

DRAM and NAND Prices Drive Micron F3Q Upside And Elpida Will Make it Even Better: Raising Estimates, Reiterate Buy

Diluted Shares(mil):	1,046.6	<u>Closing Price 6/19/13</u>	<u>FYE August</u>	<u>FY13 est</u>	<u>FY14</u>	<u>FY15</u>
Market Cap(\$mil):	\$14,621	\$13.97	Revenue(\$mil)	\$8,539	\$9,760	\$10,370
Avg Volume(,000):	32,274		EPS	(\$0.17)	\$1.59	\$1.89
Net Cash/Share:	(\$1.02)	<u>Recommendation/Target</u>	Price/Sales	1.7	1.5	1.4
Tangible Book/Share	\$6.67	Buy/\$19 from \$15	Price/EPS	NM	8.8	7.4

Micron Technology is a leading supplier of DRAM, NAND and NOR semiconductor memory products.

Summary: MU exceeded revenue and EPS expectations for May-ended F3Q due to significant increases in market prices for both DRAM and NAND products, as well as incremental DRAM supply from Inotera. Reported EPS of \$0.04 included charges that otherwise would have yielded \$0.15, or two-cents above the high-end of the range of published expectations. I continue to believe MU is extremely well positioned to disproportionately benefit from a favorable market environment for DRAM and NAND suppliers with its Inotera joint-venture and pending acquisition of DRAM competitor Elpida. I am raising my estimates as well as my 12-month target price to \$19 from \$15 based on 12-times FY14 earnings, and reiterate my Buy recommendation on the shares.

F3Q Review: MU F3Q revenue of \$2.3B grew by +11.5% and gross margin expanded by 640 basis points to 24% due to market price increases for DRAM and NAND products well above expectations—and despite cost reductions that were below expectations. Reported EPS of \$0.04 included charges that otherwise would have yielded \$0.15 per share. Trade NAND offers the highest product margin, followed by DRAM and NOR, and management allocates resources to optimize margin and free cash flow. The acquisition of Japanese DRAM competitor Elpida is expected to close this quarter and the company plans to convert a significant majority of its DRAM capacity in Singapore to NAND in a measured transition over the next year due to more favorable customer demand and margin opportunity.

MU completed the previously announced sale of its 200mm image sensor fab in Avezzano, Italy; restructured its R&D consortium agreement with STMicro in Agrate, Italy at charge of \$26M; discontinued its LED pilot line in Boise at a charge of \$25M; lost \$47M in market value on the yen currency hedge associated with the pending Elpida acquisition; gained \$8M in taxes related to the sale of non-US assets; and is looking to wind down some of its remaining 200mm wafer fab capacity as it migrates to 300mm. Excluding these items, adjusted EPS was \$0.15.

FYE August	3QF13			Guidance	Consensus	Range
	Estimate	Actual	EPS Impact			
DRAM Bits Shipped	2.0%	6.0%		+ couple %		
DRAM ASP change	5.0%	16.0%				
DRAM Cost/bit change	-7.5%	-5.0%		-mid/hi 1-digit%		
NAND Bits Shipped	8.0%	0.0%		+mid/hi 1-digit%		
NAND ASP Change	-5.0%	8.0%				
NAND Cost/bit change	-5.0%	1.0%		-mid 1-digit%		
Revenue (\$ mil)	2,140	2,318	\$0.04		2,250	2,130-2,450
Revenue Growth	3.0%	11.5%			8.3%	+2.5%+17.9%
Gross Margin	23.0%	24.0%	\$0.02			
Opn Expenses (\$ mil)	370	353	\$0.02	360-380		
Restructuring/other	0	54	(\$0.06)			
Interest Income	(55)	(52)	\$0.01	(50-60)		
Minority Interest/non-opn	(20)	(55)	(\$0.04)	(20)		
Taxes (\$ mil)	10	1	\$0.01	0-10		
Diluted Shares (mil)	1,017.0	1,046.6		1,017.0		
EPS reported	\$0.04	\$0.04	\$0.00		\$0.02	(\$0.07)-\$0.13

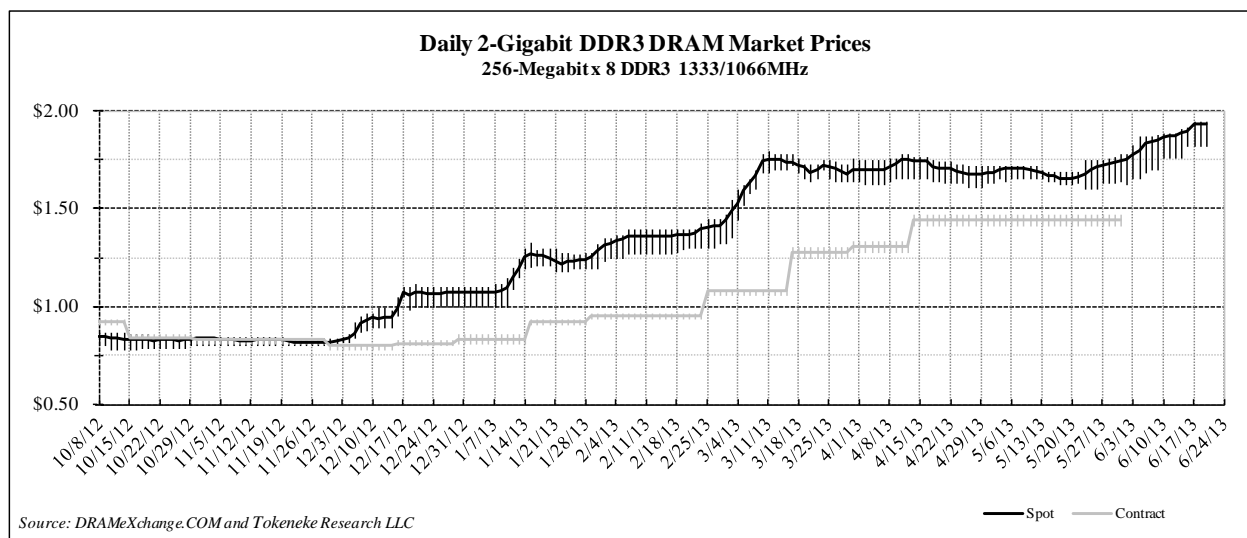
The average share price last quarter was \$9.85 which resulted in 23M more shares in the diluted count associated with outstanding converts, although 105M shares would have been added if the share price had averaged \$14. Cash from operations totaled \$624M, cap ex was \$235M, depreciation at \$470M, and cash increased by \$324M to \$2,552M. Capital expenditures are being deferred due to changes from the Elpida acquisition, but are expected to recover in FY14 as the companies are integrated.

