Global Semiconductor

SIA May Data: Semis Sales Reaccelerate Above Seasonal; Memory Reaches Record High on DRAM and NAND Strength

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May Sales Reaccelerate Above Seasonal

Following a resilient April, total semiconductor sales in May rebounded 16.7% M/M, or ~840 bps/480 bps above the 10-yr/5-yr seasonal averages, primarily driven by a 19.9% M/M increase in ASP while units slightly dropped(-2.7% M/M). Excluding memory, IC sales rose 2.0% M/M, below 5-yr seasonal average of 3.2% and surpassing the 10-yr seasonal average by ~60 bps, supported by a 4.4% M/M ASP gain, partially offset by a 2.3% M/M decline in units. By product segments, Logic and MPU revenues rebounded by 3.9% (~70 bps above the 10-yr seasonal average) and 5.0% (~260 bps above the 10-yr seasonal average), respectively. Analog and MCU experienced another month of declines, underperforming 10-yr seasonal averages by ~540 bps and ~170 bps respectively. DSP maintained its growth of 3.3% M/M, surpassed its 10-yr seasonal average by 3.8%. Analog ASP dipped 4% M/M with units down 4% M/M. MCU ASP down 4.4% M/M despite a 1.8% M/M unit rise.

Y/Y sales growth came in at 127.2%, marking the 32nd consecutive month of expansion, showing acceleration by 12.2 ppts/32.1 ppts from April's/February's growth rates. In the US, we continue to prefer MU and NVDA; internationally, our preferred stocks include ASE, Hon Hai Precision, NXP, Infineon, MediaTek, Quanta, Samsung Electronics, SK Hynix, TSMC.

Memory Upcycle Gains Further Momentum

Memory achieved a new record with $74.6B in monthly sales, jumping 31.7% M/M (2.8 ppts above 10-yr seasonal average), fueled by a 12.2% M/M increase in units and a 17.4% M/M rise in ASP. DRAM posted record monthly sales of ~$48.0B, up 27.7% M/M (~8.0 ppts below the 10-yr seasonal average), combined with a 13.7% M/M unit growth and a 12.4% M/M ASP growth. NAND sales rebounded and achieved its record high of 25.8B in monthly sales, with 40.7% M/M (~16.9 ppts above the 10-yr seasonal average), with 20.6% M/M increase in units and a 16.6% M/M ASP growth.

Our July Memory Monthly suggests that the memory upcycle is strengthening further amid accelerating AI-driven demand and ongoing LTA negotiations. We raised our DDR contract pricing forecast to increase 32%/18% QoQ in 3Q26/4Q26 and NAND pricing expected to rise 30%/12% QoQ over the same period. We continue to forecast the DRAM industry to remain structurally undersupplied through at least 2Q28, as 2027 bit demand growth of 36.2% YoY is expected to significantly exceed supply growth of 19.3% YoY. We also expect the NAND upcycle to extend through at least 4Q27. In addition, HBM demand is projected to grow 90% YoY (~33.1bn Gb) in 2026 and 77% YoY in 2027(~58.7bn Gb), supported by continued AI accelerator deployments across hyperscalers. While these trends support memory industry revenues reaching US$992bn in 2026 and US$1.76tn in 2027, customer affordability and sustainability of AI-related capital expenditure are still the key risks to this unprecedented upcycle.

CQ2:26 Street estimates for total semis revenue currently set at +21.6 Q/Q

For CQ2:25, Street estimates are set for a 21.6% Q/Q increase in total semis revenues (sell-through basis) and a 10% Q/Q increase in semis revenues excluding memory.

This report has been prepared by UBS Securities LLC. **ANALYST CERTIFICATION AND REQUIRED DISCLOSURES, INCLUDING INFORMATION ON THE QUANTITATIVE RESEARCH REVIEW PUBLISHED BY UBS, BEGIN ON PAGE 23.**

Figure 1: Revenue and Seasonality

		May Month over Month					May Year over Year		
	% of total	% M/M	10Y Avg seasonality	above/below 10Y Avg	5Y Avg seasonality	above/below 5Y Avg	% Y/Y	1 Mo. accel. / decel.	3 Mo. accel. / decel.
Revenue									
Logic	26%	3.9%	3.2%	+0.7%	5.1%	-1.2%	49.2%	+0.6%	+8.7%
MPU	5%	5.0%	2.4%	+2.6%	6.6%	-1.6%	30.8%	-1.3%	+5.4%
Total digital	31%	4.1%	2.8%	+1.3%	5.4%	-1.3%	46.1%	+0.2%	+8.1%
Analog	6%	-7.8%	-2.4%	-5.4%	-2.8%	-5.1%	11.4%	-5.7%	-0.8%
MCU	2%	-2.7%	-1.0%	-1.7%	-2.1%	-0.6%	19.6%	+3.2%	+7.8%
DSP	0.2%	3.3%	-0.5%	+3.8%	0.7%	+2.5%	-1.5%	+9.0%	+24.0%
Total analog	7%	-6.6%	-2.1%	-4.5%	-2.6%	-4.0%	12.7%	-3.5%	+1.6%
Total ex-Memory	35%	2.0%	1.5%	+0.6%	3.2%	-1.2%	43.2%	-0.4%	+7.1%
DRAM	38%	27.7%	35.7%	-8.0%	48.2%	-20.4%	309.0%	-66.3%	+18.5%
NAND	20%	40.7%	23.7%	+16.9%	28.4%	+12.2%	360.1%	+9.1%	+147.2%
Total Memory	58%	31.7%	28.9%	+2.8%	37.0%	-5.3%	320.9%	-38.2%	+61.6%
Total ICs	94%	18.7%	10.0%	+8.6%	14.0%	+4.6%	143.0%	+9.3%	+34.6%
Discretes	6%	-6.9%	-1.5%	-5.4%	-1.9%	-4.9%	14.6%	+4.2%	+4.5%
Total Semiconductors	100%	16.7%	8.3%	+8.4%	11.9%	+4.8%	127.2%	+12.2%	+32.1%
Units									
Logic	8%	1.8%	0.4%	+1.4%	0.6%	+1.2%	20.0%	+2.6%	+15.9%
MPU	0.04%	3.6%	0.3%	+3.3%	2.9%	+0.7%	6.7%	-0.0%	-14.3%
Total digital	8%	1.8%	0.4%	+1.4%	0.6%	+1.2%	19.9%	+2.6%	+15.8%
Analog	21%	-4.0%	0.4%	-4.4%	-0.4%	-3.6%	22.2%	-1.4%	+13.1%
MCU	2.0%	1.8%	-0.4%	+2.2%	-3.1%	+4.9%	14.2%	+10.4%	+11.1%
DSP	0.04%	-8.0%	2.0%	-10.0%	0.6%	-8.6%	-11.3%	-19.0%	+9.7%
Total analog	23%	-3.6%	0.3%	-3.9%	-0.7%	-2.8%	21.4%	-0.3%	+12.9%
Total ex-Memory	32%	-2.3%	0.3%	-2.6%	-0.4%	-1.9%	21.0%	+0.4%	+13.6%
DRAM	1.9%	13.7%	28.8%	-15.1%	34.3%	-20.6%	-2.4%	-24.7%	-17.0%
NAND	1.0%	20.6%	21.6%	-1.0%	24.5%	-3.9%	-16.0%	-11.9%	-22.7%
Total Memory	6.2%	12.2%	17.5%	-5.3%	21.4%	-9.2%	35.2%	-18.9%	+8.9%
Total ICs	38%	-0.1%	2.4%	-2.6%	2.2%	-2.3%	23.2%	-1.4%	+13.3%
Discretes	62%	-4.1%	-2.0%	-2.2%	-1.8%	-2.3%	7.1%	-3.2%	-6.5%
Total Semiconductors	100%	-2.7%	-0.5%	-2.1%	-0.4%	-2.2%	12.7%	-2.5%	+0.4%
ASP									
Logic		2.1%	2.8%	-0.7%	4.6%	-2.5%	24.3%	-2.2%	-10.7%
MPU		1.3%	2.0%	-0.7%	3.7%	-2.3%	22.6%	-1.2%	+19.0%
Total digital		2.3%	2.5%	-0.2%	4.9%	-2.6%	21.8%	-2.5%	-10.7%
Analog		-4.0%	-2.6%	-1.4%	-2.3%	-1.7%	-8.8%	-3.8%	-11.7%
MCU		-4.4%	-0.3%	-4.1%	1.3%	-5.7%	4.8%	-7.4%	-3.8%
DSP		12.2%	-1.8%	+14.1%	0.7%	+11.6%	11.1%	+28.0%	+16.8%
Total analog		-3.1%	-2.3%	-0.8%	-1.8%	-1.3%	-7.2%	-2.7%	-9.5%
Total ex-Memory		4.4%	1.2%	+3.2%	3.7%	+0.7%	18.3%	-0.7%	-8.4%
DRAM		12.4%	4.7%	+7.6%	10.0%	+2.4%	318.9%	+30.6%	+78.2%
NAND		16.6%	1.5%	+15.1%	3.3%	+13.3%	447.9%	+77.7%	+254.7%
Total Memory		17.4%	9.2%	+8.2%	12.8%	+4.5%	211.2%	+13.3%	+26.7%
Total ICs		18.8%	7.4%	+11.4%	11.4%	+7.4%	97.3%	+9.7%	+7.7%
Discretes		-2.9%	0.5%	-3.3%	-0.1%	-2.7%	7.0%	+6.8%	+10.1%
Total Semiconductors		19.9%	8.9%	+11.0%	12.2%	+7.6%	101.6%	+14.9%	+27.9%

Source: UBS, SIA.

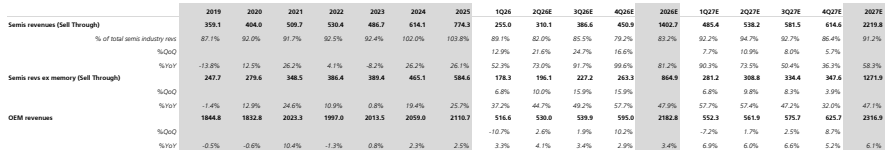
Note: Total ICs and Semis adjusted by excluding both HBM and the value portion of system level elements (CPU, DDR, Baseboard) from GPU/ASIC revenues.

Figure 2: Annual Semiconductor Sales, Units, and ASP by Category (2017-2026E)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026E	2027E
MPU, Sales	44,369,658	46,899,058	47,974,176	51,811,870	57,753,026	50,837,190	45,480,138	54,165,443	60,231,613	75,289,516	96,370,581
MPU, Units	457,500	428,249	384,220	421,985	498,647	438,762	373,996	446,883	432,424	491,391	571,800
MPU, ASPs	97.0	109.5	124.9	122.8	115.8	115.9	121.6	121.2	139.3	153.2	168.5
MCU, Sales	16,437,022	17,068,878	15,807,854	15,483,891	19,622,513	25,018,496	27,861,219	22,463,994	21,573,299	25,456,493	29,274,967
MCU, Units	25,304,047	27,568,461	25,036,268	26,226,091	29,742,488	28,218,995	26,813,513	21,660,497	21,137,048	23,754,016	26,016,303
MCU, ASPs	0.6	0.6	0.6	0.6	0.7	0.9	1.0	1.0	1.0	1.1	1.1
Analog, Sales	53,072,260	58,785,389	53,903,091	55,657,641	74,105,380	88,983,400	81,145,889	79,532,894	86,519,089	100,362,143	115,416,465
Analog, Units	153,446,553	174,988,735	163,706,568	173,199,980	214,862,107	231,644,120	202,548,754	210,799,941	220,326,060	241,111,537	259,138,568
Analog, ASPs	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
CMOS Logic (Incl. DSP, ex-HBM)	105,486,352	112,568,128	109,040,182	120,789,913	157,682,386	178,095,747	176,308,431	189,889,077	252,782,328	362,510,140	392,942,672
CMOS Logic Units	61,120,098	65,970,930	59,429,428	65,634,619	88,575,164	91,398,983	64,073,853	72,954,070	78,429,162	99,544,706	120,219,375
CMOS Logic, ASPs	1.7	1.7	1.8	1.8	1.8	1.9	2.8	2.6	3.2	3.6	3.3
Total IC ex-Memory, Sales	**$ 219,365,292**	**$ 235,321,453**	**$ 226,725,303**	**$ 243,743,315**	**$ 309,163,305**	**$ 342,934,833**	**$ 330,795,677**	**$ 346,051,408**	**$ 421,106,329**	**$ 563,618,293**	**$ 634,004,684**
% Growth	***9.7%***	***7.3%***	***-3.7%***	***7.5%***	***26.8%***	***10.9%***	***-3.5%***	***4.6%***	***21.7%***	***33.8%***	***12.5%***
Total IC ex-Memory, Units	240,328,198	268,956,375	248,556,484	265,482,675	333,678,406	351,700,860	293,810,116	305,861,391	320,324,694	364,901,650	405,946,047
Total IC ex-Memory, ASP	$ 0.91	$ 0.87	$ 0.91	$ 0.92	$ 0.93	$ 0.98	$ 1.13	$ 1.13	$ 1.31	$ 1.54	$ 1.56
Memory, Sales	**$ 123,973,749**	**$ 157,966,749**	**$ 106,431,501**	**$ 117,482,479**	**$ 153,838,238**	**$ 129,766,917**	**$ 92,309,195**	**$ 165,088,725**	**$ 230,042,298**	**$ 1,023,625,926**	**$ 1,812,070,768**
% Growth	***61.5%***	***27.4%***	***-32.6%***	***10.4%***	***30.9%***	***-15.6%***	***-28.9%***	***78.8%***	***39.3%***	***345.0%***	***77.0%***
Memory Units	43,130,333	41,723,954	42,431,272	44,652,312	50,143,158	43,665,618	43,685,494	44,319,804	50,744,695	58,061,442	66,107,105
Memory, ASP	$ 2.87	$ 3.79	$ 2.51	$ 2.63	$ 3.07	$ 2.97	$ 2.11	$ 3.72	$ 4.53	$ 17.63	$ 27.41
Total IC, Sales	**$ 343,010,225**	**$ 393,288,202**	**$ 333,156,804**	**$ 361,225,794**	**$ 463,001,543**	**$ 472,701,750**	**$ 423,104,872**	**$ 511,140,133**	**$ 651,148,627**	**$ 1,587,244,218**	**$ 2,446,075,452**
% Growth	***24.0%***	***14.7%***	***-15.3%***	***8.4%***	***28.2%***	***2.1%***	***-10.5%***	***20.8%***	***27.4%***	***143.8%***	***54.1%***
Total IC Units	283,458,531	310,680,329	290,987,756	310,134,987	383,821,564	395,366,478	337,495,610	350,181,195	371,069,389	422,963,091	472,053,152
Total IC, ASP	$ 1.21	$ 1.27	$ 1.14	$ 1.16	$ 1.21	$ 1.20	$ 1.25	$ 1.46	$ 1.75	$ 3.75	$ 5.18
Discrete&Opto&Passives Sales	**$ 69,074,897**	**$ 75,490,083**	**$ 78,944,564**	**$ 79,163,564**	**$ 92,890,971**	**$ 99,682,444**	**$ 98,368,431**	**$ 91,033,299**	**$ 94,664,962**	**$ 99,398,210**	**$ 106,356,085**
% Growth	***11.1%***	***9.3%***	***4.6%***	***0.3%***	***17.3%***	***7.3%***	***-1.3%***	***-7.5%***	***4.0%***	***5.0%***	***7.0%***
Discrete&Opto&Passives, Units	652,357,666	693,807,604	640,950,125	643,612,663	763,036,425	701,119,280	577,187,990	602,341,989	682,606,647	746,601,020	823,570,197
Discrete&Opto&Passives, ASP	$ 0.11	$ 0.11	$ 0.12	$ 0.12	$ 0.12	$ 0.14	$ 0.17	$ 0.15	$ 0.14	$ 0.13	$ 0.13
Total Semiconductor Sales	**$ 412,085,122**	**$ 468,778,285**	**$ 412,101,368**	**$ 440,389,358**	**$ 555,892,514**	**$ 572,384,194**	**$ 521,473,303**	**$ 602,173,432**	**$ 745,813,589**	**$ 1,686,642,428**	**$ 2,552,431,537**
% Growth	***21.6%***	***13.8%***	***-12.1%***	***6.9%***	***26.2%***	***3.0%***	***-8.9%***	***15.5%***	***23.9%***	***126.1%***	***51.3%***
Total Semiconductor, Units	935,816,197	1,004,487,933	931,937,881	953,747,650	1,146,857,989	1,096,485,758	914,683,600	952,523,184	1,053,676,036	1,169,564,112	1,295,623,349
Total Semiconductror, ASP	$ 0.44	$ 0.47	$ 0.44	$ 0.46	$ 0.48	$ 0.52	$ 0.57	$ 0.63	$ 0.71	$ 1.44	$ 1.97

