



# 3Q24 Semiconductor Earnings Preview

## Semiconductor

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- Broad-based demand across most end-markets including consumer, PC, smartphone, industrials, and auto remain soft, setting up for a subseasonal 3Q/4Q.
- Traditional server demand continues to strengthen, while AI demand remains robust.

## Favorable Risk/Reward Into Earnings:

### NVDA

Blackwell remains on track to ramp into mass production in December (we est Blackwell will contribute ~\$7B) without any further delays, while Hopper should continue to grow double-digits % q/q in F4Q.

### AMD

Anticipate continued share gains from Genoa (instances grew over 200% in September m/m), while MI300X, remains on track for 500K GPUs this year.

## What to Watch:

### ADI, MCHP, NXPI, ON, TXN

We expect earnings for the analog group will remain challenged given broad-based weakness across most end-markets and geographies. However, we believe ADI, ON will be slightly better positioned given 4Q cons expectations are more in line with historical, while MCHP, TXN 4Q bogeys are meaningfully above.

### QCOM

Stable flagship demand, the ramp of Snapdragon 8 Gen 4, and share gains at Samsung (100%) on the GS25 should drive upside to results/guidance. However, we see risk to 1H25 expectations given share loss to Mediatek and the ramp of the AAPL internal modem; however, it's unclear if mgt may choose to soft guide F2Q25 (Mar).

# 3Q24 Expectations

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Company	Ticker	Rating	Price (10/11/2024)	Price Target	3Q24 Expectation	Guidance Expectation
Analog Devices	ADI	Overweight	\$232.86	\$285	0	0/-
Ambarella	AMBA	Sector Weight	\$59.64	NA	0	0
Advanced Micro Devices	AMD	Overweight	\$167.89	\$220	+	+
Arm	ARM	Overweight	\$151.46	\$195	0	0
Broadcom	AVGO	Overweight	\$181.48	\$210	0/+	0/+
Cirrus Logic	CRUS	Overweight	\$119.71	\$165	0/+	0/+
indie Semiconductor	INDI	Overweight	\$3.77	\$8	0	0/-
Intel	INTC	Sector Weight	\$23.56	NA	0	0/-
Lattice Semiconductor	LSCC	Overweight	\$52.07	\$60	0	0/-
Microchip Technology	MCHP	Overweight	\$77.98	\$100	0	0/-
Monolithic Power Systems	MPWR	Overweight	\$938.47	\$1,075	0/+	0/+
Marvell Technology Group	MRVL	Overweight	\$74.01	\$95	+	+
Micron Technology	MU	Overweight	\$106.92	\$135	0	0
NVIDIA	NVDA	Overweight	\$134.80	\$180	+	+
NXP Semiconductors	NXPI	Overweight	\$238.10	\$300	0	0/-
onsemi	ON	Overweight	\$70.33	\$90	0	0/-
Qualcomm	QCOM	Sector Weight	\$169.98	NA	0/+	+
Qorvo	QRVO	Sector Weight	\$101.83	NA	0	0
Silicon Laboratories	SLAB	Overweight	\$115.50	\$150	0	0
Skyworks Solutions	SWKS	Sector Weight	\$97.30	NA	0	0
Synaptics	SYNA	Sector Weight	\$73.20	NA	0	0
Texas Instruments	TXN	Overweight	\$205.11	\$250	0	-

# KBCM vs. Consensus

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Company	Current Quarter					Next Quarter				
	Cons Revs (\$m)	KBCM Revs (\$m)	Chg Q/Q	5-Yr Avg	Diff vs. 5-Yr Avg	Cons Revs (\$m)	KBCM Revs (\$m)	Chg Q/Q	5-Yr Avg	Diff vs. 5-Yr Avg
AMBA	79	79	24.0%	6.5%	17.5%	69	69	-12.4%	-1.0%	-11.5%
CRUS	520	520	39.2%	52.7%	-13.6%	579	623	11.3%	18.4%	-7.0%
SWKS	1,021	1,022	12.7%	16.6%	-3.9%	1,099	1,100	7.7%	14.9%	-7.2%
AVGO	14,048	14,008	7.5%	7.1%	0.4%	14,634	14,200	4.2%	7.4%	-3.2%
INDI	54	54	2.3%	16.3%	-14.0%	59	59	10.2%	13.0%	-2.8%
QCOM	9,900	9,908	5.4%	10.9%	-5.5%	10,533	10,723	6.4%	8.8%	-2.4%
ADI	2,404	2,408	3.9%	5.6%	-1.7%	2,359	2,380	-1.9%	-0.1%	-1.8%
SYNA	255	256	3.2%	9.2%	-6.0%	263	263	3.2%	2.9%	0.3%
MU	8,721	8,733	12.5%	-5.4%	17.9%	9,052	8,419	3.8%	3.2%	0.6%
ON	1,751	1,752	0.9%	4.9%	-4.0%	1,783	1,787	1.8%	1.1%	0.7%
NXPI	3,252	3,254	4.0%	9.0%	-5.1%	3,370	3,468	3.7%	2.8%	0.8%
INTC	13,019	13,028	1.5%	0.5%	1.0%	13,695	13,678	5.2%	4.2%	1.0%
AMD	6,708	6,724	15.0%	13.6%	1.4%	7,541	7,813	12.4%	10.6%	1.9%
NVDA	32,895	34,502	9.5%	14.2%	-4.7%	36,491	40,005	10.9%	8.1%	2.8%
TXN	4,119	4,107	7.8%	4.5%	3.3%	4,099	3,994	-0.5%	-4.2%	3.7%
LSCC	127	127	2.4%	3.3%	-0.8%	132	131	3.9%	-0.2%	4.1%
MPWR	600	601	18.3%	15.3%	3.0%	603	588	0.4%	-3.8%	4.2%
MCHP	1,152	1,159	-7.2%	2.1%	-9.2%	1,200	1,223	4.1%	-2.2%	6.3%
MRVL	1,454	1,460	14.2%	4.8%	9.5%	1,646	1,694	13.2%	3.7%	9.5%
QRVO	1,028	1,027	15.9%	26.6%	-10.7%	1,057	1,074	2.8%	-7.8%	10.6%
ARM	808	812	-14.0%	8.5%	-22.5%	941	1,007	16.6%	4.1%	12.5%
SLAB	165	166	13.6%	1.9%	11.8%	187	190	13.1%	-8.2%	21.3%
<b>Avg.</b>			<b>8.8%</b>	<b>10.4%</b>	<b>-1.6%</b>			<b>5.5%</b>	<b>3.4%</b>	<b>2.0%</b>

# Risk/Reward Analysis

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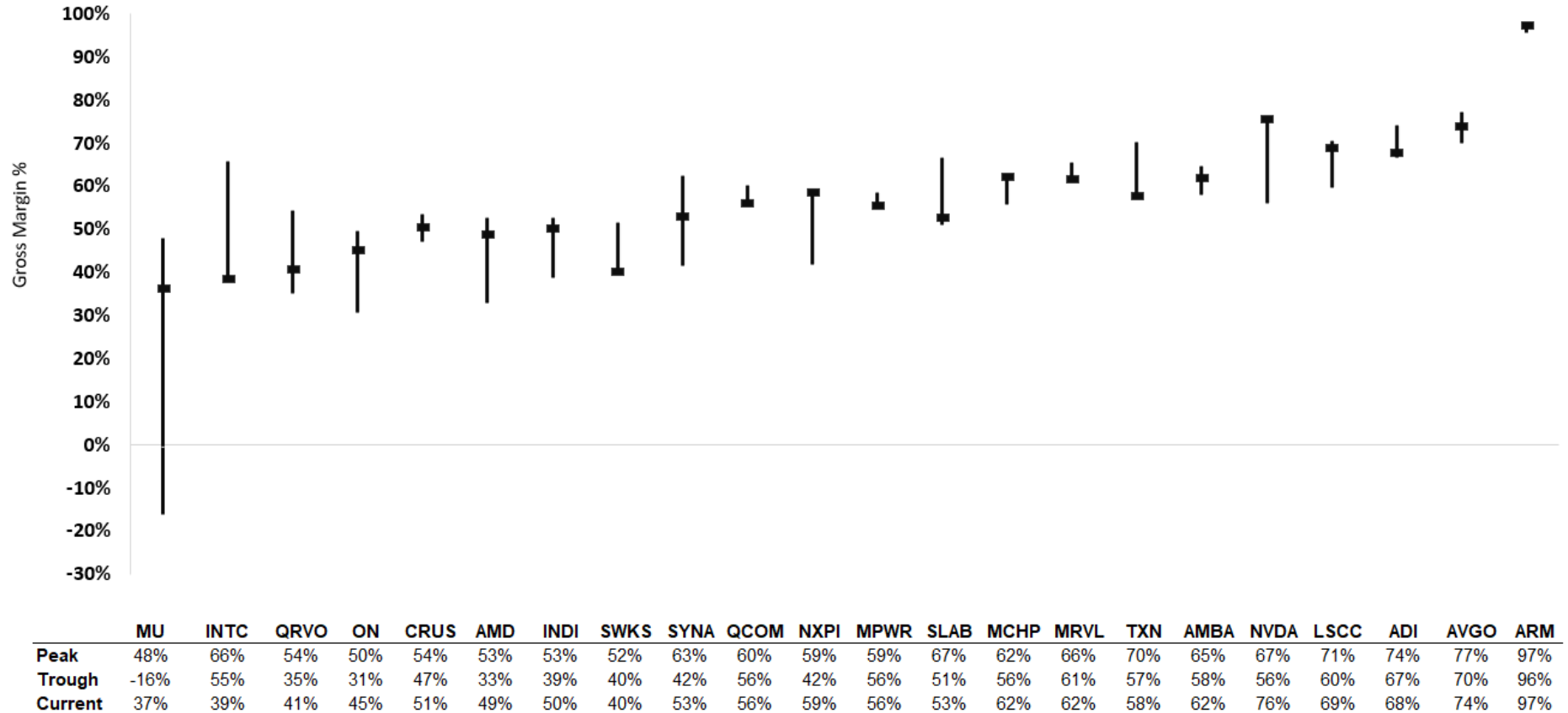
	P/E					
	Current	Peak	Median	Trough	Upside	Downside
AMBA	-321.7x	6192.3x	90.3x	28.0x	-	-109%
INDI	-	-	37.6x	17.2x	-132%	-106%
AVGO	29.4x	30.6x	17.6x	10.5x	4%	-64%
MPWR	53.6x	67.5x	38.1x	21.8x	26%	-59%
MCHP	23.8x	30.6x	13.6x	9.9x	29%	-58%
AMD	30.9x	48.6x	25.9x	13.1x	58%	-58%
MRVL	29.6x	41.9x	24.6x	13.2x	41%	-56%
SWKS	15.1x	18.2x	11.0x	6.9x	21%	-54%
ADI	30.9x	31.0x	19.0x	14.2x	1%	-54%
INTC	21.1x	26.9x	15.8x	9.8x	27%	-54%
ARM	73.1x	98.6x	60.8x	36.7x	35%	-50%
SLAB	46.5x	534.4x	36.2x	23.7x	-	-49%
TXN	32.2x	33.7x	21.6x	16.6x	4%	-49%
SYNA	12.4x	24.7x	13.6x	6.4x	100%	-48%
MU	8.4x	149.4x	13.3x	4.5x	1669%	-47%
QCOM	15.3x	20.2x	12.3x	8.4x	32%	-45%
QRVO	12.9x	24.2x	12.9x	7.3x	89%	-43%
LSCC	37.6x	70.4x	34.9x	22.9x	87%	-39%
CRUS	16.2x	19.7x	13.5x	10.1x	22%	-37%
ON	14.9x	21.7x	15.1x	9.6x	46%	-36%
NXPI	15.6x	20.0x	13.7x	10.2x	28%	-35%
NVDA	33.5x	66.0x	32.9x	22.2x	97%	-34%

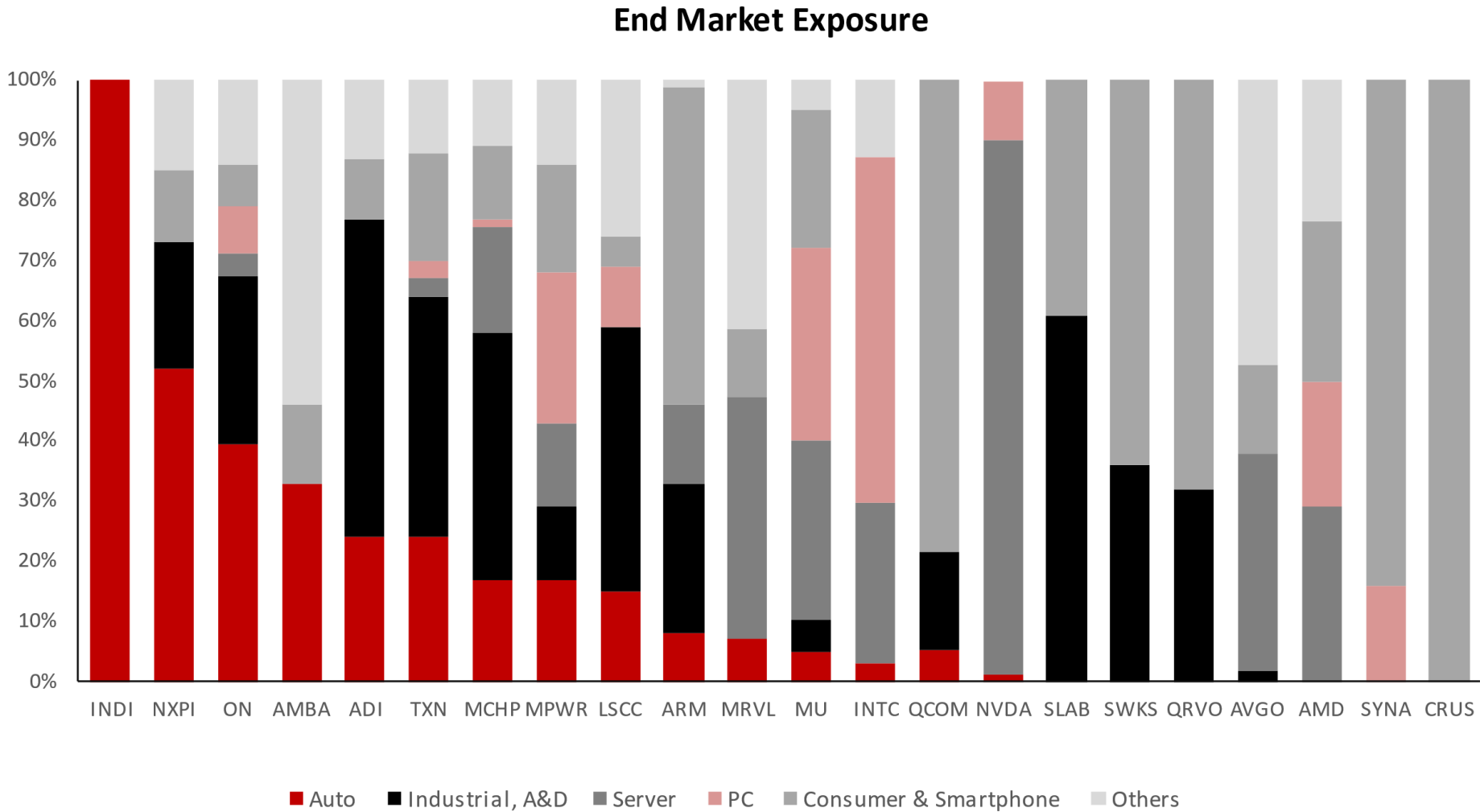
	EV/S					
	Current	Peak	Median	Trough	Upside	Downside
	6.6x	19.0x	7.2x	4.2x	154%	-37%
	2.7x	15.9x	3.5x	2.3x	569%	-11%
	14.5x	15.3x	8.8x	6.0x	3%	-64%
	16.7x	18.0x	11.3x	6.5x	6%	-60%
	7.7x	9.2x	6.1x	4.7x	20%	-46%
	8.3x	10.8x	6.4x	3.3x	31%	-58%
	9.0x	13.9x	8.2x	5.0x	57%	-47%
	3.5x	4.8x	3.5x	2.5x	32%	-29%
	11.4x	11.9x	8.1x	6.2x	2%	-49%
	2.2x	4.0x	2.6x	1.7x	98%	-30%
	29.5x	39.1x	25.4x	12.9x	23%	-58%
	3.7x	8.4x	3.8x	2.3x	112%	-37%
	10.5x	11.1x	8.2x	6.8x	4%	-37%
	2.5x	6.8x	3.1x	1.8x	188%	-25%
	2.6x	4.7x	2.7x	1.5x	78%	-48%
	4.4x	6.0x	3.7x	2.7x	34%	-40%
	2.4x	4.0x	2.8x	2.1x	66%	-18%
	11.5x	20.4x	12.5x	8.5x	75%	-26%
	2.9x	3.7x	2.3x	1.6x	22%	-42%
	4.0x	5.3x	3.9x	2.6x	34%	-35%
	4.8x	5.8x	4.3x	3.3x	22%	-36%
	17.4x	26.3x	15.7x	8.9x	43%	-51%

# Current Gross Margin vs. Historical Peak-Trough

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5-yr Peak Trough Gross Margin





# KBCM Estimates vs. Consensus

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Ticker	Year End	Revenue (\$M)				EPS			
		Current Quarter		Out Quarter		Current Quarter		Out Quarter	
		KBCM	Consensus	KBCM	Consensus	KBCM	Consensus	KBCM	Consensus
ADI	FY (Oct.)	\$2,408	\$2,404	\$2,380	\$2,359	\$1.64	\$1.64	\$1.62	\$1.58
AMBA	FY (Jan.)	\$79	\$79	\$69	\$69	\$0.04	\$0.03	(\$0.12)	(\$0.14)
AMD	CY	\$6,724	\$6,708	\$7,813	\$7,541	\$0.93	\$0.92	\$1.24	\$1.15
ARM	FY (Mar.)	\$812	\$808	\$1,007	\$941	\$0.25	\$0.25	\$0.38	\$0.34
AVGO	FY (Oct.)	\$14,008	\$14,048	\$14,200	\$14,634	\$1.40	\$1.38	\$1.43	\$1.46
CRUS	FY (Mar.)	\$520	\$520	\$623	\$579	\$2.03	\$2.02	\$2.83	\$2.45
INDI	CY	\$54	\$54	\$59	\$59	(\$0.09)	(\$0.09)	(\$0.08)	(\$0.07)
INTC	CY	\$13,028	\$13,019	\$13,678	\$13,695	(\$0.02)	(\$0.02)	\$0.10	\$0.09
LSCC	CY	\$127	\$127	\$131	\$132	\$0.23	\$0.24	\$0.25	\$0.26
MCHP	FY (Mar.)	\$1,159	\$1,152	\$1,223	\$1,200	\$0.44	\$0.43	\$0.52	\$0.47
MU	FY (Aug.)	\$8,733	\$8,721	\$8,419	\$9,052	\$1.76	\$1.76	\$1.80	\$1.95
MPWR	CY	\$601	\$600	\$588	\$603	\$3.98	\$3.96	\$3.81	\$3.98
MRVL	FY (Jan.)	\$1,460	\$1,454	\$1,694	\$1,646	\$0.41	\$0.41	\$0.56	\$0.52
NVDA	FY (Jan.)	\$34,502	\$32,895	\$40,005	\$36,491	\$0.78	\$0.74	\$0.88	\$0.81
NXPI	CY	\$3,254	\$3,252	\$3,468	\$3,370	\$3.43	\$3.43	\$3.84	\$3.67
ON	CY	\$1,752	\$1,751	\$1,787	\$1,783	\$0.98	\$0.97	\$1.01	\$1.01
QCOM	FY (Sep.)	\$9,908	\$9,900	\$10,723	\$10,533	\$2.57	\$2.56	\$2.83	\$2.82
QRVO	FY (Mar.)	\$1,027	\$1,028	\$1,074	\$1,057	\$1.85	\$1.85	\$2.01	\$1.93
SLAB	CY	\$166	\$165	\$190	\$187	(\$0.20)	(\$0.21)	\$0.15	\$0.09
SWKS	FY (Sep.)	\$1,022	\$1,021	\$1,100	\$1,099	\$1.52	\$1.52	\$1.72	\$1.73
SYNA	FY (Jun.)	\$256	\$255	\$263	\$263	\$0.75	\$0.75	\$0.83	\$0.84
TXN	CY	\$4,107	\$4,119	\$3,994	\$4,099	\$1.37	\$1.38	\$1.28	\$1.36



# KBCM Estimates vs. Consensus (cont'd)

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Company	Ticker	Year End	Revenue (\$M)				EPS			
			Current Year		Out Year		Current Year		Out Year	
			KBCM	Consensus	KBCM	Consensus	KBCM	Consensus	KBCM	Consensus
Analog Devices	ADI	FY (Oct.)	\$9,392	\$9,389	\$10,440	\$10,369	\$6.34	\$6.34	\$7.80	\$7.54
Ambarella	AMBA	FY (Jan.)	\$266	\$267	\$315	\$318	(\$0.48)	(\$0.49)	(\$0.17)	(\$0.19)
Advanced Micro Devices	AMD	CY	\$25,845	\$25,611	\$34,369	\$32,854	\$3.46	\$3.41	\$5.80	\$5.43
Arm Holdings plc	ARM	FY (Mar.)	\$3,964	\$3,970	\$4,992	\$4,946	\$1.55	\$1.56	\$2.12	\$2.07
Broadcom	AVGO	FY (Oct.)	\$51,528	\$51,611	\$58,429	\$60,658	\$4.84	\$4.82	\$5.90	\$6.15
Cirrus Logic	CRUS	FY (Mar.)	\$1,945	\$1,874	\$2,171	\$2,009	\$7.44	\$6.80	\$8.65	\$7.52
indie Semiconductor	INDI	CY	\$218	\$217	\$332	\$318	(\$0.35)	(\$0.36)	\$0.03	(\$0.01)
Intel	INTC	CY	\$52,263	\$52,269	\$54,952	\$56,250	\$0.28	\$0.26	\$1.04	\$1.11
Lattice Semiconductor	LSCC	CY	\$523	\$524	\$612	\$610	\$1.00	\$1.00	\$1.40	\$1.39
Microchip Technology	MCHP	FY (Mar.)	\$4,914	\$4,890	\$5,981	\$6,053	\$2.07	\$1.99	\$3.29	\$3.28
Micron Technology	MU	FY (Aug.)	\$37,302	\$38,210	\$49,866	\$45,774	\$8.92	\$8.91	\$14.66	\$12.88
Monolithic Power	MPWR	CY	\$2,154	\$2,172	\$2,653	\$2,627	\$13.77	\$13.99	\$17.06	\$17.43
Marvell Technology	MRVL	FY (Jan.)	\$5,588	\$5,538	\$7,728	\$7,490	\$1.52	\$1.44	\$2.64	\$2.50
NVIDIA	NVDA	FY (Jan.)	\$130,591	\$125,561	\$218,987	\$178,539	\$2.95	\$2.84	\$5.05	\$4.04
NXP Semiconductors NV	NXPI	CY	\$12,975	\$12,878	\$13,936	\$13,973	\$13.72	\$13.46	\$15.04	\$15.27
onsemi	ON	CY	\$7,137	\$7,135	\$7,790	\$7,705	\$4.02	\$4.01	\$4.76	\$4.71
Qualcomm	QCOM	FY (Sep.)	\$38,607	\$38,626	\$42,081	\$42,155	\$10.10	\$10.08	\$10.89	\$11.13
Qorvo	QRVO	FY (Mar.)	\$3,923	\$3,946	\$4,162	\$4,266	\$5.95	\$6.09	\$6.95	\$7.92
Silicon Labs	SLAB	CY	\$608	\$604	\$929	\$898	(\$1.53)	(\$1.59)	\$2.88	\$2.48
Skyworks	SWKS	FY (Sep.)	\$4,175	\$4,195	\$4,149	\$4,226	\$6.25	\$6.25	\$6.25	\$6.41
Synaptics	SYNA	FY (Jun.)	\$1,064	\$1,065	\$1,252	\$1,256	\$3.53	\$3.49	\$5.76	\$5.92
Texas Instruments Incorporated	TXN	CY	\$15,584	\$15,725	\$17,213	\$17,888	\$5.05	\$5.17	\$5.98	\$6.34

