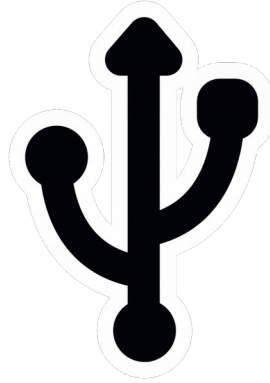
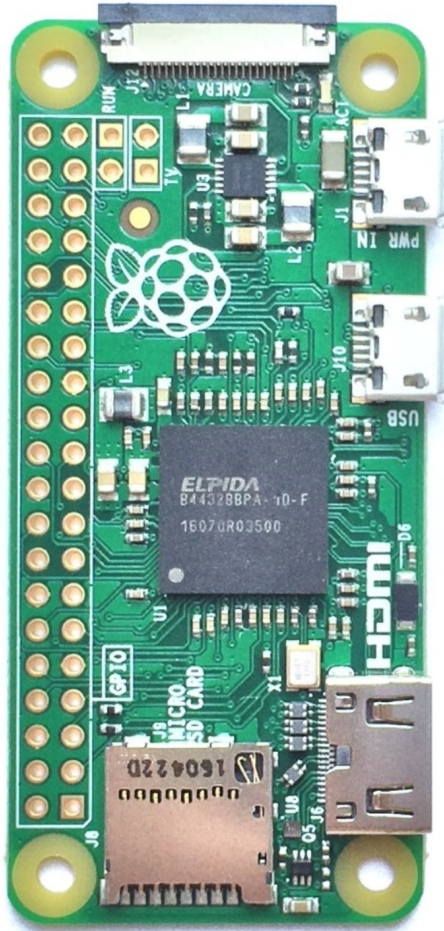
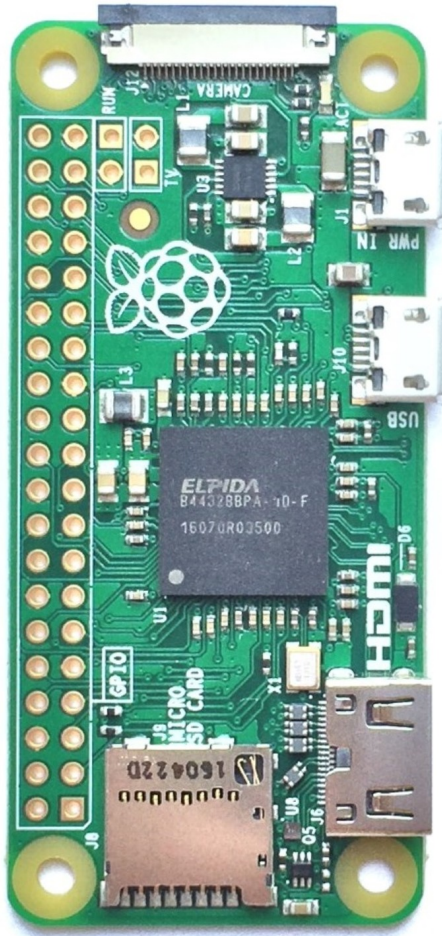


Raspberry Pi Zero USB OTG Gadget



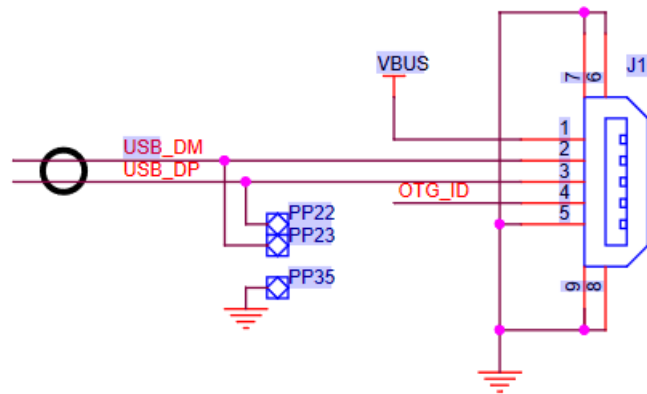
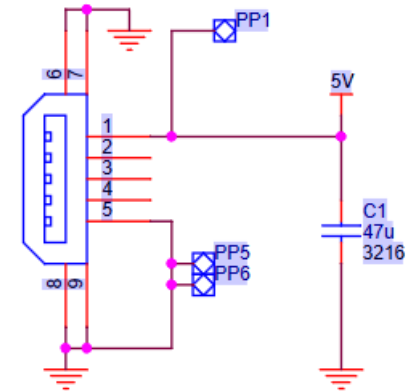
Martin Strohmayer

