

# RASPBERRY PI

## NICO MAAS

### PI AND MORE 13



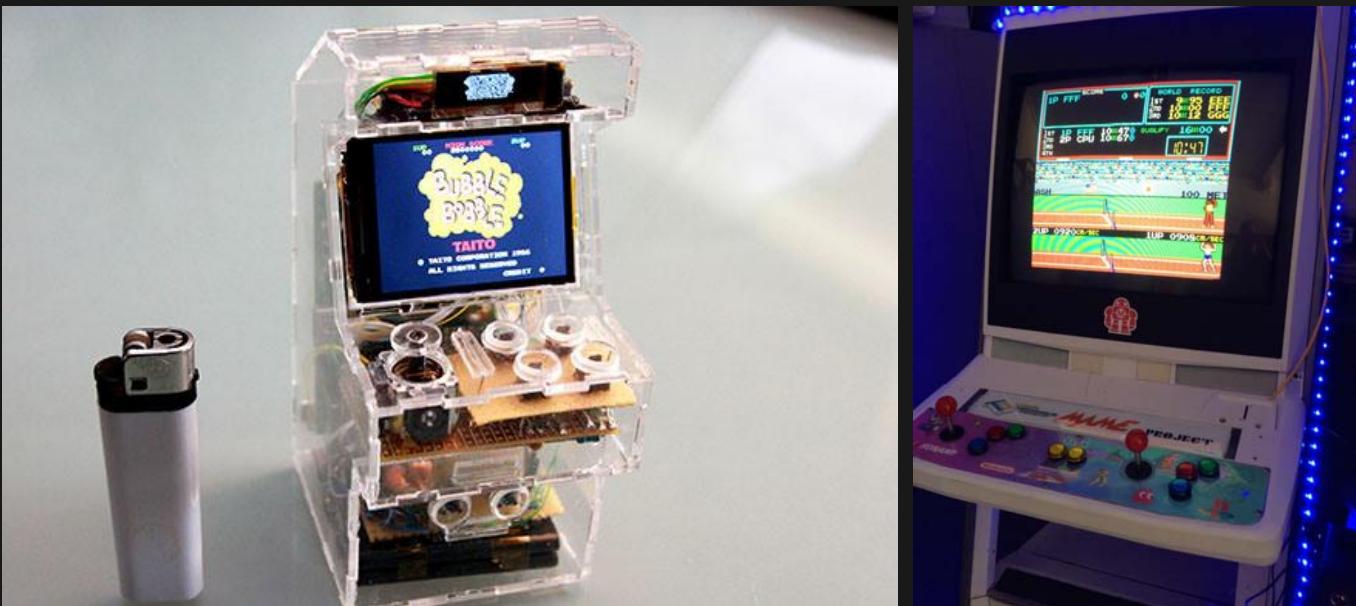
# WER BIN ICH?

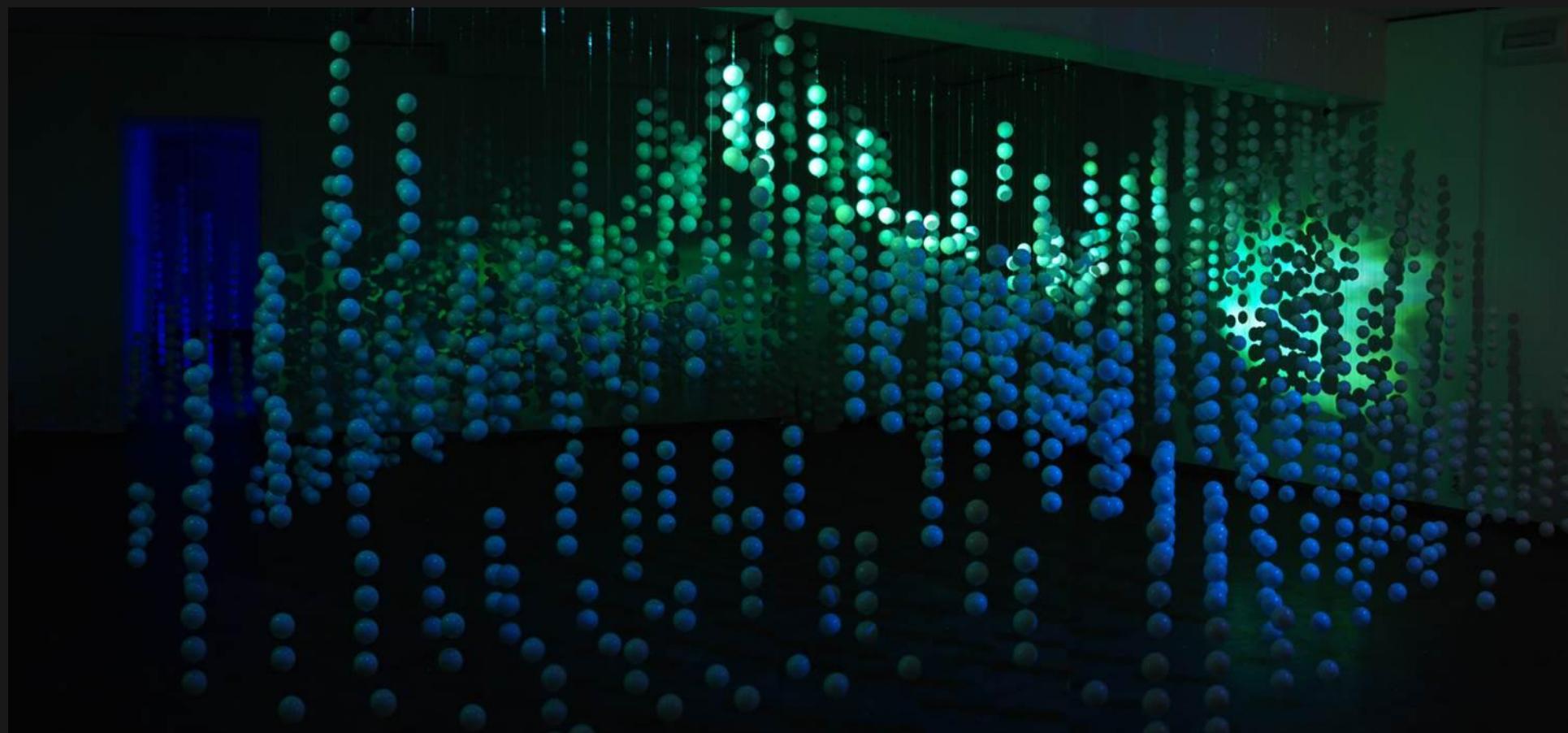
- Nico Maas
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- IT Systemelektroniker
- [mail@nico-maas.de](mailto:mail@nico-maas.de)
- [www.nico-maas.de](http://www.nico-maas.de)
- Twitter: @nmaas87
- Mastodon: @nmaas87@chaos.social

# AGENDA

- Einführung
  - Geschichte
  - Nur der RPi?
  - Woher der Erfolg?
- Erste Schritte
- Einkaufstips
- Mehr Raspberry Pi
- Ende

