

China Technology

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Implications of NVIDIA FY2Q24: AI demand strength poised to continue into 2024

NVIDIA reported another strong set of results and upbeat guidance, solidly above high-bar of market expectations. In particular, strong guidance/outlook of datacenter segment implies continued AI demand into 2H23/2024E. Other key highlights include: 1) FY3Q24E guidance beat on stronger topline/margin and AI demand visibility to extend into 2024, 2) mgmt. guided accelerated QoQ capacity expansion with additional CoWoS suppliers. 3) China accounted for 20-25% datacenter revenue, implying limited impact from US export restriction; 4) new GPU chips, L40S/GH200, both will start shipment in this quarter. We believe the beat will fuel AI tech rally to continue into rest of year, benefiting supply chain names and NVIDIA partners.

- **FY2Q24 strong beat on robust datacenter computing demand.** NVIDIA reported FY2Q24 revenue of US\$13.5bn (+88% QoQ/+101% YoY), 23%/22% above guidance/consensus of US\$11.0bn/11.04bn. Adj. non-GAAP GPM reached 71.2% (+4.4ppts QoQ/+25.3ppts YoY), above consensus of 70.1%. By segment, datacenter/gaming/professional visual/automotive revenue delivered +171%/+22%/-24%/+15% YoY, well above consensus except automotive segment. **1) Datacenter:** strong sales was driven by strong demand from major cloud/ internet players for generative AI and LLM computing capacity. Major clients are deploying in-volume HGX systems based on Hopper and Ampere architecture Tensor Core GPUs. **2) Gaming:** revenue returned to positive growth backed by improving channel inventory, product upgrade demand and pull from upcoming traditional peak season. **3) Auto:** Weaker-than-expected automotive segment sales was due to decelerated growth of China's NEV shipment.
- **Upbeat FY3Q24 outlook; CoWoS capacity to expand QoQ into 2024.** Mgmt. guided FY3Q24 sales of US\$16.0bn (+/-2%), +317% YoY/+55% QoQ, which is 28% above consensus of US\$ 12.5bn. Adj. GPM range of 72-73% also beat consensus of 70.5%. To cater for strong demand for datacentre products, NVIDIA has developed and qualified additional capacity and suppliers for key processes such as CoWoS. Mgmt. expected chip supply to ramp up sequentially throughout next year. Mgmt. also indicated limited impact from current US export restriction to China, as China now accounted for 20-25% of total datacenter revenue, including compute and networking solutions.
- **Other highlights:** 1) NVDA commented AI demand visibility will extend into 2024; 2) new GPU chips, L40S and GH200, both will start to ship in this quarter; 3) Company approved an additional US\$ 25bn in stock buybacks.

Valuation Table

Name	Ticker	Mkt Cap	Price	P/E (x)		P/B (x)	ROE
		(US\$ mn)	(LC)	FY23E	FY24E	FY23E	FY23E
NVIDIA	NVDA US	1,163,765	471	144.4	50.7	54.2	29.7
AMD	AMD US	176,803	109	39.7	26.4	3.2	6.6
Intel	INTC US	142,308	34	62.5	20.0	1.4	1.7
TSMC	2330 TT	457,269	560	18.7	15.3	4.2	24.2
SK Hynix	000660 KS	66,633	120,900	-	17.9	1.6	-12.6

Source: Company data, Bloomberg, CMBIGM estimates

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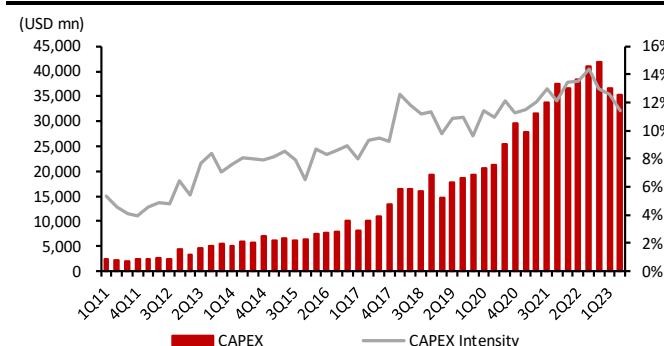
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Figure 1: NVIDIA FY2Q24 earnings summary

