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Japan's Disaster Raises Questions about Second Half

Last month's earthquake and tsunami in Japan also sent shock waves through the EMS industry. Concerned about possible disruptions in the flow materials and components from Japan, EMS providers went on red alert. The industry's efforts to mitigate the immediate effects of lost production among Japanese suppliers seem to be working. So far, only minor supply chain disruptions have been reported. Now attention is shifting toward an assessment of the longer term effects of the disaster on EMS supply chains. At this point, there is uncertainty about the disaster's impact on the industry in the second half of the year.

"I think in terms of the supply chain, we see the ability to mitigate the risk that we see in our business for the second quarter. I think the bigger question for all of us in the industry is the implications in the third quarter and the fourth quarter," said Craig Muhlhauser, **Celestica's** president and CEO, during the company's earnings conference call this month.

Sanmina-SCI is also concerned about the disaster's longer term effects. "In the short term, we don't see a major impact. I think we're scrambling. We're finding a way to get these critical parts in the short term. Longer term, we're still analyzing that together with our customers. We are concerned on certain part numbers that could affect us, especially as we go

into the fourth [fiscal] quarter or even the first quarter of next [fiscal] year," said Jure Sola, Sanmina-SCI's chairman and CEO, on his company's earnings call this month.

Some Quarterly Results in Brief

Celestica. The company's Q1 revenue and adjusted EPS fell within guidance. Revenue of \$1.80 billion declined 4% sequentially but rose 19% year over year. The 4% drop was a much smaller Q1 seasonal decline than experienced in prior years as the company continued to benefit from new program wins and less seasonality in the current mix of its consumer business. Compared with the prior quarter, business declined in four end markets: storage (-4%), telecom (-7%), industrial/aerospace and defense/healthcare/green technology (-6%), and servers (-16%). The server segment exhibited typical seasonal declines, and end mar-

ket demand for some of Celestica's newly ramped server programs was lower than its forecast. In contrast, the provider saw sequential increases in its consumer (2%) and enterprise communications (1%) businesses. **RIM**, Celestica's largest customer, represented 21% of Q1 sales.

The Canadian company has switched to IFRS (International Financial Reporting Standards) accounting. Adjusted, or non-IFRS, EPS for Q1 equaled \$0.25, compared with \$0.27 in the prior quarter and \$0.19 a year earlier. Adjusted gross margin stood at 6.7%, down 10 basis points sequentially and 50 basis points year over year. Adjusted operating margin was 3.3%, down 20 basis points from the previous quarter and the year-ago period. Celestica reported IFRS earnings of \$30.0 million versus \$38.4 million in Q4 2010 and \$28.5 million in Q1 2010.

For Q2 2011, the company anticipates revenue of \$1.75 billion to \$1.9

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billion and adjusted EPS of \$0.22 to \$0.28. While adjusted operating margin at the guidance midpoint would be slightly below 3.5%, the company continues to believe that it will achieve its 3.5% to 4% margin target in the second half of the year. While there has been some improvement in Japan, this guidance includes Celestica's best estimates of the potential impact to its financial results from possible business disruptions at its operations or the operations of its suppliers as a result of the earthquake and tsunami. The company expects to achieve 10 to 15% growth in 2011.

Celestica has agreed to acquire the semiconductor equipment contract manufacturing operations of **Brooks Automation** (see News on p. 5).

Jabil Circuit. For its fiscal Q2 ended Feb. 28, sales totaled \$3.93 billion, down 4% sequentially but up 31% year over year. Though sales fell within revenue guidance, non-GAAP EPS of \$0.54 exceeded guidance of \$0.49 to \$0.53. Non-GAAP EPS increased 86% from the year-earlier period, while non-GAAP operating income rose 76%. Non-GAAP operating margin amounted to 4.3%, compared with 4.5% for the prior quarter and 3.2% for the same period a year ago.

