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2016 Top 25 Firm

as ranked by Accounting Today

2015 Best of the Best Firm

as ranked by Accounting Today

2014 Fastest Growing Firm

as ranked by Inside Public Accounting

Strategic Thinking.
Sound Insights.
Positive Action.

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MARKET HIGHLIGHTS

After a slower performance in the last quarter of 2016, the semiconductor industry still outperformed the S&P 500 over 3 months, with an increase of 7.3% for the **Semiconductor & Semiconductor Equipment Index**. The index substantially outperformed the S&P 500 over 6, 12 and 24 months.

All sectors showed a good performance over 3 months; with a median gain of 15.4% for the Equipment segment, 10.4% for the EDA&IP segment, and 9.8% for the IDM/Foundry segment, respectively. The sectors were up between 18.3% and 49.5% compared to one year ago.

Within the IDM/Foundries segment, stock price changes over 3 months ranged from +34.7% (STM; up 175.8% over one year!) to -10.7% (Toshiba). Within the Fabless segment, AMD continues its strong performance with an increase of 28.3% - and visibility into profitability. AMD showed an impressive gain over one year: 410.5%. Qualcomm is down 12.1% after its acquisition announcement of NXP. The Semiconductor Equipment segment performed consistently well, with

price increases ranging from 10.7% (Advantest) to 51.8% (ULVAC). The EDA/IP segment saw increases between 24.5% (Cadence) and -4.6% (Rambus).

After slowing down in the fourth quarter, valuation momentum is again picking up for most segments. With the exception of the median EBITDA multiple in the fabless segment, all other multiples saw expansion compared to 3 and 12 months ago.

After the flurry of deals towards the end of the year, few large transactions were announced in the first quarter, with Intel's acquisition of Mobileye (for 44x revenue none the less) stealing the spotlight – and ringing in increased competition for in-vehicle semiconductor content. Analog Devices' acquisition of Linear Technology closed (at 10.7x Revenue), as did Siemens' acquisition of Mentor Graphics (at 3.6x revenue – but almost identical EBITDA multiples).

Gunther Hofmann, CFA, CVA, CEPA

MARKET SECTOR	Median % Change		PEG Ratio	Earnings Ratio	
	Price			LTM	2016E
	3 mo	12 mo	2017E		
Integrated Device Manufacturers (IDMs) & Foundries	18.9%	42.0%	1.3x	26.0x	18.1x
Fabless Semiconductor Manufacturers	10.0%	34.5%	1.3x	28.1x	14.4x
Semiconductor Equipment	21.4%	55.4%	1.1x	23.4x	18.1x
Electronic Design Automation & IP	11.8%	33.2%	2.3x	44.9x	25.6x

EV/REVENUE MULTIPLES

MARKET SECTOR	Median 3/31/17	LTM		NTM 3/31/17
		Median % Change		
		3 mo	12 mo	
Integrated Device Manufacturers (IDMs) & Foundries	2.9x	9.8%	30.0%	2.5x
Fabless Semiconductor Manufacturers	3.2x	1.3%	18.3%	2.9x
Semiconductor Equipment	3.5x	15.4%	49.5%	3.1x
Electronic Design Automation & IP	5.3x	10.4%	29.4%	4.8x

EV/EBITDA MULTIPLES

MARKET SECTOR	Median 3/31/17	Median % Change		NTM 3/31/17
		LTM EBITDA Multiples		
		3 mo	12 mo	
Integrated Device Manufacturers (IDMs) & Foundries	12.5x	7.8%	31.9%	8.6x
Fabless Semiconductor Manufacturers	17.0x	(4.3%)	6.2%	10.3x
Semiconductor Equipment	13.8x	8.2%	36.7%	11.1x
Electronic Design Automation & IP	21.4x	16.5%	24.9%	15.5x

INDICIES	Price 3/31/17	% Change			
		3 mo	6 mo	12 mo	24 mo
S&P 500 Index	2,362.72	5.5%	9.0%	14.7%	14.3%
Dow Jones Industrial Average	20,663.22	4.6%	12.9%	16.8%	16.2%
NASDAQ Composite Index	5,911.74	9.8%	11.3%	21.4%	20.6%
Russell 2000 Index	1,385.92	2.1%	10.7%	24.4%	10.6%
S&P Composite 1500 Information Technology (Sector) Index	935.35	11.7%	13.2%	23.6%	30.3%
S&P Composite 1500 Semiconductor & Semiconductor Equipment (Industry) Index	746.21	7.3%	13.0%	38.8%	36.9%
S&P Composite 1500 - Semiconductors (Sub Ind) (30-APR-03) Index	714.90	5.6%	10.4%	35.7%	35.2%
S&P Composite 1500 - Semiconductor Equipment & Products (30-APR-03) Index	594.73	19.2%	32.5%	61.8%	49.9%

