



PRODUCT BROCHURE • 2026

Quantum Hardware, Control & Software

Q-SHIVA

Q-CoRE

Q-CODE

PEOPLE | TECHNOLOGY | IMPACT

FROM AMARAVATI TO THE WORLD

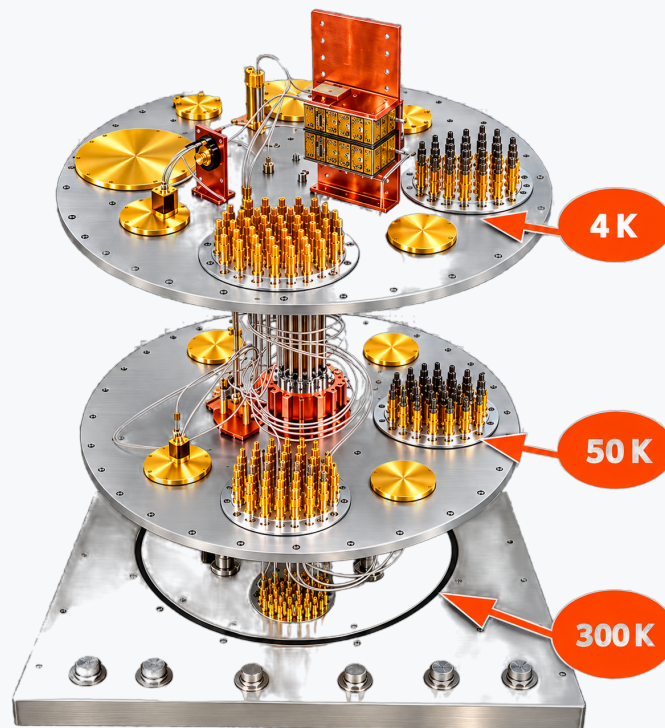




Quantum System for Hardware, Integration, Validation & Architecture

Introducing the new generation 2026 Q-SHIVA 4 K System

- ❖ Modular, cryogen-free platform with a two-stage Gifford–McMahon (GM) cryocooler, achieving a sub 4 K base temperature.
- ❖ Supports up to 10 superconducting devices or samples, with high-density signal access for quantum, spintronics and optics research.



SINGLE-OPERATOR OVC ACCESS

- Integrated lifting/handling fixture
- Single operator open/close in under 30 min.

COMPLETE INTEGRATION

- Two-stage cryogen-free GM cryocooler
- Mobile frame on lockable castors

HIGH-DENSITY SIGNAL ACCESS

- Up to 10 superconducting devices or samples
- 3× ISO100 ports — up to 100 SMA I/O lines (DC–20 GHz)
- 24 twisted pair phosphor-bronze DC wiring

COOLING POWER

- 1.5 W at 4.2 K †
- 35–40 W at 50 K †
- Rapid cool down in 60 minutes

LARGE SAMPLE MOUNTING SPACE

- Top loading sample architecture
- Designed for efficient sample exchange
- Sample space Height = 0.3 m
- Sample load area = 0.6 m²

OVERVIEW

- A fully integrated, direct RF-sampling control & readout platform for superconducting quantum processors. Synthesizes qubit drive and measurement tones on-chip, eliminating external RF chains.

KEY FEATURES

- **Direct RF-sampling** — 16× 14-bit 10 GSPS DACs and 16× 14-bit 2.5 GSPS ADCs
- **Customizable RF Control Interface** — Flexible analog/RF electronics for diverse QPU architectures
- **Arbitrary waveform generation** — Programmable pulse shaping with nanosecond precision
- **Automated calibration** — Self-tuning framework for control, parameter sweep, and data processing
- **Firmware customization** — Reconfigurable FPGA modules for application-specific DSP protocols
- **Integrated DC Slow and Fast Flux Control** — Low-frequency bias and RF flux modulation in a single enclosure

APPLICATIONS

- **Qubit Characterization** — Power-Rabi sweeps and T1/T2 decay measurements for qubit energy relaxation and coherence quantification
- **Readout Optimization** — Dispersive readout protocol implementation with frequency-multiplexed measurement and cross-coupling mitigation
- **Gate Calibration** — Parametric gate pulse optimization with real-time feedback for high-fidelity single and two-qubit operations

