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華星光通科技(股)公司
LuxNet Corporation
法人說明會
2026 Investor Conference

免責聲明

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簡報 大綱

公司簡介

經營實績

技術及製程能力

市場趨勢及未來展望

Q & A

公司簡介

成立日期	2001/11/15
實收資本額	新台幣1,428百萬元
所在地	桃園市中壢區合江路 & 吉林路
員工人數	700人
主要產品及服務	LD & PD/APD . OSA, Optical Engine, ELS, CoC. Transceiver. OEM /ODM & JDM / Foundry Business



資產負債表

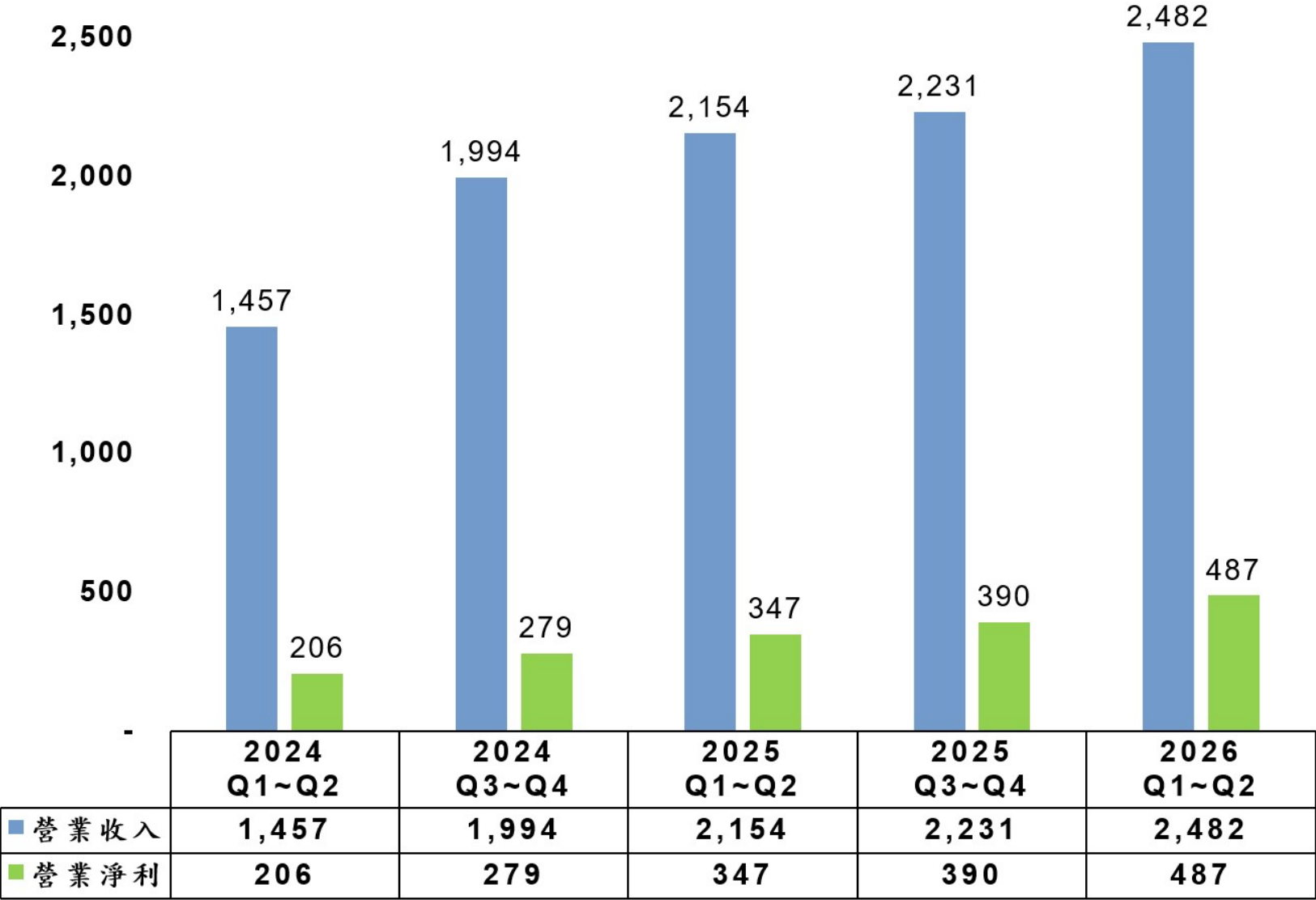
單位：新台幣百萬元	2025/6/30		2025/12/31		2026/6/30	
現金及約當現金	3,110	61.8%	2,544	47.7%	2,988	47.7%
按攤銷後成本衡量之金融資產	-	-	600	11.3%	500	8.0%
應收帳款淨額	457	9.1%	560	10.5%	699	11.2%
存貨	415	8.2%	419	7.9%	663	10.6%
其他流動資產	44	0.9%	46	1.0%	57	1.0%
流動資產	4,026	80.0%	4,169	78.2%	4,907	78.3%
不動產、廠房及設備	910	18.1%	1,038	19.5%	1,103	17.6%
公允價值衡量之金融資產(FVOCI)	47	0.9%	82	1.5%	90	1.4%
其他非流動資產	49	0.9%	40	0.8%	167	2.7%
非流動資產	1,006	20.0%	1,160	21.8%	1,360	21.7%
資產總額	5,032	100.0%	5,329	100.0%	6,267	100.0%
流動負債	830	16.5%	625	11.7%	1,389	22.2%
非流動負債	754	15.0%	724	13.6%	426	6.8%
負債總額	1,584	31.5%	1,349	25.3%	1,815	29.0%
普通股股本	1,408	28.0%	1,411	26.5%	1,428	22.8%
資本公積	1,174	23.3%	1,210	22.7%	1,495	23.9%
保留盈餘	966	19.2%	1,423	26.7%	1,474	23.5%
其他權益	-100	(2.1%)	-64	(1.2%)	55	1.0%
權益總額	3,448	68.5%	3,980	74.7%	4,452	71.0%
每股淨值(元)	24.49		28.21		31.18	

損益表

單位：新台幣百萬元	2025	2026		季變化	年變化	2025	2026	年變化
	Q2	Q1	Q2	QoQ	YoY	Q1~Q2	Q1~Q2	YoY
營業收入	1,087	1,193	1,289	8.0%	18.6%	2,154	2,482	15.2%
營業毛利	188	303	289	(4.6%)	53.7%	428	592	38.3%
推銷費用	3	3	3	-	-	5	6	20.0%
管理費用	20	34	32	(5.9%)	60.0%	44	66	50.0%
研發費用	15	15	18	20.0%	20.0%	32	33	3.1%
營業費用	38	52	53	1.9%	39.5%	81	105	29.6%
營業淨利(損)	150	251	236	(6.0%)	57.3%	347	487	40.3%
營業外收支	-55	36	12	(66.7%)	-	-39	48	-
稅前、息前、折舊攤銷前獲利	101	299	260	(13.0%)	157.4%	322	559	73.6%
所得稅費用	-	57	64	12.3%	-	-	121	-
本期淨利	95	230	184	(20.0%)	93.7%	308	414	34.4%
基本每股盈餘(元)	0.67	1.62	1.29	(20.4%)	92.5%	2.19	2.91	32.9%

