**Delphi Upheaval**

The recent news from Delphi has been pretty bad. The Board of Directors’ investigation into Delphi’s accounting practices, instigated last summer by the SEC, has delayed the company’s filing of its SEC reports for the third and fourth quarters of 2004. It is not clear what the final impact of the investigation will be, but Delphi’s 8-K filed with the SEC on March 1, 2005, reports that the investigation thus far has revealed $200 million in overstated cash flow from operations in 2000 and $61 million in overstated pre-tax income in 2001. Delphi expects to complete the process of restating historical financial results by the end of June 2005.

According to preliminary statements, however, after losing $56 million in 2003, Delphi lost another $36 million in 2004 on sales of $28.7 billion. Delphi has said that it expects to lose $200 million in 2005 due to General Motors’ production slowdown in North America. General Motors accounted for 54% of Delphi sales in 2004. For now, nobody at Delphi is saying when the company will return to profitability.

To help cope with its losses, Delphi will eliminate 8,500 hourly and salaried positions in 2005. According to investment analyst Argus Research, about 3,000 of those employees will be cut from Delphi facilities in the States.

Delphi stock lost more than one-third of its value just in the last 52 weeks, 70% since its IPO was begun in February 1999 at an offering price of $18.75. On December 21, 2004, Standard and Poor’s lowered Delphi’s credit rating to BB+, its highest junk bond rating, which will significantly increase the company’s borrowing costs.

Moodys’ Investors Service downgraded Delphi’s rating to speculative on March 8, 2005.

In 2004 Delphi got further behind in funding pension requirements; its underfunding rose to $4.3 billion at year end, compared with $4 billion in 2003.

Delphi’s lack of success has been disappointing to the many men and women who have labored long and mightily on the company’s behalf. It is especially discouraging for those employees who, at the urging of management, invested in Delphi stock. On March 10, 2005, Delphi stock hit a new 52-week low of $4.83 following CFO Alan Dawes abrupt resignation in response to the disclosure of $261 million in overstatements.

More Changes at the Top

Given all the bad news that had been coming from Delphi for a while, it was not that surprising when J.T. Battenberg finally announced his decision to retire from the company after serving as chairman and CEO since Delphi was spun off from GM.

**GM and Delphi Still Linked**

Production of GM cars and trucks in North America will decline 11.1% in the first two quarters of 2005, compared with the first two quarters of 2004. Delphi expects to lose $200 million this year due to General Motors’ lower volumes.

On March 4, 2005, Delphi stock closed at $5.41, then the lowest price since it was IPO’d. On the same day General Motors stock closed at $34.77, its 52-week low.

<table>
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<th>GM Vehicle Production by Quarter</th>
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<td>in thousands of units</td>
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<td>2004 Q1 525 820 2,273</td>
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<td>2004 Q2 543 846 2,401</td>
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<td>2004 Q3 463 746 2,119</td>
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<td>2004 Full Year 1,997 3,223 9,098</td>
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<td>2005 (Estimated) Q1 470 710 2,212</td>
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<td>2005 (Estimated) Q2 431 819 2,349</td>
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<td>Data: GM</td>
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LED Technology Pushes Forward

A couple of years after Nick Holonyak invented the LED in 1962, he dubbed it the ultimate light source, saying it would eventually dominate all lighting technologies. Forty years later, he isn’t backtracking, saying autos underscore the trend. “The prototype cars have LEDs all over, because their designers realize that you can’t convert voltage and current to light output any more efficiently than with semiconductors,” said Dr. Holonyak, now a professor at the University of Illinois.

That power savings is a key attraction for automotive suppliers. “You can save up to 90 watts by replacing four lamps,” said Mike Godwin, LED product marketing manager at Osram Sylvania (Danvers, Massachotets). A utomakers have a number of other reasons to like solid-state lights. They’re small and long lasting. Lifetimes of 10,000 hours are particularly attractive in dashboards and other spots where the warranty cost for replacing a bulb is high. Looking forward, LEDs meet where the warranty cost for replacing a vehicle—used LEDs in at least one application, according to Osram. While that’s a small percentage of the million vehicles, it represents a fourfold increase over two years earlier. Market researchers at iSuppli of El Segundo, California, expect worldwide LED revenues to expand from about $5 billion last year to $6.8 billion in 2008, with most growth coming in the high brightness and ultra high brightness LEDs popular in automotive.

