



POET Technologies Inc.

PTK:TSXV POETF:OTCQX

MoneyShow - December 7, 2021

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A small icon of the POET Technologies logo, consisting of a square with internal geometric lines.

Photonics and Technology Overview



Markets and Potentials



Company Operations



Products and Roadmap



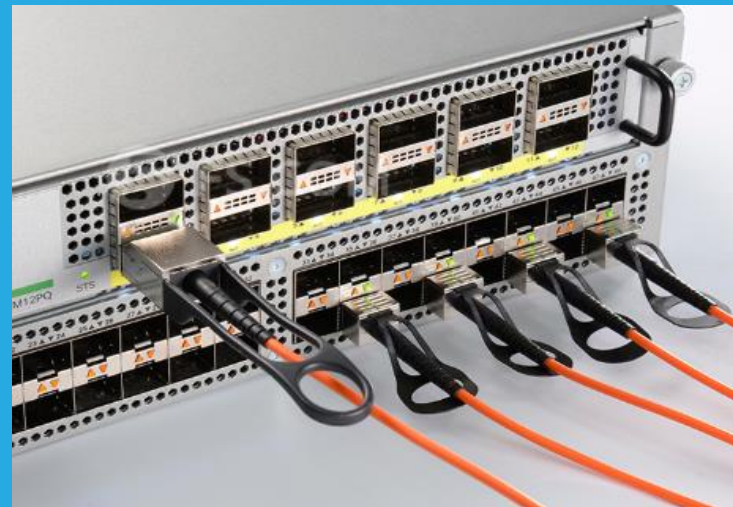
Customer Engagement

POET is focused on a market with high potential for disruption and growth

Data and Tele-Communications



Data Centers
Switching / 5G Networks



- **Large Market:**
>\$3B market growing to >\$6B by 2025
- **High Volume:**
Products made to known industry standards
- **Sales:**
Competition is based on performance and price
- **Industry Trends:**
To less than \$1.00/GB cost of transceivers

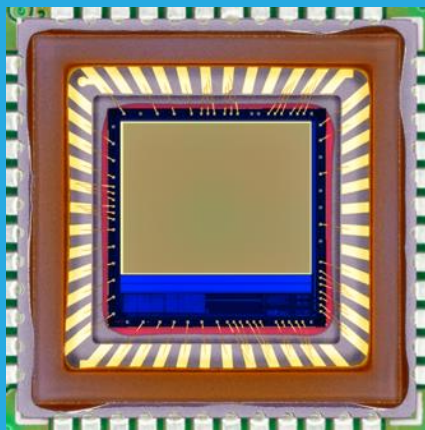
Opportunity:

Lack of a method to fully integrate electronic, photonic and optical devices in the same package after 20+ years of trying

Photonics Enables Many New Products

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

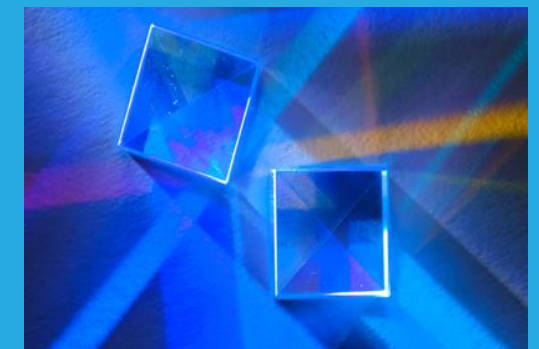
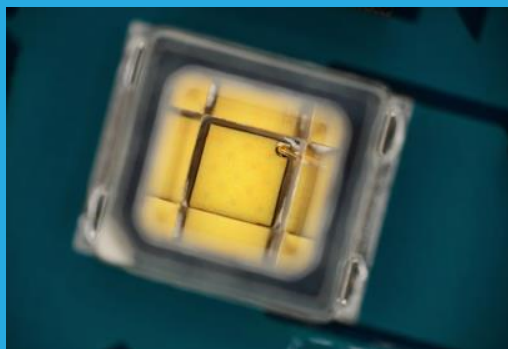
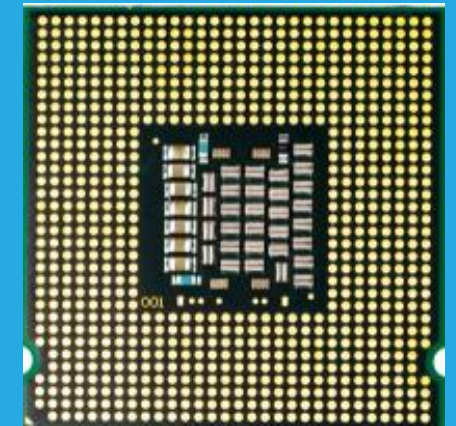
- Lasers
- Detectors
- Modulators
- Multiplexers
- De-multiplexers
- Mode Converters

