



# Quantum Computing Inc.

Reports Q4. We expect major acquisition of QPhoton and strong growth over the next year to be positive for stock. Raising P/T to \$9.25.

## COMPANY UPDATE

Rating: BUY

Ticker: QUBT

Price: \$1.56

Target: \$9.25  
(from \$9.00)

**Reports Q4:** Quantum recently (on March 29) reported its fiscal Q4 2022 (ending December) results. Revenue was ~\$0, compared to our estimate of \$0.2 million. EPS was \$(0.34), compared to our estimate of \$(0.14). There was no consensus estimates or company guidance.

**Still very early stage:** Quantum's recent financial performance is reflective of its developmental and early commercialization stage and has reported initial revenue in Q1 2022. The company, having recently launched several of its initial products, is currently focusing on sales and marketing of its products. We believe investors should be focused on its commercialization of its software, which we believe (and company's guidance) in 2023 that revenue should grow quickly.

**Adjusting estimates:** We are adjusting our 2023 estimates for revenue to \$1.1 million, from \$1.4 million, and for EPS to \$(0.39) from \$(0.45).

**Acquired QPhoton:** In June 2022, the company acquired QPhoton, Inc., a privately held company that is a leading innovator in the quantum photonic technology space. Merger consideration was paid in stock (~37 million shares). This follows the announcement in February 2022 of a marketing agreement with QPhoton, to merge QCI's quantum software solution, Qatalyst, with QPhoton's advanced photonic quantum technologies for its application to QCI-specific solutions.

**QPhoton QPS:** QPhoton's quantum photonic system (QPS) operates at room temperature and maintains computational stability in a variety of application environments. This allows it to be easily deployed and at a substantially reduced cost relative to competing (quantum computers) offerings.

**Focused on quantum computing:** Quantum's flagship software solution, Qatalyst, is a ready-to-run quantum and classical software for optimization computations for faster, better, and more diverse business decisions. By being early in this rapidly growing industry, we believe Quantum is well-positioned to capture and drive a meaningful market share and industry growth.

**The need for quantum computing:** The rapid and widespread adoption of technologies such as the Internet, artificial intelligence, virtual and augmented reality, 3D imaging, and the Internet of Things (IoT), have served to exponentially increase the generation of data. This has driven up the demand for high-performance computing to process all this data.

**Large market potential:** As quantum computing hardware continues to advance, we expect a corresponding growth in demand for quantum software to run on these computers. The U.S. Government has committed \$1.3 billion to funding quantum information science programs, along with ~\$50 billion for onshoring domestic chip research and manufacturing.

**Balance sheet:** As of Q4, the company has \$5 million in cash and \$8 million in debt. In Q1 (just completed), the company raised ~\$6 million from its ATM. We believe the company has enough cash into Q3 2023.

**Positive high risks versus rewards:** We believe the ~billion dollars market potentials presents high rewards for the risks.

**Valuation attractive:** We are maintaining our BUY rating, but raising our 12-month price target to \$9.25 from \$9.00, based on a NPV analysis, representing significant upside from the current share price. We believe this valuation appropriately balances out the company's high risks with the company's high growth prospects and large upside opportunities.

### Company Description

Based in Leesburg, VA, Quantum Computing is a software company focused on classical and quantum software for complex optimization computations.

United States  
Technology

April 4, 2023

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### Stock Data

Exchange:	NasdaqCM
52-week Range:	1.15 – 4.40
Shares Outstanding (million):	61
Market cap (\$million):	\$95
EV (\$million):	\$98
Debt (\$million):	\$8
Cash (\$million):	\$5
Avg. Daily Trading Vol. (\$million):	\$2
Float (million shares):	30
Short Interest (million shares):	2
Dividend, annual (yield):	\$0 (NA%)

### Revenues (US\$ million)

	<u>2023E</u> (Cur.)	<u>2023E</u> (Old)	<u>2024E</u> (Cur.)	<u>2024E</u> (Old)
Q1 Mar	0.1E	0.2E	0.8E	
Q2 Jun	0.2E		0.9E	
Q3 Sep	0.3E	0.4E	1.0E	
Q4 Dec	<u>0.5E</u>	<u>0.7E</u>	<u>1.3E</u>	
Total	<b>1.1E</b>	<b>1.4E</b>	<b>4.0E</b>	
EV/Revs	89x		25x	

### Earnings per Share (pro forma)

	<u>2023E</u> (Cur.)	<u>2023E</u> (Old)	<u>2024E</u> (Cur.)	<u>2024E</u> (Old)
Q1 Mar	(0.10)E	(0.12)E	(0.09)E	
Q2 Jun	(0.10)E	(0.12)E	(0.09)E	
Q3 Sep	(0.10)E	(0.11)E	(0.09)E	
Q4 Dec	<u>(0.09)E</u>	<u>(0.11)E</u>	<u>(0.09)E</u>	
Total	<b>(0.39)E</b>	<b>(0.45)E</b>	<b>(0.37)E</b>	
P/E	N/A		N/A	

### Important Disclosures

Ascendant Capital Markets LLC seeks to do business with companies covered by its research team. Consequently, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making an investment decision.

For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report, beginning on page 16.

Exhibit 1: Quantum Computing Inc. Overview

**WHO WE ARE**

**QCI** Innovative Quantum Solutions Company  
NASDAQ: QUBT

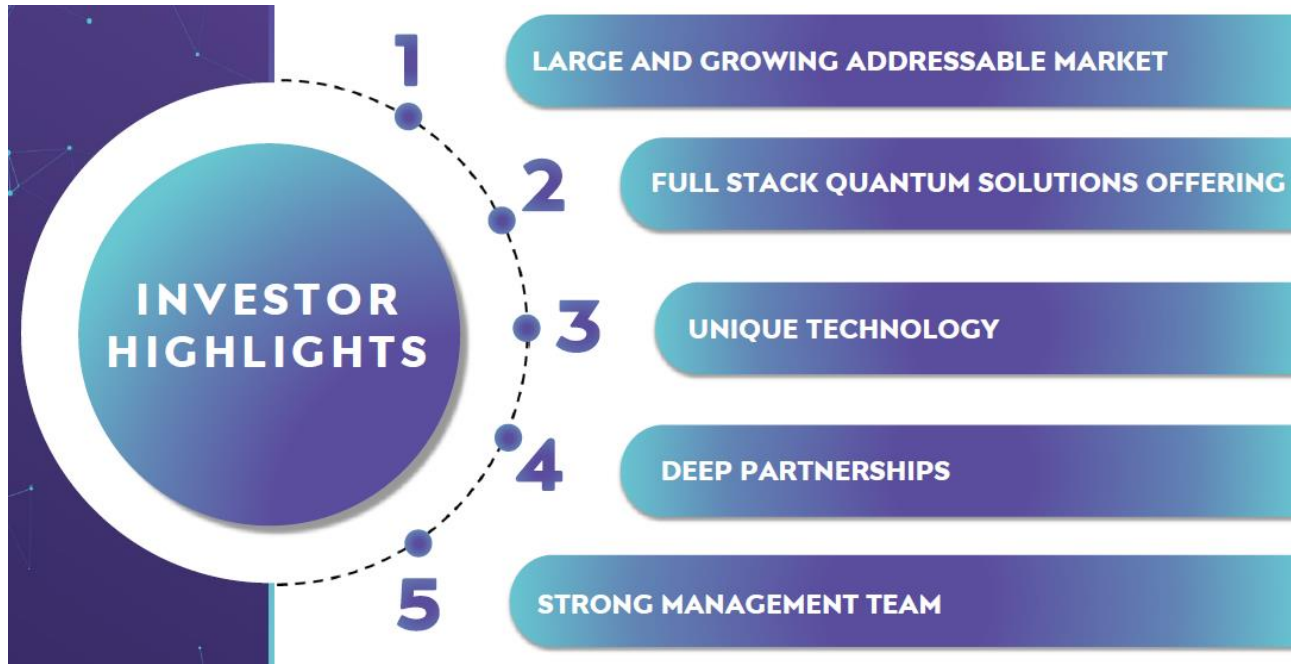
**QUANTUM COMPUTING INC. IS A FULL-STACK QUANTUM SOLUTIONS COMPANY ON A MISSION TO ACCELERATE THE VALUE OF QUANTUM TECHNOLOGY FOR REAL-WORLD BUSINESS SOLUTIONS APPLICATIONS.**