That’s attracting more manufacturers. O ptel Technology (Carrollton, Texas) last month established a new business unit to market LEDs, citing automotive as its primary market. Aian vendors are also moving in. “Korea, Taiwan and China are all investing a lot to make LEDs. Initially, their quality will be low, but it will rise quickly,” said N adarajah N arenarendra, solid state research director at the Lighting Research Council at Rensselaer Polytechnic Institute in Troy, New York.

M aufacturers are making big strides to improve efficiency and reduce prices. Lumileds recently beefed up the ruggedness of its Luxeon line, improving moisture resistance and increasing the allowable junction temperature to 185 degrees C. The temperature change has significant impact. “The ambient temperature in headlamps is 85-100 degrees C. If your maximum junction temperature is only 15 degrees higher, you can’t operate at maximum efficiency,” Mr. Raggio said. Running at full efficiency means more brightness or using fewer LEDs, which lowers costs, he added. Just as semiconductors advance steadily, LEDs double in brightness every two years.

LED taillights have been full custom designs to date, but O sram has developed a standard plug-in module that could simplify life for engineers who want the benefits of LEDs without the costs of custom products.

O rganic L E D s

While product engineers press forward with LED lighting technologies, their counterparts in research are looking at a related technology, the organic LED (OLED), which could replace LCDs to display information to drivers. A n OLED is an LED made of semiconducting organic polymers. Automakers have already shown some interest in OLEDs, which are currently used in displays on an Aston Martin, a Corvette and the Jeep Grand Cherokee. OLEDs hold promise because they can be printed on curved surfaces, they draw less power than LCDs and they can display full color motion. Compared to LCDs, they are brighter, require no backlighting and are more durable. But in most applications today OLEDs are used to display monochromatic light evenly over large areas without generating much heat or consuming much power. They are widely used as backlights in cell phones and other high volume consumer products with small displays, which helps drive the price lower.

“OLED costs are coming down rapidly. This year I expect costs for monochromatic units to be cut in half,” said A BI R esearch (Oyster Bay, New York) analyst Joshua Laurito.

Over the long term, costs can decline substantially, since OLEDs can be printed on Mylar and other inexpensive flexible materials. That’s extremely attractive in tight auto interiors, but observers caution patience. “The Holy Grail is to produce light on a flexible material. But we’re not anywhere close yet. Most OLEDs are made on glass,” Mr. N arenarendra said.
Mercedes to recall 680,000 vehicles. Bosch also had to own up to quality problems in a diesel fuel injection pump that triggered costly production delays for DaimlerChrysler and BMW. GM recalled 155,000 light trucks and SUVs due to potential hydraulic fluid leaks in a Bosch brake assembly.

Brose
2004 Sales: €1,963 million ($2,593 million)
Change from 2003: up 2%
Brose's window regulator business grew 7% and seat adjustor sales were up 6%. Sales in the door systems business declined 2%. The addition of 650 new jobs in 2004 brought worldwide employment to 8,150.

Continental AG
Continental will not release preliminary results until March 31, 2005. In January 2005, a Continental investor relations presentation predicted sales for 2004 would be up by about 7%. In February 2005 the company said EBIT (earnings before interest and taxes) for January 2005, a Continental investor relations presentation predicted sales for 2004 would be up by about 7%. In February 2005 the company said EBIT (earnings before interest and taxes) for 2004 would be up by about 7%.

HELLA
FY 2004 Consolidated Sales: €3,141 million ($4,146 million)
Change from FY 2003: up 3.7%
Sales in Germany accounted for 58.9% of total sales, about the same as in fiscal 2003. Sales in North America declined 9%, but in the rest of Europe, excluding Germany, sales grew nearly 20%. The Asia/Pacific region saw 21% growth.

With its product on 14 different vehicle models, HELLA claims to be the world leader in “bend lighting,” which aims the headlight according to the radius of the curve the car is negotiating, giving the driver better illumination. The company cites an important technical development: the world’s first series production application of a white LED in a headlamp, as a combination position and daytime running light, on the Audi A 8 W 12.

While still controlled by the same family partners, HELLA converted the legal form of the company from limited partnership to a partnership limited by shares, similar to a corporation.

