PURE PLAY AI DATACOM HARDWARE

Investor Presentation / Q4 2024

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POET Technologies

NASDAQ:POET | TSXV:PTK

SAFE HARBOR STATEMENT

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THE STORY:
POET POWERS AI

POET provides transceiver and chip-to-chip compute solutions to customers engaged in AI hardware and AI clusters.

200G/Lane

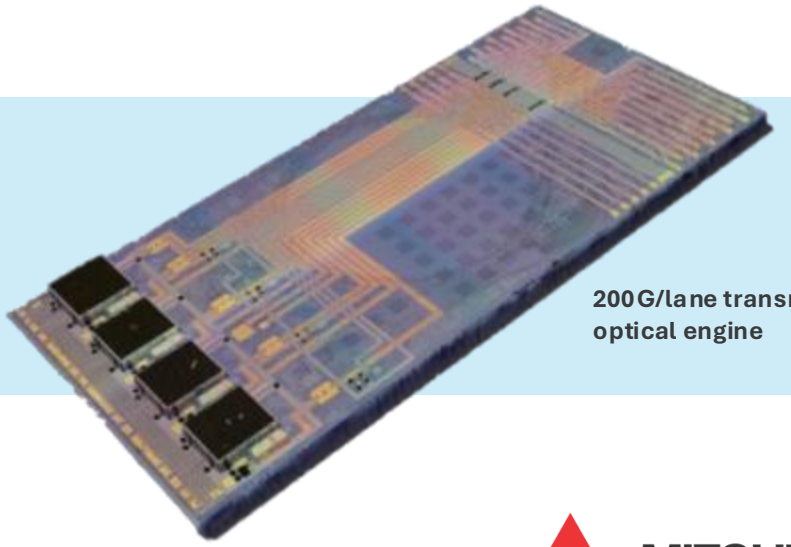
POET is significantly **ahead of the market with 200G/lane design** architectures for its optical engines.

1.6T+ Data Speeds

POET is **one of very few companies that can reach 1.6T** right now. And it has schematics up to 6.4T!

$12.5B TAM

LightCounting forecasts the markets in which POET operates **will grow by 7x in the next 5 years**.



200G/lane transmit optical engine

Our partners are the world's top manufacturers of computer devices...

MITSUBISHI ELECTRIC

FOXCONN

LUXSHARE ICT

...and they supply AI and computing hardware to massive companies!

NVIDIA

Google

Apple

INVESTMENT HIGHLIGHTS

> “POET’s hybrid-integration platform technology will enable us to use best-of-breed components and ramp to high volume at a much faster pace and in a cost-efficient manner.
>
> — Foxconn Interconnect Technology

Pure-Play in AI Datacom Hardware

Leading-edge high-speed data transmission (800G, 1.6T - plus 3.2T on the way).

Large, High-Growth Multibillion Dollar Markets

Extreme demand for AI clusters and data center networks.

Industry-Disruptive Technology Platform

Validated with Foxconn and other leading customers and qualified for production.

Deep Tech Protected by Patents & Trade Secrets

33 patents and 24 applications - all related to the POET Optical Interposer.

Financial Stability

Working capital of more than $75M USD (as of Dec. 1, 2024).

Micro-Cap Perfectly Positioned for AI Boom

Listed on NASDAQ (POET) and TSXV (PTK).

3 KEY ARTIFICIAL INTELLIGENCE SEGMENTS

1 SOFTWARE & SVCS

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

$150B (2023) → **$1.3T** (2030)

37.2% CAGR[1]

Apple Intelligence, salesforce einstein, jupyter, watsonx, Chorus by zoominfo

2 DATACOM LINKS

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

$4.8B (2023) → **$10.9B** (2028)

17.7% CAGR[2]

POET Technologies, COHERENT, molex, eoptolink

3 PROCESSORS

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

$15B (2022) → **$384B** (2032)

38.2% CAGR[3]

NVIDIA, intel., AMD

Sources:

1. Verified Market Research: "Global AI Software Market Size ... and Forecast 2024-2030" February 2024
2. LightCounting: "September 2023 High Speed Ethernet Optics Report" and "Optics for AI Clusters Forecast – Jan 2024"
3. Allied Market Research, "AI Chip Market Size, Share ...Forecast" Sept. 2023

Notes:
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.

Migration to higher speeds constantly accelerating:
10G – 100G ~8 years
100G – 400G ~5 years
400G – 800G ~2 years

