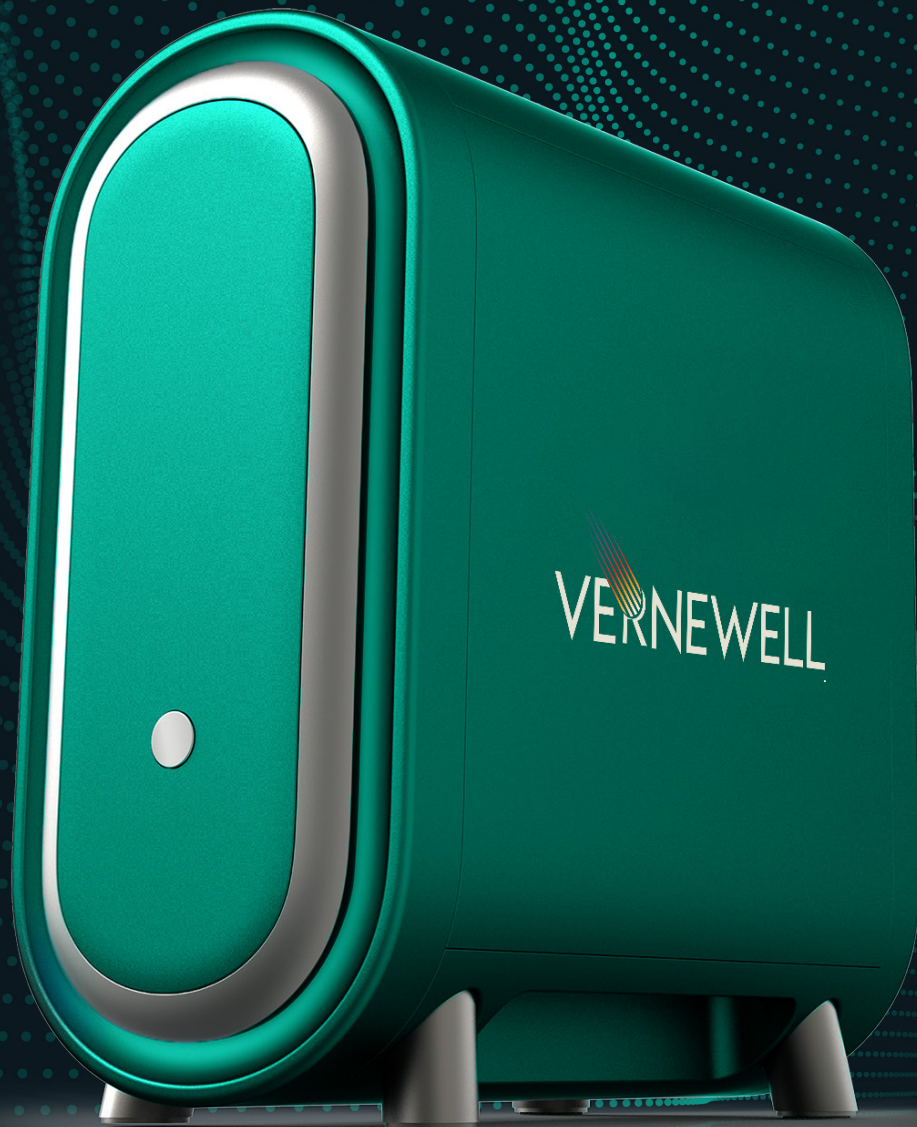
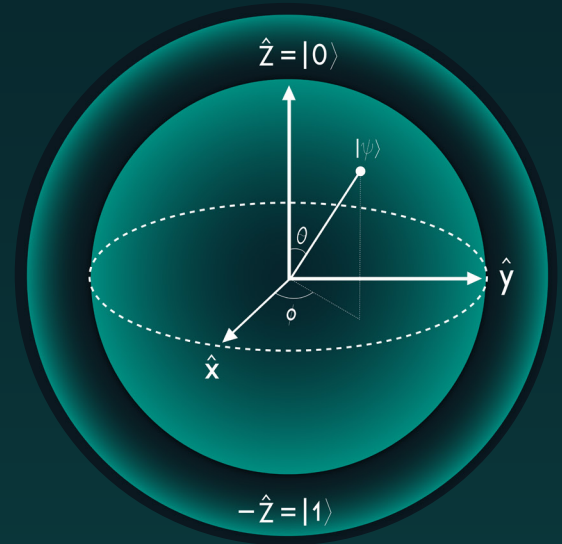


