

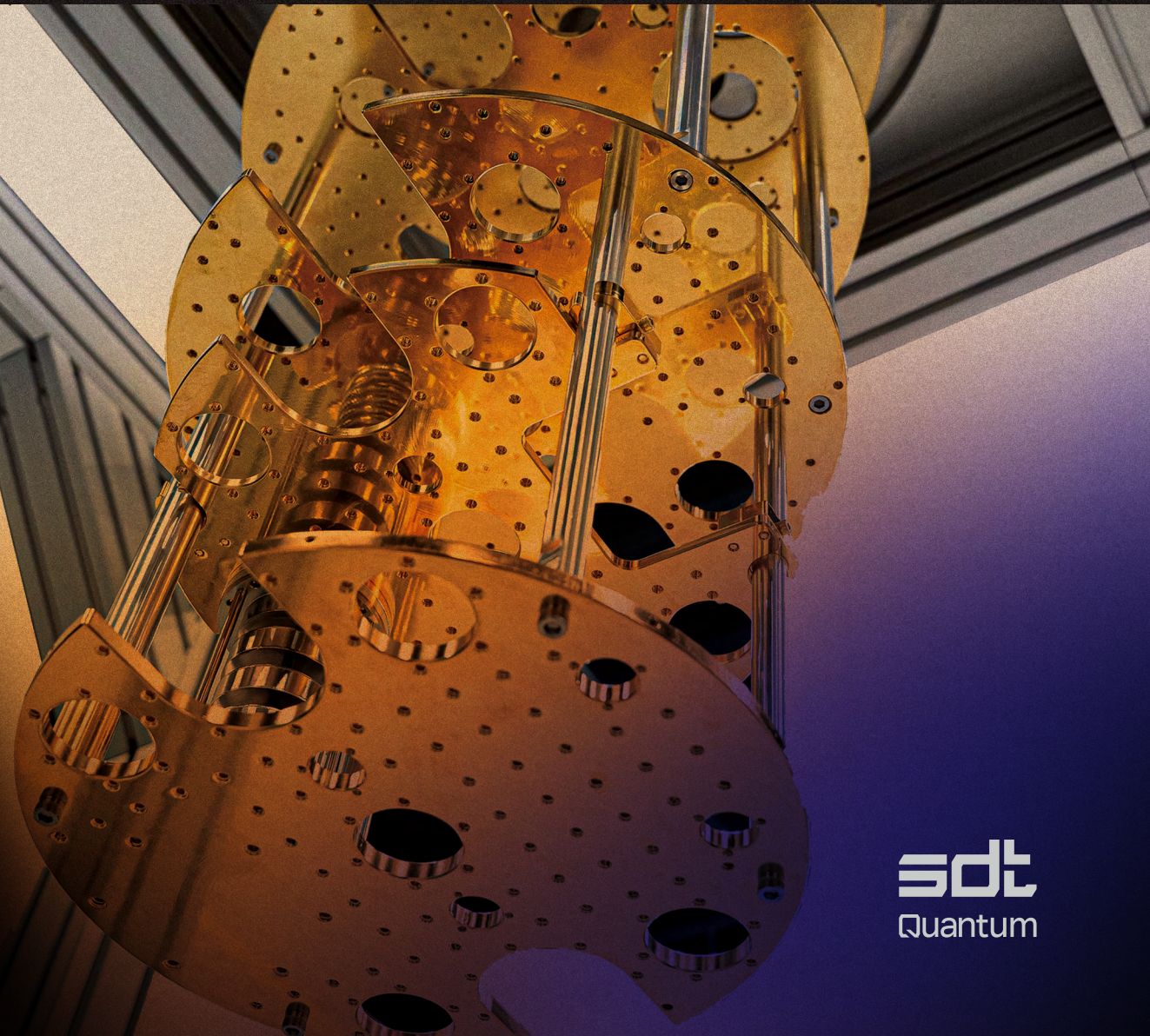
KREO

SC-20



**Superconducting
Quantum Computer**

*Open Quantum Computer for
Hybrid Data Center Environments*



sdT
Quantum



Production-Ready Superconducting Quantum Computer

KREO SC-20 is a 20-qubit superconducting quantum computer built on SDT's full-stack QDM (Quantum Design & Manufacturing) technology.

