

## Market Analysis & Forecasts



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## Tactical Analysis of the World Industrial/Medical Electronics Market & Supply Chain

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2010 Edition | Market Analysis and Forecasts to 2015 | 130 Pages

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## Abstract

The industrial/medical sector has risen in importance at many semiconductor vendors over the last few years as suppliers have come to identify the market as dependable throughout the entire economic cycle. Revenues for semiconductors in the industrial/medical sector exceeded those in automotive for the first time in 2008 and outperformed the overall semiconductor market in 2009. Accordingly, many semiconductor vendors have been actively advancing their understanding of this diverse sector, to benefit from the opportunities offered as growth in other sectors slows.

Unlike other markets, the application base making up the industrial and medical sector covers an extremely broad range, from Factory Automation to Test & Measurement to Consumer Medical. The supply chain is exceptionally fragmented, with few OEMs covering the broad market and most focused on just one or two areas. This makes a tactical analysis of leading manufacturers a complicated and time consuming process for semiconductor vendors to undertake comprehensively.

To support this need, Semicast has developed this study to focus on the tactical needs of semiconductor suppliers looking to identify the key equipment types driving manufacturer revenues in the industrial and medical sector and who the leading OEMs are to focus resource on. Last published in July 2008, the 2010 edition of the research builds on the work of the previous report, in particular to understand changes to the market outlook and supply chain following the economic downturn of 2008/9.

This study has been developed to be used as a companion report to the Semicast study “**Industrial/Medical Semiconductor Service**”, which provides analysis of strategic trends for semiconductors in industrial and medical applications. Used together, the two reports provide a comprehensive tactical and strategic analysis of the industrial and medical sector for semiconductor vendors.

## Key Point Conclusions

- Revenues for industrial/medical electronics fell to \$506 billion in 2009, from \$555 billion in 2008. Revenues are forecast to grow steadily to \$850 billion in 2015.
- Highest revenue growth is forecast for the Industrial Transport sector. This is followed by Power & Energy, Factory Automation & Control and Lighting, Building Automation, HVAC&R.
- Highest cumulative revenues from 2009 to 2015 are forecast for Industrial Transport.
- Caterpillar, Deere & Co., GE, Siemens and United Technologies are estimated to have been the five largest OEMs supplying electronic products to the industrial/medical sector in 2009.
- The fifty leading OEMs supplying electronic products to the industrial/medical sector represented almost 60% of end-equipment revenues in 2009. Understanding who these companies are and in which segments they operate is critical to success in the industrial and medical sector.
- Almost 400 OEMs had industrial/medical electronic system revenues in excess of \$100 million in 2009.

## Tactical Analysis of the World Industrial/Medical Electronics Market & Supply Chain - Overview & Key Features

- Scope and specification developed specifically to meet tactical needs of semiconductor suppliers.
- Analysis of 135 industrial/medical equipment types (full list provided on page 4).
- Estimate and forecast for worldwide production volumes for each equipment type (2008-15).
- Estimate and forecast for manufacturer average prices for each equipment type (2008-15).
- Estimate and forecast for manufacturer revenues for each equipment type (2008-15).
- 600 suppliers of industrial/medical electronics equipment identified, 400 of which had revenues in excess of \$100 million in 2009.
- 22 tables summarizing market share estimates of the leading manufacturers in each market segment and sub-segment in 2009.
- Highly quantitative analysis, with discussion summarized in short, easy to read bullet points.
- PDF and Excel delivery options available.
- Analyst support time to answer all reasonable questions relating to forecasts and conclusions.

## Industrial/Medical Market Segments & Sub-segments

The study segments the market for industrial/medical systems into nine segments and further sub-segments (as listed).

### Segment

- Factory Automation & Control
- Motor Drives
- Lighting, Building Automation , HVAC&R
- EPOS, EFT & ID
- Test & Measurement
- Consumer Medical
- Medical Imaging & Diagnostics
- Power & Energy

### Additional sub-segmentation

- Control & Compute, Process Measurement & Field Instruments, Switchgear, Misc. Automation
- Lighting, Building Automation, HVAC & Refrigeration, Environment
- Application Specific Test & Measurement, General Purpose Test & Measurement, Instrumentation
- Medical Imaging, Diagnostics/Therapy & Monitoring
- Industrial Transport

## Industrial/Medical Equipment Coverage

The equipment types analyzed by the study are as follows:

**Factory Automation & Control: Control & Compute** [Industrial Ethernet Infrastructure, Computer Numerical Control, Ruggedized/Industrial PCs, Single Board Computers, HMIs & Operator Panels, Machine Vision Inspection Systems, PLCs & PACs, Distributed & Remote I/O Modules] ; **Process Measurement & Field Instruments** [Process Analytical Instruments, Flow Measurement, Level Measurement, Pressure Measurement, Temperature Measurement, Process Variable Transmitters, Telemetry / RTUs, Process/Temperature Controllers, Position Sensing] ; **Switchgear** [Circuit Breakers, Contactors, Protection Relays, Solid State Relays] ; **Miscellaneous Automation** [Pumps, Robotics, Semiconductor Manufacturing & Test Equipment, Welding].

