digital
Software Product Description

PRODUCT NAME: PDP-11 FORTRAN IV-PLUS, Version 2.5   **SPD 14.50.8**

DESCRIPTION:

FORTRAN IV-PLUS is an extended FORTRAN implementation based on American National Standard (ANSI) FORTRAN, X3.9-1966. It operates under the RSX-11M, RSX-11D, and IAS operating systems. The PDP-11 FORTRAN IV language includes the following extensions to the ANSI Standard:

- General expressions allowed in all meaningful contexts
- Mixed-mode arithmetic
- BYTE data type for character manipulation
- ENCODE, DECODE statements
- PRINT, TYPE, ACCEPT input/output statements
- Direct-access unformatted input/output, DEFINE FILE statement
- Comments allowed at end of each source line
- PROGRAM statement
- OPEN and CLOSE file access control statements
- List-directed input/output

FORTRAN IV-PLUS provides the following additional capabilities:

- INTEGER*4 (32-bit) data type
- ENTRY statement
- INCLUDE statement
- PARAMETER statement
- Generalized DO loops
- Lower, as well as upper, bounds specification in array declarators
- Generic function selection based on argument data type for FORTRAN defined functions
- Direct access formatted input/output

The FORTRAN IV-PLUS compiler produces direct PDP-11 machine code optimized for execution time efficiency on a PDP-11 with a floating point processor. FORTRAN IV-PLUS 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 DO loops

Programs which do not use real, double precision, or complex quantities can be compiled into code which can be executed on processors with the EIS instruction set. The FORTRAN IV-PLUS compiler does not itself use the FPP, and can thus operate on processors with the EIS instruction set.

Object Time System

The FORTRAN IV-PLUS Object Time System (OTS) is a set of object modules selectively linked with compiler-produced object modules by the operating system's task builder to produce a task (program) ready for execution. The OTS is reentrant and part or all of the OTS can be made into a shared library for concurrent use by multiple tasks.

MINIMUM HARDWARE REQUIRED:

Any valid RSX-11M, RSX-11D or IAS operating system configuration which includes a:

Central processor with floating point processor
One of the following:
- PDP-11/34 with FP11-AU
- PDP-11/45, 11/55, or 11/70 with FP11-B or FP11-C
- PDP-11/60 (includes floating point processor)

that meets the following main memory and auxiliary storage requirements.

Main Memory: — The FORTRAN IV-PLUS compiler requires a minimum task partition area of:
- RSX-11M operating system: 36K bytes
- RSX-11D operating system: 34K bytes
- IAS operating system: 34K bytes

The compiler under RSX-11D and IAS requires the standard operating system shared library SYSRES. Storage for SYSRES is in addition to the 34K bytes for FORTRAN IV-PLUS. The compiler can be operated with reduced performance in 32K bytes of memory. The compiler under RSX-11M requires no additional resident library. Improved compiler performance is obtained by increasing the memory requirement to 38K bytes for RSX-11D and IAS and 40K bytes for RSX-11M.

Auxiliary Storage: — FORTRAN IV-PLUS requires up to 300 contiguous disk blocks for the compiler task. An additional 150 to 250 disk blocks are required for the Object Time System library file and auxiliary support files, depending on installation options. The compiler may use up to 350 blocks of temporary disk file space in compiling large programs.

OPTIONAL HARDWARE:

Non-FPP Environments: — The FORTRAN IV-PLUS compiler does not itself use the FPP, and can thus operate on processors with the EIS instruction set.

Compiled FORTRAN IV-PLUS code requires a floating point processor for normal operation; a subset of the FORTRAN IV-PLUS language can be used on processors without an FPP. Programs which do not use real, double precision, or complex variables or constants are compiled into code which can be executed on processors with the EIS instruction set:

- 11/03, LSI-11 under RSX-11S (with KEV11)
- 11/34
- 11/35 or 11/40 with KE11-E
- 11/45
- 11/55
- 11/70

PREREQUISITE SOFTWARE:

One of the following operating systems is required:
- RSX-11M, Version 2 or later, or
- RSX-11D, Version 6B or later, or
- IAS, Version 1.1 or later

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

A — Software Support will be provided as stated in the Software Support Categories Addendum to this SPD.

UPDATE POLICY:

Software Updates, if any, released by DIGITAL during the one (1) year period following installation, will be provided to the customer for a media charge (includes no installation). After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

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D = 9-track Magnetic Tape
E = RK05 Disk Cartridge
Q = RL01 Disk Cartridge
R = Microfiche
T = RK06 Disk Cartridge
V = RK07 Disk Cartridge
Z = No hardware dependency

Standard Options
QP100 -A— Single-use license, binaries, documentation, support services (media: D, E, Q, T, V)
QP100 -C— Single-use license, binaries, documentation, no support services (media: D, E, Q, T, V)
QP100 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

Source/Listing Options
QP101 -E— All sources (media: D)
QP101 -F— Listings (media: R)

Update Options
Users of FORTRAN IV-PLUS Version 2 whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QP100 -H— Binaries, documentation (media: D, E)
QP101 -N— Sources update (media: D)

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QP100 -W— Binaries, documentation (media: D, E)

Miscellaneous Options
QP100 -G— Pre-delivery kit (media: Z)

ADDITIONAL SERVICES:

None

ADDENDUM
SOFTWARE SUPPORT CATEGORIES

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

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1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.

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CATEGORY B

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

CATEGORY C

SOFTWARE is provided on an 'as is' basis. Any software services, if available, will be provided at the then current charges.

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