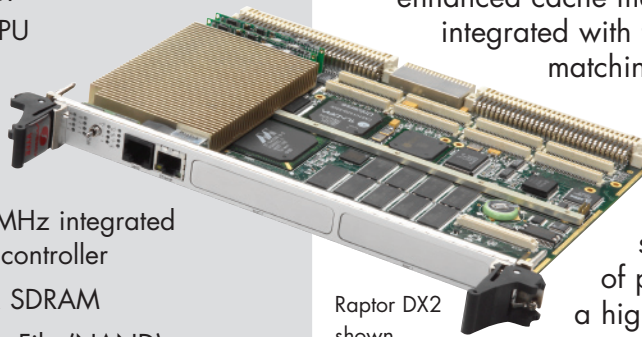




Manta DX3

- ◆ Air-cooled, 6U VME Single-board computer
- ◆ PowerPC 7457 up to 1.3 GHz with AltiVec technology
- ◆ Single or dual CPU
- ◆ 2 MB L3 cache per CPU & 2 MB private memory (opt.)
- ◆ 100/133/167 MHz integrated memory/system controller
- ◆ Up to 2 GB DDR SDRAM
- ◆ Up to 1 GB Flash File (NAND)
- ◆ Up to 64 MB Flash (NOR)
- ◆ Onboard StarFabric™ Switch Fabric Interconnect
- ◆ Two 64-bit PMC sites with PCI-X support
- ◆ I/O: VME 320 PCI-X Bridge, Gigabit Ethernet (2), serial (4) and Serial ATA (2)
- ◆ Compatible with Curtiss-Wright Math Libraries and Global Buffer Manager



Raptor DX2 shown

Single or Dual PowerPC 7457s Deliver 1.3 GHz Performance

The Manta DX3 features one or two, 1.3 GHz PowerPC 7457 CPUs in a shared memory architecture - providing unprecedented SMP capability and processor performance. Each CPU is supported by three levels of enhanced cache memory. The 512 KB L2 cache is now integrated with the CPU core and operates at speeds matching the frequency of the processor. Its eight-way associativity provides better system coverage - locating data faster and more efficiently. The 7457 provides up to 2 MB of back-side L3 cache and an optional 2 MB of private memory which can function as a high-speed "scratch pad" memory.

The Next Generations Technologies

The Manta DX3 truly embodies next generation technology by featuring the latest evolution of processor, memory controller, and VME interface. With the Manta DX3, VME finally enters the new millennium.

- ◆ *Tempe from Tundra*: Embracing the VME Renaissance with the new high-speed, high-bandwidth VME interface. Offers PCI-X interface which supports 320 MB/s 2ESST (Vita 1.5) VME bus transfers.
- ◆ *Discovery III from Marvel*: The most advanced system/memory controller available. Pairs 167 MHz memory with dual 100/133 MHz PCI-X buses, Gb Ethernet

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WRIGHT** Controls
Embedded Computing

and serial, all routed through a high-performance, crossbar switch architecture.

StarFabric Switch Fabric Interconnect

The Manta DX3 features StarFabric – the highly flexible, point-to-point, switched backplane and chassis-to-chassis interconnect technology. The SG 2010 PCI-StarFabric bridge on-board the Manta DX3 provides two, 2.5 Gbps, full-duplex StarFabric interfaces. The bridge

translates PCI traffic into serial frame format for transmission across the StarFabric network, supporting multiple routing methods including standard PCI addressing as well as Path and Multicast routing. StarFabric's scalable architecture allows engineers to design custom data network topologies, connecting multiple bridges and switches together with extensive flexibility.

Flexible I/O Configuration

The Manta DX3 combines high-speed performance with an abundance of I/O options including two Gb

Ethernet ports, four serial ports, two serial ATA channels, 16 discrete I/O pins and two industry standard 64-bit PMC sites supporting both PCI (33/66 MHz) and PCI-X (100/133 MHz) protocols. A wide range of PMC modules and carrier boards are available to support your I/O requirements.

Software Support

Comprehensive board support packages are available for multiprocessor VxWorks, Integrity and Symmetric Multiprocessing (SMP) Linux. Boards also

ship with STAR/ASTRix boot, diagnostic, and system monitor firmware. The onboard firmware also features user customizable power-up and built in test capabilities. For DSP applications, Curtiss-Wright offers its own extensible Math Library, hand-coded and optimized for the PowerPC and AltiVec technologies as well as Global Buffer Management software (GBM) to facilitate programming of fabric based system applications.

