
THE WORLDWIDE ELECTRONICS MANUFACTURING SERVICES MARKET

2012 EDITION



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2012 EDITION

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TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION	1-1
1.1 REPORT OBJECTIVES AND SCOPE	1-1
1.2 ORGANIZATION	1-2
1.3 ASSUMPTIONS	1-3
1.4 DEFINITIONS	1-4
1.5 RESEARCH METHODOLOGY.....	1-4
1.6 FIELD QUESTIONNAIRE	1-6

CHAPTER 2

EXECUTIVE SUMMARY	2-1
2.1 OVERVIEW	2-1
2.2 WORLDWIDE ELECTRONICS MARKET FORECAST	2-1
2.3 REGIONAL MARKET SHARE	2-4
2.4 APPLICATION MARKET SHARE	2-5
2.5 CM MARKET SHARE	2-6
2.6 CM PERFORMANCE	2-6

CHAPTER 3

ECONOMIC OUTLOOK AND WORLDWIDE ELECTRONICS INDUSTRY FORECAST	3-1
3.1 WORLD AND SEMICONDUCTOR OVERVIEW	3-1
3.2 A TURNAROUND FOR THE UNITED STATES	3-2
3.3 WORLD GDP	3-3
3.4 GLOBAL ELECTRONICS MARKET.....	3-7
3.5 ELECTRONICS INDUSTRY SUMMARY FORECAST	3-10

TABLE OF CONTENTS

(Continued)

3.5.1	Communications.....	3-11
3.5.1.1	Cellular Handsets	3-15
3.5.1.2	Cellular Infrastructure.....	3-15
3.5.1.3	Other Phones	3-16
3.5.1.4	Enterprise LANs	3-17
3.5.1.5	Wireless LANs	3-17
3.5.1.6	DSL and Cable Modems.....	3-17
3.5.1.7	PBX/Other CPE	3-18
3.5.1.8	Carrier-Class Equipment	3-19
3.5.2	Computers	3-19
3.5.2.1	Personal Computers.....	3-23
3.5.2.2	Servers	3-23
3.5.2.3	Workstations.....	3-24
3.5.2.4	Enterprise Storage Systems	3-24
3.5.2.5	Flash Drives	3-24
3.5.2.6	Monitors	3-25
3.5.2.7	Printers	3-25
3.5.2.8	E-Readers	3-26
3.5.3	Consumer	3-26
3.5.3.1	Televisions	3-30
3.5.3.2	Set-Top Boxes	3-30
3.5.3.3	DVD Players/Recorders	3-31
3.5.3.4	Digital Cameras	3-31
3.5.3.5	Console Video Games.....	3-32
3.5.3.6	MP3 Players	3-32
3.5.3.7	Personal Navigation Devices.....	3-32
3.5.3.8	Memory Cards	3-33
3.5.4	Industrial	3-33
3.5.5	Medical.....	3-35
3.5.6	Automotive	3-37

TABLE OF CONTENTS

(Continued)

3.5.7	Commercial Aviation, Defense, and Other Transportation.....	3-39
-------	--	------

CHAPTER 4

INDUSTRY STRUCTURE	4-1
4.1 OVERVIEW.....	4-1
4.2 THE WORLDWIDE OEM MARKET FOR ELECTRONICS PRODUCTS.....	4-2
4.3 MANUFACTURING SOURCES FOR ELECTRONICS PRODUCTS.....	4-7
4.4 EMS MARKET BY INDUSTRY SEGMENT, 2011.....	4-8
4.5 CM MARKET BY COMPANY SIZE	4-10
4.6 CM STATISTICS BY COMPANY SIZE	4-12
4.7 REGIONAL MARKET SHARE	4-13
4.7.1 Americas	4-14
4.7.1.1 Brazil.....	4-15
4.7.1.2 Canada	4-15
4.7.1.3 Mexico.....	4-17
4.7.1.4 United States	4-17
4.7.2 EMEA	4-26
4.7.2.1 Austria	4-26
4.7.2.2 Belgium	4-27
4.7.2.3 Bulgaria.....	4-27
4.7.2.4 Czech Republic	4-28
4.7.2.5 Denmark	4-28
4.7.2.6 England	4-29
4.7.2.7 Estonia	4-29
4.7.2.8 Finland.....	4-30
4.7.2.9 France.....	4-31
4.7.2.10 Germany.....	4-32
4.7.2.11 Hungary	4-33