Representing 35% of company revenue, Jabil's Diversified Manufacturing Services segment grew by 0.5% sequentially and 47% year over year. Recall that the company is following a plan to raise the DMS share of its business to 50%. Non-GAAP operating margin in this segment was 6.1%, within the company's target of 6% to 8%. Sales from Jabil's Enterprise & Infrastructure segment increased 6% from the prior quarter and 19% from a year earlier. The segment produced a non-GAAP operating margin of 4.6%. The company's High Velocity Systems segment experienced a 15% seasonal decline on a sequential basis but gained 27% year over year. Here, non-GAAP operating margin was at the

low end of Jabil's target of 2% to 2.5%. Enterprise & Infrastructure and High Velocity Systems accounted for 32% and 33% of Jabil's sales respectively.

Jabil generated \$450.3 million in cash flow from operations.

For fiscal Q3, the company expects revenue of \$4.1 billion to \$4.2 billion and non-GAAP EPS of \$0.55 to \$0.59. This guidance implies sequential increases in both metrics but excludes the impact of potential supply disruptions caused by the natural disaster in Japan.

The company said fiscal 2011 growth of the DMS segment is very likely to exceed Jabil's long-term target of 20% to 30%. Applying fiscal Q3 guidance and long-term growth targets, the company calculated that it could reach a \$20-billion revenue level by fiscal 2013.

Plexus. In its fiscal Q2 ended April 2, sales amounted to \$568 million, near the high end of guidance of \$540 million to \$570 million, while EPS of \$0.59 surpassed guidance of \$0.53 to \$0.58. Revenue was essentially flat versus the prior quarter but increased 16% year over year. Sequential declines in wireline/networking (-2%) and wireless infrastructure (-36%) were offset by gains in medical (11%), industrial/commercial (4%) and defense/security/aerospace (22%).

Gross margin for the quarter came in at 9.8%, up 10 basis points from the prior quarter but down 50 basis points from the year-ago period. Operating margin was 4.6%, 30 basis points below the prior quarter's level, 20 basis points below the year-earlier result, and 40 basis points below the company's target of 5%. Still, operating margin was in-line with the company's original expectations. Plexus said operating margin would trend back toward the 5% level in fiscal Q4.

The company generated free cash flow of about \$58 million in the quarter.

During the quarter, the provider won 21 new manufacturing programs projected to bring in annualized revenue of about \$134 million when fully ramped. Medical business accounted for \$60 million of the total. Engineering wins amounted to about \$18 million.

Guidance for fiscal Q3 calls for revenue of \$550 million to \$580 million and EPS of \$0.52 to \$0.57. The midpoint of this guidance suggests that fiscal Q3 sales will be sequentially flat compared with Q2, an improvement over earlier expectations. Plexus is now projecting full-year growth of 12% to 15%, up from a prior outlook of 10% to 13% (Jan., p. 6). Plexus pointed out that its operating performance will remain below its long-term targets during the fiscal year as it absorbs the financial impact of ramping down the **Cisco Starent** and **Avocent** programs while ramping new programs to offset the lost revenue.

The company bought back \$83.4 million worth of stock during the quarter and intends that share repurchases total up to \$175 million by the end of the calendar year.

Sanmina-SCI. For its fiscal Q2 ended April 2, sales of \$1.57 billion and non-GAAP EPS of \$0.30 were within revised guidance of \$1.56 billion to \$1.60 billion and \$0.28 to \$0.32. In March, the company lowered its guidance from \$1.62 billion to \$1.67 billion and \$0.40 to \$0.43. Sanmina-SCI cited a delay in defense market projects and shipments due to Federal budget uncertainty, shipments delayed by a labor strike in India, and short-term softness in the optical market near the end of the quarter.

The company's sales declined 6% from the prior quarter but gained 3% from the year-earlier period. Sales were down sequentially in all four of the company's segments: communications networks (-7.2%), enterprise computing & storage (-5.1%), defense/industrial/medical (-2.0%), and multi-

media (-7.0%).

