



UNVEILING THE FUTURE:

Exploring Radxa Rock SBC Boards and
Next-Gen Technology

20th SEPTEMBER 2023

9AM - 10AM BST



ABOUT

At OKdo we believe in ordinary people achieving extraordinary things.

As a leading global distributor, and as part of the RS Group, our mission is to empower innovators to create cutting-edge solutions.

OKdo empowers you to explore emerging technologies such as IoT, robotics, AI, and more. We offer a full ecosystem of software, hardware, development support and manufacturing services to turn ideas into reality. Expect problem-solving services at every stage of the design cycle.

Let's design the world together.

**PART OF A
FTSE 100
COMPANY**



**COMPLETE
ECOSYSTEM TO
DESIGN,
DISTRIBUTE,
MANUFACTURE**

**£50M ON
HAND
INVENTORY**

**GLOBAL FAE
TEAM OF
CUSTOMER
CENTRIC
EXPERTS**

**+1M
CUSTOMER
COMMUNITY**

**TRUSTED BY
GLOBAL TECH
MEGA-
BRANDS**

PRESENTING TODAY



NILS CHRISTENSSON
Vice President Product
& Technology



Yuntian Zhang
Linux System Architect Radxa



Fei Peng
Senior Sales Manager



SIMON ZHANG
APAC Sales Director





Tiny but Mighty

Radxa SBC Introduction

Yuntian Zhang
Linux System Architect, Radxa



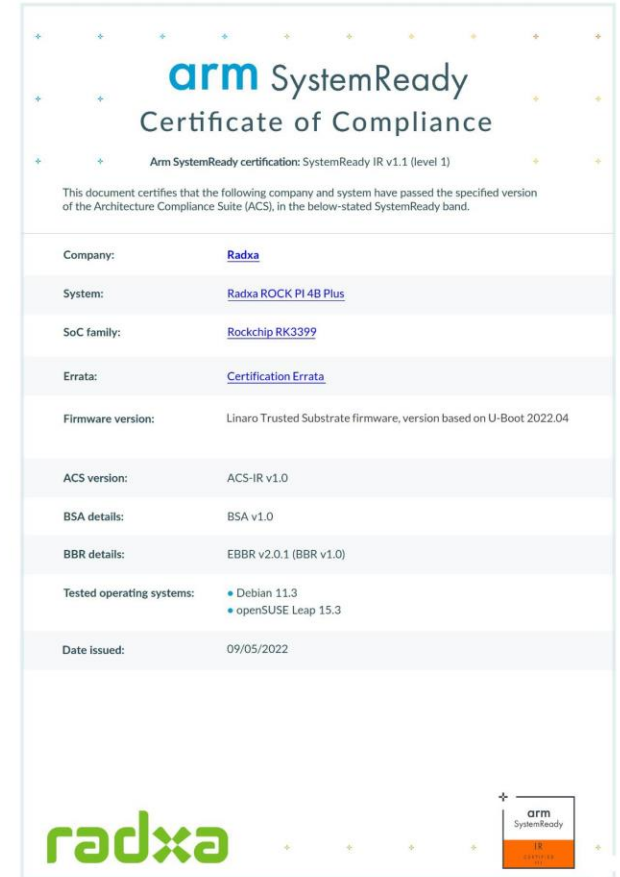
Who are we?

- Radxa was founded in 2013 in Shenzhen, China
- Our first product was Rockchip RK3188 based Radxa ROCK SBC
- First big hit: ROCK 4 in 2018
- The success of ROCK 4 brings publicity, and allows us to expand product lines
- Currently produce SBCs and compute modules with different SoCs and various form factors