USB Gadget

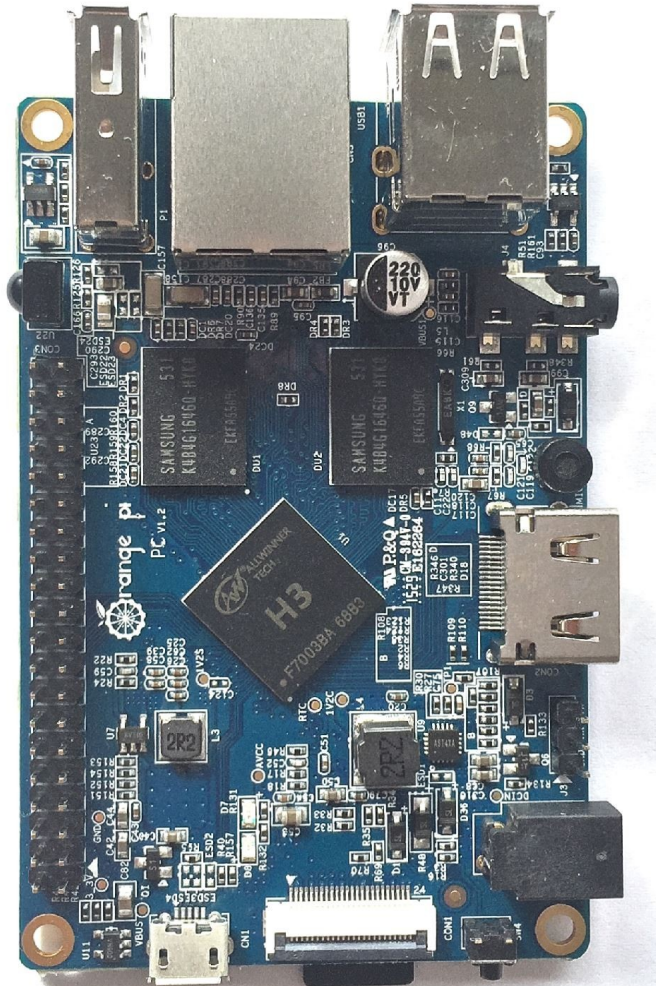


Versorgung

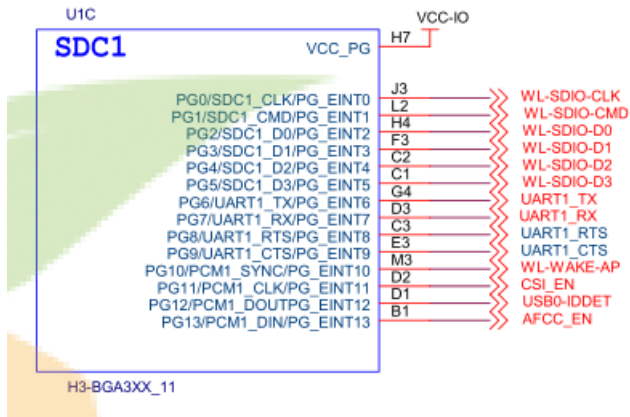
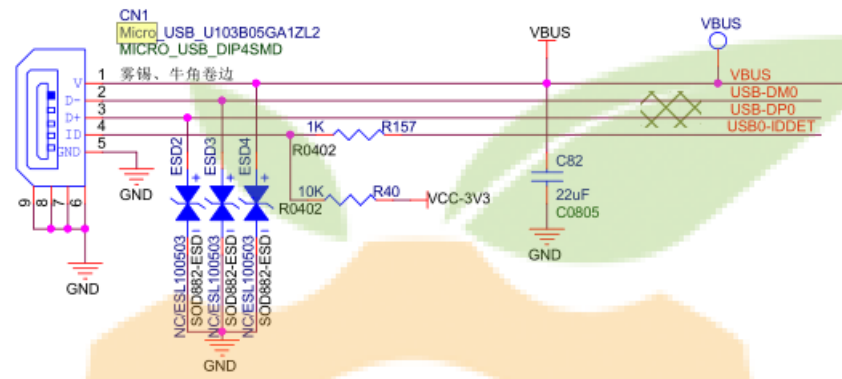
Versorgung und USB-OTG



