QuantumCore

Building the leading provider of high-performance infrastructure microchips for quantum computing

October 2026

www.qncor.ca

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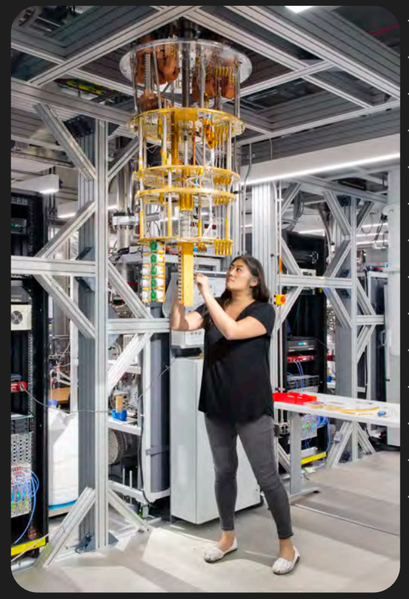
Building a leading provider of high-performance infrastructure microchips for quantum computing





Our Mission

- Leverage decades of expertise in quantum computing with existing infrastructure at Institute for Quantum Computing and manufacturing scale at superconducting foundries
- Build a diversified portfolio of proprietary technologies designed to solve the industry's most significant scaling challenges
- Consolidate the fragmented quantum computing infrastructure industry through strategic acquisitions and research partnerships
- Establish QuantumCore as a leading independent supplier of hardware components to quantum computing manufacturers

Our Opportunity

- Quantum computing companies are investing billions of dollars to scale their systems toward commercially useful quantum computers
- Scaling requires breakthroughs in signal amplification, routing, multiplexing, and detection
- QuantumCore is developing four complementary technologies to address these challenges
- The Company's infrastructure strategy spans superconducting, photonic, neutral-atom, and other quantum computing architectures

Four Core Technologies

- Superconducting KI-TWPA Amplifiers
- Single-Photon Detectors
- Cryogenic PCM Multiplexing Microchips
- Magnetless Circulator Microchips



Proven Team

Leveraging over 50 years of experience in the quantum field with proven and commercialized IP created for Quantum Computing companies and $20 million in cumulative research grants awarded over 30 mandates



Eugene Profis
Co-Founder/CEO

Senior capital markets roles and technology investing at Black Diamond Asset Management, Mackenzie Investments, Burgundy Asset Management and Haywood Securities

CFA, HBA, MBA (Ivey Business School)

MACKENZIE Investments

BURGUNDY ASSET MANAGEMENT LTD.



Chris Wilson
Co-Founder / CTO

Global expert in Quantum Noise reduction with academic experience at Massachusetts Institute of Technology (MIT), Yale PhD. and Institute for Quantum Computing at the University of Waterloo.

Formerly Senior Scientific advisor at Rigetti Computing

rigetti

IQC Institute for Quantum Computing



Michael Reimer
Head of Photonics

Internationally recognized researcher in semiconductor quantum photonics and single-photon detection.Founder of Avalanche Photoniq. Leads QuantumCore's photonics technology development and commercialization strategy.

Institute of Quantum Computing Waterloo

IQC Institute for Quantum Computing



McKinsey & Company

Enabling superconducting quantum computers to scale to their **trillion-dollar economic impact by 2035.**

BCG BOSTON CONSULTING GROUP

We continue to have confidence in our projection that quantum computing will create $450 billion to $850 billion of economic value **by 2040.**

1. https://www.bcg.com/publications/2024/long-term-forecast-for-quantum-computing-still-looks-bright (in USD)