**CORE TECHNOLOGY POSITIONS QCI AS A FULL STACK QUANTUM SOLUTIONS PROVIDER**

	1	2	3
	<p><b>Hardware with the EQC</b> Our EQC is unique quantum hardware that takes a fundamentally different approach to other providers.</p>	<p><b>Software with Qatalyst</b> Our software offering enables end users to solve their business problems without the need for complex programming.</p>	<p><b>Solutions</b> Our professional services division helps customers identify and execute quantum solutions to their business problems.</p>
<b>VALUE PROPOSITION</b>	<b>SOLVES LARGER AND MORE COMPLEX PROBLEMS THAN EXISTING OFFERINGS</b>	<b>ALLOWS SUBJECT MATTER EXPERTS TO SOLVE COMPLEX PROBLEMS, FASTER</b>	<b>PROVIDES A FULL SUITE SOLUTION FOR END USERS WITHOUT THE TECHNICAL WHEREWITHAL</b>
<b>REVENUE MODEL</b>	<b>SUBSCRIPTION</b>	<b>SUBSCRIPTION / CONSULTING</b>	<b>ONE OFF CONSULTING</b>

Source: Company reports.

## Exhibit 2: Quantum Computing Investment Highlights




Source: Company reports.

## Exhibit 3: Quantum Computer Reality Check

### The Quantum Reality Check

**The Good**

- Huge investments by major players are driving quantum momentum.
- Quantum has the potential to deliver faster, better solutions for many critical, real-world enterprise problems.
- QPUs are constantly improving and expanding
- Every day we're learning more about quantum programming, the challenges, and what we really need to think about.



**The Bad, i.e., What Needs Work**

**Hardware**

- Quantum processors are still in their infancy.
- Cannot scale to process the large volumes of data and variables created by today real-world problems
- No standard quantum computer architecture.
- Proprietary, unique low-level code required for each vendor

**Software**

- Requires complex programming with SDK (software development kits)
- SDKs require quantum expertise to understand and use
- Long lead time and costs required to train and develop the skills needed to create quantum programs

Source: Company reports.

**Exhibit 4: Quantum Computing's Solutions**



**UNIQUE AND DIFFERENTIATED HARDWARE...**

- Most Quantum Computers try to exclude noise from the external environment and create perfect systems insulated from nature.
- These systems require significant engineering feats and experts are anticipating that doing anything useful with them will take decades.
- QCI's Entropy Quantum Computer (EQC) is uniquely designed to solve for this noise and create useful qubits to perform computations now.

**1**

EQC UTILIZES THE MEASUREMENT POSTULATE OF QUANTUM MECHANICS.

**2**

EQC OPERATES ON QUANTUM OPEN SYSTEMS, WHERE THE DYNAMICS OF A QUANTUM STATE IS AFFECTED BY ITS SURROUNDING ENVIRONMENT.

**3**

EQC IS A GENERAL METHODOLOGY TO QUANTUM INFORMATION PROCESSING, SUPPORTING OPTIMIZATION, GATE MODELS, AND MORE.

**4**

FOR OPTIMIZATION, EQC STARTS WITH QUANTUM FLUCTUATIONS AND PREFERABLY AMPLIFIES THE GROUND STATE OF A HAMILTONIAN THROUGH A FEEDBACK CONTROL LOOP.



**...THAT DELIVERS VALUE TODAY...**

✓  
SOLVES LARGE AND COMPLEX BINARY OPTIMIZATION PROBLEMS.

✓  
PROCESS PROBLEMS WITH DATA SETS THAT REQUIRE HIGHER PERFORMANCE THAN CURRENTLY AVAILABLE QUANTUM COMPUTERS.

✓  
ELIMINATES ERRORS THAT MINIMIZE THE VALUE DELIVERED BY OTHER QUANTUM COMPUTING APPROACHES.

✓  
DEPLOYS AS A READY-TO-RUN, ROOM TEMPERATURE, RACK-MOUNTABLE SERVER REQUIRING NO SPECIAL INFRASTRUCTURE.



**TODAY ALREADY DEPLOYED AS A SUBSCRIPTION SERVICE**

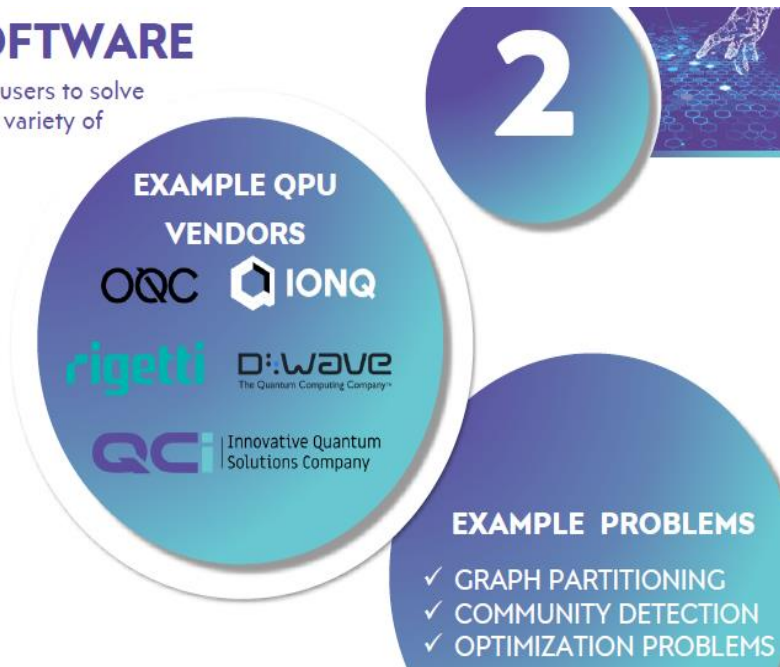
Source: Company reports.

**Exhibit 5: Quantum Computing's Solutions**

## MARKET LEADING SOFTWARE

**QATALYST:** Cloud-based service that allows users to solve different types of optimization problems on a variety of quantum computers or quantum simulators.

- Users formulate their problem once and submit that problem to different quantum systems without needing to re-formulate their problem specifically for each different quantum system.
- Allows focus on their optimization problem domain, rather than the detailed and machine-specific programming needed to allow their optimization problem to run on different quantum machines.



