



RASPBERRY PI

NICO MAAS

PI AND RADIO 2021



WER BIN ICH?

- Nico Maas
- Master of Science
- IT Systemelektroniker
- mail@nico-maas.de
- www.nico-maas.de
- @nmaas87



AGENDA

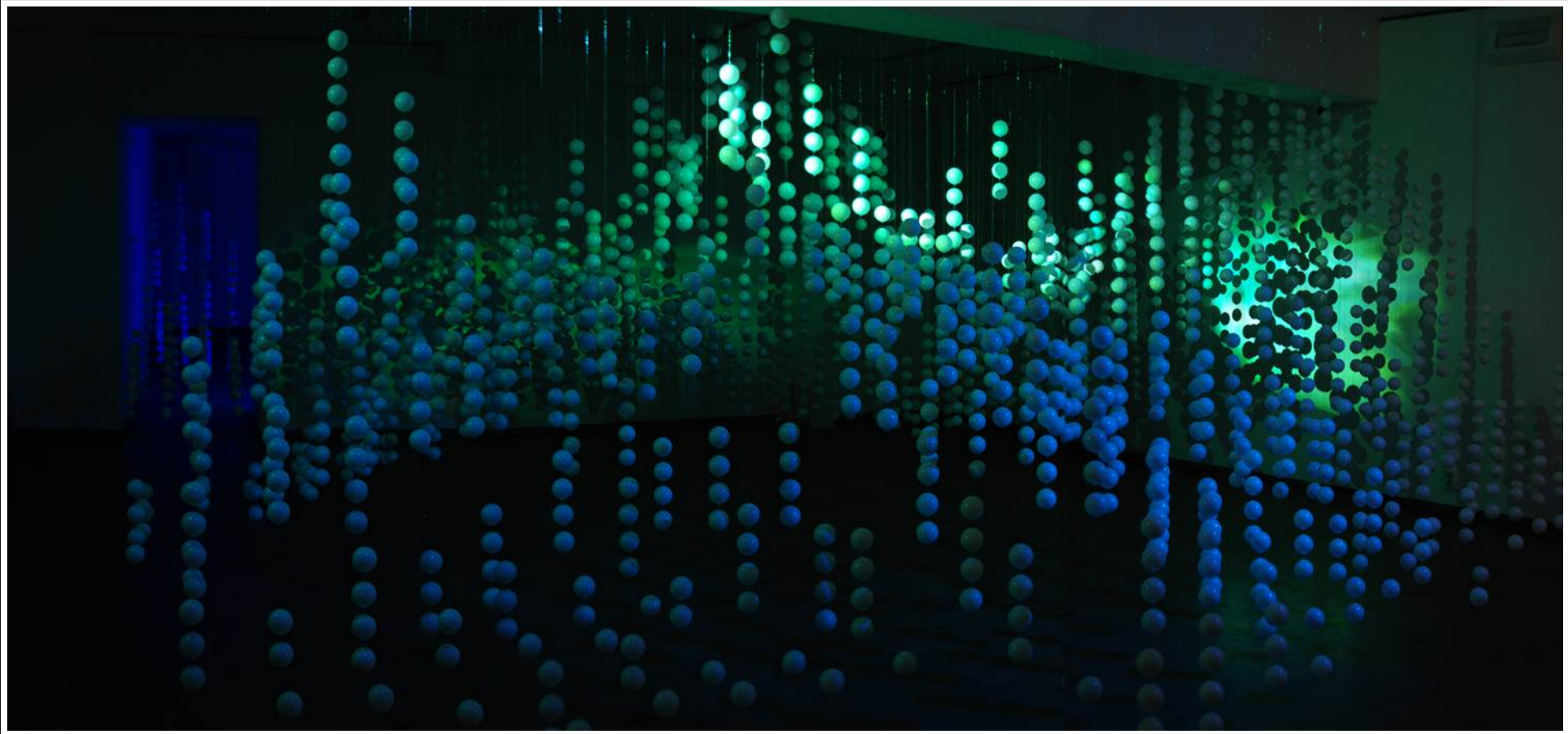
- Einführung
 - Geschichte
 - Nur der RPi?
 - Woher der Erfolg?
- Erste Schritte
- Mehr Raspberry Pi
- Ende



