

# Nanya Technology (2408. TW/2408 TT)

## AI to drive up DRAM price & volume

FTSE4Good TIP Taiwan ESG Index stock

### Outperform · Maintained

Price as of November 29 (NT\$)	74.20
12M target price (NT\$)	85.00
Previous target price (NT\$)	85.00
Unchanged (%)	0.0
Upside (%)	14.6

#### Key message

- AI PC & AI server will accelerate DDR5 & HBM demand growth, but capping bit supply.
- We believe Nanya Technology will create economies of scale by increasing capacity utilization, and will turn profitable in 2Q24.
- We recommend investors engage this counter.

#### Trading data

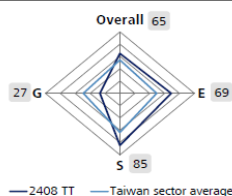
Mkt cap (NT\$bn/US\$mn)	229.9 / 7,366
Outstanding shares (mn)	3,098
Foreign ownership (mn)	550
3M avg. daily trading (mn)	9.08
52-week trading range (NT\$)	51.20 – 78.50

Performance	3M	6M	12M
Absolute (%)	12.1	4.2	29.7
Relative (%)	7.6	-0.2	11.6

#### Quarterly EPS

NT\$	1Q	2Q	3Q	4Q
2022	2.11A	2.12A	0.85A	(0.37)A
2023	(0.54)A	(0.25)A	(0.81)F	(0.50)F
2024	(0.20)F	0.57F	1.14F	1.31F

#### ESG score card



Source: Refinitiv, KGI securities

#### Event

We predict DRAM will enter an upcycle in 2024.

#### Impact

**AI PC & AI server accelerating DDR5 & HBM demand growth, but capping bit supply.** Due to a larger die used and lower product yield, new products using DDR5 and HBM will increase DRAM capacity use as their market penetration deepens. On the gradual commercialization of AI PC and AI server, and as they mainly use DDR5 or HBM, we forecast server DDR5 and HBM will account for a respective 17% and 3.0% of overall DRAM bit supply and 20% and 8.7% of overall DRAM wafer starts in 2024. We forecast overall DRAM bit demand growth will be 15% YoY in 2024, matching bit supply growth of 15% YoY, resulting in a sufficiency ratio of only 97%.

#### Output cuts to sustain prices in 2023F; both price & production volume to rise in 2024F.

The memory sector entered a downcycle, with output cuts, inventory digestion, and price declines in 3Q-4Q22. Micron (US) has completed DRAM inventory digestion in 4Q23 and eased DRAM output cuts. Taking into account that end demand will grow in 2Q24 and leading vendors all strive for disciplined production, we predict the contract price of DRAM will rise in 1Q-4Q24. We expect Nanya Technology to start increasing capacity utilization in 2Q24, and the rise in DDR4 prices will outpace that of DDR5 in 1H24, as DDR3 and DDR4 completed inventory adjustment later than DDR5. We believe Nanya Technology will create economies of scale by increasing capacity utilization, and will turn profitable in 2Q24.

#### Valuation & Action

We maintain Outperform and our target price of NT\$85, on 1.5x 2024F BVPS of NT\$57. As the DRAM price uptrend will extend into 2024 and Nanya Technology will grow output after inventory digestion ends, we recommend investors engage this counter.

#### Risks

Slow industry-wide process conversion; PC and smartphone demand.

#### Key financials and valuations

	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
Revenue (NT\$mn)	61,006	85,604	56,952	29,755	58,319
Gross profit (NT\$mn)	15,692	37,044	21,342	(3,878)	18,238
Operating profit (NT\$mn)	8,434	27,186	11,002	(13,408)	8,238
Net profit (NT\$mn)	7,686	22,849	14,619	(6,509)	8,753
EPS (NT\$)	2.51	7.40	4.72	(2.10)	2.83
Cash DPS (NT\$)	1.30	3.70	2.13	0.30	1.30
EPS growth (%)	(22.3)	195.2	(36.2)	(144.5)	0.0
PE (x)	29.6	10.0	15.7	N.A.	26.3
PB (x)	1.5	1.3	1.3	1.4	1.3
EV/EBITDA (x)	7.4	3.3	5.7	86.6	6.8
Net debt to equity (%)	Net cash	Net cash	Net cash	Net cash	Net cash
Dividend yield (%)	1.8	5.0	2.9	0.4	1.8
Return on average equity (%)	5.0	14.0	8.3	(3.7)	5.1

Source: Company data, KGI Research estimates

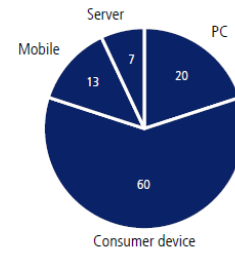
**Figure 1: Company profile**

Founded in 1995, Nanya Technology is a DRAM maker within the Formosa Plastics Group (FPG), with production based in New Taipei City. Nanya Technology buys semiconductor silicon wafers, mainly from Formosa Sumco (3532 TT, NT\$159.0, NR) to make DRAM, which is tested and packaged by Formosa Advanced Technologies (8131 TT, NT\$39.10, NR), for use in niche consumer applications and PCs. Formosa Sumco and Formosa Advanced Technologies are member companies of Formosa Plastics Group.

