Reborn Micro Magic offers EDA, IC design services

EE Times

5/29/2006 01:00 PM EDT

SANTA CRUZ, Calif. — You would think that selling a small EDA and IC design services company for $260 million would be enough of an accomplishment. But the original founders of Micro Magic Inc. decided to restart their company, and they're back in business this week with services and revamped tools.

In one of the most notable acquisitions in EDA history, Juniper Networks Inc. bought Micro Magic for $260 million in the high-flying days of late 2000, apparently to tap the expertise of the 24 IC designers who were working there. In 2004 Mark Santoro, Micro Magic's original chief executive and now its CEO once again, joined with other Micro Magic team members to relaunch the company and improve its software.

"I was too young to retire, and I had a desire to finish what we started," Santoro said. "We ended up in an agreement with [Juniper]."

Santoro said he couldn't provide any details about what that agreement entailed, but he noted that Juniper has no stake in Micro Magic, and that Micro Magic has rights to all the EDA software it plans to sell. He said that most of Micro Magic's original 24 employees did in fact go to work at Juniper, where Santoro served as director of hardware engineering following the 2000 acquisition.

But Santoro declined to say what the Micro Magic team actually did at Juniper, and Juniper declined to comment on the Micro Magic acquisition or any subsequent developments. It's unclear exactly what Juniper is left with following its $260 million investment.

It should be noted, however, that the $260 million was paid in both stock and cash, and that Juniper's stock fell from $164 per share when the acquisition was announced in December 2000 to nearly $4 a share less than two years later. Still, the Micro Magic team had the luxury of working on its tools in stealth mode between 2004 and 2006 without needing venture capital. Juniper stock was trading around $15 per share last week.

Now an 11-person company, Micro Magic is open for IC design services business again, and is ready to ship four tools--a layout editor, a design capture tool, a data path compiler and a megacell memory compiler. The company claims its design flow combines the best of custom and ASIC design practices, and that its data path compiler can provide a much faster alternative to the conventional synthesis, placement and routing flow for complex IC data paths.

"What separates Micro Magic from other EDA companies is that we are actually designers," Santoro said. "Our backgrounds are all in hardware design, and the person who writes tools for Micro Magic has actually done chip design." And the services work keeps Micro Magic engineers in the front ranks. "We feel that if we don't keep designing silicon, our tools will get rusty over time," Santoro said.

