

July 6, 2026 02:20 AM GMT

Asia-Pacific Technology | Asia Pacific

Connecting Dots in Tech Supply Chain: CoPoS, T-Glass/TPU, Glassbridge/FAU

TSMC has reportedly pulled forward CoPoS to address Intel EMIB-T competition. MediaTek TPU volumes have upside after securing Japan T-Glass. Taiwan's CPO supply chain development remains on track; Glassbridge seems remote at this stage.

What's new? Investors are asking how we reconcile views and research from tech supply chain analysts, which may sometimes look inconsistent. Last year's most popular example was upstream CoWoS capacity-implied chips vs. AI server rack consumption ([link](#)). We try to connect the dots here.

1. T-Glass shortage vs. TPU volume upside: MediaTek gets more T-Glass supply from Japan for its 3nm Google TPU project. In [MediaTek: Upside in both cloud and edge chip business; OW \(23 Jun 2026\)](#), we noted that MediaTek can assist Google (covered by Brian Nowak) in sourcing more T-Glass from the Japanese fiber material vendor to secure supply. Hence, we see upside to our shipment and revenue assumptions for 3nm ZebraFish TPU – we now forecast 3mn units in 2027. The question here is – how can MediaTek source even more T-Glass supply?

Our Japan manufacturing analyst, Yoshihito Hasegawa, believes that Nitto Boseki, which he covers, is the leading T-glass supplier for Google's TPU. According to our hardware analyst, Howard Kao, Zhen Ding is likely MediaTek's key second source for 3nm TPU substrates alongside Unimicron. However, Howard believes Zhen Ding's primary value drivers are its exposure to China AI chip ABF substrates, optical transceiver module PCBs, and AI server PCBs rather than TPUs ([Zhen Ding: Strong preliminary May profits \[22 Jun 2026\]](#)). See Howard's analysis of CoWoS capacity-implied substrate demand vs. ABF substrate supply gap ([Exhibit 3](#)).

2. TSMC CoPoS pulled forward? According to [news reports](#), TSMC's CoPoS will collaborate with Ibiden (covered by Shoji Sato) for substrates, and with Innolux (covered by Derrick Yang) focusing on TGV (Through Glass Vias) for Nvidia's Feynman GPU. TSMC guided that CoPoS mass production should be from 2028/2029. Glass core substrates are critical to large reticle size chips, mainly but not limited to the CoPoS packaging (meaning it can be used for large CoWoS packaging as well), although our checks indicate that glass core substrate and CoPoS do not have to be adopted at the same generation of GPU.

(continued...)

MORGAN STANLEY TAIWAN LIMITED+

Charlie Chan

Equity Analyst

Charlie.Chan@morganstanley.com

+886 2 2730-1725

MORGAN STANLEY ASIA LIMITED+

Andy Meng, CFA

Equity Analyst

Andy.Meng@morganstanley.com

+852 2239-7689

MORGAN STANLEY TAIWAN LIMITED+

Derrick Yang

Equity Analyst

Derrick.Yang@morganstanley.com

+886 2 2730-2862

Howard Kao

Equity Analyst

Howard.Kao@morganstanley.com

+886 2 2730-2989

MORGAN STANLEY MUFG SECURITIES CO., LTD.+

Yoshihito Hasegawa

Equity Analyst

Yoshihito.Hasegawa@morganstanleymufg.com

+81 3 6836-8910

Shoji Sato

Equity Analyst

Shoji.Sato@morganstanleymufg.com

+81 3 6836-8404

MORGAN STANLEY & CO. INTERNATIONAL PLC+

Shawn Kim

Equity Analyst

Shawn.Kim@morganstanley.com

+44 20 7677-1018

MORGAN STANLEY TAIWAN LIMITED+

Tiffany Yeh

Equity Analyst

Tiffany.Yeh@morganstanley.com

+886 2 7712-3032

Daniel Yen, CFA

Equity Analyst

Daniel.Yen@morganstanley.com

+886 2 2730-2863

MORGAN STANLEY ASIA LIMITED+

Daisy Dai, CFA

Equity Analyst

Daisy.Dai@morganstanley.com

+852 2848-7310

Ethan Jia

Research Associate

Ethan.Jia@morganstanley.com

+852 3963-2287



Morgan Stanley does and seeks to do business with companies covered in Morgan Stanley Research. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of Morgan Stanley Research. Investors should consider Morgan Stanley Research as only a single factor in making their investment decision.

For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report.

+ = Analysts employed by non-U.S. affiliates are not registered with FINRA, may not be associated persons of the member and may not be subject to FINRA restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

From our foundry supply chain checks, CoPoS could be adopted in the Feynman Ultra in 2029, while the first generation Feynman in 2028 would use TSMC's 3D stack (die to wafer) for GPU stacking with SiC carriers to assist with chip thermal management. The key question is whether TSMC will bring forward the CoPoS timeline for Feynman in 2028.

According to Derrick Yang ([Greater China – Displays: Progress for Glass in Advanced Packaging among Panel Makers \[29 Jun 2026\]](#)), we do see the potential of glass panels in semiconductors, as the package size gets bigger – though a more realistic timing for HPC adoption looks to be 2028/2029. Innolux will conduct the TGVs (Through Glass Vias) process on a glass panel (510mm*515mm), before sending that to Ibiden for substrate processes. For Innolux, the challenges lie in forming TGVs and the subsequent copper plating, because this is not part of the regular display panel production. Our understanding is that Innolux will need to procure new equipment for glass cores. The major CoPoS fab will be TSMC AP7 (see [Exhibit 5](#)), located in Tainan, Taiwan, close to Innolux's factory. Innolux's TGV production is likely to be in 2028, and we see a small chance of early adoption at Feynman.

Howard Kao, who covers Greater China substrate names, indicated there could be more substrate vendors apart from Ibiden to supply the glass core substrates in future. We believe the major technology bottleneck is the TGV process given glass scrap issues; again, we think 2029 is more likely timing for CoPoS.

3. GlassBridge to replace or complement to FAU in CPO? Fiber Array Units (FAU) are used to connect the optical fibers to the optical engines around the networking chips. According to our hardware analyst Andy Meng's report, [Greater China Technology Hardware: GlassBridge and Fiber-to-PIC's Implications for AI Transceiver and FAU Makers \(28 Jun 2026\)](#), Corning GlassBridge is a fiber to PIC connector platform that brings optical fiber directly to a photonic integrated circuit (PIC). For AI transceiver companies (e.g. Eoptolink, covered by Andy), the impact should be limited as GlassBridge can be used in both CPO and NPO. However, GlassBridge adoption timing remains to be seen, along with whether it would complement FAU based approaches by offering a wafer based, passively aligned alternative.

According to our semiconductor analyst, Tiffany Yeh (see her latest report, [link](#)), we do not rule out that GlassBridge could hamper FAU's TAM in the long run, but we are yet to see any projects in TSMC's COUPE platform that have adopted this technology. On the other hand, GlassBridge mainly serves edge coupling, and can only currently support one-dimension fiber layouts. However, TSMC's mainstream COUPE platform and key customers' solutions, such as NVIDIA, AMD (both covered by Joseph Moore), and Ayar Labs, are still sticking to grating coupling for the next few years, as it is easier to achieve mass production – which we expect in 2H26. Lastly, CPO requires integrated design and discussion across the whole ecosystem – including foundry (OE), chip designer, FAU, laser, and even system integrator – so it is hard to change a design overnight. GlassBridge is an ideal solution but we believe it remains far from mass production. We see TSMC scaling PIC capacity to 25kwp in 2028, with Ins2 test efficiency improving. We stay overweight on CPO enablers, as investor expectations are already on the floor.

