



# Software Product Description

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PRODUCT NAME: VSI DECset for OpenVMS

SPD DO-VIBHAA-036

## DESCRIPTION

This document addresses VSI DECset 12.9-1 for OpenVMS for VSI Alpha and VSI Integrity.

VSI DECset for OpenVMS is an integrated programming tool set that supports software development coding, debugging, testing, and maintenance activities.

## FEATURES

VSI DECset Version 12.9-1 for OpenVMS contains the following components:

- VSI Language-Sensitive Editor (LSE) for OpenVMS Alpha Systems
- VSI Source Code Analyzer (SCA) for OpenVMS Systems
- VSI Digital Test Manager (DTM) for OpenVMS Alpha Systems
- VSI Performance and Coverage Analyzer (PCA) for OpenVMS Alpha Systems
- VSI Code Management System (CMS) for OpenVMS Alpha Systems
- VSI Module Management System (MMS) for OpenVMS Alpha Systems

The tools in the DECset tool set can be used in either a workstation or character-cell terminal environment. All components include both VSI DECwindows Motif® for OpenVMS Alpha and I64 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.

### VSI DECset for OpenVMS Alpha and I64 Systems Components

*VSI Language-Sensitive Editor/Source Code Analyzer for OpenVMS Alpha and I64 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.

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LSE provides an interface via callable routines, as well as through the LSE command-line interface and the DECwindows Motif for OpenVMS Alpha and I64 interface.

LSE supports Java and HTML.

**Note:** The following LSE-supported compilers are available on the OpenVMS Alpha and I64 platform:

- VSI BASIC for OpenVMS Alpha and I64 Systems
- VSI C for OpenVMS Alpha and I64 Systems
- VSI C++ for OpenVMS Alpha and I64 Systems
- VSI COBOL for OpenVMS Alpha and I64 Systems
- VSI Fortran for OpenVMS Alpha and I64 Systems
- VSI Pascal for OpenVMS Alpha and I64 Systems

LSE works in conjunction with CMS, SCA, and the OpenVMS Alpha and I64 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 Alpha and I64 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 goto-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 Alpha and I64 interface.

**Note:** The following SCA-supported compilers are available on the OpenVMS Alpha and I64 platform:

- VSI C for OpenVMS Alpha and I64 Systems
- VSI C++ for OpenVMS Alpha Systems Only \*
- VSI COBOL for OpenVMS Alpha and I64 Systems
- VSI Fortran for OpenVMS Alpha and I64 Systems \*
- VSI Pascal for OpenVMS Alpha and I64 Systems

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

VSI LSE/SCA for OpenVMS Alpha and I64 Systems is a component of DECset for OpenVMS Alpha and I64 Systems. Please refer to the Ordering Information section of this SPD.

### VSI Digital Test Manager for OpenVMS Alpha and I64 Systems

The VSI Digital Test Manager for OpenVMS Alpha and I64 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 VSI Digital Test Manager provides users with flexibility in organizing tests, selecting tests for execution, and verifying and reviewing test results.

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With the Digital Test Manager users can perform these tasks:

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

The VSI 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 Alpha and I64 interface.

The VSI Digital Test Manager for OpenVMS Alpha and I64 Systems is a component of VSI DECset for OpenVMS Alpha and I64 Systems. Please refer to the Ordering Information section of this SPD.

### *VSI Performance and Coverage Analyzer for OpenVMS Alpha and I64 Systems*

The Performance and Coverage Analyzer (PCA) for OpenVMS Alpha and I64 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 (see OpenVMS I64 release notes)
- 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
- Unaligned access fault 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

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 VSI 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 Alpha and I64 interface.

VSI Performance and Coverage Analyzer for OpenVMS Alpha and I64 Systems is a component of VSI DECset for OpenVMS Alpha and I64 Systems. Please refer to the Ordering Information section of this SPD.

## VSI DECset for OpenVMS

### *VSI Code Management System for OpenVMS Alpha and I64 Systems*

The Code Management System (CMS) for OpenVMS Alpha and I64 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 Alpha and I64 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.

VSI Code Management System for OpenVMS Alpha and I64 Systems is a component of VSI DECset for OpenVMS Alpha and I64 Systems. Please refer to the Ordering Information section of this SPD.

### *VSI Module Management System for OpenVMS Alpha and I64 Systems*

The Module Management System (MMS) for OpenVMS Alpha and I64 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 Alpha and I64 interface.

VSI Module Management System for OpenVMS Alpha and I64 Systems is a component of VSI DECset for OpenVMS Alpha and I64 Systems. Please refer to the Ordering Information section of this SPD.

## HARDWARE REQUIREMENTS

### *Processors Supported:*

- Integrity: Any HPE Integrity system capable of running the VSI OpenVMS Integrity Operating System Version 8.4-2L1 or higher.
- Alpha: Any HPE AlphaServer system capable of running the VSI OpenVMS Alpha Operating System Version 8.4-2L1 or higher.

Refer to the latest VSI OpenVMS Integrity or Alpha Software Product Description for information about supported servers.

