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# Zacks Small-Cap Research

*Sponsored – Impartial - Comprehensive*

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## TowerJazz (TSEM-NASDAQ)

### TSEM: Q2 On Target, But Mobile Weakness Persists

We believe that the stock could be worth $34.00 using industry average PE ratios given current earnings estimates.

| | |
|---|---|
| Current Price (07/26/18) | $19.83 |
| **Valuation** | **$34.00** |

### 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, fab partnerships, and by market share gains. Its goal it to reach $3.5B in revenues organically combined with targeted acquisitions providing horizontal diversification.

### SUMMARY DATA

| | |
|---|---|
| **52-Week High** | **$35.95** |
| **52-Week Low** | **$19.83** |
| **One-Year Return (%)** | **36.3** |
| **Beta** | **0.8** |
| **Average Daily Volume (sh)** | **676,493** |
| **Shares Outstanding (mil)** | **98.9** |
| **Market Capitalization ($mil)** | **$1,961** |
| **Short Interest Ratio (days)** | **1.1** |
| **Institutional Ownership (%)** | **47** |
| **Insider Ownership (%)** | **1** |
| **Annual Cash Dividend** | **$0.00** |
| **Dividend Yield (%)** | **0.00** |
| **5-Yr. Historical Growth Rates** | |
| **Sales (%)** | **26.4** |
| **Earnings Per Share (%)** | **10.1** |
| **Dividend (%)** | **N/A** |
| **P/E using TTM EPS** | **10.6** |
| **P/E using 2018 Estimate** | **11.7** |
| **P/E using 2019 Estimate** | **10.4** |
| **Zacks Rank** | **N/A** |

| | |
|---|---|
| **Risk Level** | **Average** |
| **Type of Stock** | **Mid-Blend** |
| **Industry** | **Elec Comp-Semis** |

### ZACKS ESTIMATES

**Revenue**
(in millions of $)

| | Q1 (Mar) | Q2 (Jun) | Q3 (Sep) | Q4 (Dec) | Year (Dec) |
|---|---|---|---|---|---|
| 2016 | 278 A | 305 A | 326 A | 340 A | 1,250 A |
| 2017 | 330 A | 345 A | 355 A | 358 A | 1,387 A |
| 2018 | 313 A | 335 A | 335 E | 370 E | 1,353 E |
| 2019 | | | | | 1,461 E |

**Earnings Per Share**
(Adjusted non-GAAP Diluted)

| | Q1 (Mar) | Q2 (Jun) | Q3 (Sep) | Q4 (Dec) | Year (Dec) |
|---|---|---|---|---|---|
| 2016 | $0.34 A | $0.42 A | $0.51 A | $0.54 A | $1.80 A |
| 2017 | $0.50 A | $0.54 A | $0.60 A | $0.58 A | $2.21 A |
| 2018 | $0.31 A | $0.42 A | $0.42 E | $0.54 E | $1.69 E |
| 2019 | | | | | $1.99 E |

Zacks Projected EPS Growth Rate - Next 5 Years % **15**

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## WHAT'S NEW

Revenues for Q2 came in as forecast and in line with guidance at $335 million, down 3% from a year ago. The company guided to a midpoint revenue range of $335 million plus or minus 5% for Q3, below expectations, as it sees continued weakness in mobile and it has taken longer than expected to ship out silicon germanium product. At $335 million, revenues would be down 6% year over year and flat sequentially. The company believes it is positioned to reach its Q4 guidance of $360-380 million based on its current production status, possibly flat with last year. SiG demand is increasing and the company is spending more cap ex on increasing capacity at its Newport Beach and San Antonio fabs. Growth drivers also include an increased addressable market, and 300mm product. 300mm has three strategic segments: radio frequency, power management, and CMOS image sensor. End markets are mobile, machine vision, DSLR, medical X-ray, and surveillance.

TSEM reported adjusted non-GAAP EPS year over year decline to $0.42 versus $0.54 a year ago, down 31% year over year, and compared with $0.31 in Q1 2018. Adjusted EBITDA was $96 million versus $108 million, down only 12%.