Source: UBS estimates, SIA

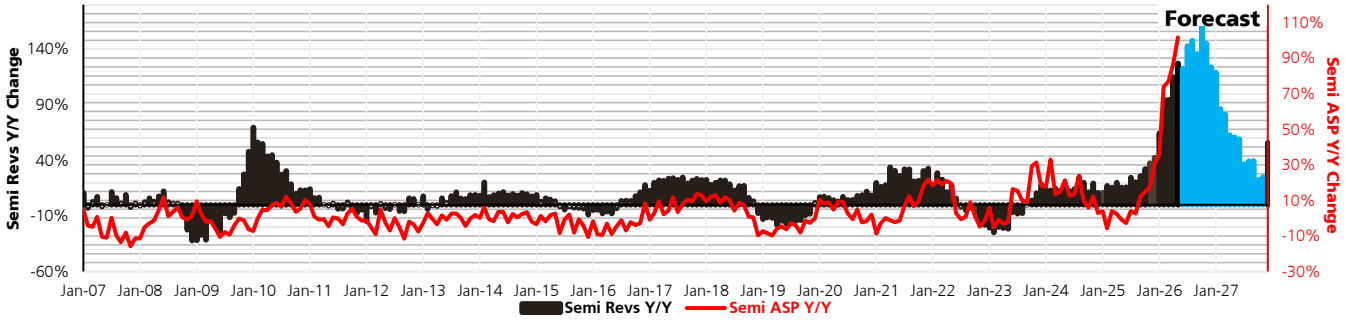
Figure 3: Semis Sell-Through vs. OEM revenues



	2019	2020	2021	2022	2023	2024	2025	1Q26	2Q26E	3Q26E	4Q26E	2026E	1Q27E	2Q27E	3Q27E	4Q27E	2027E
Semis revenues (Sell Through)	**359.1**	**404.0**	**509.7**	**530.4**	**486.7**	**614.1**	**774.3**	**255.0**	**310.1**	**386.6**	**450.9**	**1402.7**	**485.4**	**538.2**	**581.5**	**614.6**	**2219.8**
% of total semis industry revs	*87.1%*	*92.0%*	*91.7%*	*92.5%*	*92.4%*	*102.0%*	*103.8%*	*89.1%*	*82.0%*	*85.5%*	*79.2%*	*83.2%*	*92.2%*	*94.7%*	*92.7%*	*86.4%*	*91.2%*
%QoQ								*12.9%*	*21.6%*	*24.7%*	*16.6%*		*7.7%*	*10.9%*	*8.0%*	*5.7%*	
%YoY	*-13.8%*	*12.5%*	*26.2%*	*4.1%*	*-8.2%*	*26.2%*	*26.1%*	*52.3%*	*73.0%*	*91.7%*	*99.6%*	*81.2%*	*90.3%*	*73.5%*	*50.4%*	*36.3%*	*58.3%*
Semis revs ex memory (Sell Through)	**247.7**	**279.6**	**348.5**	**386.4**	**389.4**	**465.1**	**584.6**	**178.3**	**196.1**	**227.2**	**263.3**	**864.9**	**281.2**	**308.8**	**334.4**	**347.6**	**1271.9**
%QoQ								*6.8%*	*10.0%*	*15.9%*	*15.9%*		*6.8%*	*9.8%*	*8.3%*	*3.9%*	
%YoY	*-1.4%*	*12.9%*	*24.6%*	*10.9%*	*0.8%*	*19.4%*	*25.7%*	*37.2%*	*44.7%*	*49.2%*	*57.7%*	*47.9%*	*57.7%*	*57.4%*	*47.2%*	*32.0%*	*47.1%*
OEM revenues	**1844.8**	**1832.8**	**2023.3**	**1997.0**	**2013.5**	**2059.0**	**2110.7**	**516.6**	**530.0**	**539.9**	**595.0**	**2182.8**	**552.3**	**561.9**	**575.7**	**625.7**	**2316.9**
%QoQ								*-10.7%*	*2.6%*	*1.9%*	*10.2%*		*-7.2%*	*1.7%*	*2.5%*	*8.7%*	
%YoY	*-0.5%*	*-0.6%*	*10.4%*	*-1.3%*	*0.8%*	*2.3%*	*2.5%*	*3.3%*	*4.1%*	*3.4%*	*2.9%*	*3.4%*	*6.9%*	*6.0%*	*6.6%*	*5.2%*	*6.1%*

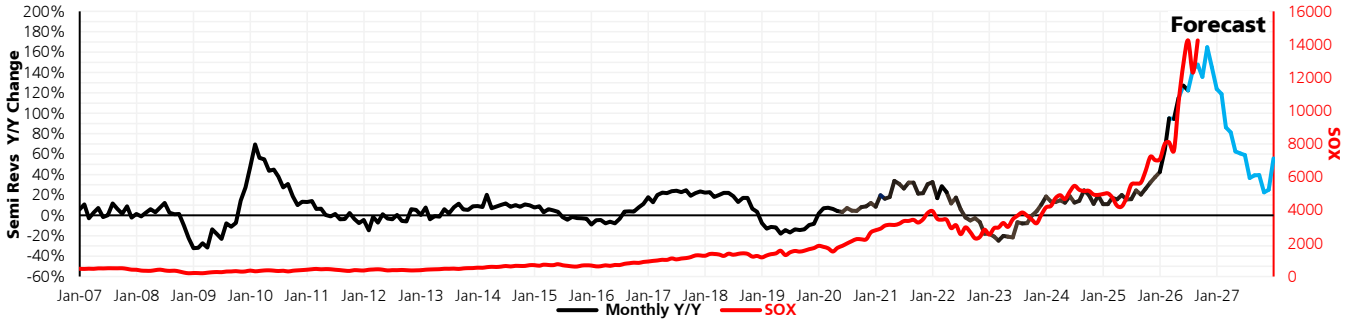
Source: Company data, Bloomberg, UBS estimates

Figure 4: Total Semiconductor Revenue and ASP Change



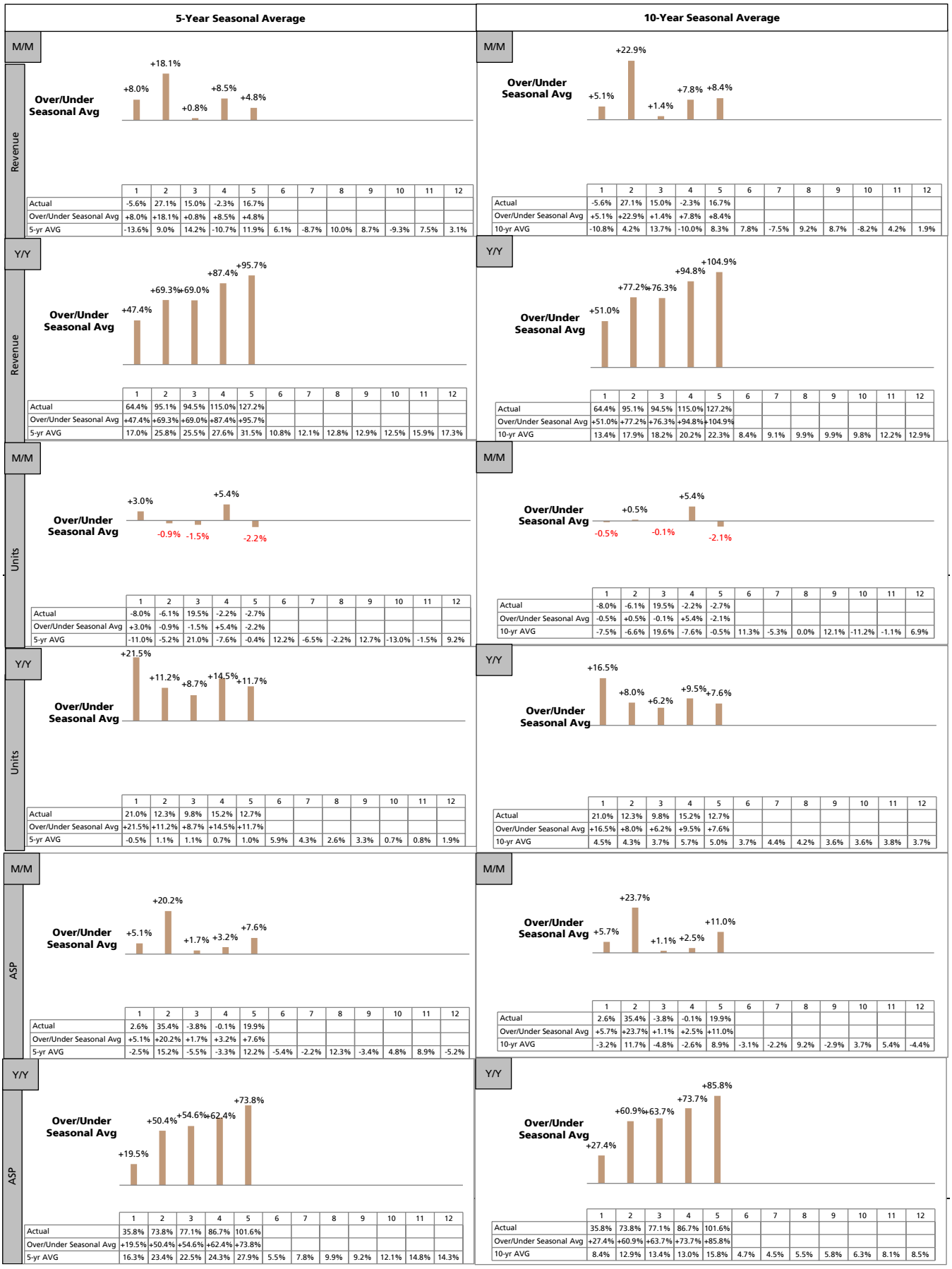
Source: UBS, SIA

Figure 5: Total Semiconductor Revenue vs. SOX



Source: UBS, SIA, FactSet.

Figure 6: Total Semis Revenue and Units Relative to Seasonality



5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-5.6%	27.1%	15.0%	-2.3%	16.7%							
Over/Under Seasonal Avg	+8.0%	+18.1%	+0.8%	+8.5%	+4.8%							
5-yr AVG	-13.6%	9.0%	14.2%	-10.7%	11.9%	6.1%	-8.7%	10.0%	8.7%	-9.3%	7.5%	3.1%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-5.6%	27.1%	15.0%	-2.3%	16.7%							
Over/Under Seasonal Avg	+5.1%	+22.9%	+1.4%	+7.8%	+8.4%							
10-yr AVG	-10.8%	4.2%	13.7%	-10.0%	8.3%	7.8%	-7.5%	9.2%	8.7%	-8.2%	4.2%	1.9%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	64.4%	95.1%	94.5%	115.0%	127.2%							
Over/Under Seasonal Avg	+47.4%	+69.3%	+69.0%	+87.4%	+95.7%							
5-yr AVG	17.0%	25.8%	25.5%	27.6%	31.5%	10.8%	12.1%	12.8%	12.9%	12.5%	15.9%	17.3%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	64.4%	95.1%	94.5%	115.0%	127.2%							
Over/Under Seasonal Avg	+51.0%	+77.2%	+76.3%	+94.8%	+104.9%							
10-yr AVG	13.4%	17.9%	18.2%	20.2%	22.3%	8.4%	9.1%	9.9%	9.9%	9.8%	12.2%	12.9%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-8.0%	-6.1%	19.5%	-2.2%	-2.7%							
Over/Under Seasonal Avg	+3.0%	-0.9%	-1.5%	+5.4%	-2.2%							
5-yr AVG	-11.0%	-5.2%	21.0%	-7.6%	-0.4%	12.2%	-6.5%	-2.2%	12.7%	-13.0%	-1.5%	9.2%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-8.0%	-6.1%	19.5%	-2.2%	-2.7%							
Over/Under Seasonal Avg	-0.5%	+0.5%	-0.1%	+5.4%	-2.1%							
10-yr AVG	-7.5%	-6.6%	19.6%	-7.6%	-0.5%	11.3%	-5.3%	0.0%	12.1%	-11.2%	-1.1%	6.9%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	21.0%	12.3%	9.8%	15.2%	12.7%							
Over/Under Seasonal Avg	+21.5%	+11.2%	+8.7%	+14.5%	+11.7%							
5-yr AVG	-0.5%	1.1%	1.1%	0.7%	1.0%	5.9%	4.3%	2.6%	3.3%	0.7%	0.8%	1.9%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	21.0%	12.3%	9.8%	15.2%	12.7%							
Over/Under Seasonal Avg	+16.5%	+8.0%	+6.2%	+9.5%	+7.6%							
10-yr AVG	4.5%	4.3%	3.7%	5.7%	5.0%	3.7%	4.4%	4.2%	3.6%	3.6%	3.8%	3.7%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	2.6%	35.4%	-3.8%	-0.1%	19.9%							
Over/Under Seasonal Avg	+5.1%	+20.2%	+1.7%	+3.2%	+7.6%							
5-yr AVG	-2.5%	15.2%	-5.5%	-3.3%	12.2%	-5.4%	-2.2%	12.3%	-3.4%	4.8%	8.9%	-5.2%

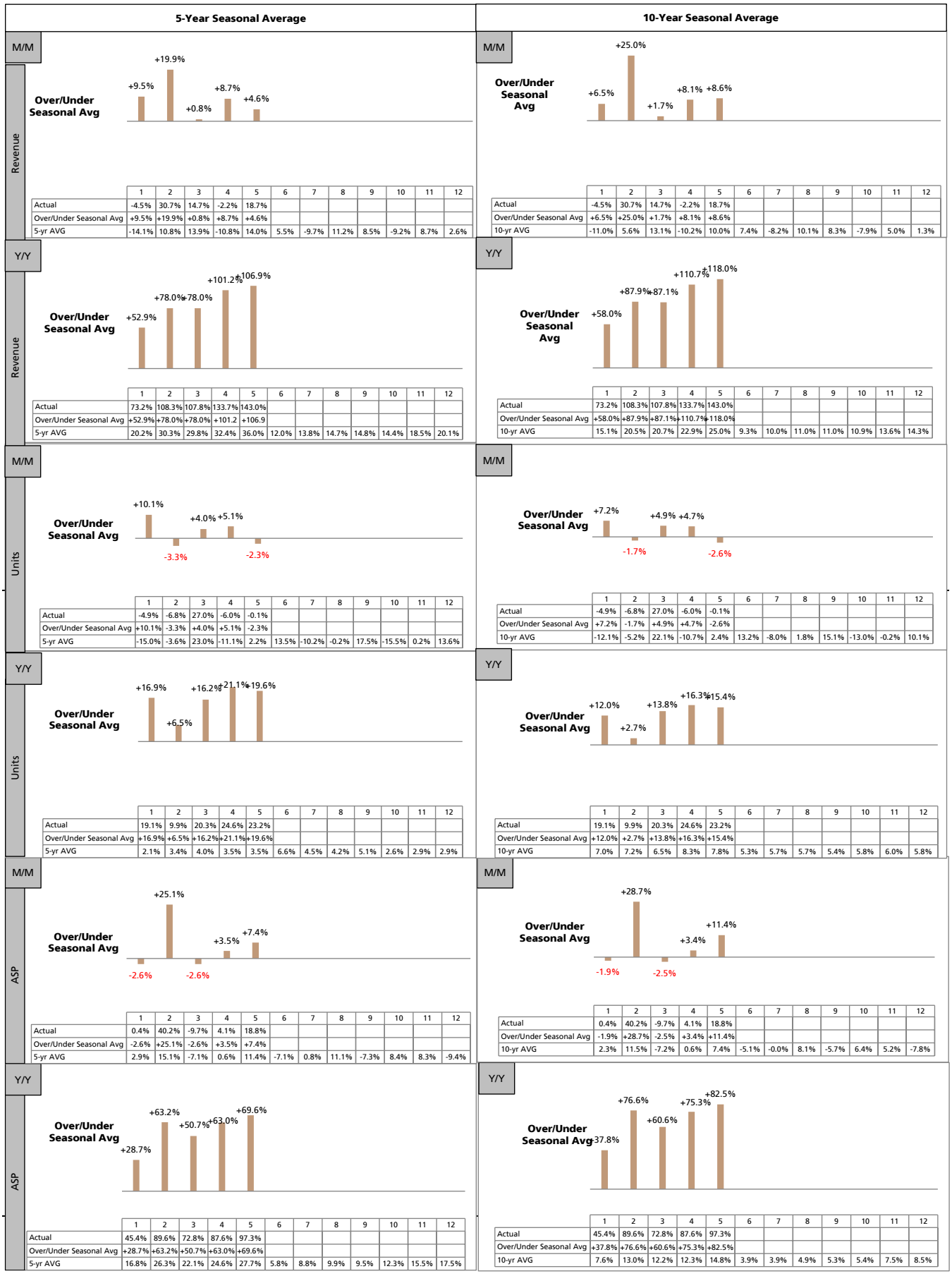
10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	2.6%	35.4%	-3.8%	-0.1%	19.9%							
Over/Under Seasonal Avg	+5.7%	+23.7%	+1.1%	+2.5%	+11.0%							
10-yr AVG	-3.2%	11.7%	-4.8%	-2.6%	8.9%	-3.1%	-2.2%	9.2%	-2.9%	3.7%	5.4%	-4.4%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	35.8%	73.8%	77.1%	86.7%	101.6%							
Over/Under Seasonal Avg	+19.5%	+50.4%	+54.6%	+62.4%	+73.8%							
5-yr AVG	16.3%	23.4%	22.5%	24.3%	27.9%	5.5%	7.8%	9.9%	9.2%	12.1%	14.8%	14.3%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	35.8%	73.8%	77.1%	86.7%	101.6%							
Over/Under Seasonal Avg	+27.4%	+60.9%	+63.7%	+73.7%	+85.8%							
10-yr AVG	8.4%	12.9%	13.4%	13.0%	15.8%	4.7%	4.5%	5.5%	5.8%	6.3%	8.1%	8.5%