# Stock Performance

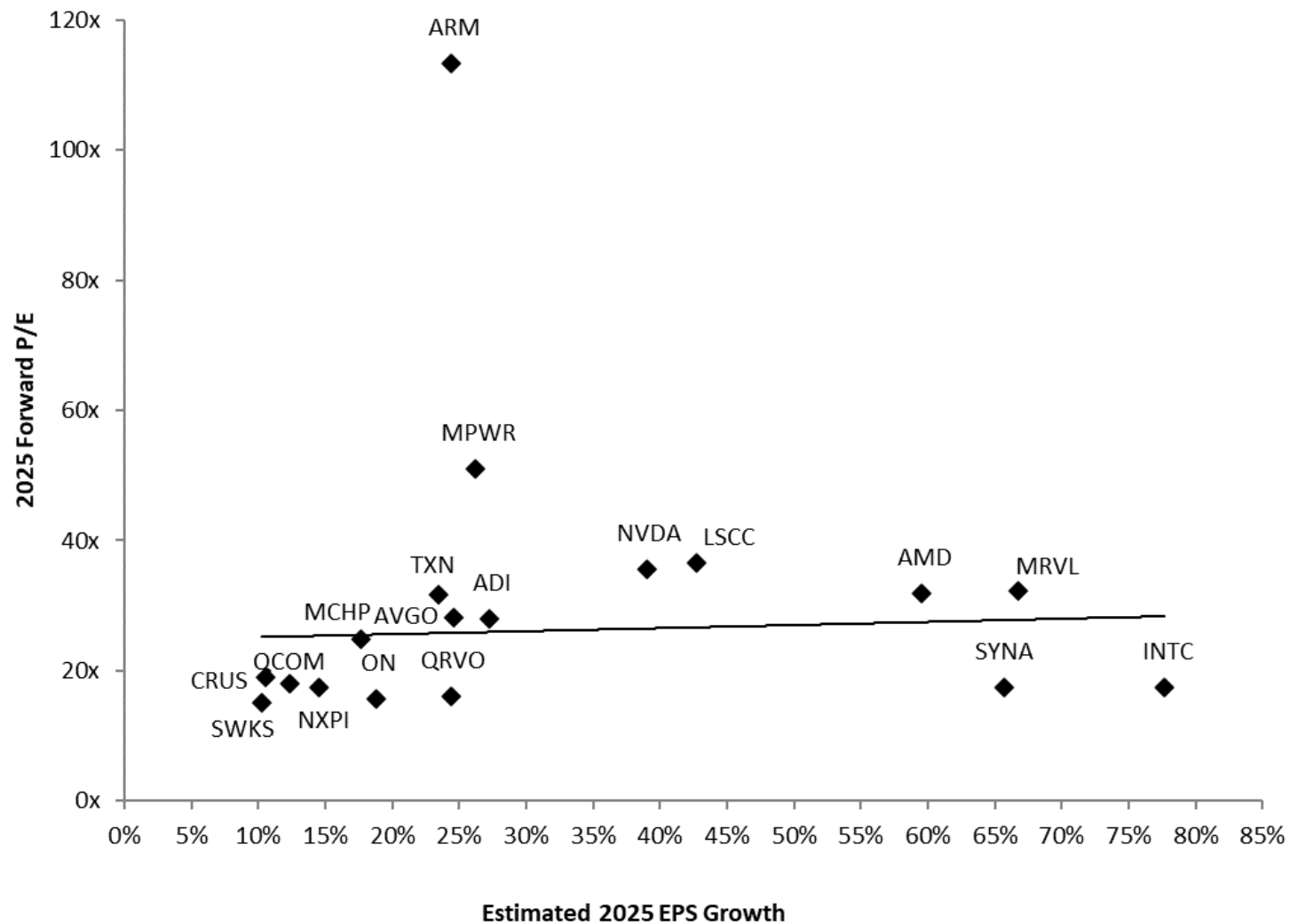
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	Ticker	Rating	Mkt Cap (\$MM)	Price as of 10/11/2024	2Q23	3Q23	4Q23	1Q24	2Q24	2023	YTD
> \$10B	NVDA	OW	\$3,306,644	\$134.80	52.3%	2.8%	13.8%	82.5%	36.7%	238.9%	172.2%
	AVGO	OW	\$847,616	\$181.48	35.2%	-4.2%	34.4%	18.7%	21.1%	99.6%	62.6%
	AMD	OW	\$271,727	\$167.89	16.2%	-9.7%	43.4%	22.4%	-10.1%	127.6%	13.9%
	QCOM	SW	\$189,358	\$169.98	-6.7%	-6.7%	30.2%	17.1%	17.6%	31.6%	17.5%
	ARM	OW	\$158,730	\$151.46	-	-	40.4%	66.3%	30.9%	40.4%	101.6%
	TXN	OW	\$187,275	\$205.11	-3.2%	-11.7%	7.2%	2.2%	11.7%	3.2%	20.3%
	MU	OW	\$118,547	\$106.92	4.6%	7.8%	25.4%	38.1%	11.6%	70.7%	25.3%
	INTC	SW	\$100,531	\$23.56	2.4%	6.3%	41.4%	-12.1%	-29.9%	90.1%	-53.1%
	ADI	OW	\$115,613	\$232.86	-1.2%	-10.1%	13.4%	-0.4%	15.4%	21.1%	17.3%
	NXPI	OW	\$60,652	\$238.10	9.8%	-2.3%	14.9%	7.9%	8.6%	45.3%	3.7%
	MRVL	OW	\$64,107	\$74.01	38.1%	-9.5%	11.4%	17.5%	-1.4%	62.8%	22.7%
	MCHP	OW	\$41,837	\$77.98	6.9%	-12.9%	15.5%	-0.5%	2.0%	28.4%	-13.5%
	MPWR	OW	\$45,752	\$938.47	7.9%	-14.5%	36.5%	7.4%	21.3%	78.4%	48.8%
	ON	OW	\$30,126	\$70.33	14.9%	-1.7%	-10.1%	-11.9%	-6.8%	33.9%	-15.8%
	SWKS	SW	\$15,540	\$97.30	-6.2%	-10.9%	14.0%	-3.6%	-1.6%	23.4%	-13.4%
\$<=10B	QRVO	SW	\$9,660	\$101.83	0.5%	-6.4%	18.0%	2.0%	1.1%	24.2%	-9.6%
	LSCC	OW	\$7,174	\$52.07	0.6%	-10.6%	-19.7%	13.4%	-25.9%	6.3%	-24.5%
	CRUS	OW	\$6,394	\$119.71	-25.9%	-8.7%	12.5%	11.3%	37.9%	11.7%	43.9%
	SLAB	OW	\$3,729	\$115.50	-9.9%	-26.5%	14.1%	8.7%	-23.0%	-2.5%	-12.7%
	SYNA	SW	\$2,922	\$73.20	-23.2%	4.8%	27.5%	-14.5%	-9.6%	19.9%	-35.8%
	AMBA	SW	\$2,462	\$59.64	8.1%	-36.6%	15.6%	-17.2%	6.3%	-25.5%	-2.7%
	INDI	OW	\$744	\$3.77	-10.9%	-33.0%	28.7%	-12.7%	-12.9%	39.1%	-53.5%
	Average				5.2%	-9.3%	19.5%	11.0%	4.6%	48.6%	14.3%
	Median				2.4%	-9.5%	15.6%	7.6%	4.1%	32.7%	8.8%
	NASDAQ				12.8%	-4.1%	13.6%	9.1%	0.0%	43.4%	22.6%
	SOXX				14.1%	-6.6%	21.6%	17.6%	0.0%	65.6%	35.2%

Ticker	Ratings	Price as of 10/11/2024	Mkt Cap (\$MM)	24E EPS Grth	25E EPS Grth	24E Rev Grth	25E Rev Grth	CY24 P/E	CY25 P/E	CY24 EV/Rev	CY25 EV/Rev	Dividend Yield
ADI	OW	\$232.86	\$115,613	-31%	20%	-19%	11%	35.6x	29.6x	12.4x	11.2x	1.6%
AMBA	SW	\$59.64	\$2,462	-	-	10%	19%	-	-	7.9x	6.6x	-
AMD	OW	\$167.89	\$271,727	28%	60%	13%	28%	49.3x	30.9x	10.7x	8.3x	-
ARM	OW	\$151.46	\$158,730	34%	24%	23%	19%	115.6x	92.9x	40.0x	33.7x	-
AVGO	OW	\$181.48	\$847,616	17%	26%	37%	17%	36.0x	28.6x	16.5x	14.2x	1.1%
CRUS	OW	\$119.71	\$6,394	8%	10%	4%	7%	18.2x	16.5x	3.1x	2.9x	-
INDI	OW	\$3.77	\$744	-	-	-4%	46%	-	-	3.9x	2.7x	-
INTC	SW	\$23.56	\$100,531	-72%	324%	-3%	8%	89.4x	21.1x	2.4x	2.2x	-
LSCC	OW	\$52.07	\$7,174	-50%	38%	-29%	16%	51.8x	37.6x	13.4x	11.5x	-
MCHP	OW	\$77.98	\$41,837	-47%	9%	-29%	3%	28.7x	26.4x	8.4x	8.1x	2.3%
MPWR	OW	\$938.47	\$45,752	19%	25%	19%	21%	67.1x	53.6x	20.3x	16.7x	0.5%
MRVL	OW	\$74.01	\$64,107	-8%	67%	0%	32%	51.2x	30.7x	12.1x	9.2x	0.3%
MU	OW	\$106.92	\$118,547	-	169%	58%	38%	28.2x	10.5x	4.1x	2.9x	0.4%
NVDA	OW	\$134.80	\$3,306,644	132%	45%	112%	45%	49.8x	34.3x	25.9x	17.9x	0.0%
NXPI	OW	\$238.10	\$60,652	-2%	14%	-3%	9%	17.7x	15.6x	5.2x	4.8x	1.7%
ON	OW	\$70.33	\$30,126	-22%	18%	-13%	8%	17.5x	14.9x	4.4x	4.0x	-
QCOM	SW	\$169.98	\$189,358	18%	10%	8%	9%	16.4x	14.9x	4.7x	4.4x	2.0%
QRVO	SW	\$101.83	\$9,660	2%	23%	5%	7%	16.8x	13.6x	2.7x	2.5x	-
SLAB	OW	\$115.50	\$3,729	-	-	-23%	49%	-	46.5x	5.6x	3.7x	-
SWKS	SW	\$97.30	\$15,540	-20%	8%	-9%	3%	15.5x	14.3x	3.6x	3.4x	2.9%
SYNA	SW	\$73.20	\$2,922	-45%	66%	-12%	15%	25.8x	15.6x	3.1x	2.7x	-
TXN	OW	\$205.11	\$187,275	-26%	23%	-10%	14%	39.6x	32.2x	11.9x	10.5x	2.7%
Average				-4%	51%	6%	19%	40.5x	29.0x	10.1x	8.4x	1.4%
Median				-5%	24%	-1%	16%	35.6x	27.5x	6.7x	5.7x	1.6%

# Consensus Forward P/E vs. EPS Growth

12



# Earnings Calendar

13

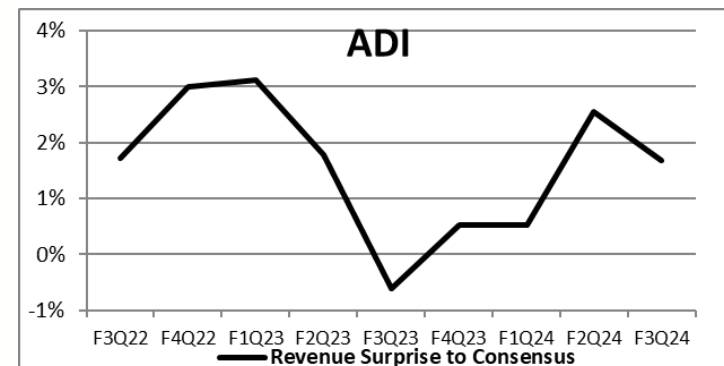
Ticker	Date	Time	Phone	ID/Password
TXN	Tuesday, October 22, 2024	1:30 PM		
ON	Monday, October 28, 2024	6:00 AM		
LSCC	Monday, October 28, 2024*			
MPWR	Monday, October 28, 2024*			
AMD	Tuesday, October 29, 2024*			
QCOM	Wednesday, October 30, 2024*			
SLAB	Wednesday, October 30, 2024*			
QRVO	Wednesday, October 30, 2024*			
INTC	Thursday, October 31, 2024	2:00 PM		
SWKS	Thursday, October 31, 2024*			
MCHP	Thursday, October 31, 2024*			
CRUS	Thursday, October 31, 2024*			
NXPI	Tuesday, November 5, 2024	5:00 AM		
ARM	Wednesday, November 6, 2024	2:00 PM		
INDI	Thursday, November 7, 2024	2:00 PM		
SYNA	Thursday, November 7, 2024*			
NVDA	Tuesday, November 19, 2024*			
ADI	Tuesday, November 19, 2024*			
AMBA	Thursday, November 28, 2024*			
MRVL	Thursday, November 28, 2024*			
AVGO	Thursday, December 5, 2024*			
MU	Wednesday, December 18, 2024*			

*\*Estimated reporting date, unconfirmed*

Sources: Company press releases, Thomson Reuters  
Note: Time is under the Pacific time zone.

## ADI (Overweight, Off-Quarter, PT \$285)

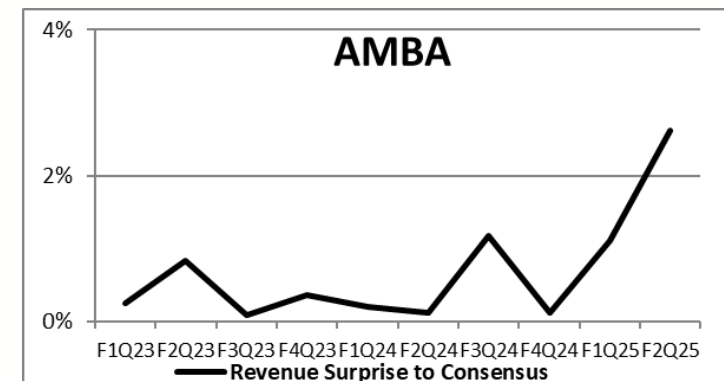
**We expect ADI to report in-line results and in-line to slightly lower guidance**, as broad-based demand in analog remains muted as channel feedback indicates slightly weaker demand trends across most end markets including consumer, PC, smartphones, industrial, and auto. ADI should be relatively better off than its analog peers having seen the auto correction sooner, having better managed lead times during the pandemic, and with F1Q cons ests (-1.9% q/q) modeled 180 bps below normal seasonal. **We are looking for in-line F4Q24 (Oct.) results and in-line to slightly lower F1Q25 (Jan.) guidance.** Our F4Q24 revenue/EPS estimates are \$2.41B/\$1.64 vs. consensus estimates of \$2.40B/\$1.64, and our F1Q25 revenue/EPS estimates are \$2.38B/\$1.62 vs. consensus estimates of \$2.36B/\$1.58. **Street sentiment on the name is slightly positive** on derisked earnings and lowered expectations for Jan. **We expect investors will be focused on:** 1) demand trends across auto/industrial, and the status of inventory destocking; 2) updated expectations for 2025 and timing of recovery; and 3) key operational indicators: B2B, lead times, customer requests for push-outs or cancellations, and channel inventory.



ADI	F4Q24			F1Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$2,408	4.2%	\$1.64	\$2,380	-1.2%	\$1.62
Consensus	\$2,404	3.9%	\$1.64	\$2,359	-1.9%	\$1.58

## AMBA (Sector Weight, Off-Quarter)

**We expect AMBA to post in-line results and in-line guidance**, as we are seeing some signs that automotive semis could be approaching a bottom in 3Q/4Q, as inventories are getting closer to normalizing and we see signs of customers starting to place orders into backlog and book out capacity for new model launches. IoT recovery should also continue, and we expect AMBA to benefit from higher ASP wins as CV5 ramps. We also continue to await further indications that CV3 is on track to ramp in CY26. **We are looking for in-line F3Q25 (Oct.) results and in-line F4Q25 (Jan.) guidance.** Our F3Q25 revenue/EPS estimates are \$79M/\$0.04 vs. consensus estimates of \$79M/\$0.03, and our F4Q25 revenue/EPS estimates are \$69M/-0.12 vs. consensus estimates of \$69M/-0.14. **Street sentiment on the name is negative** given worries of AI pivot despite signs of demand stabilization and improvement. **We expect investors will be focused on:** 1) impacts of China's recent stimulus measures on expectations for its recovery and customer inventory destocking; 2) status of auto demand trends; 3) updates regarding CV3 design win traction; and 4) updates regarding the Company's AI strategy.



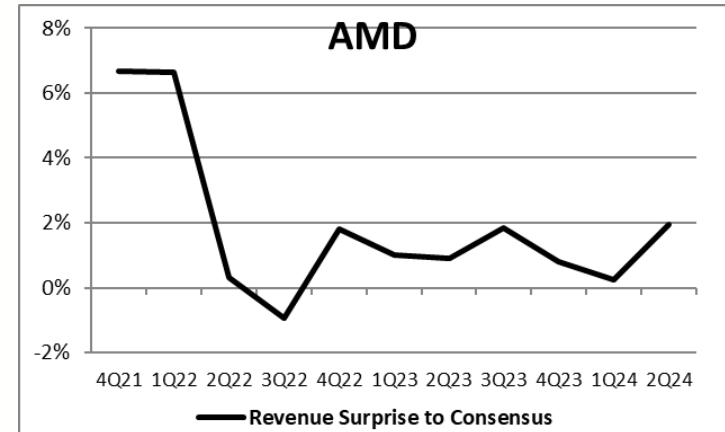
AMBA	F3Q25			F4Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$79	24%	\$0.04	\$69	-13%	(\$0.12)
Consensus	\$79	24%	\$0.03	\$69	-12%	(\$0.14)

## AMD (Overweight, PT \$220)

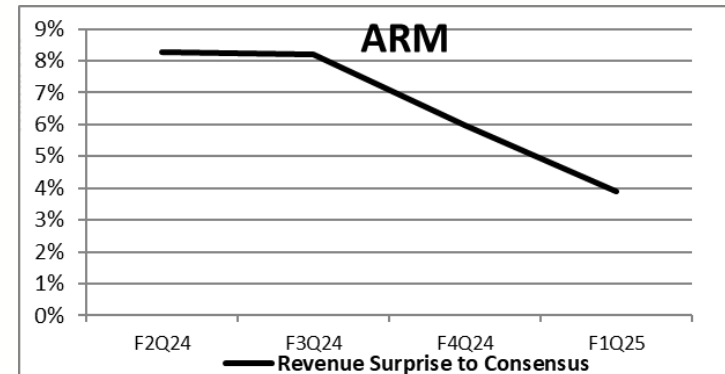
**We expect AMD to post higher results and higher guidance**, as we see improving traditional server demand and share gains, as well as continued growth in MI300X. Recent cloud tracker results indicate Genoa instances grew over 200% m/m in September, while supply chain feedback indicates AMD is expected to gain share vs. INTC through the rest of the year. Further, MI300X remains on track to ship 500K GPUs in 2024, as we expect AMD to increase its full year outlook for MI300X to over \$5B in 2024 from \$4.5B prior. **We are looking for AMD to report higher 3Q24 results and higher 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$6.72B/\$0.93 vs. consensus estimates of \$6.71B/\$0.92, and our 4Q24 revenue/EPS estimates are \$7.81B/\$1.24 vs. consensus estimates of \$7.54B/\$1.15. **Street sentiment on the name is moderately positive**, bulls viewing AMD as a compelling second source play on AI offset by increasing concerns on AMD's ability to be competitive with NVDA AI. **We expect investors will be focused on:** 1) customer engagement for MI300x and updates on the \$4.5B+ target for 2024; 2) updates on traditional server and client; 3) signs of improvement in Embedded and Gaming; and 4) progress of ramping new EPYC and Instinct products.

## ARM (Overweight, PT \$195)

ARM is expected to report on Nov 6 AMC. **We expect ARM to post in-line results and in-line guidance**, driven by continued strength in AI and traditional server, stable smartphone demand, and the migration to Armv9 cores, despite potential continued weakness in auto, Industrial IoT and networking. **We are looking for ARM to report in-line F2Q25 (Sep.) results and in-line F3Q25 (Dec.) guidance.** Our F2Q24 revenue/EPS estimates are \$812M/\$0.25 vs. consensus estimates of \$808M/\$0.25, and our F3Q25 revenue/EPS estimates are \$1007M/\$0.38 vs. consensus estimates of \$942M/\$0.34. **Street sentiment on the name is positive**, given strong AI licensing momentum, numerous launches of in-house silicon by CSPs, increasing adoption of ARM in AI PCs, and content growth in smartphones. **We expect investors will be focused on:** 1) updates on royalty rev expectations and the pace of Armv9 adoption; 2) end demand trends across cloud, auto, mobile and IoT; 3) sustainability and implications of AI licensing demand; and 4) any updates on its lawsuit with Qualcomm.



AMD	C3Q24			C4Q24		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$6,724	15.2%	\$0.93	\$7,813	16.2%	\$1.24
Consensus	\$6,708	15.0%	\$0.92	\$7,540	12.4%	\$1.15



ARM	F2Q25			F3Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$812	-13.5%	\$0.25	\$1,007	24.0%	\$0.38
Consensus	\$808	-14.0%	\$0.25	\$942	16.6%	\$0.34

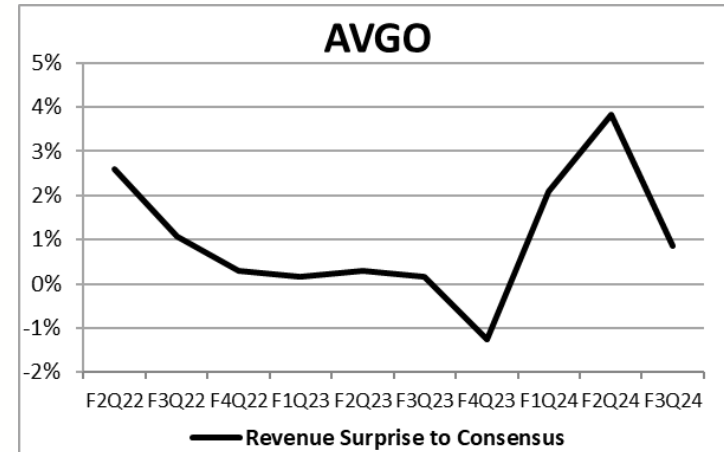


## AVGO (Off-Quarter, Overweight, PT \$210)

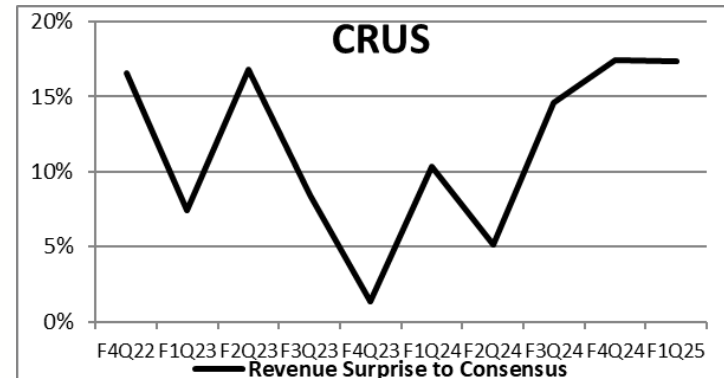
**We expect in-line to slightly higher results and in-line to slightly higher guidance**, as we see mixed implications. Positive forces include improving traditional server demand and the launch of 800Gb optical DSP should drive strong networking results. Also, we expect AI will continue to be a tailwind driven by NVDA GPU, as well as Google TPU deployments. **We expect AVGO to post in-line to slightly higher F4Q24 (Oct.) results and in-line to slightly higher F1Q25 (Jan) guidance.** Our F4Q24 revenue/EPS estimates are \$14.01B/\$1.40 vs. consensus estimates of \$14.05B/\$1.38, and our F1Q25 revenue/EPS estimates are \$14.20B/\$1.43 vs. consensus estimates of \$14.63B/\$1.46. **Street sentiment on the name is positive** given the AI growth opportunity driven by Google TPUs, new ASIC design wins (META, ByteDance), and the progress of the VMW integration. **We expect investors will be focused on:** 1) updates on demand trends and backlog visibility for FY25; 2) updates on its AI outlook, ASIC backlog, and engagements given anticipated tailwinds associated with generative AI; 3) updates on the VMW integration and anticipated/realized synergies; and 4) updates regarding iPhone 16 demand trends and the content outlook for next year given potential Wi-Fi headwinds.

