

# MagnaChip Semiconductor (MX)

## Favorite Small Cap Analog Pick: MX's 46% AAPL/SEC Exposure to Help Optimize Biz Mix and Drive Multiple Expansion in '13

- On the Road** – We hosted MX CEO Sang Park and CFO Margaret Sakai for investor meetings this week. We have growing conviction that our \$2.40 C13 EPS (9% above Street) could prove conservative based on new design wins coupled with line of sight into a stable foundry biz in 2013. MX stock should begin to close the 67% P/E gap versus the analog group if it: a) executes and beat expectations as it has the past 6+ Qs), b) sustains/gains design-win momentum at Samsung/Apple, and c) if private equity ownership (~38% currently) declines and liquidity improves.
- Strong Pipeline** – MX's foundry biz (~53% sales) is unique because it offers concentrated AAPL/SEC exposure but in a diversified manner. AAPL + SEC related sales grew to 46% rev or \$102M in C3Q12, up from 14% or \$22M in 3Q09 marking 67% compounded growth. Apple sales are indirect foundry sales including Cirrus Logic and Peregrine Semi, both which we anticipate will be +10% customers in '13. SEC sales are foundry (Wolfson, Atmel and Korean touch suppliers) and direct display drivers and power sales. We believe MX has \$4-\$6 of content in the Galaxy Note 2 and is potentially also designed-in to Samsung's next generation Galaxy S4. MX's Korean 'home field advantage' and low cost manufacturing are unique attributes that make us confident it will sustain strong relationships Samsung & LG.
- Power Solution Business to Drive Margin Expansion in 2013** – MX anticipates stable +90% utilization levels and improving mix of higher ASP premium products like power management ICs to help expand gross margins to the high-end of target model 35-38% range from 32.1% in 2012. Premium products like PMICs, IGBTs, and power modules are 25% of Power Solution (~15% of sales) currently but are expected to grow to 50% of power mix by 2014 helping drive power GM higher.
- Display Finding a Bottom** – MX expects display segment (32% of sales) to be flat to up Y/Y in 2013 vs. our down 12% Y/Y assumption as the company focuses on higher margin AMOLED drivers and as some lower margin display sales roll off.

EPS	Q1	Q2	Q3	Q4	FY	FC Cons
2011A	0.38A	0.54A	0.44A	0.25A	1.62A	1.62A
2012E	0.16A	0.43A	0.75A	0.70E	2.03E	2.09E
Previous	0.16A	0.43A	0.75A	0.70E	2.03E	na
2013E	0.52E	0.61E	0.65E	0.62E	2.40E	2.19E
Previous	0.52E	0.61E	0.65E	0.62E	2.40E	na
2014E	na	na	na	na	2.31E	2.55E
Previous	na	na	na	na	2.31E	na

Source: Company Reports and dataCentral, Citi Research. FC Cons: First Call Consensus.

### Company Update

Buy	1
Price (07 Nov 12)	US\$12.74
Target price	US\$19.00
Expected share price return	49.1%
Expected dividend yield	0.0%
<b>Expected total return</b>	<b>49.1%</b>
Market Cap	US\$458M

### Price Performance (RIC: MX.N, BB: MX US)



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### See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

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MX.N: Fiscal year end 31-Dec						Price: US\$12.74; TP: US\$19.00; Market Cap: US\$458m; Recomm: Buy					
Profit & Loss (US\$m)	2010	2011	2012E	2013E	2014E	Valuation ratios	2010	2011	2012E	2013E	2014E
Sales revenue	770	773	818	856	915	PE (x)	5.9	7.9	6.3	5.3	5.5
Cost of sales	-527	-539	-555	-575	-606	PB (x)	3.0	3.0	2.0	1.4	1.1
Gross profit	244	234	263	281	308	EV/EBITDA (x)	3.2	4.1	3.6	2.9	2.2
Gross Margin (%)	31.6	30.3	32.1	32.8	33.7	FCF yield (%)	12.8	11.1	6.6	14.8	12.3
<b>EBITDA (Adj)</b>	<b>150</b>	<b>124</b>	<b>137</b>	<b>153</b>	<b>172</b>	Dividend yield (%)	0	0	0	0	0
EBITDA Margin (Adj) (%)	19.5	16.1	16.7	17.9	18.8	Payout ratio (%)	0	0	0	0	0
Depreciation	-35	-49	-32	-34	-34	ROE (%)	39.2	13.2	46.2	31.0	24.7
Amortisation	-23	-2	-2	-4	0	<b>Cashflow (US\$m)</b>	<b>2010</b>	<b>2011</b>	<b>2012E</b>	<b>2013E</b>	<b>2014E</b>
<b>EBIT (Adj)</b>	<b>115</b>	<b>97</b>	<b>110</b>	<b>119</b>	<b>138</b>	EBITDA	150	124	137	153	172
EBIT Margin (Adj) (%)	15.0	12.6	13.5	13.9	15.1	Working capital	-41	-9	-24	-1	-11
Net interest	-23	-25	-22	-21	-21	Other	-2	-10	-17	-28	-45
Associates	0	0	0	0	0	<b>Operating cashflow</b>	<b>107</b>	<b>105</b>	<b>96</b>	<b>124</b>	<b>115</b>
Non-op/Except	14	-18	24	0	0	Capex	-44	-48	-65	-54	-54
<b>Pre-tax profit</b>	<b>83</b>	<b>30</b>	<b>104</b>	<b>94</b>	<b>117</b>	Net acq/disposals	-1	0	0	0	0
Tax	-8	-8	-12	-8	-26	Other	0	-9	-2	0	0
Extraord./Min.Int./Pref.div.	0	0	0	0	0	<b>Investing cashflow</b>	<b>-44</b>	<b>-57</b>	<b>-67</b>	<b>-54</b>	<b>-54</b>
<b>Reported net profit</b>	<b>74</b>	<b>22</b>	<b>92</b>	<b>86</b>	<b>90</b>	Dividends paid	-131	0	0	0	0
Net Margin (%)	9.6	2.8	11.3	10.0	9.9	<b>Financing cashflow</b>	<b>42</b>	<b>-59</b>	<b>-25</b>	<b>0</b>	<b>0</b>
Core NPAT	84	64	76	90	90	<b>Net change in cash</b>	<b>107</b>	<b>-10</b>	<b>2</b>	<b>70</b>	<b>61</b>
<b>Per share data</b>	<b>2010</b>	<b>2011</b>	<b>2012E</b>	<b>2013E</b>	<b>2014E</b>	<b>Free cashflow to s/holders</b>	<b>63</b>	<b>56</b>	<b>31</b>	<b>70</b>	<b>61</b>
Reported EPS (\$)	1.92	0.55	2.45	2.29	2.31						
Core EPS (\$)	2.17	1.62	2.03	2.40	2.31						
DPS (\$)	0	0	0	0	0						
CFPS (\$)	2.75	2.63	2.56	3.33	2.95						
FCFPS (\$)	1.63	1.42	0.84	1.89	1.57						
BVPS (\$)	4.30	4.31	6.41	8.83	11.39						
Wtd avg ord shares (m)	37.8	38.8	36.7	36.2	36.2						
Wtd avg diluted shares (m)	38.7	39.7	37.6	37.3	39.1						
<b>Growth rates</b>	<b>2010</b>	<b>2011</b>	<b>2012E</b>	<b>2013E</b>	<b>2014E</b>						
Sales revenue (%)	37.6	0.3	5.8	4.7	6.8						
EBIT (Adj) (%)	86.4	-15.7	13.3	8.1	15.6						
Core NPAT (%)	314.4	-23.5	18.6	17.4	0.9						
Core EPS (%)	311.2	-25.6	25.2	18.4	-3.6						
<b>Balance Sheet (US\$m)</b>	<b>2010</b>	<b>2011</b>	<b>2012E</b>	<b>2013E</b>	<b>2014E</b>						
Cash & cash equiv.	172	169	164	235	296						
Accounts receivables	119	126	145	146	156						
Inventory	68	63	78	80	84						
Net fixed & other tangibles	200	201	246	266	287						
Goodwill & intangibles	28	17	15	11	11						
Financial & other assets	38	27	40	40	41						
<b>Total assets</b>	<b>626</b>	<b>603</b>	<b>688</b>	<b>777</b>	<b>874</b>						
Accounts payable	58	78	70	72	76						
Short-term debt	0	0	0	0	0						
Long-term debt	247	201	202	202	202						
Provisions & other liab	158	157	184	184	185						
<b>Total liabilities</b>	<b>463</b>	<b>436</b>	<b>456</b>	<b>457</b>	<b>462</b>						
Shareholders' equity	163	167	232	320	412						
Minority interests	0	0	0	0	0						
<b>Total equity</b>	<b>163</b>	<b>167</b>	<b>232</b>	<b>320</b>	<b>412</b>						
<b>Net debt</b>	<b>75</b>	<b>32</b>	<b>37</b>	<b>-33</b>	<b>-94</b>						
Net debt to equity (%)	45.9	19.5	16.0	-10.4	-22.9						

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For definitions of the items in this table, please click [here](#).

# Segment Sales Breakdown, Target Model, Valuation, Price Performance, and Model

1. Road Show Highlights
2. Key Risks
3. Segment Sales and Gross Margin Breakdown
4. Mid-Term Target Model
5. Valuation, Price Performance, and Model

## 1. Road Show Highlights

**Design Pipeline Supports Stable Foundry Outlook:** Magnachip posted impressive foundry revenue/gross margin results in 2012 by lining up several iPhone suppliers as foundry customers. In the past month, a few high profile 2013 smartphone designs have been completed providing line of sight into stable foundry demand. As a result, we estimate 2013 foundry revenues will approximate 2H12 run rates and offer similar gross margin levels.

**Power Solution to Drive Next Leg Up on the Gross Margins:** Just as foundry had a breakout year in 2012, power solutions appears poised to strengthen meaningfully in 2013. Even in a flattish economy, Magnachip should be able to sustain healthy (90%+) factory capacity utilization levels as power growth layers onto foundry demand from customers positioned in the Apple and Samsung supply chains. At 90%+ utilization, gross margin should expand roughly 1-pnt per year (we model 70bps increase in 2013E). If the economy and broad based demand were to actually accelerate in 2013, Magnachip could accelerate gross margin improvement potentially to 2-pnts per year as it could pull in the mix-up of higher value foundry / power products while de-emphasizing lower margin foundry/display areas.

**Apple and Samsung Alignment:** Magnachip's customer alignment is impressive because it offers strong growth prospects linked to Apple/Samsung but does so in a diversified manner.

Apple revenues are 100% foundry (indirect) and include top foundry customers Cirrus Logic and Peregrine Semiconductor. We estimate Cirrus Logic was a <10% customer in 2012E but will increase to >10% in 2013E. Peregrine Semiconductor should help foundry growth prospects in 2013 based on the Street forecasted 47% revenue growth.

Samsung revenues incorporate both foundry revenue (Wolfson, Atmel, and prospectively Korean touch suppliers) and direct sales including Magnachip's display drivers and power chips (more recently). MX appears to have a strong relationship with Samsung that could further strengthen further because of Magnachip's Korean 'home field advantage'. Factors reinforcing Magnachip's Samsung relationship are: strong pre-existing relationships, localized project support, close proximity of Korean manufacturing sites, low cost manufacturing enabled by depreciated fabs, a disciplined operating expense structure, and MX speaks the language while other US/European companies have struggled recently in Korea.