Source: UBS, SIA

Figure 7: Total IC (excl. Discretes) Revenue and Units Change Relative to Seasonality



5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-4.5%	30.7%	14.7%	-2.2%	18.7%							
Over/Under Seasonal Avg	+9.5%	+19.9%	+0.8%	+8.7%	+4.6%							
5-yr AVG	-14.1%	10.8%	13.9%	-10.8%	14.0%	5.5%	-9.7%	11.2%	8.5%	-9.2%	8.7%	2.6%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-4.5%	30.7%	14.7%	-2.2%	18.7%							
Over/Under Seasonal Avg	+6.5%	+25.0%	+1.7%	+8.1%	+8.6%							
10-yr AVG	-11.0%	5.6%	13.1%	-10.2%	10.0%	7.4%	-8.2%	10.1%	8.3%	-7.9%	5.0%	1.3%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	73.2%	108.3%	107.8%	133.7%	143.0%							
Over/Under Seasonal Avg	+52.9%	+78.0%	+78.0%	+101.2	+106.9							
5-yr AVG	20.2%	30.3%	29.8%	32.4%	36.0%	12.0%	13.8%	14.7%	14.8%	14.4%	18.5%	20.1%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	73.2%	108.3%	107.8%	133.7%	143.0%							
Over/Under Seasonal Avg	+58.0%	+87.9%	+87.1%	+110.7%	+118.0%							
10-yr AVG	15.1%	20.5%	20.7%	22.9%	25.0%	9.3%	10.0%	11.0%	11.0%	10.9%	13.6%	14.3%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-4.9%	-6.8%	27.0%	-6.0%	-0.1%							
Over/Under Seasonal Avg	+10.1%	-3.3%	+4.0%	+5.1%	-2.3%							
5-yr AVG	-15.0%	-3.6%	23.0%	-11.1%	2.2%	13.5%	-10.2%	-0.2%	17.5%	-15.5%	0.2%	13.6%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-4.9%	-6.8%	27.0%	-6.0%	-0.1%							
Over/Under Seasonal Avg	+7.2%	-1.7%	+4.9%	+4.7%	-2.6%							
10-yr AVG	-12.1%	-5.2%	22.1%	-10.7%	2.4%	13.2%	-8.0%	1.8%	15.1%	-13.0%	-0.2%	10.1%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	19.1%	9.9%	20.3%	24.6%	23.2%							
Over/Under Seasonal Avg	+16.9%	+6.5%	+16.2%	+21.1%	+19.6%							
5-yr AVG	2.1%	3.4%	4.0%	3.5%	3.5%	6.6%	4.5%	4.2%	5.1%	2.6%	2.9%	2.9%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	19.1%	9.9%	20.3%	24.6%	23.2%							
Over/Under Seasonal Avg	+12.0%	+2.7%	+13.8%	+16.3%	+15.4%							
10-yr AVG	7.0%	7.2%	6.5%	8.3%	7.8%	5.3%	5.7%	5.7%	5.4%	5.8%	6.0%	5.8%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	0.4%	40.2%	-9.7%	4.1%	18.8%							
Over/Under Seasonal Avg	-2.6%	+25.1%	-2.6%	+3.5%	+7.4%							
5-yr AVG	2.9%	15.1%	-7.1%	0.6%	11.4%	-7.1%	0.8%	11.1%	-7.3%	8.4%	8.3%	-9.4%

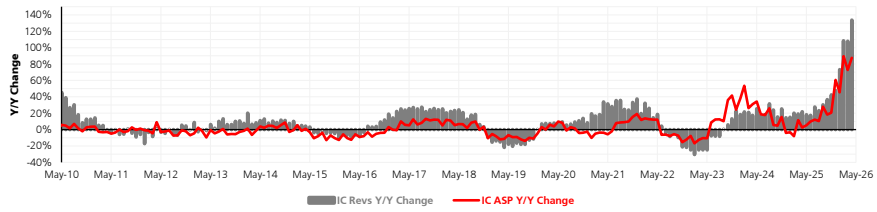
10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	0.4%	40.2%	-9.7%	4.1%	18.8%							
Over/Under Seasonal Avg	-1.9%	+28.7%	-2.5%	+3.4%	+11.4%							
10-yr AVG	2.3%	11.5%	-7.2%	0.6%	7.4%	-5.1%	-0.0%	8.1%	-5.7%	6.4%	5.2%	-7.8%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	45.4%	89.6%	72.8%	87.6%	97.3%							
Over/Under Seasonal Avg	+28.7%	+63.2%	+50.7%	+63.0%	+69.6%							
5-yr AVG	16.8%	26.3%	22.1%	24.6%	27.7%	5.8%	8.8%	9.9%	9.5%	12.3%	15.5%	17.5%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	45.4%	89.6%	72.8%	87.6%	97.3%							
Over/Under Seasonal Avg	+37.8%	+76.6%	+60.6%	+75.3%	+82.5%							
10-yr AVG	7.6%	13.0%	12.2%	12.3%	14.8%	3.9%	3.9%	4.9%	5.3%	5.4%	7.5%	8.5%

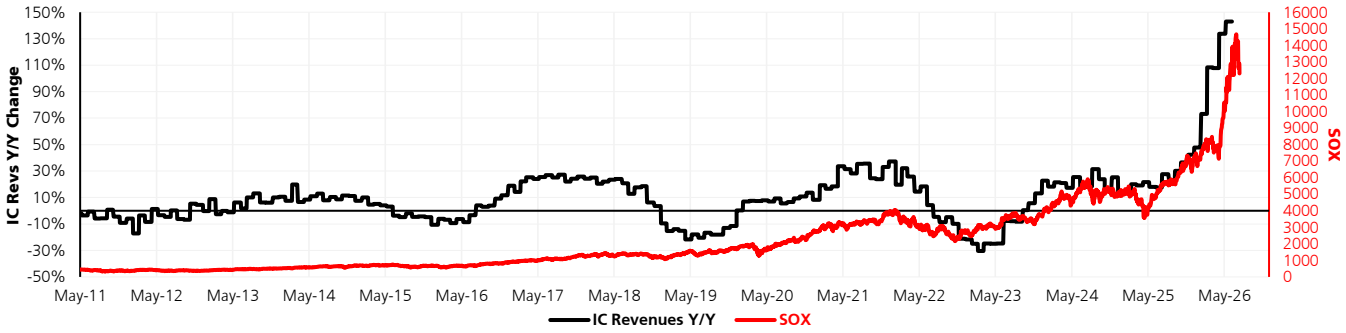
Source: UBS, SIA

Figure 8: Total IC (excl. Discretes) Revenue and ASP Change



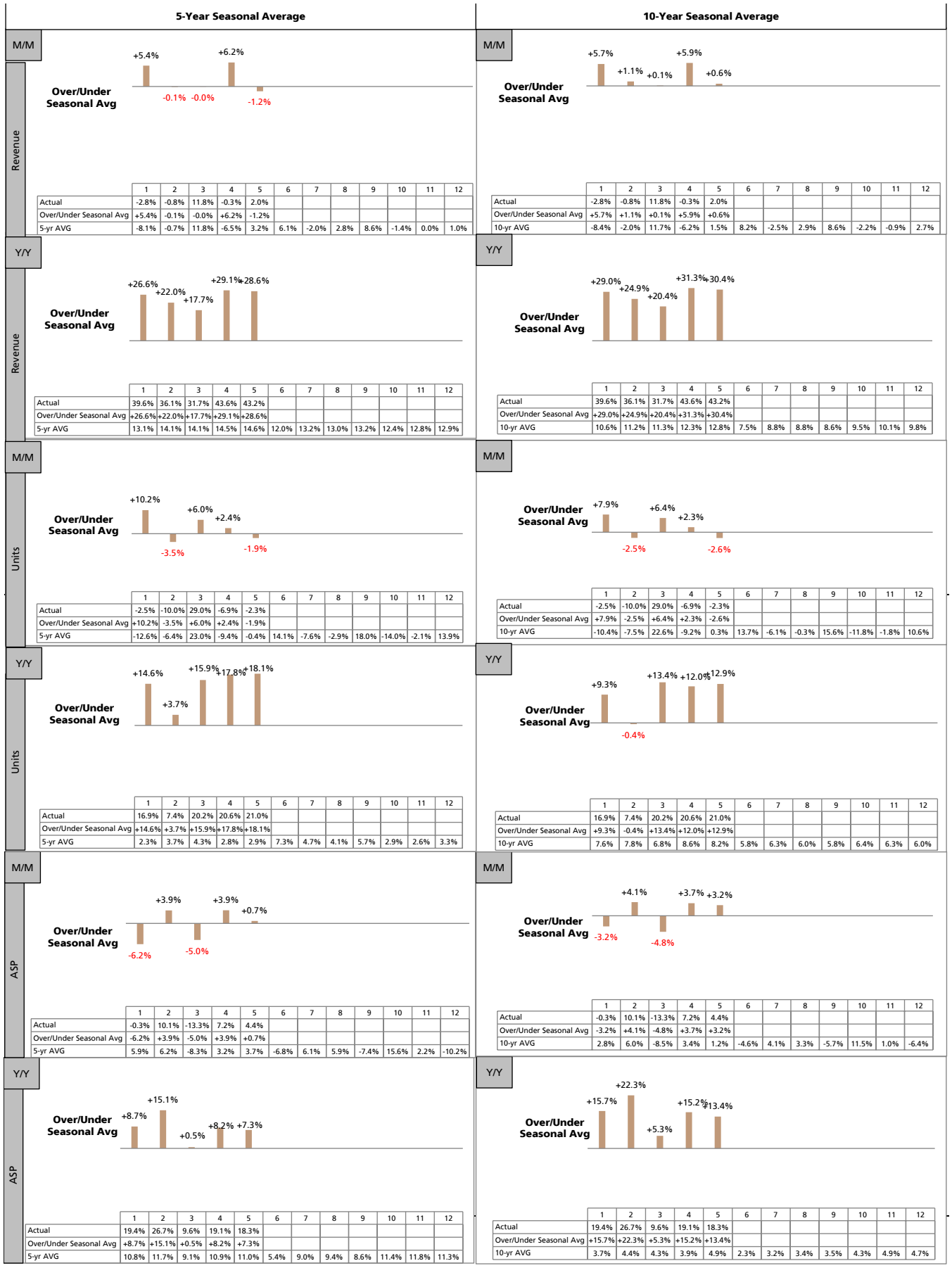
Source: UBS, SIA

Figure 9: Total IC (excl. Discretes) Revenue vs. SOX



Source: UBS, SIA, FactSet.

Figure 10: IC (ex-Memory) Revenue and Units Change Relative to Seasonality



5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-2.8%	-0.8%	11.8%	-0.3%	2.0%							
Over/Under Seasonal Avg	+5.4%	-0.1%	-0.0%	+6.2%	-1.2%							
5-yr AVG	-8.1%	-0.7%	11.8%	-6.5%	3.2%	6.1%	-2.0%	2.8%	8.6%	-1.4%	0.0%	1.0%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-2.8%	-0.8%	11.8%	-0.3%	2.0%							
Over/Under Seasonal Avg	+5.7%	+1.1%	+0.1%	+5.9%	+0.6%							
10-yr AVG	-8.4%	-2.0%	11.7%	-6.2%	1.5%	8.2%	-2.5%	2.9%	8.6%	-2.2%	-0.9%	2.7%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	39.6%	36.1%	31.7%	43.6%	43.2%							
Over/Under Seasonal Avg	+26.6%	+22.0%	+17.7%	+29.1%	+28.6%							
5-yr AVG	13.1%	14.1%	14.1%	14.5%	14.6%	12.0%	13.2%	13.0%	13.2%	12.4%	12.8%	12.9%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	39.6%	36.1%	31.7%	43.6%	43.2%							
Over/Under Seasonal Avg	+29.0%	+24.9%	+20.4%	+31.3%	+30.4%							
10-yr AVG	10.6%	11.2%	11.3%	12.3%	12.8%	7.5%	8.8%	8.8%	8.6%	9.5%	10.1%	9.8%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-2.5%	-10.0%	29.0%	-6.9%	-2.3%							
Over/Under Seasonal Avg	+10.2%	-3.5%	+6.0%	+2.4%	-1.9%							
5-yr AVG	-12.6%	-6.4%	23.0%	-9.4%	-0.4%	14.1%	-7.6%	-2.9%	18.0%	-14.0%	-2.1%	13.9%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-2.5%	-10.0%	29.0%	-6.9%	-2.3%							
Over/Under Seasonal Avg	+7.9%	-2.5%	+6.4%	+2.3%	-2.6%							
10-yr AVG	-10.4%	-7.5%	22.6%	-9.2%	0.3%	13.7%	-6.1%	-0.3%	15.6%	-11.8%	-1.8%	10.6%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	16.9%	7.4%	20.2%	20.6%	21.0%							
Over/Under Seasonal Avg	+14.6%	+3.7%	+15.9%	+17.8%	+18.1%							
5-yr AVG	2.3%	3.7%	4.3%	2.8%	2.9%	7.3%	4.7%	4.1%	5.7%	2.9%	2.6%	3.3%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	16.9%	7.4%	20.2%	20.6%	21.0%							
Over/Under Seasonal Avg	+9.3%	-0.4%	+13.4%	+12.0%	+12.9%							
10-yr AVG	7.6%	7.8%	6.8%	8.6%	8.2%	5.8%	6.3%	6.0%	5.8%	6.4%	6.3%	6.0%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-0.3%	10.1%	-13.3%	7.2%	4.4%							
Over/Under Seasonal Avg	-6.2%	+3.9%	-5.0%	+3.9%	+0.7%							
5-yr AVG	5.9%	6.2%	-8.3%	3.2%	3.7%	-6.8%	6.1%	5.9%	-7.4%	15.6%	2.2%	-10.2%

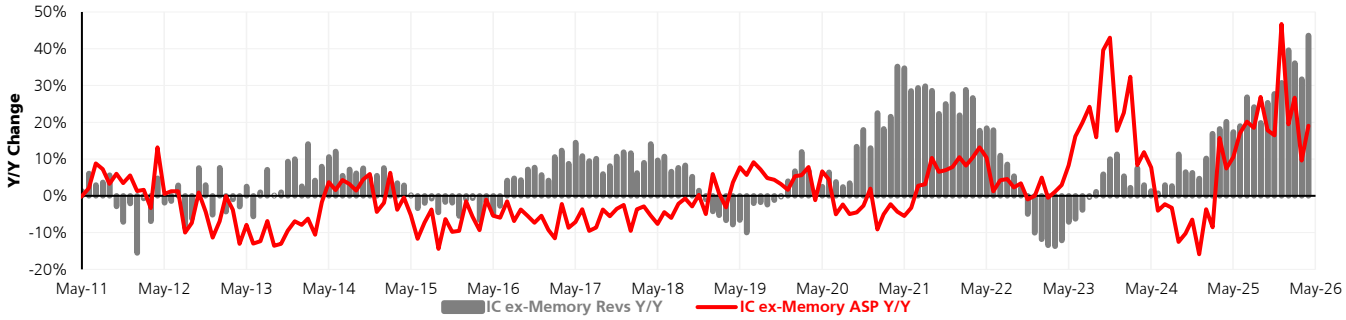
10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-0.3%	10.1%	-13.3%	7.2%	4.4%							
Over/Under Seasonal Avg	-3.2%	+4.1%	-4.8%	+3.7%	+3.2%							
10-yr AVG	2.8%	6.0%	-8.5%	3.4%	1.2%	-4.6%	4.1%	3.3%	-5.7%	11.5%	1.0%	-6.4%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	19.4%	26.7%	9.6%	19.1%	18.3%							
Over/Under Seasonal Avg	+8.7%	+15.1%	+0.5%	+8.2%	+7.3%							
5-yr AVG	10.8%	11.7%	9.1%	10.9%	11.0%	5.4%	9.0%	9.4%	8.6%	11.4%	11.8%	11.3%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	19.4%	26.7%	9.6%	19.1%	18.3%							
Over/Under Seasonal Avg	+15.7%	+22.3%	+5.3%	+15.2%	+13.4%							
10-yr AVG	3.7%	4.4%	4.3%	3.9%	4.9%	2.3%	3.2%	3.4%	3.5%	4.3%	4.9%	4.7%

