

4Q21

Quarterly Management Report
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Operating Results Review:

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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)

	4Q21	3Q21	4Q20	2021	2020	QoQ	YoY
EPS (NT\$ per common share)	6.41	6.03	5.51	23.01	19.97	6.4%	16.4%
(US\$ per ADR unit)	1.15	1.08	0.97	4.12	3.39		
Net Revenue (US\$ billions)	15.74	14.88	12.68	56.82	45.51	5.8%	24.1%
Net Revenue	438.19	414.67	361.53	1,587.42	1,339.26	5.7%	21.2%
Gross Profit	230.76	212.75	195.24	819.54	711.13	8.5%	18.2%
Gross Margin	52.7%	51.3%	54.0%	51.6%	53.1%		
Operating Expenses	(47.88)	(41.65)	(38.32)	(169.22)	(145.06)	15.0%	24.9%
Other Operating Income and Expenses	(0.11)	(0.10)	0.20	(0.34)	0.71		
Operating Income	182.77	171.00	157.12	649.98	566.78	6.9%	16.3%
Operating Margin	41.7%	41.2%	43.5%	40.9%	42.3%		
Non-Operating Items	2.05	2.85	3.99	13.15	18.00		
Net Income Attributable to Shareholders of the Parent Company	166.23	156.26	142.77	596.54	517.89	6.4%	16.4%
Net Profit Margin	37.9%	37.7%	39.5%	37.6%	38.7%		
Wafer Shipment (kpcs 12 inch-equiv.)	3,725	3,646	3,246	14,179	12,398	2.2%	14.8%
Average Exchange Rate--USD/NTD	27.85	27.87	28.52	27.94	29.43	-0.1%	-2.4%

Note: Diluted weighted average outstanding shares were 25,930mn units in 4Q21

Financial Highlights:**Fourth Quarter 2021**

- Net revenue was NT\$438.19 billion, representing a 5.7% increase from NT\$414.67 billion in 3Q21 and a 21.2% increase from NT\$361.53 billion in 4Q20.
- Gross margin was 52.7%, 1.4 percentage points higher than 3Q21 and 1.3 percentage points lower than 4Q20.
- Operating margin was 41.7%, up 0.5 percentage point from 3Q21 and down 1.8 percentage points from 4Q20.
- Non-operating items were a gain of NT\$2.05 billion, as compared to a gain of NT\$2.85 billion in 3Q21 and a gain of NT\$3.99 billion in 4Q20.
- Net income attributable to shareholders of the parent company was NT\$166.23 billion, up 6.4% from 3Q21 and up 16.4% from 4Q20. Net profit margin was 37.9% and diluted EPS was NT\$6.41.

Full Year 2021

- Net revenue was NT\$1,587.42 billion, representing an 18.5% increase from 2020. In US dollar terms, net revenue increased 24.9% to US\$56.82 billion in 2021.
- Gross margin was 51.6%, down 1.5 percentage points from 53.1% in 2020. Operating margin was 40.9%, down 1.4 percentage points from 42.3% in 2020.
- Diluted EPS was NT\$23.01, up 15.2% from NT\$19.97 in 2020. Net profit margin was 37.6%, down 1.1 percentage points from 38.7% in 2020.

I. Revenue Analysis

Wafer Revenue by Technology	4Q21	3Q21	4Q20
5nm	23%	18%	20%
7nm	27%	34%	29%
16nm	13%	13%	13%
20nm	0%	0%	1%
28nm	11%	10%	11%
40/45nm	8%	8%	8%
65nm	5%	4%	5%
90nm	2%	2%	2%
0.11/0.13um	3%	3%	3%
0.15/0.18um	6%	6%	7%
0.25um and above	2%	2%	1%

Net Revenue by Platform	4Q21	3Q21	4Q20
Smartphone	44%	44%	51%
High Performance Computing	37%	37%	31%
Internet of Things	9%	9%	7%
Automotive	4%	4%	3%
Digital Consumer Electronics	3%	3%	4%
Others	3%	3%	4%

Net Revenue by Geography	4Q21	3Q21	4Q20
North America	66%	65%	73%
Asia Pacific	12%	13%	12%
China	12%	11%	6%
EMEA	5%	6%	5%
Japan	5%	5%	4%

Wafer Revenue by Technology	2021	2020
5nm	19%	8%
7nm	31%	33%
16nm	14%	17%
20nm	0%	1%
28nm	11%	13%
40/45nm	7%	9%
65nm	5%	5%
90nm	2%	2%
0.11/0.13um	3%	3%
0.15/0.18um	6%	7%
0.25um and above	2%	2%

Net Revenue by Platform	2021	2020
Smartphone	44%	48%
High Performance Computing	37%	33%
Internet of Things	8%	8%
Automotive	4%	3%
Digital Consumer Electronics	4%	4%
Others	3%	4%

Net Revenue by Geography	2021	2020
North America	65%	62%
Asia Pacific	14%	11%
China	10%	17%
EMEA	6%	5%
Japan	5%	5%

Revenue Analysis:

In the fourth quarter, revenue increased 5.7% quarter-over-quarter, supported by strong demand for our industry-leading 5nm technologies.