Source: KGI Research

**Figure 2: Consumer DRAM is key sales contributor**

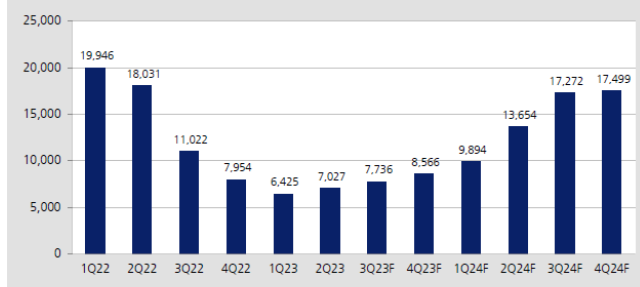
Sales weighting by application in 2020, percent



Source: KGI Research

**Figure 3: Sales**

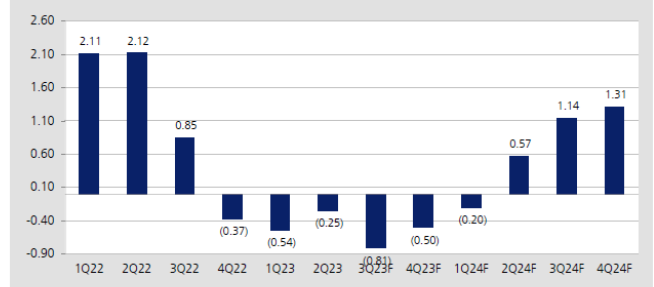
Sales, NT\$m



Source: KGI Research

**Figure 4: EPS**

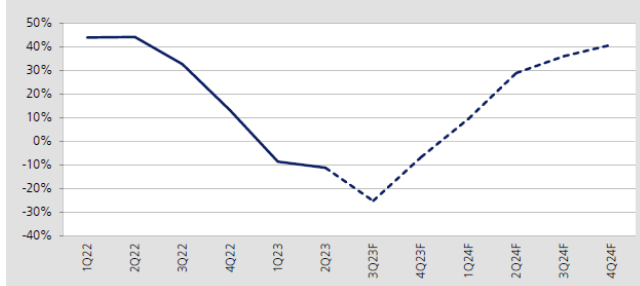
EPS, NT\$



Source: KGI Research

**Figure 5: Gross Margin**

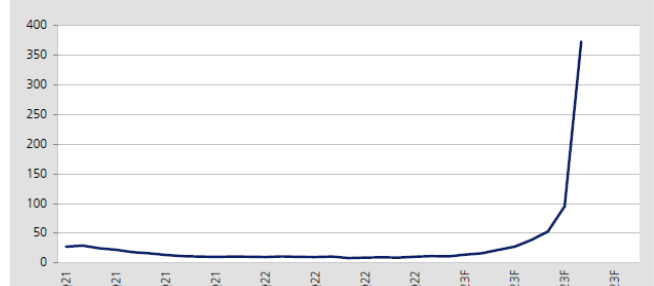
Gross margin, percent



Source: KGI Research

**Figure 6: Rolling PE**

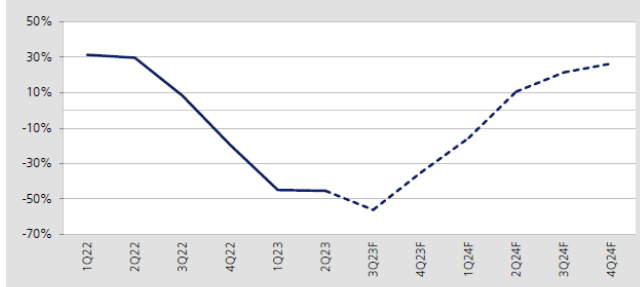
Rolling PE, times



Source: KGI Research

**Figure 7: Operating Margin**

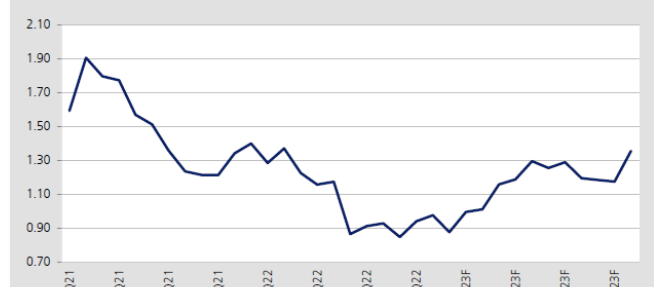
Operating margin, percent



Source: KGI Research

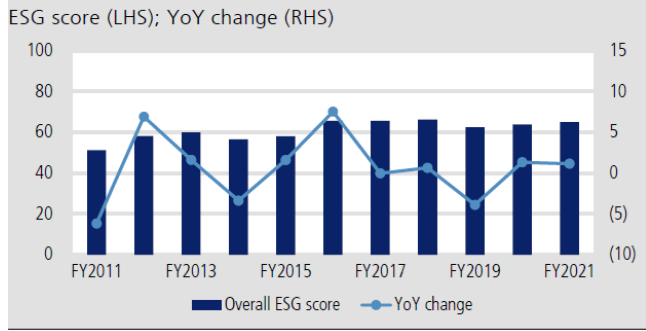
**Figure 8: Rolling PB**

Rolling PB, times



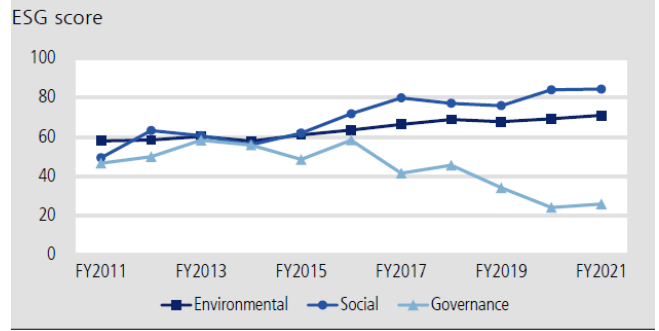
Source: KGI Research

**Figure 9: Overall ESG score**



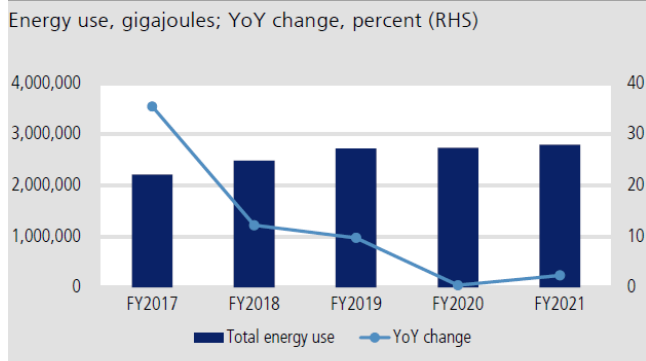
Source: Refinitiv, Company data

**Figure 10: ESG scores**



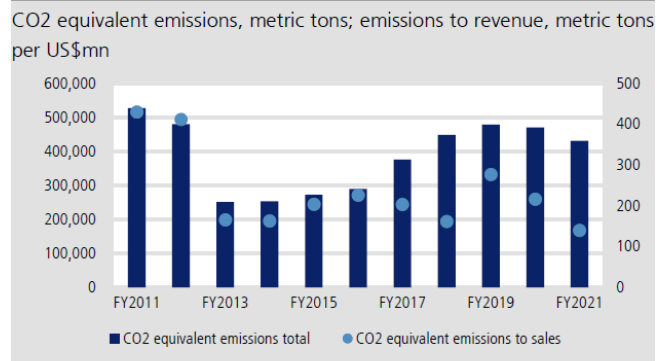
Source: Refinitiv, Company data

**Figure 11: Energy Use**



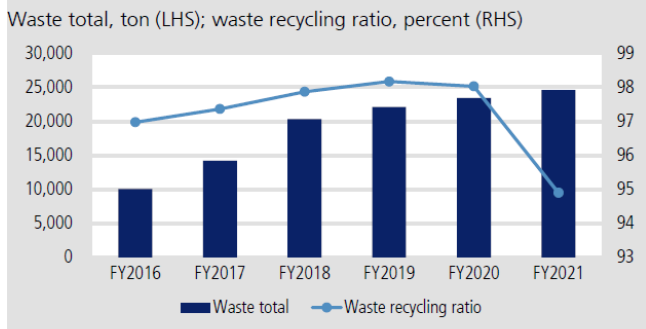
Source: Refinitiv, Company data

**Figure 12: CO2 equivalent emissions**



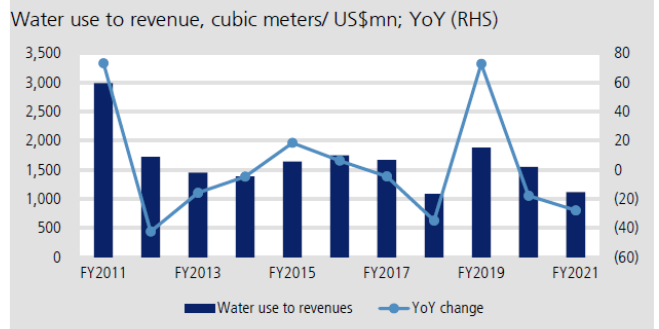
Source: Refinitiv, Company data

**Figure 13: Waste total**



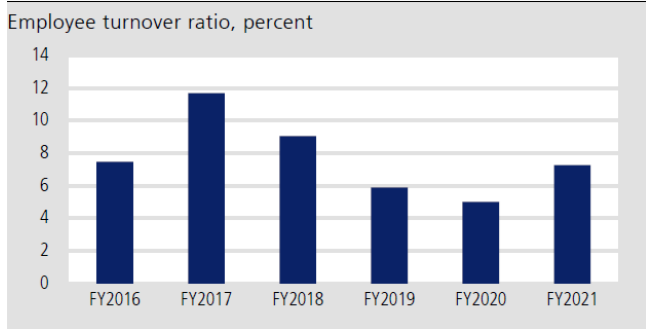
Source: Refinitiv, Company data

**Figure 14: Water use to revenue**



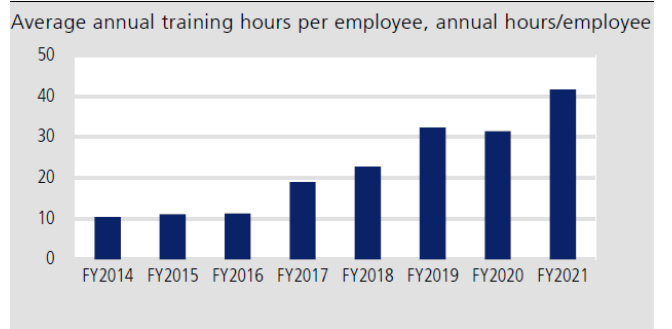
Source: Refinitiv, Company data

**Figure 15: Employee turnover**



Source: Refinitiv, Company data

**Figure 16: Employee training**



Source: Refinitiv, Company data

**ESG chart definition**

Item	Definition	Remarks
Energy use	Total direct and indirect energy consumption in gigajoules. - the total amount of energy that has been consumed within the boundaries of the company's operations - total energy use = total direct energy consumption + indirect energy consumption - purchased energy and produced energy are included in total energy use - for