Dynamic RAMs: DRAM sales grew by +22% to \$1.1B or 47% of total sales on +6% bit growth and an increase in ASPs of +16%, while gross margin improved by 16 percentage points to a level just above the corporate average of 24% due to the ASP increase and a cost reduction of -5%. The cost decrease was due to additional product from Inotera, whose cost actually increased but was still lower than the cost of specialty DRAMs from Micron on a per-bit basis. Inotera product costs are based on a discount to market prices accounted for as a change in equity investment with a two-month lag and its recent profitability will be reflected favorably by MU this quarter.

Networking was up by +19% in bits and now accounts for 16% of total DRAM sales as the customer base expands from large OEMs to distributors and smaller OEMs. Consumer graphics was also strong and the company is poised to benefit from the forthcoming launch of next generation video games. Wireless Solutions Group sales were up by +30% due to OEM and China Tier-2 customer demand for DRAM (and NAND) into tablets and smartphones as 16G low-power DDR3 DRAMs are being designed in at top smartphone makers. PC applications accounted for half of DRAM shipments on a gigabit basis and 40% of sales. Specialty DRAM market prices tend to lag changes in commodity/PC segments which have limited DRAM ASP gains, but higher relative prices more than offset higher costs at less-than-leading edge technology nodes.

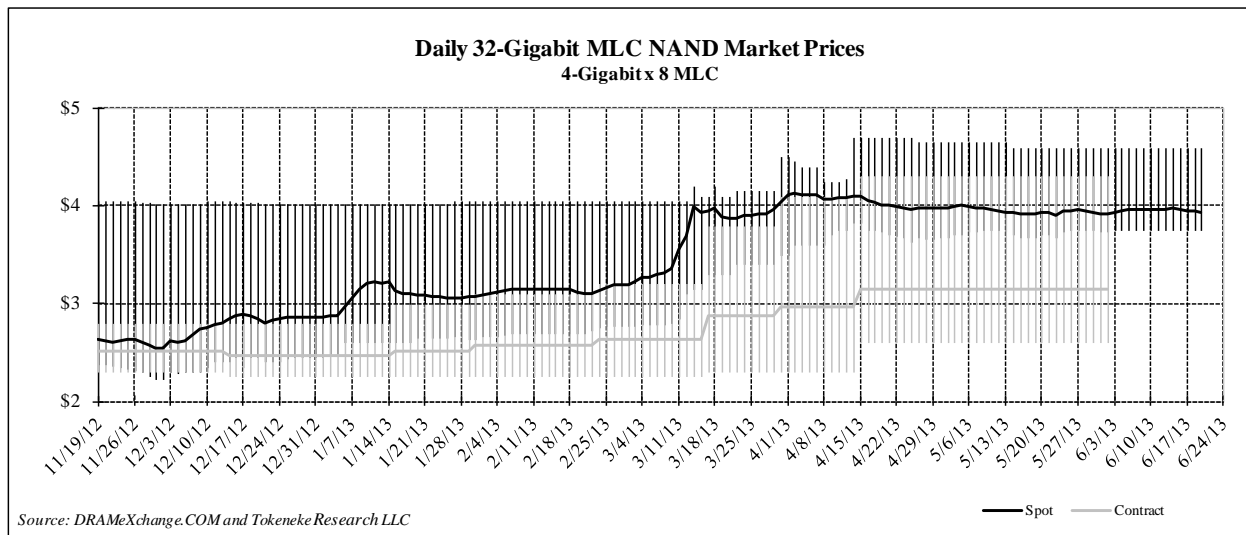
4G DDR3 accounted for over half of DRAM bit sales and is expected to grow again this quarter. The transition from 2G to 4G lowers ASPs but improves margins with lower costs. DDR3 represented 75% of DRAM production as DDR2 serves legacy markets, and DDR4 samples are being well received at key OEM customers. 25nm DDR3 parts are expected early-FY14 and 20nm samples by end-CY13. This quarter bit growth is expected in the mid-single-digit percentage range and costs to be flat. Increasing output is due to Inotera gains partially offset by lower output from the Singapore fab as it transitions to NAND. DRAM industry supply is expected to grow in the mid-20% range this year and in the low- to mid-20% range next year.

I remain very bullish with respect to the pending acquisition of DRAM competitor Elpida out of Japan in terms of supplier consolidation. Micron will get Elpida’s market leadership in the high-growth mobile DRAM segment that Micron is currently underexposed to, and Micron’s memory supplier rank will rise from third to second behind Samsung—leapfrogging Hynix. Last quarter the two companies entered into a joint development agreement to enable a seamless integration of technology roadmaps. Management estimates the acquisition will increase trade memory wafer production capacity by 45% with only a 15% increase in depreciation, and MU is already taking steps to convert 300mm fab capacity from DRAM to NAND based on market demand and margin optimization. Cap ex will accelerate FY14 due to integration, although the capital intensity of the combined company to be similar on a per wafer basis. Recall that Micron will pay \$750M in yen at the close for 100% of Elpida and \$334M in NT\$ for 89% of Elpida’s Rexchip joint-venture in Taiwan. Micron will then pay Elpida bondholders \$1.75B in yen over the next six years beginning at the end of 2014 with annual installments of \$250M, \$250M, \$250M, \$250M, \$375M and the last \$375M late-2019. Management expects the deal to close this quarter.



NAND Flash: NAND product sales grew by +7% to \$927M or 40% of total revenue as trade bit shipments were flat, ASPs grew by +8%, and costs increased by +1%. The sales increase and margin improvement by five percentage points were primarily due to higher prices. Bit costs grew slightly due to higher SSD production and costs related to starting NAND production in the Singapore DRAM fab. Migration to 20nm from 25nm process technology lowering cost and increasing output reached cross-over last quarter and will continue for a couple more. Branded SSDs grew by +11% to \$178 million and combined sales of branded and third-party SSD drives represented over 60% of Trade NAND capacity, up from 40%. SSDs are also being converted to more cost-effective 20nm and MLC NAND product from 25nm and SLC. A richer mix of SSD over chips, MLC cell technology over SLC cell technology, and higher-density products (both chips and SSDs) improve margin and volume, although all three factors apply downward pressure on ASPs per gigabit. NAND bit costs this quarter are expected to decrease in the high single-digit percentage, while bit production is expected to increase in the high single-digit percentage due to increasingly favorable mix issues. The company expects industry NAND bit growth for 2013 in the mid-30% range (down from the high-end of +30+40%) and for 2014 in the low-40% range due to end market strength from smartphones, storage and servers.

