

## MU F3Q Softness Exceeds on Demand Upside PC, Networking and SSD Strength: Raising Estimates, Reiterate Buy

Diluted Shares(mil):	1,190.0	<i>Closing Price 6/23/14</i>	<i>FYE August</i>	<b>FY14</b>	<b>FY15</b>	<b>FY16</b>
Market Cap(\$mil):	\$37,199	\$31.26	Revenue(\$mil)	\$16,279	\$16,552	\$16,263
Avg Volume(,000):	29,367		pro forma EPS	\$3.07	\$3.03	\$3.27
Net Cash/Share:	(\$0.70)	<i>Recommendation/Target</i>	Price/Sales	2.3	2.2	2.3
Tangible Book/Share	\$8.04	Buy/\$45 from \$40	Price/EPS	10.2	10.3	9.6

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

**Summary:** MU exceeded revenue and EPS expectations for its May-ended F3Q as favorable supply conditions and product mix allowed it to benefit from improving demand for DRAMs from PCs and networking, as well as increasing NAND exposure to SSDs and embedded markets. Revenue of \$3.98B declined by -3%, GAAP EPS was \$0.68, and pro forma EPS totaled \$0.79. I continue to believe MU is extremely well positioned to benefit from a favorable market environment for DRAM and NAND suppliers. I am raising my estimates and my 12-month target price to \$45 from \$40 based on 15-times FY15 earnings, and reiterate my Buy recommendation on the shares.

**F3Q Review:** F3Q14 revenue of \$3.98B declined by -3% sequentially but exceeded expectations on slightly lower than expected bit shipment and ASP declines from both DRAM and NAND amid improving market demand and stable supply across a variety of sectors. Cost per bit met expectations. Gross margin declined by 80 basis points to 34.4% due to product mix as the pricing environment remained benign. GAAP EPS of \$0.68 included a series of charges that adjusted to \$0.79 as noted below. Cash from operations totaled \$1.46B; capital expenditures were \$576M; depreciation and amortization at \$578M; and cash decreased by \$247M to \$4.8B which includes \$545M in long-term marketable investments and over \$2.6B offshore at Elpida and subsidiaries that is not available for general corporate purposes. Micron continues its effort to recapitalize its converts to straight debt and minimize dilution.

<i>FYE August</i>	3QF14					
	Estimate	Actual	EPS Impact	Guidance	Consensus	Range
DRAM Bits Shipped	-2.0%	0.0%		- low 1-digit%		
DRAM ASP change	-3.0%	-2.0%				
DRAM Cost/bit change	-3.0%	-3.0%		- low 1-digit%		
NAND Bits Shipped	-8.0%	-6.0%		- hi 1-digit%		
NAND ASP Change	-3.0%	0.0%				
NAND Cost/bit change	0.0%	0.0%		flat		
Revenue (\$ mil)	3,816	3,982	\$0.05		3,890	3,750-4,290
Revenue Growth	-7.1%	-3.0%			-5.3%	-8.7%+4.5%
Gross Margin	33.4%	34.4%	\$0.04			
Opn Expenses (\$ mil)	557	520	\$0.04	515-535		
Restructuring/other	0	9				
Interest Income	(75)	(75)		(70-80)		
Minority Interest/non-opn	0	171	\$0.15			
Taxes (\$ mil)	75	31	\$0.04			
Diluted Shares (mil)	1,032.0	1,152.0	(\$0.09)	(68.0)		
Diluted EPS		\$0.68			\$0.70	\$0.58-\$0.79
pro forma EPS	\$0.55	\$0.79	<b>\$0.24</b>			

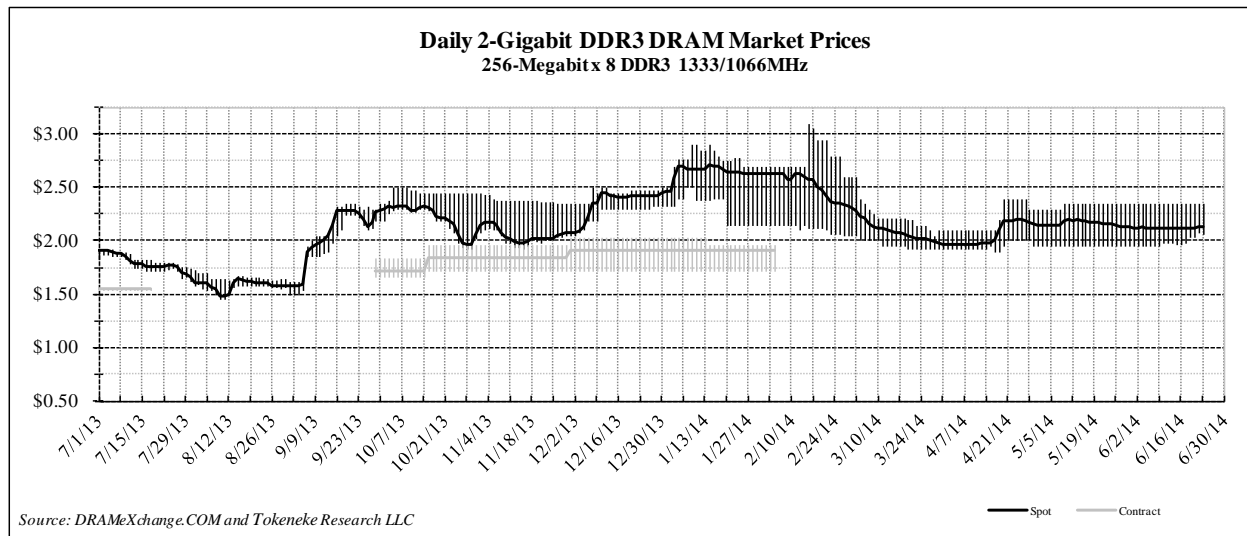
**Pro Forma Adjustments:** Pro forma adjustments to GAAP included the following: \$9M in restructuring; \$16M loss associated with debt restructuring; \$36M amortization of debt discounts; \$5M loss on currency; \$8M tax adjustment associated with these items; and \$49M of non-cash deferred tax assets related to Elpida. In addition, the diluted share count was reduced by 38M due to the anti-dilutive effects of a capped-call transaction. Adjusting for these items yields a net pro forma EPS of \$0.79 rather than the reported GAAP EPS of \$0.68.

