February "bump in the road" hopefully followed by spring upturn

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and Jon Custer-Topai

February was a bad month for the global electronics industry—especially in SE Asia. Lunar New Year shutdowns, some "adjustments" to the Apple supply chain and normal post-Christmas seasonality combined to create a major contraction in February.

Although "recovery" was underway in late 2012, Chinese, Taiwanese and European PMI manufacturing indices contracted in February (Chart 1). This PMI decline was reflected in Taiwan/China electronic equipment shipments (Chart 2) as they plunged below their February 2012 levels. We expect that this sharp downturn was just a 1-month event, but it was quite a plunge.

Domestically the USA is also struggling a bit as both electronic equipment orders and shipments deteriorated in early 2013 (Chart 3).

Semiconductor shipments, a measure of electronic assembly activity, had a decent January (Chart 4) with the world up 3.8% and N America up 10.5% for the 3-month periods ending in January 2013 vs. January 2012. However the February chip sales are likely to be less robust. In addition N America's recent double digit chip growth appears to be unsustainable. Comparing 3-month growth rates of semiconductor shipments to N. America to U.S. electronic equipment shipments (Chart 5), the values are significantly "out of sync." Domestic semiconductor shipments were up 10.5% while electronic equipment shipments were down 6.1%, suggesting that over-ordering and/or inventory building of semiconductors has been occurring. A downward N. American chip shipment correction is likely!

World printed circuit board shipments also experienced a sharp February decline (Chart 6). However Custer Consulting Group's world PCB shipment model suggests that sales will recover in March and that mid-single digit global PCB growth is still likely for 2013. We'll monitor this predicted recovery and adjust the full year forecast if needed.

Comparing Custer Consulting Group's world PCB leading indicator to global PCB shipments (Chart 7), it appears that near term growth will be minimal but hopefully demand will improve in late spring and beyond.

Keep watching the monthly numbers to monitor emerging 2013 business conditions!

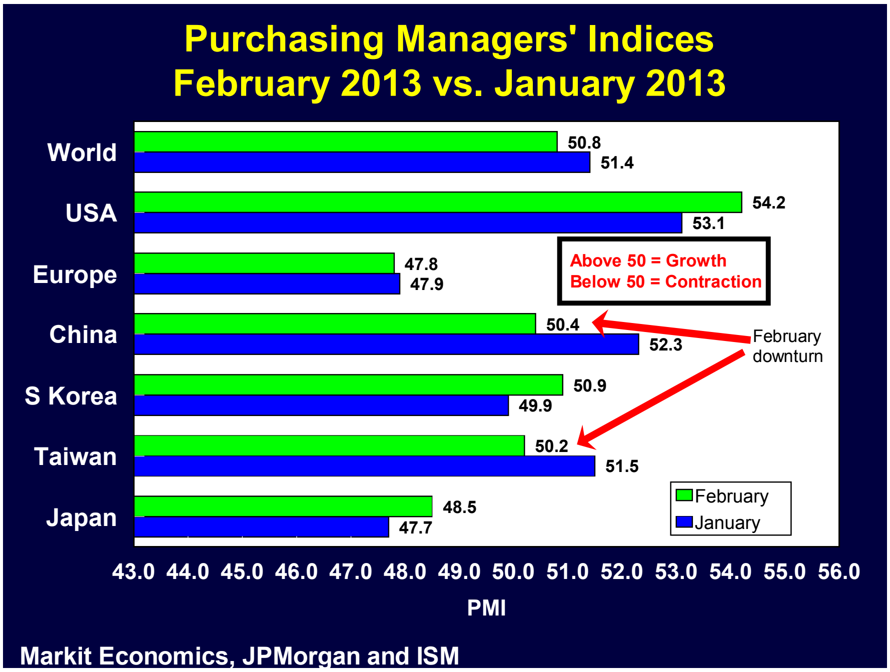

Chart 1.

