Manufacturing Messes-Up Micron's F1Q

Supply-Demand Environment Remains Favorable: Lowering Est, Reiterate Buy

Diluted Shares*(mil)*:	1,013.7
Market Cap*($mil)*:	$6,883
Avg Volume*(,000)*:	25,559
Net Cash/Share:	($1.15)
Tangible Book/Share	$7.00

Closing Price 12/20/12
$6.79
Recommendation/Target
Buy/$15

fye August	**FY12** act	**FY13**	**FY14**
Revenue*($mil)*	$8,234	$7,877	$9,175
EPS	($1.04)	($0.74)	$0.67
Price/Sales	0.8	0.9	0.8
Price/EPS	*NM*	NM	10.1

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

Summary: MU missed November-end 1QFY13 expectations due to a series of manufacturing hiccups. I am lowering my estimates but maintaining my 12-month target price of $15 based on 1.5-times FY14 sales, and reiterate my Buy recommendation for investors with very high risk-tolerance. I continue to believe the environment for NAND, DRAM, and NOR memories remains very favorable for Micron as a supplier—especially considering its pending acquisition of competitor Elpida—and that it is extremely well positioned to benefit from anticipated market price strength as well as cost reductions and production expansion associated with technology migrations.

F1Q Review: Micron missed F1Q expectations due to a series of unspecified, but since corrected, manufacturing challenges that limited expected output and cost reductions for both DRAM and NAND. Notice in the table below that bit output and cost reductions significantly underperformed relative to expectations resulting in both revenue and margin shortfall despite a better-than-expected market price environment. The company's premium businesses that include specialty DRAMs, SSDs and Embedded Solutions continue to grow, but it discontinued solid-state lighting operations which will move to an IP business. Cash from operations totaled $236M, capital expenditures were $538M, and total cash declined by $288M to $2,271M.

	1QF13				
FYE August	**Estimate**	**Actual**	**Guidance**	**Consensus**	**Range**
DRAM Bits Shipped	13.0%	2.0%	low/mid teen%		
DRAM ASP change	-17.0%	-11.0%			
DRAM Cost/bit change	-8.0%	-5.0%	-high 1-digit		
NAND Bits Shipped	0.0%	-10.0%	flat		
NAND ASP Change	5.0%	8.0%			
NAND Cost/bit change	-6.0%	2.0%	-few %		
Revenue *($ mil)*	1,955	1,834		2,010	1,760-2,180
Revenue Growth	-0.4%	-6.6%		2.4%	-10%+11%
Gross Margin	13.6%	11.8%			
Opn Expenses *($ mil)*	365	374	355-375		
Interest Income	(58)	(54)	(55-60)		
Minority Interest	(20)	(52)	(20)		
Taxes *($ mil)*	15	13	10-15		
Diluted Shares *(mil)*	1,013.0	1,013.7	1,013.0		
EPS *reported*	($0.19)	($0.27)		($0.20)	($0.29-$0.03)

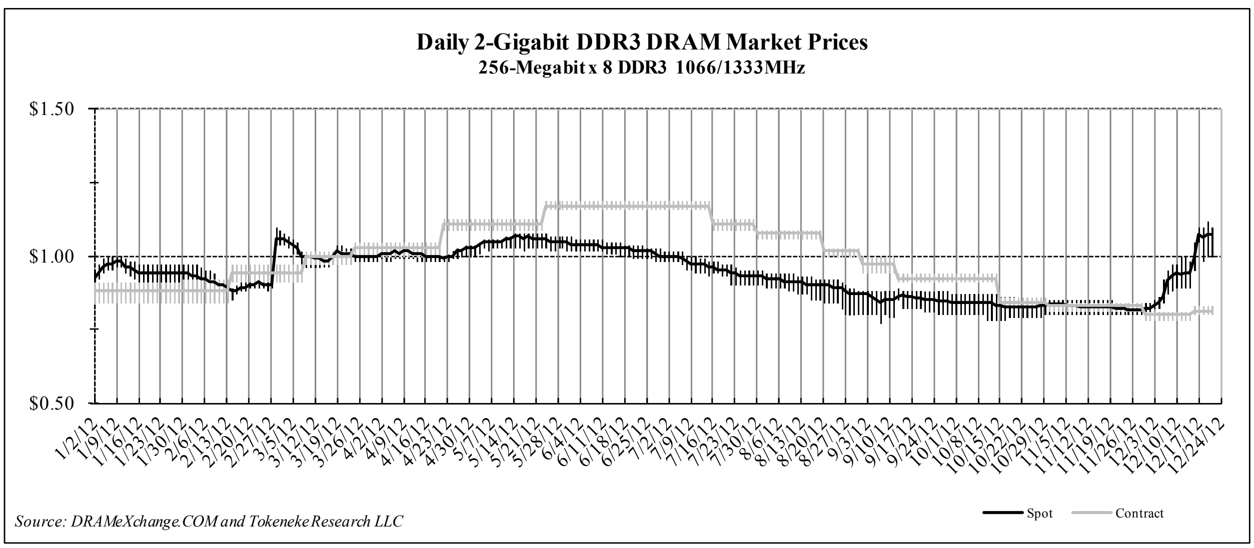
NOR Strength: NOR flash memory sales were flat at 12% of sales and profitability increased as these devices avoided any manufacturing problems. Wireless NOR shipments in WSG (Wireless Solutions Group) increased by double-digits and the Embedded Solutions Group (ESG) posted record profit due to strength from automotive and industrial markets on the ramp of 45nm parallel NOR devices. First samples of the market-leading 45nm serial NOR parts were provided to customers and engineering starts on 300mm wafers commenced. NOR revenues are expected to decline a seasonal 10% this quarter with cost savings offsetting ASP erosion.

