RASPBERRY PI COMPUTE MODULE INSTALLATION
KOMPLETT AUTOMATISIEREN

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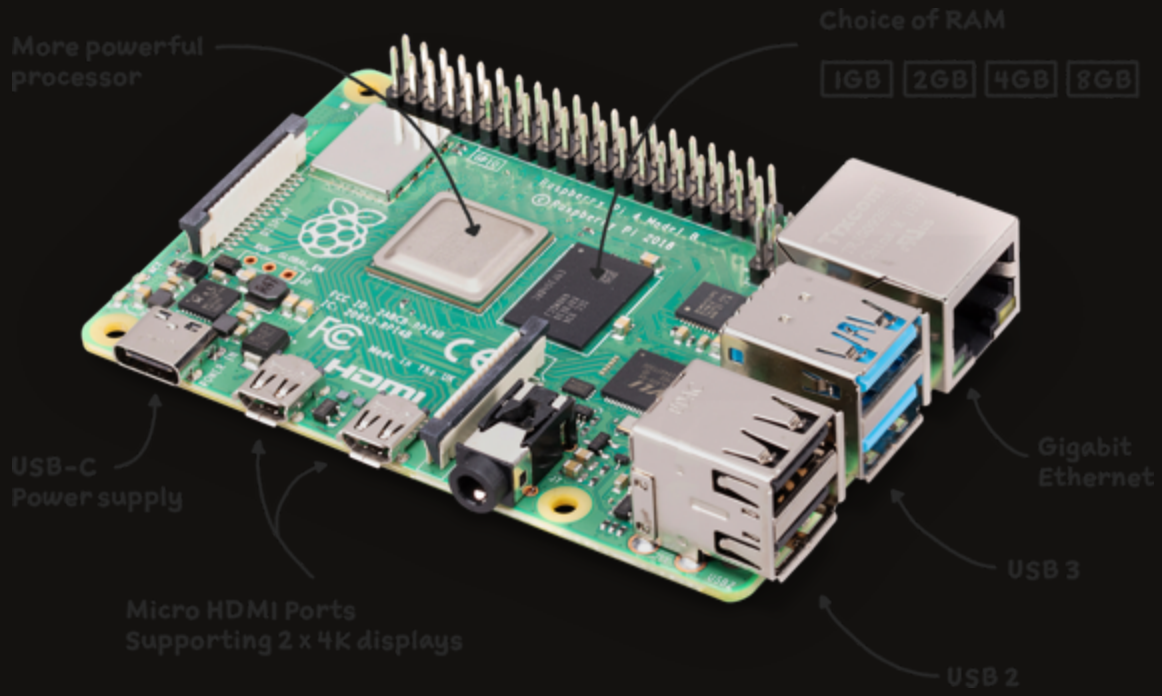
RASPBERRY PI



https://www.raspberrypi.com/products/raspberry-pi-4-model-b/

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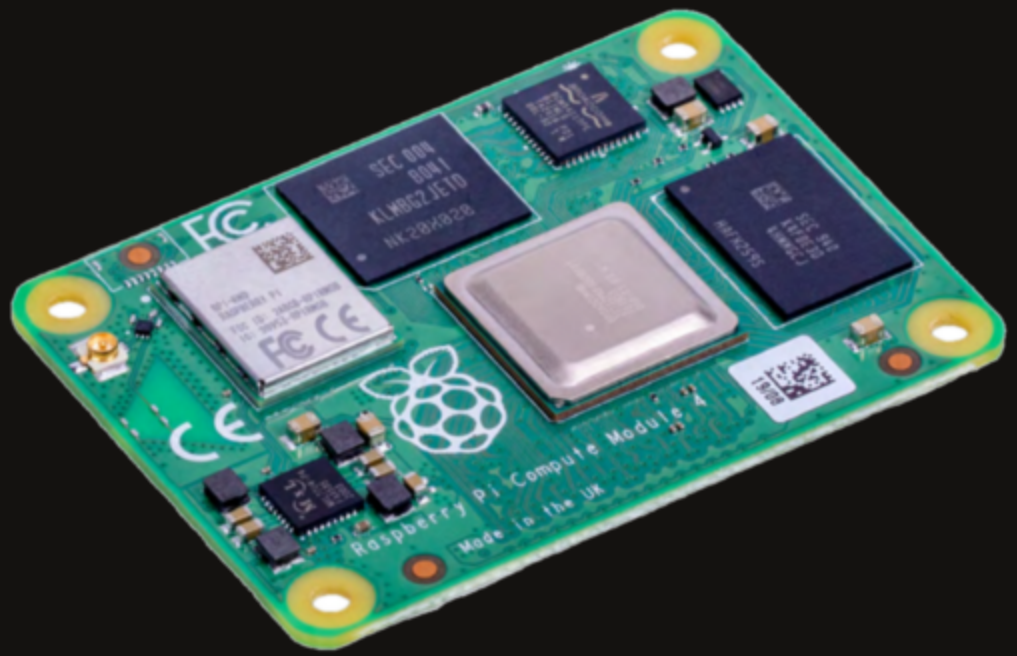
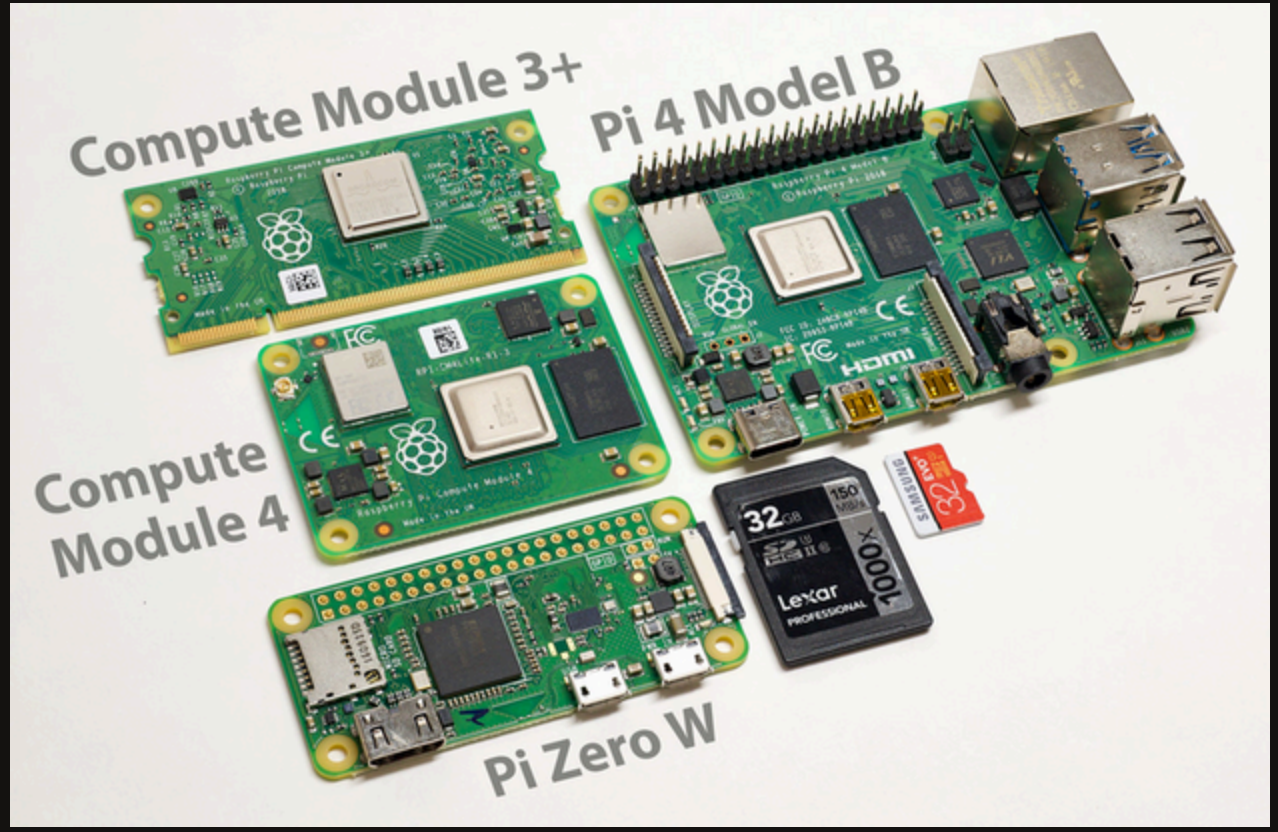
RASPBERRY PI CM4



https://www.raspberrypi.com/products/compute-module-4/?variant=raspberry-pi-cm4001000

