IBM develops speedier transistor

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SAN FRANCISCO (Reuters) - IBM has built a transistor that runs about 100 times faster than current chips, a development that could pave the way for ultra-fast computers and wireless networks, the computing giant said on Monday.

Transistors are the basic building blocks of the processors found in everything from supercomputers to digital music players, and IBM achieved the record speeds by building one from silicon laced with exotic chemical element germanium.

"What we've been doing in the last several years is pushing the absolute limits of silicon technology," said Bernie Meyerson, head of semiconductor research for

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"What we've done in demonstrating this is that we're nowhere near having tapped the limits of silicon performance, and that's very encouraging," Meyerson said.

The transistor achieved a speed of 500 gigahertz, which is more than 100 times speedier than the fastest PC chips sold today, and about 250 times faster than the typical mobile telephone chip, Meyerson said.

That speed was hit only when IBM researchers, working with counterparts from the Georgia Institute of Technology, cooled the transistor to near absolute zero, but Meyerson said the device still ran at 300 gigahertz at room temperature.

Clay Ryder, president of Sageza Group, a technology market research firm, said the breakthrough should lead to faster processors, but ones that will run far below the top speed demonstrated by IBM.

"We can build a (race car) that can go 240 miles per hour, but is that what you're going to drive to work? No, but you learn things that you can put in mass-produced cars," Ryder said.

Most improvements in chip speeds over the years have come from shrinking the size of transistors, but IBM's approach is to tweak the

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silicon on the atomic level, meaning that transistors can be designed from the ground up with very specific applications in mind.

"That means you can have Babe Ruth-style scenarios where you step up and point the bat to left field and nail a shot there," Meyerson said.

Meyerson forecasts that the advances will show up in real products within a couple years, probably in chips to power super-fast wireless networks capable of moving a DVD-quality movie in as little as 5 seconds.