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## **Breakthrough Technology from Freescale Redefines State of the Art for Advanced Semiconductor Packaging; Innovative Approach Could Replace Ball Grid Array and Flip Chip as Preferred Packaging Technology for Miniaturized Devices**

Freescale Technology Forum 2006

ORLANDO, Fla.--(BUSINESS WIRE)--July 25, 2006--Freescale Semiconductor (NYSE:FSL) (NYSE:FSL.B), the company that developed and introduced the now widely-deployed ball grid array (BGA) packaging technology, today unveiled yet another innovation that could replace BGA and flip chip as the dominant packaging and assembly approach for advanced, highly integrated semiconductors.

Redistributed Chip Packaging (RCP) technology from Freescale offers unmatched flexibility and integration density -- characteristics that help deliver 30 percent smaller packaged semiconductor solutions versus traditional BGA technology.

"The word 'revolutionary' is often overused, but RCP is a truly revolutionary technology," said Morry Marshall, vice president of Strategic Technologies, Semico Research Corp. "RCP will solve several packaging problems that have become ever more severe as ICs have increased in complexity. It is the semiconductor packaging technology of the future."

RCP integrates semiconductor packaging as a functional part of the die and system solution. It addresses some of the limitations associated with previous generations of packaging technologies by eliminating wire bonds, package substrates and flip chip bumps. In addition, RCP does not utilize blind vias or require thinned die to achieve thin profiles. These advancements simplify assembly, lower costs, and provide compatibility with advanced wafer manufacturing processes utilizing low-k interlayer dielectrics.

The technology is easily adapted for 3G mobile phones and a broad range of consumer, industrial, transportation and networking devices that can benefit from the consolidation of electronic components into a single, miniaturized system.

"Standard semiconductor packaging approaches will soon hit a wall of physical limitations," said Sumit Sadana, senior vice president, Strategy and Business Development, and Chief Technology Officer, Freescale. "RCP is a disruptive technology that overcomes these limitations and sets new industry benchmarks in flexibility, cost and integration density. Its unique capabilities will allow customers to create the smaller, sleeker and more efficient multifunction devices that the marketplace demands."

RCP's exceptional flexibility makes it a virtually universal package technology that is applicable across a large number of applications and materials. It is compatible with advanced assembly technologies such as System in Package (SiP), Package on Package (PoP), and integrated cavity packages.

Using RCP and PoP technology, Freescale has fabricated a radio-in-package that measures less than 25 x 25 millimeters. The radio-in-package contains all of the electronics required for a 3G

mobile phone including memory, power management, baseband, transceiver and RF front end modules.

Lead free and RoHS compliant, RCP meets reliability standards for commercial and industrial applications. Development and tests are in progress for automotive applications.

Freescale maintains an extensive portfolio of intellectual property specific to RCP technology. The company expects products utilizing RCP technology will be available by 2008. Freescale intends to initially use RCP in its highly integrated wireless product families.

#### About Freescale Semiconductor

Freescale Semiconductor, Inc. (NYSE:FSL) (NYSE:FSL.B) is a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial, networking and wireless markets. Freescale became a publicly traded company in July 2004 after more than 50 years as part of Motorola, Inc. The company is based in Austin, Texas, and has design, research and development, manufacturing or sales operations in more than 30 countries. Freescale, a member of the S&P 500(R), is one of the world's largest semiconductor companies with 2005 sales of \$5.8 billion (USD). [www.freescale.com](http://www.freescale.com)

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