End markets

IT spending is expected to increase by 5.5% in 2013 as businesses and consumers continue to invest in mobile devices, storage, networks and software applications.—IDC

Computers & Peripherals

- PC shipments will decline by 1.3% in 2013.—IDC
- Tablet computers shipments rose 78.4% y/y to 128.3 million units in 2012 and are expected to reach 190.9 million in 2013.—IDC
- Server market increased 3.1% y/y to $14.6 billion while shipments decreased 3.9% y/y to 2.1 million units in 4Q'12. For the full year 2012 revenue decreased 1.9% y/y to $51.3 billion while unit shipments decreased 1.5% y/y to 8.1 million units.—IDC
- Enterprise router market fell 3% y/y to $3.5 billion in 2012.—Infonetics Research
- IP edge and core router and carrier Ethernet switch revenue rose 12% q/q to $3.8 billion in 4Q'12.—Infonetics Research
- Enterprise videoconferencing and telepresence equipment market declined 8.6% y/y to $739.8 million in 4Q'12 and fell 2.6% y/y to $2.64 billion in FY12. —IDC
- Notebook touch panel shipments are

expected to increase 213.3% y/y to 2.77 million units in 1Q'13.—Digitimes Research

- Broadband aggregation equipment sales fell 10% y/y to $6.65 billion in 2012.—Infonetics Research
- Multimedia home gateway shipments are expected to grow from 90,000 units in 2011 to 9.6 million units in 2015.—IHS
- External disk storage systems factory revenue increased 2.3% y/y to just over $6.7 billion in 4Q'12 and 4.7% for 2012 to $24.7 billion.—IDC
- Large format printer shipments declined 3% to 78,000 units in 4Q'12 and for the full year 2012 decreased 3.5% y/y to 311,975 units. – IDC

Mobile Communications

- Mobile penetration rates are expected to reach 96% globally, 128% in the developed world and 89% in developing countries, by the end of 2013.—ITU
- Cellphone manufacturers will ship 918.6 million smartphones in 2013, representing 50.1% of worldwide cellphones sold.- IDC
- Mobile phone sales fell 1.7% to 1.75 billion units in 2012.—Gartner
- Mobile infrastructure market-including 2G/3G, LTE, and WiMAX rose 6% sequentially to $10.8 billion in 4Q'12, driven by North America, China, and sustained modernization projects in Europe.—Infonetics Research
- Small cell radio equipment is forecast to grow from almost 11 million units in 2013 to 92 million units in 2016.—Informa

Other

- North American robotics sales in 2012 were up 17% in units and 27% in dollars.—RIA
- Smart TV shipments grew 27% y/y to 66 million units in 2012.—IHS
- Touch panel market is projected to grow 34% y/y to 1.8 billion units in 2013.—Displaybank