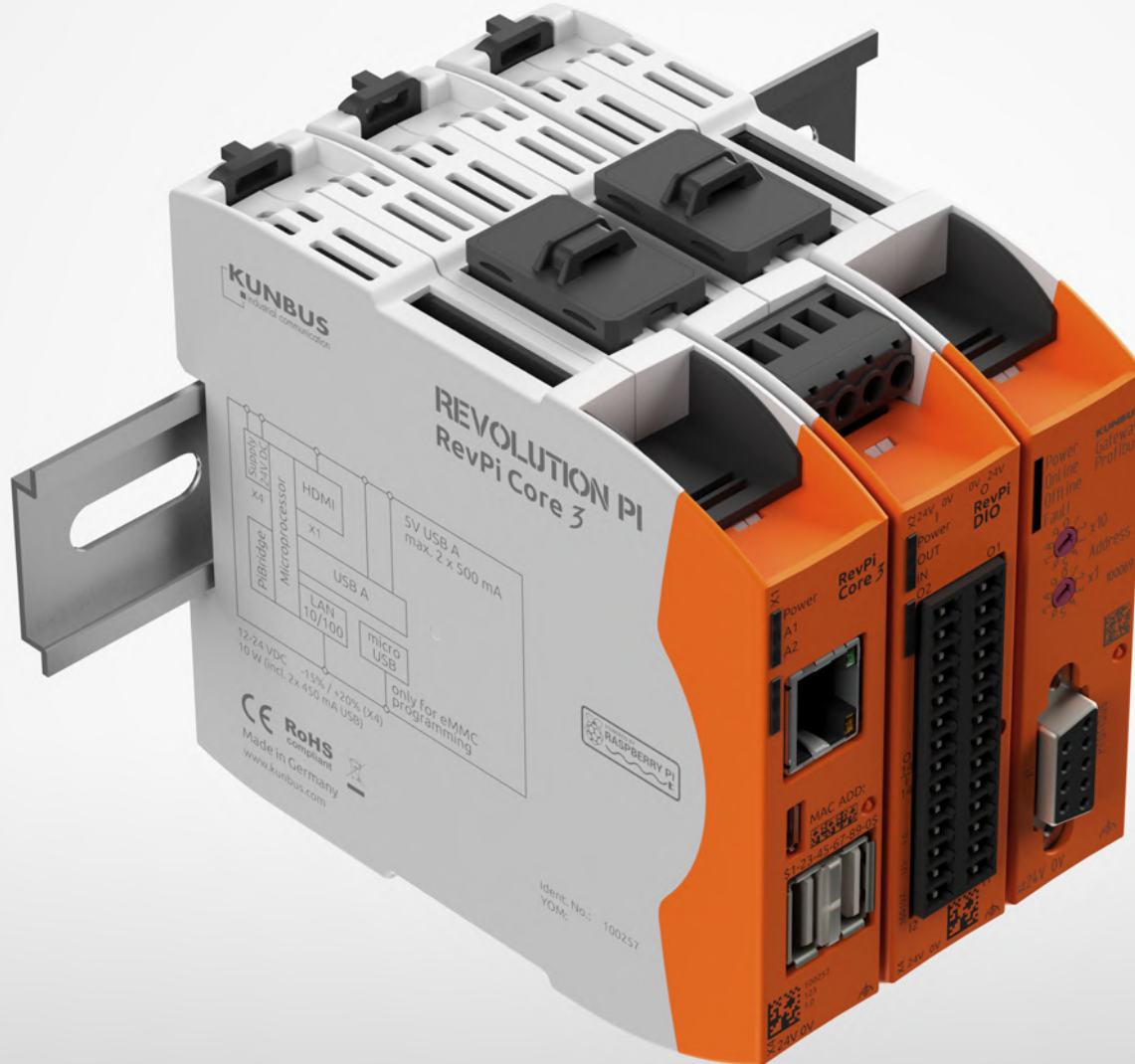
EINFÜHRUNG



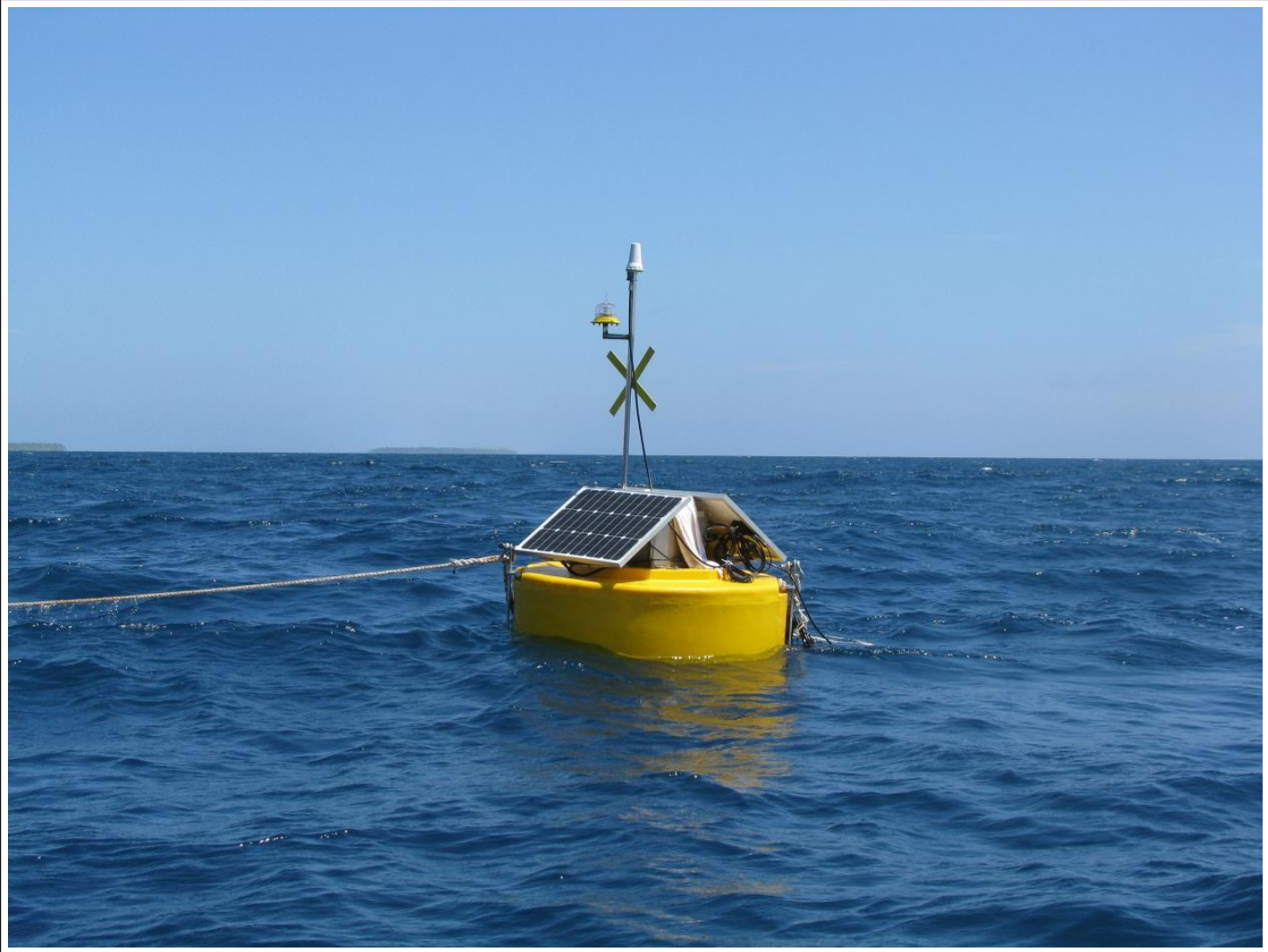




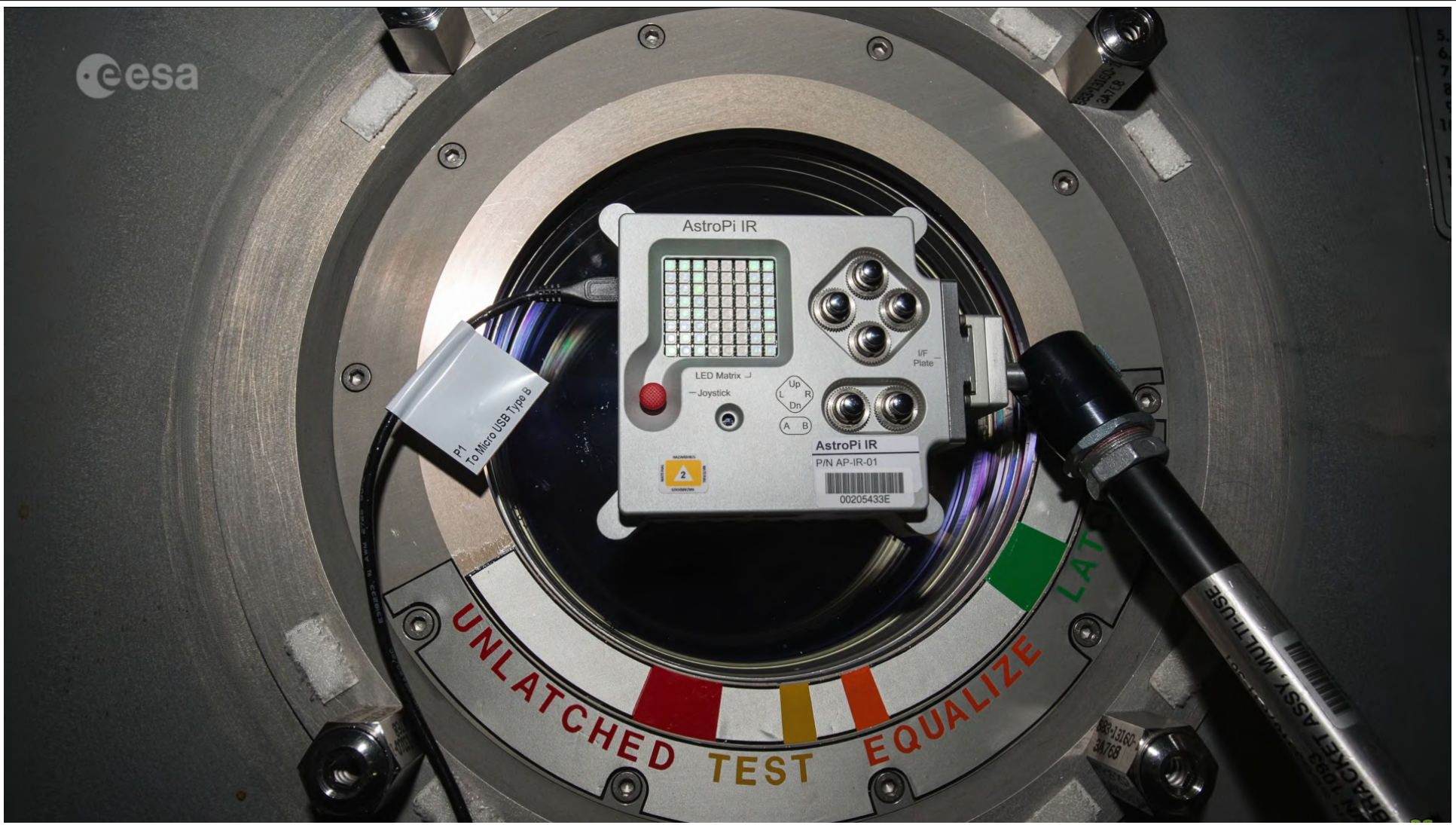














29.02.2012 - LAUNCH

10.000 Einheiten verfügbar



> 100.000 Vorbestellungen



08.09.2016 - ESTABLISHMENT

➤ ~~100.000 Vorbestellungen~~

10 Millionen verkaufte Einheiten



11.05.2021 - CURRENT STATE

~~10 Millionen verkauft.~~

BBC Micro: 1.5 Millionen

Sinclair ZX Spectrum: 5 Millionen

Raspberry Pi Family: > 40 Millionen

Allein im März 2020 640.000 Stück verkauft



EINFÜHRUNG GESCHICHTE





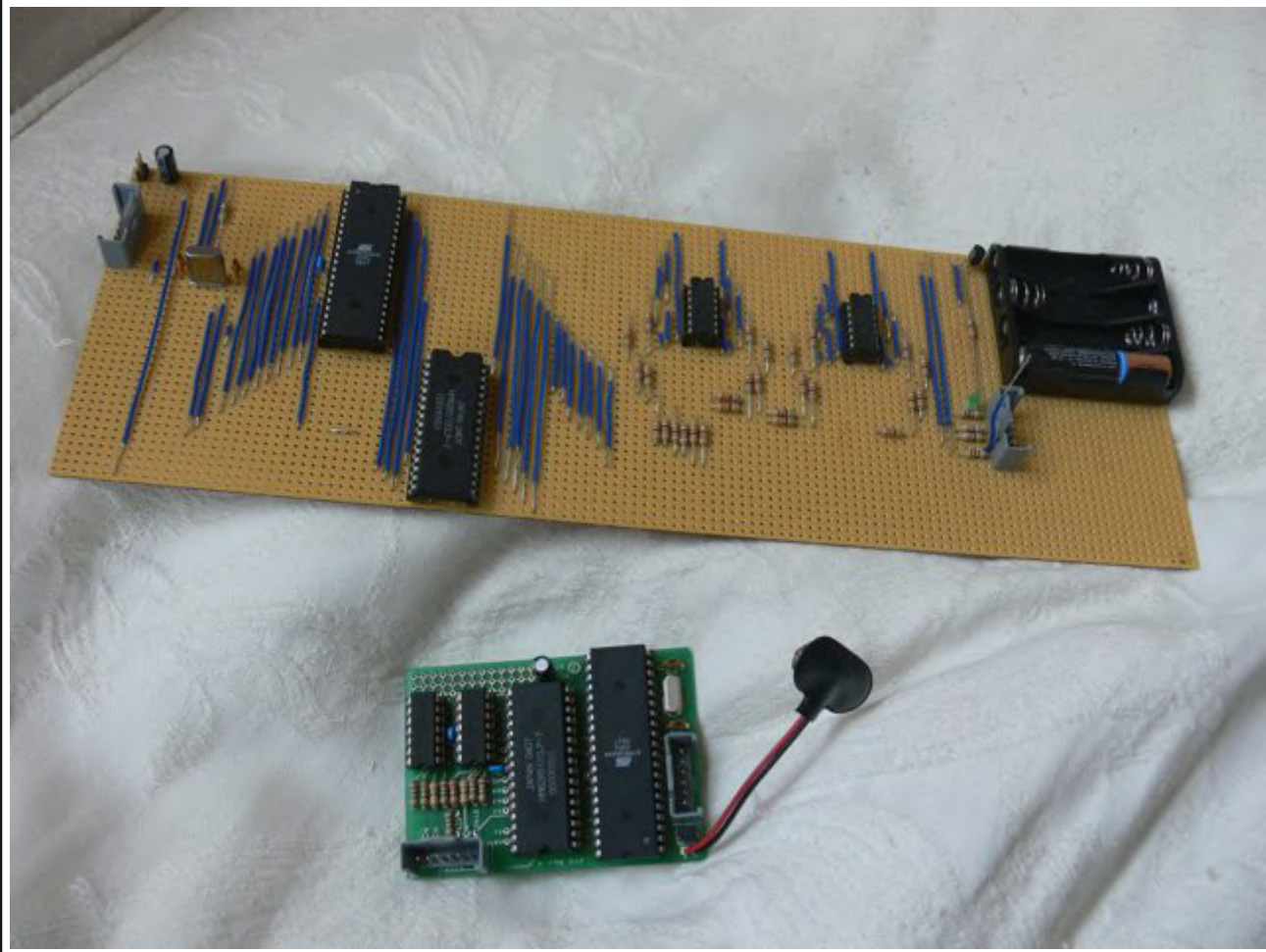
HOW DOES COMPUTER
PROGRAMMING WORK?

