

Strategy

Taiwan Tech: Strong Growth Outlook; Supply And Ramp Execution Remain Key

Highlights

- Our meetings with TSMC and MediaTek last week reinforced the view of a multi-year AI driven growth, supported by strong demand and longer-term customer commitments.
- TSMC's expects N2 to bring even greater opportunities than N3, though the near-term ramp and higher overseas manufacturing costs are expected to dilute margins.
- MediaTek's 2027 V8 revenue guidance stands at US\$12b-16b. Securing supply and improving V9 packaging yields remain key, while ASIC revenue growth should support operating leverage.

What's New

a) TSMC: Broad AI exposure with capacity discipline

- **Strong demand visibility supports disciplined capacity planning.** TSMC has strong visibility of upcoming demand, as design collaboration with clients extends 3-5 years ahead, with customers committing engineering resources 2-3 years before production. Moreover, it is also unlikely for clients to switch to another fab as foundry-specific designs lead to high switching costs. TSMC updates operational forecasts roughly every two weeks and independently assesses sustainable demand before committing capital.
- **Capacity allocation reflects long-term customer commitment.** Product roadmaps, engineering collaboration and volume forecasts guide allocation, with new customers initially receiving limited capacity due to limited track record. Management sees customer relationships as partnership-based rather than transactional, highlighting the importance of long-standing trust.
- **Leading-edge demand continues to exceed supply.** Currently utilisation is above 100%, and management expects capacity to remain tight, with revenue growth slightly above 30% yoy in 2026. Advanced packaging should grow faster than overall revenue, increasing its revenue share from slightly above 10% in 2025 to the low teens in 2026. Although its gross margin is lower than wafer fabrication, lower capital intensity supports attractive returns.
- **N2 margin dilution should become more visible in 2H26.** New nodes have historically taken seven to eight quarters to reach the corporate average gross margin, which was around 50% at the time, compared with the mid-60s% today. Management views initial dilution as a normal feature of a new-node ramp and expects N2 eventually to exceed the corporate average and generate higher margins than N3 as yields and scale improve.
- **Technology leadership extends beyond N2.** The A14 family, at roughly 1.4nm, is targeted for mass production in 2028, with A13 and A12 on the roadmap for around 2029. Management expects further technological improvements despite physical scaling constraints. Capacity conversion also provides flexibility: 5nm to 3nm conversion is underway, while 3nm to 2nm conversion is possible but costly. This flexibility helps TSMC manage utilisation and returns through semiconductor cycles.
- **Overseas expansion supports diversification but carries higher costs.** Expansion in Arizona, Kumamoto and Dresden is in response to customer requirements. Slightly more than 10% of current capacity is outside Taiwan, and this could gradually rise toward 20-30% of total capacity in the long term, with the US accounting for most of the overseas expansion. Management

Analyst(s)

Tham Mun Hon, CFA

munhon.tham@uobkh.com
+852 2236 6799

plans to balance the higher costs of overseas fabs with the stronger economics of Taiwan operations to support overall corporate margins.

- **Arizona remains a long-duration investment.** Planned investment totals about US\$265b, following earlier plans of US\$20b, US\$65b and US\$165b. Fab 1 is in mass production, with output reported to match Taiwan fabs; Fab 2 tooling is underway, and Fab 3 is under construction. Labour, infrastructure and supply-chain constraints mean capacity additions will be gradual.
- **Advanced packaging is becoming a major competitive moat.** TSMC is expanding packaging capacity alongside leading-edge wafer capacity and manages both together as an integrated solution for customers. Advanced packaging carries lower margins than wafer fabrication, but it also requires lower capital intensity, supporting attractive returns on invested capital. Certain backend processes can also be supported by external industry resources, allowing TSMC to concentrate capital and engineering resources on the highest-value parts of the process.
- **Internal cash generation supports higher capex.** Management expects meaningfully higher spending over the next three years, funded from operating cash flow. Customer prepayments are not required for funding.
- **Dividend growth remains the capital-return priority.** Management regards the current quarterly dividend of NT\$7 per share as a floor, following a five- to six-fold increase in recent years. Share buybacks are not a priority.