Connecting Dots in Asia Tech - Key Exhibits

Exhibit 1: Key Asian supply chain companies under our coverage

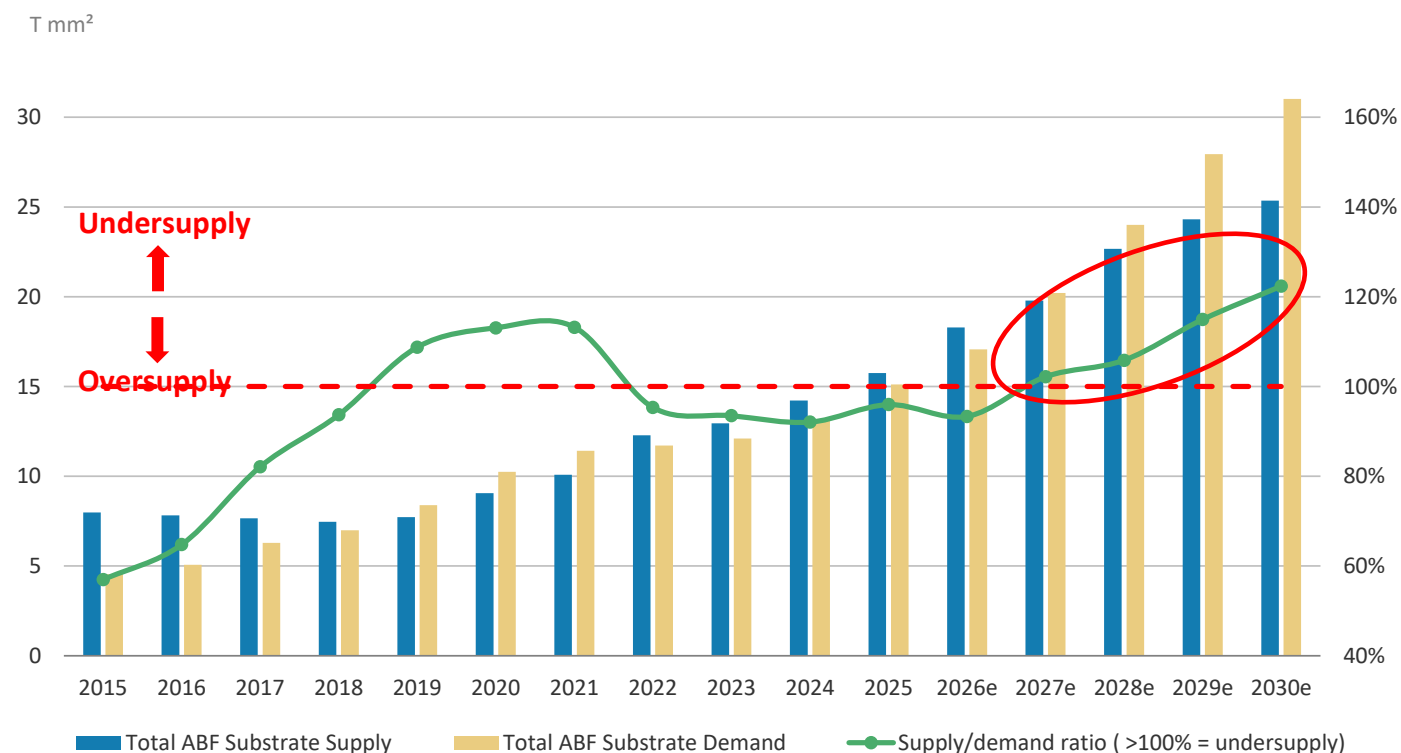
Supply Chain	Company	Ticker	Analyst	Rating
CoPoS supply chain				
Advanced packaging	TSMC	2330.TW	Chan, Charlie	Overweight
ABF Substrate	Ibiden	4062.T	Sato, Shoji	Underweight
TGV / glass core	Innolux	3481.TW	Yang, Derrick	Equal-Weight
ABF substrate and TPU supply chain				
T-Glass	Nitto Boseki	3110.T	Hasegawa, Yoshihito	Overweight
ABF substrate	Ibiden	4062.T	Sato, Shoji	Underweight
ABF substrate	Unimicron	3037.TW	Kao, Howard	Overweight
ABF substrate	Nan Ya PCB	8046.TW	Kao, Howard	Overweight
ABF substrate	Zhen Ding	4958.TW	Kao, Howard	Overweight
ABF substrate	SEMCO	009150.KS	Kim, Shawn	Overweight
ASIC design	MediaTek	2454.TW	Chan, Charlie	Overweight
Advanced packaging	TSMC	2330.TW	Chan, Charlie	Overweight
CPO and FAU supply chain				
Foundry & advanced packaging	TSMC	2330.TW	Chan, Charlie	Overweight
FAU	FOCI	3363.TWO	Yeh, Tiffany	Overweight
FAU	Suzhou TFC	300394.SZ	Meng, Andy	Equal-Weight
OSAT assembly + testing	ASE/SPIL	3711.TW	Chan, Charlie	Overweight

Source: Morgan Stanley Research

Exhibit 2: ABF substrate supply chain illustration



Source: Morgan Stanley Research

Exhibit 3: Expecting ABF substrate under-supply gap to widen by 2030 vs. our prior estimates

Source: Morgan Stanley Research (e) estimates.

Exhibit 4: Increased demand assumptions causing CY29-30 under-supply gap to widen vs. our prior estimates

ABF SD	2026e	2027e	2028e	2029e	2030e
Old	96.6%	102.6%	106.8%	112.2%	114.6%
New	93.3%	102.2%	105.8%	114.9%	122.3%

Source: Morgan Stanley Research (e) estimates.

Overview of Technologies discussed in this Report

CoPoS

Chip-on-Panel-on-Substrate (CoPoS) is an emerging TSMC technology aimed at scaling package size and reducing cost. By moving toward panel-level or large-area RDL-based packaging, CoPoS enables much larger integration footprints beyond the reticle limits of silicon interposers. This makes it attractive for next-generation AI systems that require integrating many large dies. Its advantages lie in scalability and potential cost efficiency at large sizes, but it is less mature than CoWoS and offers lower interconnect density. As such, it is not yet ideal for the most bandwidth-critical interfaces, and is still evolving in terms of ecosystem and manufacturability.

However, given the recent needs of larger sizes of chip design, and competition from Intel (covered by Joseph Moore), we believe the schedule for TSMC CoPoS could be pulled forward earlier to 2028, in the hope of meeting the needs of those GPU or AI ASICs adopting 2nm process or below.

Exhibit 5: TSMC's advanced packaging fab planning

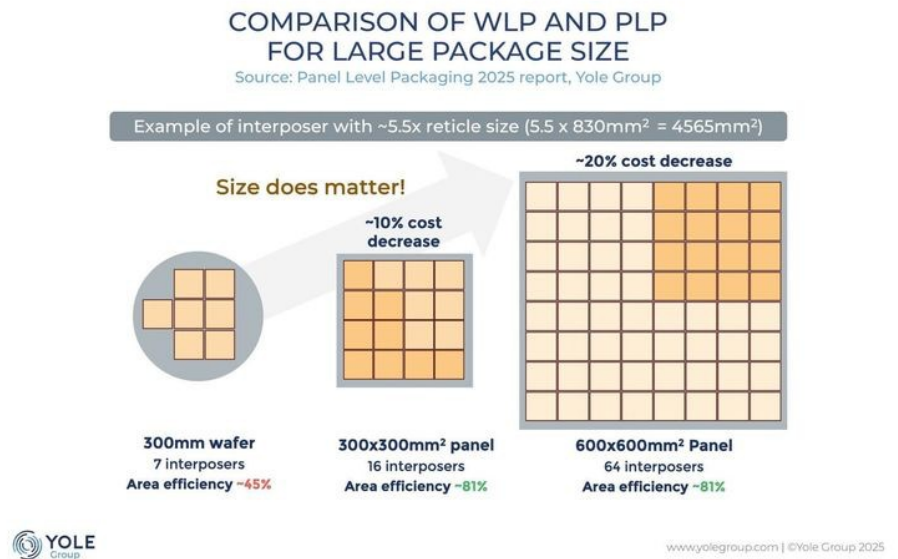
Advanced Packaging Plant	Location	Focused Technology
AP1	Hsinchu	R&D
AP2	Tainan	Bumping
AP3	Taoyuan	InFO and WMCM
AP5	Taichung	CoWoS
AP6	Miaoli	SoIC
AP7	Chiayi	WMCM, CoWoS, SoIC, CoPoS
AP8	Tainan	CoWoS
AP9 and AP10	Arizona	SoIC/CoWoS/CoPoS/WMCM/R&D