Gross margin for the second quarter was 23.4% versus 26.4% a year ago and 21.2% in Q1 2018. Gross margin is expected to improve throughout 2018 as sequential sales increase and as high margin SiG capacity increases and higher margin 300mm product ramps in the second half.

R&D costs for the quarter were $1.8 million higher than last year and M,G&A decreased $1.1 million. These increased costs combined with lower gross margin caused operating margin to decline three percentage points year over year. On a dollar basis it was down 23%.

Financing expense was $7 million compared to $1 million last year. Much of that was one time as the company prepaid and refinanced some debt.

After taking out $2.8 million for taxes and $1.7 million for minority loss, GAAP net income was $38 million versus $50 million, while non-GAAP net income was $42 million versus $55 million.

Diluted GAAP EPS was $0.38 per share versus $0.52 last year. Adjusted non-GAAP EPS declined to $0.42 versus $0.54 a year ago.

**Q2 and Q3 2018 Revenue Guidance**

Management expects revenues in Q3 to be at $335 million plus or minus 5%, the same as this quarter. The midpoint would be down 6% from last year. In Q4, the company is looking for revenues of $360 million to $380 million versus $358 million in Q4 2017.

**Balance Sheet and Capacity**

The company continues to accumulate cash and now has **cash and marketable securities of $627 million** compared to $590 million last quarter and versus $484 million a year ago. Its quick ratio is high at 2.6xs and it has $648 million in working capital. The company is stockpiling cash to increase future capacity.

The company has a goal to reach $3.5 billion in revenues. It believes that it can grow organically to $2.3 billion to $2.5 billion with all its current and planned initiatives including the Takoma project, a new 8-inch semiconductor fab in Nanjing, China. The rest is expected to come from acquisitions. Last month the company got a commitment letter from its Chinese partners for the Takoma project.

The current fab capacity will allow the company to grow revenues and improve margins through capacity utilization. TowerJazz continues to increase capacity at its current fabs. 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 | Q4 2017 | Q1 2018 | Q2 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Fab1 Migdal Haemek, Israel 6"** | 71% | 70% | 70% | 78% | 87% | 90% | 91% | 93% | 90% | 95% |
| **Fab2 Migdal Haemek, Israel 8"** | 91% | 91% | 91% | 87% | 89% | 85% | 86% | 85% | 80% | 85% |
| **Fab3 Newport Beach, California 8"** | 91% | 88% | 88% | 84% | 87% | 86% | 81% | 76% | 80% | 85% |
| **Three TPSCo factories** | 41% | 42% | 42% | 50% | 50% | 50% | 58% | 60% | 50% | 50% |
| **San Antonio, 8"** | NA | NA | NA | NA | 60% | 60% | 60% | 60% | 55% | 60% |

### RF and high precision analog

In 2017, this group provided 29% of total revenues ($400 million) and grew 10% year over year, the slowest of any segment of the company. This was further broken down as 21% from mobile and 8% from infrastructure. Higher growth came from silicon germanium offerings for infrastructure and some high-end mobile applications, which grew 22% year-over-year in 2017. In **Q1 and Q2 the company saw weakness in mobile as customers adjusted inventory due to slow demand, while there was high demand for infrastructure. Mobile continues to see weakness into Q3.** The company has strong and continued growing demand for silicon germanium, driven by the 100 gigabit per second data center and cloud computing segments.

### Power management

This segment was 30% of total revenues or $420 million in the 2017 year. In the first quarter, power management in discrete was strong, but **power ICs softened in the quarter due to inventory corrections**. One of TowerJazz's large power management customers has suffered market share losses and has cut orders. It hopes to regain these sales as it moves to 300mm product. Its 65-nanometer platform has advantages over the competition as a smaller product as well as other features. The company has also expanded its product line by introducing support for 1.2V transistors.