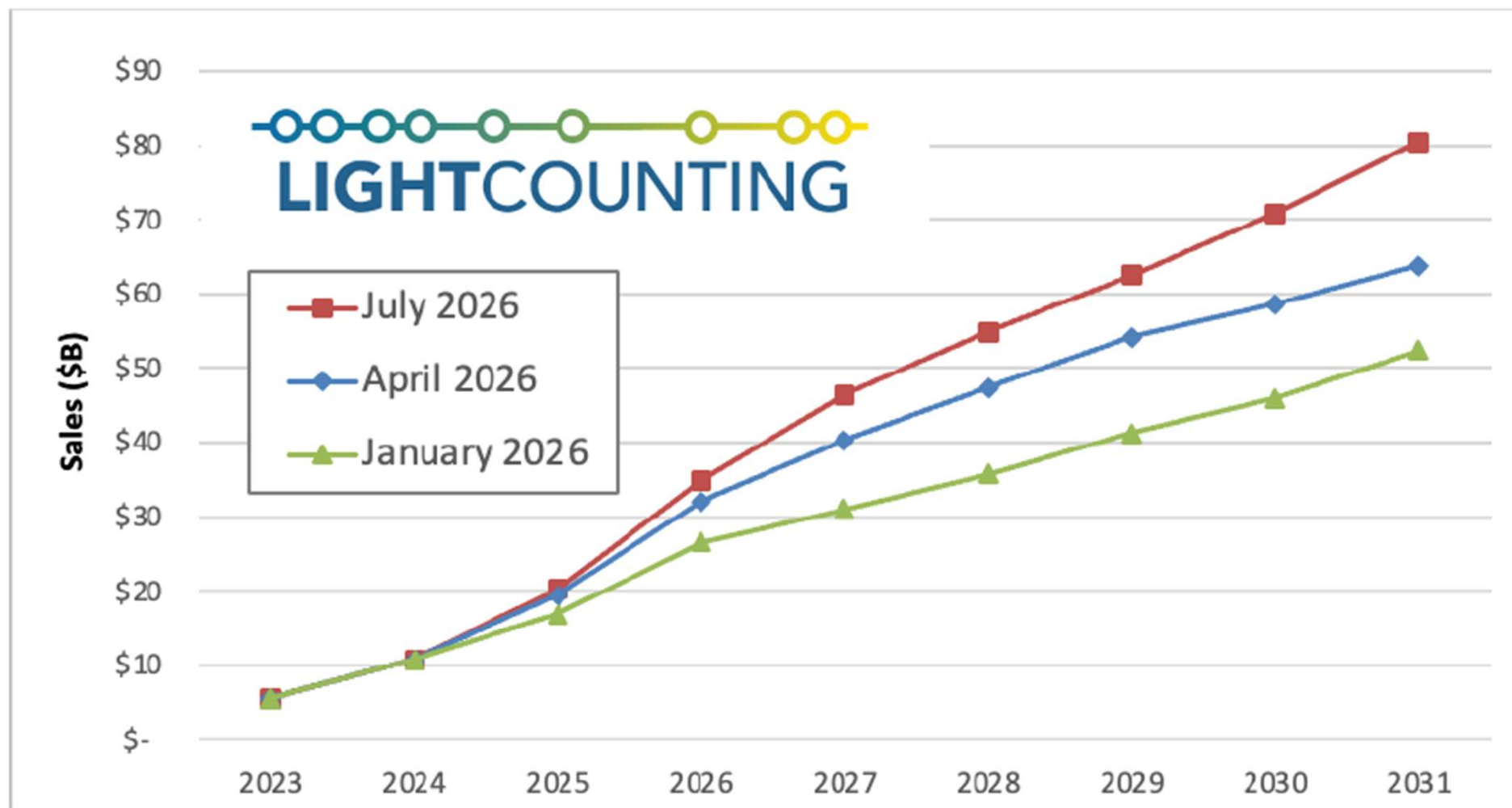
營業收入及淨利-趨勢圖

單位：新台幣百萬元



市場趨勢及未來展望 – Intra-Datacenter Module

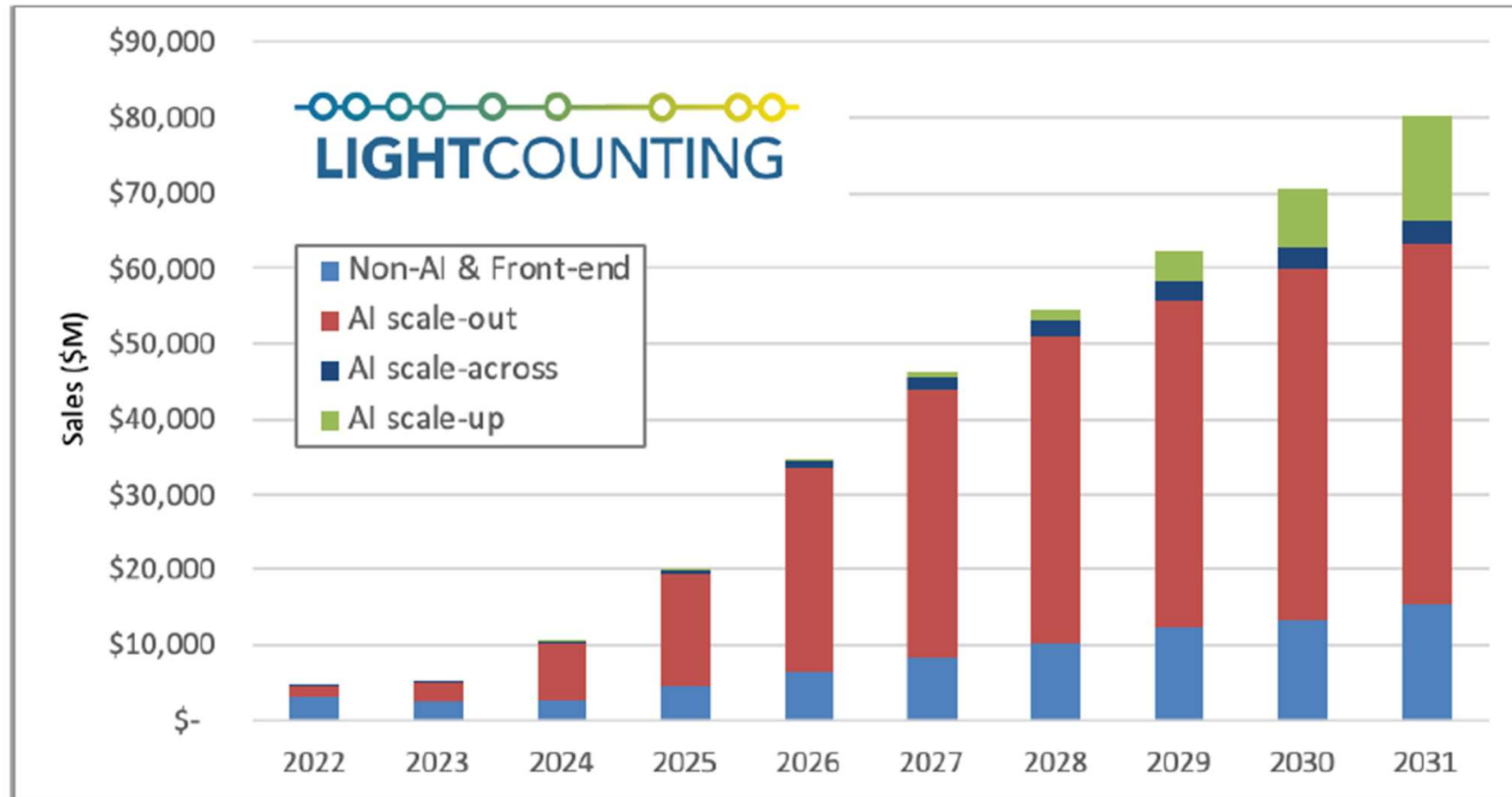
Figure E-1: Changes to the forecast for Ethernet optical transceivers and CPO/NPO



Source: LightCounting
(2026.07)

市場趨勢及未來展望 – Intra-Datacenter Module

Figure E-3: Sales of Ethernet transceivers and CPO/NPO by application

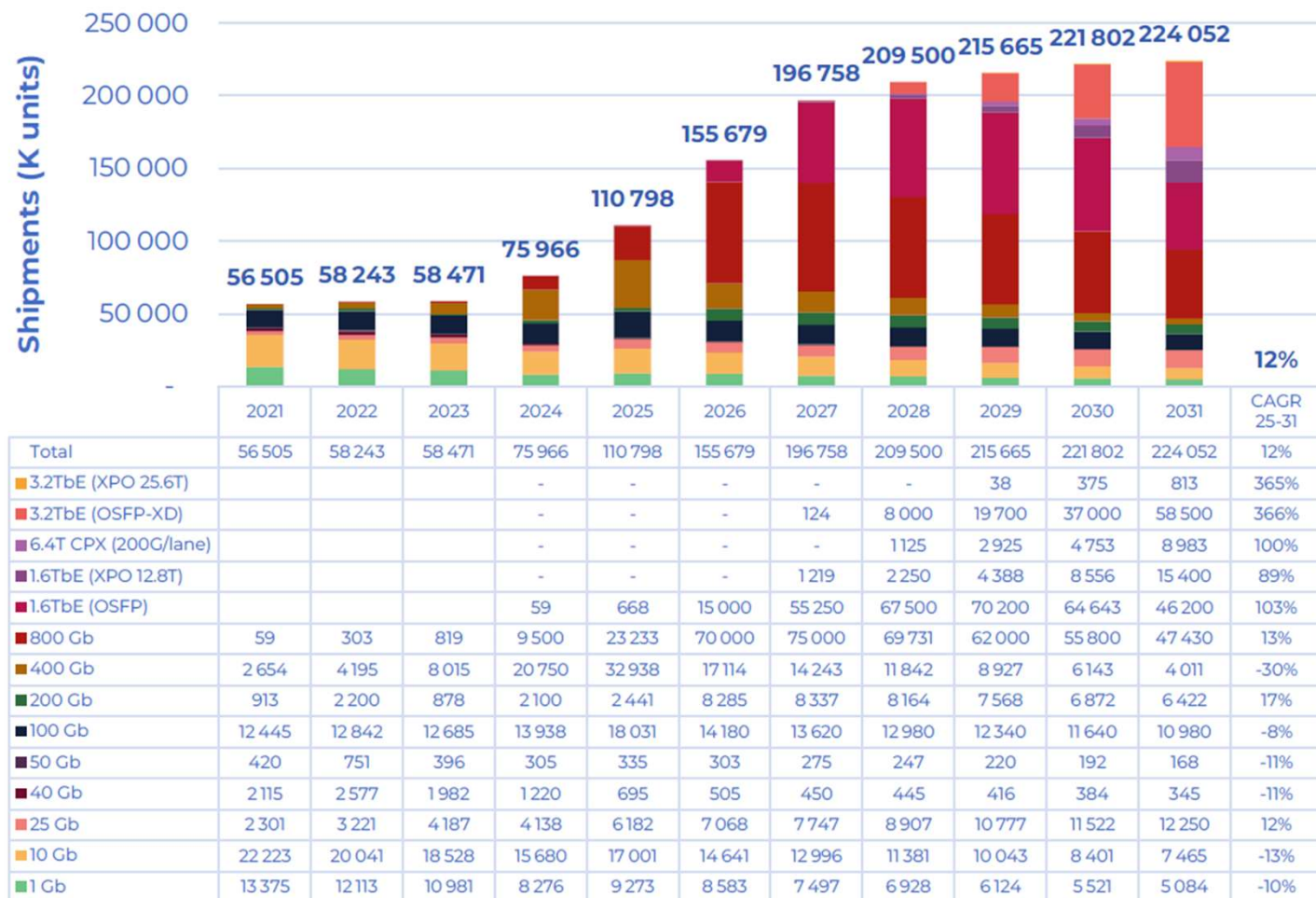


Source: LightCounting

(2026.07)

