Asian Vendors Take Up Alpha Torch

Mitsubishi, Samsung Show Hope Remains for Alpha in PC Market

When Digital agreed to sell its fab and chip business to Intel (see MPR 11/17/97, p. 1), many analysts, including myself, focused on the effect of the deal on Digital's Alpha business. Although I still believe this effect will be negative, it may not drag down the entire Alpha market. In particular, the deal positions Mitsubishi and Samsung to lead the charge to establish Alpha in the PC market. Even with Digital's Alpha future in doubt, there are signs its Asian partners may succeed.

When Digital signed first Mitsubishi, then Samsung, to second-source Alpha processors, there looked to be at least one too many chip suppliers for such a low-volume market. (Some wags said two too many.) The Intel settlement eases this congestion: without a fab or a chip sales force, Digital plans to stop supplying Alpha chips to other system makers, using Intel only as a supplier for its own systems business. This change leaves the entire external Alpha market, such as it is, to Mitsubishi and Samsung.

Both of these companies are experienced chip vendors with plenty of leading-edge fab capacity. Both want to aggressively penetrate the PC processor market, leveraging their success in the DRAM and SRAM markets. Both have little choice other than pushing Alpha, as neither has access to other general-purpose processor designs. Whether Digital stays with Alpha or converts to IA-64, the Asian vendors are in the race for the long run.

Outside of Digital, the market for Alpha processors has been slow to take off. The initial Alpha products were powerful but expensive, well suited to high-end OEMs such as Cray and Kubota. Unfortunately, Cray was acquired by MIPS owner Silicon Graphics, and Kubota got out of the workstation business. Digital's first foray into the low-cost market, the 21066, didn't deliver adequate performance and was not accepted by PC makers, leaving the Alpha OEM market to tiny vendors such as Carrera and DeskStation.

The latest Alpha PC processor, the 21164PC (see MPR 3/31/97, p. 9), is faring better. This chip sells for as little as $225 while delivering strong performance. As a result, more than a dozen PC makers have announced systems using the new chip (see MPR 12/8/97, p. 5), including Vobis, a leading European PC vendor. The major U.S. PC makers remain committed to x86 processors.

To take advantage of this strong performance, end users need native Alpha software. Windows NT, along with most leading workstation applications, has been available on Alpha for years, but mainstream PC software has been lacking. There are signs of progress in this area as well: popular desktop-publishing applications from Quark and Corel are now available in Alpha versions. This may interest performance-hungry DTP professionals in Alpha PCs.

Most PC buyers don't want to forsake their favorite x86 applications. Digital's solution is FX!32 (see MPR 10/28/96, p. 4), which translates x86 applications into Alpha code. Today, the translator must be installed manually, and it has the odd property of running applications slowly at first but faster after repeated use. Microsoft plans to incorporate FX!32 into Windows NT 5.0 next year, solving the ease-of-use problem. Although the performance variability will still remain, the product allows Alpha PC users to execute any 32-bit x86 application with decent performance.

Digital, Mitsubishi, and Samsung have joined together to create an "AlphaPowered" campaign, branding the chips with the Alpha name rather than with Digital's name. Given Digital's withdrawal from the chip business, this branding makes good sense. It allows Mitsubishi and Samsung to work together to build the Alpha brand while competing with each other to sell chips.

While the uncertainty surrounding Digital's Alpha plans provides an uncomfortable backdrop for these efforts to push Alpha into the PC market, it isn't likely to have a tangible downside. The next-generation 21264 design is nearly ready for production, and Digital is working with Samsung on a PC derivative of that processor. With process shrinks to 0.25- and 0.18-micron CMOS, the 21264 core should satisfy the needs of the PC market for years to come. Even if Digital decides it doesn't need the 21364, it could develop that chip under contract for Samsung and Mitsubishi.

On the other hand, Alpha's ability to penetrate the mainstream PC market remains in question. The 533-MHz 21164PC offers roughly the same integer performance as a 300-MHz Pentium II, so performance-hungry PC buyers gain little from using Alpha unless they rely on floating-point operations, where Alpha has a big advantage. As Intel aggressively cuts its Pentium II prices next year, Mitsubishi and Samsung will have to respond quickly just to keep pace. Until the Alpha vendors can master the tricky combination of better-than-Intel integer performance at moderate price points, headway into the PC market will be limited at best. M

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