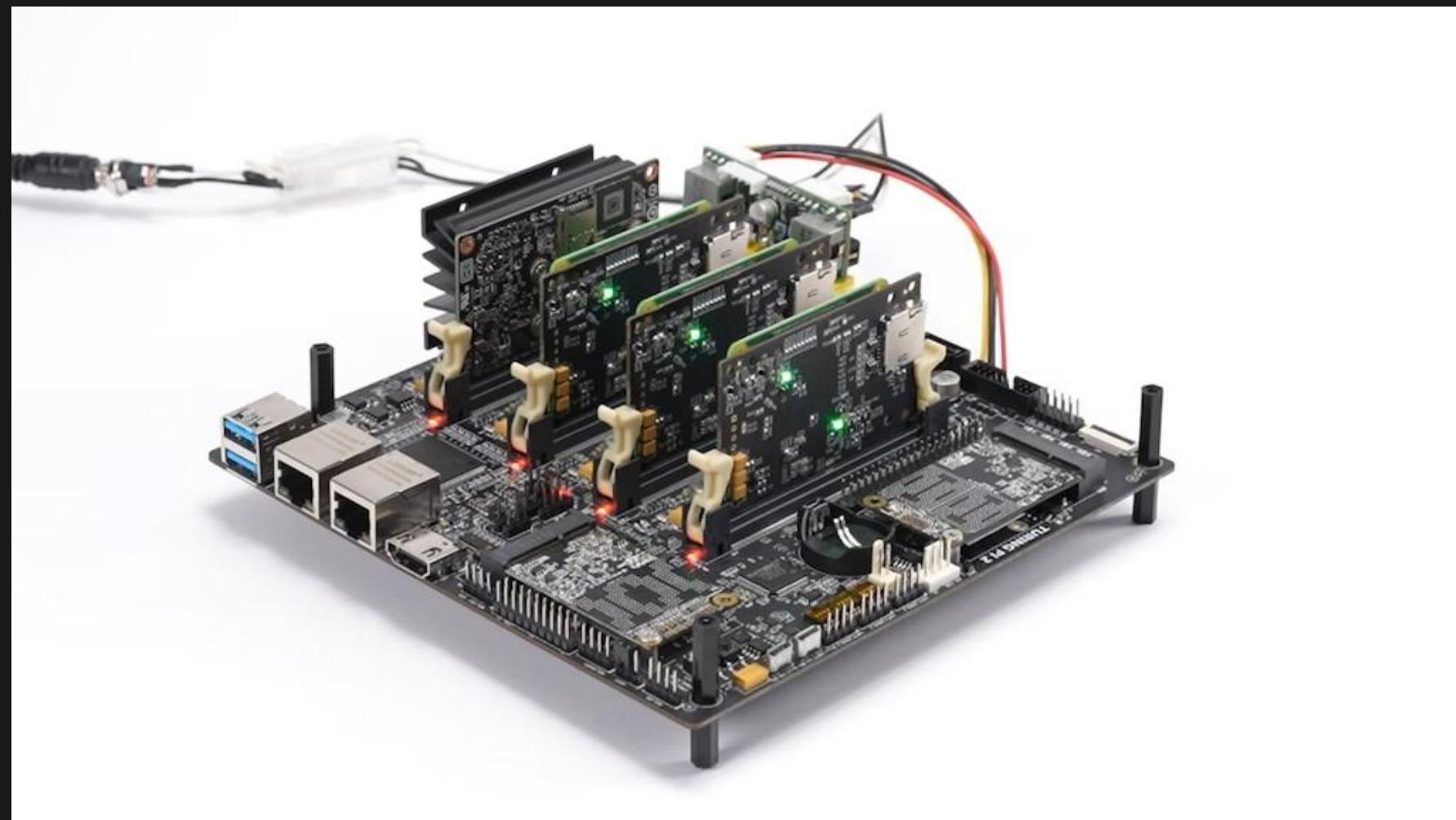
# EINFÜHRUNG





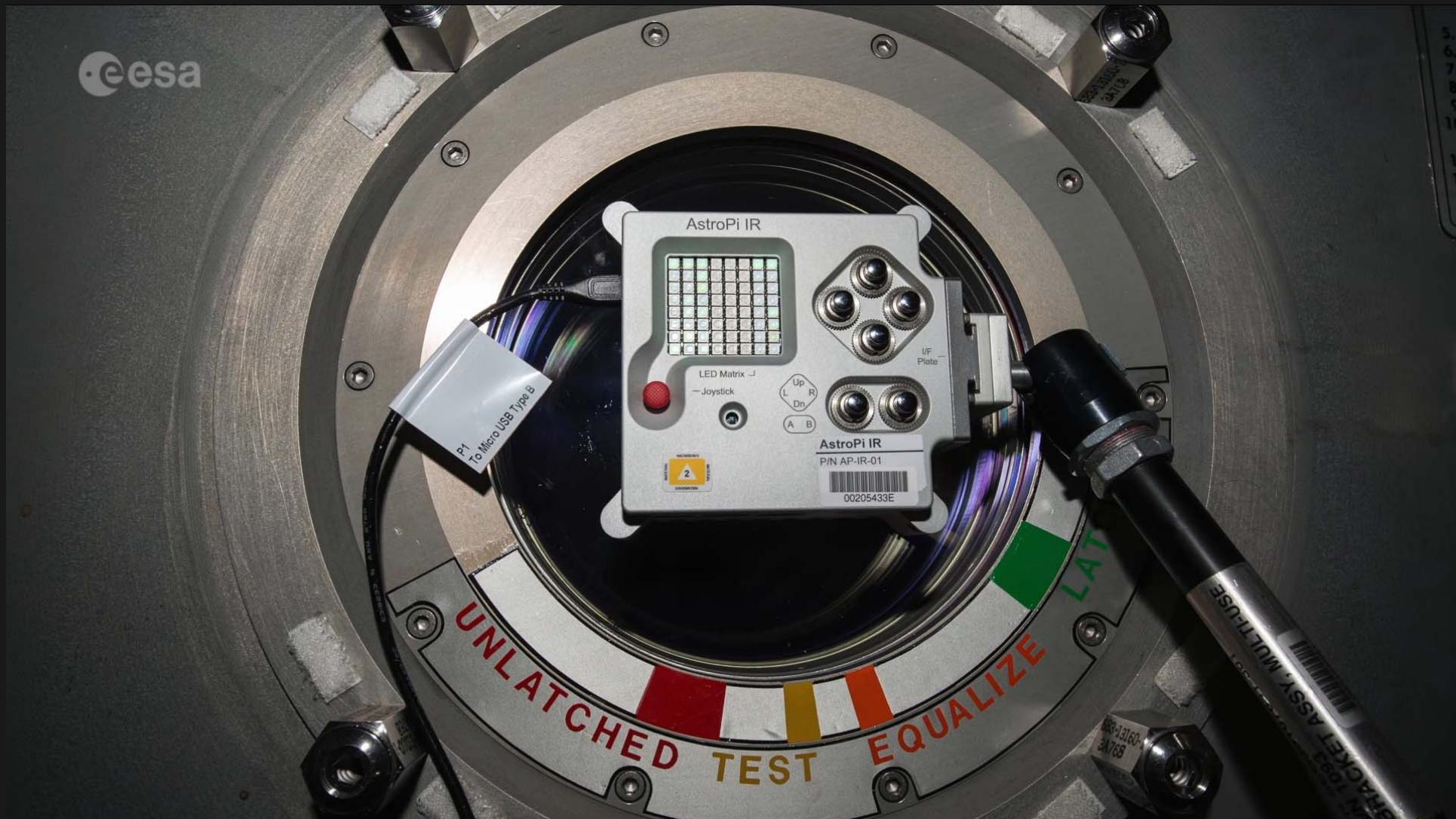


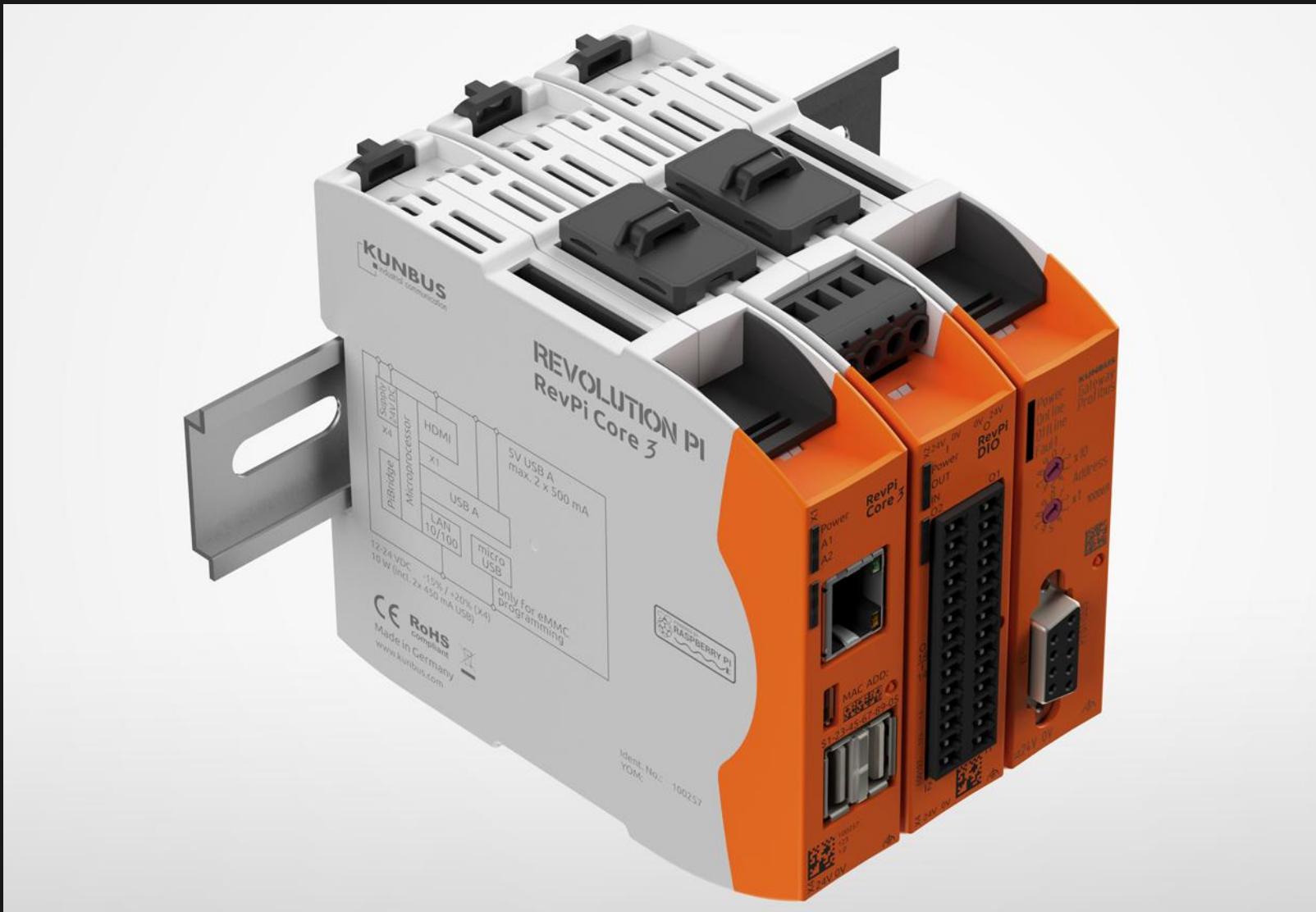














# 29.02.2012 - LAUNCH

10.000 Einheiten verfügbar



> 100.000 Vorbestellungen

**08.09.2016 - ESTABLISHMENT**

~~>100.000 Vorbestellungen~~

10 Millionen verkaufte Einheiten

# 28.02.2022 - CURRENT STATE

~~10 Millionen verkauft~~

BBC Micro: 1.5 Millionen

Sinclair ZX Spectrum: 5 Millionen

Raspberry Pi Family: > 45 Millionen

Allein im März 2020 640.000 Stück verkauft

