Software Product Description

PRODUCT NAME: **VAX 3271 Protocol Emulator, Version 2.5** **SPD 25.21.13**

DESCRIPTION

The VAX 3271 Protocol Emulator (PE) enables Digital Equipment Corporation's VT1XX, VT2XX and VT3XX terminals connected to and application programs running on a VMS system to interact with IBM ® system application programs and system services that utilize the Binary Synchronous Communications (BSC) line discipline. Terminal users access the 3270 Terminal Emulator utility which is part of the VAX 3271 Protocol Emulator; application programmers use the application program interface provided with the VAX 3271 PE product.

The VAX 3270 Terminal Emulator utility allows the VT1XX, VT2XX and VT3XX user on a VMS system to access an IBM system. This feature is useful for users who are implementing distributed processing with VMS systems. Users who are moving applications from centralized mainframes to VMS distributed processors will find this capability an efficient migration tool during the transition phase; users who occasionally access applications that remain on mainframes can access those applications through their local VMS systems.

The application program interface provides a base for distributed applications where one component of the application runs in an IBM host system and the other component in a VMS system. This type of application is useful in situations such as on-line access and update of a mainframe database in response to an event in the VAX, or where it is inappropriate to present a 3270 type formatted screen to a user who is accustomed to VMS style screens.

Terminal Emulation

The 3270 Terminal Emulator (TE) utility causes a screen display transmitted from the IBM system to be displayed on the Digital terminal screen in a manner similar to the format on a 3270 display, and maps the VT1XX, VT2XX and VT3XX keyboard to simulate the IBM 3270 IDS keyboard. The TE facility is also supported for the VMS user of other Digital products running in VT1XX and VT2XX emulation mode. Emulation of screen sizes larger than the 24 lines by 132 columns is restricted to the Digital terminal able to display only a segment of the larger emulated screen. This screen segment can be "moved" to cover any part of the emulated screen.

Easily modified translation tables convert ASCII terminal input to a subset of IBM multinational EBCDIC code. Users can also change the default keyboard mappings of the Digital terminal.

A HELP facility is available that provides information on keys with altered 3270-oriented functions and other functions such as the display of status information.

The status line of a 3270 Display Station is not supported, however much of the same information is reported on a special status line which may be overlaid on the VT1XX, VT2XX and VT3XX's 24th line. Most existing IBM host application programs will operate without modification. Those host programs that use 3270 features not included in this product (for example, 480 character screens) must be modified.

The 3270 Terminal Emulator utility supports the following features of the IBM 3278 Models 2, 3, 4 and 5 Display Station:

- 87 key-keyboard with 24 program function (PF) keys and three program assist (PA) keys
- Numeric lock
- Audible alarm
- Protected and unprotected fields
- Alphanumeric or numeric data
- Intensified display, display, or non-display characters
- Auto-repeat keys (as available on a VT1XX, VT2XX and VT3XX keyboard)
- Click and ALT CURSR (as available through the VT1XX, VT2XX and VT3XX SET-UP feature)
- 3278 Display Station numeric lock override

Note: Intensified and reverse video features require the Advanced Video Option when using a VT100 terminal.

® IBM is a registered trademark of IBM Corporation

digital software

The following are among the features of the conventional IBM 3270 product that are not supported for the 3270 TE:

- Selector pen, security lock, magnetic strip card reader and operator identification card reader
- !-> (tab) and <-! (new line) as auto-repeat keys
- <!<! (fast left) and !>!> (fast right) keys
- DEV CNCL, CURSR BLINK and CURSR SEL key functions
- Structured fields
- Programmed fields
- 960-character screens
- 3279 Display Station color support

Refer to product documentation for a complete list of supported and unsupported features.

