



# Spec Upgrades: Where Taiwan Captures Value

November 2025

While the November sell-off underscores market sensitivity to valuation risks, we view this drawdown as sentiment-driven: macro and industry data continue to show robust AI demand. The combination of accelerating CSP investments, specification-driven upgrades, and ecosystem advantages ensures that Taiwanese companies will continue to thrive in the AI era.

By Cathay SITE

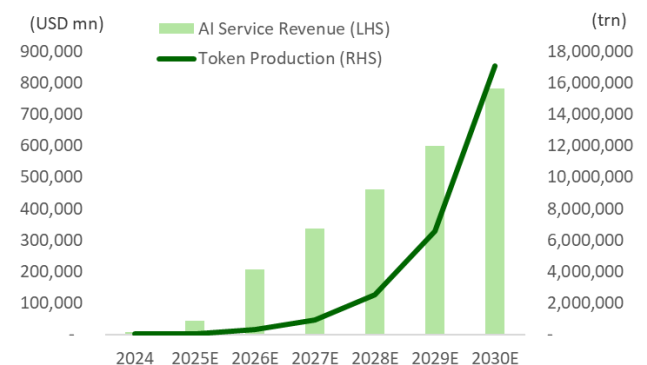
Taiwan's equity market experienced a significant sell-off in November 2025, with technology stocks leading the decline. The sell-off was largely driven by renewed concerns over a potential "AI bubble", as valuations for AI-related companies soared throughout the year. This triggered profit-taking and heightened volatility across semiconductor and hardware names.

Despite these short-term jitters, we believe the structural growth story for AI remains intact. The correction reflects sentiment rather than fundamentals. Taiwan's technology ecosystem is deeply embedded in the global AI supply chain, and upcoming specification upgrades for more powerful and faster AI models will continue to create opportunities for local players.

## Resilient Capital Expenditure

Despite market fears, Cloud Service Providers (CSPs) appear committed to long-term AI investment. AI token production is projected to grow at a CAGR of over 200% in the coming years, driving exponential revenue growth for CSPs and reinforcing the need for advanced computing infrastructure.

## Exponential Growth of AI Token and Revenue

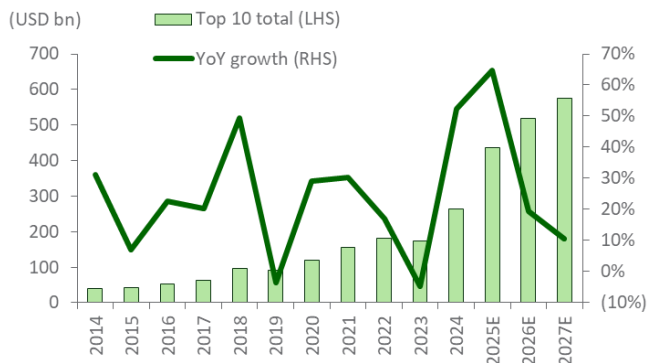


Source: Compiled by Cathay SITE

According to Bloomberg consensus, the total capital expenditure (Capex) for the top 10 global CSPs is expected to grow by 65% year-over-year (YoY) to US\$435 billion in 2025, followed by a further 20% growth to US\$520 billion in 2026. Since hardware typically accounts for 55% to 60% of total Capex, this rising expenditure will ensure robust demand for Taiwan's semiconductor and component suppliers.



### Capex of Global Top 10 CSPs



Source: Bloomberg, compiled by Cathay SITE

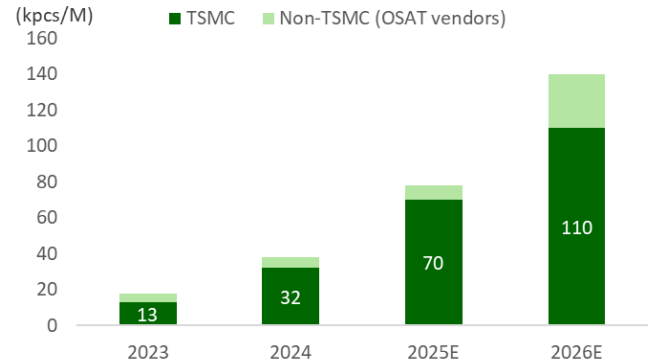
### The Specification Upgrade Advantage

The core of our conviction lies in the continuous, demanding specification upgrades required for more powerful and faster Artificial Intelligence models. This technical arms race is directly advantageous for related Taiwanese manufacturers, as the complexity drives up component value and is conducive to higher company profits.

The competition between major chip designers, whether over continuous increases in power consumption, higher cooling requirements, or faster transmission speeds, creates several specific high-value opportunities across the supply chain:

- **Advanced Chip Packaging:** Both next-generation GPUs (such as the Rubin CPX from NVIDIA) and custom Application-Specific Integrated Circuits (ASICs) being developed by major CSPs require advanced chip integration. This creates a high-demand environment for advanced packaging solutions like CoWoS (Chip-on-Wafer-on-Substrate), making capacity a key factor influencing growth visibility. Significant capacity expansion is expected next year from both TSMC and other Outsourced Semiconductor Assembly and Test (OSAT) vendors.

### CoWoS Capacity Expansion Roadmap



Source: Compiled by Cathay SITE

- **Next-Generation AI Servers and Materials:** The increasing power and speed of these AI chips translate directly into a need for next-generation AI servers that house them, requiring more sophisticated components. Suppliers of Printed Circuit Boards (PCBs) and Copper Clad Laminates (CCLs) will benefit substantially from the shift to higher layer counts and the adoption of advanced, high-performance materials to handle faster signal transmission speeds.
- **Thermal and Power Solutions:** More powerful chips generate more heat and consume more electricity. The rising Thermal Design Power (TDP), a measure to estimate how much heat a chip produces, and power density in AI servers create a critical need for sophisticated thermal management and power delivery systems. This trend is driving major demand and profit for specialized vendors of advanced cooling modules and high-efficiency power supply solutions, which are expected to maintain market dominance.



### Higher Chip TDP with Each Generation

| Nvidia           | H200       | B200/300   | Rubin      |
|------------------|------------|------------|------------|
| Launch time      | 2Q24       | 4Q24/2H25  | 2H26       |
| GPU process node | TSMC 5/4nm | TSMC 5/4nm | TSMC 3nm   |
| Max TDP          | 700W       | 1200/1400W | 1800/2300W |
| AMD              | MI325X     | MI355X     | MI400      |
| Launch time      | 4Q24       | 2Q25       | 2H26       |
| GPU process node | TSMC 5/4nm | TSMC 3nm   | TSMC 3nm   |
| Max TDP          | 1000W      | 1400W      | 1600W      |

Source: Compiled by Cathay SITE

The recent volatility does not alter our long-term thesis: AI-related technology stocks will remain the mainstream in Taiwan's market next year. Technical improvements across power, cooling, and transmission speeds should continue to favor Taiwan's supply chain. Nevertheless, investors should be mindful of key risks, including the pace of CSP monetization and the potential for a reversal in Capex.

- **Semiconductor Testing:** The complexity of these new AI chips also provides an upside for the testing industry. More intricate chips require significantly longer testing cycles and more advanced testing equipment, leading to higher Average Selling Prices (ASPs) for specialized probe cards and System-Level Test (SLT) equipment manufactured by Taiwanese firms.

The AI server segment remains the primary growth driver, with global AI server shipments projected to grow by more than 20% in 2026, according to TrendForce. Taiwan currently supplies over 90% of AI servers worldwide and produces over 90% of the most advanced semiconductors for cutting-edge AI applications.

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