### CMOS image sensor

This segment was 15% of revenues or $210 million in 2017 and provided the highest margins. The end markets for this business includes medical, machine vision, digital SLR camera, cinematography, and security. In particular this business will be heavily back end weighted to the second half for applications in high end digital SLRs, cinematography and broadcasting. In Q2 TSEM announced that Gpixel's GMAX0505, a new 25Mp global shutter sensor, has been developed based on TowerJazz's 2.5um global shutter pixel in a 1.1" optical format with the highest resolution in C-mount optics. This new offering is the smallest in the world. TSEM's product is also gaining traction with other customers for use in industrial sensors. According to an IC Insights report, the industrial CMOS sensor market is growing at a CAGR of about 18% from $400M in 2015 to $910M in 2020. In the medical X-ray market, TowerJazz is working with several market leaders on large panel dental and medical CMOS detectors.

## KEY POINTS

- Although the semiconductor market is typically considered cyclical, we believe that based on the end-user markets for which TowerJazz's products used, it should be less cyclical.
- 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 can do this by increasing current fab capacities, buying a new fab either outright or in a joint venture. It has recently partnered with Tacoma to create capacity in China.
- 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 16.8 times 2019 estimates. At an industry average PE, TSEM's stock could trade at $34.00 per share.

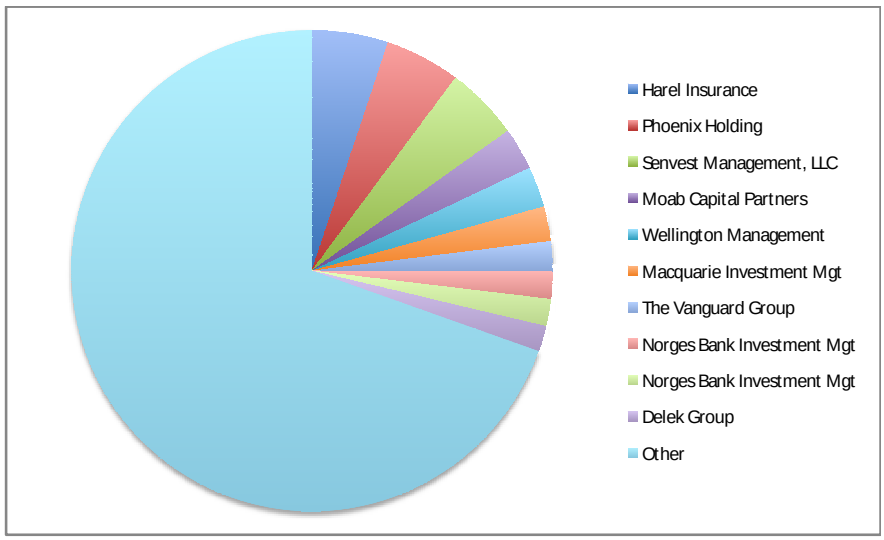
## VALUATION

TSEM's public foundry comparables have a PE range of 17.6 to 104 times 2018 estimated EPS. Our Fully diluted non-GAAP EPS estimate for 2018 for TSEM is $1.55 and our 2019 EPS estimate is $2.00. Using 2019 estimates, TSEM could be worth 16.8 times $2.00 or $34.00. The biggest risks to the stock is that the mobile market continues its weakness beyond the expected time frame, the ramp to 300 mm technology is impeded, or that an acquisition of a fab or a joint venture could incur short-term earnings dilution.

**Foundry Companies**

| Company | Ticker | EPS 18E | EPS 19E | EPS 20E | Price | PE 2018 | PE 2019E |
|---|---|---|---|---|---|---|---|
| Semiconductor Manufacturing | SMI | 0.06 | 0.05 | | 6.23 | 103.8 | 124.6 |
| Taiwan Semiconductor | TSM | 2.31 | 2.55 | | 40.74 | 17.6 | 16.0 |
| United Microelectronics | UMC | 0.14 | 0.16 | | 2.82 | 20.1 | 17.6 |
| **Average** | | | | | | 18.9 | 16.8 |

