

Options Pricing - Hindsight is 20/20 (Part II)

We've expanded our analysis of option grants

As a follow on to our recent report on option grants behavior for companies in the SOX index, we've expanded our analysis for the other semiconductor and semiconductor equipment companies in our coverage universe. Our analysis now includes a total of 47 companies. What we're interested in understanding is the extent to which stock price performance subsequent to options pricing events diverges from stock price performance over a longer period of time. That's the easiest and simplest way to measure how aggressive the timing of options grants has been. Theoretically, companies should not be generating any systematic excess return in comparison to other investors as a result of how options pricing events are timed.

Excess returns are notable

The results are notable – for the 1997-2002 interval that we studied, the stocks in our coverage universe have consistently generated excess returns during the 20-day period following options grants. It is difficult to avoid concluding that the timing of options pricing for the period we studied has been very advantageous for executives that received options.

Standout companies include ASYT, KLAC, MRVL, AMKR, NVDA, RFMD

A ranking of excess returns shows Asyst, KLA Tencor, Marvell, Amkor, NVDA, RFMD at the top. Just for curiosity's sake we ran our analysis on Vitesse Semiconductor and Brooks Automation as well – Vitesse & Brooks are already the subject of an SEC investigation related in part to the timing of options grants. The results place VTSS & Brooks at the top of the table, which tells us that we're capturing something meaningful with our analysis. We think that investors need to be aware of the possibility of regulatory activity at other companies that turn up high on our ranking.

Our rankings are good starting point, but investors should also pay attention to grant patterns

Although our ranking methodology captures the excess returns in most cases, it has some deficiencies. For example, NVIDIA, which showed up near the top of the list has one grant during the 5 year period that generated very high return. We view NVIDIA's high ranking as an anomaly. We also note that few companies near the top of our list have granted options on a specific date every year, which we view as a fair practice. While our rankings are a good starting point, we advise investors to also pay attention to the grant dates and grant patterns.

Equity | Global | Semiconductors
25 May 2006



Semiconductors - North America

Joe Osha +1 415 676 3510
Research Analyst
MLPF&S
joe_osha@ml.com

Srini Pajjuri +1 415 676 3519
Research Analyst
MLPF&S
srinivas_pajjuri@ml.com

Sidney Ho +1 415 676 3575
Research Analyst
MLPF&S
sidney_ho@ml.com

Mark Heller, CFA +1 415 676 3518
Research Analyst
MLPF&S
mark_heller@ml.com

Ryan Goodman +1 415 676 3573
Research Analyst
MLPF&S
ryan_goodman@ml.com

Capital Equipment - North America

Brett Hodess +1 415 676 3546
Research Analyst
MLPF&S
brett_hodess@ml.com

Thomas Diffely, CFA +1 415 676 3552
Research Analyst
MLPF&S
tom_diffely@ml.com

Kiet La +1 415 676 3514
Research Analyst
MLPF&S
kiet_la@ml.com

Table 1: Semiconductor and semiconductor equipment companies ranked by excess option pricing returns

Rank	Company	Excess Return
1	Vitesse	1066%
2	Asyst	813%
3	KLA Tencor	777%
4	Brooks	749%
5	Marvell	631%
6	Amkor	595%
7	NVIDIA	523%
8	RF Micro Devices	442%
9	Novellus	398%
10	Linear	396%
11	Photronics	395%
12	Cymer	353%
13	Analog Devices	334%
14	Broadcom	312%
15	MEMC	290%
16	Microchip	268%
17	Photon Dynamics	265%
18	Maxim	215%
19	Entegris	193%
20	IDT	189%
21	ATMI	189%
22	MKS Instruments	188%
23	SanDisk	170%
24	Semtech	165%
25	Lam Research	159%
26	Veeco	145%
27	Advanced Energy	129%
28	Teradyne	127%
29	AMD	122%
30	Fairchild	111%
31	Ultratech	103%
32	Altera	101%
33	Xilinx	98%
34	Applied Materials	97%
35	Texas Instruments	82%
36	Electro Scientific	81%
37	Intel	46%
38	LSI Logic	40%
39	National	34%
40	Intersil	29%
41	Cypress	9%
42	Conexant	-22%
43	Kulicke & Soffa	-27%
44	Agere	-30%
45	Silicon Labs	-83%
46	Micron	-380%