## CRUS (Overweight, PT \$165)

**We expect in-line to slightly higher results and in-line to slightly higher guidance**, supported by content growth in the iPhone 16 associated with updated 22nm audio code, next-gen boosted amplifier; and higher attach rate of camera controllers and believe build expectations continue to track in line with expectations (89M 2H units), as we've yet to seen supply chain cuts. **We are looking for in-line to slightly higher F2Q25 (Sep.) results and in-line to slightly higher F3Q25 (Dec.) guidance.** Our F2Q25 rev/EPS estimates are \$520M/\$2.03 vs. cons estimates of \$520M/\$2.02, and our F3Q25 rev/EPS estimates are \$623M/\$2.83 vs. cons estimates of \$578M/\$2.44. **Sentiment on the name is slightly positive** given content gains in the iPhone 16 and signs of stable iPhone demand. **We expect investors will be focused on:** 1) updates on iPhone 16 demand trends and F3Q (Dec) performance vs. seasonality; 2) expectations for content growth going forward in next year's iPhone 17; and 3) updates on PC customer engagements.



AVGO	F4Q24			F1Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$14,008	7.2%	\$1.40	\$14,200	1.4%	\$1.43
Consensus	\$14,048	7.5%	\$1.38	\$14,627	4.1%	\$1.46

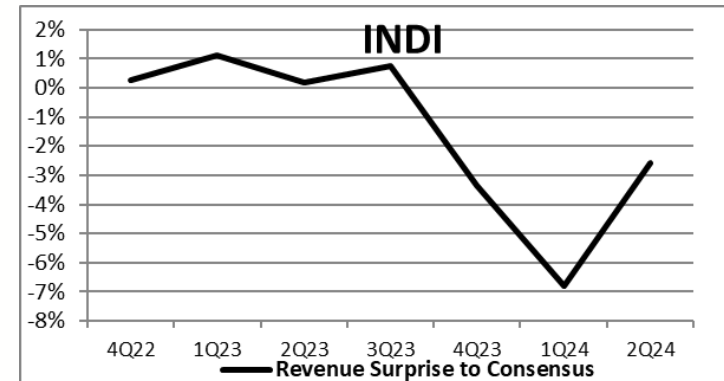


CRUS	F2Q25			F3Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$520	39.1%	\$2.03	\$623	19.7%	\$2.83
Consensus	\$520	39.2%	\$2.02	\$578	11.0%	\$2.44



## INDI (Overweight, PT \$8)

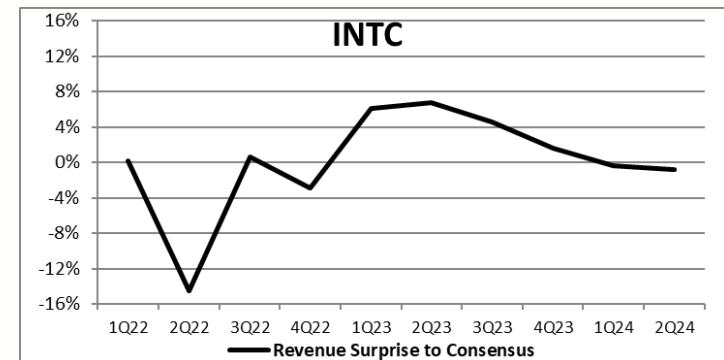
**We expect indie Semi to report in-line results and in-line to slightly lower guidance.** Given continued weakness in automotive, we believe earnings could remain challenging for INDI, but signs of a potential bottom and new program ramps in the 2H could set up the Company to return to more meaningful growth in 2025. **We are looking for INDI to report in-line 3Q24 results and in-line to slightly lower 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$54M/- \$0.09 vs. consensus estimates of \$54M/- \$0.09, and our 4Q24 revenue/EPS estimates are \$59M/- \$0.08 vs. consensus estimates of \$59M/- \$0.07. **Street sentiment on the name is negative**, on signs of auto demand weakness and signaling from the 8K detailing a RIF and temporary executive salary cuts. **We expect investors will be focused on:** 1) updates on automotive demand trends and whether customer pushouts or cancellations worsen; 2) updates on new design wins and program ramps (radar/vision), which are expected to drive a 1H25 recovery; and 3) updates on the 2025 outlook, including the timing to reach breakeven.



INDI	C3Q24			C4Q24		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$54	2.7%	(\$0.09)	\$59	10.0%	(\$0.08)
Consensus	\$54	2.3%	(\$0.09)	\$59	10.2%	(\$0.07)

## INTC (Sector Weight)

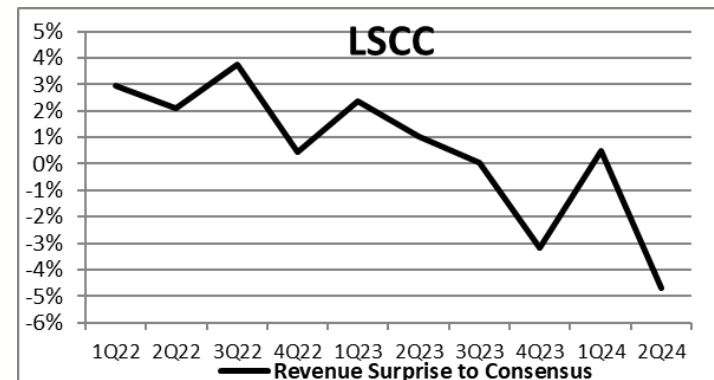
**We expect INTC to report in-line results and in-line to slightly lower guidance.** We see 2H headwinds for INTC, as we expect continued share loss to AMD in servers, anticipate Blackwell will increasingly be a headwind as it launches with GB200 being ARM CPU-based, and anticipate weakening demand trends in PCs, which is expected to decline in 4Q. **We are looking for in-line 3Q24 results and in-line to slightly lower 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$13.03B/- \$0.02 vs. consensus estimates of \$13.02B/- \$0.02, and our 4Q24 revenue/EPS estimates are \$13.68B/- \$0.10 vs. consensus estimates of \$13.70B/- \$0.09. **Street sentiment on the name is still negative**, given uncompetitive foundry segment, only early signs of server share stabilization, along with doubts over its ability to be relevant in AI. **We expect investors will be focused on:** 1) updates on PC's recovery and data center demand; 2) updates on progress of RIF and cost controls; 3) status of the ramp of Sierra Forrest and Lunar Lake; 4) updates on AI (Gaudi) pipeline and customer engagements; and 5) progress in IFS.



INTC	C3Q24			C4Q24		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$13,028	1.5%	(\$0.02)	\$13,678	5.0%	\$0.10
Consensus	\$13,019	1.5%	(\$0.02)	\$13,695	5.2%	\$0.09

## LSCC (Overweight, PT \$60)

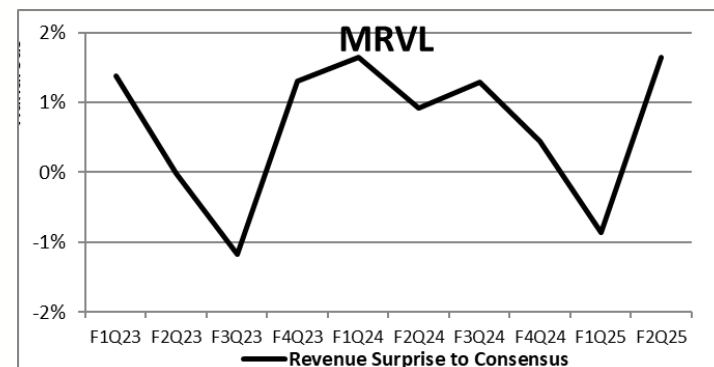
**We're expecting LSCC to report in-line results and in-line to slightly lower guidance**, given muted broad-based demand trends within industrials. However, this should be offset by a strong data center demand, as well as the ramp of Avant mid-range FPGAs. **We are looking for LSCC to report in-line 3Q24 results and in-line to slightly lower 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$127M/\$0.23 vs. consensus estimates of \$127M/\$0.24, and our 4Q24 revenue/EPS estimates are \$131M/\$0.25 vs. consensus estimates of \$132M/\$0.26. **Street sentiment on the name is moderately negative**, due to: 1) concerns related to a lingering cyclical correction and 2) concerns about increasing competition after the spin-off of INTC's PSG moderated by the recent hire of CEO Ford Tamer. **We expect investors will be focused on:** 1) updates on Avant design win traction and status of ramps; 2) end-demand trends across its strategic end markets (comm & computing, auto & industrial), and expectations on the recovery; 3) the competitive dynamics going forward given INTC's divestiture of PSG; and 4) any changes of strategy from new CEO Dr. Ford Tamer.



LSCC	C3Q24			C4Q24		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$127	2.6%	\$0.23	\$131	3.0%	\$0.25
Consensus	\$127	2.4%	\$0.24	\$132	3.9%	\$0.26

## MRVL (Off-Quarter, Overweight, PT \$95)

**We project MRVL to post higher results and higher guidance.** With DC demand remaining high across both traditional server as well as AI, we anticipate MRVL will benefit from continued strength in optical networking and the continued ramp of AI custom silicon at AWS for Inferentia 2.5 and Trainium 2. **We are looking for MRVL to post higher F3Q25 (Oct.) results and higher F4Q25 (Jan.) guidance.** Our F3Q25 revenue/EPS estimates are \$1.46B/\$0.41 vs. consensus estimates of \$1.45B/\$0.41, and our F4Q25 revenue/EPS estimates are \$1.69B/\$0.56 vs. consensus estimates of \$1.65B/\$0.52. **Street sentiment on the name is moderately positive**, on robust AI tailwinds across networking and ASIC, and the rest of business being closer to bottoming. **We expect investors will be focused on:** 1) the status of end-market recovery particularly in storage, enterprise, and comm infra; 2) updates on AI revenue outlook and customer engagements; and 3) Competitive positioning in 800Gb and 1.6T optical DSPs.



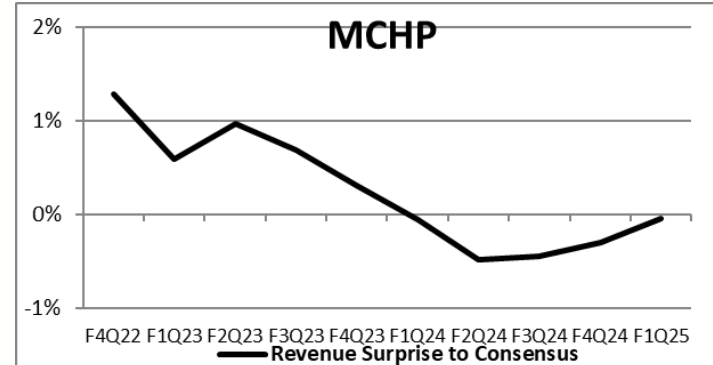
MRVL	F3Q25			F4Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$1,460	14.7%	\$0.41	\$1,694	16.1%	\$0.56
Consensus	\$1,454	14.2%	\$0.41	\$1,646	13.2%	\$0.52

## MCHP (Overweight, PT \$100)

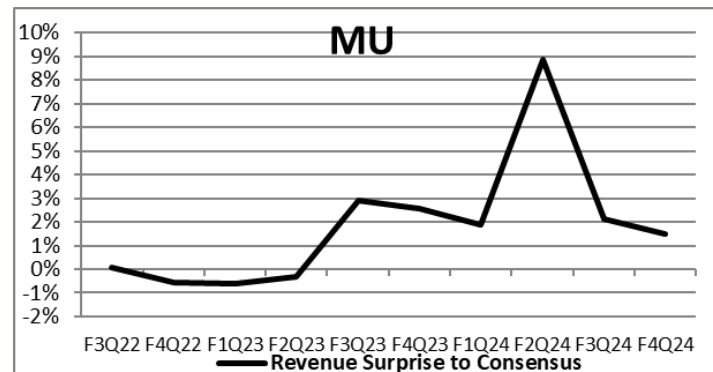
**We expect MCHP will post in-line results and in-line to slightly lower guidance.** We expect MCHP results will be challenged as channel feedback indicates slightly weaker demand trends across most end markets including consumer, PC, smartphones industrial and auto. We believe MCHP should be aided by its lesser exposure to automotive (~17%). However, 4Q Street cons expectations for rev growth of +4.1% q/q are modeled 630 bps above normal seasonal, which could be at risk. **We are looking for MCHP to report in-line F2Q25 (Sep.) results and in-line to slightly lower F3Q25 (Dec.) guidance.** Our F2Q25 revenue/EPS estimates are \$1.16B/\$0.44 vs. consensus estimates of \$1.15B/\$0.43, and our F3Q25 revenue/EPS estimates are \$1.22B/\$0.52 vs. consensus estimates of \$1.20B/\$0.47. **Street sentiment on the name is negative**, given the worries about a prolonged correction cycle. **We expect investors will be focused on:** 1) updates on end-demand trends and status of pushouts and cancelation; 2) updates on the recovery expectations and visibility for a bottom; and 3) if demand trends in NA and Europe continue to weaken and any anticipated effects of the recent stimulus measures out of China.

## MU (Overweight, Off-Quarter, PT \$135)

**We expect MU will post in-line results and in-line guidance.** We're anticipating in-line results, as we take a mid-cycle pause in the cyclical memory recovery, as customers in PCs/smartphones digest inventory given muted demand and pricing trends. We expect this to be offset by increasing shipments of HBM3E, as MU ramps H200 and Blackwell. **We are looking in-line F1Q25 (Nov) results and in-line F2Q25 (Feb.) guidance.** Our F1Q25 revenue/EPS estimates are \$8.73B/\$1.76 vs. consensus estimates of \$8.72B/\$1.76, and our F2Q25 revenue/EPS estimates are \$8.42B/\$1.80 vs. consensus estimates of \$9.07B/\$1.95. **Street sentiment on the name is moderately negative** given near-term weak pricing trends across DRAM/NAND and increasing concerns that Samsung could increase bit supply in DRAM if its not able to qualify its HBM3E on NVDA's Blackwell platform. **We expect investors will be focused on:** 1) the status of the HBM3E ramp and yields; 2) pricing and bit supply/demand growth for NAND and DRAM; and 3) updates related to product qualification at key customers, capacity expansion, and updates on the multiple billions of dollars HBM target for FY25.



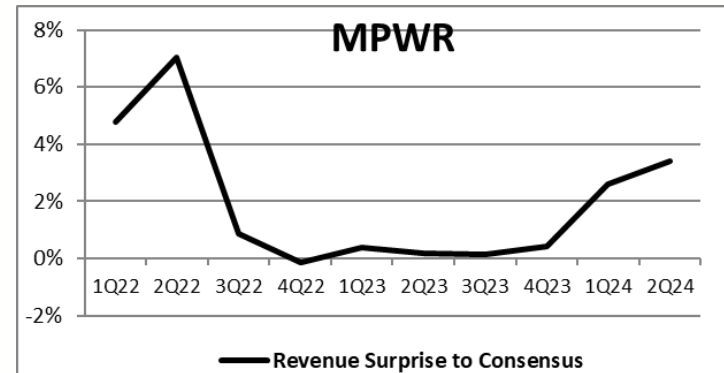
MCHP	F2Q25			F3Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$1,159	-6.6%	\$0.44	\$1,223	5.5%	\$0.52
Consensus	\$1,152	-7.2%	\$0.43	\$1,200	4.1%	\$0.47



MU	F1Q25			F2Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$8,733	12.7%	\$1.76	\$8,419	-3.6%	\$1.80
Consensus	\$8,721	12.5%	\$1.76	\$9,067	4.0%	\$1.95

## MPWR (Overweight, PT \$1,075)

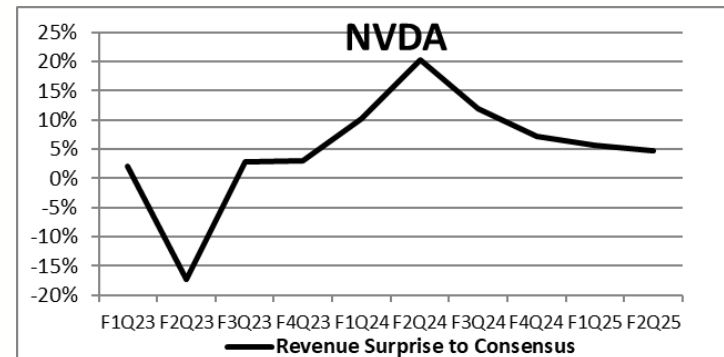
**We expect MPWR to report in-line to slightly higher results and in-line to slightly higher guidance.** We expect strong results to be driven by strength in servers and AI, as well as relatively stable China demand albeit muted. Although there are negative implications from channel feedback given RMAs (Return Merchandise Authorization) for NVDA H100 AI servers related to field failures associated with MPWR power modules are increasing again, NVDA Blackwell ramps in Q4 so MPWR's share drop to 70% should not impact the outlook in 2H24. **We are looking for in-line to slightly higher 3Q24 results and in-line to slightly higher 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$601M/\$3.98 vs. consensus estimates of \$600M/\$3.96, and our 4Q24 revenue/EPS estimates are \$588M/\$3.81 vs. consensus estimates of \$603M/\$3.98. **Street sentiment on the name is positive**, given the Company's dominant position in AI power, despite muted demand trends in the rest of end markets. **We expect investors will be focused on:** 1) end-market demand trends; 2) expectations for 2025 and if improvements in booking trends continued; 3) market share and ASP expectations current-gen, as well as next-gen GPU platforms from NVDA (H100/B100/B200); and 4) status of new AI power design wins from Google(TPU), AWS, and META



MPWR	C3Q24			C4Q24		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$601	18.4%	\$3.98	\$588	-2.1%	\$3.81
Consensus	\$600	18.3%	\$3.96	\$603	0.4%	\$3.98

## NVDA (Overweight, PT \$180)

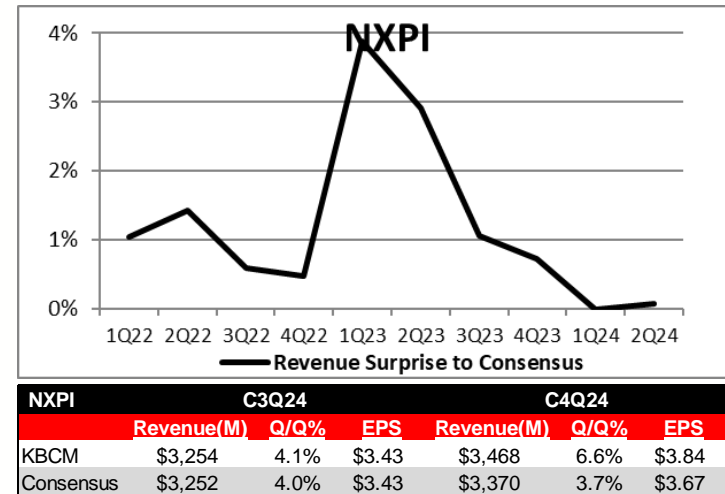
**We expect NVDA to deliver higher results and higher guidance**, as we are not seeing any signs of further delays with Blackwell contributing over \$7B in revenues in F4Q (Jan), Hopper demand remains very strong, as we expect F4Q Hopper revenues to increase ~15% q/q, and in 2025 GB200 mix remains 60-70% NVL72, implying over \$200B in DC revs in 2025. **We are looking for higher F3Q25 (Oct.) results and higher F4Q25 (Jan.) guidance.** Our F3Q25 revenue/EPS estimates are \$34.5B/\$0.78 vs. consensus estimates of \$32.90B/\$0.74, and our F4Q25 revenue/EPS estimates are \$40.0B/\$0.88 vs. consensus estimates of \$36.45B/\$0.80. **Street sentiment on the name is positive**, given its unique position in monetizing generative AI demand and new product introduction. **We expect investors will be focused on:** 1) expectations for 2026, order visibility, the Blackwell ramp, and progress on Rubin; 2) updates on China and how demand for H20 is trending; 3) whether NVDA is seeing a demand pause ahead of the launch of Blackwell; 4) customer interest and expectations for the uptake of GB200 and NVL72; and 5) demand trends in the sovereign AI category



NVDA	F3Q25			F4Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$34,502	14.9%	\$0.78	\$40,005	15.9%	\$0.88
Consensus	\$32,895	9.5%	\$0.74	\$36,448	10.8%	\$0.80

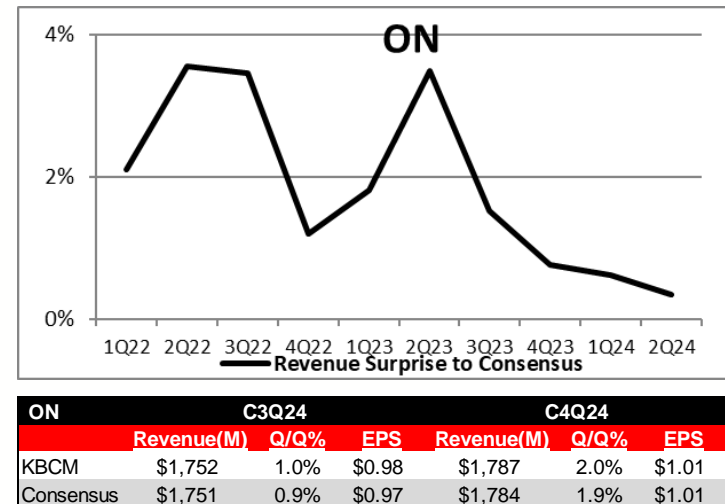
## NXPI (Overweight, PT \$300)

We expect NXP to report in-line results and in-line to slightly lower guidance. We expect muted results given weak demand in auto and industrial end markets, which represent more than 70% of total revenues. However indications of a broader bottom in auto semis in the 2H and plans to restock channel inventories could result in better than feared results. **We are looking for in-line 3Q24 results and in-line to slightly lower 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$3.25B/\$3.43 vs. consensus estimates of \$3.25B/\$3.43, and our 4Q24 revenue/EPS estimates are \$3.47B/\$3.84 vs. consensus estimates of \$3.37B/\$3.67. **Street sentiment on the name is moderately negative** given concerns over automotive weakness. **We expect investors will be focused on:** 1) updates on where we stand in regards to the automotive and industrial cycle; 2) anticipated effects of recent stimulus in China on demand and expectations for IoT and mobile; 3) the progress of channel inventory replenishment; and 4) updates on ramp of new programs in radar.



## ON (Overweight, PT \$90)

We expect ON to report in-line results and in-line to slightly lower guidance, as we expect auto demand to remain weak. However, given channel feedback indicates auto could be approaching a bottom in 3Q/4Q as inventories are getting closer to normalizing, we see the potential for ON to post better-than-feared results given low investor expectations. **We are looking for in-line 3Q24 results and in-line to slightly lower 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$1.75B/\$0.98 vs. consensus estimates of \$1.75B/\$0.97, and our 4Q24 revenue/EPS estimates are \$1.79B/\$1.01 vs. consensus estimates of \$1.78B/\$1.01. **Street sentiment on the name is negative**, given the concerns on slowdown in EV growth and lower demand from auto OEMs. **We expect investors will be focused on:** 1) updates for automotive and industrial demand and expectations for 2025; 2) customer demand trends for SiC amid auto weakness and risks for further pushout; 3) updates on expectations for demand after the recent stimulus measures in China; and 4) updates on big VW win and mix shift towards Europe.



