

April 17, 2009

IBM, partners working on 28-nano chips

Advance cuts size, boosts efficiency

*By Craig Wolf
Poughkeepsie Journal*

WICCOPEE - IBM Corp. and five partner companies who do their development work here said Thursday they have taken another step down the road to making microchips that are ever-faster and less power-hungry.

They are developing chips at the 28-nanometer level, an upgrade that promises better performance for future mobile electronics devices despite the present global downturn in the semiconductor business.

A nanometer is a billionth of a meter, and 28-nano is leading-edge technology.

The development work is being done at IBM's advanced chip fabrication facility at its Hudson Valley Research Park in East Fishkill.

Early production for "risk" clients willing to pioneer is planned for the second half of 2010; more general availability would follow. IBM wasn't specific on when.

The circuitry of microchips keeps getting smaller as the industry follows its formal "roadmap" schedule to achieve better results with the products. That means less power consumption in mobile devices, so batteries last longer between charges.

Preliminary results suggest the 28-nanometer process can provide a 40 percent performance boost and a more-than-20 percent drop in power use in a chip half the size of the 45-nanometer chips that are state of the art in current devices, IBM said in a news release.

From a local point of view, the announcement is impressive and provides fresh evidence IBM, through its partnerships, is keeping up the pace in the chip race, said Michael Tomkovitch, chairman of the Dutchess County Industrial Development Agency.

"Anybody can make your standard chip," he said, "but if we can stay on the cutting edge in East Fishkill, that's going to be valuable, being ahead of the curve at all times."

Joanne Itow, analyst at Semico Research in Scottsdale, Ariz., said IBM is not the first to announce such 28-nano work. Intel Corp. and TSMC, which is Taiwan Semiconductor Manufacturing Corp., are both active at that level. Intel has already put out a step between 45 and 28, which is 32-nano, and that should be out on the market before the end of the year, she said. The IBM group has also done development work at 32-nano.

Though not the first to work on 28-nano, the IBM team has a strategy "of providing several options to their customers" and to a wider range of customers, Itow said.

The chips are designed for the rapidly expanding market for mobile Internet devices and others where use of power is sensitive.

These chips will feature a technical feature known as "high-k metal gate," a partial solution to the problem of internal current leakage that has grown severe as circuitry grows smaller.

This technique involves moving away from the traditional silicon dioxide material at points where insulation is needed within the chip and using different materials, including the element hafnium. This

cuts power leakage, and thus power usage.

Partnerships involved

IBM's partner companies are Chartered Semiconductor Manufacturing, GlobalFoundries, Infineon Technologies, Samsung Electronics and STMicroelectronics. All have personnel working at IBM's facilities here.

GlobalFoundries is a joint venture of Advanced Micro Devices and an Abu Dhabi investment group.

In the statement, IBM made the point its customers can migrate easily from the 32-nano to the newer 28-nano without the need for a big redesign.

The goal is "maintaining our focus on technology leadership for our clients and partners," said Gary Patton, vice president of IBM's Semiconductor Research and Development Center.

Additional Facts

THE IBM BLOG

Reporters from the Poughkeepsie Journal in Dutchess County, The Journal News serving Westchester, Rockland and Putnam counties, the Binghamton Press & Sun-Bulletin in Broome County, and the Burlington Free Press in Burlington, Vt., give you the latest news on Armonk-based IBM Corp. <http://www.poughkeepsiejournal.com/blogs>
