

Handset, wearable, PC and server

2023 outlook: worst in sight, but recovery unclear yet

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See Appendix A-1 for analyst certification, important disclosures and the status of non-US analysts.

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April 2023

Valuation comparison – handsets brand, EMS/ODM, power supply, camera/lens and acoustics **NOMURA**

Ticker	Company	Price 4/13/2023	Nomura Rating	Nomura Analyst	Mkt cap US\$m	P/E (x)			P/B (x)			ROE (%)			EPS growth (%)			Yield (%)
						FY22	FY23F	FY24F	FY22	FY23F	FY24F	FY22	FY23F	FY24F	FY22	FY23F	FY24F	FY23F
Brand																		
005930 KS	Samsung	66,100	BUY	CW Chung	296,872	8.2	58.0	12.9	1.3	1.3	1.2	17.1	2.2	9.7	39.5	(85.8)	348.6	2.2
066570 KS	LG Electronics	115,300	BUY	Eon Hwang	14,131	14.1	13.9	7.5	1.0	0.9	0.8	7.4	7.0	11.8	(44.1)	1.1	84.6	1.1
AAPL US	Apple	160.10	Not rated		2,533,094	26.0	26.9	24.2	0.0	44.4	31.1	0.0	165.9	149.5	nm	(3.1)	11.1	0.6
1810 HK	Xiaomi	12.18	NEUTRAL	Donnie Teng	38,638	19.6	17.4	nm	1.8	1.6	nm	9.6	9.9	0.0	(28.2)	12.7	nm	na
Average						17.0	29.0	14.9	1.0	12.1	11.0	8.5	46.2	42.7	(11.0)	(18.8)	148.1	1.3
EMS / ODM																		
2317 TT	Hon Hai	103.00	BUY	Anne Lee, CFA	46,563	10.1	9.9	9.0	1.0	0.8	0.7	10.0	8.6	8.1	1.6	2.0	10.5	5.3
601138 CH	FII	17.66	Not rated		51,042	17.3	15.0	13.4	0.0	2.4	2.1	0.0	16.4	16.2	nm	15.6	12.0	3.1
4938 TT	Pegatron	70.30	NEUTRAL	Anne Lee, CFA	6,170	12.2	12.2	11.4	1.0	1.0	0.9	8.5	8.1	8.4	(25.3)	0.2	6.8	5.7
Average						13.2	12.4	11.2	0.7	1.4	1.2	6.2	11.0	10.9	(11.9)	5.9	9.7	4.7
Power supply																		
2308 TT	Delta	300.50	BUY	Anne Lee, CFA	25,408	23.9	19.7	16.8	4.5	4.2	3.6	19.9	22.0	23.1	21.9	21.2	17.3	3.3
DELTA TB	Delta Thailand	950.00	Not rated		34,794	77.2	71.3	61.4	0.0	18.2	15.2	0.0	27.6	27.4	nm	8.4	16.0	0.5
2301 TT	Lite-On Tech	74.40	BUY	Anne Lee, CFA	5,774	13.7	13.9	10.8	2.3	2.3	2.1	17.1	16.4	20.2	(8.2)	(1.4)	28.8	6.5
2385 TT	Chicony	96.60	Not rated		2,381	9.4	9.9	9.2	0.0	1.8	1.7	0.0	19.3	19.3	nm	(5.0)	7.5	7.8
Average						31.1	28.7	29.7	1.7	6.6	7.0	9.2	21.3	22.5	6.9	5.8	20.7	4.5
Camera/lens/CCM																		
3008 TT	Largan	2,155	NEUTRAL	Anne Lee, CFA	9,491	12.7	17.0	15.5	1.9	1.8	1.7	15.2	10.6	11.3	21.8	(26.2)	11.5	3.9
3406 TT	Genius	390.00	NEUTRAL	Anne Lee, CFA	1,450	13.4	19.1	15.5	2.2	2.1	1.9	17.6	11.3	12.9	42.5	(29.6)	23.2	2.7
2382 HK	Sunny Optical	97.50	BUY	Donnie Teng	13,379	41.8	30.7	22.4	4.2	3.8	3.3	10.4	12.9	15.7	(55.3)	36.4	36.7	0.7
6271 TT	Tong Hsing	193.50	BUY	Anne Lee, CFA	1,038	9.9	13.3	10.7	1.3	1.2	1.1	13.2	9.3	11.1	13.6	(25.3)	23.6	5.4
603501 CH	Will Semi	103.10	BUY	Aaron Jeng, CFA	18,743	87.9	44.1	34.9	7.0	6.0	na	8.2	14.7	16.4	(68.8)	99.4	26.5	0.1
1478 HK	Q-tech	4.19	BUY	Donnie Teng	635	25.6	96.3	14.0	0.9	0.9	0.8	3.5	0.9	6.1	(80.4)	(73.4)	589.3	na
1415 HK	Cowell	19.66	BUY	Anne Lee, CFA	2,031	24.9	23.9	12.6	5.8	4.6	3.4	25.0	21.5	31.2	67.6	4.5	90.1	na
002273 CH	Crystal OpTech	13.66	BUY	Anne Lee, CFA	2,837	29.1	24.6	17.4	2.1	2.0	1.8	7.5	8.4	11.0	47.4	18.6	41.1	0.9
688127 CH	Lante Optics	20.89	NEUTRAL	Anne Lee, CFA	1,281	93.5	31.3	21.9	5.6	4.9	4.1	6.0	16.7	20.5	(35.9)	198.3	43.3	0.7
Average						37.7	33.3	18.2	3.4	3.0	2.3	11.9	11.8	15.2	(5.3)	22.6	98.8	2.0
Acoustics																		
2018 HK	AAC	16.12	BUY	Anne Lee, CFA	2,425	20.7	16.1	10.6	0.7	0.7	0.7	3.6	4.4	6.5	(37.6)	28.4	52.4	1.2
002241 CH	Goertek	23.30	NEUTRAL	Anne Lee, CFA	12,026	17.2	17.0	14.8	2.5	2.3	2.0	15.6	14.0	14.4	8.4	0.8	15.4	1.1
2439 TT	Merry	90.50	RATING SUSPENDED		646	13.3	14.6	12.1	0.0	1.5	1.4	0.0	10.4	11.9	nm	(9.1)	20.7	4.7
4915 TT	Primax	61.00	BUY	Anne Lee, CFA	920	10.0	10.3	9.7	1.6	1.5	1.4	16.0	14.6	14.7	19.3	(2.8)	6.1	6.1
Average						15.3	14.5	11.8	1.2	1.5	1.4	8.8	10.9	11.9	(3.3)	4.3	23.7	3.3

Valuation comparison – handsets components

Ticker	Company	Price	Nomura	Nomura	Mkt cap	P/E (x)			P/B (x)			ROE (%)			EPS growth (%)			Yield (%)
		4/13/2023	Rating	Analyst	US\$m	FY22	FY23F	FY24F	FY22	FY23F	FY24F	FY22	FY23F	FY24F	FY22	FY23F	FY24F	FY23F
Display/component/mini-LED																		
3673 TT	TPK	36.25	NEUTRAL	Anne Lee, CFA	490	29.7	29.8	26.0	0.4	0.4	0.4	1.4	1.4	1.6	(58.1)	(0.1)	14.4	4.1
6456 TT	GIS	82.60	NEUTRAL	Anne Lee, CFA	919	7.2	8.8	9.9	0.8	0.8	0.7	15.5	12.6	11.3	(11.0)	(18.3)	(10.9)	5.6
3714 TT	ENNOSTAR	53.00	NEUTRAL	Anne Lee, CFA	1,207	954.8	nm	nm	0.6	0.7	0.7	0.1	(1.2)	(0.1)	(97.9)	nm	(93.2)	na
600703 CH	San'an Opto	20.76	Not rated		15,071	71.6	59.0	37.9	0.0	3.0	2.8	0.0	4.9	8.7	nm	21.4	55.7	0.5
300433 CH	Lens	13.30	Not rated		9,625	31.7	30.9	18.7	0.0	1.5	1.4	0.0	5.1	7.7	nm	2.6	64.7	0.8
6176 TT	Radiant	109.50	REDUCE	Anne Lee, CFA	1,691	7.3	11.5	12.7	1.5	1.5	1.5	21.6	13.0	11.7	35.0	(36.9)	(9.0)	na
Average						183.7	28.0	21.0	0.6	1.3	1.3	6.4	6.0	6.8	(33.0)	(6.3)	3.6	2.8
Casing																		
2354 TT	Foxconn Tech	54.70	Not rated		2,536	18.1	12.5	11.7	0.0	0.6	0.5	0.0	5.3	5.7	nm	45.5	6.5	4.0
Average						18.1	12.5	11.7	0.0	0.6	0.5	0.0	5.3	5.7	KEY	45.5	6.5	4.0
Connector / cable / antenna																		
002475 CH	Luxshare	30.53	BUY	Anne Lee, CFA	32,941	20.8	15.8	13.8	4.0	3.2	3.2	20.7	22.5	23.5	46.3	31.4	14.9	0.7
6088 HK	FIT	1.91	Not rated		1,774	10.1	9.7	9.0	nm	0.7	0.6	0.0	7.8	8.3	nm	3.3	8.0	0.0
Average						15.4	12.8	11.4	4.0	2.0	1.9	10.3	15.1	15.9	46.3	17.4	11.4	0.3
HDI / IC substrates / PCB																		
4958 TT	Zhen Ding	113.00	BUY	Anne Lee, CFA	3,522	7.5	9.3	8.5	0.8	0.8	0.8	11.7	8.8	9.2	40.1	(18.7)	9.5	5.3
3037 TT	Unimicron	139.50	NEUTRAL	Anne Lee, CFA	7,090	6.7	12.5	11.2	2.4	2.3	2.0	41.6	18.6	19.1	131.2	(46.2)	11.9	5.9
6269 TT	Flexium	98.00	BUY	Anne Lee, CFA	1,045	9.0	10.4	8.2	1.3	1.2	1.1	13.9	11.9	14.2	33.1	(13.7)	27.6	5.5
002384 CH	DSBJ	27.00	BUY	Anne Lee, CFA	6,914	21.6	17.7	15.7	2.8	2.5	2.3	13.8	15.1	15.2	15.0	21.6	13.0	1.4
002916 CH	Shennan Circuit	88.24	NEUTRAL	Bing Duan	6,854	27.0	24.4	20.9	3.7	3.3	3.0	15.8	14.3	15.1	8.1	10.3	17.0	1.2
600183 CH	Shengyi	19.06	NEUTRAL	Bing Duan	6,246	18.4	15.7	13.7	3.1	2.8	2.5	17.6	18.8	19.3	(15.7)	16.9	14.9	3.0
6274 TT	TUC	66.80	RATING SUSPENDED		589	14.2	10.7	7.8	0.0	1.5	1.4	0.0	13.7	16.6	nm	32.9	37.8	6.0
6213 TT	ITEQ	76.90	RATING SUSPENDED		915	15.6	17.1	11.3	0.0	1.3	1.2	0.0	8.5	12.0	nm	(9.0)	51.1	4.0
2383 TT	Elite Material	183.00	RATING SUSPENDED		1,997	12.0	12.5	10.0	0.0	2.5	2.2	0.0	22.5	23.9	nm	(4.3)	25.9	4.8
3044 TT	Tripod	115.00	Not rated		1,981	9.7	10.7	9.3	0.0	1.4	1.3	0.0	13.0	14.1	nm	(8.9)	15.0	6.0
8046 TT	Nan Ya PCB	264.00	Not rated		5,591	8.8	12.0	9.6	0.0	2.9	2.5	0.0	24.5	26.9	nm	(26.7)	24.3	4.9
2313 TT	Compeq	44.00	Not rated		1,719	6.6	8.6	7.4	0.0	1.2	1.1	0.0	15.2	15.9	nm	(23.9)	15.8	4.6
002008 CH	Han's Laser	28.85	NEUTRAL	Anne Lee, CFA	4,610	32.9	21.2	13.1	2.4	2.2	2.1	7.6	11.0	16.6	(53.1)	55.4	62.3	1.2
002938 CH	Avary	28.94	Not rated		9,775	13.4	12.8	11.4	0.0	2.2	1.9	0.0	17.2	17.1	nm	4.3	12.3	2.3
Average						14.5	14.0	11.3	1.2	2.0	1.8	8.7	15.2	16.8	22.7	(0.7)	24.2	4.0

Valuation comparison – PC and server related

Ticker	Company	Price 4/13/2023	Nomura Rating	Nomura Analyst	Mkt cap US\$m	FY22	P/E (x) FY23F	FY24F	FY22	P/B (x) FY23F	FY24F	FY22	ROE (%) FY23F	FY24F	FY22	EPS growth (%) FY23F	FY24F	Yield (%) FY23F
PC/Server IC																		
INTC US	Intel	32.02	Not rated		133,557	16.4	65.1	17.9	0.0	1.3	1.3	0.0	1.4	7.6	nm	(74.8)	263.4	3.8
AMD US	AMD	92.33	Not rated		148,596	108.6	29.9	21.2	0.0	2.7	2.6	0.0	7.3	10.6	nm	262.9	40.9	0.0
NVDA US	Nvidia	264.95	Not rated		654,427	150.5	58.9	45.4	0.0	25.6	20.1	0.0	40.6	45.6	nm	155.6	29.8	0.1
2379 TT	Realtek	383.00	NEUTRAL	Aaron Jeng, CFA	6,504	11.9	18.3	13.9	5.6	6.0	5.1	44.5	31.6	39.8	(2.3)	(34.7)	31.7	6.6
5274 TT	Aspeed	2765.00	BUY	Aaron Jeng, CFA	3,507	49.2	57.1	42.0	22.7	23.4	19.9	52.1	40.3	51.2	46.8	(13.8)	35.9	1.6
688008 CH	Montage	71.65	BUY	Donnie Teng	12,568	74.9	53.4	nm	8.5	7.6	#DIV/0!	11.9	15.1	0.0	29.9	40.3	nm	na
5269 TT	Asmedia	1275.00	BUY		2,978	33.7	35.7	25.1	5.8	5.4	4.8	16.6	15.6	20.2	(18.1)	(5.6)	42.3	1.5
Average						63.6	45.5	27.6	6.1	10.3	9.0	17.9	21.7	25.0	14.1	47.1	74.0	2.3
PC/Server Brand																		
HPE US	HP	15.98	Not rated		20,708	23.9	7.7	7.5	0.0	1.0	0.9	0.0	13.3	12.0	nm	208.5	3.5	3.0
Dell US	Dell	41.87	Not rated		30,616	12.6	7.9	6.8	0.0	(21.7)	(15.3)	0.0	(171.9)	(182.2)	nm	59.6	15.9	3.5
992 HK	Lenovo	8.35	NEUTRAL	Donnie Teng	13,102	6.1	6.8	8.4	2.3	3.1	2.6	45.1	38.4	33.5	76.5	(10.6)	(19.1)	6.5
2353 TT	Acer	29.00	RATING SUSPENDED		2,897	17.4	17.7	17.0	0.0	1.2	1.2	0.0	7.1	7.2	nm	(1.9)	4.3	4.5
2357 TT	Asus	275.50	RATING SUSPENDED		6,707	13.9	20.5	10.9	0.0	1.0	0.9	0.0	4.2	8.2	nm	(32.2)	88.0	4.4
AAPL US	Apple	160.10	Not rated		2,533,094	26.0	26.9	24.2	0.0	44.4	31.1	0.0	165.9	149.5	nm	(3.1)	11.1	0.6
SMCI US	SuperMicro	108.11	Not rated		5,799	19.5	10.7	11.3	0.0	#VALUE!	#VALUE!	0.0	#N/A/N/A	#N/A/N/A	nm	81.8	(5.0)	#N/A/N/A
Average						17.1	14.0	12.3	0.4	4.8	3.6	7.5	9.5	4.7	76.5	43.2	14.1	3.8
NB PC/ Server ODM																		
2382 TT	Quanta	89.30	NEUTRAL	Anne Lee, CFA	11,505	11.9	15.2	13.3	2.1	2.0	1.9	17.7	13.4	14.9	(14.0)	(21.7)	14.3	5.2
2324 TT	Compal	25.55	RATING SUSPENDED		3,691	15.3	14.3	12.9	0.0	0.9	0.9	0.0	6.8	7.2	nm	7.1	10.5	4.9
2356 TT	Inventec	32.35	Not rated		3,804	18.9	17.5	15.7	0.0	1.9	2.0	0.0	11.5	12.3	nm	7.9	11.5	4.7
3231 TT	Wistron	44.45	RATING SUSPENDED		4,225	11.1	12.4	11.1	0.0	1.2	1.2	0.0	10.2	10.4	nm	(10.8)	11.6	5.4
6669 TT	Wiwynn	1175.00	NEUTRAL	Anne Lee, CFA	7,076	14.6	18.8	15.6	5.5	5.2	4.4	43.5	28.4	30.5	62.7	(22.6)	20.7	4.1
601138 CH	Fii	17.66	Not rated		6,152	17.3	15.0	13.4	0.0	2.4	2.1	0.0	16.4	16.2	nm	15.6	12.0	3.1
2376 TT	Gigabyte	132.00	Not rated		2,750	12.8	12.0	10.5	0.0	2.1	1.9	0.0	18.3	19.1	nm	7.1	14.2	5.1
2377 TT	MSI	146.00	Not rated		4,043	12.4	12.6	10.6	0.0	2.3	2.1	0.0	19.2	20.2	nm	(1.8)	19.1	4.8
Average						14.7	15.2	13.2	1.3	2.7	2.4	10.2	17.9	18.9	24.4	(2.6)	15.3	4.5
NB PC/ Server Components																		
3533 TT	Lotes	925.00	Buy	Anne Lee, CFA	2,546	15.8	21.5	17.4	4.7	4.2	3.8	32.0	20.7	22.9	76.2	(26.6)	23.0	2.4
3037 TT	Unimicron	139.50	NEUTRAL	Anne Lee, CFA	7,090	6.7	12.5	11.2	2.4	2.3	2.0	41.6	18.6	19.1	131.2	(46.2)	11.9	5.9
8046 TT	NYPCH	264.00	Not rated		5,591	8.8	12.0	9.6	0.0	2.9	2.5	0.0	24.5	26.9	nm	(26.7)	24.3	4.9
2308 TT	Delta	300.50	BUY	Anne Lee, CFA	25,408	23.9	19.7	16.8	4.5	4.2	3.6	19.9	22.0	23.1	21.9	21.2	17.3	3.3
2301 TT	Lite-On	74.40	BUY	Anne Lee, CFA	5,774	13.7	13.9	10.8	2.3	2.3	2.1	17.1	16.4	20.2	(8.2)	(1.4)	28.8	6.5
6412 TT	Chicony Power	80.80	Not rated		1,047	9.8	9.2	7.4	0.0	2.2	2.0	0.0	24.9	28.3	nm	7.1	23.5	7.4
Average						14.8	15.8	12.2	2.3	3.0	2.7	15.8	21.9	24.1	55.3	(8.8)	21.5	4.7

Investment summary: Android gradually recovering, while Apple chain suffering from pricing pressure

Smartphone: the worst is over for Android, but be mindful of severe pricing pressure for Apple plays in 1H23F

- **Android/China smartphone (SP):** earnings and expectations have bottomed. Any change could be positive.
 - Suppliers are extremely cautious about 2023F even after a long inventory correction in the past 1.5 years. We see three positive developments for the sector: 1) lowered inventory in China and SP ODMs; 2) lowered semi BOM costs, likely positive for future spec upgrades; and 3) Huawei's refocus on spec upgrades likely to lead others to follow.
 - We think there could be "supply-driven" shortages for some components in 2Q23F or 3Q23F.
 - Apart from the Android SP sector bottoming out, in our view, we have Buy on **AAC (2018 HK)** for growth in Android SP recovery and its precision mechanics, **Will Semi (603501 CH)** (co-covered by Aaron Jeng) for rising auto optics exposure, and **Sunny** (co-covered by Donnie) for auto growth.
- **iPhone supply chain:** severe pricing pressure for Apple plays in 1H23; selective stocks with structural growth
 - Key changes for 2H23 new iPhones: periscope camera, additional haptics content for virtual buttons, P-sensor from EEL back to VCSEL, etc.
 - However, we are cautious on Apple's severe pricing pressure on various component makers in 1H23F, which would weigh on suppliers' ASP and margin. We think 1Q23F and 2Q23F results will be challenging for Apple suppliers under such an environment.
 - We keep our **Buy** ratings on **Luxshare (002475 CH)** (share gains in Watch, iPhone EMS, AirPods; beneficial to change to Type-C, upgrade in cable, and increase in haptics), **Cowell (1415 HK)** (share gains in iPhone CCM), **DSBJ (002384 CH)** (new penetration into the FPCB for OLEDs in 2023; rising contribution from Tesla). We have **Neutral** on **Genius (3406 TT)**; we believe it can benefit from the new light guide fibers for P sensor in 2H23, but we think its VR contribution could have downside.

Investment summary: PC likely to bottom in 1H23F; expectation for server is high vs severe weakness in 1H23F

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Datacenter/server: server demand is very weak in 1H23 despite the high expectations from AI theme

- **On April 12, we cut our 2023F global server unit growth to -5.3% from our prior +2% forecast**, based on the assumptions: **1)** large US CSPs will likely decline by 10% in 2023F due to the overbooking last year and new platform push outs in 1H23, **2)** China CSPs may start to recover from 2H23F due to China re-opening and new platform adoptions, **3)** Enterprise servers (e.g. Dell and HPE) will likely decline by 10% in 2023F given the overbooking last year, and **4)** Lenovo, Super Micro, and others may grow single-digit % in units. Although the order visibility toward 2H23 is still low, **we believe Feb-Apr period is a deep bottom in terms of shipment for server component makers, and server ODMs may reflect the trough 1-2 months later than components.**
- **We have not seen a meaningful demand increase from ChatGPT yet**, but we think AI server is a long-term growing trend. We expect Intel's new Eagle Stream (ramping in 1H23F) and AMD's Genoa (in late-2022) to drive ASP upgrades for the supply chain. However, **we also see new platforms' demand weaker than expected** under CSP's caution on capex. We tentatively forecast global server unit to grow by 5% in 2024F, back to the secular growth trend.
- We keep our **Buy** rating on **Lotes (3533 TT)**, as we believe the worst order cuts from server and PC are behind us, and the company can benefit from higher ASP and margin upon new server platform upgrades.
- We are cautious on **Wiwynn (6669 TT, Neutral)**, as the order cuts from its largest customer, Meta, are too significant to offset some share gains/ order growth from Microsoft and Amazon. After the strong 1Q23 sales, we expect its sales to reflect the cuts from 2Q23F.
- We rate **Unimicron (3037 TT)** at **Neutral**, as we think the ASP and UTR of Taiwanese ABF substrate makers will be weaker in 2Q23F (after a sharp drop in 1Q23), given the overall demand weakness and customers' inventory correction, and we believe the recovery in 3Q23F could be only mild, if any.

Investment summary: long-term trend for EV and cautious for VR/AR market

PC: likely to bottom in 1H23F. Earnings still have downside, despite the already low expectation on units

- On April 12, we further cut 2023 PC to 248mn units (-12.7% y-y) from our prior forecast of 260mn units (-8% y-y). Our new NB and DT PC forecasts are 177mn units (-14.7% y-y) and 71mn units (-7.3%) for 2023F, respectively, with consumer NBs back to pre-COVID levels, while commercial NBs higher than pre-COVID levels thanks to replacement of commercial DT PCs. We tentatively assume NB PC would grow by 5% to 185.8mn units and DT PC would grow by 3% to 73.5mn units in 2024F (total PC +4.4% to 259.3mn units in 2024), due to the potential commercial PC replacement demand on the back of Windows 10 ceasing support by 2025..
- We are **Neutral** on **Quanta (2382 TT)**, given its market share loss in Macbook and potential risks from Meta's server demand.

Server power, EV and energy saving

- We think rising power content for AI server and datacenter and EV power and charging are positive trends. However, watch out for near-term turmoil in EV and ICE market, amid global inflation and pricing competition
- **Buy Delta (2308 TT)** on rising energy efficiency trend; long-term growth trend in EV, datacenter, green energy, building automation, and power supply for new applications such as medical, industrial, aerospace, etc.
- **Buy Lite-On Tech (2301 TT)** on its rising contribution from server (share gain in Amazon and Microsoft) and auto (EV charger for Lucid and Rivian, and others) to offset the weakness in PC.
- **Buy Tong Hsing (3271 TT)**: 45+% revenue [2022F] are automotive-related. Key growth drivers for 2023F include: 1) auto CIS package [50% global market share], and 2) potential growth from Space X.

Metaverse (VR/AR): still having downside risks if Meta further deteriorates

- We forecast global VR device volume will grow slower in 2023F. Meta (ex-Facebook) will still be the key player (~60% share), in our view, but looks weak in 2H22-2023F.
- New products: Sony's PSVR 2 in 1Q23, Meta's Quest 3 in mid-2023, Apple's VR (or XR, MR) in mid-2023 or 2H23.
- We are cautious on **Goertek (002241 CH, Neutral)** as we are concerned about VR and its market share loss in Apple's AirPods.

Apple's product pipeline overview

2020

2021

2022

2023F

iPhone 12 pro Max (6.7" OLED)- 5G, Sensor-shift OIS 3 cam+ ToF
iPhone 12 Pro (6.1" OLED)- 5G, 3 cam + ToF
iPhone 12 (6.1" OLED)- 5G, 2 cam
iPhone 12 mini (5.4" OLED)-5G, 2 cam
iPhone SE (4.7" LCD)-4G

iPhone 13 pro Max (6.7" OLED)- Sensor-shift OIS 3 cam
iPhone 13 Pro (6.1" OLED)- Sensor-shift OIS 3 cam
iPhone 13 (6.1" OLED)- Sensor-shift OIS 2 cam
iPhone 13 mini (5.4" OLED)-Sensor-shift OIS 2 cam

iPhone 14 pro Max (6.7" OLED)- dynamic island, 48MP cam
iPhone 14 Pro (6.1" OLED)- dynamic island
iPhone 14 Plus (6.7" OLED)- new low end size
iPhone 14 (6.1" OLED)-
iPhone SE 3 (4.7" LCD)

iPhone 15 pro Max (6.7" OLED)- Periscope cam
iPhone 15 Pro (6.1" OLED)
iPhone 15 Plus (6.7" OLED)- dynamic island display, 48MP cam
iPhone 15 (6.1" OLED)- dynamic island display, 48MP cam

iPad Pro (12.9")- Adding ToF
iPad Pro (11")- Adding ToF
iPad Air 10.86"- edge fingerprint
iPad 10.2"
iPad mini (7.9")

iPad Pro (12.9")- mini-LED display
iPad 10.2" refresh
iPad mini (8.3")

iPad Pro (11") refresh
iPad Pro (12.9") refresh- mini-LED display
iPad 10.2" refresh

iPad Air (10.9") refresh (?)

Watch 6
Watch SE (refresh of Watch 5)

Watch 7 series

Watch 8/ SE/ Ultra

Watch 9/ Ultra

HomePod mini
AirTag Max

AirPod 3 (lower-spec version of AirPods Pro)
AirTag

AirPod Pro 2

MacBook 13" (Apple silicon)
MacBook Pro 13" (Apple silicon)
MacBook Pro (16")
iMac (Apple silicon)

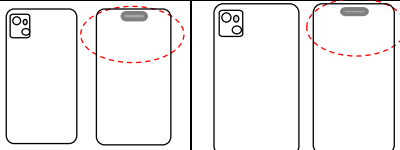
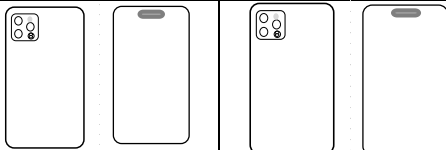
MacBook Pro 16" (mini-LED, Apple silicon)
MacBook Pro 14" (mini-LED, Apple silicon)

MacBook Air (M2)
MacBook Pro 13" (M2)

MacBook Air? 15"
Macbook Pro (M2 Pro, M2 Max) series
MacBook Air 13" (M3?), MacBook Pro 13" (M3?)
Apple MR

					New forecasts						Old forecasts				Difference		
(mn unit)	1Q22	2Q22	3Q22	4Q22	1Q23F	2Q23F	2020	2021	2022F	2023F	1Q23F	2Q23F	2022F	2023F	1Q23F	2Q23F	2023F
iPhone 11	9.0	5.0	5.0	2.5	2.0	2.0	63.0	38.5	21.5		2.0	2.0	21.5		0%	0%	
iPhone SE2	1.0	0.5	-	-	-	-	40.0	18.6	1.5		-	-	1.5				
iPhone 12 5.4"	-	-	-	-	-	-	12.0	3.5	-		-	-	-				
iPhone 12 6.1"	5.0	3.5	4.0	3.0	3.0	2.5	26.5	45.5	15.5		3.0	2.5	15.5		0%	0%	
iPhone 12 Pro 6.1"	-	-	-	-	-	-	16.5	18.5	-		-	-	-				
iPhone 12 Pro Max 6.7"	-	-	-	-	-	-	19.0	23.0	-		-	-	-				
iPhone 13 5.4"	2.0	0.5	1.0	0.5	0.5	0.5	2H21 i13: 81mm	6.5	4.0		0.5	0.5	4.0				
iPhone 13 6.1"	18.0	17.0	14.0	9.0	7.5	5.0		34.0	58.0		7.0	5.0	58.0		7%	0%	
iPhone 13 Pro 6.1"	9.0	7.0	3.0	-	-	-		18.0	19.0		-	-	19.0				
iPhone 13 Pro Max 6.7"	13.0	10.0	5.0	-	-	-		22.5	28.0		-	-	28.0				
iPhone SE3	2.0	4.0	3.0	3.0	2.5	2.5		12.0			2.5	2.5	12.0		0%	0%	
iPhone 14 6.1"			6.0	13.5	10.0	9.0	2H22 i14: 80 mn	19.5			10.0	9.0	19.5		0%	0%	
iPhone 14 Plus 6.7"			2.0	7.5	4.5	4.0		9.5			5.0	4.0	9.5		-10%	0%	
iPhone 14 Pro 6.1"			8.0	15.0	12.0	6.5		23.0			11.0	6.5	23.0		9%	0%	
iPhone 14 Pro Max 6.7"			8.0	20.0	16.0	7.5		28.0			15.0	7.5	28.0		7%	0%	
Other iPhones	-	-	-	-	-	-	35.5	3.9			-	-	-				
Total iPhone EMS production	59.0	47.5	59.0	74.0	58.0	39.5	212.5	232.5	239.5	226.0	56.0	39.5	239.5	225.5	4%	0%	0%
y-y	9%	6%	13%	-9%	-2%	-17%	9%	9%	3%	-6%	-5%	-17%	3%	-6%			
Total iPhone sell-in	57.0	47.0	56.0	73.0			209.0	234.0	233.0				233.0				
y-y	4%	0%	19%	-14%				9%	12%	0%			0%				
(mn unit)	1Q22	2Q22	3Q22	4Q22	1Q23F	2Q23F	2020	2021	2022F	2023F	1Q23F	2Q23F	2022F	2023F	1Q23F	2Q23F	2023F
Total iPad EMS production	15.0	12.0	18.0	15.0	12.0	11.0	56.5	59.0	60.0	48.0	12.0	11.0	59.0	48.0	0%	0%	0%
Total Macbook EMS production	6.5	4.5	7.0	6.0	4.0	4.5	20.0	24.0	24.0	20.0	4.5	5.0	24.0	20.5	-11%	-10%	-2%
Total AirPods EMS production	20.0	17.0	21.0	11.0	13.0	13.0	90.0	72.5	69.0	55.0	13.0	13.0	69.0	55.0	0%	0%	0%
Total Watch EMS production	9.0	7.0	13.0	14.0	7.0	8.0	29.3	41.5	43.0	39.0	7.0	8.0	43.0	39.0	0%	0%	0%
y-y																	
Total iPad EMS production	-6%	-11%	13%	11%	-20%	-8%	15%	4%	2%	-20%							
Total Macbook EMS production	8%	-10%	27%	-20%	-38%	0%	33%	20%	0%	-17%							
Total AirPods EMS production	21%	21%	40%	-59%	-35%	-24%	76%	-19%	-5%	-20%							
Total Watch EMS production	6%	-13%	63%	-18%	-22%	14%	13%	42%	4%	-9%							

What to expect for 2H23 new iPhones?

