Zacks Small-Cap Research

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TowerJazz

(TSEM-NASDAQ)

TSEM: Earnings Increase Dramatically With New TPSCo Structure

We believe that the stock could be worth $38.00 based on an industry average PE ratio of 16xs its 2018 adjusted non-GAAP EPS earnings of $2.36.

Current Price (11/07/17)	$32.19
Valuation	**$38.00**

OUTLOOK

TowerJazz is a pure-play analog semiconductor wafer foundry that manufactures SiGe, MEMS, RF, embedded flash-based memory, analog/mixed-signal, and CMOS image-sensor devices in the US, Israel and Japan. It has capacity to $1.6B in sales and is serving high growth markets such as RF High Position analog, CMOS image sensors, and power management. It is expected to grow because of the specific markets it addresses, by fab acquisitions, and by market share gains. We expect it to make a decision by early next year as to how to significantly increase capacity for future needs.

SUMMARY DATA

52-Week High	**$33.15**
52-Week Low	**$15.43**
One-Year Return (%)	**103.6**
Beta	**1.0**
Average Daily Volume (sh)	**622,670**
Shares Outstanding (mil)	**98**
Market Capitalization ($mil)	**$3,160**
Short Interest Ratio (days)	**5.3**
Institutional Ownership (%)	**45**
Insider Ownership (%)	**1**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**22.8**
Earnings Per Share (%)	**22.9**
Dividend (%)	**0.0**
P/E using TTM EPS	**15.2**
P/E using 2017 Estimate	**15.8**
P/E using 2018 Estimate	**13.6**
Zacks Rank	**N/A**

Risk Level	**Average**
Type of Stock	**Mid-Growth**
Industry	**Elect. Comp-Semi.**

ZACKS ESTIMATES

Revenue
(in millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2015	226 A	236 A	244 A	255 A	961 A
2016	278 A	305 A	326 A	340 A	1,250 A
2017	330 A	345 A	355 A	358 E	1,388 E
2018					1,470 E

Earnings per Share
(Adjusted Non-GAAP Fully Diluted)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2015	-$0.03 A	$0.14 A	$0.22 A	$0.29 A	$0.58 A
2016	$0.31 A	$0.40 A	$0.49 A	$0.52 A	$1.71 A
2017	$0.48 A	$0.52 A	$0.60 A	$0.56 E	$2.03 E
2018					$2.36 E

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WHATS NEW

TowerJazz reported another record quarter in terms of revenue and profitability. While revenues were exactly on target, **net income was helped by a reduction in taxes and profits at the Japanese TPSCo subsidiary**. According to a previous agreement, once revenues hit a certain level at TPSCo, the business was to start paying royalties to Panasonic and TowerJazz. Since Japan is the country in which TowerJazz pays taxes, by paying a royalty to the owner companies, profits and therefore taxes are reduced for TowerJazz. So while gross margins now come in lower at TPSCo, net profits are up as TowerJazz pays less in taxes. This new structure has caused us to raise 2018 estimates significantly as TPSCo profits are reduced. **This reduces minority income subtracted from profits by $25 million, and a 2018 reduction of taxes of $23 million**. As a result we are raising 2018 fully diluted GAAP EPS to $2.21 and **diluted non-GAAP EPS to $2.36** from $1.89 and $2.07

Business continues solid and the company gave midpoint guidance for Q4 at $358 million in revenues. This is up $3 million from previous sequentially flat expectations. Gross margins should continue to be lower as the royalties at TPSCo continue, with an even higher offset being in taxes. The focus of investors continues to be on what the company will do to increase capacity. Current operations have a revenue run rate capacity of $1.6B, which is a $400 million quarter. TowerJazz continues to scour the earth for fire sales of foundries, foundry equipment, and partnerships to add capacity at cheap prices. It continues in talks for all three solutions. Certainly a purchase or partnership structured like TPSCo or Maxim would let TSEM add capacity at very low incremental costs, but it is prepared to also expand its current facilities to meet demand. Since it has so far been unable to find used equipment at bargain prices, it has not started on the internal expansion solution as hope springs eternal for better economics. Management indicated that if they were not successful in negotiating a deal with a third party, it would let investors know when it reports earnings for the year how it plans to expand its current facilities. Its current possibilities include adding buildings and equipment in San Antonio and/or in its 300mm fab in Uozu, Japan. In San Antonio capacity can be increased by 50-60% and that process could start at any time. Capacity in Uozu could be tripled but it would be expensive to buy tools.