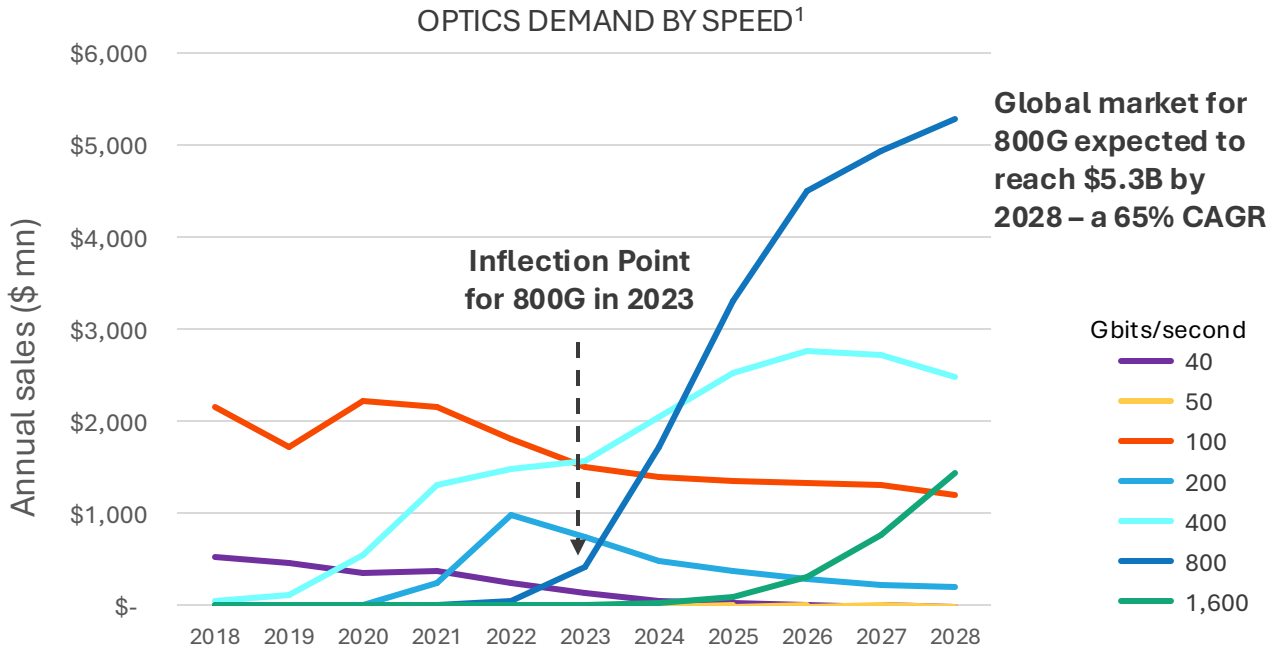
EXTREME DEMAND FOR HIGH-SPEED OPTICAL MODULES

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

$17B In additional optical transceiver sales in AI over the next 5 years[2]

>$500B Data center capex by 2027, to be brought by AI infrastructure[3]

$432M Global market for 800G transceivers in 2023[1]



POET's Optical Engines and Modules are built for speeds of 800G and above!

1.6T / 3.2T
engines designed by POET, ahead of market demand

- **POET is one of only a few suppliers of 800G** (2X400G FR4 and DR8) engines that are in high demand by AI service providers and data center operators
- **POET has partnered with MultiLane** to co-develop optical modules

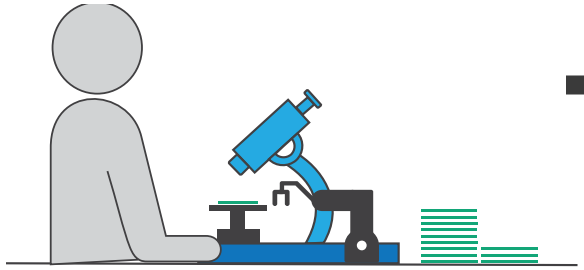
Sources:
1. LightCounting: September 2023 High Speed Ethernet Optics Report
2. LightCounting. "July 2023 Mega Data Center Optics Market Report", July 2023
3. Dell'Oro Group. "Data Center IT Capex Report", July 2023

WHAT MAKES POET DIFFERENT

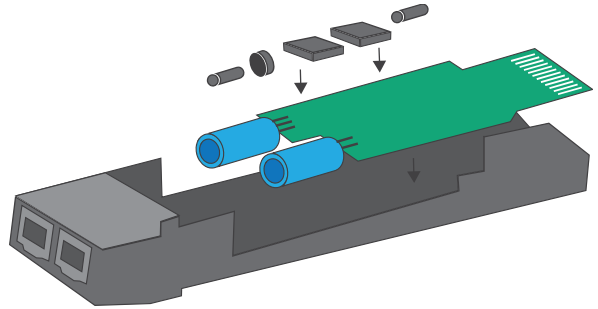
POET automates production by replacing job-shop assembly techniques in photonics, used since the 1990s, with state-of-the art semiconductor technology.

