

## ARM Industrial Computer

## AIC-550



### Features

- Fully programmable Linux environment
- Quad core ARM Cortex A55, 64bit
- Up to 8GB RAM memory
- SSD (optional)
- 4G LTE, GSM or 5G (optional)
- Two 1Gbps Ethernet ports
- WiFi and Bluetooth (optional)
- GNSS
- Two opto-isolated RS485
- CAN (depending on the model)
- One USB 3.0 and two USB 2.0 hosts
- Wide power supply range
- Aluminium enclosure
- DIN rail mounting

The AIC-550 is multipurpose Industrial Computer with inbuilt M.2 SSD storage for data. It is based on quad core ARM Cortex-A55 64bit processor. The computer has 4G LTE/GPRS or 5G cellular modem and optional WiFi or Bluetooth.

This computer in addition to industrial use, due audio out it can be used as a media and video controller in vehicles and at bus stops, railway stations and as information kiosk controller. It also has a USB type-C port for debugging.

Description	Specification
<b>Processor</b>	
<b>Type</b>	ARM Cortex-A55, 64bits
<b>Number of cores</b>	Quad core
<b>Clock</b>	Up to 1.8GHz
<b>RAM memory</b>	
<b>Memory size</b>	2/4/8GB
<b>Memory speed</b>	TBD
<b>Storage</b>	
<b>Internal memory</b>	16/32/64/128GB eMMC
<b>SD card</b>	One microSD card slot (combine with SIM slot)
<b>SSD</b>	One M.2 SATA SSD drive (optional)

Description	Specification
<b>USB</b>	
<b>USB port number</b>	3
<b>USB type</b>	One USB 3.0 and two USB 2.0 hosts
<b>Connector</b>	USB type A
<b>Protection</b>	IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge)
<b>USB overload</b>	500mA
<b>Serial RS485</b>	
<b>Port number</b>	2
<b>Interface Type</b>	RS485
<b>Data Rate</b>	1200bps to 921600bps
<b>Signals</b>	A, B and GND

Description	Specification
<b>Connector</b>	Pluggable push-in
<b>Protection</b>	Opto-isolated 1.5kV RMS per UL 1577
	IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge)
	Fail-safe receiver for bus open, short and idle
Ethernet	
<b>Number</b>	2
<b>Type</b>	2x 10/100/1000Mbps
<b>Ethernet connector</b>	RJ45 with LED indicators
WiFi <sup>1</sup>	
<b>WL3</b>	2.4Ghz and 5Ghz band
<b>WL4</b>	2.4Ghz
<b>WL5</b>	2.4Ghz
<b>Antenna connector</b>	SMA female
Bluetooth <sup>2</sup>	
<b>Bluetooth</b>	Only with WL1 and 2 WiFi module
Cellular modem <sup>3</sup>	
<b>Cellular bands</b>	Refer cellular specification chart
<b>SIM card</b>	2 x nanoSIM, tray to prevent cards falling out (hybrid SIM slot with micro SD)
	3V/1.8V
<b>Antenna connector</b>	SMA female
GNSS <sup>4</sup>	
<b>GNSS systems</b>	GPS, BDS, Galileo, GLONASS, QZSS
<b>Antenna connector</b>	SMA female
Digital input	
<b>Input number</b>	1
<b>Input type</b>	Opto-isolated, but common ground with power supply
<b>Connector</b>	Pluggable push-in
<b>Max <math>v_{in}</math></b>	30V DC
<b>Logic 1 voltage</b>	3.5V to max $v_{in}$
CAN	
<b>Port number</b>	1
<b>Interface type</b>	CAN
<b>Data Rate</b>	TBD
<b>Signals</b>	L, H and GND
<b>Connector</b>	Pluggable push-in
<b>Protection</b>	Surge

1 WiFi is optional. There are 3 different options of WiFi card offered by Atreyo. Refer ordering chart and WiFi card selection chart.

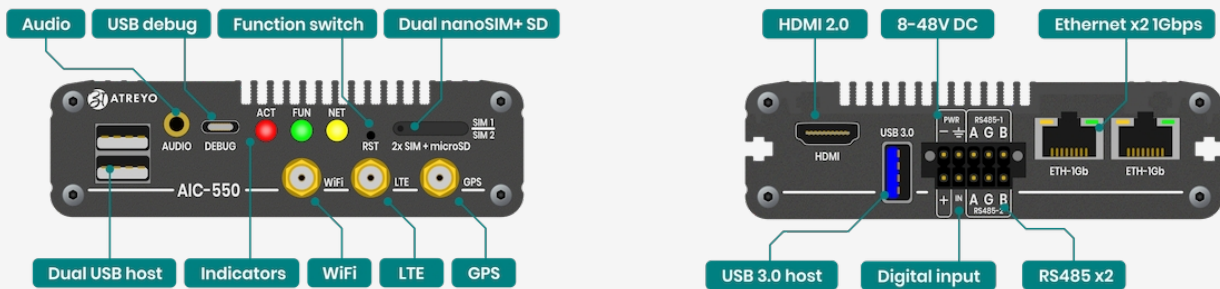
2 Bluetooth is on WiFi card module. Available only with selected WiFi modules.