Also in the quarter TowerJazz and Tacoma Technology and Tacoma (Nanjing) Semiconductor Technology announced, that Tower has received a first payment of $18 million, for phase one of a binding framework agreement with Tacoma. This agreement is for a new 8-inch semiconductor fab in Nanjing, China. TowerJazz will provide technological expertise and consulting, and receive similar payments during the next few years. Also, TowerJazz will be able to use up to 50% of the targeted 40,000 wafers per month fab capacity.

Q3 Revenues on Target; Tax Strategy Creates Earnings Beat

TowerJazz reported Q3 2017 revenues of $355 million versus last year's $326 million, **up 9%** and $345 million in Q2 2017. This was the exact guidance. The company gave midpoint guidance of $358 million for revenue for Q4 2017, pointing to year over year revenue growth of 5%. This is $3 million higher than previous guidance for flat sequential revenues. This quarter TSEM's revenues reflected organic growth, ex-TPSCo, and Maxim, of 20%, down from 26% growth in the June quarter.

Gross margins had a setback in the quarter due to new royalties kicking in at TPSCo. Gross margin for the quarter was 25.1% versus 24.9% last year, and 26.4% in Q2 2017. Sequentially the additional $9.5 million in sales generated $1.9 million fewer gross margin dollars due to new royalty payments at TPSCo. TPSCo is now paying its owners, Panasonic and TowerJazz, royalties because it has hit a prespecified revenue level. Since TPSCo pays taxes in Japan, lowering profits there also lowers taxes paid. So by paying the parents a royalty, TowerJazz manages to make even more after tax money that if the profits were left in TPSCo. As a result despite gross margin and operating profits being hit, on a net income basis TowerJazz comes out ahead. We expect this strategy to continue in future quarters.

While revenues grew 9%, operating income grew 13%, to 16% of sales. This was down from 43% growth in Q2 due to the new royalties. There was a tax reversal of $3 million in the quarter. For the first three months the company paid $4.7 million in taxes. In Q4 we expect the company to pay $500,000 in taxes continuing at the nine-month rate.

Fully diluted GAAP EPS was $0.54 versus $0.52 a year ago. **Adjusted Non-GAAP EPS was $0.60 versus $0.51, up 7%.** Adjusted **EBITDA was $109 million** versus $97 million a year ago. At yesterday's closing price, this is an enterprise value to EBITDA run rate of 7.8 times.

Balance Sheet and Capacity

The company continues to accumulate cash and now has net cash and marketable securities of **$530 million versus $483 million a year ago.** Its quick ratio is high at 2.7xs and it has $549 million in working capital. The company is stockpiling cash to increase capacity.

Panasonic continues to represent between $90-105 million in revenues per quarter and third party revenues at TPSCo. It ended Q4 2016 at a $100 million run rate. So Panasonic plus Maxim total approximately $500 million of the company's estimated $1.4 billion in 2017 revenues. TPSCo generated $400 million in revenue; Panasonic owns 49% of that business.

The current fab capacity will allow the company to grow revenues and improve margins through capacity utilization. The company targets 85% utilization at its fabs. Its current fabs were at the following capacity utilization at quarter end:

	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017
Fab1 Migdal Haemek, Israel 6"	71%	70%	70%	78%	87%	90%	91%
Fab2 Migdal Haemek, Israel 8"	91%	91%	91%	87%	89%	85%	86%
Fab3 Newport Beach, California 8"	91%	88%	88%	84%	87%	86%	81%
Three TPSCo factories	41%	42%	42%	50%	50%	50%	58%
San Antonio, 8"	NA	NA	NA	NA	60%	60%	60%

Business Update

RF and high precision analog

In wireless, the company is focused on upcoming 5G standards with increased mobile data transmission rates. 5G also includes a much higher frequency band well suited for silicon-germanium technology that can achieve high data rates in this band. TSEM can reach data rates of up to 12 gigabps. In infrastructure, sales are driven primarily by data centers and cloud connectivity requirements with continued future demand. In the quarter TowerJazz announced a partnership with DENSO Corporation in Japan for RF sensors, used in radar systems for the newly released Toyota Camry. The number of sensors per vehicle is expected to increase 3-7 today to as many as 12 in a fully autonomous vehicle of the future.

