USER MANUAL

VIA ARTiGO A5000

Fanless ultra-compact system with MediaTek Genio 700 Octa-Core processor for Edge AI applications

1.00-12092024

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This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

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Notice 3

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- Do not attempt to force open the battery.
- Do not discard used batteries with regular trash.
- Discard used batteries according to local regulations.

Safety Precautions

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- All cautions and warnings on the equipment should be noted.
- Keep this equipment away from humidity.
- Put this equipment on a reliable flat surface before setting it up.
- Check the voltage of the power source and adjust to 110/220V before connecting the equipment to the power inlet.
- Do not place the power cord where people will step on it.
- Always unplug the power cord before inserting any add-on card or system.
- If any of the following situations arise, get the equipment checked by authorized service personnel:
  - The power cord or plug is damaged.
  - Liquid has entered into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment is faulty or you cannot get it work according to User's Manual.
  - The equipment has been dropped and damaged.
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- Do not leave this equipment in extreme temperatures or in a storage temperature above 60°C (140°F). The equipment may be damaged.
- Do not leave this equipment in direct sunlight.
- Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- Do not place anything over the power cord.
- Do not cover the ventilation holes. The openings on the enclosure protect the equipment from overheating.

Box Contents

- VIA ARTiGO A5000 system
- 12V 6.67A AC-to-DC adapter
- Power cord (Japan type)

Ordering Information

Part Number	SoC Frequency	Description
ATG-A5000-LE08A0	MediaTek Genio 700 Octa-Core SoC @ 2.2GHz/2.0GHz	VIA ARTiGO A5000 system with 2.2/2.0GHz MediaTek Genio 700 Octa-Core SoC, 8GB LPDDR4X DRAM, 16GB eMMC, HDMI, LVDS, AHD camera jack, GLAN, 2 USB 3.1, Micro USB 2.0, Audio jack, Wi-Fi 6, MicroSD card slot, 12V DC-in
ATG-A5000-LE48A0 (for Japan only)	MediaTek Genio 700 Octa-Core SoC @ 2.2GHz/2.0GHz	VIA ARTiGO A5000 system with 2.2/2.0GHz MediaTek Genio 700 Octa-Core SoC, 8GB LPDDR4X DRAM, 16GB eMMC, HDMI, LVDS, AHD camera jack, GLAN, 2 USB 3.1, Micro USB 2.0, Audio jack, Wi-Fi 6, 4G LTE, Nano SIM card slot, MicroSD card slot, 12V DC-in
ATG-A5000-LE58A0 (for Japan only)	MediaTek Genio 700 Octa-Core SoC @ 2.2GHz/2.0GHz	VIA ARTiGO A5000 system with 2.2/2.0GHz MediaTek Genio 700 Octa-Core SoC, 8GB LPDDR4X DRAM, 16GB eMMC, HDMI, LVDS, AHD camera jack, GLAN, 2 USB 3.1, Micro USB 2.0, Audio jack, Wi-Fi 6, 5G, Nano SIM card slot, MicroSD card slot, 12V DC-in

Optional Accessories

Camera Option

Part Number	Description
ATG-AX000-CM00A0	1080P AHD camera and cable

Display Options

Part Number	Description
ATG-AX000–LP15A0	15.6'' LVDS display panel with cable
ATG-AX000–LP05A0	5'' LVDS display and touch panel with cable

Development Option

Part Number	Description
10GNN00000020	Debug card and cable

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1. Product Overview

Accelerate your time-to-market for groundbreaking Edge AI applications with the high-performance **VIA ARTiGO A5000 Edge AI system**. Powered by the high-end and power-efficient MediaTek Genio 700 Octa-Core processor, the VIA ARTiGO A5000 system features 8GB of system memory and integrates advanced graphics, AI technology, networking, and I/O connectivity for smart and responsive home, commercial, industrial, and educational applications.

