

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Abaco Systems / SBS / Bit 3 85154550* at our website: *Click HERE*

BIT 3 COMPUTER CORPORATION

DATA SHEET

MODEL 467-1

Adaptor with DMA Connects a SBus Computer to a VMEbus System

Bit 3's Model 467-1 is an easy-to-use, cost effective way to share memory and special purpose boards between computer (SPARCstation) and a VMEbus system. The Model 467-1 Adaptor provides high-speed data transfers systems, and requires minimal software support.

Linked by the Model 467-1 Adaptor, these two powerful computing environments become even more powerful versatile. From the VMEbus side of the Adaptor, you can take full advantage of SBus system resources for VM applications. And, because the Adaptor card is treated as any other processor on the VMEbus, the Model 467-1 as either a coprocessor or as the only bus master processor on the VMEbus. Consequently, the SBus system car control and monitor a wide variety of VMEbus cards and high-performance processors, as well as exchange int the VMEbus.

The Model 467-1 Adaptor allows each bus to operate independently. The timing of the SBus and VMEbus is li when a memory or I/O reference is made to an address on one system that translates to a reference on the other. of the interface between Adaptor cards is maintained by parity checks on address, control and data lines.

Model 467-1 supports bi-directional random access bus mastering from either system and also supports 32-bit using a built-in DMA controller. The DMA controller is a high-speed data engine that moves data between the SPARCstation system memory and the VMEbus at sustained data transfer rates up to 26 Megabytes per second Bytes/sec). It also allows a VMEbus DMA device (such as a disk controller) to DMA through the Adaptor dire SBus memory at data transfer rates in excess of 12M Bytes/sec. Actual performance rates are dependent on the of the specific SBus system and the speed of the VMEbus memory.

Other Bit 3 Adaptors, supporting a wide variety of buses, can be used with Model 467-1 Adaptors to connect m computers and systems in star, daisy-chain or modified star/daisy-chain configurations.

COMMUNICATIONS BETWEEN SBus & VMEbus

Model 467-1 supports two methods of intersystem communications: Memory Mapping and Direct Memory Ac

Memory Mapping controls random access (PIO transfers) to remote bus RAM, dual-port memory, and remote b provides an easy-to-use, flexible interface with low overhead. A SBus bus master can access memory in the VM through a window in SBus slot space. Conversely, a VMEbus bus master can access SBus memory from a winc VMEbus address space.

Seven mapping registers are available to steer accesses in 4M/32M byte segments from SBus slot space to VM space. Each register can be independently set to point to any address in the VMEbus. A page register is availab accesses from the VMEbus to SBus. The mapping registers and page register provide the upper bits of the SBu

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Memory Mapping also controls access to dual-port memory. Dual Port RAM is an optional card installed on the Adaptor card. Dual Port RAM provides a memory buffer; saves the cost of additional memory cards; and requi additional VMEbus card slots.

Optional Dual Port RAM provides shared memory space accessible by random access reads and writes from eit Dual Port RAM access uses only the bandwidth of the accessing bus. Consequently, data can be exchanged wit impact on the performance of the other system's bus. Both systems can access Dual Port RAM simultaneously; arbitrates accesses.

Dual Port RAM cards now available from Bit 3 include: 32K, 128K, 1M, 2M, 4M, and 8M byte cards.

DMA, the other method of communication, is the automatic transfer of data from one memory address to anoth Model 467-1 Adaptor supports two DMA techniques: DMA Controller Mode and Slave Mode DMA.

DMA Controller Mode uses the Adaptor's DMA Controller to enable high-speed data transfers from one systen directly into the other system's memory.

Data transfer in either direction can be initiated by the SBus or VMEbus processor. Each DMA cycle supports t lengths from 4 bytes to 16M bytes. The DMA Controller also allows data transfers between SBus memory and RAM on the VMEbus Adaptor card.

In Slave Mode DMA, the Adaptor card appears as a slave memory card. This type of DMA transfer is performe VMEbus DMA device (such as a disk controller) transfers data through the Adaptor directly into the SBus.

INTERRUPT AND ERROR HANDLING

The Adaptor supports interrupts from four sources:

- Pending VMEbus interrupts IRQ1 - IRQ7.
- Programmed interrupts to the SBus (PT interrupts).
- Interface error interrupts activated when a timeout, parity error, or bus error condition is detected on an A
- The DMA Done Interrupt is activated when the Done Interrupt enable bit is set and a DMA operation enc interrupt remains active until cleared by clearing the DMA Done bit or by starting another DMA operatic

Up to four interrupts can also be sent from the VMEbus system to the SBus. These interrupts are selected from possible sources: IRQ1-IRQ7 and the PT interrupt.

Although there are several potential VMEbus interrupt sources, only one SBus interrupt signal is used. Therefo status register and an interrupt control register are available for the SPARCstation interrupt handling routine to determine the VMEbus interrupt source.

One interrupt source, programmed interrupt to VMEbus (PR interrupt), can be generated from the SBus Adaptc sent to the VMEbus.