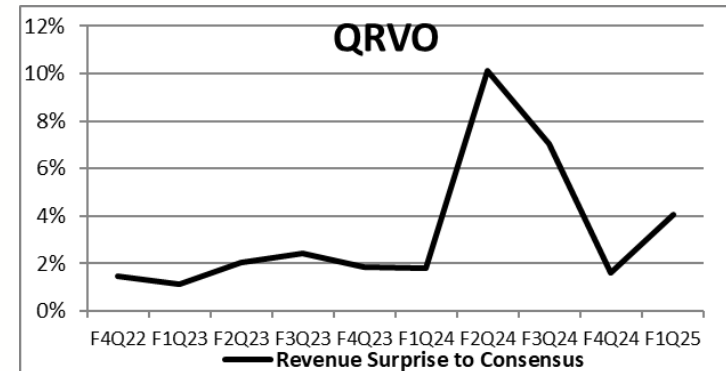


## QRVO (Sector Weight)

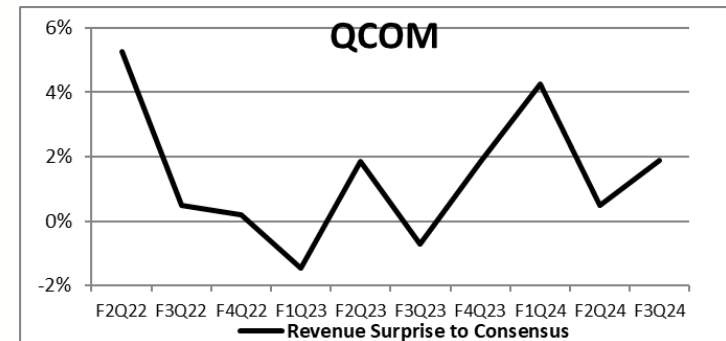
**We anticipate in-line results and guidance.** We expect results will be driven by stable iPhone 16 builds in conjunction with content gains, which will be offset by weak Android demand particularly at Samsung and from non mobile segments including HPA and CSG. Moving forward QRVO should benefit from incremental content in AAPL internal modems from incremental envelope trackers (ET). **We are looking for QRVO to report in-line F2Q25 (Sep.) results and in-line F3Q25 (Dec.) guidance.** Our F2Q25 revenue/EPS estimates are \$1.03M/\$1.85 vs. consensus estimates of \$1.03M/\$1.85, and our F3Q25 revenue/EPS estimates are \$1.07B/\$2.01 vs. consensus estimates of \$1.06B/\$1.93. **Street sentiment on the name is moderately negative**, given: 1) the maturity in the smartphone market; and 2) increasing competition from Asian RF component suppliers. **We expect investors will be focused on:** 1) iPhone 16 demand trends; 2) if non-mobile segments CSG/HPA remain soft; 3) content implications on AAPL's internal modem; and 4) expectations for RF content growth in 2025 (iPhone 17).

## QCOM (Sector Weight)

**We expect in-line to slightly higher results and higher guidance** given China Android smartphone demand remains strong at the high end, and iPhone 16 builds have been stable. We believe demand for their flagship Snapdragon 8 Gen 4, which should drive 10%+ uplift in ASPs gen-to-gen, is likely to remain strong and we expect QCOM to regain 100% share on the GS25. We do however see risk to 1H CY25 ests given share loss to Mediatek and believe mgt may choose to soft guide the out quarter as it has done on occasion in the past. **We are expecting in-line to slightly higher F4Q24 (Sep.) results and higher F1Q25 (Dec.) guidance.** Our F4Q24 revenue/EPS estimates are \$9.91B/\$2.57 vs. consensus estimates of \$9.90B/\$2.56, and our F1Q25 revenue/EPS estimates are \$10.72B/\$2.83 vs. consensus estimates of \$10.52B/\$2.82. **Street sentiment on the name is negative**, given concerns related to the ramp of AAPL's internal modem and from the lack of catalysts related to AI smartphones and PCs. **We expect investors will be focused on:** 1) China OEMs demand trends; 2) the share of GS25 at Samsung; 3) demand for the SnapDragon Elite X; 4) discussion on any near-term GM compression resulting from TSMC price increases; and 5) any updates on mgt's outlook for iPhone modem share in 2025/26.



QRVO	F2Q25			F3Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$1,027	15.8%	\$1.85	\$1,074	4.6%	\$2.01
Consensus	\$1,028	15.9%	\$1.85	\$1,057	2.9%	\$1.93



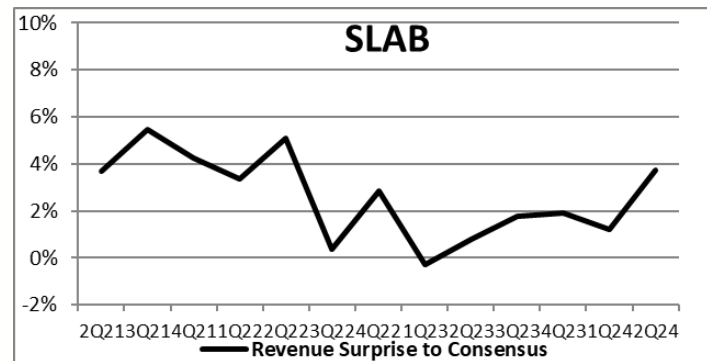
QCOM	F4Q24			F1Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$9,908	39.1%	\$2.57	\$10,723	8.2%	\$2.83
Consensus	\$9,900	39.2%	\$2.56	\$10,519	6.2%	\$2.82

## SLAB (Overweight, PT \$150)

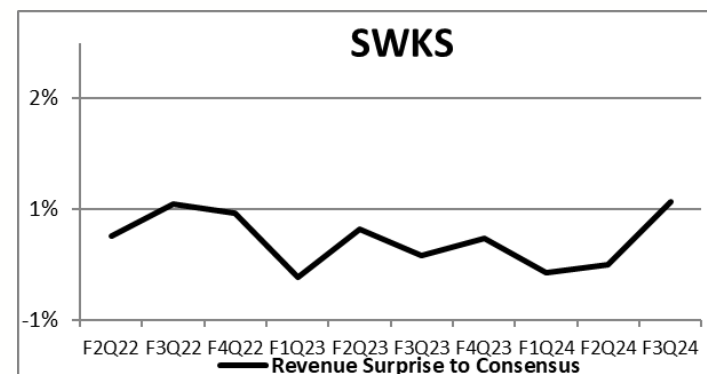
**We expect SLAB to post in-line results and guidance**, with further progress on end-customer inventory destocking and modest recovery in both booking and shipment. New program ramps in continuous glucose monitoring (CGM), electronic shelf labels (ESL), and Smart Meters should gradually kick in and help with the recovery. We continue to believe demand trends for SLAB have bottomed, and expect continued sequential recovery in IoT over the next several quarters. **We expect in-line 3Q24 results and in-line 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$166M/-\$0.20 vs. consensus estimates of \$165M/-\$0.21, and our 4Q24 revenue/EPS estimates are \$190M/\$0.15 vs. consensus estimates of \$187M/\$0.09. **Street sentiment on the name is moderately positive**, on anticipation of a continued cyclical recovery in IoT and incremental share gains in BTLE within CGM and ESL. **We expect investors will be focused on:** 1) updates on demand trends and the status of inventory destocking for commercial and consumer IoT; 2) visibility and expectations for the pace and shape of the recovery; 3) when mgt believes it will start shipping in line with consumption; and 4) updates on the ramps of its latest design wins in CGM, ESL, and Smart Meters.

## SWKS (Sector Weight)

**We expect SWKS to post in-line results and guidance**, with stable iPhone 16 builds and healthy high-end Android being offset by net content losses in the iPhone 16 and weakness in Broad Markets. **We are looking for in-line F4Q24 (Sep.) results and in-line F1Q25 (Dec.) guidance.** Our F4Q24 revenue/EPS estimates are \$1.02B/\$1.52 vs. consensus estimates of \$1.02B/\$1.52, and our F1Q25 revenue/EPS estimates are \$1.10B/\$1.72 vs. consensus estimates of \$1.10B/\$1.73. **Street sentiment on the name is negative**, given concerns regarding: 1) smartphone maturity and 5G saturation; 2) China local competition; and 3) potential share losses in the iPhone 16. **We expect investors will be focused on:** 1) iPhone demand trends; 2) the extent that net content is down in the iPhone 16 compared to previous gen; 3) updates on inventory destocking in channel and end customers; and 4) content implications related to AAPL's internal modem.



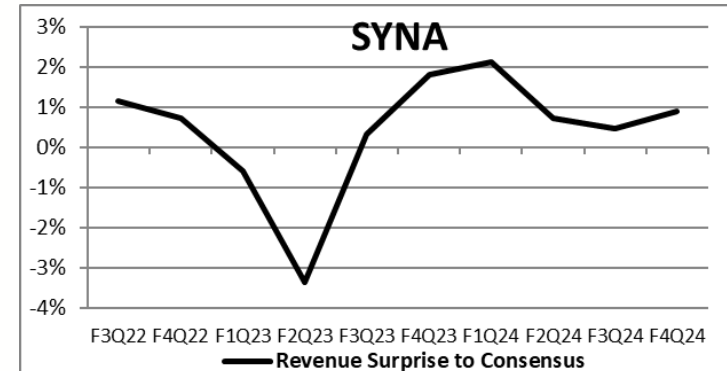
SLAB	C3Q24			C4Q24		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$166	14.3%	(\$0.20)	\$190	14.6%	\$0.15
Consensus	\$165	13.6%	(\$0.21)	\$187	13.1%	\$0.09



SWKS	F4Q24			F1Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$1,022	12.9%	\$1.52	\$1,100	7.6%	\$1.72
Consensus	\$1,021	12.7%	\$1.52	\$1,099	7.7%	\$1.73

## SYNA (Sector Weight)

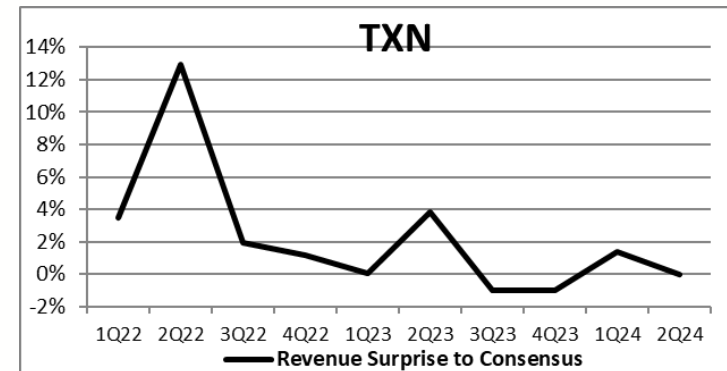
**We expect SYNA to post in-line results and in-line guidance**, as we expect mgt's high confidence in wireless IoT, as it returns to a normalized \$200M annual run rate, will be offset by continued weakness in enterprise demand. **We anticipate in-line F1Q25 (Sep.) results and in-line F2Q25 (Dec.) guidance.** Our F1Q25 revenue/EPS estimates are \$256M/\$0.75 vs. consensus estimates of \$255M/\$0.75, and our F2Q25 revenue/EPS estimates are \$263M/\$0.83 vs. consensus estimates of \$263M/\$0.84. **Street sentiment on the name is negative**, on concerns around lingering enterprise softness. **We expect investors will be focused on:** 1) the status of inventory destocking in channel and end customers, particularly in enterprise; 2) the pace and shape of recovery, and the expected timing of when it could return to normalized run rates; 3) GM recovery expectations amid current cross-currents (i.e., weak enterprise); and 4) any updates on new design wins in Edge AI and Auto.



SYNA	F1Q25			F2Q25		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$256	3.3%	\$0.75	\$263	2.9%	\$0.83
Consensus	\$255	3.2%	\$0.75	\$263	3.2%	\$0.84

## TXN (Overweight, PT \$250)

**We expect TXN to post in-line results and lower guidance**, as recent strength in China is offset by channel feedback that indicates slightly weaker demand trends across most end markets including Auto and Industrials, which combine for >70% of revs. While potential indications of a 2H bottom in Auto could set up TXN for a return to growth in 2025, we see near-term risk, as Street cons expectations for 4Q25 of -0.3% q/q is 390 bps above normal seasonal trends. **We anticipate in-line 3Q24 results and lower 4Q24 guidance.** Our 3Q24 revenue/EPS estimates are \$4.11B/\$1.37 vs. consensus estimates of \$4.12B/\$1.38, and our 4Q24 revenue/EPS estimates are \$3.99B/\$1.28 vs. consensus estimates of \$4.10B/\$1.36. **Street sentiment on the name is moderate negatively**, on concerns over incremental demand weakness in auto and industrial but is encouraged by recent mgt messaging on CapEx spend. **We expect investors will be focused on:** 1) key operational metrics, including booking trends, lead times, customer requests for push-out or cancellation, and inventory; 2) end-demand trends, particularly auto and industrial; 3) updates on the China market and the pace of the recovery, as well as increased domestic competition; 4) GMs expectation as it continues to expand 300mm capacity; and 5) any planned changes to capex spend and updates on support from the CHIPS act.



TXN	C3Q24			C4Q24		
	Revenue(M)	Q/Q%	EPS	Revenue(M)	Q/Q%	EPS
KBCM	\$4,107	7.5%	\$1.37	\$3,994	-2.8%	\$1.28
Consensus	\$4,119	7.8%	\$1.38	\$4,107	-0.3%	\$1.36



**Demand trends remain weak, as 2H growth expected to remain subseasonal.** Analog commentary across multiple supply chain partners and distribution consistently indicated that broad-based demand trends remain weak. Geographically, both the U.S. and Europe were noted as being weaker, with Europe being consistently called out as being the weakest. The China region was characterized as weak as well but viewed as relatively more stable as compared to the other regions. By end markets, consumer-related demand is muted, as 2H seasonal holiday builds and back-to-school demand have been disappointing, resulting in a subseasonal outlook for 2H, although all channel partners we met with still expected 2H to be greater than 1H. Commentary on Industrial consistently indicated this sector bottomed in 1H and continues to recover in 2H, though the shape of the recovery remains muted. Auto demand continues to weaken and is expected to correct through the rest of the year. However, we are seeing signs that this segment is getting closer to a bottom. As such, we expect 3Q resales are tracking in the range of +5-10% q/q and tracking slightly weaker than originally expected. For 4Q, we expect resales to be tracking flat to down 5% q/q, as compared to normal seasonal trends of flat q/q.

**We are seeing some indications that Autos are getting closer to a bottom.** In Asia, we picked up a few data points that would suggest that we are getting closer to a cyclical bottom in automotive semis, which was somewhat surprising for us to hear as end-market commentary from Auto OEMs appears to be getting worse. One distributor we spoke to indicated that high voltage IGBTs inventories appear to be getting closer to normalizing as it's starting to see customers book further out into 4Q and place orders into backlog. On the memory front, we are seeing auto customers starts to book out LPDDR memory capacity, which typically happens when an OEM prepares for new model launches. While we do not believe this would suggest that Auto semis are seeing a recovery in the 2H, we believe it would suggest we're getting closer to a cyclical bottom than what automotive OEM end-market commentary would suggest.

**Channel inventory feedback is somewhat mixed, but inventory levels appear to be running at healthy levels.** Commentary regarding distribution inventory this quarter was somewhat mixed, as some channel partners indicated they were able to make good progress to bring inventory levels down, despite weakening demand trends and that "stuffing" activity was extremely limited, which was somewhat surprising to hear. Other distribution partners had preemptively built inventory into the 2H in anticipation of a more meaningful seasonal pickup. However, as resales weakened, they are ending the quarter with higher levels of inventory. As such, we believe channel inventories broadly speaking have decreased slightly to just over two months of inventory, which compares to normalized levels of 1.5-2 months.

**Increasing cloud demand drives improving outlook for traditional server, while Enterprise demand remains stable.** Server supply chain feedback indicates demand for traditional server continues to improve, with strengthening demand trends being primarily driven by hyperscaler. Server ODMs indicate demand was strong across both the U.S. as well as China cloud providers. Feedback indicates demand is being driven by the replacement cycle of capacity installed during the pandemic across broad-based workloads, as well as server storage. Conversely, demand for Enterprise remains stable, and is still expected to grow 5% this year. For 2024, we're increasing our total server shipment estimates slightly to 8% from 7% prior, with Cloud +10%. For ODM server shipments, we expect +6% q/q in 3Q24 and -2% q/q in 4Q24.

**Hopper demand continues to get stronger, as cloud providers are not waiting for Blackwell to ramp.** Feedback from Asia indicates that demand for H100/H200 remains extremely robust, as cloud providers and enterprise customers are not waiting for the ramp of Blackwell to ramp and continue to place orders for Hopper GPUs from NVDA. We expect NVDA Hopper GPU shipments to increase DD% q/q in both 3Q and 4Q, even as Blackwell is expected to start ramping in 4Q.

**Expect Blackwell including GB200 to ramp in volume in FQ4 (Jan).** Following the delay, supply chain feedback indicates Blackwell is on track to ramp in volume in F4Q (Jan), with mass production expected in December. We expect NVDA will ship both B200 HGX boards (x86-based), as well as GB200 NVL72/36 full-stack systems in the quarter and are estimating Blackwell will contribute an incremental ~\$7B in F4Q revenues.

**Despite delay, outlook for GB200 NVL in 2025 remains unchanged.** Despite the Blackwell delay, our outlook for GB200 in 2025 remains unchanged, as we are expecting 50K GB200 NVL server racks, of which we expect the mix will be 60-70% NVL72. We believe ASPs for NVL72 are ~\$3.8M and \$1.75M for NVL36. We expect demand will continue to upward bias our 60-70% mix assumptions given the TCO advantages afforded by NVL72 over NVL36 (GB200 NVL TCO is 20-30x greater than H100); however, we recognize enabling a liquid cooling infrastructure remains a constraint toward adoption. Accordingly, we estimate supply/demand dynamics projects supporting over \$200B in data center revenues in FY26 (Jan).

**In a strange turn of events, NVDA is now canceling B200A.** Previously, in reaction to the delay of Blackwell, NVDA had developed B200A, due to supply constraints related to CoWoS-L, but feedback from Asia indicates NVDA is now canceling B200A, as it has been able to secure more interposer capacity at TSMC.

**RMAs on NVDA Hopper servers related to MPWR power modules are starting to increase again.** We had previously heard that field failures related to MPWR's power module for Hopper GPUs had been resolved through better testing measures at MPS, as well as workarounds implemented in firmware at NVDA. However, supply chain feedback is indicating that the field failures and RMAs related to H100 AI servers are starting to increase again, and we believe this is related to MPWR power FETs. It's unclear to us, as to what the issue is, but we are increasingly concerned that this will likely negatively impact MPWR market share on Blackwell. While we had previously estimated 75-80% share on Blackwell, we're estimating MPWR's share will be closer to 70%. We anticipate the second source share will likely be split between IFX and Renesas. Despite these issues, MPWR market share on Hopper is unlikely to be impacted.

**NVDA/MLNX and AVGO expected to gain market share in optical DSPs.** Feedback from the supply chain indicates that AVGO has been successfully qualified on Blackwell with a lower cost 800Gb optical DSP and could begin ramping in volume in 4Q24. We had previously noted that NVDA/MLNX have been working on a 1.6T optical DSP, which is expected to ramp in 2026. While early days, we heard that NVDA is working through power/heat issues with its DSP, which makes it difficult to ascertain how much share it could garner.

**At AMD's upcoming Advancing AI event, we expect mgt to launch MI325 and its next-generation server CPU Turin.** We expect AMD to launch its next generation GPU MI325 at its upcoming AI event. MI325 will be a moderate upgrade as it's still based on 5nm, but is expected to have more memory 256GB of HBM3E, as compared to 192GB of HBM3. Following MI325, we believe AMD is also developing MI355, which is expected to be a more significant performance upgrade as it's based on 3nm and will have higher amounts of HBM. MI355 is expected to be available at the end of 2025. In addition, we anticipate AMD will announce its next-generation server CPU Turin at the event.

**AMD still on pace to ship 500K MI300X GPUs this year; initial outlook for 2025 is for 800K GPUs.** We continue to see demand for 500K MI300X GPUs this year and are estimating ~\$6B in revenues, which assumes \$12K-\$13K in ASPs per GPU. MSFT remains AMD's flagship customer for MI300X. Looking into 2025, feedback indicates there is currently demand for 800K, which would represent unit growth of 60%. Assuming a 10-15% increase in pricing as AMD rolls out its next generation GPUs MI325 and MI355, that would represent \$10B-\$11B in revenues in 2025. We believe there is likely to be an upward bias to this estimate as customers await more details for MI355, which is expected to ramp in 3Q25.

**Interest and demand for Intel's Gaudi 3 is extremely limited.** Feedback indicates demand and interest in INTC's Gaudi 3 AI solution is extremely limited. Supply chain partners indicate the chip consumes too much power relative to its competitors. Server partners indicate that it is not a competitive solution to either NVDA or AMD.

**MRVL CoWoS demand sees a significant increase in 2025.** Supply chain feedback indicates MRVL's CoWoS supply for 2025 has increased almost 70% and is increasing over 200%, as compared to 2024. We believe this is related to the ramp of AWS Inferentia 2.5 and Trainium 2. Additionally, we hear that Inferentia 3.0 has been delayed providing MRVL with more runway on its AI ASIC design wins with AWS. As such, we believe there's likely to be upside to MRVL's AI outlook of \$2.5B in 2025.

**MRVL's next-generation AI ASICs appear to be in competitive bake offs and not a done deal.** While we had previously thought MRVL had won the design for Trainium 3, we hear it has lost this design to Alchip. Additionally, we believe Google's 2nd generation Axion ARM CPU is also in a competitive situation among MRVL, GUC, and Socionext. We view these developments as incrementally negative for MRVL as we are increasingly concerned these AI sockets are not as sticky as we had previously thought.

**Samsung continues to struggle with its performance on HBM3E.** We maintain that Samsung continues to struggle with the performance on HBM3E and is unlikely to garner any meaningful share during the HBM3E cycle. We do hear that NVDA has conditionally qualified Samsung on select SKUs, such as H200 in limited volumes and will likely have some share on China-related SKUs, such as the B20. AI supply chain partners indicate that customers have attempted to qualify Samsung's HBM3E with limited success and have struggled to overcome the thermal performance issues. We maintain that the majority of the allocation of HBM3E at NVDA on Blackwell will be shared by SK Hynix and MU.

**Samsung's struggles on HBM could create oversupply risk in DRAM.** We do think there could be risk that this could create an oversupply situation in DDR5, as it takes about three to five months to convert HBM capacity back to DRAM. We believe this could create a temporary oversupply situation in 1H25 for the industry, but believe the industry likely returns to supply/demand balance in the 2H, as customer inventories normalize and end-demand recovers cyclically.

Our September results reflect strong growth in traditional server, accelerating from the pace of growth from August, as compute processor instances were +5% m/m, +18% y/y, after last month's flat m/m and +13% y/y. Total cloud instances were +5% m/m, +18% y/y, compared with last month (flat m/m, +13% y/y), with BABA +9% m/m, Azure +8% m/m, AWS +1% m/m, and GCP +1% m/m. Sequentially, AMD was +16% m/m, NVDA was +2% m/m, ARM was +1% m/m, and INTC was +1% m/m. Key takeaways we'd highlight include: 1) traditional server growth has accelerated, +5% m/m, growing m/m in four of the five previous months, driven by strong growth at AMD +16% m/m; 2) AMD's Genoa has sharply reversed previous share losses (growing over 200% m/m) to INTC Emerald Rapids/Sapphire Rapids; and 3) NVDA continues growth +2% m/m vs. +1% m/m last month, driven by Hopper at GCP. We are now seeing traditional server instances grow m/m, reflecting ongoing strength in traditional server demand. We view implications for our latest cloud tracker as positive for AMD, slightly positive for NVDA, negative for INTC, and neutral for ARM.

- **September cloud instance results reflect strong growth in traditional servers, accelerating from the pause in August, as compute processor instances were +5% m/m, +18% y/y, after last month's flat m/m and +13% y/y.** Results from this month's Cloud Instance Tracker indicate total instances were +5% m/m and +18% y/y, compared with last month (flat m/m, +13% y/y), with Baba +9% m/m, Azure +8% m/m, AWS +1% m/m, and GCP +1% m/m. This month, cloud growth was +18% y/y (vs. last month +13% y/y), with GCP +20% y/y, AWS +17% y/y, Azure +20% y/y, and China cloud flat y/y. Processor growth was +5% m/m and +18% y/y, compared to flat m/m and +13% y/y last month. Accelerator was +2% m/m, +12% y/y, compared to +1% m/m and +11% y/y last month.
- **NVDA was +2% m/m, reflecting growth in Hopper and Ada Lovelace.** NVDA instances were +2% m/m and +8% y/y, vs. last month (+1% m/m, +6% y/y). Growth was driven by expansion in Hopper and Ada Lovelace instances, which grew 43% m/m and 2% m/m, respectively, driven by GCP. We believe the muted growth profile of NVDA instances in public cloud is a reflection of CSPs increasingly focusing their capex on internal generative AI workloads rather than a reflection of slowing AI server growth more broadly.
- **AMD was +16% m/m.** AMD processor instances were +16% m/m, +43% y/y, compared with last month (flat m/m, +26% y/y). AMD total instances were +16% m/m and +43% y/y, driven by Genoa at Azure. Genoa instances grew +226% m/m, with the majority of the growth occurring at Azure. MI300X instances did not grow and were flat m/m.
- **INTC was +1% m/m, as Sapphire Rapids and Emerald Rapids continued to expand.** Intel processor deployments were +1% m/m and +10% y/y, compared with last month (flat m/m, +9% y/y). INTC saw growth in its latest generation processors Emerald Rapids, which grew +11% m/m and Sapphire Rapids growing +6% m/m, with growth occurring at Azure, GCP, AWS, and BABA.
- **ARM instances were +1% m/m.** ARM-based CPU growth was +1% m/m and +23% y/y (vs. last month flat m/m and +22% y/y), driven by Graviton at AWS.