MAGNETI MARELLI
2004 Consolidated Sales: €3,804 million ($5,025 million)
Change from 2003: up 18.7%
2004 Operating Income: €116 million ($153 million), 3.0% of sales, compared with €32 million ($42.2 million) in 2003
2004 Electronics Systems Division Sales: €465 million ($614 million)
2004 Electronics Systems Division Operating Income: about €26 million ($34.3 million)
MAGNETI MARELLI’S Electronics Systems Division was consolidated in 2004. Excluding the effects of the consolidation, revenues grew 5% over the prior year. The company attributes the growth to its introduction of products with higher technology content such as diesel system components. In October 2004 MAGNETI MARELLI and SIEMENS VDO signed a cooperative agreement to develop diesel injectors using solenoid actuation and electronic control units from MAGNETI MARELLI. Production is to start in 2007.

The Electronics Systems Division also makes instrument clusters, navigation and telematics systems. Other business lines include lighting, powertrain, exhaust and suspension systems, shock absorbers, M opor motor and retail services.

SIEMENS VDO AUTOMOTIVE
FY 2004 Sales: €9.0 billion ($11.9 billion)
Change from FY 2003: up 5.7%
FY 2004 Profit: €562 million ($742 million) or 6.2% of sales
SIEMENS VDO AUTOMOTIVE acquired DAIMLERCHRYSLER’S Huntsville (Alabama) Electronics division in February 2004. Huntsville annually produces about $1 billion in automotive electronics including audio products, instrument clusters, engine and powertrain controllers and car body electronics.

A bout two-thirds of Siemens VDO sales are from Europe, including 31% from Germany. Noting that investing in new products and technology is key to remaining competitive, the company in fiscal 2004 spent 8.4% of sales on research and development, compared with 8.3% the prior year. SIEMENS VDO’S top ten customers together accounted for more than 75% of total sales.

VALEO
2004 Consolidated Sales: €9,439 million ($12,459 million)
Change from 2003: up 2.2%
2004 Net Income: €150 million ($198 million), or 1.6% of sales, compared with net margin of 2.0% in 2003.

Eighty-two percent of 2004 sales were to the OEM market, the same percentage as in 2003. Renault/Nissan is Valeo’s biggest customer. Sales in Europe improved 1%, in Asia, 3% and in South America, 25%; North American sales declined 9%.

Valeo expects the acquisition of Johnson Controls’ Engine Electronics Division will add €400 million ($528 million) in sales in 2005.

In Asia, Valeo increased its investment in two joint ventures in China. It also increased its stake in the Japanese lighting manufacturer Ichikoh to 22.6% and created a joint venture with Furukawa Electric to produce wiring harnesses. Valeo increased its equity in Valeo Raytheon Systems—which won a major contract for its blind-spot detection system—from 58.1% to 66.6%. Valeo’s lane departure warning system was introduced on the 2005 Infiniti FX and Citroën C 4.

During 2004, Valeo closed plants in the U.S., Portugal, Germany and Turkey and opened three plants—one in Romania and two in Poland.

ZF Friedrichshafen
Official results will be published April 27, 2005.
2004 Sales Estimate: €9.9 billion ($13.1 billion)
Change from 2003: up 10.9%
In addition to strong sales in the commercial vehicle market, sales of new products—including six-speed automatic transmissions, electronic shock absorbers, active steering and electronic steering products—contributed to ZF’s substantial growth. R&D spending in 2004 was 5.3% of sales.

Seventy percent of ZF sales are in Western Europe; 15% come from North America.
**Infineon Technologies**