Source: Company data, Morgan Stanley Research

Exhibit 6: Comparison between TSMC's CoWoS, CoPoS, SoIC, and Intel's EMIB-T

	CoWoS	CoPoS	SoIC	EMIB
Packaging solutions	2.5D Wafer level	2.5D Panel level	3D Chip/die stacking	2.5D Substrate level
Performance (data bandwidth)	High	Low	Highest	Low
Efficiency for large chip (use of the substrate area)	Low	High	NA	High
Production sweet spot of the chip size	<9.7x reticle size	>9.7x reticle size	>9.7x reticle size	>9.7x reticle size
Cost at 9.7x reticle size (including yield issue)	High	Theoretical low	Highest	Theoretical low
Technology maturity (opposite of execution risk)	High	Low	Medium	Low
Thermal challenge	Medium	Theoretical low	Highest	Theoretical low
Overview	CoWoS excels in high-bandwidth 2.5D integration but is costly and capacity-limited	CoPoS targets large-scale, cost-efficient integration but is still maturing	SoIC delivers the highest performance through 3D stacking at the expense of complexity and thermal constraints	EMIB offers a more cost-effective and modular alternative with some performance trade-offs
Strategic consideration from customers				
Pros	Reliable and time to market	Cost efficient with larger chip size	Breakthrough the planar constraints	Cost efficient with larger chip size
Cons	Higher Cost	Not currently available at TSMC	High cost with thermal issue	Execution Risk

Source: Morgan Stanley Research

Exhibit 7: CoWoS, CoPoS and FoPLP comparison

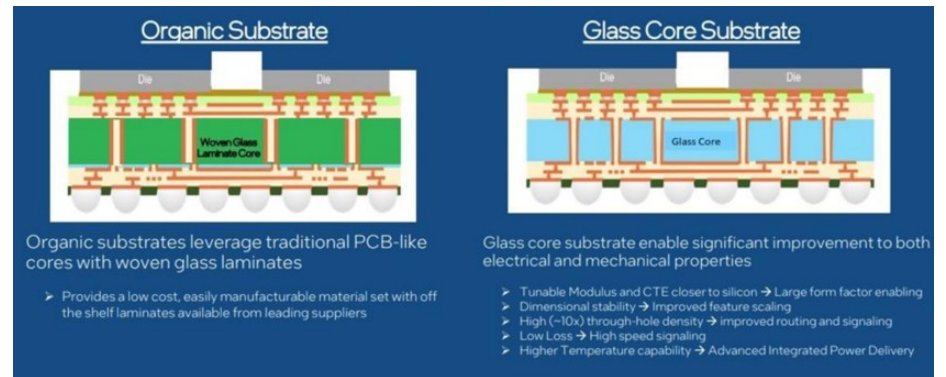
Source: Yole

Glass Core Substrates

Though the ultimate goal of glass-core substrates is to support multiple high-performance computing chips, they can also serve applications with less demanding specifications. Therefore, before glass sees adoption as an interposer in advanced packaging, we believe it could gain traction as a substrate core, replacing the conventional resin and glass-cloth composite core used in select high-end organic substrate applications. This should not be interpreted as glass cloth becoming obsolete. We expect glass-core adoption to be gradual, while mainstream ABF and other organic substrates should continue to rely on glass-cloth-reinforced resin cores in the near term.

Glass has several advantages over organic cores, including:

- **Fine line width/space and via pitch:** Down to 2µm in line width/space, 75µm on via pitch can accommodate more I/Os for more chips with more complex functions (50% more dies on a chip) or reduce the metal layers
- **Higher bump density:** Die-to-die bump pitch is less than 35µm on substrate to reduce die area and power consumption
- **High speed I/O:** Smooth copper interconnects, ultra low-loss dielectric and fine TGV pitch together can enable high speed transmission at lower cost vs. optical solutions
- **Better mechanical strength:** Less warpage and distortion amid elevated temperatures during the packaging process
- **Similar CTE as chips:** Less mismatch of coefficient of thermal expansion (CTE) can mitigate the warpage issue

Exhibit 8: Glass Core Substrate vs. Traditional Organic Substrate

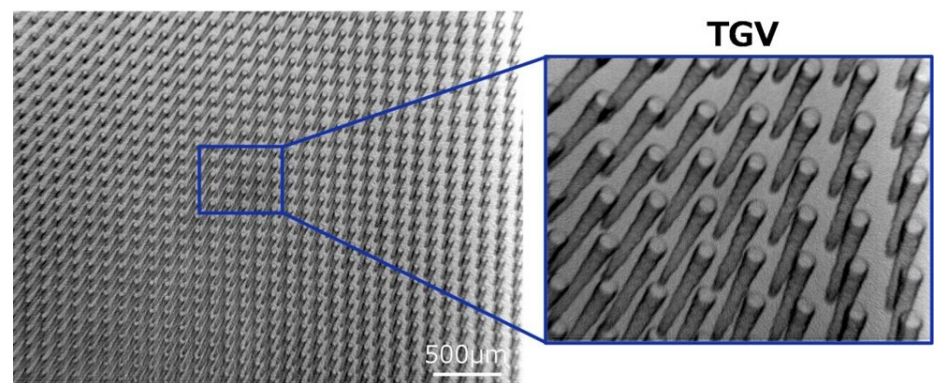
Source: Intel

Exhibit 9: Glass Core Substrates in Panel Form

Source: Intel

Exhibit 10: Packages with Glass Core Substrates

Source: Intel

Exhibit 11:
TGV on Glass Core Substrate

Source: DNP

Glassbridge/FAU

On June 24, Corning (covered by Meta Marshall) officially launched its GlassBridge glass optical interconnect assembly at the AI Data Center Optical Communications and Interconnect Technology Conference held in Seoul. Based on Corning's document:

1) Corning GlassBridge is a fiber-to-PIC connector platform that brings optical fiber directly to a photonic integrated circuit (PIC).

2) Fiber-to-PIC technology refers to the optical interface that couples optical fiber directly into a PIC rather than through a long fiber assembly.

3) Traditional Fiber Array Units (FAU) become complex to assemble and scale at very high fiber counts. GlassBridge complements FAU-based approaches by offering a wafer-based, passively aligned alternative that supports higher density, improved scalability, and detachable system integration.

In CPO development, FAU makers are likely to face disruption risk with GlassBridge emerging as a new technology approach. For AI transceiver companies, the impact should be limited as GlassBridge can be used in both CPO and NPO. Wider application in NPO could potentially offset CPO risk.

Exhibit 12: GlassBridge core product features

CORNING

GlassBridge™ Fiber-to-PIC Connector
Industry-leading design for next-generation optics

Built on Corning's decades of expertise in glass science, ion-exchange (IOX) waveguides, and industry-proven TMT-ferrule technology, the GlassBridge™ connector gives system designers a practical, manufacturable path to next-generation optical architectures including Near-Packaged Optics (NPO), Co-Packaged Optics (CPO), and high-density photonic modules.

