Software Product Description

DESCRIPTION

VAX PASCAL is an implementation of the Pascal* language that accepts programs compatible with either level of the ISO specification for Programming languages - PASCAL [ISO 7185-1983(E)] as well as ANSI/IEEE 770X3.97-1983 (December, 1983). VAX PASCAL also meets the Federal Information Processing Standard Publication (FIPS-109) requirements by accepting programs conforming to the ANSI standard. The compiler has been validated for both levels of the ISO standard and for conforming to FIPS-109. Containing extensions to the standards, VAX PASCAL generates optimized, sharable code that takes full advantage of the VAX hardware floating point and character instruction sets and the virtual memory capabilities of the VMS and MicroVMS Operating Systems. The language contains control statements, data types, and predeclared procedures and functions.

Major Pascal Language Elements

● INTEGER, REAL, CHAR, BOOLEAN, enumerated, and subrange data types

● ARRAY, RECORD, SET, and FILE structured data types

● FOR, REPEAT, and WHILE repetitive control statements

● CASE, IF-THEN, and IF-THEN-ELSE conditional statements

● BEGIN...END compound statement

● GOTO statement

● GET, PUT, READ, WRITE, READLN, and WRITELN input and output procedures

● Standard set of functions and procedures

VAX PASCAL Extensions

● DOUBLE (D_floating or G_floating) and QUADRUPLE data types that support the VAX extended range and extended precision floating point architectural features:

*K. Jensen and N. Wirth, "Pascal User Manual and Report", 2nd ed., Spring-Verlag, New York 1974

— 64-bit D_floating data type, with an 8-bit exponent and 56-bit mantissa, which provides a range of 0.29*10**-38 to 1.7*10**38 and a precision of 16 decimal digits

— 64-bit G_floating data type, with an 11-bit exponent and 53-bit mantissa, which provides a range of 0.56*10**-308 to 0.09*10**308 and a precision of 15 decimal digits

— 128-bit H_floating data type, with a 15-bit exponent and a 113-bit mantissa, which provides a range of 0.84*10**-4932 to 0.59*10**4932 and a precision of 33 decimal digits

● VARYING data type denoting variable-length character strings up to 65,535 characters

● Concatenation operator and set of predefined character string functions including INDEX, LENGTH, and SUBSTR

● Language elements providing sequential and random access to VAX RMS relative files and sequential and keyed access to VAX RMS multikey indexed files

● Optional attributes specification on types, type identifiers, routines, and compilation units

● MODULE capability for combining procedures, functions, and other declarations for compilation separate from the main program

● ENVIRONMENT and INHERIT attributes to control separate and independent compilation

● UNSIGNED and SINGLE predefined types

● VALUE initialization section and optional value initialization in declaration section program level

● Exponentiation operator (**)

● OTHERWISE clause for CASE statement

● Binary, hexadecimal, and octal constants

● External procedure and function declarations

● Nonpositional passing of parameters

● Default values for parameters

● Ability for functions to return structured types (other than file types)

software

As a native-mode VAX language, VAX PASCAL is integrated into the VAX Common Language Environment. This integration provides VAX PASCAL users with:

- Support for VAX interlanguage calling standard

- Access to all VMS and MicroVMS system services

- Access to the facilities of the VAX Symbolic Debugger

- VAX Language-Sensitive Editor support

- Callable interfaces to the VAX Common Run-time Library

- Callable interfaces to VAX utilities, such as SORT and to optional products, for example VAX DATATRIEVE

- VAX Common Data Dictionary Support

- VAX Source Code Analyzer Support

- 31-character identifiers that can include dollar sign ($) and underscore (_)

Options available to VAX PASCAL users at compile time include:

- Run-time checks for array, character string, and subrange bounds

- Run-time checks for arithmetic overflow, valid case selector values, and null pointer variables

- Generation of information for use by the VAX Symbolic Debugger and the run-time error traceback mechanism

- Creation of an environment file facilitating separate compilation

- Cross-reference listing

- Creating in the listing file a representation of the object code generated by the compiler

- Printing of information-level messages, flagging uses VAX PASCAL extensions to the ISO and ANSI standard.

SOURCE CODE INFORMATION

The following source code modules are provided on all available distribution media for this product: LIBDEF. PAS, MTHDEF.PAS, PASCAL.CLD, PASCAL.HLP, PASDEF.PAS, PASSTATUS.PAS, SIGDEF.PAS, PASCTEST.PAS, and PASCAL.FDL. The source code modules are provided in order to install and describe the product, and include sample test program, help file, and system definition inclusion files.