Source: Capital IQ. (\$ in '000, except per share)

COMPANY	TICKER	Price 3/31/17	% Change		52-Week		Market Cap	Ent Val (TEV)	LTM		NTM		EPS		Earnings Ratio		PEG Ratio 2017E	
			3 mo	12 mo	High	Low			Rev	EBITDA	Rev	EBITDA	2016	2017E	LTM	2017E		
Integrated Device Manufacturers (IDMs) & Foundries																		
Samsung Electronics Co. Ltd.	A005930	\$1,842.64	23.1%	59.6%	\$1,908.83	\$1,109.16	\$255,831	\$196,491	\$180,567	\$44,031	\$200,044	\$60,043	\$131.06	\$209.80	13.1x	8.6x	0.6x	
Intel Corporation	INTC	36.07	(0.6%)	11.5%	38.45	29.50	170,539	178,723	59,387	22,874	60,005	24,509	2.12	2.80	17.0x	12.7x	1.6x	
TSMC	2330	6.21	10.9%	23.3%	6.41	4.70	161,122	148,430	31,165	20,629	33,665	22,006	0.39	0.45	14.7x	13.9x	1.2x	
Texas Instruments Incorporated	TXN	80.56	10.4%	40.3%	82.44	56.19	80,531	80,650	13,370	5,702	14,035	6,268	3.48	3.82	23.2x	20.6x	2.2x	
Sony Corporation	6758	33.78	20.4%	31.2%	34.01	22.79	42,643	43,474	67,478	4,931	71,675	7,870	1.05	0.30	NM	103.3x	5.7x	
NXP Semiconductors N.V.	NXPI	103.50	5.6%	27.7%	107.54	73.62	34,713	42,227	9,498	2,538	9,001	3,229	0.58	6.35	178.4x	16.0x	0.7x	
SK Hynix Inc.	A000660	45.17	21.7%	82.4%	49.11	22.94	31,891	32,076	15,383	6,424	22,017	12,607	3.48	8.76	12.1x	5.0x	0.2x	
Micron Technology, Inc.	MU	28.90	31.8%	176.0%	29.87	9.35	31,972	41,375	14,733	4,727	21,734	11,436	(0.27)	4.27	45.0x	6.4x	0.1x	
Infineon Technologies AG	IFX	20.47	17.5%	43.7%	20.56	12.44	23,104	22,927	7,017	1,676	7,692	2,042	0.74	0.94	28.6x	20.9x	1.6x	
Skyworks Solutions, Inc.	SWKS	97.98	31.2%	25.8%	99.38	57.11	18,118	16,768	3,276	1,367	3,692	1,653	5.18	6.22	20.7x	15.9x	1.1x	
Renesas Electronics Corporation	6723	10.47	31.7%	62.4%	11.31	4.64	17,449	15,699	5,633	1,142	6,372	1,433	0.30	0.47	33.1x	20.4x	1.4x	
Microchip Technology Incorporated	MCHP	73.78	15.0%	53.1%	76.50	46.98	15,968	18,423	3,063	925	3,634	1,402	1.49	3.89	169.0x	18.7x	1.3x	
STMicroelectronics N.V.	STM	15.32	34.7%	175.8%	15.87	4.80	13,214	12,757	7,063	1,001	7,661	1,415	0.19	0.68	80.8x	21.3x	0.4x	
Maxim Integrated Products, Inc.	MXIM	44.96	16.6%	22.2%	46.22	33.39	12,710	11,614	2,234	768	2,345	927	0.79	2.05	26.0x	21.5x	1.8x	
Toshiba Corporation	6502	2.17	(10.7%)	11.1%	4.26	1.60	9,167	20,187	47,309	(7,521)	50,153	2,573	(1.75)	(2.08)	NM	NM	NM	
ON Semiconductor Corporation	ON	15.49	21.4%	61.5%	16.06	8.11	6,507	9,123	3,907	728	5,124	1,128	0.43	1.23	36.0x	11.6x	0.6x	
United Microelectronics Corporation	2303	0.40	14.0%	(3.1%)	0.44	0.37	4,897	6,069	4,861	1,718	5,065	1,981	0.02	0.02	19.2x	18.1x	NM	
Cypress Semiconductor Corporation	CY	13.76	20.3%	58.9%	14.98	8.02	4,512	5,618	1,923	140	2,145	411	(2.15)	0.68	NM	19.7x	2.0x	
Median			18.9%	42.0%											26.0x	18.1x	1.3x	

