OS Boot Up Sequence:

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1 First Program When Computer Turned On

- Set of instructions kept in the read-only memory (ROM)
- Examines system hardware to ensure everything is functioning properly
- **power-on self test (POST):** Checks the following for errors:
  1. CPU
  2. Memory
  3. Basic Input-Output Systems (BIOS)
- Software from ROM (usually **firmware**) activates disk drives: Now the first piece of the operating system is found: **bootstrap loader**

What is a Bootstrap Loader?

2 Bootstrap Loader

Main function to load the operating system into memory, that begins operation.

- Sets up the small driver programs → to interface with and control various hardware subsystems
- Sets up division of memory → hold the operating system, user information and applications
- Establish the data structures → hold signals, flags and semaphores
- Control passed on to the operating system

3 More on the Boot Process

- Started by executing code in ROM (BIOS) $\rightarrow$ load the sector 0, cylinder 0 the boot drive

- BIOS tries to execute this sector

- What sector 0, cylinder 0 contains: Either

  - Code such as LILO, which locates kernel, loads it and executes it

  - start of an OS kernel, such as Linux

- Sometime, when booting from a diskette $\rightarrow$ filesystem is loaded into *ramdisk*, which is RAM (accessed as if it were a disk)

4 References

1. http://wombat.doc.ic.ac.uk/foldoc/foldoc.cgi?bootstrap+loader

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3. http://www.tavi.co.uk/os2pages/boot.html

4. http://www-user.tu-chemnitz.de/ thpo/POST_EN/postdef.html