The Cloud Instance Tracker uses data analytics to track the proliferation of semiconductor architectures by region based on instances available to purchase in the public cloud. It is designed to track the launch and proliferation of new architectures (such as NVIDIA's Ampere or AMD's Milan).

**It can:**

- Offer context on the rate of proliferation of certain chips
- Provide clues regarding industry capex spend (in the public cloud) for various architectures
- Offer insight into the adoption of new architectures from AMD, NVIDIA, Google, Amazon, and others

**Over time it will:**

- Provide time-series data showing the relative rate of proliferation of chips by region; this will allow us to compare the launches of various chips
- Allow us to monitor changes in mix or capex in the public cloud

**It can't:**

- Tell us how many chips are being used in each region (it could be several or thousands)
- Tell us how many servers are running in each region
- Provide insight into absolute CSP market share
- Provide insight into non-public cloud services and internal workloads, such as Facebook



# Key New Instances During September

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## Highlights:

- AMD added 38 new regions, at Azure and GCP
- INTC added 22 new regions, particularly at BABA and GCP

New Regions Since Last Update





# Key New Instances During September (cont'd)

New Regions Since Last Update Continued

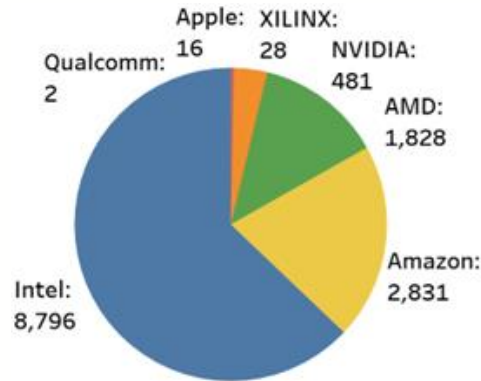
Provider							Manufacturer
Microsoft Azure	AMD Core: Genoa Asia Pacific East	AMD Core: Genoa Canada Central	AMD Core: Genoa Italy North	AMD Core: Genoa Poland Central	AMD Core: Genoa Qatar Central	AMD Core: Genoa South Africa North	AMD Core: Emerald Rapids Us West 3
	AMD Core: Genoa Australia Central	AMD Core: Genoa Canada East	AMD Core: Genoa Japan West			AMD Core: Genoa South Africa West	
	AMD Core: Genoa Australia Central 2	AMD Core: Genoa France Central	AMD Core: Genoa Korea South	AMD Core: Genoa South India	AMD Core: Genoa United Kingdom West	AMD Core: Genoa Us Central	
	AMD Core: Genoa Australia Southeast	AMD Core: Genoa France South	AMD Core: Genoa Mexico Central	AMD Core: Genoa Sweden South		AMD Core: Genoa Us North Central	
	AMD Core: Genoa Brazil South	AMD Core: Genoa Germany North	AMD Core: Genoa Norway East	AMD Core: Genoa Switzerland West	AMD Core: Genoa Us West Central	AMD Core: Genoa Usgov Virginia	
	AMD Core: Genoa Brazil Southeast	AMD Core: Genoa Israel Central	AMD Core: Genoa Norway West	AMD Core: Genoa Uae Central	AMD Core: Genoa Usgov Arizona	AMD Core: Genoa West India	
Intel							Core: Sapphire Rapids Us West 2

# Total Instances by Cloud Provider

34

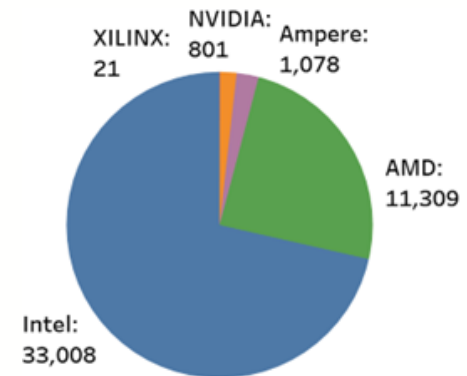
Total Core Count = 109,463 [AWS 13,982; GCP 40,157; Azure 46,217; Alibaba: 9,107]

## Amazon Web Services



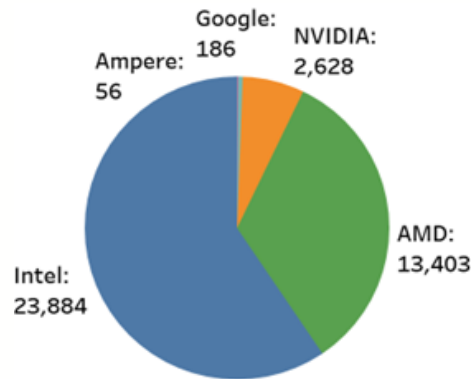
(AWS Instances +1% m/m; +17% y/y)

## Microsoft Azure



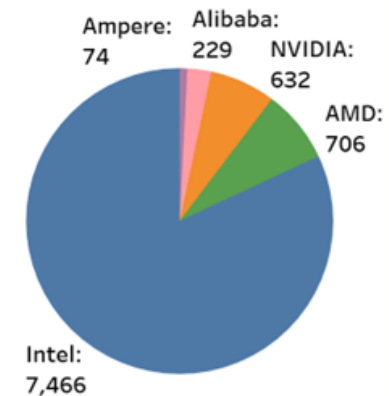
(Azure Instances +8% m/m; +20% y/y)

## Google Cloud



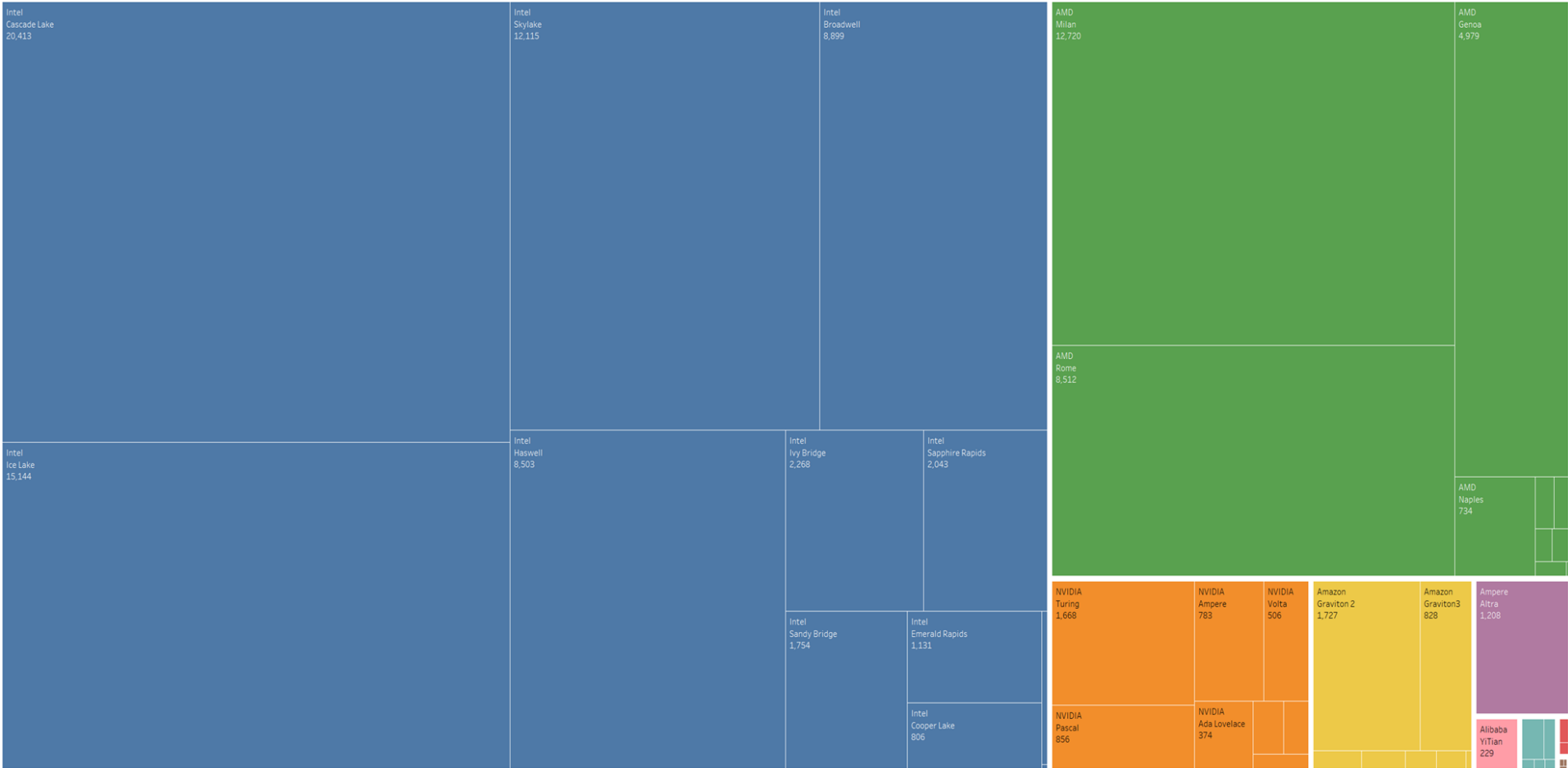
(GCP Instances +1% m/m; +20% y/y)

## Alibaba Cloud



(BABA Instances +9% m/m; flat y/y)

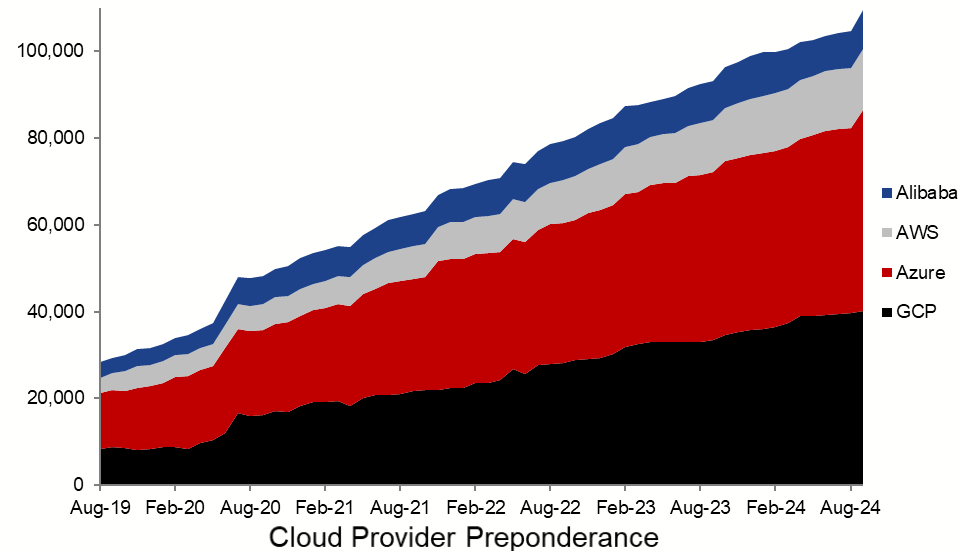
# Total Cloud Instances by Core Type



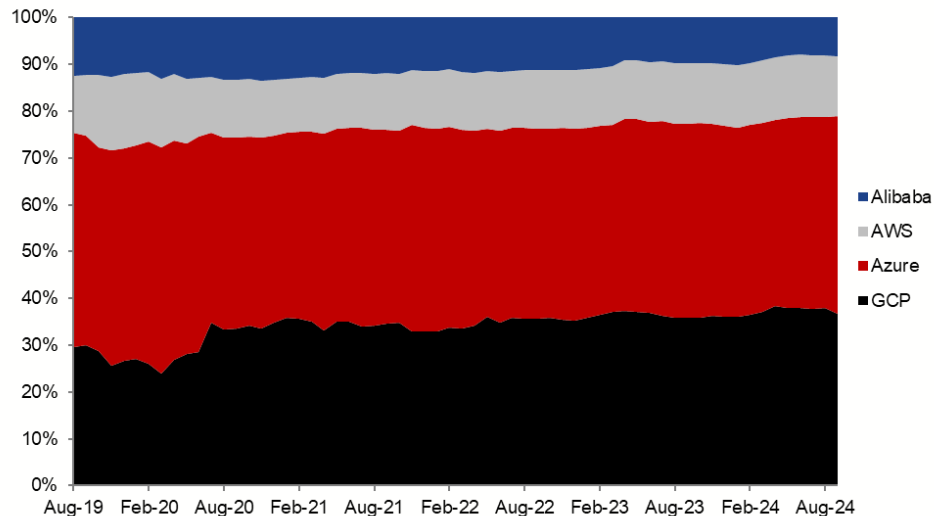
Intel: Coffee Lake (76), INTC Gaudi (2)  
AMD: Vega (88), Genoa-X (70), Milan-X (50), CDNA2 (50), Navi (40), AMD Instinct (3)  
NVIDIA: Maxwell (153), Hopper (124), Kepler (78)  
Amazon: Graviton4 (84), Inferentia (77), Graviton1 (54), Inferentia2 (52), Tranium (9)

Google: TPU v5e (99), TPU v5p (52), TPU v2 (13), TPU v3 (11), TPU v4 (11)  
XILINX: Alveo (33), Virtex (16)  
Apple: Silicon M2 (7), Silicon M1 (5), Silicon M2 Pro (4)  
Qualcomm: Cloud AI 100 Ultra (2)

Cloud Instance Growth by Provider

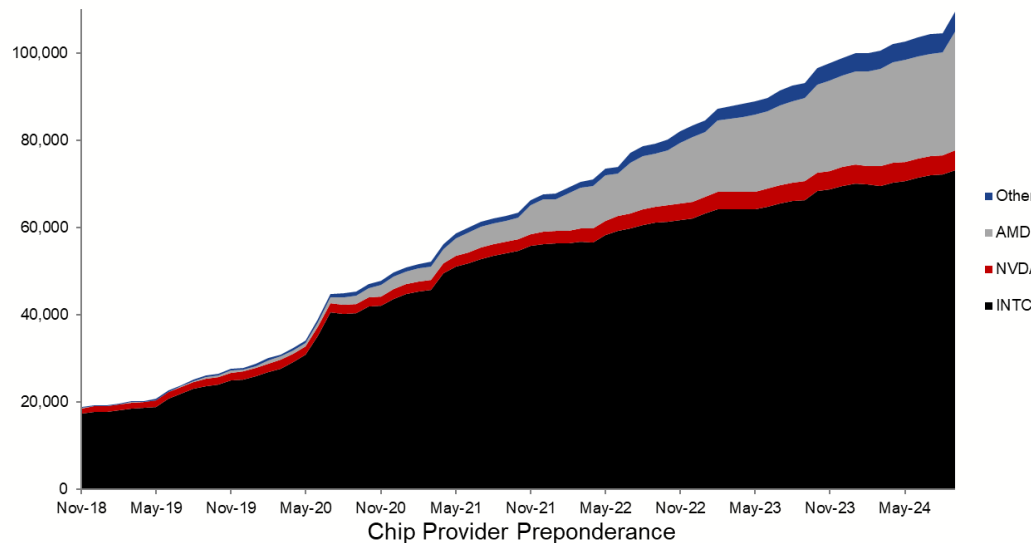


**In September, cloud growth was +5% m/m.** Total cloud instances were +5% m/m and +18% y/y, as compared to last month, which was flat m/m and +13% y/y. Azure was +8% m/m, and +20% y/y. AWS was +1% m/m, +17% y/y. GCP was +1% m/m, +20% y/y. BABA was +9% m/m and flat y/y.

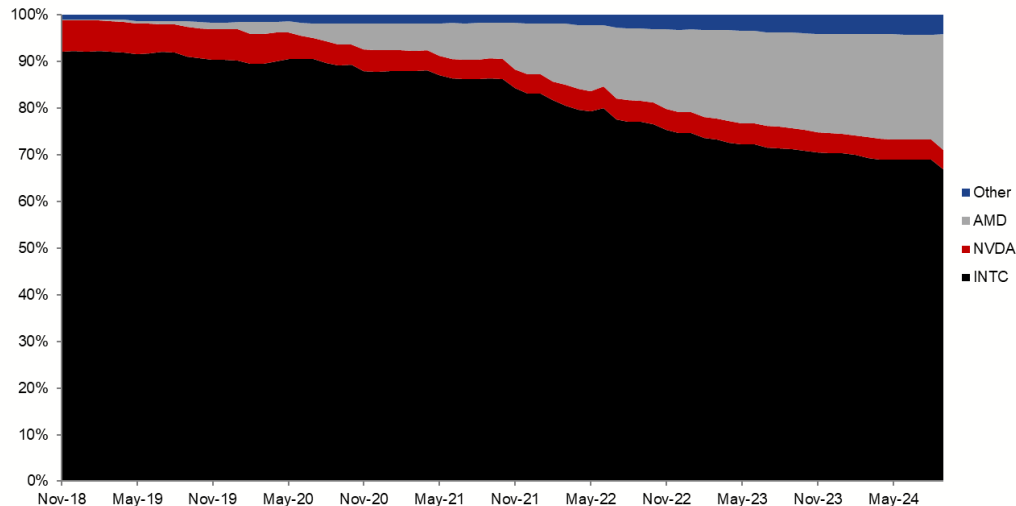


**In September, Azure share grew slightly m/m.** BABA share was 8% (+30 bps m/m, -150 bps y/y). Azure share was 42% (+150 bps m/m, +80 bps y/y). GCP share was 37% (-120 bps m/m, +80 bps y/y). AWS share was 13% (-50 bps m/m, -10 bps y/y).

Cloud Instance Growth by Chip Provider

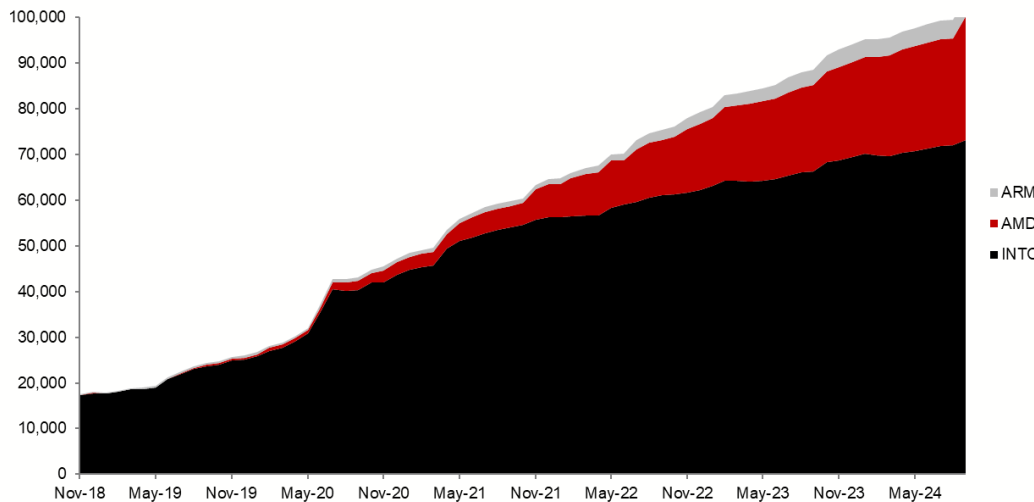


**In September, cloud growth was 5% m/m, +18% y/y.** AMD led the growth +16% m/m, +43% y/y, as driven by Genoa at Azure. INTC +1% m/m, +10% y/y. NVDA +2% m/m, +8% y/y. Other +1% m/m and +27% y/y, which includes AWS (+1% m/m), Ampere (flat m/m), BABA (+9% m/m), Apple (flat m/m), XLNX (flat m/m), Google (flat m/m), and QCOM (flat m/m).



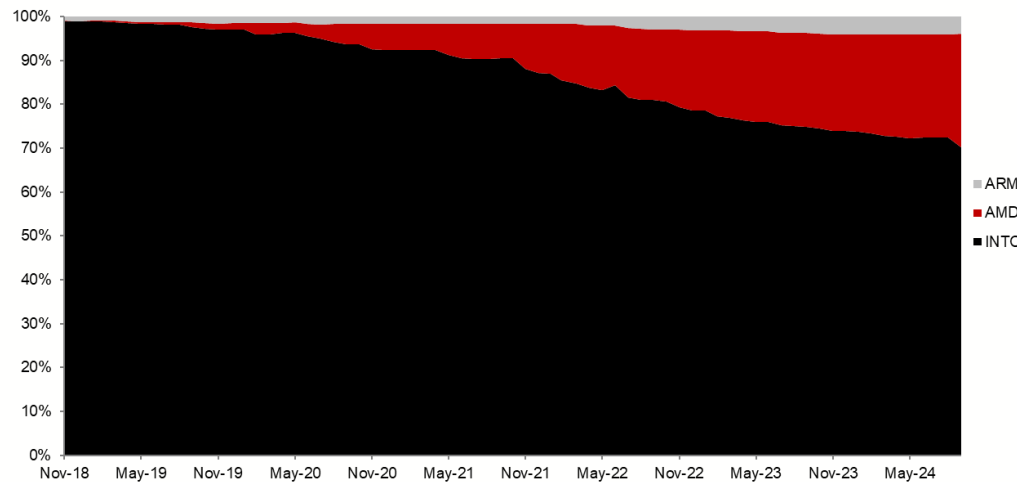
**In September, AMD share grew robustly m/m.** INTC share was 67% (-210 bps m/m, -440 bps y/y). AMD share was 25% (+240 bps m/m, +440 bps y/y). NVDA share was 4% (-10 bps m/m, -40 bps y/y). Other share was 4% (-10 bps m/m, +30 bps y/y).

Cloud Instance Growth by Processor Provider



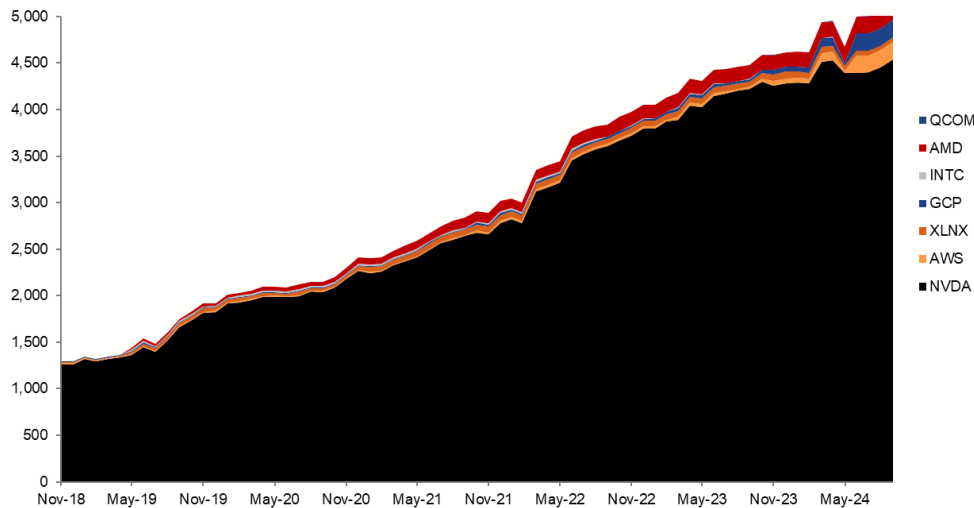
**In September, cloud deployment of processors was +5% m/m.** Total processor instances were +5% m/m and +18% y/y (vs. flat m/m and +13% y/y last month). ARM was +1% m/m, +23% y/y. AMD was +16% m/m and +43% y/y. INTC was +1% m/m and +10% y/y.