TABLE OF CONTENTS

(Continued)

4.7.2.12	Ireland	4-33
4.7.2.13	Israel.....	4-36
4.7.2.14	Italy.....	4-36
4.7.2.15	Lithuania	4-37
4.7.2.16	Morocco	4-38
4.7.2.17	Netherlands	4-38
4.7.2.18	Norway	4-39
4.7.2.19	Poland	4-40
4.7.2.20	Romania	4-40
4.7.2.21	Russia	4-42
4.7.2.22	Scotland	4-42
4.7.2.23	Slovakia	4-43
4.7.2.24	Spain.....	4-44
4.7.2.25	Sweden	4-45
4.7.2.26	Switzerland.....	4-45
4.7.2.27	Tunisia	4-46
4.7.2.28	Ukraine.....	4-46
4.7.3	APAC.....	4-47
4.7.3.1	Australia	4-48
4.7.3.2	China.....	4-48
4.7.3.3	India	4-49
4.7.3.4	Indonesia.....	4-56
4.7.3.5	Japan.....	4-56
4.7.3.6	Korea.....	4-58
4.7.3.7	Malaysia	4-58
4.7.3.8	Philippines.....	4-59
4.7.3.9	Singapore	4-61
4.7.3.10	Taiwan	4-62
4.7.3.11	Thailand.....	4-64
4.7.3.12	Vietnam.....	4-64
4.7.4	Summary	4-64

TABLE OF CONTENTS

(Continued)

4.8	INDUSTRY SEGMENT MARKET SHARE	4-66
4.8.1	Communications	4-74
4.8.2	Computer	4-76
4.8.3	Consumer Electronics	4-78
4.8.4	Industrial	4-80
4.8.5	Medical	4-80
4.8.6	Automotive	4-82
4.8.7	Commercial Aviation, Defense, and Other Transportation	4-84
4.8.8	Industry Segment Market Summary	4-88
4.9	WORLDWIDE CM MARKET SHARE	4-90
 CHAPTER 5		
CM INDUSTRY FORECAST		
5-1		
5.1	THE WORLDWIDE CM MARKET, 2011–2016	5-2
5.2	THE WORLDWIDE OEM MARKET FOR ELECTRONICS PRODUCTS, 2011–2016	5-4
5.3	MANUFACTURING SOURCES FOR ELECTRONICS PRODUCTS, 2011–2016	5-8
5.4	OEM MARKET BY INDUSTRY SEGMENT, 2016	5-10
5.5	CM MARKET BY COMPANY SIZE	5-12
5.6	REGIONAL MARKET SHARE	5-13
5.6.1	Americas	5-15
5.6.1.1	Automotive	5-16
5.6.1.2	Communications	5-20
5.6.1.3	Computer	5-21
5.6.1.4	Consumer	5-22
5.6.1.5	Industrial	5-23
5.6.1.6	Medical	5-23
5.6.1.7	Commercial Aviation	5-24
5.6.1.8	Defense and Other Transportation	5-24

TABLE OF CONTENTS

(Continued)

