Introduction to POET Technologies Inc.

August 10, 2021 11:35am EST

Dr. Suresh Venkatesan, Chairman & CEO

Oppenheimer 24th Annual Technology, Internet & Communications Conference

Safe harbor

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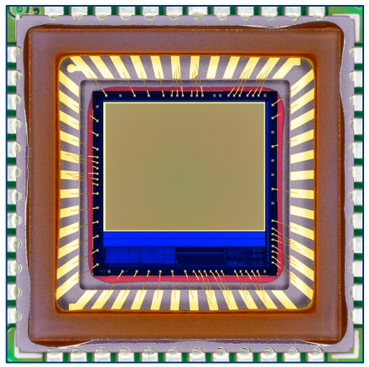
Presentation Outline

- Photonics and POET Technologies Overview
- Current Markets and Potentials
- Operations and Growth Plan
- Updates on Product Introductions and Operations

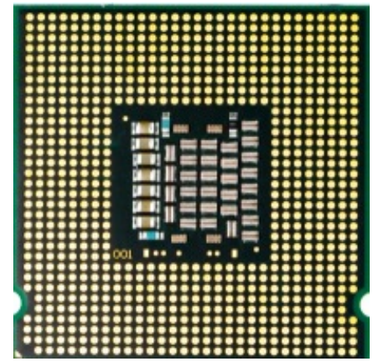
Photonics is an Enabling Technology

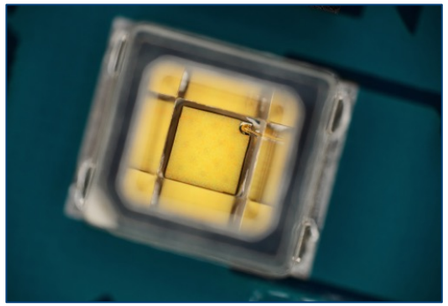
Photonics is the technology of generating and harnessing light

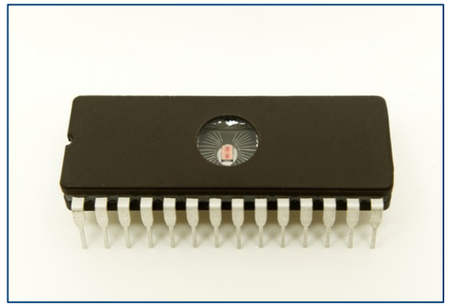
- Cutting-edge uses of lasers, optics, fiber-optics, and electro-optical devices in numerous and diverse fields
- Photonics applications and devices require the integration of electronic, photonic and optical devices

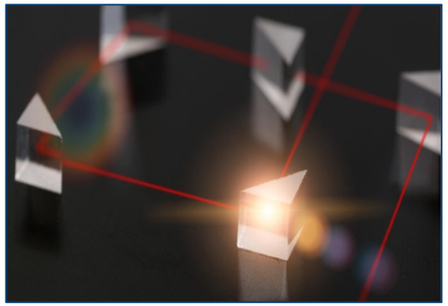


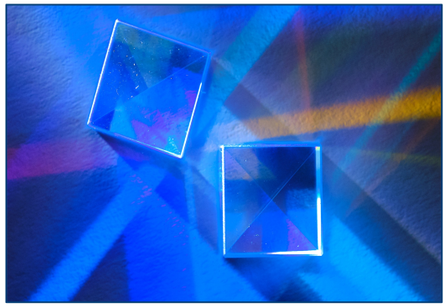
PHOTONICS	ELECTRONICS	OPTICS
▪ Lasers	▪ Controllers	▪ Mirrors
▪ Detectors	▪ Amplifiers	▪ Lenses
▪ Modulators	▪ ASIC's	▪ Prisms
▪ Multiplexers	▪ Monitors	▪ Collimators
▪ De-multiplexers	▪ Micro-processors	▪ Polarizers
▪ Mode Converters	▪ Memory	▪ Beam Splitters





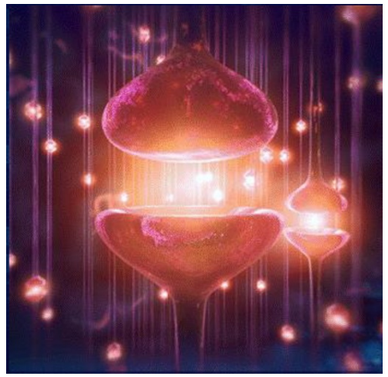
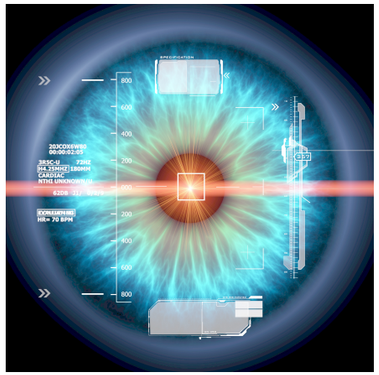






