

Market Analysis & Forecasts



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

**2018 Edition | Market Analysis and Forecasts to 2023
June 2018 | 156 Pages**

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Abstract

The industrial and medical market remains the most challenging sector for semiconductor manufacturers to serve and the supply chain is both complicated and fragmented. In practice industrial is a collection of markets within a market, while medical applications range from high reliability medical imaging and implantable electronics, to consumer wearables such as health & fitness monitors. Owing to this complexity, the sector has historically been overlooked by many semiconductor vendors, who have elected instead to focus their marketing efforts on higher value and less complicated verticals.

Unlike other markets, the application base making up the industrial and medical sector covers a broad range, from factory automation, to test & measurement, to consumer medical. The supply chain is highly 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 of industrial and medical electronics a complicated and time consuming process for suppliers to undertake comprehensively.

To support this need, Semicast has developed this study to focus on the tactical needs of semiconductor, software and related equipment 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. First published in 2008, the 2018 edition of the research builds on the work of the previous studies, using 2017 as the base year, with forecasts provided to 2023.

This study has been developed to be used as a companion report to the Semicast study [Industrial/Medical Semiconductor Forecast](#), which provides analysis of strategic trends for semiconductors in industrial/medical applications. Used together, the reports provide a comprehensive tactical and strategic analysis of the industrial and medical sector for semiconductor, software and electronics vendors.

Overview & Key Features

- Analysis of 130 industrial/medical equipment types (full list provided on pages 3&4).
- 22 tables summarizing market share estimates of the leading manufacturers in each market segment and sub-segment in 2017.
- Over 900 equipment suppliers identified, over 600 of which had estimated industrial/medical electronics revenues in excess of \$100 million in 2017.
- Estimate and forecast for worldwide production volumes for each equipment type (2017-2023).
- Estimate and forecast for manufacturer average prices for each equipment type (2017-2023).
- Estimate and forecast for manufacturer revenues for each equipment type (2017-2023).
- Highly quantitative analysis, with discussion summarized in short, easy to read bullet points.
- 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 electronics systems into ten segments and further sub-segments as follows:

<u>Segment</u>	<u>Additional sub-segmentation</u>
<ul style="list-style-type: none">• Factory Automation & Control	<ul style="list-style-type: none">• Control & Compute, Process Measurement & Field Instruments, Switchgear, Misc. Automation
<ul style="list-style-type: none">• Motor Drives	
<ul style="list-style-type: none">• Lighting	
<ul style="list-style-type: none">• Building Automation , HVAC & Refrigeration	<ul style="list-style-type: none">• Building Automation, HVAC & Refrigeration
<ul style="list-style-type: none">• EPOS, EFT & ID	
<ul style="list-style-type: none">• Test & Measurement	<ul style="list-style-type: none">• Application Specific Test & Measurement, General Purpose Test & Measurement, Instrumentation & Other Equipment
<ul style="list-style-type: none">• Consumer Medical	
<ul style="list-style-type: none">• Medical Imaging & Diagnostics	<ul style="list-style-type: none">• Medical Imaging, Diagnostics/Therapy & Monitoring
<ul style="list-style-type: none">• Power & Energy	
<ul style="list-style-type: none">• Industrial Transport	

Industrial/Medical Equipment Coverage

The equipment types analyzed in the study are as follows:

Factory Automation & Control: Control & Compute [Industrial Ethernet Infrastructure, Computer Numerical Control, Industrial PCs, Embedded Computer Boards & Modules, 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 Drives, DC Drives, Servo Drives, Stepper Drives, Soft Starters/Brakes.

Lighting: Electronic Ballasts/Lamps & Modules, Lighting Controls, Street Lights/Traffic Lights & Control.

Building Automation, HVAC & Refrigeration: **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, Elevators & Escalators] ; **HVAC & Refrigeration** [Boilers & Warm Air Furnaces, Circulator Pumps, Compressors, Electronic Room Thermostats & Controls, Humidifiers/Dehumidifiers, Unitary Air Conditioners, Commercial Refrigeration].

EPOS, EFT & ID: ATMs, 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, Broadband Test Equipment, Fiber Optic Test Equipment, Wireless 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, Signal/Function Generators, Spectrum Analyzers, Other General Purpose T&M] ; **Instrumentation & Other Equipment** [Calibration Instruments, pH/ORP Instruments, Chart Recorders & Data Acquisition, Laboratory Instrumentation, Scales & Weighing Equipment, Non-Destructive Test Equipment].

