

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM S-1  
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

QUANTUM COMPUTING INC.  
(Exact name of registrant as specified in its charter)

<b>Delaware</b> (State or Other Jurisdiction of Incorporation or Organization)	<b>3571</b> (Primary Standard Industrial Classification Code Number)	<b>82-4533053</b> (I.R.S. Employer Identification Number)
<p><b>5 Marine View Plaza, Suite 214</b> <b>Hoboken, NJ 07030</b> <b>(703) 436-2161</b> (Address, including zip code, and telephone number including area code, of Registrant's principal executive offices)</p> <p><b>Dr. William McGann, Chief Executive Officer</b> Quantum Computing Inc. <b>5 Marine View Plaza, Suite 214</b> <b>Hoboken, NJ 07030</b> <b>(703) 436-2161</b> (Name, address, including zip code, and telephone number including area code, of agent for service)</p> <p><b>With copies to:</b></p> <p><b>Joseph M. Lacosky, Esq.</b> Lawrence Metelitsa, Esq. Lacosky Brookman LLP <b>101 Wood Avenue South, 5<sup>th</sup> Floor</b> Woodbridge, NJ 08830 Tel. No.: (732) 395-4400 Fax No.: (732) 395-4401</p>		

**Approximate date of commencement of proposed sale to the public:** From time to time after this Registration Statement is declared effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer   
Non-accelerated filer

Accelerated filer   
Smaller reporting company   
Emerging growth company

If an emerging growth company, indicate by checkmark if the registrant has not elected to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act or until the registration statement shall become effective on such date as the Commission, acting pursuant to said section 8(a), may determine.**

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS

SUBJECT TO COMPLETION

DATED DECEMBER 20, 2024

Quantum Computing Inc.

8,960,000 Shares of Common Stock

This prospectus relates to the offering and resale by the Selling Stockholder identified herein of up to 8,960,000 shares of common stock, \$0.0001 par value ("Common Stock") of Quantum Computing Inc. (the "Company"), which consists of (i) 8,460,000 shares of Common Stock (the "PIPE Shares") issued to the investors (the "Investors") of the PIPE (as defined herein), pursuant to those certain Securities Purchase Agreements (the "Purchase Agreements"), dated December 10, 2024, and (ii) 500,000 shares of Common Stock (the "Placement Agent Warrant Shares") issuable upon exercise of the Placement Agent Warrants (as defined herein), issued to Titan Partners Group LLC, a division of American Capital Partners, LLC (the "Placement Agent," and together with the Investors, the "Selling Stockholders").

The Selling Stockholders may from time to time sell, transfer or otherwise dispose of any or all of the securities in a number of different ways and at varying prices. See "Plan of Distribution" beginning on page 35 of this prospectus for more information.

We are not selling any shares of Common Stock in this offering, and we will not receive any proceeds from the sale of shares by the Selling Stockholders. We will, however, receive up to approximately \$2.9 million in gross proceeds if the Placement Agent Warrants are exercised in full.

Our Common Stock is currently quoted on the Nasdaq Capital Market under the symbol "QUBT." On December 19, 2024, the closing price as reported on the Nasdaq was \$15.14 per share.

The Selling Stockholders may offer all or part of the shares for resale from time to time through public or private transactions, at either prevailing market prices or at privately negotiated prices.

This prospectus provides a general description of the securities being offered. You should this prospectus and the registration statement of which it forms a part before you invest in any securities.

**Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 7 of this prospectus for a discussion of information that should be considered in connection with an investment in our securities.**

**You should rely only on the information contained in this prospectus or any prospectus supplement or amendment hereto. We have not authorized anyone to provide you with different information.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.**

The date of this prospectus is December [●], 2024.

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*You may only rely on the information contained in this prospectus or that we have referred you to. We have not authorized anyone to provide you with different information. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities other than the Common Stock offered by this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any Common Stock in any circumstances in which such offer or solicitation is unlawful. Neither the delivery of this prospectus nor any sale made in connection with this prospectus shall, under any circumstances, create any implication that there has been no change in our affairs since the date of this prospectus is correct as of any time after its date.*

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## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. Forward-looking statements give our current expectations or forecasts of future events. You can identify these statements by the fact that they do not relate strictly to historical or current facts. Forward-looking statements involve risks and uncertainties and include statements regarding, among other things, our projected revenue growth and profitability, our growth strategies and opportunity, anticipated trends in our market and our anticipated needs for working capital. They are generally identifiable by use of the words "may," "will," "should," "anticipate," "estimate," "plans," "potential," "projects," "continuing," "ongoing," "expects," "management believes," "we believe," "we intend" or the negative of these words or other variations on these words or comparable terminology. These statements may be found under the sections entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business," as well as in this prospectus generally. In particular, these include statements relating to future actions, prospective products, market acceptance, future performance or results of current and anticipated products, sales efforts, expenses, and the outcome of contingencies such as legal proceedings and financial results.

Examples of forward-looking statements in this prospectus include, but are not limited to, our expectations regarding our business strategy, business prospects, operating results, operating expenses, working capital, liquidity and capital expenditure requirements. Important assumptions relating to the forward-looking statements include, among others, assumptions regarding demand for our products, the cost, terms and availability of components, pricing levels, the timing and cost of capital expenditures, competitive conditions and general economic conditions. These statements are based on our management's expectations, beliefs and assumptions concerning future events affecting us, which in turn are based on currently available information. These assumptions could prove inaccurate. Although we believe that the estimates and projections reflected in the forward-looking statements are reasonable, our expectations may prove to be incorrect.

Important factors that could cause actual results to differ materially from the results and events anticipated or implied by such forward-looking statements include, but are not limited to:

- changes in the market acceptance of our products;
- increased levels of competition;
- changes in political, economic or regulatory conditions generally and in the markets in which we operate;
- our relationships with our key customers;
- our ability to retain and attract senior management and other key employees;
- our ability to quickly and effectively respond to new technological developments;
- our ability to protect our trade secrets or other proprietary rights, operate without infringing upon the proprietary rights of others and prevent others from infringing on the proprietary rights of the Company; and
- other risks, including those described in the "Risk Factors" discussion of this prospectus.

We operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for us to predict all of those risks, nor can we assess the impact of all of those risks on our business or the extent to which any factor may cause actual results to differ materially from those contained in any forward-looking statement. The forward-looking statements in this prospectus are based on assumptions management believes are reasonable. However, due to the uncertainties associated with forward-looking statements, you should not place undue reliance on any forward-looking statements. Further, forward-looking statements speak only as of the date they are made, and unless required by law, we expressly disclaim any obligation or undertaking to publicly update any of them in light of new information, future events, or otherwise.

## PROSPECTUS SUMMARY

*This summary highlights selected information appearing elsewhere in this prospectus. While this summary highlights what we consider to be important information about us, you should carefully read this entire prospectus before investing in our Common Stock and warrants, especially the risks and other information we discuss under the headings "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operation" and our consolidated financial statements and related notes incorporated by reference herein. Our fiscal year end is December 31 and our fiscal years ended December 31, 2022 and 2023 are sometimes referred to herein as fiscal years 2022 and 2023, respectively. Some of the statements made in this prospectus discuss future events and developments, including our future strategy and our ability to generate revenue, income and cash flow. These forward-looking statements involve risks and uncertainties which could cause actual results to differ materially from those contemplated in these forward-looking statements. See "Cautionary Note Regarding Forward-Looking Statements". Unless otherwise indicated or the context requires otherwise, the words "we," "us," "our", the "Company," "our Company," "QCI" and "QUBT," refer to Quantum Computing Inc., a Delaware corporation, and unless the context indicates otherwise, also includes our wholly-owned subsidiaries.*

### The Computing Landscape and The End of Moore's Law

For the past 45 years or so, silicon-based processor manufacturers have been able to double their processing power every 18 to 24 months, a phenomenon known in the computer industry as "Moore's Law." Recently, the computer processor industry has found it increasingly difficult to offer faster, more powerful processors due to fundamental physical effects limiting further size reduction of transistors.

Additionally, conventional computers are known to struggle with optimization problems known as *NP-complete* problems, which are a class of mathematical problems that can, in principle, be solved by conventional computers, with that caveat that the time to solution will grow exponentially with the size of the problem. These *NP-complete* problems require complex calculations that cannot currently be performed within any reasonable amount of time using conventional computer systems for problem sizes relevant to many industrial and government applications. Published academic research indicates that quantum computers may be ideally suited to solve optimization problems of this type.

Some computer science experts believe that quantum computing will be a potential solution to the hard limits now being approached by conventional computers that utilize silicon-based processors. While the date of practical relevance of quantum computers is hard to determine, we believe that quantum availability has already begun and that quantum computers with gradually increasing performance will be introduced by multiple vendors over the course of the next decade.

### The Company

Quantum Computing Inc. ("QCI" or the "Company") is an American company utilizing non-linear quantum optics (optical devices whose output due to quantum effects is exponentially, not linearly, related to inputs) to deliver quantum products for high-performance computing applications. QCI's products are designed to operate at room temperature and use low power. Our core technology enables the execution of a go-to-market strategy that emphasizes accessibility and affordability as the key selling points.

QCI was founded in 2018 and our initial business was developing platform agnostic enterprise software for quantum computing systems. In June 2022, QCI acquired its wholly-owned subsidiary QPhoton, Inc. (subsequently renamed QPhoton, LLC) ("QPhoton"), a photonics hardware company (the "QPhoton Merger"). That merger enables QCI to now offer high-performance quantum systems integrated with the Company's software platform, Qatalyst, that existed before the QPhoton Merger.

QCI's core technology is Entropy Quantum Computing ("EQC"). EQC is a patent pending methodology that utilizes the environment to drive controlled energy loss in a photonic architecture. Using quantum measurements of single photons as a source of feedback, the energy loss of the system is driven to a "ground state solution" where additional computational iterations no longer change the output. The ground state solution is the optimized result (the answer to the problem posed). This methodology allows for very low power consumption and room temperature operation. Also, due to the nature of the measurement and feedback process, EQC drives non-linear quantum interactions for "dense, fully connected" problem solving. We

anticipate that our core technologies will enable us to develop and produce multiple generations of quantum machines with increasing computational power, capacity, and speed, as well as the eventual hardware miniaturization to produce optical integrated circuits to replace the discrete components currently used. We expect these systems to deliver performance advantages over classical computational machines with the long-term goal of solving complex problems more effectively and efficiently with greater scalability, lower power consumption, and lower cost.

In addition to our photonic computing platform, we have leveraged QCi's core technology to demonstrate powerful quantum sensing use cases in LIDAR (Light Detection and Ranging), reservoir computing (a form of neural network that can be used in machine learning applications) and quantum cyber authentication (a method for highly secure communication within a network). Several of these important technologies are already in early stages of commercialization.

Our longer-term product development plan is to migrate product designs based on discrete components to a set of optical integrated circuits built on wafers using a crystalline material called lithium niobate ("Thin Film Lithium Niobate" or "TFLN"). The Company believes that TFLN is an excellent material for design and implementation of optical integrated circuits suitable for our quantum computing and sensing products because it is crystal based and hence can have optical waveguides directly etched into the material. QCi possesses strong domain experience and intellectual property in TFLN design and chip fabrication and has completed initial production of several specialty devices such as electro-optical modulators ("EOM's"). The Company has begun buildout of a state-of-the-art TFLN chip manufacturing facility in a leased space within Arizona State University's Research Park in Tempe, Arizona. The Company's understanding is that this could be the nation's first dedicated optical integrated circuit manufacturing facility using TFLN wafers to achieve quantum effects. Our plan for the facility is to produce a range of custom lithium niobate chips for use in our own product lines as well as chips for sale in the commercial market. The Company has plans to support this initiative by applying for funding for distinct uses under both the Title 17 Clean Energy Financing Program managed by the US Department of Energy's Loan Programs Office and also the Creating Helpful Incentives to Produce Semiconductors Act of 2022 (the "CHIPS Act"), which allocates \$52 billion for the revitalization and onshoring of semiconductor manufacturing in the U.S. The CHIPS Act funding specifically includes \$39 billion in manufacturing incentives and \$13 billion to support new research and development.

The recent market report published by *Market Research Reports: Document ID: LPI08232779; Published August 8, 2023 "Thin Film Lithium Niobate Market Forecast 2023 - 2029,"* indicates a significant underlying market growth for TFLN devices. The study covers use applications and segments that suggest the global TFLN EOM market, valued at \$190.4 million in 2022, is forecast to grow to an estimated \$1,931.3 million by 2029 - a compound annual growth rate of 39 percent. The report further describes that the demand increase is principally driven by the material advantages that were summarized above. Specifically, TFLN EOM's have the advantages of large bandwidth, low power consumption, and small size.

Additionally, Mordor Intelligence published a market report, "Photonic Integrated Circuit Market Size & Share Analysis - Growth Trends & Forecasts (2024 - 2029)", Source: <https://www.mordorintelligence.com/industry-reports/hybrid-photonic-integrated-circuit-market>, forecasting that the Photonic Integrated Circuit (PIC) market is currently valued at \$15.1 billion, and will grow at a CAGR of 20.5% to \$38.4 billion in 2029. This illustrated significant anticipated demand for QCi's products and services.

## Our Strategy

QCi's strategy is to provide a range of accessible and affordable quantum machines to commercial and government markets. Our proprietary technology is central to our strategy because we believe that it enables us to leverage the advantages of size, weight, power and cost (over competing cryogenic products to drive market adoption and volume of sales).

In addition to cloud-based access to our quantum computers, we offer on premises installation of our EQC product, rack-mountable and compatible with standard server room infrastructure requiring no need for special cooling, shielding, or power considerations. The Company believes the EQC's small rack-mountable size and low-energy consumption provides a substantial competitive edge as compared to superconducting, cryogenic quantum systems offered by competitors that are also designed to solve optimization problems.

We believe that the practical benefits to the customer of QCi's core offerings are:

- Powerful performance in speed and quality of solution for large complex optimization problems
- Plug and play compatibility with existing IT infrastructure
- Low power consumption - normal operation under 80 watts
- Scalability with potential for migration to nanophotonic system-on-a-chip designs
- High precision for sensing applications

## Market Opportunity

Despite enormous growth in the capabilities of conventional computers and silicon microprocessors, some of the world's most important computational problems are still considered impractical to solve in a reasonable period of time. Quantum computing represents a potential alternative approach to solving those problems because quantum computers apply the properties of quantum physics to operate in a fundamentally different way. Conventional computer chips use binary bits (ones and zeros) to represent information. Quantum computers utilize qubits (quantum bits), which leverage some of the properties of quantum physics, namely superposition and entanglement, to process computations that would be intractably difficult using conventional computers.

While quantum-based computers will not replace conventional computers in most applications, they are ideally suited to run optimization algorithms, as well as to calculate certain sensing, imaging, and cybersecurity problems that are beyond the reach of general silicon-based computing today. The Company believes that quantum solutions have the potential to bring order of magnitude advances in the fields of medicine, engineering, autonomous vehicles, and cybersecurity and that the demand for quantum computing in these market sectors will likely outpace and outperform the general-purpose computing market in the near- to mid-term and into the foreseeable future.

Our core technology offers practical, cost-effective solutions that materially advance the adoption of quantum machines across several market segments including:

1. Quantum Computing
2. Quantum Intelligence (Artificial Intelligence and Machine Learning)

3. Remote Sensing
4. Imaging
5. Cybersecurity

#### **Products and Products in Development**

The Company believes it is well-positioned in the marketplace due to the Company's core technology in integrated photonics that allows QCi to offer a suite of quantum machines and solutions to the market today with a robust technology roadmap for the future. The merger with QPhoton has broadened the Company's technology portfolio and enables us to develop a group of closely related products to EQC, based on our common core photonic technology.

#### **TFLN Optical Chips**

We believe that TFLN optical integrated circuits ("TFLN Optical Chips") will ultimately provide the greatest scalability and performance advantages for quantum information processing, sensing and imaging. The Company is developing proprietary chip designs and is completing a dedicated chip fabrication facility to develop and produce TFLN Optical Chips for quantum information processing and other single photon detection and sensing applications.

#### **Quantum Computing**

##### *Entropy Quantum Computer*

The core of QCi's hardware offering is the EQC, which leverages the principle of open quantum systems, meaning that the EQC does not need to be isolated from the outside world in order to function. The EQC differs from the more common gate-model architectures by using the entropy in the environment as a useful source of energy rather than isolating from the entropy as a source of noise. As a result, the EQC can operate in normal server room environments with a high degree of stability. The EQC works by encoding a problem into a photonic signal and then carefully modulating the loss of energy in the system, iterating until the system reaches the ground state (or optimal configuration) solution. The non-linear coupling of an optical feedback loop in the system enables full connectivity among all of the variables of a complex problem.