UNTERSCHIEDE (OPTISCH)



https://www.jeffgeerling.com/blog/2020/raspberry-pi-compute-module-4-review

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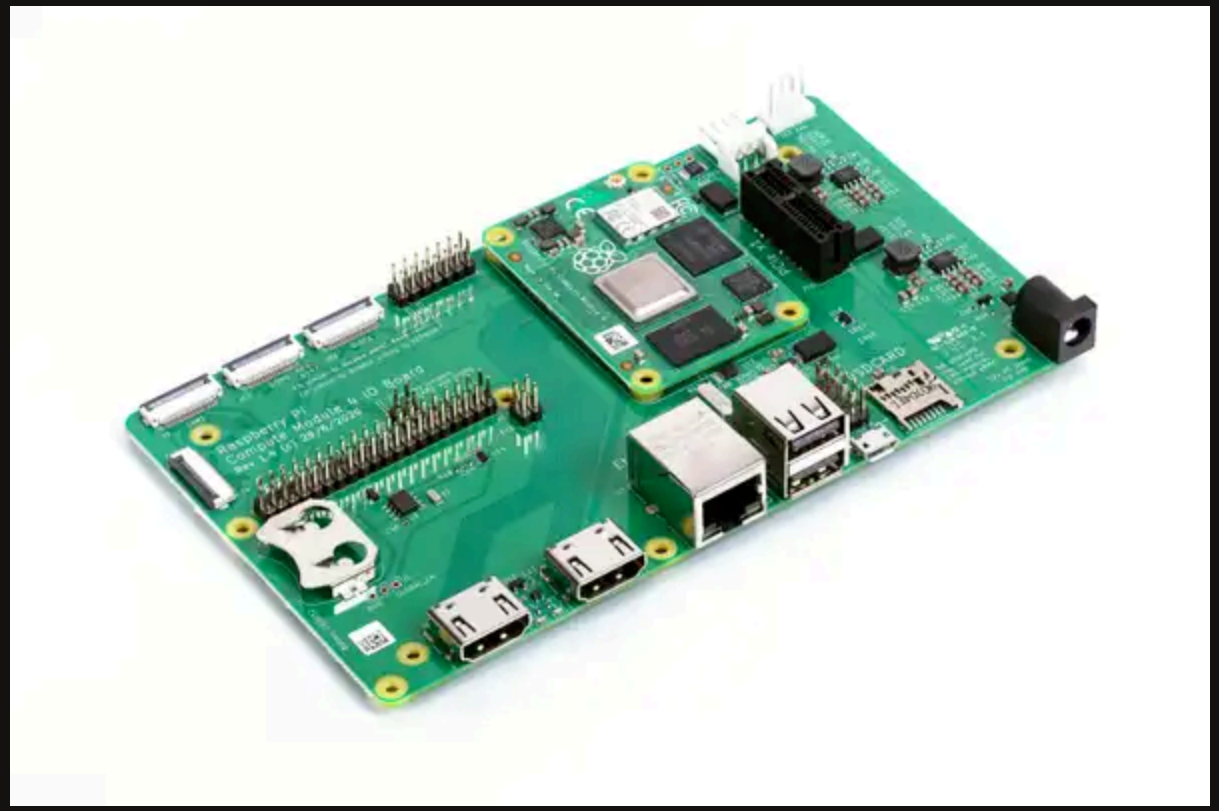
UNTERSCHIEDE

- Preis
  - CM4 ist teuer
  - Zusätzlich noch ein Carrier Board notwendig
- WiFi/Bluetooth ist optional
  - Zusätzliche Antenne nötig
- Bis zu 32GB eMMC Storage
- Kein USB 3.0
- PCI Express (Gen2 x1)

CARRIER BOARDS



https://www.raspberrypi.com/products/compute-module-4-io-board/

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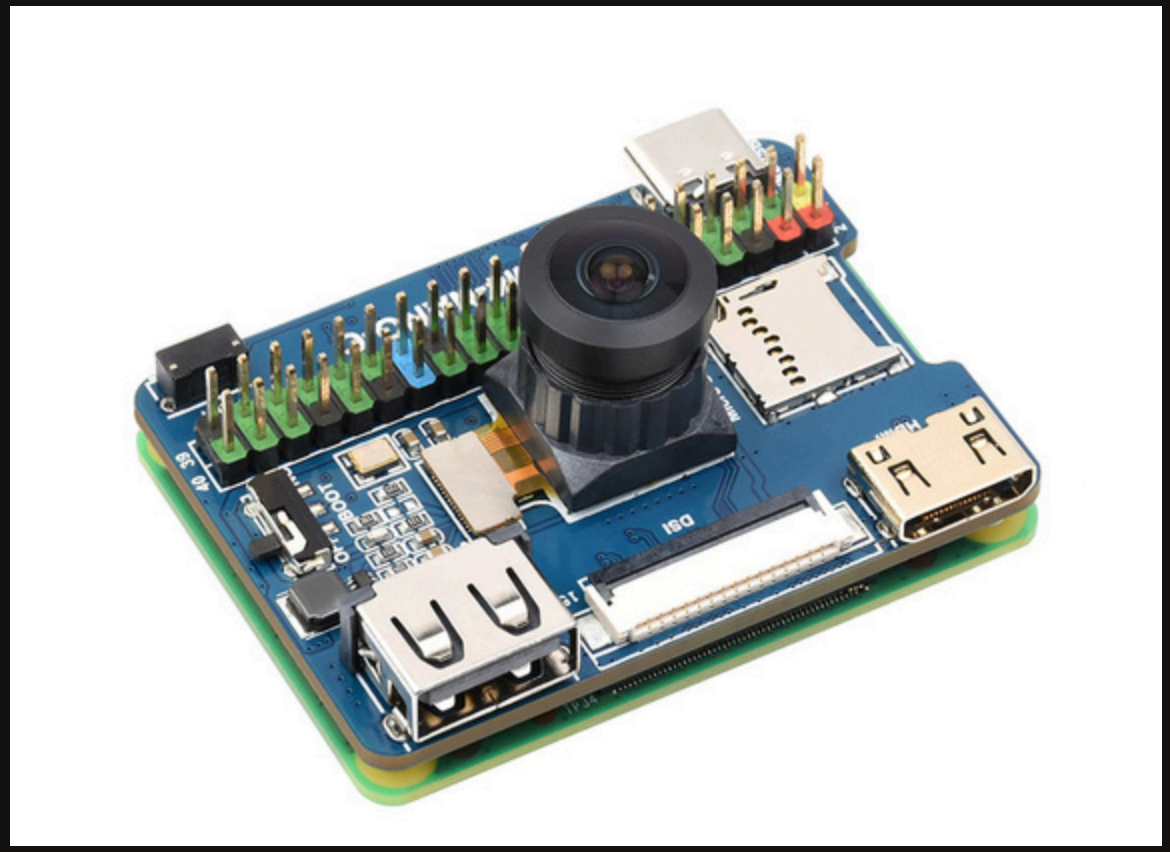
CARRIER BOARDS



https://www.waveshare.com/product/raspberry-pi/boards-kits/compute-module-4-cat/cm4-nano-c.htm

