

Motherboard & graphics card

New graphics cards & PC replacement demand to boost earnings for hardware plays

Key message

1. US brands expect PC sales to grow by 0-5% QoQ in 3Q24F, and are positive on PC shipments growth in 2025F.
2. Hype for “Black Myth: Wukong”, and Nvidia (US) and AMD’s (US) new GPU launches will trigger a graphics card replacement cycle in 2025F.
3. We are positive on motherboard and graphics card plays’ sales and earnings growth in 2024-25F.

Event

US PC brands guide PC demand to increase by 0-5% QoQ in 3Q24F, and are positive on PC shipments growth in 2025F. In addition, we expect recent hype surrounding “Black Myth: Wukong” will boost graphics card demand in 2H24F, and new Nvidia (US) RTX 50 series GPU launches to benefit graphics card producers’ earnings in 2025F.

Impact

Limited PC demand growth in 3Q24F, accelerating in 4Q24F-2025F. During a recent earnings call, HPQ (US) guided personal system (PS) sales to grow by low-to-mid-single digits QoQ in 3Q24F, slower than typical peak season, due to sluggish consumer demand. Dell (US) guides Client Solution Group (CSG) sales in FY 3Q25 (August-October; FY ends January) to be flat or up by low single digits YoY, implying flat sales QoQ, lower than market consensus. Dell expects CSG sales to recover in 2H24F, especially in November 2024F through January 2025F (FY 4Q25F), with mid-single-digit QoQ growth, based on FY25F CSG sales guidance of flat/ up by low-single digits YoY. This guidance echoes Taiwanese ODMs’ expectations of 0-5% notebook shipments growth QoQ in 3Q24F, and our expectation of stronger growth in 4Q24F due to new model launches. We forecast global PC shipments to grow by 3% in 2024F, and 5-6% YoY in 2025F driven by the end of support for Windows 10, a commercial PC replacement cycle, and more AI model launches, benefiting PC brands’ sales growth, including Asustek (2357 TT, NT\$537, OP) and MSI (2377 TT, NT\$183.5, OP).

Gaming demand to be another driver. The triple-A game “Black Myth: Wukong” launched on August 20, selling more than 10mn units in the first three days, with sales of over 14.4mn copies so far, according to Gamalytic. Over 80% of players are located in China, which may boost sluggish China demand in 2H24F. Despite the recommended hardware being at least an Nvidia RTX 2060 or AMD (US) RX 5700 XT, an Nvidia RTX 4070 or AMD RX 7800 XT are required for the best gaming experiences. We think the popularity of this game will lift graphics card demand and ASP, as the supply of mid-to-high-end RTX 40 graphic cards is currently insufficient due to GPU supply control by Nvidia ahead of the RTX 50 series launches. During a recent earnings call, Nvidia noted gaming demand is strong and growing, while channel inventory remains at a healthy level. Nvidia may launch new RTX 50 series GPUs in 4Q24F-1Q25F with high-end models first, such as the RTX 5080, and debut mid-end GPUs in 2025F. We expect new GPU and game launches will hasten replacement cycles for motherboards and graphics cards in 2H24-2025F.

Positive on motherboard & graphics card demand. MSI is likely to benefit the most from surging gaming demand, with a graphics card sales weighting of 30-35% (largely Nvidia GPUs), followed by Asrock (3515 TT, NT\$207.5, OP) (20-25%, largely AMD GPUs), Gigabyte (2376 TT, NT\$261, OP) (20-25%) and Asustek (15-20%). New game titles will also boost gaming notebook demand, and Asustek and MSI will be the key beneficiaries from graphics card and gaming PC replacement cycles, given their high gaming sales exposure of 80-90%. New GPU launches and popular game titles will drive more high-end graphics cards and gaming PC sales, leading to higher margins in 2025F. We thus revise up Asustek and MSI’s margins forecasts for 2H24-2025F. We forecast Asustek’s EPS to grow by 93% YoY to NT\$41.48 in 2024F, and stay flat YoY for EPS of NT\$41.58 in 2025F, from a high base due to one-off profits in 2024F. We forecast MSI’s EPS to grow by 40% YoY to NT\$12.46 in 2024F, and 27% YoY to NT\$15.8 in 2025F.

