

## Elpida Acquisition Adds to DRAMs

### DRAMs Up 50% on Only One Month of Elpida: Raising Estimates, Reiterate Buy

Diluted Shares(mil):	1,129.4	<u>Closing Price 10/10/13</u>	<u>FYE August</u>	<u>FY13 act</u>	<u>FY14</u>	<u>FY15</u>
Market Cap(\$mil):	\$20,815	\$18.43	Revenue(\$mil)	\$9,073	\$15,340	\$15,823
Avg Volume(,000):	42,706		EPS	\$1.13	\$2.09	\$2.20
Net Cash/Share:	(\$2.60)	<u>Recommendation/Target</u>	Price/Sales	2.3	1.4	1.3
Tangible Book/Share	\$7.80	Buy/\$30 from \$19	Price/EPS	16.3	8.8	8.4

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

**Summary:** MU exceeded revenue and EPS expectations for August-ended F4Q due to the one-month contribution from the acquisition of DRAM competitor Elpida, as well as DRAM market price strength. EPS of \$1.51 included gains that otherwise would have yielded \$0.29 which was four-cents above consensus. I continue to believe MU is extremely well positioned to disproportionately benefit from a favorable market environment for DRAM and NAND suppliers from both its acquisition of DRAM competitor Elpida as well as its Inotera DRAM joint-venture. I am raising my estimates—that now include Elpida—as well as my 12-month target price to \$30 from \$19 based on just under 15-times FY14 peer-average earnings, and reiterate my Buy recommendation on the shares.

**F3Q Review:** MU F4Q revenue of \$2.843B grew by +22.6%, included \$355M from one month of Elpida, and exceeded consensus of \$2.71B. Gross margin expanded by 90 basis points to 24.9%, although fell short of my expectations. Reported EPS of \$1.51 included a series of gains and charges—predominantly a \$1,484M or \$1.31 per share purchase accounting gain associated with Elpida—that otherwise would have yielded \$0.29 per share, or four cents above consensus. Cash from operations totaled \$717M, capital expenditures were \$332M, depreciation and amortization at \$486M, and cash increased by \$1.6B to \$4,156M including \$556M in restricted cash. Cap ex excluding Elpida was \$286M for the quarter and \$1.4B for FY13 which was at the low-end of a range up to \$1.6B.

FYE August	4QF13					
	Estimate	Actual	EPS Impact	Guidance	Consensus	Range
DRAM Bits Shipped	8.0%	42.0%		+ hi 1-digit%		
DRAM ASP change	5.0%	5.0%		flat		
DRAM Cost/bit change	0.0%	4.0%				
NAND Bits Shipped	8.0%	17.0%		+ hi 1-digit%		
NAND ASP Change	-5.0%	-11.0%				
NAND Cost/bit change	-8.0%	-10.0%		- hi 1-digit%		
Revenue (\$ mil)	2,309	2,843	\$0.48		2,710	2,220-3,100
Revenue Growth	-0.4%	22.6%			16.9%	-4.2%+33.7%
Gross Margin	31.1%	24.9%	(\$0.49)			
Opn Expenses (\$ mil)	375	460	(\$0.07)	365-385		
Restructuring/other	0	41	(\$0.04)			
Interest Income	(60)	(58)		(50-60)		
Minority Interest/non-opn	69	1,564	\$1.33	(20)		
Taxes (\$ mil)	10	5		5-10		
Diluted Shares (mil)	1,129.0	1,129.4				
EPS reported	\$0.30	\$1.51/0.29pf	\$1.21		\$0.25	\$0.09-\$0.43

### Elpida Acquired

Micron closed its pending acquisition of bankrupt Japanese DRAM competitor Elpida on July 31, which accounted for \$355M in sales at 25% gross margin, \$46M in operating income, and \$29M in net income during the last month of Micron's F4Q. Micron benefits from DRAM industry consolidation by pocketing one of the four remaining major suppliers, as well as Elpida's market leadership in the high-growth mobile DRAM segment that Micron is underexposed to—as well as enhancing Micron's overall mobile business that includes NAND products. Micron paid \$949M at the close for 100% of Elpida and 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 in late-2019. Assets acquired include Elpida's 300mm wafer fab in Hiroshima and assembly/test operations in Akita, as well as Rexchip's 300mm fab in Taiwan.

The purchase price was \$949M for net assets valued at \$2,433M, resulting in \$1,484 million or \$1.31 per share in purchase accounting gains. Net assets included: \$1,618M in cash; \$962M in inventory; \$935M in PP&E; \$917M in

deferred tax assets; and \$2,134M in debt. \$560M of the cash is classified as restricted on the balance sheet and payable later in October. Inventory was stepped-up to market value, which will hurt gross margins through FY1Q.

