

**3D Stacking Market by Method (Die-to-Die, Die-to-Wafer, Wafer-to-Wafer, Chip-to-Chip, Chip-to-Wafer), Technology (Through-Silicon Via, Hybrid Bonding, Monolithic 3D Integration), Device (Logic ICs, Optoelectronics, Memory, MEMS) - Global Forecast to 2028**

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**Report description:**

The 3D stacking market is projected to reach USD 3.1 billion by 2028 from USD 1.2 billion in 2023, at a CAGR of 20.4% from 2023 to 2028. The major opportunities that are expected to drive the market growth of the 3D stacking market include growing adoption of high-bandwidth memory (HBM) devices and integration of advanced electronics within the automotive industry. Increasing demand for high-performance computing and energy-efficient Logics ICs

Logic Integrated Circuits (ICs) are an integral component of digital electronics, facilitating computational operations and decision-making processes within electronic devices. In 3D stacking, Logic ICs play a crucial role in enhancing computational efficiency and reducing footprint. The increasing demand for high-performance computing and energy-efficient devices has fueled the growth of 3D stacking in logic ICs. As consumer expectations for faster and more reliable electronic devices continue to rise, 3D stacking enables a significant increase in computational capabilities within a smaller physical footprint.

Need for enhanced performance and miniaturization in electronic applications to drive market growth for hybrid bonding. The process of hybrid bonding involves several key steps, starting with the preparation and creation of pre-bonding layers. These layers are crucial to ensuring a successful bond. The bonding process itself, characterized by the fusion of semiconductor wafers, is followed by a post-bond annealing step to enhance the bond's strength and reliability. Throughout these processes, rigorous inspection and metrology measures are in place to guarantee the quality and integrity of the bonded structures.

Rising need for advanced and compact packaging solutions in high-performance computing applications to drive market growth for wafer-to-wafer 3D Stacking

Wafer-on-Wafer (WoW) is a 3D integration method that involves bonding and stacking two or more complete wafers, each

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containing semiconductor devices or chips, to create a vertically integrated structure. This method facilitates the integration of different functionalities from separate wafers, enabling enhanced performance, reduced interconnect lengths, and increased system density.

North America is expected to account for the second largest market share during the forecast period

Being home to some of the leading semiconductor companies, such as Intel Corporation (US), Texas Instruments Inc. (US), Qualcomm Incorporated (US), and Advanced Micro Devices, Inc. (US), makes the region technologically advanced. Semiconductor organizations such as Global Semiconductor Alliance (GSA) (US) and International Microelectronics and Packaging Society (IMAPS) (US) are dedicated associations for the advancement and growth of microelectronics and packaging in North America.

The break-up of profile of primary participants in the 3D stacking market-

-□By Company Type: Tier 1 - 38%, Tier 2 - 28%, Tier 3 - 34%

-□By Designation Type: C Level - 40%, Director Level - 30% , Others - 30%

-□By Region Type: North America - 35%, Europe - 20%, Asia Pacific - 35%, Rest of the World - 10%

The major players of 3D stacking market are Samsung (South Korea), Taiwan Semiconductor Manufacturing Company, Ltd. (Taiwan), Intel Corporation (US), ASE Technology Holding Co., Ltd. (Taiwan), Amkor Technology (US) among others.

#### Research Coverage

The report segments the 3D stacking market and forecasts its size based on method, interconnecting technology, device type, end user and region. The report also provides a comprehensive review of drivers, restraints, opportunities, and challenges influencing the market growth. The report also covers qualitative aspects in addition to the quantitative aspects of the market.

#### Reasons to buy the report:

The report will help the market leaders/new entrants in this market with information on the closest approximate revenues for the overall 3D stacking market and related segments. This report will help stakeholders understand the competitive landscape and gain more insights to strengthen their position in the market and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, opportunities, and challenges.

The report provides insights on the following pointers:

-□Analysis of key drivers (Increasing focus on miniaturization and efficient space utilization in electronic devices; Cost advantage offered by 3D stacking technology is increasing its adoption; Growing demand for consumer electronics and gaming devices; Heterogeneous integration and component optimization to improve manufacturing of electronic components; 3D stacking technology to provide shorter interconnect and reduced power consumption boosting its adoption), restraints (High cost of 3D stacking technology to limit adoption; Lack of standardization governing 3D stacking technology), opportunities (Growing adoption of high-bandwidth memory (HBM) devices; Rapid expansion of semiconductor applications across various industries; The integration of advanced electronics within the automotive industry), and challenges (Growing adoption of high-bandwidth memory (HBM) devices; Rapid expansion of semiconductor applications across various industries).

-□Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product launches in the 3D stacking market

-□Market Development: Comprehensive information about lucrative markets - the report analyses the 3D stacking market across varied regions

-□Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the 3D stacking market

-□Competitive Assessment: In-depth assessment of market shares, growth strategies and product offerings of leading players like Intel Corporation (US), Samsung (South Korea), Taiwan Semiconductor Manufacturing Company, Ltd. (Taiwan), SK HYNIX INC. (South Korea), Amkor Technology (US) and ASE Technology Holding Co., Ltd. (Taiwan).