Electronics

- Controllers
- Amplifiers
- ASIC's
- Monitors
- Microprocessors
- Memory

Optics

- Mirrors
- Lenses
- Prisms
- Collimators
- Polarizers
- Beam Splitters



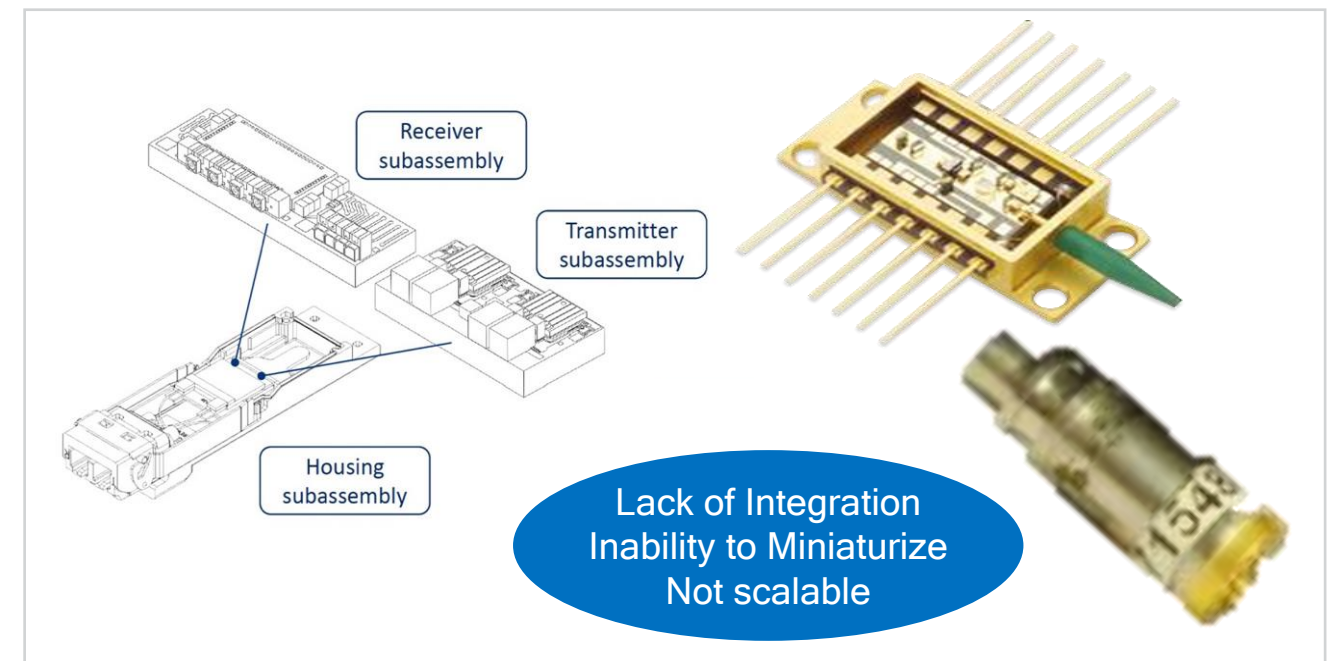
Conventional Assembly of Transceivers Not Sustainable

- ❏ 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



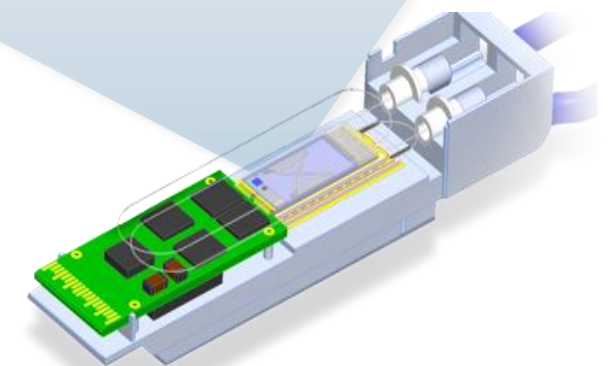
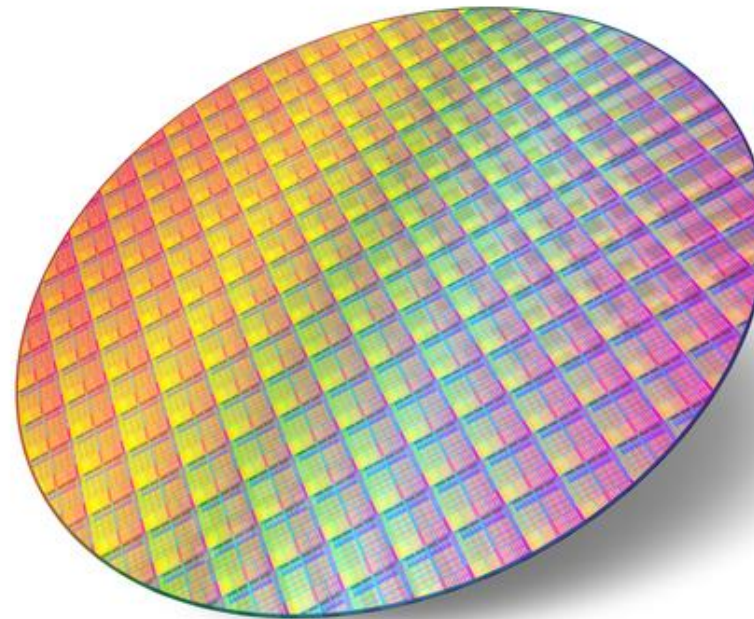
Existing Solutions utilize a large # of
Components and Sub-assemblies



- ▲ 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

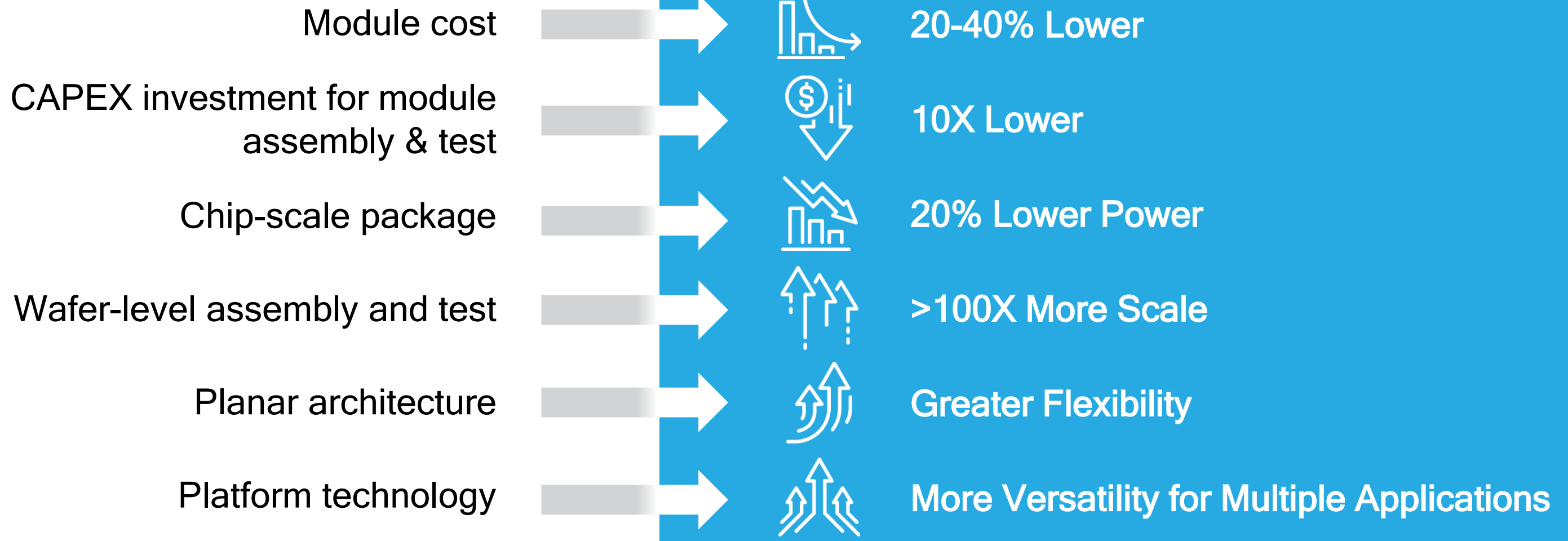
- ✓ Simplified Packaging
- ✓ Lower Bill of Materials (BOM) Cost
- ✓ Highly Automated Wafer Scale Manufacturing
- ✓ Dense, Smallest Form Factor
- ✓ Excellent Electrical and Optical Performance