**Gross Margin Expansion via Product Mix:** Magnachip anticipates that improving product mix should improve annual GM roughly 1-point per year (1pnt GM = \$0.18 annually per our estimates). We believe in a stronger demand environment, gross margin could improve as much as 2-pnts per year because MX would have an additional ability to swap higher margin segments (PMIC / power modules, high

value foundry, OLED display drivers) and de-emphasize lower margin segments (lowest margin FETs, fab filler foundry, commodity display drivers).

It's important to understand that a: 1) Early Innings – Magnachip estimates that 25% of its revenue are 'premium products' and that this could approach 50% of total revenue by 2014, 2) Large Gross Margin Differential – We estimate that GM differentials between higher value and lower value products streams are 20%+ in both foundry and power, and 3) Delicate Process – Investors should understand that Magnachip sells lower margin products in addition to higher margin products to certain customers, so must work with customers to gradually shift mix at a mutually beneficial pace.

**Fab Capacity and Utilization:** The primary driver of MX's gross margin is utilization. MX uses an 80% utilization standard cost model so when utilization exceeds 80% overhead absorption improves. Magnachip maintained 136 k/ wafer per month manufacturing capacity in 2010 and 2011 and increased to 141k/wpm in 2012 in support of higher foundry demand. Utilization during those three years was 94%, 85%, and 91.5%E, with gross margin improving to 31.7%, 30.3%, and 32.1%E respectively.

Management's approach to adding capacity is conservative – it would prefer to maintain capacity level at 141k wpm but continually improve revenue and gross margin mix. It can do this by allocating capacity to higher revenue/wafer power and display products away from lower revenue/wafer foundry products (it would do so first with legacy low margin foundry business). So even if it keeps wafer capacity constant at 141 k/wafers per month, MX can still actually grow its revenues.

*Revenue per wafer breakout is as following: Foundry 1x, Display 1.5x, Power 2x, High Value Power ~3x-4x.*

## 2. Key Risks:

**A. Secondary Selling Risk / Liquidity Risk:** Top shareholder Avenue Capital still owns 13.8m shares or 38% of outstanding shares. Avenue and other shareholders have low cost bases given that MX traded as low as \$5-\$6 in 2011. As a result, we anticipate large shareholders could potentially sell before year end to book 2012 gains. With daily volume of the stock sometimes below 50k shares/day, liquidity risks are a primary risk factor related to buying MX stock.

**B. High Leverage / Sensitive Model:** With only 37m shares outstanding and high incremental margins, small changes in revenue and gross margin can shift earnings meaningfully. Every 1-pnt of gross margin equals \$0.20 and every 5-pnts of revenue equals \$0.30 per our model.

**C. Multiple Contraction Risk:** MX trades at 5x-6x our \$2.40 C13E EPS estimate. The stock traded as low as 3x F12M EPS during 2011. If this were to occur again, the stock could pose material downside risk.

**D. Exogenous Risk given Foundry Model:** MX is reliant on foundry customers: 1) maintaining their design slots at OEMs. Often time MX's foundry customers can have business concentrated to one or two slots in one or several models (particularly in the case of CRUS/Peregrine within the AAPL supply chain), 2) maintaining their sourcing with Magnachip and not second-sourcing with other foundries like TSMC, Tower/Jazz, X-fab, UMC, and 3) having their customers' customers (i.e. AAPL, Samsung) maintain success. Even if investors were to speculate around: a) potential design-losses for CRUS or Peregrine, b) potential socket integration (i.e. 2-chip to 1-chip), then this could effect MX's stock price adversely.

### 3. Segment Details: Revenue and Gross Margin

Figure 1. Detailed Revenue Segmentation and Gross Margins (2010 – 2013E)

Revenues (\$M)	1Q10 Mar-10	2Q10 Jun-10	3Q10 Sep-10	4Q10 Dec-10	1Q11 Mar-11	2Q11 Jun-11	3Q11 Sep-11	4Q11 Dec-11	1Q12 Mar-12	2Q12 Jun-12	3Q12 Sep-12	4Q12E Dec-12	1Q13E Mar-13	2Q13E Jun-13	3Q13E Sep-13	4Q13E Dec-13	2010 Dec-10	2011 Dec-11	2012E Dec-12	2013E Dec-13
Display Solutions	76.7	80.6	78.0	70.6	74.5	82.7	91.8	90.0	83.2	76.8	69.4	69.4	65	65	68	66	306	339	299	264
Power Solutions	9.0	12.0	17.8	18.4	20.4	23.7	26.4	22.0	25.3	33.7	33.8	32.5	32	34	37	39	57	93	125	142
Foundry Services	93.2	101.6	113.2	97.3	92.3	96.5	81.6	68.0	67.9	91.3	118.0	114.4	109	112	118	112	405	338	392	450
Others	0.5	0.5	0.5	0.5	0.8	0.8	0.7	0.8	1	1	1						2	3	2	0
Total	179.5	194.7	209.4	186.8	187.9	203.7	200.4	180.8	177.0	203	222	216	205	211	223	217	770	773	818	856
qq Growth																				
Display Solutions	4%	5%	-3%	-9%	5.5%	11.1%	10.9%	-1.9%	-7.6%	-7.7%	-9.6%	0.0%	-7%	0%	6%	-3%	23	33	(40)	(35)
Power Solutions	51%	33%	48%	3%	10.9%	16.3%	11.0%	-16.4%	14.6%	33.4%	0.4%	-4.0%	-3%	8%	10%	5%	45	35	33	17
Foundry Services	14%	9%	11%	-14%	-5.2%	4.5%	-15.4%	-16.7%	-0.2%	34.6%	29.2%	-3.0%	-5%	3%	5%	-5%	144	(67)	53	58
Others	4%	-2%															(1)	1	(1)	(2)
Total	10.7%	8.5%	7.6%	-10.8%	0.6%	8.4%	-1.6%	-9.8%	-2.1%	14.5%	9.5%	-2.5%	-5.3%	2.8%	6.1%	-2.7%	210	2	45	38
Y/Y Change																				
Display Solutions	29%	9%	3%	-4%	-3%	3%	18%	28%	12%	-7%	-24%	-23%	-22%	-16%	-1%	-4%	8%	11%	-12%	-12%
Power Solutions	904%	608%	368%	207%	126%	97%	48%	20%	24%	42%	28%	47%	25%	1%	11%	21%	362%	62%	35%	14%
Foundry Services	132%	61%	48%	19%	-1%	-5%	-28%	-30%	-26%	-5%	45%	68%	60%	23%	0%	-2%	55%	-17%	16%	15%
Others	-35%	-43%	-39%	0%	50%												-33%	50%		
Total	77%	39%	34%	15%	5%	5%	-4%	-3%	-6%	-1%	11%	20%	16%	4%	1%	0%	37.6%	0.3%	5.8%	4.7%
% Sales																				
Display Solutions	43%	41%	37%	38%	40%	41%	46%	50%	47%	38%	31%	32%	32%	31%	31%	31%	40%	44%	37%	31%
Power Solutions	5%	6%	8%	10%	11%	12%	13%	12%	14%	17%	15%	15%	15%	16%	17%	18%	7%	12%	15%	17%
Foundry Services	52%	52%	54%	52%	49%	47%	41%	38%	38%	45%	53%	53%	53%	53%	53%	51%	53%	44%	48%	53%
Others	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Gross Margin (%)																				
Display Solutions	18.8%	27.5%	29.1%	26.8%	26.6%	29.9%	28.3%	27.7%	26.0%	27.0%	28.0%	28.0%	27.0%	27.0%	28.0%	28.0%	26%	28%	27%	28%
Power Solutions	17.3%	20.3%	9.6%	11.7%	12.6%	23.7%	22.1%	20.1%	23.0%	26.1%	26.0%	29.0%	28.0%	29.0%	30.0%	31.0%	14%	20%	26%	30%
Foundry Services	35.2%	38.8%	39.2%	39.9%	36.1%	36.4%	34.8%	32.8%	33.0%	36.5%	41.0%	39.0%	36.0%	38.0%	37.0%	37.0%	38%	35%	38%	37%
Others																	102%			
Total	27.5%	33.1%	33.1%	32.3%	30.1%	32.5%	30.0%	28.5%	28.2%	31.0%	34.5%	34.0%	31.9%	33.2%	33.1%	33.2%	31.6%	30.3%	32.1%	32.8%

Source: Company reports, Citi Research

**A. Foundry:** Magnachip's foundry business grew 29% qq in 3Q after a 35% qq increase in 2Q. More importantly, foundry gross margin rose to ~41% by our estimate in 3Q12 from 33% in 1Q12, up 8-points over two quarter since GM was last officially reported. We believe that foundry will be a stable business for MX in 2013, with run rates approximating 2H12 levels. We believe that MX has good line of sight into its 2013 foundry customers positioning because design cycles for several flagship models were completed recently. In addition, there are a several higher value foundry upside opportunities that could emerge which might enable MX to de-emphasize certain low margin legacy foundry business. MX is now working with customers on specifications/qualification for 2014 models.

Top foundry customers include Cirrus Logic, Peregrine Semiconductor, Wolfson, Atmel, and Elan. We believe MX's top 5 foundry customers represent about 50% of foundry revenue, or 25% of total company revenue. In addition, MX works with a number of up and coming Korean touch control providers that could potentially benefit from Samsung's efforts to diversify touch supply particularly in lower-cost models.

Cirrus Logic is Magnachip's largest foundry customer. Cirrus was <10% of total revs in 2012, but will likely be modestly above 10% of revenue in 2013E. Cirrus produces two audio amplifier chips with Magnachip while it produces its lower-geometry audio coded with TSMC.

If CRUS were to either: a) integrate audio amps, b) 2nd source to TSMC or UMC, or c) be displaced entirely at AAPL then this would present material risk for MX.

Peregrine Semiconductor is also an important MX foundry customer. Peregrine Semi has enjoyed success selling antenna switches to AAPL's iPhone. As silicon on sapphire wafer availability improves, MX could benefit from higher volumes as Peregrine's business could broaden further beyond AAPL.

Wolfson is another MX foundry customer that has gained traction within Samsung handsets for audio chips.

Atmel uses MX for EEPROM and touch related foundry. Atmel is a leading supplier of microcontroller and touch control chips for Android mobile devices.

Elan is a Taiwanese supplier of touch control solutions for primarily for PC displays and PC track pads. With Win8 expanding touch capabilities beyond tablets to ultrabooks in 2013, Elan could potentially increase production volumes on Magnachip.

## **B. Power Business**

The power business primarily includes FETs, with power management ICs more recently introduced. Within power, we estimate that 75% of sales are MOSFETs, 15% PMICs, and 10% modules. Notably, power gross margins are currently among the weakest in the company, though this should improve as power gains scale.

Power is a new business developed over the past three-years by Magnachip. MX's head of sales and its head of power both hail from FCS. In many ways, FCS's strategy for expanding the quality, value and reputation of its power business are models for MX to emulate.

