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ADVANCED IC PACKAGING TECHNOLOGIES, MATERIALS AND MARKETS

2016 EDITION

**A Strategic Report Covering the Latest
Technologies in IC Packaging, Enabling Portable and
Other Electronics**

Report Coverage

- Stacked Packages
- System-in-Packages
- Interconnection Technologies
- Through-Silicon-Vias (TSV)
- 2.5D and 3D Integration
- Multi-row QFNs
- Fan-out WLPs

Report Highlights

- Industry Outlook
- Market Analysis and Forecasts,
2014–2020
- Multichip Packaging
Technology Trends
- Key Application Forecasts
- Company Profiles

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Synopsis

The demand for consumer electronics and mobile communications devices that keep us connected is driving electronics manufacturers to deliver ever-more compact and portable products. Today's users ask for solutions that deliver more functionality, added performance, higher speed, and smaller form factors. Software systems and billions of networked devices are rapidly coalescing into a vast Internet of Things.

All of these forces are driving semiconductor companies to develop new advanced IC packaging technologies to provide greater silicon integration in increasingly miniaturized packages. The last decade has seen an explosion of new products including fan-out wafer-level packaging (FOWLPs), stacked IC packages and complex system-in-packages (SiPs), as well as advances in package substrates, flip chip interconnection and through-silicon vias. All these advances are enabling significant improvements in packaging density and opening new market opportunities for manufacturers.

This latest report from **New Venture Research (NVR)**, *Advanced IC Packaging Technologies, Materials and Markets, 2016 Edition*, reveals the latest technology and market trends in the IC packaging industry by focusing on the most advanced packaging products and solutions—those critical to success in developing cutting-edge products and in maintaining technological leadership. Every market or application segment discussed in the report includes quantitative analysis based on the most current historical years, 2014 and 2015, as well as forecasts from 2016 through 2020. Each of the eight chapters covers a different topic and market segment.

Chapter 3: Overview of Worldwide IC Packaging Markets, outlines the major IC packaging families and the latest market and application trends. Total market forecasts include units, prices, packaging revenue, package types and device types.

Chapter 4: Advanced Single Chip IC Packaging, provides an in-depth discussion of the two leading advanced packages: Fan-Out Wafer Level and Multi-Row QFN packages in terms of market overview, market trends and forecasts.

Chapter 5: Multichip Packaging Markets analyzes multichip packages from a number of points of view—their characteristics, applications, functions, and interconnection trends. This chapter then digs deeper into the stacked packages category, comprised of vertically stacked TSOPs, QFNs, FBGAs, and WLPs. Tables and figures provide market data and forecasts for unit shipments, revenues, prices, I/O-count and die usage.

Chapter 6: System-in-Package Solutions and Substrate Materials continues the data and forecast analysis of multichip packages, focusing on system-in-package (SiP) market segments, specifically package-on-packages, package-in-packages, multichip modules and a subgroup of stacked WLPs used as components in SiPs. This chapter also examines the substrate materials and embedded components used in SiP assembly. Forecasts include package units and material area shipped, as well as revenue impact of substrate material trends.

Chapter 7: Interconnection Technologies and Solutions, provides an in-depth explanation of wire bonding and flip chip markets, as well as leading-edge technologies, such as 2.5D and 3D packaging using through silicon vias (TSVs). Units and revenue forecasts are provided.

Chapter 8: Company Profiles leads off with an overview of recent competitor trends, specifically the recent surge in mergers and acquisitions. It then presents profiles of twenty advanced packaging companies from across the IC packaging spectrum, including large and small competitors from among OSATs and IDMs. Each profile gives a short company background and presents examples of their advanced packaging products.

Advanced IC Packaging Technologies, Materials and Markets, 2016 Edition is an effective tool for companies determined to stay informed about the latest advances in IC packaging technologies, and in assessing the future of this important segment of the semiconductor manufacturing industry. The report sells for \$3995 and is delivered by email as a single-user license PDF file. Additional single-user licenses are available for \$350 each and a corporate license is \$1000. With the purchase of the report, an Excel spreadsheet of all tables may be obtained for an additional \$1000, or a printed copy may be purchased for \$250.

About the Author

Jerry Watkins is an independent senior analyst with more than 25 years of experience in the field of market research and consulting. He has worked for leading research companies such as **Frost & Sullivan**, **Lucid Information Services**, and **NSI Research** both in management and as a writer. Mr. Watkins has authored many syndicated reports, previously in the telecommunications sector and more recently in the computing and merchant embedded computing industry. He holds three university degrees, including a B.A. in History, as well as a M.A. in International Studies.

Chapter 1: Introduction

Chapter 2: Executive Summary

Chapter 3: Overview of Worldwide IC Packaging Markets

- 3.1 IC Package Families**
- 3.2 IC Packaging Market and Unit and Revenue Forecasts**
Covers: Worldwide IC Packaging by I/O Count and by Device Type
- 3.3 Key Applications Market for IC Devices**
Includes: Cellular Handsets, Tablets, PCs, Servers, Workstations, Set-Top Boxes, and others

Chapter 4: Advanced Single Chip IC Packaging

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Covers: Product and Competitor Trends, Internet of Things and Global Economic Trends
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Covers: Market Overview, Trends and Forecasts
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Covers: Market Overview, Trends and Forecasts

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- 6.2 System-in-Packaging Market Trends and Forecasts**
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- 8.10 FlipChip International, LLC**
- 8.11 HANA Micron Co., Ltd.**
- 8.12 Interconnect Systems Inc. (ISI)**
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- 8.15 Palomar Technologies**
- 8.15 Powertech Technology, Inc.**
- 8.17 Shinko Electric Industries Co, Ltd**
- 8.18 Signetics Corporation**
- 8.19 Siliconware Precision Industries Co.**
- 8.20 SPEL Semiconductor, Ltd.**
- 8.21 STATS ChipPAC, Ltd**
- 8.22 United Test and Assembly Center, Ltd.**
- 8.23 Xintec, Inc.**

Glossary of Terms

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Partial List of Tables (all tables provide data for 2014 through 2020)

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 Flip Chip Package Units and Revenue by Packaging Type and I/O Count

Published April 2016, ~300 Pages

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