digital

Software Product Description

PRODUCT NAME: RT-11 (CTS-300)/LSI-11 2780, Version 2　　　　SPD 10.62.0

SECTION A: RT-11 (CTS-300)/LSI-11 2780 SPECIFIC INFORMATION

DESCRIPTION:

RT-11 (CTS-300)/LSI-11 2780 provides emulation of an IBM 2780 remote batch terminal. It runs under the RT-11 Foreground/Background monitor on a suitably equipped RT-11 (version 2C or later) or CTS-300/DIS (version 1 or later) system. General characteristics of DIGITAL's PDP-11 based 2780 products are given in Section B of this Software Product Description.

Any disk device supported by RT-11 or CTS-300 for the LSI-11 can be used as a source of transmission files. Any disk or line printer supported by RT-11 or CTS-300 for the LSI-11 can be used to receive files.

The LA180 can be used only in "off-line" mode to print files temporarily stored on disk.

RT-11 (CTS-300)/LSI-11 2780 will run at modem speeds up to 2400 bits per second, in either Foreground or Background. No other tasks may run concurrently with the 2780 emulator.

MINIMUM HARDWARE REQUIRED:

Any valid LSI-11 based RT-11 or CTS-300 Foreground/Background system configuration which includes:

● at least 16K words (32K bytes) of memory for 2780 operation in the background
● at least 24K words (48K bytes) of memory for 2780 operation in the foreground
● a disk device
● DUV11 Synchrounous Line Interface
● REV11-A or -B bootstrap with memory refresh terminator
● Terminal (LA32, VT52)
　　　　　　　　OR
Any one of the following DEC Datasystem configurations (with DUV11):
● DS322 RX11 Floppy-based system
● DS324 RK11 DECpack-based system

OPTIONAL HARDWARE:

LP11 (CTS-300 systems only) or LA180 line printer

PREREQUISITE SOFTWARE:

RT-11 operating system, Version 2C or later
　　　　　　　　OR
CTS-300/DIS System Software, Version 1 or later

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

A – For initial installation, Software Support will be provided as listed in the Software Support Categories Addendum to this SPD. Subsequent licenses can be purchased with Category C support. Sources have Category C support.

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. After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

ORDERING INFORMATION:

This software is furnished under a license for use on a single CPU and can be copied and modified (with inclusion of DIGITAL's copyright notice) only for use on such CPU, except as may otherwise be provided in writing by DIGITAL.

Standard options with no support services are only available after the purchase of one supported license. When a software license is ordered without support services, the category of support applicable to such software is Category C.

Source and/or listing options are only available after the purchase of at least one binary license and after a source license agreement is in effect.

The following key (E, R, Y, Z) represents the distribution media for the product and must be specified at the end of the "Q" number, i.e., QJD58-AE = binaries on RK05 Disk.

E = RK05 Disk
R = Microfiche
Y = Floppy Disk
Z = No hardware dependency
Standard Options
QJD58　-A— Single-use license, binaries, documentation, support services (RT-11 not included) (media: E, Y)

QJD58 -C— Single-use license, binaries, documen-
tation, no support services (media: E,
Y)

QJD58 -D— Single-use license only (media: Z)

Source/Listing Options

QJD58 -E— All sources (RT-11 not included)
(media: E, Y)

QJD58 -F— Listings (RT-11 not included) (media: R)

ADDITIONAL SERVICES:

None

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SECTION B: 2780 Emulator GENERAL DESCRIPTION

2780 Emulator is the collective name for the set of software products that allows various DIGITAL operating systems to emulate the operation of an IBM 2780 Model 1 or 2 Data Transmission Terminal with the multiple record option. Emulation of the 2780 permits communication between such DIGITAL systems and (1) the following IBM Remote Job Entry programs supporting the device: OS/HASP, OS/ASP, DOS-POWER and OS/RJE, or (2) a second DIGITAL supplied 2780 Emulator.

The following DIGITAL operating systems support the Emulator for the 2780 Model 2: RSTS/E (CTS-500), RSX-11D, RSX-11M, RT-11 and DECsystem-10[1]. In addition, a COS-310 based emulator and a LSI-11 based RT-11 (CTS-300) 2780 are available (Model 1 2780 only). Section A gives the distinguishing features of the particular 2780 Emulator described by this SPD. The remainder of this section describes items common to all PDP-11 2780 emulators.

OPERATION:

After the system operator starts the 2780 Emulator, it solicits and responds to console command input.

Transmission: All 2780 Emulators can transmit data from card readers, if they are present in the system, and transmit data files from disk storage devices. The RSTS/E 2780 Emulator has the added capability of spooling or queueing transmission requests from timesharing users.

