

# Worst is probably over; brighter times ahead



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Electronic industry growth slowed (as predicted) in the final quarter of 2011, but there are already signs of improvement. A better economic climate in the USA and growth in SE Asia are being partially offset by Japan's and Europe's struggles, but as we emerge from the normal winter seasonal slowdown there is hope for improved growth by mid-2012.

Electronic equipment sales grew 4 percent in 4Q'11 vs. 4Q'10 based upon the composite financials of 105 OEMs supplying over 50 percent of world's electronics products. (Chart 1) Growth dropped from 6.6 percent in 3Q'11 but it was still in positive territory in

the fourth quarter thanks to strong demand for smartphones and media tablets. (Chart 2) Furthermore inventories remain in good control throughout the supply chain. (Chart 3) Low stock levels facilitate a rapid upturn as demand improves.

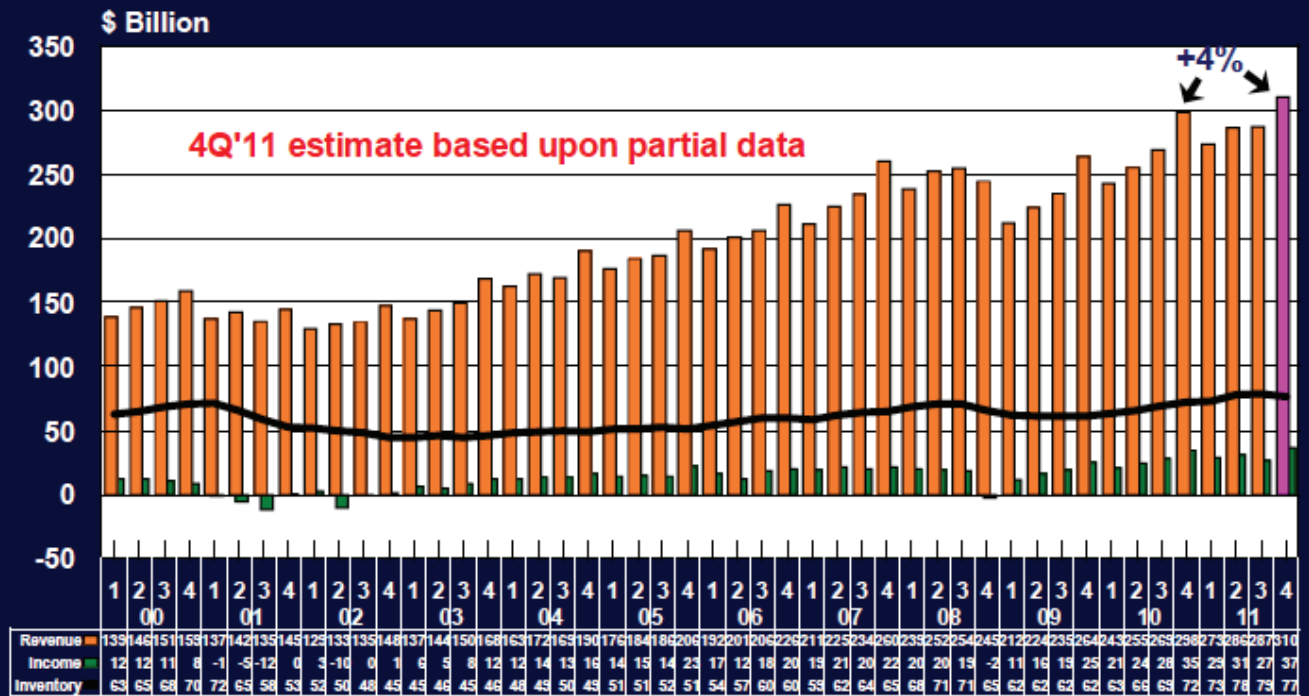
There are, of course, negatives. Capital equipment producers, whose sales typically lag the electronic equipment business cycle by 1-2 quarters, will likely have a very soft 2012, as will many Europe-focused suppliers. And Japan's strong yen will continue to throttle its exports.

Chart 4 shows the 3-month (3/12) growth of electronic equipment ship-

ments by region, where a value of 1.0 means zero growth relative to the same 3-month period a year earlier. A composite of Taiwan/China OEMs' sales was up 8.6 percent for 3 months ending in January 2012 and USA growth was improving. Chart 5 converts these growth rates (and a 2010 base year) to monthly US\$ shipments of electronic equipment by region. The "normal" winter slowdown was very obvious in SE Asia in January but its 8.6 percent growth was encouraging.

