

WAFER-RK3588

3.5" SBC supports Rockchip RK3588 Processors with 16GB / 32GB LPDDR5 memory & 64GB eMMC NAND FLASH on board default, single HDMI input and dual HDMI out, 2.5GbE LAN, GbE LAN, USB 3.2 GEN 1, USB 2.0, 0°C ~60°C and RoHS

Provide AI demo kit

CPU

► 8-Core 4xA76 + 4xA55, Frequency 2.4GHz

Geekbench 4
Single core



3~5 times improved

Multi core

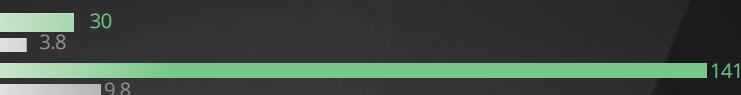


3~5 times improved

GPU

► ARM Mali G610

GFXBench
Car chase 1080P

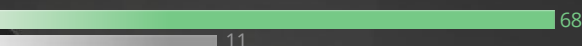


6~8 times improved

ALU2



Manhattan3.0 1080P



6~8 times improved

Manhattan3.1 1080P

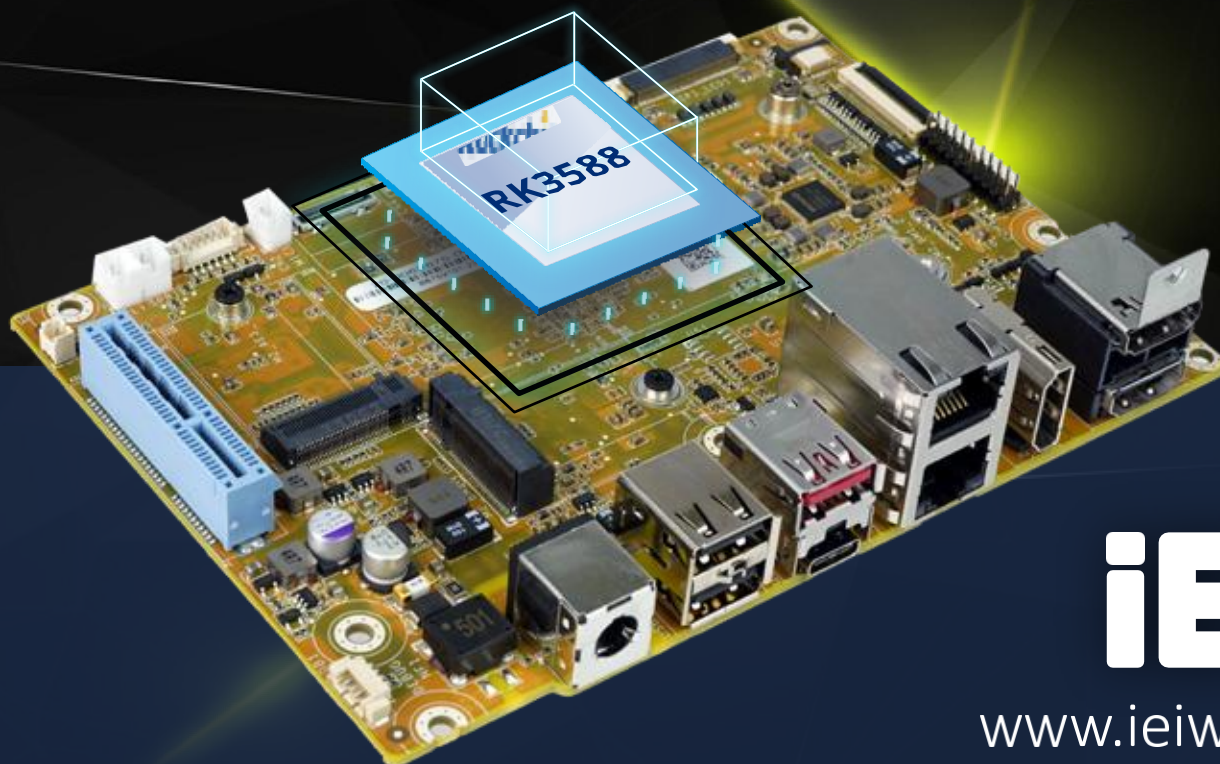


NPU

► 6TOPS Supports int4 / int8 / int16 / BF16 / TF32

Support framework such as

ONNX mxnet TensorFlow Caffe PYTORCH

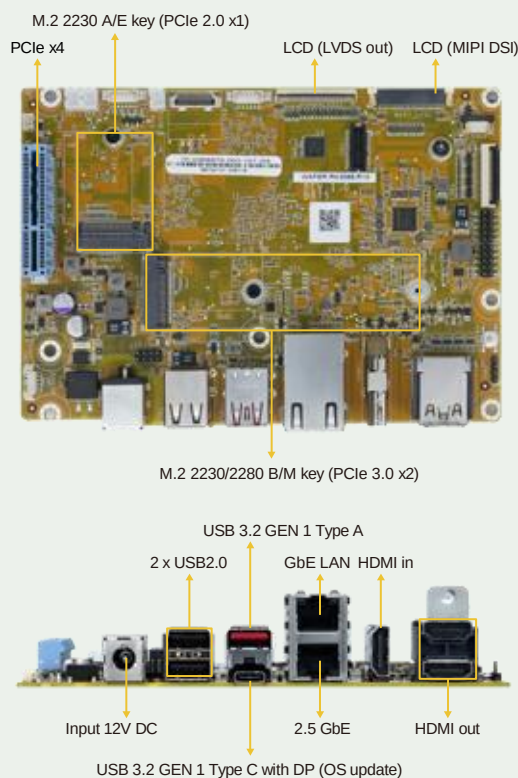


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- Quad-core Cortex-A76 and quad-core Cortex-A55, up to 2.4GHz
- Built-in AI accelerator NPU with processing performance of up to 6.0 TOPS, supports int4/int8/int16/FP16/BF16/TF32
- Built-in 4 core GPU Mali G610 (4x256KB L2 Cache) supports OpenGL ES3.2/OpenCL2.2/Vulkan1.1
- Multi-channel input output: 4K HDMI input, 8K HDMI output, MIPI, LVDS, MIPI_DSI and Camera MIPI_CSI input
- Rich I/O : 2.5GbE, GbE RJ45, USB 3.2 GEN 1, USB2.0
- Expansion slot : PCIe 3.0 x2, M.2 B/M key, M.2 A/E key
- Optional WiFi5/WiFi6/BLE 5.0