#### Table of Contents:

1□INTRODUCTION□31

1.1□STUDY OBJECTIVES□31

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1.2	MARKET DEFINITION	31
1.2.1	INCLUSIONS AND EXCLUSIONS	32
1.3	STUDY SCOPE	32
FIGURE 1	3D STACKING MARKET: MARKET SEGMENTATION	32
1.3.1	REGIONAL SCOPE	33
1.3.2	YEARS CONSIDERED	33
1.4	CURRENCY CONSIDERED	33
1.5	LIMITATIONS	34
1.6	STAKEHOLDERS	34
1.7	RECESSION IMPACT	34
2	RESEARCH METHODOLOGY	35
2.1	RESEARCH DATA	35
FIGURE 2	3D STACKING MARKET: RESEARCH DESIGN	35
2.1.1	SECONDARY & PRIMARY RESEARCH	37
2.1.2	SECONDARY DATA	38
2.1.2.1	Major secondary sources	38
2.1.2.2	Secondary sources	38
2.1.3	PRIMARY DATA	39
2.1.4	BREAKDOWN OF PRIMARIES	39
2.1.4.1	Key data from primary sources	40
2.2	MARKET SIZE ESTIMATION	41
FIGURE 3	PROCESS FLOW OF MARKET SIZE ESTIMATION	41
2.2.1	BOTTOM-UP APPROACH	41
2.2.1.1	Approach to estimate market share by bottom-up analysis (demand side)	42
FIGURE 4	MARKET SIZE ESTIMATION: BOTTOM-UP APPROACH	42
2.2.2	TOP-DOWN APPROACH	42
2.2.2.1	Approach to estimate market share by top-down analysis (supply side)	42
FIGURE 5	MARKET SIZE ESTIMATION: TOP-DOWN APPROACH	43
FIGURE 6	MARKET SIZE ESTIMATION: TOP-DOWN APPROACH (SUPPLY SIDE)-REVENUE GENERATED FROM 3D STACKING SOLUTIONS AND SERVICES	43
2.3	DATA TRIANGULATION	44
FIGURE 7	DATA TRIANGULATION	44
2.4	RESEARCH ASSUMPTIONS	45
TABLE 1	RESEARCH ASSUMPTIONS	45
2.5	RISK ASSESSMENT	45
2.6	RECESSION IMPACT ANALYSIS: PARAMETERS CONSIDERED	45
3	EXECUTIVE SUMMARY	46
FIGURE 8	CONSUMER ELECTRONICS SEGMENT TO CAPTURE LARGEST SHARE OF 3D STACKING MARKET IN 2028	47
FIGURE 9	MEMORY DEVICES SEGMENT TO HOLD LARGEST SHARE OF 3D STACKING MARKET IN 2028	47
FIGURE 10	3D TSV SEGMENT TO LEAD 3D STACKING MARKET DURING FORECAST PERIOD	48
FIGURE 11	3D STACKING MARKET TO EXHIBIT HIGHEST CAGR IN ASIA PACIFIC DURING FORECAST PERIOD	48
4	PREMIUM INSIGHTS	50
4.1	ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN 3D STACKING MARKET	50
FIGURE 12	INCREASING FOCUS ON MINIATURIZATION AND EFFICIENT SPACE UTILIZATION IN ELECTRONIC DEVICES TO BOOST MARKET GROWTH	50
4.2	3D STACKING MARKET, BY METHOD	50
FIGURE 13	DIE-TO-DIE SEGMENT TO HOLD LARGEST SHARE OF 3D STACKING MARKET IN 2028	50

4.3	3D STACKING MARKET, BY END USER	51
	FIGURE 14 AUTOMOTIVE SEGMENT TO REGISTER HIGHEST CAGR FROM 2023 TO 2028	51
4.4	3D STACKING MARKET, BY PACKAGING TECHNOLOGY	51
	FIGURE 15 3D TSV SEGMENT TO ACCOUNT FOR LARGEST SHARE OF 3D STACKING MARKET FROM 2023 TO 2028	51
4.5	3D STACKING MARKET, BY DEVICE TYPE	52
	FIGURE 16 MEMORY DEVICES SEGMENT TO HOLD LARGEST SHARE OF 3D STACKING MARKET FROM 2023 TO 2028	52
4.6	ASIA PACIFIC: 3D STACKING MARKET, BY END USER AND COUNTRY	52
	FIGURE 17 CONSUMER ELECTRONICS SEGMENT AND CHINA HELD LARGEST SHARE OF 3D STACKING MARKET IN ASIA PACIFIC IN 2022	52
4.7	3D STACKING MARKET, BY COUNTRY	53
	FIGURE 18 TAIWAN TO BE FASTEST-GROWING COUNTRY-LEVEL MARKET FOR 3D STACKING DURING FORECAST PERIOD	53
5	MARKET OVERVIEW	54
5.1	INTRODUCTION	54
5.2	MARKET DYNAMICS	54
	FIGURE 19 3D STACKING MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES	54
5.2.1	DRIVERS	55
	FIGURE 20 ANALYSIS OF IMPACT OF DRIVERS ON 3D STACKING MARKET	55
5.2.1.1	Increasing focus on miniaturization and efficient space utilization in electronic devices	55
5.2.1.2	Cost advantage offered by 3D stacking technology	56
5.2.1.3	Growing demand for consumer electronics and gaming devices	56
	FIGURE 21 NUMBER OF SMARTPHONE AND MOBILE PHONE USERS GLOBALLY, 2020-2025	57
5.2.1.4	Unparalleled flexibility and customization benefits offered by 3D stacking in electronic component manufacturing	57
5.2.1.5	Reduced power consumption and operational costs over 2D stacking	57
5.2.2	RESTRAINTS	58
	FIGURE 22 ANALYSIS OF IMPACT OF RESTRAINTS ON 3D STACKING MARKET	58
5.2.2.1	Need for substantial upfront investment	58
5.2.2.2	Lack of standardization governing 3D stacking technology	58
5.2.3	OPPORTUNITIES	59
	FIGURE 23 ANALYSIS OF IMPACT OF OPPORTUNITIES ON 3D STACKING MARKET	59
5.2.3.1	Growing adoption of high-bandwidth memory (HBM) devices	59
5.2.3.2	Rapid expansion of semiconductor applications across various industries	60
5.2.3.3	Integration of advanced electronics into automobiles	60
5.2.4	CHALLENGES	61
	FIGURE 24 ANALYSIS OF IMPACT OF CHALLENGES ON 3D STACKING MARKET	61
5.2.4.1	Maintaining effective supply chain in 3D stacking	61
5.2.4.2	Designing complexities associated with 3D stacking technology	61
5.3	SUPPLY CHAIN ANALYSIS	62
	FIGURE 25 3D STACKING MARKET: SUPPLY CHAIN ANALYSIS	62
5.4	ECOSYSTEM MAPPING	64
	FIGURE 26 3D STACKING ECOSYSTEM	64
5.5	TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS	64
	FIGURE 27 REVENUE SHIFTS AND NEW REVENUE POCKETS FOR PLAYERS IN 3D STACKING MARKET	65
5.6	PRICING ANALYSIS	65
	TABLE 2 AVERAGE SELLING PRICE OF 12-INCH EQUIVALENT WAFERS, 2022 (USD)	65
5.6.1	AVERAGE SELLING PRICE OF 12-INCH EQUIVALENT WAFERS OFFERED BY KEY PLAYERS	66
	FIGURE 28 AVERAGE SELLING PRICE OF 12-INCH WAFERS EQUIVALENT OFFERED BY KEY PLAYERS	66
5.6.2	AVERAGE SELLING PRICE TREND	66