EV/REVENUE MULTIPLES

COMPANY	TICKER	TTM					NTM
		Trailing		% Change			
		3/31/17	3 mo	12 mo	3 mo	12 mo	
Integrated Device Manufacturers (IDMs) & Foundries							
Samsung Electronics Co. Ltd.	A005930	1.1x	0.9x	0.8x	18.1%	34.9%	1.0x
Intel Corporation	INTC	3.0x	3.1x	2.7x	(4.2%)	11.1%	3.0x
TSMC	2330	4.8x	5.0x	4.6x	(4.0%)	3.9%	4.4x
Texas Instruments Incorporated	TXN	6.0x	5.6x	4.5x	8.0%	33.7%	5.7x
Sony Corporation	6758	0.6x	0.6x	0.6x	12.7%	16.3%	0.6x
NXP Semiconductors N.V.	NXPI	4.4x	4.7x	5.8x	(5.7%)	(23.8%)	4.7x
SK Hynix Inc.	A000660	2.1x	2.0x	1.0x	5.5%	106.2%	1.5x
Micron Technology, Inc.	MU	2.8x	2.3x	1.1x	20.2%	150.2%	1.9x
Infineon Technologies AG	IFX	3.3x	2.8x	2.3x	16.7%	43.1%	3.0x
Skyworks Solutions, Inc.	SWKS	5.1x	3.9x	4.1x	31.6%	26.3%	4.5x
Renesas Electronics Corporation	6723	2.8x	2.2x	1.5x	28.6%	86.8%	2.5x
Microchip Technology Incorporated	MCHP	6.0x	5.9x	5.2x	1.1%	15.9%	5.1x
STMicroelectronics N.V.	STM	1.8x	1.5x	0.6x	21.9%	201.2%	1.7x
Maxim Integrated Products, Inc.	MXIM	5.2x	4.5x	4.4x	15.5%	19.0%	5.0x
Toshiba Corporation	6502	0.4x	0.5x	0.4x	(7.3%)	5.5%	0.4x
ON Semiconductor Corporation	ON	2.3x	2.3x	1.4x	0.5%	71.8%	1.8x
United Microelectronics Corporation	2303	1.2x	1.2x	1.2x	4.4%	4.7%	1.2x
Cypress Semiconductor Corporation	CY	2.9x	2.6x	2.0x	11.5%	49.3%	2.6x
Median		2.9x	2.5x	1.7x	9.8%	30.0%	2.5x

EV/EBITDA MULTIPLES

COMPANY	TICKER	TTM					NTM
		Trailing		% Change			
		3/31/17	3 mo	12 mo	3 mo	12 mo	
Integrated Device Manufacturers (IDMs) & Foundries							
Samsung Electronics Co. Ltd.	A005930	4.5x	3.9x	3.4x	14.3%	31.9%	3.3x
Intel Corporation	INTC	7.8x	8.0x	6.5x	(2.1%)	20.2%	7.3x
TSMC	2330	7.5x	7.7x	7.1x	(3.1%)	5.4%	6.7x
Texas Instruments Incorporated	TXN	14.1x	13.3x	11.1x	6.4%	27.8%	12.9x
Sony Corporation	6758	8.4x	7.1x	5.1x	18.2%	64.0%	5.5x
NXP Semiconductors N.V.	NXPI	16.6x	17.4x	20.9x	(4.8%)	(20.6%)	13.1x
SK Hynix Inc.	A000660	4.6x	4.6x	2.1x	(0.2%)	122.0%	2.5x
Micron Technology, Inc.	MU	8.8x	9.2x	3.6x	(3.6%)	146.2%	3.6x
Infineon Technologies AG	IFX	13.5x	11.4x	10.1x	17.7%	34.0%	11.2x
Skyworks Solutions, Inc.	SWKS	12.3x	9.3x	10.4x	31.5%	18.2%	10.1x
Renesas Electronics Corporation	6723	13.1x	11.3x	6.0x	16.0%	118.9%	11.0x
Microchip Technology Incorporated	MCHP	19.9x	20.0x	16.2x	(0.4%)	23.3%	13.1x
STMicroelectronics N.V.	STM	12.5x	11.1x	4.7x	12.1%	168.6%	9.0x
Maxim Integrated Products, Inc.	MXIM	15.1x	13.7x	13.6x	10.8%	11.3%	12.5x
Toshiba Corporation	6502	NM	NM	NM	NM	NM	7.8x
ON Semiconductor Corporation	ON	12.5x	12.9x	7.5x	(2.8%)	66.7%	8.1x
United Microelectronics Corporation	2303	3.3x	3.1x	3.0x	7.8%	10.1%	3.1x
Cypress Semiconductor Corporation	CY	45.8x	16.5x	17.8x	176.8%	156.9%	13.7x
Median		12.5x	11.1x	7.1x	7.8%	31.9%	8.6x

Source: Capital IQ. (\$ in '000, except per share)

