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Find the *General Micro Systems V269* at our website: ***Click HERE***

Dual Pentium IV
VME D-64
66MHz 64-bit SBC

Key Features:

- **Dual Low Voltage Xeon-LP Pentium® IV Processors Up to 3GHz**
- **400/533MHz Front Side Bus (FSB)**
- **512KB of On-Die L2 Cache for Each Processor**
- **Up to 16GB of Low Cost DDR SDRAM (DIMM) Memory**
- **Dual Gigabit Ethernet Ports**
- **10/100Base-Tx Ethernet for De-bug and Control (1 Front)**
- **Ultra Wide SCSI 160/320**
- **Dual Video Graphic Engines: Analog / Digital**
- **4MB Bios Flash with POST and DIAG Functions**
- **Optional, 64MB of Disk-On-Chip for Disk-less Operations**
- **Optional, Ultra-High Performance I/O Expansion via SAM-III™**
- **Low-Speed PCI Expansion Bus for Custom I/O**
- **Supports VME-64 via Tundra Universe II**
- **Dual Ultra IDE DMA-133, Six USB, Two Com, Mouse, Keyboard, RTC and AMI Bios.**
- **Support for Windows® NT/2000/XP, VxWorks,® Solaris®x86, QNX® and Linux® Operating Systems**
- **Utilizes Embedded Chip Set for Long Life Support**

General Description:

Dual Pentium IV High Performance Server
The V269, " Equinox", is the industry's first implantation of the Xeon-LP, 'Low Voltage Xeon' Pentium IV Class Micro-processors. The Xeon was developed by Intel specifically to address the embedded market needs of low power, ultra high performance. These Pentium IV processors, unlike the desktop or mobile class processors are from the Intel Embedded Group, which provides the performance of a desktop processor at half the power consumption and supports a long life cycle (minimum of five years). Further, the Xeon-LP supports Multi-Processing and is socket-able. Therefore, it is upgradeable where the mobile class processors are not.

CPU/Memory for Power Potential
The Equinox is powered with TWO Pentium IV Xeon-LPs, each with 512KB of On-Die L2 Cache and runs at CPU clock speed. The CPU Clock speed initially starts at 1.6GHz, and is anticipated to go well over 3GHz in the future. The Front Side Bus (FSB) is an incredible 533MHz initially, and is expected to climb up. When its performances are compared to the fastest Pentium III Class processors on the market (133MHz FSB, and 1.2GHz), it is easy to see why the Equinox is the FASTEST Pentium Class Processor in the world!

Hub Technology
To facilitate such incredible CPU performance, and to guarantee that the memory and I/O devices have the full CPU bandwidth (which is an astounding 3.2 Gigabytes/s), tremendous attention was given to the system's architecture. The Equinox utilizes a Hub Technology for CPU bandwidth distribution. The CPU Front Side Bus is connected to a four port Hub. Three links from the Hub are capable of taking full advantage of the CPU performance. The first link, Link-0, is connected to four 64-bit DDR DIMM memory modules configured as a 128-bit wide memory bus. These four modules are clocked at 266MHz, and they provide up to 16GB of memory with a true transfer rate of 3.2 GB/s. The second link, Link-1, provides the system with dual

PCI-X buses for high-speed system I/O devices via a Link bridge. Link-2, which is the third link, is connected to the "Special Application Module III", (SAM-III™) which is an expansion connector. SAM-III™ is a third generation I/O expansion bus from GMS, which was designed to provide ultra high speed (3.2 GB/s) I/O, without bottlenecking the onboard System I/O or memory. The fourth Link, Link-3, is a 266 MB/s bus which is used for the low speed I/O devices on board. This balanced four-port Hub is the ultimate in memory and I/O performance, and presents the user with the ability to architect systems which until now, was not possible.

System I/O
Two independent PCI-X buses are provided on the Equinox for high speed I/O via Link-1. The first PCI-X bus is connected to a dual Gigabit Ethernet device, and an Ultra SCSI-320 device. The Dual auto-negotiate, 10/100/1000 Base-Tx, Gigabit ports are routed to rear I/O. The Ultra SCSI-320 device can support transfer rates of up to 320MB/s in single-ended or differential modes. For a direct connection to the SCSI devices, a VHDCI-68 SCSI connector is provided on the rear I/O transition module.

The SAM-III bus, which is connected to Link-2 of the Hub, is the ideal ultra high-speed I/O expansion bus. Unlike a PMC expansion, which is limited to a maximum data, transfer rate of 533 MB/s (64-Bit, 66-MHz), the SAM-III™ delivers over eight times the performance (3.2 GB/s), with fewer pins and a much simpler interface. Many high-speed I/O options, such as an ultra high-performance Graphic Engine, with 3-D rendering, Fiber Channel, Triple PCI-X capable, and PMC carrier, including custom functions will be available for the SAM-III™.

