

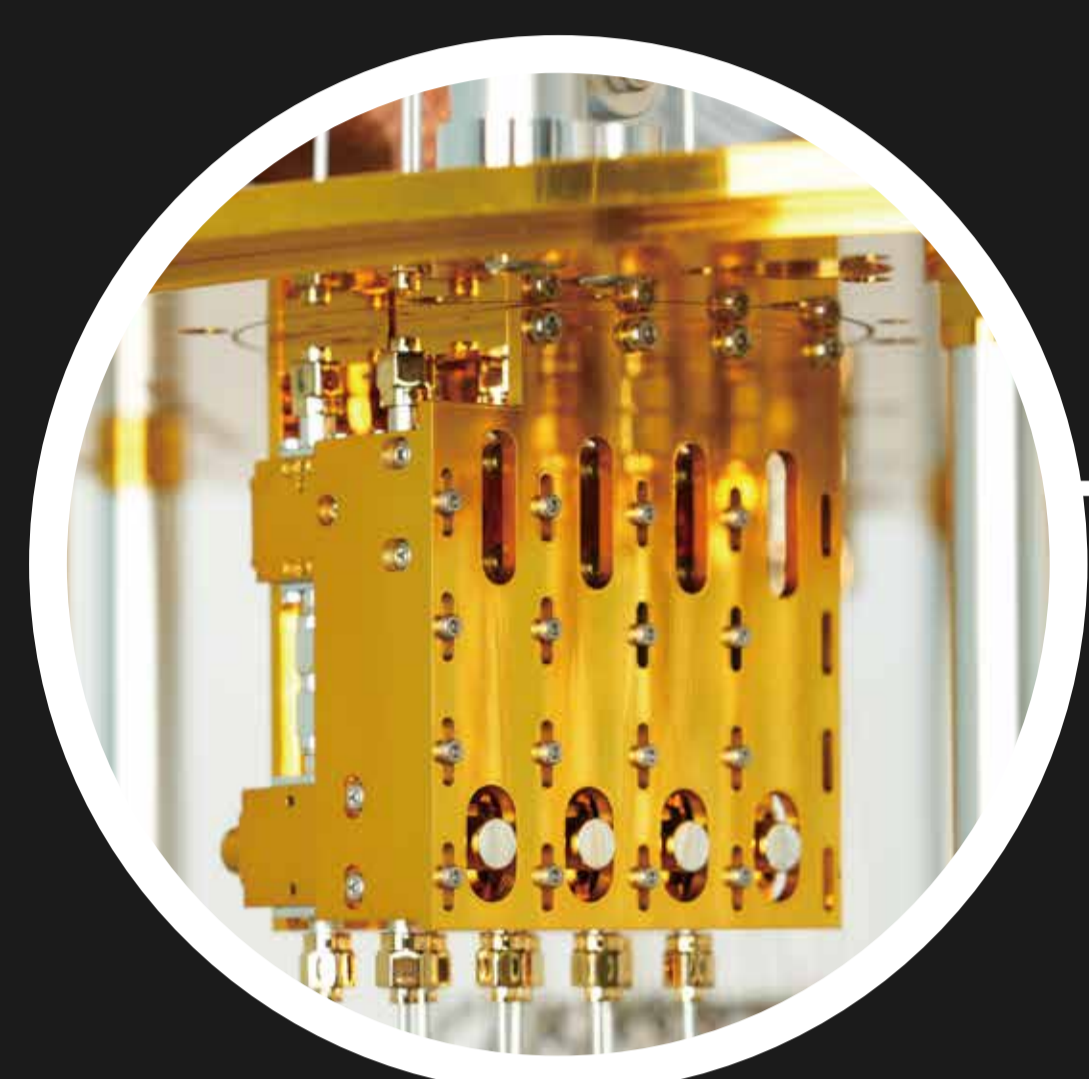
