



Market Advisory Report

2010: The Rebound Year for Mobile Device Semiconductors and Increased Competitive Intensity



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Analytical Summary

2010 promises to be a rebound year for the overall mobile device silicon market. After enduring steep challenges during the global recession of 2008-2009, the mobile device semiconductor market segment is poised to experience double-digit growth rates during 2010, leading the way in a recovery within the worldwide semiconductor market. Burgeoning global uptake of mobile devices, including high-end smartphones and entry-level handsets within developing regions and inventory corrections from the last half of 2008 and most of 2009, directly correlates to the budding recovery within the mobile device silicon market segment.

The competition among mobile device silicon vendors will intensify during 2010 as a result. Key trends in the mobile device silicon space include robust debates regarding discrete architectures versus integrated architectures, the potential evolution of “superphones”, the trending toward ARM processor-centric mobile PC-related technologies, the growing importance of embedded software development cycle management for system-on-a-chip (SoC) designs, expansion of dual-mode technologies and the ongoing expansion and diversification of new and enhanced applications are among the key trends expected during 2010.

Current Perspective

According to the Semiconductor International Capacity Statistics (SICAS), Q1 2009 represented the nadir of the overall semiconductor market since the organization began tracking integrated circuit (IC) capacity and utilization levels, with overall IC utilization levels only 55.4% during Q1 2009 – a record low. This slump did not spare the wireless/mobile device silicon market segment. Throughout Q4 2008-Q3 2009 IC capacity levels experienced consecutive negative quarter over quarter growth rates, although utilization rates improved to 77% in Q2 2009 and 86.5% in Q3 2009 due in large part to the response of semiconductor

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vendors to the global recession of 2008-09 in areas such as inventory corrections, etc.

With the overall global economy improving and semiconductor inventories and utilization rates having corrected from the severe economic downturn during the last half of 2008 and most of 2009, the overall semiconductor market is expected to improve as well. Different industry estimates indicate the overall semiconductor market will rebound significantly. This includes estimates as high as 15% growth based on 2010 \$257 billion revenues increasing over 2009 revenues of \$224 billion with the wireless semiconductor segment leading the way with 19% growth based on 2010 \$57 billion revenues increasing over 2009's \$48 billion revenues (according to Databeans). Essentially, the mobile device/wireless market should benefit from a rising tide in the overall global economy. Even if U.S. economic growth should prove relatively sluggish, economic growth in other regions and countries, such as China and India, combined with burgeoning uptake of entry phones in developing regions and expanding adoption of higher margin smartphones across-the-board should further buoy the mobile device silicon market sector.

The 2010 mobile device silicon market will also witness a robust reiteration of the debate between integrated architectures and discrete architectures. Mobile device silicon vendors, such as TI, advocate a discrete approach positing that discrete architectures (i.e., locating the applications and modem processors on separate chips) can yield competitive benefits for mobile device manufacturers in areas such as improved time to market intervals, open source compatibility and improved software reuse across multiple segments. Advocates of an integrated approach will counter that SoC architectures that include modem and application processors (as well as other processors) on the same chip can realize improved costs as well as streamlining the discrete elements and suppliers required to support a more discrete architecture over the long-term. This renders open-ended the number of chips each mobile device manufacturer will use on each device on a case by case basis in order to realize improved value, etc. This includes flexible integration options for baseband modem, application processor, RF transceiver and power management on the same chip or different chips.

The 2010 mobile device silicon market will also witness a robust reiteration of the debate between integrated architectures and discrete architectures.

ARM processor-based architectures are expected to gain more influence over the next several years as devices such as mobile Internet devices, netbooks, smartbooks and ultra mobile PCs will increasingly rely on ARM-based approaches as laptops become increasingly communications-centric in nature. This shift will come at the expense of traditional x86 processor architectures and could represent another significant expanding revenue source for mobile device silicon players already well-versed and committed to ARM-based technologies and mobile architectures.

The range and quality of applications supported on smartphones will continue apace during 2010. This includes support of enhanced video record and imaging applications, such as image-based Web searches, to boost the feature range of smartphones. Naturally this expansion of application capabilities is directly tied to the advance of mobile device silicon architectures in areas such as the ongoing transition to 45 nm/32nm CMOS design and higher levels of cost-effective integration options for SoC designs. This also includes expansion of 2.5G/3G/4G networks and technologies that support dual-mode handsets, which enable transparent handoffs between networks of different radio technology base (e.g., between CDMA-based networks and GSM-based networks).

Another key trend related to SoC design includes the expanding cost of software development. In fact software development costs are expected to generate more than 80% of the overall SoC development costs. This is due in large part to factors such as SoC capabilities

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becoming increasingly reliant on embedded software functions and less on the hardware functions. This puts increased significance on improved management of software development cycles as software maintenance and enhancement can continue for extended intervals after the hardware-based element of the SoC design is cycled out.

Essentially an improvement in the global macroeconomic situation and a rebound up cycle within the mobile device silicon space represents good news for mobile device silicon competitors in 2010. However, this also yields increase competitive challenges, especially in areas such as mobile device architecture direction, improving software cycle costs and meeting the burgeoning demands of mobile device manufacturers in areas such as shortened time to market intervals, enhanced power management masks, expanded application range support and improved space metrics to name a few.