Dynamic RAMs: DRAM revenue declined by 9% as bit production grew by +2%, ASPs declined by -11%, and cost per bit decreased by -5% amid a series of manufacturing setbacks. Management is hopeful that ultra-lights and Windows 8 will rejuvenate PC markets, but is enjoying strength from specialty markets such as server, networking, graphics and consumer devices in the mean time. Mobile DRAM shipments increased significantly as 30nm 4G low-power DDR2 devices ramped into smartphones. Networking accounted for 25% of DSG (DRAM Solutions Group) revenue as this market expanded beyond traditional OEMs with the advent of server farms, and customers are migrating from DDR-2 to DDR-3 interfaces with early traction from RLDRAM-3 and Micron's proprietary

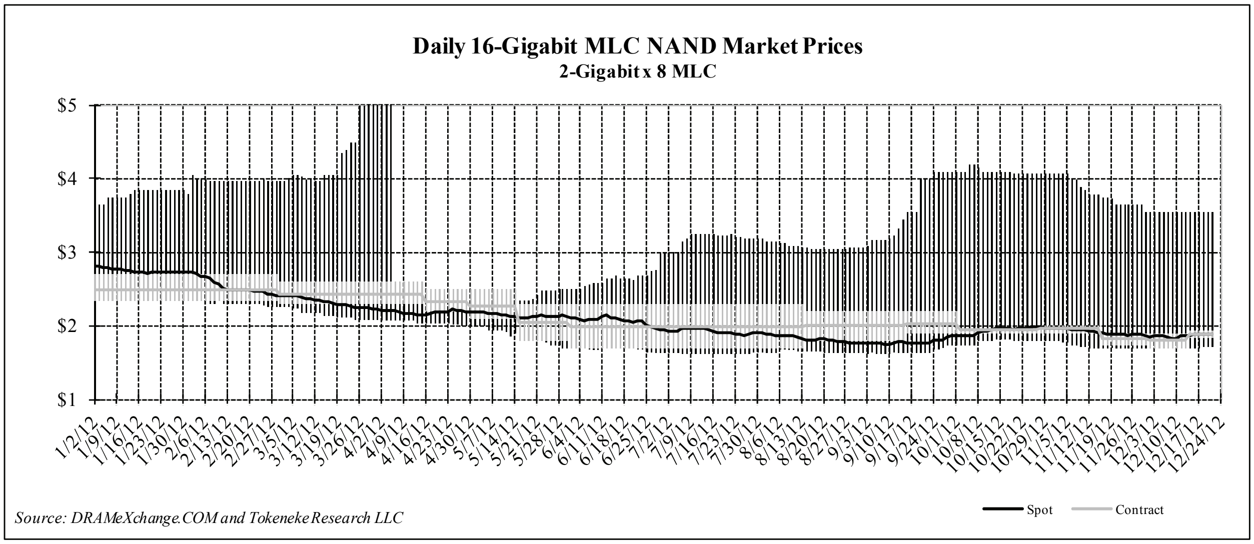
Hybrid Memory Cube (HMC). DRAM industry bit growth is expected at a muted +20+30% during 2013 due to the lack of manufacturing capacity additions, increasingly challenging and lengthier technology transitions, and a market shift towards mobile and servers and away from PCs that is likely to result in fewer—albeit higher-performance—total net bits. Micron expects a cost reduction of -25-30% as it transitions to 30nm technology from 42nm, with manufacturing bit cross-over expected this quarter. 4G DDR-3 devices driving this transition accounted for one-third of DRAM bit sales last quarter. Next-generation 20nm technology won't begin until late-CY 2013.

I am very bullish with respect to the pending acquisition of DRAM competitor Elpida out of Japan as a giant step forward in terms of industry 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 only Samsung—leapfrogging Hynix. It also increases its rank as an overall semiconductor supplier to fifth from ninth. 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 continues to expect the deal to close 1H CY13 after Tokyo court, Chinese, and other governmental approvals.

Management admitted that the Inotera DRAM joint-venture with Nanya may be up for renegotiation after a DigiTimes article this week claiming that Formosa Plastic (Nanya's backer) is looking to discontinue its rights to half of Inotera's output. Management's only comments were that: no change to the relationship was expected this quarter; it was unlikely to agree to anything detrimental to MU; and that it would disclose any information as soon as it was available. While this new development introduces uncertainty and potential risk, it would seem to me that MU could very well be likely to benefit from additional Inotera output—as long as the price is right. In an interestingly unrelated matter, Micron will be taking advantage of incremental PC DRAM availability from Inotera this quarter that will boost bit shipments at the cost of an adverse mix to ASPs.