ROCK 4: Mature platform, reliably performance

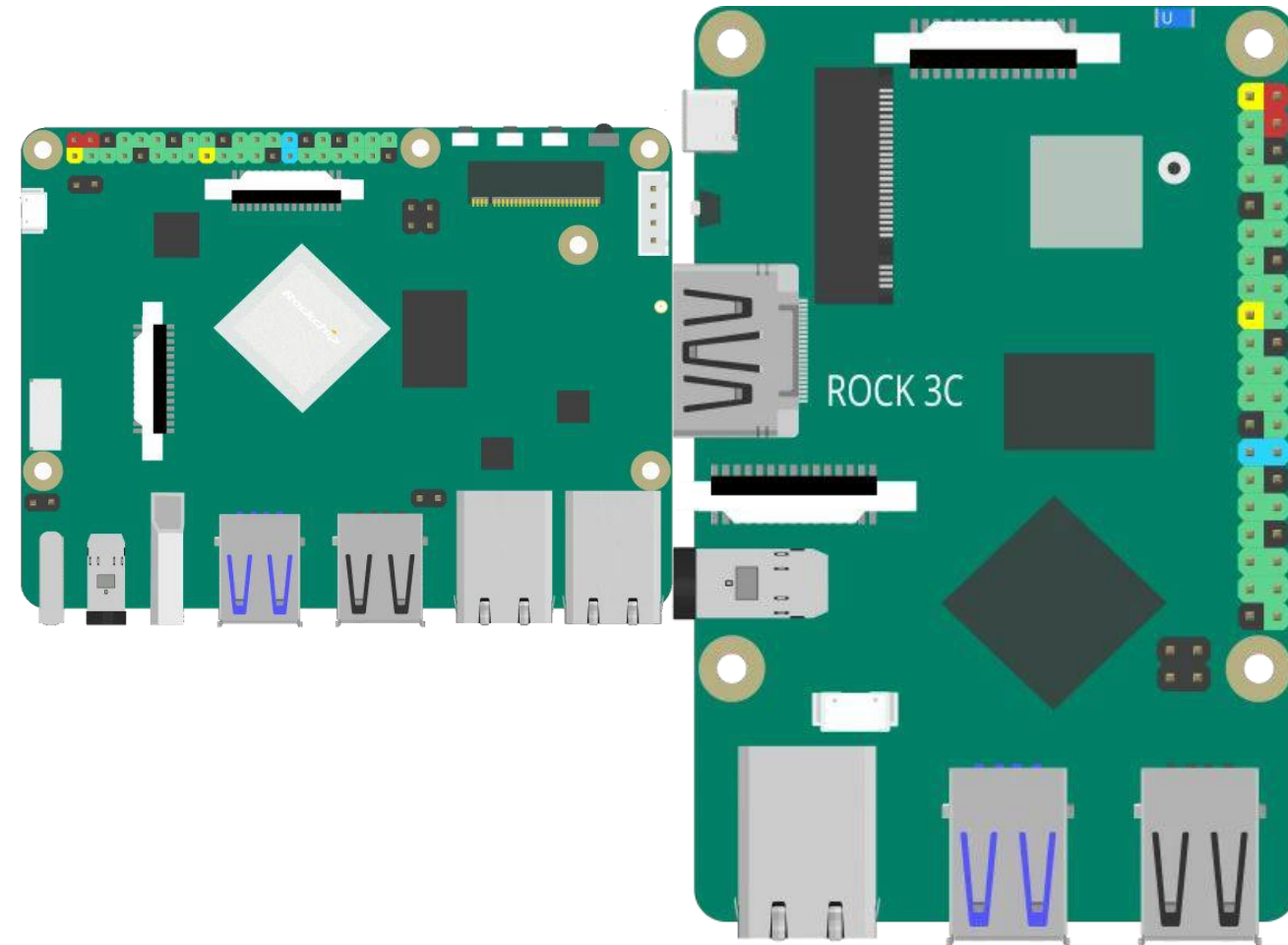


- Our best seller
- Great upstream support
- Certified for Arm SystemReady IR
- Best 3rd-party Linux distro support
- Key advantage: strong code audit requirement, highly customized OS, reuse existing OpenGL code base



ROCK 3: Advanced features at an affordable price

- Based on RK3566/3568 SoCs
- Reduced heat output
- Up to 8GiB of memory
- Enhanced connectivity*
- NPU support*
- Example use case: edge computing (memory-constrained workload + NPU interference)