COMPANY	TICKER	Price 3/31/17	% Change		52-Week		Market Cap	Ent Val (TEV)	LTM		NTM		EPS		Earnings Ratio		PEG Ratio 2017E	
			3 mo	12 mo	High	Low			Rev	EBITDA	Rev	EBITDA	2016	2017E	LTM	2017E		
Fabless Semiconductor Manufacturers																		
Broadcom Limited	AVGO	\$218.96	23.9%	41.7%	\$227.75	\$139.18	\$ 87,882	\$100,885	\$15,608	\$ 5,932	\$ 17,316	\$ 11,687	\$(4.45)	\$14.82	NM	14.4x	0.9x	
QUALCOMM Incorporated	QCOM	57.34	(12.1%)	12.1%	71.62	49.73	84,694	85,557	23,778	8,554	24,350	9,665	3.81	4.61	17.5x	11.5x	1.5x	
NVIDIA Corporation	NVDA	108.93	2.1%	205.7%	120.92	34.40	64,160	60,151	6,910	2,134	8,054	2,609	1.08	2.91	42.4x	NM	NM	
Xilinx, Inc.	XLNX	57.89	(4.1%)	22.1%	62.24	41.53	14,411	12,746	2,311	767	2,452	844	2.05	2.31	25.4x	24.2x	2.7x	
Advanced Micro Devices, Inc.	AMD	14.55	28.3%	410.5%	15.55	2.60	13,697	13,868	4,272	(249)	4,727	272	(0.60)	0.06	NM	222.0x	35.5x	
MediaTek Inc.	2454	7.07	5.8%	(8.0%)	8.56	6.31	11,128	7,951	9,058	912	9,147	893	0.47	0.50	14.2x	13.9x	1.3x	
Marvell Technology Group Ltd.	MRVL	15.26	10.0%	48.0%	16.72	9.05	7,667	5,998	2,318	330	2,372	634	(1.51)	0.58	176.8x	NM	NM	
Microsemi Corporation	MSCC	51.53	(4.5%)	34.5%	57.97	29.68	5,942	7,874	1,761	466	1,829	639	(0.31)	3.82	NM	12.4x	0.8x	
Cirrus Logic, Inc.	CRUS	60.69	7.3%	66.7%	64.16	31.00	3,898	3,616	1,443	354	1,578	441	1.87	4.36	16.7x	14.4x	0.9x	
Silicon Laboratories Inc.	SLAB	73.55	13.2%	63.6%	75.60	42.63	3,110	2,888	698	105	747	153	1.45	2.88	50.7x	24.3x	1.9x	
Mellanox Technologies, Ltd.	MLNX	50.95	24.6%	(6.2%)	55.45	38.75	2,531	2,445	857	142	925	238	0.37	3.00	137.7x	17.0x	1.0x	
Silicon Motion Technology Corporation	SIMO	46.75	10.1%	20.5%	56.25	35.53	1,649	1,396	556	147	586	158	3.12	3.72	15.0x	12.3x	0.6x	
Himax Technologies, Inc.	HIMX	9.12	51.0%	(18.9%)	11.50	4.88	1,569	1,516	803	73	789	70	0.30	0.27	30.9x	35.7x	1.4x	
Median			10.0%	34.5%											28.1x	14.4x	1.3x	

COMPANY	TICKER	EV/REVENUE MULTIPLES					NTM
		TTM		% Change		NTM	
		Trailing		3 mo	12 mo		
Fabless Semiconductor Manufacturers							
Broadcom Limited	AVGO	6.5x	6.3x	8.9x	1.8%	(27.5%)	5.8x
QUALCOMM Incorporated	QCOM	3.6x	3.8x	3.0x	(5.2%)	21.6%	3.5x
NVIDIA Corporation	NVDA	8.7x	8.8x	3.1x	(0.8%)	177.7%	7.5x
Xilinx, Inc.	XLNX	5.5x	5.8x	4.7x	(5.3%)	18.3%	5.2x
Advanced Micro Devices, Inc.	AMD	3.2x	2.6x	0.9x	23.0%	246.6%	2.9x
MediaTek Inc.	2454	0.9x	0.9x	1.3x	(6.4%)	(32.0%)	0.9x
Marvell Technology Group Ltd.	MRVL	2.6x	2.2x	1.0x	17.0%	153.2%	2.5x
Microsemi Corporation	MSCC	4.5x	5.0x	4.0x	(10.0%)	11.9%	4.3x
Cirrus Logic, Inc.	CRUS	2.5x	2.8x	1.9x	(9.6%)	33.9%	2.3x
Silicon Laboratories Inc.	SLAB	4.1x	3.7x	2.6x	11.5%	56.2%	3.9x
Mellanox Technologies, Ltd.	MLNX	2.9x	2.4x	3.2x	18.8%	(9.7%)	2.6x
Silicon Motion Technology Corporation	SIMO	2.5x	2.5x	3.2x	1.3%	(21.1%)	2.4x
Himax Technologies, Inc.	HIMX	1.9x	1.3x	2.8x	42.7%	(33.7%)	1.9x
Median		3.2x	2.8x	3.0x	1.3%	18.3%	2.9x