The VIA ARTiGO A5000 system's multimedia capabilities include express graphics processing, 4K hardware-accelerated H.265/H.264 video encoding and decoding, and support for HDMI displays, AHD cameras, and LVDS display/touchscreen panels. This makes it a powerful and reliable solution for a wide array of high-speed, low-power, and interactive multimedia applications.

Utilizing the capabilities of the MediaTek Genio 700 Edge AI platform, the VIA ARTiGO A5000 delivers exceptional edge AI processing and multimedia performance with outstanding power efficiency. The platform includes two "big core" ARM Cortex-A78 and six "efficiency core" Cortex-A55 CPUs, a highly capable ARM Mali-G57 GPU, 8GB of quad-channel LPDDR4X memory, and a fast plus efficient AI processor capable of running deep learning, neural network acceleration, and computer vision applications. The system's fanless design further enhances its power efficiency.

With compact dimensions of just 118.61mm (W) x 37.6mm (H) x 82.20mm (D), the VIA ARTiGO A5000 system offers a wide variety of I/O and network connectivity options, including a MicroSD card slot, LVDS port, 2.5mm AHD camera jack, HDMI port, two USB 3.1 ports, a Micro USB 2.0 OTG port, Gigabit Ethernet port, 3.5mm headphone jack, and a nano SIM card slot to enable 4G LTE or 5G connectivity. On-system storage is provided by 16GB of eMMC 5.1 flash memory.

1.1 Key Features

- Powerful and ultra-efficient 2.2GHz/2.0GHz MediaTek Genio 700 Octa-Core Advanced IoT SoC
- Highly responsive and low energy AI processor and audio DSP for demanding deep learning, neural network acceleration, computer vision, intelligent speech/audio applications
- On-system 16GB eMMC 5.1 storage and 8GB quad-channel LPDDR4X system memory
- Supports hardware-accelerated H.265/H.264 4K video decoding and encoding
- HDMI display and LVDS display/touch panel support
- AHD camera support
- Gigabit Ethernet connectivity
- Nano SIM card slot to enable 4G LTE or 5G connectivity
  (Part numbers ATG-A5000-LE48A0 and ATG-A5000-LE58A0 for Japan only)
- Optional dual-band Wi-Fi 6 support
- Supports Android 13, Yocto 4.0, and Debian 12 operating systems

1.2 Product Specifications

Processor

- MediaTek Genio 700 Octa-Core
  - Two Cortex-A78 cores @ 2.2GHz
  - Six Cortex-A55 cores @ 2.0GHz

System Memory

- 8GB LPDDR4X (2 x DRAM)

Storage

- 16GB eMMC flash memory

Graphics

- ARM Mali-G57 MC3 High Performance GPU
- Graphics engine supporting OpenGL® ES 1.1/2.0/3.2, OpenCL ES 2.2, and Vulkan 1.0/1.1 hardware acceleration
- Supports H.265 and H.264 video decoding up to 4K@75fps and video encoding up to 4K@30fps

AI Processor

- MediaTek Deep Learning Accelerator (MDLA) 3.0 and Cadence® Tensilica® Vision P6 NPU (supports up to 4 TOPS)

Audio

- Cadence® Tensilica® Vision HiFi 5 DSP
- MediaTek MT6365

Wireless Connectivity

- Part Number ATG-A5000-LE08A0: Dual-band Wi-Fi 6 only
- Part Number ATG-A5000-LE48A0 (for Japan only): Dual-band Wi-Fi 6 and 4G LTE
- Part Number ATG-A5000-LE58A0 (for Japan only): Dual-band Wi-Fi 6 and 5G

USB

- VIA VL817 USB 3.1 Gen1 Hub Controller

Video

- Integrated HDMI 2.0b Transmitter

Ethernet

- Realtek RTL8211F(I)-CG Gigabit Ethernet Transceiver

Onboard I/O

- 2 x Internal RF antennas for Wi-Fi

Front I/O

- 1 x Micro SD card slot

Right Panel I/O

- 1 x LVDS port for display and touch panels
- 1 x Download button
- 1 x 2.5mm AHD camera jack

