

4Q20

Quarterly Management Report
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Operating Results Review:

CONTACT

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Topics in This Report:

- Revenue Analysis
- Profit & Expense Analysis
- Financial Condition Review
- Cash Flow
- CapEx
- Recap of Recent Important Events & Announcements

Summary:

(Amounts are on consolidated basis and are in NT\$ billions unless otherwise noted)

	4Q20	3Q20	4Q19	2020	2019
EPS (NT\$ per common share)	5.51	5.30	4.47	19.97	13.32
(US\$ per ADR unit)	0.97	0.90	0.73	3.39	2.15
Net Revenue (US\$ billions)	12.68	12.14	10.39	45.51	34.63
Net Revenue	361.53	356.43	317.24	1,339.26	1,069.99
Gross Profit	195.24	190.49	159.20	711.13	492.70
Gross Margin	54.0%	53.4%	50.2%	53.1%	46.0%
Operating Expenses	(38.32)	(40.89)	(34.94)	(145.06)	(119.50)
Other Operating Income and Expenses	0.20	0.45	(0.02)	0.71	(0.50)
Operating Income	157.12	150.05	124.24	566.78	372.70
Operating Margin	43.5%	42.1%	39.2%	42.3%	34.8%
Non-Operating Items	3.99	5.07	4.54	18.00	17.15
Net Income Attributable to Shareholders of the Parent Company	142.77	137.31	116.04	517.89	345.26
Net Profit Margin	39.5%	38.5%	36.6%	38.7%	32.3%
Wafer Shipment (kpcs 12 inch-equiv.)	3,246	3,240	2,823	12,398	10,068

Note: Diluted weighted average outstanding shares were 25,930mn units in 4Q20

Financial Highlights:**Fourth Quarter 2020**

- Net revenue was NT\$361.53 billion, representing a 1.4% increase from NT\$356.43 billion in 3Q20 and a 14.0% increase from NT\$317.24 billion in 4Q19.
- Gross margin was 54.0%, 0.6 percentage point higher than 3Q20 and 3.8 percentage points higher than 4Q19.
- Operating margin was 43.5%, up 1.4 percentage points from 3Q20 and up 4.3 percentage points from 4Q19.
- Non-operating items were a gain of NT\$3.99 billion, compared to a gain of NT\$5.07 billion in 3Q20 and a gain of NT\$4.54 billion in 4Q19.
- Net income attributable to shareholders of the parent company was NT\$142.77 billion, up 4.0% from 3Q20 and up 23.0% from 4Q19. Net profit margin was 39.5% and diluted EPS was NT\$5.51.

Full Year 2020

- Net revenue was NT\$1,339.26 billion, representing a 25.2% increase from 2019. In US dollar terms, net revenue increased 31.4% to US\$45.51 billion in 2020.
- Gross margin was 53.1%, up 7.1 percentage points from 46.0% in 2019. Operating margin was 42.3%, up 7.5 percentage points from 34.8% in 2019.
- Diluted EPS was NT\$19.97, up 50.0% from NT\$13.32 in 2019. Net profit margin was 38.7%, up 6.4 percentage points from 32.3% in 2019.

I. Revenue Analysis

Wafer Revenue by Technology	4Q20	3Q20	4Q19
5nm	20%	8%	0%
7nm	29%	35%	35%
10nm	0%	0%	1%
16nm	13%	18%	20%
20nm	1%	1%	1%
28nm	11%	12%	13%
40/45nm	8%	8%	8%
65nm	5%	5%	7%
90nm	2%	2%	3%
0.11/0.13um	3%	2%	3%
0.15/0.18um	7%	7%	8%
0.25um and above	1%	2%	1%

Net Revenue by Platform	4Q20	3Q20	4Q19
Smartphone	51%	46%	53%
High Performance Computing	31%	37%	29%
Internet of Things	7%	9%	8%
Automotive	3%	2%	4%
Digital Consumer Electronics	4%	3%	3%
Others	4%	3%	3%

Net Revenue by Geography	4Q20	3Q20	4Q19
North America	73%	59%	59%
Asia Pacific	12%	10%	8%
China	6%	22%	22%
EMEA	5%	5%	6%
Japan	4%	4%	5%

Wafer Revenue by Technology	2020	2019
5nm	8%	0%
7nm	33%	27%
10nm	0%	3%
16nm	17%	20%
20nm	1%	1%
28nm	13%	16%
40/45nm	9%	10%
65nm	5%	8%
90nm	2%	3%
0.11/0.13um	3%	2%
0.15/0.18um	7%	8%
0.25um and above	2%	2%

Net Revenue by Platform	2020	2019
Smartphone	48%	49%
High Performance Computing	33%	30%
Internet of Things	8%	8%
Automotive	3%	4%
Digital Consumer Electronics	4%	5%
Others	4%	4%

Net Revenue by Geography	2020	2019
North America	62%	60%
China	17%	20%
Asia Pacific	11%	9%
EMEA	5%	6%
Japan	5%	5%

Revenue Analysis:

In the fourth quarter, revenue increased 1.4% quarter-over-quarter, mainly driven by strong 5nm demand for smartphone and HPC-related applications.

