



# **FTR** THE FINAL TEST REPORT

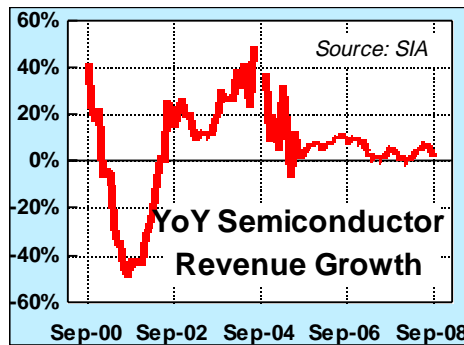


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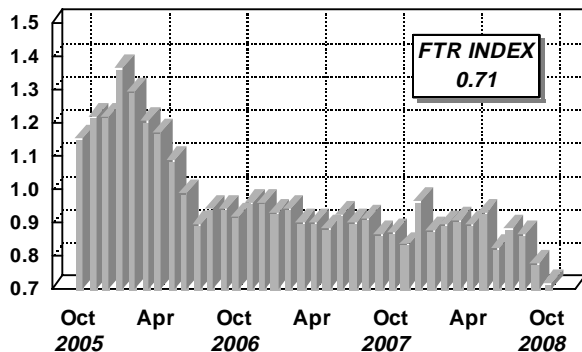
## As Bad it Looks Now, it's Not Really 2001 Again!

**A**t the International Test Conference (ITC) late last month, the discussions in the presentation rooms were all about making chip designers and test engineers interact in unison to solve the growing challenges of manufacturing semiconductor devices. However, in the corridors and on the exhibit floor, the discussions centered on "is this 2001 all over again? We already know how bad 2008 is, so the question is will 2009, and perhaps into 2010, be a replay of the great 2000-2002 nightmare for both chipmakers and their equipment suppliers?"



While these concerns seem justified, especially considering that the industry has slipped badly in the past due to its inability to accurately match forecasts and actual demand. However, as the graph at left shows the present situation in no way matches what happened to the industry in 2001. Chip sales plunged 43 percent YoY in 2001, to \$101.8 billion from \$178.9 billion in 2000. They resumed growth in 2002, but it wasn't until 2004 before global chip sales finally crawled past the previous record.

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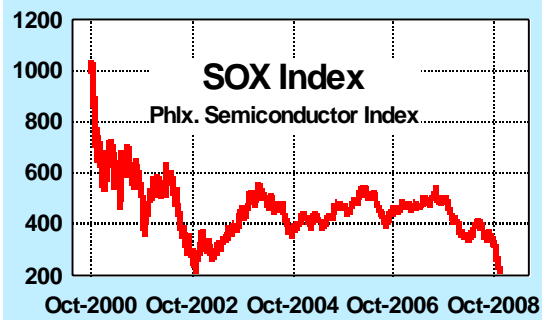
FTR's index of ATE, chipmakers, and PC makers vs. the Dow-30, fell last month as chip-related stocks were hit even harder than blue-chips of crash!

In their Q3 financial reports the executives of both sectors were using terms such as "murky," "low or limited visibility," "growing uncertainty" and "challenging climate." All the result of the fall in their company's stock prices and their concerns about the global economy.

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This time, the chip market isn't climbing down from such a torrid growth environment. This is important as it means any sales declines cannot become as steep as we saw in 2001 – even though, as the graph above shows, investors are as worried as they were in 2002 about a repeat of that year's fall in chip profits.

So, will the chip industry fall again because of its own mistakes? The answer most likely is no. The fact is that the industry did learn some tough lessons from what happened in 2001. Chip inventories are generally leaner across the industry, a sharp contrast from previous downturns when surplus capacity dragged down market segments as demand substantially trailed supply.

A big reason for the lower inventory structure is that both chip makers and equipment makers have aggressively outsourced production, relying on foundries for wafer supplies and contract manufacturers for equipment production.

That being said, the chip industry is clearly facing challenging times ahead. Market researchers have been cutting their semiconductor sales projections and hedging even their updated forecasts with caveats about events outside the sector. iSuppli has lowered its 2008 growth forecast for 2008 to just 2 percent from its previous forecast for 9.3 percent YoY, and Gartner is looking for a sequential Q4 drop "of possibly 20 percent." The latest WSTS report said that in Q3 that chip sales grew just 1.6 percent YoY and YTD growth was just 3.1 percent, so zero growth for 2008 is not unreasonable.

But, it noted that growth continued to be dragged down by memory products. If memory is excluded, chip sales in the third quarter grew by 7.8 percent YoY – very close to the historical average.

The general consensus is that chip sales in this (December) quarter will likely fall to about flat with sales

in the last quarter of 2007, so a forecast of 2.0 percent growth for the year appears reasonable.

So, what is 2009 likely to be for both chip and chip equipment makers? The SIA is expected to put out its new 5-year forecast on November 19, and few expect it be bullish. It's likely that its forecast for 2009 will be for low single-digit growth, at best. It is unlike the normally optimistic SIA will predict negative growth for the year.

However some others, including Rick Tsai, CEO of TSMC are not so optimistic. He said late last month that he expects global chip revenues are likely to decline 5-9 percent – and wafer foundries to see even steeper declines in 2009. As a result TSMC expects to cut its CAPEX for 2009 by 20 percent from the US\$1.8 billion it spent this year and by about 45 percent from than what it was in 2007.

SMIC has already announced plans to reduce their CAPEX to about \$200 million from \$790 million this year and UMC is expected to cut its CAPEX by about 40 percent from this year's level and by two-thirds from the \$900 million it spent in 2007.

And, it's not just the foundries which are looking for revenue declines in 2009. Nearly every sector of the semiconductor industry—such as analog, consumer, industrial, memory, wireless and others, are projected to see declines in sales and demand for the fourth quarter and at least into the first part of 2009. Even microprocessors, one of the few bright spots this year, along with RF chips, could see flat growth in the fourth quarter and into 2009.

This result is expected as the result of already weakening sales and a seasonal lull in PCs and cell phones. Meanwhile automotive, consumer and industrial demand have already come almost to a halt.

Intel's fourth quarter revenue guidance of \$10.1-to-\$10.9 billion – the widest range the company has ever provided – indicates that it expects the sequential change in revenue to be anywhere from up nearly 8 percent to down less than 1 percent. AMD is expecting fourth quarter revenue to be roughly flat sequentially with the \$1.58 billion in revenue it posted last quarter. But, neither company is saying anything about what it sees beyond this quarter.

One thing that everyone agrees on is that the outlook for memory chips is poor or worse. That sector remains engulfed in a major downturn. Even before the economic crisis, the DRAM, NAND and NOR memory markets were suffering from oversupply and falling ASPs. For the third quarter, Samsung Electronics posted a profit of 1.22 trillion won (\$856.3 million), down 43 percent from the previous period, and down 44 percent YoY, even though its sales were up 6 percent sequentially and up 15 percent YoY. But, it was again the only major memory maker to post any profit at all.

