Software Product Description

PRODUCT NAME: HP C++ for OpenVMS

DESCRIPTION

This document addresses HP C++ Version 7.3 for Open-VMS Alpha Systems and HP C++ Version 7.3 for Open-VMS for HP Integrity servers (I64).

HP C++ for OpenVMS is a native programming language product, which generates highly optimized object code. HP C++ for OpenVMS is based on the ANSI/ISO C++ International Standard, reference designation number ISO/IEC 14882:1998. In addition to this standard, C++ supports the ARM, GNU, and MS dialects.

HP C++ for OpenVMS includes access to the following language libraries. Some of these components ship with the compiler kit, while others are shipped with the base OpenVMS operating system:

- The C++ Standard Library, which is an implementation of the ANSI/ISO C++ Standard Library. Portions of this library are implemented using source code licensed from and copyrighted by Rogue Wave Software, Inc.

- The C++ Class Library, which is a set of headers and other files implementing a collection of basic C++ classes including the pre-ANSI IOSTREAMS classes. This library is provided to support software developers using HP C++ for OpenVMS in conjunction with preexisting software that depends upon pre-ANSI library features.

- The OpenVMS C Run-Time Library header files, reference manual, and library. These components allow programmers to access the rich functionality of the C Run-Time Library.

- Features to facilitate porting between HP C++ for OpenVMS and other implementations of the C++ language. The compiler allows you to choose from several C++ language dialects that have evolved over the past several years:

  — the *MS* dialect for maximizing compatibility with Microsoft's Visual C++ product.

  — the *GNU* dialect for compatibility with the Open Source compilers.

  — the *ARM* dialect for compatibility with *The Annotated C++ Reference Manual* by Ellis and Stroustrup. Using this dialect minimizes the source changes necessary for applications that compile with C++ Version 5.6.

  — the *ANSI* dialect for developers who want to write applications that comply with the C++ International Standard.

- CXXDEMANGLE, a tool to decode compiler-generated names, that enables other tools (besides the compiler and debugger) to present these decoded names to the user.

- CXXLINK, a facility that lets you link your C++ application. Global names which are displayed by the linker utility are automatically demangled for readability.

HP C++ for OpenVMS documentation provides comprehensive reference and usage information for all product components. Online help is provided with the software, and HTML documents are provided on the Layered Products CD-ROM Library for the following manuals:

- *HP C++ User's Guide for OpenVMS Systems*

HP C++ for OpenVMS

- *HP C++ Installation Guides for OpenVMS Alpha and I64*

- *HP C++ Class Library Reference Manual*

HTML files are provided for the release notes and some of the product manuals, for use with a web browser.

Hardcopy documentation is available by ordering the separate software documentation kit.

Features

- Extensive error checking diagnostics

- Automatic template instantiation compatible with older compilers for the OpenVMS Alpha platform. New ELF comdat based template instantiation model for the OpenVMS I64 platform.

- Enhanced debugger support

- Language mode and diagnostic message options increase compatibility with earlier versions of the compiler as well as with other implementations of C++.

- Fast compilation and increased code optimization by directly translating C++ source programs to object files

- Extensive global and local optimizations of generated code for increased performance

- Option for running only the preprocessor phase of compilation

- Pragmas to control compiler options

- Pragmas to control extern models, sharing of data between concurrent processes, and structure member alignment

- Compiler-generated listing file, including optional:

  — Machine code

  — Macro expansion

  — Compilation statistics

- Data types for numeric, nonnumeric, and systems programming, as follows:

  — 8, 16, 32, and 64-bit [un]signed integers

  — 32, 64, and 128-bit IEEE floating point

  — 32 and 64-bit VAX floating-point

- Integration into the Program Development Environment:

  — Generation of debug and traceback records for symbolic debugger support

  — Conformance to the OpenVMS calling standard

  — Access to OpenVMS run-time libraries for general purpose routines and support of multi-language environments

  — Access to the data management facilities of OpenVMS RMS (Record Management Services)

  — Ability to package C++ code as shareable libraries

  — Ability to use additional class libraries

  — Support for generation of source code analysis information that can be used by the HP Source Code Analyser (Alpha Only)

  — Support for generation of diagnostic information that can be used by the HP Language-Sensitive Editor

Run-Time Library for C Applications

The complete C Run-Time Library that is needed for use with HP C++ for OpenVMS is distributed with the OpenVMS operating system. The C Run-Time Library provides routines to perform input/output, character and string handling, mathematical computations, memory allocation, and emulation of selected UNIX features. These routines are provided both in shared image and object module library form.

C++ Standard Library

The C++ Standard Library is an implementation of the ANSI/ISO C++ Standard Library. This library is comprised of a suite of header files and the run-time code needed to implement the string library, numeric limits, auto pointer, exceptions, complex math, and the STL (Standard Template Library). Portions of this library are implemented using source code licensed from and copyrighted by Rogue Wave Software, Inc.