# EINFÜHRUNG GESCHICHTE

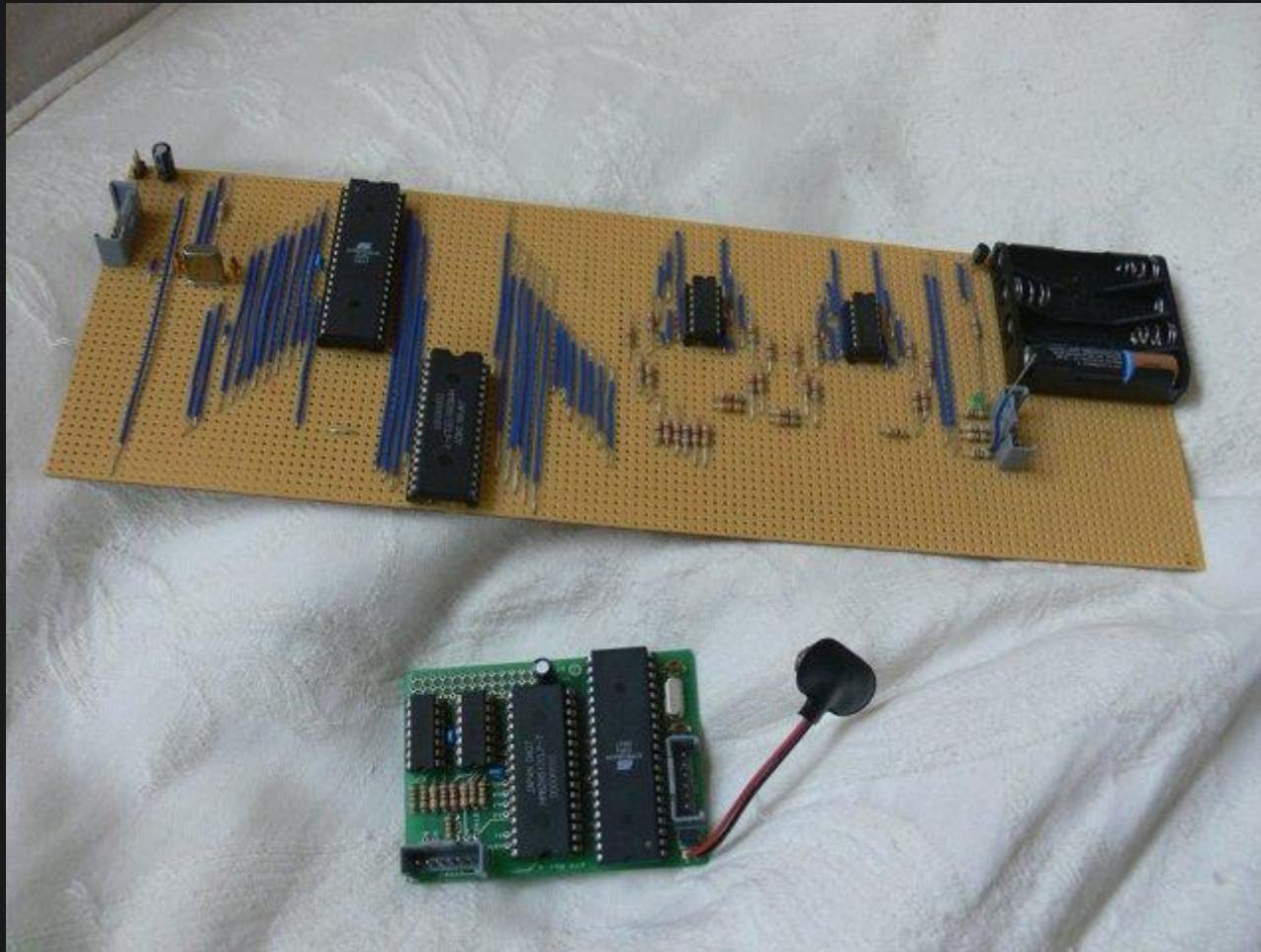


HOW DOES COMPUTER  
PROGRAMMING WORK ?

MAGIC.



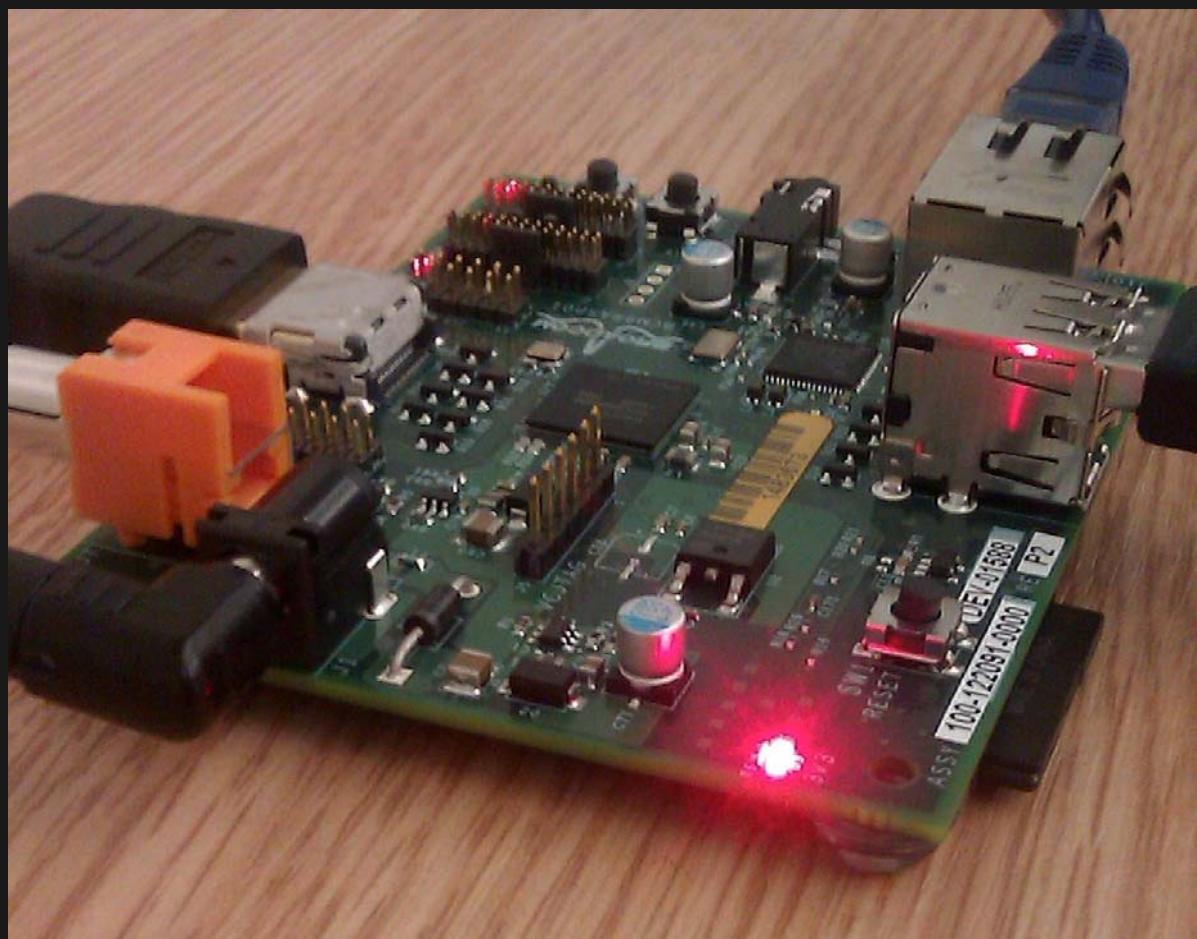
全吉場

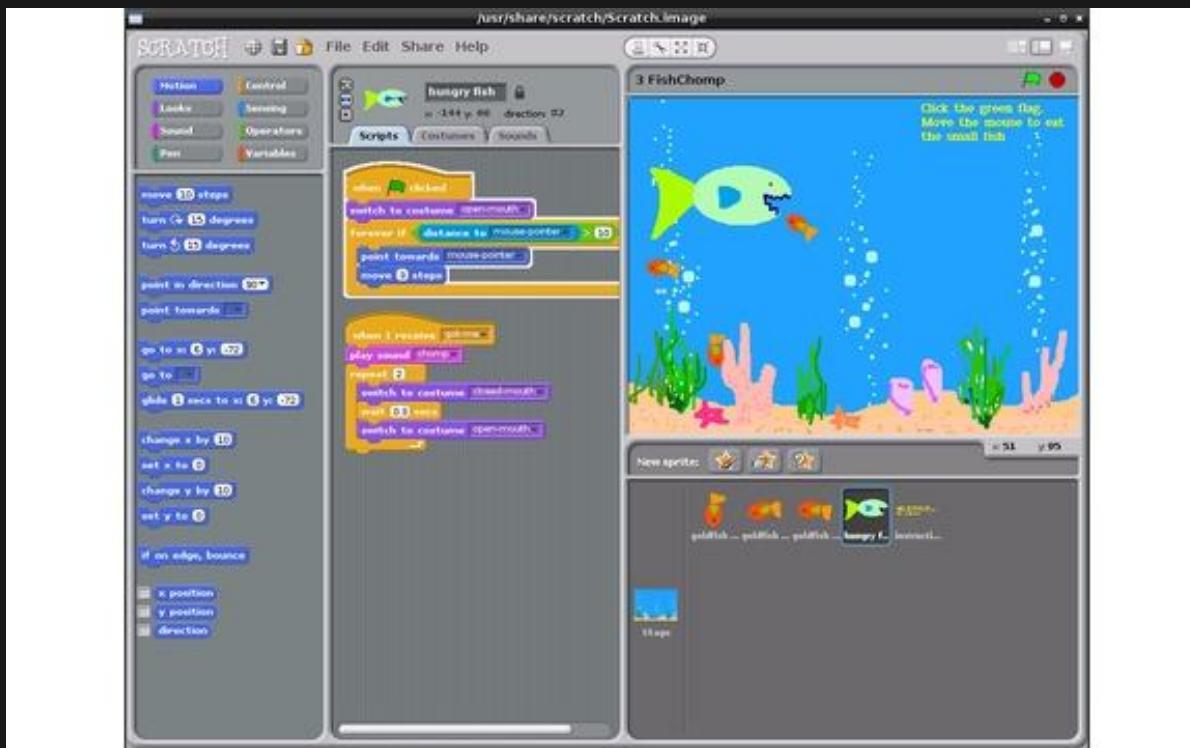


Welcome to ROBOQ Industries (TM) Termlink  
Password Required  
Attempts Remaining: ■■■■

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# RASPBERRY PI MODEL B, 2012



# RASPBERRY PI MODELL B V2

- 700 MHz ARM
- 512 MB RAM
- Full HDMI
- Cinch Video
- Stereo Audio
- USB 2.0
- 100 Mbit Ethernet
- 35 USD

# EINFÜHRUNG

## NUR DER RPI?

WARS DAS SCHON ;)?