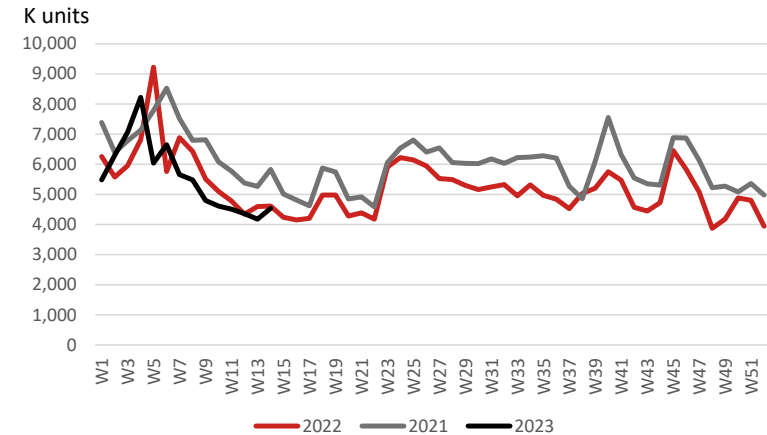
	iPhone 15 series		iPhone 15 Pro series		
					
	iPhone 15	iPhone 15 Plus	iPhone 15 Pro	iPhone 15 Ultra? (Pro Max?)	Beneficiaries
Casing	Glass + aluminum frame		Glass + Titanium alloy frame		Beneficiary: Hon Hai, Jabil
Screen	New pill-and-hole LTPS 6.1" OLED OLED supplier: Samsung, LGD, BOE?	New pill-and-hole LTPS 6.7" OLED OLED supplier: Samsung, BOE?	Narrow border pill-and-hole LTPO 6.1" OLED OLED supplier: Samsung, LGD?	Narrow border pill-and-hole LTPO 6.7" OLED OLED supplier: Samsung, LGD?	Benefiting all display makers. If BOE and LGD can gain share, they can benefit more.
Physical buttons and haptics	No change (physical buttons with one haptics)		Likely no physical buttons, and adding two more haptics (total three haptics) for virtual tactile feedbacks		Haptics engines: AAC and Luxshare Haptics drivers: Cirrus Logic Haptics FPC: Flexium
Memory	6GB LPDDR5?		8GB LPDDR5?		Benefiting all memory makers
Storage	128/256/512GB?		128/256/512GB/1TB?		
5G modem	Qualcomm X70? (or X65?)				
AP	4nm A16		3nm A17		Benefiting TSMC
Face ID and optical sensor	Same 3-in-1 Face ID module as iPhone 14 series, but likely better integrated with P sensor to save space The P sensor likely changes to use 940nm wavelength (from 1380nm) with optical light tunnels, in order to hide beneath the display.		Same 3-in-1 Face ID module as iPhone 14 series, but likely better integrated with P sensor to save space The P sensor likely changes to use 940nm wavelength (from 1380nm) with optical light tunnels, in order to hide beneath the display.		Benefiting LG Innotek, Genius, Sunny, Win Semi
Front camera	12MP CIS, 6P AF (with VCM), no change				
Rear camera	* Wide: 48MP (two-layer-pixel, 1/1.5") , 7P, sensor-shift OIS * UW: 12MP, 5P		* Wide: 48MP (1.2um pixel size, 1/1.3"), 7P, sensor-shift OIS * Tele: 12MP, 6P, OIS * UW: 12MP, 6P, VCM (AF)	* Wide: 48MP (1.2um pixel size, 1/1.3"), 7P, sensor-shift OIS * Tele: upgrades to periscope camera; * UW: 12MP, 6P, VCM (AF)	New wide camera for i15 benefiting Sony, LG Innotek, Sunny, Genius New periscope camera benefiting Sony, LG Innotek, Largan, Genius, Crystal, Lante
dToF	No LiDAR (dToF)		New LiDAR (dToF): likely smaller VCSEL die size, with flip-chip package and new lens designs.		Benefiting Sony (new in VCSEL and FC package).
Bottom/top module	Sandwich architecture: top module and bottom module		Sandwich architecture: top module and bottom module		Benefiting Luxshare
Mainboard PCB	No change on SLP CCL material.				
Connector and cable	Type C connector and new cable design				Benefiting Luxshare and FIT

China smartphone overview: Market share reshuffle accelerating

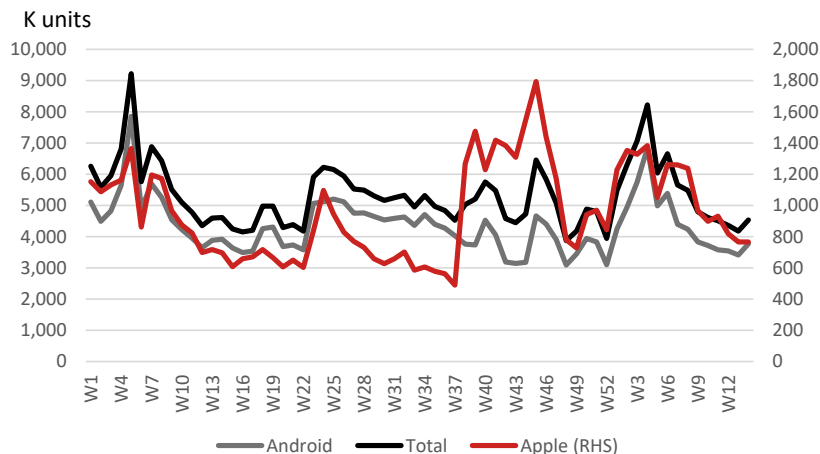
China smartphone market and China brands

	New			
	2020	2021	2022F	2023F
(mn units)	A	A	F	F
China Smartphone Market	325	328	284	287
y-y	-12%	1%	-14%	1%
	2020	2021	2022F	2023F
Top Chinese OEM global shipment	A	A	F	F
Huawei	189	38	22	26
Honor		41	52	54
Oppo+OnePlus+Realme	161	211	170	170
Vivo	112	128	100	100
Xiaomi	148	191	160	160
Lenovo+Moto	33	51	45	45

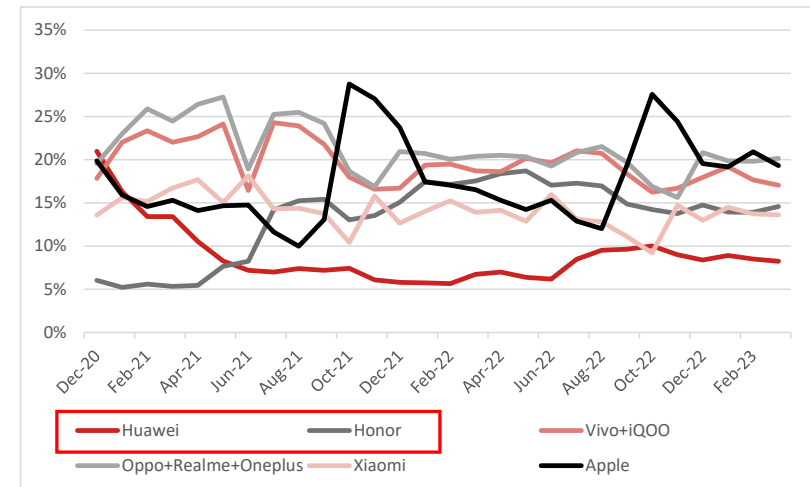
China smartphone sell-through number – 2023 vs 2022 vs 2021



China smartphone sell-through number since 2022 - Android vs Apple

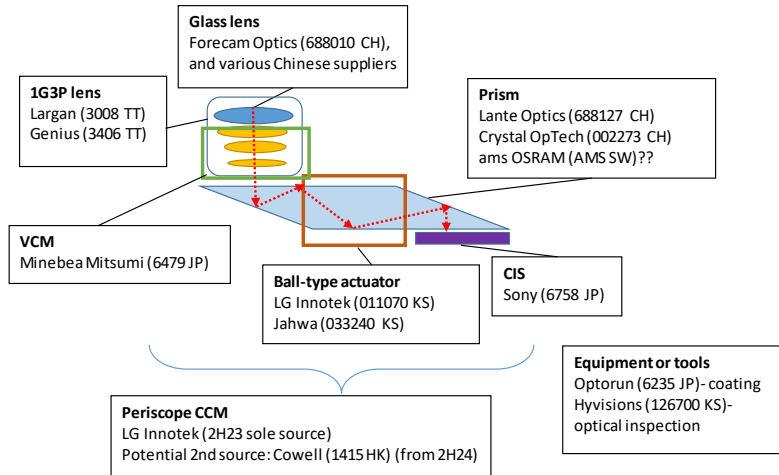


Huawei and Honor are gaining share

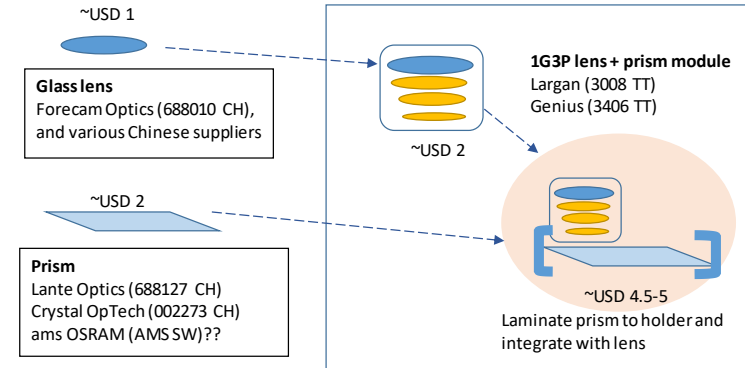


Apple will likely introduce periscope camera in 2H23F

Apple's periscope camera supply chain



Value flow of lenses and prism for periscope camera



Incremental benefits from periscope camera

	Ticker	Parts for periscope ccm	Apple % in total sales (2023F)	"Incremental" benefits from periscope CCM (% of 2H23 sales)
LG Innotek	011070 KS	CCM, actuator	80%+	8-10%
Largan	3008 TT	1G3P lens, and prism integration	60-70%	8-9%
Genius	3406 TT	1G3P lens, and prism integration	80-90%	14-17%
Crystal OpTech	002273 CH	Prism	50-60%	5-10%
Lante	688127 CH	Prism	40-50%	60-65%
Cowell	1415 HK	CCM (2H24)	90%+	~36% of 2H24 sales

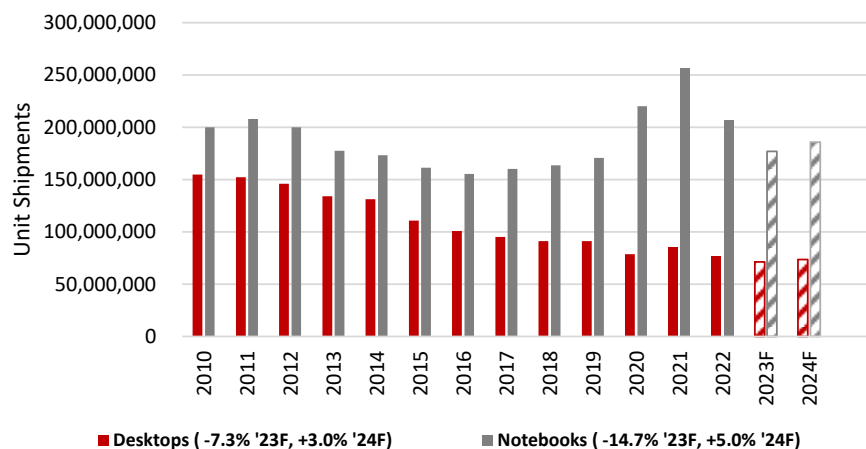
Apple's periscope camera cost structure

Telephoto camera	USD	Periscope camera	USD
6P lens	1.5-1.7	1G3P lens + Prism (*)	4.5-5
CIS	4-5	CIS	5-6 ?
OIS	4-5	OIS	10
Others	3-4	Others	4-5
Total BOM	13-15	Total BOM	24-26
Estimated yield loss	0.5	Estimated yield loss	4-6
CCM makers' margin	15%	CCM makers' margin	15%
Total costs	17-19	Total costs	33-38

Up 70-100 % vs. current tele

Global PC-related charts (published on 11 Apr 2023)

Global PC market



NB brand PC shipments (annually)

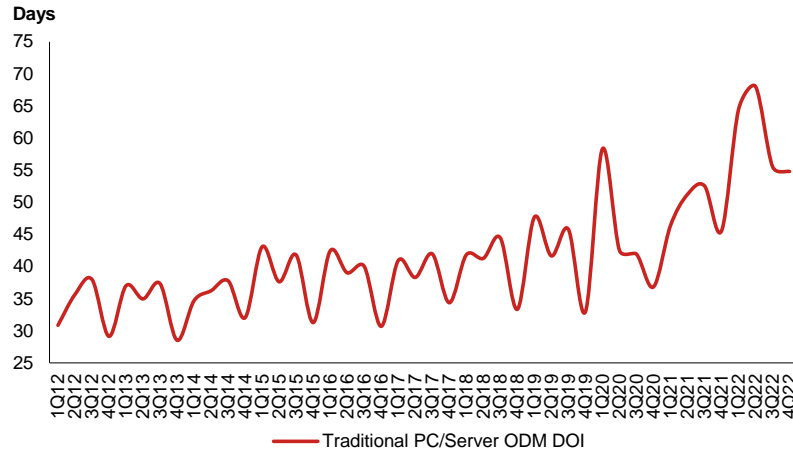
mn units	Brand shipments							Suppliers' volume	
	2017	2018	2019	2020	2021	2022	2022 y-y	2023	2023 y-y
Lenovo	37.2	39.3	43.5	53.8	61.9	50.7	-18%	43.0	-15%
HP	39.8	40.8	42.2	52.2	57.7	39.7	-31%	35.2	-11%
Dell	24.7	25.9	26.1	34.4	41.3	31.9	-23%	28.2	-12%
Apple	15.9	15.3	15.4	20.8	25.3	25.3	0%	20.0	-21%
ASUS	15.4	14.1	13.9	17.2	20.3	19.1	-6%	16.0	-16%
Acer	14.2	14.1	13.8	18.0	20.6	15.3	-26%	12.7	-17%
Others	13.0	14.0	16.0	23.7	29.9	25.6	-14%	22.0	-14%
Global	160.2	163.6	170.8	220.0	257.0	207.5	-19.3%	177.1	-15%

NB brand PC shipments (quarterly)

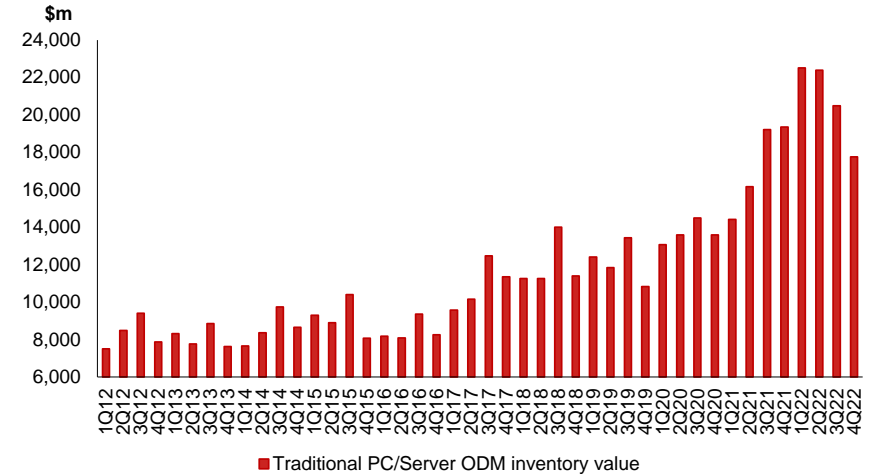
mn units	Quarterly brand shipments								Suppliers' volume				Brand shipments (New)				
	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23F	2Q23F	3Q23F	4Q23F	2020	2021	2022	2023F	23 y-y
Lenovo	15.7	15.2	15.1	16.0	14.1	12.6	12.6	11.4	9.5	11.0	11.5	11.0	53.8	61.9	50.7	43.0	-15%
HP	15.3	15.0	13.3	14.1	11.6	9.7	8.9	9.5	8.4	8.8	9.0	9.0	52.2	57.7	39.7	35.2	-11%
Dell	9.0	9.4	10.9	12.1	8.9	8.8	7.6	6.6	6.2	7.0	7.5	7.5	34.4	41.3	31.9	28.2	-12%
Apple	6.3	5.7	6.4	6.9	6.2	4.3	8.5	6.3	4.0	4.5	6.0	5.5	20.8	25.3	25.3	20.0	-21%
ASUS	4.4	4.6	5.6	5.7	5.2	4.4	5.1	4.4	3.5	4.0	4.2	4.3	17.2	20.3	19.1	16.0	-16%
Acer	5.1	5.4	5.0	5.1	4.5	4.2	3.6	2.9	2.5	3.0	3.5	3.7	18.0	20.6	15.3	12.7	-17%

Global PC-related charts: inventory has reduced over the past few quarters

Traditional PC/server ODM DOI



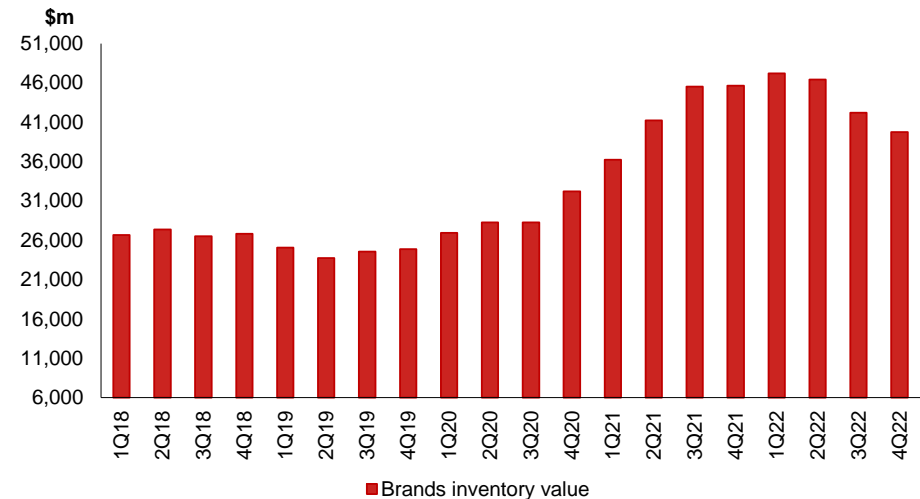
Traditional PC/server ODM inventory value



Brands DOI

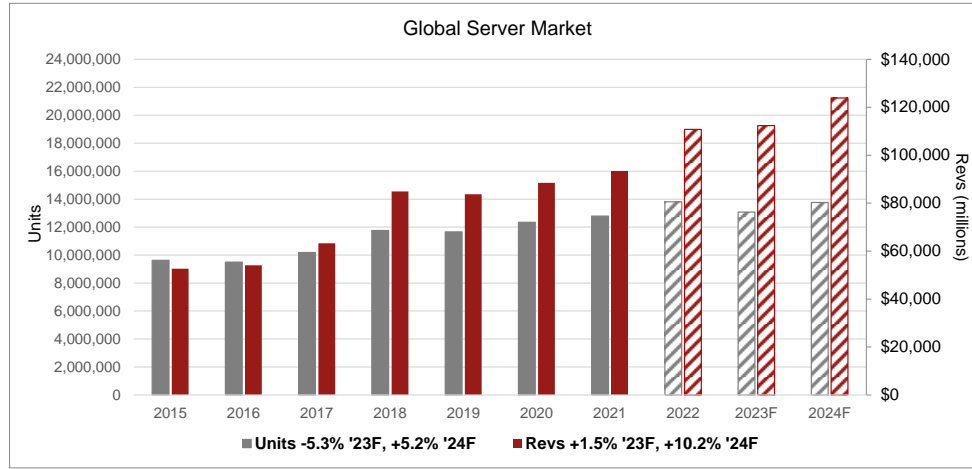


Brands inventory value

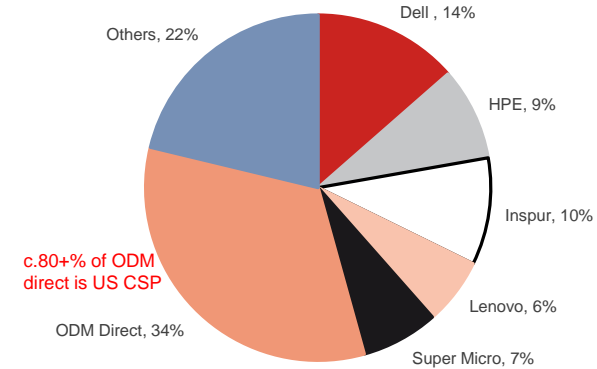


Server- headwinds in 1H23F

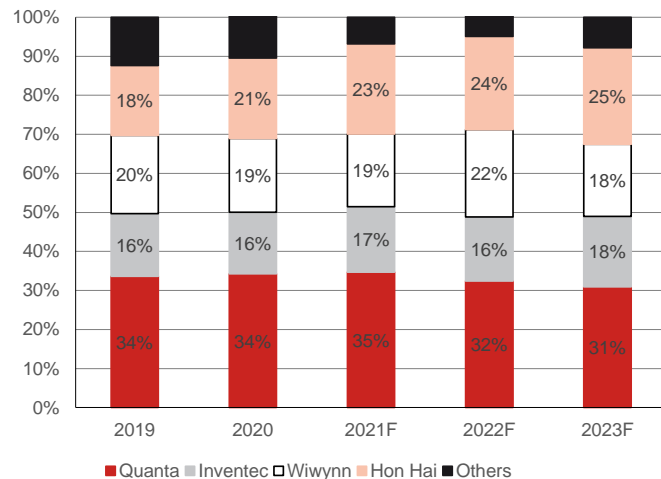
Global server market forecasts (published on 11 Apr 2023)



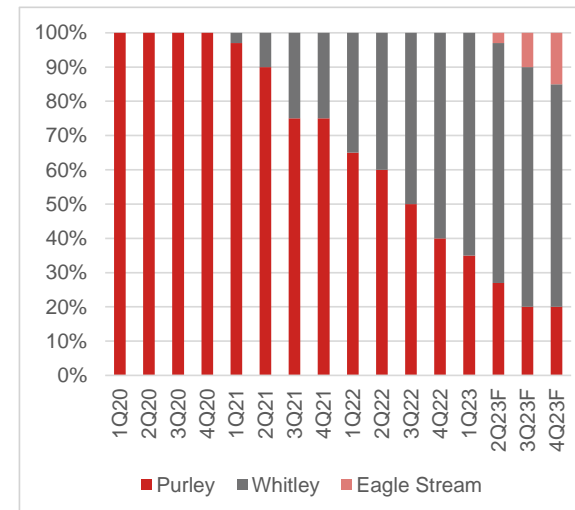
Global server vendor unit breakdown (2023F)



ODM/EMS server market share for US' top 4 CSP



Intel server platform mix (quarterly)



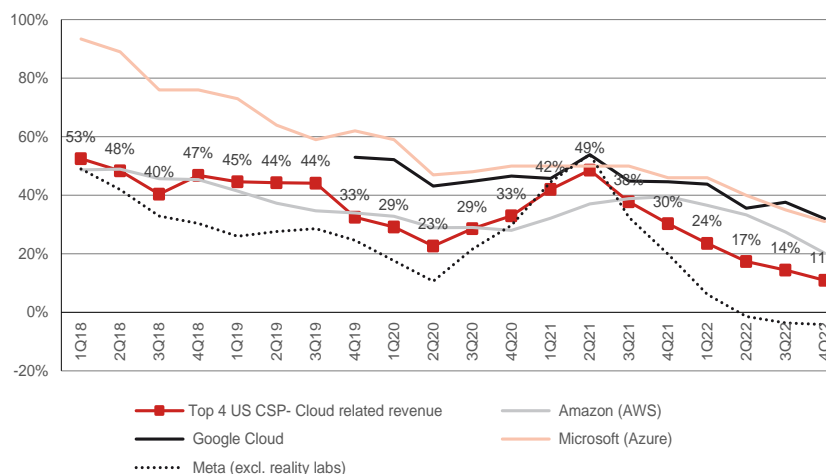
Server- slowdown in US CSP capex and cloud revenues

US hyperscalers' spending

Company (U.S.)	Q1-22A	Q2-22A	Q3-22A	Q4-22A	2018A	2019A	2020A	2021A	2022A	2023E
Capital Expenditures (\$mn):										
Alphabet (Google-only)	n.a.	n.a.	n.a.	n.a.	23,060	25,251	23,892	26,422	n.a.	
Microsoft ⁽¹⁾	6,300	8,700	6,600	6,800	15,800	18,000	20,600	27,500	28,400	
Amazon ⁽²⁾	13,908	14,159	15,172	15,757	21,936	26,413	46,669	62,457	58,996	
Meta ⁽¹⁾	5,674	7,747	9,518	9,223	13,980	15,654	15,719	19,244	32,162	30-33bn
Apple	2,514	2,102	3,289	3,787	13,858	9,247	8,702	10,388	11,692	
Oracle	1,101	1,423	1,719	2,435	1,468	1,591	1,833	3,118	6,678	
Total U.S.	29,497	34,131	36,298	38,002	90,102	96,156	117,415	149,129		
Total U.S. (excl. Google)					67,042	70,905	93,523	122,707	137,928	
Growth Q/Q (%):										
Alphabet (Google-only)	n.a.	n.a.	n.a.	n.a.	NM	NM	NM	NM	NM	
Microsoft	-7%	38%	-24%	3%	NM	NM	NM	NM	NM	
Amazon	-23%	2%	7%	4%	NM	NM	NM	NM	NM	
Meta ⁽¹⁾	2%	37%	23%	-3%	NM	NM	NM	NM	NM	
Apple	-10%	-16%	56%	15%	NM	NM	NM	NM	NM	
Oracle	19%	29%	21%	42%	NM	NM	NM	NM	NM	
Total U.S.	-14%	16%	6%	5%	NM	NM	NM	NM	NM	
Total U.S. (excl. Google)										
Growth Y/Y (%):										
Alphabet (Google-only)	n.a.	n.a.	n.a.	n.a.	83%	10%	-5%	11%		
Microsoft	5%	19%	-11%	0%	39%	14%	14%	33%	3%	
Amazon	5%	-3%	-8%	-13%	11%	20%	77%	34%	-6%	
Meta ⁽¹⁾	27%	64%	109%	66%	108%	12%	0%	22%	67%	
Apple	11%	0%	2%	35%	16%	-33%	-6%	19%	13%	
Oracle	166%	98%	62%	163%	-28%	8%	15%	70%	114%	
Total U.S.	12%	16%	11%	11%	40%	7%	22%	27%		
Total U.S. (excl. Google)						6%	32%	31%	12%	

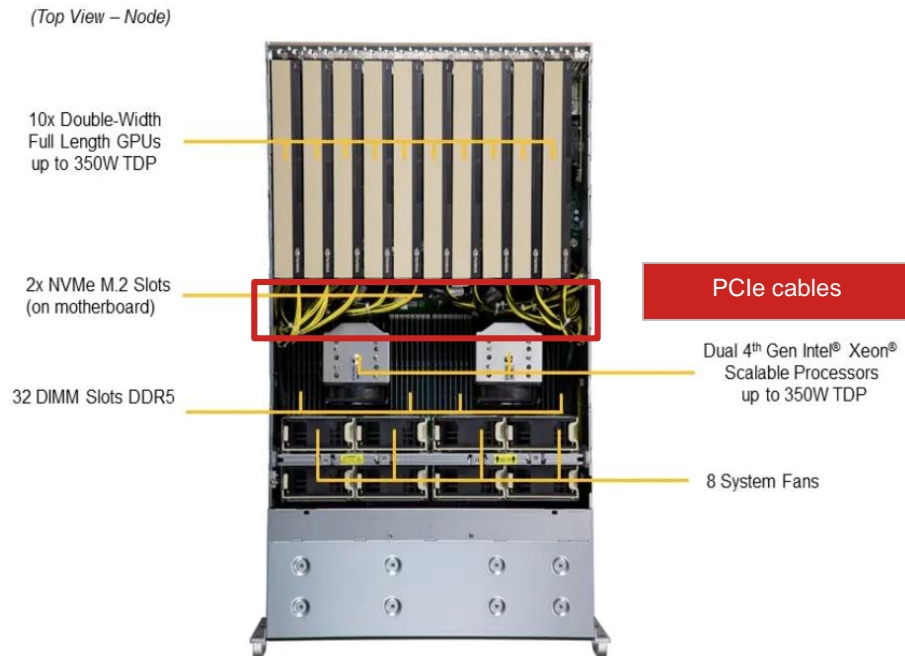
US Top-4 CSP cloud-related revenue y-y trend

y-y growth



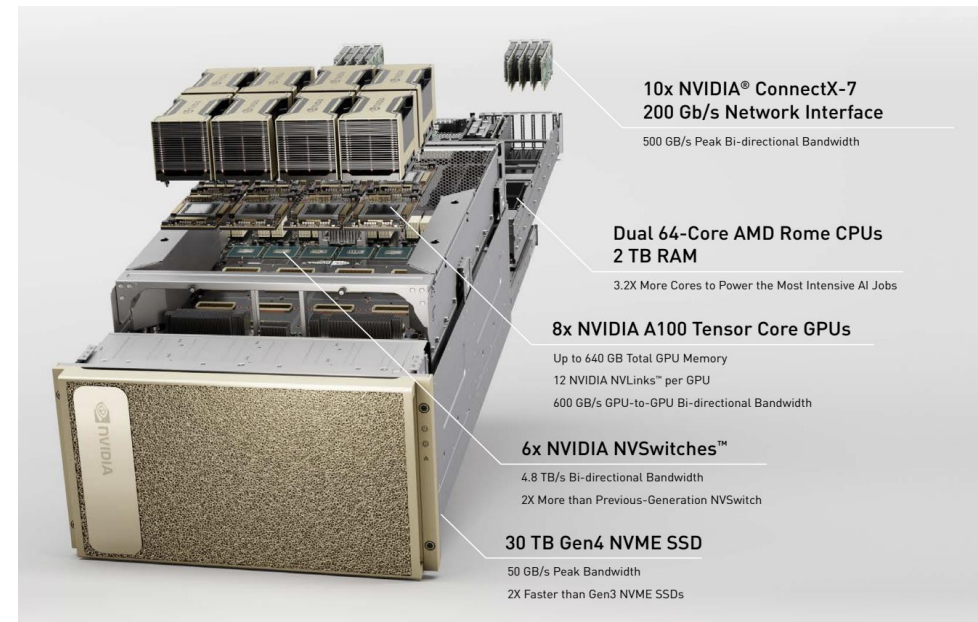
Server- AI/ GPU server to drive growth

Traditional implementation – A server with GPU(s)/ accelerators



OCP Accelerator Module (OAM) Design

e.g., NVDA's DGX A100/ DGX H100



Server- AI/ GPU server to drive growth

GPUs and costs required for AI training/ inferencing

Take GPT-3 as examples and assuming models to be trained/ inferencing on NVDA's A100/H100

GPUs for Training - NVDA's A100

	GPT-3 (175bn parameters)		
TFLOPs per token (~6N; N: model parameter count)	1.05		
# of trained tokens	3E+11		
TFLOPs required	3.15E+11		
GPU performance (FP32 TFLOPs)	19.5		
GPU efficiency	50%		
Number of days to train	30	60	90
Number of GPUs required	12,464	6,232	4,155
Cost of NVDA's GPUs (USD)	14,000		
Total Training Cost of GPUs (USDmn)	\$175	\$87	\$58
Number of DGX servers (8-GPU) required	1,558	779	519
Cost of NVDA's DGX systems (USD)	200,000		
Total Training Cost of DGX systems (USDmn)	\$312	\$156	\$104

