

Software Product Description

PRODUCT NAME: **PDP-11 FORTRAN-77/RSTS/E, Version 5.4**

SPD 14.49.14

DESCRIPTION

PDP-11 FORTRAN-77/RSTS/E is an extended implementation of the ANSI subset FORTRAN-77 standard (X3.9-1978) that runs on the RSTS/E Operating System. PDP-11 FORTRAN-77/RSTS/E contains all the features of ANSI FORTRAN-77 subset, many of the full-set language features, and extensions that are not included in the ANSI FORTRAN-77 standard. Switch-selectable support is provided for user programs conforming to the previous ANSI FORTRAN standard (X3.9-1966).

PDP-11 FORTRAN-77/RSTS/E also meets the Federal Information Processing Standard Publication (FIPS PUB-69) requirement for a flagger. The flagger optionally produces diagnostic messages for syntax and/or source form elements which do not conform to the full-level ANSI FORTRAN X3.9-1978 Standard.

PDP-11 FORTRAN-77/RSTS/E programs can be optionally executed under the control of PDP-11 Symbolic Debugger/RSTS/E (SPD 12.79.xx). Execution of application programs using PDP-11 Symbolic Debugger/RSTS/E aids in the location of programming errors in successfully compiled programs that behave abnormally when executed.

PDP-11 FORTRAN-77/RSTS/E includes all subset ANSI features including:

- CHARACTER data type
- Block IF construct, including IF...THEN, ELSE IF, ELSE, and END IF statements, for conditional execution of blocks of statements

The PDP-11 FORTRAN-77/RSTS/E compiler includes the following features of full-language FORTRAN as defined by the ANSI Standard:

- Double precision and complex data types
- Intrinsic functions, including LEN, ICHAR, and INDEX
- Exponentiation forms, including double precision and complex
- Format edit descriptors, including S, SP, SS, T, TL, TR, Iw.m, and Gw.dEe
- Generalized DO loop parameters
- DO WHILE and END DO logic statements
- Generic function selection based on argument data type for FORTRAN-defined functions

- Lower and upper bounds specification in array declarators
- Substrings of character variables and character array elements
- Optional syntax for I/O statements (UNIT= and FMT=)
- Support for real and complex constant expressions in PARAMETER statement
- IMPLICIT NONE statement

PDP-11 FORTRAN-77/RSTS/E includes the following extensions to the ANSI standard:

- Language elements for keyed and sequential access to RMS multi-key ISAM files
- DEFINE FILE, FIND, DELETE, REWRITE, and UNLOCK statements
- TYPE and ACCEPT input/output statements
- Comments permitted at the end of each source line
- INCLUDE statement
- BYTE data type
- ENCODE, DECODE statements
- Explicit specification of storage allocation units for data types (e.g., INTEGER*4)
- Hexadecimal and octal constants
- User mode instruction and data space (I & D space) support on processors where both the hardware and software support this feature
- O and Z format edit descriptors

The PDP-11 FORTRAN-77 compiler performs optimization on source code to improve execution-time efficiency on a PDP-11 with a floating point processor. PDP-11 FORTRAN-77 compiler optimizations include:

- Optimizations of arithmetic and logical IF statements
- Common subexpression elimination
- Removal of invariant expressions from DO loops
- Allocation of processor registers across block IF constructs and DO loops

SOFTWARE OPTIONS CHART

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QR100-HD = binaries on 9-track 800 BPI Magtape (NRZI).

5 = TK50 Tape Cartridge
 D = 9 track 800 BPI Magtape
 H = RL02 Disk Cartridge
 M = 9-track 1600 BPI Magtape (PE)
 V = RK07 Disk Cartridge
 Z = No hardware dependency

Note: The availability of these software product options and services may vary by country. Customers should contact their local Digital office for information on availability.

OPTIONS	ORDER NUMBER CLASS L SYSTEMS ¹	ORDER NUMBER CLASS H SYSTEMS ²
LICENSE OPTIONS: A LICENSE IS REQUIRED FOR EACH CPU.		
Single-Use License	QY100-UZ	QR100-UZ
Migration Option from PDP-11 FORTRAN IV/RSTS/E	QY453-UZ	QR453-UZ
MATERIALS AND SERVICE OPTIONS:		
Distribution and Documentation Option	QY100-H5 QY100-HH QY100-HM	QR100-H5 QR100-HD QR100-HH QR100-HM QR100-HV
Software Revision Right-To-Copy Option	QY100-HZ	QR100-HZ
Documentation-Only Option	QY100-GZ	QR100-GZ
Installation Service Option	QY100-I5 QY100-IH QY100-IM	QR100-I5 QR100-ID QR100-IH QR100-IM QR100-IV
DECsupport Service	QY100-95 QY100-9H QY100-9M	QR100-95 QR100-9D QR100-9H QR100-9M QR100-9V

SOFTWARE OPTIONS CHART (cont'd)

OPTIONS	ORDER NUMBER CLASS L SYSTEMS ¹	ORDER NUMBER CLASS H SYSTEMS ²
Basic Service	QY100-85 QY100-8H QY100-8M	QR100-85 QR100-8D QR100-8H QR100-8M QR100-8V
Self-Maintenance Service	QY100-35 QY100-3H QY100-3M	QR100-35 QR100-3D QR100-3H QR100-3M QR100-3V

¹ Class L Systems (low-end systems):

- All Q-bus models and systems including MicroPDP-11/83
- KD11, KDF11, KDJ11 CPU modules
- DCT11, DCF11, DCJ11 microprocessor chips

² Class H Systems (high-end systems):

- All UNIBUS models and systems

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