Chart 6 shows 4Q'11/4Q'10, US\$ denominated percent growth for various products in the electronic supply chain. Military equipment, SEMI and PCB

## Electronic Equipment Suppliers Composite of 105 Public Companies Revenue, Net Income & Inventory



Computer 13, Internet 5, Storage 10, Communication 12, SEMI 20, Medical 24, Instruments 11, Military 6

process equipment and components were negative (normal in the trough of a business cycle), but other electronic equipment growth stayed positive.

Global semiconductor shipments (Chart 7) reflected the year-end 2011 market softness coupled with a typical winter seasonal slowdown. Three-month average chip shipment “growth” was negative in all regions in December with Europe and Japan hurt the most. (Chart 8)

Printed circuit board shipments are also at a seasonal low. Custer Consulting Group’s Global PCB Model currently only predicts 2 percent growth in 2012 vs. 2011 but this number could improve significantly assuming that world economic conditions improve.

We believe that the global electronics industry business cycle has now passed its low-point and assuming no economic disasters 2012 should be a year of gradual improvement—at least for North America and SE Asia.

### End Markets

#### Computers & related equipment

Global PC market expanded 16 percent y/y to 120 million computers in 4Q’11. Excluding tablets, the market fell 0.4 percent. Apple overtook HP as the world’s largest vendor of personal computers (includes tablets). —Canalys

- Tablet PC shipments are expected to grow from 72.7 million units in 2011 to 383.3 million units by 2017. —NPD DisplaySearch
- Cloud server shipments are forecasted to increase 35 percent y/y to 875,000 units in 2012. —IHS

### Mobile communications

- Smartphone shipments reached 488 million units in 2011 and surpassed client PC shipments of 415 million. —Canalys
- Global LTE infrastructure capital spending is projected to grow from US\$8.7 billion in 2012 to US\$24.3 billion in 2013. —IHS iSuppli
- Global NFC (Near Field Communication) enabled smartphone shipments are expected to increase from 35 million units in 2011 to 80 million units in 2012. —IMS Research
- Worldwide projector shipments reached almost 10 million units in 2011. —Pacific Media Associates

### EMS & Assembly

Contract manufacturing revenue is expected to decline by less than 1 percent from \$360 billion in 2011 to \$357 billion in 2012. ODM sector revenue will contract 2.3 percent to \$150.0 billion. —IHS iSuppli

Advanced Defense Technologies began designing sensors, signals intelligence, detection and communication systems for unmanned drones and UAVs.

**Asteelflash** acquired Catalyst Manufacturing Services.

**Carestream** Tollcoating added new equipment and enhanced capabilities at all stages of the product-process development cycle.

