

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 8GB LPDDR4 memory and 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 3.0 signal
- Supports Linux Debian12, Android14



Specifications

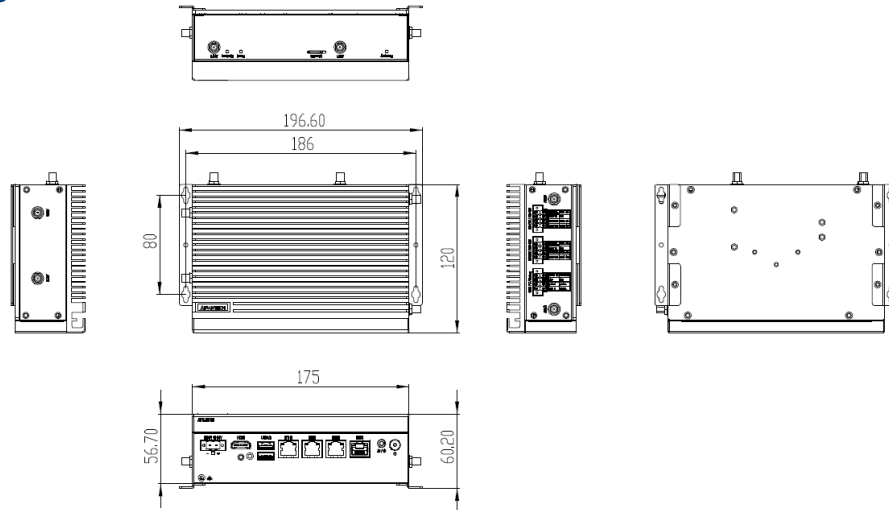
Model		AFE-R761-U0A1 AFE-R761-U1A1	AFE-R761-U1B1 AFE-R761-U2B1	AFE-R761-U1C1 AFE-R761-U2C1	AFE-R761-U0D1 AFE-R761-U1D1	
Processor	CPU	Rockchip RK3588/RK3588J Arm Quad Cortex-A76 2.4/2.0 GHz and Quad Cortex-A55 1.8/1.3 GHz				
	NPU	Up to 6 Tops. Supports: TensorFlow, Caffe, Tflite, Pytorch, Onnx NN, Android NN, etc.				
Memory	Technology	LPDDR4 2112MHz				
	Capacity	Onboard 8 GB LPDDR4, maximum supported is 32 GB				
	Flash	64 GB eMMC NAND Flash for OS and boot loader				
Graphics	HDMI	1 x HDMI 2.0, up to 3821 x 2160 @30Hz				
	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: 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				
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	
	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 _{oc} isolation protection (terminal block) -Wet contact: Logic: 0-3V _{oc} (max);Logic 1: 10-30V _{oc} -Dry contact: Logic 0: Shorted to GND; Logic 1: Open (Default)			
	DO	-	4 x DO w 2500V _{oc} isolation protection (terminal block) - Output voltage: 5-30V _{oc} - Output capability Sink(NPN): 500mA per channel			
	GMSL	-	-	4/6 x GMSL via FAKRA	-	
	AHD	-	4/6 x AHD Via Wafer box		-	
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				
Expansion	Mini PCIe	-				
	SIM Slot	1 x Nano SIM slot				
	M.2 Socket	1 x E-Key 2230 (PCIe2.1, USB2.0) 1 x B-Key 3052 (SATA/PCIe*, USB3.0)		1 x E-Key 2230 (PCIe2.1, USB2.0) 1 x B-Key 3052 (SATA/PCIe*, USB3.0) 1 x M-Key 2242*/2280 (2 x PCIe3.0)		
Power	Power Supply Voltage	12-24V				
	Connector	2P Phoenix				
	Power Consumption	Typical (Idle mode) 5.65W@12V Max. (Full loading) 11.68W@12V				
Environment	Power Management	AT mode (Default), ATX mode				
	Operating Temperature	0 ~ 60°C/-40 ~ 70°C (with air flow 0.7m/s)				
	Operating Humidity	40°C, 95% relative humidity, non-condensing				
Mechanical	Dimensions (W x D)	175 x 120 x 56.7 mm				
Operating System		Linux Debian12 and Android14				
Certifications		CE EMC/FCC Class B/UKCA/IC/CCC				

*Note: Support by request.

