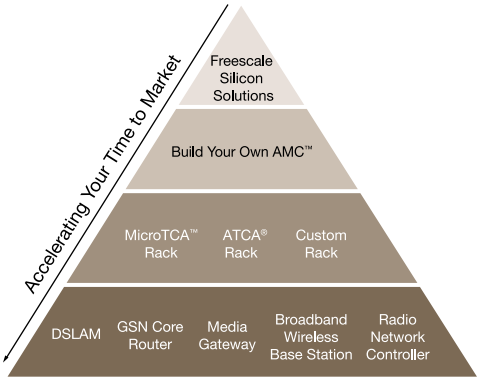
AdvancedMC™ Reference Design

MPC8641D high-performance processing card

Featuring

- MPC8641D
  - 2 x e600 Power Architecture™ cores at up to 1.5 GHz + AltiVec® technology coprocessor
  - 2 x e600 cores can operate in both run in symmetric multiprocessing mode (one OS assigns tasks to each core) or asymmetric multiprocessing mode (each core can run a separate OS)
  - 3450 MIPS at 1.5 GHz/core
  - Integrated multiple cores increase system performance while reducing inter-core latencies
  - Integrated I/O and memory controllers help reduce system footprint and overall power dissipation
- Application area
  - Data plane and board control processing within:
    - Radio network controller (RNC)
    - Media gateway (MGW)
    - Access gateway (AGW)
- Reference design collateral
  - Comprehensive pack of design collateral
  - Assists customer designs and reduces time to market
- Supports industry-standard rack options
  - AdvancedTCA® (ATCA) or MicroTCA™



Speeding up Development, Intercepting Markets

Rapid time to market is one of the most critical success factors for any business. With this ever increasing pressure, the need to quickly prototype and develop designs and systems can be a key engineering bottleneck. As part of Freescale's ATCA/AdvancedMC™ (AMC) Rapid System Development Program, the reference designs are free design examples with supporting collateral to help accelerate the design and systems building process.

Each of the reference designs is supported with collateral comprised of detailed designed specifications, schematics, Gerbers, firmware code/files and software such as board support packages (BSPs) and drivers.

The MPC8641D-based AMC design example featured here is a host processor blade aimed at compute-intensive data plane applications such as those within MGW and RNC applications. The high-performance MPC8641D with dual e600 cores can provide a range of processing from radio link control (RLC) and media access control (MAC) within the RNC. Additionally, the AltiVec coprocessor can also be used to off-load the e600 cores for security encryption within an RNC.

Reference Design Collateral

- Detailed Design Specifications (DDS): Details the specifications of the design example. Helps customers understand the architecture and components used in the design.
- Schematics: Comprehensive design level schematics. Aids and accelerates the design process by giving customers full design level connectivity and component values.
- Gerber Files: Design example Gerber data to assist manufacturing—drilling diagrams, routing plots, tracking and hole dimensions etc.
- Firmware: Design example code for on-board CPLDs, FPGAs and ROMs.
- Software: BSPs, drivers and demo applications to assist in design, board and application bring-up.
- Device Data Sheet Links: Quick links to all online Freescale device data sheet and resources to speed up device knowledge.

Note: The design examples are provided "AS IS". The reference design collateral may be subject to registration, license or other agreements.