市場趨勢及未來展望 – Intra-Datacenter Module

Shipments of Ethernet & InfiniBand pluggable transceivers, 2021 - 2031



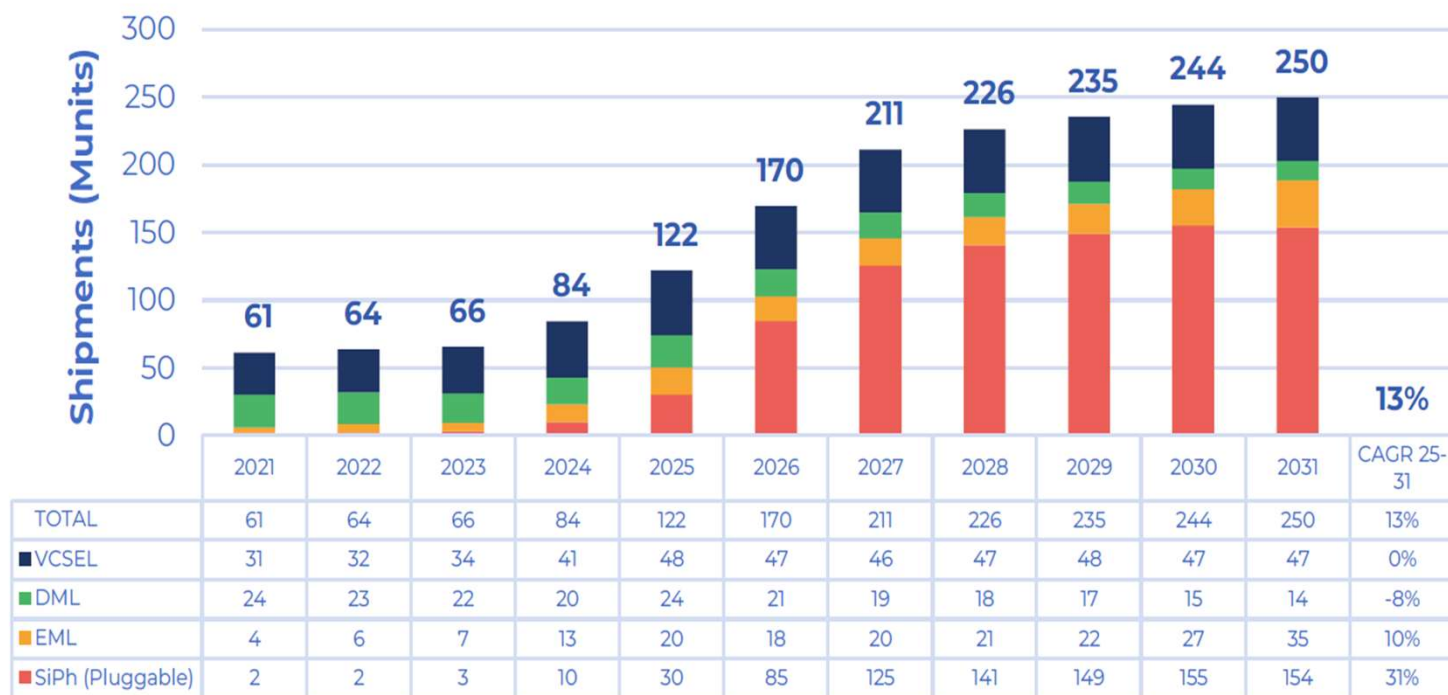
Source: Yole (2026)

市場從100G/lane迅速的切換到200G/lane、400G/lane。
模塊持續往單模、高速、高功率移動。

- 由於AI伺服器的大量需求，連帶著 Intra-Datacenter 的光收發模組也一併需求提升。
- 去年調研機構預期 Y2026 800G的需求數是35KK，今年的報告已經翻倍到70KK。
- 1.6T預計在今年開始上量，整年度市場需求為 15KK只。

市場趨勢及未來展望 – Intra-Datacenter Light Source

Total module shipments, split by technology platform (2021 - 2031)



Source: Yole (2026)

SiPh 正快速吃下大規模 AI Scale-out 的主流市場。

EML 則會留在高性能、高功率、長距離單模應用，甚至在 2030 年後重拾成長。

- 以模塊的發光源來看，可以約略分成 VCSEL, DML, EML & CW laser(SiPh用)
- 今年預估用CW laser 的模塊出貨量約85KK只，假以一個模塊會用到2~8個CW laser，全年度預計需求是400KK的CW laser。
- EML模塊全年預估在18~20KK，1通道需要1顆EML，需求約160KK。

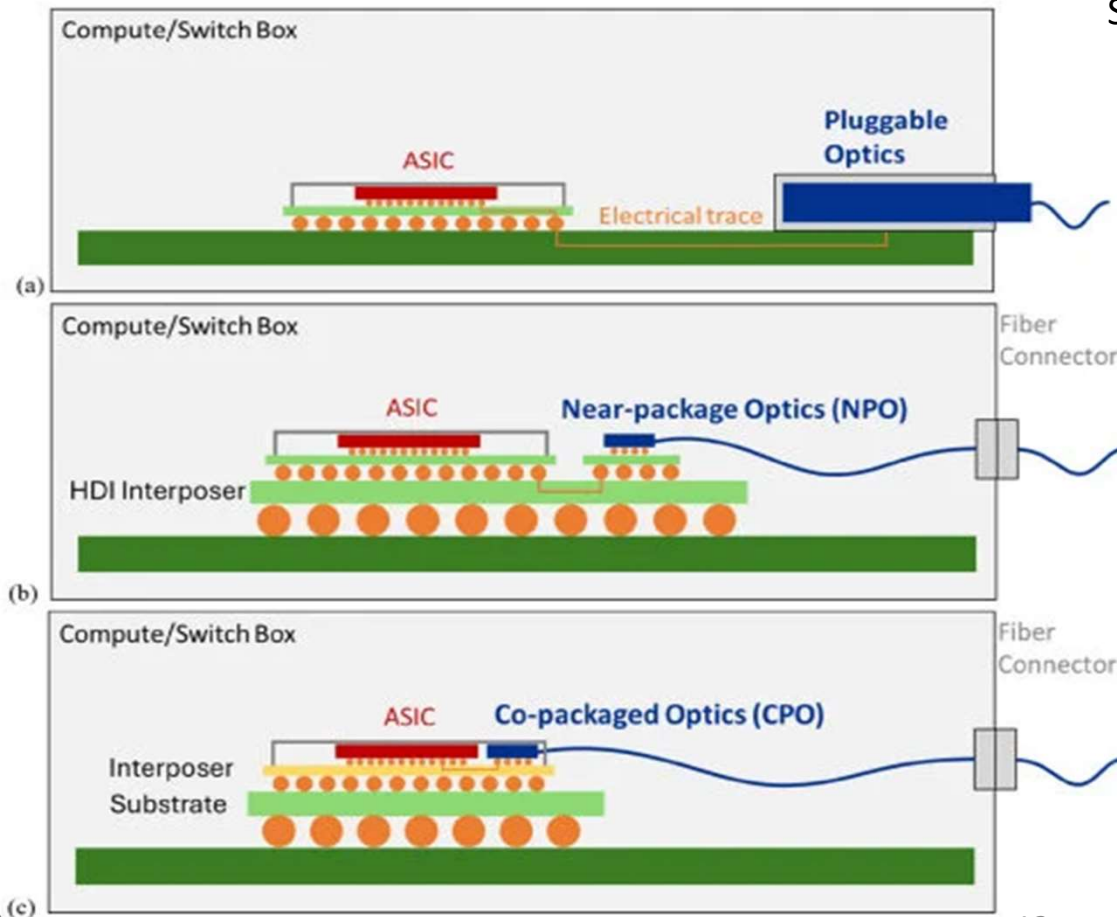
市場趨勢及未來展望 – NPO & CPO

CPO and NPO TAM Build-Up (Install Base Convention)

	Units	2026	2027	2028	2029	2030
NPO Scale-Out 3.2T Equiv OEs	Units	0	484,704	1,341,360	1,347,581	366,638
NPO Scale-Up 3.2T Equiv OEs	Units	399,000	1,312,500	13,430,552	40,585,385	24,841,385
NPO 3.2T Equiv OEs	Units	399,000	1,797,204	14,771,912	41,932,966	25,208,024
CPO Scale-Out 3.2T Equiv OEs	Units	11,847	1,407,865	4,776,733	6,362,874	9,081,450
CPO Scale-Up 3.2T Equiv OEs	Units	0	0	2,731,308	15,182,183	46,810,600
CPO 3.2T Equiv OEs	Units	11,847	1,407,865	7,508,040	21,545,057	55,892,050
Total 3.2T Equivalent Optical Engines - CPO + NPO	Units	410,847	3,205,069	22,279,953	63,478,023	81,100,074



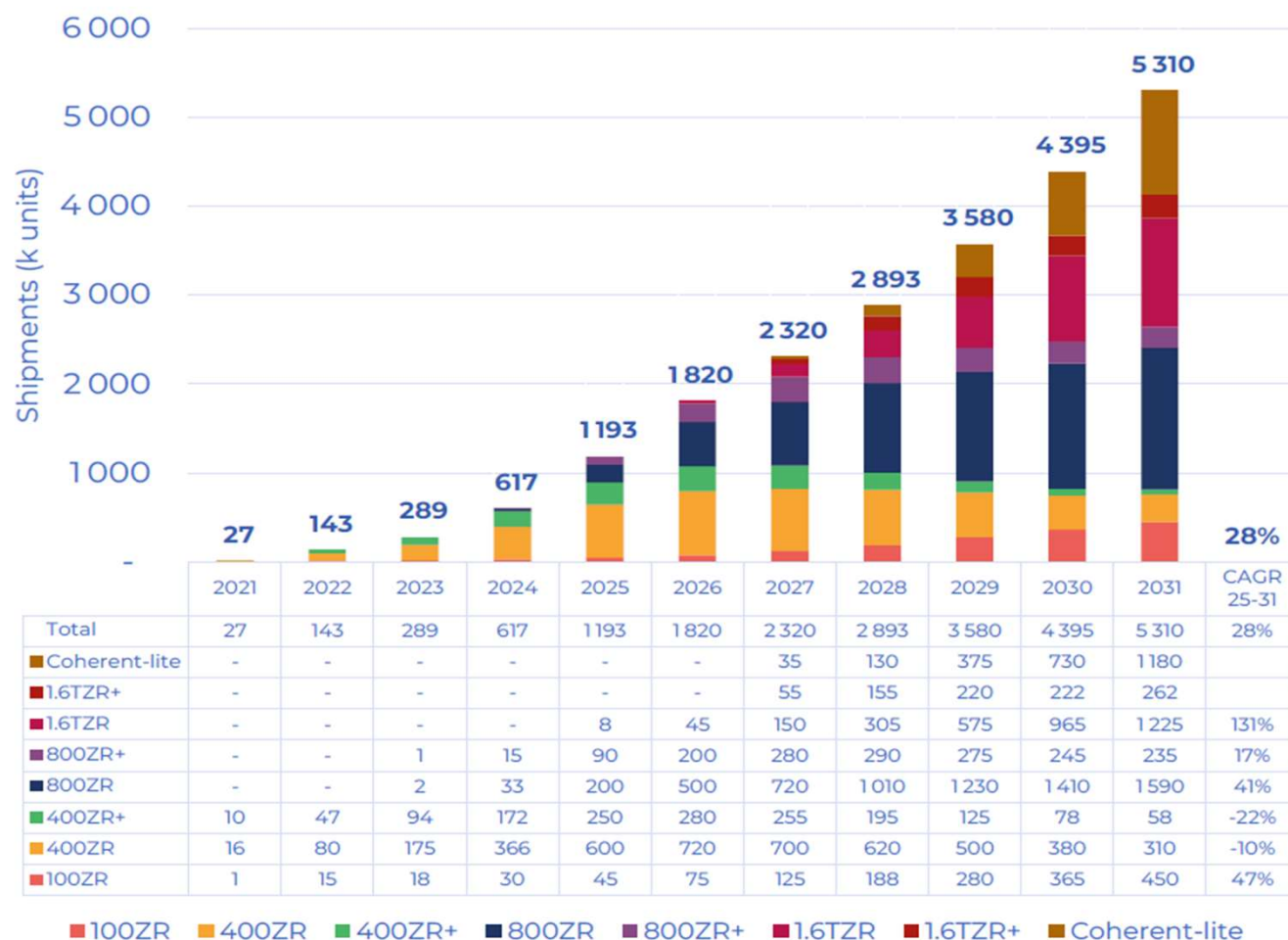
Source: SemiAnalysis AI Networking Model (2026)