**Headquarters:** Infineon Technologies AG, St-Martin-Strasse 53, D-81669 Munich, Germany; www.infineon.com

**FY 2004 Sales:** €7.195 billion ($9.3 billion)

**FY 2004 Net Margin:** 0.8%

**FY 2004 Interest Expense:** 0.6% of sales

**FY 2004 R&D:** 16.9% of sales

**FY 2004 Net Cash Provided by Operating Activities:** €1.857 billion ($2.39 billion)

**Shareholders’ Equity at Fiscal Year End:** €5.978 billion ($7.69 billion)

**Market Capitalization as of February 14, 2005:** €5.652 billion ($7.27 billion)

**Employees:** 35,600, as of November 2004

**Ownership:** Publicly traded; Siemens owns 18.2% of Infineon through Wachovia Trust Company.

**Automotive Business**

**FY 2004 Sales:** $1,304 million

**Principal Automotive Products:** Power semiconductors, sensors, microcontrollers and discrete silicon devices

**Largest Customers:** Siemens, Bosch, Delphi

**Note:** Fiscal year 2004 ended September 30, 2004. Euro to dollar conversions are at current exchange rates.

**Infineon Background**

Previously known as the Siemens Semiconductor Group, Infineon Technologies was founded on April 1, 1999, when Siemens spun off its semiconductor operations to form a separate legal entity. Siemens had been manufacturing semiconductors since 1955, and Infineon is the beneficiary of those fifty years of technology development and manufacturing expertise. The world’s fifth largest semiconductor maker today, Infineon employs some 35,600 employees worldwide, roughly 7,200 of whom work in research and development. The company is now organized in three business segments: Communications; Automotive, Industrial & Multimarket (AIM); and Memory Products.

Infineon went public in March 2000; the stock is traded on the DAX index of the Frankfurt Stock Exchange, and the company’s American Depository Shares (A DS) are traded on the New York Stock Exchange under the symbol IFX. The IPO price was €35.00 per share and $33.92 per ADS. On February 14, 2005, Infineon ADS opened on the NYSE at $9.89 per share, not far from the 52-week low of $8.92.

As of year-end September 2004, Siemens retained beneficial rights to 18.2% of Infineon through the Wachovia Trust Company N.A. Siemens has indicated that it wants to divest that ownership position. Sales to the Siemens Group accounted for 21.7% of sales.

Sales in fiscal 2004 grew 17% over the prior year, to €7.195 billion ($9.3 billion). Since 2000, Infineon has racked up a total of €870 million ($1.1 billion) in losses, but in the most recent year the company reported €61 million ($74.5 million) in net income. Productivity improvements as a result of converting from 5-inch to 6- and 8-inch wafer manufacturing helped offset persistent downward pressure on prices. Infineon accrued charges of €209 million ($269 million) in fines and settlement costs stemming from charges of DRAM price-fixing brought by the U.S. Department of Justice.

The corporation spent 16.9% of sales on research and development in FY 2004, less than in FY 2003 when it spent 17.7%, and far less than in FY 2002 when it spent 21.7% of sales.

Infineon and its predecessor company, Siemens Semiconductor Group, have been active in automotive electronics for over 35 years, and automotive remains one of the three key end markets, along

**Distinctions Claimed by Infineon**

- Number-one automotive semiconductor supplier in Europe
- Number-two automotive semiconductor supplier in the world
- Number-three automotive semiconductor supplier in the U.S.
- Fifth largest semiconductor manufacturer, all markets worldwide

**Calendar years 2001, 2002, 2003 *Fiscal year 2004**
Infineon counts its strong relationships with those suppliers and with leading German car manufacturers like BMW who have been in the forefront of using electronics components in cars, as an important differentiating factor. Infineon also sees its ability to offer complete semiconductor solutions that integrate power, analog and mixed-signal ICs and sensor technology as a strength that sets it apart from the competition.

According to market researchers at Strategy Analytics (Milton Keynes, U.K.), Infineon had an 8.7% share of a $13.128 million global automotive semiconductor market in 2003. Among all of the companies that make automotive semiconductors, Infineon is most wary of Freescale, Motorola's spin-off. While Infineon is number one in Europe and number two in the world, Freescale is number one worldwide and in North America.

Key Automotive Applications:
- Powertrain
  - Engine control
  - Transmission control
- Body and Convenience
  - Light control / door control / seat control
  - Battery management / power control
  - HVAC
- Safety Management
  - ABS
  - Airbags
  - Stability control
- Infotainment
  - Wireless communications
  - Telematics
  - Navigation

Infineon Technologies

Infineon’s AIM business segment maintains semiconductor production facilities in Munich, Regensburg and Dresden, Germany; Villach, Austria; Horten, Norway; Malacca, Malaysia and Singapore. The main development facilities for automotive semiconductors are in Munich, Graz and Malacca. Infineon will invest $1 billion in a new front-end production plant in Kulim High Tech Park, Malaysia to make power and logic chips.

Market Trends

It is Infineon’s view that the market for automotive semiconductors has slowed down some from the late 1990s and early 2000s, when about 12% annual growth was expected. Citing forecasts from Strategy Analytics and others, Infineon is now anticipating annual growth rates of 8% in automotive semiconductor revenue through 2009. Infineon expects average worldwide semiconductor content per vehicle will grow from $200 in 2003 to $300 in 2009.

