

Actel's Third-Generation Flash-Based Devices Set the Bar at \$1.50 as Industry's Lowest Cost FPGA Solution

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Company Poised to Address More Than 50 Percent of New FPGA Designs; New Single-Chip ProASIC3/E Devices Moving Flash Into the Mainstream

MOUNTAIN VIEW, Calif., Jan. 24 /PRNewswire-FirstCall/ -- Entering a new era of competitive intervention, Actel Corporation (Nasdaq: ACTL) today unveiled its ProASIC3 and ProASIC3E families, the company's third generation of flash-based programmable logic solutions and the world's lowest cost field-programmable gate array (FPGA). With the ProASIC3/E families, Actel addresses strong market demand for full-featured, cost-effective FPGAs for consumer, automotive and other price-sensitive application areas. This "value-based" segment represents the fastest growing component of the FPGA market and is estimated to be \$500M this year. "Over the past 10 years, flash technology has evolved into a disruptive technology, dramatically impacting every application it has touched," said John East, president and CEO of Actel. "For example, flash technology has transformed cell phones, cameras and video recorders into revolutionary variants of their predecessors. Flash is now poised to do the same for the programmable logic market. Indeed, the paradigm for mainstream FPGA technology platforms has changed forever, and Actel is in a position of leadership."

Rich Wawryzniak, senior analyst, ASIC/SoC, at Semico Research, said, "As time-to-market pressures compound and manufacturing costs skyrocket, FPGAs are quickly encroaching on the value-based markets traditionally served by cell-based ASICs, including consumer and automotive, which demand both high security and rock-bottom prices. With low price points and a secure flash architecture, Actel's ProASIC3/E devices are a shot in the arm to the PLD market as a whole." East added, "Starting at \$1.50, these new ProASIC3 devices represent the world's lowest cost FPGA solutions while delivering performance and security advantages over comparable SRAM-based products. Flash-based FPGAs are now able to provide secure, low-power, live at power-up, reprogrammable solutions that deliver the time-to-market advantages of FPGAs at ASIC-like unit costs, mitigating the need for ASIC migration at higher volumes."

Building on the success of its ProASIC Plus family, Actel's new single-chip devices deliver 64-bit 66 MHz PCI performance and are the industry's first FPGAs with on-chip user flash memory. The devices range in density from 30,000 to 3 million system gates and deliver technology-leading integrated secure in-system programmability (ISP).

In addition to low unit cost, the new ProASIC3/E families also lower overall system costs by eliminating the need for various components on the system board. For example, the single-chip devices require no external boot-prom or microcontroller to support device programming, and the live-at-power-up feature of the ProASIC3/E devices eliminates the need for an external CPLD to get the system running during power-up. Enabling the use of fewer components reduces board space, which leads to increased reliability, simplified inventory management and lower total system costs.

Flash FPGAs Deliver Price, Performance and Security Advantages

The ProASIC3/E families provide 1024 bits (128x8 pages) of on-chip user nonvolatile flash memory and clock conditioning circuits based on up to six on-board phase-locked loops (PLLs). The user-accessible, nonvolatile memory can be used for a diverse range of system applications, including Internet Protocol (IP) device addressing, user preference storage, system calibration settings, device serialization and/or inventory control and date stamping. The devices also come with up to 504kbits of embedded true dual-port SRAM and up to 616 user I/Os, offering 66 MHz 64-bit PCI performance.

Unlike SRAM-based FPGAs, on-board security mechanisms prevent access to all the programming information, and reprogramming can be securely performed in-system, using the industry-standard 128-bit AES algorithm to support future design iterations and field upgrades with peace of mind that valuable IP will not be compromised or copied. The ProASIC3/E families incorporate FlashLock, providing a unique combination of reprogrammability and design security without external overhead. The built-in decryption engine and flash-based AES key make the ProASIC3/E families the most comprehensive programmable logic device solutions available today. In addition, nonvolatile flash technology gives the ProASIC3/E devices the advantage of being low power and live at power-up.

The ProASIC3/E families achieve nonvolatility and reprogrammability through an industry-leading advanced, flash-based LVC MOS process with seven metallization layers - six copper, one aluminum. Standard CMOS design techniques are used to implement logic and control functions, including the PLLs, resulting in predictable performance. The combination of fine granularity, enhanced flexible routing resources and abundant flash switches allows for up to 100 percent utilization by even highly congested designs with minimal performance impact.

Features of ProASIC3

- * 30k to 1 million system gates
- * 18 to 108kbits of true dual-port SRAM
- * 81 to 288 user I/Os
- * 3.3V, 64-bit 66 MHz PCI
- * Up to 350 MHz external system performance
- * 1.5V core voltage for low power
- * 1.5V, 1.8V, 2.5V and 3.3V I/O voltage operation
- * Bank-selectable I/O voltages - up to 4 banks per chip

Features of ProASIC3E

- * 600k to 3 million system gates
- * 108 to 504kbits of true dual-port SRAM
- * Up to 616 user I/Os
- * 3.3V, 64-bit 66 MHz PCI
- * Up to 350 MHz external system performance
- * 1.5V core voltage for low power
- * 1.5V, 1.8V, 2.5V and 3.3V I/O voltage operation
- * Bank-selectable I/O voltages - 8 banks per chip

Pricing and Availability

Samples of the ProASIC3E 600 device are available through Actel's early access program. Production quantities are scheduled for Q4 2005. Pricing for ProASIC3 starts at \$1.50, with seven devices under \$10 in 250K quantities. For further information about pricing and availability, please contact Actel.

About Actel

Actel Corporation is a supplier of innovative programmable logic solutions, including field-programmable gate arrays (FPGAs) based on antifuse and flash technologies, high-performance intellectual property (IP) cores, software development tools and design services, targeted for the high-speed communications, application-specific integrated circuit (ASIC) replacement and radiation-tolerant markets. Founded in 1985, Actel employs more than 500 people worldwide. The Company is traded on

the Nasdaq National Market under the symbol ACTL and is headquartered at 2061 Stierlin Court, Mountain View, CA, 94043-4655. Telephone: 888-99-ACTEL (992-2835).
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