Producing the World's Smallest and Lowest Cost 100G/200G Optical Engine including all Active and Passive Photonics Devices

POET Wins with Optical Interposer Platform

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



 Photonics and Technology Overview

 **Markets and Potentials**

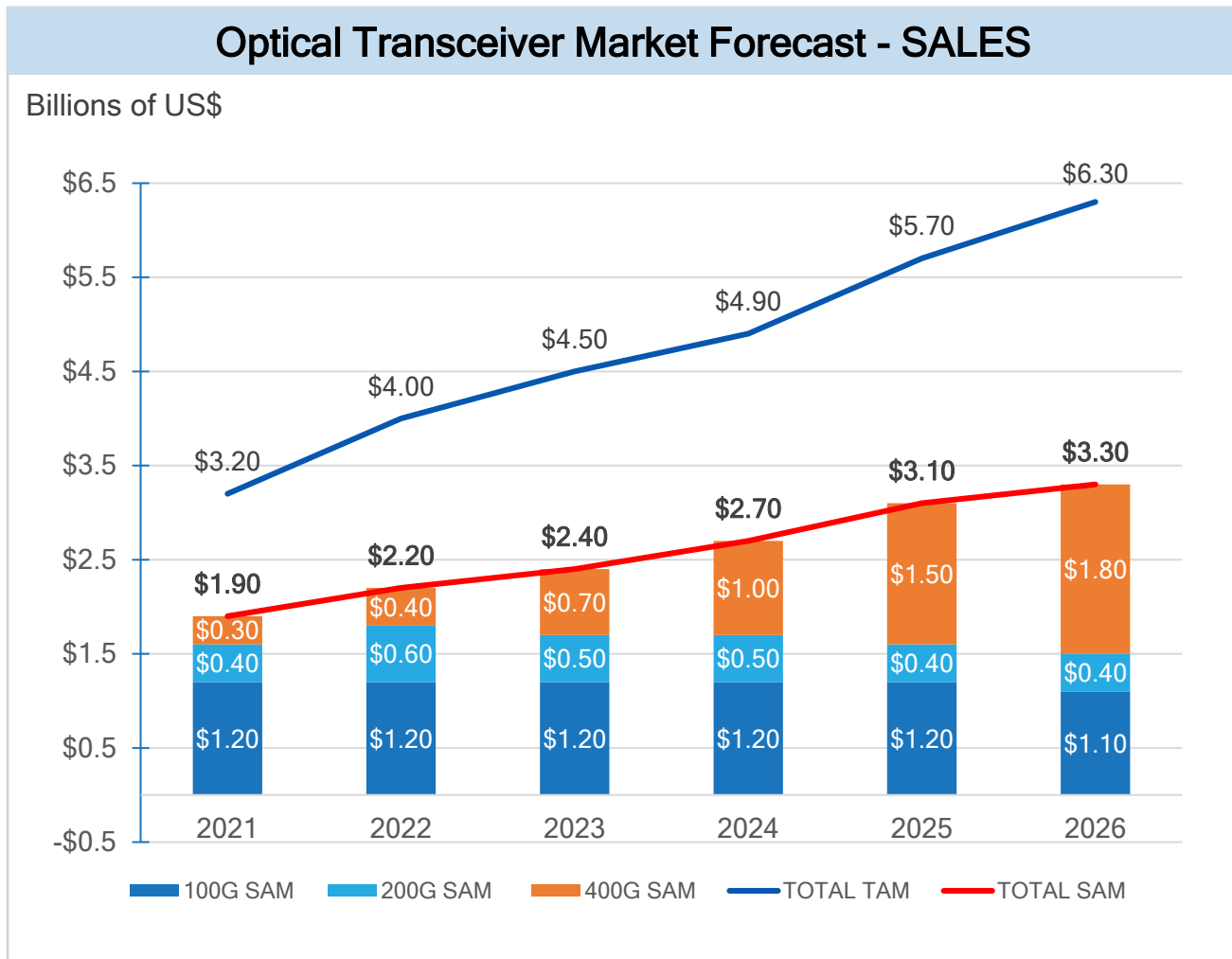
 Company Operations

 Products and Roadmap

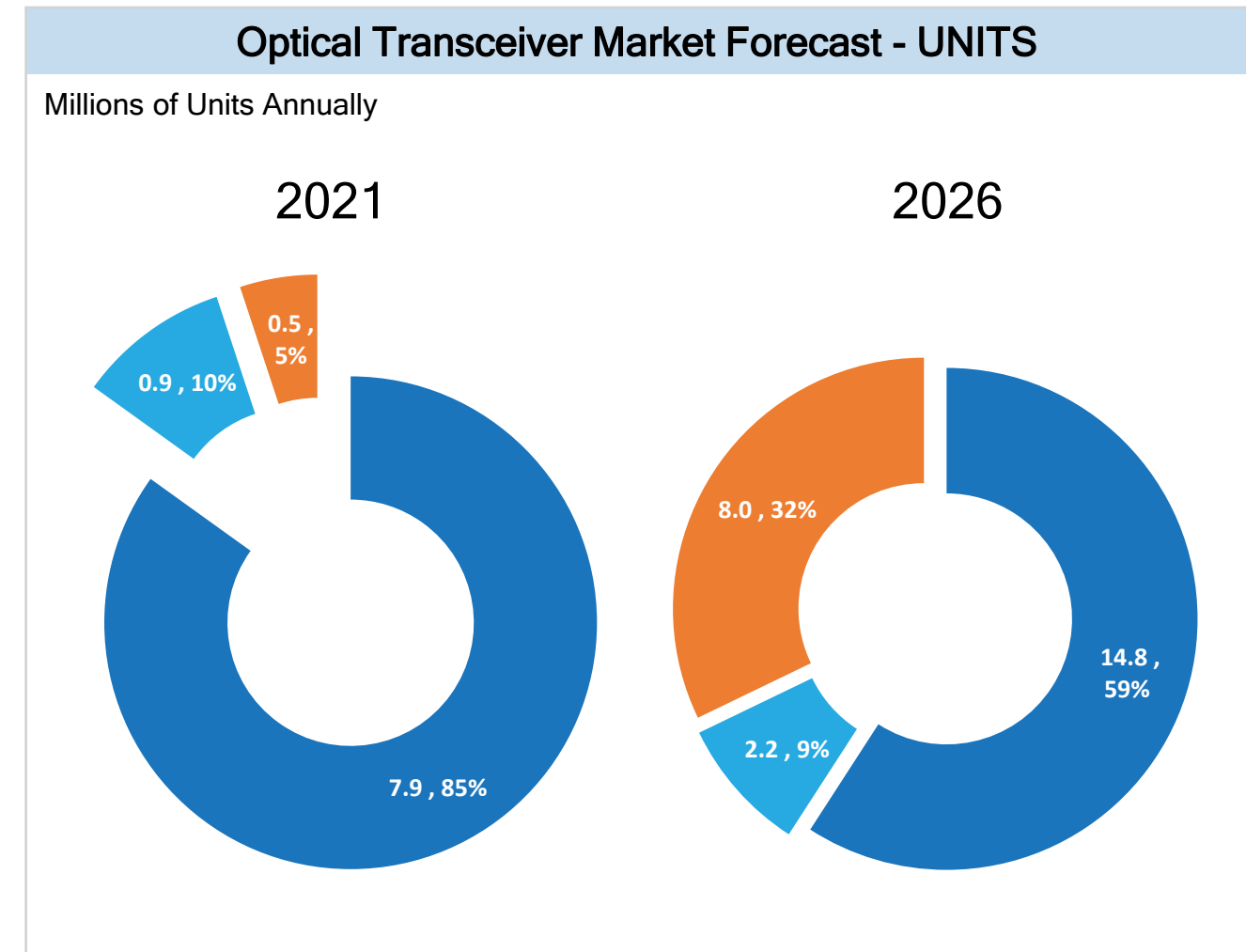
 Customer Engagement