Chairman and CEO Jure Sola said he was disappointed with the company's revenue and margin performance for fiscal Q2. Non-GAAP gross margin amounted to 7.5%, down 30 basis points sequentially. This result came in below expectations, primarily because of the company's inability to cut costs rapidly in line with the revenue decline and the mix of business resulting from that decline. But gross margin for the

components business came in above the corporate average. Non-GAAP operating margin was 3.4%, down 80 basis points sequentially. This margin decline was affected by an increase in operating expenses from the prior quarter's abnormally low level combined with the revenue reduction. Non-GAAP EPS of \$0.30 fell 33% from the prior quarter but increased 3% year over year. The company earned GAAP net income of \$13 mil-

lion, compared with \$28 million in previous quarter and \$10 million in the same period a year ago.

Sanmina-SCI generated free cash flow of \$88 million in fiscal Q2.

For fiscal Q3, the company is forecasting revenue of \$1.6 billion to \$1.7 billion, non-GAAP operating margin of 3.5% to 3.9%, and non-GAAP EPS of \$0.33 to \$0.37. The company expects the second half of its fiscal year to be stronger than the first half.

Market Data

Nontraditional Areas Take Biggest Slice Again

The EMS industry's love affair with the nontraditional part of its business continued in 2010. Data from 42 of the *MMI* Top 50™ providers show that collectively they got more revenue from the nontraditional wedge of the EMS pie than from any of the more penetrated areas. This marks the second straight year in which nontraditional segments combined for the largest slice of revenue in an analysis of Top 50 data (April 2010, p. 2).

Nontraditional segments – industrial/commercial, medical, automotive, defense/security/aerospace and other – accounted for 30.3% of the \$78.4 billion in 2010 sales generated by the 42 Top 50 providers. (Eight companies in the Top 50 either did not provide a breakdown of their sales by market segment or supplied data inconsistent with *MMI*'s categories.) This nontraditional share was 4.8 percentage points higher than that of the next largest segment (Chart 1). It would not be unreasonable to conclude from this result that nontraditional business has become the number-one source of revenue for the EMS industry outside of **Hon Hai Precision Industry** (Foxconn). Of course, all bets are off if Hon Hai is included since its massive business relies on revenue from other segments.

Market segment percentages for all

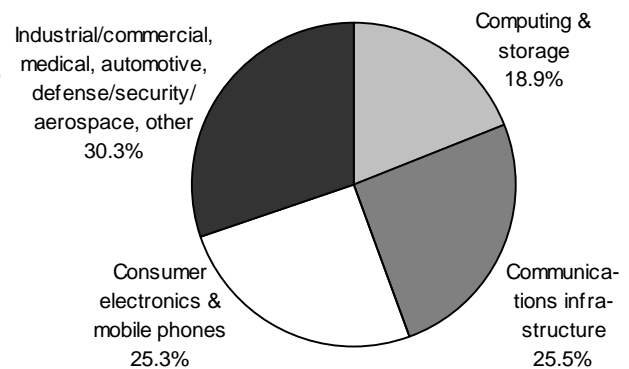
42 Top 50 providers appear in Table 1 on pages 4 and 5. The data came from *MMI*'s annual Top 50 survey. As is evident from Table 1, three out of the four largest of these providers do not supply a full breakdown of their sales across the industrial/commercial, medical,

automotive and defense/security/aerospace categories. Nevertheless, the 42 companies supplied the necessary sales breakdowns in the three more developed categories: communications infrastructure, consumer electronics & mobile phones, and computing & storage. Sales in each of the three categories were computed for each of the 42 companies and totaled via spreadsheet. Combined sales from the remaining nontraditional segments were then obtained by subtraction.

Among the 42 providers, communications infrastructure made the second largest contribution to total sales, but just barely. Comm infrastructure sales amounted to 25.5% of the total. For some providers, however, comm infrastructure represents a much higher percentage of sales (Table 1, p. 4-5). Four providers – **Fabrinet**, **Plexus**, **Scanfil EMS** and **SRI Radio Systems** – derived a majority of their sales from comm infrastructure products.

Close behind the comm infrastruc-

Chart 1: Market Mix for 42 Top 50 EMS Providers in 2010



ture sector was the consumer electronics & mobile phones segment, which captured 25.3% of the 42 providers' revenue. Consumer electronics & mobile phones, which are typically produced in high volumes, are supposed to be a specialty of the largest providers who can offer the economies of scale necessary for price-sensitive products. Yet five providers below the top 10 obtained 40% or more of their sales from consumer electronics and mobile phones. Furthermore, two of them, **Alco Electronics** and **V.S. Industry**, gained over 90% of their sales from the segment.