5.6.2	EMEA	5-25
5.6.2.1	Automotive.....	5-26
5.6.2.2	Communications.....	5-29
5.6.2.3	Computer	5-32
5.6.2.4	Consumer	5-33
5.6.2.5	Industrial	5-33
5.6.2.6	Medical.....	5-34
5.6.2.7	Commercial Aviation	5-35
5.6.2.8	Defense and Other Transportation	5-35
5.6.3	APAC.....	5-35
5.6.3.1	Automotive.....	5-38
5.6.3.2	Communications.....	5-41
5.6.3.3	Computer	5-42
5.6.3.4	Consumer	5-43
5.6.3.5	Industrial	5-43
5.6.3.6	Medical.....	5-44
5.6.3.7	Commercial Aviation	5-45
5.6.3.8	Defense and Other Transportation	5-45
5.6.4	Market Summary by Country	5-46
5.7	MARKET APPLICATION SEGMENT FORECAST	5-46
5.7.1	Communications.....	5-46
5.7.2	Computer	5-55
5.7.3	Consumer	5-59
5.7.4	Industrial	5-61
5.7.5	Medical.....	5-65
5.7.6	Automotive	5-67
5.7.7	Commercial Aviation, Defense, and Other Transportation.....	5-69
5.7.8	Market Summary by Product Application.....	5-73

TABLE OF CONTENTS

(Continued)

CHAPTER 6

FINANCIAL AND PRODUCTION BENCHMARKS	6-1
6.1 CONTRACT MANUFACTURING PROFITABILITY	6-2
6.2 FINANCIAL PERFORMANCE BENCHMARKS	6-8
6.2.1 Sales Growth	6-8
6.2.2 Net Income	6-8
6.2.2.1 Improvement in Net Income	6-8
6.2.3 Gross Margin	6-11
6.2.4 Return on Assets	6-12
6.2.5 Return on Equity	6-13
6.2.6 Revenue per Employee	6-14
6.2.7 Revenue per Square Foot	6-15
6.2.8 Other Performance Metrics	6-16
6.2.8.1 Average Days Collection	6-17
6.2.8.2 Inventory Turns	6-18
6.2.8.3 Cash	6-18
6.2.8.4 Debt Percentage	6-20
6.2.9 Earnings per Share Growth	6-21
6.3 SUMMARY PERFORMANCE RATING FOR 2011	6-23
6.4 WAGE RATES BY COUNTRY	6-26
6.4.1 Americas	6-27
6.4.2 EMEA	6-30
6.4.3 APAC	6-31
6.4.4 Summary	6-31

CHAPTER 7

MERGERS AND ACQUISITIONS	7-1
7.1 RECENT ACTIVITY	7-1
7.1.1 Mergers and Acquisitions in 2006	7-2
7.1.2 Mergers and Acquisitions in 2007	7-2

TABLE OF CONTENTS

(Continued)

7.1.3	Mergers and Acquisitions in 2008	7-10
7.1.4	Mergers and Acquisitions in 2009	7-10
7.1.5	Mergers and Acquisitions in 2010	7-18
7.1.6	Mergers and Acquisitions in 2011	7-18
7.1.7	Summary of Leading CM Acquisitions	7-25
7.2	ACQUISITION CLASSES AND VALUATIONS	7-27
7.2.1	Strategic Acquisition	7-27
7.2.2	OEM Rationalization or Divestiture	7-27
7.2.3	Diversification	7-28
7.2.4	Capital Investment	7-29
7.2.5	Industry Acquisition Valuations	7-29
7.2.6	Acquisition Valuation Methodologies	7-34
	7.2.6.1 Book Value of Assets	7-35
	7.2.6.2 Earning Potential	7-35
7.3	OEM OPPORTUNITIES	7-35
7.3.1	Americas	7-35
7.3.2	EMEA	7-36
7.3.3	APAC	7-36

CHAPTER 8

COMPANY PROFILES	8-1
3CEMS Group	8-5
Ability Enterprise Co.	8-8
Accellent	8-10
Accton Technology	8-13
Alco Electronics	8-16
AmTran Technology Co., Ltd.	8-19
AsteelFlash Group	8-21
Ayrshire Electronics	8-25
Balda Solutions Malaysia	8-28
Benchmark Electronics, Inc.	8-31

TABLE OF CONTENTS

(Continued)

