High Performance 8051 Core for Virtex FPGAs

The efficient Virtex architecture allows over 230 MHz equivalent operation.

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Xilinx and Dolphin Integration SA of Meylan, France, a Xilinx AllianceCORE partner, recently announced, the immediate availability of the Flip-8051 core. The Flip-8051 is the industry's fastest implementation of the popular 8051 microcontroller optimized for the Virtex FPGA family. The core is aimed directly at embedded markets including automotive, industrial, medical equipment, and consumer products.

"The 8051 microprocessor has been a standard in the embedded industry for years," said Jean-François Pollet, manager of the Flip line of virtual components at Dolphin. "Since most legacy standard 8051 chips are obsolete, a programmable logic version allows companies to quickly reduce the cost or enhance the performance of their systems without rewriting legacy microcontroller code. Our solution, combined with the system-level capabilities of the Virtex FPGAs, paves the way for a rich family of microcontroller configurations for programmable logic-based system-on-chip solutions."

Customers such as Plessis Electronics Ltd., Leighton Buzzard, U.K., a manufacturer of electronic musical instruments, are already taking advantage of this system-on-chip capability.

"We found the transition to the FPGA-based Flip-8051 core to be straightforward," said Serge Plessis of Plessis Electronics. "We estimate that we saved months using this core in the FPGA. The efficient architecture of the core provided us with much more performance than we needed, making design of the overall system very easy."

High Performance Core Architecture

The Flip-8051 core was optimized to execute multiple instructions in a single machine cycle. As a result, the average instruction is executed eight times faster than the legacy 8051 architecture. The current Virtex version of the core operates at a clock frequency of 29.8 MHz, yielding an instruction execution performance equivalent to a legacy 8051 processor operating at 238 MHz. This capability makes the core an ideal solution for low-power applications such as portable systems, sensors and smart-cards because legacy 8051 performance can be achieved at one-eighth the clock frequency.

Pricing and Availability

The Flip-8051 core forms the heart of a family of processors that include lower performance options as well as microcontroller configurations that include peripherals such as timers and serial interfaces. Pricing starts as low as $10,000 for an EDIF format for Virtex FPGAs. Other design file formats are available. A VHDL source-code version is available with a test bench at extra cost.

In addition, Dolphin offers an FPGA-based board that allows you to evaluate a hardware version of the core immediately. Dolphin also offers design services, annual maintenance agreements, and technical support via fax and email. Contact Dolphin Integration directly for more information.

About Dolphin Integration

Dolphin Integration is an IP provider that offers an array of design services and support that range from turnkey design to consulting for customers who want to efficiently integrate Flip cores into their system-on-chip designs. Dolphin's corporate charter is to help customers meet the challenges of time-to-market with a system-on-board or a system-on-chip design. Additional information is available on the Web at www.dolphin.fr.