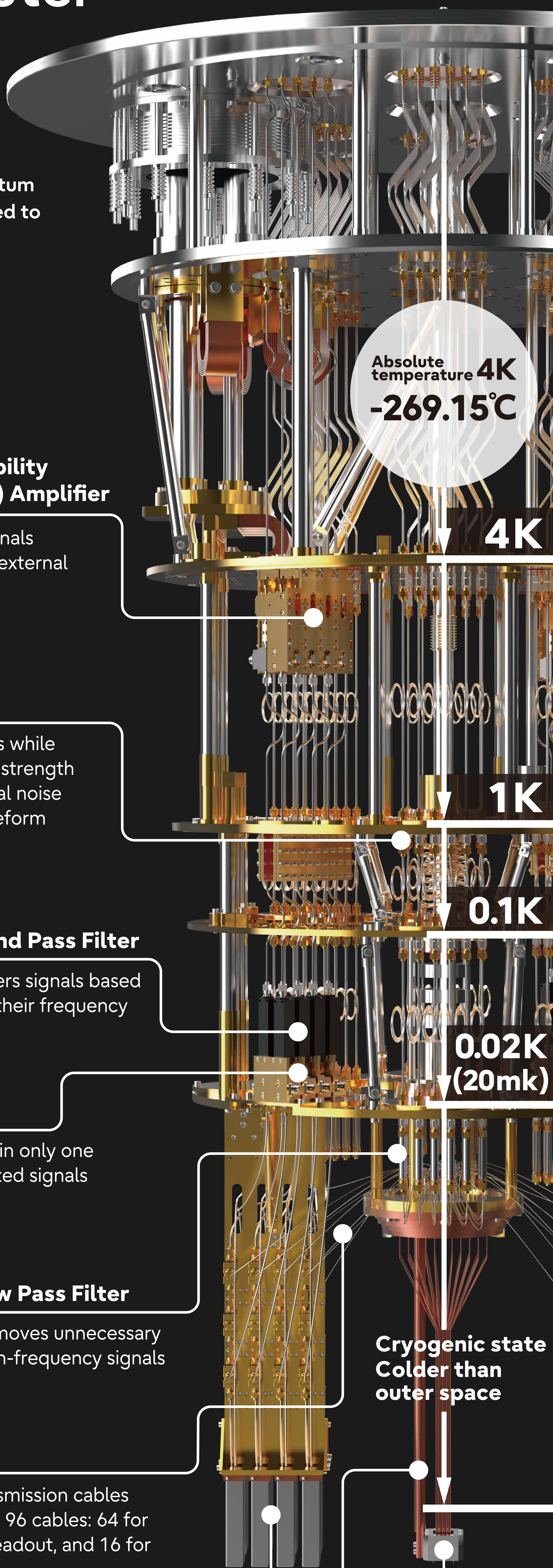
Inside Superconducting Quantum Computer

