



PowerPC 440EP Evaluation Kit

Enables comprehensive evaluation of the AMCC 440EP processor, while accelerating 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 "Yosemite" 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 website
- Evaluation copies of software development tools and embedded operating systems from multiple industry-leading suppliers
- Advanced board-level diagnostics
- Serial cable provides direct connection to the host system for initial configuration
- Ethernet cross-over cable provides direct connection between the host system for downloading and running applications
- Remote connection via 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 440EP evaluation kit provides users with a comprehensive set of resources to evaluate the 440EP processor as well as to start their system development.

The Yosemite 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.

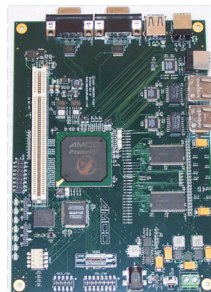
The kit includes evaluation copies of advanced software development tools and operating systems from multiple suppliers, to assist customers in selecting the most appropriate development and run-time environments.

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.

Yosemite Board

The Yosemite board, with an approximate 5" x 7" form factor, is a custom-designed platform, developed by Embedded Planet, for evaluating the 440EP processor:

- 533-MHz AMCC 440EP processor
- 256-Mbyte SDRAM
- 32-Mbyte Flash
- Two 10/100 Ethernet ports
- One USB 2.0 device port
- Two USB 1.1 host/device ports
- JTAG connector
- Trace connector
- PCI host connector
- Linux (2.6 kernel) in Flash
- Linux file system in Flash
- U-Boot boot firmware in Flash



Product Brief



Sample Applications and Utilities

The Resource CD provides a 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
- Set evaluation board IP address
- Set evaluation board MAC ID.



Benchmarks

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

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

Diagnostics

Also included in flash on the evaluation board is a comprehensive suite of advanced processor and board diagnostics supplied by Koizio, Inc. and available for license to customers. Koizio's

K-diagnostics perform a wide range of tests, including:

- 440EP core
- SDRAM
- DMA
- UARTs
- PCI
- USB
- I2C
- EEPROM
- Flash



Development Tools & Operating Systems

The Yosemite 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. 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 operating system and/or development tools environment for their system development, the kit includes CDs from various industry-leading suppliers which contain evaluation versions of their products. These suppliers include:

- Denx Software Engineering
- Green Hills Software, Inc.
- LynuxWorks, Inc.

Through the AMCC Partners program, many other companies provide operating systems and development tools that support the AMCC 440EP processor. For details about all the companies offering applicable products and services, please visit the AMCC Partners home page a <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 440EP 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 Yosemite board (on the Resource CD)
- Linux development tools used to develop the Yosemite code (on the Denx CD)
- U-Boot firmware binary (on the Resource CD) and source (at: <http://www.amcc.com/Embedded/Downloads/440EP/>)
- Schematics for the Yosemite board (at: <http://www.amcc.com/Embedded/Downloads/440EP/>)
- Layout files for the Yosemite board (at: <http://www.amcc.com/Embedded/Downloads/440EP/>)
- Benchmarks (on the Resource CD)
- Sample applications (on the Resource CD).



Ordering Information

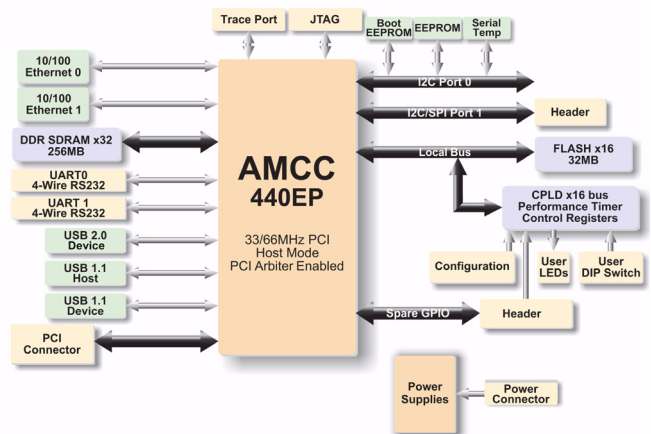
The 440EP evaluation kit may be ordered from AMCC or any authorized AMCC distributor using part number EV-440EP-KIT-01. For more information, please visit <http://www.amcc.com/Sales/>.

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 industry standard 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 440EP Block Diagram

PowerPC 440EP Technical Specifications

- 440 processor core with 32K instruction cache/32K data cache
- CoreConnect™ bus architecture
- Up to 667 MHz performance
- Up to 1,334 DMIPS
- 5-stage FPU with 2.0 MFLOPS/MHz
- NAND Flash controller supporting 1 to 4 banks of NAND Flash memory devices; Boot-from-NAND supported
- USB 1.1 host and device controllers and PHYs
- USB 2.0 device controller
- Two 10/100 Ethernet MACs
- 32-bit PCI controller, 66 MHz (PCI v2.2 compliant)
- 32-bit DDR1 SDRAM controller for DDR200/266 operation
- SPI serial interface 4-channel DMA
- Universal programmable interrupt controller
- On-chip peripherals including four serial ports, master and slave IIC controller, and up to 53 general-purpose I/Os
- 3 W estimated typical power dissipation at 533MHz



Corporate address:
215 Moffett Park Drive
Sunnyvale, CA 94089
Tel: 408-542-8600
Fax: 408-542-8601
www.amcc.com

AMCC reserves the right to make changes to its products, its datasheets, or related documentation, without notice and warrants its products solely pursuant to its terms and conditions of sale, only to substantially comply with the latest available datasheet. Please consult AMCC's Term and Conditions of Sale for its warranties and other terms, conditions and limitations. AMCC may discontinue any semiconductor product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information is current. AMCC does not assume any liability arising out of the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others. AMCC reserves the right to ship devices of higher grade in place of those of lower grade. AMCC SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS. AMCC is a registered trademark of Applied Micro Circuits Corporation. PowerPC and the PowerPC logo are registered trademarks of IBM Corporation. All other trademarks are the property of their respective holders. Copyright © 2006 Applied Micro Circuits Corporation. All Rights Reserved. POWERPC440EPKIT_PB_V1.04_10_10_2006