**New Product Lines:** Management changed its product line reporting this quarter from what used to be DSG (DRAM solutions group), NSG (NAND), WSG (wireless), ESG (embedded) and other; to CNBU (computing and networking business unit), SBU (server), MBU (mobile), and EBU (embedded). CNBU grew by +1% sequentially

to \$1.86B or 47% of sales at an operating margin of 28.6%; SBU fell by -4% to \$867M or 22% of sales at an operating margin of 6.3%; MBU dropped by 17% to \$757M or 19% of sales at an operating margin of 17.8%, and EBU grew by 11% to \$467M or 12% of sales at an operating margin of 20.6%. The new categories reflect its 'memory system solution' approach where it combines different memory types with advanced packaging technology as well as controllers with both firmware and software for specific applications. Both old and new categories are included in my Sales Analysis on Page 7.

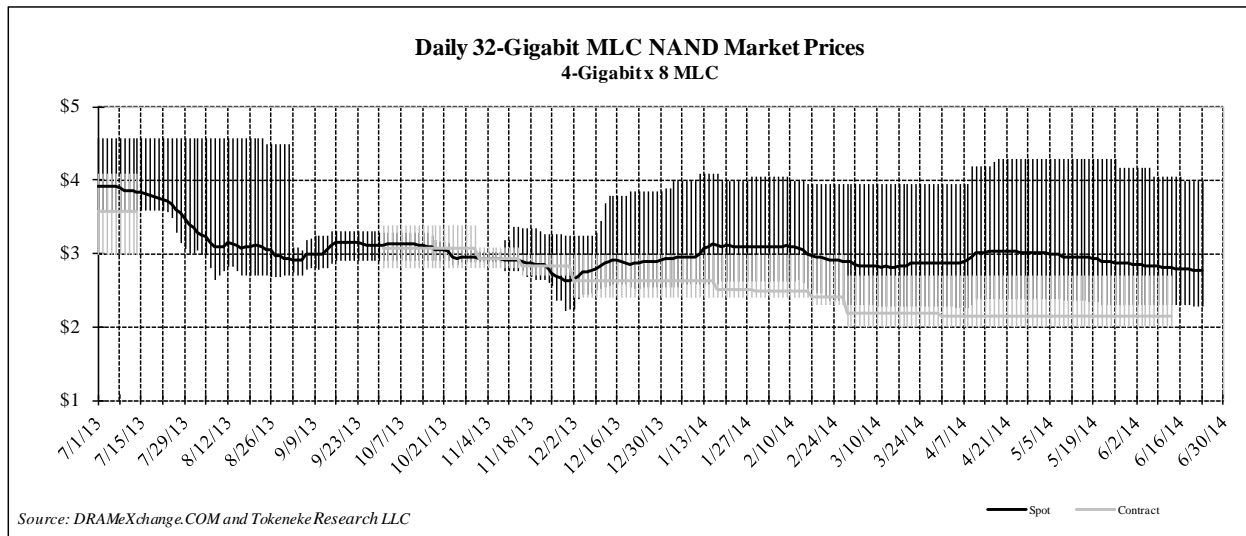
**Dynamic RAMs:** DRAM sales declined by -1.3% to \$2.75B or 69% of total sales on zero bit growth, relatively flat ASPs that declined by -2%, and cost per bit reduction of -3%. Minority interest gains included DRAM joint-venture Inotera cost savings that would have added another 5% to DRAM gross margins. 25nm devices are in production and the 20nm ramp has begun. Inotera will skip the 25nm node and migrate directly to 20nm. Management noted pent-up demand for corporate desktop and notebook PCs with healthy OEM forecasts, improving ASPs, and customers seeking longer-term supply agreements. Server DRAM bit growth was also very strong, up by +30% sequentially. Networking DRAMs are benefiting from the LTE roll out in China and other emerging markets and boosting the DRAM ASP mix. DDR4s are in qualification at server and high-performance computer customers and are expected to ramp to 10% of total DRAM sales by 2HFY15. GDDR5 is being adopted by graphics and gaming, while the Hybrid Memory Cube is proving popular in networking applications. LP DDR4 is sampling and expected to ramp in mobile applications by the end of FY15. Industry DRAM bit growth for 2015 is expected in the low- to mid-20% range which the company plans to meet without adding incremental capacity.