QCi launched a new EQC device during the first quarter of 2024 (Dirac-3) and plans to release a series of additional EQC products in the coming months and years. This planned evolution of technology and product enhancements will involve improving the size and capacity of the EQC machines, as well as speed, scalability and performance fidelity. The EQC is available both as a cloud-based subscription service, similar to other quantum machines, as well as an affordable on premises solution.

##### *Qatalyst*

QCi's evolution into quantum hardware computing was enabled by the prior creation of its Qatalyst software. The Qatalyst development platform was QCi's answer to the broader industry's current approach to quantum software development, which relies on highly trained scientists working with software development kits ("SDKs") at the circuit level, instead of a high-level language. Using an SDK requires deep level quantum expertise to create quantum workflows. Qatalyst is not a tool kit, rather, a complete platform. Qatalyst enables developers to create and execute quantum-ready applications on conventional computers as well as multiple quantum computers. Users can call upon the same Qatalyst APIs (Application Programming Interfaces) on conventional computers to achieve optimization performance advantages using our cloud-based solution. We originally designed Qatalyst to facilitate access to multiple quantum processing units including Rigetti, Oxford Quantum Circuits and IonQ, QuEra, and Xanadu via the Amazon Web Services ("AWS") cloud-based Braket service. Qatalyst is now the interface to QCi's own EQC systems.

#### **Quantum Intelligence (Artificial Intelligence and Machine Learning)**

##### *Reservoir Computer*

Launched in June 2023, our first reservoir computing product is an edge device that is FPGA-based and optimized for recurrent neural network applications. "Compute at the edge" means to process, measure and analyze data locally (at the device) vs. over a network where data must be sent over the internet or through some cloud service. QCi's Reservoir Computer ("RC") is a standalone box that can be plugged into a local computer or server without having to connect over the internet. The RC hardware system's advantages over the more traditional software approaches to reservoir computing include significantly faster processing speeds, 80% - 95% less energy consumption, portability (size of power bank), affordability, and requiring significantly shorter training time for models. The RC delivers superior performance in time dependent tasks, such as chaotic time series prediction, unstructured financial model prediction, natural language processing and weather forecasting. Being deployed as a "compute at the edge" device, which provides the advantage of allowing data analysis to occur at the data collection point, thereby reducing latency and dependency on network connections and providing more real-time processing of data. To date, the market for reservoir computing has been limited due to computing cost and technical implementation complexities, which the RC is designed to address. We anticipate that future generations of the RC will introduce greater speed of performance and scalability. This will enable the RC to participate in the large language model training and other applications. While technology challenges do remain in scaling this technology, this is one of the focus areas for QCi to gain significant share in the artificial intelligence / Machine Learning hardware market.

#### **Remote Sensing**

##### *LiDAR Applications*

QCi's Quantum LiDAR uses patented methodologies that leverage the selective use of quantum spatial-temporal modes to maximize the signal-to-noise ratio of weak signals in a high noise background. This technology advancement allows QCi systems to see through dense fog and provide image fidelity at great distances with very high resolution in difficult environments such as snow, ice, and water. The practical benefits on payload and signal to noise enhancement can be used to produce LiDAR systems that are greatly enhanced in their ability to measure at improved resolution and distances from aircraft, drones and even satellites.

## *Quantum Photonic Vibrometer*

Launched July 2023, QCi's Photonic Vibrometer is a proprietary, instrument for remote vibration detection, sensing, and inspection. This device offers advanced sensitivity, speed, and resolution, capable of discerning for the first time, highly obscured and non-line-of-sight objects. The Photonic Vibrometer measures the vibration frequency of a remote target by utilizing fast-gated single photon counting to directly detect returning photons whose wavefunctions are dynamically modulated as they are reflected off the target. By counting photons at a megahertz rate, important properties such as material composition and mechanical integrity can be determined within seconds and, depending on detection distance, with microwatt to milliwatt optical power. Working at an eye-safe wavelength, the system can accurately characterize the vibration spectra of solid or liquid targets with vibration amplitude as small as 100 nanometers. The Photonic Vibrometer can also remotely sense through obscured media or around corners where there is no line of sight, implying new capabilities in remote sensing, voice recognition, and ex vivo diagnostics.

We expect subsequent photonic vibrometer versions, which are currently under development, to reach significantly greater distances, minimize device footprint and weight, and optimize data gathering in increasingly challenging environmental conditions (for example, underground, underwater and at high altitudes affixed to a drone, plane or space-based platforms).

## **Imaging**

### *Optical Imaging*

By leveraging the ability to count single photons, a key to the EQC, and filter their associated wave functions precisely, we can perform optical imaging through otherwise opaque and dense materials. Quantum imaging has the potential to be a powerful supplement to currently available computerized tomography (CAT Scan) imaging applications, where tissue damage from high energy radiation needs to be avoided. We have built and are currently testing a prototype quantum imaging system.

## **Cybersecurity**

### *Quantum Networks and Quantum Authentication*

QCi has developed a system to address one of the major challenges in cybersecurity, authentication of users on a network, which is currently facilitated by the distribution of "private keys" by a trusted third party. This approach is inherently insecure as keys are bundled and travel with the encrypted data, making it susceptible to harvest-and-decrypt-later vulnerability. QCi has developed a quantum authentication technology and methodology that eliminates the need for trust of third-party involvement in key distribution. Our approach uses a combination of a high-powered laser and a patented detection methodology deeply rooted in the fundamental principles of quantum mechanics, resulting in what we believe will be an unbreakable basis for private network communication.

## **Recent Developments**

### *December 2024 Offerings*

On December 10, 2024, the Company entered into securities purchase agreements with institutional investors for the purchase and sale of 1,540,000 shares of common stock at a purchase price of \$5.00 per share, pursuant to a registered direct offering (the "RDO").

In a concurrent private placement, on the same day, the Company entered into the Purchase Agreements for the purchase and sale of an additional 8,460,000 shares of its common stock at the same price (the "PIPE," and together with the RDO, the "Offerings").

The Offerings closed on December 12, 2024, and the Company received aggregate gross proceeds of \$50 million from the Offerings.

The Company also entered into a Placement Agency Agreement with the Placement Agent, dated December 10, 2024, pursuant to which the Placement Agent acted as the exclusive placement agent for the Company in connection with the Offerings. The Company paid the Placement Agent a cash fee of 7% of the gross proceeds from the Offerings and to issue to the Placement Agent (or its designees) 500,000 five-year warrants (representing 5% of the securities sold in the Offerings), which will be exercisable beginning on June 8, 2025, and have an initial exercise price per share of Common Stock of \$5.75 (the "Placement Agent Warrants"). In addition, the Company agreed to reimburse the Placement Agent for up to \$100,000 of its fees and expenses in connection with the Offerings.

### *November 2024 Registered Direct Offering*

On November 18, 2024, the Company closed a registered direct offering of an aggregate of 16,000,000 shares of the Common Stock, at a purchase price of \$2.50 per share, resulting in gross proceeds of \$40 million, before deducting placement agent commissions and other offering expenses. In connection with the registered direct offering, on November 18, 2024, the Company filed with the SEC a prospectus supplement to the base prospectus included in the Company's Registration Statement on Form S-3 (File No. 333-268064), originally filed with the SEC on October 28, 2022.

## **THE OFFERING**

This prospectus relates to the offer and sale from time to time of up to 8,960,000 shares of Common Stock by the Selling Stockholders.

<b>Common Stock offered by the Selling Stockholders:</b>	8,960,000 shares of Common Stock.
<b>Common Stock outstanding prior to this offering (1)</b>	128,962,498 shares of Common Stock (inclusive of the PIPE Shares)
<b>Common stock to be outstanding after the offering (1)</b>	129,462,498 shares of Common Stock, assuming the Placement Agent exercises the Placement Agent Warrants.
<b>Use of proceeds</b>	We will not receive any proceeds from the sale of common stock by the Selling Stockholders. All of the net proceeds from the sale of our common stock will go to the Selling Stockholders as described below in the sections entitled "Selling Stockholders" and "Plan of Distribution". We have agreed to bear the expenses relating to the registration of the common stock for the Selling Stockholders.  We will receive up to approximately \$2.9 million in gross proceeds if the Placement Agent Warrants are exercised in full.

<b>Risk factors</b>	Investing in our securities is highly speculative and involves a high degree of risk. You should carefully consider the information set forth in the "Risk Factors" section beginning on page 7 before deciding to invest in our securities.
<b>Trading symbol</b>	Our common stock is currently quoted on the Nasdaq Capital Market under the trading symbol "QUBT".
	<p>(1) The number of shares of our Common Stock outstanding prior to and to be outstanding immediately after this offering, as set forth in the table above, is based on 128,962,498 shares outstanding as of December 19, 2024, assumes no exercise of the Placement Agent Warrants prior to this offering and excludes:</p> <ul style="list-style-type: none"> <li>• 12,949,449 shares of our common stock issuable upon the exercise of stock options outstanding as of December 19, 2024, at a weighted average exercise price of \$2.34 per share; and</li> <li>• 3,498,833 shares of our common stock issuable upon exercise of warrants outstanding as of December 19, 2024, at a weighted average exercise price of \$1.49 per share.</li> </ul>

## RISK FACTORS

*Investing in our securities involves a great deal of risk. Careful consideration should be made of the following factors as well as other information included in this prospectus before deciding to purchase our securities. There are many risks that affect our business and results of operations, some of which are beyond our control. Our business, financial condition or operating results could be materially harmed by any of these risks. This could cause the trading price of our securities to decline, and you may lose all or part of your investment. Additional risks that we do not yet know of or that we currently think are immaterial may also affect our business and results of operations.*

### Risks Related to Our Financial Condition and Status as an Early-Stage Company

***We are in our early stages and have a limited operating history, which makes it difficult to forecast the future results of our operations.***

QCi was formed in 2018 and merged with QPhoton in June 2022. As a result of our limited operating history, our ability to accurately forecast our future results of operations is limited and subject to a number of uncertainties, including our ability to plan for and model future growth. Our ability to generate revenues will largely be dependent on our ability to develop and produce a suite of products based on quantum photonic technologies, with steadily increasing capabilities. Our technical roadmap may not be realized as quickly as hoped, or even at all. As a result, our historical results should not be considered indicative of our future performance. Further, in future periods, our growth could slow or decline for a number of reasons, including but not limited to slowing demand for our quantum products and services, increased competition, changes to technology, our inability to scale up our technology, a decrease in the growth of the market, or our failure, for any reason, to continue to take advantage of growth opportunities. Furthermore, the accompanying consolidated financial statements have been prepared assuming that we will continue as a going concern. We have not emerged from the development stage and may be unable to raise further equity. These factors raise substantial doubt about our ability to continue as a going concern. Our financial statements do not include any adjustments that might result from the outcome of this uncertainty.

We have also encountered, and will continue to encounter, risks and uncertainties frequently experienced by growing companies in rapidly changing industries. If our assumptions regarding these risks and uncertainties and our future growth are incorrect or change, or if we do not address these risks successfully, our operating and financial results could differ materially from our expectations, and our business could suffer. Our success as a business ultimately relies upon fundamental research and development breakthroughs in the coming years. There is no certainty these research and development milestones will be achieved as quickly as hoped, or even at all.

***We have a history of operating losses and expect to incur significant expenses and continuing losses for the foreseeable future.***

We incurred net losses each year since 2018 and we believe that we will continue to incur operating and net losses each quarter until at least the time we begin generating significant revenue from our products and services, which may never occur. Even with significant production, we may never become profitable from the sale of our products and services.

We expect to incur significantly higher losses in future periods as we continue to incur significant expenses in connection with the design, development and manufacturing of our quantum computers and other products and services, and as we expand our research and development activities, invest in manufacturing capabilities, build up inventories of components for our quantum computers and other products, increase our sales and marketing activities, develop our infrastructure, and increase our general and administrative functions to support our growing operations. We may find that these efforts are more expensive than we currently anticipate or that these efforts may not result in revenues, which would further increase our losses. If we are unable to achieve and/or sustain profitability, or if we are unable to achieve the growth that we expect from these investments, it could have a material adverse effect on our business, financial condition or results of operations. Our business model is unproven and may never allow us to cover our costs.

***We have a history of accumulated deficits, recurring losses and negative cash flows from operating activities. We may be unable to achieve or sustain profitability or remain a going concern.***

We are an early-stage company and we have not generated any material revenues to offset our operating expenses. If we are unable to generate significant revenues in future periods, we will not be able to achieve profitability, and if we should achieve, to maintain profitability. Beyond this, we may incur significant losses in the future for a number of reasons including other risks described in this document, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown events. Accordingly, we may not ever achieve profitability. We incurred negative cash flows from operating activities and recurring net losses in fiscal years 2023 and 2022. As of December 31, 2023, and 2022, our accumulated deficit was \$131.9 million and \$104.1 million, respectively. These factors, among others, raised substantial doubt about our ability to continue as a going concern.

***We may not be able to scale our business quickly enough to meet customer and market demand, which could result in lower profitability or cause us to fail to execute on our business strategies.***

In order to grow our business, we will need to continually evolve and scale our business and operations to meet customer and market demand. However, commercial demand for quantum computing products and services may never develop. There are significant technological challenges associated with

developing, producing, marketing and selling products and services in the high-performance computing industry, including our products and services, and we may not be able to resolve all of the difficulties that may arise in a timely or cost-effective manner, or at all. We may not be able to cost effectively manage production at a scale or quality consistent with customer demand in a timely or economical manner.

Our ability to scale is dependent also upon components that we must source from multiple countries, including China. Shortages or supply interruptions in any of these components will adversely impact our ability to generate revenues. Deterioration in the political relationship between the U.S. and China result in loss of access to suppliers of key components with little or no warning, which would adversely affect our ability to develop and manufacture our products. We are actively searching for alternative suppliers outside of China, but there is no assurance that we can locate comparable components at reasonable prices within the desired timeframes.

If large-scale development of our quantum computers other products commences, they may contain defects in design and manufacture that may cause them to not perform as expected or that may require repair and design changes. Our quantum computers are inherently complex and incorporate technology and components that may have not been used for computing products and that may contain defects and errors, particularly when first introduced. We have a limited frame of reference from which to evaluate the long-term performance of our computers. There can be no assurance that we will be able to detect and fix any defects in our quantum computers in a timely manner that does not disrupt our services to our customers. If our technology fails to perform as expected, customers may seek out a competitor or turn away from quantum computing entirely, each of which could adversely affect our sales and brand and could adversely affect our business, prospects and results of operations. If defects in our technology lead to erroneous outputs, third parties relying on those outputs may draw from them erroneous conclusions, creating a risk that we will be liable to those third parties.

If we cannot evolve and scale our business and operations effectively, we may not be able to execute our business strategies in a cost-effective manner and our business, financial condition, profitability and results of operations could be adversely affected.

***Even if the market in which we compete achieves its anticipated growth levels, our business could fail to grow at similar rates, if at all.***

Our success will depend upon our ability to expand, scale our operations, and increase our sales and support capability. Even if the market in which we compete meets the size estimates and growth forecasted, our business could fail to grow at similar rates, if at all.

Our growth is dependent upon our ability to successfully expand our products and services, retain customers, bring in new customers and retain critical talent. Unforeseen issues associated with scaling up and constructing quantum computing technology at commercially viable levels could negatively impact our business, financial condition and results of operations.

Our growth is dependent upon our ability to successfully market and sell our quantum computers and quantum computing products and services. We do not have experience with the large-scale production and sale of quantum computing technology. Our growth and long-term success will depend upon the development of our sales and production capabilities.

Moreover, because of our advanced technology, our customers will require particular support and service functions, some of which are not currently available and may never be available. If we experience delays in adding such support capacity or servicing our customers efficiently, or experience unforeseen issues with the reliability of our technology, we could overburden our servicing and support capabilities. Similarly, increasing the number of our products and services would require us to rapidly increase the availability of these services. Failure to adequately support and service our customers may inhibit our growth and ability to expand.

There is no assurance that we will be able to ramp our business to meet our sales, manufacturing, installation, servicing and quantum computing targets, that expected growth levels will prove accurate or that the pace of growth will continue at the current rate. Failure of QCi to grow at rates similar to that of the broader quantum computing industry may adversely affect our operating results and ability to effectively compete within the industry.

