

IT Hardware

Commercial & gaming replacement cycle to drive PC demand growth in 2025F

Key message

1. After 5% QoQ growth in 3Q24, we expect global PC shipments to drop 6% QoQ in 4Q24F and forecast flat YoY shipments in 2024F.
2. Global PC shipments to grow 6% next year on the commercial replacement cycle and more affordable AI PCs.
3. Nvidia's (US) new RTX-50 GPU launches will boost gaming replacement demand, resulting in gaming PC shipments growing by double digits, boosting ASPs and margins of related hardware makers such as Asustek (2357 TT, NT\$581, OP) and MSI (2377 TT, NT\$168, OP).

Event

Global PC shipments were flat on a YoY basis in 3Q24, in line with our forecast due to stronger NB sales despite weaker desktop demand. We expect global PC shipments to drop QoQ in 4Q24F, resulting in flat shipments in full-year 2024F. However, we expect growth to resume at 6% YoY in 2025F, driven by the commercial replacement cycle and more affordable AI PCs.

Impact

3Q24 PC shipments in line. According to Gartner, global PC shipments grew 5% QoQ and were flat YoY at 64mn units in 3Q24, in line with our forecast, as NB shipments (up 2.8% YoY) were better than we expected due to stonger Chromebook shipments, though offset by weaker desktop demand (down 7% YoY). PC demand in the US (27% of global shipments) and Latin America (8%) grew 5% and 2% YoY in 3Q24, while in EMEA (26%) they fell 2% YoY and in APAC (31%) they were down 5% YoY on sluggish China demand. Among brands, Acer (2353 TT, NT\$37.8, NR), Lenovo (CN) and Apple (US) enjoyed the strongest growth in 3Q24, up 4%, 3% and 3%, repectively, mainly due to growth in the US. In Taiwan, the top-five NB ODMs' shipments declined 4% YoY, but grew 4% QoQ. Pegatron's (4938 TT, NT\$95.1, N) shipments rose 23% QoQ driven by stronger Asustek (2357 TT, NT\$581, OP) sales.

Slow season for PC in 4Q24F. Most brands guide PC sales to drop QoQ in 4Q24F. During a recent earnings call, Dell (US) said Client Solution Group (CSG) sales in FY 4Q25(November-January; FY ends January) will grow by low single digits YoY, implying a 1-2% QoQ decline, below consensus by 6%. Asustek guides system sales to drop by 15% QoQ in 4Q24F on slow season and a high base in 3Q24, due to early procurement. Taiwan's top-five NB ODMs' shipments look to drop 8% QoQ in 4Q24F, while Quanta's (2357 TT, NT\$288, OP) are guided to come off 10-15% QoQ on Chromebook slow season.

Pegatron expects to see a similar decline due to the high base last quarter. We thus cut our 4Q24 global PC shipments forecast to a decline of 6% QoQ, and we estimate fullyear 2024 shipments will be flat YoY at 241.1mn units. Demand recovery in 2025F. Brands expect global PC shipments to resume growth in 2025F, driven by: (1) commercial replacement demand due to the end of support for Windows 10; and (2) more affordable AI PC models. Major CPU vendors have showcased AI PC CPUs with over 40TOPS since June this year. Initially, most brands are focused on new AI PC models in premium commercial segments (US\$1,500-2,000; Figure 12), though the penetration rate isn't high this year due to higher ASPs. However, we think most brands will also launch mainstream models (ASP below US\$1,000) in 2025F, driving replacement demand. For example, Qualcomm (US) will debut its next-gen CPU (Canim; successor of Snapdragon X Elite & Plus) next year, while the AI PC penetration of HPQ (US) and Asustek look to reach 20-25% in 2025F and over 60% in 2026F and beyond. Overall, we forecast global PC shipments to grow 6% YoY to 255mn units in 2025F. Nvidia's (US) new RTX-50 GPUs will be another demand booster next year, driving gaming PC shipments to grow by double digits YoY, outgrowing overall PC shipments. We expect global PC sales growth (especially gaming PC) in 2025F to benefit Taiwanese brands such as Asustek and MSI (2377 TT, NT\$168, OP), having respective PC sales weightings of 55-60% and 40%.

Stocks for Action

We believe PC demand recovery and the gaming replacement cycle will benefit PC brands such as Asustek and MSI. We maintain an Outperform rating on both firms, with respective target prices of NT\$810 (18x 2025F EPS) and NT\$210 (15x 2025F EPS).

Risks

Weak consumer demand; rising components prices.