Back I/O

- 1 x HDMI port
- 2 x USB 3.1 ports
- 1 x Micro USB 2.0 OTG port
- 1 x Gigabit Ethernet port
- 1 x 3.5mm headphone jack (supports Headphone-out and MIC-in)
- 1 Power button with LED
- 1 Reset button
- 1 12V DC-in power connector

Bottom Panel I/O

- Part Number ATG-A5000-LE08A0: 1 x UART connector for debugging
- Part Numbers ATG-A5000-LE48A0 and ATG-A5000-LE58A0 (for Japan only):
  - 1 x Nano SIM card slot
  - 1 x UART connector for debugging

Power Supply

- 1 x 12V DC-in

Operating System

- Android 13
- Yocto 4.0
- Debian 12

Operating Temperature

- -20°C ~ 60°C

Operating Humidity

- 0% ~ 95% (relative humidity ; non-condensing)

Mechanical Construction

- Metal or Plastic Chassis

Dimensions

- 118.61mm(W) x 37.6mm(H) x 82.20mm(D)

Compliance

- CE, FCC, BSMI, NCC, UKCA, TELEC

Notes:

1. As the operating temperature provided in the specifications is a result of testing performed in a testing chamber, a number of variables can influence this result. Please note that the working temperature may vary depending on the actual situation and environment. It is highly recommended to execute a solid testing program and take all variables into consideration when building the system. Please ensure that the system is stable under the required operating temperature in terms of the target application.

2. Please note that the lifespan of the onsystem eMMC memory chip may vary depending on the amount of access. More frequent and larger data access on the eMMC memory will shorten its lifespan. It is highly recommended to use a replaceable external storage (e.g., MicroSD card) for large data access.

1.3 Layout Diagram

Figure 01: VIA ARTiGO A5000 system front panel I/O

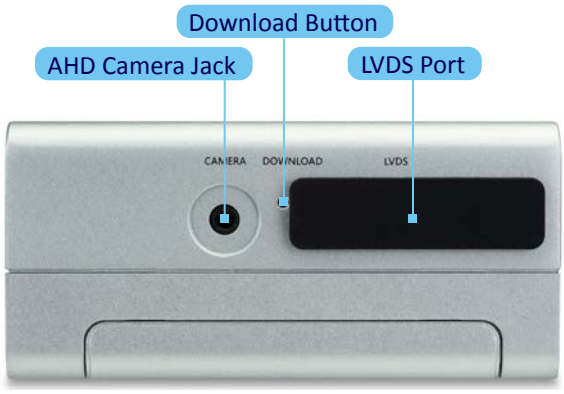

Figure 02: VIA ARTiGO A5000 system right panel I/O

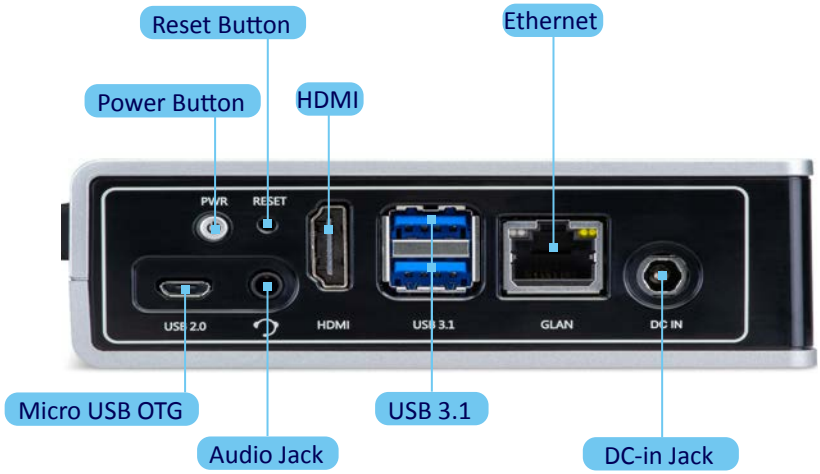

Figure 03: VIA ARTiGO A5000 system back panel I/O

Figure 04: VIA ARTiGO A5000 system bottom panel I/O

1.4 Product Dimensions

Figure 05: Dimensions of the VIA ARTiGO A5000 system (back panel I/O)

Figure 06: Dimensions of the VIA ARTiGO A5000 system (bottom panel I/O)

2. External I/O Pin Descriptions and Functionality

This chapter describes the wide selection of interfaces and frequently-used ports on the external I/O coastline of the VIA ARTiGO A5000 system.