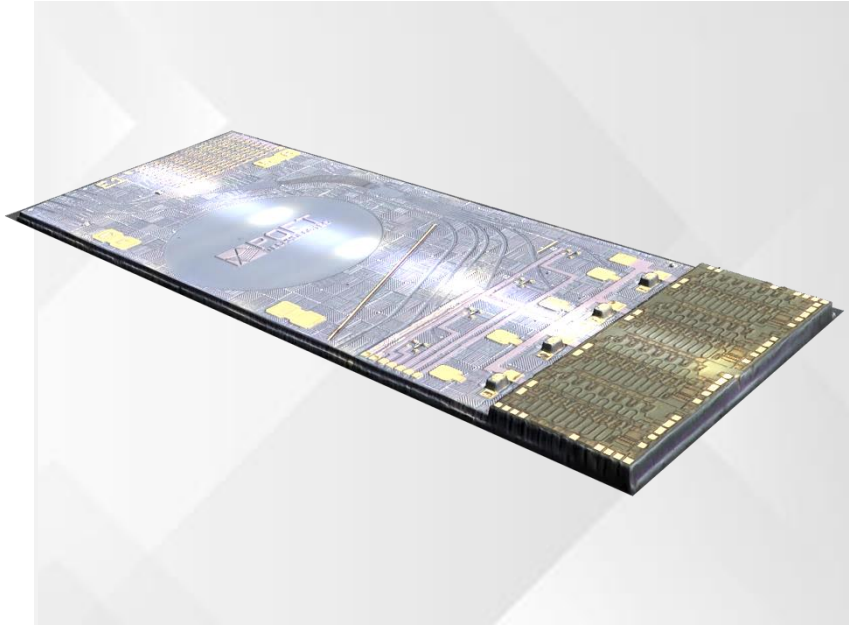
Conventional Discrete Job Shop Assembly

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



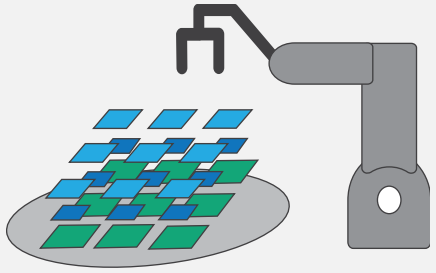
Multiple components and sub-systems requiring active alignment.



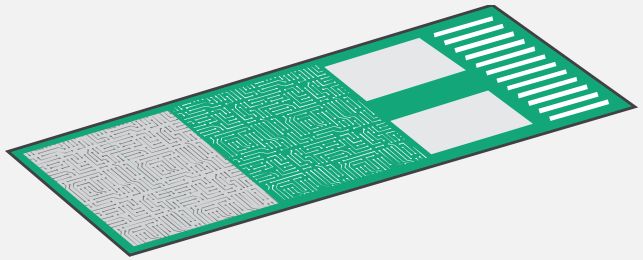


POET's Fully-Automated Semiconductor Assembly

Optical Engine chips built hundreds at a time using wafer-level assembly.



All components integrated onto a single chip with no active alignments.



COMPETITIVE ADVANTAGES

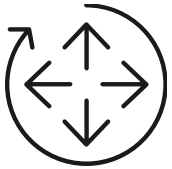
POET's Optical Interposer revolutionizes optical engine and module assembly through *Hybrid Integration*, *Passive Assembly* and *Platform Scalability*.

KEY ADVANTAGES FOR MODULE MAKERS

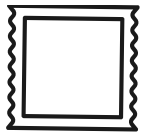
- Simplified BOM
- Lower Complexity of Assembly
- One Module Design for Multiple Products

Module Cost
10 - 30% Lower

Form Factor/Size
75%+ Smaller



Wafer-Level Assembly & Test
>100X More Scale



Chip-Scale Package
20% - 30% Lower Power

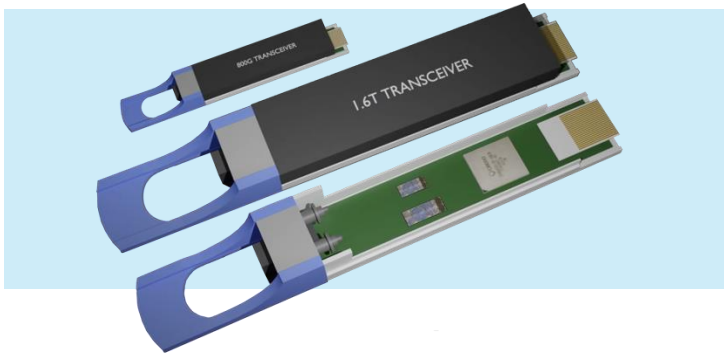
CAPEX for Assembly & Test
10X Lower

Platform Technology
Versatility for Multiple Applications

Notes: 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.

ADVANCED SOLUTIONS FOR LARGE SERVICE PROVIDERS

POET optical engines, light sources and modules – introduced to the market in 2024 and in production in 2025.[1]

