Investor Presentation
May 2021

POET Technologies Inc.

Needham Technology & Media Conference
May 18, 2021 11:00 a.m. EDT

Safe harbor

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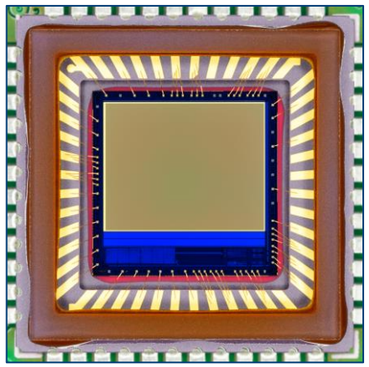
Presentation Outline

- Photonics and POET Technologies Overview
- Strategy, Markets and Products
- Operations, Growth and Revenue Plan
- Investment Highlights

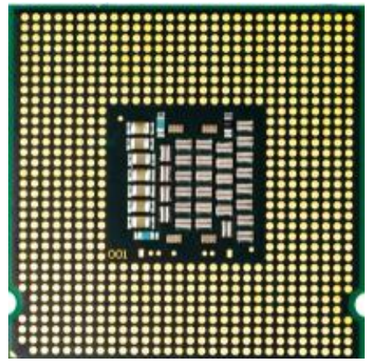
Photonics is an Enabling Technology

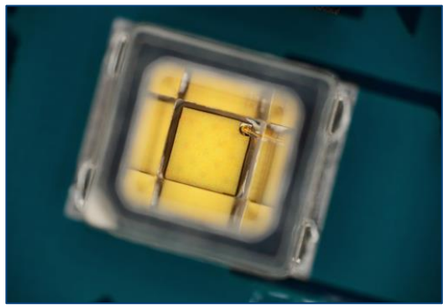
Photonics is the technology of generating and harnessing light

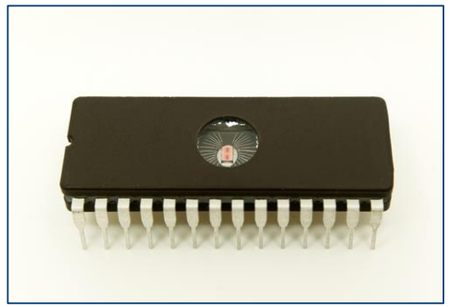
- Cutting-edge uses of lasers, optics, fiber-optics, and electro-optical devices in numerous and diverse fields
- Photonics applications and devices require the integration of electronic, photonic and optical devices

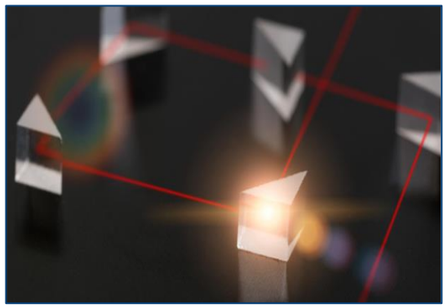


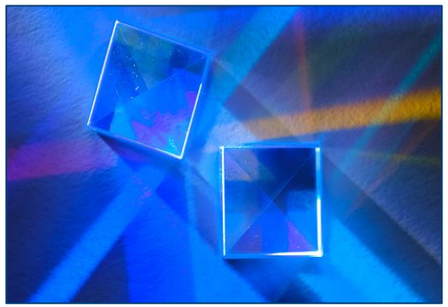
PHOTONICS	ELECTRONICS	OPTICS
▪ Lasers	▪ Controllers	▪ Mirrors
▪ Detectors	▪ Amplifiers	▪ Lenses
▪ Modulators	▪ ASIC's	▪ Prisms
▪ Multiplexers	▪ Monitors	▪ Collimators
▪ De-multiplexers	▪ Micro-processors	▪ Polarizers
▪ Mode Converters	▪ Memory	▪ Beam Splitters









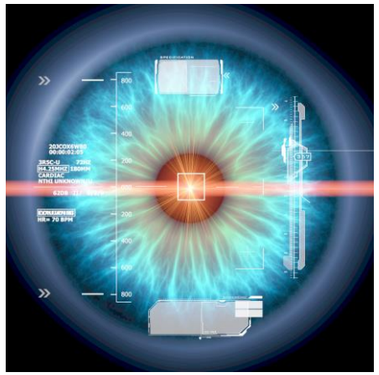


Photonics End Market Applications & Market Size

Communications

Computing

Sensing

Data and Tele-Communications	Edge Computing	Artificial Intelligence	Medical Technology	Autonomous Vehicles
				
Data Centers Switching / 5G Networks	Machine to Machine Internet of Things	Neuromorphic Optical Computing	Point-of-Use Health Care	LIDAR Systems

Global Market for Photonics

- LEDs & Lasers
- Sensors & Detectors
- Optical Components & Systems

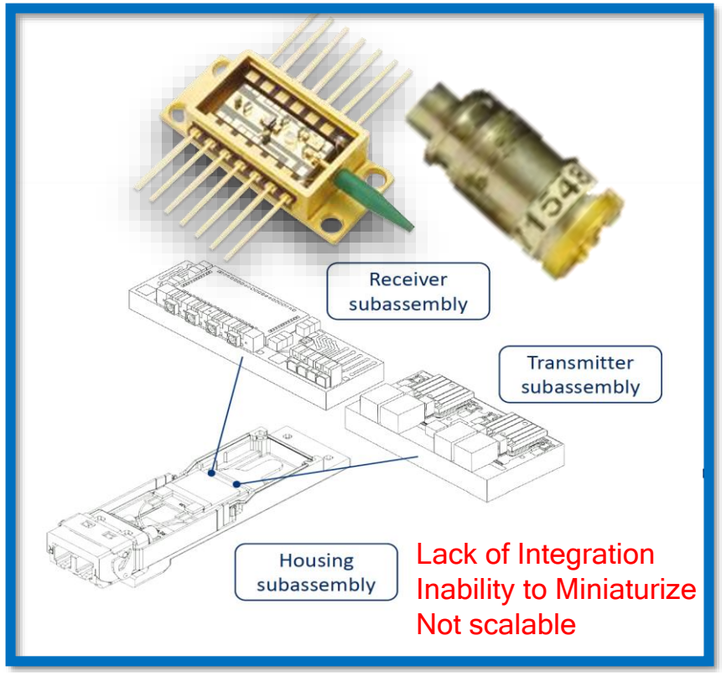
Source: Prescient & Strategic Intelligence, *Photonics Market Research Report, 2019*

Conventional Approaches to Assembling Photonics Devices are Expensive in Both Capital and Labor

- Assemble multiple components and sub-assemblies one at a time - align and optimize signal ("active alignment") with each component and sub-assembly placement
- No Economies of Scale - linear (1 to 1) relationship between unit output and capital invested
- **Massive market demand is currently unmet by existing technology**

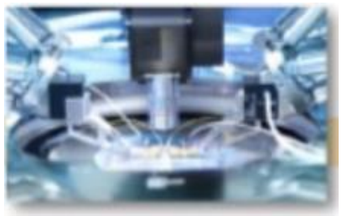
Existing Sub-Assembly Operations are Capital and Labor Intensive

Existing Solutions utilize a large # of Components and Sub-assemblies



Lack of Integration
Inability to Miniaturize
Not scalable

POET's Solution Lowers Bill of Materials and Capital Cost by 10X



Wafer Level Test Platform

Wafer Level Assembly Platform

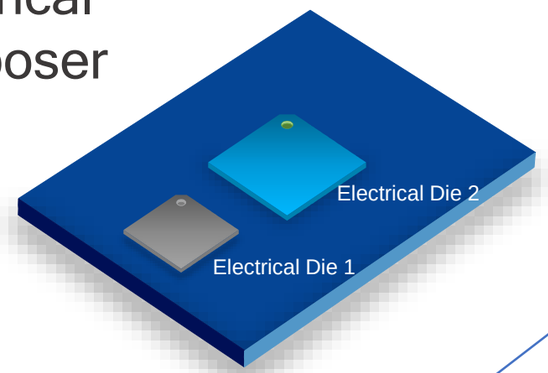
Optical Interposer Platform

Enables Photonic Multi Chip Modules with unprecedented scale and cost disruption

POET's Technology Solution

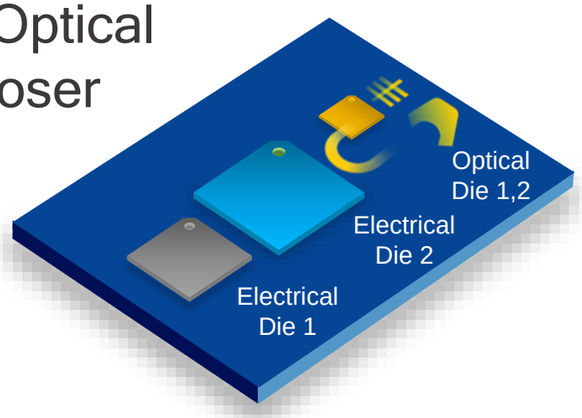
Adding a Novel, Patented Waveguide Layer on a Conventional Semiconductor Wafer Enables the Integration of Electronic and Photonic Components at Wafer-Scale

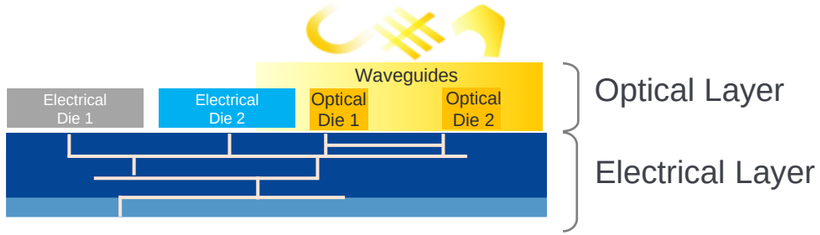
Electrical Interposer



- Typical electrical interposer with high-speed electrical connections among devices has been commonly used in devices like cell phones

