Are Detroit Three's Local E/E Suppliers Strong Enough?

Some would argue that without a vibrant local community of electronics suppliers, the Detroit Three will be unable to regain lost share and profitability. Electronics is an essential ingredient in almost every new car feature, especially now with the proliferation of plans for new hybrid and electric vehicles.

The U.S.A.’s recently concluded “cash-for-clunkers” program was successful in stimulating new car sales and retiring many energy-wasting minivans, trucks and sport utility vehicles. A little more than 700,000 new vehicles were sold. However, the Department of Transportation’s list of the top ten models purchased under the program suggests that the Detroit Three have a long way to go if they are to climb back to profitability. Toyota, Honda, Hyundai and Nissan make eight of the top ten models. Ford makes the other two. Ford’s Focus FWD (front wheel drive) came in fourth, and Ford’s Escape FWD was tenth.

Besides being affordable with relatively good fuel economy, the Ford Focus features the popular Sync system, which according to the Edmunds.com car buyer’s website, makes the vehicle special: “One unique feature sets the car apart: Ford’s Sync system. Developed in conjunction with Microsoft, this system allows one to operate devices such as a cell phone, PDA and MP3 player via voice commands.” It also provides traffic information, directions and other telematics features such as emergency 911 calling.

Ford has benefited greatly from its relationship with Microsoft, a U.S. supplier that worked closely with the troubled carmaker to provide technology that is compelling enough to turn many potential Toyota, Honda and Hyundai customers into Ford customers.

Top EEs from PSA, GM and Audi Challenge Suppliers

While covering the annual Automobil Elektronik Fachkongress in Germany this summer, I had the opportunity to speak with top electrical/electronics engineers from several of the world’s leading carmakers. The prestigious conference in Ludwigsburg draws more senior level automotive electronics experts than any other industry conference. Gerulf Kinkelin from PSA, and Hans-Georg Frischkorn, representing General Motors, graciously took my questions in one-on-one sessions. I recently spoke with Audi’s Ricky Hudi by phone.

Gerulf Kinkelin, PSA

A top electrical engineer at PSA, Gerulf Kinkelin handles advanced engineering of electronics, the interior, infotainment and telematics. Formerly aструктор’s spokesperson, he is one of the architects of the Genivi Alliance, organized to create open source infotainment technology.

HMIs Standardization Needed

Mr. Kinkelin is convinced that the auto industry needs to standardize on ergonomics, today more than ever. “When you take a rental car you sometimes need ten minutes to understand how the car works before you drive it. For example, take cruise control—every carmaker has a different implementation to activate it, set the speed, pause and resume. If you resume the cruise control unintentionally at a much higher speed than your current speed, you could easily be confused.”

Gerulf Kinkelin, PSA

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High-end vehicles will also have optional speech interfaces, but you can’t rely on speech for all of the functions. Some people have accents or hate to talk to a car.”

Configurable displays are becoming an increasingly affordable alternative to electromechanical displays, according to Mr. Kinkelin. “Electromechanical displays were so inexpensive that there was always a significant price gap between them and 12-inch LCDs, but this gap is slowly closing. We see an opportunity now to go to digital LCD clusters.”

Turn to Detroit Three, page 8

Turn to Top EEs, page 2
Reducing the Number of ECUs

A nother big challenge, but one with ample rewards according to Mr. Kinkelien, is to significantly reduce the number of ECUs in a typical vehicle. “We want to eliminate 10 to 15 ECUs from the 40 or 50 in a mid-range vehicle,” he said. “To do this we want a more compact architecture, one that leverages A utosar, so we can move software around the vehicle.

“To reduce cost you can try to reduce memory or processing power, but this doesn’t save you very much. To really save money you have to get rid of boxes and everything that goes with them, the connectors and wiring harness. You can save about $10 or $15 for each ECU you can live without.”

Ricky Hudi, Audi

Ricky Hudi is A uti’s chief executive electrical engineer, electric/electronics. M r. Hudi came to A uti from B MW in 1997 and most recently was in charge of A uti’s infotainment system development.