The smallest of the three more developed segments was computing & storage at 18.9% of sales. Ironically, the computing segment put contract manufacturing on the map, yet more than a few providers avoid computing business altogether. Of the 42 Top 50 providers analyzed, 20 had no computing & storage business whatsoever in 2010. Of course, this is not such a sur-

prise given the high-volume nature and ODM dominance of the PC business. Still, **Shenzhen Kaifa Technology's** business was concentrated in the computing & storage segment, and **3CEMS Group** depended on the segment for more than half of its business.

Note that the contribution of mammoth Foxconn would make computing & storage a much larger segment and would likely increase its market share. Unfortunately, Foxconn does not break down its sales by market segment.

Which of the segments in this analysis gained share and which lost share? In the past, *MMI* has attempted to answer this question by comparing the current share data with results from the previous year's analysis. The problem with this approach is that the list of Top 50 companies analyzed one year differed somewhat from the companies treated the following year. This time, *MMI* looked for market share changes by considering only the providers who are present in both the current and previous analysis.

For the 36 Top 50 providers appearing in both analyses, the market share of the nontraditional segments increased by 240 basis points from 2009 to 2010 (Table 2, p. 5). That means the nontraditional segments in the aggregate grew faster than the group's overall sales, which totaled \$73.8 billion in 2010. Such a finding is to be expected given the attention that many providers are paying to nontraditional segments, whose lower penetration rates make for higher growth potential compared with the more developed segments. Indeed, *MMI* calculated that the nontraditional business of these 36 companies expanded by 28.1% last year versus 18.3% for their total sales (Table 2). (Undoubtedly, there is some "other" business that would be outside of the nontraditional area, introducing error in the calculation. But *MMI* believes the size of this business to be relatively small.)

The three more developed segments

Table 1: Market Percentages for 42 of the Largest EMS Providers in 2010

Organization	Computing & storage	Comm. infra-structure	Con-sumer & mobile	Indus-trial/com-mercial	Med-ical	Auto-motive	Defense/ security/ aerospace	Other
Flextronics	18.6	27.7	33.6	13.4	3.7	2.3		0.6
Jabil Circuit (FY)	10	22	35	*	*			33 ¹
Celestica	26	37	25	*	*		*	12
Sanmina-SCI (FY)	17.0	39.3	18.2 ²	*	*		*	25.5
Shenzhen Kaifa Technology	86.6		3	5	5			
Benchmark Electronics	32	23		35	10			
Plexus (FY)		55		18	18		7	
Universal Scientific Industrial (USI)	25	35	21	12		6.9		
SIIX	15.1	5.0	34.4	14.1		22.3		9.1 ³
Zollner Elektronik	~19	~3	~3	~42	~7	~23	~3	
Sumitronics			20	70		10		
Orient Semiconductor Electronics	31		40	17	1.2	4.7	6.1	
Kimball Electronics Group				18	45	30	7	
AsteelFlash Group	12	32		34 ⁴	7		8	7 ⁵
Fabrinet		79		16		5		
Wong's Electronics	51	10	10	26		3		
3CEMS Group	58.2	17.2	17.9		0.2	6.5		
Creation Technologies	4	27		34	15	4	15	
VIDEOTON Holding	1	1	30	26		42		
Enics				100 ⁶				
Integrated Micro-Electronics, Inc.	9.4	27.4	24.9	20.6	6.3	9.3		1.9
VTech		14.3	11.9	67.0	5.3	1.5		
Communications								
Alco Electronics	2		96	1		1		
Topscom Technology	10	20	40	10	8	8	4	
Neways Electronics International		2		59	26	7	4	2 ⁷
WKK Technology	35	17		44	2	3		
LaBarge				51	10		39	
éolane		5		41 ⁸	6	11	28	9
OnCore Manufacturing Services		5		33	20		42	
PartnerTech		26.2 ⁹		48.5	19.7		5.6	
Scanfil EMS		51		49				
Hana Microelectronics	17	12	13	23	4	28	3	
V.S. Industry			97			3		
Surface Mount Technology (Holdings) Limited	17.9		37.3	32.4		12.4		
SRI Radio Systems		70		15	3	9	2	
CTS Electronics Manufacturing Solutions		28		28	10		34	
EPIQ			10	8		81		1

