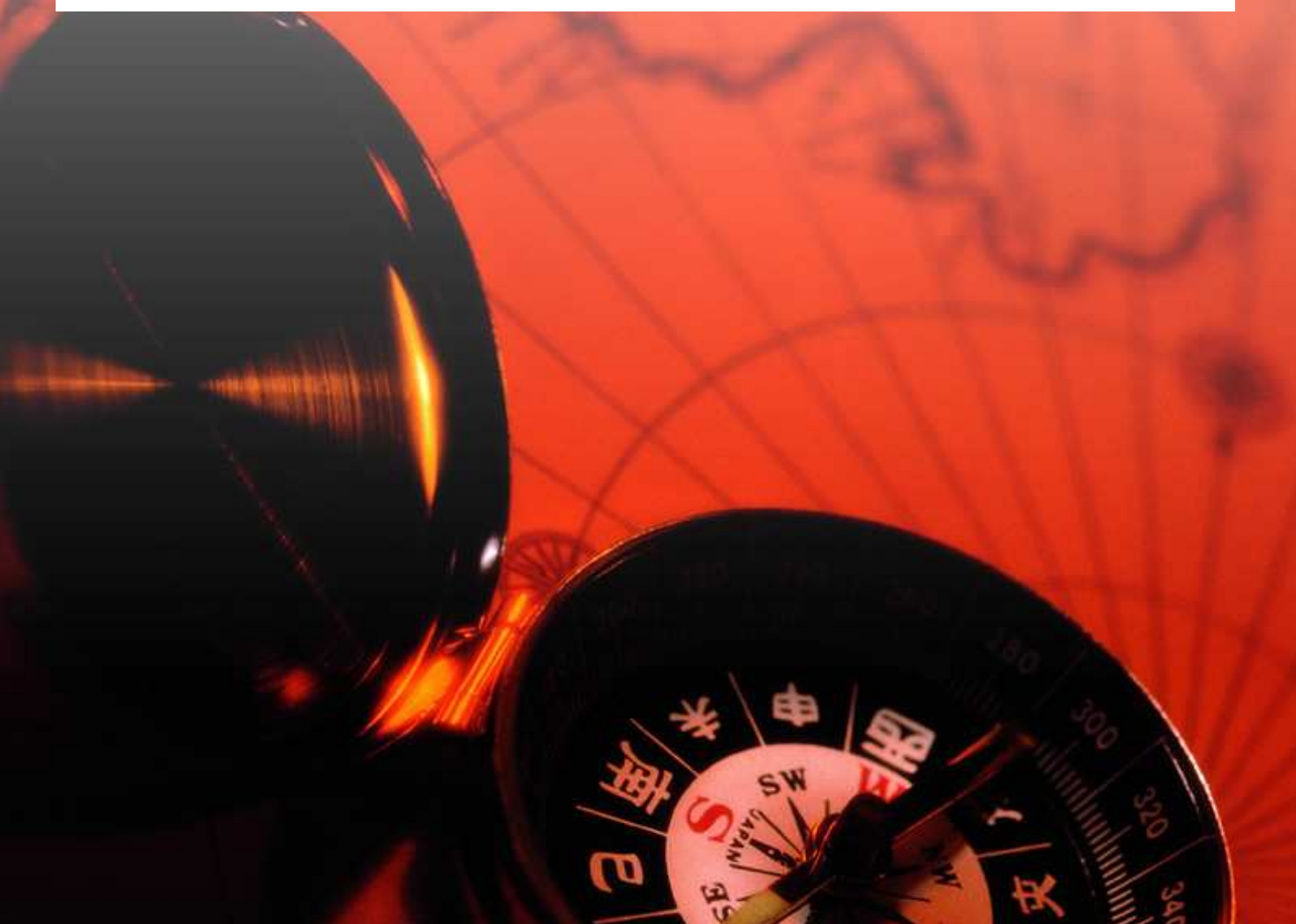


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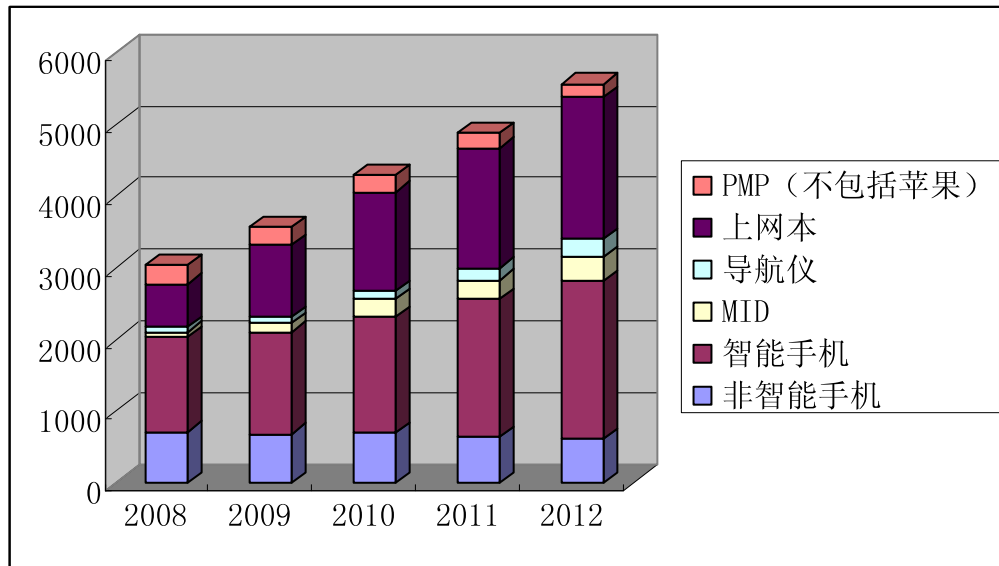
2008-2009 年全球移动应用处理器产业研究报告

Global Mobile Application Processor Industry Report, 2008-2009



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序号	CA066	报告名称	2008-2009 年全球移动应用处理器产业研究报告																									
字数	7.3 万	图表数量	165	报告页数	220	完成时间	09 年 4 月																					
语种	中文	电子版价格(RMB)	8500		纸质版价格(RMB)	7500																						
摘要	<p>所谓移动应用处理器是以各种特定应用（如运算，图形处理，3D 生成，MPEG-4/H.264 解码，全功能上网）为核心，以移动产品为主要应用领域的应用处理器。其内部可以包含移动通讯的 Modem。在其应用的产品中可以是居于核心地位的处理器，也可以是辅助处理器。按照应用领域的不同，我们将其分为 5 大类。</p> <table border="1" data-bbox="279 705 1420 1512"> <thead> <tr> <th>用途</th> <th>描述</th> <th>典型代表</th> </tr> </thead> <tbody> <tr> <td>非智能手机</td> <td>以单一图像或视频处理为核心应用，居于辅助处理器地位，不包含移动通讯的 Modem，不能运行操作系统</td> <td>TELECHIPS 的 TCC8222</td> </tr> <tr> <td>智能手机</td> <td>可以运行操作系统，以运算为核心，具有完备的多媒体功能，可以包含移动通讯的 Modem，可以是主处理器也可以是辅助处理器</td> <td>Qualcomm 的 MSM7201 是主处理器，包含 3G 通讯 Modem，德州仪器 OMAP 系列的 2430 则是辅助处理器，不包含通讯 Modem</td> </tr> <tr> <td>导航仪</td> <td>绝大多数是车载导航仪，其包含了导航 MCU、多媒体播放功能，未来还会加上全功能上网，可以运行操作系统，不包含移动通讯的 Modem</td> <td>RENESAS 的 SH7770、SH7775</td> </tr> <tr> <td>上网本</td> <td>可以运行操作系统，以运算为核心，以上网为核心应用。可以具有完备的多媒体功能，也可以没有；可以包含移动通讯的 Modem，也可以不包含。可以是主处理器也可以是辅助处理器。</td> <td>英特尔的 ATOM 凌动处理器。</td> </tr> <tr> <td>MID</td> <td>可以运行操作系统，以运算为核心，以上网为核心应用。具有完备的多媒体功能。通常不包含移动通讯的 Modem。必须是主处理器。</td> <td>德州仪器 OMAP 系列的 35XX、36XX、4 系列</td> </tr> <tr> <td>PMP</td> <td>不一定能运行操作系统，具有完备的多媒体功能，一定不包含移动通讯的 Modem。必须是主处理器。</td> <td>炬力的 ARJ2137</td> </tr> </tbody> </table> <p>2008-2012 年各种应用处理器市场规模预测</p>							用途	描述	典型代表	非智能手机	以单一图像或视频处理为核心应用，居于辅助处理器地位，不包含移动通讯的 Modem，不能运行操作系统	TELECHIPS 的 TCC8222	智能手机	可以运行操作系统，以运算为核心，具有完备的多媒体功能，可以包含移动通讯的 Modem，可以是主处理器也可以是辅助处理器	Qualcomm 的 MSM7201 是主处理器，包含 3G 通讯 Modem，德州仪器 OMAP 系列的 2430 则是辅助处理器，不包含通讯 Modem	导航仪	绝大多数是车载导航仪，其包含了导航 MCU、多媒体播放功能，未来还会加上全功能上网，可以运行操作系统，不包含移动通讯的 Modem	RENESAS 的 SH7770、SH7775	上网本	可以运行操作系统，以运算为核心，以上网为核心应用。可以具有完备的多媒体功能，也可以没有；可以包含移动通讯的 Modem，也可以不包含。可以是主处理器也可以是辅助处理器。	英特尔的 ATOM 凌动处理器。	MID	可以运行操作系统，以运算为核心，以上网为核心应用。具有完备的多媒体功能。通常不包含移动通讯的 Modem。必须是主处理器。	德州仪器 OMAP 系列的 35XX、36XX、4 系列	PMP	不一定能运行操作系统，具有完备的多媒体功能，一定不包含移动通讯的 Modem。必须是主处理器。	炬力的 ARJ2137
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应用处理器的出现源自手机应用的不断创新和发展。应用处理器最大的好处在于完全独立在手机通讯平台之外，灵活方便，缩短设计流程，最大化利用已有的经验和 IP。照相手机的出现造就了一批专门处理照相后段的应用处理器厂家，而基频厂家在 1-2 年后将处理照相后段的 JPEG 解码功能集成在基频中，这就导致了一大批 JPEG 解码功能的应用处理器厂家在 2006 年进入低谷期。这些厂家的收入大幅度下滑，出货量锐减。

智能手机的应用处理器有两种方式，一种是包含了 Modem 的高度集成的 IC，以高通的 SNAPDRAGON 为最佳例子，还有飞思卡尔的 MXC300-30，Marvell 的 PXA930。另一种是德州仪器和三星则是单独的计算型 IC，不包含 Modem。后者导致手机复杂程度增加不少，目前的主流还是前者。前者完成度高，涉及简洁，但运算能力稍差，灵活度低。后者相反。3G 领域的任何一种通讯协议都绕不开高通，而选择高通，则意味着高昂的专利费。因此，两者都有存在的理由。

手持导航仪受到智能手机的冲击，手持导航仪加上其他功能反而显得多余，因此基本上没有应用处理器的市场。而车载导航仪不同，它未来会变身车用信息系统，可以播放各种流媒体和 DVD，也可以成为车载电脑。车载导航仪主要是日本厂家生产，所以瑞萨几乎垄断了该市场。其最新产品是 SH7775。

对于 MID 的定义有两种，一种是狭义的，一种是广义的。业内通常取前者，本报告也取前者。MID 的狭义定义是：为尺寸介于上网本和智能手机之间的移动上网设备是 MID。MID 强调自己便携性强

	<p>于上网本，屏幕尺寸大于智能手机，似乎应该有不错的市场前景。不过智能手机的屏幕越来越大，目前平均尺寸都在 3.2 英寸左右，最大的超过了 4 英寸。MID 的地位尴尬：MID 的功能单一，不具备传统手机功能，也无法像上网本那样运行简单的办公系统，它缺乏全尺寸键盘。便携性远不如手机，屏幕远不如上网本，功能比智能手机缺少很多，性能则完全不如上网本。MID 最致命的缺陷是其价格，由于销量不高，目前价格高于部分智能手机和部分上网本，所以综合来看 MID 市场前景暗淡。不过考虑到其可以看作是 PMP 的升级产品，未来仍然具有一定的市场。</p> <p>上网本是目前最火热的电子产品，也是 ARM 和英特尔激烈争夺的战场。德州仪器的 OMAP 3640 是 ARM 内核处理器的代表作品，在成本、体积、功耗方面占据绝对优势。不过性能方面、在运行大型复杂的软件方面、在产业支持度方面，英特尔占据绝对优势。</p>
正文目录	<p>第一章：移动应用处理器简介</p> <p>1.1、移动应用处理器定义</p> <p>1.2、非智能手机用应用处理器</p> <p>1.3、导航仪应用处理器</p> <p>1.4、MID 市场前景</p> <p>第二章：全球手机市场及发展趋势</p> <p>2.1、全球手机市场</p> <p>2.2、全球手机发展趋势</p> <p>2.2.1、手机互联网时代即将到来</p> <p>2.2.2、HSPA 大规模应用已经展开</p> <p>第三章：中国手机市场与产业</p> <p>3.1、中国手机市场</p> <p>3.2、中国手机出口现状</p> <p>3.3、中国智能手机市场</p> <p>第四章：智能手机核心软硬件研究</p> <p>4.1、智能手机处理器发展趋势</p> <p>4.2、智能手机处理器现状</p> <p>4.3、Symbian</p> <p>4.4、Linux 与 Windows Mobile</p> <p>4.5、操作系统总结</p> <p>第五章：上网本</p> <p>5.1、上网笔记本电脑定义</p> <p>5.2、上网本背后的驱动力</p>

	<p>5.3、上网本发展趋势:内置数据卡 5.4、上网本硬件构成简介 5.5、上网本全球市场规模 4.5、中国上网本市场 4.6、ARM 与英特尔的上网本之争</p> <p>第四章、应用处理器厂家研究</p> <p>4.1、德州仪器 4.2、瑞萨 4.3、东芝 4.4、AMD/ATI 4.5、Nvidia 4.6、Mtekvision 4.7、CoreLogic 4.8、意法半导体 4.9、Freescale 4.10、曜鹏 4.11、Marvell 4.12、Broadcom 6.13、卓然 6.14、RMI 6.15、炬力 6.16、Telechips</p>
图 表 目录	<p>2008-2012 年各种应用处理器市场规模预测 2008 年非智能手机应用处理器主要厂家市场占有率统计 S H 7 7 7 5 内部框架图 2007-2012 年全球手机出货量与智能手机所占比例统计及预测 2007-2008 年每季度全球手机出货量与增速统计 2007-2008 年每季度手机出货量地域分布 2007-2008 年每季度全球手机出货技术分布 2008 年全球主要手机品牌市场占有率 2007 年 1 季度到 2008 年 3 季度全球主要智能手机厂家市场占有率 2008 年全球主要智能手机厂家市场占有率 手机发展趋势图 1995-2012 年手机发展趋势预测 2008-2013 年手机通讯协议栈发展趋势 拉美 UMTS-HSPA 网络分布图 2004-2012 年中国手机市场销量与智能手机所占比例统计 2008 年中国主要手机厂家市场占有率 2004-2012 年中国手机产量统计及预测 1999-2008 年中国手机出口量统计</p>

2002-2008 年中国手机出口金额统计
 2008 年中国手机出口地域分布
 2008 年中国智能手机主要厂家市场占有率
 2007-2012 年上网本内置数据卡类型预测
 英特尔上网本基本构成
 上网本成本结构
 2006-2009 年最保守的上网本出货量统计及预测
 2007-2012 年保守的上网本出货量统计及预测
 2007-2011 年上网本出货量统计及预测
 2008-2013 年最乐观的上网本出货量预测
 2007-2012 年上网本用途分布
 2008-2012 年中国上网本市场统计及预测
 2008 年主要上网本厂家市场占有率
 OMAP 上网本软件系统结构图
 英特尔 ATOM 处理器与 OMAP 3 处理器 PCB 板对比
 OMAP 3640 与英特尔 ATOM 对比
 德州仪器 OMAP 路线图
 OMAP 4 系列简介
 OMAP3430/3630 内部框架图
 OMAP35XX 系列处理器内部框架图
 瑞萨 2004-2009 财年收入与运营利润率统计及预测
 2007 财年瑞萨产品收入结构
 2002-2009 年 SH-Mobile 出货量统计及预测
 SH-Mobile 路线图
 SH-Mobile G 系列路线图
 SH-Mobile G2、G3 显微裸晶(Die) 图
 SH-Mobile G3 内部框架图
 SH-Mobile 平台结构
 SH-Mobile 平台硬件结构
 SH-Mobile 平台中间件路线图
 SH-Mobile 平台视频中间件路线图
 SH-Mobile 平台音频中间件路线图
 WMA 应用中间件示例
 数字电视中间件结构示例
 SH-Mobile L3V2 内部框架图
 SH-Mobile UL 内部框架图
 SH-Mobile 3 (SH73180) 内部框架图
 SH-Mobile 3A (SH73380) 内部框架图
 SH7722 (SH-MobileR) 内部框架图
 2001-2010 财年东芝半导体业务收入与利润统计及预测
 东芝 2005-2009 财年产品收入结构比例预测
 东芝半导体 2003-2009 财年各领域投资统计及预测
 东芝手机应用处理器路线图
 东芝手机应用处理器内核结构

东芝手机应用处理器内部框架图
 东芝手机应用处理器视频流程图
 Nvidia 手机 GPU 内部框架图
 TEGRA 内部框架图
 Mtekvision 组织结构
 Mtekvision 人员配置结构
 Mtekvision 运作流程
 Mtekvision 全球分布
 1999-2008 年 Mtekvision 销售额与产品结构统计及预测
 Mtekvision 各型号产品截至 2007 年 2 季度累积出货量
 2008 年 1-4 季度 Mtekvision 客户比例结构
 2008 年 1-4 季度 Mtekvision 产品比例结构
 2009 年 1-4 季度 Mtekvision 客户比例结构预测
 2009 年 1-4 季度 Mtekvision 产品比例结构预测
 MV8720 内部框架图
 MV8750 内部框架图
 采用 Mtekvision 的手机一览
 2003-2008 年 CoreLogic 收入与毛利率统计
 2003-2008 年 CoreLogic 产品收入结构
 CoreLogic 产品路线图
 CoreLogic 产品技术发展
 CoreLogic SWOT
 CL6100 内部框架图
 CL9000 内部框架图
 2005 年 1 季度到 2007 年 4 季度意法半导体各部门收入统计
 2007 年意法半导体各部门收入结构比例
 意法半导体 2008 年收入结构
 意法半导体连续 2005-2008 年收入统计
 意法半导体 2008 年地区收入结构比例
 意法半导体组织结构
 意法半导体连续 2003-2008 年 无线领域的收入
 意法半导体 NOMADIK 产品路线图
 STN8815 内部框架图
 STN8815 特色
 STN8815 典型应用图
 2006-2008 年飞思卡尔产品收入结构
 2007 年飞思卡尔产品收入结构
 IMX 系列应用处理器路线图
 Sigamtel 被收购后的产品路线图
 STMP3710 内部框架图
 STMP3770 内部框架图
 STMP3731 内部框架图
 STMP3738 内部框架图
 STMP3750 内部框架图

IMX31 内部框架图
 IMX31 视频流程
 IMX31 应用实例
 IMX35X 系列产品一览
 IMX37 内部框架图
 曜鹏产品路线图
 2001-2009 财年 Marvell 收入与运营利润率统计
 Marvell PXA3XX 系列平台典型应用
 PXA320 内部框架图
 2006 年 1 季度到 2008 年 4 季度博通产品收入结构
 BCM2722 内部框架图
 卓然 2001-2008 年收入统计
 卓然 2002-2008 年每季度收入统计
 卓然 2008 年 3、4 季度地域收入结构比例
 卓然 2008 年 3、4 季度产品收入结构比例
 APPROACH 5 内部框架图
 APPROACH 7 内部框架图
 AU1200 典型应用图
 AU1200 内部框架图
 AU1300 系列产品内部框架图
 2003-2008 年炬力收入与毛利率统计
 炬力产业链流程
 炬力产品路线图
 TELECHIPS 全球分布
 2001-2007 年 TELECHIPS 收入及产品分布
 2006-2010 年 TELECHIPS 收入与运营利润率统计及预测
 2006-2009 年 TELECHIPS 产品下游应用比例结构
 TELECHIPS 音频领域主要客户及使用公司产品一览
 TELECHIPS 手机领域主要客户及使用公司产品一览
 TELECHIPS 汽车/家用音响领域主要客户及使用公司产品一览
 TELECHIPS 产品路线图
 TELECHIPS 最新产品简介
 TCC7901 内部框架图
 TCC7901 的 BSP 开发状态
 TCC7901 音频流程及 CODEC 开发状态
 TCC7901 视频流程及 CODEC 开发状态
 TCC7901 数字电视开发状态

 2008 年全球前十三大品牌厂家出货量统计
 2008 年中国手机产量前 25 大厂家产量排行
 2008 年中国手机出口前 23 个国家及地区
 2008 年到 2009 年 3 月 130 款上市智能手机 CPU 与操作系统一览
 采用 Symbian 系统手机及版本一览

2008 年 3 季度全球主要上网本厂家出货量统计
 英特尔 ATOM 处理器全线产品参数一览
 英特尔 N270、N280 性能全面对比
 德州仪器最新 OMAP 36 系列参数一览
 采用 SH-Mobile 处理器的手机一览
 使用 SH-Mobile 的产品一览
 SH-MobileG1、G2、G3 特性对比
 采用东芝应用处理器的手机一览
 ATI 手机多媒体芯片一览
 使用 ATI 手机 GPU 的手机一览
 使用 Nvidia 手机 GPU 的手机一览
 Nvidia 手机 GPU 特性对比
 CSP 系列产品一览
 MVP 系列产品一览
 MMP 系列产品一览
 采用 STN8815 的手机一览
 2006 年 1 季度到 2008 年 4 季度飞思卡尔手机部门收入统计
 飞思卡尔应用处理器产品一览
 曜鹏产品特性对比
 曜鹏 MMP 产品线产品一览
 曜鹏 ISP 产品线产品一览
 曜鹏 MAP 产品线产品一览
 使用曜鹏产品手机的产品一览
 博通历次收购简介
 RMI ALCHEMY 产品一览
 TELECHIPS 产品一览

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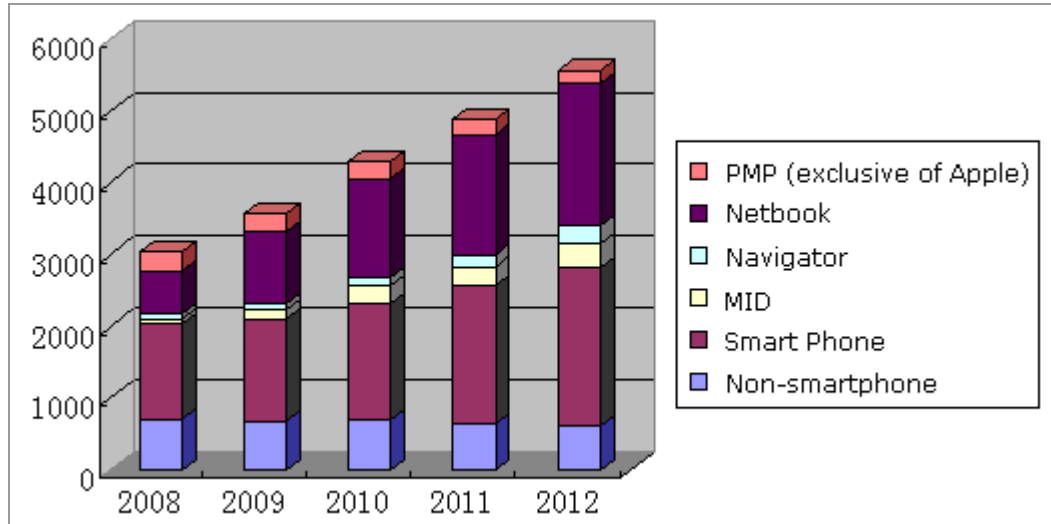
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Title	Global Mobile Application Processor Industry Report, 2008-2009		Pages	220																		
Price	PDF US \$2,300 Enterprise wide US \$3,300	Hard Copy US \$2,100	Release Date	Apr/2009																		
Abstract	<p>The so-called mobile application processor is centered on a variety of particular applications such as Algorithm, graphic processing, 3D formation, MPEG-4/H.264 decoding and full-function online surfing; and is the application processor focus on mobile products. The mobile application processor contains a Modem of mobile communications, and can play as a kernel or an auxiliary role in its applied products. By application fields, mobile application processor can be classified into five categories as following:</p> <table border="1"> <thead> <tr> <th>Purpose</th> <th>Description</th> <th>Typical Processor</th> </tr> </thead> <tbody> <tr> <td>Non-Smartphone</td> <td>Taking single image or video processing as the core applications; acting as the role of auxiliary processor; excluding Modem of mobile communications; and being incapable to run the operating systems.</td> <td>TCC8222 of Telechips</td> </tr> <tr> <td>Smartphone</td> <td>It can operate the operating systems, taking algorithm as the core; and is provided with multimedia functions, can contain Modem of mobile communications; and can be either the host processor or the auxiliary processor.</td> <td>Qualcomm's MSM7201 is the host processor has a Modem of 3G communication; TI's OMAP-series2430 is the auxiliary processor does not have a communication Modem</td> </tr> <tr> <td>Navigator</td> <td>The majority of navigators are in-car navigators, being provided with navigation MCU and multimedia playing functions. In the future, will be added with the full-function online surfing, and thus can run the operating systems, excluding a Modem of mobile communications.</td> <td>SH7770 and SH7775 of Renesas</td> </tr> <tr> <td>Netbook</td> <td>It can operate the operating systems, taking algorithm as the core; and with its crucial application for the internet surfing. It can be provided with multimedia functions or without; it can alternatively contain Modem of mobile communication. Moreover, and it can be either the host processor or the auxiliary processor.</td> <td>Intel's Atom processor</td> </tr> <tr> <td>MID</td> <td>It can operate the operating systems, taking algorithm as the core; and with its crucial application for the internet surfing, it is provided with multimedia functions and is as usual exclusive of a Modem of mobile communications.</td> <td>35XX, 36XX and 4 Series of TI's OMAP Series</td> </tr> </tbody> </table>				Purpose	Description	Typical Processor	Non-Smartphone	Taking single image or video processing as the core applications; acting as the role of auxiliary processor; excluding Modem of mobile communications; and being incapable to run the operating systems.	TCC8222 of Telechips	Smartphone	It can operate the operating systems, taking algorithm as the core; and is provided with multimedia functions, can contain Modem of mobile communications; and can be either the host processor or the auxiliary processor.	Qualcomm's MSM7201 is the host processor has a Modem of 3G communication; TI's OMAP-series2430 is the auxiliary processor does not have a communication Modem	Navigator	The majority of navigators are in-car navigators, being provided with navigation MCU and multimedia playing functions. In the future, will be added with the full-function online surfing, and thus can run the operating systems, excluding a Modem of mobile communications.	SH7770 and SH7775 of Renesas	Netbook	It can operate the operating systems, taking algorithm as the core; and with its crucial application for the internet surfing. It can be provided with multimedia functions or without; it can alternatively contain Modem of mobile communication. Moreover, and it can be either the host processor or the auxiliary processor.	Intel's Atom processor	MID	It can operate the operating systems, taking algorithm as the core; and with its crucial application for the internet surfing, it is provided with multimedia functions and is as usual exclusive of a Modem of mobile communications.	35XX, 36XX and 4 Series of TI's OMAP Series
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	It must be a host processor.	
PMP	It can not always run the operating systems. It is provided with multimedia functions; and must be a host processor, undoubtedly excluding a Modem of mobile communications.	ARJ2137 of Actions Semiconductor Co., Ltd

Application Processor Market Scale by Category, 2008-2012E



The application processor stems from instant innovation and development of mobile phone applications. Application processor rests its biggest merit with its absolute independence from mobile phone communication platform, being flexibly and conveniently with the shorter design flow and maximum utilization of own experiences and IP. The emergence of camera mobile phone created a group of application processor vendors focus on camera back-end processing, then baseband vendors integrated the IPEG decoding function for camera back-up 1-2 years later, thus resulted the sharp revenue drop and shipment decline of those application processor vendors in the year of 2006.

The application processor of smart phone can be divided into two types, one is the IC highly integrated with Modem, taking Qualcomm's SNAPDRAGON, Freescale's MXC300-30 and Marvell's PXA930 for instance; another is the single algorithm-based IC without Modem, represented by Texas Instruments and Samsung. In opposition to the latter type, the former type featured as high degree of fulfillment and simple design but not quite well in algorithms and flexibility. Any communication protocol in 3G field cannot avoid Qualcomm, but Qualcomm also means a high patent fee. Therefore, the both types have a reason of coexistence.

Portable navigators are under great influence of smart phones. To add much functions on portable navigators seem superabundance, in this sense, application processor has no market, but the situation is different for an in-car navigator due to it will alternatively become the in-car information system which can play sundry stream media and DVD, or become the in-car computer. The in-car navigator is mainly produced by Japanese vendors; therefore, Renesas almost monopolizes the market, and its latest product was SH7775.

	<p>MID is defined both in a narrow sense and in a broad sense. As usual, the insiders prefer the definition in the narrow sense, so do this report. MID refers to the mobile network equipment by size between netbook and smartphone. MID has superior portability to netbook and bigger screen size than smart phone, and it seems to have a considerable market prospect. However, the screen size of smart phone is becoming bigger with an average size of 3.2 inches, and the biggest is over 4 inches. MID is of single functionality and has neither the function of traditional mobile phone nor the capability to run the simple office system as Netbook. It also short of full sized keypads, its portability also far inferior to that of mobile phone; The vital defect of MID lies in the price due to its small sales volume. As a whole, MID market has a dim prospect, however, considering MID can be the upgrade of PMP, it will enjoy some market potentials.</p> <p>Netbook is the highlight of electronic products, and also is the battle field between ARM and Intel. OMAP3640, the masterpiece of Texas Instruments, enjoy the overwhelming advantage regarding cost, volume and power consumption, while Intel enjoys the advantages of performance, the operation of complicated software, and industrial support.</p>
<p>Contents</p>	<ol style="list-style-type: none"> 1. Overview of Mobile Application Processor <ol style="list-style-type: none"> 1.1 Definition 1.2 Non-smartphones Application Processor 1.3 Navigator Application Processor 1.4 MID Market Prospect 2. Global Mobile Phone Market <ol style="list-style-type: none"> 2.1 Overview 2.2 Market Developments <ol style="list-style-type: none"> 2.2.1 Forthcoming Era of Mobile Internet 2.2.2 Large-scale Application of HSPA 3. China Mobile Phone Market <ol style="list-style-type: none"> 3.1 Overview 3.2 Mobile Phone Exports 3.3 Smartphone Market 4. Core Hardware and Software of Smartphone <ol style="list-style-type: none"> 4.1 Development of Smartphone Processor 4.2 Status Quo of Smartphone Processor 4.3 Symbian 4.4 Linux and Windows Mobile 4.5 Summary of Operating Systems 5. Netbook <ol style="list-style-type: none"> 5.1 Definition of Netbook

