Embedded Computing Development

MPC8544DS

Integrated media and communications processor development system

Overview

The MPC8544DS reference platform is ideal for hardware and software development for embedded applications. It leverages Freescale's highly integrated MPC8544E processor built on Power Architecture™ technology and leading-edge external components.

The high level of integration in the MPC8544E helps to lower system costs, improve performance and simplify board design. The MPC8544E microprocessor supports dual-enhanced three-speed Ethernet controllers (eTSEC), multiple PCI Express® ports (dual x 4 and a single x 1), a 32-bit PCI controller, 4-channel direct memory access (DMA), dual universal asynchronous receiver/transmitter (DUART), serial peripherals, general purpose I/O and system timers. The MPC8544E also integrates a hardware encryption block that supports different algorithms for high-performance data that is critical for supporting secure communications. A board support package (BSP) is pre-installed on the MPC8544DS. This BSP consists of a boot loader (u-boot) and a generic Power Architecture™ technology system based on the Linux® kernel. The u-boot binary and the Linux kernel reside in the on-board flash memory with a file system pre-installed on the hard disk shipped in the MPC8544DS.

The MPC8544DS 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 loader 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 the Freescale markets supported, while offering the flexibility necessary to customize components that require platform specific modifications.

Many third-party applications are available for the MPC8544DS. They are typically built on top of the BSP delivered by Freescale and can 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.
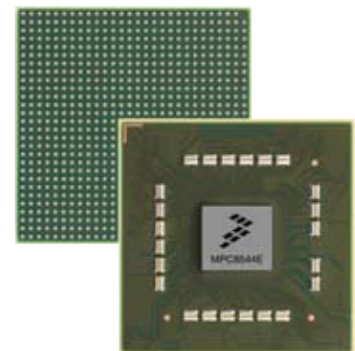
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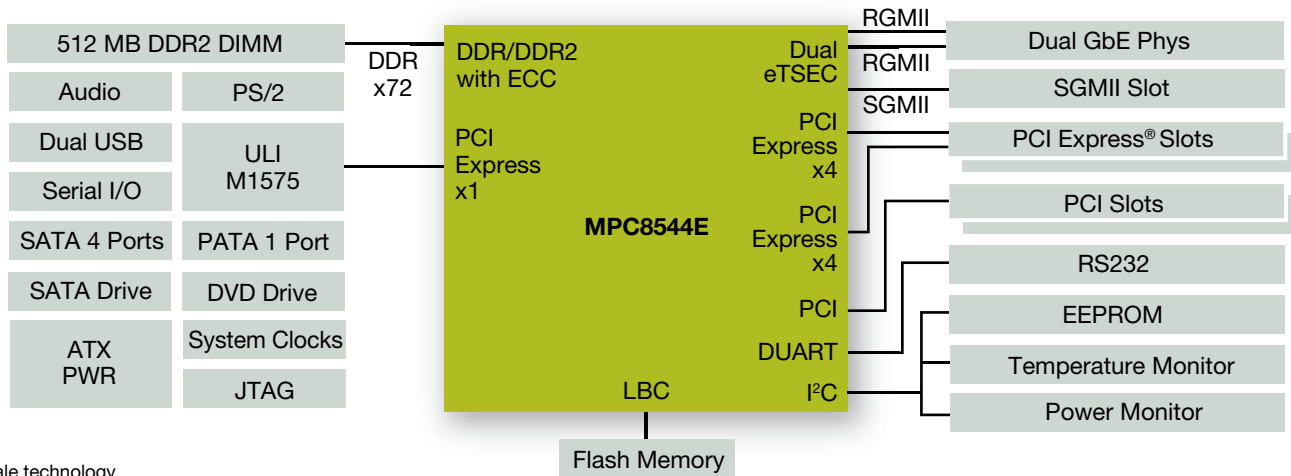
Freescale technology

MPC8544DS — Development System

- MPC8544E PowerQUICC® III processor
- 512 MB DDR2 DIMM
- Southbridge ULI 1575
  - IDE controller
  - Parallel ATA
  - Serial ATA 2 (RAID-1 Support)
  - USB Interface
    - UHCI/EHCI USB 2.0 interface
    - Two ports on stacked USB header
    - Two ports on PCB header
  - PCI (dual slots)
  - LPC (socketed) boot flash
  - Audio
  - Keyboard and mouse
  - Real-time clock
- NVRAM: 256 bytes
- System logic (FPGA)
  - Manages system reset sequencing
  - Manages system bus and PCI clock speed selections
  - Controls system and monitoring
  - Implements registers for system control and monitoring

- System clock
  - Switch selectable to one of eight common settings in the interval
    - Software selectable in 1 MHz increments
- Power Supplies
  - VCORE supplied by a programmable switcher
  - VTT/VREF for DDR
- General I/O power
- Additional interconnects
  - RS232
  - PCI
  - Dual PCI Express
  - SGMII
  - JTAG
  - ATX PWR
  - DDR2 DIMM
- Software Tools
  - Linux 2.6.x Kernel
  - Cross compile and native GNU tool chain
  - CodeWarrior® interconnects USB Tap

Learn More: For current information about Freescale products and documentation, please visit **www.freescale.com**.

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