German Standards Making

This is the same situation as blind spot detection and other driver assistance systems. The stakeholders, including the carmakers and the mature tier-ones, should get together and decide which approach is best. Once the standard is nearly done, an institution such as the ISO could formalize the standard and maintain it,” Mr. Kinkelien suggested.

Managing Complexity

“A lot of suppliers still have to get better at managing the complexity of electronics modules and systems,” according to M r. Hudi. “The time when a supplier could develop and produce just one printed circuit board with a few semiconductor components and be finished is long gone. Typically our products are complex mechatronic systems, which include complex hardware, complex software and complex materials. And these are networked together with other systems. Managing all of these disciplines is one of the great challenges for suppliers.”

He noted that as infotainment systems require more and more software, their development becomes even more challenging, especially when a new car model is added to the line.

“First tier suppliers of infotainment systems are really struggling because of the high cost of developing these complex systems. They aren’t putting enough resources up front, at the beginning of the project. A s a result they have to implement crash programs and spend a lot of resources at the end of the project in order to reach the SOP [start of production] on time.

“We need to apply model-based development and develop standard processes and products. The software must be well structured and modular so it can be reused. Every supplier has to work on this. We want to get to market nearly as fast as the consumer electronics companies do. That’s what our customers have come to expect,” Mr. Hudi advised.

He noted that the need to manage complexity is extending beyond infotainment. “Driver assistance systems and centralized body controllers are also getting very challenging. So these basic principles applied to infotainment software development will also be necessary there.”

But perhaps the most immediate and most difficult test facing the automotive industry is the transition to full hybrid and electric vehicles. “To bring electromobility to the state where we want to have it it is a great and very interesting challenge,” said M r. Hudi. “You have the obvious components—the batteries, electric motors and power electronics—but then you have to adopt the discipline throughout all the vehicle systems. Steering and braking have to be electrical, air conditioning and thermal management have to be considered, the driving characteristics, energy management throughout the whole car—there are a lot of disciplines where fundamental development work is needed. That’s a challenge for the car manufacturers, for first and second tiers, for engineering and tool suppliers, the entire industry.”

Hans-Georg Frischkorn, GM

U ntil September 1, 2009, Hans-Georg Frischkorn was G eneral M otors’ executive...
Top EEs...

functionality head units, GM engineers are looking closely at Ethernet for connecting peripherals, but questions about the technology’s maturity remain and no final decision has yet been made. GM is also considering Ethernet for diagnostics systems, but is still in the investigative stage.

While GM has not disclosed any start of production, it remains fully committed to FlexRay and has plans to implement FlexRay in a future chassis application.

**Clean Slate Electric Vehicle**

To create an electric or plug-in electric vehicle most carmakers have taken what exists today and added to it an electric motor and drive system. “That can’t be the optimal answer,” according to M r. Frischkorn. “A far more creative approach would be to develop a new vehicle from the ground up, maybe using not one but four traction motors, one at each wheel. That would open up tremendous degrees of freedom for the overall vehicle architecture. With four bidirectional motors you could easily do propulsion as well as braking and steering.

“What becomes extremely interesting is the synergy that could be gained between the active safety part and the electric drive part. Very simply, the active safety part could replace the hardware crash shell with a virtual crash shell. You’d replace sheet metal with radar, cameras and other sensors. The savings in mass would be tremendous.”

**Suppliers Lag in Test and Validation**

Electrical systems complexity continues to be a great challenge, and while A utosar and new infotainment system architectures will help, Mr Frischkorn would like to see some suppliers improve their validation and testing capability. “I’m not happy with the level of investment by the average supplier in validation, hardware in the loop and automated testing technology. Speeding up those investments is probably my biggest request for the supplier community,” he said.

“Suppliers need to give more management attention to testing. They need to invest more in people and in tools—vendors like dSPACE, Vector and ESG are all doing a great job. The large global suppliers such as Conti and Bosch understand that their business is really a systems business, but a lot of small suppliers haven’t gotten there yet. They believe that if they have done shock tests and the climate tests with their component, then they are done. They aren’t really done until they test the system behavior.”