Figure 1: PC (incl. Chromebook) shipments grew 5% QoQ in 3Q24, were flat YoY; 4Q24F shipments to drop 6% QoQ

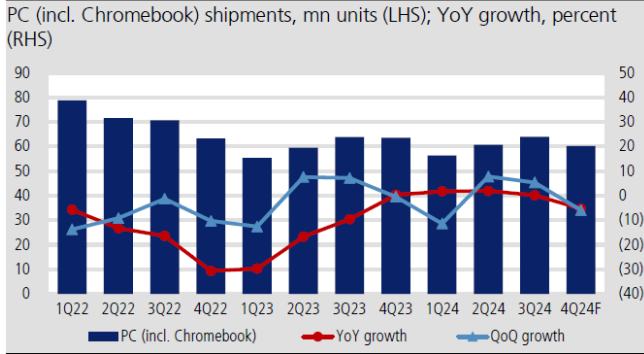


Figure 2: 3Q24 global NB shipments rose 3% YoY; desktop shipments dropped 7% YoY

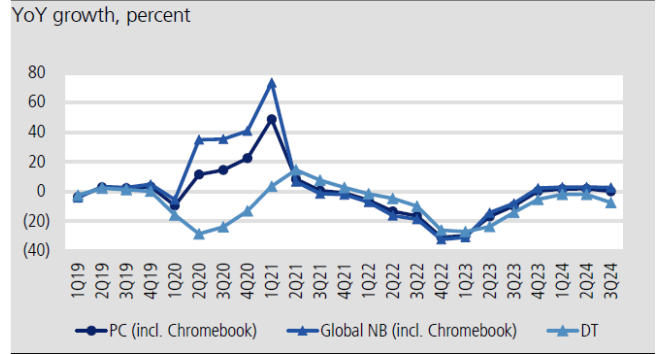


Figure 3: Most regions' NB demand grew YoY in 3Q24, except EMEA & China

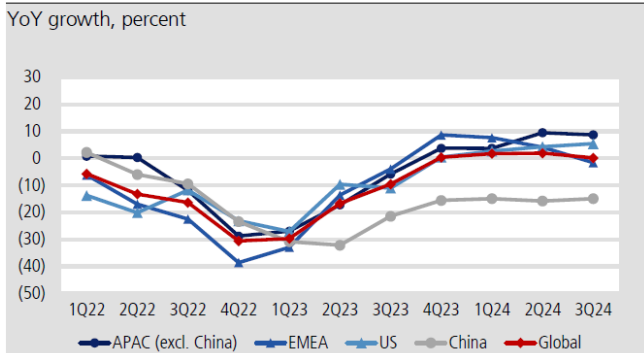


Figure 4: Global quarterly NB (incl. Chromebook) shipments have returned to YoY growth since 4Q23

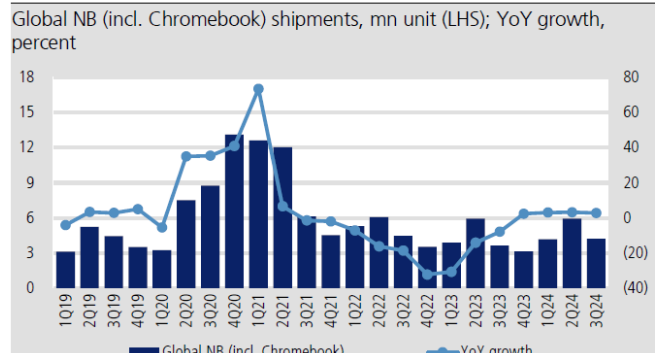


Figure 5: Acer, Lenovo & Apple PC shipments outperformed peers in 3Q24

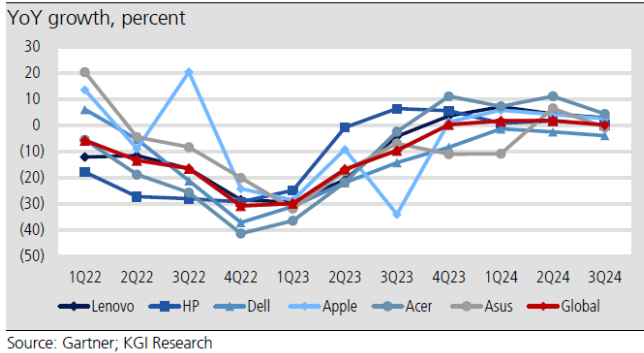


Figure 6: Taiwan top-five NB ODM shipments to fall 8% QoQ but rise 3% YoY in 4Q24F

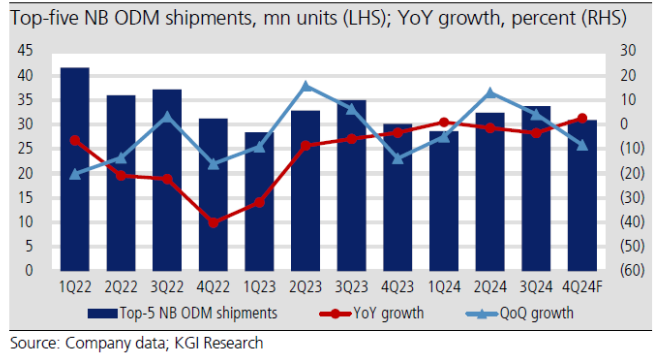
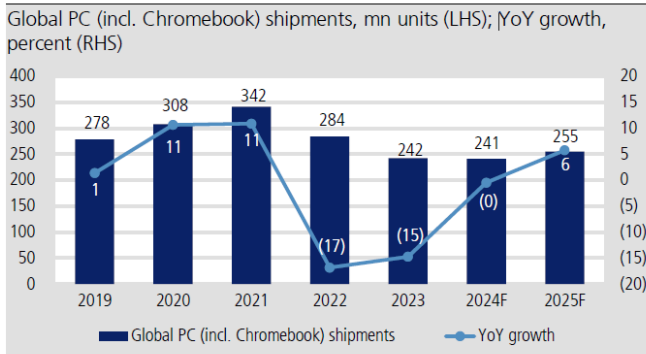