Market Opportunity

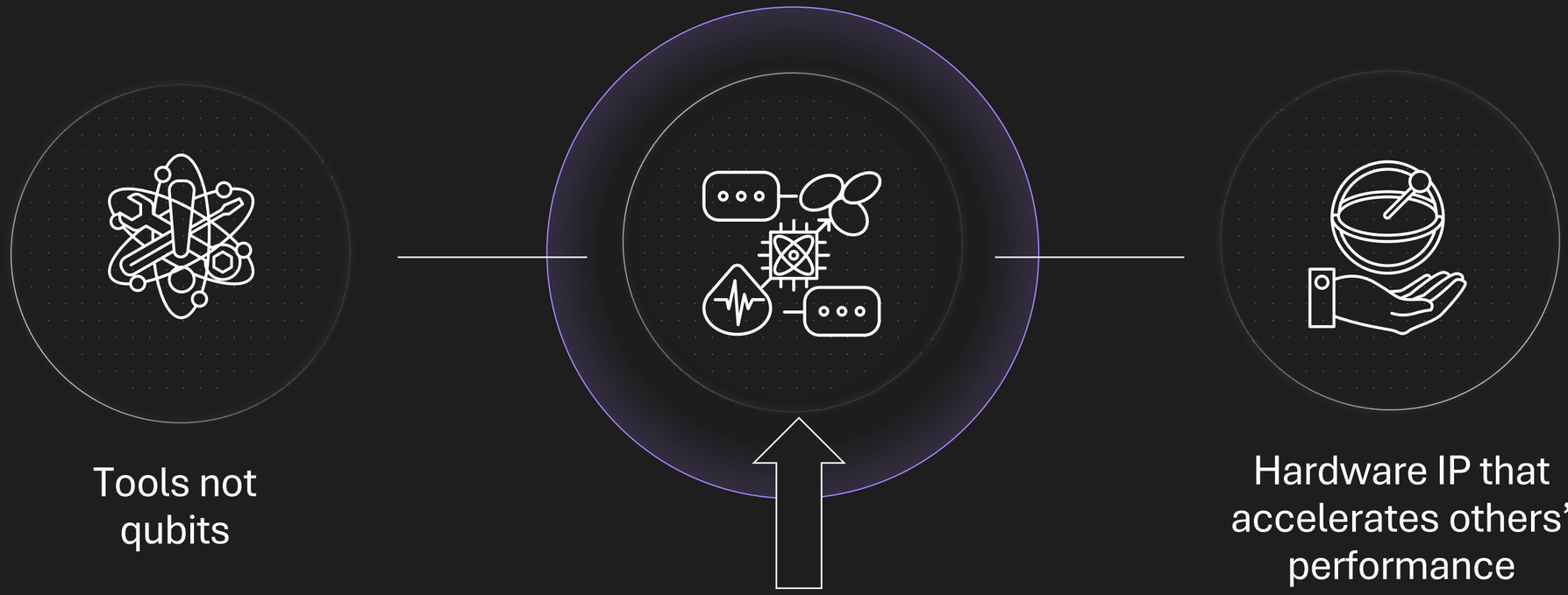
The Quantum Computing Industry Cannot Scale Without New Infrastructure

- Readout chains for all modalities need transformational innovation to allow Quantum Computing roadmaps to be achieved
- Superconducting quantum computers are scaling and are aiming for millions of qubits by 2030 (example: IBM:1M qubits; IonQ:1M qubits; Google:1M qubits according to published roadmaps and investor communication)
- Key Scaling Challenges
  - Heat: Conventional cryogenic microwave amplifiers generate heat that becomes increasingly difficult to manage as superconducting quantum computers scale
  - Complexity: Existing readout architectures require extensive cabling, switching, and bulky microwave components
  - Signal Integrity: Quantum processors require extremely sensitive amplification and measurement systems
  - Detection: Photonic and other quantum computing architectures require efficient, scalable single-photon detection

QuantumCore's Solution

- Develop the critical microchips that enable quantum computers to scale without proportionally increasing system size, power consumption, and complexity.