By technology, 5nm process technology contributed 20% of total wafer revenue in 4Q20 while 7nm and 16nm accounted for 29% and 13% respectively. Advanced technologies (16nm and below) accounted for 62% of total wafer revenue.

By platform, Smartphone represented 51% and HPC 31% of net revenue, while IoT, Automotive, DCE, and Others each represented 7%, 3%, 4%, and 4%.

Sequentially, revenue from Smartphone, Automotive, DCE and Others increased 13%, 27%, 29%, and 10% respectively from 3Q20, while HPC and IoT decreased 14% and 13% respectively.

From a geographic perspective, revenue from customers based in North America accounted for 73% of total net revenue, while revenue from Asia Pacific, China, EMEA (Europe, Middle East, and Africa) and Japan accounted for 12%, 6%, 5%, and 4% of total net revenue respectively.

On a full year basis, 5nm contribution reached 8% of total wafer revenue in 2020. 7nm process technology contributed 33% while 16nm accounted for 17% respectively. Advanced technologies (16nm and below) accounted for 58% of total wafer revenue, up from 50% in 2019.

By platform, revenue from Smartphone, HPC, IoT, DCE and others increased 23%, 39%, 28%, 2% and 5% respectively from 2019, while Automotive decreased 7%.

In 2020, revenue from customers based in North America accounted for 62% of total net revenue, while revenue from China, Asia Pacific, EMEA (Europe, Middle East, and Africa) and Japan accounted for 17%, 11%, 5%, and 5% of total net revenue respectively.

II. Profit & Expense Analysis

II - 1. Gross Profit Analysis					
(In NT\$ billions)	4Q20	3Q20	4Q19	2020	2019
Net Revenue	361.53	356.43	317.24	1,339.26	1,069.99
Cost of Revenue	(166.29)	(165.94)	(158.04)	(628.13)	(577.29)
Gross Profit	195.24	190.49	159.20	711.13	492.70
Gross Margin	54.0%	53.4%	50.2%	53.1%	46.0%

II - 2. Operating Income Analysis					
(In NT\$ billions)	4Q20	3Q20	4Q19	2020	2019
Total Operating Expenses	(38.32)	(40.89)	(34.94)	(145.06)	(119.50)
Research & Development	(29.94)	(29.68)	(25.63)	(109.49)	(91.42)
SG&A	(8.38)	(11.21)	(9.31)	(35.57)	(28.08)
Other Operating Income and Expenses	0.20	0.45	(0.02)	0.71	(0.50)
Operating Income	157.12	150.05	124.24	566.78	372.70
Operating Margin	43.5%	42.1%	39.2%	42.3%	34.8%
Total Operating Expenses as % of Net Revenue	10.6%	11.4%	11.0%	10.8%	11.2%

II - 3. Non-Operating Items					
(In NT\$ billions)	4Q20	3Q20	4Q19	2020	2019
L-T Investments	1.36	0.83	0.87	3.59	2.84
SSMC	0.29	0.12	0.27	0.82	0.89
Others	1.07	0.71	0.60	2.77	1.95
Net Interest Income (Expenses)	0.88	1.52	2.67	6.94	12.94
Other Gains and Losses	1.75	2.72	1.00	7.47	1.37
Total Non-Operating Items	3.99	5.07	4.54	18.00	17.15

II - 4. Net Profit and EPS					
(In NT\$ billions)	4Q20	3Q20	4Q19	2020	2019
Income before Tax	161.11	155.12	128.78	584.78	389.85
Income Tax Expenses	(18.29)	(17.74)	(12.70)	(66.62)	(44.51)
Effective Tax Rate	11.4%	11.5%	9.9%	11.5%	11.5%
Net Income Attributable to the Parent Company	142.77	137.31	116.04	517.89	345.26
Net Profit Margin	39.5%	38.5%	36.6%	38.7%	32.3%
EPS (NT\$ per common share)	5.51	5.30	4.47	19.97	13.32

Gross Profit Analysis:

Gross margin was 54.0% in 4Q20, 0.6 percentage point higher than 3Q20, mainly due to cost improvement, partially offset by N5 dilution and an unfavorable exchange rate.

On a full year basis, gross margin was 53.1% in 2020, up 7.1 percentage points from 2019, mainly reflecting a higher level of capacity utilization and cost improvement, partially offset by N5 dilution and an unfavorable exchange rate.