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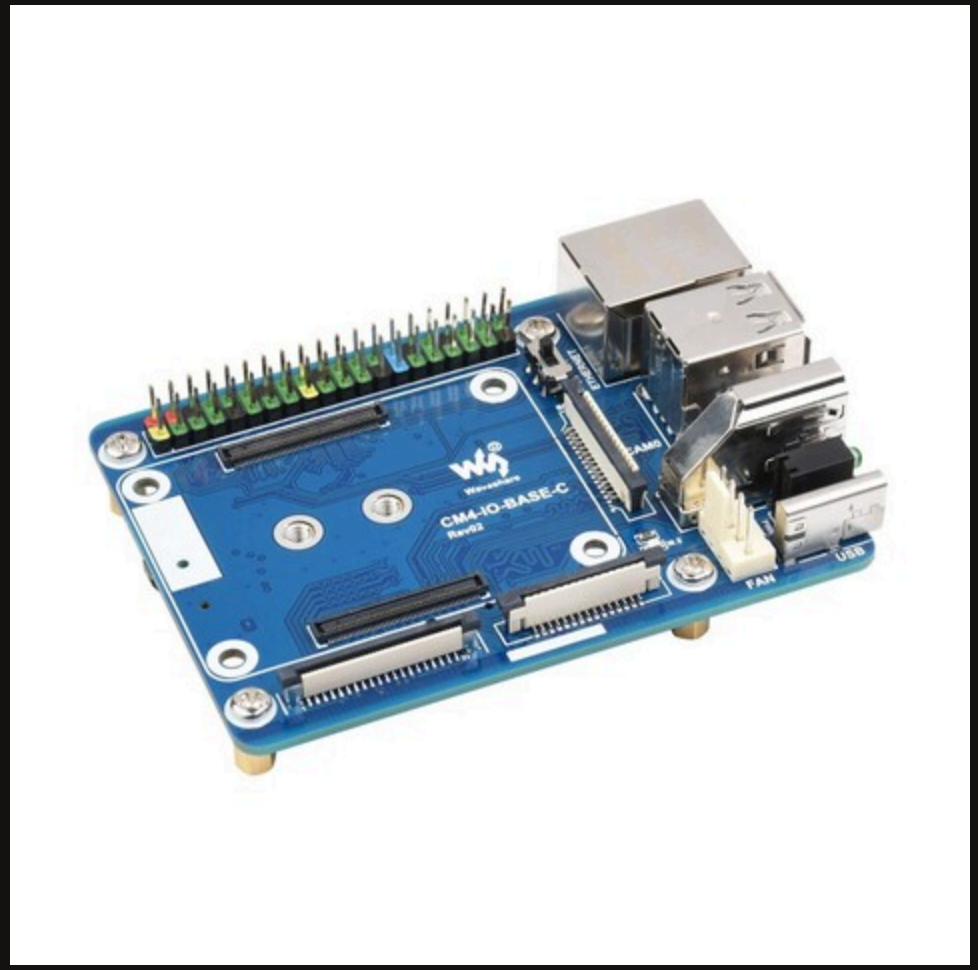
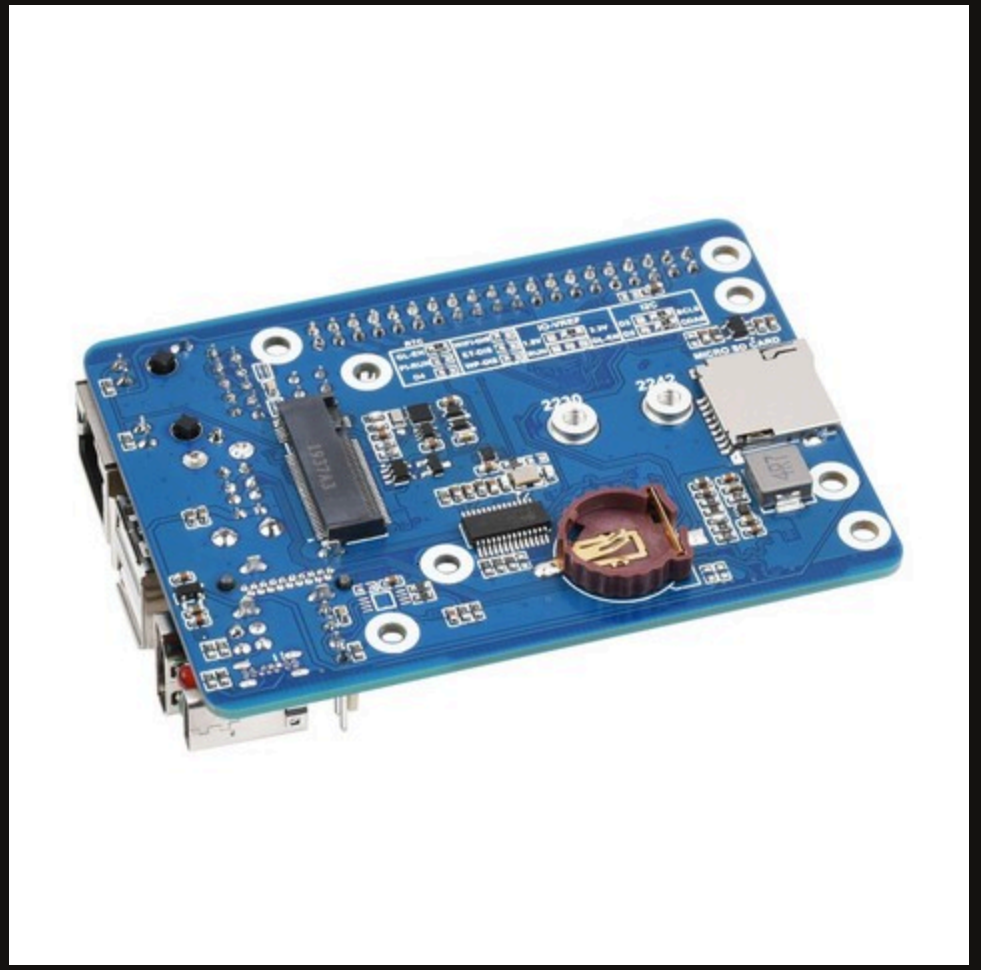
CARRIER BOARDS



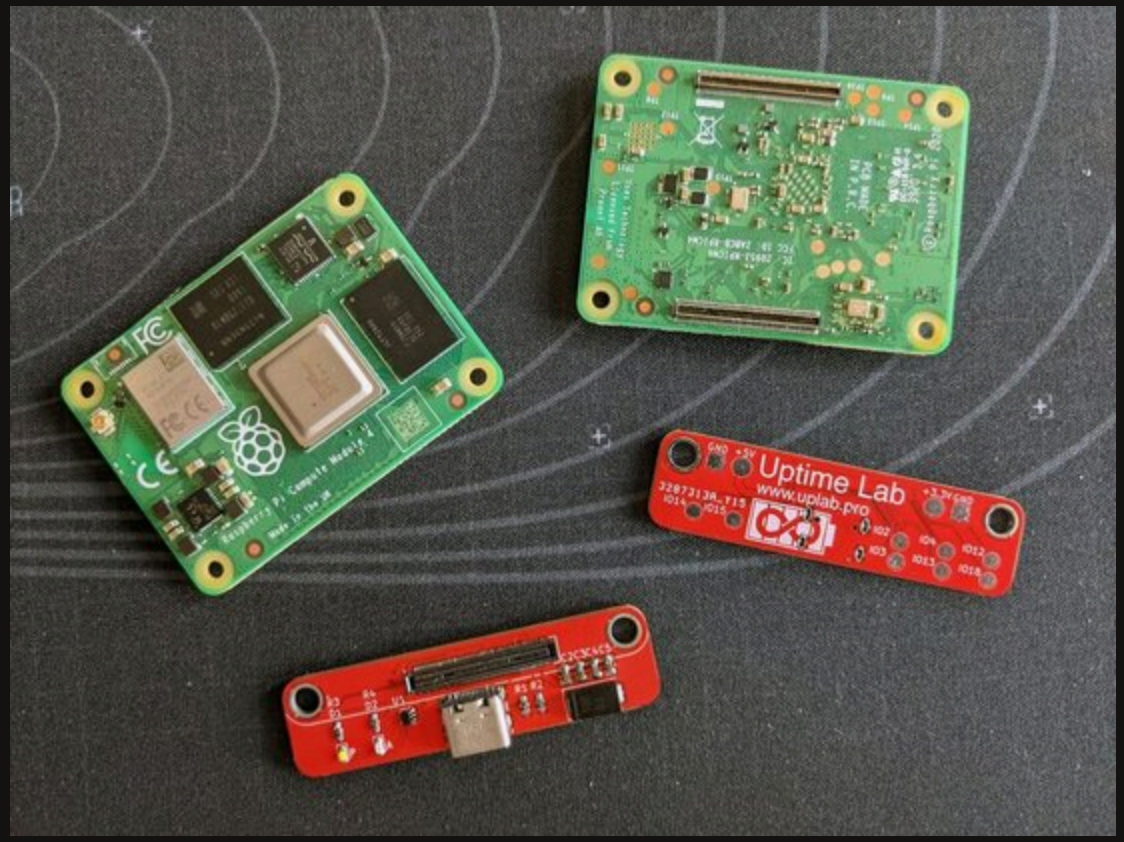


https://www.waveshare.com/product/raspberry-pi/boards-kits/compute-module-4-cat/cm4-io-base-c.htm

CARRIER BOARDS

https://www.waveshare.com/product/raspberry-pi/boards-kits/compute-module-4-cat/cm4-duino.htm

