

RAIMI



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How RAM works:

Before a PC can do anything, it must move programs from disk to RAM. RAM to a PC is like a kitchen counter top.



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How RAM works:

When your PC is first turned on, the RAM is in a Blank state. It will quickly fill with data in binary language, the 1's and 0's. When the PC is turned off, the information in RAM disappears.



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How RAM works:

So how is the information
written to RAM?



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How RAM works:

The software and the operating system sends a burst of energy to the address line..



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How RAM works:

An address line is a microscopic strand of electrically conductive material that is etched into the RAM chip.



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How RAM works:

Each address line identifies the location of a spot in the chip where data can be stored.



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How RAM works:

The burst of electricity identifies where to record data among the many address lines in a RAM chip.



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How RAM works:

The electrical pulse turns on a transistor that is connected to a data line at each memory location in a RAM chip where data can be stored.



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How RAM works:

The transistor is essentially a microscopic electronic switch.



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How RAM works:

While the transistors are turned on, the software sends bursts of electricity along selected data lines. Each burst represents a "1".



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How RAM works:

When the electrical pulse reaches an address line where a transistor has been turned on, the pulse flows through the closed transistor and charges a capacitor.



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How RAM works:

Each charged capacitor in the address line represents a 1.

An uncharged capacitor represents a 0.



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How RAM works:

So how does the computer
read this RAM?



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How RAM works:

When software wants to read data stored in RAM, another electrical pulse is sent along the address line once again closing the transistors connected to it.



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How RAM works:

Everywhere along the address line that there is a capacitor holding a charge, the capacitor will discharge through the circuit created by the closed transistors sending electrical pulses along the data lines.



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How RAM works:

The software recognizes which data lines the pulses come from, and interprets each pulse as a 1, and a line where there is no pulse will indicate a 0.



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How RAM works:

There have been various types of RAM chips developed to move data quicker and to avoid errors.



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Types of RAM:

DRAM: Dynamic RAM

EDO RAM: Extended Data Out

VRAM: Video RAM

SRAM: Static RAM

SDRAM: Synchronous DRAM



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Types of RAM:

SIMM: Single Inline Memory Module

DIMM: Dual Inline Memory Module

ECC: Error Correcting Code



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Types of RAM:

Flash RAM-can hold a charge when the computer is turned off.



References

How Computer Work: Millennium Edition

by: Ron White, 1999 QUE