For test, assembly packaging equipment vendors, the short-term outlook may be even worse than that for the chipmakers generally. Advantest refused to provide any forecast for the balance of its business year, ending March 2009, saying only, "Investment plans for semiconductor related capital expenditure are always cyclical, but now vary on a daily basis." Teradyne CEO, Mike Bradley, concurred saying "Given the rapidly changing long-term landscape, it's really not possible to make any revenue estimates for 2009."

So, while 2009 will likely be a difficult one for TAP equipment makers, there is yet no reason to believe it is likely to be nearly as bad as it was in 2001-2002.

## IN FTR'S OPINION

### CAST or Recast?

At the International Test Conference (ITC) in Santa Clara, CA, last month representatives from a number of chipmakers and test vendors announced they have formed a new organization "to



foster pre-competitive collaboration and standards development to improve semiconductor industry productivity." The new consortium is the *Collaborative Alliance for Semiconductor Test (CAST)*. Founding companies include; Advantest, Amkor, Infineon, Intel, LTX-Credence, Qualcomm, Roos Instruments, Teradyne, and Verigy. Bob Helsel, STC's operations manager, has taken that same position at CAST.

At an open meeting there on Oct. 29, the CAST founders said that they are "seeking broad participation within the industry to engage in and resolve common industry issues that will ultimately lead to higher equipment utilization, easier line balancing and greater return on investment for equipment users, and lower redundant R&D costs in non-differentiating product areas for test equipment providers." (Additional information at [www.CAST-standards.org](http://www.CAST-standards.org).)

CAST's objectives include:

1. Foster pre-competitive collaboration, with emphasis on manufacturing process cost, efficiency and yield, beginning with wafer test and ending with shipment to the customer. This includes eliminating barriers to participation, enabling a broad membership and providing a level playing field inclusive of all semiconductor industry participants.

2. Research, develop and promote standards that enable industry productivity improvement, specifically to enable efficient and effective interoperability in an environment that encourages fast development, deployment and usage of specifications.

3. Define benchmark criteria for quantifying end-user process efficiency and effectiveness, and identify opportunities to improve that efficiency via collaborative efforts.

4. Act as a representative and an advocate for the members, with a focus on fostering a better understanding of their strategic value to the semiconductor industry.

Longtime readers of *FTR* will remember that we led an effort, through SEMI, in the mid-1990s with goals very similar to the above. However, despite about four years of hard work by a number of people, the effort failed miserably. It failed, first because we had not fully recognized that SEMI was, and remains, an organization driven by the wafer fabrication equipment companies and has little interest in 'back-end' activities. Secondly, we underestimated the extent to which 'product differentiation' is embedded into the culture of most ATE companies.

When, at ITC 2002, Intel, Advantest and a few others announced the formation of the *Semiconductor Test Consortium (STC)* with the goal of "developing a common and standard ATE platform," we were, to say the least, skeptical. The STC foresaw an industry in which ATE vendors developed their versions of a "common ATE platform and both ATE companies and third-party companies would develop interchangeable instrumentation modules instrumentation for the common platform.

However, most of the other ATE companies viewed it as an attempt by Intel to both get a lower-cost tester designed specifically for its needs and at the same time promote its goal of commoditizing all back-end equipment and tools. They also saw it as a way for Advantest to enter the SoC tester market via a resource-rich supporter. The final result was that the only ATE system which was developed under the STC's *OpenStar* program was Advantest's T2000.

The only chipmaker to really benefit from the program was Intel which has reportedly purchased 600-700 of the T2000 testers - that it claims have substantially lowered its overall test costs.

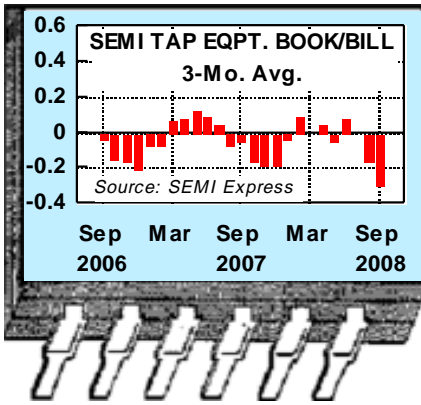
The STC has since abandoned its original goal and shifted to developing standards for tester interfaces under its *Semiconductor Test Interface eXtensions (STIX)* and *Portable Test Instrument Module (PTM)* initiatives. Key to the STIX initiative is the formation of new technical, industry-driven working groups to address peripheral areas "outside the tester". Presently its working groups are developing standards for hardware docking, probe cards, the *Standard Test Interface Language (STIL)*, and joint industry-university research projects.

It now appears to this writer that CAST is really an effort to 'recast' the STC into an organization which does not carry the legacy of *OpenStar* and thus will be more acceptable to the other ATE companies. However *FTR* believes that only if CAST is really driven by a broad group of ATE and other back-end equipment companies and supported by a broad base of both IDM and OSAT customers that it can succeed.

We do disagree with its intent to "formalize the organization within one of the existing associations in the very near term," If that means either the IEEE or SEMI, based on our experience, we believe it will quickly become lost in either's bureaucracy which have 'much bigger fish to fry'

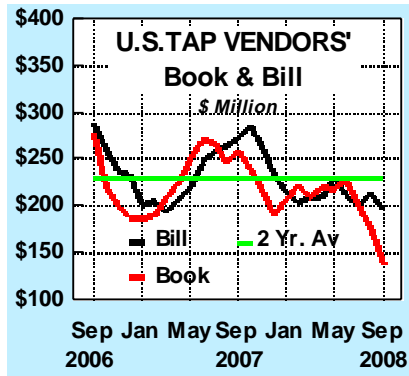
We believe that CAST must be able to finance and staff an organization - in the form of a smaller SEMI, Anything less will result in its becoming just another item on Paul Roddy's list of 15 already existing chip testing consortiums.

But, that's just my opinion.



**NA Sept. TAP B/B 0.70**

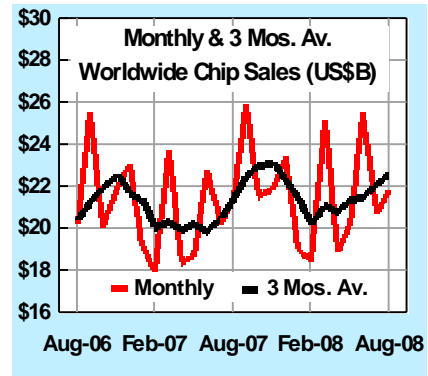
SEMI said North American equipment suppliers reported \$753.6 million in net bookings (three-month average) for September, down 13.1 percent from August bookings of \$866.8 million. Total bookings were down 39.0 percent YoY. TAP equipment bookings decreased 22.8 percent MoM, while Front-end equipment bookings decreased 36.8 percent. Total capital equipment billings were \$990.0 million in September, down 7.0 percent from final August billings of \$1,064.5 million. Total equipment bookings and billings were \$1,235.0 million and \$1,557.4 million, respectively, in September 2007. The resulting total equipment September book-to-bill was 0.76.