Large Market for Optical Transceivers

Even as 400G emerges, the 100/200G segments continue to be large and attractive served markets for POET



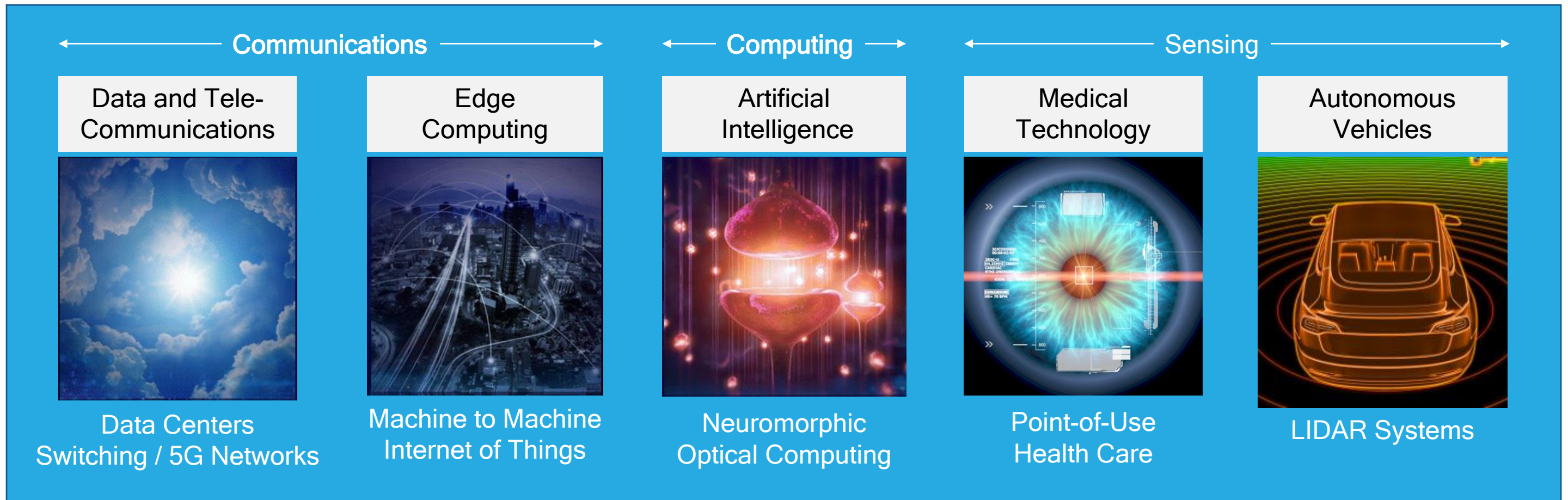
TAM = Total Available Market; SAM = Serviceable Available Market



Many Other Large Markets Need POET's Optical Interposer



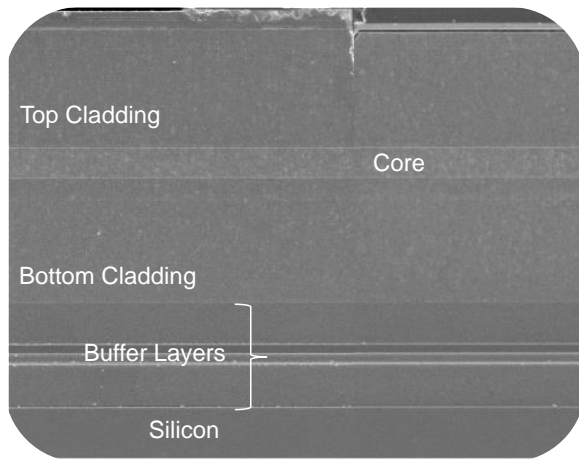
The Global Market for Photonics* was >\$576B in 2019 and growing to >\$1.2T in 2030, nearly a 7% annual CAGR