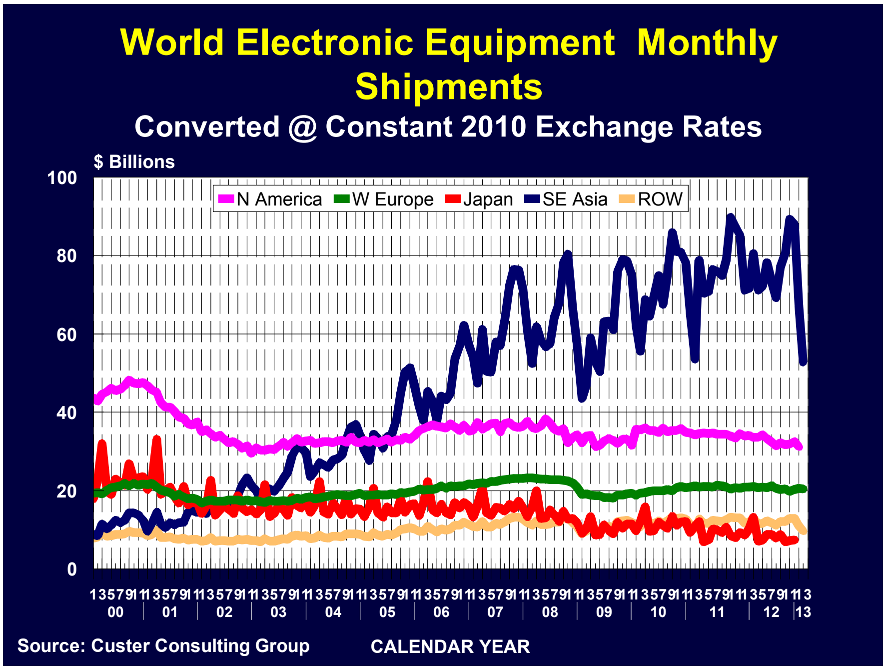

Chart 2.

EMS & assembly

EMS providers are expected to account for 93.3% of the manufacturing of routers in 2013.—IHS iSuppli

Worldwide outsourced manufacturing industry revenue is forecast to increase 4.5% to $404.5 billion in 2013.—IHS

3CEMS invested in Fuji and Panasonic SMT equipment in its South China plant.

Acer is moving 90% of its notebook production to Chongqing, China.

ACW Technology shut down operations and auctioned off its equipment in Durham, UK.

Alpha Networks plans to add two to six production lines in 2013 in Changshu, China.

BB electronics named Carsten Christensen as CEO.

BTW achieved ISO13485 certification.

Cirtronics named Gregg Mozdy VP of Business Development.

EC Electronics increased production floor space by 47% to 8,000 SF and added Assembléon equipment in Petrosani, Romania.

Elite Electronic added two extra Europlacer iineo machines in Northern Ireland.

Enics laid off 48 workers in Sweden.

Escatec entered a partnership with UID

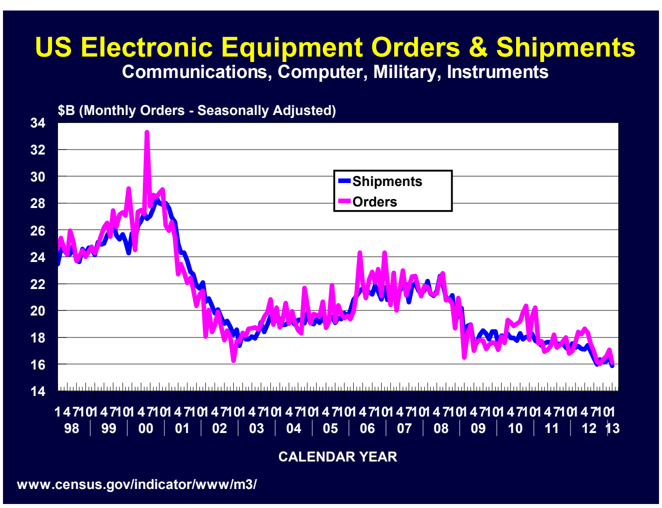

Chart 3.

Monthly Semiconductor Shipments $ Billions (3-month average)

	1/12	1/13	% CH
Americas	4.32	4.77	+10.5%
Europe	2.77	2.64	-4.9%
Japan	3.44	3.02	-12.3%
Asia Pacific	12.63	13.62	+7.8%
Total	23.16	24.05	+3.8%

SIA www.sia-online.org/

Chart 4.