(FY) denotes where fiscal year sales were used. * Included in other. ¹ Industrial, instrumentation and medical were 23% of sales. Aftermarket services were 6%. ² Includes cinematography, POS systems and automotive electronics. ³ Includes components and machinery. ⁴ Includes transportation (8%). ⁵ Video. ⁶ Includes medical. ⁷ Includes consumer. ⁸ Includes railway 25%. ⁹ Total information technology.

Celestica Seeks Semi Equipment Space

Celestica (Toronto, Canada) plans to expand into the semiconductor equipment market by acquiring the contract manufacturing operations of **Brooks Automation**, a provider of automation, vacuum and instrumentation solutions. The operations, based in Portland, OR, and Wuxi, China, specialize in manufacturing complex mechanical equipment and providing systems integration services for some of the world's largest semiconductor equipment manufacturers.

Under a definitive agreement, Celestica will pay about \$80 million in cash for the contract manufacturing business, subject to adjustment based on the working capital at closing. The business generated about \$135 million in revenue for the six months ended March 31 and currently employs about 450 people. The deal is expected to close in the second quarter.

Capabilities of the Brooks operations include the production of equipment front-end modules for wafer handling and transport, vacuum transfer modules and uniquely designed subsystems for semiconductor capital equipment OEMs.

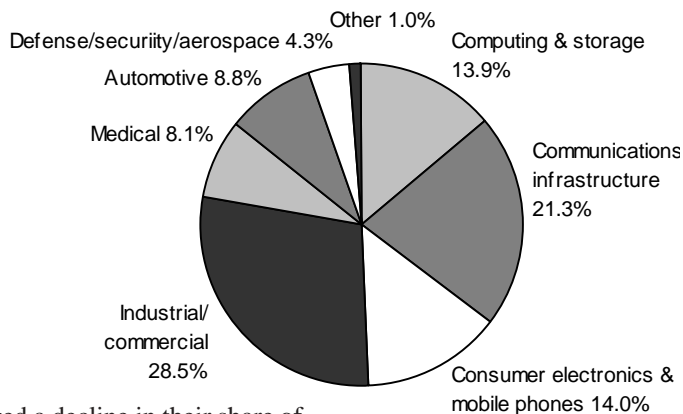
"The acquisition of Brooks' operations in Oregon and China will significantly strengthen Celestica's industrial market offering, providing our customers with additional capability in complex mechanical and system integration services," said Paul Nicoletti, executive VP, Diversified Markets and CFO, in a statement from Celestica. "The design, engineering and technical depth of these operations, coupled with their capital equipment supplier management expertise, are an excellent addition to Celestica's existing global capabilities."

The transaction supports Celestica's strategy to grow and diversify its

Table 1: Market Percentages for 42 of the Largest EMS Providers in 2010

Organization	Computing & storage	Comm. infrastructure	Consumer & mobile	Industrial/commercial	Medical	Automotive	Defense/security/aerospace	Other
Selcom Eelectronica		5.8	58.9	20.5	2.7	5.8		6.3
SMTC	13.0	5.8		76.2	3		2	
SVI		40		50	5	5		
KeyTronicEMS	18	5	30	29	10	5	3	
EPIC Technologies		1		38	47	13		1

Chart 2: Market Mix for 36 Top 50 EMS Providers Under \$3 Billion



all showed a decline in their share of group sales in 2010 versus 2009. In all three cases, growth was in double digits but below the 18.3% overall average for this group (Table 2).

How do the nontraditional segments compare? Because three out of the four largest providers do not provide a full breakdown of their sales, this question remains unanswered for the industry as a whole. However, one can use Top 50 market segment data to get a sense of how these segments stack up among providers with less than \$3 billion in sales.