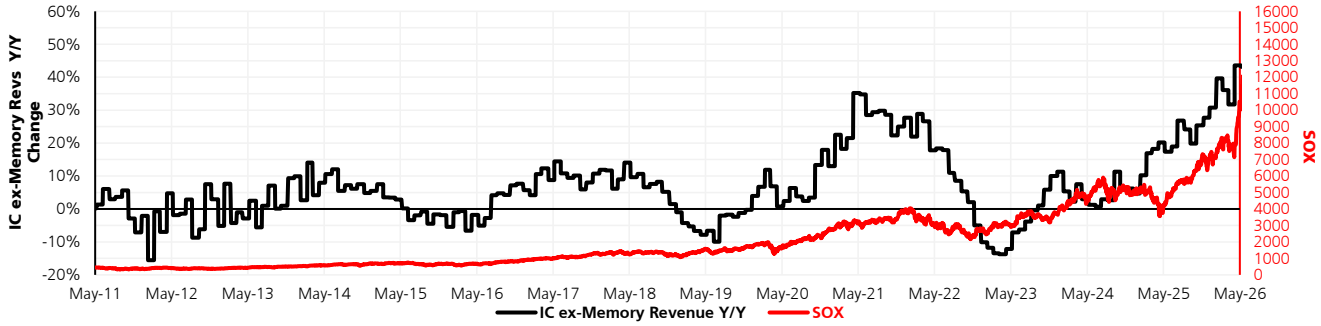
Source: UBS, SIA

Figure 11: IC (ex-Memory) Revenue and ASP Change



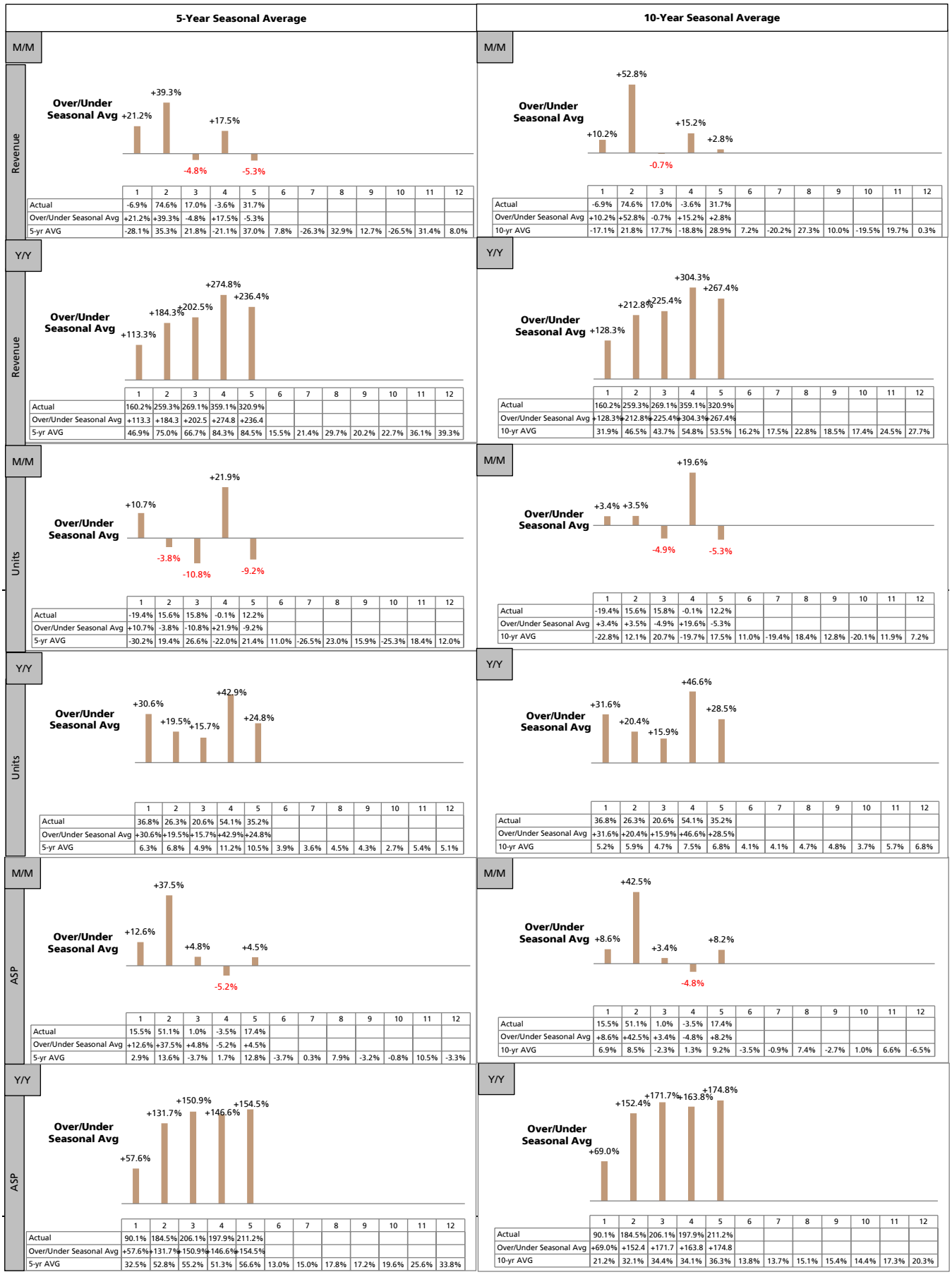
Source: UBS, SIA

Figure 12: IC (ex-Memory) Revenue vs. SOX



Source: UBS, SIA, FactSet.

Figure 13: Total Memory Revenue and Units Relative to Seasonality



5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-6.9%	74.6%	17.0%	-3.6%	31.7%							
Over/Under Seasonal Avg	+21.2%	+39.3%	-4.8%	+17.5%	-5.3%							
5-yr AVG	-28.1%	35.3%	21.8%	-21.1%	37.0%	7.8%	-26.3%	32.9%	12.7%	-26.5%	31.4%	8.0%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-6.9%	74.6%	17.0%	-3.6%	31.7%							
Over/Under Seasonal Avg	+10.2%	+52.8%	-0.7%	+15.2%	+2.8%							
10-yr AVG	-17.1%	21.8%	17.7%	-18.8%	28.9%	7.2%	-20.2%	27.3%	10.0%	-19.5%	19.7%	0.3%

Y/Y Revenue	1	2	3	4	5	6	7	8	9	10	11	12
Actual	160.2%	259.3%	269.1%	359.1%	320.9%							
Over/Under Seasonal Avg	+113.3	+184.3	+202.5	+274.8	+236.4							
5-yr AVG	46.9%	75.0%	66.7%	84.3%	84.5%	15.5%	21.4%	29.7%	20.2%	22.7%	36.1%	39.3%

Y/Y Revenue	1	2	3	4	5	6	7	8	9	10	11	12
Actual	160.2%	259.3%	269.1%	359.1%	320.9%							
Over/Under Seasonal Avg	+128.3%	+212.8%	+225.4%	+304.3%	+267.4%							
10-yr AVG	31.9%	46.5%	43.7%	54.8%	53.5%	16.2%	17.5%	22.8%	18.5%	17.4%	24.5%	27.7%

M/M Units	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-19.4%	15.6%	15.8%	-0.1%	12.2%							
Over/Under Seasonal Avg	+10.7%	-3.8%	-10.8%	+21.9%	-9.2%							
5-yr AVG	-30.2%	19.4%	26.6%	-22.0%	21.4%	11.0%	-26.5%	23.0%	15.9%	-25.3%	18.4%	12.0%

M/M Units	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-19.4%	15.6%	15.8%	-0.1%	12.2%							
Over/Under Seasonal Avg	+3.4%	+3.5%	-4.9%	+19.6%	-5.3%							
10-yr AVG	-22.8%	12.1%	20.7%	-19.7%	17.5%	11.0%	-19.4%	18.4%	12.8%	-20.1%	11.9%	7.2%

Y/Y Units	1	2	3	4	5	6	7	8	9	10	11	12
Actual	36.8%	26.3%	20.6%	54.1%	35.2%							
Over/Under Seasonal Avg	+30.6%	+19.5%	+15.7%	+42.9%	+24.8%							
5-yr AVG	6.3%	6.8%	4.9%	11.2%	10.5%	3.9%	3.6%	4.5%	4.3%	2.7%	5.4%	5.1%

Y/Y Units	1	2	3	4	5	6	7	8	9	10	11	12
Actual	36.8%	26.3%	20.6%	54.1%	35.2%							
Over/Under Seasonal Avg	+31.6%	+20.4%	+15.9%	+46.6%	+28.5%							
10-yr AVG	5.2%	5.9%	4.7%	7.5%	6.8%	4.1%	4.1%	4.7%	4.8%	3.7%	5.7%	6.8%

M/M ASP	1	2	3	4	5	6	7	8	9	10	11	12
Actual	15.5%	51.1%	1.0%	-3.5%	17.4%							
Over/Under Seasonal Avg	+12.6%	+37.5%	+4.8%	-5.2%	+4.5%							
5-yr AVG	2.9%	13.6%	-3.7%	1.7%	12.8%	-3.7%	0.3%	7.9%	-3.2%	-0.8%	10.5%	-3.3%

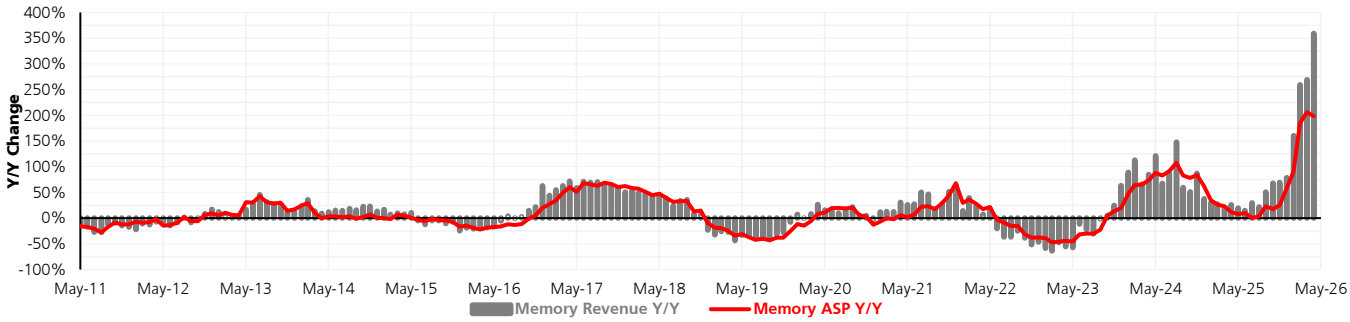
M/M ASP	1	2	3	4	5	6	7	8	9	10	11	12
Actual	15.5%	51.1%	1.0%	-3.5%	17.4%							
Over/Under Seasonal Avg	+8.6%	+42.5%	+3.4%	-4.8%	+8.2%							
10-yr AVG	6.9%	8.5%	-2.3%	1.3%	9.2%	-3.5%	-0.9%	7.4%	-2.7%	1.0%	6.6%	-6.5%

Y/Y ASP	1	2	3	4	5	6	7	8	9	10	11	12
Actual	90.1%	184.5%	206.1%	197.9%	211.2%							
Over/Under Seasonal Avg	+57.6%	+131.7%	+150.9%	+146.6%	+154.5%							
5-yr AVG	32.5%	52.8%	55.2%	51.3%	56.6%	13.0%	15.0%	17.8%	17.2%	19.6%	25.6%	33.8%

Y/Y ASP	1	2	3	4	5	6	7	8	9	10	11	12
Actual	90.1%	184.5%	206.1%	197.9%	211.2%							
Over/Under Seasonal Avg	+69.0%	+152.4	+171.7	+163.8	+174.8							
10-yr AVG	21.2%	32.1%	34.4%	34.1%	36.3%	13.8%	13.7%	15.1%	15.4%	14.4%	17.3%	20.3%

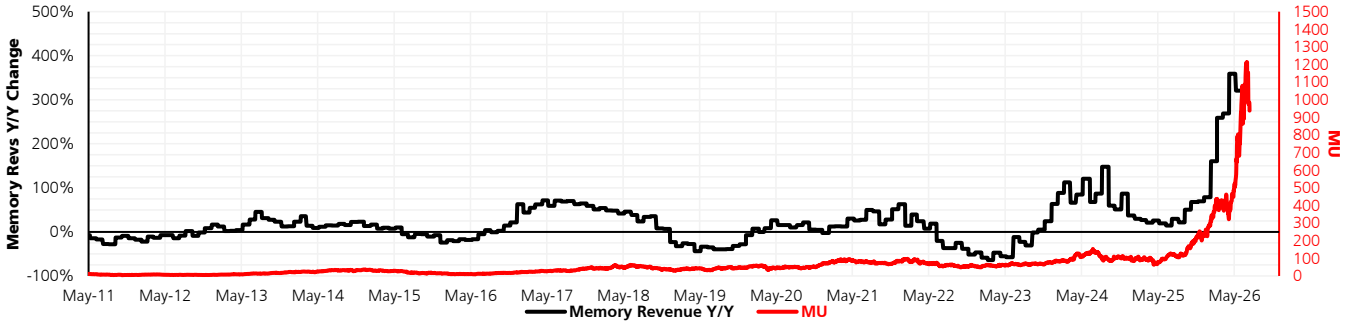
Source: UBS, SIA

Figure 14: Memory Revenue and ASP Change



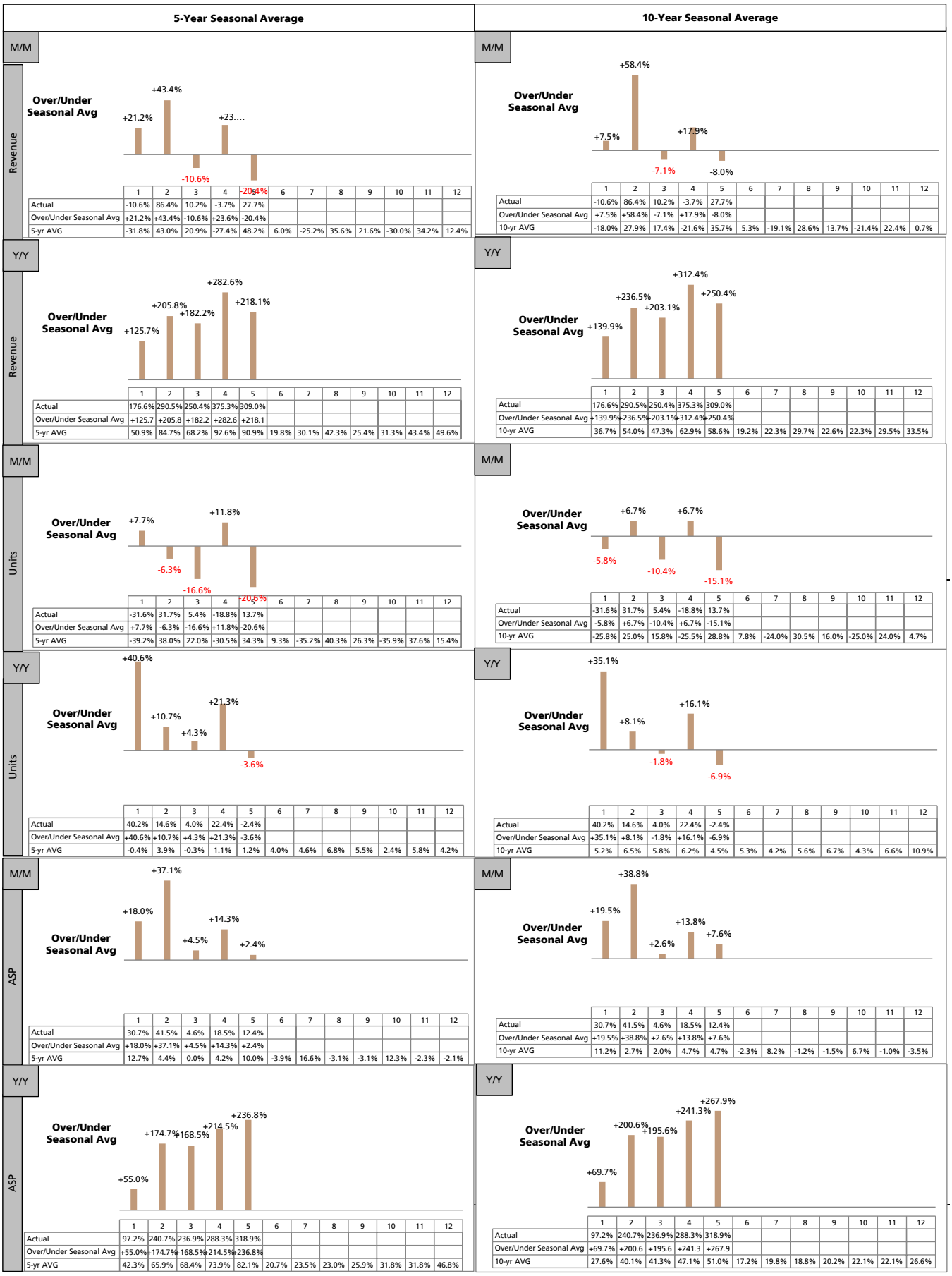
Source: UBS, SIA

Figure 15: Memory Revenue vs. MU Share price



Source: UBS, SIA, FactSet.