utilities, transmission/ grid loss as part of its business activities is considered as total energy consumed and data does not consider electricity produced to answer energy use (utility company produces to sell) - for utilities, raw materials such as coal, gas or nuclear used in the production of energy are not considered under 'total energy use'	
Renewable energy purchased	Total primary renewable energy purchased in gigajoules. - energy consumed by the company from various sources and among the purchased energy, how much energy is renewable in nature (solar, wind, hydro, biomass, geothermal) are in scope - if there is no evidence that renewable energy is produced by the company, then we consider the reported energy figure as renewable energy purchased	
Renewable energy use ratio	Renewable energy to total energy used	
CO2 equivalent emissions	Direct CO2 and CO2 equivalent emissions in metric tons. - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3)	
CO2 equivalent emissions to sales	Direct CO2 and CO2 equivalent emissions (metric tons) to sales (NT\$m) - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3)	
Waste total	Total amount of waste produced in metric tons. - total waste = non-hazardous waste + hazardous waste - only solid waste is taken into consideration, exceptionally if liquid waste is reported in metric tons, then we do the summation to derive total including liquid waste - for sectors like mining, oil & gas, waste generation like tailings, waste rock, coal and fly ash are also considered	
Waste recycling ratio	The waste recycling ratio as reported by the company. - waste recycling ratio = waste recycled/total waste*100 - waste to energy or waste incinerated with energy recovery are considered as waste recycled - waste recovered via composting is considered as recycled waste	
Water withdrawal total	Total water withdrawal in cubic meters. - the total volume of water withdrawn from any water source that was either withdrawn directly by the reporting organization or through intermediaries such as water utilities - different sources of water like wells, town/utility/municipal water, river water, and surface water are considered	