Front-end equipment bookings fell 10.5 percent MoM to \$616.2 million in September and down 36.8 percent YoY. Billings were \$795.1 million, down 2.5 percent MoM and down 38.1 percent YoY. The Front-end equipment book-to-bill for September book-to-bill ratio was 0.77.

TAP equipment bookings tumbled 22.8 percent MoM, to \$137.4 million and 47.1 percent YoY. Billings were \$194.9 million, down 8.5 percent MoM and down 28.3 percent YoY. The TAP equipment book-to-bill was 0.70 - its lowest since October 2004.

TAP Book-to-Bill			
	Aug'08	Sep'08	Sep'07
<b>Book</b>	\$178.0	\$137.4	259.6
<b>Bill</b>	\$213.1	\$194.9	271.9
<b>B/B</b>	0.84	0.70	0.95



**Actual Aug. Chip Sales up 1.4% YoY**

The WSTS reported that actual global chip sales were up just 1.4 percent YoY at \$21.88 billion in Aug. '08.

IC revenue growth through the first eight months of 2008 is a very unimpressive 3.5 percent when memory sales are included. However, if memory sales are excluded, the IC market was still growing at a respectable 10.2 percent YTD.

Aug. '08 IC Sales YoY Change			
Device	ASP	Revenue	Units
Analog	-3.6%	5.3%	9.2%
Logic	11.5%	20.5%	8.0%
MPU	-12.4%	-4.1%	9.5%
MCU	-14.0%	-0.7%	15.6%
DSP	-8.9%	-18.1%	-10.1%
DRAM	-22.0%	-14.2%	9.9%
SRAM	-32.4%	-15.1%	25.5%
NAND	-52.2%	-39.8%	26.1%
NOR	-22.3%	-17.6%	6.1%
Total	-9.0%	-0.6%	9.3%

Source: WSTS Oct. 2008

The America's region had lost 3.6 percent of global market share through August compared to all of 2007, to 15.3 percent - in part because of the weaker dollar.

**August 2008 WW Chip Sales**

The SIA reported that worldwide chip sales (3-month average) grew by 2.4 percent sequentially and by 5.5 percent YoY to \$22.7 billion in August. "Unit sales grew by 9.1 percent YoY in August, a modest slowdown from July, it said. "Global sales of semiconductors remained strong in August," said SIA president George Scalise. "Sales of personal computers and cellular handsets continued to be the principal drivers of demand. Year-to-date sales were 4.5 percent ahead of last year and remain in line with the SIA mid-year forecast of 4.3 percent growth in 2008. Continuing price pressure on DRAMs and NAND memory dampened overall industry growth. Excluding memory products, industry sales were up by 11.4 percent YoY in August," he said.

(US\$Billion)	MoM			YoY	
Market	Jul'08	Aug'08	Change	July'07	Change
Americas	\$3.35	\$3.32	-0.8%	\$3.58	-7.3%
Europe	\$3.39	\$3.45	1.7%	\$3.38	2.2%
Japan	\$4.11	\$4.23	3.0%	\$4.10	3.1%
Asia-Pacific	\$11.34	\$11.72	3.4%	\$10.47	12.0%
<b>World Total</b>	<b>\$22.19</b>	<b>\$22.72</b>	<b>2.4%</b>	<b>\$21.53</b>	<b>5.5%</b>

Aug '08 Regional Chip Sales (US\$Billion)			
Market	Sales	MoM	YoY
<b>Americas</b>	<b>\$2.99</b>	<b>2.8%</b>	<b>-15.2%</b>
<b>Europe</b>	<b>\$3.28</b>	<b>6.3%</b>	<b>-1.1%</b>
<b>Japan</b>	<b>\$4.18</b>	<b>-1.2%</b>	<b>0.8%</b>
<b>ROA</b>	<b>\$11.43</b>	<b>8.5%</b>	<b>7.9%</b>
<b>TOTAL</b>	<b>\$21.88</b>	<b>5.4%</b>	<b>1.4%</b>

**ATE STOCKS**

Ticker	Close	Change	52 Week	
	10/31	Month	High	Low
AEHR	\$2.74	-26.1%	\$11.20	\$2.27
ATRM	\$2.29	-22.9%	\$6.14	\$1.41
ATE	\$14.36	-32.7%	\$31.55	\$11.16
CSCD	\$3.20	-24.3%	\$10.19	\$1.91
COHU	\$14.14	-10.6%	\$20.52	\$11.02
EGLS	\$0.66	-42.1%	\$2.08	\$0.52
ESIO	\$8.37	-41.1%	\$21.50	\$7.62
FORM	\$17.42	0.0%	\$39.97	\$14.32
INTT	\$0.78	-25.7%	\$2.90	\$0.52
KLIC	\$2.94	-34.8%	\$7.95	\$2.37
LTXC	\$0.62	-64.4%	\$3.72	\$0.42
TER	\$5.10	-34.7%	\$14.50	\$7.81
VRGY	\$14.50	-10.9%	\$27.96	\$11.81
<b>Avg. Change</b>		<b>-28.5%</b>		

**Asia-Pacific Chip Mkt. Growth Slowing**

Gartner-Dataquest has again lowered its forecast for 2008 revenue growth in the Asia-Pacific (excluding Japan) semiconductor market to 5.2 percent from the 6.4 percent it had forecast just a few weeks earlier – citing macroeconomic factors and poor visibility. It noted that total semiconductor revenue from the region reached \$149.3 billion in 2007 and is expected to increase to \$157.1 billion this year. The firm expects a compound annual growth rate (CAGR) of 6.3 percent for chip revenue in the region through 2012, predicting growth of 8.2 percent in 2009, 8.4 percent in 2010, 2.5 percent in 2011 and 7.2 percent in 2012.

During the period from 2007 through 2012, it said that the China/Hong Kong market will have sustained lower growth compared to emerging markets in the region

Specifically it cites India – and Vietnam, which Gartner reports on as part of its “Other Asia/Pacific” category. Gartner’s data projects the CAGR of the China/Hong Kong semiconductor market from 2007 through 2012 will be 7.1 percent. Nevertheless, China/Hong Kong will continue to dominate the semiconductor industry in the Asia/Pacific, accounting for around 61.1 percent of the total market there in 2008.

“India is expected to continue to attract investment from global electronic manufacturers, which will drive significant semiconductor consumption. As electronic equipment manufacturing continues to shift to lower-cost destinations, major markets like So. Korea, Taiwan, and Singapore will see continued falls in their semiconductor consumption revenue. The growth in the Other Asia/Pacific category, particularly Vietnam, has become increasingly attractive to equipment manufacturers and likely is the next major market in the region’s electronics industry.

Gartner said it expects Asia/Pacific semiconductor revenue will grow by 8.4 percent in 2010, ahead of a cyclical downturn in 2011, when growth will drop to a 2.5 percent, before returning to growth of 7.2 percent in 2012. (See table below.)

