

# AFE-R761

## Rockchip RK3588 Cortex®-A76 and A55 AMR control system



### Features

- Rockchip RK3588 Arm Quad Cortex-A76 2.4GHz and Quad Cortex-A55 1.8 GHz
- Built-in NPU with processing performance of up to 6 TOPS
- Onboard 4/8GB LPDDR4 memory and 32/64GB eMMC
- Supports 8K @ 60 fps H.265/VP9 video decoding and 8K @ 30 fps H.265/H.264 video encoding
- Dedicate I/Os for AMR : 1 x 2.5GbE, 3 x GbE, 2x USB3.2, 4 x USB2.0, 2 x CAN FD, 4 x RS-485, 8bit isolated DIO
- 12-24V DC In, contact: 8KV, air: 15KV, ESD protection
- Provides a M.2 E Key with PCIE 2.1, USB 2.0 signal and a M.2 B Key with PCIE 2.1/SATA, USB 2.0 signal
- Supports Linux Debian12, Android14 and Advantech Robotic Suite SDK



### Specifications

Model	AFE-R761-U0A1	AFE-R761-U0B1	AFE-R761-U0C1	AFE-R761-U0D1		
Processor	CPU	Rockchip RK3588 Arm Quad Cortex-A76 2.4 GHz and Quad Cortex-A55 1.8 GHz				
	NPU	Up to 6 Tops. Supports: TensorFlow, Caffe, Tflite, Pytorch, Onnx NN, Android NN, etc.				
Memory	Technology	LPDDR4 2112MHz				
	Capacity	Onboard 4/8 GB LPDDR4, maximum supported is 32 GB				
	Flash	32/64 GB eMMC NAND Flash for OS and boot loader				
Graphics	HDMI	1 x HDMI 2.0, up to 4096 x 2304 @ 60fps				
	Graphics Engine	Arm Mali-G610 MP4 GPU, high-performance OpenGL ES 1.1, 2.0 and 3.2, OpenCL 2.2, Vulkan 1.2, etc.				
	H/W Video Codec	Decoder: Decoder: H.265/VP9 8K @ 60 fps, H.264 8K @ 30 fps, H.263 ,VC-1, VP8, MVC, AV1, MPEG-4/2/1 Encoder: H.265/H.264 8K @ 30 fps, parallel encoder for multi-channel, lower resolution				
Ethernet	Chipset	2 x RTL8211FSI, 1 x RTL8119I, 1 x Intel I226				
	Speed	1 x 2.5Gbps, 3 x 10/100/1000 Mbps				
WatchDog Timer		1~6553s, default 60s, power on/off 1s by MCU				
TPM		TPM2.0 (Optional)				
Front I/O	USB	1 x USB3.2 Gen1 by 1 TypeA	1 x USB3.2 Gen1 by 1 TypeA	1 x USB3.2 Gen1 by 1 TypeA	1 x USB3.2 Gen1 by 1 TypeA	
		1 x USB3.2 Gen1 by 1 TypeA/OTG	1 x USB3.2 Gen1 by 1 TypeA/OTG	1 x USB3.2 Gen1 by 1 TypeA/OTG	1 x USB3.2 Gen1 by 1 TypeA/OTG	
		4 x USB2.0 TypeA	4 x USB2.0 TypeA	4 x USB2.0 TypeA	4 x USB2.0 TypeA	
	Audio	1 x Line out/Mic in				
	LAN	4 x RJ45 (1x2.5GbE, 3xGbE)				
	Display	1 x HDMI				
	Button	1 x Power Button with LED				
	DI	-	4 x DI w 2500V <sub>DC</sub> isolation protection (terminal block) -Wet contact: Logic 0~3V <sub>DC</sub> (max);Logic 1: 10~30V <sub>DC</sub> -Dry contact: Logic 0: Shorted to GND; Logic 1: Open (Default)			
	DO	-	4 x DO w 2500V <sub>DC</sub> isolation protection (terminal block) - Output voltage: 5~30V <sub>DC</sub> - Output capability Sink(NPN): 500mA per channel			
	GMSL	-	-	4 x GMSL via FAKRA MAX96712GTB		
AHD	-	4 x AHD Via Wafer box TP2855		-		
Side I/O	Serial Port	2 x RS-232/485 (Default RS-232, s/w configured) 2 x RS-485 1 x Debug				
	CAN	2 x CAN FD (5M)				
Rear I/O	SD Socket	1 x Micro SD Slot				
	Button	1 x Reset, 1 x Maskrom, 1 x Recovery				