NAND Flash: NAND revenue declined by 4% as trade NAND bit production declined by -10%, ASPs increased by +8%, and cost per bit actually increased by +2% due to the aforementioned manufacturing problems. The very slight improvement in NSG (NAND Solutions Group) operating margin was due to product mix and cost reductions associated with the 20nm process ramp. Solid state drives (SSDs) grew by 20% and accounted for 17% of trade NAND business—but 35% if OEM shipments for SSD applications were included. Low-end smartphone business was also healthy for the Wireless Solutions Group (WSG) with a transition from standalone NAND devices to combined NAND and low-power DRAM in a multi-chip package (MCP). MLC accounted for 80-85% of NAND wafer production with SLC and TLC splitting the remainder. Similar to DRAM, NAND industry bit growth for 2013 is expected at a historically-muted +35+45% due to limited capacity additions and increasingly challenging and lengthier technology transitions. Micron expects a NAND bit cost reduction of -25-30% this year on a transition to 20nm process technology from 25nm, and management expects bit cross-over in 3-6 months after last quarter's manufacturing issues. It sampled a 20nm TLC device last quarter that will commence production this quarter.



Management Guidance: F2Q10 DRAM bit production is expected to be up by a double-digit percentage, ASPs QTD have been down by a double-digit percentage, and costs per bit are expected to drop in the low-double-digit percentage range as the company continues to roll out its new 30nm 4Gb DDR-3 device. NAND bit production is expected to grow in the low-teens percentage, ASPs QTD are down in the high-single-digits, and cost per bit is expected to drop in the high-single-digit percentage range as well with the transition to 20nm. SGA is expected at $135-140M, R&D at $220-230M, interest expense of $55-60M, taxes at $10-15M, minority interest costs of $20M, share count of 1,014M, and depreciation and amortization of $490-500M. Capital expenses this fiscal year remain at $1.6-1.9B, weighted more towards the first half of the year and excluding any potential impact from Elpida.

Lowering 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. For NOR and other I assume relatively flat revenue and gross margin. My assumptions by quarter are spelled out in the financial model on Page 7, and the table below summarizes the changes in my updated model.

FYE August	**2QF13**		**FY13**		**FY14**	
$ in millions	**Previous**	**Update**	**Previous**	**Update**	**Previous**	**Update**
Total Revenue	1,898	1,853	8,286	7,877	9,671	9,175
Revenue Growth	-2.9%	1.1%	0.6%	-4.3%	16.7%	16.5%
Gross Margin	16.8%	8.6%	20.3%	14.5%	27.2%	28.0%
Operating Expenses	375	365	1,500	1,494	1,520	1,520
Non-Operating Items	(78)	(78)	(312)	(339)	(312)	(292)
Taxes	15	15	60	58	60	60
Diluted Shares *(mil)*	1,013.0	1,014.0	1,013.0	1,013.9	1,013.0	1,014.0
Diluted EPS	($0.15)	($0.30)	($0.18)	($0.74)	$0.73	$0.67

Reiterate Buy: I am maintaining my Buy recommendation and 12-month target price of $15 based on slightly more than 1.5-times price-sales ratio applied to expected FY14 revenue, which is consistent with that of its peers. MU shares continue to trade well below average historical trailing price-sales and price-book ratios, as well as lower than average price-sales ratios relative to two separate peer groups identified on Page 8. I continue to believe there is a significantly favorable risk-reward opportunity in MU shares at current price levels, but it is certainly NOT for the faint of heart.

Revenue, 28 estimates	2QF13	FY13	FY14
Tokeneke-revised	1,853	7,877	9,175
Tokeneke-previous	1,898	8,286	9,671
Consensus-previous	2,040	8,640	10,240
High Estimate-previous	2,300	10,660	13,670
Low Estimate-previous	1,840	8,010	8,990

Diluted EPS, 28 est	2QF13	FY13	FY14
Tokeneke-revised	($0.30)	($0.74)	$0.67
Tokeneke-previous	($0.15)	($0.18)	$0.73
Consensus-previous	($0.12)	($0.30)	$0.63
High Estimate-previous	$0.16	$0.71	$1.69
Low Estimate-previous	($0.39)	($0.85)	($0.04)