FUJITSU

Signals from the external control unit are attenuated and sent to the superconducting quantum chip, which is kept at an extremely low temperature. After the computation, the signals that represent the measured quantum states are progressively amplified and returned to the analysis unit.

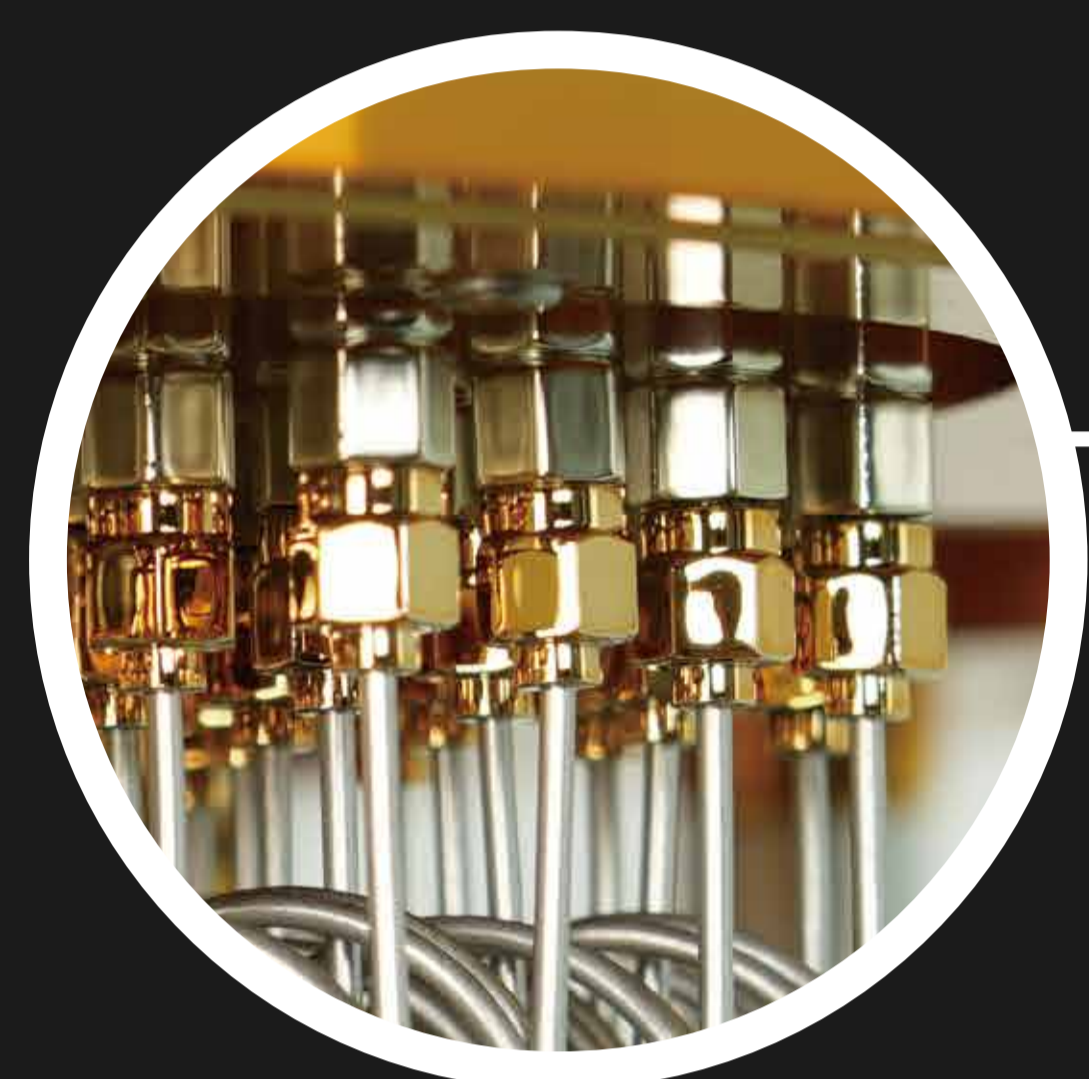


