

Ein kleines UNIX

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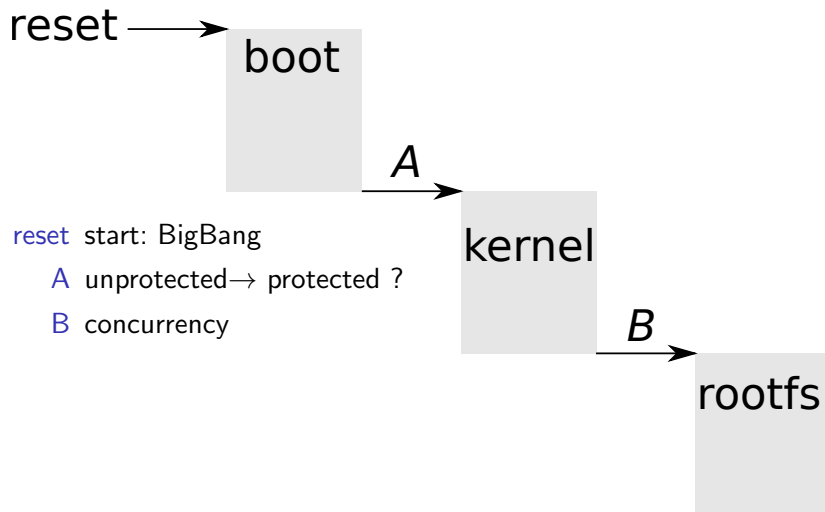
5. Dezember 2017

Ein kleines UNIX

- ▶ die einzelnen Komponenten
- ▶ für Test
- ▶ übersichtlich
- ▶ grosse Systeme haben ähnliche Komponenten

Die grossen Blöcke

Übergänge



Boot:u-boot

Zwei Files

reset

U-Boot SPL 2017.09 (Oct 24 2017 - 12:23:25)

- ▶ MLO Wegen TI
- ▶ u-boot.img

Kernel

Zwei Files

A

Booting Linux on physical CPU 0x0

Linux version 4.14.0-rc4+ (buchmann@buchmann) (gcc version 7.2.0 (GCC)) #1 SMP Tue Nov 21 09:35:03 CET 2017

- ▶ zImage *Der kernel*
- ▶ am335x-boneblack-wireless.dtb device tree

RootFS: Viele Files

Unser Interesse

A

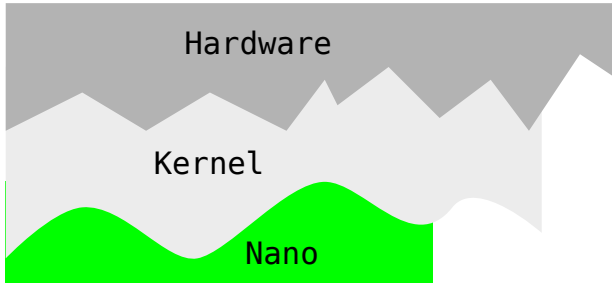
```
VFS: Mounted root (ext4 filesystem) on device 179:2.  
devtmpfs: mounted  
Freeing unused kernel memory: 1024K  
  
Please press Enter to activate this console.
```

- ▶ `linuxrc` Init-Process
- ▶ ...

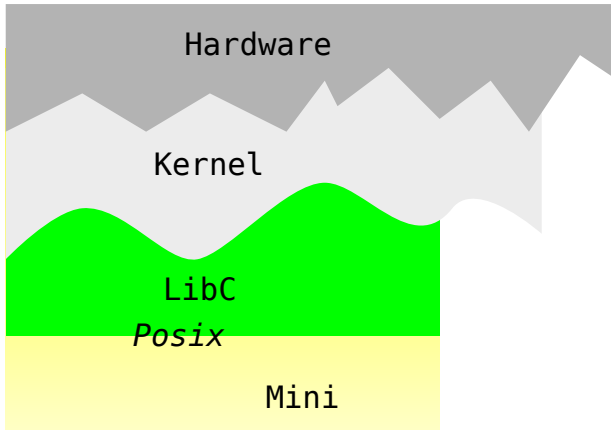
RootFS

Flavours

- ▶ nano
 - ▶ Assembler ohne *libraries* `s-nano.S`
 - ▶ **C** fast ohne *libraries* `c-nano.c`
- ▶ mini
 - ▶ *libraries*
 - ▶ static
 - ▶ dynamic
- ▶ full
 - ▶ busybox
 - ▶ ssh
 - ▶ ...



- ▶ `config/Makefile`
- ▶ `src/s-nano.S`
- ▶ `src/c-nano.c`

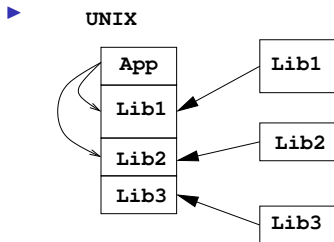


- ▶ `config/Makefile`
- ▶ `src/mini.c`
 - ▶ `static`
 - ▶ `dynamic`

Statische/Dynamische Bibliothek

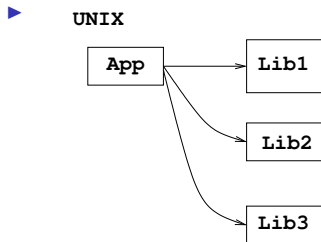
Kopie vs. Referenz

Static



► frühes Binden

Dynamic



► spätes Binden

—► copy
—> reference

Aufgaben

- ▶ Erzeugen Sie ein:
 - ▶ **s-nano**
 - ▶ **c-nano**
 - ▶ **mini-static**
 - ▶ **mini-dynamic**

RootFS