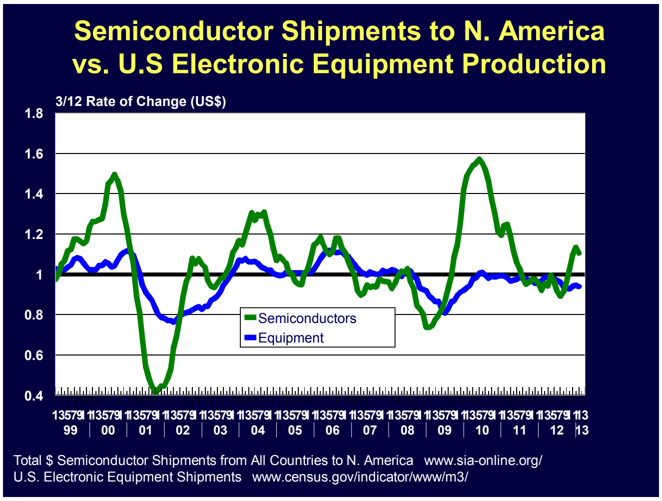

Chart 5.

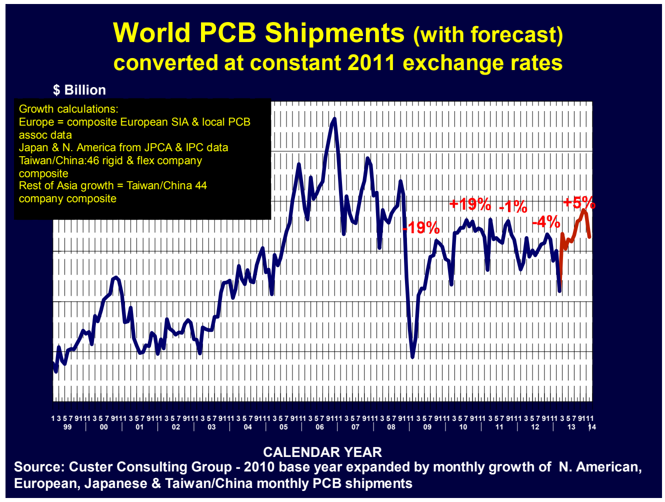

Chart 6.

to create fully integrated product design through manufacturing service.

Firan Technology Group

- Aerospace-Chatsworth facility achieved AS9100C quality certification.
- received a multi-year human machine interface enterprise sourcing agreement from Rockwell Collins.

Flextronics

- became a manufacturing and design partner for Cellnovo.
- received approval from the European Commission to acquire certain Motorola manufacturing assets.
- added a state-of-the-art product innovation center at its Milpitas, California campus.

Foxconn/Hon Hai

- issued Japanese yen-denominated bonds.
- plans to add 5,000 jobs in R&D for automated production, e-commerce and robots.
- is expanding its manufacturing in New Taipei, Taichung and Kaohsiung, Taiwan.

Hana Microelectronics is investing 1.5 billion baht to build factories in Lamphun and Koh Kong, Thailand.

Hanza acquired Alfaram.

IEC Electronics

- added an additional Nordson YESTECH Supplies FX Series AOI System in New York.
- President, Jeff Schlarbaum, left the company.

IMET purchased a 15,000 SF facility in Philadelphia and furnished it with a new automated surface mount PCB assembly line.

Incap reorganized operations which included moving some activities out of Finland and cutting 20 positions.

Jabil

- entered a partnership with UPS to provide optimized reverse logistics solutions for return and repair programs.
- is expanding its Szombathely, Hungarian production facility by 8,000 m^2.

KBC Electronics moved from Orange to Milford, Connecticut.

Keba switched its entire automation production from the "Gewerbepark" to the "Industriezeile".

Key Electronics purchased a Cogiscan's complete Track, Track and Control system.

Kimball appointed Donald Charron, Executive VP, Kimball International and President, Kimball Electronics Group.

Kingfield Electronics UK added an Environmental Stress Screening oven.

Lacroix Electronics named Pierre Ball as GM of its Willich, Germany facility.

Nemco Stevenage facility achieved AS9100 accreditation.

Nortech Systems named Rich Wasielewski President and COO.

OnCore Manufacturing received ISO14001:2004 certifications in Springfield, MA and Fremont, CA.

Plexus entered into strategic contract manufacturing agreement with U.S.R. Electronic Systems in Karmiel, Israel.