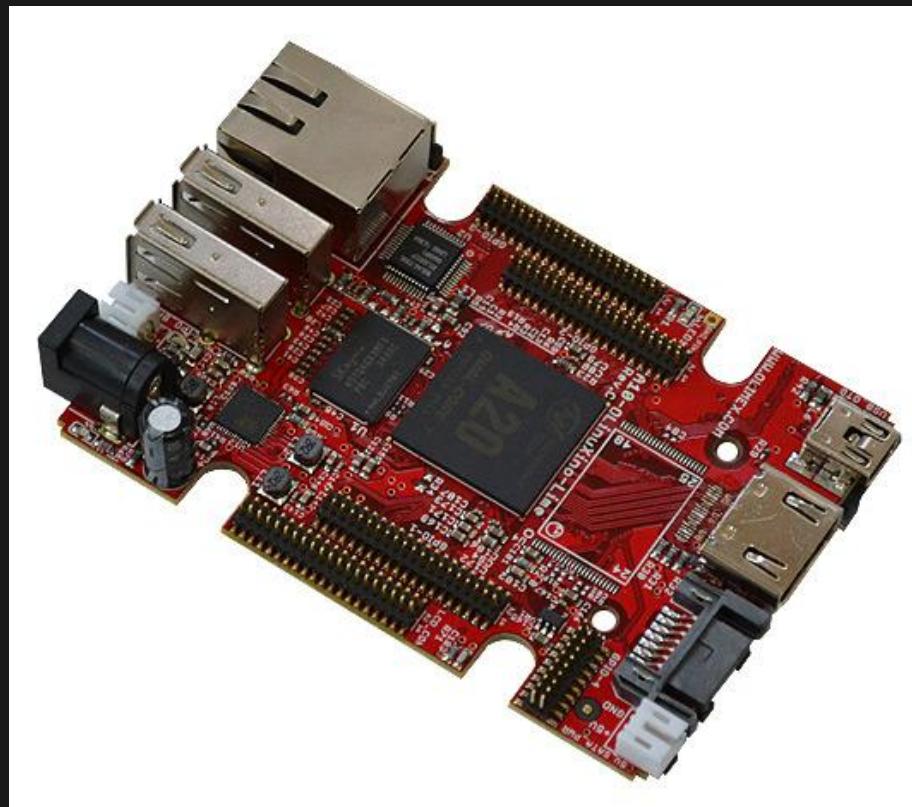
**NEIN :))!**

# BEAGLEBONE BLACK



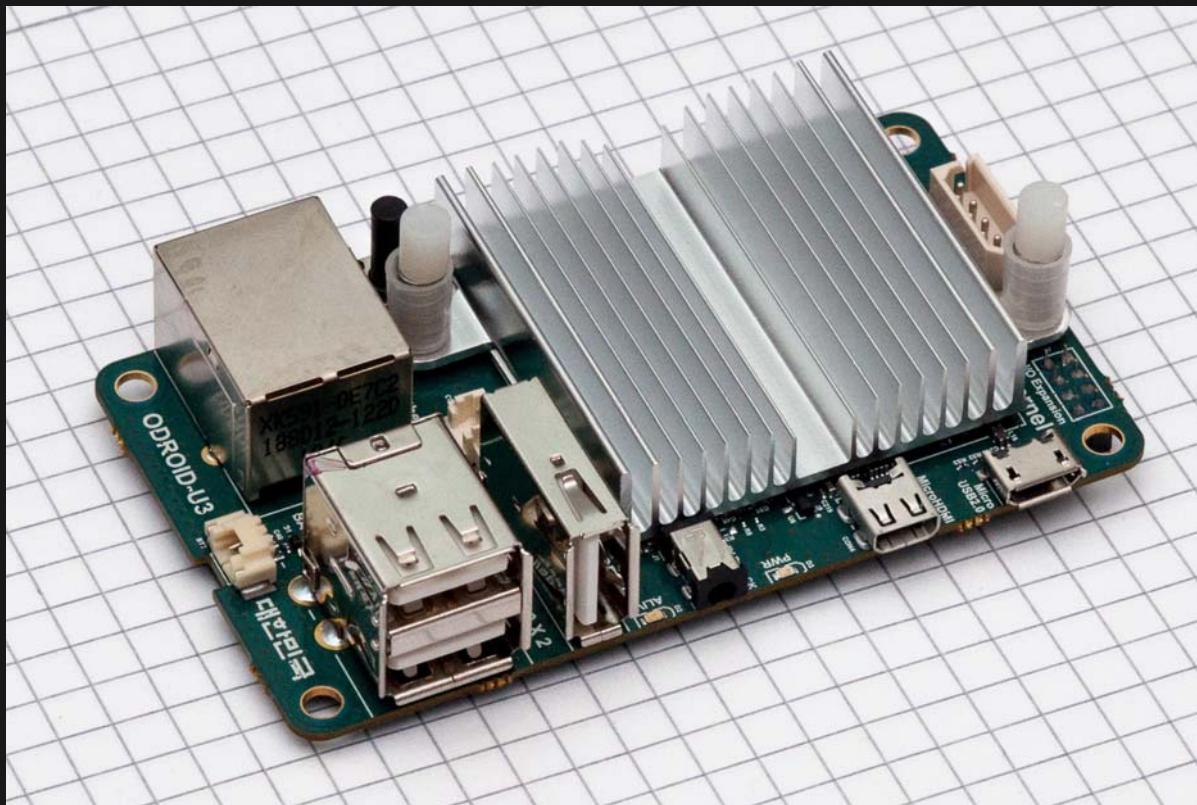
1 GHz, 512 MB RAM, 2 PRUs

# OLIMEX (Z.B. A20 OLINUXINO-LIME)



1 GHz Dualcore, 512 MB RAM, 160 GPIOs + SATA

# HARDKERNEL ODROID (Z.B. U3)

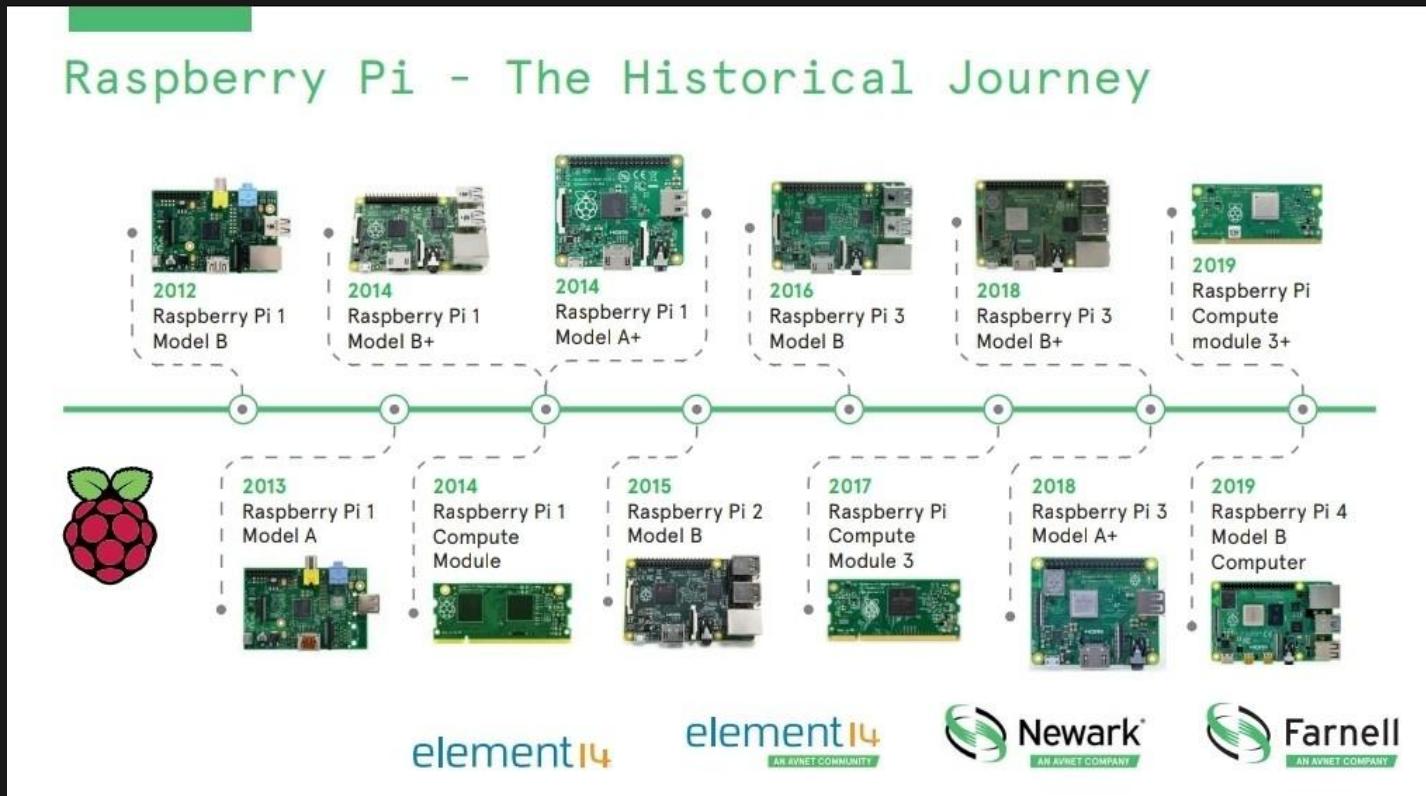


1.7 GHz Quadcore, 2 GB RAM, eMMC

**KONKURENZ BELEBT DAS GESCHÄFT!**

# EINFÜHRUNG

## WOHER DER ERFOLG?



# RASPBERRY PI MODEL B, 2012



35 USD

## 1.) PREIS

Für 35 USD - ein “vollwertiger Rechner”\*?