Source: Merrill Lynch

Table 2: Management 20-Day Return

Company	1997	1998	1999	2000	2001	2002	Average	RANK
Advanced Energy	NA	-6%	-13%	33%	14%	14%	8%	29
Agere	NA	NA	NA	NA	-2%	63%	31%	10
Altera	-1%	19%	16%	22%	-6%	-11%	6%	34
AMD	13%	-2%	16%	-7%	20%	0%	7%	33
Amkor	NA	42%	0%	4%	59%	62%	33%	8
Analog Devices	-2%	17%	45%	34%	10%	17%	20%	16
Applied Materials	NA	25%	0%	-2%	16%	-3%	7%	32
Asyst	35%	176%	53%	18%	-2%	5%	48%	2
ATMI	5%	1%	9%	1%	37%	12%	11%	26
Broadcom	NA	11%	NA	39%	14%	4%	17%	17
Brooks	24%	NA	64%	49%	39%	NA	44%	4
Conexant	NA	NA	-4%	8%	8%	-13%	0%	43
Cymer	NA	23%	30%	26%	24%	4%	21%	14
Cypress	NA	-4%	3%	6%	11%	NA	4%	39
Electro Scientific	12%	11%	-2%	12%	0%	-1%	5%	37
Entegris	NA	NA	NA	-10%	10%	33%	11%	25
Fairchild	NA	NA	NA	28%	-10%	-1%	6%	36
IDT	0%	-12%	27%	33%	43%	-2%	15%	22
Intel	2%	10%	0%	-5%	27%	-16%	3%	42
Intersil	NA	NA	NA	-1%	0%	-1%	0%	44
KLA Tencor	13%	14%	160%	23%	51%	5%	44%	3
Kulicke & Soffa	-17%	-7%	-3%	-22%	10%	36%	-1%	45
Lam Research	6%	36%	NA	NA	27%	-5%	16%	20
Linear	NA	28%	-1%	39%	21%	29%	23%	12
LSI Logic	-13%	-18%	-3%	46%	9%	0%	4%	40
Marvell	NA	NA	NA	NA	57%	14%	36%	7
Maxim	13%	27%	26%	0%	11%	4%	14%	24
MEMC	27%	7%	4%	21%	18%	21%	16%	18
Microchip	8%	43%	11%	5%	23%	7%	16%	19
Micron	-25%	0%	-20%	-41%	-6%	-32%	-21%	47
MKS Instruments	NA	NA	NA	6%	25%	-1%	10%	27
National	10%	-15%	31%	4%	-9%	-2%	3%	41
Novellus	19%	31%	61%	28%	2%	1%	24%	11
NVIDIA	NA	NA	NA	64%	14%	NA	39%	5
Photon Dynamics	2%	25%	39%	51%	41%	-28%	22%	13
Photronics	NA	67%	NA	33%	16%	-31%	21%	15
RF Micro Devices	NA	7%	37%	6%	104%	6%	32%	9
SanDisk	11%	60%	-43%	39%	10%	13%	15%	21
Semtech	7%	26%	16%	NA	22%	-4%	14%	23
Silicon Labs	NA	NA	NA	-26%	8%	6%	-4%	46
Teradyne	0%	-5%	45%	19%	8%	-15%	8%	28
Texas Instruments	14%	22%	-9%	23%	-18%	5%	6%	35
Ultratech	15%	4%	7%	21%	-22%	6%	5%	38
Veeco	17%	3%	1%	55%	8%	-37%	8%	30
Vitesse	35%	46%	39%	NA	68%	116%	61%	1
Xilinx	-9%	19%	14%	-8%	24%	4%	7%	31

Source: Merrill Lynch

Table 3: Management Annualized Return

Company	1997	1998	1999	2000	2001	2002	Average	RANK
Advanced Energy	NA	-106%	-226%	595%	243%	253%	152%	29
Agere	NA	NA	NA	NA	-36%	1141%	553%	10
Altera	-19%	336%	292%	389%	-102%	-204%	115%	34
AMD	228%	-36%	295%	-133%	366%	-6%	119%	33
Amkor	NA	763%	0%	79%	1057%	1113%	602%	8
Analog Devices	-34%	313%	806%	606%	185%	300%	363%	16
Applied Materials	NA	448%	0%	-44%	290%	-60%	127%	32
Asyst	623%	3171%	962%	322%	-37%	87%	855%	2
ATMI	92%	19%	154%	18%	672%	223%	196%	26
Broadcom	NA	193%	NA	710%	255%	64%	305%	17
Brooks	432%	NA	1152%	882%	702%	NA	792%	4
Conexant	NA	NA	-78%	149%	147%	-232%	-4%	43
Cymer	NA	410%	539%	468%	429%	68%	383%	15
Cypress	NA	-76%	52%	111%	202%	NA	72%	39
Electro Scientific	208%	196%	-38%	223%	-5%	-13%	95%	37
Entegris	NA	NA	NA	-172%	172%	595%	198%	25
Fairchild	NA	NA	NA	512%	-179%	-17%	105%	36
IDT	0%	-220%	493%	589%	774%	-36%	267%	21
Intel	43%	177%	5%	-95%	481%	-289%	54%	42
Intersil	NA	NA	NA	-11%	6%	-18%	-8%	44
KLA Tencor	235%	252%	2886%	415%	920%	95%	800%	3
Kulicke & Soffa	-314%	-134%	-61%	-399%	172%	641%	-16%	45
Lam Research	113%	656%	-36%	216%	491%	-90%	225%	24
Linear	NA	497%	-17%	695%	375%	528%	416%	12
LSI Logic	-233%	-321%	-46%	824%	168%	0%	65%	40
Marvell	NA	NA	NA	NA	1020%	260%	640%	7
Maxim	236%	487%	473%	-5%	193%	75%	243%	23
MEMC	480%	118%	78%	376%	318%	380%	292%	18
Microchip	142%	770%	192%	90%	420%	132%	291%	19
Micron	-443%	0%	-366%	-743%	-116%	-569%	-373%	47
MKS Instruments	NA	NA	NA	106%	446%	-12%	180%	27
National	178%	-269%	557%	67%	-156%	-45%	55%	41
Novellus	333%	566%	1098%	506%	30%	17%	425%	11
NVIDIA	NA	NA	NA	1149%	245%	NA	697%	5
Photon Dynamics	28%	457%	702%	911%	732%	-504%	388%	13
Photronics	NA	1208%	NA	600%	294%	-558%	386%	14
RF Micro Devices	NA	127%	661%	99%	1878%	99%	573%	9
SanDisk	205%	1080%	-768%	707%	185%	231%	273%	20
Semtech	125%	465%	290%	NA	403%	-64%	244%	22
Silicon Labs	NA	NA	NA	-474%	136%	106%	-77%	46
Teradyne	-6%	-92%	802%	340%	149%	-277%	153%	28
Texas Instruments	246%	394%	-155%	420%	-327%	90%	111%	35
Ultratech	269%	76%	126%	385%	-397%	109%	95%	38
Veeco	313%	56%	19%	982%	145%	-659%	143%	30
Vitesse	621%	833%	711%	NA	1231%	2082%	1096%	1
Xilinx	-158%	338%	248%	-139%	427%	74%	132%	31