Figure 16: DRAM Revenue and Units Change Relative to Seasonality



5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-10.6%	86.4%	10.2%	-3.7%	27.7%							
Over/Under Seasonal Avg	+21.2%	+43.4%	-10.6%	+23.6%	-20.4%							
5-yr AVG	-31.8%	43.0%	20.9%	-27.4%	48.2%	6.0%	-25.2%	35.6%	21.6%	-30.0%	34.2%	12.4%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-10.6%	86.4%	10.2%	-3.7%	27.7%							
Over/Under Seasonal Avg	+7.5%	+58.4%	-7.1%	+17.9%	-8.0%							
10-yr AVG	-18.0%	27.9%	17.4%	-21.6%	35.7%	5.3%	-19.1%	28.6%	13.7%	-21.4%	22.4%	0.7%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	176.6%	290.5%	250.4%	375.3%	309.0%							
Over/Under Seasonal Avg	+125.7	+205.8	+182.2	+282.6	+218.1							
5-yr AVG	50.9%	84.7%	68.2%	92.6%	90.9%	19.8%	30.1%	42.3%	25.4%	31.3%	43.4%	49.6%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	176.6%	290.5%	250.4%	375.3%	309.0%							
Over/Under Seasonal Avg	+139.9%	+236.5%	+203.1%	+312.4%	+250.4%							
10-yr AVG	36.7%	54.0%	47.3%	62.9%	58.6%	19.2%	22.3%	29.7%	22.6%	22.3%	29.5%	33.5%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-31.6%	31.7%	5.4%	-18.8%	13.7%							
Over/Under Seasonal Avg	+7.7%	-6.3%	-16.6%	+11.8%	-20.6%							
5-yr AVG	-39.2%	38.0%	22.0%	-30.5%	34.3%	9.3%	-35.2%	40.3%	26.3%	-35.9%	37.6%	15.4%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-31.6%	31.7%	5.4%	-18.8%	13.7%							
Over/Under Seasonal Avg	-5.8%	+6.7%	-10.4%	+6.7%	-15.1%							
10-yr AVG	-25.8%	25.0%	15.8%	-25.5%	28.8%	7.8%	-24.0%	30.5%	16.0%	-25.0%	24.0%	4.7%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	40.2%	14.6%	4.0%	22.4%	-2.4%							
Over/Under Seasonal Avg	+40.6%	+10.7%	+4.3%	+21.3%	-3.6%							
5-yr AVG	-0.4%	3.9%	-0.3%	1.1%	1.2%	4.0%	4.6%	6.8%	5.5%	2.4%	5.8%	4.2%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	40.2%	14.6%	4.0%	22.4%	-2.4%							
Over/Under Seasonal Avg	+35.1%	+8.1%	-1.8%	+16.1%	-6.9%							
10-yr AVG	5.2%	6.5%	5.8%	6.2%	4.5%	5.3%	4.2%	5.6%	6.7%	4.3%	6.6%	10.9%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	30.7%	41.5%	4.6%	18.5%	12.4%							
Over/Under Seasonal Avg	+18.0%	+37.1%	+4.5%	+14.3%	+2.4%							
5-yr AVG	12.7%	4.4%	0.0%	4.2%	10.0%	-3.9%	16.6%	-3.1%	-3.1%	12.3%	-2.3%	-2.1%

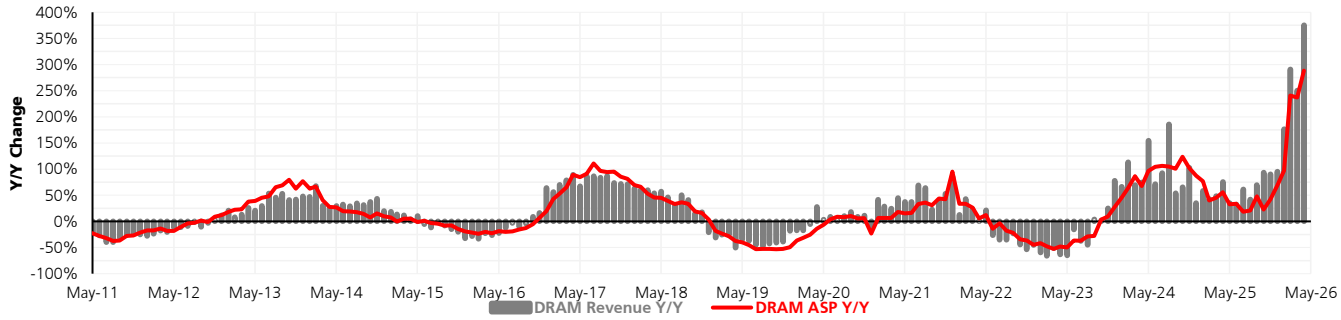
10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	30.7%	41.5%	4.6%	18.5%	12.4%							
Over/Under Seasonal Avg	+19.5%	+38.8%	+2.6%	+13.8%	+7.6%							
10-yr AVG	11.2%	2.7%	2.0%	4.7%	4.7%	-2.3%	8.2%	-1.2%	-1.5%	6.7%	-1.0%	-3.5%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	97.2%	240.7%	236.9%	288.3%	318.9%							
Over/Under Seasonal Avg	+55.0%	+174.7%	+168.5%	+214.5%	+236.8%							
5-yr AVG	42.3%	65.9%	68.4%	73.9%	82.1%	20.7%	23.5%	23.0%	25.9%	31.8%	31.8%	46.8%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	97.2%	240.7%	236.9%	288.3%	318.9%							
Over/Under Seasonal Avg	+69.7%	+200.6	+195.6	+241.3	+267.9							
10-yr AVG	27.6%	40.1%	41.3%	47.1%	51.0%	17.2%	19.8%	18.8%	20.2%	22.1%	22.1%	26.6%

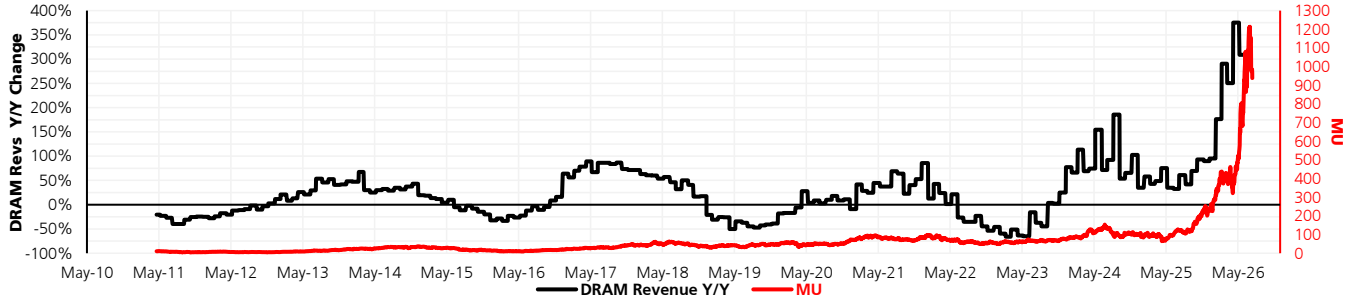
Source: UBS, SIA

Figure 17: DRAM Revenue and ASP Change



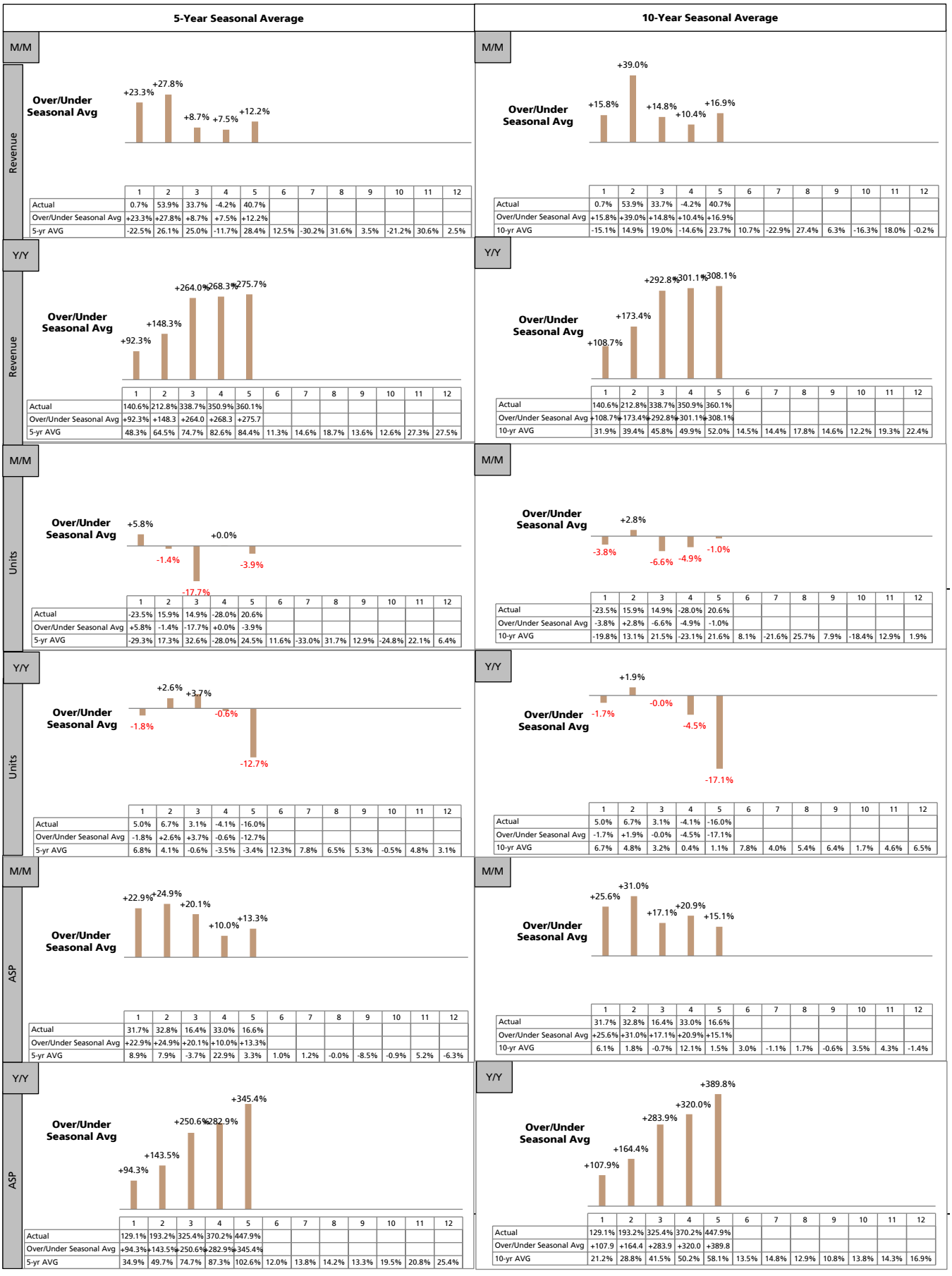
Source: UBS, SIA

Figure 18: DRAM Revenue vs. MU stock price



Source: UBS, SIA, FactSet.

Figure 19: NAND Revenue and Units Change Relative to Seasonality



5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	0.7%	53.9%	33.7%	-4.2%	40.7%							
Over/Under Seasonal Avg	+23.3%	+27.8%	+8.7%	+7.5%	+12.2%							
5-yr AVG	-22.5%	26.1%	25.0%	-11.7%	28.4%	12.5%	-30.2%	31.6%	3.5%	-21.2%	30.6%	2.5%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	0.7%	53.9%	33.7%	-4.2%	40.7%							
Over/Under Seasonal Avg	+15.8%	+39.0%	+14.8%	+10.4%	+16.9%							
10-yr AVG	-15.1%	14.9%	19.0%	-14.6%	23.7%	10.7%	-22.9%	27.4%	6.3%	-16.3%	18.0%	-0.2%

Revenue Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	140.6%	212.8%	338.7%	350.9%	360.1%							
Over/Under Seasonal Avg	+92.3%	+148.3	+264.0	+268.3	+275.7							
5-yr AVG	48.3%	64.5%	74.7%	82.6%	84.4%	11.3%	14.6%	18.7%	13.6%	12.6%	27.3%	27.5%

Revenue Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	140.6%	212.8%	338.7%	350.9%	360.1%							
Over/Under Seasonal Avg	+108.7%	+173.4%	+292.8%	+301.1%	+308.1%							
10-yr AVG	31.9%	39.4%	45.8%	49.9%	52.0%	14.5%	14.4%	17.8%	14.6%	12.2%	19.3%	22.4%

Units M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-23.5%	15.9%	14.9%	-28.0%	20.6%							
Over/Under Seasonal Avg	+5.8%	-1.4%	-17.7%	+0.0%	-3.9%							
5-yr AVG	-29.3%	17.3%	32.6%	-28.0%	24.5%	11.6%	-33.0%	31.7%	12.9%	-24.8%	22.1%	6.4%

Units M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-23.5%	15.9%	14.9%	-28.0%	20.6%							
Over/Under Seasonal Avg	-3.8%	+2.8%	-6.6%	-4.9%	-1.0%							
10-yr AVG	-19.8%	13.1%	21.5%	-23.1%	21.6%	8.1%	-21.6%	25.7%	7.9%	-18.4%	12.9%	1.9%

Units Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	5.0%	6.7%	3.1%	-4.1%	-16.0%							
Over/Under Seasonal Avg	-1.8%	+2.6%	+3.7%	-0.6%	-12.7%							
5-yr AVG	6.8%	4.1%	-0.6%	-3.5%	-3.4%	12.3%	7.8%	6.5%	5.3%	-0.5%	4.8%	3.1%

Units Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	5.0%	6.7%	3.1%	-4.1%	-16.0%							
Over/Under Seasonal Avg	-1.7%	+1.9%	-0.0%	-4.5%	-17.1%							
10-yr AVG	6.7%	4.8%	3.2%	0.4%	1.1%	7.8%	4.0%	5.4%	6.4%	1.7%	4.6%	6.5%

ASP M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	31.7%	32.8%	16.4%	33.0%	16.6%							
Over/Under Seasonal Avg	+22.9%	+24.9%	+20.1%	+10.0%	+13.3%							
5-yr AVG	8.9%	7.9%	-3.7%	22.9%	3.3%	1.0%	1.2%	-0.0%	-8.5%	-0.9%	5.2%	-6.3%

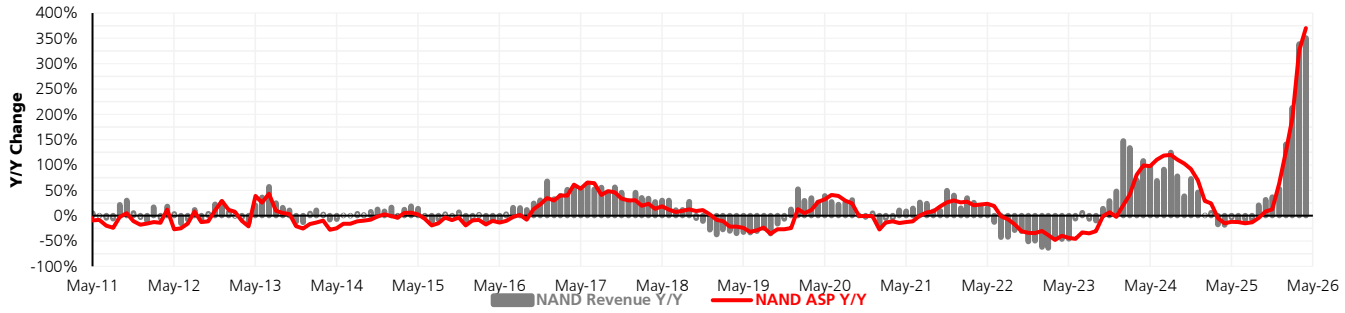
ASP M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	31.7%	32.8%	16.4%	33.0%	16.6%							
Over/Under Seasonal Avg	+25.6%	+31.0%	+17.1%	+20.9%	+15.1%							
10-yr AVG	6.1%	1.8%	-0.7%	12.1%	1.5%	3.0%	-1.1%	1.7%	-0.6%	3.5%	4.3%	-1.4%

ASP Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	129.1%	193.2%	325.4%	370.2%	447.9%							
Over/Under Seasonal Avg	+94.3%	+143.5%	+250.6%	+282.9%	+345.4%							
5-yr AVG	34.9%	49.7%	74.7%	87.3%	102.6%	12.0%	13.8%	14.2%	13.3%	19.5%	20.8%	25.4%

ASP Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	129.1%	193.2%	325.4%	370.2%	447.9%							
Over/Under Seasonal Avg	+107.9	+164.4	+283.9	+320.0	+389.8							
10-yr AVG	21.2%	28.8%	41.5%	50.2%	58.1%	13.5%	14.8%	12.9%	10.8%	13.8%	14.3%	16.9%