Figure 7: Top-five NB ODM shipments will fall by high single digits QoQ in 4Q24F

NB shipment (mn units)																		
Ticker	Company	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24	4Q24F	2020	2021	2022	2023	2024F
2382 TT	Quanta	16.9	12.4	15.6	12.8	10.8	12.6	13.1	10.4	10.5	11.7	12.6	10.9	59.8	75.3	57.7	46.9	45.7
2324 TT	Compal	11.8	10.4	9.3	7.8	7.6	8.7	9.3	8.3	7.5	8.7	8.3	7.8	47.8	57.5	39.3	33.9	32.3
3231 TT	Wistron	5.6	5.8	5.2	4.6	3.9	4.6	5.2	5.3	4.6	5.1	5.2	5.2	20.4	25.6	21.2	19.1	20.1
2356 TT	Inventec	5.0	5.4	5.0	4.4	4.4	4.9	4.9	4.5	4.5	4.9	5.2	4.9	20.0	21.3	19.8	18.7	19.5
4938 TT	Pegatron	2.4	2.0	2.1	1.6	1.7	2.1	2.5	1.7	1.6	2.0	2.5	2.1	10.2	10.4	8.0	8.0	8.2
Top-5 NB ODM		41.7	36.0	37.2	31.2	28.4	32.9	35.0	30.2	28.7	32.4	33.8	31.0	158.1	190.1	146.0	126.6	125.8
YoY (%)																		
2382 TT	Quanta	(11.1)	(34.7)	(10.3)	(35.7)	(36.1)	1.6	(16.0)	(18.8)	(2.8)	(7.1)	(3.8)	5.1	70.4	25.9	(23.4)	(18.7)	(2.5)
2324 TT	Compal	(9.9)	(20.0)	(39.2)	(51.6)	(35.6)	(16.3)	0.0	6.4	(1.3)	0.0	(10.8)	(6.0)	8.8	20.4	(31.7)	(13.7)	(4.7)
3231 TT	Wistron	3.7	(4.9)	(21.2)	(38.7)	(30.4)	(20.7)	0.0	15.2	17.9	10.9	0.0	(1.9)	16.3	25.8	(17.2)	(9.9)	5.2
2356 TT	Inventec	4.2	8.0	(15.3)	(21.4)	(12.0)	(9.3)	(2.0)	2.3	2.3	0.0	6.1	8.9	6.1	6.5	(7.0)	(5.6)	4.3
4938 TT	Pegatron	4.2	(17.3)	(21.3)	(48.4)	(28.7)	4.5	19.9	3.1	(7.5)	(3.4)	(1.0)	29.1	1.3	2.1	(22.9)	(0.2)	2.0
Top-5 NB ODM		(6.5)	(20.9)	(22.3)	(40.2)	(31.9)	(8.6)	(5.9)	(3.4)	1.0	(1.4)	(3.5)	2.7	26.1	20.2	(23.2)	(13.3)	(0.6)
QoQ(%)																		
2382 TT	Quanta	(15.1)	(26.6)	25.8	(17.9)	(15.6)	16.7	4.0	(20.6)	1.0	11.4	7.7	(13.3)					
2324 TT	Compal	(26.7)	(11.9)	(10.6)	(16.1)	(2.6)	14.5	6.9	(10.8)	(9.6)	16.0	(4.6)	(6.0)					
3231 TT	Wistron	(25.3)	3.6	(10.3)	(11.5)	(15.2)	17.9	13.0	1.9	(13.2)	10.9	2.0	0.0					
2356 TT	Inventec	(10.7)	8.0	(7.4)	(12.0)	0.0	11.4	0.0	(8.2)	0.0	8.9	6.1	(5.8)					
4938 TT	Pegatron	(24.2)	(15.5)	5.0	(23.3)	4.7	23.9	20.5	(34.0)	(6.1)	29.4	23.4	(13.9)					
Top-5 NB ODM		(20.2)	(13.6)	3.3	(16.1)	(9.1)	15.9	6.5	(13.9)	(5.0)	13.1	4.2	(8.3)					