Designed for seamless integration with GPU and CPU infrastructures, KREO SC-20 provides a production-ready hybrid computing environment optimized for research laboratories, enterprise innovation centers, and data center operations.

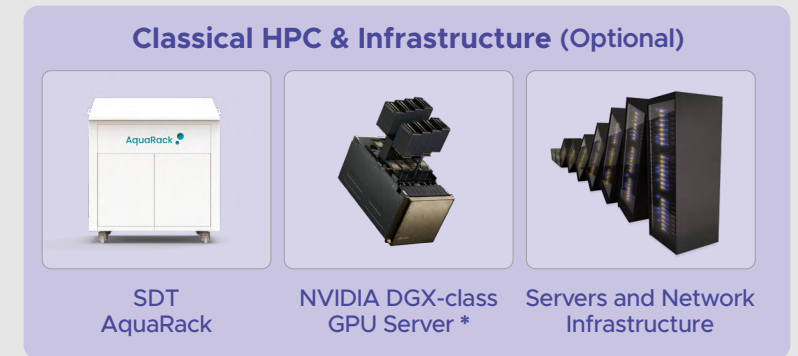
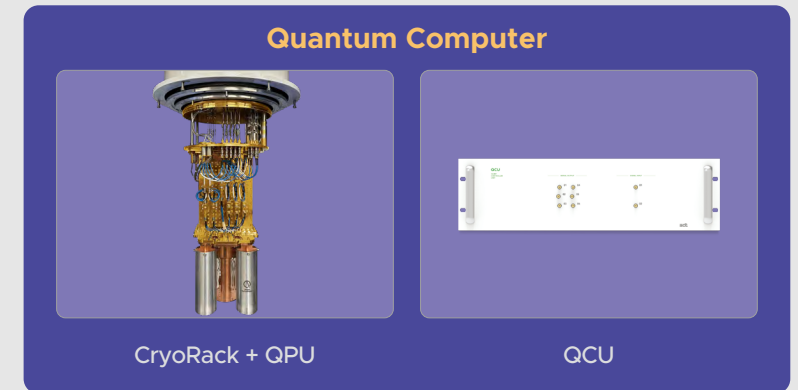
The system integrates a superconducting QPU, a high-precision Quantum Control Unit (QCU), and the CryoRack dilution refrigerator, ensuring stability, scalability, and continuous operation.

Through native integration with QubeStack, quantum and classical resources are orchestrated within a unified hybrid computing stack.

