

# Software Product Description

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PRODUCT NAME: **KMV1A VMS RMJ Link Level Software,  
Version 1.0**

**SPD 30.88.00**

## DESCRIPTION

The KMV1A VMS RMJ Link Level Software product consists of KMV1A microcode which allows the KMV1A Controller to process the data link level of the RMJ communications protocol. This KMV1A firmware operates with the KMV1A MicroVAX Driver, Version 2.x product (SPD 28.23.xx). This driver must be installed before the KMV1A VMS RMJ Link Level Software can be operated. These major components are described below.

### *RMJ Link Level Software*

The RMJ Link Level Software product provides an RMJ communications capability to the KMV1A Programmable Communications Controller. The RMJ Link Level Software is microcode which is downline loaded into the memory of the KMV1A Controller. The microcode is executed by the KMV1A Controller's microprocessor to control and process data transmission between the driver and the KMV1A Controller's communication line.

The RMJ link level protocol operated by the microcode performs processing of the data link level of the RMJ protocol in conformance with the 1986, RMJ Securities Corp., Specification For The Digital Switching Service. The functions provided through the link level processing include data framing, frame header recognition, error checking, and transmission of acknowledgments for correctly received frames, and transmission on negative acknowledgments for incorrectly received frames.

The KMV1A VMS RMJ Link Level Software product includes only the RMJ KMV1A microcode. The KMV1A MicroVAX Driver, Version 2.x product, is required to operate this RMJ protocol product. A customer application program, the KMV1A MicroVAX Driver, and the KMV1A

VMS RMJ Link Level Software form a complete communications application.

### *Driver*

The KMV1A MicroVAX Driver provides a mechanism for communication between a MicroVAX host and the KMV1A Programmable Communications Controller. The driver controls this communication by providing an interface between MicroVAX application programs and microcode being executed in the KMV1A Controller's microprocessor. The communication includes data transfer; and the transfer of command, control, and status information to and from the KMV1A Controller. The driver also provides the mechanism to load microcode from the MicroVAX host into the KMV1A Controller, and to initialize the microcode.

## Features

### *RMJ Link Level Software Microcode*

The microcode included in the RMJ Link Level Software product is downline loaded into the memory of the KMV1A Controller by the driver. When executed by the controller's microprocessor, the microcode provides three major functions: communication with the MicroVAX host via the driver, execution the data link level of the RMJ protocol, and communication with the KMV1A Controller's serial communication line.

The microcode provides an interface to the driver to control communication between the KMV1A Controller and the MicroVAX host. This interface permits the exchange of control and status information between the host and controller. The microcode and driver also control DMA data transfers between controller memory and host memory.

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The KMV1A microcode provides an interface to the KMV1A Controller's communication line.

The following line control features are provided:

- Selection of internal clock with one of the following line speeds:
  - 1.2 thousand bits per second (Kbps)
  - 2.4 Kbps
  - 4.8 Kbps
  - 9.6 Kbps
  - 19.2 Kbps
- Option to select full duplex modem control signal activation
- Selection of external loopback for testing and diagnostic purposes

#### *Driver*

The KMV1A MicroVAX Driver provides the following features:

- Loading of microcode into the KMV1A Controller
- Initialization of KMV1A microcode
- Capability to upline dump the memory contents of the KMV1A Controller RAM to host memory
- QIO based interface for communication between the MicroVAX host and KMV1A Controller
- Memory mapped control of host area for DMA data transfer to and from the KMV1A Controller
- Host error logging of detected KMV1A errors

#### *Performance*

The KMV1A MicroVAX Driver and RMJ Link Level Software product driver supports one KMV1A Controller per MicroVAX II/MicroVAX host. A KMV1A Controller supports one communication line.

The KMV1A VMS RMJ Link Level Software product performs half-duplex data transmission at a maximum of 19.2 Kbps. Achievement of this performance is subject to constraints applied by the total system loading of the MicroVAX II/MicroVAX host.

## **HARDWARE REQUIREMENTS**

MicroVAX or VAXstation configuration as specified in the System Support Addendum (SSA 30.88.00-x).

## **SOFTWARE REQUIREMENTS \***

VMS Operating System

KMV1A MicroVAX Driver

\* Refer to the System Support Addendum for availability and required versions of prerequisite software (SSA 30.88.00-x).

## **ORDERING INFORMATION**

Software Licenses: QL-VW9A\*-\*\*

Software Media: QA-VW9A\*-\*\*

Software Documentation: QA-VW9AA-GZ

\* Denotes variant fields. For additional information on available licenses, services and media, contact your local DIGITAL office.