CARRIER BOARDS



https://uplab.pro/2021/10/mincab/

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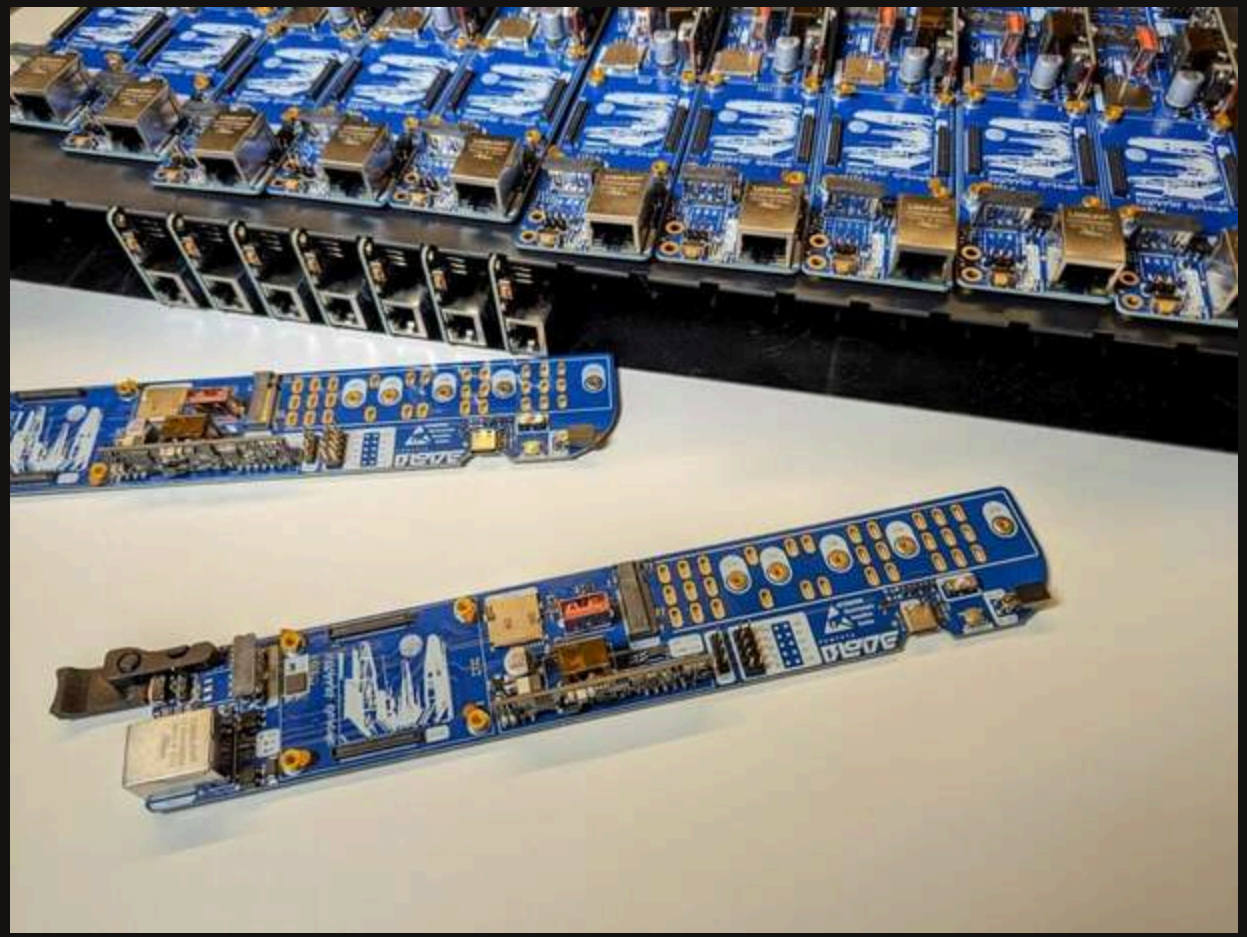
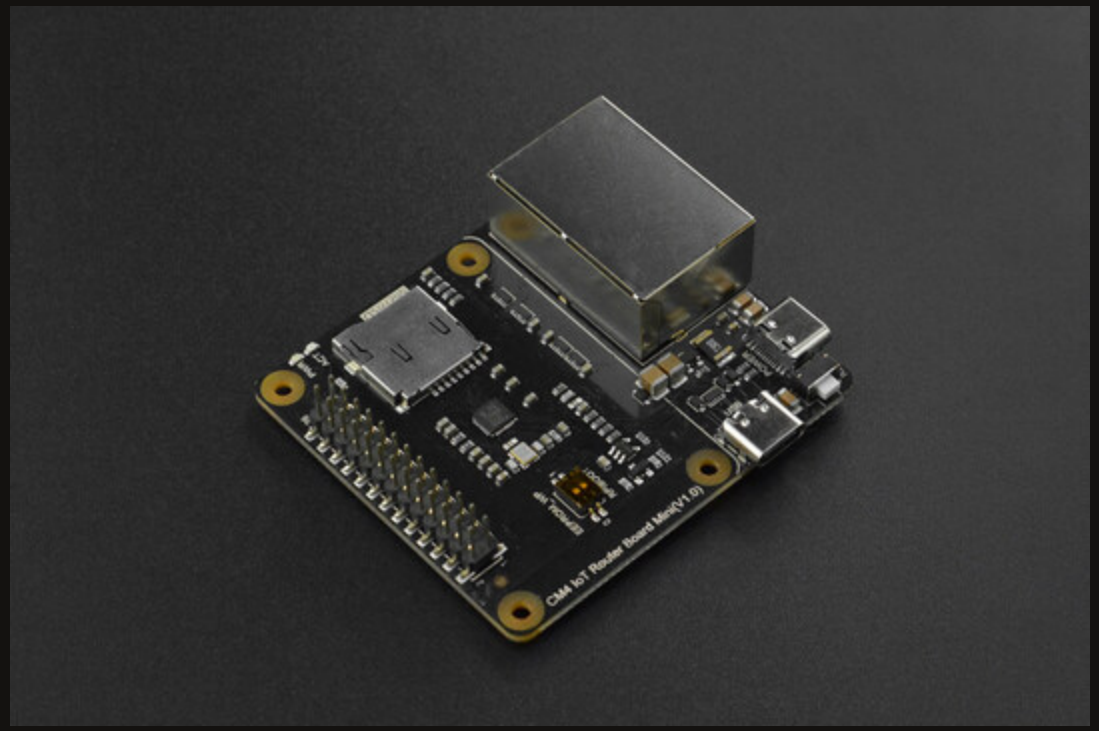
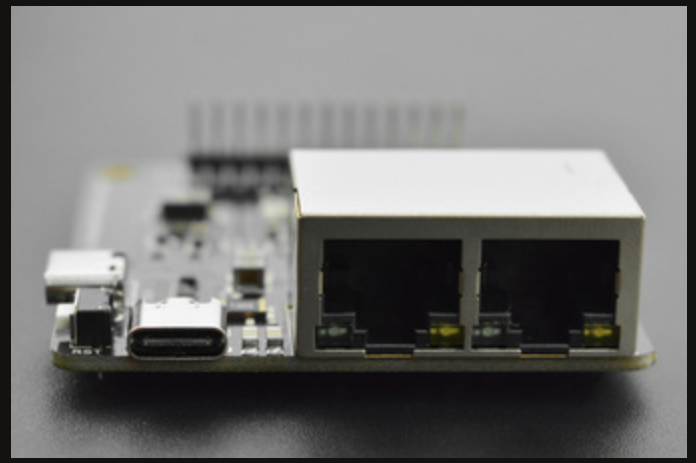
CARRIER BOARDS