POET's Optical Interposer

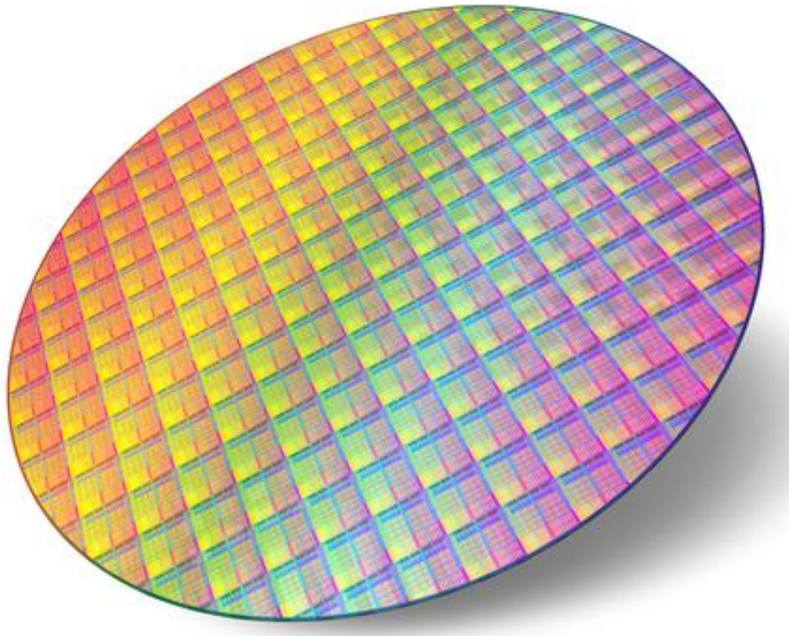




- By adding a layer using a novel material set and patented process, POET created the Optical Interposer that allows photonic devices to communicate seamlessly with one another and with the electronic devices at chip level
- Placement of components is done with automated semiconductor techniques without the need for "active" alignment

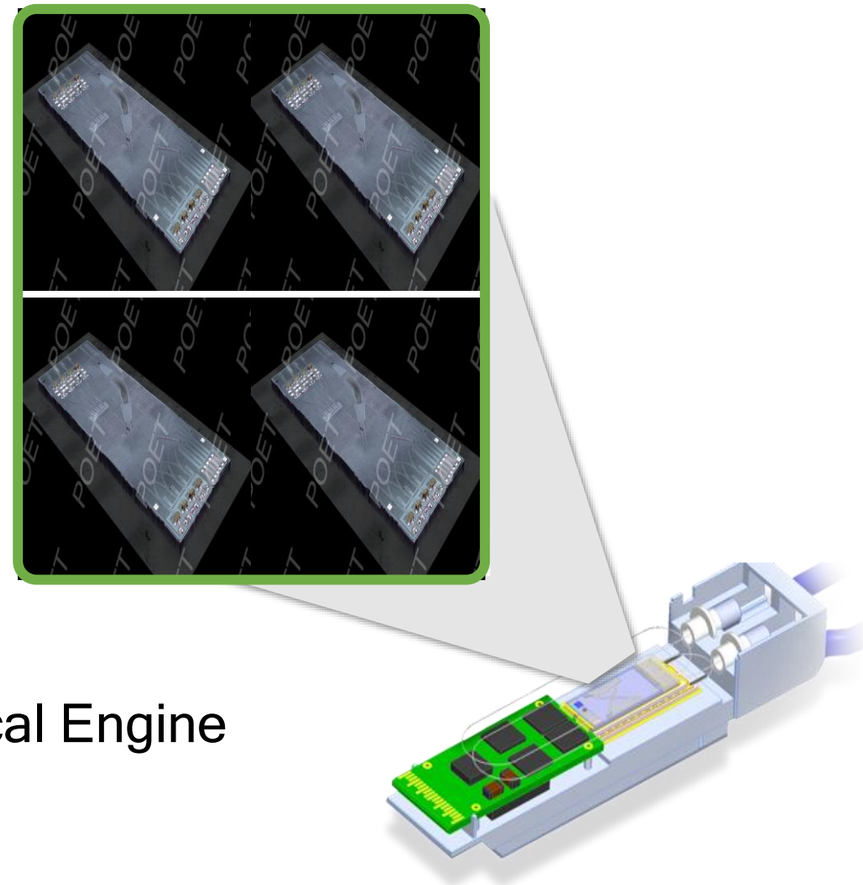
POET Fully Integrates Components at Wafer Scale

- Full integration of multiple active components with passive alignment at wafer scale using semiconductor assembly techniques
- **Large Economies of Scale - non-linear (> 1 to 1) relationship between unit output and capital invested**



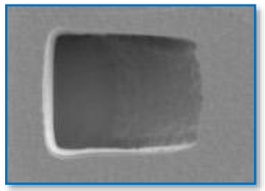
How POET Wins

- ✓ Simplified Packaging
- ✓ Lower Bill of Materials (BOM) Cost
- ✓ Highly Automated Wafer Scale Manufacturing
- ✓ Dense, Smallest Form Factor
- ✓ Excellent Electrical and Optical Performance

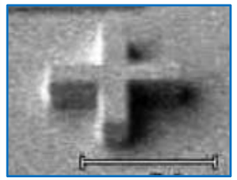


- Producing the World's Smallest and Lowest Cost 100G Optical Engine including all Active and Passive Photonics Devices

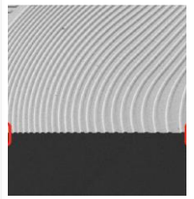
POET's Optical Interposer Platform



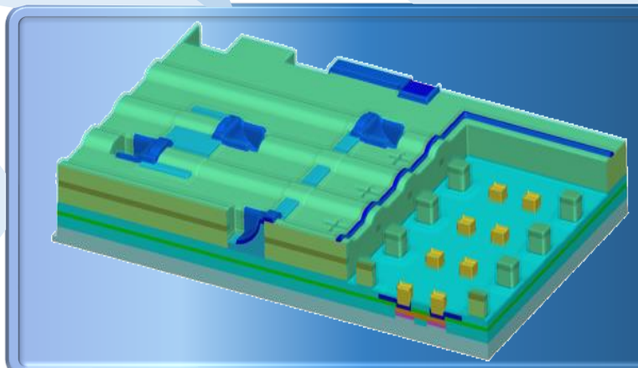
Low loss Micro Mirrors for out of plane coupling

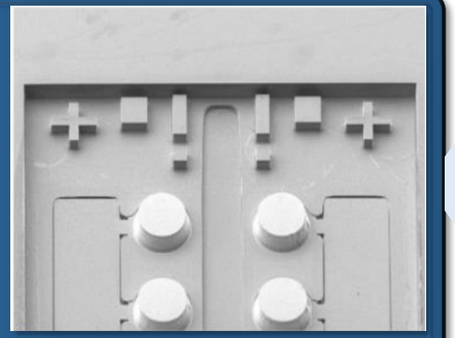


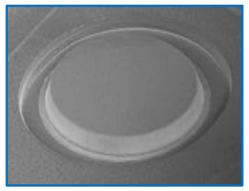
Self Aligned and Mechanically Interlocking Fiducials



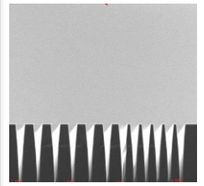
CMOS Compatible Low Loss Waveguides
- Compatible with a wide range of l



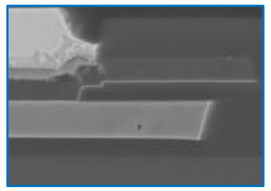




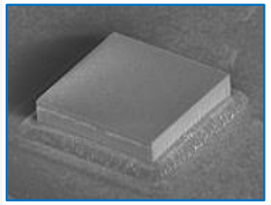
Multiple Eutectic Solder Configurations



External Cavity Athermal Lasers
- Low Loss
- High Density



2.5D RF Interposer with Integrated Passives



Self Aligned Z Referencing Pedestals
- Compatibility with hybrid die

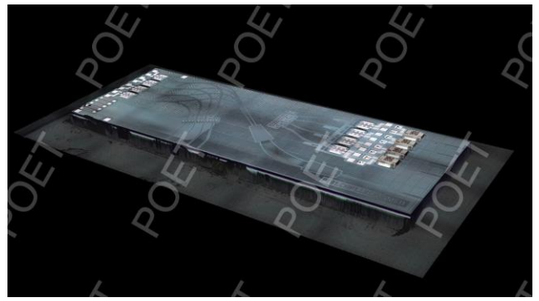
Mirror finish etched facet technology
- Lowest coupling loss in industry

POET's Optical Interposer Platform is the most versatile photonics packaging platform in the Industry

From Technology to Product | POET Optical Engines

Multiple years of development and interrelated projects yielded several industry-first achievements by POET and a fully-functional OPTICAL ENGINE

INTERPOSER	PASSIVE DEVICES	ACTIVE DEVICES	ASSEMBLY & BACKEND	OPTICAL ENGINE
Architecture & Process Control	Mutiplexers	Flip-chip Design for 25G DML Lasers	Mechanical	Laser Coupling
Facets	Demultiplexers	Flip-chip Design for CW Lasers	Electrical	Reflection Management
Upturn Mirrors	Spot Size Converters	Detector Designs (Internal & Merchant)	Thermal	PIN PD Integration
Electrical Interconnections	Power Taps	Monitor Photodiodes	Self-aligned Passive Placement	Burn-In
Eutectic Solder	ECL Gratings	Modulators	Hermetic Capping	Wafer Level Test
	Resistors / Capacitors / Inductors			Fiber Attach Units
				Singulation