**Challenger Solutions** added an environmental stress screening oven.

**Computrol** added an Assembléon AX-501 pick-and-place system with a 47-tray TEM unit.

**CTS** acquired Valpey-Fisher.

**Dynamic EMS** purchased a second Takaya Flying Probe.

**Efore** will close its Pärnu, Estonia manufacturing facility by the end of the 2012 fiscal year.

**Element Electronics** opened a flat-panel TV assembly plant in Canton, Michigan.

**Enics** expects to open its 10,000 m2 site in Changshu, Suzhou in 2Q’12.

**Éolane Valence** added a third SMD line for prototype manufacturing.

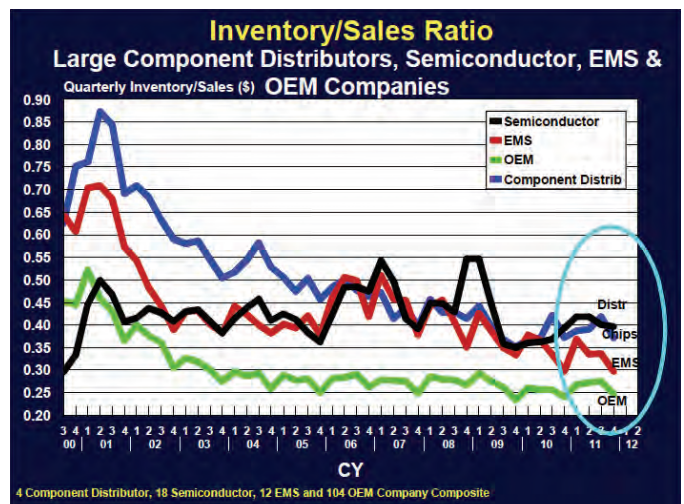
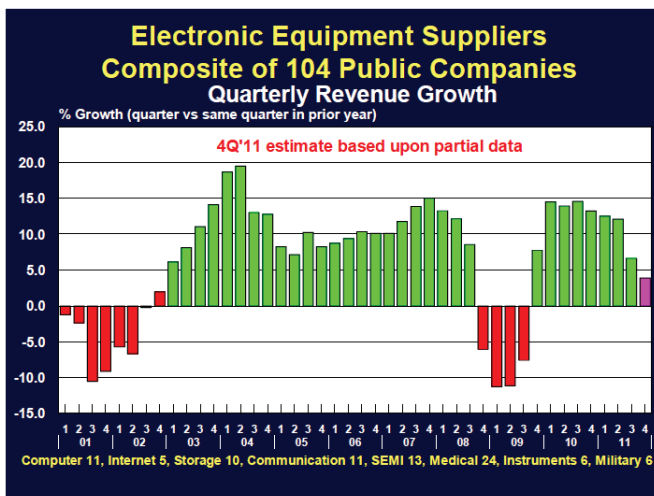
**Firstronic** added a Teradyne ICT platform, an Orpro-Vision AOI machine and a PVA Automated Conformal Coat machine/UV Cure Oven in Grand Rapids, Michigan.

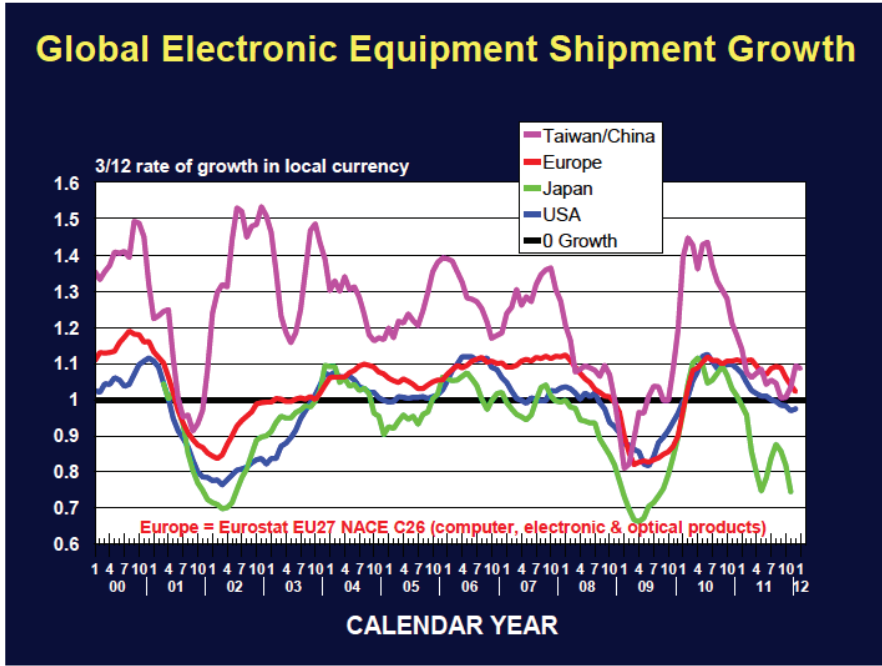
### Flextronics:

- moved its US headquarters and Fremont operations to a 140,000sf facility in San Jose, CA
- lost \$100 million in revenue due to the Thailand floods

### Foxconn/ Hon Hai:

- laid-off 600 employees in Nitra, Slovakia
- received Brazil tax breaks for iPad production
- plans to build five new factories in Brazil over the next five years
- expects to push the population of precision machinery employees in Taichung tenfold to 3 million
- remained the No.1 patent applicant among Taiwan’s institutions in 2011 with 3,968 applications
- settled a pay dispute with Wuhan, China workers after about 150 employees protested by threatening to commit suicide





**Incip** closed down its Helsinki, Finland factory and production was transferred to Kuusassaare.

**Leoni** installed a fully integrated IPTE factory automation manufacturing line for electronic sub-assemblies in Arad, Romania.

**Mosca Elektronik** purchased a desktop AOI system from Viscom.

**Page Electronica** invested in a JUKI FX3 high volume Pick & Place module.

**Qual-Pro:**

- achieved Nadcap certification.
- appointed Alex Richardson as VP of Sales.

