MPC8349E-mITX-GP Evaluation Platform for Industrial Applications
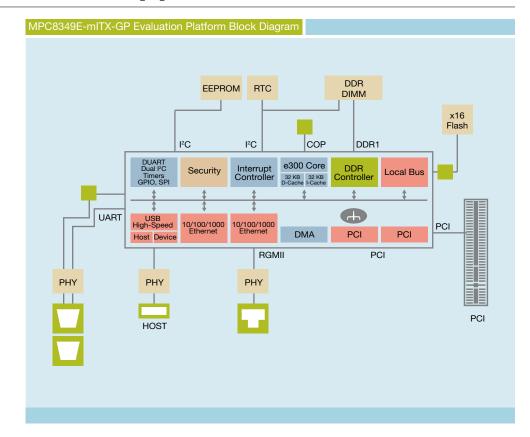
Power Architecture™ Delivers

- Integrated products with pricing starting at $13 for 300 MHz
- Devices with a max power of less than 2 watts
- Best-in-class system performance
  - Value-added integration
  - Less frequency—allowing greater system options
  - Additional cost and power savings

Power Architecture is Ideally Suited for Industrial Applications

- Multi-protocol support
- Ethernet controllers integrated on many processors
- On-chip interconnect interfaces—no external bridge chips required
- On-chip memory controllers—no chipset required
- Low heat generation and extended temperature ranges for fanless operation
- Long-term product life cycles
- An extensive third-party ecosystem, including Linux® OS support

Targets Industrial Applications, Including:

- Automation and robotics
- Test and measurement
- Process manufacturing control
- Aerospace
- Building control
- Health care

MPC8349E-mITX-GP Evaluation Platform Block Diagram

Power Architecture: Consistency, Compatibility and Simplicity

Freescale's Power Architecture product portfolio ranges from very high-performance processor cores found in high-end, general-purpose computing applications, to high-precision microcontrollers for motor control—and everything in between. Even with enormous leaps in technology, performance and capabilities, Power Architecture processors remain consistent, compatible and well-defined from generation to generation. The PowerQUICC™ architecture has been consistent throughout its evolution, from the first PowerQUICC communications processors to the latest PowerQUICC III.

This continuity offers tremendous advantages to PowerQUICC customers, as they can rest assured that their investments in PowerQUICC processor-based products are both backward- and forward-compatible without extensive development investments.

Power Architecture is designed for scalability and software compatibility across generations and subfamilies to help simplify customer migrations and reduce costs. Multi-protocol support and connectivity to a wide variety of interfaces increases versatility, and makes Power Architecture attractive to applications in the industrial arena.

freescale ™
semiconductor

MPC8349E-MITX-GP
Industrial Evaluation Platform

The MPC8349E-MITX-GP industrial platform demonstrates the capabilities of Freescale's MPC8349E processor and is designed for customers unfamiliar with Power Architecture to allow them to evaluate the processor family and the software development around it. The platform leverages external components to support features such as a Gigabit Ethernet port, a high-speed USB port, serial channels and a PCI slot.

MPC8349E Microprocessor

The MPC8349E microprocessor supports dual 10/100/1000 Mbps Ethernet controllers, dual 32-bit/single 64-bit PCI controllers, integrated security engines, USB 2.0 host and device controllers, 4-channel DMA, DUART, serial peripherals, general-purpose I/O and system timers. The high level of integration in the MPC8349E helps lower system costs, improves performance and simplifies board design.

The MPC8349E also integrates a hardware encryption block that supports different algorithms for high-performance data authentication as required for secure communications in the industrial market. It supports DES, 3DES, MD-5, SHA-1, AES, PKEU, RNG and RC-4 encryption algorithms in hardware.

MPC8349E-mITX-GP
Board Support Package (BSP)

A BSP is pre-installed on the MPC8349E-mITX-GP. This BSP consists of a bootloader (u-boot), a generic PPC Linux-based system and associated file system. The u-boot, Linux® kernel and the file system reside in the onboard flash memory. Upon power-up, the system is running the u-boot bootloader and is ready to boot Linux using u-boot commands.

The MPC8349E-mITX-GP BSP generation takes advantage of a Linux Target Image Builder (LTIB). LTIB is a suite of tools that leverages existing open source configuration scripts and source code packages, and bundles them all into a single BSP. The source code packages include bootloaders and Linux kernel sources as well as many user-space source code packages that can be used to build a complete BSP. LTIB also provides compiler packages required to build the BSP. Freescale developers use LTIB to create BSPs for a multitude of Freescale development targets. LTIB leverages as many BSP elements as possible for all Freescale targets supported, while offering the flexibility required to customize, as necessary, components that require platform-specific modifications.

Features

- CPU: Freescale MPC8349E running at 533/266 MHz (CPU/CSB (Coherent System Bus))
- Memory subsystem:
  - 128 MB unbuffered DIMM SDRAM expandable to 1 Gbyte
  - 8 MB flash memory
- Interfaces:
  - 10/100/1000 Base-T Ethernet ports:
    - ·· TSEC1, GMII interface: one 10/100/1000 Base-T RJ-45 with RJ-45 interface using Vitesse™ VSC8201 single-port 10/100/1000 Base-T PHY
  - USB 2.0 OTG and hub:
    - ·· USB2, ULPI interface: one USB2.0 type mini-AB receptacle connector, with SMSC™
    - ·· USB3300 high-speed USB host/device/OTG PHY
  - One 32-bit 3.3V PCI slot
  - ST M24256 Serial EEPROM
  - Dallas™ DS1339 RTC with battery holder
  - ATX power supply connector
  - RS-232C connectors
  - 9-pin DB9 receptacle
  - 10-pin 2.54 mm connector
  - JTAG/COP test access port for debugging
  - 6-layer PCB routing (4-layer signals, 2-layer power and ground)

Orderable Part Number
MPC8349E-MITX-GP

BUILT ON
Power™

freescale™
semiconductor