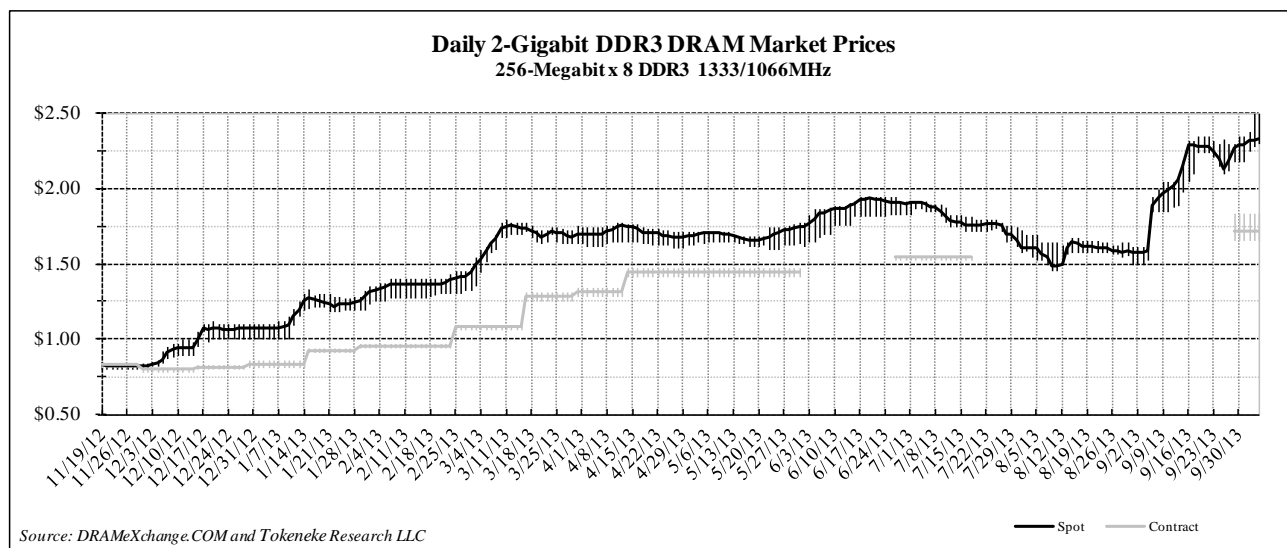
**Other Financial Gymnastics**

Restructuring charges of \$32M reflected a global workforce reduction and asset impairment associated with the pending sale of the fab in Israel. Micron also received \$312 million in an asset-backed, four-year debt financing at LIBOR plus 3.25% that was then swapped for a fixed rate at 4.2%. The amortization of debt discount charge of \$58M reflects the imputed interest expense from both outstanding converts and Elpida’s installment debt. The diluted share count of 1,129.4M included 96M shares from outstanding converts and the employee stock plan, but was 53M shares less than it would have been without the capped call transaction that triggered at an \$18 share price.

**Dynamic RAMs:** DRAM sales grew by +50% to \$1.65B or 58% of total sales on +42% bit growth, an increase in ASPs of +5%, and despite a cost per bit increase of +4%. Micron’s DRAM business roughly doubled with the Elpida acquisition, with Rexchip adding to Micron’s PC business and Elpida’s mobile leadership and video game graphics design wins adding to Micron’s strength in networking, server, and automotive-industrial-military-medical (AIMM) markets. Management now plans to maximize DRAM profitability which includes converting current DRAM manufacturing in Singapore to NAND. Gross margin in the mid-20% range benefited from the ASP increase, although was negatively impacted by step-up costs associated with Elpida’s inventory that should flush out this quarter. Elpida accounted for 20% of bit shipments and pressured ASPs due to its sale of product in wafer form, although cost per bit is also lower. The cost increase was primarily due to discounted market-based pricing from the Inotera joint-venture accounted for as a change in equity investment with a two month lag.

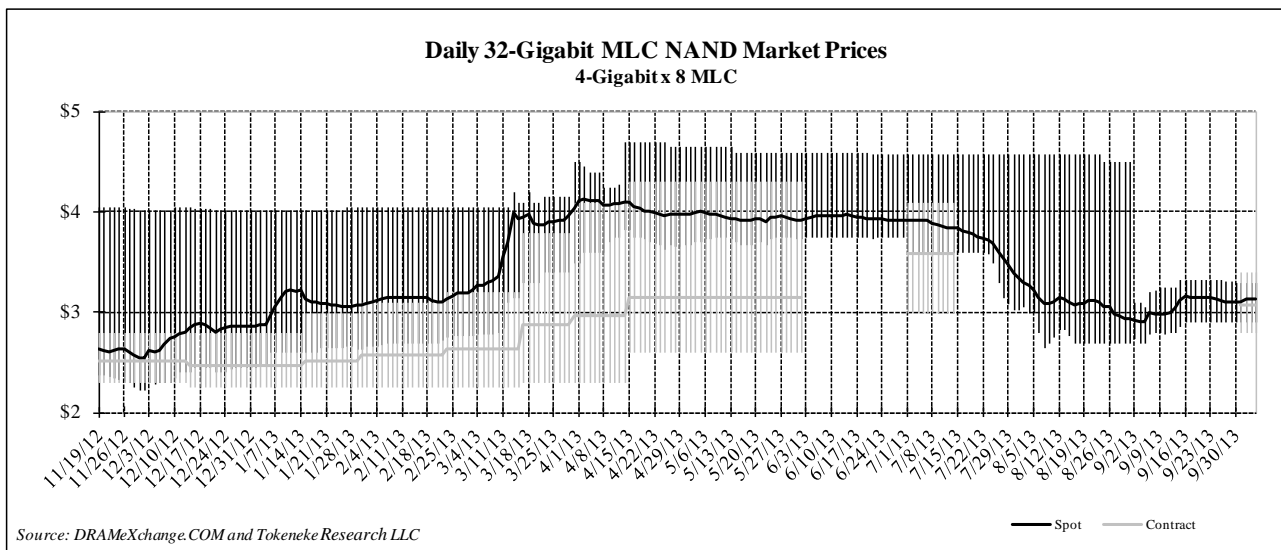
Mobile and PC applications both range in the high-30% range of total DRAM bit shipments, with server in the mid-teens and consumer, networking, storage and AIMM in single-digits—although higher as a percent of sales. Server sales grew by +13% for the fiscal year on strength from both data center and cloud service customers. Networking set a new high last quarter with bits up by +5% and revenue up by +8%. Consumer graphics bits grew by +38% due to Elpida’s GDDR5 offerings and will benefit from new video game platforms this quarter. Mobile DRAM quadrupled last quarter thanks to Elpida, and mobile DRAM margins improved significantly due to 30nm offerings. Micron announced Hybrid Memory Cube interoperability with Altera FPGAs for high-performance applications, and networking customers are embracing its RL-DRAM-3 offering. 25nm yields are improving: the ramp at Elpida is underway and early work has begun at Rexchip. Next generation 20nm product will begin ramping 2HCY14.