Beyonics Technology, Ltd.	8-35
Cal-Comp Electronics.....	8-39
Celestica.....	8-40
Cicor Technologies Group	8-44
COB Technology	8-47
Compal Communications	8-49
Compal Electronics	8-51
Computime.....	8-54
Connect Group	8-57
Creation Technologies	8-60
CTS Corporation	8-63
Delta Electronics.....	8-66
D-Link	8-69
DRS Technologies	8-72
Ducommun LaBarge Technologies	8-75
Elite Industrial Group.....	8-78
EliteGroup Computer Systems.....	8-81
EN ElectronicNetwork	8-83
Enics.....	8-86
EOLANE	8-89
EPIC Technologies, LLC.....	8-92
EPIQ.....	8-95
ESCATEC	8-96
Fabrinet	8-99
Fittec International.....	8-102
Flextronics International.....	8-104
Foxconn-Hon Hai Precision Industry Co., Ltd.	8-110
GigaByte Technology Corp.....	8-115
Global Brands Manufacturing	8-118
Hana Microelectronics.....	8-120
HTC	8-123

TABLE OF CONTENTS

(Continued)

Integrated Micro-Electronics, Inc.	8-126
Inventec	8-129
Jabil Circuit	8-132
KeyTronicEMS	8-137
Kimball Electronics Group	8-140
Kitron	8-143
Kontron AG	8-146
Lacroix Electronique.....	8-148
Lite-On Technology	8-150
Mack Technologies, Inc.	8-153
MC ASSEMBLY.....	8-156
Micro-Star International	8-159
MiTAC International	8-162
Morey Corporation	8-165
Nam Tai Electronics	8-168
New Kinpo Group.....	8-171
Neways Electronics International N.V.	8-175
NOTE AB.....	8-178
OnCore Manufacturing Services, LLC.....	8-181
Orient Semiconductor Electronics, Ltd.	8-184
PartnerTech	8-187
PCI, Ltd.	8-190
Pegatron.....	8-193
PKC Group	8-195
Plexus Corp.....	8-198
Qisda Corporation	8-201
Quanta Computer.....	8-204
Sanmina-SCI Corporation.....	8-207
Scanfil PLC	8-211

TABLE OF CONTENTS

(Continued)

Selcom Elettronica	8-214
Shenzhen Kaifa Technology	8-217
SigmaTron International	8-219
SIIX.....	8-222
Simclar Group, Ltd.....	8-225
SMTC.....	8-228
SMT Technologies.....	8-231
Sparton Electronics	8-233
SRI Radio Systems	8-235
Sumitronics Corp.....	8-238
Suntron Corporation.....	8-241
Surface Mount Technology Holdings.....	8-243
SVI Public Co., Ltd.....	8-246
Sypris Electronics, LLC	8-248
Tatung Group	8-251
Topscom Electronics	8-254
TPV Technology, Ltd.	8-257
TT Electronics PLC	8-260
UMC Electronics.....	8-263
Universal Scientific Industrial Co., Ltd.....	8-265
Venture Manufacturing	8-268
VIDEOTON Holding.....	8-271
V.S. Industry Berhad	8-274
VTech CMS.....	8-277
Wistron	8-280
WKK Technology, Ltd.	8-282
Wong's Electronics	8-285
Zollner Group	8-288

TABLE OF CONTENTS

(Continued)