Consumer Medical: Blood Glucose Meters, Blood Pressure Monitors, Telehealth Gateways, Fitness Monitors, Electronic Thermometers, Pregnancy Testers/Fertility Monitors.

Medical Imaging & Diagnostics: **Medical Imaging** [CT, Ultrasound, MRI, PET/PET-CT, Digital X-Ray, Picture Archiving & Communications] ; **Diagnostics, Therapy & Monitoring** [ECG, Dialysis Machines, Medical Ventilators, Point-of-care Testing, Pulse Oximetry Monitoring, Multiparameter Patient Monitors, Medical Lasers, Medical Endoscopes, Infusion Pumps, Pacemakers, Implantable Cardioverter Defibrillators, Cardiac Resynchronization Therapy, Pain Management Devices, External Defibrillators, Digital Hearing Aids, Sleep Diagnostics, Therapy & Interfaces, Fitness Machines, Electronic Beds, Electronic Wheelchairs, Powered Scooters].

Power & Energy: AC/DC Power Supplies, DC/DC Converters, DC/AC Power Inverters, Industrial Battery Chargers, UPS, Generators, Smart Utility Meters, Electric Vehicle Charging Stations & Infrastructure, Distribution & Substation Automation, Renewable Energy.

Industrial Transport: Construction, Lifting & Mining, Agricultural Equipment, Materials Handling Vehicles, Refrigerated Trailers, Electric Motorized Vehicles, Rolling Stock, Signaling & Systems.

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Example Tables

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

Revenues (US\$ Millions)	2017	2018	2019	2020	2021	2022	2023	CAGR (17-23)	DIFF (17-23)	SUM (17-23)
Control & Compute										
Industrial Ethernet Infrastructure										
Computer Numerical Control (CNC)										
Industrial PCs										
Embedded Computer Boards & Modules										
HMI's & 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										
Sector Total										
Annual Growth Rate										

Source: Semicast Research

Table Revised: May 2018

Market Share Estimates for Suppliers of
 Factory Automation & Control Electronics in 2017
 (Control & Compute)

Supplier	Market Share
1	
2	
3	
4	
5	
6	
7	
8	
9	
10=	
10=	
12	
13=	
13=	
15	
16=	
16=	
18	
19	
20	
21=	
21=	
23=	
23=	
23=	
Others	100.0%
2017 Market Size:	100.0%

Source: Semicast Research

Table Revised: June 2018

Table of Contents

Section 1 – Executive Overview

Economic Uncertainties

Key Point Conclusions

Section 2 – Scope, Method &

Limitations

2.1 Scope

2.2 Research Sources

2.3 Limitations to Method

2.4 Industrial/Medical Electronics &
Semiconductors Service

Section 3 – Factory Automation &

Control

Section 4 – Motor Drives

Section 5 – Lighting

Section 6 – Building Automation,
HVAC & Refrigeration

Section 7 – EPOS, EFT & ID

Section 8 – Test & Measurement

Section 9 – Consumer Medical

Section 10 – Medical Imaging & Di-
agnostics

Section 11 – Power & Energy

Section 12 – Industrial Transport

Appendix 1 – Recent Related Mer-
gers & Acquisitions Activity

Appendix 2 – Brand Name Reconcili-
ation to Parent Company

Appendix 3 – List of Industrial/
Medical Electronics Suppliers

Appendix 4 – Previous Market Fore-
casts

List of Tables

Section 1

Table 1.1 System Revenues in the
Industrial/Medical Electronics Sector by
Sub-sector

Table 1.2 Annual Growth Rate Summary
for Electronics in the Industrial/Medical
Sector by Sub-sector

Table 1.3 Global Equipment Production
Estimates and Forecasts in the Industrial/
Medical Sector

Table 1.4 Average Manufacturer System
Prices in the Industrial/Medical
Electronics Sector by Sub-sector

Table 1.5 Market Share Estimates for Top
25 Suppliers of Industrial/Medical
Electronics in 2017 (Including Industrial
Transport)

Table 1.6 Market Share Estimates for Top
25 Suppliers of Industrial/Medical
Electronics in 2017 (Excluding Industrial
Transport)

Section 3

Table 3.1 Key Changes to the Factory
Automation & Control Sector

Table 3.2 Definition of Equipment Types
in the Factory Automation & Control
Sector