Stocks for Action

Amid gaming PC and graphic card replacement cycles, our top picks are Asustek and MSI. Our target price on Asustek is raised to NT\$665 (16x 2024-25F EPS), and our target price for MSI is upped to NT\$212 (15x 2024-25F EPS), reflecting higher gaming demand and margins forecasts. We maintain a rating of Outperform for both companies.

Risks

Weak demand; GPU shortages for consumers and servers.

Figure 1: Hardware requirements for “Black Myth: Wukong”

				Panoramic ray tracing		
	Minimum configuration	Recommended configuration	Optimal experience configuration	Minimum configuration	Recommended configuration	Optimal experience configuration
Resolution	1080P	1080P	4K	1080P	1080P	4K
CPU	Core i5-8400 Ryzen 5 1600	Core i7-9700 Ryzen 5 5500	Core i7-9700 Ryzen 5 5500	Core i5-9400 Ryzen 5 1600	Core i7-9700 Ryzen 5 5500	Core i7-9700 Ryzen 5 5500
GPU	GeForce GTX 1060 RX 580	GeForce RTX 2060 Radeon RX 5700 XT Arc A750	GeForce RTX 4070 RX 7800 XT	GeForce RTX 3060	GeForce RTX 4060	GeForce RTX 4080 Super
VRAM	6GB	6GB	12GB	8GB	8GB	16GB
RAM	16GB	16GB	32GB	16GB	16GB	32GB
SSD	130GB HDD	130 GB SSD	130 GB SSD	130 GB SSD	130 GB SSD	130 GB SSD
OS	Windows 10/11 64-bit	Windows 10/11 64-bit	Windows 10/11 64-bit	Windows 10/11 64-bit	Windows 10/11 64-bit	Windows 10/11 64-bit

Source: Company data; KGI Research

Figure 2: Nvidia’s GPU engine specs – RTX 50 series may debut in 4Q24F-1Q25F

	RTX 4060	RTX 4060 Ti	RTX 4070	RTX 4070 SUPER	RTX 4070 Ti	RTX 4070 Ti SUPER	RTX 4080	RTX 4080 SUPER	RTX 4090	RTX 5060
GPU Engine Specs										
Process	4nm	4nm	4nm	4nm	4nm	4nm	4nm	4nm	4nm	3nm
GPU Architecture	Ada Lovelace	Ada Lovelace	Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Ada Lovelace	Blackwell
GPU Cores	3072	4352	5888	7168	7680	8448	9728	10240	16384	
Boost Clock (MHz)	2460	2535	2475	2475	2610	2610	2505	2550	2520	
Base Clock (MHz)	1830	2310	1920	1980	2310	2340	2205	2295	2230	
Memory Specs										
Memory Speed	17 Gbps	18 Gbps	21 Gbps	21Gbps	21 Gbps	21 Gbps	22.4 Gbps	23Gbps	21 Gbps	
Standard Memory Config	8 GB GDDR6	8 GB GDDR6	12 GB GDDR6X / GRRD6	12GB GDDR6X	12 GB GDDR6X	16GB GDDR6X	16 GB GDDR6X	16GB GDDR6X	24 GB GDDR6X	GDDR7
Memory Interface Width	128-bit	128-bit	192-bit	192-bit	192-bit	256-bit	256-bit	256-bit	384-bit	
Memory Bandwidth (GB/sec)	272	288	504.2	504.2	504.2	672	736	736	1008	
Thermal and Power Specs										
Graphics Card Power (W)	115	160	200	220	285	285	320	320	450	
Supplementary Power Connectors	8 pin	8 pin	8 pin	8 pin	8 pin	8 pin	8 pin	8 pin	16 pin	
Launch date	May 18, 2023	May 18, 2023	Apr 12, 2023	Jan 8,2024	Jan 3, 2023	Jan 8,2024	Sep 20, 2022	Jan 8,2024	Sep 20, 2022	4Q24-1Q25F
Availability	June 29, 2023	May 24, 2023	Apr 13, 2023	Jan 17,2024	Jan 5, 2023	Jan 24,2024	Nov, 2022	Jan 31,2024	Oct 12, 2022	
Launch price (US\$)	299	399	599	599	799	799	1,199	999	1,599	

