

TECHNICAL SPECIFICATION

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

Description	Specification
USB	
USB port number	3
USB type	One USB 3.0 two USB 2.0 hosts
Connector	USB type A
Protection	IEC 61000-4-2 level 4: – 15 kV (air discharge) – 8 kV (contact discharge)
USB overload	500mA

Description	Specification
Serial RS485	
Port number	2
Interface Type	RS485
Data Rate	4800bps to 19200bps
Connector	Pluggable push-in
Protection	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	
Number	2
Type	2x 10/100/1000Mbps
Ethernet connector	RJ45 with LED indicators
WiFi¹	
WL3	2.4Ghz and 5Ghz band
WL4	2.4Ghz
WL5	2.4Ghz
Antenna connector	SMA female
Bluetooth²	
Bluetooth	Only with WL1 and 2 WiFi module
Cellular modem³	
Cellular bands	Refer cellular specification chart
SIM card	2 x nanoSIM, tray to prevent cards falling out (hybrid SIM slot with micro SD)
	3V/1.8V
Antenna connector	SMA female
GNSS⁴	
GNSS systems	GPS, BDS, Galileo, GLONASS, QZSS
Antenna connector	SMA female
Digital input	
Input number	1
Input type	Opto-isolated, but common ground with power supply
Connector	Pluggable push-in
Max V_{in}	30V DC
Logic 1 voltage	3.5V to max V_{in}
CAN	
Port number	1

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.

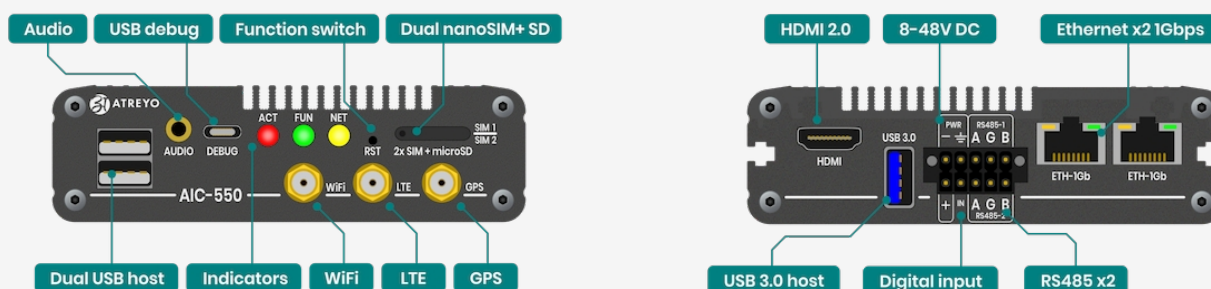
3 Apply to LT models. Refer ordering and cellular specification chart.

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

Description	Specification
Interface type	CAN
Data Rate	TBD
Signals	L, H and GND
Connector	Pluggable push-in
Protection	Surge
System function indicators	
Indicators	ACT – activity
	Cellular modem
	Function 1 (user configurable)
	Function 2 (user configurable)
	Function 3 (user configurable)
Debug and development	
System debug	C-type USB to UART inbuilt
Reset	Reset push button
Recover	Recover and system load push button
System	
Operating systems	Linux Debian, Ubuntu, OpenWRT
	OpenWRT
Booting source	Inbuilt eMMC memory
Application	
Language support	C, Python, Java and all supported by Linux
Local logic apps	NodeRED
	Any other custom app
Web interface	Luci in OpenWRT
	Webmin in Debian
	Any other custom made
Power supply	
Power supply	8-57V DC
Power consumption	Average TBD
Connector	Pluggable push-in (+, -, earthing)
Protection	Reverse polarity, over voltage
Physical characteristics	
Installation	DIN-Rail, clamp
Housing	Aluminium
Weight	TBD approx
Dimensions	114mm x 32mm x 104mm
Environmental specification	
Operating temp.	-20 ~ 65°C (-4 ~ 185°F) ⁵
Storage temp.	-40 ~ 85°C (-40 ~ 185°F)
Ambient RH	5% ~ 95% (non-condensing)

5 A wider temperature range is available upon request

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 computer has 4GB RAM, 64GB eMMC, 2 x RS485.