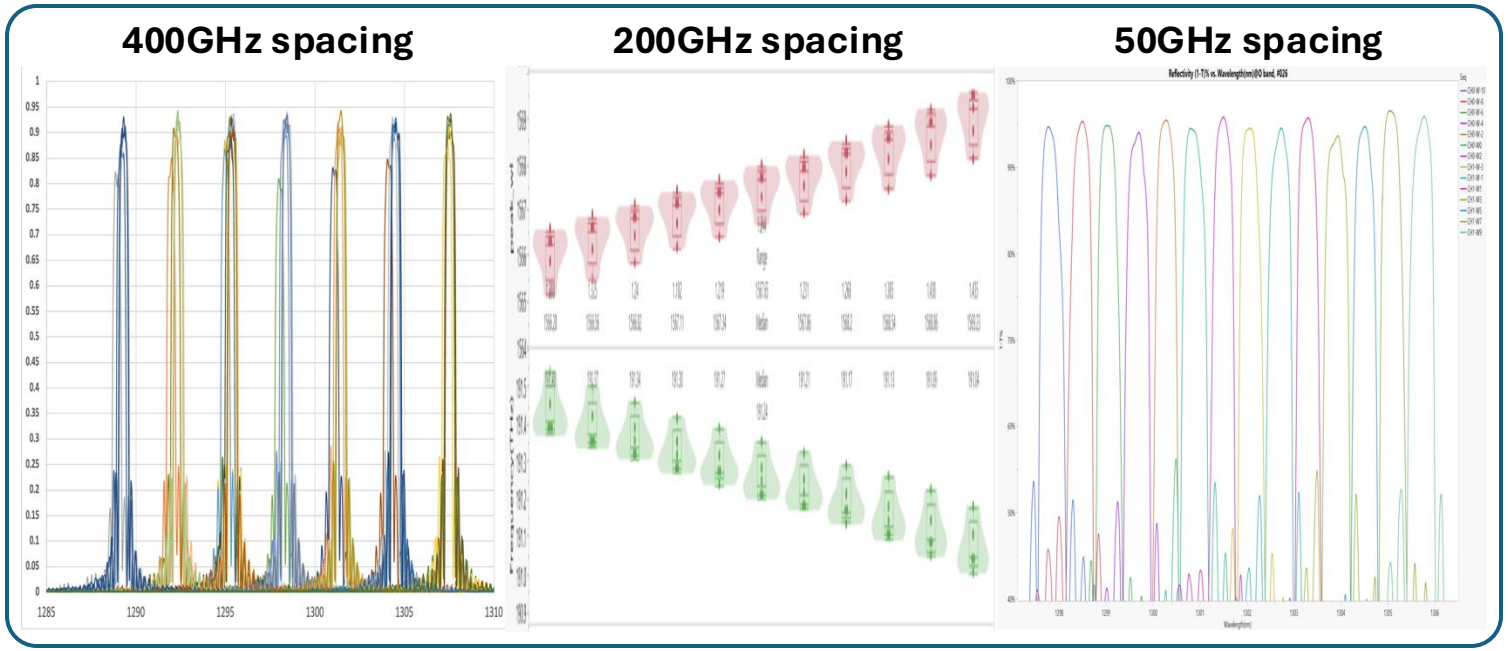


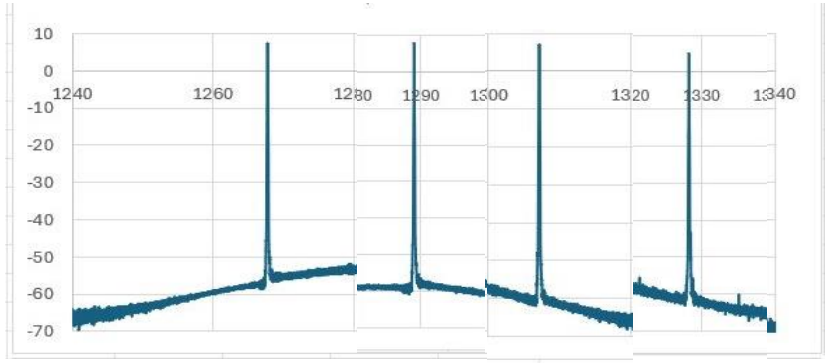
POET PRODUCT	POET CUSTOMER MODULE MAKER	END USER[2]	END APPLICATION
800G and 1.6T Optical Engines	FOXCONN	中国移动 China Mobile Google Tencent 腾讯 NVIDIA SAMSUNG CISCO 中国电信 CHINA TELECOM Meta	AI SYSTEMS
800G Optical Engines	LUXSHARE		AI SYSTEMS
POET *Starlight*™ Light Source	CELESTIAL AI		AI SYSTEMS
POET *Wavelight*™ Optical Module	DIRECT TO AI CLUSTERS		AI SYSTEMS
400G QUAD LR4 Optical Module	ADVA		DATACOM

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

HYBRID LASERS FOR HIGH BANDWIDTH CHIP-TO-CHIP DATA COMUNICATION

Hybrid Lasers enable low-cost implementation of multi-channel light sources to power AI PICs

