digital
Software Product Description

DESCRIPTION:

APL (A Programming Language) is a concise programming language suitable for dealing with numeric and character array-structured data. It is a conversational system, which allows the user to interact with the APL system and running programs. APL has operators that facilitate array calculations.

APL-SF is an APL language processor that runs under the TOPS-10 operating system on a DECsystem-10 or the TOPS-20 operating system on a DECSYSTEM-20.

APL-SF has the following features:

- The user's active workspace size is dynamically variable.
- The workspace symbol-table size is dynamically variable.
- APL-SF provides immediate-mode line editing of APL expressions.
- Statement branching may occur anywhere in a statement line.
- Multiple statements may appear in a single line.
- User-controlled tab positioning for I/O operations.
- User workspace saved on all disk and tape devices supported by the operating system.
- All floating point calculations are done in double precision format (up to 18 significant decimal points).
- The single operators Divide-quad, Execute, Quote, and Dyadic Format allow the user to:
  1. solve a set of linear equations
  2. take the inverse of a matrix
  3. solve an overdetermined set of linear equations
  4. make unlimited evaluation of a character string (commands, function definitions, statement lines)
  5. write user-defined functions to perform output formatting and function editing
- APL-SF provides user level file access to:
  1. standard ASCII sequential files
  2. internal format random-access files
  3. internal format sequential files
  4. binary random-access files
  5. immediate-mode I/O via any supported output device through the OUTPUT command
- APL-SF provides system functions that:
  1. Perform file operations, including ENQ/DEQ.

2. Allow creation of local functions.
3. Return information about names in the active workspace.
- APL-SF provides system variables, which set and return information about the workspace and system environment.

MINIMUM HARDWARE REQUIRED:

Any valid TOPS-10 or TOPS-20 system configuration which includes:

- a system total of at least 128K words of memory, of which 45K words are available as user space.
- A KI10 or KL10 central processor (TOPS-10 configurations only).
- At least 50K words of permanent file storage space.

OPTIONAL HARDWARE:

Supports any mass storage, unit record, or terminal device supported by the prerequisite software, including the LA37 APL-ASCII terminal.

PREREQUISITE SOFTWARE:

On the DECsystem-10:
TOPS-10 operating system, Version 6.02 or later with VMSER.

On the DECSYSTEM-20:
TOPS-20 operating system, Version 1B or later.

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

B — 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 without additional charge (includes no installation). After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, 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 the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources Agreement between Purchaser and DIGITAL.

The following key (F, M, P) represents the distribution media for the product and must be specified at the end of the order number, e.g., QH071-AF = binaries on 7-track magnetic tape.

F   = 7-track Magnetic Tape
M   = 1600 bpi 9-track Magnetic Tape
P   = 800 bpi 9-track Magnetic Tape

Standard Options

For DECsystem-10:
QH071 -A— Single-use license, binaries, documentation, support services (media: F, M, P)
QH071 -U— Armed services procurement regulation license, binaries, documentation, support services (media: F, M, P)

For DECSYSTEM-20:
QT012 -A— Single-use license, binaries, documentation, support services (media: M)
QT012 -U— Armed services procurement regulation license, binaries, documentation, support services (media: M)

Upgrade Options

The following option is available as an upgrade kit from APL-B, APL-BASIC, APL-E, or APL-F for use on the same single CPU on which APL-B, APL-BASIC, APL-E, or APL-F is licensed. The license previously granted for APL-B, APL-BASIC, APL-E, or APL-F shall be extended to cover this upgrade.

For DECsystem-10: (from APL-B or APL-BASIC)
QH074 -A— Single-use license, binaries, documentation, support services (media: F, M, P)

For DECSYSTEM-20: (from APL-BASIC)
QT025 -A— Single-use license, binaries, documentation, support services (media: M)
QT025 -U— Armed services procurement regulation license, binaries, documentation, support services (media: M)

For DECsystem-10: (from APL-E or APL-F)
QH076 -A— Single-use license, binaries, documentation, support services (media: F, M, P))

ADDITIONAL SERVICES:

For DECsystem-10:
QH071 -3— Maintenance Service (media: F, M, P)
QH071 -Z— Armed services procurement regulation maintenance service (media: F, M, P)

For DECSYSTEM-20:
QT012 -3— Maintenance Service (media: F, M, P)
QT012 -Z— Armed services procurement regulation maintenance service (media: F, M, P)

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.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

CATEGORY A

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.

2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.

3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

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.

DIGITAL shall have the right to make additional charges for any additional effort required to provide services resulting from customer use of other than current unaltered release of the SOFTWARE operated in accordance with the SPD.