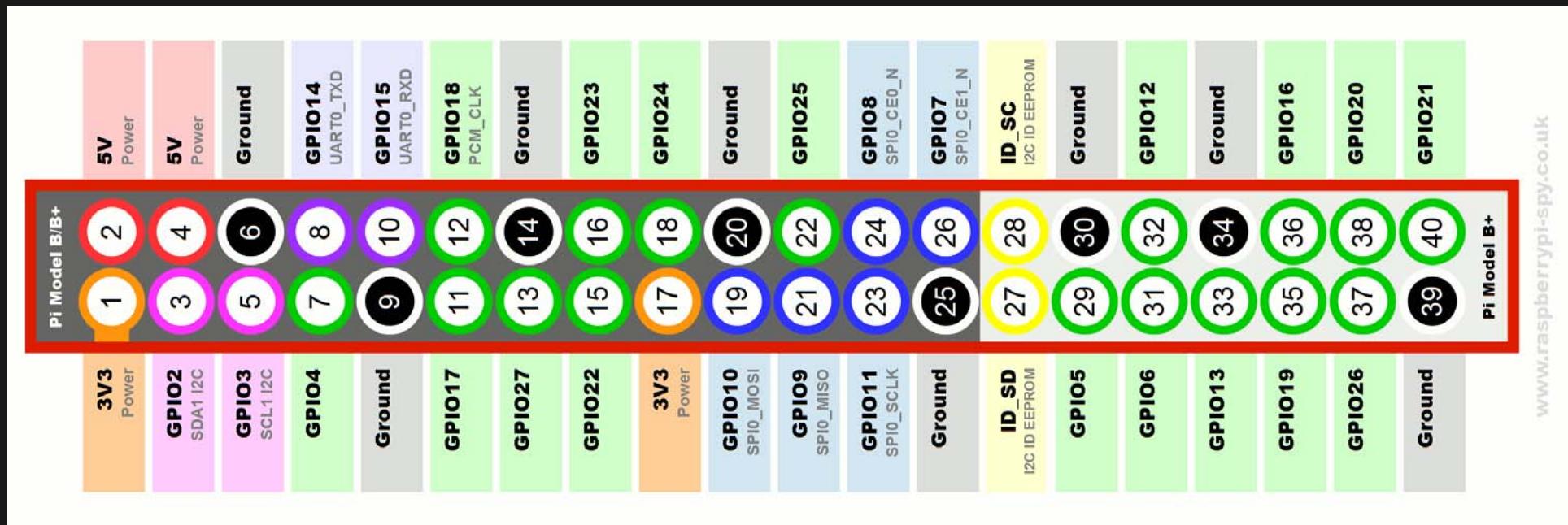
\* Zubehör erforderlich...

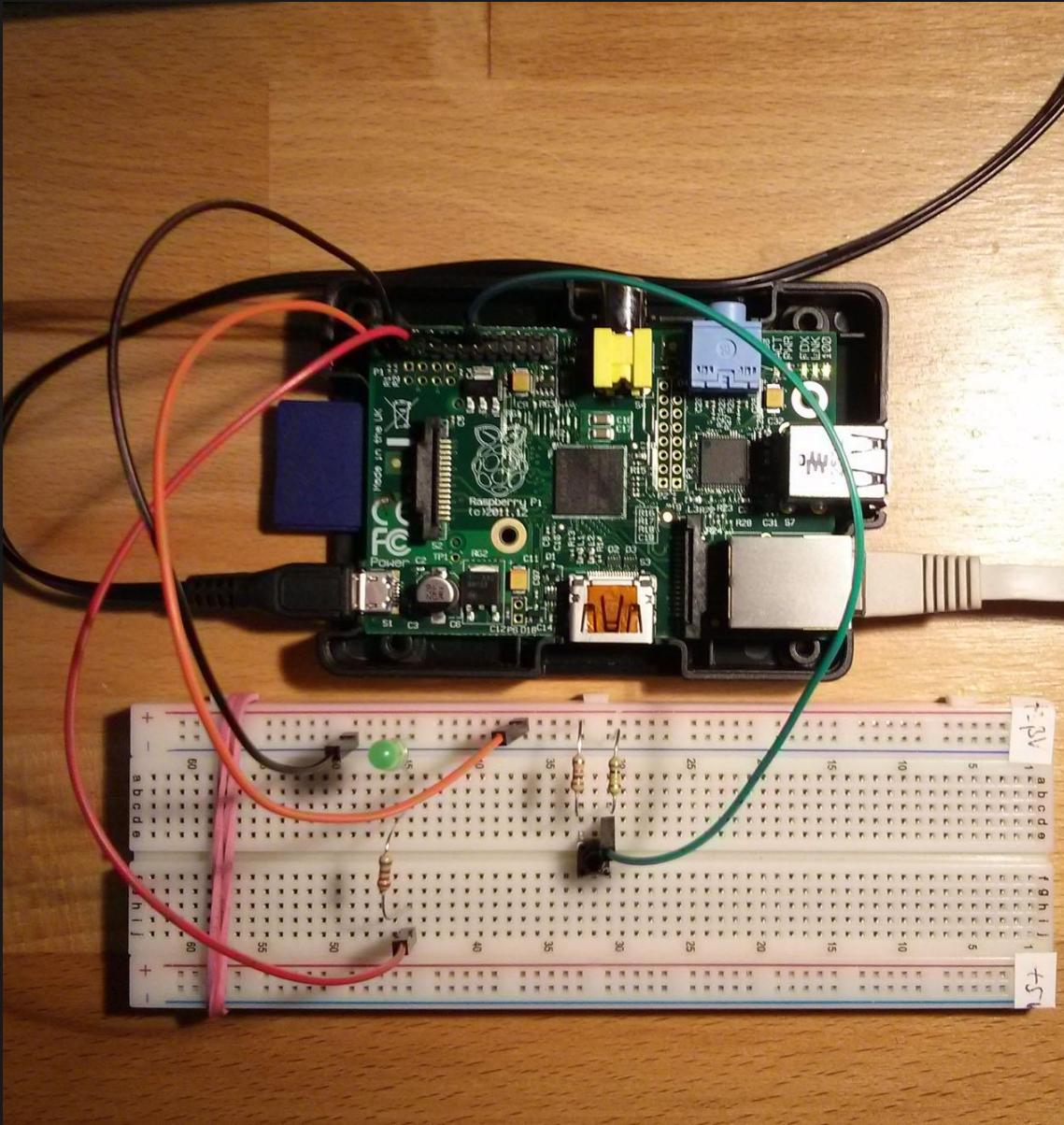
## 2.) GPIO



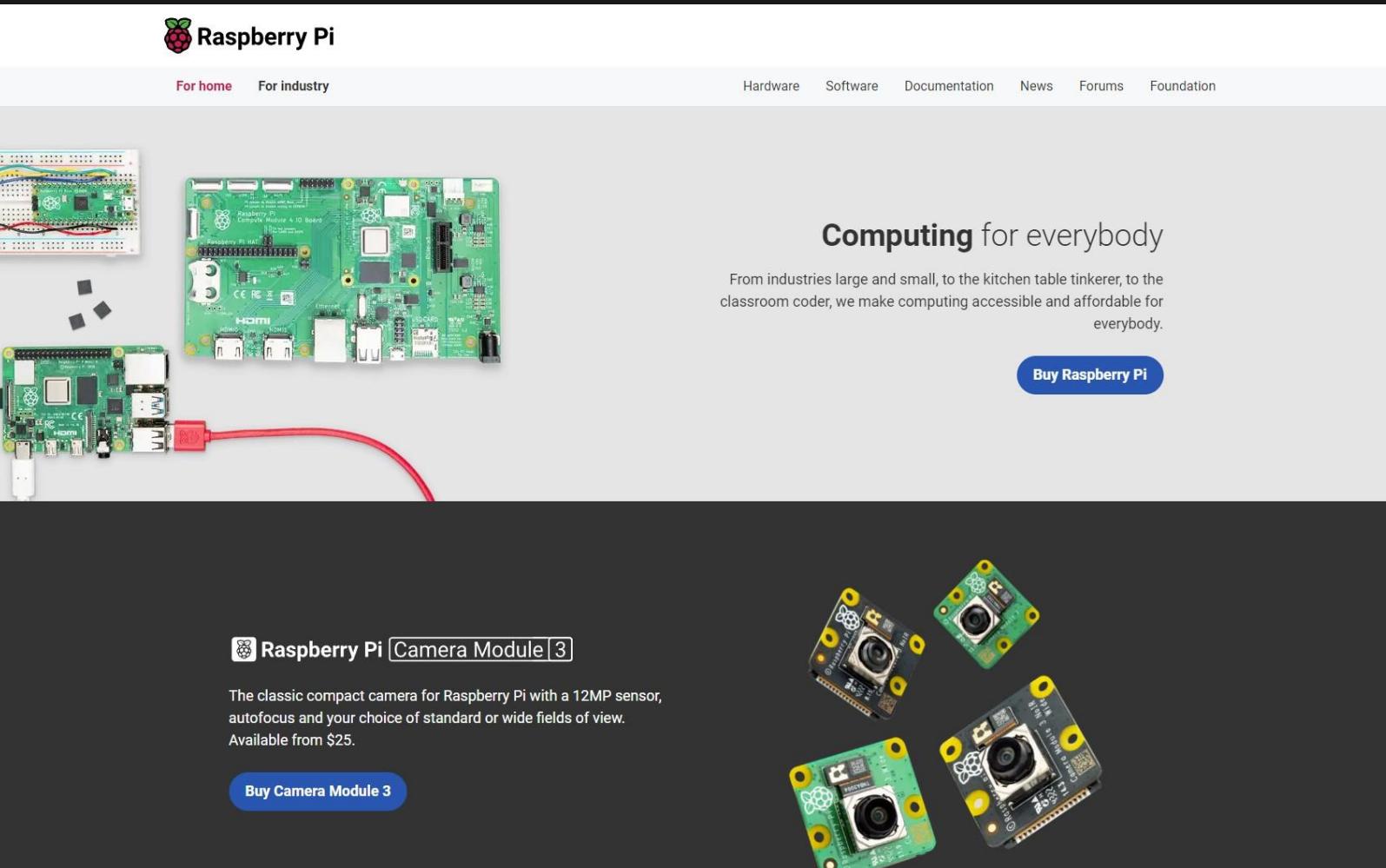
## Raspberry Pi GPIO connector (P1) pinout







# 3.) COMMUNITY & DOKUMENTATION



The screenshot shows the official Raspberry Pi website. At the top, there's a navigation bar with links for "For home" (highlighted in red), "For industry", "Hardware", "Software", "Documentation", "News", "Forums", and "Foundation". The main content area features several images of Raspberry Pi hardware: a Model A+ board, a Compute Module 4 IO Board, a Model B+ board, and a Model A+ board connected to a monitor via a red cable. To the right, a section titled "Computing for everybody" includes a subtext about making computing accessible and affordable for everyone, followed by a blue "Buy Raspberry Pi" button. Below this, there's a section for the "Raspberry Pi Camera Module [3]", which is described as a classic compact camera with a 12MP sensor, autofocus, and standard or wide fields of view. It's available from \$25. A blue "Buy Camera Module 3" button is provided. In the bottom right corner of the main content area, four Raspberry Pi Camera Modules are shown floating against a dark background.

**Raspberry Pi**

For home For industry

Hardware Software Documentation News Forums Foundation

 Raspberry Pi

From industries large and small, to the kitchen table tinkerer, to the classroom coder, we make computing accessible and affordable for everybody.