NVIDIA (NVDA US) non-GAAP	Actual					Consensus	
US\$ mn	FY1Q24	FY2Q24	FY2Q23	QoQ	YoY	FY2Q24E	Diff (%)
Revenue	7,192	13,507	6,704	88%	101%	11,042	22%
EPS (cent US\$)	1.09	2.7	0.51	148%	429%	2.07	30%
GPM	66.8%	71.2%	45.9%	4.4 ppt	25.3 ppt	70.1%	1.1 ppt
End Market Revenue							
Datacenter	4,284	10,320	3,806	141%	171%	7,981	29%
Gaming	2,240	2,490	2,042	11%	22%	2,380	5%
Professional Visualization	295	379	496	28%	-24%	319	19%
OEM & IP	77	65	140	-16%	-54%	92	-29%
Automotive	296	253	220	-15%	15%	309	-18%
End Market Revenue Mix							
Datacenter	60%	76%	57%			72%	
Gaming	31%	18%	30%			22%	
Professional Visualization	4%	3%	7%			3%	
OEM & IP	1%	0%	2%			1%	
Automotive	4%	2%	3%			3%	

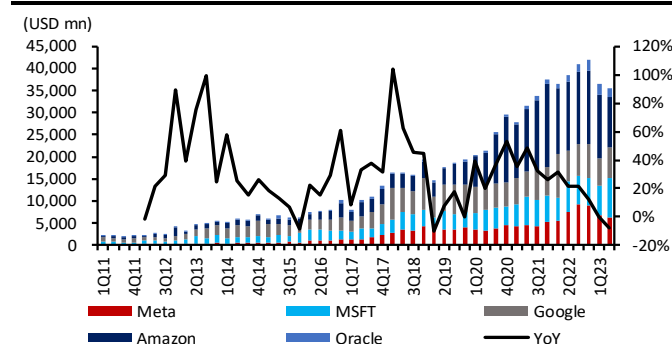
Source: Company data, Bloomberg, CMBIGM

Figure 2: Global key cloud players CAPEX and intensity ratio



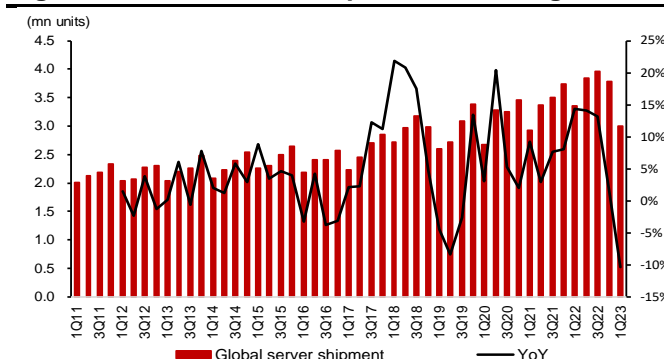
Source: Company data, Bloomberg, CMBIGM

Figure 3: Global key cloud players CAPEX and YoY trend



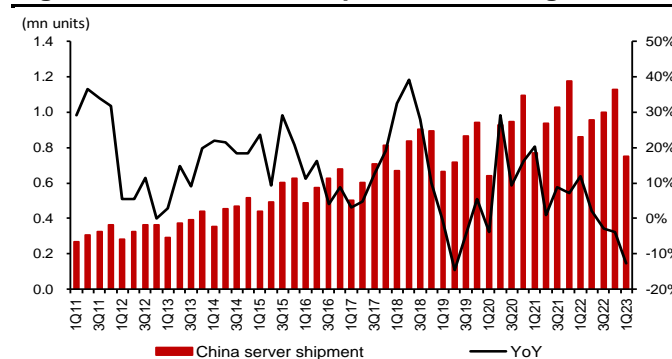
Source: Company data, Bloomberg, CMBIGM

Figure 4: Global server shipment and YoY growth



Source: IDC, Bloomberg, CMBIGM

Figure 5: China server shipment and YoY growth



Source: IDC, Bloomberg, CMBIGM

Figure 6: Global fabless/IDM semi: 2Q23 results and 3Q23 guidance

Company	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23E Guidance	FY23E Guidance	Comment/Outlook
Revenue QoQ Growth									
NVIDIA	8%	-19%	-12%	2%	19%	88%	up 19%		* Data center: +171% YoY, driven by CSP and large consumer internet companies. * Gaming: +22% YoY, fueled by GeForce RTX 40 series GPUs for laptops and desktops. * Professional visualization: -24% YoY * Automotive: +15% YoY, driven by self-driving platforms based on renewable drive, Orin, SoC, and NEV; lower automotive demand, particularly in China.
AMD	22%	11%	-15%	1%	-4%	0%	up 6.5%		* 2Q23 QoQ: DC +2%, Client +35%, Gaming -10%; Embedded -7% * 3Q23 QoQ: Client/Data Center to grow double-digit %; Gaming/embedded to decline * 2023: Data Center up high-single digit yoy
Intel	-11%	-17%	0%	-8%	-17%	11%	up 3.5%		* 3Q23: Client CPU shipments to closely match sell-through. * 3Q23: Data center/ network/ edge continue to face mixed macro signals and elevated inventory in network/edge * 3Q23: IFS and Mobileye strong QoQ/YoY growth. * 3Q23: Server CPUs to decline QoQ before recovering in Q4
Broadcom	5%	4%	6%	0%	-2%	1%	-		* 2Q23 is guidance.
Qualcomm	4%	-2%	4%	-17%	-2%	-9%	up 0.4%		* 3Q23 QoQ: Android handset flat; IoT mid-single-digit decline; Auto low double-digit growth.
Texas Instruments	2%	6%	1%	-11%	-6%	3%	up 0.4%		* 3Q23: do not expect significant change in end-markets performance, which means weakness across the board with the exception of automotive.
Infineon	4%	10%	15%	-5%	4%	-1%	Flat	+12-16% YoY	* 2Q23: strong automotive/industrial, but expect to normalize, computing/CE/comm performed well in challenging environment. * 3Q23: By division, do not expect major differences in QoQ growth.
STMicro	0%	8%	13%	2%	-4%	2%	up 1.2%	+5-10% YoY	* 3Q23: impacted by product mix chg in Personal Electronics. * 3Q23 QoQ: ADG single-digit growth, AMS flattish, MDG slightly decrease.
MediaTek	11%	9%	-9%	-24%	-12%	3%	up 7.5%		* 3Q23: revenue to improve in smartphones, connectivity, and PMIC, offsetting decline in TV/consumer