LIST OF FIGURES

Figure 2-1	The Worldwide CM Market, 2011–2016	2-2
Figure 2-2	The Worldwide Market for Electronics Assembly, 2011–2016	2-3
Figure 2-3	The Worldwide CM Market by Region, 2011 vs. 2016	2-4
Figure 2-4	The Worldwide CM Market by Industry Segment, 2011 vs. 2016	2-5
Figure 3-1	Electronics Assembly Value by Market, 2011 vs. 2016	3-9
Figure 3-2	Communications Product Assembly Value, 2011 vs. 2016 ...	3-14
Figure 3-3	Computer Product Assembly Value, 2011 vs. 2016	3-20
Figure 3-4	Consumer Product Assembly Value, 2011 vs. 2016	3-27
Figure 3-5	Industrial Product Assembly Value, 2011 vs. 2016	3-33
Figure 3-6	Medical Product Assembly Value, 2011 vs. 2016	3-35
Figure 3-7	Automotive Product Assembly Value, 2011 vs. 2016	3-37
Figure 3-8	Commercial Aviation, Defense, and Other Transportation Product Assembly Value, 2011 vs. 2016	3-39
Figure 4-1	The Worldwide CM Market, 2006–2011	4-4
Figure 4-2	The Worldwide CM Market by CM Size, 2006 vs. 2011	4-11
Figure 4-3	The Worldwide CM Market by Region, 2011	4-14
Figure 4-4	The Worldwide CM Market by Industry Segment, 2011	4-91
Figure 5-1	The Worldwide CM Market, 2011–2016	5-3
Figure 5-2	The Worldwide Assembly Market for Electronics Products, 2011–2016	5-7
Figure 5-3	The Worldwide Assembly Market for Electronics Products by Manufacturing Source, 2011 vs. 2016	5-9
Figure 5-4	The Worldwide Electronics Assembly Market by Industry Segment, 2016	5-11
Figure 5-5	The Worldwide CM Market by Region, 2011 vs. 2016	5-15
Figure 5-6	The Worldwide CM Market by Industry Segment, 2011 vs. 2016	5-54

TABLE OF CONTENTS

(Continued)

LIST OF TABLES

Table 1-1	Industry Segments	1-5
Table 2-1	Top Ten CM Companies' Market Share, 2011.....	2-6
Table 2-2	Highest Rated Large CM Companies, 2011.....	2-7
Table 3-1	Nominal GDP of Major Countries and Regions, 2010–2016 ..	3-4
Table 3-2	Growth Rates of Key Countries, 2010–2016	3-6
Table 3-3	Worldwide Electronics Assembly Value by Market, 2011–2016	3-7
Table 3-4	Communications Product Assembly Value, 2011–2016	3-12
Table 3-5	Computer Product Assembly Value, 2011–2016	3-21
Table 3-6	Consumer Product Assembly Value, 2011–2016	3-28
Table 3-7	Industrial Product Assembly Value, 2011–2016	3-34
Table 3-8	Medical Product Assembly Value, 2011–2016	3-36
Table 3-9	Automotive Product Assembly Value, 2011–2016	3-38
Table 3-10	Commercial Aviation, Defense, and Other Transportation Product Assembly Value, 2011–2016	3-40
Table 4-1	The Worldwide CM Market, 2006–2011	4-3
Table 4-2	The Worldwide Assembly Market for Electronics Products, 2006–2011	4-5
Table 4-3	The Worldwide Assembly Market for Electronics Products by Manufacturing Source, 2006–2011.....	4-7
Table 4-4	The Worldwide Assembly Market by Manufacturer Type and Industry Segment, 2011	4-8
Table 4-5	The Worldwide CM Market by Company Size, 2006–2011...	4-10
Table 4-6	Key CM Statistics by Company Size, 2011	4-12
Table 4-7	The Worldwide CM Market by Region, 2011	4-13
Table 4-8	Manufacturing Facilities of Large CM Companies—Brazil, 2011	4-16

TABLE OF CONTENTS

(Continued)

Table 4-9	Manufacturing Facilities of Large CM Companies—Canada, 2011.....	4-16
Table 4-10	Manufacturing Facilities of Large CM Companies—Mexico, 2011	4-18
Table 4-11	Manufacturing Facilities of Large CM Companies—Eastern US, 2011	4-20
Table 4-12	Manufacturing Facilities of Large CM Companies—Northern US, 2011.....	4-21
Table 4-13	Manufacturing Facilities of Large CM Companies—Southern US, 2011.....	4-22
Table 4-14	Manufacturing Facilities of Large CM Companies—Western US, 2011	4-24
Table 4-15	Manufacturing Facilities of Large CM Companies—Austria, 2011	4-26
Table 4-16	Manufacturing Facilities of Large CM Companies—Belgium, 2011	4-27
Table 4-17	Manufacturing Facilities of Large CM Companies—Bulgaria, 2011	4-28
Table 4-18	Manufacturing Facilities of Large CM Companies—Czech Republic, 2011	4-29
Table 4-19	Manufacturing Facilities of Large CM Companies—England, 2011	4-30
Table 4-20	Manufacturing Facilities of Large CM Companies—Estonia, 2011.....	4-30
Table 4-21	Manufacturing Facilities of Large CM Companies—Finland, 2011	4-31
Table 4-22	Manufacturing Facilities of Large CM Companies—France, 2011	4-32
Table 4-23	Manufacturing Facilities of Large CM Companies—Germany, 2011	4-34