Advanced Optical Coupling

- Wafer-based high-volume manufacturing
- Customizable pitch
- Detachable solution
- Passive alignment

Inside the GlassBridge Design – Core Product Features

Wafer-based IOX waveguides enabling high-volume, scalable production, and precision alignment.	Supports 24 fibers and can scale to multiple (e.g. 2 x 24) per PIC for higher density needs.	Robust physical-contact interface leveraging a standard TMT ferrule format.
Fiber-to-chip coupling using an ultra-compact, 6.4 mm-wide glass connector body.	Solder reflow compatible to ease assembly.	Low loss optical performance demonstrating 1.5 dB O-band fiber-to-PIC coupling.

Corning Optical Communications

GlassBridge™ Fiber-to-PIC Connector | OEM-152-AEN | Page 1

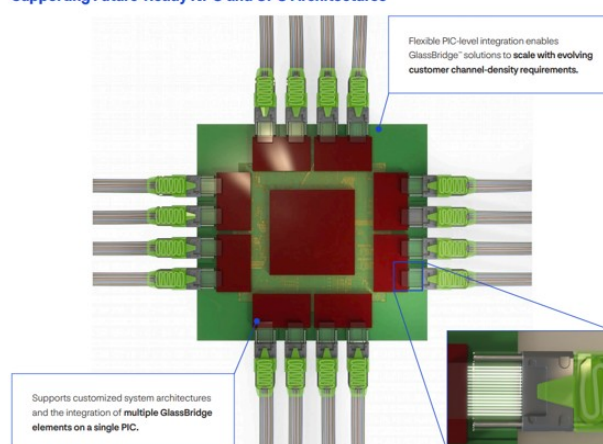
Source: Corning

Exhibit 13: GlassBridge supports NPO and CPO architectures

System-Level Advantages – Unlocking Next-Gen Photonic Performance

- **Scalable Manufacturing:** Wafer-based design supports high-volume manufacturing.
- **Customizable Pitch:** Supports multiple PIC pitches (e.g., 40 µm, 80 µm, 127 µm, 165 µm), enabling higher shoreline density and pitch conversion across application requirements.
- **Detachable Connector:** Offers a detachable solution for flexibility in deployment and maintenance.
- **Passive Alignment:** Efficient assembly to save cost.
- **Standardized TMT Ferrule:** Utilizes a physical contact interface with standard TMT ferrule (125 µm hole) for reliability and ease of use.
- **High Channel Count:** Enables connectivity for more than 24 channels (single connector), supporting advanced applications.

Supporting Future-Ready NPO and CPO Architectures

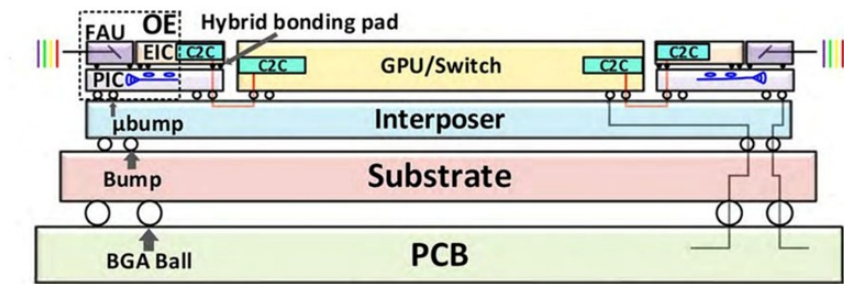


CORNING

Corning Optical Communications LLC • 4200 Corning Place • Charlotte, NC 28276 USA
800-743-2675 • FAX: 628-325-5060 • International: +1-628-901-5000 • www.corning.com/opcom
Corning Optical Communications reserves the right to improve, enhance, and modify the features and specifications of Corning Optical Communications products without prior notification.
A complete listing of the trademarks of Corning Optical Communications is available at www.corning.com/opcom/trademarks. All other trademarks are the properties of their respective owners.
Corning Optical Communications is ISO 9001 certified. © 2025 Corning Optical Communications. All rights reserved. OEM-152-AEN / March 2025

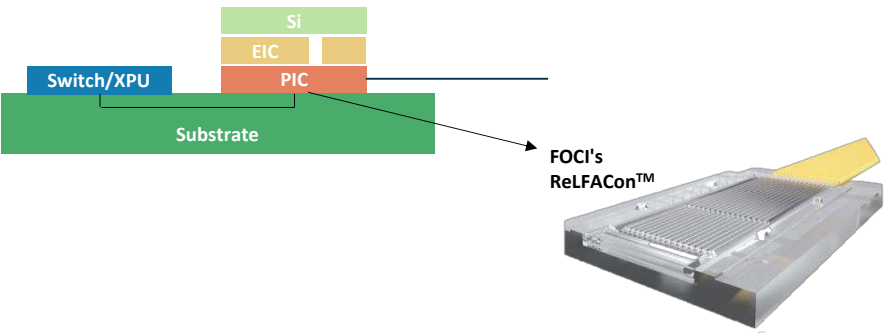
Source: Corning

Exhibit 14:
"Optics on Interposer"



Source: Song, S., Mehta, N., Nedovic, N., Rekhi, A., Kalogerakis, G., Xu, L., ... Gray, C. T. (2026). A 32Gb/s/λ 256Gb/s/Fiber Half-Rate Bandpass-Filtered Clock-Forwarding DWDM Optical Link in a 3D-Stacked 7nm EIC/65nm PIC Technology.

Exhibit 15: ReLFACon enables direct transmission of external photonic signals with MCM modules to achieve reliable signal transmission



Source: FOCI

Disclosure Section

The information and opinions in Morgan Stanley Research were prepared or are disseminated by Morgan Stanley Asia Limited (which accepts the responsibility for its contents) and/or Morgan Stanley Asia (Singapore) Pte. (Registration number 199206298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore (which accepts legal responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research), and/or Morgan Stanley Taiwan Limited and/or Morgan Stanley & Co International plc, Seoul Branch, and/or Morgan Stanley Australia Limited (A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents), and/or Morgan Stanley Wealth Management Australia Pty Ltd (A.B.N. 19 009 145 555, holder of Australian financial services license No. 240813, which accepts responsibility for its contents), and/or Morgan Stanley India Company Private Limited having Corporate Identification No (CIN) U22990MH1998PTC115305, regulated by the Securities and Exchange Board of India ("SEBI") and holder of licenses as a Research Analyst (SEBI Registration No. INH000001105); Stock Broker (SEBI Stock Broker Registration No. INZ000244438), Merchant Banker (SEBI Registration No. INM000011203), and depository participant with National Securities Depository Limited (SEBI Registration No. IN-DP-NSDL-567-2021) having registered office at Altimus, Level 39 & 40, Pandurang Budhkar Marg, Worli, Mumbai 400018, India; Telephone no. +91-22-61181000; Compliance Officer Details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: tejarshi.hardas@morganstanley.com; Grievance officer details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: msic-compliance@morganstanley.com which accepts the responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research, and their affiliates (collectively, "Morgan Stanley"). Morgan Stanley India Company Private Limited (MSICPL) may use AI tools in providing research services. All recommendations contained herein are made by the duly qualified research analysts.

For important disclosures, stock price charts and equity rating histories regarding companies that are the subject of this report, please see the Morgan Stanley Research Disclosure Website at www.morganstanley.com/eqr/disclosures/webapp/generalresearch, or contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY, 10036 USA.

For valuation methodology and risks associated with any recommendation, rating or price target referenced in this research report, please contact the Client Support Team as follows: US/Canada +1 800 303-2495; Hong Kong +852 2848-5999; Latin America +1 718 754-5444 (U.S.); London +44 (0)20-7425-8169; Singapore +65 6834-6860; Sydney +61 (0)2-9770-1505; Tokyo +81 (0)3-6836-9000. Alternatively you may contact your investment representative or Morgan Stanley Research at 1585 Broadway, (Attention: Research Management), New York, NY 10036 USA.