***We may not manage growth effectively.***

Our failure to manage growth effectively could harm our business, results of operations and financial condition. We anticipate that a period of significant expansion will be required to address potential growth. This expansion will place a significant strain on our management, operational and financial resources. Expansion will require significant cash investments and management resources and there is no guarantee that they will generate additional sales of our products or services, or that we will be able to avoid cost overruns or be able to hire additional personnel to support us. In addition, we will also need to ensure our compliance with regulatory requirements in various jurisdictions applicable to the sale, installation and servicing of our products. To manage the growth of our operations and personnel, we must establish and maintain appropriate and scalable operational and financial systems, procedures and controls and a qualified finance, administrative and operations staff. We may be unable to acquire the necessary capabilities and personnel required to manage growth or to identify, manage and exploit potential strategic relationships and market opportunities.

***We will require a significant amount of cash for expenditures as we invest in ongoing research and development and business operations and may need additional capital sooner than planned to pursue our business objectives and respond to business opportunities, challenges or unforeseen circumstances, and we cannot be sure that additional financing will be available. If we are unable to raise additional funding when needed, we may be required to delay, limit or substantially reduce our development efforts.***

Our business and future plans for expansion are capital-intensive, and we will require additional capital for equipment and facilities for hardware manufacturing and optical chip fabrication. The specific timing of cash inflows and outflows may fluctuate substantially from period to period. We will require a significant amount of cash for expenditures as we invest in ongoing research and development and business operations. Our operating plan may change because of factors currently unknown, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings or other sources. Such financings may result in dilution to stockholders, issuance of securities with priority as to liquidation and dividend and other rights more favorable than those of our common stock, imposition of debt covenants and repayment obligations or other restrictions that may adversely affect our business. Any funds we raise may not be sufficient to enable us to continue to implement our long-term business strategy. Further, our ability to raise additional capital may be adversely impacted by worsening global economic conditions and disruptions to and volatility in the credit and financial markets in the United States and worldwide resulting from disruptions in access to bank deposits or lending commitments due to bank failures, the military conflict between Russia and Ukraine and the related sanctions imposed against Russia, and the state of war between Israel, Hezbollah and Hamas and the related risk of a larger regional conflict. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe that we have sufficient funds for current or future operating plans.

There can be no assurance that financing will be available to us on favorable terms, or at all. The inability to obtain financing when needed may make it more difficult for us to operate our business or implement our growth plans and we may be required to delay, limit or substantially reduce our quantum computing development efforts. Our ability to raise additional capital through the sale of securities could be significantly impacted by the resale of our securities by holders of our securities, which could result in a significant decline in the trading price of our securities and potentially hinder our ability to raise capital on terms that are acceptable to us or at all.

***Failure to identify errors in the quantitative models we utilize to manage our business could adversely impact product performance and client relationships.***

We employ various quantitative models to manage our business. Any errors in the underlying models or model assumptions could have unanticipated and adverse consequences on our business and reputation.

***Our ability to use net operating loss carryforwards and other tax attributes may be limited in connection with the QPhoton Merger or other ownership changes.***

We have incurred losses during our history, do not expect to become profitable in the near future and may never achieve profitability. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire, if at all.

Under current law, U.S. federal net operating loss carryforwards generated in taxable periods beginning after December 31, 2017, may be carried forward indefinitely, but the deductibility of such net operating loss carryforwards in taxable years beginning after December 31, 2020, is limited to 80% of taxable income, or less. It is uncertain if and to what extent various states will conform to the current law.

In addition, our net operating loss carryforwards are subject to review and possible adjustment by the IRS, and state tax authorities. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the "Code"), our federal net operating loss carryforwards and other tax attributes will become subject to an annual limitation in the event of certain cumulative changes in the ownership of the Company. An "ownership change" pursuant to Section 382 of the Code generally occurs if one or more stockholders or groups of stockholders who own at least 5% of a company's stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Similar rules apply under state tax laws. Our ability to utilize our federal net operating loss carryforwards and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including potential changes in connection with the QPhoton Merger or other transactions. Similar rules may apply under state tax laws.

If we earn taxable income, such limitations could result in increased future income tax liability and our future cash flows could be adversely affected. We have recorded a valuation allowance related to our net operating loss carryforwards and other deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets.

**Risks Related to Our Business and Industry**

***We have not produced any of our products at volume and we face significant barriers in our attempts to develop and manufacture our products, including the need to invent and develop new technology. If we cannot successfully overcome those barriers, our business will be negatively impacted and could fail.***

Producing quantum computers, sensors and networks is a difficult undertaking. There are significant engineering challenges that we must overcome. We face significant challenges in completing development of our quantum computers and other products, and in producing in sufficient volumes. Even if we complete development and achieve volume production of our products, if the cost, accuracy, performance characteristics or other specifications fall short of our expectations, our business, financial condition and results of operations would be adversely affected.

The performance capabilities of our products will depend on the development and production of TFLN Optical Chips to achieve scale, performance and cost. There is significant development and intellectual property risk in the specification, design and development of TFLN Optical Chips and our plans could be impacted by lack of funding, competition or even unknown core technology factors intrinsic to the work. This would limit the ability of QCi to scale its growth to expected levels over the longer term and the Company could lose momentum.

***We may be unable to reduce the production cost sufficiently, which may prevent us from pricing our quantum systems competitively.***

Our revenue projections are dependent on the cost per manufactured system decreasing over the next several years as our quantum computers advance. These cost projections are based on economies of scale due to demand for our products and services, technological innovation and negotiations with third-party parts suppliers. If these cost savings do not materialize, the production cost may be higher than projected, making our quantum computing products and services less competitive than those offered by our competitors, which could have a material adverse effect on our business, financial condition or results of operations.

***If our products and services fail to deliver customer value to a broader range of customers than classical approaches, our business, financial condition and future prospects may be harmed.***

"Quantum advantage" refers to the moment when a quantum computer can compute faster than existing classical computers, while quantum supremacy is achieved once quantum computers are powerful enough to complete calculations that traditional supercomputers cannot perform at all. Broad quantum advantage is when quantum advantage is seen in many applications and developers prefer quantum computers to a traditional computer. No current quantum computers have reached a broad quantum advantage and they may never reach such advantage. While achieving a broad quantum advantage will be critical to the success of any quantum computing company, including us, it would not necessarily lead to commercial viability of the technology that accomplished such advantage, nor would it mean that such system could outperform classical computers in tasks other than the one used to determine a quantum advantage. As quantum computing technology continues to mature, broad quantum advantage, and quantum supremacy, may take years or decades to be realized, if it ever is. If we cannot develop quantum computers that have quantum advantage, customers may not continue to purchase our products and services. If other companies' quantum computers reach a broad quantum advantage prior to the time we reach such capabilities, it could lead to a loss of customers. If any of these events occur, it could have a material adverse effect on our business, financial condition or results of operations.

***The quantum computing industry is competitive and we may not be successful in competing in this industry or establishing and maintaining confidence in our long-term business prospects among current and future partners and customers.***

Since the merger with QPhoton, our business strategy has broadened to include the manufacture of several lines of hardware in addition to the underlying software. As a result, the markets in which we now operate are rapidly evolving and highly competitive. As the marketplace continues to mature and new technologies and competitors enter, we expect competition to intensify. Our current competitors include:

- large, well-established tech companies that generally compete across our products, including IBM, Quantinuum, Google, Microsoft and Amazon;

- large research organizations funded by sovereign nations such as China, Russia, Canada, Australia and the United Kingdom, and those in the European Union; additional countries may decide to fund quantum computing programs in the future;
- less-established public and private companies with competing technology, including IonQ, Rigetti Computing, PsiQuantum, Xanadu and D-Wave Quantum, and companies located outside the United States; and
- new or emerging entrants seeking to develop competing technologies.

We compete based on various factors, including technology, price, performance, multi-cloud availability, brand recognition and reputation, customer support and differentiated capabilities, including ease of administration and use, scalability and reliability, data governance and security. Many of our competitors have substantially greater brand recognition, customer relationships, and financial, technical and other resources than we do, including an experienced sales force and sophisticated supply chain management. They may be able to respond more effectively than us to new or changing opportunities, technologies, standards, customer requirements and buying practices. In addition, many countries are focused on developing quantum computing solutions either in the private or public sector and may subsidize quantum computers, which may make it difficult for us to compete. Many of these competitors do not face the same challenges we do in growing our business. In addition, other competitors might be able to compete with us by bundling their other products in a way that does not allow us to offer a competitive solution.

Further, the industry might recognize the intrinsic advantages of optical integrated circuits in information processing applications and our competitors could shift to a more direct competitive approach using similar technologies, even with strong intellectual property protection.

Additionally, we must be able to achieve our objectives in a timely manner lest quantum computing lose ground to competitors, including competing technologies. Because there are a large number of market participants, including certain sovereign nations, focused on developing quantum computing technology, we must dedicate significant resources to achieving any technical objectives on the timelines established by our management team. Any failure to achieve objectives in a timely manner could adversely affect our business, operating results and financial condition.

For all of these reasons, competition may negatively impact our ability to maintain and grow consumption of our platform or put downward pressure on our prices and gross margins, any of which could materially harm our reputation, business, results of operations, and financial condition.

***We rely on access to high-performance third-party classical computing through public clouds and high-performance computing centers to deliver quantum products and services to customers. We may not be able to maintain connectivity with these resources, which could make it harder for us to reach customers or deliver products and services in a cost-effective manner.***

Our products and services may from time to time incorporate high-performance classical computing through public clouds to provide services to end users and our partners. These public cloud services are predominantly on AWS at the present time.

Any material change in our contractual and other business relationships with AWS or other cloud providers could result in reduced use of our products and services, increased expenses, including service credit obligations, and harm our brand and reputation, any of which could have a material adverse effect on our business, financial condition and results of operations.

Further, if our contractual and other business relationships with our partners are terminated or suspended, either by our partner or by us, or suffer a material change to which we are unable to adapt, such as the elimination of services or features on which we depend, we would be unable to provide our quantum computing products and services business at the same scale and would experience significant delays and incur additional expense in transitioning customers to a different public cloud provider.

***We depend on certain suppliers to source products. Failure to maintain our relationship with any of these suppliers, or a failure to replace any of these suppliers, could have a material adverse effect on our business, financial position, results of operations and cash flows.***

We buy our products and supplies from companies that manufacture and source products from the United States and abroad. Our ability to develop and maintain relationships with qualified suppliers who can satisfy our standards for quality and delivery in a timely and efficient manner is a significant challenge. Any failure to maintain our relationship with any of our largest suppliers, or a failure to replace any such supplier that is lost, could have a material adverse effect on our business, financial position, results of operations and cash flows.

We may be required to replace a supplier if their products do not meet our quality or safety standards, or if the United States government imposes restrictions on trade with certain countries, such as China. In addition, our suppliers could discontinue selling products at any time for reasons that may or may not be in our control or the suppliers' control, including shortages of raw materials, environmental and social supply chain issues, pandemic, labor disputes or weather conditions. Disruptions in transportation lines or the ongoing military conflict between Russia and Ukraine, the state of war between Israel, Hezbollah and Hamas, or an invasion of Taiwan by China, may also cause global supply chain issues that affect us or our suppliers. We generally have multiple sources of supply, however, in some cases, materials are provided by a single supplier. The loss of, or substantial decrease in the availability of, products from our suppliers, or the loss of a key supplier, temporarily or permanently, could result in a material shortage of products, which could lead to price escalations that we may be unable to offset by our prices to our customers. When supply chain issues are later resolved and prices return to normal levels, we may be required to reduce the prices at which we sell our products to our customers in order to remain competitive. In addition, even where these risks do not materialize, we may incur costs as we prepare contingency plans to address such risks. Our operating results and inventory levels could suffer if we are unable to promptly replace a supplier who is unwilling or unable to satisfy our requirements with a supplier providing similar products. In addition, our suppliers' ability to deliver products may also be affected by raw material and commodity cost volatility or financing constraints caused by credit market conditions, which could materially and negatively impact our net sales and operating costs, at least until alternate sources of supply are arranged. Any delay or unavailability of key products required for our development activities in a timely or cost-effective manner could delay or prevent us from further developing our products and services on our expected timelines or at all and could materially harm our business.

***TFLN Optical Chips manufacturers and distributors are concentrated primarily in China and other parts of East Asia, which is an area that is or may be subject to geopolitical uncertainty, trade disputes and restrictions, environmental disasters, and other risks. Any disruption to the operations of these manufacturers or distributors could cause significant delays in the production or shipment of our products and impact our financial condition.***

Our success also depends in part on the manufacturing and fabrications of TFLN Optical Chips. Unforeseen disruption of the manufacturing and

fabrikations of TFLN Optical Chips could be caused by a number of events, including a maintenance outage, systems outage or other disruption, power or equipment failure, fires, floods, earthquakes or other natural disasters, social unrest or terrorist activity, work stoppages, public health concerns (including pandemics), regulatory measures, or other operational problems. Any disruption in the manufacturing and fabrications of TFLN Optical Chips resulting from such events could cause significant delays in the development and production of our products.

In addition, we may depend on third-party TFLN Optical Chips manufacturing partners or distributors who may be affected by changes in governmental policies, taxation, rising inflation or interest rates, social instability, geopolitical conflicts and tensions, and diplomatic and social developments which are outside of our control.

Furthermore, our industry generally relies on a limited number of TFLN Optical Chips manufacturers whose operations tend to be concentrated in China and other parts of East Asia, which makes us especially susceptible to adverse developments in these regions' economic and political conditions, particularly to the extent that such developments create an unfavorable business environment that significantly affects our operations. Although the governments of certain countries, including the United States, have taken actions to make their countries more attractive for chip manufacturing operations, there can be no assurances that the current geographic concentration of chip manufacturing will be meaningfully changed in the near term or at all.

If any of these events, or other macroeconomic trends, should cause a prolonged disruption of operations that impact our third-party TFLN Optical Chips manufacturing partners, we may see operational downtimes or operation at reduced capacities, which could have a material adverse effect on our business, financial conditions, and results of operations. Any unplanned production downtime or other operational problems and delays in the manufacturing and fabrications of TFLN Optical Chips, if significant, could have a material adverse effect on our business, financial condition, and results of operations.

***In order to compete, we must attract, retain and motivate key associates, and the failure to do so could have an adverse effect on our business, financial condition and results of operations.***

We depend on our executive officers and management team to run our business. As we develop new business models and new ways of working, we will need to develop suitable skill sets within our organization. In addition, our future success depends on our continuing ability to attract, develop, motivate and retain highly qualified and skilled employees that have highly technical set of skills. The current market for such positions is highly competitive. Qualified individuals are in high demand and we may incur significant costs to attract and retain them. Moreover, the loss of any of our senior management or other key employees or our inability to recruit and develop capable managers could adversely affect our ability to execute our business plan and we may be unable to find adequate replacements.

***Even if we are successful in developing our products and executing our strategy, competitors in the industry may achieve technological breakthroughs that render our quantum computing systems obsolete or inferior to other products.***

Our continued growth and success depend on our ability to innovate and develop quantum computing technology in a timely manner and effectively market these products. Without timely innovation and development, our quantum computing products and services could be rendered obsolete or less competitive by changing customer preferences or because of the introduction of a competitor's newer technologies. We believe that many competing technologies will require a technological breakthrough in one or more problems related to science, fundamental physics or manufacturing. While it is uncertain whether such technological breakthroughs will occur in the next several years, that does not preclude the possibility that such technological breakthroughs could eventually occur. Any technological breakthroughs that render our technology obsolete or inferior to other products could have a material adverse effect on our business, financial condition or results of operations.

***The quantum computing industry is in its early stages and volatile, and if it does not develop, if it develops slower than we anticipate, if it encounters negative publicity or if our quantum computing products and services do not achieve commercial adoption, the growth of our business will be harmed.***

The nascent market for quantum computers is still rapidly evolving, characterized by rapidly changing technologies, competitive pricing and competitive factors, evolving government regulation and industry standards, and changing customer demands and behaviors. Our success will depend to a substantial extent on the willingness of our potential customers to use, and increase their utilization of, our products and services, as well as on our ability to demonstrate the value of quantum computing to their respective organization, government agencies, and other purchasers of quantum computing offerings. Negative publicity concerning our products and services or the quantum computing industry as a whole could limit market acceptance of our offerings. If our clients and partners do not perceive the benefits of our products and services, or if they do not drive customer engagement, then our market may not develop at all, or it may develop more slowly than we expect. Similarly, individual and industry concerns or negative publicity regarding technophobic views in the context of quantum computing could limit market acceptance of our quantum computing products and services. If any of these events occur, our business, prospects, financial condition and operating results could be harmed.