When The Hansen Report last profiled Infineon, in October 1999, the company had been growing its business making opto-electronics semiconductors for automotive applications. At the time, Infineon expected the market for automotive opto devices to grow 26% per year through 2004. Infineon was a partner with Osram GmbH in a joint venture, Osram Opto Semiconductors, but sold its 49% share to Osram in 2001. Infineon continued to manage sales activities for the JV until 2003, when Osram took full control. As a fully owned subsidiary of Osram, the opto semiconductor division sales were €462 million ($595 million) in fiscal 2004. Infineon now sells plastic optical fiber, a business just integrated into the AIM segment earlier this year.

At 52% annual sales growth since 2001, sensors are Infineon’s fastest-growing automotive product line. Much of that growth resulted from the acquisition of SensoNor in June 2003, and the ramp up in mandated demand for tire pressure sensors in the United States.

The hottest automotive application for Infineon products, especially sensors, over the next five years is safety, according to the company. In addition to tire pressure sensing, promising applications include rollover sensing for stability control, driver assistance systems such as adaptive cruise control, lane departure warning and external object and pedestrian detection. Infineon’s silicon micromachined angular-rate sensors are currently being considered for a number of rollover-sensing systems. The sensor’s compact, butterfly-shaped design and an attractive price are two benefits that make Infineon optimistic about the product’s positive impact on future sales.

Second to safety will be powertrain control. Christopher Cook, vice president of the automotive, Industrial and Multimarket Segment for Infineon Technologies North America, said, “Overall, we have the industry-leading microprocessor solutions for powertrain. The processing requirements continue to go up in that area, as does the need for people who understand that application at the system level.”

Infineon is also targeting body applications such as power drivers for LED lighting, as well as electric power steering, especially in Germany. Infotainment accounts for 7% of sales, but this application will probably become even less important in the future.

Tire Pressure Monitors

Infineon acquired micromachined silicon sensor maker, SensoNor or of Horten, Norway, in June 2003. That acquisition will soon yield big results as OEMs prepare to meet the requirements of the U.S. TREAD Act of 2000.

A 5% U.S. mandate presently stands, carmakers must install systems that automatically warn drivers when a tire is significantly underinflated. The most recent phase-in schedule proposed by the U.S. National Highway Traffic Safety Administration (NHTSA) says that 50% of the fleet must comply with the standard in the 2006 model year, 90% during the 2007 model year and all vehicles thereafter. NHTSA aims to publish its final rules on tire pressure sensing by July 31, 2005.

Infineon’s tire pressure monitoring systems are especially rugged and make conservative use of battery power. A single accelerometer, which is embedded along with the pressure sensor on the same device that’s installed inside the tire, senses when the tire is in motion and tells the device to transmit pressure data to the vehicle more frequently than when the vehicle is at rest. “You can calibrate the system to only transmit if the vehicle is going x miles per hour,” said John McGowan, director of product marketing sensors and wireless controls for North America. “That saves the battery.” Tire pressure sensors are designed to work up to ten years inside the tire, far longer than tires typically last.

“Tire pressure systems are essential because the environment inside the tire is pretty nasty, so we have constructed an especially robust pressure assembly consisting of a layer of glass, a layer of silicon, then another layer of glass, bonded together,” Mr. M. McGowan explained.

While the tire pressure sensors are already in production on a number of platforms, Infineon expects to begin shipping much higher volumes soon, in time for the 2006 model year.

TriCore 32-bit Microcontroller Portfolio

A mother hot product Infineon is expecting great things from is its trade-

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**Key Automotive Semiconductors by Application**

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<thead>
<tr>
<th>Powertrain</th>
<th>Safety Management</th>
<th>Body and Convenience</th>
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<tr>
<td>Pressure sensors</td>
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<td>Hall sensors</td>
<td>Temperature sensors</td>
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<td>16-bit MCUs</td>
<td>RF ICs</td>
<td>RF ICs</td>
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<tr>
<td>32-bit TriCore (MCU + DSP)</td>
<td>8-bit MCUs</td>
<td>8-bit MCUs</td>
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<td>MOSFETs</td>
<td>16-bit MCUs</td>
<td>16-bit MCUs</td>
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<tr>
<td>IGBTs</td>
<td>32-bit TriCore (MCU + DSP)</td>
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The Company Profile Continued

marked TriCore line of 32-bit microprocessors designed especially for automotive powertrain applications. “The TriCore microcontroller has been sold in that space for several years and is gaining traction at many of the European and North American automakers,” according to Mr. Cook.

