

Press Release  
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Tokyo, Japan



## Introducing MIMIQ 1.0

The world's most powerful virtual quantum computer



QPerfect, a quantum computing spin-off from the European Center for Quantum Sciences in Strasbourg is announcing the release of **MIMIQ 1.0** a powerful platform for executing quantum algorithms with speed, accuracy and flexibility exceeding any other quantum simulator as well as current and next-generation quantum computers. It will be officially presented during Q2B in Tokyo on July 25<sup>th</sup> at 4:50pm in the KeyNote Room at the Grand Hyatt by QPerfect co-founder & scientific advisor Professor Shannon Whitlock. CTO, Guido Masella stated "At QPerfect, our unwavering dedication to advancing quantum computing has brought us to an exciting milestone: the release of **MIMIQ version 1.0**. I am incredibly proud of the hard work and dedication our team has put into making this project possible."

It's incredible to see how far we can push the boundaries of classical simulations of quantum systems. Every enhancement, no matter how incremental, holds the potential to unlock groundbreaking insights. This journey at QPerfect has fueled our passion for empowering researchers, developers, and quantum enthusiasts to explore, innovate, and optimize on an unprecedented scale.

We firmly believe that **MIMIQ will be instrumental in accelerating the quantum revolution**, and we eagerly anticipate the transformative solutions our users will create with it

Extensively benchmarked and tested by industry experts, MIMIQ 1.0 is the world's most advanced emulation platform to design, test, and optimize large scale and complex quantum algorithms consisting of thousands of qubits and millions of gates.

MIMIQ is used by research centres, consulting firms, quantum service providers, quantum software companies and quantum hardware manufacturers, enabling them to:

- Prepare end users for the transformative potential of quantum computing
- Identify the best hardware platforms for achieving a quantum advantage
- Benchmark and improve the performance of physical quantum computers
- Invent and test new quantum algorithms

### **What sets MIMIQ apart from any other quantum platform?**

Most quantum computer emulators used today represent quantum states as a vector of complex numbers, one for each computational basis state. Statevector simulators can be fast but are limited to small numbers of qubits since each additional qubit doubles the memory requirements.

MIMIQ gets around this limitation using Matrix Product States (MPS) - the gold standard for efficient representation and simulation of quantum states for hundreds to thousands of qubits. MPS simulation is exact for entanglement limited circuits (e.g. the Quantum Fourier Transform) or provides excellent state approximations for large entanglement circuits, with a fidelity exceeding common state-of-the-art quantum computers.. Thus, MIMIQ facilitates the development and testing of quantum circuits and quantum algorithms on an unprecedented scale.

### **Key features in MIMIQ 1.0**

MIMIQ 1.0 includes all the features needed to accelerate your quantum R&D. It includes:

- Lightning fast statevector engine for exact simulations of arbitrarily complex algorithms, unrestricted in depth or number of gates
- Large scale Matrix Products State engine for for exact simulation of entanglement bound circuits and approximate simulation of high entanglement circuits with arbitrary qubit connectivity
- Full OpenQASM v2 support and v3 feature compatibility
- Dynamic circuit support (midcircuit measurements, reset, conditional logic)
- Support for custom, user-defined gates and multi-controlled gate operations
- Support for symbolic algebra and expressions for parametric gates
- Large library of algorithms and circuit primitives for efficient circuit composition and execution

- Seamless integration to your existing quantum workflow with easy-to-use Julia and Python interfaces
- Greater computing power at your fingertips and at any time. Run your jobs at ease using our managed cloud platform and benefit from continuous upgrades and new capabilities

### **For more information**

Website :<https://qperfect.io/index.php/mimiq/>

Request an account today and receive an early-bird discount of 20% (offer valid until 31 July 2024)

### **About Qperfect:**

QPerfect (<https://qperfect.io>), a spin-off of the European Center for Quantum Sciences in Strasbourg, is a pioneering French and European deep-tech company at the forefront of quantum computing. We develop solutions for boosting the performance of quantum computers to the large-scale fault-tolerant regime, unlocking industry-relevant applications for the first time. QPerfect was created in May 2023, and recognised with the prestigious I-Lab competition with the "Grand Prix" label in 2023, awarded to the most innovative French deep-tech companies. We work with leading research centers, quantum hardware builders and software developers to accelerate the quantum computing revolution.

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