MAGIC.



全育博

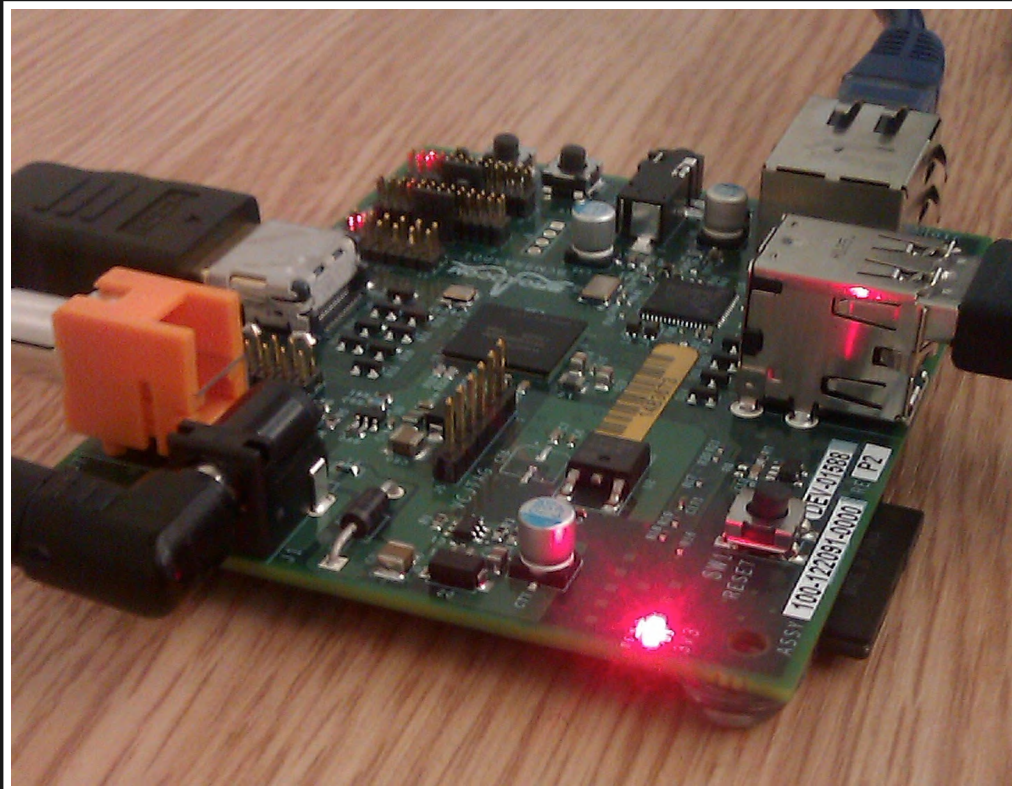


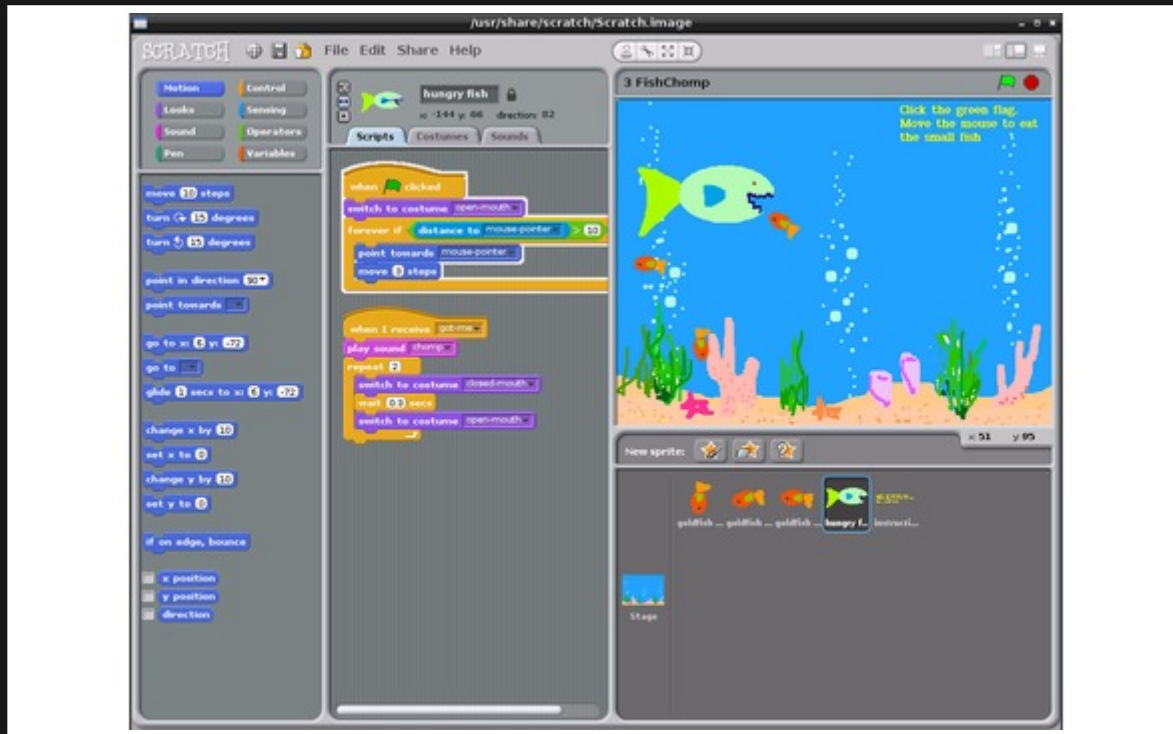


```
Welcome to ROBCO Industries (TM) Termlink
Password Required
Attempts Remaining: ■■■■
0x3700 :<;):*#=[[:# 0x37C0 )+SIZE*='^#<
0x370C /-^}%]@!(,?! 0x37CC #|%%HUNT#"")
0x3718 >)}:=#).=/?< 0x37D8 ./\_)({|PART
0x3724 /-}{#"!)#$(+ 0x37E4 ':>ROLL!|;^
0x3730 ]|)}^%--%$-=$ 0x37F0 @BORN"@|'|\\|
0x373C ORT#-@^<#%/ 0x37FC ;*^,$|[$@<%
0x3748 |*)**%_/SOME* 0x3808 <!( <->)(=,
0x3754 \\\"\\>+(!*#$( 0x3814 =]BURN+>/'[:
0x3760 |/'+TIME.-+} 0x3820 ,<(\,+;)$>:/
0x376C -=CORE]'^!>$ 0x382C SETS-;==]GUR
0x3778 *|<,)[[['-\@ 0x3838 U?=[;$;(##,^<
0x3784 >[["]=.#/*{ 0x3844 %"?)'?'$S'$S
0x3790 `-->^NONE#+} 0x3850 ]#:/'+,+|(_'
0x379C ?!-!?_{})?\ 0x385C =WIRE?'":'{$'
0x37A8 % -_ -!\\:=%, 0x3868 )'_\""+}^" ^'
0x37B4 :]<=<):;\$%% 0x3874 ='%)_/;:*),@ >(+->#>■
```











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?



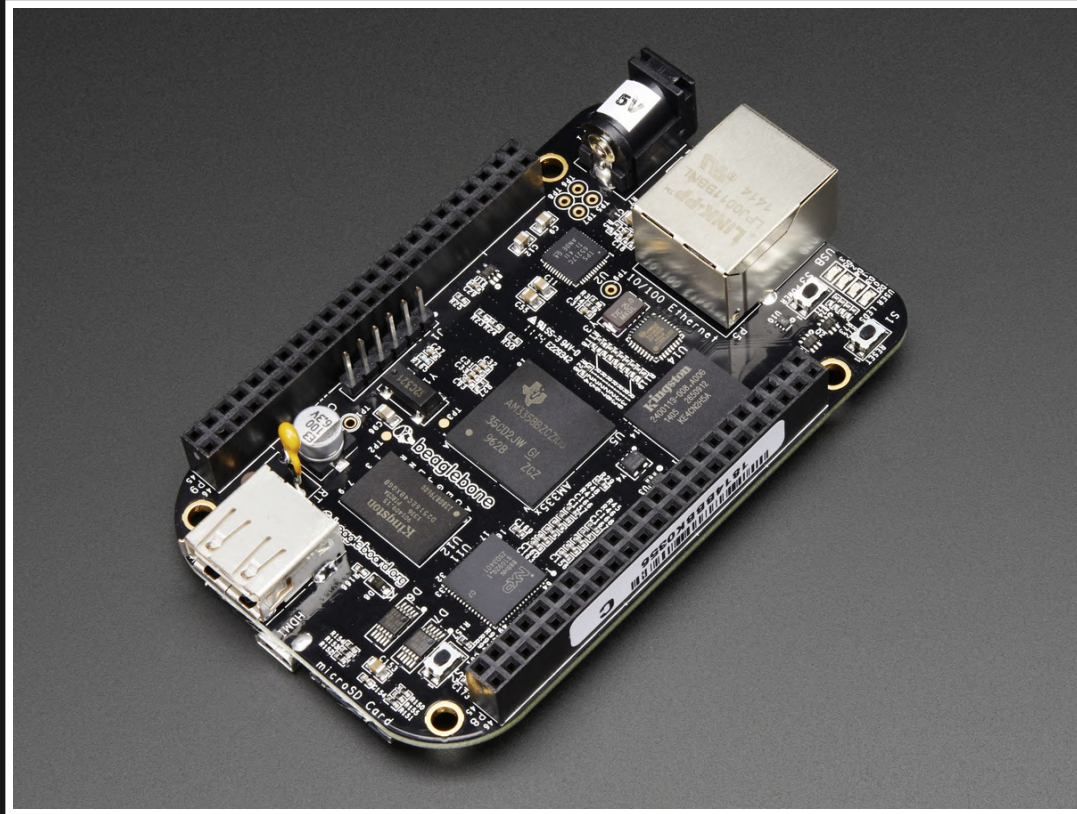
WARS DAS SCHON ;)?