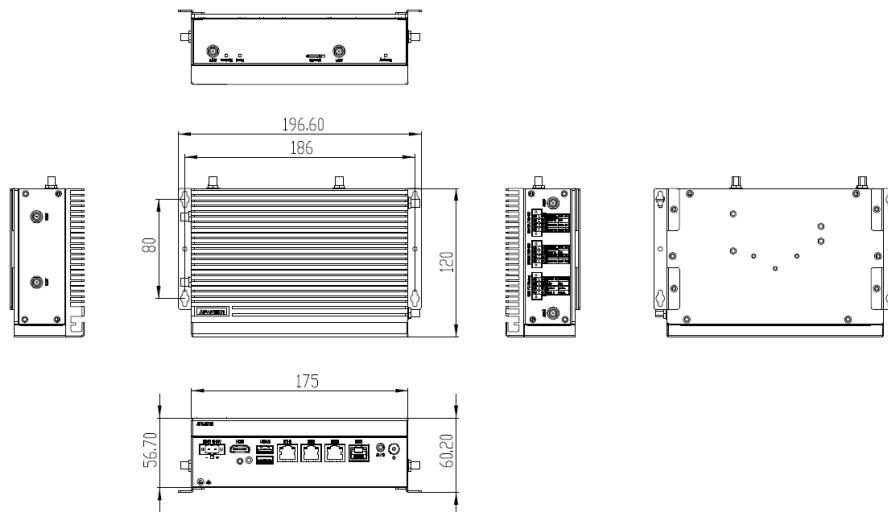
**Specifications (Cont.)**

Expansion	Mini PCIe	-
	SIM Slot	1 x SIM slot
	M.2 Socket	1 M.2 E Key with PCIe 2.1, USB 2.0 signal 1 M.2 B Key with PCIe2.1/SATA (Default SATA, Bom option), USB 2.0 signal
Power	Power Supply Voltage	12-24V±10%
	Connector	2P Phoenix
	Power Consumption	Typical (Idle mode) 5.65W@12V Max. (Full loading) 11.68W@12V
	Power Management	AT mode (Default), ATX mode
Environment	Operating Temperature	0 ~ 60°C/-40 ~ 70°C (32 ~ 140°F/-40 ~ 158°F)
	Operating Humidity	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	175 x 150 x 56.7 mm
Operating System		Linux Debian12 and Android14
Certifications		CE EMC/FCC Class B/UKCA/IC/CCC/BSMI

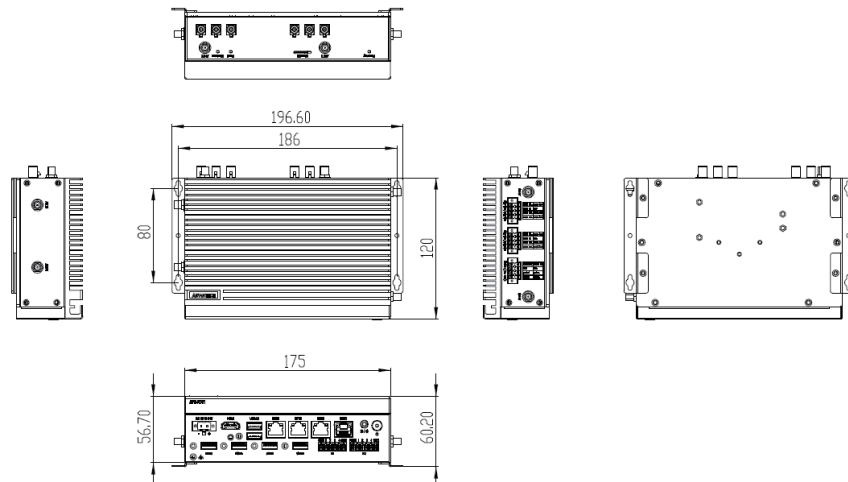
**Dimensions**

Unit: mm [inch]