GPUs for Inference - NVDA's A100

	GPT-3 (175bn parameters)		
TFLOPs per token (~2N; N: model parameter count)	0.35		
# of prompt / day (mn)	50	100	200
# of words/ day (mn) [input + output]	22,500	45,000	90,000
# of token / sec	347,222	694,444	1,388,889
TFLOPs / sec	1.22E+05	2.43E+05	4.86E+05
GPU performance (FP16 Tensor Core TFLOPs)	312		
Model FLOPs utilization	50%		
Number of GPUs required	779	1,558	3,116
Cost of NVDA's GPUs (USD)	14,000		
Total Inferencing Cost of GPUs (USDmn)	\$11	\$22	\$44
Number of DGX servers (8-GPU) required	97	195	390
Cost of NVDA's DGX systems (USD)	200,000		
Total Inferencing Cost of DGX systems (USDmn)	\$19	\$39	\$78

GPUs for Training - NVDA's H100 SXM

	GPT-3 (175bn parameters)		
TFLOPs per token (~6N; N: model parameter count)	1.05		
# of trained tokens	3E+11		
TFLOPs required	3.15E+11		
GPU performance (FP32 TFLOPs)	67		
GPU efficiency	50%		
Number of days to train	30	60	90
Number of GPUs required	3,628	1,814	1,209
Cost of NVDA's GPUs (USD)	30,000		
Total Training Cost of GPUs (USDmn)	\$109	\$54	\$36
Number of DGX servers (8-GPU) required	453	227	151
Cost of NVDA's DGX systems (USD)	250,000		
Total Training Cost of DGX systems (USDmn)	\$113	\$57	\$38

GPUs for Inference - NVDA's H100 SXM

	GPT-3 (175bn parameters)		
TFLOPs per token (~2N; N: model parameter count)	0.35		
# of prompt / day (mn)	50	100	200
# of words/ day (mn) [input + output]	22,500	45,000	90,000
# of token / sec	347,222	694,444	1,388,889
TFLOPs / sec	1.22E+05	2.43E+05	4.86E+05
GPU performance (FP16 Tensor Core TFLOPs)	1,979		
Model FLOPs utilization	50%		
Number of GPUs required	123	246	491
Cost of NVDA's GPUs (USD)	30,000		
Total Inferencing Cost of GPUs (USDmn)	\$4	\$7	\$15
Number of DGX servers (8-GPU) required	15	31	61
Cost of NVDA's DGX systems (USD)	250,000		
Total Inferencing Cost of DGX systems (USDmn)	\$4	\$8	\$15

Server- AI/ GPU server to drive growth

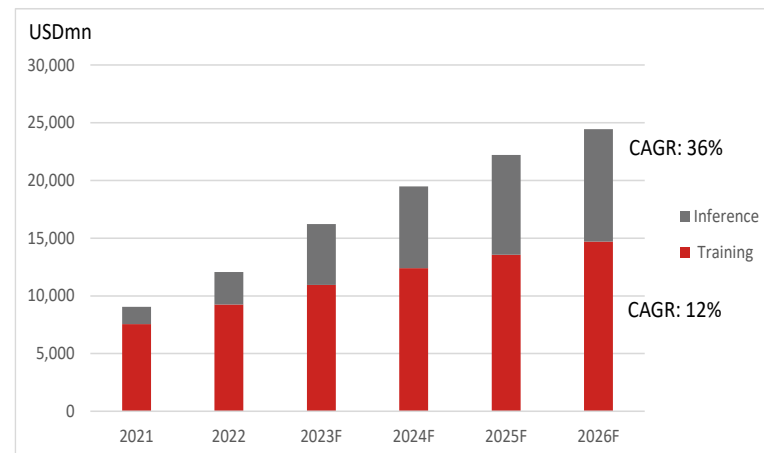
Global AI training/inferencing at least to bring USD400-900mn TAM

Number of large LLM models (~175bn parameters like GPT-3)	10	15	20
Training cost of GPU per model (assume 50% GPU efficiency, 90 days to train on H100) (USDmn)		\$36	
Global AI Training TAM	\$363	\$544	\$726
Number of large LLM models (~175bn parameters like GPT-3)	10	15	20
inference cost of GPU per model (assume 50% GPU efficiency, 100mn prompts per day for inference on H100) (USDmn)		\$7	
Global AI Inference TAM	\$74	\$111	\$147

Accelerated AI server sales to grow at 19% CAGR during 2022-26

USDbn	2021	2022	2023F	2024F	2025F	2026F	2022-26 CAGR
Total server sales	93.3	110.8	112.4	123.9	132.1	143.3	7%
growth (%)		19%	1%	10%	7%	8%	
AI server sales	15.6	19.5	24.7	28.6	31.8	34.7	15%
growth (%)		25%	27%	16%	11%	9%	
penetration rate (%)	17%	18%	22%	23%	24%	24%	
-Accelerated AI server sales	9.1	12.1	16.2	19.5	22.2	24.5	19%
growth (%)		33%	34%	20%	14%	10%	
penetration rate (%)	10%	11%	14%	16%	17%	17%	
- Non-accelerated AI server sales	6.5	7.4	8.5	9.1	9.6	10.2	8%
growth (%)		14%	15%	7%	5%	6%	
penetration rate (%)	7%	7%	8%	7%	7%	7%	

Accelerated AI server sales for inference and training



Server- AI/ GPU server to drive growth

US CSP supply chain

System/board	Amazon	Microsoft	Google	Meta	NVDA AI GPU
ODM/EMS	Quanta, Hon Hai, Inventec, Wiyynn	Hon Hai, Wiyynn, Inventec, Quanta	Quanta, Inventec, Hon Hai Accelerator card: Celestica	Wiyynn, Quanta	Hon Hai, Wistron
Power supply	Delta, Lite-On Tech, US suppliers			US suppliers	Lite-On Tech, Delta
CCL	EMC, ITEQ, Doosan, TUC, Panasonic				EMC, Doosan
PCB	WUS, GCE, ISU, Tripod, TTM				8-GPU MB-WUS, GCE, ISU. HDI: Unimicron
Battery	AES, Dynapack				
CPU sockets	Lotes, FIT, TE, Amphenol				
Switch	Accton, etc				
Thermal	(Module) AVC, Nidec-CCI, Auras (Heat spreader) Jentech (Fan) Sunon, Delta, Nidec				Cooler Master
TPUs, AI ICs, AI GPUs	Amazon	Microsoft	Google	Meta	NVDA AI GPU
IC partner	Alchip, Marvell		Broadcom		
Foundry	TSMC		TSMC		TSMC
IC substrate	NYPCB, Unimicron		Unimicron		Ibiden, Unimicron, Kinsus
Packaging	TSMC, ASE				TSMC, ASE (SPIL), Amkor
Testing					KYEC

Server- AI/ GPU server to drive growth

Server-related companies' recent comments on AI

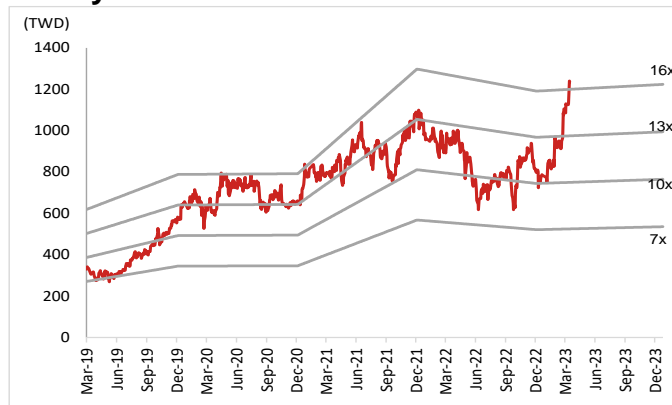
Company	Ticker	AI server % of server sales (2022)	AI server % of total sales (2022)	Key server customers	Comments on AI/ GPU server
Hon Hai	2317 TT	20%	3.0%	NVDA, AMZN, MSFT, GOOGLE, HP, Dell, BAT	<ul style="list-style-type: none"> AI server (server with at least 1 GPU) shipments doubled in 2022 AI server sales reached TWD200bn in 2022, accounting for ~20% of company's server sales Management expects its Cloud segment to be boosted by strong AI servers growth in 2023 GM of AI servers is in line with CSP average GM which falls in the range of high-single-digit and double digits, higher than HH's 2022 GM of 6%
Wistron	3231 TT	25%	1.5%	NVDA, Dell, SuperMicro, HP, Lenovo, etc.	<ul style="list-style-type: none"> AI server (server with at least 1 GPU) sales reached TWD15bn in 2022, accounting for ~1.5% of total sales (or ~24% of Wistron's server sales [excl. Wiwynn]) Wistron is a co-designed partner of Nvidia's DGX system, and its GM is higher than Wistron's average GM of 8-10% Management has not yet seen order increase from Nvidia but expects high growth from AI servers
Wiwynn	6669 TT	N.A.	N.A.	Meta, MSFT, AMZN (small)	<ul style="list-style-type: none"> AI server (server with at least 1 GPU) accounted for ~20% of Wiwynn's projects in 2022, and the company sees this number grows to exceed 50% as of its 4Q22 call held on 23-Feb 2023 AI servers require high power wattage and advanced cooling systems due to their high-computing power and requirement of at least one GPU Management thinks that the more complex design could possibly carry a higher MVA (manufacturing value added) and/or NRE (non-recurring engineering), and it targets to maintain the GM within a reasonable range even with a possible rising AI server share in its sales mix in the future
Inventec	2356 TT	15%+	5%+	AMZN, MSFT, GOOGLE, HP	<ul style="list-style-type: none"> AI server (server with at least 4 GPU) accounted for 11% of Inventec's server shipments in 2022, and it is expected to reach 15% in 2023 (30%+ of its server shipments in 2022 if we count server with at least 1 GPU) According to management, AI server carries a higher MVA and thus will not be that GM dilutive as investors are concerned Management expects more high-end AI server to be shipped at the end of 2Q/3Q23, likely due to new platform ramp-up (Nvidia's DGX H100 uses dual Intel's 4th-gen Xeon scalable CPUs)
Quanta	2382 TT	N.A.	N.A.	AMZN, GOOGLE, MSFT, Meta, others	N.A.
Lenovo	0992 HK	5%	1%	MSFT, Oracle, ByteDance	AI server (server with at least 1 GPU) accounted for around 5% of Lenovo's server sales in 2022

Wiwynn (6669 TT, Neutral): 2023F suffering from Meta's weakness

NOMURA

- We downgraded Wiwynn to Neutral on 4 Jan, as we expect the server order of Meta (60-70% of Wiwynn's sales in 2022) to decline by 30%+ in 2023F. Management maintained its view that 2023 would be a year of growth (vs our forecast of 9%/23% decline in sales/ earnings), and claimed that AI servers (at least 1 GPU) account for 50%+ of Wiwynn's new projects.
- However, we think it reported strong 1Q23 sales, because of delayed impacts from order cuts and increased portion of high ASP (but lower margin) storage shipments. We think order cut impacts could materialize from 2Q23F.

Wiwynn: Historical P/E bands



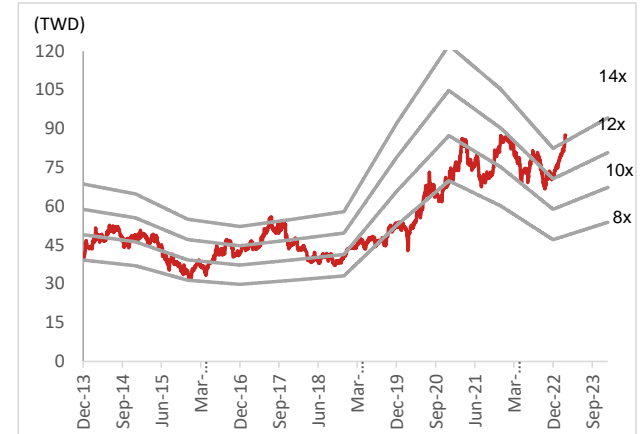
TWD (mn)	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	50,705	75,057	79,674	79,043	284,480	51,328	66,681	70,764	69,692	258,465	60,525	73,511	77,239	84,740	296,015
COGS	46,791	68,793	73,230	72,640	261,455	47,325	61,347	65,103	64,117	237,891	55,683	67,630	71,060	77,961	272,334
Gross profit	3,915	6,264	6,444	6,402	23,025	4,004	5,335	5,661	5,575	20,575	4,842	5,881	6,179	6,779	23,681
Op expenses	1,007	1,683	1,567	1,660	5,917	1,295	1,561	1,565	1,667	6,087	1,355	1,620	1,604	1,710	6,290
Op profit	2,907	4,582	4,877	4,742	17,108	2,709	3,773	4,097	3,909	14,487	3,487	4,260	4,575	5,069	17,391
Non-op income	65	(66)	570	127	696	(160)	(160)	(160)	(160)	(640)	(160)	(160)	(160)	(160)	(640)
Pre-tax profit	2,972	4,516	5,446	4,870	17,804	2,549	3,613	3,937	3,749	13,847	3,327	4,100	4,415	4,909	16,751
Net profit	2,346	3,563	4,316	3,847	14,072	2,013	2,837	3,086	2,962	10,898	2,611	3,219	3,466	3,854	13,149
EPS (NT\$)	13.42	20.38	24.69	22.01	80.50	11.52	16.23	17.65	16.94	62.34	14.94	18.41	19.82	22.04	75.22
Operating ratios (%)															
Gross margin	7.7%	8.3%	8.1%	8.1%	8.1%	7.8%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Operating margin	5.7%	6.1%	6.1%	6.0%	6.0%	5.3%	5.7%	5.8%	5.6%	5.6%	5.8%	5.8%	5.9%	6.0%	5.9%
Pre-tax profit margin	5.9%	6.0%	6.8%	6.2%	6.3%	5.0%	5.4%	5.6%	5.4%	5.4%	5.5%	5.6%	5.7%	5.8%	5.7%
Net profit margin	4.6%	4.7%	5.4%	4.9%	4.9%	3.9%	4.3%	4.4%	4.2%	4.2%	4.3%	4.4%	4.5%	4.5%	4.4%
Year-to-year (%)															
Net sales	29%	47%	76%	39%	48%	1%	-11%	-11%	-12%	-9%	18%	10%	9%	22%	15%
Gross profit	21%	50%	75%	40%	47%	2%	-15%	-12%	-13%	-11%	21%	10%	9%	22%	15%
Operating profit	27%	53%	81%	39%	50%	-7%	-18%	-16%	-18%	-15%	29%	13%	12%	30%	20%
Pre-tax profit	37%	53%	112%	47%	62%	-14%	-20%	-28%	-23%	-22%	31%	13%	12%	31%	21%
Net profit	38%	54%	113%	47%	63%	-14%	-20%	-28%	-23%	-23%	30%	13%	12%	30%	21%
Qtr-to-Qtr (%)															
Net sales	-11%	48%	6%	-1%		-35%	30%	6%	-2%		-13%	21%	5%	10%	
Gross profit	-14%	60%	3%	-1%		-37%	33%	6%	-2%		-13%	21%	5%	10%	
Operating profit	-15%	58%	6%	-3%		-43%	39%	9%	-5%		-11%	22%	7%	11%	
Pre-tax profit	-10%	52%	21%	-11%		-48%	42%	9%	-5%		-11%	23%	8%	11%	
Net profit	-10%	52%	21%	-11%		-48%	41%	9%	-4%		-12%	23%	8%	11%	

Quanta (2382 TT, Neutral): toned down on server growth, but we remain cautious about the new guidance

NOMURA

- Quanta toned down its server sales growth to single-digit % for 2023, from double-digits %, but we forecast a 5-10% decline
- We believe its server sales pattern in 2023F will be back-end loaded, and has a deeper trough in 1H23F, vs our view in late-2022
- We expect MacBook production to decline 15-20% in 2023 and are concerned that Quanta will likely lose share to peers (Hon Hai, Wingtech) in the next 1-2 years

Quanta: Historical P/E bands

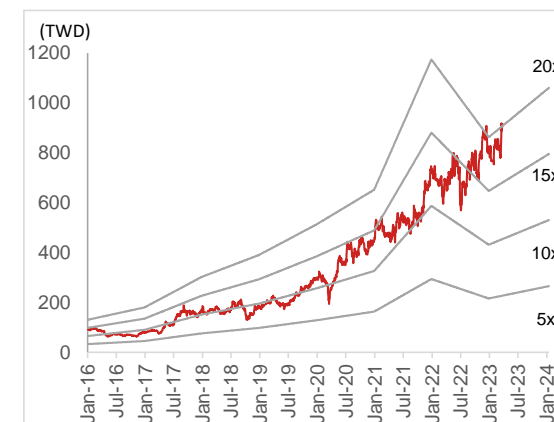


TWD (mn)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	301,781	270,467	382,075	326,105	1,280,429	263,335	266,532	293,566	309,558	1,132,991	271,273	301,627	323,784	297,421	1,194,105
COGS	285,749	258,181	360,638	305,187	1,209,754	248,127	251,316	276,207	291,521	1,067,170	255,429	283,636	304,072	280,676	1,123,812
Gross profit	16,032	12,287	21,437	20,919	70,675	15,209	15,216	17,360	18,037	65,821	15,844	17,991	19,712	16,745	70,292
Op expenses	8,654	8,709	11,157	10,966	39,486	8,300	8,500	10,474	11,185	38,459	8,300	8,500	10,474	11,346	38,620
Op profit	7,378	3,577	10,280	9,953	31,189	6,909	6,716	6,886	6,852	27,362	7,544	9,491	9,238	5,399	31,673
Non-op income	1,901	2,240	3,134	2,317	9,592	817	817	817	817	3,268	817	817	817	817	3,268
Pre-tax profit	9,279	5,817	13,414	12,270	40,781	7,726	7,533	7,703	7,669	30,630	8,361	10,308	10,055	6,216	34,941
Net profit	6,754	3,964	9,241	8,999	28,957	5,644	5,499	5,781	5,755	22,680	6,121	7,581	7,593	4,637	25,931
EPS (NT\$)	1.75	1.03	2.40	2.33	7.51	1.46	1.43	1.50	1.49	5.88	1.59	1.97	1.97	1.20	6.73
Operating ratios (%)															
Gross margin	5.3%	4.5%	5.6%	6.4%	5.5%	5.8%	5.7%	5.9%	5.8%	5.8%	5.8%	6.0%	6.1%	5.6%	5.9%
Operating margin	2.4%	1.3%	2.7%	3.1%	2.4%	2.6%	2.5%	2.3%	2.2%	2.4%	2.8%	3.1%	2.9%	1.8%	2.7%
Pre-tax profit margin	3.1%	2.2%	3.5%	3.8%	3.2%	2.9%	2.8%	2.6%	2.5%	2.7%	3.1%	3.4%	3.1%	2.1%	2.9%
Net profit margin	2.2%	1.5%	2.4%	2.8%	2.3%	2.1%	2.1%	2.0%	1.9%	2.0%	2.3%	2.5%	2.3%	1.6%	2.2%
Year-to-year (%)															
Net sales	12%	4%	46%	-4%	13%	-13%	-1%	-23%	-5%	-12%	3%	13%	10%	-4%	5%
Gross profit	-6%	-28%	21%	3%	-2%	-5%	24%	-19%	-14%	-7%	4%	18%	14%	-7%	7%
Operating profit	-15%	-60%	10%	-4%	-16%	-6%	88%	-33%	-31%	-12%	9%	41%	34%	-21%	16%
Pre-tax profit	4%	-45%	19%	-2%	-6%	-17%	29%	-43%	-37%	-25%	8%	37%	31%	-19%	14%
Net profit	-5%	-50%	-1%	-3%	-14%	-16%	39%	-37%	-36%	-22%	8%	38%	31%	-19%	14%
Qtr-to-Qtr (%)															
Net sales	-11%	-10%	41%	-15%		-19%	1%	10%	5%		-12%	11%	7%	-8%	
Gross profit	-21%	-23%	74%	-2%		-27%	0%	14%	4%		-12%	14%	10%	-15%	
Operating profit	-29%	-52%	187%	-3%		-31%	-3%	3%	0%		10%	26%	-3%	-42%	
Pre-tax profit	-26%	-37%	131%	-9%		-37%	-2%	2%	0%		9%	23%	-2%	-38%	
Net profit	-27%	-41%	133%	-3%		-37%	-3%	5%	0%		6%	24%	0%	-39%	

Lotes (3533 TT, Buy): short-term headwinds slow growth

- Lotes is the key beneficiary of the server/ DT platform upgrades, including more pin counts of CPU socket, PCIe gen. 4 to PCIe gen. 5, DDR4 to DDR5, etc.
- However, we expect a weak1H23F given the near-term server demand weakness as well as slower-than-expected penetration of Eagle Stream/ Genoa
- Management expects that NB/DT could turn better in 2Q23, after several quarters of inventory correction since 2022

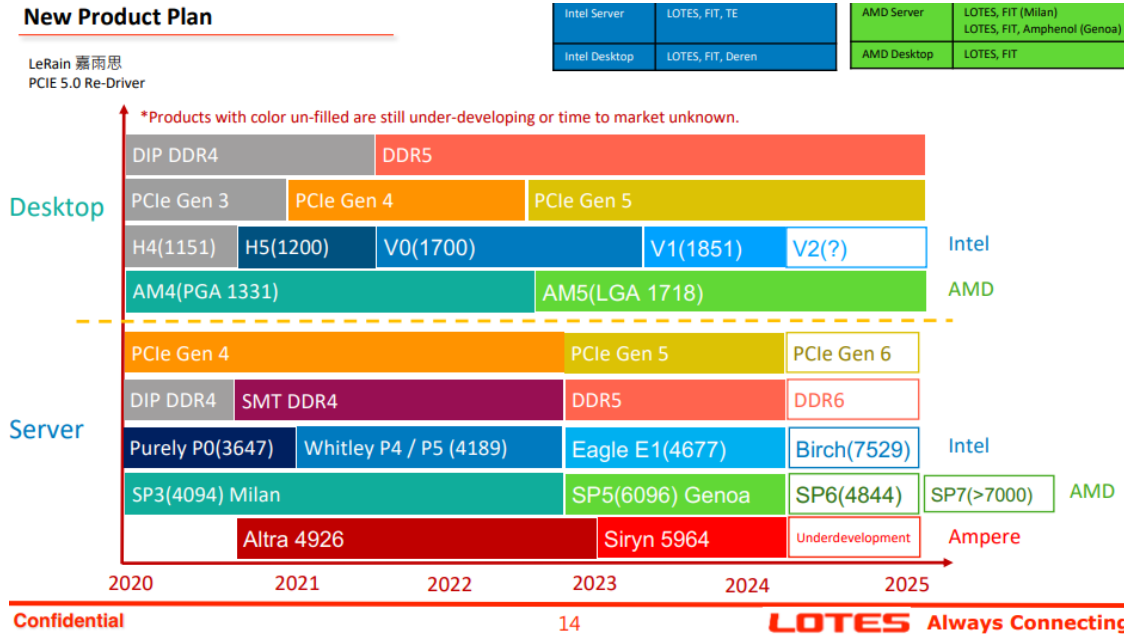
Lotes: Historical P/E bands



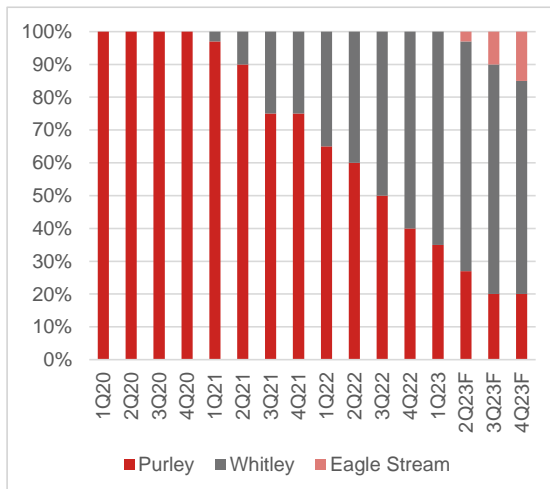
(TWD mn)	1Q22	2Q22	3Q22	4Q22	1Q23F	2Q23F	3Q23F	4Q23F	1Q24F	2Q24F	3Q24F	4Q24F	2021	2022F	2023F	2024F
Net Sales	6,146	6,652	7,269	7,033	5,448	5,943	6,632	6,794	6,351	7,113	7,554	7,382	21,392	27,099	24,816	28,400
Cost of Goods Sold	3,509	3,753	4,253	3,646	3,106	3,356	3,684	3,755	3,574	3,985	4,177	4,048	12,835	15,161	13,900	15,784
Gross Profit	2,637	2,898	3,016	3,387	2,342	2,587	2,948	3,039	2,778	3,128	3,377	3,334	8,557	11,938	10,916	12,616
Operating Expenses	1,054	1,218	1,191	1,206	1,035	1,129	1,227	1,257	1,143	1,245	1,322	1,284	4,198	4,669	4,648	4,994
Operating Income	1,582	1,680	1,826	2,181	1,307	1,458	1,721	1,782	1,634	1,883	2,055	2,049	4,359	7,269	6,268	7,621
Pre-Tax Income	1,831	1,985	2,399	1,974	1,250	1,401	1,665	1,726	1,578	1,826	1,999	1,993	4,540	8,189	6,042	7,395
Net Income	1,384	1,509	1,909	1,453	945	1,063	1,268	1,316	1,201	1,395	1,529	1,524	3,472	6,254	4,593	5,648
EPS	13.0	14.2	17.9	13.6	8.9	10.0	11.9	12.4	11.3	13.1	14.3	14.3	33.3	58.7	43.1	53.0
Profitability																
Gross Margin	42.9%	43.6%	41.5%	48.2%	43.0%	43.5%	44.5%	44.7%	43.7%	44.0%	44.7%	45.2%	40.0%	44.1%	44.0%	44.4%
Operating Margin	25.7%	25.3%	25.1%	31.0%	24.0%	24.5%	26.0%	26.2%	25.7%	26.5%	27.2%	27.8%	20.4%	26.8%	25.3%	26.8%
Net Profit Margin	22.5%	22.7%	26.3%	20.7%	17.4%	17.9%	19.1%	19.4%	18.9%	19.6%	20.2%	20.6%	16.2%	23.1%	18.5%	19.9%
QoQ																
Net Sales	1.5%	8.2%	9.3%	-3.3%	-22.5%	9.1%	11.6%	2.4%	-6.5%	12.0%	6.2%	-2.3%				
Gross Profit	8.3%	9.9%	4.1%	12.3%	-30.9%	10.5%	14.0%	3.1%	-8.6%	12.6%	8.0%	-1.3%				
Operating Expenses	-8.3%	15.6%	-2.3%	1.3%	-14.2%	9.1%	8.7%	2.4%	-9.0%	8.9%	6.2%	-2.8%				
Operating Income	23.1%	6.2%	8.7%	19.5%	-40.1%	11.6%	18.1%	3.5%	-8.3%	15.2%	9.2%	-0.3%				
Net Income	37.8%	9.1%	26.4%	-23.9%	-34.9%	12.5%	19.3%	3.7%	-8.8%	16.1%	9.6%	-0.3%				
EPS	35.3%	9.1%	26.0%	-23.9%	-34.9%	12.5%	19.3%	3.7%	-8.8%	16.1%	9.6%	-0.3%				
YoY																
Net Sales	29.6%	36.9%	26.8%	16.1%	-11.4%	-10.7%	-8.8%	-3.4%	16.6%	19.7%	13.9%	8.7%	23.7%	26.7%	-8.4%	14.4%
Gross Profit	34.1%	47.2%	37.9%	39.1%	-11.2%	-10.7%	-2.3%	-10.3%	18.6%	20.9%	14.6%	9.7%	23.5%	39.5%	-8.6%	15.6%
Operating Expenses	11.5%	22.0%	7.8%	4.9%	-1.8%	-7.3%	3.0%	4.2%	10.4%	10.2%	7.7%	2.2%	30.3%	11.2%	-0.4%	7.5%
Operating Income	55.1%	73.1%	68.6%	69.7%	-17.4%	-13.2%	-5.7%	-18.3%	25.1%	29.1%	19.4%	15.0%	17.6%	66.7%	-13.8%	21.6%
Net Income	66.0%	112.9%	106.2%	44.7%	-31.7%	-29.6%	-33.5%	-9.4%	27.0%	31.2%	20.5%	15.8%	27.1%	80.1%	-26.6%	23.0%
EPS	61.7%	107.5%	101.0%	41.5%	-31.9%	-29.8%	-33.5%	-9.4%	27.0%	31.2%	20.5%	15.8%	26.2%	76.2%	-26.6%	23.0%

CPU socket technology trends

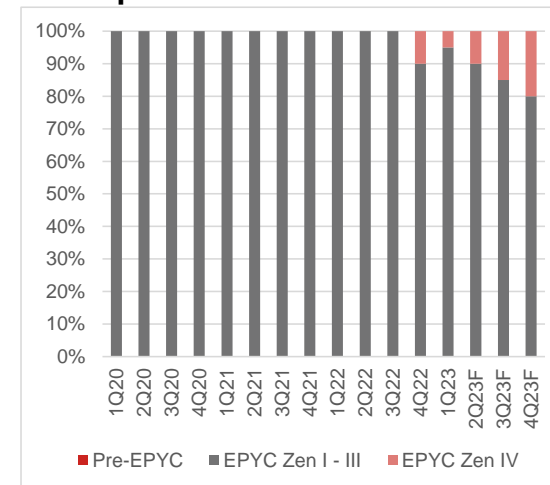
Lotes' new product roadmap



Intel platform penetration



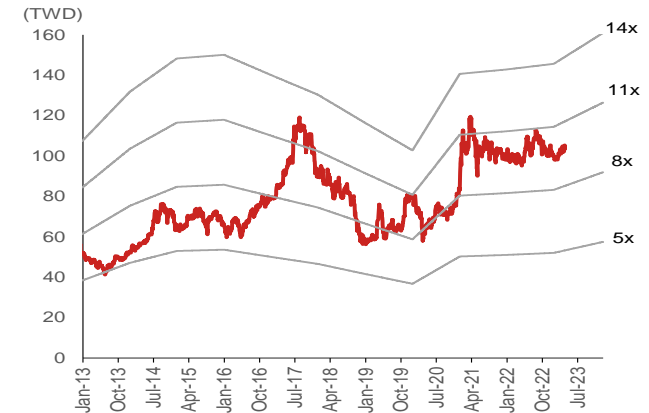
AMD platform penetration



Hon Hai (2317 TT, Buy): conservative outlook for consumer in 2023, while positive about other segments

- We expect HH's iPhone market share to decline to 64%/62% in 2023/24F, from 67% in 2022, as Apple will likely focus on risk diversification after the Zhengzhou
- Management guided for flat 2023 sales, with a decline in Consumer but a positive growth outlook in its Cloud, Computing, and Components
- HH expects Cloud sales to be driven by AI servers, Computing sales to grow on market share gains, and Components to mainly increase in acoustics, auto, etc.
- HH also targets for TWD1trn auto sales by 2025 (TWD50-100bn in 2023, from TWD20bn in 2022).