Source: Merrill Lynch

Table 4: Investor Annualized Return

Company	1997	1998	1999	2000	2001	2002	Average	RANK
Advanced Energy	NA	73%	110%	-50%	33%	-53%	23%	25
Agere	NA	NA	NA	NA	-6%	-78%	-42%	47
Altera	-8%	84%	63%	6%	-19%	-42%	14%	29
AMD	-35%	63%	0%	-5%	15%	-59%	-3%	40
Amkor	NA	-28%	169%	-45%	10%	-71%	7%	35
Analog Devices	12%	13%	196%	10%	-13%	-46%	29%	16
Applied Materials	0%	38%	186%	-40%	2%	-37%	25%	22
Asyst	152%	-11%	219%	-61%	-4%	-43%	42%	9
ATMI	33%	10%	35%	-42%	31%	-24%	7%	34
Broadcom	NA	125%	351%	-38%	-51%	-63%	65%	7
Brooks	16%	NA	123%	-13%	48%	NA	44%	8
Conexant	NA	NA	246%	-81%	-2%	-88%	19%	28
Cymer	NA	-15%	188%	-43%	6%	14%	30%	13
Cypress	0%	-5%	295%	-39%	3%	-71%	31%	12
Electro Scientific	31%	22%	72%	-18%	10%	-34%	14%	30
Entegris	NA	NA	NA	-33%	57%	-8%	5%	37
Fairchild	NA	NA	NA	-51%	95%	-62%	-6%	41
IDT	-26%	-33%	363%	14%	-15%	-68%	39%	10
Intel	8%	69%	39%	-27%	5%	-50%	7%	33
Intersil	NA	NA	NA	-95%	41%	-57%	-37%	46
KLA Tencor	13%	7%	143%	-38%	45%	-32%	23%	23
Kulicke & Soffa	-2%	-5%	139%	-46%	47%	-68%	11%	31
Lam Research	5%	-42%	488%	-61%	61%	-55%	66%	6
Linear	37%	57%	61%	30%	-15%	-34%	23%	26
LSI Logic	-27%	-18%	319%	-49%	-8%	-63%	26%	21
Marvell	NA	NA	NA	-62%	68%	-49%	-14%	45
Maxim	55%	27%	116%	1%	10%	-37%	29%	15
MEMC	-32%	-48%	47%	-17%	-57%	119%	2%	38
Microchip	-15%	23%	85%	-28%	77%	-5%	23%	24
Micron	-13%	95%	55%	-9%	-13%	-69%	8%	32
MKS Instruments	NA	NA	NA	-54%	71%	-40%	-8%	42
National	9%	-48%	217%	-53%	53%	-51%	21%	27
Novellus	16%	46%	136%	-13%	12%	-33%	28%	17
NVIDIA	NA	NA	NA	40%	308%	NA	174%	1
Photon Dynamics	-56%	46%	716%	-40%	122%	-49%	123%	3
Photronics	NA	-1%	NA	-16%	39%	-58%	-9%	44
RF Micro Devices	NA	277%	490%	-20%	-30%	-62%	131%	2
SanDisk	116%	-31%	582%	-42%	-48%	41%	103%	4
Semtech	126%	83%	191%	NA	62%	-69%	79%	5
Silicon Labs	NA	NA	NA	-79%	138%	-41%	6%	36
Teradyne	33%	26%	213%	-40%	-20%	-58%	26%	20
Texas Instruments	44%	92%	127%	-2%	-41%	-46%	29%	14
Ultratech	-17%	-22%	-2%	61%	-31%	-40%	-9%	43
Veeco	1%	117%	-10%	-52%	-1%	-68%	-2%	39
Vitesse	36%	142%	130%	6%	-76%	-82%	26%	19
Xilinx	-3%	86%	179%	1%	-15%	-47%	34%	11