**JASPAR Update**

The JASPAR (Japan Automotive Software Platform and Architecture) consortium was formed in September 2004 by the major Japanese carmakers to represent their common position in the Autosar and FlexRay standards-making activities and to cooperate in developing common automotive software platforms and technologies, and common tool and microcontroller requirements.

We recently had an opportunity to check in with JASPAR’s steering committee for an update on the consortium’s progress and its current focus.

**Organization**

The steering committee includes representatives of all the board member companies—Toyota, Nissan, Honda, Denso and Toyota Tsusho Electronics—and the chairs of all the working groups. Among the working group chairs are representatives from Bosch and Yazaki. In addition to the board member companies, there are 59 regular member companies and 56 associate-level members representing the global automotive electronics industry.

The board of directors currently includes members from Toyota, Nissan, Honda and Toyota Tsusho Electronics. Any resolutions must be passed unanimously by the board, so in effect each of the four companies has veto power. Toyota controls two of the four seats.

**Status of Work**

JASPAR’s goal is to increase software and technology development efficiency by encouraging its members to work together on implementation technologies in noncompetitive fields such as in-vehicle LAN and basic software. JASPAR working groups deal with Autosar and FlexRay standardization. In an email to The Hansen Report describing the status of its work on Autosar, JASPAR wrote:

“JASPAR has completed the guideline continued on page 8.
The Company Profile... Leoni AG

Background
In 1917, Leonische Werke Roth-Nürnberg A G was formed from the merger of three companies that had been making wire since the 16th century. By the 1930s the company was manufacturing rubber-sheathed cable, including automotive cable, followed by PVC insulated cable and power cords in the 1940s. Cable harness production ramped up in the 1960s. In the latter half of the 20th century, Leoni expanded throughout Europe and internationally through multiple acquisitions. Leoni stock (LEO) has been traded since 1923. At the end of 2008, 63% of Leoni free float shares were held by institutional investors; 37% were private.

While the company serves multiple markets including medical, industrial, communications and infrastructure, its primary market is automotive. The motor vehicle industry accounted for 70.2% of sales in 2008, up from 65% of sales the previous year. Leoni makes full vehicle wiring systems and cable harnesses for all passenger car segments and commercial vehicles, and supplies cable and components to other wiring harness suppliers. Leoni is the number-one automotive wiring supplier in Europe and number four in the global market. It is the world’s largest supplier of single-core automotive cables.

Leoni’s stiffest competition, especially in Asia, comes from Yazaki and Sumitomo. Leoni supplies wire and cable products to Yazaki and Sumitomo in the West, but in Asia the two Japanese manufacturers are far more reliant on in-house production.

Global Recession Effects
Leoni measures the success of its divisions and business units by monitoring the following key data: turnover, earnings before interest and taxes (EBIT), return on capital employed, and free cash flow.

The decline in vehicle production by Leoni’s customers is having a large negative impact on Leoni’s sales and profits. Sales in the first half of 2009 totaled just €1.02 billion, down 35.7% from the first half of 2008. As a result, Leoni’s first half ended with a net loss of €88 million, down 292% from the first half of 2008. Leoni experienced an outflow of cash from operating activities in the first half of 2009 in the amount of €141.4 million. Free cash flow in Q2 of 2009 was a positive €44 million.

Acquisitions
In the last 20 years, acquisitions have been central to Leoni’s growth strategy. For example, in 1997 Leoni took over the...
The Company Profile Continued

Leoni Share Price Five-Year History

<table>
<thead>
<tr>
<th>Year</th>
<th>Price</th>
</tr>
</thead>
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<tr>
<td>2005</td>
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</tr>
<tr>
<td>2006</td>
<td>8.00</td>
</tr>
<tr>
<td>2007</td>
<td>11.00</td>
</tr>
<tr>
<td>2008</td>
<td>14.77</td>
</tr>
<tr>
<td>2009</td>
<td>18.77</td>
</tr>
</tbody>
</table>

Data: Euroland

Leoni Group Employees by Division

Total as of December 31, 2008: 50,821

- Wiring Systems, 84%
- Wire and Cable Solutions, 16%

Wiring Systems Division

According to the Leoni annual report, the range of products covered by the Wiring Systems division stretches from basic cable harnesses, to wired sensors, to complete, ready-to-install wiring systems including fuse and power distribution units for cars and commercial vehicles. These systems comprise connectors as well as related components such as fixing and sealing parts, cable conduits, fuse boxes, power distribution circuits and electronic control units.

