TSMC 2Q Exceeds on AI-Related HPC Strength

TSM	24 est.	Taiwan Semi/TSMC		CY25rev:	30%
Qtr:	2Q	Grade:	B	Growth	(qtr-qtr)
Rev:	30,070	Rev:	+++	Rev:	17.8%
GM:	58.6%	EPS:	+++	Fcst:	+6+10%
EPS:	$2.47	Fcst:	++	Div:	$0.8333

Taiwan Semiconductor/TSMC *(TSM $245.60 +8.04 at close on 7/17/25)*
2Q Earnings: TSM announced 3Q results above expectations (very) early yesterday due to strength from leading 3nm and 5nm technology to AI-related HPC applications despite an unfavorable NTD exchange rate. Guidance for 3Q reflects continued HPC strength and management raised expected revenue growth this year to 30% from the mid-20% range.

2Q Results: 2Q revenue of $30.1B increased by +18% sequentially (in US$) on strength from leading 3nm and 5nm technology in AI-related HPC (High Performance Computing) markets that grew by +14% and accounted for 60% of sales. Smartphones grew by +7% and accounted for 27% of sales while Internet of Things (IoT) grew by +14% for 5%, Automotive was flat for 5%, digital consumer electronics (DCE) grew by +30% for 1%, and Others increased by +6% for 2%. Advanced technologies accounted for 74% of total wafer revenue up from 73% last quarter which included 3nm at 24% up from 22%, 5nm unchanged at 36%, and 7nm at 14% down from 15%. North American customers accounted for 75% (down from 77%) of revenue while China accounted for 9% (vs 7%), Asia Pacific 9%, Japan 4%, and EMEA (Europe, Middle East, and Africa) 3%.

Gross margin decreased by 20bps sequentially to 56.8% as an unfavorable foreign exchange (-180bps) and the increased cost of overseas fabs (-100bps) offset manufacturing cost reductions and higher capacity utilization. Operating margin was up by 110bps to 49.6%, net margin was down by 40bps to 42.7%, and cap ex was $9.63B.

Foreign Exchange Gymnastics: The New Taiwan Dollar (NTD) has appreciated against the US Dollar (USD) and complicated TSMC's very strong financial performance—especially with respect to consensus expectations. The average NTD/USD exchange rate for Q1 was 32.88, guidance for 2Q was 32.5, actual 2Q was 31.05, the rate on June 30 was 29.15, and 3Q guidance is for 29.0. NTD is the reporting currency and accounts for some 75% of COGS, although nearly all sales occur in USD as does guidance for revenue and capital expenditures. The average rate is used to translate the income statement, while the June 30 date was used for the balance sheet. Yahoo Finance reflects consensus expectations for EPS in USD but for revenue in NTD. Management notes that revenue sensitivity to currency exchange is 100%, or a 1% gain in NTD against the USD will lower sales in NTD by 1%. On the other hand, gross margin would decline by 40bps amid that same 1% NTD gain.

2Q sales guidance in USD called for a sequential growth of +11.3+14.4% while actual sales grew by +17.8% in USD but only +11.3% in NTD. So, did company sales exceed the high-end of guidance or barely deliver at the low-end? Well, it depends. Even worse, 3Q revenue guidance provided in USD by the company but reflected in NTD in consensus expectations ranges from above the high-end of the range of expectations to below the average consensus, depending on the assumed exchange rate—which is not specified.

The good news is that business is really good and continues to exceed expectations. But the bad news is that accurately measuring it is tricky when the currency exchange yard stick is elastic.

Technology: Next generation 2nm technology will adopt a nanosheet transistor structure and will offer improvements over N3E of 10-15% in speed or 25-30% in power at >15% in density with volume production 2H25. Tape-outs are expected to exceed those of the prior two nodes during its first two years from both smartphone and HPC applications, and the margin profile is expected to be better than that of the 3nm node. Subsequent N2P will offer further speed and power benefits with volume production beginning 2H26.

A16 with a backside power rail called SPR (Super Power Rail) for HPC applications will offer improvements over N2P of 8-10% in speed or 15-20% in power and 7-10% in density with volume beginning 2H26.

Subsequent A14 will offer improvements over N2 of 10-15% in speed or 25-30% in power and 20% in density with production in 2028 and an SPR enhancement in 2029.

Overseas Fabs: Overseas wafer fabs support customer geographic flexibility amid government support for which management expects to deliver profitable growth to shareholders—despite higher costs of 2-3% margin dilution over the next five years, expanding to 3-4% beyond that.

In the US, TSMC has plans for six wafer fabs in Arizona, two advanced packaging facilities and an R&D center. The first fab is in full production with the N4 process technology, construction of the second fab for 3N is complete, construction of the third fab has begun that is expected to manufacture in 2nm and the A16 node, as will the fourth fab, and the fifth and six fabs are expected for technologies beyond. Eventually, approximately 30% of 2nm and better fab capacity will reside in the US.

A Japan specialty technology fab in Kumamoto for 12/16nm and 22/28nm technologies is already in volume production, and a second specialty fab with partners for 40nm, 12/16nm and 6/7nm technologies to support a strategic customer's consumer, automotive, industrial and HPC applications will begin construction later this year.

In Europe plans for a specialty technology fab running 12/16nm and 22/28nm in Dresden, Germany for automotive and industrial applications with joint venture partners are progressing well.

In Taiwan the company has plans for 11 wafer fabs and four advanced packaging facilities over the next several years, including 2nm operations in Hsinchu and Kaohsiung Science Parks.

3Q Guidance: 3Q guidance calls for revenue up +6 to +10% to $31.8-33.0B on continued AI/HPC strength in leading 3/5nm technology; gross margin down 210bps to 55.5-57.5% due to unfavorable foreign exchange (-260bps) and increasing overseas fab ramps in Kumamoto and Arizona despite increasing capacity utilization and cost reductions; and operating margin of 45.5-47.5% assuming 29-NTD/USD.

Management raised 2025 guidance for company revenue growth to 30% from the mid-20% range in U.S. dollars due to continued strength from AI-processors in HPC. Capital expenditures remain at $38-42B for the year, and the long-term gross margin target remains at 53%.

Fair Valuation: TSM is a wafer foundry juggernaut hoarding most of the sector's market share (67.6% 1Q25 according to TrendForce) and even more of its profitability (probably >100% including multi-billion-dollar losses from competitors Samsung and Intel) and is well positioned for continued dominance for the foreseeable future. Unfortunately, much of this is already priced into the shares at the current price level, in my opinion. The shares are trading at 8.1-times book value, 10.9-times 2025 expected sales (+30% growth) and 9.0-times 2026 sales (+21%), and 26-times expected 2025 EPS at $9.44 per share and 22.6-times 2026 EPS of $10.86. Nevertheless, there may be room for incremental upside due to persistent strength from AI-processors.

LEGEND			
+++	exceeded the high-end of the range	***Grade***	
++	above consensus, within the high-end of the range	A	all +++
+	slightly above consensus	B	all +
o	met consensus	C	all o/+
-	slightly below consensus	D	mixed -/o/+
- -	missed consensus, within the low-end of the range	E	all o/-
- - -	missed the low-end of the range	F	all -

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