COMPAQ

Software Product Description

PRODUCT NAME: Compaq DECset Release 12.4 for OpenVMS VAX Systems SPD 27.07.20

DESCRIPTION

Compaq DECset for OpenVMS VAX Systems is an integrated programming tool set that supports software developers' coding, debugging, testing, and maintenance activities.

Compaq DECset for OpenVMS VAX Systems contains the following components:

- Compaq Language–Sensitive Editor/Source Code Analyzer (LSE/SCA), Version 4.7, for OpenVMS VAX Systems
- Compaq Digital Test Manager, Version 4.0, for OpenVMS VAX Systems
- Compaq Performance and Coverage Analyzer (PCA), Version 4.7, for OpenVMS VAX Systems
- Compaq Code Management System (CMS), Version 4.1, for OpenVMS VAX Systems
- Compaq Module Management System (MMS), Version 3.4, for OpenVMS VAX Systems

The components in the DECset tool set can be used in either a workstation or character-cell terminal environment. All components include both Compaq DECwindows Motif® for OpenVMS VAX and command-line interfaces.

In addition to these six tools, DECset has an Environment Manager (ENVMGR) that provides a single mechanism for tailoring the execution environment for a set of DECset tools. DECset also provides the program design facility, a set of features in LSE/SCA and the compilers, that aids in the detailed program design phase of software development.

Compaq DECset for OpenVMS VAX Systems Components

Compaq Language–Sensitive Editor/Source Code Analyzer for OpenVMS VAX Systems:

Language-Sensitive Editor

The Language–Sensitive Editor (LSE) is a multilanguage programmer's editor. Language–specific templates and online language help assist both new and experienced programmers in developing programs faster. With LSE, users can efficiently edit, compile, review diagnostic information from compilations, and correct compile time errors without exiting the editor. LSE also enables users to customize and extend their editing environment.

Programmers can perform low-level program designs with LSE by embedding pseudocode in source code. Users can also view source code at various levels of detail by replacing a sequence of source lines with a single overview line.

LSE provides an interface via callable routines, as well as through the LSE command-line interface and the DECwindows Motif for OpenVMS VAX interface.

Note: The following LSE-supported compilers are available on the OpenVMS VAX platform:

DEC Ada for OpenVMS VAX Systems
Compaq BASIC for OpenVMS VAX Systems
Compaq C for OpenVMS VAX Systems
Compaq C++ for OpenVMS VAX Systems
Compaq COBOL for OpenVMS VAX Systems
Compaq Fortran 77 for OpenVMS VAX Systems
Compaq Pascal for OpenVMS VAX Systems

VAX PL/1 for OpenVMS VAX Systems

The following VAX products partially support LSE (refer to product SPDs for more details); the templates are included with the product:

Compaq ACMS (SPD 25.50.xx)
DEC DATATRIEVE (SPD 24.44.xx)

Note: Certain LSE featuers are not available when using language preprocessors, such as those supplied for Oracle Rdb.

LSE works in conjunction with CMS, SCA, and the OpenVMS VAX Debugger to provide a highly interactive, online environment that facilitates the NAVIGATE-EDIT-COMPILE-DEBUG portion of the program development cycle. DECset users can directly reserve and replace files from CMS while in LSE, go to the exact source code location in LSE from SCA, and go to the exact source code location in LSE from the OpenVMS VAX Debugger.

Source Code Analyzer

The Source Code Analyzer (SCA) aids programmers in understanding the complexities of software systems. Because it allows users to analyze an entire system, as opposed to individual modules, and it helps users understand unfamiliar systems, SCA is extremely useful during both the implementation and maintenance phases of a project.

SCA provides navigation capabilities to assist users in locating and viewing components of their source code. SCA accomplishes this by storing compiler-generated information about a set of source files in an SCA library. SCA then allows users to perform queries about their source code in the following ways:

- Using a name browser to locate all items that match a search string.
- Specifying a cross-reference query to find how and where program symbols are used.
- Specifying a call graph query to graphically display call relationships between routines.
- Specifying a data structure query to graphically display the structure of data types in the source code or to find symbols of a given type.

User controlled marking of items of interest is provided so users can mark items to be queried and save that information to a command file to be reused.

