

Software Product Description

PRODUCT NAME: PDP-11 C for VMS, Version 1.2

SPD 31.54.02

DESCRIPTION

PDP-11 C for VMS is a reliable language processor for Digital Equipment Corporation's proprietary operating systems on the PDP-11. PDP-11 C is highly compatible with the ANSI standard for the C language. PDP-11 C can be used to develop code for inclusion into resident libraries and other low level system routines.

PDP-11 C for VMS consists of a compiler, a Run-Time Library (RTL), and documentation.

The compiler produces machine code optimized for execution speed and memory efficiency. The compiler is highly compatible with the ANSI C standard, X3J11/90-013, February 14, 1990, and extends beyond ANSI requirements with several extensions for the PDP-11 family of central processors.

The compiler runs in native mode, as a cross compiler, on the host VMS environment and produces PDP-11 object code compatible with all the supported target systems. These target systems are RSX-11M, RSX-11S, RSX-11M-PLUS, Micro/RSX, RSTS/E, RT-11, and VAX-11 RSX. The Run-Time Library is provided in object form.

The Run-Time Library provides run-time support that allows the user to perform many needed functions not provided from within the compiler itself. These features include:

- Native Standard I/O (STDIO) for each supported PDP-11 operating system
- Arithmetic Operations
- Character Handling
- Localization
- Signal Handling
- Variable Arguments
- String Handling

To build and run a task in the VMS environment requires that VAX-11 RSX be installed. In the case where the user does not wish to link or run on VMS, either DECnet or a physical media copy may be used to transport the generated object code to the target PDP-11 system. Each RTL furnished with the VMS kit is transportable to the supported target system.

Features

- Compatible with the ANSI C Standard (February 1990)
- Function prototypes for declaring and checking function argument count and types
- Structured programming control flow constructs:
 - if...else construct for simple selection
 - switch statement for multi-choice selection with an arbitrary number of case statements
 - while, do, and for statements for iterative execution
- Flow modification statements:
 - break
 - continue
 - goto
- Data type for numeric, non-numeric, and systems programming:
 - Byte, word, and longword signed and unsigned integers
 - Integer constants in decimal, octal, and hexadecimal radices
 - Support for void data type
 - Single-character variables and constants
 - Single and double-precision numbers
 - Pointer variables containing the addresses of other variables
 - Data aggregates including array, structures, and unions

- User-defined or enumerated (enum) data types with forward referencing allowed
- Storage allocation using:
 - Auto, static, register and extern storage allocation classes for variables
 - Keywords (globalref, globaldef, and globalvalue) for sharing data among program modules
 - Psect Pragma for control of data attributes and data placement
- Concise arithmetic, relational, and logical operators
- Preprocessor control statements for:
 - File inclusion
 - Identifier substitution
 - Conditional compilation
 - Object module identification via pragmas
 - List File control via pragmas
 - Data storage control via pragmas
 - Source and list character sets via pragmas
- Support for DEC multi-national character sets
- Separate compilation capabilities
- Compiler generated listing file including optional:
 - Expanded preprocessor substitution listing
 - MACRO-11 file
- Generated Code
 - EIS or FPU
 - PIC or NONPIC
 - I/D Space supported or non I/D space
- Position Independent Code (PIC) Supervisor Mode Run-Time Library for the RSTS/E, RSX-11M-PLUS, and Micro/RSX target systems
- Full support of RSX Executive Directives on RSX target systems
- Support of RSX AST, RSX SST, and RSX CSM linkages to allow users to write:
 - Asynchronous system trap handlers
 - Synchronous system trap handlers
 - Supervisor mode library routines for RSX and RSTS/E systems

An Installation Verification Program (IVP) is provided to verify the installation of PDP-11 C and its RTL. The tests include compile-time error reporting (compiler test).

HARDWARE REQUIREMENTS

Processor and/or configuration as specified in the System Support Addendum (SSA 31.54.02-x).

SOFTWARE REQUIREMENTS

For Systems Using Terminals:

VMS Operating System

For Workstations Running VWS:

VMS Operating System

VMS Workstation Software

Refer to the System Support Addendum (SSA 31.54.02-x) for availability and required versions of prerequisite /optional software and for information regarding components of VMS DECwindows.

ORDERING INFORMATION

Software Licenses: QL-YEJA*-**

Software Media: QA-YEJA*-**

Software Documentation: QA-YEJAA-GZ

Software Product Services: QT-YEJA*-**

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

SOFTWARE LICENSING

This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and Conditions. For more information about Digital's licensing terms and policies, contact your local Digital office.