Source: Merrill Lynch

Table 5: Management Excess Return

Company	1997	1998	1999	2000	2001	2002	Average	RANK
Advanced Energy	NA	-179%	-336%	645%	210%	306%	129%	28
Agere	NA	NA	NA	NA	-30%	NA	-30%	45
Altera	-11%	252%	230%	383%	-82%	-163%	101%	33
AMD	262%	-99%	295%	-129%	351%	54%	122%	30
Amkor	NA	791%	-169%	124%	1047%	1184%	595%	6
Analog Devices	-45%	300%	609%	596%	198%	347%	334%	14
Applied Materials	NA	410%	-186%	-4%	288%	-22%	97%	35
Asyst	471%	3182%	743%	383%	-33%	130%	813%	2
ATMI	59%	9%	119%	60%	641%	247%	189%	22
Broadcom	NA	68%	NA	748%	306%	127%	312%	15
Brooks	416%	NA	1029%	895%	654%	NA	749%	4
Conexant	NA	NA	-324%	230%	149%	-144%	-22%	43
Cymer	NA	426%	351%	511%	423%	54%	353%	13
Cypress	NA	-71%	-243%	150%	199%	NA	9%	42
Electro Scientific	177%	174%	-110%	241%	-15%	21%	81%	37
Entegris	NA	NA	NA	-139%	115%	603%	193%	20
Fairchild	NA	NA	NA	563%	-274%	45%	111%	31
IDT	26%	-187%	130%	NA	789%	NA	189%	21
Intel	35%	108%	-34%	-68%	476%	-239%	46%	38
Intersil	NA	NA	NA	84%	-35%	38%	29%	41
KLA Tencor	222%	245%	2742%	453%	874%	127%	777%	3
Kulicke & Soffa	-312%	-129%	-200%	-353%	125%	709%	-27%	44
Lam Research	108%	698%	-524%	277%	430%	-35%	159%	26
Linear	NA	440%	-78%	665%	390%	562%	396%	11
LSI Logic	-207%	-304%	-365%	874%	176%	63%	40%	39
Marvell	NA	NA	NA	NA	953%	309%	631%	5
Maxim	181%	460%	357%	-7%	183%	113%	215%	19
MEMC	512%	166%	31%	393%	375%	261%	290%	16
Microchip	157%	746%	107%	118%	343%	137%	268%	17
Micron	-430%	-95%	-420%	-734%	-103%	-500%	-380%	47
MKS Instruments	NA	NA	NA	160%	375%	28%	188%	23
National	169%	-221%	340%	120%	-209%	6%	34%	40
Novellus	317%	520%	963%	518%	18%	49%	398%	10
NVIDIA	NA	NA	NA	1109%	-64%	NA	523%	8
Photon Dynamics	84%	411%	-14%	951%	610%	-455%	265%	18
Photronics	NA	1209%	NA	616%	255%	-500%	395%	12
RF Micro Devices	NA	-149%	171%	119%	1908%	161%	442%	9
SanDisk	89%	1111%	-1350%	749%	233%	190%	170%	24
Semtech	-1%	382%	100%	NA	341%	6%	165%	25
Silicon Labs	NA	NA	NA	-395%	-2%	147%	-83%	46
Teradyne	-39%	-118%	589%	380%	168%	-219%	127%	29
Texas Instruments	202%	302%	-282%	422%	-286%	137%	82%	36
Ultratech	286%	98%	128%	324%	-366%	149%	103%	32
Veeco	312%	-61%	29%	1034%	146%	-591%	145%	27
Vitesse	585%	691%	581%	NA	1307%	2164%	1066%	1
Xilinx	-155%	252%	69%	-141%	442%	121%	98%	34

Source: Merrill Lynch

Table 6: Companies referenced in this report

Company	Ticker	Rating	5/24/2006 Price
Advanced Energy Industries Inc.	AEIS	C-2-9	13.50
Agere Systems, Inc.	AGR	C-2-9	15.41
Altera Corporation	ALTR	C-1-9	18.99
Advanced Micro Devices	AMD	C-3-9	31.18
Amkor Technology, Inc.	AMKR	C-2-9	9.20
Analog Devices Inc.	ADI	C-2-7	33.39
Applied Materials	AMAT	C-2-7	16.80
Asyst Technologies	ASYT	C-2-9	6.36
ATMI Inc.	ATMI	C-2-9	26.12
Broadcom Corp	BRCM	C-2-9	33.80
Brooks Automation	BRKS	Not rated	12.16
Conexant Systems Inc.	CNXT	C-1-9	2.91
Cymer Inc.	CYMI	C-2-9	46.56
Cypress Semiconductor	CY	C-1-9	14.88
Electro Scientific Industries	ESIO	C-3-9	20.00
Entegris Inc	ENTG	C-1-9	9.70
Fairchild Semiconductor International, Inc.	FCS	C-2-9	17.52
Integrated Device Technology, Inc.	IDTI	C-2-9	13.79
Intel Corp	INTC	C-1-7	17.89
Intersil Corporation	ISIL	C-1-7	26.48
KLA-Tencor Corp.	KLAC	C-1-7	39.43
Kulicke & Soffa	KLIC	C-1-9	8.32
Lam Research	LRCX	C-2-9	45.77
Linear Technology Corp	LLTC	C-2-7	33.97
LSI Logic Corp	LSI	C-1-9	9.80
Marvell Technology Group Ltd.	MRVL	C-2-9	51.26
Maxim Integrated Products, Inc.	MXIM	C-1-7	31.75
MEMC Electronic Materials Inc.	WFR	C-1-9	32.97
Microchip Technology Inc.	MCHP	C-1-7	33.88
Micron Technology	MU	C-1-9	15.46
MKS Instruments	MKSI	C-1-9	20.31
National Semiconductor Corp	NSM	C-2-9	26.16
Novellus	NVLS	C-1-9	22.83
NVIDIA Corporation	NVDA	C-2-9	24.05
Photon Dynamics, Inc.	PHTN	C-2-9	16.22
Photronics, Inc.	PLAB	C-1-9	17.28
RF Micro Devices Inc	RFMD	C-2-9	7.44
SanDisk Corp Inc	SNDK	C-1-9	58.99
Semtech Corporation	SMTC	C-3-9	15.28
Silicon Laboratories Inc.	SLAB	C-3-9	38.94
Teradyne Inc.	TER	C-2-9	14.35
Texas Instruments Inc	TXN	C-2-7	31.83
Ultratech Stepper	UTEK	C-2-9	17.25
Veeco Instruments	VECO	C-1-9	23.32
Vitesse Semiconductor Corp.	VTSS	Review	1.87
Xilinx Inc	XLNX	C-2-7	26.34

