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PowerPC 440GX Evaluation Kit



Enables comprehensive evaluation of the AMCC 440GX processor, while minimizing customers' hardware and software development time.

Product Highlights

- Comprehensive, easy-to-use evaluation kit designed for customer setup in 15 minutes or less
- Low-cost, Linux-based "Taishan" evaluation board
- Supports Windows and Linux host systems
- Resource CD with system-level benchmarks and sample applications
- Industry-standard U-Boot firmware, Linux operating system and Linux software development tools
- Board schematics, layout files, U-Boot source and Linux source available from AMCC Web site
- Software development tools CDs from multiple industry-leading suppliers
- Advanced board-level diagnostics
- Serial cable provides direct connection to the host system for initial configuration
- Ethernet crossover cable provides direct connection to the host system for downloading and running applications
- Remote connection by means of a router or the Internet is also supported
- On-board JTAG connector enables connection of any compatible external JTAG probe for run-control debugging
- Universal 120-240 V power adapter supports operation worldwide
- Comprehensive processor, board and software documentation on the Resource CD.

Product Overview

The AMCC 440GX evaluation kit provides users with a comprehensive set of resources to evaluate the 440GX processor as well as to start system development.

The Taishan evaluation board, incorporating the industry-standard Linux operating system and U-Boot firmware, is an optimized, low-cost platform designed specifically for evaluation purposes.

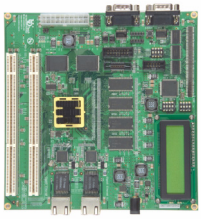
Schematics and layout files for the board are provided so that customers can start their designs from a proven baseline. Likewise, the Linux code and U-Boot firmware source are available to accelerate customers' software development.

The kit includes advanced software development tools from multiple suppliers, to assist customers in selecting the most appropriate development and run-time environments.

Advanced diagnostics, which can be licensed by customers, perform in-depth testing of the processor and evaluation board. Industry-standard benchmarks are supplied to support customers' performance analysis of the processor, while sample applications provide a starting point for software development, and utilities assist in system configuration.

Taishan Board

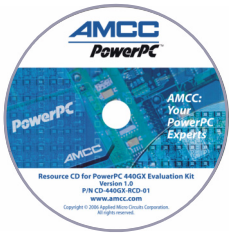
The Taishan board, with an approximately 7" x 7" form factor, is a custom-designed platform developed by UDTech for evaluating the 440GX processor:



- 800MHz AMCC 440GX processor
- 256 MByte DDR SDRAM
- 64 MByte NOR Flash
- Two 10/100/1G Ethernet ports
- Two PCI host connectors (33/66 MHz)
- Two serial ports
- JTAG connector
- Trace connector
- Linux (2.6 kernel) in Flash
- Linux file system in Flash
- U-Boot boot firmware in Flash

Sample Applications and Utilities

The Resource CD provides a wide range of sample applications as a starting point for software development, and utilities to assist in system configuration:



- Web server on evaluation board
- Telnet server on evaluation board
- FTP server on evaluation board
- Webslots game on evaluation board
- Processor / board configuration report
- Ethernet utility to configure IP address, configure MAC address and modify EMAC registers
- Example flash file system for persistent storage
- Script-based Linux root file system build environment

Benchmarks

The Resource CD includes a wide range of industry-standard benchmarks for use in processor performance analysis:

- DBench
- Dhrystone
- HINT
- MPEG-4 encode and decode
- STREAM
- TTCP

Diagnostics

Also included in flash on the evaluation board is a comprehensive suite of advanced processor and board diagnostics supplied by Kozio, Inc. and available for license to customers. Kozio's **K-diagnostics** perform a wide range of tests, including:

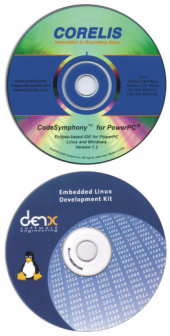
- PPC440 core
- SDRAM
- DMA
- UARTs
- PCI
- USB
- I2C
- EEPROM
- Flash

Development Tools & Operating Systems

The Taishan evaluation board is provided with Linux (based on the 2.6 kernel) in Flash. This Linux code is available to customers on the Resource CD and by means of the AMCC downloads Web site. Instructions are provided explaining how to load an alternative operating system onto the board, either in addition to or instead of the Linux code supplied in the shipping configuration.