By technology, 5nm process technology contributed 23% of total wafer revenue in 4Q21 while 7nm accounted for 27%. Advanced technologies (7nm and below) accounted for 50% of total wafer revenue.

By platform, Smartphone and HPC represented 44% and 37% of net revenue respectively, while IoT, Automotive, DCE, and Others each represented 9%, 4%, 3%, and 3%.

Sequentially, revenue from Smartphone, HPC, IoT, and Automotive, DCE, and Others increased 7%, 3%, 3%, 10%, 2%, and 22% respectively from 3Q21.

From a geographic perspective, revenue from customers based in North America accounted for 66% of total net revenue in 4Q21, while revenue from Asia Pacific, China, EMEA (Europe, Middle East, and Africa) and Japan accounted for 12%, 12%, 5%, and 5% of total net revenue respectively.

On a full year basis, 5nm contribution reached 19% of total wafer revenue in 2021 while 7nm process technology contributed 31%. Advanced technologies (7nm and below) accounted for 50% of total wafer revenue, up from 41% in 2020.

By platform, revenue from Smartphone, HPC, IoT, Automotive, DCE, and Others increased 8%, 34%, 21%, 51%, 2%, and 9% respectively from 2020.

In 2021, revenue from customers based in North America accounted for 65% of total net revenue, while revenue from Asia Pacific, China, EMEA (Europe, Middle East, and Africa), and Japan accounted for 14%, 10%, 6%, and 5% of total net revenue respectively.

II. Profit & Expense Analysis

II - 1. Gross Profit Analysis					
(In NT\$ billions)	4Q21	3Q21	4Q20	2021	2020
Net Revenue	438.19	414.67	361.53	1,587.42	1,339.26
Cost of Revenue	(207.43)	(201.92)	(166.29)	(767.88)	(628.13)
Gross Profit	230.76	212.75	195.24	819.54	711.13
Gross Margin	52.7%	51.3%	54.0%	51.6%	53.1%

Gross Profit Analysis:

Gross margin was 52.7% in 4Q21, 1.4 percentage points higher than 3Q21, mainly due to continuous cost improvement efforts.

On a full year basis, gross margin was 51.6% in 2021, down 1.5 percentage points from 2020, mainly reflecting an unfavorable foreign exchange rate and N5 dilution, partially offset by cost improvement efforts.

II - 2. Operating Income Analysis					
(In NT\$ billions)	4Q21	3Q21	4Q20	2021	2020
Total Operating Expenses	(47.88)	(41.65)	(38.32)	(169.22)	(145.06)
Research & Development	(32.24)	(30.87)	(29.94)	(124.73)	(109.49)
SG&A	(15.64)	(10.78)	(8.38)	(44.49)	(35.57)
Other Operating Income and Expenses	(0.11)	(0.10)	0.20	(0.34)	0.71
Operating Income	182.77	171.00	157.12	649.98	566.78
Operating Margin	41.7%	41.2%	43.5%	40.9%	42.3%
Total Operating Expenses as % of Net Revenue	11.0%	10.1%	10.6%	10.7%	10.8%

Operating Income Analysis:

Total operating expenses increased NT\$6.23 billion to NT\$47.88 billion in 4Q21, mainly due to the vaccine donation expense as part of our COVID-19 relief efforts.

For full year 2021, total operating expenses represented 10.7% of net revenue, as compared to 10.8% in 2020.

II - 3. Non-Operating Items					
(In NT\$ billions)	4Q21	3Q21	4Q20	2021	2020
L-T Investments	1.65	1.52	1.36	5.60	3.59
Net Interest Income (Expenses)	(0.71)	0.02	0.88	0.30	6.94
Other Gains and Losses	1.11	1.31	1.75	7.25	7.47
Total Non-Operating Items	2.05	2.85	3.99	13.15	18.00

Non-Operating Items:

Total non-operating items were a gain of NT\$2.05 billion in 4Q21, as compared to a gain of NT\$2.85 billion in 3Q21. The decrease was mainly due to higher interest expenses.

On a full year basis, total non-operating items decreased by NT\$4.85 billion to a gain of NT\$13.15 billion in 2021.