Photonics End Market Applications & Market Size

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

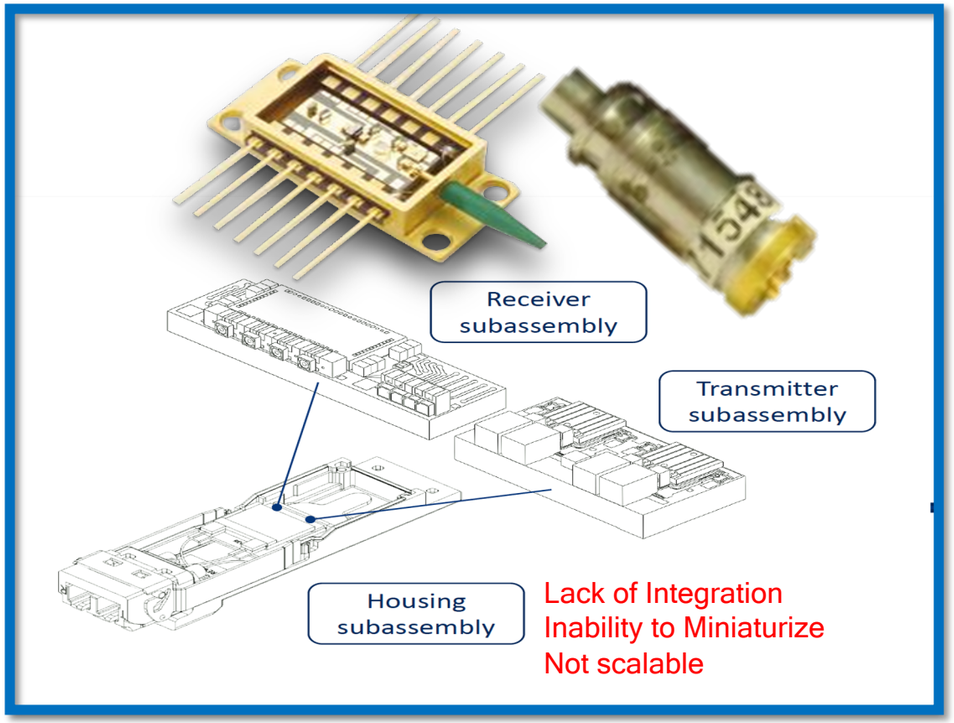
Source: Prescient & Strategic Intelligence, *Photonics Market Research Report, 2019*

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

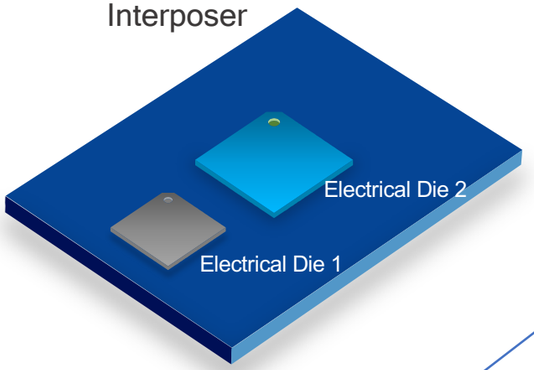
Existing Solutions utilize a large # of Components and Sub-assemblies



