IBM unveils new quantum computing chip to ‘explore new frontiers of science’

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Author: Edward Helmore

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The computer and artifical intelligence technology giant IBM on Monday unveiled a new quantum computing chip and machine that the company says could serve as the building blocks of much larger and faster systems than traditional silicon-based computers. IBM’s rollout of what it calls Quantum System Two, which uses three “Heron” cryogenically cooled chips, comes as tech rivals including Microsoft, Alphabet’s Google, China’s Baidu and others are racing to develop machines that use quantum bits – subatomic particles that unlike the ones or zeros of traditional computing can be in “superposition” of both one and zero at the same time. IBM says it has developed a new way of connecting chips together inside machines and then connecting machines together which, when combined with a new error-correction code, could produce quantum machines by 2033. The company says it plans to use the new chip in its enterprise AI platform, watsonx. “We are firmly within the era in which quantum computers are being used as a tool to explore new frontiers of science,” said IBM’s director of research, Dario Gil, in a statement. Quantum computing, Gil explained to CBS 60 Minutes on Sunday, could allow problems in physics, chemistry, engineering and medicine to be solved in minutes that would take today’s supercomputers millions of years to complete – if at all. “The beauty of it,” he said, “is that not even a million or a billion of those supercomputers connected together could do the calculations of these future machines”. IBM said it had installed one of the new machines at the Cleveland Clinic in Ohio where, the chief research officer, Serpil Erzurum, said, the technology could one day be used to model the behavior of proteins and the shapes they take depending on their function. “I need to understand the shape it’s in when it’s doing an interaction or a function that I don’t want it to do for that patient,” Erzurum sais. “Cancer, autoimmunity – it’s a problem. We are limited completely by the computational ability to look at the structure in real time for any, even one, molecule.” Reuters contributed to this report