TABLE OF CONTENTS

(Continued)

Table 4-24	Manufacturing Facilities of Large CM Companies—Hungary, 2011.....	4-35
Table 4-25	Manufacturing Facilities of Large CM Companies—Ireland, 2011	4-36
Table 4-26	Manufacturing Facilities of Large CM Companies—Israel, 2011.....	4-37
Table 4-27	Manufacturing Facilities of Large CM Companies—Italy, 2011	4-37
Table 4-28	Manufacturing Facilities of Large CM Companies—Lithuania, 2011	4-38
Table 4-29	Manufacturing Facilities of Large CM Companies—Morocco, 2011	4-38
Table 4-30	Manufacturing Facilities of Large CM Companies—Netherlands, 2011	4-39
Table 4-31	Manufacturing Facilities of Large CM Companies—Norway, 2011.....	4-40
Table 4-32	Manufacturing Facilities of Large CM Companies—Poland, 2011	4-41
Table 4-33	Manufacturing Facilities of Large CM Companies—Romania, 2011	4-41
Table 4-34	Manufacturing Facilities of Large CM Companies—Russia, 2011.....	4-42
Table 4-35	Manufacturing Facilities of Large CM Companies—Scotland, 2011.....	4-43
Table 4-36	Manufacturing Facilities of Large CM Companies—Slovakia, 2011.....	4-44
Table 4-37	Manufacturing Facilities of Large CM Companies—Spain, 2011.....	4-44
Table 4-38	Manufacturing Facilities of Large CM Companies—Sweden, 2011.....	4-45

TABLE OF CONTENTS

(Continued)

Table 4-39	Manufacturing Facilities of Large CM Companies—Switzerland, 2011	4-46
Table 4-40	Manufacturing Facilities of Large CM Companies—Tunisia, 2011	4-47
Table 4-41	Manufacturing Facilities of Large CM Companies—Ukraine, 2011	4-47
Table 4-42	Manufacturing Facilities of Large CM Companies—Australia, 2011	4-48
Table 4-43	Manufacturing Facilities of Large CM Companies—China, 2011	4-50
Table 4-44	Manufacturing Facilities of Large CM Companies—India, 2011	4-56
Table 4-45	Manufacturing Facilities of Large CM Companies—Indonesia, 2011	4-57
Table 4-46	Manufacturing Facilities of Large CM Companies—Japan, 2011	4-58
Table 4-47	Manufacturing Facilities of Large CM Companies—Malaysia, 2011	4-59
Table 4-48	Manufacturing Facilities of Large CM Companies—Philippines, 2011.....	4-60
Table 4-49	Manufacturing Facilities of Large CM Companies—Singapore, 2011	4-61
Table 4-50	Manufacturing Facilities of Large CM Companies—Taiwan, 2011	4-62
Table 4-51	Manufacturing Facilities of Large CM Companies—Thailand, 2011	4-65
Table 4-52	Manufacturing Facilities of Large CM Companies—Vietnam, 2011	4-66
Table 4-53	The Worldwide CM Market by Country, 2011	4-67
Table 4-54	The Worldwide EMS Market by Country, 2011	4-69
Table 4-55	The Worldwide ODM Market by Country, 2011	4-71

TABLE OF CONTENTS

(Continued)