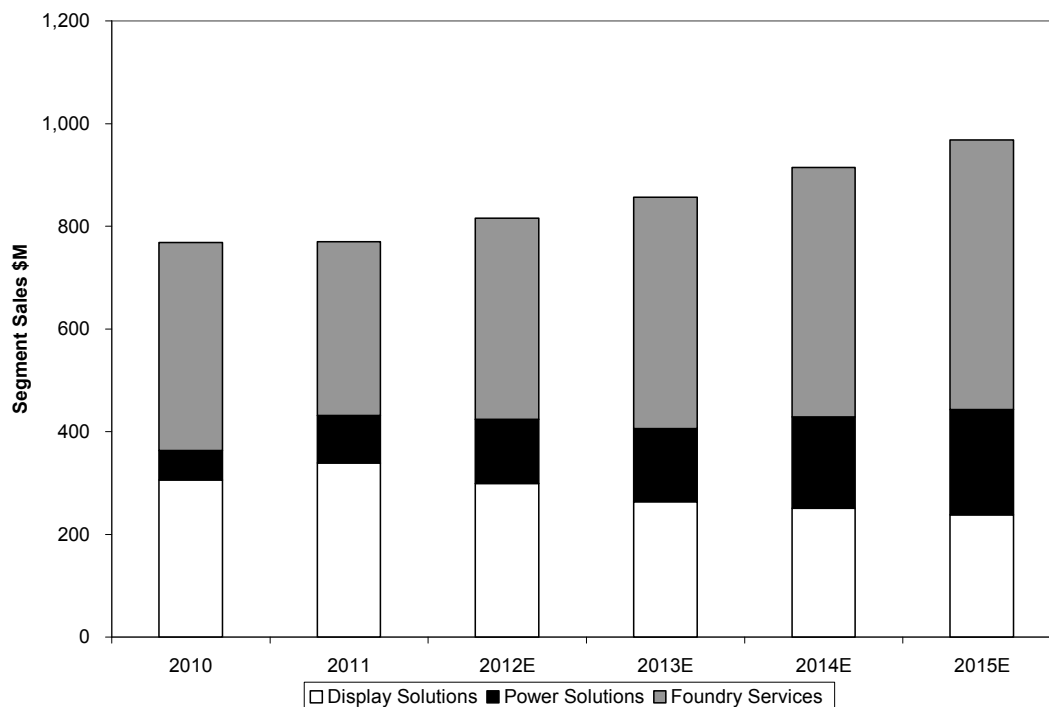
Starting with a base business of basic power switches, FCS then augmented its portfolio with ICs. Over time, based on growing customer traction, FCS was able to penetrate high value customers including AAPL.

Magnachip entered the module business through its acquisition of Daiwan earlier this year. We believe that MX could augment its power business through acquisition in the future, though deal scale would likely be conservative and focused on acquiring interesting power IP.

Recall that LLTC entered the power module business five years ago, with FCS following 3-yrs ago, and ONNN following 2-yrs ago with its Sanyo Semi acquisition. This market is a growing market because power modules are used for motor control in automotive applications, home appliances, and industrial applications. Magnachip also plans to add high voltage IGBTs 2013. We believe Magnachip has promising programs with Hyundai motors and Samsung and LG appliance for some of its module/IGBT programs. Other potential 2013 power revenue drivers are expanding its relationship with Elmos (for European autos) and Seoul Semi (LED lighting).

Power Competition: In power components MX sees competition from FCS, Rohm, Toshiba, Renesas, STM, TI, MXIM. With Japanese OEM demand declining, Japanese power competitors like Renesas and Toshiba have become very price aggressive. This represents a headwind that MX must navigate as it attempts to grow its power business and expand power's gross margins.

Figure 2. Segment Sales (2010-2015E)



Source: Company Reports, Citi Research

## 2. Mid-Term Target Model\*

Figure 3. Citi Estimates Vs. Mid-Term Target Model

	2011A	2012E (Citi)	2013E (Citi)	Target Model
Revenues \$M	773	818	856	1000
Gross Margins % (ex-charges, incl-amort, incl SBC)	30.3%	32.1%	32.8%	35-38%
Operating Expense (ex-charges, incl-amort, incl SBC)	18.8%	19.6%	19.4%	18-19%
Adjusted Net Income (ex-FX, ex-charge, ex-SBC)	8.6%	9.6%	10.7%	15-19%
Adjusted EBITDA	18.7%	17.1%	18.1%	24-28%
Tax Expense \$M	\$8.8	\$11.8	\$8.5	\$10-15M
CapEx	\$48.9	\$65.0	\$54.0	\$50-\$60M
<b>EPS Adjusted</b>	<b>\$1.67</b>	<b>\$2.08</b>	<b>\$2.46</b>	<b>\$4</b>

Source: Company Reports, Citi Research

\* Note MX target model assumes +90% utilization, higher or 50% mix of premium products, continued shift to North America/Europe sales from Taiwan, and increasing AMOLED sales mix as a percentage of display segment sales.

## 3. Valuation, Price Performance, and Model

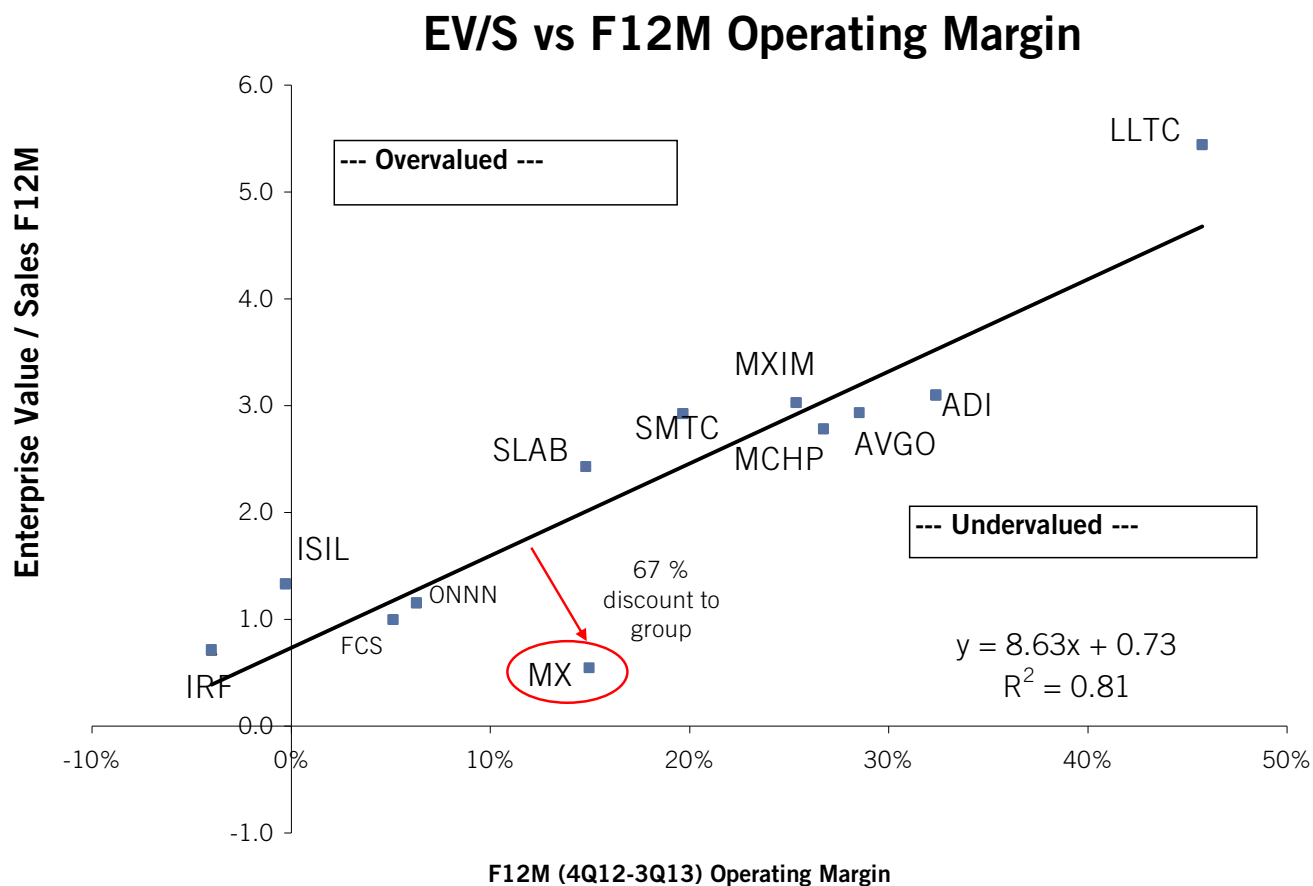
We maintain a consistent valuation framework and assign a \$19 price target based on financial forecasts and mixed target multiples. We assign a 58% valuation discount for MagnaChip relative to the group based on: 1) Avenue Capital's ownership overhang, 2) management's unproven track record and prior bankruptcy, and 3) investor unfamiliarity with the hybrid business model.



Our 4Q13-3Q14 (forward 12 months one year from now) operating margin forecast is 15.0% and our 4Q13-3Q14 ROIC forecast is 21.1%.

Our \$19 target price reflects a 0.91x EV/S target multiple and a 1.30x EV/IC target multiple applied to 4Q13-3Q14 financial forecasts.

Figure 4. MX Stock Appears Undervalued Based on Our EV/S vs. Operating Margin Valuation Framework



Source: Citi Research

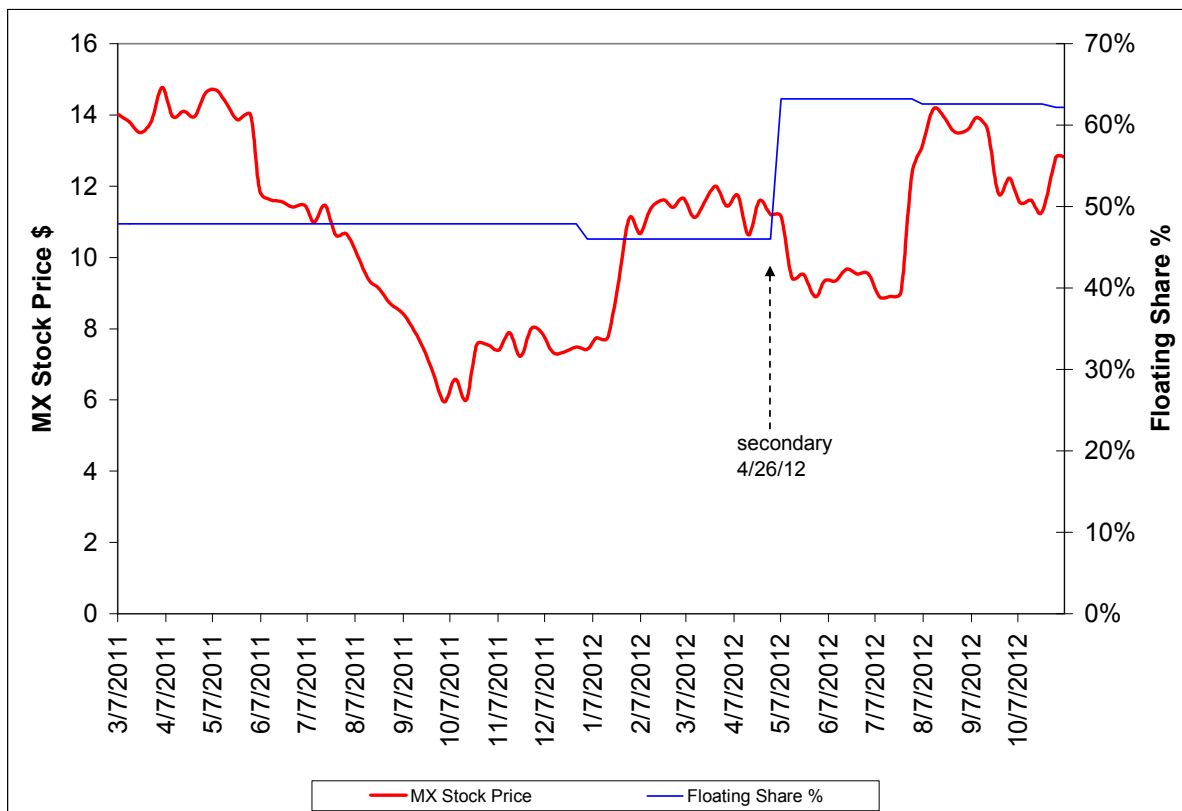


Figure 5. MX – Historical EV/S and P/E NTM Charts



Source: FactSet, Citi Research

Figure 6. MX Stock Performance Vs. Floating Share %



Date	Avenue Shares	Avenue Ownership %	Floating Share %
3/31/2011	20,789,539	52.1%	47.9%
6/30/2011	20,789,539	52.1%	47.9%
9/30/2011	20,789,539	52.1%	47.9%
12/31/2011	20,789,539	54.0%	46.0%
5/8/2012	13,789,539	36.8%	63.2%
7/31/2012	13,789,539	37.4%	62.6%
10/31/2012	13,789,539	37.8%	62.2%