3 Apply to LT models. Refer ordering and cellular specification chart.

4 Apply to LT models. Refer ordering and cellular specification chart.

Description	Specification
System function indicators	
<b>Indicators</b>	ACT – activity
	Cellular modem
	Function 1 (user configurable)
	Function 2 (user configurable)
Function 3 (user configurable)	
Debug and development	
<b>System debug</b>	C-type USB to UART inbuilt
<b>Reset</b>	Reset push button
<b>Recover</b>	Recover and system load push button
System	
<b>Operating systems</b>	Linux Debian, Ubuntu, OpenWRT OpenWRT
<b>Booting source</b>	Inbuilt eMMC memory
Application	
<b>Language support</b>	C, Python, Java and all supported by Linux
<b>Local logic apps</b>	NodeRED
	Any other custom app
<b>Web interface</b>	Luci in OpenWRT
	Webmin in Debian
	Any other custom made
Power supply	
<b>Power supply</b>	8-57V DC
<b>Power consumption</b>	Average TBD
<b>Connector</b>	Pluggable push-in (+, -, earthing)
<b>Protection</b>	Reverse polarity, over voltage
Physical characteristics	
<b>Installation</b>	DIN-Rail, clamp
<b>Housing</b>	Aluminium
<b>Weight</b>	TBD approx
<b>Dimensions</b>	114mm x 32mm x 104mm
Environmental specification	
<b>Operating temp.</b>	-20 ~ 85°C (-4 ~ 185°F)
<b>Storage temp.</b>	-40 ~ 85°C (-40 ~ 185°F)
<b>Ambient RH</b>	5% ~ 95% (non-condensing)

## Computer



## Standard model list

Standard computer models that are in regular production. If you have requirements for a different configuration, then select a specific specification from the table "Table with model structure for ordering". In the standard model, the gateway has 4GB RAM, 32GB eMMC, 2 RS485.

Model	Hardware Options								More information
	Memory	RAM	Cellular Network				SSD	WiFi	
	GB	GB	GPRS	3G	4G	5G			
AIC-550	32GB	4					0		Without cellular
AIC-550-32G-4G-LT-EU-R2-DEB	32GB	4	✓		✓		0		For India and EU
AIC-550-32G-4G-IS-128-LT-EU-R2-DEB	32GB	4	✓		✓		128		For India and EU
AIC-550-32G-4G-IS-128-LT-EU-WL4-R2-DEB	32GB	4	✓	✓	✓		128	✓	Global model
AIC-550-32G-4G-IS-128-LT-GL-WL4-R2-DEB	32GB	4	✓	✓	✓		128	✓	Global model

## WiFi and Bluetooth selection chart

Not all WiFi cards have all features in all operating systems offered. Therefore, before choosing a card, read the information on the documentation page or contact Atreyo.

WiFi option	WiFi specification		Bluetooth	Bluetooth version
<b>WL3</b>	Standard	802.11b/g/n		
	Band	2.4GHz		
	Speed	54Mbps and 150Mbps for IEEE 802.11g and 802.11n OFDM		
	2.4GHz:	ch1 ~ ch14		
	2.4GHz:	ch1 ~ ch14		
<b>WL4</b>	Standard	802.11b/g/n AP/ STA/ AP + STA		
	Band	2.4GHz and 5Ghz		
	Modulation	CCK/ DBPSK/ DQPSK/ BPSK/ QPSK/ 16QAM/ 64QAM		

WiFi option		WiFi specification	Bluetooth	Bluetooth version
	Speed	802.11a 54 Mbps 802.11b 11 Mbps 802.11g 54 Mbps 802.11n 150 Mbps		
<b>WL5</b>	Standard	IEEE 802.11 a/b/g/n AP/ STA	✓	V5.2
	Band	2.4GHz and 5GHz		
	Channel bandwidth	20 MHz/ 40 MHz		
	Speed	802.11a 54 Mbps 802.11b 11 Mbps 802.11g 54 Mbps 802.11n 150 Mbps		
	5.0GHz:	36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 130, 132, 136, 140, 149, 153, 157, 161, 165		

