

Semiconductor sector

Demand recovering healthily; bright sector outlook

Key message

1. In 2H24, we are positive as Taiwan semiconductor equipment makers will continue to benefit from robust growth of advanced packaging capacity.
2. Fabless firms will face the peak season for pull-in demand from clients in 2H24, while the AI PC theme will initially bear fruit.
3. Recovery of the PMIC sector will occur as the trough has passed. Meanwhile, recovery of networking tender projects in China has driven networking fabless firms' IC-related demand. We believe demand from Europe and the US will follow suit in 4Q24-1Q25.

Event

Taiwan semiconductor equipment makers will continue to benefit from robust growth of advanced packaging capacity. On solid GPU demand due to the AI server trend, we believe a leading global foundry will continue to expand its advanced packaging capacities, echoing its guidance at the Technology Forum that 2022-26 CoWoS and SoIC capacity CAGR will arrive above a respective 60% and 100%, in a bid to meet strong HPC demand. We estimate respective monthly CoWoS capacity of 35-40k and 55-60k at end-2024-25. Additionally, we expect Apple's (US) laptop CPU (M4 Ultra) to adopt SoIC solutions, leading to significant growth in SoIC monthly capacity in 2025. We estimate the current SoIC monthly capacity at 2-3k, which is expected to expand to 8-10k by end-2025. Therefore, we believe that strong CoWoS and SoIC capacity expansion will drive demand for related equipment from Taiwanese semiconductor equipment manufacturers.

Fabless firms to enter peak season for client pull-in demand in 2H24F; market eyeing AI-related edge computing opportunities. We reiterate our belief that smartphones, PC/NB, and consumer electronics will recover healthily and moderately in 2024-25. After PC-related IC rush orders surged in 1Q24, we note that growth of PC-related IC orders slowed in 2Q24, as recovery of PC demand has been mild, and on strict inventory control among customers. However, we still expect significant YoY growth of PC-related IC orders in 3Q24 due to new PC/NB model launches and restocking for promotions in 4Q24. This stands in contrast to 3Q23, when most PC and NB brands were reducing inventories ahead of new model launches. After inventory replenishment for handset-related IC ended in 1Q24, and as 2Q24 is the slow season for new model launches, smartphone-related IC stockpiling has been weak on low seasonality in 2Q24. However, we expect that in 2H24, restocking for new Android and Apple iPhone models will drive QoQ revenue growth. In addition to the aforementioned peak seasonality for customer restocking, we have also observed that price cuts or price discounts by tier-two foundries and packaging & testing companies will help fabless firms optimize costs. In addition, we believe the market will continue to focus on AI-related edge computing opportunities in 2H24-2025, especially for AI PC. We expect PC-related fabless firms to benefit from the upgrade of AI PC processor specs, which will drive an increase in the content value of related chips. Fabless firms are: (1) MEMS microphone IC design house ZillTek Technology (6679 TT, NT\$420.5, OP), which will benefit from an increase in the number of microphones per NB and the upgrade of the signal-to-noise ratio (SNR) to or above 67dB; (2) Wi-Fi SoC IC design house MediaTek (2454 TT, NT\$1,405, NR) and Realtek (2379 TT, NT\$561, N), which will be tail-winded by increased Wi-Fi 6/6E penetration and shipment commencement of Wi-Fi 7 SoC; and (3) high-speed interface IC design houses Parade Technologies (4966 TT, NT\$856, OP) and ASMedia Technology (5269 TT, NT\$2,250, NR), which will continue to be bolstered by rising USB4 penetration.