Processor

- PowerPC G4 - 7457, single or dual 933 MHz, 1 or 1.3 GHz

Memory (on-board, 100/133 MHz)

- Main memory: 256, 512 MB, 1 or 2 GB DDR SDRAM supporting parity/ECC
- L3 backside cache: 2 MB per CPU with additional 2 MB private memory (opt.)
- Flash File: NAND, up to 1 GB (opt.)
- Flash: NOR, up to 64 MB assigned to boot and alternate boot with flexible write protect options
- Auto-store NVRAM: 128 KB
- Battery backed (opt) Clock Calendar

VME Interface

- Interface: VME320, A32, D64
- PCI-to-VME interface: TSi 148: 2eSST

PCI Buses: Discovery III

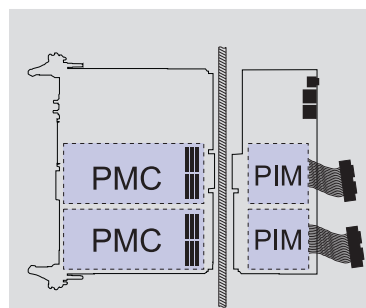
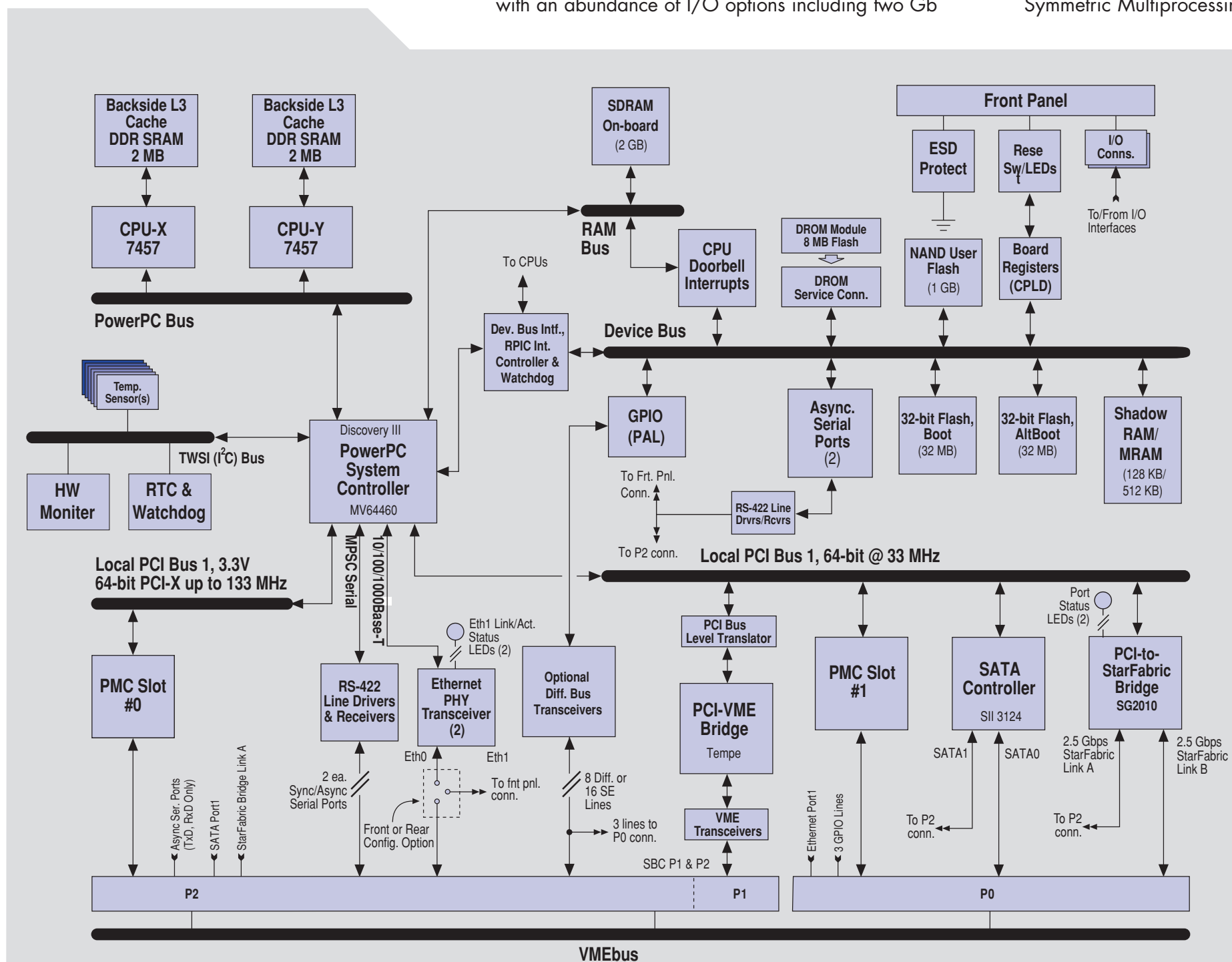
- PCI bus 0: 64-bit, up to 133 MHz, PCI/PCI-X supports PMC 0
- PCI bus 1: supports VME, serial ATA, StarFabric and PMC 1
- Two standard PMC sites: 64-bit, up to 133 MHz, supports PCI/PCI-X 3.3V (optional 5V) signaling/5V tolerant PMC 1 I/O thru P2, PMC 2 I/O thru P0