## VSI DECset for OpenVMS

### *Terminals*

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

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

*Disk Space Requirements (Block Cluster Size = 1):*

Each component of VSI DECset for OpenVMS 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	45,000 blocks (23.0M bytes)	32,500 blocks (16.5M bytes)
SCA	25,500 blocks (13.0M bytes)	22,000 blocks (12.0M bytes)
Digital Test Manager	25,000 blocks (12.5M bytes)	12,000 blocks (6.2M bytes)
PCA	40,000 blocks (20.5M bytes)	12,000 blocks (6.2M bytes)
MMS	7,000 blocks (3.6M bytes)	4,550 blocks (3.6M bytes)
CMS	44,000 blocks (23.0M bytes)	7,000 blocks (3.6M bytes)
ENVMGR	13,500 blocks (7.0M bytes)	13,500 blocks (6.2M bytes)

Requirements for installation of all VSI DECset for OpenVMS 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	200,000 blocks (102.6M bytes)	100,500 blocks (52.3M bytes)
SCA	25,500 blocks (13.0M bytes)	22,000 blocks (12.0M 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 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 applications are particularly sensitive to system configuration. Less memory may be required on the DECwindows Motif for OpenVMS 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.

## SOFTWARE REQUIREMENTS

On HPE Integrity servers, VSI OpenVMS Integrity Version 8.4-2L1 or higher is the required operating system version for this product. On HPE AlphaServer systems, VSI OpenVMS Alpha Version 8.4-2L1 or higher is the required operating system version for this product.

## SOFTWARE LICENSING

A software license is required in order to use VSI DECset for OpenVMS.

- For Integrity servers, the license is a Concurrent Use license. Rights to use future revisions of VSI DECset for OpenVMS are available only through a Support Agreement or through a new license purchase.
- For AlphaServer systems, the license to use VSI DECset for OpenVMS is included in the ALPHA-LP license.

## VSI DECset for OpenVMS

The DECset license includes the following components:

- VSI Code Management System
- VSI Digital Test Manager
- VSI Language-Sensitive Editor
- VSI Source Code Analyzer
- VSI Module Management System
- VSI Performance and Coverage Analyzer

For VSI DECset for OpenVMS Alpha Systems and component products, licenses are available for Concurrent Use. Each Concurrent Use license allows any one individual at a time to use the layered product. The Concurrent Use licenses are shared on Alpha Systems. On Alpha, note that component licenses are not available separately.

For VSI DECset for OpenVMS Integrity Systems and component products, a single license type called "per-socket license" or PSL is offered. Each Per Socket License (PSL) allows any number of individuals to use the licensed product at the same time. On Integrity, component licenses are available separately.

For more information about OpenVMS licensing terms and policies, contact your VSI account representative. Information is also available at the following website: <http://vmssoftware.com/services>

## LICENSE MANAGEMENT FACILITY SUPPORT

VSI DECset for OpenVMS supports the OpenVMS License Management Facility. For more information about the License Management Facility, refer to the *VSI OpenVMS License Management Utility Manual* in the OpenVMS documentation set.

## CLUSTER ENVIRONMENT

This layered product is fully supported when installed on any valid and licensed OpenVMS cluster configuration, which are fully described in the *OpenVMS Cluster Software Product Description (SPD DO-VIBHAA-032)*. See the HARDWARE REQUIREMENTS section in this document for hardware requirements.

## GROWTH CONSIDERATIONS

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

## ORDERING INFORMATION

VSI DECset for OpenVMS licenses are available as electronic licenses (E-LTU) or physical licenses (P-LTU).

- For *Alpha*, all VSI DECset products are included in the VSI OpenVMS ALPHA license bundle. Component products are not orderable individually.
- For *Integrity*, the following tables contain ordering information for the product suite VSI DECset for OpenVMS as well as for individual component products CMS, DTM, LSE/SCA, MMS, and PCA. For order numbers containing an asterisk (\*) specify *E* for electronic licenses or *P* for physical licenses.

VSI DECset for OpenVMS on Integrity (Suite of Products)	
Order Number	Description
SL-LIDS1*-12V	VSI DECset PSL 1 Core Server 1 LTU units
SL-LIDS2*-12V	VSI DECset PSL 2 Core Server 2 LTU units
SL-LIDS4*-12V	VSI DECset PSL 4 Core Server 4 LTU units
SL-LIDS8*-12V	VSI DECset PSL 8 Core Server 8 LTU units
SL-LIDS1T-12V	VSI DECset PSL 1 Core Server 1 LTU Trade-in units
SL-LIDS2T-12V	VSI DECset PSL 2 Core Server 2 LTU Trade-in units
SL-LIDS4T-12V	VSI DECset PSL 4 Core Server 4 LTU Trade-in units
SL-LIDS8T-12V	VSI DECset PSL 8 Core Server 8 LTU Trade-in units