Processor Provider Preponderance

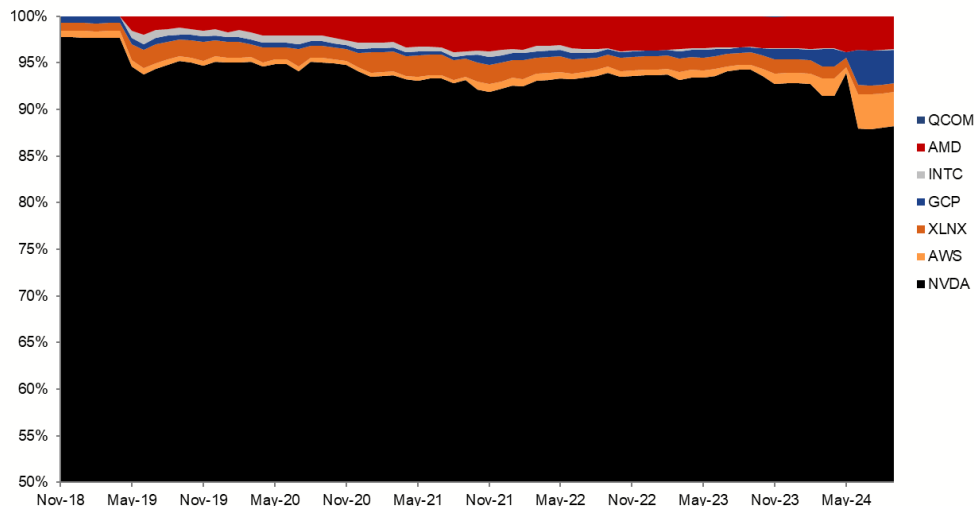


**In September, AMD share grew robustly m/m.** AMD processor share was 26% (+250 bps m/m, +460 bps y/y). ARM-based processor share was 4% (-10 bps m/m, +20 bps y/y). INTC share was 70% (-230 bps m/m, -480 bps y/y).

Cloud Instance Growth by Accelerator Provider



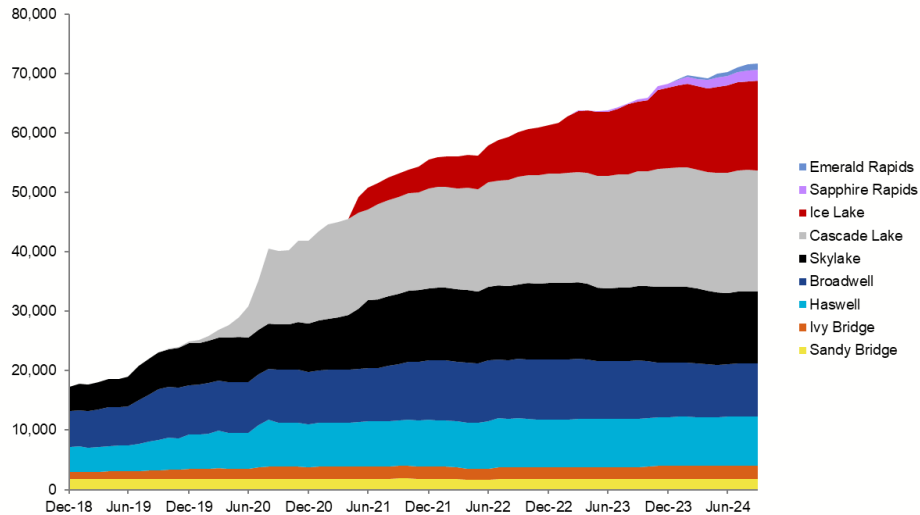
Accelerator Provider Preponderance



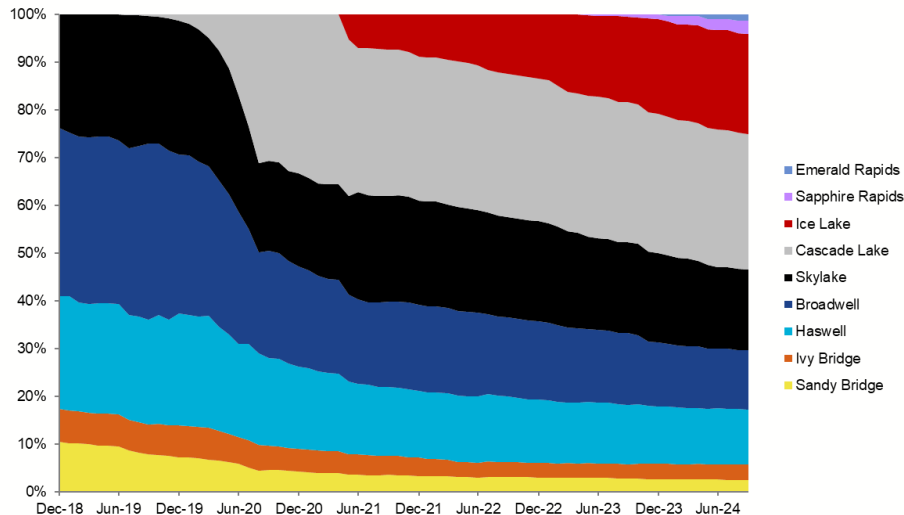
**In September, accelerator instances improved slightly 2% m/m.** Total accelerator instances improved slightly 2% m/m, +12% y/y, compared with last month (+1% m/m, +11% y/y), with Hopper growing at GCP. AWS was flat m/m, and +41% y/y, AMD was flat m/m and +22% y/y, INTC was flat m/m and flat y/y, QCOM was flat m/m, NVDA was +2% m/m and +8% y/y, XLNX was flat m/m and -16% y/y, and GCP was flat m/m and +675% y/y.

**In September, share remained stable m/m.** NVDA share remained dominant at 89% (+20 bps m/m, -370 bps y/y). AMD share was 4% (-10 bps m/m, +30 bps y/y). AWS share was 3% (flat m/m, +60 bps y/y). XLNX share was 1% (flat m/m, +30 bps y/y). GCP share was 4% (-10 bps m/m, +310 bps y/y). INTC and QCOM share were immaterial (both below 1%).

INTC Cloud Instance Growth by Generation



INTC Cloud Preponderance by Generation



**In September, INTC instances were +1% m/m.** Total INTC cloud instances were +1% m/m and +10% y/y, compared with last month (flat m/m, +9% y/y). Sapphire Rapids was +6% m/m and +401% y/y, with growth occurring at Azure, GCP, AWS, and BABA. Emerald Rapids was +11% m/m, with growth at BABA and Azure. Ice Lake was +1% m/m and +26% y/y. Haswell was +2% m/m and +4% y/y. Sandy Bridge was flat m/m and -3% y/y. Ivy Bridge was flat m/m and +11% y/y. Broadwell was flat m/m and -7% y/y. Cascade Lake was flat m/m and +6% y/y. Skylake was flat m/m and -4% y/y.

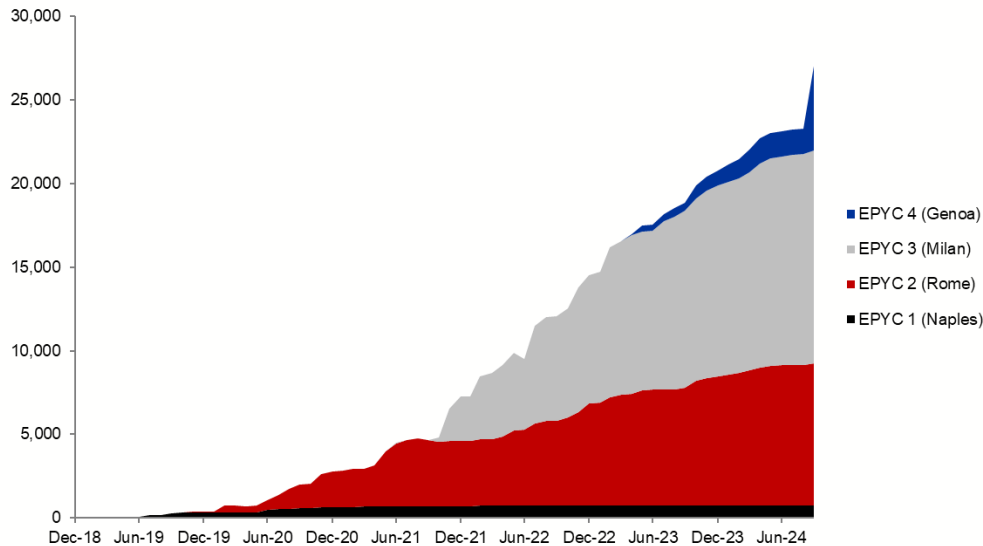
**In September, share remained largely stable.** Cascade Lake mix was 28% (-40 bps m/m, -120 bps y/y). Ice Lake mix was 21% (-20 bps m/m, +260 bps y/y). Skylake mix was 17% (-20 bps m/m, -240 bps y/y). Broadwell mix was 12% (-10 bps m/m, -230 bps y/y). Haswell mix was 12% (+10 bps m/m, -70 bps y/y). Ivy Bridge mix was 3% (flat m/m, flat y/y). Sandy Bridge mix was 2% (flat m/m, -30 bps y/y). Sapphire Rapids mix was 3% (+10 bps m/m, +220 bps y/y). Emerald Rapids mix was 2% (+10 bps m/m, +150 bps y/y).



# AMD Cloud Instance Growth by Generation

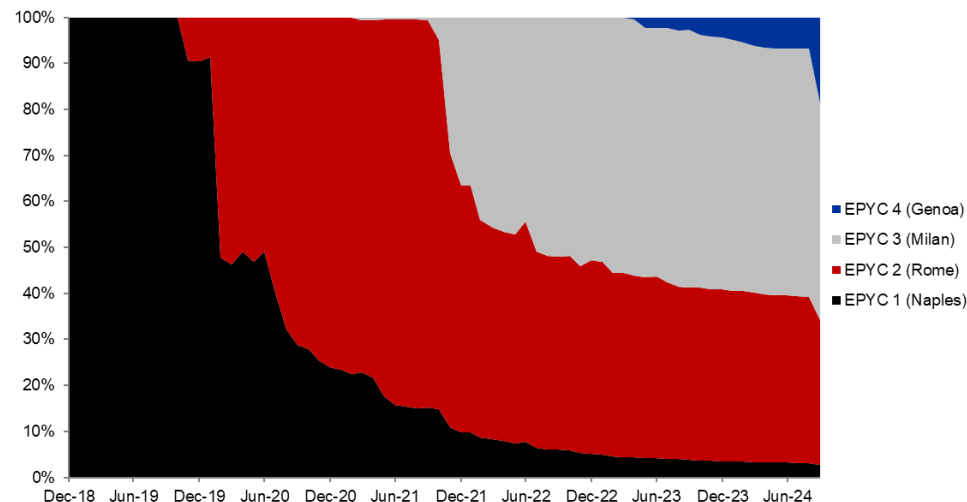
41

AMD Cloud Instance Growth by Generation



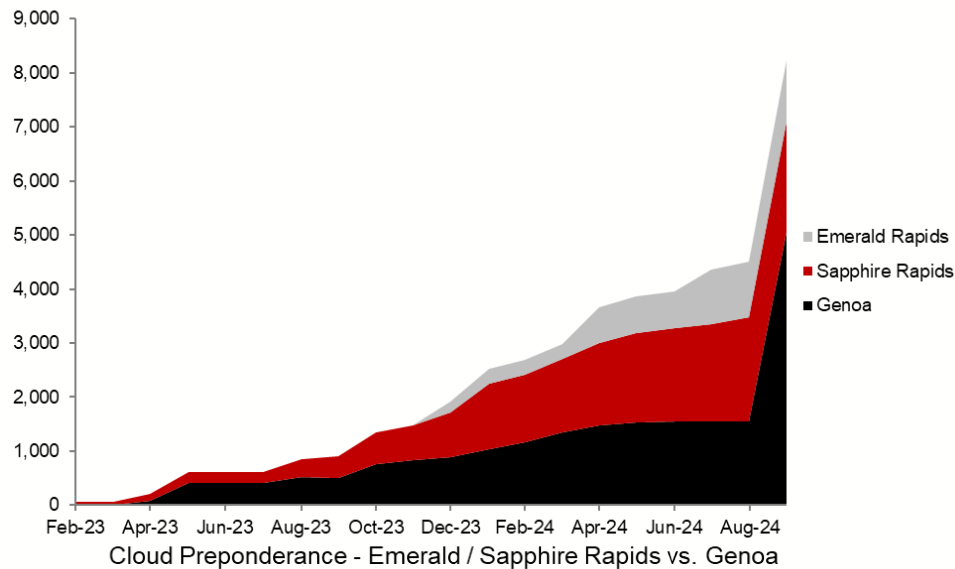
In September, AMD instances were **+16% m/m**. Total AMD instances were **+16% m/m** and **+43% y/y**, compared with last month (flat m/m, +26% y/y). Genoa was **+226% m/m** (vs. flat m/m last month). Milan was **+1% m/m**, **+21% y/y**, and Rome was **+1% m/m**, **+21% y/y**. Naples was flat both m/m and y/y.

AMD Cloud Preponderance by Generation

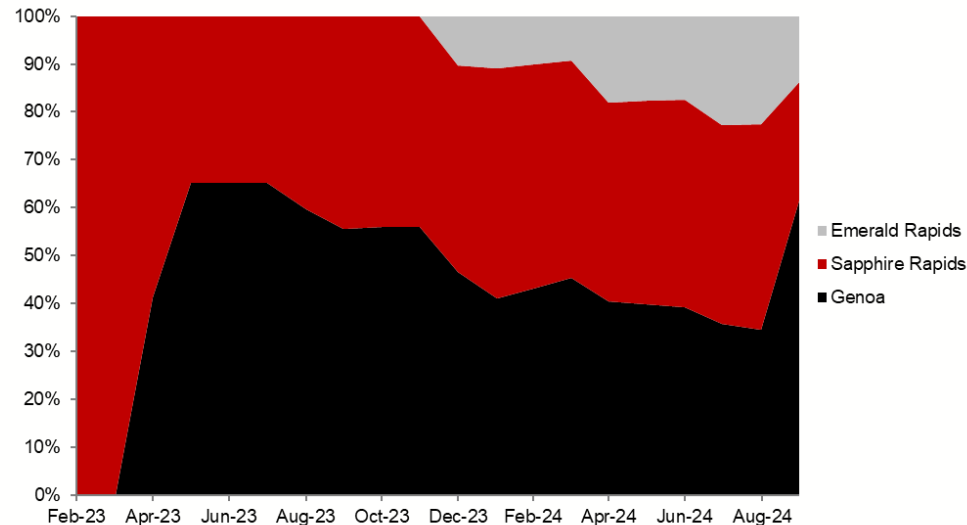


In September, Genoa mix expanded robustly **m/m**. Milan mix was 47% (-700 bps m/m, -890 bps y/y). Rome mix was 31% (-460 bps m/m, -590 bps y/y). Genoa mix was 19% (+1200 bps m/m, +1,600 bps y/y). Naples mix was 3% (-40 bps m/m, -120 bps y/y).

Cloud Instance Growth - Emerald / Sapphire Rapids vs. Genoa

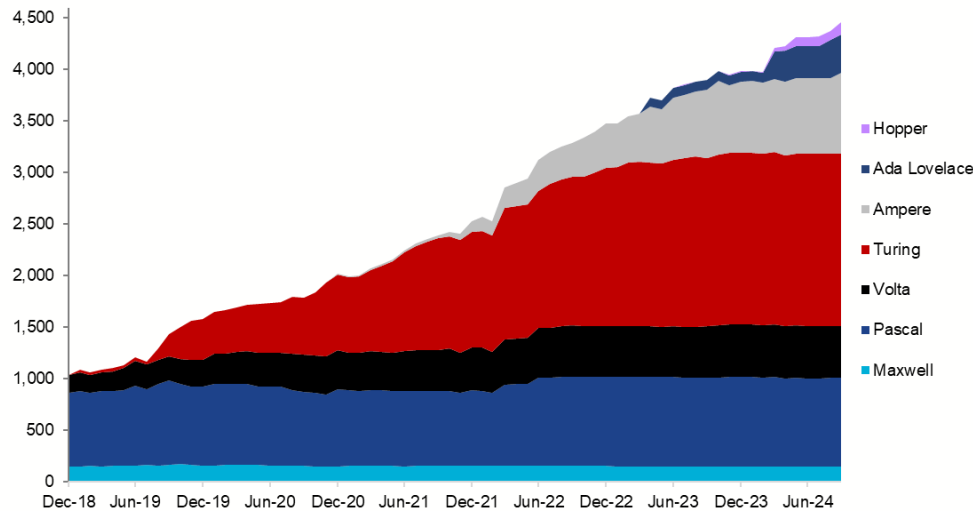


**In September, Genoa's growth m/m outpaced Emerald/Sapphire Rapids.** INTC Sapphire Rapids instance growth was +6% m/m vs. +7% m/m last month. INTC Emerald Rapids instance growth was +11% m/m. INTC Emerald & Sapphire Rapids combined grew +8% m/m. AMD Genoa instances were 226% m/m (vs. flat m/m last month).



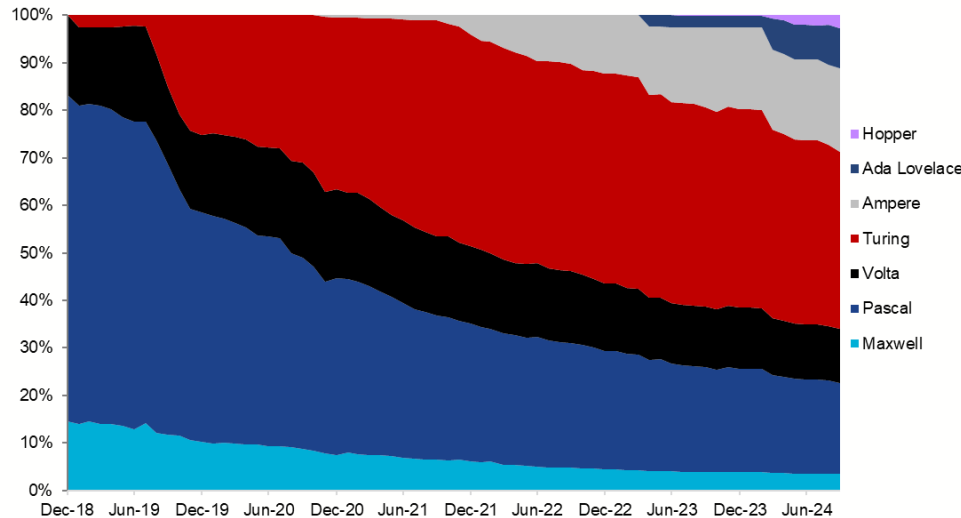
**In September, AMD expanded significant share m/m.** INTC Sapphire Rapids share was 25% (-1,810 bps m/m), INTC Emerald Rapids share was 14% (-890 bps m/m), and INTC share combined was 39% (-2,700 bps m/m). AMD Genoa share was 61% (+2,700 bps m/m).

NVDA Cloud Instance Growth by Generation



**In September, NVDA instance growth was +2% m/m.** Total NVDA instance growth was +2% m/m and +8% y/y, compared to last month (+1% m/m, +6% y/y). Hopper was +43% m/m. Ada Lovelace was +2% m/m, +290% y/y. Ampere was +6% m/m, +19% y/y. Turing was flat m/m and +2% y/y. Pascal was flat m/m and -1% y/y. Volta and Maxwell were flat m/m and +2% y/y and flat y/y, respectively. Kepler was flat m/m and -76% y/y.

NVDA Cloud Preponderance by Generation



**In September, Hopper mix grew share slightly m/m.** Turing mix was 37% (-80 bps m/m, -200 bps y/y). Pascal mix was 19% (-40 bps m/m, -160 bps y/y). Ampere mix was 17% (+70 bps m/m, +160 bps y/y). Volta mix was 11% (-20 bps m/m, -60 bps y/y). Ada Lovelace mix was 8% (flat m/m, +600 bps y/y). Maxwell mix was 3% (-10 bps m/m, -30 bps y/y). Hopper mix was 3% (+80 bps m/m, +270 bps y/y). Kepler mix was 2% (flat m/m, -580 bps y/y).

## Sep Shipments Slightly Above Expectations, 3Q 45.7M (+MSD% q/q) vs. est. 45.6M and Maintain Full-Year at +1%

- Sep unit shipments were +7% m/m, -1% y/y, slightly higher than our original expectations.** PC NB unit shipments of 16.6M (+7% m/m) were above our estimate of 16.5 (+7% m/m), due to demand pulled-in from 4Q24 and for preparation for the 4Q24 holiday season. Quanta shipped 4.9M, better than our estimates of 4.4M, due to higher-than-expected demand from HP and Apple. Compal shipped 2.9M, weaker than the original expectation of 3.3M, due to weaker-than-expected demand from Dell and the share loss from Lenovo; Wistron shipped 1.9M, lower than our estimate of 2.1M, due to weaker than expected demand from Dell's consumer notebooks. Inventec shipped 1.8M, better than our estimate of 1.7M, due to strong demand from ASUS gaming notebooks. Pegatron shipped 825K, weaker than our estimate of 900K, due to weak Microsoft Surface demand.
- 4QE unit shipments expected to be 43.2M (-5% q/q, +6% y/y), while 2024 remained at +1%.** We expect 4Q unit shipment of 43.2M (-5% q/q, +6% y/y). We see Quanta unit shipments of 10.7M (-15% q/q, +3% y/y), Compal unit shipments of 7.8M (-6% q/q, -6% y/y), Wistron unit shipments of 4.9M (-6% q/q, -8% y/y), Inventec units of 5.0M (-4% q/q, +11% y/y), and Pegatron unit shipments of 2.5M (flat q/q, +50% y/y). We maintain our 2024 shipment expectations of +1% y/y (est. 170M).
- We view slightly higher Sep shipments and 4Q expectations as neutral for PC-exposed companies.** NB-exposed companies under our coverage universe include AMD, INTC, LSCC, MPWR, MU, NVDA, ON, and SYNA.

