

## 440EPx PowerPC 440EPx Embedded Processor

*Preliminary Data Sheet*

### Features

- PowerPC® 440 processor operating up to 667MHz with 32KB I-cache and D-cache with parity checking.
- 16KB of on-chip SRAM.
- Selectable processor:bus clock ratios of N:1, N:2.
- Floating Point Unit with single- and double-precision and single-cycle throughput.
- Dual bridged Processor Local Buses (PLBs) with 64- and 128-bit widths.
- Double Data Rate 2/1 (DDR2/1) Synchronous DRAM (SDRAM) interface operating up to 166MHz (333 MHz data transfer rate) with optional ECC.
- DMA support for external peripherals, internal UART and memory.
- Programmable Interrupt Controller supports interrupts from a variety of sources.
- Programmable General Purpose Timers (GPT).
- PCI V2.2 interface (3.3V only). Thirty-two bits at up to 66MHz.
- Two Ethernet 10/100/1000Mbps half- or full-duplex interfaces. Operational modes supported are MII, GMII, RGMII, SMII, TBI, and RTBI with packet reject, Jumbo frames, and interrupt coalescing.
- Up to four serial ports (16750 compatible UART).
- One USB 2.0 Device or Host interface with internal PHY and one USB 2.0 direct Device UTMI interface.
- External peripheral bus (32-bit data) for up to six devices with external mastering.
- Two IIC interfaces (one with boot parameter read capability).
- NAND Flash interface.
- SPI interface.
- General Purpose I/O (GPIO) interface.
- JTAG interface for board level testing.
- Boot from PCI memory, NOR Flash on the external peripheral bus, or NAND Flash on the NAND Flash interface.
- Optional security feature (PPC440EPx-S).
- Available in RoHS compliant, lead-free package.

### Description

Designed specifically to address high-end embedded applications, the PowerPC 440EPx (PPC440EPx) provides a high-performance, low-power solution that interfaces to a wide range of peripherals and incorporates on-chip power management features.

This chip contains a high-performance RISC processor, on-chip SRAM, a floating point unit, DDR2/1 SDRAM controller, PCI bus interface, control for external ROM and peripherals, DMA with scatter/gather support, Ethernet ports, serial ports, IIC interfaces, SPI interface, USB ports, NAND Flash interface, an optional security feature (PPC440EPx-S), and general purpose I/O.

Technology: CMOS Cu-11, 0.13µm.

Package: 35mm, 680-ball thermally enhanced plastic ball grid array (TE-EPBGA). RoHS compliant package available.

Typical power: Less than 3W at 533MHz.

Supply voltages required: 3.3V, 2.5V, 1.8V (DDR2) or 2.5V (DDR1), 1.5V.