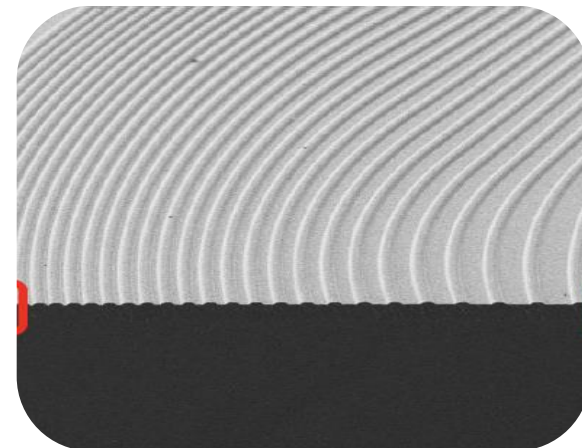
* Source: Prescient & Strategic Intelligence, *Photonics Market Research Report, 2019* - Includes LEDs & Lasers, Sensors & Detectors, Optical Components & Systems

POET's Datacoms deployment has matured many building blocks relevant to Chip Scale Spectrometers

Multi-level Waveguide technology scalable from VISIBLE to NIR



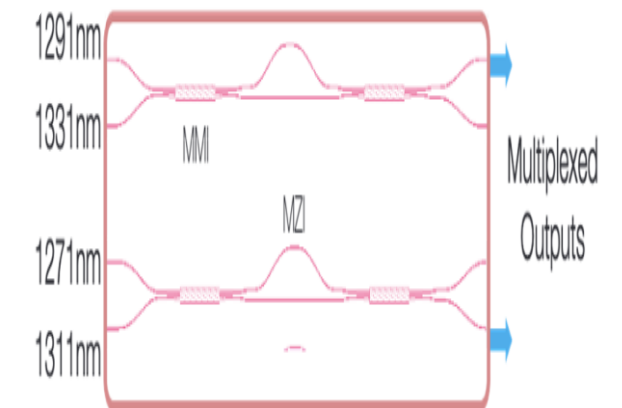
High Resolution Gratings with minimal phase errors



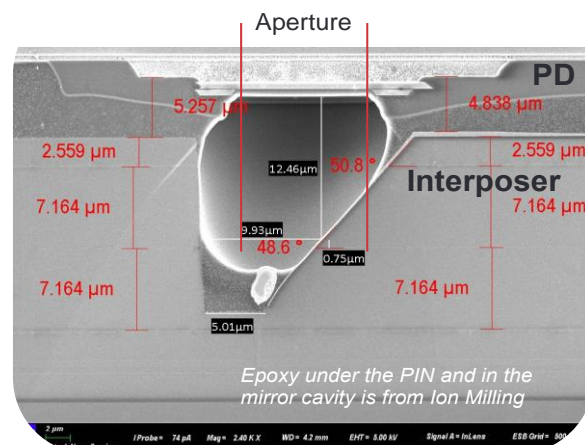
Co-packaging of Electronics and Photonics on a common platform



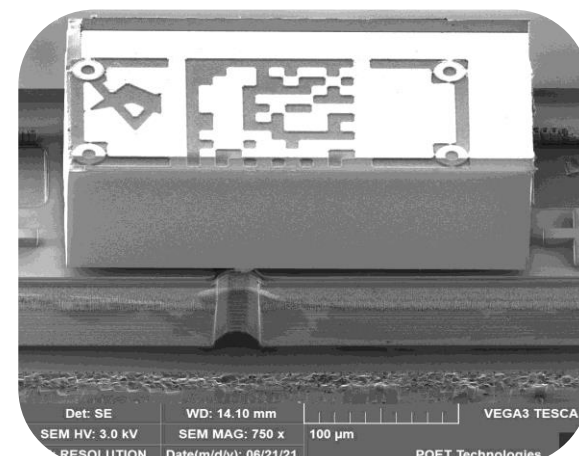
Interferometers, Directional Couplers and Delay Lines



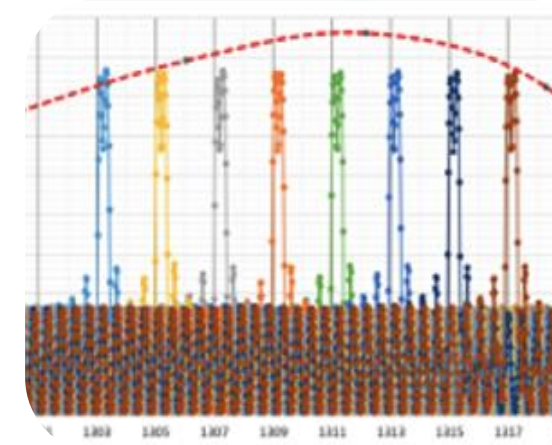
Low Loss out of plane coupling and efficient light detection



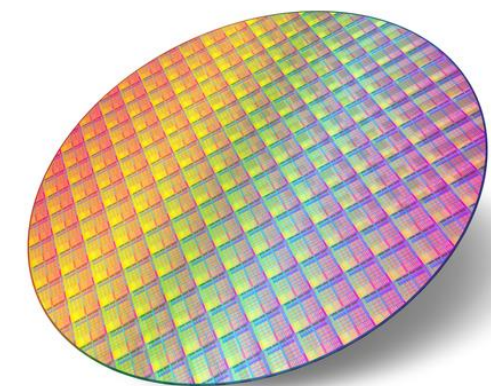
Low Loss In plane coupling of lasers and gain chips



Novel Multi-wavelength athermal external cavity tunable lasers



Wafer Scale Integration to enable Size, Weight, Cost and Performance



POET's Tech is key to unlocking new Health Tech Apps













POET's commercial focus about to turn to wearable devices, and mobile and medical devices, representing an attractive 2025 TAM of >\$48B

POET's Optical Interposer enables a seamless integration of visible to IR spectroscopy components

Chip scale integration of spectrometers for smart watches and mobile devices

Miniature 3D Sensing and Imaging solutions for Robotic Surgery applications

 Blood Oxygen	 Hydration	 Alcohol
 Heart Rate / HR Variability	 Core Body Temperature	 Glucose Indicator
 Breath Rate	 Blood Pressure	 Carbon Monoxide
	 Lactate	

Several critical Bio-markers are detectable using optical spectroscopy methods

\$48B+ TAM in 2025

Large market opportunity as growing universe of healthcare monitoring devices incorporate additional sensing capabilities

Devices
Blood pressure monitor, pulse oximeter, body temperature monitor, blood glucose monitor, alcohol monitor, IR spectrometer
\$18B TAM

Mobile Smartphone
\$23B TAM 1.5B Units

Wearables
Smartwatch, fitness band, smart earbuds
\$7B TAM 700M Units

Short Term Target Markets



Wearables



Smartphones



Point-of-Care

Additional Market Opportunities

Internet of Things

Hearing Assist

Smart Patches

Smart Bands

Sources: Rockley Photonics, IDC, Counterpoint Research, Strategy Analytics, TrendForce Research, leading consumer electronics manufacturer investor materials.