	<p>5.2 Drivers for Netbook</p> <p>5.3 Development Trend: Embedded Data Card</p> <p>5.4 Hardware Configuration of Netbook</p> <p>5.5 Global Netbook Market Scale</p> <p>5.6 China's Netbook Market</p> <p>5.7 Netbook Competition between ARM and Intel</p> <p>6. Application Processor Vendors</p> <p>6.1 Texas Instruments</p> <p>6.2 Renesas</p> <p>6.3 Toshiba</p> <p>6.4 AMD/ATI</p> <p>6.5 Nvidia</p> <p>6.6 Mtekvision</p> <p>6.7 CoreLogic</p> <p>6.8 STMicroelectronics</p> <p>6.9 Freescale</p> <p>6.10 Alpha Imaging Technology (AIT)</p> <p>6.11 Marvell</p> <p>6.12 Broadcom</p> <p>6.13 Zoran</p> <p>6.14 RMI</p> <p>6.15 Actions Semiconductor Co., Ltd</p> <p>6.16 Telechips</p>
Selected Charts	<p>Application Processors Market Scale by Category, 2008-2012E</p> <p>Market Share Distribution of Non-Smartphone Application Processor Vendors in 2008</p> <p>Block Diagram of SH7775</p> <p>Global Mobile Phone Shipment and the Overall Proportion of Smart Phones, 2007-2012E</p> <p>Global Quarterly Mobile Phone Shipment and Growth Rates, 2007-2008</p> <p>Global Quarterly Shipment of Mobile Phones by Region, 2007-2008</p> <p>Global Quarterly Shipment of Mobile Phones by Technology, 2007-2008</p> <p>Global Market Share Distribution of Key Mobile Phone Vendors in 2008</p> <p>Global Market Share Distribution of Key Smartphone Vendors, Q1 2007-Q3 2008</p> <p>Global Market Shares Distribution of Key Smartphone Vendors, 2008</p> <p>Mobile Phone Development Trends, 1995-2012E</p> <p>Development Trends of Mobile Phone Communication Protocol Stack, 2008-2013E</p> <p>UMTS-HSPA Network Distribution in Latin America</p> <p>Mobile Phone Sales in China and the Overall Proportion of Smartphones, 2004-2012E</p> <p>Market Share Distribution of Key Mobile Phone Vendors in China, 2008</p> <p>Mobile Phone Output in China, 2004-2012E</p> <p>Chia's Mobile Phone Export Volume, 1999-2008</p>

China's Export Value of Mobile Phones, 2002-2008
Regional Distribution of Mobile Phone Exports in China, 2008
Market Share Distribution of Key Smartphone Vendors in China, 2008
Types of Netbook Embedded Data Card, 2007-2012E
Basic Constitution of Intel Netbook
Cost Structure of Netbook
Global Netbook Shipment, 2006-2009E (Most Conservative)
Global Netbook Shipment, 2007-2012E (Conservative)
Global Netbook Shipment, 2007-2011E
Global Netbook Shipment, 2008-2013E (Most Optimistic)
Layout of Netbook Applications, 2007-2012E
China's Netbook Shipment, 2008-2012E
Global Market Share Distribution of Key Netbook Vendors, 2008
Software System Structure of OMAP Netbook
PCB Comparison between Intel ATOM Processor and OMAP3 Processor
Comparison between OMAP3640 and Intel ATOM
OMAP Roadmap of Texas Instruments
Brief Introduction to OMAP 4 Series
Internal Framework of OMAP3430/3630
Internal Framework of OMAP35XX-Series Processor
Renesas' Revenues and Operating Profits, FY2004-FY2009E
Revenue Breakdown of Renesas by Product, FY2007
SH-Mobile's Shipment, 2002-2009E
SH-Mobile's Roadmap
SH-Mobile's G-Series Roadmap
Die Microstructure of SH-Mobile G2 and G3
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
Samples of WMA Application Middleware
Samples of DTV Middleware Structure
Block Diagram of SH-Mobile L3V2
Block Diagram of SH-Mobile UL
Block Diagram of SH-Mobile 3 (SH73180)
Block Diagram of SH-Mobile 3A (SH73380)
Block Diagram of SH7722 (SH-MobileR)
Toshiba's Revenues from Its Semiconductor Operations, FY2001-FY2010E
[Toshiba's Revenue by Product, FY2005-FY2009E](#)
Toshiba's Investments by Sector, FY2003-FY2009E
Roadmap of Toshiba Mobile Phone Application Processor
Core Structure of Toshiba Mobile Phone Application Processor