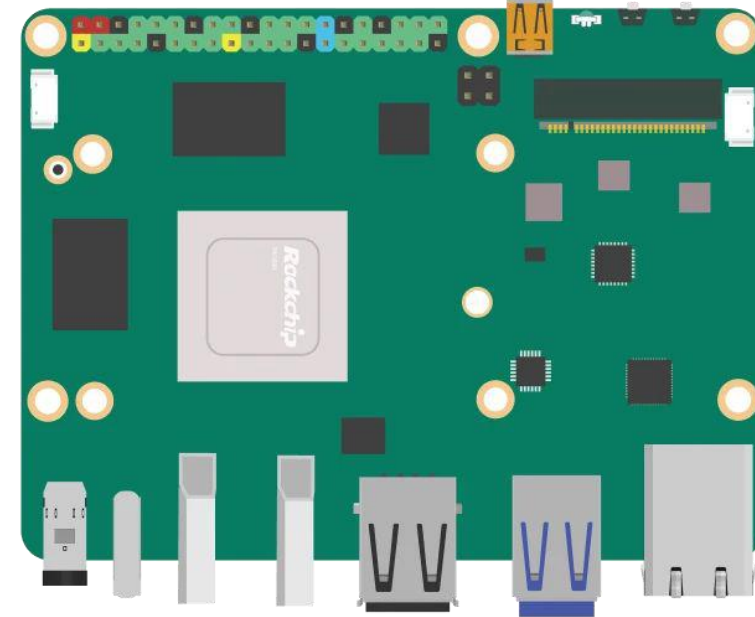


**On selected models*



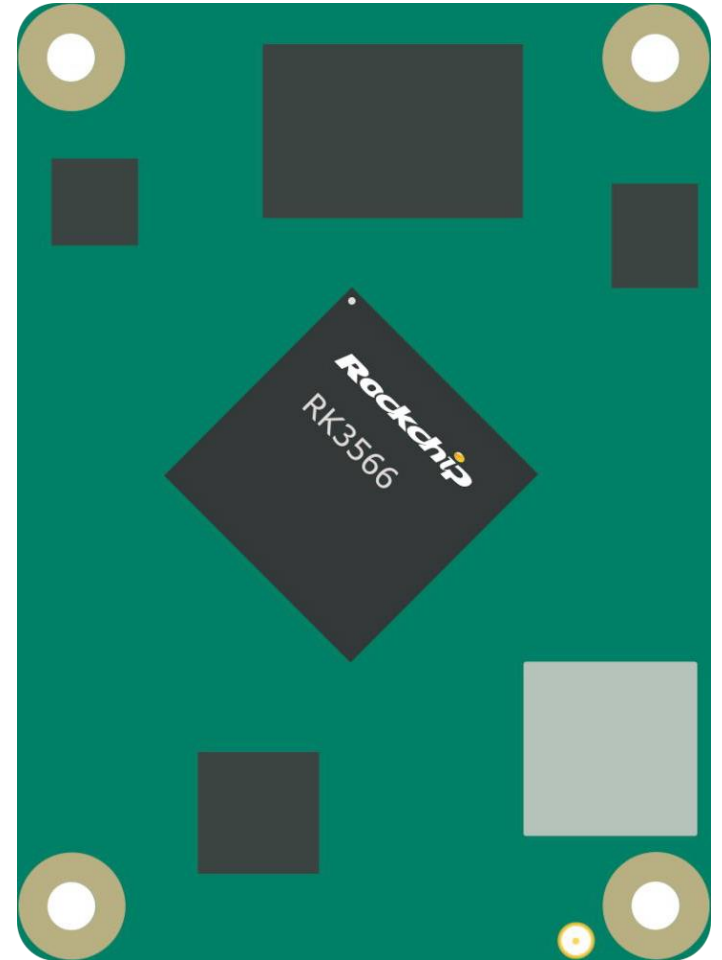
ROCK 5: Flagship performance

- Based on the latest RK3588(S) SoCs
- Highest core count, memory support, and NPU TOPs in the entire lineup
- 8K display
- HDMI RX & 2.5GbE on 5B
- Gathered very high interest in the community
- Active upstream work on kernel, U-Boot, and TF-A, and many cases with ROCK 5 as reference platforms
- Community-developed EDK2 port with hardware offered by Radxa
 - Boot Windows!



CM3: embedded ready

- Based on RK3566
- Triple 100-pin connectors for additional connectivity
- Works* with Raspberry Pi CM4 IO Board
- Basis of many commercial projects



**Terms and Conditions Apply*



RadxaOS: continuous improvement

- Fully open-source¹
- Semi-autonomous: inter-connected by GitHub Workflows
- Build everything in the cloud: delivered product does not touch any local machine
- Traceable releases: either tagged directly, or recorded as part of version numbers
- Abide Debian policies: packaging, FHS
 - Move configuration out of /etc: simplify configuration update
- Managed build environment with containers
- We are building maintainable software to provide long term support

1: Does not include all vendor-supplied packages



Thank you



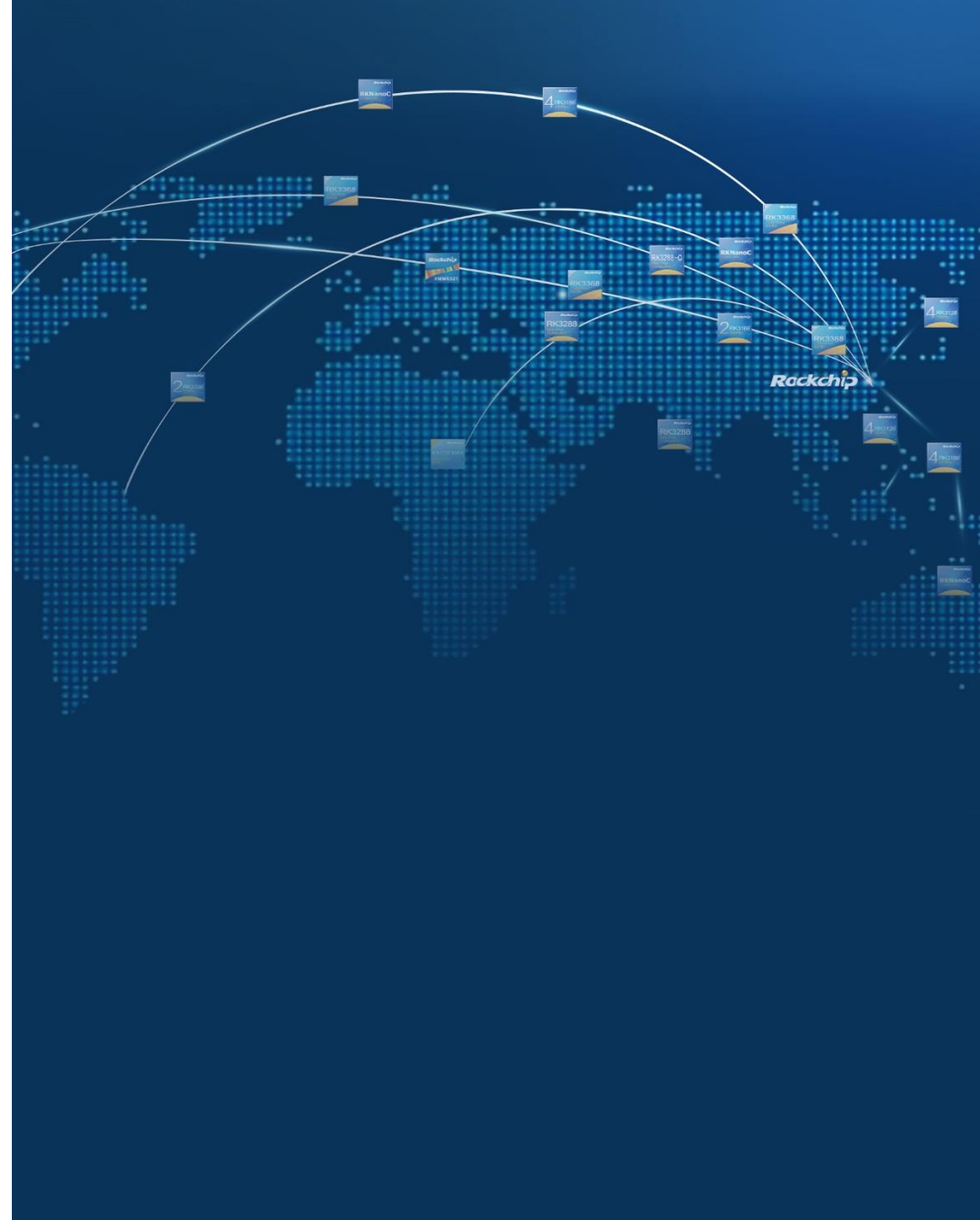


Rockchip Product Introduction

2023.9

About Rockchip

- 🔗 A leading fabless IC design company in China
- 🔗 Listed on Shanghai Stock Exchange in Feb. 2020, with Stock Code: **603893**
- 🔗 Founded in 2001, headquarter-in Fuzhou, China, branches/subsidiaries in Shenzhen, Shanghai, Beijing, Hangzhou and Hong Kong
- 🔗 Nearly 1000 employees, around 80% of R&D engineers
- 🔗 China's leading AIoT solution provider