NEIN :)!



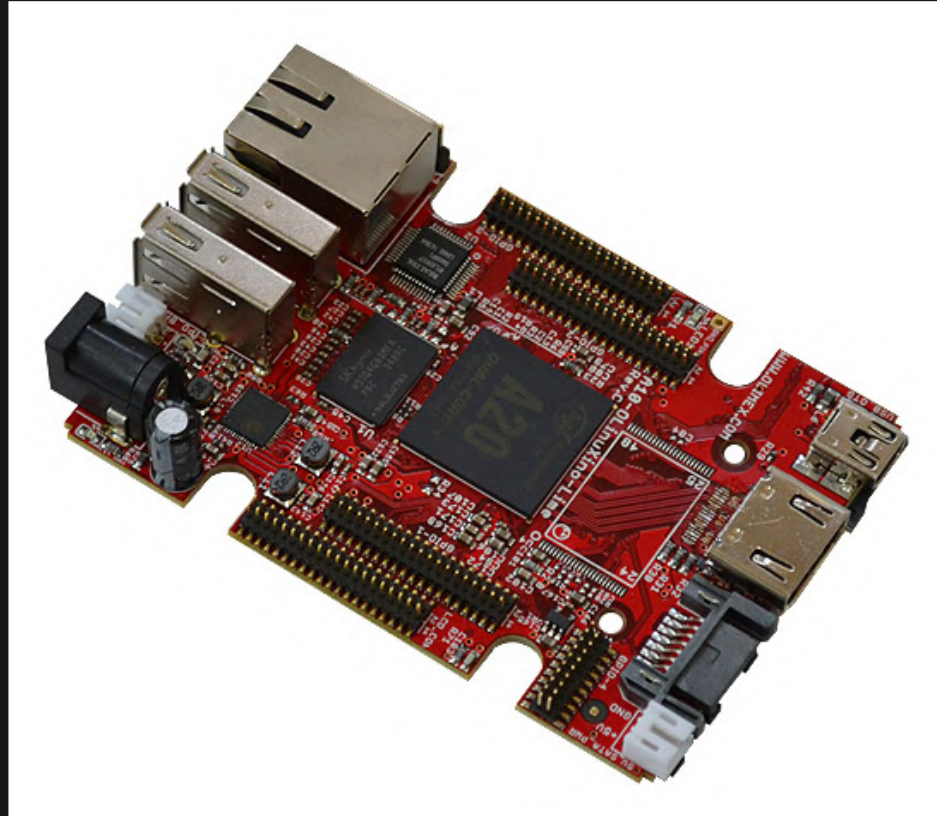
BEAGLEBONE BLACK



1 GHz, 512 MB RAM, 2 PRUs



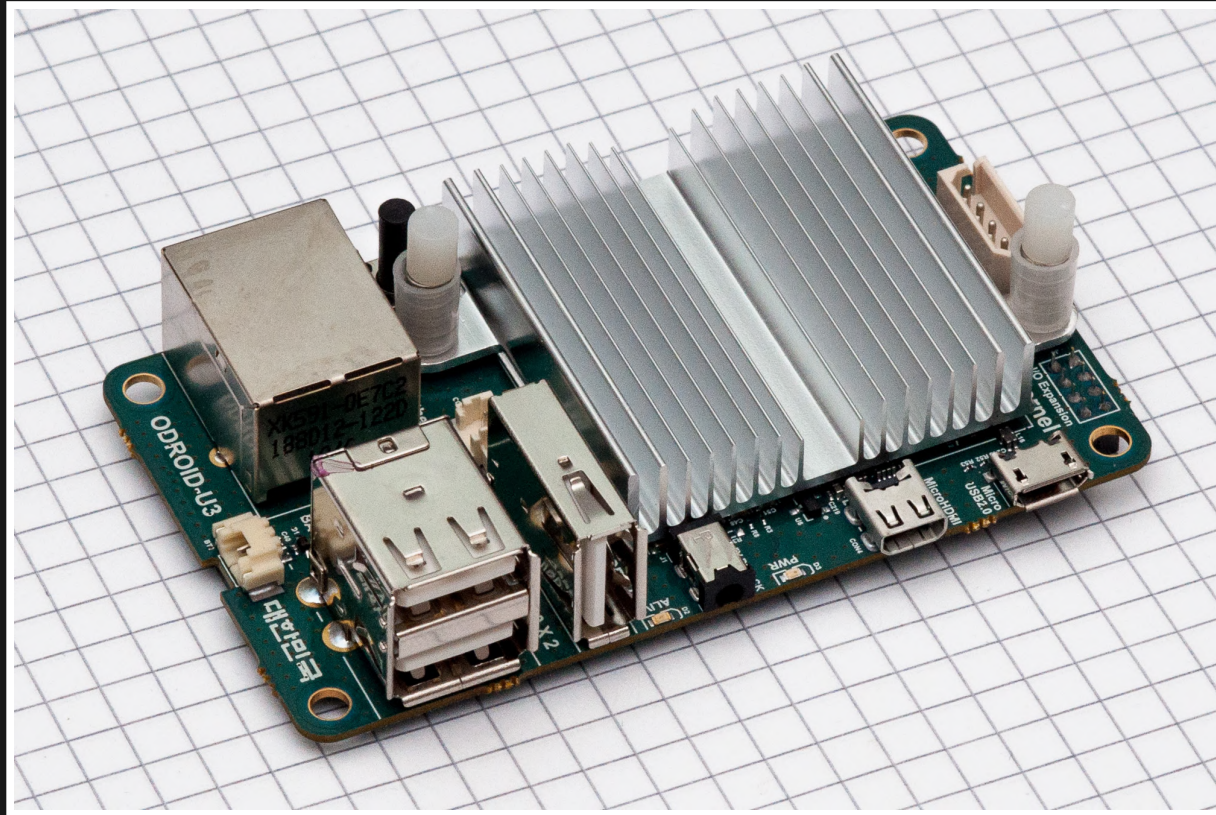
OLIMEX (Z.B. A20 OLINUXINO-LIME)



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



HARDKERNEL ODROID (Z.B. U3)



1.7 GHz Quadcore, 2 GB RAM, eMMC

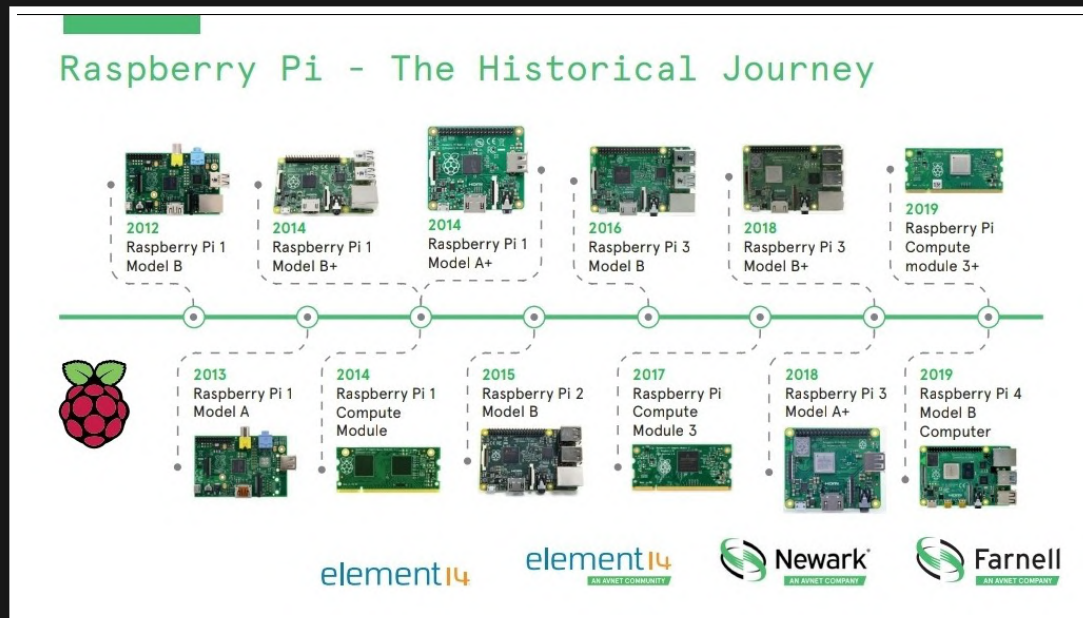


KONKURENZ BELEBT DAS GESCHÄFT!