Hon Hai: Historical bonus-adjusted P/E bands



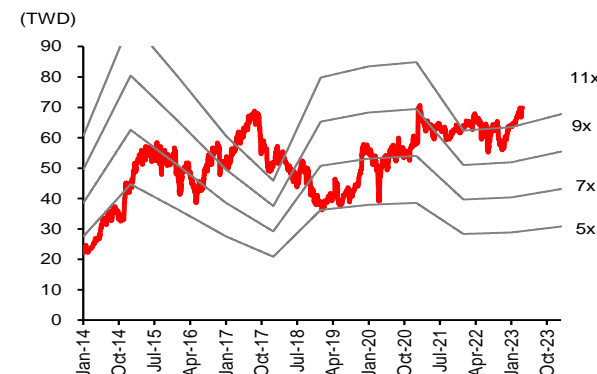
(TWDmn)	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	1,407,553	1,509,811	1,746,605	1,963,028	6,626,997	1,414,063	1,386,977	1,570,847	2,096,492	6,468,378	1,363,688	1,547,637	1,636,345	2,149,584	6,697,253
COGS	1,322,787	1,413,183	1,638,977	1,851,964	6,226,912	1,332,977	1,303,646	1,473,990	1,966,400	6,077,013	1,282,994	1,456,851	1,532,338	2,014,913	6,287,096
Gross profit	84,766	96,628	107,628	111,064	400,085	81,086	83,331	96,857	130,092	391,365	80,693	90,786	104,007	134,671	410,157
Op expenses	48,096	52,291	59,078	66,831	226,297	50,906	47,157	59,692	68,136	225,892	49,093	52,620	62,181	69,861	233,755
Op profit	36,669	44,337	48,549	44,233	173,788	30,180	36,173	37,165	61,956	165,474	31,600	38,166	41,826	64,810	176,402
Non-op income	258	2,601	2,647	8,218	13,724	4,492	6,687	8,732	9,304	29,216	5,752	8,483	11,111	11,771	37,117
Pre-tax profit	36,927	46,937	51,196	52,451	187,511	34,672	42,860	45,897	71,260	194,690	37,352	46,649	52,938	76,581	213,520
Net profit	29,450	33,294	38,759	39,979	141,483	27,084	28,931	35,595	52,646	144,256	29,255	31,621	41,438	57,062	159,376
EPS (NT\$)	2.12	2.40	2.80	2.88	10.21	1.95	2.09	2.57	3.80	10.41	2.11	2.28	2.99	4.12	11.50
Operating ratios (%)															
Gross margin	6.0%	6.4%	6.2%	5.7%	6.0%	5.7%	6.0%	6.2%	6.2%	6.1%	5.9%	5.9%	6.4%	6.3%	6.1%
Operating margin	2.6%	2.9%	2.8%	2.3%	2.6%	2.1%	2.6%	2.4%	3.0%	2.6%	2.3%	2.5%	2.6%	3.0%	2.6%
Pre-tax profit margin	2.6%	3.1%	2.9%	2.7%	2.8%	2.5%	3.1%	2.9%	3.4%	3.0%	2.7%	3.0%	3.2%	3.6%	3.2%
Net profit margin	2.1%	2.2%	2.2%	2.0%	2.1%	1.9%	2.1%	2.3%	2.5%	2.2%	2.1%	2.0%	2.5%	2.7%	2.4%
Year-to-year (%)															
Net sales	4%	12%	24%	4%	11%	0%	-8%	-10%	7%	-2%	-4%	12%	4%	3%	4%
Gross profit	8%	19%	21%	-2%	10%	-4%	-14%	-10%	17%	-2%	0%	9%	7%	4%	5%
Operating profit	33%	37%	34%	-16%	17%	-18%	-18%	-23%	40%	-5%	5%	6%	13%	5%	7%
Pre-tax profit	-6%	6%	7%	-16%	-3%	-6%	-9%	-10%	36%	4%	8%	9%	15%	7%	10%
Net profit	5%	12%	5%	-10%	2%	-8%	-13%	-8%	32%	2%	8%	9%	16%	8%	10%
Qtr-to-Qtr (%)															
Net sales	-26%	7%	16%	12%		-28%	-2%	13%	33%		-35%	13%	6%	31%	
Gross profit	-26%	14%	11%	3%		-27%	3%	16%	34%		-38%	13%	15%	29%	
Operating profit	-30%	21%	10%	-9%		-32%	20%	3%	67%		-49%	21%	10%	55%	
Pre-tax profit	-41%	27%	9%	2%		-34%	24%	7%	55%		-48%	25%	13%	45%	
Net profit	-34%	13%	16%	3%		-32%	7%	23%	48%		-44%	8%	31%	38%	

Pegatron (4938 TT, Neutral): less aggressive in iPhone; cautious 2023 outlook

NOMURA

- Pegatron is the dominating (80%+) EMS supplier for iPhone 14 Plus, and penetrated iPhone 14 Pro due to HH's Zhengzhou issue, but it is losing NPI to Luxshare for iPhone 15 Plus
- The company is pursuing more stable utilization rates and product diversification, and growing new businesses like EV, and 5G-ORAN
- Management targets auto sales contribution to reach 10% of total sales in the next two years, from low-single-digits % in 2022

Pegatron: Historical bonus-adjusted P/E bands

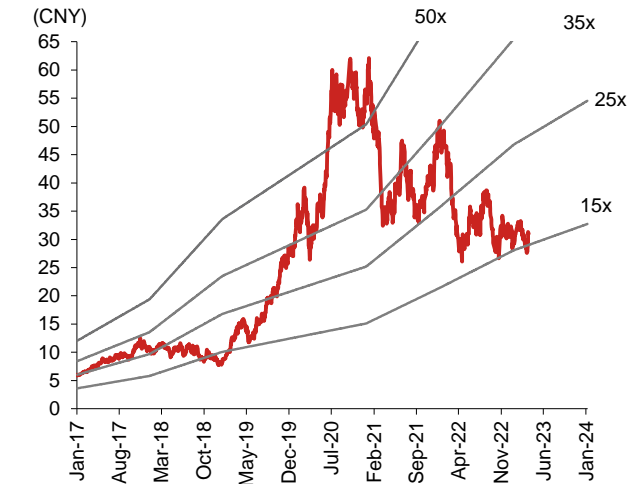


(TWDm)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	323,825	283,658	352,867	357,250	1,317,599	306,761	289,011	364,587	390,183	1,350,543	317,802	312,753	351,700	414,663	1,396,917
COGS	312,370	269,164	336,793	341,989	1,260,316	295,946	278,537	351,205	376,127	1,301,815	306,860	301,356	338,451	399,850	1,346,518
Gross profit	11,455	14,494	16,074	15,261	57,283	10,815	10,474	13,383	14,056	48,728	10,942	11,397	13,248	14,812	50,400
Op expenses	7,229	7,945	8,442	8,283	31,898	7,566	7,456	7,743	7,860	30,625	7,734	7,584	8,091	8,198	31,606
Op profit	4,225	6,549	7,632	6,978	25,385	3,249	3,018	5,640	6,196	18,103	3,208	3,813	5,157	6,614	18,793
Non-op income	(449)	238	1,239	1,787	2,814	959	1,731	1,990	1,800	6,480	1,310	1,721	1,970	2,030	7,031
Pre-tax profit	3,776	6,787	8,871	8,765	28,199	4,208	4,749	7,630	7,996	24,582	4,518	5,534	7,128	8,644	25,824
Net profit	1,667	3,116	5,265	5,047	15,096	2,882	2,390	4,732	5,360	15,364	3,035	3,228	4,372	5,771	16,405
EPS (TWD)	0.63	1.17	1.98	1.90	5.67	1.08	0.90	1.78	2.01	5.77	1.14	1.21	1.64	2.17	6.16
Operating ratios (%)															
Gross margin	3.5%	5.1%	4.6%	4.3%	4.3%	3.5%	3.6%	3.7%	3.6%	3.6%	3.4%	3.6%	3.8%	3.6%	3.6%
Operating margin	1.3%	2.3%	2.2%	2.0%	1.9%	1.1%	1.0%	1.5%	1.6%	1.3%	1.0%	1.2%	1.5%	1.6%	1.3%
Pre-tax profit margin	1.2%	2.4%	2.5%	2.5%	2.1%	1.4%	1.6%	2.1%	2.0%	1.8%	1.4%	1.8%	2.0%	2.1%	1.8%
Net profit margin	0.5%	1.1%	1.5%	1.4%	1.1%	0.9%	0.8%	1.3%	1.4%	1.1%	1.0%	1.0%	1.2%	1.4%	1.2%
Year-to-year (%)															
Net sales	49%	4%	9%	-21%	4%	-5%	2%	3%	9%	3%	4%	8%	-4%	6%	3%
Gross profit	24%	49%	37%	-4%	23%	-6%	-28%	-17%	-8%	-15%	1%	9%	-1%	5%	3%
Operating profit	91%	143%	83%	-10%	51%	-23%	-54%	-26%	-11%	-29%	-1%	26%	-9%	7%	4%
Pre-tax profit	-2%	-16%	84%	-23%	0%	11%	-30%	-14%	-9%	-13%	7%	17%	-7%	8%	5%
Net profit	-64%	-42%	97%	-36%	-27%	73%	-23%	-10%	6%	2%	5%	35%	-8%	8%	7%
Qtr-to-Qtr (%)															
Net sales	-28%	-12%	24%	1%		-14%	-6%	26%	7%		-19%	-2%	12%	18%	
Gross profit	-28%	27%	11%	-5%		-29%	-3%	28%	5%		-22%	4%	16%	12%	
Operating profit	-46%	55%	17%	-9%		-53%	-7%	87%	10%		-48%	19%	35%	28%	
Pre-tax profit	-67%	80%	31%	-1%		-52%	13%	61%	5%		-43%	22%	29%	21%	
Net profit	-79%	87%	69%	-4%		-43%	-17%	98%	13%		-43%	6%	35%	32%	

Luxshare (002475 CH; Buy): structural growth on track

- We think Luxshare will continue to gain market share in Apple's supply chain and expand into different product lines in the next 2-3 years, through strategic alliances in recent years (e.g., AirPods/ iPhone market share gains)
- We observe Luxshare has obtained a leading EMS position in iPhone 15 Plus (6.7" lower end model) by replacing Pegatron
- Management targets for CNY10bn+ sales from automotive by 2024, from CNY4.1bn in 2021 (key focus: wiring harness, connectors, smart cockpit, and smart driving)
- It also aims to reach CNY30bn/60bn/100bn of sales from its communication business by 2027/2032/2037

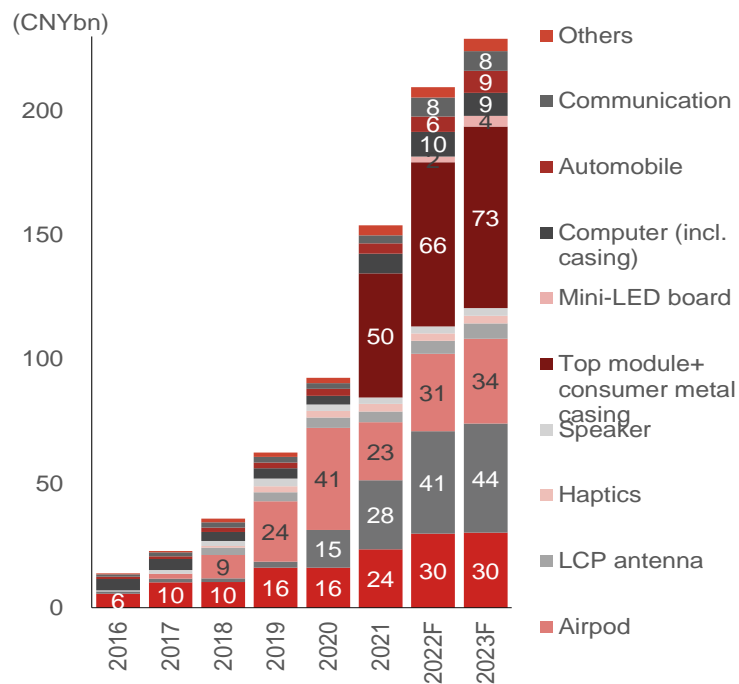
Luxshare: Historical P/E bands



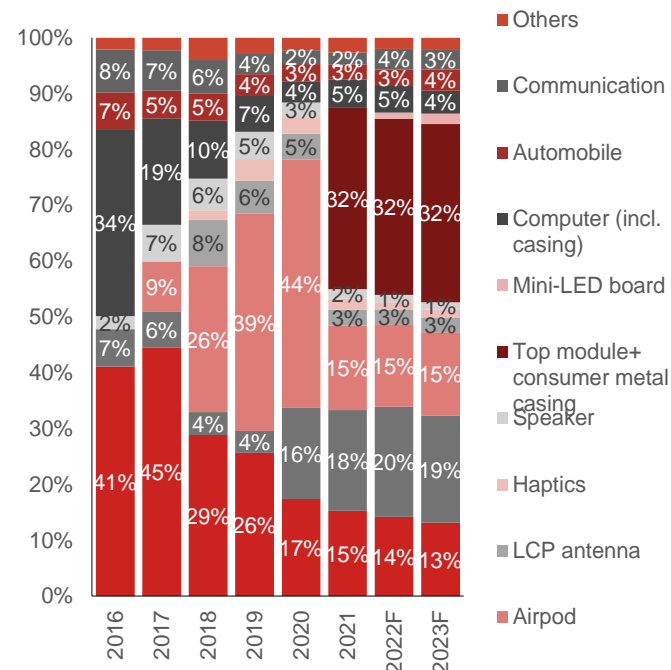
(CNY mn)	1Q22	2Q22	3Q22F	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	41,600	40,361	56,965	70,723	209,648	47,471	43,186	61,166	77,258	229,081	50,400	45,710	65,524	82,326	243,960
COGS	(36,686)	(35,056)	(49,153)	(62,215)	(183,110)	(41,556)	(37,499)	(52,310)	(67,742)	(199,108)	(43,919)	(39,550)	(55,747)	(72,101)	(211,316)
Gross profit	4,914	5,306	7,811	8,507	26,538	5,915	5,687	8,856	9,516	29,974	6,481	6,160	9,778	10,226	32,644
Op expenses	(2,833)	(3,244)	(4,204)	(4,164)	(14,446)	(3,000)	(3,203)	(4,207)	(4,119)	(14,528)	(3,165)	(3,378)	(4,539)	(4,404)	(15,485)
Op profit	2,080	2,061	3,608	4,343	12,092	2,915	2,484	4,649	5,397	15,445	3,316	2,782	5,239	5,822	17,159
Non-op income	207	115	130	369	821	199	209	560	855	1,823	320	295	834	1,069	2,518
Pre-tax profit	2,287	2,177	3,738	4,712	12,913	3,114	2,694	5,209	6,252	17,269	3,635	3,078	6,073	6,891	19,677
Net profit	1,803	1,981	2,877	3,730	10,391	2,379	2,022	4,165	5,089	13,654	2,820	2,346	4,894	5,624	15,684
EPS (CNY)	0.26	0.28	0.41	0.53	1.47	0.34	0.29	0.59	0.72	1.93	0.40	0.33	0.69	0.79	2.21
Operating ratios (%)															
Gross margin	11.8%	13.1%	13.7%	12.0%	12.7%	12.5%	13.2%	14.5%	12.3%	13.1%	12.9%	13.5%	14.9%	12.4%	13.4%
Operating margin	5.0%	5.1%	6.3%	6.1%	5.8%	6.1%	5.8%	7.6%	7.0%	6.7%	6.6%	6.1%	8.0%	7.1%	7.0%
Pre-tax profit margin	5.5%	5.4%	6.6%	6.7%	6.2%	6.6%	6.2%	8.5%	8.1%	7.5%	7.2%	6.7%	9.3%	8.4%	8.1%
Net profit margin	4.3%	4.9%	5.0%	5.3%	5.0%	5.0%	4.7%	6.8%	6.6%	6.0%	5.6%	5.1%	7.5%	6.8%	6.4%
Year-to-year (%)															
Net sales	98%	49%	73%	-3%	36%	14%	7%	7%	9%	9%	6%	6%	7%	7%	6%
Gross profit	39%	25%	49%	46%	40%	20%	7%	13%	12%	13%	10%	8%	10%	7%	9%
Operating profit	45%	15%	111%	67%	61%	40%	21%	29%	24%	28%	14%	12%	13%	8%	11%
Pre-tax profit	43%	10%	96%	77%	59%	36%	24%	39%	33%	34%	17%	14%	17%	10%	14%
Net profit	34%	14%	80%	57%	47%	32%	2%	45%	36%	31%	19%	16%	18%	11%	15%
Qtr-to-Qtr (%)															
Net sales	-43%	-3%	41%	24%		-33%	-79%	29%	79%		-35%	-80%	30%	80%	
Gross profit	-16%	8%	47%	9%		-30%	-79%	50%	67%		-32%	-79%	51%	66%	
Operating profit	-20%	-1%	75%	20%		-33%	-79%	59%	117%		-39%	-82%	58%	109%	
Pre-tax profit	-14%	-5%	72%	26%		-34%	-79%	67%	132%		-42%	-82%	67%	124%	
Net profit	-24%	10%	45%	30%		-36%	-81%	75%	152%		-45%	-83%	74%	140%	

Luxshare (002475 CH; Buy): structural growth on track

Luxshare – revenue mix by product



Luxshare – revenue mix by product (%)

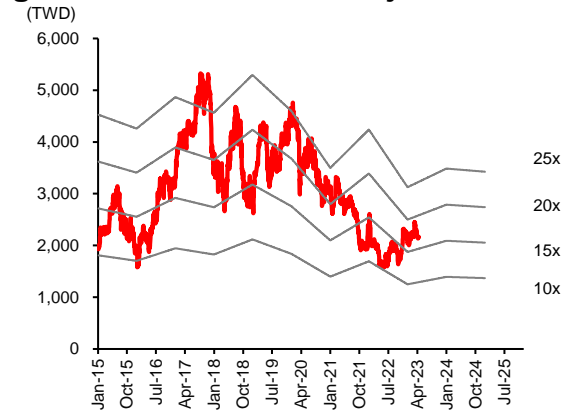


Largan (3008 TT, Neutral): worse-than-expected pricing and margin pressure

NOMURA

- We downgraded Largan to Neutral on 13 Apr 2023, due to worse-than-expected pricing/margin pressure and weaker-than-expected high-end Android SP demand
- We expect Largan to take 70%+ share in Apple's periscope lens, but the ramp-up (from July or Aug.) is later than our earlier expectation, and the GM could be challenging at the initial stage given the poorer yield rates
- We think Apple will gradually replace plastic lens in Face ID Tx with metalens from 2024F, a sentiment hurt to Largan, although the real financial impact may be limited, given the low ASP of Tx lens

Largan: Historical bonus-adjusted P/E bands

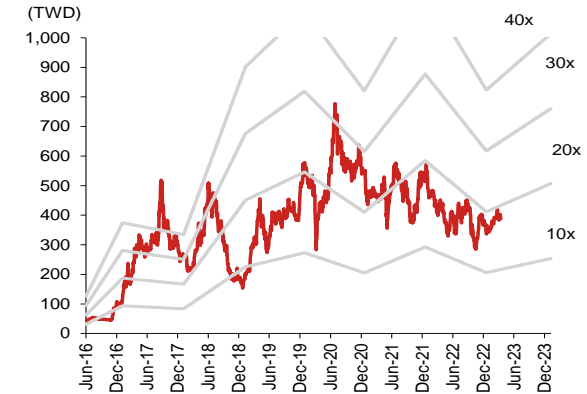


(TWDmn)	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	10,133	9,675	13,477	14,390	47,675	9,136	9,022	13,847	14,391	46,396	10,211	10,312	14,861	14,700	50,085
COGS	4,726	4,277	6,240	6,350	21,593	4,623	4,588	7,216	7,421	23,849	5,384	5,200	7,548	7,501	25,633
Gross profit	5,407	5,399	7,237	8,040	26,083	4,513	4,434	6,631	6,971	22,548	4,827	5,112	7,313	7,199	24,452
Op expenses	1,397	1,363	1,683	1,255	5,699	1,244	1,201	1,425	1,445	5,315	1,203	1,283	1,500	1,489	5,474
Op profit	4,010	4,035	5,554	6,785	20,384	3,269	3,232	5,206	5,525	17,233	3,624	3,829	5,814	5,710	18,977
Non-op income	2,751	2,166	4,141	(1,617)	7,443	640	960	1,010	1,060	3,670	960	960	1,010	1,060	3,990
Pre-tax profit	6,761	6,202	9,696	5,168	27,827	3,909	4,192	6,216	6,585	20,903	4,584	4,789	6,824	6,770	22,967
Net profit	5,513	4,946	8,142	4,024	22,625	3,289	2,903	5,097	5,400	16,689	3,759	3,702	5,595	5,552	18,608
EPS (NT\$)	41.3	37.1	61.0	30.2	169.5	24.6	21.8	38.2	40.5	125.0	28.2	27.7	41.9	41.6	139.4
Operating ratios (%)															
Gross margin	53.4%	55.8%	53.7%	55.9%	54.7%	49.4%	49.1%	47.9%	48.4%	48.6%	47.3%	49.6%	49.2%	49.0%	48.8%
Operating margin	39.6%	41.7%	41.2%	47.1%	42.8%	35.8%	35.8%	37.6%	38.4%	37.1%	35.5%	37.1%	39.1%	38.8%	37.9%
Pre-tax profit margin	66.7%	64.1%	71.9%	35.9%	58.4%	42.8%	46.5%	44.9%	45.8%	45.1%	44.9%	46.4%	45.9%	46.1%	45.9%
Net profit margin	54.4%	51.1%	60.4%	28.0%	47.5%	36.0%	32.2%	36.8%	37.5%	36.0%	36.8%	35.9%	37.6%	37.8%	37.2%
Year-to-year (%)															
Net sales	-14%	-4%	13%	10%	2%	-10%	-7%	3%	0%	-3%	12%	14%	7%	2%	8%
Gross profit	-29%	-12%	2%	10%	-7%	-17%	-18%	-8%	-13%	-14%	7%	15%	10%	3%	8%
Operating profit	-37%	-20%	-4%	13%	-12%	-18%	-20%	-6%	-19%	-15%	11%	18%	12%	3%	10%
Pre-tax profit	4%	49%	59%	-18%	21%	-42%	-32%	-36%	27%	-25%	17%	14%	10%	3%	10%
Net profit	4%	67%	55%	-22%	21%	-40%	-41%	-37%	34%	-26%	14%	28%	10%	3%	11%
Qtr-to-Qtr (%)															
Net sales	-22%	-5%	39%	7%		-37%	-1%	53%	4%		-29%	1%	44%	-1%	
Gross profit	-26%	0%	34%	11%		-44%	-2%	50%	5%		-31%	6%	43%	-2%	
Operating profit	-33%	1%	38%	22%		-52%	-1%	61%	6%		-34%	6%	52%	-2%	
Pre-tax profit	8%	-8%	56%	-47%		-24%	7%	48%	6%		-30%	4%	42%	-1%	
Net profit	7%	-10%	65%	-51%		-18%	-12%	76%	6%		-30%	-2%	51%	-1%	

Genius (3406 TT, Neutral): higher pricing pressure in iPhone; VR still lacks strong catalysts

- We are concerned over risks such as: 1) iPhone's inventory correction risks and high pricing pressure in 1H23F; 2) investments in VR/AR will take longer to generate returns; and 3) ongoing competition from Sunny Optical in iPhone lens
- Continued volume cuts and production push-outs for VR/MR customers, including Meta, Sony, and Apple
- However, we see some positive factors in 2023F, including 1) periscope camera for 2H23 iPhone, but with likely lower market share than Largan; 2) new light-guide optical parts for iPhone 15 P sensor

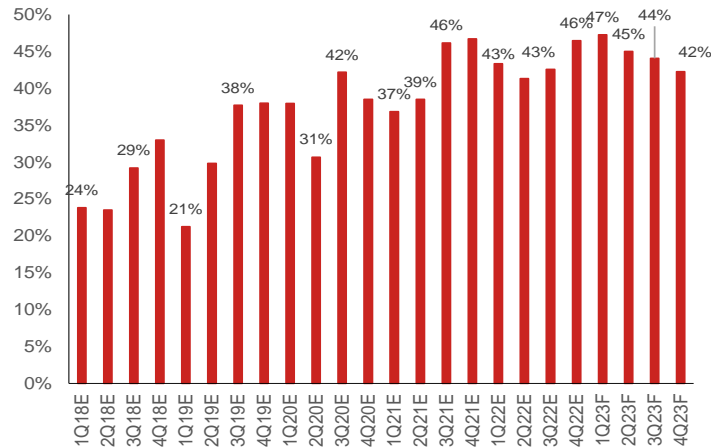
Genius: Historical P/E bands



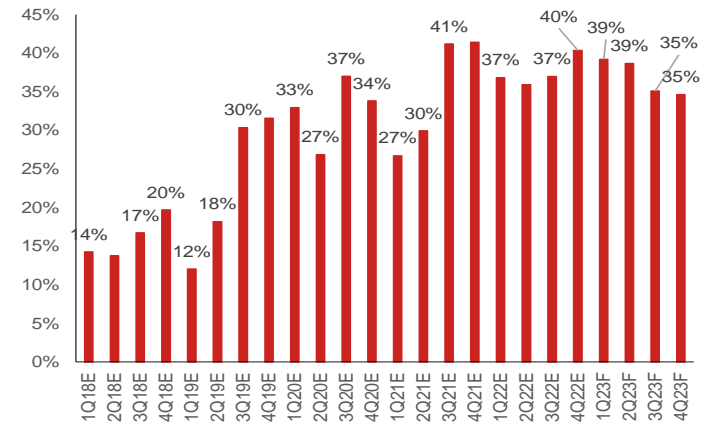
(TWDm)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	3,381	2,911	7,177	5,746	19,215	3,498	2,634	6,574	7,499	20,206	5,289	3,715	6,925	7,449	23,378
COGS	2,334	1,823	4,165	3,242	11,565	2,387	1,764	4,240	4,919	13,310	3,573	2,504	4,514	4,951	15,542
Gross profit	1,047	1,089	3,011	2,504	7,650	1,111	870	2,334	2,580	6,895	1,716	1,211	2,411	2,498	7,835
Op expenses	704	852	1,025	1,161	3,741	775	852	1,076	1,277	3,979	813	894	1,130	1,341	4,178
Op profit	343	237	1,987	1,343	3,909	336	18	1,258	1,303	2,916	902	316	1,281	1,158	3,657
Non-op income	118	162	404	(203)	481	71	71	71	71	284	71	71	71	71	284
Pre-tax profit	461	399	2,390	1,140	4,390	407	89	1,329	1,374	3,200	973	387	1,352	1,229	3,941
Net profit	326	374	1,729	845	3,274	293	64	957	990	2,304	701	279	973	885	2,837
EPS (NT\$)	2.90	3.32	15.35	7.50	29.06	2.60	0.57	8.50	8.79	20.45	6.22	2.47	8.64	7.85	25.19
Operating ratios (%)															
Gross margin	31.0%	37.4%	42.0%	43.6%	39.8%	31.8%	33.0%	35.5%	34.4%	34.1%	32.4%	32.6%	34.8%	33.5%	33.5%
Operating margin	10.1%	8.1%	27.7%	23.4%	20.3%	9.6%	0.7%	19.1%	17.4%	14.4%	17.1%	8.5%	18.5%	15.5%	15.6%
Pre-tax profit margin	13.6%	13.7%	33.3%	19.8%	22.8%	11.6%	3.4%	20.2%	18.3%	15.8%	18.4%	10.4%	19.5%	16.5%	16.9%
Net profit margin	9.7%	12.8%	24.1%	14.7%	17.0%	8.4%	2.4%	14.6%	13.2%	11.4%	13.2%	7.5%	14.1%	11.9%	12.1%
Year-to-year (%)															
Net sales	32%	15%	21%	1%	15%	3%	-10%	-8%	31%	5%	51%	41%	5%	-1%	16%
Gross profit	14%	42%	40%	21%	29%	6%	-20%	-22%	3%	-10%	54%	39%	3%	-3%	14%
Operating profit	0%	110%	47%	11%	30%	-2%	-92%	-37%	-3%	-25%	168%	1636%	2%	-11%	25%
Pre-tax profit	29%	179%	67%	-9%	38%	-12%	-78%	-44%	21%	-27%	139%	334%	2%	-11%	23%
Net profit	17%	216%	77%	-9%	43%	-10%	-83%	-45%	17%	-30%	139%	334%	2%	-11%	23%
Qtr-to-Qtr (%)															
Net sales	-41%	-14%	147%	-20%		-39%	-25%	150%	14%		-29%	-30%	86%	8%	
Gross profit	-50%	4%	177%	-17%		-56%	-22%	168%	11%		-34%	-29%	99%	4%	
Operating profit	-72%	-31%	739%	-32%		-75%	-95%	6808%	4%		-31%	-65%	305%	-10%	
Pre-tax profit	-63%	-13%	499%	-52%		-64%	-78%	1392%	3%		-29%	-60%	249%	-9%	
Net profit	-65%	15%	363%	-51%		-65%	-78%	1392%	3%		-29%	-60%	249%	-9%	

Genius (3406 TT, Neutral): higher pricing pressure in iPhone; VR still lacks strong catalysts

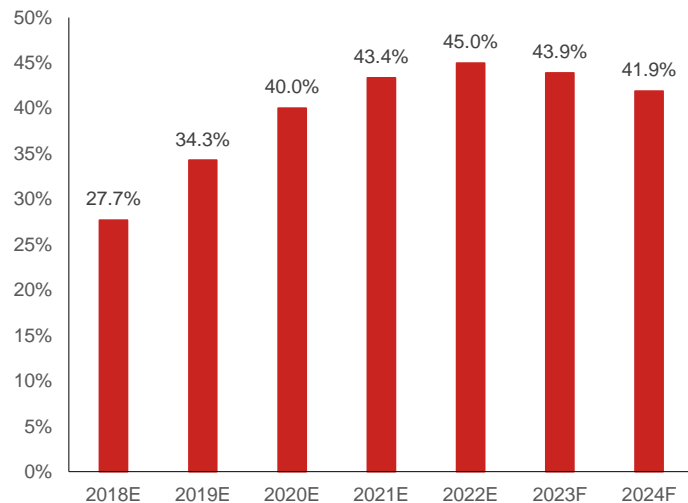
Genius: Quarterly iPhone market share (unit)



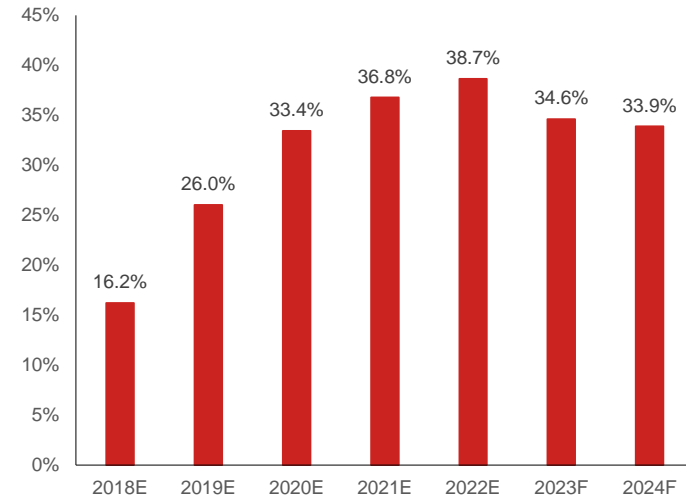
Genius: Quarterly iPhone market share (value)



Genius: Annual iPhone market share (shipments)



Genius: Annual iPhone market share (value)

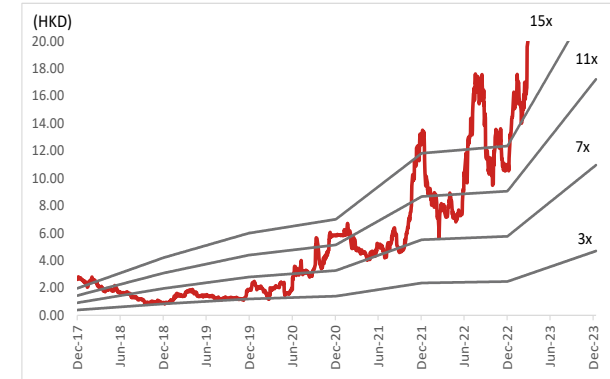


Cowell (1415 HK, Buy): more progress in iPhone rear CCM in 2024

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- Despite 2023 earnings could be affected by higher pricing pressure for iPhone components and weaker demand for LiDAR in the China auto market, we note Cowell's penetration into iPhone rear cameras (CCM) is better than expected
- We assume Cowell would penetrate into iPhone ultra-wide (UW) rear CCM in 2H24F, in addition to periscope CCM
- We estimate Cowell will increase its value market share in iPhone CCM (7% sales CAGR in 2021-24F) to 7% in 2024F from 3-4% in 2021-23F

