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THE ARRAY IC PACKAGING MARKET

2013 EDITION

**An Extension of the Most Comprehensive Report Available
On The Global IC Packaging Industry**

Report Highlights

- **Industry Overview**

- **The Economic State of the Industry**

- **Summary of Market Forecasts, 2012–2017**
 - ◆ **BGA/LGA/CGA and FBGA/FLGA Package Solutions**
 - ◆ **Quad Flatpack No-Lead and Fan-in QFN Packages**
 - ◆ **Wafer-Level Packages and Fan-out WLPs**

New Venture Research Corp.

337 Clay St., Suite 101

Nevada City, CA 95959

www.newventureresearch.com

A Technology Market Research Company

kwilliams@newventureresearch.com

Tel: (408) 244-1100

Fax: (530) 265-1998

The Array IC Packaging Market - 2013 Edition

Synopsis

Small form factor, high speed and performance, and high bandwidth capability with low battery consumption are desired traits for many packaging solutions for integrated circuits (ICs). High demand for handheld and high performance electronic devices is the driving factor behind the IC packaging needs.

IC packages with an array layout, as opposed to a perimeter layout, allow for more I/O density in a smaller form factor, meeting the needs outlined above. Thus demand for array IC packages is on the rise, as additional I/O connections are fit beneath the package than traditional leadframe packages, providing them with form factor benefits. BGA and FBGA package solutions also reach into I/O levels which are unreachable by traditional leadframe packages, as the substrate can be enlarged to fit a large number of solder balls, land pads, or columns beneath it to attach to the PCB.

This new report, **The Array IC Packaging Market - 2013 Edition**, encompasses the array IC packages BGA, LGA, CGA, FBGA, FLGA, Fan-in QFN, WLP and Fan-out WLPs. Array IC packages can accommodate additional I/O connections beneath the package to connect to the printed circuit board (PCB) when compared to leadframe packages with only a single row of interconnections around the periphery of the package. This enables:

- A smaller footprint on the PCB
- Shorter traces through the package to the PCB, thus higher speed and improved performance
- Higher bandwidth capability
- Less power consumption, particularly important in battery-operated devices

Chapter 4 of this report covers BGAs and FBGAs solutions. BGAs and FBGAs do not have to have solder balls beneath the package substrate as the package can have just land pads or columns instead of balls for the second level interconnection, which connects the package to the printed circuit board. Forecasts in terms of units and revenue are provided for BGA, LGA, CGA, FBGA, and FLGA package

solutions including a wide range of I/O counts of 3-18, 20-32, 34-100, 102-304, 308-999, and 1,000 and up.

Chapter 5 examines the Quad Flatpack No-lead, or QFN market, with emphasis on the Fan-in QFN. The Fan-in QFN has additional rows on this leadframe package, turning it into a leadframe version of an array IC package, and one that can reach even further into the market which would otherwise be covered by the larger QFP, but with a smaller form factor. Additional rows are "Fanned-in" from the traditional perimeter-style leadframe, making this chip scale package unique.

Chapter 6 contains information on Wafer-Level Packages, or WLPs, which are the smallest package solution on the market, being die sized. This unique package is formed while the die is still part of an uncut wafer, the only package to be created or assembled in this manner. WLPs are array packages by nature, but since all the solder balls or bumps then must fit beneath the die itself, this limits the number of I/O which is on these packages.

The solution to this is the Reconfigured or Fan-out Wafer-Level Packages (Fan-out WLPs), for which the available surface available for I/O interface to the PCB is expanded beyond the perimeter of the die by virtue of a backside overmold. All these processes are done on an uncut wafer, so that manufacturing efficiencies are maximized.

The Array IC Packaging Market - 2013 Edition will provide you with an effective and economical tool for assessing the future of this market. The report sells for \$995 and is delivered by email as a single-user PDF file. Extra single-user licenses sell for \$250 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 \$250 and a printed copy for \$100.

About the Author

Sandra L Winkler has been an industry analyst starting in 1988, and from 1995 has been a staff member of Electronic Trend Publications, now New Venture Research Corporation. She has produced numerous off-the-shelf and custom reports throughout her career. She began her analyst career in the telecommunications industry, with Frost and Sullivan and since 1995 has focused on the semiconductor packaging industry, authoring more than 30 widely cited reports on the topic, most notably, The Worldwide IC Packaging Market, Advanced IC Packaging Markets and Trends, and IC Packaging Materials. She is a contributing editor and writer for Chip Scale Review magazine, Global SMT & Packaging News, and contributes to the IEEE/CPMT newsletter and other media. Ms. Winkler has earned an MBA from Santa Clara University and is on the executive planning committee of the IEEE/CPMT Santa Clara Valley chapter, serving as Luncheon Program Chair.

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BGA/LGA/CGA	104-304
BGA/LGA	308-999
BGA/LGA/CGA	+1,000
Total BGA/LGA/CGA	
FBGA/FLGA	4-18
FBGA/FLGA	20-32
FBGA/FLGA	34-100
FBGA/FLGA	104-304
FBGA/FLGA	308-999
FBGA/FLGA	+1,000
Total FBGA/FLGA	

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New Venture Research Corp.

337 Clay St., Suite 101

Nevada City, CA 95959

Tel: (408) 244-1100 Fax: (530) 265-1998

www.newventureresearch.com; kwilliams@newventureresearch.com

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