License Management Facility Support

This layered product supports the VMS License Management Facility.

License units for this product are allocated on a Unlimited System Use basis.

For more information on the License Management Facility, refer to the VMS Operating System Software Product Description (SPD 25.01.xx) or the *License Management Facility* manual of the VMS Operating System documentation set.

For more information about Digital's licensing terms and policies, contact your local Digital office.

SOFTWARE PRODUCT SERVICES

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

SOFTWARE WARRANTY

Warranty for this software product is provided by Digital with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

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System Support Addendum

PRODUCT NAME: PDP-11 C for VMS, Version 1.0

SSA 31.54.02-A

HARDWARE REQUIREMENTS

Processors Supported:

VAX: VAX 4000 Model 200,
VAX 4000 Model 300,
VAX 4000 Model 500

VAX 6000 Model 200 Series,
VAX 6000 Model 300 Series,
VAX 6000 Model 400 Series,
VAX 6000 Model 500 Series,
VAX 6000 Model 600 Series

VAX 8200, VAX 8250, VAX 8300,
VAX 8350, VAX 8500, VAX 8530,
VAX 8550, VAX 8600, VAX 8650,
VAX 8700, VAX 8800, VAX 8810,
VAX 8820, VAX 8830, VAX 8840

VAX 9000 Model 110,
VAX 9000 Model 210,
VAX 9000 Model 300 Series,
VAX 9000 Model 400 Series

VAXft Model 110,
VAXft Model 310,
VAXft Model 410,
VAXft Model 610,
VAXft Model 612

VAX-11/730, VAX-11/750,
VAX-11/780, VAX-11/785

MicroVAX: MicroVAX II, MicroVAX 2000,
MicroVAX 3100, MicroVAX 3300,
MicroVAX 3400, MicroVAX 3500,
MicroVAX 3600, MicroVAX 3800,
MicroVAX 3900

VAXstation: VAXstation II, VAXstation 2000,
VAXstation 3100 Series, VAXstation 3200,
VAXstation 3500, VAXstation 3520,
VAXstation 3540

VAXstation 4000 Model 60,
VAXstation 4000 VLC

VAXserver: VAXserver 3100, VAXserver 3300,
VAXserver 3400, VAXserver 3500,
VAXserver 3600, VAXserver 3602,
VAXserver 3800, VAXserver 3900

VAXserver 4000 Model 200,
VAXserver 4000 Model 300,
VAXserver 4000 Model 500

VAXserver 6000-210, VAXserver 6000-220,
VAXserver 6000-310, VAXserver 6000-320,
VAXserver 6000-410, VAXserver 6000-420,
VAXserver 6000-510, VAXserver 6000-520,
VAXserver 6000-610, VAXserver 6000-620,
VAXserver 6000-630

Processors Not Supported:

VAX-11/725, VAX-11/782, MicroVAX I, VAXstation I,
VAXstation 8000

Processor Restrictions:

A device capable of reading a TK50 is required to install this product on MicroVAX 2000 and VAXstation 2000 systems.

Other Hardware Required:

This product requires EIS or FPU support on the target PDP-11 system.

Disk Space Requirements (Block Cluster Size = 1):

Disk space required for installation: 8,500 blocks
(4.35M bytes)

Disk space required for use (permanent): 3,500 blocks
(1.79M bytes)

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.

The minimum memory supported is 4MB. However, the use of this software in conjunction with increased memory capability improves performance. The memory size suggested for most typical hardware configurations is at least 6MB.

OPTIONAL HARDWARE

None

CLUSTER ENVIRONMENT

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

* V5.x VAXcluster configurations are fully described in the VAXcluster Software Product Description (29.78.xx) and include CI, Ethernet and Mixed Interconnect configurations.

SOFTWARE REQUIREMENTS*For Systems Using Terminals:*

VMS Operating System V5.4 - V5.5

For Workstations Running VWS:

VMS Operating System V5.4 - V5.5

VMS Workstation Software V4.2 - V4.4

VMS Tailoring:

For VMS V5.x systems, the following VMS classes are required for full functionality of this layered product:

- VMS Required Saveset
- Utilities

For more information on VMS classes and tailoring, refer to the VMS Operating System Software Product Description (SPD 25.01.xx).

OPTIONAL SOFTWARE

VAX-11 RSX V2.5

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

9-track 1600 BPI Magtape (PE), TK50 Streaming Tape

This product is also available as part of the VMS Consolidated Software Distribution on CDROM.

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Software Product Services: QT-YEJA*-**

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

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