## **SOFTWARE LICENSING**

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

## **LICENSE MANAGEMENT FACILITY**

This 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 the VMS Operating System Software Product Description (SPD 25.01.xx) or the VMS Operating System documentation set.

For more information on DIGITAL's licensing policies, 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.

# System Support Addendum

PRODUCT NAME: **KMV1A VMS RMJ Link Level Software,  
Version 1.0**

**SSA 30.88.00-A**

## HARDWARE REQUIREMENTS

### Processors Supported

MicroVAX: MicroVAX II, MicroVAX 3300/3400,  
MicroVAX 3500/3600

VAXstation: VAXstation II

### Processors Not Supported

MicroVAX: MicroVAX I, MicroVAX 2000, MicroVAX  
3100, MicroVAX 3800/3900

VAXstation: VAXstation I, VAXstation 2000, VAXstation  
3100, VAXstation 3200, VAXstation 3500  
VAXstation 8000

VAXserver: VAXserver 3300/3400, VAXserver 3500/  
3600/3602 VAXserver 6210, VAXserver  
6220 VAXserver 6310, VAXserver 6320

### Processor Restrictions

None

### Other Hardware Required

The following information applies to MicroVAX II configurations. One KMV communications module is required:

- KMV1A-M KMV1A-M Module

Also, one of the following cabinet kits must be ordered:

- CK-KMV1A-AA RS-232 for BA123 cabinet
- CK-KMV1A-AB RS-232 for BA23 cabinet
- CK-KMV1A-AF RS-232 for H9642 cabinet
- CK-KMV1A-EA RS-422 for BA123 cabinet
- CK-KMV1A-EB RS-422 for BA23 cabinet
- CK-KMV1A-EF RS-422 for H9642 cabinet
- CK-KMV1A-FA RS-423 for BA123 cabinet
- CK-KMV1A-FB RS-423 for BA23 cabinet
- CK-KMV1A-FF RS-423 for H9642 cabinet

The information below applies to MicroVAX 3300/3400/3500/3600 configurations. One of the following KMV modules is required, but no cabinet kit is needed.

- KMV1A-SA RS-232 KMV module for BA213, factory integrated
- KMV1A-SB RS-422 KMV module for BA213, factory integrated
- KMV1A-SC RS-423 KMV module for BA213, factory integrated
- KMV1A-SF RS-232 KMV module for BA213, field installed
- KMV1A-SG RS-422 KMV module for BA213, field installed
- KMV1A-SH RS-423 KMV module for BA213, field installed

Up to seven additional KMV1A Programmable Communications Controllers may be added to the host system to form a maximum of one KMV1A hardware unit per system.

### Block Space Requirements (Block Cluster Size = 1):

Disk space required for installation: 500 blocks  
(256K bytes)

Disk space required for use (permanent): 150 blocks  
(64K bytes)

These counts refer to the disk space required on the system disk. The sizes are approximate; actual sizes may vary depending on the user's system environment, configuration and software options selected.

### OPTIONAL HARDWARE

None

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**VAXCLUSTER ENVIRONMENT**

This layered product is fully supported when installed on any valid and licensed VAXcluster \* configuration without restrictions. The HARDWARE REQUIREMENTS sections of this product's Software Product Description and System Support Addendum detail any special hardware required by this product.

\* V5.x VAXcluster configurations are fully described in the VAXcluster Software Product Description (29.78.xx) and include CI, Ethernet, and Mixed Interconnect configurations.

**SOFTWARE REQUIREMENTS**

*Operating System*

VMS Operating System V5.0 - V5.2

*Layered Products*

KMV1A MicroVAX Driver V2.0 - V2.1

*VMS Tailoring*

For VMS V5.x systems, the following VMS classes are required for full functionality of this layered product:

- VMS Required Saveset
- Programming Support
- System Programming Support

For more information on VMS classes and tailoring, refer

to the VMS Operating System Software Product Description (SPD 25.01.xx).

**OPTIONAL SOFTWARE**

None

**GROWTH CONSIDERATIONS**

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

**DISTRIBUTION MEDIA**

Tape: TK50 Streaming Tape

**ORDERING INFORMATION**

Software Licenses: QL-VW9A\*-\*\*

Software Media: QA-VW9A\*-\*\*

Software Documentation: QA-VW9AA-GZ

\* Denotes variant fields. For additional information on available licenses, services and media, contact your local DIGITAL office.

The above information is valid at time of release. Please contact your local DIGITAL office for the most up-to-date information.