Analyst Certification

The following analysts hereby certify that their views about the companies and their securities discussed in this report are accurately expressed and that they have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report: Charlie Chan; Daisy Dai, CFA; Yoshihito Hasegawa; Howard Kao; Shawn Kim; Andy Meng, CFA; Shoji Sato; Derrick Yang; Tiffany Yeh; Daniel Yen, CFA.

Global Research Conflict Management Policy

Morgan Stanley Research has been published in accordance with our conflict management policy, which is available at www.morganstanley.com/institutional/research/conflictolicies. A Portuguese version of the policy can be found at www.morganstanley.com.br

Important Regulatory Disclosures on Subject Companies

The analyst or strategist (or a household member) identified below owns the following securities (or related derivatives): Ethan Jia - Samsung Electronics (common or preferred stock).

As of May 29, 2026, Morgan Stanley beneficially owned 1% or more of a class of common equity securities of the following companies covered in Morgan Stanley Research: ACM Research Inc, Advanced Micro-Fabrication Equipment Inc, Advanced Wireless Semiconductor Co, Alchip Technologies Ltd, AllRing Tech Co., AP Memory Technology Corp, ASE Technology Holding Co. Ltd., ASMPT Ltd, Aspeed Technology, Cambricon Technology Corporation, Dosilicon Co Ltd, Fadu Inc, FOCIFiber Optic Communications Inc, GigaDevice Semiconductor Beijing Inc, Global Unichip Corp, GlobalWafers Co Ltd, Gudeng Precision, Hon Precision, Hua Hong Semiconductor Ltd, Isu Petasys Co. Ltd., King Yuan Electronics Co Ltd, L&F Co Ltd, Leeno Industrial Inc., LG Display, LG Innotek, Macronix International Co Ltd, MediaTek, Montage Technology Co Ltd, Nanya Technology Corp., NAURA Technology Group Co Ltd, Nuvoton Technology Corporation, Parade Technologies Ltd, Phison Electronics Corp, Realtek Semiconductor, Samsung Electro-Mechanics, Shanghai Fudan Microelectronics, Silergy Corp., Silicon Motion, SK hynix, SK Square Co Ltd., TSMC, UMC, Vanguard International Semiconductor, WIN Semiconductors Corp, Winbond Electronics Corp, WinWay Technology Co Ltd, WPG Holdings, WT Microelectronics Co. Ltd.

Within the last 12 months, Morgan Stanley managed or co-managed a public offering (or 144A offering) of securities of Alchip Technologies Ltd, LG Electronics, Montage Technology Co Ltd, Powerchip Semiconductor Manufacturing Co, Samsung Electronics, SK hynix, SK Square Co Ltd.

Within the last 12 months, Morgan Stanley has received compensation for investment banking services from ASMPT Ltd, LG Electronics, Montage Technology Co Ltd, Powerchip Semiconductor Manufacturing Co, Samsung Electronics, SK hynix.

In the next 3 months, Morgan Stanley expects to receive or intends to seek compensation for investment banking services from Advanced Micro-Fabrication Equipment Inc, Alchip Technologies Ltd, AP Memory Technology Corp, ASE Technology Holding Co. Ltd., ASMedia Technology Inc, ASMPT Ltd, Aspeed Technology, Ecopro BM, Espressif Systems, GigaDevice Semiconductor Beijing Inc, GlobalWafers Co Ltd, Gudeng Precision, HD Hyundai Electric Co Ltd, Himax Technologies Inc, Hua Hong Semiconductor Ltd, Iluvatar CoreX Semiconductor Co., Ltd., Innoscience, King Yuan Electronics Co Ltd, L&F Co Ltd, LG Display, LG Electronics, Macronix International Co Ltd, MediaTek, MetaX Integrated Circuits, Montage Technology Co Ltd, Novatek, Phison Electronics Corp, Powerchip Semiconductor Manufacturing Co, Realtek Semiconductor, Samsung Electronics, SG Micro Corp., Shenzhen Longsys Electronics Co Ltd, Silergy Corp., Silicon Motion, SK hynix, SK Square Co Ltd., TSMC, UMC, Vanguard International Semiconductor, Winbond Electronics Corp, WinWay Technology Co Ltd, WPG Holdings, WT Microelectronics Co. Ltd..

Within the last 12 months, Morgan Stanley has received compensation for products and services other than investment banking services from ASE Technology Holding Co. Ltd., King Yuan Electronics Co Ltd, MediaTek, Nanya Technology Corp., Novatek, Nuvoton Technology Corporation, Realtek Semiconductor, Samsung Electronics, Silicon Motion, SMIC, TSMC, UMC, Universal Scientific Ind. (Shanghai), Winbond Electronics Corp, WT Microelectronics Co. Ltd..

Within the last 12 months, Morgan Stanley has provided or is providing investment banking services to, or has an investment banking client relationship with, the following company: Advanced Micro-Fabrication Equipment Inc, Alchip Technologies Ltd, AP Memory Technology Corp, ASE Technology Holding Co. Ltd., ASMedia Technology Inc, ASMPT Ltd, Aspeed Technology, Ecopro BM, Espressif Systems, GigaDevice Semiconductor Beijing Inc, GlobalWafers Co Ltd, Gudeng Precision, HD Hyundai Electric Co Ltd, Himax Technologies Inc, Hua Hong Semiconductor Ltd, Iluvatar CoreX Semiconductor Co., Ltd., Innoscience, King Yuan Electronics Co Ltd, L&F Co Ltd, LG Display, LG Electronics, Macronix International Co Ltd, MediaTek, MetaX Integrated Circuits, Montage Technology Co Ltd, Novatek, Phison Electronics Corp, Powerchip Semiconductor Manufacturing Co, Realtek Semiconductor, Samsung Electronics, SG Micro Corp., Shenzhen Longsys Electronics Co Ltd, Silergy Corp., Silicon Motion, SK hynix, SK Square Co Ltd., TSMC, UMC, Vanguard International Semiconductor, Winbond Electronics Corp, WinWay Technology Co Ltd, WPG Holdings, WT Microelectronics Co. Ltd..

Within the last 12 months, Morgan Stanley has either provided or is providing non-investment banking, securities-related services to and/or in the past has entered into an agreement to provide services or has a client relationship with the following company: ASE Technology Holding Co. Ltd., King Yuan Electronics Co Ltd, MediaTek, Montage Technology Co Ltd, Nanya Technology

Corp., Novatek, Nuvoton Technology Corporation, Realtek Semiconductor, Samsung Electronics, Silicon Motion, SK hynix, SMIC, TSMC, UMC, Universal Scientific Ind. (Shanghai), Winbond Electronics Corp, WT Microelectronics Co. Ltd..

Morgan Stanley & Co. LLC makes a market in the securities of ACM Research Inc, Himax Technologies Inc, Silicon Motion.

The equity research analysts or strategists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality of research, investor client feedback, stock picking, competitive factors, firm revenues and overall investment banking revenues. Equity Research analysts' or strategists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

Morgan Stanley and its affiliates do business that relates to companies/instruments covered in Morgan Stanley Research, including market making, providing liquidity, fund management, commercial banking, extension of credit, investment services and investment banking. Morgan Stanley sells to and buys from customers the securities/instruments of companies covered in Morgan Stanley Research on a principal basis. Morgan Stanley may have a position in the debt of the Company or instruments discussed in this report. Morgan Stanley trades or may trade as principal in the debt securities (or in related derivatives) that are the subject of the debt research report.

Certain disclosures listed above are also for compliance with applicable regulations in non-US jurisdictions.