Micron completed its acquisition of bankrupt DRAM competitor Elpida at the end of July last year. It paid \$750M in yen at the close of the deal (actually \$615M after currency fluctuations) for all of Elpida and \$334M in NTS for a total of 89% of Elpida's Rexchip joint-venture in Taiwan, now called Micron Memory Taiwan (MMT). Two quarters ago it purchased all but a remaining 0.5% of Rexchip equity on the open market for \$145M. Micron will 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 in late-2019. Micron got Elpida's market leadership in the high-growth mobile DRAM segment by way of a 300mm wafer fab in Hiroshima, assembly and test operations in Akita, and the 300mm Rexchip/MMT fab in Taiwan. The good news is that MU benefits from DRAM industry consolidation under very attractive terms, but the bad news is that it came with financial complexities that include a series of debt transactions, a large currency hedge, and accounting for Elpida deferred tax assets.



**NAND Flash:** NAND product sales softened by -3% to \$1.115B or 28% of total revenue as trade bit shipments declined by a slightly less than expected -6% and both ASPs and cost per bit were flat. MU offers a mix of NAND at 25nm, 20nm and 16nm technologies; and SLC, MLC, TLC and 3D architectures; into eMMC, SSD and embedded applications. 20nm product accounts for the bulk of production although conversion to 16nm has already begun. 16nm TLC is being introduced into the consumer channel for memory cards, USB storage and embedded

applications by 4QCY14 as well as SSDs next spring, and expected to lower costs by 15-20%. Customers are qualifying Singapore Fab 7 NAND product for SSD applications, and both client and enterprise SSDs accounted for over 50% of NAND revenue in the quarter. Internal use of NAND for SSDs grew to 20% of NAND from 12% the prior quarter and the company is actively pursuing controller and firmware development for PCIe and SAS SSD applications. 3D NAND has been developed, although MU is tailoring it for cost-effective high-performance applications before releasing it to market next year. MU expects to meet CY15 expected industry supply growth in the low 40% range without adding capacity. The CAGR over the next five years is expected to fall to the high-30% to low-40% range due to 3D NAND technology manufacturing complexity.



**NOR Cash Flow:** NOR flash revenue edged up by +3% and continues to account for 3% of total sales, or \$120M. Gross margins are expected to improve with the absence of idle fab costs from the former fab in Israel, as well as 300mm wafers in Virginia. NOR is viewed as a ‘cash-flow generation’ business opportunity.

**Management Guidance:** F4Q DRAM bit production is expected to grow in the low-single-digit percent, ASPs QTD are flat, and cost per bit is expected to decline in the low single-digit percentage range as well. NAND bit production is expected to increase in the low- to mid-teens, ASPs QTD are down in the low- to mid-single-digit percent, and cost per bit is expected to be flat. SG&A is expected at \$175-185M, R&D at \$355-365M, interest expense of \$70-80M, and stock compensation of \$30-35M. Pro forma adjustments are expected to exclude: amortization of debt discounts at \$40M; a restructuring charge of \$15-25M; a gain associated with Inotera’s offering approximating \$90M; a gain from partial ownership of Aptina as it is acquired by ON Semiconductor approximating 100M (assuming the deal closes during the fiscal period); and a \$5-10M tax adjustment associated with these items. Non-cash taxes associated with the Elpida acquisition are expected at \$65-75M. The incremental diluted share count approximates 96M shares due to debt conversion, and the spread will fall to 67M assuming the average share price remains around \$30 thanks to the capped call financial transaction. FY14 capital expenditures remain at an expected \$2.8-3.2B with depreciation and amortization at \$2.3B.

**Raising Estimates:** I am raising my estimates for this quarter consistent with the mid-points of management guidance, and this is largely trickling through FY15. I am also introducing FY16 estimates with this report that largely reflect consistent bit growth, ASP and cost trends expected by the company for 2015. Note that while my FY16 revenue declines slightly, increasing expected profitability makes up for the difference in EPS growth. My earnings model incorporates management guidance for operating costs, and then breaks down revenue and COGS by DRAM, NAND and NOR 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 management’s expected tracking to industry norms expected over the next few quarters. For NOR I assume a recovery in margin over the next several quarters. My assumptions are specified by quarter on Page 8 of this report.

FYE August \$ in millions	4QF14		FY14		FY15		FY16
	Previous	Update	Previous	Update	Previous	Update	New
Total Revenue	3,887	4,148	15,852	16,279	16,006	16,552	16,263
Revenue Growth	1.8%	4.2%	74.7%	79.4%	1.0%	1.7%	-1.7%
Gross Margin	35.0%	35.8%	34.5%	34.9%	36.2%	38.1%	40.5%
Operating Expenses	557	572	2,136	2,114	2,228	2,228	2,228
Non-Operating Items	(75)	(75)	(24)	147	(300)	(300)	(300)
Taxes	75	75	221	177	300	300	300
Diluted Shares (mil)	1,032.0	1,170.0	1,091.3	1,155.8	1,032.0	1,150.0	1,150.0
pro forma EPS	\$0.63	\$0.65	\$2.83	\$3.07	\$2.87	\$3.03	\$3.27

**Reiterate Buy:** I am maintaining my Buy recommendation and raising my 12-month target price to \$45 from \$40 based on 15-times FY15 EPS consistent with the lower average of its two peer groups as noted on Page 9. Recall that I converted to pro forma EPS from GAAP EPS two quarters ago consistent with management reporting, which I consider to be appropriate given the number and magnitude of business factors either one-time or non-operating in nature. Also that I shifted to a price-earnings valuation ratio from price-sales four earnings reports ago as the company converted to an ‘earnings leverage’ story from a ‘revenue recovery’ story.