- Y2027~Y2029 NPO取代CPO為主要出貨，最大的原因是CPO 的良率還不夠好，且幾乎無維修性，而NPO可以做到接近CPO的電耗跟密度，而且插拔或多家供應商，這對HyperScale來說是非常重要的。
- CPO預計會在Y2030年成為主流

市場趨勢及未來展望 – Inter-Datacenter Module

Shipments of xWDM optical transceivers (K units), 2021~2031

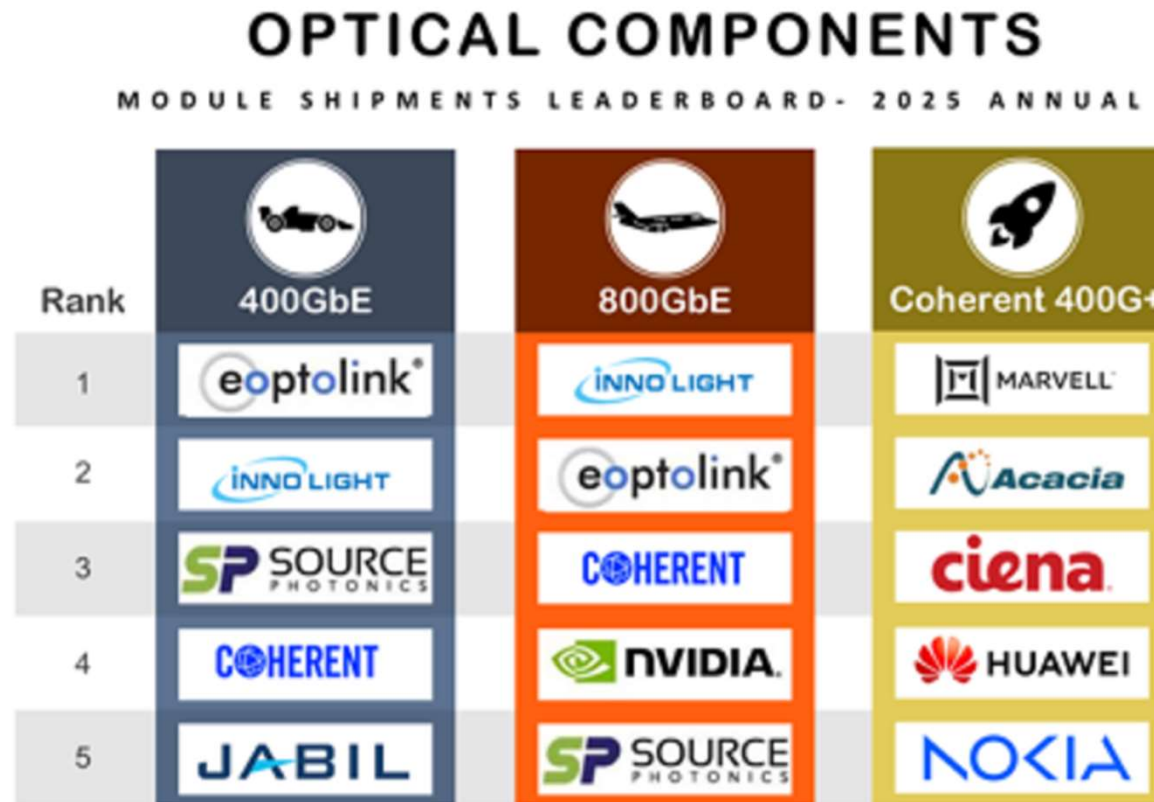


Source: Yole (2026.05)

- 根據調研機構的預估，400G ZR/ZR+ 的出貨，Y27跟Y26是持平的，但是800G ZR/ZR+ 則是在Y26開始量產出貨，Y27、Y28年2~3 倍成長。而800G ZR/ZR+也是未來公司成長的動能。

Unit: K		
400G ZR/ZR+	Y2026	1000
	Y2027	975
	Y2028	815
800G ZR/ZR+	Y2027	1000
	Y2028	1300
	Y2029	1500

市場趨勢及未來展望 - Coherent Module



- Y2025全年 Coherent 400G module是Marvell出貨量最多。

Manufacturing Space



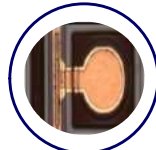
cleaning room:

- 1st plant : 5,450 m² Zhongli
- 2nd plant : 1,500 m² Zhongli (25/Q3)
- 3rd plant : 1,200 m² Zhudong (rental, 26/Q3)
- 4th plant : 5,500 m² Bade (2027~)

Total cleaning room space: 24/E 4,000 ; 25/E 6,550 ; 26/E 8,150 ; 27/E 13,650

Office : 26/Q3 bought 600m² , rental 2400m²



4F	Laser Chip line RD/Package		950 m2 25/Q1 +500 m2 26/Q4
3F	Transceiver Line (CM)		1400m ²
2F	TO/OSA Line & Transceiver Line		1400m ²
1F	Laser Chip Line		1200m ²

4,000 m²

技術及製程能力(Process technology expertise)



2-4 inches InP_based wafer

- Photolithography(Stepper)
- High quality dielectric thin film deposition(PECVD)
- Dry etching(RIE, ICP)
- Metal deposition and alloy
- Oxygen-free Oven
- Bonder/Debonder combo system
- Wafer lapping/polishing
- Confocal microscopy/ profile meter/SEM

High-Precision Die Processing

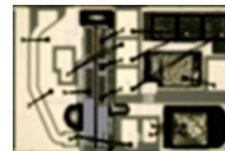
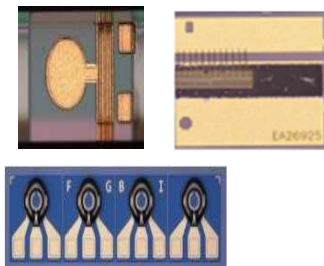
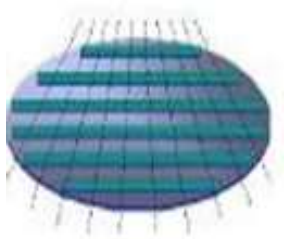
- Scribing and cleaving
- Laser bar stacking
- High quality optical facet coating (ECR, IAD-E beam)
- Chip/bar testing
- Chip mapping sorter
- OCR machine (Optical Character Recognition)
- AOI visual inspection

Precision Optical Packaging

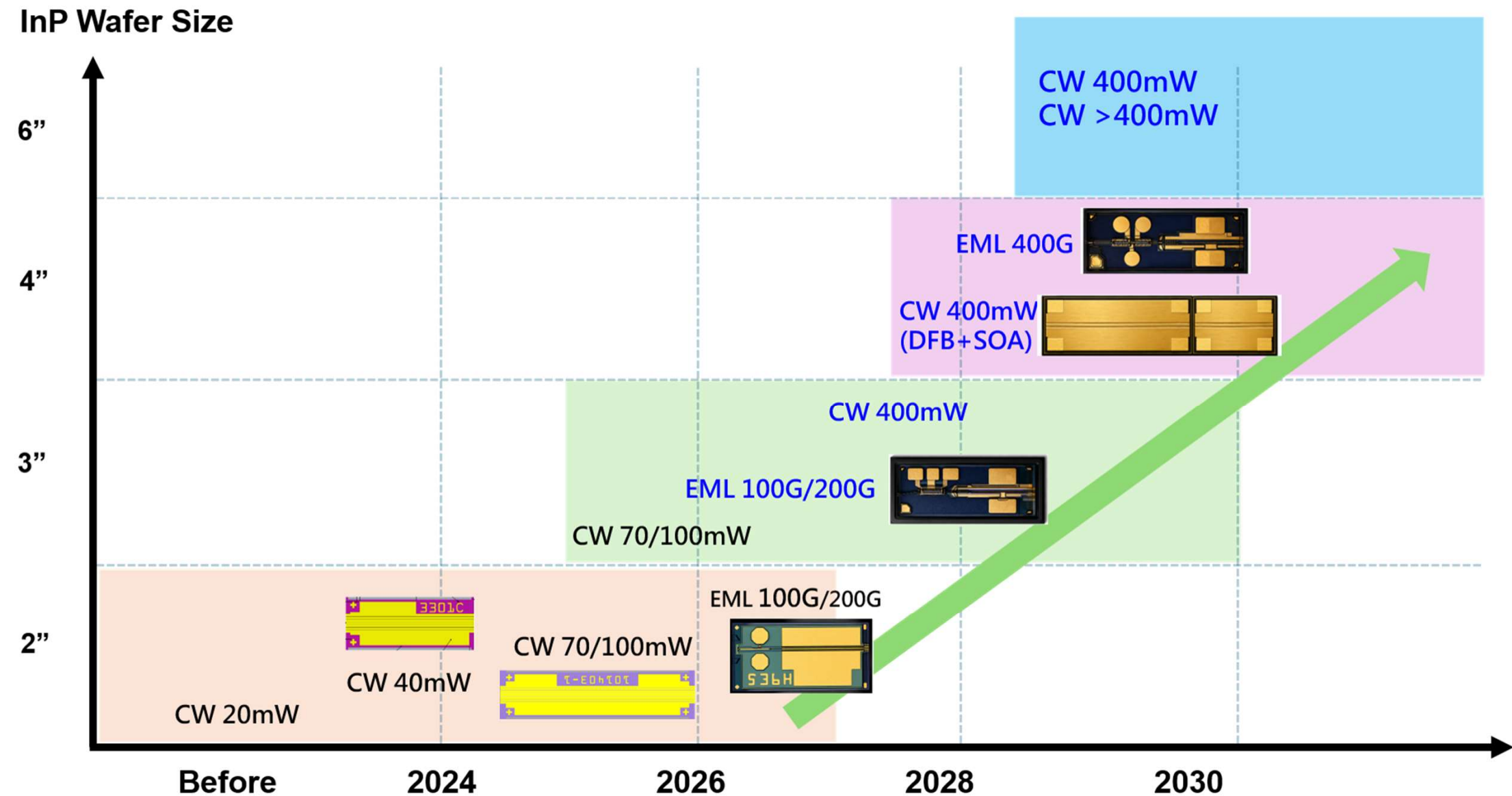
- Chip-on-carrier
- Chip-on-PCB
- To-CAN packaging
- Box/Butterfly packaging
- Feature process
 - laser assisted bonding
 - high-precision placement (<3um)
 - Flip-chip bonding
 - Fiber Array Attachment
 - Lens Array Attachment