The division’s customers can be segmented into three categories. The largest category is carmakers, followed by the commercial vehicle industry, which includes trucks, agricultural and construction equipment, and independent engine manufacturers. The smallest segment is automotive parts makers.

Harness Weight Reduction

Every carmaker is looking for ways to reduce the carbon footprint of the vehicles they manufacture, and with the wiring harness weighing approximately 25 kilograms (55 pounds), the electrical distribution system presents a good opportunity to reduce vehicle weight. Leoni has been investing in three different strategies to reduce wiring harness weight: employing computer-aided tools to optimize electrical system architecture; using computer-aided tools to reduce conductors’ cross sections; and replacing copper with lighter weight materials. Depending on electronics content and the availability of options, Leoni engineers believe they can reduce the weight of the harness by anywhere from 5% to 10%.

Developed in house with a tools company partner, Leoni’s architecture tool suite looks at the number and placement of ECUs, wires and cables, fuses, relays, and junction boxes and recommends the optimal architecture based on weight and/or cost. Limiting copper content can be very cost effective, especially when copper prices are very high as they were in 2006 and 2007.

Leoni optimizes wire cross sections by means of an in-house developed tool that looks at current-flow requirements and safety temperature limitations.

An obvious target for the third step to optimizing the weight of the harness, using alternatives to copper, is the battery cable, the thickest conductor in the vehicle. Starting with the Europeans, carmakers have been replacing the copper battery cable with aluminum cable and thereby reducing the cable weight by 30%.

“The biggest wire gauges, 50 square millimeters and higher, have been widely converted to aluminum,” pointed out Helmut Kalb, responsible for automotive cable R&D in Leoni’s Wire and Cable division. “But to provide the same conductivity as copper, you need bigger aluminum wire gauges, so the increased package size is a disadvantage. Still, aluminum is being used in smaller cables; they are getting down to 10 or 16 gauge. As the price of copper has gone down from recent historic highs, the market share of aluminum cables is continually growing, especially in Europe,” he said.

continued on following page
Small Gauge, High Tensile Strength

There are also opportunities to downsize the cross section, and thus the weight, of signal wiring, which is usually bigger than it needs to be for safe current handling. Signal wiring typically handles up to 1 amp of current, often much less. Small gauge wiring needs to be physically strong enough so it isn’t damaged during installation in the vehicle.

Dr. Kalb estimates that up to 50% of a vehicle’s signal wiring, typically with cross sections between 0.35 and 0.5 square millimeters, could safely be replaced by 0.17 square millimeter or smaller wire, as long as the narrower gauge has enough tensile strength. Small gauge signal wire makes up 20% to 25% of the complete harness. “Solutions under discussion include replacing the copper conductor with copper alloys such as brass and bronze, copper magnesium or copper-clad steel,” noted Dr. Kalb. According to Leoni, replacing 0.35 mm² copper wire with 0.17 mm² brass would yield a 54% weight savings and a 15% space savings. Leoni offers roughly 20 different types of high strength alloy conductors.

Despite the packaging advantages, the incentive to replace copper in wiring harnesses rises and falls with the price of copper. There is less interest when the price of copper is low, as it was at the beginning of 2009, but “everybody in the automotive industry believes that copper prices will go back up to higher levels,” said Martin Glösslein, responsible for R&D for the Wiring Systems division. “We are now at roughly €4.60 per kilogram. When the price goes back up to between €5 and €7 per kilogram, then you gain a cost benefit from changing the conductor material,” he suggested.

