Region gets a $3B vote of confidence

Chip project ensures work will continue at Utica, Albany sites
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Even with the expected sale of its microchip manufacturing operations to GlobalFoundries, IBM said Thursday it will spend $3 billion over the next five years on inventing the next generation of computer chips — a huge vote of confidence for the company's research operations in Albany and across the Hudson Valley.

The announcement dispels the idea that IBM will completely abandon its semiconductor operations in New York, which the state has supported with hundreds of millions of dollars in subsidies from Albany to East Fishkill and Yorktown Heights, the site of the company's research operations.

IBM is expected to sell its microchip operations to GlobalFoundries as early as this week for as much as $2 billion, putting thousands of IBM jobs in upstate New York at risk.

However, IBM's new $3 billion research project, called the chip "grand challenge," ensures that IBM's operations at the SUNY College of Nanoscale Science and Engineering's sites in Albany and Utica will remain vibrant economic catalysts for the time being. The idea is that the intellectual property created by this research — mainly technology patents — is worth hundreds of billions of dollars in the long run, especially if a major breakthrough occurs.

Likely anticipating the sale of IBM's microchip manufacturing operations, which are not profitable enough for IBM's shareholders, New York state and Gov. Andrew Cuomo have worked to tie up IBM's semiconductor research operations in the state over the past several years.

Last year, Cuomo reached an agreement with IBM that will save 3,100 jobs from Westchester County to Albany and Utica while creating 500 new jobs in Buffalo, in exchange for $55 million in subsidies for a new super computing center in Buffalo.

In 2011, IBM agreed to spend more than $3.5 billion over a five-year period in the state on cutting-edge semiconductor research as part of the Global 450 Consortium headquartered at the NanoCollege's Albany campus.

Much of that investment involves IBM's push to shrink chip components down to 10 nanometers.
However, IBM's announcement on Thursday involves getting chip transistors down to the 7-nanometer level, while also seeking new types of chip materials to replace today's silicon-based chips. Carbon-based materials, which IBM has heavily researched at its Yorktown Heights lab, appear to have the most promise in this area.

"The question is not if we will introduce 7-nanometer technology into manufacturing, but rather how, when, and at what cost?" said John Kelly, head of IBM Research.

Kelly, who has a summer home on Lake George and attended Union College in Schenectady and Rensselaer Polytechnic Institute in Troy, oversees IBM's $6 billion annual research budget.

But his heart has always been in creating new ways of computing, and he has personally led many of IBM's investments at the NanoCollege and RPI over the years.

IBM needs new types of computer chips to power its new "big data" systems and supercomputers that will enable the company to create "smart cities" and what it sees as a revolution of computer-assisted health care.

"This new investment will ensure that we produce the necessary innovations to meet these challenges," Kelly said.

However, not all of the $3 billion will be spent in New York. Sites in California and Zurich, Switzerland, will also be used for the research.

IBM's Zurich lab is considered by many to be the birthplace of nanotechnology, and IBM has a center there called the Binnig and Rohrer Nanotechnology Center that specializes in many cutting-edge areas, including carbon-based devices.