EINFÜHRUNG

WOHER DER ERFOLG?



RASPBERRY PI MODEL B, 2012



35 USD



1.) PREIS

Für 35 USD - ein “vollwertiger Rechner”*?

* Zubehör erforderlich...



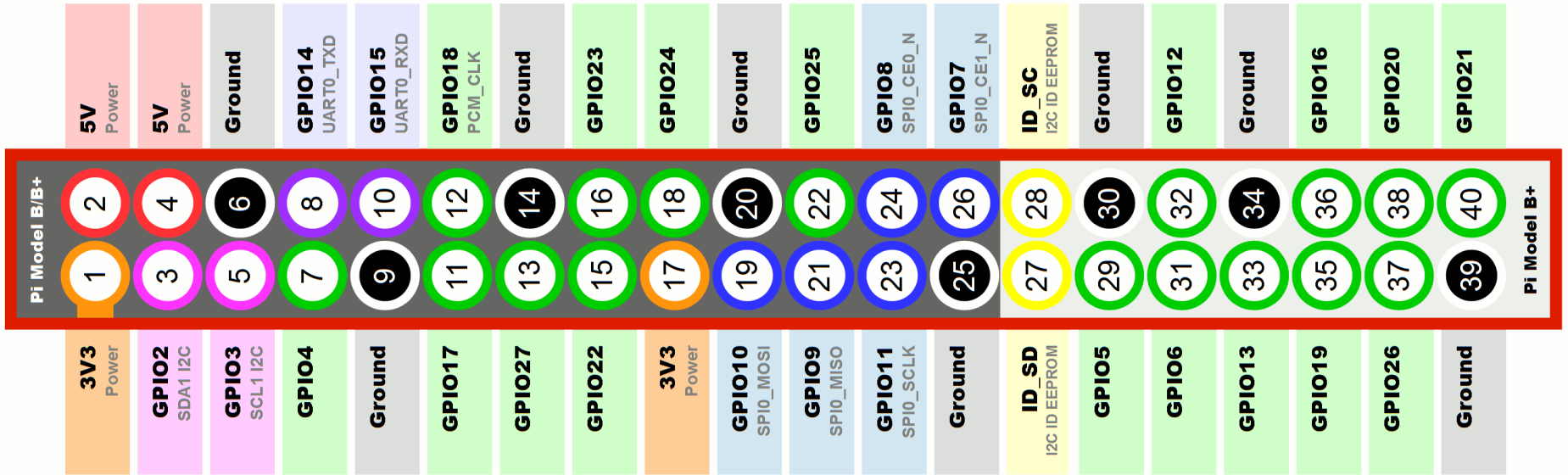
2.) GPIO

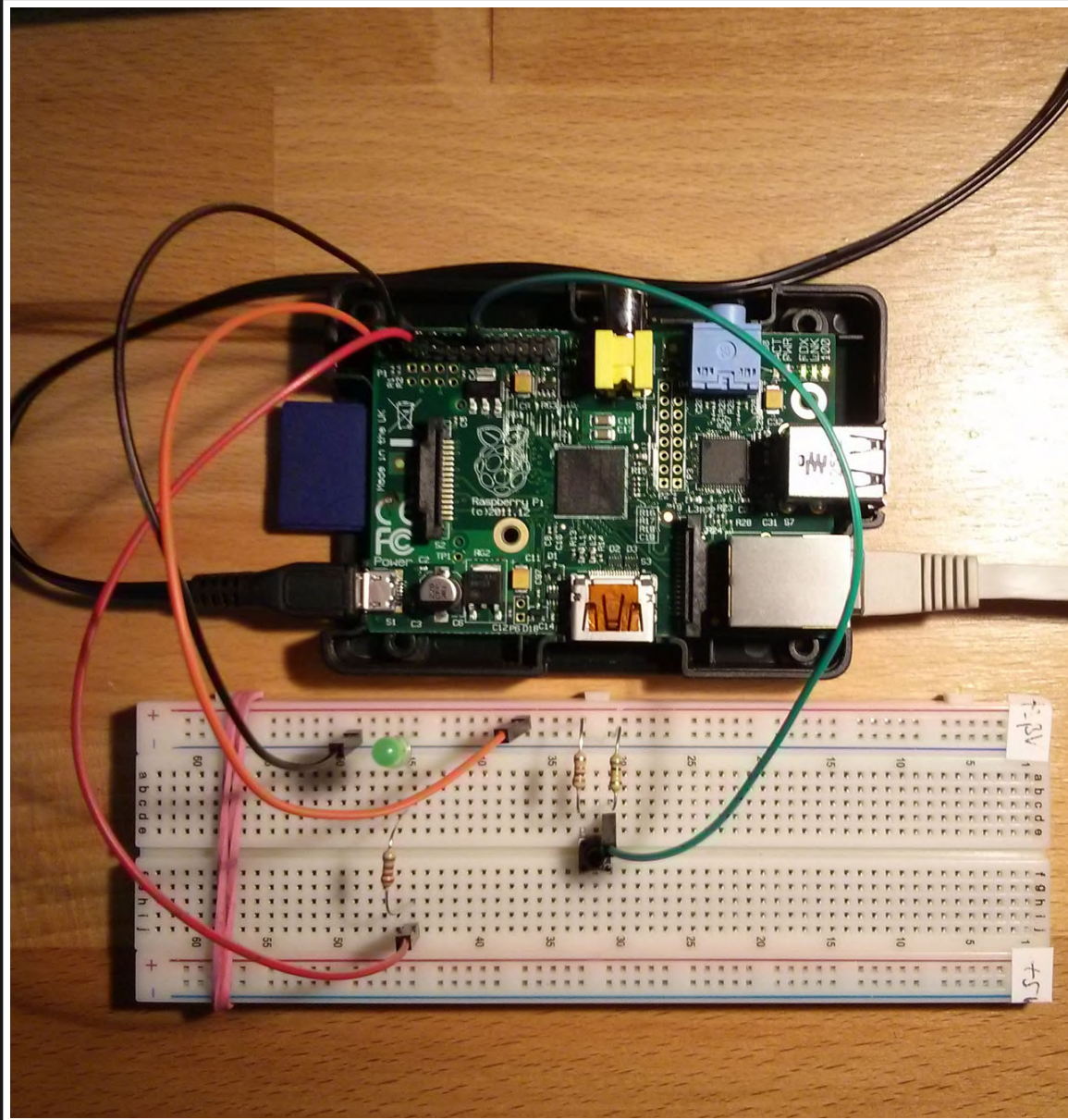


Raspberry Pi GPIO connector (P1) pinout



• = changed since board revision 2





3.) COMMUNITY

The screenshot shows the Raspberry Pi website's community section. At the top, there is a navigation bar with the Raspberry Pi logo and links for Hardware, Software, Books & magazines, Learn, Teach, and About us. The main banner features a white Raspberry Pi 400 keyboard computer on a blue background with the text "Raspberry Pi 400" and "Your complete personal computer, built into a compact keyboard". A "Find out more" button is present. To the right, a "Coronavirus update" section states that their educational mission is vital during lockdown and promotes "Learn at home" with a "Donate" button. Below this, four blog post thumbnails are displayed: "Smart Fairy Tale" (2 comments), "Code your own Pipe Mania puzzler | Wireframe #46" (1 comment), "Learning at home with the Raspberry Pi Foundation" (17 comments), and "Meet team behind the mini Raspberry Pi-powered ISS" (1 comment). A "More from the blog" button is centered below the thumbnails. At the bottom, a "Learn at home" section includes a sub-header, a paragraph about free resources, and a "Join us!" button. A photo of a smiling woman with glasses is featured on the right side of the "Learn at home" section, surrounded by icons of a Raspberry Pi, a house, and code symbols.

Hardware Software Books & magazines Learn Teach About us

Raspberry Pi 400
Your complete personal computer, built into a **compact keyboard**
[Find out more](#)

Coronavirus update
Our educational mission has never been more vital. We are supporting teachers, learners and, parents during the lockdown with **Learn at home**. [Donate](#)

Smart Fairy Tale 2 comments

Code your own Pipe Mania puzzler | Wireframe #46 1 comments

Learning at home with the Raspberry Pi Foundation 17 comments

Meet team behind the mini Raspberry Pi-powered ISS 1 comments

[More from the blog](#)

Learn at home
To help keep young people occupied, entertained, and learning at home, we offer free resources for everyone anywhere in the world.
[Join us!](#)



4.) BETRIEBSSYSTEM

Raspberry Pi OS

Compatible with:

[All Raspberry Pi models](#)



Raspberry Pi OS with desktop and recommended software

Release date: December 2nd 2020

Kernel version: 5.4

Size: 2,949MB

[Show SHA256 file integrity hash:](#)

[Release notes](#)

[Download](#)

[Download torrent](#)

Raspberry Pi OS with desktop

Release date: December 2nd 2020

Kernel version: 5.4

Size: 1,177MB

[Show SHA256 file integrity hash:](#)

[Release notes](#)

[Download](#)

[Download torrent](#)