Full Product Verification

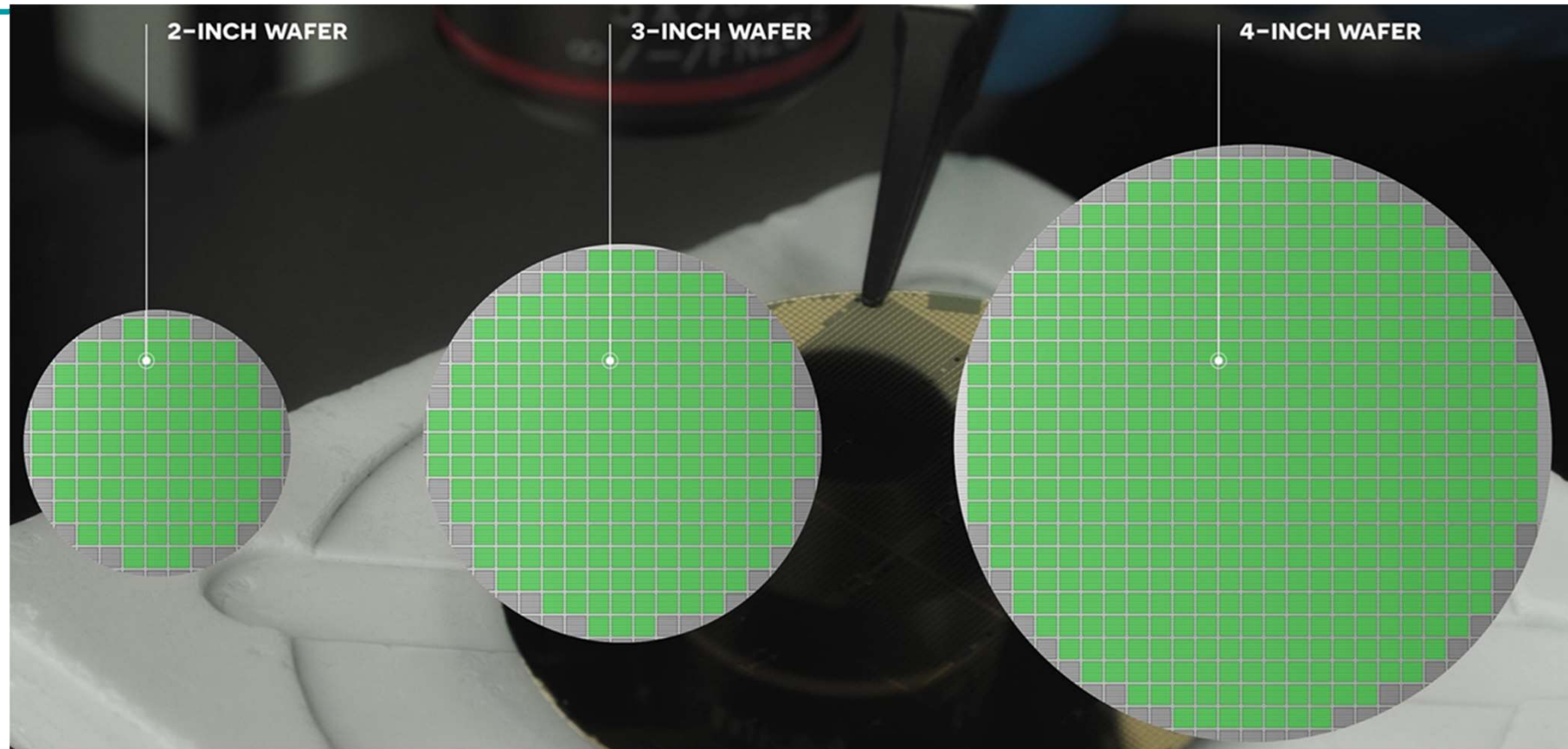
- Optical assembly
- Mechanical/Electrical integration
- Verification and testing
- O/E Characterization
- Data link test
- Reliability test



InP Wafer Roadmap



InP 晶圓製程技術能力 (InP wafer process technology expertise)



黃光製程 Photolithography Process

- Stepper
- Auto PR Spin Coater
- Auto Developer
- Aligner
- Confocal Microscopy

薄膜製程 Thin Film Process

- PECVD
- ICP
- RIE
- Ellipsometer
- Stress Measurement

濕蝕刻製程 Wet Etching Process

- Organic Clean Bench
- Wet Etching Bench
- Profile Meter

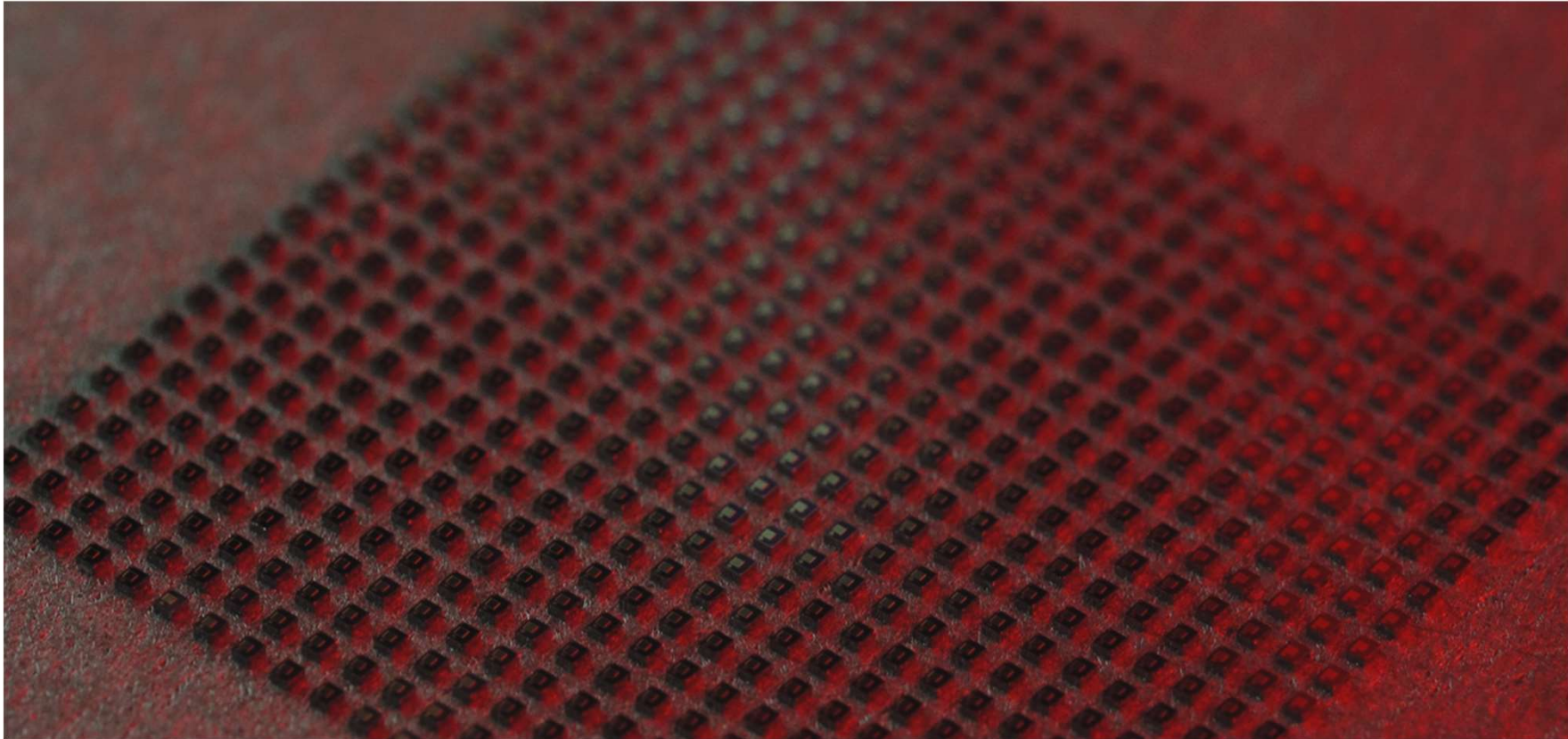
金屬製程 Metallization Process

- E-Beam
- RTA
- Furnace

薄化製程 Wafer Thinning Process

- Wafer Bonder / Debonder
- Lapping / Polishing

InP 晶粒製程技術能力 (InP die process technology expertise)



切割劈裂製程 Laser Bar Scribe/Break

- Scriber
- Breaker

端面鍍膜製程 Facet Coating (AR/HR)