After users have a query result, they can use the go-to-source feature to navigate to locations of interest in their source code.

SCA also provides static analysis capabilities to assist users in checking for consistent use of program symbols.

SCA provides an interface via callable routines, as well as through the SCA command-line interface and the DECwindows Motif for OpenVMS VAX interface.

Note: The following SCA-supported compilers are available on the OpenVMS VAX platform:

DEC Ada for OpenVMS VAX Systems
Compaq BASIC for OpenVMS VAX Systems
Compaq C for OpenVMS VAX Systems
Compaq COBOL for OpenVMS VAX Systems
Compaq Fortran 77 for OpenVMS VAX Systems *
Compaq Pascal for OpenVMS VAX Systems
VAX MACRO for OpenVMS VAX Systems
VAX PL/1 for OpenVMS VAX Systems

Note: SCA is not available when using language preprocessors, such as those supplied for Oracle Rdb.

The following VAX compilers also generate pseudocode and specialized comment processing information so SCA can produce design reports, cross-reference and analysis information:

DEC Ada for OpenVMS VAX Systems
Compaq BASIC for OpenVMS VAX Systems
Compaq C for OpenVMS VAX Systems
Compaq COBOL for OpenVMS VAX Systems
Compaq Fortran 77 for OpenVMS VAX Systems *
Compaq Pascal for OpenVMS VAX Systems
VAX PL/1 for OpenVMS VAX Systems

* Refer to the Product SPD or Release Notes for extent of support.

Compaq Language–Sensitive Editor/Source Code Analyzer for OpenVMS VAX Systems is a component of the DECset for OpenVMS VAX Systems product and is also available separately. Please refer to the *ORDERING INFORMATION* section of this SPD.

Compaq Digital Test Manager for OpenVMS VAX Systems

The Compaq Digital Test Manager for OpenVMS VAX Systems is a regression testing tool that automates the creation and maintenance of regression tests. It also automatically compares test run results with expected test results. The Digital Test Manager provides users with flexibility in organizing tests, selecting tests for execution, and verifying and reviewing test results. With the Digital Test Manager users can:

- Test batch and command line applications.
- Create and record tests.
- Group tests into meaningful combinations.

- Execute specific tests, groups of tests, or combinations of groups of tests.
- Compare the results of the executed tests with benchmark test results to determine differences.
- View test results interactively.
- Update benchmarks as needed.
- Filter test results to ignore output that is expected to change for each test execution.

The Digital Test Manager enables users to store software test descriptions and related files in CMS libraries for storage efficiency.

The Digital Test Manager provides an interface through callable routines, as well as through the Digital Test Manager command-line interface and the DECwindows Motif for OpenVMS VAX interface.

The Compaq Digital Test Manager for OpenVMS VAX Systems is a component of the Compaq DECset for OpenVMS
VAX Systems product and is also available separately. Please refer to the *ORDERING INFORMATION* section of this SPD. *Compaq Performance and Coverage Analyzer for OpenVMS VAX Systems*

The Compaq Performance and Coverage Analyzer (PCA) for OpenVMS VAX Systems helps users pinpoint execution bottlenecks in application programs. PCA can also identify which parts of an application are not executed by a given set of test data. PCA has two components: the Collector, which gathers performance or test coverage data on the running user program; and the Analyzer, which later processes and displays the collected data. The Analyzer graphically presents information in four types of charts: histograms, tables, annotated source listings, and call trees.

PCA does not analyze operating system performance or aid in hardware resource planning.

PCA can gather and report on the following types of performance data:

- Call stacks
- CPU sampling data
- Event markers
- PC sampling data
- Page fault data
- System services data
- Input/Output data
- Exact execution counts
- Test coverage data
- Ada tasking data

Additional PCA features include the following:

- Traversing commands to sift through performance data
- Screen mode to display different types of data in separate windows
- Multiple data kinds allowing the display of different categories of performance data in the same histogram or table
- Acceptable noncoverage indicating portions of code that are acceptably noncovered to the Analyzer
- Filtering to analyze only a subset of data

With PCA, users can analyze applications written in any of the following OpenVMS languages:

DEC Ada for OpenVMS VAX Systems

Compaq BASIC for OpenVMS VAX Systems

Compaq C for OpenVMS VAX Systems

Compaq C++ for OpenVMS VAX Systems

Compaq COBOL for OpenVMS VAX Systems

Compaq Fortran 77 for OpenVMS VAX Systems *

Compaq Pascal for OpenVMS VAX Systems

VAX PL/1 for OpenVMS VAX Systems

PCA works in concert with LSE and the Digital Test Manager. From the character-cell version of PCA, users can communicate with LSE and can examine source code. When used with the Digital Test Manager, PCA can evaluate the code coverage of a user's test system.

PCA provides a command-line interface and the DECwindows Motif for OpenVMS VAX interface.

Compaq Performance and Coverage Analyzer for OpenVMS VAX Systems is a component of the Compaq DECset for OpenVMS VAX Systems product and is also available separately. Please refer to the *ORDERING INFORMATION* section of this SPD.

Compaq Code Management System for OpenVMS VAX Systems

The Compaq Code Management System (CMS) for OpenVMS VAX Systems provides an efficient method for storing project files and tracking all changes to those files. Code management is especially important to projects that have long life spans or several versions of the software.

CMS stores any kind of RMS file, including: documents, plans, specifications, status reports, source code files, object files, executable images, sixel files, and other records, and keeps these files in project libraries. CMS also stores history information. As a project evolves, CMS tracks changes to the library by storing only the changes made to a file. Not only does this reduce the amount of disk space used for storing multiple versions of files, but it also allows CMS to reconstruct any previous version of a file and to identify the changes made between any two versions. In addition to storing successive changes, CMS maintains a record of who is currently working on a library element and a historical record of library access.

With CMS, users can:

- Support multiple project libraries.
- Retrieve previous generations (versions).
- Delete generations.
- Obtain a report of file modifications, including when, why, and by whom the modification was made.
- Determine the origin of each line of a file, either as an annotated listing or as comments in the file.
- Manage concurrent modifications.
- Merge separately developed modifications.
- Combine related files together as a class (group).
- Relate the generation of one element to the corresponding generations of other elements for purposes of freezing baselines or releases and for organizing ongoing development.
- Interface via callable routines, as well as through the CMS command-line interface and the DECwindows Motif for OpenVMS VAX interface.
- Through the use of CMS access control lists, fine tune security mechanisms applied to CMS libraries, and provide a means of notification about library events.

CMS can act as a project's central repository, by storing and tracking source-code files, object code, documentation, and a variety of files generated by other tools. CMS can store files for MMS and the Digital Test Manager. LSE and Digital Test Manager users can access CMS elements directly from within LSE and Digital Test Manager.

Compaq Code Management System for OpenVMS VAX Systems is a component of the Compaq DECset for OpenVMS VAX Systems product and is also available separately. Please refer to the *ORDERING INFORMATION* section of this SPD.

Compaq Module Management System for OpenVMS VAX Systems

Compaq Module Management System (MMS) for OpenVMS VAX Systems automates and simplifies the building of software applications, whether they are simple programs of only one or two files or complex programs consisting of many source files, message files, and documentation. MMS can optimize the build process by rebuilding only those components (and their dependencies) that have changed since the system was last built. In this way, MMS eliminates the steps of recompiling and linking modules that have not changed. MMS can automatically generate description files. Once users create a description file containing the rules describing the relationships among the components of their application and the MMS commands to build the application, MMS can build both small or large systems with a single command.

MMS provides a command-line interface and the DECwindows Motif for OpenVMS VAX interface.

Compaq Module Management System for OpenVMS VAX Systems is a component of the Compaq DECset for OpenVMS VAX Systems product and is also available separately. Please refer to the *ORDERING INFORMATION* section of this SPD.

HARDWARE REQUIREMENTS

Processors Supported:

Any VAX system that is capable of running OpenVMS Version 6.2 or later. Refer to the appropriate OpenVMS Operating System Software Product Description (SPD 25.01.xx) for a complete listing of supported VAX processors.

