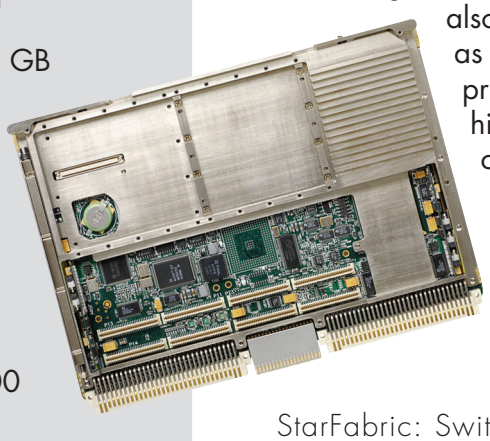
Product Fact Sheet

Conduction-cooled Rhino DX SBC with Onboard StarFabric

- Conduction-cooled, 6U VME Single-board Computer
- Single or dual, PowerPC 7457 up to 1.3 GHz with Altivec™
- Up to 1 GB SDRAM
- 100/133 MHz System/Memory Controller (Discovery™ I)
- 64 MB Flash (NOR) & 1 GB NAND Flash
- StarFabric™ Switch Fabric Interconnect
- Two 64-bit PMC sites
- Full complement of I/O capability: Serial (4), FireWire (2) and 10/100 Ethernet (2)
- DSP capable with CWCEC DSP Math Library and Communications Software
- BSP support for VxWorks®, INTEGRITY™ or Linux (SMP)



Single or Dual PowerPC 7457

Available in a single or dual CPU configuration, the Rhino DX features the advanced performance of the PowerPC G4 7457 CPU, available in clock speeds up to 1.3 GHz. The 7457 is supported by three levels of enhanced cache memory. The L2 cache joins the L1 on-chip. Now integrated with the CPU core, the L2 operates at speeds matching the frequency of the processor. Its eight-way associativ-ity provides better system coverage – locating data faster and more efficiently. The 7457 also supports a 2 MB L3 backside cache as well as an additional (optional) 2 MB private memory which can func-tion as a high-speed "scratch pad." The Rhino MX complements the 7457 processor with the Discovery I™ advanced system control-ler – a single chip that integrates fast memory, dual PCI buses and abundant I/O functionality, all routed through a high-bandwidth crossbar.

StarFabric: Switch Fabric Interconnect

The Rhino DX features StarFabric – the highly flexible, point-to-point switched backplane and chassis-to-chas-sis interconnect tech-nology that provides high-speed interboard communications. The PCI–StarFabric bridge provides two 2.5 Gbps, full-duplex StarFabric interfaces. The bridge translates PCI traffic into serial frame format

