POET Technologies Inc.

NASDAQ:POET | TSXV:PTK

A Pure-Play AI Datacom Hardware Company

April 2024

Safe Harbor Statement

Forward-Looking Statements

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Investment Highlights

1. Pure-play in Datacom Hardware for AI
   - Leading-edge high speed data transmission (800G ++)
2. Industry-Disruptive Technology Platform
   - Validated with leading customers and qualified for production
3. Large, High-Growth Multibillion Dollar Markets
   - Extreme demand for AI Clusters and Data Center Networks
4. Deep Tech Protected by Patents and Trade Secrets
   - 30 patents issued and 19 applications on file
5. Undiscovered Micro-Cap AI Company
   - Listed on TSXV and NASDAQ

Three Key Artificial Intelligence Segments

SOFTWARE & SVCS

Analytics, inferences, machine learning, training, and emulating human tasks

OpenAI ChatGPT 4.0

jupyter

Chorus by zoominfo

2023 - $150B to 2030 - $1.3T
CAGR: 37.2%[1]

[1]Verified Market Research: "*Global AI Software Market Size … and Forecast 2024-2030*" February 2024

DATACOM

Communicating data between servers, data centers, home / office over fiber optic networks

COHERENT

POET Technologies

molex®

eoptolink®

2023 - $4.8B to 2028 - $10.9B
AI Units: 2024 - 9M to 2029 - 36M
CAGR: 17.7% and 31.8%[2]

Source: LightCounting: "*September 2023 High Speed Ethernet Optics Report" and "Optics for AI Clusters Forecast – Jan 2024"*

PROCESSORS

Processing and storing data and executing software commands using GPUs, CPUs, memory devices, etc.

nVIDIA

AMD

intel®

2022 - $15B to 2032 - $384B
CAGR: 38.2%[3]

