Software Product Description

PRODUCT NAME: PDP-11 C for VMS, Version 1.1 **SPD 31.54.01**

DESCRIPTION

PDP-11 C is a reliable language processor for Digital Equipment Corporation's proprietary operating systems on the PDP-11. It 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. It 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 (SJ, FB, XM), VAX-11 RSX, and VAX CoProcessor/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 or VAX CoProcessor/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-define 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
  - Control of 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
- Support of RSX AST, RSX SST and RSX CSM linkages
  - Allows users to write asynchronous system trap handlers, syncronous system trap handlers, and supervisor mode library routines for RSX and RSTS/E systems in PDP-11 C.

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

HARDWARE REQUIREMENTS

VAX, MicroVAX, VAXstation, or VAXserver configuration as specified in the System Support Addendum (SSA 31.54.01-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 31.54.01-x) for availability and versions of required 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 per CPU basis and are not dependent on CPU-capacity or User/Activity.

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.

™ The DIGITAL Logo, VAX, MicroVAX, VAXstation, VAXserver, VMS, PDP-11, RSX, RSX-11M, RSX-11M-PLUS, Micro/RSX, RSTS/E and RT-11 are trademarks of Digital Equipment Corporation.