>\$1B Annual Sales Opportunity in Current and Target Markets



<i>>\$1 Billion Annual Revenue Potential</i>	Transceivers for Datacom	5G Networks	Co-Packaged Optics	Optical Computing and Edge Applications	BioSensing Watches and Mobile Devices	LIDAR
Market Size SAM (peak 2021-28) :	\$2-3.5B annually	\$3-5B annually	\$2-3B annually	\$3-5B annually	\$30B annually	\$1-3B annually
Development Partners:	Tier 1 NA European	Several in play	Several in play	US-based Start-up	Major Chinese or Korean Company	TBD
Strategic Partner(s):	Sanan IC JV Super Photonics	Sanan IC JV Super Photonics	TBD	TBD	Major Chinese or Korean Company	TBD
Potential Customers:	Multiple module makers	Multiple module makers	Data Center Operators and Equipment Suppliers	Computing Platform and Chip Suppliers	Consumer Markets	Auto Sub-Assembly Companies
Revenue Potential:	\$250M+ annually	\$250M+ annually	\$250M+ annually	\$250M+ annually	>\$250M+ annually	>\$250M+ annually

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 Customer Engagement

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
Exec. 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

50 Employees
45 Engineers/Techs
11 PhDs

Global Development and Manufacturing



JV Adds 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 on 180,000 square meters
- Compound semiconductor manufacturing platform
- Process technologies for microwave radio frequency, high power electronics & lasers

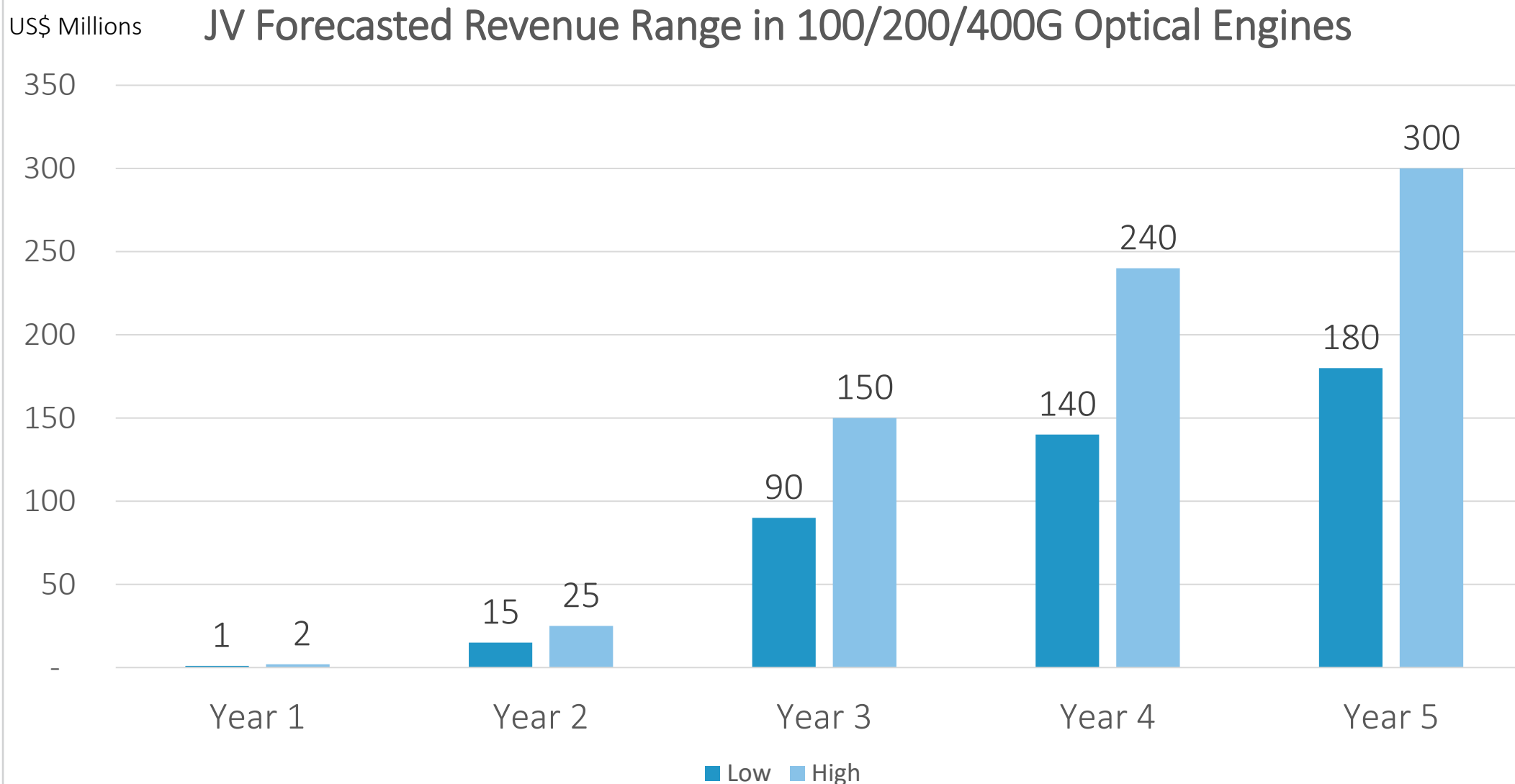


Sanan Optoelectronics Co. Ltd. (Parent)

- 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)