Management believes it will be the first to launch next-generation 16nm NAND with the industry’s smallest cell size beginning early-CY14, and expect to ramp it faster than 20nm since it will remain a planar-type structure and MU converted to high-K dielectric at the prior node—unlike its competitors. 3D NAND is expected to sample over the next few quarters and ramp production sometime next year, although unlikely to significantly impact the market until 2015. It is expected to require significant incremental clean room capacity for which MU is well positioned in Singapore. MU also has a number of different programs underway with different partners pursuing a variety of emerging technologies. MU uses in-house controller and firmware resources for high-end, value-added SSD offerings, although it uses third-party devices for lower-end, entry-level products.



‘Others’ Lag: NOR flash declined by -6% and accounted 8% of total sales. It is expected to decline by a third this quarter as wireless and embedded markets transition to low-density NAND product, although MU plans to qualify 45nm NOR on 300mm wafers early-CY14 to improve margins. Image sensors accounted for \$220M in sales at a loss of \$60M over the last three quarters, but both revenue and the loss will be zeroed out this quarter.

Management Guidance: F4Q DRAM bit production is expected to be up in the high single-digit percentage range, ASPs QTD have been up in the mid- to high-single-digits, and costs per bit are expected to remain flat. NAND bit production is expected to grow in the high-single-digits percentage, ASPs QTD are down in the mid-single-digits, and cost per bit is expected to drop in the high-single-digit percentage range. NOR is expected to drop by one-third and image sensors will fall to zero. SGA is expected at \$135-145M, R&D at \$230-240M, interest expense of \$50-60M, taxes at \$5-10M, minority interest gain of \$20M, a non-operating gain of \$49M associated with the Inotera ownership restructuring (partner Nanya increased its ownership share at a price above MU’s carrying value in May), depreciation and amortization of \$450-500M, and cap ex of \$300-500M for a FY13 total of \$1.4-1.6B down from

\$1.6-1.9B. I am assuming the full 105M additional shares associated with the outstanding converts above a \$14 average stock price for the period will be included in the diluted share count.

Raising Estimates: My earnings model incorporates management guidance for operating costs, and then breaks down revenue and COGS by DRAM, NAND, NOR and other products. For DRAM and NAND I make assumptions for bit growth, ASP changes, and manufacturing cost per bit changes on a quarterly basis consistent with industry norms expected this year and next. For NOR I assume a recovery in margin over the next several quarters after the revenue hit expected this quarter. I have zeroed out 'other' products with the disposal of image sensors, although I suspect there may be some lingering miscellaneous revenue at a low level. My assumptions are specified on Page 8 and DO NOT include any potential impact from the pending acquisition of Elpida. In round numbers I suspect Elpida could add approximately \$3.5B in sales and \$0.30 in EPS to FY14, although the timing and product mix will be governed by the expected transition of capacity from DRAM to NAND over the period.

FYE August \$ in millions	4QF13		FY13		FY14		FY15
	Previous	Update	Previous	Update	Previous	Update	New
Total Revenue	2,254	2,309	8,306	8,539	9,718	9,760	10,370
Revenue Growth	5.3%	-0.4%	0.9%	3.7%	17.0%	14.3%	6.2%
Gross Margin	29.2%	31.1%	20.9%	21.8%	34.3%	35.0%	36.9%
Operating Expenses	380	375	1,453	1,585	1,540	1,500	1,580
Non-Operating Items	(55)	(11)	(587)	(535)	(300)	(80)	(80)
Taxes	10	10	24	15	40	40	40
Diluted Shares (mil)	1,017.0	1,129.0	1,015.9	1,051.3	1,017.0	1,129.0	1,129.0
Diluted EPS	\$0.19	\$0.30	(\$0.33)	(\$0.17)	\$1.43	\$1.59	\$1.89

Reiterate Buy: I am maintaining my Buy recommendation and raising my 12-month target price to \$19 from \$15 based on 12-times FY14 EPS consistent with the lower average of its peers. Please note that I am shifting to the 12-times earnings valuation from 1.5-times sales with this report as MU converts to an 'earnings leverage' story from a 'revenue recovery' story (now that it has earnings to value), and that additional future potential upside is highly likely once the Elpida acquisition closes. MU shares continue to trade well below average historical trailing price-sales and price-book ratios as well as lower than average price-earnings ratios relative to two separate peer groups identified on Page 9, although it is now trading consistent with those two peer group price-sales averages. I believe the risk-reward opportunity for MU remains favorable at current price levels as upside potential continues to significantly exceed downside risk.

Revenue, 29 estimates	4QF13	FY13	FY14
Tokeneke-revised	2,309	8,539	9,760
Tokeneke-previous	2,254	8,306	9,718
Consensus-previous	2,500	8,650	10,180
High Estimate-previous	3,360	9,560	11,320
Low Estimate-previous	2,250	8,250	9,160

Diluted EPS	4QF13	FY13	FY14
Tokeneke-revised	\$0.30	(\$0.17)	\$1.59
Tokeneke-previous	\$0.19	(\$0.33)	\$1.43
Consensus-previous	\$0.11	(\$0.40)	\$0.75
High Estimate-previous	\$0.33	(\$0.13)	\$1.34
Low Estimate-previous	(\$0.10)	(\$0.66)	\$0.08