[Buy Raspberry Pi](#)

 **Raspberry Pi Camera Module [3]**

The classic compact camera for Raspberry Pi with a 12MP sensor, autofocus and your choice of standard or wide fields of view.  
Available from \$25.

[Buy Camera Module 3](#)

# 4.) BETRIEBSSYSTEME

## Raspberry Pi OS

Our recommended operating system for most users.

Compatible with:

[All Raspberry Pi models](#)

### Raspberry Pi OS with desktop

Release date: February 21st 2023

System: 32-bit

Kernel version: 5.15

Debian version: 11 (bullseye)

Size: 924MB

[Show SHA256 file integrity hash](#)

[Release notes](#)

[Download](#)

[Download torrent](#)

[Archive](#)

### Raspberry Pi OS with desktop and recommended software

Release date: February 21st 2023

System: 32-bit

Kernel version: 5.15

Debian version: 11 (bullseye)

Size: 2,752MB

[Show SHA256 file integrity hash](#)

[Release notes](#)

[Download](#)

[Download torrent](#)

[Archive](#)

### Raspberry Pi OS Lite

Release date: February 21st 2023

System: 32-bit

Kernel version: 5.15

Debian version: 11 (bullseye)

Size: 362MB

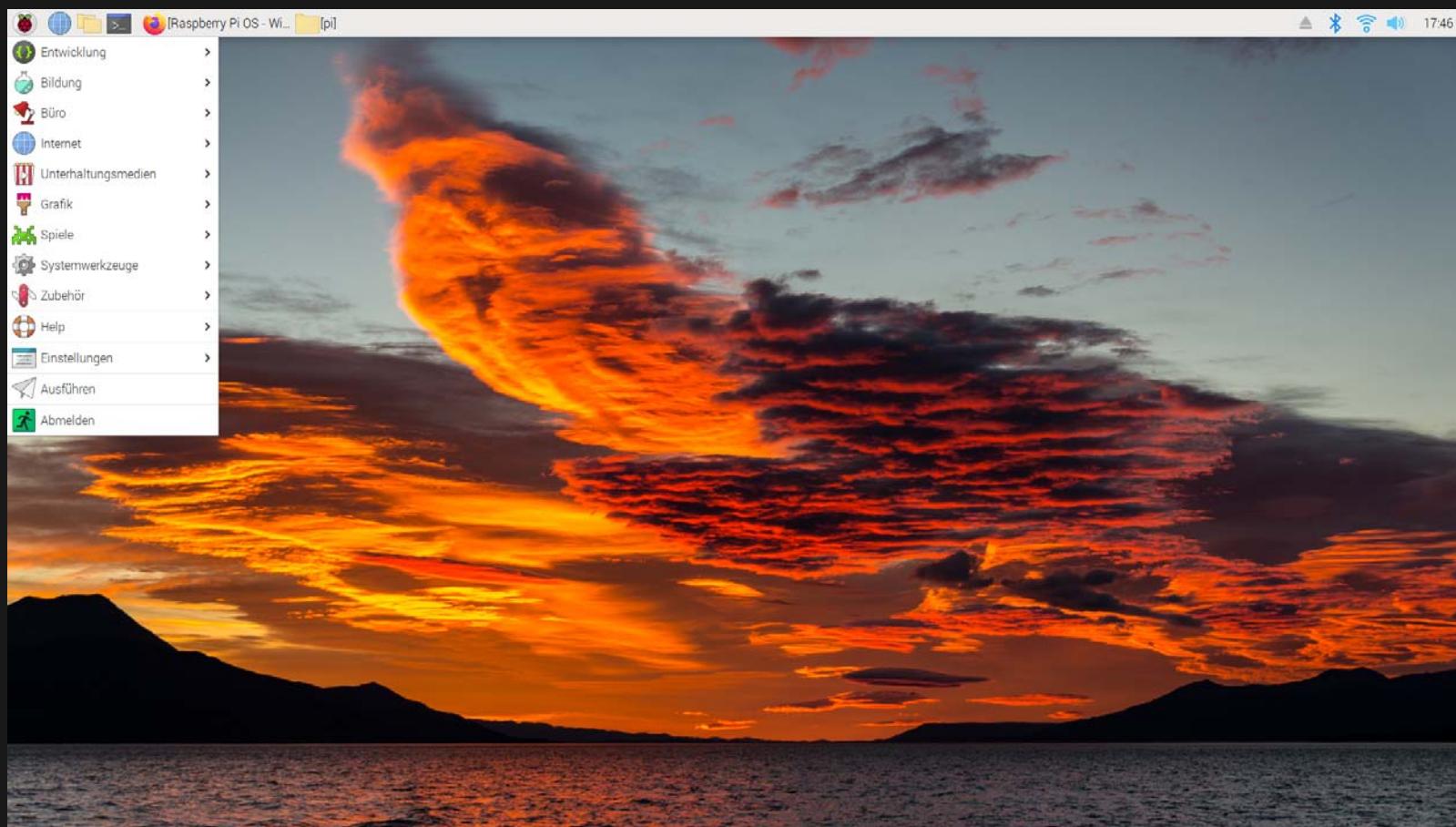
[Show SHA256 file integrity hash](#)

[Release notes](#)

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**Ubuntu**

Choose from Ubuntu Desktop, Server, and Core images



**Apertis**



Debian-based distribution aimed at embedded systems



**RISC OS Pi**

A fast and easily customised operating system for ARM devices



-  LibreELEC >  
A Kodi Entertainment Center distribution
-  OSMC >  
A fast and feature filled open source media center
-  Volumio >  
The Audiophile Music Player and Streamer
-  moOde audio player >  
Audiophile music streamer for the Raspberry Pi

-  **Recalbox**   
The retro-gaming OS supporting 100+ gaming systems! >
-  **RetroPie**  
Turn your Raspberry Pi into a retro-gaming machine >
-  **Lakka**   
The DIY retro emulation console >

-  **3D printing** >  
3D printer operating systems
-  **Home assistants and home automation** >  
Home assistant and home automation operating systems
-  **Anchias** >  
 The most popular open source digital signage project
-  **Kali Linux** >  
 Kali Linux is an open-source, Debian-based Linux distribution geared towards various information security tasks, such as Penetration Testing, Security Research, Computer Forensics and Reverse Engineering.
-  **FullPageOS** >  
 Display a full page browser on boot in kiosk mode
-  **MoodleBox** >  
 MoodleBox is an open source distribution combining a wireless access point with a full featured Moodle server.
-  **Falcon Player (FPP)** >  
 Falcon Player (FPP) is an appliance used for managing and controlling animated light shows