To assist customers in selecting the optimum development tools environment for their system development, the kit includes CDs from various industry-leading tools suppliers. These suppliers include:



- Corelis Corp.
- Denx Software Engineering

Through the AMCC Partners program, many other companies provide operating systems and development tools that support the AMCC 440GX processor. For details about all the companies offering applicable products and services, please visit the AMCC Partners home page at ***http://www.amcc.com/Embedded/Partners/***.

Accessories

The evaluation kit includes:







- A serial cable for connection between the board and the host system, used during initial board configuration
- A crossover Ethernet cable for direct connection between the board and the host system (although connection via the Internet or a router is also supported)
- A universal 120-240 V power adapter that supports operation worldwide.

System Design Resources

Customers can use this kit not only to evaluate the 440GX processor and to do performance analysis, but also as the starting point for their own product designs. To facilitate this, the complete hardware/software design is available to customers, including:

- Linux code for the Taishan board (on the Resource CD)
- Linux development tools used to develop the Taishan code (on the Denx CD)
- U-Boot firmware binary (on the Resource CD) and source (at: ***http://www.amcc.com/Embedded/Downloads/440GX/***)
- Schematics for the Taishan board (at: ***http://www.amcc.com/Embedded/Downloads/440GX/***)
- Layout files for the Taishan board (at: ***http://www.amcc.com/Embedded/Downloads/440GX/***)
- Benchmarks (on the Resource CD)
- Sample applications (on the Resource CD).

Ordering Information

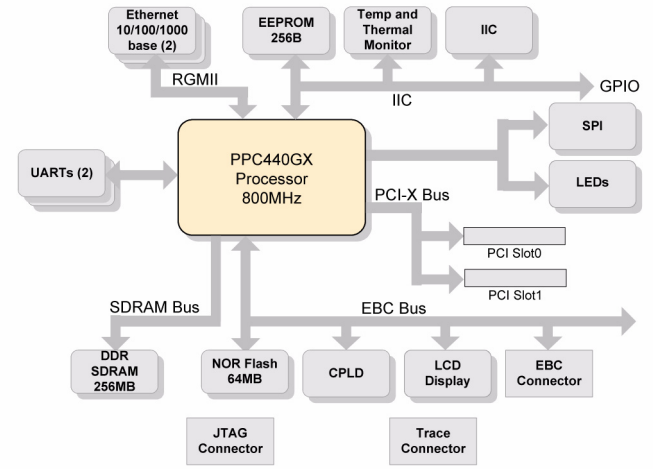
The 440GX evaluation kit may be ordered from AMCC or any authorized AMCC distributor using part number EV-440GX-KIT-01. For more information, please visit: ***http://www.amcc.com/Sales/***.

PowerPC Partners Ecosystem

AMCC's embedded PowerPC processors are supported by an extensive ecosystem of products and services from a wide range of leading suppliers. The AMCC Partners program includes industrystandard providers of:

- Embedded operating systems
- Hardware and software development tools
- Embedded software products and services
- Board-level products
- System design services
- Technical training

For full details about the products and services available through the AMCC Partners program, or to browse support available for a specific processor, please visit: ***http://www.amcc.com/Embedded/Partners/***.



PowerPC 440GX Block Diagram

PowerPC 440GX Technical Specifications

- PPC440 processor core with 32K instruction cache/32K data cache
- CoreConnect™ bus architecture
- Up to 800MHz performance and up to 1,600 DMIPS
- 256KB on-chip memory or L2 cache
- Two 10/100/1G Ethernet MACs
- Two 10/100 Ethernet MACs
- TCP/IP acceleration hardware
- 32/64-bit PCI-X controller, 133MHz (PCI v2.2 compliant)
- 32/64-bit DDR333 SDRAM controller with ECC
- 32-bit, 83MHz External Bus Controller
- DMA controller
- Universal Programmable Interrupt Controller
- On-chip peripherals, including two serial ports, master and slave IIC controller, and up to 32 general purpose I/Os
- ~4.5W estimated typical power dissipation at 533MHz

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