—Dan K. Scovel
Semiconductor Analyst

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Income Statement

dollars in millions, except per share data, * restated

fiscal year ends August

			FY2012 act					FY2013 est					FY2014				
	FY09	FY10	Q1	Q2	Q3	Q4	FY12	Q1A	Q2	Q3	Q4	FY13	Q1	Q2	Q3	Q4	FY14
Total Revenue	4,803	8,482	2,090	2,009	2,172	1,963	8,234	1,834	1,853	2,052	2,137	7,877	2,227	2,252	2,323	2,373	9,175
COGS	5,243	5,768	1,785	1,799	1,938	1,744	7,266	1,617	1,695	1,716	1,707	6,735	1,687	1,653	1,645	1,619	6,604
Gross Profit	(440)	2,714	305	210	234	219	968	217	159	336	431	1,142	541	599	678	753	2,571
SG&A	354	528	151	174	156	139	620	119	140	150	155	564	155	155	155	155	620
R&D	647	624	230	222	231	235	918	224	225	225	225	899	225	225	225	225	900
Restructuring	70	(10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	165	(17)	6	20	38	(15)	49	31	-	-	-	31	-	-	-	-	-
Operating Expenses	1,236	1,125	387	416	425	359	1,587	374	365	375	380	1,494	380	380	380	380	1,520
Operating Income	(1,676)	1,589	(82)	(206)	(191)	(140)	(619)	(157)	(206)	(39)	51	(352)	161	219	298	373	1,051
Interest Income	(160)	(160)	(33)	(33)	(53)	(52)	(171)	(54)	(58)	(58)	(58)	(228)	(58)	(58)	(58)	(58)	(232)
Other Non-Opn Inc.	(16)	491	-	39	1	(4)	36	1	-	-	-	1	-	-	-	-	-
Tax Expense	1	(19)	(2)	9	(38)	14	(17)	13	15	15	15	58	15	15	15	15	60
Minority Interest	(29)	(89)	(74)	(73)	(115)	(33)	(295)	(52)	(20)	(20)	(20)	(112)	(20)	(20)	(20)	(20)	(80)
Net Income	(1,882)	1,850	(187)	(282)	(320)	(243)	(1,032)	(275)	(299)	(132)	(42)	(749)	68	126	205	280	679
EPS-basic	($2.35)	$2.08	($0.19)	($0.29)	($0.32)	($0.24)	($1.04)	($0.27)	($0.30)	($0.13)	($0.04)	($0.74)	$0.07	$0.12	$0.20	$0.28	$0.67
Shares-basic	800.7	887.5	981.4	982.8	987.3	1,015.1	991.2	1,013.7	1,014.0	1,014.0	1,014.0	1,013.9	1,014.0	1,014.0	1,014.0	1,014.0	1,014.0
EPS-diluted	($2.35)	$1.85	($0.19)	($0.29)	($0.32)	($0.24)	($1.04)	($0.27)	($0.30)	($0.13)	($0.04)	($0.74)	$0.07	$0.12	$0.20	$0.28	$0.67
Shares-diluted	800.7	1,050.7	981.4	982.8	987.3	1,013.1	991.2	1,013.7	1,014.0	1,014.0	1,014.0	1,013.9	1,014.0	1,014.0	1,014.0	1,014.0	1,014.0
EPS-pro forma	($2.20)	$1.35															
Margin Analysis																	
Gross Margin	-9.2%	32.0%	14.6%	10.5%	10.8%	11.2%	11.8%	11.8%	8.6%	16.4%	20.1%	14.5%	24.3%	26.6%	29.2%	31.7%	28.0%
SG&A	7.4%	6.2%	7.2%	8.7%	7.2%	7.1%	7.5%	6.5%	7.6%	7.3%	7.3%	7.2%	7.0%	6.9%	6.7%	6.5%	6.8%
R&D	13.5%	7.4%	11.0%	11.1%	10.6%	12.0%	11.1%	12.2%	12.1%	11.0%	10.5%	11.4%	10.1%	10.0%	9.7%	9.5%	9.8%
Operating Expense	25.7%	13.3%	18.5%	20.7%	19.6%	18.3%	19.3%	20.4%	19.7%	18.3%	17.8%	19.0%	17.1%	16.9%	16.4%	16.0%	16.6%
Operating Income	-34.9%	18.7%	-3.9%	-10.3%	-8.8%	-7.1%	-7.5%	-8.6%	-11.1%	-1.9%	2.4%	-4.5%	7.2%	9.7%	12.8%	15.7%	11.5%
Interest/Other Income	-3.7%	3.9%	-1.6%	0.3%	-2.4%	-2.9%	-1.6%	-2.9%	-3.1%	-2.8%	-2.7%	-2.9%	-2.6%	-2.6%	-2.5%	-2.4%	-2.5%
Tax Rate	-0.1%	-1.0%	1.7%	-4.5%	15.6%	-7.1%	2.3%	-6.2%	-5.7%	-15.4%	-201.4%	-10.0%	14.6%	9.3%	6.2%	4.8%	7.3%
Net Income	-39.2%	21.8%	-8.9%	-14.0%	-14.7%	-12.4%	-12.5%	-15.0%	-16.1%	-6.4%	-2.0%	-9.5%	3.0%	5.6%	8.8%	11.8%	7.4%
Qtr-to-Qtr Growth																	
Revenue			-2.3%	-3.9%	8.1%	-9.6%		-6.6%	1.1%	10.7%	4.2%		4.2%	1.1%	3.2%	2.1%	
Operating Expenses			4.0%	7.5%	2.2%	-15.5%		4.2%	-2.4%	2.7%	1.3%		0.0%	0.0%	0.0%	0.0%	
Operating Income			60.8%	151.2%	-7.3%	-26.7%		12.1%	31.3%	-80.9%	-229%		218%	36.2%	36.3%	25.2%	
Net Income			38.5%	50.8%	13.5%	-24.1%		13.2%	8.8%	-55.8%	-67.9%		-259%	85.9%	63.1%	36.6%	
EPS			40.0%	50.6%	13.0%	-26.0%		13.1%	8.8%	-55.8%	-67.9%		-259%	85.9%	63.1%	36.6%	
Year-to-Year Growth																	
Revenue	-17.8%	76.6%	-7.2%	-11%	1.5%	-8.3%	-6.3%	-12.2%	-8%	-5.5%	8.9%	-4.3%	21.4%	22%	13.2%	11.0%	16.5%
Operating Expenses	-19.7%	-9.0%	189%	62.5%	76.3%	-3.5%	58.2%	-3.4%	-12.3%	-11.8%	5.8%	-5.9%	1.6%	4.1%	1.3%	0.0%	1.7%
Operating Income	5.1%	-195%	-121%	-215%	-181%	175%	-182%	91.5%	0.1%	-79.4%	-136%	-43.1%	-202%	-206%	-859%	638%	-399%
Net Income	16.2%	-198%	-221%	-492%	-527%	80.0%	-718%	47.1%	6.1%	-58.7%	-82.5%	-27.4%	-125%	-142%	-255%	-760%	-191%
EPS	12.2%	-179%	-227%	-513%	-550%	76.3%	-728%	42.4%	2.8%	-59.7%	-82.5%	-29.1%	-125%	-142%	-255%	-760%	-191%