Environmental expenditures	Total amount of environmental expenditures. - all environmental investment & expenditures for environmental protection or to prevent, reduce, control environmental aspects, impacts, and hazards. It also includes disposal, treatment, sanitation, and clean-up expenditures	
Turnover of employees	Percentage of employee turnover. - includes employees who left the company for any reason (voluntary or involuntary), such as resignations, retirement, natural departure/death, medical incapacitation, redundancy, layoffs, restructuring, dismissal, retrenchment or end of a fixed-term contract - employees turnover rate = (employees leaving/average number of employees)*100 - where the average number of employees = (employees at the end of the current year + employees at the end of the previous year)/2 - employees at the end of the current fiscal year = employees at the end of the previous fiscal year + new employees - employees leaving	
Women managers	Percentage of women managers. - percentage of women managers among total managers of the company - if there is a breakdown by category in percentage, such as top, senior, middle, and junior management, then we consider the percentage of middle women managers - percentage of women managers = number of women managers/total number of managers*100	
Women employees	Percentage of women employees. - percentage of women employees to the total number of employees of the company - percentage of women employees = number of women/total number of employees*100	
Training hours total	Total training hours performed by all employees. - consider only employee training hours - includes all types of training given to general employees (such as health & safety, environmental, emergency response, skills & career development training) - if the value is given in days, multiply by 8, assuming that 1 day = 8 hours worked	
Training hours per employee	Training hours per employee per year	