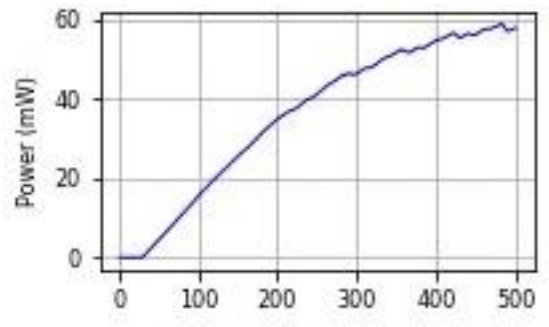




CWDM pitch lasing with a single gain array

>50mW of fiber coupled power

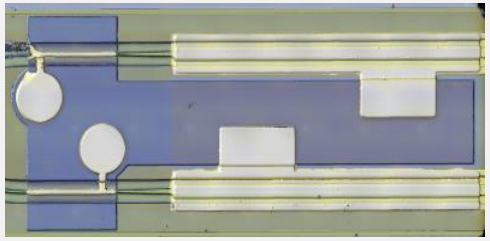
> 100mA of mode hop free performance



CUSTOMER FOCUS

MITSUBISHI ELECTRIC

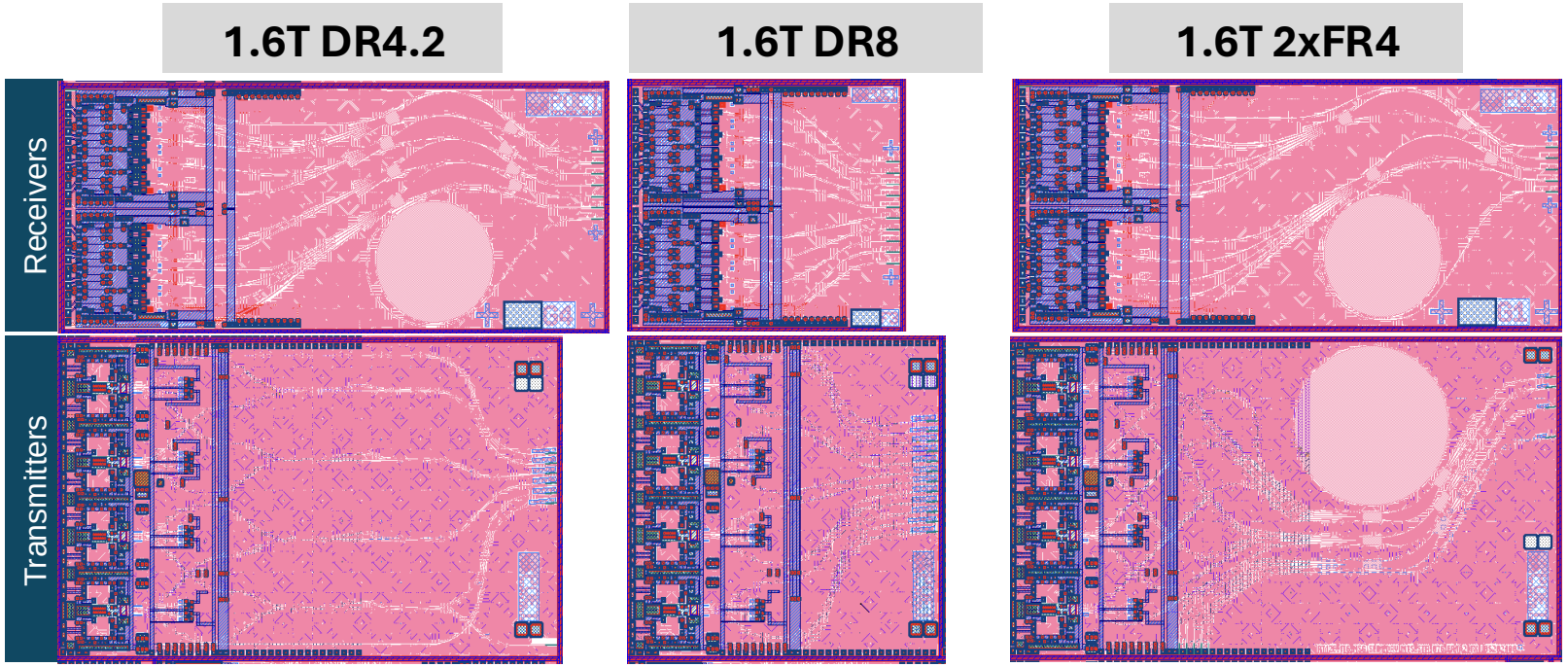
A collaboration to build 1.6T and 3.2T pluggable transceiver modules using Mitsubishi's 200G and 400G EMLs on the POET Optical Interposer.



