CES 2025 - Gaming & PC

Gaming replacement cycle in 2025F

Key message

1. Nvidia (US) and AMD (US) showcased new gaming GPU at CES, which will drive graphics card, motherboard and gaming PC shipments to grow YoY in 2025F.
2. Intel (US) and AMD launched new mainstream CPUs to lift the AI PC penetration rate in 2025F, on more affordable prices for AI PC systems.
3. On gaming replacement cycle in 2025F, our top picks are Asustek (2357 TT, NT$648, OP), MSI (2377 TT, NT$186, OP) Gigabyte (2376 TT, NT$283.5, OP) and Auras (3324 TT, NT$707, OP).

Event

Nvidia (US) and AMD (US) launched new gaming GPUs on January 7 at the 2025 Consumer Electronics Show (CES). Intel (US) and AMD also showcased several new PC CPUs. We are positive on a gaming replacement cycle and PC shipments growth in 2025F.

Impact

New GPUs to drive gaming replacement cycle. Nvidia showcased its new RTX 5090, 5080, 5070 Ti and 5070 Blackwell GPUs during CES keynote. These new GPUs offer performance twice as fast as the previous version. Spec upgrades (Figure 5) include more CUDA cores, GDDR7 memory and DLSS 4 technology for frame generation. The MSRP of the RTX 5090 is US$1,999, higher than the US$1,599 of the RTX 4090, but is capable of 3,352 AI TOPS versus the 1,321 AI TOPS of the RTX 4090. Others model MSRPs are US$999 for the RTX 5080, US$749 for the RTX 5070Ti and US$549 for the RTX 5070, lower than the respective US$1,199 for the RTX 4080, US$799 for the RTX 4070Ti and US$599 for the RTX 4070. The performance of the RTX 5070 is equal to the RTX 4090, but at only one-third of the price. We expect this pricing strategy will boost sales for the new models, and help them to secure market share. The RTX 5090 and 5080 will be available by end-January, and the RTX 5070 Ti and 5070 in February, while new gaming notebooks equipped with new GPUs are coming in March. AMD previewed its RX 9000 series GPUs on their RDNA 4 platform, including the RX 9070 XT GPU (replacing the RX 7900 XT) and RX 9070 GPU (replacing the RX 7800 XT) (Figure 10), to compete with Nvidia's RTX 4070/5070. AMD's new graphics cards go on sale in 1Q25F, with more spec and price details to be announced. We expect new GPUs and Triple-A game launches to hasten a replacement cycle for graphics cards in 2025F, and boost motherboard and gaming PC demand, benefiting PC brands such as Asustek (2357 TT, NT$648, OP), MSI (2377 TT, NT$186, OP) and Gigabyte (2376 TT, NT$283.5, OP). In addition, the increasing adoption rate of VC on graphics cards and gaming notebooks will drive Auras's (3324 TT, NT$707, OP) earnings growth.

New PC CPU launches. Intel introduced several new CPUs, incluing the Core Ultra 200V for the commercial market, the 200U for the mainstream market, the 200H for high performance, and the 200HX for gaming notebooks (Figure 17). PC OEMs will launch new models with these CPUs in 1Q25F. Intel will also launch a next-gen CPU, Panther Lake, in 2H25F, based on the Intel 18A process. In addition, it showcased the Intel Core Ultra 200S CPU, expanding its AI product line to desktops, and forecast the AI PC adoption rate to be over 40% in 2025F. AMD launched two CPUs, including the Ryzen AI 7/5 CPU for the mainstream market and Ryzen AI Max / Max Pro for the high-end market (Figure 18). AMD also mentioned its efforts for the commercial market, with Dell (US) adopting AMD solutions for their commercial PCs, Dell Pro, for the first time. Following Intel and AMD's mainstream CPU showcases, several PC brands debuted new PC models at more affordable prices (below US$1,000) at CES (Figure 23), which will boost the AI PC penetration rate from the low single digits in 2024 to over 20% in 2025F, prompting PC shipments growth. During keynotes, both CPU makers emphasized their efforts for the commercial market, such as the Intel vPro and AMD Pro platform. We expect commercial replacement demand and the end-of-support of Windows 10 will be key PC demand drivers, and forecast global PC shipments to grow by 6% YoY in 2025F. Gaming and commercial PC demand will outgrow consumer PC demand this year, benefiting PC brands such as Asustek, MSI and Dell, and ODMs with higher commercial weightings, such as Wistron (3231 TT, NT$107.5, OP) and Inventec (2356 TT, NT$51.7, N).