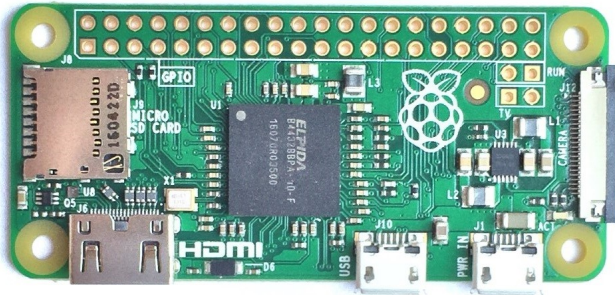
USB Gadget



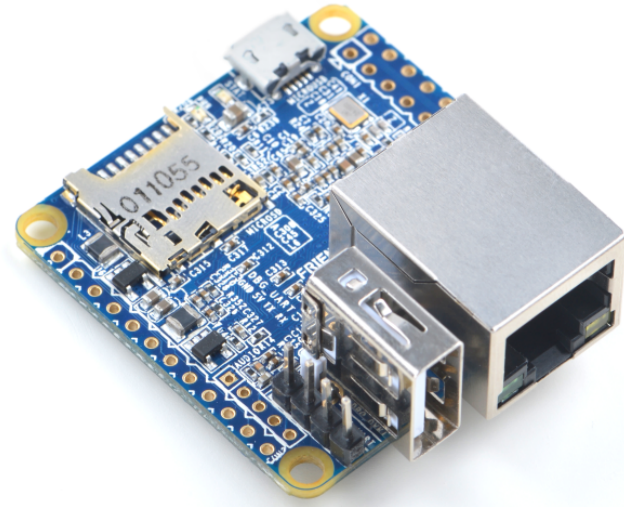
USB-OTG



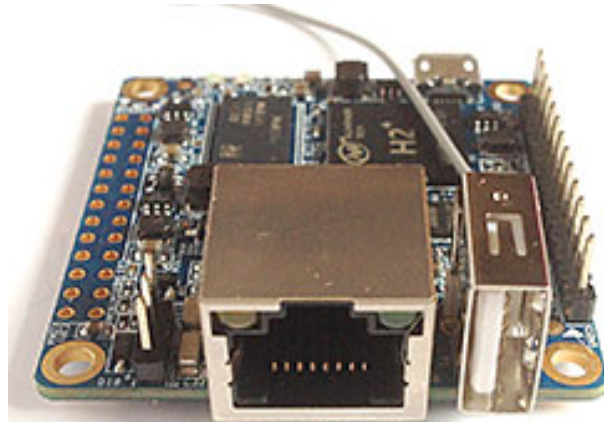
USB Gadget Einplatinencomputer



Raspberry Pi Zero

