Software Product Description

PRODUCT NAME: **VAX DECscan VMS and ELN Bitbus Drivers, Version 2.0** **SPD 27.98.02**

DESCRIPTION

The DECscan Product set provides a hardware and software link between the Q-bus series of MicroVAX processors (MicroVAX II, IVAX, MicroVAX 3000) and the Intel Bitbus. It allows for communication between users in a MicroVAX host and multi-dropped devices and software tasks running on those devices (nodes) adhering to Bitbus protocol.

The DECscan software consists of the following:

1. A MicroVAX VMS driver, along with a user-interface program, allowing the user to access a Bitbus system either through a program or interactively, when using VMS as the operating system. The MicroVAX VMS user-interface provides the user with the ability to configure the system and test its responses for calibration purposes. With this functionality, VAX DECscan allows the user to obtain and monitor real-time data.
2. A VAXELN driver, allowing the user the ability to build finished VAXELN systems, on any VMS Host system, using the VAXELN toolkit. The finished VAXELN system is then down-line loaded to MicroVAX target systems, where it runs without the presence of another operating system. VAXELN is especially suited to creating real-time applications in which the system response speed and predictability to external events is critical.

   The ELN target systems may be diskless and down-line loaded via Ethernet using DECnet services and protocols or permanently resident in the ELN target systems using erasable, programmable,read-only memories (EPROMs).
3. An 8044 cross-assembler and support utilities, allowing the user to develop application tasks, on the VMS Host system, to run on 8044- based Bitbus Nodes. When using the DECscan MicroVAX VMS Driver, these Remote node tasks are down-line loaded directly to and run on the Bitbus nodes. When using the DECscan ELN driver, these remote tasks are included in the finished VAXELN system which is down-line loaded to the MicroVAX target system. The finished VAXELN system then down-line loads the remote Bitbus tasks to run on the Bitbus nodes.

All communication with the IBQ01 Bitbus Controller (Refer to Hardware Requirements) is done via driver calls. The DECscan MicroVAX VMS and the DECscan ELN drivers provide the standard operating system interface to the IBQ01 Bitbus Controller. All driver communications to Bitbus nodes remain active until a reply is received by the IBQ01 controller or a user-specified timeout condition is reached.

Both drivers and the IBQ01 controller support the BITBUS capability of multiple concurrently active communication paths (serialized by the BITBUS protocol). Communication requests can be active to multiple BITBUS nodes and multiple tasks within a BITBUS node at the same time, and will complete asynchronously, independent of each other. Multiple requests to the same node/task pair will have only one active at a time on the BITBUS, the rest being queued in the IBQ01 controller.

Each Bitbus node supports up to eight active tasks.

Under the DECscan MicroVAX VMS driver, the user issues QIO calls directly or through the user-interface. The QIO call invokes the DECscan MicroVAX VMS driver, which sends commands to the IBQ01 controller, followed by an interrupt.

Under the DECscan VAXELN driver, the user issues driver calls through the subroutines provided. The VAXELN subroutines complete upon initiating the transfer. An asynchronous return mechanism is provided to inform the caller when the actual transfer has been completed.

Depending upon the nature of the command, the IBQ01 either responds directly or transfers this command, via the Bitbus, to a node running Bitbus protocol. In the latter case, the node response is application dependent. When the command has been processed by either the node or the IBQ01, the IBQ01 sends response data to the host followed by an interrupt. The drivers check the response data against what was sent for consistency and reports either success or the reason for failure.

By using the asynchronous driver completion mechanisms provided (e.g. QIO in VMS) and writing custom tasks for certain third party BITBUS nodes, users can potentially distribute much processing and reduce the load on the MicroVAX. For instance, I/O to multiple

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nodes may be simultaneously pending. The various tasks on these nodes might be set up to only respond to the pending I/O when the results of special processing or alarms are available. The MicroVAX process in this case could merely wait for event flags indicating the node/task response had occurred. Routine data processing and control could be handled in the nodes' tasks.

The DECscan VMS driver and the DECscan ELN driver will support up to eight IBQ01 controllers per MicroVAX system.

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.

HARDWARE REQUIREMENTS

VAX, MicroVAX, or VAXstation configuration as specified in the System Support Addendum (SSA 27.98.02-x).

SOFTWARE REQUIREMENTS *

VMS Operating System or MicroVMS Operating System

VAXELN Toolkit

For the VAXELN Driver:

The VAXELN Toolkit V3.0 must be installed on the host which is to receive the DECscan VAXELN driver. Refer to the VAXELN Toolkit (SPD 28.02.xx).

OPTIONAL SOFTWARE *

VAX DECscan VMS Software Tool Kit

* Refer to the System Support Addendum for availability and required versions of prerequisite/optional software (SSA 27.98.02-x).

ORDERING INFORMATION

Software License: QL-VCJA*-**
Software Media: QA-VCJA*-**
Software Documentation: QA-VCJAA-GZ
Software Product Services: QT-VCJA*-**

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

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.

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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 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.

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SOFTWARE PRODUCT SERVICES

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