Stocks for Action

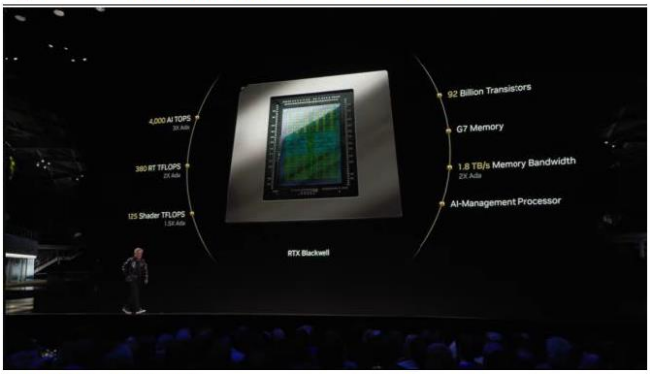
On favorable prices for new mainstream gaming GPUs, we are positive on a gaming replacement cycle in 2025F. Our top picks are Asustek, MSI, Gigabyte and Auras.

Risks

Weak consumer demand; consumer GPU shortages.

Gaming

Figure 1: Nvidia introduced new RTX Blackwell GPUs

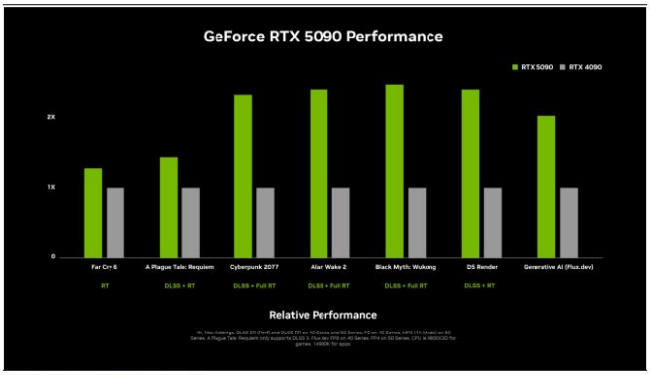


Source: Nvidia; KGI Research

Figure 2: Nvidia to launch four RTX 50 GPU models

Source: Nvidia; KGI Research

Figure 3: The RTX 5090 GPU offers twice the performance of the RTX 4090



Source: Nvidia; KGI Research

Figure 4: New gaming notebooks equipped with RTX 50 GPUs will be available starting from March

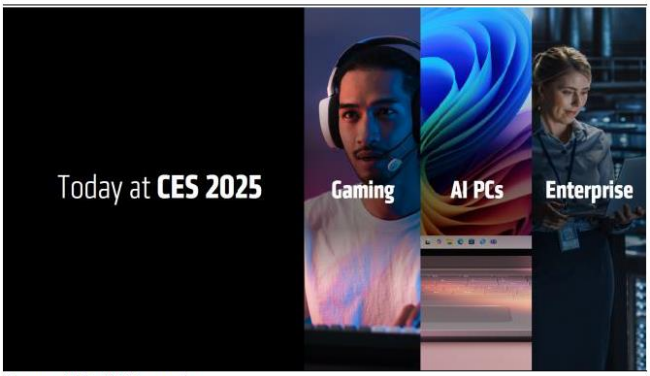
Source: Nvidia; KGI Research

Figure 5: Nvidia RTX 50 series GPU specs – Consumers will enjoy stronger computing performance from the RTX 5080 / 5070 Ti / 5070 at lower prices, driving a graphics card replacement cycle in 2025F