II - 4. Net Profit and EPS					
(In NT\$ billions)	4Q21	3Q21	4Q20	2021	2020
Income before Tax	184.82	173.85	161.11	663.13	584.78
Income Tax Expenses	(18.45)	(17.37)	(18.29)	(66.06)	(66.62)
Effective Tax Rate	10.1%	10.1%	11.4%	10.0%	11.5%
Net Income Attributable to the Parent Company	166.23	156.26	142.77	596.54	517.89
Net Profit Margin	37.9%	37.7%	39.5%	37.6%	38.7%
EPS (NT\$ per common share)	6.41	6.03	5.51	23.01	19.97

Net Profit and EPS:

Net income attributable to shareholders of the parent company was NT\$166.23 billion in 4Q21, up 6.4% from 3Q21 and up 16.4% from 4Q20.

On a full year basis, both net income and EPS increased by 15.2% from 2020.

III. Financial Condition Review

III - 1. Liquidity Analysis			
(Balance Sheet Items)			
(In NT\$ billions)	<u>4Q21</u>	<u>3Q21</u>	<u>4Q20</u>
Cash & Marketable Securities	1,188.46	975.82	791.48
Accounts Receivable	198.30	187.17	146.04
Inventories	193.10	182.23	137.35
Other Current Assets	27.21	25.42	17.31
Total Current Assets	1,607.07	1,370.64	1,092.18
Short-term Loans	114.92	118.84	88.56
Accounts Payable	194.46	172.26	198.90
Current Portion of Bonds Payable and Bank Loans	4.57	0.00	2.60
Dividends Payable	142.62	142.62	129.65
Accrued Liabilities and Others	282.93	221.90	197.44
Total Current Liabilities	739.50	655.62	617.15
Current Ratio (x)	2.2	2.1	1.8
Net Working Capital	867.57	715.02	475.03

Liquidity Analysis:

Total current assets increased by NT\$236.43 billion, mainly due to the increase of NT\$212.64 billion in cash and marketable securities.

Total current liabilities increased by NT\$83.88 billion, mainly due to the increase of NT\$22.20 billion in accounts payable and the increase of NT\$61.03 billion in accrued liabilities and others.

Net working capital was NT\$867.57 billion and current ratio was 2.2x in 4Q21.

III - 2. Receivable/Inventory Days			
(In Number of Days)	<u>4Q21</u>	<u>3Q21</u>	<u>4Q20</u>
Days of Receivable	40	40	39
Days of Inventory	88	85	73

Receivable and Inventory Days:

Days of receivable was 40 days in 4Q21.

Days of inventory increased 3 days to 88 days in 4Q21, primarily due to N5 wafer prebuild.

III - 3. Debt Service			
(In NT\$ billions)	<u>4Q21</u>	<u>3Q21</u>	<u>4Q20</u>
Cash & Marketable Securities	1,188.46	975.82	791.48
Interest-Bearing Debts	(732.87)	(582.05)	(347.23)
Net Cash Reserves	455.59	393.77	444.25

Debt Service:

Net cash reserves increased NT\$61.82 billion to NT\$455.59 billion in 4Q21.

Interest-bearing debts increased NT\$150.82 billion in 4Q21, mainly due to the issuance of NT\$157.47 billion in corporate bonds.

IV. Cash Flow

IV - 1. Quarterly Cash Flow Analysis			
(In NT\$ billions)	<u>4Q21</u>	<u>3Q21</u>	<u>4Q20</u>
Income before Tax	184.82	173.85	161.11
Depreciation & Amortization	110.66	107.03	97.56
Other Operating Sources/(Uses)	82.72	37.83	0.46
Net Operating Sources/(Uses)	378.20	318.71	259.13
Capital Expenditures	(235.56)	(188.64)	(88.68)
Marketable Financial Instruments	(8.38)	9.07	(1.52)
Other Investing Sources/(Uses)	(1.40)	2.55	(0.76)
Net Investing Sources/(Uses)	(245.34)	(177.02)	(90.96)
Short-term Loans	(1.86)	(18.09)	(67.35)
Cash Dividends	(71.31)	(64.83)	(64.83)
Bonds Payable	157.47	49.32	30.50
Other Financing Sources/(Uses)	(2.02)	(1.73)	0.47
Net Financing Sources/(Uses)	82.28	(35.33)	(101.21)
Exchange Rate Changes	(3.96)	(0.53)	(10.99)
Cash Position Net Changes	211.18	105.83	55.97
Ending Cash Balance	1,064.99	853.81	660.17

Summary of Cash Flow:

During the fourth quarter, cash generated from operating activities totaled NT\$378.20 billion, including (1) NT\$184.82 billion from income before tax, (2) NT\$110.66 billion from depreciation & amortization expenses, and (3) NT\$82.72 billion from other operating sources. The other operating sources were mainly attributable to the receipt of customers' commitment to retain capacity.

Net cash used in investing activities was NT\$245.34 billion in 4Q21, primarily attributable to capital expenditures of NT\$235.56 billion.

