

# ABCI-Q

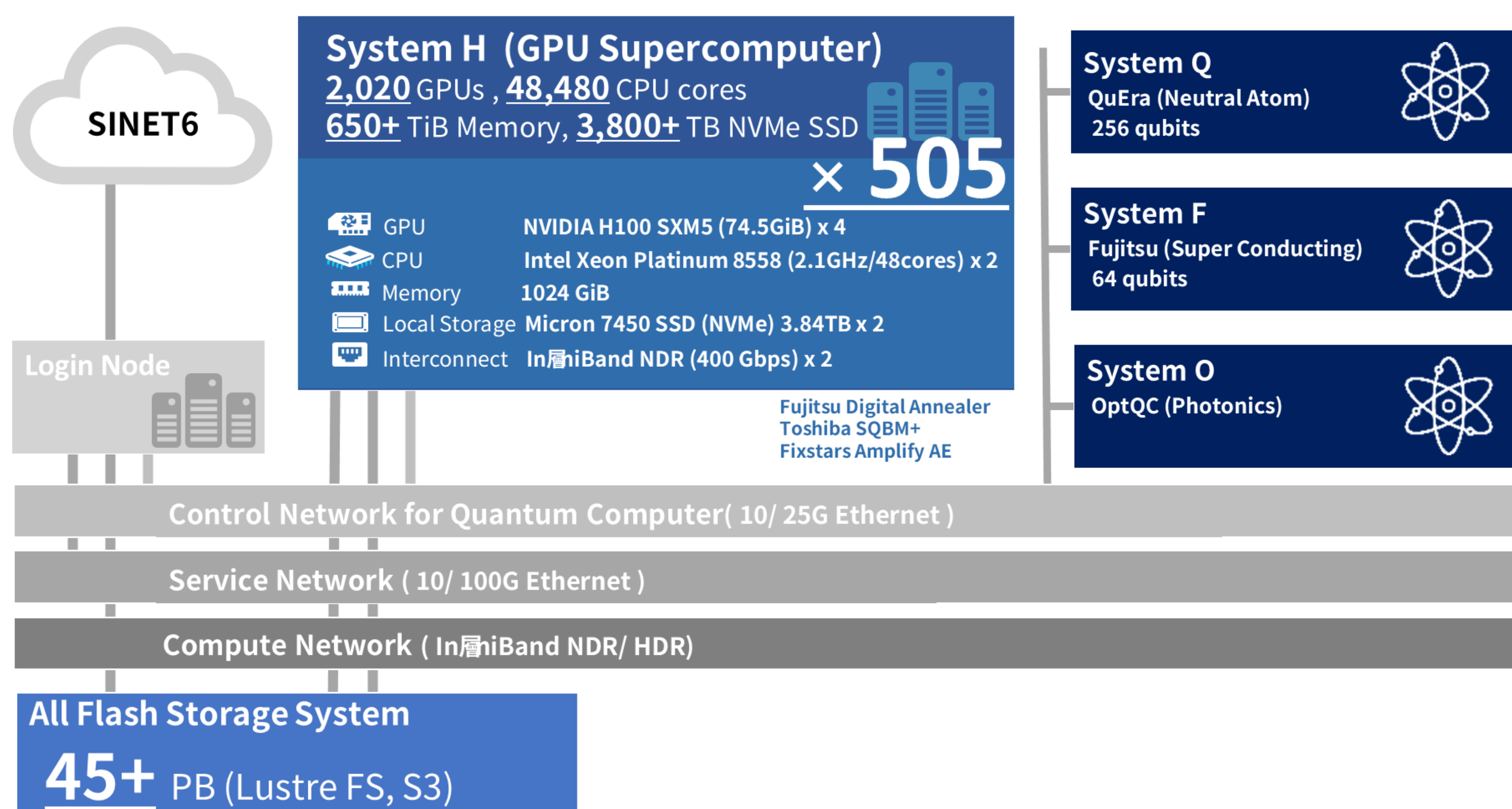
## Bridging Quantum Innovation & Real-World Use Cases

- ▶ An infrastructure for experimenting with various quantum computing technologies
- ▶ Promoting the integration of quantum computers with a large-scale HPC system
- ▶ Contributing to the creation of use cases for socially implementable quantum computing technologies