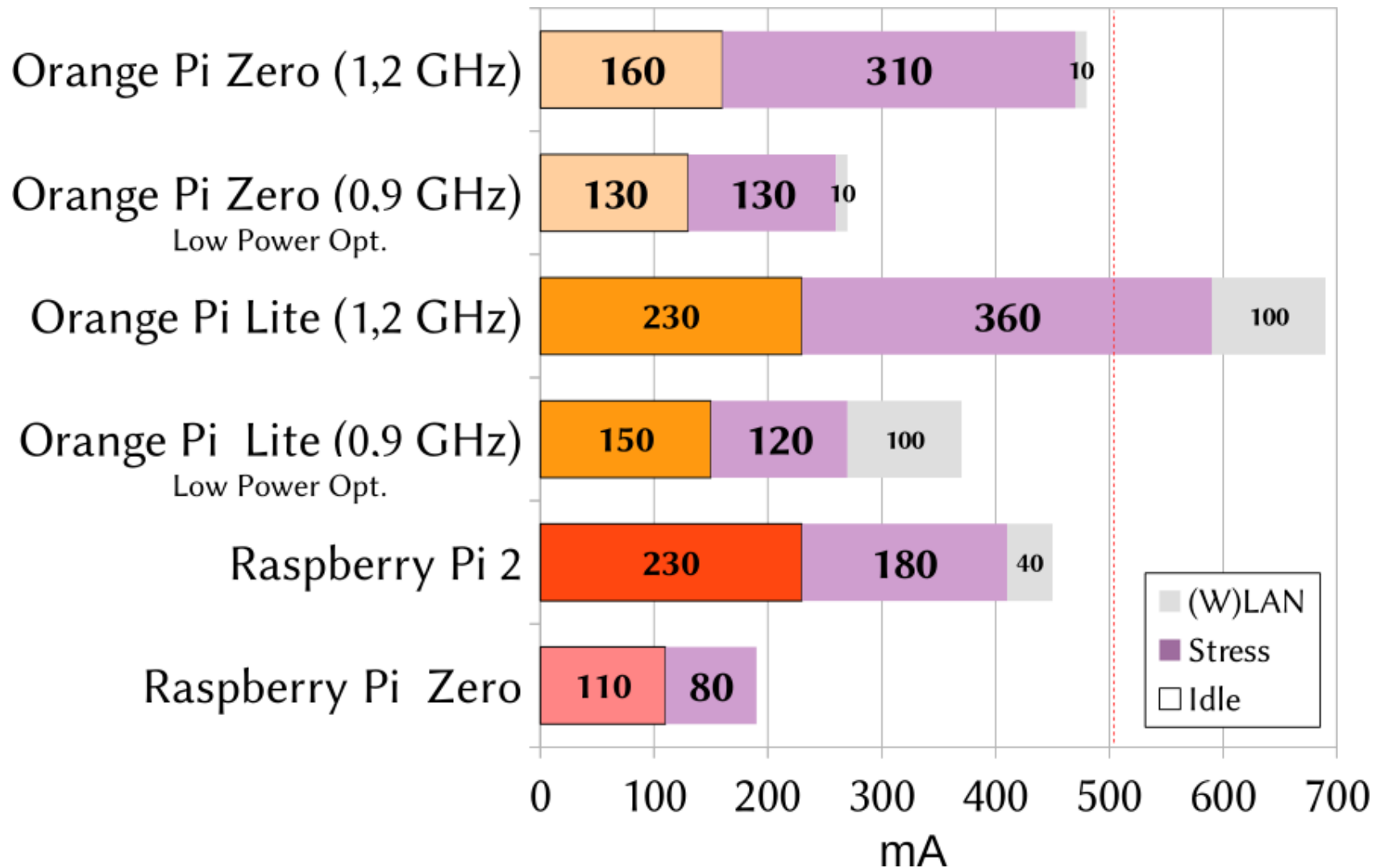


NanoPi NEO

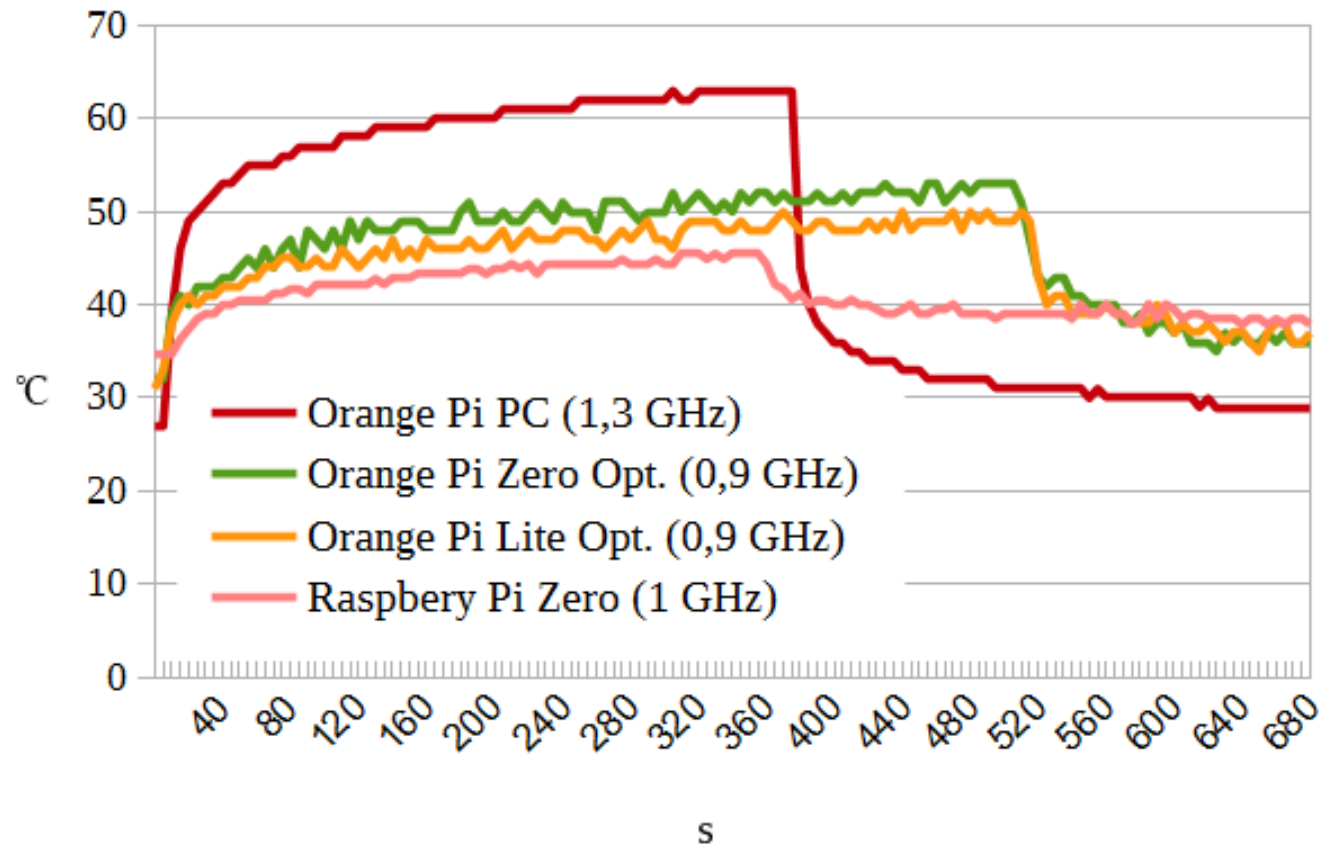


Orange Pi Zero

USB Gadget Strom-Verbrauch



USB Gadget CPU Temperatur



USB Gadget Kernel Module

Serial (g_serial)

Ethernet (g_ether)

Mass storage (g_mass_storage)

MIDI (g_midi)

Audio (g_audio)

Keyboard/Mouse (g_hid)

Mass storage and Serial (g_acm_ms)

Ethernet and Serial (g_cdc)

Multi (g_multi) - Ethernet, Mass storage and Serial

Webcam (g_webcam)

Printer (g_printer)

Gadget tester (g_zero)

USB Gadget Serial Module

/boot/config.txt

```
dtoverlay=dwc2
```

/boot/cmdline.txt

```
modules-load=dwc2,g_serial
```

Baudrate: 115200
Datenbit: 8
Stopbit: 1
Parity: None
Flowcontrol: None

Serial Terminal

```
sudo systemctl enable getty@ttyGS0.service
```


USB Gadget Ethernet Module

/boot/config.txt

```
dtoverlay=dwc2
```

/boot/cmdline.txt

```
modules-load=dwc2,g_ether  
g_ether.host_addr=00:01:02:03:04:05  
g_ether.dev_addr=00:01:02:03:04:06
```

Verbindung mit raspberrypi.local wenn Zeroconf am USB-Host verfügbar ist

Linux: Avahi

Windows: Bonjour von Apple (https://support.apple.com/kb/DL999?locale=de_AT)

Alternative: Fixe IP-Adresse oder DHCP-Server am USB Gadget
Für die Einrichtung wird ein Zugriff auf das System benötigt!



USB Gadget Ethernet Module

Raspberry Pi ZERO bearbeiten

Verbindungsname: Raspberry Pi ZERO

Allgemein Ethernet 802.1x-Sicherheit IPv4-Einstellungen IPv6-Einstellungen

MAC-Adresse des Gerätes: 00:01:02:03:04:05 (eth1)

Benutzerdefinierte MAC-Adresse:

MTU: Automatisch Bytes

Abbrechen Speichern ...

Raspberry Pi ZERO bearbeiten

Verbindungsname: Raspberry Pi ZERO

Allgemein Ethernet 802.1x-Sicherheit IPv4-Einstellungen IPv6-Einstellungen

Methode: Nur per Link-Local

Adressen

Adresse	Netzmaske	Gateway
---------	-----------	---------

DNS-Server:

Suchdomänen:

DHCP Client-Kennung:

☐ IPv4-Adressierung zur Fertigstellung dieser Verbindung erforderlich

Abbrechen Speichern ...

Ohne Konfiguration auf der Pi Zero (Zeroconf)

Netzwerkverbindungen

Name	Zuletzt verwendet
Ethernet	
Raspberry Pi ZERO	vor 4 Minuten
Onboard LAN	vor 5 Minuten
Funknetzwerk	

Hinzufügen Bearbeiten ... Löschen ... Schließen

Raspberry Pi ZERO bearbeiten

Verbindungsname: Raspberry Pi ZERO

Allgemein Ethernet 802.1x-Sicherheit IPv4-Einstellungen IPv6-Einstellungen

Methode: Manuell

Adressen

Adresse	Netzmaske	Gateway
192.168.137.1	255.255.255.0	0.0.0.0

DNS-Server:

Suchdomänen:

DHCP Client-Kennung:

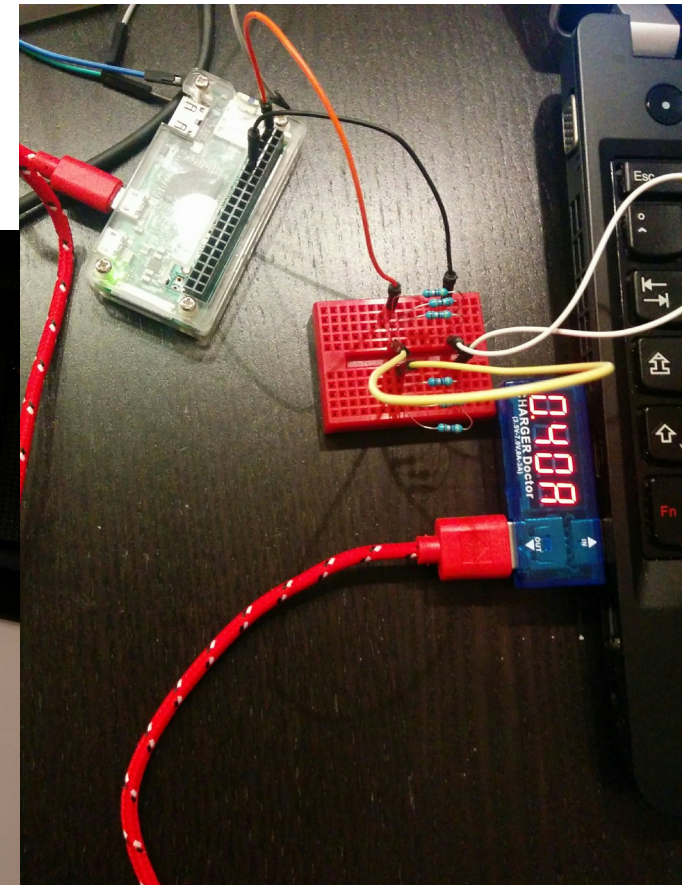
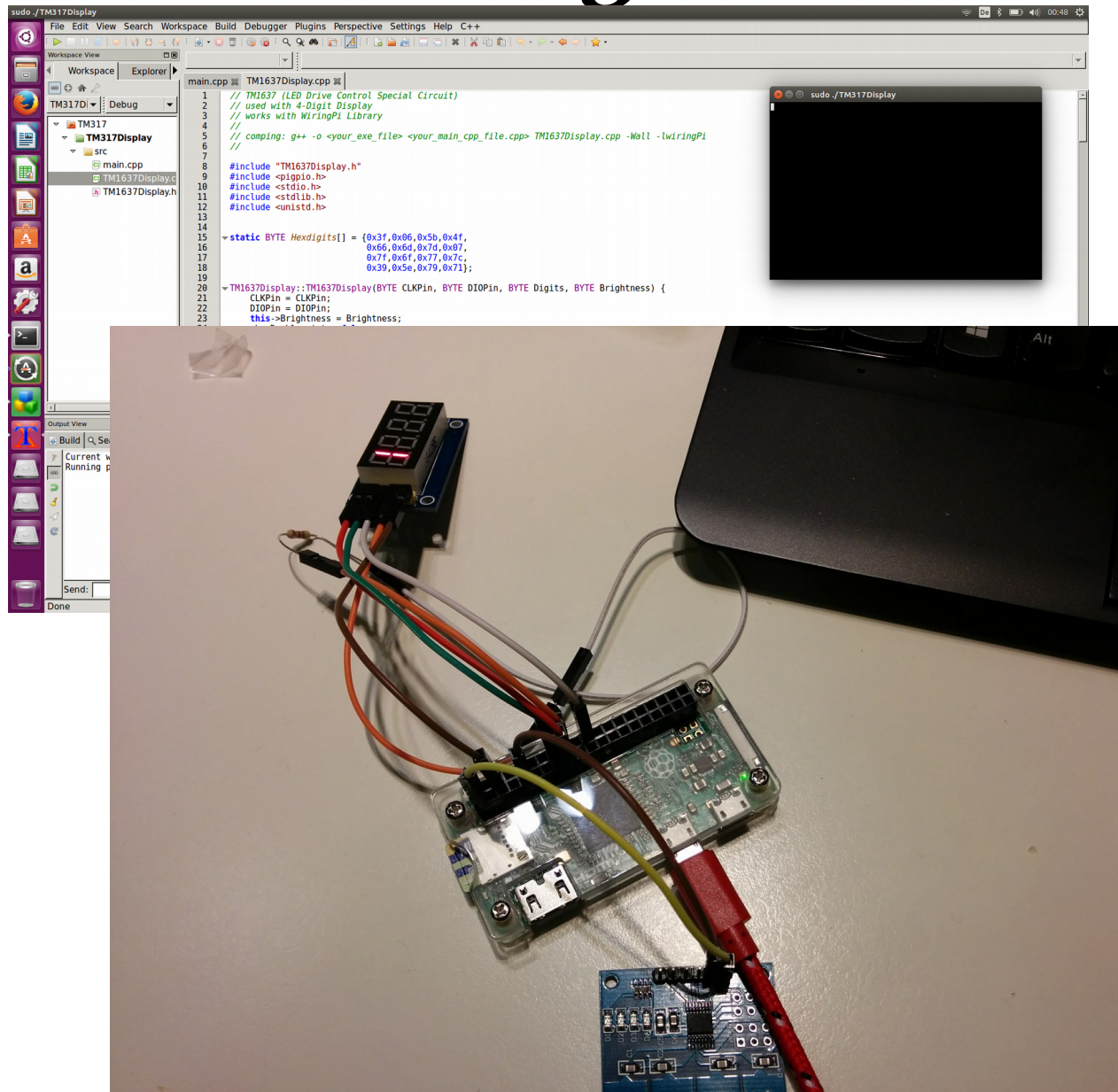
☐ IPv4-Adressierung zur Fertigstellung dieser Verbindung erforderlich

Routen ...

Abbrechen Speichern ...