Among the 36 Top 50 providers whose sales were below this level in 2010 (a somewhat different group from the 36 analyzed earlier), the industrial/commercial segment accounted for 28.5% of revenue, the largest share of any segment, nontraditional or otherwise. Within the nontraditional space, automotive sales came in second at 8.8% of the pie,

followed by medical sales at 8.1%. Defense/security/aerospace business was under 5% of total sales (Chart 2). The three more developed sectors when combined accounted for less than half of the group's revenue.

Note that this analysis covered providers who sometimes differ as to which products go in what categories. Also, in three cases data were based on fiscal-year sales, rather than calendar-year sales. As a result, there is some uncertainty with respect to the results presented here.

Table 2: Market Segment Percentages and Growth (%) for the Same 36 Top 50 EMS Providers

Segment	2010 share	2009 share	Growth
Industrial/commercial, medical, automotive, defense/security/aerospace and other	30.9	28.5	28.1%
communications infrastructure	26.6	27.2	15.7%
consumer electronics & mobile phones	26.5	27.0	16.0%
computing & storage*	16.0	17.2	10.0%

*Category was called computing, storage & peripherals for 2009. Jabil's 2009 peripherals sales were reclassified as consumer business in line with its 2010 market segments.

revenue base in the industrial, aerospace and defense, healthcare and green technology end markets.

During the company's earnings conference call this month, president and CEO Craig Muhlhauser told analysts, "This acquisition brings Celestica to a high-quality leadership team with significant customer relationships, solid track record of operational performance, and experience in the semiconductor equipment market globally. These new market relationships, capabilities and experience do not currently exist within Celestica and will help accelerate our progress to achieve our target of 30% of our total revenue coming from the company's diversified market segments within the next three years."

On the call, Nicoletti outlined Celestica's plan for the Brooks contract manufacturing business. "This operation is performing at very high levels. [It] has a very tier-one customer base. Our goal here is to take these capabilities and to expand them to other customers and, frankly, also expand within the existing customers." He added, "From our point of view, they've been held back just given limitations on scale and footprint."

Celestica expects the transaction will be accretive. Nicoletti said the acquisition's operating margins will be consistent with those in the diversified markets area, which have been above 5%.

Of the business's \$135 million in six-month revenue, about \$40 million came either from component products that will continue to be supplied by Brooks after this transaction or from subsystems that the contract manufacturing operations will continue to produce for Brooks. Brooks estimates that it would have lost \$95 million in six-month revenue and \$8.0 in net income had the operations been divested before the current fiscal year. The implied net margin of 8.4% on this affected business is much higher than

in a typical EMS case.

The operations' senior management team and employees will join Celestica upon completion of the deal. The semiconductor manufacturing business will continue to be managed by Greg Marvell as VP and GM.

With this acquisition, Celestica will join EMS players such as **Benchmark Electronics**, **Flextronics** and **Sanmina-SCI** who already serve the semiconductor equipment market.

Another acquisition on the mechanical side... Celestica is not the only EMS provider that has decided to acquire capabilities for the manufacture of complex mechanical equipment. **VIDEOTON Holding** (Székesfehérvár, Hungary) recently acquired direct majority ownership in **STS Technology** (Gyor, Hungary), a contract manufacturer of high-complexity machines and mechanical and electro-mechanical subassemblies. STS can machine its own parts for this work. Projected 2011 revenue for STS exceeds 10 million euros.

With this acquisition, VIDEOTON gained a foothold in the semiconductor capital equipment and medical equipment markets. STS has landed a contract to deliver equipment and modules to the European and Asian factories of a leading supplier of assembly equipment for the semiconductor industry. On the medical side, **Mediso** (Budapest, Hungary) has engaged STS for production of subassemblies for CT and PET equipment.

According to VIDEOTON, the acquisition strengthens its position in single-unit and small-series equipment production. The vertically integrated company sees the potential to contract manufacture precision mechatronics-based equipment developed in Europe. This opportunity extends from printing machines to laboratory equipment.