## Overview

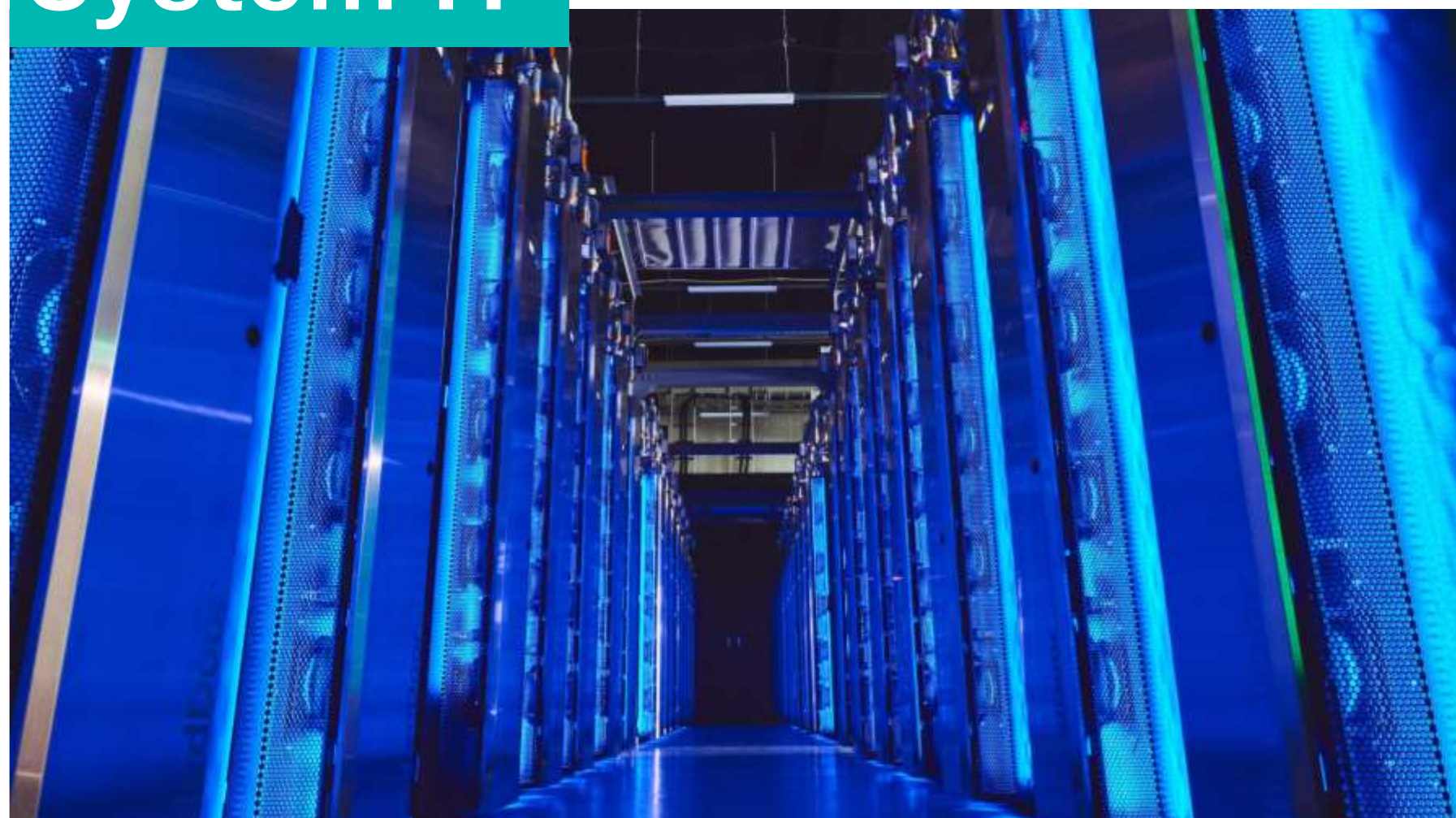
A cutting-edge Quantum-Classical Hybrid Computing Infrastructure centered around a HPC system (System H) equipped with 2,020 state-of-the-art NVIDIA GPUs, enabling the combination and selective use of various quantum computers depending on the application.

- Superconducting, neutral atom and photonic quantum computers installed in AIST
- Quantum circuit simulator
- GPU-based quantum-inspired annealing engines
- Cloud services for quantum computers



## Brief Specification

### System H



- GPU Supercomputer
- 2.1 EFLOPS for AI training/inference
- 138.4 PFLOPS for Quantum simulation

### System F



- Superconducting quantum computer
- 64 physical qubits

### System Q



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

### System O

- Optical quantum computer (Available in Spring 2026)