Leoni’s first order to produce signal cable using alternative materials, for about 150,000 kilometers of cable per year, is expected shortly. Each year Leoni produces about 8 million kilometers of cable, 2 million of it signal cable. In five years, 10% of Leoni’s cable business could come from alternative conductors, depending largely on the price of copper.

A nother weight-saving option Leoni has recently brought to market is block fuses that reduce the weight of fuse boxes by about 25%. “In the old version there were about 50 parts; now there are only six or seven parts,” noted M. Glösslein. “Fuse boxes typically weigh about 500 grams.”

Hybrid and Electric Vehicles

Leoni has been making investments in technology to support hybrid and electric vehicle wiring despite the knowledge that these efforts won’t affect sales revenue for at least another five years. “If we miss this trend right now, we will not be one of the major suppliers ten years from now,” declared Dr. Kalb.

According to Leoni, by 2010 just 1% of world vehicle production will be hybrid or electric vehicles. By 2015 such vehicles will account for 2.5% of the total and by 2020, 25% will be hybrid, electric or fuel cell vehicles. Seventy-seven percent of the world’s hybrid vehicles are produced by Toyota and Honda. Neither carmaker is a Leoni customer. In Europe, home to most of Leoni’s customers, the market for hybrid and electric vehicles has been slow to develop.

Presently, the complete wiring harness for a hybrid vehicle costs 20% to 25% more than a conventional wiring harness, a differential that will decline as unit volumes increase. Power lines that must handle as much as 250 amps of current, up to 600 volts, have bigger cross-sections, anywhere from 10 mm² to 50 mm². Most of the cables must be shielded to avoid electromagnetic interference, especially with alternating current in the kilohertz range.

Typical high-voltage hybrid or electric vehicle cables will have an inner conductor, a primary insulation layer covered by a braided shield and then an outer jacket to protect the shielding. The connectors are also quite different from conventional connectors. Special connectors are used in hybrids’ harnesses today, but these are being replaced by connectors without screws to simplify assembly. And since short term heating can exceed 175 degrees C, unique insulation materials and coverings are required. For cable rated up to 150 degrees C, cross-linked polyethylene primary insulations are used. Silicone insulations are typically used for ratings up to 175 degrees C.

### Copper Wire vs. Alternative Conductor Materials

<table>
<thead>
<tr>
<th>Wire Type</th>
<th>Cross Section</th>
<th>Weight (kg/km)</th>
<th>Weight Savings</th>
<th>Space Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>0.35</td>
<td>3.13</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.35</td>
<td>2.30</td>
<td>27%</td>
<td>--</td>
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<tr>
<td>CCA (Copper clad aluminum)</td>
<td>0.35</td>
<td>1.16</td>
<td>63%</td>
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<tr>
<td>CCS (Copper clad steel)</td>
<td>0.13</td>
<td>1.06</td>
<td>66%</td>
<td>18%</td>
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<tr>
<td>Brass (CuZn37)</td>
<td>0.17</td>
<td>1.45</td>
<td>54%</td>
<td>15%</td>
</tr>
<tr>
<td>CuMg (Copper magnesium)</td>
<td>0.13</td>
<td>1.14</td>
<td>64%</td>
<td>18%</td>
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<tr>
<td>Cu Hard (hard drawn copper)</td>
<td>0.22</td>
<td>1.79</td>
<td>43%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Source: Leoni

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**Leoni Automotive Products**

**Wire and Cable Solutions**
- Single-core automotive cables
- Unshielded
- Shielded
- (Aluminum) battery cables
- Multi-core automotive cables
- High-voltage cables for hybrid, electric and fuel cell vehicles
- Data transmission cables
- Coaxial cables
- Extruded flat cables
- Ribbon cables
- Sensor cables (e.g. for ABS)
- Wires
- Strands
- Fiber optic cables