Switch Fabric Interconnect

- StarFabric: (SG2010) PCI-StarFabric bridge supports two 2.5 Gbps links, full duplex (opt.)

On-board I/O

- Ethernet: two autosensing 10/100/1000 Base-T: one front/one rear panel or two rear
- Serial: four RS-422/423 or 232: Two ports async. RS-232, front standard, rear panel optional w/no RTS/CTS



PIM Carrier Transition Module
Rear I/O option

The TAFD is a PIM Carrier Transition Module that matches the rear I/O options available on the Manta DX3, including two industry-standard PIM sites that correspond with the on-board PMC sites. The TAFD provides easy connectivity for rear-routed I/O for use in a development or lab environment.



Manta DX3

- ◆ Two ports sync. RS-422/423 or 232, rear
- ◆ Serial ATA 1.0: two channels, rear only 1.5 Gb/s

Physical Dimensions

- ◆ 6U form factor: 9.187" (233.35 mm) x 6.690" (169.93 mm) x .070" (17.78 mm)

Weight (approx.)

- ◆ Board only: 19.5 oz (540g)

Power Requirement (dep. on configuration)

- ◆ Configured with dual PPC 7457@1 GHz
133 MHz memory: 35 W

Environmental & Reliability

- ◆ Standard operating temp: 0° to +50° C
Extended temperature: -20° to +71° C
Ambient with forced air cooling
300-400 LFM dep. on configuration.
- ◆ Ruggedization levels:
L0: benign; 0 random/0 shock
L50: 6.25G RMS random /20G shock
L100: 8.9G RMS random/30G shock
- ◆ Storage temperature: -50° to 100° C
- ◆ Humidity: 0-95% RH non-condensing
- ◆ Altitude: battery, capacitor and EEPROM back-up options, high-altitude configurations available. Call for more information.

Other Features

- ◆ Seven multicolored status LEDs, eight user-programmable LEDs, and one reset switch
- ◆ Programmable interrupts – priority of any interrupt source can be set in software
- ◆ Two 32-bit counters can broadcast interrupts to all CPUs simultaneously
- ◆ Eight 32-bit general purpose counters
- ◆ Two interprocessor doorbell interrupts per CPU
- ◆ Aviation Watchdog timer
- ◆ TOD clock/calendar
- ◆ Five general purpose DMA controllers
- ◆ 16 bits discrete I/O: 3 via P0, 13 via P2
- ◆ System Management Bus (SMB) support
- ◆ I2O Message Unit

Options

- ◆ VxWorks, Linux SMP or Integrity BSP
- ◆ Flash File Manager (ECC & wear leveling)
- ◆ Temperature/ruggedization level
- ◆ Thermal sensors (1 std./6 optional)
- ◆ Conformal coating
- ◆ JTAG/COP debug connector
- ◆ PCI-X on PMC site 1 or StarFabric & SATA
- ◆ Other options include single or dual CPU, CPU speed, SDRAM size, Flash size and additional private memory (cache)

Accessories

- ◆ PIM Carrier Transition Module (TAFD)
- ◆ DROM: removable boot Flash
- ◆ DSP Math Library