Table 3.3 Global Equipment Production
Estimates and Forecasts in the Factory
Automation & Control Sector

Table 3.4 Average Manufacturer System
Prices in the Factory Automation &
Control Sector

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

Table 3.6 Market Share Estimates for
Suppliers of Factory Automation &
Control Electronics in 2017 (Sector Total)

Table 3.7 Market Share Estimates for
Suppliers of Factory Automation &
Control Electronics in 2017 (Control &
Compute)

Table 3.8 Market Share Estimates for
Suppliers of Factory Automation &
Control Electronics in 2017 (Process
Measurement & Field Instruments)

Table 3.9 Market Share Estimates for
Suppliers of Factory Automation &
Control Electronics in 2017 (Switchgear)

Table 3.10 Market Share Estimates for
Suppliers of Factory Automation &
Control Electronics in 2017
(Miscellaneous Automation)

Section 4

Table 4.1 Key Changes to the Motor
Drives Sector

Table 4.2 Definition of Equipment Types
in the Motor Drives Sector

Table 4.3 Global Equipment Production
Estimates and Forecasts in the Motor
Drives Sector

Table 4.4 Average Manufacturer System
Prices in the Motor Drives Sector

Table 4.5 System Revenues in the Motor
Drives Sector by Equipment Type

Table 4.6 Market Share Estimates for
Suppliers of Motor Drives in 2017

Section 5

Table 5.1 Key Changes to the Lighting
Sector

Table 5.2 Definition of Equipment Types
in the Lighting Sector

Table 5.3 Global Equipment Production
Estimates and Forecasts in the Lighting
Sector

Table 5.4 Average Manufacturer System
Prices in the Lighting Sector

Table 5.5 System Revenues in the
Lighting Sector by Equipment Type

Table 5.6 Market Share Estimates for
Suppliers of Lighting Electronics in 2017

Section 6

Table 6.1 Key Changes to the Building
Automation, HVAC & Refrigeration
Sector

Table 6.2 Definition of Equipment Types
in the Building Automation, HVAC &
Refrigeration Sector

Table 6.3 Global Equipment Production
Estimates and Forecasts in the Building
Automation, HVAC & Refrigeration
Sector

Table 6.4 Average Manufacturer System
Prices in the Building Automation, HVAC
& Refrigeration Sector

Table 6.5 System Revenues in the
Building Automation, HVAC &
Refrigeration Sector

Table 6.6 Market Share Estimates for
Suppliers of Building Automation,
HVAC&R Electronics in 2017 (Sector
Total)

Table 6.7 Market Share Estimates for
Suppliers of Building Automation,
HVAC&R Electronics in 2017 (Building
Automation)

Table 6.8 Market Share Estimates for
Suppliers of Building Automation,
HVAC&R Electronics in 2017 (HVAC &
Refrigeration)

Section 7

Table 7.1 Key Changes to the EPOS,
EFT & ID Sector

Table 7.2 Definition of Equipment Types
in the EPOS, EFT & ID Sector

Table 7.3 Global Equipment Production
Estimates and Forecasts in the EPOS,
EFT & ID Sector

Table 7.4 Average Manufacturer System
Prices in the EPOS, EFT & ID Sector

Table 7.5 System Revenues in the EPOS, EFT & ID Sector by Equipment Type
Table 7.6 Market Share Estimates for Suppliers of EPOS, EFT & ID Electronics in 2017

Section 8

Table 8.1 Key Changes to the Test & Measurement Sector
Table 8.2 Definition of Equipment Types in the Test & Measurement Sector
Table 8.3 Global Equipment Production Estimates and Forecasts in the Test & Measurement Sector
Table 8.4 Average Manufacturer System Prices in the Test & Measurement Sector
Table 8.5 System Revenues in the Test & Measurement Sector by Equipment Type
Table 8.6 Market Share Estimates for Suppliers of Test & Measurement Electronics in 2017 (Sector Total)
Table 8.7 Market Share Estimates for Suppliers of Test & Measurement Electronics in 2017 (Application Specific Test & Measurement)
Table 8.8 Market Share Estimates for Suppliers of Test & Measurement Electronics in 2017 (General Purpose Test & Measurement)
Table 8.9 Market Share Estimates for Suppliers of Test & Measurement Electronics in 2017 (Instrumentation & Other Equipment)