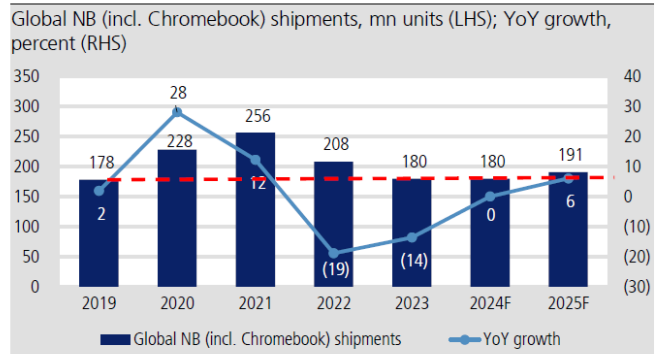
Source: Company data; KGI Research estimates

Figure 8: Global PC shipments to be flat YoY in 2024F, but will grow 6% YoY in 2025F



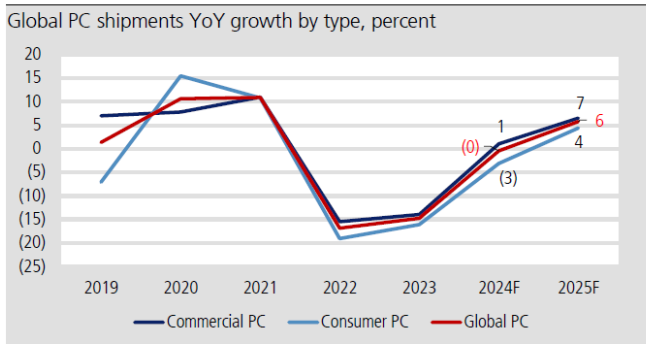
Source: Gartner; KGI Research estimates

Figure 9: After flat shipments in 2024F, global NB shipments to grow 6% next year, exceeding pre-COVID-19 level