Become the picks and shovels provider for the quantum computing industry



Tools not qubits

Hardware IP that accelerates others' performance

Technology	Problem Solved	Target Market
KI-TWPA Amplifiers	Cryogenic heat and signal amplification	Superconducting quantum computers
Single-Photon Detectors	Efficient detection of individual photons	Photonic computing, communications, sensing
PCM Multiplexing Chips	Excessive cabling and readout complexity	Superconducting quantum computers
Magnetless Circulators	Bulky magnetic microwave components	Superconducting quantum computers

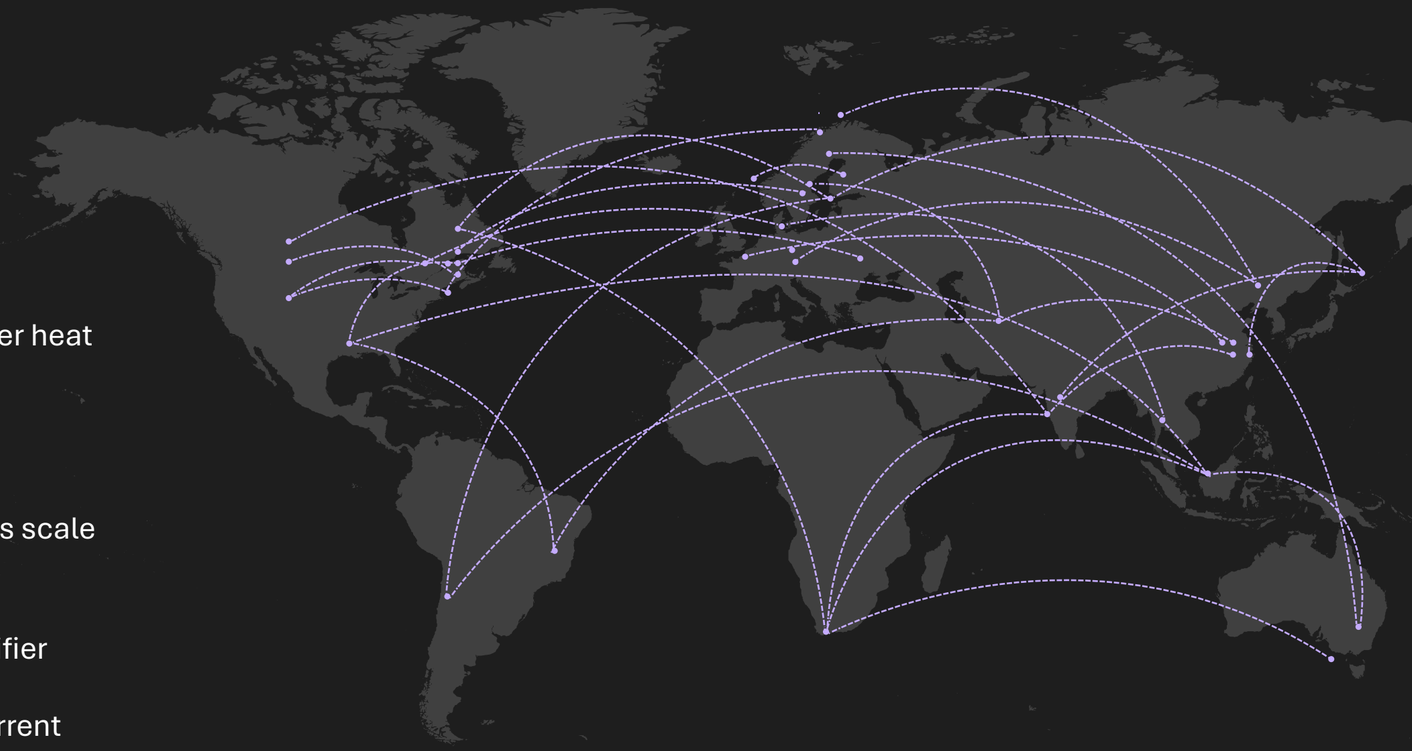
Four Products – Four Commercialization Roadmaps