Section 9

Table 9.1 Key Changes to the Consumer Medical Sector
Table 9.2 Definition of Equipment Types in the Consumer Medical Sector
Table 9.3 Global Equipment Production Estimates and Forecasts in the Consumer Medical Sector
Table 9.4 Average Manufacturer System Prices in the Consumer Medical Sector
Table 9.5 System Revenues in the Consumer Medical Sector by Equipment Type
Table 9.6 Market Share Estimates for Suppliers of Consumer Medical Electronics in 2017

Section 10

Table 10.1 Key Changes to the Medical Imaging & Diagnostics Sector
Table 10.2 Definition of Equipment

Types in the Medical Imaging & Diagnostics Sector
Table 10.3 Global Equipment Production Estimates and Forecasts in the Medical Imaging & Diagnostics Sector
Table 10.4 Average Manufacturer System Prices in the Medical Imaging & Diagnostics Sector
Table 10.5 System Revenues in the Medical Imaging & Diagnostics Sector by Equipment Type
Table 10.6 Market Share Estimates for Suppliers of Medical Imaging & Diagnostics Electronics in 2017 (Sector Total)
Table 10.7 Market Share Estimates for Suppliers of Medical Imaging & Diagnostics Electronics in 2017 (Medical Imaging)
Table 10.8 Market Share Estimates for Suppliers of Medical Imaging & Diagnostics Electronics in 2017 (Diagnostics, Therapy & Monitoring)

Section 11

Table 11.1 Key Changes to the Power & Energy Sector
Table 11.2 Definition of Equipment Types in the Power & Energy Sector
Table 11.3 Global Equipment Production Estimates and Forecasts in the Power & Energy Sector
Table 11.4 Average Manufacturer System Prices in the Power & Energy Sector
Table 11.5 System Revenues in the Power & Energy Sector by Equipment Type
Table 11.6 Market Share Estimates for Suppliers of Power & Energy Electronics in 2017

Section 12

Table 12.1 Key Changes to the Industrial Transport Sector
Table 12.2 Definition of Equipment Types in the Industrial Transport Sector
Table 12.3 Global Equipment Production Estimates and Forecasts in the Industrial Transport Sector
Table 12.4 Average Manufacturer System Prices in the Industrial Transport Sector
Table 12.5 System Revenues in the Industrial Transport Sector by Equipment Type
Table 12.6 Market Share Estimates for Suppliers of Industrial Transport

Electronics in 2017

Appendix 1 Tables

Recent Related Mergers & Acquisitions Activity

Appendix 2 Tables

Brand Name Reconciliation to Parent Company

Appendix 3 Tables List of Industrial/Medical Electronics Suppliers

Appendix 4 Tables

Previous Market Forecasts

List of Figures

Figure 1 System Revenues in the Industrial/Medical Electronics Market - Comparisons with Previous Forecasts
Figure 2 System Revenues in the Factory Automation & Control Sector - Comparisons with Previous Forecasts
Figure 3 System Revenues in the Motor Drives Sector - Comparisons with Previous Forecasts
Figure 4 System Revenues in the Lighting Sector - Comparisons with Previous Forecasts
Figure 5 System Revenues in the Building Automation, HVAC & Refrigeration Sector - Comparisons with Previous Forecasts
Figure 6 System Revenues in the EPOS, EFT & ID Sector - Comparisons with Previous Forecasts
Figure 7 System Revenues in the Test & Measurement Sector - Comparisons with Previous Forecasts
Figure 8 System Revenues in the Consumer Medical Sector - Comparisons with Previous Forecasts
Figure 9 System Revenues in the Medical Imaging & Diagnostics Sector - Comparisons with Previous Forecasts
Figure 10 System Revenues in the Power & Energy Sector - Comparisons with Previous Forecasts
Figure 11 System Revenues in the Industrial Transport Sector - Comparisons with Previous Forecasts

Analyst Biography

Colin Barnden - Principal Analyst



Colin joined Semicast Research in 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 and has almost twenty-five years of experience as an industry analyst.

About Semicast

Founded in 2006, Semicast has an established reputation at most top 20 semiconductor suppliers, with areas of expertise covering industrial and medical electronics and semiconductors; automotive electronic controllers; automotive audio, infotainment & navigation systems; automotive semiconductors; and 32-bit micro-controllers.

Our analysts use a combination of technical expertise, a proven method for producing electronics focused market research and specific applications knowledge to produce concise and timely research to help you make effective business decisions.

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