2.1 MicroSD Slot

The VIA ARTiGO A5000 system is equipped with a MicroSD card slot on the front panel, which supports MicroSDXC SDR104 cards of storage capacities up to 2TB for data, pictures, video, audio, documents and other files. The pin-outs of the MicroSD card slot are as shown below.

Pin	Signal
1	SD_DAT2
2	SD_DAT3
3	SD_CMD
4	VDD
5	SD_CLK
6	GND
7	SD_DAT0
8	SD_DAT1

Table 01: MicroSD card slot pin-outs

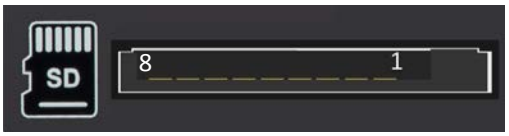

Figure 07: MicroSD card slot diagram

2.2 AHD Camera Jack

The VIA ARTiGO A5000 system is equipped with a 2.5mm Analog High Definition (AHD) camera jack on the right panel, which supports AHD cameras of resolutions up to 1080P. The diagram of the AHD camera jack is shown below.

Figure 08: AHD camera jack diagram

2.3 Download Button

The VIA ARTiGO A5000 system is equipped with a download button on the right panel. Connecting the Micro USB OTG to a PC and pressing the button enables the firmware download mode. The diagram of the download button is shown below.

Figure 09: Download button diagram

2.4 LVDS Port

The VIA ARTiGO A5000 system is equipped with a 40-pin LVDS port on the right panel, which supports LVDS displays and touchscreen panels of resolutions up to 1200P. The pinouts of the LVDS port are shown below.

Figure 10: LVDS port

LVDS							
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1 - 2	LVDS_VDD	13	LVDS2_B1	24	LVDS2_ACLK-	35	BL_CTRL
3 - 4	GND	14	LVDS2_A1	25	LVDS2_BCLK	36	USB_DM
5	LVDS2_B0-	15 - 16	GND	26	LVDS2_ACLK-	37	BL_EN
6	LVDS2_A0-	17	LVDS2_B2-	27 - 28	GND	38	USB_DP
7	LVDS2_B0	18	LVDS2_A2-	29	LVDS2_B3-	39	LVDS_Power
8	LVDS2_A0	19	LVDS2_B2	30	LVDS2_A3-	40	USB_VSYS_V50
9 - 10	GND	20	LVDS2_A2	31	LVDS2_B3		
11	LVDS2_B1-	21 - 22	GND	32	LVDS2_A3		
12	LVDS2_A1-	23	LVDS2_BCLK-	33 - 34	GND		

Table 02: LVDS port pinouts

2.5 Power Button with LED

The VIA ARTiGO A5000 system comes with a power button on the back panel, which features built-in power LED indicators, solid green for Power ON and solid red for Standby. The power button also supports System Suspend and Resume functions. The diagram of the power button with LED is shown below.

Figure 11: Power button diagram

Power Button behavior	
Power On/Off	Press the button for 2 seconds to power on. To power off, press the button for more than 8 seconds.
System Suspend/Resume	In powered on state, quickly press the power button once to suspend. In suspended state, quickly press once to resume.

Table 03: Power button behavior description

2.6 Reset Button

The VIA ARTiGO A5000 comes with a reset button on the back panel, which allows rebooting or resetting the system forcibly. The diagram of the reset button is shown below.

