
THE WORLDWIDE ELECTRONICS MANUFACTURING SERVICES MARKET

2011 EDITION



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CHAPTER 1

INTRODUCTION

1.1 REPORT OBJECTIVES AND SCOPE

The objective of this report is to provide a macroeconomic understanding of the worldwide electronic manufacturing services (EMS) market to interested contract manufacturers (CMs), original design manufacturers (ODMs), original equipment manufacturers (OEMs), component manufacturers, equipment suppliers, distributors, consultants, and investment analysts.

Readers of New Venture Research's (NVR's) previous research reports on this market will notice that the number of companies profiled has increased in this edition. This is because the structure of the EMS industry is changing and the industry is vigorously growing. In this report, over 94 contract manufacturers and original design manufacturers are profiled. Counting the 10 reports published on the CM industry from 1990 to 2003, this is NVR's eighteenth report on the EMS industry (16 of these reports were published by Electronic Trend Publications, which was acquired by NVR on January 1, 2010; however, the reports' author has remained the same). With each edition of this report, NVR's research methodology, quality of data, and collective knowledge has increased, to the benefit of the reader.

For the last twenty years, the generic term "contract manufacturing" has been identified almost solely with a very specific niche within the overall durable goods market—that of electronics equipment. This is ironic, as the notion of "contract manufacturing" could be applied to any industry segment (aerospace, appliances, automotive, construction, etc.) that manufactures finished goods, yet over the last few years it has been exclusively linked to the electronics—specifically the high-tech electronics—market segment. As the electronics manufacturing industry has evolved over the years, the term "electronics manufacturing services (EMS)" has gained widespread usage.

The current report focuses on the entire EMS market, but pays special attention to the production of advanced, state-of-the-art electronics products, which are having considerable impact on the world today. Indeed, the availability of microprocessor-driven wireless communication devices, handheld computing products, remote sensors, and semiconductor-based technologies is dramatically impacting the way people live. Yet it is probably fair to say that these products would not be so widespread were it not for the emergence of the EMS industry, which has lowered product costs and increased manufacturing efficiency.

The EMS market experienced continuous growth in the fifteen years prior to 2001, when it then underwent a two-year slump and shakeout. In 2003, the market began to recover, although consolidation of the supplier base has continued to the present. With the entry of low-cost ODMs over the last several years, the market has become increasingly competitive.

The purpose of this report is to analyze the changes that have taken place over the last year and offer some opinions on how the EMS market will unfold over the next five years. Although the industry has resumed its growth, this is not—and will not be—without changes in market share and composition. This report analyzes those changes and discusses the implications of the key dynamics impacting the market in the near future.

1.2 ORGANIZATION

This report is organized into eight chapters. Chapter 1, “Introduction,” outlines the scope, organization, and methodology for the report. Chapter 2, “Executive Summary,” presents top-level data from throughout the report.

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

Chapter 4, “Industry Structure,” analyzes the total EMS market in 2010. The chapter presents revenue data for the industry as a whole, as well as by region and product segment.

Chapter 5, “EMS Industry Forecast,” forecasts growth in the EMS marketplace from 2010 to 2015. As in Chapter 4, data is presented by region and product segment.

Chapter 6, “Financial and Production Benchmarks,” looks at a variety of key metrics from 2010 that can be used to judge the production efficiency and financial health of the large public CMs and ODMs.

Chapter 7, “Mergers and Acquisitions,” presents information on the many deals that are driving the EMS market. Deals from 2005–2010 are detailed.

Profiles of major CMs and ODMs are given in Chapter 8. These profiles provide a look at these companies’ strategies, service offerings, and financial data.

1.3 ASSUMPTIONS

The following assumptions have been made with regard to information provided in this report:

- Respondents are providing truthful information to the best of their ability.
- Values are mainly provided in current US dollars.
- Revenues are converted from national currencies into US dollars by using the current Federal Reserve average annual rates.
- Wage rates were not adjusted to reflect the appreciation of the euro or the undervaluation of the Chinese yuan.
- All tables presented in this report are subject to small rounding errors. Therefore, column and row numbers, as presented, may not add up exactly to the total presented.

1.4 DEFINITIONS

Table 1-1 lists the industry segments that are detailed in Chapters 3, 4, and 5 (with slightly varying levels of aggregation). This list is fundamentally the same as that used in related NVR reports.

Table 1-1 Industry Segments	
<p style="text-align: center;">Communications</p> <ul style="list-style-type: none"> Cellular Handsets Cellular Infrastructure Other Phones Enterprise LANs Wireless LANs DSL and Cable Modems PBX/Other CPE Carrier-Class Equipment Other 	<p style="text-align: center;">Computer</p> <ul style="list-style-type: none"> PCs Servers Workstations Enterprise Storage Systems Flash Drives Monitors Printers PDAs/Tablets Other
<p style="text-align: center;">Consumer</p> <ul style="list-style-type: none"> Televisions Set-Top Boxes DVD Players/Recorders Digital Cameras Console Video Games MP3 Players Other Audio Personal Navigation Devices Memory Cards Camcorders Other 	<p style="text-align: center;">Industrial</p> <ul style="list-style-type: none"> Control and Processing Test and Measurement Other Industrial
	<p style="text-align: center;">Medical</p> <ul style="list-style-type: none"> Medical Diagnostics Therapeutic Monitoring and Surgical
	<p style="text-align: center;">Commercial Aviation, Defense, and Other Transportation</p> <ul style="list-style-type: none"> In-Flight Entertainment Flight Navigation Weapons C3 Other Transportation
<p style="text-align: center;">Automotive</p> <ul style="list-style-type: none"> Engine Control Instruments Safety Entertainment 	

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.

1.5 RESEARCH METHODOLOGY

Information for this report was collected from a number of external sources. Primary sources included marketing professionals, manufacturing and engineering directors in contract manufacturing firms, and OEMs. Also, Mr. John Tuck's *Manufacturing Market Insider* has been a valuable source for tracking industry events and specific company activities. Secondary sources included trade publications such as *Circuits Assembly*, *SMT Magazine*, *EMSNow Daily*, *Business Week*, *The Economist*, and a variety of government economic reports.

For this report, the author had the cooperation of many EMS company employees who answered the questionnaire provided below, which helped to size and segment the industry to a degree not previously achieved. The author's gratitude is extended to all those gracious enough to have responded to this request for information.

1.6 FIELD QUESTIONNAIRE

The following questionnaire format was generally used as a starting point for the primary research conducted for this report.

NVR Contract Manufacturing Company Profile

1. What were your EMS revenues for 2010 (US\$)?
2. What percentage of your sales were manufacturing services versus your own branded product?
3. Please list your plant/facility locations, sizes (square feet), and number of SMT lines and employees.

Location	Plant Size (sq. feet or meters)	No. of SMT Lines	No. of Employees
-----------------	--	-----------------------------	-----------------------------

4. What industries and customers does your company serve?

Industry	Percent	End Product	Customers
Automotive			
Communications			
Computer/Peripherals			
Consumer Products			
Industrial Products			
Medical Products			
Defense/Aerospace			
Total	100%		

5. Can you estimate your company's revenue for 2011 and its growth by industry?

Industry	Percent Growth
Automotive	
Communications	
Computer/Peripherals	
Consumer Products	
Industrial Products	
Medical Products	
Defense/Aerospace	
Est. Revenue 2011	\$_____

6. If not provided in question 4 above, please identify your leading customers.