- OS supports Android / Yocto LTS

Software Support

Android		
Framework	1. UART APP 2. F-Droid APP Store	3. Micro-G FCM service 4. SELinux Protection
System	1. Non-AB or A/B partitions 2. System Update Engine (New A/B OTA)	3. Dual Ethernet: 1WAN, 1LAN 4. Multiple Display 5. Auto mounting NVME SSD
Wireless	1. WiFi STA/AP mode 2. WiFi Direct 3. Concurrent mode	4. Bluetooth classic 5. Bluetooth LE
Neural Network	RKNN Demo (NPU)	
Video support format	MP4, AVI, MKV, WEBM, 3gp	
Audio support format	WAV, MP3, AAC	

Yocto	
Kernel	Upstream Kernel 7.x (Currently 7.2)
System	Yocto Wrynose LTS (Regular upgrade)
Display support	Raspberry PI 22-PIN compatible. Support Raspberry PI Display V2; Multiple Display
System Security	OTA update, FIT verified boot
Programming	Python 3.14.4
Neural Network	CNN: Mesa Teflon delegate 26.0.5, LLM/VLM: rknpu OOT driver
Graphic	Mesa 26.0.5 / Panfrost(Mali-G610): OpenGL ES 2.0 / 3.x Weston Desktop 15.0
Network Security	OpenSSL 3.5.6
Wireless	Wi-Fi wpa supplicant 2.11, connman 2.0 ; Bluetooth BlueZ 5.36 (EDR/BLE) rkvd2 via V4L2 stateless / GStreamer v4l2codecs 1.28.2
Video Decode	H.264 / HEVC / VP9 ; ffmpeg 8.0.1 SW decode
Camera	Raspberry PI 22-PIN compatible, Support OV5640 Camera module Raspberry PI IMX219 Camera module
Audio	ALSA 1.2.15 + PipeWire 1.6.3 / WirePlumber 0.5.14, MP3 (mpg123/lame) 、 FLAC - Vorbis/Ogg - WAV ; BT audio SBC / AAC / aptX / LDAC

