

AFE-R770

Intel® 12th&13th Gen Core™ i3/i5/i7/i9 AMR control system

Preliminary



Features

- Support Intel® 12th&13th&14th Gen. Core™ i3/i5/i7/i9 processor
- Dedicate I/Os for AMR : 4x 2.5GbE, 4x USB3.2, 2x CANBus, 4x RS-232/422/485, 16bit DIO
- 9-36V_{DC} with switchable Ignition/PC power on mode
- Contact 8KV, air 15KV ESD protection
- Wide operating temp from -20~70 °C
- Supports Ubuntu 22.04, Advantech Robotic Development SDK



WISE-DeviceOn SUSI API



Specifications

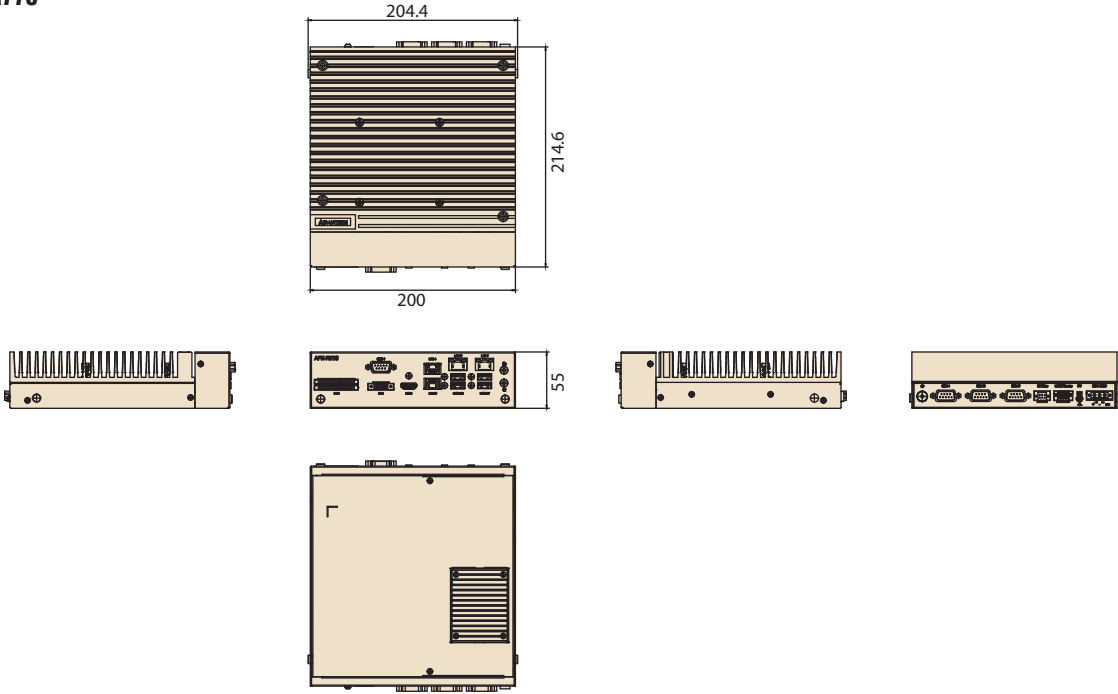
		i9-13900TE	i9-12900TE	i7-13700TE	i7-12700TE	i5-13500TE	i5-12500TE	i3-13100TE	i3-12100TE	
Processor System	CPU	i9-13900TE	i9-12900TE	i7-13700TE	i7-12700TE	i5-13500TE	i5-12500TE	i3-13100TE	i3-12100TE	
	Frequency	1.0-5.0GHz	1.0-4.8GHz	1.1-4.8GHz	1.0-4.6GHz	1.1-4.5GHz	1.9-4.3GHz	2.4-4.1GHz	2.1-4.0GHz	
	L3 Cache	36MB	30MB	30MB	25MB	24MB	18MB	12MB	12MB	
	Cores	24	16	16	12	14	6	4	4	
	TDP	35W	35W	35W	35W	35W	35W	35W	35W	
	Chipset	H610E/R680E								
	BIOS	AMI EFI 256Mbit								
Memory	Technology	DDR5 4800 MHz								
	Max. Capacity	64 GB								
	Socket	2 x 262-pin SO-DIMM								
Graphics	Chipset	Intel® UHD Graphics 770								
	Graphic Engine	DirectX 12, OpenGL 4.5 HW Encode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, JPEG/MJPEG and VP8. HW Decode: H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2, VC-1/WMV9, JPEG/MJPEG, VP8 and VP9								
	HDMI	1 HDMI port, HDMI 1.4 for HD video playback, 4096x2160@60Hz								
	Ethernet	LAN1/2/3/4 10/100/1000/2500 Mbps Intel i226-LM GbE, support Wake On Lan								
Audio	Interface	Realtek ALC888S, High Definition Audio, Line-out and Mic-in								
Others	Watch dog Timer	255-level timer interval, setup by software								
	TPM	fTPM by default, Infineon SLB9672XU2.0 (support by project)								