Product	Current Stage	Next Milestone	Commercial Opportunity
KI-TWPA Amplifiers	Prototype development and testing	Customer validation	Replace conventional cryogenic HEMTs
Single-Photon Detectors	Foundry-ready platform; manufacturing preparation	Initial commercial production and sales	Quantum computing, communications, sensing
PCM Multiplexing Chips	Research and development	Integrated device prototype	Scalable qubit readout
Magnetless Circulators	Early-stage research and development	Demonstrate chip-scale device	Replace bulky cryogenic circulators

Near-Term Revenue Opportunities
Single-photon detectors and KI-TWPA amplifiers

Longer-Term Platform Expansion
PCM multiplexing chips and magnetless circulators.

QuantumCore's Kinetic InducTravelling-Wave Parametric Amplification Microchips



Replacing Conventional Cryogenic HEMT Amplifiers with KI-TWPA technology for 2nd stage amplification in the readout chain

Key Advantages

- Superconducting technology designed to dramatically reduce amplifier heat dissipation
- Targeting 20 dB or greater signal gain
- Designed to provide sensitive microwave signal amplification
- Potential to reduce cryogenic cooling requirements
- Addresses a growing infrastructure bottleneck as quantum processors scale

Commercial Opportunity

- Current planning assumption: approximately one second-stage amplifier per 10 physical qubits
- Target selling price: US$10,000–US$20,000 per amplifier based on current HEMT pricing
- Initial customers: superconducting quantum computing manufacturers and research laboratories

QuantumCore is targeting a critical infrastructure component already required in superconducting quantum computing systems

KI-TWPA Commercialization Strategy

Phase 1
Prototyping and Testing

- ✓ Advance superconducting KI-TWPA device fabrication
- ✓ Characterize gain, bandwidth, noise, and operating performance
- ✓ Validate second-stage amplification at approximately 4 K
- ✓ Utilize the Institute for Quantum Computing's research infrastructure

Phase 2
Customer Validation

- ✓ Deliver evaluation devices to quantum computing customers
- ✓ Integrate amplifiers into superconducting quantum computing readout chains
- ✓ Demonstrate performance relative to conventional cryogenic HEMTs

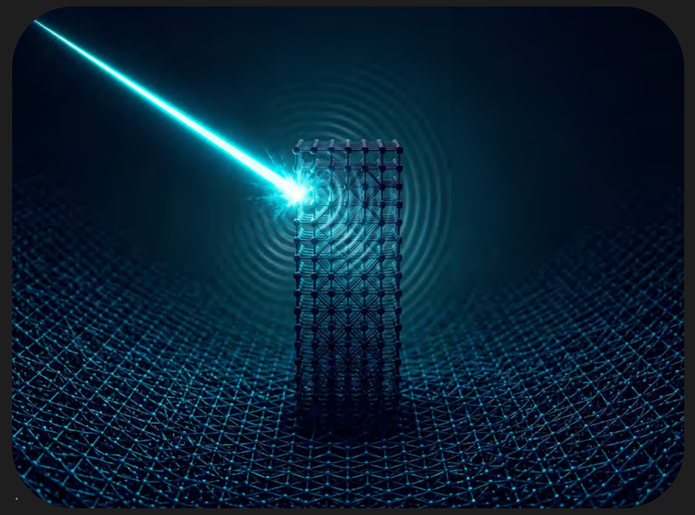
Phase 3
Commercialization

- ✓ Establish scalable superconducting foundry manufacturing
- ✓ Target initial production and sales of 100 amplifiers
- ✓ Expand commercial relationships with quantum computing OEMs

Phase 4
Market Expansion

- ✓ Scale manufacturing with industry demand
- ✓ Develop integrated amplifier and signal-processing solutions
- ✓ Expand the product portfolio through complementary technologies

QuantumCore Expands Beyond Superconducting Qubits to multi-architecture quantum hardware platform with Avalanche Photoniq acquisition