**AFE-R761**



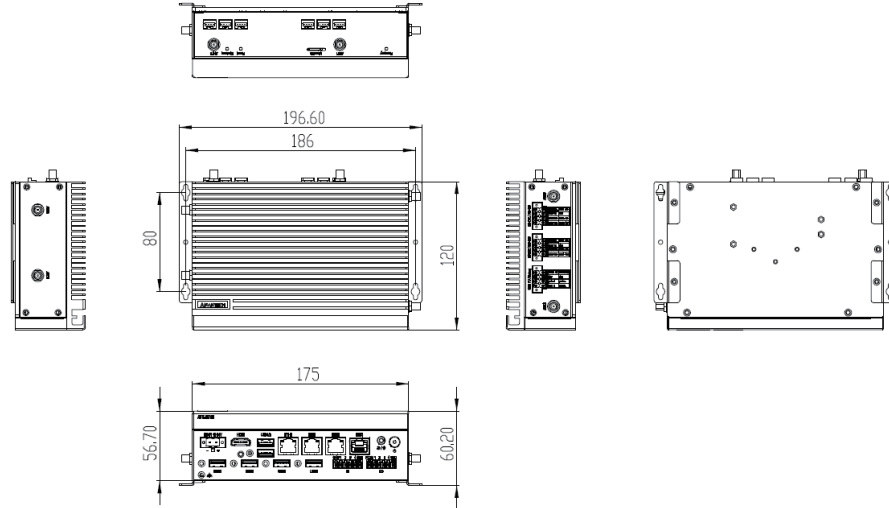
**AFE-R761 GMSL**



**Dimensions**

Unit: mm [inch]

**AFE-R761 AHD**



**Ordering Information**

Part Number	CPU	Memory	EMMC	HDMI	Gbe	USB	DIO	Serial Port	Camera Interface	M.2	SD	CAN Bus	Operating Temperature
AFE-R761-U0A1	Rockchip RK3588	8GB	64GB	1	4	2 x USB3.0	-	4	-	1 x M.2 Key-E 1 x M.2 Key-B	1	2	0 ~ 60°C (32 ~ 140°F)
AFE-R761-U0D1	Rockchip RK3588	8GB	64GB	1	4	2 x USB3.0 4 x USB2.0	4DI, 4DO	4	-	1 x M.2 Key-E 1 x M.2 Key-B 1 x M.2 Key-M	1	2	0 ~ 60°C (32 ~ 140°F)
AFE-R761-U0B1	Rockchip RK3588	8GB	64GB	1	4	2 x USB3.0 4 x USB2.0	4DI, 4DO	4	4 x AHD	1 x M.2 Key-E 1 x M.2 Key-B 1 x M.2 Key-M	1	2	0 ~ 60°C (32 ~ 140°F)
AFE-R761-U0C1	Rockchip RK3588	8GB	64GB	1	4	2 x USB3.0 4 x USB2.0	4DI, 4DO	4	4 x GMSL	1 x M.2 Key-E 1 x M.2 Key-B 1 x M.2 Key-M	1	2	0 ~ 60°C (32 ~ 140°F)

**Packing List**

Part Number	Description
AFE-R761	AFE-R761 AMR Control System

**Optional Accessories**

Part Number	Description
96PSA-A60W24T2-3	AC to DC adapter, DC 24V 60W, 0 ~ 40°C
1702002605	Power cord 3P EU 10A 250V 183cm
1702031801	Power cord 3P UK 10A 250V 183cm
1702002600	Power cord 3P UL 10A 125V 180cm
1700000237	Power cord 3P PSE 183cm
1700009652	Power cord CCC 3P 10A 250V 183cm
199L000041S000	USB Bracket Nylon for fixing USB cable
1990040953S000-CM	Cable tie 120x2.5x1.1 Black Nylon for fixing USB cable

\* Please contact us to get suitable cellular module for your region.