- Laser Bar Stacking
- IAD E-Beam
- ECR
- Spectrophotometer

晶粒切割製程 Die Scribe/Break

- Scriber
- Breaker

測試 Testing

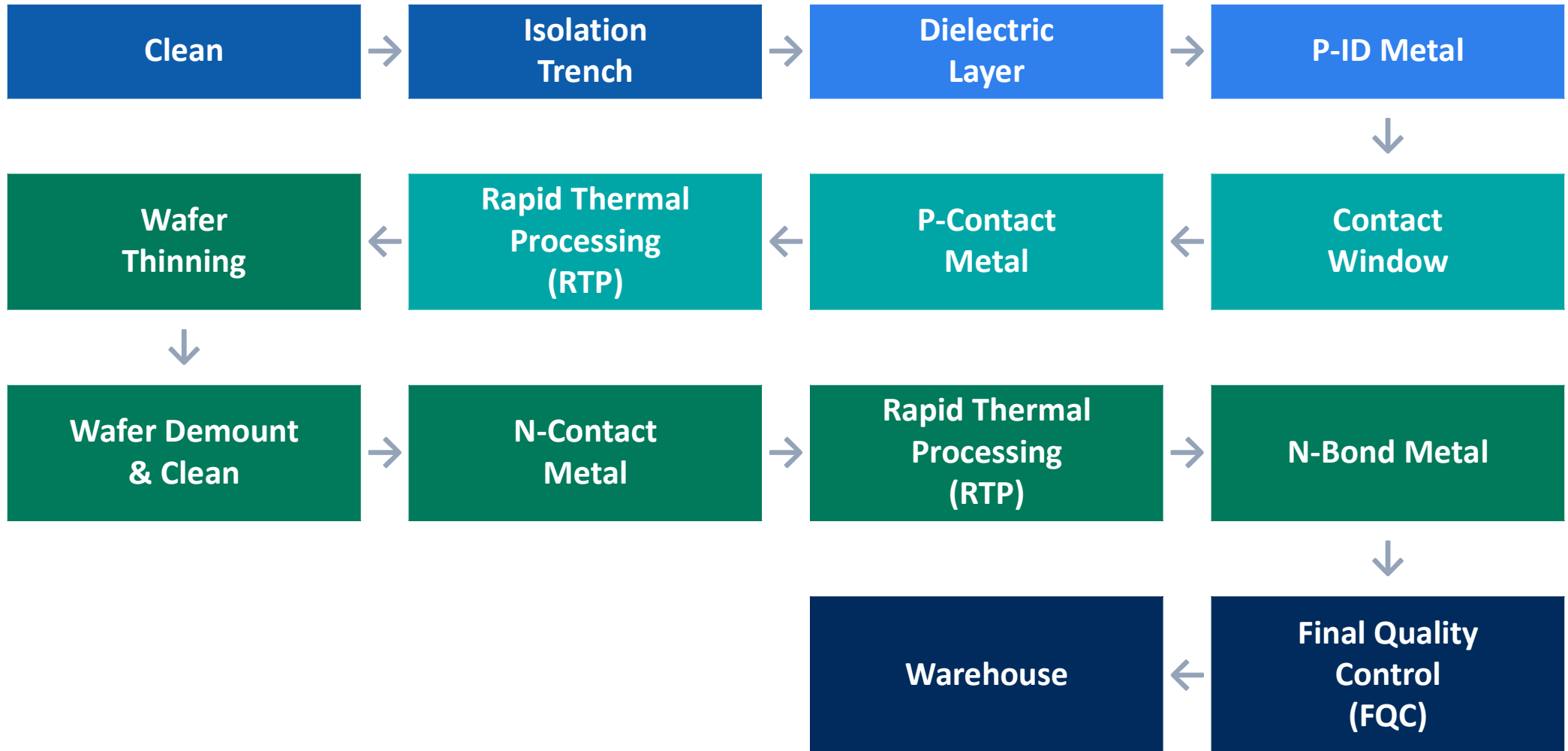
- Chip Tester
- Bar Tester

目檢 Visual Inspection

- 4-sided AOI
- Sorting

Process flow - wafer process

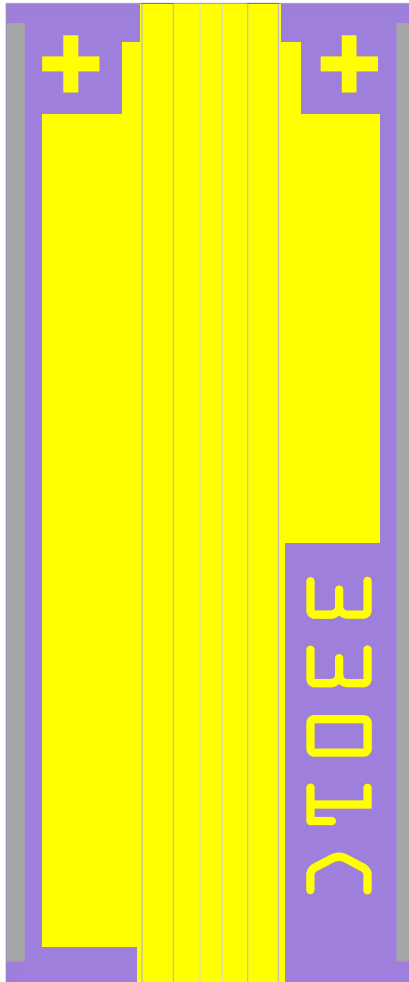
Integrated Process Control from Wafer Cleaning to Final Quality Control



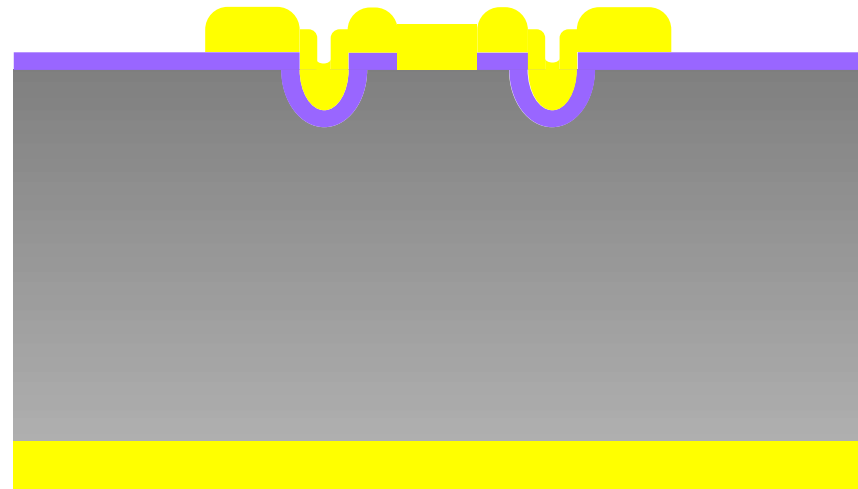
Full Process Traceability | Integrated Quality Control | Scalable InP Manufacturing

Schematic of wafer process

Top view

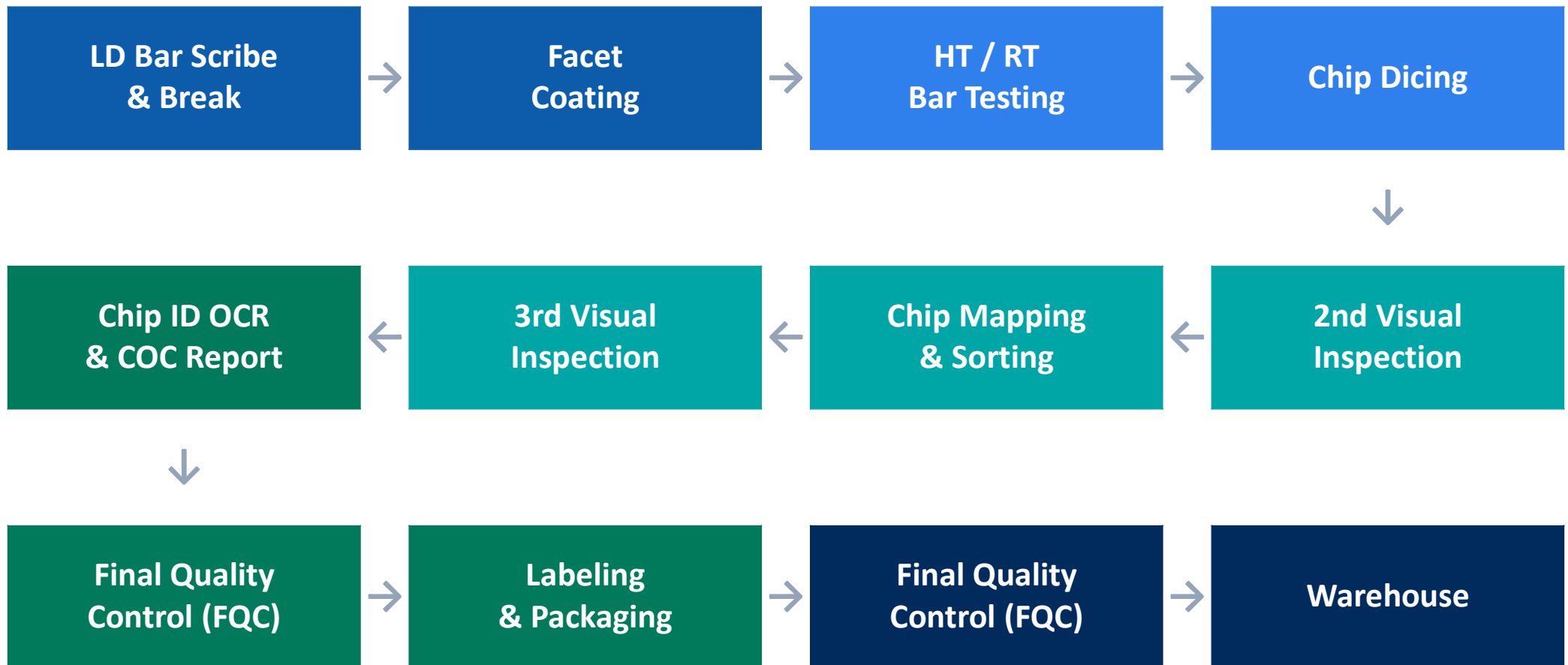


Side view (from AR/HR)



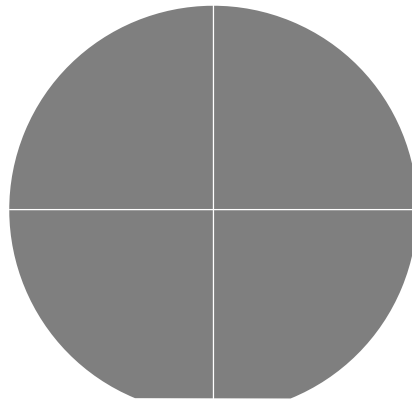
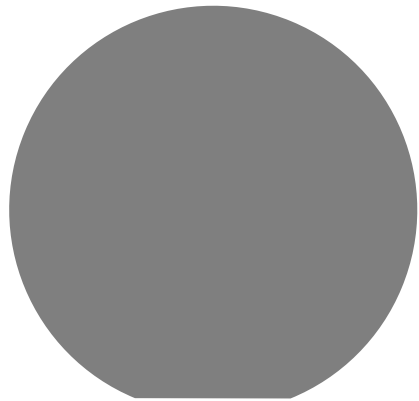
Process flow - die process

Integrated die processing, inspection and quality control from bar formation to warehouse

