V/ESDI 4201 Panther

High-performance Enhanced Small Device Interface (ESDI) Disk Controller

The V/ESDI 4201 Panther is Interphase® Corporation's high performance Enhanced Small Device Interface (ESDI) disk controller for the VMEbus. With Interphase's BUSpacket™ Interface, the Panther can achieve bus speeds in excess of 30 megabytes per second (MB/s). The Panther features a 128K byte buffer and an optional SCSI port capable of attaching as many as seven backup devices.

The V/ESDI 4201 Panther is a member of the family of Interphase products for the VMEbus and represents a commitment to design excellence and absolute superiority in:
• Performance
• Ease of integration
• Design assistance and support
• Reliability

It is but one modular element in the Interphase comprehensive systems approach to high-performance VMEbus product development.

POWER

The V/ESDI 4201 Panther supports up to four high-performance Enhanced Small Device Interface (ESDI) drives and data rates to 24 MB/s. It interfaces these mass storage systems to the VMEbus through a unique and extremely high-performance design.

Using a M68000 microprocessor and the unique BUSpacket Interface, the V/ESDI 4201 Panther gives you speed and sophistication unmatched in the industry. A second exclusive feature, Virtual Buffer Architecture℠, means that data transfer delays are radically reduced or eliminated. Coupled with a 128K buffer and Intelligent Caching, the V/ESDI 4201 Panther is the ESDI showpiece for real performance value.

BUSpacket Interface

The exclusive BUSpacket Interface is the key to VMEbus data rates. It achieves 30 MB/s by decoupling bus activity from on-board functionality through the use of very fast bus FIFOs and a unique delay line-based asynchronous state machine that controls VMEbus signaling.

The BUSpacket Interface operates by preformatting "packets" of data and storing them in very fast bus FIFO-holding registers prior to acquiring the bus. Once the bus is acquired, the FIFO is emptied at up to 30 MB/s and the bus is released for other uses. This dramatically reduces bus bandwidth usage with corresponding improvements in overall system performance.

VIRTUAL BUFFERING

Zero Latency

The Interphase Virtual Buffer Architecture is the key to zero latency operation. The V/ESDI 4201 Panther processor allocates and deallocates the 128K buffer for various system processes. This design feature eliminates read overruns and write underruns often found in less sophisticated FIFO-based designs. Traditional controllers wait to read and transfer data until they encounter the first requested sector. Using a 128K pool of dynamically allocated buffers, the V/ESDI 4201 Panther begins reading data as soon as the head lands on the track and then immediately transfers all sectors of interest regardless of their order on disk. This process allows the V/ESDI 4201 Panther to never take more than a single disk revolution to transfer an entire track of data.

Intelligent Caching

Another advantage of the virtual buffer design is that after requested sectors are read and transferred, the V/ESDI 4201 Panther will continue to read and cache sectors. Then, if subsequent requests from the host are made for that data, the V/ESDI 4201 Panther can transfer that data from cache without disk access and with no need for block interleaving by the operating system.

The V/ESDI 4201 Panther's expanded 128K buffer allows multiple tracks of data to be stored, increasing the chance that requested data will be cached and immediately available. The larger buffer also provides the capability to develop application specific caching algorithms to improve system performance.

BACKUP BY SCSI

The V/ESDI 4201 Panther is available with an optional SCSI port to provide disk backup without a separate controller or host adaptor. The SCSI port makes it easy to attach a wide variety of backup and archiving devices including tape and optical disks. It supports asynchronous transfers at rates up to 1.5 MB/s, the Common Command Set (CCS), and all SCSI phases.

GOOD FOR UNIX®

The V/ESDI 4201 Panther enhances the performance of UNIX and UNIX look-alikes. It provides enhanced throughput for both large and small transactions. Tests have demonstrated that Interphase's Intelligent Caching yields improvements of up to 40% over cacheless 1:1 interleave techniques for file-oriented transactions, all without the need for software interleave or UNIX *"rotdelay"* operating system tuning. Interphase is source code licensed for UNIX System V and 4.2 BSD to fully support your software needs.

FLEXIBILITY

The V/ESDI 4201 Panther supports a wide range of system parameters, including burst rates, multiple interrupts vectors, and all variable bus configurations. The V/ESDI 4201 Panther also accommodates virtually any type of ESDI drive using a simple memory resident method of setting parameters for each attached unit when the system is initialized.

The V/ESDI 4201 Panther is also software compatible across the board—with the V/ESDI 3201 as well as with the V/SMD 3200 and V/SMD 4200 Cheetah—giving you **PLUG & PLAY** compatibility, more system options, and less development expenditure time. Our companion V/Tape 3209 half inch tape controller rounds out your magnetic peripheral needs.

EASY TO DESIGN US IN

Interphase provides two powerful resources with the V/ESDI 4201 Panther or any other Interphase family product. Unique to Interphase and available to you are the services of:
• The Design Assistance Group
• The Applications Engineering Group

Depending on your specific design and application requirements, one or both of these Interphase teams can be made available to solve special problems, assist with actual project decisions, or help build a system outright. There is always a team member prepared to assist as needed at each step of your project. From recommended parameter settings and software drivers to the most difficult system design problems, these two groups can virtually become a part of your staff.

SUMMARY OF FEATURES
• Virtual Buffer Architecture with On-board M68000 Microprocessor
• Supports Four ESDI Drives
• UNIX-optimized Intelligent Caching
• Zero Latency Reads and Writes
• 16- and 32-bit Data Transfers
• 16-, 24-, and 32-bit Data Addressing
• Disk Data Rates to 24 Mb/s with 1:1 Interleave
• DMA Data Rates to 30 MB/s
• Full function SCSI Port with Transfers up to 1.5 MB/s
• 128K Cache Buffer
• Supports Bus Throttling and Bus Clear
• On-board Error Correction—32-bit ECC
• **PLUG & PLAY** Software Compatible with V/ESDI 3201 ESDI Disk Controller and V/SMD 3200 or 4200 SMD Controllers
• Software Programmable Interrupt Levels (1-7)
• Selectable Bus Priority (0-3)
• Scatter/Gather Commands
• Single Double-height VMEbus Board
• Software Drivers Available on a Variety of Media

THE NEXT STEP

Interphase is ready to help you get that project up and running... NOW. All you need do is tell us you want an Evaluation Reference Guide for the V/ESDI 4201 Panther, or even better, that you want to receive the V/ESDI 4201 Panther as part of our First Time User Program.

The Evaluation Reference Guide contains detailed specifications and other important operational information for hands on evaluation of the V/ESDI 4201 Panther and puts you in contact with our Design Assistance Group.

Call us today or complete the enclosed card to take the next step. There is no obligation... except to yourself... to check out the high-performance value of the V/ESDI 4201 Panther from Interphase Corporation.

(214) 350-9000

INTERPHASE CORPORATION

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