Source: FactSet, Citi Research

Figure 7. Analog Stock Valuation (2010 – 2013E)

Terence R. Whalen, 415-951-1738

Specialty Semiconductors, Citi Research

1. Analog Valuation

1. Analog Valuation							Ent Val / Sales				Price (ex-cash) / EPS inc-SBC				Price / EPS inc-SBC				Mkt Cap / FCF			
	Price	Shares C3Q12	Mkt Cap	Net Cash C3Q12	Net Cash / MktCap	Ent Val	C11	C12E	C13E	Cross Cycle	C11	C12E	C13E	Cross Cycle	C11	C12E	C13E	Cross Cycle	C11	C12E	C13E	Cross Cycle
ADI	39.04	304	11,880	2,959	25%	8,921	3.06	3.24	3.02	3.0	11.7	13.2	11.2	11.3	15.5	17.6	14.9	15.0	15.3	17.6	14.0	20.0
AVGO	33.83	252	8,525	1,093	13%	7,432	3.16	3.08	2.80	3.0	11.7	11.2	9.7	10.7	13.5	12.8	11.2	12.2	12.7	16.3	11.1	45.2
FCS	11.81	129	1,521	114	7%	1,407	0.89	1.00	0.98	0.9	8.7	19.8	16.2	11.2	9.4	21.4	17.5	12.1	18.5		13.9	17.2
IRF	15.54	69	1,077	366	34%	710	0.62	0.72	0.71	0.68	8.8			30.5	13.3			46.2	nm		nm	170.5
ISIL	7.10	128	906	172	19%	734	0.97	1.21	1.31	1.1	12.6			34.7	15.6			42.8	7.1	92.2	27.1	5.5
LLTC	31.58	236	7,453	509	7%	6,944	5.20	5.39	5.27	5.1	14.4	17.3	17.0	15.3	15.4	18.6	18.2	16.4	13.6	13.5	15.9	16.6
MCHP	31.73	205	6,514	1,517	23%	4,997	3.51	3.22	2.74	3.1	13.1	13.5	11.1	11.7	17.1	17.5	14.5	15.2	17.9	14.9	14.1	18.4
MX	11.28	37	421	-36	-9%	457	0.59	0.56	0.53	0.6	7.6	6.0	5.1	5.8	7.0	5.6	4.7	5.4	7.5	13.4	6.0	109.2
MXIM	27.77	299	8,297	616	7%	7,681	3.12	3.17	2.95	3.0	15.6	15.4	13.1	14.3	16.9	16.6	14.1	15.4	12.2	18.4	12.2	25.2
ONNN	6.15	456	2,806	-420	-15%	3,226	0.94	1.12	1.16	1.1	8.0	15.6	17.5	10.9	7.0	13.6	15.2	9.5	12.2		11.7	11.8
SLAB	40.76	43	1,733	185	11%	1,548	3.15	2.77	2.53	2.7	33.7	23.6	20.2	21.8	37.8	26.5	22.6	24.4	21.6	21.5	16.7	22.3
SMTC	24.93	67	1,678	-134	-8%	1,811	3.77	3.19	2.80	3.2	18.5	21.4	15.9	17.0	17.1	19.8	14.8	15.8	21.7	18.2	9.1	24.8
Avg	24.57	199	4,763	634	11%	4,128	2.58	2.56	2.39	2.5	13.7	15.7	13.7	17.2	15.5	17.0	14.8	20.5	15.3	26.6	14.6	34.3
Sum			52,811	6,942		45,869																
GSPC	1,412																					

2. Analog Fundamentals

	Rating	Target	F12M Div	Yield	ETR	Sales			Cross Cycle 10-14	Op Marg inc-SBC			Cross Cycle 10-14	EPS inc-SBC			Cross Cycle 10-14	Free Cash Flow			Cross Cycle 10-14
						C11	C12E	C13E		C11	C12E	C13E		C11	C12E	C13E		C11	C12E	C13E	
ADI	Buy	\$47.0	\$ 1.20	3.1%	23.5%	2,913	2,751	2,955	2,937	34.2%	31.6%	34.5%	34.4%	\$2.51	\$2.22	\$2.63	\$2.60	\$776	\$673	\$851	\$595
AVGO	Buy	\$45.0	\$ 0.74	2.2%	35.2%	2,349	2,412	2,658	2,505	27.9%	28.5%	30.3%	29.1%	\$2.51	\$2.64	\$3.03	\$2.77	\$669	\$523	\$765	\$189
FCS	Buy	\$15.0	\$ -	0.0%	27.0%	1,589	1,410	1,436	1,504	10.8%	4.5%	5.9%	8.5%	\$1.25	\$0.55	\$0.67	\$0.98	\$82	\$12	\$110	\$89
IRF	Neutral	-	\$ -	0.0%	-	1,147	993	997	1,052	8.3%	-5.8%	-1.4%	2.7%	\$1.17	-\$1.05	-\$0.18	\$0.34	-\$99	\$26	-\$23	\$6
ISIL	Sell	\$5.0	\$ 0.48	6.8%	-	761	608	560	663	11.2%	0.2%	-1.3%	5.0%	\$0.46	-\$0.20	-\$0.11	\$0.17	\$128	\$10	\$33	\$165
LLTC	Neutral	\$32.0	\$ 1.06	3.4%	4.7%	1,336	1,288	1,317	1,360	48.8%	45.5%	46.0%	47.9%	\$2.05	\$1.70	\$1.73	\$1.92	\$549	\$551	\$469	\$449
MCHP	Neutral	-	\$ 1.40	4.4%	-	1,424	1,554	1,825	1,617	30.8%	28.0%	28.5%	30.3%	\$1.86	\$1.81	\$2.19	\$2.09	\$364	\$438	\$462	\$354
MX	Buy	\$19.0	\$ -	0.0%	59.6%	773	818	856	826	12.6%	13.5%	13.9%	14.0%	\$1.62	\$2.03	\$2.40	\$2.11	\$56	\$31	\$70	\$4
MXIM	Buy	\$34.0	\$ 1.02	3.7%	18.9%	2,461	2,419	2,603	2,528	25.6%	24.4%	27.5%	26.7%	\$1.64	\$1.67	\$1.97	\$1.80	\$680	\$452	\$678	\$330
ONNN	Neutral	\$7.0	\$ -	0.0%	13.8%	3,442	2,886	2,771	2,877	9.8%	7.5%	7.1%	10.3%	\$0.88	\$0.45	\$0.40	\$0.65	\$229	-\$57	\$239	\$238
SLAB	Buy	\$48.0	\$ -	0.0%	17.8%	492	558	611	565	11.8%	15.1%	15.8%	15.8%	\$1.08	\$1.54	\$1.80	\$1.67	\$80	\$80	\$104	\$78
SMTC	Buy	\$31.0	\$ -	0.0%	24.3%	481	567	646	572	22.8%	18.5%	22.1%	22.2%	\$1.46	\$1.26	\$1.69	\$1.58	\$77	\$92	\$185	\$68
Sum or Avg					20.7%	18,393	17,446	18,379	18,181	22.0%	18.0%	19.6%	21.2%	\$1.53	\$1.15	\$1.44	\$1.50	\$321	\$255	\$352	\$233
GSPC																					

\* Cross Cycle Calculation is Average 2010 - 2014 average

3. ROIC and Change in Analog Fundamentals

	ROIC					Cross Cycle 10-14	Sales YY			CAGR 10-14	Op Marg YY			Avg YY Chg 10-14	EPS inc-SBC YY			CAGR 10-14	FCF YY			CAGR 10-14
	I.C. 3Q12	C10	C11	C12E	C13E		C11	C12E	C13E		C11	C12E	C13E		C11	C12E	C13E		C11	C12E	C13E	
ADI	1,669	53.8%	49.6%	42.5%	48.2%	49.5%	1%	-6%	7%	2.4%	-80	-258	288	346	-3%	-12%	18%	4%	-11%	-13%	26%	3.0%
AVGO	1,812	33.5%	34.9%	33.8%	38.6%	36.7%	7%	3%	10%	7.5%	-6	54	183	263	11%	5%	15%	10%	54%	-22%	46%	19.9%
FCS	1,540	11.7%	9.2%	3.3%	4.5%	7.1%	-1%	-11%	2%	-1.8%	-190	-627	142	172	-15%	-56%	22%	-11%	-53%	-86%	850%	-3.9%
IRF	1,102	15.0%	8.3%	-5.0%	-1.0%	3.7%	7%	-13%	0%	-0.3%	-252	-1411	440	332	-26%	-190%	-83%	-44%	-215%		-186%	nm
ISIL	984	2.6%	9.7%	2.6%	-0.8%	2.7%	-8%	-20%	-8%	-9.1%	-461	-1094	-159	-207	-41%	-144%	-44%	nm	5%	-92%	241%	-22.2%
LLTC	563	94.1%	84.0%	79.5%	76.7%	82.4%	-8%	-4%	2%	-0.7%	-354	-336	56	121	-9%	-17%	2%	-4%	2%	0%	-15%	-1.1%
MCHP	1,194	38.8%	36.5%	33.0%	37.9%	37.5%	6%	9%	17%	9.4%	-277	-280	51	165	-9%	-3%	21%	6%	-13%	21%	5%	5.1%
MX	409	18.7%	19.5%	18.3%	19.5%	19.5%	0%	6%	5%	4.4%	-239	89	44	80	-26%	25%	18%	2%	-10%	-44%	124%	
MXIM	2,451	21.2%	20.1%	19.7%	23.1%	21.9%	6%	-2%	8%	5.3%	-194	-120	307	275	9%	2%	18%	10%	26%	-34%	50%	8.1%
ONNN	2,512	14.6%	10.2%	6.4%	6.1%	9.3%	49%	-16%	-4%	6.5%	-790	-232	-33	6	-1%	-49%	-11%	-9%	-37%	-125%		-2.2%
SLAB	562	28.4%	19.3%	15.8%	17.3%	20.4%	0%	14%	9%	8.1%	-577	328	71	74	-29%	43%	17%	12%	-23%	1%	29%	5.9%
SMTC	932	23.1%	22.0%	9.3%	13.0%	16.7%	6%	18%	14%	11.9%	-14	-427	361	201	3%	-13%	34%	10%	15%	19%	101%	30.5%
Avg	1,393	30.6%	27.6%	21.9%	24.0%	26.2%	9%	-5%	5%	3.6%	-290	-400	155	159	-8%	-25%	26%	-1.6%	-5%	-21%	38%	4.3%
GSPC																						