# DEMOCRATIZING STEM EDUCATION POPULARIZING QUANTUM COMPUTING



To enable access to knowledge and propel innovation while popularizing quantum education, Vernewell Academy offers opportunities for individuals to learn and use Gemini Desktop NMR Quantum Computer, 2 qubits. We also offer unique packages to educational institutions and organizations that include customized quantum computing training programs with the purchase of the available SpinQ Quantum Computers.



# Gemini

Desktop NMR Quantum Computer

| 2 Qubits |

NMR Gemini Desktop quantum computer, 2 qubits, offers a comprehensive solution for quantum computing education, with customized quantum algorithm circuit designing and programming. It demonstrates quantum algorithms, such as the Deutsch algorithm, Grover algorithm, and HHL algorithm. It additionally offers teaching materials, including Rabi oscillations observations, Bell-state preparation, and Decoherence time-measurement. It contains a state-of-the-art designated physical system with an optimized control and measurement system to support the implementation of about 100 quantum gates on a single-qubit and 50 quantum gates on a two-qubits system. It enables the use of the Quantum Processing Unit (QPU) and the fast implementation of quantum computing tasks. It enables users to access the complete quantum computing process, including experimental data collection of the final results.



Lightweight, stable, maintenance free, and cost-effective



Provides demonstrations of over ten famous quantum algorithms, such as Deutsch Algorithm, Grover Algorithm, HHL Algorithm, etc.



Provides customized solutions for universities, research institutes, science museums, etc.



Provides built-in teaching materials, such as Rabi oscillation observation, Bell state preparation, and Decoherence time measurement.

## Product Highlights



■ A real 2-qubit quantum computer, not a quantum simulator.

- Provides users with exclusive use of the QPU and fast implementation of quantum computing tasks;
- A designated physical system with an optimized control and measurement system to support implementation of about 100 quantum gates on a single-qubit and 50 quantum gates on a two-qubits system.
- Access to complete quantum computing procedures including experimental data collection of the final result.

## SpinQuasar

■ SpinQuasar is the software on Gemini for quantum computing education as well as customized quantum computing implementation.

- Support drag and drop gates. User-friendly and intuitive interface.
- Support quantum programming and customized quantum computing implementation.
- Provides access to control of RF pulse generation to support pulse designing for quantum gates.





## Specifications :

		Standard
<b>Measurement and Control System of Qubits</b>	Number of Qubits	2
	Coherence Time	300ms
	Single-Qubit Gate Fidelity	0.996
	Two-Qubit Gate Fidelity	0.993
	Single-Qubit Gate Operation	~100
	Two-Qubit Gate Operation	~50
	NMR-Frequency( <sup>1</sup> H)	41.5 ± 1 MHz
	NMR-Frequency( <sup>31</sup> P)	17.0 ± 0.5 MHz
	NMR-Frequency( <sup>19</sup> F)	39 ± 1MHz
	Number of RF Channels	2
	Pulse Resolution	10ns
	90° Pulse Width	~20us
	Phase Resolution	0.01°
	NMR Signal Resolution(FWHM)	~30Hz
<b>Magnet</b>	Magnet Type	NdFeB permanent magnet
	Magnetic Density	1.0Tesla ±5%
	Stray Field(distance of the 0.5mT(5G)) line from the magnetic center)	<0.5m
	Magnet Operation Temperature Range	0~35 °C
	Magnet Operation Temperature Precision	0.001 °C
	Magnet Field Lock Precision	0.1ppm
<b>Operating Software and Function</b>	Operating System	Windows 10
	Built-in Introduction of Quantum Computing	Yes
	Number of Built-in Demonstration Algorithms	>18
	Custom Algorithms	Yes
	Support SpinQKit	Yes
	Support Master-slave System	Yes
	Support Data on Cloud	No
<b>HardWare</b>	Mains Power Rating	100~240V AC; 50/60Hz; Single Phase
	Power Dissipation	~100W
	Size(H*W*D)	600*280*530mm
	Weight	44Kg



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