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Micron Technology

Financial Summary
dollars in millions
Fiscal year ends August

	FY09	FY10	FY11	FY12	1QF12	2QF12	3QF12	4QF12	1QF13
Assets									
Cash and equivalents	1,485	2,913	2,160	2,559	1,915	2,094	2,325	2,559	2,271
Net accounts receivable	798	1,531	1,497	1,289	1,383	1,241	1,333	1,289	1,139
Quick Assets	2,283	4,444	3,657	3,848	3,298	3,335	3,658	3,848	3,410
Inventory	987	1,770	2,080	1,812	2,097	2,081	1,894	1,812	1,831
Other	74	119	95	98	96	243	78	98	74
Current Assets	3,344	6,333	5,832	5,758	5,491	5,659	5,630	5,758	5,315
Property, plant and eqt, net	7,089	6,601	7,555	7,103	7,472	7,357	7,158	7,103	7,199
Goodwill and intangibles	344	323	414	371	401	400	386	371	371
Long-term equities	315	335	535	374	397	335	361	374	527
Other	367	1,101	416	722	450	388	781	722	655
Total Assets	11,459	14,693	14,752	14,328	14,211	14,139	14,316	14,328	14,067
Liabilities and Shareholders Equity									
Current portion L-T debt	424	712	140	224	146	150	262	224	266
Accounts payable	1,037	1,509	1,830	1,641	1,413	1,457	1,547	1,641	1,584
Deferred Income	209	298	443	248	406	364	247	248	250
Other/Eqt Purchase Contract	222	183	67	130	56	131	121	130	38
Current Liabilities	1,892	2,702	2,480	2,243	2,021	2,102	2,177	2,243	2,138
Long-term debt	2,379	1,648	1,861	3,038	1,973	2,165	2,936	3,038	3,169
Other	249	527	559	630	508	513	717	630	574
Total Liabilities	4,520	4,877	4,900	5,911	4,502	4,780	5,830	5,911	5,881
Minority Interest	1,986	1,796	1,382	717	1,438	1,373	675	717	717
Common stock	7,342	8,446	8,610	8,920	8,628	8,658	8,791	8,920	7,469
Retained earnings	(2,385)	(536)	(370)	(1,402)	(557)	(839)	(1,159)	(1,402)	
Other	(4)	110	230	182	200	167	179	182	
Total MU Shareholders Equity	4,953	8,020	8,470	7,700	8,271	7,986	7,811	7,700	7,469
Total Liabilities and Equity	11,459	14,693	14,752	14,328	14,211	14,139	14,316	14,328	14,067
Sales and Income									
Revenue	4,803	8,482	8,788	8,234	2,090	2,009	2,172	1,963	1,834
COGS	5,242	5,768	7,030	7,266	1,785	1,799	1,938	1,744	1,617
Net income	(439)	1,850	167	(1,032)	(187)	(282)	(320)	(243)	(275)
Other									
Capital Expenditures	632	1,036	2,878	1,871	746	429	324	372	538
Depreciation and Amortization	2,139	2,005	2,162	2,222	581	586	546	509	485
Shares (weighted average diluted)	800.7	1,050.7	1,007.5	991.2	981.4	982.8	987.3	1,013.1	1,013.7
Employees (units)	18,200	25,900	26,100	27,400				27,400	
Cash Flow from Operations	1,206	3,096	2,484	2,114	404	574	782	450	236
Ratios									
Liquidity									
Quick Ratio	1.21	1.64	1.47	1.72	1.63	1.59	1.68	1.72	1.59
Current Ratio	1.77	2.34	2.35	2.57	2.72	2.69	2.59	2.57	2.49
Leverage									
Debt Ratio	0.39	0.33	0.33	0.41	0.32	0.34	0.41	0.41	0.42
Long-term Debt/Capital	0.23	0.15	0.16	0.26	0.17	0.19	0.26	0.26	0.27
Asset Management									
Fixed Asset Turnover	0.6	1.2	1.2	1.1	1.11	1.08	1.20	1.10	1.03
Total Asset Turnover	0.4	0.6	0.6	0.6	0.58	0.57	0.61	0.55	0.52
Receivables DSO	60	65	61	56	60	56	55	59	56
Inventory Days	68	110	107	90	106	104	88	94	102
Inventory Turnover	4.6	4.2	3.7	3.7	3.42	3.44	3.90	3.76	3.55
Annual Revenue/Employee									
Profitability									
Gross Margin	-9.1%	32.0%	20.0%	11.8%	14.6%	10.5%	10.8%	11.2%	11.8%
Net Margin	-9.1%	21.8%	1.9%	-12.5%	-8.9%	-14.0%	-14.7%	-12.4%	-15.0%
Return on Assets	-3.5%	14.1%	1.1%	-7.1%	-5.2%	-8.0%	-9.0%	-6.8%	-7.7%
Return on Equity	-7.9%	28.5%	2.0%	-12.8%	-8.9%	-13.9%	-16.2%	-12.5%	-14.5%
Per Share Data									
Book Value/Share	$6.19	$7.63	$8.41	$7.77	$8.43	$8.13	$7.91	$7.60	$7.37
Tangible Book Value/Share	$5.76	$7.33	$8.00	$7.39	$8.02	$7.72	$7.52	$7.23	$7.00
Cash/Share (gross)	$1.85	$2.77	$2.14	$2.58	$1.95	$2.13	$2.35	$2.53	$2.24
Cash/Share (net)	($1.65)	$0.53	$0.16	($0.71)	($0.21)	($0.22)	($0.88)	($0.69)	($1.15)
Earnings/Share	($0.55)	$1.76	$0.17	($1.04)	($0.19)	($0.29)	($0.32)	($0.24)	($0.27)