The System's I/O functions are provided via Link-3 of the Hub. The system is provided with a 33-MHz, 32-Bit PCI-bus, X-bus, LPC-bus, SMB-bus, Dual Ultra DMA-133 IDE buses, and four USB ports through Link-3, via the system I/O Bridge. The low speed PCI-bus is connected to a 10/100Base-Tx Ethernet, a Video, and a PCI expansion connector. The auto negotiate 10/100 Base-Tx Ethernet is accessed via the front panel, and is used for system configurations and remote boot. The Video is a Dual display mode device capable of supporting both Analog RGB monitors via the front panel, and/or Flat Panel Display via a DVI-D connector on the rear transition I/O module. A video resolution of 1280x1024, in true color, with a Bit-BLT engine provides the system with a video console for server applications. The PCI expansion connector is provided for additional custom PCI functions.

Super I/O Device
Also connected to the LPC bus is the Super I/O device. This device provides 2 COM ports, floppy, RTC, CMOS RAM, keyboard, and mouse. One of the COM ports is available at the front panel. The other COM port along with the floppy, keyboard, and mouse are available on the rear transition module.

Mass Storage Options
The two Ultra DMA-133 IDE channels provide the user with a vast array of mass storage devices. The Primary IDE is connected to an onboard Header. Several optional IDE expansion modules, such as a 2.5", 100GB Hard Drive, a 20GB Flash Drive, and a Compact-Flash are supported. Additionally, the OEM user may utilize this expansion connector for custom mass storage solutions. The Secondary IDE bus is connected to rear I/O transition module, and may be accessed via a 44-pin header for 2.5" drive or 40 Pin headers for CD/DVROMS.

User I/O
For user I/O interface, the Equinox provides four USB ports on the front panel, two USB ports on rear transition I/O module, a PS2 mouse and keyboard on the transition I/O module, and two COM ports, one on front panel and one on rear transition I/O module, along with a floppy header.

Status and Alarms
Additional system functions include standard 4MB of BIOS/user flash and 2Kbit of serial EEPROM for VxWorks boot parameters, plus as an option, 64MB of Disk-On-Chip for diskless operation. The CPU and baseboard temperatures, along with all voltages are constantly monitored. Alarms are provided to the

operations system to alert when the critical level has been reached. AMI BIOS and Power-On-Self-Test (POST) are standard, with two binary displays, which indicate the status of each test performed upon power on. These extensive diagnostic tests cover over 60% of the board's functions, and they run each time power is applied to the module. A Real Time Clock (RTC) with a field replaceable battery, Four 32-Bit timers, and a watchdog timer are all standard.

VME Interface
The VME interface for the V269 is provided via the Tundra Universe II device. This device supports all VME-D64 Master and Slave modes of operation as well as the System Controller function. The VME interface of the V269 is carefully designed so that the V269 may be plugged into either a 5-Row or 3-Row VME card cage. There is an onboard regulator that provides the necessary 3.3V for 3-Row card cages from the System +5V.

Voltage and Air Flow
All CPU core power requirements are derived from an onboard DC/DC converter, which is powered from an external +12V supply. No additional power source is required except for the standard VME 3.3V and 5V supplies. Since the majority of the power required for the Equinox is derived from its external +12V, the module may be plugged into any existing VME card cage without the need for any modifications. Extensive attention has been given to the cooling which is supplied via a passive heat sink. This allows the Equinox to operate at up to 50-C with a standard 400 LFM airflow.

Operating Systems
All major operating systems such as Windows NT/2000/XP, Solaris x86, VxWorks, QNX and Linux are supported. Contact GMS or your Sales Representative for support/availability of emerging Operating Systems, and to find out which products have either a functionally related driver or a full BSP (Board Support Package).

Ordering Information:

V269 Equinox SM/PM, Dual Xeon-LP, Pentium IV			
GMS Sales Part Number	**Description**	**GMS Mfg. Part Number**	**Availability**
	The V269 Utilizes Dual Xeon-LP Processors from Intel Up to 2.6GHz, Each with 512KB of On Die L2 Cache Operating at CPU Clock Speed. Up to 16GB of 533MHz DDR Memory via Four DIMM Modules. Highly User-Configurable for Custom I/O via SAM-III and PCI-I/O Connectors On Board. Standard I/O Functions Include: Two Gigabit Ports to Rear I/O, One 10/100 Base-Tx via Front Panel for Debug/Control, Ultra SCSI-160/320, Dual Video, Dual Ultra IDE DMA-133, Six USB, Two Comm Ports, Mouse, Keyboard, RTC and 4MB of BIOS/User Flash. Optional Features Include: 64MB of Disk-On-Chip, SAM-III (Special Application Module) Expansion I/O. All Modules are Shipped with: 4MB Flash BIOS with Power-On-Self-Test (POST). VME Master/Slave with D-64 Support via Tundra Universe II, 5 Row VME J1, J2 Connectors with J0 Connector.		
	SPECIFY MEMORY AND OPTIONS		
'269	**V269 SBC with: Full-Up Less CPU, RAM, D.O.C. and SAM**	**95-484-0**	**Call**
	V269 Options		
'269BO	**80MM with P2 and P0 Connectors Transition Module. Accommodations for Two Giga-Bit Ethernet Ports via RJ-45, Two Com Ports with RS232 Buffers via RJ-11C, Mouse/KB, USB, VHDCI SCSI, DVI-D, IDE, Floppy**	**95-485-0**	

	Headers, and 44 Pin IDE Connector for an Optional 2.5 Inch HDD		

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