	RTX 4060	RTX 4060 Ti	RTX 4070	RTX 4070 Ti	RTX 4080	RTX 4090	RTX 5070	RTX 5070 Ti	RTX 5080	RTX 5090
GPU Engine Specs										
Process	4nm	4nm	4nm	4nm	4nm	4nm	3nm	3nm	3nm	3nm
GPU Architecture	Ada Lovelace	Ada Lovelace	Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Blackwell	Blackwell	Blackwell	Blackwell
CUDA Cores	3072	4352	5888	7680	9728	16384	6144	8960	10752	21760
Boost Clock (MHz)	2460	2535	2475	2610	2505	2520	2510	2450	2620	2410
Base Clock (MHz)	1830	2310	1920	2310	2205	2230	2160	2300	2300	2010
Memory Specs										
Memory Speed	17 Gbps	18 Gbps	21 Gbps	21 Gbps	22.4 Gbps	21 Gbps	28 Gbps	28 Gbps	30 Gbps	28 Gbps
Standard Memory Config	8 GB GDDR6	8 GB GDDR6	12 GB GDDR6X / GRRD6	12 GB GDDR6X	16 GB GDDR6X	24 GB GDDR6X	12GB GDDR7	16GB GDDR7	16GB GDDR7	32GB GDDR7
Memory Interface Width	128-bit	128-bit	192-bit	192-bit	256-bit	384-bit	192-bit	256-bit	256-bit	512-bit
Memory Bandwidth (GB/sec)	272	288	504.2	504.2	736	1008	672	896	960	1792
Thermal and Power Specs										
Maximum GPU Temperature (in C)	90	90	90	90	90	90	85	88	88	90
Graphics Card Power (W)	115	160	200	285	320	450	250	300	360	575
Supplementary Power Connectors	8 pin	8 pin	8 pin	8 pin	8 pin	16 pin	16 pin	16 pin	16 pin	16 pin
Launch date	May 18, 2023	May 18, 2023	Apr 12, 2023	Jan 3, 2023	Sep 20, 2022	Sep 20, 2022	Jan 6, 2025	Jan 6, 2025	Jan 6, 2025	Jan 6, 2025
Availability	June 29, 2023	May 24, 2023	Apr 13, 2023	Jan 5, 2023	Nov, 2022	Oct 12, 2022	Feb, 2025	Feb, 2025	Jan 30, 2025	Jan 30, 2025
Launch price (US$)	299	399	599	799	1,199	1,599	549	749	999	1,999

Source: Company data; KGI Research

Figure 6: AMD's keynote focused on gaming, AI PCs & enterprise solutions

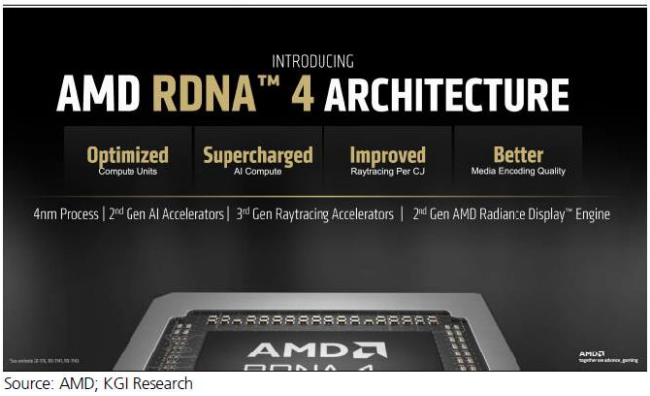


Source: AMD; KGI Research

Figure 7: AMD launched gaming GPUs & AI PC CPUs at CES

Source: AMD; KGI Research

Figure 8: AMD introduced their RX 9000 series GPUs (RDNA 4 GPU) at CES, targeting the mid-range market



Source: AMD; KGI Research

Figure 9: New AMD RX 9070 XT & RX 9070 graphics cards will be available in 1Q25F

Source: AMD; KGI Research

Figure 10: AMD GPU specs – New GPU launches in 1Q25F

	RX 7600	RX 7600 XT	RX 7700 XT	RX 7800 XT	RX 7900 XT	RX 7900 XTX	RX 9070	RX 9070 XT
GPU Engine Specs	Navi 33	Navi 33	Navi 32	Navi 32	Navi 31	Navi 31	Navi 48	Navi 48
Process	6 nm	6 nm	5nm	5nm	5nm	5nm	4nm	4nm
GPU Architecture	RDNA 3	RDNA 3	RDNA 3	RDNA 3	RDNA 3	RDNA 3	RDNA 4	RDNA 4
GPU Cores	2048	2048	3456	3840	5376	6144		
Boost Clock (MHz)	2655	2755	2544	2430	2394	2499		
Base Clock (MHz)	1720	1720	1700	1295	1500	1855		
Memory Specs								
Memory Speed	18Gbps	18Gbps	18Gbps	19.5Gbps	20Gbps	20Gbps	18Gbps	20Gbps
Standard Memory Config	8G GDDR6	16G GDDR6	12G GDDR6	16G GDDR6	20G GDDR6	24G GDDR6	16G GDDR6	16G GDDR6
Memory Interface Width	128-bit	128-bit	192-bit	256-bit	320-bit	384-bit	256-bit	256-bit
Memory Bandwidth (GB/sec)	288	288	432	624	800	960	576?	640?
Thermal and Power Specs								
Graphics Card Power (W)	165	190	245	263	300	355		
Supplementary Power Connectors	8 pin	8 pin+ 8 pin	8 pin+ 8 pin	8 pin+ 8 pin	8 pin+ 8 pin	8 pin+ 8 pin	16 pin?	16 pin?
Launch date	May 24, 2023	Jan 8,2024	Aug 25, 2023	Aug 25, 2023	Nov 3, 2022	Nov 3, 2022	Jan 6, 2025	Jan 6, 2025
Availability	May 25, 2023	Jan 24,2024	Sep 6, 2023	Sep 6, 2023	Dec 13, 2022	Dec 13, 2022	1Q25	1Q25
Launch price (US$)	269	329	449	499	899	999		