[3]Allied Market Research, *"AI Chip Market Size, Share …Forecast"* Sept. 2023

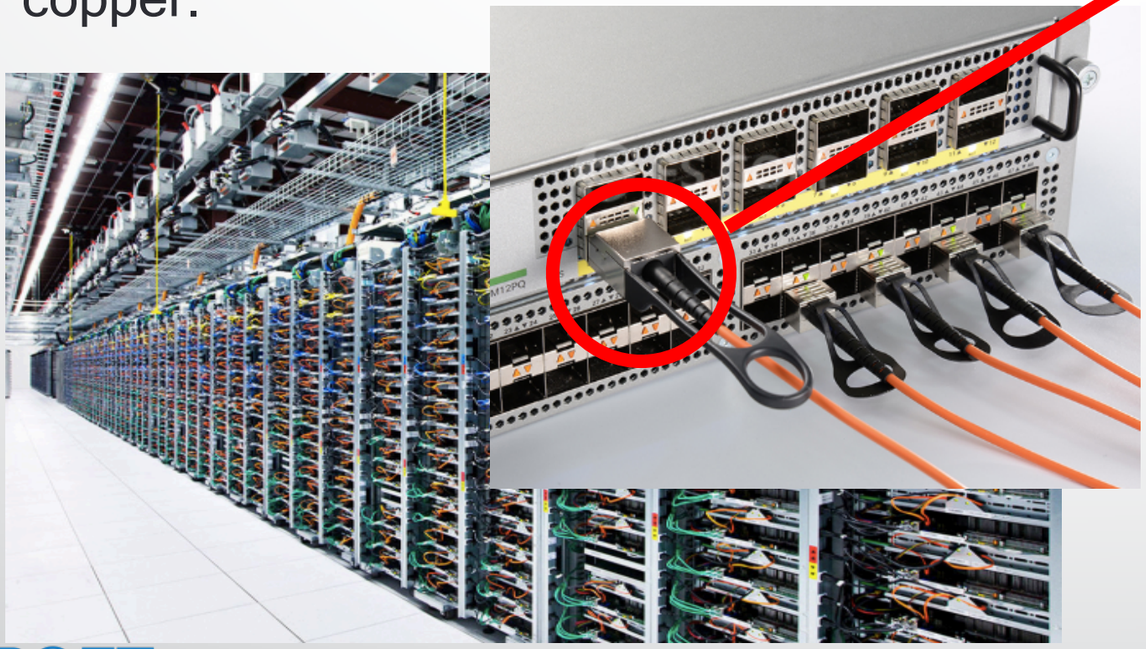
POET Technologies

Company logos used to represent participants in each segment

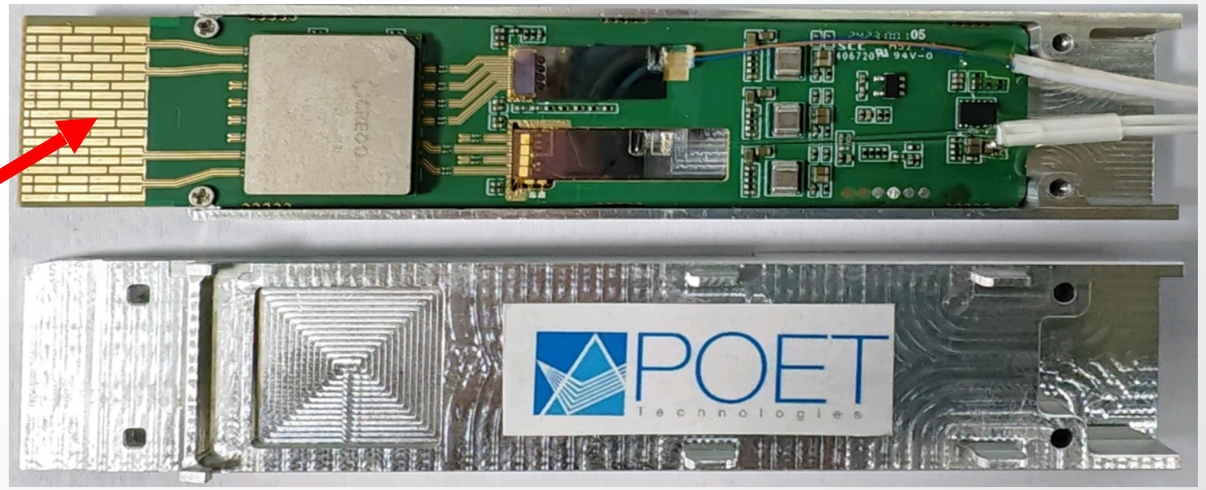
The Invisible but Critical Link

AI processors, AI software, AI service providers and AI end-users are linked through “optical modules” - yet few outside the industry know what they are

“Optical Modules” are transmit and receive devices (“transceivers”) for data transmission using light. Light carries more data, at a faster speed, lower power and with no heat generation compared to electrons through copper.



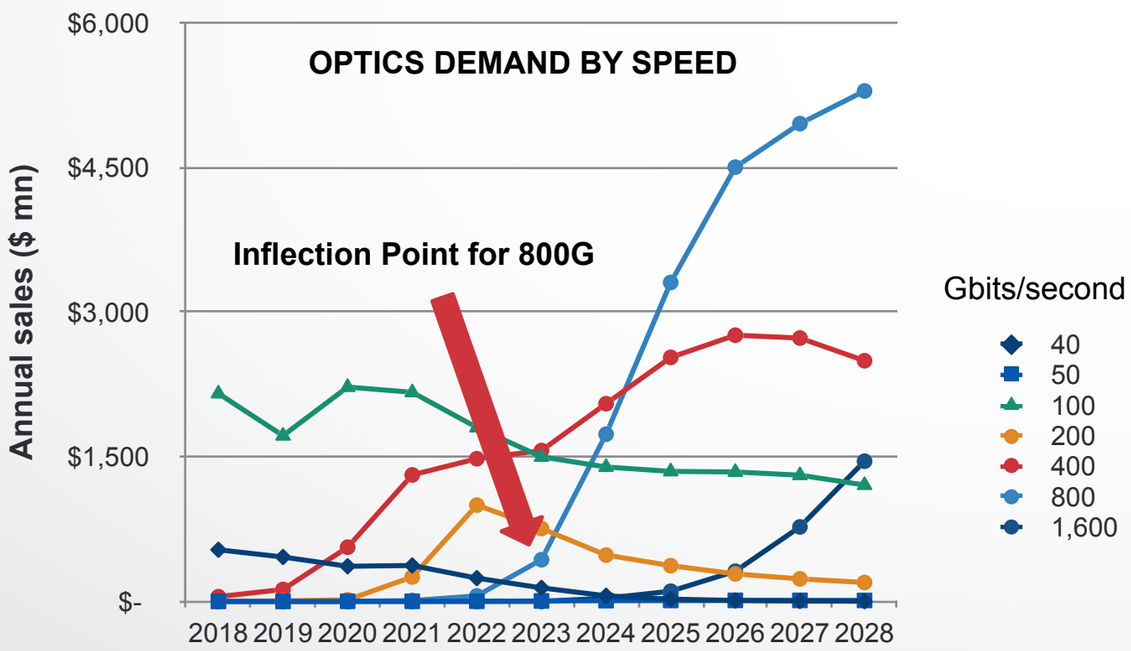
POET 800G+ Module Solutions for Global Markets



Point to point ethernet is used for communications among AI processors inside the data center and from the data center to other data centers and to trunk networks, i.e., 50m to 10km.

