

# MPC8313E-RDB Reference Platform

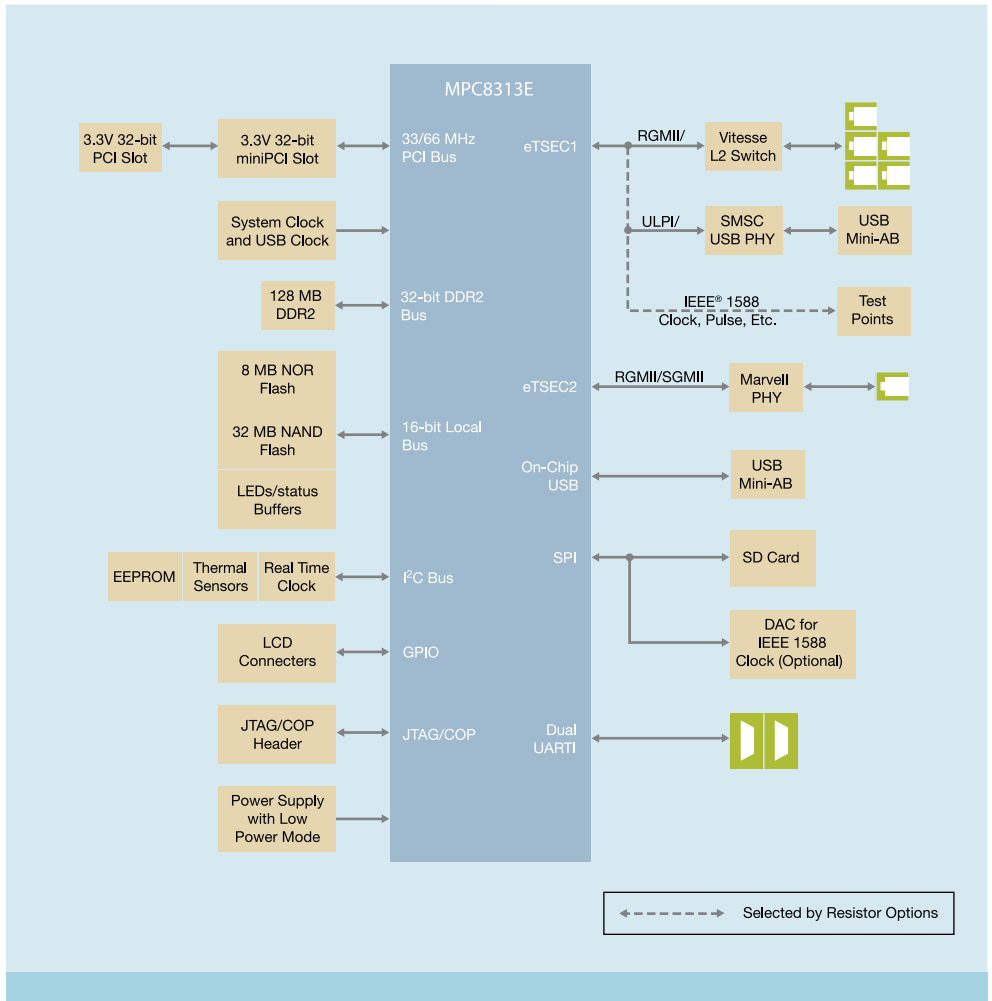
## Overview

The MPC8313E-RDB reference platform is ideal for hardware and software development for cost-optimized networking applications. The cost-effective MPC8313E communications processor family meets the requirements of several small office/home office (SOHO), printing, IP services and industrial control applications. It leverages Freescale's highly integrated MPC8313E processor built on Power Architecture™ technology and leading-edge external components—a 5-port Gigabit Ethernet switch, USB port, one Peripheral Component Interconnect (PCI) slot, one MiniPCI slot and one SD card memory slot. The high level of integration in the MPC8313E helps to lower overall system costs, improve performance and simplify board design.

The MPC8313E microprocessor supports dual 10/100/1000 Mbps Ethernet controllers, single 32-bit PCI controller, integrated security engine, USB 2.0 host, four-channel direct memory access (DMA), dual universal asynchronous receiver/transmitter (DUART), serial peripherals, general purpose I/O and system timers. The introduction of Gigabit Ethernet (SGMII), High-Speed USB 2.0, and low-power management makes it unique in the marketplace.

For extremely precise clock synchronization for applications such as time-sensitive telecommunications services, industrial network switches, powerline networks and test/measurement devices, the MPC8313E features integrated IEEE® 1588 time synchronization, the leading-edge standard.

MPC8313E Block Diagram



A board support package (BSP) is preinstalled on the MPC8313E-RDB. This BSP consists of a boot loader (u-boot), a generic Power Architecture technology system based on the Linux kernel. The u-boot and the Linux kernel reside in the on-board flash memory. On powering up, the Linux system runs on the MPC8313E-RDB. The MPC8313E-RDB BSP generation takes advantage of the Linux Target Image Builder (LTIB), a suite of tools that leverages existing open source configuration scripts and source code packages and bundles them all into a single BSP generation bundle. The source code packages include boot loaders and Linux kernel sources as well as many user-space source code packages to build a complete BSP. The LTIB also provides compiler packages required to build the BSP. Freescale developers use the LTIB to create BSPs for a multitude of Freescale development markets. The LTIB leverages as many BSP elements as possible for all Freescale markets supported, while offering the flexibility necessary to customize components that require platform-specific modifications.

Many third-party applications are available for the MPC8313E-RDB. They are typically built on top of the BSP delivered by Freescale and are installed on the hard disk. To see demonstrations or to acquire details of Freescale's third-party applications for this platform, please contact your local Freescale sales office.

### MPC8313E RDB Board Features

- CPU: Freescale MPC8313E running at 333/333 MHz (CPU/DDR2)
- Memory subsystem:
  - 128 MByte unbuffered DDR2 SDRAM discrete devices
  - 8 MByte Flash single-chip memory
  - 32 MByte NAND Flash memory
  - 256 KBit M24256 serial EEPROM
  - SD connector to interface with the SD memory card in SPI mode
- Interfaces:
  - 10/100/1000 BaseT Ethernet ports:
    - eTSEC1, RGMII interface: five 10/100/1000 BaseT RJ-45 interfaces using Vitesse™ VSC7385 L2 switch
    - eTSEC2, selectable RGMII or SGMII interface: one 10/100/1000 BaseT RJ-45 interface using Mavell™ 88E1111 PHY
  - USB 2.0 port:
    - High speed host/device USB interface: selectable on-chip PHY or external ULPI PHY interface by SMSC USB3300 USB PHY
  - PCI: 32-bit PCI interface running at up to 66 MHz
    - One 32-bit 3.3V PCI slot connected to PCI bus
    - One 32-bit 3.3V miniPCI slot connected to PCI bus
  - Dual UART ports:
    - DUART interface: supports two UART up to 115200 bps for console display
- Board connectors:
  - LCD connectors by GPIO
  - ATX power supply connector
  - JTAG/COP for debugging



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