# 3

## SOLUTION-LED PROFESSIONAL SERVICES QUANTUM SOLUTIONS

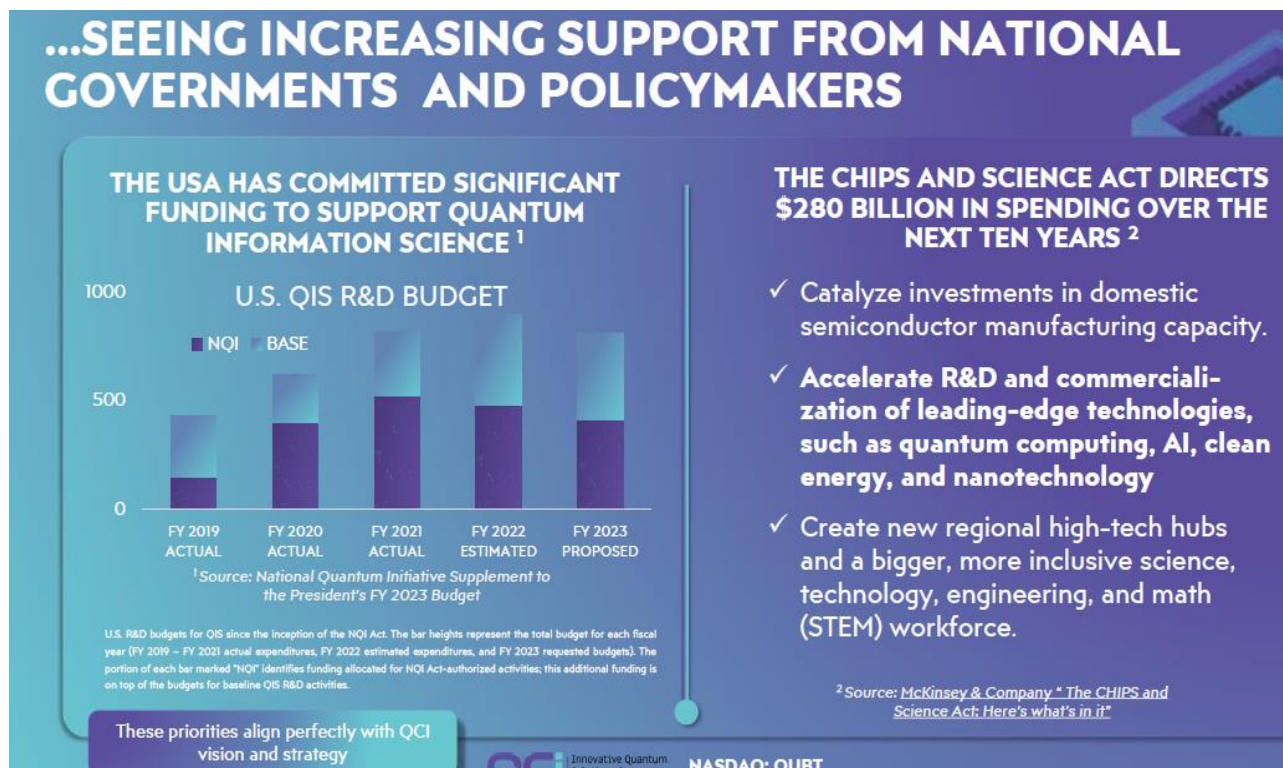
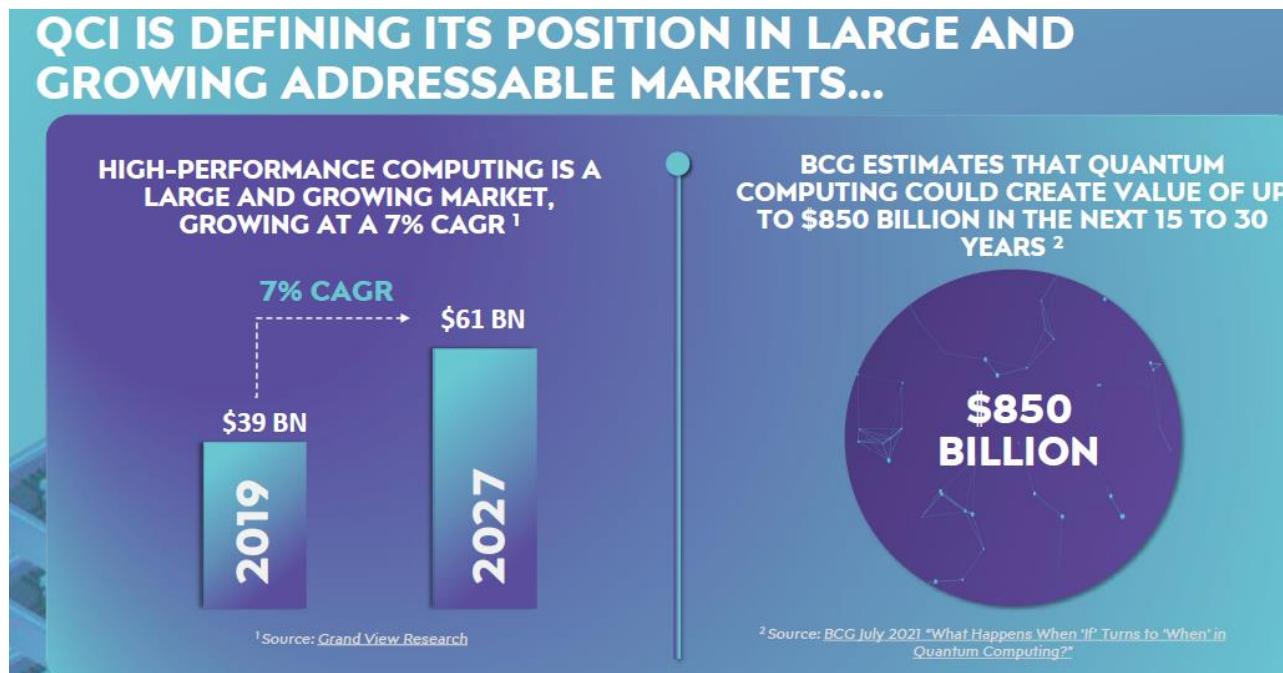
QCI's Quantum Solutions team helps clients solve high-value business problems using quantum hardware and software technologies.



PHASE 1	PHASE 2	PHASE 3	PHASE 4
<p><b>Identify Expectations</b></p> <ul style="list-style-type: none"> <li>• Goals</li> <li>• Needs</li> <li>• PoC Process</li> </ul> <p><b>Evaluate Current</b></p> <ul style="list-style-type: none"> <li>• Applications</li> <li>• Use Cases</li> <li>• New Opportunities</li> </ul> <p><b>Define Quantum Opportunities</b></p>	<p><b>Explore Quantum Options</b></p> <ul style="list-style-type: none"> <li>• QPU Hardware</li> <li>• Quantum-Ready Classical</li> <li>• Software Development</li> <li>• Compare to Qatalyst or other ready-to-run quantum software</li> </ul> <p><b>Define Quantum Infrastructure</b></p>	<p><b>Quantum Testing</b></p> <p>1st use cases</p> <ul style="list-style-type: none"> <li>• Evaluate hybrid</li> <li>• Evaluate pure quantum</li> <li>• Evaluate quantum classical</li> <li>• Tune problems</li> <li>• Identify plan and first production steps</li> </ul> <p><b>Measure Quantum Potential</b></p>	<p><b>Initial Quantum</b></p> <p>Appropriate use cases applied to best approach</p> <ul style="list-style-type: none"> <li>• 1st hybrid runs</li> <li>• Pure quantum runs (if practical)</li> <li>• ID potential for quantum advantage/value</li> </ul> <p><b>First Production Quantum Results</b></p>

Source: Company reports.

