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414

VMEbus to VMEbus Adapter

Abaco Systems bus-to-bus adapters directly connect two buses. The virtual bus created allows the two systems to operate as one, enabling seamless operation and superior performance.

Memory Mapping

Transparent connectivity in which the address space of the destination bus appears as additional address space to the host bus is achieved via memory and I/O mapping. Mapping takes defined address ranges of unused memory on the host bus and transposes it to selected global memory address space and I/O on the destination bus. Once the mapping is created, there is no further software overhead; everything is handled by adapter and system hardware.

Bidirectional bus mastership in which address mapping is possible from both buses is provided. Memory mapping hardware allows discontiguous remote addresses to be mapped to contiguous local addresses.

Memory mapping uses simple C language pointers to access remote resources and any memory or I/O space address can be memory mapped.

DMA Controller

DMA allows large blocks of data to be moved between the two systems at high speed with little processor overhead. The DMA engine reads data from one bus and writes data to the other bus. When the transfer is complete, the adapter interrupts the processor.

Interrupts Across the Cable

Interrupts can be passed directly between two buses. All seven VME interrupts can be monitored and acknowledged from the host system. Consequently, the host system can be asynchronously notified when a VME card requires servicing and the need to poll is eliminated.

Adapters support at least one programmed interrupt that can be used to communicate between host and remote processes. Adapter hardware status is monitored by an error interrupt that eliminates the need to poll the adapter for errors.

Physical Interface

Bus adapters utilize a streamlined, simple no-protocol connection in which the local bus and remote bus actually become one bus.

VME System Controller

In addition to VME control and bus master capabilities, the adapter can provide slot 1 system controller functions. In most cases, configuring the adapter to perform system controller functions and installing it in slot 1, eliminates the need for an additional VME system controller. The adapter also allows the host to reset the VME bus so that a system failure can be remotely reset. In system controller mode, the adapter provides the VME system clock and system reset, and the bus error global timeout. The adapter card also provides four-level priority, four-level roundrobin, or single-level bus arbitration.

Bus Isolation

The bus adapters allow each bus to operate independently. The timing of the two buses is linked only when a memory or I/O reference is made to an address on one system that translates to a reference on the other so that bus bandwidth is not affected during non transfer periods.

Dual Port RAM Option

Up to 8 MBytes of optional shared memory can be added to the adapter. Dual Port RAM access does not require access to the other bus; consequently, providing system security and limiting bandwidth use to only the accessing bus. Memory mapping and controller mode DMA support Dual Port RAM. Arbitration is handled by the card itself.

FEATURES:

- Bi-directional bus mastership
- Memory and I/O mapping
- Streamlined no-protocol connectivity
- Controller Mode DMA: 35 MB/s
- DMA modes support Dual Port RAM
- VME System Controller Mode
- Cable interface supports fiber-optic cable up to 500 meters
- IRQ1-7 and two programmable interrupts can be passed across cable
- 128 KByte and 8 MByte optional Dual Port RAM available

abaco SYSTEMS

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Specifications

Cable interface:
- Fiber to 500M

Interrupts across cable:
- IRQ1-7 & 2 programmable

Latency across cable
- 1.8 µsec

Latency VME to Dual Port RAM
- 4 µsec

DMA transfer rates
- 35 MB/s

DMA block size
- 4 to 16 MBytes

Dual Port RAM option
- 128K and 8M

Addressing
- A32, A24, A16

Data widths
- D32, D16, D8

Data widths for DMA transfers
- D32, D16

Compliance
- IEEE 1014C specifications

Form Factor
- 6U VMEbus card

Power Requirements
- 3.5A at 5V
- +3.3VDC

Environmental
- Temperature
  - Operating: 0° to +60 °C
  - Storage: -40° to +85 °C
- Relative Humidity
  - Operating: 5% to 95%, non-condensing
  - Storage: 5% to 95%, non-condensing

Ordering information

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Dual Port RAM Options

400-202	128 Kilobytes
400-206	8 Megabytes

Fiber-Optic Cable (one required)

15-103	5 meter
15-101	10 meter
15-102	25 meter
15-104	50 meter
15-105	100 meter

Custom cable available in lengths up to 500 meters

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