2 X 200G – SINGLE CHIP 400G EML

EXTENDING EMLs INTO NEXT GENERATION TRANSCEIVERS

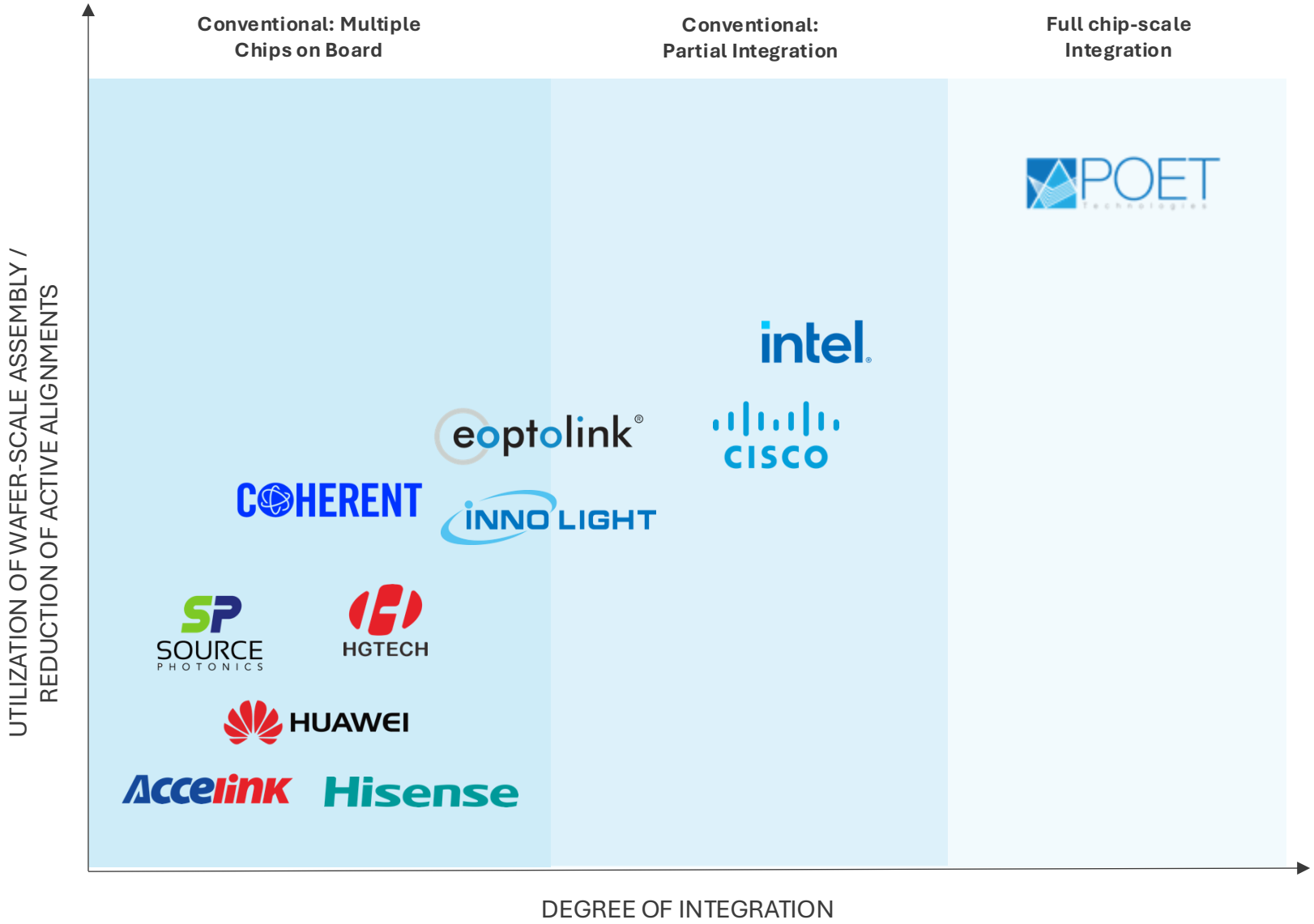
- Mitsubishi's 400G lasers cannot be used in conventional assembly with wire bonds – too much cross-talk
- Requires an integration platform
- Reliable, inexpensive, field-proven EMLs are preferred laser solution for end-users at 800G



ONE set of lasers – THREE different form factors – ONE module design

COMPETITOR LANDSCAPE: TOP 10 VS. POET

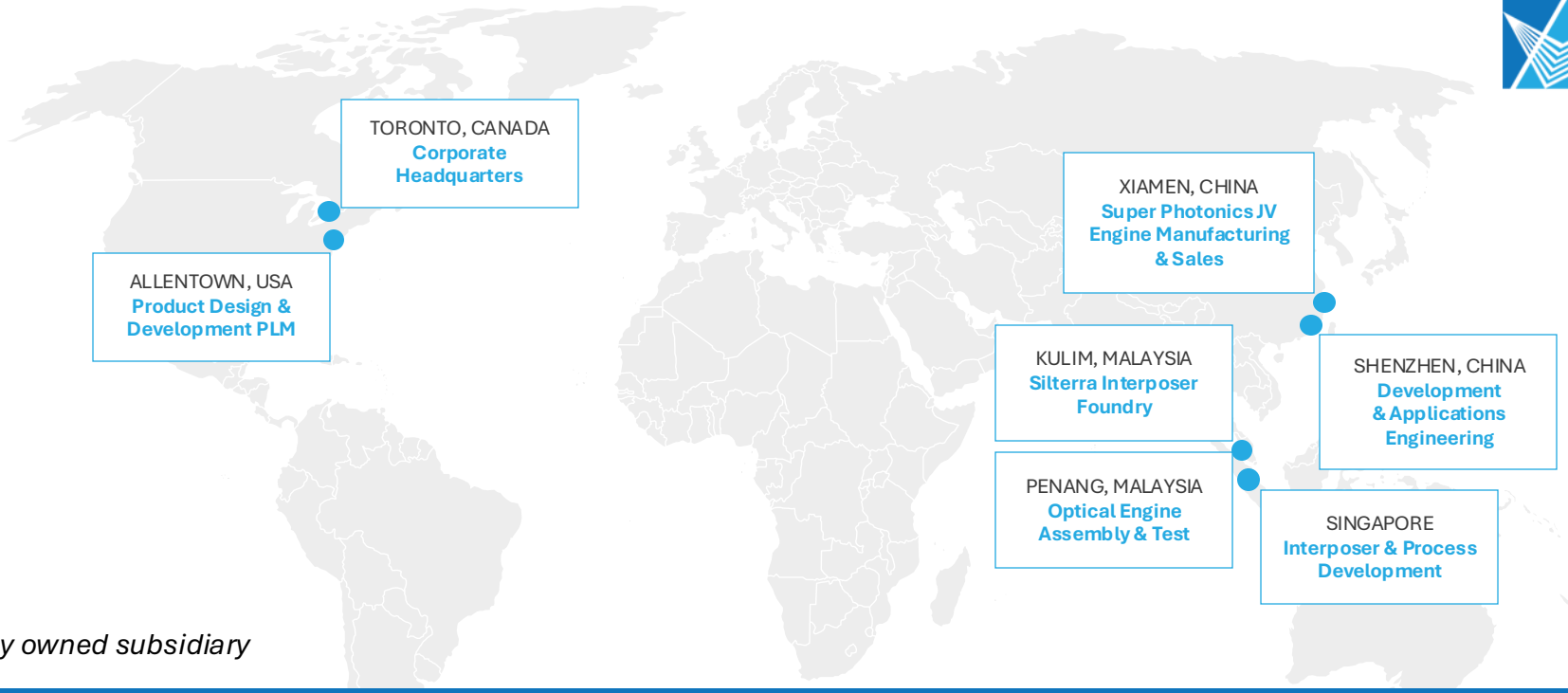
Only 2 of the Top Ten Suppliers in 2010 appeared on the list in 2022 – rapid market share gains and revenue come from new technology and end-user sponsorship.