Commercializing Next-Generation Semiconductor Photon Detection

Technology Highlights

- Proprietary semiconductor metasurface technology designed for high photon-detection efficiency
- Precise photon timing resolution for advanced quantum applications.
- Compact detector system operating in a room-temperature environment, with the semiconductor chip thermoelectrically cooled to approximately 200 K
- Eliminates the need for liquid helium and conventional cryogenic refrigeration
- Designed for scalable semiconductor manufacturing

Commercialization Roadmap

- Detector platform advanced to manufacturing preparation
- Initial manufacturing program targeting 100 detectors
- Establish commercial relationships with quantum computing OEMs, research laboratories, and optical communications companies
- Expand manufacturing capacity as customer demand develops
- Target selling price: US$20,000-US$30,000 per detector

Addressable Markets

- Photonic Quantum Computing | Quantum Communications | Quantum Networking | Quantum Sensing | Space & Optical Communications

Scientific Leadership

- Professor Michael Reimer, founder of Avalanche Photoniq, has joined QuantumCore as Head of Photonics, leading the development and commercialization of its photon detection technologies

PCM Multiplexing Microchips

Reducing Cabling and Readout Complexity

- As superconducting quantum computers scale, conventional architectures require increasing numbers of microwave cables and readout components

Potential Advantages

- Reduce the number of physical microwave connections
- Enable more efficient signal routing and readout
- Reduce cryogenic system complexity
- Support higher qubit densities
- Create opportunities for integration with QuantumCore's KI-TWPA amplifiers

Development Stage

- Building on previously demonstrated PCM switching technology, with a target of developing commercial prototypes within approximately 12 months of program commencement

Magnetless Circulator Microchips

Miniaturizing Critical Microwave Components

- Conventional superconducting quantum computers rely on bulky ferrite-based circulators and isolators to route microwave signals and protect sensitive quantum devices
- Developing miniature, nonmagnetic microwave circulators designed for integration into cryogenic quantum computing systems.

Potential Advantages

- Dramatically reduce the physical footprint of conventional circulators
- Eliminate bulky magnetic materials
- Reduce cryogenic packaging complexity
- Enable more compact microwave readout architectures
- Potential integration with PCM multiplexing chips.

Development Stage

- Early-stage research and development, focused on demonstrating chip-scale circulator performance

Strategy Fit with the KI-TWPA

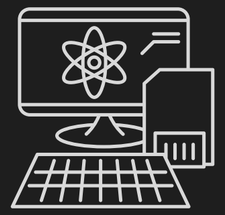
KI-TWPA Amplification + PCM Multiplexing + Magnetless Circulators within the superconducting quantum computing readout chain

Go-To Market Strategy



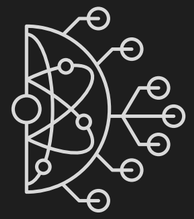
Direct OEM Sales

Superconducting (e.g., Rigetti, IBM, Google,), photonic, neutral-atom, and other quantum computing developers



Research and Development Customers

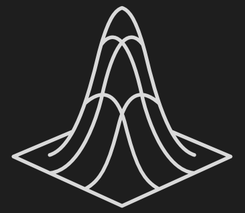
Supply devices to national laboratories, universities, and advanced research organizations for validation



Foundry Based Manufacturing

Leverage established semiconductor and superconducting fabrication facilities

Prioritize scalable manufacturing partnerships rather than building capital-intensive internal fabrication infrastructure.



Strategic Partnerships

Collaborate with microwave equipment suppliers, cryogenic hardware manufacturers, and quantum computing OEMs



Integrated Product Solutions

Develop opportunities to combine QuantumCore's technologies into higher-value infrastructure modules

M&A Strategy

Building the Leading Quantum Infrastructure Microchip Platform

QuantumCore intends to consolidate a fragmented market of specialized quantum hardware technologies