**RH Technologies** added eighth and ninth AOI system from Mek Europe BV.

**SMC** moved into a 22,500 SF PCBA facility in Nicholasville, Kentucky.

**SMTC** began providing Alstom Transport with electronic manufacturing and integrated service solutions in Markham, Canada.

**Thames Gateway Manufacturing Centre** entered complete design-to-manufacturing service partnership with Partner Electronics.

**Trojan Electronics** (Swansea, UK) invested in a Mydata Pick & Place machine.

**Xenterio** terminated operations in Offenburg, Germany.

**Zeal Electronics** (Chesterfield, UK) added a Mydata Pick & Place machine.

#### PCB fabrication

**Active Alliance** was acquired by Prime Metroline Transit.

**Apex Circuit** entered production of

LCD and automotive PCBs.

**AT&S** delivered its first pacemaker PCBs in January 2012.

**BBG:**

- celebrated its 10<sup>th</sup> anniversary
- promoted Patrick Scanlan to Sales Director

**Cencorp** entered EUR 50 million, 3-year agreement to deliver flexible circuits for renewable energy applications.

**Cicor** closed Photochemie AG in Unterägeri Zurich and transferred manufacturing capacities to Boudry, Switzerland.

#### Compunetics Circuit Board

**Production** met Defense Logistics Agency's MIL-PRF-31032 requirements.

**Elreha Printed Circuits** appointed Horizon Sales to provide sales and support for its customers in the Midwestern US.

**Eurocircuits** teamed up with Elyca to implement plating technique that reduces cost of small batch PCB production.

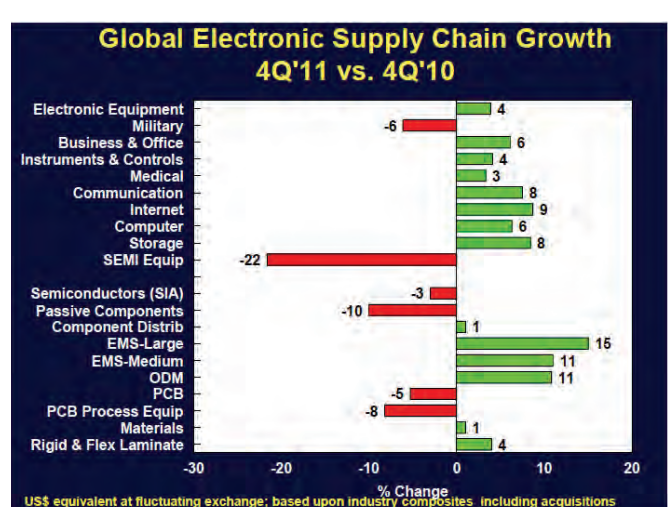
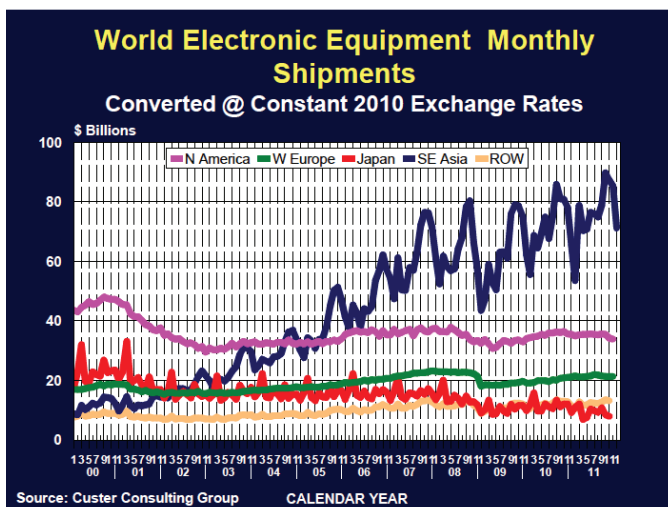
**Firan Technology Group** appointed Finline Group as its representative and distributor for its aerospace and defense electronics products.

**Hana Microelectronics** expects to spend US\$45 million in 2012 to expand capacity in Thailand, China and recover production at its flood-hit Ayutthaya facility.

