

Manufacturing Market TM

INSIDER

inside the contract manufacturing industry

Vol. 27, No. 5

May 2017

Outsourcing in Japan

Outsourcing of electronic assemblies by Japanese companies has always been considered one of the “final frontiers” for EMS suppliers. Japanese OEMs have always considered manufacturing one of their core competencies, and for a long time resisted engaging EMS companies. Additionally, the supply chain was well established for the parts and mechanical assemblies that are essential to mechanical products like copiers, fax machines, and other office automation equipment. But a number of factors conspired to bring the Japanese to the outsourcing table. First, there were the rising costs of labor, land, and taxes that made manufacturing in Japan unaffordable. Electronic products coming out of Japan had always been expensive, but starting in the 1990s, they were becoming even more costly. Japanese OEMs watched as their Western competitors gained competitive advantage in price, supply chain, delivery, and repair as a result of their relationship with EMS subcontractors. Even worse, asset utilization was abominable—sometimes as low as 10–15%—as expensive manufacturing equipment sat idle and facility space was left empty, making for a very poor return on invested capital. The old business model of vertical integration was not holding up to a new world of the extended enterprise that hedged against changing technology and provided better expertise, thereby offering a solution to managing in-house capacity loads. More important, it made economic sense though it went against the grain of

Japanese DNA. There was also the issue of quality. Japanese OEMs were known for their intense dedication to 100% total quality and didn’t trust any third-party suppliers to live up to their standards. And there were cultural issues that involved language and behaviors that were unique to the Japanese, resulting in these OEMs simply being more comfortable working with Japan-based companies. Breaking into the Japanese EMS market was like trying to break into Fort Knox for many Western EMS firms.

Yet today, EMS in Japan is quite pervasive, though it did not happen overnight. The large Japanese OEM firms like **Sony**, **Toshiba**, **NEC**, **Fujitsu**, **Hitachi**, and others experimented with outsourcing end-of-life products such as office automation and consumer electronics products. These commodity products never made much money for the EMS companies and were often engaged to open the door to more lucrative opportunities. Yet by 2015, the EMS market in Japan was estimated to have grown to \$6.3 billion in revenue, according to a New Venture Research report, *The Worldwide Contract Manufacturing Services Market – 2016 Edition*, indicating that a fair amount of outsourcing was taking place (see Table 1).

Foxconn is the largest supplier (see Table 2), with an estimated 2.5 million square feet of manufacturing capacity, followed by other Tier 1 EMS suppliers such as **Delta**, **Flex**, **Jabil**, **Pegatron**, and **Sanmina**. But it is the domestic suppliers that are of interest; these include **Di-Nikko Engineering**, **SIIX**, **UMC**, and a recently discovered EMS company named **Kaga Electronics**.

Kaga Electronics is a sizable \$3 billion conglomerate consisting of the EMS division (\$700 million); a parts, components, and power supply business named **Taxan**; and various other enterprises in the electronics sector. *MMI* hadn’t even heard of the company until the Director of Sales, Terry Kearney, and the General Manager/Sales, Virgil Chen, called us up to tell us about Kaga and how the EMS business in Japan works. Kaga maintains low-cost manufacturing facilities all over the globe, including in China, Thailand, Malaysia, and the Czech Republic, in addition to two facilities in Japan.

The company was founded in 1992 when EMS was just starting to take off. The people at Kaga found it very difficult to get OEMs to agree to outsource, yet the company was able to convince firms like

Some articles in this issue

Cover Story	1
Outsourcing in Japan	
Decent Start for US-Traded Group	3
Some Quarterly Results	4
Foxconn Invests Another \$1.5B in Robot Development	7

Country	Rev. (\$M)	Percent
Australia	175	0.1%
Cambodia	65	0.0%
China	230,932	77.3%
India	7,346	2.5%
Indonesia	2,045	0.7%
Japan	6,335	2.1%
Korea	15	0.0%
Laos	50	0.0%
Malaysia	15,813	5.3%
Philippines	757	0.3%
Singapore	6,620	2.2%
Sri Lanka	25	0.0%
Taiwan	20,973	7.0%
Thailand	4,978	1.7%
Vietnam	2,808	0.9%
Total	298,937	100%

Oki, Sharp, Sony, and Olympus to subcontract office automation PCB assemblies. However, Kaga had a secret advantage via its parts, components, and power supply business, which had sold products to these companies for many years.

“We’re in it for the long run,” states Kearney, who says that longevity and trust were the most important factors in getting Kaga’s customers to embrace outsourcing. In fact, treating the customer first is a philosophy preached widely by the company. And Kaga being a Japanese company was critical, in that the culture and language were the same, and once it was established that it could achieve 100% quality on a reliable basis, the doors began to open. “Once one cow crosses the river, the rest will follow,” declared Kearney. Trust made it easy to transition other programs into the pipeline.