**Exhibit 6: Quantum’s Market Opportunity**



Source: Company reports.

**Exhibit 7: Quantum Market Opportunities**



**Qatalyst Near-term Addressable Markets – Examples**

Application	Markets	Addressable Market Size
Supply Chain & Logistics Optimization	<ul style="list-style-type: none"> <li>• Retail</li> <li>• Aerospace</li> <li>• Chemical/Materials</li> <li>• Utilities</li> <li>• Manufacturing</li> </ul>	\$22 Billion+ <sup>1</sup>
Transportation Optimization	<ul style="list-style-type: none"> <li>• Airlines</li> <li>• Delivery</li> </ul>	\$5 Billion+ <sup>2</sup>
Community Detection	<ul style="list-style-type: none"> <li>• Cyber Security</li> <li>• Biotech</li> <li>• Government</li> </ul>	\$156 Billion+ <sup>3</sup>
<b>Total</b>		<b>\$157 Billion+</b>
Other potential revenue sources: <ul style="list-style-type: none"> <li>• Government or Commercial R&amp;D contracts</li> <li>• Consulting</li> </ul>		Typical Gross Margins of 60% - 70%

Source: Company reports.

## Exhibit 8: Qatalyst Applications Examples

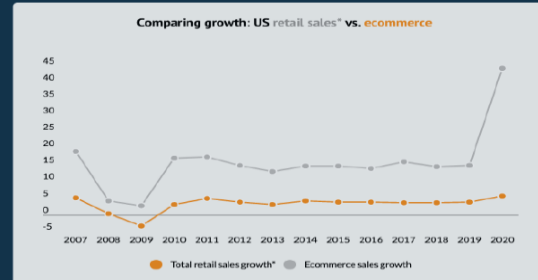
### Example QC Application Retail Supply Chain Optimization



Ecommerce shift complicates everything.

Covid accelerated that shift.

- **Shopping baskets.** From single basket with lots of items to many baskets with few items.
- **Supply Chain availability.** Shifting demand and Covid lockdowns/delays mean raw materials and product availability is a dynamic and ever-changing target.
- **Consumer expectations.** Customers expect unlimited product selection and availability at the lowest price. The emerging differentiator is becoming delivery time.
  - As many as 96% of customers consider faster delivery synonymous with same-day delivery.
  - In a study by McKinsey & Company, the primary aspect of customer service mentioned by customers? [Delivery time.](#)



Qatalyst Solves These Highly Complex Computations to Fuel Retail Markets

### Example QC Application Transportation Optimization



- **Increases in delivery demands** drive more complex computations to optimize logistics.
- **Uncertainty of availability** of critical supply chain elements mean production is ever-changing. How to optimize delivery under these circumstances.
  - For example, how to deliver automobiles globally with confirmed schedules for production and delivery.
- **Scale of transportation** as Covid lockdowns are removed offer opportunity for better optimization as we reboot airlines, trains and infrastructure.



### Example of Qatalyst Quantum-Ready Application Community Detection Application



- Community detection is a broadly useful technique across domains for identifying similarities/ commonalities across diverse groups or profiles.(not just humans)
- Ready-to-run community detection is part of Qatalyst optimization.
- SMEs simply submit their graph problem, QGraph converts, Qatalyst Core solves and QGraph returns results in requested format.



**Sales & Marketing**  
Social Network Analysis for accurate market segmentation and targeting.



**Biotechnology**  
Improved epidemiology models for epidemics.  
Cohort segmentation and analysis for improved clinical trial design.



**Government/Security**  
Improved anomaly detection for earlier detection of criminal activity, fraud and cyber bots.

Source: Company reports.



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**Exhibit 9: Quantum Acquisition of QPhoton (announced May 24, 2022, closed June 16, 2022)**

## Quantum Computing Inc. Announces Agreement to Acquire QPhoton Delivering First Commercially Available, Ready-to-Run Full-Stack Quantum Solutions

*QPhoton's Design for Affordable and Accessible QPS in Combination with QCI's Ready-to-Run Qatalyst Software Positions QCI as the Only Quantum Provider for Non-Quantum Experts*

**LEESBURG, VA. – May 24, 2022 – Quantum Computing Inc.** (“QCI” or the “Company”) (NASDAQ: QUBT), a leader in accessible quantum computing software, today announced that it has entered into a definitive agreement to acquire QPhoton, a quantum photonics innovation company that has developed a series of quantum photonic systems (QPS). The acquisition of QPhoton extends QCI’s offerings to accelerate the accessibility of quantum computing, and other powerful technologies, into easily deployable solutions today, and advances QCI into a full-spectrum quantum software and hardware company.

QPhoton’s QPS, including those for AI and optimization, operate at room temperature and maintain computational stability in a variety of application environments. These unique approaches eliminate the cost and complexity required by the hyper-cooled, tightly controlled environments required by other technology. QPhoton’s QPS is designed to be easily deployed and used at a substantially reduced total cost of ownership relative to competing offerings, while providing substantial quantum advantages.

The QPS for optimization work effectively with QCI’s **Qatalyst™** software, which is designed to eliminate the need for complex quantum programming and runs seamlessly across a variety of quantum computers. This combination sets QCI on a path to delivering a broadly accessible and affordable solution that can be used by non-quantum experts, anywhere, for real-world industry applications.

QPhoton will be a wholly-owned subsidiary of QCI, and Dr. Huang is expected to join QCI as a director and officer. Under the definitive agreement, at the closing of the proposed transaction, QCI will issue to QPhoton’s stockholders aggregate merger consideration consisting of: 5,802,206 shares of QCI’s common stock, 2,377,028 shares of a new series of QCI’s preferred stock, convertible into 23,770,280 shares of common stock (subject to receipt of the approval of QCI’s stockholders), and warrants exercisable, at a purchase price of \$0.0001 per share, to purchase up to 7,028,337 shares of common stock (subject to receipt of the approval of QCI’s stockholders). The merger consideration is subject to adjustment under certain circumstances, such that it will represent in total approximately 49% of the total capital stock of QCI outstanding immediately following the closing. The transaction is expected to close during the third or fourth quarter of 2022 and is subject to customary and other closing conditions, including QCI obtaining a final order from the Court of Chancery of the State of Delaware pursuant to Section 205 of the General Corporation Law of the State of Delaware.

## Quantum Computing Inc. Closes Acquisition of QPhoton

- *The combination of QPhoton QPS and QCI’s Qatalyst software represents a major milestone in the quantum computing industry.*
- *The acquisition enables QCI to launch ready-to-run, full-stack quantum systems and extend its solutions in key markets such as supply chain and portfolio optimization, fraud detection, underwriting and government defense and security projects.*
- *The technology operates seamlessly alongside today’s classical technology.*

LEESBURG, VA. – June 16, 2022 – Quantum Computing Inc. (“QCI” or the “Company”) (NASDAQ: QUBT) a leader in accessible quantum computing, today announced the successful completion of its previously announced merger agreement to acquire QPhoton, Inc., a quantum photonics innovation company that has developed a quantum photonic system (QPS). The closing of this transaction will enable QCI to deliver the first ready-to-run, broadly accessible and affordable full-stack QPS that can be used by non-quantum experts, anywhere, for real-world business applications. QCI expects to release initial quantum solutions leveraging QPhoton’s QPS in Q4 2022.