Acquisition Targets

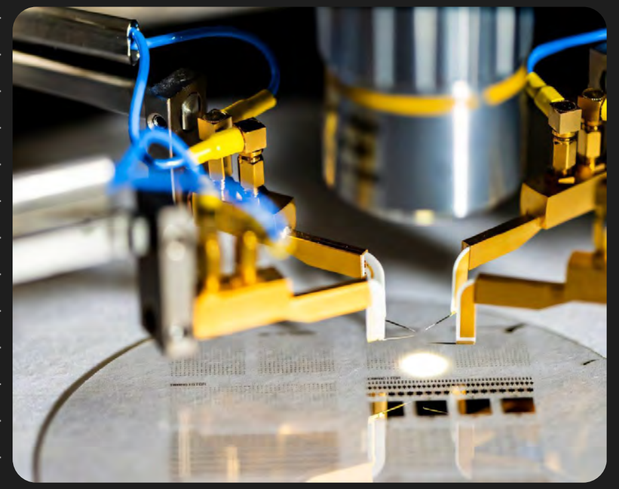
- Cryogenic hardware developers
- Microwave component manufacturers
- Semiconductor photonics companies
- Quantum detector technologies
- Superconducting materials and device developers
- Advanced switching and signal-processing technologies

Investment Criteria

- Proprietary intellectual property
- Technological differentiation
- Clear commercialization pathways
- Scalable microchip manufacturing potential
- Complementary products and customer relationships
- Attractive acquisition economics

Strategic Model

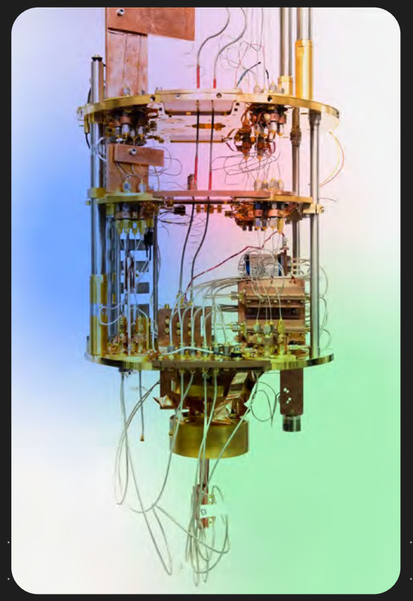
- Acquire → Develop → Commercialize → Scale
- Completed acquisition of Avalanche Photoniq demonstrates QuantumCore's strategy of expanding its addressable markets through complementary technologies.

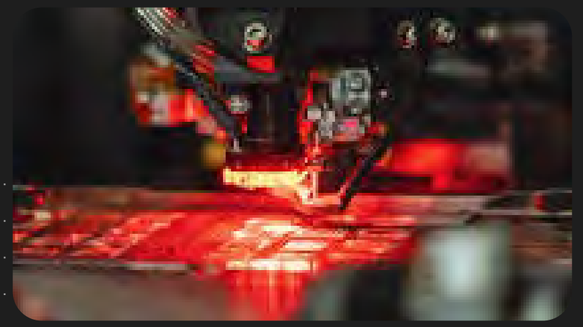


Investment Summary

Quantum Computing is Scaling to millions of Qubits

- **Exposure to the Growth of Quantum Computing -** QuantumCore provides exposure to quantum computing infrastructure without depending on a single quantum computing architecture emerging as the industry leader
- **Four Complementary Technologies -** A growing product portfolio targeting signal amplification, photon detection, multiplexing, and microwave routing
- **Near-Term Commercialization Opportunities -** KI-TWPA amplifiers and single-photon detectors provide potential paths to initial commercial revenue
- **World-Class Scientific Expertise -** Leadership and research collaborations involving internationally recognized experts in superconducting quantum computing, semiconductor photonics, and microwave engineering
- **Scalable Manufacturing Strategy -** Leverage established research facilities and foundry partners to support commercialization while limiting capital-intensive manufacturing requirements
- **Strategic Acquisition Platform -** Completed acquisition of Avalanche Photoniq establishes a foundation for further expansion into complementary quantum infrastructure technologies











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info@qncor.ca

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