Emerging Non Volatile Memory (NVM) Technology & Market Trends Report

Description:

Over the last two years, the complex emerging non-volatile memory (NVM) situation has been greatly simplified.

In 2014, Micron, the main phase-change memory (PCM) promoter for stand-alone memory, stopped actively selling PCM chips following the collapse of sales targeting the shrinking entry-level mobile phone market. At the same time, Micron developed a resistive random access memory (RRAM or ReRAM) chip with Sony, part of a technology class that includes conductive bridge RAM (CBRAM). At 16 Gb the Micron-Sony RRAM has the highest density commercialized among emerging NVM technologies. Thus, we believe that PCM is now out of the race for stand-alone memory. For embedded microcontroller unit (MCU) applications 2015 will be a key year as STMicroelectronics, the main PCM promoter in this market, will choose if PCM will remain in its roadmap.

The new emerging NVM report is thus focused on the two most promising technologies: RRAM and magnetoresistive RAM (MRAM). The most attractive category of MRAM is spin-transfer torque magnetoresistive RAM (STTMRAM) that provides higher scalability/density. A main selection criterion for memory is the scalability/density of the chips, as this impacts both performance and cost. The Yole report provides a precise memory roadmap in terms of technological nodes, chip density and pricing.

STTMRAM/MRAM and RRAM have different features and positioning. Nevertheless, they will compete in 2015 and 2016 in some standalone markets, with storage class memory for enterprise storage being the biggest one. They will also compete in embedded MCU markets in the wearable, smart card and other markets. Micron has already selected RRAM for 2015 and other key stand-alone players like Samsung and SK Hynix should react quickly. In the embedded memory space, only Panasonic has selected RRAM and many key players have not yet made their choice. There is still high uncertainty over what will be the best technology to adopt. The next two years will therefore be critical for the future. There are multiple selection criteria, including scalability, retention, speed, endurance and cost. Making the right choice is not an easy task, but this report will provide insights about the main market drivers for each type of memory in each application.

In the long term, STTMRAM is sure to be the only candidate to substitute DRAM thanks to its high endurance. RRAM is sure to substitute NAND thanks to its high scalability/low cost.

This report provides a market forecast for each technology by application, in units, in Gbit, revenues and also number of wafers. It also presents a precise review of all the latest technical developments by the main players to understand the status of the technology and the main technical challenges.

Objectives Of The Report:

1. Presents an overview of the semiconductor memory market
   - NAND, DRAM, embedded MCU and mobile CPU main markets, market forecast, and main trends
   - Current technological status and roadmap for the coming years
   - Market landscape

2. Provides understanding of emerging NVM applications:
   - For six application fields (ass storage, mobile devices, MCU smart card & other markets, wearable, enterprise storage, industrial & transportation): total addressable market, market drivers and challenges, technology roadmap, players, main trends.
   - Roadmap with time to market by application

3. Presents market forecasts on emerging NVM business:
   - 2014-2020 market forecast in units, in Gbit, US$/Gbit, and number of wafers
   - Price evolution by application and technology
   - Forecast for six applications and two technologies (MRAM/STTMRAM, RRAM)

4. Describes emerging NVM technologies
   - Working principle, manufacturing methods, advantages/limitations, status of development, price, time to
market
- Roadmap with technological nodes, and chip density evolution with main players
- Latest product development status for each key market player

5. Describes and analyzes the competitive landscape
- Recent acquisitions and funding
- Latest company news
- Who the key players are by technologies and applications

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