In addition, our growth and future demand for our products is highly dependent upon the adoption by developers and customers of quantum computers, as well as on our ability to demonstrate the value of quantum computing to our customers. Delays in future generations of our quantum computers or technical failures at other quantum computing companies could limit acceptance of our products and services. Negative publicity concerning our products and services or the quantum computing industry as a whole could limit acceptance of our products and services. While we believe that quantum computing will solve many large-scale problems, it is possible that such problems may never be solvable by quantum computing technology. If our customers and partners do not see the benefits of our products and services, or if our products and services do not drive commercial sales, then demand for our products and services may not develop at all, or it may develop slower than we expect. If any of these events occur, it could have a material adverse effect on our business, financial condition and results of operations.

***We have experienced in the past, and could also suffer future disruptions, outages, defects and other performance and quality problems with our quantum computing products and services, our production technology partners or with the public cloud, data centers and internet infrastructure on which we rely.***

Our business depends on our quantum computing systems being available through the cloud with a high level of reliability. We have experienced, and may in the future further experience, disruptions, outages, defects and other performance and quality problems with our systems. We have also experienced, and may in the future further experience, disruptions, outages, defects and other performance and quality problems with the public cloud and internet infrastructure on which our systems rely. These problems can be caused by a variety of factors, including failed introductions of new functionality, vulnerabilities and defects in proprietary and open- source software, hardware components, human error or misconduct, capacity constraints, design limitations, denial of service attacks or other security-related incidents, foreign objects or debris, weather, construction, supply chain events, or accidents and other force majeure. We do not have a contractual right with our public cloud providers that compensates us for any losses due to availability interruptions in the public cloud.

Any disruptions, outages, defects and other performance and quality problems with our quantum computing system or with the public cloud, internet, and other infrastructure on which they rely could result in reduced use of our systems, increased expenses, including service credit obligations, and harm to our brand and reputation, any of which could have a material adverse effect on our business, financial condition and results of operations.

***Our future growth and success depend on our ability to sell effectively to government entities and large enterprises.***

Our potential customers are likely to include government agencies and large commercial enterprises. Therefore, our future success will depend on our ability to effectively sell our products to such customers. Sales to these end-customers involve risks that may not be present (or that are present to a lesser extent) with sales to non-governmental agencies or smaller customers. These risks include, but are not limited to, (i) increased purchasing power and leverage held by such customers in negotiating contractual arrangements with us and (ii) longer sales cycles and the associated risk that substantial time and resources may be spent on a potential end-customer that elects not to purchase our solutions. In addition, government contracts generally include the ability of government agencies to terminate early which, if exercised, would result in a lower contract value and lower than anticipated revenues. Such government contracts also may limit our ability to do business with foreign governments or prevent us from selling our products in certain countries.

***Our quantum computing systems may not be compatible with some or all industry-standard software and hardware in the future, which could harm our business.***

Since the merger with QPhoton, we have been focusing more of our efforts on creating quantum computing hardware, in addition to refining the software development platform to access our hardware, and application programming interfaces ("APIs") to access our systems. The industry is rapidly evolving, and customers have many choices for programming languages, some of which may not be compatible with our own APIs. Our quantum computing development platform is designed to be compatible with most major software languages. If a proprietary (not open source) software toolset became the standard for quantum application development in the future by a competitor, however, usage of our hardware might be limited, which would have a negative impact on the Company. Similarly, if a piece of hardware that we could not integrate with became a necessary component for quantum computing (for instance, quantum networking), the result might have a negative impact on the Company.

***Unfavorable conditions in our industry or the global economy could limit our ability to grow our business and negatively affect our results of operations.***

Our results of operations may vary based on the impact of changes in our industry or the global economy on us or our customers and potential customers. Negative conditions in the general economy both in the United States and abroad, including conditions resulting from changes in gross domestic product growth, financial and credit market fluctuations, international trade relations, pandemics (such as the recent COVID-19 pandemic) and other health emergencies, political turmoil, natural catastrophes, warfare, and terrorist attacks on the United States or elsewhere, could cause a decrease in business investments, including the progress on development of quantum technologies, and negatively affect the growth of our business. In addition, in challenging economic times, our current or potential future customers may experience cash flow problems and as a result may modify, delay or cancel plans to purchase our products and services. Additionally, if our customers are not successful in generating sufficient revenue or are unable to secure financing, they may not be able to pay, or may delay payment of, accounts receivable as a result. Moreover, our key suppliers may reduce their output or become insolvent, thereby adversely impacting our ability to manufacture our products.

Furthermore, uncertain economic conditions may make it more difficult for us to raise funds through borrowings or private or public sales of debt or equity securities. We cannot predict the timing, location, strength or duration of any economic slowdown, instability or recovery, generally or within any particular industry.

***Government actions and regulations, such as tariffs and trade protection measures, may adversely impact our business, including our ability to obtain products from our suppliers***

Government actions and regulations, such as tariffs and trade protection measures, may limit our ability to obtain products from our suppliers or sell our products and services to customers. Political challenges between the United States and countries in which our suppliers are located and changes to trade policies, including tariff rates and customs duties, trade relations between the United States and those countries and other macroeconomic issues could adversely impact our business. During the last few years, the United States has imposed tariffs on certain products imported into the United States and some countries have imposed tariffs on U.S. imports in response. The U.S. government continues to add additional entities, in China and elsewhere, to restricted party lists impacting the ability of U.S. companies to provide products and, in certain cases, services, to these entities and, in some cases, to receive items or services from these entities. The U.S. government also continues to increase end-use restrictions on the provision of items and service to China and other countries including end-uses related to advanced computing. There is also a possibility of future tariffs, trade protection measures or other restrictions imposed on our products or on our customers by the United States or other countries that could have a material adverse effect on our business. Our technology could be deemed a matter of national security and, as such, our customer base could be tightly restricted. We also may accept government grants that place restrictions on the business' ability to operate. Any such actions could impact our business operations and have a material adverse effect on our business prospectus, financial condition and results of operations.

In addition, the Chinese government exercises significant control over China's economy through the allocation of resources, control of the incurrence and payment of foreign currency-denominated obligations, setting of monetary policy and provision of preferential treatment to particular industries or companies. Changes in any of these policies, laws and regulations could adversely affect the overall economy in China or our Chinese suppliers, which could harm our business through higher supply costs, reduced availability or both.

Also, due to concerns with the security of products and services from certain telecommunications equipment and services companies based in China, U.S. Congress has enacted bans on the use of certain Chinese-origin components or systems either in items sold to the U.S. government or in the internal networks of government contractors and subcontractors (even if those networks are not used for government-related projects). Further, the Chinese government has responded to these U.S. actions by indicating its intention to develop an unreliable entity list, which may limit the ability of companies on the list to engage in business with Chinese counterparties.

In June 2022, the import restrictions contained in the Uyghur Forced Labor Prevention Act ("UFLPA") became effective. The UFLPA creates a rebuttable presumption that any goods mined, produced or manufactured, wholly or in part, in the Xinjiang Uyghur Autonomous Region ("XUAR") of China, or produced by a listed entity, were made with forced labor and would therefore not be entitled to entry at any U.S. port. Importers are required to present clear and convincing evidence that such goods are not made with forced labor. While we do not source items from the XUAR or from listed parties, and we have increased our supply chain diligence, there is risk that our ability to import components and products may be adversely affected by the UFLPA.

Given the relatively fluid regulatory environment in China and the United States and uncertainty regarding how the U.S. government or Chinese and other foreign governments will act with respect to tariffs and international trade agreements and policies, a trade war, further governmental action related to tariffs or international trade policies, or additional tax or other regulatory changes in the future could directly and adversely impact our financial results and

results of operations. We cannot predict what actions may ultimately be taken with respect to trade relations between the United States and China or other countries, what products may be subject to such actions or what actions may be taken by the other countries in retaliation. If we are unable to obtain or use components for inclusion in our products, if component prices increase significantly or if we are unable to export or sell our products to any of our customers, our business, liquidity, financial condition and/or results of operations would be materially and adversely affected.

***We may become subject to legal proceedings that could have a material adverse impact on our financial position and results of operations.***

From time to time and in the ordinary course of our business, we and certain of our subsidiaries may become involved in various legal proceedings. All such legal proceedings are inherently unpredictable and, regardless of the merits of the claims, litigation may be expensive, time-consuming and disruptive to our operations and distracting to management. If resolved against us, such legal proceedings could result in excessive verdicts, injunctive relief or other equitable relief that may affect how we operate our business. Similarly, if we settle such legal proceedings, it may affect how we operate our business. Future court decisions, alternative dispute resolution awards, business expansion or legislative activity may increase our exposure to litigation and regulatory investigations. In some cases, substantial noneconomic remedies or punitive damages may be sought. Although we maintain liability insurance coverage, there can be no assurance that such coverage will cover any particular verdict, judgment or settlement that may be entered against us, that such coverage will prove to be adequate or that such coverage will continue to remain available on acceptable terms, if at all. If we incur liability that exceeds our insurance coverage or that is not within the scope of the coverage in legal proceedings brought against us, it could have an adverse effect on our business, financial condition and results of operations.

***We intend to continue exploring strategic business acquisitions and other business combinations and transactions, which are subject to inherent risks.***

In order to expand our products and services and grow our market and client base, we may continue to seek and complete strategic business acquisitions and other combinations, investments, or partnerships that we believe are complementary to our business. The identification of suitable acquisition, strategic investment or strategic partnership candidates can be costly and time consuming and can distract our management team from our current operations. The completion of such transactions also have inherent risks that may have a material adverse effect on our business, financial condition, operating results or prospects, including, but not limited to: (i) failure to successfully integrate the business and financial operations, services, intellectual property, solutions or personnel of an acquired business and to maintain uniform standard controls, policies and procedures; (ii) diversion of management's attention from other business concerns; (iii) entry into markets in which we have little or no direct prior experience; (iv) failure to achieve projected synergies and performance targets; (v) loss of clients or key personnel; (vi) incurrence of debt or assumption of known and unknown liabilities; (vii) write-off of software development costs, goodwill, client lists and amortization of expenses related to intangible assets; (viii) dilutive issuances of equity securities; and (ix) accounting deficiencies that could arise in connection with, or as a result of, such transactions, including issues related to internal control over financial reporting and the time and cost associated with remedying such deficiencies. Even if we successfully complete a strategic transaction, we may not be able to effectively integrate the acquired business, technology, systems, control environment, solutions, personnel or operations into our business or not be able to achieve projected results or support the amount of consideration paid for such acquired businesses or invested in such transactions. In addition, we may incur unexpected costs, claims or liabilities during the strategic transaction or that we assume from the acquired company, or we may discover adverse conditions post- acquisition for which we have limited or no recourse, and we may not achieve the anticipated benefits of any strategic transaction.

***If we fail to establish and maintain an effective system of internal control, we may not be able to report our financial results accurately or prevent fraud. Any inability to report and file our financial results accurately and timely could harm our reputation and adversely impact the trading price of our common stock.***

Effective internal control is necessary for us to provide reliable financial reports and prevent fraud. If we cannot provide reliable financial reports or prevent fraud, we may not be able to manage our business as effectively as we would if an effective control environment existed, and our business and reputation with investors may be harmed. As a result, our small size and any current internal control deficiencies may adversely affect our financial condition, results of operations and access to capital.

***Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and share price.***

The global economy, including credit and financial markets, has experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, inflation rates higher than historical norms, higher interest rates, bank failures and uncertainty about economic stability. For example, recent bank failures have resulted in volatility in the capital markets. Similarly, the ongoing military conflict between Russia and Ukraine, as well as the war between Israel, Hezbollah and Hamas, has created extreme volatility in the global capital markets and are expected to have continuing global economic consequences, including disruptions of the global supply chain and energy markets. Any such volatility and disruptions may have adverse consequences on us or the third parties on whom we rely. If the equity and credit markets were to further deteriorate, including as a result of political unrest or war, it may make any necessary financing more difficult to obtain in a timely manner or on favorable terms, more costly or more dilutive. Higher than anticipated inflation rates have and are expected to continue to adversely affect us by increasing our costs, including labor and employee benefit costs, and costs for equipment and system components associated with system development. In addition, higher inflation could also increase our customers' operating costs, which could result in reduced budgets for our customers and potentially less demand for our systems. Any significant increases in inflation and related increase in interest rates could have a material adverse effect on our business, results of operations and financial condition. Even if inflation and interest rates decline from current levels, that may not result in a reduction of costs.

***We are subject to governmental export and import controls that could impair our ability to compete in international markets due to licensing requirements and subject us to liability if we are not in compliance with applicable laws.***

Our products and services are subject to U.S. export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control. U.S. export control and economic sanctions laws include restrictions or prohibitions on the sale or supply of certain products, technologies, and services to U.S. Government embargoed or sanctioned countries, governments, persons and entities. In addition, certain products and technology may be subject to export licensing or approval requirements. Exports of our products and technology must be made in compliance with export control and sanctions laws and regulations. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges, fines that may be imposed on us and responsible employees or managers and, in extreme cases, the incarceration of responsible employees or managers.

In addition, various countries regulate the import of certain encryption technology, including through import permit and license requirements and have

enacted laws that could limit our ability to distribute our products and technologies or could limit our end customers' ability to implement our services in those countries. Changes in our products or technologies or changes in applicable export or import laws and regulations also may create delays in the introduction and sale of our products and technologies in international markets or, in some cases, prevent the export or import of our products and technologies to certain countries, governments or persons altogether. Any change in export or import laws and regulations, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons or technologies targeted by such laws and regulations could also result in decreased use of our products and services or in our decreased ability to export or sell our products and services to existing or potential customers. Any decreased use of our products and services or limitation on our ability to export or sell our products and services would likely adversely affect our business, financial condition and results of operations.

We expect to incur significant costs in complying with these regulations. Regulations related to quantum computing are currently evolving and we face risks associated with changes to these regulations.

***We may become subject to product liability claims, which could harm our financial condition and liquidity if we are not able to successfully defend or insure against such claims.***

We may become subject to product liability claims, even those without merit, which could harm our business prospects, operating results, and financial condition. We may face inherent risk of exposure to claims in the event that our products do not perform as expected or malfunction. A successful product liability claim against us could require us to pay a substantial monetary award. Moreover, a product liability claim could generate substantial negative publicity about our quantum computers and business and inhibit or prevent commercialization of other future quantum computers, which would have material adverse effects on our brand, business, prospects and operating results. Any insurance coverage might not be sufficient to cover all potential product liability claims. Any lawsuit seeking significant monetary damages either in excess of our coverage, or outside of our coverage, may have a material adverse effect on our reputation, business and financial condition. We may not be able to secure additional product liability insurance coverage on commercially acceptable terms or at reasonable costs when needed, particularly if we do face liability for our products and are forced to make a claim under our policy.

### Risks Related to Intellectual Property

***Any failure to obtain, maintain and protect our intellectual property rights could impair our ability to protect and commercialize our proprietary products and technology and cause us to lose our competitive advantage.***

Our success depends, in significant part, on our ability to obtain, maintain, enforce and defend our intellectual property rights, including patents and trade secrets. We rely upon a combination of the intellectual property protections afforded by patent, copyright, trademark and trade secret laws in the United States and other jurisdictions, as well as license agreements and other contractual protections, to establish, maintain and enforce rights in our proprietary technologies. In addition, we seek to protect our intellectual property rights through nondisclosure and invention assignment agreements with our employees and consultants and through non-disclosure agreements with business partners and other third parties.

However, we may not be able to prevent unauthorized use of our intellectual property. Our trade secrets may also be compromised, which could cause us to lose our competitive advantage. Third parties may attempt to copy or otherwise obtain, use or infringe our intellectual property.

Monitoring and detecting unauthorized use of our intellectual property is difficult and costly, and the steps we have taken or take in the future to prevent infringement or misappropriation may not be sufficient. Any enforcement efforts we undertake, including litigation, could be time-consuming and expensive and could divert management's attention, which could harm our business, results of operations, and financial condition. In addition, existing intellectual property laws and contractual remedies may afford less protection than needed to safeguard our intellectual property portfolio, and third parties may develop competitive offerings in a manner that leaves us with limited means to enforce our intellectual property rights against them.

Patent, copyright, trademark and trade secret laws vary significantly throughout the world. A number of foreign countries do not protect intellectual property rights to the same extent as do the laws of the United States. Therefore, our intellectual property rights may not be as strong or as easily enforced outside of the United States and efforts to protect against the unauthorized use of our intellectual property rights, technology and other proprietary rights may be more expensive and difficult outside of the United States.

Failure to adequately protect our intellectual property rights could result in our competitors using our intellectual property to offer products, potentially resulting in the loss of some of our competitive advantage and a decrease in our revenue, which would adversely affect our business, financial condition and operating results.