**Major Country-level Semiconductor Market Forecast, Asia/Pacific, 2007-2012 (US\$ Billion)**

	2007	2008	2009	2010	2011	2012	CAGR*
<b>China/HK</b>	89.0	96.0	105.1	114.4	117.5	125.2	7.1%
<b>India</b>	4.0	5.0	6.2	7.4	8.2	9.5	19.1%
<b>South Korea</b>	19.0	17.4	16.7	16.8	16.0	16.1	-3.2%
<b>Malaysia</b>	9.9	10.0	10.6	11.2	11.3	12.1	4.1%
<b>Singapore</b>	3.7	3.3	3.1	2.9	2.7	2.5	-7.7%
<b>Taiwan</b>	11.6	10.8	10.4	9.9	8.9	8.6	-5.9%
<b>Other Asia/Pac</b>	12.2	14.6	18.1	21.7	24.6	28.7	18.7%
<b>Total Asia/Pac</b>	<b>149.3</b>	<b>157.1</b>	<b>170.1</b>	<b>184.3</b>	<b>189.0</b>	<b>202.7</b>	<b>6.3%</b>
*CAGR 2007-2012							

Source: Gartner October 2008

**FINANCIAL REPORTS****Aetrium, Inc.**

	FQ3 Ending Sept. 30 : \$000	
	2008	2007
Sales	\$5,509	\$7,704
Ops. Pft.	329	1,304
Net	252	1,388
Per shr.	0.02	0.13

**Cascade Microtech, Inc.**

	FQ3 Ending Sept. 30 : \$000	
	2008	2007
Sales	\$21,128	\$21,343
Ops. Pft.	(1,569)	(250)
Net	(1,291)	(216)
Per shr.	(0.10)	(0.02)

**COHU, Inc.**

	FQ3 Ending Sept. 27 : \$000	
	2008	2007
Sales	\$48,016	\$64,490
Ops. Pft.	116	3,275
Net	37	2,235
Per shr.	0.00	0.10

**ESI, Inc.**

	FQ2 Ending Sept. 27 : \$000	
	2008	2007
Sales	\$49,610	\$82,318
Ops. Pft.	(2,294)	7,536
Net	(665)	5,530
Per shr.	(0.02)	0.19

**FormFactor Inc.**

	FQ2 Ending Sept. 27 : \$000	
	2008	2007
Sales	\$52,584	\$125,291
Ops. Pft.	(28,894)	27,098
Net	(14,041)	22,223
Per shr.	(0.29)	0.45

**LogicVision, Inc.**

	FQ2 Ending Sept. 30 : \$000	
	2008	2007
Sales	\$3,180	\$3,031
Ops. Pft.	(516)	(800)
Net	(499)	(688)
Per shr.	(0.05)	(0.07)

**Teradyne, Inc.**

	FQ3 Ending Sept. 30 : \$000	
	2008	2007
Sales	\$297,255	\$299,461
Ops. Pft.	(17,276)	31,988
Net	(22,689)	40,989
Per shr.	(0.13)	0.22

## FOCUS ON LTXCredence



On October 8, LTX-Credence, which was formed on August 29, 2008, held what it described as a 'mid-quarter' analysts call. According to the company's president/CEO, David Tacelli, "We are focused product platforms on core technologies, minimizing overlap and combining pieces of technologies from both portfolios of Credence and LTX. For example, taking instruments already developed for the X-Series, and importing them to the ASL 1000."

The company's product road map - through at least 2011 - was presented as follows.

### Credence Products:

**Sapphire** will be targeted at microprocessors, graphics in high-end SoC. It will continue development, manufacturing and support of this product, at least through 2011. It said it will look to add pieces of technology from other platforms to enhance its capability (It also said that the Sapphire is still "the tester of choice at AMD, specifically for probe at their fab facilities.)

**Diamond 10** will also be developed, manufactured and supported to service the digital test space, where it said "It has established itself as being the lowest cost of test in this space."

**Diamond 40**, however, will be eliminated from its product line - end-of-life - by early 2009.

**ASL 1000** will continue to be developed, manufactured and supported through at least 2011. It said that development will leverage technology already present in other products.

**ASL 3000** however, will have only sustaining manufacturing and support until its end-of-life in early 2010.

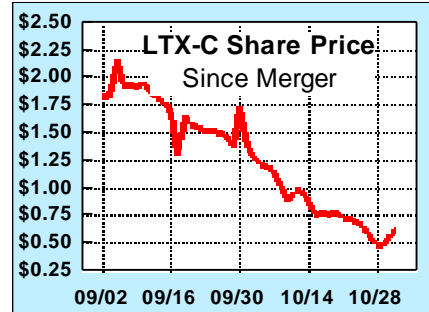
### LTX Products:

**X-Series** will continue to be developed, manufactured and supported through at least 2011. It will continue to expand the instrumentation for this product and combine the technology of X-Series with some of the other product portfolios, including ASL 1000 and Diamond 10, "to create next-generation test solutions."

With regard to head count - the company expects that it will be down under 900, about a 35 percent reduction of head count (from about 1,385) at the merger date. It said that "about 50 percent of those have already left and the rest have been notified and will leaving over the next 6 or so months."

Tacelli noted, "It's important for us to reduce the single customer dependency of both companies [LTX, on TI and Credence on AMD]. With a broader base of customers and expanded presence in Asia, I expect a wide area of growth opportunities moving forward. LTX-Credence in the OSAT community particularly in Asia with the support of Spirox, our partner in Taiwan and China."

On the financial side, VP/CFO, Mark Gallenberger updated its financial guidance for the present fiscal first quarter 2009 - which ended on October 31. He noted that in late August it had provided original guidance of \$60.0 million to \$64.0 million in revenue for the combined LTX-Credence company. However, he said that "as a result of additional weakness in the market place, we are lowering that revenue range from \$51.0 million to \$58.0 million. The widening of the revenue range reflects the volatility and uncertainty that we are currently seeing in the market place."



It had not provided any net income guidance back in August but now it believes it will have a FQ1'09 non-GAAP loss of \$13.0 to \$16.0 million or \$0.10 to \$0.13/share.

He also noted that "going forward it will not provide bookings guidance, and will stop reporting actual bookings." It explained that "the industry trend toward much lower lead times, is driving a much higher book, ship, or turns business within the quarter, bookings is actually becoming a less meaningful measure."

Going forward, the company expects to see the bulk of the savings from the merger in the next six months, which would be the Q2 and Q3 of fiscal 2009. It said, "that's where the majority of the savings will be kicking in. And, as we get into our fiscal Q4 the \$45.0 million in annual savings translates to about \$11.2 million in quarterly savings. So, the pro forma net income break-even for the company exiting the fiscal year would be approximately \$80.0 million per quarter.

Investors in the company did not appear to be positively responsive to company's plan as outlined in its 'mid-term' call. LTX-Credence's shares closed at \$1.83 on the first day after the closing of the merger: at \$1.15 on the day before its 'mid-term' call and at \$0.88 and the day after that call. Its shares closed last month at \$0.62 after hitting a low of \$0.48 on October 28. It should be noted that all ATE shares tumbled during October, along with most other stocks

Last month the company filed a notice with the SEC that it plans to ask shareholders to approve a reverse stock split of between 1:2 to 1:5 to retain its Nasdaq listing.