Source: Refinitiv; Company data, KGI Research

## Income statement

	Quarterly								Annually		
	Mar-23A	Jun-23A	Sep-23F	Dec-23F	Mar-24F	Jun-24F	Sep-24F	Dec-24F	Dec-22A	Dec-23F	Dec-24F
<b>Income statement (NT\$mn)</b>											
Revenue	6,425	7,027	7,736	8,566	9,894	13,654	17,272	17,499	56,952	29,755	58,319
Cost of goods sold	(6,979)	(7,815)	(9,689)	(9,149)	(8,954)	(9,715)	(11,055)	(10,356)	(35,610)	(33,633)	(40,081)
<b>Gross profit</b>	<b>(554)</b>	<b>(788)</b>	<b>(1,953)</b>	<b>(583)</b>	<b>940</b>	<b>3,938</b>	<b>6,217</b>	<b>7,143</b>	<b>21,342</b>	<b>(3,878)</b>	<b>18,238</b>
Operating expenses	(2,331)	(2,396)	(2,387)	(2,416)	(2,485)	(2,493)	(2,508)	(2,515)	(10,340)	(9,530)	(10,000)
<b>Operating profit</b>	<b>(2,885)</b>	<b>(3,185)</b>	<b>(4,340)</b>	<b>(2,999)</b>	<b>(1,545)</b>	<b>1,446</b>	<b>3,709</b>	<b>4,628</b>	<b>11,002</b>	<b>(13,408)</b>	<b>8,238</b>
Depreciation of fixed assets	(3,694)	(3,758)	(3,775)	(3,872)	(3,875)	(3,875)	(3,875)	(3,875)	(14,988)	(15,100)	(15,500)
Amortisation of intangible assets	(64)	(89)	(65)	(40)	(65)	(65)	(65)	(65)	(258)	(258)	(258)
<b>EBITDA</b>	<b>873</b>	<b>663</b>	<b>(500)</b>	<b>914</b>	<b>2,395</b>	<b>5,385</b>	<b>7,649</b>	<b>8,567</b>	<b>26,249</b>	<b>1,950</b>	<b>23,996</b>
Interest income	720	777	650	603	630	540	450	180	1,395	2,750	1,800
Investment income	39	127	112	171	144	144	144	144	574	448	576
Other non-op income	0	(0)	458	544	40	40	40	40	514	1,001	160
<b>Non-operating income</b>	<b>759</b>	<b>903</b>	<b>1,220</b>	<b>1,317</b>	<b>814</b>	<b>724</b>	<b>634</b>	<b>364</b>	<b>2,483</b>	<b>4,199</b>	<b>2,536</b>
Interest expense	(18)	(20)	(23)	(29)	(25)	(25)	(25)	(25)	(49)	(90)	(100)
Investment loss	-	-	-	-	-	-	-	-	-	-	-
Other non-op expenses	32	381	-	(412)	-	-	-	-	3,441	-	-
<b>Non-operating expenses</b>	<b>14</b>	<b>361</b>	<b>(23)</b>	<b>(442)</b>	<b>(25)</b>	<b>(25)</b>	<b>(25)</b>	<b>(25)</b>	<b>3,392</b>	<b>(90)</b>	<b>(100)</b>
<b>Pre-tax profit</b>	<b>(2,112)</b>	<b>(1,920)</b>	<b>(3,143)</b>	<b>(2,123)</b>	<b>(756)</b>	<b>2,145</b>	<b>4,318</b>	<b>4,967</b>	<b>16,877</b>	<b>(9,299)</b>	<b>10,674</b>