This source code is provided on an **"AS IS"** basis without any warranty of any kind, either express or implied.

MINIMUM HARDWARE REQUIRED

Refer to the VAX/VMS Systems Software Order Table for processor support.

A valid VAX, MicroVAX (I or II) VAXstation (I or II) system configuration.

Note: The dual RL02 configuration for VAX-11/730 Systems is not supported. VMS Installation needs to be tailored to run this product on VAX-11/725.

Block Space Requirements (Block Cluster Size = 1):

VAX PASCAL compiler:
Disk space required for installation:　　4000 blocks
(2048K bytes)
Disk space required for permanent use: 3400 blocks
(1740.8K bytes)

Starlet library files:
Disk space required for installation:　　3700 blocks
(1945.6K bytes)
Disk space required for permanent use: 3100 blocks
(1843.2K bytes)

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

VAXcluster Environment

VAXcluster/Local Area VAXcluster Full Support

This layered product is fully supported when installed on any valid and licensed VAXcluster or Local Area VAXcluster configuration including configurations accessing a common system disk, without restrictions.

GROWTH CONSIDERATIONS

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

OPTIONAL HARDWARE

Floating point intensive applications should be run on configurations with the appropriate hardware support for the floating point data types being used. Consult the Base Operating System SPD for the Floating Point Accelerator or other floating point hardware appropriate for your configuration.

PREREQUISITE SOFTWARE

For VAX Systems:

VAX/VMS Operating System

For MicroVAX Systems (I and II):

MicroVMS Operating System*

For VAXStation Systems (I and II):

MicroVMS Operating System*
MicroVMS Workstation Software

* Both the MicroVMS Extended Base component and the MicroVMS Program Development component are required.

Refer to the VAX/VMS Systems Software Order Table for the required version(s).

OPTIONAL SOFTWARE

VAX Language-Sensitive Editor (LSE)

VAX Common Data Dictionary (CDD)
VAX Source Code Analyzer (SCA)

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.

INSTALLATION

This software product can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase it concurrent with a Startup Service Package that includes installation service. Both the host operating system and this product must be installed concurrently.

ORDERING INFORMATION

Single-Use licensed software is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide, in part, that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on that same CPU.

You will need a separate license for each CPU on which you will be using the software product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. **THE LICENSE OPTIONS ARE DESCRIBED BELOW. IF YOU ARE NOT FAMILIAR WITH THE SERVICE OPTIONS, YOU MAY OBTAIN THE APPROPRIATE SOFTWARE PRODUCT SERVICE DESCRIPTION(S) FROM YOUR LOCAL DIGITAL OFFICE.**

The base option number for this software product is Q*126.

*Denotes processor variant.

LICENSE OPTIONS

Single-Use License Option

The Single-Use License is your right to use the software product on a single CPU.

For your first installation of this software product you must purchase as a **minimum:**

● Single-Use License Option, and

● Distribution and Documentation Option

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine-readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a **minimum:**

● Single-Use License Option

In addition to the right to use, the license gives you the one-time right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

VAXcluster License Option

You are eligible for a VAXcluster License Option on your second or each subsequent CPU that is part of a VAXcluster system. This is a Single-Use License offered at a reduced price and provides all of the License rights described above. A standard, Single-Use License Option (example: Qxxxx-UZ) is required with the first purchase of this software product and is also required for the first CPU of a VAXcluster system.

For software configuration purposes, a VAXcluster system is a set of VAX processors, each running the VMS operating system, where each VAX processor has a direct path to every other VAX processor via Computer Interconnect (CI) Bus.

Distribution and Documentation Option

The Distribution and Documentation Option provides the machine-readable software and the basic documentation. You must have, or order, a Single-Use License to obtain this option. You will need this option to install the software for the first time. When revised versions of this software product become available, they may also be obtained by purchasing this option again.

Software Revision Right-To-Copy Option

The Right-To-Copy Option allows a customer with multiple CPUs to copy a revised version of a software product from one CPU to another. Each CPU must be licensed for that product. You first install the revised software on one CPU; then you can make copies for additional CPUs by purchasing the Right-To-Copy Option for each additional CPU.

Documentation-Only Option

The Documentation-Only Option provides one copy of the basic documentation.

Software Product Services

A variety of service options are available. For more information on these or other services, please contact your local DIGITAL office.