Power management

This segment is highly focused on automotive including product for batteries, headlight LED, advanced safety features, power savings and charging capabilities particularly in electric and hybrid vehicles.

CMOS image sensor

This segment is focusing on: global shutter technology for the industrial sensor market, where it provides the smallest global shutter pixel in the world and leading edge technology; backside illumination and stack wafers for the high-end photography market; and special pixel technology for the automotive market. Also autonomous vehicles will require multiple sensors use advanced CMOS image sensors.

TOPS

This segment is seeing the highest growth rates in the market since 2012 led by automotive. Its strategy is to co-develop with leading strategic customers and to target mobile and automotive. It is also having success with high sensitivity radiation sensors in radiation measurement systems.

INVESTMENT THESIS

- Although the semiconductor market is typically considered cyclical, we believe that based on the end-user markets for which TowerJazz's products used, revenues should continue to grow steadily.
- As a foundry, the company has natural operating leverage given its high fixed costs. Every dollar in revenue tends to add about $0.50 to gross margin. When the company adds 12" revenues, that blended percentage will trend higher as 12" can sell at 60+ gross margins.
- The company has a strong market position in high quality imaging and 3D, which is increasing being used for gesturing controls, machine vision, security anti-crash systems and self driving cars, as well as smartphones with high megapixel cameras. In this area its primary competition is Sony, which makes it a preferable source for many companies that compete with Sony.
- Having Panasonic as a partner gives the company increased stature in the industry and has attracted new customers who have a favorable disposition to working with a trusted and known company with high quality product and leading edge expertise in imaging.
- The major risk to the stock is the need to add capacity, which is currently $1.6 billion in revenue. The company should be making a decision on how to increase that capacity by the time it reports Q4 results. This is expected to make a change to earnings estimates, require capital and increases expenses no matter what methodology is chosen either: increasing current fab capacities, buying a new fab either outright or in a joint venture, or partnering with another entity to build a brand new fab.
- We believe the stock is currently undervalued on a PE basis versus its peers, as well as by PE to growth rate. Peer companies trade at an average PE of 16 times 2018 estimated earnings. At an industry average PE, TSEM's stock should trade at $38.00 per share.