Source: Merrill Lynch

Price Objective Basis & Risk

Altera

Our price objective of \$24 is supported by our long term returns model. With the advent of FAS123 we are focusing more heavily on cash flow as we believe the standard poses substantial comparability problems for companies within our sector. On forecasted free cash flow, we think Altera is attractively valued at 21x. The main risk to our Buy recommendation and price target is unexpected weakness in demand from the communications and industrial & automotive markets, which combined make up over 70% of Altera's total sales. We also note that there is now additional risk associated with the fact that the Altera is unable to make required filings with the SEC on a timely basis.

Conexant

Our \$4.50 price objective implies a 21x multiple on our CY07 non-GAAP EPS estimate and is in line with the mid-cycle fair value suggested by our long-term returns model. Our ROOC model assumes 10% yearly sales growth through 2015 and that operating margins can be sustained at about 12%. Risks for the stock are 1) share loss in the xDSL, WLAN, analog modem, and satellite STB markets; 2) aggressive pricing pressure; 3) slower than expected adoption of HD/MPEG4 technology in the satellite STB market; 4) slower than expected VDSL deployments; and 5) that the company may have to return to the debt market (and pay a higher rate of interest on its new debt) within the next year to service a portion of its current debt obligations and pay the TI litigation damage award, which could create additional earnings dilution.

Cypress Semiconductor

Our price objective of \$20 is supported by our ROOC based DCF model and implies a multiple of 22x our 2007 non-GAAP, ex-options earnings estimate of \$0.89. Risks to our rating and price objective are 1) multiple contraction and/or a decline in the value of SunPower shares 2) weaker than expected demand in the enterprise networking, telecom, consumer, and solar photovoltaic cell markets 3) a weaker than expected SRAM pricing environment.

Entegris

Given ENTG's strong fundamental position and our sum-of-the-parts valuation analysis, we are raising our valuation target from 17x to 19x our new CY07 operating estimate of \$0.80 driving our price target increase from \$13 to \$15. We believe ENTG with its strong growth and margins should trade in-line with other highly proprietary peers based on its mix of business with 60% of sales exposure to semiconductor unit demand and 40% to capital spending. We base 40% of its valuation target on subsystem supplier MKS Instruments trading at 15x CY07 EPS estimates resulting in a multiple of 6x. The remaining 60% of its valuation, should trade in-line with unit-driven peers ATMI, MEMC and TSRA trading at 22x. This results in a multiple of 13x. Thus, adding the valuation metric from the two segments results in a 19x multiple.

Risk Factors

The timing and strength of a recovery in the company's served markets is the predominant risk. Inventory levels at customers can cause quarterly fluctuations. Entegris does not have high backlog as it generally receives orders and ships products in a matter of days or weeks, which leads to limited visibility. New product execution, as well as manufacturing and business strategy execution, are risks. Competition from new products that could displace Entegris' products or

cause price pressure is a risk. The ability to effectively integrate the merger with Mykrolis is a risk. There is no guarantee that our valuation metrics will be reached.

Intel

Our price objective of \$25 for Intel is close to the normalized value of \$23 and far below the stretch-high value of \$33 suggested by our return on operating capital model. We are valuing the stock on 2007 earnings power at this point. Looking into 2007, we believe that the company has substantially more earnings power than the street realizes, and we note that on our \$1.32 earnings estimate the \$25 price objective represents a 19x earnings multiple, which we regard as reasonable. The main risk factors to our price target and recommendation are slower demand in the PC business and the possibility of excess manufacturing capacity problems at Intel, which could cut more pressure on profitability than we have anticipated.

Intersil

Our \$35 price objective implies an enterprise value to free cash flow multiple of 20x. Note that this is near peak theoretical valuation according to our ROOC analysis, which we believe to be reasonable as the company is in the midst of one of the most impressive competitive years we've seen in an analog company. With market share gains anticipated at least through 2007 and further margin upside still left in the model, the stock warrants a premium to the space, in our opinion. The risks to our earnings estimates, price objective, and rating are unexpected fluctuations in end market demand, particularly in the computer/consumer power management markets. Our numbers depend on continued share gain, and a significant change in the competitive landscape presents an additional risk. This risk is twofold, in that Intersil faces the risk of added competitive pressure coming from larger analog companies, as well as the risk of relatively smaller players capturing targeted market share.

