

# Nanomemory: Market Research Report

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## Abstracts

This report analyzes the Global Market for Nanomemory in Millions of US\$.

The types of Nanomemory technologies discussed in the report include: Ferroelectric Random Access Memory or FRAM, Magnetoresistive Random Access Memory or MRAM, Ovonic Unified Memory, Holographic Memory, Nano-RAM or NRAM, Molecular Memory, and Polymer memory.

Annual forecasts are provided for the period of 2010 through 2015.

The report profiles 40 companies including many key and niche players worldwide such as Advanced Micro Devices, Inc., California Molecular Electronics Corporation, Cavendish Kinetics, Colossal Storage Corporation, Cypress Semiconductor Corporation, Everspin Technologies, Inc., Fujitsu Limited, Hewlett-Packard Development Company, L.P, Hitachi, Ltd., Honeywell International Inc., International Business Machines Corp., Infineon Technologies AG, Intel, Nanochip, Inc., Nanosys, Inc., Nantero, Inc., NVE Corporation, Ovonyx, Inc., Ramtron International Corporation, Samsung Electronics Co., Ltd., SanDisk Corporation, STMicroelectronics NV, Texas Instruments Inc., and ZettaCore, Inc.

Market data and analytics are derived from primary and secondary research.

Company profiles are mostly extracted from URL research and reported select online sources.

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FRAM

MRAM

Ovonic Unified Memory

Holographic Memory

NRAM

Molecular Memory

Polymer Memory

## 3. TECHNOLOGICAL DEVELOPMENTS

Researchers Develop New Nanotube Flash Memory Design

Researchers to Develop Graphene Memory

Physicists Succeed in Controlling Electron Spin

Chemists Develop New Method to Synthesize Nanorods and Nanowires

Researchers Develop Nanowires to Store Data

IBM Develops New Memory Device

KAIST Develops 8nm NVM Flash Memory

University of Southampton Develops Optical Memory Element

Researchers Develop the Largest Memory Bit Array

Physicists Develop Optical Memory Using Single Gallium Nanoparticle

## 4. PRODUCT INNOVATIONS/INTRODUCTIONS

Toshiba Unveils New 16-Gigabit Memory Chip

Micron Launches 8-Gb SLC high speed NAND

AMD Launches New Stream Processor, AMD FireStream™ 9250

AMD Introduces Two New Graphics Card with TeraFlops Graphics Chip

AMD to Use GDDR5 Memory in New Advanced ATI Radeon™ Graphics Systems

AMD Introduces New Graphics Accelerator, ATI FirePro™ V 8700

AMD Releases New Graphic Processor, ATI Radeon™ E2400

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Samsung's New High-Performing Smart Card IC Utilizes 90nm Technology  
SanDisk Releases a New WORM Digital Memory Card for Data-Write-Protection  
SanDisk's New Advanced Memory Stick PRO-HG Duo™, Ideal for SLR cameras  
Everspin Includes Small Footprint and byte-wide BGA Products into MRAM family  
Infineon Technologies Launches X-GOLD™102  
Nanochip Unveils a Breakthrough Storage Technology  
Ramtron Unveils FM25V05, Serial 512-Kilobit F-RAM  
Ramtron Releases High-Speed FM28V100  
Ramtron Releases FM25V10, Flexible 1-Megabit Serial F-RAM  
Ramtron Enhances Its Range of AEC-Q100-Specified F-RAM Memory Devices  
Samsung Introduces First 30nm Flash Memory in the World  
Virage Unveils New 65nm Product Lines  
RIC Launches 4Mb FRAM  
Samsung Launches 8GB Flash Memory  
Hewlett-Packard Launches Nanotechnology Based New Computer Chip  
Ramtron Unveils 4Mb Non-Volatile FRAM Memory  
Samsung Develops a New Chip for Digital TVs  
Samsung Launches 8GB moviNAND for Mobiles  
Samsung Launches 30nm Process Node Based Primary Flash Memory Chip  
Virage Expands the Range of Silicon Aware IP Line  
Toshiba Corp to Manufacture NAND Flash Memory Chips with 43nm Technology  
Impinj Releases AEON@OTP Nonvolatile Memory Cores  
Scientists in South Korea Create the World's First 8-nanometer Flash Memory Part  
Epson and Fujitsu Develop Next-Generation FRAM Technology  
Fujitsu Introduces Embedded FRAM for Digital Televisions  
Ramtron Extends Grade 1 Automotive Devices Product Range  
Ramtron Announces Expansion of +125°C F-RAM-based Automotive Devices  
Ramtron Unveils a New 2Mb Parallel High-Density F-RAM memory device  
Ramtron Expands Versa 8051Series by Unveiling a 2 KB F-RAM Microcontroller  
Ramtron Expands Nonvolatile State Saver Line by Unveiling a 4-bit F-RAM Device  
Ramtron Expands F-RAM-based Grade 1 Automotive parts  
FRAM Memory from Ramtron Incorporated in Car Audio Platform by Daesung-Eltec  
Ramtron Announces Upgrading of Grade 1 Automotive line  
Ramtron Introduces Improved F-RAM-Enhanced™ Processor Companions  
Samsung Unveils GDDR5 Memory Chip Transfers data at Speeds of 6Gb/s

Samsung Introduces 64Gb MLC NAND Flash Memory for High Density Storage  
Samsung Unveils 60nm 2Gb DDR2 DRAM Using Class Processing Technology  
Samsung Introduces a Multi-chip High-Density moviMCP Memory Package  
Samsung Commences Sampling of 16Gb NAND Flash Utilizing 50nm Processing Technology  
Hitachi and Renesas Launch Circuit Technology for On-Chip Nonvolatile Memory Applications  
Hitachi Launches 0.05mm x 0.05mm Contactless RFID IC Chip  
Infineon Unveils XE166 Family of Real-Time Signal Controllers  
Impinj Releases AEON® for Production in TSMC  
Ramtron and TI to Launch 4-Mbit FRAM

## **5. RECENT INDUSTRY ACTIVITY**

Hynix to Acquire Stake in ProMOS  
Lockheed Martin Acquires Government Business Unit of Nantero  
BAE Systems and MAST to Develop Nano-Sensor Technology  
Qimonda Partners with Elpida  
SVTC Partners with Nantero  
Hynix Partners with Nanosys  
Qimonda AG in Partnership with Elpida Memory Inc. to Develop Nano-Chips  
Nantero Partners with SVTC Technologies to Develop Carbon Nanotube Process  
Aewin Technologies Enters into an Agreement with Ramtron  
Numonyx Commences Prototype Production of 45nm Wafers  
Hynix to Commence Production of 50nm DRAM  
SanDisk to Commence Production of MLC NAND Flash Memory  
Crocus Technology Raises Funds to Develop MRAM Technology  
Samsung and Sun Microsystems Collaborate on SLC Flash Memory Development  
ATMI and Ovonyx to Collaborate on High-Volume Manufacture of PCM Products  
SanDisk and Toshiba Co-Develop NAND Flash Memory  
Energy Optimizers Enters into an Agreement with Ramtron  
Freescale Forms New Company for MRAM Development  
Hynix Joins the Memory Technology Access Program (M-TAP) of Nanosys  
Toshiba Develops 16-Gigabit NAND Flash Memory  
Ramtron International Selects Shanghai Welltech for FM25L16 Designing  
AMD Partners with TSMC  
TSMC Announces Virage as IP Partner  
RIC Partners with TI  
Samsung and Toshiba Collaborate on Premium NAND Memory Chips

Ovonyx and Hynix Collaborate on PCM Products Development  
Ovonyx and Qimonda Collaborate on PCRAM Technology  
IBM, Infineon, Freescale, Samsung & Chartered Cooperate on 32-nm Semiconductors  
Spansion Inks Agreement with TSMC  
AMD Enters into an Agreement with SAMSUNG  
Infineon Enters into an Agreement with IBM  
Toshiba to Manufacture 43nm NAND Flash Memory Chips  
Samsung Starts Production of 16-gigabit NAND Flash Memory  
Samsung Commences Production of 60nm DRAM Chips  
Intel Corp Receives Approval for New Computer Chip Plant  
NVE Corp to Receive New Patent  
Intel to Commence Mass Production of Alverstone  
National Semiconductor to Qualify Cavendish Kinetics' Nanomech Process  
Samsung Commences Mass Production of NAND Flash Memory Chips

## **6. FOCUS ON SELECT GLOBAL PLAYERS**

Advanced Micro Devices, Inc. (US)  
California Molecular Electronics Corporation (US)  
Cavendish Kinetics (US)  
Colossal Storage Corporation (US)  
Cypress Semiconductor Corporation (US)  
Everspin Technologies, Inc. (US)  
Fujitsu Limited (Japan)  
Hewlett-Packard Development Company, L.P. (US)  
Hitachi, Ltd. (Japan)  
Honeywell International Inc. (US)  
International Business Machines Corp. (US)  
Infineon Technologies AG (Germany)  
Intel (US)  
Nanochip, Inc. (US)  
Nanosys, Inc. (US)  
Nantero, Inc. (US)  
NVE Corporation (US)  
Ovonyx, Inc. (US)  
Ramtron International Corporation (US)  
Samsung Electronics Co., Ltd. (Korea)  
SanDisk Corporation (US)  
STMicroelectronics NV (Switzerland)

Texas Instruments Inc (US)  
ZettaCore, Inc. (US)

### **III. COMPETITIVE LANDSCAPE**

Total Companies Profiled:

Region/Country Players

The United States

Japan 5

Europe

Germany

The United Kingdom 2

Rest of Europe 2

Asia-Pacific (Excluding Japan)

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