VALUATION

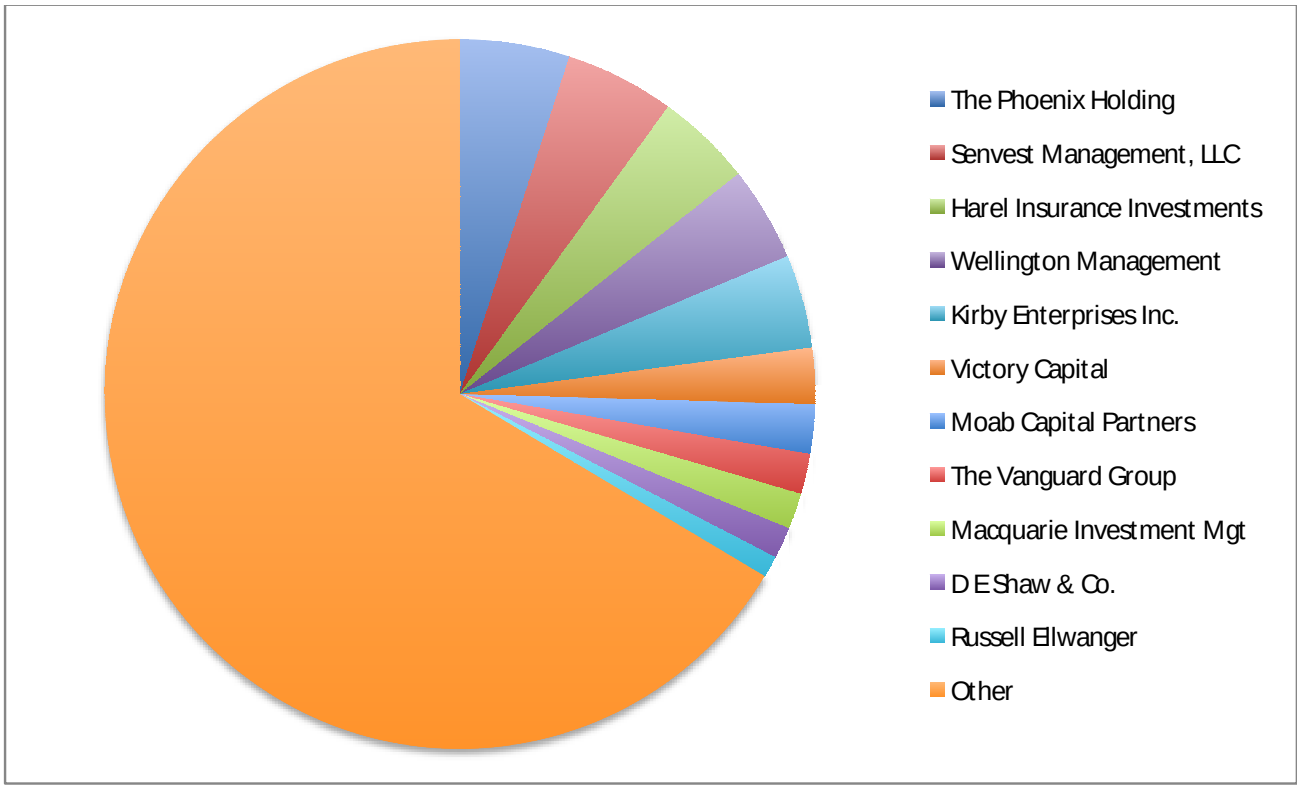
TSEM's public foundry comparables have a PE range of 11.7 to 39.8 times 2018 estimated EPS. Our Fully diluted non-GAAP EPS estimate for 2017 for TSEM is $2.03 and our 2018 EPS estimate is $2.36. Given SMI's outlying PE of 59.7, we choose to use the 2018 PE average without that stock. **Using the average PE of 16 times for estimated 2018 EPS the group gives a future stock price of $38.00 per share**. The biggest risk to the stock is that the company will have to move to increase capacity by year

end which cold result in a reduction in earnings estimates as any major capacity add would be expected to reduce earnings in the short term.

Foundry Companies

Company	Ticker	EPS 17E	EPS 18E	Price	PE 2017	PE 2018	Growth Rate
Advanced Semiconductor	ASX	$0.43	$0.53	$6.18	14.4	11.7	23%
Semiconductor Manufacturing	SMI	0.14	0.21	8.36	59.7	39.8	50%
Taiwan Semiconductor	TSM	2.17	2.32	42.41	19.5	18.3	7%
United Microelectronics	UMC	0.12	0.14	2.54	21.2	18.1	17%
Average					18.4	16.0	16%

