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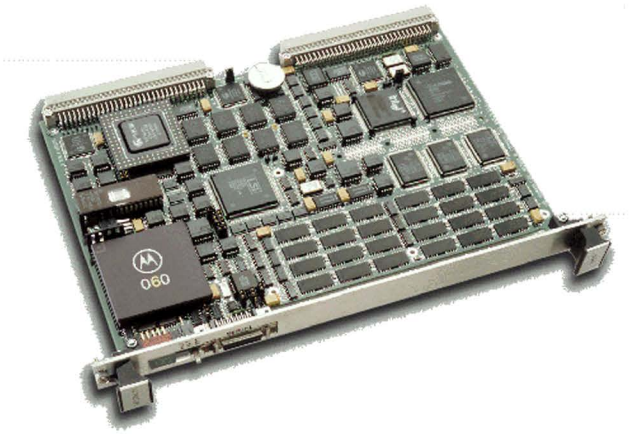
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Nitro60/40



- Flexible Corebus expansion bus fits standard and custom modules
- Two front-panel serial interface ports for flexible I/O
- ANSI-compatible SCSI II (fast and wide) interface and on-card Ethernet for high performance DMA-supported I/O
- Support for VxWorks and OS-9 real-time operating systems and development environments

Artesyn's Nitro has been specifically designed to power real-time applications that demand high performance and reliable multiprocessing such as video-on-demand, machine vision, simulation, and communication.

Two versions of the Nitro board are available: the Nitro60 is based on Motorola's 50 MHz .MC68060 processor, employing a superscalar architecture with dual 4-stage integer pipelines. The Nitro40 features the economical MC68040 processor and is fully compatible with the Nitro60

Wind River Systems' VxWorks, Microware's OS-9, and ISI's pSOS+ software provide users with powerful real-time operating systems and a rich set of development tools.

Nitro's two front panel serial I/O ports provide multi-protocol data communications capability. A fast and wide SCSI II interface and on-board Ethernet; for high performance DMA supported I/O are included as standard.

Specifications

Bus Interface

- **VMEbus**
- VME64 architecture with 64-bit data path, 32-bit addressing and 7 bus interrupts
- Operates in Master or Slave Mode (Compliance Le D64A32(7))
- 64-bit and 32-bit wide block transfers using local D capability
- System level controller functions including 4 level arbitration
- Uses VIC64 VME interface IC
- Sustained transfer rates:
  - 63 Mbytes/sec (Nitro40)
  - 49 Mbytes/sec (Nitro60)

- **Mailbox interrupts**
- Allows remote control of Nitro via specified VMEbus addresses
- CPU interrupt, reset and VMEbus lock functions supported

- **Corebus**
- Mezzanine bus providing migration path for board customization
- 32-bit address bus; 32-bit data bus
- Multimaster Module Synchronous Bus for intelligent modules operating at speeds synchronous with CPU clock, 106 Mbytes/sec 4 word burst transfers @ 33 MHz
- Asynchronous Module Peripheral Bus for simple, low speed I/O and module configuration

Processor & Memory Options

- **MC68060**
- Operates at 50 MHz internal, 25 MHz external
- Superscalar architecture with dual 4 stage integer pipelines
- 8 Kbyte on-chip instruction cache
- 8 Kbyte on-chip data cache
- 256 entry branch cache
- 100% upward user-level code compatible with 68040

- **MC68040**
- Operates at 33 MHz internal
- 4 Kbyte on-chip instruction cache
- 4 Kbyte on-chip data cache
- 100% upward user-level code compatible with 68060

- **Random Access Memory**
- 8,16, 32, or 64 Mbytes DRAM with parity on-card
- 2 bank interleaved architecture with write posting buffers
- 70 ns page mode DRAM
- One parity bit per byte
- Transparent discrete hardware refresh
- Burst read wait states: 3-0-1-0
- Burst write wait states: 3-0-1-0

- **Read Only Memory**
- Up to 512 Kbyte capacity
- Supports 64K, 128K and 512K

- **Flash Memory**
- Up to 4 Mbytes total Flash Memory
- 512 Kbytes used for monitor and power-on diagnostics)
- Provides field upgradeable non-volatile program storage

- **Timers/Counters**
- Real-time clock with 10 msec resolution
- Three 32-bit timer/counters with 62.5 ns resolution
- Interrupt capability

Peripheral I/O

- **Ethernet Interface**
- Intel 82596CA 32-bit LAN coprocessor
- In excess of 1 Mbyte/sec throughput obtained using TCP/IP protocol
- On-chip DMA and memory management
- On-chip FIFOs
- Conforms to IEEE 802.3
- 10Base5 interface on P2 connector

Peripheral I/O Continued

- **Small Computer Systems Interface (SCSI)**
- NCR 53C720 SCSI I/O processor
- ANSI compatible SCSI 2 (fast & wide) permitting connection of up to seven additional independent, compatible I/O controllers
- 8-bit single ended,16-bit single ended or 16-bit differential drivers via P2 connector
- Supports variable block size and scatter/gather data transfers
- Supports 32-bit word data bursts with variable burst lengths
- Full 32-bit on-chip DMA to speed up memory-to-I/O transfers without host CPU intervention
- 20 Mbytes/sec 16-bit synchronous performance
- 10 Mbytes/sec 8-bit synchronous transfers
- High level programmer's interface (SCRIPTS™)
- Low-level programmability

- **Serial I/O**
- Two front panel serial I/O ports provided via ASIC
- Transfer rates up to 1 Mbit/sec obtainable (cable length dependent)
- Intel 8251A UART emulation

Software support

- Wind River Systems' VxWorks real-time operating system and development environment
- OS-9 real-time operating system
- pSOS+ real-time operating system
- HKMON on-board monitor and power-on diagnostics

Physical Characteristics

- Multilayer with ground and VCC planes
- Board size: 23.35 cm x 16.0 cm (9.19 in. x 6.3 in.)
- Estimated power requirements: +5VDC @ 4.3A, +12VDC @ 50mA,-12VDC @ 30 mA
- Operating range: 0 - 55 C, 85% relative humidity (non-condensing)

- **Front Panel**
- Serial connectors
- User programmable 7 segment display
- Reset / Interrupt switch

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