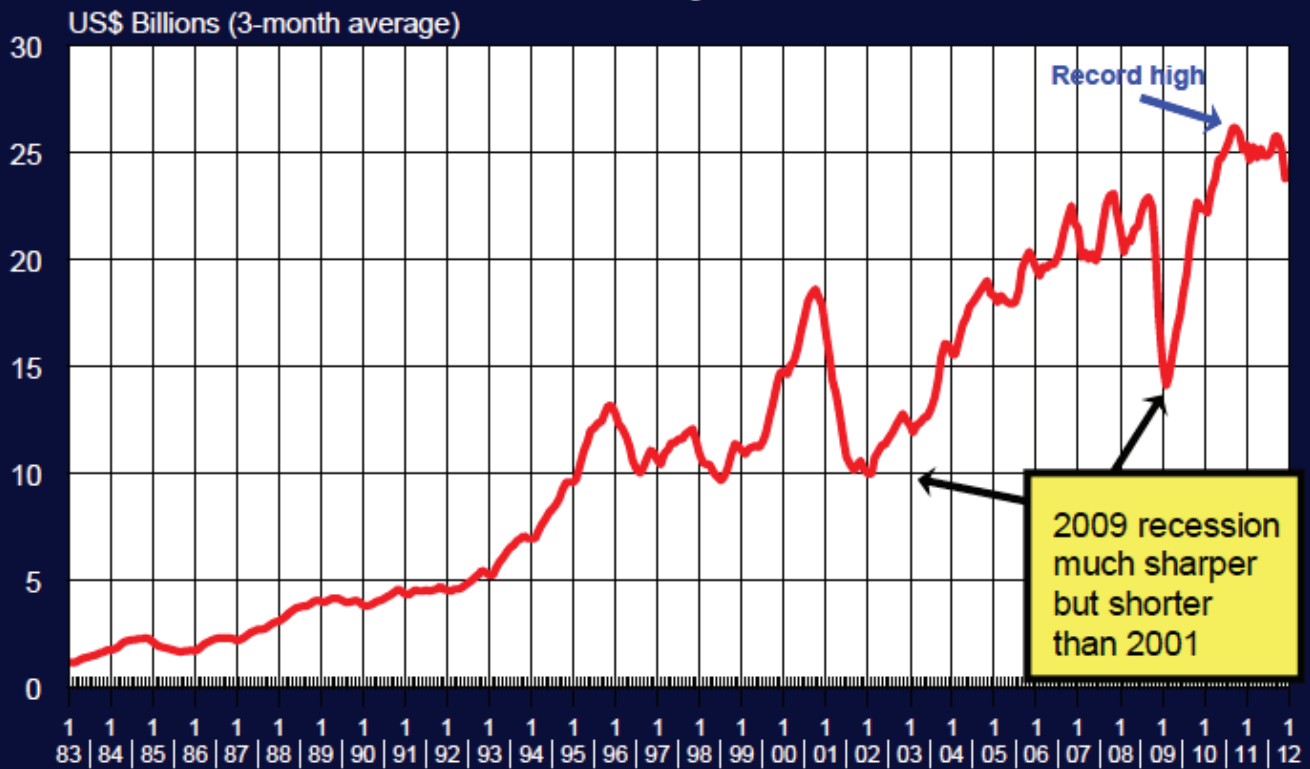
**Ichia** plans to expand flexible PCB capacity by 50 percent in 2012.

**IPTE Factory Automation** implemented a fully integrated manufacturing line for automotive electronic subassemblies.

**Mass Design** named Steven St. Pierre, Quality Control Manager.



# World Semiconductor Shipments Monthly US\$



SIA

**MC10** raised \$2 million in funding from Aberdare Ventures.

**Merlin Flexible Circuits** achieved AS9100 to Rev C accreditation.

**MFLEX and AT&S** formed a HDI rigid-flex printed circuits strategic alliance.

**Power Design Services** added an EKRA E4 In-line automatic screen printer.

**Printed Circuits** purchased a Plasma Etch MK II system.

**Sunstone Circuits** partnered with element14 to deliver bare PCB prototyping services to customers in the Americas.

**Superior Quality Manufacturing** opened a 13,000sf facility in Chesapeake to produce computer boards and LED panels.

**Taiwan PCB Techvest** plans to expand monthly capacity in Guangdong, China to 2.4 million SF in 2012.

**UTZ** purchased a G6080 StencilLaser from LPKF Laser & Electronics.

## Materials & process equipment

Conductive coatings market is expected to grow at a 10 percent CAGR

from \$9.5 billion (USD) in 2012 to \$13.8 billion in 2016.—*NanoMarkets*

**Albemarle** formed an Electronic Materials Business Unit that provides electronic-grade metal organics to the LED, compound semiconductor, and solar panel markets.