Extreme Demand for High-Speed Optical Modules

AI service providers are furiously building out specialized data centers with 800G and above transceivers to handle the speed and bandwidth requirements



Source: LightCounting: *September 2023 High Speed Ethernet Optics Report*

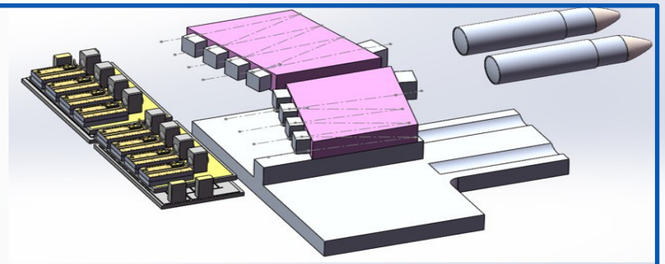
- POET's Optical Engines and Modules are built for speeds of 800G and above
- POET is one of only a few suppliers of 800G (2X400G FR4 and LR4) modules that are in high demand by AI service providers and data center operators
- The global market for 800G transceivers in 2023 was $432M and is expected to reach $5.3B by 2028 – a 65% CAGR
- POET has designed engines and modules at 1.6T, 3.2T and higher ahead of market demand

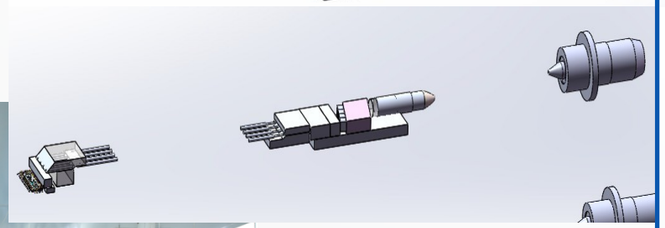
LightCounting: "AI will add $17B in optical transceiver sales over the next 5 years"[1]
Dell 'Oro Group: "AI infrastructure spending to bring data center capex to >$500B by 2027 "[2]

Sources: 1. LightCounting. "July 2023 Mega Data Center Optics Market Report", July 2023
2. Dell'Oro Group. "Data Center IT Capex Report", July 2023

What makes POET different?

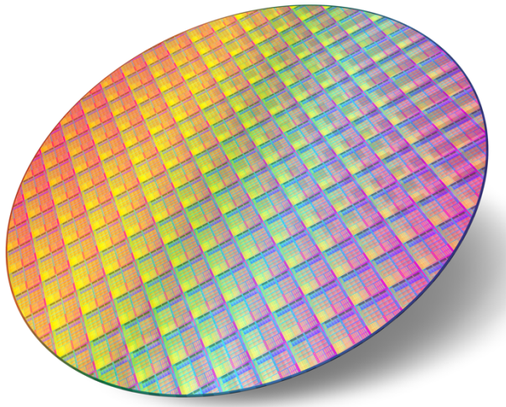
POET automates production by replacing job-shop assembly techniques used since the 1990's in photonics with state-of-the art semiconductor technology