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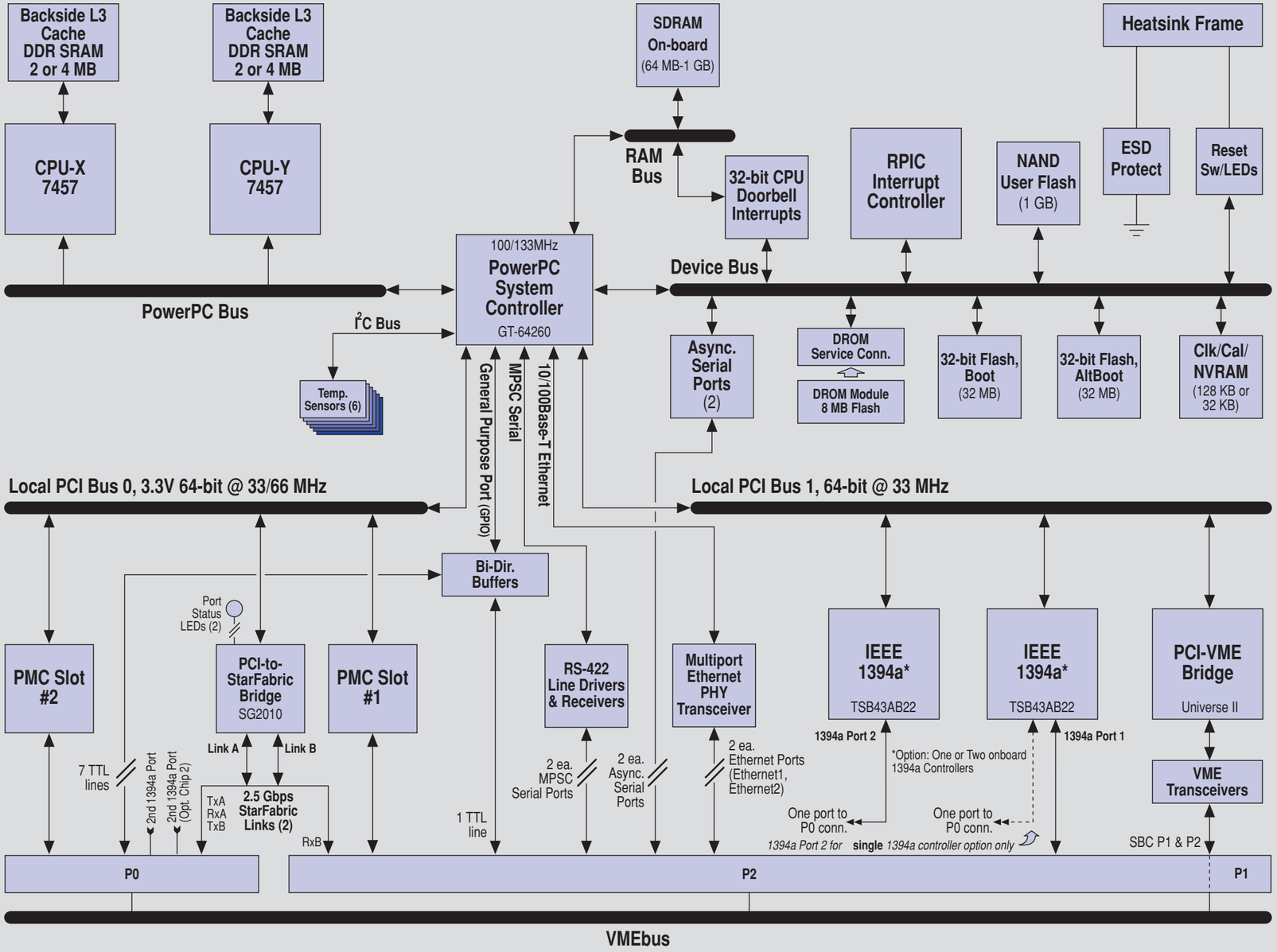

for transmission across the StarFabric network, supporting multiple routing methods including standard PCI addressing as well as path and multicast routing. StarFabric's scalable architecture allows engi-neers to design custom network topologies, connecting multiple bridges and switches together with unlimited flexibility.

Software Support

In addition to the comprehensive board support package, the Rhino DX ships 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

- Single or dual PowerPC 7457, 733 MHz, 1 or 1.3 GHz

Memory

- Main memory: 256, 512 MB or 1 GB SDRAM supporting parity/ECC
- L3 backside cache: 2 MB per CPU, 2 MB private memory (opt.)
- Flash: 64 MB (NOR) assigned to boot and alternate boot with flexible write protect options
- Flash: 1 GB (NAND) (opt.)
- NVRAM (clock/calendar): 128 KB

VME Interface

- Interface: VME64x, A32, D64
- PCI-to-VME interface: Universe II

PCI Buses (dual PCI buses)

- PCI bus 0: 64-bit 33/66 MHz supports StarFabric and PMC sites
- PCI bus 1: 64-bit/33 MHz supports VME and FireWire.

Switch Fabric Interconnect

- StarFabric: dual channels support two 2.5 Gbps links or single 5 Gbps link, full duplex

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PMC I/O

- Two standard 64-bit PMC sites: 3.3V (optional 5V) signaling
- Controlled impedance and differential pair support on PMC I/O

Onboard I/O

- Ethernet: two auto-sensing 10/100
- Serial: two async. RS-422/423 or 232, and two high-speed sync./async. RS-422
- FireWire: two ports, 400 Mb/s (opt)

Power Requirement (based on config.)

- Dual 7457@1 GHz, 512 MB SDRAM: +5.0V +5%/-2.5%, 6.6 A typical @ 5.00V (33 W)

Environmental

- Operating temp: -40° to +85° C, Conduction-cooled only
- L100 and L200 ruggedization levels available

Other Features

- Six multicolored status LEDs, eight user-programmable LEDs, and remote reset via P2
- 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 gen. purpose counters
- Two interprocessor doorbell interrupts per CPU
- Watchdog timer
- TOD clock/calendar
- Five gen. purpose DMA controllers
- Eight bits discrete I/O
- I20 Message Unit
- Conformal coating (opt)
- Flash File Manager (opt) (ECC & wear leveling)
- JTAG/COP debug connector (opt)
- PIM Carrier Transition Module (opt) for connection to rear-routed I/O

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