Current taxation	428	1,150	638	574	136	(386)	(777)	(894)	(2,258)	2,790	(1,921)
Minorities	-	-	-	-	-	-	-	-	-	-	-
<b>Normalised net profit</b>	<b>(1,685)</b>	<b>(771)</b>	<b>(2,505)</b>	<b>(1,549)</b>	<b>(620)</b>	<b>1,759</b>	<b>3,541</b>	<b>4,073</b>	<b>14,619</b>	<b>(6,509)</b>	<b>8,753</b>
Extraordinary items	0	0	-	(0)	-	-	-	-	-	-	-
<b>Net profit</b>	<b>(1,685)</b>	<b>(771)</b>	<b>(2,505)</b>	<b>(1,549)</b>	<b>(620)</b>	<b>1,759</b>	<b>3,541</b>	<b>4,073</b>	<b>14,619</b>	<b>(6,509)</b>	<b>8,753</b>
EPS (NT\$)	(0.54)	(0.25)	(0.81)	(0.50)	(0.20)	0.57	1.14	1.31	4.72	(2.10)	2.83
<b>Margins (%)</b>											
Gross profit margin	(8.6)	(11.2)	(25.2)	(6.8)	9.5	28.8	36.0	40.8	37.5	(13.0)	31.3
Operating margin	(44.9)	(45.3)	(56.1)	(35.0)	(15.6)	10.6	21.5	26.4	19.3	(45.1)	14.1
EBITDA margin	13.6	9.4	(6.5)	10.7	24.2	39.4	44.3	49.0	46.1	6.6	41.1
Pretax profit margin	(32.9)	(27.3)	(40.6)	(24.8)	(7.6)	15.7	25.0	28.4	29.6	(31.3)	18.3
Net profit margin	(26.2)	(11.0)	(32.4)	(18.1)	(6.3)	12.9	20.5	23.3	25.7	(21.9)	15.0
<b>Sequential growth (%)</b>											
Revenue growth	(19.2)	9.4	10.1	10.7	15.5	38.0	26.5	1.3			
Gross profit growth	(153.4)	42.3	147.7	(70.1)		318.8	57.9	14.9			
Operating profit growth	86.9	10.4	36.3	(30.9)	(48.5)		156.5	24.8			
EBITDA growth	(60.6)	(24.1)	(175.5)		162.0	124.9	42.0	12.0			
Pretax profit growth	48.9	(9.1)	63.7	(32.5)	(64.4)		101.3	15.0			
Net profit growth	47.0	(54.2)	225.0	(38.2)	(60.0)		101.3	15.0			
<b>YoY growth (%)</b>											
Revenue growth	(67.8)	(61.0)	(29.8)	7.7	54.0	94.3	123.3	104.3	(33.5)	(47.8)	96.0
Gross profit growth	(106.3)	(109.9)	(154.3)	(156.2)					(42.4)	(118.2)	
Operating profit growth	(146.1)	(159.4)	(571.7)	94.2	(46.5)				(59.5)	(221.9)	
EBITDA growth	(91.4)	(92.8)	(110.6)	(58.8)	174.3	712.6		837.2	(38.2)	(92.6)	1130.8
Pretax profit growth	(126.3)	(127.0)	(199.4)	49.7	(64.2)				(39.2)	(155.1)	
Net profit growth	(125.7)	(111.7)	(194.9)	35.1	(63.2)				(36.0)	(144.5)	