Applications and Markets

Consumer Electronics

- Tablet
- Education Tablet
- Robot Vacuum
- Smart home
- Streaming Box
- Translation Pen
- ARM PC
- NAS

IoT

- Smart Retail
- Commercial Display
- HMI
- Medical
- Cloud Terminal
- Edge Computing
- SBC
- Smart building
- Industrial
- Smart Conference Systems

Automotive

- Smart Cockpit
- infotainment (IVI) system
- In-Car Audio system
- Dashcam
- Driving Data Recorder

Operators

- IP Camera
- Cloud Computer
- IPTV

Machine vision

- AI Camera
- Multi-camera
- Video Access Control
- Robotics

Rockchip SoC Roadmap for IOT

Operation System



Android



Linux

Performance

RK3288
 Quad-Core A17
 Mali-T760MP4 GPU
 4K H.264/H.265 Decoder
 Dual-channel DDR
 4K display
 13M camera with ISP
 HDMI2.0/LVDS/MIPI/eDP



RK3399
 Dual-Core A72
 + Quad-Core A53 + MCU
 Mali-T860MP4 GPU
 DDR3/LPDDR3/LPDDR4
 4K H.265/VP9/H.264 decoder
 HDMI 2.0 with HDCP 2.2
 USB 3.0 / Type-C
 Display port / PCIe 2.1



RK3328
 Quad-Core A53
 Mali-450MP2 GPU
 4K H.264/H.265 Decoder
 HDR10/HLG
 USB 3.0



RK3188/PX3
 Quad-Core A9
 Mali400MP4 GPU
 1080P Video Codec



RK3128/PX3-SE
 Quad-Core A7
 Mali400MP2 GPU
 1080P Video Codec
 HDMI/LVDS/MIPI
 Audio Codec/CVBS



RK3399Pro
 A72 + A53 CPU
 Mali-T860MP4 GPU
 3TOPS NN process
 DDR3/LPDDR3/LPDDR4
 4K H.265/VP9/H.264 decoder



PX30
 Quad-Core A35
 ARM Mali-G31MP2
 1080P Video Codec
 MIPI/LVDS/Dual display
 8M ISP/RMII



RK3308B/H
 Quad-Core A35 CPU
 16bit DDR2/DDR3
 Multi Chanel Audio Codec
 Smart Voice processor



RK3588
 Quad-Core ARM A76
 + Quad-Core A55 CPU
 ARM G610 GPU
 6TOPS NPU
 8K video codec
 8K and multi panels display
 PCIe3.0/SATA3.0/HDMI2.1
 USB3.1/Type-C



RK3568/RK3566
 Quad-Core A55
 ARM G52 GPU
 1TOPS NPU
 Video 4K Decoder and 1080P Encoder
 8M ISP with HDR



RK3358J
 Quad-Core A35
 ARM Mali-G31MP2
 1080P Video Codec
 MIPI/LVDS/Dual display
 8M ISP.RMII



RK3576
 Octa-Core
 6T NPU
 4K video codec
 USB-C, PCI-e



RK3562
 Quad-Core A53
 G52 GPU
 1TOPS NPU
 4K Video Decoder
 1080P Video Encoder
 13M ISP
 RGMII + RMII



RK3506
 Triple-Core A7
 2D GPU
 MIPI /RGB Display

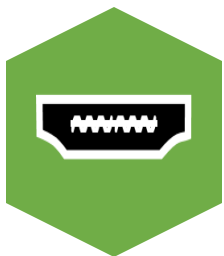


RK3588 Key Features---Rock 5B



High Performance

- 4x A76 + 4x A55
- ARM G610 GPU
- 6TOPS NPU



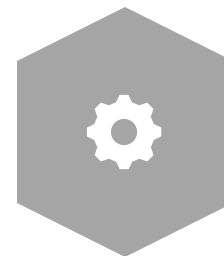
Superior Connectivity

- Multiple USB ports
- PCIe 3.0
- SATA3.0



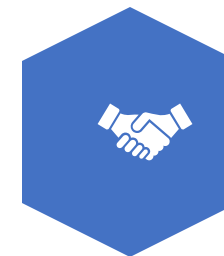
Advanced Multimedia

- 8K30 encoder
- 8K60 decoder
- Multiple screen support



ISP

- Multi-camera panoramic stitching
- Dual ISPs support maximum to 48M
- FishEye Correction(FEC)
- HDR