Fujitsu
Quantum Site



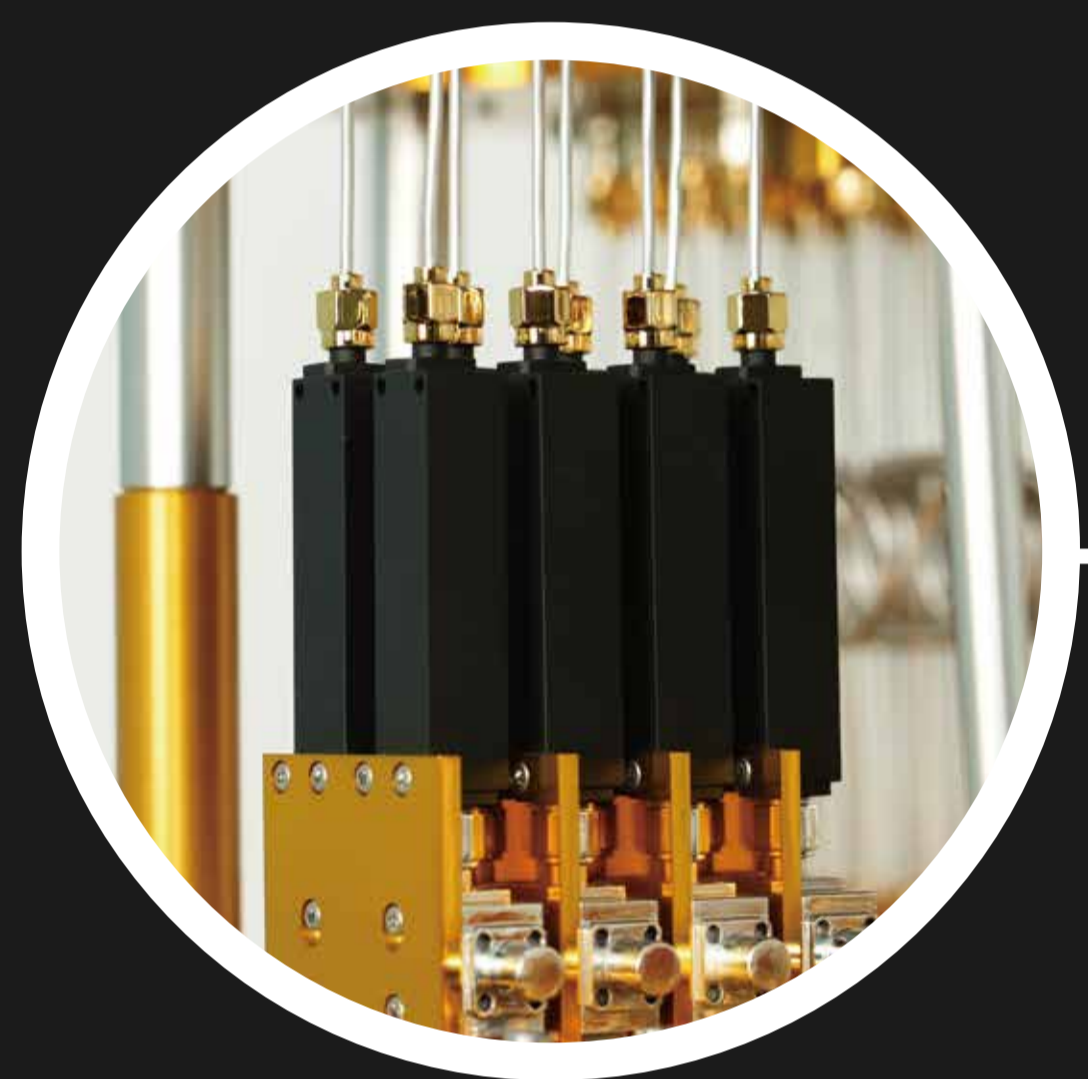
01 High Electron Mobility Transistor (HEMT) Amplifier

Amplifies quantum signals and sends them to an external control unit



02 Attenuator

Sends signals to qubits while attenuating the signal strength and preventing thermal noise from altering the waveform



