

August 29, 2023 09:50 AM GMT

Wistron Corporation | Asia Pacific

Addressing HGX GPU Baseboard Share Loss Concerns

STOCK RATING

Overweight

INDUSTRY VIEW

In-Line

PRICE TARGET

NT\$135.00

NVIDIA intends to dual-source HGX GPU baseboard, bringing in FI, but we think the diversification will be gradual. That said, we think this is already priced in for Wistron, with the stock down 33% from the peak (vs. TAIEX -4%). We stay OW ahead of the multiyear AI cycle.

NVIDIA looking to dual-source HGX baseboard assembly? As we have noted before, there comes a time when volumes are big enough that customers look to dual source. It appears that we are starting to see signs of that for NVIDIA's (NVDA.O) HGX H100 GPU baseboard assembly, with Foxconn Industrial Internet (FI, 601138.SS, covered by Sharon Shih) being the potential newcomer. We think the rationale could stem from: 1) increasing volumes; 2) NVIDIA looking to diversify production location (100% of Wistron's capacity is currently in Taiwan); and 3) NVIDIA trying to see if a vertically integrated GPU module + GPU baseboard assembly supply chain would be more efficient. FI has previously said it [targets to gain 50% supplier share for H100 GPU baseboards](#).

We tend to think any share gains for a second source will be gradual, especially if the gain is strategic and not because of yield issues. NVIDIA has mentioned several times that the HGX GPU base board weighs 70lb and contains 35k parts, which makes the production highly automated and very complex. So it may require some time to move up the learning curve, in our view. For now, our assumption for Wistron is that it will retain 80% share in 2024 and 75% in 2025 (more details: [AI Server Sensitivity Analysis](#)).

If NVIDIA is dual-sourcing HGX GPU baseboard, does it make sense to dual-source GPU module as well? We think so. Especially if our third point in the above paragraph is true. We currently do not have this baked into our numbers for Wistron, but every ~10% share gain for GPU module work for Wistron could add ~NT\$0.06 to EPS or ~1% incremental EPS contribution to our current 2024 EPS estimate of ~NT\$6.05.

Wistron remains one of our preferred AI enablers; reiterate OW with NT\$135 price target: This dual-source strategy is net-net slightly negative to Wistron, given the value proposition for HGX GPU baseboard is higher than for GPU module. However, we think this is priced into the stock, with the stock down ~33% from its peak ~one month ago (vs. TAIEX down ~4%). Assuming similar share loss (~20%), we think buy-side EPS estimates for 2024 of NT\$7.50-8.00 imply the stock is currently trading at ~14x buy-side EPS, undemanding vs. the 15-20x range investors are willing to pay for downstream AI stocks.

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Wistron Corporation (3231.TW, 3231 TT)

Greater China Technology Hardware | Taiwan

Stock Rating	Overweight
Industry View	In-Line
Price target	NT\$135.00
Up/downside to price target (%)	23
Shr price, close (Aug 29, 2023)	NT\$109.50
52-Week Range	NT\$161.50-25.20
Sh out, dil, curr (mn)	2,829
Mkt cap, curr (mn)	NT\$309,764
EV, curr (mn)	NT\$350,057
Avg daily trading value (mn)	NT\$3,289

Fiscal Year Ending	12/22	12/23e	12/24e	12/25e
ModelWare EPS (NT\$)	3.95	3.39	6.05	7.77
Prior ModelWare EPS (NT\$)	-	3.17	5.58	7.76
Revenue, net (NT\$ bn)	984.6	861.7	1,002.6	1,162.9
EBITDA (NT\$ bn)	38.9	36.3	46.7	55.0
ModelWare net inc (NT\$ bn)	11.2	9.5	16.9	21.7
P/E	7.5	32.3	18.1	14.1
P/BV	0.7	2.5	2.4	2.3
RNOA (%)	13.5	13.0	26.4	30.1
ROE (%)	12.1	8.0	14.0	17.1
EV/EBITDA	3.2	8.2	6.4	5.5
Div yld (%)	7.5	2.0	3.6	4.6

Unless otherwise noted, all metrics are based on Morgan Stanley ModelWare framework
e = Morgan Stanley Research estimates

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Risk Reward – Wistron Corporation (3231.TW)

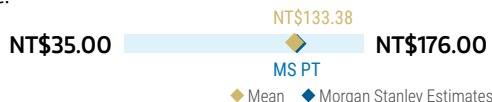
Best positioned in the AI supply chain

PRICE TARGET NT\$135.00

Base case, residual income valuation. Key assumptions: 8.7% cost of equity, 8% medium-term growth rate, and 3% terminal growth rate.

Consensus Price Target Distribution

Source: Refinitiv, Morgan Stanley Research



RISK REWARD CHART



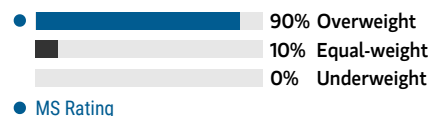
Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Refinitiv, Morgan Stanley Research

OVERWEIGHT THESIS

- We expect Wistron's overall PC business to continue to decline in 2023, but we expect NB shipments to normalize at a higher level vs. pre-COVID in 2024-25.
- We believe Wistron will continue to benefit from its early and close partnership with Nvidia. Wistron is the main supplier of Nvidia's DGX servers and HGX baseboards.
- We now expect a 67% CAGR in Wistron's AI server revenue from 2022-25, with contribution rising from 1.6% in 2022 to ~6% in 2025e.
- We like Wistron's efforts to continue shifting away from low-profit business into more commercial exposure, which is reflected in our price target, which implies 22.3x 2024e EPS, above the upper band of its five-year range of 5-15x.

Consensus Rating Distribution



Source: Refinitiv, Morgan Stanley Research

Risk Reward Themes

Secular Growth: *Negative*

View descriptions of Risk Rewards Themes [here](#)

BULL CASE

NT\$186.00

30.7x 2024e EPS

Much stronger-than-expected NB shipments and rising new product contributions: 1) Total sales rise 10-15% YoY in 2023, with new product contribution from new segments (IoT, automotive, AI, healthcare). 2) NB shipments increase 0-5% y/y in 2023. 3) OPM improves to ~4.5% by 2025 from 2.8% in 2022, driven by favorable mix.

BASE CASE

NT\$135.00

22.3x 2024e EPS

1) Total sales decrease 13% in 2023. 2) NB shipments decline ~15% y/y in 2023. 3) AI server sales post a 67% CAGR (2022-2025e), with contribution reaching ~6% in 2025 from 1.6% in 2022. 4) Operating margin improves to ~3.7% by 2025 from 2.8% in 2022, as higher-margin products rise in the mix while iPhone assembly disposal helps lift profits as well.