### Snapshot: Notebook ODM Units

#### Snapshot

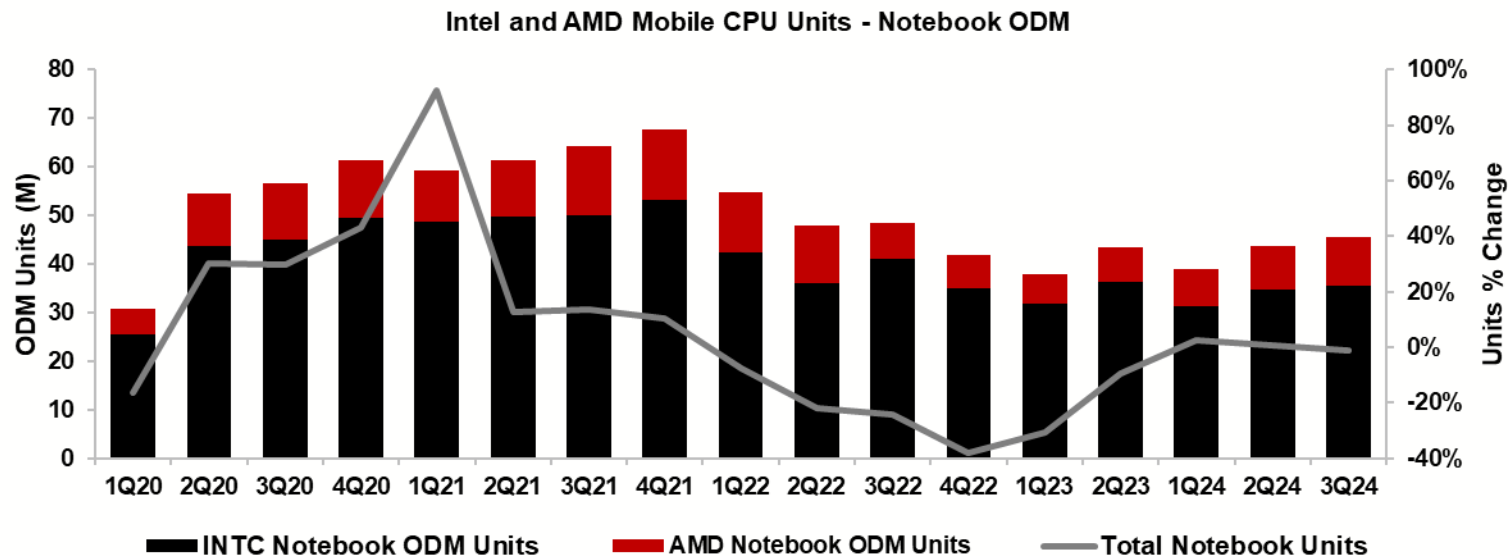
<i>In thousands</i>	Sep-24	3Q24
<b>Quanta</b>	4,900	12,600
<i>Q/Q growth</i>		8%
<b>Compal</b>	2,900	8,300
<i>Q/Q growth</i>		-5%
<b>Wistron</b>	1,900	5,200
<i>Q/Q growth</i>		-4%
<b>Inventec</b>	1,800	5,200
<i>Q/Q growth</i>		6%
<b>Pegatron</b>	825	2,475
<i>Q/Q growth</i>		20%
<b>Other</b>	4,300	11,900
<i>Q/Q growth</i>		9%
<b>Total</b>	<b>16,625</b>	<b>45,675</b>
<i>M/M growth</i>	7%	
<i>Q/Q growth</i>		5%
<i>Y/Y growth</i>	-1%	-1%

Sep-24			
<i>In thousands</i>	Previous	Current	Δ
<b>Quanta</b>	4,400	4,900	▲
<i>M/M growth</i>	1%	1%	
<b>Compal</b>	3,300	2,900	▼
<i>M/M growth</i>	1%	1%	
<b>Wistron</b>	2,100	1,900	▼
<i>M/M growth</i>	1%	1%	
<b>Inventec</b>	1,700	1,800	▲
<i>M/M growth</i>	1%	1%	
<b>Pegatron</b>	900	825	▼
<i>M/M growth</i>	1%	1%	
<b>Other</b>	4,100	4,300	▲
<i>M/M growth</i>	1%	1%	
<b>Total</b>	<b>16,500</b>	<b>16,625</b>	▲
<i>M/M growth</i>	7%	7%	
<i>Q/Q growth</i>			
<i>Y/Y growth</i>	-2%	-1%	

3Q24			
<i>In thousands</i>	Previous	Current	Δ
<b>Quanta</b>	12,100	12,600	▲
<i>Q/Q growth</i>	3%	8%	
<b>Compal</b>	8,700	8,300	▼
<i>Q/Q growth</i>	0%	-5%	
<b>Wistron</b>	5,400	5,200	▼
<i>Q/Q growth</i>	0%	-4%	
<b>Inventec</b>	5,100	5,200	▲
<i>Q/Q growth</i>	4%	6%	
<b>Pegatron</b>	2,550	2,475	▼
<i>Q/Q growth</i>	23%	20%	
<b>Other</b>	11,700	11,900	▲
<i>Q/Q growth</i>	7%	9%	
<b>Total</b>	<b>45,550</b>	<b>45,675</b>	▲
<i>M/M growth</i>			
<i>Q/Q growth</i>	4%	5%	
<i>Y/Y growth</i>	-1%	-1%	

	4Q23	Jan-24	Feb-24	Mar-24	1Q24	Apr-24	May-24	Jun-24	2Q24	Jul-24	Aug-24	Sep-24	3Q24	Oct-24E	Nov-24E	Dec-24E	4Q24E
<i>In thousands</i>																	
<b>Quanta</b>	<b>10,400</b>	<b>2,900</b>	<b>2,900</b>	<b>4,700</b>	<b>10,500</b>	<b>3,200</b>	<b>4,000</b>	<b>4,500</b>	<b>11,700</b>	<b>3,400</b>	<b>4,300</b>	<b>4,900</b>	<b>12,600</b>	<b>3,400</b>	<b>3,900</b>	<b>3,400</b>	<b>10,700</b>
Q/Q growth	-21%				1%				11%				8%				-15%
Y/Y growth	-19%	-6%	-6%	2%	-3%	-3%	-5%	-12%	-7%	-11%	-7%	4%	-4%	17%	3%	-8%	3%
<b>Compal</b>	<b>8,300</b>	<b>2,200</b>	<b>2,300</b>	<b>3,000</b>	<b>7,500</b>	<b>2,800</b>	<b>2,900</b>	<b>3,000</b>	<b>8,700</b>	<b>2,500</b>	<b>2,900</b>	<b>2,900</b>	<b>8,300</b>	<b>3,100</b>	<b>2,400</b>	<b>2,300</b>	<b>7,800</b>
Q/Q growth	-11%				-10%				16%				-5%				-6%
Y/Y growth	6%	5%	5%	-9%	-1%	17%	-3%	-9%	0%	-24%	0%	-6%	-11%	7%	-17%	-8%	-6%
<b>Wistron</b>	<b>5,300</b>	<b>1,300</b>	<b>1,400</b>	<b>1,900</b>	<b>4,600</b>	<b>1,900</b>	<b>1,700</b>	<b>1,800</b>	<b>5,400</b>	<b>1,600</b>	<b>1,700</b>	<b>1,900</b>	<b>5,200</b>	<b>1,500</b>	<b>1,600</b>	<b>1,800</b>	<b>4,900</b>
Q/Q growth	2%				-13%				17%				-4%				-6%
Y/Y growth	15%	18%	17%	19%	18%	36%	13%	6%	17%	7%	0%	-5%	0%	-12%	-11%	0%	-8%
<b>Inventec</b>	<b>4,500</b>	<b>1,500</b>	<b>1,300</b>	<b>1,700</b>	<b>4,500</b>	<b>1,500</b>	<b>1,700</b>	<b>1,700</b>	<b>4,900</b>	<b>1,700</b>	<b>1,700</b>	<b>1,800</b>	<b>5,200</b>	<b>1,600</b>	<b>1,700</b>	<b>1,700</b>	<b>5,000</b>
Q/Q growth	-8%				0%				9%				6%				-4%
Y/Y growth	2%	7%	-7%	6%	2%	7%	-6%	0%	0%	13%	6%	0%	6%	14%	6%	13%	11%
<b>Pegatron</b>	<b>1,650</b>	<b>525</b>	<b>375</b>	<b>650</b>	<b>1,550</b>	<b>550</b>	<b>740</b>	<b>775</b>	<b>2,065</b>	<b>775</b>	<b>875</b>	<b>825</b>	<b>2,475</b>	<b>825</b>	<b>800</b>	<b>850</b>	<b>2,475</b>
Q/Q growth	-34%				-6%				33%				20%				0%
Y/Y growth	3%	31%	-32%	-16%	-10%	-4%	10%	-6%	0%	7%	-3%	-5%	-1%	43%	39%	70%	50%
<b>Other</b>	<b>10,400</b>	<b>3,400</b>	<b>3,300</b>	<b>3,500</b>	<b>10,200</b>	<b>3,600</b>	<b>3,500</b>	<b>3,800</b>	<b>10,900</b>	<b>3,600</b>	<b>4,000</b>	<b>4,300</b>	<b>11,900</b>	<b>3,900</b>	<b>4,100</b>	<b>4,300</b>	<b>12,300</b>
Q/Q growth	-7%				-2%				7%				9%				3%
Y/Y growth	-2%	3%	-3%	6%	7%	3%	0%	1%	4%	-5%	0%	1%	0%	-9%	5%	5%	0%
<b>Total</b>	<b>40,550</b>	<b>11,825</b>	<b>11,575</b>	<b>15,450</b>	<b>38,850</b>	<b>13,550</b>	<b>14,540</b>	<b>15,575</b>	<b>43,665</b>	<b>13,575</b>	<b>15,475</b>	<b>16,625</b>	<b>45,675</b>	<b>14,325</b>	<b>14,500</b>	<b>14,350</b>	<b>43,175</b>
M/M growth		-11%	-2%	33%		-12%	7%	7%		-13%	14%	7%		-14%	1%	-1%	
Q/Q growth	-12%				-4%				12%				5%				-5%
Y/Y growth	-3%	11%	0%	-1%	2%	11%	-1%	-6%	1%	-4%	2%	-1%	-1%	10%	2%	8%	6%

# Intel vs. AMD PC Notebook Market Share



	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24
In millions																			
Notebook ODM Units	30.8	54.4	56.6	61.3	59.3	61.3	64.2	67.7	54.8	47.9	48.5	41.8	37.9	43.4	46.2	40.6	38.9	43.7	45.7
Q/Q	-28%	77%	4%	8%	-3%	3%	5%	6%	-19%	-13%	1%	-14%	-9%	14%	7%	-12%	-4%	12%	5%
Y/Y	-16%	30%	30%	43%	93%	13%	13%	10%	-8%	-22%	-24%	-38%	-31%	-9%	-5%	-3%	2%	1%	-1%
Intel Mobile CPU Units	41.9	42.7	50.9	62.0	64.8	64.8	43.9	45.8	41.9	37.3	31.6	26.5	26.4	32.2	34.3	37.9	36.6	35.8	32.9
Market share	83.0%	80.1%	79.8%	81.0%	82.0%	81.3%	78.0%	78.4%	77.5%	75.2%	84.3%	83.6%	83.8%	83.5%	80.5%	79.7%	80.7%	79.3%	77.6%
Q/Q	4%	2%	19%	22%	5%	0%	-32%	4%	-8%	-11%	-15%	-16%	0%	22%	6%	11%	-3%	-2%	-8%
Y/Y	22%	8%	25%	54%	55%	52%	-14%	-26%	-35%	-43%	-28%	-42%	-37%	-13%	8%	43%	39%	11%	-4%
AMD Mobile CPU Units	8.6	10.6	12.9	14.6	14.3	14.9	12.4	12.6	12.2	12.3	5.9	5.2	5.1	6.4	8.3	9.7	8.8	9.3	9.5
Market share	17.0%	19.9%	20.2%	19.0%	18.0%	18.7%	22.0%	21.6%	22.5%	24.8%	15.7%	16.4%	16.2%	16.5%	19.5%	20.3%	19.3%	20.7%	22.4%
Q/Q	10%	23%	22%	13%	-2%	4%	-17%	2%	-3%	1%	-52%	-11%	-2%	25%	30%	17%	-10%	7%	2%
Y/Y	65%	63%	83%	87%	66%	41%	-4%	-13%	-15%	-18%	-53%	-59%	-58%	-48%	41%	85%	71%	47%	15%



**QCOM ARM CPU feedback remains mixed, with limited shipments this year and next.** Feedback on QCOM's first generation ARM CPU "Oryon" remains mixed. We expect many of these issues, such as software compatibility, will be resolved over time. Cost should also be addressed with the release of its latest cost-down CPU processor "Purwa/Canim." However, given these near-term issues, demand for the QCOM PCs has been tepid and we're lowering our 2024 shipment estimate to 1M units from 1.5M prior. While there's capacity next year for 7M-8M QCOM ARM CPUs, we think demand is tracking closer to 3M-5M units.

## Positives

- The battery life has been exceptional, with one ODM indicating they've seen 28-29 hours of battery life in their labs.
- The compute processing performance has been good.

## Negatives

- The ASP of the CPU is too expensive and supports PC NBs with a retail price point above \$1,000, which is too expensive to drive broader market adoptions.
- Software compatibility has been a major issue, as we heard, for example, that consumers are unable to install certain printer drivers.
- Integrated graphics performance is not good.

**There still does not appear to be a compelling catalyst to drive an AI PC refresh cycle.** Feedback from Asia reflects broad-based skepticism for an AI PC driven refresh cycle. The lack of a compelling “Killer App” or software remains the main issue. While there has been some hope that Copilot could be a catalyst, PC ODMs indicate that this has yet to manifest itself in terms of demand. One of the most disappointing things we heard in relation to this is that OEMs are shipping PC NBs with a dedicated Copilot key (and marketing the laptop as an AI PC) with an Intel Raptor Lake CPU, which is not an AI CPU and falls short of the 40 TOPS performance requirement set forth by MSFT.

**While the initial feedback on INTC's Lunar Lake has been positive, the lack of a cost down AI CPU follow on is likely to result in market share loss in 2025.** Feedback from Asia regarding the performance of Lunar Lake has been mostly positive, as the copackaged memory architecture of the CPU has created a processor with significantly better battery life. While it may not be able to exceed the battery life of ARM, it's likely the most battery-efficient x86 processor ever developed. However, Lunar Lake is a premium AI CPU supporting retail price points on PC NBs of \$1,000+, which represents the high end of the PC segment. Intel's competitors such as AMD and QCOM are both launching cost down versions (Kraken Point for AMD and Purwa/Canim for QCOM) that support meaningfully lower price point PC NBs and still meet the MSFT AI performance 40 TOPS requirement. Conversely, INTC isn't expected to launch a lower price point CPU and won't have another processor launch until Panther Lake at the end of 2025. INTC does have a lower cost CPU Arrow Lake, but its TOPS performance is 37 and below the 40 TOPS requirement.

**We estimate the PC NB market is tracking to +1% in 2024 and ~4% in 2025.** With overall PC NB demand tracking slightly weaker and without compelling demand from AI PCs, we estimate the PC NB market is tracking to +1% unit growth this year. For next year, based on feedback from the supply chain, PC ODMs indicate expectations for LSD% unit growth in PC NBs with Consumer growing LSD% and Commercial growing MSD/HSD%, as there should be a modest uptick in replacement demand associated with Windows 10 EOL.

**Initial feedback for the iPhone 16 is not great, but not terrible either.** Feedback from the Asia supply chain indicates demand for the new iPhone 16 is not great, but not terrible either, or as bad as feared given concerns that pre-orders were down double digits y/y %. Attribution to why demand has not been great has been due to the lack of compelling functionality in Apple Intelligence and the lack of language support in key regions, such as China. Accordingly, supply chain partners have yet to see any cuts to build plans, which currently stand at 89M (+2% y/y) in 2H24. While there have been concerns about retail order lead times being so short, as compared to prior years, this appears to be due to manufacturing yields ramping better than expected. Given that there has been little change to the hardware specification of the iPhone 16, as compared to the iPhone 15, this has allowed EMS to converge to mature yields much faster than in a typical iPhone launch cycle. Accordingly, our 3Q24 total iPhone component unit assumptions remains unchanged at 53M (+18% q/q). For 4Q24, our iPhone component unit assumption is 75M (+41% q/q). For 2024, we're expecting 222M iPhones (-3%), which is up slightly from our prior estimate of 220M (-4%).



















**Expect Apple to use its internal 5G modem beginning with the SE4 and the iPhone 17 in 2025.** We believe Apple has successfully qualified its internal 5G modem and will begin using this modem beginning in 2025 in the SE4, which is expected to launch in the 1H25 and in the iPhone 17 "Slim" SKU. Apple's modem will be limited to non-mmW SKUs and will not be used in U.S.-based models. We believe that AAPL will target to use its internal modem in ~40M iPhones in 2025, ~100M in 2026, and 200M in 2027. We estimate the full impact of the modem coming out will represent a \$1.55-\$1.65 EPS headwind to earnings for QCOM.









**Apple is readying its Wi-Fi 7 chip for next year's iPhone 17.** Feedback from the supply chain indicates that Apple is preparing to launch its Wi-Fi 7 SoC next year in the iPhone 17. While Apple has been working on its own Wi-Fi chip for years, this is the first time we've seen activity by Apple to put capacity in place and at foundry for this chip. While this design change will not likely be finalized until early 2025, this could represent a meaningful headwind for AVGO if it's adopted in next year's iPhone.

# Feature Expectations and Implications

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The iPhone 16 lineup includes: 16 (6.1"); 16 Plus (6.7"); Pro (6.3" up from 6.1"); and Pro Max (6.9" up from 6.7"), with notable upgrades including: 1) Pro and Pro Max featuring an A18 Pro chip (based on 3nm process), while the 16/Plus adopts the A18 chip; 2) Wi-Fi 7 across all models vs. 15/Plus (Wi-Fi 6) and 15 Pro/Max (Wi-Fi 6E); 3) Camera Controller with a force sensor and haptics driver; and 4) Pro model adopting tetraprism (folding lens) design in addition to the Pro Max supporting enhanced 5x zoom capabilities.

Socket	iPhone 15	iPhone 16	Key Changes
Ultra high band	 <b>BROADCOM</b> 	 <b>BROADCOM</b> 	We expect AVGO to remain the primary supplier of UHB in the iPhone 16, with QRVO remaining second source with ~35% share.
Mid/high band	 <b>BROADCOM</b>	 <b>BROADCOM</b>	We expect AVGO to remain the sole-source supplier.
Low band	 <b>SKYWORKS</b>	 <b>Qualcomm</b>	We believe QCOM has won RF content in the iPhone 16 at the expense of SWKS. It's unclear what band this is, but apparently it is not the low band PAD.
Wi-Fi	Wi-Fi 6/6e 	Wi-Fi 7 	Wi-Fi 7 across all iPhone 16 models vs. 15/Plus (Wi-Fi 6) and 15 Pro/Max (Wi-Fi 6E) 6E; Apple continues to target the iPhone SE4 and the iPhone 17 in 2025 with its internal Wi-Fi 7 radio, but it remains unclear if it will be able to pass field qualification.
Wi-Fi FE	Wi-Fi 6/6e  	Wi-Fi 7  	We expect SWKS to benefit from an increase in RFFE content Wi-Fi 7 across all iPhone 16 models vs. 15/Plus (Wi-Fi 6) and 15 Pro/Max (Wi-Fi 6E) 6E; we believe share allocation between SWKS and Murata remains largely stable.
mmW			mmW attach rate is expected to remain flat at 50%.
Antenna tuner			We expect QRVO to benefit from incremental tuner content as 5G RF complexity increases.

Socket	iPhone 15	iPhone 16	Key Changes
Camera	2-gen sensor-shift, next-gen 48Mp CIS, periscope lens 	Pro to adopt periscope lens, and Pro/Max ultrawide camera to 48Mp 	The iPhone 16 Pro telephoto camera will adopt periscope lens, the Pro series ultrawide camera will upgrade to 48 Mp from 12Mp, and the 16/Plus ultrawide camera has improved aperture (2.2 vs 2.4). Also, we see the current-gen CLCs in the iPhone 15 Pro series to waterfall down into the 16/Plus. All represent a content tailwind for CRUS.
Memory			We expect low-end models (16/Plus) to upgrade to 8GB LPDDR5 DRAM from 6GB prior, while NAND capacity for all SKUs remains the same.
Haptics Buttons			We believe AAPL will not adopt side haptics buttons in the iPhone 16, and it would likely involve a redesign if it were to appear in a future iPhone.
Camera Control		 	AAPL has changed the design of the side camera button from a traditional physical button to a design that is similar to the existing "Action" button on the iPhone 15 and will utilize haptics / force touch. We believe that the iPhone 16 side camera button will use CRUS's haptics driver and ADI's force sensor, but it is unclear to us if this will result in any incremental content, as the "Action" button on the iPhone 15 did not result in incremental content.
5G Modem			We expect QCOM to have 100% share of the iPhone 16 modem. We believe Apple continues development on its internal modem and hopes to adopt it beginning with the iPhone SE4 in 1H25 and in some sub 6Ghz models in the iPhone 17. While we are seeing signs that this is a possibility next year, feedback from the supply chain remains skeptical that this could happen before 2026.

**China smartphone demand remains largely stable as strength in flagship offsets weakness in mid-range and low end.** Smartphone supply chain partners indicate demand for China Android smartphones remains healthy with the high-end SAM expected to grow to 45M-50M (+19%) units in 2024. This is being offset by weakness in mid-range and low-end smartphones, which remains weak. We believe China smartphone channel inventory is currently running at ~eight weeks, which is at the upper end of the normalized range of seven to eight weeks, which is still considered relatively healthy.

**Mediatek price actions resulting in share gains against QCOM.** Market share in flagship AP remains largely stable with Mediatek perhaps gaining a modest amount of market share with its latest generation Dimensity 9400. It's unclear how much of this is due to share gains as opposed to TAM expansion in the flagship segments. We hear demand for QCOM's Snapdragon 8 Gen 4 has been strong, with demand outstripping supply. Conversely, we hear price cuts from Mediatek in the 5-10% range have resulted in market share gains at the expense of QCOM in mid-range and low end. Given the seasonal ramp of Snapdragon 8 Gen 4 in 2H24, we believe these impacts related to share loss are likely going to be more noticeable to QCOM in 1H25.

**Demand for Samsung A series continues to weaken smartphone outlook, while flagship demand also lowered.** Samsung continues to see weakness in its mid-range A-series smartphone, and to a lesser extent is also seeing moderate weakness in its flagship segment including GS24, Fold, and Flip series. Samsung is lowering its outlook for the GS24 to 33M (-5%), as compared to 34M (-2%) prior. This is resulting in increasingly higher channel inventories and resulting in Samsung lowering its full-year 2024 outlook to 220M (-3%) smartphones from 227M (flat) prior. Given weakening sell-through demand, we're seeing channel inventories increase to ~eight weeks vs. ~7.5 weeks in the prior quarter, which is well above normal levels of five to seven weeks. While our 3Q24 smartphone estimate remains unchanged at 54M (+2% q/q), our 4Q24 estimate is meaningfully below normal seasonal trends at 53M (-2% q/q).

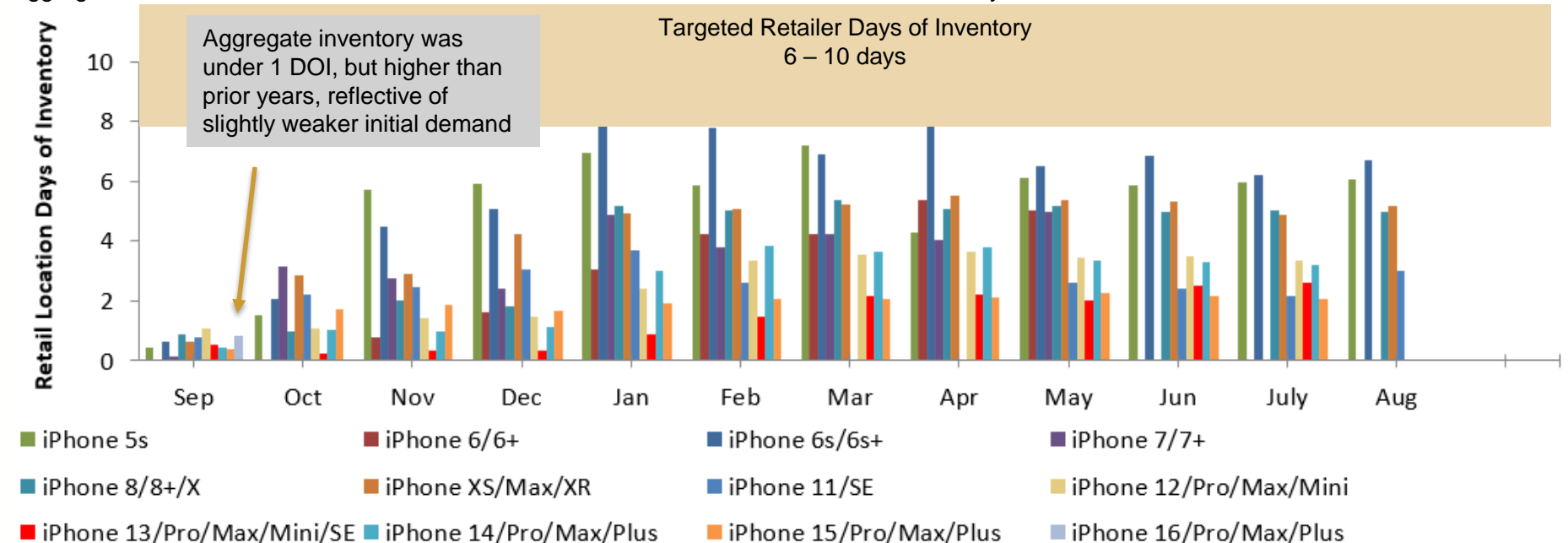
**We continue to expect QCOM to regain close to 100% market share of the GS25.** We continue to expect that QCOM remains on track to regain close to 100% market share of the GS25 as compared to 70% share of the GS24. We believe this is a function of: 1) performance with Samsung's latest Exynos AP at 3nm; 2) manufacturing yield issues at Samsung LSI at 3nm; we had previously heard yields were below 30%, but believe they are actually worse and tracking to less than 20%; and 3) significantly better performance of QCOM's Snapdragon 8 Gen 4, which incorporates Nuvia's custom ARM cores (resulting in 20-30% better performance gen-to-gen). However, we believe there's significant internal pressure for Samsung to use Exynos internally and believe it could be awarded modest share (<5%). We estimate build expectations for the GS25 are flat at 34M-35M units.