- Epic in scale and time with minimal capital invested
- Proof of Concept achieved with the support of a large Tier 1 Company

Benefits of POET's Optical Interposer Platform

The benefits of POET's Optical Interposer add up to a truly disruptive entry into large-scale photonics markets

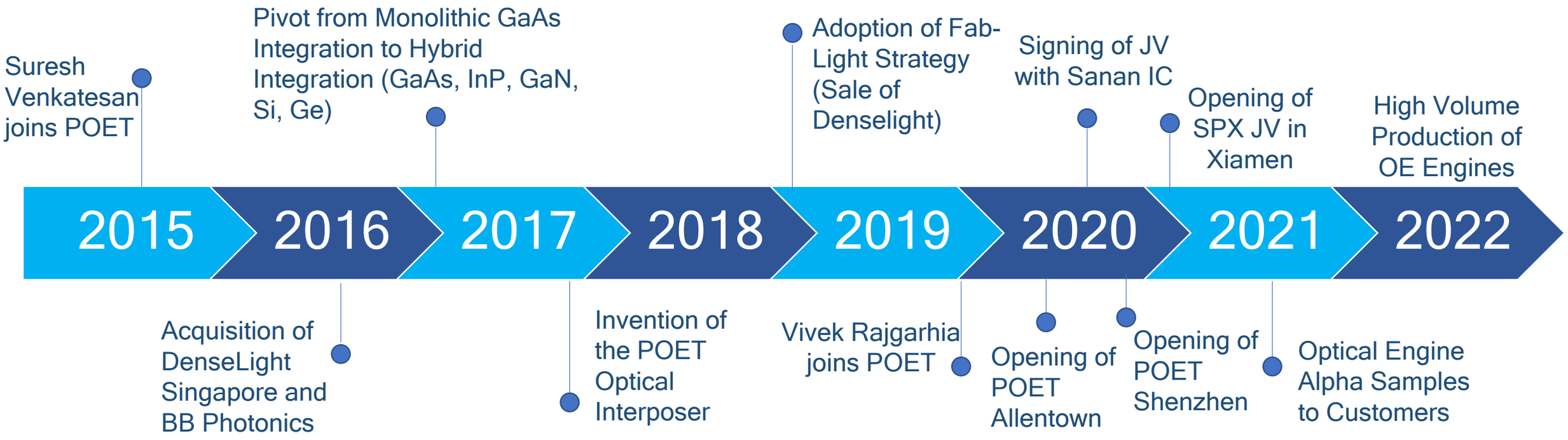
Module cost	⇨ ⇩	**20-40% Lower**
CAPEX investment for module assembly & test	⇨ ⇩	**10X Lower**
Chip-scale package	⇨ ⇩	**20% Lower Power**
Wafer-level assembly and test	⇨ ⇧	**>100X More Scale**
Planar architecture	⇨ ⇧	**Greater Flexibility**
Platform technology	⇨ ⇧	**More Versatility for Multiple Applications**

POET's Interposer Platform is the Most Versatile, Lowest Cost and Most Scalable Integration Platform

	POET Technologies	Traditional Micro-optics Assembly (INNO LIGHT, II-VI)	Silicon Photonics (intel, LUXTERA)
Low-Loss Athermal Waveguides	✓	N/A	✗
Integrated RF Interposer for Electronics Integration	✓	✗	✓
Visible to Near InfraRed (IR) Compatibility	✓	✓	✗
Wafer Scale Assembly & Test	✓	✗	✓
Low-Loss Coupling at Interfaces	✓	✓	✗
Micro-Optics integration Compatibility	✓	✓	✗
Scalability and Cost	✓	✗	✗
Small Form Factor	✓	✗	✓
Versatility	✓	✓	✗

POET has been steadily building a world-class design and development team

Team focused on design and marketing of products based on the Optical Interposer platform



4	Offices*
35	Employees
74	Patents and 12 Pending
5	Customer Engagements

*HQ: Toronto, CANADA, Allentown PA, Singapore, Shenzhen, CHINA

Culminating in a JV With Sanan IC Adding World-Class Manufacturing and Scale

- **Super Photonics Xiamen** – POET and Sanan IC Joint Venture (JV)
  - Virtual vertical integration of manufacturing for Optical Engines
  - Ability to rapidly scale production to thousands of devices per month

Sanan IC | Xiamen Sanan Integrated Circuit Co., Ltd.

- Xiamen Torch High-Tech Industrial Development Zone
- US$500 million investment on180,000 square meters
- Compound semiconductor manufacturing platform
- Process technologies for microwave radio frequency, high power electronics & lasers

Sanan Optoelectronics Co. Ltd. (Parent)

- LED, filters, power electronics, microwave integrated circuits and optical comms.
- Produces 25 million 6” wafers per year with 4 locations and over 8,500 acres
- US$1 billion Revenue; US$14 billion market cap
- Shanghai Stock Exchange (600703)

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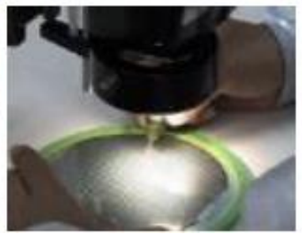
POET's Vision and Mission | A True Platform Technology

Vision: To become the global leader in chip-scale integrated photonics solutions by deploying our Optical Interposer technology, enabling seamless integration of electronics and photonics for a broad range of vertical market applications

Mission: Establish an industry leadership position in chip-scale integrated photonics with validated disruptive, IP protected, Optical Interposer platform components






POET Objectives:

- Develop a true platform technology for ease of reuse, design efficiency and cost
- Integrate ALL passive functions that guide and manipulate light into a single layer using a proprietary waveguide material
- Use Hybrid Integration to achieve maximum performance of active devices (lasers, detectors, modulators) based on the application
- Do all fabrication, assembly and testing of components at wafer-scale using standard semiconductor techniques
- Provide a disruptive cost / performance value proposition to customers in order to rapidly penetrate target markets