TABLE 3	AVERAGE SELLING PRICE OF 12-INCH EQUIVALENT WAFERS, 2018-2022 (USD/THOUSAND UNITS)	66
FIGURE 29	AVERAGE SELLING PRICE OF WAFERS, 2018-2022	66
5.7	TECHNOLOGY TRENDS	67
5.7.1	FAN-OUT WAFER-LEVEL PACKAGING	67
5.7.2	FAN-OUT PANEL-LEVEL PACKAGING	67
5.7.3	ADVANCED MATERIALS	68
5.7.4	MONOLITHIC 3D INTEGRATION	68
5.8	PORTER'S FIVE FORCES ANALYSIS	68
TABLE 4	3D STACKING MARKET: PORTER'S FIVE FORCES ANALYSIS	69
FIGURE 30	PORTER'S FIVE FORCES ANALYSIS	69
5.8.1	THREAT OF NEW ENTRANTS	70
5.8.2	THREAT OF SUBSTITUTES	70
5.8.3	BARGAINING POWER OF SUPPLIERS	70
5.8.4	BARGAINING POWER OF BUYERS	70
5.8.5	INTENSITY OF COMPETITIVE RIVALRY	71
5.9	KEY STAKEHOLDERS AND BUYING CRITERIA	71
5.9.1	KEY STAKEHOLDERS IN BUYING PROCESS	71
FIGURE 31	INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE END USERS	71
TABLE 5	INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY END USER (%)	71
5.9.2	BUYING CRITERIA	72
FIGURE 32	KEY BUYING CRITERIA FOR TOP THREE END USERS	72
TABLE 6	KEY BUYING CRITERIA, BY END USER	72
5.10	CASE STUDY ANALYSIS	72
5.10.1	SEMICONDUCTOR WAFER PRODUCER REDUCED WAFER REJECTIONS THROUGH CLOSED-LOOP MONITORING	72
5.10.2	SPTS'S DRIE TECHNOLOGY STRENGTHENED IMEC'S SILICON ETCH PLATFORM	73
5.11	TRADE ANALYSIS	73
5.11.1	IMPORT SCENARIO	73
TABLE 7	IMPORT DATA FOR PRODUCTS COVERED UNDER HS CODE 381800, BY COUNTRY, 2018-2022 (USD MILLION)	74
5.11.2	EXPORT SCENARIO	74
TABLE 8	EXPORT DATA FOR PRODUCTS COVERED UNDER HS CODE 381800, BY COUNTRY, 2018-2022 (USD MILLION)	74
5.12	PATENT ANALYSIS	75
TABLE 9	PATENTS RELATED TO 3D STACKING MARKET, 2020-2023	75
FIGURE 33	NUMBER OF PATENTS GRANTED PER YEAR FROM 2013 TO 2022	77
TABLE 10	NUMBER OF PATENTS RELATED TO 3D STACKING REGISTERED IN LAST 10 YEARS	77
FIGURE 34	TOP 10 COMPANIES WITH HIGHEST NUMBER OF PATENT APPLICATIONS IN LAST 10 YEARS	78
5.13	KEY CONFERENCES AND EVENTS, 2023-2025	78
TABLE 11	3D STACKING MARKET: DETAILED LIST OF CONFERENCES AND EVENTS	78
5.14	STANDARDS AND REGULATORY LANDSCAPE	79
5.14.1	REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	79
TABLE 12	NORTH AMERICA: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	79
TABLE 13	EUROPE: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	80
TABLE 14	ASIA PACIFIC: REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS	80
5.14.2	KEY REGULATIONS AND STANDARDS	81
5.14.2.1	Regulations	82
5.14.2.2	Standards	82
6	3D STACKING MARKET, BY PACKAGING METHODOLOGY	84
6.1	INTRODUCTION	84