BEAR CASE

NT\$90.00

14.9x 2024e EPS

Limited server growth, and NB deteriorates more than expected: 1) Total sales decline 15-20% YoY in 2023, reflecting a slowdown in its data center/AI hardware business (limited new project wins and share loss in existing projects). 2) NB shipments decline 15-20% y/y in 2023. 3) Operating margin declines to ~2.0% in 2024/25 from 2.8% in 2022.

Risk Reward – Wistron Corporation (3231.TW)

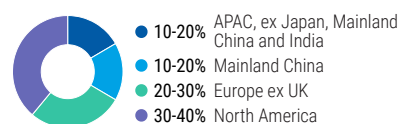
KEY EARNINGS INPUTS

Drivers	2022	2023e	2024e	2025e
NB shipment y/y (%)	(17.2)	(15.1)	8.9	4.1
iPhone shipment y/y (%)	29.8	(23.0)	(23.1)	0.0
NB OPM (%)	1.1	0.9	1.0	1.0
iPhone OPM (%)	(2.2)	(4.3)	(2.5)	(1.4)

INVESTMENT DRIVERS

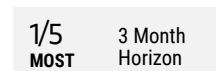
- Legacy iPhone demand
- Notebook demand
- Server demand

GLOBAL REVENUE EXPOSURE



Source: Morgan Stanley Research Estimate
View explanation of regional hierarchies [here](#)

MS ALPHA MODELS



Source: Refinitiv, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

RISKS TO PT/RATING

RISKS TO UPSIDE

- Faster-than-expected divestiture of consumer electronics business
- Stronger-than-expected NB demand
- Margin expansion from better product mix
- Faster-than-expected AI server penetration

RISKS TO DOWNSIDE

- Slower-than-expected divestiture of consumer electronics business
- Weaker-than-expected NB demand
- Margin contraction from sales shortfall and fierce competition
- Slower-than-expected AI server penetration

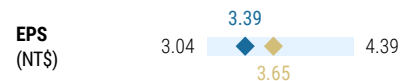
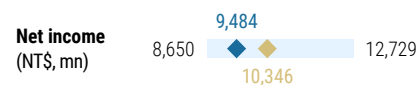
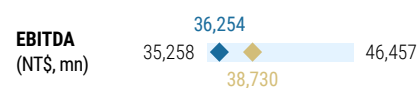
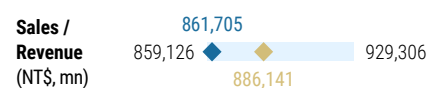
OWNERSHIP POSITIONING

Inst. Owners, % Active 67%

Source: Refinitiv, Morgan Stanley Research

MS ESTIMATES VS. CONSENSUS

FY Dec 2023e



◆ Mean ◆ Morgan Stanley Estimates
Source: Refinitiv, Morgan Stanley Research

Risk Reward – Wistron Corporation (3231.TW)

SUSTAINABILITY AND ESG

Environment	Unit	Dec' 19	Dec' 20	Dec' 21
Total GHG emissions	Metric ton CO2 e	-	208,799	132,191
Total GHG emissions/ Enterprise value (EV)	Metric ton per EUR million EV	-	31.03	15.03
Total amount of hazardous waste generated (including radioactive waste, if reported)	Tonnes	-	908.91	946.65
Governance				
Average Tenure of Board	Number	-	20.72	20.72
Board Independent Directors	Percentage	-	0	0
Board gender diversity	Ratio	-	0:9	0:9

Source: FactSet, Morgan Stanley Research

SUMMARY

NA

SUSTAINABLE SOLUTIONS

Theme	Exposure
Remote Working	35% (EBITA)
Energy Efficiency	4% (EBITA)

Exposure is presented for top four Sustainability themes
View explanation of Theme/Exposure methodology [here](#)

Wistron – Best-positioned AI play

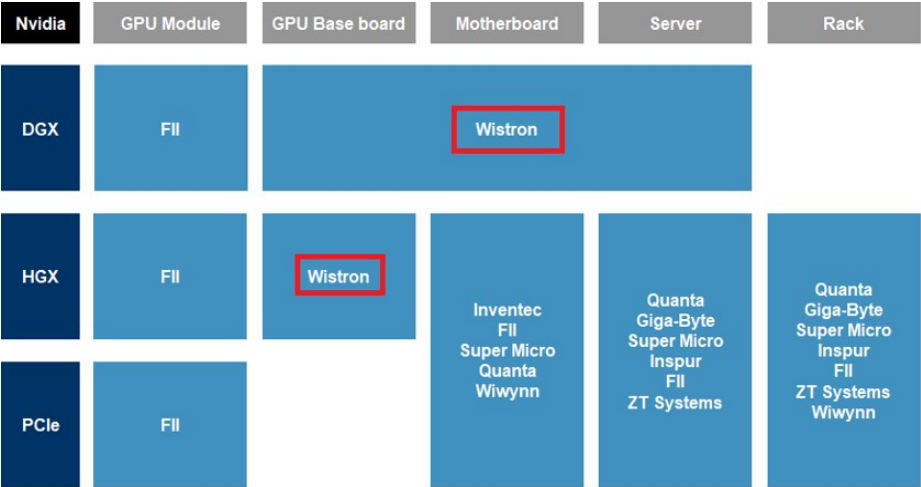
Wistron, founded in 2001, is a major ODM partner for many PC brands. It is also an iPhone assembler partner for Apple, and an ODM partner for many other products, including smart speakers, TVs, monitors, tablets and servers. Wistron has over 20 years of experience as an electronics manufacturer and has a majority stake in its subsidiary Wiwynn (6669.TW), which is a major server rack supplier for three of the four US hyperscalers – Meta, Microsoft and Amazon.

Wistron has partnered with NVIDIA since 2017: Wistron's strategy is to handle only enterprise server orders, while Wiwynn handles all cloud-related server orders. This is why in the past couple of years, Wiwynn showed very strong growth, while Wistron's server business was a bit lackluster, reflecting the ongoing shift in terms of demand from on-premise data centers to the cloud. However, we believe this is also the main reason why Wistron is a key partner for Nvidia today for AI servers. As noted, Wistron started to cooperate with NVIDIA in 2017, while other ODMs like Quanta, Inventec, etc., were focused on catering to and spending resources on cloud customers. Because Wistron could not target cloud customers, it began working with other enterprise customers, even if there was limited visibility on demand. However, that partnership paid off after six years and Wistron is starting to benefit.

According to our checks, Wistron is a key partner to NVIDIA, mainly for the assembly of Nvidia's DGX servers, but also assembly of NVIDIA's HGX GPU baseboards ([Exhibit 5](#)). We believe that Wistron should have a majority share, if not sole supplier share, in the assembly of NVIDIA's own-branded DGX servers as well as NVIDIA's HGX GPU baseboard, for both A100 and H100. However, the PCIe version of A100/H100 single GPU cards are assembled by FIL.