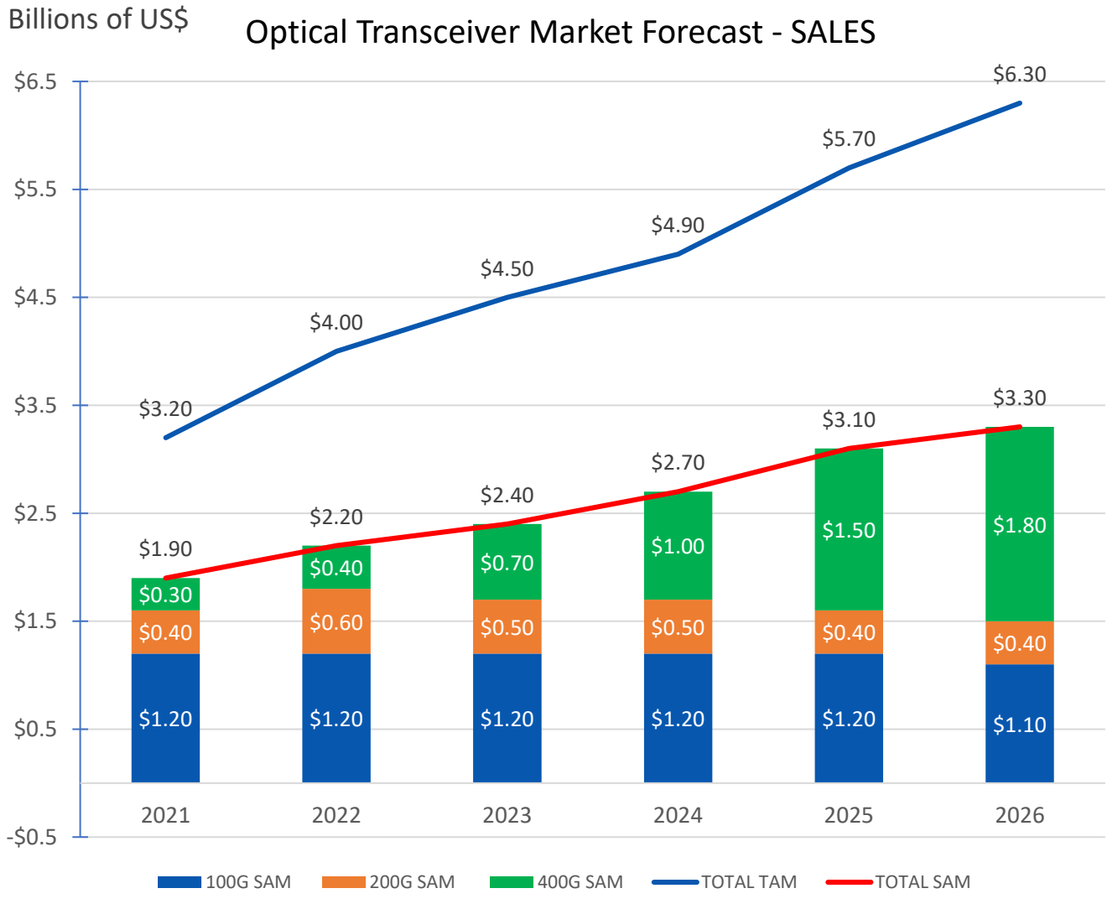
Overall Business Strategy

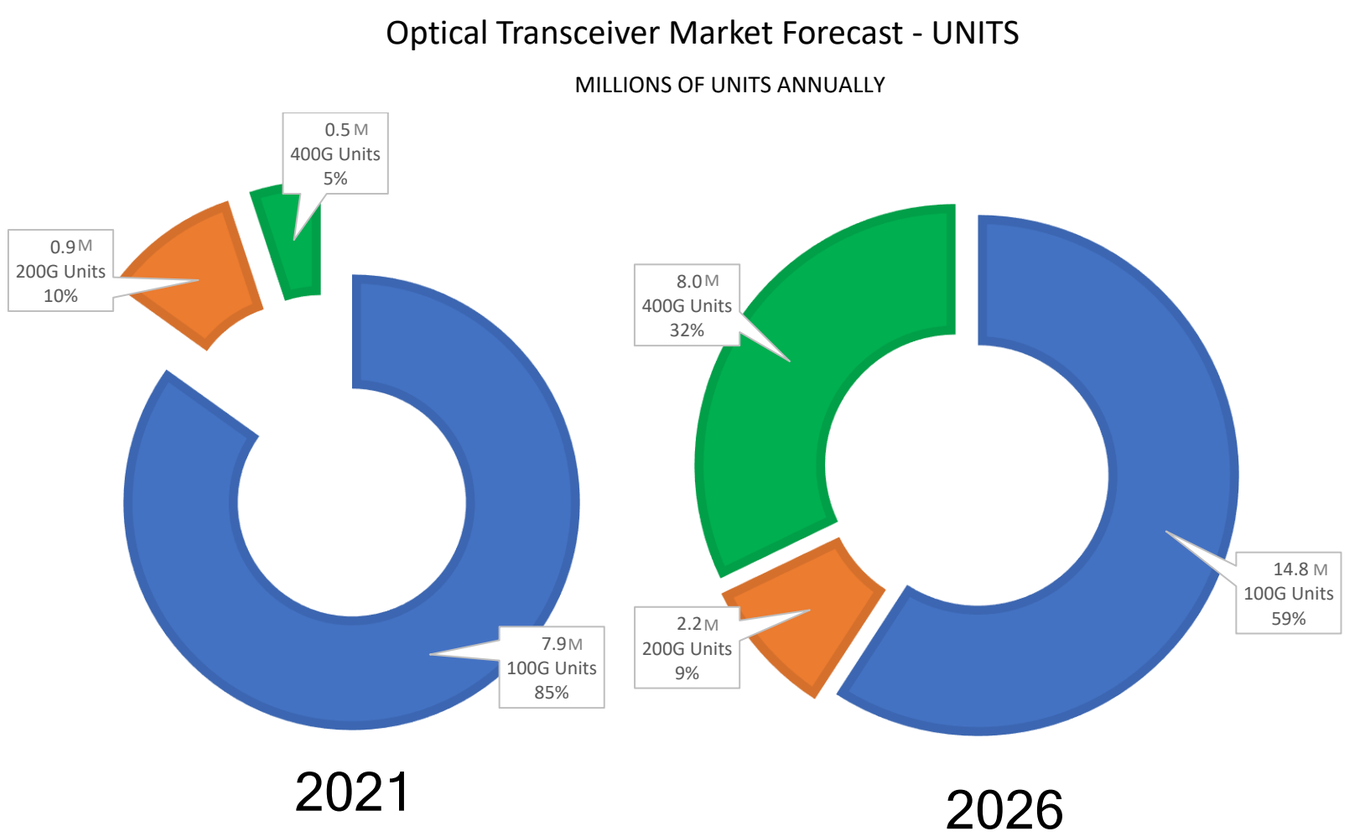
1. Support SPX as an independent company to drive growth in optical transceivers and deliver maximum cash flow to partners
2. Continue to engage with industry leaders and incumbents to design, develop and sell devices based on the Optical Interposer
3. Exploit “localization” imperative in China to expand scope of existing operations and to seek both organic and inorganic growth opportunities and exit strategies
4. Form additional partnerships in target sectors to establish fabrication and sales operations globally
5. Pursue complementary strategic alliance or acquisition opportunities for inorganic growth
6. Explore technology licensing opportunities for growth in non-target sectors

Initial Target Markets in Optical Transceivers

Even as 400G emerges, the100/200G segments continue to be large and attractive served markets for POET

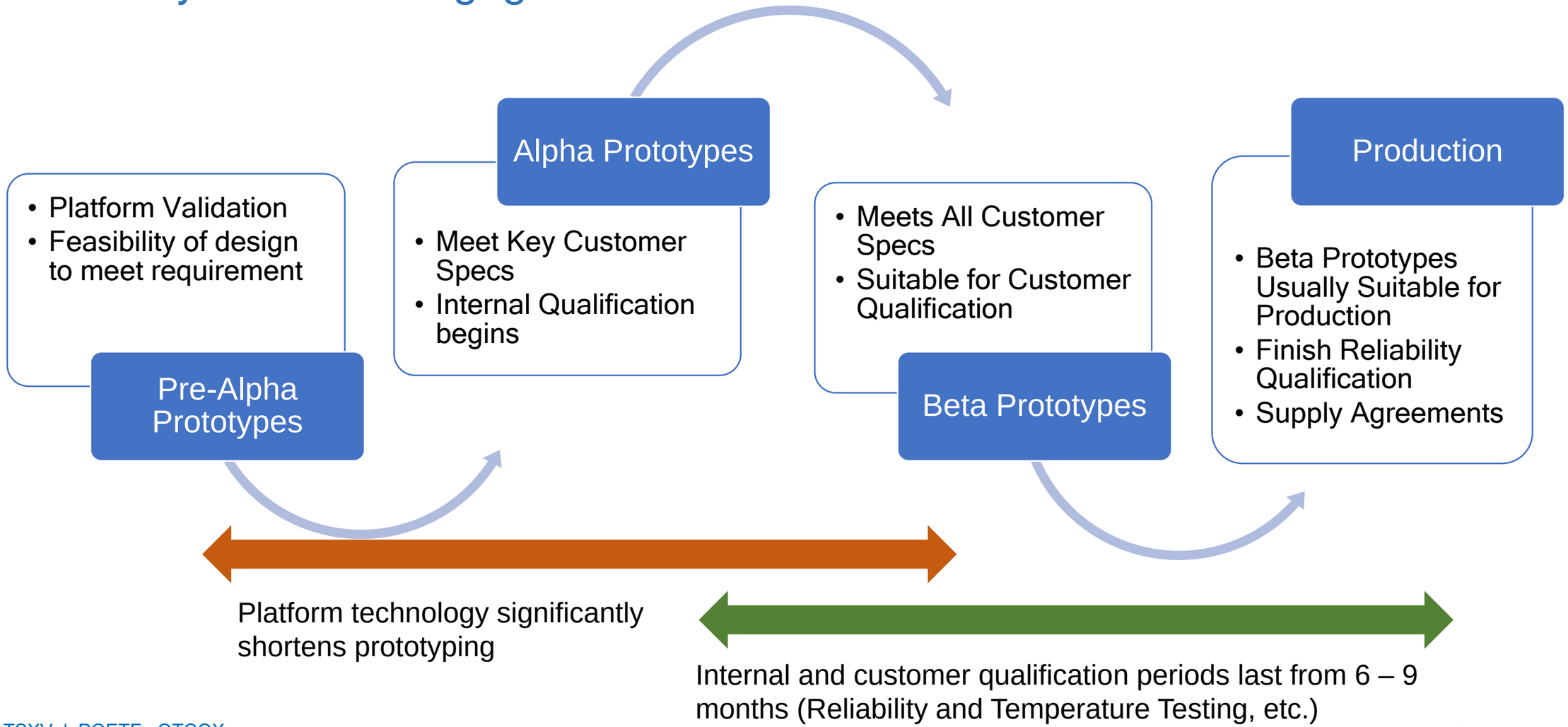
TAM = Total Available Market; SAM = Serviceable Available Market



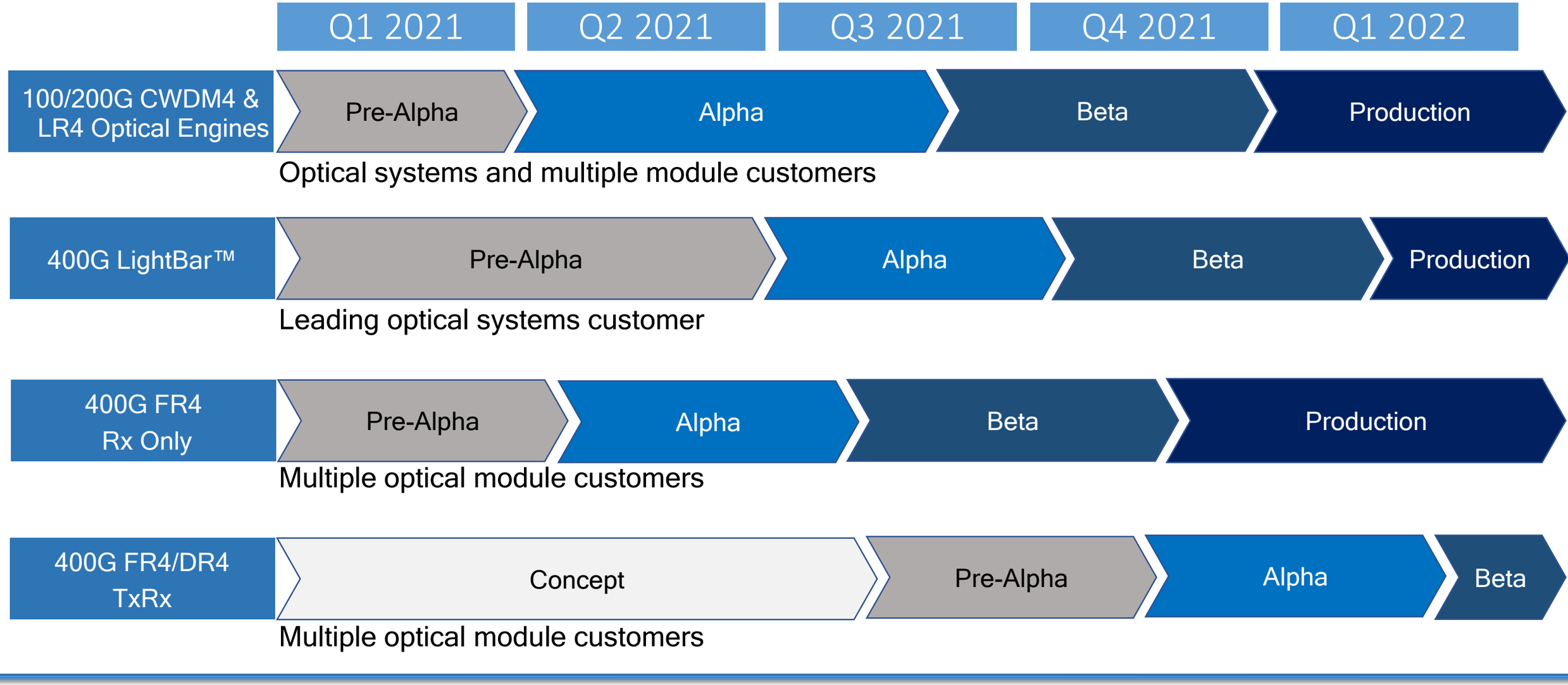


Product Development Cycle

In mid-2020 POET moved decisively from technology to product development - driven by customer engagements