—Dan K. Scovel
Semiconductor Analyst

Micron Technology

8000 South Federal Way, PO Box 6, Boise, ID 83716

208-368-4000

Income Statement

www.micron.com

dollars in millions, except per share data, * restated
fiscal year ends August

	FY2013 est				FY2014					FY2015								
	FY09	FY10	FY12	Q1A*	Q2A*	Q3A	Q4	FY13	Q1	Q2	Q3	Q4	FY14	Q1	Q2	Q3	Q4	FY15
Total Revenue	4,803	8,482	8,234	1,834	2,078	2,318	2,309	8,539	2,404	2,414	2,451	2,491	9,760	2,532	2,562	2,616	2,661	10,370
COGS	5,243	5,768	7,266	1,617	1,712	1,762	1,590	6,681	1,560	1,569	1,600	1,614	6,343	1,622	1,623	1,641	1,653	6,539
Gross Profit	(440)	2,714	968	217	366	556	719	1,858	844	844	852	877	3,418	909	938	974	1,008	3,830
SG&A	354	528	620	119	123	127	140	509	140	140	140	140	560	155	155	155	155	620
R&D	647	624	918	224	214	226	235	899	235	235	235	235	940	240	240	240	240	960
Restructuring	70	(10)	5	-	60	55	-	115	-	-	-	-	-	-	-	-	-	-
Other	165	(17)	39	(29)	(8)	(1)	-	(38)	-	-	-	-	-	-	-	-	-	-
Operating Expenses	1,236	1,125	1,582	314	389	407	375	1,485	375	375	375	375	1,500	395	395	395	395	1,580
Operating Income	(1,676)	1,589	(614)	(97)	(23)	149	344	373	469	469	477	502	1,918	514	543	579	613	2,250
Interest Income	(160)	(160)	(171)	(54)	(53)	(52)	(60)	(219)	(60)	(60)	(60)	(60)	(240)	(60)	(60)	(60)	(60)	(240)
Other Non-Opn Inc.	(16)	491	31	(59)	(159)	(45)	49	(214)	-	-	-	-	-	-	-	-	-	-
Tax Expense	1	(19)	(17)	13	(9)	1	10	15	10	10	10	10	40	10	10	10	10	40
Minority Interest	(29)	(89)	(295)	(52)	(60)	(10)	20	(102)	40	40	40	40	160	40	40	40	40	160
Net Income	(1,882)	1,850	(1,032)	(275)	(286)	41	343	(177)	439	439	447	472	1,798	484	513	549	583	2,130
EPS-basic	(\$2.35)	\$2.08	(\$1.04)	(\$0.27)	(\$0.28)	\$0.04	\$0.34	(\$0.17)	\$0.43	\$0.43	\$0.44	\$0.46	\$1.76	\$0.47	\$0.50	\$0.54	\$0.57	\$2.08
Shares-basic	800.7	887.5	991.2	1,013.7	1,016.0	1,024.0	1,024.0	1,019.4	1,024.0	1,024.0	1,024.0	1,024.0	1,024.0	1,024.0	1,024.0	1,024.0	1,024.0	1,024.0
EPS-diluted	(\$2.35)	\$1.85	(\$1.04)	(\$0.27)	(\$0.28)	\$0.04	\$0.30	(\$0.17)	\$0.39	\$0.39	\$0.40	\$0.42	\$1.59	\$0.43	\$0.45	\$0.49	\$0.52	\$1.89
Shares-diluted	800.7	1,050.7	991.2	1,013.7	1,016.0	1,046.6	1,129.0	1,051.3	1,129.0	1,129.0	1,129.0	1,129.0	1,129.0	1,129.0	1,129.0	1,129.0	1,129.0	1,129.0
EPS-pro forma	(\$2.20)	\$1.35			(\$0.06)	\$0.15												
Margin Analysis																		
Gross Margin	-9.2%	32.0%	11.8%	11.8%	17.6%	24.0%	31.1%	21.8%	35.1%	35.0%	34.7%	35.2%	35.0%	35.9%	36.6%	37.3%	37.9%	36.9%
SG&A	7.4%	6.2%	7.5%	6.5%	5.9%	5.5%	6.1%	6.0%	5.8%	5.8%	5.7%	5.6%	5.7%	6.1%	6.1%	5.9%	5.8%	6.0%
R&D	13.5%	7.4%	11.1%	12.2%	10.3%	9.7%	10.2%	10.5%	9.8%	9.7%	9.6%	9.4%	9.6%	9.5%	9.4%	9.2%	9.0%	9.3%
Operating Expense	25.7%	13.3%	19.2%	17.1%	18.7%	17.6%	16.2%	17.4%	15.6%	15.5%	15.3%	15.1%	15.4%	15.6%	15.4%	15.1%	14.8%	15.2%
Operating Income	-34.9%	18.7%	-7.5%	-5.3%	-1.1%	6.4%	14.9%	4.4%	19.5%	19.4%	19.4%	20.2%	19.6%	20.3%	21.2%	22.2%	23.0%	21.7%
Interest/Other Income	-3.7%	3.9%	-1.7%	-6.2%	-10.2%	-4.2%	-0.5%	-5.1%	-2.5%	-2.5%	-2.4%	-2.4%	-2.5%	-2.4%	-2.3%	-2.3%	-2.3%	-2.3%
Tax Rate	-0.1%	-1.0%	2.3%	-6.2%	3.8%	1.9%	3.0%	-25.1%	2.4%	2.4%	2.4%	2.3%	2.4%	2.2%	2.1%	1.9%	1.8%	2.0%
Net Income	-39.2%	21.8%	-12.5%	-15.0%	-13.8%	1.8%	14.9%	-2.1%	18.3%	18.2%	18.2%	19.0%	18.4%	19.1%	20.0%	21.0%	21.9%	20.5%
Qtr-to-Qtr Growth																		
Revenue				-6.6%	13.3%	11.5%	-0.4%		4.1%	0.4%	1.6%	1.6%		1.6%	1.2%	2.1%	1.7%	
Operating Expenses				-12.5%	23.9%	4.6%	-7.9%		0.0%	0.0%	0.0%	0.0%		5.3%	0.0%	0.0%	0.0%	
Operating Income				-30.7%	-76.3%	-748%	131%		36.3%	0.1%	1.6%	5.4%		2.4%	5.7%	6.6%	5.8%	
Net Income				13.2%	4.0%	-114%	737%		27.9%	0.1%	1.7%	5.7%		2.5%	6.0%	7.0%	6.1%	
EPS				13.1%	3.8%	-114%	676%		27.9%	0.1%	1.7%	5.7%		2.5%	6.0%	7.0%	6.1%	
Year-to-Year Growth																		
Revenue	-17.8%	76.6%	-6.3%	-12.2%	3%	6.7%	17.6%	3.7%	31.1%	16%	5.8%	7.9%	14.3%	5.3%	6.1%	6.7%	6.8%	6.2%
Operating Expenses	-19.7%	-9.0%	57.7%	-18.9%	-6.0%	-3.6%	4.5%	-6.1%	19.4%	-3.6%	-7.9%	0.0%	1.0%	5.3%	5.3%	5.3%	5.3%	5.3%
Operating Income	5.1%	-195%	-181%	18.3%	-88.7%	-179%	-346%	-161%	-584%	-2141%	220%	46.0%	414%	9.6%	15.8%	21.5%	22.0%	17.4%
Net Income	16.2%	-198%	-718%	47.1%	1.4%	-113%	-241%	-82.9%	-260%	-254%	990%	37.7%	-1117%	10.3%	16.9%	23.0%	23.4%	18.5%
EPS	12.2%	-179%	-728%	42.4%	-1.9%	-112%	-227%	-83.8%	-243%	-238%	910%	37.7%	-1047%	10.3%	16.9%	23.0%	23.4%	18.5%