I/O Interface	Serial Port	4 x RS-232/422/485 port with auto flow control (COM2 with 5V/12V, COM3 isolated)								
	USB	4 x USB 3.2 (Power up to 1.5A for each port)								
	DIO	16bit isolated DIO								
	Remote switch	Power switch/Reset/WDT/Power LED/SATA LED								
	CANBus	2 CANBus								
Expansions	M.2 E Key	1x M.2 2230								
	M.2 B Key (Share with storage)	1x M.2 2280, 3042/3052 support by extend bracket								
	IMU Socket	Support IMU/ VRU/ AHRS (Optional)								
Storage	NVME+SATA	1x M.2 M key (PCIex4+SATA), 1x M.2 B key (PCIex2+SATA)								
Software Support	Microsoft Windows	Windows 10								
	Linux	Ubuntu 22.04 (Others support by project)								
	ROS2	Ready by Advantech Robotics Development SDK								
Power Requirements	Power Type	Switchable Ignition Power on (V mode) and PC power on (P mode)								
	Power Input Voltage	9-36V _{DC}								
	Power Source	DC Battery or AC to DC 150W adapter (Optional)								
Power Consumption (CPU/Memory Only)	Typical	21.2W								
	Max.	40.4W								
Mechanical	Construction	Aluminum housing								
	Mounting	Desk mounting, Wall mounting, DIN-Rail mounting								
	Dimensions (W x H x D)	200 x 55 x 215 mm								
	Weight	TBD								
Environment	Operating Temperature	Up to 35W processor with extended temp peripherals: -20 ~ 65° C with 0.7m/s air flow Up to 35W processor with extended temp peripherals and system fan: -20~ 70° C with 0.7m/s air flow								
	Storage Temperature	-40 ~ 85° C								
	Relative Humidity	95% @ 40° C (non-condensing)								
	Vibration During Operation	3 Grms, IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis.								
	Shock During Operation	30 G, IEC 60068-2-27, half sine, 11 ms duration								
	EMC	Heavy industrial certificates, CE/FCC Class B, UKCA, CCC, BSMI								
Safety	CB 61010, UL 61010, UKCA, CCC, BSMI									