Terminals

Character cell interfaces for DECset are supported on the following terminals:

- VT1xx
- VT2xx
- VT3xx
- VT4xx
- VT5xx
- ANSI CRT

Disk Space Requirements (Block Cluster Size = 1):

Each component of Compaq DECset for OpenVMS VAX Systems can be installed separately. Each component requires the disk space specified in the following table for a successful installation:

Component	Space Required To Install	Space Required For Use (permanent)
LSE	40,000 blocks (20.5M bytes)	27,500 blocks (14.0M bytes)
SCA	18,000 blocks (9.5M bytes)	15,500 blocks (8.0M bytes)
Digital Test Manager	15,000 blocks (7.8M bytes)	10,000 blocks (5.2M bytes)
PCA	23,000 blocks (12.0M bytes)	5,000 blocks (2.6M bytes)
MMS	4,500 blocks (2.3M bytes)	3,000 blocks (1.6M bytes)
CMS	39,000 blocks (20.0M bytes)	2,500 blocks (1.3M bytes)
ENVMGR	13,500 blocks (7.0M bytes)	12,000 blocks (6.2M bytes)

Requirements for installation of all Compaq DECset for OpenVMS VAX Systems components, including Language–Sensitive Editor support for all languages, requires the disk space specified in the following table:

Component	Space Required To Install	Space Required For Use (permanent)
All Components	153,000 blocks (79.0M bytes)	75,500 blocks (39.0M bytes)

These counts refer to the maximum disk space required on the system disk. The sizes are approximate; actual sizes may vary depending on the user's system environment, configuration, and software options.

The minimum supported memory for this application running in a standalone DECwindows Motif® for OpenVMS VAX environment, with both the client and server executing on that same system, is 32 MB.

The performance and memory usage of DECwindows Motif for OpenVMS VAX applications are particularly sensitive to system configuration. Less memory may be required on the DECwindows Motif for OpenVMS VAX client system (the system where the software is installed and executed) if the server (the component that displays the application) resides on another system. More memory may be required on a system with several applications running or where it may be desirable to improve the performance of an application.

CLUSTER ENVIRONMENT

This layered product is fully supported when installed on any valid and licensed VMScluster* configuration without restrictions. The HARDWARE REQUIREMENTS sections of this product's Software Product Description detail any special hardware required by this product.

* VMScluster configurations are fully described in the Compaq VMScluster Software for OpenVMS Software Product Description (SPD 29.78.xx) and include CI, Ethernet, DSSI, FDDI, SCSI, and Mixed Interconnect configurations.

SOFTWARE REQUIREMENTS

For Systems Using Terminals (Without DECwindows Motif for OpenVMS VAX Interface):

- OpenVMS VAX Operating System, Version 6.2—Version 7.2 (SPD 25.01.xx)

For Systems Running DECwindows Motif for OpenVMS VAX:

- OpenVMS VAX Operating System, Version 6.2—Version 7.2 (SPD 25.01.xx)
- DECwindows Motif for OpenVMS, Version 1.2-4 or Version 1.2-5 (SPD 42.19.xx)

OPTIONAL SOFTWARE

- Compaq DECset Clients for CMS and MMS ® (SPD 64.06.xx)

Compaq DECset Clients for CMS and MMS provides convenient access from the desktop personal computer (PC) to the CMS libraries and frequently used CMS and MMS functions that reside on OpenVMS systems.

Certain versions of the following products depend upon a specific version of the operating system. Please refer to the Software Product Description of the product in question to determine which version is necessary.

- DEC Ada Version 3.5 for OpenVMS VAX (SPD 26.60.xx)
- Compaq BASIC Version 3.8 for OpenVMS VAX (SPD 25.36.xx)
- Compaq C Version 6.2 for OpenVMS VAX (SPD 25.38.xx)
- Compaq C++ Version 5.6C for OpenVMS VAX (SPD 37.39.xx)
- Compaq COBOL Version 5.6 for OpenVMS VAX (SPD 25.04.xx)
- Compaq Fortran 77 Version 6.6 for OpenVMS VAX (SPD 25.16.xx)

- Compaq Pascal Version 5.8 for OpenVMS VAX (SPD 25.11.xx)
- VAX PL/1 Version 3.5 (SPD 25.30.xx)

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the requirements for the current version.