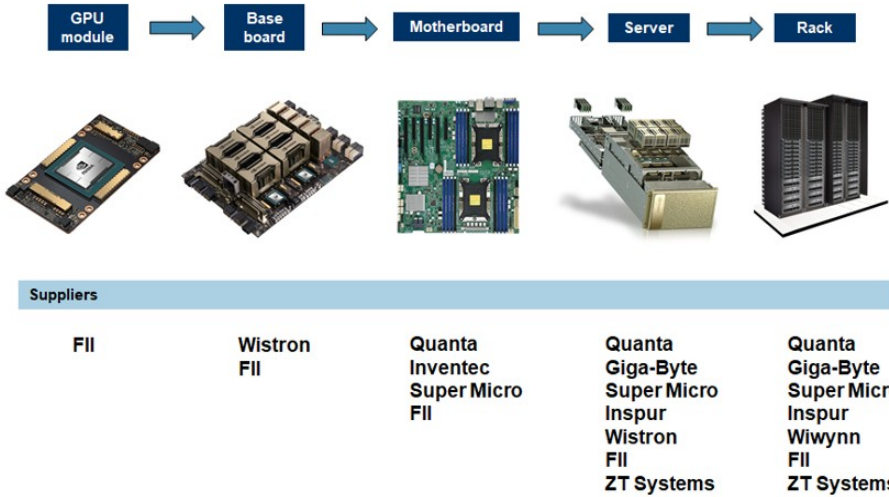
After Wistron is done assembling the DGX server or the HGX GPU baseboard, it sells it back to NVIDIA before NVIDIA sells it to the end customer (DGX server) or to the server ODMs (HGX GPU baseboard). Wistron's ASPs for DGX and HGX do not include the cost of the GPU, per our checks, so the ASP should be relatively low compared to the actual end system price. However, because the ASP does not include the high GPU price, gross margins will be better – we estimate 20-30%, which aligns with management's comments that AI server product gross margin is in the double digits.

Exhibit 1: Wistron is the HGX GPU baseboard supplier and Nvidia's DGX server assembler



Source: Morgan Stanley Research.

Exhibit 2: AI server supply chain



Source: Morgan Stanley Research.

Exhibit 3: DGX/HGX uses SXM modules, which is different from the PCIe version

Source: NVIDIA.

Participating in ASIC and other non-NVIDIA opportunities as well....: On June 26, 2023, Wistron announced that it would partake in Alchip's (3661.TW, covered by Charlie Chan) private placement. It plans to acquire 690k Alchip shares at NT\$1,448 per share, with total investment of NT\$999mn. This should result in an ownership stake of 0.94% in Alchip after the transaction. We believe this is part of the company's strategic plan to position itself more toward commercial exposures and move away from the consumer segment. Currently, Wistron's AI exposure is mainly through NVIDIA, although it does have working relationships with Intel and AMD as well. But our Greater China Semiconductor analyst Charlie Chan believes that AI ASICs (or custom chips) may outgrow general purpose GPUs given lower costs reaching scale. See [Asia Semiconductors: Tech Diffusion – Fulfilling the surge in AI demand with custom chips \(11 Jun 2023\)](#). Thus, we view this strategic investment in Alchip by Wistron positively, and think this could lead to long-term development in the custom AI ASIC market.

...Which could lead to potential upside to earnings: We believe AMD's MI300 will start to ramp up toward year-end, and we believe Wistron should be the major partner for the GPU module as well. Early indications on volumes look pretty positive for 2024, but we think it is too early to be too firm at the moment. Our numbers currently do not bake in any significant volumes for AMD's solution or any assumptions on ASIC opportunities. Thus, if volumes for AMD's MI300 really do rise strongly, this could lead to upside earnings potential. Alternatively, if Wistron is able to monetize its strategic investment in Alchip in the ASIC market, there could also be upside to our earnings estimates.

Potential Indian iPhone asset disposal

Our blue sky scenario bakes in Wistron selling its iPhone production site in India. On our estimates, iPhone is about ~NT\$50bn in annual revenue for Wistron currently, and running in the red at the operating level, at around NT\$1-2bn losses. If Wistron is able to sell its Indian iPhone production site, it could get an immediate boost of about 20-30bp to gross and operating margins, based on our assumptions and estimates. We think this would result in an EPS boost of ~NT\$0.30-0.50 per year. There have been multiple news articles on Wistron talking with potential buyers to sell the Indian assets (e.g., [The Times](#)

of India, 12 Apr 2023); Wistron has not commented on this.

Exhibit 4: Wistron would get a 20-30bp boost to gross and operating margins if it is able to sell the iPhone business in India, we estimate

	With iPhone				Without iPhone			
	2022	2023	2024	2025	2022	2023	2024	2025
Revenue	984,619	879,647	974,407	1,060,920	934,619	829,647	924,407	1,010,920
GP	69,729	64,720	75,272	85,242	67,929	62,920	73,472	83,442
OP	27,472	23,785	31,294	36,960	28,972	25,285	32,794	38,460
GM	7.1%	7.4%	7.7%	8.0%	7.3%	7.6%	7.9%	8.3%
OPM	2.8%	2.7%	3.2%	3.5%	3.1%	3.0%	3.5%	3.8%

Source: Company data, Morgan Stanley Research estimates.

Wistron announced disposal of Luxshare stock

On July 25, Wistron announced the sale of 56,391k common shares of Luxshare (002475.SZ, covered by Sharon Shih) through its subsidiaries in China. The total sale amount was ~Rmb1.73bn, at an average selling price of ~Rmb30.74 – [Wistron Corporation: Announced disposal of Luxshare stock \(25 Jul 2023\)](#).

We believe Wistron will be able to pay down some of its debt and lower interest expense from the sales proceeds – and we think this likely signals that its iPhone production site in India is likely near to being sold.

AI Server Sensitivity Analysis

One of the most asked questions we received after we published [Greater China Technology Hardware: AI - Assessing Downstream Hardware AI Enablers \(11 Jul 2023\)](#) was why we are so conservative on our 2024 earnings estimates for Wistron (which was at NT \$5.66 in that report). Our assumption, which is our base-case scenario, is based on our NVIDIA analyst Joe Moore's GPU assumptions, which was 2-2.5mn GPU units (implying 250-313k servers, assuming 8x GPUs per server) at the time. Since NVIDIA's July quarter results, he raised his estimate to 3-3.5mn GPU units (implying 375-438k AI servers, assuming 8x GPUs per server). For context, buy-side expectation is at ~4mn units, which implies 500k AI servers. Our base-case scenario is highlighted in red in [Exhibit 5](#) below.