6.2	3D PACKAGE-ON-PACKAGE (POP)	84
6.2.1	GROWING DEMAND FOR COMPACT AND FEATURE-RICH ELECTRONIC DEVICES TO PROPEL SEGMENTAL GROWTH	84
6.3	3D SYSTEM-IN-PACKAGE (SIP)	84
6.3.1	NEED FOR MINIATURIZED AND POWER-EFFICIENT DEVICES ACROSS DIVERSE APPLICATIONS TO DRIVE SEGMENT	84
6.4	3D CHIP-ON-CHIP (COC)	85
6.4.1	NEED FOR COMPACT SOLUTIONS IN HIGH-PERFORMANCE COMPUTING APPLICATIONS TO FUEL SEGMENTAL GROWTH	85
6.5	WAFER LEVEL CHIP SCALE PACKAGING (WLCSP)	85
6.5.1	NEED TO REDUCE CONSUMPTION OF PACKAGING MATERIAL TO PROPEL ADOPTION OF WLCSP TECHNOLOGY	85
7	3D STACKING MARKET, BY METHOD	86
7.1	INTRODUCTION	87
	FIGURE 35 WAFER-TO-CHIP SEGMENT TO REGISTER HIGHEST CAGR IN 3D STACKING MARKET DURING FORECAST PERIOD	87
	TABLE 15 3D STACKING MARKET, BY METHOD, 2019-2022 (USD MILLION)	87
	TABLE 16 3D STACKING MARKET, BY METHOD, 2023-2028 (USD MILLION)	88
7.2	DIE-TO-DIE	88
7.2.1	RIISING NEED FOR COMPACT AND EFFICIENT DEVICE STRUCTURES TO BOOST ADOPTION OF DIE-TO-DIE STACKING	88
	TABLE 17 DIE-TO-DIE: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2019-2022 (USD MILLION)	88
	TABLE 18 DIE-TO-DIE: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2023-2028 (USD MILLION)	89
7.3	DIE-TO-WAFER	89
7.3.1	INCREASING FOCUS ON DEVICE PERFORMANCE ENHANCEMENT TO FUEL ADOPTION OF DIE-TO-WAFER INTEGRATION IN 3D STACKING	89
	TABLE 19 DIE-TO-WAFER: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2019-2022 (USD MILLION)	89
	TABLE 20 DIE-TO-WAFER: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2023-2028 (USD MILLION)	90
7.4	WAFER-TO-WAFER	90
7.4.1	GROWING DEMAND FOR ADVANCED COMPACT PACKAGING SOLUTIONS TO FUEL SEGMENTAL GROWTH	90
	TABLE 21 WAFER-TO-WAFER: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2019-2022 (USD MILLION)	90
	TABLE 22 WAFER-TO-WAFER: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2023-2028 (USD MILLION)	91
7.5	WAFER-TO-CHIP	91
7.5.1	RIISING NEED FOR COMPACT AND EFFICIENT PACKAGING SOLUTIONS IN AUTOMOTIVE ELECTRONICS TO DRIVE SEGMENT	91
	TABLE 23 WAFER-TO-CHIP: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2019-2022 (USD MILLION)	91
	TABLE 24 WAFER-TO-CHIP: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2023-2028 (USD MILLION)	92
7.6	CHIP-TO-CHIP	92
7.6.1	GROWING NEED FOR HIGH-PERFORMANCE AND POWER-EFFICIENT ELECTRONIC DEVICES TO PROPEL SEGMENTAL GROWTH	92
	TABLE 25 CHIP-TO-CHIP: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2019-2022 (USD MILLION)	92
	TABLE 26 CHIP-TO-CHIP: 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2023-2028 (USD MILLION)	92
8	3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY	93
8.1	INTRODUCTION	94
	FIGURE 36 3D TSV SEGMENT TO CAPTURE LARGEST SHARE OF 3D STACKING MARKET DURING FORECAST PERIOD	94
	TABLE 27 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2019-2022 (USD MILLION)	94
	TABLE 28 3D STACKING MARKET, BY INTERCONNECTING TECHNOLOGY, 2023-2028 (USD MILLION)	95
8.2	3D HYBRID BONDING	95
8.2.1	ADOPTION OF 3D HYBRID BONDING IN HIGH-PERFORMANCE COMPUTING AND DATA-INTENSIVE APPLICATIONS TO DRIVE MARKET	95
	TABLE 29 3D HYBRID BONDING: 3D STACKING MARKET, BY METHOD, 2019-2022 (USD MILLION)	96
	TABLE 30 3D HYBRID BONDING: 3D STACKING MARKET, BY METHOD, 2023-2028 (USD MILLION)	96
8.3	3D THROUGH-SILICON VIA (TSV)	96
	TABLE 31 3D TSV: 3D STACKING MARKET, BY METHOD, 2019-2022 (USD MILLION)	97
	TABLE 32 3D TSV: 3D STACKING MARKET, BY METHOD, 2023-2028 (USD MILLION)	97

8.3.1	VIA-FIRST TSV	97
8.3.1.1	Increasing adoption of via-first TSV in applications requiring early-stage integration to drive market	97
8.3.2	VIA-MIDDLE TSV	98
8.3.2.1	Need for flexibility in vertical connections in semiconductor design to increase demand for via-middle TSV technology	98
8.3.3	VIA-LAST TSV	98
8.3.3.1	Growing adoption of via-last TSV technology in applications requiring late-stage interconnection to drive market	98
8.3.4	HYBRID TSV	98
8.3.4.1	Ability to meet specific design and performance requirements to fuel adoption of hybrid TSV	98
8.3.5	DEEP TRENCH TSV	98
8.3.5.1	Rising demand for enhanced electrical performance in advanced microprocessors and memory devices to drive market	98
8.3.6	MICROBUMP TSV	99
8.3.6.1	Rising demand for miniaturized and densely interconnected semiconductor devices to fuel market growth	99
8.3.7	THROUGH GLASS VIA (TGV)	99
8.3.7.1	Rising adoption of TGV technique in applications requiring transparent and hermetic packaging to drive market	99
8.4	MONOLITHIC 3D	99
8.4.1	ABILITY TO ADDRESS LIMITATIONS OF ADVANCED CMOS SCALING TO FUEL DEMAND FOR MONOLITHIC 3D INTEGRATION	99
TABLE 33	MONOLITHIC 3D INTEGRATION: 3D STACKING MARKET, BY METHOD, 2019-2022 (USD MILLION)	100
TABLE 34	MONOLITHIC 3D INTEGRATION: 3D STACKING MARKET, BY METHOD, 2023-2028 (USD MILLION)	100
9	3D STACKING MARKET, BY DEVICE TYPE	101
9.1	INTRODUCTION	102
FIGURE 37	MEMS/SENSORS SEGMENT TO REGISTER HIGHEST CAGR IN 3D STACKING MARKET DURING FORECAST PERIOD	102
TABLE 35	3D STACKING MARKET, BY DEVICE TYPE, 2019-2022 (USD MILLION)	103
TABLE 36	3D STACKING MARKET, BY DEVICE TYPE, 2023-2028 (USD MILLION)	103
9.2	LOGIC ICs	103
9.2.1	RIISING NEED FOR HIGH COMPUTATIONAL EFFICIENCY TO INDUCE DEMAND FOR LOGIC ICs	103
TABLE 37	LOGIC ICs: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	104
TABLE 38	LOGIC ICs: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	104
9.3	IMAGING & OPTOELECTRONICS	104
9.3.1	POTENTIAL TO IMPROVE IMAGE PROCESSING AND OPTICAL FUNCTIONALITIES TO SPUR ADOPTION OF 3D STACKING	104
TABLE 39	IMAGING & OPTOELECTRONICS: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	105
TABLE 40	IMAGING & OPTOELECTRONICS: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	105
9.4	MEMORY DEVICES	106
9.4.1	SURGING DEMAND FOR HIGH-BANDWIDTH MEMORY TO FOSTER MARKET GROWTH	106
TABLE 41	MEMORY DEVICES: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	106
TABLE 42	MEMORY DEVICES: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	107
9.5	MEMS/SENSORS	107
9.5.1	GROWING REQUIREMENT FOR COMPACT AND ACCURATE SENSING TECHNOLOGIES TO FUEL UPTAKE OF 3D STACKING	107
TABLE 43	MEMS/SENSORS: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	108
TABLE 44	MEMS/SENSORS: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	108
9.6	LIGHT EMITTING DIODES (LEDs)	108
9.6.1	RIISING DEMAND FOR INNOVATIVE DESIGNS AND IMPROVED LUMINOSITY IN LEDs TO FUEL SEGMENTAL GROWTH	108
TABLE 45	LEDs: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	109
TABLE 46	LEDs: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	109
9.7	OTHERS	109
TABLE 47	OTHERS: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	110
TABLE 48	OTHERS: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	110
10	3D STACKING MARKET, BY END USER	111

