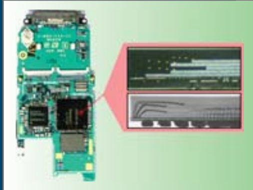
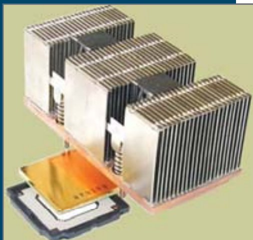
Advanced Packaging Update:
Market and Technology Trends

Q4, 2005





The fourth quarterly Advanced Packaging Update for 2005 features special coverage of the market with a forecast for units of BGAs and CSPs by package construction. The BGA market is divided into plastic, tape, and ceramic structures. The CSP market is divided into laminate, flex circuit, and leadframe substrates. Unit growth projections are also provided for stacked die CSPs with forecasts for package-on-package (PoP) and package-in-package (PiP) shipments. Market growth is analyzed based on input from both captive and merchant assembly operations. Key applications and drivers for unit volume and revenue growth are highlighted. An economic outlook for 2006 is provided. High performance processor packaging developments are featured in a special section.

Table of Contents

1 Industry and Economic Trends
- 1.1 Semiconductor Industry Economic Trends
- 1.2 Consumer Products Driver Package Trends
- 1.3 Semiconductor Packaging and Assembly
- 1.4 Semiconductor Packaging Materials

2 BGA/CSP Markets and Trends
- 2.1 BGA Applications and Market Growth
  - 2.1.1 Personal Computers
  - 2.1.2 Game Machines and Home Appliances
  - 2.1.3 Workstation/Servers, Network Systems, and Telecommunications
- 2.2 BGA Market Projections
- 2.3 CSP Applications and Market Growth
  - 2.3.1 Mobile Phones
  - 2.3.2 Portable Consumer Products
- 2.4 CSP Market Projections
  - 2.4.1 Wafer Level Packages

3 High Performance System Packaging
- 3.1 Trends in High Performance Systems
  - 3.1.1 IBM
  - 3.1.2 Fujitsu Ltd.
  - 3.1.3 NEC
  - 3.1.4 Hitachi

2005 BGA and CSP Bibliography

List of Figures

1.1. Semiconductor packaging and test subcontractor revenue.
1.2. Copper price trends.
2.1. Nintendo Game Boy micro 2005.
2.2. Components and ICs on Nokia's main board.
2.3. Various stacked CSP configurations.
2.4. PoP market projections (millions of units).
3.1. Z9-MCM.
3.2. Fujitsu's PRIMEPOWER 2500 system board.
3.3. Cooling at the CPU-package level.
3.4. NEC's CPU for the SX-8.

List of Tables

1.1. Today's Thin Products
1.2. Semiconductor Packaging Materials Market
2.1. Desktop PC FPD Packaging Trends
2.2. Processors for Game Machines
2.3. Digital TV/Set-Top Box Packaging Trends
2.4 BGA Market Projections (millions of units)
2.5. CSP Examples in Motorola's RAZR V3 Mobile Phone
2.6. CSPs in Nokia's 702 Vodafone Mobile Phone
2.7. Mobile Phone Packaging Trends
2.8. DVC Packaging Trends
2.9. CSP Market Projections (millions of units)
3.1. Z9 Chip Technology

4801 Spicewood Springs Road • Suite 150
Austin, Texas 78759
Tel: 512-372-8887 • Fax: 512-372-8889
tsi@techsearchinc.com • www.techsearchinc.com

Contents and specifications subject to change without notice. 4/27/06