**Wiring Systems**
- Cable harnesses
- Complete wiring systems
- Components
  - Fuse and relay boxes
  - Distribution boxes
  - Special connectors
- Cable conduits
- Electromechanical assemblies
Wire and Cable Solutions Employees
Roth, Germany 545
Kobierzce, Poland 295
Cuaudemoc, Mexico 200
Hatvan, Hungary 135
Changzhou, China 115
Gemlik, Turkey 60
Halver, Germany 60
Nová Dubnica, Slovakia 40

Wiring Systems (Largest Plants)
Sousse, Tunisia 5,190
Bistrita, Romania 4,360
Strij, Ukraine 4,130
Casablanca, Egypt 2,810
Bouznika, Morocco 2,650
Trenèín and Ilava, Slovakia 2,630
Mateur 2, Tunisia 1,700
Mateur 1, Tunisia 1,670
Bouskoura, Morocco 1,600
Ain Sebaa, Morocco 1,390
Arad, Romania 1,340
El Zahra, Tunisia 1,270
Hermosillo, Mexico 1,150

To ready itself for the hybrid and electric vehicle market, Leoni has made some important investments in the last few years in high temperature insulation technology. In 2006 it established a new greenfield entity, called Leoni High Temp Solutions, focused on polytetrafluoroethylene and silicone technology. The cables produced by Leoni High Temp Solutions, designed for temperatures above 150 degrees C, are used primarily in automotive but also in industrial applications.

In May 2006, Leoni acquired Studer Draht- und Kabelwerk, in Däniken, Switzerland, which handles halogen-free, flame retardant compounding and irradiation cross-linking technology. In May 2007 it acquired Silitherm, in Monticelli d’Ongina, Italy, now the largest supplier of silicone insulated cables in Europe.

Fiber Optics Communications Not Growing
Regardless of which standard is used for data transmission, IEEE 1394, MOST or USB, copper will likely be the favored transmission medium, according to Leoni. “Copper is the most cost effective solution,” said Dr. Kalb. “Frequencies up to 400 megahertz are not a problem for copper. Fiber optics applications will not grow and may even decline,” he added. The main problem with fiber optic wiring, according to Dr. Kalb, is that is it difficult to add functions later on, if a customer requests additional options. “A adapting to a fiber optic network is hard to do,” he said.

Competitive Strengths
Why do customers buy from Leoni rather than from its competitors? “Perhaps our greatest competitive strength is our global production network,” said Dr. Kalb. “We are one of the few companies that can support our customers’ wire and cable needs in North America, Europe and Asia. We understand very well each region’s requirements. We take part in each region’s standardization committees. We are on the SAE Cable Task Force, FA KRA, the German counterpart to the Cable Task Force, and we are active in France as well. In Japan, while we aren’t members of their standardization committee, we have close contacts who are. And finally, we are well known for our data cables, both coaxial and LVDS.”

One of the first companies to make LVDS (low voltage differential signaling) cables two years ago, Leoni now produces about 12,000 kilometers of the cable per year. LVDS cables are used to transmit video signals, for example from rearview cameras to in-dash monitors, or from DVD players in the head unit to rear seat monitors.

A newly relatively new product, USB cables have also sold quite well. Leoni produces about 4,000 kilometers per year.

Mr. Glösslein believes the global footprint of the Wiring Systems division, like the Wire and Cable division’s, is its most distinguishing characteristic. “A another big advantage is our employees, who we feel are especially motivated and very well trained. We know this because we have very low employee turnover, and this is the feedback we are receiving from our customers. Plus, we think our proprietary engineering tools set us apart from the competition.”

A vertically integrated company, Leoni not only makes its own cables, but it also sells cables to its wiring harness competitors. One of those competitors, Yazaki, who serves Toyota and Honda as well as almost every one of the world’s major carmakers, is also vertically integrated. Leoni is one of only two outside cable suppliers to Yazaki.