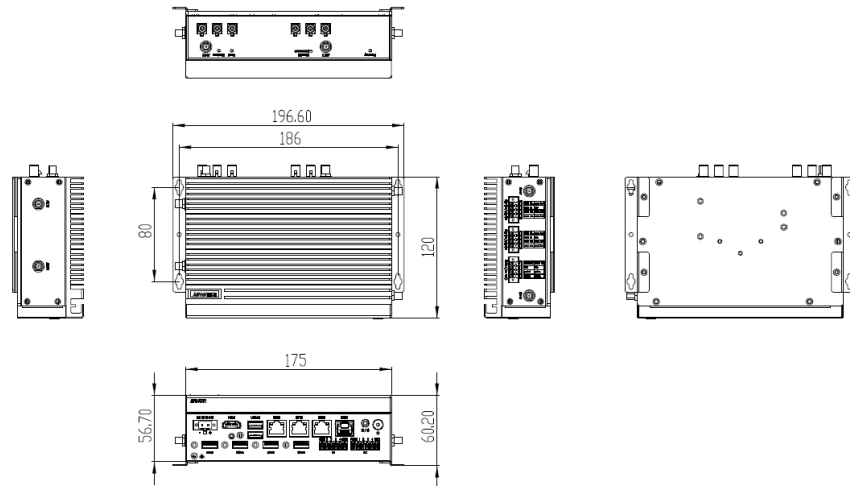
Dimensions

Unit: mm [inch]