STOCK RATINGS

Morgan Stanley uses a relative rating system using terms such as Overweight, Equal-weight, Not-Rated or Underweight (see definitions below). Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold and sell. Investors should carefully read the definitions of all ratings used in Morgan Stanley Research. In addition, since Morgan Stanley Research contains more complete information concerning the analyst's views, investors should carefully read Morgan Stanley Research, in its entirety, and not infer the contents from the rating alone. In any case, ratings (or research) should not be used or relied upon as investment advice. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

Global Stock Ratings Distribution

(as of June 30, 2026)

The Stock Ratings described below apply to Morgan Stanley's Fundamental Equity Research and do not apply to Debt Research produced by the Firm.

For disclosure purposes only (in accordance with FINRA requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, Not-Rated and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.

Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1544	42%	453	49%	29%	757	44%
Equal-weight/Hold	1577	43%	390	42%	25%	769	44%
Not-Rated/Hold	3	0%	1	0%	33%	1	0%
Underweight/Sell	544	15%	89	10%	16%	204	12%
Total	3,668		933			1731	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Important Disclosures for Morgan Stanley Smith Barney LLC Customers

Important disclosures regarding any material conflict of interest that can reasonably be expected to have influenced Morgan Stanley Smith Barney LLC's choice of a third-party research provider

or the subject company of a third-party research report, are available on the Morgan Stanley Wealth Management disclosure website at www.morganstanley.com/online/researchdisclosures. For Morgan Stanley specific disclosures, you may refer to <https://www.morganstanley.com/eqr/disclosures/webapp/generalresearch>. Each Morgan Stanley research report is reviewed and approved on behalf of Morgan Stanley Smith Barney LLC. This review and approval is conducted by the same person who reviews the research report on behalf of Morgan Stanley. This could create a conflict of interest.

Other Important Disclosures

Morgan Stanley Research policy is to update research reports as and when the Research Analyst and Research Management deem appropriate, based on developments with the issuer, the sector, or the market that may have a material impact on the research views or opinions stated therein. In addition, certain Research publications are intended to be updated on a regular periodic basis (weekly/monthly/quarterly/annual) and will ordinarily be updated with that frequency, unless the Research Analyst and Research Management determine that a different publication schedule is appropriate based on current conditions.

Morgan Stanley is not acting as a municipal advisor and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Morgan Stanley produces an equity research product called a "Tactical Idea." Views contained in a "Tactical Idea" on a particular stock may be contrary to the recommendations or views expressed in research on the same stock. This may be the result of differing time horizons, methodologies, market events, or other factors. For all research available on a particular stock, please contact your sales representative or go to Matrix at <http://www.morganstanley.com/matrix>.

Morgan Stanley Research is provided to our clients through our proprietary research portal on Matrix and also distributed electronically by Morgan Stanley to clients. Certain, but not all, Morgan Stanley Research products are also made available to clients through third-party vendors or redistributed to clients through alternate electronic means as a convenience. For access to all available Morgan Stanley Research, please contact your sales representative or go to Matrix at <http://www.morganstanley.com/matrix>.

Any access and/or use of Morgan Stanley Research is subject to Morgan Stanley's Terms of Use (<http://www.morganstanley.com/terms.html>). By accessing and/or using Morgan Stanley Research, you are indicating that you have read and agree to be bound by our Terms of Use (<http://www.morganstanley.com/terms.html>). In addition you consent to Morgan Stanley processing your personal data and using cookies in accordance with our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html), including for the purposes of setting your preferences and to collect readership data so that we can deliver better and more personalized service and products to you. To find out more information about how Morgan Stanley processes personal data, how we use cookies and how to reject cookies see our Privacy Policy and our Global Cookies Policy (http://www.morganstanley.com/privacy_pledge.html). Please use the provided link to review the Terms and Conditions and Most Important Terms and Conditions for Morgan Stanley India Company Private Limited (https://www.morganstanley.com/assets/pdfs/about-us-global-offices/india/Terms_and_conditions.pdf) and the following link to review the audit report (https://ny.matrix.ms.com/eqr/research/webapp/researchdocs/MSICPL_Morgan_Stanley_Research_Audit_Report.pdf).

If you do not agree to our Terms of Use and/or if you do not wish to provide your consent to Morgan Stanley processing your personal data or using cookies please do not access our research. Morgan Stanley Research does not provide individually tailored investment advice. Morgan Stanley Research has been prepared without regard to the circumstances and objectives of those who receive it. Morgan Stanley recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial adviser. The appropriateness of an investment or strategy will depend on an investor's circumstances and objectives. The securities, instruments, or strategies discussed in Morgan Stanley Research may not be suitable for all investors, and certain investors may not be eligible to purchase or participate in some or all of them. Morgan Stanley Research is not an offer to buy or sell or the solicitation of an offer to buy or sell any security/instrument or to participate in any particular trading strategy. The value of and income from your investments may vary because of changes in interest rates, foreign exchange rates, default rates, prepayment rates, securities/instruments prices, market indexes, operational or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in securities/instruments transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. If provided, and unless otherwise stated, the closing price on the cover page is that of the primary exchange for the subject company's securities/instruments.

The fixed income research analysts, strategists or economists principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality, accuracy and value of research, firm profitability or revenues (which include fixed income trading and capital markets profitability or revenues), client feedback and competitive factors. Fixed Income Research analysts', strategists' or economists' compensation is not linked to investment banking or capital markets transactions performed by Morgan Stanley or the profitability or revenues of particular trading desks.

The "Important Regulatory Disclosures on Subject Companies" section in Morgan Stanley Research lists all companies mentioned where Morgan Stanley owns 1% or more of a class of common equity securities of the companies. For all other companies mentioned in Morgan Stanley Research, Morgan Stanley may have an investment of less than 1% in securities/instruments or derivatives of securities/instruments of companies and may trade them in ways different from those discussed in Morgan Stanley Research. Employees of Morgan Stanley not involved in the preparation of Morgan Stanley Research may have investments in securities/instruments or derivatives of securities/instruments of companies mentioned and may trade them in ways different from those discussed in Morgan Stanley Research. Derivatives may be issued by Morgan Stanley or associated persons.

With the exception of information regarding Morgan Stanley, Morgan Stanley Research is based on public information. Morgan Stanley makes every effort to use reliable, comprehensive information, but we make no representation that it is accurate or complete. We have no obligation to tell you when opinions or information in Morgan Stanley Research change apart from when we intend to discontinue equity research coverage of a subject company. Facts and views presented in Morgan Stanley Research have not been reviewed by, and may not reflect information known to, professionals in other Morgan Stanley business areas, including investment banking personnel.

Morgan Stanley Research personnel may participate in company events such as site visits and are generally prohibited from accepting payment by the company of associated expenses unless pre-approved by authorized members of Research management.

Morgan Stanley may make investment decisions that are inconsistent with the recommendations or views in this report.

To our readers based in Taiwan or trading in Taiwan securities/instruments: Information on securities/instruments that trade in Taiwan is distributed by Morgan Stanley Taiwan Limited ("MSTL"). Such information is for your reference only. The reader should independently evaluate the investment risks and is solely responsible for their investment decisions. Morgan Stanley Research may not be distributed to the public media or quoted or used by the public media without the express written consent of Morgan Stanley. Any non-customer reader within the scope of Article 7-1 of the Taiwan Stock Exchange Recommendation Regulations accessing and/or receiving Morgan Stanley Research is not permitted to provide Morgan Stanley Research to any third party (including but not limited to related parties, affiliated companies and any other third parties) or engage in any activities regarding Morgan Stanley Research which may create or give the appearance of creating a conflict of interest. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation or a solicitation to trade in such securities/instruments. MSTL may not execute transactions for clients in these securities/instruments.