Fixe IP-Adresse auf der Pi Zero z.B. 192.168.137.10

USB Gadget Ethernet Module



USB Gadget Mass Storage

/boot/config.txt

```
dtoverlay=dwc2
```

/boot/cmdline.txt

```
ramdisk_size=49152 modules-load=dwc2
```

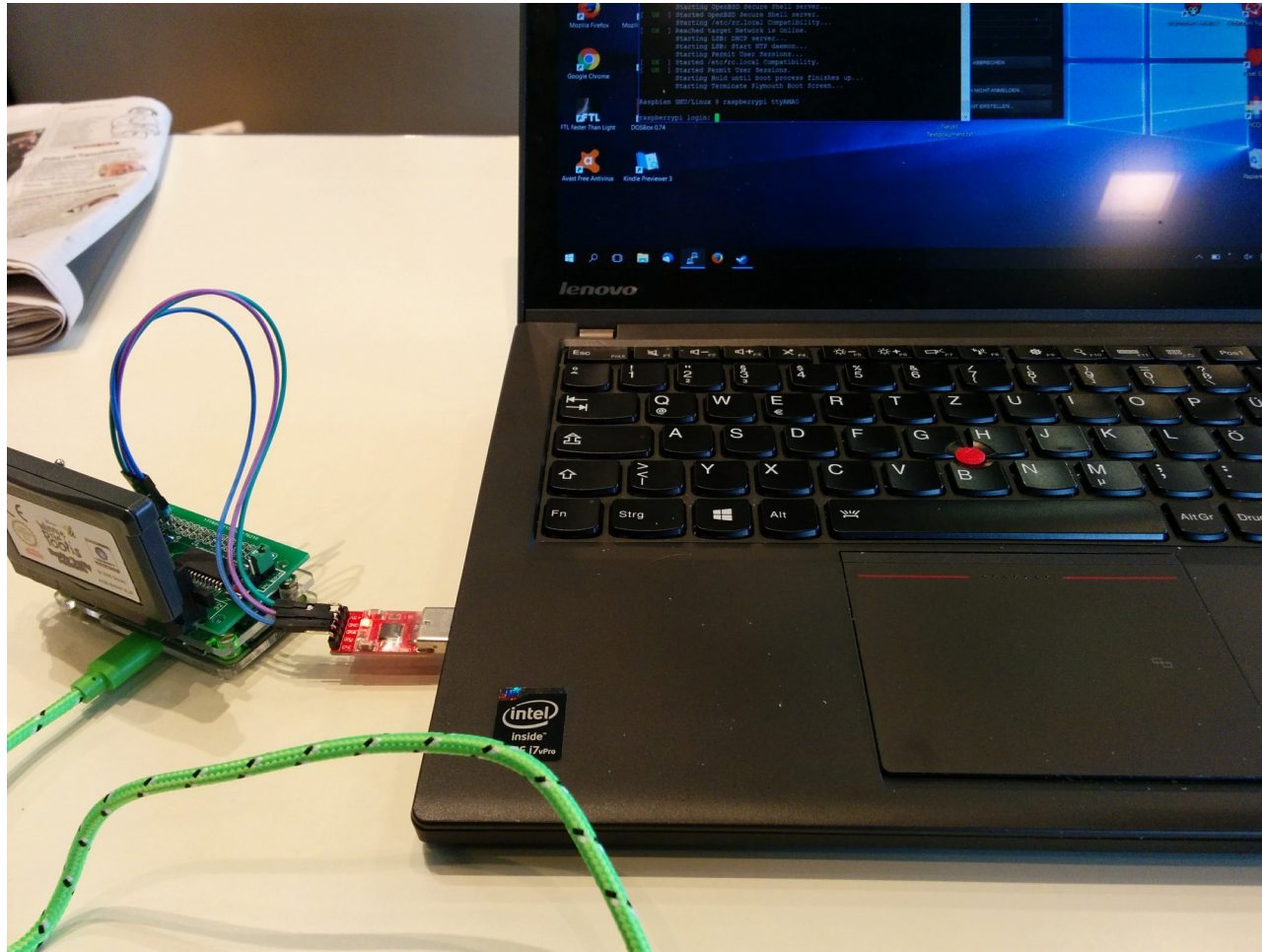
```
(echo o; echo n; echo p; echo; echo; echo; echo t; echo c; echo w) | sudo fdisk  
/dev/ram0
```

```
sudo mkdosfs /dev/ram0p1
```

```
sudo modprobe g_mass_storage file=/dev/ram0 stall=0 ro=1
```

```
sudo rmmod g_mass_storage
```


