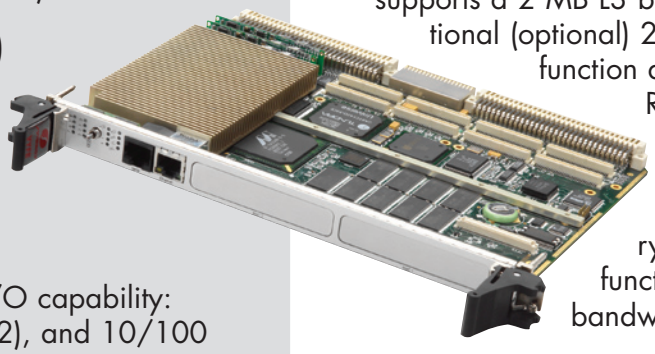
Product Fact Sheet

Air-Cooled Raptor DX2 SBC

with Onboard StarFabric

- Air-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)
- 128 MB Flash (NOR)
- StarFabric™ Switch Fabric Interconnect
- Two 64-bit PMC sites
- Full complement of I/O capability: Serial (4), FireWire (2), and 10/100 Ethernet (3)
- DSP capable with Curtiss-Wright DSP Math Library and Communications SW
- BSP support for VxWorks®, INTEGRITY™ or Linux (SMP)



Single or Dual PowerPC 7457

Available in a single or dual CPU configuration, the Raptor DX2 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 associativity 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 function as a high-speed "scratch pad". The Raptor DX2 complements the 7457 processor with the Discovery I™ advanced system controller – 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 Raptor DX2 features StarFabric – the highly flexible, point-to-point switched backplane and chassis-to-chassis interconnect technology. The SG 2010 PCI-to-StarFabric bridge onboard the Raptor DX2 provides two 2.5 Gbps, full-duplex StarFabric interfaces. The bridge translates PCI traffic into serial frame format for transmission across StarFabric, supporting multiple routing methods

For more information on our broad range of high-integrity computing solutions, please visit our website at **www.cwcembedded.com**.

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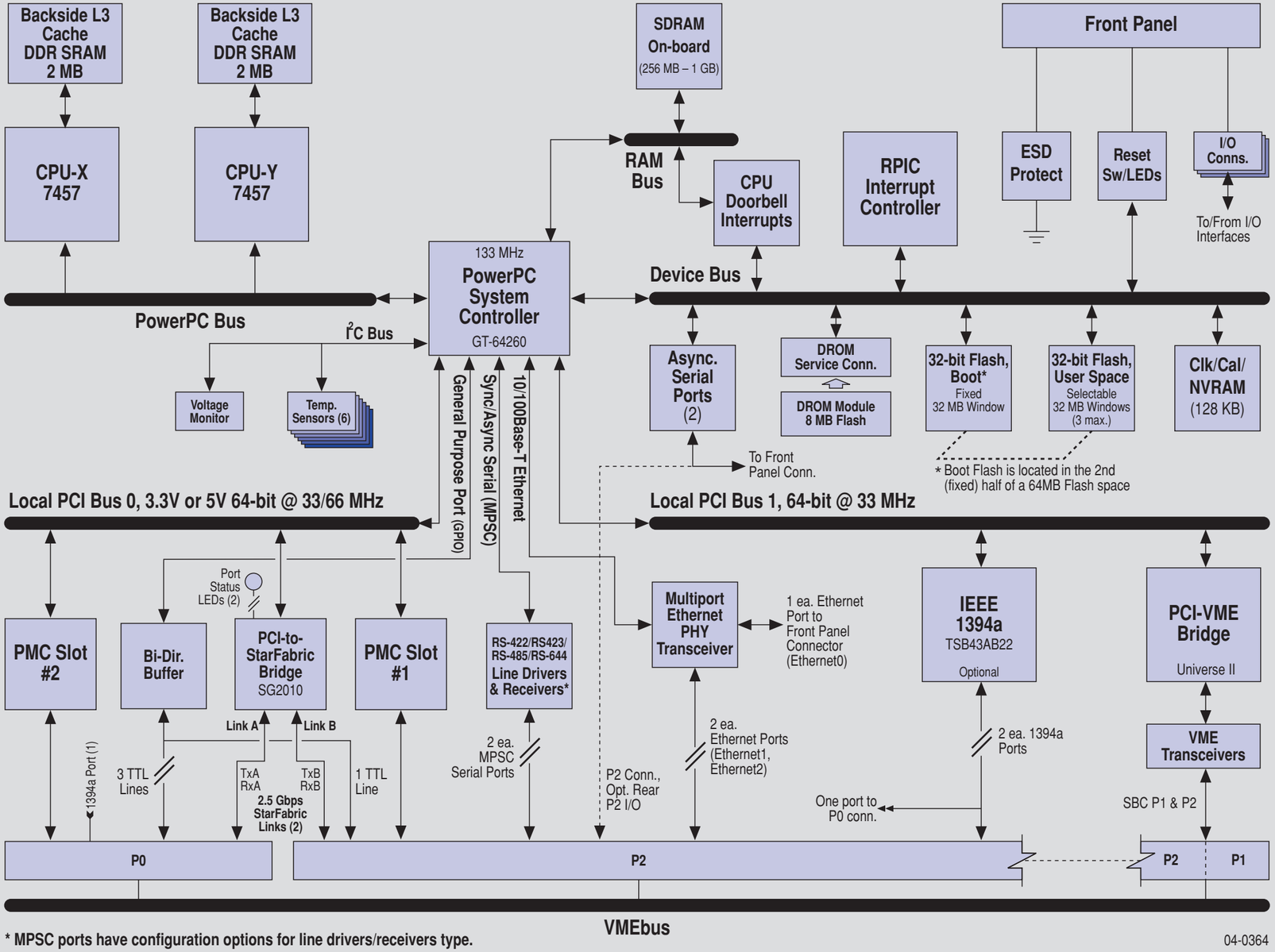

* MPSC ports have configuration options for line drivers/receivers type.

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including standard PCI addressing as well as path and multicast routing. StarFabric's scalable, open architecture allows engineers to design custom network topologies, connecting multiple bridges and switches together with unlimited flexibility.

Software Support

CWCEC offers extensive board support packages for multiprocessor VxWorks, Integrity and Symmetric Multiprocessing (SMP) Linux. The Raptor DX2 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 or 128 MB (NOR) assigned to boot and alternate boot with flexible write protect options
- 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/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: three auto-sensing 10/100
- Serial: two ports async. RS-232/423,
- Serial: two ports RS-232/422/423, RS-485/RS-644 (HVDS/LVDS)
- IEEE 1394a: two channels, 400 Mb/s

Power Requirement (based on config.)

- One 7457 @ 1GHz, 512MB SDRAM: +5.0V +5%/-2.5%, 5 A typical @ 5.00V (25 W)

Environmental

- Standard op. temp.: 0° to +50° C,
  Extended temp.: -20° to +71° C,
  Extreme temp: -40° to +71° C,
  200-600 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
  L200 ruggedization level available

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 gen. purpose counters
- Two interprocessor doorbell interrupts per CPU
- Watchdog timer
- TOD clock/calendar
- Eight gen. purpose DMA controllers
- 4 bits descrete I/O through P0
- I20 Message Unit
- Conformal coating (opt)
- Thermal sensors (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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