

# How operating system Boots up?

5 Steps.

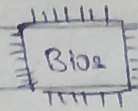
## ① Power ON

ON → Power Supply

→ Mother board ✓

→ Storage device / external

## ② CPU Loads BIOS or UEFI



BIOS - Basic Input Output System.

UEFI - Unified Extensible Firmware Interface

① CPU initialize

② goes to BIOS chip.

## ③ BIOS or UEFI runs test & initialize Hardware

① Loads some setting from a memory area

↓  
Backed by CMOS  
Battery

CMOS - Complementary Metal  
Oxide Semiconductor.

② Program Loads with settings

POST - Power on self test



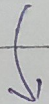
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④ BIOS or UEFI, hands off to Boot device

Boot device → disk (HDD / SSD) <sup>↳ Hard disk drive</sup>  
CD <sup>↳ Solid State Drive</sup>  
USB device.

Boot Loader → Program execute → ON

[actual OS] ✓



① MBR (Master Boot Recorder) [disk 0th index]

Boot Loader Location

UEFI → EFI (Electronic Fuel Injection) [partition in disk]

⑤ Boot Loader Loads full OS

Program → Actual OS initialise

Windows → bootmgr.exe

Linux → GRUB

Mac → boot.efi