A Quantum Computer Optimized for Data Center Scale

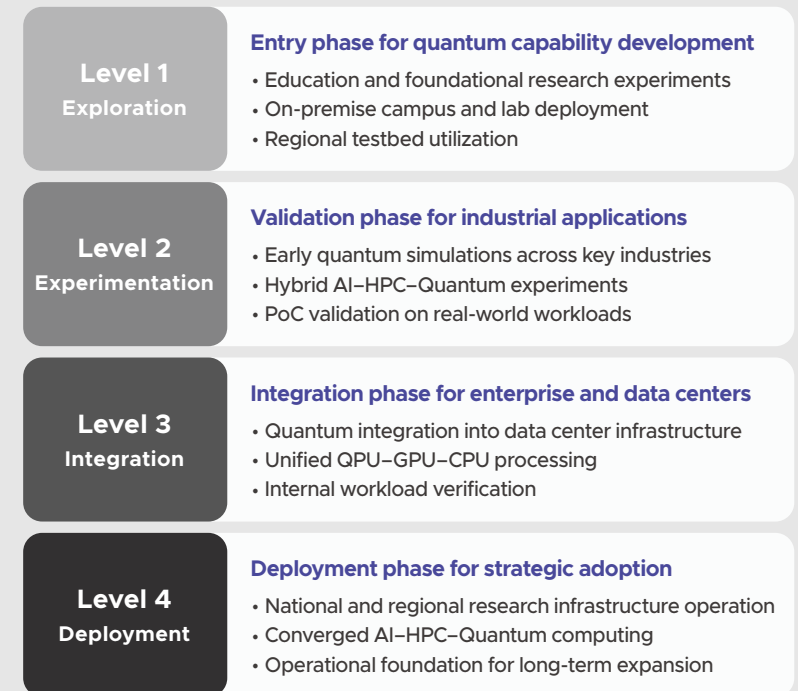


Hybrid Quantum-Classical Computing Architecture



* GPU server model shown is for reference only. Actual configurations may vary by availability and customer requirements.

Phased Adoption Strategy



Why KREO SC?



01

On-Premise Deployable Quantum System

On-premise deployment optimized for secure and regulated environments without external data transfer



On-Premise Quantum Deployment

- Direct installation within research institutions
- No external data transfer required



Data Sovereignty

- Equipment and data operated domestically
- Protection of confidential and industrial data



Rapid Installation & Immediate Operation

- Installation in environments meeting minimum requirements (subject to prior consultation)
- On-site support for immediate utilization

02

High-Precision Superconducting Quantum Computer

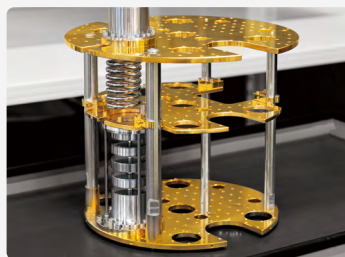
20-qubit high-precision quantum processing



Advanced Control System
In-house RFSoc-based QCU

Quantum Hardware Design & Manufacturing

Core Hardware Design and Manufacturing for Superconducting Quantum Computers



03

Native QPU-GPU-CPU Hybrid Architecture

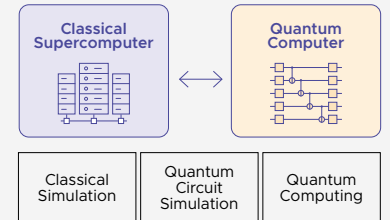
Standards-Based Hybrid Quantum Workloads Seamlessly Integrated with HPC Environments

Optimized hybrid algorithms (e.g., VQE and QAOA) via CUDA-Q

Hybrid Computing

- Unified QPU-GPU-CPU architecture distributes workloads across quantum and classical resources

→ Data center-scale hybrid processing



CUDA-Q

- Quantum algorithm execution in the CUDA-Q environment
- Acceleration of AI, finance, and chemistry workloads

→ Seamless addition of quantum processing to existing GPU workflows

```
Python
# Create a code instance
code = qec.get_code("steane")

# Access stabilizer information
stabilizers = code.get_stabilizers()
parity = code.get_parity()

# The code can now be used for various numerical
# experiments - see section below.
```

04

Fast Delivery & Lifecycle Support

Advanced manufacturing and system integration capabilities, combined with rapid deployment and operational support

SDT's Manufacturing System

Stable supply and maintenance based on strong local manufacturing infrastructure



QDM

Fast Delivery through In-House Production and Assembly

Minimized lead time from order to installation, enabling immediate alignment with project schedules

Standardized Components & Cost-Efficient Operation

Modular architecture ensures simplified maintenance and strong ROI



An Open Quantum Computer for Hybrid Computing Centers

Open Quantum Computing Architecture

Enables standalone operation, R&D, and hybrid computing within a single system

- 1 Independent quantum deployment with flexible experimental configurations
- 2 Hybrid integration with GPU and CPU infrastructures