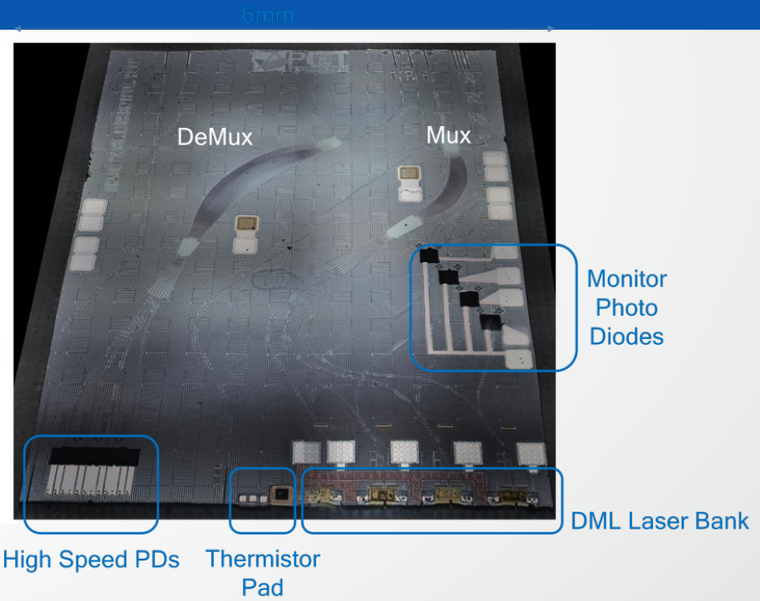




Engines and Modules built one-at-a-time with high Capex and high Labor Costs

Conventional Discrete Job-Shop Assembly



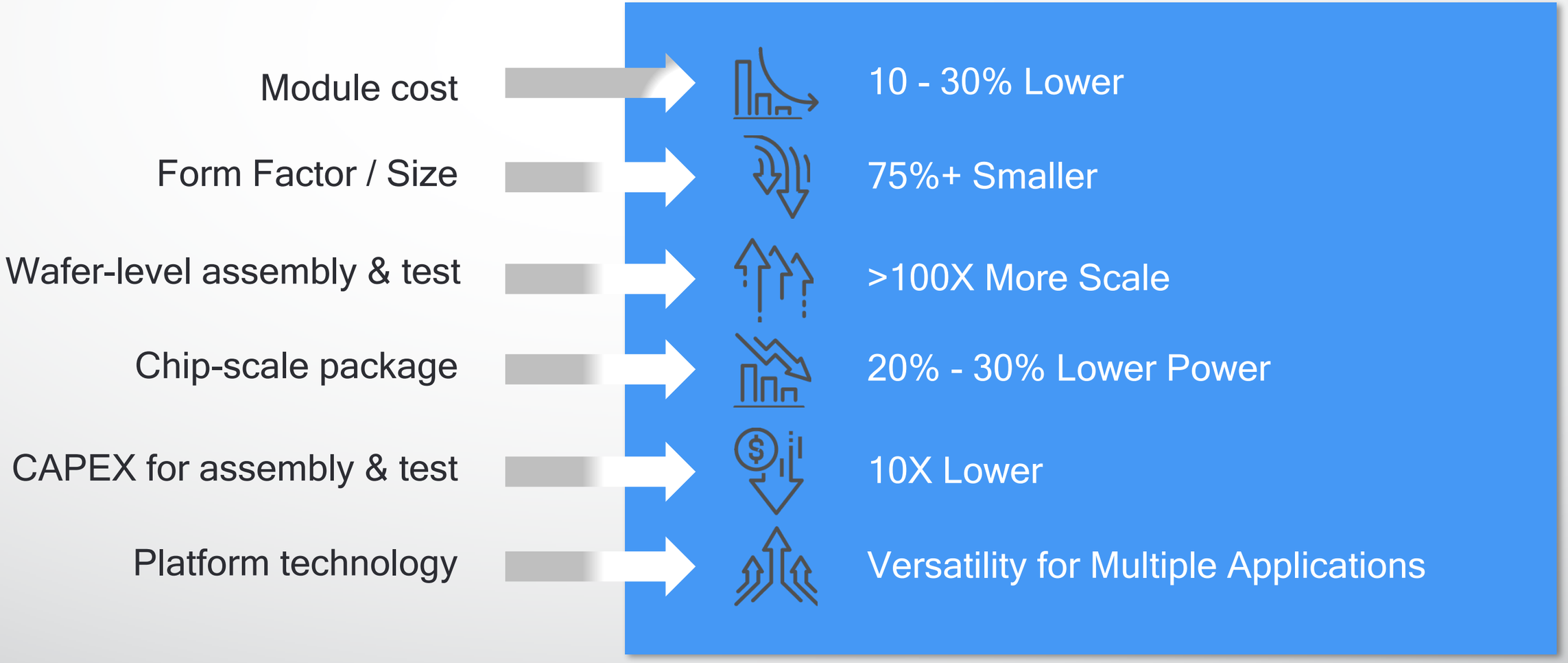


Optical Engines built hundreds at a time with wafer-level assembly

POET is "semiconductorizing" the manufacturing and assembly of optical engines for transceivers

Why “semiconductorize” photonics?