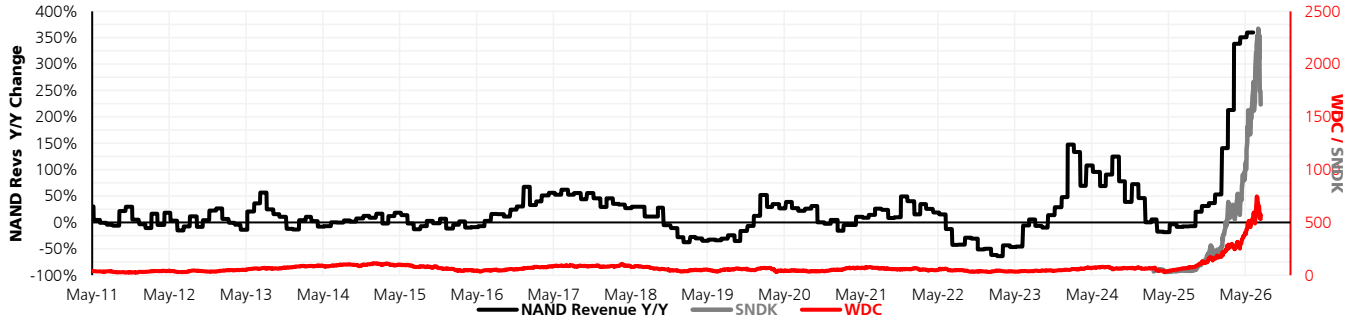
Source: UBS, SIA

Figure 20: NAND Revenue and ASP Change



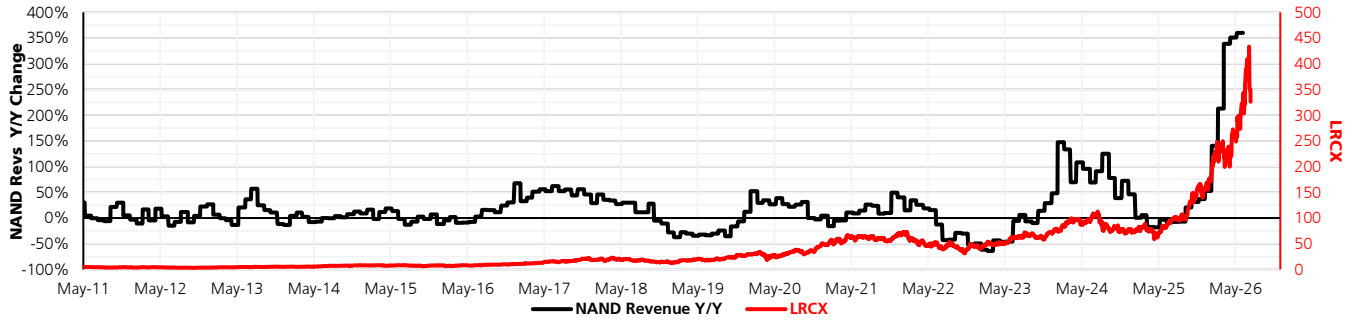
Source: UBS, SIA

Figure 21: NAND Revenue vs. WDC, SNDK



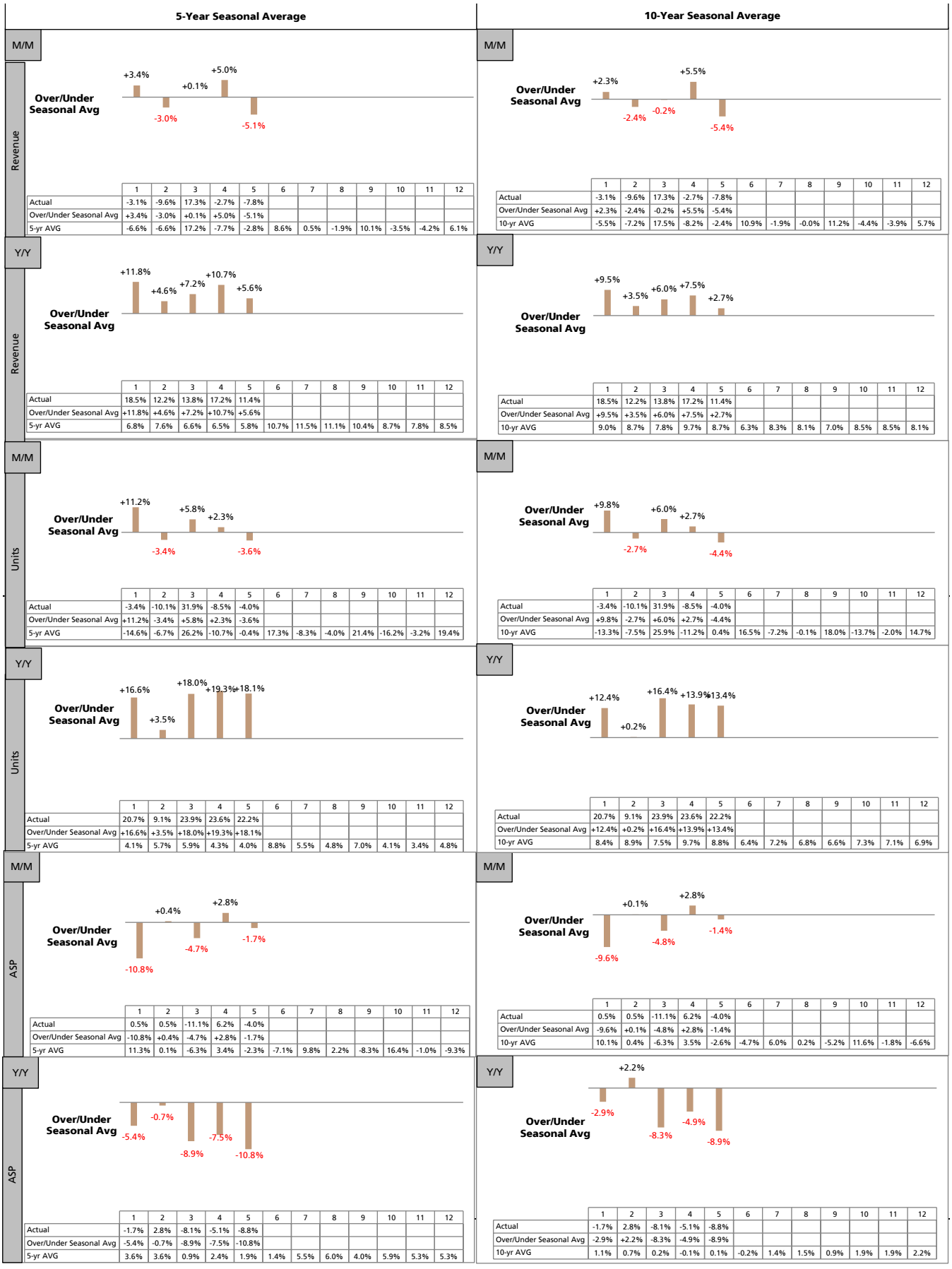
Source: UBS, SIA, FactSet.

Figure 22: NAND Revenue vs. LRCX



Source: UBS, SIA, FactSet.

Figure 23: Analog Revenue and Units Change Relative to Seasonality



5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-3.1%	-9.6%	17.3%	-2.7%	-7.8%							
Over/Under Seasonal Avg	+3.4%	-3.0%	+0.1%	+5.0%	-5.1%							
5-yr AVG	-6.6%	-6.6%	17.2%	-7.7%	-2.8%	8.6%	0.5%	-1.9%	10.1%	-3.5%	-4.2%	6.1%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-3.1%	-9.6%	17.3%	-2.7%	-7.8%							
Over/Under Seasonal Avg	+2.3%	-2.4%	-0.2%	+5.5%	-5.4%							
10-yr AVG	-5.5%	-7.2%	17.5%	-8.2%	-2.4%	10.9%	-1.9%	-0.0%	11.2%	-4.4%	-3.9%	5.7%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	18.5%	12.2%	13.8%	17.2%	11.4%							
Over/Under Seasonal Avg	+11.8%	+4.6%	+7.2%	+10.7%	+5.6%							
5-yr AVG	6.8%	7.6%	6.6%	6.5%	5.8%	10.7%	11.5%	11.1%	10.4%	8.7%	7.8%	8.5%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	18.5%	12.2%	13.8%	17.2%	11.4%							
Over/Under Seasonal Avg	+9.5%	+3.5%	+6.0%	+7.5%	+2.7%							
10-yr AVG	9.0%	8.7%	7.8%	9.7%	8.7%	6.3%	8.3%	8.1%	7.0%	8.5%	8.5%	8.1%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-3.4%	-10.1%	31.9%	-8.5%	-4.0%							
Over/Under Seasonal Avg	+11.2%	-3.4%	+5.8%	+2.3%	-3.6%							
5-yr AVG	-14.6%	-6.7%	26.2%	-10.7%	-0.4%	17.3%	-8.3%	-4.0%	21.4%	-16.2%	-3.2%	19.4%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-3.4%	-10.1%	31.9%	-8.5%	-4.0%							
Over/Under Seasonal Avg	+9.8%	-2.7%	+6.0%	+2.7%	-4.4%							
10-yr AVG	-13.3%	-7.5%	25.9%	-11.2%	0.4%	16.5%	-7.2%	-0.1%	18.0%	-13.7%	-2.0%	14.7%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	20.7%	9.1%	23.9%	23.6%	22.2%							
Over/Under Seasonal Avg	+16.6%	+3.5%	+18.0%	+19.3%	+18.1%							
5-yr AVG	4.1%	5.7%	5.9%	4.3%	4.0%	8.8%	5.5%	4.8%	7.0%	4.1%	3.4%	4.8%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	20.7%	9.1%	23.9%	23.6%	22.2%							
Over/Under Seasonal Avg	+12.4%	+0.2%	+16.4%	+13.9%	+13.4%							
10-yr AVG	8.4%	8.9%	7.5%	9.7%	8.8%	6.4%	7.2%	6.8%	6.6%	7.3%	7.1%	6.9%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	0.5%	0.5%	-11.1%	6.2%	-4.0%							
Over/Under Seasonal Avg	-10.8%	+0.4%	-4.7%	+2.8%	-1.7%							
5-yr AVG	11.3%	0.1%	-6.3%	3.4%	-2.3%	-7.1%	9.8%	2.2%	-8.3%	16.4%	-1.0%	-9.3%

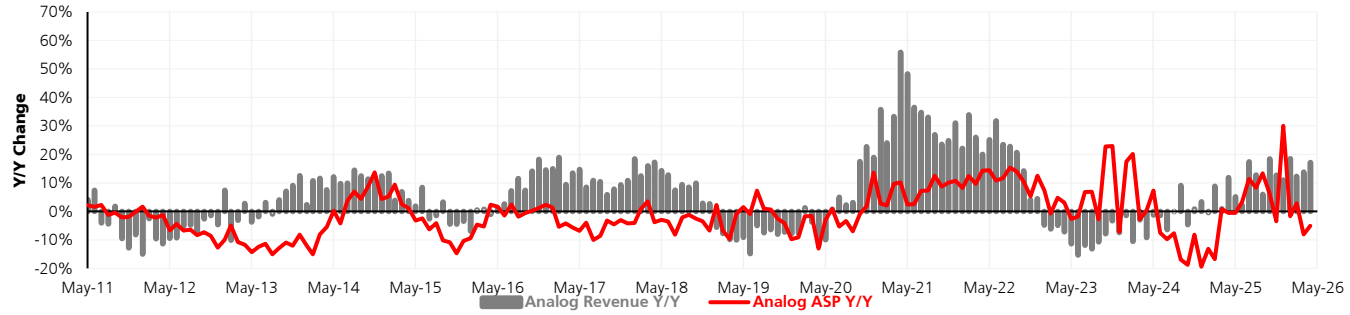
10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	0.5%	0.5%	-11.1%	6.2%	-4.0%							
Over/Under Seasonal Avg	-9.6%	+0.1%	-4.8%	+2.8%	-1.4%							
10-yr AVG	10.1%	0.4%	-6.3%	3.5%	-2.6%	-4.7%	6.0%	0.2%	-5.2%	11.6%	-1.8%	-6.6%

5-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-1.7%	2.8%	-8.1%	-5.1%	-8.8%							
Over/Under Seasonal Avg	-5.4%	-0.7%	-8.9%	-7.5%	-10.8%							
5-yr AVG	3.6%	3.6%	0.9%	2.4%	1.9%	1.4%	5.5%	6.0%	4.0%	5.9%	5.3%	5.3%

10-Year Seasonal Average	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-1.7%	2.8%	-8.1%	-5.1%	-8.8%							
Over/Under Seasonal Avg	-2.9%	+2.2%	-8.3%	-4.9%	-8.9%							
10-yr AVG	1.1%	0.7%	0.2%	-0.1%	0.1%	-0.2%	1.4%	1.5%	0.9%	1.9%	1.9%	2.2%

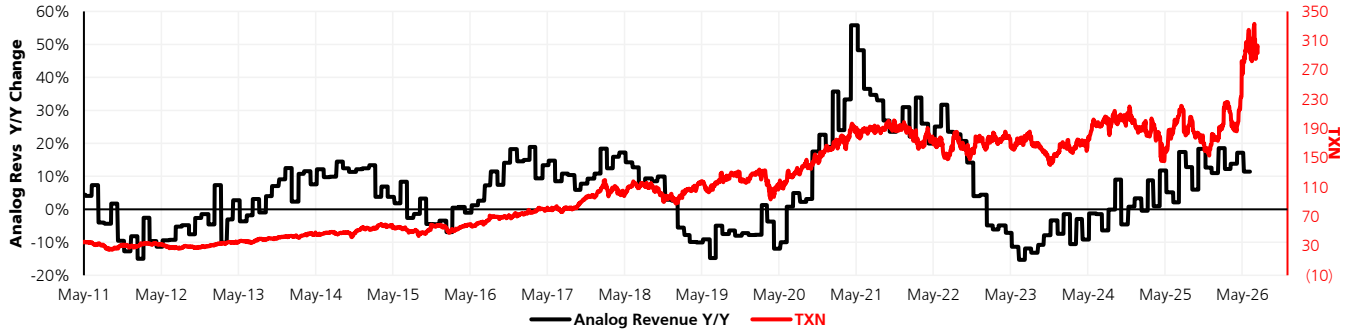
Source: UBS, SIA

Figure 24: Analog Revenue and ASP Change



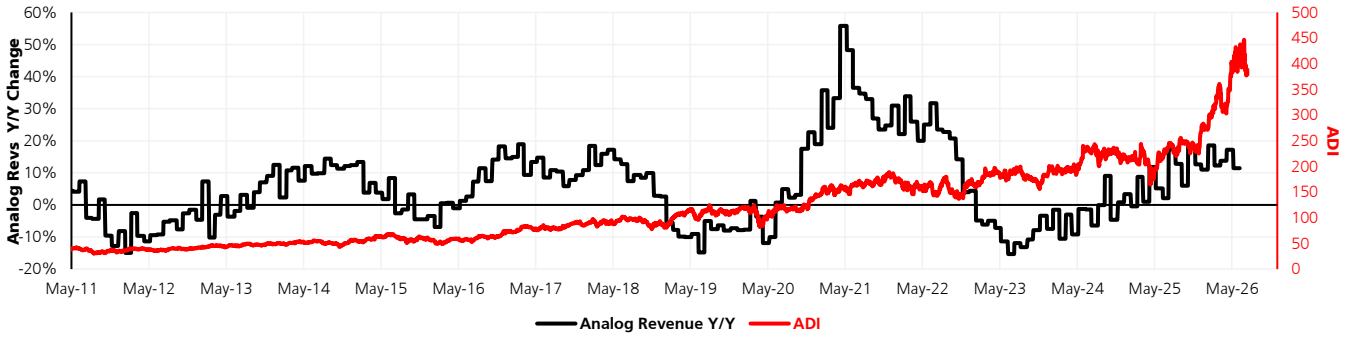
Source: UBS, SIA

Figure 25: Analog Revenue vs. TXN



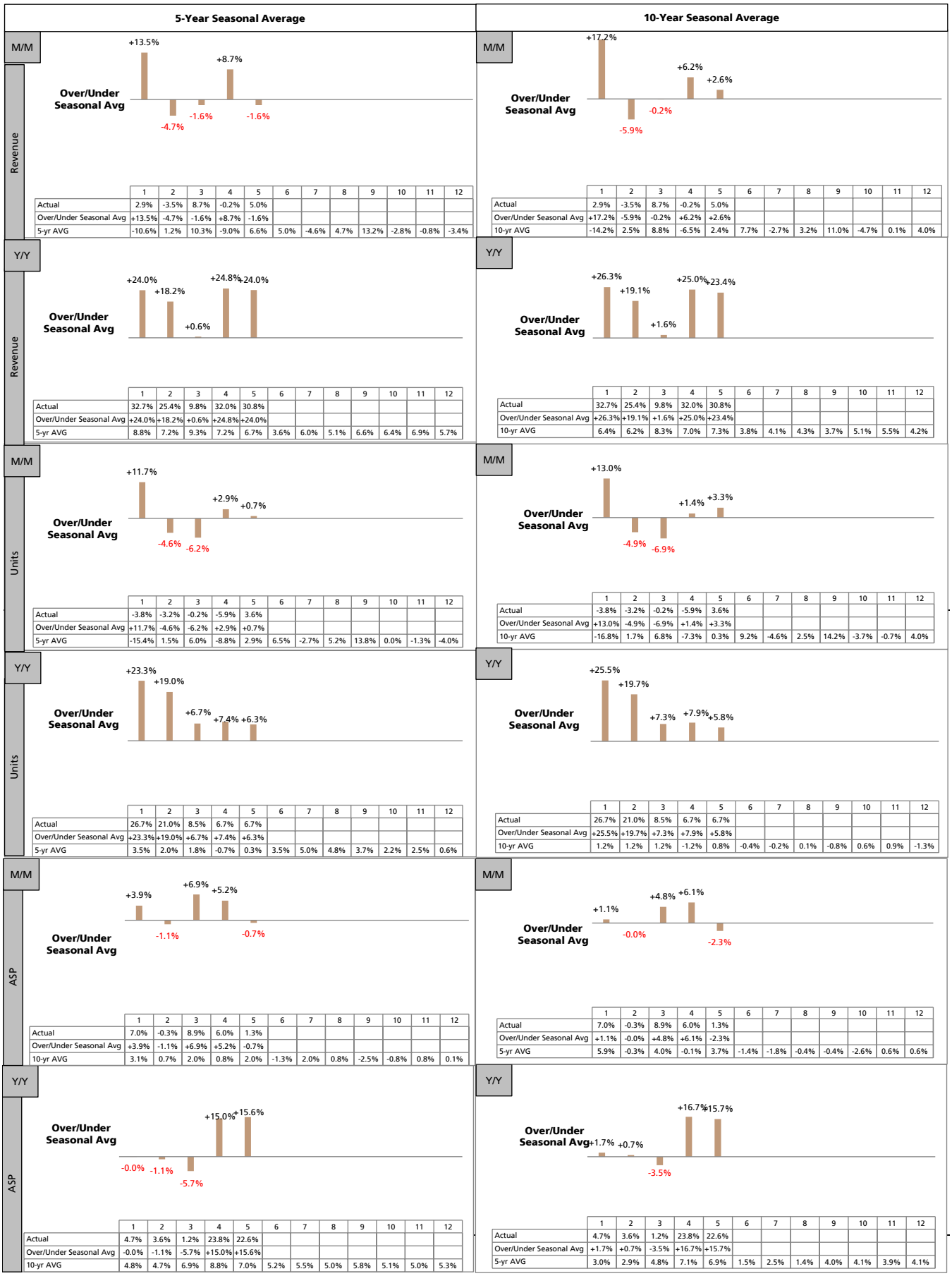
Source: UBS, SIA, FactSet.