Source: Company data; KGI Research

Figure 11: Intel introduced several new CPUs at CES

Source: Intel; KGI Research

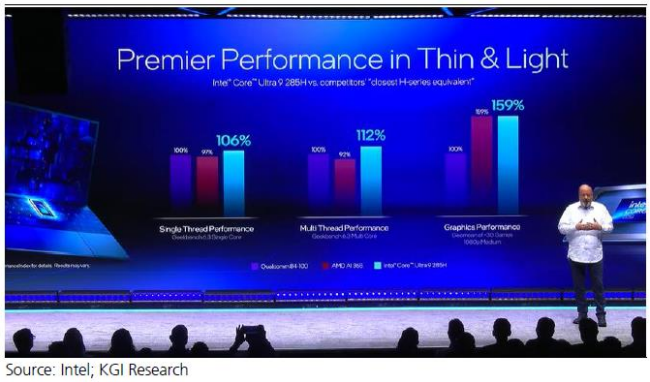
Figure 12: Intel expanded its commercial AI PC CPU portfolio

Source: Intel; KGI Research

Figure 13: Core Ultra 200H CPU offers computing power of 99 TOPS, targeting high performance market

Source: Intel; KGI Research

Figure 14: Intel emphasized its Core Ultra 285H CPU having stronger performance than competitors



Source: Intel; KGI Research

Figure 15: Core Ultra 200HX CPU targets the enthusiast & gaming notebook markets

Source: Intel; KGI Research

Figure 16: Intel announced it will launch next-gen Panther Lake mobile CPUs in 2H25F

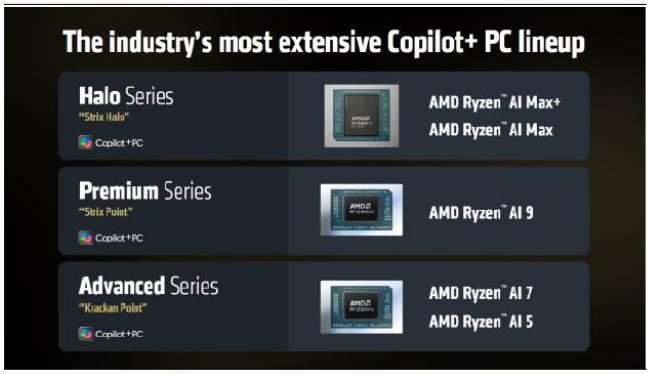
Source: Intel; KGI Research

Figure 17: Intel launched several mobile & desktop CPU at CES

CPU	Intel Core Ultra 200U	Intel Core Ultra 200V	Intel Core Ultra 200H	Intel Core Ultra 200HX	Intel Core Ultra 200S
Platform	Arrow Lake	Lunar Lake	Arrow Lake	Arrow Lake	Bartlett Lake
Target market	Thin & light NB	Thin & light NB	High performance NB	Gaming NB	Desktop
TOPS	24 TOPS	120 TOPS	99 TOPS		36 TOPS
NPU		48 TOPS	13 TOPS	13 TOPS	13 TOPS
CPU		5 TOPS	9 TOPS		8 TOPS
GPU		67 TOPS	77 TOPS		15 TOPS

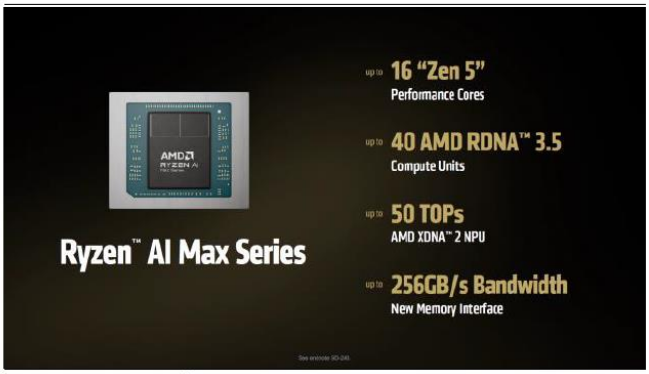
Source: Company data; KGI Research

Figure 18: AMD showcased two CPUs at CES, including the Ryzen AI 7/5 (Krakan Point) and Ryzen AI Max CPU (Strix Halo)