POET’s products are lower cost, lower power, smaller and scalable – all key competitive advantages

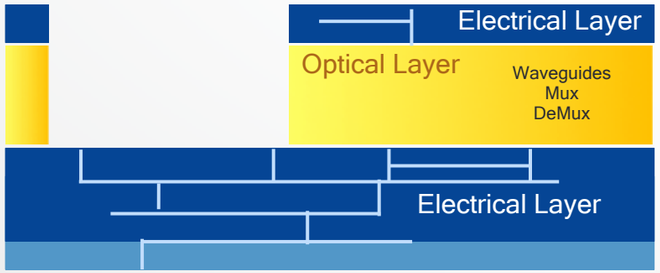


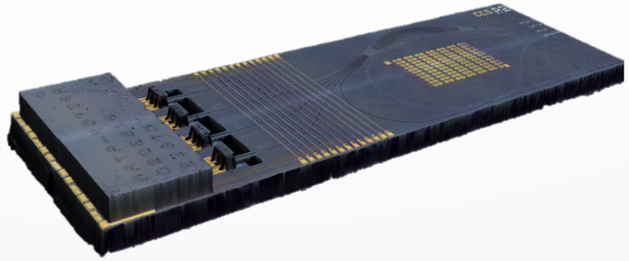
*Based on Internal Estimates and Projections. Comparisons are made to current implementations of conventional Chip-on-Board and Silicon Photonics-based transceivers and laser-array-based light sources.

POET Product and Business Evolution

The POET Optical Interposer™ is a disruptive invention in the field of photonics – it is the basis for all POET optical engine and module products

2018 - 2021	2022 - 2023	2024 and beyond
I. POET Optical Interposers	II. POET Optical Engines	III. POET Optical Modules





- 2018 - invention of the Optical Interposer
- 2022 – introduced the first 100G optical engine based on the POET Optical Interposer™
- 2023 - designed and produced13 more optical engine products for 200G – 800G
- 2024 - entered the 800G module market at Optical Fiber Conference (OFC) – March 2024

"Offering 800G modules is the most important commercial milestone in the Company's history, since it now can sell direct to AI Service Providers and Data Center Operators, who purchase modules, not optical engines. "

Competitor Landscape

Only 2 of the Top Ten Suppliers in 2010 appeared on the list in 2022 - rapid market share gains come from new technology and end-user sponsorship

	Conventional Assembly	Conventional Assembly with some SiPh Components	Semiconductorized Hybrid Integration
Top 10 Module Makers in 2022*	HUAWEI, INNO LIGHT, HGGenuine, SP SOURCE PHOTONICS, Accelink, Hisense	cisco, COHERENT, intel, eoptolink	POET Technologies
Current market solutions employ conventional tech	• Lots of components, • Assembly and active alignment - High Labor and Capital Costs • Limited volume scalability • Limited cost scalability		• Simplified integration • Wafer scale manufacturing • High capex efficiency • Faster, Better, Cheaper • Able to scale rapidly

Only Finisar (now Coherent) and Source Photonics were on the list of Top 10 Suppliers in 2010

*Source: LightCounting, *Optical Vendor Landscape Report*, May 2023

Advanced Solutions for Large Service Providers

POET optical engines, light sources and modules - introduced to the market in 2024 and in production in 2024/25*

POET PRODUCT	POET CUSTOMER MODULE MAKER	END USER**	END APPLICATION
400G QUAD LR4	ADVA	CHINA MOBILE, Google, Tencent 腾讯, CISCO, NVIDIA, Meta, 中国电信 CHINA TELECOM, SAMSUNG	DATACOM
800G 2xFR4	LUXSHARE		ARTIFICIAL INTELLIGENCE
POET Starlight™ Light Source	CELESTIAL AI		ARTIFICIAL INTELLIGENCE
100G CWDM	BFYY, ZKTEL, FIBERTOP		DATACOM
100G LR4	TIER 1 MODULE		DATACOM

*Internal estimates based on order projections provided by customers.
**End User information is based on POET's analysis of customer's likely targets.

Manufacturing - Ready to Ramp

POET prepared for high volume manufacturing by forming a joint venture with San'an, the world's leading producer of LEDs, with no cash investment by POET

95 Total Employees Across 5 Countries
57 (POET) + 38 (Super Photonics Xiamen)

POET + Sanan IC

Super Photonics Xiamen (SPX)

- Joint Venture between POET and Sanan IC
- Assembles, tests, packages and sells Optical Engines based on POET's Optical Interposer technology

Value Creation

- Formed in 2021 as a Chinese company
- No cash investment by POET
- 38 employees as of January 2024

Value Capture

- POET currently owns 70% equity stake
- Operated as a true JV – no consolidation on financial statements