## OWNERSHIP




Source: E*TRADE and SEC filings

## INCOME STATEMENT

| | March Q1 17 | June Q2 17 | Sept Q3 17 | Dec Q4 17 | March Q1 18 | June Q2 18 | Sept Q3 18E | Dec Q4 18E | 2017 | 2018E | 2019E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **REVENUE** | | | | | | | | | | | |
| Net Revenue | 330.1 | 345.1 | 354.6 | 357.6 | 312.7 | 335.1 | 335.0 | 370.0 | 1,387.3 | 1,352.8 | 1,461.1 |
| Yr-to-yr Gr. | 19% | 13% | 9% | 5% | -5% | -3% | -6% | 3% | 11% | -2% | 8% |
| **OPERATING EXPENSES** | | | | | | | | | | | |
| Cost of goods sold | 245.3 | 254.0 | 265.4 | 268.3 | 246.5 | 256.6 | 256.5 | 277.5 | 1,033.0 | 1,037.3 | 1,090.5 |
| Gross Margin | 84.8 | 91.1 | 89.1 | 89.4 | 66.2 | 78.5 | 78.5 | 92.5 | 354.3 | 315.6 | 370.6 |
| % of Sales | 25.7% | 26.4% | 25.1% | 25.0% | 21.2% | 23.4% | 23.4% | 25.0% | 25.5% | 23.3% | 25.4% |
| R&D | 15.8 | 16.4 | 17.1 | 18.4 | 18.3 | 18.2 | 18.2 | 18.2 | 67.7 | 72.8 | 75.3 |
| M, G&A | 16.2 | 17.2 | 16.8 | 16.5 | 16.0 | 16.1 | 16.1 | 16.1 | 66.8 | 64.3 | 65.9 |
| One-time charges | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tot Operating Exp. | 32.0 | 33.7 | 33.9 | 34.9 | 34.3 | 34.3 | 34.3 | 34.3 | 134.5 | 137.1 | 141.3 |
| **Operating Income** | 52.8 | 57.4 | 55.2 | 54.5 | 31.9 | 44.2 | 44.2 | 58.2 | 219.8 | 178.5 | 229.3 |
| **Operating Margin** | 16% | 17% | 16% | 15% | 10% | 13% | 13% | 16% | 16% | 13% | 16% |
| Yr-to-yr Gr. | 71% | 43% | 13% | -1% | -40% | -23% | -20% | 7% | 25.5% | -18.8% | 19% |
| Net Interest | (2.2) | (2.1) | (1.8) | (1.8) | (0.6) | 0.0 | 0.0 | 0.0 | (7.8) | (0.6) | 0.0 |
| Other non-cash financing expense | (2.0) | (1.1) | (2.3) | (2.3) | (3.2) | (7.0) | (4.0) | (4.0) | (7.6) | (18.2) | (16.0) |
| Other income | 0.5 | 0.1 | (0.3) | (3.0) | 0.0 | 1.6 | 0.0 | 0.0 | (2.6) | 1.6 | 0.0 |
| Gain from acqusiition | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Profit before tax** | 49.0 | 54.4 | 50.9 | 47.4 | 28.1 | 38.8 | 40.2 | 54.2 | 201.8 | 161.3 | 213.3 |
| Profit margin | 14.9% | 15.8% | 14.4% | 13.3% | 9.0% | 11.6% | 12.0% | 14.6% | 14.5% | 11.9% | 14.6% |
| Taxes | (2.0) | (2.7) | 3.3 | 101.2 | (1.0) | (2.8) | (2.8) | (4.2) | 99.9 | (10.7) | (15.0) |
| Tax Rate | 4.1% | 4.9% | -6.5% | 213.6% | 3.4% | 7.2% | 7.0% | 7.8% | -49.5% | 6.7% | 7.0% |
| Profit before non-controlling | 47.0 | 51.7 | 54.2 | 148.6 | 27.2 | 36.0 | 37.4 | 50.0 | 301.7 | 150.5 | 198.3 |
| Minority Income | (1.5) | (1.7) | 1.0 | (1.4) | (1.1) | 1.7 | 1.1 | 1.1 | (3.6) | 2.9 | 0.0 |
| GAAP Net income | 45.5 | 50.0 | 55.2 | 147.2 | 26.1 | 37.7 | 38.5 | 51.1 | 298.0 | 153.4 | 198.3 |
| Yr-to-yr Gr. | -31% | 30% | 8% | 205% | -43% | -25% | -30% | -65% | 46% | -49% | 29% |
| Non-GAAP Net Income | 52.1 | 54.6 | 61.2 | 59.9 | 31.1 | 42.1 | 42.8 | 55.4 | 227.76 | 171.4 | 214.30 |
| GAAP primary EPS | $0.48 | $0.52 | $0.56 | $1.50 | $0.27 | $0.38 | $0.39 | $0.51 | $3.08 | 1.55 | $2.00 |
| Fully diluted GAAP | $0.45 | $0.49 | $0.54 | $1.40 | $0.26 | $0.37 | $0.38 | $0.50 | $2.90 | 1.51 | $1.84 |
| **Adj Non-GAAP EPS-Fully dil.** | **$0.50** | **$0.54** | **$0.60** | **$0.58** | **$0.31** | **$0.42** | **$0.42** | **$0.54** | **$2.21** | **$1.69** | **1.99** |
| Yr-to-yr Gr. | 46% | 28% | 18% | 9% | -48% | -31% | -36% | -14% | 23% | -24% | 18% |
| Primary Share Out | 93.9 | 96.4 | 97.9 | 98.3 | 98.5 | 98.9 | 99.1 | 99.2 | 96.6 | 98.9 | 99.0 |
| Fully Diluted GAAP | 104.9 | 105.6 | 106.4 | 106.8 | 101.1 | 101.1 | 101.2 | 101.8 | 105.9 | 101.3 | 107.7 |
| All in shares | 107.2 | 107.4 | 107.7 | 107.7 | 107.7 | 107.9 | 107.9 | 107.9 | 107.7 | 107.8 | 107.7 |
| **EBITDA** | **101.0** | **108.3** | **108.7** | **107.3** | **84.3** | **95.5** | **99.8** | **113.8** | **425.3** | **393.4** | **433.3** |
| EBITDA Margin | 31% | 31% | 31% | 30% | 27% | 29% | 30% | 31% | 31% | 29% | 30% |
| Yr-to-yr Gr. | 30% | 24% | 12% | 2% | -17% | -12% | -8% | 6% | 16% | -7% | 10% |