Kaga has grown into a Tier 2 supplier in Japan, focusing on low-volume, high-mix assemblies in the

industrial (HVAC), automotive, and medical industries. The company is seeing strong growth in the electronics assemblies in these industries as OEMs embed sensors, intelligence, and Internet of Things devices into transportation and other industry products.

The old captive subcontracting partnership system, commonly known as *keiretsu*, has been falling into obsolescence over the last 20 years. This has proved difficult for certain sectors where costs are forcing OEMs to look abroad for further reductions. In traditional consumer electronics, leading Japanese OEMs like Sony, NEC, and **Mitsubishi** are increasingly engaging EMS providers and ODMs as primary subcontractors to manufacture their products.

Outsourcing has come to be an accepted practice in Japan today, but the domestic EMS companies definitely have the edge, as it is not uncommon for heterogeneous

cultures to prefer to work together (e.g., Europeans, Asians, and Americans). Therefore, penetrating EMS in Japan will require an indigenous operation. There appears to be significant potential for this, as the world continues to embrace the benefits of outsourcing.

Despite this, the APAC region experienced a decrease in revenue growth compared with the other regions in 2015–2016. While it dominated the world in terms of total production (accounting for almost 70 percent of all assembly), the downturn in demand for digital TVs, desktop computers, and, to a certain extent, notebooks contributed to this decline. The region continues to attract high-volume electronics assembly, mostly for the IT and consumer electronics industries. Of greatest concern, however, is the steady rise in base wage rates—all across the board—particularly for the common assembly worker.

Company	Location	Sq. Ft. (Est.)
Delta	Osaka	50,000
Delta	Tokyo	80,000
Di-Nikko Engineering	Tochigi (4 facilities)	348,000
Flex	Ibaraki	137,000
Foxconn	Nagano	1,000,000
Foxconn	Sakai	500,000
Foxconn	Yokohama	1,000,000
Jabil	Gotemba	38,000
Jabil	Hachioji	24,000
Katolec	Kagawa (2 facilities)	162,982
Nippon Mfg.	Mizusawa	367,648
Nippon Mfg.	Mizusawa	264,825
Nippon Mfg.	Mizusawa	112,399
Nippon Mfg.	Mizusawa	110,441
Pegatron	Tokyo	300,000
Sanmina	Jasu	150,000
SIIX	Sagamihara	200,000
UMC	Ageo	50,000
UMC	Miyazaki	54,955
UMC	Saitama (2 facilities)	77,530

Decent Start for US-Traded Group

Combined first-quarter 2017 revenue for the six largest US-traded EMS providers rose 2.3% year over year, a solid start on which a growth year could be built.

In Q1, the six providers generated sales totaling \$14.63 billion, up from \$14.3 billion in the year-earlier period. The prime reason behind this increase was **Celestica**, which increased its sales by 8.6% year over year; next was **Sanmina**, which posted a 4.4% increase. Despite the group's respectable 2.3% growth from a year earlier, sales performance varied widely, ranging from Celestica's 8.6% growth to **Plexus's** decline of 2.3% (Table 3, below).

On a sequential basis, the group's revenue fell by 7.5% in Q1, a quarter in which segments such as consumer electronics and computing are prone to seasonality. Sales declines at all six providers prevailed, with **Jabil** registering a double-digit drop.

Five out of six providers follow GAAP accounting rules, while the sixth, Celestica, adheres to IFRS reporting standards. For the five GAAP

companies, GAAP gross margin in Q1 was a combined 9.2%, down 90 basis points sequentially and down 130% year over year. **Flex**, **Sanmina**, and **Plexus** succeeded in raising their gross margins from 4Q2016, while only **Flex** and **Plexus** were able improve their margins from the year-earlier period.

Together, the five companies in Q1 produced a GAAP operating margin of 2.7%, down 40 basis points sequentially and flat year over year. Two providers—**Sanmina** and **Plexus**—turned in increased GAAP operating margins, above 3%, led by **Plexus** with a 5.9% result. **Flex**, **Sanmina**, and **Plexus** were the only providers to increase their GAAP margins from the prior quarter, and **Flex** and **Plexus** boosted their margins from a year earlier. As for the lone IFRS reporting company, **Celestica** raised its IFRS operating margin from the previous quarter and remained flat from the year-ago period (Table 3).