b) MediaTek: AI ASICs reshape the earnings mix

- **AI ASIC revenue guidance continues to rise.** Management expects revenue above US\$2b in 2026, compared with an original guide of around US\$1b. V8 guidance for 2027 has increased from a multi-billion-dollar contribution to US\$7b-12b and subsequently US\$12b-16b. With V9 revenue expected from 2028, V8 should account for effectively all AI ASIC revenue in 2027. Guidance remains slightly below customer demand, with potential upside if additional supply is secured.
- **Execution and improved supply visibility support higher allocation.** Management attributed the increase to stronger execution relative to peers, higher TPU demand following the launch of Gemini, and better visibility on TSMC's 2027 capacity allocation from mid-year. There has been increasing market talk that competitors are making inroads, but increasing design complexity also strengthens the case for having design partners for different parts of the project.
- **Management sees limited competition in its I/O die and SerDes work.** Additional suppliers reportedly address other components: GUC and Alchip in compute dies, AMD in the V10 CPU, and Marvell in LPU and CXL. These reports do not necessarily imply a loss of MediaTek's existing content. Management remains confident in its competitive position.
- **V9 could expand MediaTek's role across training and inference.** MediaTek handles training on V8, while Broadcom handles inference. Management sees an opportunity to support both workloads on V9 and reported no clear progress from Broadcom's parallel solution. A broader role in V9 could provide further upside and it also remains confident of retaining a core role on V10, although the award has not been confirmed.
- **V9 offers further growth from 2028 subject to packaging execution.** Tape-out is targeted by end-26, with mass production by end-27 and revenue contribution from 2028. The move from 3nm to 2nm, a larger multi-die package with die count at least doubling, and a SerDes upgrade from 224G to 300G could lift ASPs to two to three times V8 levels. EMIB-T packaging yields are reported below 50%, against the 70-80% required for volume production, with more than a year available for improvement.
- **Supply availability remains the main constraint on the ASIC ramp.** Substrates are the key bottleneck for 2027, while wafer and CoWoS capacity visibility has improved. Visibility for 2028 remains less certain for both 2nm

wafers and substrates. MediaTek is qualifying additional suppliers and has held discussions with TSMC and Google on capacity allocation. HBM is largely procured directly by the customer.

- **Foundry diversification focuses on mature nodes.** TSMC remains the leading-edge partner, while the Intel Foundry Services partnership announced in 2022 covers selected mature-node products, including 16nm. Leading-edge production remains concentrated in Taiwan unless customers request geographic diversification.
- **Gross margin pressure but better operating leverage.** Management retains its approximately 46% gross margin target for 2026 but expects gross margin to decline towards the high-30s to 40% range as the ASIC mix rises. Customer price increases range from single-digit percentages to above 20%, depending on product. The opex ratio of around 30% should fall with broadly flat headcount of about 22,000, supporting operating margin expansion. Absolute opex may still rise with earnings-linked bonuses.
- **Nvidia collaboration broadens the custom ASIC opportunity.** Nvidia invested US\$3.5b in the US\$3.9b convertible bond transaction, with Google providing most of the remainder. NVLink Fusion could enable MediaTek-designed custom XPU to connect to Nvidia rack components. Target customers include CSPs with less-established custom silicon capabilities than Google and Amazon, with a design lead time of two to three years. Management remains highly constructive on cloud AI demand, supported by rising AI applications, model complexity and token consumption.
- **Smartphones remain a near-term drag despite flagship progress.** Smartphone revenue was around US\$10b in 2025, or about 55% of total revenue, with its share expected to fall to around 40% in 2026. Management expects global smartphone shipments to decline around 15% and Chinese OEM shipments by more than 20% in 2026. Customer order cuts reflect rising memory costs, while consumer electronics have shown some resilience from pull-forward buying. Shipment declines should narrow in 2027, and ASP pressure could ease if memory price growth moderates. MediaTek's flagship share has exceeded 30%, built from a low-end base where its share reaches 80-100% in some categories.
- **Automotive provides longer-term optionality.** Current automotive revenue is mainly driven by infotainment. MediaTek is also developing ADAS solutions with Denso, but meaningful ADAS revenue is likely around three years away due to long automotive qualification cycles. Automotive therefore remains a longer-term growth option rather than a major near-term earnings driver.
- **Partnerships differentiate MediaTek's strategy from Qualcomm's.** In AI PCs, Qualcomm develops an integrated CPU and GPU SoC, while MediaTek focuses on the CPU and partners with Nvidia for the GPU. In data centres, Qualcomm has built capabilities through acquisitions, including Nuvia and Alphawave, while MediaTek builds on its existing custom ASIC programmes.
- **Customer diversification remains a longer-term opportunity.** MediaTek currently has one ASIC customer and is targeting an additional major US CSP, with revenue unlikely before 2029. Engagement with Chinese customers continues but is not a priority given export control risk.

Our View

- The meetings reinforce a constructive view of the multi-year AI opportunity. TSMC offers broad exposure across leading-edge fabrication and advanced packaging, supported by technology leadership, long customer design cycles and strong internal cash generation. N2 and overseas expansion will dilute margins in the near term, but improving yields, scale and disciplined capacity planning should support longer-term returns. Semiconductor cyclicality and geopolitical risk remain relevant.

- MediaTek's AI ASIC roadmap should materially reduce its historical dependence on smartphones. V8 provides the main near-term growth contribution, while V9 offers potential upside from 2028 through greater design complexity and a broader customer role. Revenue scale and disciplined spending should support operating margin expansion despite gross margin dilution. Supply availability and packaging execution remain the key risks.
- We would monitor TSMC's N2 margin progression, overseas ramp costs and advanced packaging expansion. For MediaTek, the key milestones are 2027 substrate commitments, V9 packaging yield improvements, confirmation of V10 participation and operating margin delivery. Progress on these measures would strengthen confidence in the timing and profitability of the AI growth opportunity.

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