Our assumption is 373k units of HGX/DGX servers in 2024, which roughly translates into ~3mn GPUs, and ~60k units of PCIe versions, at ~4x GPU per server, bringing total GPU units to ~3.2mn units, in line with Joe's assumption.

However, for Wistron, we now assume that it will retain ~80% share by 2024 in our base-case scenario, which means Wistron would only be accountable for ~298k units of HGX/DGX servers in 2024, which would imply an EPS contribution of ~NT\$2.5-2.6.

4mn GPU with no share loss to FI in 2024: If we bake the same 4mn GPU assumption into our model (assume no share loss to FI), Wistron's EPS should increase ~NT\$1.7 on top of our ~NT\$6.05 EPS estimate now, bringing total to ~NT\$7.8.

4mn GPU with ~80% share retained in 2024: And if we bake the same 4mn GPU assumption into our model (assume Wistron retains ~80% share), Wistron's EPS should increase ~NT\$0.9 on top of our ~NT\$6.05 EPS estimate now, bringing total to ~NT\$7.0.

Currently, we believe buy-side investors are also expecting Wistron to sell its Indian iPhone production site before the end of the year, which means also baking in an

additional ~NT\$0.30-0.50 EPS contribution to 2024.

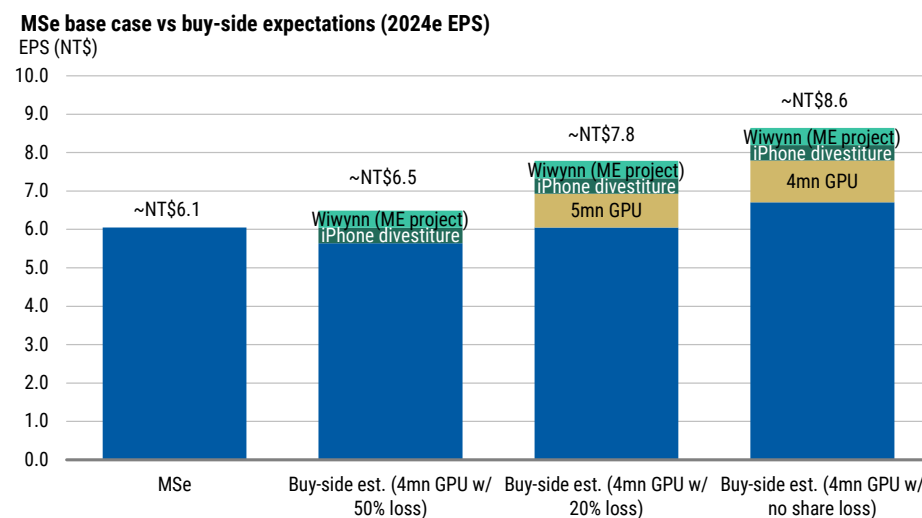
GPU module share gain potential? We think there is also likelihood that Wistron would be able to penetrate into GPU module supply chain, diversifying away from FIL's dominant sole supplier status currently. If that is true, under our current assumption of ~3.2mn GPU units in 2024, a 10% share gain for GPU module would contribute ~NT\$0.06 EPS, which means every 10% share gain for GPU module would mean a ~1% accretion to our current EPS estimates.

Exhibit 5: AI server sensitivity analysis for Wistron – HGX baseboard

EPS contribution		AI Server Units (000s)						
GM (%)		260	298	313	375	438	500	563
	10%	0.90	1.03	1.08	1.29	1.51	1.73	1.94
	15%	1.35	1.54	1.62	1.94	2.27	2.59	2.91
	20%	1.79	2.06	2.16	2.59	3.02	3.45	3.88
	25%	2.24	2.57	2.70	3.24	3.78	4.31	4.85
	30%	2.69	3.09	3.24	3.88	4.53	5.18	5.82
	35%	3.14	3.60	3.78	4.53	5.29	6.04	6.80
	40%	3.59	4.11	4.31	5.18	6.04	6.90	7.77

Source: Morgan Stanley Research estimates.

Exhibit 6: Our base-case estimates vs. buy-side expectations for 2024



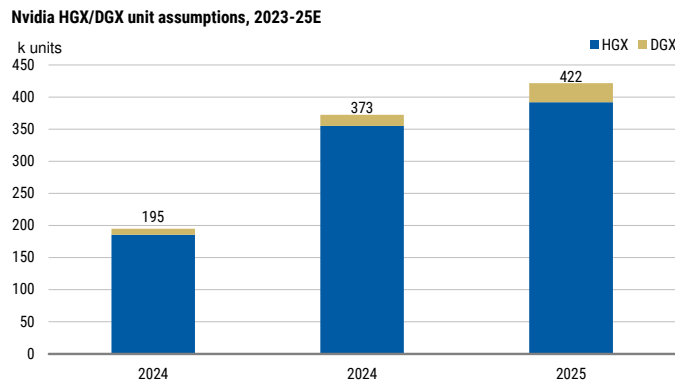
Source: Morgan Stanley Research estimates.

Exhibit 7: GPU module sensitivity analysis

EPS contribution		GPU Module Units (000s)						
GM (%)		160	320	480	640	800	960	1,120
	10%	0.02	0.05	0.07	0.10	0.12	0.14	0.17
	11%	0.03	0.05	0.08	0.11	0.13	0.16	0.18
	12%	0.03	0.06	0.09	0.12	0.14	0.17	0.20
	13%	0.03	0.06	0.09	0.12	0.16	0.19	0.22
	14%	0.03	0.07	0.10	0.13	0.17	0.20	0.24
	15%	0.04	0.07	0.11	0.14	0.18	0.22	0.25
	16%	0.04	0.08	0.12	0.15	0.19	0.23	0.27

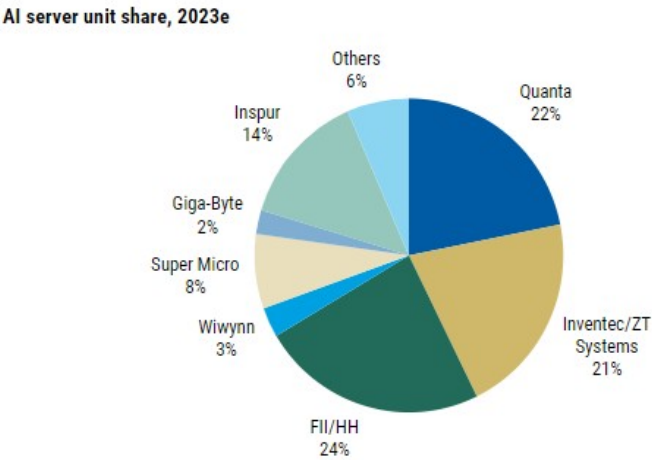
Source: Morgan Stanley Research estimates.