#1 SIM holder and M.2 slot are hardware interfaces for wireless communication integration only. System level RF certification is not available.

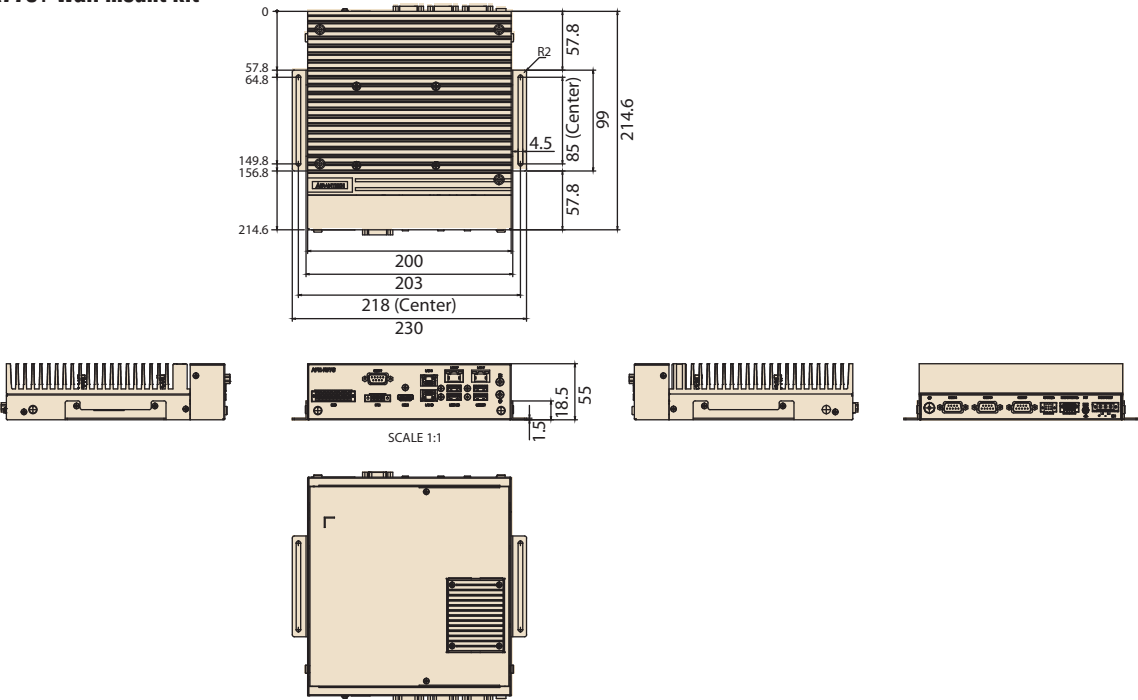
Dimensions

Unit: mm

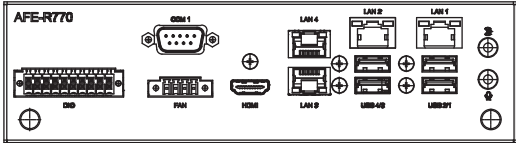
AFE-R770



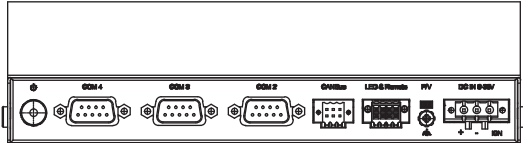
AFE-R770+ Wall mount kit



Front Panel I/O



Real Panel I/O



Ordering Information

Part No.	PCH	CPU	DDR5	Gbe	HDMI	CANBus	RS-232/422/485	USB	M.2 B key	SIM	M.2 E Key	M.2 M key	DIO	Made in
AFE-R770-00A1	H610E	LGA1700 Socket Type	Up to 64GB	4	1	2	4	4	1	1	1	1	16bit	China
AFE-R770-00A1U	R680E	LGA1700 Socket Type	Up to 64GB	4	1	2	4	4	1	1	1	1	16bit	Taiwan

Note: CPU/Memory/Storage and operating system bundled by request.

Packing List

Part Number	Description
-	AFE-R770 Unit
-	User Manual (Simplified Chinese)
-	China RoHS
-	Mounting kit
36WSWPDOBUND11	WISE-DeviceOn
36WSWPDOB0211	Trellix Application Control Lite/Acronis Backup 11.7 for Windows PC

Default SKU Option Items

Optional Item for Default SKU

Part Number	Description
96PSA-A150W24T2-4	AC to DC adapter, DC 24V 150W, 0 ~ 40 °C
1702002600	Power cable 3-pin 183cm, USA type
1702002605	Power cable 3-pin 183cm, EU type
1702031801	Power cable 3-pin 183cm, UK type
1700000237	Power cable, 3-Pin 183cm, PSE type

Embedded OS

Part Number	Description
TBD	WIN10 IoT LTSC 21H2 64bit for i7/i9
TBD	WIN10 IoT LTSC 21H2 64bit for i3/i5
TBD	Ubuntu 22.04