SPECIFICATIONS

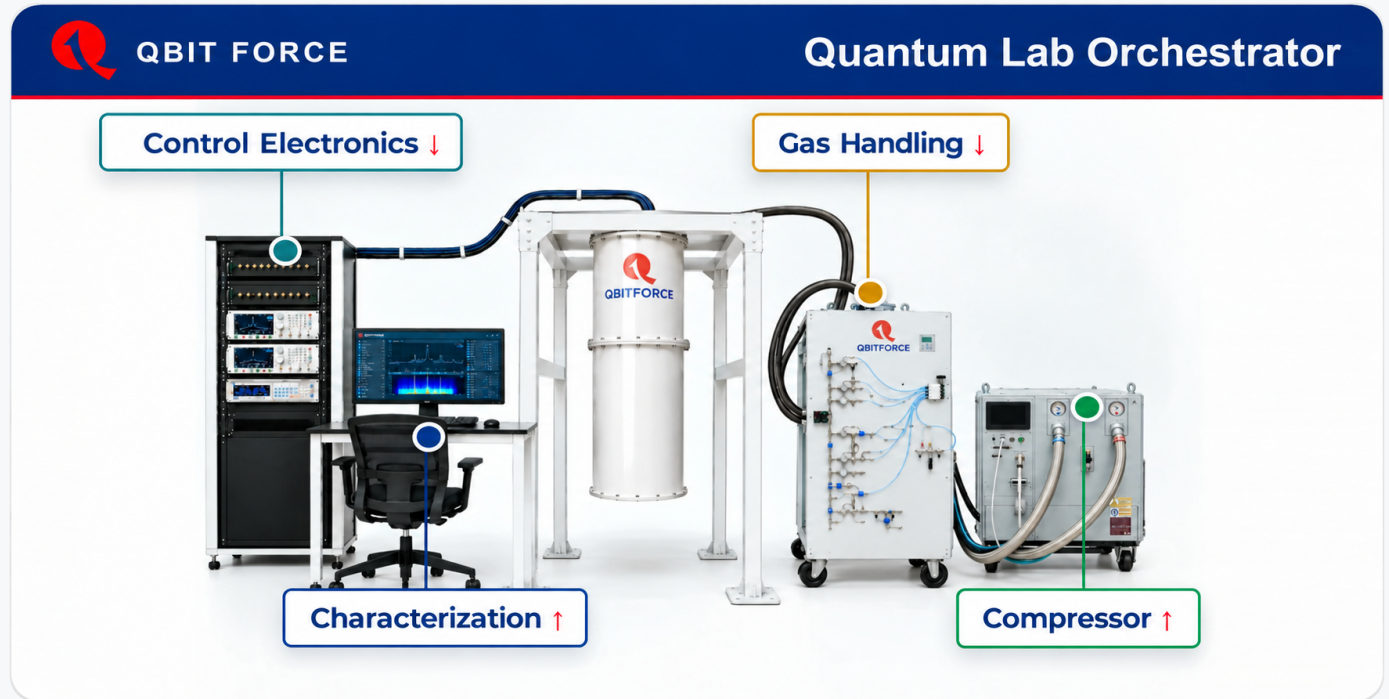
- **Frequency Range: DC–10 GHz** — Covers qubit drive, readout, and parametric control
- **Immune to Spectral Crowding** — High isolation between control tones with minimal cross-talk
- **Temporal Resolution: ~1.67ns** — Deterministic pulse timing for adaptive quantum control sequences



WHY CHOOSE US

- **Complete Quantum Control Ecosystem** — Full integration from RF front-end to software stack for quantum experiments

Integrated software for cryogenic automation & quantum-device characterization

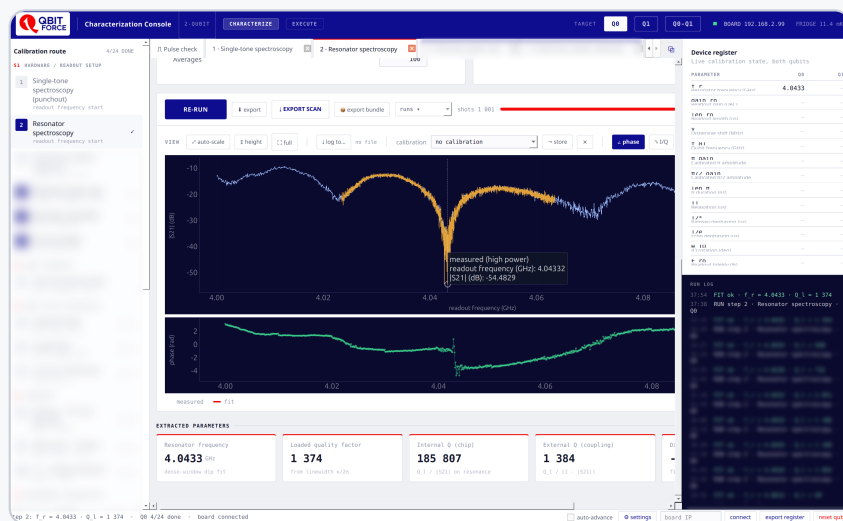


EDGE & EXECUTION

- Quantum Edge Computing
- Dynamic Telemetry Driven Routing
- Qubit Topology-aware execution
- Cross talk and collision awareness

ORCHESTRATION & CONTROL

- Distributed edge partitions
- Automated Device Characterization
- Monolithic Central Compilation
- Closed-loop Quantum Experimentation



CHARACTERIZATION CONSOLE

Guided, hands-free qubit setup

- Calibration route** — 24 guided steps, from readout setup to gate tuning
- Live spectroscopy** — magnitude, phase & I/Q views with automatic fitting
- Instant parameters** — resonator frequency and Q factors extracted on every run
- Device register** — live calibration state for every qubit
- One-click export** — scans, bundles & full run log



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FOR A BRIGHTER TOMORROW



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