Source: Company data, KGI Research estimates

**Balance sheet**

NT\$m	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
<b>Total assets</b>	<b>165,632</b>	<b>191,421</b>	<b>202,236</b>	<b>185,015</b>	<b>192,838</b>
<b>Current assets</b>	<b>76,745</b>	<b>106,460</b>	<b>105,512</b>	<b>87,772</b>	<b>95,778</b>
Cash & ST securities	51,726	80,700	73,593	52,518	58,725
Inventory	14,127	11,611	23,384	28,034	28,034
Accounts receivable	7,876	11,569	4,359	4,629	4,629
Other current assets	3,016	2,580	4,175	2,592	4,390
<b>Non-current assets</b>	<b>88,887</b>	<b>84,961</b>	<b>96,723</b>	<b>97,243</b>	<b>97,060</b>
LT investments	5,161	5,350	6,131	6,215	6,791
Net fixed assets	79,729	76,207	84,897	84,381	83,881
Other assets	3,998	3,404	5,695	6,646	6,388
<b>Total liabilities</b>	<b>11,820</b>	<b>18,443</b>	<b>21,278</b>	<b>16,435</b>	<b>16,435</b>
<b>Current liabilities</b>	<b>8,779</b>	<b>15,692</b>	<b>16,179</b>	<b>10,990</b>	<b>10,990</b>
Accounts payable	2,112	2,850	5,604	4,446	4,446
Interest bearing ST liabilities	-	-	-	-	-
Other current liabilities	6,667	12,842	10,575	6,544	6,544
<b>Non-current liabilities</b>	<b>3,041</b>	<b>2,751</b>	<b>5,099</b>	<b>5,444</b>	<b>5,444</b>
Long-term debt	-	-	-	-	-
Other L-T liabilities	1,424	1,242	898	5,444	5,444
<b>Total equity</b>	<b>153,812</b>	<b>172,978</b>	<b>180,958</b>	<b>168,580</b>	<b>176,404</b>
Share capital	30,972	30,973	30,981	30,981	30,981
Retained earnings reserve	79,395	95,426	95,267	87,828	92,554
Minority interests	-	-	-	-	-
Preferred shareholders funds	-	-	-	-	-

**Key ratios**

	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
<b>Growth</b>					
Revenue growth	17.9%	40.3%	(33.5%)	(47.8%)	96.0%
Operating profit growth	(11.4%)	222.3%	(59.5%)	(221.9%)	
EBITDA growth	(4.4%)	85.6%	(38.2%)	(92.6%)	1130.8%
Net profit growth	(21.8%)	197.3%	(36.0%)	(144.5%)	
EPS growth	(22.3%)	195.2%	(36.2%)	(144.5%)	
<b>Profitability</b>					
Gross profit margin	25.7%	43.3%	37.5%	(13.0%)	31.3%
Operating margin	13.8%	31.8%	19.3%	(45.1%)	14.1%
EBITDA margin	37.5%	49.6%	46.1%	6.6%	41.1%
Net profit margin	12.6%	26.7%	25.7%	(21.9%)	15.0%
Return on average assets	4.6%	12.8%	7.4%	(3.4%)	4.6%
Return on average equity	5.0%	14.0%	8.3%	(3.7%)	5.1%
<b>Stability</b>					
Gross debt to equity	0.0%	0.0%	0.0%	0.0%	0.0%
Net debt to equity	Net cash	Net cash	Net cash	Net cash	Net cash
Interest coverage (x)	686.5	1,174.3	344.6	(102.3)	107.7
Interest & ST debt coverage (x)	1.0	1.0	1.0	1.0	1.0
Cash flow interest coverage(x)	1,723.9	1,863.7	429.1	5.8	221.4
Cash flow/int. & ST debt (x)	1,723.9	1,863.7	429.1	5.8	221.4
Current ratio (x)	8.7	6.8	6.5	8.0	8.7
Quick ratio (x)	7.1	6.0	5.1	5.4	6.2
Net debt (NT\$m)	(51,726)	(80,700)	(73,593)	(52,518)	(58,725)
<b>Per share data</b>					
EPS (NT\$)	2.51	7.40	4.72	(2.10)	2.83
CFPS (NT\$)	7.38	14.29	6.81	0.17	7.15
BVPS (NT\$)	49.66	55.85	58.41	54.42	56.95
Adj BVPS (NT\$)	50.18	56.03	58.42	54.42	56.95
SPS (NT\$)	19.90	27.73	18.39	9.61	18.83
EBITDA/share (NT\$)	7.47	13.76	8.47	0.63	7.75
Cash DPS (NT\$)	1.30	3.70	2.13	0.30	1.30
<b>Activity</b>					
Sales / avg assets	0.37	0.48	0.29	0.15	0.31
Days receivable	47.3	49.3	27.9	56.8	29.1
Days inventory	114.1	87.3	239.7	304.2	256.0
Days payable	17.1	21.4	57.4	48.2	40.6
Cash cycle	144.3	115.2	210.2	312.8	244.4