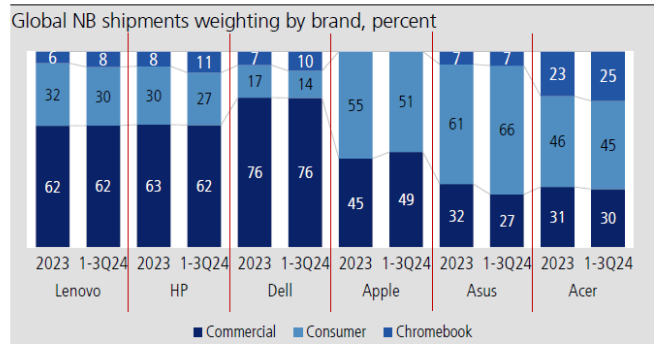
Source: Gartner; KGI Research estimates

Figure 10: Commercial PC shipments will outgrow consumer PC in 2025F



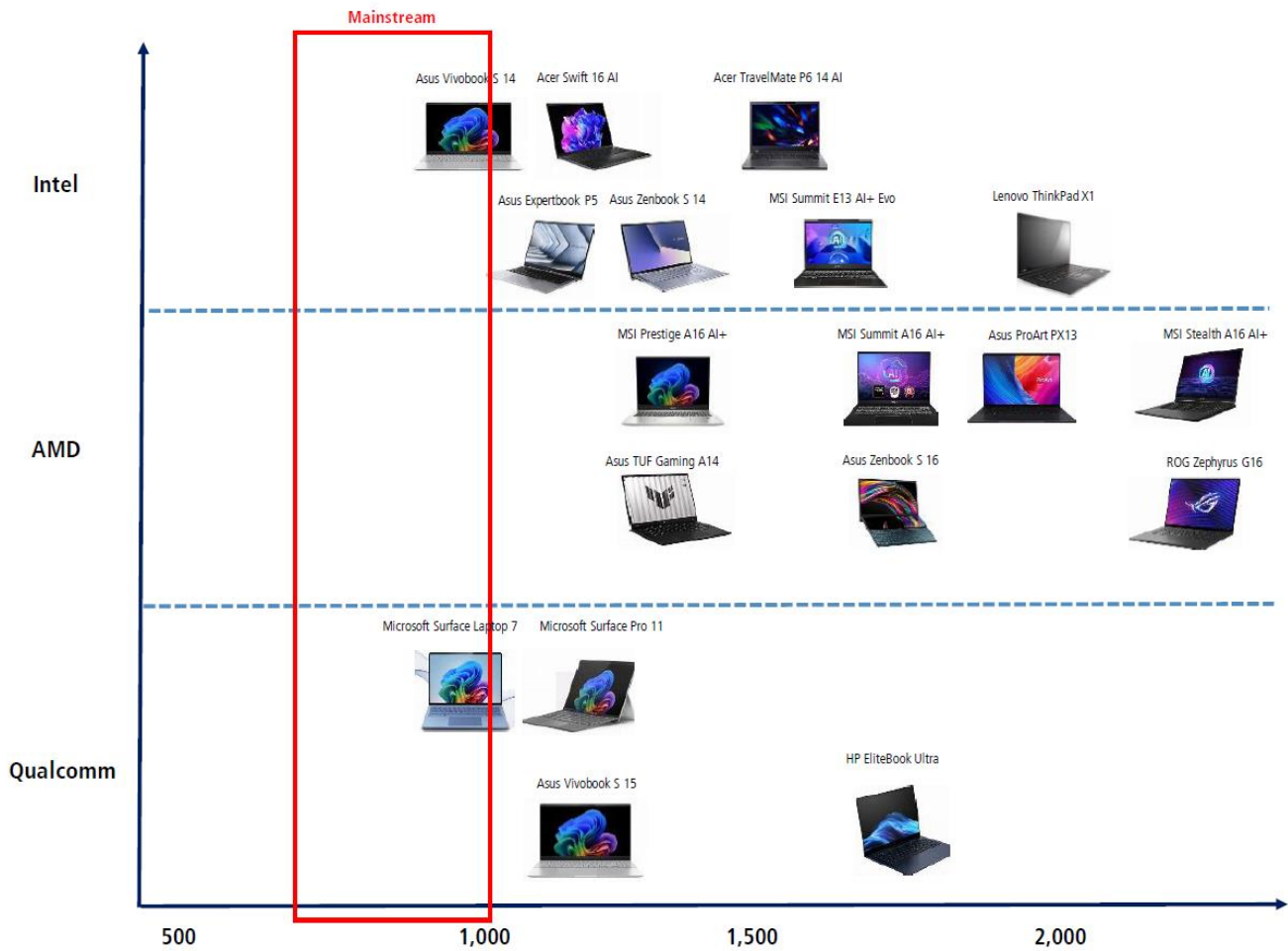
Source: Gartner; KGI Research estimates

Figure 11: Dell has highest commercial NB shipments weighting among peers



Source: Gartner; KGI Research estimates

Figure 12: More mainstream AI PC models in 2025F



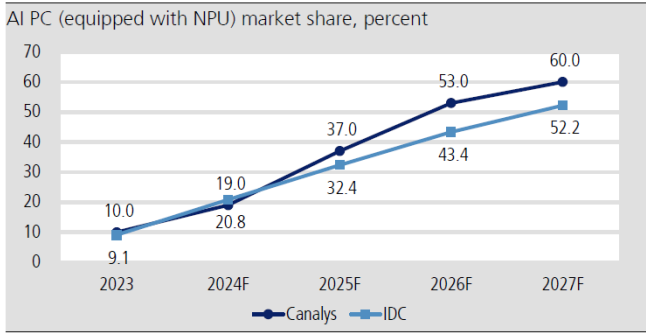
Note: Those models were launched in 2024
 Source: Company data; KGI Research

Figure 13: AI PC to be aggressively marketed by CPU & NPU giants

Platform	Intel Meteor Lake	Intel Lunar Lake	Intel Arrow Lake	Intel Panther Lake	AMD 7040 Phoenix	AMD 8040 Hawk Point	AMD AI300 Strix Point	AMD AI MAX 300 Strix Halo	Qualcomm Snapdragon X Elite	Qualcomm Snapdragon X Plus	Qualcomm Canim
Microarchitecture	Redwood cove	Lion cove	Lion cove	Cougar cove	Zen 4	Zen 4	Zen 5	Zen 5	Oryon	Oryon	TBC
Launch Date	4Q23	3Q24	4Q24	2025F	2Q23	1Q24	3Q24	2025F	2Q24	3Q24	4Q25F
Process	Intel 4	Intel 18A	Intel 20A	Intel 18A	TSMC N4	TSMC N4	TSMC N4	TSMC N4	TSMC N4	TSMC N4	TSMC N4
AI architecture	Movidius VPU	Movidius VPU	TBD	TBD	Ryzen AI	Ryzen AI	Ryzen AI	Ryzen AI	Hexagon	Hexagon	Hexagon
TOPS	34 TOPS	120 TOPS	TBD	TBD	33 TOPS	39 TOPS	TBD	>70 TOPS	45 TOPS	45 TOPS	45 TOPS
NPU	11 TOPS	48 TOPS	50 TOPS	120 TOPS	10 TOPS	16 TOPS	50 TOPS	50-60 TOPS	45 TOPS	45 TOPS	45 TOPS
CPU	5 TOPS	5 TOPS									
GPU	18 TOPS	67 TOPS									

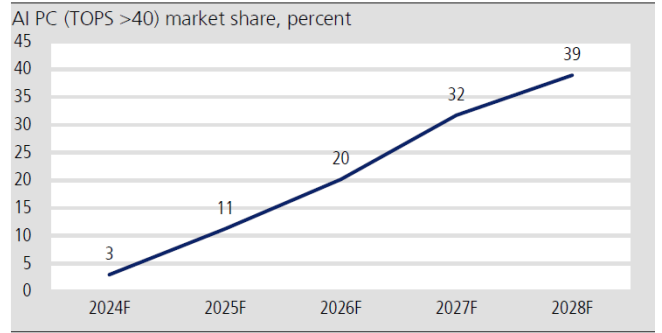
Source: Company data; KGI Research

Figure 14: Canlys & IDC forecast AI PC (equipped with NPU) market share of over 50% by 2027F