## 5.) EIN RPI FÜR JEDEN VERWENDUNGSZWECK

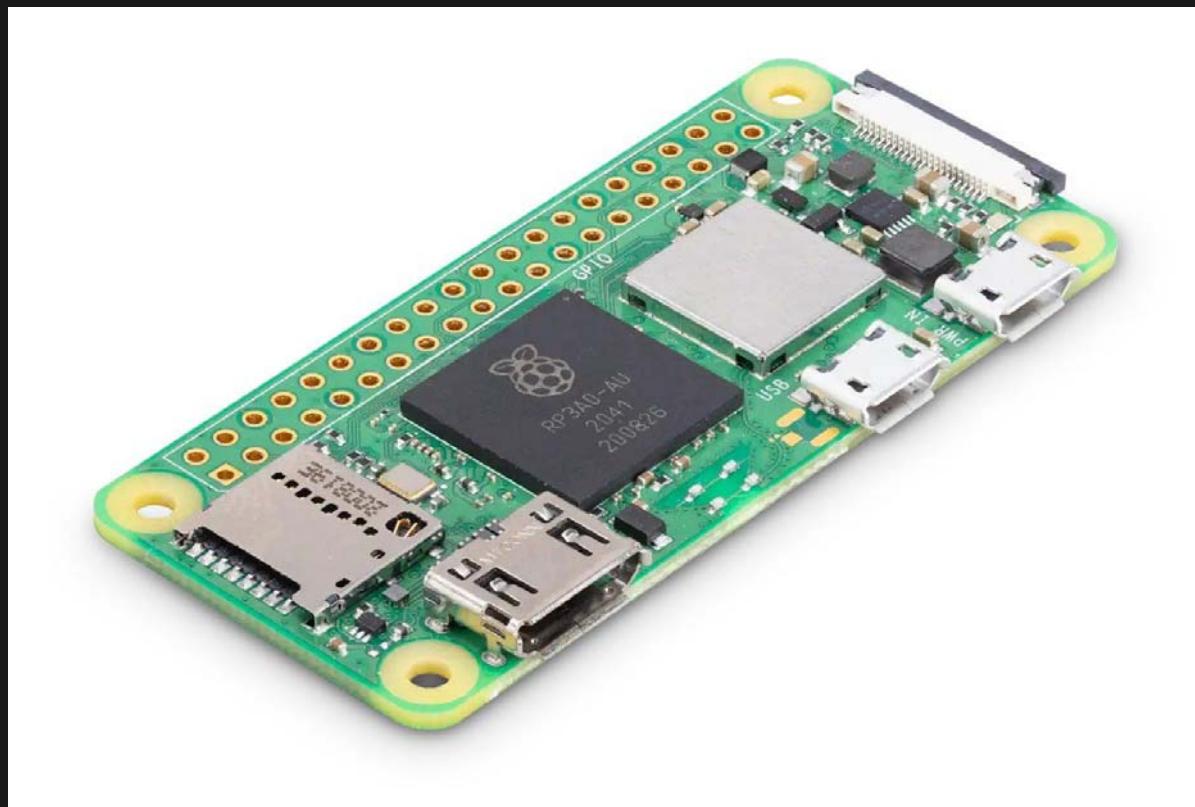
# RPI 4B+



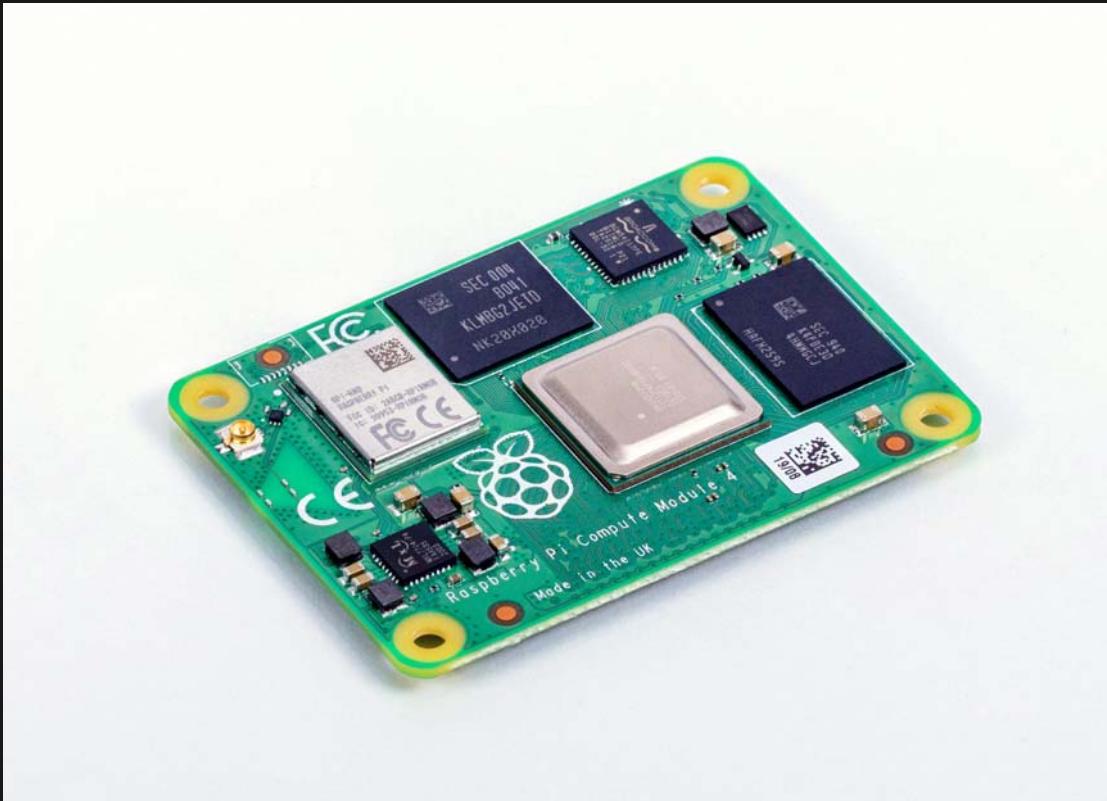
# RPI 400



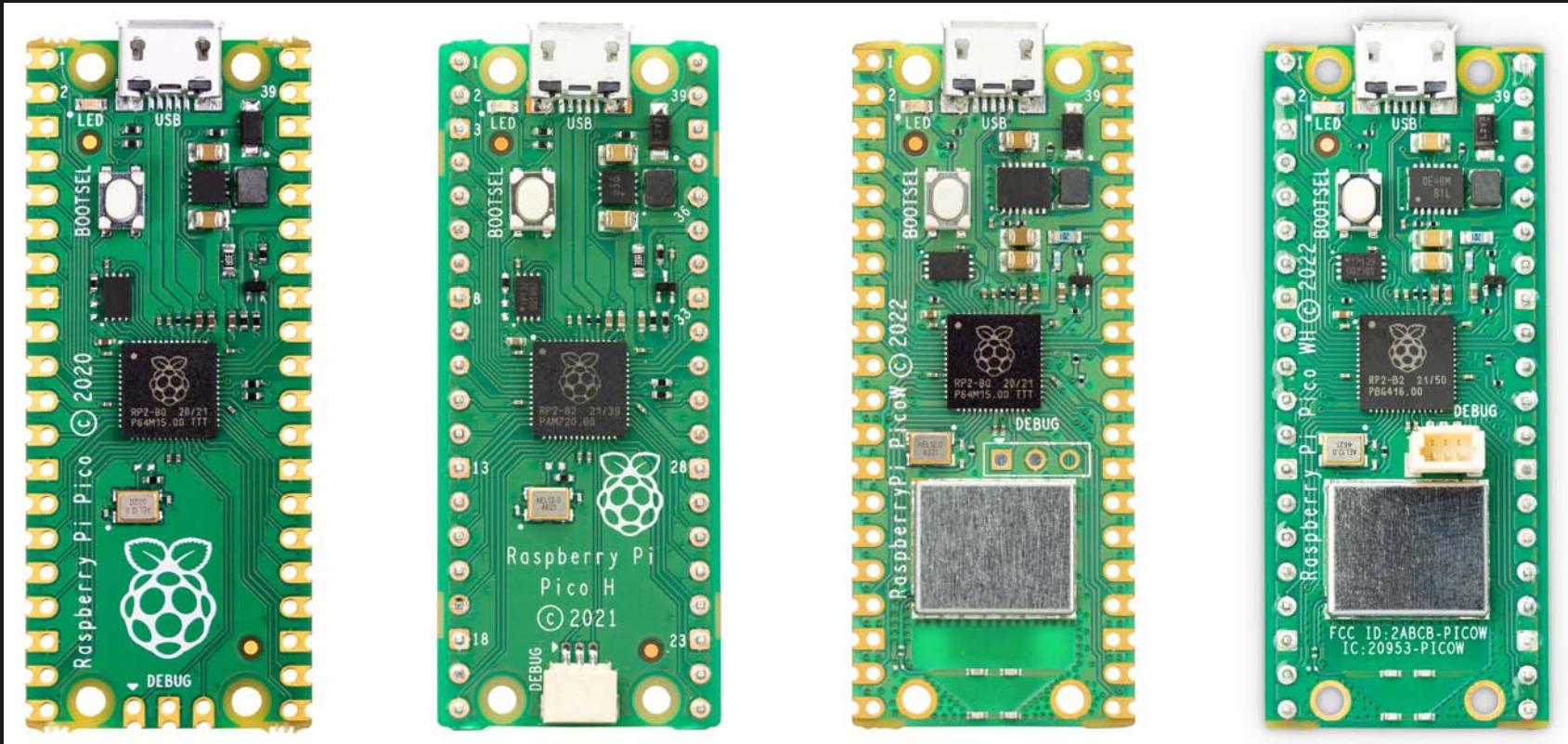
# RPI ZERO 2 W



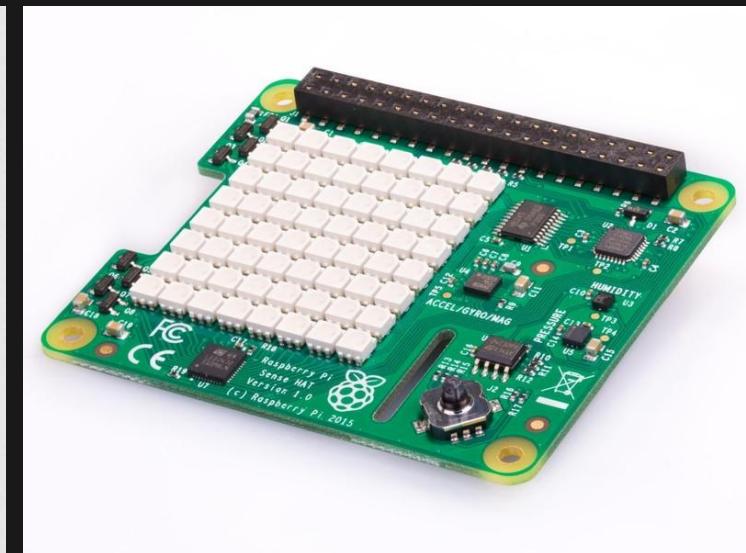
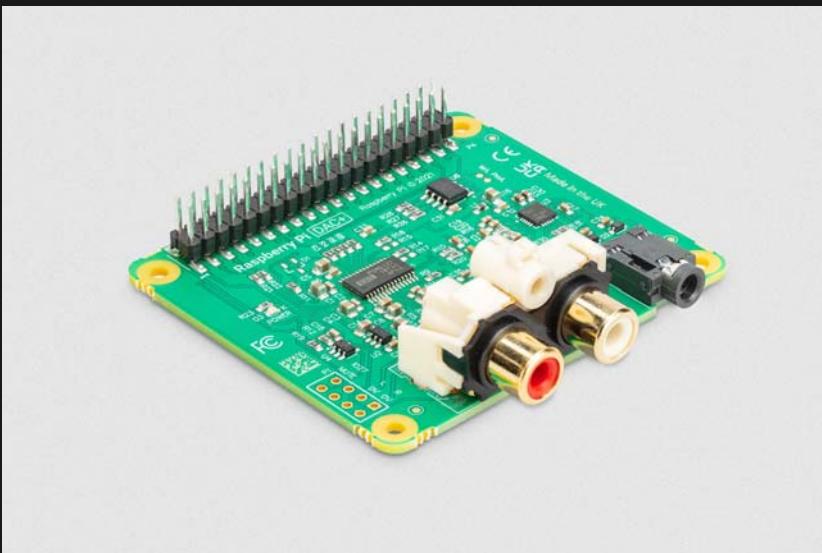
# RPI COMPUTE MODULE 4



# RP2040 / RPI PICO (H) / RPI PICO W(H)







# ERSTE SCHRITTE

# RASPBERRY PI 4 MODELL B+



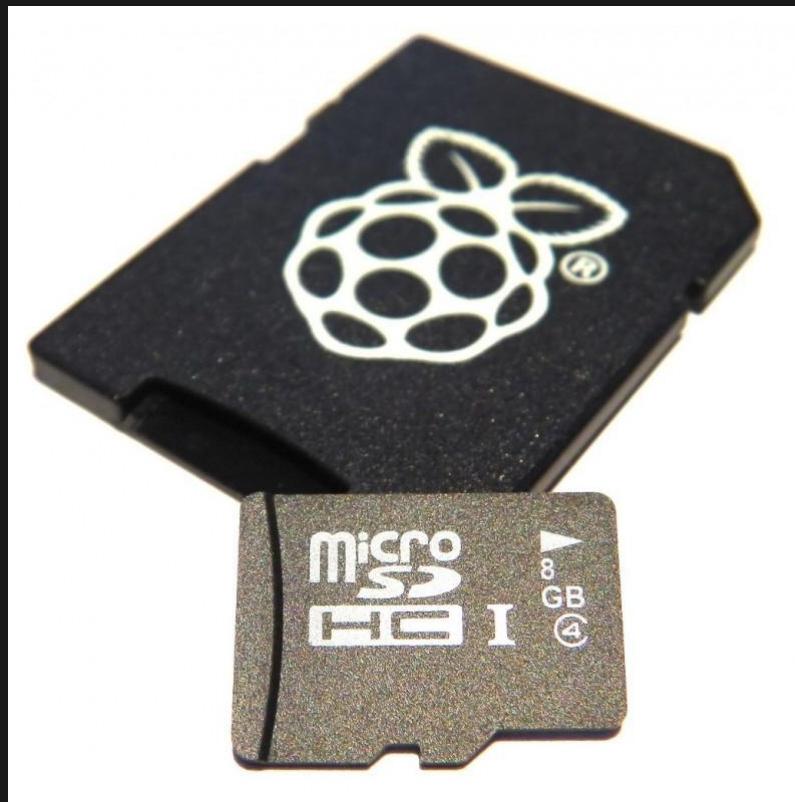
# RASPBERRY PI 4 MODELL B+

- 1.5 GHz ARM Quadcore (64 bit)
- 1 (nur bei Einführung), 2, 4 oder 8 GB RAM
- 2x Micro HDMI
- 3,5 mm Klinke Video / Audio
- 2x USB 3.0 / 2x USB 2.0
- Gigabit Ethernet (mit PoE Support)
- Bluetooth 5.0
- WLAN (802.11.b/g/n/ac)
- ~ 39,90€ (2 GB Version) \*

(\* mehr später...)

