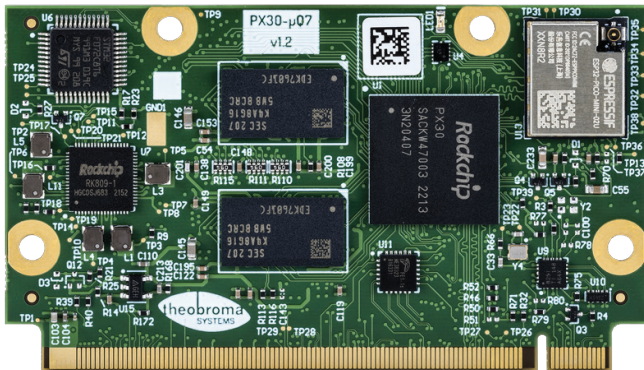


DATA SHEET

## RINGNECK SOM-PX30- $\mu$ Q7

POWER EFFICIENT **SYSTEM-ON-MODULE** WITH QUAD-CORE ARM

featuring the Rockchip PX30 application processor



70 x 40  
mm



Secure  
Element



ARMv8



4x 1.3 GHz



up to 4 GB  
DDR4



LVDS or  
MIPI-DSI



MIPI-CSI



WiFi



Fast  
Ethernet



4x USB 2.0



Bluetooth



CAN

## BROAD FUNCTIONALITY AT MINIMUM SIZE AND COST

Built on Rockchip's application processor PX30, **RINGNECK SOM-PX30-μQ7** is designed for cost-effective and power-efficient solutions offering a balanced performance in a micro-Q7 (70 mm x 40 mm) form-factor module. It features WiFi, Bluetooth, Ethernet, CAN bus, USB, Mali GPU, up to 4 GB DDR4 memory and up to 128 GB eMMC flash storage.

The Rockchip PX30 is a low-power quad-core processor for mobile internet devices and other smart device applications. The 64-bit-capable ARMv8 Cortex-A35 cores support both the ARM Cryptographic Extension (for wire-rate AES cryptography) and AdvSIMD vector processing.

As RINGNECK is also available for an extended temperature range (-20° to +85° Celsius), it is well-suited for outdoor devices.

## Ready for a great user experience

The **RINGNECK System-on-Module** unlocks new application areas that require interaction by app or touchscreen and camera.

Thanks to WiFi and Bluetooth interfaces, users can connect and communicate via an app on their smart phone. In addition, a touchscreen interface is available for user input and output. The ability to receive camera sensor input through a MIPI-CSI interface and to process the resulting image stream in real time enables cost-efficient vision applications.

The PX30 processor provides multi-format video decoding (including H.264 and H.265 at 1080p / 60 fps) and video encoding. An embedded ARM Mali GPU supports OpenGL ES1.1/2.0/3.2 and OpenCL 2.0 Full Profile. A dedicated 2D hardware engine enables offloading for image scaling, rotation and window composition.

## Communication via WiFi and Ethernet

**RINGNECK SOM-PX30-μQ7** provides an Ethernet interface as well as wireless connectivity via WiFi and Bluetooth, which can be used for example for remote management and maintenance of the device.

## Connecting via CAN bus or via USB

**RINGNECK SOM** makes it easy to connect to vehicle components or to create digital industry devices by providing a CAN bus interface and four USB 2.0 ports.

## State-of-the-art security for your assets

**RINGNECK SOM-PX30-μQ7** features a Secure Element in addition to the capability to enable a Secure Boot mechanism. This Secure Element is based on the GlobalPlatform 2.2.1-compliant JavaCard environment. Secure Boot guarantees that only signed images can run on the device.