C++ Run-Time Support Library (OpenVMS I64)

The C++ Run-Time Support Library is distributed with the OpenVMS I64 operating system. This library provides support for language features such as RTTI, new and delete, exception support, and some parts of 128-bit IEEE floating point support. These routines are provided both in shared image and object module library form.

C++ Class Library

The C++ Class Library Run-Time components are distributed with the OpenVMS operating systems. The Class Library provides the following packages: iostream, generic, mutex, objection, stopwatch, string, message and vector. These routines are provided both in shared image and object module library form.

Run-Time Library Redistribution

The HP C++ for OpenVMS kit may include Run-Time Library components in either shareable image or object library form. HP grants the user a nonexclusive royalty-free worldwide right to reproduce and distribute these Run-Time Libraries ("the RTLs") provided that the user:

- distributes the RTLs only in conjunction with and as a part of the users's software application product, which is designed to operate in the OpenVMS environment;

- does not use HP's name, logo, or trademarks to market the user's software application product;

- includes HP's copyright notice for HP C++ for OpenVMS on one of the following:

    a. the user's product disk label
    b. each copy of the application
    c. the title or copyright page of the documentation for the software application product

- agrees to indemnify, hold harmless, and defend HP from and against any claims or lawsuits, including attorney's fees, that arise or result from the use or distribution of the software application product. Except as expressly provided herein, HP grants no implied or express license under any of its patents, copyrights, trade secrets, trademarks, or any license or other proprietary interests and rights.

See the *Deploying Your Application* chapter in the users guide.

ALPHA HARDWARE REQUIREMENTS

Processors Supported:
Any Alpha system capable of running the OpenVMS Alpha Operating System Version 7.3-2 or higher.

Refer to the *OpenVMS Software Product Description* (SPD 82.35.xx) for details.

Disk Space Requirements (Block Cluster Size = 1)

Disk space required for compiler kit installation:	160,000 blocks (80 MB)
Disk space required for use (permanent):	150,000 blocks (75 MB)
Disk space required for Debug kit installation:	80,000 blocks (40 MB)
Disk space required for use (permanent):	16,000 blocks (8 MB)

These counts refer to the 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.

I64 HARDWARE REQUIREMENTS

Processors Supported:

Any Integrity system capable of running the OpenVMS Operating System Version 8.2-1 or higher.

OpenVMS I64 supports the following Integrity Servers:

— HP Integrity server rx2600 (2 sockets) - all speeds

— HP Integrity server rx1600 (2 sockets) - all speeds

— HP Integrity server rx4640 (4 sockets) - all speeds

Note: A socket is a receptacle for microprocessor modules. A single microprocessor module may contain one or more CPUs.

Refer to the *OpenVMS Software Product Description* (SPD 82.35.xx) for details.

Disk Space Requirements (Block Cluster Size = 1)

Disk space required for compiler kit installation:	160,000 blocks (80 MB)
Disk space required for use (permanent):	150,000 blocks (75 MB)
Disk space required for Debug kit installation:	80,000 blocks (40 MB)
Disk space required for use (permanent):	16,000 blocks (8 MB)

These counts refer to the 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.

SOFTWARE REQUIREMENTS

The following are software requirements:

- OpenVMS Alpha Version 7.3-2 or higher

- OpenVMS I64 Version 8.2-1 or higher

Note: A version update represents a complete distribution media replacement for the previous release of HP C++ for OpenVMS. To provide for proper operation with the new release of HP C++ for OpenVMS, product changes and functional enhancements in a version update may require the recompilation and relinking of all modules in an application built with a prior version.

HP C++ for OpenVMS

SOFTWARE LICENSING

A software license is required in order to use the *HP C++* software product. For VAX and Alpha platforms, *HP C++* is offered with Concurrent Use, Personal Use and Traditional 'capacity' licenses. For I64, it is offered with Concurrent Use licenses. Version update licenses are not available for the I64 platform. Rights to use future revisions of *HP C++* are available only through a Support Agreement or through a new license purchase. For more information about OpenVMS license terms and policies, contact your local HP sales office, or refer to the Software Licensing site at: <http://licensing.hp.com/swl/view.slm?page=index>

LICENSE MANAGEMENT FACILITY SUPPORT

This layered product supports the *OpenVMS License Management Facility.*

License units for Alpha and VAX HP C++ are allocated on a Capacity Use, Personal Use, or Concurrent Use basis. License units for I64 HP C++ are allocated on a 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.

For more information on the License Management Facility, refer to the *OpenVMS Operating System Software Product Description* or the *License Management Facility* manual of the OpenVMS documentation set. For more information about HP's licensing terms and policies, contact your local HP office.

CLUSTER ENVIRONMENT

This layered product is fully supported when installed on any valid and licensed OpenVMS Cluster* configuration. The HARDWARE REQUIREMENTS section of this product's Software Product Description detail any special hardware required by this product.

* OpenVMS Cluster configurations are fully described in the *OpenVMS Cluster Software Product Description* (29.78.xx) and include CI, Ethernet, and Mixed Interconnect configurations.