To read the full profile and more, please visit www.hansenreport.com.
But my worry, which is shared by others, is that U.S. automotive electronics suppliers have been so battered by the Detroit Three’s economic woes that technology partnerships like the one with Microsoft won’t soon be duplicated. “Ford made a big coup by partnering with Microsoft,” suggested Bill Mattingly, who was Chrysler’s top electrical engineer when Sync was being developed. “By getting Microsoft to work with them, they were able to seriously advance their audio/telematics offering. But that’s not something that is easy to repeat. Microsoft will probably want quite a lot of money up front the next time around. Microsoft was willing to work with Ford because they needed to make a big splash in the automotive industry. When they started with Ford they desperately wanted to show they could do automotive. Nobody else [besides Fiat] wanted to deal with them.”

North American suppliers have been on the ropes for years. A few nearly four years in bankruptcy a much smaller Delphi, supported by private equity and General Motors, will have a hard time measuring up with the likes of Bosch or Denso. More stressed, those companies have invested a great deal more in new technology. Even GM has been wary of putting too much money up front. In 2008, sales for the first half of this year were down 39%. Like most suppliers, TRW is struggling to maintain liquidity. Nevertheless, it reached an agreement with its lenders this year that insures access to $1 billion. TRW raised $269 million through a stock offering in August and plans to use the proceeds to pay down debt.

Motorola sold its automotive electronics business to Continental in 2006 after having spun off its semiconductor business in 2004. That business, now Freescale, an independent entity owned by private equity investors led by the Blackstone Group, will soon lose its place as the world’s number-one maker of automotive semiconductors when the merger between Renesas and N EC Electronics is complete. Renesas and N EC Electronics are Japanese semiconductor suppliers. What’s left of the U.S.-based automotive electronics supplier community is in a weakened state and that makes things more difficult for the Detroit Three.

“Local suppliers are absolutely essential to a carmaker’s success,” said Peter Thoma, formerly BMW’s top EE. “If you produce for the U.S. market, then you have to buy from the U.S. market. Otherwise you run into exchange rate problems. And further, you must have direct contact to engineering innovation. Local suppliers know you best and they know best what the country really needs.”

With indigenous suppliers in trouble, the Detroit Three have increasingly relied on suppliers from other regions of the world and those relationships haven’t produced the sort of head-turning features that attract crowds of new buyers. Suppliers from other regions aren’t likely to provide the Detroit Three with their newest, hottest technology unless they pay for that technology upfront, which is something they have been unable and/or unwilling to do.

Automotive electronics consultant Dave McNamara, who a few years ago was Ford’s top audio engineer, believes carmakers operate best when they have a strong local community of suppliers. “Of course carmakers do make profitable use of suppliers from other countries. You try to transfer what you can, but there is nothing like having local support when you need it. ... If I couldn’t see the person, it felt like they weren’t on my team.”

Engineers from local suppliers speak the same language and share the same culture. A nd top executives from local suppliers are far more accessible than are executives from suppliers eleven time zones away. Certainly Toyota gets a whole lot more from Denso than GM gets from Denso; Daimler and Volkswagen get a whole lot more from Bosch than Chrysler would. The Detroit Three, whose engineering ranks have been aggressively thinned through forced retirement, have become especially reliant on suppliers to do the engineering work that they once did in house.

JASPAR Update

As a result of the examination of FlexRay specifications, nine documents regarding FlexRay implementation and design have been completed and released to JASPAR members. Five more documents are planned. As for cooperation with the FlexRay consortium, the technical proposals made by JASPAR have been adopted by the FlexRay consortium in its Specification V3.0. JASPAR will continue further interaction with the FlexRay consortium in completion of the conformance test specification of the new version.

JASPAR’s five FlexRay working groups held a total of 155 work sessions during 2008. The JASPAR Microcontroller Working Group is in the process of defining requirements and specifications of a debug interface for automotive micros. The Bluetooth Conformance Working Group is looking into technology that can guarantee interoperability and is investigating conformance tests for in-vehicle Bluetooth devices.

JASPAR’s board of directors is planning the consortium’s activities for the fiscal year beginning April 1, 2010. The Multimedia Architecture Working Group is looking at standards for open infotainment platforms and has been in contact with Genivi. Thus far JASPAR has no plans to join Genivi and there are no formal cooperative agreements between the two groups.