***Our inability to secure patent protection or enforce our patent rights could have a material adverse effect on our ability to prevent others from commercializing similar products or technology.***

The application and registration of patents involves complex legal and factual questions. As a result, we cannot be certain that the patent applications that we file will result in patents being issued or that our patents (including licensed patents) and any future patents that do issue will afford protection against competitors with similar technology. Numerous patents and pending patent applications owned by others exist in the fields in which we have developed and are developing our products and services, and this may make it difficult for us to obtain certain patent coverage on our own. Any of our existing or pending patents may also be challenged by others on the basis that they are otherwise invalid or unenforceable. Furthermore, patent applications filed in foreign countries are subject to laws, rules and procedures that differ from those of the United States, and thus we cannot be certain that foreign patent applications related to issued U.S. patents will be issued.

Even if our patent applications succeed, it is still uncertain whether these patents (or any of the issued patents exclusively licensed to us) will be contested, circumvented, invalidated, found to be unenforceable or limited in scope in the future. The rights granted under any issued patents may not provide us with meaningful protection or competitive advantages. The intellectual property rights of others could bar us from licensing and exploiting any patents that issue from our pending applications, and the claims under any patents that issue from our patent applications may not be broad enough to prevent others from developing technologies that are similar or that achieve results similar to ours. In addition, patents issued to us may be infringed upon or designed around by others and others may obtain patents that we need to license or design around, either of which would increase costs and may adversely affect our business, prospects, financial condition and operating results.

***We may face patent infringement and other intellectual property claims that could be costly to defend, result in injunctions and significant damage awards, or limit our ability to use certain key technologies in the future, all of which could harm our business.***

Our success depends, in part, on our ability to develop and commercialize our products and services without infringing, misappropriating or otherwise violating the intellectual property rights of third parties. However, we may not be aware that our products, services or technologies are infringing, misappropriating or otherwise violating third-party intellectual property rights and such third parties may bring claims alleging such infringement, misappropriation or violation.

For example, there may be issued patents of which we are unaware, held by third parties that, if found to be valid and enforceable, could be alleged to be infringed by our current or future products, services or technologies. Also, because patent applications can take years to issue and are often afforded confidentiality for some period of time, there may currently be pending applications, unknown to us, that later result in issued patents that could cover our current or future products, services or technologies. The strength of our defenses will depend on the rights asserted, the interpretation of these rights, and our ability to invalidate the asserted rights. However, we could be unsuccessful in advancing non-infringement and/or invalidity arguments in our defense.

Although we carry general liability insurance, our insurance may not cover potential claims of this type or may not be adequate to indemnify us for all liability that may be imposed. We cannot predict the outcome of lawsuits and cannot ensure that the results of any such actions will not have an adverse effect on our business, financial condition or results of operations. Even if the claims do not result in litigation or are resolved in our favor, these claims, and the time and resources necessary to resolve them, could divert the resources of our management and harm our business and operating results. Further, there could be public announcements of the intellectual property litigation, and if securities analysts, investors or others perceive the potential impact to be negative or risks to be substantial, it could have an adverse effect on the price of our common stock. The occurrence of infringement claims may grow as the market for our products, services and technologies grows. Accordingly, our exposure to damages resulting from infringement claims could increase and this could further exhaust our financial and management resources.

***Cybersecurity risks and the failure to maintain the integrity of data belonging to the Company could expose us to data loss, litigation and liability, and our reputation could be significantly harmed.***

We may from time to time collect and retain large volumes of data relating to our business and from our customers for business purposes, including for transactional and promotional purposes, and our various information technology systems enter, process, summarize and report such data. The integrity and protection of this data is critical to our business. Maintaining compliance with the evolving regulations and requirements applicable to data security and information privacy protection could be difficult and may increase our expenses. In addition, a penetrated or compromised data system or the intentional, inadvertent or negligent release or disclosure of data could result in theft, loss or fraudulent or unlawful use of data relating to our company or our employees, independent distributors or preferred customers, which could harm our reputation, disrupt our operations, or result in remedial and other costs, fines or lawsuits.

Remote work has become more common and has increased risks to our information technology systems and data, as more of our employees utilize network connections, computers and devices outside our premises or network, including working at home, while in transit and in public locations. In addition, future or past business transactions (such as acquisitions or integrations) could expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired or integrated entities' systems and technologies. Furthermore, we may discover security issues that were not found during due diligence of such acquired or integrated entities, and it may be difficult to integrate companies into our information technology environment and security program.

***Computer malware, viruses, hacking, phishing attacks and spamming could harm our business and results of operations.***

Computer malware, viruses, physical or electronic break-ins and similar disruptions could lead to interruption and delays in our services and operations and loss, misuse or theft of data. Computer malware, viruses, computer hacking and phishing attacks against business networks have become more prevalent and may occur on our systems in the future.

Any attempts by hackers to disrupt our internal systems, if successful, could harm our business, be expensive to remedy and damage our reputation or brand. We could incur significant expenses and losses related to direct attacks on our website or internal systems. Efforts to prevent hackers from entering our computer systems are expensive to implement and may limit the functionality of our services. Though it is difficult to determine what, if any, harm may directly result from any specific interruption or attack, any failure to maintain performance, reliability, security and availability of our products and services and technical infrastructure may harm our reputation, brand and our ability to attract customers. Any significant disruption to our website or internal computer systems could result in a loss of customers and could adversely affect our business and results of operations.

We have previously experienced, and may in the future experience, service disruptions, outages and other performance problems due to a variety of factors, including infrastructure changes, third-party service providers, human or software errors and capacity constraints. If our software application is unavailable when customers attempt to access it or it does not load as quickly as they expect, customers may seek other services.

Our quantum computer products rely on software that is highly technical and complex and may now or in the future contain undetected errors, bugs, or vulnerabilities. Some errors in our software code may only be discovered after the code has been deployed. Any errors, bugs, or vulnerabilities discovered in our code after deployment, inability to identify the cause or causes of performance problems within an acceptable period of time or difficulty maintaining and improving the performance of our platform, particularly during peak usage times, could result in damage to our reputation or brand, loss of revenues, or liability for damages, any of which could adversely affect our business and financial results.

We expect to continue to make significant investments to maintain and improve the availability of our cloud- based products and services and to enable rapid releases of new features and products. To the extent that we do not effectively address capacity constraints, upgrade our systems as needed and continually develop our technology and network architecture to accommodate actual and anticipated changes in technology, our business and operating results may be harmed.

***Growing our customer base depends upon the effective operation of our applications with operating systems, networks and standards that we do not control.***

We will be dependent on the interoperability of our applications with operating systems that we do not control, and any changes in such systems that degrade our potential products' functionality or give preferential treatment to competitive products could adversely affect the usage of our applications on quantum processing units. Additionally, in order to deliver high quality products, it is important that our products work well with a range of quantum computers, conventional computers, systems, networks and standards that we do not control. We may not be successful in developing relationships with key participants in the quantum computing industry or in developing products that operate effectively with these technologies, systems, networks or standards.

***We may not be able to protect our source code from copying if there is an unauthorized disclosure of source code.***

Source code, the detailed program commands for our operating systems and other software programs, is critical to our business. While, from time to time, we may license portions of our application and operating system source code to one or more licensees, we take significant measures to protect the

secrecy of large portions of our source code. However, if a significant portion of our source code leaks, we might lose future trade secret protection for that source code. It may become easier for third parties to compete with our products by copying functionality, which could adversely affect our revenue and operating margins.

#### **Risks Related to Our Common Stock**

***Our stock price has been and may continue to be volatile or may decline regardless of our operating performance, and you may lose part or all of your investment.***

The market price of our common stock has in the past and may go forward fluctuate widely in response to various factors, some of which are beyond our control, including:

- actions by competitors;
- actual or anticipated growth rates relative to our competitors;
- the public's response to press releases or other public announcements by us or third parties, including our filings with the Securities and Exchange Commission (the "SEC");
- economic, legal and regulatory factors unrelated to our performance;
- any future guidance that we may provide to the public, any changes in such guidance or any difference between our guidance and actual results;
- changes in financial estimates or recommendations by any securities analysts who follow our common stock;
- speculation by the press or investment community regarding our business;
- litigation;
- changes in key personnel; and
- future sales of our common stock by our officers, directors and significant stockholders.

In addition, the stock markets, including the Nasdaq Stock Market LLC ("Nasdaq") on which our common stock is listed, have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These broad market fluctuations may materially affect our stock price, regardless of our operating results. Furthermore, the market for our common stock historically has been limited and we cannot assure you that an active trading market will ever be developed or maintained. The price at which investors purchase shares of our common stock may not be indicative of the price that will prevail in the trading market. Market fluctuations and volatility, as well as general economic, market and political conditions, could reduce our market price. As a result, these factors may make it more difficult or impossible for you to sell your shares of our common stock for a positive return on your investment. In the past, stockholders have instituted securities class action litigation following periods of market volatility. If we were involved in securities litigation, we could incur substantial costs and our resources and the attention of management could be diverted from our business.

***Future sales of shares of our common stock, or the perception in the public markets that these sales may occur, may depress our stock price.***

The market price of our common stock could decline significantly as a result of sales of a large number of shares of our common stock. In addition, if our significant stockholders sell a large number of shares, or if we issue a large number of shares, the market price of our stock could decline. Any issuance of additional common stock by us in the future, or warrants or options to purchase our common stock, if exercised, would result in dilution to our existing stockholders. Such issuances could be made at a price that reflects a discount or a premium to the then-current trading price of our common stock. Moreover, the perception in the public market that stockholders might sell shares of our stock or that we could make a significant issuance of additional common stock in the future could depress the market for our shares. These sales, or the perception that these sales might occur, could depress the market price of our common stock or make it more difficult for us to sell equity securities in the future at a price that we deem appropriate.

***"Penny stock" rules may make buying or selling our common stock difficult, which may make our stock less liquid and make it harder for investors to buy and sell our securities.***

Trading in our common stock is subject to the SEC's "penny stock" rules and we expect that trading in our common stock will continue to be subject to the penny stock rules for the foreseeable future. The SEC has adopted regulations that generally define a penny stock to be any equity security that has a market price of less than \$5.00 per share, subject to certain exceptions. These rules would require that any broker-dealer that recommends our common stock to persons other than prior customers and accredited investors must, prior to the sale, make a special written suitability determination for the purchaser and receive the purchaser's written agreement to execute the transaction. Unless an exception is available, the regulations require the delivery, prior to any transaction involving a penny stock, of a disclosure schedule explaining the penny stock market and the risks associated with trading in the penny stock market. In addition, broker-dealers must disclose commissions payable to both the broker-dealer and the registered representative and current quotations for the securities they offer. The additional burdens imposed upon broker-dealers by these requirements may discourage broker-dealers from effecting transactions in our common stock, which could severely limit the liquidity of, and consequently adversely affect the market price for, our common stock.

***Sales of our currently issued and outstanding stock may become freely tradable pursuant to Rule 144 and may dilute the market for your shares and have a depressive effect on the price of the shares of our common stock.***

A substantial minority of our outstanding shares of common stock are "restricted securities" within the meaning of Rule 144 under the Securities Act. In addition, we have certain employment, director and consultant agreements that include grants of options to purchase shares of common stock, which upon conversion, would also be considered "restricted securities." As restricted securities, these shares may be resold only pursuant to an effective registration statement or under the requirements of Rule 144 or other applicable exemptions from registration under the Act and as required under applicable state securities laws. Rule 144 provides in essence that an Affiliate (as such term is defined in Rule 144(a)(1)) of an issuer who has held

restricted securities for a period of at least six months may, under certain conditions, sell every three months, in brokerage transactions, a number of shares that does not exceed the greater of 1% of a company's outstanding shares of common stock or the average weekly trading volume during the four calendar weeks prior to the sale. Rule 144 also permits, under certain circumstances, the sale of securities, without any limitation, by a person who is not an Affiliate of the company and who has satisfied a one-year holding period. The resale of significant amounts of our common stock under Rule 144 or under any other exemption from the registration requirements of the Securities Act, if available, or pursuant to subsequent registrations of our shares of common stock, could cause the market price of our shares of common stock to decline significantly.

***We currently do not intend to pay dividends on our common stock. As a result, your only opportunity to achieve a return on your investment is if the price of our common stock appreciates.***

We currently do not expect to declare or pay dividends on our common stock. In addition, in the future we may enter into agreements that prohibit or restrict our ability to declare or pay dividends on our common stock. As a result, your only opportunity to achieve a return on your investment will be if the market price of our common stock appreciates and you sell your shares at a profit.

***You may experience dilution of your ownership interest due to the future issuance of additional shares of our common stock.***

We are in a capital-intensive business and we do not have sufficient funds to finance the growth of our business or the costs of our development projects or to support our projected capital expenditures indefinitely. As a result, we will very likely require additional funds from future equity or debt financings, which may include the issuance of shares of preferred stock, convertible debt, or warrants to purchase shares of common stock, to purchase capital equipment, complete the development of new products and pay the general and administrative costs of our business. We may in the future issue our previously authorized and unissued securities, resulting in the dilution of the ownership interests of holders of our common stock. We are currently authorized to issue 250,000,000 shares of common stock. The potential issuance of such additional shares of common stock or of preferred stock or convertible debt may create downward pressure on the market price of our common stock. We may also issue additional shares of common stock or other securities that are convertible into or exercisable for common stock in future public offerings or private placements for capital raising purposes or for other business purposes. The future issuance of a substantial number of shares of common stock or the sale of a substantial number of shares in the public market, or the perception that such issuances or sales could occur, could adversely affect the prevailing market price of our common stock. A decline in the market price of our common stock could make it more difficult to raise funds through future offerings of our common shares or securities convertible into common stock.

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In addition, these new securities could contain provisions, such as priorities on distributions and voting rights, that could affect the value of our existing common stock.

***Our executive officers and directors possess significant voting power with respect to our common stock, which will limit your influence on corporate matters.***

As of December 19, 2024, our directors and executive officers collectively beneficially own approximately 20.8% of the shares of our common stock including the beneficial ownership of Dr. Yuping Huang of 18.0% of the shares of our common stock.

As a result, our insiders have the ability to significantly influence our management and affairs through the election and removal of the members of our board of directors (the "Board") and all other matters requiring stockholder approval, including any future merger, consolidation or sale of all or substantially all of our assets. This concentrated voting power could discourage others from initiating any potential merger, takeover or other change-of-control transaction that may otherwise be beneficial to our stockholders. Furthermore, this concentrated control will limit the practical effect of your influence over our business and affairs, through any stockholder vote or otherwise. Any of these effects could depress the market price of our common stock.

***Our articles of incorporation grant the Board the power to issue additional shares of common and preferred shares and to designate other classes of preferred shares, all without stockholder approval.***

Our authorized capital consists of 260,000,000 shares of capital stock of which 10,000,000 shares are authorized as preferred stock. The Board, without any action by our stockholders, may designate and issue shares of preferred stock in such series as it deems appropriate and establish the rights, preferences and privileges of such shares, including dividends, liquidation and voting rights, provided it is consistent with Delaware law.

The rights of holders of our preferred stock that may be issued could be superior to the rights of holders of our shares of common stock. The designation and issuance of shares of capital stock having preferential rights could adversely affect other rights appurtenant to shares of our common stock. Furthermore, any issuances of additional stock (common or preferred) will dilute the percentage of ownership interest of then-current holders of our capital stock and may dilute our book value per share.

#### **Risks Related to This Offering**

***The Selling Stockholders may sell their shares of Common Stock in the open market, which may cause our stock price to decline.***

The Selling Stockholders may sell their shares of Common Stock being registered in this offering in the public market. That means that up to 8,960,000 shares of Common Stock, the number of shares being registered in this offering for sale by the Selling Stockholders, may be sold in the public market. Such sales will likely cause our stock price to decline.

***Sale of our common stock by the Selling Stockholders could encourage short sales by third parties, which could contribute to the further decline of our stock price.***

The significant downward pressure on the price of our common stock caused by the sale of material amounts of common stock could encourage short sales by third parties. Such an event could place further downward pressure on the price of our common stock.

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#### **USE OF PROCEEDS**

We will not receive any proceeds from the sale of Common Stock by the Selling Stockholders. All of the net proceeds from the sale of our Common Stock will go to the Selling Stockholders as described below in the sections entitled "Selling Stockholders" and "Plan of Distribution". Upon the exercise of the

Placement Agent Warrants for an aggregate of 500,000 shares of Common Stock, assuming all payments are made in cash and there is reliance on cashless exercise provisions, we will receive the exercise price of the Placement Agent Warrants, or an aggregate amount of approximately \$2.9 million in gross proceeds. We have agreed to bear the expenses relating to the registration of the common stock for the Selling Stockholders.