Exhibit 8: NVIDIA HGX/DGX unit assumptions, 2023-25E



Source: Morgan Stanley Research estimates.

Exhibit 9: NVIDIA AI server unit share, 2023



Source: Company data, Morgan Stanley Research estimates.

Changes to Earnings Estimates

We fine-tune our model post NVIDIA's July quarter results and HGX GPU baseboard share loss to FII, which drives up our EPS for Wistron 7% and 8% for 2023e and 2024e, respectively, but our estimate for 2025 is effectively unchanged for 2025.

Exhibit 10: Estimate changes

Year to Dec. 31 (NT\$m)	2023E			2024E			2025E		
	New	Old	% diff	New	Old	% diff	New	Old	% diff
P&L Summary									
Net sales	861,705	859,126	0%	1,002,634	995,652	1%	1,162,881	1,169,471	-1%
COGS	(795,259)	(793,730)		(924,183)	(919,570)		(1,073,660)	(1,080,010)	
Gross profit	66,446	65,397	2%	78,451	76,082	3%	89,221	89,461	0%
Operating expenses	(41,525)	(41,267)		(43,387)	(42,743)		(46,508)	(46,803)	
Operating income	24,921	24,130	3%	35,064	33,339	5%	42,713	42,658	0%
Non-operating income	(3,723)	(3,723)		(1,490)	(1,490)		110	110	
Pre-tax income	21,198	20,407	4%	33,574	31,849	5%	42,824	42,768	0%
Income tax	(4,898)	(4,716)		(7,929)	(7,524)		(10,069)	(10,056)	
Minority interest	6,816	6,816		8,726	8,726		11,021	11,021	
Net income	9,484	8,875	7%	16,920	15,600	8%	21,734	21,692	0%
EPS (NT\$)	3.39	3.17	7%	6.05	5.58	8%	7.77	7.76	0%
Margins									
Gross margin	7.7%	7.6%		7.8%	7.6%		7.7%	7.6%	
Operating margin	2.9%	2.8%		3.5%	3.3%		3.7%	3.6%	
Pretax margin	2.5%	2.4%		3.3%	3.2%		3.7%	3.7%	
Net margin	1.1%	1.0%		1.7%	1.6%		1.9%	1.9%	

Source: Morgan Stanley Research (E) estimates.

Price Target and Valuation Methodology

We maintain our price target of NT\$135.00 (implies ~22.3x our 2024e EPS) and stay
OW: The recent share price implies 18x our 2024e EPS, higher than the implied P/E on buy-side consensus estimates (only 13-14x), which looks undemanding vs. the 15-20x range investors have been willing to pay for downstream AI stocks. We still view Wistron as one of our preferred AI enablers.

Our key assumptions are all unchanged: cost of equity of 8.7%, medium-term growth rate assumption of 8.0%, and terminal growth rate of 3%.

Our bull- and bear-case scenario values are also unchanged at NT\$186 and NT\$90, respectively.

Exhibit 11: Residual Income (RI) Model

NT\$ mn	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E
Total Equity	127,310	135,117	145,621	156,966	169,217	182,449	196,740	212,174	228,842	246,844	266,286
Net Profit	16,920	21,734	23,473	25,350	27,378	29,569	31,934	34,489	37,248	40,228	43,446
Return on Equity	13.6%	16.6%	16.7%	16.8%	16.8%	16.8%	16.8%	16.9%	16.9%	16.9%	16.9%
Beta	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Equity Risk Premium (Rm-Rf)	5.99%	5.99%	5.99%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Risk Free Rate (Rf)	1.50%	1.50%	1.50%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Cost of Equity	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
Beginning Equity Capital	127,310										
PV of Forecast Period	90,619										
PV of Continuing Value	159,484										
Equity Value	377,413										
No. of Shares	2,795										
Projected Price (EoY)	135.0										
Implied 2024/25 P/E	22.3x	17.4x									

Source: Morgan Stanley Research (E) estimates.

Financials

Exhibit 12: Quarterly Earnings Estimates

(NT\$m)	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23E	4Q23E	2022A	2023E	2024E	2025E
Net sales	226,446	244,216	250,103	263,854	212,000	207,477	212,117	230,111	984,619	861,705	1,002,634	1,162,881
COGS	(213,650)	(227,835)	(232,229)	(241,176)	(197,149)	(191,800)	(195,077)	(211,234)	(914,890)	(795,259)	(924,183)	(1,073,660)
Gross profit	12,796	16,381	17,874	22,678	14,852	15,677	17,040	18,877	69,729	66,446	78,451	89,221
Operating expenses	(8,950)	(10,286)	(11,037)	(11,984)	(10,128)	(10,342)	(10,297)	(10,758)	(42,257)	(41,525)	(43,387)	(46,508)
SG&A, R&D exp.	(8,950)	(10,286)	(11,037)	(11,984)	(10,128)	(10,342)	(10,297)	(10,758)	(42,257)	(41,525)	(43,387)	(46,508)
Employee bonus	0	0	0	0	0	0	0	0	0	0	0	0
Operating income	3,846	6,095	6,837	10,694	4,723	5,335	6,743	8,119	27,472	24,921	35,064	42,713
Non-operating income	(3,379)	2,011	1,100	(2,493)	(2,097)	842	(1,545)	(922)	(2,761)	(3,723)	(1,490)	110
Interest income	(211)	(603)	(1,367)	(1,817)	(1,665)	(1,568)	(1,372)	(1,172)	(3,998)	(5,778)	(2,490)	(890)
Investment income	102	156	448	309	76	183	100	100	1,014	459	400	400
Disposal of investment	2	(3)	0	(0)	2	0	(423)	0	(1)	(421)	0	0
Exchange gain	(159)	607	987	(1,029)	(498)	1,517	0	0	405	1,019	0	0
Other	(3,114)	1,855	1,033	45	(12)	709	150	150	(181)	998	600	600
Pre-tax income	467	8,106	7,937	8,201	2,627	6,177	5,198	7,196	24,711	21,198	33,574	42,824
Income tax	(103)	(1,871)	(1,817)	(1,902)	(607)	(1,441)	(1,196)	(1,655)	(5,693)	(4,898)	(7,929)	(10,069)
Minority interest	1,224	1,985	2,423	2,222	1,846	1,478	1,599	1,892	7,855	6,816	8,726	11,021
Net income	(860)	4,250	3,696	4,076	174	3,258	2,403	3,649	11,162	9,484	16,920	21,734
Adj.wtd.avg.shrs (mn)	2,782	2,782	2,783	2,783	2,795	2,795	2,795	2,795	2,829	2,795	2,795	2,795
EPS	(0.31)	1.53	1.33	1.46	0.06	1.17	0.86	1.31	3.95	3.39	6.05	7.77
Fully Diluted shares (mn)	2,782	2,782	2,783	2,783	2,795	2,795	2,795	2,795	2,829	2,795	2,795	2,795
Diluted EPS (NT\$)	(0.31)	1.53	1.33	1.46	0.06	1.17	0.86	1.31	3.95	3.39	6.05	7.77
Margins (%)												
Gross Margin	5.7	6.7	7.1	8.6	7.0	7.6	8.0	8.2	7.1	7.7	7.8	7.7
Operating Margin	1.7	2.5	2.7	4.1	2.2	2.6	3.2	3.5	2.8	2.9	3.5	3.7
Pretax Margin	0.2	3.3	3.2	3.1	1.2	3.0	2.5	3.1	2.5	2.5	3.3	3.7
Net Margin	(0.4)	1.7	1.5	1.5	0.1	1.6	1.1	1.6	1.1	1.1	1.7	1.9
QoQ Growth (%)												
Sales	-14	8	2	5	-20	-2	2	8				
Gross Profit	-17	28	9	27	-35	6	9	11				
Operating Profit	-30	58	12	56	-56	13	26	20				
Pretax Profit	-95	1,635	-2	3	-68	135	-16	38				
Net Profit	-116	-594	-13	10	-96	1,775	-26	52				
YoY Growth (%)												
Sales	28	22	13	0	-6	-15	-15	-13	14	(12)	16	16
Gross Profit	21	35	38	46	16	-4	-5	-17	36	(5)	18	14
Operating Profit	25	82	54	94	23	-12	-1	-24	68	(9)	41	22
Pretax Profit	-62	18	231	-6	462	-24	-35	-12	28	(14)	58	28
Net Profit	-864	2	347	-24	NM	-23	-35	-10	7	(15)	78	28