Micron Technology
Sales Analysis

	FY09	FY10	FY11	FY12	FY2011 1Q	FY2011 2Q	FY2011 3Q	FY2011 4Q	FY2012 1Q	FY2012 2Q	FY2012 3Q	FY2012 4Q	FY2013 1Q
Product Type													
Revenue													
DRAM	2,422	5,052	3,620	3,178	1,009	950	883	778	778	729	875	796	715
NAND	1,857	2,555	3,193	3,627	753	812	770	858	909	934	948	836	807
NOR	0	451	1,547	977	422	392	360	373	287	228	228	234	220
Other	524	424	428	452	68	103	126	131	116	118	121	97	92
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
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%	39.0%
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%	44.0%
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%	12.0%
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%	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%
Growth													
DRAM		108.6%	-28.3%	-12.2%	-18.5%	-5.8%	-7.1%	-11.9%	0.0%	-6.3%	20.0%	-9.0%	-10.1%
NAND		37.6%	25.0%	13.6%	-2.4%	7.8%	-5.2%	11.4%	5.9%	2.8%	1.5%	-11.8%	-3.5%
NOR			243.0%	-36.8%	13.7%	-7.1%	-8.2%	3.6%	-23.1%	-20.6%	0.0%	2.6%	-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%	-5.5%
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%
DRAM													
bit sales growth		69.0%	19.0%	59.0%	5.0%	23.0%	-1.0%	6.0%	14.0%	21.0%	12.0%	-9.0%	2.0%
ASP change	-52.0%	28.0%	-39.0%	-45.0%	-23.0%	-23.0%	1.0%	-28.0%	-12.0%	-16.0%	7.0%	0.0%	-11.0%
cost/bit change		-35.0%	-23.0%	-32.0%	-10.0%	-10.0%	-4.0%	-12.0%	-10.0%	-14.0%	-4.0%	-1.0%	-5.0%
NAND (trade)													
bit sales growth		44.0%	50.0%	164.0%	20.0%	20.0%	5.0%	47.0%	21.0%	36.0%	68.0%	6.0%	-10.0%
ASP change	-52.0%	26.0%	-12.0%	-55.0%	-20.0%	-12.0%	15.0%	-26.0%	-11.0%	-23.0%	-39.0%	-5.0%	8.0%
cost/bit change		-31.0%	2.0%	-54.0%	-12.0%	-13.0%	12.0%	-28.0%	-16.0%	-18.0%	-29.0%	-5.0%	2.0%
Product Lines													
DSG (DRAM)													
Revenue	2,100	4,638	3,155	2,691	903	841	774	637	656	608	750	677	600
Operating Profit	(902)	1,269	457	**(442)**	225	51	109	72	(139)	(109)	(76)	(118)	-112
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%
NSG (NAND)													
Revenue	1,747	2,113	2,244	2,853	502	552	505	685	683	734	760	676	617
Operating Profit	(573)	240	**102**	198	57	72	68	(95)	94	97	(1)	8	12
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%
WSG (Wireless)													
Revenue	247	778	1,959	1,184	511	510	493	445	373	307	276	228	263
Operating Profit	(63)	(23)	20	(370)	56	10	10	(56)	(58)	(129)	(103)	(80)	-64
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%
ESG (Embedded)													
Revenue	178	521	1,002	1,054	266	252	241	243	262	242	265	285	278
Operating Profit	37	152	237	156	78	58	55	46	38	15	32	71	78
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%
Other													
Revenue	531	432	428	452	70	102	126	130	116	118	121	97	76
Operating Profit		(49)	(61)	**(103)**	(26)	(12)	(5)	(18)	(17)	(22)	(43)	(21)	(71)
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%
Total													
Revenue	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
Operating Profit	(1,501)	1,589	755	(561)	390	179	237	(51)	(82)	(148)	(191)	(140)	(157)
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%	9.3%	8.9%	10.2%						
HP *(DRAM)*		13%	9%										
Apple													
Image Sensors													
Aptina Revenue	70	372	349	372									
Aptina COGS	60	385	358	395									
DRAM													
DDR-3 DRAM Rev %		37%	51%										
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%									
Innotera DRAM prod %	4%	23%	33%	46%								47.0%	