## DETERMINATION OF OFFERING PRICE

The Selling Stockholders will offer Common Stock at the prevailing market prices or privately negotiated prices. The offering price of our Common Stock does not necessarily bear any relationship to our book value, assets, past operating results, financial condition or any other established criteria of value. Our Common Stock may not trade at the market prices in excess of the offering prices for Common Stock in any public market will be determined in the marketplace and may be influenced by many factors, including the depth and liquidity.

## BUSINESS

### The Computing Landscape and The End of Moore's Law

For the past 45 years or so, silicon-based processor manufacturers have been able to double their processing power every 18 to 24 months, a phenomenon known in the computer industry as "Moore's Law." Recently, the computer processor industry has found it increasingly difficult to offer faster, more powerful processors due to fundamental physical effects limiting further size reduction of transistors.

Additionally, conventional computers are known to struggle with optimization problems known as *NP-complete* problems, which are a class of mathematical problems that can, in principle, be solved by conventional computers, with that caveat that the time to solution will grow exponentially with the size of the problem. These NP-complete problems require complex calculations that cannot currently be performed within any reasonable amount of time using conventional computer systems for problem sizes relevant to many industrial and government applications. Published academic research indicates that quantum computers may be ideally suited to solve optimization problems of this type.

Some computer science experts believe that quantum computing will be a potential solution to the hard limits now being approached by conventional computers that utilize silicon-based processors. While the date of practical relevance of quantum computers is hard to determine, we believe that quantum availability has already begun and that quantum computers with gradually increasing performance will be introduced by multiple vendors over the course of the next decade.

### The Company

Quantum Computing Inc. ("QCI" or the "Company") is an American company utilizing non-linear quantum optics (optical devices whose output due to quantum effects is exponentially, not linearly, related to inputs) to deliver quantum products for high-performance computing applications. QCI's products are designed to operate at room temperature and use low power. Our core technology enables the execution of a go-to-market strategy that emphasizes accessibility and affordability as the key selling points.

QCI was founded in 2018 and our initial business was developing platform agnostic enterprise software for quantum computing systems. In June 2022, QCI acquired its wholly-owned subsidiary QPhoton, Inc. (subsequently renamed QPhoton, LLC) ("QPhoton"), a photonics hardware company (the "QPhoton Merger"). That merger enables QCI to now offer high-performance quantum systems integrated with the Company's software platform, Catalyst, that existed before the QPhoton Merger.

QCI's core technology is Entropy Quantum Computing ("EQC"). EQC is a patent pending methodology that utilizes the environment to drive controlled energy loss in a photonic architecture. Using quantum measurements of single photons as a source of feedback, the energy loss of the system is driven to a "ground state solution" where additional computational iterations no longer change the output. The ground state solution is the optimized result (the answer to the problem posed). This methodology allows for very low power consumption and room temperature operation. Also, due to the nature of the measurement and feedback process, EQC drives non-linear quantum interactions for "dense, fully connected" problem solving. We anticipate that our core technologies will enable us to develop and produce multiple generations of quantum machines with increasing computational power, capacity, and speed, as well as the eventual hardware miniaturization to produce optical integrated circuits to replace the discrete components currently used. We expect these systems to deliver performance advantages over classical computational machines with the long-term goal of solving complex problems more effectively and efficiently with greater scalability, lower power consumption, and lower cost.

In addition to our photonic computing platform, we have leveraged QCI's core technology to demonstrate powerful quantum sensing use cases in LIDAR (Light Detection and Ranging), reservoir computing (a form of neural network that can be used in machine learning applications) and quantum cyber authentication (a method for highly secure communication within a network). Several of these important technologies are already in early stages of commercialization.

Our longer-term product development plan is to migrate product designs based on discrete components to a set of optical integrated circuits built on wafers using a crystalline material called lithium niobate ("Thin Film Lithium Niobate" or "TFLN"). The Company believes that TFLN is an excellent material for design and implementation of optical integrated circuits suitable for our quantum computing and sensing products because it is crystal based and hence can have optical waveguides directly etched into the material. QCI possesses strong domain experience and intellectual property in TFLN design and chip fabrication and has completed initial production of several specialty devices such as electro-optical modulators ("EOM's"). The Company has begun buildout of a state-of-the-art TFLN chip manufacturing facility in a leased space within Arizona State University's Research Park in Tempe, Arizona. The Company's understanding is that this could be the nation's first dedicated optical integrated circuit manufacturing facility using TFLN wafers to achieve quantum effects. Our plan for the facility is to produce a range of custom lithium niobate chips for use in our own product lines as well as chips for sale in the commercial market. The Company has plans to support this initiative by applying for funding for distinct uses under both the Title 17 Clean Energy Financing Program managed by the US Department of Energy's Loan Programs Office and also the Creating Helpful Incentives to Produce Semiconductors Act of 2022 (the "CHIPS Act"), which allocates \$52 billion for the revitalization and onshoring of semiconductor manufacturing in the U.S. The CHIPS Act funding specifically includes \$39 billion in manufacturing incentives and \$13 billion to support new research and development.

The recent market report published by *Market Research Reports: Document ID: LPI08232779; Published August 8, 2023 "Thin Film Lithium Niobate Market Forecast 2023 - 2029,"* indicates a significant underlying market growth for TFLN devices. The study covers use applications and segments that suggest the global TFLN EOM market, valued at \$190.4 million in 2022, is forecast to grow to an estimated \$1,931.3 million by 2029 - a compound annual growth rate of 39 percent. The report further describes that the demand increase is principally driven by the material advantages that were summarized above. Specifically, TFLN EOM's have the advantages of large bandwidth, low power consumption, and small size. .

Additionally, Mordor Intelligence published a market report, “**Photonic Integrated Circuit Market Size & Share Analysis - Growth Trends & Forecasts (2024 - 2029)**”, *Source: <https://www.mordorintelligence.com/industry-reports/hybrid-photonic-integrated-circuit-market>*, forecasting that the Photonic Integrated Circuit (PIC) market is currently valued at \$15.1 billion, and will grow at a CAGR of 20.5% to \$38.4 billion in 2029. This illustrated significant anticipated demand for QCi’s products and services.

## **Our Strategy**

QCi’s strategy is to provide a range of accessible and affordable quantum machines to commercial and government markets. Our proprietary technology is central to our strategy because we believe that it enables us to leverage the advantages of size, weight, power and cost (over competing cryogenic products to drive market adoption and volume of sales).

In addition to cloud-based access to our quantum computers, we offer on premises installation of our EQC product, rack-mountable and compatible with standard server room infrastructure requiring no need for special cooling, shielding, or power considerations. The Company believes the EQC’s small rack-mountable size and low-energy consumption provides a substantial competitive edge as compared to superconducting, cryogenic quantum systems offered by competitors that are also designed to solve optimization problems.

We believe that the practical benefits to the customer of QCi’s core offerings are:

- Powerful performance in speed and quality of solution for large complex optimization problems
- Plug and play compatibility with existing IT infrastructure
- Low power consumption - normal operation under 80 watts
- Scalability with potential for migration to nanophotonic system-on-a-chip designs
- High precision for sensing applications

## **Market Opportunity**

Despite enormous growth in the capabilities of conventional computers and silicon microprocessors, some of the world’s most important computational problems are still considered impractical to solve in a reasonable period of time. Quantum computing represents a potential alternative approach to solving those problems because quantum computers apply the properties of quantum physics to operate in a fundamentally different way. Conventional computer chips use binary bits (ones and zeros) to represent information. Quantum computers utilize qubits (quantum bits), which leverage some of the properties of quantum physics, namely superposition and entanglement, to process computations that would be intractably difficult using conventional computers.

While quantum-based computers will not replace conventional computers in most applications, they are ideally suited to run optimization algorithms, as well as to calculate certain sensing, imaging, and cybersecurity problems that are beyond the reach of general silicon-based computing today. The Company believes that quantum solutions have the potential to bring order of magnitude advances in the fields of medicine, engineering, autonomous vehicles, and cybersecurity and that the demand for quantum computing in these market sectors will likely outpace and outperform the general-purpose computing market in the near- to mid-term and into the foreseeable future.

Our core technology offers practical, cost-effective solutions that materially advance the adoption of quantum machines across several market segments including:

1. Quantum Computing
2. Quantum Intelligence (Artificial Intelligence and Machine Learning)
3. Remote Sensing
4. Imaging
5. Cybersecurity

## **Products and Products in Development**

The Company believes it is well-positioned in the marketplace due to the Company’s core technology in integrated photonics that allows QCi to offer a suite of quantum machines and solutions to the market today with a robust technology roadmap for the future. The merger with QPhoton has broadened the Company’s technology portfolio and enables us to develop a group of closely related products to EQC, based on our common core photonic technology.

### **TFLN Optical Chips**

We believe that TFLN optical integrated circuits (“TFLN Optical Chips”) will ultimately provide the greatest scalability and performance advantages for quantum information processing, sensing and imaging. The Company is developing proprietary chip designs and is completing a dedicated chip fabrication facility to develop and produce TFLN Optical Chips for quantum information processing and other single photon detection and sensing applications.

### **Quantum Computing**

#### *Entropy Quantum Computer*

The core of QCi’s hardware offering is the EQC, which leverages the principle of open quantum systems, meaning that the EQC does not need to be isolated from the outside world in order to function. The EQC differs from the more common gate-model architectures by using the entropy in the environment as a useful source of energy rather than isolating from the entropy as a source of noise. As a result, the EQC can operate in normal server room environments with a high degree of stability. The EQC works by encoding a problem into a photonic signal and then carefully modulating the loss of energy in the system, iterating until the system reaches the ground state (or optimal configuration) solution. The non-linear coupling of an optical feedback loop in the system enables full connectivity among all of the variables of a complex problem.

QCi launched a new EQC device during the first quarter of 2024 (Dirac-3) and plans to release a series of additional EQC products in the coming months and years. This planned evolution of technology and product enhancements will involve improving the size and capacity of the EQC machines, as well as speed, scalability and performance fidelity. The EQC is available both as a cloud-based subscription service, similar to other quantum machines, as well as an affordable on-premises solution.

#### Qatalyst

QCi's evolution into quantum hardware computing was enabled by the prior creation of its Qatalyst software. The Qatalyst development platform was QCi's answer to the broader industry's current approach to quantum software development, which relies on highly trained scientists working with software development kits ("SDKs") at the circuit level, instead of a high-level language. Using an SDK requires deep level quantum expertise to create quantum workflows. Qatalyst is not a tool kit, rather, a complete platform. Qatalyst enables developers to create and execute quantum-ready applications on conventional computers as well as multiple quantum computers. Users can call upon the same Qatalyst APIs (Application Programming Interfaces) on conventional computers to achieve optimization performance advantages using our cloud-based solution. We originally designed Qatalyst to facilitate access to multiple quantum processing units including Rigetti, Oxford Quantum Circuits and IonQ, QuEra, and Xanadu via the Amazon Web Services ("AWS") cloud-based Braket service. Qatalyst is now the interface to QCi's own EQC systems.

#### Quantum Intelligence (Artificial Intelligence and Machine Learning)

##### *Reservoir Computer*

Launched in June 2023, our first reservoir computing product is an edge device that is FPGA-based and optimized for recurrent neural network applications. "Compute at the edge" means to process, measure and analyze data locally (at the device) vs. over a network where data must be sent over the internet or through some cloud service. QCi's Reservoir Computer ("RC") is a standalone box that can be plugged into a local computer or server without having to connect over the internet. The RC hardware system's advantages over the more traditional software approaches to reservoir computing include significantly faster processing speeds, 80% - 95% less energy consumption, portability (size of power bank), affordability, and requiring significantly shorter training time for models. The RC delivers superior performance in time dependent tasks, such as chaotic time series prediction, unstructured financial model prediction, natural language processing and weather forecasting. Being deployed as a "compute at the edge" device provides the advantage of allowing data analysis to occur at the data collection point, thereby reducing latency and dependency on network connections and providing more real-time processing of data. To date, the market for reservoir computing has been limited due to computing cost and technical implementation complexities, which the RC is designed to address. We anticipate that future generations of the RC will introduce greater speed of performance and scalability. This will enable the RC to participate in the large language model training and other applications. While technology challenges do remain in scaling this technology, this is one of the focus areas for QCi to gain significant share in the artificial intelligence / Machine Learning hardware market.

#### Remote Sensing

##### *LiDAR Applications*

QCi's Quantum LiDAR uses patented methodologies that leverage the selective use of quantum spatial-temporal modes to maximize the signal-to-noise ratio of weak signals in a high noise background. This technology advancement allows QCi systems to see through dense fog and provide image fidelity at great distances with very high resolution in difficult environments such as snow, ice, and water. The practical benefits on payload and signal to noise enhancement can be used to produce LiDAR systems that are greatly enhanced in their ability to measure at improved resolution and distances from aircraft, drones and even satellites.

#### *Quantum Photonic Vibrometer*

Launched July 2023, QCi's Photonic Vibrometer is a proprietary instrument for remote vibration detection, sensing, and inspection. This device offers advanced sensitivity, speed, and resolution, capable of discerning for the first time, highly obscured and non-line-of-sight objects. The Photonic Vibrometer measures the vibration frequency of a remote target by utilizing fast-gated single photon counting to directly detect returning photons whose wavefunctions are dynamically modulated as they are reflected off the target. By counting photons at a megahertz rate, important properties such as material composition and mechanical integrity can be determined within seconds and, depending on detection distance, with microwatt to milliwatt optical power. Working at an eye-safe wavelength, the system can accurately characterize the vibration spectra of solid or liquid targets with vibration amplitude as small as 100 nanometers. The Photonic Vibrometer can also remotely sense through obscured media or around corners where there is no line of sight, implying new capabilities in remote sensing, voice recognition, and ex vivo diagnostics.

We expect subsequent photonic vibrometer versions, which are currently under development, to reach significantly greater distances, minimize device footprint and weight, and optimize data gathering in increasingly challenging environmental conditions (for example, underground, underwater and at high altitudes affixed to a drone, plane or space-based platforms).

#### Imaging

##### *Optical Imaging*

By leveraging the ability to count single photons, a key to the EQC, and filter their associated wave functions precisely, we can perform optical imaging through otherwise opaque and dense materials. Quantum imaging has the potential to be a powerful supplement to currently available computerized tomography (CAT Scan) imaging applications, where tissue damage from high energy radiation needs to be avoided. We have built and are currently testing a prototype quantum imaging system.

#### Cybersecurity

##### *Quantum Networks and Quantum Authentication*

QCi has developed a system to address one of the major challenges in cybersecurity, authentication of users on a network, which is currently facilitated by the distribution of "private keys" by a trusted third party. This approach is inherently insecure as keys are bundled and travel with the encrypted data,

making it susceptible to harvest-and-decrypt-later vulnerability. QCi has developed a quantum authentication technology and methodology that eliminates the need for trust of third-party involvement in key distribution. Our approach uses a combination of a high-powered laser and a patented detection methodology deeply rooted in the fundamental principles of quantum mechanics, resulting in what we believe will be an unbreakable basis for private network communication.

## Industry Overview

Quantum computing is a component of the large and global high-performance computing industry, which is comprised of hardware, software, and services for compute-intensive applications. The rapid adoption of technologies such as artificial intelligence, 3D imaging, artificial intelligence/large language models, and the Internet of Things (IoT), have served to exponentially increase the generation of data, driving up the demand for high-performance computing. Estimates of the size of this industry vary, but according to Grand View Research, the high-performance computing market was valued at \$39.1 billion in 2019 and is expected to reach a value of \$53.6 billion by 2027, see *Grand View Research - High Performance Computing Market Size Worth \$53.6 Billion By 2027*, <https://www.grandviewresearch.com/press-release/global-high-performance-computing-hpc-market> (Information contained on, or that can be accessed through, this website is not incorporated by reference in this prospectus, and you should not consider information on this website to be part of this prospectus).

The high-performance computing market is important for many industries, including, but not limited to, IT, aerospace, healthcare, automotive, and e-commerce. Examples of compute-intensive applications include optimization, data management, analytics, encryption, natural language processing and complex modeling. Quantum computing is expected to be useful for similar applications. According to a report from Allied Market Research, the global enterprise quantum computing market size was valued at \$1.3 billion in 2020 and is projected to reach \$18.3 billion by 2030, growing at a compound annual growth rate of 29.7% from 2021 to 2030, according to a published report on the enterprise quantum computing market at <https://www.alliedmarketresearch.com/enterprise-quantum-computing-market> (Information contained on, or that can be accessed through, this website is not incorporated by reference in this prospectus, and you should not consider information on this website to be part of this prospectus).