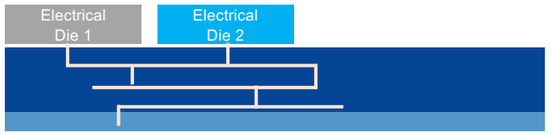
POET's Technology Solution

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

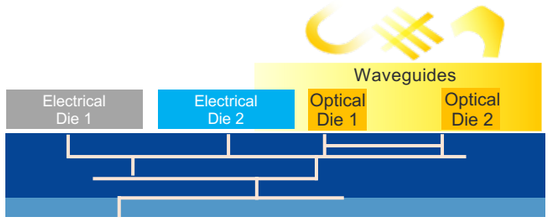
Electrical Interposer



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



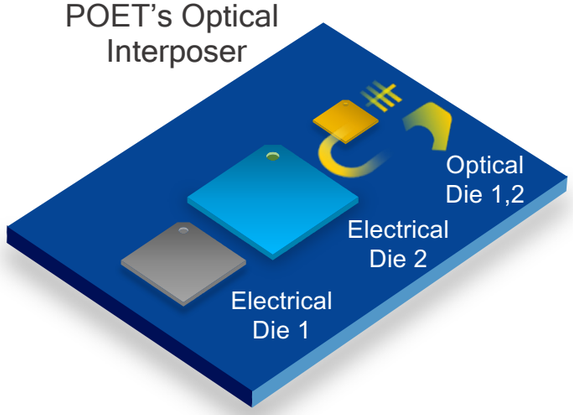
Electrical Interconnections



Optical Layer

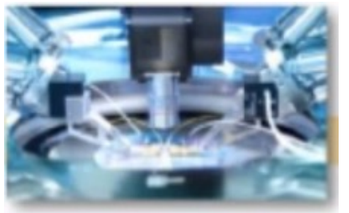
Electrical Layer

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



Wafer Level Test Platform

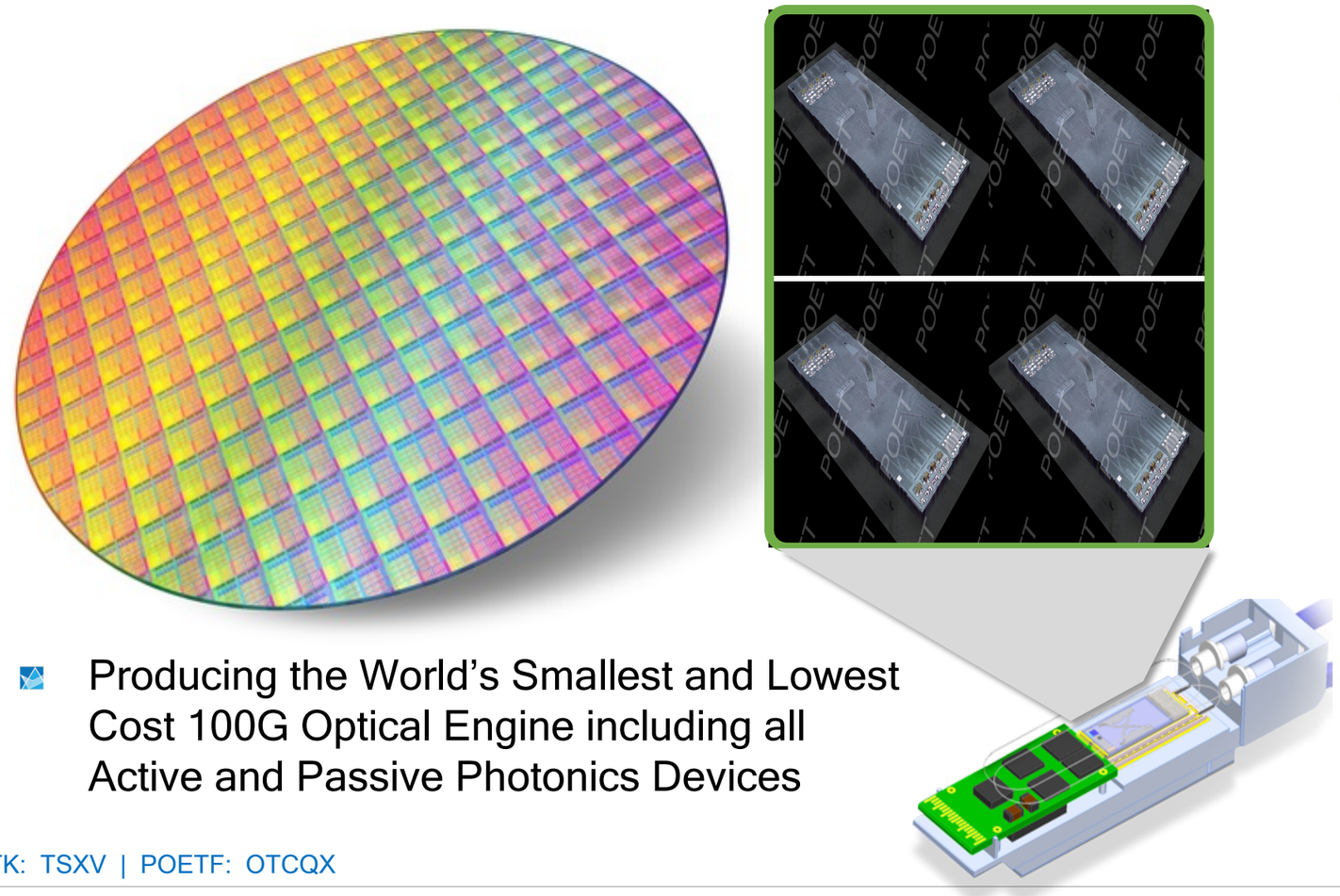