TriCore has a good start already in Europe, where the top three powertrain system developers—Siemens VDO, Bosch and Continental Temic—booked production orders for TriCore. Infineon has also won multiple TriCore contracts with major top-tier suppliers in North America.

According to company literature, “TriCore unifies the best of three worlds: the real-time capabilities of microcontrollers, the computational prowess of DSPs (digital signal processors), and the highest performance/price implementations of RISC or load-store architectures.”

Specifically, noted Axel Hahn, director of product marketing for microcontrollers, “TriCore devices have been designed with very fast interrupt response times, about five times faster than the competition.” In powertrain control Infineon competes with Freescale, NEC and Renesas.

Infineon recently announced the TC1796, its newest device based on the TriCore architecture. TC1796 features two megabytes of embedded Flash, 128 kilobytes of data Flash memory and 150 MHz system speed at full automotive temperature range.

Power Integrated Circuits

By far the biggest selling product line, power ICs accounted for 56% of Infineon’s automotive semiconductor sales in 2004. Since 2001 automotive sales of power ICs have grown annually at the rate of 22%, making them the company’s second-fastest growing product line.

Infineon’s automotive semiconductor business was largely founded on high-quality power devices. “We were big in the 1980s with voltage regulators and in the early 1990s with protected current drivers,” explained Bob Beier, applications specialist. “That business continued to grow, and we developed more expertise. We now have technologies to support power applications from simple MOS (metal oxide semiconductor) technology to more complicated technology that combines bipolar, CMOS and MOS in one monolithic circuit. … Other power device manufacturers have jumped in and then out of the automotive power market, but we have stayed committed,” he said.

A most all vehicle control systems make use of power ICs, whether for safety, powertrain, body or convenience features. And in the future, new applications will emerge, for example, electric motor-driven, electronically controlled water pumps that would take the place of crankshaft-driven water pumps.

Competitive Strengths
◆ Zero Defects

Determined to end the stories about the unreliability of automotive electronics, top-tier electronics manufacturers have been pushing their suppliers to provide components with zero defects. In a piece written by the company for publication in Automotive Electronics, Infineon laid out the case for zero-defects components, which we excerpt here:

“A typical midsize vehicle has 50 electronic control units, each containing up to 300 components. … To achieve a vehicle failure rate of 500 ppm [parts per million] or 5 failures in one million manufactured vehicles, carmakers require a defect probability of less than 10 ppm from the systems suppliers. This means that each of the approximately 300 components contained in an ECU must have failure rates significantly less than 1 ppm, which is why Infineon strives for zero ppm, or zero defects. In April of 2003, Infineon established its Automotive Excellence Program which covers not only product and services but the organization as a whole.”

Dr. Ploss gave some further detail on the Automotive Excellence Program: “One element of the program is we never deliver doubtful products, even when a detailed assessment would have said you [the customer] can use them. Where there is any doubt—we do not deliver. … In the year 2003, 30% of the products we shipped had zero defects. In 2004 50% had zero defects.” While initially investments in quality can challenge the bottom line, for example, as investments are made in equipment and the value of scrapped parts goes up, Dr. Ploss believes that such investments eventually lead to greater market share.

◆ Product Portfolio

Infineon also sees its product breadth as a competitive advantage. In vehicle control applications Infineon can usually provide a complete semiconductor system solution. With a wide range of sensors, microcontrollers, and high-current, high-power semiconductors to switch and control the actuators, “No one else can offer the breadth and depth of product that we offer,” declared Chris Cook.

◆ German Leadership

A notable advantage is Infineon’s close connection to the German automakers, who often pioneer with advanced electronics systems. “That [product and application] experience helps in North America, where we can start from the first iteration we’ve already implemented—not from scratch,” explained Chris Cook. ◆
Delphi...

from General Motors in 1999. Pleasant and likable, but not necessarily a hands-on guy, Mr. Battenberg kept his distance from all but the very top managers. Delphi insiders say he was known for his tendency to speak in generalities, not for advocating on behalf of any particular strategies or tactics.