Table 4-56	EMS, ODM, and CM Market by Segment, 2006–2011	4-72
Table 4-57	The Worldwide EMS Communications Market, 2011	4-74
Table 4-58	The Worldwide ODM Communications Market, 2011	4-75
Table 4-59	The Worldwide CM Communications Market, 2011	4-75
Table 4-60	The Worldwide EMS Computer Market, 2011	4-76
Table 4-61	The Worldwide ODM Computer Market, 2011	4-77
Table 4-62	The Worldwide CM Computer Market, 2011	4-77
Table 4-63	The Worldwide EMS Consumer Market, 2011	4-78
Table 4-64	The Worldwide ODM Consumer Market, 2011	4-79
Table 4-65	The Worldwide CM Consumer Market, 2011	4-79
Table 4-66	The Worldwide EMS Industrial Products Market, 2011	4-81
Table 4-67	The Worldwide ODM Industrial Products Market, 2011	4-81
Table 4-68	The Worldwide CM Industrial Products Market, 2011	4-82
Table 4-69	The Worldwide EMS Medical Products Market, 2011	4-83
Table 4-70	The Worldwide ODM Medical Products Market, 2011	4-83
Table 4-71	The Worldwide CM Medical Products Market, 2011	4-84
Table 4-72	The Worldwide EMS Automotive Market, 2011	4-85
Table 4-73	The Worldwide ODM Automotive Market, 2011	4-85
Table 4-74	The Worldwide CM Automotive Market, 2011	4-86
Table 4-75	The Worldwide EMS Commercial Aviation, Defense, and Other Transportation Market, 2011	4-87
Table 4-76	The Worldwide ODM Commercial Aviation, Defense, and Other Transportation Market, 2011	4-87
Table 4-77	The Worldwide CM Commercial Aviation, Defense, and Other Transportation Market, 2011	4-88
Table 4-78	The Worldwide EMS Market by Industry Segment and EMS Size, 2011	4-89
Table 4-79	The Worldwide ODM Market by Industry Segment and ODM Size, 2011	4-89
Table 4-80	The Worldwide CM Market by Industry Segment and CM Company Size, 2011	4-90

TABLE OF CONTENTS

(Continued)

Table 4-81	EMS Market Share, 2011	4-92
Table 4-82	ODM Market Share, 2011	4-93
Table 4-83	Top Ten CM Companies' Market Share, 2011.....	4-93
Table 5-1	The Worldwide CM Market, 2011–2016	5-2
Table 5-2	The Worldwide Assembly Market for Electronics Products, 2011–2016	5-5
Table 5-3	The Worldwide Assembly Market for Electronics Products by Manufacturing Source, 2011–2016.....	5-8
Table 5-4	The Worldwide Assembly Market for Electronics Products by Manufacturing Source and Industry Segment, 2016	5-10
Table 5-5	The Worldwide CM Market by Company Size, 2011–2016... ..	5-13
Table 5-6	The Worldwide CM Market by Region, 2011–2016.....	5-14
Table 5-7	The CM Market for the Americas by Country, 2011 and 2016	5-17
Table 5-8	The CM Market for the Americas by Segment, 2011–2016 ..	5-18
Table 5-9	The CM Market for EMEA by Country, 2011 and 2016	5-27
Table 5-10	The CM Market for EMEA by Segment, 2011–2016	5-30
Table 5-11	The CM Market for APAC by Country, 2011 and 2016	5-36
Table 5-12	The CM Market for APAC by Segment, 2011–2016	5-39
Table 5-13	The Worldwide CM Market by Country and CAGR, 2011 and 2016	5-47
Table 5-14	The Worldwide CM Market by Industry Segment, 2011–2016	5-52
Table 5-15	The Worldwide CM Communications Market by Product Application, 2011 and 2016	5-55
Table 5-16	The Worldwide CM Computer Market by Product Application, 2011 and 2016	5-58
Table 5-17	The Worldwide CM Consumer Market by Product Application, 2011 and 2016	5-61
Table 5-18	The Worldwide CM Industrial Market by Product Application, 2011 and 2016	5-64

TABLE OF CONTENTS

(Continued)