While the current quantum computing market comprises a fraction of the broader high-performance computing market, we anticipate that quantum computers will unlock new applications that are unlikely to be addressable by existing high-performance computers comprised of leveraging classical processing units.

Quantum computing is a nascent and rapidly developing technology that has shown promise in delivering potentially disruptive computing capabilities. We believe that quantum computing's immense compute capabilities qualify it as a subset of high-performance computing. As quantum computing hardware continues to advance, we expect a corresponding growth in demand for software capable of leveraging the compute capabilities of quantum computing hardware. As an early participant in this rapidly growing ecosystem, we believe we are well-positioned to capture and drive a meaningful amount of this category growth. We believe that there is further potential upside from quantum computing and technology more broadly opening new markets not included in traditional high-performance computing market size estimates.

## Competition

The quantum computing industry is highly competitive and rapidly evolving and will likely remain so for the foreseeable future. As this industry continues to grow and mature, we expect a continued influx of new competitors, products, hardware advances, and concepts to emerge that can dramatically transform the industry and our business. Due to the high price point of quantum computing hardware today, novel business models may emerge to adapt to customer preferences in the high-performance computing industry. Our ability to evolve and adapt rapidly over an extended period of time will be critical in remaining competitive. We perform a broad range of research and development efforts to identify and position for the changing demands of future customers and users, industry trends, and competitive forces.

According to research conducted by The Quantum Insider (<https://thequantuminsider.com/data>), there are over 700 companies and approximately 400 university academic groups working in various aspects of quantum technology, with approximately 400 of these having a pure play focus on quantum computing, according to *The Landscape of the Quantum Startup Ecosystem*, October 18, 2022, <https://epjquantumtechnology.springeropen.com/articles/10.1140/epjqt/s40507-022-00146-x> (Information contained on, or that can be accessed through, this website is not incorporated by reference in this prospectus, and you should not consider information on this website to be part of this prospectus).

These entities range in size from diversified global companies with significant research and development resources such as IBM, Google, Intel, Microsoft, Quantinuum (formerly Honeywell) and Amazon to recent market entrants such as D-Wave Quantum, Rigetti Computing, IonQ, PsiQuantum, Xanadu and Infeqton (formerly ColdQuanta), as well as smaller privately funded development stage companies whose narrower product focuses may allow them to be more effective in deploying resources towards a specific industry demand. In addition, we face competition from large research organizations funded by sovereign nations such as China, Russia, Canada, Australia, and the United Kingdom, as well as the European Union, and we believe that additional countries will invest in quantum computing in the future. We will continue to face competition from the existing high-performance computing industry using classical (non-quantum) computers.

We believe that competition in this market segment will intensify. Many of our competitors may have longer operating histories, significantly greater financial, technical, product development and marketing resources, and greater name recognition than we do. Our competitors could use these resources to market or develop products or services that are more effective or less costly than any or all of our products or services.

## Intellectual Property

Our intellectual property consists of patents, trademarks, and trade secrets. Our trade secrets consist of product formulas, research and development, and unpatentable know-how, all of which we seek to protect, in part, by confidentiality agreements. To protect our intellectual property, we rely on a combination of laws and regulations, as well as contractual restrictions. Federal trademark law protects our registered trademarks. We also rely on the protection of laws regarding unregistered copyrights for certain content we create and trade secret laws to protect our proprietary technology. To further protect our intellectual property, we enter into confidentiality agreements with our executive officers, employees, consultants and directors.

## Trademarks

The Company has three registered trademarks, "QPhoton," "QGraph" and "Qatalyst." The Company has no pending trademark applications.

## Patents

The Company has two granted United States patents.

Country	Serial No.	Filing Date	Patent No.	Issue Date	Title	Status	Anticipated Expiration Date
USA	17/560,816	12/23/2021	11,436,519	09/06/2022	Machine Learning Mapping for Quantum Processing Units	Granted	12/23/2041
USA	17/810,198	06/30/2022	12,008,436	06/11/2024	Machine Learning Mapping for Quantum Processing Units	Granted	06/30/2042

## Exclusive License Agreement

QCi has an exclusive license to seven patents issued to the Stevens Institute of Technology, pursuant to the license agreement dated December 17, 2020 by and among QPhoton and The Trustees of The Stevens Institute of Technology (the "Licensor"). QPhoton agreed to reimburse the Licensor for patent prosecution expenses in the amount of \$125,041 and deliver to the Licensor an annual report and quarterly report pursuant to the terms of the license agreement. As consideration for the license and other rights granted under the license agreement, QPhoton agreed to pay the Licensor (i) \$35,000 upon full execution of the license agreement, (ii) \$28,000 each annual anniversary of the effective date of the license agreement, (iii) 9% of the membership units of QPhoton, LLC, and (iv) a royalty of 3.5% of the net sales price of each license product sold or license by QPhoton, LLC and any affiliate and sublicensee. On June 15, 2022, the Licensor agreed to assign the license agreement to QCi upon consummation of the QPhoton Merger.

## Government Regulation and Incentives

### Export Regulation

The U.S. government has historically tightly regulated the export of cryptographic technologies under the Arms Export Control Act and the associated International Traffic in Arms regulations (ITAR) as a form of munition. The logic behind the export restrictions is that the ability to secure information has great value to the military and intelligence agencies, and the US Government does not want those technologies sold or distributed to foreign adversaries. These regulations were relaxed in 1996 by executive order, but restrictions are still in place under the Export Administration Act that limit the export of some advanced encryption methods and technologies. Export of commercial encryption products to certain designated countries and terrorist groups is restricted, as are exports of military quality encryption technologies. Restrictions on encryption technology are in place in many other countries but the extent of regulation varies widely from country to country. Domestically, encryption technology is largely unregulated but law enforcement, intelligence and investigative agencies work closely with encryption technology developers to enable the US government to access encrypted data under certain conditions. We believe that quantum encryption and decryption products can be marketed to U.S. government agencies but that export opportunities may be limited. The National Security Agency (NSA) released the "Commercial National Security Algorithm Suite 2.0" (CNSA 2.0) Cybersecurity Advisory (CSA) to notify National Security Systems (NSS) owners, operators and vendors of the future quantum-resistant (QR) algorithms requirements for NSS networks that contain or transfer classified information or are otherwise critical to military and intelligence activities. The US Government has also placed some export restrictions on certain types of cryogenic quantum computing equipment as well as some optical materials. However, at this time there are no significant export limitations on the Company's photonic products.

### Incentives

In December 2018, the National Quantum Initiative Act (the "Quantum Act") was signed into law. The purpose of the Quantum Act is to "ensure the continued leadership of the United States in quantum information science" and to develop a unified national strategy for researching quantum information science. The Quantum Act authorizes a National Quantum Coordination Office inside the White House's Office of Science and Technology Policy to help coordinate research between agencies, serve as the federal point of contact and promote private commercialization of federal research breakthroughs over the next decade. In addition, President Trump announced the formation of a National Quantum Initiative consisting of key technology companies working in the field of quantum computing. The Company is a member of that Initiative

In August 2022 Congress passed, and President Biden signed, the Creating Helpful Incentives to Produce Semiconductors Act of 2022 (the "CHIPS Act"). The CHIPS Act was designed to address the global computer chip shortage and attract chip manufacturing, and innovation to the United States. The CHIPS Act is a \$280 billion spending package aimed at encouraging the growth of the US-based semiconductor industry. To assist in securing the domestic chip supply, the CHIPS Act provides \$52.7 billion for American semiconductor research, development, manufacturing, and workforce development. The Company is pursuing programs under the CHIPS Act as a potential avenue to finance a photonic chip manufacturing facility.

### Corporate Information

Our executive offices are located at 5 Marine View Plaza, Suite 214, Hoboken, NJ 07030, and our telephone number is (703) 436-2121. Our corporate website is [www.quantumcomputinginc.com](http://www.quantumcomputinginc.com). Information appearing on our website is not part of this prospectus.

### Employees

As of December 13, 2024, the Company had 41 full time employees and 12 part time employees or contracted staff, 39 of whom are focused on product development. The employees are not part of a collective bargaining agreement and labor relationships are good. The Company offers a health and welfare benefit plan to current full time employees that provides medical, dental, vision, life and disability benefits. The Company also offers a 401(k) retirement savings plan and participation in the stock option plan to all full-time employees. There are no unpaid liabilities under the Company's benefit plans, and the Company has no obligation to pay for post-retirement health and medical costs of retired employees.

## SELLING STOCKHOLDERS

We are registering the shares of Common Stock in order to permit the Selling Stockholders to offer these shares for resale from time to time. Except for the investment in the Common Stock being registered hereunder, and their investment in registered direct offerings that closed on November 18, 2024 and December 12, 2024, the Selling Stockholders have not had any material relationship with us within the past three years.

We have entered into the Purchase Agreements with the Selling Stockholders whereby we have agreed to file a registration statement for the registration of the shares of Common Stock issued pursuant to the Purchase Agreements. Pursuant to the terms of the Purchase Agreements, the Company has agreed to file a registration statement within fifteen (15) days of the closing of the private placement. The registration statement, of which this prospectus forms a part of, is being filed pursuant to the Purchase Agreement. For additional information regarding the issuances of those shares of Common Stock, see "December 2024 Offerings" under "Prospectus Summary" above.

The table below lists the Selling Stockholders and other information regarding the beneficial ownership of the shares of Common Stock by the Selling Stockholders. The second column lists the number of shares of Common Stock beneficially owned by the Selling Stockholders, based on its ownership of the shares of Common Stock, as of the date hereof. The third column lists the shares of Common Stock being offered by this prospectus by the Selling Stockholders. The fourth column assumes the sale of all of the shares offered by the Selling Stockholders pursuant to this prospectus.

The Selling Stockholders may sell all, some or none of their shares in this offering. See " Plan of Distribution."

Name of Selling Stockholders	Number of Shares of Common Stock Owned Prior to Offering	Maximum Number of shares of Common Stock to be Sold Pursuant to this Prospectus	Number of shares of Common Stock Owned After the Offering (1)
Alyeska Master Fund, L.P. (2)	4,230,000	4,230,000	0
Anson Investments Master Fund LP (3)	2,791,800	2,791,800	0
Anson East Master Fund LP (4)	803,700	803,700	0
Anson Opportunities Master Fund LP (5)	634,500	634,500	0
American Capital Partners, LLC (6)	500,000	500,000	0
Total	8,960,000	8,960,000	0

(1) Assumes that the Selling Stockholders sell all of the common stock offered pursuant to this prospectus.

- (2) Alyeska Investment Group, L.P., the investment manager of Alyeska Master Fund, L.P. (the "Selling Securityholder"), has voting and investment control of the shares held by the Selling Securityholder. Anand Parekh is the Chief Executive Officer of Alyeska Investment Group, L.P. and may be deemed to be the beneficial owner of such shares. Mr. Parekh, however, disclaims any beneficial ownership of the shares held by the Selling Securityholder. The registered address of Alyeska Master Fund, L.P. is at c/o Maples Corporate Services Limited, P.O. Box 309, Ugland House, South Church Street George Town, Grand Cayman, KY1-1104, Cayman Islands. Alyeska Investment Group, L.P. is located at 77 W. Wacker, Suite 700, Chicago IL 60601.
- (3) Anson Advisors Inc and Anson Funds Management LP, the Co-Investment Advisers of Anson Investments Master Fund LP ("Anson"), hold voting and dispositive power over the Common Shares held by Anson. Tony Moore is the managing member of Anson Management GP LLC, which is the general partner of Anson Funds Management LP. Moez Kassam and Amin Nathoo are directors of Anson Advisors Inc. Mr. Moore, Mr. Kassam and Mr. Nathoo each disclaim beneficial ownership of these Common Shares except to the extent of their pecuniary interest therein. The principal business address of Anson is Maples Corporate Services Limited, PO Box 309, Ugland House, Grand Cayman, KY1-1104, Cayman Islands.
- (4) Anson Advisors Inc and Anson Funds Management LP, the Co-Investment Advisers of Anson East Master Fund LP ("Anson"), hold voting and dispositive power over the Common Shares held by Anson. Tony Moore is the managing member of Anson Management GP LLC, which is the general partner of Anson Funds Management LP. Moez Kassam and Amin Nathoo are directors of Anson Advisors Inc. Mr. Moore, Mr. Kassam and Mr. Nathoo each disclaim beneficial ownership of these Common Shares except to the extent of their pecuniary interest therein. The principal business address of Anson is Maples Corporate Services Limited, PO Box 309, Ugland House, Grand Cayman, KY1-1104, Cayman Islands.
- (5) Anson Advisors Inc and Anson Funds Management LP, the Co-Investment Advisers of Anson Opportunities Master Fund LP ("Anson"), hold voting and dispositive power over the Common Shares held by Anson. Tony Moore is the managing member of Anson Management GP LLC, which is the general partner of Anson Funds Management LP. Moez Kassam and Amin Nathoo are directors of Anson Advisors Inc. Mr. Moore, Mr. Kassam and Mr. Nathoo each disclaim beneficial ownership of these Common Shares except to the extent of their pecuniary interest therein. The principal business address of Anson is Maples Corporate Services Limited, PO Box 309, Ugland House, Grand Cayman, KY1-1104, Cayman Islands.
- (6) Includes 500,000 Placement Agent Warrant Shares. Edward Cahill, President and Officer of the Corporation of American Capital Partners, LLC has voting and investment power over the securities held by the Selling Stockholder. The address of the Selling Stockholder is 205 Oser Avenue, Hauppauge, NY 11788.

## PLAN OF DISTRIBUTION

The Selling Stockholders of the securities and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their securities covered hereby on the principal Trading Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A Selling Stockholders may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales that are not in violation of Regulation SHO;
- in transactions through broker-dealers that agree with the Selling Stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or

- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act of 1933, as amended (the "Securities Act"), if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2440; and in the case of a principal transaction a markup or markdown in compliance with FINRA IM- 2440.

In connection with the sale of the securities or interests therein, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Stockholders may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The Selling Stockholders has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the securities. The Company has agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep this prospectus effective until the earlier of (i) the date on which the securities may be resold by the Selling Stockholder without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for the Company to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect or (ii) all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

## LEGAL MATTERS

Lucosky Brookman LLP serves as our legal counsel in connection with this offering.

## EXPERTS

The consolidated financial statements of Quantum Computing Inc. and subsidiaries as of December 31, 2023 and 2022 and for the two years in the period ended December 31, 2023, incorporated in this prospectus by references to the Amendment No. 1 to the Annual Report on Form 10-K for the year ended December 31, 2023, have been so incorporated in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements) of BPM LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

## WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement on Form S-1 that we filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules and regulations of the SEC. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the internet at the SEC's website at <http://www.sec.gov>.

## INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" into this Prospectus the information in documents we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this Prospectus, and information that we file later with the SEC will automatically update and supersede this information. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Prospectus to the extent that a statement contained in or omitted from this Prospectus or any accompanying prospectus supplement, or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Prospectus.

We incorporate by reference the documents listed below and any future documents that we file with the SEC (excluding any portion of such documents that are furnished and not filed with the SEC) under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this Prospectus forms a part prior to the effectiveness of the registration statement and (ii) after the date of this Prospectus until the offering of the securities is terminated:

- our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the SEC on [April 1, 2024](#), and as amended on [September 11, 2024](#);

- our Quarterly Report on Form 10-Q for the quarter ended September 30, 2024, filed with the SEC on [November 6, 2024](#), and Quarterly Report on Form 10-Q for the quarter ended June 30, 2024, filed with the SEC on [October 2, 2024](#) and Quarterly Report on Form 10-Q for the quarter ended March 31, 2024 filed with the SEC on [October 2, 2024](#);
- our Current Reports on Form 8-K filed with the SEC on [December 12, 2024](#), [November 18, 2024](#), [November 15, 2024](#), [September 25, 2024](#), [August 22, 2024](#), [August 12, 2024](#), [August 1, 2024](#), [June 27, 2024](#), [June 11, 2024](#), [May 17, 2024](#), [May 8, 2024](#), [April 25, 2024](#), [March 27, 2024](#), [March 25, 2024](#), and [January 31, 2024](#); and
- all reports and other documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act after the date of this Prospectus and prior to the termination of this offering.

We also incorporate by reference any future filings (other than information furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits furnished on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this Prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the common stock made by this Prospectus and will become a part of this Prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this Prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

Notwithstanding the foregoing, information furnished under Items 2.02 and 7.01 of any Current Report on Form 8-K, including the related exhibits, is not incorporated by reference in this Prospectus.