OpenVMS TAILORING CLASSES

The following OpenVMS classes are required for full functionality of this layered product:

• OpenVMS Required Saveset

• Programming Support

• Utilities

For more information on OpenVMS classes and tailoring, refer to the *OpenVMS Operating System Software Product Description* (SPD 82.35.xx).

OPTIONAL SOFTWARE

• HP DECset Release 12.7 for OpenVMS I64 and Alpha, which includes:

  — Language-Sensitive Editor/Source Code Analyzer (LSE/SCA) for OpenVMS Systems

  — Test Manager (DTM) for OpenVMS Systems

  — Performance and Coverage Analyzer (PCA) for OpenVMS Systems

  — Code Management System (CMS) for OpenVMS Systems

  — Module Management System (MMS) for OpenVMS Systems

The HP DECset product is available for both OpenVMS Alpha and OpenVMS I64, with similar capabilities. For more information on HP DECset Release 12.7 for OpenVMS Alpha and OpenVMS I64 Systems, refer to the Software Product Description (SPD 42.29.xx).

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.

HP C++ for OpenVMS

DISTRIBUTION MEDIA

HP C++ for OpenVMS Alpha product is available on the OpenVMS Alpha Software Layered Products Library Package (QA-03XAA-H8). The library package includes media and documentation on CD-ROM.

The software documentation for *C++ on OpenVMS Alpha* is available as part of the OpenVMS Alpha Online Documentation CD-ROM Library (QA-4KM8A-G8). A hardcopy documentation set can be ordered separately (QA-0HQAA-GZ).

HP C++ OpenVMS I64 ONLY:

HP C++ for OpenVMS I64 is available on the Layered Products media within the Operating Environment package. The Layered Products media includes the product binaries and on-line documentation. An optional hardcopy documentation kit is also offered.

ORDERING INFORMATION

Licenses

HP OpenVMS Integrity License[1]	
HP C++ Concurrent Use License	BA349AC[2]

[1]Update licenses not available; updates available through SW Updates Service.

[2]This license may also be used with OpenVMS Alpha in a mixed architecture cluster.

HP OpenVMS Alpha and VAX User Licenses	
Personal Use License	QL-MJ1AA-2B
Personal Use Update License	QL-MJ1AA-4B
Concurrent Use License	QL-MJ1AA-3*[1]
Concurrent Use Update License	QL-MJ1AA-5*[1]

[1]Asterisk denotes number of users: B=one user, C=5 users, E=25 users, F=50 users

HP OpenVMS Alpha and VAX Traditiona/Capacity Licenses	
Alpha Traditional License	QL-0HQA*-AA[1]
Alpha Traditional Update License	QL-0HQA*-RA[1]
VAX Traditional License	QL-MJ1A*-AA[2]
VAX Traditional Update License	QL-MJ1A*-RA[2]

[1]Asterisk denotes system tier. E=workgroup tier, G=departmental tier, Q=enterprise tier.

[2]Asterisk denotes system tier. B=workgroup tier, 2=departmental tier, 5=enterprise tier.

Media and Online Documentation

Product binary kits and online documentation are delivered on consolidated media libraries. Delivery model varies by platform.

HP OpenVMS Integrity Media and Online Documentation[1]	
Foundation Operating Environment	BA322AA#AJR
Enterprise Operating Environment	BA323AA#AJR
Mission Critical Operating Environment	BA324AA#AJR

[1]Product ships on Layered Products Library media included in all Operating Environment media kits, available with initial OpenVMS OE order.

HP OpenVMS Alpha Media and Online Documentation	
Software Layered Products Library Package[1]	QA-03XAA-H8
Software Layered Products and Operating System Library Package [1]	QA-5G98A-H8

[1]Quarterly Software Updates Service is available.

HP OpenVMS VAX Media and Online Documentation	
Software Layered Products Library Package[1]	QA-5G88A-H8
Software Layered Products and Operating System Library Package [1]	QA-YL48A-H8

[1]Quarterly Software Updates Service is available.

HP OpenVMS Integrity SW Update[1]	
HP C VMS I64 Media	BA48AA

[1]For the OpenVMS Integrity platform, media updates are ordered by adding SW Updates Service to individual products. The above media product number must be pulled into an order if SW Updates Service is planned.

Hardcopy Documentation

A hardcopy documentation set can be ordered separately. The documentation set varies by platform.

HP C++ Hardcopy Documentation	
For OpenVMS Integrity	BA349MN
For OpenVMS Alpha	QA-0HQAA-GZ
For OpenVMS VAX	QA-MJ1AA-GZ

NOTE: If you are *adding* a layered product to an existing OpenVMS Integrity system and do not have the latest software revision on site, please contact your local Sales Rep to request a Special Media kit.

SOFTWARE PRODUCT SERVICES

A variety of service options are available from HP. For more information, contact your HP account representative or distributor. Information is also available on www.hp.com/hps/software.

SOFTWARE WARRANTY

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