On a sequential basis, combined GAAP net income for the five companies in Q1 fell far faster than sales did. Aggregate net income of \$178.4 million dropped 40.5%, in contrast to the sales decline of 7.3%. Net income was down from the prior quarter at four out of five companies, with **Plexus** being the lone

exception. In the year-over-year comparison, total GAAP net income for the three companies sank 10% despite sales growth of 1.6%. **Jabil** bore nearly all responsibility for this decline. Q1 net margin for the GAAP reporting companies was 1.36%, down 750 basis points sequentially and 170 basis points year over year.

Robust First Half Projected

Combined revenue growth of the six largest US-traded EMS providers in the first half will be encouraging, if **MMI's** estimates hold true. **MMI** is projecting that the group's first-half sales will total \$29.42 billion, up 7.5% year over year. Given this projected increase, hopes for a growth year now rest on the group's second-half performance.

According to **MMI's** estimates, first-half sales will grow from a year earlier at five out of six providers, with double-digit gains projected for **Flex**. Sales increases at those five providers will outweigh revenue declines at the remaining company, **Plexus** (Table 4, p. 4).

Table 3: 1Q2017 Results for the Six Largest US-Traded EMS Providers (M US\$ or %)

Company	1Q17 Sales	4Q16 Sales	Qtr.-Qtr. Chg.	1Q16 Sales	Yr.-Yr. Chg.	1Q17 Gross Marg.	4Q16 Gross Marg.	1Q16 Gross Marg.	1Q17 Oper. Marg.	4Q16 Oper. Marg.	1Q16 Oper. Marg.	1Q17 Net Inc.	4Q16 Net Inc.	1Q16 Net Inc.
Flex	5,863.0	6,115.0	-4.1	5,772.7	1.6	6.9%	6.5%	6.6%	2.8%	2.7%	1.7%	86.9	129.5	61.3
Jabil	4,445.6	5,104.9	-12.9	4,403.6	1.0	7.9%	8.3%	8.9%	1.8%	3.2%	3.5%	20.7	88.0	78.9
Sanmina	1,682.3	1,720.0	-2.2	1,611.2	4.4	7.9%	7.7%	8.4%	3.7%	3.5%	3.8%	31.9	44.9	30.4
Benchmark	566.5	607.5	-6.7	549.2	3.1	8.2%	9.0%	9.2%	2.4%	4.1%	3.0%	9.7	18.6	11.1
Plexus	604.3	653.1	-7.5	618.7	-2.3	10.6%	9.4%	8.6%	5.9%	3.9%	3.8%	29.3	19.1	16.8
Subtotal/avg.	13,161.7	14,200.4	-7.3	12,955.4	1.6	9.2%	10.1%	10.5%	2.7%	3.1%	2.7%	178.4	300.0	198.5
Celestica	1,469.9	1,623.7	-9.5	1,353.3	8.6	8.1%	7.9%	8.0%	2.3%	2.0%	2.3%	22.8	20.9	25.6
Total/avg.	14,631.6	15,824.1	-7.5	14,308.7	2.3									

All results are based on GAAP except those of Celestica, which adopted IFRS reporting. With the exception of sales, GAAP and IFRS results are not necessarily comparable.

Table 4: 2Q2017 Guidance and Estimates for the Six Largest US-Traded Providers (sales in \$B except as noted)

Company	2Q17 Guidance	Q2 Mid-point	1Q17 Sales	Qtr.-Qtr. Estim. Chg. (%)	2Q16 Sales	Yr.-Yr. Estim. Chg. (%)	1H17 Estimated Sales	1H16 Sales	Estimated Change (%)	Q2 Guidance Adjusted EPS* \$	Q2 EPS Mid-point \$	1Q17 Adjusted EPS* \$	EPS Q-Q Chg. at Midpoint (%)
Flex	5.7–6.1	5.90	5.86	0.6	4.34	36.0	11.76	10.11	16.4	0.16–0.20	0.18	0.29	–37.9
Jabil	4.25–4.55	4.40	4.45	–1.0	4.31	2.1	8.85	8.71	1.5	0.19–0.39	0.29	0.48	–39.6
Sanmina	1.7–1.8	1.75	1.68	4.0	1.67	4.9	3.43	3.28	4.6	0.72–0.77	0.75	0.76	–2.0
Celestica	1.5–1.6	1.55	1.47	5.5	1.49	4.4	3.02	2.84	6.4	0.29–0.35	0.32	0.29	10.3
Benchmark	565–585 M	0.58	0.57	1.4	0.58	–0.7	1.14	1.13	1.2	0.31–0.35	0.33	0.34	–2.9
Plexus	595–625 M	0.61	0.60	1.0	0.67	–8.5	1.21	1.29	–5.6	0.68–0.76	0.72	0.84	–14.3
Total/avg.		14.79	14.63	1.1	13.05	13.3	29.42	27.36	7.5				

Q2 estimates equal midpoint of Q2 guidance. First-half 2017 estimates equal Q1 sales plus midpoint of Q2 guidance.