Wafer Level Assembly Platform

Optical Interposer Platform

Enables Photonic Multi Chip Modules with unprecedented scale and cost disruption

POET 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



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

How POET Wins

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

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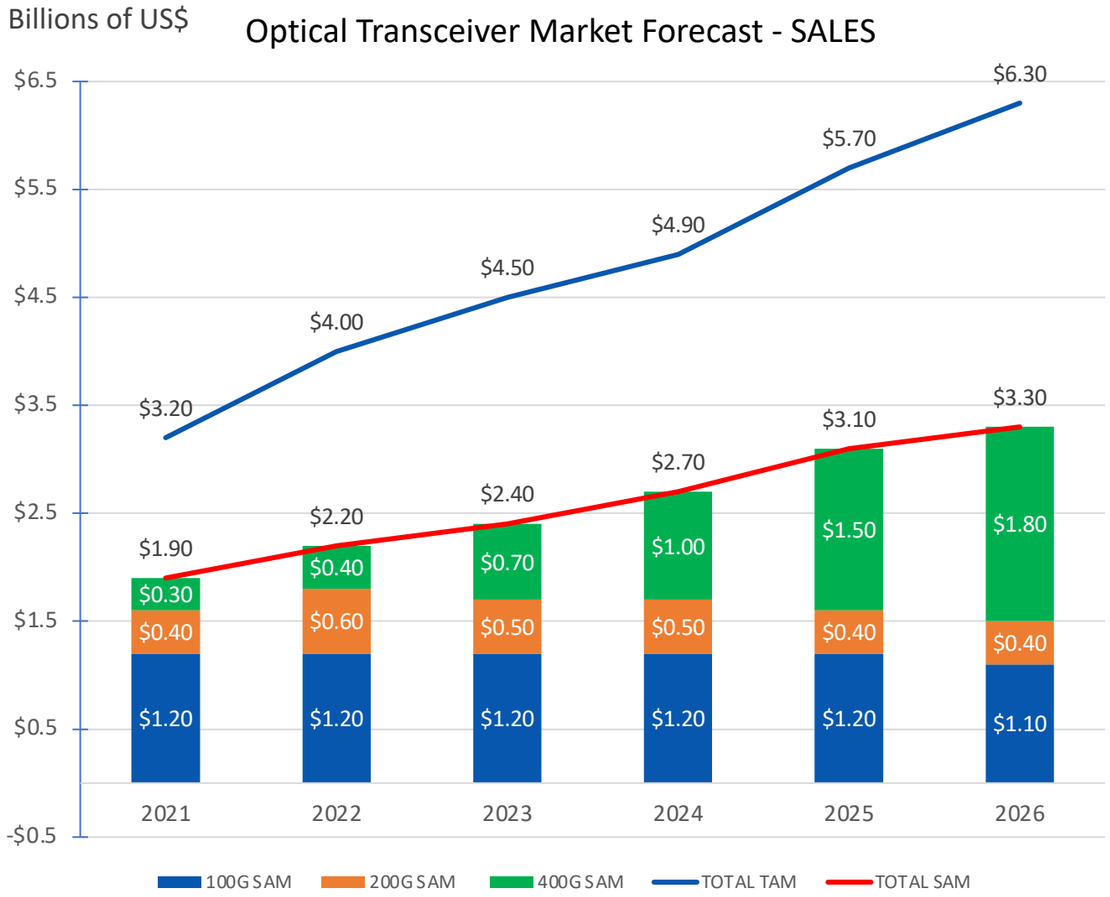
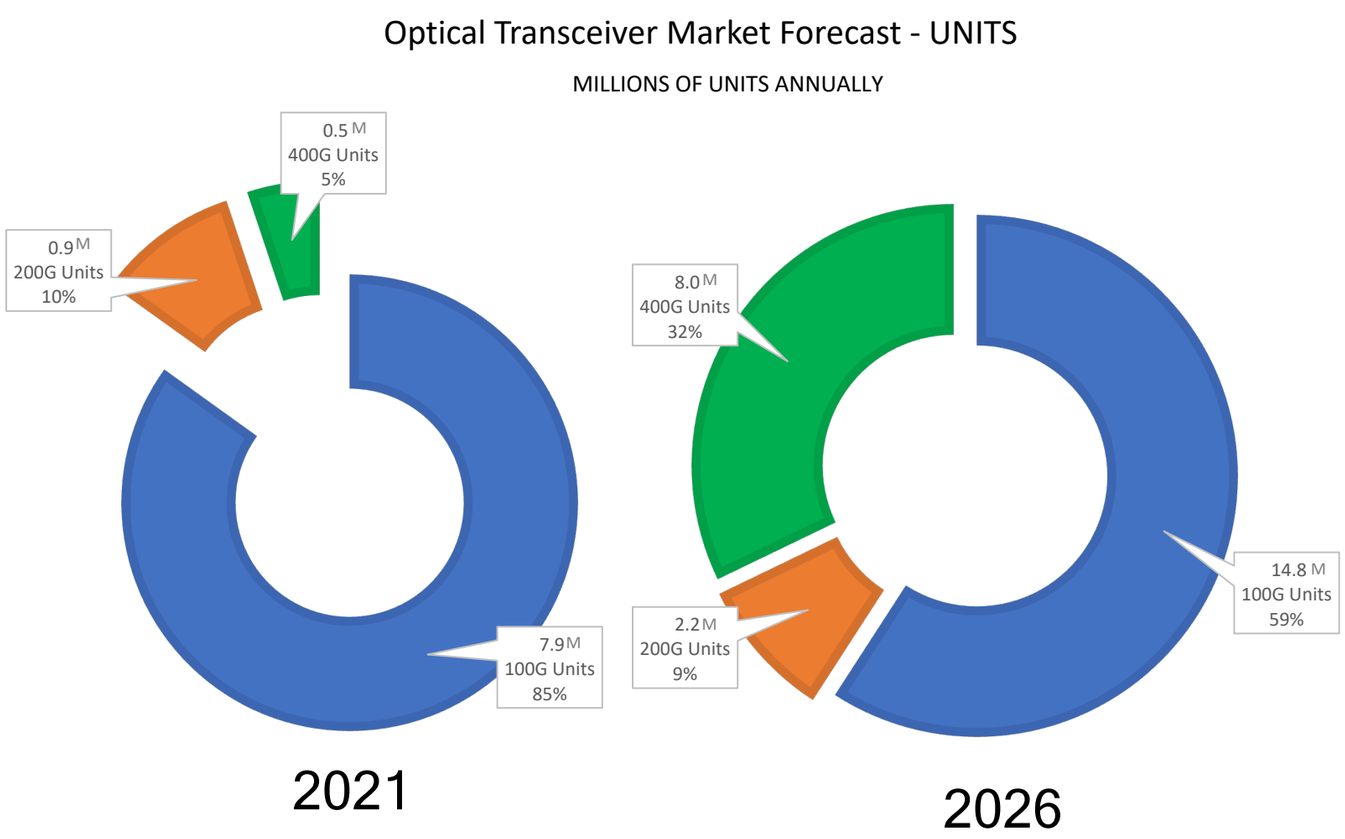
Initial Target Markets in Optical Transceivers