DRAM markets remain favorable with tight supply, lean inventories, and rising demand for specialty devices despite soft PCs due to limited capacity that has been aggravated by the fire at competitor Hynix’s Wuxi plant that accounted for 13% of industry capacity. Product is being allocated to customers across multiple segments, although Micron does not expect to alter its production plans. OEM contract and specialty product prices continue to rise, but both lag the spot market. Management expects total DRAM industry bit growth in the mid-20% range both this year and next as process shrinks more than offset declining wafer outs. Micron’s bit production including Elpida is expected to be slightly above the industry this year and below it next with the conversion of Singapore to NAND.



**NAND Flash:** NAND product sales grew by +6% to \$1B or 35% of total revenue as trade bit shipments grew by +17%, ASPs fell by -11%, and costs decreased by -10%. Gross margin was flat in the low 30% range as cost cuts offset price erosion with a richer mix of higher density offerings. Trade NAND revenue grew by +3%. NAND revenue is split between SSDs at 50%, consumer at 30%, and mobile at 10%. Branded SSD bit shipments grew by +23% driven by enterprise adoption, and combined sales of branded and third-party SSD drives represented over 60% of Trade NAND capacity. SSDs are also being converted to more cost-effective 20nm and MLC NAND product from 25nm and SLC, with 80% of enterprise SSD shipments at 25nm and 40% of client SSDs at 20nm. 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 put downward pressure on ASPs per gigabit.

Management projects NAND industry bit growth this year and next in the low-40% range including a 10% increase in wafer outs next year. Micron's bit growth will be below the industry this year and slightly above it next year due to the DRAM conversion to NAND in Singapore, for which the majority of output last quarter was still DRAM. Over 50% of production is occurring at the 20nm process technology node compared to the older 25nm node, and the company introduced the industry's first MLC device at 16nm. The Hybrid Memory Cube began sampling. 16nm will remain a planar-type structure and MU converted to high-K dielectric at the prior node. 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. 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.



**Embedded NOR Opportunity:** NOR flash declined by -12% and accounted for \$170M or 6% of sales with gross margin in the high-single digits, and revenue is expected to fall again this quarter to \$120-130M. The bad news is that NAND continues to replace NOR in the wireless market as expected, but the good news is success in embedded NOR applications and expected future gross margin improvements with the recent sale of the 200mm fab in Israel and production transition to Singapore and the 300mm fab in Virginia where serial and parallel NOR devices are ramping in next-generation 45nm technology currently undergoing customer qualification. The Embedded System Group (ESG) revenue used to be dominated by NOR products, but is now evenly split between DRAM, NAND and NOR and gained 8% on the quarter to \$329M with operating profit of 19%, including double digit growth from Europe and Asia and strength from automotive and industrial applications.

**Management Guidance:** F1Q guidance includes a full three-month contribution of revenue and costs from Elpida, up from last quarter's single month. DRAM bit production is expected to be up in the mid-40% range, ASPs QTD have been up in the mid-single-digits, and costs per bit are expected to fall in the low-single-digit percentage range. NAND bit production is expected to grow in the low- to mid-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. NOR revenue is

expected to drop to between \$120-130M. SGA is expected at \$185-195M, R&D at \$340-350M, interest expense of \$75-85M, on-going cash taxes in the low single-digit million dollar range, equity compensation of \$20-25M, and depreciation and amortization of \$560M. Expected adjustments include: \$110-120M in COGS for Elpida step-up inventory charges; a \$15M charge for the discount on the amortization of debt; non-cash acquisition tax of \$50-60M; and restructuring costs in the single-digit million dollar range. Capital expenses for FY14 are expected at \$2.6-3.2B with slightly more than half going to DRAM and the balance to NAND.

**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 as specified on Page 8, which are consistent with management's expected skew to industry norms expected this year and next. I assume a recovery in NOR gross margin and flat 'other' revenue over the next several quarters. The expected contribution from Elpida is now included in my model.

FYE August \$ in millions	1QF14		FY14		FY15	
	Previous	Update	Previous	Update	Previous	Update
Total Revenue	2,404	3,715	9,760	15,340	10,370	15,823
Revenue Growth	4.1%	30.7%	14.3%	69.1%	6.2%	3.1%
Gross Margin	35.1%	30.3%	35.0%	33.5%	36.9%	33.2%
Operating Expenses	375	560	1,500	2,240	1,580	2,240
Non-Operating Items	(20)	(55)	(80)	(220)	(80)	(220)
Taxes	10	75	40	300	40	300
Diluted Shares (mil)	1,129.0	1,133.2	1,129.0	1,133.2	1,129.0	1,133.2
Diluted EPS	\$0.39	\$0.38	\$1.59	\$2.09	\$1.89	\$2.20

**Reiterate Buy:** I am maintaining my Buy recommendation and raising my 12-month target price to \$30 from \$19 based on just under 15-times FY14 EPS consistent with the lower average of its peers. Note that I am slightly raising my P/E ratio to less than 15-times from 12-times which is consistent with the change in the average of its peers since last quarter. Also recall that last quarter I shifted my earnings valuation methodology to 12-times earnings from 1.5-times sales as MU converted to an 'earnings leverage' story from a 'revenue recovery' story since it had finally established some earnings to value.

MU shares continue to trade well below the average expected future price-earnings and price-sales ratios of both peer groups identified on Page 9 of this report, although it is currently trading consistent with its own average historical trailing price-sales and price-book ratios and slightly above the average trailing 12-month price-earnings and price-sales ratios of its peers. I believe the risk-reward opportunity for MU remains favorable at current price levels as upside potential continues to significantly exceed downside risk, especially as its financial model begins to realize the full effects of the Elpida acquisition.