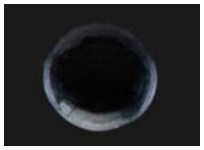

Figure 12: Reset button diagram

2.7 Micro USB 2.0 Port

The VIA ARTiGO A5000 system is equipped with a Micro USB 2.0 port on the back panel, to be used for OS image downloading. The pinouts of the Micro USB 2.0 port are shown below.

Pin	Signal
1	VBUS
2	D-
3	D+
4	ID
5	GND

Table 04: Micro USB 2.0 port pinouts

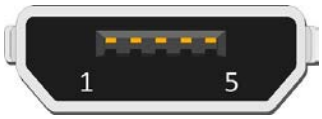

Figure 13: Micro USB 2.0 port

2.8 Audio Jack

The VIA ARTiGO A5000 system comes with a 3.5mm audio jack on the back panel, to be used for connecting an external speaker/headphone and microphone. The diagram of the headphone jack is shown below.

Figure 14: Audio jack diagram

2.9 HDMI® Port

The VIA ARTiGO A5000 system is equipped with an HDMI port on the back panel, which has a Type A receptacle connector. The port allows connection to High Definition video and digital audio using a single cable. The pinouts of the HDMI port are shown below.

Pin	Signal	Pin	Signal
1	D2+	11	GND
2	GND	12	CLK-
3	D2-	13	CEC
4	D1+	14	NC
5	GND	15	DDC_CLK
6	D1-	16	DDC_DATA
7	D0+	17	GND
8	GND	18	HDMI_5V
9	D0-	19	PLUG_DET
10	CLK+		

Table 05: HDMI port pinouts

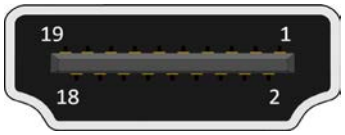

Figure 15: HDMI port diagram

2.10 USB 3.1 Ports

The VIA ARTiGO A5000 system is equipped with two USB-A 3.1 Gen 1 ports on the back panel, that have a maximum data transfer rate of up to 5Gbps and are compatible with USB 2.0 specifications. These USB ports provide complete Plug and Play and hot swap capability for external devices. The pinouts of the USB 3.1 ports are shown below.

Pin	Signal
1	VBUS
2	D-
3	D+
4	GND
5	SSRX-
6	SSRX+
7	GND_DRAIN
8	SSTX-
9	SSTX+

Table 06: USB 3.1 pinouts

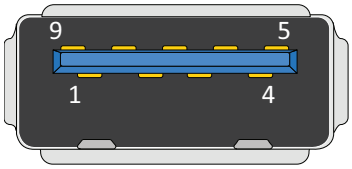

Figure 16: USB 3.1 diagram

2.11 Gigabit LAN Port

The VIA ARTiGO A5000 system comes with a Gigabit LAN port on the back panel, which uses an 8 Position and 8 Contact (8P8C) receptacle connector commonly known as RJ-45, fully compliant with the IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX), and 802.3ab (1000BASE-TX) standards. The pinouts of the Gigabit LAN ports are shown below.

LAN1	
Pin	**Signal**
1	MDIO0+
2	MDIO0-
3	MDIO1+
4	MDIO1-
5,6	Not used
7	MDIO2+
8	MDIO2-
9	MDIO3+
10	MDIO3-

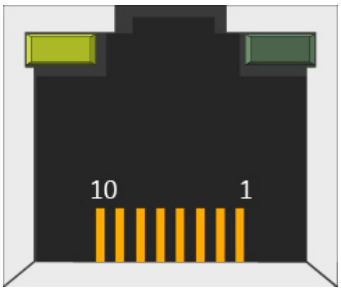

Figure 17: Gigabit LAN port diagram

Table 07: Gigabit LAN port pinouts

The Gigabit LAN port has two individual LED indicators to show its Active/Link status and Speed status.