The information about us contained in this Prospectus should be read together with the information in the documents incorporated by reference. You may request a copy of any or all of these filings, at no cost, by writing or telephoning us at: Quantum Computing Inc., 5 Marine View Plaza, Suite 214, Hoboken, NJ 07030, (703) 436-2161.

## 8,960,000 Shares of Common Stock

Quantum Computing Inc.

### PROSPECTUS

December [●], 2024

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### PART II

#### INFORMATION NOT REQUIRED IN PROSPECTUS

##### Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses, other than underwriting discounts and commissions, to be paid by the Registrant in connection with the issuance and distribution of the securities being registered. All amounts other than the SEC registration fee are estimates.

SEC Registration Fee	\$ 8,958
Accounting Fees and Expenses	\$ 10,000
Legal Fees and Expenses	\$ 15,000
<b>Total*</b>	<b>\$ 33,958</b>

\* Estimated expenses.

##### Item 14. Indemnification of Directors and Officers

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its shareholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the corporation or its shareholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) for unlawful payments of dividends or unlawful stock repurchases, redemptions or other distributions, or (iv) for any transaction from which the director derived an improper personal benefit. Our amended certificate of incorporation provides that, to the maximum extent permitted by law, no director shall be personally liable to us or our shareholders for monetary damages for breach of fiduciary

duty as director.

Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify directors and officers as well as other employees and individuals against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with any threatened, pending or completed actions, suits or proceedings in which such person is made a party by reason of such person being or having been a director, officer, employee or agent to the corporation. The Delaware General Corporation Law provides that Section 145 is not exclusive of other rights to which those seeking indemnification may be entitled under any bylaw, agreement, vote of shareholders or disinterested directors or otherwise. Our bylaws provide for indemnification by us of our directors, officers and employees to the fullest extent permitted by the Delaware General Corporation Law.

Insofar as indemnification for liabilities arising under the Securities Act may be provided for directors, officers, employees, agents or persons controlling an issuer pursuant to the foregoing provisions, the opinion of the SEC is that such indemnification is against public policy as expressed in the Securities Act, and is therefore unenforceable. In the event that a claim for indemnification by such director, officer or controlling person of us in the successful defense of any action, suit or proceeding is asserted by such director, officer or controlling person in connection with the securities being offered, we will, unless in the opinion of our counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by us is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

No pending material litigation or proceeding involving our directors, executive officers, employees or other agents as to which indemnification is being sought exists, and we are not aware of any pending or threatened material litigation that may result in claims for indemnification by any of our directors or executive officers.

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#### **Item 15. Recent Sales of Unregistered Securities**

The following sets forth information regarding all unregistered securities sold by us in transactions that were exempt from the requirements of the Securities Act in the last three years. Except where noted, all of the securities discussed in this Item 15 were all issued in reliance on the exemption under Section 4(a)(2) of the Securities Act. Unless otherwise indicated, all of the share issuances described below were made in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act.

From November 10, 2021 through November 17, 2021, the Company conducted a private placement offering (the "November 2021 Financing") pursuant to the securities purchase agreements (the "Purchase Agreements") with 7 accredited investors (the "Investors"), as amended on December 16, 2021, whereby, the Investors had agreed to purchase from the Company an aggregate of 1,545,459 shares of the Company's Series A Convertible Preferred Stock, par value \$0.0001 per share (the "Series A Preferred Stock") and warrants to purchase 1,545,459 shares of the Company's Common Stock for an aggregate purchase price of \$8,500,000. The Warrants are two-year warrants to purchase shares of the Company's Common Stock at an exercise price of \$7.00 per share, subject to adjustment, and are exercisable at any time on or after the date that is six (6) months following the issuance date. The Warrants provide for cashless exercise in the event the underlying shares of Common Stock are not registered and a beneficial ownership limitation of 4.99% which may be increased or decreased up to 9.99%, provided that any such increase will not be effective until the 61st day after delivery of a notice to us of such increase.

On December 10, 2024, the Company issued (i) 1,540,000 shares of Common Stock at a purchase price of \$5.00 per share, in the RDO and (ii) 8,460,000 shares of its Common Stock at the same price in the PIPE, for aggregate gross proceeds of \$50 million. In connection with the Offerings, the Company also issued to the Placement Agent (or its designees) 500,000 five-year warrants (representing 5% of the securities sold in the Offerings), which will be exercisable beginning on June 8, 2025, and have an initial exercise price per share of Common Stock of \$5.75. The issuance of the shares in the PIPE, the Placement Agent Warrants and the shares of Common Stock underlying the Placement Agent Warrants were issued in reliance on the exemption from registration provided by Section 4(a)(2) under the Securities Act and/or Regulation D promulgated thereunder for transactions not involving a public offering.

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#### **Item 16. Exhibits and Financial Statement Schedules**

##### **(a) Exhibits**

We have filed the exhibits listed on the accompanying Exhibit Index of this registration statement and below in this Item 16:

<b>Exhibit Number</b>	<b>Exhibit Description</b>	<b>Reference</b>	<b>Filed or Furnished</b>
		<b>Form</b>	<b>Exhibit</b>
3.1(i)	<a href="#">Amended and Restated Certificate of Incorporation</a>	10-K/A	3.1(i)
3.1(ii)	<a href="#">Certificate of Designations of the Series A Convertible Preferred Stock</a>	8-K	3.1
3.1(iii)	<a href="#">Certificate of Amendment of Certificate of Designations of Series A Convertible Preferred Stock of Quantum Computing Inc., filed with the Delaware Secretary of State on December 16, 2021</a>	8-K	3.1
3.2	<a href="#">Amended and Restated By-laws</a>	10-K/A	3.2
3.3	<a href="#">Certificate of Designation with respect to the Series B Preferred Stock, par value \$0.0001 per share, dated June 14, 2022</a>	8-K	3.1
4.1	<a href="#">Common Stock Specimen</a>	10-12(g)	4.1
4.2	<a href="#">Promissory Note in the amount of \$8,250,000 issued by Quantum Computing Inc. to Streeterville Capital, LLC, dated September 23, 2022</a>	8-K	4.1
4.3	<a href="#">Form of Placement Agent Warrant</a>	8-K	4.1
5.1	<a href="#">Legal Opinion of Lacosky Brookman LLP</a>		X
10.1	<a href="#">ATM Agreement, dated as of December 5, 2022, between Quantum Computing Inc. and Ascendant Capital Markets, LLC</a>	8-K	1.1
10.2	<a href="#">First Amendment to ATM Agreement, dated as of August 17, 2023, between Quantum Computing Inc. and Ascendant Capital Markets, LLC</a>	8-K	1.1
10.3*	<a href="#">Employment Agreement between Quantum Computing Inc. and Christopher Boehmler, dated as of June 26, 2023</a>	8-K	10.1
10.4*	<a href="#">2019 Quantum Computing Inc. Equity and Incentive Plan</a>	S-1	10.8
10.5*	<a href="#">Form Director Agreement</a>	8-K	10.1

10.6*	<a href="#">Employment Agreement between William J. McGann and Quantum Computing Inc., dated as of January 3, 2022</a>	8-K	10.2	01/03/2022
10.7	<a href="#">Note Purchase Agreement, dated as of February 18, 2022, between Quantum Computing Inc. and QPhoton, Inc.</a>	8-K	10.1	02/23/2022
10.8	<a href="#">Unsecured Promissory Note issued by QPhoton, Inc. to Quantum Computing Inc., in the amount of \$1,250,000, dated February 18, 2022</a>	8-K	10.2	02/23/2022
10.9	<a href="#">Agreement and Plan of Merger by and among Quantum Computing Inc., Project Alpha Merger Sub I, Inc., Project Alpha Merger Sub II, LLC, QPhoton, Inc., and Yuping Huang, dated as of May 18, 2022</a>	8-K	10.1	05/23/2022

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10.10	<a href="#">Escrow Agreement, dated as of June 16, 2022, by and among Quantum Computing Inc., Yuping Huang and Worldwide Stock Transfer, LLC</a>	8-K	10.2	06/21/2022
10.11	<a href="#">Stockholders Agreement by and among Quantum Computing Inc. and each of the Stockholders set forth on Exhibit A thereto, dated as of June 16, 2022</a>	8-K	10.3	06/21/2022
10.12	<a href="#">Form Registration Rights Agreement</a>	8-K	10.4	06/21/2022
10.13*	<a href="#">Employment Agreement, dated as of June 15, 2022, by and between Quantum Computing Inc. and Yuping Huang</a>	8-K	10.5	06/21/2022
10.14*	<a href="#">Director Agreement between Quantum Computing Inc. and Dr. Carl Weimer, dated January 6, 2023</a>	8-K	10.1	01/09/2023
10.15*	<a href="#">Quantum Computing Inc. 2022 Equity and Incentive Plan</a>	10-K/A	10.42	07/10/2023
10.16	<a href="#">Consulting Services Agreement, dated as of July 1, 2023, by and between Quantum Computing Inc. and Christopher Roberts</a>	10-K	10.31	04/01/2024
10.17	<a href="#">Modification 1 to Consulting Services Agreement, dated as of January 2, 2024, by and between Quantum Computing Inc. and Christopher Roberts</a>	10-K	10.32	04/01/2024
10.18	<a href="#">Form of Registered Offering Purchase Agreement, dated as of December 10, 2024, between Quantum Computing Inc. and each Purchaser (as defined therein)</a>	8-K	10.1	12/12/2024
10.19	<a href="#">Form of Placement Purchase Agreement, dated as of December 10, 2024, between Quantum Computing Inc. and each Purchaser (as defined therein)</a>	8-K	10.2	12/12/2024
10.20	<a href="#">Placement Agency Agreement, dated December 10, 2024, between Quantum Computing Inc. and Titan Partners Group LLC, a division of American Capital Partners, LLC</a>	8-K	10.3	12/12/2024
10.21	<a href="#">Form of Lock-Up Agreement dated December 12, 2024</a>	8-K	10.4	12/12/2024
21.1	<a href="#">List of Subsidiaries</a>	10-K	21.1	04/01/2024
23.1	<a href="#">Consent of BPM LLP, an independent registered public accounting firm</a>			X
23.2	<a href="#">Consent of Locusky Brookman LLP (included in Exhibit 5.1)</a>			X
24.1	<a href="#">Power of Attorney (included in the signature page of this Registration Statement)</a>			X
107	<a href="#">Filing Fee Table.</a>			X

\* Indicates a management contract or compensatory plan or arrangement.

**(b) Financial Statement Schedules.**

All schedules have been omitted because either they are not required, are not applicable or the information is otherwise set forth in the financial statements and related notes thereto.

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**Item 17. Undertakings**

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
  - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
  - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
  - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.
- (2) That for the purpose of determining any liability under the Securities Act of 1933 each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in this registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

(6) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described in Item 14 above, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

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#### SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Hoboken, New Jersey, on December 20, 2024.

Quantum Computing Inc.

By: /s/ Dr. William McGann

Name: Dr. William McGann  
Title: Chief Executive Officer  
(Principal Executive Officer)

POWER OF ATTORNEY: KNOW ALL PERSONS BY THESE PRESENTS that each individual whose signature appears below constitutes and appoints William McGann, his true and lawful attorneys-in-fact and agents with full power of substitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and to sign any registration statement for the same offering covered by the Registration Statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his, her or their substitute or substitutes, may lawfully do or cause to be done or by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

Signature	Title	Date
<u>/s/ Dr. Yuping Huang</u> Yuping Huang	Chairman of the Board of Directors and Chief Quantum Officer	December 20, 2024
<u>/s/ Dr. William McGann</u> Dr. William McGann	Chief Executive Officer (Principal Executive Officer)	December 20, 2024
<u>/s/ Christopher Boehmle</u> Christopher Boehmle	Chief Financial Officer, Treasurer (Principal Financial Officer and Principal Accounting Officer)	December 20, 2024
<u>/s/ Michael Turnelle</u> Michael Turnelle	Director	December 20, 2024
<u>/s/ Robert Fagenson</u> Robert Fagenson	Vice-Chairman of the Board of Directors	December 20, 2024
<u>/s/ Dr. Carl Weimer</u> Dr. Carl Weimer	Director	December 20, 2024
<u>/s/ Dr. Javad Shabani</u> Dr. Javad Shabani	Director	December 20, 2024

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LUCOSKY BROOKMAN LLP

101 Wood Avenue South  
5th Floor  
Woodbridge, NJ 08830T - (732) 395-4400  
F - (732) 395-4401111 Broadway  
Suite 807  
New York, NY 10006T - (212) 332-8160  
F - (212) 332-8161[www.lucbro.com](http://www.lucbro.com)

December 20, 2024

Quantum Computing Inc.  
5 Marine View Plaza, Suite 214  
Hoboken, NJ 07030

RE: **Registration Statement on Form S-1**

Ladies and Gentlemen:

We have acted as counsel to Quantum Computing Inc., a Delaware corporation (the "Company"), in connection with filing with the U.S. Securities and Exchange Commission (the "Commission") of a Registration Statement on Form S-1 (as amended or supplemented, the "Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act"). The Registration Statement relates to the resale by certain selling stockholders of up to an aggregate of 8,960,000 shares of the Company's common stock, \$0.0001 par value per share (the "Common Stock"), which consists of (i) 8,460,000 shares of Common Stock (the "PIPE Shares") and (ii) 500,000 shares of Common Stock (the "Warrant Shares") issuable upon exercise of the warrants issued to American Capital Partners, LLC (the "Placement Agent Warrants"). The Placement Agent Warrants were issued pursuant to that certain Placement Agency Agreement by and between the Company and Titan Partners Group LLC, a division of American Capital Partners, LLC, dated December 10, 2024 (the "Placement Agency Agreement").

The offering of the PIPE Shares and the Warrant Shares will be as set forth in the prospectus contained in the Registration Statement, as amended, and as supplemented from time to time.

For purposes of this opinion, we have examined such documents and reviewed such questions of law as we have considered necessary and appropriate for the purposes of our opinion set forth below. In rendering our opinion, we have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures and the conformity to authentic originals of all documents submitted to us as copies. We have also assumed the legal capacity for all purposes relevant hereto of all natural persons and, with respect to all parties to agreements or instruments relevant hereto other than the Company, that such parties had the requisite power and authority (corporate or otherwise) to execute, deliver and perform such agreements or instruments, that such agreements or instruments have been duly authorized by all requisite action (corporate or otherwise), executed and delivered by such parties and that such agreements or instruments are the valid, binding and enforceable obligations of such parties. As to questions of fact material to our opinions, we have relied upon certificates of officers of the Company and of public officials.

Based upon and subject to the foregoing, we are of the opinion that (i) the PIPE Shares, having already been issued, are validly issued, fully paid and non-assessable shares of Common Stock, (ii) the Placement Agent Warrants, issued in accordance with the Placement Agency Agreement, are valid and binding obligations of the Company, and (iii) the Warrant Shares have been duly authorized and, when issued by the Company upon the exercise of the Placement Agent Warrants, delivered and paid for in accordance with the terms thereof, will be validly issued, fully paid and non-assessable.

The opinions expressed herein are limited to the Delaware General Corporation Law and the laws of the State of New York, as currently in effect, and no opinion is expressed with respect to any other laws or any effect that such other laws may have on the opinions expressed herein.

Very Truly Yours,

/s/Lucosky Brookman LLP

Lucosky Brookman LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-1 of our report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements) dated September 11, 2024, relating to the consolidated financial statements of Quantum Computing Inc, which appears in the Amendment No. 1 to the Annual Report on Form 10-K of Quantum Computing Inc for the year ended December 31, 2023. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ BPM LLP

San Jose, California  
December 19, 2024

## Calculation of Filing Fee Table

S-1  
(Form Type)Quantum Computing Inc.  
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Common Stock, par value \$0.0001 per share	457(c)	8,960,000 <sup>(1)</sup>	\$ 6.53 <sup>(2)</sup>	\$58,508,800	0.00015310	\$ 8,958
		<b>Total Offering Amounts</b>				\$58,508,800	—	\$ 8,958
		<b>Total Fees Previously Paid</b>					—	—
		<b>Total Fee Offsets</b>					—	—
		<b>Net Fee Due</b>					—	\$ 8,958

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the securities being registered hereunder include such indeterminate number of additional shares of Common Stock as may from time to time be issued after the date hereof as a result of stock splits, stock dividends, recapitalizations or other similar transactions.

(2) Pursuant to Rule 457(c) under the Securities Act of 1933, and estimated solely for the purpose of calculating the registration fee, the proposed maximum offering price per share of the Common Stock covered by this Registration Statement is estimated to be \$6.53, which is the average of the high and low sale prices of the shares of Common Stock as reported on Nasdaq as of December 13, 2024.