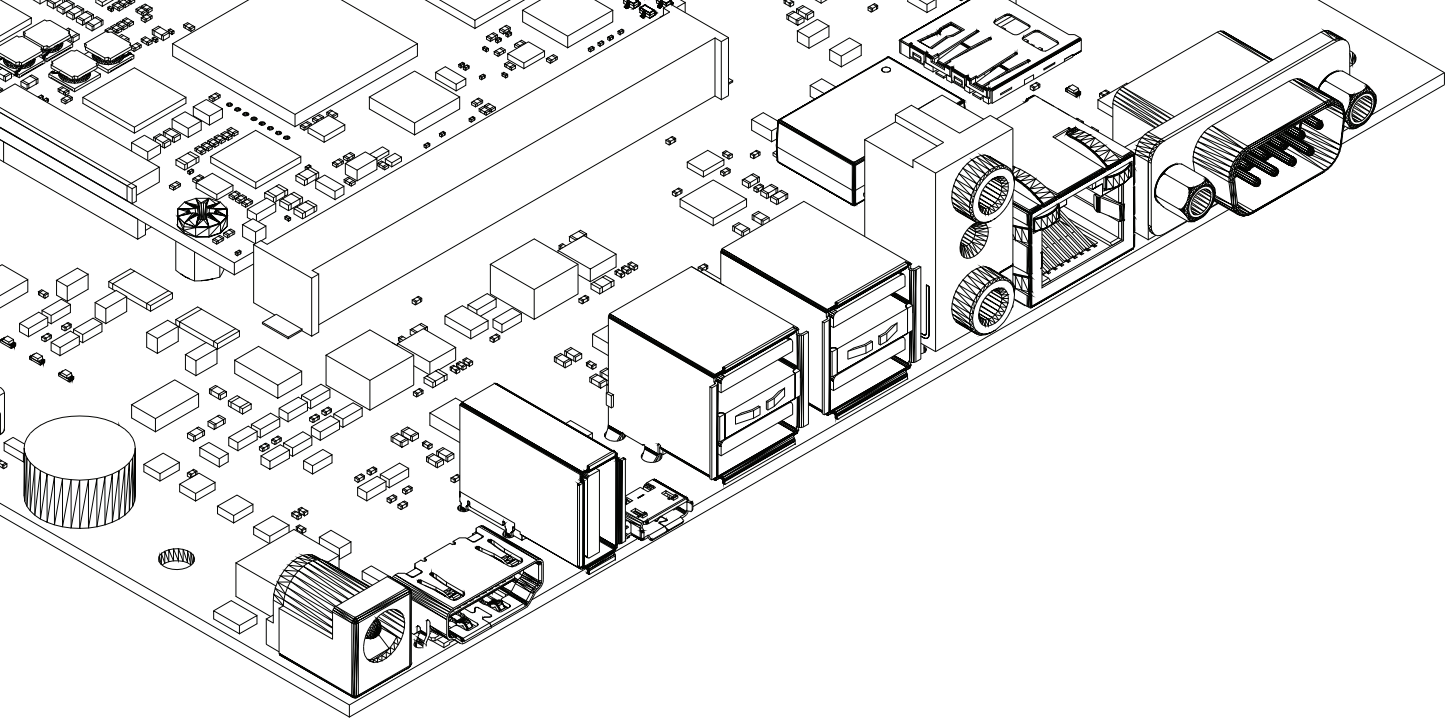
Enjoy the peace of mind that comes with a government-grade security solution for all identification, key-storage and asset-protection requirements. The Common Criteria (EAL6+) certified security module ensures that you never have to sacrifice security for performance again.

## Designed and supported in Vienna, Austria

Every module we design is based on our expertise in system-level design, embedded software engineering and performance engineering. Our experienced engineering team provides engineering services to complement your in-house design resources and shorten your time to market.

## TECHNICAL SUMMARY

Form factor	µQ7
Processor	Rockchip PX30 Quad-Core ARM Cortex-A35, up to 1.3 GHz 4x Cortex-A35 [32 KB + 32 KB L1 cache and 256 KB L2 cache]
GPU	ARM Mali-G31 2EE
VPU	Video decoder: H.265, H.264, VP8 up to 1080 p / 60 fps Video encoder: H.264 up to 1920 × 1080 / 30 fps
Memory	DDR4, up to 4 GB on-module
eMMC Flash	up to 128 GB eMMC on-module
SD Card	SDIO interface for external SD Card
Ethernet	10/100 Mbps with an on-module Ethernet PHY
WiFi	IEEE 802.11b/g/n up to 25 Mbps 2.4 GHz band External antenna via W.FL connector
Bluetooth	Bluetooth v4.2 BR/EDR + Bluetooth LE External antenna via W.FL connector
USB	1x USB 2.0 dual-role 3x USB 2.0 host
Display	1x LVDS, up to 1280 × 800 / 60 fps 1x MIPI-DSI, up to 1920 × 1080 / 60 fps
Camera	1x MIPI-CSI, 4 lanes with up to 1 Gb/s per lane
CAN	1x CAN via on-module communication offload controller for CAN
Additional Interfaces	UART, GPIO, I2S, I2C, SPI, FAN, RTC, Speaker
Security	ARMv8 Cryptography Extensions Secure Element with Global Platform 2.2.1 compliant JavaCard environment (EAL6+ certified)
Operating System	Linux (Debian and Yocto)
Power Management	Dynamic frequency and voltage scaling for thermal and power management
Power Supply	Operates from a single 5 V supply
Consumption	≪3 W standalone (without USB and display)
Operating Environment	Commercial 0°C to +60°C Industrial -20°C to +85°C
Dimensions	40 mm x 70 mm (1.58" x 2.75")



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