COMPANY	TICKER	EV/EBITDA MULTIPLES					NTM
		TTM		% Change		NTM	
		Trailing		3 mo	12 mo		
Fabless Semiconductor Manufacturers							
Broadcom Limited	AVGO	17.0x	16.8x	21.6x	1.4%	(21.1%)	8.6x
QUALCOMM Incorporated	QCOM	10.0x	10.8x	8.8x	(7.8%)	13.3%	8.9x
NVIDIA Corporation	NVDA	28.2x	30.7x	13.7x	(8.1%)	105.5%	23.1x
Xilinx, Inc.	XLNX	16.6x	17.4x	13.8x	(4.6%)	20.2%	15.1x
Advanced Micro Devices, Inc.	AMD	NM	NM	NM	NM	NM	51.0x
MediaTek Inc.	2454	8.0x	8.3x	8.8x	(4.0%)	(8.6%)	8.9x
Marvell Technology Group Ltd.	MRVL	18.2x	23.9x	13.6x	(23.9%)	34.0%	9.5x
Microsemi Corporation	MSCC	16.9x	19.4x	16.6x	(12.9%)	2.0%	12.3x
Cirrus Logic, Inc.	CRUS	10.2x	12.9x	9.2x	(20.9%)	10.5%	8.2x
Silicon Laboratories Inc.	SLAB	27.6x	27.1x	21.8x	1.5%	26.2%	18.9x
Mellanox Technologies, Ltd.	MLNX	17.3x	14.5x	17.8x	19.2%	(3.3%)	10.3x
Silicon Motion Technology Corporation	SIMO	9.5x	9.7x	13.4x	(2.2%)	(29.2%)	8.8x
Himax Technologies, Inc.	HIMX	21.1x	13.8x	44.0x	52.9%	(52.0%)	21.6x
Median		17.0x	15.6x	13.8x	(4.3%)	6.2%	10.3x

Source: Capital IQ. (\$ in '000, except per share)

COMPANY	TICKER	Price 3/31/17	% Change		52-Week		Market Cap	Ent Val (TEV)	LTM		NTM		EPS		Earnings Ratio		PEG Ratio 2017E	
			3 mo	12 mo	High	Low			Rev	EBITDA	Rev	EBITDA	2016	2017E	LTM	2017E		
Semiconductor Equipment																		
ASML Holding N.V.	ASML	\$133.02	18.2%	30.8%	\$133.02	\$ 84.88	\$ 57,191	\$ 56,408	\$ 7,266	\$ 2,379	\$ 8,489	\$ 2,557	\$ 3.84	\$ 4.37	34.2x	29.9x	1.5x	
Applied Materials, Inc.	AMAT	38.90	20.5%	83.7%	39.81	19.46	42,005	41,183	11,846	2,994	13,205	3,633	1.54	2.65	20.0x	14.3x	0.7x	
Lam Research Corporation	LRCX	128.36	21.4%	55.4%	129.35	72.00	20,902	17,813	6,375	1,621	8,046	2,294	5.22	9.29	23.0x	13.7x	0.9x	
Tokyo Electron Limited	8035	109.01	15.2%	67.0%	110.18	59.22	17,885	15,401	6,308	1,224	7,926	1,730	4.09	5.73	23.1x	18.1x	1.4x	
KLA-Tencor Corporation	KLAC	95.07	20.8%	30.6%	96.91	66.88	14,900	15,286	3,259	1,247	3,555	1,373	4.49	5.76	17.3x	16.6x	1.0x	
Teradyne, Inc.	TER	31.10	22.4%	44.0%	31.21	18.07	6,226	5,399	1,753	420	1,840	485	(0.21)	1.66	NM	18.9x	1.5x	
ASM Pacific Technology Limited	522	13.60	28.4%	73.2%	13.95	6.67	5,553	5,451	1,838	321	2,187	418	0.46	0.65	29.4x	21.6x	0.7x	
Disco Corporation	6146	151.84	25.2%	78.8%	161.35	78.21	5,444	4,790	1,105	294	1,352	445	5.72	5.97	27.6x	24.2x	3.3x	
ASM International NV	ASM	56.27	25.0%	25.5%	56.67	34.44	3,366	2,962	631	130	729	168	2.33	3.31	23.8x	16.3x	1.1x	
MKS Instruments, Inc.	MKSI	68.75	15.7%	82.6%	70.40	35.02	3,703	3,897	1,295	271	1,596	357	1.94	4.07	35.4x	16.3x	1.0x	
Entegris, Inc.	ENTG	23.40	30.7%	71.8%	23.85	12.79	3,305	3,483	1,175	264	1,245	296	0.68	1.09	34.4x	20.9x	1.7x	
SCREEN Holdings Co., Ltd.	7735	73.45	18.3%	85.5%	74.71	35.96	3,450	3,179	2,457	301	2,893	433	3.53	4.67	16.7x	14.0x	1.3x	
ULVAC, Inc.	6728	46.55	51.8%	41.9%	50.31	21.64	2,294	2,431	1,727	239	2,754	324	3.30	3.75	12.7x	11.3x	2.3x	
Advantest Corporation	6857	18.65	10.7%	101.3%	19.86	8.27	3,271	2,841	1,314	170	1,587	264	0.31	0.66	34.9x	26.0x	3.5x	
Median			21.4%	55.4%											23.4x	18.1x	1.1x	