OWNERSHIP



Source: E*TRADE and SEC filings

BALANCE SHEET

$ in thousands	Sept 30, 2017	June 30, 2017	Qtr-Qtr % Change	Sept 30, 2016	Yr-Yr % Change
CURRENT ASSETS					
Cash and cash equivalents	**$480,407**	**$483,603**	-0.7%	**$362,833**	32.4%
Marketable securities	**$49,738**	**$0**	NM	**$0**	NM
Trade accounts receivable	150,039	150,731	-0.5%	128,979	16.3%
Inventories	143,300	139,010	3.1%	143,090	0.1%
Other current assets	21,465	34,391	-37.6%	32,851	-34.7%
Total current assets	**795,211**	**807,735**	-1.6%	**667,753**	19.1%
LONG-TERM INVESTMENTS	27,091	27,291	-0.7%	24,616	10.1%
PROPERTY AND EQUIPMENT, NET	633,107	628,279	0.8%	643,046	-1.5%
INTANGIBLE ASSETS, NET	21,627	23,848	-9.3%	32,687	-33.8%
GOODWILL	7,000	7,000	0.0%	7,000	0.0%
OTHER ASSETS, NET	18,484	4,355	324.4%	4,535	307.6%
TOTAL ASSETS	1,502,520	1,498,508	0.3%	1,379,637	8.9%
CURRENT LIABILITIES					
Short term debt	**45,664**	**55,295**	-17.4%	**41,646**	9.6%
Trade accounts payable	109,385	95,328	14.7%	105,745	3.4%
Deferred revenue	26,454	25,689	3.0%	25,878	2.2%
Other current liabilities	64,259	78,051	-17.7%	81,248	-20.9%
Total current liabilities	**245,762**	**254,363**	-3.4%	**254,517**	-3.4%
LONG-TERM DEBT	**295,485**	**297,609**	-0.7%	**330,526**	-10.6%
LONG-TERM CUSTOMERS' ADVANCES	37,674	29,061	29.6%	36,547	3.1%
EMPLOYEE RELATED LIABILITIES	14,170	14,652	-3.3%	14,169	0.0%
DEFERRED TAX LIABILITY	85,380	88,808	-3.9%	107,843	-20.8%
Total liabilities	678,471	684,493	-0.9%	743,602	-8.8%
SHAREHOLDERS' EQUITY	873,787	814,015	7.3%	636,035	37.4%
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$1,552,258	$1,498,508	3.6%	$1,379,637	12.5%
Current Ratio	3.2	3.2	1.9%	2.6	23.3%
Quick Ratio	2.7	2.6	0.9%	2.1	28.7%
Working Capital	549,449	553,372	-0.7%	413,236	33.0%
Debt Percent of Assets	23%	24%	-3.6%	27%	-15.8%
Debt to Equity	0.4	0.4	-9.9%	0.6	-33.3%

