

# Software Product Description

PRODUCT NAME: DRB32 OpenVMS Drivers, Version 5.0

SPD 27.69.04

## DESCRIPTION

DRB32 OpenVMS Drivers, Version 5.0 supports the DRB32 options (DRB32-M, DRB32-E, and DRB32-W) under the OpenVMS VAX operating system.

The DRB32-M is a general purpose parallel port that provides a 32-bit, high-speed interface between the VAXBI and a user's peripheral. In DMA mode, the DRB32-M can transfer up to 960K bytes of data without processor intervention. The DRB32-M also supports programmed I/O data transfers between a VAX processor and an external device.

The DRB32-E, an external cable driving option, allows for communications with a device outside the system cabinet.

The DRB32-W, a DR11-W compatible option, provides DR11-W-like transactions, so that existing DR11-W applications may utilize the higher bandwidth provided by the VAXBI.

DRB32 OpenVMS Drivers, Version 5.0 provides device drivers and other programs that support the DRB32 under OpenVMS VAX V6.0 on VAXBI systems. Included in the kit are:

- Two working example device drivers: one for the DRB32-M/DRB32-E, and one for the DRB32-W
- Example programs that demonstrate the use of the drivers and provide test and installation verification procedures
- Sources to all the above, and command procedures to compile or assemble, and link them, along with command procedures that load the device drivers

### *DRB32-M/DRB32-E Driver Features*

- Simple interface for user programs, via the \$QIO OpenVMS system service. This service can be called from any OpenVMS-supported programming language.
- Allows users to pre-lock buffers in memory, reducing driver overhead when processing user requests.

- Allows users to transfer very large amounts of data, much larger than the DRB32's 982K bytes, by making use of the DRB32's double-buffering capability in longword mode transfers.
- Allows users to set up an attention AST, which gives a user program asynchronous notification of external device events.
- Allows a user program to implement its own data transfer protocol, between the user program and the external device. The driver imposes no restrictions on this protocol.
- "Pipelines" user I/O requests. This keeps the DRB32 and the external device as busy as possible by overlapping driver and user program overhead with data transfers.
- Allows programmed I/O to either the DRB32's data port or control port, or to both. This allows a user program to read or write a longword or word at a time from, or to, the user device.
- Allows a suitably privileged user program to change the DRB32's configuration. The user program can select the data path width, the Interrupt Priority Level at which the DRB32 will interrupt the processor, whether or not the DRB32 receives and checks parity from the external device, and whether or not the DRB32 will operate in internal loop-back mode.

### *DRB32-W Driver Features*

The DRB32-W driver is a modified version of the OpenVMS DR11-W driver, with a nearly identical user QIO interface. Existing programs for the DR11-W may require modification to use the DRB32-W driver. The sources to this driver are provided, so that the user has an example of how to modify the DR11-W device handling to use the DRB32-W. Systems that are upgraded to the T1023-YA version of the DRB32-W board will be able to use the word counter functionality included in the example driver source, UQWDRIVER, if so desired. An explanation of how to implement that functionality is also included in the source code.

## HARDWARE REQUIREMENTS

Processor and/or hardware configurations as specified in the System Support Addendum (SSA 27.69.04-x).

## SOFTWARE REQUIREMENTS

- OpenVMS VAX Operating System

Refer to the System Support Addendum (SSA 27.69.04-x) for availability and required versions of prerequisite /optional software.

## ORDERING INFORMATION

Software Licenses: QL-VF5A\*-\*\*

Software Media: QB-VF5A\*-\*\*

Software Documentation: QB-VF5AA-GZ

Software Product Services: QT-VF5A\*-\*\* (supplied by Local Account Office)

\* 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.

## SOFTWARE PRODUCT SERVICE

A variety of service options are available from Digital. For more information contact your local Digital office.

## SOFTWARE WARRANTY

None

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# System Support Addendum

PRODUCT NAME: DRB32 OpenVMS Drivers, Version 5.0

SSA 27.69.04-A

## HARDWARE REQUIREMENTS

### Processors Supported

VAX: VAX 6000 Model 200 Series,  
VAX 6000 Model 300 Series,  
VAX 6000 Model 400 Series,  
VAX 6000 Model 500 Series,  
VAX 6000 Model 600 Series

VAX 7000 Model 600 Series

VAX 8200, VAX 8250, VAX 8300,  
VAX 8350, VAX 8500, VAX 8530,  
VAX 8550, VAX 8700, VAX 8800,  
VAX 8810, VAX 8820, VAX 8830,  
VAX 8840, VAX 8842, VAX 8974,  
VAX 8878

VAX 9000 Model 200 Series,  
VAX 9000 Model 400 Series

VAX 10000 Model 600 Series

### Processors Not Supported

- VAX-11/725, VAX-11/730, VAX-11/750
- VAX-11/780, VAX-11/782, VAX-11/785
- VAX 4000 Series
- VAX 8600, VAX 8650
- VAX 9000 Model 110
- VAX 9000 Model 300 Series
- VAXft systems
- MicroVAX systems
- VAXserver systems
- VAXstation systems

### Minimum System Configuration

A minimum system configuration includes:

- One VAXBI-based VAX host system
- One DRB32-M (minimum requirement for UQDRIVER) or  
One DRB32-M and one DRB32-W (minimum requirement for UQWDRIVER) or  
One DRB32-M and one DRB32-E (minimum requirement for UQDRIVER with long length cables)

The installation procedure allows the user to install the drivers on a system, or to simply copy the sources off the kit, or both. The disk space requirements depend on the option the user selects:

	DRB32-M/-E	
	<u>Peak</u>	<u>Final</u>
Install and copy sources:	7200	2800
Copy sources only:	2500	2300
Install only:	7200	1200

	DRB32-W	
	<u>Peak</u>	<u>Final</u>
Install and copy sources:	6900	2300
Copy sources only:	2300	1800
Install only:	6900	1100

These block 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, software options selected, and any modifications by the user.

## OPTIONAL HARDWARE

The number of additional DRB32s will depend on system configuration and user's application. DRB32s can be configured on multiple VAXBIs. Refer to the VAX Systems and Options Guide for specifics.

**CLUSTER 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.

- \* V6.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**

- OpenVMS VAX Operating System V6.0 or greater

DRB32 OpenVMS Driver V5.0 supports the OpenVMS VAX operating system V5.0 through V6.0 or greater. This can include, but is not limited to, V5.0, V5.1, V5.2, V5.3, V5.4, and V5.5.

*OpenVMS Tailoring*

The following OpenVMS classes are required for full functionality of this layered product:

- OpenVMS Required Saveset
- Programming Support
- System Programming Support
- Utilities
- Miscellaneous Files

For more information on OpenVMS classes and tailoring, refer to the OpenVMS VAX Operating System Software Product Description (SPD 25.01.xx).

**OPTIONAL SOFTWARE**

In order to modify the test programs provided with the DRB32 OpenVMS Drivers layered product, use DEC Fortran at a minimum of V4.4, and VAX C at a minimum of V3.0.

No optional software is necessary to modify the device drivers of the kit.

**GROWTH CONSIDERATIONS**

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

**DISTRIBUTION MEDIA**

9-track 1600 BPI Magtape, TK50 Stream Tape

**ORDERING INFORMATION**

Software Licenses: QL-VF5A\*-\*\*

Software Media: QB-VF5A\*-\*\*

Software Documentation: QB-VF5AA-GZ

Software Product Services: QT-VF5A\*-\*\* (Contracted through the Local Office)

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

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

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