Source: Company data, Morgan Stanley Research (E) estimates.

Exhibit 13: Consolidated Financial Summary

Consolidated Income Statement

NT\$mnn (Year End Dec 31)	2022A	2023E	2024E	2025E
Net sales	984,619	861,705	1,002,634	1,162,881
COGS	(914,890)	(795,259)	(924,183)	(1,073,660)
Gross profit	69,729	66,446	78,451	89,221
Operating expenses	(42,257)	(41,525)	(43,387)	(46,508)
Operating income	27,472	24,921	35,064	42,713
Non-operating income	(2,761)	(3,723)	(1,490)	110
Interest income	(3,998)	(5,778)	(2,490)	(890)
Investment income	1,014	459	400	400
Disposal of investment	(1)	(421)	-	-
Exchange gain	405	1,019	-	-
Other	(181)	998	600	600
Pre-tax income	24,711	21,198	33,574	42,824
Income tax	(5,693)	(4,898)	(7,929)	(10,069)
Minority interests	7,855	6,816	8,726	11,021
Net income	11,162	9,484	16,920	21,734
Adj. wtd. Avg. shrs (m)	2,829	2,795	2,795	2,795
Reported EPS (NT\$)	3.95	3.39	6.05	7.77
Diluted shrs (m)	2,829	2,795	2,795	2,795
Diluted EPS (NT\$)	3.95	3.39	6.05	7.77

Consolidated Balance Sheet

NT\$mnn (Year End Dec 31)	2022A	2023E	2024E	2025E
Cash	69,680	120,805	119,531	118,017
Mkt securities	8,686	8,686	8,686	8,686
AR/NR	100,230	118,915	138,363	160,478
Inventory	156,889	83,502	97,039	112,734
Others	7,501	6,564	7,638	8,859
Current Assets	342,986	338,472	371,257	408,774
Long-term investments	15,256	15,256	15,256	15,256
Fixed assets	51,515	52,677	55,626	60,250
Other assets	23,151	23,252	23,353	23,454
Total Assets	432,908	429,657	465,492	507,733
S/T borrowings	114,279	114,279	114,279	114,279
AP/NP	108,802	159,052	184,837	214,732
Other ST liabilities	63,644	19,881	23,105	26,841
Total Current Liabilities	286,725	293,213	322,221	355,853
L/T debt	10,949	10,949	10,949	10,949
Other LT liabilities	16,581	4,309	5,013	5,814
Total Liabilities	314,255	308,470	338,183	372,616
Common shares	29,016	28,289	28,289	28,289
Retained Earnings	43,572	45,834	51,356	58,563
Other SH' Equity	46,065	47,064	47,665	48,266
Total Shareholders' Equity	118,653	121,187	127,310	135,117
Total Liab./SH's Equity	432,908	429,657	465,492	507,733

Consolidated Cash Flow Statement

NT\$mnn (Year End Dec 31)	2022A	2023E	2024E	2025E
Operating Cashflow	53,440	82,905	23,058	28,174
Net Profits	11,162	9,484	16,920	21,734
Depreciation & Amort.	11,475	11,333	11,589	12,238
Investment losses/(income)	(776)	(459)	(400)	(400)
Working capital change	5,922	61,189	(3,977)	(4,177)
Other adjustments	21,525	936	(1,074)	(1,221)
Investing Cashflow	(16,739)	(12,596)	(14,639)	(16,963)
Capex	(13,609)	(14,218)	(16,543)	(19,188)
Change of L/T investment	(395)	0	0	0
Change of S/T investment	(753)	0	0	0
Other adjustments	(2,617)	(101)	(101)	(101)
Financing Cashflow	(48,366)	(18,165)	(9,692)	(12,725)
Increase in L/T debt	(10,176)	0	0	0
Increase in S/T debt	(37,371)	0	0	0
Issuance of stock	0	(726)	1	1
Cash dividends	(6,257)	(6,165)	(10,998)	(14,127)
Other adjustments	5,438	(11,275)	1,305	1,401
FX adjustment	7,849	(1,019)	0	0
Net change in cash	(3,817)	51,125	(1,274)	(1,514)

Consolidated Financial Ratios

	2022A	2023E	2024E	2025E
Margins (%)				
Gross margin	7.1	7.7	7.8	7.7
Operating margin	2.8	2.9	3.5	3.7
Pretax margin	2.5	2.5	3.3	3.7
Net margin	1.1	1.1	1.7	1.9
YoY growth (%)				
Sales	14.2	(12.5)	16.4	16.0
Operating profits	67.8	(9.3)	40.7	21.8
Pretax profits	28.5	(14.2)	58.4	27.5
Net profits	6.6	(15.0)	78.4	28.5
Others				
Cash dividend payout (%)	59%	64%	64%	64%
Cash div (NT\$)	2.20	2.54	2.18	3.89
Yield (%)	9%	11%	9%	16%
Net Debt/Equity (%)	39%	-4%	-2%	-1%
Liabilities/Equity (%)	265%	255%	266%	276%
Liabilities/Assets (%)	73%	72%	73%	73%
ROAE (%)	11%	8%	14%	17%
ROAA (%)	2%	2%	4%	4%
AR/NR Turnover (days)	48	46	47	47
Inventory Turnover (days)	63	55	36	36
AP/NP Turnover (days)	55	61	68	68
Cash conversion cycle	57	40	15	15

Source: Company data, Morgan Stanley Research (E) estimates.