EV/REVENUE MULTIPLES

COMPANY	TICKER	TTM					NTM
		Trailing		% Change			
		3/31/17	3 mo	12 mo	3 mo	12 mo	
Semiconductor Equipment							
ASML Holding N.V.	ASML	7.8x	7.0x	5.7x	10.7%	36.5%	6.6x
Applied Materials, Inc.	AMAT	3.5x	3.2x	2.5x	9.6%	37.4%	3.1x
Lam Research Corporation	LRCX	2.8x	2.4x	1.9x	15.4%	49.5%	2.2x
Tokyo Electron Limited	8035	2.4x	2.3x	1.4x	6.0%	70.1%	1.9x
KLA-Tencor Corporation	KLAC	4.7x	4.1x	4.3x	13.1%	9.3%	4.3x
Teradyne, Inc.	TER	3.1x	2.5x	2.2x	23.6%	37.6%	2.9x
ASM Pacific Technology Limited	522	3.0x	2.4x	1.9x	22.3%	55.4%	2.5x
Disco Corporation	6146	4.1x	3.5x	2.3x	18.4%	82.7%	3.5x
ASM International NV	ASM	4.6x	3.9x	3.0x	20.3%	56.5%	4.1x
MKS Instruments, Inc.	MKSI	3.0x	3.2x	1.7x	(6.4%)	81.5%	2.4x
Entegris, Inc.	ENTG	3.0x	2.4x	2.1x	23.2%	43.6%	2.8x
SCREEN Holdings Co., Ltd.	7735	1.2x	1.2x	0.8x	0.0%	47.6%	1.1x
ULVAC, Inc.	6728	1.3x	1.0x	1.1x	35.2%	23.2%	0.9x
Advantest Corporation	6857	2.1x	1.9x	0.9x	6.6%	126.5%	1.8x
Median		3.5x	3.2x	2.3x	15.4%	49.5%	3.1x

EV/EBITDA MULTIPLES

COMPANY	TICKER	TTM					NTM
		Trailing		% Change			
		3/31/17	3 mo	12 mo	3 mo	12 mo	
Semiconductor Equipment							
ASML Holding N.V.	ASML	23.7x	21.6x	16.9x	9.8%	40.5%	22.1x
Applied Materials, Inc.	AMAT	13.8x	13.5x	11.9x	1.7%	15.6%	11.3x
Lam Research Corporation	LRCX	11.0x	10.2x	7.9x	8.2%	38.4%	7.8x
Tokyo Electron Limited	8035	12.0x	11.6x	6.8x	3.7%	76.6%	8.9x
KLA-Tencor Corporation	KLAC	12.3x	11.3x	13.6x	8.1%	(9.7%)	11.1x
Teradyne, Inc.	TER	12.9x	11.7x	9.4x	10.3%	36.7%	11.1x
ASM Pacific Technology Limited	522	17.0x	14.7x	13.0x	15.5%	31.0%	13.0x
Disco Corporation	6146	15.6x	13.1x	7.9x	18.8%	97.9%	10.8x
ASM International NV	ASM	14.5x	14.5x	14.4x	0.2%	1.1%	17.6x
MKS Instruments, Inc.	MKSI	14.4x	16.8x	7.5x	(14.2%)	92.7%	10.9x
Entegris, Inc.	ENTG	13.2x	11.3x	9.7x	17.0%	36.6%	11.8x
SCREEN Holdings Co., Ltd.	7735	10.1x	10.9x	8.0x	(7.7%)	26.3%	7.3x
ULVAC, Inc.	6728	9.6x	7.3x	8.7x	30.7%	10.2%	7.5x
Advantest Corporation	6857	16.0x	15.8x	9.1x	1.2%	75.3%	10.8x
Median		13.8x	13.1x	11.9x	8.2%	36.7%	11.1x

Source: Capital IQ. (\$ in '000, except per share)