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





Opportunity to Grow to $1B Annually

>$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

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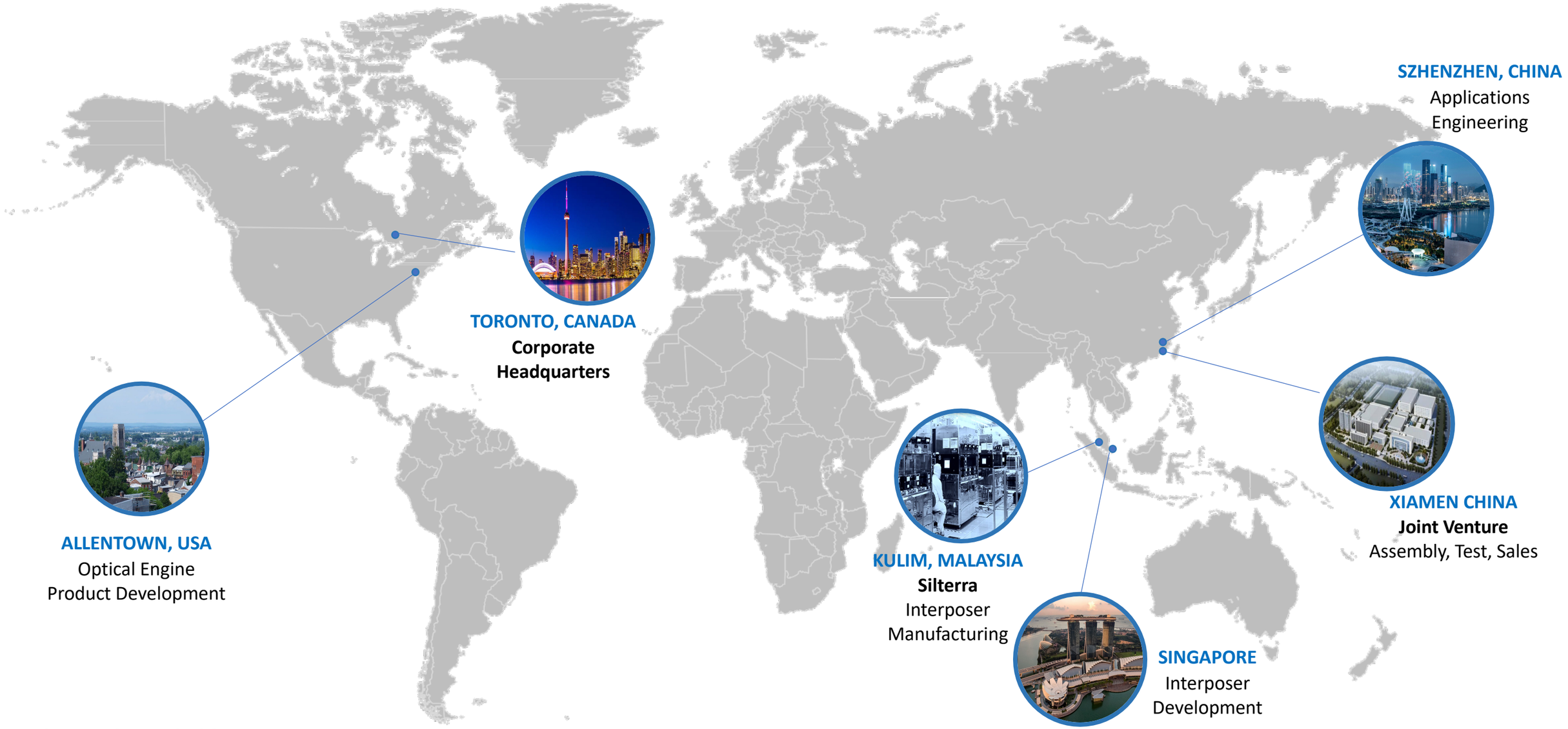
Global Development and Manufacturing



TORONTO, CANADA
Corporate Headquarters

SZHENZHEN, CHINA
Applications
Engineering

ALLENTOWN, USA
Optical Engine
Product Development

KULIM, MALAYSIA
Silterra
Interposer
Manufacturing