ON Semi	5%	7%	5%	-4%	-7%	7%	up 2.5%		* 3Q23: Auto/industrial to increase QoQ; Other markets down mid to high single-digits (plan further exits in non-core market)
Gross Margin									
NVIDIA	66%	43%	54%	63%	65%	71%	73%	-	-
AMD	48%	46%	42%	43%	44%	50%	51%		* 2Q23 yoy: weaker Client, partially offset by strong Embedded * 3Q23: Positive impact from strong Data center/Client biz
Intel	50%	36%	43%	39%	34%	40%	43%		* 3Q23: margin up QoQ on higher sales and lower pre-PRQ inventory * 4Q23: up QoQ on lower pre-PRQ reserves
Broadcom	67%	67%	66%	67%	70%	-	-		* 2Q23 guidance: down 60 bps QoQ due to product mix.
Qualcomm	58%	56%	57%	57%	55%	55%	-		* 2Q23: QTL: EBT margin 66%; QCT EBT margin 24% * 3Q23: QTL: EBT margin 64-68%; QCT EBT margin 24-26%
Texas Instruments	70%	70%	69%	66%	65%	64%	-		* 3Q23: guidance considered depreciation/related costs from added capacity over time.
Infineon	43%	43%	44%	47%	47%	45%	-	47%	* 2Q23 QoQ: drop due to incremental underutilization charges, additional ramp-up costs and weaker currency. * FY23: GPM guidance stay unchanged.
STMicro	47%	47%	48%	48%	50%	49%	48%	exceed 48%	* 2Q23/3Q23: GPM hit by planned lower production activity amid high inventory and weak CE demand * 2H23: impacted by unused capacity charges for 100+ bps.
MediaTek	50%	49%	49%	48%	48%	48%	47% +/- 1.5ppts		* 3Q23: Steady GPM given stable competitive landscape, healthy inventory level and reduced pricing pressure.
ON Semi	49%	50%	48%	49%	47%	47%	46-48%		* 2Q23: GPM strength driven by silicon carbide business profitability improvement despite headwinds from EFK. * 3Q23: lower factory utilization, EFK headwinds and dilutive impact of silicon carbide business.
Days of Inventory (DOI)									
NVIDIA	100	92	146	209	163	-	-	-	-
AMD	71	68	94	106	127	141	-		* 2Q23: Inventory increased for ramp of adv. products. * 2H23: inventory to decline with shipment of this product * 2H23: PC market with more normalized inventory levels * 2H23: DOI around 110-120 days (vs prior 75-80 days)
Intel	118	113	131	139	152	130	-		* 2Q23: overall inventory has normalized. * 2Q23: NEX inventory correction in 2Q; continue into Q3 * 2H23: Server CPU inventory digestion to persist in 2H
Broadcom	56	59	58	59	65	-	-		-
Qualcomm	88	101	117	154	149	157	-		* 2Q23: Android continue inventory burn; IoT inventory elevated;
Texas Instruments	127	125	133	157	195	207	-		* 2Q23: DOI up 12 days QoQ. * 3Q23: inventory dollars to increase QoQ.
Infineon	121	124	120	140	143	149	-		* 2Q23: satisfactory in Automotive/GIP, but out of normal range level for PSS/CSS. * 2H23: Inventory digestion to continue with capacity idle charge to peak in 4Q23.
STMicro	102	103	95	100	121	124	-		* 2Q23: inventory days out of satisfactory range. * 3Q23: inventory correction in personal electronics to continue. * 2H23: reduce production activity to boost inventory digestion, aim to bring down DOI to 100-110 days by year end.
MediaTek	113	104	104	114	125	107	-		* 2Q23: customers still managing inventory levels due to weak demand; mobile phone inventory levels normalized; smart edge TV inventory pre-build in 1H23. * 3Q23: no more heavy inventory digestion by aggressive pricing.
ON Semi	137	134	125	134	157	161	-		* 2Q23: 54 days of bridge inventory to support fab transition and silicon carbide ramp; base inventory days declined 7 days QoQ. * 2Q23: Distribution inventory DOI up 0.7 week QoQ at 7.7 weeks. * 2Q23: Distribution inventory digestion continues.