KLA Tencor

We believe the stock should attain a premium over the 20x P/E that semiconductor capital equipment companies typically trade at during growth periods of at least 21-22x on forward year estimates. If the stock achieves this on our Fiscal 2007 (roughly 12 months forward EPS) GAAP EPS estimate of \$2.80, our \$60 price target should be achievable in the next 12 months. The timing and strength of a semiconductor industry recovery and rate of capital investment by KLAC's customers are difficult to predict. Competitive pressures and new product execution risks exist. The timing of final acceptance of shipments by customers can also cause volatility. Finally, there is no guarantee that past valuation metrics will be reliable predictors of future valuation, or that the stock will achieve our valuation target.

Kulicke & Soffa

Our \$12 price target is based on 12x or calendar and fiscal 2007 Earnings estimate of \$1.00. We believe this could prove to be a conservative valuation as the backend equipment peers are currently trading at 15x 2007 earnings and the stock has historically traded to 15x earnings during cyclical upturns.

Risk Factors

Risks remain the timing and strength of a semiconductor industry recovery and customers rate of capital investment. Execution on new product introductions and margin goals are risks to reaching earnings forecasts and therefore price

objectives. Competitive price pressure, technology or products that displace or change market opportunities are risks as well.

LSI Logic

Our price objective of \$15 is based on a 20x multiple of our \$0.75 2007 GAAP earnings estimate and 15x multiple of our \$1.00 adjusted earnings estimate, which are reasonable by the standards of the sector. The ex-option average 2007 P/E for the group comes to about 20x. Given the many challenges that LSI still faces and the uncertainty associated with our estimates we regard our target as reasonable. By far the biggest risk associated with our price target and recommendation is the rate of progress of LSI's rationalization efforts. Additional risks are increasing exposure to the consumer and storage markets given LSI's announced refocusing of the company. Note that the two markets represented close to 85% of total revenue in 2005. LSI's new long-term strategy depends both on LSI maintaining its leadership position in the storage market, as well as penetrating new adjacent markets within the consumer segment.

MEMC Electronic Materials

Our price target of \$50 represents 22x P/E on 2007 operating EPS of \$2.25 (with options). MEMC's comparables in semiconductor materials are trading at a 19x P/E average on 2007. MEMC should trade at least at parity on a P/E basis with peers given its higher margins and growth rate. Solar energy comparables are trading at 38x 2007. We estimate MEMC will get 85% of sales from semiconductors and 15% from solar in 2007 yielding a sum of the parts valuation of 22x our 2007 EPS estimate for a \$50 price target.

Risks Factors

Risks are the rate/timing of unit volume improvement in the semiconductor industry; excess capacity could increase pricing pressure greater than we have anticipated. Inventory build by customers could result in material changes to the quarterly outlook. The loss of any major customers, a failure to execute on cost reduction plans or manufacturing execution are also risks factor to our price target. Availability of raw materials could be a risk. Price fluctuations and government incentives on alternative energy sources could impact the demand for solar cell polysilicon and wafers adversely. The timing of sales of stock by majority shareholder Texas Pacific Group is a risk. TPG has a history of reducing its ownership stake during times of strength for the stock in the 1H of the calendar year. Finally, there is no guarantee that historical valuation metrics will be achieved again.

Late Filing Notification

MEMC is in process of restating its 1Q/2Q GAAP results causing a delaying in its 3Q filing as well as 10-K annual report due to the same timing of tax and polysilicon revenue recognition issues announced in November 2005. This should not materially impact MEMC's 2005 financials but may cause a slight shift of results from one quarter to the other. The issues under review are limited to 2005, so previous years are not under review. The company is not under any deadline to file its delayed 10-Q or 10-K filings. However, after speaking with management we believe they are putting in great efforts to resolve the issues in a timely manner.

Maxim Integrated Products

Our price objective of \$49 is supported by our mid-cycle fair value model. Despite some risk in the company's ability to meet near-term estimates, we are comfortable with on longer-term assumptions of 17% top-line growth in the intermediate term, and 13% top-line growth in the long-term. We have no reason

to believe that Maxim cannot maintain its operating margin in the 43-45% range. The risks to our earnings estimates, recommendation and price objective are unexpected fluctuations in end market demand, especially in the notebook, industrial, and communication end markets. Maxim appears positioned relatively well from a competitive perspective, but the highly competitive nature of the high performance analog market presents additional risks.

Microchip Technology

In our view, Microchip is a good stock to value on a DCF basis given the company's consistent performance and ability to generate cash. Our price target of \$46 is supported by our returns on operating capital model using very reasonable number and including the real economic impact of stock options expensing. The stock also appears attractively valued on a P/E basis at 26x our CY06 GAAP estimate of \$1.44 and 25x our ex-option estimate of \$1.52. We think the stock deserves higher multiples given the rate of growth, rising dividends and predictability. Microchip's track record suggests that most of the risks associated with our buy recommendation and price target will come from environmental factors, not Microchip itself. There is also risk should Microchip's competitors mount a more concerted defense of their markets. Until now taking market share away from Renesas and NEC Electronics has not been difficult.

Micron Technology

At our \$20 price objective, Micron would be trading on 13x our FY07 GAAP earnings estimate of \$1.60. Forecasting earnings Micron is notoriously tough, however, and we think the more relevant metric is EV/revenue. At \$20, the stock would be on 2.3x EV/2006 revenue, still towards the low end of the historic range. If Micron manages to move towards 10% market share in NAND the target is conservative. Micron competes in the most volatile segment of the semiconductor business –the memory market. Forecasting earnings for Micron is difficult even by the standards of the semiconductor business, and small variations in market pricing can lead to large changes in earnings estimates. The volatility of the business is the most significant factor associated with our Buy recommendation and price objective.

