

computationally powerful?

# **Product Datasheet**

Panvia Quantum Computer – Full Software Stack for Quantum Applications



**Answer:** In a circuit of, for example, 32 connected gubits each gubit is **Question:** What actually makes simultaneously a single SHA2-800 wavefunction in a superposition of |0>quantum computers so different and 1> states and also a multiverse of computational states containing from classical machines and so all possible state combinations of the 32 qubits, each state vector | q31 q30 q29 ... q1 q0 > with a complex magnitude (qX = |0> or |1>).

Save, Share, Restore

Teleportation

Quantum Field Theory Create Circuits Start here... with conventional data **Dual Domain Architecture** of Quantum Gates Qubits Multiverse Data

Product Specifications				Shor's Algorithm and C
Objective Metric	Panvia Quantum Computer	Notes		Peter W. Shor discovered the first clear
Number of Qubits Total	100,000	SHA2-800 unique named qubits		solve a NP-hard problem that is beyond with their enormous computing power
Number of Qubits per circuit	32	each circuit is a separate multiverse		large numbers such as those used in
Number of Quantum Circuits	100's	depends on multiverse/circuit size		ransport Layer Security that guards the
Batch process Quantum Gates	Yes	1 to 65536 named qubit operations		The Quantum Fourier Transform is algorithm and a key benchmark for any
Qubit Accuracy	99.5%	Probability  0> or  1> Correct	54	scalability, accuracy, performance, run-
	0.5%	Probability  0> or  1> Incorrect	0N <sup>0</sup>	demonstrated by the worked example of
Qubit Lifetime	Unlimited			Quantum Fourier Transform in a couple
Single-Qubit Quantum Gates	Hadamard, L, R, S,	Т		The Quantum Fourier Transform is con
Two-Qubit Quantum Gates	CNOT, CROT			Rotation (CROT) quantum gates and s gates.
Multi-Qubit Quantum Gates	Toffoli			The QFT is an open source QUAIL API e
Teleportation of quantum state	es Yes	JSON file output/input per multiverse		example code sends CROT and H-Gate
Debug trace quantum states	Yes	JSON file output		connected qubits. At any stage the state
Mixed Quantum / Classical	Yes	QUAIL API Store, Search, Associate,		results visualized. The 99.5% accuracy of the Panvia Qua
Run-time Performance		Select plus many more commands		Standard output results after many
Quantum Fourier Transform 32 Qub Power Performance	its ~2 hours	www.panviaquantum.com		The real importance of Shor's algorithm
Quantum Fourier Transform 32 Qub	its ~2 kW hours	The Gold Standard in Quantum Computing		its periodicity using the QFT. Shor applie
				la l

## Applications

Richard P. Feynman, the inventor of the Quantum Computer, saw it as the key to modelling the Universe since all the phenomena we observe in the world can be best understood in their native quantum form.

In IYQ 2025, the range of target applications being worked on has dramatically expanded...

### Quantum Computer

Quantum algorithms perform unique computational feats by accessing the mathematics of higher dimensions.

Some properties such as probability can be manipulated in the C<sup>2</sup>Q dimensions and conserved in total.

Current computer architectures are natively binary 0's and 1's and so cannot express the operations and transformations that occur in higher dimensions. As a result we have found classical algorithms fall short in modelling some of the most interesting and valuable topics in computational science.

**Travelling Salesman** Next Gen. Graph Optimization Artificial Intelligence Neo-cortex model

Photosynthesis & Battery

Panvia Quantum Computer's innovation is its native Dual Domain architecture: data exists in its 'particle' form as conventional bytes and also in a patented wave domain where it has quantum properties of superposition and entanglement.

### Quantum Fourier Transform

case where Quantum Computers d current digital computers even er: a method for factorizing very in public key cryptography and internet.

the core subroutine in Shor's quantum computer's capability, -time and ergs consumed. On all ter is the current record holder as code run on it. This is a 32 Qubit of hours run-time and an energy

nposed of two-qubit Conditional single-qubit Hadamard quantum

example code written in Python3 evice such as a mobile phone. The ommands to the Panvia Quantum erations in a circuit comprising 32 of the qubits may be traced and

antum Computer generates Gold stages of quantum gates: low will not be lost in the noise.

is in its ability to identify hidden ropriate series and then analyzing es to many situations.

#### The Feynman Worldview 'QC is a model of reality'

Shor's Algorithm Factorization of Hidden Groups

Secure Communications Quantum Teleportation

Artificial Intelligence Attention Field Tensor Product

**Financial Markets Hidden Patterns & Detection** 

Green Energy

In Quantum Field Theory time moves in a parallel Wave Domain: reality is actually quanta of energy in a dual domain of complex wavefunctions versus a Newtonian Physics type particle.

#### Quantum **Field** Theory

QFT has been proven by the doubleslit Aspect Experiment to be the true underlying reality of the Universe.

QFT challenges our macroscopic view of reality because there is no persistence of identity for a single particle: particles are a manifestation of the wave energy quanta so they can be annihilated in one location and created at another location but it is not the 'same' particle after moving as an energy packet through the wave domain.

#### Secure Communication via Quantum Teleportation

Gilles Brassard's 'Teleportation as a guantum computation' demonstrated how three gubits and ten guantum gates via guantum entanglement could be used to communicate Alice's gubit in any possible superposition of |0> and |1> to a perfect copy in a separate quantum gate circuit at Bob's location. In the process Alice's qubit becomes randomized so essentially its information is destroyed.

Alice's quantum circuit of one L-gate, two CNOT gates and one R-gate generates an entangled state of the 3 qubits that has the unique property that every qubit measurement will result in a 50% |0> and 50% |1> for each of the 3 qubits. This means that the message is 100% ambiguous and the quantum state cannot be read or decoded in its teleportation intermediate between Alice and Bob's circuits at separate locations.

A fully worked example of Brassard's Alice and Bob quantum gate circuits implemented on the Panvia Quantum Computer is given in the Teleportation tab of www.panviaguantum.com and is an open source QUAIL API Python3 code example in the product User Manual.



Quantum State Teleportation between Alice's circuit and Bob's circuit is implemented by a JSON text file in the QUAIL API. Working Teleportation as JSON state is a ground-breaking feature of the Panvia Quantum Computer since it empowers save/share/restore and networking between quantum computers over the existing Internet.

Is an Open, Secure, Green, Quantum Internet possible? Yes and we can build it today by linking machines using Brassard's Teleportation circuits plus quantum state as JSON structured data in the QUAIL API.