Software Product Description

DESCRIPTION

The KMS11 X.25 LAPB Link Level Software is a software/firmware package consisting of:

- Basic X.25 LAPB link level firmware for the KMS11-BD/BE or KMS1P-M

- Firmware loader to load the firmware into the KMS11 hardware

- RSX-11 (RSX-11M, RSX-11M-PLUS, or RSX-11S) device driver for a KMS11-BD/BE or a KMS1P-M communication controller

- Demonstration program

The driver, in conjunction with the X.25 LAPB link level firmware, allows the RSX-11 user to perform high speed synchronous X.25 link level communication in a point-to-point environment.

The driver provides the interface which allows for transfer of command, control, and data information to/from:

- RSX-11 user task

- KMS11-BD/BE or KMS1P-M X.25 LAPB link level firmware

- Remote end of communications line

The KMS11 driver is full-duplex and maintains internal queues, enabling the supplied firmware to control eight receive and eight transmit buffers per line concurrently.

If the user's application runs on a system with 22 bit mapping enabled, a separate partition should contain all buffers. This can be either a common area or a partition in which the task(s) will be installed.

The KMS11-BD/BE and KMS1P-M X.25 LAPB firmware was designed in accordance to the CCITT X.25 LAPB recommendation of November 1980.

Driver Features

- Full-duplex operation on each line

- Loading of the X.25 LAPB link level firmware into the KMS RAM at driver load time or after power failure

- Line initialization (Modem control and link set up) upon user application software request

- User QIO application interface for full-duplex message oriented data transmission and reception.

- Link disconnection and line de-initialization upon user software request or upon detection of non recoverable transmission errors

- Modem lead change control for Carrier Detect, Clear to Send, and Data Set Ready

- Maintenance of error counters and transmission statistics that are available to the user application software

Firmware/Hardware Features

- Basic X.25 LAPB link level framing executed in the KMS and complying with the CCITT 1980 recommendation for X.25 LAPB link level protocol.

- X.25 LAPB framing with an integral number of 8-bit bytes.

- Selection of line initialization of the following X.25 parameters:

  - K: Number of outstanding information frames ($1 <= K <= 7$).

  - N1: Maximum number of bytes in an information frame (unit = 1 byte, $1 <= N1 <= 16K$ bytes).

- N2: Maximum number of retransmissions for an information frame before the link is reset and an error status is returned to the driver (1 <= N2 <= 255).

- T1: Delay time at the end of which retransmission of a frame is initiated (unit = 100 ms, 1 <= T1 <= 254).

- ADDRESS CHARACTER for transmission of command/response from DCE/DTE. Following the CCITT recommendation, the default is:

  3 for transmission of command from DCE to DTE

  3 for transmission of response from DTE to DCE

  1 for transmission of command from DTE to DCE

  1 for transmission of response from DCE to DTE

• Full Modem control for leased lines (no Ring Indicator)

• Direct Memory Access (DMA) for message data transfers to and from the PDP-11 Host

• Line speed up to 56K bps (KMS11-BD/BE) or up to 64K bps (KMS1P-M)

Configuration

The driver can interface to:

• One KMS11-BD/BE supporting up to eight full-duplex lines at 19.2K bps; or

• One KMS11-BD/BE supporting up to four full-duplex lines at 56K bps; or

• One KMS1P-M full-duplex line at 64K bps

HARDWARE REQUIREMENTS

Any valid RSX-11M, RSX-11M-PLUS, or RSX-11S PDP-11/24, PDP-11/34, PDP-11/44, PDP-11/70, or PDP-11/84 system configuration with:

• Minimum of 4K words additional memory for the driver and 4K words additional memory for the firmware loader

• Additional 4K words of memory required for the firmware image when using the RSX-11S Operating System

• A device capable of reading one of the distribution media for the product

• KMS11-BD/BE (8 line multiplexer) or KMS1P-M (single line controller)

• Any valid equipment to deliver the clock required for synchronous data communication (Modem or Modem Eliminator)

The user must provide enough memory space for the RSX-11 driver and the KMS11 configuration, according to the following formula:

Memory size = a* b * c * d

Where:

a = total number of lines handled by the driver

b = number of outstanding buffers per line

c = user's basic buffer size

d = working mode (1 for half-duplex, 2 for full-duplex)

This memory space cannot exceed 64K words

OPTIONAL HARDWARE

None

SOFTWARE REQUIREMENTS

RSX-11M, RSX-11M-PLUS* or RSX-11S (at at minimum of Version 4.1) Operating System.

Refer to the RSX-11M and RSX-11M-PLUS Optional Software Cross Reference Tables (SPD 20.98.xx and SPD 20.99.xx) for the required versions.

OPTIONAL SOFTWARE

None

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different than the requirements for the current version.

DISTRIBUTION MEDIA

Tape: 9-track 800 BPI Magtape, 9-track 1600 BPI Magtape

The following key (D, M, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ757-XD = sources on 9-track 800 BPI Magtape (NRZI).

D = 9-track 800 BPI Magtape (NRZI)

M = 9-track 1600 bpi Magtape (PE)

Z = No hardware dependency

ORDERING INFORMATION

For RSX-11M and RSX-11S Systems

QJ757-X- Single-use source license, sources, documentation, warranty (media: D, M)

QJ757-D- Single-use license-only option, no sources, no documentation, no warranty

QJ757-G- Documentation-only kit

For RSX-11M-PLUS Systems

QJ770-X- Single-use source license, sources, documen-
tation, warranty (media: D, M)

QJ770-D- Single-use license-only option, no sources, no
documentation, no warranty

QJ770-G- Documentation-only kit

SOFTWARE LICENSING

This software is furnished under the licensing provisions
of Digital Equipment Corporation's Standard Terms and

Conditions. For more information contact your local
Digital office.

ADDITIONAL SERVICES

None

SOFTWARE WARRANTY

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

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