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MicroBlaze



New MicroBlaze High-performance Processor

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The extreme density and performance of the Virtex™ and Virtex-II Platform FPGAs from Xilinx offer the unprecedented ability to build complete, very complex systems on a single, reprogrammable device. To make full use of this power you need high performance cores to help you implement processors and peripherals that form the heart of most systems. This week, Jim Burnham, MicroBlaze Product Marketing Manager at Xilinx, discusses the new MicroBlaze™ soft processor which offers the highest performance in a very small space.

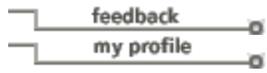
Q: What is MicroBlaze? MicroBlaze is a flexible soft core that implements a true 32-bit RISC processor running at 125 MHz, with separate (Harvard-style) instruction and data buses running at full speed. It requires only 800-900 logic cells, and achieves 70 Dhrystone MIPS — over three times the performance and half the size of our competition's best efforts. We have benchmarked our competition's processor and have measured only 22 Dhrystone MIPS, in the best case. As part of Xilinx EmPower!™ processing strategy, the MicroBlaze peripherals are fully compatible with and complement the Xilinx embedded PowerPC™ hard core, and they use the IBM PowerPC CoreConnect™ bus.

Q: What peripherals are available? MicroBlaze is currently deployed through a beta program with leading networking and telecommunications equipment manufacturers. As part of this program, Xilinx has already delivered CoreConnect-enabled peripherals including an Arbiter and a UART. . . . In development are: a 10/100 Ethernet MAC, SPI and ATM Utopia level-2 interfaces; as well as a standard set of peripherals including timer/counters, UARTs, interrupt controllers, GPIOs, and flash memory interfaces, and SRAM memory interfaces. All of these peripherals will be fully parameterizable, so you can easily adapt them to your specific requirements.

Q: What development tools are available? Xilinx will offer a MicroBlaze development kit (less than \$500) that includes the soft processor and peripherals. In addition, the kit will contain a collection of GNU-based software tools, including a compiler, assembler, and debugger. Variations of the kit will include a Virtex-II development board and FPGA design software.

Q: What applications are possible with the MicroBlaze core? Because of its compact size and use of the CoreConnect interface, you can build intelligent processor systems that contain over one hundred MicroBlaze processors on a Virtex-II FPGA. Imagine a networking application with one or more embedded PowerPC processors dispatching tasks to dozens of MicroBlaze processors, each performing a specific function as on-chip slave peripherals. This enables you to have control over your performance, power, cost, and design environment.

For more information on the MicroBlaze soft core, see: [MicroBlaze](#).



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