MU shares continue to trade well below the average price-earnings ratios of its peers but slightly above the average price-sales ratio of its peers. It is similarly straddling valuations on a historical basis, trading well below its own average historical trailing price-earnings ratio but slightly above its historical trailing price-sales ratio and even more so above its average price-book ratio—all as noted in the tables on Page 9. I continue to believe upside potential significantly exceeds that of downside risk for MU at current price levels, and reiterate my Buy Recommendation.

pro forma EPS	4QF14	FY14	FY15	FY16	Revenue, 26 estimates	2QF14	FY14	FY15	FY16
Tokeneke-revised	\$0.65	\$3.07	\$3.03	\$3.27	Tokeneke-revised	4,148	16,279	16,552	16,263
Tokeneke-previous	\$0.63	\$2.83	\$2.87		Tokeneke-previous	3,887	15,852	16,006	
Consensus-previous	\$0.77	\$3.10	\$3.27		Consensus-previous	4,060	16,080	17,160	
High Estimate-previous	\$1.03	\$3.40	\$5.27		High Estimate-previous	4,430	16,820	20,200	
Low Estimate-previous	\$0.65	\$2.85	\$2.59		Low Estimate-previous	3,790	15,420	15,170	

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Semiconductor Analyst

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**Income Statement**

www.micron.com

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

	FY10	FY12	FY13	FY2014 est					FY2015					FY2016				
				Q1A	Q2A	Q3A	Q4	FY14	Q1	Q2	Q3	Q4	FY15	Q1	Q2	Q3	Q4	FY16
Total Revenue	8,402	8,234	9,073	4,042	4,107	3,982	4,148	16,279	4,169	4,139	4,131	4,113	16,552	4,096	4,066	4,059	4,042	16,263
COGS	5,809	7,266	7,185	2,650	2,662	2,614	2,665	10,591	2,616	2,571	2,546	2,511	10,245	2,476	2,431	2,404	2,369	9,680
Gross Profit	2,593	968	1,888	1,392	1,445	1,368	1,483	5,688	1,552	1,567	1,585	1,602	6,307	1,620	1,636	1,655	1,673	6,583
SG&A	464	620	562	176	177	174	180	707	175	175	175	175	700	175	175	175	175	700
R&D	624	918	931	320	344	349	360	1,373	350	350	350	350	1,400	350	350	350	350	1,400
Restructuring	(5)	5	115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	2	39	(29)	4	1	(3)	32	34	32	32	32	32	128	32	32	32	32	128
Operating Expenses	1,085	1,582	1,579	500	522	520	572	2,114	557	557	557	557	2,228	557	557	557	557	2,228
Operating Income	1,508	(614)	309	892	923	848	911	3,574	995	1,010	1,028	1,045	4,079	1,063	1,079	1,098	1,116	4,355
Interest Income	(160)	(171)	(181)	46	(33)	(75)	(75)	(137)	(75)	(75)	(75)	(75)	(300)	(75)	(75)	(75)	(75)	(300)
Other Non-Opn Inc.	54	31	(242)	(74)	5	36	-	(33)	-	-	-	-	-	-	-	-	-	-
Tax Expense	32	(17)	(7)	41	30	31	75	177	75	75	75	75	300	75	75	75	75	300
Minority Interest	(49)	(295)	(94)	58	124	135	-	317	-	-	-	-	-	-	-	-	-	-
Net Income	1,321	(1,032)	(201)	881	989	913	761	3,544	845	860	878	895	3,479	913	929	948	966	3,755