Table 5-19	The Worldwide CM Medical Market by Product Application, 2011 and 2016	5-66
Table 5-20	The Worldwide CM Automotive Market by Product Application, 2011 and 2016	5-68
Table 5-21	The Worldwide CM Commercial Aviation, Defense, and Other Transportation Market by Product Application, 2011 and 2016	5-70
Table 5-22	The Worldwide CM Market by Leading Product Application, 2011 and 2016	5-74
Table 6-1	Summary Financial Performance Metrics for Large Public CM Companies, 2006–2011	6-2
Table 6-2	Key Financial Performance Metrics for Large Public CM Companies, 2011	6-3
Table 6-3	Worldwide CM Margins by Industry Segment, 2011	6-6
Table 6-4	Best and Worst CM Companies by Revenue Growth Rate, 2006–2011	6-9
Table 6-5	Best and Worst CM Companies by Net Income Percentage, 2011	6-10
Table 6-6	Best and Worst CM Companies by Net Income Growth, 2006–2011	6-10
Table 6-7	Best and Worst CM Companies by Gross Margin Percentage, 2011	6-11
Table 6-8	Best and Worst CM Companies by Return on Assets, 2011 ..	6-12
Table 6-9	Best and Worst CM Companies by Return on Equity, 2011 ..	6-14
Table 6-10	Best and Worst CM Companies by Revenue per Employee, 2011	6-15
Table 6-11	Best and Worst CM Companies by Revenue per Square Foot, 2011.....	6-16
Table 6-12	Best and Worst CM Companies by Average Days Collection, 2011	6-17
Table 6-13	Best and Worst CM Companies by Inventory Turns, 2011...	6-19

TABLE OF CONTENTS

(Continued)

Table 6-14	Best and Worst CM Companies by Available Cash, 2011	6-20
Table 6-15	Best and Worst CM Companies by Debt to Equity Percentage, 2011	6-21
Table 6-16	Best and Worst CM Companies by Five-Year EPS Growth, 2006–2011	6-22
Table 6-17	Performance Ranking Values	6-23
Table 6-18	Performance Category Weights	6-24
Table 6-19	Best and Worst CM Companies by Performance Ranking, 2011	6-25
Table 6-20	Minimum Wage Rates by Country, 2011	6-28
Table 6-21	Worldwide CM Wage Rates, 2011	6-29
Table 6-22	Worldwide CM Wage Rates in Descending Order, 2011	6-32
Table 7-1	Merger and Acquisition Activity, 2006	7-3
Table 7-2	Merger and Acquisition Activity, 2007	7-7
Table 7-3	Merger and Acquisition Activity, 2008	7-11
Table 7-4	Merger and Acquisition Activity, 2009	7-15
Table 7-5	Merger and Acquisition Activity, 2010	7-19
Table 7-6	Merger and Acquisition Activity, 2011	7-23
Table 7-7	Leading Merger and Acquisition Activity by Company, 2006–2011	7-26
Table 7-8	Merger and Acquisition Valuations by Company, 2006–2011	7-31

CHAPTER 1 INTRODUCTION

1.1 REPORT OBJECTIVES AND SCOPE

The objective of this report is to provide a macroeconomic understanding of the worldwide contract manufacturing (CM) services market to interested electronic manufacturing services (EMS) firms, original design manufacturers (ODMs), original equipment manufacturers (OEMs), component manufacturers, equipment suppliers, distributors, consultants, and investment analysts. Throughout this report, CM will refer to the combined industry, whereas EMS and ODM companies are the active subcontractors.

In this report, 94 contract manufacturers and original design manufacturers are profiled. NVR (and its predecessor Electronic Trend Publications) have followed this market for almost 20 years, continuously expanding our coverage and market analysis. With each new 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)” is used to refer both to the overall industry and a specific class of subcontractor.

The current report focuses on the entire CM 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 and grew strongly up to 2009 when it experienced another slump. Since then, the market has rebounded and continues apace with each successive year. With the entry of low-cost ODMs over the last ten years or so, 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 CM 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 “Economic Outlook and 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 2011. 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 2011 to 2016. 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 2011 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 2006–2011 are detailed.

Profiles of major EMS companies 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.

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

Table 1-1 Industry Segments

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

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 2011 (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.