## VSI DECset for OpenVMS

<b>VSI Code Management System (CMS) for OpenVMS Integrity</b>	
<b>Order Number</b>	<b>Description</b>
SL-LICM1*-47V	VSI CMS Code Mgt Sys PSL 1 Core Server 1 LTU units
SL-LICM2*-47V	VSI CMS Code Mgt Sys PSL 2 Core Server 2 LTU units
SL-LICM4*-47V	VSI CMS Code Mgt Sys PSL 4 Core Server 4 LTU units
SL-LICM8*-47V	VSI CMS Code Mgt Sys PSL 8 Core Server 8 LTU units
SL-LICM1T-47V	VSI CMS Code Mgt Sys PSL 1 Core Server 1 LTU Trade-in units
SL-LICM2T-47V	VSI CMS Code Mgt Sys PSL 2 Core Server 2 LTU Trade-in units
SL-LICM4T-47V	VSI CMS Code Mgt Sys PSL 4 Core Server 4 LTU Trade-in units
SL-LICM8T-47V	VSI CMS Code Mgt Sys PSL 8 Core Server 8 LTU Trade-in units

<b>VSI Digital Test Manager (DTM) for OpenVMS Integrity</b>	
<b>Order Number</b>	<b>Description</b>
SL-LIDM1*-43V	VSI DTM Test Mgr PSL 1 Core Server 1 LTU units
SL-LIDM2*-43V	VSI DTM Test Mgr PSL 2 Core Server 2 LTU units
SL-LIDM4*-43V	VSI DTM Test Mgr PSL 4 Core Server 4 LTU units
SL-LIDM8*-43V	VSI DTM Test Mgr Sys PSL 8 Core Server 8 LTU units
SL-LIDM1T-43V	VSI DTM Test Mgr Sys PSL 1 Core Server 1 LTU Trade-in units
SL-LIDM2T-43V	VSI DTM Test Mgr Sys PSL 2 Core Server 2 LTU Trade-in units
SL-LIDM4T-43V	VSI DTM Test Mgr Sys PSL 4 Core Server 4 LTU Trade-in units
SL-LIDM8T-43V	VSI DTM Test Mgr Sys PSL 8 Core Server 8 LTU Trade-in units

<b>VSI Language-Sensitive Editor/Source Code Analyzer (LSE/SCA) for OpenVMS Integrity</b>	
<b>Order Number</b>	<b>Description</b>
SL-LILS1*-52V	VSI LSE SCA PSL 1 Core Server 1 LTU units
SL-LILS2*-52V	VSI LSE SCA PSL 2 Core Server 2 LTU units
SL-LILS4*-52V	VSI LSE SCA PSL 4 Core Server 4 LTU units
SL-LILS8*-52V	VSI LSE SCA PSL 8 Core Server 8 LTU units
SL-LILS1T-52V	VSI LSE SCA PSL 1 Core Server 1 LTU Trade-in units
SL-LILS2T-52V	VSI LSE SCA PSL 2 Core Server 2 LTU Trade-in units
SL-LILS4T-52V	VSI LSE SCA PSL 4 Core Server 4 LTU Trade-in units
SL-LILS8T-52V	VSI LSE SCA PSL 8 Core Server 8 LTU Trade-in units

<b>VSI Module Management System (MMS) for OpenVMS Integrity</b>	
<b>Order Number</b>	<b>Description</b>
SL-LIMM1*-39V	VSI MMS PSL 1 Core Server 1 LTU units
SL-LIMM2*-39V	VSI MMS PSL 2 Core Server 1 LTU units
SL-LIMM4*-39V	VSI MMS PSL 4 Core Server 1 LTU units
SL-LIMM8*-39V	VSI MMS PSL 8 Core Server 1 LTU units
SL-LIMM1T-39V	VSI MMS PSL 1 Core Server LTU Trade-in units
SL-LIMM2T-39V	VSI MMS PSL 2 Core Server LTU Trade-in units
SL-LIMM4T-39V	VSI MMS PSL 4 Core Server LTU Trade-in units
SL-LIMM8T-39V	VSI MMS PSL 8 Core Server LTU Trade-in units

## VSI DECset for OpenVMS

VSI Performance and Coverage Analyzer (PCA) for OpenVMS Integrity	
Order Number	Description
SL-LIPC1*-49V	VSI PCA Performance PSL 1 Core Server 1 LTU units
SL-LIPC2*-49V	VSI PCA Performance PSL 2 Core Server 1 LTU units
SL-LIPC4*-49V	VSI PCA Performance PSL 4 Core Server 1 LTU units
SL-LIPC8*-49V	VSI PCA Performance PSL 8 Core Server 1 LTU units
SL-LIPC1T-49V	VSI PCA Performance PSL 1 Core Server LTU units
SL-LIPC2T-49V	VSI PCA Performance PSL 2 Core Server LTU units
SL-LIPC4T-49V	VSI PCA Performance PSL 4 Core Server LTU units
SL-LIPC8T-49V	VSI PCA Performance PSL 8 Core Server LTU units

### SOFTWARE PRODUCT SERVICES

A variety of service options are available from VSI. For more information, contact your VSI account representative or distributor. Information is also available at the following website:

<http://vmssoftware.com/services>

### SOFTWARE WARRANTY

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

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