https://uplab.pro/2022/03/compute-blade-changelog/

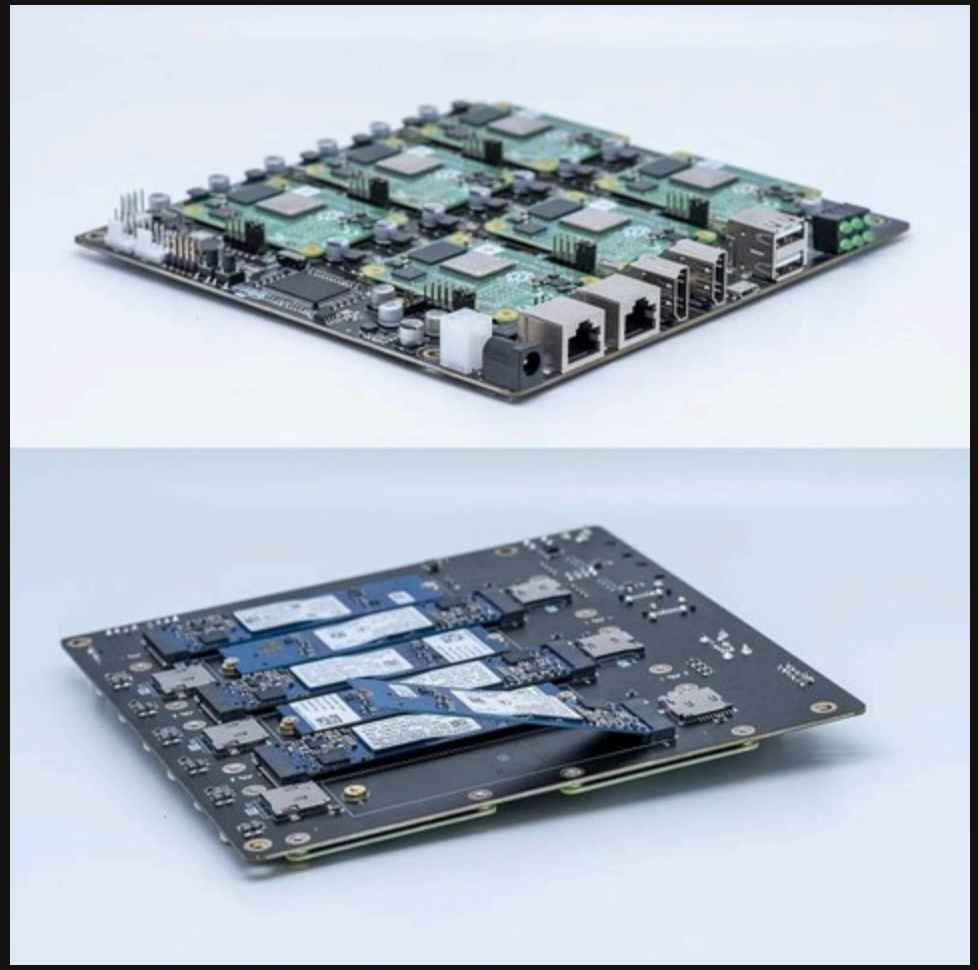
CARRIER BOARDS





https://www.dfrobot.com/product-2242.html

CARRIER BOARDS

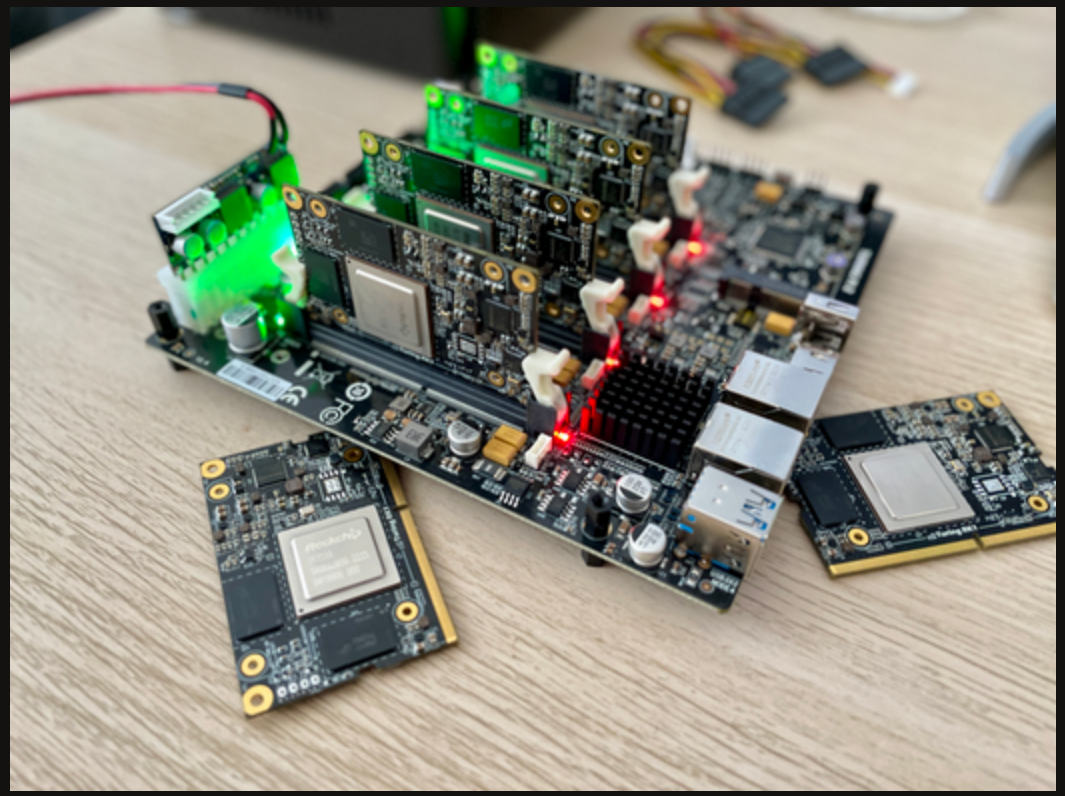


https://52pi.com/collections/raspberry-pi-cm4/products/deskpi-super6c-raspberry-pi-cm4-cluster-mini-itx-board-kit-6-rpi-cm4-supported

CARRIER BOARDS

https://www.seeedstudio.com/ReTerminal-with-CM4-p-4904.html

CARRIER BOARDS



https://docs.turingpi.com/docs/turing-pi2-intro

CARRIER BOARDS

https://docs.pikvm.org/v4/

FLASHEN EINES CM4

1. SD-Karte

- rpi-imager
- balea-etcher
- [...]

FLASHEN EINES CM4

2. eMMC

- Per USB
  - Dedizierter USB-Port
  - Jumper
  - Schalter
  - Knopf
- Mit usbboot das eMMC als Mass-Storage erreichbar machen
  - rpi-imager
  - balea-etcher
  - [...]

FLASHEN EINES CM4

3. NVMe

- Per Proxy
  - SD-Karte
  - eMMC

MAN KANN CM4S WIEDER KAUFEN

rpilocator (powered by DPHacks.com) Vendors Regions Devices About/ FAQ Twitter Alerts Feed Alerts Buy Me a Coffee Filter...

Follow us on Twitter or Mastodon or Buy me a Coffee.

Check out our recommended products

Auto-refresh listings Alert Sound

Country: DE Devices: CM4

SKU	Description	Link	Update Status	Vendor	In Stock	Last Stock	Price
CM4001000	RPi CM4 - 1GB RAM, No MMC, No Wifi			Welectron (DE)	Yes	20-Apr-24	(EUR) 31.90
CM4001000	RPi CM4 - 1GB RAM, No MMC, No Wifi			pi3g (DE)	No	28-Mar-23	(EUR) 33.99
CM4001008	RPi CM4 - 1GB RAM, 8GB MMC, No Wifi			Welectron (DE)	Yes	20-Apr-24	(EUR) 35.90
CM4001008	RPi CM4 - 1GB RAM, 8GB MMC, No Wifi			BerryBase (DE)	Yes	20-Apr-24	(EUR) 36.20
CM4002000	RPi CM4 - 2GB RAM, No MMC, No Wifi			Welectron (DE)	Yes	20-Apr-24	(EUR) 37.90
CM4001008	RPi CM4 - 1GB RAM, 8GB MMC, No Wifi			Reichelt (DE)	Yes	20-Apr-24	(EUR) 37.99
CM4001000	RPi CM4 - 1GB RAM, No MMC, No Wifi			BerryBase (DE)	No	22-Feb-24	(EUR) 38.06
CM4001008	RPi CM4 - 1GB RAM, 8GB MMC, No Wifi			pi3g (DE)	Yes	20-Apr-24	(EUR) 39.59

THEORETISCHE ANWENDUNGSZWECKE

- CI-Pipelines (arm)
- IoT
- Industrie 4.2
- Monitoring
- […]

SKALIEREN

- 20 CM4s

FLASHEN VON 20 CM4S

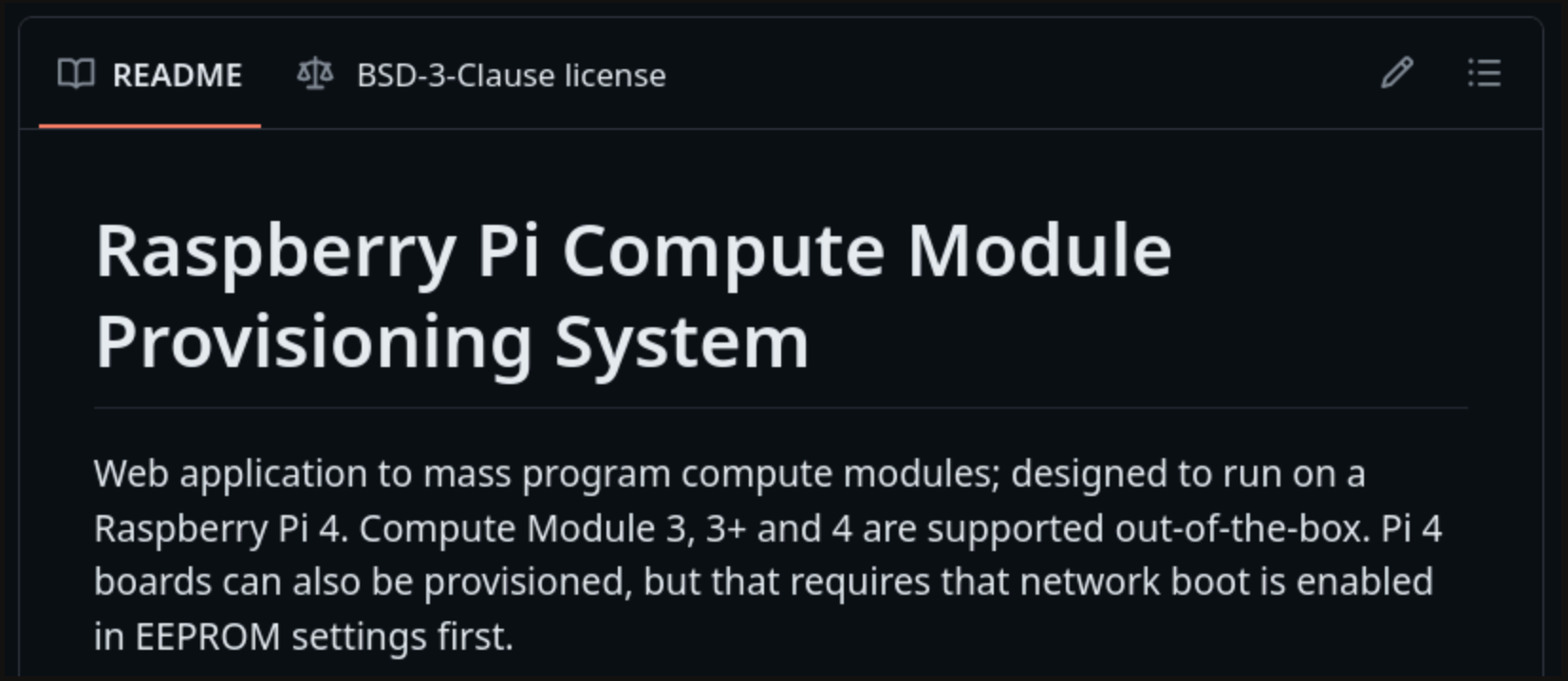
- USB-Hub? 😱
- Tasten drücken?
- Jumper setzen?
- Schalter umlegen
- Installation prüfen?