## ATE Company Q3 Financial Reports

It appears that the quadrennial 'SEMICON/W curse struck again this year – just as it did in 1996, 2000 and 2004, as TAP orders began to fall substantially in mid-July.

### Teradyne Corporation

Reported that its Q3 sales were \$297 million, down 6 percent sequentially, and about flat with sales in the same quarter of 2007 [before the Nextest acquisition.] Semitest product sales in the quarter \$194 million, including \$10 million of FLASH test. Service revenue for that segment was \$49 million. Its net for quarter was \$15.1 million, or \$0.09/share on a non-GAAP basis, and a loss of \$23.5 million or \$0.14/share on a GAAP basis. Much of the difference was due to an inventory charge of \$20.6 million or \$0.12/share for a Semi Group inventory write off “due to a SoC product transition coupled with a very sharp fall-off in demand.”

Bookings for the quarter were \$198 million. Its book-to-bill ratios for the quarter were 0.67 for the overall company, 0.63 for chip test and 0.85 for system test. Its end of quarter backlog stood at \$265 million, of which 79 percent is scheduled to ship within the next six months.

On a geographic basis, bookings for the quarter were: Asia, 40 percent; US, 32 percent; Japan, 14 percent; Europe, 13 percent; the rest of the world, 1 percent.

Mike Bradley, its president/CEO commented that, “while semiconductor test customers have been running a very tight CAPEX throughout 2008, recent events have put a big reset into those already cautious plans. For us, this has shown up as a quite dramatic downshift in semi test demands from our OSAT customers in the third quarter. We saw an \$100 million sequential drop-off in SoC tester orders in that quarter, while IDM orders grew 6 percent sequentially. Memory test orders dropped by 13 percent sequentially and systems test orders fell by 2 percent.

Bradley also noted that he believed that SoC chipmakers' buy rates have now fallen to the 1 percent level. Nevertheless he believes Teradyne is on course to gain share in SoC test this year, as its new SoC test products, “especially its *Ultra Wave* sub-system, that have been very successful at its existing wireless customers and some new ones have adopted it.”

Bradley said that: “OSAT customers had booked over \$130 million in the previous quarter, but it's clear that their declining revenue forecasts have caused them to drastically cut their CAPEX budgets.” As a result it has dropped its revenue projections accordingly as it does not expect any resurgence in the short term, and it expects the consumer spending outlook to also affect the IDM sector.”

As a result Teradyne expects Q4 sales of \$190 million to \$220 million, with a loss between \$0.07 and \$0.18/share on a non-GAAP basis.

### COHU Inc.

Said its sales fell to \$48.0 million for the third quarter ended September 27, 2008 compared to \$51.8 million in its previous quarter and \$64.5 million for the same quarter last year. Its net for the quarter was \$37,000, or \$0.00/share compared to \$2.2 million or \$0.10/share in the same quarter of 2007.

Chip test handling equipment accounted for 79.3 percent its revenues, about \$41 million. However orders for chip handlers decreased from \$39.0 million in the previous quarter to \$31.0 million in the third quarter of 2008. As a result Cohu expects Q4 2008 sales to be approximately \$37.0 million.

James A. Donahue, president/CEO said: “Conditions in the back-end equipment industry were relatively flat for the first half of 2008, but began deteriorating mid-year. Visibility is limited to several quarters at best”.

Cohu will pay a quarterly cash dividend of \$0.06/share payable on January 2, 2009 to shareholders of record on November 28, 2008. Cohu has paid consecutive quarterly cash dividends since 1977.

### FormFactor

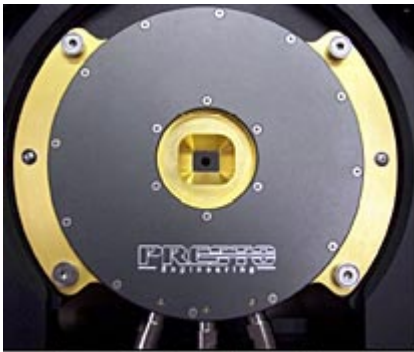
Said its revenues for its third quarter, ending Sept. 30, were 52.6 million, up slightly from the second quarter, but down 58 percent versus the third quarter 2007. It said DRAM revenues rose 16 percent sequentially and accounted for 67 percent of total revenues in quarter, up from 59 percent in the previous quarter. FLASH revenue fell 26 percent sequentially during Q3 representing 16 percent of total revenue and SoC logic business declined 13 percent sequentially in Q3. Its loss for the quarter was 14 million, \$0.29/share.

Mario Ruscev, its CEO commented that, The DRAM business appears to be stabilizing, and we believe we are regaining market share in that market. The environment for our FLASH business is weak especially in the NAND market, that has been impacted by both over capacity and broader microeconomics issues because so much of this demand is driven by consumer products. We are looking for a better environment in the second half of 2009. In some ways the NAND market today is looking like the DRAM market of six months ago. So we believe the next two quarters will remain soft before we see some stabilization.

We are seeing two different dynamics plays out in our SoC business. First, our microprocessor segment is slowing. Second, our Wire Bond segment continues to gain momentum and we expect to continue to see high growth in the Wire Bond market.”

Ruscev added, “So over the short-term we expect market conditions to largely remain challenging. The DRAM environment for consumer electronics is weakening, which is having an impact on unique treatment and the timing of technology transitions, nometers transitions, that are key drivers for our business.”

FormFactor expects its revenues for Q4 to be in a range of \$48 to \$55 million. It expects a GAAP net loss in the fourth quarter of between \$0.38 and \$0.47/share.



Presto Allegheny Thermal Control

Presto Engineering has introduced its new ALLEGHENY Thermal Control for In-Silicon Circuit Analysis. It is targeted at the need to maintain accurate temperature control while performing in-silicon circuit analysis. Advanced back-side analysis techniques require thermal solutions to adapt to a wide variety of lenses, including air-gap, liquid and solid immersion (SIL).

Additionally, new designs targeting consumer and mobile applications require not only cooling, but also need precise thermal control during failure analysis requiring docked ATE through-out the operating temperature range.

The patent-pending Allegheny is a moveable, diamond heat spreader, delivering precise thermal control. The goal of thermal control systems is to provide the widest range of temperatures at the highest possible power dissipation. To be effective it must exceed the best case performance of production packages to allow characterization of worst case conditions.

Typical cooling solutions using forced air or liquids are acceptable for production, but Presto claims that characterization requires a level of performance well beyond these convection techniques. Diamond has the highest thermal conductivity of all materials by a wide margin (4.2 times higher than the next best - Silver) making it the ideal heat spreader material. Allegheny can handle devices dissipating over 300 watts, without liquid or water cooling.

It said that ALLEGHENY is compatible with most commercial failure analysis equipment, including emission and laser microscopes, laser voltage probes and mechanical probes.