Source: Canlys; IDC; KGI Research

Figure 15: AI PC (TOPS >40) market share to reach double digits in 2025F



Source: IDC; Bloomberg; KGI Research

Figure 16: Intel & AMD desktop CPU roadmap

	Intel					AMD				
	Raptor Lake	Raptor Lake refresh	Meteor Lake	Arrow Lake	Panther Lake	Ryzen 4000 (Renoir)	Ryzen 5000 (Vermeer)	Ryzen 7000 (Raphael)	Ryzen 9000 (Granite Ridge)	Ryzen Next (Medusa)
Time for launch	4Q22	3Q23	4Q24F	2024F	2025F	1Q20	4Q20	3Q22	2Q24	2025F
Process (node)	Intel 7 (10nm)	Intel 7 (10nm)	Intel 4 (7nm)	Intel 20A	Intel 18A	TSMC N7	TSMC N7+	TSMC N5	TSMC N3	TSMC N3
Microarchitecture (P-Core)	Raptor Cove	Raptor Cove	Redwood Cove	Lion Cove	Cougar Cove	Zen 2	Zen 3	Zen 4	Zen 5	Zen 6
CPU sockets (desktop)	LGA 1700	LGA 1700	LGA 1851	LGA 1851	LGA 1851	AM4 (LGA 1331)	AM4 (LGA 1331)	AM5 (LGA1718)	AM5 (LGA1718)	TBC
DRAM	DDR4 / DDR5	DDR4 / DDR5	DDR5 LPDDR5X	DDR5	DDR5	DDR4	DDR4	DDR5	DDR5	DDR5
PCIe	Gen 5	Gen 5	Gen 5	Gen 5	Gen 5	Gen 4	Gen 3	Gen 5	Gen 5	Gen 5

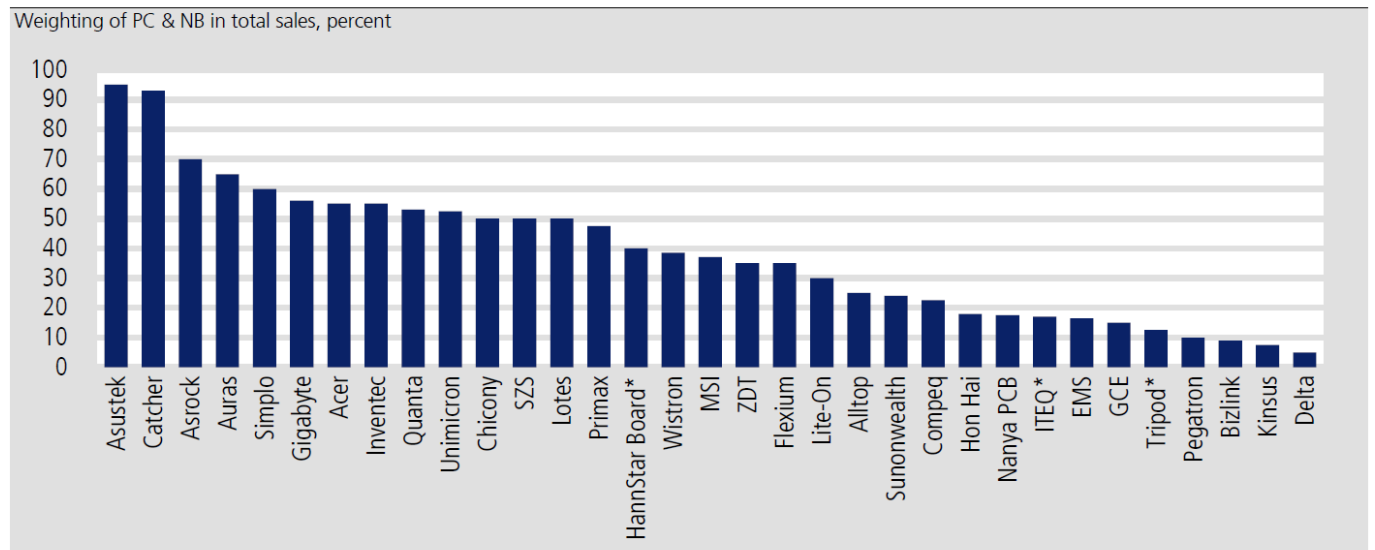
Source: Company data; KGI Research

Figure 17: Intel & AMD NB CPU roadmap

	Intel						AMD					
	Alder Lake	Raptor Lake	Meteor Lake	Arrow Lake	Lunar Lake	Panther Lake	Ryzen 6000 (Rembrandt)	Ryzen 7000 (Phoenix)	Ryzen 8040 (Hawk Point)	Ryzen 300 (Strix Point)	Ryzen 9000 (Strix Halo)	Ryzen 400 (Sound Wave)
Time for launch	1H22	1H23	4Q23	2024F	2H24F	2025F	1Q22	1Q23	4Q23	3Q24F	2025F	2025F
Process (node)	Intel 7 (10nm)	Intel 7 (10nm)	Intel 4 (7nm)	Intel 20A	Intel 18A	Intel 18A	TSMC N6	TSMC N4	TSMC N4	TSMC N4	TSMC N4	TBC
Microarchitecture (P-Core)	Golden Cove	Raptor Cove	Redwood Cove	Lion Cove	Lion Cove	Cougar Cove	Zen 3+	Zen 4	Zen 5	Zen 5	Zen 5	Zen 6
DRAM	DDR4 / DDR5	DDR4 / DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR5	DDR 5
PCIe	Gen 5	Gen 5	Gen 5	Gen 5	Gen 5	Gen 5	Gen 4	Gen 5	Gen 5	Gen 5	Gen 5	Gen 5

