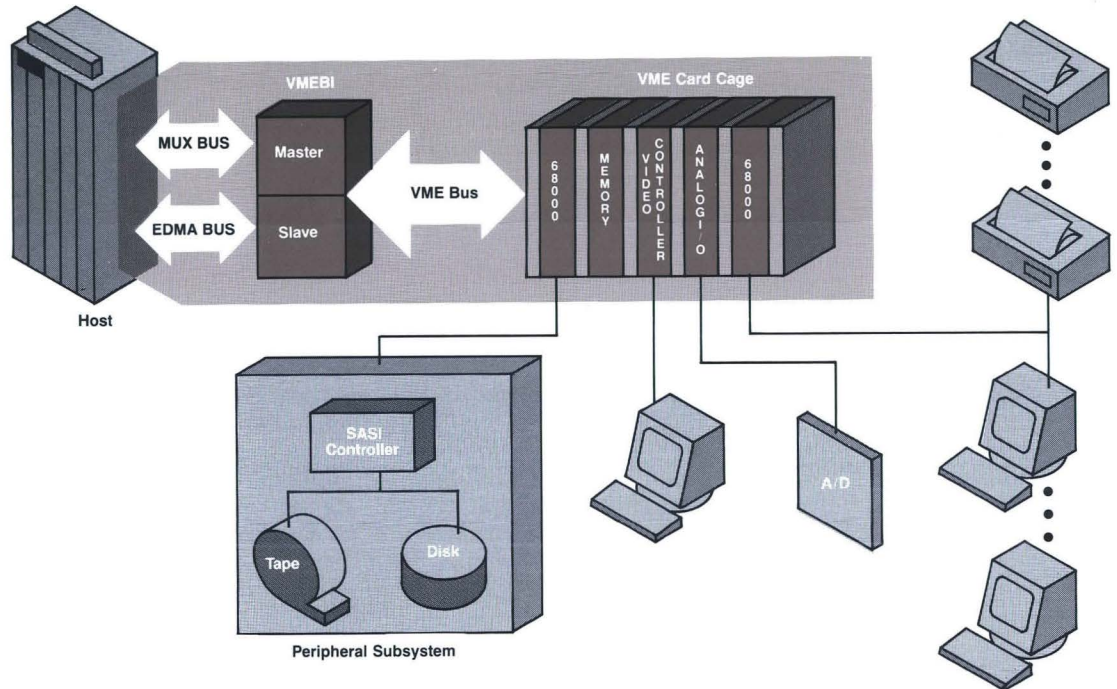


VME BUS INTERFACE

Typical Customer Configuration



Product Description

The Perkin-Elmer VME Bus Interface (VMEBI) is a general-purpose interface between the P-E Multiplexor (MUX) and Extended Direct Memory Address (EDMA) busses, and the industry-standard VME bus.

The VMEBI consists of two independently functional units. First, the MUX bus interface allows a host P-E processor to function as a VME master through Programmed Input/Output (PIO) instructions. Second, the EDMA bus interface allows a P-E memory system to function as a VME slave. This VME slave provides direct memory access (DMA) to a P-E memory system, so that data transfers occur without host processor intervention.

The VMEBI allows the user to take advantage of industry-standard VME bus-compatible peripherals and devices to construct a flexible parallel and/or serial I/O subsystem. These devices can be controlled by an external 68000 microprocessor located on the VME bus, thus providing the user with the ability to construct I/O processors. The external 68000 uses DMA to access directly the P-E host memory for data transfers. The combination of off-loaded processing and interrupt handling by the 68000 frees the P-E processor for other tasks.

Features

- Supports extended VME address and data up to 32 bits.
- Provides a DMA window into P-E memory.
- Provides VME system control modules.
- Is compatible with all P-E 32-bit processors.
- Provides VME interrupt handler (passes interrupts from devices on the VME bus to the P-E processor).
- Provides VME interrupt generator (takes P-E request and initiates interrupt on the specified VME level).
- Allows user system configuration flexibility.
- Supports DMA data transfers up to 6 mbytes per second.
- Supports single and multiprocessor systems.
- Provides access to 68000 software products, including UNIX software derivatives and look-alike operating systems.
- Includes integrated OS/32 driver.

Operational Characteristics

The VMEBI interfaces the P-E MUX and EDMA busses to the VME bus. The VMEBI facilitates memory-mapped I/O using the VME bus structure which is based upon a 16-bit data bus and 24-bit address space. Both are expandable to 32 bits. Fully compatible with the P-E MUX bus, the VMEBI communicates with the processor through P-E assembler instructions. The VMEBI uses standard P-E I/O instructions to control data transfers on the VME bus. These functions can consist of reads and writes to devices on the VME bus or generation of VME interrupts. Additionally, interrupts generated on the VME bus can be directly passed to the P-E host for servicing.

The VMEBI supports DMA transfers with any Series 3200 processor which has an EDMA bus. It functions as a VME slave to appear as a mass storage device which maps the P-E memory into the VME memory map. The address map is configured for various P-E memory sizes such as in 1 mb segments for processors with a maximum of 16 mb of memory, and in 64 kb segments for processors with a maximum of 1 mb of memory.

The VMEBI maintains functional independence between the MUX bus and DMA bus interface. Since the VME master contends for the bus the same as other VME masters, P-E initiated transfers can occur concurrently with transfers to P-E slave memory initiated by other VME bus masters.

The VMEBI can service interrupts generated on the VME bus and pass those interrupts to the P-E processor. The VMEBI detects interrupts on the interrupt lines and the VMEBI interrupt handler automatically services the VME interrupt by initiating a VME interrupt servicing cycle. Upon completion, an interrupt is generated to the P-E processor.

An OS/32 driver is included with the VMEBI product to provide a software interface between the VMEBI and the Perkin-Elmer real-time operating system. The driver allows programmed input/output capabilities through the VME bus and provides the capability to incorporate a custom VME bus interrupt handler into the OS/32 environment.

Cable sets are available separately to connect the VMEBI to VME bus. The cable sets are compatible with the VME bus backpanel, Motorola part number MVME 920/921. They are available in two functional variations, one-to-one or daisy-chain, but other variations are available by special quote.

Specifications

Power	Current: 4.45 amperes @ V: 5.0 volts V maximum: 5.25 volts @ I: 4.73 amperes	V minimum: 4.75 volts @ I: 4.16 amperes
Environmental	Operating Temperature: 0° to 50°C (32° to 122°F) Storage Temperature: -40° to 85°C (-6.2° to 185°F)	Operating Humidity: 5 to 90% humidity, (non-condensing)
Physical Dimensions	Dimensions: 381mm x 381mm (15" x 15"-fullboard) Multiwire circuit board weight: 1.36kg (3 lbs.)	
Product Numbers	K59-220 VME Bus Interface (VMEBI), includes documentation, test program, and OS/32 driver. K59-221 VMEBI cable set, 6', 96 pin DIN female to 96 pin DIN female, daisy-chain.	K59-222 VMEBI cable set, 6', 96 pin DIN female to 96 pin DIN female, one-to-one. Note: other cable sets are available upon request by special quote.
Related Documentation	91-372 VME Bus Interface (VMEBI) Installation and Maintenance Manual 91-373 VME Bus Interface (VMEBI)/VersaBus* Interface Test Program	91-374 VME Bus Interface (VMEBI) Driver Manual 91-402 VME Bus Interface (VMEBI)/VersaBus Interface Programming Manual

The information contained herein is intended to be a general description and is subject to change with product enhancement.

* VersaBus is a registered trademark of Motorola, Inc.

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