Figure 26: Analog Revenue vs. ADI



Source: UBS, SIA, FactSet.

Figure 27: MPU Revenue and Units Change Relative to Seasonality



5-Year Seasonal Average – Revenue M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	2.9%	-3.5%	8.7%	-0.2%	5.0%							
Over/Under Seasonal Avg	+13.5%	-4.7%	-1.6%	+8.7%	-1.6%							
5-yr AVG	-10.6%	1.2%	10.3%	-9.0%	6.6%	5.0%	-4.6%	4.7%	13.2%	-2.8%	-0.8%	-3.4%

10-Year Seasonal Average – Revenue M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	2.9%	-3.5%	8.7%	-0.2%	5.0%							
Over/Under Seasonal Avg	+17.2%	-5.9%	-0.2%	+6.2%	+2.6%							
10-yr AVG	-14.2%	2.5%	8.8%	-6.5%	2.4%	7.7%	-2.7%	3.2%	11.0%	-4.7%	0.1%	4.0%

5-Year Seasonal Average – Revenue Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	32.7%	25.4%	9.8%	32.0%	30.8%							
Over/Under Seasonal Avg	+24.0%	+18.2%	+0.6%	+24.8%	+24.0%							
5-yr AVG	8.8%	7.2%	9.3%	7.2%	6.7%	3.6%	6.0%	5.1%	6.6%	6.4%	6.9%	5.7%

10-Year Seasonal Average – Revenue Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	32.7%	25.4%	9.8%	32.0%	30.8%							
Over/Under Seasonal Avg	+26.3%	+19.1%	+1.6%	+25.0%	+23.4%							
10-yr AVG	6.4%	6.2%	8.3%	7.0%	7.3%	3.8%	4.1%	4.3%	3.7%	5.1%	5.5%	4.2%

5-Year Seasonal Average – Units M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-3.8%	-3.2%	-0.2%	-5.9%	3.6%							
Over/Under Seasonal Avg	+11.7%	-4.6%	-6.2%	+2.9%	+0.7%							
5-yr AVG	-15.4%	1.5%	6.0%	-8.8%	2.9%	6.5%	-2.7%	5.2%	13.8%	0.0%	-1.3%	-4.0%

10-Year Seasonal Average – Units M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	-3.8%	-3.2%	-0.2%	-5.9%	3.6%							
Over/Under Seasonal Avg	+13.0%	-4.9%	-6.9%	+1.4%	+3.3%							
10-yr AVG	-16.8%	1.7%	6.8%	-7.3%	0.3%	9.2%	-4.6%	2.5%	14.2%	-3.7%	-0.7%	4.0%

5-Year Seasonal Average – Units Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	26.7%	21.0%	8.5%	6.7%	6.7%							
Over/Under Seasonal Avg	+23.3%	+19.0%	+6.7%	+7.4%	+6.3%							
5-yr AVG	3.5%	2.0%	1.8%	-0.7%	0.3%	3.5%	5.0%	4.8%	3.7%	2.2%	2.5%	0.6%

10-Year Seasonal Average – Units Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	26.7%	21.0%	8.5%	6.7%	6.7%							
Over/Under Seasonal Avg	+25.5%	+19.7%	+7.3%	+7.9%	+5.8%							
10-yr AVG	1.2%	1.2%	1.2%	-1.2%	0.8%	-0.4%	-0.2%	0.1%	-0.8%	0.6%	0.9%	-1.3%

5-Year Seasonal Average – ASP M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	7.0%	-0.3%	8.9%	6.0%	1.3%							
Over/Under Seasonal Avg	+3.9%	-1.1%	+6.9%	+5.2%	-0.7%							
10-yr AVG	3.1%	0.7%	2.0%	0.8%	2.0%	-1.3%	2.0%	0.8%	-2.5%	-0.8%	0.8%	0.1%

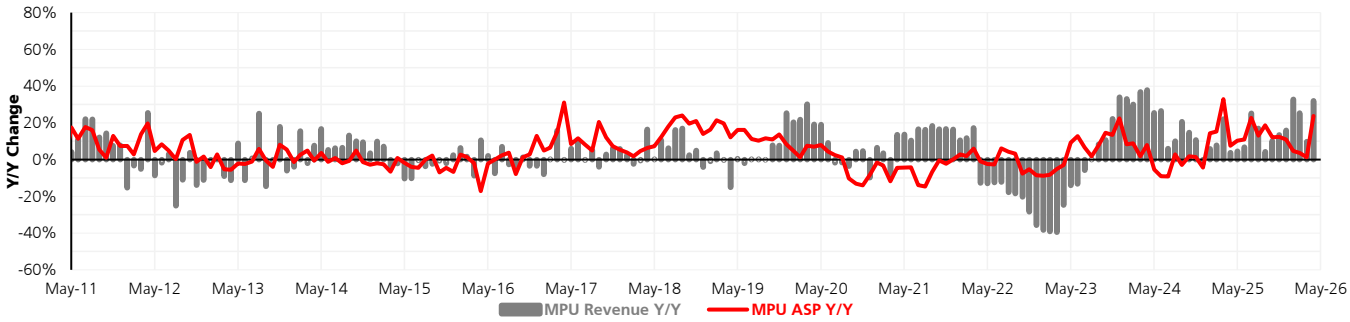
10-Year Seasonal Average – ASP M/M	1	2	3	4	5	6	7	8	9	10	11	12
Actual	7.0%	-0.3%	8.9%	6.0%	1.3%							
Over/Under Seasonal Avg	+1.1%	-0.0%	+4.8%	+6.1%	-2.3%							
5-yr AVG	5.9%	-0.3%	4.0%	-0.1%	3.7%	-1.4%	-1.8%	-0.4%	-0.4%	-2.6%	0.6%	0.6%

5-Year Seasonal Average – ASP Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	4.7%	3.6%	1.2%	23.8%	22.6%							
Over/Under Seasonal Avg	-0.0%	-1.1%	-5.7%	+15.0%	+15.6%							
10-yr AVG	4.8%	4.7%	6.9%	8.8%	7.0%	5.2%	5.5%	5.0%	5.8%	5.1%	5.0%	5.3%

10-Year Seasonal Average – ASP Y/Y	1	2	3	4	5	6	7	8	9	10	11	12
Actual	4.7%	3.6%	1.2%	23.8%	22.6%							
Over/Under Seasonal Avg	+1.7%	+0.7%	-3.5%	+16.7%	+15.7%							
5-yr AVG	3.0%	2.9%	4.8%	7.1%	6.9%	1.5%	2.5%	1.4%	4.0%	4.1%	3.9%	4.1%

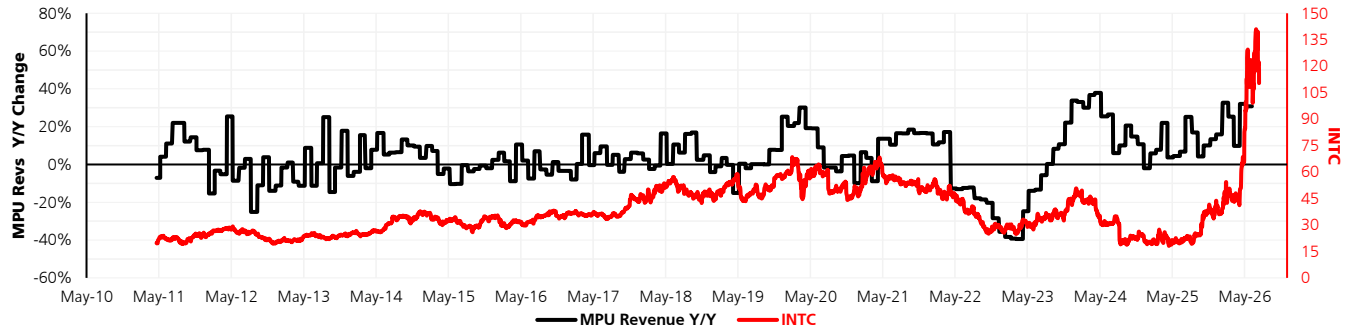
Source: UBS, SIA

Figure 28: MPU Revenue and ASP Change



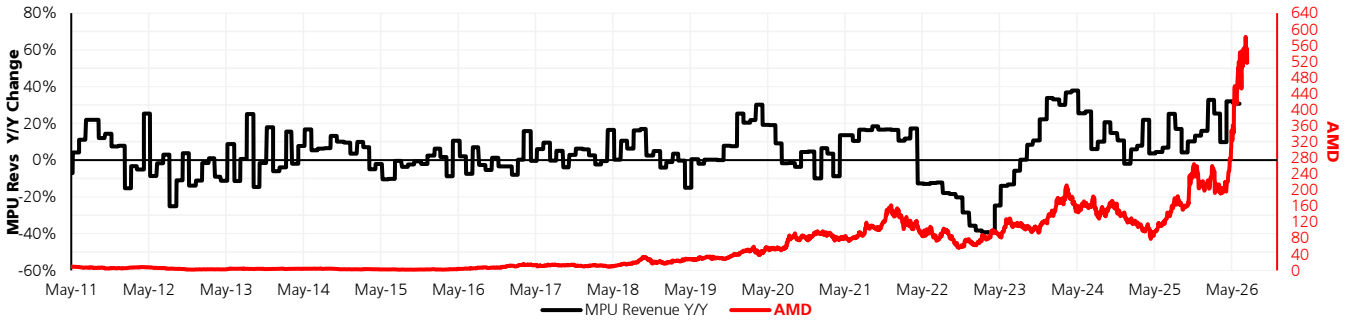
Source: UBS, SIA, FactSet.

Figure 29: MPU Revenue vs. INTC



Source: UBS research, SIA, FactSet.

Figure 30: MPU Revenue vs. AMD



Source: UBS, SIA, FactSet.

Figure 31: Q/Q Revenue Change

	Revenue Q/Q																											
	Total Semis				IC ex-Memory				Analog				MCU				Logic				MPU				Memory			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2003	-1.8%	+3.2%	+13.8%	+11.0%	-2.5%	+3.2%	+12.1%	+8.9%	-7.2%	+7.7%	+5.4%	+10.5%	+1.2%	+0.2%	+8.0%	+3.3%	-2.2%	+9.1%	+9.0%	+9.6%	-1.3%	-4.5%	+23.7%	+7.9%	-10.1%	+1.3%	+27.3%	+17.3%
2004	+1.6%	+9.5%	+3.8%	-0.8%	+0.2%	+7.3%	+4.7%	-0.0%	+2.9%	+1.0%	+4.0%	-5.6%	+6.1%	+10.8%	+3.2%	+1.9%	+1.4%	+18.2%	+5.8%	-3.9%	-6.0%	-4.8%	+6.5%	+11.1%	+2.5%	+16.2%	+0.9%	-0.3%
2005	-0.0%	-2.2%	+8.9%	+2.0%	+1.7%	-1.2%	+8.4%	+1.9%	-6.5%	+6.7%	+9.6%	+3.6%	+0.4%	-10.2%	+1.4%	-6.0%	+10.6%	-3.6%	+8.3%	+2.9%	-1.4%	-0.2%	+10.5%	+1.8%	-2.0%	-7.5%	+12.6%	+3.8%
2006	-1.3%	-0.3%	+8.7%	+1.9%	-1.7%	-3.7%	+7.3%	+2.1%	+2.3%	+4.2%	+2.6%	-2.8%	+5.4%	+7.1%	+0.7%	-3.6%	-4.1%	-3.1%	+10.4%	+1.6%	-4.9%	-18.0%	+11.7%	+10.0%	-1.2%	+4.5%	+15.3%	+6.0%
2007	-6.4%	-1.9%	+13.2%	-1.4%	-6.9%	+1.3%	+14.6%	+2.4%	-7.1%	+2.7%	+8.6%	-0.9%	+6.0%	+4.6%	+2.9%	+2.9%	-3.6%	-0.1%	+19.2%	+2.4%	-12.9%	+0.1%	+18.6%	+6.3%	-7.4%	-10.2%	+14.3%	-13.1%
2008	-6.0%	+3.0%	+6.5%	-24.2%	-6.7%	+2.4%	+9.3%	-24.2%	-8.0%	+8.5%	+6.1%	-26.2%	+1.0%	-2.3%	+0.7%	-19.7%	-4.5%	+3.3%	+14.1%	-21.5%	-10.2%	-3.3%	+6.8%	-28.6%	-8.2%	+3.5%	-2.3%	-32.1%
2009	-16.3%	+20.0%	+19.9%	+7.0%	-15.4%	+17.8%	+17.7%	+2.2%	-18.7%	+28.3%	+14.0%	+7.0%	-30.2%	+20.0%	+26.9%	+7.9%	-17.3%	+15.0%	+14.9%	+0.4%	+0.4%	+13.6%	+25.1%	-1.4%	-10.1%	+26.4%	+27.2%	+22.4%
2010	+3.7%	+6.6%	+5.6%	-4.0%	+1.9%	+4.6%	+6.9%	-0.9%	+5.3%	+6.0%	+4.8%	-2.3%	+1.3%	+5.6%	+10.4%	+1.5%	+0.6%	+3.5%	+9.1%	-2.3%	+3.4%	+4.1%	+3.6%	+2.6%	+8.8%	+12.4%	+0.5%	-13.1%
2011	+0.6%	-1.7%	+3.7%	-7.7%	+0.3%	-3.3%	+8.4%	-8.6%	-0.2%	+3.2%	-2.7%	-10.3%	-2.8%	-2.2%	+4.8%	-10.1%	-1.2%	-3.8%	+11.0%	-10.5%	+6.2%	-8.2%	+17.4%	-4.4%	+1.6%	-2.2%	-10.3%	-3.3%
2012	-2.3%	+4.7%	+1.8%	-0.3%	-4.0%	+5.6%	+3.4%	-3.2%	+0.7%	+2.4%	+1.7%	-7.5%	+2.4%	+0.5%	+5.8%	-10.8%	-1.7%	+9.8%	+5.4%	-1.1%	-10.9%	+3.3%	+0.5%	-0.2%	-0.0%	+4.0%	-5.9%	+10.4%
2013	-5.1%	+6.0%	+7.9%	-0.8%	-4.8%	+2.5%	+8.5%	+0.8%	+1.6%	+3.6%	+4.9%	-0.8%	-0.0%	+5.9%	+5.7%	-4.8%	-6.7%	+2.1%	+11.8%	+2.6%	-7.4%	+1.2%	+7.4%	+1.3%	-2.7%	+15.0%	+8.5%	-4.6%
2014	-1.9%	+4.9%	+6.5%	-0.4%	-4.9%	+6.0%	+4.5%	+0.5%	+0.4%	+5.1%	+7.2%	-1.0%	+2.4%	+3.5%	+1.7%	-7.5%	-7.4%	+5.7%	+2.8%	+3.1%	-7.1%	+8.3%	+6.7%	-0.1%	+4.1%	+4.2%	+12.3%	-1.9%
2015	-4.9%	+1.0%	+1.5%	-2.8%	-5.9%	+0.9%	+2.2%	-0.1%	-3.1%	+1.9%	+2.2%	-5.0%	+4.9%	+1.9%	+1.6%	-6.7%	-6.7%	+2.3%	-2.6%	+2.6%	-10.5%	-3.5%	+13.4%	+2.2%	-3.4%	-2.4%	+0.4%	-9.3%
2016	-5.5%	+1.2%	+11.6%	+5.3%	-5.7%	+0.6%	+10.1%	+2.2%	-0.9%	+5.0%	+9.9%	+1.1%	+6.1%	+4.6%	+8.8%	-17.7%	-7.8%	-1.1%	+10.1%	+7.6%	-10.9%	-1.9%	+11.2%	+0.9%	-8.5%	+4.0%	+17.9%	+16.8%
2017	-0.4%	+5.3%	+10.5%	+5.7%	-3.8%	+2.7%	+7.3%	+3.9%	-2.2%	+3.1%	+6.8%	+1.5%	+5.2%	+3.7%	+4.5%	+1.9%	-4.7%	+3.1%	+8.6%	+4.9%	-7.1%	+0.7%	+6.0%	+5.9%	+7.4%	+13.0%	+18.0%	+10.2%
2018	-2.3%	+6.0%	+5.9%	-8.2%	-4.9%	+5.1%	+3.5%	-1.6%	+3.4%	+2.2%	+1.1%	-1.6%	-0.1%	+4.6%	-5.5%	-4.8%	-7.1%	+4.9%	+3.9%	+0.9%	-11.7%	+10.1%	+9.9%	-5.6%	+2.3%	+6.7%	+9.3%	-18.8%
2019	-14.7%	+0.7%	+8.9%	+0.9%	-11.7%	+2.0%	+10.4%	+1.4%	-9.3%	-1.8%	+6.9%	-3.0%	-8.1%	+5.9%	+4.9%	-2.3%	-13.6%	+3.2%	+10.9%	+1.7%	-11.8%	+3.0%	+16.8%	+7.3%	-24.6%	-6.2%	+5.8%	+1.9%
2020	-3.5%	-1.1%	+9.8%	+4.7%	-5.1%	-2.8%	+10.4%	+12.7%	-5.2%	-5.3%	+18.8%	+12.2%	-9.0%	-5.9%	+15.7%	+9.3%	-5.3%	-0.1%	+11.2%	+14.8%	-3.7%	-4.3%	-1.2%	+8.9%	+3.9%	+5.7%	+3.9%	-10.2%
2021	+3.8%	+9.1%	+8.1%	+4.9%	-0.0%	+6.7%	+7.6%	+9.0%	+3.9%	+5.7%	+6.7%	+7.9%	+1.4%	+4.6%	+8.4%	+10.1%	-1.1%	+7.3%	+9.9%	+9.6%	-2.9%	+7.8%	+2.8%	+8.4%	+14.0%	+20.0%	+10.8%	-2.7%
2022	-0.8%	-0.8%	-6.3%	-7.3%	+0.5%	+0.1%	-1.4%	-3.8%	+4.4%	+4.6%	+3.8%	-5.1%	+8.4%	+4.9%	-0.7%	+4.0%	+0.9%	+3.0%	-4.0%	-3.3%	-5.7%	-16.9%	-1.4%	-7.2%	-2.4%	-3.9%	-26.3%	-21.7%
2023	-9.4%	+6.1%	+6.3%	+8.5%	-8.4%	+5.4%	+6.6%	+5.9%	-8.0%	-2.3%	+3.3%	+0.9%	+8.8%	+0.9%	+1.8%	-11.8%	-6.1%	+8.1%	+5.7%	+9.6%	-19.8%	+12.7%	+20.4%	+11.7%	-21.1%	+24.0%	+7.5%	+25.0%
2024	-7.0%	+6.8%	+11.2%	+3.1%	-11.7%	+1.9%	+11.0%	+6.0%	-6.6%	-1.4%	+8.6%	-0.2%	-7.6%	-6.4%	+3.7%	-8.3%	-3.9%	+2.0%	+13.1%	+8.9%	-12.1%	+9.5%	+4.8%	+6.8%	+11.3%	+25.7%	+10.3%	+1.5%
2025	-6.3%	+8.9%	+17.5%	+14.7%	-3.9%	+5.1%	+15.3%	+9.9%	-3.8%	+1.9%	+14.2%	+1.8%	-6.0%	+7.6%	+6.9%	-1.6%	+7.8%	+5.5%	+13.8%	+12.5%	-8.4%	+2.5%	+14.0%	+5.6%	-11.0%	+19.4%	+24.4%	+30.4%
2026	+26.4%				+1.9%				-3.0%				+3.3%				+3.7%				-1.4%				+73.6%			
10-yr Average	-1.4%	+4.2%	+8.3%	+3.2%	-4.7%	+2.7%	+8.1%	+4.6%	-2.7%	+1.2%	+8.0%	+1.5%	-0.4%	+2.5%	+4.9%	-2.1%	-2.9%	+3.6%	+8.3%	+6.7%	-8.5%	+2.3%	+8.3%	+4.3%	+5.4%	+10.8%	+8.2%	+3.3%
5-yr Average	+0.6%	+6.0%	+7.4%	+4.8%	-4.3%	+3.8%	+7.8%	+5.4%	-3.4%	+1.7%	+7.3%	+1.1%	+1.4%	+2.3%	+4.0%	-1.5%	+0.5%	+5.2%	+7.7%	+7.5%	-9.5%	+3.1%	+8.1%	+5.1%	+10.1%	+17.0%	+5.3%	+6.5%
LT Average	-2.5%	+4.1%	+8.1%	+0.5%	-4.2%	+3.1%	+8.2%	+1.2%	-2.7%	+4.0%	+6.5%	-1.1%	+0.0%	+3.0%	+5.3%	-3.2%	-3.3%	+4.1%	+8.8%	+2.3%	-6.6%	+0.5%	+10.2%	+2.2%	+0.7%	+7.6%	+7.9%	+0.6%
Median	-2.3%	+4.7%	+8.1%	+0.9%	-4.4%	+2.5%	+8.4%	+1.9%	-2.6%	+3.2%	+6.1%	-0.9%	+1.4%	+4.6%	+4.5%	-3.6%	-4.0%	+3.2%	+9.9%	+2.6%	-7.1%	+0.7%	+9.9%	+2.6%	-1.6%	+4.5%	+9.3%	-0.3%