Source: Company reports.

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Exhibit 10: Quantum's QPhoton

## The QPhoton QPU Advantage

Quantum Anywhere, For Anyone

NASDAQ: QUBT

QPU Requirement	Other QPUs	QPhoton
Cooling	Hyper Cooled: Temperature of Space or Cooled Room	Room Temperature
Environment	Highly unstable, easily collapsed	Stable in most business environments
Infrastructure	Beyond supercomputers	No special requirements
Deployment/Mtc	Expert care and feeding on cloud or on premise	Deploy anywhere, cloud and on premise
PROJECTED TCO-Q	Cooling alone is millions	Like a departmental server

**Affordable, Highly Accessible Quantum Computing**

## 1<sup>st</sup> Generation vs QCI

Hyper-cooled, Hyper-Controlled Environment

**QCI QPhoton**  
2u Rackable Blade Chassis

NASDAQ: QUBT

**The difference is obvious**

## Dramatic Acceleration of Commercial Quantum Computing

### Evolution of Classical Computing

1945  
ENIAC

1964  
IBM System 360

1983  
First PC

**39 years to  
Desktop  
Classical**

### QCI Accelerates Quantum Computing

2019  
Gate Model QC

2022  
QCI/QPhoton Cloud

2023/4  
QCI/QPhoton  
On Premise/Desktop

**5-6 years to  
Desktop Quantum**

**Significantly Expanding QCI Total Available Market/Revenue Opportunities**

Source: Company reports.

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#### Exhibit 11: 2022 and Recent Highlights (as of March 29, 2023)

- Quantum Computing Inc completes integration of QPhoton merger, more than doubling the size of the company and establishing its quantum hardware production capability.
- Quantum Computing Inc. QPhoton merger strengthens QCI as the first pure play public company based on proven photonic quantum technology offering commercially available, ready-to-run anywhere, full-stack quantum products and services, from quantum computing to quantum-based solutions that include quantum cyber security, quantum networks, quantum sensing and quantum imaging.
- Quantum Computing Inc. begins prototype fabrication of its own quantum photonic microchips and plans to expand into full scale manufacturing to support its quantum technologies in the marketplace.
- Quantum Computing Inc. transitions from a developing R&D technology company to commercialization at start of 2023.
- Quantum Computing Inc. offers guidance on revenue breakeven – at approximately \$30 million in revenue, the company anticipates EBITDA breakeven which it plans to deliver within 2 years.

Source: Company reports.

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#### Exhibit 12: Company Guidance (as of March 29, 2023)

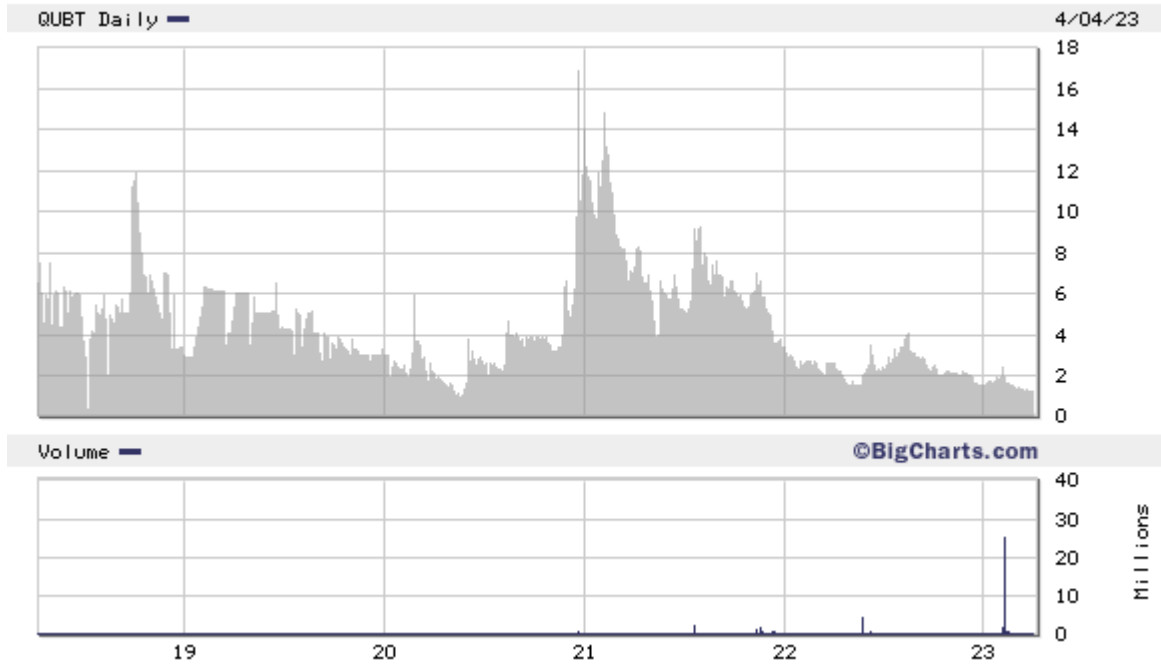
##### Guidance

- The Company has completed its discovery and research phase and is now transitioning to commercialization. QCI has developed and released several products in late 2022 and into early 2023 with a number of additional product rollouts planned this year. As the Company ramps up its sales and marketing efforts, it expects revenues to gradually increase in the first half of the year and progressively accelerate during the second half of 2023.
- The Company estimates that it achieves EBITDA breakeven at roughly \$30 million in annual revenue and projects cashflow breakeven within 2 years.

Source: Company reports.

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Exhibit 13: Quantum Computing Inc. Stock Price (5-Years)