DISTRIBUTION MEDIA

6250 BPI Magtape, TK50 Streaming Tape

The software binaries and documentation are also available on various CD-ROM distributions:

- *OpenVMS VAX Software Layered Products Library*—This offering includes the OpenVMS VAX Layered Product software binaries. (QA–5FW8A–A8)
- *OpenVMS VAX Online Documentation Library*—This offering includes the documentation for the OpenVMS VAX Layered Products. (QA–VYR8A–G8)
- *OpenVMS VAX Software Layered Products Library Package* – This offering contains both the software binaries and documentation for the OpenVMS VAX Layered Products. (QA–5G88A–H8)

ORDERING INFORMATION

To order the Compaq DECset for OpenVMS VAX Systems product (includes all components):

Software Licenses:
Personal Use : QL–965AA–2B
Concurrent Use : QP–965AA–3B
Unlimited System Use: QL–965A*–**
Software Media/Documentation: QA–965AA–H8
Software Documentation (Hard Copy): QA–965AA–GZ
Software Product Services: QT–965A*–**

To Order Components Separately:

Compaq Language–Sensitive Editor/Source Code Analyzer for OpenVMS VAX Systems:

Software Licenses:
Personal Use : QL–057AA–2B
Concurrent Use : QL–057AA–3B
Unlimited System Use: QL–057A*–**
Software Media/Documentation: QA–965AA–H8
Software Documentation (Hard Copy): QA–965AA–GZ
Software Product Services: QT–057A*–**

Compaq Digital Test Manager for OpenVMS VAX Systems:

Software Licenses:
Personal Use : QL–927AA–2B
Concurrent Use : QL–927AA–3B
Unlimited System Use: QL–927A*–**
Software Media/Documentation: QA–965AA–H8
Software Documentation (Hard Copy): QA–965AA–GZ
Software Product Services: QT–927A*–**

Compaq Performance and Coverage Analyzer for OpenVMS VAX Systems:

Software Licenses:
Personal Use : QL–119AA–2B
Concurrent Use : QL–119AA–3B
Unlimited System Use: QL–119A*–**
Software Media/Documentation: QA–965AA–H8
Software Documentation (Hard Copy): QA–965AA–GZ
Software Product Services: QT–119A*–**

Compaq Code Management System for OpenVMS VAX Systems:

Software Licenses:
Personal Use : QL–007AA–2B
Concurrent Use : QL–007AA–3B
Unlimited System Use: QL–007A*–**
Software Media/Documentation: QA–965AA–H8
Software Documentation (Hard Copy): QA–965AA–GZ
Software Product Services: QT–007A*–**

Compaq Module Management System for OpenVMS VAX Systems:

Software Licenses:
Personal Use : QL–VADAA–2B
Concurrent Use : QL–VADAA–3B
Unlimited System Use: QL–VADA*–**
Software Media/Documentation: QA–965AA–H8
Software Documentation (Hard Copy): QA–965AA–GZ
Software Product Services: QT–VADA*–**

* Denotes variant fields. For additional information on available licenses, services, and media, refer to the appropriate price book.

SOFTWARE LICENSING

This software is furnished only under a license. For more information about Compaq's licensing terms and policies, contact your local Compaq office.

License Management Facility Support:

These layered products support the OpenVMS License Management Facility of Compaq.

License units for the Compaq DECset for OpenVMS VAX Systems product *and* for the component products are allocated on an Unlimited System Use and Personal and Concurrent Use basis.

Each Personal Use license allows one identified individual to use the layered product. Each Concurrent Use license allows any one individual at a time to use the layered product. These licenses are shared on VAX and Alpha Systems.

For more information on the OpenVMS License Management Facility, refer to the OpenVMS Operating System Software Product Description (SPD 41.87.xx) or documentation.

SOFTWARE PRODUCT SERVICES

A variety of service options are available from Compaq. For more information, contact your local Compaq office.

SOFTWARE WARRANTY

This software is provided by Compaq with a 90 day conformance warranty in accordance with the Compaq warranty terms applicable to the license purchase.

The above information is valid at time of release. Please contact your local Compaq office for the most up-to-date information.

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