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%



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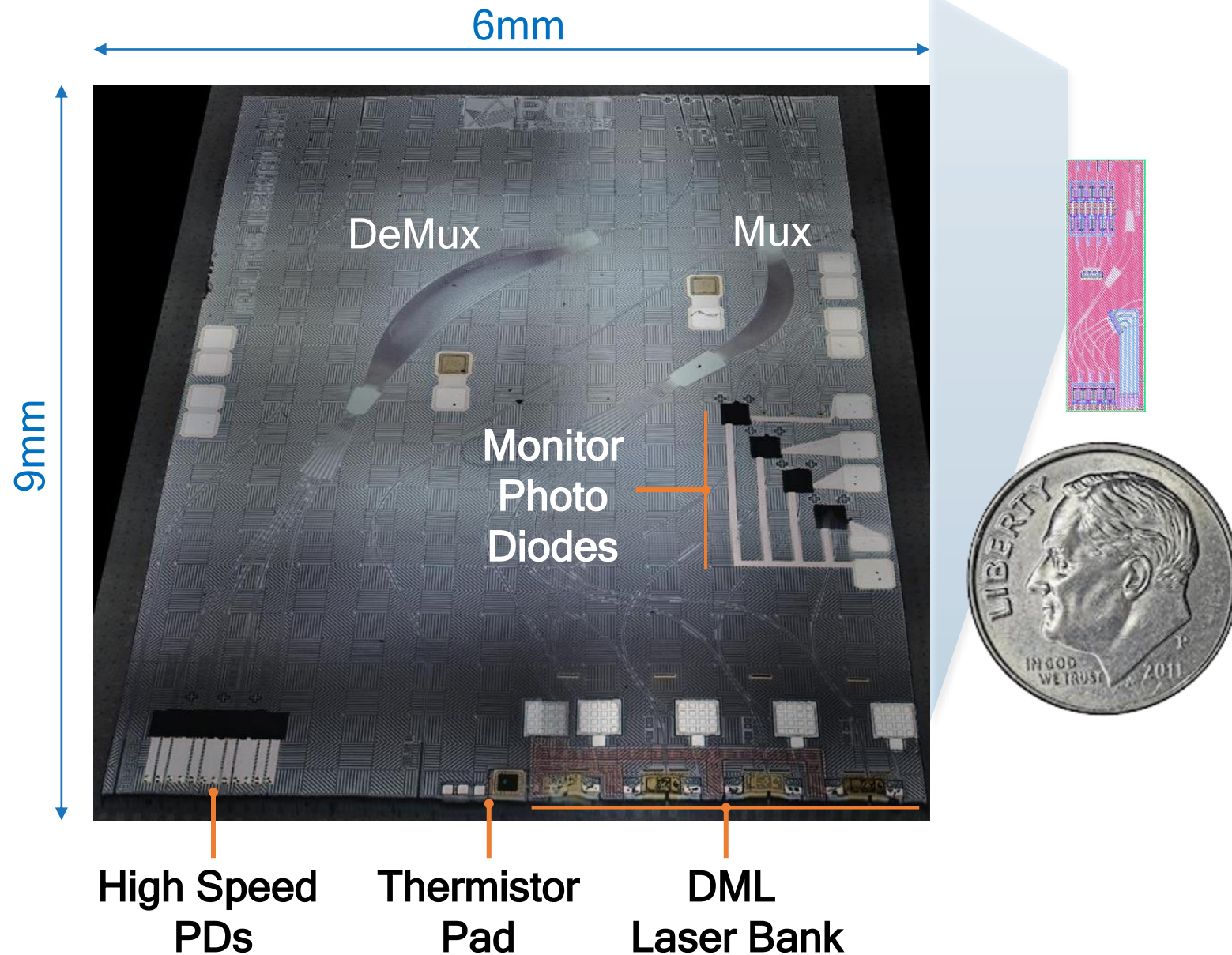
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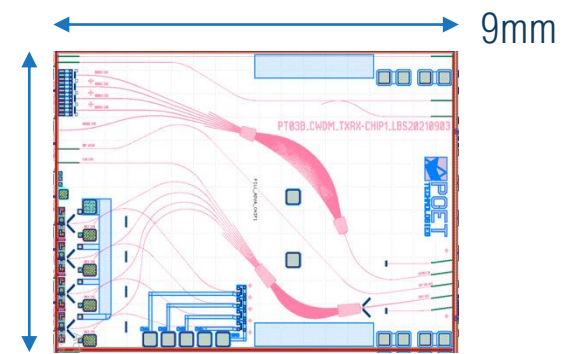
 Customer Engagement

Size Matters - Highest Data Density per mm²

POET'S 100G/ 200/400/800G and 1.6Tb Optical Engines



400Gbps



1.6Tbps



POET's Interposer solutions pack a punch

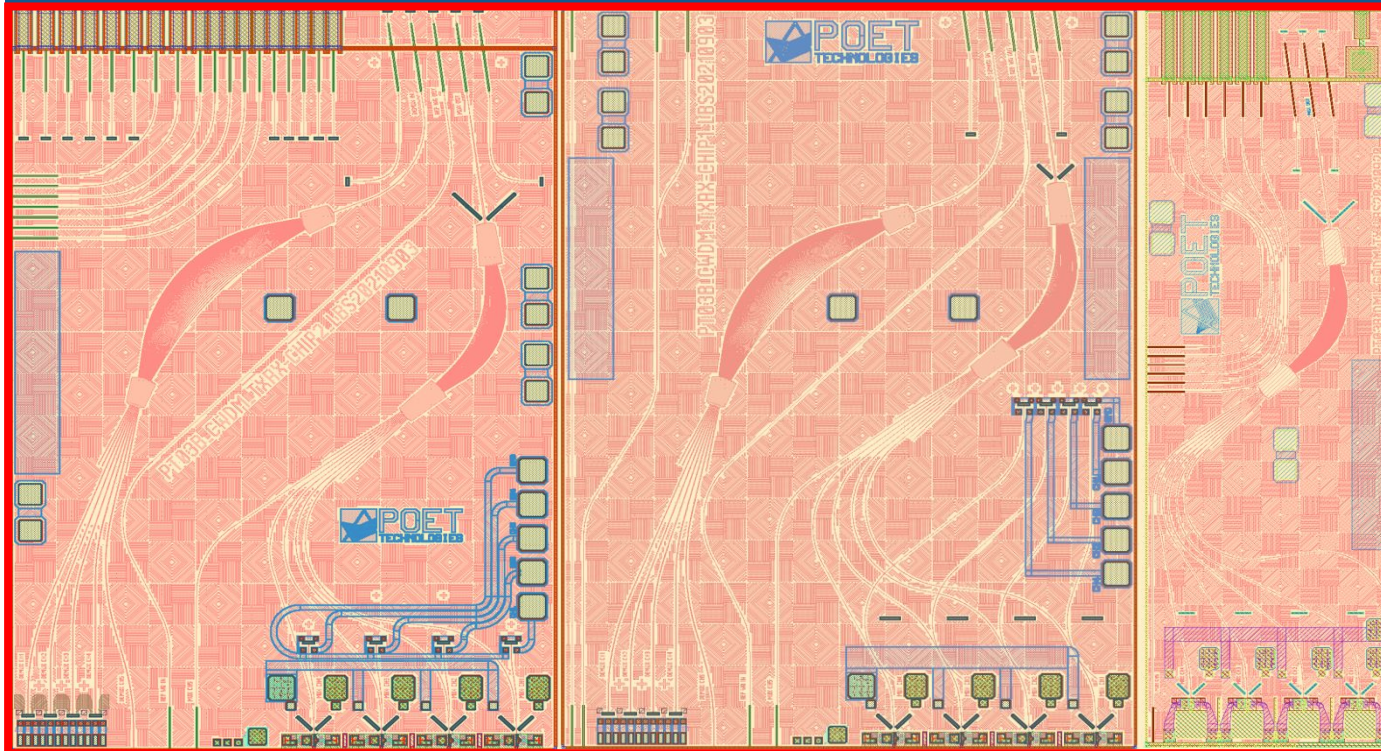
DML Engines : 5X smaller
SiPh Engines : 3X smaller