Customers drive Transition to Specific Product Developments



POET's 100G/200G Datacom/Telecom Solutions

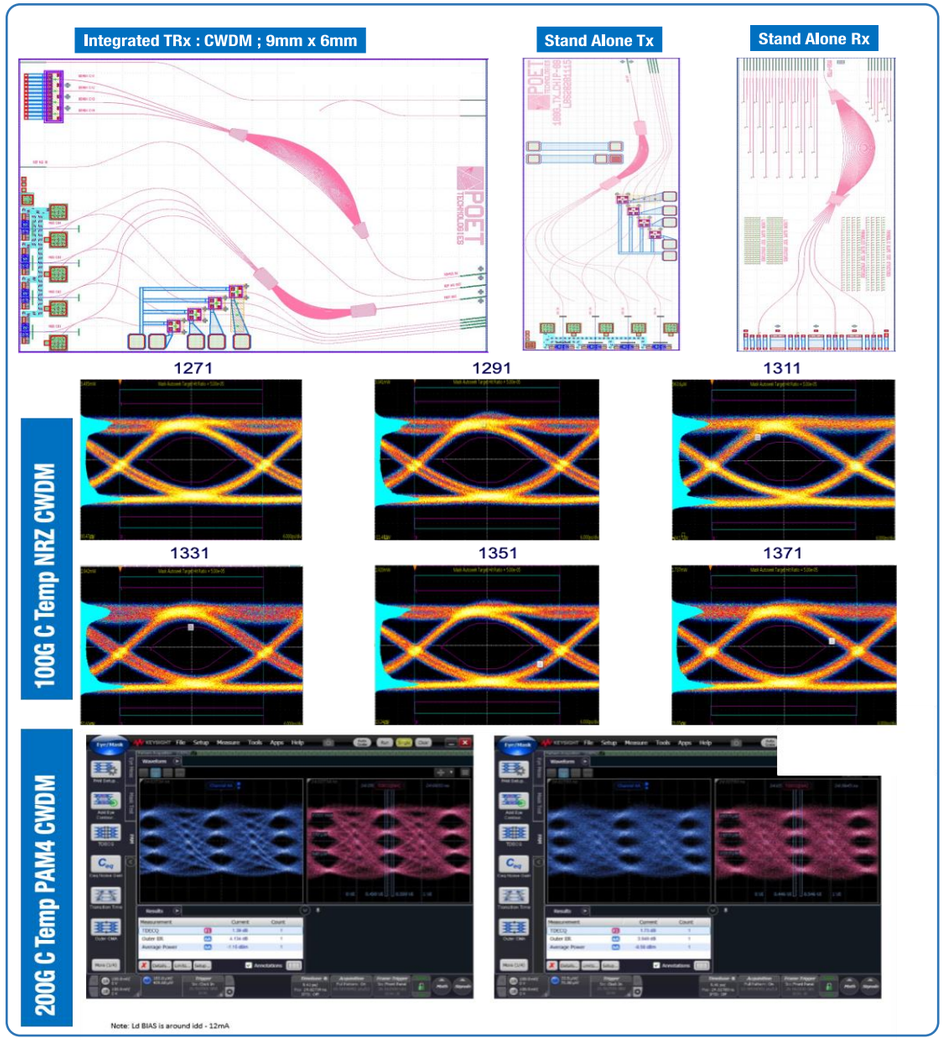
Industry Leadership

- Wafer Scale Hybrid Integrated Photonics Packaging Platform
- Low Loss Transmission and Coupling
- DeMux and Mux monolithically integrated into Interposer
- 25G Flip Chip compatible CWDM and LR4 Lasers

Markets

- CWDM4 and LR4 Data Center Applications
- Custom CWDM/LR4 solutions for Telecom (multiple integrated optical engines in a module)
- 5G Connectivity

Products



POET's 400G Datacom Solutions

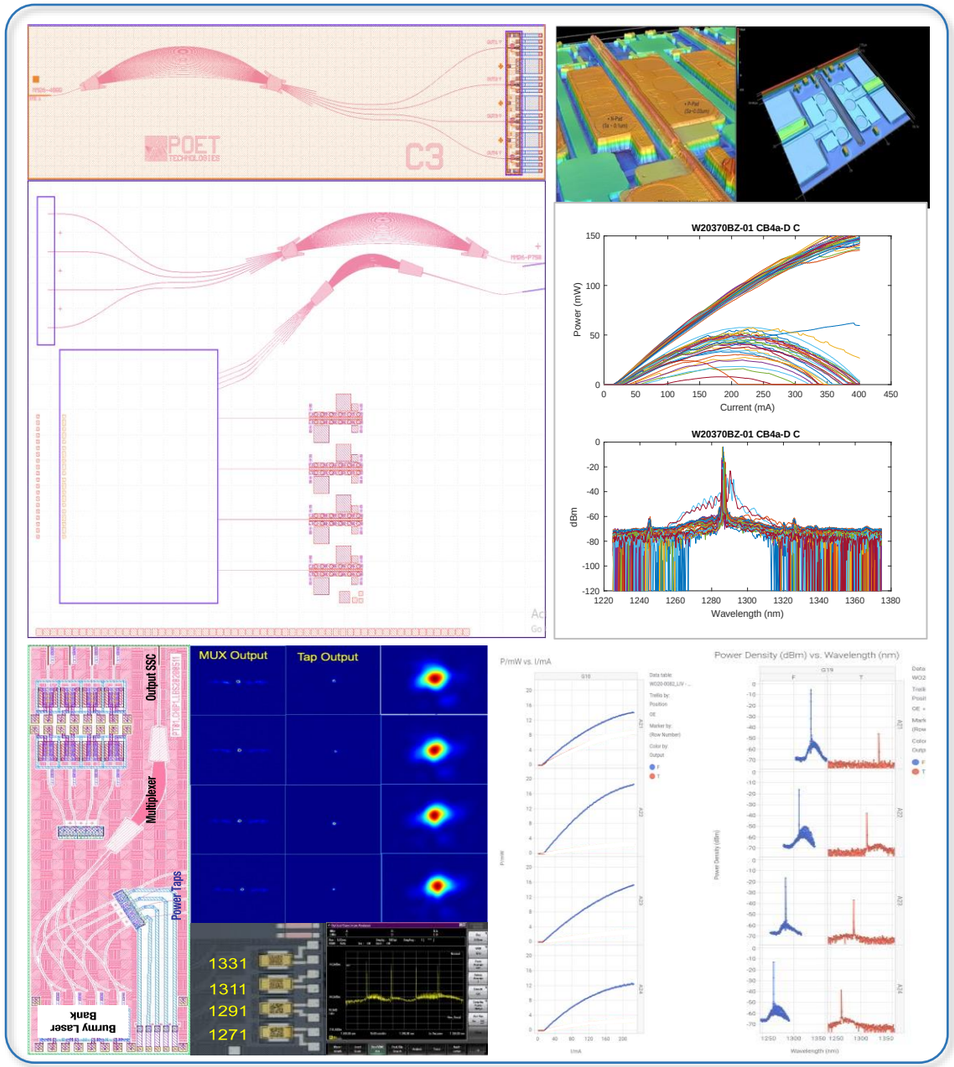
Industry Leadership

- Wafer Scale Hybrid Integrated Photonics Packaging Platform
- Low Loss Transmission and Coupling
- DeMux and Mux monolithically integrated into Interposer
- Up to **55mW** CW Lasers (@75C) for both DR and FR applications