Raspberry Pi OS Lite

Release date: December 2nd 2020

Kernel version: 5.4

Size: 438MB

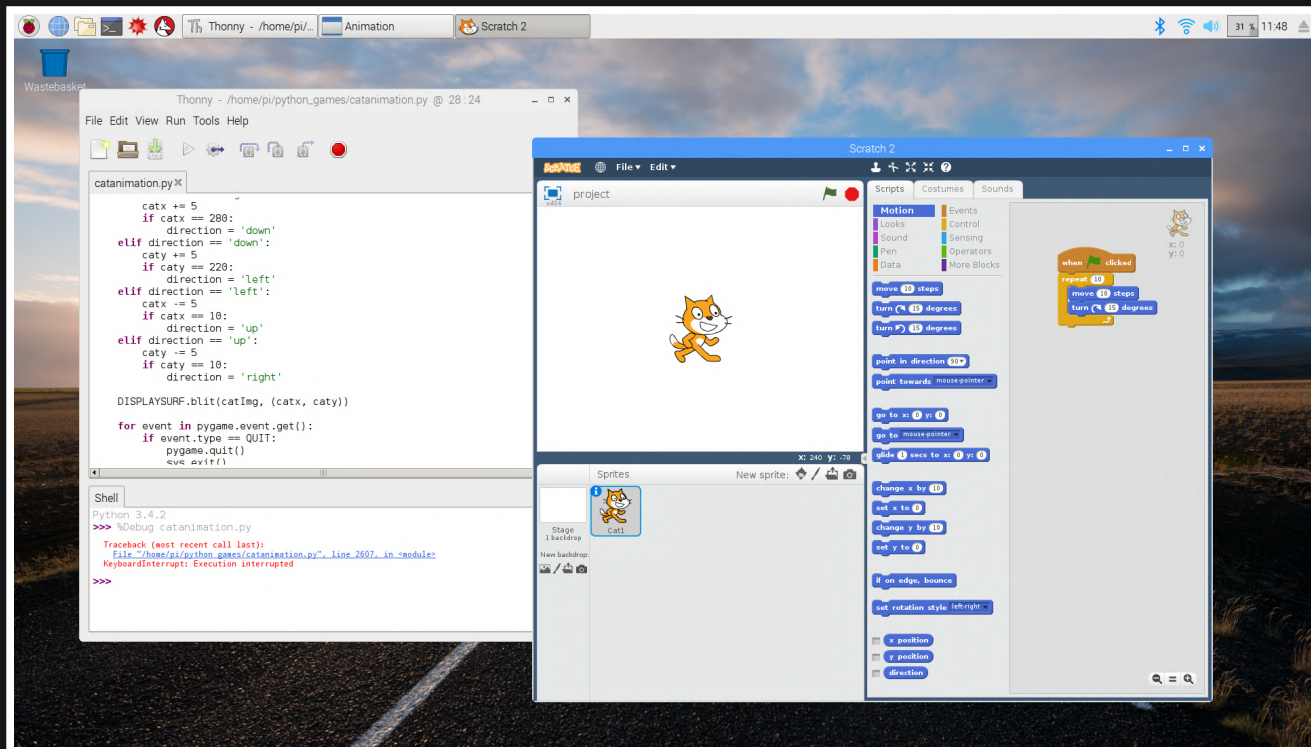
[Show SHA256 file integrity hash:](#)

[Release notes](#)

[Download](#)

[Download torrent](#)





Third-party software

Here are some other operating systems you can use with your Raspberry Pi



LibreElec

A Kodi Entertainment Center distribution

[Download](#)

Ubuntu Desktop

An open source desktop operating system that's widely used around the world, complete with all the essential applications for home, school, and work

[Download](#)

Ubuntu Server

A popular flavour of Linux for cloud and data centre environments

[Download](#)

Ubuntu Core

Ubuntu for embedded environments, optimised for security and reliable updates

[Download](#)

RetroPie

Turn your Raspberry Pi into a retro-gaming machine

[Download](#)

TLXOS

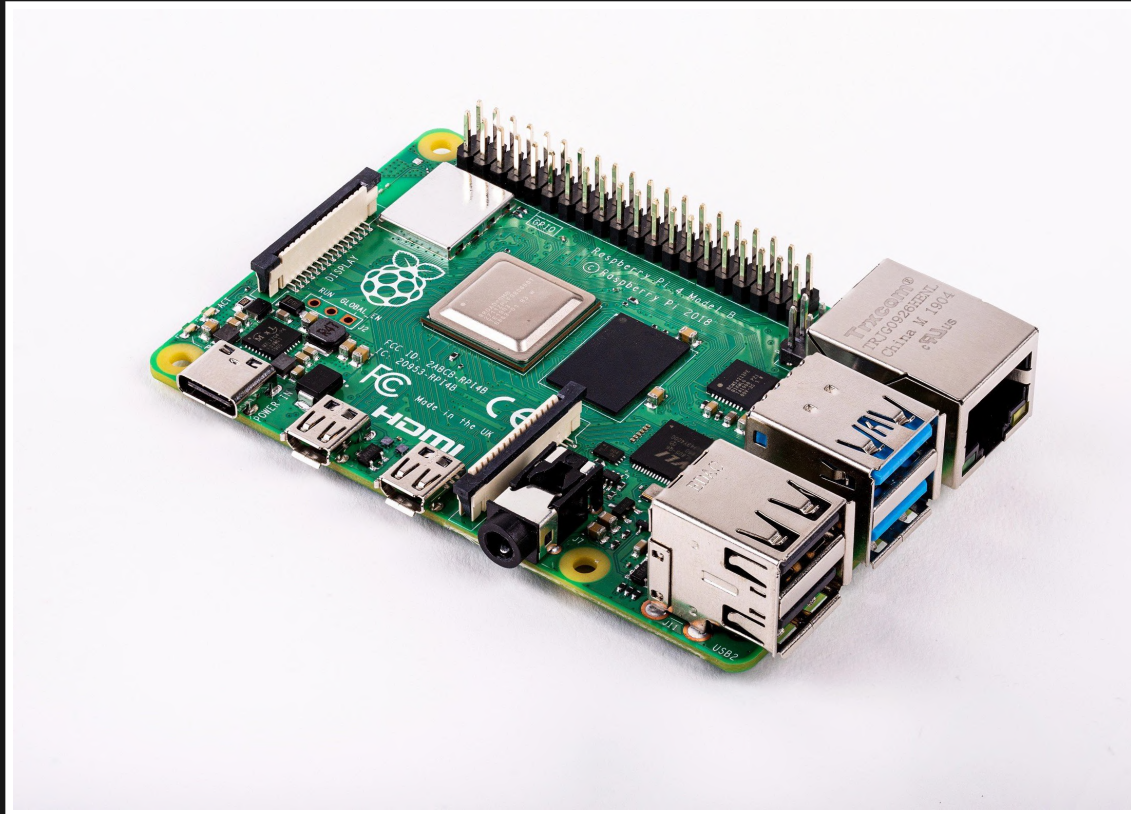
30-day trial of ThinLinX's Debian-based thin client for Raspberry Pi

[Download](#)

