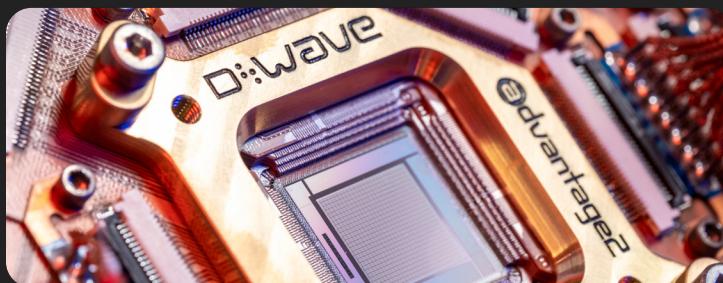


Energy-Efficient Quantum Technology for Advanced Computing

The Advantage2™ system is D-Wave's most powerful annealing quantum computer to date, purpose-built for real-world quantum application deployment, solving computationally hard problems that extend beyond the limits of classical computers. Designed for researchers, national labs, high-performance computing (HPC) centers, businesses, and government, the Advantage2 system delivers scalable, energy-efficient performance across domains including material science, research, optimization and operational research, and AI/machine learning.

D-WAVE ADVANTAGE2 SYSTEM FOR COMPLEX SCIENTIFIC WORKLOADS

- **Trusted, sixth-generation system:** Built on decades of deployment experience and scientific advancement
- **Designed for energy-efficient performance:** Consumes only 12.5 kW of power and supports high-impact research at scale
- **Scales to real-world problem sizes:** Able to solve large, complex problems with 4,400+ qubits and 20-way connectivity
- **Delivers faster and higher-quality results:** 2 times the coherence, 4 times lower noise, and 40% higher energy scale
- **Flexible access model:** Available on-premises or via the Leap™ quantum cloud service
- **Production-grade uptime:** 99.9% uptime and SOC 2 Type 2 compliance



QUANTUM SUPREMACY DEMONSTRATED

In a peer-reviewed Science paper, D-Wave's Advantage2 prototype solved a magnetic materials simulation in minutes, a feat that would have taken nearly one million years on the Frontier supercomputer. This is one of the most powerful supercomputers in the world, and is located at Oak Ridge National Laboratory (ORNL).

VALIDATED QUANTUM PERFORMANCE IN RESEARCH



D-Wave completed a joint proof-of-concept project with the pharmaceutical division of **Japan Tobacco Inc. (JT)** that used D-Wave's quantum computing technology and AI in the drug discovery process. The quantum proof-of-concept outperformed classical methods for AI model performance in drug discovery.



Jülich Supercomputing Centre used D-Wave's quantum technology to develop a ML tool that predicts protein-DNA binding with greater accuracy than traditional methods using classical computers. The team integrated quantum computing with support vector machines to achieve improved results in various metrics, significantly enhancing classification performance.



TRIUMF, Canada's particle accelerator center and its partner institutions, published a paper in npj Quantum Information showing significant potential speedups using D-Wave's quantum computers over classical approaches for simulating high-energy particle-calorimeter interactions—potentially leading to major efficiencies where the AI model is used to create synthetic data.

Common Questions on D-Wave's Quantum Technology

HOW TO GET STARTED

The Advantage2 system is purpose-built to complement HPC and AI environments for today's advanced computational research. The following frequently asked questions address common considerations for customers evaluating deployment.



What kinds of problems is the Advantage2 system equipped to handle?

The Advantage2 system solves highly complex computational problems and enables quantum and hybrid-quantum applications for production deployment. Example problems include combinatorial optimization, quantum simulation, machine learning acceleration, and materials science.

Why purchase and deploy on premises?

Purchasing an Advantage2 system and deploying it on premises gives organizations full autonomy over system operations and more granular control over compliance.

What are the facilities space requirements?

Quantum Computer Room

6.6 m x 7.6 m x 3.7 m
(21.5 ft. x 25 ft. x 12 ft.)

Storage Room

2.4 m x 2.4 m x 3 m
(8 ft. x 8 ft. x 10 ft.)

Staging Area

6.1 m x 6.1 m x 3.6 m
(20 ft. x 20 ft. x 12 ft.)

What is the quantum computer's physical specifications?

Length 3.5 m (11.5 ft.)

Width 2.1 m (7 ft.)

Height 3.0 m (10 ft.)

Mass 3900 kg (8600 lb.)

What is the quantum computer's electrical requirements?

Average power 12.5 kW

Rating 208 V, 60 Hz,
60 A (standard)

230/400 V, 50 Hz,
32 A (international)



READY TO EXPLORE WHAT'S POSSIBLE?

Talk to a D-Wave expert today.