SYSTEM CONTROLLER MODE CAPABILITY

In addition to VMEbus control and bus master capabilities, the Model 467-1 Adaptor can provide system contr functions. If the VMEbus system is used primarily as an expansion chassis for the SBus system, System Contrc eliminates the need to purchase an additional VMEbus system controller.

When configured as the system controller the Model 467-1 Adaptor provides the VMEbus system clock and sy

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

and the Bus Error (BERR) global timeout. The VMEbus Adaptor card may be configured to be a Single-Level (arbiter or a four-level bus arbiter in Priority (PRI) or Round-Robin (RRS) Mode.

MAPPING REGISTERS

All accesses from SBus to VMEbus, except Adaptor I/O registers, are through Window Mapping Registers. Eac seven Window Mapping Registers controls access to 4M/32M bytes of VMEbus address space.

COMPATIBILITY MODE

Model 467-1 can easily be configured for compatibility with the Model 467 Adaptor (Window Mapping Regist disabled). Compatibility Mode is set by installing one jumper on the SBus Adaptor card.

UTILITIES DISKETTE

Model 467-1 includes a Utilities Diskette that contains FORTH source code and example programs to help you SBus Adaptor card. Files are stored in TAR format on a 3.5" HD disk. Example programs include:

- An include file that defines many of the constants needed for the device driver, and that provides a structu accessing Adaptor registers.
- A program that reads the first few characters contained in the Dual Port RAM section.
- A program that uses Window Mapping Registers to read a specific address on the VMEbus.

TECHNICAL HIGHLIGHTS

- Random access reads and writes from the SBus system to the VMEbus.
- Random access reads and writes from the SBus to Dual Port RAM.
- Random access reads and writes from the VMEbus to the SBus.
- Random access reads and writes from the VMEbus system to Dual Port RAM.
- Flexible mapping of SBus address space to VMEbus memory and I/O address space.
- Seven Window Mapping Registers control accesses from the SBus to VMEbus.
- Supports both A25 and A28 SBus slot addresses.
- 32-, 16-, or 8-bit data transfers; A32, A24 or A16 addressing.
- DMA Controller Mode and Slave Mode DMA.
- DMA modes support Dual Port RAM.
- DMA data transfers from chassis to chassis at sustained rates up to 26M Bytes/sec.
- SBus configuration ROM with FORTH code that contains driver and card information.
- VMEbus Adaptor card can function in System Controller Mode.
- Add up to 8M bytes of shared memory via optional Dual Port RAM cards.
- Interrupts can be passed from the VMEbus system to the SBus system.
- Parity checking on address, control and data lines on the SBus Adaptor card and on the interface between cards.
- Power requirements -

The VMEbus Adaptor card draws 3.5A at 5V.

The SBus Adaptor card draws 1.0A at 5V.

- Environment -

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

```
Temperature:          0 to 60 degrees C operating;
                     -40 to 85 degrees C storage.
Humidity:             0% to 90% non-condensing.
```

- Round EMI-shielded copper-conductor cable to 25 feet. Cable is available in standard 8-foot and 25-foot
- Fiber-Optic Interfaces are available as an option.
- Recognized under the component program of Underwriter Laboratories, Inc.
- VMEbus Adaptor card meets IEEE 1014C specifications.
- Fully compatible with the earlier Model 467 Adaptor.

REQUIRED COMPONENTS

- One SBus Adaptor card.
- One 6U VMEbus Adaptor card.
- A round EMI-shielded copper-conductor cable to connect the Adaptor cards (purchased separately from I
- A device driver for the SBus system. The Utilities Diskette, included at no charge, provides FORTH code example programs to help you access the SBus Adaptor card. Optional Models 943 and 944 Support Soft a device driver.

Each Model 467-1 package contains: one SBus Adaptor card, one VMEbus Adaptor card, a Utilities Diskette, c A cable is required but is ordered separately so that you can specify the appropriate length and type for your in

OPTIONS

- Dual Port RAM

```
32K byte            Model 400-201
128K byte            Model 400-202
1M byte            Model 400-203
2M byte            Model 400-204
4M byte            Model 400-205
8M byte            Model 400-206
```

- Cable (one required)

```
8' Round EMI-Shielded            Model 400-107
25' Round EMI-Shielded            Model 400-108
```

Bulkhead connector configurations (contact Bit 3 for configurations)

- Fiber-Optic Interfaces

```
Two Fiber Card            Model 400-5
Four Fiber Card            Model 400-6
Two Fiber Module            Model 400-50
Four Fiber Module            Model 400-60
```

(Fiber-Optic Cards are for the VMEbus system only; Modules may be used with either the SBus or VMEbus sy
Fiber-Optic Interfaces are required. For more information, request the Model 400 Fiber-Optic Interface data she

- Support Software

Models 943 and 944 provide SunOS and Solaris 2.X compatible software support, including: a loadable device
installation scripts and example programs that demonstrate use of the device driver and Adaptor.

TRADEMARK DISCLAIMER

All trademarks are the property of their respective company.

Specifications subject to change without notice.

Pub. No. 100,219 9/95

Cable Configuration Guide Warranties

Repair Service Products List

How To Contact Bit 3 Home Page

Revised 6/27/96

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP