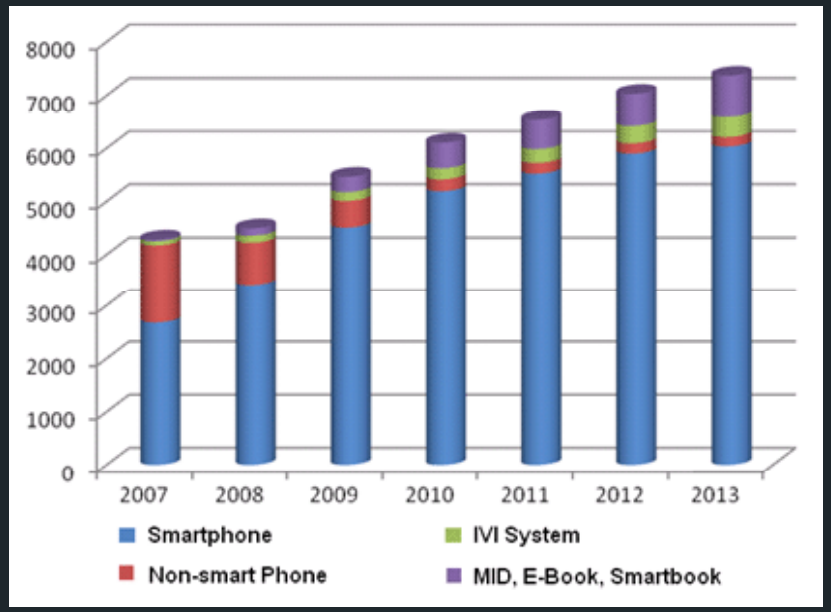
Global and China Mobile Application Processor Industry Report, 2009-2010

The so-called mobile application processor is centered on a variety of particular applications such as algorithm, graphic processing, 3D formation, MPEG-4/H.264 decoding and full-featured internet surfing. As an application processor focused on mobile products, it can be installed inside with a Modem for mobile communication. In its applied products, mobile application processor serves as a core or an assisted processor.

By application fields, it falls into four categories, i.e., smartphone, non-smart phone, IVI (In-vehicle Infotainment) system and others (including MID e-book and Smartbook). Or it also can be simply divided into two major classes-ARM core and X86 core. The fact that application processor sector involves huge investment capital makes it a “game” for only a small number of enterprises.

Market Size of Application Processors, 2007-2013E



In the future, smart phones will still be the main markets for mobile application processor, while its application in non-smart phone industry will slump. A case in point is the three leading Korean enterprises Mtekvision, Corelogic and Telechips involving in non-smart phone industry, which were without exception hardly hit in 2009. In terms of revenue, Mtekvision saw a decrease by 21%, which marked its first loss; Telechips also saw a drop by 19%, slightly hit thanks to its wide range of product lines; but Corelogic, the worst inflicted firm, suffered from huge losses and would go bankruptcy if it refused to transform.

As such, SH-Mobile of Renesas got dampened miserably. SH-Mobile failed to go outside Japan. There is no development room for SH-Mobile since Japanese mobile phone market has been excessively saturated. Moreover, Renesas has long been teaming up with DoCoMo to jointly develop and promote its products. However, its third-generation SH-Mobile encountered difficulty in promotion, because fully integrated IC like QSD8250 by Qualcomm has been favored by the growing number of manufacturers. As for the 4th-generation SH-Mobile, it is hard to predict its development in the future.

Concerning OMAP, there is not much to worry about, but it is not optimistic, either, owning that its VIP client Nokia has not performed well yet in smartphone field. 3G Modem is excluded in OMAP processor and it is not preferably employed by Nokia. The CPU of main Nokia models in 2010 is RAPUYAMA jointly developed with Freescale. And OMAP has become the second choice for star types of Nokia mobile phone.

By contrast, SANPDRAGON from Qualcomm has gained wide acceptance by nearly all leading mobile phone manufacturers. Qualcomm will further enhance the performance of its QSD8672-the hot chip for Smartphone in 2011 and 2012. As for Samsung, it will continue its third place in application processor industry thanks to its big buyer-Apple. The application processors of Samsung have not been adopted by Apple IPAD but will be employed by Apple’s IPHONE. The latest series of Samsung-S3C6410 and S5PV210 are both powerful products.

When it comes to Marvell, it worked hard to expand product lines in 2009 and rolled out 10 models or so of new products. Therefore, Marvell deserves closer attention in the future. Nevertheless, Marvell has only one big customer-RIM in mobile phone industry.

In 2009, mobile application processor market expanded further, in which the three emerging markets consist of Smartbook, IVI system and e-book.

Smartbook is a kind of product with function between netbook and smartphone, and it renders the smartphone-based CPU and small operating system. The operation of smartbook will be supported by such CPU as Nvidia Tegra and Qualcomm Snapdragon. Smartbook can be defined as an electronic device always online and being centered on network applications; with screen size between 5-10 inches and ARM's CPU. The biggest difference with netbook is that its always-on-line feature and ARM-core CPU instead of using the CPU with X86 structure. It seems that Smartbook tends to impact traditional netbook market. Yet, its algorithmic performance falls far short of Intel's N270, but the prices of the two are so close. Other demerits of Smartbook lie in its poor portability and longer start-up time in comparison with Smartphone. In addition, IPAD of Apple is the competitive rival of Smartbook. The reason why Lenovo postponed the launch of its first Smartbook into market is to avoid the strike from IPAD.

It is expected that Smartbook will feature small screen sized between 6-10 inches so as to widen the market difference with netbook, with the final selling price below US$200. Therefore, smartbook will enjoy a relatively big market. As is estimated, the market scale will reach 50 million sets optimistically or 25 million sets in a conservative way in 2015. It is expected that the market size will be 8 million sets in 2010.

Another market of mobile application processor is IVI system. At present, 3D navigation made its debut in the navigator market. Similarly, IVI also needs to process network media videos like H.264. So, it requires powerful algorithm performance and 3D graphic processing capacities. As yet, Intel's ATOM has gained Benz and BMW, and Nvidia's Tegra2 has occupied Audi. Moreover, Volkswagen Group is expected to employ Nvidia's Tegra2 to its product portfolio.

In 2009, the e-book market grew 178% to 3 million sets from a year earlier. In 2010, the global e-book market is expected to realize 7.7 million sets. The core chip of e-book system is the application processor of ARM base, whose suppliers are mainly composed of Freescale, Samsung and Marvell. In 2010, TI set foot in this market.

As the AP supplier of the best-selling e-books of Kindle 2 and Kindle DX, Freescale has boasted of a market share of over 70%. As for Marvell, it tended to turn a new page by launching AMADA 166E in 2009. While Samsung seek market expansion with low-price strategy. And TI widened its application range of OMAP3430.

Table of Contents

- **6. Application Processor Vendors**
- 6.1 TI
- 6.2 Renesas
- 6.3 Toshiba
- 6.4 AMD/ATI
- 6.5 Nvdia
- 6.6 Mtekvision
- 6.7 CoreLogic
- 6.8 STMicroelectronics
- 6.9 Freescale
- 6.10 Alpha Imaging Technology (AIT)
- 6.11Marvell
- 6.12 Samsung
- 6.13 Zoran
- 6.14 RMI
- 6.15 Actions Semiconductor
- 6.16 Telechips
- 6.17 Qualcomm

Selected Charts

- Application Processor Market Scale by Category, 2007-2013E
- Market Shares (by Sum) of Non-smartphone Application Processor Vendors, 2008
- Pixel Distribution of Camera Phones Worldwide, 2007-2013E
- Shipment of Auto Focus Camera Phones, 2007-2013E
- Global Mobile Phone Shipment, 2007-2012E
- Global Mobile Phone Shipment, 2007Q1-2009Q4
- Global Mobile Phone Shipment by Region, 2007Q1-2009Q4
- Global Mobile Phone Shipment by Technology, 2007Q1-2009Q4
- Global CDMA/WCDMA Mobile Phone Shipment by Region, 2006-2010
- Market Shares of World's Major Mobile Phone Manufacturers, 2009
- Market Shares of World's Major Mobile Phone Manufacturers, 2010Q1
- Market Shares of World's Major Smart Phone Manufacturers, 2008-2010
- Market Shares of China's Major Mobile Phone Manufacturers, 2008
- Market Shares of China's Major Mobile Phone Manufacturers, 2009
- China Mobile Phone Output, 2004-2012E
- Market Shares of China's Major Smart Phone Manufacturers, 2008 vs. 2009
- Cores of Typical First-Class Mobile Phones Currently
- ARM Core Roadmap
- Cortex-A9 Core
- STERICSSON U8500 System
- Block Diagram of Cortex A5
- ARM Mali Graphics Framework
- Typical Mobile Phones Adopting PowerVR