## 10.1 INTRODUCTION 112

FIGURE 38 AUTOMOTIVE SEGMENT TO RECORD HIGHEST CAGR IN 3D STACKING MARKET DURING FORECAST PERIOD 112

TABLE 49 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION) 112

TABLE 50 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION) 113

## 10.2 CONSUMER ELECTRONICS 113

10.2.1 INCREASING TECHNOLOGICAL ADVANCEMENTS IN CONSUMER ELECTRONICS TO DRIVE ADOPTION OF 3D STACKING 113

TABLE 51 CONSUMER ELECTRONICS: 3D STACKING MARKET, BY DEVICE TYPE, 2019-2022 (USD MILLION) 114

TABLE 52 CONSUMER ELECTRONICS: 3D STACKING MARKET, BY DEVICE TYPE, 2023-2028 (USD MILLION) 114

TABLE 53 CONSUMER ELECTRONICS: 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION) 115

TABLE 54 CONSUMER ELECTRONICS: 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION) 115

## 10.3 MANUFACTURING 115

10.3.1 INCREASING SHIFT TOWARD SMART FACTORIES AND INDUSTRY 4.0 TO FUEL ADOPTION OF 3D STACKING 115

TABLE 55 MANUFACTURING: 3D STACKING MARKET, BY DEVICE TYPE, 2019-2022 (USD MILLION) 116

TABLE 56 MANUFACTURING: 3D STACKING MARKET, BY DEVICE TYPE, 2023-2028 (USD MILLION) 116

TABLE 57 MANUFACTURING: 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION) 116

TABLE 58 MANUFACTURING: 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION) 117

## 10.4 COMMUNICATIONS 117

10.4.1 INTEGRATION OF ADVANCED FUNCTIONALITIES IN HIGH-PERFORMANCE COMPUTING APPLICATIONS TO DRIVE MARKET 117

TABLE 59 COMMUNICATIONS: 3D STACKING MARKET, BY DEVICE TYPE, 2019-2022 (USD MILLION) 118

TABLE 60 COMMUNICATIONS: 3D STACKING MARKET, BY DEVICE TYPE, 2023-2028 (USD MILLION) 118

TABLE 61 COMMUNICATIONS: 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION) 118

TABLE 62 COMMUNICATIONS: 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION) 119

## 10.5 AUTOMOTIVE 119

10.5.1 RISING DEMAND FOR COMPACT AND POWERFUL AUTOMOTIVE ELECTRONIC SYSTEMS TO PROPEL MARKET GROWTH 119

TABLE 63 AUTOMOTIVE: 3D STACKING MARKET, BY DEVICE TYPE, 2019-2022 (USD MILLION) 119

TABLE 64 AUTOMOTIVE: 3D STACKING MARKET, BY DEVICE TYPE, 2023-2028 (USD MILLION) 120

TABLE 65 AUTOMOTIVE: 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION) 120

TABLE 66 AUTOMOTIVE: 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION) 120

## 10.6 HEALTHCARE 121

10.6.1 SURGING DEMAND FOR ADVANCED MEDICAL EQUIPMENT FOR HIGH PERFORMANCE AND EFFICIENCY TO FUEL MARKET GROWTH 121

TABLE 67 HEALTHCARE: 3D STACKING MARKET, BY DEVICE TYPE, 2019-2022 (USD MILLION) 121

TABLE 68 HEALTHCARE: 3D STACKING MARKET, BY DEVICE TYPE, 2023-2028 (USD MILLION) 121

TABLE 69 HEALTHCARE: 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION) 122

TABLE 70 HEALTHCARE: 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION) 122

