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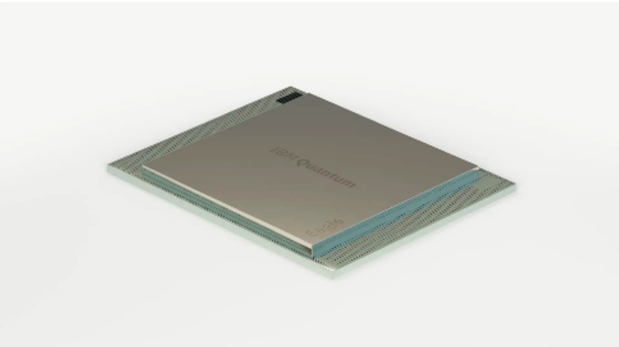
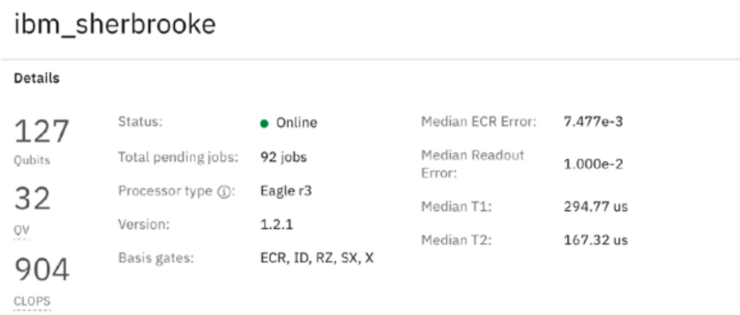
SELECTED NEWS

A new Eagle in the Poughkeepsie Quantum Datacenter: IBM Quantum's most performant system yet

The ibm_sherbrooke system offers a new 127-qubit Eagle processor optimized for error mitigation.





IBM has released a new processor called the "ibm_sherbrooke," which incorporates some major changes and is optimized for using error mitigation techniques like Probabilistic Error Cancellation (PEC) and Zero Noise Extrapolation (ZNE). This new quantum system, called the Eagle R3 processor, has 127 qubits and is designed to bring us closer to "quantum advantage," which refers to the point where quantum computers can solve problems that classical computers cannot. The improved coherence of this processor has allowed for lower gate errors, even with longer gate lengths. The median CNOT error rate of this processor is approximately 0.66%, which is about 0.6 percentage points better than the previous Eagle R1 processor using the old calibration strategy. Overall, the release of this processor is an exciting development that brings us closer to practical quantum computing.

Hybrid Quantum-Classical Algorithm Shows Promise for Unraveling the Protein Folding Problem

A team of researchers has developed a hybrid algorithmic approach using classical and quantum computing techniques that could potentially solve the protein folding problem. The protein folding problem involves finding the lowest energy configuration for a given amino acid sequence, which is a type of optimization problem encountered in fields such as biology and chemistry. Classical computers need help to solve this problem due to the complexity of the three-dimensional shapes of proteins. The new algorithm, called a parametrized quantum circuit (PQC), inspired by counterdiabatic (CD) protocols, was tested on proteins with up to 9 amino acids using up to 17 qubits on various quantum hardware platforms. The results show that the algorithm has high success probabilities and is suitable for use in the Noisy Intermediate-Scale Quantum (NISQ) era, in which quantum computers have limited qubits and are prone to noise. The researchers believe that this work brings us closer to achieving practical quantum advantage, which could surpass the capabilities of classical computers in solving the protein folding problem.

$36 Million Oxford Ionics Funding To Jump-Start Quantum Computing In 2023

Oxford Ionics has raised £30 million ($41 million) in Series A funding from a group of investors led by Oxford Science Enterprises and Braavos Investment Advisers. The funding round also included participation from Lansdowne Partners, Prosus Ventures, 2xN, Torch Partners, and Hermann Hauser, the founder of chip company ARM. Oxford Ionics has developed a way to control trapped ions, a promising technology in quantum computing, without the need for expensive lasers. Instead, its processors use a proprietary Electronic Qubit Control system to control the qubits, allowing for scalable and reliable integration of quantum performance into silicon chips. The funding will be used to bring the technology to market and expand the company's workforce, which includes 10 PhDs and 130+ peer-reviewed publications.

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