Deep Semiconductor and Photonics Hardware Expertise

Dr. Suresh Venkatesan, CEO & Chairman

- Inventor of the POET Optical Interposer
- Principal Inventor for 30 issued patents and 19
- patent applications for POET
- Former SVP Technology at GlobalFoundries
- Former senior roles at Motorola & Freescale Semiconductors
- PhD in Electrical Engineering – Purdue University

Vivek Rajgarhia, President & General Manager

- Overall responsibility for Company Operations, Market Entry, Products & Customers
- Oversight of Super Photonics Xiamen, POET's manufacturing partner in China
- Former CEO & Co-Founder of Optomai (MACOM)
- Former senior roles at Lucent ME (Nokia), OpNext (Lumentum), GigOptix (Renesas)
- BEng (Electrical) – Stevens Institute of Technology

Thomas Mika, Executive Vice President & CFO

- Overall responsibility for Finance & Administration
- Raised $45M in equity capital and $40M in non-equity capital for POET
- Listed POET on NASDAQ in 2022
- Former Chairman, CEO & CFO of Tegal Corp (Nasdaq) - semi capital equipment
- BSc Microbiology – University of Illinois; MBA – Harvard University

Dr. Mo Jinyu, SVP & GM, Asia

- Former Sr. Director and Chief Scientist, MACOM's Lightwave Business Unit - Asia
- Founder and former CTO, Nexwave Photonics
- Former senior roles at Huawei, Oclaro, I2R

Raju Kankipati, SVP & GM, USA

- Former Sr. Director, Product Management at MACOM
- Former senior roles at Arista, Cisco, OpNext (Lumentum)
- MBA- UC Berkeley, Haas School of Business

Dan Meerovich, VP, Product Engineering

- Former Director, Product Engineering at MACOM's Lightwave Business Unit
- Former senior roles at Apogee (Broadcom), Multiplex

James Lee, VP & GM, Singapore

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

Kevin Barnes, VP, Finance and Administration

- Former Controller, EC English
- Former roles at Duguay and Ringler Corporate Services

Dr. Robert Ditizio, VP, Intellectual Property

- Former CTO, Tegal Corporation
- Patent and process consultant for POET since 2017

Long-Term Financial Model*

As a public company POET is unable to provide a financial forecast except under NDA The table below provides an indication of potential based on an internal model

The key to a higher GM% vs. module competitors is POET's wafer-level, chip-scale integration of components - resulting in economies of scale similar to those in semiconductor manufacturing.

	Near-Term (1 - 2 years)	Mid – Term (3 – 4 years)	Long – Term (4 – 6 years)
Revenue Scenarios ($ millions)	$10 - $20M	$100-$200	$500 - $750
Gross Margin %	40%	45%	50%
R&D % of Sales	>100%	25% - 35%	12% - $15
EBITDA	(Negative)	Mid 20%	30% +

*Illustrative examples, above figures are not representative of management projections or estimates

Key Metrics

US$ in Millions

Balance Sheet Snapshot

Total Cash (as of Dec. 31, 2023)	$3.0
Total Debt (as of Dec. 31, 2023)	$0.0

Revenue and Cash Burn

Sales (est. as of Dec. 31, 2023)	$0.5
Projected Quarterly Cash Burn	~$3.0

Subsequent Capital Injection

Private Placement	5,098,088	$4.6M

Capitalization Snapshot (March 15, 2024)