COMPANY	TICKER	Price 3/31/17	% Change		52-Week		Market Cap	Ent Val (TEV)	LTM		NTM		EPS		Earnings Ratio		PEG Ratio 2017E
			3 mo	12 mo	High	Low			Rev	EBITDA	Rev	EBITDA	2016	2017E	LTM	2017E	
Electronic Design Automation & IP																	
Synopsys, Inc.	SNPS	\$ 72.13	22.5%	48.9%	\$ 73.08	\$ 46.68	\$ 10,855	\$ 10,209	\$ 2,507	\$ 478	\$ 2,607	\$ 691	\$ 1.73	\$ 3.24	38.0x	21.9x	2.3x
Ansys, Inc.	ANSS	106.87	15.5%	19.5%	108.92	81.41	9,144	8,321	988	446	1,034	515	2.99	3.74	35.7x	28.4x	2.3x
Cadence Design Systems, Inc.	CDNS	31.40	24.5%	33.2%	32.19	22.79	8,775	9,000	1,816	405	1,930	616	0.70	1.38	44.9x	22.8x	2.2x
Rambus Inc.	RMBS	13.14	(4.6%)	NA	14.50	11.13	1,467	1,459	337	100	388	129	0.06	0.23	219.0x	55.3x	6.6x
Imagination Technologies Group Plc	IMG	3.36	8.0%	23.2%	3.73	1.86	946	997	155	(51)	180	51	(0.32)	0.08	NM	16.3x	NM
PDF Solutions, Inc.	PDFS	22.62	0.3%	69.1%	24.44	12.09	725	608	107	17	122	35	0.28	0.75	80.8x	29.0x	1.6x
Median			11.8%	33.2%											44.9x	25.6x	2.3x

EV/REVENUE MULTIPLES

COMPANY	TICKER	TTM					NTM
		Trailing		% Change			
		3/31/17	3 mo	12 mo	3 mo	12 mo	
Electronic Design Automation & IP							
Synopsys, Inc.	SNPS	4.1x	3.3x	3.0x	24.5%	34.7%	3.9x
Ansys, Inc.	ANSS	8.4x	7.4x	7.5x	13.9%	12.1%	8.0x
Cadence Design Systems, Inc.	CDNS	5.0x	4.1x	4.0x	19.9%	24.2%	4.7x
Rambus Inc.	RMBS	4.3x	4.9x	4.7x	(10.7%)	(7.2%)	3.8x
Imagination Technologies Group Plc	IMG	6.4x	6.0x	3.3x	6.9%	93.5%	5.5x
PDF Solutions, Inc.	PDFS	5.7x	5.7x	3.0x	(1.3%)	90.3%	5.0x
Median		5.3x	5.3x	3.7x	10.4%	29.4%	4.8x

EV/EBITDA MULTIPLES

COMPANY	TICKER	TTM					NTM
		Trailing		% Change			
		3/31/17	3 mo	12 mo	3 mo	12 mo	
Electronic Design Automation & IP							
Synopsys, Inc.	SNPS	21.4x	17.8x	17.1x	20.0%	24.9%	14.8x
Ansys, Inc.	ANSS	18.6x	16.0x	16.4x	16.5%	13.8%	16.2x
Cadence Design Systems, Inc.	CDNS	22.2x	18.1x	16.6x	22.7%	33.4%	14.6x
Rambus Inc.	RMBS	14.6x	14.7x	12.9x	(0.5%)	12.9%	11.3x
Imagination Technologies Group Plc	IMG	NM	NM	NM	NM	NM	19.4x
PDF Solutions, Inc.	PDFS	35.8x	31.7x	12.5x	13.1%	187.4%	17.4x
Median		21.4x	17.8x	16.4x	16.5%	24.9%	15.5x

Source: Capital IQ. (\$ in '000, except per share)

ACQUIRER	TARGET	Date Announced	Headquarters		Enterprise Value Announcement	LTM		Enterprise Value / LTM		
			Buyer	Target		Revenue	EBITDA	Revenue	EBITDA	
Selected Semiconductor Transactions (Announced in Q4)										
Intel Corporation	Mobileye N.V.	3/13/2017	United States	Israel	15,003,685	358,162	125,028	41.9x	120.0x	
SK Holdings Co., Ltd.	LG Siltron	1/23/2017	South Korea	South Korea	1,541,179	717,205	124,602	2.1x	12.4x	
Veeco Instruments Inc.	Ultratech, Inc.	2/2/2017	United States	United States	550,669	194,051	16,376	2.8x	33.6x	
MaxLinear, Inc.	Exar Corporation	3/29/2017	United States	United States	510,910	155,089	14,549	3.3x	35.1x	
Integrated Device Technology, Inc.	GigPeak, Inc.	2/13/2017	United States	United States	210,178	58,743	9,315	3.6x	22.6x	
Chilisin Electronics Corp.	Ralec Electronic Corporation	1/23/2017	Taiwan	Taiwan	100,003	132,249	17,930	0.8x	5.6x	
Schneider Electric S.E.	Luminous Power Technologies (P) Limited	1/24/2017	France	India	118,042 ^[1]	NA	NA	NA	NA	
Hsu-Si Investment Corp.	Airoha Technology Corp.	3/28/2017	Taiwan	Taiwan	203,203	150,281	11,831	1.4x	17.2x	
Median								2.8x	22.6x	

[1] Data refers to Total Consideration to Shareholders.