*Adjusted EPS may not be comparable from company to company.

First-half projections are based on second-quarter estimates set equal to the midpoint of sales guidance for each company.

Estimated Q2 sales for the six providers add up to \$14.79 billion, up 1.1% from Q1 and increased exponentially (up 13.3%) versus the year-ago period. In the sequential comparison, Q2 sales are projected to rise at five providers and these gains are sufficient to offset an estimated drop at the remaining provider. **Celestica** is the only provider with a projected sequential increase of more than 5%. On a year-over-year basis, forecasted sales increases at four providers will be enough to offset declines for the other two providers. Flex is expected to boost its Q2 revenue by double digits from a year earlier, at 36% (Table 4).

Guidance suggests that adjusted EPS for the June quarter will increase sequentially for only one provider, Celestica. Based on guidance from Flex, Plexus, **Benchmark**, **Sanmina**, and **Jabil**, these companies expect that adjusted EPS in the June quarter will decline from the prior quarter.

Some Quarterly Results

Flex (FLEX). Flex had 4Q17 sales of \$5.86B and non-GAAP EPS ex-options of \$0.29. Operating margin ex-options of 3.5% was flat y-o-y and in line with expectations. F1Q18 guidance of sales

was \$5.7–6.1B and non-GAAP EPS was \$0.24–0.28. Flex’s inventory came in at \$3.4B, relatively flat y-o-y, and overall cash cycle days dropped by 5 days y-o-y to 14 days.

Flex’s end-market dynamics and financials are as follows: a) Communications and Enterprise Compute (34% of sales) was down 6% q-o-q to \$2.0B, which was in line with previous expectations calling for a decline of 5–10% q-o-q. Lower revenues reflected declines in the legacy server and storage businesses (down 30% y-o-y), largely offset by growth in converged infrastructure and cloud offerings. For the June quarter, Flex expects the segment to be down 5–15% q-o-q, reflecting continued weakness in servers/storage. b) Industrial & Emerging Industries (22% of sales) was up 14% q-o-q to \$1.3B, which was above the midpoint of expectations calling for 10–15% q-o-q growth. The growth was driven by strength in capital equipment and solar trackers, in addition to healthy demand in industrial home and lifestyle products. Flex expects the segment to show 0–5% growth in the June quarter, driven by new programs in energy and appliances, partly offset by declines in capital and office equipment. c) High Reliability Solutions (18% of sales) was up 2% q-o-q to \$1.0B, which was modestly in line with expectations calling for 0–5% q-o-q growth. Growth reflected an uptick in the automotive segment, partly

offset by a decline in the medical business. Looking forward, HRS is expected to be up 5–10% q-o-q, reflecting strength in the automotive segment, driven by the AGM business. d) Consumer Technology (26% of sales) was down 17% q-o-q to \$1.5B, which was better than previous guidance calling for a decline of 20–30% q-o-q. This reflects Flex’s exit from the Chinese **Motorola/Lenovo** businesses. This segment is expected to grow 5–15% q-o-q in the June quarter, reflecting better seasonality and a ramp-up in **Bose** business.

For the June quarter, Flex guided to revenues/EPS of \$5.7–6.1B/\$0.24–0.28. On a segment basis, the company expects CEC revenues to be down 5–15% y-o-y, IEI sales to be up 0–5% y-o-y, HRS business to be up 5–10% y-o-y, and CTG segment revenues to be up 5–15% y-o-y. In addition, management expects interest expense of ~\$30–35M, an adjusted income tax rate of 10–15%, and a share count of ~538M.

Sanmina Corporation (SANM). The company reported quarterly revenue/EPS of \$1,682 million/\$0.76. Gross margins for the quarter were 8.1%. Operational expenditure was \$65 million, at the low end of the company’s \$65–\$67 million expectation.

Sanmina’s end-markets analysis: a) Communications Networks (37% of sales): Sales were \$622M; there were shortages here and the notable issue was the lead times extending out (positively,

optical was solid). Communications should be up, with networking, routing, optical, and better wireless demand creating a pipeline of opportunities. b) Computing and Storage (17% of sales): Sales in this segment came in at \$286 million; the revenue was down and program delays were seen (automotive was up on solid demand for the quarter). Sanmina expects improvements and the focus is on its cloud data center businesses and the demand for new automotive products. c)

Defense/Industrial/Medical (46% of sales): Sales were \$774 million, with Medical seeing solid demand offset by program delays on the Defense side (which nonetheless has a strong pipeline of new businesses and mission-critical products).

