

Success of AMD/UMC Deal Depends on Partnerships

Dean Freeman

A deal between Advanced Micro Devices (AMD) and United Microelectronics (UMC) will give AMD some needed manufacturing capacity, but the deal could potentially affect both companies' older partnerships.

NEWS ANALYSIS

Event

On 31 January 2002, AMD said it has formed a joint venture with Taiwanese chip maker UMC to build and operate a large plant in Singapore that will start producing chips in 2005.

Analysis

The speculation and rumors have finally ended — AMD has picked its partner for 300-mm (12-inch) production, which allows chips to be produced from larger silicon wafers. Gartner believes that picking UMC as a manufacturing partner makes sense for AMD. UMC is not yet the largest foundry (i.e., a company that produces chips designed by others), but it has moved most aggressively into 300-mm production by setting up two other joint ventures for 300-mm manufacturing. The venture also gives AMD access to sorely needed manufacturing capacity at the 100-nm (nanometer, or 0.1 micron) node with a partner that has experience with silicon-on-insulator technology, copper dual damascene and spin-on low-k dielectric processes, all of which AMD either has in production or plans to put in production at 100-nm.

This deal also enables AMD to free up its Fab 25 facility, located in Austin, Texas, to manufacture other types of devices since microprocessing units built with aluminum technology will fade away at the 100-nm technology node. With their manufacturing facilities close to capacity, AMD now has access to additional capacity as it seeks to gain market share. As it introduces the 300-mm product, AMD can further reduce manufacturing costs due to the productivity gains the 300-mm and 65-nm technology node will provide.

The interesting and surprising aspect of this relationship is the technical partnership. UMC has a technical relationship with IBM on logic technology. AMD has worked with Motorola on current- and future-generation microprocessor technology. Although it's unclear how these relationships will play out, UMC has the potential to lose some leading-edge technology if IBM chooses to revise the agreement. On the other hand, UMC gains AMD's technical expertise in microprocessors. Until what happens to the older partnerships becomes clear, determining the benefits of this deal to AMD and UMC will prove difficult.

Analytical Source: Dean Freeman, Semiconductor Equipment Manufacturing and Materials Worldwide

Need to Know: Reference Material and Recommended Reading

- "Low-k Dielectrics: Are They Ready for Prime Time?" (SEMC-WW-DP-0051). Compares deposition techniques and production films for low-k dielectrics as the technology moves past the 130-nm node. **By Dean Freeman**
- "300-mm Semiconductor Manufacturing Comes On Strong" (SCEM-WW-EX-0101). With 20 300-mm fabs set to come on line in the next two years, Gartner forecasts 300-mm shipments will be 60 percent of total semiconductor equipment by 2005. **By Dean Freeman**

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