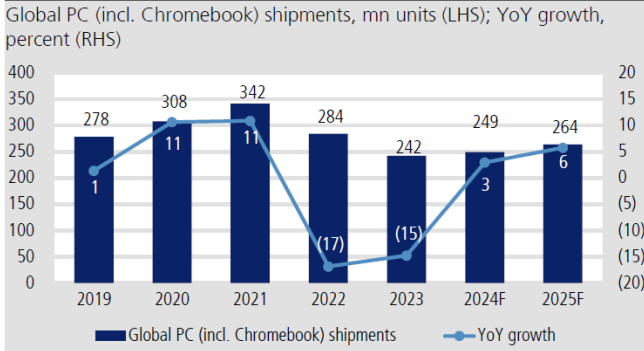
Source: Company data; KGI Research

Figure 3: AMD’s GPU engine specs – New GPU launches in 1Q25F

	RX 7600	RX 7600 XT	RX 7700 XT	RX 7800 XT	RX 7900 XT	RX 7900 XTX	RX 8000 series
GPU Engine Specs							
Process	6 nm	6 nm	5nm	5nm	5nm	5nm	4nm
GPU Architecture	RDNA 3	RDNA 3	RDNA 3	RDNA 3	RDNA 3	RDNA 3	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	
Standard Memory Config	8G GDDR6	16G GDDR6	12G GDDR6	16G GDDR6	20G GDDR6	24G GDDR6	GDDR6?
Memory Interface Width	128-bit	128-bit	192-bit	256-bit	320-bit	384-bit	
Memory Bandwidth (GB/sec)	288	288	432	624	800	960	
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	
Launch date	May 24, 2023	Jan 8,2024	Aug 25, 2023	Aug 25, 2023	Nov 3, 2022	Nov 3, 2022	2025F
Availability	May 25, 2023	Jan 24,2024	Sep 6, 2023	Sep 6, 2023	Dec 13, 2022	Dec 13, 2022	
Launch price (US\$)	269	329	449	499	899	999	

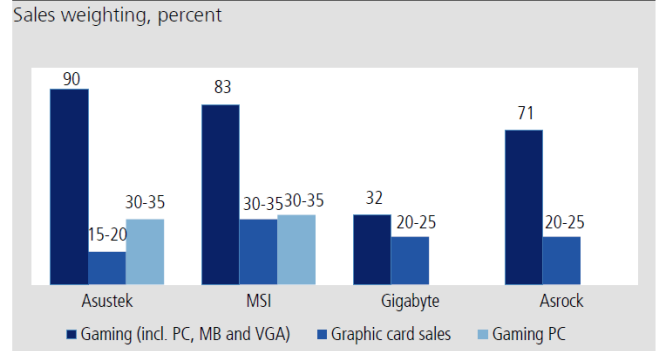
Source: Company data; KGI Research

Figure 4: Global PC shipments to grow 3% YoY in 2024F and 6% YoY in 2025F



Source: Gartner; KGI Research estimates

Figure 5: 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 6: Peer comparison – Financials; Asustek & Gigabyte to enjoy higher earnings growth in 2024-25F

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)	21.5	12.7	15.0	16.9	16.2	2.3	5.4	5.0	(14.0)	182.3	5.4	21.44	41.48	41.58	8.4	93.4	0.2
2377 TT	MSI	1.4	9.5	13.9	12.5	13.7	14.1	4.8	5.5	6.5	(17.6)	26.2	33.3	8.92	12.46	15.80	(24.4)	39.8	26.8
2376 TT	Gigabyte	27.5	109.0	16.7	12.1	10.8	10.3	3.6	5.2	5.1	(16.3)	203.3	13.9	7.46	18.03	20.43	(27.5)	141.6	13.3
3515 TT	Asrock	10.9	16.0	26.0	20.2	20.9	20.6	6.0	7.5	8.0	(3.2)	43.9	33.9	7.54	10.90	13.62	(13.2)	44.6	24.9

Source: Company data; Bloomberg; KGI Research estimates

Figure 7: Peer comparison – Valuations; MSI has the lowest 2025F PE ratio among the firm's peers