<i>Diluted EPS</i>	1QF14	FY14	FY15	<i>Revenue, 25 estimates</i>	1QF14	FY14	FY15
Tokeneke-revised	\$0.38	\$2.09	\$2.20	Tokeneke-revised	3,715	15,340	15,823
Tokeneke-previous	\$0.39	\$1.59	\$1.89	Tokeneke-previous	2,404	9,760	10,370
Consensus-previous	\$0.47	\$2.19		Consensus-previous	3,610	14,470	
High Estimate-previous	\$0.86	\$3.05		High Estimate-previous	3,880	16,900	
Low Estimate-previous	\$0.10	\$1.41		Low Estimate-previous	3,200	10,130	

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**Income Statement**

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

	FY2013 act					FY2014 est					FY2015							
	FY09	FY10	FY12	Q1*	Q2*	Q3	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	2,843	9,073	3,715	3,850	3,878	3,897	15,340	3,919	3,932	3,970	4,001	15,823
COGS	5,243	5,768	7,266	1,617	1,712	1,762	2,135	7,226	2,590	2,508	2,542	2,568	10,208	2,596	2,616	2,659	2,696	10,567
Gross Profit	(440)	2,714	968	217	366	556	708	1,847	1,125	1,342	1,336	1,329	5,132	1,323	1,316	1,311	1,305	5,255
SG&A	354	528	620	119	123	127	193	562	190	190	190	190	760	190	190	190	190	760
R&D	647	624	918	224	214	226	267	931	345	345	345	345	1,380	345	345	345	345	1,380
Restructuring	70	(10)	5	-	60	55	32	147	-	-	-	-	-	-	-	-	-	-
Other	165	(17)	39	(29)	(8)	(1)	9	(29)	25	25	25	25	100	25	25	25	25	100
Operating Expenses	1,236	1,125	1,582	314	389	407	501	1,611	560	560	560	560	2,240	560	560	560	560	2,240
Operating Income	(1,676)	1,589	(614)	(97)	(23)	149	207	236	565	782	776	769	2,892	763	756	751	745	3,015
Interest Income	(160)	(160)	(171)	(54)	(53)	(52)	(58)	(217)	(80)	(80)	(80)	(80)	(320)	(80)	(80)	(80)	(80)	(320)
Other Non-Opn Inc.	(16)	491	31	(59)	(159)	(45)	1,529	1,266	-	-	-	-	-	-	-	-	-	-
Tax Expense	1	(19)	(17)	13	(9)	(1)	5	8	75	75	75	75	300	75	75	75	75	300
Minority Interest	(29)	(89)	(295)	(52)	(60)	(10)	35	(87)	25	25	25	25	100	25	25	25	25	100
Net Income	(1,882)	1,850	(1,032)	(275)	(286)	43	1,708	1,190	435	652	646	639	2,372	633	626	621	615	2,495
EPS-basic	(\$2.35)	\$2.08	(\$1.04)	(\$0.27)	(\$0.28)	\$0.04	\$1.65	\$1.16	\$0.42	\$0.63	\$0.63	\$0.62	\$2.30	\$0.61	\$0.61	\$0.60	\$0.60	\$2.42
Shares-basic	800.7	887.5	991.2	1,013.7	1,016.0	1,024.0	1,033.2	1,021.7	1,033.2	1,033.2	1,033.2	1,033.2	1,033.2	1,033.2	1,033.2	1,033.2	1,033.2	1,033.2
EPS-diluted	(\$2.35)	\$1.85	(\$1.04)	(\$0.27)	(\$0.28)	\$0.04	\$1.51	\$1.13	\$0.38	\$0.58	\$0.57	\$0.56	\$2.09	\$0.56	\$0.55	\$0.55	\$0.54	\$2.20
Shares-diluted	800.7	1,050.7	991.2	1,013.7	1,016.0	1,046.6	1,129.4	1,056.3	1,133.2	1,133.2	1,133.2	1,133.2	1,133.2	1,133.2	1,133.2	1,133.2	1,133.2	1,133.2
EPS-pro forma	(\$2.20)	\$1.35			(\$0.06)	\$0.15	\$0.29	\$0.11										
<b>Margin Analysis</b>																		
Gross Margin	-9.2%	32.0%	11.8%	11.8%	17.6%	24.0%	24.9%	20.4%	30.3%	34.9%	34.4%	34.1%	33.5%	33.8%	33.5%	33.0%	32.6%	33.2%
SG&A	7.4%	6.2%	7.5%	6.5%	5.9%	5.5%	6.8%	6.2%	5.1%	4.9%	4.9%	4.9%	5.0%	4.8%	4.8%	4.8%	4.7%	4.8%
R&D	13.5%	7.4%	11.1%	12.2%	10.3%	9.7%	9.4%	10.3%	9.3%	9.0%	8.9%	8.9%	9.0%	8.8%	8.8%	8.7%	8.6%	8.7%
Operating Expense	25.7%	13.3%	19.2%	17.1%	18.7%	17.6%	17.6%	17.8%	15.1%	14.5%	14.4%	14.4%	14.6%	14.3%	14.2%	14.1%	14.0%	14.2%
Operating Income	-34.9%	18.7%	-7.5%	-5.3%	-1.1%	6.4%	7.3%	2.6%	15.2%	20.3%	20.0%	19.7%	18.9%	19.5%	19.2%	18.9%	18.6%	19.1%
Interest/Other Income	-3.7%	3.9%	-1.7%	-6.2%	-10.2%	-4.2%	51.7%	11.6%	-2.2%	-2.1%	-2.1%	-2.1%	-2.1%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
Tax Rate	-0.1%	-1.0%	2.3%	-6.2%	3.8%	-1.9%	0.3%	0.6%	15.5%	10.7%	10.8%	10.9%	11.7%	11.0%	11.1%	11.2%	11.3%	11.1%
Net Income	-39.2%	21.8%	-12.5%	-15.0%	-13.8%	1.9%	60.1%	13.1%	11.7%	16.9%	16.7%	16.4%	15.5%	16.2%	15.9%	15.6%	15.4%	15.8%
<b>Qtr-to-Qtr Growth</b>																		
Revenue				-6.6%	13.3%	11.5%	22.6%		30.7%	3.6%	0.7%	0.5%		0.6%	0.3%	1.0%	0.8%	
Operating Expenses				-12.5%	23.9%	4.6%	23.1%		11.8%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	
Operating Income				-30.7%	-76.3%	-748%	38.9%		173%	38.4%	-0.8%	-0.9%		-0.8%	-1.0%	-0.6%	-0.8%	
Net Income				13.2%	4.0%	-115%	3872%		-74.5%	49.9%	-0.9%	-1.0%		-0.9%	-1.2%	-0.7%	-1.0%	
EPS				13.1%	3.8%	-115%	3581%		-74.6%	49.9%	-0.9%	-1.0%		-0.9%	-1.2%	-0.7%	-1.0%	
<b>Year-to-Year Growth</b>																		
Revenue	-17.8%	76.6%	-6.3%	-12.2%	3%	6.7%	44.8%	10.2%	103%	85%	67.3%	37.1%	69.1%	5.5%	2.1%	2.4%	2.7%	3.1%
Operating Expenses	-19.7%	-9.0%	57.7%	-18.9%	-6.0%	-3.6%	39.6%	1.8%	78.3%	44.0%	37.6%	11.8%	39.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Income	5.1%	-195%	-181%	18.3%	-88.7%	-179%	-248%	-138%	-682%	-3499%	421%	272%	1125%	35.2%	-3.3%	-3.2%	-3.1%	4.3%
Net Income	16.2%	-198%	-718%	47.1%	1.4%	-113%	-803%	-215%	-258%	-328%	1402%	-62.6%	99.3%	45.7%	-4.0%	-3.8%	-3.8%	5.2%
EPS	12.2%	-179%	-728%	42.4%	-1.9%	-113%	-731%	-208%	-241%	-304%	1287%	-62.7%	85.8%	45.7%	-4.0%	-3.8%	-3.8%	5.2%