**Motor Drives:** AC Variable Speed Drives, DC Drives, Servo Drives, Stepper Drives, Soft Starters/Brakes.

**Lighting, Building Automation, HVAC&R: Lighting** [Electronic Lighting Ballasts, Exit & Emergency Exit Lighting, Lighting Controls, Street/Traffic Lighting & Control] ; **Building Automation** [Fire Detection, Fire Alarm Control Panels & Annunciators, Fire Alarm Notification, Intruder Alarm Control Panels, Intruder Detection & Notification, CCTV/Video Surveillance Cameras, CCTV/Video Surveillance Equipment, Electronic Access Control, Time & Attendance Equipment, Elevators & Escalators] ; **HVAC & Refrigeration**[Boilers & Warm Air Furnaces, Circulator Pumps, Compressors, Electronic Room Thermostats & Controls, Humidifiers/Dehumidifiers, Unitary Air Conditioners, Commercial Refrigeration] ; **Environment** [Electronic Utility Metering, Electronic Sanitation Control, Actuator Driven Blinds, Doors & Windows].

**EPOS, EFT & ID:** ATM (Automated Teller Machines), Handheld EFT Transaction Terminals, POS Authentication Pads, EPOS/ECR/Cash Drawer, Handheld Data Terminals, Fuel Dispensers, Vending/Payment/Change Machines, Card Readers, Coin Acceptors & Currency Validators, Printers, Scanners, Smart Cards.

**Test & Measurement: Application Specific T&M** [Automotive Test Equipment, DSL Test Equipment, Fiber Optic Test Equipment, LAN/MAN/WAN Test Equipment, SONET/SDH Test Equipment, Wireless Comms Test Equipment, Other Test Equipment] ; **General Purpose T&M** [Counters & Timers, Logic Analyzers, Digital Multimeters, Network Analyzers, Digital Oscilloscopes, PC-based Test Equipment, RF Power Meters, PXI/VXI-based Test Equipment, Resistance Meters, Signal/Function Generators, Spectrum Analyzers, Other General Purpose T&M] ; **Instrumentation** [Calibration Instruments, pH/ORP Instruments, Chart Recorders & Data Acquisition, Laboratory Instrumentation, Scales & Weighing, X-Ray Instrumentation].

**Consumer Medical:** Blood Glucose Meters, Blood Pressure Monitors, Electronic Cholesterol Monitors, Heart Monitors & Pedometers, Electronic Thermometers, Pregnancy Testers/Fertility Monitors

**Medical Imaging & Diagnostics: Medical Imaging** [CT, Ultrasound, MRI, PET/PET-CT, Analog X-Ray, Digital X-Ray, Picture Archiving & Communications (PACS)] ; **Diagnostics, Therapy & Monitoring** [ECG, Dialysis Machines, Medical Ventilators, Professional Care Diagnostics Equipment, Multiparameter Patient Monitors, Medical Lasers, Medical Endoscopes, Infusion Pumps, Pacemakers, Implantable Cardioverter Defibrillators (ICDs), Cardiac Resynchronization Therapy (CRT), Pain Management Devices, External Defibrillators, Analog Hearing Aids, Digital Hearing Aids, Fitness Machines, Electronic Beds, Wheelchairs, Powered Scooters].

**Power & Energy:** AC/DC Power Supplies, DC/DC Converters, DC/AC Power Inverters, Industrial Battery Chargers, UPS, Generators, Renewable Energy (Hydro/Solar/Wind).

**Industrial Transport:** Construction & Lifting Machinery, Agricultural Equipment & Machinery, Materials Handling Vehicles, Refrigerated Trailers, Electric Motorized Vehicles, Trains/Trams/Subway Carriages.