EPS-basic	\$1.49	(\$1.04)	(\$0.20)	\$0.84	\$0.93	\$0.86	\$0.71	\$3.34	\$0.79	\$0.80	\$0.82	\$0.84	\$3.25	\$0.85	\$0.87	\$0.89	\$0.90	\$3.51
Shares-basic	887.5	991.2	1,021.7	1,046.0	1,060.0	1,067.0	1,070.0	1,060.8	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0
EPS-diluted	\$1.35	(\$1.04)	(\$0.19)	\$0.77	\$0.85	\$0.79	\$0.65	\$3.07	\$0.74	\$0.75	\$0.76	\$0.78	\$3.03	\$0.79	\$0.81	\$0.82	\$0.84	\$3.27
Shares-diluted	1,050.7	991.2	1,056.3	1,142.0	1,159.0	1,152.0	1,170.0	1,155.8	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0
EPS-pro forma	\$1.35		\$0.11	\$0.77	\$0.85	\$0.79	\$0.65	\$3.07	\$0.74	\$0.75	\$0.76	\$0.78	\$3.03	\$0.79	\$0.81	\$0.82	\$0.84	\$3.27
<b>Margin Analysis</b>																		
Gross Margin	30.9%	11.8%	20.8%	34.4%	35.2%	34.4%	35.8%	34.9%	37.2%	37.9%	38.4%	39.0%	38.1%	39.5%	40.2%	40.8%	41.4%	40.5%
SG&A	5.5%	7.5%	6.2%	4.4%	4.3%	4.4%	4.3%	4.3%	4.2%	4.2%	4.2%	4.3%	4.2%	4.3%	4.3%	4.3%	4.3%	4.3%
R&D	7.4%	11.1%	10.3%	7.9%	8.4%	8.8%	8.7%	8.4%	8.4%	8.5%	8.5%	8.5%	8.5%	8.5%	8.6%	8.6%	8.7%	8.6%
Operating Expense	12.9%	19.2%	17.4%	12.4%	12.7%	13.1%	13.8%	13.0%	13.4%	13.5%	13.5%	13.5%	13.5%	13.6%	13.7%	13.7%	13.8%	13.7%
Operating Income	17.9%	-7.5%	3.4%	22.1%	22.5%	21.3%	22.0%	22.0%	23.9%	24.4%	24.9%	25.4%	24.6%	25.9%	26.5%	27.0%	27.6%	26.8%
Interest/Other Income	-1.3%	-1.7%	-4.7%	-0.7%	-0.7%	-1.0%	-1.8%	-1.0%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.9%	-1.8%
Tax Rate	2.3%	2.3%	6.1%	4.7%	3.4%	3.8%	9.0%	5.2%	8.1%	8.0%	7.9%	7.7%	7.9%	7.6%	7.5%	7.3%	7.2%	7.4%
Net Income	15.7%	-12.5%	-2.2%	21.8%	24.1%	22.9%	18.4%	21.8%	20.3%	20.8%	21.3%	21.8%	21.0%	22.3%	22.8%	23.4%	23.9%	23.1%
<b>Qtr-to-Qtr Growth</b>																		
Revenue				42.2%	1.6%	-3.0%	4.2%		0.5%	-0.7%	-0.2%	-0.4%		-0.4%	-0.7%	-0.2%	-0.4%	
Operating Expenses				6.6%	4.4%	-0.4%	10.0%		-2.6%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	
Operating Income				219%	3.5%	-8.1%	7.5%		9.2%	1.5%	1.8%	1.7%		1.7%	1.5%	1.8%	1.7%	
Net Income				177.9%	12%	-7.7%	-16.6%		11.0%	1.8%	2.1%	1.9%		1.9%	1.8%	2.1%	1.9%	
EPS				162.4%	11%	-7.1%	-17.9%		13.0%	1.8%	2.1%	1.9%		1.9%	1.8%	2.1%	1.9%	
<b>Year-to-Year Growth</b>																		
Revenue	74.9%	-6.3%	10.2%	120%	98%	71.8%	45.9%	79.4%	3.1%	0.8%	3.7%	-0.8%	1.7%	-1.8%	-1.8%	-1.7%	-1.7%	-1.7%
Operating Expenses	6.4%	57.7%	-0.2%	59%	34.2%	27.8%	22.0%	33.9%	11.4%	6.7%	7.1%	-2.6%	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Income	-197%	-181%	-150%	-1020%	-4113%	469%	225%	1057%	11.6%	9.5%	21.3%	14.7%	14.1%	6.8%	6.8%	6.8%	6.8%	6.8%
Net Income	-175%	-718%	-81%	-420%	-446%	2023%	140.2%	-1863%	-4%	-13.0%	-3.8%	17.6%	-1.8%	8%	7.9%	7.9%	7.9%	7.9%
EPS	-161%	-728%	-82%	-384%	-403%	1829%	121.4%	-1712%	-5%	-12.3%	-3.6%	19.6%	-1.3%	8%	7.9%	7.9%	7.9%	7.9%