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

dollars in millions

Fiscal year ends August

	FY10	FY11	FY12	FY13	4QF12	1QF13	2QF13	3QF13	4QF13
<b>Assets</b>									
Cash and equivalents	2,913	2,160	2,559	3,101	2,559	2,271	2,228	2,552	3,101
Net accounts receivable	<u>1,531</u>	<u>1,497</u>	<u>1,289</u>	<u>2,329</u>	<u>1,289</u>	<u>1,139</u>	<u>1,226</u>	<u>1,503</u>	<u>2,329</u>
<b>Quick Assets</b>	4,444	3,657	3,848	5,430	3,848	3,410	3,454	4,055	5,430
Inventory	1,770	2,080	1,812	2,649	1,812	1,831	1,721	1,732	2,649
Other	<u>119</u>	<u>95</u>	<u>98</u>	<u>832</u>	<u>98</u>	<u>74</u>	<u>189</u>	<u>99</u>	<u>832</u>
<b>Current Assets</b>	6,333	5,832	5,758	8,911	5,758	5,315	5,364	5,886	8,911
Property, plant and eqt, net	6,601	7,555	7,103	7,626	7,103	7,199	6,973	6,830	7,626
Goodwill and intangibles	323	414	371	<b>331</b>	371	359	346	331	<b>331</b>
Long-term mkt securities	335	535	374	499	374	527	546	347	499
Other	<u>1,101</u>	<u>416</u>	<u>722</u>	<u>1,751</u>	<u>722</u>	<u>667</u>	<u>683</u>	<u>661</u>	<u>1,751</u>
<b>Total Assets</b>	14,693	14,752	14,328	19,118	14,328	14,067	13,912	14,055	19,118
<b>Liabilities and Shareholders Equity</b>									
Current portion L-T debt	712	140	224	1,585	224	266	350	357	1,585
Accounts payable	1,509	1,830	1,641	2,115	1,641	1,584	1,498	1,590	2,115
Deferred Income	298	443	248		248	227	207	223	
Other/Eqt Purchase Contract	<u>183</u>	<u>67</u>	<u>130</u>	<u>425</u>	<u>130</u>	<u>61</u>	<u>62</u>	<u>172</u>	<u>425</u>
<b>Current Liabilities</b>	2,702	2,480	2,243	4,125	2,243	2,138	2,117	2,342	4,125
Long-term debt	1,648	1,861	3,038	4,452	3,038	3,169	3,301	3,267	4,452
Other	<u>527</u>	<u>559</u>	<u>630</u>	<u>535</u>	<u>630</u>	<u>574</u>	<u>534</u>	<u>420</u>	<u>535</u>
<b>Total Liabilities</b>	4,877	4,900	5,911	9,112	5,911	5,881	5,952	6,029	9,112
Minority Interest	1,796	1,382	717	864	717	717	729	698	864
Common stock	8,446	8,610	8,920	<b>11,062</b>	8,920	9,063	9,115	9,179	<b>11,062</b>
Retained earnings	(536)	(370)	(1,402)	<b>(1,920)</b>	(1,402)	(1,677)	(1,963)	(1,920)	<b>(1,920)</b>
Other	<u>110</u>	<u>230</u>	<u>182</u>		<u>182</u>	<u>83</u>	<u>79</u>	<u>69</u>	
<b>Total MU Shareholders Equity</b>	<u>8,020</u>	<u>8,470</u>	<u>7,700</u>	<u>9,142</u>	<u>7,700</u>	<u>7,469</u>	<u>7,231</u>	<u>7,328</u>	<u>9,142</u>
<b>Total Liabilities and Equity</b>	14,693	14,752	14,328	19,118	14,328	14,067	13,912	14,055	19,118
<b>Sales and Income</b>									
Revenue	8,482	8,788	8,234	9,073	1,963	1,834	2,078	2,318	2,843
COGS	5,768	7,030	7,266	7,226	1,744	1,617	1,712	1,762	2,135
Net income	1,850	167	(1,032)	1,190	(243)	(275)	(286)	43	1,708
<b>Other</b>									
Capital Expenditures	1,036	2,878	1,871	1,458	372	538	353	235	332
Depreciation and Amortization	2,005	2,162	2,222	1,926	509	485	485	384	572
Shares (weighted average diluted)	1,050.7	1,007.5	991.2	1,056.3	1,013.1	1,013.7	1,016.0	1,046.6	1,129.4
Employees (units)	25,900	26,100	27,400		27,400				
Cash Flow from Operations	3,096	2,484	2,114	1,811	450	236	234	624	717
<b>Ratios</b>									
<b>Liquidity</b>									
Quick Ratio	1.64	1.47	1.72	1.32	1.72	1.59	1.63	1.73	1.32
Current Ratio	2.34	2.35	2.57	2.16	2.57	2.49	2.53	2.51	2.16
<b>Leverage</b>									
Debt Ratio	0.33	0.33	0.41	0.48	0.41	0.42	0.43	0.43	0.48
Long-term Debt/Capital	0.15	0.16	0.26	0.26	0.26	0.27	0.28	0.26	0.26
<b>Asset Management</b>									
Fixed Asset Turnover	1.2	1.2	1.1	1.2	1.10	1.03	1.17	1.34	1.57
Total Asset Turnover	0.6	0.6	0.6	0.5	0.55	0.52	0.59	0.66	0.69
Receivables DSO	65	61	56	92	59	56	53	58	74
Inventory Days	110	107	90	132	94	102	90	88	112
Inventory Turnover	4.2	3.7	3.7	3.2	3.76	3.55	3.86	4.08	3.90
Annual Revenue/Employee									
<b>Profitability</b>									
Gross Margin	32.0%	20.0%	11.8%	20.4%	11.2%	11.8%	17.6%	24.0%	24.9%
Net Margin	21.8%	1.9%	-12.5%	13.1%	-12.4%	-15.0%	-13.8%	1.9%	60.1%
Return on Assets	14.1%	1.1%	-7.1%	7.1%	-6.8%	-7.7%	-8.2%	1.2%	41.2%
Return on Equity	28.5%	2.0%	-12.8%	14.1%	-12.5%	-14.5%	-15.6%	2.4%	83.0%
<b>Per Share Data</b>									
Book Value/Share	\$7.63	\$8.41	\$7.77	\$8.65	\$7.60	\$7.37	\$7.12	\$7.00	\$8.09
Tangible Book Value/Share	\$7.33	\$8.00	\$7.39	\$8.34	\$7.23	\$7.01	\$6.78	\$6.69	\$7.80
Cash/Share (gross)	\$2.77	\$2.14	\$2.58	\$2.94	\$2.53	\$2.24	\$2.19	\$2.44	\$2.75
Cash/Share (net)	\$0.53	\$0.16	(\$0.71)	(\$2.78)	(\$0.69)	(\$1.15)	(\$1.40)	(\$1.02)	(\$2.60)
Earnings/Share	\$1.76	\$0.17	(\$1.04)	\$1.13	(\$0.24)	(\$0.27)	(\$0.28)	\$0.04	\$1.51