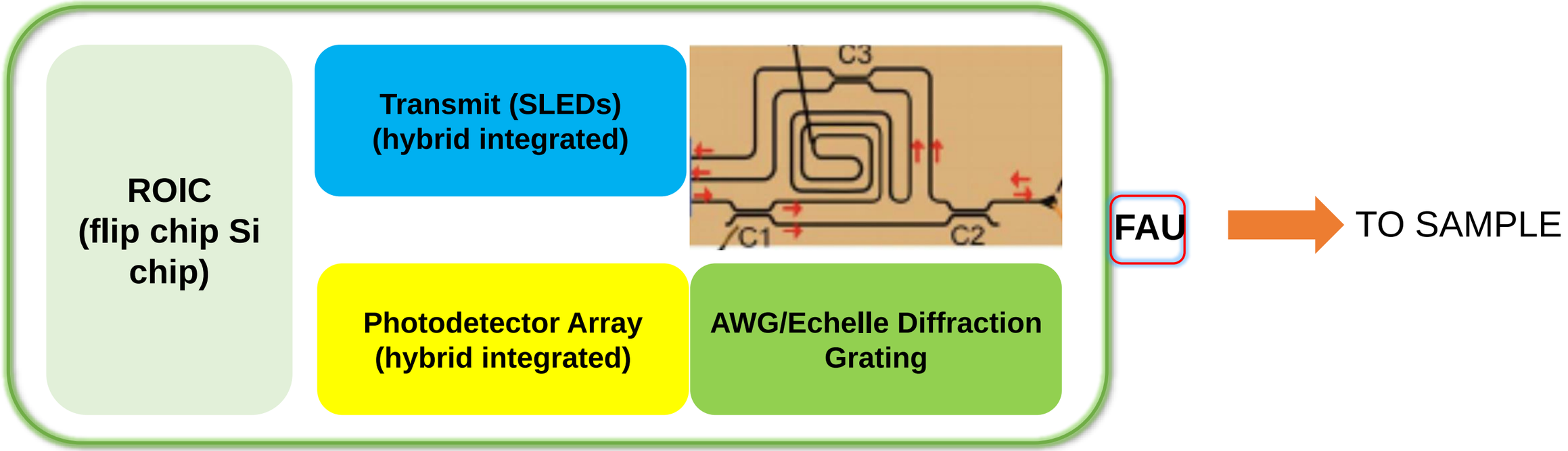
Markets

- DR1, DR4, FR4 and DR8 Data Center Applications
- Co-Packaged Optics

Products



POET Health : Spectral Domain Optical Coherence Tomography (SD-OCT)



- Fully hybrid integrated ”SD-OCT” on a chip utilizing POET’s Optical Interposer
- Eliminates all mechanical alignment and movement
- Lens/Isolators integrated to minimize reflections to the light source
- Overall coupling losses minimized
- Power density optimization with multiple SLED chips at the Tx input
- Enables a dramatic reduction in size and cost for hand-held and point-of-care OCT

Asset and Capex Lite Manufacturing Strategy

POET Owned Processes and Design including Consigned Equipment

High-Volume Wafer Foundry (Silterra)

Optical Interposer Fabrication

- ✓ 30 K+ wafers per month capacity

High-Volume III-V Semiconductor Foundry (SAIC)

III-V Semiconductor Active Optics

- ✓ Largest III-V Compound Semiconductor manufacturer in the world
- ✓ Large scale

POET - SAIC Joint Venture

Wafer Scale Integration and Test (Super Photonics)

Joint Venture between POET and SAIC

- ✓ SAIC invests capex to scale manufacturing
- ✓ Large local market in China

POET, SAIC and Super Photonics constitute a pseudo-vertically integrated model for unparalleled cost efficiency

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World Class Management Team

Executive Team

Dr. Suresh Venkatesan

CEO and Chairman

- SVP Technology at GlobalFoundries
- Various Senior roles at Motorola & Freescale Semiconductors

Vivek Rajgarhia

President & General Manager

- SVP and GM, MACOM
- CEO and Co-Founder, Optomai
- Lucent, OpNext, GigOptix

Thomas Mika

Executive Vice President & CFO

- Chairman, Rennova Health
- Chairman & CEO, Tegal Corporation
- Co-Founder IMTEC (M&A Boutique)

Engineering and Operations Team

Edward Cornejo

VP, Product Marketing

- Sr. Director, MACOM Technologies
- Google Fiber, Opnext, Lucent and Lytel

Dr. Jinyu Mo

SVP & GM, Asia

- Sr. Director and Chief Scientist, MACOM Technology Solutions
- Founder/CTO, Nexwave Photonics
- Huawei, Oclaro, I2R

Kevin Barnes

VP, Finance and Administration

- Controller, EC English
- Duguay and Ringler Corporate Services

Dan Meerovich

VP, Product Engineering

- Director, Product Engineering at MACOM
- Broadcom, Multiplex

James Lee

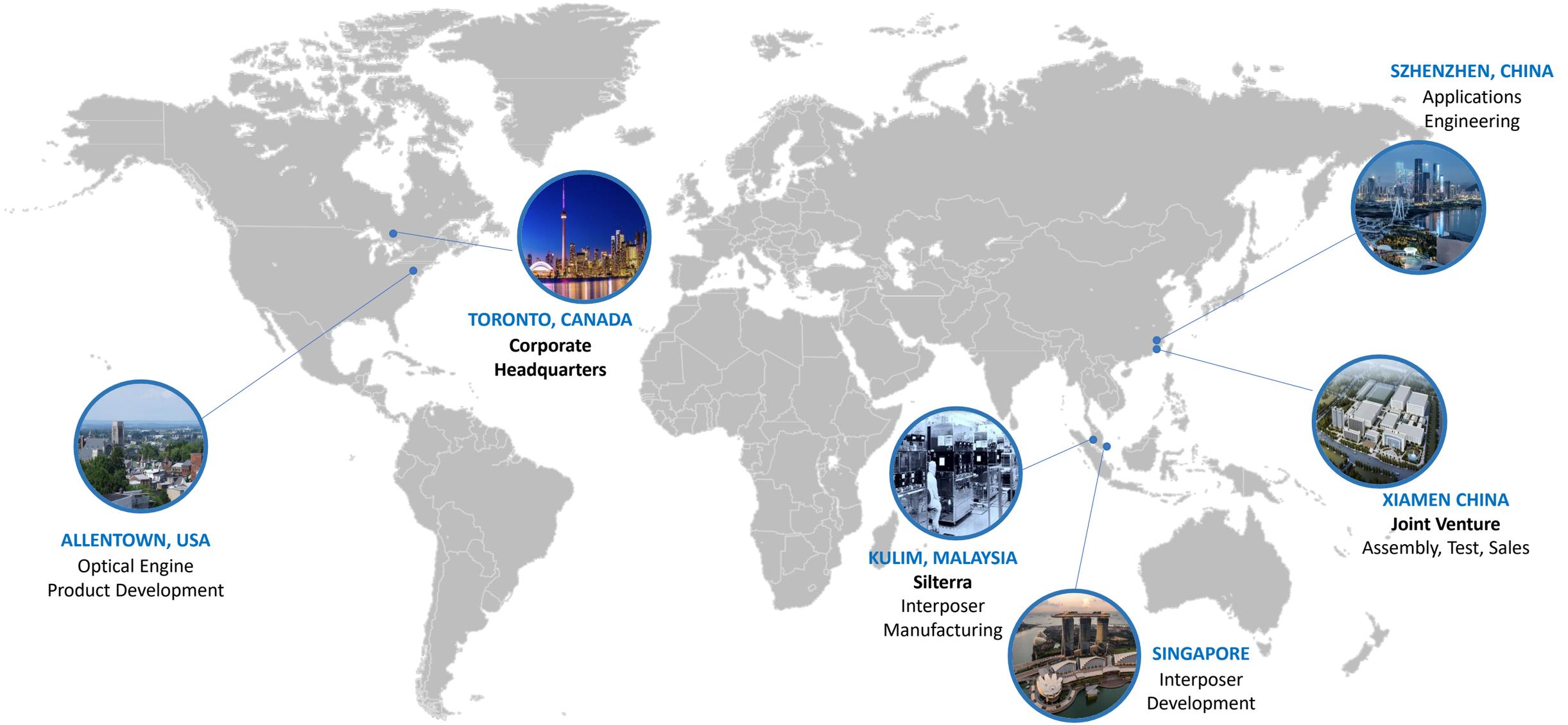
VP and GM, Singapore

- VP Logic Technology, IMEC
- Various Senior roles at GlobalFoundries and Chartered Semiconductor

35 Employees

30 Engineers

Global Development and Manufacturing



TORONTO, CANADA
Corporate Headquarters

ALLENTOWN, USA
Optical Engine
Product Development

SZHENZHEN, CHINA
Applications
Engineering

XIAMEN CHINA
Joint Venture
Assembly, Test, Sales

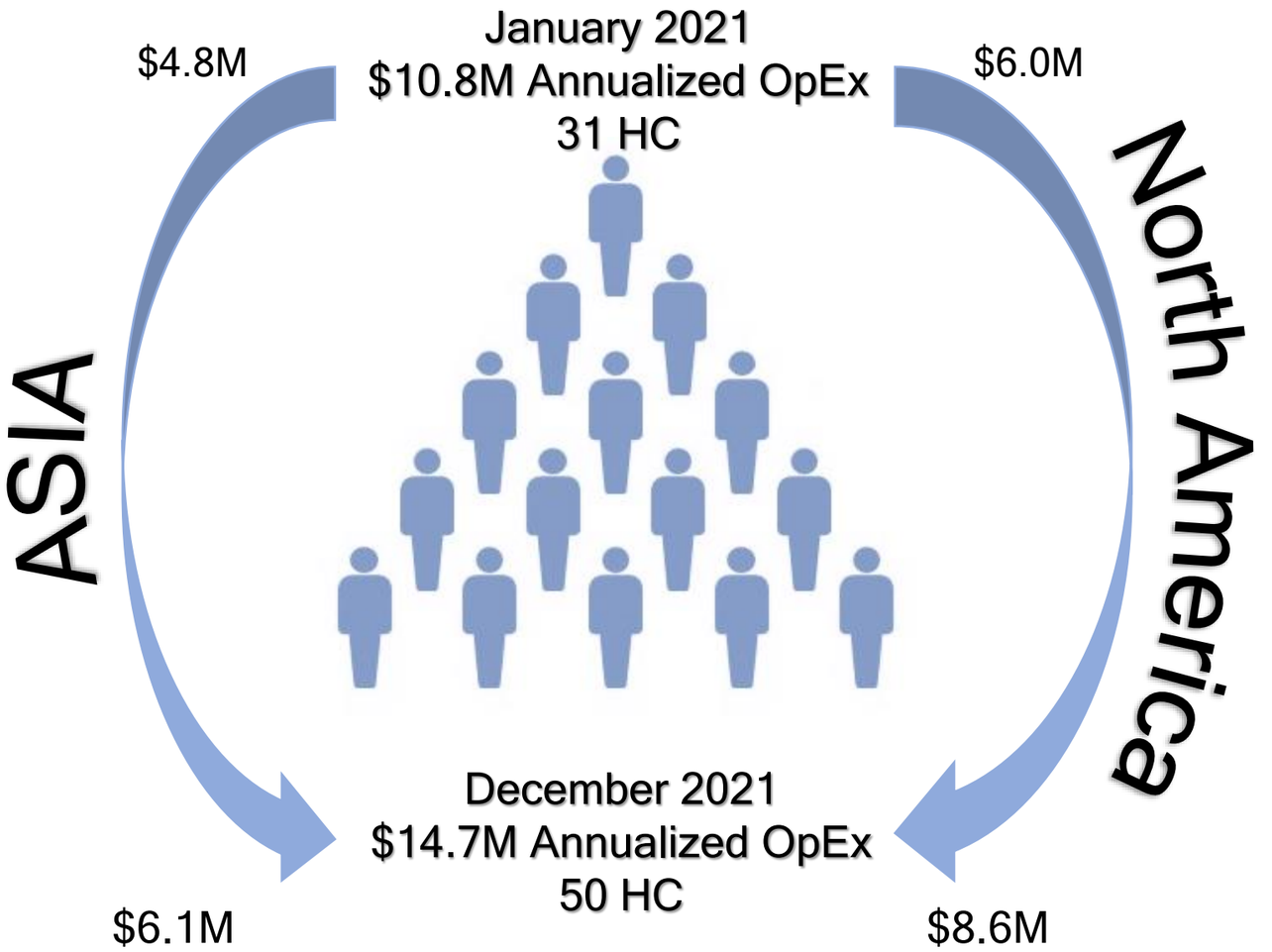
KULIM, MALAYSIA
Silterra
Interposer
Manufacturing