USB Gadget Mass Storage



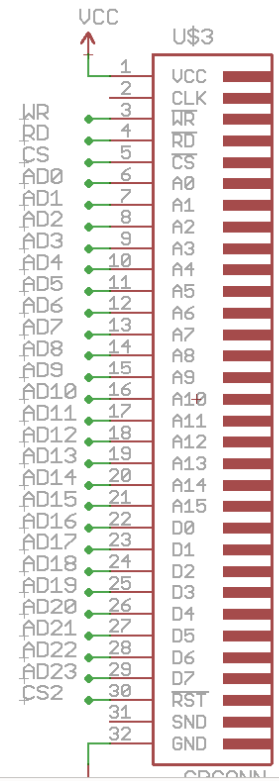
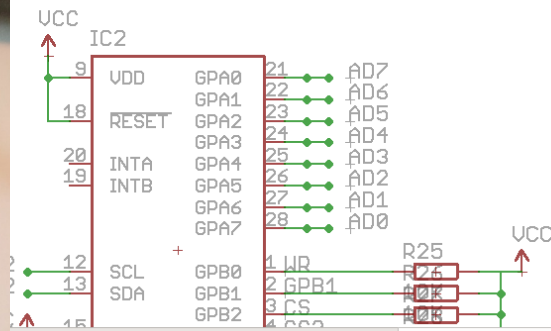
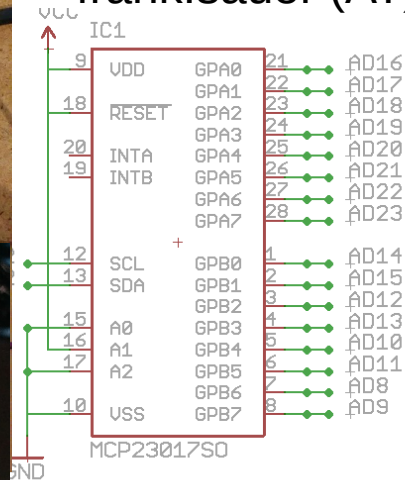
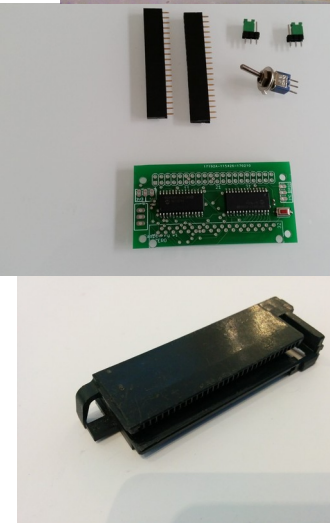
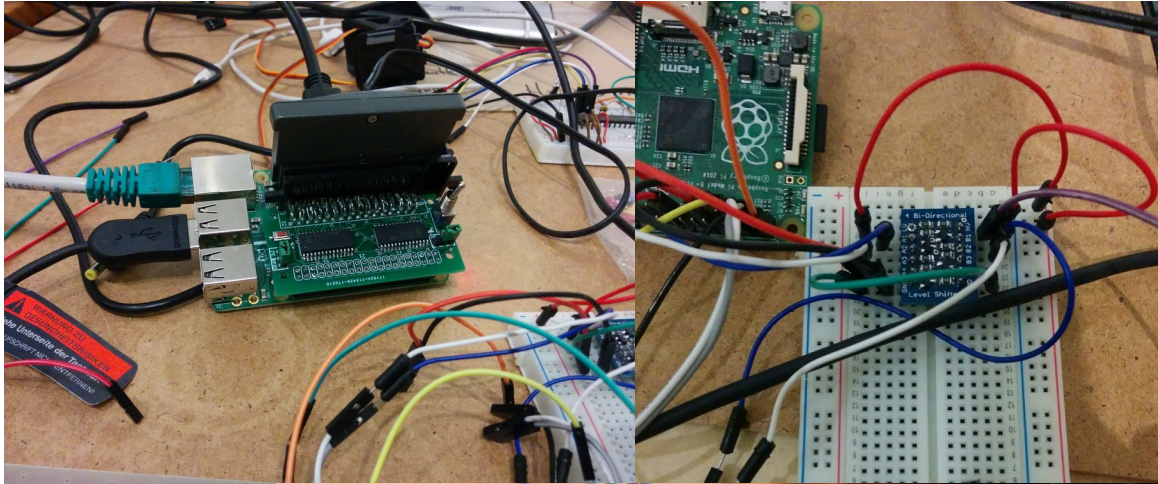
<https://www.youtube.com/watch?v=v8-PXBbhPfY>

Raspberry Pi - GBx Dumper

<http://www.forum-raspberrypi.de/Thread-projekt-game-boy-advance-spiele-auslesen>

Idee & Prototyp & Software:
Martin Strohmayer
m.stroh (AT) ymail.com

PCB: Frank Sauer
frank.sauer (AT) t-online.de



- Beim Projektstand vorbeischaun!