## 10.7 OTHERS 122

TABLE 71 OTHERS: 3D STACKING MARKET, BY DEVICE TYPE, 2019-2022 (USD MILLION) 123

TABLE 72 OTHERS: 3D STACKING MARKET, BY DEVICE TYPE, 2023-2028 (USD MILLION) 123

TABLE 73 OTHERS: 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION) 123

TABLE 74 OTHERS: 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION) 124

11 3D STACKING MARKET, BY REGION 125

## 11.1 INTRODUCTION 126

FIGURE 39 ASIA PACIFIC TO RECORD HIGHEST CAGR IN 3D STACKING MARKET DURING FORECAST PERIOD 126

TABLE 75 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION) 127

TABLE 76 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION) 127

## 11.2 NORTH AMERICA 127

FIGURE 40 NORTH AMERICA: 3D STACKING MARKET SNAPSHOT 128

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TABLE 77	NORTH AMERICA: 3D STACKING MARKET, BY COUNTRY, 2019-2022 (USD MILLION)	129
TABLE 78	NORTH AMERICA: 3D STACKING MARKET, BY COUNTRY, 2023-2028 (USD MILLION)	129
TABLE 79	NORTH AMERICA: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	129
TABLE 80	NORTH AMERICA: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	130
11.2.1	US	130
11.2.1.1	Presence of fabrication business giants to support market growth	130
TABLE 81	US: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	131
TABLE 82	US: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	131
11.2.2	CANADA	131
11.2.2.1	Increasing focus on innovation and technological advancements to foster market growth	131
TABLE 83	CANADA: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	133
TABLE 84	CANADA: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	133
11.2.3	MEXICO	133
11.2.3.1	Government-led initiatives to develop semiconductor industry to fuel market growth	133
TABLE 85	MEXICO: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	134
TABLE 86	MEXICO: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	134
11.2.4	NORTH AMERICA: RECESSION IMPACT	135
11.3	EUROPE	135
FIGURE 41	EUROPE: 3D STACKING MARKET SNAPSHOT	136
TABLE 87	EUROPE: 3D STACKING MARKET, BY COUNTRY, 2019-2022 (USD MILLION)	136
TABLE 88	EUROPE: 3D STACKING MARKET, BY COUNTRY, 2023-2028 (USD MILLION)	137
TABLE 89	EUROPE: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	137
TABLE 90	EUROPE: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	137
11.3.1	GERMANY	138
11.3.1.1	Growing production of automobiles to create demand for 3D stacking	138
TABLE 91	GERMANY: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	138
TABLE 92	GERMANY: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	139
11.3.2	FRANCE	139
11.3.2.1	Increasing R&D in 3D stacking to drive market	139
TABLE 93	FRANCE: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	139
TABLE 94	FRANCE: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	140
11.3.3	UK	140
11.3.3.1	5G implementation to create conducive environment for market growth	140
TABLE 95	UK: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	140
TABLE 96	UK: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	141
11.3.4	REST OF EUROPE	141
TABLE 97	REST OF EUROPE: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	141
TABLE 98	REST OF EUROPE: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	142
11.3.5	EUROPE: RECESSION IMPACT	142
11.4	ASIA PACIFIC	142
FIGURE 42	ASIA PACIFIC: 3D STACKING MARKET SNAPSHOT	143
TABLE 99	ASIA PACIFIC: 3D STACKING MARKET, BY COUNTRY, 2019-2022 (USD MILLION)	144
TABLE 100	ASIA PACIFIC: 3D STACKING MARKET, BY COUNTRY, 2023-2028 (USD MILLION)	144
TABLE 101	ASIA PACIFIC: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	144
TABLE 102	ASIA PACIFIC: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	145
11.4.1	CHINA	145
11.4.1.1	Increasing investments in semiconductor industry to drive market	145

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TABLE 103	CHINA: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	145
TABLE 104	CHINA: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	146
11.4.2	JAPAN	146
11.4.2.1	Increasing focus on precision engineering to boost adoption of 3D stacking	146
TABLE 105	JAPAN: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	146
TABLE 106	JAPAN: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	147
11.4.3	SOUTH KOREA	147
11.4.3.1	Growing focus on innovation and research to contribute to market growth	147
TABLE 107	SOUTH KOREA: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	147
TABLE 108	SOUTH KOREA: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	148
11.4.4	TAIWAN	148
11.4.4.1	Rising demand for compact, efficient, and high-performing chips to support market growth	148
TABLE 109	TAIWAN: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	149
TABLE 110	TAIWAN: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	149
11.4.5	REST OF ASIA PACIFIC	149
TABLE 111	REST OF ASIA PACIFIC: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	150
TABLE 112	REST OF ASIA PACIFIC: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	150
11.4.6	ASIA PACIFIC: RECESSION IMPACT	150
11.5	REST OF THE WORLD (ROW)	151
TABLE 113	ROW: 3D STACKING MARKET, BY REGION, 2019-2022 (USD MILLION)	151
TABLE 114	ROW: 3D STACKING MARKET, BY REGION, 2023-2028 (USD MILLION)	151
TABLE 115	ROW: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	151
TABLE 116	ROW: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	152
11.5.1	MIDDLE EAST & AFRICA	152
11.5.1.1	Government initiatives to strengthen semiconductor industry to favor market growth	152
TABLE 117	MIDDLE EAST & AFRICA: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	152
TABLE 118	MIDDLE EAST & AFRICA: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	153
11.5.2	SOUTH AMERICA	153
11.5.2.1	Growing demand for advanced architecture and high-end computing to contribute to market growth	153
TABLE 119	SOUTH AMERICA: 3D STACKING MARKET, BY END USER, 2019-2022 (USD MILLION)	153
TABLE 120	SOUTH AMERICA: 3D STACKING MARKET, BY END USER, 2023-2028 (USD MILLION)	154
11.5.3	ROW: RECESSION IMPACT	154
12	COMPETITIVE LANDSCAPE	155
12.1	INTRODUCTION	155
12.2	STRATEGIES ADOPTED BY KEY PLAYERS	155
TABLE 121	OVERVIEW OF STRATEGIES ADOPTED BY KEY PLAYERS IN 3D STACKING MARKET	155
12.2.1	PRODUCT PORTFOLIO	156
12.2.2	REGIONAL FOCUS	156
12.2.3	ORGANIC/INORGANIC GROWTH STRATEGIES	156
12.3	MARKET SHARE ANALYSIS, 2022	157
TABLE 122	3D STACKING MARKET: MARKET SHARE ANALYSIS, 2022	157
12.4	REVENUE ANALYSIS OF KEY PLAYERS IN 3D STACKING MARKET	159
FIGURE 43	FIVE-YEAR REVENUE ANALYSIS OF KEY PLAYERS IN 3D STACKING MARKET	159
12.5	KEY COMPANY EVALUATION MATRIX, 2022	159
12.5.1	STARS	159
12.5.2	PERVASIVE PLAYERS	159
12.5.3	EMERGING LEADERS	160