Longevity Support

- Longevity support
- OS will be upgraded regularly

Rockchip Kernel Roadmap

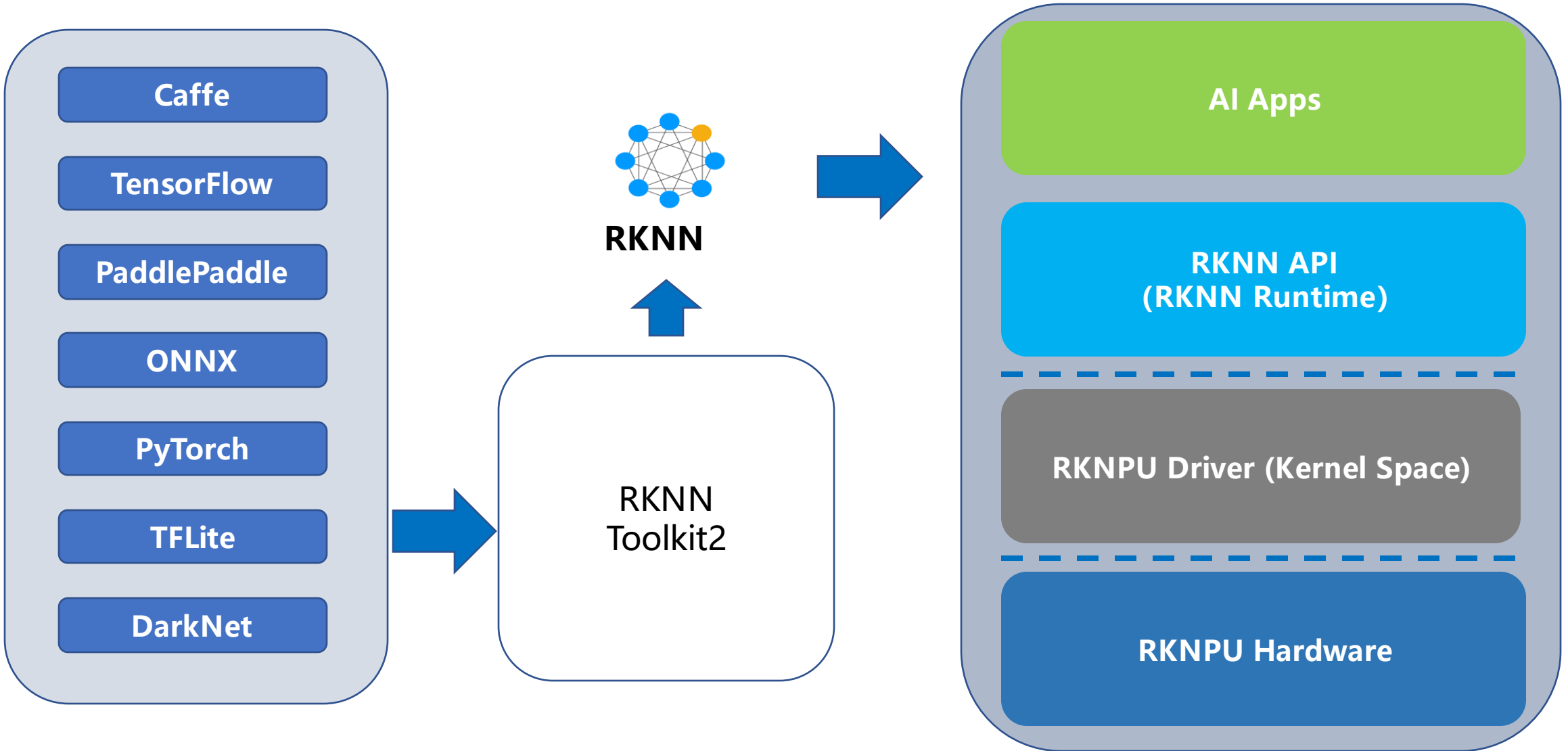
Version	Kernel Released	Rockchip SDK Release date	Projected EOL
4.4	2017/11/12	2018/6/20	Jan, 2024
4.19	2018/10/22	2020/12/11	Dec, 2024
5.10	2020/12/13	2022/1/15	Dec, 2026
6.1	2022/12/11	2023 Q4	Dec, 2026

Internal

Linux Software Upgrade Roadmap for 2023-2024

MPU	Buildroot Version	Debian Version	Yocto Version	Kernel Version	Expected release date	SDK version
RK3288	2021.11	11	4	5.10	2023. Q3	linux-5.10-gen-rkr6
RK3328	2021.11	N/A	N/A	5.10	2023. Q3	linux-5.10-gen-rkr6
RK3588	2021.11	12	4	6.1	2023. Q4	linux-6.1-stan-rkr2
RK3506	2021.11	N/A	N/A	6.1	2023. Q4	linux-6.1-stan-rkr2
RK3568	2021.11	12	4	6.1	2024. Q1	linux-6.1-stan-rkr3
RK3566	2021.11	12	4	6.1	2024. Q1	linux-6.1-stan-rkr3
RK3562	2021.11	12	4	6.1	2024. Q2	linux-6.1-stan-rkr4
RK3399	2021.11	12	4	6.1	2024. Q3	linux-6.1-stan-rkr5
RK3288	2021.11	12	4	6.1	2024. Q3	linux-6.1-stan-rkr5

RKNN Software Stack-How to get your algorithms running on RKNN



Supported Models on RKNN

Classification

- mobilenet
- densenet
- efficientnet
- inception
- mnasnet
- nasnet
- resnet
- resnext
- shufflenet
- squeezenet
- vgg
- repvgg

OCR

- ppocr
- crnn

Object detection

- faster_rcnn
- ssd
- yolov3/4/5/6/7/8/x
- craft
- centernet
- ppyolo

Transformer

- lite transformer
- GPT2
- firefly 1.4B

Segmentation

- deeplabv3+
- enet
- segnet
- yolov5
- paddleseg

Pose

- openpifpaf
- openpose
- posenet

RKNN Documents

- RKNN-Toolkit2(RK3566/RK3568/RK3588/RV1103/RV1106):

