programming corequisite of VSE/Advanced Functions.

  VSE/Advanced Functions requires

  - The clock comparator and the CPU timer, which are standard on all of the supported models, except Models 135 and 145
  - The floating point feature, which is standard on all supported models, except Models 115, 125, 135, 145, and 155.

- An IBM 3031 processing unit or an IBM 3033 processing unit operating as a single processor.

- An IBM 4300 series processing unit.

- Any IBM processing unit operating under control of VM/370 as stated under "Programming Requirements" below.

The minimum I/O configuration required for installation and operation is:

- A supported IBM console.

- Either of the following:

  One supported IBM card reader
  One supported IBM diskette I/O unit

- One supported IBM printer.

- One supported IBM magnetic tape unit.

- One or more supported IBM disk drives with a total capacity of at least 120 megabytes of disk storage; none of the disk drives may be an IBM 2311. If data on disk is to be shared, that data must reside on an IBM disk drive whose control unit is equipped with a channel switch or string switch.

Programming Requirements: VSE/Advanced Functions 1.3.5 combines with DOS/VSE SCP, Program Number 5745-030-3, to provide operating system support on IBM processing units as indicated under "Machine Requirements" above. By installing VSE/Advanced Functions, Program Number 5746-XE8, this requirement is met.

The following IBM system control programming (SCP) support must be available either stored in one of the system's program libraries or readily available for initial program load and stand-alone use:

- Device Support Facilities, Program Number 5747-DS2

  If the available processor storage is less than the recommended minimum of 512K bytes: the program's stand-alone version supplied by IBM on the shipment tape for the previously installed release of VSE/Advanced Functions.

  If the available processor storage is 512K bytes or more: the program's current release. By installing this release VSE/Advanced Functions as shipped by IBM, this requirement is met.

- Environment Recording Editing and Printing (EREP), Program Number 5656-093.

  The program's current release - By installing this release VSE/Advanced Functions as shipped by IBM, this requirement is met.

- VSE/Online Test Executive Program (OLTEP), Program Number 5656-092.

  The program's current release - By installing VSE/Advanced Functions as shipped by IBM, this requirement is met.

For operation as a virtual machine, using the available virtual machine support - Version 1, Release 6, of VM/370, Program Number 5749-010, with one of the following products, provided VSE guest support has been announced for the product:

- VM/Basic System Extensions, Program Number 5748-XX8
- VM/System Extensions, Program Number 5748-XE1
- VM System Product, Program Number 5664-167

Reference Material

The VSE System, General Information

Testing Period

The testing period is one month for ISD and 30 days for E/ME/A and A/FE.

License

A separate license is required for each designated machine on which the licensed program material will be used except as otherwise provided by IBM.

Program Services

Program services and licensed program support as indicated below will be provided in the specified operating environment.

Central Service: Available until discontinued by IBM upon twelve months' written notice.

Local Licensed Program Support: Available until discontinued by IBM upon twelve months' written notice. Program support will be provided under the terms and conditions of the Agreement for Local Licensed Program Support for IBM Licensed Programs at the monthly licensed program support charge or monthly additional licensed program support charge, or this support will be provided at the applicable hourly rate.

Local licensed program support will be provided by IBM Field Engineering for ISD and by IBM Customer Engineering for E/ME/A and A/FE.

Warranty

The program product is warranted to conform to its Licensed Program Specifications when shipped to the customer if properly used in the Specified Operating Environment.

Licensed Program Specifications may be updated from time to time and such updates may constitute a change in specifications.

Following the discontinuance of all program services, this program will be distributed on an *As Is* basis without warranty of any kind either express or implied.

Availability of the Licensed Program

The estimated availability date at PID (Program Information Department) is December 30, 1983. The estimated availability at EPL and other WT area program libraries is one month later.