Sanmina guided to revenues/EPS of \$1.70–\$1.80B/\$0.72–0.77. On an end-market basis, the company expects the following: 1) Communications Networks will be up sequentially as the routing, optical, and wireless areas ramp up; 2) Defense/Industrial/Medical will be flat q-o-q while building a pipeline of new business in mission-critical products; and 3) Computing and Storage will be up on a sequential basis as cloud data center businesses ramp up.

Benchmark Electronics (BHE). The company reported revenue and EPS at \$566.5M/\$0.34. Notably, new booking wins equated to \$118–149 million in annualized revenue, with 21 engineering awards and 27 manufacturing wins. Finally, gross and operating margins came in at 8.7% (–50 bps y-o-y) and 3.8% (30 bps y-o-y), respectively.

Benchmark's end markets and financials: a) Computing (18% of sales): The segment was up 2% y-o-y and down 16% q-o-q. Management saw broad-based strength from both new and existing customers. b) Industrial Controls and A&D (39% of sales): The segment was up 4% y-o-y and flat on a q-o-q basis. Importantly, the company now breaks the segment into two pieces: A&D contributed \$104M (+2% q-o-q, +14% y-o-y) and Industrial Controls contributed \$118M (–2% q-o-q, –14% y-o-y). c) Telecom (14% of sales): The segment was down 18% y-o-y and down 24% q-o-q. The telecom segment saw

weakness in optical (~20–30% of the segment) and softness with **Arris** (gateways). d) Medical Devices (15% of sales): The segment was up 4% on a y-o-y basis, and flat (0%) q-o-q. The segment remains steady with low- to mid-single-digit growth y-o-y. e) Test and Instrumentation (14% of sales): The segment was up 40% y-o-y and up 18% sequentially. The company notes this segment is benefiting from higher than expected semiconductor capital equipment spending.

Benchmark guided the forward quarter to \$565–585M/\$0.31–0.35. On a segment basis, the company offered sequential guidance as follows: 1) Computing will be up ~20%. 2) Industrial Controls and A&D combined will be flattish q-o-q; industrials will be down low singles and A&D up low singles. 3) Telecom will be down >10%. 4) Medical Devices will be up low singles. 5) Test and Instrumentation will be up low singles. From a margin perspective, the company noted that it should see operating margins of 3.75% at the midpoint (3.6–3.9%).

Plexus (PLXS). The company reported revenue/EPS of \$604.3M/\$0.84, with operating margins at 5.4%. Notably, the company won 26 programs during the quarter, representing about \$202 million in annual revenue when fully ramped.

Plexus reported softer than expected top-line results driven primarily by 1) communications and 2) lower than expected revenue from a commercial/industrial customer as well. Given comments disclosed from the call, overall networking/communications were weak (**Arris** [10% of total revenue], **Ericsson**, **Harmonic**, **Harris**, and **Ixia**), and **Micron** saw a one-time slip in revenue that will be recouped within the Industrial/Commercial segment.

Plexus's end markets and financials: a) Communications (18% of sales): Sales were down 18% sequentially and the company saw "broad-based" demand weakness. Importantly, the decline is expected to continue into the June quarter, which will be down low teens q-o-q. b) Healthcare/

Life Sciences (34% of sales): Sales in this segment were down 3% sequentially. Management guided this segment to be up mid-singles q-o-q. c) Industrial/Commercial (32% of sales): Sales were down 7% sequentially, due to softer than expected demand from a single customer. Importantly, the weakness is not related to semiconductors, which implies a pure industrial company such as **GE/Coke/Intermec**. The segment should be flat q-o-q in June. d)

Defense/Security/Aerospace (16% of sales): This end market was up 14% sequentially as demand returned for the segment as a whole. Management believes the segment should be up mid-singles q-o-q in the June quarter.

Plexus guided the forward quarter to \$595–625M/\$0.68–0.76. The operating margins are being guided to 4.8–5.2%, which is slightly above its target range of 4.7–5.0%. Finally, regarding end markets for the June quarter, the company offered the following q-o-q guidance: 1) Communications is expected to be down low teens. 2) Healthcare/Life Sciences should be up mid-singles q-o-q. 3) Industrial/Commercial should be flat. 4) Defense/Security/Aerospace is expected to be up mid-singles.

Jabil Circuit (JBL). Jabil reported 2Q2017 sales of \$4.44B and EPS options of \$0.48. Operating margins options of 3.4% declined by 80 bps. 3Q2017 guidance for sales is \$4.25–4.55B and EPS \$0.19–\$0.39.