Source: Company data; KGI Research

Figure 18: Keyboard, hinge, power adapter & PCB plays benefit from PC demand recovery in 2024F



*: Companies outside KGI Research's coverage universe
Source: TEJ; Bloomberg; KGI Research

Figure 19: IT hardware supply chain – Valuations

Company	Ticker	Related business	Market cap. (US\$mn)	Share price (LCY)	Rating	Target Price (LCY)	EPS (LCY)			EPS YoY (%)			PE (x)			PB (x)			ROE (%)			Cash yield (%)	
							2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F
Asustek	2357 TT	Brand	13,265	581.0	Outperform	810.0	21.44	47.81	45.02	8.4	122.9	(5.8)	27.1	12.2	12.9	1.8	1.7	1.7	7.0	14.5	13.1	2.9	6.2
Acer*	2353 TT	Brand	3,537	37.8	Not rated	N.A.	1.64	1.98	2.40	(1.8)	20.5	21.2	23.0	19.1	15.8	1.5	1.5	1.5	7.0	8.4	9.5	4.2	4.3
MSI	2377 TT	Brand	4,363	168.0	Outperform	210.0	8.92	10.02	14.03	(24.4)	12.4	40.0	18.8	16.8	12.0	2.8	2.7	2.4	15.3	16.4	21.2	3.2	3.6
Gigabyte	2376 TT	Brand	5,560	270.0	Outperform	320.0	7.46	14.85	17.78	(27.5)	99.0	19.7	36.2	18.2	15.2	4.6	3.7	3.6	12.9	22.5	24.3	2.5	4.8
Asrock	3515 TT	Brand	886	232.5	Outperform	270.0	7.54	10.90	13.62	(13.2)	44.6	24.9	30.8	21.3	17.1	3.5	3.4	3.4	11.3	16.2	19.9	3.0	4.2
Dell*	Del US	Brand	88,016	124.4	Not rated	N.A.	7.13	7.85	9.38	114.1	10.1	19.5	17.4	15.8	13.3	(36.5)	(68.9)	73.8	N.M.	(191.3)	(696.3)	1.2	1.4
HP*	HPQ US	Brand	33,402	34.7	Not rated	N.A.	3.29	3.39	3.59	8.9	2.9	6.0	10.5	10.2	9.7	(32.1)	(21.1)	(19.2)	N.M.	(242.5)	(256.2)	3.0	3.2
Lenovo*	992 HK	Brand	14,522	9.1	Not rated	N.A.	0.08	0.10	0.13	(37.7)	20.1	29.7	108.3	90.2	69.5	20.2	17.6	15.2	18.1	20.7	22.8	0.5	0.5
Inventec	2356 TT	ODM	5,315	48.2	Neutral	56.0	1.71	2.10	2.82	0.0	23.0	34.1	28.2	22.9	17.1	2.8	2.8	2.7	10.2	12.2	15.8	3.1	3.5
Quanta	2362 TT	ODM	34,194	288.0	Outperform	400.0	10.29	14.58	19.03	37.0	41.7	30.5	28.0	19.8	15.1	6.0	5.6	5.2	22.3	29.3	35.8	3.1	4.0
Wistron Corp	3231 TT	ODM	10,107	113.5	Outperform	158.0	4.08	5.80	8.80	1.7	42.1	51.9	27.8	19.6	12.9	3.2	2.8	2.5	11.4	14.9	20.0	2.3	3.3
Hon Hai	2317 TT	ODM	83,307	195.5	Restricted	N.A.	10.25	11.50	14.48	0.4	12.2	25.9	19.1	17.0	13.5	1.8	1.7	1.6	9.7	10.4	12.4	2.8	3.1
Pegatron	4938 TT	ODM	7,787	95.1	Neutral	105.0	5.90	7.00	7.05	4.2	18.7	0.7	16.1	13.6	13.5	1.3	1.3	1.3	8.4	9.7	9.5	4.2	4.8
Compal*	2324 TT	ODM	5,012	37.0	Not rated	N.A.	1.76	2.52	2.85	5.4	43.4	13.1	21.0	14.7	13.0	1.3	1.2	1.2	6.5	8.7	9.3	3.2	4.1
Chicom Elec	2385 TT	Keyboard	3,621	155.0	Outperform	198.0	10.35	12.03	13.22	0.9	16.3	9.8	15.0	12.9	11.7	3.0	2.7	2.5	20.0	21.5	22.0	5.0	5.5