12.5.4	PARTICIPANTS	160
FIGURE 44	3D STACKING MARKET (GLOBAL): KEY COMPANY EVALUATION MATRIX, 2022	160
12.6	COMPETITIVE BENCHMARKING	161
12.6.1	COMPANY FOOTPRINT, BY INTERCONNECTING METHOD	161
12.6.2	COMPANY FOOTPRINT, BY DEVICE TYPE	162
12.6.3	COMPANY FOOTPRINT, BY END USER	163
12.6.4	COMPANY FOOTPRINT, BY REGION	164
12.6.5	OVERALL COMPANY FOOTPRINT	165
12.7	STARTUPS/SMALL AND MEDIUM-SIZED ENTERPRISES (SMES) EVALUATION MATRIX, 2022	166
TABLE 123	3D STACKING MARKET: DETAILED LIST OF KEY STARTUPS/SMES	166
12.7.1	COMPETITIVE BENCHMARKING OF KEY STARTUPS/SMES	166
TABLE 124	COMPANY FOOTPRINT, BY INTERCONNECTING METHODS	166
TABLE 125	COMPANY FOOTPRINT, BY DEVICE TYPE	167
TABLE 126	COMPANY FOOTPRINT, BY END USER INDUSTRY	167
TABLE 127	COMPANY FOOTPRINT, BY REGION	167
12.7.2	PROGRESSIVE COMPANIES	168
12.7.3	RESPONSIVE COMPANIES	168
12.7.4	DYNAMIC COMPANIES	168
12.7.5	STARTING BLOCKS	168
FIGURE 45	3D STACKING MARKET (GLOBAL): STARTUPS/SMES EVALUATION MATRIX, 2022	168
12.8	COMPETITIVE SCENARIOS AND TRENDS	169
12.8.1	PRODUCT LAUNCHES & DEVELOPMENTS	169
TABLE 128	3D STACKING MARKET: PRODUCT LAUNCHES/DEVELOPMENTS, 2020-2023	169
12.8.2	DEALS	171
TABLE 129	3D STACKING MARKET: DEALS, 2020-2023	171
13	COMPANY PROFILES	175
13.1	INTRODUCTION	175
13.2	KEY PLAYERS	175
(Business overview, Products/Solutions/Services offered, Recent developments, Product launches, Deals, MnM view, Key strengths/Right to win, Strategic choices, and Weaknesses/Competitive threats)*		
13.2.1	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED	175
TABLE 130	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED: COMPANY OVERVIEW	176
FIGURE 46	TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD: COMPANY SNAPSHOT	176
TABLE 131	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED: PRODUCTS/SERVICES/SOLUTIONS OFFERED	177
TABLE 132	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED: PRODUCT LAUNCHES	177
TABLE 133	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED: DEALS	178
TABLE 134	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED: OTHERS	178
13.2.2	SAMSUNG	180
TABLE 135	SAMSUNG: COMPANY OVERVIEW	180
FIGURE 47	SAMSUNG: COMPANY SNAPSHOT	181
TABLE 136	SAMSUNG: PRODUCTS/SERVICES/SOLUTIONS OFFERED	181
TABLE 137	SAMSUNG: PRODUCT LAUNCHES	182
TABLE 138	SAMSUNG: DEALS	182
13.2.3	INTEL CORPORATION	183
TABLE 139	INTEL CORPORATION: COMPANY OVERVIEW	183
FIGURE 48	INTEL CORPORATION: COMPANY SNAPSHOT	184
TABLE 140	INTEL CORPORATION: PRODUCTS/SERVICES/SOLUTIONS OFFERED	184