The revenue upside in Q2 largely came from the healthcare and packaging businesses achieving above plan. The EMS division is exceeding margin improvement goals, driven by head count reductions in Western Europe and better capacity utilization. The key swing factor for the company is **Apple**, where Jabil noted there was no change in expectations. The Q4 Diversified Manufacturing Services (DMS) revenue guide was important to get a sense of how the Apple business was doing, and management continues to hold firm on the \$1.9 billion number.

Positive management comments included (1) Electronics Manufacturing Services (EMS) margin guidance of 4.2% for 4Q17, above the high end of 2–4% for the segment; 2) high confidence in

achieving 20% earnings CAGR in the healthcare and packaging businesses, which are about 15% of Jabil's revenue; and (3) ability to absorb any potential upside in Apple with existing capacity, meaning capex is to stay in the \$500–600 million range.

Company News

Foxconn to Expand in Hengyang

Foxconn will join a group investing \$870 million in a new campus in Hengyang to produce A/V equipment and tablets for **Amazon**, according to *DigiTimes*.

Citing industry sources, *DigiTimes* said Foxconn's Integrated Digital Product Business Group has signed an agreement with the Hengyang City Government to build a precision molding demonstration park and an Amazon production center in the city. Foxconn will team up with a group of undisclosed China-based companies on the site, the report said. It is not clear how much each individual company will need to invest in the project.

Production should begin this year, and will include 45 new production lines, the report said. Foxconn is expected to hire up to 15,000 additional workers.

The campus will build audio equipment, tablets, smart phones, and other components.

Hengyang is located in central China. Foxconn invested \$38 million in its local **Hong Fujin Precision Industry** (Hengyang) Co. subsidiary in 2012.

Kontron Green Lights Merger with S&T

Kontron's supervisory board has approved the conclusion of a merger agreement between Kontron AG and **S&T Deutschland Holding AG**.

The supervisory board of S&T Deutschland Holding AG has likewise approved the conclusion of the merger agreement. The notarization of the merger agreement was planned to take place on May 3, 2017. The merger

agreement is subject to the approvals of the general meetings of Kontron AG and S&T Deutschland Holding AG. The general meetings are to take place on June 19, 2017 and June 20, 2017, respectively.

It is planned that shareholders of Kontron AG, who do not choose the cash compensation offered by S&T Deutschland Holding AG within the merger but exchange their Kontron AG shares in S&T Deutschland Holding AG shares, receive from S&T AG, Linz (Austria) an offer to contribute these shares into S&T AG, Linz (Austria), within the scope of a noncash capital increase, and thus exchange such shares for shares of TecDAX-listed S&T AG, Linz (Austria).

Top 10 German EMS Providers

Accounting for 13.6 percent of European EMS revenues and 34.7 percent of those generated in Western Europe, Germany has played, and will continue to play, a key role in the development of the European EMS industry.

The industry is served by a large number of companies, although the majority are small to medium-sized with revenues below €10 million, and for many revenues are below €5 million.

As with other countries in Western Europe, domestic players dominate the market, with **Zollner**, Europe's largest indigenous EMS provider, the clear industry leader with 13 percent share of revenues, as reported by *Evertiq*.

The top 10 German EMS providers are:

1. Zollner
2. Leesys
3. TQ-Systems
4. Neways (Netherlands)
5. BMK Group
6. Asteelflash (France)
7. Katek
8. Prettl Electronics
9. MLS
10. Tonfunk

Within the Top 10 there are two foreign-owned groups, both of which have acquired German companies. **Neways International**, with headquarters in Son, the Netherlands,

significantly expanded its existing manufacturing operations in the country following the acquisition of **BuS Holding GmbH** in 2014, while the French company **Asteelflash** established a presence in the country following the acquisition of **EN ElectronicNetwork** in 2012.

Of the global Tier 1 EMS providers, **Sanmina** and **Jabil Circuit** have operations in Germany, although it is reported that Jabil, which focused on optoelectronics, has ended small series production at the site and will focus on development only. **Flex**, the world's second largest EMS provider, sold its EMS site in Paderborn in 2014 and has also transferred production at **Flextronics Automotive GmbH & Co KG** to a site in Hungary and is focusing on R&D and prototyping at that site.

Executive changes... **BB Electronics** has expanded its sales organization.

Johnny Madsen has joined the Danish EMS provider as Senior Sales Manager. He will be responsible for customers in Denmark and the North of Europe.

"Johnny has extensive experience from the EMS industry and has a huge knowledge about electronics and is able to facilitate each individual customer's needs, with production in Denmark or China. With the new boost in our sales organization we look forward to servicing even more customers in the future," a press release states....

SanDisk co-founder and former President & CEO Sanjay Mehrotra takes the helm of Memory and Storage Solutions provider **Micron Technology**.