Micron Technology

Sales Analysis

	FY09	FY10	FY11	FY12	FY13	FY2011				FY2012				FY2013			
						1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Product Type</b>																	
<b>Revenue</b>																	
DRAM	2,422	5,052	3,620	3,178	4,358	1,009	950	883	778	778	729	875	796	720	891	1,098	1,649
NAND	1,857	2,555	3,193	3,627	3,604	753	812	770	858	909	934	948	836	803	870	936	995
NOR	0	451	1,547	977	790	422	392	360	373	287	228	228	234	228	197	194	171
Other	524	424	428	452	321	68	103	126	131	116	118	121	97	83	120	90	28
Total	4,803	8,482	8,788	8,234	9,073	2,252	2,257	2,139	2,140	2,090	2,009	2,172	1,963	1,834	2,078	2,318	2,843
<b>Revenue Percent</b>																	
DRAM	50.4%	59.6%	41.2%	38.6%	48.0%	44.8%	42.1%	41.3%	36.4%	37.2%	36.3%	40.3%	40.6%	39.3%	42.9%	47.4%	58.0%
NAND	38.7%	30.1%	36.3%	44.0%	39.7%	33.4%	36.0%	36.0%	40.1%	43.5%	46.5%	43.6%	42.6%	43.8%	41.9%	40.4%	35.0%
NOR	0.0%	5.3%	17.6%	11.9%	8.7%	18.7%	17.4%	16.8%	17.4%	13.7%	11.3%	10.5%	11.9%	12.4%	9.5%	8.4%	6.0%
Other	10.9%	5.0%	4.9%	5.5%	3.5%	3.0%	4.6%	5.9%	6.1%	5.6%	5.9%	5.6%	4.9%	4.5%	5.8%	3.9%	1.0%
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%	100.0%	100.0%
<b>Growth</b>																	
DRAM		108.6%	-28.3%	-12.2%	37.1%	-18.5%	-5.8%	-7.1%	-11.9%	0.0%	-6.3%	20.0%	-9.0%	-9.5%	23.8%	23.2%	50.2%
NAND		37.6%	25.0%	13.6%	-0.6%	-2.4%	7.8%	-5.2%	11.4%	5.9%	2.8%	1.5%	-11.8%	-3.9%	8.3%	7.6%	6.3%
NOR		243.0%	-36.8%	-19.2%		13.7%	-7.1%	-8.2%	3.6%	-23.1%	-20.6%	0.0%	2.6%	-2.6%	-13.6%	-1.5%	-12.1%
Other		-19.1%	0.9%	5.6%	-28.9%	-39.8%	51.5%	22.3%	4.0%	-11.5%	1.7%	2.5%	-19.8%	-14.4%	44.6%	-25.0%	-68.4%
Total		76.6%	3.6%	-6.3%	10.2%	-9.7%	0.2%	-5.2%	0.0%	-2.3%	-3.9%	8.1%	-9.6%	-6.6%	13.3%	11.5%	22.6%
<b>DRAM</b>																	
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%	38.0%	6.0%	42.0%
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%	-10.0%	16.0%	5.0%
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%	-18.0%	-5.0%	4.0%
<b>NAND (trade)</b>																	
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%	13.0%	0.0%	13.0%
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%	-1.0%	8.0%	-9.0%
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%	-5.0%	1.0%	-10.0%
<b>Product Lines</b>																	
<b>DSG (DRAM)</b>																	
Revenue	2,100	4,638	3,155	2,691	3,325	903	841	774	637	656	608	750	677	600	756	730	1,239
Operating Profit	(902)	1,269	457	(442)	83	225	51	109	72	(139)	(109)	(76)	(118)	-112	(46)	58	183
Operating Margin	-43.0%	27.4%	14.5%	-16.4%	2.5%	24.9%	6.1%	14.1%	11.3%	-21.2%	-17.9%	-10.1%	-17.4%	-18.7%	-6.1%	7.9%	14.8%
<b>NSG (NAND)</b>																	
Revenue	1,747	2,113	2,244	2,853	3,035	502	552	505	685	683	734	760	676	617	713	924	781
Operating Profit	(573)	240	102	198	260	57	72	68	(95)	94	97	(1)	8	12	64	118	66
Operating Margin	-32.8%	11.4%	4.5%	6.9%	8.6%	11.4%	13.0%	13.5%	-13.9%	13.8%	13.2%	-0.1%	1.2%	1.9%	9.0%	12.8%	8.5%
<b>WSG (Wireless)</b>																	
Revenue	247	778	1,959	1,184	1,221	511	510	493	445	373	307	276	228	263	213	276	469
Operating Profit	(63)	(23)	20	(370)	(263)	56	10	10	(56)	(58)	(129)	(103)	(80)	-64	(87)	(62)	(50)
Operating Margin	-25.5%	-3.0%	1.0%	-31.3%	-21.5%	11.0%	2.0%	2.0%	-12.6%	-15.5%	-42.0%	-37.3%	-35.1%	-24.3%	-40.8%	-22.5%	-10.7%
<b>ESG (Embedded)</b>																	
Revenue	178	521	1,002	1,054	1,194	266	252	241	243	262	242	265	285	278	282	305	329
Operating Profit	37	152	237	156	271	78	58	55	46	38	15	32	71	78	65	65	63
Operating Margin	20.8%	29.2%	23.7%	14.8%	22.7%	29.3%	23.0%	22.8%	18.9%	14.5%	6.2%	12.1%	24.9%	28.1%	23.0%	21.3%	19.1%
<b>Other</b>																	
Revenue	531	432	428	452	298	70	102	126	130	116	118	121	97	76	114	83	25
Operating Profit	(49)	(61)	(103)	(185)		(26)	(12)	(5)	(18)	(17)	(22)	(43)	(21)	(71)	(19)	(30)	(65)
Operating Margin	-11.3%	-14.3%	-22.8%	-62.1%		-37.1%	-11.8%	-4.0%	-13.8%	-14.7%	-18.6%	-35.5%	-21.6%	-93.4%	-16.7%	-36.1%	-260.0%
Total	4,803	8,482	8,788	8,234	9,073	2,252	2,257	2,139	2,140	2,090	2,009	2,172	1,963	1,834	2,078	2,318	2,843
Operating Profit	(1,501)	1,589	755	(561)	166	390	179	237	(51)	(82)	(148)	(191)	(140)	(157)	(23)	149	197
<b>End Market</b>																	
