

AQT Reports Quantum Volume of 32768 on LYNX System

Portability dossier - benchmark

agQSL portability pipeline

2026-06-07

Field	Value
Slug	2026-aqt-lynx-qv-32768
Source	press
Link	https://thequantuminsider.com/2026/05/06/aqt-high-performing-quantum-computer-europe-32768-qv/
Category	benchmark
Triaged	2026-05-21 by port_until_julien_parallel
Bootstrapped	2026-06-07

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1 Capability note

1.1 Claim

AQT reports a Quantum Volume of 32768 ($= 2^{15}$) on its trapped-ion LYNX system, passing the heavy-output threshold with a mean heavy-output probability of 0.678 (2σ lower bound 0.670, above the $> 2/3$ pass criterion) over 305 random circuits at 100 shots each, announced 6 May 2026.

1.2 Vendor and machine

- **Vendor:** AQT (Alpine Quantum Technologies).
- **Machine:** LYNX (trapped-ion; successor to AQT IBEX). All-to-all qubit connectivity, no SWAP routing required.
- **Software stack:** circuits generated with IBM Qiskit; circuit optimisation using methods from a Quantinuum publication (block combination, block approximation, mirroring, arbitrary angles for entangling gates), cited as <https://quantum-journal.org/papers/q-2022-05-09-707>.
- **Date of experiment:** announced 6 May 2026 (press release).

1.3 Metrics

Metric	Value	Source
Quantum Volume	32768 ($= 2^{15}$)	press release
Qubit count used	15	press release
Circuit depth sustained	15 layers (square QV model circuit, width = depth = 15)	derived from QV definition
Heavy-output probability	0.678 mean; 2σ lower bound 0.670; pass threshold $> 2/3$ (0.667); 99.5% confidence	press release
Random circuits tested	305	press release
Shots per circuit	100	press release
Total execution time	≈ 173 minutes	press release

Metric	Value	Source
QVCPS(15)	≈ 2.9 (QV circuits per second)	press release
1Q gate fidelity	not reported	n/a
2Q gate fidelity	not reported	n/a
Improvement over prior model	“256x” increase over AQT IBEX (implies prior QV $\approx 128 = 2^7$)	press release

1.4 Context

AQT frames this as the highest Quantum Volume “within Europe” and the “second highest QV benchmarking result worldwide”, a “256x” jump over its prior IBEX system (implied QV ≈ 128). The release does not name the worldwide leader; the highest publicly reported QV figures to date come from Quantinuum’s trapped-ion H-series, so AQT’s claimed second place is plausible but unverified from the announcement alone. QV 2^{15} is a standard square-circuit benchmark milestone, not a logical-qubit or break-even threshold. The all-to-all connectivity and the borrowed Quantinuum optimisation pipeline are consistent with the trapped-ion approach.

1.5 Caveats

- This is a **company press release**, not a peer-reviewed publication; the article text opens with the words “PRESS RELEASE”. No independent verification is available.
- **Gate fidelities (1Q and 2Q) are not reported**, so the QV figure cannot be cross-checked against component error rates from the announcement.
- The “second highest worldwide” and “highest in Europe” comparative claims are AQT’s own and name no competitor or dated reference, so they are not reproducible from the announcement.
- QVCPS, shot count (100), and circuit count (305) are printed figures but rest on AQT’s own measurement protocol with no raw data released for reproduction.