Source: Company data, KGI Research estimates

**Profit & loss**

NT\$m	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
<b>Revenue</b>	<b>61,006</b>	<b>85,604</b>	<b>56,952</b>	<b>29,755</b>	<b>58,319</b>
Cost of goods sold	(45,314)	(48,560)	(35,610)	(33,633)	(40,081)
<b>Gross profit</b>	<b>15,692</b>	<b>37,044</b>	<b>21,342</b>	<b>(3,878)</b>	<b>18,238</b>
Operating expenses	(7,257)	(9,858)	(10,340)	(9,530)	(10,000)
<b>Operating profit</b>	<b>8,434</b>	<b>27,186</b>	<b>11,002</b>	<b>(13,408)</b>	<b>8,238</b>
<b>Non-operating income</b>	<b>1,148</b>	<b>795</b>	<b>2,483</b>	<b>4,199</b>	<b>2,536</b>
Interest income	681	274	1,395	2,750	1,800
Investment income	467	521	574	448	576
Other non-op income	-	(0)	514	1,001	160
<b>Non-operating expenses</b>	<b>(591)</b>	<b>(214)</b>	<b>3,392</b>	<b>(90)</b>	<b>(100)</b>
Interest expense	(13)	(24)	(49)	(90)	(100)
Investment loss	-	-	-	-	-
Other non-op expenses	(578)	(190)	3,441	-	-
<b>Pre-tax profit</b>	<b>8,991</b>	<b>27,767</b>	<b>16,877</b>	<b>(9,299)</b>	<b>10,674</b>
Current taxation	(1,305)	(4,918)	(2,258)	2,790	(1,921)
Minorities	-	-	-	-	-
Extraordinary items	-	0	0	-	-
<b>Net profit</b>	<b>7,686</b>	<b>22,849</b>	<b>14,619</b>	<b>(6,509)</b>	<b>8,753</b>
<b>EBITDA</b>	<b>22,885</b>	<b>42,480</b>	<b>26,249</b>	<b>1,950</b>	<b>23,996</b>
EPS (NT\$)	2.51	7.40	4.72	(2.10)	2.83

**Cash flow**

NT\$m	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
<b>Operations cash flow</b>	<b>22,612</b>	<b>44,107</b>	<b>21,082</b>	<b>523</b>	<b>22,136</b>
Net profit	7,686	22,849	14,619	(6,509)	8,753
Depreciation & amortisation	14,451	15,294	15,247	15,358	15,758
Decrease in working capital	3,125	(535)	(4,685)	(2,853)	(4,896)
Other operating cash flow	(2,649)	6,499	(4,099)	(5,472)	2,521
<b>Investing cash flow</b>	<b>(8,853)</b>	<b>(10,930)</b>	<b>(20,868)</b>	<b>(15,000)</b>	<b>(15,000)</b>
Sale of ST investment	-	(12)	(729)	-	-
New investments	-	-	-	-	-
Capital expenditure	(8,476)	(11,260)	(20,711)	(15,000)	(15,000)
Others investing cash flow	(377)	342	572	-	-
<b>Free cash flow</b>	<b>16,072</b>	<b>25,610</b>	<b>(877)</b>	<b>(12,139)</b>	<b>2,360</b>
<b>Financing cash flow</b>	<b>(4,106)</b>	<b>(3,060)</b>	<b>(11,771)</b>	<b>(6,599)</b>	<b>(929)</b>
Increase in short term debt	(3)	-	-	-	-
Increase in long term loans	-	-	-	-	-
New ordinary shares issued	-	-	-	-	-
Ordinary dividends paid	(4,600)	(4,000)	(11,470)	(6,600)	(929)
Other financing cash flow	498	(168)	(301)	1	-
<b>Forex effects</b>	<b>(2,076)</b>	<b>(1,143)</b>	<b>4,451</b>		
<b>Total cash generated</b>	<b>7,577</b>	<b>28,974</b>	<b>(7,107)</b>	<b>(21,076)</b>	<b>6,207</b>

**ROIC**

	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
1 - COGS/revenue					
- Operating exp./revenue	11.9%	11.5%	18.2%	32.0%	17.1%
<b>= Operating margin</b>	<b>13.8%</b>	<b>31.8%</b>	<b>19.3%</b>	<b>(45.1%)</b>	<b>14.1%</b>
1 / (Working capital/revenue	0.3	0.1	0.3	0.8	0.4
+ Net PPE/revenue	1.3	0.9	1.5	2.8	1.4
+ Other assets/revenue)	0.0	0.0	0.0	0.2	0.1
<b>= Capital turnover</b>	<b>0.6</b>	<b>1.0</b>	<b>0.6</b>	<b>0.3</b>	<b>0.5</b>
Operating margin	13.8%	31.8%	19.3%	(45.1%)	14.1%
x Capital turnover	0.6	1.0	0.6	0.3	0.5
x (1 - tax rate)	85.5%	82.3%	86.6%	70.0%	82.0%
<b>= After-tax ROIC</b>	<b>7.5%</b>	<b>25.8%</b>	<b>9.5%</b>	<b>(8.2%)</b>	<b>5.9%</b>

Source: Company data, KGI Research estimates

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