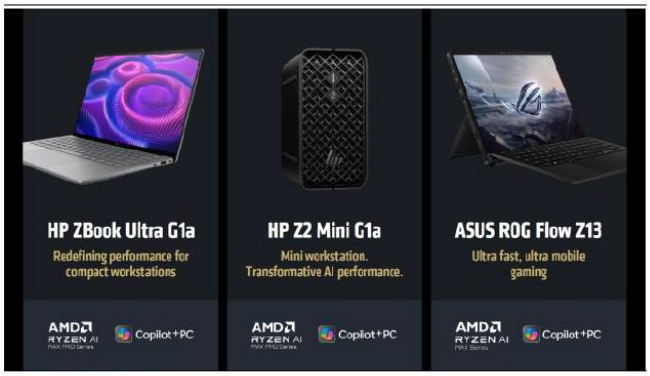
Source: AMD; KGI Research

Figure 19: Ryzen AI Max series CPUs have NPUs with 50 TOPs



Source: AMD; KGI Research

Figure 20: PC OEMs will launch new PC models with Ryzen AI Max CPUs



Source: AMD; KGI Research

Figure 21: Dell launches its first commercial Dell Pro PCs equipped with AMD's solutions

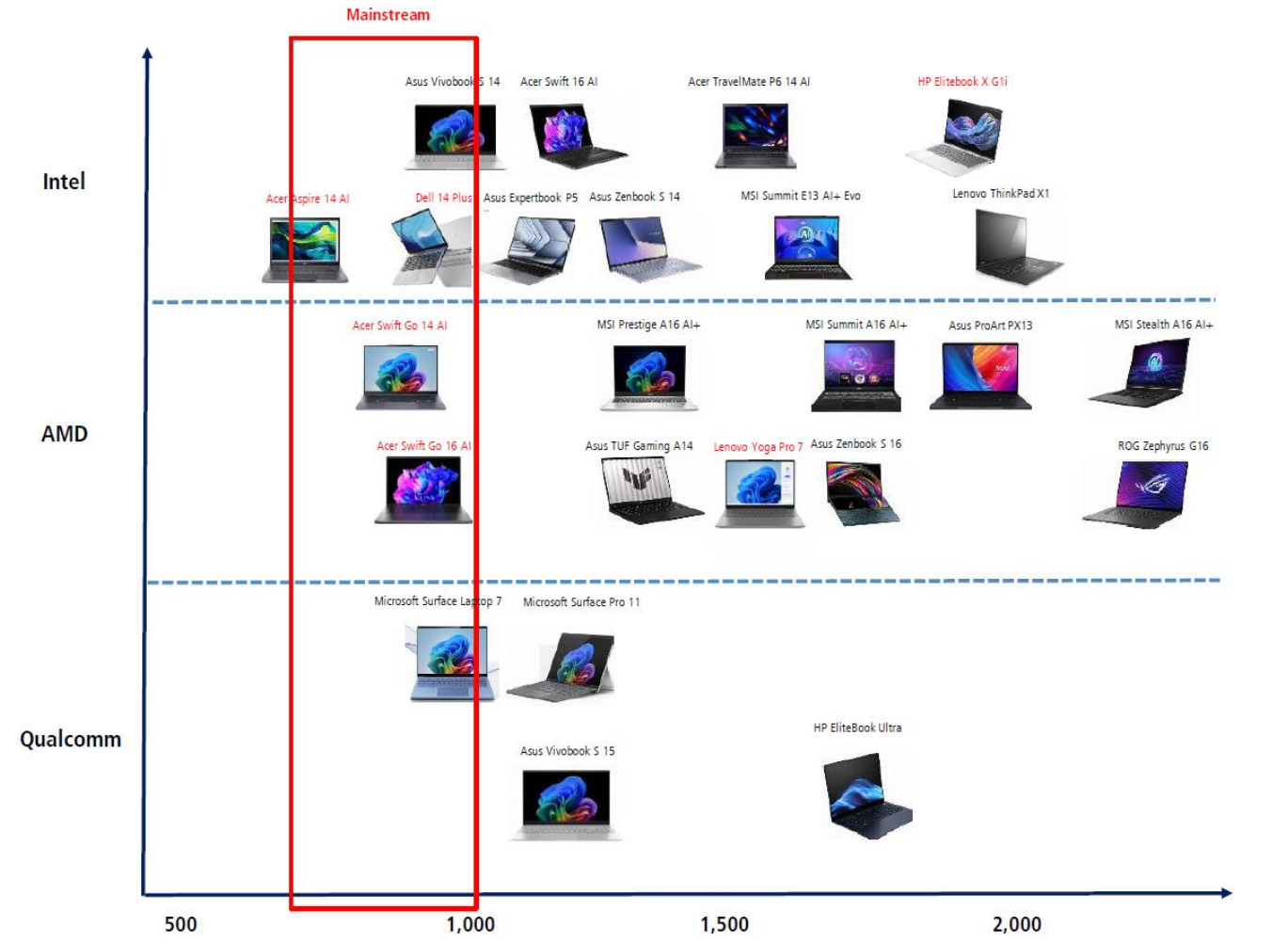
Source: AMD; KGI Research

Figure 22: AMD launched several mobile & desktop CPUs

CPU	AMD Ryzen AI 300 Ryzen AI 7/5	AMD Ryzen AI 300 Ryzen AI 7/5 Pro	AMD Ryzen AI MAX	AMD Ryzen AI MAX Pro	AMD Ryzen 200	AMD Ryzen 200 Pro	AMD Ryzen 9000HX	AMD Ryzen 9000X3D
Platform	Krackan Point	Krackan Point	Strix Halo	Strix Halo	Hawk Point Refresh	Hawk Point Refresh	Fire Range	Granite Ridge
Microarchitecture	Zen 5	Zen 5	Zen 5	Zen 5	Zen 4	Zen 4	Zen 5	Zen 5