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	11,940	537.0	Outperform	665.0	21.44	41.48	41.58	8.4	93.4	0.2	25.0	12.9	12.9	1.7	1.6	1.5	7.0	12.6	12.2	3.2	5.8
MSI	2377 TT	4,514	183.5	Outperform	212.0	8.92	12.46	15.80	(24.4)	39.8	26.8	20.6	14.7	11.6	3.1	2.9	2.6	15.3	20.2	23.5	2.9	4.1
Gigabyte	2376 TT	5,218	261.0	Outperform	345.0	7.46	18.03	20.43	(27.5)	141.6	13.3	35.0	14.5	12.8	4.4	3.6	3.5	12.9	27.3	27.8	2.6	6.0
Asrock	3515 TT	849	207.5	Outperform	270.0	7.54	10.90	13.62	(13.2)	44.6	24.9	30.0	20.8	16.6	3.4	3.3	3.3	11.3	16.2	19.9	3.3	4.3

Source: Bloomberg; KGI Research estimates

Figure 8: Asustek - Breakdown of 3Q24 & 4Q24 forecast revisions vs. consensus

NT\$mn	3Q24F								4Q24F							
	Revision	Previous	Chg. (%)	QoQ (%)	YoY (%)	Consensus	Diff. (%)	Revision	Previous	Chg. (%)	QoQ (%)	YoY (%)	Consensus	Diff. (%)		
Sales	163,744	163,744	0.0	13.0	21.2	163,415	0.2	155,557	155,557	0.0	(5.0)	29.5	157,593	(1.3)		
Gross profits	26,690	26,690	0.0	(4.8)	8.0	27,259	(2.1)	24,578	24,578	0.0	(7.9)	18.2	25,956	(5.3)		
Operating income	8,023	8,023	0.0	(30.2)	(11.3)	8,873	(9.6)	7,156	7,156	0.0	(10.8)	103.0	6,694	6.9		
Pretax Income	10,719	10,719	0.0	(31.5)	(24.2)	11,906	(10.0)	8,904	8,904	0.0	(16.9)	42.3	8,528	4.4		
Net income	7,855	7,855	0.0	(33.5)	(29.2)	8,839	(11.1)	5,707	5,707	0.0	(27.4)	45.3	6,511	(12.3)		
EPS (NT\$)	10.58	10.58	0.0	(33.5)	(29.2)	11.90	(11.1)	7.68	7.68	0.0	(27.4)	45.3	8.77	(12.3)		
Gross margin (%)	16.3	16.3	0.0 ppts	(3.0)ppts	(2.0)ppts	16.7	(0.4)ppts	15.8	15.8	0.0 ppts	(0.5)ppts	(1.5)ppts	16.5	(0.7)ppts		
OP margin (%)	4.9	4.9	0.0 ppts	(3.0)ppts	(1.8)ppts	5.4	(0.5)ppts	4.6	4.6	0.0 ppts	(0.3)ppts	1.7 ppts	4.2	0.4 ppts		
Net margin (%)	4.8	4.8	0.0 ppts	(3.3)ppts	(3.4)ppts	5.4	(0.6)ppts	3.7	3.7	0.0 ppts	(1.1)ppts	0.4 ppts	4.1	(0.5)ppts		

Source: Bloomberg; KGI Research estimates

Figure 9: Asustek - Breakdown of 2024-25 forecast revisions vs. consensus

NT\$mn	2024F						2025F					
	Revision	Previous	Chg. (%)	YoY (%)	Consensus	Diff. (%)	Revision	Previous	Chg. (%)	YoY (%)	Consensus	Diff. (%)
Sales	585,905	585,905	0.0	21.5	585,241	0.1	660,036	654,025	0.9	12.7	657,239	0.4
Gross profit	98,819	98,819	0.0	36.5	100,626	(1.8)	106,955	104,545	2.3	8.2	108,425	(1.4)
Operating income	31,521	31,521	0.0	182.3	32,127	(1.9)	33,225	30,849	7.7	5.4	34,414	(3.5)
Pretax Income	42,545	42,545	0.0	92.6	42,809	(0.6)	42,628	39,586	7.7	0.2	44,452	(4.1)
Net income	30,810	30,810	0.0	93.4	31,940	(3.5)	30,876	28,473	8.4	0.2	32,692	(5.6)
EPS (NT\$)	41.48	41.48	0.0	93.4	43.01	(3.5)	41.58	38.34	8.4	0.2	44.02	(5.6)
Gross margin (%)	16.9	16.9	0.0 ppts	1.9 ppts	17.2	(0.3)ppts	16.2	16.0	0.2 ppts	(0.7)ppts	16.5	(0.3)ppts
OP margin (%)	5.4	5.4	0.0 ppts	3.1 ppts	5.5	(0.1)ppts	5.0	4.7	0.3 ppts	(0.3)ppts	5.2	(0.2)ppts
Net margin (%)	5.3	5.3	0.0 ppts	2.0 ppts	5.5	(0.2)ppts	4.7	4.4	0.3 ppts	(0.6)ppts	5.0	(0.3)ppts