Alliance... **Season Group**, a vertically integrated EMS provider based in

Hong Kong, and **Logatec GmbH Logistik Technologie**, an EMS provider located in Kölleda, Germany, have signed an MOU for collaboration on a number of projects and services. Season intends to offer customer support in Europe through Logatec.

Ducommun To Acquire LaBarge

Ducommun (Carson, CA) a provider of engineering and manufacturing services to the aerospace and defense industry, has entered into a definitive agreement to acquire the outstanding stock of Top 50 EMS provider **LaBarge** (St. Louis, MO) for a total purchase price of about \$340 million. The price includes debt assumed (\$30 million as of Jan. 2) and is net of cash acquired.

Ducommun is offering \$19.25 per share, a 22% premium over the 90 trading days prior to announcing the proposed deal on April 4. The transaction value is about 8.7 times last 12 months' EBITDA. Closing is subject to the approval of LaBarge's shareholders and other customary conditions. Closing is expected in late June.

"The acquisition will nearly double the size of Ducommun and significantly strengthen our Ducommun Technologies unit," said Anthony Reardon, Ducommun's president and CEO, during a conference call with analysts. This deal will create an entity with sales of about \$730 million. LaBarge generated sales of \$324 million for the 12 months ended Jan. 2.

On a combined basis, the Ducommun unit "will be one of the largest electronics manufacturing services, or EMS, providers dedicated to the aerospace and defense market, focused on high-margin, low-volume and high-mix applications. These are customized, complex and mission-critical products. This will also expand Ducommun's value-added services by including engineering, design, pro-

gram management and aftermarket support. LaBarge will broaden our existing A&D platforms and add access to new, high-growth programs, allowing for substantial cross-selling opportunities for current customers as well as for the new ones,” said Reardon.

The transaction will achieve end market diversification for Ducommun by adding LaBarge’s business in areas including industrial, natural resources and medical where Ducommun currently has no exposure.

Ducommun’s capabilities will be enhanced as well. “We will now be able to expand our capabilities and provide a full portfolio of electronic subassemblies, components and systems at a time when such products are becoming ever more important to automation, flight controls and energy management,” said Reardon.

Once the deal is completed, LaBarge will be combined with the Ducommun Technologies subsidiary, and the merged unit will be renamed Ducommun LaBarge Technologies. The unit will be led by a senior team from both parties with LaBarge’s COO, Randy Buschling, serving as senior VP of the division. It would represent 63% of pro forma 2010 revenue for the combined company. Ducommun is also a provider of structural assemblies.

Some new business... **Sovello Canada**, a subsidiary of solar module manufacturer **Sovello Germany**, has awarded Celestica a multiyear contract to produce solar modules with a total volume of 167 MW (peak). This agreement allows Sovello Canada to supply solar modules that meet the province of Ontario’s domestic content requirements for feed-in-tariff projects....**Sanmina-SCI** (San Jose, CA) will build solar power inverters at its plant in Ottawa, Ontario, for **Emerson** (St. Louis, MO). Likewise, this arrangement will enable Emerson to fulfill Ontario’s requirement that tech-

nologies used in renewable energy projects be built in that province. ...The Complex Systems business of **Sparton** (Schaumburg, IL) has landed a manufacturing contract from **Tampa Microwave** (Tampa, FL), a provider of satellite ground terminal solutions. Sparton’s Brooksville, FL, operation will provide PCB assembly services for a new satellite communications terminal developed by Tampa.

Foxconn Confirms Interest in Brazil

This month, wire services and other media reported Brazil’s president, Dilma Rousseff, as saying that **Foxconn** is considering a \$12-billion investment in Brazil over five to six years. In response to these reports, Foxconn stated, “Guided by a strategy of ‘being where the market is,’ we have long been studying investment opportunities in Brazil. We are currently in the process of exploring opportunities in that important market and conducting a substantive analysis of that country’s overall investment environment.” Foxconn is reportedly in discussions with the Brazilian government.

According to published reports, Foxconn will begin production of **Apple** iPads in Brazil by the end of November.

