

BIOS/UEFI

- BIOS (Basic Input Output System)
- UEFI (Unified Extensible Firmware Interface)
 - UEFI supports larger drives (over 2 TB), faster boot times, and more advanced features

PC Boot Process

Power is applied, POST (Power-On Self Test), Boot loader loads OS.

- POST checks CPU, RAM, storage devices, and connected peripherals.

UEFI supports secure boot, legacy BIOS does not.

Diagnostics include memory tests, hard drive checks, and hardware component status.

Useful for troubleshooting startup and hardware issues.

Flash BIOS is done using a USB drive or the manufacturer's software.

BIOS/UEFI Security

- passwords for setup utility and boot.
- restricts system access.

TPM and drive encryption options may be available.

3.9 Processors

- CPU (Central Processing Unit)
- Performance influenced by cache size, clock speed, cores, and architecture.
- Overclocking increases speed but can cause instability.
- Check BIOS version for CPU support if installing newer models.

3.5 RAM

Single-sided RAM has memory modules that are organized into a single logical bank; double-sided RAM has modules organized into two banks.

- The computer can access data in only one bank at a time. Therefore, single-sided RAM allows access to all the memory; double-sided RAM requires the computer to switch between banks.

- Originally, double-sided RAM had modules on both sides of the circuit board, and single-sided RAM had modules on only one side. However, you can also have double-sided RAM with modules on only one side. The memory is divided into separate banks internally.
- Single-sided memory of the same capacity as double-sided memory uses half the number of memory modules. The modules are denser, with a higher individual capacity.
- Most motherboards support both single-sided and double-sided memory. However, verify compatibility before purchasing.
- The use of single-sided and double-sided RAM varies among motherboards. You might find older motherboards:
 - Are unable to use double-sided memory.
 - Allow double-sided memory but can use only up to half the total memory when all memory slots are filled.
 - Do not allow mixing single-sided and double-sided together.

5.3 Optical drives

CD ROM

- Read Only Memory (ROM)
- 737 MB error correction
- 847 MB total
- 150 KBps

CD RW

- Re-Writeable
- 650 MB capacity
- Burn,Erase,Read

DVD

- Digital Versatile(Video) Disc (DVD)
- Holds
- Video
- Audio
- Data
- 4.7 GB capacity

DVD ROM

- 4.7 GB capacity
- Read Only Memory
- 11 Mbps

DVD RW

- 4.7 Gb
- Read/Write
- Portable
- Crystal encoding
- Limited life

Dual Layer

- 8.5 GB capacity
- Backward compatible for older systems
- Opposite Track Path (OTP)
- Slower write speeds

Blu-ray

- 25 GB capacity
- double layer disc 50 GB capacity
- reads data at 4.5 MBps