5.) EIN RPI FÜR JEDEN VERWENDUNGSZWECK



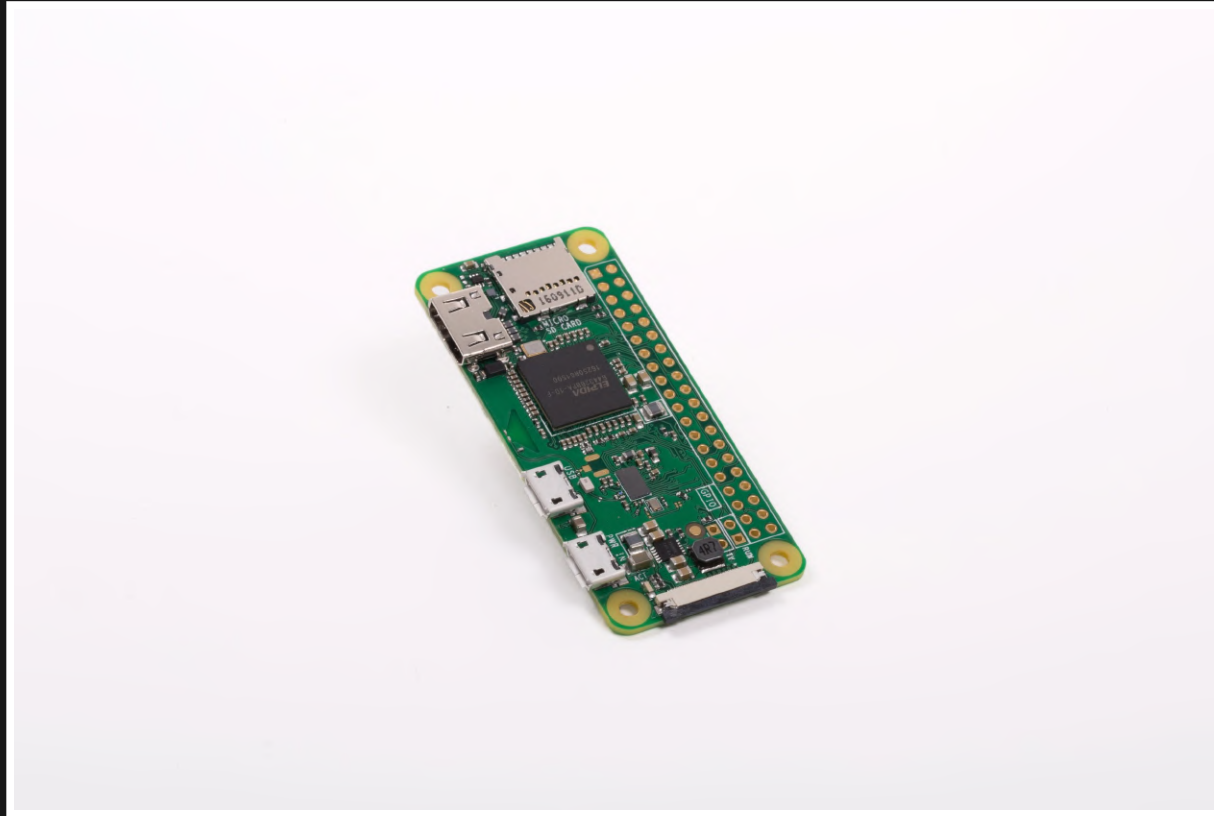
RPI 4B+



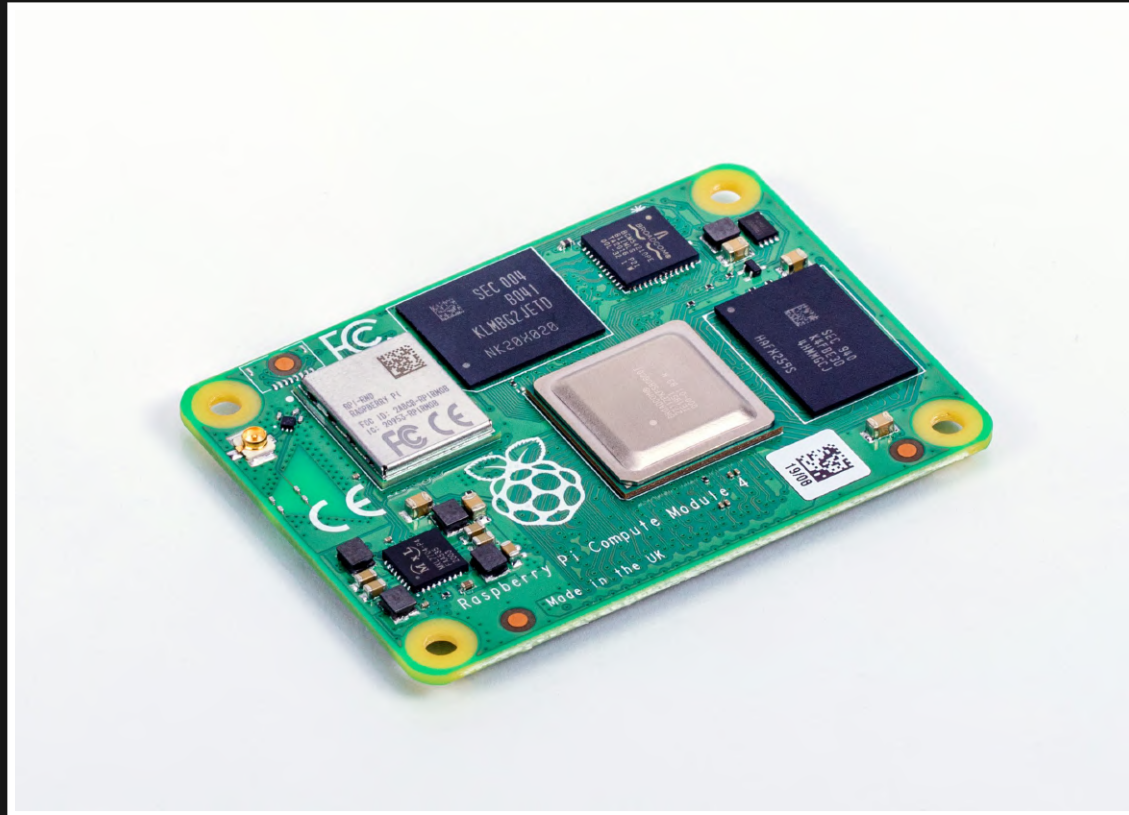
RPI 400



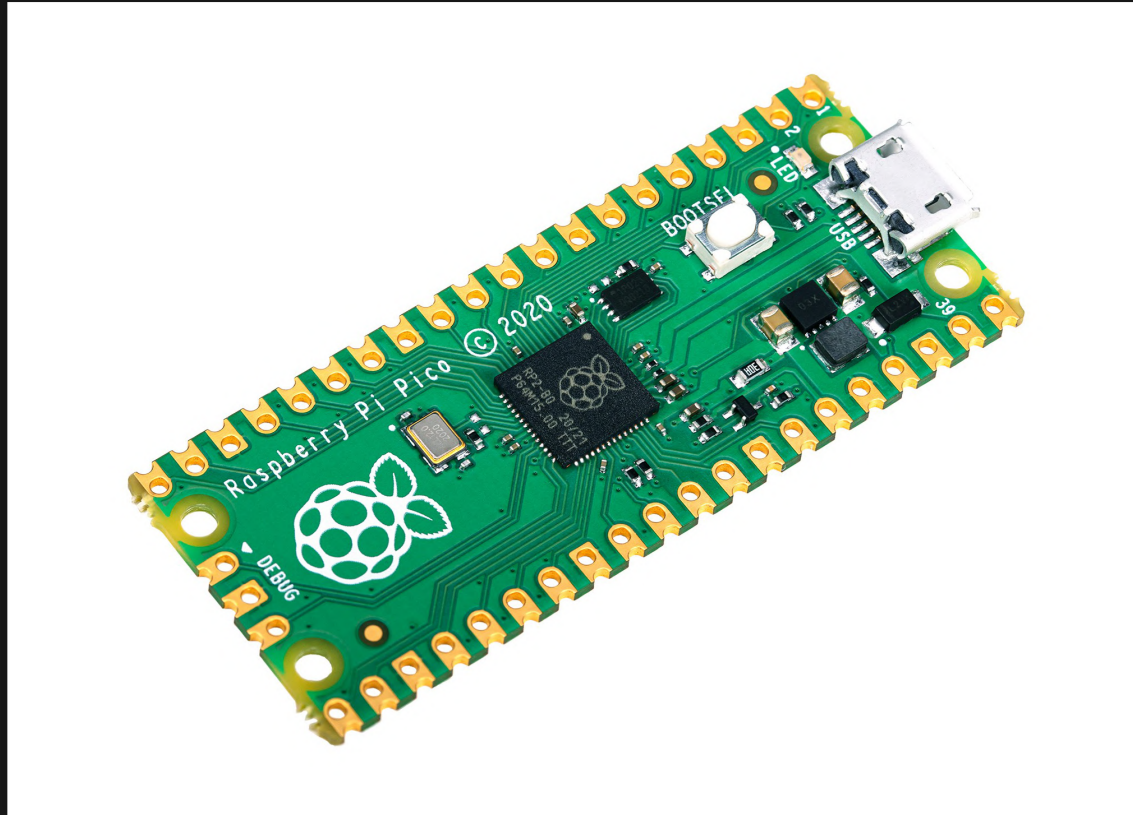
RPI ZERO W

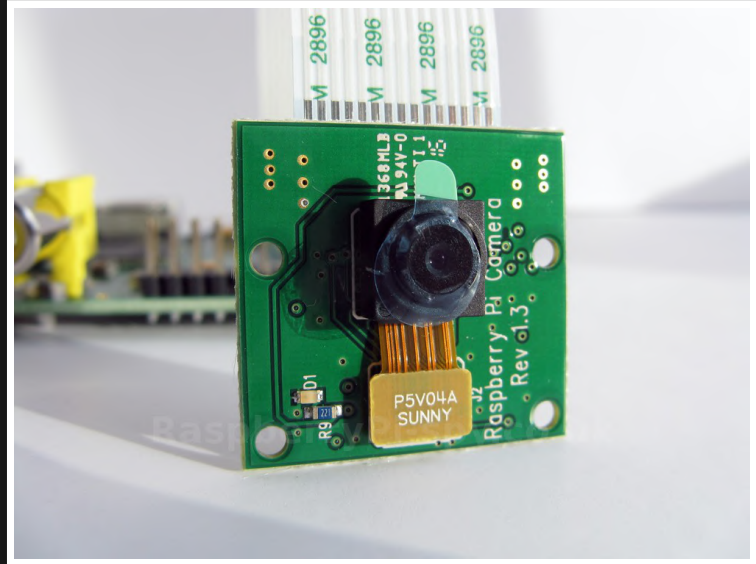
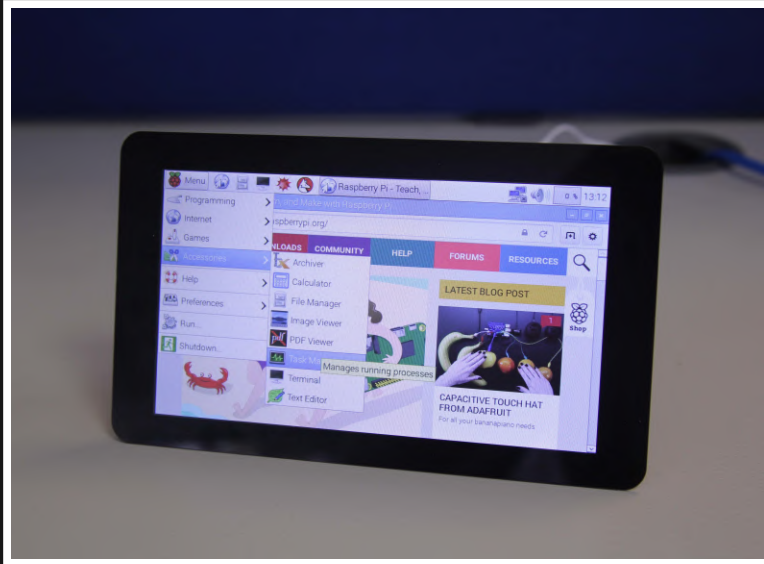