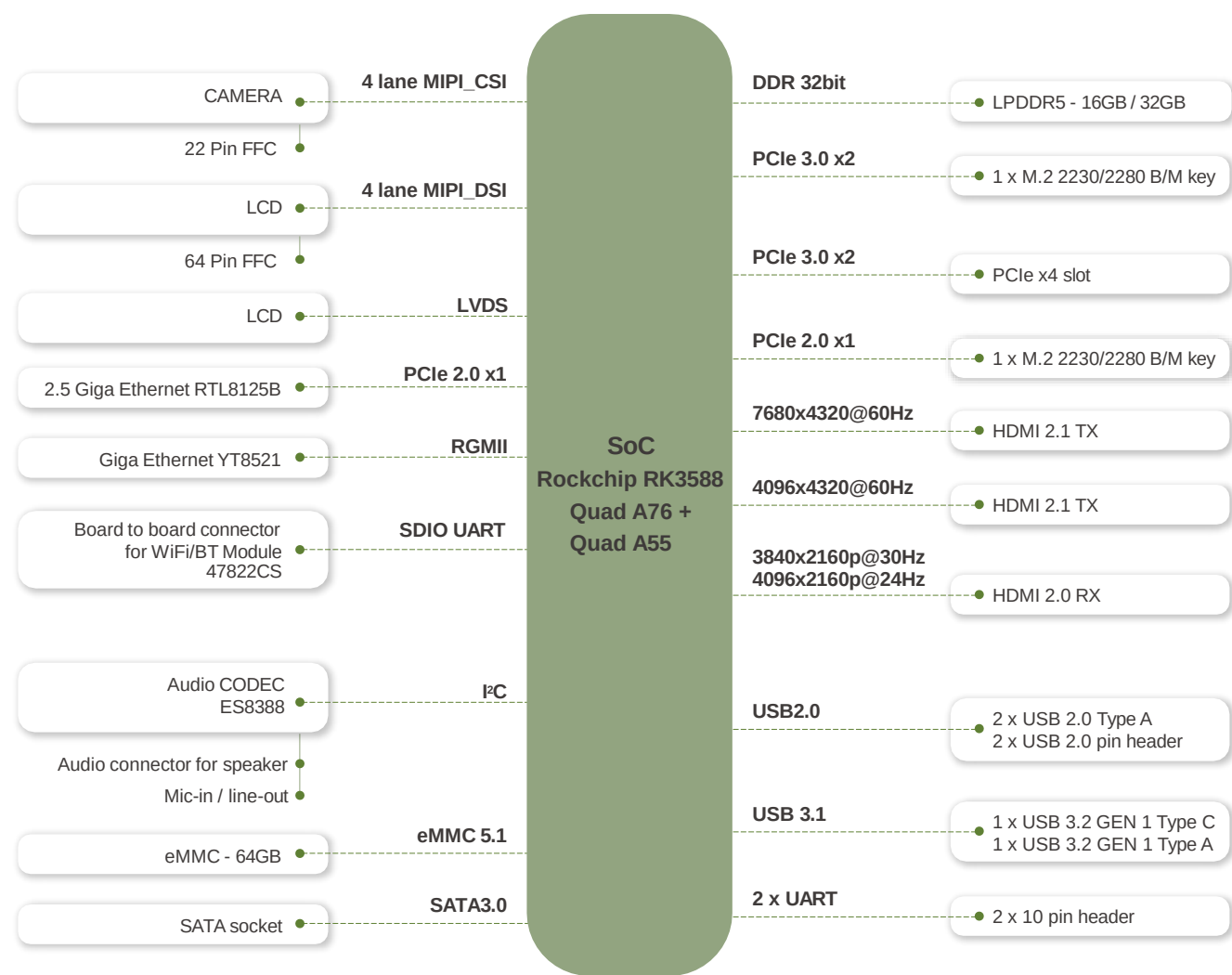
PCIe X4 Expansion For Added Functionality And Fast Application Deployment

The WAFER-RK3588 features a PCIe x4 (x2 signal) slot, which is a new design of the WAFER motherboard to expand functionality providing easy integration of PoE, video capture or other I/O cards.