Cowell: Historical P/E bands



(USD mn)	1Q22E	2Q22E	3Q22E	4Q22E	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	201	204	332	379	1,116	323	244	390	419	1,376	327	303	756	941	2,328
COGS	(170)	(174)	(282)	(316)	(942)	(280)	(212)	(331)	(356)	(1,179)	(277)	(260)	(657)	(809)	(2,003)
Gross profit	30	31	50	64	174	43	33	59	63	197	49	43	100	133	325
Op expenses	(14)	(17)	(20)	(24)	(74)	(16)	(21)	(26)	(32)	(94)	(21)	(32)	(33)	(41)	(127)
Op profit	17	14	30	39	100	27	11	33	32	103	28	11	66	92	198
Non-op income	1	2	(1)	(1)	1	0	0	0	0	0	(1)	(1)	(1)	(1)	(2)
Pre-tax profit	18	16	29	38	101	27	11	33	32	103	28	11	66	91	196
Net profit	16	15	23	30	84	23	10	28	27	88	24	9	56	78	166
EPS (USD\$)	0.020	0.018	0.027	0.036	0.100	0.028	0.011	0.034	0.032	0.105	0.029	0.011	0.067	0.093	0.199
EPS (HKD\$)	0.154	0.138	0.214	0.283	0.789	0.218	0.089	0.264	0.253	0.824	0.224	0.088	0.525	0.730	1.566
Operating ratios (%)															
Gross margin	15%	15%	15%	17%	16%	13%	13%	15%	15%	14%	15%	14%	13%	14%	14%
Operating margin	8%	7%	9%	10%	9%	8%	5%	8%	8%	7%	9%	4%	9%	10%	8%
Pre-tax profit margin	9%	8%	9%	10%	9%	8%	5%	8%	8%	7%	9%	4%	9%	10%	8%
Net profit margin	8%	7%	7%	8%	8%	7%	4%	7%	6%	6%	7%	3%	7%	8%	7%
Year-to-year (%)															
Net sales	55%	21%	47%	38%	40%	61%	20%	17%	10%	23%	1%	24%	94%	125%	69%
Gross profit	55%	16%	47%	59%	45%	42%	5%	18%	-1%	13%	15%	33%	69%	110%	65%
Operating profit	59%	-7%	37%	56%	37%	64%	-22%	11%	-20%	3%	5%	2%	100%	190%	92%
Pre-tax profit	80%	7%	105%	101%	74%	52%	-30%	15%	-17%	2%	3%	-2%	99%	189%	90%
Net profit	78%	6%	98%	94%	68%	42%	-35%	23%	-11%	4%	3%	-2%	99%	189%	90%
Qtr-to-Qtr (%)															
Net sales	-27%	2%	62%	14%		-15%	-24%	59%	8%		-22%	-7%	149%	24%	
Gross profit	-25%	3%	61%	28%		-33%	-24%	81%	7%		-22%	-12%	130%	33%	
Operating profit	-34%	-13%	107%	32%		-31%	-59%	195%	-4%		-10%	-60%	477%	39%	
Pre-tax profit	-6%	-10%	79%	33%		-29%	-59%	195%	-4%		-11%	-61%	499%	39%	
Net profit	5%	-10%	55%	33%		-23%	-59%	195%	-4%		-11%	-61%	499%	39%	

Cowell (1415 HK, Buy): more progress in iPhone rear CCM in 2024

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iPhone CCM competitive landscape

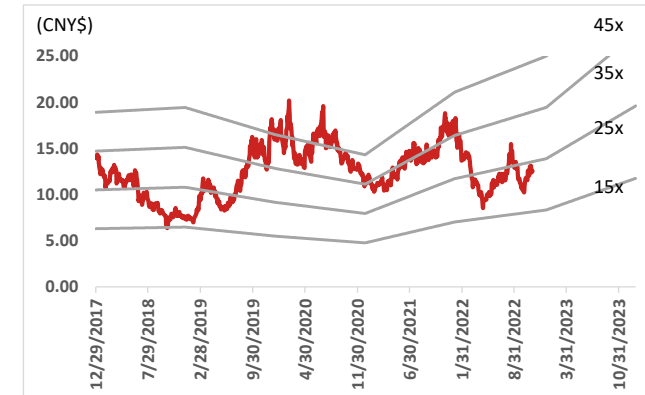
Front CCM (FF)	2020	Front CCM (FF)	2021	Front CCM (AF)	2H22F	Front camera module	2H23F
O-Film=> sell to Wingtech?	50%	Cowell	40%	Cowell	40-50%	Cowell	50%
Cowell=> sold to LuxVisions	20%	Hon Hai	40%	LG Innotek	50-60%	LG Innotek	50%
Hon Hai	30%	Wingtech	some	Wingtech in old models		Wingtech in old models	
Face ID Rx module	2020	Face ID 3-in-1 module	2021	Face ID 3-in-1 module	2H22F	Face ID 3-in-1 module	2H23F
O-Film	50%	LG Innotek	50%	LG Innotek	50%	LG Innotek	50%
Hon Hai	50%	Hon Hai	50%	Hon Hai	50%	Hon Hai	50%
Face ID Tx module	2020	Rear CCMs (discrete)	2021	Rear CCMs (discrete)	2H22F	Rear CCMs(ex. Periscope)	2H23F
Hon hai	30%	LG Innotek	60-70%	LG Innotek	60-70%	LG Innotek	50-60%
LG Innotek	70%	Sharp	10-20%	Sharp	20%	Sharp	10-20%
Rear triple camera	2H20	Hon Hai	10-20%	Hon Hai	10-20%	Hon Hai	30-40%
LG Innotek	100%	Wingtech (for old iPhone 12) very small		Wingtech in old models		Periscope CCM for Pro Max	2H23F
Rear dual camera	2H20	ToF	2021	ToF	2H22F	ToF	2H23F
Sharp	95%	LG Innotek	100%	LG Innotek	100%	LG Innotek	50%
O-Film=> sell to Wingtech?	5%	OIS or VCM	2021	OIS or VCM	2H22F	Hon Hai	50%
ToF	2020	Sensor-shift OIS	Alps, Minebea	Sensor-shift OIS (wide)	Alps, Minebea	OIS or VCM	2H23F
LG Innotek	100%	OIS	Alps, Minebea	OIS (tele)	Alps, Minebea	Sensor-shift OIS (wide)	Alps, Minebea
OIS or VCM	2020	VCM for UW	Alps, Largan	VCM for UW	Alps, Largan	VCM for UW	Alps, Largan
Sensor-shift OIS	Alps, Minebea	VCM for front cam	Alps, Minebea, Luxshare	VCM for front cam	Alps, Minebea, Luxshare	VCM for front cam	Alps, Minebea, Luxshare
OIS	Alps, Minebea					Periscope (tele) OIS and VCM	Ball-type VCM: Jahwa, LG Innotek?
							VCM: Minebea

Crystal OpTech (002273 CH, Buy): Rising dollar content in Apple

NOMURA

- We initiated coverage of Crystal at Buy on 8 Nov. We believe it will start a new chapter of growth in 2023-24F, by 1) expanding market share in thin-film optical covers for Apple, 2) supplying micro prisms for periscope and DOE to Apple, and 3) growing in HUD (head-up displays) project wins in the automotive field
- We estimate Crystal will record 40-60% value content growth per iPhone in 2023-24F
- We forecast its automotive sales could easily double in 2022F and triple in 2023F, driven mainly by HUD sales growth and the low base in 2021

Crystal: Historical P/E bands



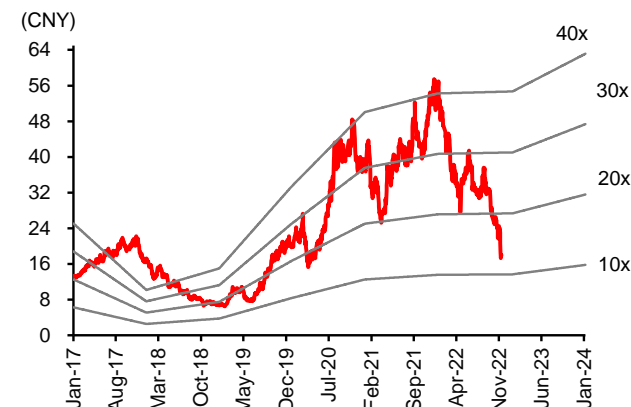
(CNY mn)	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	946	938	1,317	1,317	4,519	1,185	1,147	1,867	2,029	6,228	1,704	1,627	2,271	2,360	7,963
COGS	(739)	(684)	(913)	(931)	(3,267)	(911)	(829)	(1,305)	(1,407)	(4,453)	(1,267)	(1,164)	(1,595)	(1,625)	(5,651)
Gross profit	207	254	405	386	1,252	273	319	562	622	1,776	438	463	676	735	2,312
Op expenses	(144)	(186)	(191)	(229)	(749)	(172)	(223)	(245)	(393)	(1,033)	(236)	(271)	(298)	(417)	(1,222)
Op profit	63	68	214	158	502	102	95	317	229	743	202	192	378	318	1,090
Non-op income	68	82	56	25	230	25	25	25	25	100	25	25	25	25	100
Pre-tax profit	131	149	270	183	733	127	120	342	254	843	227	217	403	343	1,190
Net profit	114	131	235	172	652	114	111	314	234	773	204	200	371	316	1,090
EPS (RMB\$)	0.08	0.09	0.17	0.12	0.47	0.08	0.08	0.23	0.17	0.56	0.15	0.14	0.27	0.23	0.78
Operating ratios (%)															
Gross margin	21.9%	27.0%	30.7%	29.3%	27.7%	23.1%	27.8%	30.1%	30.6%	28.5%	25.7%	28.5%	29.8%	31.1%	29.0%
Operating margin	6.7%	7.2%	16.2%	12.0%	11.1%	8.6%	8.3%	17.0%	11.3%	11.9%	11.9%	11.8%	16.6%	13.5%	13.7%
Pre-tax profit margin	13.9%	15.9%	20.5%	13.9%	16.2%	10.7%	10.5%	18.3%	12.5%	13.5%	13.3%	13.3%	17.7%	14.5%	14.9%
Net profit margin	12.1%	14.0%	17.8%	13.0%	14.4%	9.6%	9.7%	16.8%	11.5%	12.4%	12.0%	12.3%	16.3%	13.4%	13.7%
Year-to-year (%)															
Net sales	9%	10%	16%	38%	19%	25%	22%	42%	54%	38%	44%	42%	22%	16%	28%
Gross profit	19%	37%	29%	65%	38%	32%	26%	39%	61%	42%	60%	45%	20%	18%	30%
Operating profit	0%	9%	22%	254%	45%	60%	41%	48%	45%	48%	99%	101%	19%	39%	47%
Pre-tax profit	17%	72%	31%	99%	48%	-4%	-19%	27%	39%	15%	79%	80%	18%	35%	41%
Net profit	19%	66%	31%	94%	47%	0%	-16%	34%	36%	19%	79%	80%	18%	35%	41%
Qtr-to-Qtr (%)															
Net sales	-1%	-1%	40%	0%		-10%	-3%	63%	9%		-16%	-5%	40%	4%	
Gross profit	-11%	22%	60%	-4%		-29%	17%	76%	11%		-30%	6%	46%	9%	
Operating profit	43%	6%	217%	-26%		-35%	-6%	232%	-28%		-12%	-5%	97%	-16%	
Pre-tax profit	43%	14%	81%	-32%		-31%	-5%	184%	-26%		-11%	-4%	86%	-15%	
Net profit	29%	15%	79%	-27%		-34%	-3%	184%	-26%		-13%	-2%	86%	-15%	

GoerTek (002241 CH, Neutral): Structural concerns materializing

NOMURA

- We downgraded Goertek to Neutral on 27 Oct: 1) the company is losing share in AirPods; and 2) a much lower volume CAGR growth of global VR (15-20% CAGR during 2021-24F, on our estimates) vs management's expectation of 50%+ CAGR
- Goertek's announcement of production halt for a smart acoustic device on client request on 8 Nov echoed our concerns about its share losses in AirPods, and we think it might become more difficult for it to penetrate into Apple's other system-level products
- We think VR weakness will likely last into 2023F, including Meta, Pico, and Sony

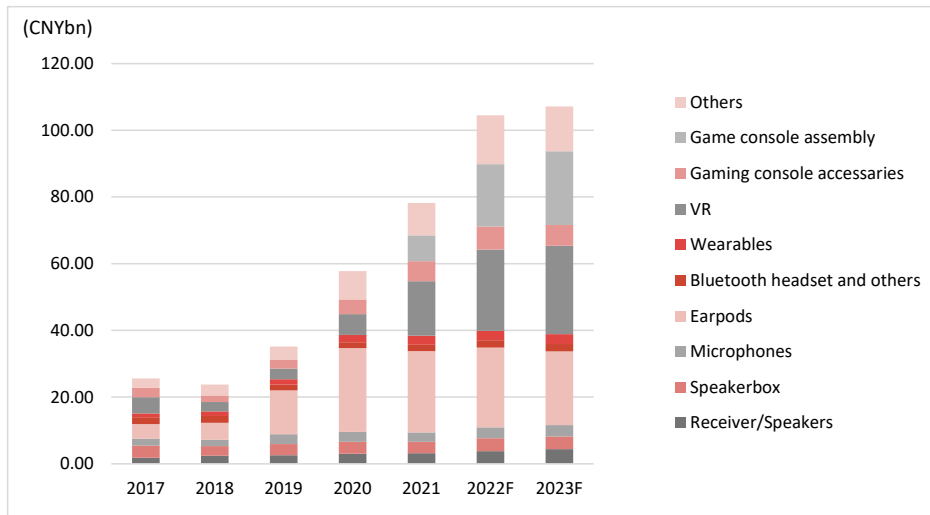
GoerTek: Historical P/E bands



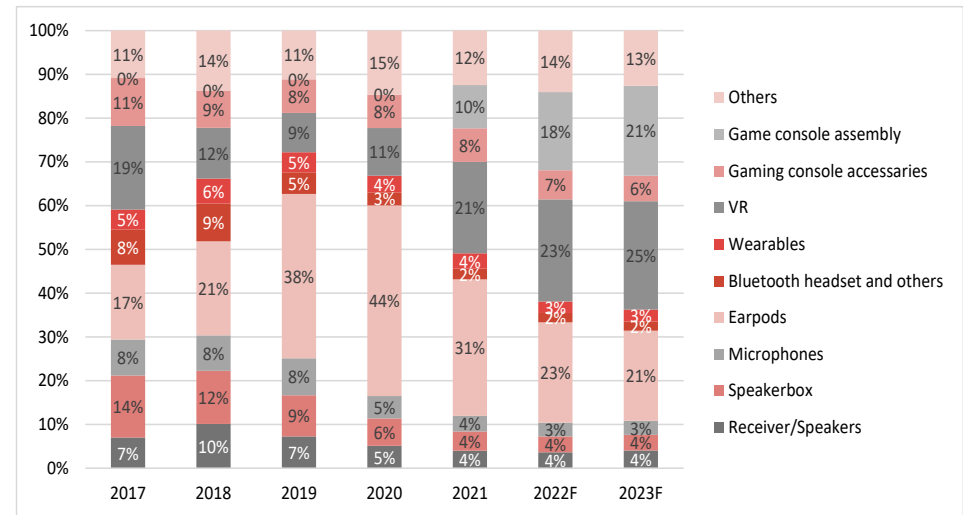
(CNY mn)	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F
Net sales	14,028	16,260	22,501	25,432	78,221	20,112	23,492	30,549	30,031	104,184	23,887	24,531	29,341	29,395	107,153
COGS	(11,986)	(13,936)	(19,070)	(22,175)	(67,168)	(17,353)	(20,604)	(26,454)	(26,209)	(90,619)	(21,063)	(21,753)	(25,496)	(25,352)	(93,665)
Gross profit	2,042	2,323	3,431	3,257	11,054	2,759	2,888	4,096	3,822	13,565	2,824	2,777	3,845	4,043	13,489
Op expenses	(1,364)	(1,420)	(1,645)	(2,360)	(6,788)	(1,796)	(1,553)	(2,349)	(2,494)	(8,192)	(1,819)	(1,580)	(2,217)	(2,409)	(8,024)
Op profit	678	904	1,786	897	4,265	963	1,335	1,747	1,328	5,373	1,005	1,198	1,627	1,634	5,464
Non-op income	458	(35)	18	(100)	341	40	(28)	160	(428)	(257)	(40)	(40)	(38)	(38)	(157)
Pre-tax profit	1,136	868	1,805	797	4,606	1,002	1,307	1,907	900	5,116	965	1,157	1,589	1,596	5,307
Net profit	966	765	1,601	942	4,275	901	1,178	1,761	792	4,632	849	1,018	1,398	1,405	4,670
EPS (CNY)	0.28	0.22	0.47	0.28	1.25	0.26	0.34	0.52	0.23	1.36	0.25	0.30	0.41	0.41	1.37
Operating ratios (%)															
Gross margin	14.6%	14.3%	15.2%	12.8%	14.1%	13.7%	12.3%	13.4%	12.7%	13.0%	11.8%	11.3%	13.1%	13.8%	12.6%
Operating margin	4.8%	5.6%	7.9%	3.5%	5.5%	4.8%	5.7%	5.7%	4.4%	5.2%	4.2%	4.9%	5.5%	5.6%	5.1%
Pre-tax profit margin	8.1%	5.3%	8.0%	3.1%	5.9%	5.0%	5.6%	6.2%	3.0%	4.9%	4.0%	4.7%	5.4%	5.4%	5.0%
Net profit margin	6.9%	4.7%	7.1%	3.7%	5.5%	4.5%	5.0%	5.8%	2.6%	4.4%	3.6%	4.2%	4.8%	4.8%	4.4%
Year-to-year (%)															
Net sales	117%	79%	17%	11%	35%	43%	44%	36%	18%	33%	19%	4%	-4%	-2%	3%
Gross profit	73%	43%	3%	4%	19%	35%	24%	19%	17%	23%	2%	-4%	-6%	6%	-1%
Operating profit	53%	38%	10%	11%	21%	42%	48%	-2%	48%	26%	4%	-10%	-7%	23%	2%
Pre-tax profit	217%	45%	30%	-10%	43%	-12%	50%	6%	13%	11%	-4%	-11%	-17%	77%	4%
Net profit	228%	57%	30%	13%	50%	-7%	54%	10%	-16%	8%	-6%	-14%	-21%	77%	1%
Qtr-to-Qtr (%)															
Net sales	-39%	16%	38%	13%		-21%	17%	30%	-2%		-20%	3%	20%	0%	
Gross profit	-35%	14%	48%	-5%		-15%	5%	42%	-7%		-26%	-2%	38%	5%	
Operating profit	-16%	33%	98%	-50%		7%	39%	31%	-24%		-24%	19%	36%	0%	
Pre-tax profit	29%	-24%	108%	-56%		26%	30%	46%	-53%		7%	20%	37%	0%	
Net profit	16%	-21%	109%	-41%		-4%	31%	50%	-55%		7%	20%	37%	0%	

GoerTek (002241 CH, Neutral): Structural concerns materializing

Goertek – revenue mix by product



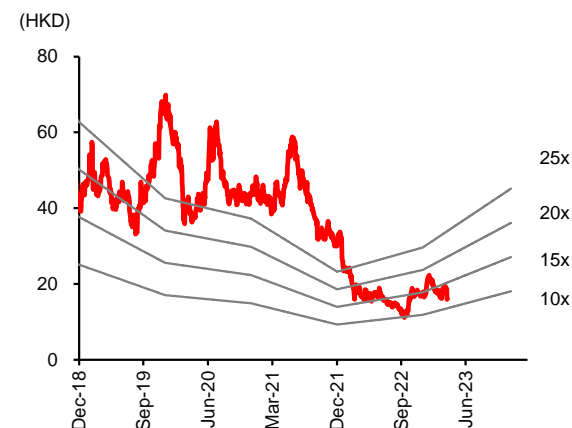
Goertek – revenue mix by product (%)



AAC (2018 HK, Buy): improving from Android SP

- We are positive on AAC as: 1) AAC's PM (Precision Mechanics) performed better than expected; and 2) we are close to the bottom of Android optics industry downcycle, and expect a potential recovery in 2H23-2024F.
- However, the pushing out of iPhone 15 Pro's virtual buttons adoption could impact 6-9% earnings for 2H23-1H24, but we see no harm to longer-term outlook, as we think Apple will adopt the design in the iPhone 16 Pro.
- AAC is optimistic about its PM outlook in 2023 for increased penetration in premium NB projects

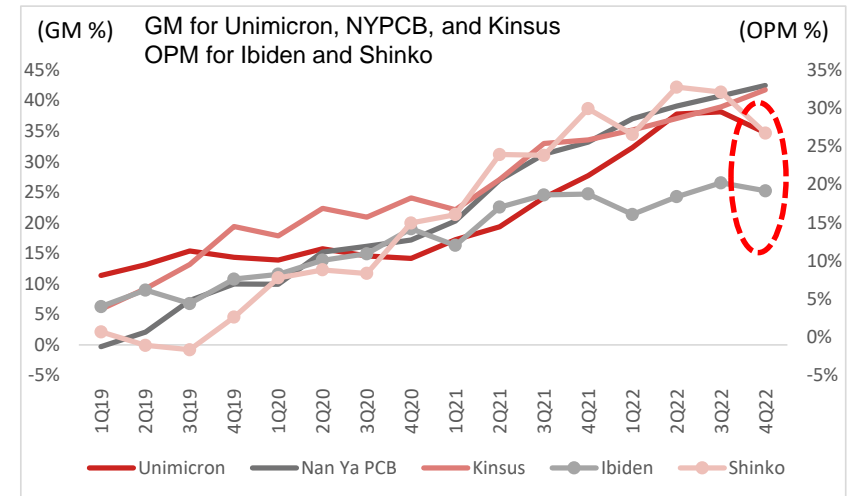
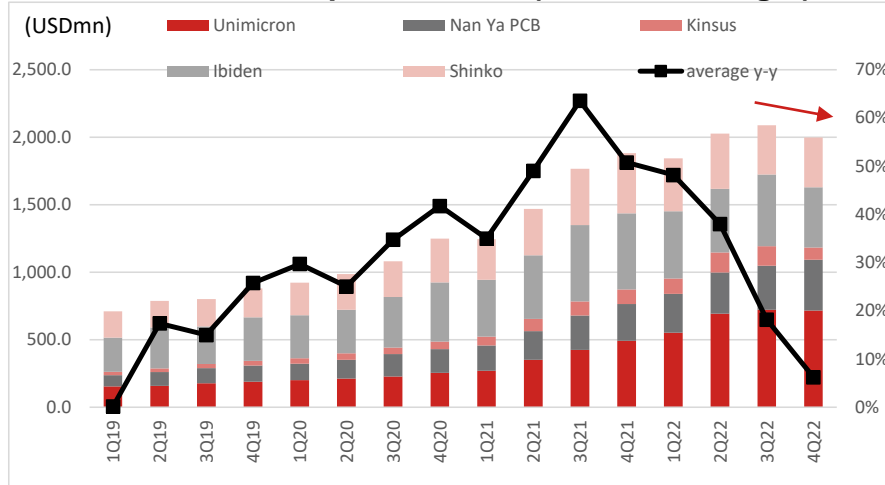
AAC: Historical P/E bands



(CNY mn)	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023F	1Q24	2Q24	3Q24	4Q24	2024F
Net sales	4,896	4,516	5,373	5,840	20,625	4,335	4,110	5,716	6,401	20,562	5,237	4,911	6,044	6,657	22,849
COGS	(3,939)	(3,690)	(4,351)	(4,870)	(16,850)	(3,541)	(3,362)	(4,558)	(5,042)	(16,503)	(4,231)	(3,959)	(4,745)	(5,204)	(18,140)
Gross profit	957	826	1,022	970	3,775	793	748	1,158	1,359	4,059	1,006	952	1,298	1,453	4,710
Op expenses	(718)	(669)	(775)	(868)	(3,030)	(710)	(716)	(783)	(798)	(3,007)	(730)	(736)	(773)	(788)	(3,027)
Op profit	239	157	247	102	745	83	32	375	561	1,052	276	216	526	665	1,683
Non-op income	10	20	23	62	115	38	38	38	38	152	38	38	38	38	152
Pre-tax profit	249	177	270	165	861	121	70	413	599	1,204	314	254	564	703	1,835
Net profit	206	146	233	236	821	106	61	359	521	1,047	273	221	490	612	1,596
EPS (CNY)	0.17	0.12	0.19	0.20	0.69	0.09	0.05	0.30	0.44	0.87	0.23	0.18	0.41	0.51	1.33
Operating ratios (%)															
Gross margin	19.5%	18.3%	19.0%	16.6%	18.3%	18.3%	18.2%	20.3%	21.2%	19.7%	19.2%	19.4%	21.5%	21.8%	20.6%
Operating margin	4.9%	3.5%	4.6%	1.8%	3.6%	1.9%	0.8%	6.6%	8.8%	5.1%	5.3%	4.4%	8.7%	10.0%	7.4%
Pre-tax profit margin	5.1%	3.9%	5.0%	2.8%	4.2%	2.8%	1.7%	7.2%	9.4%	5.9%	6.0%	5.2%	9.3%	10.6%	8.0%
Net profit margin	4.2%	3.2%	4.3%	4.0%	4.0%	2.4%	1.5%	6.3%	8.1%	5.1%	5.2%	4.5%	8.1%	9.2%	7.0%
Year-to-year (%)															
Net sales	14%	5%	27%	21%	17%	-11%	-9%	6%	10%	0%	21%	19%	6%	4%	11%
Gross profit	-28%	-23%	6%	-2%	-14%	-17%	-9%	13%	40%	8%	27%	27%	12%	7%	16%
Operating profit	-63%	-54%	3%	-61%	-50%	-65%	-79%	52%	448%	41%	231%	567%	40%	19%	60%
Pre-tax profit	-60%	-51%	48%	-34%	-39%	-51%	-60%	53%	264%	40%	159%	261%	36%	17%	52%
Net profit	-61%	-63%	27%	11%	-38%	-49%	-58%	54%	121%	28%	159%	261%	36%	17%	52%
Qtr-to-Qtr (%)															
Net sales	2%	-8%	19%	9%		-26%	-5%	39%	12%		-18%	-6%	23%	10%	
Gross profit	-3%	-14%	24%	-5%		-18%	-6%	55%	17%		-26%	-5%	36%	12%	
Operating profit	-8%	-34%	57%	-59%		-19%	-61%	1060%	50%		-51%	-22%	144%	27%	
Pre-tax profit	0%	-29%	53%	-39%		-26%	-42%	487%	45%		-48%	-19%	122%	25%	
Net profit	-3%	-29%	60%	1%		-55%	-42%	487%	45%		-48%	-19%	122%	25%	

ABF substrate- weakness spreading out from late-2022, yet to reach the bottom

ABF substrate makers performance (sales and margin) showing weakness from late-2022



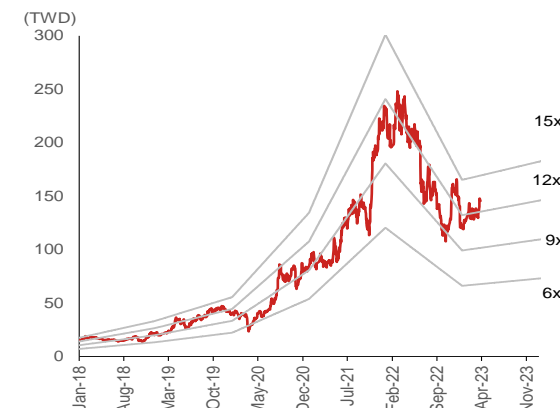
Capex push-outs and guidance revision

Company	2020 total capex	2021 total capex	2022 total capex	2023 total capex forecast	Capex push-outs/ Guidance revision?
Ibiden	JPY78.2bn	JPY60.6bn	JPY170bn	JPY87bn	Lowered FY23 full-year sales guidance by ~5% and OP guidance by ~11% (announced in Feb 2023)
Shinko	JPY30.1bn	JPY57.5bn	JPY50.8bn	JPY45bn	Lowered FY23 full-year sales guidance by ~12% and OP guidance by ~19% (announced in Mar 2023)
Unimicron	TWD22bn; TWD20bn for IC substrate	TWD30bn; 90% for IC substrate	TWD38.95bn; 80-85% for IC substrate	TWD35.42bn; 80-85% for IC substrate	Lowered 2023 capex by 16% (announced on 19 Dec 2022)
Kinsus	TWD2.9bn	TWD12bn	~TWD10bn mostly for ABF	~TWD10bn mostly for ABF	No capex planned for new ABF capacity beyond 2024 as of now
NYPCB	TWD7.3bn	TWD8bn	TWD17+bn	TWD17+bn	No capex planned for new ABF capacity beyond 2024 as of now
AT&S	FY19/20 EUR218.5mn	FY20/21 EUR436mn	FY21/22 EUR up to 700mn	FY22/23 EUR up to 1,250mn	Postpone its mid-term target of reaching EUR3.5bn sales by FY2025/26 and EBITDA margin of 27-32% to FY2026/27 due to the demand weakness

Unimicron (3037 TT; Neutral): FCBGA downturn likely deeper and longer

- We downgraded Unimicron to Neutral on 3 Feb, as we think: 1) ABF substrate pricing of TW makers will likely drop at least 15-20% by mid-2023F; 2) UTR for TW ABF substrate makers will likely be <90% by 2Q23F, with only a mild recovery in 3Q23F; and 3) its HDI/ PCB sales will turn weak given the soft demand from Apple and consumer products.
- According to management, Unimicron's customers are adjusting their orders due to inventory correction, but the company was unable to provide the timeline by when a demand recovery could materialize.

