

# digital

# Software Product Description

**PRODUCT NAME: FORTRAN IV/RT-11, Version 2.5**

**SPD 12.10.12**

## **DESCRIPTION:**

FORTRAN IV is an extended implementation of the FORTRAN language based on the ANSI FORTRAN, X3.9-1966 standard. It operates under the RT-11 Operating System. 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

Additionally, virtual arrays are supported on systems with memory management directives. Virtual arrays are memory-resident, and require enough main memory to contain all elements of all arrays.

The PDP-11 FORTRAN IV compiler is a fast, one-pass compiler. Compiler options allow program size (threaded code) versus execution speed (in-line code) tradeoffs. FORTRAN IV compiler optimizations include:

- Common subexpression elimination
- Local code tailoring
- Array vectoring
- Optional in-line code generation for integer and logical operations

### *Object Time System*

FORTRAN IV includes a set of object modules, called the Object Time System (OTS), that are selectively linked with compiler-produced object modules to produce an executable program.

The RT-11 system provides several special features for FORTRAN IV. FORTRAN programs may be developed under RT-11 and output in absolute binary format for execution on a stand-alone PDP-11 system with minimal peripherals, or for loading into ROM or PROM memory.

Using SYSLIB, the RT-11 FORTRAN system subroutine library, all features of the RT-11 monitor are available to FORTRAN programs. Additionally, SYSLIB provides subroutines that support extensive character string manipulations, where the characters are stored as variable-length strings in BYTE arrays.

## **MINIMUM HARDWARE REQUIRED:**

Any valid RT-11 configuration (32K bytes of memory are required for string support).

RT-11 Memory Management Unit and EIS hardware are required for virtual arrays.

## **OPTIONAL HARDWARE:**

FORTRAN IV supports all devices supported by the operating system.

FORTRAN IV generated code can be selected to support the following arithmetic hardware options:

- KE11-A Extended Arithmetic Element
- KE11-B Extended Arithmetic Element
- KE11-E Extended Instruction Set
- KE11-F Floating Instruction Set
- KEV11 Extended Arithmetic Chip

The FORTRAN IV OTS additionally supports the FP11 floating point processor.

## **PREREQUISITE SOFTWARE:**

RT-11 Operating System, Version 4.0

## **OPTIONAL SOFTWARE:**

FORTRAN/RT-11 Extensions  
PLOT 11/RT-11  
SSP-11  
FMS-11/RT-11

## **TRAINING CREDITS:**

None

## **SUPPORT CATEGORY:**

DIGITAL SUPPORTED  
FORTRAN IV/RT-11 is a DIGITAL Supported Software Product.

## **SOFTWARE INSTALLATION:**

CUSTOMER INSTALLED  
FORTRAN IV/RT-11 is a software product engineered to be installed by the customer and includes other Software Product Support services listed below.

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**SOFTWARE PRODUCT SUPPORT:**

FORTRAN IV/RT-11 includes standard warranty services as defined in the Software Support Categories Addendum of this SPD.

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The following key (D, E, G, H, Q, R, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ813-AD = binaries on 9-Track 800 BPI magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)  
 E = RK05 Disk Cartridge  
 G = TU58 DECTape II Cartridge  
 H = RL02 Disk Cartridge  
 Q = RL01 Disk Cartridge  
 R = Microfiche  
 Y = RX01 Floppy Diskette  
 Z = No hardware dependency

QJ813 -A— Single-use license, binaries, documentation, support services (media: D, E, G, H, Q, Y)

QJ813 -C— Single-use license, binaries, documentation, no support services (media: D, E, G, H, Q, Y)

QJ813 -D— Single-use license only, no binaries, no documentation, no support services (media: Z)

*Sources/Listings Options*

QJ813 -E— Sources (media: D, E, H, Q,)

QJ813 -F— Listings (media: R)

*Upgrade Options*

Customers who are currently licensed users of MSB/FORTRAN IV may obtain this new product by purchasing a license to an upgrade kit for use on the same CPU as their previous license.

QJE06 -A— Single-use license, binaries, documentation, support services (media: Y)

*Update Options*

Users of FORTRAN IV/RT-11 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 binary form on the appropriate medium and includes no installation or other services unless specifically stated.

QJ813 -H— Binaries, documentation (media: D, E, G, H, Q, Y)

QJ813 -H— Right to copy for single-use (under existing license), no binaries, no documentation (media: Z)

*Sources/Listings Update Options*

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QJ813 -N— Sources update (media: D, E, H, Q)

QJ813 -N— Sources listings (media: R)

*Miscellaneous Options*

QJ813 -G— Documentation only kit (media: Z)

**ADDITIONAL SERVICES:**

None