Power Design invested in Juki & Ekra equipment for its 8,000 SF facility in San Jose, California.

Quanta cut 107 jobs at its plant that assembles RIM tablet computers in Taoyuan, Taiwan.

Scanfil named Petteri Jokitalo CEO.

Seidel invested in a Parmi HS70L SPI machine.

Semikron added a Viscom S6056BO automatic wirebond AOI machine in Nuremberg, Germany.

SMS Electronics opened a rework center in Nottingham, England.

Spectrum Assembly named Elizabeth Jordan as Quality Manager.

Sunburst EMS achieved AS9100 Rev C quality certifications.

Surtek Industries celebrated its 25th anniversary.

tbp electronics invested EUR 2 million in two SMD lines comprising two Mydata MY100DXe machines plus five SMD towers.

Varitronix invested in a 31,200 m^2 LCD design and manufacturing facility in Heyuan, Guangdong, China.

ZTEST Electronics appointed Arn Schoch to its Board of Directors.

PCB fabrication

Taiwan's PCB firms' output, including their production facilities located in China, will total NT$539 billion (US$18.2 billion) in 2013.—ITRI

Atotech expanded its System on Package Research collaboration with Georgia Tech Packaging Research.

Daleba Printed Circuits (TCL PCB Group)

- appointed Simon Dance, QA Manager.
- opened its second international warehouse facility in Boroughbridge, North Yorkshire, UK.

Elmatica appointed Andrea Queirolo as Country Manager for Southern Europe.

Invotec Group named Monique Berckvens as European Sales Support and Account Manager

IPC

- appointed Peter Chiang, VP of IPC China.
- inducted Ray Prasad, Ray Prasad Consultancy Group and Lionel Fullwood, WKK Distribution into its Hall of Fame
- IPC named John Hasselmann VP of

Government Relations.

- awarded Karen McConnell, Northrop Grumman, and Linda Woody, Lockheed Martin, IPC President’s awards.

Lab Circuits installed two Posalux numerically controlled systems.

PCA TECHNOLOGY received a voluntary conditional cash offer from United Overseas Bank on behalf of MSKK Investments.

Prime Technological Services, hired Jim Liptak as Engineering Manager.

Solution Sources added Digitaltest Condor flying probe in San Jose, California.

Spirit Circuits became the first value added reseller of Nanotherm in the UK.

Stadium closed its plant in Rugby, Warwickshire, UK.

Zutron UK acquired Teknoflex.

Materials & process equipment

Cover glass shipments are projected to reach more than 1.5 billion units in 2013 and 2.5 billion units by 2017 on increased demand for touch-enabled mobile devices.—NPD DisplaySearch

Global industrial machine vision market revenue is expected to grow from $4.50 billion in 2012 to $6.75 billion in 2016.—Frost & Sullivan

ASC International hired Michael Riddle as AOI Product Manager.

DEK’s Global Marketing Director, Karen Moore-Watts received IPC’s Distinguished Committee Leadership award for her six-year service as chair of the SMEMA Statistical Subcommittee. Congrats Karen!

Ellsworth Adhesive acquired Adhesive Methods and Technology (AMT).

Enthone

- appointed Uwe Berger, Regional Business VP East Europe.
- launched its German website, enthone.de.

GCT appointed Johann Schmidt as CTO.

Global Electronics entered a JV with Asian machine manufacturers to produce custom-design machines, such as metal cutting, board handling, PCB depanelling, dispensing, piston casting, UV curing etc.

Henkel and **Infineon** began cooperation for IGBT thermal interface material solutions.

Integral Technology received ISO 9001:2008 certification.

Isola

- settled patent disputes with and Park Electrochemical and TUC.
- appointed Abdellah Hoummass as its representative in France.