Source: Company announcement, Bloomberg, CMBIGM

Fig 7: AI Tech Supply Chain

			Stock Price	Mkt Cap	P/E		P/B		ROE	Performance (%)			
Company		Ticker	(LLC)	(mn USD)	FY23E	FY24E	FY23E	FY24E	FY23E	1M%	2M%	3M%	YTD
AI Chips													
Nvidia	英伟达	NVDA US	471.16	1,163,765	144.4	50.7	54.2	32.0	29.7	5.6	69.6	54.3	222.4
AMD	超威半导体	AMD US	109.43	176,803	39.7	26.4	3.2	3.1	6.6	(1.1)	11.7	1.1	69.0
Marvell	美满电子	MRVL US	61.5	52,890	28.9	40.3	3.4	3.4	8.8	(2.6)	42.0	33.8	66.0
Cambricon	寒武纪	688256 CH	153.06	8,769	-	-	13.6	15.5	(17.7)	(8.4)	(17.7)	(15.9)	180.5
Jingjia Micro	景嘉微	300474 CH	70.58	4,439	78.6	56.4	8.8	7.7	11.3	(10.4)	(42.1)	(11.6)	29.3
Hygon Info Tech	海光信息	688041 CH	51.3	16,397	91.8	64.6	6.5	5.9	7.2	(16.2)	(33.5)	(33.2)	27.9
Loongson	龙芯中科	688047 CH	92.87	5,121	169.8	104.0	9.1	8.3	5.3	(6.1)	(36.7)	(32.3)	8.7
Average					92.2	57.3	14.1	10.8	7.3	(5.6)	(1.0)	(0.6)	86.3
Memory													
SK Hynix	SK 海力士	000660 KS	120900	66,633	-	17.9	1.6	1.4	(12.6)	6.1	36.5	23.7	61.2
Samsung	三星电子	005930 KS	68200	308,187	45.8	14.5	1.3	1.2	2.9	(3.1)	6.6	(0.4)	23.3
Micron	美光	MU US	65.19	71,403	-	-	1.6	1.8	(11.4)	(0.4)	8.0	(2.0)	30.4
GigaDevice	兆易创新	603986 CH	91.7	8,410	45.3	32.8	4.0	3.5	8.5	(17.3)	(24.8)	(15.4)	(10.5)
Montage Tech	澜起科技	688008 CH	50	7,825	54.0	31.0	5.4	4.8	9.5	(14.7)	(28.1)	(13.8)	(20.1)
Giantec Semi	聚辰股份	688123 CH	53.34	1,157	20.9	13.8	3.9	3.3	11.0	(5.3)	(29.8)	(8.3)	(31.5)
Average					40.1	25.9	3.7	3.3	4.4	(9.4)	(18.7)	(9.9)	(7.9)
Foundry													
TSMC	台积电	2330 TT	560	457,269	18.7	15.3	4.2	3.5	24.2	0.4	5.1	6.7	24.9
UMC	联电	2303 TT	44.05	17,343	9.7	9.4	1.6	1.5	16.9	(2.2)	(16.7)	(10.4)	8.2
SMIC	中芯国际	688981 CH	48.64	26,752	58.8	53.3	2.4	2.2	4.1	(0.7)	(2.9)	(2.5)	18.2
Hua Hong Semi	华虹半导体	1347 HK	19.32	5,807	11.2	11.5	0.8	0.7	8.3	(22.1)	(44.4)	(25.0)	(29.1)