Target market	Advanced series NB	Advanced series NB	Halo series NB	Halo series NB	Mainstream consumer NB	Mainstream commercial NB	Gaming NB	Gaming desktop
TOPS	50 TOPS	50 TOPS	50 TOPS	55 TOPS	16 TOPS	16 TOPS		
Available time	1Q25	2Q25	1Q-2Q25	1Q-2Q25	2Q25	2Q25	1H25	1Q25

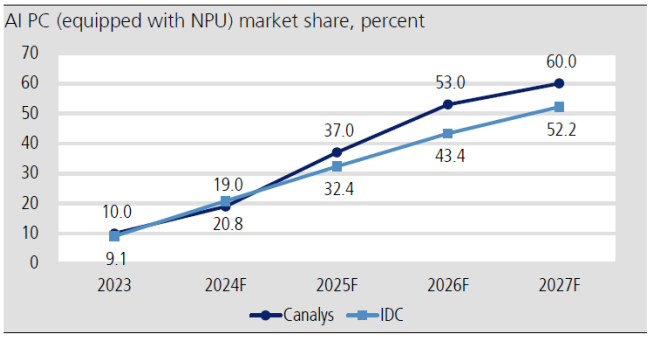
Source: Company data; KGI Research

Figure 23: More mainstream AI PC models in 2025F, with prices below US$1,000



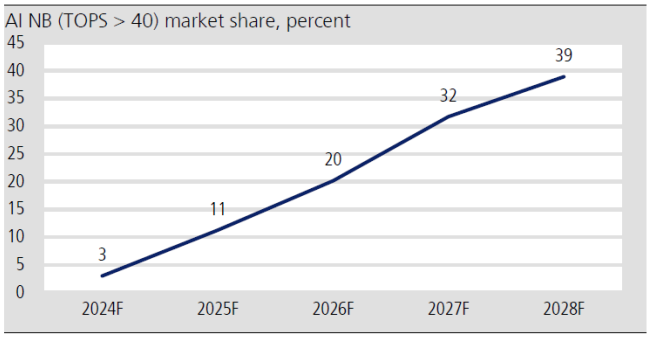
Note: Model names in red mean new PC models launched at CES 2025
Source: Company data; KGI Research

Figure 24: Canalys & IDC forecast AI PC (equipped with NPU) market share of over 50% by 2027F



Source: Canalys; IDC; KGI Research

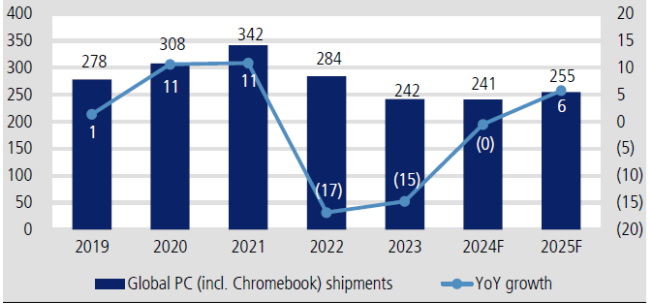
Figure 25: AI notebook (TOPS > 40) market share to reach double digits in 2025F



Source: IDC; Bloomberg; KGI Research

Figure 26: Global PC shipments were flat YoY in 2024, but will grow by 6% YoY in 2025F