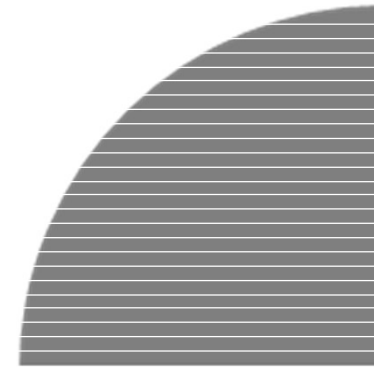


AOI Inspection | OCR Traceability | Comprehensive Quality Assurance

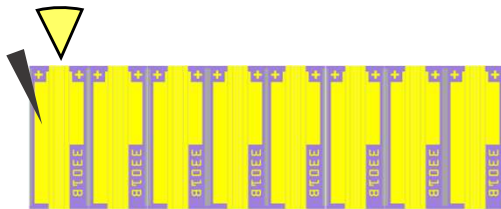
Schematic of die process



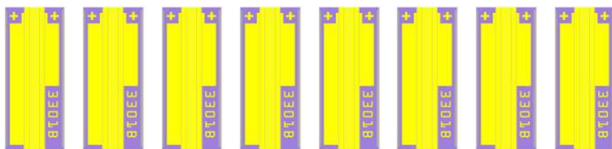
Wafer split to quarter



Wafer to bar



Bar testing



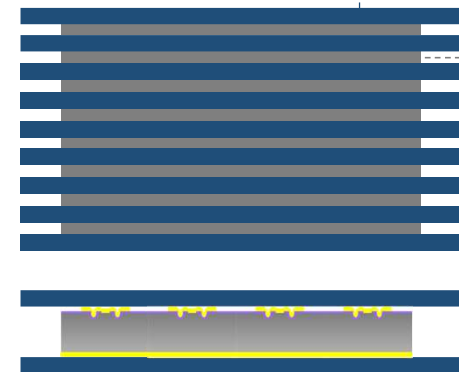
Bar to chip



Side view



Top view



Bar stacking for facet coating

High-value CW/EML Chip Foundry service

Scaling chip production capacity with technology advancement

Chip Maintenance

3K

wafers
2025

6K

wafers
2026WE

14 KK

Chips
2025

30 KK

Chips
2026E

Tech Roadmap



Advance **4-inch wafer** process in 2026E

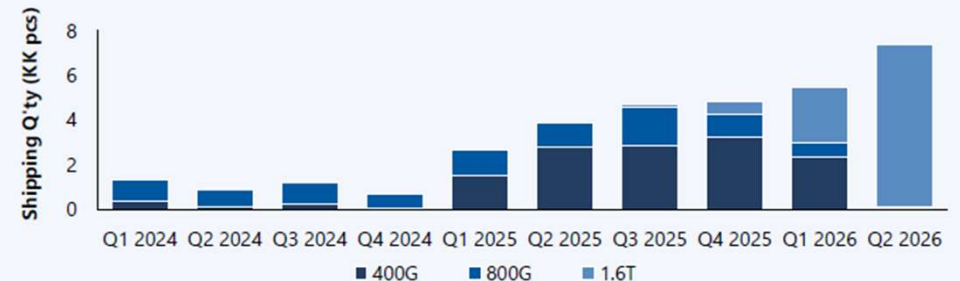


Implement **stepper** to improve alignment accuracy

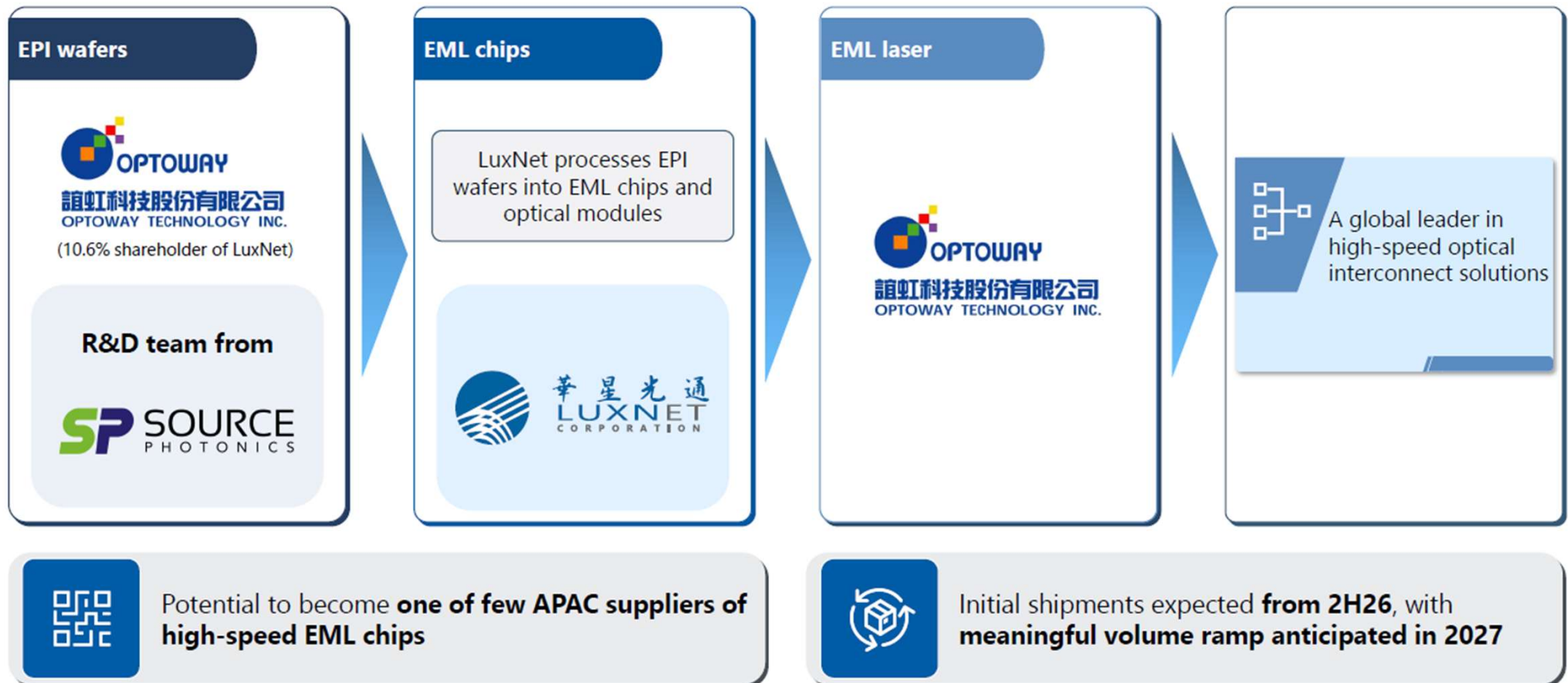


Develop **automated processes** to reduce labor

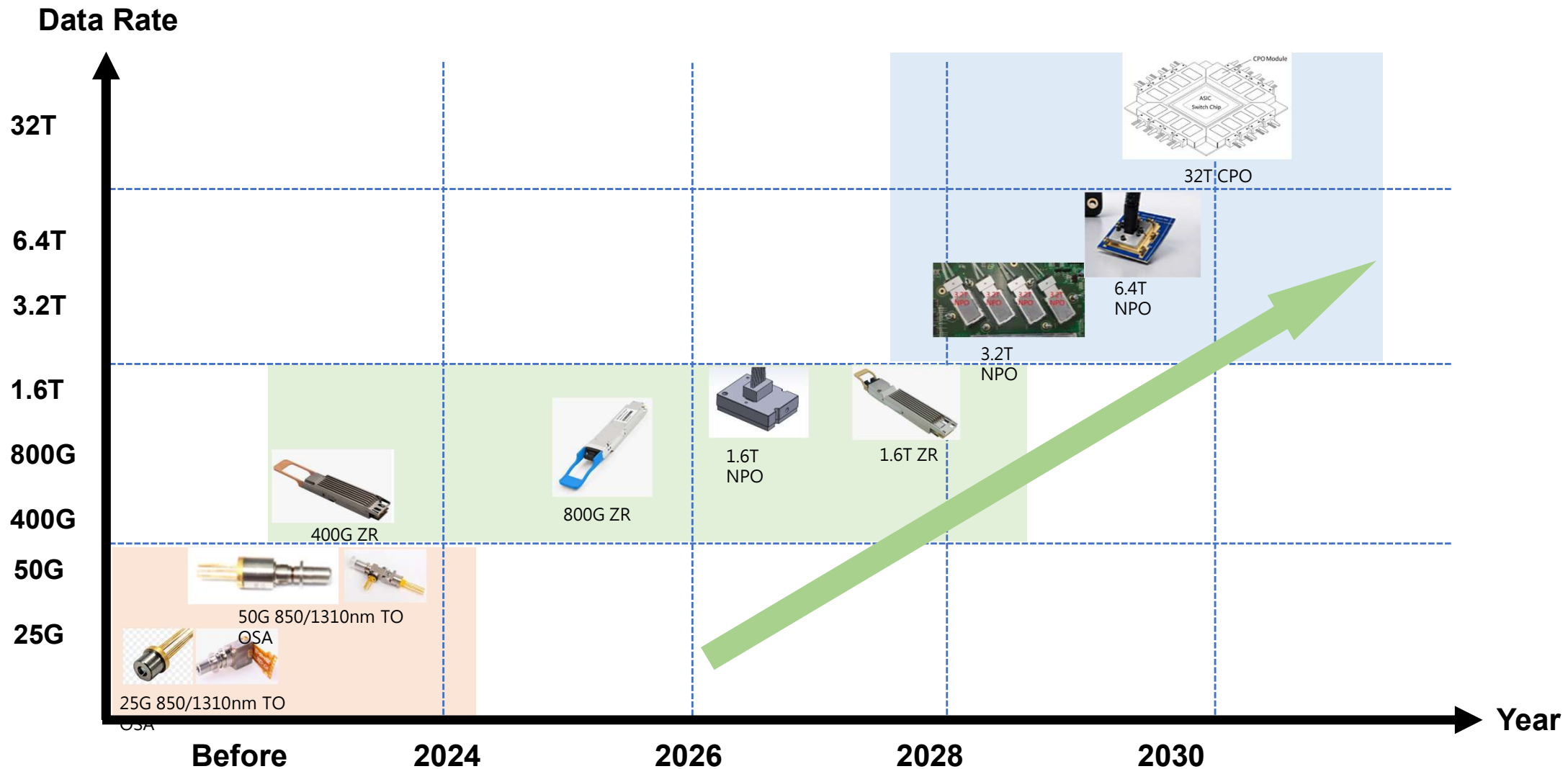
Chip quarterly delivery



EML Chip in the process



模組與封裝 Roadmap



技術及製程能力

Advanced Photonic Packaging Platform

Comprehensive packaging architectures and precision assembly powering next-gen optical engines