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

MANUFACTURING READY TO RAMP

POET prepared for high-volume manufacturing in two locations: **Xiamen, China** and **Penang, Malaysia**



**POET will soon acquire 100% of SPX – making it a wholly owned subsidiary*

95

POET AND SPX TOTAL EMPLOYEES ACROSS 4 COUNTRIES

75%*

POET'S EQUITY STAKE IN SPX, WITH **NO CASH INVESTMENT**

SPX AND MALAYSIAN OPERATION ASSEMBLES, TESTS, AND **PACKAGES OPTICAL ENGINES** BASED ON POET'S OPTICAL INTERPOSER TECHNOLOGY

2025

YEAR POET WILL ADD OPTICAL ENGINE PRODUCTION IN MALAYSIA

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

Raju Kankipati
Chief Revenue Officer
- CRO includes sales management, supply chain, marketing, customer service, pricing strategies, and revenue management
- Former Sr. Director, Product Management at MACOM
- Former senior roles at Arista, Cisco, OpNext (Lumentum)
- MBA - UC Berkeley, Haas School of Business

Thomas Mika
Executive Vice President & CFO
- Overall responsibility for Finance & Administration
- Raised $100M 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

James Lee
VP & GM, Singapore
- Former VP Logic Technology, IMEC
- Former roles at GlobalFoundries and Chartered Semiconductor

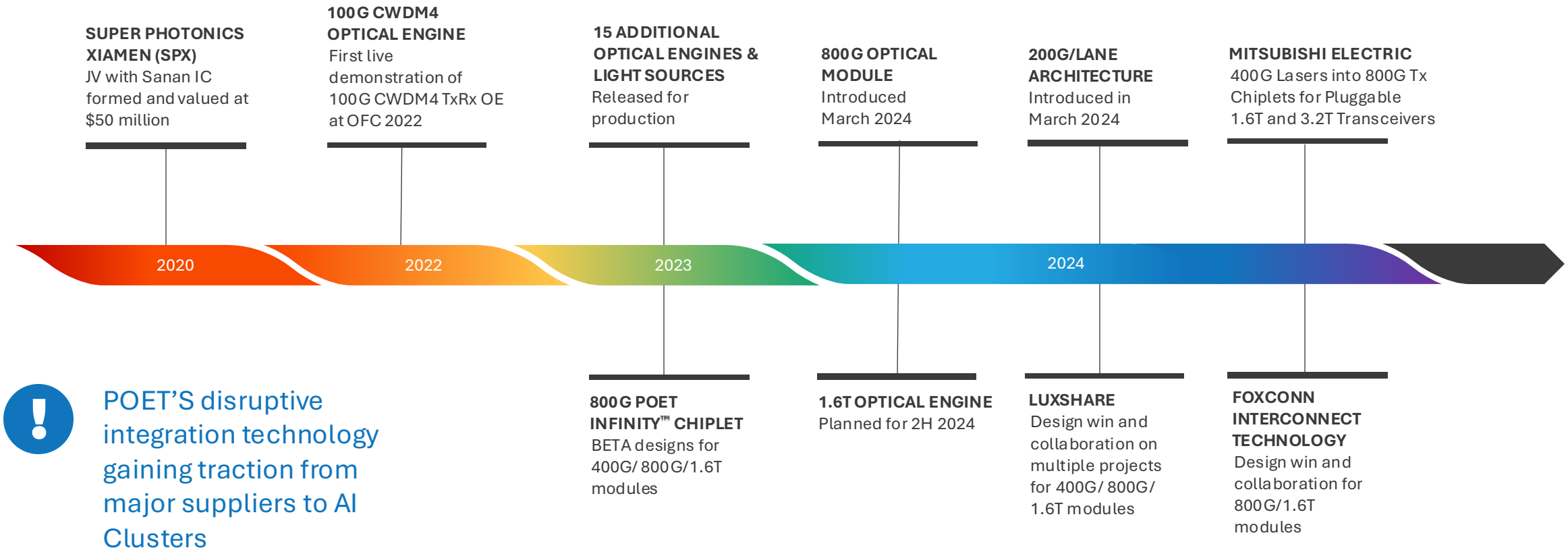
Vivek Rajgarhia
Senior Advisor
- Oversight of Super Photonics Xiamen
- Former CEO & Co-Founder of Optomai (MACOM), Lucent ME (Nokia), OpNext (Lumentum), GigOptix (Renesas)
- BEng (Electrical) – Stevens Institute of Technology