The appointment is effective May 8, 2017. Mark Durcan will step down as CEO and from the Micron board of directors effective May 8, 2017, but will serve as an advisor to the company until early August.... **STMicroelectronics** has appointed Jean-Marc Chery as Deputy CEO, effective July 1, 2017. Chery currently serves as Chief Operating Officer and, in his new role, he will continue to report to Carlo Bozotti, ST's President and CEO. In this new role, Chery will hold overall responsibility for Technology and Manufacturing as well as for Sales and Marketing.

Inventec to Produce AI-Based Smart Home Products for Apple, Says Paper

Taiwan-based OEM **Inventec** reportedly has landed orders from Apple to produce a connected speaker device, according to a Chinese-language *Economic Daily News* (EDN) report.

The connected speaker will be Apple's first AI-based smart home device powered by Siri and is expected to take on Amazon's smart home assistant, Echo, said the report, citing Kuo Ming-chi, an analyst at Taiwan-based **KGI Securities**.

Apple is expected to unveil the smart speaker during its annual WWDC 2017 conference to be held in June, Kuo said, adding that the connected speaker will be priced higher than the US\$179 for Echo.

Inventec is the sole assembler of Apple's wireless AirPods products, while **Foxconn Electronics** is the sole producer of Amazon's Echo devices.

Taiwan Server Makers See Reshuffle of Orders from Microsoft, Facebook, Google

For Taiwan-based makers of servers for direct sale to clients, there has been a reshuffle of orders for servers used in cloud computing data centers from **Microsoft**, **Facebook**, and **Google** in 2017, according to several supply chain producers.

Microsoft, Facebook, Google, and **Amazon** together account for 90% of global demand for direct-sale servers and the reshuffle is related to Intel's planned launch of server CPU platform Purley in 2017, the sources said.

Microsoft has unveiled server models developed through cooperation with the Open Compute Project under Project Olympus, Microsoft's next-generation hyperscale cloud computing hardware design and a new model for open source hardware development, the sources noted.

Project Olympus's hardware partners are **Hewlett Packard Enterprise (HPE)** and Taiwan-based ODM **Wistron's** wholly owned subsidiary **Wiwynn**, the sources indicated. In addition, HPE's server OEM is Taiwan-based **Foxconn Electronics**.

Facebook originally procured servers

mainly from **Quanta Computer**, but has shifted part of its orders to **Wiwynn**.

While **Inventec** is currently the main supplier of servers for Google, Quanta has been actively competing for orders from Google and has expanded its server production capacities in North America and Europe.

Foxconn Invests Another \$1.5 Billion in Robot Development

Foxconn Electronics has announced an ambitious effort to push ahead with a highly automated workforce by increasing investment in its robot development subsidiary in Shenzhen, China, as reported by *Fudzilla*.

In January, it was reported that Foxconn had begun automating its workforce over three testing phases, with a benchmark of 30 percent automation at its Chinese factories by 2020. Now, the Taiwan-based contract manufacturer has announced an increase in robot-related research and development of ¥10.39 billion (\$1.51 billion). Since September 2014, more than 500 factories across Dongguan and Guangdong have invested over \$630 million in robots, and employees have been retrained to focus on higher "value-added elements" in the manufacturing process.

In order to have more of its subsidiaries involved in the development of robotic products, Foxconn has also begun a stock swap program among its subsidiaries in Hong Kong and China. The company seeks to reduce the holding value of Hong Kong-based subsidiary Robot Holding to just 0.63 percent from its current 75 percent share, while affiliate companies in China will receive Robot Holding's shares through a stock exchange process.

Last year, China's Guangdong and Zhejiang provinces announced they would spend a combined \$270 billion over the next five years to equip factories with industrial robots. Support will arrive in the form of subsidies for factories that want to add more robots, along with the national government's plan to triple industrial robot production to 100,000 by 2020.

Selcom Acquired at Auction by Turnaround Specialists

A pair of private equity companies that specialize in distressed companies have teamed up to acquire EMS provider **Selcom Elettronica**.

Avenue Capital and Europa Investimenti wholly acquired the Italy-based EMS company for €30.7 million (\$33.6 million). The deal includes Selcom's Chinese subsidiary Selcom Electronics (Shanghai) and is expected to close June 1.

The company was auctioned by the Bologna Court, a move that followed Selcom's bankruptcy filing late last year. At that time, the asking price was €12.8 million for the Italian assets and €26 million for the entire company.

Selcom has been dogged with financial problems since 2015, when revenues fell from €280 million to €200 million in one year. At the time, it held €120 million (\$131 million) of debt.