Average					24.6	22.4	2.3	2.0	13.4	(6.2)	(14.8)	(7.8)	5.6
OSAT													
TongFu Micro	通富微电	002156 CH	19.12	3,979	57.6	29.6	2.1	1.9	3.7	(20.0)	(13.9)	(7.5)	16.0
JCET Group	长电科技	600584 CH	30.74	7,554	26.9	17.3	2.1	1.9	8.3	(10.4)	(5.3)	4.7	33.4
Average					42.2	23.4	2.1	1.9	6.0	(15.2)	(9.6)	(1.4)	24.7
AI Server													
Foxconn Industrial	工业富联	601138 CH	22.65	61,879	18.6	15.4	3.1	2.7	17.3	(4.3)	31.5	52.8	146.7
Inspur	浪潮信息	000977 CH	42.16	8,535	26.1	20.6	3.2	2.8	12.3	(8.1)	20.1	13.5	95.9
Lenovo	联想集团	992 HK	8.21	12,702	7.6	10.6	2.0	2.0	30.6	(2.4)	(3.4)	13.4	28.1
Average					17.4	15.5	2.8	2.5	20.1	(4.9)	16.1	26.6	90.2
Optical module													
Innolight	中际旭创	300308 CH	123.7	13,657	62.2	37.3	7.3	6.1	12.0	(5.6)	110.0	41.1	357.6
TFC Optical Comm	天孚通信	300394 CH	92.35	5,013	69.1	48.7	12.2	10.3	17.9	(1.8)	78.6	57.6	264.3
Accelink	新易盛	002281 CH	27.74	3,033	30.8	25.5	3.0	2.7	10.2	(14.3)	6.7	9.0	76.5
Average					54.0	37.2	7.5	6.4	13.4	(7.2)	65.1	35.9	232.8
PCB													
WUS Printed	沪电股份	002463 CH	21.46	5,622	25.5	19.6	4.2	3.6	16.9	(11.3)	(0.1)	18.2	80.3
Victory Giant Tech	胜宏科技	300476 CH	20.91	2,481	18.7	15.5	2.3	2.0	12.1	(16.7)	16.9	3.8	61.6
DSBJ	东山精密	002384 CH	18.55	4,362	10.6	8.6	1.7	1.4	16.2	(17.5)	(38.7)	(26.6)	(25.0)
Average					10.6	8.6	1.7	1.4	16.2	(17.5)	(38.7)	(26.6)	(25.0)
Switch													
ZTE	中兴通讯	000063 CH	34.9	21,778	16.6	14.4	2.5	2.2	15.3	(15.3)	7.2	11.3	35.0
Unisplendour	紫光股份	000938 CH	25.59	10,065	27.3	21.8	2.1	2.0	7.9	(9.4)	(12.6)	(6.3)	31.2
RuiJie Networks	锐捷网络	301165 CH	46.11	3,603	34.4	26.0	5.3	4.5	15.8	(10.6)	(8.9)	(1.1)	35.2
Average					26.1	20.7	3.3	2.9	13.0	(11.8)	(4.8)	1.3	33.8

Source: Bloomberg, CMBIGM

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