MKS Instruments

We believe MKS should continue to outgrow its peers while maintaining higher margins in an upturn as well as in downturns given its proprietary, high value add product portfolio. Thus, we reiterate our Buy rating and \$28 price target, which requires only a 17x P/E, the small cap semi equipment group average P/E, on our current \$1.65 2007 EPS to attain.

Risks

MKSI is subject to cyclical in demand for semiconductor equipment that occurs from oversupply periods for semiconductors that can cause the company to experience cyclical downturns without warning. Competitors and customers create margin pressures that can be unforeseen. MKS books and ships most revenues in a short period, so does not have high backlog entering any quarter which increases risks to the forecasts. Manufacturing execution and material sourcing can be strained during fast industry expansions that could keep MKS from achieving results. MKS is acquisitive so integration of acquired companies presents a risk. There is no guarantee that valuation metrics will be achieved even if financial results are met.

Novellus

Novellus has the potential to expand margins more dramatically than its peers in 2006 as it recovers from execution issues on new product introductions in 2005. The margin expansion means the company's earnings growth could outperform peers in the next 1-2 years. We believe NVLS makes an attractive risk/reward stock given that the large cap semiconductor equipment peers currently trade at 2.3x EV/2007 sales vs. NVLS trading at 1.6x near historical troughs. As NVLS continues to execute on its margin goals, we believe the stock can trade toward 2.3x EV/sales a more typical historical level during growth periods, making our \$34 price target achievable. Risks remain the timing and strength of a semiconductor industry recovery and customers rate of capital investment. Execution on manufacturing, cost reduction, new product introductions and therefore on margin goals are risks to reaching earnings forecasts and therefore price objectives. Competitive price pressure, technology or products that displace or change market opportunities are risks as well.

Photronics

Our \$25 price target is based on 18x our \$1.40 2007 GAAP EPS estimate including options. PLAB has historically traded at 25x its forward EPS in each of the growth periods since the early 1990's. While our current price target is based on a more conservative P/E than historical, we believe it is attainable for several reasons. 1) The several fundamental earnings and revenue growth drivers, 2) margin improvements to levels at or above historical peak, and 3) comparable companies trading at an average P/E of 21 on 2006E currently vs. PLAB at about 14x even though PLAB has steadier growth. We note that PLAB would only need to achieve an 18x P/E on our \$1.40 EPS estimate for FY2007, well below the historical P/E attained in growth periods.

Risk Factors

Risk factors are the timing and strength of a semiconductor industry recovery, rate of semiconductor technology transition, PLAB's ability to develop next generation technology, ability to bring new capacity on-line in a timely and cost effective manner, competitive pricing pressures, the company's ability to continually lower costs, and the loss of any of several major customers. In addition, the photomask business has short cycle times so does not see backlog and other concrete predictors of near term revenues, so quarterly results can deviate from guidance based on small changes in order timing or manufacturing execution. Risk in execution in production in new and existing factors can also negatively impact earnings which effects valuation. There is also no guarantee that past valuation metrics will be reliable predictors of future valuation.

SanDisk

Our price objective of \$74 is supported by our long term returns model. At \$74, the stock would be valued at 28x our adjusted 2007 EPS estimate of \$2.60, which is reasonable by historical standard, but we also expect earnings estimates to go up if the benign pricing environment continues. In addition, for a highly cyclical stock like SanDisk, we note that earnings multiples tend to expand when prices stabilize or improve. Note that our price target stands between the normalized fair value of \$55 and stretch-high fair value of \$84 suggested by our long term returns mode. We think this is appropriate given that the NAND industry is reaching a new phase of growth in the second half of this year, and we think the stock warrants a valuation closer to the peak-cycle scenario. Our assumption for the valuation model includes 20% revenue growth for the next 5 years, followed by 12% growth beyond the forecast period, and operating margin of 20-25%. The

main risk to our Buy recommendation and price objective is industry supply and demand balance of NAND flash memory. Other risks include SanDisk's manufacturing efficiency, inventory management, as well as competing technologies and intellectual property issues.

Veeco Instruments

For 2006, Veeco reiterated its outlook for revenues between \$440-450 million (up 8-10% Y/Y) and margin expansion of 300 basis points in a back-end loaded year. The strength of current orders lends credibility to this view and provides upside potential for the second half and momentum into 2007. Margin expansion should help Veeco outpace earnings growth of peers which trade on average at 22x 2006 EPS estimates. We believe this multiple could hold as valuation targets switch to 2007, and point out it represents less than half of the earnings growth projection for 2007. If Veeco attains a 22x P/E on our 2007 estimate of \$1.35 in 12 months the price target becomes \$30.

Risk Factors

Risks to achieving our estimates and therefore our price objective are the timing and strength of semiconductor and data storage market capital spending. In addition, execution risk on manufacturing, development of new products and technologies, competitive pressures in terms of pricing and market share, and the ability of sales to penetrate new customers with increasing numbers of applications for Veeco products. There is no guarantee valuation parameters will be met even if earnings performance is achieved.