Dan K. Scovel, Tokeneke Research LLC, 203-554-4621, dscovel@tokenekeresearch.com

Micron Technology

Financial Summary

dollars in millions

Fiscal year ends August

	FY09	FY10	FY11	FY12	3QF12	4QF12	1QF13	2QF13	3QF13
Assets									
Cash and equivalents	1,485	2,913	2,160	2,559	2,325	2,559	2,271	2,228	2,552
Net accounts receivable	<u>798</u>	<u>1,531</u>	<u>1,497</u>	<u>1,289</u>	<u>1,333</u>	<u>1,289</u>	<u>1,139</u>	<u>1,226</u>	<u>1,503</u>
Quick Assets	2,283	4,444	3,657	3,848	3,658	3,848	3,410	3,454	4,055
Inventory	987	1,770	2,080	1,812	1,894	1,812	1,831	1,721	1,732
Other	<u>74</u>	<u>119</u>	<u>95</u>	<u>98</u>	<u>78</u>	<u>98</u>	<u>74</u>	<u>189</u>	<u>99</u>
Current Assets	3,344	6,333	5,832	5,758	5,630	5,758	5,315	5,364	5,886
Property, plant and eqt, net	7,089	6,601	7,555	7,103	7,158	7,103	7,199	6,973	6,830
Goodwill and intangibles	344	323	414	371	386	371	359	346	346
Long-term equities	315	335	535	374	361	374	527	546	347
Other	<u>367</u>	<u>1,101</u>	<u>416</u>	<u>722</u>	<u>781</u>	<u>722</u>	<u>667</u>	<u>683</u>	<u>646</u>
Total Assets	11,459	14,693	14,752	14,328	14,316	14,328	14,067	13,912	14,055
Liabilities and Shareholders Equity									
Current portion L-T debt	424	712	140	224	262	224	266	350	357
Accounts payable	1,037	1,509	1,830	1,641	1,547	1,641	1,584	1,498	1,590
Deferred Income	209	298	443	248	247	248	227	207	
Other/Equ Purchase Contract	<u>222</u>	<u>183</u>	<u>67</u>	<u>130</u>	<u>121</u>	<u>130</u>	<u>61</u>	<u>62</u>	<u>395</u>
Current Liabilities	1,892	2,702	2,480	2,243	2,177	2,243	2,138	2,117	2,342
Long-term debt	2,379	1,648	1,861	3,038	2,936	3,038	3,169	3,301	3,267
Other	<u>249</u>	<u>527</u>	<u>559</u>	<u>630</u>	<u>717</u>	<u>630</u>	<u>574</u>	<u>534</u>	<u>420</u>
Total Liabilities	4,520	4,877	4,900	5,911	5,830	5,911	5,881	5,952	6,029
Minority Interest	1,986	1,796	1,382	717	675	717	717	729	698
Common stock	7,342	8,446	8,610	8,920	8,791	8,920	9,063	9,115	9,291
Retained earnings	(2,385)	(536)	(370)	(1,402)	(1,159)	(1,402)	(1,677)	(1,963)	(1,963)
Other	<u>(4)</u>	<u>110</u>	<u>230</u>	<u>182</u>	<u>179</u>	<u>182</u>	<u>83</u>	<u>79</u>	
Total MU Shareholders Equity	<u>4,953</u>	<u>8,020</u>	<u>8,470</u>	<u>7,700</u>	<u>7,811</u>	<u>7,700</u>	<u>7,469</u>	<u>7,231</u>	<u>7,328</u>
Total Liabilities and Equity	11,459	14,693	14,752	14,328	14,316	14,328	14,067	13,912	14,055
Sales and Income									
Revenue	4,803	8,482	8,788	8,234	2,172	1,963	1,834	2,078	2,318
COGS	5,242	5,768	7,030	7,266	1,938	1,744	1,617	1,712	1,762
Net income	(439)	1,850	167	(1,032)	(320)	(243)	(275)	(286)	43
Other									
Capital Expenditures	632	1,036	2,878	1,871	324	372	538	353	235
Depreciation and Amortization	2,139	2,005	2,162	2,222	546	509	485	485	470
Shares (weighted average diluted)	800.7	1,050.7	1,007.5	991.2	987.3	1,013.1	1,013.7	1,016.0	1,046.6
Employees (units)	18,200	25,900	26,100	27,400		27,400			
Cash Flow from Operations	1,206	3,096	2,484	2,114	782	450	236	234	624
Ratios									
Liquidity									
Quick Ratio	1.21	1.64	1.47	1.72	1.68	1.72	1.59	1.63	1.73
Current Ratio	1.77	2.34	2.35	2.57	2.59	2.57	2.49	2.53	2.51
Leverage									
Debt Ratio	0.39	0.33	0.33	0.41	0.41	0.41	0.42	0.43	0.43
Long-term Debt/Capital	0.23	0.15	0.16	0.26	0.26	0.26	0.27	0.28	0.26
Asset Management									
Fixed Asset Turnover	0.6	1.2	1.2	1.1	1.20	1.10	1.03	1.17	1.34
Total Asset Turnover	0.4	0.6	0.6	0.6	0.61	0.55	0.52	0.59	0.66
Receivables DSO	60	65	61	56	55	59	56	53	58
Inventory Days	68	110	107	90	88	94	102	90	88
Inventory Turnover	4.6	4.2	3.7	3.7	3.90	3.76	3.55	3.86	4.08
Annual Revenue/Employee									
Profitability									
Gross Margin	-9.1%	32.0%	20.0%	11.8%	10.8%	11.2%	11.8%	17.6%	24.0%
Net Margin	-9.1%	21.8%	1.9%	-12.5%	-14.7%	-12.4%	-15.0%	-13.8%	1.9%
Return on Assets	-3.5%	14.1%	1.1%	-7.1%	-9.0%	-6.8%	-7.7%	-8.2%	1.2%
Return on Equity	-7.9%	28.5%	2.0%	-12.8%	-16.2%	-12.5%	-14.5%	-15.6%	2.4%
Per Share Data									
Book Value/Share	\$6.19	\$7.63	\$8.41	\$7.77	\$7.91	\$7.60	\$7.37	\$7.12	\$7.00
Tangible Book Value/Share	\$5.76	\$7.33	\$8.00	\$7.39	\$7.52	\$7.23	\$7.01	\$6.78	\$6.67
Cash/Share (gross)	\$1.85	\$2.77	\$2.14	\$2.58	\$2.35	\$2.53	\$2.24	\$2.19	\$2.44
Cash/Share (net)	(\$1.65)	\$0.53	\$0.16	(\$0.71)	(\$0.88)	(\$0.69)	(\$1.15)	(\$1.40)	(\$1.02)
Earnings/Share	(\$0.55)	\$1.76	\$0.17	(\$1.04)	(\$0.32)	(\$0.24)	(\$0.27)	(\$0.28)	\$0.04