Micron Technology

Financial Model

dollars in millions

fiscal year ends August

	FY2012 act				FY2013 est				FY2014			
	1Q	2Q	3Q	4Q	1QA	2Q	3Q	4Q	1Q	2Q	3Q	4Q
DRAM												
Bits Sold	14.0%	21.0%	12.0%	-9.0%	2.0%	25.0%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
ASP change	-12.0%	***-21.5%***	7.0%	0.0%	-11.9%	-20.0%	5.0%	0.0%	0.0%	-5.0%	-5.0%	-5.0%
Revenue	778	729	875	796	715.3	715.3	799.9	851.9	907.3	917.9	928.7	939.6
Royalties *(included)*												
Revenue growth					-10.1%							
Cost/bit change	-10.0%	-14.0%	-4.0%	-1.0%	-5.0%	-13.0%	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%
Gross Margin	*-1.3%*	*-11.6%*	*-1.7%*	*-0.7%*	-8.1%	-17.0%	-6.3%	0.8%	8.3%	10.6%	13.0%	15.4%
Gross Profit												
COGS	787.8	813.9	889.6	801.5	773.5	836.6	850.0	845.3	831.7	820.3	808.2	795.1
NAND												
Bits Sold	21.0%	***33.0%***	***66.0%***	***-7.0%***	-10.6%	13.0%	12.0%	9.0%	9.0%	9.0%	9.0%	9.0%
ASP change	-11.0%	-23.0%	-39.0%	-5.0%	8.0%	-7.0%	-1.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Revenue	909.0	934.0	948.0	836.0	807.2	848.3	940.6	973.9	1,008.5	1,044.3	1,081.4	1,119.8
Revenue growth					-3.4%							
Cost/bit change	-16.0%	-18.0%	-29.0%	-5.0%	2.0%	-8.0%	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%	-7.5%
Gross Margin	26.0%	14.4%	-9.9%	**17.0%**	23.8%	24.4%	32.4%	35.2%	38.1%	41.0%	44.0%	47.0%
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	641.5	636.1	631.3	624.7	616.3	605.8	593.0
DRAM, NAND Subtotal												
Revenue	1,687.0	1,663.0	1,823.0	1,632.0	1,522.5	1,563.6	1,740.4	1,825.8	1,915.8	1,962.2	2,010.1	2,059.4
Gross Profit												
Gross Margin												
Adjusted Gross Profit												
Adjusted Gross Margin												
COGS	1460.9	1613.0	1931.9	1495.4	1388.3	1478.0	1486.1	1476.6	1456.4	1436.6	1413.9	1388.1
NOR												
Revenue	287	228	228	234	220	198.1	219.9	219.9	219.9	197.9	221.6	221.6
Gross Margin	35.0%	35.0%	35.0%	35.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
COGS	186.6	148.2	148.2	152.1	138.7	124.8	138.5	138.5	138.5	124.7	139.6	139.6
Other												
Revenue	116	118	121	97	91.7	91.7	91.7	91.7	91.7	91.7	91.7	91.7
Gross Margin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
COGS	116.0	118.0	121.0	97.0	91.7	91.7	91.7	91.7	91.7	91.7	91.7	91.7
TOTAL												
Revenue	2,090.0	2,009.0	2,172.0	1,963.0	1,834.3	1,853.3	2,052.0	2,137.4	2,227.3	2,251.8	2,323.4	2,372.7
Royalty												
COGS	1,763.5	1,879.2	2,201.1	1,744.5	1,618.6	1,694.5	1,716.3	1,706.8	1,686.6	1,653.0	1,645.2	1,619.4
Gross Profit	326.5	129.8	(29.1)	218.5	215.6	158.8	335.7	430.6	540.7	598.8	678.2	753.3
Gross Margin	15.6%	6.5%	-1.3%	11.1%	11.8%	8.6%	16.4%	20.1%	24.3%	26.6%	29.2%	31.7%
Reported												
Revenue	2,090	2,009	2,172	1,963	1834.0							
COGS	1,785	1,799	1,938	1,744	1617.0							
Gross Margin	14.6%	10.5%	10.8%	11.2%	11.8%							
Adjusted COGS												
Adjusted Gross Margin												