INCOME STATEMENT

	March Q1 16	June Q2 16	Sept Q3 16	Dec Q4 16	March Q1 17	June Q2 17	Sept Q3 17	Dec Q4 17E	2016	2017E	2018E
REVENUE											
Net Revenue	278.0	305.0	326.2	340.4	330.1	345.1	354.6	358.0	1,249.6	1,387.7	1,470.0
Yr-to-yr Gr.	23%	29%	34%	34%	19%	13%	9%	5%	30%	11%	7%
OPERATING EXPENSES											
Cost of goods sold	216.7	232.3	244.9	252.6	245.3	254.0	265.4	267.0	946.5	1,031.7	1,072.9
Gross Margin	61.3	72.7	81.3	87.7	84.8	91.1	89.1	91.0	303.1	356.0	397.1
% of Sales	22.1%	23.8%	24.9%	25.8%	25.7%	26.4%	25.1%	25.4%	24.3%	25.7%	27.0%
R&D	15.2	16.0	15.5	16.3	15.8	16.4	17.1	17.1	63.1	66.4	66.5
M, G&A	15.9	16.5	16.8	16.2	16.2	17.2	16.8	16.9	65.4	67.2	74.0
One-time charges	(0.6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.6)	0.0	0.0
Tot Operating Exp.	30.5	32.6	32.3	32.5	32.0	33.7	33.9	34.0	127.9	133.6	140.5
Operating Income	30.8	40.2	49.0	55.2	52.8	57.4	55.2	57.0	175.2	222.4	256.6
Operating Margin	11%	13%	15%	16%	16%	17%	16%	16%	14%	16%	17%
Yr-to-yr Gr.	1445%	87%	104%	61%	71%	43%	13%	3%	113.9%	27.0%	6.6%
Net Interest	(3.4)	(3.0)	(3.3)	(2.2)	(2.2)	(2.1)	(1.8)	(1.7)	(11.9)	(7.8)	(8.3)
Other non-cash financing expense	(4.0)	(7.5)	(2.2)	1.2	(2.0)	(1.1)	(2.3)	(2.0)	(12.5)	(7.3)	(8.0)
Other income	0.0	4.4	5.1	(0.9)	0.5	0.1	(0.3)	0.0	8.5	0.4	0.0
Gain from acqusiition	41.1	10.2	0.0	0.0	0.0	0.0	0.0	0.0	51.3	0.0	0.0
Profit before tax	64.6	44.2	48.6	53.2	49.0	54.4	50.9	53.3	210.6	207.7	240.3
	23.2%	14.5%	14.9%	15.6%	14.9%	15.8%	14.4%	14.9%	16.9%	15.0%	16.3%
						23%	5%				
Taxes	(0.1)	(3.8)	3.5	(1.0)	(2.0)	(2.7)	3.3	(0.5)	(1.4)	(1.8)	(2.0)
Tax Rate	0.1%	8.7%	-7.1%	1.9%	4.1%	4.9%	-6.5%	-0.9%	0.7%	0.9%	0.8%
Profit before non-controlling	64.5	40.3	52.0	52.3	47.0	51.7	54.2	52.8	209.2	205.8	238.3
Minority Income	1.3	(1.9)	(0.8)	(4.0)	(1.5)	(1.7)	1.0	(0.7)	(5.3)	(3.0)	(3.0)
GAAP Net income	65.9	38.5	51.2	48.3	45.5	50.0	55.2	52.1	203.9	202.8	235.3
Yr-to-yr Gr.	-190%	394%	278%	119%	-31%	30%	8%	8%	NM	-1%	10%
Non-GAAP Net Income	31.6	39.9	49.4	53.4	52.1	54.6	61.2	58.0	174.4	214.75	254.21
GAAP primary EPS	$0.78	$0.45	$0.58	$0.53	$0.48	$0.52	$0.56	$0.53	$2.33	$2.10	$2.40
Fully diluted GAAP	$0.71	$0.38	$0.52	$0.49	$0.45	$0.49	$0.54	$0.51	$2.10	$1.92	$2.21
Adj Non-GAAP EPS-Fully dil.	**$0.34**	**$0.42**	**$0.51**	**$0.54**	**$0.50**	**$0.54**	**$0.60**	**$0.56**	**$1.71**	**$2.03**	**2.36**
	-1268%	206%	135%	84%	34%	18%	7%	-5%	195%		
Primary Share Out	84.5	86.3	87.8	91.2	93.9	96.4	97.9	97.9	87.5	96.5	97.9
Fully Diluted GAAP	92.9	100.2	101.8	103.6	104.9	105.6	106.4	106.4	101.3	105.8	106.4
All in shares	106.9	107.1	107.1	107.1	107.2	107.4	107.7	107.7	107.0	107.5	107.7
EBITDA	**77.7**	**87.0**	**96.8**	**105.2**	**101.0**	**108.3**	**108.7**	**108.0**	**366.7**	**426.0**	**460.6**
EBITDA Margin	28%	29%	30%	31%	31%	31%	31%	30%	29%	31%	31%
Yr-to-yr Gr.	51%	48%	53%	39%	30%	24%	12%	3%		16%	0%