NETBOOT!

```
BOOT_ORDER=0xf25641
```

- 0x1 => SD Card
- 0x4 => USB-MSD
- 0x6 => NVMe
- 0x5 => BCM-USB-MSD
- 0x2 => NETWORK

RASPBERRY PI COMPUTE MODULE PROVISIONING SYSTEM



https://github.com/raspberrypi/cmprovision

RASPBERRY PI COMPUTE MODULE PROVISIONING SYSTEM

- DHCP
- TFTP
- Scriptexecutor
- PHP/Blade/Shell

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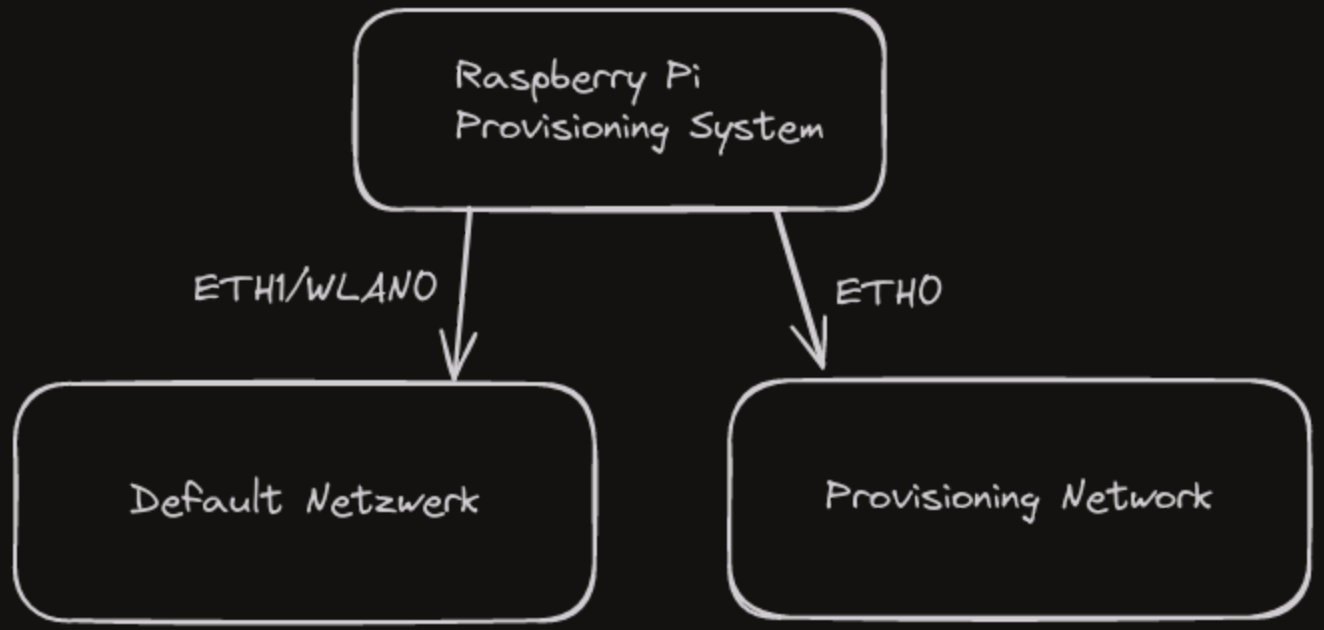
RASPBERRY PI COMPUTE MODULE PROVISIONING SYSTEM



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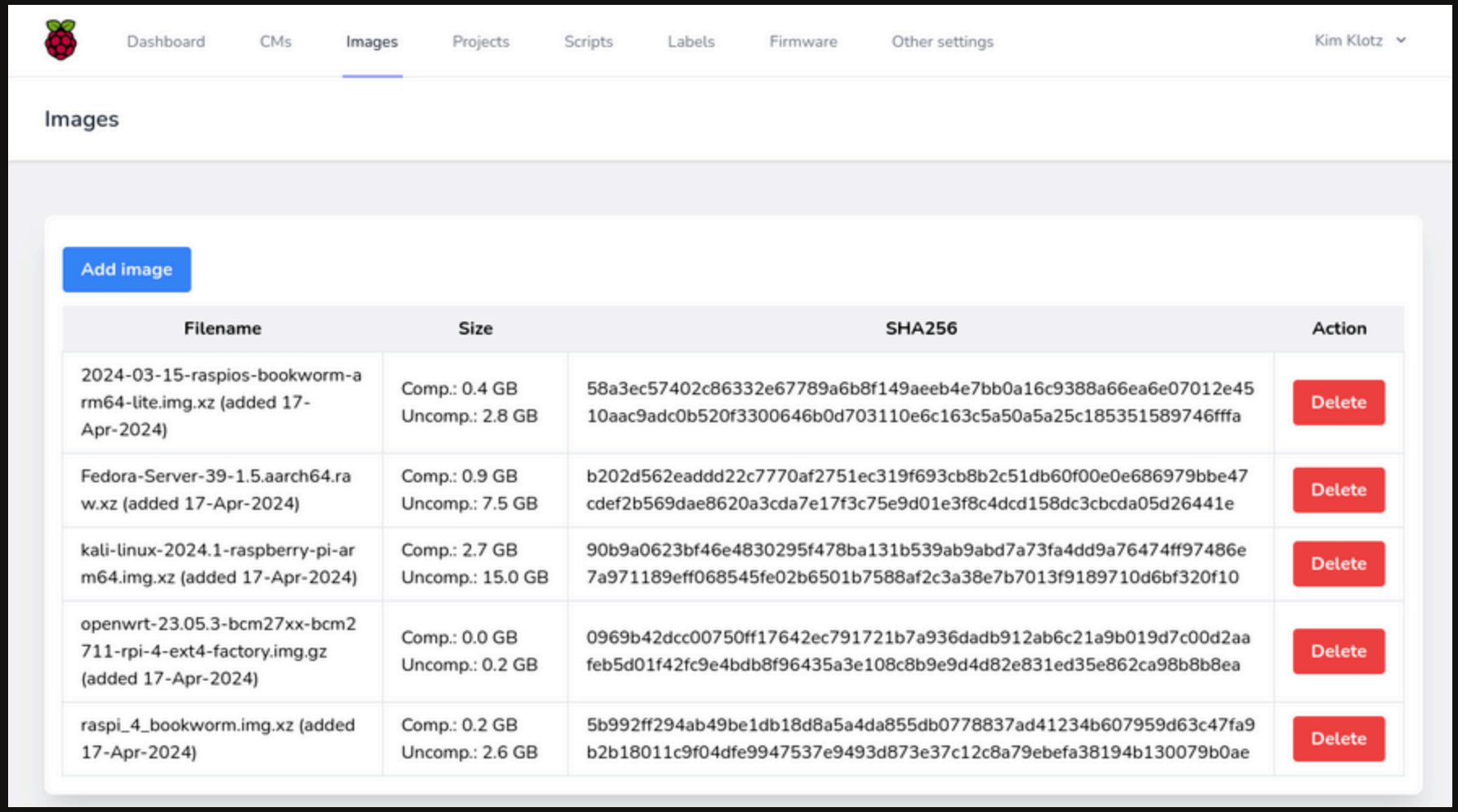
FEATURES: IMAGES