Operating Income Analysis:

Total operating expenses decreased NT\$2.57 billion to NT\$38.32 billion in 4Q20, mainly due to the absence of expenses to facilitate the expansion in Hsinchu.

For full year 2020, total operating expenses represented 10.8% of net revenue, compared to 11.2% in 2019.

Non-Operating Items:

Total non-operating items were a gain of NT\$3.99 billion in 4Q20, compared to a gain of NT\$5.07 billion in 3Q20. The decrease was mainly due to lower net interest income and lower foreign exchange gains after hedging.

On a full year basis, total non-operating items increased by NT\$0.85 billion to a gain of NT\$18.00 billion in 2020.

Net Profit and EPS:

Net income attributable to shareholders of the parent company was NT\$142.77 billion in 4Q20, up 4.0% from 3Q20 and up 23.0% from 4Q19.

On a full year basis, both net income and EPS increased by 50.0% from 2019.

III. Financial Condition Review

III - 1. Liquidity Analysis			
(Balance Sheet Items)			
(In NT\$ billions)	<u>4Q20</u>	<u>3Q20</u>	<u>4Q19</u>
Cash & Marketable Securities	791.48	742.42	583.45
Accounts Receivable	146.04	162.58	139.77
Inventories	137.35	109.51	82.98
Other Current Assets	17.31	15.16	16.42
Total Current Assets	1,092.18	1,029.67	822.62
Short-term Loans	88.56	155.38	118.52
Accounts Payable	198.90	141.53	181.02
Current Portion of Bonds Payable	2.60	2.60	31.80
Dividends Payable	129.65	129.65	129.65
Accrued Liabilities and Others	197.44	159.08	129.75
Total Current Liabilities	617.15	588.24	590.74
Current Ratio (x)	1.8	1.8	1.4
Net Working Capital	475.03	441.43	231.88

Liquidity Analysis:

Cash and marketable securities increased by NT\$49.06 billion from 3Q20 to NT\$791.48 billion in 4Q20.

Total current liabilities increased by NT\$28.91 billion, mainly due to the increase of NT\$57.37 billion in accounts payable and the increase of NT\$38.36 billion in accrued liabilities and others, offset by the decrease of NT\$66.82 billion in short-term loans.

Net working capital was NT\$475.03 billion and current ratio was 1.8x in 4Q20.

III - 2. Receivable/Inventory Days			
(In Number of Days)	<u>4Q20</u>	<u>3Q20</u>	<u>4Q19</u>
Days of Receivable	39	40	41
Days of Inventory	73	58	55

Receivable and Inventory Days:

Days of receivable decreased 1 day to 39 days in 4Q20.

Days of inventory increased 15 days to 73 days, primarily due to the ramp of leading nodes.

III - 3. Debt Service			
(In NT\$ billions)	<u>4Q20</u>	<u>3Q20</u>	<u>4Q19</u>
Cash & Marketable Securities	791.48	742.42	583.45
Interest-Bearing Debts	(347.23)	(386.01)	(175.42)
Net Cash Reserves	444.25	356.41	408.03

Debt Service:

Net cash reserves increased NT\$87.84 billion to NT\$444.25 billion in 4Q20.

Interest-bearing debts decreased NT\$38.78 billion, mainly due to the decrease in short-term loans of NT\$66.82 billion, partially offset by the issuance of bonds of NT\$30.50 billion.

IV. Cash Flow

IV - 1. Quarterly Cash Flow Analysis			
(In NT\$ billions)	<u>4Q20</u>	<u>3Q20</u>	<u>4Q19</u>
Income before Tax	161.11	155.12	128.78
Depreciation & Amortization	97.56	94.73	67.53
Other Operating Sources/(Uses)	0.46	(59.67)	6.65
Net Operating Sources/(Uses)	259.13	190.18	202.96
Capital Expenditures	(88.68)	(99.31)	(170.01)
Marketable Financial Instruments	(1.52)	0.33	(0.58)
Other Investing Sources/(Uses)	(0.76)	2.90	(1.02)
Net Investing Sources/(Uses)	(90.96)	(96.08)	(171.61)
Short-term Loans	(67.35)	(16.80)	35.68
Cash Dividends	(64.83)	(64.83)	(51.86)
Bonds Payable	30.50	136.03	0.00
Other Financing Sources/(Uses)	0.47	(6.96)	(1.00)
Net Financing Sources/(Uses)	(101.21)	47.44	(17.18)
Exchange Rate Changes	(10.99)	(4.95)	(11.20)
Cash Position Net Changes	55.97	136.59	2.97
Ending Cash Balance	660.17	604.20	455.40

Summary of Cash Flow:

During the fourth quarter, cash generated from operating activities totaled NT\$259.13 billion, including NT\$161.11 billion from income before tax and NT\$97.56 billion from depreciation & amortization expenses.

