# Boot Process

This section describes an exemplary boot process, which means that the output depends on the specific system and has not to be the same, with its stage-specific outputs as mentioned in page "Board bring-up overview for TEI0022". The first section describes an overview with the information at which point which boot stage is started. The second section shows an exemplary excerpt from a boot process.

## Overview of the console output during the boot process

| Stage # | Stage Name | Line | Output Start |
|---|---|---|---|
| 1 | BootROM | | No output |
| 2 | Preloader | 1 | U-Boot SPL 2013.01.01 (Jan 02 2020 - 11:23:24) ... |
| 3 | Bootloader | 22 | U-Boot 2013.01.01 (Jan 06 2020 - 10:45:30) ... |
| 4 | Kernel | 49 | Starting kernel ... |
| 5 | Root Filesystem | 68 | Welcome to Poky (Yocto Project Reference Distro) 2.7.2 (warrior)! |
| 6 | Linux | 86 | Poky (Yocto Project Reference Distro) 2.7.2 arrow-sockit ttyS0 |

## Exemplary Boot Process Console Output

**Boot Process**

```
U-Boot SPL 2013.01.01 (Jan 02 2020 - 11:23:24)
BOARD : Altera SOCFPGA Cyclone V Board
CLOCK: EOSC1 clock 25000 KHz
CLOCK: EOSC2 clock 25000 KHz
CLOCK: F2S_SDR_REF clock 0 KHz
CLOCK: F2S_PER_REF clock 0 KHz
CLOCK: MPU clock 600 MHz
CLOCK: DDR clock 333 MHz
CLOCK: UART clock 100000 KHz
CLOCK: MMC clock 50000 KHz
CLOCK: QSPI clock 400000 KHz
RESET: COLD
INFO : Watchdog enabled
SDRAM: Initializing MMR registers
SDRAM: Calibrating PHY
SEQ.C: Preparing to start memory calibration
SEQ.C: CALIBRATION PASSED
SDRAM: 2048 MiB
ALTERA DWMMC: 0


U-Boot 2013.01.01 (Jan 06 2020 - 10:45:30)

CPU : Altera SOCFPGA Platform
BOARD : Altera SOCFPGA Cyclone V Board
I2C: ready
DRAM: 2 GiB
MMC: ALTERA DWMMC: 0
In: serial
Out: serial
Err: serial
Skipped ethaddr assignment due to invalid EMAC address in EEPROM
```

```
Net: mii0
Warning: failed to set MAC address

Hit any key to stop autoboot: 0
reading u-boot.scr
** Unable to read file u-boot.scr **
Optional boot script not found. Continuing to boot normally
reading zImage
4584536 bytes read in 219 ms (20 MiB/s)
reading socfpga.dtb
19377 bytes read in 5 ms (3.7 MiB/s)
## Flattened Device Tree blob at 00000100
Booting using the fdt blob at 0x00000100
reserving fdt memory region: addr=0 size=1000
Loading Device Tree to 03ff8000, end 03fffbb0 ... OK

Starting kernel ...

Uncompressing Linux... done, booting the kernel.
[ 0.000000] Booting Linux on physical CPU 0x0
[ 0.000000] Linux version 4.9.0-g27c406b-dirty (soceds@ubuntu) (gcc version 5.5.0 (Linaro GCC 5.5-2017.10) ) #3
SMP Tue Mar 26 23:45:18 EDT 2019
[ 0.000000] CPU: ARMv7 Processor [413fc090] revision 0 (ARMv7), cr=10c5387d
[ 0.000000] CPU: PIPT / VIPT nonaliasing data cache, VIPT aliasing instruction cache
[ 0.000000] OF: fdt:Machine model: Trenz M Series Cyclone V SoC Development Kit
[ 0.000000] Memory policy: Data cache writealloc
[ 0.000000] percpu: Embedded 14 pages/cpu @eefcb000 s26944 r8192 d22208 u57344
[ 0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 522752
[ 0.000000] Kernel command line: console=ttyS0,115200 root=/dev/mmcblk0p2 rw rootwait

...
... Skipping lines  until the last one ...
...

[ 1.849673] systemd[1]: Detected architecture arm.

Welcome to Poky (Yocto Project Reference Distro) 2.7.2 (warrior)!

[ 1.888466] systemd[1]: Set hostname to <arrow-sockit>.
[ 2.113176] systemd[1]: File /lib/systemd/system/systemd-journald.service:12 configures an IP firewall
(IPAddressDeny=any), but the local system does not support BPF/cgroup based firewalling.
[ 2.130237] systemd[1]: Proceeding WITHOUT firewalling in effect! (This warning is only shown for the first
loaded unit using IP firewalling.)
[ 2.444313] systemd[1]: Listening on udev Control Socket.
[ OK ] Listening on udev Control Socket.
[ 2.486269] systemd[1]: Listening on Syslog Socket.
[ OK ] Listening on Syslog Socket.
[ 2.517683] systemd[1]: Started Forward Password Requests to Wall Directory Watch.
[ OK ] Started Forward Password R???uests to Wall Directory Watch.

...
... Skipping lines  until the last one ...
...

[ OK ] Started Update UTMP about System Runlevel Changes.

Poky (Yocto Project Reference Distro) 2.7.2 arrow-sockit ttyS0

arrow-sockit login:
```