■ Near-Term Drivers

- Intel continues to ramp up its Moorestown platform in order to establish a beachhead within the mobile device silicon market. At CES 2010 in January 2010, Intel lined up LG as well as development partners to showcase the progress of the Moorestown platform. With commercial availability of Moorestown-based smartphones expected in H2 2010, Intel clearly possesses the channels and portfolio diversity to create waves and disruption within the mobile device silicon space.
- The mobile device silicon market will continue to remain closely attuned to the sales and marketing efforts its mobile device OEM customers. This includes the potential morphing of the high-end of the smartphone market segment into a hypothetical “superphone” category due to factors such as feature phone and smartphone capabilities and application support becoming increasingly blurred.
- DSP vendors, such as Octasic, advocate the elimination of clock trees and state elements within DSP design. These traditional aspects of DSP design can be replaced with logical self-clocking DSP designs. This can yield benefits in areas such as power and area savings to realize improved value and performance for mobile device silicon in general.

■ Competitor Response and Recommendations

- Mobile device silicon players need to engage TI on the discrete architecture versus integrated architecture debate proactively. While TI is putting marketing muscle behind the latest iteration of the debate on the discrete architecture side, it remains important for rivals to put a stake in the ground in order to counter TI’s ongoing efforts to capture early mind share on the matter.
- 2010 will reflect the beginning of shifts in the overall market share positions of the major mobile device silicon players. TI’s decision to exit the baseband modem segment of the market and put increased emphasis on its higher-margin OMAP 4 platform will steadily lessen its modem market share while rivals such as Qualcomm, Broadcom, Infineon, ST-Ericsson and MediaTek will gain market share and attempt to use such share gains as proof of an overall positive market direction.
- Mobile device silicon players in general need to communicate how their support of specific application range options (e.g., WLAN, FM radio, GPS, Bluetooth, mobile TV, NFC and

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Ultra-Wideband) optimizes value for mobile device OEMs/manufacturers in order to avoid having rivals position them as “me too” checklist items that generate scant competitive differentiation.

Recommended Buyer Actions

- Mobile device manufacturers need to continue engaging and challenging mobile device chipset suppliers on the pros and cons of discrete architectures vis-à-vis integrated architectures, including potential gains in areas such as improved time to market intervals and open source compatibility.
- Mobile device manufacturers need to continue coordinating with mobile device silicon suppliers on how to improve software development cost cycles, especially as software update iterations for the same chipset over an 18-month cycle can range up to four to six times.
- Mobile device manufacturers need to continue coordinating with mobile device semiconductor suppliers in SoC design direction including the seeking out of optimal combinations of integrating baseband modem, application processing, RF transceiver and power management functions on the same chip or different chips.

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Current Analysis, the leading provider of tactical intelligence and competitive response solutions in the telecommunications, networking, and business software industries, has expanded its research and market intelligence services to cover semiconductor markets through the addition of the company's new intelligence service, CurrentCOMPETE™ Mobile Device Silicon.

"2010 promises to become a year of rebound in the overall mobile device silicon market," says Ron Westfall, Current Analysis Research Director for Silicon, "thus raising the competitive stakes among mobile device silicon vendors to meet the rapidly expanding and evolving requirements of their mobile device customers in a wide array of competitive product categories including smartphones, connected devices, feature phones and entry phones."

Companies Covered

- ARM
- AKM
- Broadcom
- CEVA
- Infineon
- Intel
- Marvell
- Maxim
- MediaTek
- AKM
- Octasic
- Qualcomm
- Spreadtrum
- ST-Ericsson
- Texas Instruments

The competition among mobile device silicon vendors will intensify during 2010 as a result. Key trends in the space include robust debates regarding discrete architectures versus integrated architectures, the potential evolution of "superphones", the trending toward ARM processor-centric netbook-related technologies, the growing importance of embedded software development cycle management for SoC designs, expansion of dual-mode technologies and the ongoing expansion and diversification of new and enhanced applications among several key trends expected during 2010.

Delivered through the company's continuously updated, Web-based platform, the new Mobile Device Silicon service provides silicon vendors, suppliers, development partners and handset OEMs with real-time intelligence and expert analysis about the markets, companies, and technologies in what is arguably the most competitive semiconductor market segment today.

Unlike traditional research companies or strategic market intelligence firms, Current Analysis provides unique tactical competitive analysis that is designed for everyday use. Based on the company's Competitive Response™ methodology, the new services provides real-time business intelligence on competitor strengths, weaknesses, services, and trends, as well as a complete set of strategic recommendations to allay competitive threats for existing and emerging companies. The company's team of industry experts will dispense analysis and advice through Competitive Intelligence Reports, Advisory Reports, Company Assessments, and Portfolio Assessments.

Mobile Device Chipset Portfolio Assessments

The new Mobile Device Silicon coverage area includes Portfolio Assessments of the major mobile device silicon competitors. The Portfolio Assessments use Key Selection Criterion such as Portfolio Application Range, Portfolio Diversity and Portfolio Scalability to assign ratings to the competitor's portfolio value as well as addressing the individual strengths and weaknesses of the portfolio. The initial Portfolio Assessment coverage will include Qualcomm, TI, Infineon and MediaTek with Broadcom and ST-Ericsson slated for coverage as well during Q1 2010.

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