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%													
<b>Territory</b>																	
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%
<b>Other</b>																	
<b>Customer</b>																	
Intel (NAND)	20%	9%	10%	12%		209	202	218	250	261	255	300	168	148	160	258	
HP (DRAM)		13%	9%														
Apple																	
<b>Image Sensors</b>																	
Aptina Revenue	70	372	349	372		59	82	104	104	94	99	99	80	61	48	61	
Aptina COGS	60	385	358	395		67	90	102	99	94	99	99	103	81	57	70	
<b>DRAM</b>																	
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 act				FY2014 est				FY2015			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>DRAM</b>																
Bits Sold	14.0%	21.0%	12.0%	-9.0%	2.0%	38.4%	6.0%	44.0%	45.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
ASP change	-12.0%	<b>-21.5%</b>	7.0%	0.0%	-11.9%	-9.7%	15.0%	6.0%	5.0%	0.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Revenue	778	729	875	796	715.3	893.9	1,089.7	1,663.4	2,532.5	2,633.8	2,602.2	2,570.9	2,540.1	2,509.6	2,479.5	2,449.7
Royalties (included)																
Revenue growth					-10.1%	25.0%	21.9%	52.6%								
Cost/bit change	-10.0%	-14.0%	-4.0%	-1.0%	-5.0%	-20.5%	-5.0%	4.0%	-2.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Gross Margin	<b>-1.3%</b>	<b>-11.6%</b>	<b>-1.7%</b>	<b>-0.7%</b>	-8.1%	0.0%	20.7%	22.8%	31.5%	38.1%	37.8%	37.4%	37.1%	36.7%	36.4%	36.1%
Gross Profit																
COGS	787.8	813.9	889.6	801.5	773.5	894.3	864.1	1,283.7	1,733.5	1,629.6	1,619.1	1,608.5	1,597.9	1,587.4	1,576.8	1,566.2
<b>NAND</b>																
Bits Sold	21.0%	<b>33.0%</b>	<b>66.0%</b>	<b>-7.0%</b>	-10.6%	9.8%	0.0%	20.0%	13.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
ASP change	-11.0%	-23.0%	-39.0%	-5.0%	8.0%	-1.5%	6.2%	-11.0%	-8.0%	-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	990.2	1,029.4	1,075.7	1,124.1	1,174.7	1,227.5	1,282.8	1,340.5	1,400.8
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%	-10.0%	-8.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%
Gross Margin	26.0%	14.4%	-9.9%	<b>17.0%</b>	23.8%	34.2%	34.8%	32.0%	31.1%	30.8%	30.5%	30.1%	29.8%	29.5%	29.2%	28.8%
<i>gm est</i>	<b>26.0%</b>	<b>14.4%</b>	<b>-9.9%</b>	<b>17.0%</b>												
Gross Profit	235.9	134.9	(94.3)	142.1	614.8	574.7	604.5	673.6	709.0	744.4	781.6	820.6	861.5	904.5	949.5	996.8
COGS	673.1	799.1	1,042.3	693.9	614.8	574.7	604.5	673.6	709.0	744.4	781.6	820.6	861.5	904.5	949.5	996.8
<b>DRAM, NAND Subtotal</b>																
Revenue	1,687.0	1,663.0	1,823.0	1,632.0	1,522.5	1,766.9	2,016.8	2,653.5	3,561.8	3,709.4	3,726.2	3,745.6	3,767.6	3,792.4	3,820.0	3,850.5
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	1,957.3	2,442.5	2,374.1	2,400.7	2,429.1	2,459.5	2,491.8	2,526.3	2,563.0
<b>NOR</b>																
Revenue	287	228	228	234	220	187.0	185.0	171.0	125.0	112.5	123.8	123.8	123.8	111.4	122.5	122.5
Gross Margin	35.0%	35.0%	35.0%	35.0%	37.0%	37.0%	20.0%	9.0%	10.0%	12.0%	14.0%	16.0%	18.0%	20.0%	20.0%	20.0%
COGS	186.6	148.2	148.2	152.1	138.7	117.8	148.0	155.6	112.5	99.0	106.4	104.0	101.5	89.1	98.0	98.0
<b>Other</b>																
Revenue	116	118	121	97	91.7	125.0	116.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
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	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
<b>TOTAL</b>																
Revenue	2,090.0	2,009.0	2,172.0	1,963.0	1,834.3	2,078.9	2,317.8	2,852.5	3,714.8	3,849.9	3,878.0	3,897.3	3,919.4	3,931.7	3,970.5	4,001.1
Royalty																
COGS	1,763.5	1,879.2	2,201.1	1,744.5	1,618.6	1,711.8	1,761.6	2,147.9	2,590.0	2,508.1	2,542.1	2,568.1	2,595.9	2,615.9	2,659.3	2,696.0
Gross Profit	326.5	129.8	(29.1)	218.5	215.6	367.2	556.2	704.6	1,124.8	1,341.9	1,335.9	1,329.3	1,323.4	1,315.8	1,311.2	1,305.1
Gross Margin	15.6%	6.5%	-1.3%	11.1%	11.8%	17.7%	24.0%	24.7%	30.3%	34.9%	34.4%	34.1%	33.8%	33.5%	33.0%	32.6%
<b>Reported</b>																
Revenue	2,090	2,009	2,172	1,963	1834.0	2078.0	2318.0	2843.0								
COGS	1,785	1,799	1,938	1,744	1617.0	1712.0	1762.0	2135.0								
Gross Margin	14.6%	10.5%	10.8%	11.2%	11.8%	17.6%	24.0%	24.9%								
Adjusted COGS																
Adjusted Gross Margin																

