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|  | SRAM | DRAM | EEPROM | FLASH | FeRAM | MRAM |
| Type (Volatile/Non-Volatile) | Volatile | Volatile | Non-Volatile | Non-Volatile | Non-Volatile | Non-Volatile |
| Architecture | Requires Six MOSFETs to store a single bit | Only one transistor and a capacitor are required per bit | Individual memory cells can be erased and reprogrammed without disturbing the memory array. This requires extra MOSFET for each memory cell leading to a lower packing density | Flash can store more than 1 bit of information per cell as the amount of current flow is sensed rather than just absence or presence of current. | Materials tend to stop being ferroelectric when they are too small. This limits the size of components used in FeRAM and therefore determines the density, | Cell sizes are limited to 180nm due to write induced field overlaps between adjacent cells, leading to potential false writes. |
| Capacity | MB | GB | GB | GB | kB – 2MB | GB |
| Applications | CPU cache memory  Hard drive buffers | Working memory for CPU or GPU | Store small amounts of data that must be saved when power is removed such as device configuration | Data storage such as the operating system or user data | Same functionality as flash memory, with lower power usage and faster write performance | Proposed applications include aerospace and military systems and consumer in electronics. May replace all memory types (universal memory) |
| Architecture of a memory cell |  | http://users.ece.gatech.edu/~sudha/academic/class/ece2030/Lectures/images/memory-02.gif |  | http://upload.wikimedia.org/wikipedia/en/thumb/2/2c/Flash_cell_structure.svg/800px-Flash_cell_structure.svg.png | http://www.radio-electronics.com/images/fram-basic-memory-cell-01.gif | http://upload.wikimedia.org/wikipedia/commons/thumb/f/f9/MRAM-Cell-Simplified.svg/330px-MRAM-Cell-Simplified.svg.png |
| Features | No refresh time, results in higher performance | Structural simplicity, allows DRAM to reach very high density. | EEPROMs can be programmed and erased in circuit. | Siginificantly faster in read and write compared to EEPROM. Robust. | Faster write performance and greater maximum number of write-erase cycles than flash. | Similar performance to SRAM, similar density than DRAM, much lower power consumption than DRAM, no degrdation of time life flash. |
| Drawbacks | More expensive to produce and less desnse than DRAM | Capacitors need to refresh periodically, which reduces performance | Limited times it could be reprogrammed (drawback when EEPROM is frequently reprogrammed while the computer is in use) | Finite number of program-erase cycles. However, engineers at Macronix solved the write erase cycles degradation. | Much lower storage densities, capcity limitations and higher production cost compared to flash. | Susceptible to induced magnetic field. Results in potential false writes (half-select problem). |