Integrated Quantum Architecture

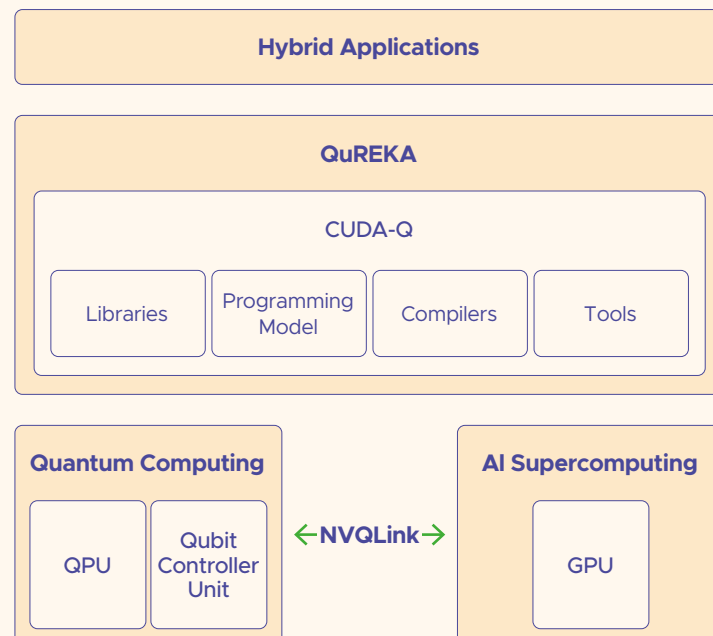
Unified stack integrating QPU, QCU, CryoRack, and QubeStack

Production-Ready Hybrid Environment

A production-ready architecture deployable beyond theoretical validation

- 1 Supports QCaaS for real-world problem solving
- 2 Enables both component-level and full-stack hardware/software
- 3 R&DReady for research, industry, and data center deployment

KREO Hybrid Quantum-Classical Computing System



KREO SC-20

Category	Key Specs
Qubits	20 Transmon Qubits
Topology	2D Grid Topology (Max 8 connectivity)
1Q Gate Fidelity	~ 99.95%
CZ Gate Fidelity	~ 99.80%
Coherence Time	~ 39 μ s
RF Channels	6 RF DACs and 2 RF ADCs
DAC Frequency Range	10 MHz – 8.5 GHz
ADC Frequency Range	10 MHz – 8.5 GHz
DAC Power Range	-40 dBm – +5 dBm
ADC Power Range	-40 dBm – +5 dBm
Base Temperature	< 20 mK
Cooling Power	• 12 μ W @ 20 mK • 400 μ W @ 100 mK (Typical Operating Performance)
Sample Space	Max. 300 mm (MXC Flange)

Option

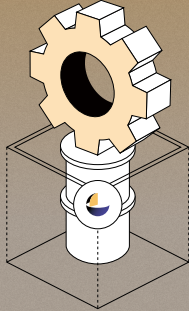
Qubits	QPU expansion
Advanced Control & Measurement	QCU
	PGU
	TTMU
Advanced Cryogenic System	CCU
	Cooling performance upgrades
Software	Temperature stabilization technology
	External software integration
	API availability
	Custom software development

Benefits

01

Secure Quantum Environment

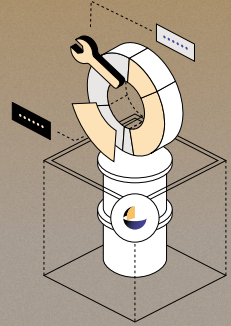
Enables safe internal operation within your organization



02

Full Lifecycle Technical Support

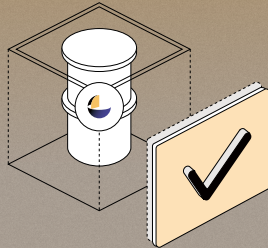
Dedicated engineers provide installation, tuning, and training beyond deployment



03

Production-Ready Quantum System

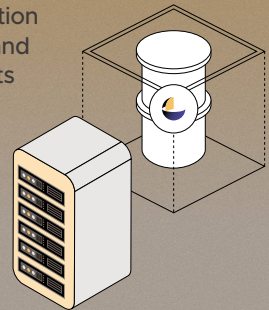
Immediate operation without complex preparation



04

Seamless Integration with Existing Infrastructure

Effortless integration into data center and HPC environments



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This information is subject to change without notice.

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