<https://github.com/rockchip-linux/rknn-toolkit2>

- RKNN-Toolkit (RK1808/RK3399Pro/RV1109/RV1126):

<https://github.com/rockchip-linux/rknn-toolkit>

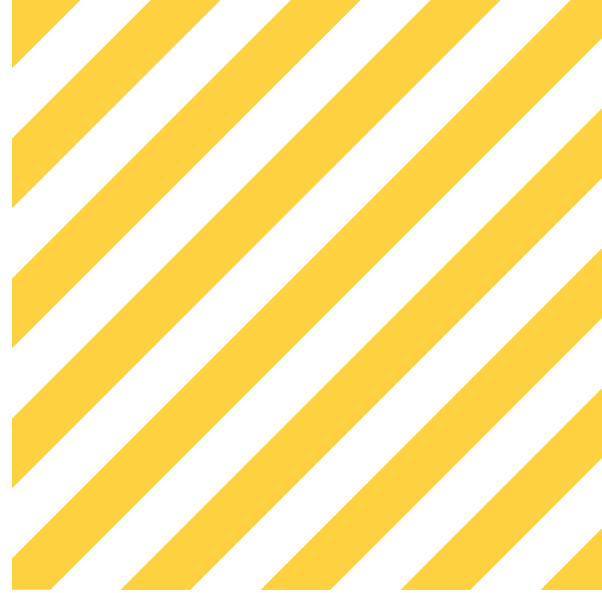
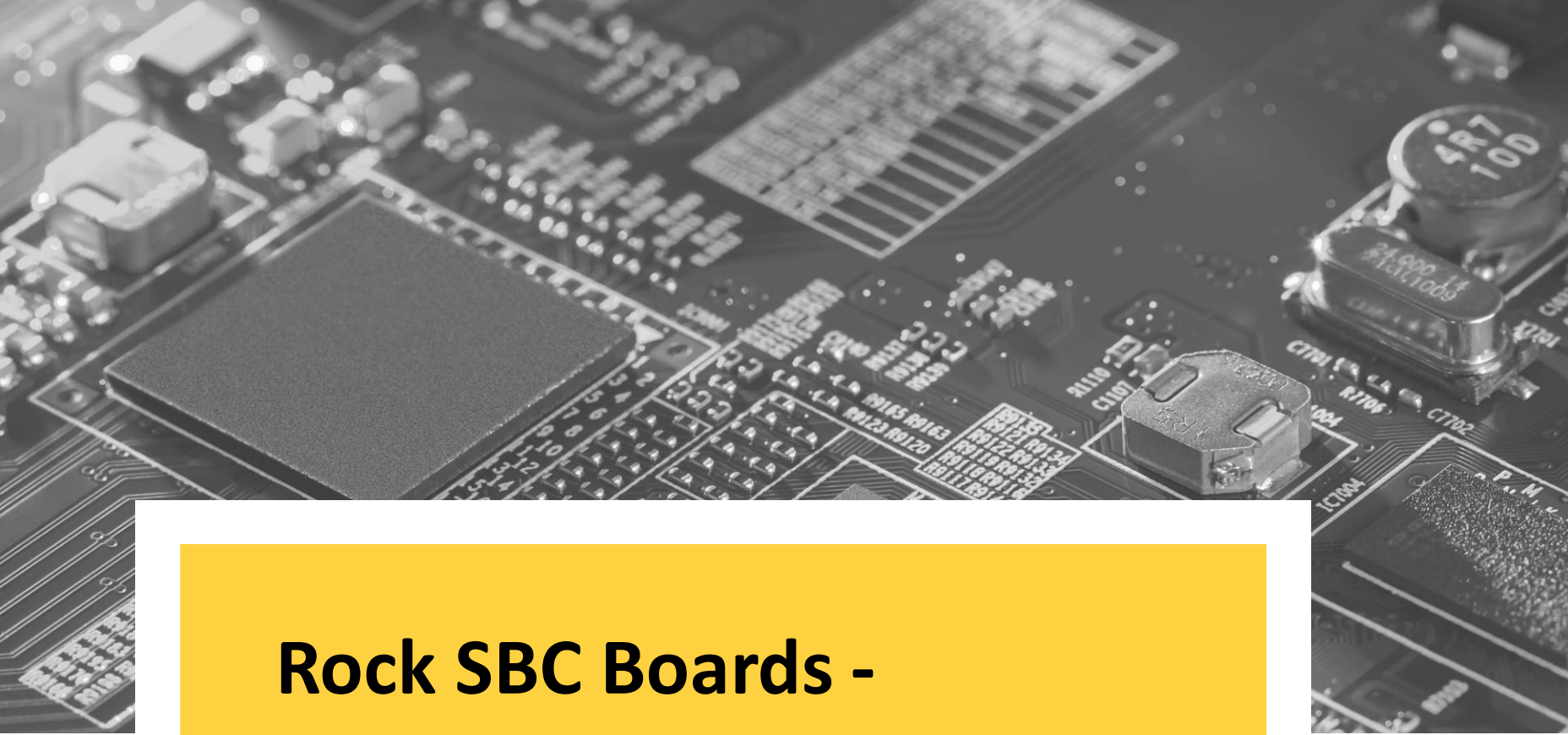
More information can be found on our website

- ❖ https://opensource.rock-chips.com/wiki_Main_PageKernel

Thank You!