03 Band Pass Filter

Filters signals based on their frequency



04 Isolator

Allows signals to pass in only one direction to cut reflected signals



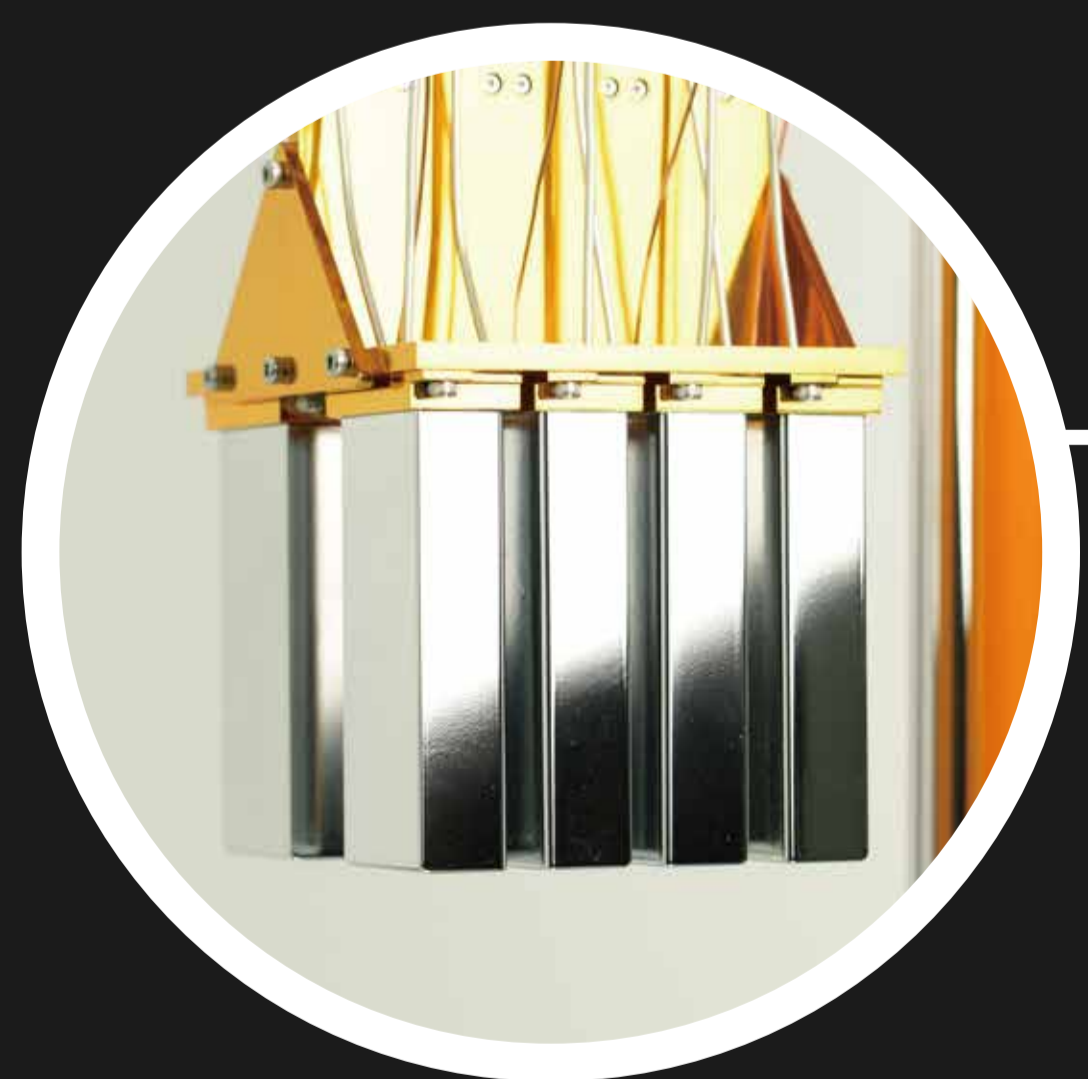
05 Low Pass Filter

Removes unnecessary high-frequency signals



06 Wiring Cable

Microwave signal transmission cables consisting of a total of 96 cables: 64 for qubit control, 16 for readout, and 16 for amplifier drive