Stocks for Action

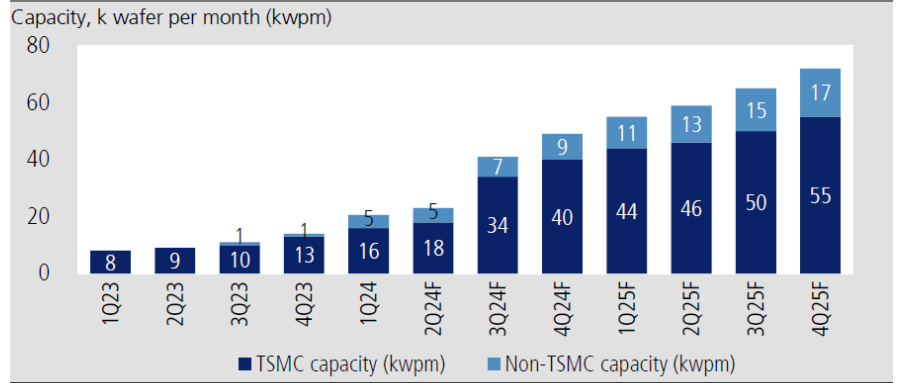
We are upbeat as Taiwan semiconductor equipment makers will continue to benefit from expanding CoWoS and SoIC capacity. Additionally, regarding the AI PC theme, we prefer MEMS microphone IC design house firm ZillTek Technology. For power management IC (PMIC) vendors, we prefer Silergy (6415 TT, NT\$510, OP), which has a leading position in China's power IC industry and expanding automotive application business.

Risks

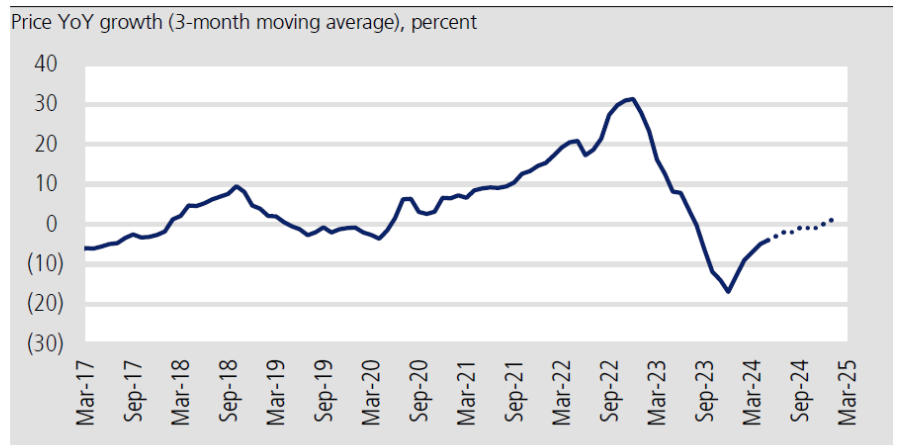
Macroeconomic weakness; weaker-than-expected AI demand, slower-than-expected spec upgrades.

PMIC sector trough has passed; recovery in sight. We note that shipment volume and price contraction in the PMIC sector have both rebounded from their respective bottoms. Inventory correction for consumer electronic and PC/NB applications have ended. Despite most orders having been rush orders over the past two to three quarters, PMIC vendors have started to receive long-term orders. Inventory correction within the industrial sector has entered its late stage. For automotive applications, the situation differs by region. Demand for EVs in China has remained healthy, while inventory correction in Europe and the US still need one to two quarters to be completed. Over the long-term, we believe the automotive application segment boasts the largest growth potential for the PMIC sector, while the localization trend for the semiconductor sector in China will directly benefit Chinese companies. We are thus upbeat about Silergy, which has a leading position in China's PMIC industry, with expanding automotive business.

Recovery of networking tender projects in China has boosted networking fabless firms' IC-related demand; demand in Europe & the US to follow suit in 4Q24-1Q25F. We believe networking orders will remain robust as networking tender projects in China have resumed, and we are seeing restocking in the supply chain. Meanwhile, regarding China's networking projects, we find that gateways equipped with 10G PON and routers used in the projects are predominantly paired or outfitted with Wi-Fi 6 SoC. We thus expect penetration of Wi-Fi 6 and 10G PON to be boosted by recovery of demand from China's networking projects, while demand recovery for PON gateways, Wi-Fi routers, 5G CPE and set-top boxes (STB) will also elevate the carrying rate of 2.5Gbps PHY. Meanwhile, as fixed-access demand in Europe and the US has bottomed, we expect demand to recover in 4Q24-1Q25 as inventory correction for fixed-access-related products by telecom operators has entered the late stage. All told, we believe IC-related demand from networking fabless firms, such as Realtek and Airoha Technology (6526 TT, NT\$810, NR), will rise, underpinned by related demand.

Figure 1: CoWoS capacity expansion to support AI server demand increase


Source: KGI Research estimates

Figure 2: PMIC price contraction has narrowed to a low-single digit YoY decline


Source: WSTS, KGI Research estimates

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