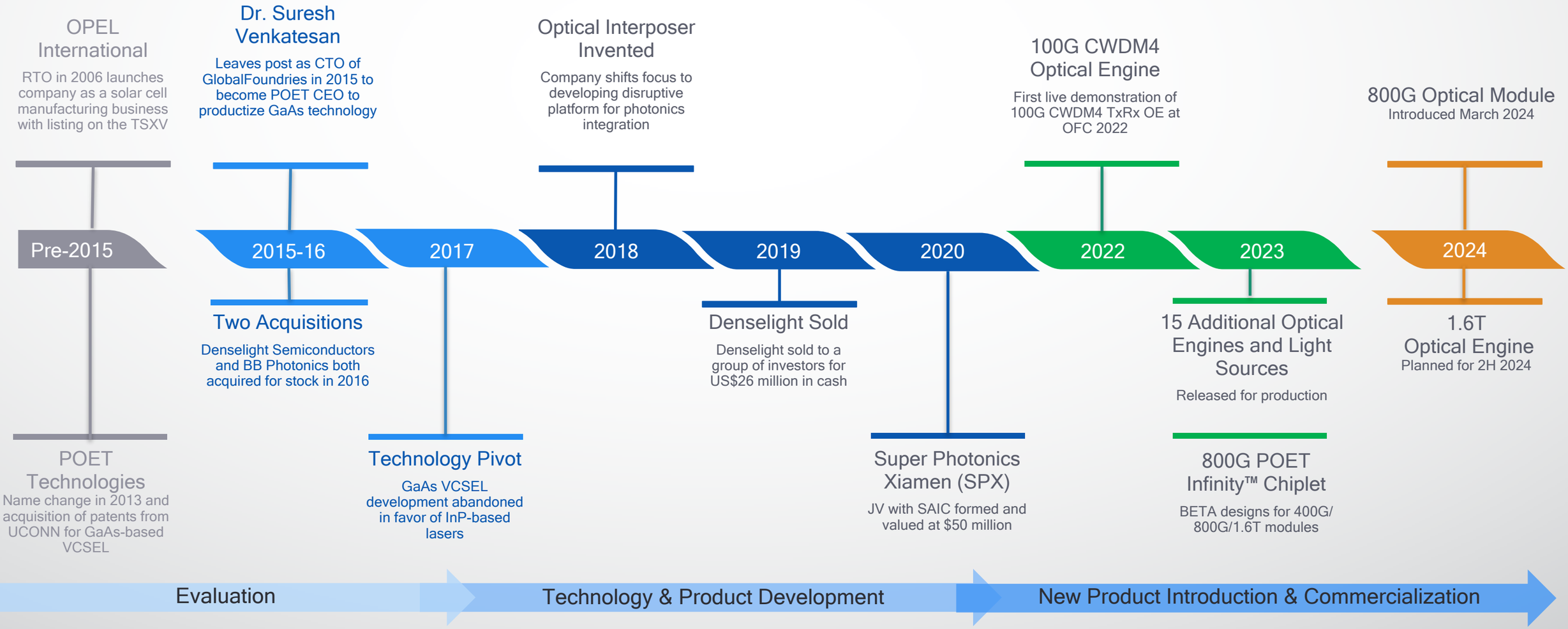
Common Shares Outstanding	48,183,038	
Warrants Outstanding	7,285,907	$1.31
Management Options Outstanding	7,918,358	$3.67
Fully Diluted Shares	63,387,303	

Share Price Summary

Closing Price as of March 15, 2024	$1.31
Market Cap	$63.1M
52-Week Range	$0.72 - 6.23
All Time High	$26.10
Average Volume (50-day)	180,875

Pure Play AI Hardware Company Delivering AI Solutions

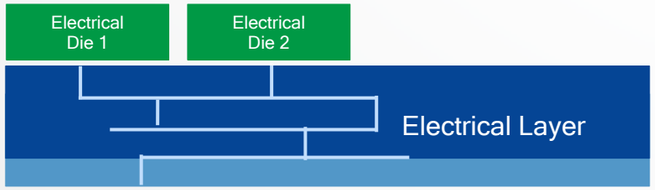
Commercialization underway with multiple customers



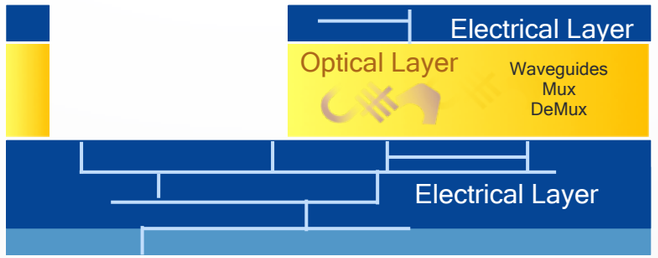
Proprietary Technology Solution – POET Optical Interposer™

Extending Semiconductor Wafer Level Chip Scale Packaging (WLCSP) to Photonics

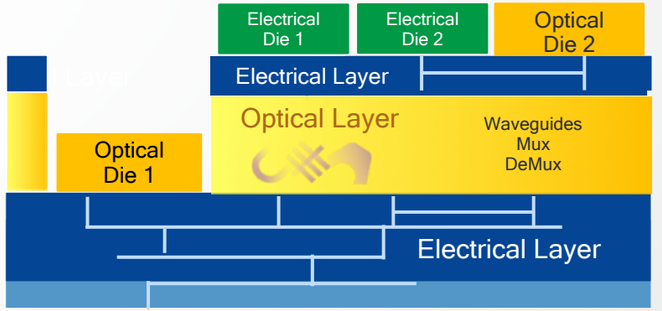
An Electrical Interposer



POET Optical Interposer



POET Optical Engine



- Wafer-Level: All assembly and test processes can be done on full wafers, employing wafer level chip scale techniques
- Chip-Scale: Integrated into a single chip on a standard silicon wafer
- Hybrid: Use “known-good” and “best-of-breed” components made from different materials

