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Customer Inquiries

Media Inquiries

Information Technology R&D Center
Mitsubishi Electric Corporation

Public Relations Division
Mitsubishi Electric Corporation

www.MitsubishiElectric.com/ssl/contact/company/rd/form.html

prd.gnews@nk.MitsubishiElectric.co.jp
www.MitsubishiElectric.com/en/pr/

Mitsubishi Electric Launching R&D to Scale Up Quantum Computers

Will accelerate industrial applications of quantum computing via two projects selected by NEDO

TOKYO, September 17, 2026 – [Mitsubishi Electric Corporation](https://www.mitsubishielectric.com/en/pr/) (TOKYO: 6503) announced today that two of its research and development (R&D) projects have been selected through a public solicitation by Japan's New Energy and Industrial Technology Development Organization (NEDO) for support under an initiative to advance quantum computing and other information technology in the post-5G era.

The NEDO project is officially known as the Research and Development Project to Strengthen Post-5G Information and Communication System Infrastructure (Accelerating the Development and Demonstration of Next-Generation Quantum Computers to Solve Societal Issues). Following this selection, Mitsubishi Electric will launch its two projects aimed at scaling up quantum computers: 1) Research and Development of Multi-Qubit-Control Laser Systems and 2) Development of Ultra-Compact, Multi-Channel, Low-Noise Amplifier Modules for Large-Scale Superconducting Quantum Computers.

Quantum computers are next-generation technologies that are expected to revolutionize computing infrastructure by enabling larger-scale simulations and optimization than conventional computers in a wide range of fields, including medicine and drug discovery, finance, logistics and energy. R&D targeting practical applications is already underway, but full-scale industrial applications will require significantly improved processing capacity and computational accuracy to realize quantum computers with clear advantages over conventional computers. Qubits are fragile and highly susceptible to noise, so technologies that combine multiple qubits are needed to correct errors. Consequently, scaling quantum computers to the level of one million qubits will be a key challenge.

Specifically, Mitsubishi Electric will conduct R&D to scale up three types of quantum computers: neutral-atom,¹ trapped-ion² and superconducting.³ For neutral-atom and trapped-ion quantum computers, which use lasers to control neutral atoms and ions, Mitsubishi Electric aims to develop high-power, highly stable laser systems by leveraging its laser technologies for machine tools, and low-latency control technologies using logic devices such as a field-programmable gate array (FPGA).⁴ For superconducting quantum computers,

¹ A quantum computer that uses neutral atoms, which have no electric charge, as qubits—the basic units of information in quantum computers. Such computers manipulate neutral atoms using laser light to process quantum information.

² A quantum computer that uses charged atoms, or ions, held in designated positions by magnetic fields.

³ A quantum computer in which qubits composed of electrical circuits with superconducting elements are controlled using microwaves.

⁴ An LSI whose operation can be modified through programming.

which use microwaves to control qubits in cryogenic environments, Mitsubishi Electric will leverage its microwave IC technologies to develop ultra-compact, multi-channel, low-noise amplifier modules capable of operating in such environments. The aim is to scale up various types of quantum computers by enabling the control of larger numbers of neutral atoms, ions and superconducting qubits.

The two projects will promote technological validation within an industry-leading ecosystem involving collaboration with quantum-computing research institutions, including Japan's National Institute of Advanced Industrial Science and Technology. By providing essential systems and components for scaling up multiple types of promising quantum-computing architectures, Mitsubishi Electric hopes to accelerate the realization of industrial applications using quantum computers.

R&D Projects Selected by NEDO

Project	Participants	Mitsubishi Electric R&D
Research and Development of Multi-Qubit-Control Laser Systems	Lead: Mitsubishi Electric Corp. Cooperation: National Institute of Advanced Industrial Science and Technology and others	Development of high-power, high-stability laser systems to scale up neutral-atom and trapped-ion quantum computers
Development of Ultra-Compact, Multi-Channel, and Low-Noise Amplifier Modules for Large-Scale Superconducting Quantum Computers	Lead: Mitsubishi Electric Corp. Joint research: National Institute of Advanced Industrial Science and Technology and others	Development of ultra-compact, multi-channel, low-noise amplifier modules capable that operate at cryogenic temperatures to scale up superconducting quantum computers

Future Plans and Outlook

Based on the results of this development, Mitsubishi Electric will conduct demonstrations in collaboration with quantum-computing research institutions in Japan and overseas, aiming to accelerate the realization and practical application of quantum computers on the scale of approximately one million qubits by the 2030s. Starting in the 2040s, Mitsubishi Electric plans to scale up quantum computers for use in data centers and other applications to help solve issues in modern society that require advanced computing capabilities.

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About Mitsubishi Electric Corporation

Guided by its [corporate philosophy](#), Mitsubishi Electric Corporation (TOKYO: 6503) places sustainability at the core of its operations and values stakeholder trust—encompassing society, customers, shareholders and employees. In pursuing profitability, capital efficiency and growth, Mitsubishi Electric works closely alongside customers to develop value-added solutions that address today's complex challenges while enhancing the company's sustainable corporate value.

Founded in 1921, Mitsubishi Electric has over a century of experience in delivering reliable, high-quality products and solutions. With over 200 group companies and approximately 150,000 employees worldwide, the company is a recognized global leader in manufacturing, marketing and selling electrical and electronic equipment and systems across a broad range of sectors, including public utility systems, energy systems, defense and space systems, factory automation systems, automotive equipment, building systems, air conditioning systems & home products, digital innovations, and semiconductor & devices.

Mitsubishi Electric recorded consolidated revenue of 5,894.7 billion yen (U.S.\$ 36.8 billion*) in the fiscal year that ended on March 31, 2026. For more information, please visit www.MitsubishiElectric.com

*JPY 160=USD 1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2026