

## IBM Advances to Next Phase of DARPA Quantum Benchmarking Initiative

**IBM moves to second stage of program that rigorously and objectively validates approaches to building a large-scale fault-tolerant quantum computer**



**November 6, 2025 -- YORKTOWN HEIGHTS, New York** –IBM (NYSE: [IBM](#)) today announced it has been selected for Stage B, the second of three stages of the Quantum Benchmarking Initiative led by DARPA, the United States Defense Advanced Research Projects Agency.

As the independent research and development arm of the U.S. Department of Defense, DARPA’s work focuses on identifying, creating, and supporting transformational, high-reward technologies for national security. In 2024, DARPA launched the Quantum Benchmarking Initiative (QBI) to determine the feasibility of building an industrially fault-tolerant quantum computer whose computational value exceeds its cost.

The program is designed to rigorously validate and verify multiple approaches towards delivering such a quantum computer by 2033.

“IBM’s progression to Stage B of DARPA’s Quantum Benchmarking Initiative is a firm validation of IBM’s approach to delivering a large-scale, fault-tolerant quantum computer,” said Jay Gambetta, Director of IBM Research. “IBM has publicly laid out our comprehensive plan and roadmap to scale quantum computers towards fault-tolerance. As the industry advances, we look forward to working with DARPA as they continue an unbiased review of potential viable strategies across the field.”

QBI aims to support the Stage B “performers” ongoing research and development efforts through third-party verification and validation of their strategy.

As part of the initiative, IBM is also aiming to explore novel approaches to scaling control systems for quantum computers with [SEEQC](#).

Each successful QBI performer will progress through three stages of the program:

- **Stage A** required an initial technical concept of a cost-effective, fault-tolerant quantum computer that has a plausible path to realization in the near term. Stage A performers were announced in April 2025.
- Announced today, **Stage B** called for a comprehensive research and development plan capable of realizing such a quantum computer, as well as the risks associated with this plan and mitigation approaches.
- **Stage C**, according to DARPA, will be when “the QBI independent verification and validation (IV&V) team will test the companies’ computer hardware.”

Visit the DARPA website for more information about the [Quantum Benchmarking Initiative](#).

## About IBM

IBM is a leading global hybrid cloud and AI, and business services provider, helping clients in more than 175 countries capitalize on insights from their data, streamline business processes, reduce costs and gain the competitive edge in their industries. Thousands of governments and corporate entities in critical infrastructure areas such as financial services, telecommunications and healthcare rely on IBM's hybrid cloud platform and Red Hat OpenShift to affect their digital transformations quickly, efficiently and securely. IBM's breakthrough innovations in AI, quantum computing, industry-specific cloud solutions and business services deliver open and flexible options to our clients. All of this is backed by IBM's legendary commitment to trust, transparency, responsibility, inclusivity and service.

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