#### KEY FEATURES

- Flexible, all-lens thermal control
- Solution for devices dissipating > 300W
- Temperature characterization -65C to +125C
- No liquids or plumbing
- DUT Clamp requires minimal device dependent customization

## Cascade Microtech's Pyramid Accel

Cascade Microtech unveiled its *Pyramid Accel* which it claims accelerates production test program development by up to 60 percent. It's targeted at "addressing the increasingly complex ATE test programming challenges brought on by today's System-on-Chip (SoC) and RF devices." Paired with its Pyramid Probe card, the Accel enables test engineers to develop/debug test programs without needing to probe wafers, freeing up probers for production testing.

The Pyramid Accel facilitates better predictability by reducing the variables during test program debug procedures the company said.

Comprised of a PCB containing customer-supplied packaged parts mounted on an Advanced Spring Interposer, the Pyramid Accel debug fixture is mounted directly on the Pyramid Probe card.

The Pyramid Accel fixture also delivers the added benefit of providing a "golden reference" to allow fast diagnosis of test program issues that arise, resulting in less production downtime.

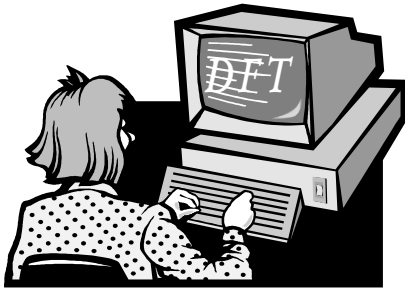


Pyramid Accel Debug Fixture

## Cascade/Roos Offer 80 GHz Wafer Test

Cascade Microtech also announced that it has partnered with Roos Instruments to provide complete and focused solutions for engineering and production test applications addressing 60 GHz through 80 GHz RF millimeter-wave components. It includes Cascade Microtech engineering probes and production probe cards, paired with Roos Instruments' ATE platforms and tester instrument modules. Both companies will provide integration software and complete calibration capability to ensure that customers can perform complete characterization and performance tests enabling production of Known-Good-Die (KGD) for automotive radar and wireless HDTV applications.

"Roos Instruments has pioneered the development of RF ATE operating at 80 GHz RF millimeter-wave frequencies. In order to fully characterize in engineering and validate device functionality during production test, the transmission paths to the device-under-test have become critical," says Mark Roos, CEO, Roos Instruments. "Cascade Microtech is the only partner who has the experience and tools to provide product solutions that operate in both engineering labs and production environments."



## EDA Revenue Fall Accelerated in Q2

The EDA Consortium (EDAC) Market Statistics Service (MSS) reported that the electronic design automation (EDA) industry revenue for Q2 2008 declined 3.7 percent to \$1357.4 million, compared with \$1408.8 million in Q2 2007. Sales were slightly down sequentially from the \$1350.7 million recorded in Q1 2008, which had been down 1.2 percent YoY.

Nevertheless, the companies it tracked employed 28,004 professionals in Q2 2008, up 7 percent from the 26,164 employed in Q2 2007, it said.

“Solid year over year growth in the PCB/MCM and services segments was offset by declines in CAE, IC Physical Design & Verification, and Semiconductor IP, resulting in an overall decline for Q2, 2008,” said Walden C. Rhines, EDAC chair and Mentor Graphics’ CEO/chairman. “Geographically, Western Europe and Japan showed growth in Q2, but this growth was offset by declines in North America and the rest of the world.”

By product category, the largest category, Computer Aided Engineering (CAE), generated revenue of \$524.7 million in Q2 2008, down 2.6 percent from the same period in 2007. However, the four quarter moving average CAE growth rate was positive at 6.8 percent.

For IC Physical Design & Verification, the next largest category, revenue decreased to \$317.1 million in Q2 2008, a 20.2 percent decrease compared to Q2 2007. The four quarter moving average growth rate declined 2.6 percent for this category YoY.

PCB and Multi-Chip Module revenue increased 19.3 percent YoY to \$141.6 million. The four quarter moving average growth rate for PCB & MCM showed a 1 percent decrease.

Semiconductor Intellectual Property (SIP) revenue was \$264.9 million in Q2 2008, a 1.6 percent decrease over Q2 2007. The four quarter moving average growth rate for SIP was slightly down at 0.8 percent.

Services revenue was \$109 million in Q2 2008, up 28.5 percent from Q2 2007. The four quarter moving average growth rate for services was up 10.7 percent.

By region, North America, EDA’s largest region, purchased \$585 million of EDA products and services in Q2 2008, down 13.3 percent YoY and the four quarter moving average growth rate was down 6.9 percent.

Western Europe revenue was up 10.5 percent YoY in Q2 2008 compared to Q2 2007, with revenues of \$273.4 million. The four quarter moving average growth for Western Europe was up 11.6 percent.

Revenue from Japan increased 13.7 percent to \$281.8 million YoY, while the four quarter moving average increase was 13.1 percent for Japan.

ROW sales fell to \$217.1 million in Q2 2008, down 9 percent YoY, but the four quarter moving average growth was positive at 6.7 percent.

## Teseda/Mentor Speed Defect Diagnosis

Teseda said it has partnered with Mentor Graphics to link Mentor’s *YieldAssist* toolset with the Teseda Diagnostic Environment. The companies claim that “this new capability will provide Teseda and Mentor customers with an integrated and truly layout-aware round-trip flow that will accelerate their ability to rapidly diagnose scan failures down to the yield-limiting defects, and identify those defects in the physical layout.

The portability and low cost of the Teseda platform will allow more users access to the new iterative diagnosis capability in *YieldAssist*. Coupled with the large failure capture memory in the Teseda V-series systems, the *YieldAssist* tool will be able to iterate on even the most data-intensive defect candidates, such as defects in the scan logic.”

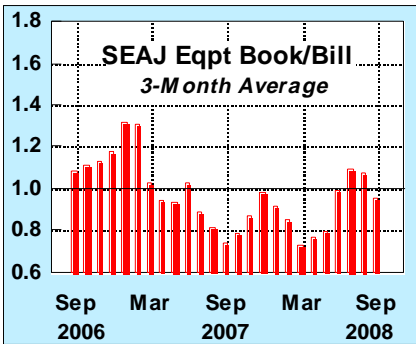
The Teseda *TWB* Software will process test patterns from Mentor Graphics ATPG tools and run them directly on any Teseda *TWB* supported platforms, including the V520 and V550. The failure files are then passed to *YieldAssist* to analyze the test response and identify defect candidates. The resulting defect candidates can then be shown in the *NetXY* viewing environment.

Optionally, *YieldAssist* may be instructed to further isolate the candidates down to the most probable defect(s) by producing an iterative pattern set which can be immediately applied to the DUT though the Teseda Platform. This will yield the probable defect candidate(s), which can be highlighted in Teseda’s *NetXY* physical viewing environment.