XIAMEN CHINA
Joint Venture
Assembly, Test, Sales

SINGAPORE
Interposer
Development

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

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.

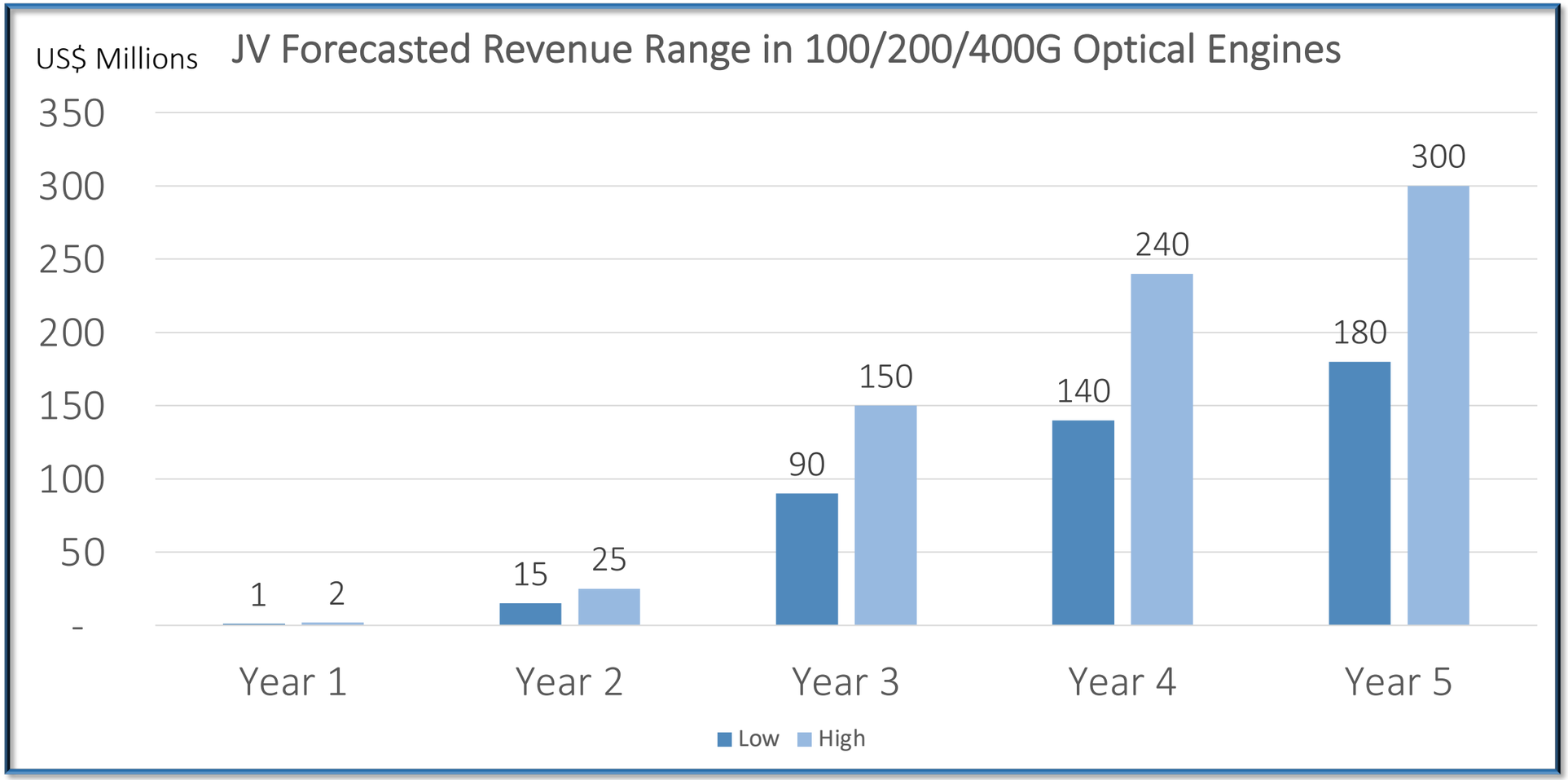
- Xiamen Torch High-Tech Industrial Development Zone
- US$500 million investment on180,000 square meters
- Compound semiconductor manufacturing platform
- Process technologies for microwave radio frequency, high power electronics & lasers