New facilities... Flextronics (Singapore) plans to start equipping a new facility this month in Senai, Malaysia, for the company’s Global Services unit, according to a *Business Times* report....EMS provider **Arc-Tronics** (Elk Grove Village, IL) will begin manufacturing in Empalme, Sonora, Mexico, through a shelter services agreement with **The Offshore Group** (Tucson, AZ). The provider will occupy 17,226 ft² at an Offshore Group industrial park there....**Distron**, an EMS company, has begun construction of a 13,000-ft² addition to its headquarters in Attleboro Falls, MA. The

project will increase overall production capacity by more than 50%....Another EMS company, **PPI-Time Zero** (Paterson, NJ), will invest \$1.15 million to establish operations in Waynesboro, VA.

Correction... Last month’s issue on page 8 stated that David Taylor, **ES-CATEC**’s new director of customer service, has joined the company from its rep firm in the UK. But Taylor had joined the company earlier and had been working for ESCATEC as a consultant before taking his new job.

Last Word

Supply Chain Achilles’ Heel

If past is prologue, component scarcities should not scare the EMS industry. After all, the industry just came through a prolonged period of extended lead times. History has taught EMS providers, sometimes painfully, that the component supply base goes through cycles of excess and dearth. Providers, to their credit, have learned how to operate when parts are in short supply. But the natural disaster in Japan has dealt the EMS industry and its customers a supply problem that they have not seen before. It’s a problem that exposes a supply chain vulnerability of potentially frightening proportions.

Component shortages due to capacity cutbacks are one thing. But what happens when the supply of a basic material that goes into a part’s manufacture is suddenly constrained? Following the earthquake and tsunami in Japan, many in the EMS industry learned to their dismay that Japan is a major source of such materials as silicon wafers, BT resin, photoresist and copper foil. Reducing Japan’s production of any one of these materials could put a supply chain in jeopardy. But the Japan disaster affected domes-

Last Word

tic production of all of them, at least at the outset.

You don't hear specifics about the disaster's longer term effects on parts supplies because EMS providers, as this is written, are still assessing the impact on their supply chains. In the past, they would look at their parts suppliers and make decisions based on lead times. Now along with their suppliers they must dig down to the next level in the supply chain, something they're not used to doing. At the same time, they must also single out which of their components come from Japanese suppliers. In the process, they must project how long each Japanese plant in their supply chain will be off line and how best to mitigate the production shortfall. But if anyone can pull this off, it's the EMS industry, which is nothing if not creative in solving supply chain problems. The natural response of a provider with Japanese exposure is to set up a crisis management team to focus the company's efforts.

MMI has little doubt that the EMS industry will weather the Japan crisis. But as the industry absorbs the full impact of the crisis, there may well be cries of "never again." Unfortunately, one of the lessons of this crisis is that a major supply chain disruption could reoccur.

In a perfect, risk-managed world,

each developed region would have its own supply base. If things went awry in one part of the world, providers would just ramp up production elsewhere with the knowledge that supply chains in other regions would be able to take up the slack. That's a scenario which favors the regional manufacturing model.

But the world is far from perfect, and supply chains have not evolved to minimize risk. In fact, just the opposite has occurred to a great extent. Rather than being fed from various parts of the world, many supply chain nodes have developed a dependence on one region or country. For example, there's a concentration of memory production in Korea. Taiwan and China have become principal suppliers of LCDs. Indeed, Asia is a major source for many other components such as discretets and batteries.

Whether you're at the materials, component or system level, manufacturing tends to aggregate. If one manufacturer is attracted to an area because of, say, its infrastructure, level of education and labor costs, others will be inclined to locate there as well. In this way, manufacturing clusters have evolved. Problem is, clustering in one area makes supply chains more vulnerable to disruptive events occurring in that area. The disaster in Japan has shown that Japan's strength as a sup-

plier of materials and chemicals is also a supply chain weakness. This vulnerability applies to other places as well. If some sort of disaster were to strike Korea, Taiwan or southern China, for example, the EMS industry would face another supply-chain crisis.

Supply chains will remain vulnerable to disruptive events in areas of supply base concentration. But coping with the repercussions of the Japan disaster will make EMS providers better crisis managers should such an event occur in the future.

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