Contact Us
Building No.18, A District,
Fuzhou Software Park,
89 Soft Avenue, Tongpan Road,
Gulou District, Fuzhou, Fujian, China
P.C: 350003
TEL: 86-591-83991906 FAX: 86-591-83951833

Rockchip
瑞芯微电子
SH603893



Rock SBC Boards - Empowering Innovation

Simon Zhang | OKdo



Our Offer

We pride ourselves on being a customer-first business that solves complex real-world problems through smart solutions

INDUSTRIAL

- Specialist support for OEM & SI
- Design and manufacturing services
- Volume production capacity
- Compliance & Certification

MAKERS

- Inspiring & enabling creativity
- Unrivalled product range & support
- Subscription, IoT & cloud services
- Connecting the Maker community

ENTREPRENEURS

- Supporting & enabling innovators
- Concept prototyping & 3D printing
- Design and manufacturing services
- A global platform to sell products

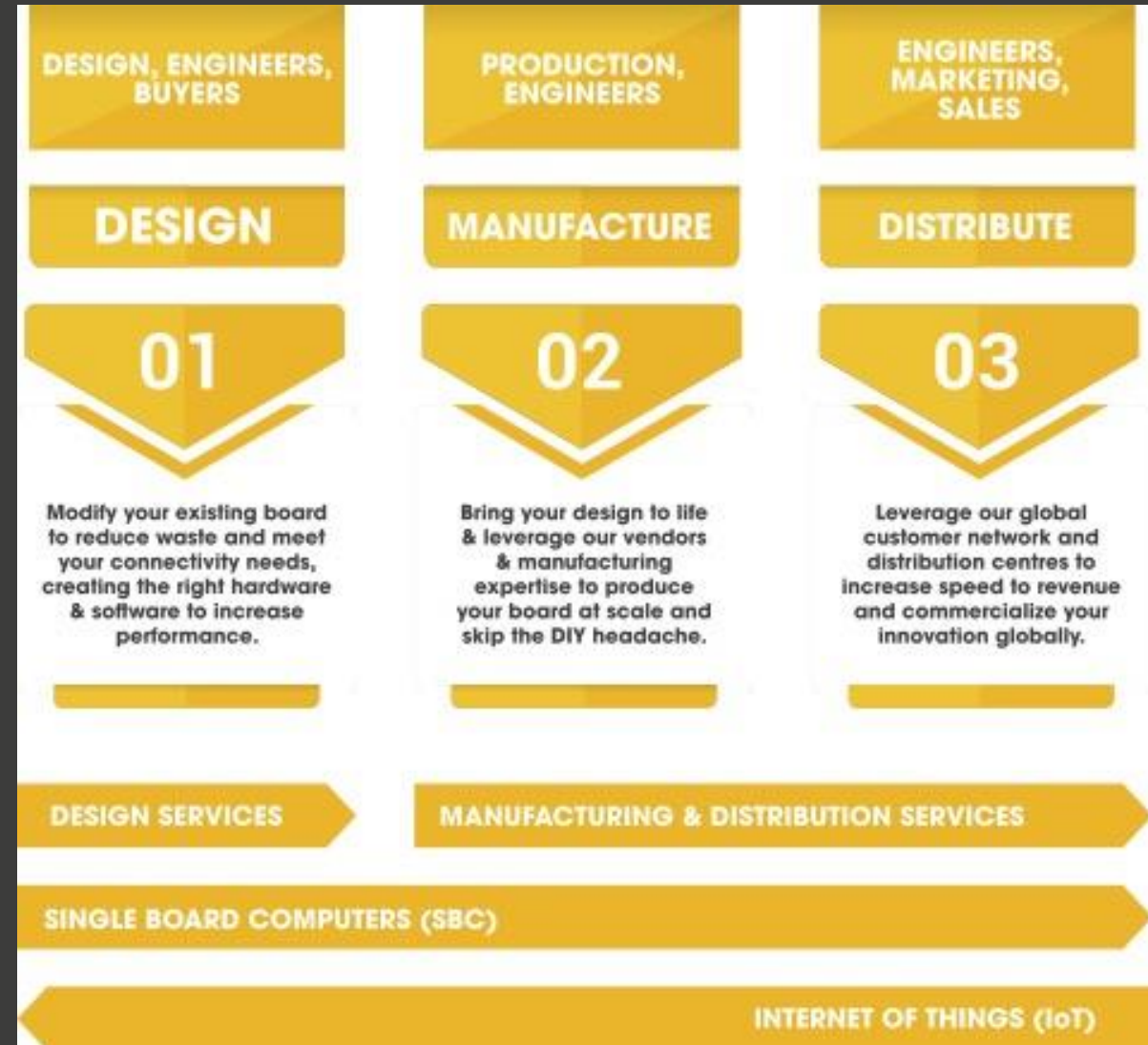
EDUCATION

- Educating tomorrow's creators
- An end-to-end product range
- Inspirational learning resources
- Technical support for educators

What we do

Our mission is to design a smarter world, sparking innovation through learning and building cutting-edge solutions to shape our future. OKdo has been designing boards for some of the largest and most renowned SBC brands and we've taken all that knowledge and created a platform of components & modules using easy-to-choose elements.

OKdo allows you to create custom boards and compute modules by selecting only the elements you want to use and adding them to your solution. Whether you're an engineer passionately building an innovative solution, or a CTO needing to scale and replicate your software assets to reduce cost as quantities increase, OKdo is here to bridge the gap between design, scale and maintain.