Application Program Support

The VAX 3271 PE's applications program interface makes on-line access to a mainframe database possible. Applications on the IBM host system can be coded using procedures normally used to support 3270 terminals; the VMS application communicates with the IBM application by issuing calls to this package that are consistent with other VMS input/output services. VAX 3271 PE manages the modems and line protocols, and provides an easy-to-use interface so that the application programmer need not be knowledgeable about communications.

Up to 32 separate logical connections can be made simultaneously on a single communications line. The connections can be from the same program or several programs on either the VMS system or the IBM host system.

Command Sequence

The emulator executes the WRITE, GENERAL POLL, and SPECIFIC POLL command sequences. The VAX 3271 PE does support explicit READ MODIFIED and READ BUFFER commands but may process them in a different manner than an IBM system. SENSE and COPY commands are not supported.

Network Management

The VAX 3271 Protocol Emulator allows the system manager to control and monitor the activity of the PE. The generation procedure can be verified with the Installation Certification Procedure supplied with the product. Utilities are provided which load the PE software and start and shut down the PE controlled lines. The system manager can test communications components using the loopback test program as an aid in determining failed components. This feature which provides counts of the occurrence of specific types of data transmissions and transmission failures, error logging, and statistical routines, can be used to assist in tuning the system.

Line Discipline

The communications discipline used by the VAX 3271 Protocol Emulator is the 3271 subset of IBM's Binary Synchronous Communications (BSC) protocol using EBCDIC code. Specifically, this subset of BSC supports operation of full- and half-duplex leased lines in either point-to-point or multi-point configurations, at transmission speeds up to 9600 bits per second. Operation at line speeds higher than 9600 bits per second is not supported, except as noted in the System Support Addendum (SSA 25.21.13-x). The VAX 3271 Protocol Emulator does not support switched facilities or contention line control. The VAX 3271 Protocol Emulator supports transparent BSC capability and can share a multi-point line with control units functioning in transparent or non-transparent mode.

Note: When this software is used on a MicroVAX I system, the maximum supported transmission speed is 4,800 bits per second.

INSTALLATION

Only experienced customers should attempt installation of this product. Digital recommends that all other customers purchase Digital's Installation Services. These services provide for installation of the software product by an experienced Digital Software Specialist.

Customer Responsibilities

Before installation of the software, the customer must:

- Have previously installed all requisite hardware including terminals
- Obtain, install and demonstrate as operational any modems and other equipment and facilities necessary to interface to Digital communication equipment
- Demonstrate equivalency of operation for modems other than Bell System 201C, 208A or 209A type modems, or outside the USA, PTT approved modems
- Have generated any necessary IBM host software that will be communicating with the VAX 3271 Protocol Emulator to Digital's satisfaction
- Make available for a reasonable period of time, as mutually agreed by Digital and the customer, all hardware, communication facilities, and terminals that are to be used during installation

To use the VAX 3271 Protocol Emulator Application Program Interface effectively, the customer must be prepared to work at the system programming level as well as the more traditional applications program level in both Digital and IBM systems.

Successful use of this product requires that:

- The customer design the application with full knowledge of what has to be done at the system programming level on the host IBM system to accomplish the desired function
- The customer should be capable of generating both the IBM and Digital systems to achieve the desired CPU-to-CPU logical communications links

Delays caused by any failure to meet these responsibilities will be charged at Digital's then prevailing rate for time and materials.

Digital installation will be considered complete when the following have been successfully performed at the customer site by a qualified Digital Software Specialist:

- Verification of the contents of the VAX 3271 Protocol Emulator Software kit
- Generation of the VAX 3271 Protocol Emulator for use on the customer's system
- Verification that Digital supplied devices function with the VAX 3271 Protocol Emulator

In addition, if the customer has complied to Digital's satisfaction with all items under the *Customer Responsibilities* section of this document, Digital will demonstrate the Digital-IBM link.

