440EPx Sequoia Evaluation Kit
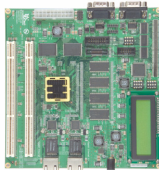
AMCC

PowerPC Evaluation Kits

Family of low-cost, easy-to-use kits enables comprehensive evaluation of AMCC's PowerPC processors, while accelerating customers' hardware and software development time.
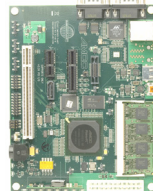
Highlights

- Common user experience across all evaluation kits
- Comprehensive, low-cost, easy-to-use evaluation kits designed for customer setup in 15 minutes or less
- Resource CDs 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

440GX Taishan Board

- Software development tools CDs from multiple industry-leading suppliers
- Serial cables provide direct connection to the host system for initial configuration
- Ethernet crossover cables provides direct connection to the host system for downloading and running applications
- Remote connections via a router or the Internet are also supported
- On-board JTAG connectors enables connection of compatible external JTAG probes for run-control debugging
- Universal 120-240 V power adapters support operation worldwide
- Comprehensive processor, board and software documentation on the Resource CDs.

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Overview

AMCC's family of low-cost evaluation kits provides users with a comprehensive set of resources to evaluate the PowerPC processors as well as to start their system development.

Each kit includes an evaluation board, incorporating the industry-standard Linux operating system and U-Boot firmware. These optimized, low-cost platforms are designed specifically for evaluation purposes. Schematics and layout files for the boards 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.

460EX Canyonlands Board

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

Sample Applications and Utilities

The Resource CDs included in the evaluation kits provide a wide range of sample applications as a starting point for software development, as well as various utilities to assist in system configuration:

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

Diagnostics

In some AMCC kits, the evaluation board flash also includes 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 (where applicable):

- 405/440 core
- SDRAM
- DMA
- UARTs
- PCI
- PCI-Express
- USB
- I^2C
- EEPROM
- Flash.

Benchmarks

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

- DBench
- HINT
- IEEE-1588 (where applicable)
- MPEG-4 encode and decode
- Security benchmarks for on-chip Turbo Security Engine (where applicable)
- STREAM
- TTCP.

System Design Resources

Customers can use these kits not only to evaluate AMCC's processors and to do performance analysis, but also as the starting point for their own product designs. To facilitate this, the complete hardware/software designs are available free of charge at *http://www.amcc.com/Embedded/ Downloads/*.

- Linux code (source and binary) for the evaluation boards
- U-Boot firmware (source and binary) for the evaluation boards
- Linux development tools used to develop the system software (from Denx)
- Schematics and layout files for the evaluation boards
- Benchmark code
- Sample application code.

Development Tools & Operating Systems

The AMCC evaluation boards are provided with Linux (based on the 2.6 kernel) in Flash. This Linux code is available to customers on the Resource CD as well as via the downloads 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 kits include CDs from various industry-leading tools suppliers. These suppliers include:

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

Through the AMCC Partners program, many other companies provide operating systems and development tools that support AMCC's processors. For details of 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 kits include:

- 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

Ordering Information

The AMCC evaluation kits may be ordered from AMCC or any authorized AMCC distributor using the part numbers listed in the table. For more information, please visit *http://www.amcc.com/Sales/*.

AMCC 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
- Software platforms
- Board-level products
- System design services
- Technical training
- Silicon partners

For full details of 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/*.

Evaluation Kit Specifications

Processor	405EP	405EX	405EZ	440EP	440EPx	440GR	440GRx	440GX	440SPe	460EX	460GT	460SX
Kit name	Taihu	Kilauea	Acadia	Yosemite	Sequoia	Yellowstone	Rainier	Taishan	Katmai	Canyonlands	Glacier	Eiger
Kit part number	EV-405EP-KIT-01	EV-405EX-KIT-01	EV-405EZ-KIT-02	EV-440EP-KIT-01	EV-440EPx-KIT-01	EV-440GR-KIT-02	EV-440GRx-KIT-01	EV-440GX-KIT-01	EV-440SPe-KIT-02	EV-460EX-KIT-01	EV-460GT-KIT-01	EV-460SX-KIT-01
Processor speed	333MHz	600MHz	400MHz	533MHz	667MHz	533MHz	667MHz	800MHz	800MHz	1.0GHz	1.0GHz	1.2GHz
SDRAM	128MB DDR	256MB DDR2		256MB DDR	256MB DDR2	256MB DDR	256MB DDR2	256MB DDR	512MB DDR2	512MB DDR2	512MB DDR2	2GB DDR2
Cellular RAM			64MB									
NOR Flash	32MB	64MB	64MB	32MB	64MB	32MB	64MB	64MB	16MB	64MB	64MB	64MB
NAND Flash		64MB	8MB		32MB		32MB			256MB	256MB	32MB
Compact flash									128MB			
Ethernet ports	2x 10/100	2x 10/100/1G	1x 10/100	2x 10/100	2x 10/100/1G	2x 10/100	2x 10/100/1G	2x 10/100/1G	1x 10/100/1G	2x 10/100/1G	4x 10/100/1G	4x 10/100/1G
USB host ports		2x USB 1.1	2x USB 1.1	1x USB 2.0						1x USB 2.0		
USB device ports	1x USB 1.1		1x USB 1.1	1x USB 2.0	2x USB 2.0					1x USB 2.0		
USB OTG ports		1x USB 2.0								1x USB 2.0		
Serial ports	2	2	2	2	2	2	2	2	2	2	2	2
PCI connectors	1			1	2	1	2	2	1	1	1	
PCI-E connectors		2							3	2	2	3
RJ11 ports		2										
SATA port										1		
CAN port			2									
Cardbus connector	✓											
ADC connector			1									
DAC connector			1									
LCD display	✓		✓						✓			
JTAG connector	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trace connector	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
U-Boot firmware	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kozio diagnostics	✓		✓	✓	✓	✓	✓	✓	✓			
Board size	7" x 7"	7" x 7"	7" x 7"	5" x 7"	5" x 7"	5" x 7"	5" x 7"	7" x 7"	12" x 10"	7" x 7"	7" x 7"	12" x 10"
Resource CD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Power adapter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ethernet cable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Serial cable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Getting Started Guide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

NOTE: AMCC does not provide evaluation kits based on the 405EXr or 460GTx processors. 405EXr customers should use the 405EX Kilauea evaluation kit and 460GTx customers should use the 460SX Eiger evaluation kit.