Valuation as of: 11/6/2012

Source: Citi Research

Figure 8. Analog Stock Quarterly Price Performance (1Q09 - Current Quarter)

Quarterly Price Performance	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	3Q11	4Q11	1Q12	2Q12	3Q12	4Q12 QTD	2011	2012 YTD
ADI	2.5%	29.7%	12.1%	15.2%	-8.1%	-2.6%	13.5%	20.8%	5.1%	0.0%	-19.5%	15.4%	13.8%	-6.0%	4.8%	3.2%	-2.4%	15.8%
AVGO				7.1%	12.4%	2.5%	6.9%	26.5%	9.7%	22.5%	-13.5%	-11.6%	35.5%	-7.5%	-2.4%	-2.6%	2.9%	19.2%
FCS	-23.7%	87.4%	46.4%	-2.3%	6.6%	-21.0%	11.8%	66.1%	16.6%	-8.2%	-35.4%	11.5%	22.1%	-4.1%	-7.0%	-6.3%	-22.9%	2.1%
IRF	0.1%	9.6%	31.6%	13.5%	3.5%	-18.7%	13.3%	40.8%	11.4%	-15.4%	-33.4%	4.3%	18.8%	-13.4%	-16.5%	-5.2%	-34.6%	-18.5%
ISIL	26.5%	10.4%	22.9%	1.1%	-3.1%	-17.1%	-2.4%	31.8%	-17.7%	4.0%	-19.0%	2.5%	8.4%	-3.8%	-16.8%	-15.8%	-28.9%	-27.0%
LLTC	4.8%	2.7%	19.3%	11.5%	-6.8%	-0.8%	11.3%	13.3%	-2.1%	-1.1%	-15.5%	9.4%	13.1%	-6.3%	2.3%	1.6%	-10.5%	10.2%
MCHP	10.4%	8.2%	19.0%	11.0%	-1.8%	-0.3%	14.7%	10.9%	11.1%	0.6%	-17.0%	18.9%	2.5%	-10.1%	-0.1%	-1.9%	10.2%	-9.6%
MX											-41.7%	11.3%	60.4%	-20.6%	23.8%	8.0%	-46.6%	70.3%
MXIM	17.4%	20.4%	16.9%	13.3%	-3.6%	-12.7%	12.0%	28.8%	9.2%	0.6%	-7.8%	12.6%	10.7%	-9.6%	4.7%	7.4%	14.0%	12.6%
ONNN	14.7%	75.9%	20.3%	6.9%	-9.3%	-20.3%	13.0%	37.0%	-0.2%	6.2%	-31.4%	7.5%	16.7%	-21.2%	-13.0%	1.3%	-21.9%	-18.9%
SLAB	6.5%	43.9%	22.1%	4.4%	-1.5%	-14.9%	-9.6%	25.6%	-6.1%	-4.5%	-18.7%	29.5%	-1.0%	-12.0%	-2.9%	11.3%	-5.6%	-5.8%
SMTC	18.5%	19.2%	6.9%	0.0%	2.5%	-6.1%	23.3%	12.1%	10.5%	9.3%	-22.8%	17.6%	14.7%	-14.5%	3.4%	-1.3%	9.6%	0.0%
Analog Avg	7.7%	23.3%	29.8%	8.0%	-1.4%	-9.0%	8.1%	24.4%	4.3%	0.6%	-19.9%	11.7%	12.6%	-9.5%	-1.6%	1.1%	-6.1%	1.4%
SOX	8.8%	14.0%	23.8%	10.5%	1.9%	-9.3%	5.1%	17.9%	6.2%	-6.2%	-17.4%	7.6%	20.4%	-12.1%	-0.8%	-3.9%	-11.5%	0.8%
GSPC	-11.7%	15.2%	15.0%	5.5%	4.9%	-11.9%	10.7%	10.2%	5.4%	-0.4%	-14.3%	11.2%	12.0%	-3.3%	5.8%	-2.0%	0.0%	12.3%
RUT	-15.4%	20.2%	18.9%	3.5%	8.5%	-10.2%	10.9%	15.9%	7.6%	-1.9%	-22.1%	15.0%	12.1%	-3.8%	4.9%	-2.9%	-5.5%	9.8%
Computing	8.9%	19.7%	28.8%	1.5%	-1.8%	-19.2%	6.0%	44.9%	0.2%	-1.0%	-29.3%	7.3%	16.1%	-8.5%	-11.6%	-7.6%	-24.8%	-13.2%
Handset	10.7%	19.7%	56.6%	5.4%	2.5%	-9.1%	13.3%	29.1%	9.9%	7.8%	-19.2%	4.9%	20.7%	-10.3%	-0.7%	0.0%	0.4%	7.6%
Industrial	5.8%	9.7%	16.6%	12.6%	-5.7%	-1.2%	13.2%	15.1%	4.7%	-0.1%	-17.5%	14.7%	9.6%	-7.4%	2.5%	1.1%	-1.0%	5.1%
Computing vs Industrial	3.1%	10.1%	12.1%	-11.1%	3.9%	-18.0%	-7.2%	29.9%	-4.5%	-0.9%	-11.8%	-7.4%	6.5%	-1.0%	-14.1%	-8.7%	-23.8%	-18.2%
Relative to Group Average	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	3Q11	4Q11	1Q12	2Q12	3Q12	4Q12 QTD	2011	2012 YTD
ADI	-5.3%	6.4%	-17.7%	7.2%	-6.8%	6.5%	5.4%	-3.6%	0.8%	-0.6%	0.3%	3.7%	1.3%	3.5%	6.4%	2.1%	3.7%	14.4%
AVGO				-0.9%	13.8%	11.5%	-1.2%	2.1%	5.4%	21.9%	6.4%	-23.3%	23.0%	2.0%	-0.8%	-3.7%	8.9%	17.8%
FCS	-31.5%	64.1%	16.6%	-10.4%	8.0%	-12.0%	3.7%	41.6%	12.3%	-8.8%	-15.5%	-0.2%	9.5%	5.4%	-5.4%	-7.4%	-16.8%	0.7%
IRF	-7.7%	-13.7%	1.8%	5.5%	4.9%	-9.7%	5.2%	16.3%	7.0%	-16.0%	-13.6%	-7.4%	6.2%	-3.8%	-14.9%	-6.3%	-28.5%	-19.9%
ISIL	18.8%	-12.9%	-6.9%	-6.9%	-1.7%	-8.1%	-10.5%	7.3%	-22.0%	3.4%	0.8%	-9.1%	-4.1%	5.7%	-15.2%	-16.9%	-22.8%	-28.3%
LLTC	-2.9%	-20.6%	-10.4%	3.5%	-5.4%	8.2%	3.2%	-11.1%	-6.4%	-1.7%	4.4%	-2.2%	0.5%	3.2%	3.9%	0.5%	-4.4%	8.8%
MCHP	2.7%	-15.1%	-10.7%	3.0%	-0.4%	8.8%	6.6%	-13.5%	6.8%	0.0%	2.8%	7.2%	-10.0%	-0.6%	1.5%	-3.0%	16.3%	-11.0%
MX											-21.8%	-0.4%	47.9%	-11.1%	25.4%	6.8%	-40.5%	69.0%
MXIM	9.7%	-2.9%	-12.9%	5.2%	-2.2%	-3.7%	3.9%	4.3%	4.9%	0.0%	12.1%	0.9%	-1.9%	-0.1%	6.3%	6.3%	20.1%	11.2%
ONNN	7.0%	52.6%	-9.5%	-1.1%	-7.9%	-11.2%	4.9%	12.6%	-4.5%	5.6%	-11.6%	-4.2%	4.2%	-11.7%	-11.4%	0.2%	-15.8%	-20.3%
SLAB	-1.2%	20.6%	-7.7%	-3.7%	-0.1%	-5.9%	-17.7%	1.1%	-10.4%	-5.1%	1.1%	17.8%	-13.5%	-2.5%	-1.3%	10.2%	0.4%	-7.1%
SMTC	10.7%	-4.1%	-22.8%	-8.0%	3.8%	3.0%	15.2%	-12.3%	6.2%	8.7%	-3.0%	6.0%	2.1%	-5.0%	5.0%	-2.4%	15.7%	-1.4%
SOX	1.1%	-9.3%	-6.0%	2.5%	3.2%	-0.3%	-3.0%	-6.5%	1.9%	-6.8%	2.4%	-4.1%	7.8%	-2.6%	0.8%	-5.0%	-5.4%	-0.6%
GSPC	-19.4%	-8.1%	-14.8%	-2.5%	6.2%	-2.8%	2.6%	-14.2%	1.1%	-1.0%	5.5%	-0.5%	-0.6%	6.2%	7.4%	-3.1%	6.1%	10.9%
RUT	-23.1%	-3.1%	-10.9%	-4.5%	9.9%	-1.2%	2.8%	-8.5%	3.3%	-2.5%	-2.3%	3.3%	-0.5%	5.7%	6.5%	-4.0%	0.6%	8.4%
Computing	1.2%	-3.6%	-1.0%	-6.5%	-0.4%	-10.2%	-2.1%	20.5%	-4.2%	-1.6%	-9.4%	-4.4%	3.5%	1.0%	-10.0%	-8.7%	-18.7%	-14.5%
Handset	2.9%	-3.6%	26.8%	-2.7%	3.9%	0.0%	5.2%	4.7%	5.6%	7.3%	0.6%	-6.8%	8.2%	-0.8%	0.9%	-1.1%	6.5%	6.2%
Industrial	-1.9%	-13.6%	-13.1%	4.6%	-4.3%	7.8%	5.1%	-9.4%	0.4%	-0.7%	2.4%	3.1%	-3.0%	2.1%	4.1%	0.0%	5.1%	3.7%
Relative to S&P 500	1Q09	2Q09	3Q09	4Q09	1Q10	2Q10	3Q10	4Q10	1Q11	2Q11	3Q11	4Q11	1Q12	2Q12	3Q12	4Q12 QTD	2011	2012 YTD
ADI	14.1%	14.5%	-2.9%	9.8%	-13.0%	9.3%	2.8%	10.6%	-0.3%	0.4%	-5.2%	4.2%	1.8%	-2.7%	-0.9%	5.2%	-2.4%	3.5%
AVGO				1.6%	7.6%	14.3%	-3.8%	16.3%	4.3%	22.9%	0.8%	-22.7%	23.5%	-4.2%	-8.2%	-0.6%	2.9%	6.9%
FCS	-12.1%	72.2%	31.4%	-7.8%	1.7%	-9.2%	1.1%	55.9%	11.2%	-7.8%	-21.0%	0.3%	10.1%	-0.8%	-12.7%	-4.3%	-22.9%	-10.2%
IRF	11.7%	-5.6%	16.6%	8.0%	-1.3%	-6.9%	2.6%	30.6%	5.9%	-15.0%	-19.1%	-6.9%	6.8%	-10.1%	-22.3%	-3.2%	-34.6%	-30.8%
ISIL	38.2%	-4.8%	7.9%	-4.4%	-7.9%	-5.3%	-13.2%	21.6%	-23.1%	4.4%	-4.7%	-8.6%	-3.6%	-0.6%	-22.6%	-13.8%	-28.9%	-39.3%
LLTC	16.5%	-12.5%	4.3%	6.0%	-11.6%	11.1%	0.6%	3.1%	-7.5%	-0.7%	-1.2%	-1.7%	1.1%	-3.0%	-3.4%	3.6%	-10.5%	-2.1%
MCHP	22.1%	-7.0%	4.0%	5.5%	-6.7%	11.6%	4.0%	0.7%	5.7%	1.0%	-2.7%	7.7%	-9.5%	-6.8%	-5.8%	0.1%	10.2%	-21.9%
MX											-27.3%	0.2%	48.4%	-17.3%	18.1%	10.0%	-46.6%	58.0%
MXIM	29.1%	5.2%	1.9%	7.8%	-8.5%	-0.8%	1.3%	18.6%	3.8%	1.0%	6.5%	1.4%	-1.3%	-6.3%	-1.1%	9.4%	14.1%	0.3%
ONNN	26.4%	60.7%	5.3%	1.4%	-14.2%	-8.4%	2.3%	26.8%	-5.6%	6.6%	-17.1%	-3.6%	4.7%	-17.9%	-18.7%	3.3%	-21.9%	-31.2%
SLAB	18.2%	28.6%	7.1%	-1.1%	-6.3%	-3.1%	-20.4%	15.4%	-11.5%	-4.1%	-4.4%	18.3%	-13.0%	-8.7%	-8.6%	13.3%	-5.6%	-18.1%
SMTC	30.1%	4.0%	-8.1%	-5.5%	-2.4%	5.8%	12.6%	1.9%	5.1%	9.7%	-8.5%	6.5%	2.7%	-11.3%	-2.4%	0.7%	9.6%	-12.3%
Analog Avg	19.4%	8.1%	14.8%	2.5%	-6.2%	2.8%	-2.6%	14.2%	-1.1%	1.0%	-5.5%	0.5%	0.6%	-6.2%	-7.4%	3.1%	-6.1%	-10.9%
SOX	20.5%	-1.3%	8.8%	5.0%	-3.0%	2.5%	-5.6%	7.7%	0.8%	-5.8%	-3.1%	-3.6%	8.4%	-8.8%	-6.6%	-1.9%	-11.5%	-11.5%
RUT	-3.7%	5.0%	3.9%	-2.0%	3.6%	1.7%	0.2%	5.7%	2.2%	-1.5%	-7.8%	3.9%	0.1%	-0.5%	-0.9%	-0.9%	-5.4%	-2.5%
Computing	20.6%	4.5%	13.8%	-4.0%	-6.7%	-7.3%	-4.7%	34.7%	-5.3%	-0.6%	-14.9%	-3.9%	4.1%	-5.2%	-17.3%	-5.6%	-24.8%	-25.4%
Handset	22.3%	4.5%	41.6%	-0.1%	-2.4%	2.8%	2.5%	18.9%	4.5%	8.2%	-4.9%	-6.2%	8.7%	-7.0%	-6.5%	2.0%	0.4%	-4.7%
Industrial	17.5%	-5.6%	1.7%	7.2%	-10.6%	10.6%	2.4%	4.9%	-0.7%	0.3%	-3.1%	3.6%	-2.4%	-4.2%	-3.3%	3.1%	-1.0%	-7.2%