This test will consist of the following:

- Bringing up the Digital system
- Establishing the Digital-IBM link
- Verifying that the Digital system is polled or selected by the IBM host
- Transferring user-supplied data streams to and from the IBM host using the VAX 3271 PE control program (INS3271)
- Logging into at least one IBM application using one of the customer's VTXXX terminals

It is the responsibility of the customer to ascertain that the host IBM system is functioning properly. Digital will perform the demonstration only if the necessary data streams are supplied by the customer, and if in Digital's view, the host IBM system is in good working order. The 3270 data stream is described in the *IBM 3270 Information Display Systems: 3271 Control Unit, 3272 Control Unit, 3275 Display Station Description and Programmer's Guide* (IBM order No. GA23-0060) and in the *VAX 3271 Protocol Emulator Management and Programming Guide*.

PREREQUISITE SUPPORT PLAN

A Network Profile must be prepared jointly by Digital and the customer. This plan includes descriptions of the Digital and IBM systems, the physical communications link(s), the application, the expected traffic, and the anticipated level of support required.

HARDWARE REQUIREMENTS

VAX, MicroVAX or VAXstation configuration as specified in the System Support Addendum (SSA 25.21.13-x).

SOFTWARE REQUIREMENTS*

VMS Operating System

VAX Wide Area Network Device Drivers

* Refer to the System Support Addendum (SSA 25.21.13-x) for availability and required versions of prerequisite software.

ORDERING INFORMATION

Software Licenses: QL-112A*-**

Software Media: QA-112A*-**

Software Documentation: QA-112AA-GZ

Software Product Services: QT-112A*-**

* Denotes variant fields. For additional information on available licenses, services and media, refer to the appropriate price book.

SOFTWARE LICENSING

This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and Conditions. For more information about Digital's licensing terms and policies, contact your local Digital office.

LICENSE MANAGEMENT FACILITY SUPPORT

This layered product supports the VMS License Management Facility.

License units for this product are allocated on a CPU-capacity basis.

For more information on the License Management Facility, refer to the VMS Operating System Software Product Description (SPD 25.01.xx) or the VMS Operating System documentation set.

SOFTWARE PRODUCT SERVICES

A variety of service options are available from Digital. For more information on these or other services, please contact your local Digital office.

SOFTWARE WARRANTY

Warranty for this software product is provided by Digital with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

WARRANTY LIMITATIONS

This software has been tested and is warranted against IBM system/370 (includes 30XX and 43XX series) class processor systems with the following IBM software. While this software may function correctly with other IBM software and equipment and with software other than that supported by IBM, Digital cannot offer its standard warranty for this software unless it has been tested with such equipment and software configurations.

Although Digital has designed this software product according to the specifications for the IBM 3271 Control Unit Model 2 and the IBM 3277 Display Station Model 2, as indicated in *IBM 3270 Information Display Systems: 3271 Control Unit, 3272 Control Unit, 3275 Display Station Description and Programmer's Guide* (IBM order No. GA23-0060), supported features are limited to those specified in this Software Product Description.

The following list shows the configurations with which the software has been tested and is warranted:

Digital Tested/Warranted Configurations

IBM Host Based System Software	Version	Release
For MVS Systems:		
MVS/XA SP	2	2.0
ISPF/PDF	2	3.0
TSO/E/XA	1	4.0
ACF/VTAM	3	2.0
NETVIEW	1	2.0
CICS	1	7.0
IMS	2	2.0
For VM Systems:		
VM/SP	1	5.0
ISPF/PDF	2	2.0
ACF/VTAM	3	2.0
NETVIEW	1	1.0
For DOS/VSE Systems:		
VSE SP	2	1.6
CICS/DOS/VS	1	6.0
VSE/ICCF	2	1.0
ACF/VTAM	3	1.0
NCCF	2	2.0
ACF/SSP	3	2.0
ISPF/PD	1	1.0

® The DIGITAL Logo is a registered trademark of Digital Equipment Corporation.

™ VAX, MicroVAX, VAXstation, VMS and VT are trademarks of Digital Equipment Corporation