AIST
Create the Future, Collaborate Together

G-QuAT

ABCI-Q
Quantum-Classical Hybrid Computing Infrastructure

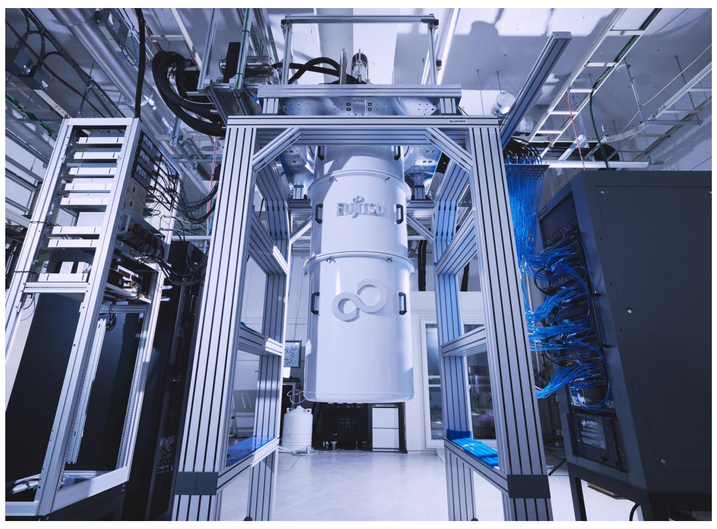
Develop and Evaluate Quantum-HPC-AI Workflows Across Multiple Quantum Modalities

- **2020 NVIDIA H100 GPUs** for quantum circuit simulation and AI pre/post-processing
- **45 PB of all-flash storage** for high-speed access to massive data
- **74.58 PFLOPS HPL** (TOP500)
- Integrates multiple quantum modalities through **a shared software environment**
    - QURI Parts, Amplify SDK, etc
    - Workflow orchestration tools (Covalent, Prefect)

System H: GPU Supercomputer



System F



- Superconducting QC
- 64 physical qubits
- Developed by Fujitsu
- QURI Parts OQTOPUS

System Q (Gemini)



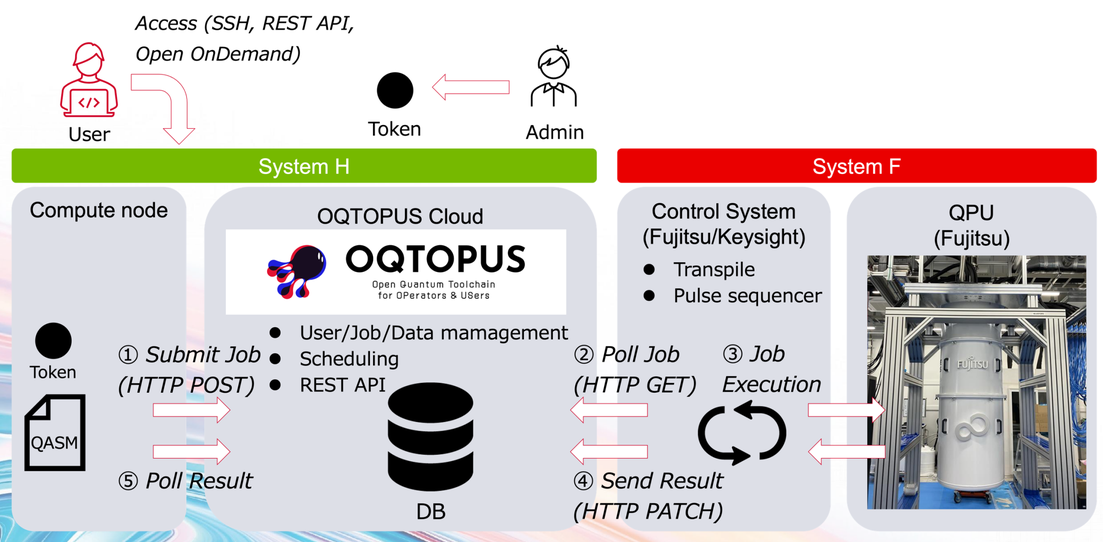
- Neutral Atom QC
- 260 physical qubits
- Developed by QuEra Computing
- Bloqade SDK

System O (MoQuren)



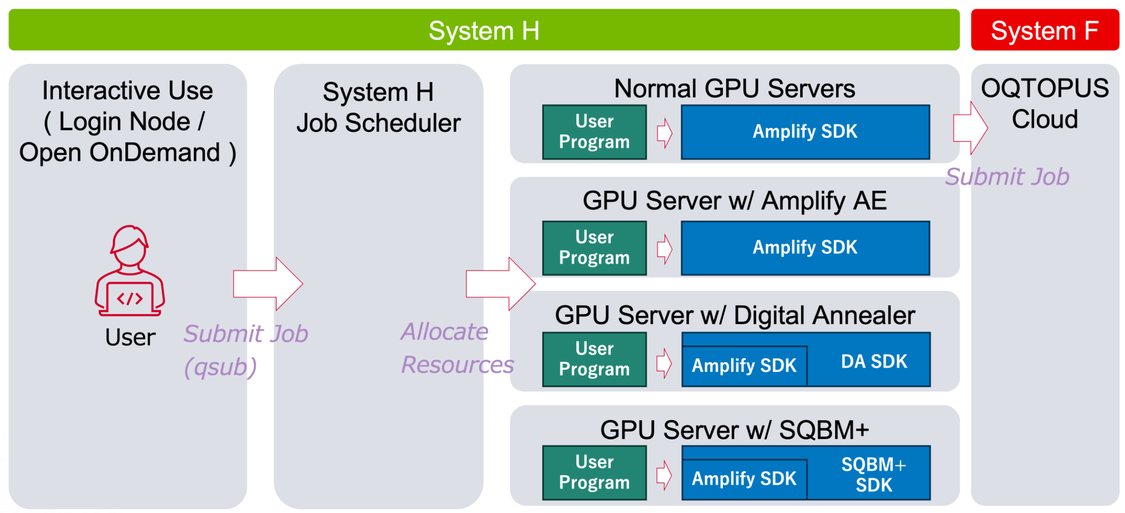
- Optical QC
- 129 qumodes
- Developed by OptQC
- Claveles SDK

Quantum Resource Management



- Unified access to quantum computing resources
- Job scheduling and resource management
- Support for System F, Qiskit Aer, and Qulacs simulator

Optimization Application Development



- Unified development for combinatorial optimization problems
- Access to quantum and GPU-based Ising-machine backends
- System F, Fujitsu Digital Annealer, Fixstars Amplify AE and Toshiba SQBM+

OQTOPUS

Amplify SDK

ABCI-Q

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SiP
Cross-ministerial Strategic Innovation Promotion Program

AIST SC Website