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

Kevin Barnes
VP, Finance & 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

COMMERCIALIZATION UNDERWAY WITH MULTIPLE CUSTOMERS



POET'S disruptive integration technology gaining traction from major suppliers to AI Clusters

KEY METRICS

BALANCE SHEET SNAPSHOT

	US$ in Millions
Total Cash (as of Dec 5, 2024)	**~$58.0M**
Working capital (as of Dec 5, 2024) [1]	**~$39.0M**

REVENUE AND CASH BURN

Sales (Jan 1, 2024 to Sep. 30, 2024)	**$0.0**
Projected Quarterly Cash Burn	***~$4.4***

CAPITAL RAISED SINCE JANUARY 1, 2024

Private Placements, Warrant exercises and ATM	**33M Shares**	**$81M**

1. Includes non-cash derivative warrant liability of 17.8M

CAPITALIZATION SNAPSHOT (Dec 5, 2024)

		Ave. Exercise Price
Common Shares Outstanding	**76,481,907**	
Warrants Outstanding	**19,353,238**	***$3.40***
Management Options Outstanding	**9,495,705**	***$1.43***
Fully Diluted Shares	**105,330,850**	

SHARE PRICE SUMMARY

Closing Price as of Dec 5, 2024	**$4.81**
Market Cap	**$368M**
52-Week Range	**$0.77 – 5.83**
50d Ave Volume	**1,692,738**

POET Technologies

NASDAQ:POET | TSXV:PTK

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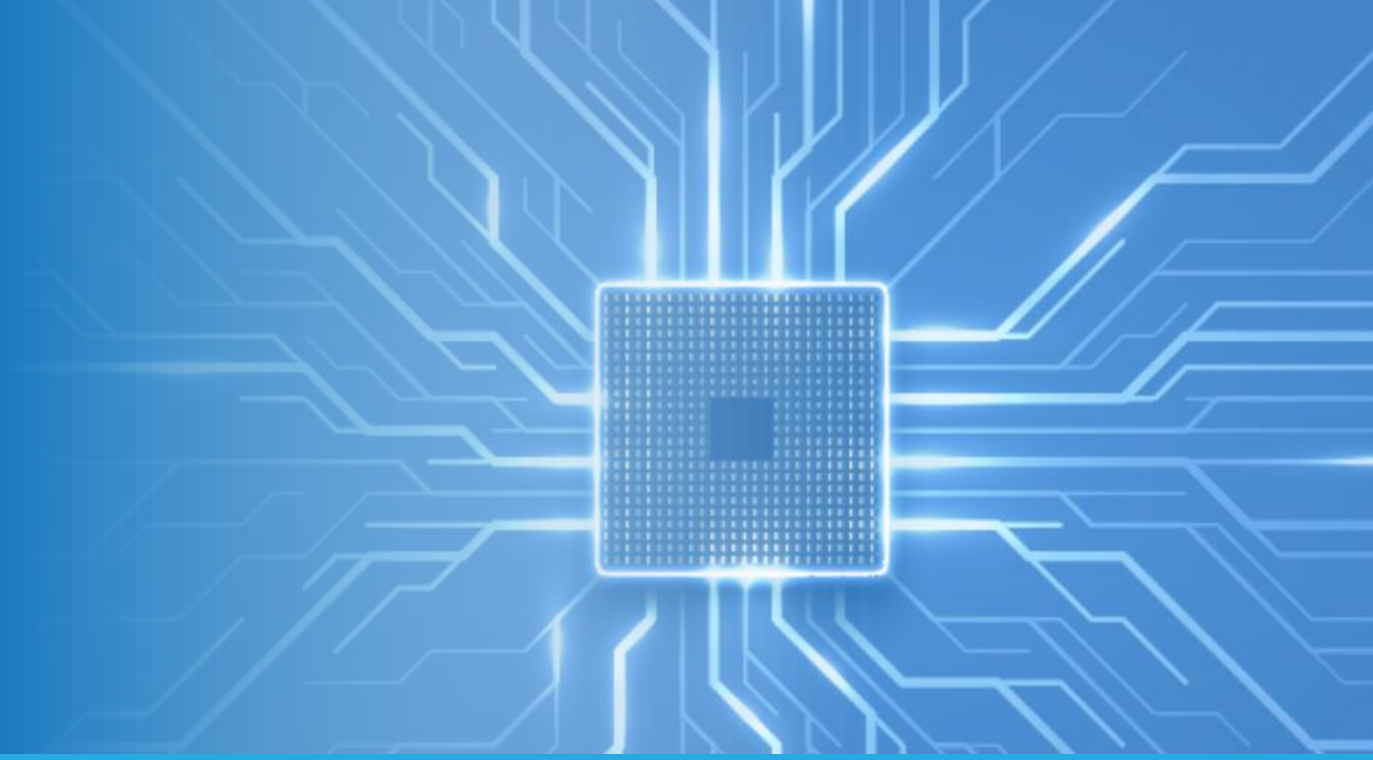

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