Analyst Certification

I, Joe Osha, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Important Disclosures

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. **VOLATILITY RISK RATINGS**, indicators of potential price fluctuation, are: A - Low, B - Medium, and C - High. **INVESTMENT RATINGS**, indicators of expected total return (price appreciation plus yield) within the 12-month period from the date of the initial rating, are: 1 - Buy (10% or more for Low and Medium Volatility Risk Securities - 20% or more for High Volatility Risk securities); 2 - Neutral (0-10% for Low and Medium Volatility Risk securities - 0-20% for High Volatility Risk securities); 3 - Sell (negative return); and 6 - No Rating. **INCOME RATINGS**, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure); 8 - same/lower (dividend not considered to be secure); and 9 - pays no cash dividend.

The analyst(s) responsible for covering the securities in this report receive compensation based upon, among other factors, the overall profitability of Merrill Lynch, including profits derived from investment banking revenues.

Other Important Disclosures

UK readers: MLPF&S or an affiliate is a liquidity provider for the securities discussed in this report.

Information relating to Non-U.S. affiliates of Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S):

MLPF&S distributes research reports of the following non-US affiliates in the US (short name: legal name): Merrill Lynch (France): Merrill Lynch Capital Markets (France) SAS; Merrill Lynch Dublin (Frankfurt Branch): Merrill Lynch CMB Ltd, Dublin, Frankfurt Branch; Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd; Merrill Lynch (Milan): Merrill Lynch Capital Markets Bank Limited; MLPF&S (UK): Merrill Lynch, Pierce, Fenner & Smith Limited; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited; Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd; Merrill Lynch (Canada): Merrill Lynch Canada Inc; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa; Merrill Lynch (Argentina): Merrill Lynch Argentina SA; Merrill Lynch (Brazil): Banco Merrill Lynch de Investimentos SA; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co, Ltd; Merrill Lynch (Seoul): Merrill Lynch International Incorporated (Seoul Branch); Merrill Lynch (Taiwan): Merrill Lynch Taiwan Limited; DSP Merrill Lynch (India): DSP Merrill Lynch Limited; PT Merrill Lynch (Indonesia): PT Merrill Lynch Indonesia; Merrill Lynch (KL) Sdn. Bhd.: Merrill Lynch (Malaysia); Merrill Lynch (Israel): Merrill Lynch Israel Limited; Merrill Lynch (Russia): Merrill Lynch CIS Limited, Moscow.

This research report has been prepared and issued by MLPF&S and/or one or more of its non-U.S. affiliates. MLPF&S is the distributor of this research report in the U.S. and accepts full responsibility for research reports of its non-U.S. affiliates distributed in the U.S. Any U.S. person receiving this research report and wishing to effect any transaction in any security discussed in the report should do so through MLPF&S and not such foreign affiliates.

This research report has been approved for publication in the United Kingdom by Merrill Lynch, Pierce, Fenner & Smith Limited, which is authorized and regulated by the Financial Services Authority; has been considered and distributed in Japan by Merrill Lynch Japan Securities Co, Ltd, a registered securities dealer under the Securities and Exchange Law in Japan; is distributed in Hong Kong by Merrill Lynch (Asia Pacific) Limited, which is regulated by the Hong Kong SFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan) Ltd or Merrill Lynch, Pierce, Fenner & Smith Limited (Taiwan Branch); is issued and distributed in Malaysia by Merrill Lynch (KL) Sdn. Bhd., a licensed investment adviser regulated by the Malaysian Securities Commission; and is issued and distributed in Singapore by Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd (Company Registration No. 198602883D). Merrill Lynch International Bank Limited and Merrill Lynch (Singapore) Pte Ltd. are regulated by the Monetary Authority of Singapore. Merrill Lynch Equities (Australia) Limited, (ABN 65 006 276 795), AFS License 235132, provides this report in Australia. No approval is required for publication or distribution of this report in Brazil.

Merrill Lynch Dublin is regulated by BaFin.

Copyright, User Agreement and other general information related to this report:

Copyright 2006 Merrill Lynch, Pierce, Fenner & Smith Incorporated. All rights reserved. This research report is prepared for the use of Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of Merrill Lynch. Merrill Lynch research reports are distributed simultaneously to internal and client websites eligible to receive such research prior to any public dissemination by Merrill Lynch of the research report or information or opinion contained therein. Any unauthorized use or disclosure is prohibited. Receipt and review of this research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained in this report (including any investment recommendations, estimates or price targets) prior to Merrill Lynch's public disclosure of such information. The information herein (other than disclosure information relating to Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy.

This research report provides general information only. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other investment or any options, futures or derivatives related to such securities or investments. It is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of any specific person who may receive this report. Investors should seek financial advice regarding the appropriateness of investing in any securities, other investment or investment strategies discussed or recommended in this report and should understand that statements regarding future prospects may not be realized. Investors should note that income from such securities or other investments, if any, may fluctuate and that price or value of such securities and investments may rise or fall. Accordingly, investors may receive back less than originally invested. Past performance is not necessarily a guide to future performance. Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or related investment mentioned in this report. In addition, investors in securities such as ADRs, whose values are influenced by the currency of the underlying security, effectively assume currency risk.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

Merrill Lynch Research policies relating to conflicts of interest are described at <http://www.ml.com/media/43347.pdf>.

iQanalytics, iQcustom, iQdatabase, iQmethod, iQmethod 2.0, iQprofile, iQtoolkit, iQworks are service marks of Merrill Lynch & Co., Inc.

Fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.