In a press release, the investors said they plan to inject Selcom with new financial and management expertise.

American Standard Circuits Completes Asset Acquisition of Camtech Technologies

American Standard Circuits has acquired the assets of Scottsdale, AZ-based **Camtech Technologies**, effective May 1.

Financial and other terms were not disclosed. Camtech founder Joseph Nickerson joins ASC as a vice president.

Nickerson founded Camtech in 2000 as a provider of engineering and EMS supply chain services. ASC and Camtech have been partners for years, the companies said, and both parties said the deal will expand their respective reach.

Foxconn May Set Up 6G Panel Line in US, Say Taiwanese Makers

Foxconn Electronics is talking with the US federal government and state governments about investing in the US and is likely to set up a 6G TFT-LCD panel factory there to produce small

to medium-sized displays for IoT (Internet of Things) applications, including automotive, medical care, and mobile terminal displays, according to Taiwan-based supply chain players.

Foxconn reportedly originally planned to set up an 8.5G or 10.5G line to produce LCD-TV panels or an LCD-TV module factory or LCD-TV assembly lines in the US to market **Sharp** TVs there, the sources said. But this is very unlikely, because Sharp had licensed its TV brand sales right in the US market to China-based vendor **Hisense** before Foxconn acquired a majority stake in the Japanese vendor. Hisense does not plan to sell back the licensing to Sharp, although Foxconn has negotiated with Hisense, the sources explained.

Sharp is actually unable to sell its own-brand LCD-TVs in the US market until the licensing expires at the end of 2020 and therefore Foxconn has no motivation to produce LCD-TV panels in the US in the meantime, the sources indicated.

As Foxconn is the largest EMS for **Apple**, a 6G line in the US can produce panels for the iPhone, iPad, and MacBook, the sources said. In addition, global demand for automotive displays is growing rapidly, along with development of

ADAS (advanced driver assistance system) and autonomous driving technology, and a 6G line can produce automotive display panels, the sources noted.

There are three technologies Foxconn could choose from for the 6G line: a-Si, LTPS, and IGZO. **Innolux**, of which Foxconn is a main shareholder, has large a-Si production capacity, while Foxconn has invested in setting up a 6G LTPS TFT-LCD factory in southern Taiwan and commissioned Innolux to operate it. Sharp specializes in IGZO TFT-LCD, the sources indicated, as reported by *DigiTimes*.

Management Additions at Enics

As of May 1, 2017, EMS provider **Enics** has added new members to its management team. Kristian Federley, who worked at Enics previously, was appointed VP, Engineering and Technology.

“Enics is targeting growth in comprehensive life cycle services in electronics by utilizing the latest technologies like robotics and different softwares. These appointments are strengthening Enics’ focus to grow in targeted areas with capable, competent and agile people in place,” a press release states.

Additionally, Susanna Pyykkö was appointed VP, HR and Communications.

SIIX to Open Sales Branch in Vietnam

SIIX, a top 20 EMS company, this summer will establish a wholly owned sales subsidiary in Vietnam.

SIIX Vietnam Co. will perform import, export, and sales of circuit board assemblies and electronic equipment.

SIIX is putting ¥11 million (\$100,000) into the new office, which will start operation in August.

Publisher: Randall Sherman

Editor: Anna Reynolds

Research Analyst: Vivek Sharma

Board of Advisors: Michael Thompson, CEO, I. Technical Services; Ron Keith, CEO, Riverwood Solutions; Andy Leung, CEO, VTech Holdings, Ltd.

Manufacturing Market Insider is a monthly newsletter published by New Venture Research Corp., 337 Clay St., Suite 101, Nevada City, CA 95959. Phone (530) 265-2004, Fax (530) 265-1998. Copyright 2017 by NVR™. ISSN 1072-8651

The information and analysis presented here are based on sources believed to be reliable, but content accuracy is not guaranteed. The publisher shall not be held liable for any business decisions influenced by this publication.

E-mail: rsherman@mfgmkt.com

Website: www.newventureresearch.com

Subscription Form

I want an electronic subscription to **MMI**. Email me 12 monthly issues (PDF files) for the annual cost of US\$615.

I want a print subscription to **MMI**. Send me 12 printed issues for the annual cost of US\$715.

Payment is enclosed to New Venture Research Corp.

Mail or fax to: NVR Corp., 337 Clay St., Nevada City, CA 95959. Phone (530) 265-2004, Fax (530) 265-1998.

Please bill me. Charge my credit card (see below).

Name _____ Title _____

Company _____ Phone _____

Street Address _____ Fax _____

City/State/ZIP _____ Email _____

MasterCard _____ Visa _____ AMEX _____ Number _____ Expires _____