POET's Platform Enables Rapid Deployment

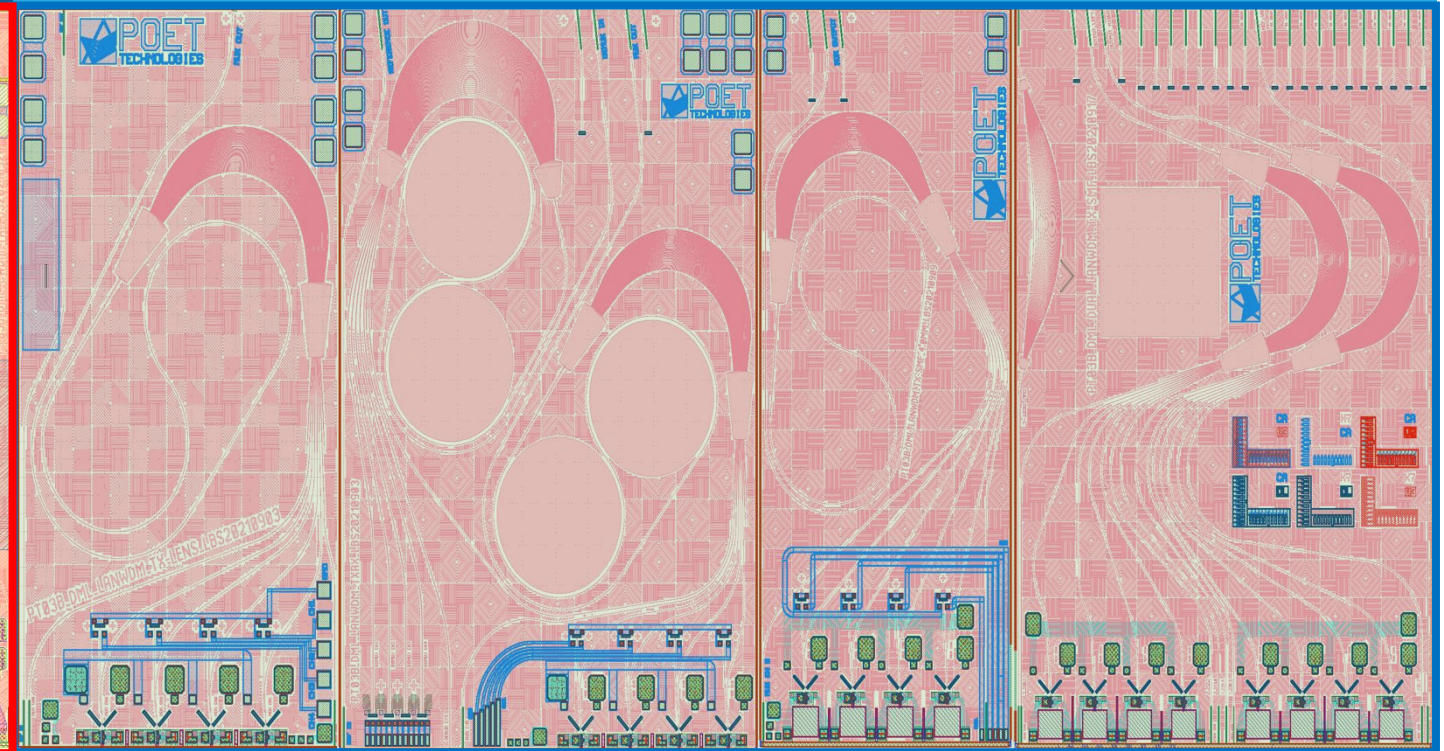


POET's Platform technology enables the reuse of key features and tools, shortening the development process and allowing the launch of multiple products simultaneously

100G/200G FR4 PRODUCTS



100G LR4 PRODUCTS



With the only integration platform in the world for DML/EML type lasers, POET can extend to 400G by changing out the lasers on the 100G / 200G products

Roadmap to Commercial Products

	Alpha	Beta	Production
100G CWDM Solutions TX, RX, TXRX	2H 21	1H 22	2H 22
100G LR4 Solutions TX, TXRX		1H 22	2H 22
200G CWDM and LR4 Solutions	2H 21	1H 22	2H 22
400G Solutions DR1, DR4, FR4 <small>Si Photonics Modulator</small>	1H 22	2H 22	1H 23
Custom Light Bar Solutions*	1H 22	2H 22	1H 23

* Custom implementations ; schedule driven by customer adoption

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 Customer Engagement

Engaged with Leading Companies

Customer Traction at Leading Module and System Companies



Why Invest in POET Now?

- ❖ **Technology proven** out by leading companies
- ❖ **First rate management team** with public company track records
- ❖ **Disruptive technology** applying to large and known markets with **huge potential**
- ❖ Just entering **New Product Introduction / Commercialization** stage (revenue ramp in 2022)
- ❖ **Not widely known** outside of Canada (TSXV and OTCQX in the US)
- ❖ **Co-invested in China** with Sanan IC for manufacturing operations and local development and sales
- ❖ **Nasdaq listing** in Q1'22



[WWW. POET-TECHNOLOGIES.COM](http://WWW.POET-TECHNOLOGIES.COM)