## BALANCE SHEET

| $ in thousands | June 30, 2018 | Mar. 31, 2017 | Qtr-Qtr % Change | June 30, 2017 | Yr-Yr % Change |
|---|---|---|---|---|---|
| **CURRENT ASSETS** | | | | | |
| Cash and cash equivalents | **$486,880** | **$464,661** | 4.8% | **$483,603** | 0.7% |
| Marketable securities | **$140,140** | **$125,105** | 12.0% | **$0** | NM |
| Trade accounts receivable | 161,017 | 144,352 | 11.5% | 150,731 | 6.8% |
| Inventories | 153,413 | 148,367 | 3.4% | 139,010 | 10.4% |
| Other current assets | 19,089 | 19,175 | -0.4% | 34,391 | -44.5% |
| **Total current assets** | **960,539** | **901,660** | 6.5% | **807,735** | 18.9% |
| | | | | | |
| LONG-TERM INVESTMENTS | 28,978 | 28,798 | 0.6% | 27,291 | 6.2% |
| PROPERTY AND EQUIPMENT, NET | 648,413 | 652,816 | -0.7% | 628,279 | 3.2% |
| INTANGIBLE ASSETS, NET | 16,671 | 18,479 | -9.8% | 23,848 | -30.1% |
| GOODWILL | 7,000 | 7,000 | 0.0% | 7,000 | 0.0% |
| DEFERRED TAX & OTHER ASSETS, NET | 101,022 | 110,771 | -8.8% | 4,355 | 2219.7% |
| TOTAL ASSETS | 1,762,623 | 1,719,524 | 2.5% | 1,498,508 | 17.6% |
| | | | | | |
| **CURRENT LIABILITIES** | | | | | |
| **Short term debt** | **100,242** | **114,763** | -12.7% | **55,295** | 81.3% |
| Trade accounts payable | 126,135 | 116,496 | 8.3% | 95,328 | 32.3% |
| Deferred revenue | 10,297 | 14,310 | -28.0% | 25,689 | -59.9% |
| Other current liabilities | 75,867 | 64,011 | 18.5% | 78,051 | -2.8% |
| **Total current liabilities** | **312,541** | **309,580** | 1.0% | **254,363** | 22.9% |
| | | | | | |
| **LONG-TERM DEBT** | **248,685** | **229,013** | 8.6% | **297,609** | -16.4% |
| LONG-TERM CUSTOMERS' ADVANCES | 29,771 | 31,224 | -4.7% | 29,061 | 2.4% |
| EMPLOYEE RELATED LIABILITIES | 14,616 | 14,517 | 0.7% | 14,652 | -0.2% |
| DEFERRED TAX LIABILITY | 56,335 | 67,435 | -16.5% | 88,808 | -36.6% |
| Total liabilities | 661,948 | 651,769 | 1.6% | 684,493 | -3.3% |
| | | | | | |
| SHAREHOLDERS' EQUITY | 1,100,675 | 1,067,755 | 3.1% | 814,015 | 35.2% |
| TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY | $1,762,623 | $1,719,524 | 2.5% | $1,498,508 | 17.6% |
| | | | | | |
| Current Ratio | 3.1 | 2.9 | 5.5% | 3.2 | -3.2% |
| Quick Ratio | 2.6 | 2.4 | 6.1% | 2.6 | -1.8% |
| Working Capital | 647,998 | 592,080 | 9.4% | 553,372 | 17.1% |
| Debt Percent of Assets | 20% | 20% | -1.0% | 24% | -15.9% |
| Debt to Equity | 0.3 | 0.3 | -1.5% | 0.4 | -26.9% |