SINGAPORE
Interposer
Development

Growth for Product Roll Outs

Planned Manpower & OpEx* Growth to Execute Product Roll Out

- Failure Analysis
- GUI Firmware and MCAD Engineer
- Director of Engineering
- Wire Bonding
- Mechanical Design
- RF Analysis and Design
- Electrical and Module Engineer



- HR, Finance and Admin
- Optical Engine and Photonics Design
- Product Release and Project Management
- Photonics Project Engineering
- Reliability Qualification Design
- Senior Technician
- Back-end Wafer Process Development

*OpEx = Cash Operating Expenses HC = Head Count

Supply Chain Licensed to Produce Optical Engines for Transceivers

POET Technologies

POET Device and Process IP

Licensed to Manufacture Only

Optical Interposer Production

SILTERRA

POET Device Design IP

Licensed to Manufacture Only

Active Devices for Optical Engines

Almæ Technologies

DenseLight

厦门市三安集成电路有限公司
Xiamen Sanan Integrated Circuit Co., Ltd

Vendor-Owned IP unless made to customer spec

Licensed to Use

Electronic Devices

Multiple Merchant Vendors

Inphi

InSiGa Bridging Technologies

MACOM Partners from RF to Light

SEMTECH

Assembly & Test

Super Photonics Xiamen

Mktg & Sales

Strong Customer Engagement across multiple verticals

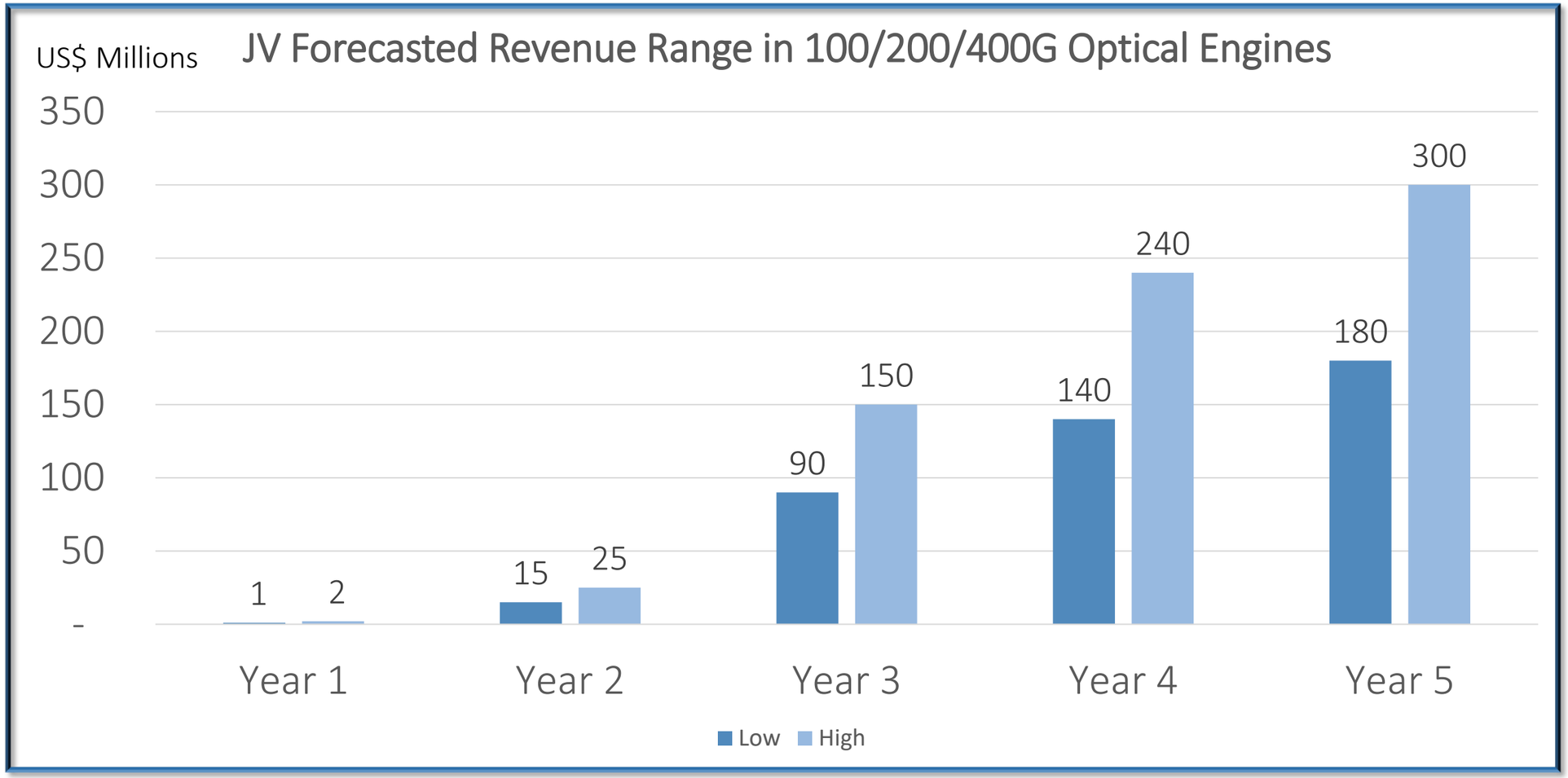
Customer Traction at Leading Module and System Companies

Illustrative Pipeline of Customers

cloudlight, Google, ARISTA, DELTA, eoptolink, SOURCE PHOTONICS, ADVA Optical Networking, HENGTONG GROUP, Amphenol, NOKIA, Hisense, JABIL, molex, XGIGA, Alibaba.com, HUAWEI, CISCO, HISILICON, Accelink, aws, JUNIPER NETWORKS

Range of Forecasted Revenue for SPX

On a unit basis, the SPX forecast is based on market share estimates in each segment ranging at the highest estimate from 18% to 30%



POET and SPX Size of Annual Opportunity

>$1 Billion Annual Revenue Potential	Transceivers for Datacom	5G Networks	Co-Packaged Optics	Optical Computing and Edge Applications
Market Size SAM (peak 2021-28) :	$2-3.5B annually	$3-5B annually	$2-3B annually	$3-5B annually
Development Partners:	Tier 1 NA European	Several in play	Several in play	US-based Start-up
JV / Assembly & Test Partner(s):	Sanan IC JV Super Photonics	Sanan IC JV Super Photonics	TBD	TBD
Potential Customers:	Multiple module makers	Multiple module makers	Cisco Arista Juniper	Nvidia HPE
Revenue Potential:	$250M+ annually	$250M+ annually	$250M+ annually	$250M+ annually

Presentation Outline

- Photonics and POET Technologies Overview
- Strategy, Markets and Products
- Operations, Growth and Revenue Plan
- Investment Highlights

POET Technologies at a glance

- POET Technologies has developed a unique hybrid photonics packaging platform targeting applications in high-speed data communications for the large Datacom / Telecom markets
- Built on its highly disruptive Optical Interposer Platform technology, POET's platform delivers compelling value in terms in performance, power, cost and scalability
- POET has established a "fab-lite" business model and a joint venture partnership to enable manufacturing to scale, while maintaining ownership and control over its Intellectual Property
- POET has engagements or contracts with some of the largest Datacom and Telecom Optical companies who represent a sizable market share among POET's target market segments

$20B+ Data Communications Market

5 Customer Engagements

4+ Years of Technology and Product Development

74 + 12 Patents and Patents Pending

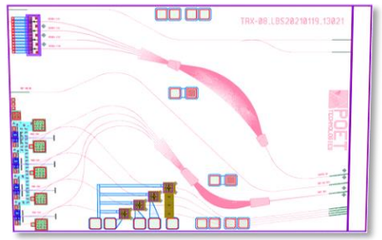
$46M Total Funding*

* Capital raised since 2015

Target Applications			
100G CWDM4 LR4 **200G** Custom	**400G** DR1 DR4 FR4 Remote Lasers	**800G** DR8 External Cavity Laser **CPO** Platform