Block Diagram of Toshiba Mobile Phone Application Processor
 Video Flows of Toshiba Mobile Phone Application Processor
 Block Diagram of Nvidia Mobile Phone GPU
 Block Diagram of TEGRA
 Organization Structure of Mtekvision
 Staff Configuration of Mtekvision
 Operation Flows of Mtekvision
 Global Presence of Mtekvision
 Sales and Product Structure of Mtekvision, 1999-2008
 Cumulated Shipment of Mtekvision's Sundry Product Models, as of Q2 2007
 Client Structure of Mtekvision, Q1-Q4, 2008
 Product Structure of Mtekvision, Q1-Q4, 2008
 Client Structure of Mtekvision, Q1-Q4, 2009E
 Product Structure of Mtekvision, Q1-Q4, 2009E
 Block Diagram of MV8720
 Block Diagram of MV8750
 Revenues and Gross Profit Margin of CoreLogic, 2003-2008
 Revenues of CoreLogic by Product, 2003-2008
 Product Roadmap of CoreLogic
 SWOT Analysis of CoreLogic
 Block Diagram of CL6100
 Block Diagram of CL9000
 Departmental Revenues of STMicroelectronics, Q1 2005-Q4 2007
 Revenue Structure of STMicroelectronics, 2008
 Revenue of STMicroelectronics, 2005-2008
 Revenue Breakdown of STMicroelectronics by Region in 2008
 Organization Structure of STMicroelectronics
 STMicroelectronics' Revenue from Wireless Sector, 2003-2008
 NOMADIK Product Roadmap of STMicroelectronics
 Block Diagram of STN8815
 Features of STN8815
 Typical Applications of STN8815
 Revenues of Freescale by Product, 2006-2008
 Roadmap of IMX-Series Application Processor
 Product Roadmap of Sigmтел after being Purchased
 Block Diagram of STMP3710
 Block Diagram of STMP3770
 Block Diagram of STMP3731
 Block Diagram of STMP3738
 Block Diagram of STMP3750
 Block Diagram of IMX31
 Video Flow of IMX31
 IMX31 Application Cases
 Listing of IMX35X Series Products

<p>Block Diagram of IMX37</p> <p>Product Roadmap of AIT</p> <p>Revenues and Operating Profit Margin of Marvell, FY2001-2009E</p> <p>Typical Application of Marvell PXA3XX-Series Platform</p> <p>Block Diagram of PXA320</p> <p>Revenue of Broadcom by Product, Q1 2006-Q4 2008</p> <p>Block Diagram of BCM2722</p> <p>Revenue of Zoran, 2001-2008</p> <p>Quarterly Revenue of Zoran, 2002-2008</p> <p>Zoran's Revenue by Region, Q3 2008 & Q4 2008</p> <p>Block Diagram of APPROACH 5</p> <p>Block Diagram of APPROACH 7</p> <p>Typical Applications of AU1200</p> <p>Block Diagram of AU1200</p> <p>Block Diagram of AU1300-Series Product</p> <p>Revenue and Gross Profit Margin of Actions Semiconductor, 2003-2008</p> <p>Industry Chain Flow of Actions Semiconductor</p> <p>Product Roadmap of Actions Semiconductor</p> <p>Global Presence of Telechips</p> <p>Revenue and Product Layout of Telechips, 2001-2007</p> <p>Revenue and Operating Profit Margin of Telechips, 2006-2010E</p> <p>Telechips' Products by Application, 2006-2009E</p> <p>Telechips' Main Clients in Audio Field and List of Those Adopting Telechips' Products</p> <p>Telechips' Main Clients in Car/Household Acoustics Field and List of Those Adopting Telechips' Products</p> <p>Product Roadmap of Telechips</p> <p>Overview of Telechips' Latest Products</p> <p>Block Diagram of TCC7901</p> <p>BSP Development Status of TCC7901</p> <p>TCC7901 Audio Flows and CODEC Developments</p> <p>TCC7901 Video Flows and CODEC Developments</p> <p>TCC7901 Digital TV Developmentss</p> <p>Global Top 13 Mobile Phone Vendors by Shipment in 2008</p> <p>Ranking of Top 25 Mobile Phone Vendors by Output in China, 2008</p> <p>Top 23 Destinations of China's Mobile Phone Export in 2008</p> <p>CPU and Operating Systems of 130 Smart Phone Models Launched During 2008 to March 2009</p> <p>The Mobile Phone Models Adopting Symbian and Its Versions</p> <p>Global Shipment of Key Netbook Vendors, Q3 2008</p> <p>Parameters of Intel ATOM Processor Full-Line Products</p> <p>Overall Performance Comparison Between Intel N270 and Intel N280</p> <p>Parameters of TI's Latest OMAP36 Series</p> <p>List of Mobile Phones Adopting SH-Mobile Processor</p> <p>List of the Products Adopting SH-Mobile</p> <p>Features Comparisin Among SH-Mobile G1, G2 and G3</p>

<p>List of Mobile Phones Adopting Toshiba Application Processors</p> <p>Overview of ATI Mobile Phone Multimudia Chips</p> <p>List of Mobile Phones Adopting ATI's Mobile Phone GPU</p> <p>List of Mobile Phones Adopting Nvidia's Mobile Phone GPU</p> <p>Comparison of Nvidia's Mobile Phone GPU Features</p> <p>Overview of CSP-series Products</p> <p>Overview of MVP-series Products</p> <p>Overview of MMP-series Products</p> <p>List of Mobile Phones Adopting STN8815</p> <p>Freescale's Revenues from Its Mobile Phone Dept., Q1 2006-Q4 2008</p> <p>Applications Processor List of Freescale</p> <p>Comparison of AIT' Product Features</p> <p>Overview of AIT'S MMP Product Lines</p> <p>Overview of AIT'S ISP Product Lines</p> <p>Overview of AIT's MAP Product Lines</p> <p>List of Mobile Phones Adopting AIT's Products</p> <p>Retrospect of Broadcom's Acquisitions</p> <p>Product List of RMI ALCHEMY</p> <p>Product List of Telechips</p>
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