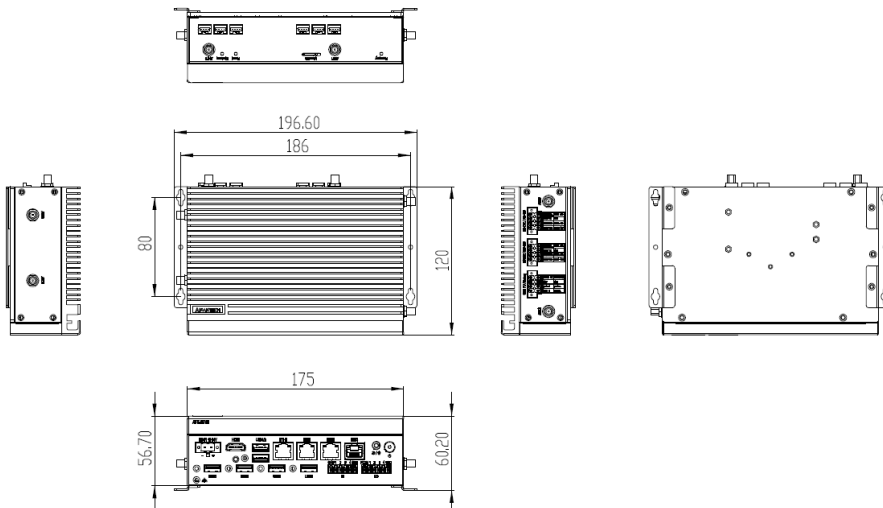
AFE-R761



AFE-R761 GMSL



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-U1A1	Rockchip RK3588J	8GB	64GB	1	4	2 x USB3.0	-	4	-	1 x M.2 Key-E 1 x M.2 Key-B	1	2	-40 ~ 70°C (-40 ~ 158°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-U1D1	Rockchip RK3588J	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	-40~70°C (-40 ~ 158°F)
AFE-R761-U1B1	Rockchip RK3588J	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	-40 ~ 70°C (-40 ~ 158°F)
AFE-R761-U2B1	Rockchip RK3588J	8GB	64GB	1	4	2 x USB3.0 4 x USB2.0	4DI, 4DO	4	6 x AHD	1 x M.2 Key-E 1 x M.2 Key-B 1 x M.2 Key-M	1	2	-40 ~ 70°C (-40 ~ 158°F)
AFE-R761-U1C1	Rockchip RK3588J	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	-40 ~ 70°C (-40 ~ 158°F)
AFE-R761-U2C1	Rockchip RK3588J	8GB	64GB	1	4	2 x USB3.0 4 x USB2.0	4DI, 4DO	4	6 x GMSL	1 x M.2 Key-E 1 x M.2 Key-B 1 x M.2 Key-M	1	2	-40 ~ 70°C (-40 ~ 158°F)

Packing List

Part Number	Description
AFE-R761	AFE-R761 AMR Control System
1960099634N003	Wall Mount Bracket
Terminal Plug	1 x 2Pin, 3 x 2x4Pin Terminal Plug

Optional Accessories

Part Number	Description	Quantity
96PSA-A150W24T2-4	AC to DC adapter, DC 24V 150W, 0 ~ 40°C (For AFE-R761-UxB1, AFE-R761-UxC1)	1
96PSA-A60W24T2-3	AC to DC adapter, DC 24V 60W, 0 ~ 40°C	1
1702002605	Power cord 3P EU 10A 250V 183cm	1
1702031801	Power cord 3P UK 10A 250V 183cm	1
1702002600	Power cord 3P UL 10A 125V 180cm	1
1700000237	Power cord 3P PSE 183cm	1
1700009652	Power cord CCC 3P 10A 250V 183cm	1
199L000041S000	USB Bracket Nylon for fixing USB cable	1
1990040953S000-CM	Cable tie 120x2.5x1.1 Black Nylon for fixing USB cable	1
EWM-W179M201E	WiFi6+BT Module,M.2 KeyA/E, RTL8852BE, 0-70°C	1
1751000651-01	WLAN Ant. WiFi 6E SMA/M-R BLK L111.7mm IP54	2
1751000648-01	RF Cable SMA/F-R MHF4L/113 BLK L100mm	1
1751000621-01	WLAN Antenna Cable. SMA/F-R MHF4L/113 BLK L250mm, ANT1 on AFE-R761	1
968DD0342*	5G Module, RM520NGLAA-M20-SGASA M.2 Key-B	1
1750009372-01	Ant.SMA/M 90/180 5G BLK 167mm RG178	4
1751000633-01	Cable Ant. SMA/F MHF4L/113 BLK L200mm	2
1751000649-01	Cable Ant. SMA/F MHF4L/113 BLK L100mm	1
1751000624-01	Cable Ant. SMA/F MHF4L/113 BLK L250mm	1
968DD00443*	4G Module, EM05CNFD-128-SGAS M.2 Key-B	1
1750009372-01	Ant.SMA/M 90/180 5G BLK 167mm RG178	3
1751000633-01	Cable Ant. SMA/F MHF4L/113 BLK L150mm	2
1751000649-01	Cable Ant. SMA/F MHF4L/113 BLK L100mm	1
1960116712N000	5G Bracket for AFE-R761	1
1990029618N000	Thermal-Pad 39x29.5x1mm for 5G Bracket	1
1938030530	NUT D=6.5 B=5.5 H=2.3 M3 for 5G Bracket	2
1960116713N000	WiFi Bracket for AFE-R761	1
1990027162N010	Thermal Pad 19.5X19.5X1.5mm for WiFi Bracket	1
1938030530	NUT D=6.5 B=5.5 H=2.3 M3 for WiFi Bracket	2
EAI-1200-00A1	M.2 key B+M 1x Hailo-8 AI module	1
1990010451N000	Thermal Pad 15X15X2mm for Hailo-8 AI module	1

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