

PRESS RELEASE

NEW FPGA FAMILY FROM CYPRESS REACHES 20,000 GATES

Triple-Layer Metal Process Boosts Speed by 30% Over Competition

SAN JOSE, Calif., October 9, 1995 -- Cypress Semiconductor continued its aggressive push into the field-programmable gate array (FPGA) market with the introduction today of a new family of devices. The Cypress Ultra3800 family of FPGAs offers the industry's highest performance at densities up to 20,000 usable gates. The Ultra3800 FPGAs employ a new antifuse programming circuitry which reduces capacitance to offer datapath performance of over 200 MHz and loadable counter frequencies greater than 185 MHz -- performance more than 30% faster than any competing FPGA family.

The Ultra3800 FPGAs use the latest technology to improve on the industry-leading features of Cypress's current UltraLogic pASIC380 FPGAs. The Cypress VL2.7 triple-layer metal process allows the interconnection structure to reside above the logic layer, resulting in a reduction in die area of approximately 50%. The die size reduction lowers production costs and enables higher densities. The Ultra3800 FPGAs offer full JTAG compatibility for incorporation in JTAG-based system test and diagnostics. They also comply fully with the PCI specification for use in PCI-compliant systems. The devices are offered in both 5-Volt and 3.3-Volt versions for use in portable applications. And the Ultra3800 family offers highly efficient logic synthesis which enables greater utilization of device resources.

Cypress's UltraLogic line of programmable logic includes the Ultra3800 and pASIC380 FPGAs, the FLASH370 family of CPLDs, and Cypress's Warp2 and Warp3 design tools. UltraLogic allows users to select the device that offers the optimum price/performance for a particular application, regardless of architecture. Cypress's VHDL-based Warp tools allow users to enter a design, and then target to different device architectures without re-entry.

Dan McCranie, Cypress's vice president of sales and marketing, said, "The introduction of the Ultra3800 FPGAs allows Cypress to leapfrog the competition in the fast-growing high-density programmable logic market. As our UltraLogic products have gained strong acceptance, Cypress has moved aggressively to increase the performance and feature set of our FPGAs. We will continue our development efforts to maintain the technology advantages our customers enjoy with the entire UltraLogic line, including CPLDs, FPGAs, and design software."

The Ultra3800 FPGA family includes 5- and 3.3-Volt versions at seven densities ranging from 3,000 to 20,000 usable gates. The devices are offered in PLCC (plastic leaded chip carrier), TQFP (thin-quad flat pack), PQFP (plastic quad flat pack), and BGA (ball grid array) packages ranging from 84 to 352 pins.

In addition to higher speed and density, the Ultra3800 FPGAs offer a logic cell with a wide fan-in for implementing complex functions at high speeds. The logic cell can be fragmented into as many as five unique functions. This fragmentation emulates a sea-of-gates architecture for the world's most efficient

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FPGA synthesis. The logic cell architecture is compatible with that of the pASIC380 family, so users can easily port designs to the new devices.

The Ultra3800 FPGAs are based on the ViaLink metal-to-metal programmable interconnect elements process, proven in Cypress's pASIC380 family of FPGAs. In the Ultra3800 FPGAs, the ViaLink elements are located between the second and third layers of metal, leaving the entire first level for logic. ViaLink programming elements are one-seventh the size of the SRAM-based elements used in competitive parts. As a result, the Ultra3800 FPGAs have less than one-twentieth the capacitance and resistance of SRAM-based devices, improving speed, reducing power consumption, and providing highly predictable timing delays. Due to the small size of the programming element, the Ultra3800 FPGAs have over four times the number of programming elements than SRAM-based devices employ, giving users greater capacity and 100% automatic place and route capability.

Norm Taffe, Cypress's product marketing manager for CPLDs, FPGAs, and Software, stated, "The Ultra3800 FPGAs offer the features and performance demanded by the market. Customers will maintain the advantages of higher performance, full logic utilization, and 100% place-and-route, while achieving better results from synthesis and an increase in gate density. In addition, our manufacturing strength and the small die size of these devices allow us to offer them at very competitive prices."

Price and Availability

The 7000-gate CY7C3807 will be available in the first quarter of 1996 with pricing starting at \$69.50 in 100-unit quantities. Higher-density Ultra3800 family devices will be rolled out during the year, with the 20,000-gate CY7C3820 device available in the third quarter.

Cypress Semiconductor Corporation is a leader in the design, development, and manufacture of a broad line of high-performance digital integrated circuits, fabricated using its proprietary technologies. Cypress offers a range of products, including static RAM memories, programmable logic devices, data communications, and computation products for leading computer, networking, and telecommunications companies worldwide. Cypress stock is traded on the New York Stock Exchange under the symbol CY. Corporate headquarters are located in San Jose, California. The company has a site on the worldwide web at <http://www.cypress.com>, and offers a Fax-on Demand service at (800) 213-5120 or (408) 943-2798 outside of North America.

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