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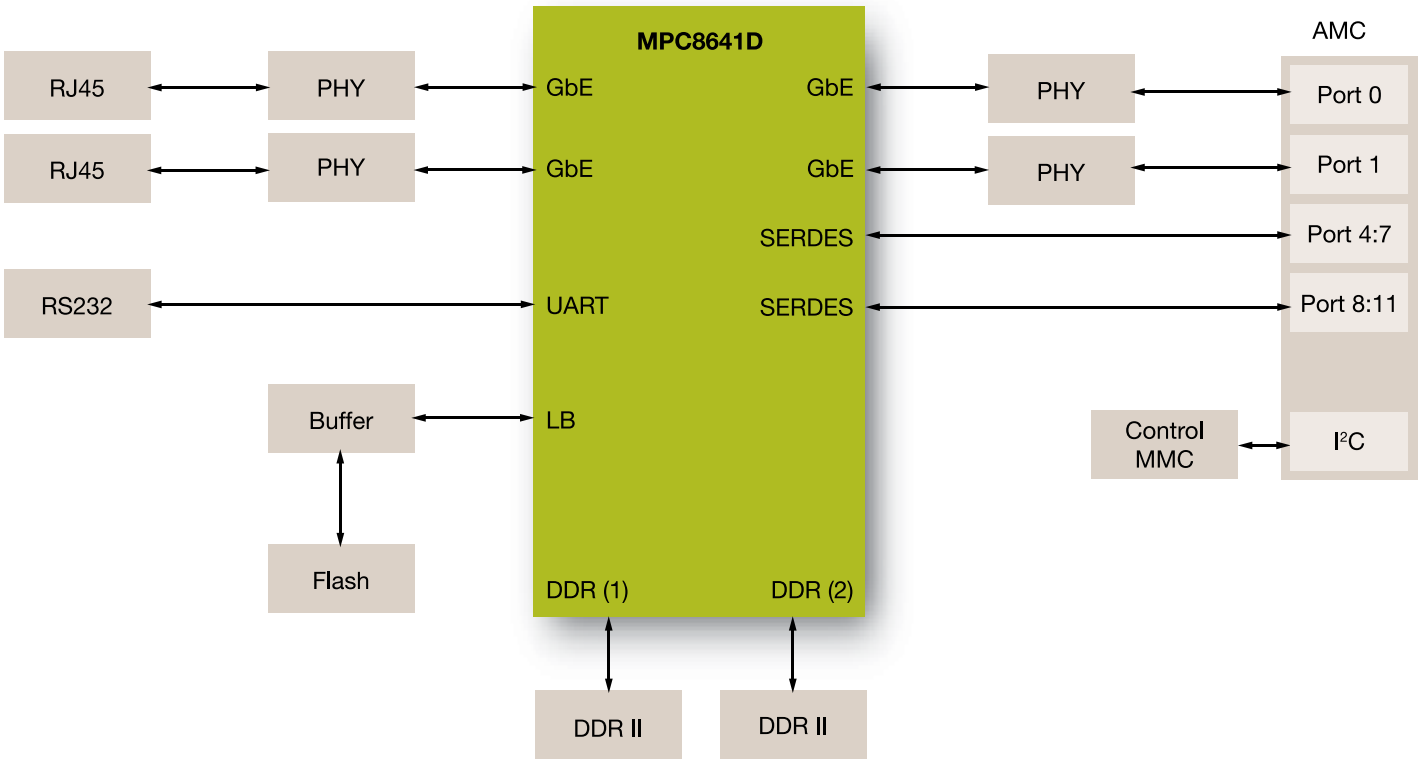
MPC8641D AdvancedMC™ Block Diagram



Board Level Device Features

- MPC8641D
  - 2 x e600 Power Architecture cores at up to 1.5 GHz
  - 3450 MIPS at 1.5 GHz/core
  - AltiVec technology coprocessor
  - 1 MB on-chip L2 cache/core
  - RapidIO® interface 1 x/4 x port or
  - PCI Express® interface 1 x/4 x/8 x lane(s)
  - 4 x Gigabit Ethernet (GbE) interfaces
  - DDRII memory controller: 666 MHz, 64-bit
  - Local bus flash interface

Board Memory

- 2 x 512 MB DDR II (discrete)
- 16 MB flash memory

Board I/O

- AMC connector
  - 1 x/4 x Serial RapidIO® (Port 4:7)
  - 4 x/8 x PCI Express (Port 4:11)
  - 2 x 1000Base-X (Port 0,1)
- Front panel
  - 2 x GbE interfaces (RJ45)
  - RS232
- Headers and debug
  - JTAG/COP

Application Area

Data plane and processing in many areas, such as:

- RNC
- MGW
- AGW

Learn More: For more information about Freescale's ATCA/AMC Rapid System Development Program, please visit **www.freescale.com/atca**.

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