# CASH FLOW

| | 3-Mo 31-Mar-16 | 3-Mo 30-Jun-16 | 3-Mo 30-Sep-16 | 3-Mo 31-Dec-16 | Year 2016 | 3-Mo 31-Mar-17 | 3-Mo 30-Jun-17 | 3-Mo 30-Sep-17 | 3-Mo 31-Dec-17 | Year 2017 | 3-Mo 31-Mar-18 | 3-Mo 30-Jun-18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CASH FLOWS - OPERATING ACTIVITIES** | | | | | | | | | | | | |
| Net profit (loss) | $ 64,548 | $ 40,347 | $ 52,018 | $ 52,253 | $ 209,166 | $ 47,046 | $ 51,727 | $ 54,241 | $ 148,642 | $ 301,656 | $ 27,181 | $ 36,009 |
| **Income and non-cash expense items:** | | | | | | | | | | | | |
| Depreciation and amortization | 48,584 | 48,117 | 49,194 | 51,711 | 197,606 | 49,698 | 52,389 | 55,014 | 51,310 | 208,411 | 53,977 | 53,493 |
| Financing expense associated with deb. series F | 0 | 0 | 0 | 150 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Effect of fair value measurement on debt | 1,401 | 6,700 | 2,808 | (2,617) | 8,292 | 6,888 | 4,873 | (1,177) | 2,281 | 12,865 | (1,740) | (4,797) |
| Other expense (income), net | 0 | (4,362) | (5,081) | 121 | (9,322) | (511) | (142) | 253 | 3,027 | 2,627 | (22) | (1,578) |
| Gain from acquisition | (41,140) | (10,158) | 0 | 827 | (50,471) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Changes in assets and liabilities:** | | | | | | | | | | | | |
| Trade accounts receivable | (8,519) | (1,916) | (1,469) | (18,200) | (30,104) | 9,529 | (17,242) | 361 | 788 | (6,564) | 8,089 | (18,351) |
| Other receivables and other current assets | 822 | (5,476) | 4,328 | 61 | (265) | (4,439) | (7,307) | 2,980 | 445 | (8,321) | 3,370 | 5,713 |
| Inventories | (9,224) | (6,300) | (6,245) | (300) | (22,069) | (1,421) | 1,688 | (4,636) | 92 | (4,277) | (2,692) | (6,713) |
| Trade accounts payable | 10,143 | 130 | 2,624 | (7,347) | 5,550 | (4,128) | (6,530) | 4,795 | (2,786) | (8,649) | (6,313) | 10,222 |
| Deferred revenue and customers' advances | 15,030 | 8,294 | (5,377) | 5,634 | 23,581 | (8,735) | (4,564) | 9,378 | (17,882) | (21,803) | (712) | (5,466) |
| Other current liabilities | (1,953) | 11,194 | (6,938) | (2,448) | (145) | (9,090) | 12,866 | (13,760) | 1,765 | (8,219) | (4,219) | 13,355 |
| Employee related liabilities | (245) | 0 | 0 | (385) | 0 | (257) | (234) | (274) | (2,482) | (3,247) | (387) | 193 |
| Deferred tax liability, net | (2,005) | (4,789) | 548 | 2,375 | (3,703) | (2,440) | (3,230) | (3,259) | (99,915) | (108,844) | (1,531) | (5,151) |
| Other long-term liabilities | 0 | 0 | 0 | 0 | (798) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Net cash provided by operating activities** | **77,442** | **81,781** | **86,410** | **82,220** | **327,468** | **82,140** | **84,294** | **103,916** | **85,285** | **355,635** | **75,001** | **76,929** |