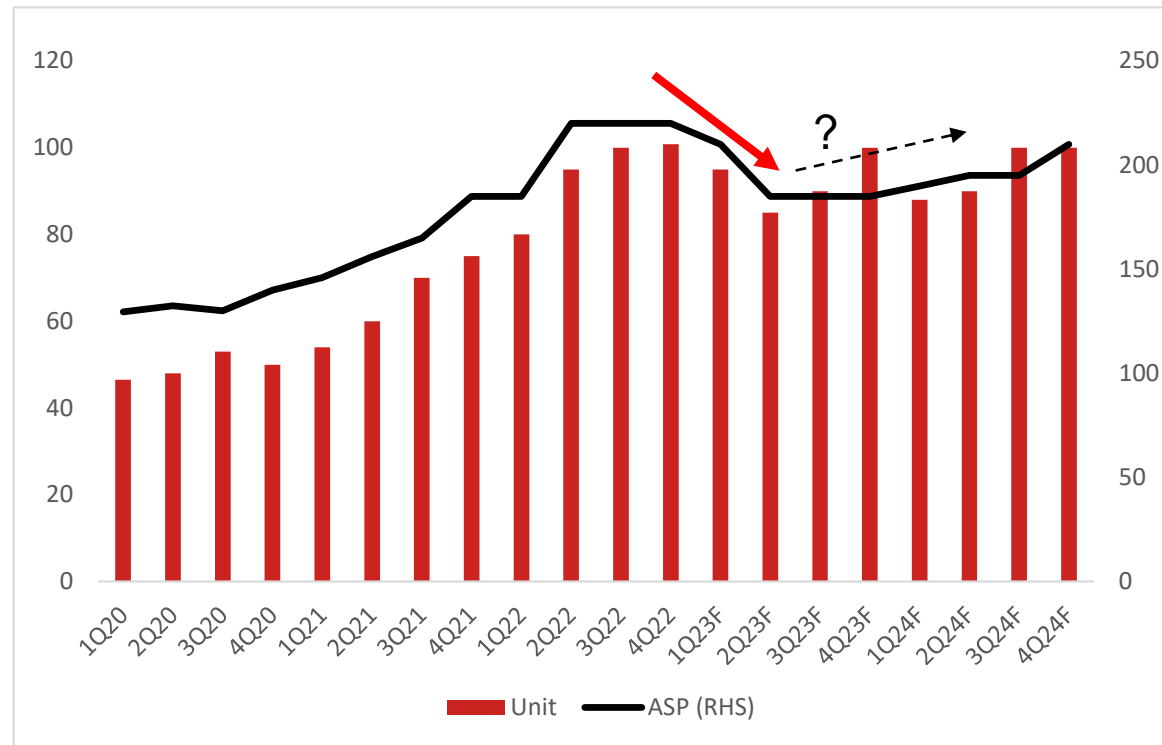
Unimicron: Historical P/E bands



(TWDmn)	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	30,711	35,635	37,454	36,690	140,489	32,561	28,378	31,936	34,059	126,934	31,116	31,979	36,130	37,265	136,489
COGS	20,788	22,166	23,155	22,779	88,888	22,046	22,125	23,890	25,141	93,201	23,909	23,605	26,100	26,254	99,868
Gross profit	9,923	13,469	14,299	13,911	51,602	10,516	6,253	8,046	8,918	33,733	7,207	8,374	10,031	11,010	36,621
Op expenses	2,734	3,119	3,265	3,343	12,461	2,842	3,069	3,100	3,257	12,268	2,931	2,954	3,204	3,325	12,414
Op profit	7,189	10,350	11,035	10,568	39,142	7,674	3,183	4,947	5,661	21,466	4,276	5,420	6,827	7,685	24,207
Non-op income	302	758	875	262	2,197	312	292	262	262	1,128	262	262	262	262	1,048
Pre-tax profit	7,491	11,108	11,910	10,830	41,339	7,986	3,475	5,209	5,923	22,594	4,538	5,682	7,089	7,947	25,255
Net profit	5,667	8,030	8,563	8,306	30,565	6,067	2,388	3,584	4,404	16,445	3,319	4,096	5,016	5,976	18,407
EPS (NT\$)	3.84	5.44	5.80	5.63	20.72	4.11	1.62	2.43	2.99	11.15	2.25	2.78	3.40	4.05	12.48
Operating ratios (%)															
Gross margin	32.3%	37.8%	38.2%	37.9%	36.7%	32.3%	22.0%	25.2%	26.2%	26.6%	23.2%	26.2%	27.8%	29.5%	26.8%
Operating margin	23.4%	29.0%	29.5%	28.8%	27.9%	23.6%	11.2%	15.5%	16.6%	16.9%	13.7%	16.9%	18.9%	20.6%	17.7%
Pre-tax profit margin	24.4%	31.2%	31.8%	29.5%	29.4%	24.5%	12.2%	16.3%	17.4%	17.8%	14.6%	17.8%	19.6%	21.3%	18.5%
Net profit margin	18.5%	22.5%	22.9%	22.6%	21.8%	18.6%	8.4%	11.2%	12.9%	13.0%	10.7%	12.8%	13.9%	16.0%	13.5%
Year-to-year (%)															
Net sales	41%	48%	33%	20%	34%	6%	-20%	-15%	-7%	-10%	-4%	13%	13%	9%	8%
Gross profit	164%	190%	111%	64%	118%	6%	-54%	-44%	-36%	-35%	-31%	34%	25%	23%	9%
Operating profit	482%	406%	164%	85%	197%	7%	-69%	-55%	-46%	-45%	-44%	70%	38%	36%	13%
Pre-tax profit	194%	368%	125%	69%	149%	7%	-69%	-56%	-45%	-45%	-43%	63%	36%	34%	12%
Net profit	160%	339%	103%	66%	131%	7%	-70%	-58%	-47%	-46%	-45%	71%	40%	36%	12%
Qtr-to-Qtr (%)															
Net sales	0%	16%	5%	-2%		-11%	-13%	13%	7%		-9%	3%	13%	3%	
Gross profit	17%	36%	6%	-3%		-24%	-41%	29%	11%		-19%	16%	20%	10%	
Operating profit	26%	44%	7%	-4%		-27%	-59%	55%	14%		-24%	27%	26%	13%	
Pre-tax profit	17%	48%	7%	-9%		-26%	-56%	50%	14%		-23%	25%	25%	12%	
Net profit	13%	42%	7%	-3%		-27%	-61%	50%	23%		-25%	23%	22%	19%	

Unimicron (3037 TT; Neutral): FCBGA downturn likely deeper and longer

We expect the ASP/shipments of Unimicron's ABF substrates to drop double-digit y-y in 2Q23F/ 3Q23F.

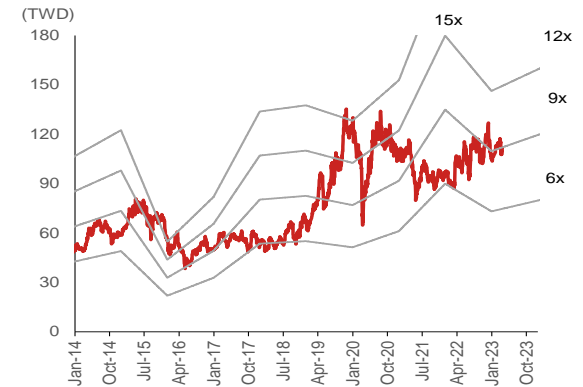


Zhen Ding (4958 TT; Buy): cautious 2023 outlook – flat sales, margins decline

NOMURA

- ZDT has guided for 2023F sales to be flat, with a likely lower GM, given higher pricing pressure
- Management sees weak demand from consumer and computing sector, but expects automotive and server to grow strongly through new project wins
- We continue to like ZDT's solid execution and expect it to benefit from Apple's potential product upgrades in 2024 and beyond
- However, its new ABF substrate plant could be a near-term risk under current unfavorable supply-demand of ABF substrate market

Zhen Ding: Historical P/E bands

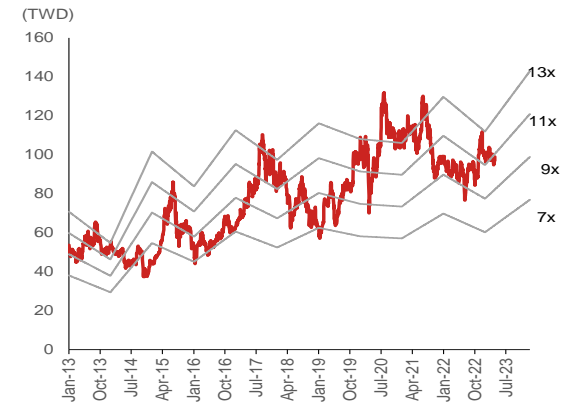


(TWDm)	1Q22	2Q22	3Q22F	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	33,915	34,534	50,005	52,902	171,356	35,552	33,131	47,155	60,360	176,198	38,989	39,025	51,018	61,039	190,071
COGS	27,528	27,932	37,019	38,989	131,468	29,250	26,904	36,949	46,750	139,853	32,382	31,968	39,496	46,870	150,717
Gross profit	6,387	6,603	12,986	13,913	39,888	6,302	6,227	10,206	13,611	36,346	6,607	7,056	11,522	14,169	39,354
Op expenses	3,491	3,812	4,919	5,219	17,441	3,666	4,003	5,165	5,219	18,052	3,810	4,309	5,561	5,618	19,298
Op profit	2,896	2,791	8,067	8,694	22,447	2,636	2,225	5,041	8,392	18,294	2,797	2,748	5,961	8,550	20,056
Non-op income	426	1,225	345	(973)	1,022	58	58	78	78	274	58	58	78	78	274
Pre-tax profit	3,321	4,016	8,412	7,721	23,470	2,695	2,283	5,120	8,470	18,568	2,856	2,806	6,039	8,629	20,330
Net profit	1,873	2,634	4,985	4,705	14,197	1,641	1,390	3,207	5,306	11,544	1,739	1,709	3,783	5,405	12,636
EPS (NT\$)	1.98	2.78	5.26	4.97	14.99	1.73	1.47	3.39	5.60	12.19	1.84	1.80	3.99	5.71	13.34
Operating ratios (%)															
Gross margin	18.8%	19.1%	26.0%	26.3%	23.3%	17.7%	18.8%	21.6%	22.5%	20.6%	16.9%	18.1%	22.6%	23.2%	20.7%
Operating margin	8.5%	8.1%	16.1%	16.4%	13.1%	7.4%	6.7%	10.7%	13.9%	10.4%	7.2%	7.0%	11.7%	14.0%	10.6%
Pre-tax profit margin	9.8%	11.6%	16.8%	14.6%	13.7%	7.6%	6.9%	10.9%	14.0%	10.5%	7.3%	7.2%	11.8%	14.1%	10.7%
Net profit margin	5.5%	7.6%	10.0%	8.9%	8.3%	4.6%	4.2%	6.8%	8.8%	6.6%	4.5%	4.4%	7.4%	8.9%	6.6%
Year-to-year (%)															
Net sales	25%	16%	20%	-6%	11%	5%	-4%	-6%	14%	3%	10%	18%	8%	1%	8%
Gross profit	34%	37%	48%	14%	31%	-1%	-6%	-21%	-2%	-9%	5%	13%	13%	4%	8%
Operating profit	118%	129%	64%	5%	42%	-9%	-20%	-38%	-3%	-19%	6%	24%	18%	2%	10%
Pre-tax profit	74%	238%	64%	-3%	45%	-19%	-43%	-39%	10%	-21%	6%	23%	18%	2%	9%
Net profit	98%	247%	62%	-3%	47%	-12%	-47%	-36%	13%	-19%	6%	23%	18%	2%	9%
Qtr-to-Qtr (%)															
Net sales	-40%	2%	45%	6%		-33%	-7%	42%	28%		-35%	0%	31%	20%	
Gross profit	-48%	3%	97%	7%		-55%	-1%	64%	33%		-51%	7%	63%	23%	
Operating profit	-65%	-4%	189%	8%		-70%	-16%	127%	66%		-67%	-2%	117%	43%	
Pre-tax profit	-58%	21%	109%	-8%		-65%	-15%	124%	65%		-66%	-2%	115%	43%	
Net profit	-62%	41%	89%	-6%		-65%	-15%	131%	65%		-67%	-2%	121%	43%	

Flexium (6269 TT; Buy): smartphone to outgrow in 2023

- Management guided for 2023F sales to grow by single-digit % (though we forecast a 2% decline on pricing pressure), with smartphone outgrow others
- We think the pushing out of iPhone 15 Pro virtual side buttons could have some sentiment impact on Flexium's share price, but we think it will gain one more antenna project in the new iPhone 15 series.
- Flexium expects its computing sales to grow by low-single digit % in 2023F, driven by its content growth in tablet, offsetting the weakness from NBs
- However, pricing pressure from Apple is higher than normal in 1H23F.

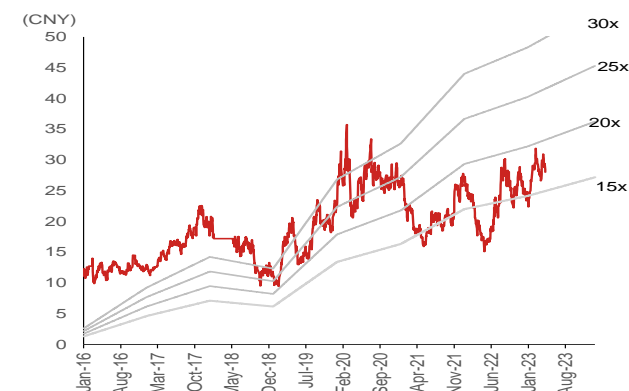
Flexium: Historical P/E bands



(TWDmn)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	9,493	7,311	12,143	11,123	40,070	8,840	7,134	11,067	12,399	39,440	8,510	8,041	12,085	13,912	42,548
COGS	7,984	6,500	9,434	9,332	33,250	7,582	6,152	9,018	9,961	32,713	7,183	6,831	9,719	11,177	34,910
Gross profit	1,509	812	2,709	1,791	6,820	1,258	982	2,049	2,437	6,727	1,327	1,210	2,366	2,736	7,639
Op expenses	752	742	894	905	3,293	741	760	910	920	3,331	728	776	927	936	3,367
Op profit	757	69	1,815	886	3,527	517	223	1,139	1,517	3,396	599	434	1,439	1,799	4,271
Non-op income	237	230	515	(200)	782	30	130	130	130	420	150	150	150	150	600
Pre-tax profit	993	300	2,330	686	4,309	547	353	1,269	1,647	3,816	749	584	1,589	1,949	4,871
Net profit	783	288	1,906	544	3,522	424	282	1,015	1,318	3,039	581	467	1,271	1,559	3,878
EPS (NT\$)	2.43	0.89	5.90	1.69	10.91	1.31	0.87	3.15	4.08	9.41	1.80	1.45	3.94	4.83	12.01
Operating ratios (%)															
Gross margin	15.9%	11.1%	22.3%	16.1%	17.0%	14.2%	13.8%	18.5%	19.7%	17.1%	15.6%	15.0%	19.6%	19.7%	18.0%
Operating margin	8.0%	0.9%	14.9%	8.0%	8.8%	5.8%	3.1%	10.3%	12.2%	8.6%	7.0%	5.4%	11.9%	12.9%	10.0%
Pre-tax profit margin	10.5%	4.1%	19.2%	6.2%	10.8%	6.2%	4.9%	11.5%	13.3%	9.7%	8.8%	7.3%	13.1%	14.0%	11.4%
Net profit margin	8.2%	3.9%	15.7%	4.9%	8.8%	4.8%	4.0%	9.2%	10.6%	7.7%	6.8%	5.8%	10.5%	11.2%	9.1%
Year-to-year (%)															
Net sales	33%	4%	33%	-9%	13%	-7%	-2%	-9%	11%	-2%	-4%	13%	9%	12%	8%
Gross profit	22%	-20%	64%	-26%	8%	-17%	21%	-24%	36%	-1%	6%	23%	15%	12%	14%
Operating profit	55%	-69%	94%	-46%	8%	-32%	221%	-37%	71%	-4%	16%	95%	26%	19%	26%
Pre-tax profit	62%	44%	95%	-62%	13%	-45%	18%	-46%	140%	-11%	37%	66%	25%	18%	28%
Net profit	52%	145%	104%	-58%	22%	-46%	-2%	-47%	142%	-14%	37%	66%	25%	18%	28%
Qtr-to-Qtr (%)															
Net sales	-23%	-23%	66%	-8%		-21%	-19%	55%	12%		-31%	-6%	50%	15%	
Gross profit	-38%	-46%	234%	-34%		-30%	-22%	109%	19%		-46%	-9%	96%	16%	
Operating profit	-53%	-91%	2516%	-51%		-42%	-57%	412%	33%		-61%	-28%	232%	25%	
Pre-tax profit	-45%	-70%	677%	-71%		-20%	-35%	260%	30%		-55%	-22%	172%	23%	
Net profit	-40%	-63%	561%	-71%		-22%	-33%	260%	30%		-56%	-20%	172%	23%	

DSBJ (002384 CH; Buy): Powered up by Apple and Tesla

- Management estimates its dollar content per car in Tesla will grow from CNY3,000+ in 2Q-3Q22 to CNY5,000+ in 2023, and to CNY10,000+ in the long run, with increased value mainly coming from the mechanical parts
- DSBJ expects to penetrate into Apple's display module FPC supply and anticipates sales contribution from 2023, and we believe this new territory should broaden DSBJ's addressable market with ~60% TAM expansion

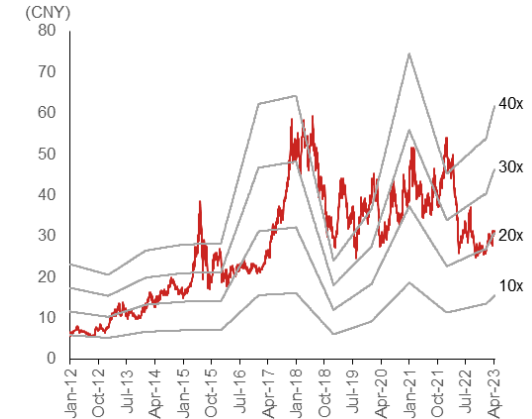
DSBJ: Historical P/E bands


(CNY mn)	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F
Net sales	7,508	6,497	7,802	9,986	31,793	7,312	7,234	8,272	9,889	32,708	8,024	8,155	9,578	10,904	36,661
COGS	(6,429)	(5,525)	(6,506)	(8,669)	(27,129)	(6,280)	(6,164)	(6,579)	(8,144)	(27,167)	(6,811)	(6,941)	(7,989)	(9,168)	(30,909)
Gross profit	1,079	972	1,296	1,317	4,665	1,033	1,070	1,694	1,745	5,541	1,213	1,214	1,589	1,736	5,752
Op expenses	(674)	(511)	(593)	(447)	(2,224)	(558)	(532)	(535)	(620)	(2,244)	(590)	(527)	(564)	(632)	(2,313)
Op profit	406	461	703	871	2,440	475	538	1,159	1,125	3,297	623	687	1,025	1,104	3,439
Non-op income	(138)	(41)	(65)	(85)	(329)	(67)	(25)	(217)	(47)	(355)	(62)	(57)	(57)	(62)	(238)
Pre-tax profit	267	420	638	785	2,111	408	513	943	1,078	2,942	561	630	968	1,042	3,201
Net profit	245	360	593	664	1,862	364	432	785	927	2,508	482	542	833	896	2,753
EPS (CNY)	0.14	0.21	0.35	0.39	1.09	0.21	0.25	0.46	0.54	1.47	0.28	0.32	0.49	0.53	1.61
Operating ratios (%)															
Gross margin	14.4%	15.0%	16.6%	13.2%	14.7%	14.1%	14.8%	20.5%	17.6%	16.9%	15.1%	14.9%	16.6%	15.9%	15.7%
Operating margin	5.4%	7.1%	9.0%	8.7%	7.7%	6.5%	7.4%	14.0%	11.4%	10.1%	7.8%	8.4%	10.7%	10.1%	9.4%
Pre-tax profit margin	3.6%	6.5%	8.2%	7.9%	6.6%	5.6%	7.1%	11.4%	10.9%	9.0%	7.0%	7.7%	10.1%	9.6%	8.7%
Net profit margin	3.3%	5.5%	7.6%	6.7%	5.9%	5.0%	6.0%	9.5%	9.4%	7.7%	6.0%	6.6%	8.7%	8.2%	7.5%
Year-to-year (%)															
Net sales	46%	5%	13%	1%	13%	-3%	11%	6%	-1%	3%	10%	13%	16%	10%	12%
Gross profit	35%	-7%	0%	-7%	2%	-4%	10%	31%	32%	19%	17%	13%	-6%	-1%	4%
Operating profit	16%	-16%	-4%	13%	2%	17%	17%	65%	29%	35%	31%	28%	-12%	-2%	4%
Pre-tax profit	7%	17%	31%	14%	18%	53%	22%	48%	37%	39%	37%	23%	3%	-3%	9%
Net profit	18%	18%	34%	16%	22%	49%	20%	32%	40%	35%	32%	25%	6%	-3%	10%
Qtr-to-Qtr (%)															
Net sales	-24%	-13%	20%	28%		-27%	-1%	14%	20%		-19%	2%	17%	14%	
Gross profit	-24%	-10%	33%	2%		-22%	4%	58%	3%		-31%	0%	31%	9%	
Operating profit	-47%	14%	52%	24%		-45%	13%	116%	-3%		-45%	10%	49%	8%	
Pre-tax profit	-61%	57%	52%	23%		-48%	26%	84%	14%		-48%	12%	54%	8%	
Net profit	-57%	47%	65%	12%		-45%	19%	82%	18%		-48%	12%	54%	8%	

Han's Laser (002008 CH; Neutral): cautious on PCB, high-power laser, and IT segments

- EV battery: it expects to gain more customers from non-CATL group.
- High-power laser: customers highly impacted by macro weakness, sales decline -13% y-y in 9M22.
- IT: sales declined significantly (-34% y-y) in 9M22 due to customer product design, but Han's Laser sees a beneficiary trend from Apple's accelerated overseas capacity expansion.
- PCB: due to the sharp deterioration in consumer electronics, PCB makers are cutting capex, and we believe this will weigh on Han's laser's margin.
- Mini-LED/ Panel: weaker than expected, 9M22 sales +3% y-y

Han's Laser: Historical P/E bands

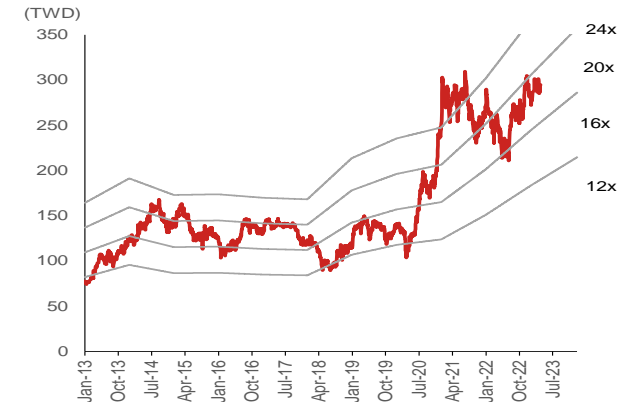


(CNY mn)	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	3,394	3,543	3,625	3,700	14,262	3,400	4,050	4,769	5,070	17,289	4,380	4,880	5,021	5,547	19,828
COGS	(2,135)	(2,285)	(2,286)	(2,463)	(9,169)	(2,230)	(2,637)	(2,993)	(3,285)	(11,144)	(2,826)	(3,179)	(3,183)	(3,578)	(12,766)
Gross profit	1,259	1,257	1,339	1,237	5,093	1,170	1,414	1,776	1,785	6,145	1,554	1,701	1,838	1,969	7,061
Op expenses	(924)	(1,033)	(1,100)	(1,060)	(4,116)	(1,007)	(1,085)	(1,155)	(1,121)	(4,367)	(1,077)	(1,117)	(1,189)	(1,170)	(4,554)
Op profit	335	224	239	177	977	163	329	622	664	1,778	477	584	648	798	2,507
Non-op income	53	72	199	10	335	(25)	25	25	(30)	(5)	48	58	69	79	253
Pre-tax profit	388	297	439	187	1,312	138	354	647	634	1,773	524	642	717	877	2,760
Net profit	332	299	382	106	1,119	96	278	567	499	1,440	446	540	636	719	2,341
EPS (CNY)	0.31	0.28	0.36	0.10	1.05	0.09	0.26	0.53	0.47	1.35	0.42	0.51	0.60	0.67	2.19
Operating ratios (%)															
Gross margin	37.1%	35.5%	36.9%	33.4%	35.7%	34.4%	34.9%	37.3%	35.2%	35.5%	35.5%	34.9%	36.6%	35.5%	35.6%
Operating margin	9.9%	6.3%	6.6%	4.8%	6.8%	4.8%	8.1%	13.0%	13.1%	10.3%	10.9%	12.0%	12.9%	14.4%	12.6%
Pre-tax profit margin	11.4%	8.4%	12.1%	5.1%	9.2%	4.1%	8.7%	13.6%	12.5%	10.3%	12.0%	13.1%	14.3%	15.8%	13.9%
Net profit margin	9.8%	8.4%	10.5%	2.9%	7.8%	2.8%	6.9%	11.9%	9.8%	8.3%	10.2%	11.1%	12.7%	13.0%	11.8%
Year-to-year (%)															
Net sales	8%	-19%	-18%	-16%	-13%	0%	14%	32%	37%	21%	29%	20%	5%	9%	15%
Gross profit	8%	-24%	-18%	-26%	-17%	-7%	12%	33%	44%	21%	33%	20%	3%	10%	15%
Operating profit	-1%	-63%	-58%	-72%	-55%	-51%	46%	160%	274%	82%	192%	77%	4%	20%	41%
Pre-tax profit	6%	-53%	-38%	-69%	-43%	-64%	19%	47%	238%	35%	280%	81%	11%	38%	56%
Net profit	1%	-46%	-38%	-79%	-44%	-71%	-7%	48%	373%	29%	365%	94%	12%	44%	63%
Qtr-to-Qtr (%)															
Net sales	-23%	4%	2%	2%		-8%	19%	18%	6%		-14%	11%	3%	10%	
Gross profit	-25%	0%	7%	-8%		-5%	21%	26%	0%		-13%	9%	8%	7%	
Operating profit	-48%	-33%	7%	-26%		-8%	102%	89%	7%		-28%	22%	11%	23%	
Pre-tax profit	-35%	-24%	48%	-57%		-26%	156%	83%	-2%		-17%	22%	12%	22%	
Net profit	-33%	-10%	28%	-72%		-9%	190%	104%	-12%		-11%	21%	18%	13%	

Delta (2308 TT, Buy): positive L-T outlook for EV, but weaker consumer

- In our view, Delta is well-positioned in various structural growth trends, including EV, energy saving/ storage, industrial automation, building automation, datacenter, and power supplies in new applications such as industrial, medical, aerospace, e-mobility, etc.
- Management is optimistic about potential L-T benefits brought by ChatGPT, as higher computing power will likely expand power consumption and require a higher-end cooling system
- Delta is positive about its EV business turning profitable in 2023, thanks to a growing sales scale (50-60% y-y in 2022/23F, on our estimates)

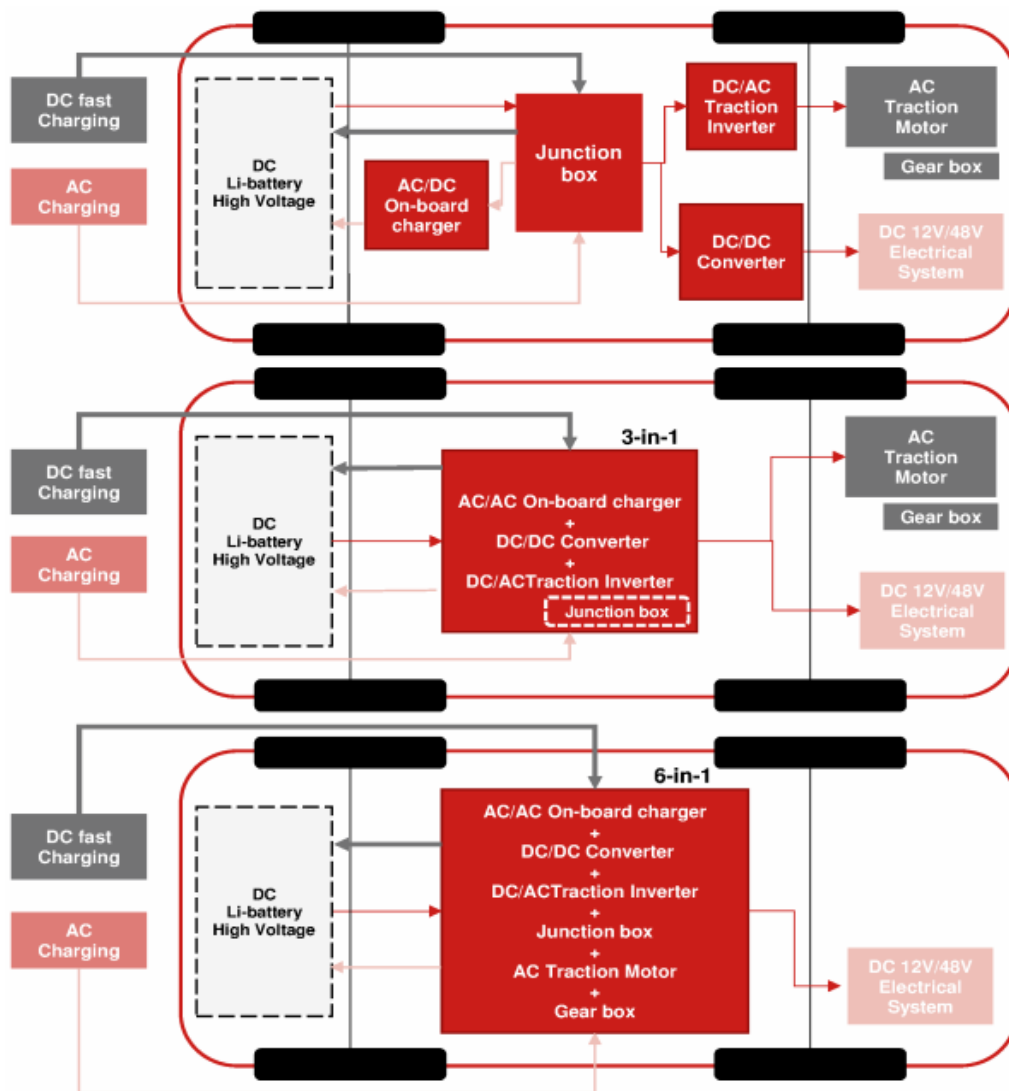
Delta: Historical bonus-adjusted P/E bands



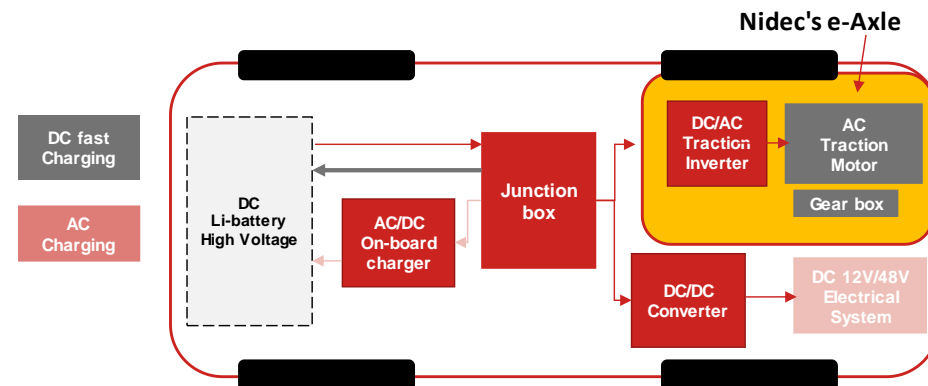
(TWDm)	1Q22	2Q22	3Q22	4Q22	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	82,538	89,997	106,248	105,660	384,443	94,279	103,932	113,756	114,972	426,939	105,496	116,337	127,210	127,029	476,072
COGS	60,026	63,527	74,071	76,047	273,670	67,936	73,563	79,580	80,635	301,714	76,890	82,034	89,135	89,356	337,415
Gross profit	22,513	26,470	32,177	29,613	110,773	26,343	30,369	34,176	34,337	125,225	28,605	34,304	38,075	37,673	138,657
Op expenses	15,043	16,815	18,640	18,835	69,334	18,000	18,271	19,286	19,348	74,905	18,380	19,900	21,235	21,331	80,846
Op profit	7,469	9,655	13,538	10,777	41,439	8,343	12,098	14,890	14,990	50,321	10,225	14,404	16,840	16,342	57,811
Non-op income	1,070	1,176	1,634	746	4,626	740	740	740	740	2,960	940	940	940	940	3,760
Pre-tax profit	8,539	10,831	15,171	11,524	46,065	9,083	12,838	15,630	15,730	53,281	11,165	15,344	17,780	17,282	61,571
Net profit	6,059	7,628	11,069	7,910	32,666	6,594	9,441	11,745	11,827	39,606	8,311	11,509	13,519	13,107	46,446
EPS (NT\$)	2.3	2.9	4.3	3.0	12.6	2.5	3.6	4.5	4.6	15.2	3.2	4.4	5.2	5.0	17.9
Operating ratios (%)															
Gross margin	27.3%	29.4%	30.3%	28.0%	28.8%	27.9%	29.2%	30.0%	29.9%	29.3%	27.1%	29.5%	29.9%	29.7%	29.1%
Operating margin	9.0%	10.7%	12.7%	10.2%	10.8%	8.8%	11.6%	13.1%	13.0%	11.8%	9.7%	12.4%	13.2%	12.9%	12.1%
Pre-tax profit margin	10.3%	12.0%	14.3%	10.9%	12.0%	9.6%	12.4%	13.7%	13.7%	12.5%	10.6%	13.2%	14.0%	13.6%	12.9%
Net profit margin	7.3%	8.5%	10.4%	7.5%	8.5%	7.0%	9.1%	10.3%	10.3%	9.3%	7.9%	9.9%	10.6%	10.3%	9.8%
Year-to-year (%)															
Net sales	14%	14%	33%	26%	22%	14%	15%	7%	9%	11%	12%	12%	12%	10%	12%
Gross profit	4%	12%	43%	32%	23%	17%	15%	6%	16%	13%	9%	13%	11%	10%	11%
Operating profit	0%	10%	74%	48%	32%	12%	25%	10%	39%	21%	23%	19%	13%	9%	15%
Pre-tax profit	-3%	7%	83%	36%	29%	6%	19%	3%	36%	16%	23%	20%	14%	10%	16%
Net profit	-8%	1%	74%	26%	22%	9%	24%	6%	50%	21%	26%	22%	15%	11%	17%
Qtr-to-Qtr (%)															
Net sales	-1%	9%	18%	-1%		-11%	10%	9%	1%		-8%	10%	9%	0%	
Gross profit	1%	18%	22%	-8%		-11%	15%	13%	0%		-17%	20%	11%	-1%	
Operating profit	2%	29%	40%	-20%		-23%	45%	23%	1%		-32%	41%	17%	-3%	
Pre-tax profit	1%	27%	40%	-24%		-21%	41%	22%	1%		-29%	37%	16%	-3%	
Net profit	-3%	26%	45%	-29%		-17%	43%	24%	1%		-30%	38%	17%	-3%	