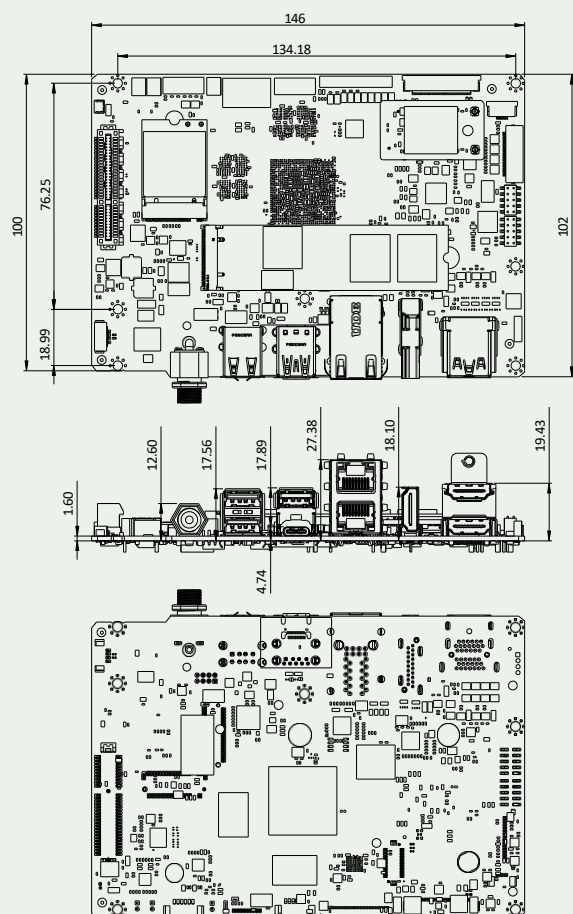
****PCIe expansion card needs SW customization. Please contact us for further information.**



WAFER-RK3588 Block Diagram



Dimensions



Specifications

Model	WAFER-RK3588
Processor	Rockchip RK3588 (Quad core Cortex A76 + Quad core Cortex A55)
GPU	ARM Mali-G610 MC4
NPU	6TOPS supports int4/int8/int16/FP16/BF16/TF32
RAM	On-board 16GB / 32GB LPDDR5
Flash	On-board 64GB eMMC 5.1
Expansion	1 x PCIe 3.0 x2 1 x M.2 2230/2280 B/M key (PCIe 3.0 x2) 1 x M.2 2230 A/E key (PCIe 2.0 x1)
Audio	Pin header to Mic-in / line-out jack
Speaker	2 x 2pin header
Display	1 x MIPI DSI / 1 x LVDS out
Camera	1 x MIPI CSI
HDMI	1 x HDMI-input 2 x HDMI-output up to 4K@60Hz
Wi-Fi	Wi-Fi 5/6 (optional IEI module)
Bluetooth	5.3
I/O	1 x GbE LAN 1 x 2.5 GbE LAN 1 x USB 3.2 GEN 1 Type C with DP (OS update) 1 x USB 3.2 GEN 1 Type A 2 x USB2.0 Type A UART (2x9pin header) SATA (1 x SATA3.0 up to 6 Gb/s) 1 x DC jack
Dimensions (LxW) (mm)	146 x 102
Input	9V - 48V DC
Operating Temperature	0°C – 60°C
Storage Temperature	-20°C – 60°C
Humidity	5 – 95% relative humidity, non-condensing
EMC & Safety	EMC Class B
Supported OS	Android / Yocto LTS

Optional accessories



M27319-000009-RS



iWB-AP6275SDSR-R10

Ordering Information

Android	WAFER-RK3588-A/DF WAFER-RK3588-A/EF	A/DF: Rockchip RK3588 / 16GB LPDDR5 / 64GB eMMC A/EF: Rockchip RK3588 / 32GB LPDDR5 / 64GB eMMC
Yocto	WAFER-RK3588-Y/DF WAFER-RK3588-Y/EF	Y/DF: Rockchip RK3588 / 16GB LPDDR5 / 64GB eMMC Y/EF: Rockchip RK3588 / 32GB LPDDR5 / 64GB eMMC

Optional Accessories

Raspberry Pi	Touch Display 2 https://www.raspberrypi.com/products/touch-display-2/
iWB-AP6275SDSR-R10	Radio frequency card, AP6275S, Wi-Fi 6 + BT5.3, RoHS
M27319-000009-RS	Wireless LAN & Bluetooth M.2 Sparklan R9701810011 Wi-Fi 5 + BT 4.2, QCNFA364A, RoHS