**Micron Technology****Financial Summary**

dollars in millions

Fiscal year ends August

	FY10	FY11	FY12	FY13	3QF13	4QF13	1QF14	2QF14	3QF14
<b>Assets</b>									
Cash and equivalents	2,913	2,160	2,559	3,101	2,552	3,101	3,870	4,504	4,264
Net accounts receivable	<u>1,531</u>	<u>1,497</u>	<u>1,289</u>	<u>2,329</u>	<u>1,503</u>	<u>2,329</u>	<u>2,833</u>	<u>2,826</u>	<u>2,715</u>
<b>Quick Assets</b>	4,444	3,657	3,848	5,430	4,055	5,430	6,703	7,330	6,979
Inventory	1,770	2,080	1,812	2,649	1,732	2,649	2,459	2,462	2,532
Other	<u>119</u>	<u>95</u>	<u>98</u>	<u>832</u>	<u>99</u>	<u>832</u>	<u>207</u>	<u>199</u>	<u>194</u>
<b>Current Assets</b>	6,333	5,832	5,758	8,911	5,886	8,911	9,369	9,991	9,705
Property, plant and eqt, net	6,601	7,555	7,103	7,626	6,830	7,626	7,733	7,859	8,021
Goodwill and intangibles	323	414	371	386	331	386	368	367	<b>367</b>
Long-term mkt securities	335	535	374	499	347	499	538	552	545
Other	<u>1,101</u>	<u>416</u>	<u>722</u>	<u>1,696</u>	<u>661</u>	<u>1,696</u>	<u>1,786</u>	<u>1,846</u>	<u>1,857</u>
<b>Total Assets</b>	14,693	14,752	14,328	19,118	14,055	19,118	19,794	20,615	20,495
<b>Liabilities and Shareholders Equity</b>									
Current portion L-T debt	712	140	224	1,585	357	1,585	1,543	2,230	1,508
Accounts payable	1,509	1,830	1,641	2,115	1,590	2,115	2,630	2,679	2,828
Deferred Income	298	443	248	243	223	243	236	251	<b>251</b>
Other/Eqt Purchase Contract	<u>183</u>	<u>67</u>	<u>130</u>	<u>182</u>	<u>172</u>	<u>182</u>	<u>104</u>	<u>145</u>	<u>173</u>
<b>Current Liabilities</b>	2,702	2,480	2,243	4,125	2,342	4,125	4,513	5,305	4,760
Long-term debt	1,648	1,861	3,038	4,452	3,267	4,452	4,260	4,317	4,137
Other	<u>527</u>	<u>559</u>	<u>630</u>	<u>535</u>	<u>420</u>	<u>535</u>	<u>875</u>	<u>949</u>	<u>901</u>
<b>Total Liabilities</b>	4,877	4,900	5,911	9,112	6,029	9,112	9,648	10,571	9,798
Minority Interest	1,796	1,382	717	864	698	864	927	760	757
Common stock	8,446	8,610	8,920	9,291	9,179	9,291	9,025	8,389	9,940
Retained earnings	(536)	(370)	(1,402)	(212)	(1,920)	(212)	126	836	
Other	<u>110</u>	<u>230</u>	<u>182</u>	<u>63</u>	<u>69</u>	<u>63</u>	<u>68</u>	<u>59</u>	
<b>Total MU Shareholders Equity</b>	<u>8,020</u>	<u>8,470</u>	<u>7,700</u>	<u>9,142</u>	<u>7,328</u>	<u>9,142</u>	<u>9,219</u>	<u>9,284</u>	<u>9,940</u>
<b>Total Liabilities and Equity</b>	14,693	14,752	14,328	19,118	14,055	19,118	19,794	20,615	20,495
<b>Sales and Income</b>									
Revenue	8,482	8,788	8,234	9,073	2,318	2,843	4,042	4,107	3,982
COGS	5,768	7,030	7,266	7,226	1,762	2,135	2,761	2,704	2,614
Net income	1,850	167	(1,032)	1,190	43	1,708	358	731	806
<b>Other</b>									
Capital Expenditures	1,036	2,878	1,871	1,458	235	332	669	565	576
Depreciation and Amortization	2,005	2,162	2,222	1,926	384	572	541	561	578
Shares (weighted average diluted)	1,050.7	1,007.5	991.2	1,056.3	1,046.6	1,129.4	1,196.0	1,201.0	1,190.0
Employees (units)	25,900	26,100	27,400	30,900		30,900			
Cash Flow from Operations	3,096	2,484	2,114	1,811	624	717	1,507	1,390	1,455
<b>Ratios</b>									
<b>Liquidity</b>									
Quick Ratio	1.64	1.47	1.72	1.32	1.73	1.32	1.49	1.38	1.47
Current Ratio	2.34	2.35	2.57	2.16	2.51	2.16	2.08	1.88	2.04
<b>Leverage</b>									
Debt Ratio	0.33	0.33	0.41	0.48	0.43	0.48	0.49	0.51	0.48
Long-term Debt/Capital	0.15	0.16	0.26	0.26	0.26	0.26	0.26	0.26	0.25
<b>Asset Management</b>									
Fixed Asset Turnover	1.2	1.2	1.1	1.2	1.34	1.57	2.11	2.11	2.01
Total Asset Turnover	0.6	0.6	0.6	0.5	0.66	0.69	0.83	0.81	0.77
Receivables DSO	65	61	56	92	58	74	63	62	61
Inventory Days	110	107	90	132	88	112	80	82	87
Inventory Turnover	4.2	3.7	3.7	3.2	4.08	3.90	4.32	4.40	4.19
Annual Revenue/Employee									
<b>Profitability</b>									
Gross Margin	32.0%	20.0%	11.8%	20.4%	24.0%	24.9%	31.7%	34.2%	34.4%
Net Margin	21.8%	1.9%	-12.5%	13.1%	1.9%	60.1%	8.9%	17.8%	20.2%
Return on Assets	14.1%	1.1%	-7.1%	7.1%	1.2%	41.2%	7.4%	14.5%	15.7%
Return on Equity	28.5%	2.0%	-12.8%	14.1%	2.4%	83.0%	15.6%	31.6%	33.5%
<b>Per Share Data</b>									
Book Value/Share	\$7.63	\$8.41	\$7.77	\$8.65	\$7.00	\$8.09	\$7.71	\$7.73	\$8.35
Tangible Book Value/Share	\$7.33	\$8.00	\$7.39	\$8.29	\$6.69	\$7.75	\$7.40	\$7.42	\$8.04
Cash/Share (gross)	\$3.09	\$2.67	\$2.96	\$3.41	\$2.77	\$3.19	\$3.69	\$4.21	\$4.04
Cash/Share (net)	\$0.85	\$0.69	(\$0.33)	(\$2.31)	(\$0.69)	(\$2.16)	(\$1.17)	(\$1.24)	(\$0.70)
Earnings/Share	\$1.76	\$0.17	(\$1.04)	\$1.13	\$0.04	\$1.51	\$0.30	\$0.61	\$0.68