Word of his retirement brought a mood of optimism to some in Kokomo, Indiana, home to Delphi’s electronics operation. Until recently Kokomo had benefited from Delphi’s investments in numerous development projects. That funding dwindled as the company became strapped for cash.

Despite Mr. Battenberg’s closing or consolidating 70 facilities during his ten-ure, the inability of other money-losing divisions to pull their weight has led to frustration at Kokomo over the last few years.

Still, Delphi has made important progress as an independent company under J.T. Battenberg. Now fully engaged in the highly competitive merchant market, it has won significant market share from competitors around the world. Non-GM revenue grew 20% in 2004 to $13.2 billion, an impressive accomplishment. Delphi reported operating cash flow of $1.5 billion in 2004.

Delphi has been focused on growing itself out of its cost problems in the U.S. light vehicle market. Among the responsibilities given to Dave Wohleen, recently named vice chairman, is to expand Delphi’s commercial vehicle business.

According to Mr. Wohleen, the commercial market is an obvious opportunity to leverage Delphi’s technology and capabilities. “We found a receptive market there, we’ve been able to build customer relationships, and it has been a very big positive for us,” he said. Commercial vehicles accounted for $1.2 billion in sales in 2004, up 32% from the prior year. Mr. Wohleen is the former president of Delphi’s Electrical, Electronics and Safety business. In his new position he is also responsible for Delphi Medical and for the research and development group.

Delphi recorded about $2.3 billion in sales in 2004 from non-automotive markets, which the company says are more profitable than the light vehicle market. Faster growth in alternative markets will be impossible now. With cash so limited and the stock price so low, major acquisitions will not be in the cards any time soon. What growth Delphi achieves in these new markets will come slowly and from existing technology and products.

Delphi’s near-term progress outside the light vehicle market will not be nearly enough to overcome its legacy as a former division of General Motors. “The uncompetitiveness of the U.S. workforce is the central issue that Delphi faces,” said vice chairman Don Runkle, who in January announced his decision to retire later in the year.

According to Mr. Runkle, Delphi’s competitors in the U.S. pay their factory workers from $20 to $25 per hour in wages and benefits and have no problems finding qualified people. Under the present contract with the UAW, Delphi pays $60 to $65 per hour for wages and benefits including pension, health care and other costs. Unfortunately, that contract isn’t due for renewal until 2007. “The contract we signed with the United Auto Workers is a large deterrent to spinning off [unprofitable] U.S. entities,” said Mr. Runkle.

“We’re not in the habit of breaking contracts. It has to be worked through mutually with our biggest customer, GM, and our biggest labor constituent, the UAW. It simply has to be worked through.” Don Runkle had been a member of Delphi’s Board of Directors and was responsible for building the commercial vehicle business, now Delphi’s third largest account, and for DaimlerChrysler accounts.

North American Roundup—Continued

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TRW Automotive
2004 Consolidated Sales: $12,011 million

Change from 2003: up 6% over 2003 pro forma sales. The company was acquired by Blackstone Group on February 28, 2003. Pro forma sales for 2003 are based on $9.4 billion reported for the 10-month period after the acquisition, plus $1.9 billion in sales for the two months prior to the acquisition.

2004 Net Income: $29 million, 0.2% of sales

2005 Sales Outlook: $12.3 billion to $12.7 billion. The company hopes to offset lower vehicle production volumes, higher raw materials costs and customer price pressures with increased new business, aggressive cost reductions and lower interest expenses resulting from some recent debt refinancing. TRW Automotive cut its debt by $592 million in 2004, in part with $287 million netted from an IPO in February 2004. TRW stock was trading at $20.69 per share on February 23, 2005, down 24.3% from its initial offering price of $27.35 on February 3, 2004. Short of cash, the company had just $44 million in working capital at year end Decem-

HEV Market Forecast

Lindsay Brooke, senior manager, market assessment at CSM Worldwide, Farmington Hills, Michigan, takes a conservative view when considering the future market for hybrid vehicles, especially in the U.S. If gasoline prices stay below $3 per gallon, hybrid vehicle owners need to drive well over 100,000 miles before they recoup in fuel savings the price premium they pay when they buy the car. Without the push from higher fuel prices, consumer demand for hybrids could cool off quickly.

Committing to production volumes and sourcing strategies is a difficult task for both OEMs and component suppliers.

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