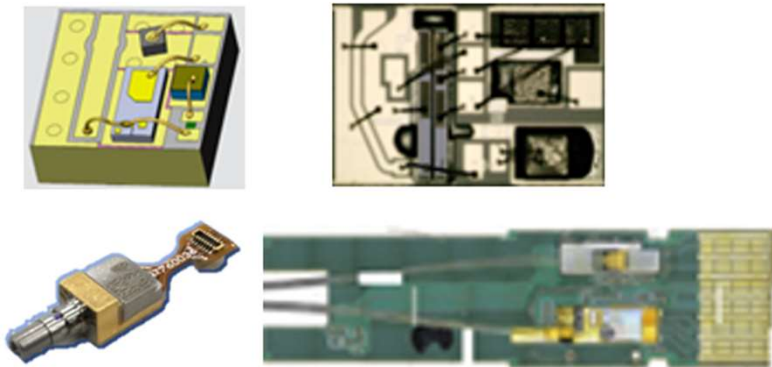
FORM FACTORS

 **Chip-on-Carrier (CoC)**
High thermal dissipation for lasers/PDs

 **Chip-on-PCB (CoB)**
Direct die attach for optical transceivers

 **TO-CAN Packaging**
Hermetic metal encapsulation

 **Box / Butterfly**
High-reliability telecom modules



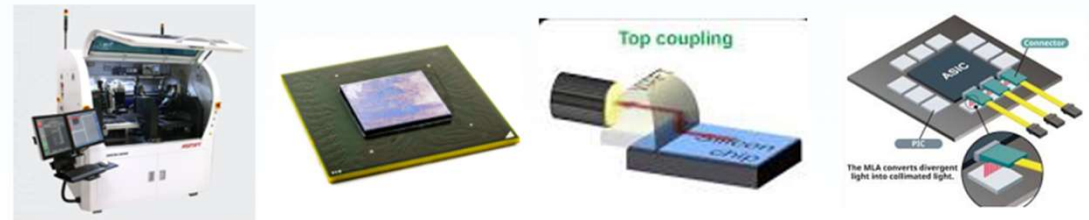
FEATURE PROCESSES

 **High-Precision Placement 0.3um**
Sub-micron accuracy die bonding maximizing coupling efficiency and yield.

 **Flip-Chip Bonding**
Ultra-short interconnects reducing parasitic capacitance for high-frequency signals.

 **Fiber Array Attachment**
Automated multi-channel optical fiber array alignment for silicon photonics engines.

 **Lens Array Attachment**
Micro-optic lens array coupling ensuring optimal beam shaping and minimal loss.



技術及製程能力

Advanced Optical Assembly & Testing Platform

Automated multi-channel active alignment, electro-optical characterization & high-speed link validation

PRECISION ASSEMBLY

❖ Lens / FAU Active Alignment <0.1um

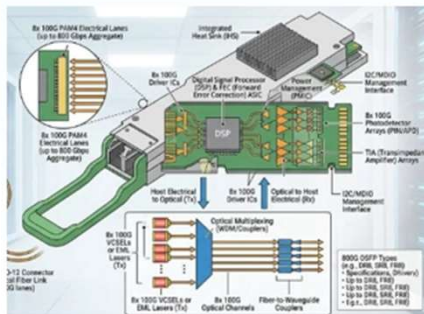
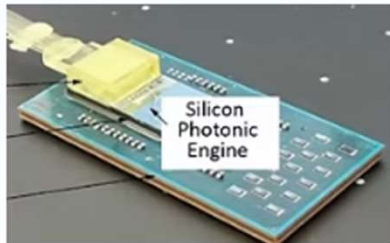
Sub-micron closed-loop feedback alignment optimizing optical insertion loss for multi-channel FAU and micro-lens arrays.

⚙️ Optical Assembly

High-precision placement of PICs, EIC, lasers, and photodiode dies into integrated photonic engines.

⚙️ Mechanical/Electrical Integration

Robust PCB/substrate wire-bonding, high-frequency signal routing, and advanced thermal management integration.



TESTING & CHARACTERIZATION

≡ Verification & Testing

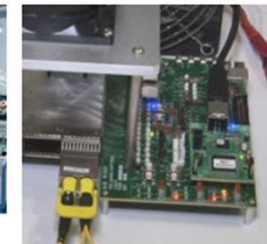
Automated wafer-level and module-level screening protocol ensuring zero-defect manufacturing workflow.

⚡ O/E Characterization

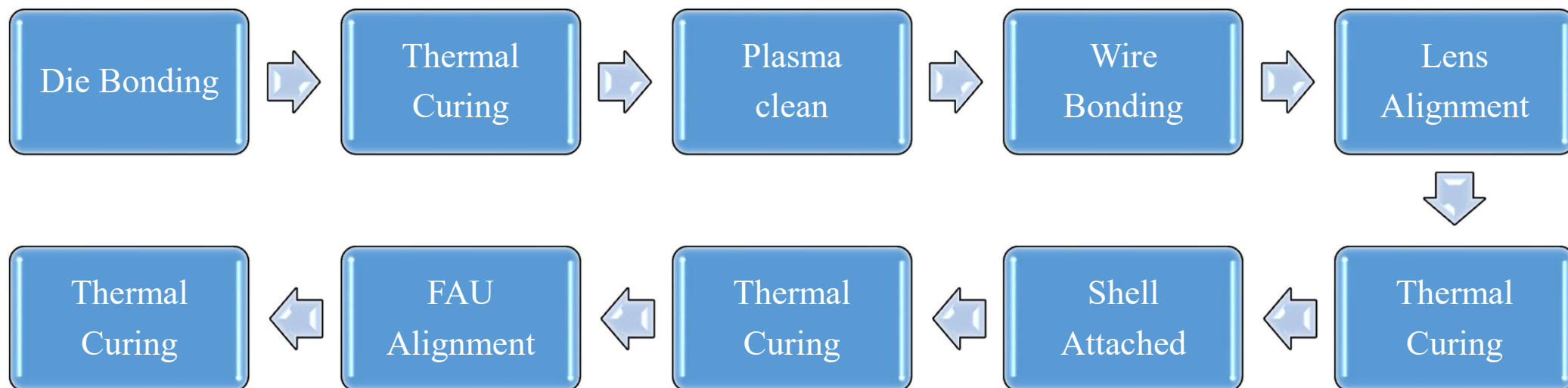
Comprehensive Electro-Optical parametric analysis including spectral power, responsivity, linewidth, and LIV profiling.

⚙️ Data Link Test

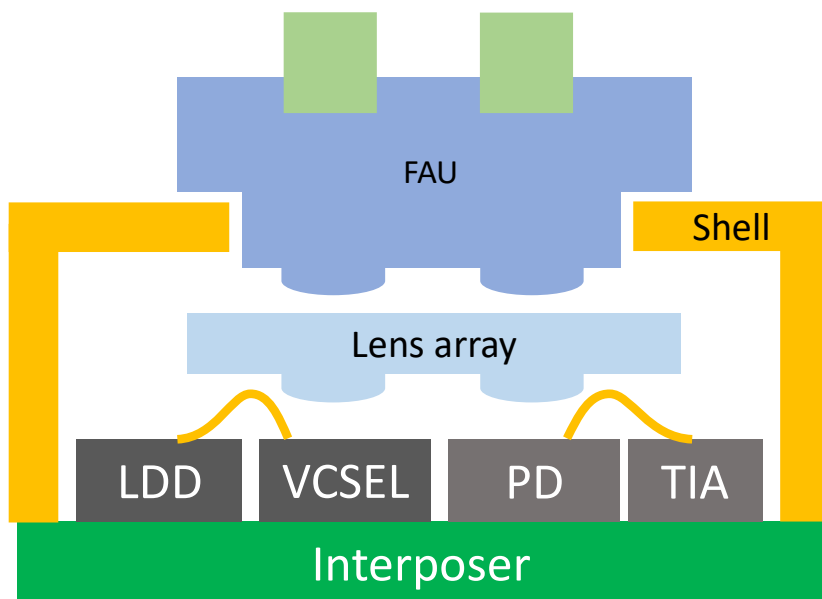
High-speed PAM4 bit error rate (BER) validation, jitter analysis, and real-time optical eye-diagram qualification.



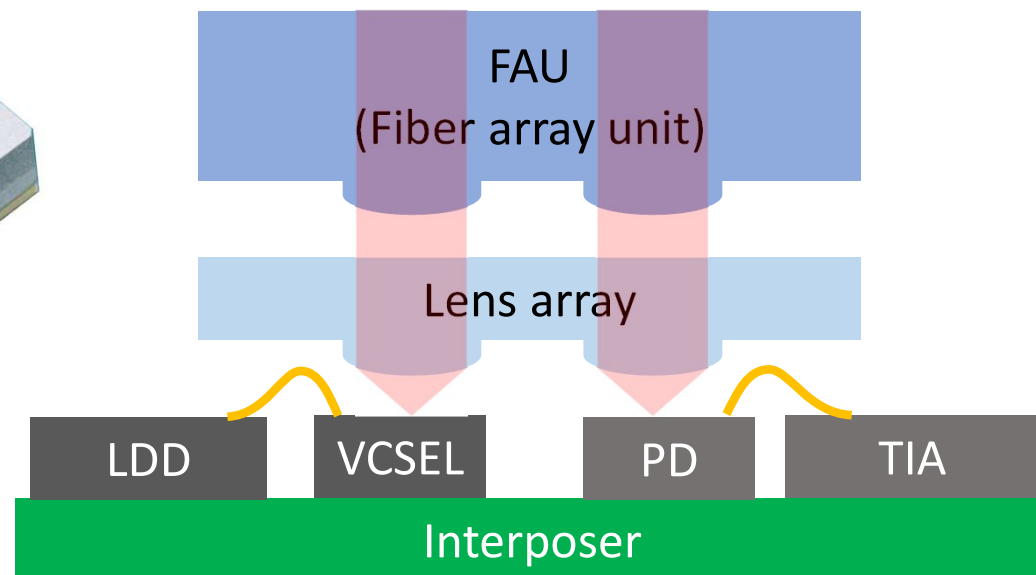
Process flow – Optical Module Assembly Process



- NPO optical module



- 2D array active alignment process



Q & A

THANK YOU

投資人關係窗口：王雅瑜

電話：**886-3-4525188** 分機**2001**

E-Mail：Kelly.Wang@luxnetcorp.com.tw