SH-Mobile ARM zboot

MobileFOSS Miniconf, `linux.conf.au` Brisbane 2011
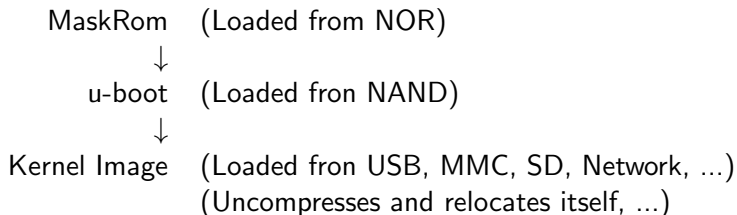
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SH-Mobile ARM zboot

- SH-Mobile ARM is an ARM platform developed by Renesas
- Target for this work is the AP4EB and Markerel boards
- Default boot loader is u-boot
- Would like to boot directly to linux;
- Or use Linux as a boot loader (kexec)

Motivation

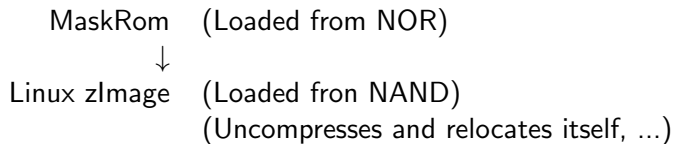- Prove Hardware
- Provide options for customers
- Upstream first policy

Boot Sequence with u-boot on NAND

MaskRom   (Loaded from NOR)
$\downarrow$
u-boot   (Loaded fron NAND)
$\downarrow$
Kernel Image   (Loaded fron USB, MMC, SD, Network, ...)
         (Uncompresses and relocates itself, ...)

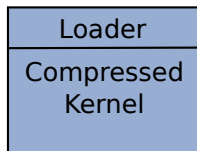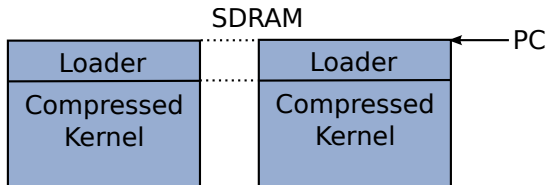# Goal 1: Boot zImage from NAND

- NAND zboot support has been merged into 2.6.38-rc1

Boot Sequence with zboot on NAND

MaskRom   (Loaded from NOR)
↓
Linux zImage   (Loaded fron NAND)
                (Uncompresses and relocates itself, ...)

Loader

Compressed
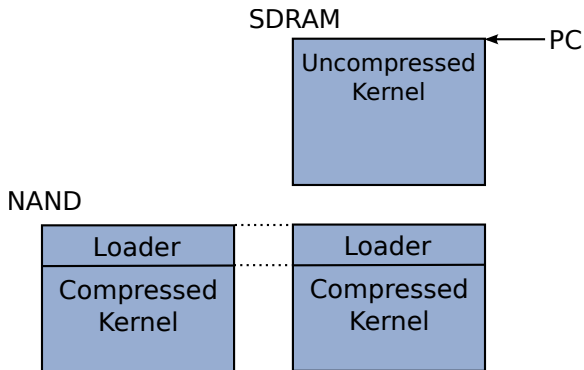Kernel

- MaskRom copies the zImage to SDRAM;
- And and jumps to it
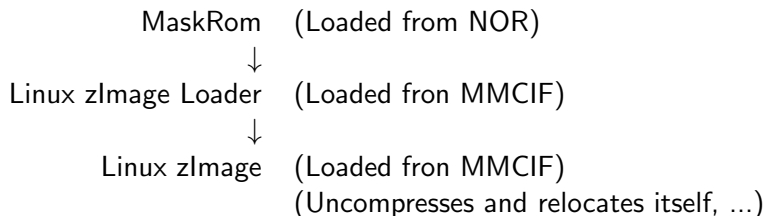
zboot from NAND: Uncompressed

- zImage Loader uncompresses the Kernel;
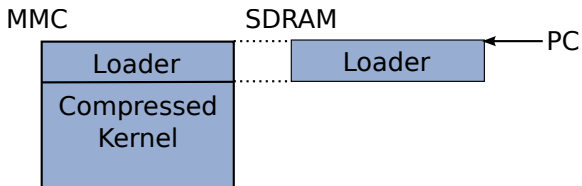- And jumps to it

Goal 2: Boot zImage from MMCIF

- MMCIF is a hardware block that accesses MMC cards
- MMCIF zboot support will be merged into 2.6.38-rc2 (I hope!)
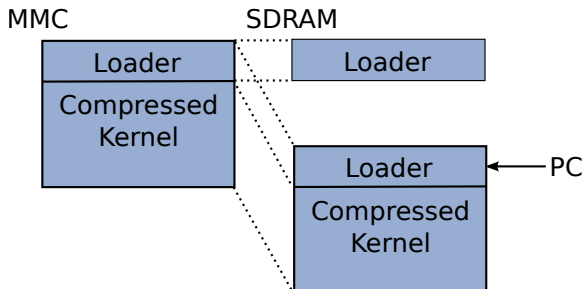
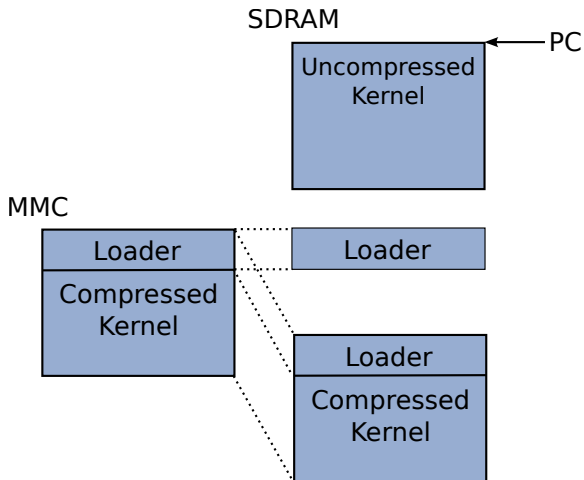## Boot Sequence with zboot on MMCIF

```
          MaskRom   (Loaded from NOR)
             ↓
Linux zImage Loader   (Loaded fron MMCIF)
             ↓
      Linux zImage   (Loaded fron MMCIF)
                     (Uncompresses and relocates itself, ...)
```

- MaskRom copies the zImage Loader to SDRAM;
- And jumps to it

- zImage Loader copies the entire zImage to SDRAM;
- And jumps to the next instruction in the loader in the new location

zboot from MMCIF: Uncompressed

- zImage Loader uncpomresses the Kernel;
- And jumps to it

Goal 3: Boot zImage from SDHI

- SDHI is a hardware block that accessed SD and MMC cards
- Work In Progress — Aiming for 2.6.39-rc1

Questions