

ABCI-Q

Hybrid Quantum-HPC Platform for Real-World Use

What you can do

- Experiment with various quantum technologies
- Combine quantum computers with large-scale HPC

Impact/
What this enables

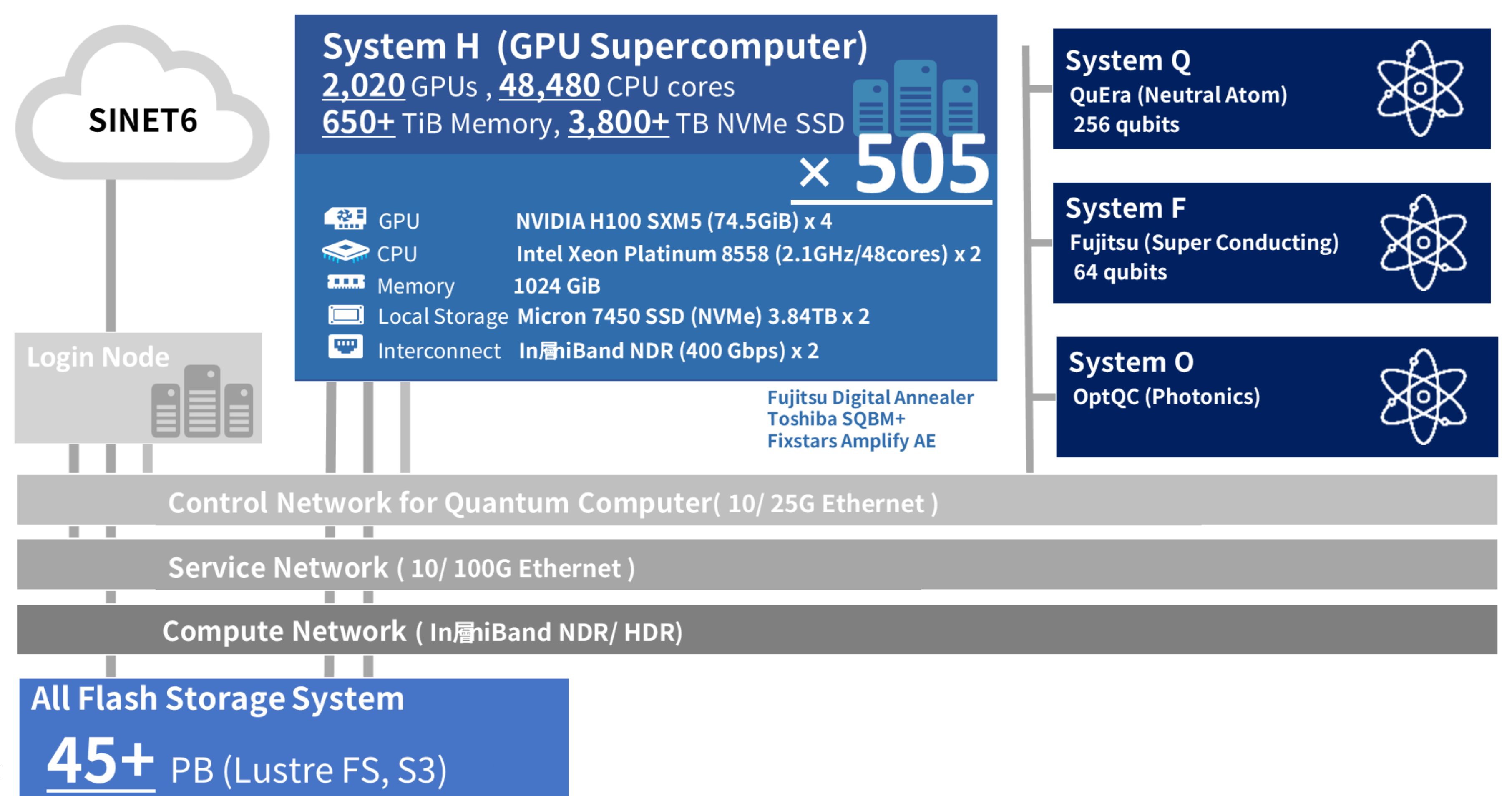
- Creation of real-world use cases
- Practical deployment of quantum technologies

Global Access available in FY **2026**



Overview

- A cutting-edge. **Quantum-Classical Hybrid Computing Infrastructure**
- Centered on a large scale HPC system (System H) equipped with 2,020 state-of-the-art NVIDIA GPUs, enabling the flexible use of various quantum computers (QC) depending on the application
- **Gateway to QC**
 - Neutral Atom QC; Installed!
 - Superconducting QC; Installed!
 - Optical QC; available in FY2026
- **Software / Middleware Standardization**
- **Ising Machine, AI, Classical Solvers, etc**



Brief Specification

System H



- Double precision: **138.4 PFLOPS** (FP64)
- Half precision: **2.1 EFLOPS for AI training/ interface** (#27 on TOP500 released in June 2025)

System F



- Superconducting QC
- 64 physical qubits

System Q



- Neutral Atom QC (Gemini Model)
- 260 physical qubits implemented with rubidium-87 atoms

System O



- Optical QC available in FY 2026