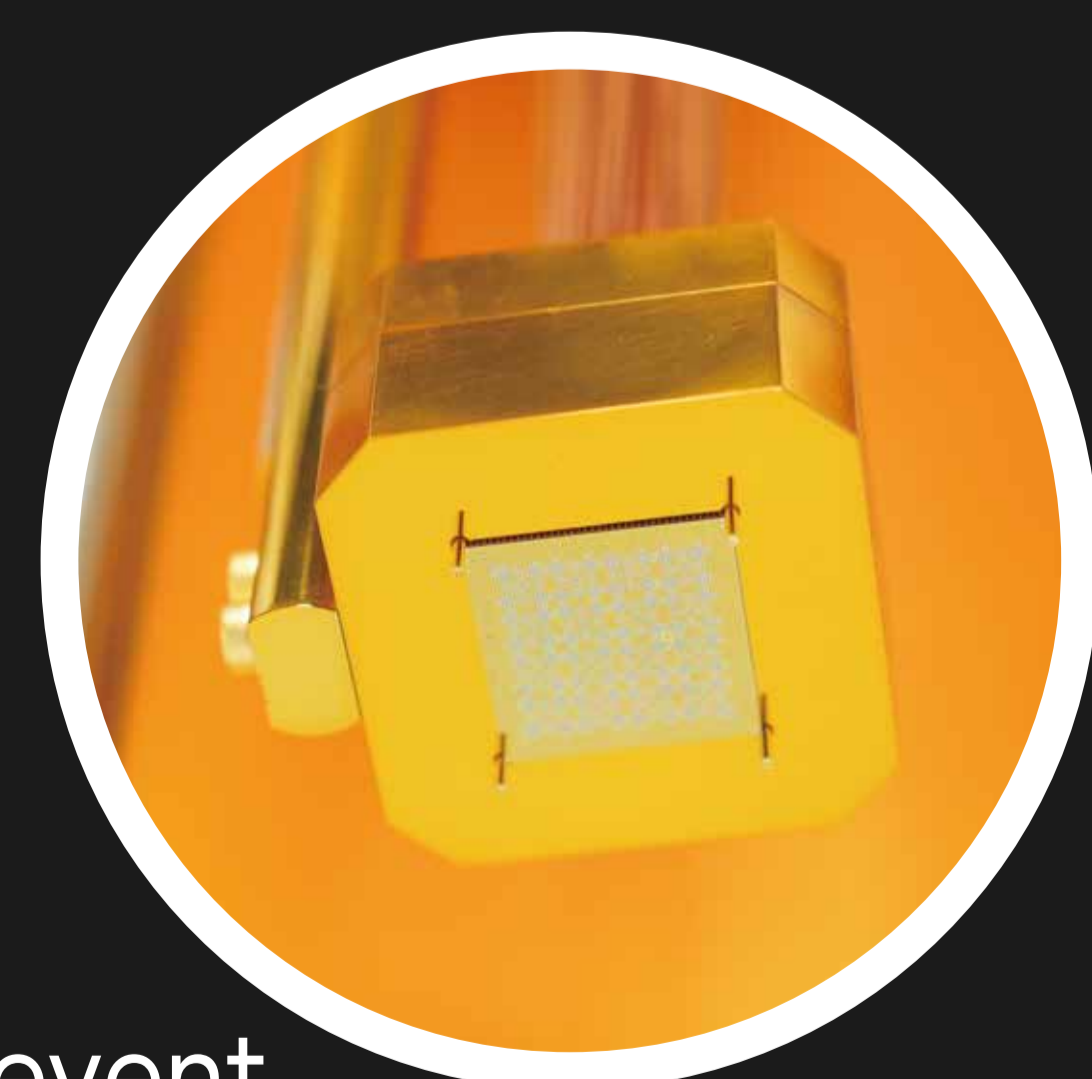
07 Josephson Parametric Amplifier

An extremely low-noise device for amplifying the output signals of qubits



08 Vertical Access Package

A wiring package for collectively connecting wiring to the qubit chip, installed within a shield to prevent the effects of heat and geomagnetic fields



09 Quantum 64-qubit Chip

The heart of quantum computation; the golden titanium nitride superconducting chip

Fujitsu Quantum