Features

Processor (60x) Bus Interface

- 100MHz bus frequency
- 64-bit data bus
- 8-bit ECC on the data bus
- Optional ECC protection
- PowerPC arbiter

PowerPro is the only discrete 100 MHz PowerPC memory controller.

Memory Interface

- Directly control data latching through PowerPro
- SDRAM Interface
- FLASH/ROM Interface
- 64-bit data bus — 72-bit data bus with ECC
- 32 Mbytes to 4 Gbytes of SDRAM
- Supports four SDRAM DIMMs — 1 Gbyte support for each SDRAM DIMM
- Read Ahead buffer
- Flexible page management — independently controls up to 32 pages

Integrated Features

- 50-bit General Purpose I/O port
- Dual UART (DUART)
- Interrupt Controller
- I^2C Interface

Packaging

- 376 PBGA, 1 mm ball pitch

Temperature Range

- Commercial: 0°C to 70°C
- Industrial: -40°C to 85°C

The PowerPro Advantage

PowerPro delivers memory control support for the Tundra PowerPC-to-PCI bus switch — PowerSpan. PowerPro is designed for applications to leverage the Switched PCI architecture of PowerSpan in PowerPC 750 applications. In joint PowerPC 750 and PowerQUICC II (MPC8260) applications, PowerPro enables ECC protection.
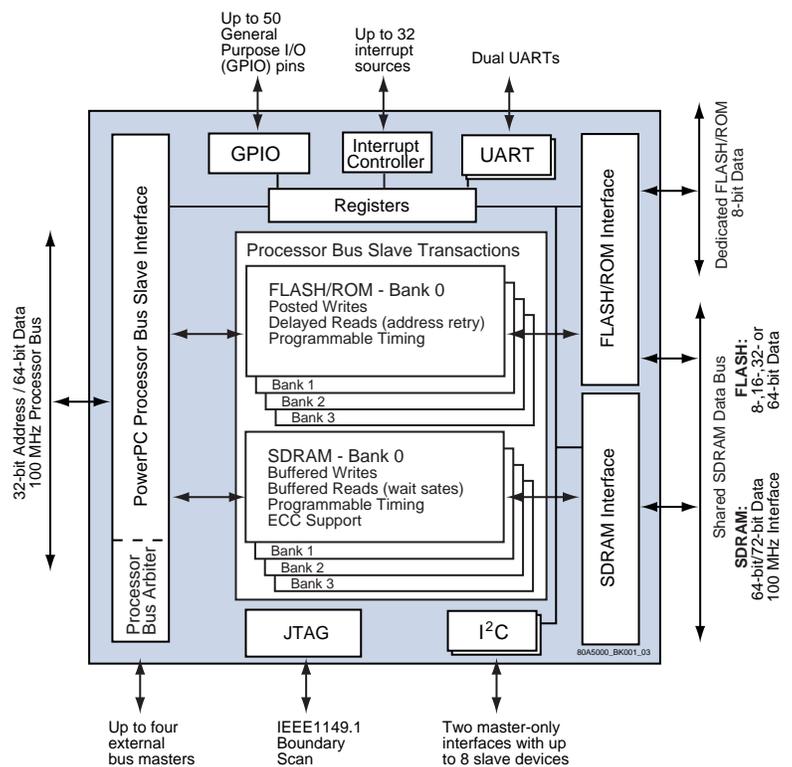
The key functionality includes PC-100 SDRAM control and ECC protection. These features are becoming standard requirements in next-generation PowerPC systems. PowerPro supports 8-,16-, and 32-bit Flash, as well as other local peripheral devices such as UARTs.

Increasing PowerPC bus frequencies are making it more difficult to add slow peripherals to the processor bus. Local device support on the PowerPro enables designers to segment slow peripherals from the high-speed PowerPC bus.

Commercially available PowerPC memory controllers are traditionally integrated with a large and complex PCI host bridge. PowerPro is the only discrete SDRAM controller for non-PCI PowerPC applications on the market today.

PowerPro, combined with PowerSpan, offers a new, modular approach to PowerPC system design.

Figure 1: PowerPro Block Diagram

Benefits

- Modular PowerPC design
- Increased throughput with memory system optimization
- Proven product testing in a hardware emulation environment
- Reduced design effort in both software and hardware PowerPC systems

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PowerPro offers ECC protection in PowerPC 750 and PowerQUICC II (MPC8260) applications.

Typical Applications

PowerPro is targeted at communications infrastructure applications, such as:

- ADSL concentrators
- CDMA base stations
- VoIP gateways
- Ethernet switches
- VPN equipment
- MPEG 2 encoders
- Exchange carrier switching equipment

Contact Information

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Typical Applications

PowerPro interfaces to multiple members of the PowerPC family of processors and can be used in many PowerPC architectures. PowerPro can also be used in systems that support the PCI bus.

Figure 2 illustrates a typical PowerPro application involving the PowerPC 750 and PowerSpan. In this diagram, PowerPro is used in a PowerPC and PCI system.

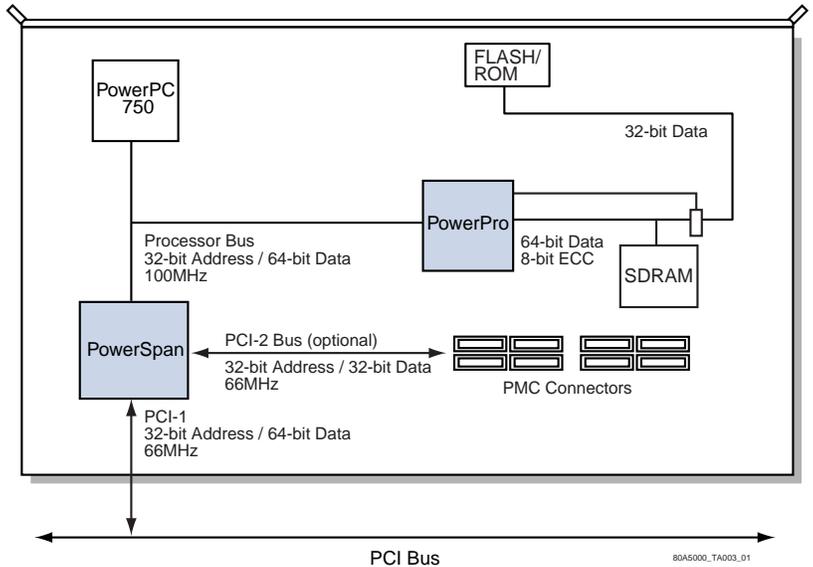**Figure 2: PowerPro, PowerPC and PCI Application**

Figure 3 illustrates a typical PowerPro application involving the MPC8260 and the PowerPC 750. This system is implementing the ECC protection that is available with PowerPro. The PCI bus is not involved.

Figure 3: PowerPro, PowerPC 750 and MPC8260 Application