**Given stable smartphone demand, we are slightly raising expectations for 5G smartphones to grow +13% from +12% in 2024.** Given stable smartphone demand across both Android and iOS, we are slightly raising our 5G smartphone growth expectations from 680M units in 2024 representing +12% growth to 687M units and +13% growth. Our increase in 5G is being driven by increases in flagship demand slightly outpacing mainstream-to-low-end weakness. While we are maintaining our iPhone 16 build expectations of 89M (+4%) units this year driven by stable demand still unaffected by Apple Intelligence, our total iPhone unit expectations for 2024 are up slightly to 222M (-3%), up slightly from 220M (-4%) due to better manufacturing yields. China OEMs are seeing healthy and growing high end Android demand being partially offset by a weaker mid and low end. However, we believe that there remains a 4G to 5G transition at the low end. As such, we raise our QCOM/Android est to 195M (+8%) from 190M (+6%) driven by strong demand for their flagship Snapdragon 8 Gen 4. For Samsung, we're lowering our 5G estimate to 45M (+2%) from 50M (+14%) primarily due to continued weakness in the mid-range (A series). For MediaTek, we are raising our estimates to 180M (+26%) from 175M (+22%) driven by strong demand for their flagship Dimensity 9400 and price actions resulting in share gains.

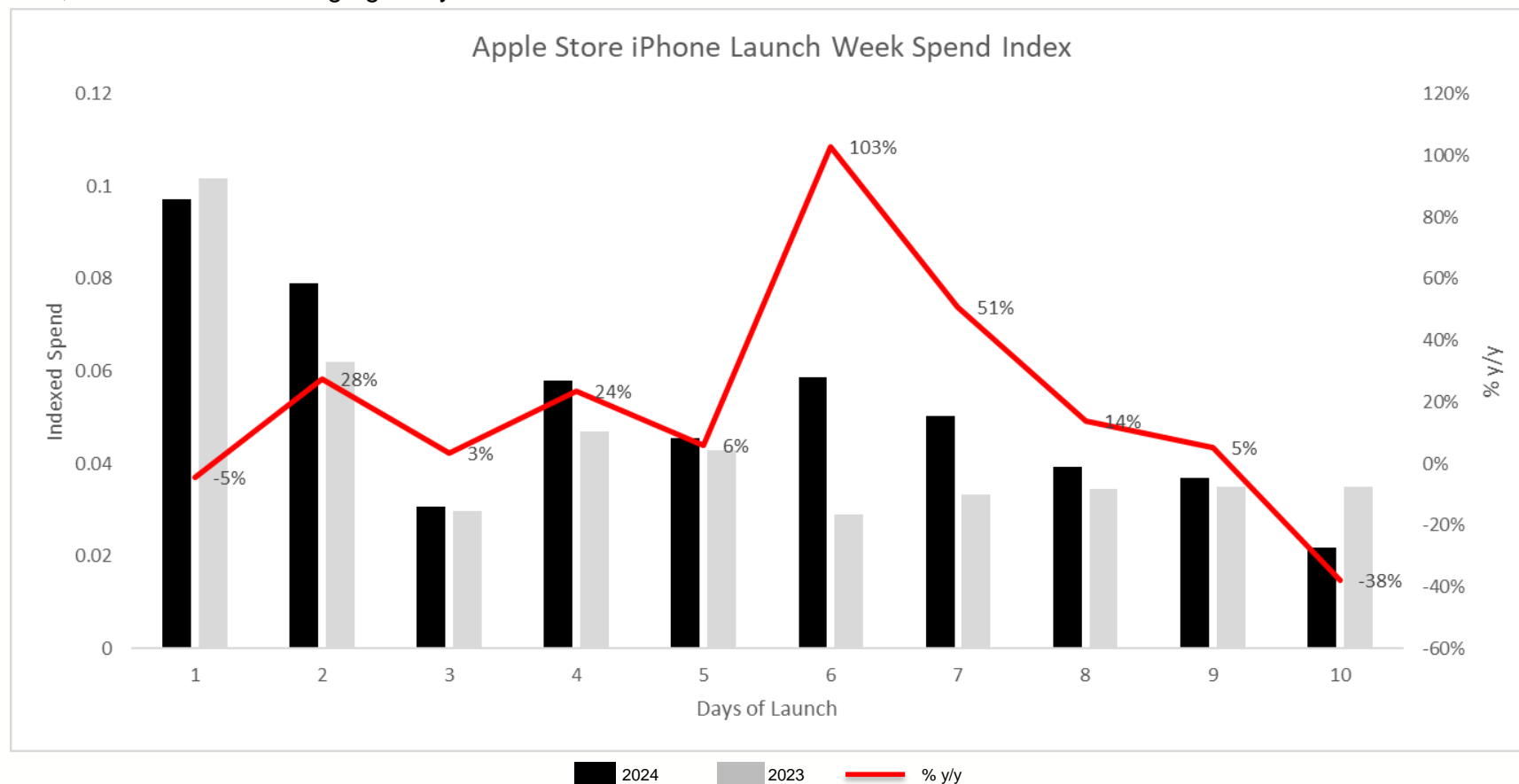
5G Chipset (M)	2022	2023	Growth	2024E	Growth
AAPL/QCOM	220	230	5%	222	-3%
Huawei/HiSilicon	0	10	-	45	350%
MediaTek	135	143	6%	180	26%
Samsung	110	44	-60%	45	2%
QCOM/Android	125	180	44%	195	8%
<b>Total</b>	<b>590</b>	<b>607</b>	<b>3%</b>	<b>687</b>	<b>13%</b>
<b>Penetration/Growth</b>	<b>50%</b>	<b>55%</b>	<b>4%</b>	<b>59%</b>	<b>4%</b>

**Carrier survey indicates slightly weaker initial iPhone 16 sell-through.** Our carrier checks indicate slightly weaker initial sell-through for the iPhone 16 compared to the iPhone 15 launch in the U.S., tracking in line to slightly below store expectations. The iPhone 16 Pro Max is seeing the greatest demand, followed by the Pro, owing to the camera upgrades. Apple AI remained a non-factor, as consumer interest in the new AI features was low, and there was minimal inquiry about these advancements. Almost all the surveyed stores sold out of 16 Pro Max quickly after the initial shipments. Stores now carry lean inventory for the regular 16 and even less inventory for the Pro and Plus. The current lead times for Pro Max are the longest, ranging from 3-4 weeks, followed by the Pro (2-3 weeks), and the 15/Plus can be shipped out in a few business days for most SKUs. Aggregate carrier store inventories for the iPhone 16 are under 1 DOI, as most of the inventory is the base iPhone 16.



**At launch, iPhone 16 series promotions are mixed compared to iPhone 15.** Compared with the iPhone 15 launch, for the iPhone 16, AT&T lowered its promotions overall, T-Mobile was mixed but more diverse, while Verizon slightly increased. Specifically, AT&T now requires either add-on line or upgrade to a plan that is \$75.99/month, which means promotions are restricted to the top two rate plans. T-Mobile has raised the plan requirement from \$90 to \$100/month or greater for up to \$1,000 credit for any iPhone 16 model. However, T-Mobile has made devices qualifying for a trade in credits less restrictive – iPhone 6 gets \$500 vs. iPhone 7 getting \$400 last year. Verizon has added a new no-trade switcher offer. Lastly, Verizon is less restrictive on device trade in eligibility by allowing iPhone, Samsung, and Google devices.

**Key First Look Data reflects an increase in iPhone 16 demand, with Apple Store iPhone Spend +15% y/y during the first 10 days of launch, and +7% y/y during the launch weekend.** We compared KFL spending data for the first weekend and 10 days of the iPhone 16, which was launched on September 20, 2024, to the comparable period for the iPhone 15, which launched on September 22, 2023. Our results indicate iPhone spend for the launch weekend was +7% y/y and +15% y/y for the first 10 days. KFL spending indicates iPhone 16 demand increased from the launch weekend (+7% y/y) to over 50% y/y toward the end of the first week of launch, while then moderating again by the end of the second weekend.

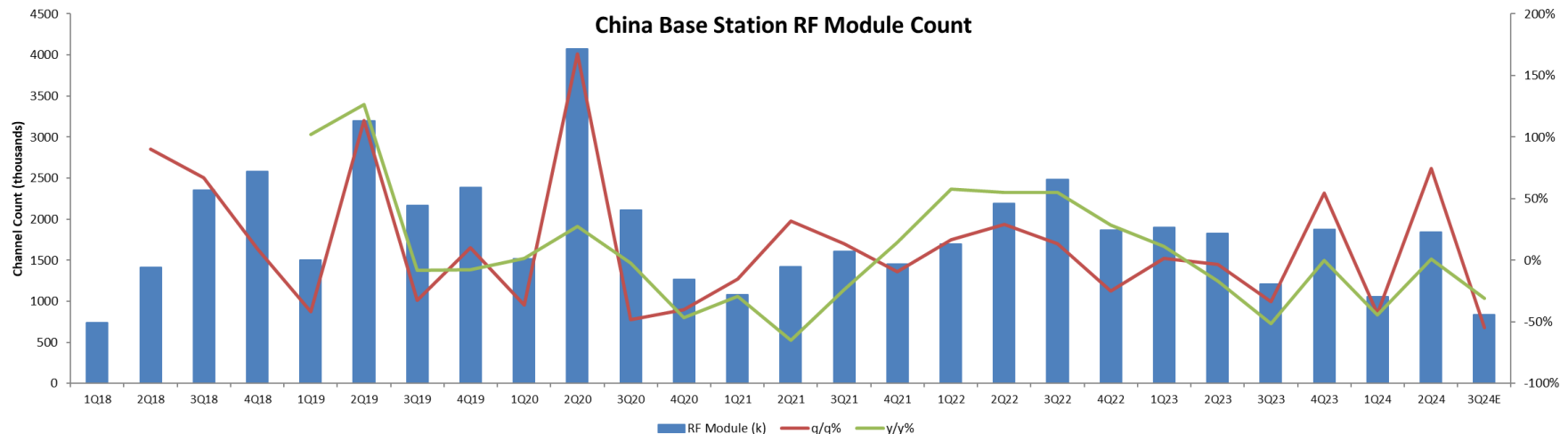


**2024 China 5G BTS deployment outlook is lower, as capex budget remains at low levels.** Feedback indicates 5G BTS deployment is lower, with China Mobile below previous expectations of 550K builds, now at 350K. Carriers are also aggressively shifting investment focus away from 5G toward AI/cloud/IDC/industrial digitalization, using a mix of domestic and imported chips, with a larger portion of domestic chips. As a result, we are lowering our 2024 5G BTS deployment target from 1,059K (-8% y/y) to 700K (-39% y/y), while adjusting 2024 capex outlook to -26% y/y from -27% y/y. China Telecom and China Unicom continue to plan for co-sharing their respective low-band BTS, while the collaboration with China Mobile is likely going to take more time, which we believe is contemplated in respective annual outlooks. Additionally, there is no new monetization from 5G-Advanced, as there is more 5G capacity than demand. Lastly, on mmW, feedback reflects telcos continue to conduct trials, but there are still no updates to if and when China will roll out mmW.

Base Station Deployment	2023			2024E			2025E			5G y/y%
	4G	5G	Total	4G	5G	Total	4G	5G	Total	
China Mobile	0	480	480	0	350	350	0	307	307	-12%
China Telecom	0	370	370	0	202	202	0	160	160	-21%
China Unicom	0	300	300	0	148	148	0	114	114	-23%
China Broadcasting Network	-	-	-	-	-	-	-	-	-	-
Total	0	1150	1150	0	700	700	0	581	581	
y/y%		12%			-39%			-17%		

5G Capex (¥B)	2023	2024E	2025E
China Mobile	88	69	58
China Telecom	34	30	28
China Unicom	36	18	12
Total	158	116	98
y/y%	-2%	-26%	-16%

**We expect 3Q ROW deployments to see y/y growth, with signs of recovery in 2H24.** Feedback indicates that 3Q ROW 5G infrastructure demand saw signs of bottoming, particularly in North America, Korea, and Japan, with less demand from Europe and Southeast Asia. ROW carrier capex is showing signs of improvement in 2H24 vs. 1H, with y/y growth and opportunities in Africa, Latin America, and Southeast Asia. For China, we expect base station channel deployments to -31% y/y in 3Q, compared to +1% y/y in 2Q. We project channel count per 5G BTS continues to decrease as telcos increasingly shift deployment focus to low-band (without massive MIMO) and explore co-sharing to reduce capex, and data-intensive applications have not yet matured. Within China, carriers are still focused on increasing value extraction from previous investments.



**AMD:** We maintain our estimates and Overweight rating with a price target of \$220, based on 38x our 2025 EPS estimate of \$5.80. AMD is trading at 29x our 2025 EPS estimate and 31x the 2025 consensus EPS estimate, compared to its peers, which are trading at an average consensus 2025E P/E multiple of 33x. Market and macroeconomic conditions could interfere with the realization of our price target, as could risks including uncertainty regarding the recovery, duration, and decline in semiconductor end-market demand; overcapacity among semiconductor manufacturers; and company-specific execution risk.

**ADI:** We maintain our Overweight rating with a price target of \$285, which is based on 37x our FY25 EPS estimate of \$7.80. ADI is currently trading at a forward P/E of 31x, compared to a three-year-average historical P/E of 21x. Market and macroeconomic conditions could interfere with the realization of our price target, as could risks such as an unforeseen decline in high-performance analog and DSP demand, market share loss to competitors, delayed product introductions, and manufacturing difficulties.

**AVGO:** We maintain our Overweight rating and price target of \$210 based on 36x our FY25 consolidated EPS of \$5.90. AVGO is currently trading at a forward consensus P/E of 30x, compared to a three-year historical average of 18x. Market and macroeconomic conditions could impede the stock from achieving our price target, as could company-specific risks such as: weaker than expected demand for FBAR filters due to slowing high-end smartphone growth; potential competitive pressure from integrated RF solutions; and customer concentration at Apple and Cisco.

**CRUS:** We maintain our Overweight rating with a price target of \$165, which is based on 19x our FY26 EPS estimate of \$8.65. CRUS is trading at a consensus P/E of 16x, compared to its three-year historical forward consensus P/E of 14x. Risks that could impede the stock from achieving our price target include, but are not limited to: macroeconomic conditions; product delays; further deceleration in smartphone growth; price pressures; and market share loss.

**INTC:** We maintain our estimates and Sector Weight rating with a fair value of \$24, which is based on 23x our 2025 EPS estimate of \$1.04. INTC is trading at 23x our 2025 EPS estimate and 21x the 2025 consensus EPS estimate, compared to a three-year average historical P/E of 16x. Market and macroeconomic conditions could interfere with the realization of our estimates, as could risks including uncertainty regarding the recovery, duration, and decline in semiconductor end-market demand; overcapacity among semiconductor manufacturers; and company-specific execution risk.

**MPWR:** We maintain our estimates with a price target of \$1,075, which is based on 63x our 2025 EPS estimate of \$17.06. MPWR is currently trading at a forward P/E of 54x based on consensus, compared to a three-year-average historical P/E of 40x. Risks that could impede shares from reaching our price target include, but are not limited to: 1) new data center platforms could be a big disappointment and Monolithic Power could fail to grow 15-20%; 2) the new product ramp could continue to track behind expectations and create a deteriorating margin profile; and 3) increased market competition could cause market share loss and margin pressure.

**MRVL:** We maintain our Overweight rating with a price target of \$95, which is based on 36x our FY26 EPS estimate of \$2.64. We remain Overweight. MRVL currently trades at 28x our FY26 EPS estimate, compared to a three-year-average historical P/E of 25x. Investment risks that could impede the stock from achieving our price target include, but are not limited to: 1) worsening U.S.-China trade relations impacting ZTE, one of MRVL's largest Chinese customers; 2) the inability to maintain/gain market share resulting from failures in product innovation and market competition; 3) failures in the integration of new subsidiaries; and 4) reduced 5G infrastructure spending.



**MU:** We maintain our estimates with a price target of \$135, which is based on 9x our FY26 EPS of \$14.66. We remain Overweight. MU is currently at 8x consensus forward P/E, compared to a 3-year average of 16x. Market and macroeconomic conditions could interfere with the realization of our price target, as could risks including volatility of memory prices, overcapacity in the industry, and the uncertain outcome of government intervention in the memory industry worldwide.

**NVDA:** We maintain our estimates with a price target of \$180, based on 36x our FY26 EPS estimate of \$5.05. We remain Overweight. NVDA is currently trading at 33x consensus forward P/E. By comparison, peers are trading at an average consensus 2025 P/E multiple of 33x. We see NVDA remains uniquely positioned to benefit from AI/ML secular data center growth within the industry. With significant barriers to entry created by its CUDA software stack, we see limited competitive risks and expect NVDA to continue to dominate one of the fastest growing workloads in cloud and enterprise. While early days, Omniverse represents an emerging software subscription revenue stream for metaverse applications that is likely to support further re-rating of the multiple as it grows and scales. Market and macroeconomic conditions could interfere with the realization of our price target, as could risks including uncertainty regarding the recovery, duration, and decline in semiconductor end-market demand; overcapacity among semiconductor manufacturers; and company-specific execution risk.

**NXPI:** We maintain our price target of \$300, which is based on 20x our 2025 EPS estimate of \$15.04. We remain Overweight. NXPI is currently trading at 16x consensus forward P/E, compared to a three-year historical average of 14x. Key risks that could impede shares from reaching our price target include growing competition in industrial, automotive, and identification that could create uncertainties for revenue growth. High debt load could limit meaningful multiple expansion.

**ON:** We maintain our estimates with a price target of \$90, based on 19x our FY25E EPS of \$4.76. We remain Overweight. ON is currently trading at 15x forward consensus P/E, and its three-year historical P/E is 15x. Market and macroeconomic conditions could impede the shares from achieving our price target, as could risks such as uncertainty regarding the recovery, duration, and decline in semiconductor end-market demand; overcapacity among semiconductor manufacturers; and company-specific execution risk.

**QRVO:** We maintain our Sector Weight rating and see a fair value of \$102, based on 15x our FY26E EPS estimate of \$6.95. QRVO is currently trading at 13x consensus forward P/E, compared to a three-year historical average of 13x. Risks that could impede the stock from achieving our fair value estimate include: manufacturing execution, given the yield issues with the low-band PAD in previous iPhones; we believe manufacturing the mid/high-band PAD creates a more complex and challenging task; and the risk that the China and iPhone cycles roll over.

**INDI:** We maintain our Overweight rating with a price target of \$8, which is based on 3x EV/S on our 2026 revenue estimate of \$458M. indie Semiconductor (INDI) is currently trading at 3x EV/S on consensus 2026 revenue estimates, compared to its auto SPAC peers, which are trading at an average consensus 2026 EV/S multiple of 1x, and auto semi peers' average of 7x. We believe the LT outsized growth opportunity for INDI within autos remains intact. Investment risks that could impede the stock from achieving our price target include, but are not limited to: 1) failure to win designs projected in the pipeline, which could negatively impact revenue and growth; 2) slowing consumer demand for vehicles negatively impacting automotive production, and slower than expected electric vehicle penetration delaying the adoption of ADAS, user interface, connectivity, and electrification technologies; and 3) future capital raised to support growth could result in shareholder dilution. Market and macroeconomic conditions could interfere with the realization of our estimates, as could risks including uncertainty regarding the recovery, duration, and decline in semiconductor end market demand; overcapacity among semiconductor manufacturers; and company-specific execution risk.

**SWKS:** We remain Sector Weight. We see a fair value of \$97, which is based on 16x our 2025 EPS estimate of \$6.25. SWKS is currently trading at a forward P/E of 15x, compared to a three-year historical average of 11x. Risks that could impede the stock from achieving our estimates include, but are not limited to: 1) high expectations for better execution and margin expansion are already reflected in the current stock price; 2) increasing focus on analog is not able to offset maturity in high-end smartphone growth; and 3) expectations for industry consolidation are already reflected in the stock's appreciation.

**LSCC:** We maintain our estimates and maintain our price target of \$60, which is based on 43x our 2025 EPS estimate of \$1.40. We remain Overweight. LSCC currently trades at a forward consensus P/E of 38x, compared to its three-year historical average of 37x. Investment risks that could impede the stock from achieving our price target include, but are not limited to: 1) competition for low-power FPGAs intensifies, potentially resulting in share losses to competing Chinese firms; 2) design wins in 5G, cloud, auto, and industrial ramp slower than expected; and 3) strategy execution risk given limited scale.

**MCHP:** We maintain our Overweight rating with a price target of \$100, which is based on 30x our FY26 EPS estimate of \$3.29. MCHP is currently trading at a forward consensus P/E of 24x compared to a three-year historical average of 16x. We see favorable risk-reward from a cycle perspective. Market and macroeconomic conditions could interfere with the realization of our price target, as could risks such as uncertainty regarding the recovery, duration, and decline in semiconductor end-market demand; overcapacity among semiconductor manufacturers; and company-specific execution risk.

**QCOM:** We maintain our estimates and Sector Weight rating with a fair value of \$170, based on 16x our FY25E EPS of \$10.89. QCOM is currently trading at a forward consensus P/E of 15x, compared to a three-year historical average of 13x. Market and macroeconomic risks could interfere with our estimates for QCOM shares, as could company-specific issues such as: displacement of its modem due to Apple's development of its own internal modem; in-house silicon verticalization by mobile OEM customers; mobile chipset competition; and maturing smartphone market growth.

**ARM:** We maintain our Overweight with a price target of \$195, based on 2x our CY26 PEG. ARM is trading at 2x our CY26 PEG estimate, as compared to ARM's broader peer group average CY26 PEG of 1x. This compares to the EDA average of 2x CY26 PEG. Market and macroeconomic conditions could interfere with the realization of our price target, as could risks including uncertainty regarding the recovery, duration, and decline in semiconductor end-market demand; intensifying competition vs. x86; and company-specific execution risk.

**SYNA:** We maintain our estimates and Sector Weight rating with a fair value of \$73, which is based on 13x our FY26E EPS of \$5.76. SYNA is currently trading at a consensus forward P/E of 12x, compared to a three-year historical average of 15x. SYNA used to have an outsized exposure to AAPL, but we believe any concerns are likely overdone. AAPL now represents a MSD percentage of revenues these days. We think any weakness here is likely offset by IoT and PC NB strength.

**TXN:** We maintain our estimates and Overweight rating with a price target of \$250, which is based on 42x our 2025 EPS estimate of \$5.98. TXN is currently trading at a forward P/E of 32x based on consensus, compared to a three-year average historical P/E of 23x. Market and macroeconomic conditions could interfere with the realization of our price target, as could risks such as uncertainty regarding the recovery, duration, and decline in semiconductor end-market demand; overcapacity among semiconductor manufacturers; and company-specific execution risk.

## Disclosure Appendix

### **Important Disclosures**

Important disclosures for the companies mentioned in this report can be found at <https://key2.bluematrix.com/sellside/Disclosures.action>.

Please refer to the analysts' recently published reports for company-specific valuation and risks.

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Distribution of Ratings/IB Services Firmwide and by Sector									
KeyBanc Capital Markets					Technology				
Rating	Count	Percent	IB Serv/Past 12 Mos.		Rating	Count	Percent	IB Serv/Past 12 Mos.	
			Count	Percent				Count	Percent
Overweight [OW]	250	47.80	42	16.80	Overweight [OW]	86	54.09	7	8.14
Sector Weight [SW]	267	51.05	46	17.23	Sector Weight [SW]	70	44.03	2	2.86
Underweight [UW]	6	1.15	0	0.00	Underweight [UW]	3	1.89	0	0.00

### **Rating System**

**Overweight** - We expect the stock to outperform the analyst's coverage sector over the coming 6-12 months.

**Sector Weight** - We expect the stock to perform in line with the analyst's coverage sector over the coming 6-12 months.

**Underweight** - We expect the stock to underperform the analyst's coverage sector over the coming 6-12 months.

## Disclosure Appendix (cont'd)

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Important disclosures for the companies mentioned in this report can be found at <https://key2.bluematrix.com/sellside/> **Disclosures.action**.

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