13.2.4	SK HYNIX INC.	186
TABLE 141	SK HYNIX INC.: COMPANY OVERVIEW	186
FIGURE 49	SK HYNIX INC.: COMPANY SNAPSHOT	187
TABLE 142	SK HYNIX INC.: PRODUCTS/SERVICES/SOLUTIONS OFFERED	187
TABLE 143	SK HYNIX INC.: DEALS	188
13.2.5	ADVANCED MICRO DEVICES, INC.	190
TABLE 144	ADVANCED MICRO DEVICES, INC.: COMPANY OVERVIEW	190
FIGURE 50	ADVANCED MICRO DEVICES, INC.: COMPANY SNAPSHOT	191
TABLE 145	ADVANCED MICRO DEVICES, INC.: PRODUCTS/SERVICES/SOLUTIONS OFFERED	191
TABLE 146	ADVANCED MICRO DEVICES, INC.: DEALS	192
13.2.6	ASE TECHNOLOGY HOLDING CO., LTD.	193
TABLE 147	ASE TECHNOLOGY HOLDING CO., LTD.: COMPANY OVERVIEW	193
FIGURE 51	ASE TECHNOLOGY HOLDING CO., LTD.: COMPANY SNAPSHOT	194
TABLE 148	ASE TECHNOLOGY HOLDING CO., LTD.: PRODUCTS/SERVICES/SOLUTIONS OFFERED	194
TABLE 149	ASE TECHNOLOGY HOLDING CO., LTD.: PRODUCT LAUNCHES	195
13.2.7	AMKOR TECHNOLOGY	197
TABLE 150	AMKOR TECHNOLOGY: COMPANY OVERVIEW	197
FIGURE 52	AMKOR TECHNOLOGY: COMPANY SNAPSHOT	198
TABLE 151	AMKOR TECHNOLOGY: PRODUCTS/SERVICES/SOLUTIONS OFFERED	198
TABLE 152	AMKOR TECHNOLOGY: DEALS	199
13.2.8	JIANGSU CHANGDIAN TECHNOLOGY CO., LTD.	201
TABLE 153	JIANGSU CHANGDIAN TECHNOLOGY CO., LTD.: COMPANY OVERVIEW	201
FIGURE 53	JIANGSU CHANGDIAN TECHNOLOGY CO., LTD.: COMPANY SNAPSHOT	201
TABLE 154	JIANGSU CHANGDIAN TECHNOLOGY CO., LTD.: PRODUCTS/SERVICES/SOLUTIONS OFFERED	202
TABLE 155	JIANGSU CHANGDIAN TECHNOLOGY CO., LTD.: PRODUCT LAUNCHES	202
TABLE 156	JIANGSU CHANGDIAN TECHNOLOGY CO., LTD.: DEALS	202
13.2.9	TEXAS INSTRUMENTS INCORPORATED	203
TABLE 157	TEXAS INSTRUMENTS INCORPORATED: COMPANY OVERVIEW	203
FIGURE 54	TEXAS INSTRUMENTS INCORPORATED: COMPANY SNAPSHOT	204
TABLE 158	TEXAS INSTRUMENTS INCORPORATED: PRODUCTS/SERVICES/SOLUTIONS OFFERED	204
TABLE 159	TEXAS INSTRUMENTS INCORPORATED: DEALS	205
13.2.10	UNITED MICROELECTRONICS CORPORATION	206
TABLE 160	UNITED MICROELECTRONICS CORPORATION: COMPANY OVERVIEW	206
FIGURE 55	UNITED MICROELECTRONICS CORPORATION: COMPANY SNAPSHOT	207
TABLE 161	UNITED MICROELECTRONICS CORPORATION: PRODUCTS/SERVICES/SOLUTIONS OFFERED	207
TABLE 162	UNITED MICROELECTRONICS CORPORATION: DEALS	208
13.2.11	POWERTECH TECHNOLOGY INC	209
TABLE 163	POWERTECH TECHNOLOGY INC: COMPANY OVERVIEW	209
FIGURE 56	POWERTECH TECHNOLOGY INC: COMPANY SNAPSHOT	210
TABLE 164	POWERTECH TECHNOLOGY INC: PRODUCTS/SERVICES/SOLUTIONS OFFERED	210
13.2.12	CADENCE DESIGN SYSTEMS, INC.	211
TABLE 165	CADENCE DESIGN SYSTEMS, INC.: COMPANY OVERVIEW	211
FIGURE 57	CADENCE DESIGN SYSTEMS, INC.: COMPANY SNAPSHOT	212
TABLE 166	CADENCE DESIGN SYSTEMS, INC.: PRODUCTS/SERVICES/SOLUTIONS OFFERED	212
TABLE 167	CADENCE DESIGN SYSTEMS, INC.: DEALS	213
13.2.13	BROADCOM	214
TABLE 168	BROADCOM: COMPANY OVERVIEW	214

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FIGURE 58	BROADCOM: COMPANY SNAPSHOT	215
TABLE 169	BROADCOM: PRODUCTS/SERVICES/SOLUTIONS OFFERED	215
TABLE 170	BROADCOM: DEALS	216
13.2.14	TOWER SEMICONDUCTOR	217
TABLE 171	TOWER SEMICONDUCTOR: COMPANY OVERVIEW	217
FIGURE 59	TOWER SEMICONDUCTOR: COMPANY SNAPSHOT	217
TABLE 172	TOWER SEMICONDUCTOR: PRODUCTS/SERVICES/SOLUTIONS OFFERED	218
TABLE 173	TOWER SEMICONDUCTOR: DEALS	218
13.2.15	IBM	219
TABLE 174	IBM: COMPANY OVERVIEW	219
FIGURE 60	IBM: COMPANY SNAPSHOT	220
TABLE 175	IBM: PRODUCTS/SERVICES/SOLUTIONS OFFERED	220
TABLE 176	IBM: PRODUCT LAUNCHES	221
13.2.16	TOKYO ELECTRON LIMITED	222
TABLE 177	TOKYO ELECTRON LIMITED: COMPANY OVERVIEW	222
FIGURE 61	TOKYO ELECTRON LIMITED: COMPANY SNAPSHOT	223
TABLE 178	TOKYO ELECTRON LIMITED: PRODUCTS/SERVICES/SOLUTIONS OFFERED	223
TABLE 179	TOKYO ELECTRON LIMITED: PRODUCT LAUNCHES	224
13.2.17	CEA-LETI	225
TABLE 180	CEA-LETI: COMPANY OVERVIEW	225
TABLE 181	CEA-LETI: PRODUCTS/SERVICES/SOLUTIONS OFFERED	225
*Details on Business overview, Products/Solutions/Services offered, Recent developments, Product launches, Deals, MnM view, Key strengths/Right to win, Strategic choices, and Weaknesses/Competitive threats might not be captured in case of unlisted companies.		
13.3	OTHER PLAYERS	226
13.3.1	SILICONWARE PRECISION INDUSTRIES CO., LTD.	226
13.3.2	GLOBALFOUNDRIES INC.	227
13.3.3	SMHANCED SEMICONDUCTORS	228
13.3.4	DECA TECHNOLOGIES	229
13.3.5	TEZZARON	230
13.3.6	TELEDYNE TECHNOLOGIES INCORPORATED	230
13.3.7	HUAWEI TECHNOLOGIES CO. LTD.	231
13.3.8	QUALCOMM TECHNOLOGIES, INC.	232
13.3.9	3M	233
13.3.10	AYAR LABS, INC.	234
13.3.11	APPLIED MATERIALS, INC.	235
13.3.12	MONOLITHIC 3D INC.	236
13.3.13	MOLDEX3D	236
13.3.14	CEREBRAS	237
13.3.15	XPERI INC.	237
14	APPENDIX	238
14.1	DISCUSSION GUIDE	238
14.2	KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL	241
14.3	CUSTOMIZATION OPTIONS	243
14.4	RELATED REPORTS	243
14.5	AUTHOR DETAILS	244

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