- Shipment Distribution of Manufacturers of Mobile Phone by Operating System
- Types of Netbook Embedded Data Card, 2007-2012E
- Basic Constitution of Intel Netbook
- Cost Structure of Netbook
- Netbook Shipment, 2007-2013E
- Layout of Netbook Applications, 2007-2012E
- China's Netbook Market, 2008-2012E
- Market Shares of Major Netbook Manufacturers, 2008
- Software System Structure of OMAP Netbook
- PCB Comparison between Intel ATOM Processor and OMAP 3 Processor
- Framework of ARM Smart Book
- E-book Market Scale, 2008-2012
- Global Automotive Infotainment System Market Scale, 2007-2013E
- Global Automotive Infotainment System Shipment, 2007-2013E
- Global Automotive Infotainment System Shipment by Region, 2006-2010
- Market Shares of World's Major Manufacturers of Automotive Embedded Infotainment System, 2008
- Market Shares of World's Major Manufacturers of Automotive After-Sale Infotainment System, 2008
- TI's Revenue by Business, 2007-2009
- TI's Operating Profit by Business, 2007-2009
- TI's OMAP Roadmap
- Introduction to OMAP 4 Series
- Block Diagram of OMAP44X
- Typical Application of OMAP44X
- Software Framework of OMAP44X

- Block Diagram of TWL6030 Power Management, TWL 6040 Audio Back-end Processing Supported by OMAP44X
- Revenue and Operation Profit Rate of Renesas, FY2004-FY2009
- Shipment of SH-Mobile, 2002-2009
- SH-Mobile's Roadmap
- SH-Mobile G2, G3 Die
- Block Diagram of SH-Mobile G3
- Structure of SH-Mobile Platform
- Hardware Structure of SH-Mobile Platform
- Middleware Roadmap of SH-Mobile Platform
- Video Middleware Roadmap of SH-Mobile Platform
- Audio Middleware Roadmap of SH-Mobile Platform
- Middleware Sample of WMA Application
- Middleware Structure of DTV
- Block Diagram of SH-Mobile L3V2
- Block Diagram of SH-Mobile UL
- Block Diagram of SH-Mobile 3 (SH 73180)
- Block Diagram of SH-Mobile 3A (SH73380)
- Block Diagram of SH7722 (SH-MobileR)
- Typical Application of SH7724
- Block Diagram of SH7724
- Revenue and Profit of Semiconductor Business of Toshiba, FY2001-FY2010
- Revenue Structure of Toshiba by Product, FY2005-FY2009

- Investment of Toshiba Semiconductor by Sector, FY2003-FY2009
- Roadmap of Toshiba Mobile Application Processor
- Core Structure of Toshiba Mobile Application Processor
- Block Diagram of Toshiba Mobile Application Processor
- Video Flow of Toshiba Mobile Application Processor
- Revenue and Operating Profit Margin of Nvidia, FY2005-FY2010
- Revenue of Nvidia by Region, FY2008-FY2010
- Revenue of Nvidia by Division, FY2008-FY2010
- Revenue and Operating Profit of Nvidia's Consumer Electronics Dept., FY2007-FY2010
- GPU Block Diagram of Nvidia Mobile Phone
- Block Diagram of TEGRA
- Revenue and Operating Profit of Mtekvision, 2003-2009
- Strategy of Mtekvision
- Organization Structure of Mtekvision
- Staffing of Mtekvision
- Operation Flows of Mtekvision
- Global Presence of Mtekvision
- Sales and Product Structure of Mtekvision, 1999-2008
- Accumulative Shipment of Mtekvision Products by Type, as of 2007 Q2
- Client Proportion of Mtekvision, Q1-Q4, 2008
- Product Proportion of Mtekvision, Q1-Q4, 2008
- Client Proportion of Mtekbision , Q1-Q4,2009E

- Product Proportion of Mtekvision, Q1-Q4, 2009E
- Block Diagram of MV8720
- Block Diagram of MV8750
- Latest Mobile Phones Employed with Mtekvision
- Revenue and Operation Profit Margin of CoreLogic, 2003-2009
- Revenue Structure of CoreLogic by Product, 2003-2008
- Product Roadmap of CoreLogic
- Technology Development of CoreLogic's Products
- CoreLogic SWOT
- Block Diagram of CL6100
- Block Diagram of CL9000
- Revenue Structure of ST Microelectronics by Division, 2007
- NOMADIK Product Roadmap of ST Microelectronics
- Block Diagram of STN8815
- Features of STN8815
- Typical Application of STN8815
- Revenue Structure of Freescale by Product, 2006-2008
- Roadmap of IMX Series Application Processor
- Software Structure of IMX Software Platform
- Product Roadmap of Sigamtel after Being Acquired
- Block Diagram of STMP3710
- Block Diagram of STMP 3770
- Block Diagram of STMP 3731
- Block Diagram of STMP 3738

