

emFlash Memory Markets: 2008-2015
The Markets for Embedded Flash Memory

Report Number

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Key Findings

Embedded memory technologies have become a key enabler for systems requiring higher performance, lower power consumption, very small physical volumes, as well as mobility. Specifically, embedded Flash (emFlash) and embedded nonvolatile memories (emNVM) make high performance mobile terminals possible. They also enable the most economic system solutions for devices and applications in the newly emerging mobility market segment.

emFlash is currently integrated in a wide range of semiconductor components, both microcontrollers (4 bit, 8 bit, 16 bit, 32 bit) and DSP. Only a small part of the programmable logic (gate arrays, standard cells and field programmable logic) is currently equipped with emFlash.

The transition from 4-bit MCUs to 8-bit and above MCUs will continue resulting in a decline in 4-bit MCUs during the forecast period. In 2008, the revenues for 32-bit MCUs exceeded that of 16-bit MCUs for the first time, and then in 2010, the revenues for 32-bit exceeded revenues for the 8-bit MCU, driven by Smart Grids, Touch controllers, other consumer and industrial applications along with smart cards including banking smart cards and government ID cards and documents. MCUs will continue to account for the bulk of emFlash components with DSPs and PLDs taking up a lesser proportion as these vendors are slowly offering only a few emFlash-based designs.

MCUs with emFlash are expected to increase at a faster rate than the overall MCU market due to the ability to update code as software complexity increases. This allows vendors to employ product platforms in which firmware can be tailored to target specific applications. Increasing multimedia content in cell phones and enabling internet access will fuel the adoption of emFlash in SIM/IC card applications. Embedded Phase Change Memory or emPCM made its debut in 2010 from both STMicro and Numonyx (Micron) although it is years away, and emMRAM is also in final development slated for release this year. TFT or nano Flash reached the market last year with Freescale, where they plan to add this memory to other product lines.

Overall, the emFlash penetration rate is expected to increase from 24.8% in 2008 to 27.4% in 2015, however, the penetration rate increase in the MCU segment is even more enhanced – from 49.4% in 2008 to 57.3% in 2015.

Analysis and Reporting Methodology

The report analyzes the potential of the emFlash applications and markets in conjunction with the underlying technologies and infrastructure. It also assesses future developments of the emFlash industry and quantifies the different aspects of market growth from 2008 through 2015. In addition, it takes into consideration the major macroeconomic changes underway, as well as the impact these changes will have on the emFlash industry during the forecast period.

Because of the growing complexity and scope of the emFlash industry, there is a need to put the qualitative and quantitative development aspects into a broader perspective. Therefore, this report also takes into consideration political, economic, social and broad technological trends.

Relevant primary data and information were collected from discussions with industry and company representatives. Secondary data and information have been obtained from public sources, such as company documents, press releases, annual reports and industry statistics, as well as from the existing Web-Feet Research database. Historic data have been crosschecked and correlated with industry statistics. Forecast data and their interpretation are based on analyses and assessments of Web-Feet Research.

The report is organized on two logic levels, which are not physically separated. One level describes the development trends of relevant technologies, standards and systems. It also takes into consideration how macroeconomic factors impact these trends. The resulting information is used to create models and assumptions for the analyzed markets. The other level forecasts the qualitative and quantitative development of the markets through 2015, by using the collected data and by factoring in the created models and assumptions. The understanding of the models and assumptions also helps the reader to adjust the forecast whenever the market environment and development trends modify the assumptions.

Whenever information and data were not provided or were not possible to obtain due to confidentiality concerns, an estimate of the total market has been developed. The estimates have been done by developing the identity and the character of the surveyed market segment. Additionally, use was made of a surrogate development model applicable to known similar market segments, in correlation with specific market drivers, accelerators and inhibitors. In total, over 40 end-use devices were forecast for the six known end-use markets forecast out to 2015 by emFlash revenue, bytes, and by MCU and logic types.

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About Web-Feet Research

Web-Feet Research, located in Monterey, California, provides market research, analysis, and consulting services for the electronics and semiconductor industries; focusing on the non-volatile memory and storage markets with an emphasis on Flash memory, SSDs and small form factor hard drives.

The company has significant expertise and experience in the areas of communications, computers and consumer electronics applications, as well as in identification, definition, design and marketing of standard and application specific semiconductor components. In addition to the syndicated market analysis reports, our analysts and consultants have worked on a series of commissioned reports and projects for customers in the electronics and semiconductor industries: customer-specific and multi-client reports, advanced applications of existing technology reports, emerging technology economics studies, potential uses of emerging technology studies, management consulting projects.

The company draws on a vast technology and systems expertise in communications, computing, consumer and automotive, including experience in the relevant areas of the semiconductor industry: micrologic, analog/mixed signal, memories, micro power management, displays and sensors, as well as semiconductor manufacturing technologies and processes. Web-Feet Research collaborators have extensive market knowledge and marketing experience in the United States, Europe and in the Asia-Pacific region.

Web-Feet Research reports take into consideration major social, political, economic and technology changes underway and the impact these changes have on the economy, the high technology industries in general, and the electronics and semiconductor industries in particular.

The growing complexity and scope of economic developments creates a need to put the qualitative and quantitative aspects of the development trends in a broader perspective and to correlate them with the macroeconomic factors. Therefore, Web-Feet Research reports embrace and correlate both the technology and commercial aspects of the developments.



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