## Sample Tables

Table 3.5  
System Revenues in the Factory Automation & Control Sector by Equipment Type

| Revenues (US\$ Millions)                           | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | CAGR<br>(09/15) | DIFF<br>(09-15) | SUM<br>(09>15) |
|--|------|------|------|------|------|------|------|------|-----------------|-----------------|----------------|
| <b>Control &amp; Compute</b>                       |      |      |      |      |      |      |      |      |                 |                 |                |
| Industrial Ethernet Infrastructure                 |      |      |      |      |      |      |      |      |                 |                 |                |
| Computer Numerical Control (CNC)                   |      |      |      |      |      |      |      |      |                 |                 |                |
| Ruggedized/Industrial PCs                          |      |      |      |      |      |      |      |      |                 |                 |                |
| Single Board Computers                             |      |      |      |      |      |      |      |      |                 |                 |                |
| HMI's & Operator Panels                            |      |      |      |      |      |      |      |      |                 |                 |                |
| Machine Vision Inspection Systems                  |      |      |      |      |      |      |      |      |                 |                 |                |
| PLCs & PACs  |      |      |      |      |      |      |      |      |                 |                 |                |
| Distributed & Remote I/O Modules                   |      |      |      |      |      |      |      |      |                 |                 |                |
| <b>Process Measurement &amp; Field Instruments</b> |      |      |      |      |      |      |      |      |                 |                 |                |
| Process Analytical Instruments                     |      |      |      |      |      |      |      |      |                 |                 |                |
| Flow Measurement                                   |      |      |      |      |      |      |      |      |                 |                 |                |
| Level Measurement                                  |      |      |      |      |      |      |      |      |                 |                 |                |
| Pressure Measurement                               |      |      |      |      |      |      |      |      |                 |                 |                |
| Temperature Measurement                            |      |      |      |      |      |      |      |      |                 |                 |                |
| Process Variable Transmitters                      |      |      |      |      |      |      |      |      |                 |                 |                |
| Telemetry / RTUs                                   |      |      |      |      |      |      |      |      |                 |                 |                |
| Process/Temperature Controllers                    |      |      |      |      |      |      |      |      |                 |                 |                |
| Position Sensing                                   |      |      |      |      |      |      |      |      |                 |                 |                |
| <b>Switchgear</b>                                  |      |      |      |      |      |      |      |      |                 |                 |                |
| Circuit Breakers                                   |      |      |      |      |      |      |      |      |                 |                 |                |
| Contactors   |      |      |      |      |      |      |      |      |                 |                 |                |
| Protection Relays                                  |      |      |      |      |      |      |      |      |                 |                 |                |
| Solid State Relays                                 |      |      |      |      |      |      |      |      |                 |                 |                |
| <b>Miscellaneous Automation</b>                    |      |      |      |      |      |      |      |      |                 |                 |                |
| Pumps  |      |      |      |      |      |      |      |      |                 |                 |                |
| Robotics   |      |      |      |      |      |      |      |      |                 |                 |                |
| Semiconductor Manufacturing & Test Equipment       |      |      |      |      |      |      |      |      |                 |                 |                |
| Welding  |      |      |      |      |      |      |      |      |                 |                 |                |
| <b>Sector Total</b>                                |      |      |      |      |      |      |      |      |                 |                 |                |
| <b>Annual Growth Rate</b>                          |      |      |      |      |      |      |      |      |                 |                 |                |
| Source: Semicast Research                          |      |      |      |      |      |      |      |      |                 |                 |                |

Table Revised: March 2010

Table 3.8  
Market Share Estimates for Suppliers of  
Factory Automation & Control Electronics in 2009  
(Process Measurement & Field Instruments)

| Supplier                 | Market Share  |
|--------------------------|---------------|
| 1                        |               |
| 2                        |               |
| 3                        |               |
| 4                        |               |
| 5                        |               |
| 6                        |               |
| 7                        |               |
| 8                        |               |
| 9                        |               |
| 10                       |               |
| 11                       |               |
| 12                       |               |
| 13                       |               |
| 14                       |               |
| 15                       |               |
| 16                       |               |
| 17                       |               |
| 18                       |               |
| 19                       |               |
| 20                       |               |
| 21                       |               |
| 22                       |               |
| 23                       |               |
| 24                       |               |
| 25                       |               |
| Others                   | 100.0%        |
| <b>2009 Market Size:</b> | <b>100.0%</b> |

Source: Semicast Research

Table Revised: March 2010

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## Analyst Biography

Colin Barnden - Principal Analyst



Colin joined Semicast Research in June 2006 and is principal analyst for semiconductor research and vice president of business development. Prior to joining Semicast, he worked for 12 years at IMS Research, rising to the position of Senior Research Director of its Semiconductor Research Group and responsible for analyst coverage on the analog/mixed signal, optoelectronic and embedded processing industries. Colin also set-up and established IMS Research's Automotive Electronics Group. During his tenure, Colin authored dozens of reports and became a well respected industry analyst. He holds a B.S. in Electronic Engineering from Aston University, England.

## About Semicast

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E-mail: \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_