Micron Technology
Sales Analysis

	FY09	FY10	FY11	FY12	FY2011				FY2012				FY2013		
					1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
Product Type															
Revenue															
DRAM	2,422	5,052	3,620	3,178	1,009	950	883	778	778	729	875	796	720	891	1,089
NAND	1,857	2,555	3,193	3,627	753	812	770	858	909	934	948	836	803	870	927
NOR	0	451	1,547	977	422	392	360	373	287	228	228	234	228	197	185
Other	524	424	428	452	68	103	126	131	116	118	121	97	83	120	116
Total	4,803	8,482	8,788	8,234	2,252	2,257	2,139	2,140	2,090	2,009	2,172	1,963	1,834	2,078	2,318
Revenue Percent															
DRAM	50.4%	59.6%	41.2%	38.6%	44.8%	42.1%	41.3%	36.4%	37.2%	36.3%	40.3%	40.6%	39.3%	42.9%	47.0%
NAND	38.7%	30.1%	36.3%	44.0%	33.4%	36.0%	36.0%	40.1%	43.5%	46.5%	43.6%	42.6%	43.8%	41.9%	40.0%
NOR	0.0%	5.3%	17.6%	11.9%	18.7%	17.4%	16.8%	17.4%	13.7%	11.3%	10.5%	11.9%	12.4%	9.5%	8.0%
Other	10.9%	5.0%	4.9%	5.5%	3.0%	4.6%	5.9%	6.1%	5.6%	5.9%	5.6%	4.9%	4.5%	5.8%	5.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Growth															
DRAM	108.6%	-28.3%	-12.2%	-18.5%	-5.8%	-7.1%	-11.9%	0.0%	-6.3%	20.0%	-9.0%	-9.5%	23.8%	22.3%	
NAND	37.6%	25.0%	13.6%	-2.4%	7.8%	-5.2%	11.4%	5.9%	2.8%	1.5%	-11.8%	-3.9%	8.3%	6.6%	
NOR		243.0%	-36.8%	13.7%	-7.1%	-8.2%	3.6%	-23.1%	-20.6%	0.0%	2.6%	-2.6%	-13.6%	-5.9%	
Other	-19.1%	0.9%	5.6%	-39.8%	51.5%	22.3%	4.0%	-11.5%	1.7%	2.5%	-19.8%	-14.4%	44.6%	-3.4%	
Total	76.6%	3.6%	-6.3%	-9.7%	0.2%	-5.2%	0.0%	-2.3%	-3.9%	8.1%	-9.6%	-6.6%	13.3%	11.5%	
DRAM															
bit sales growth		69.0%	19.0%	5.0%	23.0%	-1.0%	6.0%	14.0%	21.0%	12.0%	-9.0%	2.0%	38.0%	6.0%	
ASP change	-52.0%	28.0%	-39.0%	-23.0%	-23.0%	1.0%	-28.0%	-12.0%	-16.0%	7.0%	0.0%	-11.0%	-10.0%	16.0%	
cost/bit change		-35.0%	-23.0%	-10.0%	-10.0%	-4.0%	-12.0%	-10.0%	-14.0%	-4.0%	-1.0%	-5.0%	-18.0%	-5.0%	
NAND (trade)															
bit sales growth		44.0%	50.0%	20.0%	20.0%	5.0%	47.0%	21.0%	36.0%	68.0%	6.0%	-10.0%	13.0%	0.0%	
ASP change	-52.0%	26.0%	-12.0%	-20.0%	-12.0%	15.0%	-26.0%	-11.0%	-23.0%	-39.0%	-5.0%	8.0%	-1.0%	8.0%	
cost/bit change		-31.0%	2.0%	-12.0%	-13.0%	12.0%	-28.0%	-16.0%	-18.0%	-29.0%	-5.0%	2.0%	-5.0%	1.0%	
Product Lines															
DSG (DRAM)															
Revenue	2,100	4,638	3,155	2,691	903	841	774	637	656	608	750	677	600	756	730
Operating Profit	(902)	1,269	457	(442)	225	51	109	72	(139)	(109)	(76)	(118)	-112	(46)	58
Operating Margin	-43.0%	27.4%	14.5%	-16.4%	24.9%	6.1%	14.1%	11.3%	-21.2%	-17.9%	-10.1%	-17.4%	-18.7%	-6.1%	7.9%
NSG (NAND)															
Revenue	1,747	2,113	2,244	2,853	502	552	505	685	683	734	760	676	617	713	924
Operating Profit	(573)	240	102	198	57	72	68	(95)	94	97	(1)	8	12	64	118
Operating Margin	-32.8%	11.4%	4.5%	6.9%	11.4%	13.0%	13.5%	-13.9%	13.8%	13.2%	-0.1%	1.2%	1.9%	9.0%	12.8%
WSG (Wireless)															
Revenue	247	778	1,959	1,184	511	510	493	445	373	307	276	228	263	213	276
Operating Profit	(63)	(23)	20	(370)	56	10	10	(56)	(58)	(129)	(103)	(80)	-64	(87)	(62)
Operating Margin	-25.5%	-3.0%	1.0%	-31.3%	11.0%	2.0%	2.0%	-12.6%	-15.5%	-42.0%	-37.3%	-35.1%	-24.3%	-40.8%	-22.5%
ESG (Embedded)															
Revenue	178	521	1,002	1,054	266	252	241	243	262	242	265	285	278	282	305
Operating Profit	37	152	237	156	78	58	55	46	38	15	32	71	78	65	65
Operating Margin	20.8%	29.2%	23.7%	14.8%	29.3%	23.0%	22.8%	18.9%	14.5%	6.2%	12.1%	24.9%	28.1%	23.0%	21.3%
Other															
Revenue	531	432	428	452	70	102	126	130	116	118	121	97	76	114	83
Operating Profit		(49)	(61)	(103)	(26)	(12)	(5)	(18)	(17)	(22)	(43)	(21)	(71)	(19)	(30)
Operating Margin		-11.3%	-14.3%	-22.8%	-37.1%	-11.8%	-4.0%	-13.8%	-14.7%	-18.6%	-35.5%	-21.6%	-93.4%	-16.7%	-36.1%
Total	4,803	8,482	8,788	8,234	2,252	2,257	2,139	2,140	2,090	2,009	2,172	1,963	1,834	2,078	2,318
Operating Profit	(1,501)	1,589	755	(561)	390	179	237	(51)	(82)	(148)	(191)	(140)	(157)	(23)	149
End Market															
Computer		45%	30%	25%	30.0%	30.0%	30.0%								
Consumer			15%	20%											
Mobile			25%	15%	25.0%	25.0%	25.0%								
Networking/Storage			15%	10%											
SSD				10%											
Territory															
China	1,242	3,294	2,983	2,936		33.9%				35.7%					
US	928	1,403	1,363	1,262		15.5%				15.3%					
Asia-Pacific	990	1,090	1,518	1,241		17.3%				15.1%					
Taiwan	447	711	744	1,022		8.5%				12.4%					
Europe	470	777	924	827		10.5%				10.0%					
Malaysia	542	817	737	546		8.4%				6.6%					
ROW	184	390	519	400		5.9%				4.9%					
Total	4,803	8,482	8,788	8,234		100.0%				100.0%					
Other															
Customer															
Intel (NAND)	20%	9%	10%	12%	209	202	218	250	261	255	300	168	148	160	
HP (DRAM)		13%	9%												
Apple															
Image Sensors															
Aptina Revenue	70	372	349	372	59	82	104	104	94	99	99	80	61	48	111
Aptina COGS	60	385	358	395	67	90	102	99	94	99	99	103	81	57	
DRAM															
DDR-3 DRAM Rev %		37%	51%	25.0%	35.0%	35.0%	37.0%	43%	45%	48%	47%	49%	55%		
DDR-2 DRAM Rev %		40%	25%												
Specialty DRAM Rev %															
DDR-3 Total Rev %	7%	22%	21%	20%											
DDR-2 Total Rev %	22%	24%	10%	9%											
Sp DRAM Total Rev %	21%	14%	10%	10%											
Inotera DRAM prod %	4%	23%	33%	46%	25.0%	35.0%	35.0%	37.0%	43%	45%	48%	47%	49%	55%	

