

Boot Time Optimization

From Texas Instruments Wiki

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Boot time optimization[[edit](#)]

Boot Time[[edit](#)]

"Boot Time" referred in this page is the time elapsed from "chip coming out of reset" to "Linux Prompt" This page considers under 2 seconds boot time as fast boot

In short[[edit](#)]

Reuse the existing knowledge. Lot of knowledge is available inside and outside of TI /* provide relevant links here */. Measure and identify boot time spenders. Optimize them. U-boot probably is one of the key areas to target.

Techniques[[edit](#)]

- Optimize U-Boot
 - Choose the optimal EMIF settings based on NOR used
 - Optimize the NOR to RAM copy
 - Optimize Crc32
 - Avoid printf's
 - Avoid I2C or any other slow peripheral access during U-boot
- Optimize Kernel
 - Remove unused components from Kernel
 - Use loadable modules option to defer initialization of components to after-boot.
Example: network initialization.
 - Avoid Linux timer calibration loop

- Avoid Kernel printks
- Optimize Filesystem
 - Rebuild Rootfilesystem with minimal components
 - Use cramfs as rootfilesystem


Linux Boot Sequence[\[edit\]](#)

1. ARM boots and starts executing U-boot code from NOR in-place
2. U-boot copies Kernel to RAM
3. U-boot copies filesystem to RAM (copy can be avoided using flash filesystem /* link to relevant page here */))
4. U-Boot sets parameters and starts Kernel
5. Kernel uncompresses itself
6. Kernel initialization
7. Driver Initialization
8. Init
9. Init scripts
10. Shell

see also:

1. [Measuring Boot Time](#)
2. [All This For 1 Second Boot](#)

[DaVinci Optimization](#)

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