**Micron Technology**

**Financial Model**

dollars in millions  
fiscal year ends August

	FY2013 act				FY2014 est				FY2015				FY2016			
	1Q	2Q	3Q	4Q	1QA	2QA	3QA	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>DRAM</b>																
Bits Sold	2.0%	38.4%	6.0%	44.0%	69.0%	0.0%	0.6%	3.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
ASP change	-11.9%	-9.7%	15.0%	6.0%	-0.8%	-1.0%	-1.0%	0.0%	-5.5%	-5.5%	-5.5%	-5.5%	-5.5%	-5.5%	-5.5%	-5.5%
Revenue	715.3	893.9	1,089.7	1,663.4	2,788.6	2,760.7	2,748.1	2,830.6	2,808.6	2,786.9	2,765.3	2,743.8	2,722.6	2,701.5	2,680.5	2,659.8
Royalties (included)							2,748.0									
Revenue growth	-10.1%	25.0%	21.9%	52.6%												
Cost/bit change	-5.0%	-20.5%	-5.0%	4.0%	-11.0%	-6.0%	-0.4%	-3.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%
Gross Margin	-8.1%	0.0%	20.7%	22.8%	35.2%	41.9%	41.1%	45.3%	45.6%	45.8%	46.0%	46.3%	46.5%	46.8%	47.0%	47.3%
Gross Profit																
COGS	773.5	894.3	864.1	1,283.7	1,805.7	1,603.2	1,619.4	1,548.2	1,529.3	1,510.5	1,492.0	1,473.6	1,455.4	1,437.4	1,419.6	1,401.9
<b>NAND</b>																
Bits Sold	-10.6%	9.8%	0.0%	20.0%	15.0%	35.0%	-4.9%	12.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
ASP change	8.0%	-1.5%	6.2%	-11.0%	-7.0%	-18.0%	0.0%	-4.0%	-5.0%	-8.0%	-8.0%	-8.0%	-8.0%	-8.0%	-8.0%	-8.0%
Revenue	807.2	873.0	927.1	990.2	1,059.0	1,172.3	1,114.8	1,198.7	1,241.2	1,244.7	1,248.2	1,251.7	1,255.2	1,258.7	1,262.2	1,265.8
Revenue growth	-3.4%	8.2%	6.2%				1,115.0									
Cost/bit change	2.0%	-10.0%	5.4%	-10.0%	-7.0%	-12.0%	0.0%	0.0%	-10.0%	-10.0%	-10.0%	-10.0%	-10.0%	-10.0%	-10.0%	-10.0%
Gross Margin	23.8%	34.2%	34.8%	32.0%	31.3%	20.6%	20.6%	15.8%	21.0%	22.4%	23.9%	25.4%	26.9%	28.4%	30.0%	31.5%
<i>gm est</i>																
Gross Profit																
COGS	614.8	574.7	604.5	673.6	727.3	930.7	885.1	1,009.5	980.7	965.4	949.7	933.8	917.5	900.9	884.0	866.7
<b>DRAM, NAND Subtotal</b>																
Revenue	1,522.5	1,766.9	2,016.8	2,653.5	3,847.5	3,933.0	3,863.0	4,029.2	4,049.9	4,031.6	4,013.4	3,995.5	3,977.8	3,960.2	3,942.8	3,925.5
Gross Profit																
Gross Margin																
Adjusted Gross Profit																
Adjusted Gross Margin																
COGS	1388.3	1469.0	1468.6	1957.3	2533.0	2533.9	2504.6	2557.8	2510.0	2475.9	2441.7	2407.4	2372.9	2338.3	2303.6	2268.6
<b>NOR</b>																
Revenue	220	187.0	185.0	171.0	145.0	123.0	119.0	119.0	119.0	107.1	117.8	117.8	117.8	106.0	116.6	116.6
Gross Margin	37.0%	37.0%	20.0%	9.0%	10.0%	10.0%	10.0%	10.0%	10.5%	11.0%	11.5%	12.0%	12.5%	13.0%	13.5%	14.0%
COGS	138.7	117.8	148.0	155.6	130.5	110.7	107.1	107.1	106.5	95.3	104.3	103.7	103.1	92.2	100.9	100.3
<b>Other</b>																
Revenue	91.7	125.0	116.0	28.0	45.0	41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin	0.0%	0.0%	-25.0%	-25.0%	-25.0%	-25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
COGS	91.7	125.0	145.0	35.0	56.3	51.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL</b>																
Revenue	1,834.3	2,078.9	2,317.8	2,852.5	4,037.5	4,097.0	3,982.0	4,148.2	4,168.9	4,138.7	4,131.3	4,113.3	4,095.6	4,066.2	4,059.4	4,042.1
Royalty																
COGS	1,618.6	1,711.8	1,761.6	2,147.9	2,719.7	2,695.9	2,611.7	2,664.9	2,616.5	2,571.2	2,546.0	2,511.1	2,476.0	2,430.6	2,404.4	2,368.9
Gross Profit	215.6	367.2	556.2	704.6	1,317.8	1,401.1	1,370.3	1,483.4	1,552.4	1,567.4	1,585.3	1,602.3	1,619.6	1,635.6	1,654.9	1,673.2
Gross Margin	11.8%	17.7%	24.0%	24.7%	32.6%	34.2%	34.4%	35.8%	37.2%	37.9%	38.4%	39.0%	39.5%	40.2%	40.8%	41.4%
<b>Reported</b>																
Revenue	1,834	2,078	2,318	2,843	4,042	4,107	3,982									
COGS	1,617	1,712	1,762	2,135	2,761	2,704	2,614									
Gross Margin	11.8%	17.6%	24.0%	24.9%	31.7%	34.2%	34.4%									
Adjusted COGS																
Adjusted Gross Margin																