Juki Automation Systems

- appointed Christopher Guest as Central-Southeast Regional Sales Manager.
- entered long term exclusive cooperation and distribution agreements with JT and ESSEGI System Service.

Lu-Con Technologies introduced modular stencil technology, Equi-Foil.

Mutracx raised over EUR 6 million (USD 8 million) in new funding.

Orbotech received a $40M order for AOI and array testers from LCD panel maker in China.

Panasonic reinstated an organizational structure that lets each segment handle everything from product development to manufacturing and sales.

Sono-Tek named Bennett Bruntil as Marketing Brand Manager.

Specialty Coating Systems achieved AS9100 revision C certification for its Parylene coating service centers in Austin, Texas, and Singapore.

Tektronix added vibration test system and a HAST testing sand and dust chamber to its Wayne, NJ product test laboratory.

Semiconductors & other components

Semiconductor sales increased 3.8% y/y to $24.05 billion in January 2013.—SIA

DRAM market grew 6.5% q/q to US$6.87 billion in 4Q’12.—DRAMeXchange

NOR revenue is expected to slip 2% in 2013 to $3.4 billion.—IHS

Semiconductor suppliers’ days of inventory declined 5% q/q in 4Q’12.—IHS iSuppli

Fab Equipment spending is expected to remain flat in 2013 and increase 24% in 2014.—SEMI

North America-based semiconductor equipment manufacturers posted US$1.09 billion in orders worldwide in January 2013 (3-month average basis) and a book-to-bill ratio of 1.14.—SEMI

Semiconductor R&D spending rose 7% in 2012 to a record-high $53.0 billion.—IC Insights

Silicon wafer revenues declined by 12% y/y to 9,031 million square inches in 2012.—SEMI

Automotive IC market is forecast to grow from $18.2 billion in 2012 to $27.7 billion in 2016.—IC Insights

Baseband processor market grew 18% to $17.8 billion in 2012.—Strategy Analytics

European semiconductor distribution market sales revenues fell 10.8% to 5.7 billion Euro in 2012.—DMASS

HB LED market output value will grow 15.8% y/y to US$11.29 billion in 2013.—Digitimes Research

HB-LED driver IC consumption value is expected to grow from $1.79 billion in 2012 to $9.59 billion in the year 2019.—ElectroniCast

Image sensor market is expected to grow at a 3.84% CAGR from $8 billion (1.6 billion units) in 2012 to $10.75 billion in 2018 (3 billion units).—MarketsandMarkets

LED component market is expected to grow at a 3.7% CAGR from $13.7 billion in 2012 to $16.4 billion in 2017.—Strategies Unlimited

Magnetic sensor market (semiconductor-based magnetic sensor elements, integrated circuits and switches) revenue is projected to grow 8% y/y from $1.57 billion in 2012 to $1.70 billion.—IHS

MEMS motion sensor revenue used in cellphones and tablets will increase 13% y/y to $1.5 billion in 2013.—IHS iSuppli

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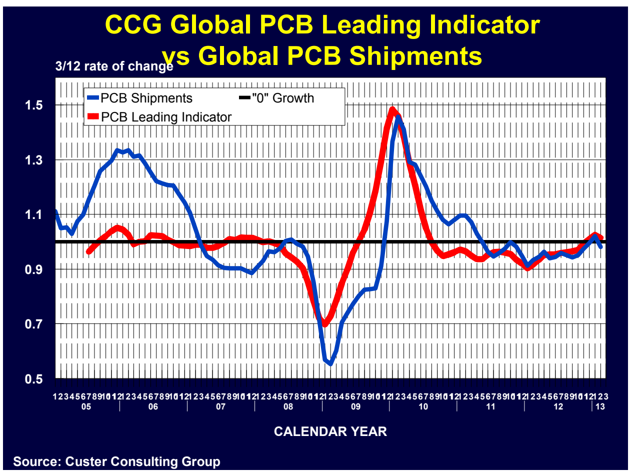

Chart 7.