Model	Hardware Options								More information
	Memory	RAM	Cellular Network				SSD	WiFi	
	GB	GB	GPRS	3G	4G	5G		i	
AIC-550-64G-4G-R42-DEB	64GB	4					0		Without cellular
AIC-550-64G-4G-LT-EU-R42-DEB	64GB	4	✓		✓		0		For India and EU
AIC-550-64G-4G-IS-128-LT-EU-R42-DEB	64GB	4	✓		✓		128		For India and EU
AIC-550-64G-4G-IS-128-LT-EU-WL4-R42-DEB	64GB	4	✓	✓	✓		128	✓	For India and EU
AIC-550-64G-4G-IS-128-LT-GL-WL4-R42-DEB	64GB	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
WL3	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		
WL4	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		
WL5	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 computer		Cellular network interface details	
Band LTE FTD	B1/3/5/7/8/20/28		
Band LTE TDD	B38/ 40/ 41		
Band GSM	B2/3/5/8 (900/1800MHz)		
GPRS slot	Multi-slot class 12/10		
Bandwidth	1.4/ 3/ 5/ 10/ 15/ 20 MHz		
Output power	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)	
Maximum data rate	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)	
Power	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 computer		Cellular network interface details	
Band LTE FTD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28		
Band LTE TDD	B38/B39/B40/B41		
Band WCDMA	B1/B2/B4/B5/B6/B8/B19		
Band GSM	B2/B3/B5/B8		
Output power	GSM850	Class 4 (33 dBm ±2 dB)	
	EGSM900	Class 4 (33 dBm ±2 dB)	
	DCS1800	Class 1 (30 dBm ±2 dB)	
	PCS1900	Class 1 (30 dBm ±2 dB)	
	GSM850 8-PSK	Class E2 (27 dBm ±3 dB)	
	EGSM900 8-PSK	Class E2 (27 dBm ±3 dB)	
	DCS1800 8-PSK	Class E2 (26 dBm ±3 dB)	
	PCS1900 8-PSK	Class E2 (26 dBm ±3 dB)	
	WCDMA	Class 3 (24 dBm +1/-3 dB)	
	LTE-FDD	Class 3 (23 dBm ±2 dB)	
	LTE-TDD	Class 3 (23 dBm ±2 dB)	
Maximum data rate LTE	LTE-FDD	150 Mbps (DL)/Max. 50 Mbps (UL)	
	LTE-TDD	130 Mbps (DL)/Max. 30 Mbps (UL)	
Maximum data rate UMTS	DC-HSDPA	42 Mbps (DL)	
	HSUPA	5.76 Mbps (UL)	
	WCDMA	384 kbps (DL)/Max. 384 kbps (UL)	
Maximum data rate GSM	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									
Model example	AIC-550- 32G- 4G- IS- 128- LT- EU- WL4-R41- CA- DEB								
Base model name									
AIC-550									
Internal memory									
8G, 16G, 32G, 64G (eMMC)									
RAM memory									
2G, 4G, 8G (size of RAM in GB)									
Internal storage (SSD)									
IS (internal storage M.2 SSD)									
SSD size									
128G, 256G, 480G, 1T, 2T									
Cellular modem									
LT, 5G (cellular modem)									
Cellular regional information									
GL (global cellular modem)									
EU (cellular modem for India and Europe)									
WiFi version									
WL3 /WL4/WL5/BT1 (refer WiFi/BT selection chart)									
RS485 port number									
R4 + number of ports (1 if CAN is available or 1 or 2 if not)									
CAN									
CA (only one CAN port)									
Pre-installed OS									
DEB – Debian									
WRT – OpenWRT									
UBU – Ubuntu									

Standard package list

- | | | |
|-----|--|------------------------|
| 1 | AIC-550 ARM Industrial Computer | |
| 2 | Cellular antenna ¹ | 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.

¹ Models without a cellular modem will also not include cellular and GNSS antennas.

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**Atreyo Research
& Development Pvt. Ltd.**

**+91 9727741417
info@atreyo.in**

414, Sunrise Mall, Mansi Circle,
Ahmedabad, Gujarat, India