	Link LED (Left LED on RJ-45 port)	**Active LED (Right LED on RJ-45 port)**
Link off	LED is off	LED is off
Speed_10Mbit	LED is off	Yellow flash
Speed_100Mbit	Green is on	Yellow flash
Speed_1000Mbit	Orange is on	Yellow flash

Table 08: Gigabit LAN port LED color definition

2.12 DC-in Jack

The VIA ARTiGO A5000 system comes with a DC-in jack on the back panel, to be used for supplying 12V-DC power from a compliant adapter. The diagram of the DC-in jack is shown below.

Figure 18: DC-in jack

3. Onboard Connectors

This chapter describes the onboard connectors in the VIA ARTiGO A5000 system.

3.1 Nano SIM Card Slot

The VIA ARTiGO A5000 systems of part numbers ATG-A5000-LE48A0 and ATG-A5000-LE58A0 (for Japan only) are equipped with a Nano SIM card slot, which can be accessed by opening the cover on the bottom panel. It supports 4G LTE and 5G SIM cards. The pinouts of the Nano SIM card slot are shown below.

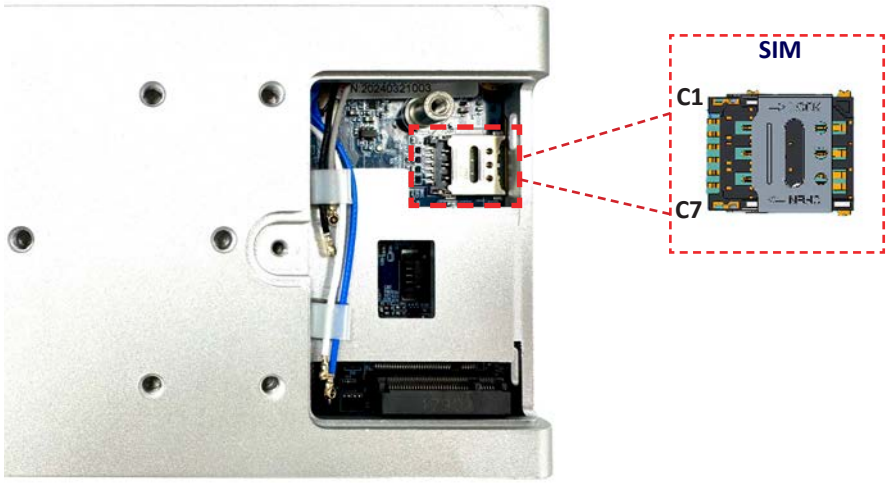

Figure 19: Nano SIM card slot

SIM1			
Pin	**Signal**	**Pin**	**Signal**
C1	nSIM_VCC	C2	nSIM_RST
C3	nSIM_CLK	C5	GND
C6	nSIM_VPP	C7	nSIM_DATA

Table 09: Nano SIM card slot pinouts

3.2 UART Debug Connector

The VIA ARTiGO A5000 system is equipped with a a UART debug connector, which can be accessed by opening the cover on the bottom panel. The connector's voltage level is 1.8V. The pinouts of UART debug connector are shown below.