- Block Diagram of STMP 3750
- Block Diagram of IMX31
- Application Sample of IMX31
- Product List of IMX35X Series
- Block Diagram of IMX37
- Block Diagram of IMX515
- Typical Application of IMX515 Smartphone
- Revenue of Alpha Imaging Technology by Product, Sep.2009-Mar.2010
- Product Roadmap of Alpha Imaging Technology
- Revenue and Operating Profit Margin of Marvell, FY2004-FY2010
- Block Diagram of PXA910/920
- Application Processor Technology of Samsung
- Application Processor Roadmap of Samsung
- Block Diagram of S5PC100
- Block Diagram of S3C6410
- Block Diagram of S5P6640
- Revenue and Operation Profit Margin of Zoran, 2004-2009
- Revenue of Zoran, 2001-2009
- Quarterly Revenue of Zoran, 2002-2009
- Revenue Structure of Zoran by Region, 2008-2009
- Structure of Zoran Revenue from Downstream Products, 2008-2009
- Block Diagram of APPROACH5
- Block Diagram of APPROACH7
- Typical Application of AU1200

- Block Diagram of AU1200
- Block Diagram of AU1300 Series Products
- Revenue and Gross Profit Margin of Actions, 2003-2008
- Revenue and Gross Profit Margin of Actions, 2007 Q1-2009 Q4
- Industry Chain Flow of Actions
- MP3 Product Roadmap of Actions
- MP4 Product Roadmap of Actions
- Block Diagram of ATJ2257
- Global Presence of TELECHIPS
- Revenue and Product Distribution of TELECHIPS, 2001-2007
- Revenue and Operation Profit Margin of TELECHIPS, 2005-2010E
- Downstream Application Proportions of TELECHIPS by Product, (by Quarter) 2009-2010
- Main Customers and Products Employed of TELECHIPS's Audio Sector
- Main Customers and Products Employed of TELECHIPS's Mobile Phone Sector
- Main Customers and Products Employed of TELECHIPS's Auto/Home Audio System Sector
- Product Roadmap of TELECHIPS
- Introduction of TELECHIPS's Latest Products
- Typical Application of TCC8900
- Regional Distribution of New Customers Authorized with Qualcomm Patent, Jan.-Sep. of 2009
- Block Diagram of QSD8250

- Ranking of China’s Top 25 Mobile Phone Manufacturers by Output, 2008
- Performance of CortexA5
- CPU Parameters of Popular Smartphone
- Shipment Achievement of Smartphone Operation System, 2008-2010
- Shipment of Leading Netbook Manufacturers worldwide, 2008 Q3
- Performance Contrast of Intel’s N270 and N280 Series
- List of Mobile Phones Employing OMAP3430
- List of Mobile Phones Employing SH-Mobile CPU
- List of Products Employing SH-Mobile
- Property Comparison of SH-Mobile G1, G2, G3
- List of Mobile Phones Employing Toshiba’s Application Processor
- ATI Mobile Phone Muti-Media Chip List
- List of Mobile Phones Employing ATI’s GPU
- List of Mobile Phones Employing Nvidia’s GPU
- GPU Property Comparison of Nvidia
- CSP Series Products
- MVP Series Products
- MMP Series Products
- List of Mobile Phones Employing STN8810/8815
- Revenue of Freescale’s Mobile Phone Division, 2006 Q1-2010 Q4
- Application Processor List of Freescale
- Revenue and Operation Profit of Alpha Imaging Technology, 2007-2009

- Product Property Comparison of Alpha Imaging Technology
- MMP Product Line List of Alpha Imaging Technology
- ISP Product Line List of Alpha Imaging Technology
- MAP Product Line List of Alpha Imaging Technology
- List of Mobile Phones Employing the Products of Alpha Imaging Technology
- Product List of Marvell ARMAD Series
- Mobile Application Processors of Samsung
- List of Mobile Phones Employing S5PC100, S3C6410
- Product List of RMI ALCHEMY
- Product List of TELECHIPS

How to Buy

Product details			How to Order
	USD	File	By email: report@researchinchina.com
Single user	2,500	PDF	By fax: 86-10-82601570
Enterprisewide	3,700	PDF	By online: www.researchinchina.com
Publication date: May 2010			

For more information, call our office in Beijing, China:

Tel: 86-10-82600828

Website: www.researchinchina.com