Delta (2308 TT, Buy): Comparison with Nidec

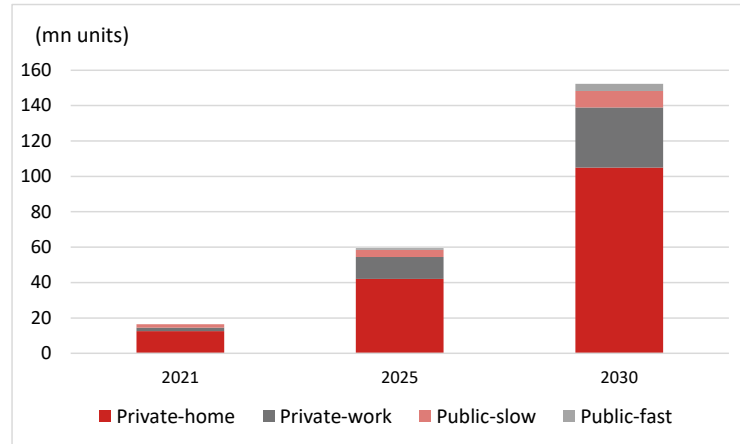
EV – key components and charging/discharging flows



Nidec's e-Axle- a 3-in-1 motor system

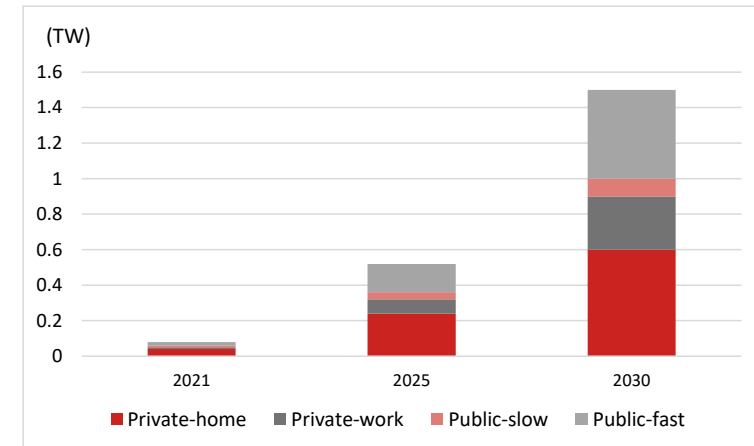


Electricity LDV chargers

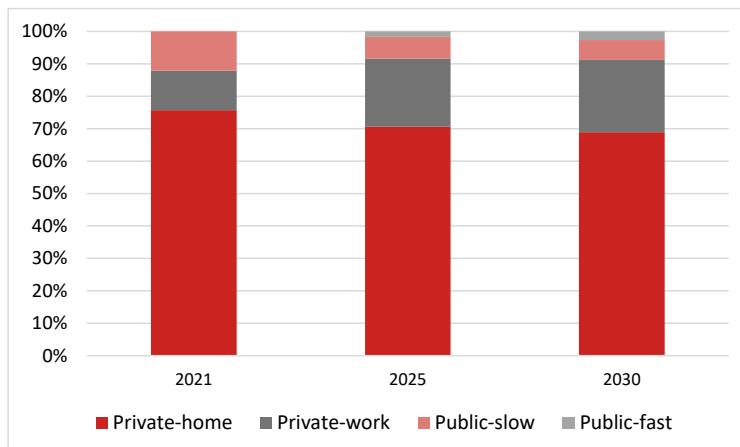


*light-duty vehicles (incl. passenger LDVs and light commercial vehicles)

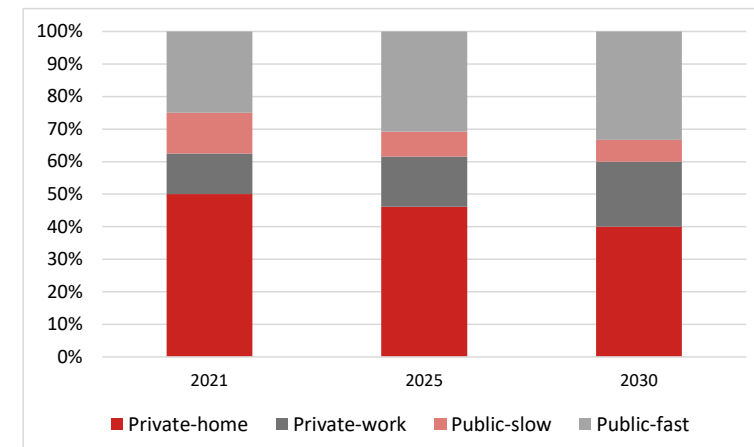
Electricity LDV charger installed capacity



Electricity LDV chargers (%)



Electricity LDV charger installed capacity (%)



Datacenter/ Server power supply trends

Datacenter/ server power supply trends

Higher Wattage

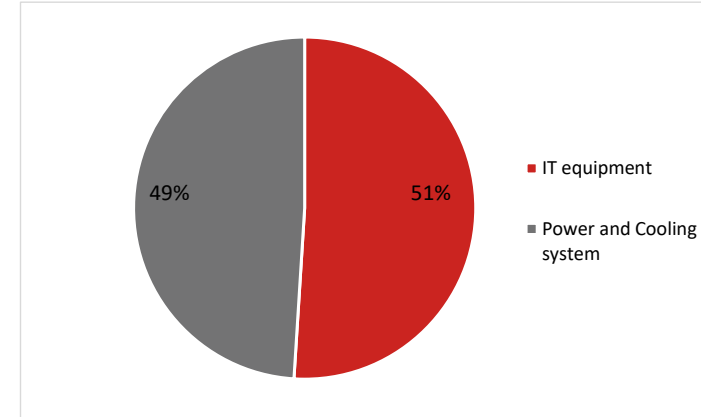
48V DC converter

Rack-level PSU (power supply unit)

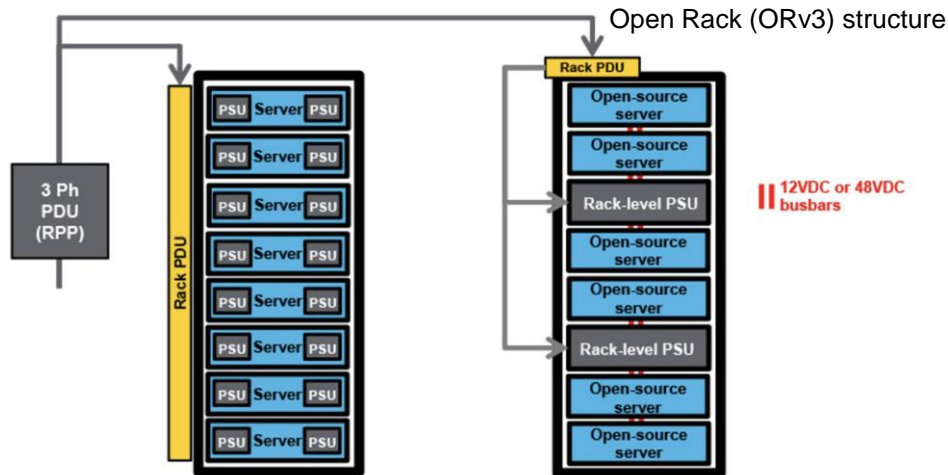
Rack-level PSU (power supply unit)

BBU (backup battery unit)
to replace UPS (uninterruptible power supply)

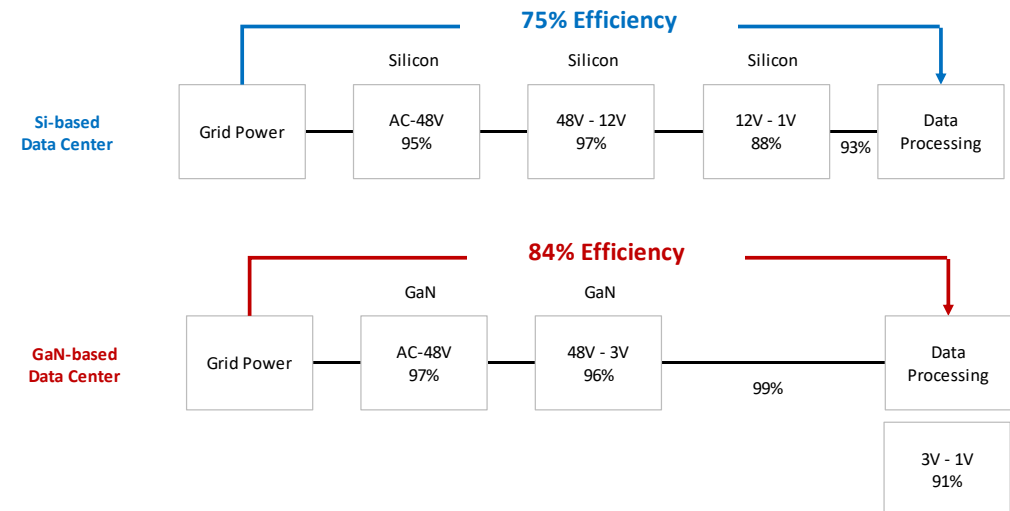
Typical Energy Structure of a Data Center



Conventional vs. Consolidated Server Power Supply



GaN-based ICs in Data Center Power Delivery

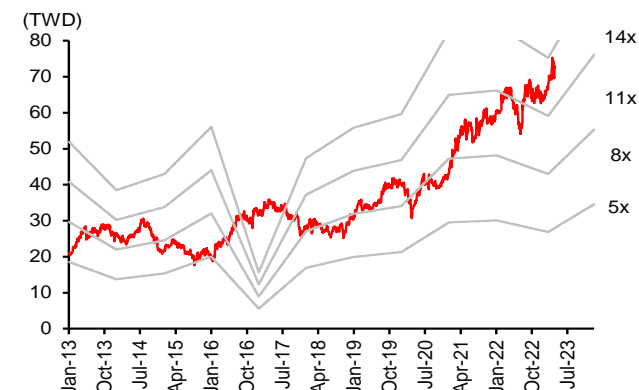


Lite-On Tech (2301 TT, Buy): focus on cloud and auto, but weaker opto and server demand in the near term

NOMURA

- Near-term headwinds include: 1) Apple's MacBook weakness in 2023F (LOT supplies adaptors), 2) deteriorating server demand in 2023F, and 3) weakened opto components demand
- However, we remain positive on its transformation towards cloud and Evs
- We forecast LOT's server sales could grow 10-15% y-y in 2023F (vs management's target of 30%), and expect shipments/sales to be more concentrated in 2H

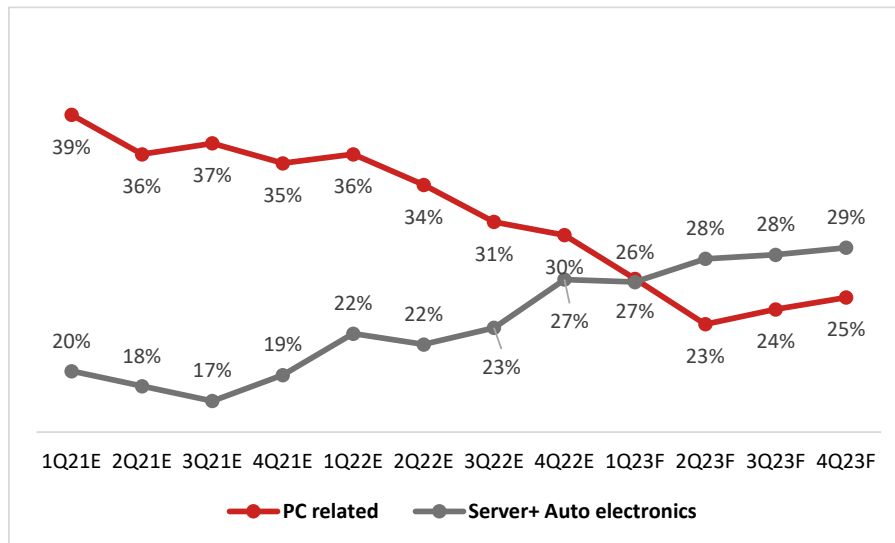
Lite-On Tech: Historical P/E bands



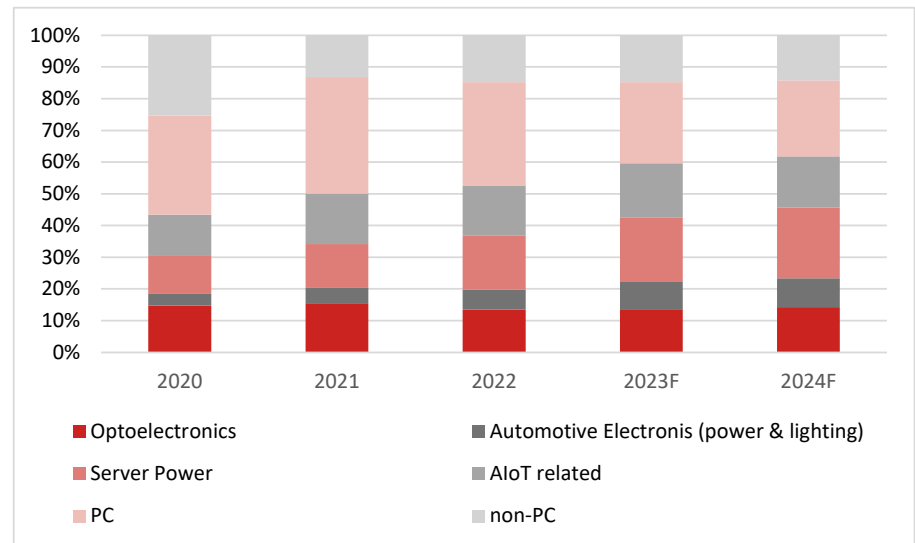
(TWDmn)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	41,230	42,957	46,174	43,095	173,457	35,067	40,438	45,471	46,712	167,689	41,439	44,244	49,620	49,253	184,556
COGS	34,163	34,180	37,172	34,679	140,194	28,549	32,569	36,253	37,282	134,654	33,213	34,936	39,087	39,035	146,271
Gross profit	7,067	8,777	9,003	8,416	33,263	6,517	7,869	9,218	9,430	33,035	8,226	9,308	10,533	10,219	38,286
Op expenses	4,086	4,407	4,608	5,089	18,190	3,850	4,301	4,538	5,014	17,703	3,966	4,430	4,674	5,165	18,234
Op profit	2,981	4,370	4,394	3,327	15,073	2,667	3,568	4,680	4,416	15,332	4,261	4,878	5,859	5,054	20,051
Non-op income	(324)	623	954	1,520	2,773	220	220	320	320	1,080	220	220	320	320	1,080
Pre-tax profit	2,657	4,993	5,348	4,848	17,846	2,887	3,788	5,000	4,736	16,412	4,481	5,098	6,179	5,374	21,131
Net profit	2,104	3,960	4,240	3,848	14,151	2,223	2,917	3,850	3,647	12,637	3,450	3,925	4,758	4,138	16,271
EPS (NT\$)	0.89	1.68	1.80	1.64	6.02	0.94	1.23	1.63	1.54	5.35	1.46	1.66	2.01	1.75	6.89
Operating ratios (%)															
Gross margin	17.1%	20.4%	19.5%	19.5%	19.2%	18.6%	19.5%	20.3%	20.2%	19.7%	19.9%	21.0%	21.2%	20.7%	20.7%
Operating margin	7.2%	10.2%	9.5%	7.7%	8.7%	7.6%	8.8%	10.3%	9.5%	9.1%	10.3%	11.0%	11.8%	10.3%	10.9%
Pre-tax profit margin	6.4%	11.6%	11.6%	11.2%	10.3%	8.2%	9.4%	11.0%	10.1%	9.8%	10.8%	11.5%	12.5%	10.9%	11.4%
Net profit margin	5.1%	9.2%	9.2%	8.9%	8.2%	6.3%	7.2%	8.5%	7.8%	7.5%	8.3%	8.9%	9.6%	8.4%	8.8%
Year-to-year (%)															
Net sales	9%	6%	10%	-3%	5%	-15%	-6%	-2%	8%	-3%	18%	9%	9%	5%	10%
Gross profit	5%	10%	11%	9%	9%	-8%	-10%	2%	12%	-1%	26%	18%	14%	8%	16%
Operating profit	42%	15%	25%	-8%	16%	-11%	-18%	7%	33%	2%	60%	37%	25%	14%	31%
Pre-tax profit	-52%	-2%	38%	54%	1%	9%	-24%	-7%	-2%	-8%	55%	35%	24%	13%	29%
Net profit	-51%	-2%	38%	53%	2%	6%	-26%	-9%	-5%	-11%	55%	35%	24%	13%	29%
Qtr-to-Qtr (%)															
Net sales	-7%	4%	7%	-7%		-19%	15%	12%	3%		-11%	7%	12%	-1%	
Gross profit	-8%	24%	3%	-7%		-23%	21%	17%	2%		-13%	13%	13%	-3%	
Operating profit	-17%	47%	1%	-24%		-20%	34%	31%	-6%		-4%	14%	20%	-14%	
Pre-tax profit	-16%	88%	7%	-9%		-40%	31%	32%	-5%		-5%	14%	21%	-13%	
Net profit	-16%	88%	7%	-9%		-42%	31%	32%	-5%		-5%	14%	21%	-13%	

Lite-On Tech (2301 TT, Buy): focus on cloud and auto, but weaker opto and server demand in the near term

Server and auto sales to exceed PC in 1H23F



Lite-on's product mix (%)



Yageo (2327 TT; Buy): commodity inventory correction likely to end in 1H23F, premium product demand remain stable.

NOMURA

- We think commodity passive inventory correction is likely to end in 1H23F, which in-line to Yageo forecast.
- Premium/ commodity products' UTR decline into 75%/ 45% in 4Q22 from 90%/55% in 3Q22 respectively.
- Book-to-Bill ratio: premium around 1, commodity below 1.
- Sensor business M&A updates: Management expects the Heraeus deal to close in 2Q23E, and adds that the major deal with Schneider will be delayed into 2H23E due to complex deal structure.



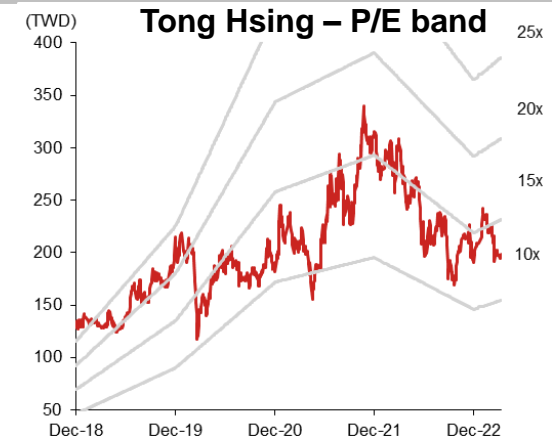
(TWDm)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	30,134	31,322	30,795	28,835	121,087	26,358	26,950	29,887	30,998	114,193	31,214	32,053	33,970	32,364	129,601
COGS	18,649	19,169	18,940	18,311	75,069	17,615	18,105	19,524	19,953	75,198	20,230	20,387	21,177	20,132	81,927
Gross profit	11,485	12,153	11,855	10,524	46,018	8,743	8,844	10,363	11,044	38,994	10,984	11,666	12,793	12,231	47,674
Op expenses	3,999	4,266	4,178	4,587	17,030	3,760	3,824	4,372	4,372	16,327	4,178	4,486	4,988	4,848	18,500
Op profit	7,487	7,887	7,677	5,937	28,988	4,983	5,021	5,991	6,673	22,667	6,806	7,180	7,805	7,383	29,174
Non-op income	569	480	585	506	2,140	208	228	228	228	891	198	228	228	228	881
Pre-tax profit	8,056	8,367	8,263	6,443	31,128	5,191	5,248	6,219	6,900	23,558	7,004	7,407	8,033	7,611	30,055
Net profit	6,244	5,927	6,397	4,163	22,731	4,049	4,094	4,850	5,382	18,375	5,463	5,778	6,265	5,937	23,443
EPS (NT\$)	14.82	14.07	15.19	9.18	53.96	9.61	9.72	11.51	12.78	43.62	12.97	13.72	14.87	14.09	55.65
Operating ratios (%)															
Gross margin	38.1%	38.8%	38.5%	36.5%	38.0%	33.2%	32.8%	34.7%	35.6%	34.1%	35.2%	36.4%	37.7%	37.8%	36.8%
Operating margin	24.8%	25.2%	24.9%	20.6%	23.9%	18.9%	18.6%	20.0%	21.5%	19.9%	21.8%	22.4%	23.0%	22.8%	22.5%
Pre-tax profit margin	26.7%	26.7%	26.8%	22.3%	25.7%	19.7%	19.5%	20.8%	22.3%	20.6%	22.4%	23.1%	23.6%	23.5%	23.2%
Net profit margin	20.7%	18.9%	20.8%	14.4%	18.8%	15.4%	15.2%	16.2%	17.4%	16.1%	17.5%	18.0%	18.4%	18.3%	18.1%
Year-to-year (%)															
Net sales	27%	13%	5%	12%	14%	-13%	-14%	-3%	8%	-6%	18%	19%	14%	4%	13%
Gross profit	24%	7%	-2%	2%	7%	-24%	-27%	-13%	5%	-15%	26%	32%	23%	11%	22%
Operating profit	24%	0%	-10%	-10%	0%	-33%	-36%	-22%	12%	-22%	37%	43%	30%	11%	29%
Pre-tax profit	24%	0%	-7%	2%	4%	-36%	-37%	-25%	7%	-24%	35%	41%	29%	10%	28%
Net profit	24%	-6%	-6%	-12%	-1%	-35%	-31%	-24%	29%	-19%	35%	41%	29%	10%	28%
Qtr-to-Qtr (%)															
Net sales	17%	4%	-2%	-6%		-9%	2%	11%	4%		1%	3%	6%	-5%	
Gross profit	12%	6%	-2%	-11%		-17%	1%	17%	7%		-1%	6%	10%	-4%	
Operating profit	13%	5%	-3%	-23%		-16%	1%	19%	11%		2%	5%	9%	-5%	
Pre-tax profit	28%	4%	-1%	-22%		-19%	1%	18%	11%		2%	6%	8%	-5%	
Net profit	32%	-5%	8%	-35%		-3%	1%	18%	11%		2%	6%	8%	-5%	

Source: TEJ, company data, Nomura estimates

Tong Hsing(TH) (6271 TT; Buy): auto CIS sales to grow over 20-30% in 2023E, and ceramic/SP RW bottoming in 1Q23/2Q23.

NOMURA

- Management targets auto CIS to grow, and auto sales (50% sales in 2022) to grow high-single digit % y-y.
- Auto CIS: capacity expansion on track (adds 20-30% in 2023F), and management expects auto CIS sales to grow q-q in every quarter in 2023.
- SP RW CIS: management expect sales bottomed in 2Q23F.
- RF: better visibility in optical module, but satellite business is unclear.
- Ceramic: low demand for agriculture and general lighting, expects sales bottoming in 1Q23F.
- Hybrid: cautious on pressure sensor demand, but medical remain stable.



(TWDm)	1Q22	2Q22	3Q22	4Q22	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q23F	2Q23F	3Q23F	4Q23F	2024F
Net sales	3,466	3,606	3,711	3,290	14,072	2,981	3,100	3,343	3,513	12,938	3,341	3,668	4,046	3,845	14,900
COGS	2,295	2,244	2,341	2,186	9,066	2,024	2,101	2,228	2,322	8,676	2,265	2,473	2,663	2,524	9,924
Gross profit	1,171	1,361	1,370	1,103	5,005	958	999	1,115	1,191	4,262	1,077	1,195	1,383	1,321	4,975
Op expenses	319	344	337	339	1,340	322	342	379	370	1,413	344	356	392	376	1,468
Op profit	852	1,017	1,033	764	3,666	636	657	736	821	2,850	732	839	991	945	3,508
Non-op income	257	193	(55)	(172)	224	12	10	50	50	122	10	10	50	50	120
Pre-tax profit	1,109	1,210	978	592	3,889	648	667	786	871	2,972	742	849	1,041	995	3,628
Net profit	908	998	772	463	3,141	512	527	621	688	2,348	594	679	833	796	2,902
EPS (NT\$)	5.65	6.21	4.80	2.88	19.53	3.18	3.28	3.86	4.28	14.60	3.69	4.23	5.18	4.95	18.05
Operating ratios (%)															
Gross margin	33.8%	37.8%	36.9%	33.5%	35.6%	32.1%	32.2%	33.4%	33.9%	32.9%	32.2%	32.6%	34.2%	34.3%	33.4%
Operating margin	24.6%	28.2%	27.8%	23.2%	26.0%	21.3%	21.2%	22.0%	23.4%	22.0%	21.9%	22.9%	24.5%	24.6%	23.5%
Pre-tax profit margin	32.0%	33.6%	26.4%	18.0%	27.6%	21.7%	21.5%	23.5%	24.8%	23.0%	22.2%	23.2%	25.7%	25.9%	24.3%
Net profit margin	26.2%	27.7%	20.8%	14.1%	22.3%	17.2%	17.0%	18.6%	19.6%	18.1%	17.8%	18.5%	20.6%	20.7%	19.5%
Year-to-year (%)															
Net sales	10%	5%	-2%	-6%	2%	-14%	-14%	-10%	7%	-8%	12%	18%	21%	9%	15%
Gross profit	40%	25%	-3%	-13%	8%	-18%	-27%	-19%	8%	-15%	12%	20%	24%	11%	17%
Operating profit	53%	26%	-7%	-17%	8%	-25%	-35%	-29%	7%	-22%	15%	28%	35%	15%	23%
Pre-tax profit	90%	72%	-16%	-36%	15%	-42%	-45%	-20%	47%	-24%	15%	27%	32%	14%	22%
Net profit	89%	59%	-17%	-37%	14%	-44%	-47%	-20%	49%	-25%	16%	29%	34%	16%	24%
Qtr-to-Qtr (%)															
Net sales	-1%	4%	3%	-11%		-9%	4%	8%	5%		-5%	10%	10%	-5%	
Gross profit	-8%	16%	1%	-19%		-13%	4%	12%	7%		-10%	11%	16%	-4%	
Operating profit	-8%	19%	2%	-26%		-17%	3%	12%	11%		-11%	15%	18%	-5%	
Pre-tax profit	20%	9%	-19%	-39%		9%	3%	18%	11%		-15%	14%	23%	-4%	
Net profit	24%	10%	-23%	-40%		11%	3%	18%	11%		-14%	14%	23%	-4%	

ENNOSTAR (3714 TT; Neutral): Mini-LED headwinds outweigh other sales growth drivers

- We think Ennostar losses-making will likely sustain in the 1H23F, owing to weakened demand for mini-LED products and market share loss.
- TV BLU/ auto sensing and lighting/ signage display/ agriculture should begin to recover in 2Q23F, but unlikely to offset mini-LED decline in 2023F.
- Micro-LED: 6-inch production line to complete by end-2023, and plans 10K wpm by 2025. Ennostar forecasts auto projects in micro-LED materialized in 2026-2027.
- Compound: Focus on GaN power, 5G GaN RF, BAW filter, and BAW filter expects to mass production in 1H23.