Source: <https://bigcharts.marketwatch.com/>

## FINANCIAL MODEL

### Quantum Computing Inc.

Income Statement (\$ mils)	Mar-21	Jun-21	Sep-21	Dec-21	2021	Mar-22	Jun-22	Sep-22	Dec-22	2022	Mar-23	Jun-23	Sep-23	Dec-23	2023	Mar-24	Jun-24	Sep-24	Dec-24	2024
Fiscal Year End: December 31	Q1A	Q2A	Q3A	Q4A	FY-A	Q1A	Q2A	Q3A	Q4A	FY-A	Q1E	Q2E	Q3E	Q4E	FY-E	Q1E	Q2E	Q3E	Q4E	FY-E
<b>Total Revenue</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.3</b>	<b>0.5</b>	<b>1.1</b>	<b>0.8</b>	<b>0.9</b>	<b>1.0</b>	<b>1.3</b>	<b>4.0</b>
Cost of Revenues	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.6	0.3	0.4	0.4	0.5	1.6
Gross Profit	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	(0.0)	0.1	0.0	0.1	0.2	0.3	0.5	0.5	0.5	0.6	0.8	2.4
Salaries	0.2	0.5	0.7	1.1	2.5	1.1	1.4	1.3	0.6	4.3	1.1	1.1	1.2	1.2	4.6	1.2	1.2	1.4	1.4	5.2
Consulting	0.3	0.2	0.3	0.2	1.1	0.4	0.3	0.3	0.4	1.3	0.3	0.3	0.3	0.3	1.2	0.3	0.3	0.3	0.3	1.2
Research & Development	0.6	0.6	0.6	0.8	2.6	1.0	0.9	1.3	1.4	4.6	1.3	1.3	1.3	1.3	5.2	1.4	1.4	1.4	1.4	5.6
Stock Based Compensation	2.0	2.5	2.6	2.3	9.4	3.1	0.3	1.3	13.1	17.8	0.6	0.6	0.6	0.6	2.4	0.6	0.6	0.6	0.6	2.4
Related Party Marketing					0.0					0.0					0.0					0.0
Selling General & Administrative	0.2	0.5	0.6	0.2	1.6	1.1	2.1	2.7	2.8	8.7	2.5	2.5	2.5	2.5	10.0	2.5	2.5	2.5	2.5	10.0
Restructuring and other					0.0					0.0					0.0					0.0
Total operating expenses	3.4	4.3	4.8	4.6	17.1	6.7	4.9	6.8	18.2	36.7	5.8	5.8	5.9	5.9	23.4	6.0	6.0	6.2	6.2	24.4
<b>Operating income (loss)</b>	<b>(3.4)</b>	<b>(4.3)</b>	<b>(4.8)</b>	<b>(4.6)</b>	<b>(17.1)</b>	<b>(6.7)</b>	<b>(4.8)</b>	<b>(6.8)</b>	<b>(18.2)</b>	<b>(36.6)</b>	<b>(5.8)</b>	<b>(5.7)</b>	<b>(5.8)</b>	<b>(5.7)</b>	<b>(22.9)</b>	<b>(5.5)</b>	<b>(5.5)</b>	<b>(5.6)</b>	<b>(5.4)</b>	<b>(22.0)</b>
Interest income (expense)	0.0	0.0	0.0	0.0	0.0	(0.4)	(0.3)	(0.7)	(0.6)	(2.0)	(0.2)	(0.2)	(0.2)	(0.2)	(0.7)	(0.2)	(0.2)	(0.2)	(0.2)	(0.7)
Other income (expense)		0.2		(11.0)	(10.8)					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income before income taxes	(3.4)	(4.1)	(4.8)	(15.6)	(27.9)	(7.1)	(5.1)	(7.6)	(18.8)	(38.6)	(5.9)	(5.9)	(5.9)	(5.8)	(23.5)	(5.7)	(5.6)	(5.8)	(5.6)	(22.7)
Income taxes					0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net income (loss)	(3.4)	(4.1)	(4.8)	(15.6)	(27.9)	(7.1)	(5.1)	(7.6)	(18.8)	(38.6)	(5.9)	(5.9)	(5.9)	(5.8)	(23.5)	(5.7)	(5.6)	(5.8)	(5.6)	(22.7)
Nonrecurring/noncash adjustments					0.0					0.0					0.0					0.0
<b>Net income (pro forma)</b>	<b>(3.4)</b>	<b>(4.1)</b>	<b>(4.8)</b>	<b>(15.6)</b>	<b>(27.9)</b>	<b>(7.1)</b>	<b>(5.1)</b>	<b>(7.6)</b>	<b>(18.8)</b>	<b>(38.6)</b>	<b>(5.9)</b>	<b>(5.9)</b>	<b>(5.9)</b>	<b>(5.8)</b>	<b>(23.5)</b>	<b>(5.7)</b>	<b>(5.6)</b>	<b>(5.8)</b>	<b>(5.6)</b>	<b>(22.7)</b>
EBITDA	(1.2)	(1.9)	(1.8)	(2.1)	(6.9)	(3.7)	(4.6)	(5.7)	(8.7)	(22.6)	(4.2)	(4.2)	(4.2)	(4.1)	(16.8)	(4.0)	(3.9)	(4.1)	(3.9)	(15.9)
Shares, Basic	28.7	29.1	29.2	29.2	29.2	29.2	29.2	33.9	56.0	56.0	60.5	60.8	61.1	61.4	61.0	61.5	61.8	62.1	62.4	62.0
Shares, Diluted	28.7	29.1	29.2	29.2	29.2	29.2	29.2	33.9	56.0	56.0	60.5	60.8	61.1	61.4	61.0	61.5	61.8	62.1	62.4	62.0
EPS Basic (pro forma)	(\$0.12)	(\$0.14)	(\$0.16)	(\$0.54)	(\$0.96)	(\$0.24)	(\$0.17)	(\$0.22)	(\$0.34)	(\$0.69)	(\$0.10)	(\$0.10)	(\$0.10)	(\$0.09)	(\$0.39)	(\$0.09)	(\$0.09)	(\$0.09)	(\$0.09)	(\$0.37)
EPS Diluted (pro forma)	(\$0.12)	(\$0.14)	(\$0.16)	(\$0.54)	(\$0.96)	(\$0.24)	(\$0.17)	(\$0.22)	(\$0.34)	(\$0.69)	(\$0.10)	(\$0.10)	(\$0.10)	(\$0.09)	(\$0.39)	(\$0.09)	(\$0.09)	(\$0.09)	(\$0.09)	(\$0.37)
<b>Margins</b>																				
Gross margin						63%	92%	34%	-1406%	55%	40%	40%	50%	50%	47%	60%	60%	60%	60%	60%
Salaries																				
Consulting																				
Research and development																				
General and administrative																				
Operating margin																				
Tax rate, GAAP																				
Net margin																				
<b>YY % change</b>																				
Total Revenue																				
Gross margin																				
Salaries	49%	279%	444%	383%	287%	355%	167%	98%	-49%	74%	-1%	-19%	-8%	117%	6%	9%	9%	17%	17%	13%
Consulting	298%	257%	6%	-81%	-36%	22%	12%	-2%	46%	19%	-19%	17%	1%	-15%	-6%	0%	0%	0%	0%	0%
Research and development	81%	69%	114%	37%	68%	64%	50%	107%	82%	76%	27%	53%	3%	-8%	14%	8%	8%	8%	8%	8%
General and administrative	72%	201%	-53%	-57%	-27%	371%	335%	335%	1100%	453%	120%	20%	-8%	-10%	15%	0%	0%	0%	0%	0%
Operating income (loss)	95%	372%	-45%	-23%	-1%	98%	11%	43%	294%	114%	-14%	19%	-16%	-69%	-37%	-4%	-5%	-3%	-4%	-4%
Net income (loss)	386%	131%	-59%	47%	13%	110%	24%	58%	20%	38%	-17%	15%	-22%	-69%	-39%	-4%	-4%	-3%	-4%	-4%
EPS Diluted (pro forma)	31%	-32%	-76%	42%	8%	107%	24%	36%	-37%	-28%	-60%	-45%	-57%	-72%	-44%	-6%	-6%	-4%	-5%	-5%

Source: Company reports and Ascendant Capital Markets estimates.