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10/11/13

## Micron Technology

## Valuation

## Relative Valuation

Company	Ticker	Price 10/10/2013	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	18.43	5.16	18.85	-0.19	-1.12	0.77	2.27	NM	NM	23.9	8.1	1,129	20,815	2.3	1.4	1.3	Aug
Advanced Micro Devices	AMD	3.79	1.81	4.65	0.51	-0.16	-0.14	0.14	7.4	NM	NM	27.1	752	2,850	0.6	0.5	0.5	Dec
Freescale	FSL	16.57	7.63	17.44	0.98	-0.08	0.52	1.49	16.9	NM	31.9	11.1	259	4,292	1.1	1.0	1.0	Dec
Intel *	INTC	23.10	19.23	25.98	2.39	2.13	1.92	2.10	9.7	10.8	12.0	11.0	5,106	117,949	2.3	2.2	2.1	Dec
STMicroelectronics	STM	9.15	5.31	10.05	0.42	-0.33	-0.13	0.60	21.8	NM	NM	15.3	889	8,134	1.0	1.0	1.0	Dec-ADR
Texas Instruments*	TXN	40.12	27.00	40.94	2.19	1.50	1.96	2.35	18.3	26.7	20.5	17.1	1,117	44,814	3.6	3.7	3.4	Dec

Average

14.8 18.8 21.5 16.3

1.7 1.7 1.6

Company	Ticker	Price 10/10/2013	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	18.43	5.16	18.85	-0.19	-1.12	0.77	2.27	NM	NM	23.9	8.1	1,129	20,815	2.3	1.4	1.3	Aug
Atmel	ATML	7.35	4.37	8.40	0.92	0.33	0.29	0.58	8.0	22.3	25.3	12.7	431	3,164	2.3	2.3	2.1	Dec
Spansion	CODE	11.81	9.70	14.54	0.85	0.99	0.78	1.48	13.9	11.9	15.1	8.0	59	692	0.8	0.7	0.5	Dec
Cypress Semiconductor	CY	9.18	8.70	13.23	1.25	0.55	0.35	0.56	7.3	16.7	26.2	16.4	160	1,467	2.0	2.0	2.0	Dec
GSI Technology	GSIT	7.13	4.47	7.24	0.31	0.13	0.08	0.26	23.0	54.8	89.1	27.4	27	194	3.0	2.8	2.2	Mar
Integrated Silicon Solutions	ISSI	11.47	8.18	11.99	1.11	0.85	0.97	1.29	10.3	13.5	11.8	8.9	30	341	1.1	1.1	1.0	Sep
Netlist	NLST	0.75	0.51	1.31	-0.22	-0.49	-0.35	-0.20	NM	NM	NM	NM	30	23	1.0	1.0	0.8	Dec
SanDisk	SNDK	62.26	38.47	63.97	4.66	2.37	4.78	5.34	13.4	26.3	13.0	11.7	246	15,322	2.7	2.5	2.3	Dec

Average

12.7 24.3 30.1 14.2

1.8 1.8 1.5

\* Tokeneke estimate  
Source: consensus as of 10/10/13

## Historical Valuation

Company	Ticker	Price 10/10/2013	Trailing 12-month					
			Price/Earnings		Price/Sales		Price/Book	
			Current	Historical*	Current	Historical*	Current	Historical*
Micron Technology	MU	18.43	16.3		2.3		2.3	
			<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.

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Publications are distributed via email in .pdf format, unless otherwise requested. Client confidentiality and customized research exclusivity accommodated. Rates vary with the nature, duration, and terms of offerings.

### **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.

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