Net cash generated from financing activities was NT\$82.28 billion, mainly reflecting the issuance of NT\$157.47 billion in corporate bonds, partially offset by the payment of 1Q21 cash dividends of NT\$71.31 billion.

As a result, cash position increased NT\$211.18 billion to NT\$1,064.99 billion at the end of 4Q21.

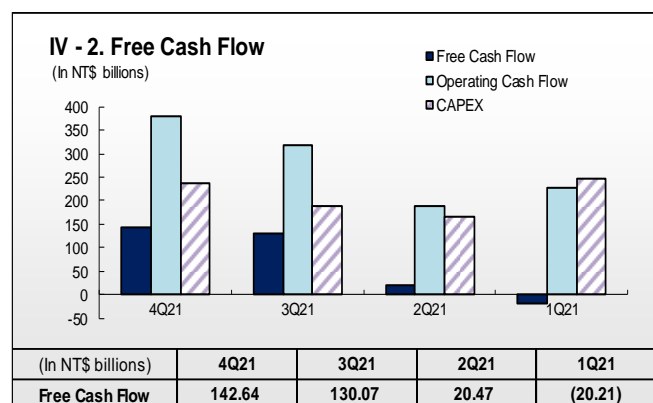
IV - 1.2. Annual Cash Flow Analysis			
(In NT\$ billions)	<u>2021</u>	<u>2020</u>	<u>Diff.</u>
Income before Tax	663.13	584.78	78.35
Depreciation & Amortization	422.40	331.73	90.67
Other Operating Sources/(Uses)	26.63	(93.84)	120.47
Net Operating Sources/(Uses)	1,112.16	822.67	289.49
Capital Expenditures	(839.20)	(507.24)	(331.96)
Marketable Financial Instruments	4.28	0.31	3.97
Other Investing Sources/(Uses)	(1.45)	1.15	(2.60)
Net Investing Sources/(Uses)	(836.37)	(505.78)	(330.59)
Short-term Loans	35.67	(31.57)	67.24
Cash Dividends	(265.79)	(259.30)	(6.49)
Bonds Payable	361.99	204.93	157.06
Other Financing Sources/(Uses)	4.74	(2.68)	7.42
Net Financing Sources/(Uses)	136.61	(88.62)	225.23
Exchange Rate Changes	(7.58)	(23.50)	15.92
Cash Position Net Changes	404.82	204.77	200.05
Ending Cash Balance	1,064.99	660.17	404.82

On a full year basis, cash generated from operating activities totaled NT\$1,112.16 billion, including (1) NT\$663.13 billion from income before tax, (2) NT\$422.40 billion from depreciation & amortization, and (3) NT\$26.63 billion from other operating sources. The other operating sources were mainly attributable to the receipt of customers' commitment to retain capacity, partially offset by income tax payment.

Net cash used in investing activities was NT\$836.37 billion, primarily including capital expenditures of NT\$839.20 billion.

Net cash generated from financing activities totaled NT\$136.61 billion, mainly reflecting the issuance of corporate bonds, partially offset by the payment of cash dividends.

At the end of 2021, cash position was NT\$1,064.99 billion.



Operating and Free Cash Flow:

Free cash flow increased NT\$12.57 billion to an inflow of NT\$142.64 billion in 4Q21, mainly due to the increase in operating cash flow during the quarter.

Total free cash flow generated in 2021 was NT\$272.96 billion, a decrease from NT\$315.43 billion in 2020, as capital expenditures increased faster than operating cash flow in 2021.

V. CapEx

V. Capital Expenditures
(in US\$ billions)

	<u>4Q21</u>	<u>3Q21</u>	<u>2Q21</u>	<u>1Q21</u>	<u>2021</u>
Capital Expenditures	8.46	6.77	5.97	8.84	30.04

Capital Expenditures:

Capital expenditures for TSMC on a consolidated basis totaled US\$8.46 billion in 4Q21 and US\$30.04 billion for the year.

VI. Recap of Recent Important Events & Announcements

- TSMC Presents 2021 Excellent Performance Award to Outstanding Suppliers (2021/12/16)
- TSMC Introduces N4X Process, the Newest 5nm Enhancement Tailored for High Performance Computing Products (2021/12/16)
- MediaTek and TSMC Unveil the World's First 7nm 8K Resolution Digital TV System-on-Chip (2021/11/22)
- TSMC to Build Specialty Technology Fab in Japan with Sony Semiconductor Solutions as Minority Shareholder (2021/11/09)
- TSMC Board of Directors Approved NT\$2.75 Cash Dividend for the Third Quarter of 2021 and Set March 16 as the Ex-Dividend Date, March 22 as the Record Date and April 14, 2022 as the Distribution Date (2021/11/09)
- TSMC Recognizes Partners of the Year at 2021 OIP Ecosystem Forum (2021/10/27)
- TSMC Expands Advanced Technology Leadership with N4P Process (2021/10/26)