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FPGA startup crunch: Achronix flush enough?

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This article is part of a series that examines the status of various FPGA startups in light of the economic recession.

SAN FRANCISCO—Flush with cash after raising more than $86 million in venture capital over the past two years, shipping working products and with revenue and dozens of design wins already under its belt, FPGA startup Achronix Inc. has the technology and financial stability to weather the current downturn, according to John Loft Holt, the company's founder, chairman and CEO.

Holt told *Programmable Logic Design Line* that Achronix has never had a layoff and isn't planning one. In fact, he said, the company is continuing to cautiously expand its headcount, which currently numbers about 90, even during the recession, he said. He added that Achronix is also on track to exceed its revenue target for 2009, which he described as "single-digit millions."

Achronix is one of a number of promising FPGA startups to appear in recent times, at least some of which appear to be struggling. Some fear that at least some of these FPGA startups will fold, as did Ambric Inc. and Mathstar Inc. last year, or be acquired.

Achronix offers two principle product lines. The most interesting is a line of commercial FPGAs named Speedster, which the company says operate at peak performance of 1.5 GHz, far greater than any other FPGAs. Speedster and Achronix' other product line, a specialized line of products for high-radiation and extreme temperature environments, utilize a patented acceleration technology called picoPIPE, which the company says enables three times the throughput of traditional FPGAs.

According to Achronix (San Jose, Calif.), pipoPIPE speeds the way data moves through the FPGA fabric, using simple handshake protocols to control data flow, without a global clock. While the inner workings of the device are fundamentally different, designs are input using a hardware description language such as RTL, according to the company.

"They do have something unique in the FPGA world," said Rich Wawrzyniak, a senior analyst at Semico Research Corp. "If their [revenue] targets are low, it wouldn't surprise me that they were going to be able to hit those targets."

According to Wawrzyniak, the 1.5-GHz peak performance of Achronix' Speedster product line means even designers in applications that traditionally shun FPGAs can use the part, or at least give it serious consideration.

"Now that Achronix has parts that will function up in that range, for those people doing designs at that level, it makes a lot of sense for people to use Achronix or give them a real serious look," Wawrzyniak said.

According to Holt, in addition to enabling designers to input designs using RTL, Achronix also has a "familiar tools" strategy. The goal, he said, is to enable FPGA designers to use the Achronix parts using tools they are familiar with from working with traditional FPGAs. Previous FPGA startups have failed by requiring designers to learn exotic new tools and methodologies, he said.

Achronix has multi-year OEM tool deals with Mentor Graphics Corp. and Synopsys Inc. on front-end tools. The company's back-end ACE (Achronix CAD Environment) tools—a complete physical implementation platform including place and route, timing analysis and critical path analysis—leverage the familiar tools strategy to look and feel like existing FPGA tools, according to materials provided by the company.

One source who works for an established FPGA vendor said he hadn't seen the Achronix tools but was dubious of the "familiar tools" claim because the pipelining technology of the devices is so much different than the structure of traditional FPGAs.

"Fundamentally we are a software company," Holt said, emphasizing the importance of "getting the tools right."

A spokesperson for Achronix said the company can't disclose the number of design wins it has or name its customers. But the company has had dozens of design wins, the spokesperson said.

Achronix, like fellow FPGA startup Cswitch Corp., is targeting the high-end of the FPGA spectrum, a potentially dicey proposition at a time when communications infrastructure firms and other OEMS have either delayed or scrapped many projects.

Jim Feldhan, president of Semico, said Speedster has a market opportunity. He said a lot of startups will probably struggle during the downturn, not necessarily because their products are not as good, but because new systems designs are being scrutinized more and their numbers being reduced. Semico expects the market to be better next year, he said, and many companies are already doing designs in anticipation of a better economy.

Holt, who prior to co-founding Achronix led a management technology consultancy, said Achronix is avoiding one mistake that has befallen many high-tech startups he's encountered: planning for unrealistically aggressive growth. Achronix' revenue projections are very conservative, he said, and take into account a lead time of 12-18 months from design win to production (which he said is really about the average time it takes).

Holt emphasized that the company's venture capital investors— which include Argonaut Private Equity, Battery Ventures, New Science Ventures, Easton Capital and Entrepia Ventures—have vast experience in the semiconductor and life sciences industries and will not expect unrealistically swift returns.

Achronix is initially targeting markets in telecommunications, networking, digital signal processing, test and measurement, high-performance computing and security/encryption. Holt says the company is not competing with Xilinx and Altera, which dominate the FPGA market, but addressing markets that they cannot.

Achronix began shipping the first member of the Speedster family last year. Holt said the company is also developing a reconfigurable radiation-hardened FPGA in conjunction with BAE Systems under an agreement announced in 2007.

Achronix has raised $86.3 million in two rounds of venture funding. Last October the company announced it had raised $52.1 million in series B funding.

Achronix FPGAs are based on technology that was originally developed at Cornell University between 1994 and 2004. The company was founded in 2004.