IBM ASICs Will Incorporate Xilinx FPGAs

## New ASICs from IBM will contain Xilinx programmable logic technology.

by Xilinx Staff

IBM and Xilinx recently signed an agreement that could help you shave hundreds of thousands of dollars off the cost of creating custom chips. Under the agreement, IBM has licensed FPGA technology from Xilinx for integration into IBM's recently announced Cu-08 application-specific integrated circuits (ASICs). Cu-08 will support circuits as small as 90 nanometers – less than 1/1,000th the width of a human hair.

This news underscores our joint commitment to a technology relationship aimed at bringing innovative and flexible new "hybrid" chips to market, combining the best attributes of standard ASIC and flexible FPGA technology for use in communications, storage, and consumer applications.

Engineers working on complex chip designs have been clamoring for ways to achieve high levels of integration yet still have the ability to change "on the fly" late in the design cycle. By combining FPGAs (circuits that can be configured to perform a wide variety of digital electronic circuit functions) with standard ASICs, you get the flexibility of the FPGA, with the density, performance, and overall cost advantages of an ASIC – all on one chip.

"Savings here could be dramatic," said Michel Mayer, general manager, IBM Microelectronics Division. "When an ASIC takes on more function, you can reduce cost by eliminating one, two, or even more separate chips. With this technology, customers would be able to tweak designs and integrate new changes immediately, eliminating the need to restart a whole new design cycle, bringing tremendous time-to-market advantages."
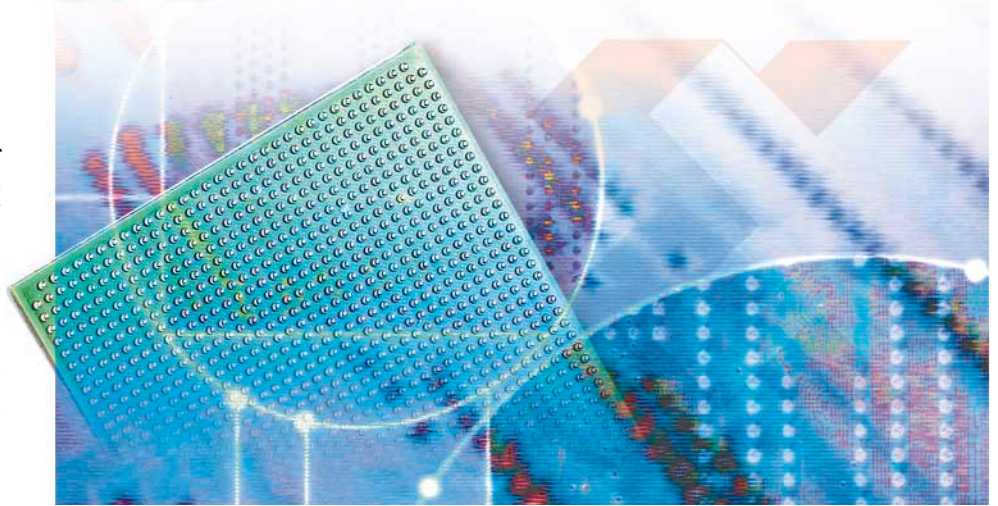
Mayer said changes that force an additional chip prototype can easily cost hundreds of thousands of extra dollars and can stretch design cycles out for several additional months. "This approach is expected to change the landscape entirely," he said.

Cu-08, with as many as eight layers of copper wiring separated by an advanced low-k insulation, will support up to 72 million gates for high-complexity IC solutions. As many as 400,000 ASIC gates may be dedicated to one or more of the FPGA cores on the ASIC.

"We've improved upon our delivery of programmable hardware by allowing reconfiguration using the same chip. Flexibility is the beauty of combining ASIC and FPGA technology," said Wim Roelandts, president and CEO of Xilinx. "Our latest agreement with IBM is a natural extension of and a significant milestone in our existing relationship that allows us to address new opportunities in the high-end ASIC market."

Even after this new custom chip is built into a product, you can add to its functionality, simply, easily, and effectively. A good example would be in the communication industry, where various protocol and interface specifications are constantly evolving. Cell phones, printers, set top boxes, and other consumer electronic products also are well suited for this new approach.

IBM is the number one ASIC manufacturer worldwide. Xilinx is the number one PLD manufacturer worldwide, with more than 15 years experience in FPGA design tools.

IBM and Xilinx already have a productive business relationship. IBM supplies embedded PowerPC™ processors for Xilinx Virtex-II Pro™ FPGAs. In March of this year, Xilinx signed a high-volume, multi-million dollar manufacturing agreement with IBM to manufacture these FPGAs using IBM's advanced 130 nanometer and 90 nanometer copper-based chip-making technology.

The new FPGA cores for the Cu-80 ASICS are now in development. They are expected to be available from IBM, embedded in an ASIC, in early 2004, following IBM's full release of its standard-setting Cu-08 technology. ∑