Certain information in Morgan Stanley Research was sourced by employees of the Shanghai Representative Office of Morgan Stanley Asia Limited for the use of Morgan Stanley Asia Limited. Morgan Stanley is not incorporated under PRC law and the research in relation to this report is conducted outside the PRC. Morgan Stanley Research does not constitute an offer to sell or

the solicitation of an offer to buy any securities in the PRC. PRC investors shall have the relevant qualifications to invest in such securities and shall be responsible for obtaining all relevant approvals, licenses, verifications and/or registrations from the relevant governmental authorities themselves. Neither this report nor any part of it is intended as, or shall constitute, provision of any consultancy or advisory service of securities investment as defined under PRC law. Such information is provided for your reference only.

Morgan Stanley Research is disseminated in Brazil by Morgan Stanley C.T.V.M. S.A. located at Av. Brigadeiro Faria Lima, 3600, 6th floor, São Paulo - SP, Brazil; and is regulated by the Comissão de Valores Mobiliários; in Mexico by Morgan Stanley México, Casa de Bolsa, S.A. de C.V. which is regulated by Comisión Nacional Bancaria y de Valores. Paseo de los Tamarindos 90, Torre 1, Col. Bosques de las Lomas Floor 29, 05120 Mexico City; in Japan by Morgan Stanley MUFG Securities Co., Ltd. and, for Commodities related research reports only, Morgan Stanley Capital Group Japan Co., Ltd; in Hong Kong by Morgan Stanley Asia Limited (which accepts responsibility for its contents) and by Morgan Stanley Bank Asia Limited; in Singapore by Morgan Stanley Asia (Singapore) Pte. (Registration number 199206298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore (which accepts legal responsibility for its contents and should be contacted with respect to any matters arising from, or in connection with, Morgan Stanley Research) and by Morgan Stanley Bank Asia Limited, Singapore Branch (Registration number T14FC0118); in Australia to "wholesale clients" within the meaning of the Australian Corporations Act by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents; in Australia to "wholesale clients" and "retail clients" within the meaning of the Australian Corporations Act by Morgan Stanley Wealth Management Australia Pty Ltd (A.B.N. 19 009 145 555, holder of Australian financial services license No. 240813, which accepts responsibility for its contents; in Korea by Morgan Stanley & Co International plc, Seoul Branch; in India by Morgan Stanley India Company Private Limited having Corporate Identification No (CIN) U22990MH1998PTC115305, regulated by the Securities and Exchange Board of India ("SEBI") and holder of licenses as a Research Analyst (SEBI Registration No. INH000001105); Stock Broker (SEBI Stock Broker Registration No. INZ000244438), Merchant Banker (SEBI Registration No. INM000011203), and depository participant with National Securities Depository Limited (SEBI Registration No. IN-DP-NSDL-567-2021) having registered office at Altimus, Level 39 & 40, Pandurang Budhkar Marg, Worli, Mumbai 400018, India; Telephone no. +91-22-61181000; Compliance Officer Details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: tejarshi.hardas@morganstanley.com; Grievance officer details: Mr. Tejarshi Hardas, Tel. No.: +91-22-61181000 or Email: msic-compliance@morganstanley.com. Morgan Stanley India Company Private Limited (MSICPL) may use AI tools in providing research services. All recommendations contained herein are made by the duly qualified research analysts; in Canada by Morgan Stanley Canada Limited; in Germany and the European Economic Area where required by Morgan Stanley Europe S.E., authorised and regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin) under the reference number 149169; in the US by Morgan Stanley & Co. LLC, which accepts responsibility for its contents. Morgan Stanley & Co. International plc, authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, disseminates in the UK research that it has prepared, and research which has been prepared by any of its affiliates, only to persons who (i) are investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"); (ii) are persons who are high net worth entities falling within Article 49(2)(a) to (d) of the Order; or (iii) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000, as amended) may otherwise lawfully be communicated or caused to be communicated. RMB Morgan Stanley Proprietary Limited is a member of the JSE Limited and A2X (Pty) Ltd. RMB Morgan Stanley Proprietary Limited is a joint venture owned equally by Morgan Stanley International Holdings Inc. and RMB Investment Advisory (Proprietary) Limited, which is wholly owned by FirstRand Limited. The information in Morgan Stanley Research is being disseminated by Morgan Stanley Saudi Arabia, regulated by the Capital Market Authority in the Kingdom of Saudi Arabia, and is directed at Sophisticated investors only.

Morgan Stanley Hong Kong Securities Limited is the liquidity provider/market maker for securities of ASMPT Ltd, Hua Hong Semiconductor Ltd, Montage Technology Co Ltd listed on the Stock Exchange of Hong Kong Limited. An updated list can be found on HKEx website: <http://www.hkex.com.hk>.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (DIFC Branch), regulated by the Dubai Financial Services Authority (the DFSA) or by Morgan Stanley & Co. International plc (ADGM Branch), regulated by the Financial Services Regulatory Authority Abu Dhabi (the FSRA), and is directed at Professional Clients only, as defined by the DFSA or the FSRA, respectively. The financial products or financial services to which this research relates will only be made available to a customer who we are satisfied meets the regulatory criteria of a Professional Client. A distribution of the different MS Research ratings or recommendations, in percentage terms for Investments in each sector covered, is available upon request from your sales representative.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (QFC Branch), regulated by the Qatar Financial Centre Regulatory Authority (the QFCRA), and is directed at business customers and market counterparties only and is not intended for Retail Customers as defined by the QFCRA.

As required by the Capital Markets Board of Turkey, investment information, comments and recommendations stated here, are not within the scope of investment advisory activity. Investment advisory service is provided exclusively to persons based on their risk and income preferences by the authorized firms. Comments and recommendations stated here are general in nature. These opinions may not fit to your financial status, risk and return preferences. For this reason, to make an investment decision by relying solely to this information stated here may not bring about outcomes that fit your expectations.

The following companies do business in countries which are generally subject to comprehensive sanctions programs administered or enforced by the U.S. Department of the Treasury's Office of Foreign Assets Control ("OFAC") and by other countries and multi-national bodies: Samsung Electronics.

The trademarks and service marks contained in Morgan Stanley Research are the property of their respective owners. Third-party data providers make no warranties or representations relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages relating to such data. The Global Industry Classification Standard (GICS) was developed by and is the exclusive property of MSCI and S&P.

Morgan Stanley Research, or any portion thereof may not be reprinted, sold or redistributed without the written consent of Morgan Stanley.

Indicators and trackers referenced in Morgan Stanley Research may not be used as, or treated as, a benchmark under Regulation EU 2016/1011, or any other similar framework.

The issuers and/or fixed income products recommended or discussed in certain fixed income research reports may not be continuously followed. Accordingly, investors should regard those fixed income research reports as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or individual fixed income products.

Morgan Stanley may hold, from time to time, material financial and commercial interests regarding the company subject to the Research report.

Registration granted by SEBI and certification from the National Institute of Securities Markets (NISM) in no way guarantee performance of the intermediary or provide any assurance of returns to investors. Investment in securities market are subject to market risks. Read all the related documents carefully before investing.

INDUSTRY COVERAGE: S. Korea Technology

COMPANY (TICKER)	RATING (AS OF)	PRICE* (07/03/2026)
Ryan Kim		

Ecopro BM (247540.KQ)	U (03/20/2023)	W124,400
Fadu Inc (440110.KQ)	O (09/21/2025)	W79,600
Hanmi Semiconductor Co. Ltd. (042700.KS)	O (08/16/2024)	W232,500
HD Hyundai Electric Co Ltd (267260.KS)	O (03/25/2025)	W945,000
Isu Petasys Co. Ltd. (007660.KS)	O (02/03/2025)	W110,100
L&F Co Ltd (066970.KS)	E (04/03/2025)	W106,000
Leeno Industrial Inc. (058470.KQ)	O (04/03/2025)	W78,600
Lotte Energy Materials Corp (020150.KS)	U (04/03/2025)	W39,750
LS Electric (010120.KS)	O (01/22/2026)	W229,500
POSCO FUTURE M (003670.KS)	U (04/03/2025)	W162,200
SK IE Technology (361610.KS)	U (04/03/2025)	W15,760
SK Square Co Ltd. (402340.KS)	O (05/06/2026)	W1,589,000
Wonik IPS Co Ltd (240810.KQ)	O (08/08/2025)	W133,100
Shawn Kim		
LG Display (034220.KS)	E (06/11/2025)	W11,070
LG Electronics (066570.KS)	E (04/07/2025)	W191,000
LG Innotek (011070.KS)	E (03/12/2025)	W872,000
Samsung Electro-Mechanics (009150.KS)	O (07/31/2025)	W1,989,000
Samsung Electronics (005935.KS)	O (11/18/2019)	W208,000
Samsung Electronics (005930.KS)	O (11/18/2019)	W309,500
SK hynix (000660.KS)	O (09/21/2025)	W2,425,000

Stock Ratings are subject to change. Please see latest research for each company.