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

6/24/14

Micron Technology

Valuation

Relative Valuation

Company	Ticker	Price 6/23/2014	52-Week		CY EPS				CY P/E				Diluted Shares(mil)	CAP (\$ mil)	Price-Sales			FY Ends	
			Low	High	2012	2013	2014	2015	2012	2013	2014	2015			TTM	Cur FY	Nxt FY		
Micron Technology *	MU	31.26	12.31	32.43	-1.12	1.15	3.03	3.08	NM	27.2	10.3	10.1	1,190	37,199	2.5	2.3	2.2	Aug	
Advanced Micro Devices	AMD	4.01	3.04	4.65	-0.16	-0.12	0.19	0.23	NM	NM	21.1	17.4	761	3,052	0.5	0.5	0.5	Dec	
Freescale	FSL	24.23	13.13	26.00	-0.08	0.45	1.46	1.95	NM	53.8	16.6	12.4	285	6,906	1.6	1.5	1.4	Dec	
Intel *	INTC	30.23	21.89	30.31	2.13	1.88	1.99	2.09	14.2	16.1	15.2	14.5	5,117	154,687	2.9	2.9	2.7	Dec	
STMicroelectronics	STM	9.23	7.20	10.00	-0.33	-0.23	0.22	0.55	NM	NM	42.0	16.8	891	8,221	1.0	1.1	1.0	Dec-ADR	
Texas Instruments*	TXN	48.08	34.10	49.77	1.50	1.79	2.33	2.78	32.1	26.9	20.6	17.3	1,096	52,696	4.3	4.1	3.7	Dec	
Average									23.1	32.3	23.1	15.7				2.1	2.0	1.9	

Company	Ticker	Price 6/23/2014	52-Week		CY EPS				CY P/E				Diluted Shares(mil)	CAP (\$ mil)	Price-Sales			FY Ends	
			Low	High	2012	2013	2014	2015	2012	2013	2014	2015			TTM	Cur FY	Nxt FY		
Micron Technology *	MU	31.26	12.31	32.43	-1.12	1.15	3.03	3.08	NM	27.2	10.3	10.1	1,190	37,199	2.5	2.3	2.2	Aug	
Atmel	ATML	9.33	6.45	9.76	0.33	0.28	0.44	0.63	28.3	33.3	21.2	14.8	436	4,066	2.9	2.8	2.6	Dec	
Spansion	CODE	21.40	9.70	22.16	0.99	0.76	1.26	1.94	21.6	28.2	17.0	11.0	60	1,279	1.2	1.0	0.9	Dec	
Cypress Semiconductor	CY	10.98	8.61	13.23	0.55	0.40	0.52	0.68	20.0	27.5	21.1	16.1	166	1,822	2.5	2.4	2.3	Dec	
GSI Technology	GSIT	5.50	5.36	7.40	0.13	-0.01	-0.19	0.07	42.3	NM	NM	78.6	28	151	2.6	2.5	2.0	Mar	
Integrated Silicon Solutions	ISSI	14.11	9.99	15.95	0.85	0.82	1.01	1.11	16.6	17.2	14.0	12.7	31	441	1.4	1.3	1.2	Sep	
Netlist	NLST	1.10	0.53	2.41	-0.49	-0.34	-0.19	-0.10	NM	NM	NM	NM	37	41	1.7	1.4	0.9	Dec	
SanDisk	SNDK	102.13	53.09	104.00	2.37	5.36	6.08	6.58	43.1	19.1	16.8	15.5	235	23,990	3.8	3.6	3.3	Dec	
Average									28.6	25.0	18.0	24.8				2.3	2.1	1.9	

\* Tokeneke estimate  
Source: consensus as of 6/23/14

Historical Valuation

Company	Ticker	Price 6/23/2014	Trailing 12-month					
			Price/Earnings		Price/Sales		Price/Book	
			Current	Historical*	Current	Historical*	Current	Historical*
Micron Technology	MU	31.26	11.6		2.5		3.7	
			<b>Average</b>	47.0	<b>Average</b>	2.3	<b>Average</b>	2.3
			<b>High</b>	568.0	<b>High</b>	9.0	<b>High</b>	9.8
			<b>Low</b>	4.3	<b>Low</b>	0.3	<b>Low</b>	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.
- *Industry Reports:* Publications offering insight and perspective to industry-wide, multi-year forecast updates; periodic sub-sector product type and end-market reviews; fundamental and valuation perspectives on sector equity relationships; and industry introductory overview. These are more detailed reports with varying shelf-lives, and are intended for narrow distribution to interested clients.
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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**  
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