✓NO Active Alignment of Components ✓ALL done with automated semiconductor equipment at wafer-level ✓FULL integration of components

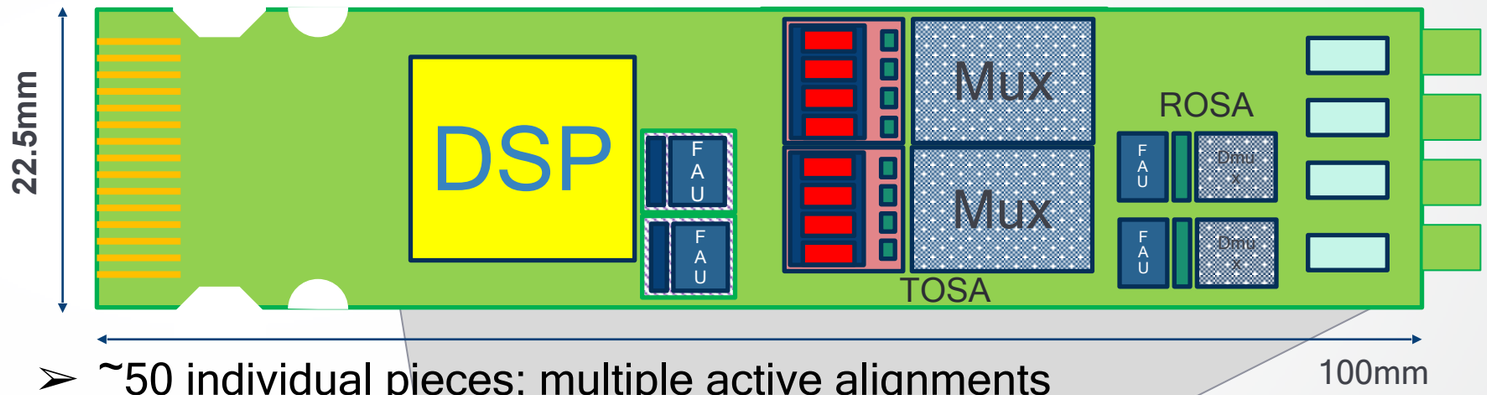
Vastly Simplified Design for Datacom/Telecom Transceivers

Data Communications Challenges

- Serial data communication channels have not been able to keep up with the pace of bandwidth growth.
- Number of communications lanes increase as data rate increases!

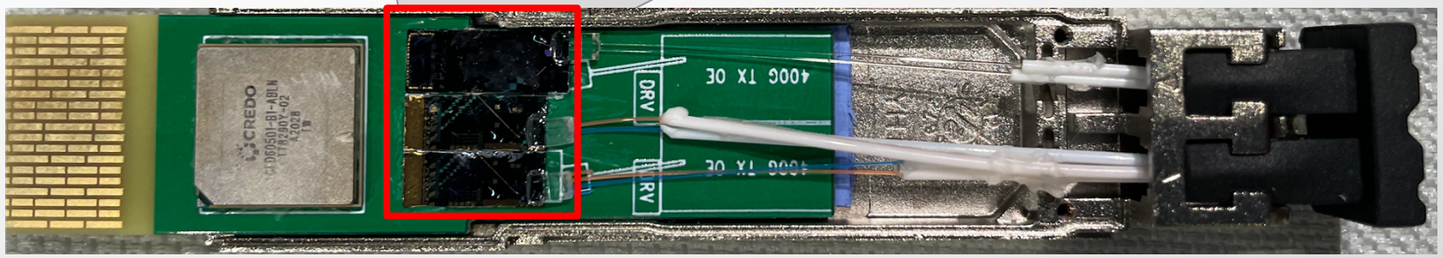
Data Rate	Number of lanes
10G	1
40G	4
100G	1/4
200G	4
400G	4
800G	8
1.6T	8/16
3.2T	16

Conventional Discrete Assembly of Multiple Components



➢ ~50 individual pieces; multiple active alignments
➢ Unsustainable for 8 channels ; Impossible for 16

POET Infinity™ CHIPLETS are 75% smaller than Conventional Discrete Components



➢ Integrated Tx and Rx optical engines with no active alignments
➢ Readily scalable to 16 channel implementations


POET
Technologies