Primax	4915 TT	Keyboard	1,133	79.1	Neutral	89.0	5.50	5.81	6.33	(9.9)	5.7	8.9	14.4	13.6	12.5	2.2	2.1	2.0	14.9	15.2	15.9	5.1	5.3
Simple Tech	6121 TT	Battery	2,112	371.5	Outperform	460.0	30.67	28.38	30.70	(21.6)	(7.5)	8.2	12.1	13.1	12.1	2.0	1.9	1.8	16.9	15.0	15.6	5.8	5.4
SZS	3376 TT	Hinge	1,104	183.5	Neutral	190.0	4.30	7.23	8.25	(50.5)	68.1	14.1	42.7	25.4	22.2	2.2	2.2	2.1	5.1	8.7	9.7	2.2	3.0
Sunonwealth	2421 TT	Thermal	841	100.0	Outperform	130.0	5.16	5.83	7.23	18.9	12.9	24.1	19.4	17.2	13.8	3.8	3.5	3.3	21.5	21.4	24.8	3.5	4.2
Auras	3324 TT	Thermal	1,884	674.0	Outperform	990.0	14.28	20.95	38.30	(2.7)	46.7	82.8	47.2	32.2	17.6	12.6	7.8	6.3	20.2	26.0	40.1	1.0	1.4
Lotes	3533 TT	Connector/ socket	5,688	1,660.0	Outperform	2,150.0	50.65	78.36	103.00	(13.7)	54.7	31.4	32.8	21.2	16.1	6.7	5.7	4.9	22.1	29.2	32.9	1.6	2.4
Alltop Tech	3526 TT	Connector	509	275.0	Outperform	350.0	11.68	16.44	20.35	24.2	40.7	23.8	23.5	16.7	13.5	6.2	6.3	6.3	26.9	37.7	47.1	4.2	5.9
Argosy*	3217 TT	Connector	409	147.5	Not rated	N.A.	8.11	11.26	11.76	19.3	38.8	4.4	18.2	13.1	12.5	3.1	N.A.	N.A.	17.9	24.0	24.3	3.6	5.7
Allied Circuit*	8155 TT	PCB	179	114.0	Not rated	N.A.	4.08	N.M.	N.M.	(63.5)	N.A.	N.A.	27.9	N.A.	N.A.	2.7	N.A.	N.A.	9.3	N.M.	N.M.	3.2	N.A.
Gold Circuit	2368 TT	PCB	2,774	183.5	Outperform	255.0	7.25	12.03	15.79	(18.2)	65.9	31.2	25.3	15.3	11.6	5.4	5.2	4.4	22.7	34.7	41.1	1.9	3.3
Compeq Mfg	2313 TT	PCB	2,216	60.5	Outperform	86.0	3.50	4.92	6.13	(47.9)	40.7	24.6	17.3	12.3	9.9	1.8	1.7	1.6	10.7	14.3	16.4	2.5	3.3
Elite Material	2383 TT	CCL	4,913	463.0	Outperform	595.0	16.35	27.05	33.14	7.3	65.5	22.5	28.3	17.1	14.0	5.9	5.2	4.6	22.5	32.6	35.2	2.2	3.5
Kinsus	3189 TT	Substrate	1,298	92.5	Neutral	95.0	0.11	1.51	6.32	(99.3)	1339.1	318.0	880.3	61.2	14.6	1.3	1.6	34.3	0.1	2.4	21.2	1.1	1.1
Unimicron Tech	3037 TT	Substrate	6,891	147.0	Outperform	205.0	7.88	4.32	12.78	(60.7)	(45.2)	195.8	18.6	34.0	11.5	2.5	2.4	2.1	13.6	7.1	19.3	2.0	1.2
Zhen Ding Tech	4958 TT	FPCB	3,396	115.5	Neutral	137.0	6.55	9.53	10.53	(56.4)	45.5	10.5	17.6	12.1	11.0	1.1	1.1	1.0	6.4	9.2	9.7	2.9	3.6
Flexium Intercon	6269 TT	FPCB	662	66.8	Neutral	82.0	6.94	8.23	N.A.	(35.9)	18.5	N.A.	9.6	8.1	N.A.	0.8	0.8	N.A.	8.7	9.6	N.A.	5.2	6.0
Catcher Tech	2474 TT	Casing	4,099	196.0	Neutral	230.0	13.33	19.71	15.31	(12.0)	47.9	(22.3)	14.7	9.9	12.8	0.8	0.9	0.9	5.7	8.7	7.0	5.1	5.1
Foxconn Tech*	2354 TT	Casing	3,391	78.0	Not rated	N.A.	3.01	2.89	4.10	(0.3)	(4.0)	41.9	25.9	27.0	19.0	1.0	0.7	0.7	4.1	3.8	5.3	1.9	1.9

Source: KGI Research estimates; Bloomberg

*: Bloomberg consensus