# ZUBEHÖR: MICRO SD CARD

>= 8 GB, Markenhersteller, Class 10



# ZUBEHÖR: USB-C NETZTEIL

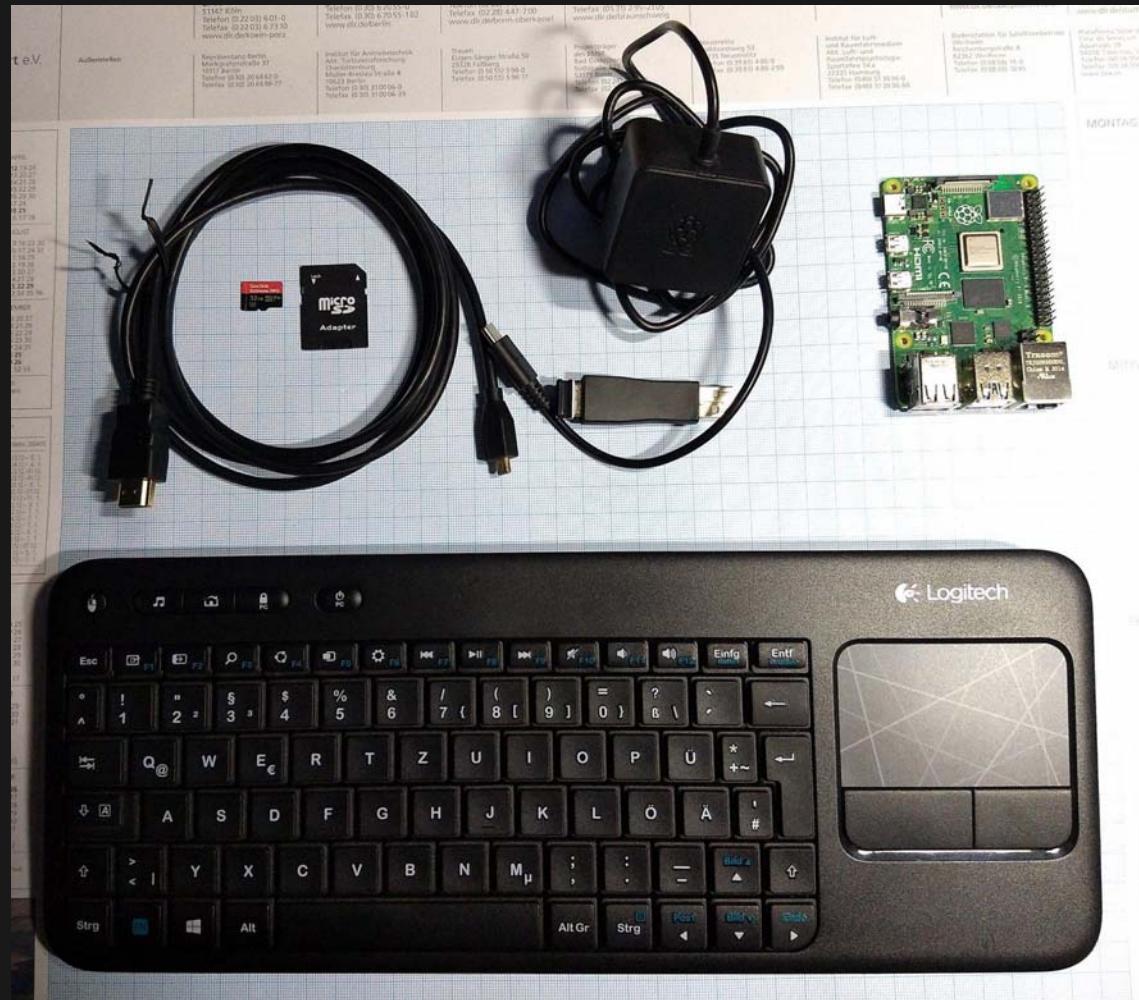
$\geq 3 \text{ A}, 5\text{V}$



# ZUBEHÖR: GEHÄUSE



# ZUBEHÖR: ÜBERSICHT



# INSTALLATION

- Raspberry Pi Imager installieren:  
<https://www.raspberrypi.org/software/>
- Micro SD Karte in den PC stecken & Imager starten
- “Raspberry Pi OS (32-bit)” als OS wählen
- SD-Karte auswählen
- “Schreiben” klicken
- Sobald fertig, Micro SD entnehmen, in RPi einlegen
- Alle Stecker verbinden und mit Strom versorgen

**CORONA, SCALPER - UND NU?  
WIE MAN KEINE TIERWESEN, ABER RPIS  
FINDET...**

# NICHT SO ...



Raspberry Pi 4 Modell B (4 GB)  
5,0 ★★★★★ (4)  
**175,50€**  
✓prime  
GRATIS-Versand durch Amazon



Raspberry Pi 4 Modell B  
1GB/2GB/4GB/8GB RAM - Mini PC  
Computer - NEU  
Neu · Gewerblich  
**EUR 129,99**  
Kostenloser Versand  
**ebayplus**  
Verkäufer mit Top-Bewertung

# OFFIZIELLE RESELLER

Buy Raspberry Pi 4 Model B

Select a model:

4GB RAM

Country:

Germany

Home    Industry    Education

This product is sold through the below Approved Resellers. You will be redirected to their website. Find out more about our [Approved Reseller network](#).

RASPPISHOP

BERRYBASE  
Alles für den Maker

reichelt  
elektronik Technology connects.

Funk24.net  
Aachen  
CJ-Elektronik GmbH

Pi-Shop.ch

pi<sup>3</sup>g  
www.pi3g.com

Welectron.

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

# BERRYBASE MAKER CLUB

<https://www.berrybase.de/berrybase-the-maker-club>

MEHR RPI?  
GUTE QUELLEN

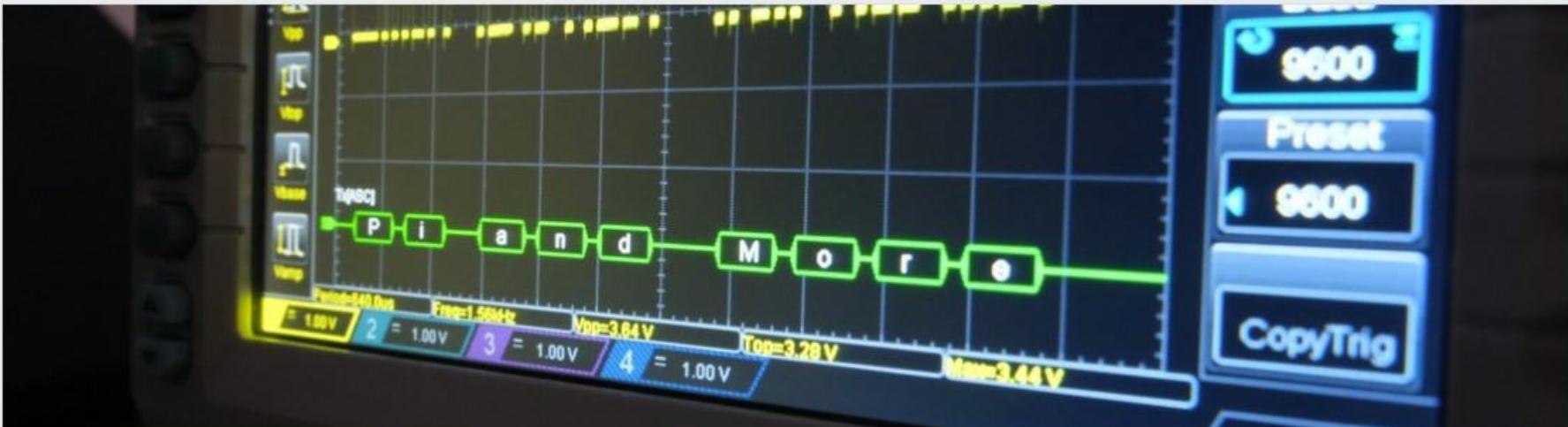
# INTERNET

- Allgemein: <https://www.raspberrypi.com>
- Dokumentation:  
<https://www.raspberrypi.com/documentation/>
- Forum: <https://www.raspberrypi.com/forums/>

# BÜCHER & KITS

- Raspberry Pi Foundation
- elektor
- Rheinwerk
- Franzis
- Conrad
- ...

# RASPBERRY PI JAMS



The image shows a digital oscilloscope screen with four waveforms labeled P, i, a, n, d, M, o, r, e. The waveforms are green and show periodic pulses. The screen includes various controls and status indicators.

**Pi and More 13**

Hochschule Trier, 22. April 2023

Weitere Informationen

Jetzt registrieren (kostenlos!)   Helfer werden

<https://piandmore.de/>

# FRAGEN?

Danke für Ihre Aufmerksamkeit -  
und viel Spaß auf der Pi And More 13 :)!

[www.nico-maas.de](http://www.nico-maas.de)