**ASYS Group** is celebrating its 20 year anniversary.

**Corning** appointed Dr. Stephanie Burns, retired chairman and CEO of Dow Corning Corporation, to Corning's Board of Directors.

**DEK** received an order for a Horizon 03iX printing platform from Ortana.

**DuPont Microcircuit Materials** introduced its CB500 printed silver conductor ink for PCBs.

**Ellsworth Adhesives** expanded to larger facilities in Tijuana and Guadalajara, Mexico.

**Goepel** appointed WIN-TEK as its Sales and Service Representative for AOI and X-ray Inspection Systems in Italy.

**Juki Automation Systems** promoted Geron Ryden to Director of Marketing.

**Kodak** filed for bankruptcy and a

secured \$950 million financing lifeline.

**Mikron** acquired IMA Automation Berlin.

**Mitsubishi Gas Chemical** founded a new manufacturing subsidiary in Thailand as the second source of copper laminates and relating materials for multilayer circuit boards.

**MYDATA** named Alfred Freire of LM Instruments as its new Mid-Atlantic U.S. Sales Representative.

**OK International** selected BarTron to provide sales, service and support for its customers in Ohio and Western Pennsylvania.

**OM Group** appointed Hans-Georg Betz as a Director of the company.

**Optomec** expanded its advanced applications lab and product development facility in St. Paul, Minnesota.

**Quik-tool** appointed Circuit Technology as its representative in North and South Carolina.

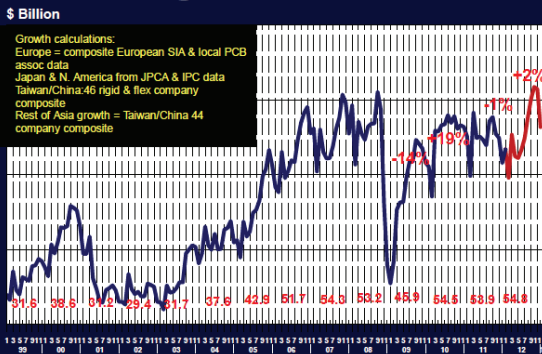
**Rainbow Technology** introduced a self-contained unit that incorporates coating, imaging and developing of fine line PCBs.

### Monthly Semiconductor Shipments \$ Billions (3-month average)

	<u>12/10</u>	<u>12/11</u>	<u>% CH</u>
Americas	4.57	4.36	-4.6%
Europe	3.30	2.78	-15.8%
Japan	3.97	3.59	-9.5%
Asia Pacific	13.31	13.10	-1.6%
Total	25.15	23.83	-5.3%

SIA [www.sia-online.org/](http://www.sia-online.org/)

### World PCB Shipments (with forecast) Converted @ Constant 2010 Exchange Rates



Source: Custer Consulting Group - 2010 base year expanded by monthly growth of N. American, European, Japanese & Taiwan/China monthly PCB shipments

**Speedprint Technology** appointed iTech as its manufacturers' representative throughout the Carolinas and Virginia.

**Sumitomo Metal Mining** withdrew from bonding wire business, chip-on-film substrate production and lead frame production in Thailand after its plant was damaged by massive flooding last year.

**Tanaka Kikinzoku** developed a screen printable silver ink that can be cured in 0.3 seconds by UV irradiation.

**Technic** introduced a barrier layer electroplating processes that enables reduced gold consumption in electronic applications.

**Torenko & Associates** sold its first IBL in-line vacuum vapor phase system to Mesa Engineering.

**Viscom** sold a S2088-II Desktop AOI inspection system to Mosca Elektronik und Antriebstechnik.

### Semiconductors & other components

- Semiconductor industry revenue is expected to grow 3.3 percent y/y to \$323.2 billion in 2012. —*IHS iSuppli*
- Tablet semiconductor revenue is forecast to grow from \$6 billion in 2011 to \$20 billion in 2015. —*Gartner*
- The IC market is forecast to grow 7 percent from \$319.5 billion in 2011 to \$343.1 billion in 2012. —*IC Insights*
- IC capital spending is projected to fall 16 percent y/y to \$51.8 billion in 2012. —*IC Insights* □

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