### Cellular modem specification of EU (Europe and India) version

EU version of gateway	Cellular network interface details	
<b>Band LTE FTD</b>	B1/3/5/7/8/20/28	
<b>Band LTE TDD</b>	B38/ 40/ 41	
<b>Band GSM</b>	B2/3/5/8 (900/1800MHz)	
<b>GPRS slot</b>	Multi-slot class 12/10	
<b>Bandwidth</b>	1.4/ 3/ 5/ 10/ 15/ 20 MHz	
<b>Output power</b>	LTE-FDD	Class 3 (23 dBm ±2 dB)
	LTE-TDD	Class 3 (23 dBm ±2 dB)
	EGSM900	Class 4 (33 dBm ±2 dB)
	DCS1800	Class 1 (30 dBm ±2 dB)
<b>Maximum data rate</b>	LTE-FDD	10 Mbps (DL)/ 5 Mbps (UL)
	LTE-TDD	8.96 Mbps (DL)/ 3.1 Mbps (UL)
	GSM	85.6 kbps (DL)/ 85.6 kbps (UL)
<b>Power</b>	Compliant to GSM phase 2/2+	
	– Class 4 (2 W 900MHz)	
	– Class 1 (1 W 1800MHz)	

## Cellular modem specification of GL (global) version

GL version of gateway	Cellular network interface details	
<b>Band LTE FTD</b>	B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28	
<b>Band LTE TDD</b>	B38/B39/B40/B41	
<b>Band WCDMA</b>	B1/B2/B4/B5/B6/B8/B19	
<b>Band GSM</b>	B2/B3/B5/B8	
<b>Output power</b>	GSM850	Class 4 (33 dBm $\pm$ 2 dB)
	EGSM900	Class 4 (33 dBm $\pm$ 2 dB)
	DCS1800	Class 1 (30 dBm $\pm$ 2 dB)
	PCS1900	Class 1 (30 dBm $\pm$ 2 dB)
	GSM850 8-PSK	Class E2 (27 dBm $\pm$ 3 dB)
	EGSM900 8-PSK	Class E2 (27 dBm $\pm$ 3 dB)
	DCS1800 8-PSK	Class E2 (26 dBm $\pm$ 3 dB)
	PCS1900 8-PSK	Class E2 (26 dBm $\pm$ 3 dB)
	WCDMA	Class 3 (24 dBm $\pm$ 1/-3 dB)
	LTE-FDD	Class 3 (23 dBm $\pm$ 2 dB)
	LTE-TDD	Class 3 (23 dBm $\pm$ 2 dB)
<b>Maximum data rate LTE</b>	LTE-FDD	150 Mbps (DL)/Max. 50 Mbps (UL)
	LTE-TDD	130 Mbps (DL)/Max. 30 Mbps (UL)
<b>Maximum data rate UMTS</b>	DC-HSDPA	42 Mbps (DL)
	HSUPA	5.76 Mbps (UL)
	WCDMA	384 kbps (DL)/Max. 384 kbps (UL)
<b>Maximum data rate GSM</b>	EDGE	296 kbps (DL)/Max. 236.8 kbps (UL)
	GPRS	107 kbps (DL)/Max. 85.6 kbps (UL)

## Table with model structure for ordering

Model Structure	
<b>Model example</b>	<b>AIC-550- 32G- 4G- IS- 128- LT- EU- WL4-R21- CA- DEB</b>
<b>Base model name</b>	
AIC-550	
<b>Internal memory</b>	
8G, 16G, 32G, 64G (eMMC)	
<b>RAM memory</b>	
2G, 4G, 8G (size of RAM in GB)	
<b>Internal storage (SSD)</b>	
IS (internal storage M.2 SSD)	
<b>SSD size</b>	
128G, 256G, 480G, 1T, 2T	
<b>Cellular modem</b>	
LT, 5G (cellular modem)	
<b>Cellular regional information</b>	
GL (global cellular modem)	
EU (cellular modem for India and Europe)	
<b>WiFi version</b>	
WL3 /WL4/WL5/BT1 (refer WiFi/BT selection chart)	
<b>RS485 port number</b>	
R2 + number of ports (1 if CAN is available or 1 or 2 if not)	
<b>CAN</b>	
CA (only one CAN port)	
<b>Pre-installed OS</b>	
DEB – Debian	
WRT – OpenWRT	
UBU – Ubuntu	

## Standard package list

1	AIC-550 ARM Industrial Computer	
2	Cellular antenna <sup>1</sup>	Magnet with 3m cable
3	WiFi antenna (Only with WiFi models)	Magnet with 1.5m cable
4	GNSS antenna	Magnet with 3m cable
5	DIN rail clamp with screws	
6	SIM tray pin	
7 d	female 10 pin main connector without cable	

**Please note: The set does not include a power supply.**

<sup>1</sup> Models without a cellular modem will also not include cellular and GNSS antennas.

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