“The integration of *YieldAssist*’s true layout-aware diagnosis capability and iterative diagnosis flow with Teseda’s Diagnostic Environment provides added value to our mutual customers,” said Greg Aldrich, Director of Marketing of Mentor’s DFT Division. “The seamless flow of information between tools allows users to study the actual defect polygons computed by *YieldAssist* in *NetXY* physical viewing environment, significantly reducing the time required for a positive identification of physical defects and yield limiters.”

## EDA STOCKS

COMPANY	Ticker	Close 10/31	Change Month	52 Week	
				High	Low
Cadence	CDNS	\$4.07	-39.8%	\$19.19	\$2.42
LogicVision	LGVN	\$0.56	-43.4%	\$3.00	\$0.24
Mentor	MENT	\$7.34	-35.3%	\$16.00	\$6.18
Synopsys	SNPS	\$18.28	-8.4%	\$28.08	\$15.22
Avg. Change			-31.7%		



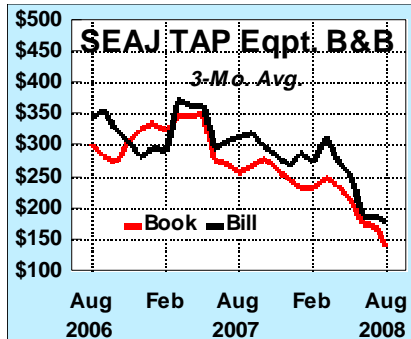
### Japan Sept. Eqpt Book-to-Bill at 0.95

The SEAJ said that Japan-based chip equipment makers posted three-month average orders of ¥79,152 million (US\$734.84 million) in September, down 8.8 percent sequentially and down 38.8 percent from ¥129,323 million (US\$1,105.87 million) in September 2007.

The three-month average of worldwide billings in September 2008 was ¥83,408 million (\$774.35 million). The billings figure is up 3.1 percent sequentially, but down 52.6 percent from the ¥176,126 million (US\$1,506.09) reported for September 2007.

The resulting Sept. B/B ratio for was 0.95 compared to 1.07 in August.

JAPANESE ATE STOCKS			
INDEX	Ticker	Close	Change
		10/31	Month
NIKKEI 225	N225	7,649	-32.1%
Advantest	6857	1,148	-47.3%
JEM	6855	401	-43.5%
MJC	6871	637	-56.1%
TEL	8035	2,915	-37.4%
TSK	7729	762	-39.6%
Yokogawa	6841	405	-38.5%
Average Change in Oct.			-43.7%



### A Flat/Difficult Qtr. for Advantest

Advantest reported that both its orders and sales during its fiscal year 2008 second quarter were about flat sequentially, but its loss for the quarter rose substantially from the previous quarter.

Its sales for the quarter were ¥26.1 billion (US\$249.5 million), compared to ¥26.5 billion, but down 53.7 percent from the same quarter of fiscal 2007. Its net loss for the quarter was ¥2.8 billion (US\$26.7 million) from a loss of just ¥152 million or US\$1.5 million in the previous quarter and a net profit of ¥6.95 billion (US\$57.6 million) in the same quarter last year.

FQ2 Sales by Product Segment			
	US\$M	YoY Chg.	% Sales
Memory	\$64.1	-78.0%	25.7%
Non-Memory	\$113.9	-14.4%	45.7%
Handler/Intf.	\$56.5	-35.9%	22.6%
Service	\$36.4	-34.5%	14.6%
<b>Total</b>	<b>\$270.9</b>	<b>-52.3%</b>	<b>108.6%</b>
Intercompany	(\$21.4)	46.7%	-8.6%
<b>Total Sales</b>	<b>\$249.5</b>	<b>-54.9%</b>	<b>100.0%</b>

Advantest said that: "The operating environment during its second fiscal quarter continued to show indications of decline even further than the previous quarter. Demand for chips for personal computers and digital consumer products fell short of expectations and the price of semiconductors remained low due to excess supply during the second quarter."

It added that: "In addition to these factors, the fall was due to the global business downturn caused by the expansion of the financial crises.

That was triggered in the U.S.A and corporate revenues showed further sign of slow down, and semiconductor manufacturers showed increased inclination toward restraining their capital expenditures."

By product its memory tester sales tumbled 78.0 percent YoY in its latest quarter, accounting for only about one-quarter of its revenues. Non-memory testers accounted to almost one-half of its orders - reportedly due in large part to on-going upgrades of its T2000 testers at Intel.

This was reflected in its geographical sales where the U.S. was the only region to show a YoY sales increase, up 126 percent YoY to US\$49.8 million. Sales in Japan fell 60.1 percent YoY; sales in Taiwan fell 85.4 percent; sales in Korea fell 42.9 percent and in Europe they fell 80.8 percent.

Orders for its second quarter 2008 were ¥18.1 billion (US\$173.2 million) compared with ¥18.2 billion in the previous quarter and ¥42 billion (US\$347.8 million in the year ago quarter.) Advantest's orders for the quarter were: 63.2 percent for testers, 15.4 percent for handlers and interfaces and 22.5 percent support and service.

The company did not provide any forecast for the balance of its fiscal year - ending March 2008, saying "Investment plans for semiconductor related capital expenditure are always cyclical, but now vary on a daily basis." It added "We intend to promptly disclose relevant earning forecasts when it becomes possible.

*Note: All yen/dollar conversions are based on the average value during the quarter reported.*

Advantest Corp..		
	FQ2 Ending Sept. 30: 2008	2007
Sales	\$249,500	\$478,400
Ops. Pft.	(19,900)	107,100
Net	(26,700)	57,600
Per shr.	(0.16)	0.44
Orders	\$173,200	\$347,800



Test challenges and opportunities were the main themes at this year's MEMS/MST Industry Forum, held on October 6, 2008 at SEMICON Europa in Stuttgart, Germany. With "more markets than we can chase" and "a lot more functionality coming" mainstream test challenges are the industry's biggest obstacles to growth, according to Rob Reilly of Analog Devices, during the opening keynote.

Outlining the healthy growth projected for MEMS in the near-term, Reilly's presentation entitled, *MEMS Everywhere* contrasted the early days of the MEMS industry where only a handful attended the SEMI MEMS Forum, from this year's event featuring over 20 speakers and a packed conference center.

In reviewing the automotive market, Reilly said the early penetration of MEMS will only accelerate. In addition to passive safety systems such as airbags, the industry is moving toward intelligent vehicles with collision avoidance systems, vehicle dynamic control, crash detection, and body/chassis control systems, all enabled by MEMS devices.

Beyond automotive, MEMS applications are exploding in consumer markets, especially gaming, mobile communications, computers, power tools, and other applications. Reilly noted how the Nintendo *Wii* has had an enormous impact on the market.

The popular portrait/landscape feature in the Apple *iPhone* is just the beginning of new functionality appearing in mobile handsets, Reilly noted.