Risk Reward Reference links

1. View explanation of Options Probabilities methodology - [Options_Probabilities_Exhibit_Link.pdf](#)
2. View descriptions of Risk Rewards Themes - [RR_Themes_Exhibit_Link.pdf](#)
3. View explanation of regional hierarchies - [Microsoft PowerPoint - Exhibit Links.pptx](#)
4. View explanation of 'Indicator of Change' methodology - [ESG_Indicator_of_Change_External_Link.pdf](#)
5. View explanation of Theme/Exposure methodology - [ESG_Sustainable_Solutions_External_Link.pdf](#)
6. View explanation of HERS methodology - [ESG_HERS_External_Link.pdf](#)

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(as of July 31, 2023)

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Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1347	37%	276	43%	20%	609	39%
Equal-weight/Hold	1659	46%	294	46%	18%	717	46%
Not-Rated/Hold	3	0%	0	0%	0%	1	0%
Underweight/Sell	604	17%	69	11%	11%	227	15%
Total	3,613		639			1554	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

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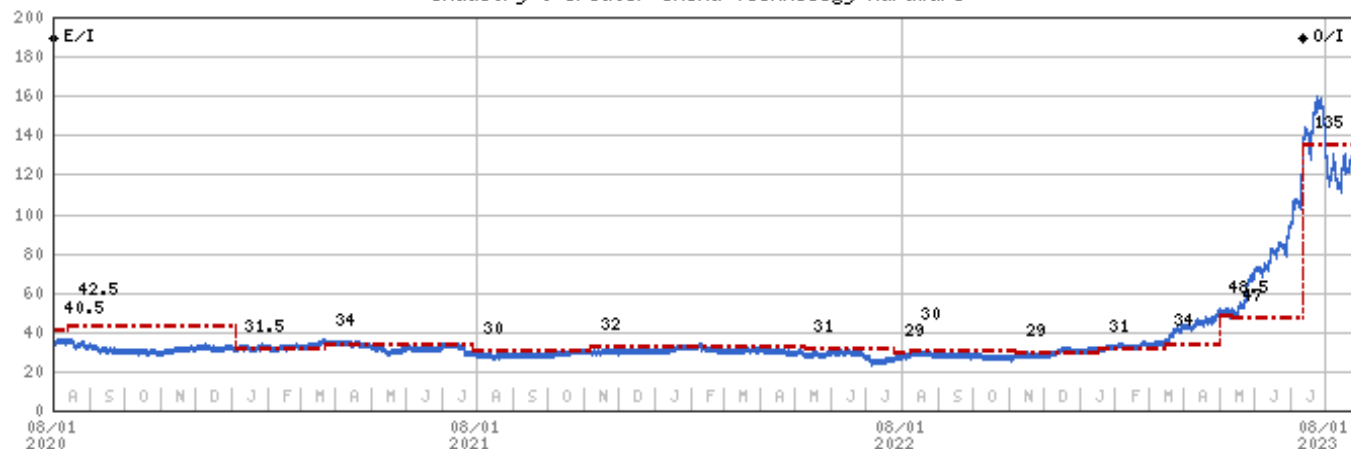
Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

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Wistron Corporation (3231.TW) - As of 8/28/23 in TWD
Industry : Greater China Technology Hardware



Stock Rating History: 8/1/18 : E/I; 7/12/23 : 0/I

Price Target History: 7/26/18 : 25.75; 11/14/18 : 21.3; 5/13/19 : 22.5; 12/18/19 : 33; 3/20/20 : 25.5; 3/25/20 : 26.5; 5/14/20 : 29; 7/20/20 : 40.5; 8/13/20 : 42.5; 1/4/21 : 31.5; 3/23/21 : 34; 7/28/21 : 30; 11/6/21 : 32; 5/9/22 : 31; 7/26/22 : 29; 8/8/22 : 30; 11/7/22 : 29; 1/17/23 : 31; 3/15/23 : 34; 5/1/23 : 48.5; 5/12/23 : 47; 7/12/23 : 135

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)

Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —

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Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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INDUSTRY COVERAGE: Greater China Technology Hardware

COMPANY (TICKER)	RATING (AS OF)	PRICE* (08/29/2023)
Andy Meng, CFA		
AAC Technologies Holdings (2018.HK)	E (08/10/2023)	HK\$15.52
Accelink Technologies Co. Ltd. (002281.SZ)	U (05/12/2022)	Rmb27.48
BYD Electronics (0285.HK)	O (04/28/2023)	HK\$32.60
China TransInfo Technology Co Ltd (002373.SZ)	E (07/18/2023)	Rmb12.51
Dahua Technology Co. Ltd. (002236.SZ)	U (07/18/2023)	Rmb21.41
Eoptolink Technology Inc Ltd (300502.SZ)	U (04/20/2023)	Rmb45.15
Genius Electronic Optical Co. Ltd. (3406.TW)	O (05/16/2023)	NT\$386.00
Gosuncn Technology Group Co Ltd (300098.SZ)	U (11/07/2022)	Rmb3.45
HIKVision Digital Technology (002415.SZ)	O (11/02/2015)	Rmb35.36
Largan Precision (3008.TW)	O (05/16/2023)	NT\$2,025.00
LianChuang Electronic Technology Co Ltd (002036.SZ)	E (05/16/2023)	Rmb9.79
OFILM Group Co Ltd (002456.SZ)	E (11/04/2021)	Rmb5.50
Q Technology (Group) Company Ltd (1478.HK)	O (01/09/2023)	HK\$2.96
Quectel Wireless Solutions Co Ltd (603236.SS)	O (11/07/2022)	Rmb46.18
Shenzhen Transsion Holdings Co Ltd (688036.SS)	E (04/20/2023)	Rmb139.90
Sunny Optical (2382.HK)	O (05/16/2023)	HK\$64.40
Suzhou TFC Optical Communication Co Ltd. (300394.SZ)	U (04/20/2023)	Rmb85.06
Wingtech Technology Co Ltd (600745.SS)	O (05/18/2022)	Rmb45.60
Xiaomi Corp (1810.HK)	O (04/14/2021)	HK\$12.38
Yangtze Optical Fibre and Cable JSC Ltd (601869.SS)	U (10/13/2021)	Rmb32.15
Yangtze Optical Fibre and Cable JSC Ltd (6869.HK)	E (04/20/2023)	HK\$11.10
Yongxin Optics Co Ltd (603297.SS)	E (11/15/2022)	Rmb86.85
YuTong Optical Technology Co Ltd (300790.SZ)	E (04/05/2022)	Rmb13.47
Zhejiang Crystal-Optech Co Ltd (002273.SZ)	O (11/15/2022)	Rmb10.19
Zhongji Innolight Co Ltd (300308.SZ)	E (12/01/2022)	Rmb115.19
ZTE Corporation (0763.HK)	O (06/20/2019)	HK\$24.80
ZTE Corporation (000063.SZ)	U (07/02/2021)	Rmb34.91
Derrick Yang		
Advantech (2395.TW)	O (01/20/2021)	NT\$346.50
AirTAC International (1590.TW)	E (08/04/2022)	NT\$889.00
AU Optronics (2409.TW)	E (10/04/2022)	NT\$17.75
BOE Technology (000725.SZ)	O (09/06/2019)	Rmb3.88