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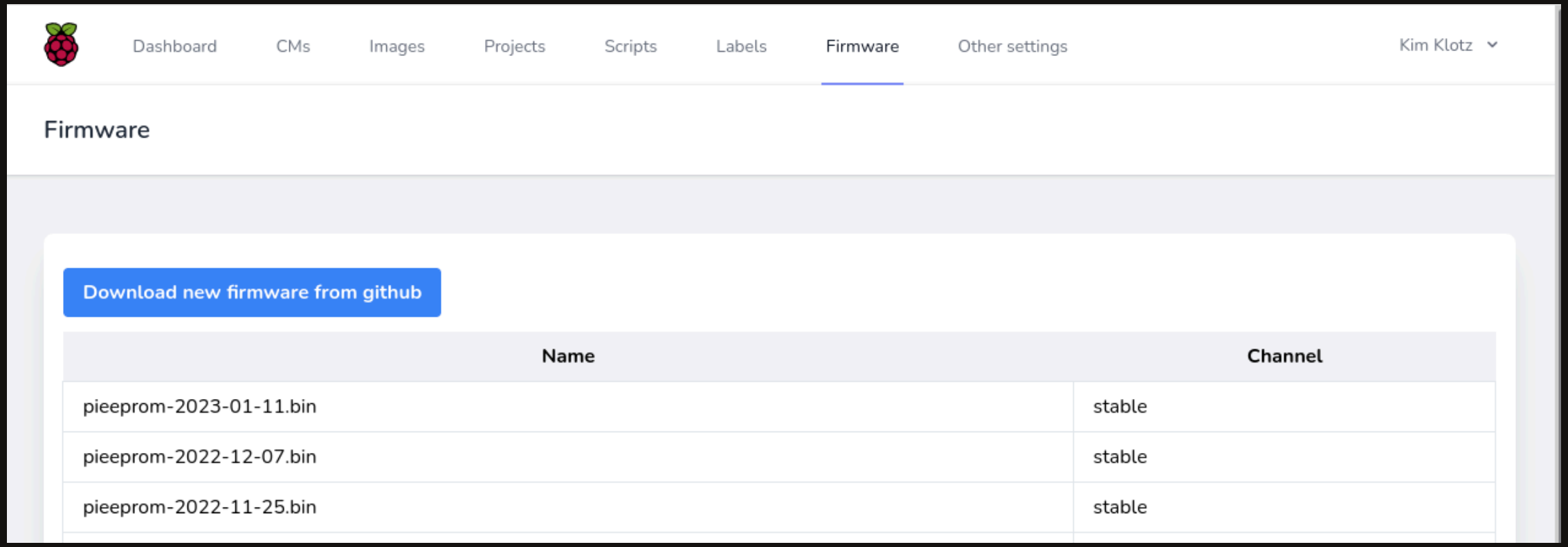
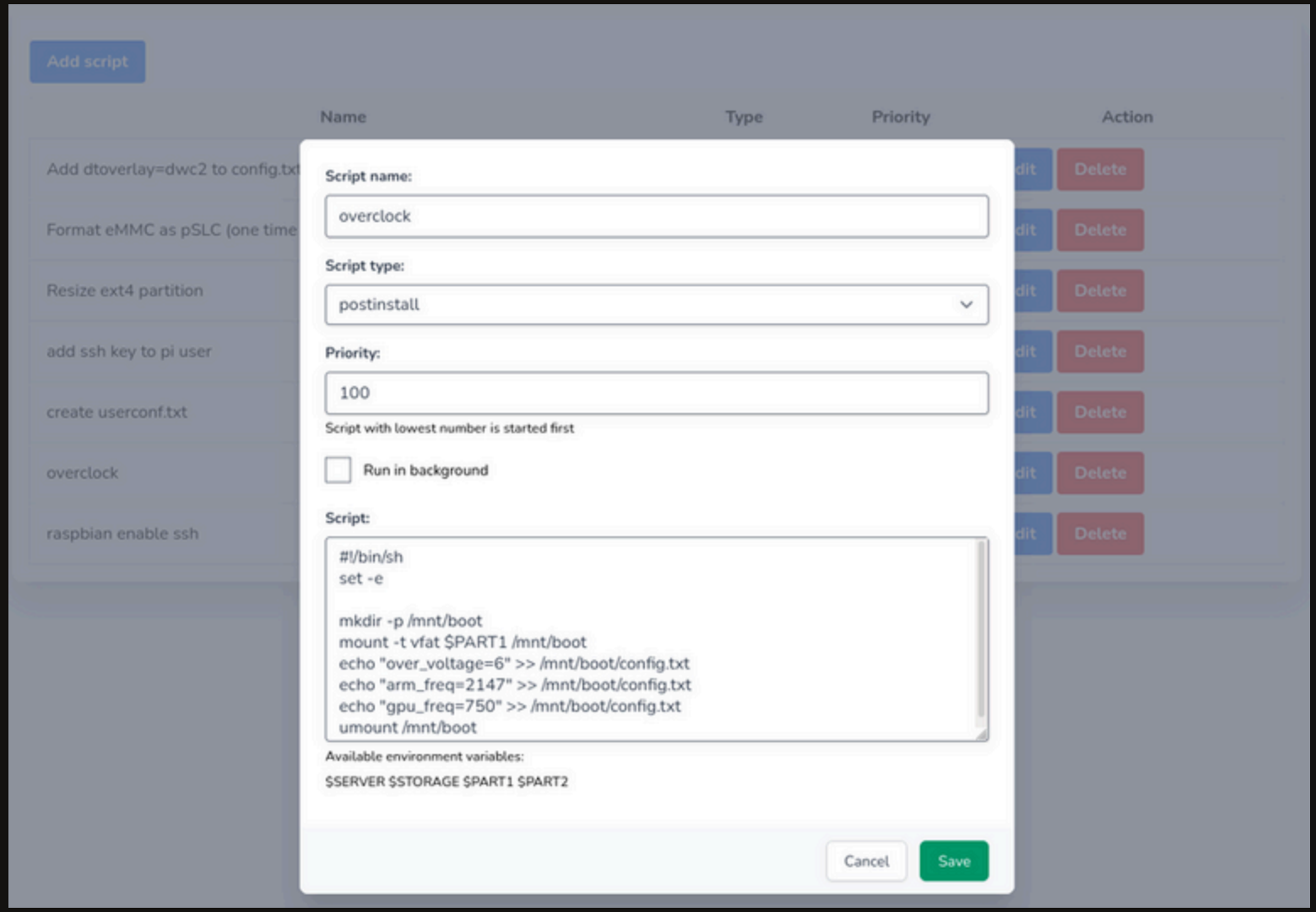
FEATURES: FIRMWARE