Net cash used in investing activities was NT\$90.96 billion in 4Q20, primarily attributable to capital expenditures of NT\$88.68 billion.

Net cash used in financing activities was NT\$101.21 billion, mainly due to the decrease in short-term loans of NT\$67.35 billion and the payment of 1Q20 cash dividends, partially offset by the net change in bonds payable of NT\$30.50 billion.

As a result, cash position increased NT\$55.97 billion to NT\$660.17 billion at the end of 4Q20.

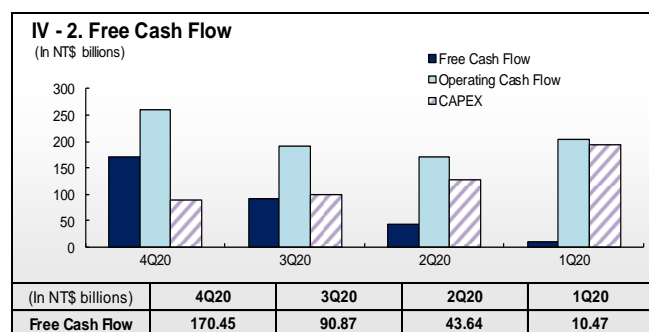
IV - 1.2. Annual Cash Flow Analysis			
(In NT\$ billions)	<u>2020</u>	<u>2019</u>	<u>Diff.</u>
Income before Tax	584.78	389.85	194.93
Depreciation & Amortization	331.73	286.88	44.85
Other Operating Sources/(Uses)	(93.84)	(61.59)	(32.25)
Net Operating Sources/(Uses)	822.67	615.14	207.53
Capital Expenditures	(507.24)	(460.42)	(46.82)
Marketable Financial Instruments	0.31	(10.79)	11.10
Other Investing Sources/(Uses)	1.15	12.41	(11.26)
Net Investing Sources/(Uses)	(505.78)	(458.80)	(46.98)
Short-term Loans	(31.57)	31.80	(63.37)
Cash Dividends	(259.30)	(259.30)	0.00
Bonds Payable	204.93	(34.90)	239.83
Other Financing Sources/(Uses)	(2.68)	(7.24)	4.56
Net Financing Sources/(Uses)	(88.62)	(269.64)	181.02
Exchange Rate Changes	(23.50)	(9.11)	(14.39)
Cash Position Net Changes	204.77	(122.41)	327.18
Ending Cash Balance	660.17	455.40	204.77

On a full year basis, cash generated from operating activities totaled NT\$822.67 billion, including (1) NT\$584.78 billion from income before tax, (2) NT\$331.73 billion from depreciation & amortization, and (3) NT\$93.84 billion for other operating uses, which mainly included income tax payment and net changes in working capital.

Net cash used in investing activities was NT\$505.78 billion, primarily including capital expenditures of NT\$507.24 billion.

Net cash used in financing activities totaled NT\$88.62 billion, mainly reflecting the payment of cash dividends, partially offset by the increase in bonds payable.

At the end of 2020, cash position was NT\$660.17 billion.



Operating and Free Cash Flow:

Free cash flow increased NT\$79.58 billion to NT\$170.45 billion in 4Q20, mainly due to higher operating cash flow.

Total free cash flow generated in 2020 was NT\$315.43 billion, an increase from NT\$154.72 billion in 2019, as operating cash flow increased faster than capital expenditures in 2020.

V. CapEx

V. Capital Expenditures
(In US\$ billions)

	<u>4Q20</u>	<u>3Q20</u>	<u>2Q20</u>	<u>1Q20</u>	<u>2020</u>
Capital Expenditures	3.19	3.42	4.24	6.39	17.24

Capital Expenditures:

Capital expenditures for TSMC on a consolidated basis totaled US\$3.19 billion in 4Q20 and US\$17.24 billion for the year.

VI. Recap of Recent Important Events & Announcements

- TSMC Recognized with 2021 IEEE Corporate Innovation Award (2020/12/09)
- TSMC Recognizes Outstanding Suppliers at 2020 Supply Chain Management Forum (2020/12/03)
- TSMC Board of Directors Approved an Investment to Establish a Wholly-Owned Subsidiary in Arizona, U.S., with a Paid-in Capital of US\$3.5 Billion (2020/11/10)
- TSMC Board of Directors Approved NT\$2.5 Cash Dividend for the Third Quarter of 2020 and Set March 17 as Ex-Dividend Date, March 23 as the Record Date and April 15, 2021 as the Distribution Date (2020/11/10)
- TSMC Announces 2020 OIP Partner of the Year Awards for Excellence in Accelerating Silicon Innovation (2020/10/20)