Micron Technology

Financial Model

dollars in millions
fiscal year ends August

	FY2012 act				FY2013 est				FY2014				FY2015			
	1Q	2Q	3Q	4Q	1QA	2QA	3QA	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
DRAM																
Bits Sold	14.0%	21.0%	12.0%	-9.0%	2.0%	38.4%	6.0%	8.0%	5.0%	5.0%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
ASP change	-12.0%	-21.5%	7.0%	0.0%	-11.9%	-9.7%	15.0%	5.0%	1.0%	-5.0%	-5.5%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Revenue	778	729	875	796	715.3	893.9	1,089.7	1,235.7	1,310.5	1,307.2	1,303.3	1,306.2	1,309.2	1,312.1	1,315.0	1,318.0
Royalties (included)																
Revenue growth					-10.1%	25.0%	21.9%									
Cost/bit change	-10.0%	-14.0%	-4.0%	-1.0%	-5.0%	-20.5%	-5.0%	0.0%	-5.0%	-5.0%	-5.5%	-6.0%	-6.5%	-6.5%	-6.5%	-6.5%
Gross Margin	-1.3%	-11.6%	-1.7%	-0.7%	-8.1%	0.0%	20.7%	26.7%	34.4%	34.1%	33.7%	34.6%	36.2%	37.8%	39.4%	41.0%
Gross Profit																
COGS	787.8	813.9	889.6	801.5	773.5	894.3	864.1	905.3	859.6	861.9	864.6	854.3	835.5	816.4	796.9	777.1
NAND																
Bits Sold	21.0%	33.0%	66.0%	-7.0%	-10.6%	9.8%	0.0%	8.0%	7.5%	8.0%	8.5%	9.0%	9.0%	9.0%	9.0%	9.0%
ASP change	-11.0%	-23.0%	-39.0%	-5.0%	8.0%	-1.5%	6.2%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Revenue	909.0	934.0	948.0	836.0	807.2	873.0	927.1	951.2	971.4	996.7	1,027.3	1,063.8	1,101.6	1,140.7	1,181.2	1,223.1
Revenue growth					-3.4%	8.2%	6.2%									
Cost/bit change	-16.0%	-18.0%	-29.0%	-5.0%	2.0%	-10.0%	5.4%	-8.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Gross Margin	26.0%	14.4%	-9.9%	17.0%	23.8%	34.2%	34.8%	38.3%	38.0%	37.6%	37.3%	36.9%	36.6%	36.2%	35.9%	35.6%
gm est	26.0%	14.4%	-9.9%	17.0%												
Gross Profit	235.9	134.9	(94.3)	142.1												
COGS	673.1	799.1	1,042.3	693.9	614.8	574.7	604.5	586.9	602.7	621.8	644.5	671.0	698.6	727.3	757.1	788.2
DRAM, NAND Subtotal																
Revenue	1,687.0	1,663.0	1,823.0	1,632.0	1,522.5	1,766.9	2,016.8	2,187.0	2,281.9	2,303.9	2,330.6	2,370.0	2,410.7	2,452.8	2,496.2	2,541.1
Gross Profit																
Gross Margin																
Adjusted Gross Profit																
Adjusted Gross Margin																
COGS	1,460.9	1,613.0	1,931.9	1,495.4	1,388.3	1,469.0	1,468.6	1,492.2	1,462.3	1,483.7	1,509.0	1,525.3	1,534.1	1,543.7	1,554.1	1,565.3
NOR																
Revenue	287	228	228	234	220	187.0	185.0	122.1	122.1	109.9	120.9	120.9	120.9	108.8	119.7	119.7
Gross Margin	35.0%	35.0%	35.0%	35.0%	37.0%	37.0%	20.0%	20.0%	20.0%	22.0%	25.0%	27.0%	27.0%	27.0%	27.0%	27.0%
COGS	186.6	148.2	148.2	152.1	138.7	117.8	148.0	97.7	97.7	85.7	90.7	88.2	88.2	79.4	87.4	87.4
Other																
Revenue	116	118	121	97	91.7	125.0	116.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%
COGS	116.0	118.0	121.0	97.0	91.7	125.0	145.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL																
Revenue	2,090.0	2,009.0	2,172.0	1,963.0	1,834.3	2,078.9	2,317.8	2,309.1	2,404.0	2,413.8	2,451.5	2,490.9	2,531.6	2,561.6	2,615.9	2,660.8
Royalty																
COGS	1,763.5	1,879.2	2,201.1	1,744.5	1,618.6	1,711.8	1,761.6	1,589.9	1,560.0	1,569.4	1,599.7	1,613.5	1,622.3	1,623.1	1,641.4	1,652.7
Gross Profit	326.5	129.8	(29.1)	218.5	215.6	367.2	556.2	719.2	844.0	844.4	851.8	877.4	909.3	938.5	974.5	1,008.1
Gross Margin	15.6%	6.5%	-1.3%	11.1%	11.8%	17.7%	24.0%	31.1%	35.1%	35.0%	34.7%	35.2%	35.9%	36.6%	37.3%	37.9%
Reported																
Revenue	2,090	2,009	2,172	1,963	1,834.0	2,078.0	2,318.0									
COGS	1,785	1,799	1,938	1,744	1,617.0	1,712.0	1,762.0									
Gross Margin	14.6%	10.5%	10.8%	11.2%	11.8%	17.6%	24.0%									
Adjusted COGS																
Adjusted Gross Margin																