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)

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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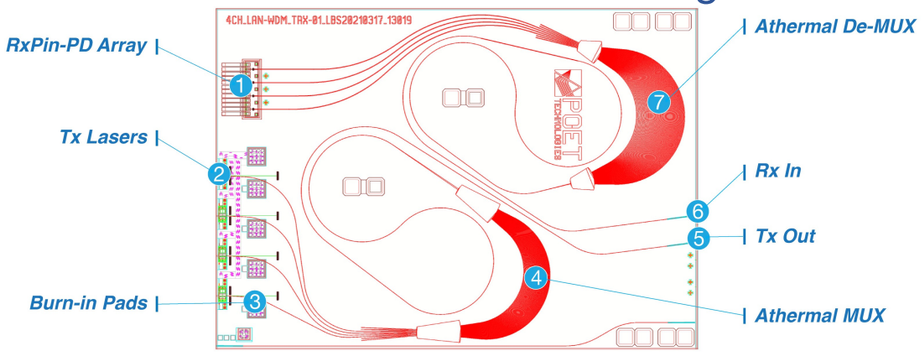
POET's 100G/200G CWDM4 and LR4 Product Lines

- CWDM4 targeted at Data Center Operations
  - Validated alpha performance for 100G Receivers (Rx) Transmitters (Tx) and Integrated Optical Engines (TxRx)
  - More than 10 customers targeted for initial sample distribution concurrent with China International Optoelectronic Expo (CIOE) in Shenzhen China September 1 – 3
  - Design updates based on alpha sample results underway for Beta and Production units
  - On track with previously established schedules
- LR4 designs targeted at Client Side of Telecom Networks
  - Significant market interest in custom, differentiated LR4 designs – few suppliers in this segment and higher price per unit
  - Laser and Interposer performance meet LR4 requirements
  - Final stages of contracts with two large leading transceiver module suppliers
  - On track with previously established schedules

