MPC8572DS

Integrated communications processor development system

Overview

The ATX form-factor MPC8572E development system (MPC8572DS) is ideal for hardware and software development for embedded applications. It leverages Freescale's highly integrated MPC8572E processor, built on Power Architecture® technology, and leading-edge external components.

The high level of integration in the MPC8572 processor helps to lower system costs, improve performance and simplify board design. The MPC8572E processor features:

- Dual embedded e500 cores, up to 1.5 GHz
  - 6897 MIPS at 1500 MHz (estimated Dhrystone 2.4)
- 36-bit physical addressing
- Enhanced hardware and software debug support
- Double-precision floating point unit
- Memory management unit
- L1/L2 cache
  - L1 cache—32 KB data and 32 KB instruction cache with line-locking support
  - Shared L2 cache—1 MB with ECC
  - L1 and L2 hardware coherency
  - L2 configurable as SRAM, cache and I/O transactions can be stashed into L2 cache regions
- Integrated dual 64-bit DDR memory controller with full ECC support, supporting up to 400 MHz clock rate (800 MHz data rate):
  - 1.8V SSTL, DDR2 SDRAM
  - 1.5V SSTL, DDR3 SDRAM
- Application acceleration platform
  - Advanced table lookup unit
  - Integrated security engine supporting DES, 3DES, MD-5, SHA-1/2, AES, RSA, RNG, Kasumi F8/F9, ARC-4 encryption algorithms and XOR RAID acceleration
  - Integrated PME (Regular Expression)
  - Packet deflate engine
- Four on-chip, triple-speed Ethernet controllers supporting 10 and 100 Mbps, and 1 Gbps Ethernet/IEEE® 802.3 networks with MII, RMII, GMII, SGMII, RGMII, RTBI and TBI physical interfaces and IEEE 1588
  - TCP/IP checksum acceleration and advanced QoS features
  - Lossless flow control
- 100 Mbps MII debug port
- General-purpose I/O
- Serial RapidIO® and PCI Express® high-speed interconnect interfaces
- On-chip network (OCeaN) switch fabric
- 150 MHz, 32-bit, 3.3V I/O, local bus with memory controller
- Dual Integrated DMA controller
- Dual I²C and DUARTS
- Programmable interrupt controller
- IEEE 1149.1 JTAG test access port
- 1.1V core voltage with 3.3V/2.5V/1.8V/1.5V I/O
- 1023-pin FC-PBGA package

A board support package (BSP) is pre-installed on the MPC8572DS. 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 MPC8572DS development system.

The MPC8572DS 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, packing 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 MPC8572DS. They are typically built on top of the BSP delivered by Freescale and can be 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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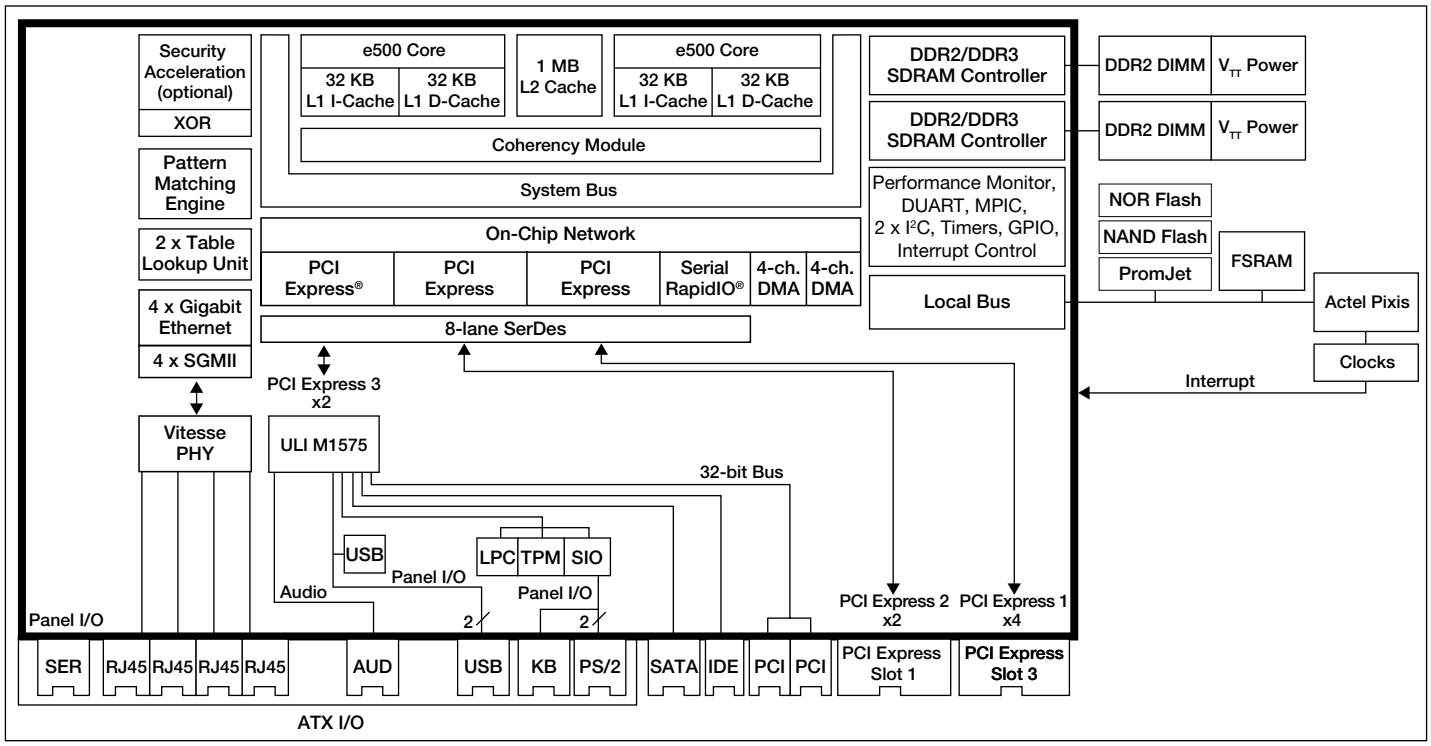
MPC8572DS Block Diagram



Board

MPC8572 Development System

- MPC8572E PowerQUICC® III processor
  - See full feature list from the device reference manual
  - PCI Express (SerDes1)
    - x4 connections to PCI Express slot2
  - PCI Express (SerDes2)
    - x2 connections to PCI Express slot1
  - PCI Express (SerDes3)
    - x2 connectivity to ULI M1575 South bridge
  - SGMII support
    - x4 connectivity to SGMII PHY plug-in card
  - Trusted platform modules using I²C and ULI LPC
- South bridge
  - NVIDIA/ULI M1575
  - 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 (mates with standard PC chassis connectors)
  - PCI
    - Two 5V, 33 MHz slots
  - Other
    - LPC (socketed) boot flash
    - Real-time clock
    - NVRAM: 256 byte
- System logic
  - Manages system reset sequencing
  - Manages system bus and PCI clock speed selections
  - Controls system and monitoring
  - Implements registers for system control and monitoring
- Clocks
  - System and DDR clocks
    - Switch selectable to one of eight common settings in the interval
    - Default = 66 MHz Sysclk
    - Software selectable via FPGA in 1 MHz increments
- Power supplies
  - VCORE supplied by a programmable switcher
  - VTT/VREF for DDR
  - General I/O power

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

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