Dan K. Scovel, Tokeneke Research LLC, 203-554-4621, dscovel@tokenekeresearch.com

6/20/13

Micron Technology

Valuation

Relative Valuation

Company	Ticker	Price 6/19/2013	52-Week		CY EPS				CY P/E				Diluted Shares(mil)	CAP (\$ mil)	Price-Sales			FY Ends
			Low	High	2011	2012	2013	2014	2011	2012	2013	2014			TTM	Cur FY	Nxt FY	
Micron Technology *	MU	13.97	5.16	14.11	-0.19	-1.12	0.78	1.64	NM	NM	17.9	8.5	1,047	14,621	1.8	1.7	1.5	Aug
Advanced Micro Devices	AMD	4.07	1.81	6.09	0.51	-0.16	-0.25	0.04	8.0	NM	NM	NM	749	3,048	0.6	0.6	0.6	Dec
Freescale	FSL	14.88	7.63	17.44	0.98	-0.08	0.50	1.39	15.2	NM	29.8	10.7	256	3,809	1.0	0.9	0.9	Dec
Intel *	INTC	25.00	19.23	27.75	2.39	2.13	1.84	2.12	10.5	11.7	13.6	11.8	5,080	127,000	2.4	2.4	2.2	Dec
STMicroelectronics	STM	9.74	4.51	10.05	0.42	-0.33	0.01	0.71	23.2	NM	NM	13.7	888	8,649	1.0	1.0	1.0	Dec-ADR
Texas Instruments*	TXN	35.71	26.06	36.29	2.19	1.50	1.61	2.01	16.3	23.8	22.2	17.8	1,123	40,102	3.2	3.3	3.1	Dec

Average

14.6 17.8 21.8 13.5

1.6 1.7 1.6

Company	Ticker	Price 6/19/2013	52-Week		CY EPS				CY P/E				Diluted Shares(mil)	CAP (\$ mil)	Price-Sales			FY Ends
			Low	High	2011	2012	2013	2014	2011	2012	2013	2014			TTM	Cur FY	Nxt FY	
Micron Technology *	MU	13.97	5.16	14.11	-0.19	-1.12	0.78	1.64	NM	NM	17.9	8.5	1,047	14,621	1.8	1.7	1.5	Aug
Atmel	ATML	7.71	4.37	8.40	0.92	0.33	0.32	0.59	8.4	23.4	24.1	13.1	443	3,414	2.4	2.4	2.2	Dec
Spansion	CODE	12.20	9.42	14.54	0.85	0.99	1.06	1.44	14.4	12.3	11.5	8.5	58	709	0.8	0.8	0.7	Dec
Cypress Semiconductor	CY	10.97	8.70	14.06	1.25	0.55	0.43	0.77	8.8	19.9	25.5	14.2	158	1,737	2.3	2.3	2.1	Dec
GSI Technology	GSIT	6.36	4.40	6.91	0.31	0.13	0.20	0.39	20.5	48.9	31.8	16.3	29	182	2.8	2.7	2.0	Mar
Integrated Silicon Solutions	ISSI	11.15	8.18	11.31	1.11	0.85	1.04	1.31	10.0	13.1	10.7	8.5	29	327	1.1	1.0	0.9	Sep
Netlist	NLST	0.96	0.51	2.47	-0.22	-0.49	-0.45	-0.17	NM	NM	NM	NM	30	29	1.0	1.1	0.7	Dec
SanDisk	SNDK	61.56	32.08	63.73	4.66	2.37	4.12	4.76	13.2	26.0	14.9	12.9	246	15,119	2.9	2.6	2.4	Dec
STEC	STEC	3.46	3.31	8.39	0.67	-1.03	-1.62	-1.36	5.2	NM	NM	NM	47	162	1.2	1.6	1.1	Dec

Average

11.5 23.9 19.8 12.3

1.8 1.8 1.5

* Tokeneke estimate
Source: consensus as of 6/19/13

Historical Valuation

Company	Ticker	Price 6/19/2013	Trailing 12-month								
			Price/Earnings		Price/Sales		Price/Book				
			Current	Historical*	Current	Historical*	Current	Historical*			
Micron Technology	MU	13.97	NM		1.8		2.0				
			Average	47.0	Average	2.3	Average	2.3			
			High	568.0	High	9.0	High	9.8			
			Low	4.3	Low	0.3	Low	0.6			

* weekly since 1990

The Company

Tokeneke Research is an independent research firm specializing in semiconductor industry business issues, providing fundamental research focused on US equities across all market capitalizations within the sector to investors. The company was founded in 2005 and is based in Connecticut.

The Offering

- *Monthly Newsletter:* A summarized review of noteworthy industry business developments, sales statistics, and sector equity market performance, as well as a near-term and annual outlook for sector business fundamentals and share prices. This report typically includes two pages of text and a handful of recurring charts and tables. It is intended for relatively broad-based distribution.
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My Background

I have an electrical engineering background, nearly 12 years of semiconductor industry experience, and was on Wall Street for nearly eight years where I was selected as the Best On The Street semiconductor analyst for 2002 by The Wall Street Journal, and third-rated Best of the Best across all sectors.

I obtained my undergraduate BS degree in electrical engineering from the University of Washington, and my MBA from Santa Clara University. My industry experience consists of nearly 12 years in various technical sales and marketing roles at four different semiconductor firms located in Silicon Valley beginning with Advanced Micro Devices in 1984, followed by two small start-up companies, and ending at Cirrus Logic where I supported the firm's Japanese market development. I joined Fahnstock & Co. as a senior semiconductor analyst in 1996 and was recruited by Needham & Co. in April 2000.

My formal coverage list as a sell-side analyst included the following equities: AMD, ALSC, ALTR, ARTI, ATML, CUBE, CY, ESST, GNSS, INTC, ISSI, LSI, MOSY, MU, OIIM, OVTI, RMTR, SIII, SMSC, STEC, SVTG, TDFX, TSRA, TXN, and ZRAN.

—Dan K. Scovel
Semiconductor Analyst

Tokeneke Research LLC

Rowayton, CT 06853

dscovel@tokenekereseearch.com

www.tokenekereseearch.com

203-554-4621

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