**Quantum Computing Inc.**

Balance Sheet (\$ mils)	Mar-21	Jun-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Fiscal Year End: December 31	Q1A	Q2A	Q3A	Q4A	Q1A	Q2A	Q3A	Q4A	Q1E	Q2E	Q3E	Q4E	Q1E	Q2E	Q3E	Q4E
<b>Assets</b>																
Cash and cash equivalents	13.8	12.6	10.4	16.7	11.5	6.7	10.4	5.3	6.8	1.6	(3.4)	(8.5)	(13.5)	(20.5)	(25.6)	(32.6)
Short term investments									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accounts receivable, net					0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inventory									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred income taxes									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prepaid expenses and other	0.3	0.2	0.6	0.5	1.7	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
<b>Total current assets</b>	<b>14.1</b>	<b>12.9</b>	<b>11.0</b>	<b>17.2</b>	<b>13.2</b>	<b>7.3</b>	<b>10.8</b>	<b>5.6</b>	<b>7.1</b>	<b>1.9</b>	<b>(3.1)</b>	<b>(8.2)</b>	<b>(13.3)</b>	<b>(20.3)</b>	<b>(25.4)</b>	<b>(32.3)</b>
Property and equipment, net	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.0	1.5	2.4	2.9	3.8	4.6	7.5	8.3	11.2
Intangibles, net						84.3	82.8	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3
Deferred income tax									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other					0.0	0.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
<b>Total assets</b>	<b>14.1</b>	<b>12.9</b>	<b>11.1</b>	<b>17.3</b>	<b>13.3</b>	<b>91.9</b>	<b>95.3</b>	<b>89.3</b>	<b>91.4</b>	<b>87.0</b>	<b>82.6</b>	<b>78.3</b>	<b>74.1</b>	<b>70.0</b>	<b>65.7</b>	<b>61.6</b>
<b>Liabilities and stockholders' equity</b>																
Accounts payable	0.2	0.6	0.5	0.5	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Accrued expenses	0.1	0.2	0.3	0.5	0.0	0.3	0.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Deferred revenue									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred income tax									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Warrant liabilities									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other		0.0	0.0	0.1	0.2	0.2	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Short term debt	0.2						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<b>Total current liabilities</b>	<b>0.6</b>	<b>0.8</b>	<b>0.8</b>	<b>1.1</b>	<b>1.0</b>	<b>1.3</b>	<b>3.6</b>	<b>6.5</b>	<b>6.5</b>	<b>6.5</b>	<b>6.5</b>	<b>6.5</b>	<b>6.5</b>	<b>6.5</b>	<b>6.5</b>	<b>6.5</b>
Deferred income taxes									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Warrant liabilities									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other long term liabilities							0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Deferred revenue									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long term debt							7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
<b>Total other liabilities</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>7.5</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>	<b>7.9</b>
Preferred stock				0.0	0.0	0.0	0.0	0.0								
Common stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0
Additional paid-in capital	70.4	73.1	76.1	97.6	100.8	184.2	185.4	194.9	194.9	194.9	194.9	194.9	194.9	194.9	194.9	194.9
Retained earnings	(56.9)	(61.0)	(65.8)	(81.4)	(88.5)	(93.6)	(101.2)	(120.0)	(125.9)	(131.8)	(137.7)	(143.5)	(149.2)	(154.8)	(160.6)	(166.2)
Accumulated other comprehensive income									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other									6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
<b>Total stockholders' equity</b>	<b>13.5</b>	<b>12.1</b>	<b>10.3</b>	<b>16.2</b>	<b>12.3</b>	<b>90.6</b>	<b>84.2</b>	<b>74.9</b>	<b>77.0</b>	<b>72.6</b>	<b>68.2</b>	<b>63.9</b>	<b>59.7</b>	<b>55.6</b>	<b>51.3</b>	<b>47.2</b>
<b>Total stockholders' equity and liabil</b>	<b>14.1</b>	<b>12.9</b>	<b>11.1</b>	<b>17.3</b>	<b>13.3</b>	<b>91.9</b>	<b>95.3</b>	<b>89.3</b>	<b>91.4</b>	<b>87.0</b>	<b>82.6</b>	<b>78.3</b>	<b>74.1</b>	<b>70.0</b>	<b>65.7</b>	<b>61.6</b>

**Balance Sheet Drivers**

	Mar-21	Jun-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
	Q1A	Q2A	Q3A	Q4A	Q1A	Q2A	Q3A	Q4A	Q1E	Q2E	Q3E	Q4E	Q1E	Q2E	Q3E	Q4E
Prepaid as % of total rev																
Accounts payable as % of total rev																
Accrued expenses as % of total rev																
<b>Activity Ratios</b>																
A/R Days Sales Outstanding																
<b>Book &amp; Cash Value (per share)</b>																
Book Value per Share (diluted)	\$0.47	\$0.42	\$0.35	\$0.56	\$0.42	\$3.10	\$2.48	\$1.34	\$1.27	\$1.19	\$1.12	\$1.04	\$0.97	\$0.90	\$0.83	\$0.76
Cash per Share (diluted)	\$0.48	\$0.43	\$0.36	\$0.57	\$0.39	\$0.23	\$0.31	\$0.09	\$0.11	\$0.03	-\$0.05	-\$0.14	-\$0.22	-\$0.33	-\$0.41	-\$0.52
Net cash per Share (diluted)	\$0.47	\$0.43	\$0.36	\$0.57	\$0.39	\$0.23	\$0.07	-\$0.05	-\$0.02	-\$0.11	-\$0.19	-\$0.27	-\$0.35	-\$0.46	-\$0.54	-\$0.65