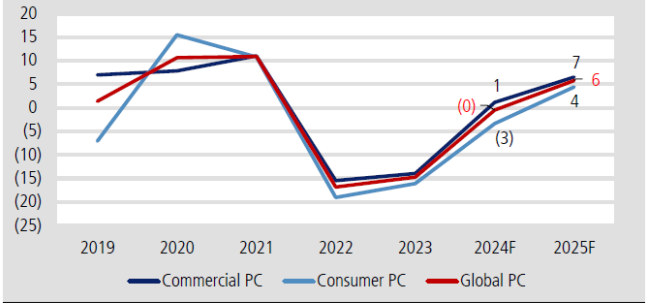
Global PC (incl. Chromebook) shipments, mn units (LHS); YoY growth, percent (RHS)



Source: Gartner; KGI Research estimates

Figure 27: Commercial PCs to drive shipments growth in 2025F

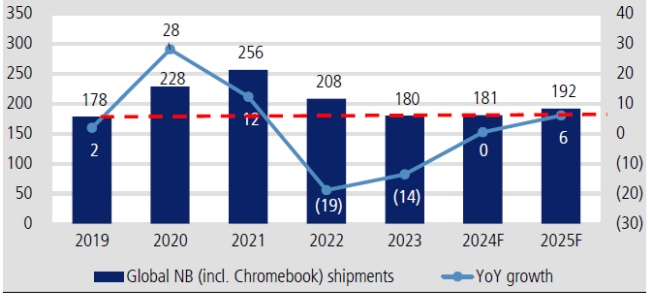
Global PC shipments YoY growth by type, percent



Source: Gartner; KGI Research estimates

Figure 28: After a flat 2024, global NB shipments will grow by 6% YoY in 2025F, exceeding the pre-COVID-19 level

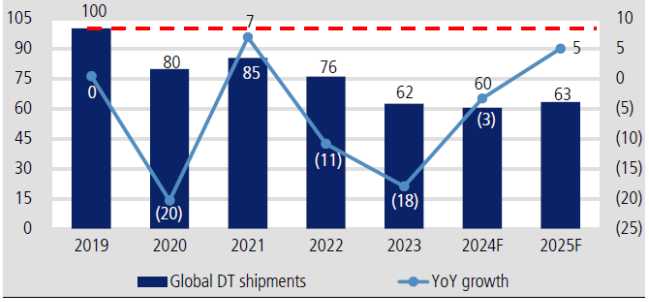
Global NB (incl. Chromebook) shipments, mn units (LHS); YoY growth, percent (RHS)



Source: Gartner; KGI Research estimates

Figure 29: Global desktop shipments to recover in 2025F

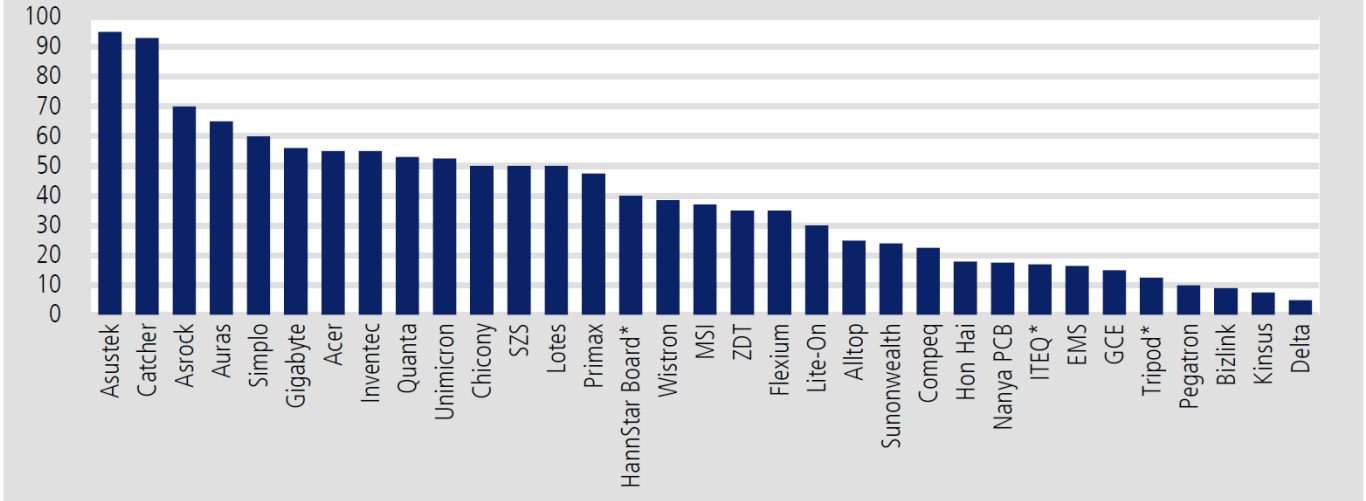
Global desktop shipments, mn units (LHS); YoY growth, percent (RHS)



