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THE EDITORIAL VIEW

ALCHEMY'S THIRD CHANCE

By Tom R. Halfhill {6/26/06-03}

AMD is selling its Alchemy business unit to Raza Microelectronics (RMI), and we think it makes good sense for both companies—but only if the transfer includes a significant number of the original engineers. Without those alchemists, RMI will struggle to turn lead into gold.

RMI and AMD announced their deal on June 13. When it's final, in July or August, RMI will get the entire Alchemy product line (five MIPS32-based communications processors) and the associated business and marketing operations. The real value of the Alchemy unit, however, lies in the experienced design team. Without the engineers, RMI is acquiring little more than a well-crafted but aging product line.

The newest of the five Alchemy processors, the Au1200, is a year old. The oldest Alchemy part, the Au1000, is six years old. (See *MPR 7/10/2000-01*, "Alchemy Transmutes MIPS32.") Established competitors like Broadcom and Freescale have been revving their product lines of communications processors more frequently than AMD has, and new competitors like Cavium Networks are coming on strong.

Of course, communications processors generally have a longer shelf life than, say, PC processors. And it takes 12 to 24 months to design a state-of-the-art processor, so five Alchemy devices in six years isn't exactly a laggard pace. Even so, we think the Alchemy design team has unrealized potential. At AMD, Alchemy was inevitably a sideline to the x86 business, and not a wildly successful one—especially since the market for integrated communications processors has grown more competitive.

AMD's acquisition of Alchemy in 2002 made sense at the time, because archrival Intel was steaming full speed into communications. Looking for a quick response, AMD bought Alchemy, which was founded by refugees from the famous StrongARM design team at DEC. (See *MPR 3/4/02-01*, "AMD Acquires Alchemy to Make Gold in Embedded Markets.") Four years on, both AMD and Intel are rethinking their competitive positions and refocusing on their core lines of business.

At RMI, the Alchemy design team will have a better chance to flourish—if RMI can hold the team together. Already, the original DEC engineers are widely scattered. One group, led by Greg Hoeppner, founded Alchemy in 1999 and ended up at AMD. Another group, led by Dan Dobberpuhl and Jim Keller, founded SiByte in 1998 and ended up at Broadcom. Later, Dobberpuhl and Keller decamped to launch P.A. Semi. (See *MPR 10/25/05-01*, "P.A. Semi: New Blood for Power.") Overall, the former SiByte group has enjoyed more success than the Alchemy group has.

RMI appears to understand the importance of retaining as many Alchemy engineers as possible. The company says it has extended employment offers to team members and is opening a new design center in Austin, Texas, so they won't have to relocate to RMI's headquarters in Silicon Valley.

However, AMD may want to keep some Alchemy engineers, too. *MPR* has heard that AMD wants to apply their expertise in low-power design to a next-generation processor core for mobile PCs. Things could get uncomfortable if AMD and RMI compete for the same engineers, or if the team breaks up. Fortunately, both companies have a strong incentive to make the transition a smooth one. If all or most of the

Alchemy engineers join RMI, that company will inherit a coherent design team and a product line that complements its own MIPS64-based network processors and the MIPS32 processors from SandCraft, an earlier RMI acquisition. (See *MPR 5/17/05-01*, "A New MIPS Powerhouse Arrives.")

As another part of the deal, AMD says it will invest in RMI, and RMI will support AMD's new Torrenza platform. Torrenza is a strategic initiative in which AMD is encouraging other companies to design specialized coprocessors for AMD's x86 chips. (See *MPR 6/26/06-01*, "AMD Round II.") If everything comes together, RMI will be a more formidable competitor.

Covering China in Microprocessor Report

Elsewhere in this issue of *MPR*, you'll find my latest article about microprocessors in China. (See *MPR 6/26/06-02*, "China's Microprocessor Dilemma.") It's our most in-depth coverage of that subject since last summer's analysis of the Chinese-designed Godson-2 processor. (See *MPR 7/25/05-01*, "China's Emerging Microprocessors.")

Big things are happening in China, and many of them will affect U.S. companies that make microprocessors or license microprocessor-related intellectual property. Unfortunately, foreign publications have difficulty covering developments in China beyond a superficial level. Our latest article is the fruit of recent journeys to Shanghai and Beijing, where *MPR* met with several interesting people, including the country's top CPU architect at the Chinese Academy of Sciences.

We realize that China is a controversial subject. (Talk about FUD!) Our goal is to provide the best technical coverage and analysis we can manage, despite the country's limited experience with a free press. The good news is that China is definitely opening up. Our reporting there was unimpeded, and everyone we met was enthusiastic about talking with us. It helps a lot that In-Stat, which publishes *MPR*, has full-time Chinese analysts on the ground in Beijing and Shanghai. Together, we'll do our best to keep you informed about the most important microprocessor-related developments in the Middle Kingdom.

IBM's Blog for Game Developers

There are lots of blogs about playing games, but far fewer about creating games. IBM recently opened to the general public an internal blog for game developers. It's a great place to exchange information about IBM's Cell Broadband Engine, the Sony PlayStation 3, and the Microsoft Xbox 360, among other things.

For example, one posting is Jeff Brown's detailed description of his technical presentation at our Fall Processor Forum last year. Brown is IBM's chief design engineer for the main processor in the Xbox 360. Other participants in this blog are equally authoritative. In other words, the signal-to-noise ratio is much higher than in some other blogs and bulletin boards we've seen.

IBM's blog is called GameTomorrow. Its creator and administrator is Catherine Helzerman, an analyst-relations person in IBM's Technology Collaboration Solutions organization. When she's not running the blog or dealing with analysts, Catherine says her main interests are finding new uses for her Sony PlayStation Portable, building do-it-yourself projects, and applying game technology to applications outside gaming. You can find her blog at *http://gametomorrow.com*.