100G CWDM4 Rx and TxRx OEs on EVB

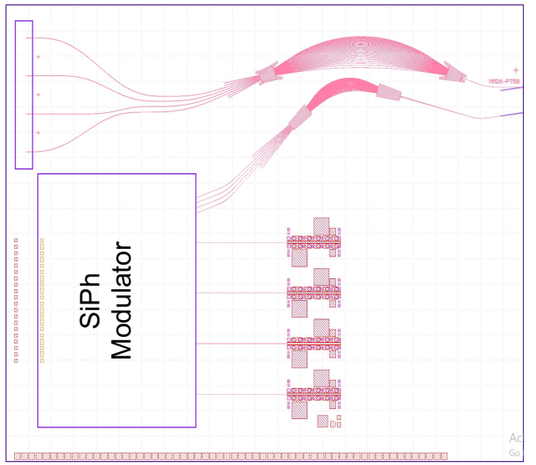
100G LR4 TxRx OE Design



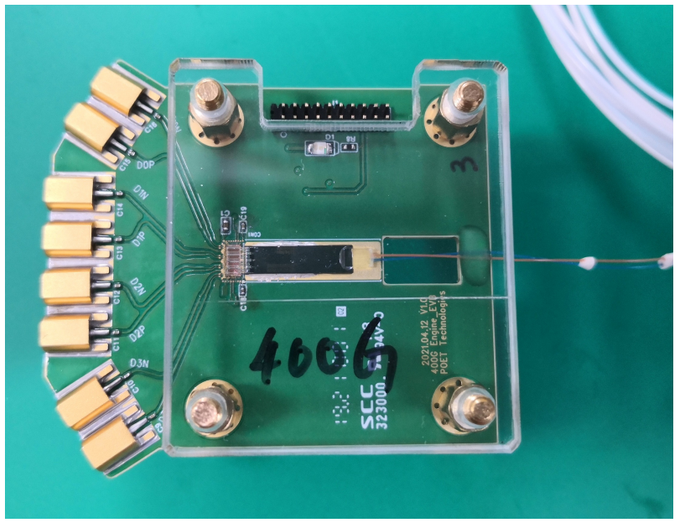
POET's 400G DR4/FR4 Product Line

- POET and Shanghai-based Siluxtek have partnered to conduct a live demo of a pre-alpha 400G FR4 Transmit Optical Engine at CIOE
  - FR4 has a 2km reach with four channels multiplexed into one fiber
  - DR4 has a 500m reach with four channels carried on separate fibers
- DR4/FR4 architecture and Optical Interposer designs completed and are currently being fabricated
- On schedule for 400G TxRx samples and deployment in Q1'22
- POET's 400G Receive (Rx) Optical Engine is being assembled and will be shipped to selected customers concurrent with CIOE

400G TxRx Optical Engine Design



400G Rx Optical Engine on EVB



Strong Customer Engagement across Multiple Verticals

Customer Traction at Leading Module and System Companies

Illustrative Pipeline of Customers

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

Super Photonics Xiamen Joint Venture

- SPX is the primary location for the assembly and testing of Optical Engines based on the Optical Interposer
  - SPX flip-chips lasers, detectors and other devices onto the Optical Interposer wafer using advanced bonding equipment.
  - Optical Interposers are supplied as wafers by POET to SPX
- 15 engineers and technicians, plus 5 support personnel, for a total of 20 personnel currently employed
- All initial-phase assembly and test equipment has been installed and being qualified, with the balance of the equipment due by the end of August
- Currently assembling samples of 100/200G CWDM4 Optical Engines and Optical Engines for 400G to be demonstrated at CIOE
- SPX has also begun process optimization for certain key assembly and testing processes

Update on Operations

- STRATEGIC EXECUTION:
  - ROADMAP – Delayed in first half of 2021 due to semiconductor supply chain issues, but recovering on designs, design wins. Continue to expect orders in 2021 for production in 2022
    - Semiconductor supply chain issues are not expected to alleviate for another 12-18 months
  - NEW MARKETS – actively seeking strategic partnerships in health technology / wearables and LIDAR
  - PATENTS – 77 Issued and 18 pending, including 3 provisional patents
    - Key new patent applications in the area of novel continuous wave lasers for 800G applications
- OPERATIONS:
  - HEADCOUNT - Current headcount is at 42, with another 4 starting in August and 1 in October for a total of 47, up from 25 one year ago.
  - CASH - Cash on hand and cash expected to be generated from warrant conversions sufficient for 2 years of operation

Update on Nasdaq Listing

- US$300M Registration Statement effective as of July 8
- New Transfer Agent, Computershare, applying for DTC eligibility
- All requested information has been provided to Nasdaq
- Several investment banks with respected analysts are interested in sponsoring POET's listing both in Canada and the United States
- On track for a Q4'21 or Q1'22 listing
- Will retain TSXV listing


POET
Technologies

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

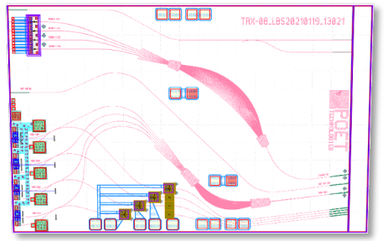
$46M Total Funding*

* Capital raised since 2015

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

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