Source: Company reports and Ascendant Capital Markets estimates

**Quantum Computing Inc.**

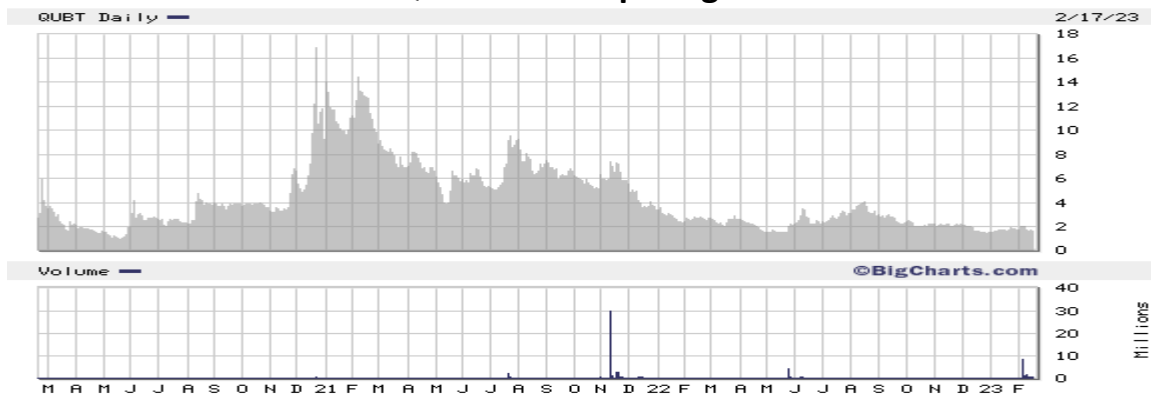
Cash Flow Statement (\$ mils)	Mar-21	Jun-21	Sep-21	Dec-21	2021	Mar-22	Jun-22	Sep-22	Dec-22	2022	Mar-23	Jun-23	Sep-23	Dec-23	2023	Mar-24	Jun-24	Sep-24	Dec-24	2024	
Fiscal Year End: December 31	Q1A	Q2A	Q3A	Q4A	FY-A	Q1A	Q2A	Q3A	Q4A	FY-A	Q1E	Q2E	Q3E	Q4E	FY-E	Q1E	Q2E	Q3E	Q4E	FY-E	
<b>Cash flow from operating activities</b>																					
Net income	(3.4)	(4.1)	(4.8)	(15.6)	(27.9)	(7.1)	(5.1)	(7.6)	(18.8)	(38.6)	(5.9)	(5.9)	(5.9)	(5.8)	(23.5)	(5.7)	(5.6)	(5.8)	(5.6)	(22.7)	
Depreciation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	
Amortization					0.0		0.2	1.5	1.5	3.2					0.0					0.0	
Debt related amortization expense					0.0				0.1	0.1					0.0					0.0	
Stock comp	2.2	2.5	3.0	2.5	10.2	3.0	0.2	1.2	9.5	13.9	1.5	1.5	1.5	1.5	6.0	1.5	1.5	1.5	1.5	6.0	
Deferred income taxes					0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Change in fair value of warrant liability				10.7	10.7					0.0					0.0					0.0	
Writedowns and impairments					0.0					0.0					0.0					0.0	
Other gains/losses					0.0					0.0					0.0					0.0	
Other				0.0	0.0	0.1	(0.1)	(0.0)	0.0	0.0					0.0					0.0	
Changes in operating assets and liabilities:																					
Accounts receivable					0.0	(0.0)	(0.1)	(0.0)	0.1	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Inventory					0.0					0.0					0.0					0.0	
Prepaid expenses & other curre	(0.3)	0.1	(0.4)	0.1	(0.4)	0.0	0.0	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Income tax					0.0					0.0					0.0					0.0	
Other assets					0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Accounts payable	(0.1)	0.3	(0.1)	0.0	0.1	0.3	(0.0)	0.1	(0.2)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Accrued expenses	0.0	0.1	0.1	0.3	0.5	(0.5)	0.3	0.4	3.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Deferred revenue					0.0					0.0					0.0					0.0	
Other liabilities					0.0		0.1	1.3	(1.4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Net cash (used in) provided by</b>	<b>(1.5)</b>	<b>(1.2)</b>	<b>(2.2)</b>	<b>(1.9)</b>	<b>(6.8)</b>	<b>(4.2)</b>	<b>(4.4)</b>	<b>(3.0)</b>	<b>(6.0)</b>	<b>(17.6)</b>	<b>(4.4)</b>	<b>(4.4)</b>	<b>(4.4)</b>	<b>(4.3)</b>	<b>(17.4)</b>	<b>(4.2)</b>	<b>(4.1)</b>	<b>(4.2)</b>	<b>(4.1)</b>	<b>(16.5)</b>	
<b>Cash flow from investing activities</b>																					
Purchases of property and equi	(0.0)		(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.2)	(0.6)	(0.9)	(0.6)	(0.9)	(0.6)	(0.9)	(2.9)	(0.9)	(2.9)	(0.9)	(2.9)	(7.6)	
Purchases of short-term investments					0.0					0.0					0.0					0.0	
Acquisitions					0.0		(84.6)	0.0	83.2	(1.4)					0.0					0.0	
Other		(0.0)		(0.0)	(0.0)	(1.2)	1.1	(1.3)	1.4	(0.0)					0.0					0.0	
<b>Net cash used in investing activ</b>	<b>(0.0)</b>	<b>(0.0)</b>	<b>(0.0)</b>	<b>(0.0)</b>	<b>(0.0)</b>	<b>(1.2)</b>	<b>(83.6)</b>	<b>(1.4)</b>	<b>84.0</b>	<b>(2.2)</b>	<b>(0.6)</b>	<b>(0.9)</b>	<b>(0.6)</b>	<b>(0.9)</b>	<b>(2.9)</b>	<b>(0.9)</b>	<b>(2.9)</b>	<b>(0.9)</b>	<b>(2.9)</b>	<b>(7.6)</b>	
<b>Cash flow from financing activities</b>																					
Issuance of debt					0.0			8.0	(0.0)	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Repayment of debt		(0.2)		0.0	(0.2)				0.0	0.0					0.0					0.0	
Issuance of stock	0.1	0.3	(0.0)	8.3	8.6	0.2	0.1		(0.0)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Proceeds from stock option exercises					0.0					0.0					0.0					0.0	
Other					0.0		83.1	0.0	(83.1)	0.0	6.5				6.5					0.0	
<b>Cash provided by (used in) fina</b>	<b>0.1</b>	<b>0.0</b>	<b>(0.0)</b>	<b>8.3</b>	<b>8.4</b>	<b>0.2</b>	<b>83.2</b>	<b>8.0</b>	<b>(83.1)</b>	<b>8.4</b>	<b>6.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>6.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	
Effect of exchange rate on cash					0.0					0.0					0.0					0.0	
<b>Net increase (decrease) in cash</b>	<b>(1.4)</b>	<b>(1.1)</b>	<b>(2.2)</b>	<b>6.3</b>	<b>1.5</b>	<b>(5.2)</b>	<b>(4.8)</b>	<b>3.6</b>	<b>(5.1)</b>	<b>(11.4)</b>	<b>1.5</b>	<b>(5.2)</b>	<b>(5.0)</b>	<b>(5.2)</b>	<b>(13.8)</b>	<b>(5.0)</b>	<b>(7.0)</b>	<b>(5.1)</b>	<b>(7.0)</b>	<b>(24.1)</b>	
<b>Beginning cash and equivalents</b>	<b>15.2</b>	<b>13.8</b>	<b>12.6</b>	<b>10.4</b>	<b>15.2</b>	<b>16.7</b>	<b>11.5</b>	<b>6.7</b>	<b>10.4</b>	<b>16.7</b>	<b>5.3</b>	<b>6.8</b>	<b>1.6</b>	<b>(3.4)</b>	<b>5.3</b>	<b>(8.5)</b>	<b>(13.5)</b>	<b>(20.5)</b>	<b>(25.6)</b>	<b>(8.5)</b>	
<b>Ending cash and equivalents</b>	<b>13.8</b>	<b>12.6</b>	<b>10.4</b>	<b>16.7</b>	<b>16.7</b>	<b>11.5</b>	<b>6.7</b>	<b>10.4</b>	<b>5.3</b>	<b>5.3</b>	<b>6.8</b>	<b>1.6</b>	<b>(3.4)</b>	<b>(8.5)</b>	<b>(8.5)</b>	<b>(13.5)</b>	<b>(20.5)</b>	<b>(25.6)</b>	<b>(32.6)</b>	<b>(32.6)</b>	

Source: Company reports and Ascendant Capital Markets estimates

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## Quantum Computing Inc.



Source: <https://bigcharts.marketwatch.com/>

	Report Date		Price
Report	Date	Rating	Target
1	11/1/2021	Buy	11.00
2	11/14/2021	Buy	11.50
3	3/16/2022	Buy	10.00
4	6/4/2022	Buy	9.00
5	8/22/2022	Buy	9.50
6	11/16/2022	Buy	9.00

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**BUY:** We expect the stock to provide a total return of 15% or more within a 12-month period.

**HOLD:** We expect the stock to provide a total return of negative 15% to positive 15% within a 12-month period.

**SELL:** We expect the stock to have a negative total return of more than 15% within a 12-month period.

Total return is defined as price appreciation plus dividend yield.

### Ascendant Capital Markets, LLC Distribution of Investment Ratings (as of January 15, 2023)

Rating	Count	Percent	Investment Banking Services Past 12 months	
			Count	Percent
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Hold	0	0%	0	0%
Sell	1	2%	0	0%
Total	45	100%	18	40%

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