Source: Capital IQ. (\$ in '000, except per share)

ACQUIRER	TARGET	Date		Headquarters		Enterprise Value	LTM		Enterprise Value / LTM		
		Announced	Closed	Buyer	Target	Close	Revenue	EBITDA	Rev.	EBITDA	
Selected Semiconductor Transactions (Closed in Q4)											
Analog Devices, Inc.	Linear Technology Corporation	7/26/2016	3/10/2017	United States	United States	15,307,290	1,423,936	684,962	10.7x	22.3x	
Siemens Industry, Inc.	Mentor Graphics Corporation	11/14/2016	3/30/2017	United States	United States	4,113,184	1,141,766	183,779	3.6x	22.4x	
Renesas Electronics Corporation	Intersil Corporation	9/12/2016	2/24/2017	Japan	United States	2,783,821	518,310	94,526	5.4x	29.5x	
Beijing JianGuang Asset Management Co., Ltd.; Wise Road Capital Ltd.	NXP Semiconductors NV, Standard Products Business (nka:Nexperia)	6/14/2016	2/6/2017	NA	Netherlands	2,750,000	1,200,000	NA	2.3x	NA	
Shanghai Xingsheng Equity Investment & Management Co., Ltd.	Trina Solar Limited	12/14/2015	3/13/2017	China	China	2,668,735	2,778,669	268,978	1.0x	9.9x	
ams AG	Heptagon Micro Optics Pte Ltd	10/24/2016	1/24/2017	Austria	Singapore	919,000	NA	NA	NA	NA	
Teledyne Technologies Incorporated	e2v Technologies plc	12/12/2016	3/28/2017	United States	United Kingdom	773,929	290,911	62,332	2.7x	12.4x	
MACOM Technology Solutions Holdings, Inc.	Inotera Memories Inc.	11/21/2016	1/26/2017	United States	United States	700,858	165,008	(25,679)	4.2x	NM	
Minebea Co., Ltd. (nka:MinebeaMitsumi Inc.)	Mitsumi Electric Co., Ltd.	12/21/2015	1/24/2017	Japan	Japan	520,665	1,394,986	84,796	0.4x	6.1x	
NavInfo Co., Ltd.	AutoChips Inc.	5/13/2016	3/2/2017	China	China	593,837	NA	NA	NA	NA	
Schneider Electric S.E.	Luminous Power Technologies (P) Limited	1/24/2017	1/24/2017	France	India	118,042 ^[1]	NA	NA	NA	NA	
Micron Technology, Inc.	Cando Corporation, Semiconductor Facilities and Equipment	3/14/2017	3/21/2017	United States	Taiwan	90,297	NA	NA	NA	NA	
Median									3.1x	17.4x	

[1] Data refers to Total Consideration to Shareholders.

Source: Capital IQ. (\$ in '000, except per share)

CORPORATE FINANCE SERVICES

The sale of a company can represent the culmination of years of effort by its investors and management. With this in mind, Armanino guides our clients through the sale process, bringing to bear extensive structuring, preparation, negotiation, valuation and corporate finance experience and judgment to optimize value.

Our team has developed its expertise through many M&A, divestiture and strategic partnering transactions for closely-held businesses across most major technology sectors.

Corporate Finance Services include:

- Sell-Side Representation
- Exit Planning
- Buy-Side Representation
- Intellectual Property and Patents Sales
- Purchaser Representative (SEC Reg 501)

The professionals in our practice have many years of business valuation and corporate finance experience with companies in every major industrial sector and size to deliver superior results for private technology companies in Silicon Valley.

SELL SIDE M&A ADVISORY

We help companies pursuing a sale or merger involving all or part of their business, as well as organizations interested in partial divestitures of a division or assets. We provide end-to-end strategic advisory, introducing the company to potential acquirers and managing a rigorous process to optimize competition, achieve strategic valuations and successfully close transactions.

BUY SIDE M&A ADVISORY

We represent clients pursuing strategic acquisitions, such as asset purchases, mergers, and intellectual property procurements. Our financial advisory includes market analyses, target identification, financial modeling, deal negotiations, preliminary due diligence and final negotiation of the definitive agreements.

IP AND PATENT SALES

Armanino is among Silicon Valley's most experienced financial advisory firms for technology companies that seek to monetize assets including intellectual property (IP).

PURCHASER REPRESENTATIVE SERVICES

A Purchaser Representative may be necessary in merger and acquisition transactions where the consideration is not all cash, but includes securities that are not registered with the SEC.

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