* Historical prices are not split adjusted.

INDUSTRY COVERAGE: Greater China Technology Semiconductors

COMPANY (TICKER)	RATING (AS OF)	PRICE* (07/03/2026)
Charlie Chan		
ACM Research Inc (ACMR.O)	O (03/07/2023)	US\$97.77
Advanced Micro-Fabrication Equipment Inc (688012.SS)	O (11/06/2023)	Rmb413.69
Advanced Wireless Semiconductor Co (8086.TWO)	U (07/14/2025)	NT\$144.00
Alchip Technologies Ltd (3661.TW)	O (05/14/2021)	NT\$4,650.00
ASE Technology Holding Co. Ltd. (3711.TW)	O (09/15/2024)	NT\$682.00
Cambricon Technology Corporation (688256.SS)	O (04/27/2026)	Rmb1,353.00
Global Unichip Corp (3443.TW)	O (06/24/2026)	NT\$5,040.00
GlobalWafers Co Ltd (6488.TWO)	E (05/19/2026)	NT\$1,255.00
Gudeng Precision (3680.TWO)	O (11/25/2025)	NT\$539.00
Hua Hong Semiconductor Ltd (1347.HK)	E (03/12/2026)	HK\$178.00
Iluvatar CoreX Semiconductor Co., Ltd. (9903.HK)	O (04/27/2026)	HK\$641.00
King Yuan Electronics Co Ltd (2449.TW)	O (03/03/2023)	NT\$335.00
Maxscend Microelectronics Co Ltd (300782.SZ)	U (01/11/2021)	Rmb98.39
MediaTek (2454.TW)	O (11/28/2025)	NT\$4,195.00
MetaX Integrated Circuits (688802.SS)	E (04/27/2026)	Rmb738.38
Nanya Technology Corp. (2408.TW)	O (05/28/2026)	NT\$409.50
NAURA Technology Group Co Ltd (002371.SZ)	O (11/06/2023)	Rmb816.00
OmniVision Integrated Circuits Group Inc (603501.SS)	E (11/17/2025)	Rmb102.30
Phison Electronics Corp (8299.TWO)	E (02/25/2026)	NT\$2,295.00
SG Micro Corp. (300661.SZ)	E (11/03/2025)	Rmb139.60
Silergy Corp. (6415.TW)	U (05/19/2026)	NT\$605.00
SMIC (0981.HK)	O (10/21/2025)	HK\$77.60
TSMC (2330.TW)	O (02/07/2022)	NT\$2,445.00
UMC (2303.TW)	O (05/19/2026)	NT\$170.50
Vanguard International Semiconductor (5347.TWO)	E (01/14/2026)	NT\$193.50
WIN Semiconductors Corp (3105.TWO)	U (07/14/2025)	NT\$411.00

Daisy Dai, CFA

ASMPT Ltd (0522.HK)	O (07/24/2025)	HK\$204.80
China Resources Microelectronics Limited (688396.SS)	U (03/02/2026)	Rmb83.60
Elan Microelectronics Corp (2458.TW)	O (10/03/2025)	NT\$184.00
Empyrean Technology Co Ltd (301269.SZ)	E (01/17/2025)	Rmb102.77
Hangzhou Silan Microelectronics Co. Ltd. (600460.SS)	U (08/25/2025)	Rmb47.25
Hygon Information Technology Co., Ltd. (688041.SS)	O (07/03/2026)	Rmb325.40
Innoscence (2577.HK)	E (10/13/2025)	HK\$60.65
JCET Group Co Ltd (600584.SS)	E (01/16/2026)	Rmb90.88
Shanghai Fudan Microelectronics (1385.HK)	O (03/07/2025)	HK\$30.92
SICC Co Ltd (688234.SS)	O (03/20/2026)	Rmb145.60
StarPower Semiconductor Ltd (603290.SS)	E (05/14/2026)	Rmb129.35
Unigroup Guoxin Microelectronics Co Ltd (002049.SZ)	U (01/10/2023)	Rmb81.76
Universal Scientific Ind. (Shanghai) (601231.SS)	O (11/05/2025)	Rmb30.59
Yangjie Technology (300373.SZ)	O (06/10/2022)	Rmb129.46
Daniel Yen, CFA		
AP Memory Technology Corp (6531.TW)	O (07/11/2025)	NT\$987.00
ASMedia Technology Inc (5269.TW)	U (10/03/2025)	NT\$1,530.00
Aspeed Technology (5274.TWO)	O (06/09/2025)	NT\$17,265.00
Egis Technology Inc (6462.TWO)	E (01/28/2026)	NT\$117.50
Espressif Systems (688018.SS)	O (05/15/2023)	Rmb120.11
GigaDevice Semiconductor Beijing Inc (603986.SS)	O (05/15/2025)	Rmb677.77
Macronix International Co Ltd (2337.TW)	O (09/18/2025)	NT\$142.50
Montage Technology Co Ltd (6809.HK)	O (03/18/2026)	HK\$382.60
Montage Technology Co Ltd (688008.SS)	O (03/18/2026)	Rmb266.80
Novatek (3034.TW)	U (02/04/2026)	NT\$538.00
Nuvoton Technology Corporation (4919.TW)	U (11/10/2025)	NT\$176.50
Parade Technologies Ltd (4966.TWO)	O (05/27/2026)	NT\$654.00
Powerchip Semiconductor Manufacturing Co (6770.TW)	O (10/27/2025)	NT\$73.40
Realtek Semiconductor (2379.TW)	E (01/30/2026)	NT\$783.00
Shenzhen Goodix Technology Co Ltd (603160.SS)	U (07/14/2025)	Rmb59.03
Winbond Electronics Corp (2344.TW)	O (05/28/2026)	NT\$184.50
WPG Holdings (3702.TW)	O (03/16/2026)	NT\$110.00
WT Microelectronics Co. Ltd. (3036.TW)	O (01/27/2026)	NT\$221.50
Duan Liu		
Dosilicon Co Ltd (688110.SS)	U (09/06/2024)	Rmb178.80
Shenzhen Longsys Electronics Co Ltd (301308.SZ)	E (02/25/2026)	Rmb618.02
Tiffany Yeh		
AllRing Tech Co. (6187.TWO)	O (09/23/2025)	NT\$1,030.00
FOCI Fiber Optic Communications Inc (3363.TWO)	O (01/15/2025)	NT\$581.00
Himax Technologies Inc (HIMX.O)	E (02/04/2026)	US\$13.15
Hon Precision (7769.TW)	O (04/17/2026)	NT\$6,865.00
MPI Corporation (6223.TWO)	O (04/17/2026)	NT\$7,380.00
Silicon Motion (SIMO.O)	O (05/06/2024)	US\$300.71
WinWay Technology Co Ltd (6515.TW)	O (04/17/2026)	NT\$9,900.00

Stock Ratings are subject to change. Please see latest research for each company.

* Historical prices are not split adjusted.