Our Capabilities

We provide dev kits to makers/developers and help them turn their ideas into prototypes, and turn prototypes into commercial products



DESIGN

Modify existing boards to add or needs, creating the ideal board for you



MANUFACTURE

Bring your design to life & leverage our vendors & manufacturing expertise to produce your board at scale and skip the DIY headache



DISTRIBUTE

Leverage a 1.2M global customer network and distribution centres in 32 countries to increase speed to revenue and commercialize your innovation globally



ENGAGE

Utilise our Design Spark and the Industrial Knowledge Platforms for building brand awareness, idea sharing and lead generation



SCALE

Organically scale quickly, while exploring existing Resellerships for potential future developments

The Partnership Offers Very Unique Value-Added Services

- Rockchip Support your product roadmap by various SoC is used in various industrial section, especially for multi-media & AIOT solutions.
- Radxa transform your idea to product by the strong board customization and design capability.
- OKDO support you – Time to Volume, Time to Market by providing professional manufacturing (prototype to large scale volume), supply chain management, product compliance certification, and global distribution.
- The triple partnership offer you very unique value-added service.

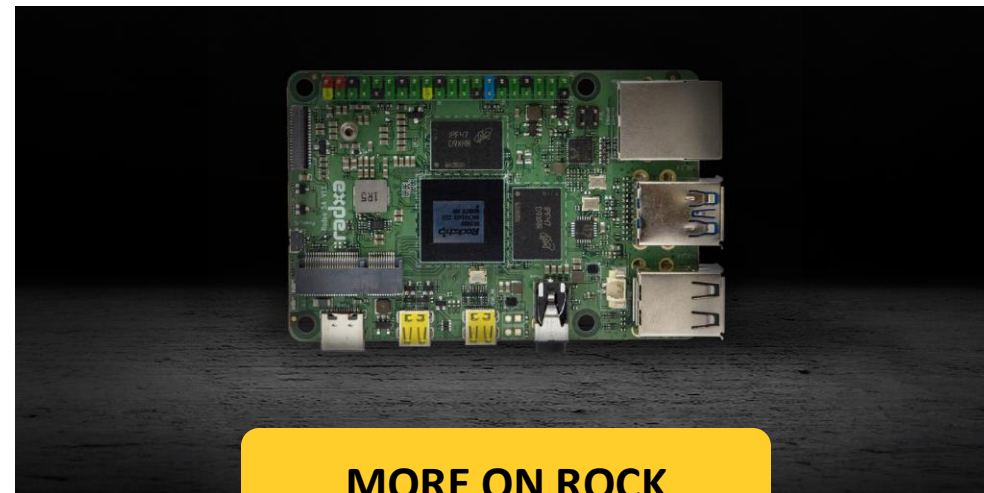


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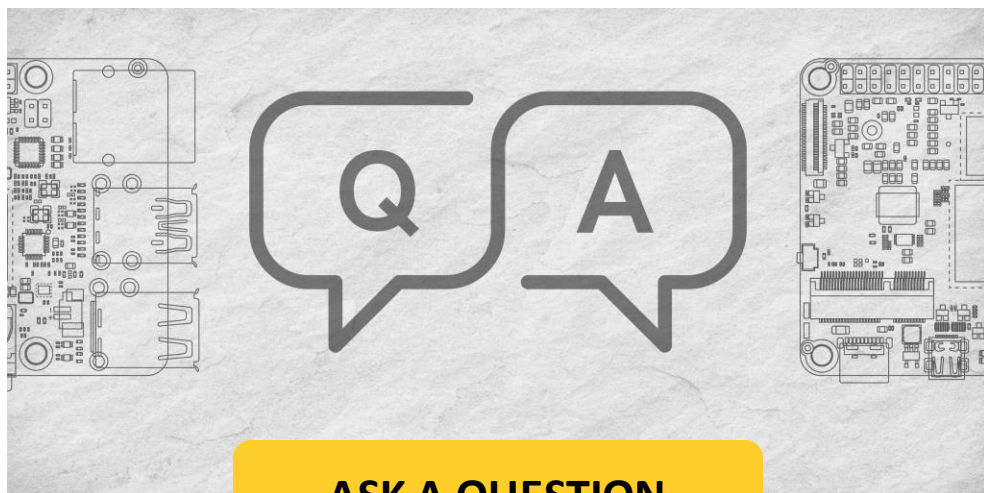




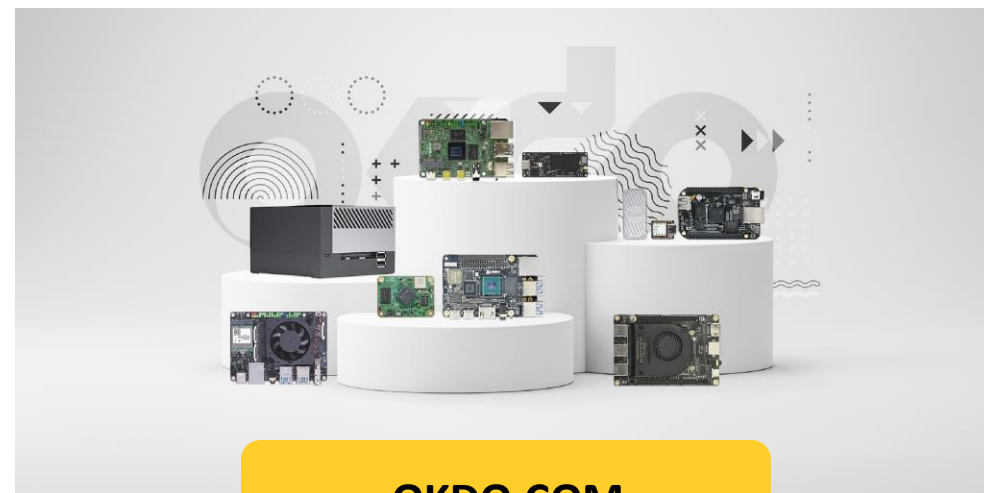
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