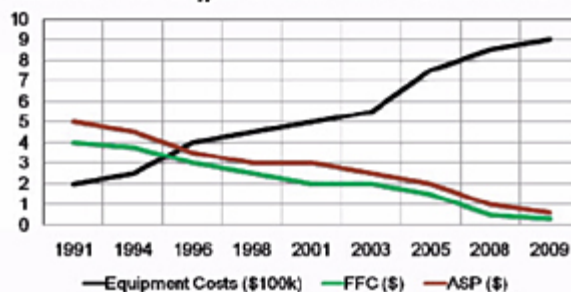
One new phone nearing introduction will include 13 different MEMS features, including drop protection, gesture recognition, pedometer, camera stabilization, and power management, he said. Richard Dixon from iSupply forecasts the MEMS market growing to \$8.75 billion in 2012 (about 6 percent CAGR), up from \$6.1 billion in 2006, yet MEMS sensors and actuators will grow 11 percent per year and MEMS sensors in mobile phones will grow 21 percent during this period. Jean-Christophe Eloy of Yole Development sees MEMS growing from 2.1 billion units in 2007 to 8 billion in 2012.

While MEMS ASPs have dropped from several dollars to less than a dollar over the past 10 years - as have the costs of FFC (Flat Flexible Cable) assemblies - the cost of test has steadily increased. (Graph below.)

Guido Dupont from Melexis, a fables developer of MEMS devices, has utilized built-in self test (BIST) to lower the cost of test for automotive gyroscopes. BIST routines are run during start up, on demand and for calibration. He sees test requirements growing in complexity, with applications needing high temperatures, greater accuracy and faster throughput.

Frank Grossman of SPEA GmbH also sees pressures on test as products get more complex, smaller and consumer price pressures increase. His company is addressing the need through higher precision/accuracy, BIST and DFT, special handling needs for MEMS devices, and integrating the physical stimulation and actuation needs for pressure, location, and motion testing.

**MEMS Test Eqpt. Costs vs. FFCs and ASPs**

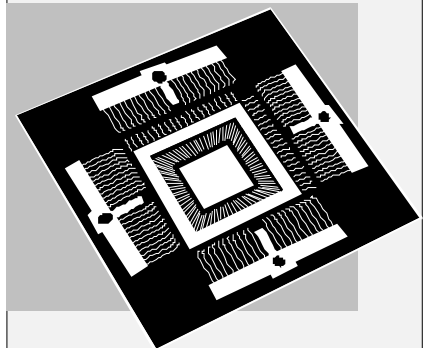


He said that SPEA is expanding traditional ATE performance through Technology Replaceable Instrumentation Modules (TRIMS), scalable architecture, open systems, and re-programmable I/O pin electronics. It has integrated the ATE functionality, special handling and DUT requirements, and physical stimulation tools into an integrated test cell approach especially for the MEMS industry.

Multitest has also addressed the specialized testing needs of the MEMS industry with highly configurable, convertible, functional and integrated test platforms. Andreas Nagy described several specialized test solutions for MEMS devices including a standardized test platform that features tri-temp capability, singulated device handling, wide-range of stimulus features, device tracking, and high parallelism.

The nature of MEMS devices and technologies also has generated a need for more advanced and specialized inspection devices. Peter Czurratis from SAM TEC presented new developments in high throughput scanning acoustic microscopy (SAM).

## ATE/DFT MEETINGS



**December 3-5 2008**

*SEMICON Japan*

*Makuhari Messe*

*Chiba, Japan*

[www.semiconjapan.org](http://www.semiconjapan.org)

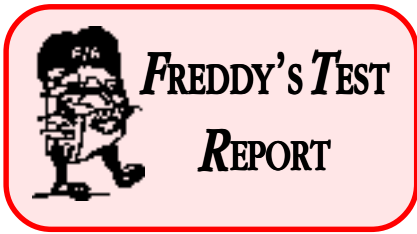
**March 8-11, 2009**

*THE 2008 BITS WORKSHOP*

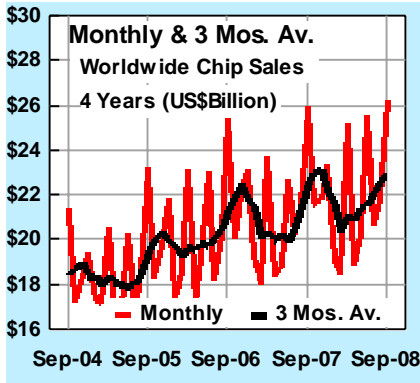
*Hilton Phoenix East/Mesa*

*Mesa, Arizona.*

[bitsinfo@bitsworkshop.org](mailto:bitsinfo@bitsworkshop.org)



**INDUSTRY**



The SIA said worldwide chip sales (3-month avg.) rose 1.1% sequentially and 1.6% YoY to \$23 billion in September. Excluding memory, Sept. chip sales grew by 7.8% YoY.

iSuppli said it expects the NAND FLASH memory market will fall by 14% to \$12 billion 2008, the first time NAND revenue has declined on an annual basis. In 2009, NAND revenue will decline by 15% iSuppli said.

The ITC Committee said that there were 2261 attendees at this year's Conference, down 18% from 2763 last year.

**COMPANIES**

LTX-Credence announced the purchase of multiple X-Series MX test systems by Giga Solution (Hsin-Chu, Taiwan) a test service provider focusing on testing ICs for wireless and communication applications.

Teradyne will collaborate with Teseda to integrate its IG-XL programming environment with Teseda's Diagnostic Manager Series toolset and WorkBench (TWB) software on its UltraFLEX or J750 platforms.

OptimalTest has signed an agreement with STATS ChipPAC to provide its Station Controller solution as a test management tool. It said the first implementation will be in STATS ChipPAC's operation in South Korea.

FormFactor said that "lack of support from some institutional stockholders" has caused it to withdraw its option exchange proposal that asked stockholders to approve an opportunity for employees to exchange underwater options for a smaller number of new equity awards.

Advantest America has signed an agreement with Auburn University to place a T2000 GS mainframe test system within the school's College of Engineering. Advantest America's president, Keith Lee, is a graduate of Auburn University.

**PEOPLE**

Andrei Berar, who was VP of Sales/Marketing at Nanonex until it closed in September, has joined San Jose CA- based socket maker Protos Electronics in that same position.

Dan Hamling has joined GE Global Electronics Services (GES) as Director, IC Test and Assembly - replacing Paul Jasmine, who left that company to join Macquarie in that same position.

Bruce M. Jaffe, VP, Finance/CFO, Farhad Hayat, VP, Marketing, and Ronald H. Mabry, VP, Field Operations and Applications, have all been fired from LogicVision, "to reduce costs". Mei Song, its controller, will replace Jaffe. Fadi Maamari, it VP, Engineering, will become COO and replace Hayat, and its president/CEO James Healy, will assume Mabry's duties.

Jack Belani left his position as Sr. VP Package Materials, Sales and Marketing for Kulicke and Soffa on September 30, 2008, following the sale its of its Wire business. He had served in this position since 2005.

Doug Grose, an AMD Sr. VP, will become CEO of the Foundry Co., and Hector Ruiz, who had been AMD chairman, will step down to take on that same post at Foundry Co.

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