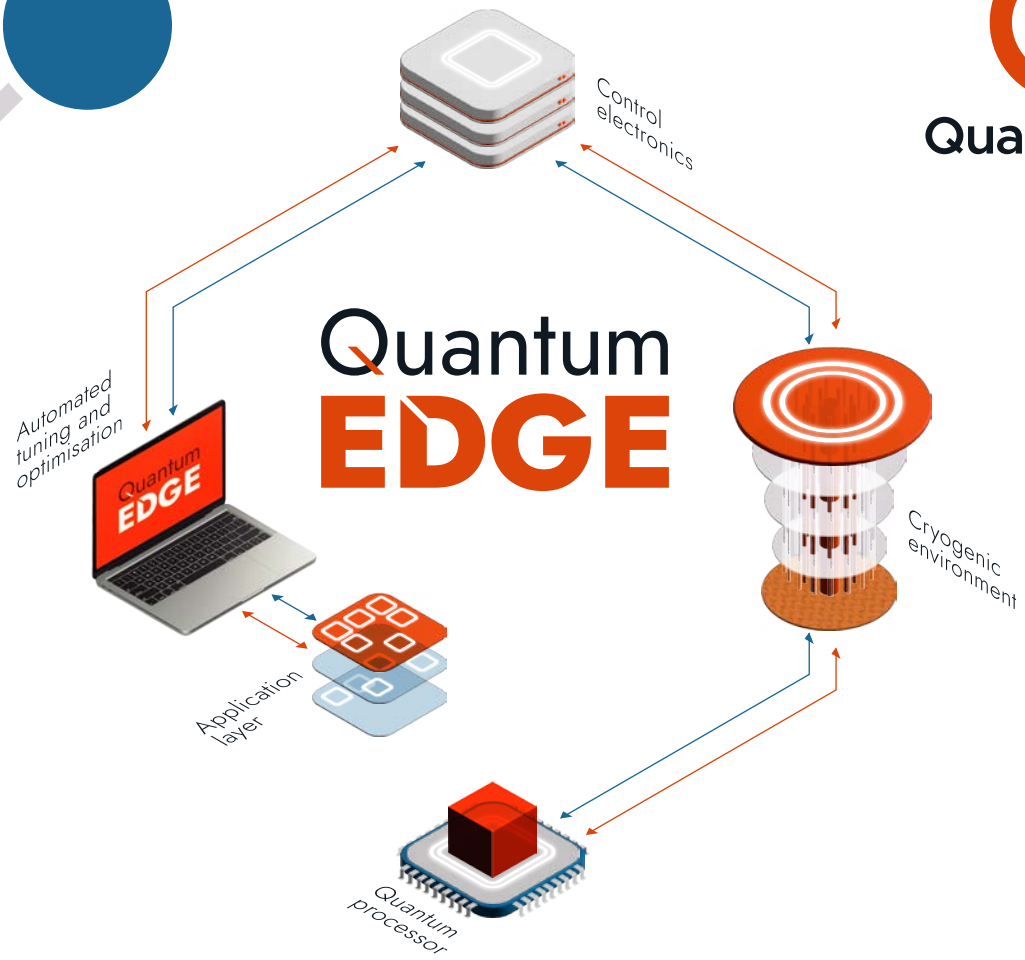
QuantrolOx



MORE THAN 100X FASTER

Qubit Bring-up, Characterisation & Testing at Incredible Speeds

QPU Monitoring

Automation Workflows

Data Visualisation

INTEGRATED WITH

QBLOX

QUANTUM MACHINES

Zurich Instruments

Single Qubit Bring-up to Randomised Benchmarking in 10 mins with **Quantum EDGE**

Device Bring-up

- Broadband resonator spectroscopy
- Resonator power spectroscopy
- Resonator flux spectroscopy
- Qubit power spectroscopy
- Qubit flux spectroscopy

Single Qubit Workflow

- Resonator spectroscopy
- Qubit spectroscopy
- Power Rabi
- Ramsey
- Readout
- Relaxation
- Error amplification
- DRAG
- Hahn echo
- AllXY
- Randomised benchmarking

START

CURRENT BENCHMARK 1 - 2 DAYS

1-2 DAYS

START

10 MINS

Quantum **EDGE** by QuantrolOx

MORE THAN 100x FASTER

- Quantum EDGE accelerates the path to build practical quantum computers removing a major bottleneck in the rate of development of quantum processing units.
- Learns about the variability of each qubit using QuantrolOx's proprietary AI-engine.
- Decides the appropriate microwave pulse sequences to ensure automated qubit Bring-up, characterisation and testing with just a press of a button.
- Enables faster exploration of new chip architecture and process recipes.
- Frees up quantum experts to focus on the next challenges in quantum computing.

Customer Production Process for ~20 Qubit QPU

2 DAYS Cryo Cool Down → **14 DAYS** Bring-up, Characterisation and Testing (~20 qubits) → **1 DAY** Warm up → Pack & Ship

Without Quantum EDGE

2 DAYS → **1 DAY** → **1 DAY** → Pack & Ship

Quantum EDGE

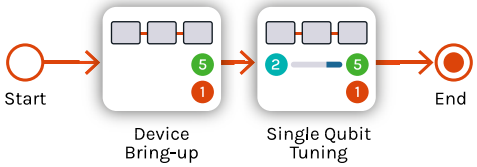
~20 QUBIT QPU IN 1 DAY

- Quantum EDGE seamlessly integrates with the workflow of QPU development and production processes.
- Integrated with major control electronics providers: QBlox, Quantum Machines, and Zurich Instruments
- Enables faster iterative cycles for product and process development.
- Increases volume production of quantum devices.
- Speeds up QPU delivery to customers.

Quantum EDGE Broccoli Release

What's NEW in Quantum EDGE?

This release is packed with new features and loaded with benefits for qubit and QPU characterisation. In addition to Single Qubit Gate Workflow Automation, we introduced Automated Device Bring-up.



Broccoli Release in a Nutshell

Device Bring-up Workflow - measurement speed-up

- Enables Automated Device Bring-up from user specified chip configuration.
- Allows the user to autonomously find working points for starting the Single Qubit Workflow Automation.
- It sets flux bias, qubit and resonator frequencies, microwave power, etc.
- All this in a record time of about 5 minutes per qubit.

Single Qubit Workflow - NEW experiments

- Relaxation control segment improves T1 measurements and calculations.
- DRAG control segment reduces the signal leakage into the higher excited states.
- Hahn echo to measure T2 dephasing time.

Editable Workflows - tailored to your needs

- Allows the user to choose which control segments to run in a workflow.
- Run preloaded workflows according to your needs, e.g. characterise only resonators, only qubits, or just T1 and T2 coherence times, etc.
- Make changes to control segment parameters (e.g. number of shots, frequency range).

Instruments Integration - more control electronics measurement possibilities

- We continue to build upon the capabilities of the major control electronics providers.
- Adding Zurich Instruments to the existing integration of Qblox and Quantum Machines control electronics.

FIND OUT MORE