Source: Bloomberg; KGI Research estimates

Figure 10: MSI - Breakdown of 3Q24 & 4Q24 forecast revisions vs. consensus

NT\$mn	3Q24F						4Q24F							
	Revision	Previous	Chg. (%)	QoQ (%)	YoY (%)	Consensus	Diff. (%)	Revision	Previous	Chg. (%)	QoQ (%)	YoY (%)	Consensus	Diff. (%)
Sales	52,273	52,273	0.0	12.0	6.9	51,384	1.7	53,841	53,841	0.0	3.0	9.5	53,393	0.8
Gross profits	7,423	7,423	0.0	18.8	28.3	7,214	2.9	7,699	7,376	4.4	3.7	45.5	7,523	2.3
Operating income	3,293	3,293	0.0	49.3	48.3	3,174	3.8	3,392	3,338	1.6	3.0	147.4	3,412	(0.6)
Pretax Income	3,535	3,535	0.0	30.1	23.3	3,398	4.0	3,615	3,541	2.1	2.3	351.4	3,621	(0.2)
Net income	2,899	2,899	0.0	37.6	23.4	2,772	4.6	3,045	2,984	2.0	5.0	311.7	2,990	1.8
EPS (NT\$)	3.43	3.42	0.0	37.6	23.4	3.28	4.6	3.60	3.53	2.0	5.0	311.0	3.53	1.8
Gross margin (%)	14.2	14.2	0.0 ppts	0.8 ppts	2.4 ppts	14.0	0.2 ppts	14.3	13.7	0.6 ppts	0.1 ppts	3.5 ppts	14.1	0.2 ppts
OP margin (%)	6.3	6.3	0.0 ppts	1.6 ppts	1.8 ppts	6.2	0.1 ppts	6.3	6.2	0.1 ppts	0.0 ppts	3.5 ppts	6.4	(0.1)ppts
Net margin (%)	5.5	5.5	0.0 ppts	1.0 ppts	0.7 ppts	5.4	0.2 ppts	5.7	5.5	0.1 ppts	0.1 ppts	4.2 ppts	5.6	0.1 ppts

Source: Bloomberg; KGI Research estimates

Figure 11: MSI - Breakdown of 2024-25 forecast revisions vs. consensus

NT\$mn	2024F						2025F					
	Revision	Previous	Chg. (%)	YoY (%)	Consensus	Diff. (%)	Revision	Previous	Chg. (%)	YoY (%)	Consensus	Diff. (%)
Sales	200,412	200,412	0.0	9.5	200,683	(0.1)	228,321	227,279	0.5	13.9	220,694	3.5
Gross profits	27,410	27,087	1.2	20.0	27,243	0.6	32,166	31,394	2.5	17.4	30,926	4.0
Operating income	11,120	11,066	0.5	26.2	11,218	(0.9)	14,818	14,417	2.8	33.3	14,420	2.8
Pretax Income	12,857	12,783	0.6	40.1	12,568	2.3	16,297	15,894	2.5	26.8	15,329	6.3
Net income	10,543	10,482	0.6	40.0	10,350	1.9	13,364	13,033	2.5	26.8	12,493	7.0
EPS (NT\$)	12.46	12.39	0.6	39.8	12.24	1.9	15.80	15.41	2.5	26.8	14.77	7.0
Gross margin (%)	13.7	13.5	0.2 ppts	1.2 ppts	13.6	0.1 ppts	14.1	13.8	0.3 ppts	0.4 ppts	14.0	0.1 ppts
OP margin (%)	5.5	5.5	0.0 ppts	0.7 ppts	5.6	(0.0)ppts	6.5	6.3	0.1 ppts	0.9 ppts	6.5	(0.0)ppts
Net margin (%)	5.3	5.2	0.0 ppts	1.1 ppts	5.2	0.1 ppts	5.9	5.7	0.1 ppts	0.6 ppts	5.7	0.2 ppts

Source: Bloomberg; KGI Research estimates

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