\* Stock Returns as of: 11/7/2012

\*\* Base on Dividend Adjusted Stock Price

\*\*\* Computing Group Includes FCS, ISIL, and ONNN

Handset Group Includes AVGO, FCS, MXIM, ONNN and SMTC

Industrial Group Includes ADI, LLTC, and MCHP

Source: Yahoo Finance, Citi Research

Figure 9. MX Income Statement (F2010 – F2014E)

MX Income Statement																			
(\$M), except per share																			
	1Q11	2Q11	3Q11	4Q11	1Q12	2Q12	3Q12	4Q12E	1Q13E	2Q13E	3Q13E	4Q13E		2010	2011	2012E	2013E	2014E	
	Mar-11	Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12	Dec-12	Mar-13	Jun-13	Sep-13	Dec-13		Dec-10	Dec-11	Dec-12	Dec-13	Dec-14	
Revenue	187.9	203.7	200.4	180.8	177.0	202.6	221.9	216.3	204.8	210.6	223.5	217.4		770.4	772.8	817.9	856.2	914.6	
YY Growth (%)	4.7%	4.6%	-4.3%	-3.2%	-5.8%	-0.5%	10.7%	19.6%	15.7%	3.9%	0.7%	0.5%		37.6%	0.3%	5.8%	4.7%	6.8%	
QQ Growth (%)	0.6%	8.4%	-1.6%	-9.8%	-2.1%	14.5%	9.5%	-2.5%	-5.3%	2.8%	6.1%	-2.7%		0.0%	0.0%	0.0%	0.0%	0.0%	
Total Cost of Sales	131.4	137.5	140.3	129.3	127.1	139.8	145.4	142.9	139.4	140.7	149.6	145.3		525.9	538.5	555.2	575.0	606.4	
Gross Profit	56.5	66.2	60.1	51.5	49.9	62.9	76.4	73.5	65.4	69.9	73.9	72.1		244.5	234.3	262.7	281.2	308.2	
Gross Margin (%)	30.1%	32.5%	30.0%	28.5%	28.2%	31.0%	34.5%	34.0%	31.9%	33.2%	33.1%	33.2%		31.7%	30.3%	32.1%	32.8%	33.7%	
R&D	17.7	19.8	18.2	17.9	17.4	19.0	18.7	19.0	18.6	19.1	20.2	19.9		74.7	73.5	74.1	77.9	81.9	
SG&A	14.2	16.2	16.6	16.4	18.6	18.9	20.2	20.6	20.2	20.7	21.8	21.6		54.4	63.5	78.3	84.2	88.6	
Total Operating Expenses	31.9	36.0	34.8	34.3	36.0	37.9	38.9	39.6	38.8	39.8	42.0	41.5		129.1	137.0	152.4	162.0	170.5	
R&D % of Sales	9.4%	9.7%	9.1%	9.9%	9.8%	9.4%	8.4%	8.8%	9.1%	9.1%	9.0%	9.2%		9.7%	9.5%	9.1%	9.1%	9.0%	
SG&A % of Sales	7.6%	8.0%	8.3%	9.1%	10.5%	9.3%	9.1%	9.5%	9.8%	9.8%	9.8%	9.9%		7.1%	8.2%	9.6%	9.8%	9.7%	
OpEx % of Sales	17.0%	17.7%	17.4%	19.0%	20.4%	18.7%	17.5%	18.3%	18.9%	18.9%	18.8%	19.1%		16.8%	17.7%	18.6%	18.9%	18.6%	
Operating Income	24.6	30.2	25.3	17.2	13.9	25.0	37.6	33.9	26.6	30.1	31.9	30.6		115.4	97.3	110.3	119.2	137.7	
Operating Margin (%)	13.1%	14.8%	12.6%	9.5%	7.8%	12.3%	16.9%	15.6%	13.0%	14.3%	14.3%	14.1%		15.0%	12.6%	13.5%	13.9%	15.1%	
Interest Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Interest (Expense)	-7.1	-6.4	-5.9	-5.6	-5.6	-5.6	-5.7	-5.3	-5.3	-5.3	-5.3	-5.3		-22.9	-25.0	-22.2	-21.2	-21.2	
Other Income (Expense)	0.2	-3.9	-1.9	-0.9	0.1	0.7	0.7	0.0	0.0	0.0	0.0	0.0		-0.7	-6.5	1.5	0.0	0.0	
Pretax Income	17.5	23.8	19.5	11.6	8.3	19.4	31.8	28.6	21.3	24.8	26.6	25.3		92.5	72.3	88.1	98.0	116.6	
Pretax Margin (%)	9.3%	11.7%	9.7%	6.4%	4.7%	9.6%	14.3%	13.2%	10.4%	11.8%	11.9%	11.6%		12.0%	9.4%	10.8%	11.4%	12.7%	
Income Tax	2.4	2.0	1.8	1.9	2.2	3.2	3.9	2.5	1.7	2.1	2.4	2.3		8.4	8.0	11.8	8.5	26.2	
Effective Tax Rate (%)	13.6%	8.3%	9.2%	16.2%	26.9%	16.3%	12.3%	8.8%	8.2%	8.3%	9.0%	9.0%		9.1%	11.1%	13.4%	8.6%	22.5%	
Net Income	15.1	21.9	17.7	9.7	6.1	16.2	27.9	26.1	19.6	22.7	24.2	23.0		84.1	64.3	76.3	89.6	90.3	
Net Margin (%)	8.0%	10.7%	8.8%	5.4%	3.4%	8.0%	12.6%	12.0%	9.6%	10.8%	10.8%	10.6%		10.9%	8.3%	9.3%	10.5%	9.9%	
EBITDA	37.1	44.1	38.6	24.4	21.8	33.4	46.6	44.8	37.5	41.0	40.9	39.6		157.6	144.2	140.1	155.0	173.7	
Adjusted EPS - Diluted	\$0.38	\$0.54	\$0.44	\$0.25	\$0.16	\$0.43	\$0.75	\$0.70	\$0.52	\$0.61	\$0.65	\$0.62		\$2.17	\$1.62	\$2.03	\$2.40	\$2.31	
One-Time Impact on EPS	(\$0.19)	(\$0.24)	\$1.84	(\$0.36)	(\$0.24)	\$0.32	(\$0.55)	\$0.05	\$0.05	\$0.05	\$0.00	\$0.00		\$0.25	\$1.07	(\$0.42)	\$0.11	\$0.00	
GAAP Reported EPS - Diluted	\$0.57	\$0.78	(\$1.40)	\$0.61	\$0.40	\$0.12	\$1.30	\$0.64	\$0.47	\$0.56	\$0.65	\$0.62		\$1.92	\$0.55	\$2.45	\$2.29	\$2.31	
Dividends per Share	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Basic Shares	38.3	39.1	39.1	38.6	37.5	36.7	36.2	36.2	36.2	36.2	36.2	36.2		37.8	38.8	36.7	36.2	36.2	
Fully Diluted Shares	39.6	40.3	40.0	39.1	38.3	37.6	37.3	37.3	37.3	37.3	37.3	37.3		38.7	39.7	37.6	37.3	39.1	
Ratios																			
% of Sales																			
Gross Margin (%)	30.1%	32.5%	30.0%	28.5%	28.2%	31.0%	34.5%	34.0%	31.9%	33.2%	33.1%	33.2%		31.7%	30.3%	32.1%	32.8%	33.7%	
Operating Margin (%)	13.1%	14.8%	12.6%	9.5%	7.8%	12.3%	16.9%	15.6%	13.0%	14.3%	14.3%	14.1%		15.0%	12.6%	13.5%	13.9%	15.1%	
Net 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%		0.0%	0.0%	0.0%	0.0%	0.0%	
EBITDA Margin (%)	19.8%	21.7%	19.3%	13.5%	12.3%	16.5%	21.0%	20.7%	18.3%	19.5%	18.3%	18.2%		20.5%	18.7%	17.1%	18.1%	19.0%	
Sequential Growth (%)																			
Sales	-48.7%	8.4%	-1.6%	-9.8%	-2.1%	14.5%	9.5%	-2.5%	-5.3%	2.8%	6.1%	-2.7%		37.6%	0.3%	5.8%	4.7%	6.8%	
Gross Profit	-80.3%	17.2%	-9.2%	-14.3%	-3.2%	25.9%	21.6%	-3.9%	-11.0%	6.8%	5.8%	-2.4%		39.2%	-4.2%	12.1%	7.1%	9.6%	
Operating Income	-87.4%	22.9%	-16.1%	-31.9%	-19.6%	80.2%	50.3%	-9.9%	-21.4%	13.1%	6.2%	-4.2%		86.4%	-15.7%	13.3%	8.1%	15.6%	
Net Income	-88.6%	44.9%	-19.1%	-45.0%	-37.7%	167.7%	72.2%	-6.7%	-24.9%	16.2%	6.6%	-5.0%		314.4%	-23.5%	18.6%	17.4%	0.9%	
EBITDA	-81.9%	18.9%	-12.6%	-36.8%	-10.7%	53.1%	39.5%	-3.7%	-16.2%	9.3%	-0.3%	-3.3%		59.6%	-8.5%	-2.9%	10.7%	12.0%	
Adjusted EPS - Diluted	-33.7%	42.3%	-18.5%	-43.8%	-36.4%	172.9%	73.3%	-6.7%	-24.9%	16.2%	6.6%	-5.0%		311.2%	-25.6%	25.2%	18.4%	-3.6%	