All 2780 Emulators transmit EBCDIC and binary data. Since the host systems use the ASCII character set, however, they accept ASCII characters for transmission and then perform automatic character conversion. No conversion is performed on binary data.

The physical units of data that are transmitted are called blocks. Blocks are divided into logical units called records. Maximum block size is 400 characters; maximum record size when transmitting to IBM operating systems is 80 characters, and when communicating with other 2780's or 2780 Emulators, the record size is variable up to 132 characters. Records that are less than maximum allowable are either extended to the maximum by blank filling, or transmitted as is, at the user's option. Up to seven (7) records can be transmitted per block.

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[1]Limited to 2780 mode only for PDP-11 communication.

Reception: All 2780 Emulators can print received character data on a line printer, if one is present in the system. In most cases, the software simulates limited-function vertical format control (VFC) by providing Top of Form (Skip to Channel 1), Print-and-Space-1, -2, or -3 line(s) functions, and skip to channels 2 through 8, all of which cause modulo 8 line space operation--i.e., skip to the next line which is an even multiple of 8 from Top-of-Form. Both 64- and 96-character line printers are supported. However, support of line printers which are too slow to keep up with the speed of the communications link (i.e., LS11 and LV11) is limited to "off-line" or DIGITAL-to-DIGITAL usage, because their speed can cause time-out errors in an IBM system.

All Emulators write files onto disk storage devices. In such cases, a separate file is created for each received file.

All 2780 Emulators receive EBCDIC or binary data. They can automatically convert EBCDIC data to ASCII upon reception, or EBCDIC data can be written to a file by the use of the binary mode.

Maximum receive block size is four hundred (400) characters. The maximum receive record size is a two-character escape code, plus one hundred thirty-two (132) data characters. Up to seven (7) records can be received per block.

All Emulators provide automatic answer to dial-in rings.

Modems and Data Links: All 2780 Emulators support operation over synchronous data links, in Point-to-Point Contention mode only, at speeds up to 4800 bits per second (except the LSI-11 based RT-11 2780, which runs up to 2400 bits per second). Bell 201 or 208 modems or equivalent are specified. Operation with other modems is not precluded, but warranted support does not apply in these cases.

Data link control characters are supplied automatically by the Emulators. On transmission errors, the Emulators will re-try up to seven (7) times before declaring the link dead.

Configuring PDP-11 2780 Emulator Systems: Configuration requirements for each Emulator are defined in Section A. Briefly, the PDP-11 2780 Emulators require the following hardware beyond the standard operating system configurations:

- DP11, DU11 DUP11, or DUV11 Synchronous Line Interface
- KG11-A Communications Arithmetic Element (except the LSI-11 based RT-11 2780)
- KW11-L or KW11-P clock (except the LSI-11 based RT-11 2780)
- 8K words of additional memory beyond the minimum may be required (refer to Section A)

TRAINING CREDITS:

No training credits are included in the 2780 Emulator Software License charges. Training courses are not required in order to operate the product.

SUPPORT CATEGORY:

The initial binary package carries Category A support. Sources have Category C support.

Installation will be deemed complete in the case of connection with IBM when:

- The customer's 360/370 configuration includes a 2701 Data Adapter, a 2703 Transmission Control Unit, a 3704 or 3705 Transmission Controller, or a System/370 Model 135 Integrated Communications Adapter.
- A DIGITAL sample procedure included with the software has been successfully executed.

Installation in DIGITAL-to-DIGITAL operation will be deemed complete when DIGITAL supplied files can be successfully transmitted in both directions.

CUSTOMER RESPONSIBILITIES:

BEFORE installation of the SOFTWARE, the customer must:

1. Obtain, install, and demonstrate operational to DIGITAL's satisfaction any modems and other equipment and facilities necessary to interface to DIGITAL's communications line interfaces and terminals.
2. Install or have installed all hardware, including terminals, to be used on the system.
3. Generate for terminal support any and all IBM systems that will be communicating with the Emulator, to DIGITAL's satisfaction.
4. Make available to DIGITAL personnel all hardware, including communications facilities and terminals, to be used during installation and acceptance testing for a reasonable period of time each day as mutually agreed upon by DIGITAL and customer, until acceptance criteria are satisfied.
5. Provide access privileges and machine time on any and all IBM systems on which the installation is to be performed.
6. When communicating with IBM, make available to DIGITAL personnel an IBM 360/370 job stream with data, to run via the 2780 Emulator on-line to a 360/370 in accordance with the configuration specifications outlined above.

Delays caused by any failure to meet these responsibilites will be charged at the then prevailing rate for time and materials.