Dan K. Scovel, *Tokeneke Research LLC*, 203-554-4621, dscovel@tokenekeresearch.com **12/21/12**

Micron Technology

Valuation

Relative Valuation

Company	Ticker	Price 12/20/2012	52-Week Low	52-Week High	CY EPS 2010	CY EPS 2011	CY EPS 2012	CY EPS 2013	CY P/E 2010	CY P/E 2011	CY P/E 2012	CY P/E 2013	Diluted Shares(mil)	CAP ($ mil)	Price-Sales TTM	Price-Sales Cur FY	Price-Sales Nxt FY	FY Ends
Micron Technology *	**MU**	**6.79**	**5.16**	**9.16**	**1.29**	**-0.19**	**-1.12**	**-0.40**	**5.3**	**NM**	**NM**	**NM**	**1,014**	**6,883**	**0.9**	**0.9**	**0.8**	**Aug**
Advanced Micro Devices	AMD	2.40	1.81	8.35	0.49	0.51	-0.22	-0.28	4.9	4.7	NM	NM	745	1,788	0.3	0.3	0.4	Dec
Freescale	FSL	10.95	7.63	17.84	-1.15	0.98	-0.10	0.37	NM	11.2	NM	29.6	251	2,748	0.7	0.7	0.7	Dec
Intel *	INTC	21.03	19.23	29.27	2.02	2.50	1.73	2.01	10.4	8.4	12.2	10.5	5,153	108,368	2.0	2.0	2.0	Dec
STMicroelectronics	STM	7.10	4.51	8.60	0.75	0.42	-0.33	0.23	9.5	16.9	NM	30.9	888	6,303	0.7	0.7	0.7	Dec-ADR
Texas Instruments	TXN	31.28	26.06	34.24	2.49	2.19	1.62	1.79	12.6	14.3	19.3	17.5	1,141	35,690	2.7	2.8	2.9	Dec
Average									9.3	11.1	15.7	22.1			1.3	1.3	1.3	

Company	Ticker	Price 12/20/2012	52-Week Low	52-Week High	CY EPS 2010	CY EPS 2011	CY EPS 2012	CY EPS 2013	CY P/E 2010	CY P/E 2011	CY P/E 2012	CY P/E 2013	Diluted Shares(mil)	CAP ($ mil)	Price-Sales TTM	Price-Sales Cur FY	Price-Sales Nxt FY	FY Ends
Micron Technology *	**MU**	**6.79**	**5.16**	**9.16**	**1.29**	**-0.19**	**-1.12**	**-0.40**	**5.3**	**NM**	**NM**	**NM**	**1,014**	**6,883**	**0.9**	**0.9**	**0.8**	**Aug**
Atmel	ATML	6.22	4.37	10.74	0.59	0.92	0.33	0.41	10.5	6.8	18.8	15.2	444	2,764	1.9	1.9	1.9	Dec
Cypress Semiconductor	CY	11.35	8.70	19.25	0.94	1.25	0.64	0.86	12.1	9.1	17.7	13.2	160	1,819	2.2	2.3	2.1	Dec
GSI Technology	GSIT	6.32	4.04	6.41	0.67	0.31	0.12	0.22	9.4	20.4	52.7	28.7	28	176	2.5	2.7	2.3	Mar
Integrated Silicon Solutions	ISSI	9.42	8.18	11.50	1.64	1.11	0.88	1.19	5.7	8.5	10.7	7.9	29	275	1.0	0.8	0.7	Sep
Netlist	NLST	0.90	0.65	4.24	-0.63	-0.22	-0.46	-0.27	NM	NM	NM	NM	28	25	0.5	0.7	0.8	Dec
SanDisk	SNDK	44.23	30.99	53.08	4.60	4.66	2.04	3.48	9.6	9.5	21.7	12.7	244	10,805	2.1	2.1	1.8	Dec
Spansion	CODE	13.35	7.31	13.46	-5.48	1.41	1.01	1.56	NM	9.5	13.2	8.6	61	812	0.9	0.9	0.8	Dec
STEC	STEC	5.34	3.95	10.87	0.67	0.67	-1.00	-1.02	8.0	8.0	NM	NM	47	249	1.3	1.4	1.3	Dec
Average									9.2	10.2	22.5	14.4			1.6	1.6	1.5	

** Tokeneke estimate*
Source: consensus as of 12/20/12

Historical Valuation

Company	Ticker	Price 12/20/2012	Trailing 12-month Price/Earnings Current	Price/Earnings Historical*	Price/Sales Current	Price/Sales Historical*	Price/Book Current	Price/Book Historical*
Micron Technology	MU	**6.79**	NM		0.9		0.9	
			Average	45.2	**Average**	2.4	**Average**	2.4
			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 Fahnestock & 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.

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