Note: \* Adjusted income statement excludes one-time charges &amp; Foreign Exchange gain(loss), but includes stock-based compensation

Source: Company reports and Citi Research

Figure 10. MX Balance Sheet (F2010 – F2014E)

MX Balance Sheet (\$M), except per share																			
	1Q11	2Q11	3Q11	4Q11	1Q12	2Q12	3Q12	4Q12E	1Q13E	2Q13E	3Q13E	4Q13E	2010	2011	2012E	2013E	2014E		
	Mar-11	Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12	Dec-12	Mar-13	Jun-13	Sep-13	Dec-13	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14		
<b>Assets</b>																			
Cash, Equivalents & ST Investments	194	178	169	169	161	161	166	164	188	201	211	235	172	169	164	235	296		
Cash & Equivalents	194	178	159	162	157	156	166	164	188	201	211	235	172	162	164	235	296		
Short-Term Investments	0	0	9	7	4	5	0	0	0	0	0	0	0	7	0	0	0		
Accounts Receivable	131	124	124	126	127	135	149	145	137	141	150	146	119	126	145	146	156		
Inventory, Net	74	87	70	63	68	75	75	78	76	77	82	80	68	63	78	80	84		
Prepaid Expenses	14	10	10	8	11	9	9	6	12	7	9	9	9	8	9	9	9		
<b>Total Current Assets</b>	<b>271</b>	<b>344</b>	<b>396</b>	<b>390</b>	<b>424</b>	<b>413</b>	<b>382</b>	<b>380</b>	<b>374</b>	<b>387</b>	<b>420</b>	<b>418</b>	<b>418</b>	<b>431</b>	<b>449</b>	<b>473</b>	<b>490</b>		
Property, Plant & Equipment, Net	179	191	180	183	206	219	230	229	235	240	245	249	179	183	229	249	270		
Other NC Tangible Assets	26	24	19	17	20	18	17	15	13	11	11	11	28	17	15	11	11		
Other NC Non-Tangible Assets	29	27	26	23	22	22	27	27	27	27	27	27	29	23	27	27	27		
<b>Total Long-Term Assets</b>	<b>234</b>	<b>243</b>	<b>224</b>	<b>223</b>	<b>249</b>	<b>259</b>	<b>273</b>	<b>270</b>	<b>274</b>	<b>278</b>	<b>282</b>	<b>287</b>	<b>236</b>	<b>223</b>	<b>270</b>	<b>287</b>	<b>307</b>		
<b>Total Assets</b>	<b>658</b>	<b>655</b>	<b>606</b>	<b>603</b>	<b>623</b>	<b>646</b>	<b>693</b>	<b>688</b>	<b>705</b>	<b>727</b>	<b>755</b>	<b>777</b>	<b>626</b>	<b>603</b>	<b>688</b>	<b>777</b>	<b>874</b>		
<b>Liabilities</b>																			
Accounts Payable	74	74	76	78	91	93	97	70	69	69	74	72	58	78	70	72	76		
Accrued Payroll and Related Benefits	44	42	37	32	40	40	40	38	39	38	38	38	33	32	38	38	39		
Other Accrued Liabilities	21	34	31	28	27	38	29	29	29	29	29	29	25	28	29	29	29		
<b>Current Liabilities</b>	<b>138</b>	<b>150</b>	<b>144</b>	<b>138</b>	<b>157</b>	<b>171</b>	<b>167</b>	<b>138</b>	<b>137</b>	<b>137</b>	<b>141</b>	<b>139</b>	<b>116</b>	<b>138</b>	<b>138</b>	<b>139</b>	<b>144</b>		
Long-Term Debt	247	212	201	201	201	202	202	202	202	202	202	202	247	201	202	202	202		
Accrued Severance Benefits	92	97	91	91	94	97	105	105	105	105	105	105	88	91	105	105	105		
Other Liabilities	10	6	10	6	6	6	12	12	12	12	12	12	12	6	12	12	12		
<b>Total Liabilities</b>	<b>486</b>	<b>465</b>	<b>446</b>	<b>436</b>	<b>459</b>	<b>475</b>	<b>485</b>	<b>456</b>	<b>455</b>	<b>455</b>	<b>459</b>	<b>457</b>	<b>463</b>	<b>436</b>	<b>456</b>	<b>457</b>	<b>462</b>		
Shareholders' Equity	172	190	160	167	164	171	207	232	250	271	296	320	163	167	232	320	412		
<b>Total Liabilities &amp; Shareholders' Equity</b>	<b>658</b>	<b>655</b>	<b>606</b>	<b>603</b>	<b>623</b>	<b>646</b>	<b>693</b>	<b>688</b>	<b>705</b>	<b>727</b>	<b>755</b>	<b>777</b>	<b>626</b>	<b>603</b>	<b>688</b>	<b>777</b>	<b>874</b>		
<b>Ratios</b>																			
Book Value Per Share	\$4.34	\$4.71	\$4.00	\$4.26	\$4.28	\$4.54	\$5.56	\$6.22	\$6.70	\$7.27	\$7.93	\$8.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		
Net Cash Per Share	\$4.91	\$4.41	\$4.22	\$4.32	\$4.19	\$4.29	\$4.44	\$4.40	\$5.04	\$5.38	\$5.66	\$6.29	\$4.38	\$4.32	\$4.40	\$6.29	\$7.93		
Current Ratio (x)	3.1 x	2.8 x	2.7 x	2.8 x	2.4 x	2.3 x	2.5 x	3.0 x	3.1 x	3.3 x	3.4 x	3.5 x	3.4 x	2.8 x	3.0 x	3.5 x	3.9 x		
Quick Ratio (x)	2.3 x	2.0 x	2.0 x	2.1 x	1.8 x	1.7 x	1.9 x	2.2 x	2.4 x	2.5 x	2.6 x	2.7 x	2.5 x	2.1 x	2.2 x	2.7 x	3.1 x		
Long-Term Debt to Equity	143.7%	111.9%	125.9%	120.8%	122.9%	118.2%	97.2%	86.9%	80.6%	74.3%	68.1%	63.1%	151.6%	120.8%	86.9%	63.1%	48.9%		
Return on Assets	15.3%	18.8%	17.1%	11.6%	9.2%	15.8%	22.0%	20.0%	15.4%	16.8%	17.2%	16.0%	19.3%	16.5%	16.3%	15.6%	16.0%		
Return on Equity	36.6%	47.3%	45.6%	24.0%	15.9%	39.1%	54.9%	45.8%	32.1%	34.3%	33.5%	29.5%	54.8%	39.8%	33.7%	28.7%	22.5%		
Return on Invested Capital	18.7%	22.5%	20.4%	13.8%	10.6%	19.2%	27.0%	22.8%	17.8%	19.8%	21.3%	20.6%	18.7%	19.5%	18.3%	19.5%	21.3%		
AR Days Sales Outstanding	63.6	55.5	56.5	63.5	65.6	60.8	61.1	61.1	61.1	61.1	61.1	61.1	56.4	59.5	64.6	62.0	62.2		
Accounts Receivable Turns	5.7	6.6	6.5	5.7	5.6	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.5	6.1	5.6	5.9	5.9		
Inventory Days	51.3	57.7	45.4	44.4	48.9	49.3	47.1	50.0	50.0	50.0	50.0	50.0	47.5	42.6	51.5	50.5	50.8		
Inventory Turns	7.1	6.3	8.0	8.2	7.5	7.4	7.7	7.3	7.3	7.3	7.3	7.3	7.7	8.6	7.1	7.2	7.2		
Accounts Payable Days	51.4	49.1	49.4	55.0	65.3	60.7	61.1	45.0	45.0	45.0	45.0	45.0	40.5	52.8	46.3	45.5	45.7		

Source: Company reports and Citi Research

Figure 11. MX Cash Flow (F2010 – F2014E)