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CASH FLOW

	Year 2015	3-months 31-Mar-16	3-months 30-Jun-16	3-months 30-Sep-16	3-months 31-Dec-16	Year 2016	3-months 31-Mar-17	3-months 30-Jun-17	3-months 30-Sep-17
CASH FLOWS - OPERATING ACTIVITIES									
Net profit (loss)	$ (29,127)	$ 64,548	$ 40,347	$ 52,018	$ 52,253	$ 209,166	$ 47,046	$ 51,727	$ 54,241
Income and non-cash expense items:									
Depreciation and amortization	168,032	48,584	48,117	49,194	51,711	197,606	49,698	52,389	55,014
Financing expense associated with debentures series F	87,973	0	0	0	150	150	0	0	0
Effect of fair value measurement on debt	16,078	1,401	6,700	2,808	(2,617)	8,292	6,888	4,873	(1,177)
Financing costs relating to Jazz notes exchange	0	0	0	0	0	0	0	0	0
Other expense (income), net	190	0	(4,362)	(5,081)	121	(9,322)	(511)	(142)	253
Gain from acquisition	0	(41,140)	(10,158)	0	827	(50,471)	0	0	0
Changes in assets and liabilities:									
Trade accounts receivable	(11,115)	(8,519)	(1,916)	(1,469)	(18,200)	(30,104)	9,529	(17,242)	361
Other receivables and other current assets	(14,979)	822	(5,476)	4,328	61	(265)	(4,439)	(7,307)	2,980
Inventories	(17,908)	(9,224)	(6,300)	(6,245)	(300)	(22,069)	(1,421)	1,688	(4,636)
Trade accounts payable	(26,162)	10,143	130	2,624	(7,347)	5,550	(4,128)	(6,530)	4,795
Deferred revenue and customers' advances	32,725	15,030	8,294	(5,377)	5,634	23,581	(8,735)	(4,564)	9,378
Other current liabilities	8,454	(1,953)	11,194	(6,938)	(2,448)	(145)	(9,090)	12,866	(13,760)
Employee related liabilities	0	(245)	0	0	(385)	0	(257)	(234)	(274)
Deferred tax liability, net	(4,173)	(2,005)	(4,789)	548	2,375	(3,703)	(2,440)	(3,230)	(3,259)
Other long-term liabilities	(14,775)	0	0	0	0	(798)	0	0	0
Net cash provided by operating activities	**195,213**	**77,442**	**81,781**	**86,410**	**82,220**	**327,468**	**82,140**	**84,294**	**103,916**
CASH FLOWS - INVESTING ACTIVITIES									
Investments in property and equipment, net	**(165,370)**	**(57,533)**	**(54,323)**	**(54,947)**	**(42,821)**	**(209,624)**	**(40,348)**	**$ (41,312)**	**$ (41,708)**
Investments in other assets	(119)	0	0	0	0	0	0	$ 0	$ (49,869)
Acquisition of subsidiary consolidated for the first time (a)	0	0	0	0	0	0	0	$ 0	$ 0
Interest bearing deposits, including designated deposits	(30,000)	10,000	19,600	(12,500)	(34,201)	(17,101)	(5,118)	$ 0	$ 0
Net cash provided by (used in) investing activities	(195,489)	(47,533)	(34,723)	(67,447)	(77,022)	(226,725)	(45,466)	(41,312)	(91,577)
CASH FLOWS - FINANCING ACTIVITIES									
Exercise of warrants and options	14,424	5,881	360	21,918	10,644	38,803	12,756	$ 14,254	$ 1,027
Proceeds from long-term loans	70,592	17,000	27,444	8,554	(52,998)	0	0	$ 0	$ 0
Short-term loan repayment to Panasonic	0	0	0	0	0	0	0	$ 0	$ 0
Debt repayment	(18,200)	(10,254)	0	0	47,345	37,091	(11,805)	$ (5,655)	$ (15,932)
Debenture repayment	(51,489)	0	0	0	0	0	0	$ 0	$ 0
TPSCo dividend to Panasonic	(1,570)	(2,563)	0	0	0	(2,563)	(4,378)	$ 0	$ 0
Net cash used in financing activities	13,757	10,064	27,804	30,472	4,991	73,331	(3,427)	8,599	(14,905)
Effect of foreign exchange rate change	(166)	9,029	11,623	2,336	(17,353)	5,635	4,371	$ (91)	$ (630)
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(11,592)	49,002	86,485	51,771	(7,549)	179,709	37,618	$ 51,490	$ 51,771
CASH AND CASH EQUIVALENTS - BEGINNING OF PERIOD	187,167	175,575	224,577	311,062	362,833	175,575	355,284	432,113	311,062
CASH AND CASH EQUIVALENTS - END OF PERIOD	175,575	224,577	311,062	362,833	355,284	355,284	392,902	483,603	362,833

HISTORICAL STOCK PRICE



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