Source: UBS, SIA

Figure 32: Q/Q Units Change

	Units Q/Q																											
	Total Semis				IC ex-Memory				Analog				MCU				Logic				MPU				Memory			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2003	-0.5%	+6.0%	+4.4%	+7.1%	-0.9%	+7.6%	+4.7%	+10.2%	-2.5%	+8.9%	+3.1%	+10.3%	+2.7%	-0.7%	+8.7%	-1.3%	+0.4%	+7.3%	+6.6%	+12.3%	-13.2%	+16.1%	+9.6%	+3.2%	-2.9%	+2.4%	+11.2%	+8.5%
2004	+2.1%	+11.7%	-0.6%	-7.8%	+1.5%	+5.5%	-2.1%	-6.2%	+2.4%	+2.5%	-3.3%	-8.2%	+10.9%	+20.8%	+2.6%	+4.1%	-1.7%	+7.9%	-1.0%	-5.5%	-20.6%	-6.9%	+14.4%	+1.7%	+4.2%	+12.4%	+1.9%	-0.9%
2005	-1.1%	+5.9%	+9.4%	+3.0%	+2.5%	+6.9%	+13.1%	+4.2%	+0.6%	+12.0%	+14.4%	+5.0%	-1.3%	-10.7%	+8.6%	-2.9%	+7.0%	+3.3%	+12.0%	+4.1%	+1.5%	-1.0%	+10.6%	+3.7%	-0.2%	+4.1%	+12.9%	-1.9%
2006	+0.6%	+5.2%	+3.7%	-4.6%	+2.1%	+3.3%	+5.5%	-3.6%	+2.0%	+3.6%	+5.0%	-3.3%	+11.5%	+8.4%	+5.1%	-2.8%	+0.6%	+1.5%	+6.4%	-4.7%	-3.6%	-5.9%	+17.4%	+8.4%	+2.2%	+5.5%	+6.1%	+4.2%
2007	+1.0%	+9.7%	+9.2%	-3.9%	-1.8%	+4.6%	+8.4%	-0.0%	-1.0%	+2.2%	+9.2%	+1.2%	+6.1%	+9.4%	+3.4%	-0.4%	-4.9%	+8.0%	+7.6%	-2.0%	-13.1%	+7.2%	+20.7%	+0.2%	+6.8%	+13.9%	+6.8%	+3.1%
2008	-4.7%	+2.7%	+4.3%	-23.3%	-5.9%	+7.4%	+7.2%	-22.4%	-8.8%	+10.5%	+8.2%	-24.1%	+2.8%	+3.2%	+8.7%	-18.3%	-2.0%	+3.3%	+4.7%	-20.1%	-9.4%	+0.5%	+13.9%	-15.7%	-0.8%	+1.2%	+5.2%	-13.8%
2009	-17.6%	+31.6%	+17.7%	+3.2%	-22.2%	+28.4%	+16.9%	+3.6%	-23.5%	+34.9%	+17.0%	+2.9%	-29.4%	+30.7%	+20.4%	+9.2%	-18.1%	+17.2%	+15.7%	+3.4%	-5.3%	+7.3%	+19.2%	+0.6%	-10.0%	+22.3%	+15.1%	+11.7%
2010	+0.8%	+8.5%	+1.9%	-5.4%	+4.1%	+9.4%	+3.4%	-4.8%	+4.2%	+10.7%	+3.2%	-4.4%	+7.1%	+6.4%	+8.2%	-3.6%	+3.6%	+7.7%	+2.2%	-5.9%	-3.3%	+6.1%	+7.6%	-5.2%	-2.4%	+6.4%	+0.0%	-3.0%
2011	+1.4%	+4.2%	-1.2%	-10.5%	+0.9%	+3.0%	-1.1%	-11.1%	-0.2%	+5.0%	-2.5%	-10.8%	+5.6%	+0.0%	+1.4%	-16.1%	+2.3%	+0.8%	+0.7%	-10.2%	+0.6%	-7.1%	+18.8%	-8.0%	+6.9%	-3.4%	-1.0%	-5.3%
2012	+5.6%	+6.8%	+1.2%	-4.8%	+2.0%	+6.9%	+4.7%	-6.2%	+0.2%	+7.8%	+5.2%	-5.5%	+28.1%	+4.8%	+6.6%	-15.1%	-1.5%	+5.9%	+2.7%	-3.9%	-16.8%	+2.8%	+5.7%	-2.0%	+1.7%	+5.6%	-2.8%	+0.2%
2013	-1.7%	+9.0%	+4.3%	-2.7%	-0.5%	+13.0%	+9.3%	-3.7%	+0.1%	+14.1%	+9.0%	-1.7%	-3.4%	+5.6%	+7.8%	-11.6%	-0.6%	+13.6%	+10.8%	-5.4%	-7.4%	+1.4%	+7.7%	-2.2%	-4.7%	+2.7%	+2.5%	-3.9%
2014	-1.2%	+7.9%	+4.9%	-3.3%	-2.2%	+5.8%	+3.6%	-2.9%	+0.1%	+5.8%	+2.8%	-5.3%	+9.6%	+13.1%	+4.9%	+4.6%	-10.8%	+3.0%	+5.3%	+0.0%	-6.4%	+10.5%	+8.4%	-4.3%	+1.3%	+10.0%	+7.1%	-3.1%
2015	-1.6%	+4.1%	+0.8%	-3.1%	-1.2%	+7.0%	+4.3%	-3.9%	-0.4%	+10.0%	+3.9%	-4.4%	+8.8%	-2.1%	+0.2%	-2.2%	-7.5%	+4.3%	+7.3%	-3.4%	-6.3%	-3.6%	+13.7%	+3.6%	-4.5%	+4.2%	+0.0%	-4.8%
2016	-0.6%	+3.0%	+8.2%	+0.8%	-4.2%	+5.4%	+12.2%	+0.4%	-4.1%	+5.3%	+12.4%	+0.5%	-6.4%	+2.9%	+8.7%	-2.4%	-3.6%	+6.7%	+13.2%	+1.4%	-13.1%	+6.2%	+5.2%	-4.4%	+1.1%	+9.0%	+10.6%	+0.4%
2017	+1.4%	+4.8%	+6.0%	-2.9%	-0.8%	+6.3%	+10.1%	-1.3%	-1.5%	+6.4%	+11.1%	-2.2%	+1.8%	+13.7%	+6.6%	+2.7%	+0.2%	+3.2%	+9.2%	-0.7%	-11.9%	+1.4%	+5.0%	+3.6%	-7.2%	+0.4%	+7.9%	-3.7%
2018	-0.1%	+6.6%	+4.7%	-7.0%	-0.3%	+9.1%	+3.2%	-6.8%	-0.1%	+9.3%	+5.6%	-4.6%	-1.2%	+10.7%	-3.2%	-16.5%	-0.4%	+8.0%	-0.1%	-8.7%	-12.5%	+5.4%	-2.7%	-4.7%	-7.3%	+4.0%	+6.8%	-11.4%
2019	-7.4%	-1.8%	+7.3%	-1.6%	-10.7%	+1.2%	+8.8%	-0.4%	-11.8%	-0.3%	+8.7%	+2.3%	-3.6%	+12.0%	+0.5%	-7.5%	-10.6%	+0.8%	+13.1%	-4.6%	-13.4%	+2.2%	+6.9%	+8.7%	-8.2%	+10.0%	+16.8%	-1.0%
2020	-5.6%	-2.4%	+14.0%	+5.2%	-7.1%	-0.7%	+17.2%	+7.9%	-9.3%	-2.7%	+21.0%	+6.9%	-2.7%	+4.2%	+10.8%	+6.7%	-2.6%	+2.9%	+10.2%	+11.0%	-0.1%	-6.5%	-1.1%	+21.3%	-7.6%	-2.0%	+8.1%	+6.8%
2021	+4.9%	+5.3%	+1.6%	-1.8%	+1.8%	+7.7%	+3.5%	+2.8%	-0.7%	+8.5%	+4.5%	+2.1%	-0.0%	+1.0%	+1.4%	+1.9%	+9.1%	+8.5%	+1.9%	+4.9%	-5.4%	+3.6%	+11.4%	+7.6%	+2.5%	+3.0%	-0.0%	-4.8%
2022	-2.0%	+0.7%	-2.7%	-8.9%	-0.2%	+2.9%	-1.2%	-6.6%	-0.3%	+4.5%	+1.0%	-6.6%	-6.6%	-4.8%	+1.4%	+8.8%	+2.1%	+1.5%	-7.1%	-11.5%	-12.0%	-15.5%	+0.2%	+3.8%	-1.9%	-3.4%	-13.8%	+3.5%
2023	-11.6%	+3.5%	+2.6%	-5.8%	-10.1%	+1.0%	-2.6%	-6.9%	-7.5%	+1.9%	-3.1%	-7.8%	-12.2%	+7.7%	+1.5%	-16.2%	-16.5%	-4.6%	-2.7%	-0.1%	-25.0%	-0.3%	+23.7%	+12.7%	-8.0%	+16.3%	+2.4%	+6.3%
2024	-2.3%	+7.9%	+7.7%	-3.4%	-4.0%	+11.7%	+13.7%	-2.2%	-4.9%	+13.8%	+15.5%	-4.5%	-7.0%	-1.7%	+1.8%	-10.8%	+0.0%	+10.6%	+12.2%	+7.4%	-9.6%	+5.7%	+7.9%	+4.9%	-8.4%	+3.7%	-1.3%	-3.9%
2025	-3.4%	+12.1%	+6.9%	-5.5%	-8.9%	+4.8%	+7.9%	-2.5%	-9.9%	+5.7%	+9.9%	-2.7%	+2.0%	+0.6%	+10.6%	-6.8%	-8.7%	+3.3%	+1.7%	-0.5%	-22.6%	+9.3%	+9.1%	+9.5%	+0.1%	+14.4%	+11.1%	+1.2%
2026	+0.7%				+4.3%				+4.5%				+3.8%				+4.2%				-9.4%				-1.4%			
10-yr Average	-2.5%	+4.0%	+5.6%	-3.1%	-3.6%	+4.9%	+7.3%	-1.5%	-4.1%	+5.2%	+8.7%	-1.6%	-2.6%	+4.6%	+4.0%	-4.0%	-2.3%	+4.1%	+5.2%	-0.1%	-12.2%	+1.2%	+6.6%	+6.3%	-4.7%	+5.5%	+4.8%	-0.7%
5-yr Average	-3.7%	+5.9%	+3.2%	-5.1%	-3.8%	+5.6%	+4.3%	-3.1%	-3.6%	+6.9%	+5.6%	-3.9%	-4.0%	+0.6%	+3.3%	-4.6%	-3.8%	+3.9%	+1.2%	+0.0%	-15.8%	+0.6%	+10.5%	+7.7%	-3.9%	+6.8%	-0.3%	+0.4%
LT Average	-1.8%	+6.6%	+5.1%	-3.8%	-2.6%	+6.9%	+6.6%	-2.7%	-3.0%	+7.8%	+7.0%	-2.8%	+1.1%	+5.9%	+5.5%	-4.2%	-2.5%	+5.4%	+5.8%	-1.8%	-9.9%	+1.7%	+10.2%	+2.0%	-2.0%	+6.2%	+4.9%	-0.7%
Median	-0.8%	+5.9%	+4.4%	-3.4%	-0.9%	+6.3%	+5.5%	-2.9%	-0.6%	+6.4%	+5.6%	-3.3%	+1.9%	+4.8%	+5.1%	-2.8%	-1.0%	+4.3%	+6.4%	-2.0%	-9.5%	+2.2%	+9.1%	+3.2%	-1.7%	+4.2%	+6.1%	-1.0%

Source: UBS, SIA

Valuation Method and Risk Statement

The handset industry, as part of consumer electronics, is cyclically sensitive to the economy and so upside and downside risks relate to macro drivers. Other downside risks include the rapid loss of market share due to poor product timing, design or distribution. The supply chain companies into the handset industry also operate in a highly cyclical market both from macro concerns and inventory cycles within the supply chain. These companies also operate in a highly competitive environment with product innovation and R&D investments critical to success.