Optical Interposer Platform

Superior Cost and Scalability	20-40% Lower
Power Consumption	20% Lower
Hybrid Integration	1/10th Lower Capex
Versatility	Numerous Applications



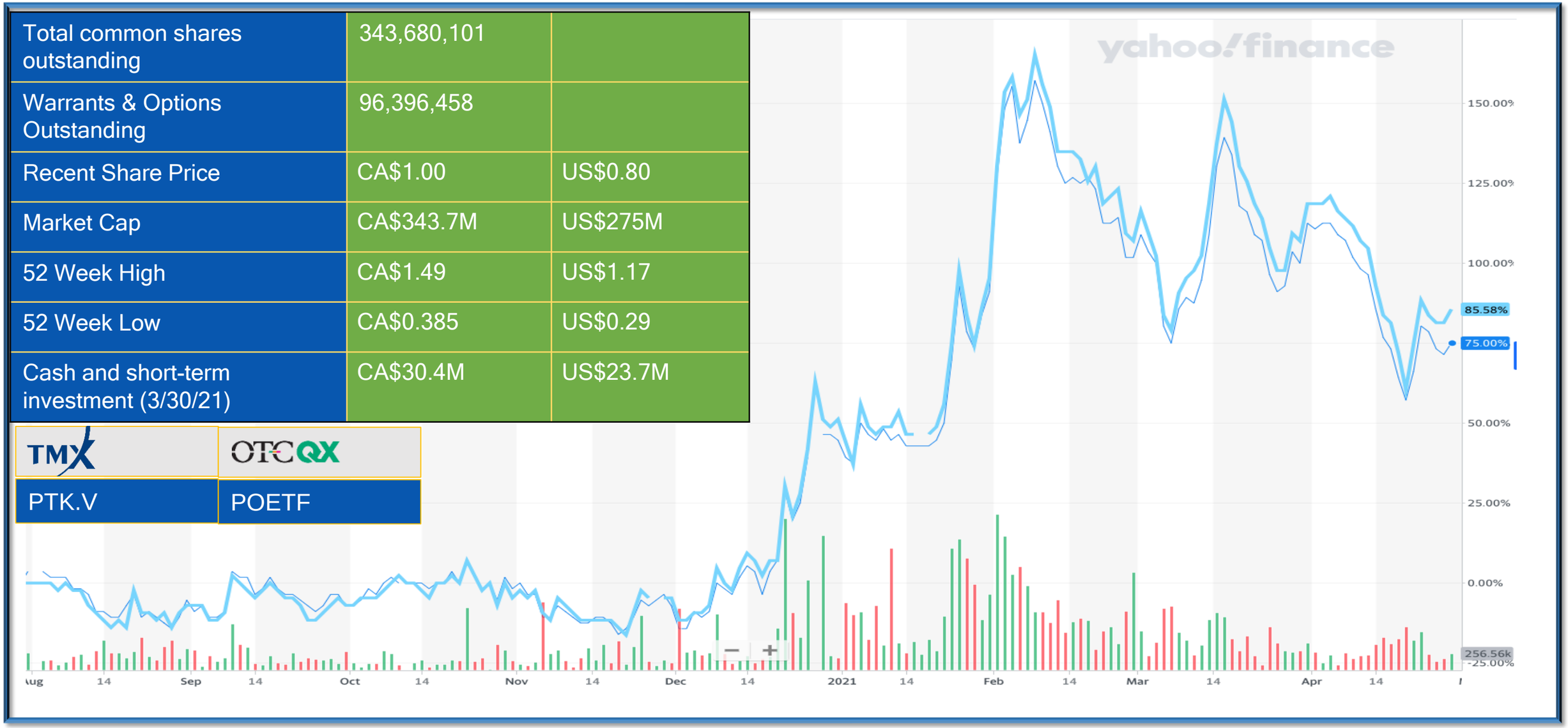
6mm X 9mm

World's smallest TxRx "Optical Engine on a chip", integrating 4 lasers, 4 high speed photodiodes, 4 monitor photodiodes, Mux/DeMux, Taps and output fiber coupling features

Stock Price and Key Parameters

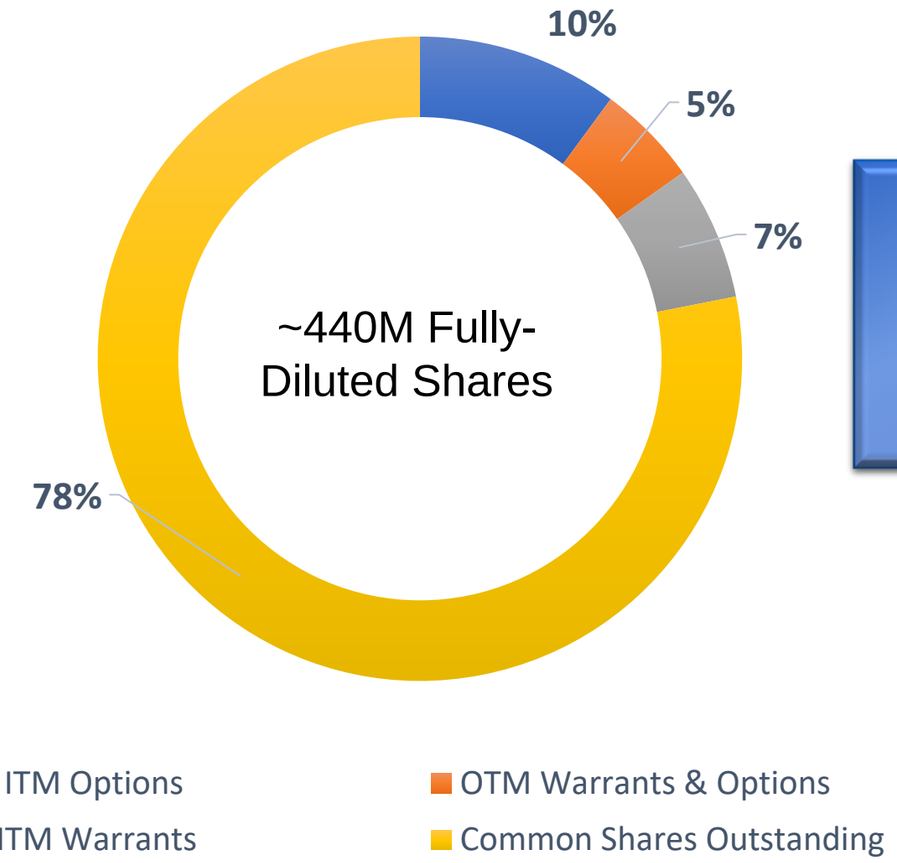
Total common shares outstanding	343,680,101	
Warrants & Options Outstanding	96,396,458	
Recent Share Price	CA$1.00	US$0.80
Market Cap	CA$343.7M	US$275M
52 Week High	CA$1.49	US$1.17
52 Week Low	CA$0.385	US$0.29
Cash and short-term investment (3/30/21)	CA$30.4M	US$23.7M

TMX	OTCQX
PTK.V	POETF



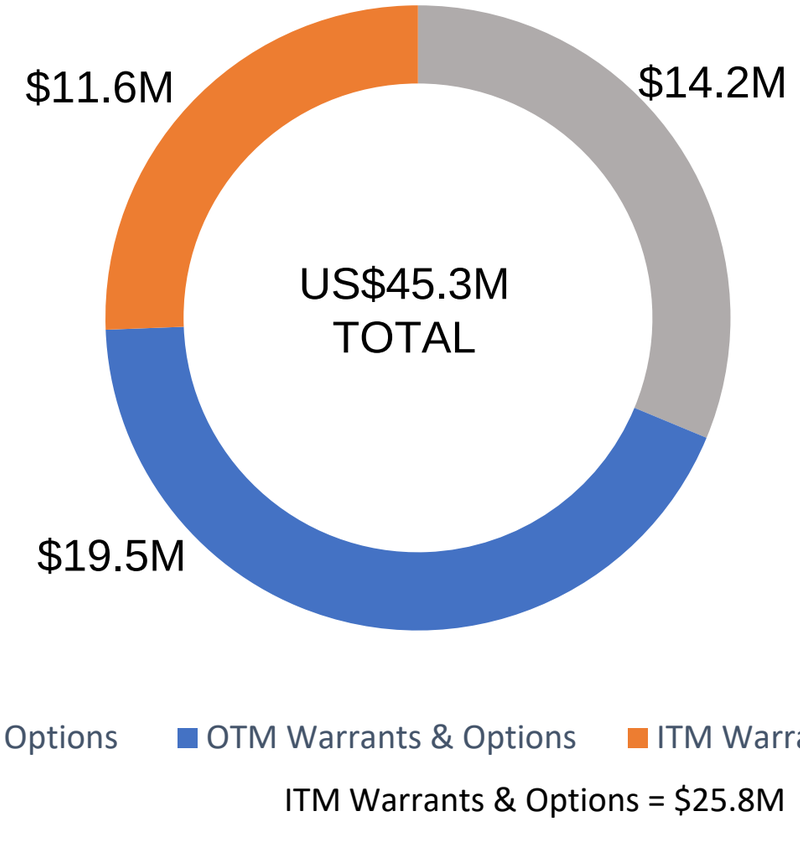
POET Capital Structure and Warrant & Option Values

Capital Structure



Cash at 3/30/21
US$23.7M

Value of Warrants & Options



ITM Warrants & Options = $25.8M

ITM = IN THE MONEY; OTM = TEMPORARILY OUT OF THE MONEY

Investment Thesis

1. POET Optical Interposer capabilities are now proven
2. Now in Product Development with several customers
3. Alpha Prototypes are weeks away
4. Beta Prototypes are only a few months away
5. Design funnel is filling
6. Gearing up for manufacturing in high volumes

POET

Technologies