Source: Gartner; KGI Research estimates

Figure 30: Keyboard, hinge, power adapter & PCB plays to benefit from a PC demand growth in 2025F

Sales weightings of PC & NB, percent

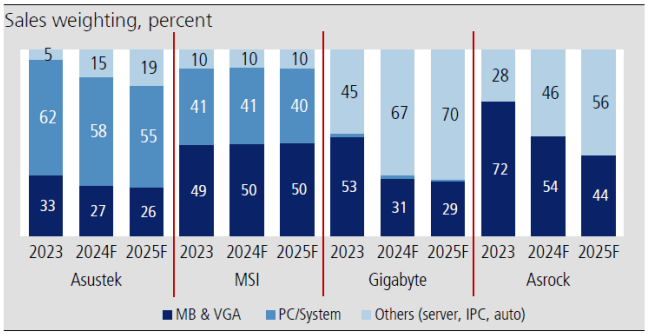


* Companies outside of KGI Research coverage universe

Source: TEJ; Bloomberg; KGI Research

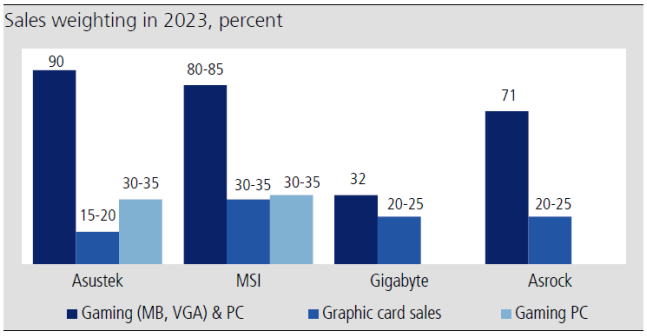
Peers comparison – Motherboard & graphics cards firms

Figure 31: Motherboards & graphics cards bulk of gaming OEM sales, but the non-consumer sales weighting will expand in 2024-25F



Note: Asustek numbers are brand P&L numbers.
Source: Company data; KGI Research estimates

Figure 32: Asustek & MSI have higher gaming sales weightings than industry peers



Note: Asustek numbers are brand P&L numbers.
Source: Company data; KGI Research estimates

Figure 33: Peer comparison – Financials

Ticker	Company	Sales YoY (%)			GM (%)			OPM (%)			OP YoY (%)			EPS (NT$)			EPS YoY (%)		
		2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F	2023	2024F	2025F
2357 TT	Asustek	(10.2)	21.8	14.0	15.0	17.5	16.4	2.3	6.0	5.2	(14.0)	215.8	(0.5)	21.44	47.81	45.02	8.4	122.9	(5.8)
2377 TT	MSI	1.4	7.9	11.9	12.5	13.0	14.0	4.8	4.6	6.0	(17.6)	2.3	48.3	8.92	10.02	14.03	(24.4)	12.4	40.0
2376 TT	Gigabyte	27.5	95.8	18.8	12.1	10.7	10.3	3.6	5.0	5.1	(16.3)	176.1	19.9	7.46	14.85	17.78	(27.5)	99.0	19.7
3515 TT	Asrock	10.9	37.4	34.8	20.2	19.5	17.6	6.0	7.2	7.8	(3.2)	63.5	46.6	7.54	11.38	15.00	(13.2)	51.0	31.7

Source: Company data; Bloomberg; KGI Research estimates

Figure 34: Peer comparison – Valuations

Company	Ticker	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	14,712	648.0	Outperform	810.0	21.44	47.81	45.02	8.4	122.9	(5.8)	30.2	13.6	14.4	2.0	1.9	1.9	7.0	14.5	13.1	2.6	5.5
MSI	2377 TT	4,803	186.0	Outperform	210.0	8.92	10.02	14.03	(24.4)	12.4	40.0	20.9	18.6	13.3	3.1	2.9	2.7	15.3	16.4	21.2	2.9	3.3
Gigabyte	2376 TT	5,805	283.5	Outperform	320.0	7.46	14.85	17.78	(27.5)	99.0	19.7	38.0	19.1	15.9	4.8	3.9	3.8	12.9	22.5	24.3	2.4	4.6
Asrock	3515 TT	965	255.5	Outperform	300.0	7.54	11.38	15.00	(13.2)	51.0	31.7	33.9	22.4	17.0	3.8	3.8	3.7	11.3	16.9	21.9	2.7	4.0

Source: Bloomberg; KGI Research estimates

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