| **CASH FLOWS - INVESTING ACTIVITIES** | | | | | | | | | | | | |
| Investments in property and equipment, net | **(57,533)** | **(54,323)** | **(54,947)** | **(42,821)** | **(209,624)** | **(40,348)** | **(41,312)** | **(41,708)** | **(41,349)** | **(164,717)** | **(40,047)** | **(40,148)** |
| Interest bearing deposits, including designated deposits | 10,000 | 19,600 | (12,500) | (108) | 16,992 | (5,118) | 0 | (49,869) | (64,867) | (114,736) | (14,963) | (15,488) |
| Net cash provided by (used in) investing activities | (47,533) | (34,723) | (67,447) | (42,929) | (192,632) | (45,466) | (41,312) | (91,577) | (106,216) | (279,453) | (55,010) | (55,636) |
| **CASH FLOWS - FINANCING ACTIVITIES** | | | | | | | | | | | | |
| Exercise of warrants and options | 5,881 | 360 | 21,918 | 10,644 | 38,803 | 12,756 | 14,254 | 1,027 | 3,278 | 31,315 | 658 | 26 |
| Proceeds from long-term loans | 17,000 | 27,444 | 8,554 | (52,998) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Debt repayment | (10,254) | 0 | 0 | 47,345 | 37,091 | (11,805) | (5,655) | (15,932) | (16,863) | (50,255) | (6,656) | 3,809 |
| Debenture repayment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TPSCo dividend to Panasonic | (2,563) | 0 | 0 | 0 | (2,563) | (4,378) | 0 | 0 | 0 | (4,378) | 0 | 0 |
| Net cash used in financing activities | 10,064 | 27,804 | 30,472 | 4,991 | 73,331 | (3,427) | 8,599 | (14,905) | (13,585) | (23,318) | (5,998) | 3,835 |
| Effect of foreign exchange rate change | 9,029 | 11,623 | 2,336 | (17,353) | 5,635 | 4,371 | (91) | (630) | 70 | 3,720 | 4,707 | (2,909) |
| INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS | 49,002 | 86,485 | 51,771 | 26,544 | 213,802 | 37,618 | 51,490 | 51,771 | (34,446) | 56,584 | 18,700 | 22,219 |
| CASH AND CASH EQUIVALENTS - BEGINNING OF PERIOD | 175,575 | 224,577 | 311,062 | 362,833 | 175,575 | 355,284 | 432,113 | 311,062 | 480,407 | 389,377 | 445,961 | 464,661 |
| CASH AND CASH EQUIVALENTS - END OF PERIOD | 224,577 | 311,062 | 362,833 | 389,377 | 389,377 | 392,902 | 483,603 | 362,833 | 445,961 | 445,961 | 464,661 | 486,880 |
| Operating Cash Flow | $ 73,393 | $ 80,644 | $ 98,939 | $ 102,445 | $ 355,421 | $ 103,121 | $ 108,847 | $ 108,331 | $ 205,260 | $ 525,559 | $ 79,396 | $ 83,127 |
| Free cash flow | $ 15,860 | $ 26,321 | $ 43,992 | $ 59,624 | $ 145,797 | $ 62,773 | $ 67,535 | $ 66,623 | $ 163,911 | $ 360,842 | $ 39,349 | $ 42,979 |

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