BOE Varitronix Ltd (0710.HK)	O (06/20/2023)	HK\$7.83
Chroma Ate Inc. (2360.TW)	O (10/05/2021)	NT\$282.00
E Ink Holdings Inc. (8069.TWO)	O (05/17/2023)	NT\$184.50
Ennoconn Corporation (6414.TW)	O (01/20/2021)	NT\$259.50
Ennostar Inc (3714.TW)	U (09/23/2022)	NT\$45.20
GIS Holding Limited (6456.TW)	E (05/06/2023)	NT\$61.50
Hiwin Technologies Corp. (2049.TW)	E (08/11/2023)	NT\$199.50
Innolux (3481.TW)	O (10/04/2022)	NT\$14.70
Lens Technology (300433.SZ)	E (07/22/2020)	Rmb11.68
Leyard Optoelectronic Co Ltd (300296.SZ)	E (11/03/2020)	Rmb6.19
Radiant Opto-Electronics Corporation (6176.TW)	O (12/01/2020)	NT\$119.00
Sanan Optoelectronics (600703.SS)	U (08/21/2023)	Rmb15.50
TCL Corp. (000100.SZ)	E (06/11/2019)	Rmb3.94
Tianma Microelectronics (000050.SZ)	U (01/24/2018)	Rmb8.36
Visionox Technology Inc (002387.SZ)	E (02/18/2020)	Rmb7.75
Wuhan Jingce Electronic Group Co Ltd (300567.SZ)	E (11/26/2021)	Rmb83.26
Wuhu Token Science Co. Ltd. (300088.SZ)	U (06/20/2023)	Rmb5.82
Howard Kao		
Accton Technology Corporation (2345.TW)	E (11/12/2021)	NT\$473.50
Acer Inc. (2353.TW)	E (05/01/2023)	NT\$36.20
Asustek Computer Inc. (2357.TW)	O (08/01/2023)	NT\$405.00
Compal Electronics (2324.TW)	E (05/01/2023)	NT\$33.35
Flexium (6269.TW)	E (04/27/2018)	NT\$89.20
Giga-Byte Technology Co. Ltd. (2376.TW)	O (12/15/2022)	NT\$354.00
Gold Circuit Electronics Ltd. (2368.TW)	O (10/06/2022)	NT\$201.00
Guangdong Fenghua Adv. Tech. (Hldg) Co (000636.SZ)	E (05/12/2021)	Rmb14.38
Inspur Electronic Information (000977.SZ)	E (08/28/2023)	Rmb38.68
Kinsus Interconnect Tech. (3189.TW)	U (12/21/2022)	NT\$106.00
Lenovo (0992.HK)	O (05/01/2023)	HK\$8.34
Lotes Co. Ltd. (3533.TW)	O (10/06/2022)	NT\$871.00
Nan Ya PCB (8046.TW)	U (12/21/2022)	NT\$244.00
Pegatron Corporation (4938.TW)	E (03/07/2022)	NT\$78.30
Quanta Computer Inc. (2382.TW)	O (05/01/2023)	NT\$244.50
Shengyi Technology Co Ltd. (600183.SS)	E (05/26/2022)	Rmb14.58
Shennan Circuits Co Ltd (002916.SZ)	E (08/24/2023)	Rmb64.10
Unimicron (3037.TW)	U (02/22/2023)	NT\$184.00
Wistron Corporation (3231.TW)	O (07/12/2023)	NT\$109.50
Wiwynn Corp (6669.TW)	O (07/12/2023)	NT\$1,640.00
Yageo Corp. (2327.TW)	O (01/04/2022)	NT\$479.00
Zhen Ding (4958.TW)	E (08/02/2022)	NT\$95.10
Sharon Shih		
Asia Vital Components Co. Ltd. (3017.TW)	O (05/04/2023)	NT\$335.00
Auras Technology Co Ltd (3324.TWO)	E (05/04/2023)	NT\$285.00
BizLink Holding Inc (3665.TW)	O (02/20/2023)	NT\$243.00
Catcher Technology (2474.TW)	U (04/23/2021)	NT\$171.00
Cubic Sensor and Instrument Co Ltd (688665.SS)	E (08/18/2022)	Rmb77.00
Delta Electronics Inc. (2308.TW)	O (07/13/2017)	NT\$346.50
Foxconn Industrial Internet Co. Ltd. (601138.SS)	O (07/10/2019)	Rmb21.59
Foxconn Technology (2354.TW)	E (08/16/2016)	NT\$54.80
GoerTek Inc (002241.SZ)	E (12/05/2022)	Rmb15.16
Guangzhou Shiyuan Electronic Tech Co Ltd (002841.SZ)	E (10/28/2021)	Rmb52.57
Hon Hai Precision (2317.TW)	E (01/09/2023)	NT\$106.00
LandMark Optoelectronics Corporation (3081.TWO)	U (04/27/2023)	NT\$95.80
Lingyi Itech Guangdong Co (002600.SZ)	E (08/28/2023)	Rmb5.88
Lite-On Technology (2301.TW)	O (07/31/2023)	NT\$141.50

Luxshare Precision Industry Co., Ltd. (002475.SZ)	O (10/24/2016)	Rmb32.39
SDI Corporation (2351.TW)	E (04/26/2023)	NT\$99.30
Sunonwealth Electric Machine Industry Co (2421.TW)	O (08/07/2023)	NT\$132.00
Tong Hsing (6271.TW)	E (03/18/2019)	NT\$130.50
Visual Photonics Epitaxy Co Ltd (2455.TW)	U (04/14/2023)	NT\$134.00

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