Ennostar/ Epistar – historical P/B band



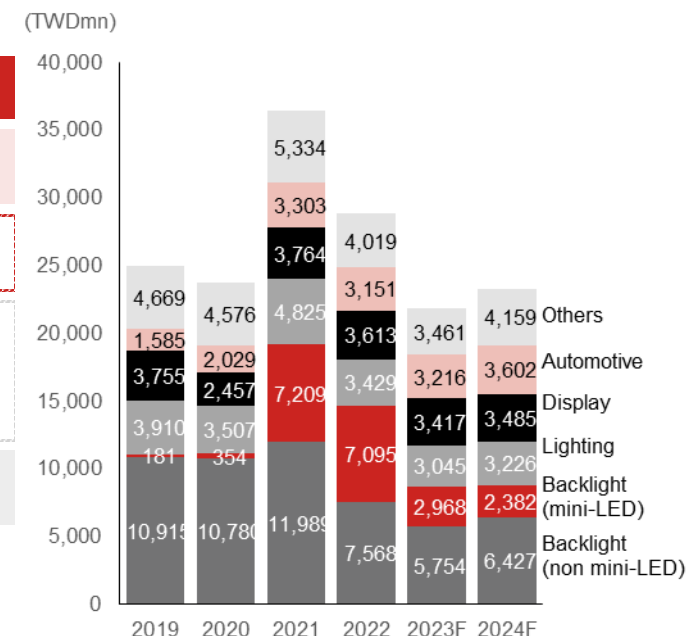
(TWDm)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	8,546	7,781	6,684	5,867	28,878	4,159	5,549	6,358	5,859	21,924	4,911	6,205	6,369	5,866	23,351
COGS	6,694	5,997	5,806	5,399	23,897	3,782	4,883	5,370	4,977	19,013	4,248	5,166	5,104	4,711	19,229
Gross profit	1,852	1,784	878	468	4,982	377	666	988	881	2,911	663	1,039	1,265	1,155	4,122
Op expenses	1,331	1,485	1,315	1,316	5,447	1,142	1,268	1,213	1,208	4,831	1,159	1,255	1,202	1,198	4,814
Op profit	521	299	(437)	(849)	(466)	(765)	(602)	(225)	(327)	(1,919)	(496)	(216)	63	(43)	(692)
Non-op income	174	58	(106)	(143)	(18)	117	117	117	117	469	67	67	67	67	269
Pre-tax profit	695	357	(543)	(992)	(483)	(648)	(485)	(108)	(210)	(1,450)	(429)	(149)	130	24	(423)
Net profit	750	398	(358)	(752)	38	(420)	(277)	55	(34)	(676)	(273)	(29)	173	81	(48)
EPS (NT\$)	1.09	0.58	-0.52	-1.10	0.06	-0.61	-0.40	0.08	-0.05	-0.99	-0.40	-0.04	0.25	0.12	-0.07
Operating ratios (%)															
Gross margin	21.7%	22.9%	13.1%	8.0%	17.3%	9.1%	12.0%	15.5%	15.0%	13.3%	13.5%	16.7%	19.9%	19.7%	17.7%
Operating margin	6.1%	3.8%	-6.5%	-14.5%	-1.6%	-18.4%	-10.9%	-3.5%	-5.6%	-8.8%	-10.1%	-3.5%	1.0%	-0.7%	-3.0%
Pre-tax profit margin	8.1%	4.6%	-8.1%	-16.9%	-1.7%	-15.6%	-8.7%	-1.7%	-3.6%	-6.6%	-8.7%	-2.4%	2.0%	0.4%	-1.8%
Net profit margin	8.8%	5.1%	-5.3%	-12.8%	0.1%	-10.1%	-5.0%	0.9%	-0.6%	-3.1%	-5.6%	-0.5%	2.7%	1.4%	-0.2%
Year-to-year (%)															
Net sales	24%	-17%	-35%	-40%	-21%	-51%	-29%	-5%	0%	-24%	18%	12%	0%	0%	7%
Gross profit	98%	-16%	-66%	-76%	-35%	-80%	-63%	12%	88%	-42%	76%	56%	28%	31%	42%
Operating profit	N.M.	-53%	-141%	-214%	-122%	-247%	-302%	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.
Pre-tax profit	N.M.	-50%	-144%	-232%	-120%	-193%	-236%	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.	N.M.
Net profit	N.M.	-43%	-128%	-271%	-98%	-156%	-170%	N.M.	N.M.	-1878%	N.M.	N.M.	214%	N.M.	N.M.
Qtr-to-Qtr (%)															
Net sales	-13%	-9%	-14%	-12%		-29%	33%	15%	-8%		-16%	26%	3%	-8%	
Gross profit	-7%	-4%	-51%	-47%		-19%	77%	48%	-11%		-25%	57%	22%	-9%	
Operating profit	-30%	-43%	-246%	N.M.		N.M.	N.M.	N.M.	N.M.		N.M.	N.M.	N.M.	-168%	
Pre-tax profit	-8%	-49%	-252%	N.M.		N.M.	N.M.	N.M.	N.M.		N.M.	N.M.	N.M.	-81%	
Net profit	70%	-47%	-190%	N.M.		N.M.	N.M.	N.M.	-162%		N.M.	N.M.	N.M.	-53%	

ENNOSTAR (3714 TT; Neutral): Mini-LED competition kicking in, weaker demand than expected in sensing/special lighting

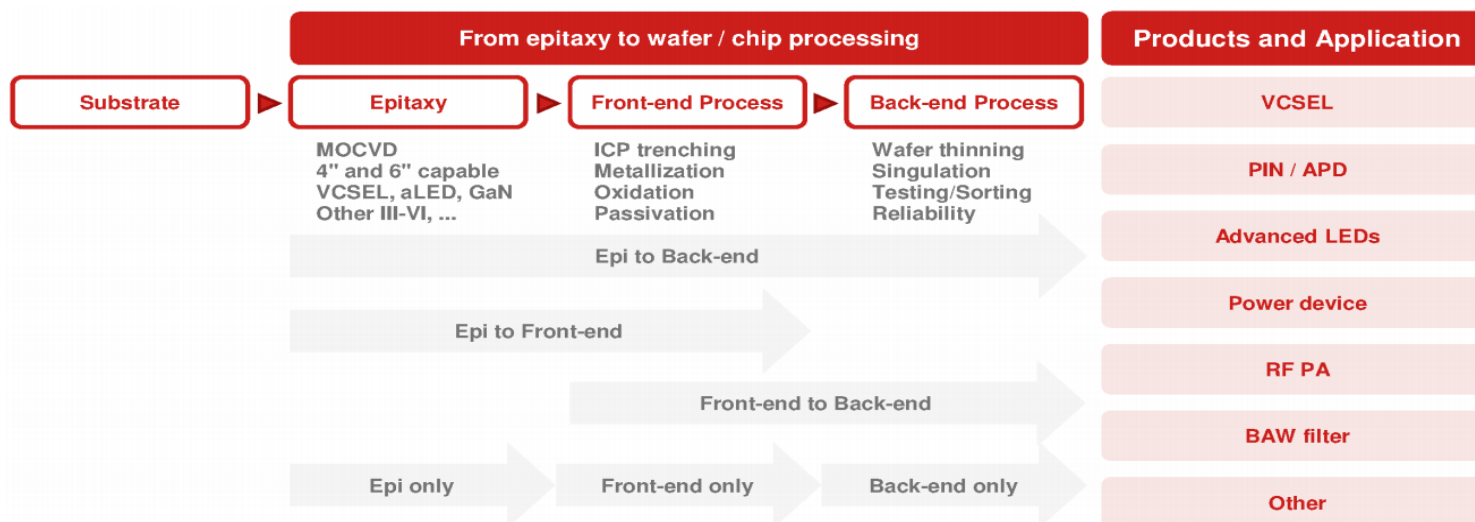
NOMURA

ENNOSTAR group structure

	Ennostar		
Product	Epi / Chip	Package / Module	Advanced Compound Semiconductor
Group Company	Epistar	Lextar	Unikorn
Affiliate	<ul style="list-style-type: none"> - Episky - Epicrystal - Jiangsu Canyang Optoelectronics - Shenzhen Epikylin Optoelectronics 	<ul style="list-style-type: none"> - Lextar Electronics - Yenrich Technology - ProLight Opto - Hexawave 	
Application	Mini / Micro LED, Sensing, Automotive, Power Device, 5G		

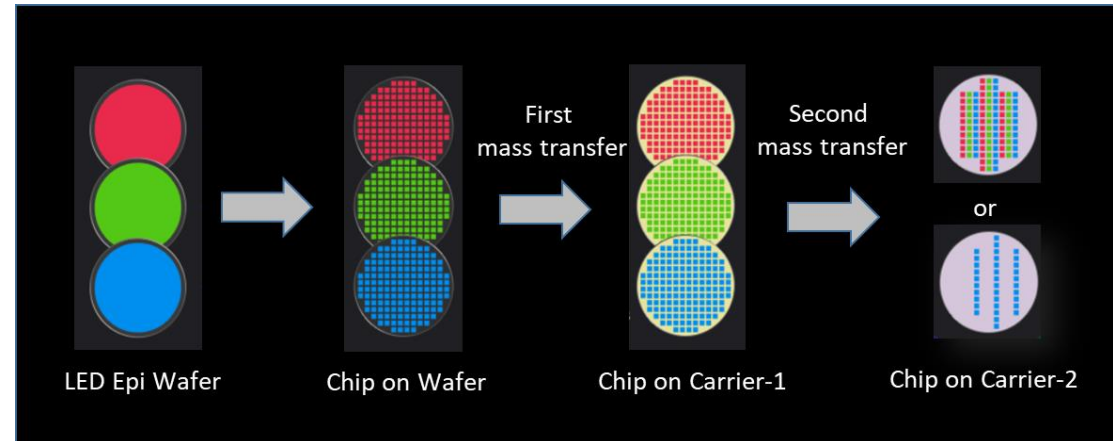


Unikorn – III-V foundry business model, products and applications

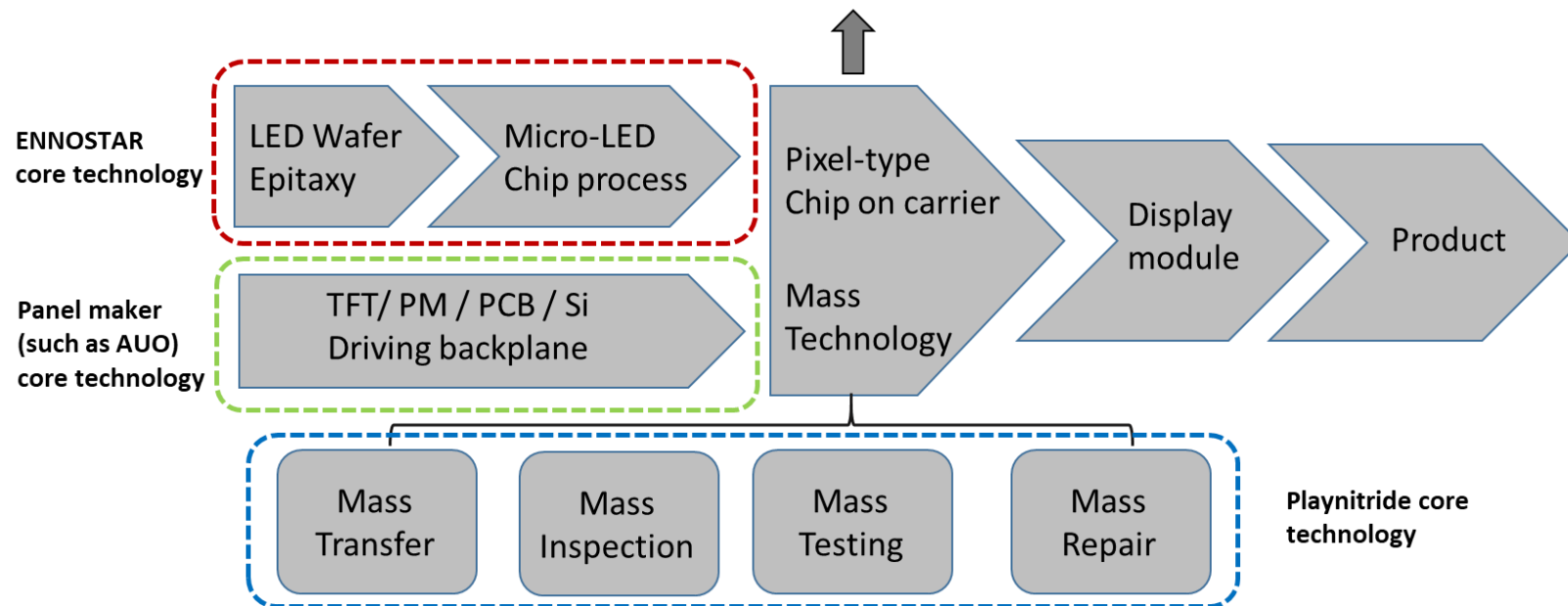


ENNOSTAR (3714 TT; Neutral): micro LED supply chain

Micro-LED manufacturing process



The Challenging process



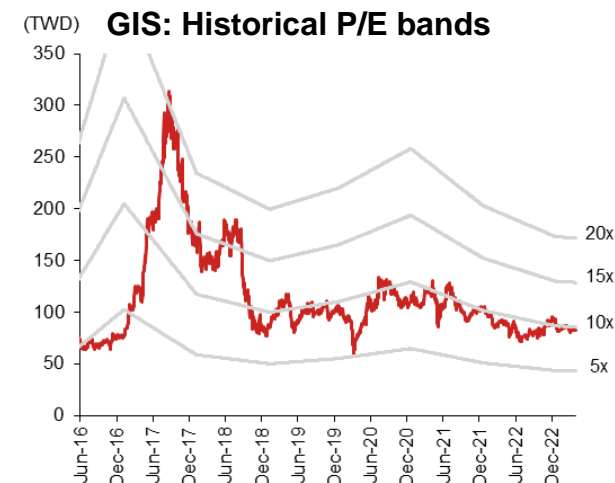
ENNOSTAR (3714 TT; Neutral): Apple's mini-LED and micro-LED roadmap

Apple's IT/wearable product display solution roadmap

Products	Model	2020	2021	2022	2023	2024	2025 & After
iPad	8.3" Mini	LCD					
	10.2"	LCD					
	10.9" Air	LCD					
	11" Pro	LCD					OLED likely
	12.9" Pro	Mini-LED					OLED likely
Products	Model	2020	2021	2022	2023	2024	2025 & After
MacBook	Macbook Air	LCD					
	13" MacBook Pro	LCD					
	14" Macbook Pro	LCD → Mini-LED					OLED likely
	16" Macbook Pro	LCD → Mini-LED					OLED likely
Products	Model	2020	2021	2022	2023	2024	2025 & After
Apple watch	Series/ Ultra/ SE	OLED					Micro-LED likely
Apple VR					Micro-OLED	→	Micro-LED likely

GIS (6415 TT; Neutral): Sharing pain with MacBook and iPad weakness

- MacBook: We expect GIS Megasite to continue to gain shares in LCM business with Hon Hai group, but we think it's not enough to offset volume decline owing to weak demand.
- iPad: We expect GIS to maintain a stable market share, but see weakness in end-demand. However, GIS expects small iPad FP product volume shipments in 2023F.
- SP: Qualcomm ultrasound FP sales are stable, and we expect iPhone SE FP product shipments to grow in 2023F.
- MR: Management expects the product to enter mass-production in 1H23, but we have not factored this in our sales forecasts.

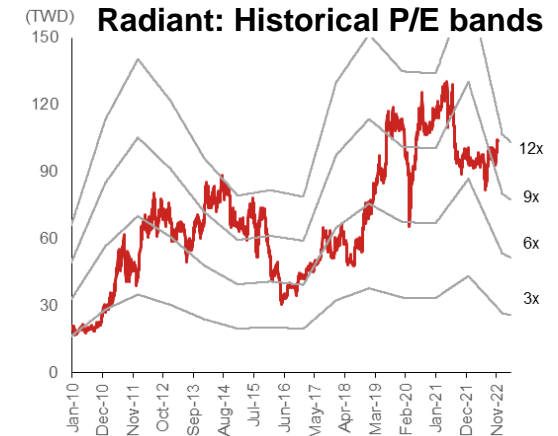


(TWDm)	1Q22	2Q22	3Q22	4Q22F	2022F	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	28,135	29,011	35,509	32,806	125,461	27,191	28,357	29,802	29,717	115,067	26,293	27,894	31,006	28,669	113,862
COGS	25,995	26,162	31,777	29,400	113,335	24,845	25,633	26,767	26,758	104,002	24,029	25,329	28,034	25,977	103,369
Gross profit	2,140	2,849	3,731	3,406	12,126	2,346	2,724	3,035	2,959	11,064	2,265	2,564	2,972	2,692	10,493
Op expenses	1,863	2,042	2,313	2,224	8,442	1,826	1,995	2,148	2,074	8,043	1,779	1,950	2,101	2,029	7,859
Op profit	277	807	1,419	1,182	3,685	521	729	887	885	3,021	486	614	871	663	2,635
Non-op income	86	154	332	120	692	130	130	130	130	520	130	130	130	130	520
Pre-tax profit	363	962	1,751	1,302	4,377	651	859	1,017	1,015	3,541	616	744	1,001	793	3,155
Net profit	340	842	1,546	1,172	3,900	586	773	915	913	3,187	554	670	901	714	2,839
EPS (NT\$)	1.00	2.48	4.55	3.45	11.49	1.72	2.28	2.70	2.69	9.39	1.63	1.97	2.65	2.10	8.36
Operating ratios (%)															
Gross margin	7.6%	9.8%	10.5%	10.4%	9.7%	8.6%	9.6%	10.2%	10.0%	9.6%	8.6%	9.2%	9.6%	9.4%	9.2%
Operating margin	1.0%	2.8%	4.0%	3.6%	2.9%	1.9%	2.6%	3.0%	3.0%	2.6%	1.8%	2.2%	2.8%	2.3%	2.3%
Pre-tax profit margin	1.3%	3.3%	4.9%	4.0%	3.5%	2.4%	3.0%	3.4%	3.4%	3.1%	2.3%	2.7%	3.2%	2.8%	2.8%
Net profit margin	1.2%	2.9%	4.4%	3.6%	3.1%	2.2%	2.7%	3.1%	3.1%	2.8%	2.1%	2.4%	2.9%	2.5%	2.5%
Year-to-year (%)															
Net sales	12%	-20%	-2%	-6%	-5%	-3%	-2%	-16%	-9%	-8%	-3%	-2%	4%	-4%	-1%
Gross profit	-1%	-12%	7%	-11%	-5%	10%	-4%	-19%	-13%	-9%	-3%	-6%	-2%	-9%	-5%
Operating profit	205%	-19%	5%	-9%	-2%	88%	-10%	-37%	-25%	-18%	-7%	-16%	-2%	-25%	-13%
Pre-tax profit	25%	-26%	9%	-3%	-3%	79%	-11%	-42%	-22%	-19%	-5%	-13%	-2%	-22%	-11%
Net profit	50%	-38%	3%	-9%	-11%	72%	-8%	-41%	-22%	-18%	-5%	-13%	-2%	-22%	-11%
Qtr-to-Qtr (%)															
Net sales	-19%	3%	22%	-8%		-17%	4%	5%	0%		-12%	6%	11%	-8%	
Gross profit	-44%	33%	31%	-9%		-31%	16%	11%	-3%		-23%	13%	16%	-9%	
Operating profit	-79%	192%	76%	-17%		-56%	40%	22%	0%		-45%	26%	42%	-24%	
Pre-tax profit	-73%	165%	82%	-26%		-50%	32%	18%	0%		-39%	21%	35%	-21%	
Net profit	-74%	148%	84%	-24%		-50%	32%	18%	0%		-39%	21%	35%	-21%	

Radiant (6176 TT; Reduce): suffering iPad and MacBook weakness in 2023F.

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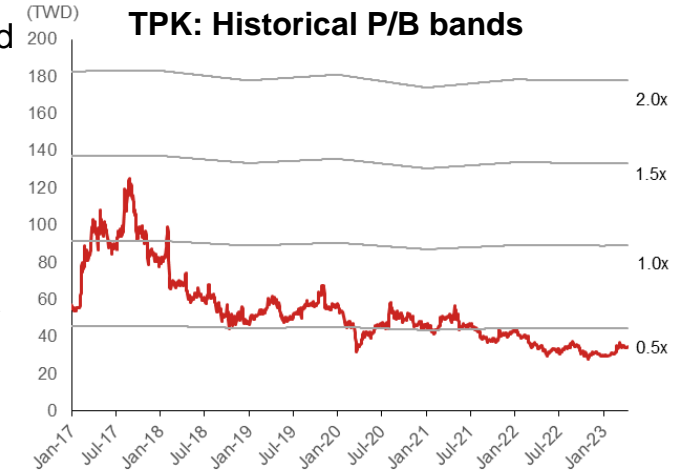
- iPad: We expect Radiant to suffer from weak sales of iPad to in 1H23F, and we forecast iPad sales to decline 26% y-y in 2023F.
- MacBook: We forecast MacBook sales weakness in 1H23F, we forecast MacBook sales to decline 14% y-y in 2023F. And we are also cautious on OLED adoption in MacBook.
- NB: We expect weak NB sales in 2023F due to inventory correction.
- Auto: Auto sales may take longer time than expected, as we have yet to see significant sales.



(TWDm)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	14,378	11,022	17,998	15,303	58,701	11,710	12,373	12,630	12,442	49,155	11,031	11,043	11,653	10,930	44,656
COGS	11,758	9,044	14,150	12,070	47,022	9,589	10,137	10,288	10,207	40,221	9,055	9,020	9,514	8,957	36,546
Gross profit	2,619	1,978	3,848	3,233	11,679	2,121	2,236	2,343	2,235	8,934	1,976	2,023	2,138	1,973	8,110
Op expenses	810	852	956	879	3,496	797	816	929	781	3,322	791	784	922	776	3,274
Op profit	1,810	1,126	2,892	2,398	8,226	1,324	1,420	1,414	1,454	5,612	1,184	1,239	1,217	1,197	4,837
Non-op income	774	1,652	2,351	80	4,856	80	80	80	80	320	80	80	80	80	320
Pre-tax profit	2,583	2,778	5,243	2,062	12,667	1,404	1,500	1,494	1,534	5,932	1,264	1,319	1,297	1,277	5,157
Net profit	2,077	1,663	1,840	1,147	6,727	983	1,050	1,046	1,074	4,153	885	923	908	894	3,610
EPS (NT\$)	4.47	3.58	3.96	2.47	14.47	2.11	2.26	2.25	2.31	8.93	1.90	1.99	1.95	1.92	7.76
Operating ratios (%)															
Gross margin	18.2%	17.9%	21.4%	21.1%	19.9%	18.1%	18.1%	18.5%	18.0%	18.2%	17.9%	18.3%	18.4%	18.0%	18.2%
Operating margin	12.6%	10.2%	16.1%	15.7%	14.0%	11.3%	11.5%	11.2%	11.7%	11.4%	10.7%	11.2%	10.4%	10.9%	10.8%
Pre-tax profit margin	18.0%	25.2%	29.1%	13.5%	21.6%	12.0%	12.1%	11.8%	12.3%	12.1%	11.5%	11.9%	11.1%	11.7%	11.5%
Net profit margin	14.4%	15.1%	10.2%	7.5%	11.5%	8.4%	8.5%	8.3%	8.6%	8.4%	8.0%	8.4%	7.8%	8.2%	8.1%
Year-to-year (%)															
Net sales	2%	-21%	31%	1%	3%	-19%	12%	-30%	-19%	-16%	-6%	-11%	-8%	-12%	-9%
Gross profit	5%	-24%	51%	11%	11%	-19%	13%	-39%	-31%	-23%	-7%	-10%	-9%	-12%	-9%
Operating profit	4%	-42%	63%	14%	9%	-27%	26%	-51%	-39%	-32%	-11%	-13%	-14%	-18%	-14%
Pre-tax profit	18%	86%	163%	11%	68%	-46%	-46%	-72%	-26%	-53%	-10%	-12%	-13%	-17%	-13%
Net profit	25%	60%	21%	19%	30%	-53%	-37%	-43%	-6%	-38%	-10%	-12%	-13%	-17%	-13%
Qtr-to-Qtr (%)															
Net sales	-5%	-23%	63%	-15%		-23%	6%	2%	-1%		-11%	0%	6%	-6%	
Gross profit	-10%	-24%	95%	-16%		-34%	5%	5%	-5%		-12%	2%	6%	-8%	
Operating profit	-14%	-38%	157%	-17%		-45%	7%	0%	3%		-19%	5%	-2%	-2%	
Pre-tax profit	40%	8%	89%	-61%		-32%	7%	0%	3%		-18%	4%	-2%	-2%	
Net profit	116%	-20%	11%	-38%		-14%	7%	0%	3%		-18%	4%	-2%	-2%	

TPK (3673 TT; Neutral): in a transition period and lack new product sales driver and catalyst

- iPad: maintain a stable market share, but we expect TPK to suffer from weak iPad demand. We forecast TPK iPad sales to decline 31% in 2023F.
- MacBook/ iPhone: We think the MacBook and iPhone sales declining have been materialized to TPK.
- NB: We think high-end NB demand is less impacted by weak macro, but we forecast TPK will suffer from declining Microsoft Surface sales in 2023F.
- New product business: New e-paper project to contribute sales in 2H23F. Energy business to see progress in 2023F. However, silver nano-wire (SNW) has limited progress in 2023F, which we think it take long time for customer to adapt new SNW solution.



(TWDm)	1Q22	2Q22	3Q22	4Q22	2022	1Q23F	2Q23F	3Q23F	4Q23F	2023F	1Q24F	2Q24F	3Q24F	4Q24F	2024F
Net sales	25,092	22,336	27,951	21,802	97,181	17,078	19,977	22,897	22,790	82,741	20,570	21,791	23,129	22,293	87,783
COGS	24,116	21,289	26,606	21,055	93,066	16,369	19,062	21,797	21,708	78,936	19,697	20,807	21,986	21,192	83,683
Gross profit	975	1,047	1,345	747	4,114	708	914	1,100	1,081	3,804	873	984	1,143	1,100	4,101
Op expenses	900	850	860	954	3,564	810	816	841	825	3,292	818	832	858	833	3,342
Op profit	75	197	485	(207)	550	(102)	98	259	257	512	55	152	286	267	759
Non-op income	262	111	100	236	710	102	152	152	152	558	102	102	102	102	408
Pre-tax profit	337	308	585	29	1,260	0	250	411	409	1,070	157	254	388	369	1,167
Net profit	235	66	223	20	544	(50)	113	217	216	496	52	115	202	190	559
EPS (NT\$) (Parent)	0.58	0.16	0.55	0.05	1.34	-0.12	0.28	0.53	0.53	1.22	0.13	0.28	0.50	0.47	1.37
Operating ratios (%)															
Gross margin	3.9%	4.7%	4.8%	3.4%	4.2%	4.1%	4.6%	4.8%	4.7%	4.6%	4.2%	4.5%	4.9%	4.9%	4.7%
Operating margin	0.3%	0.9%	1.7%	-0.9%	0.6%	-0.6%	0.5%	1.1%	1.1%	0.6%	0.3%	0.7%	1.2%	1.2%	0.9%
Pre-tax profit margin	1.3%	1.4%	2.1%	0.1%	1.3%	0.0%	1.3%	1.8%	1.8%	1.3%	0.8%	1.2%	1.7%	1.7%	1.3%
Net profit margin	0.9%	0.3%	0.8%	0.1%	0.6%	-0.3%	0.6%	0.9%	0.9%	0.6%	0.3%	0.5%	0.9%	0.9%	0.6%
Year-to-year (%)															
Net sales	-14%	-9%	11%	-10%	-6%	-32%	-11%	-18%	5%	-15%	20%	9%	1%	-2%	6%
Gross profit	17%	7%	29%	-18%	9%	-27%	-13%	-18%	45%	-8%	23%	8%	4%	2%	8%
Operating profit	11%	9%	217%	-5%	75%	-236%	-50%	-47%	-14%	-7%	N.M.	54%	10%	1%	48%
Pre-tax profit	-10%	-10%	29%	-91%	-15%	-100%	-19%	-30%	1309%	-15%	#####	1%	-6%	-10%	9%
Net profit	-33%	-80%	-20%	-83%	-49%	-121%	71%	-2%	978%	-9%	N.M.	2%	-7%	-12%	13%
Qtr-to-Qtr (%)															
Net sales	4%	-11%	25%	-22%		-22%	17%	15%	0%		-10%	6%	6%	-4%	
Gross profit	7%	7%	28%	-44%		-5%	29%	20%	-2%		-19%	13%	16%	-4%	
Operating profit	N.M.	163%	146%	-143%		N.M.	N.M.	164%	-1%		-79%	178%	88%	-6%	
Pre-tax profit	10%	-9%	90%	-95%		-100%	#####	64%	-1%		-62%	62%	53%	-5%	
Net profit	99%	-72%	239%	-91%		-350%	N.M.	93%	-1%		-76%	122%	76%	-6%	

Appendix A-1

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AAC Technologies	2018 HK	16.48 HKD	14-Apr-2023	Buy	Neutral	10-Nov-2022	N/A
Cowell e Holdings	1415 HK	18.02 HKD	14-Apr-2023	Buy	Not Rated	07-Nov-2022	N/A
Delta Electronics	2308 TT	314.5 TWD	14-Apr-2023	Buy	Neutral	07-Jan-2019	N/A
Dongshan Precision (DSBJ)	002384 CH	27.1 CNY	14-Apr-2023	Buy	Neutral	20-Apr-2022	N/A
ENNSTAR	3714 TT	53.8 TWD	14-Apr-2023	Neutral	Buy	16-Jun-2022	N/A
Flexium Interconnect	6269 TT	97.9 TWD	14-Apr-2023	Buy	Neutral	29-Oct-2020	N/A
Genius Electronic Optical	3406 TT	389 TWD	14-Apr-2023	Neutral	Buy	21-Jun-2022	N/A
GoerTek Inc	002241 CH	23.37 CNY	14-Apr-2023	Neutral	Buy	27-Oct-2022	N/A
Han's Laser Technology	002008 CH	29.17 CNY	14-Apr-2023	Neutral	Buy	18-Aug-2022	N/A
Hon Hai Precision Industry	2317 TT	104.5 TWD	14-Apr-2023	Buy	Neutral	04-Nov-2019	N/A
Largan Precision	3008 TT	2060 TWD	14-Apr-2023	Neutral	Buy	13-Apr-2023	N/A
Lite-On Technology Corp	2301 TT	76.3 TWD	14-Apr-2023	Buy	Neutral	20-Oct-2022	N/A
Lotes	3533 TT	932 TWD	14-Apr-2023	Buy	Neutral	24-Sep-2020	N/A
Luxshare Precision	002475 CH	30.57 CNY	14-Apr-2023	Buy	Suspended	03-May-2018	N/A
Pegatron Corp	4938 TT	70.2 TWD	14-Apr-2023	Neutral	Buy	14-May-2020	N/A
Quanta Computer	2382 TT	81.8 TWD	14-Apr-2023	Neutral	Buy	19-Nov-2021	N/A
Radiant Opto-Electronics Corp	6176 TT	112 TWD	14-Apr-2023	Reduce	Neutral	05-Jan-2023	N/A
Tong Hsing	6271 TT	194 TWD	14-Apr-2023	Buy	Not Rated	18-Feb-2021	N/A
TPK	3673 TT	37.9 TWD	14-Apr-2023	Neutral	Buy	10-Aug-2021	N/A
Unimicron Technology	3037 TT	139 TWD	14-Apr-2023	Neutral	Buy	03-Feb-2023	N/A
WIWYNN CORP	6669 TT	1180 TWD	14-Apr-2023	Neutral	Buy	04-Jan-2023	N/A

YAGEO Corporation	2327 TT	553 TWD	14-Apr-2023	Buy	Not Rated	21-Feb-2022	N/A
Zhejiang Crystal OpTech	002273 CH	13.81 CNY	14-Apr-2023	Buy	Not Rated	07-Nov-2022	N/A
Zhen Ding Technology Holding	4958 TT	113 TWD	14-Apr-2023	Buy	Neutral	30-Aug-2021	N/A

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As at 31 March 2023.

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When bonds are purchased via public offerings, secondary distributions, or other OTC transactions with Nomura Securities, only the purchase price shall be paid, with no sales commission charged. Bonds carry the risk of losses, as prices fluctuate in line with changes in market interest rates. Bond prices may also fall below the invested principal as a result of such factors as changes in the management and financial circumstances of the issuer, or changes in third-party valuations of the bond in question. In addition, foreign currency-denominated bonds also carry the risk of losses owing to factors such as foreign exchange rate fluctuations.

When Japanese government bonds (JGBs) for individual investors are purchased via public offerings, only the purchase price shall be paid, with no sales commission charged. As a rule, JGBs for individual investors may not be sold in the first 12 months after issuance. When JGBs for individual investors are sold before maturity, an amount calculated via the following formula will be subtracted from the par value of the bond plus accrued interest: (1) for 10-year variable rate bonds, an amount equal to the two preceding coupon payments (before tax) x 0.79685 will be used, (2) for 5-year and 3-year fixed rate bonds, an amount equal to the two preceding coupon payments (before tax) x 0.79685 will be used.

When inflation-indexed JGBs are purchased via public offerings, secondary distributions (uridashi deals), or other OTC transactions with Nomura Securities, only the purchase price shall be paid, with no sales commission charged. Inflation-indexed JGBs carry the risk of losses, as prices fluctuate in line with changes in market interest rates and fluctuations in the nationwide consumer price index. The notional principal of inflation-indexed JGBs changes in line with the rate of change in nationwide CPI inflation from the time of its issuance. The amount of the coupon payment is calculated by multiplying the coupon rate by the notional principal at the time of payment. The maturity value is the amount of the notional principal when the issue becomes due. For J117 and subsequent issues, the maturity value shall not undercut the face amount.

Purchases of investment trusts (and sales of some investment trusts) are subject to a purchase or sales fee of up to 5.5% (tax included) of the transaction amount. Also, a direct cost that may be incurred when selling investment trusts is a fee of up to 2.0% of the unit price at the time of redemption. Indirect costs that may be incurred during the course of holding investment trusts include, for domestic investment trusts, an asset management fee (trust fee) of up to 5.5% (tax included/annualized basis) of the net assets in trust, as well as fees based on investment performance. Other indirect costs may also be incurred. For foreign investment trusts, indirect fees may be incurred during the course of holding such as investment company compensation.

Investment trusts invest mainly in securities such as Japanese and foreign equities and bonds, whose prices fluctuate. Investment trust unit prices fluctuate owing to price fluctuations in the underlying assets and to foreign exchange rate fluctuations. As such, investment trusts carry the risk of losses. Fees and risks vary by investment trust. Maximum applicable fees are subject to change; please thoroughly read the written materials provided, such as prospectuses or documents delivered before making a contract.

In interest rate swap transactions and USD/JPY basis swap transactions ("interest rate swap transactions, etc."), only the agreed transaction payments shall be made on the settlement dates. Some interest rate swap transactions, etc. may require pledging of margin collateral. In some of these cases, transaction payments may exceed the amount of collateral. There shall be no advance notification of required collateral value or collateral ratios as they vary depending on the transaction. Interest rate swap transactions, etc. carry the risk of losses owing to fluctuations in market prices in the interest rate, currency and other markets, as well as reference indices. Losses incurred as such may exceed the value of margin collateral, in which case margin calls may be triggered. In the event that both parties agree to enter a replacement (or termination) transaction, the interest rates received (paid) under the new arrangement may differ from those in the original arrangement, even if terms other than the interest rates are identical to those in the original transaction. Risks vary by transaction. Please thoroughly read the written materials provided, such as documents delivered before making a contract and disclosure statements.

In OTC transactions of credit default swaps (CDS), no sales commission will be charged. When entering into CDS transactions, the protection buyer will be required to pledge or entrust an agreed amount of margin collateral. In some of these cases, the transaction payments may exceed the amount of margin collateral. There shall be no advance notification of required collateral value or collateral ratios as they vary depending on the financial position of the protection buyer. CDS transactions carry the risk of losses owing to changes in the credit position of some or all of the referenced entities, and/or fluctuations of the interest rate market. The amount the protection buyer receives in the event that the CDS is triggered by a credit event may undercut the total amount of premiums that he/she has paid in the course of the transaction. Similarly, the amount the protection seller pays in the event of a credit event may exceed the total amount of premiums that he/she has received in the transaction. All other conditions being equal, the amount of premiums that the protection buyer pays and that received by the protection seller shall differ. In principle, CDS transactions will be limited to financial instruments business operators and qualified institutional investors.

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