FEATURES: SCRIPTS



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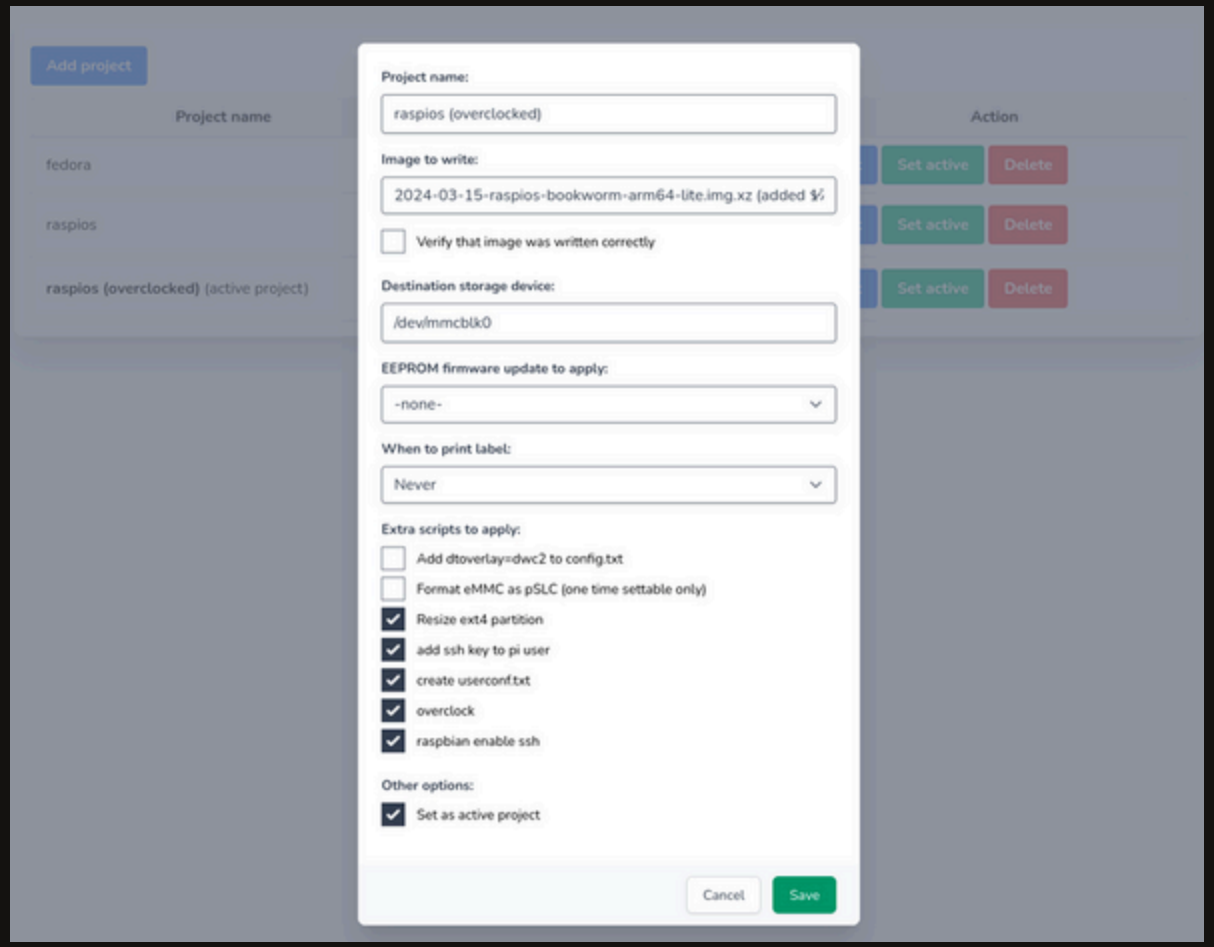
FEATURES: SCRIPTS

```
#!/bin/sh
set -e

mkdir -p /mnt/boot
mount -t vfat $PART1 /mnt/boot
echo "over_voltage=6" >> /mnt/boot/config.txt
echo "arm_freq=2147" >> /mnt/boot/config.txt
echo "gpu_freq=750" >> /mnt/boot/config.txt
umount /mnt/boot
```

FEATURES: LABELS

FEATURES: PROJECTS



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FEATURES: LOGS

Last 100 provisioning log entries

Board	CM serial	
000 (0)	1000000065f64098	01:40:45 Provisioning completed.
000 (0)	1000000065f64098	01:39:09 Provisioning started. Starting to write image.
000 (0)	1000000065f64098	23:41:41 Error during postinstall. Return code 1. Script output: === Running post-installation script 'Resize ext4 partition' === #!/bin/sh set -e parted -s $STORAGE "resizepart 2 -1" "quit" Warning: Shrinking a partition can cause data loss, are you sure you want to continue?

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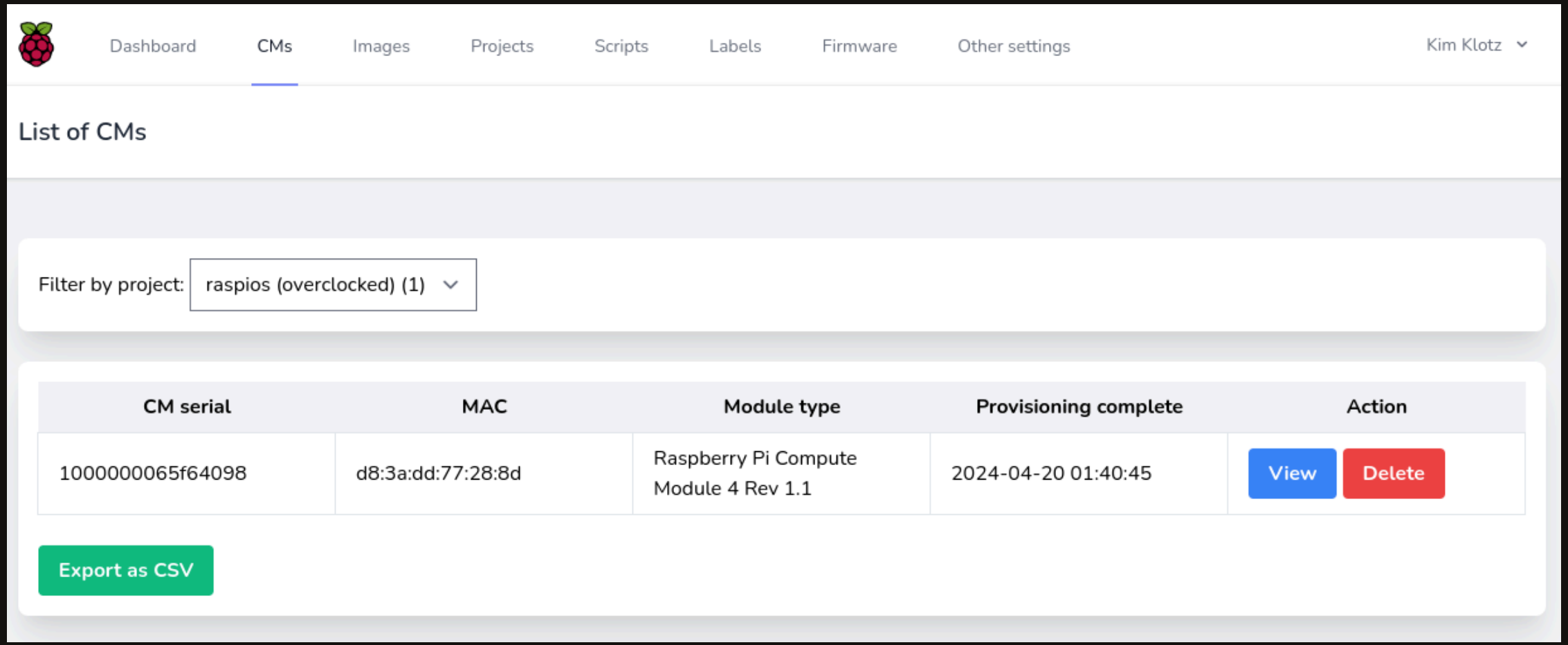
FEATURES: ÜBERBLICK



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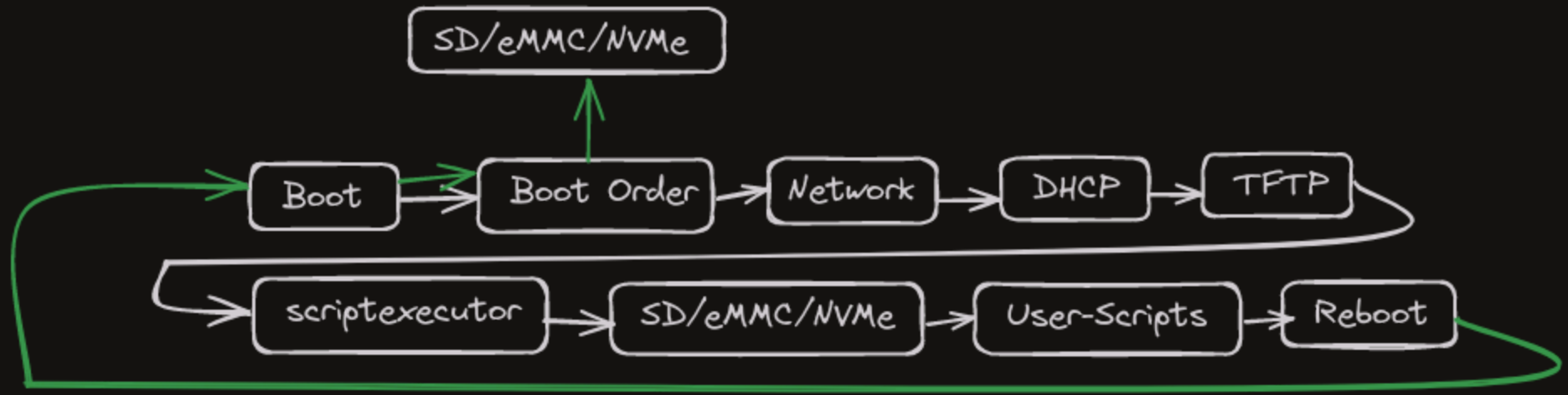
ABLAUF



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WEITERE OPTIMIERUNGEN

- Provision System API
- VLANs
  - Provision Netzwerk trennen am gleichen Switch
  - Automatisiertes ändern des VLANs nach dem Provisionieren

WEITERE OPTIMIERUNGEN

- Regelmäßiges flashen

```
dd if=/dev/zero of=/dev/mmcblk0 bs=512 count=1
```

ALTERNATIVE IMPLEMENTATIONEN

- Fedora CoreOS
- Uptime-Labs
  - Per EDK2/UEFI Firmware

KONTAKT

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makandra