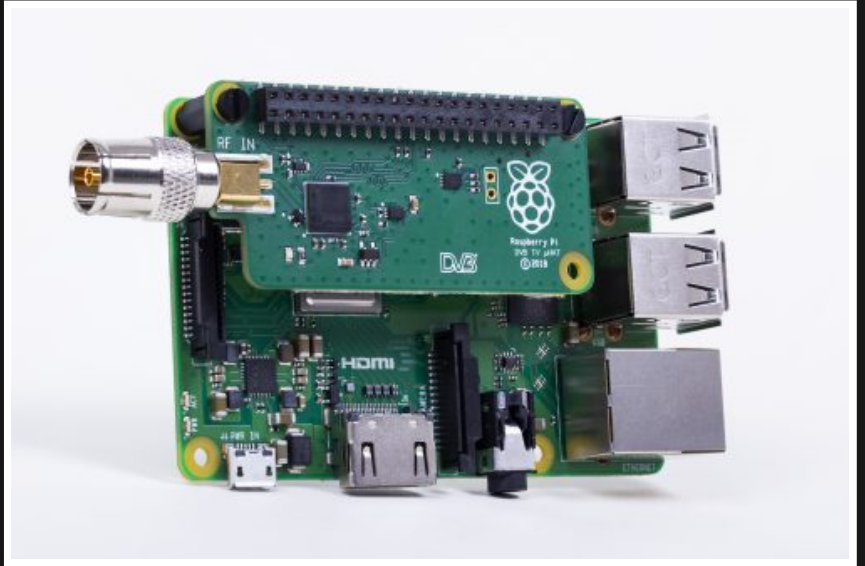
RPI COMPUTE MODULE 4



RPI PICO



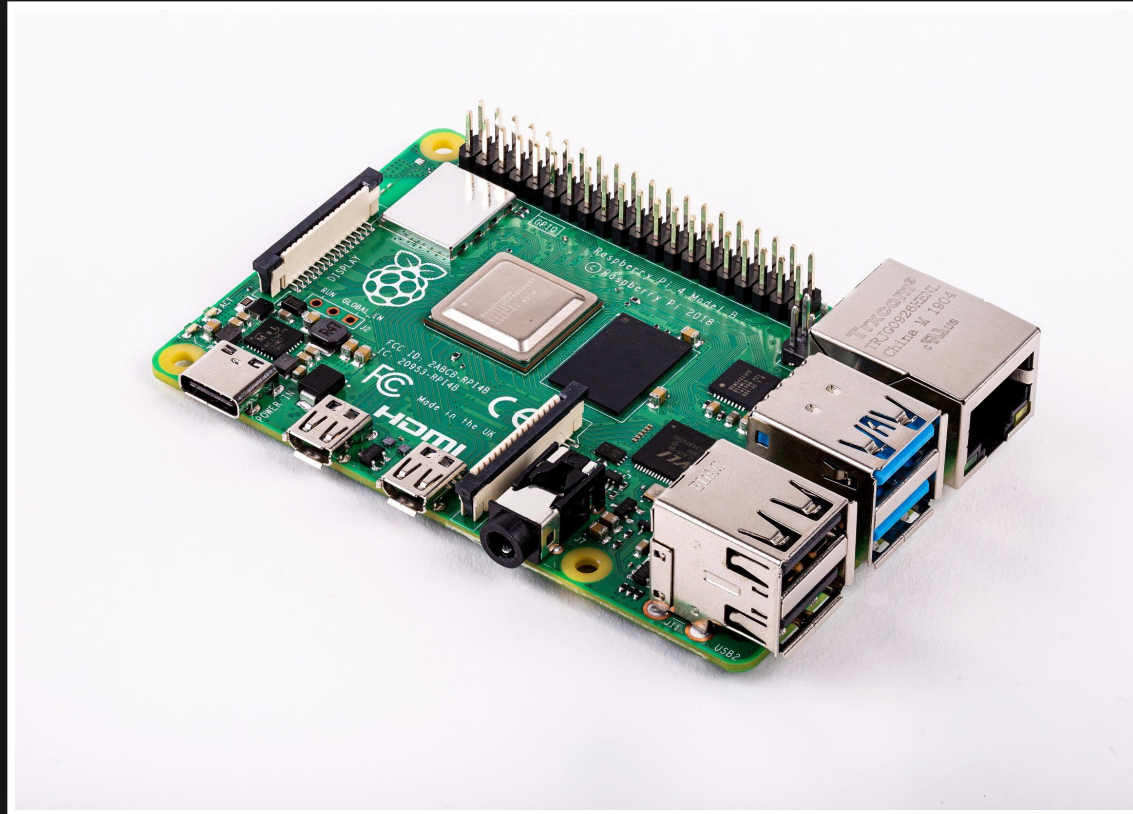




ERSTE SCHRITTE



RASPBERRY PI 4 MODELL B+



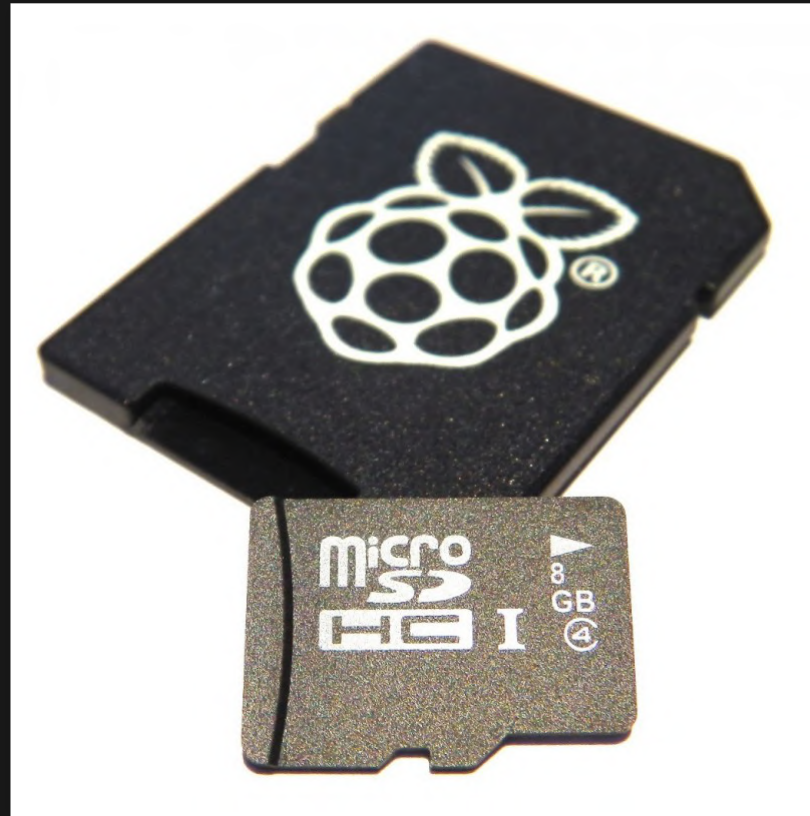
RASPBERRY PI 4 MODELL B+

- 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)



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



MEHR RPI? GUTEN QUELLEN



INTERNET

- Allgemein: <https://www.raspberrypi.org>
- Installation: <https://www.raspberrypi.org/help/>
- Forum: <https://www.raspberrypi.org/forums/>

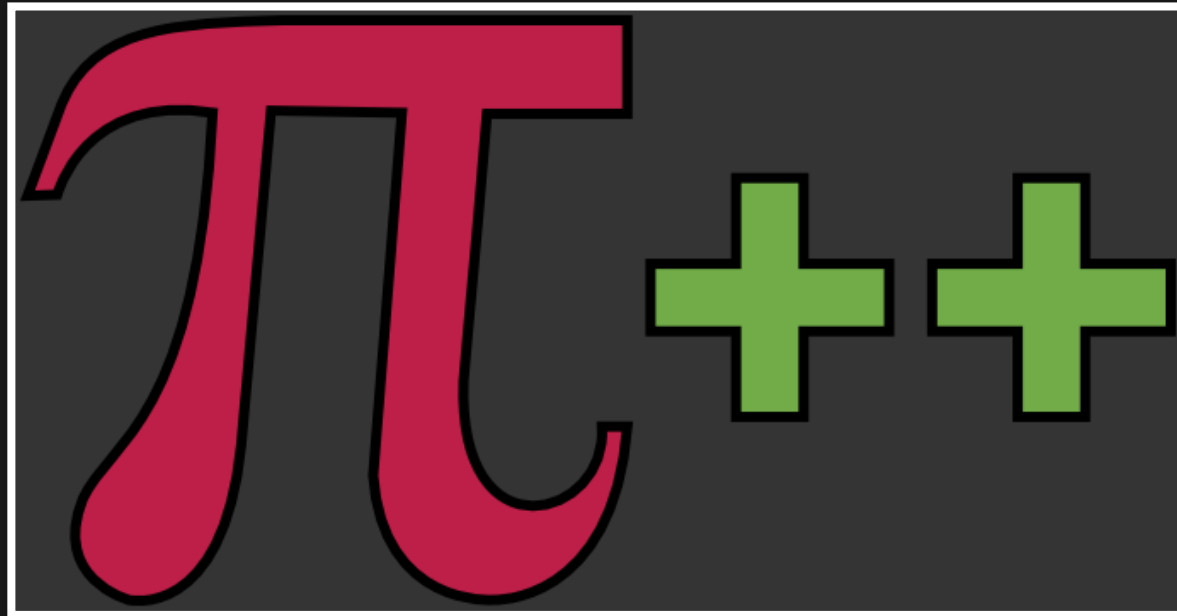


BÜCHER & KITS

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



RASPBERRY PI JAMS



<https://piandmore.de/>



FRAGEN?

Danke für Ihre Aufmerksamkeit -
und viel Spaß auf der Pi And Radio 2021 :)!

www.nico-maas.de

