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# **OEM AND EMS: A MARKET AND COMPETITIVE ANALYSIS – 2016 EDITION**

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**A Unique Report Combining In-Depth Review of 360  
OEMs' Outsourced Electronics Assembly and Market  
Share Analysis of 48 Product Segments of the 100  
Largest EMS Subcontractors**

**2016 EDITION**

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## Chapter 1 Introduction

### 1.1 Report Objectives and Methodology

The objective of this report is to provide an understanding of the worldwide contract manufacturing (CM) services market in terms of supplier market share by OEM customer. Most readers are aware of our in-depth market research reports, *The Worldwide Contract Manufacturing Services Market – 2016 Edition* (referred to as EMS16) and *The Worldwide OEM Assembly Market – 2016 Edition* (referred to as OEM16), in which we examine electronics manufacturing services (EMS) firms, original design manufacturers (ODMs), original equipment manufacturers (OEMs), component manufacturers, equipment suppliers, distributors, consultants, and investment analysts. We realized that if we combined select information from these two reports, we could put together a totally unique third report that examines the market share of CM companies by OEM manufacturer.

As a result of the information we have developed in both previous reports, we were able to put a stake in the ground relating to CM market share. In EMS16 we try to accurately report industry sales by market segment, as well as by customers that make up that segment for every CM company (approximately 100). In OEM16, we try to accurately report the amount of OEM outsourcing by market and product segment. Combining these two databases created the basis for estimating or predicting the number of suppliers for each OEM and the market segments served by CM companies. In some cases, we had specific anecdotal field information, and in others we made logical estimations based on the customer, contractor, and market/product segment. The weakest part of this exercise is stating the actual value of the contracts, since this is only occasionally reported in the press upon engagement. Estimates on engagement values were made according to the products being manufactured, the overall market size, and the specific CM involved.

We expect that we will have made some incorrect estimates, and hope that our customers and colleagues will send us corrections over time. In most cases this is like a puzzle in which one is triangulating industry and market size with supplier size and served market all together. Finally, while EMS16 gave us the total available market by customer, OEM16 showed the limits of penetration by the CM industry.

## 1.2 Organization

This report is organized into ten chapters. Chapter 1, “Introduction,” outlines the report objectives, methodology, organization, definitions, and past research methodology for the report. Chapter 2, “Executive Summary,” presents top-level data from throughout the report that is often distributed to the public (thus, not all critical data is provided).

Chapter 3 is titled “Economic Outlook and Worldwide Electronics Industry Summary.” Key products are analyzed in seven major electronics market segments, including computers, communications, consumer, industrial, medical, automotive, and aerospace/defense/other transportation.

Chapter 4, “Automotive,” analyzes the EMS industry by OEM customer and individual market segment.

Chapter 5, “Communications,” analyzes the EMS industry by OEM customer and individual market segment.

Chapter 6, “Computers and Peripherals,” analyzes the EMS industry by OEM customer and individual market segment.

Chapter 7, “Consumer,” analyzes the EMS industry by OEM customer and individual market segment.

Chapter 8, “Industrial,” analyzes the EMS industry by OEM customer and individual market segment.

Chapter 9, “Medical,” analyzes the EMS industry by OEM customer and individual market segment.

Chapter 10, “Aerospace, Defense, and Other Transportation,” analyzes the EMS industry by OEM customer and individual market segment.

## 1.3 Definitions

Table 1-1 lists the industry segments that are detailed in Chapters 4 through 10 (with slightly varying levels of aggregation). This list is fundamentally the same as that used in related NVR reports.

Several critical terms will be used frequently in this report. They are:

- *PCB Assembly*: For this report, PCB assembly refers to the attachment of various electronic components onto a bare printed circuit board, plus any test activities performed at this level of assembly.
- *PCB Assembly Value*: The value (cost of goods sold, or COGS) of all material, labor, and overhead associated with an assembled printed circuit board
- *Box Assembly*: For this report, box assembly refers to the assembly of one or more printed circuit boards, plus other items such as cable harnesses and enclosures, into a final product (or a largely self-contained electronics assembly that will be embedded into a larger piece of equipment). This also includes any test activities performed at this level of assembly.
- *Box Assembly Value*: The value (COGS) of all material, labor, and overhead of the box assembly, not including the value of the assembled PCBs within the box assembly
- *OEM Assembly*: Electronics assembly performed by the OEM. If assembly is performed by a subcontractor that is held captive by the OEM or in a *keiretsu* arrangement such as exists in Japan, the assembly is considered OEM produced.

## 1.4 Past Research Methodology

Information for our previous reports (EMS16 and OEM16) was collected from a number of external sources. Primary sources included marketing professionals, manufacturing and engineering directors in contract manufacturing firms, and OEMs. Also, *Manufacturing Market Insider*, a newsletter acquired by NVR on July 1, 2014, has been a valuable source for tracking industry events and specific company activities on a monthly basis. Secondary sources included trade publications, such as *Circuits Assembly*, *EMSNow*, *Evertiq.com*, *SMT Magazine*, *EMSNow Daily*, *Business Week*, and *The Economist*, and a variety of government economic reports.

For this report, the author had the cooperation of many EMS company employees who kindly answered questions by e-mail. The author's gratitude is extended to all those gracious enough to have responded to this request for information.

<b>Table 1-1 Industry Segments</b>	
<p style="text-align: center;"><b>Computers/Peripherals</b></p> <p>Notebook PCs</p> <p>Desktop PCs</p> <p>Tablets</p> <p>Servers</p> <p>Workstations</p> <p>Enterprise Storage Systems</p> <p>Flash Drives</p> <p>Monitors</p> <p>Printers</p> <p>E-Readers</p> <p>Other Computer</p>	<p style="text-align: center;"><b>Communications</b></p> <p>Cellular Handsets</p> <p>Cellular Infrastructure</p> <p>Other Phones</p> <p>Enterprise LANs</p> <p>WLANs</p> <p>DSL/Cable Modems</p> <p>PBX/Other CPE</p> <p>Carrier-Class Equipment</p> <p>Other Telecom</p>
<p style="text-align: center;"><b>Consumer</b></p> <p>Analog TVs (being discontinued)</p> <p>Digital TVs</p> <p>MP3 Players</p> <p>Other Audio</p> <p>Console Video Games</p> <p>Set-Top Boxes</p> <p>Camcorders</p> <p>DVD Players</p> <p>Digital Cameras</p> <p>Personal Navigation Devices</p> <p>Other Consumer</p>	<p style="text-align: center;"><b>Industrial</b></p> <p>Process Control</p> <p>Test and Measurement</p> <p>Clean Energy</p> <p>Other Industrial</p>
<p style="text-align: center;"><b>Automotive</b></p> <p>Engine Control</p> <p>Instruments</p> <p>Safety</p> <p>Entertainment</p>	<p style="text-align: center;"><b>Medical</b></p> <p>Medical Diagnostics</p> <p>Therapeutic</p> <p>Monitoring and Surgical</p>
	<p style="text-align: center;"><b>Commercial Aviation</b></p> <p>In-Flight Entertainment</p> <p>Flight Navigation</p> <p>Other Aviation</p>
	<p style="text-align: center;"><b>Aerospace/Defense/Other Transportation</b></p> <p>In-Flight Entertainment</p> <p>Flight Navigation</p> <p>Weapon Systems</p> <p>C3/Other Military</p> <p>Other Avionics/Other Transportation</p>