MX Cash Flow																	
(\$M), except per share	1Q11	2Q11	3Q11	4Q11	1Q12	2Q12	3Q12	4Q12E	1Q13E	2Q13E	3Q13E	4Q13E	2010	2011	2012E	2013E	2014E
	Mar-11	Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12	Dec-12	Mar-13	Jun-13	Sep-13	Dec-13	Dec-10	Dec-11	Dec-12	Dec-13	Dec-14
Cash Flows For Operations																	
Net income	22.5	31.6	(56.0)	23.7	15.3	4.3	48.4	24.1	17.6	20.7	24.2	23.0	74.3	21.8	92.1	85.6	90.3
Depreciation and Amortization	13.9	15.4	13.1	8.9	7.5	7.9	8.4	10.4	10.4	10.4	8.4	8.4	58.4	51.2	34.3	37.8	33.8
Stock Compensation Expense	0.6	0.6	0.6	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5.2	2.1	2.0	2.1	2.2
Amortization of Debt discount (non-cash)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.9	1.0	0.8	0.0	0.0
Gain on Foreign Currency Translation	(23.7)	(20.4)	77.3	(18.1)	(12.8)	12.9	(25.4)	0.0	0.0	0.0	0.0	0.0	(17.1)	15.1	(25.3)	0.0	0.0
Other	3.4	12.7	7.3	0.0	4.6	5.9	5.8	0.0	0.0	0.0	0.0	0.0	4.2	23.3	16.3	0.0	0.0
Changes in Working Capital:	2.2	8.1	(23.7)	3.9	24.7	(5.0)	(15.1)	(28.4)	9.1	(4.8)	(10.1)	4.7	(41.1)	(9.4)	(23.9)	(1.0)	(11.0)
Accounts receivable	(9.3)	11.4	(6.5)	(1.8)	1.3	(9.6)	(9.9)	3.7	7.7	(3.9)	(8.6)	4.1	(41.4)	(6.2)	(14.5)	(0.7)	(10.3)
Inventories	(3.5)	(10.8)	9.9	8.7	(2.9)	(8.6)	3.0	(3.2)	1.9	(0.7)	(4.8)	2.3	(3.2)	4.3	(11.7)	(1.3)	(4.8)
Other Receivables	(1.0)	(0.3)	2.1	1.8	(4.0)	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.3	2.7	(1.8)	0.0	0.0
Accounts payable and accrued liabilities	20.1	9.0	(25.1)	1.7	22.2	10.1	(1.7)	(28.9)	(0.5)	(0.2)	3.4	(1.7)	7.4	5.6	1.6	1.0	4.1
Payment of Severence Benefits	(1.6)	(2.1)	(2.8)	(3.9)	(2.3)	0.0	(0.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other / deferred tax liabilities	(2.5)	1.0	(1.3)	(2.5)	10.4	1.7	(6.5)	0.0	0.0	0.0	0.0	0.0	2.4	(5.3)	5.6	0.0	0.0
Cash Flow Operations, Net	19.2	48.3	18.7	18.3	39.9	26.7	23.0	6.6	37.6	26.9	23.2	36.7	106.5	104.5	96.2	124.4	115.3
Cash Flows For Investing																	
Purchases of property and equipment	(6.8)	(20.1)	(16.0)	(5.2)	(24.8)	(22.0)	(10.0)	(8.0)	(14.0)	(14.0)	(13.0)	(13.0)	(43.6)	(48.2)	(64.7)	(54.0)	(54.0)
Purchases of ST investments	(0.2)	(0.2)	0.0	0.0	(0.2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.6)	(0.3)	(0.2)	0.0	0.0
Proceeds ST investments	(0.1)	(0.8)	(11.1)	3.3	(5.4)	(1.1)	4.9	0.0	0.0	0.0	0.0	0.0	0.4	(8.7)	(1.6)	0.0	0.0
Cash Flows For Investments, Net	(7.0)	(21.1)	(27.1)	(1.9)	(30.3)	(23.1)	(5.1)	(8.0)	(14.0)	(14.0)	(13.0)	(13.0)	(43.7)	(57.2)	(66.5)	(54.0)	(54.0)
Cash flows financing activities:																	
Increase (decrease) in debt	(1.6)	(36.6)	(13.8)	(1.5)	(1.5)	(1.5)	0.0	0.0	0.0	0.0	0.0	0.0	176.6	(53.4)	(3.0)	0.0	0.0
Issuance of common stock	11.4	(2.6)	0.0	(11.3)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(2.5)	0.2	0.0	0.0
Other	0.0	(3.2)	0.0	0.0	(11.9)	(5.0)	(5.7)	0.0	0.0	0.0	0.0	0.0	(3.5)	(3.2)	(22.7)	0.0	0.0
Dividends paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(130.7)	0.0	0.0	0.0	0.0
Cash Flows For Financing, Net	9.9	(42.4)	(13.8)	(12.8)	(13.3)	(6.4)	(5.7)	0.0	0.0	0.0	0.0	0.0	42.4	(59.1)	(25.5)	0.0	0.0
Effect of Exchange Rate	(0.1)	(1.2)	3.9	(1.0)	(1.7)	1.9	(2.2)	0.0	0.0	0.0	0.0	0.0	2.2	1.6	(2.0)	0.0	0.0
Net Increase from Cash Flows (Decrease)	22.0	(16.4)	(18.3)	2.6	(5.5)	(0.9)	9.9	(1.4)	23.6	12.9	10.2	23.7	107.2	(10.1)	2.1	70.4	61.3
Beginning Cash	172.2	194.2	177.8	159.5	162.1	156.6	155.8	165.7	164.3	187.9	200.8	211.0	64.9	172.2	162.1	164.3	234.6
Ending Cash	194.2	177.8	159.5	162.1	156.6	155.8	165.7	164.3	187.9	200.8	211.0	234.6	172.2	162.1	164.3	234.6	295.9
Free Cash Flow	12.4	28.1	2.7	13.1	15.1	4.7	13.0	(1.4)	23.6	12.9	10.2	23.7	62.9	56.4	31.5	70.4	61.3
Free Cash Flow per Share	\$0.31	\$0.70	\$0.07	\$0.33	\$0.39	\$0.13	\$0.35	(\$0.04)	\$0.63	\$0.35	\$0.27	\$0.63	\$1.63	\$1.41	\$0.83	\$1.89	\$1.64

Source: Company reports and Citi Research



## MagnaChip Semiconductor

### Company description

Magnachip is a Korean-based analog and mixed-signal vendor of display products (44% sales), power products (12% sales), and foundry services (44% sales). The company focuses on high-volume consumer products including consumer electronics, TVs, cell phones, notebooks and tablets. Magnachip operates on a hybrid model with a traditional semiconductor business that designs, manufactures, and sells merchant chips and a foundry service business that fabricates chips for other fabless companies. Magnachip originated as part of LG Electronic's semiconductor division and evolved Hynix's analog mixed-signal division before it spun off in 2004. Magnachip completed its initial public offering in March 2011. Magnachip's top five customers in 2011 include LG Display, Cirrus Logic, SiliconWorks, Sitronix, and Elan. Magnachip is headquartered in Seoul, Korea, and has domestic offices based on Sunnyvale, California. The company has three manufacturing facilities in Korea where it fabricates majority of its products. Magnachip's fiscal year ends 12/31.

### Investment strategy

We rate MagnaChip Buy. MagnaChip is a Korean-based analog mixed-signal company that has unique leverage to Korean OEMs Samsung and Lucky Goldstar. Magnachip's sales in 2011 sales grew .3% driven by: 1) ~50% participation in iPad display modules through LG Display and 2) a fast growing power business that increased to 12% of total sales from 7% a year ago. MagnaChip competes in high-volume low margin consumer electronics areas with 30%-38% gross margins versus the analog group's 55%-60% average gross margin. Its lean operating expense structure OpEx (18% versus analog group's ~30% average) drives 13% operating margin versus analog group's 25% average.

Trading at a large discount to the analog group, we view valuation as over-discounted when weighting prospects versus risks. Risks include a 50% private equity overhang, participation in commodity areas of the semiconductor market, and a management that has an unproved C-level track record at other public companies. We expect that valuation will improve gradually helped by: 1) increasing float as private equity holders reduce ownership, 2) participation in Apple's iPad production, 3) and investor understanding of the hybrid foundry-merchant model as coverage increases.

### Valuation

Our analysis of valuation for the group generated two strong correlations: a) EV/S and 2Q13-1Q14 (forward 12 months) operating margin, and b) EV/IC and 2Q12-1Q13 ROIC. Based on the market's attributed importance to these measures, we elect to use a target valuation framework that predicts how changes in operating margin and ROIC between 2Q12-1Q13 and 2Q13-1Q14 will affect a company's valuation over the next 12 months. First we calculate the slope-intercept equation of the group's EV/S and 2Q12-1Q13 operating margin plot. Second, we derive a target EV/S multiple by inputting 2Q13-1Q14 operating margin values into the equation. We repeat these two steps for EV/IC and ROIC.

We assign a 58% valuation discount for MagnaChip relative to the group based on: 1) Avenue Capital's ownership overhang, 2) Management's unproven track record and prior bankruptcy, and 3) Investor unfamiliarity with the hybrid business model.

Our 4Q13-3Q14 (forward 12 months one year from now) operating margin forecast increases to 15.0% from 13.7% and our 4Q13-3Q14 ROIC forecast decreases to 21.1% from 21.8%. Our \$19 target price reflects a 0.91x EV/S target multiple and a 1.30x EV/IC target multiple applied to 4Q13-3Q14 financial forecasts.

## Risks

We evaluate MX's risks based on the stock's volatility, MX's \$200M high interest rate debt, short operating history, unproven management record, recent entry into the public equity markets, customer concentration risk, and also in consideration of other factors that include volatility of the semiconductor industry, potential earnings volatility, and other risks outlined below:

Downside risks to our earnings and free cash flow projections, and to MX achieving our target price include: a) display business risk – a faster transition of Apple iPad suppliers toward Samsung Display away from LG Display given that Magnachip has a more entrenched position with LG than Samsung, b) display business risk - underwhelming display product penetration at Samsung where MX is actively working to increase its wallet share, c) power business risk – any deceleration or interruption in the growth ramp of the power business where Magnachip has enjoyed success as a second source in the supply-tight power MOSFET market, d) foundry business risk – any major socket losses or product stumbles at top foundry customers CRUS, ATML, and Sitronix where fast smartphone/tablet design cycles can create volatility, e) gross margin risk – which could emanate from product transition delays, f) pricing – intensifying price competition could result from increasing supply or slowing demand, and g) foreign exchange risk – as a large portion of Magnachip's costs are in Korean Won while its revenues are in dollars.

## Appendix A-1

### Analyst Certification

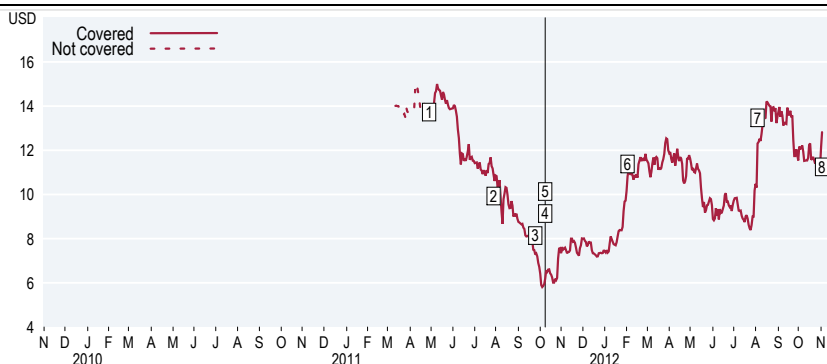
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#### MagnaChip Semiconductor (MX)

#### Ratings and Target Price History Fundamental Research

Analyst: Terence Whalen  
Covered since April 28 2011



	Date	Rating	Target Price	Closing Price
1	28-Apr-11	*1S	*21.00	13.95
2	28-Jul-11	1S	*17.00	10.88
3	26-Sep-11	1S	*14.00	7.28

	Date	Rating	Target Price	Closing Price
4	8-Oct-11	Stock rating system changed		
5	8-Oct-11	*1	14.00	5.94
6	2-Feb-12	1	*17.00	10.82

	Date	Rating	Target Price	Closing Price
7	3-Aug-12	1	*18.00	12.31
8	2-Nov-12	1	*19.00	12.82

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

## MagnaChip Semiconductor (MX)

### Ratings and Target Price History

#### Best Ideas Research

#### Relative Call (3 Month)

Analyst: Terence Whalen

Covered since April 28 2011



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Citigroup Global Markets Inc. owns a position of 1 million USD or more in the debt securities of Microchip Technology Inc

Citigroup Global Markets Inc. owns a position of 1 million USD or more in the debt securities of Maxim Integrated Products Inc

Citigroup Global Markets Inc. owns a position of 1 million USD or more in the debt securities of ON Semiconductor Corp

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#### Data current as of 5 Oct 2012

	12 Month Rating			Relative Rating		
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% of companies in each rating category that are investment banking clients	50%	47%	45%	59%	47%	50%

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