Charmed startup
Launched in 1995 by Santoro, Micro Magic seems to have had a magic touch since its early days. It took on only the most challenging IC design services jobs, having at one point a yearlong client waiting list. The Micro Magic engineers developed their own tools to fill gaps in the commercial tool flow.
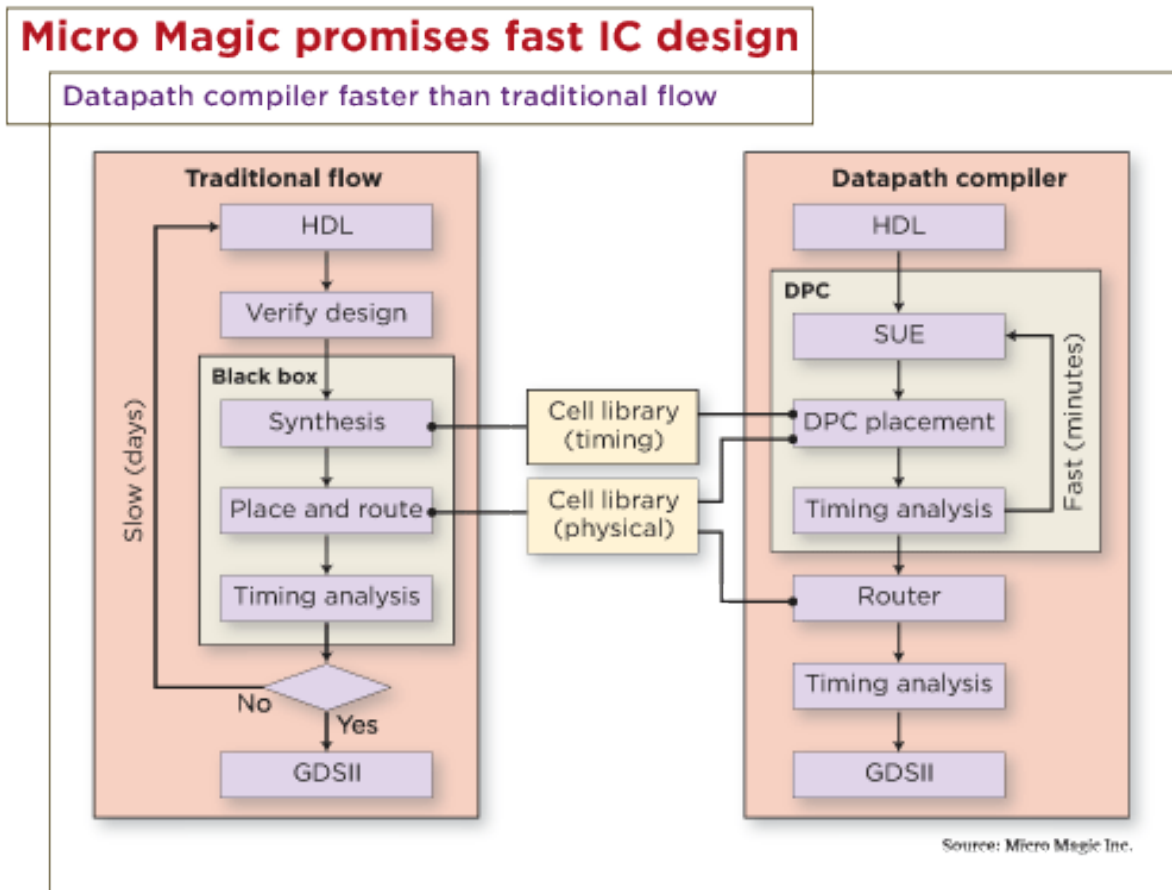
"Design services customers kept asking how we could get chips done with such a small team," Santoro recalled. "When about the thirtieth person asked, we started selling the software."

The semiconductor industry of 2006, however, is very different from the semiconductor industry of the late 1990s. But Santoro believes that the demand for high-end services is as strong as it was before, particularly given the need for low-power design.

Micro Magic's Sue is a design environment and schematic-capture tool that can control the entire design flow and drive downstream tools, including Spice and

Verilog simulators. "I like it for early design work," Santoro said. "You can start by drawing block diagrams and then attach Verilog modules."

Max is a programmable layout editor that includes real-time design rule checking, schematic-driven layout and interactive cross-probing between the layout and the schematic. The company claims it is extremely fast. In one test on a 4-Gbyte GDSII file, according to the company, Max was able to redisplay the entire chip with all layers visible in less than 1 second.

Micro Magic promises fast IC design

Datapath compiler faster than traditional flow

Source: Micro Magic Inc.

Datapath Compiler generates optimized, high-speed data paths, and has a speed and area advantage compared with a conventional ASIC flow with synthesis, the company said. It takes a graphical view from Sue, builds a floor plan and runs placement and static timing analysis.

Megacell Compiler designs SRAMs, DRAMs, ROMs, CAMs, pad rings and other regular or semiregular structures.

"This is a tool for building your own custom memory," Santoro said. "It's built upon Max, so it understands connectivity. It can automatically find connectivity and program the addresses for you."

All four tools have been "significantly" improved since 2000, Santoro said. For example, Datapath Compiler was once limited to one type of data path and one direction, but can now generate data paths in any direction. Max is an order of magnitude faster and several times more memory-efficient. And static timing analysis has been added to the flow.

Prices start at $30,000 per tool for an annual license.