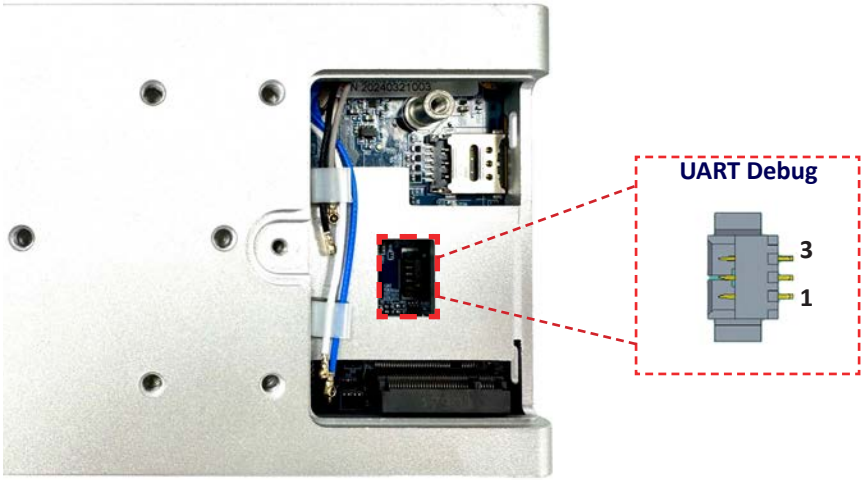

Figure 20: UART debug connector

J9	
Pin	**Signal**
1	GND
2	UART0_TXD
3	UART0_RXD

Table 10: UART debug connector pinouts

4. Hardware Installation

4.1 Inserting a MicroSD Card

The VIA ARTiGO A5000 system supports MicroSDXC SDR104 cards of storage capacities up to 2TB.

Note:
Absence of a MicroSD card will not affect the operation of the system, however data, pictures, video, audio, documents or other files cannot be saved.

To insert a MicroSD card into the VIA ARTiGO A5000 system, follow the steps below.

1. Prepare a MicroSD card with the required amount of storage and ensure it is formatted with the exFAT file system.
2. Locate the MicroSD card slot on the front panel of the VIA ARTiGO A5000 system, and use a TORX® T6H Precision Screwdriver to remove the screws from the cover on the MicroSD card slot.
3. Remove the cover, then ensure that the MicroSD card is facing upwards and gently push the MicroSD card in (using a fingernail or a pin) until a click sound is heard, indicating that it is fully inserted.

Note:
To remove the MicroSD card, use a fingernail or a pin to push it until a click is heard. The card can then be removed.

Figure 21: Inserting a MicroSD card

4. Place the cover back on the MicroSD card slot.
5. Insert the screws into the holes in the cover, then use the TORX® T6H Precision Screwdriver to tighten the screws.

4.2 Connecting the AC-to-DC Power Adapter

A 12V 6.67A AC-to-DC adapter and power cord is provided to supply power to the VIA ARTiGO A5000 system.

Note:
The stock power cord is for Japan only. Power cords for other regions are available upon request.

Follow the instructions below to provide power supply to the VIA ARTiGO A5000 system:

Step 1

Plug the power cord into the AC-to-DC adapter.

Step 2

Insert the DC-in plug into the DC-in jack located on the back I/O panel of the VIA ARTiGO A5000 system.

Step 3

Connect the power cord to a power source.

5. Software and Technical Support

5.1 Android, Yocto and Debian Support

The VIA ARTiGO A5000 system features complete software evaluation images for Android 13, Yocto 4.0, and Debian 12 operating systems.

5.2 Technical Support and Assistance

- For utilities downloads and the latest documentation and information about the VIA ARTiGO A5000 system, please visit our website at https://www.viatech.com/en/edge/via-artigo-a5000/.
- For technical support and additional assistance, always contact your local sales representative or system distributor, or go to https://www.viatech.com/en/support/drivers/ for technical support.
- For OEM clients and system integrators developing a product for long-term production, other code and resources may also be made available. Please visit our website at https://www.viatech.com/en/contact/ to submit a request.

Appendix A Optional Accessories

This chapter describes how to install a SIM Card and connect the following optional accessories on the VIA ARTiGO A5000 system:

- 1080P AHD camera with cable
- 15.6'' 1080P LVDS LCD panel with cable
- 5'' 720P LVDS touch display with cable
- Development Kit

Note:
It is recommended to use a grounded wrist strap before handling computer components. Electrostatic discharge (ESD) can damage some components.

A.1 Installing a 4G LTE/5G Nano SIM Card

The VIA ARTiGO A5000 systems of part numbers ATG-A5000-LE48A0 and ATG-A5000-LE58A0 (for Japan only) are equipped with a Nano SIM card slot, which can be accessed by opening the cover on the bottom panel. Follow the instructions below to install a 4G LTE/5G Nano SIM card on a VIA ARTiGO A5000 system enabled with 4G LTE/5G:

1. Locate the compartment cover on the bottom panel of the VIA ARTiGO A5000 system, and use a Phillips Head Screwdriver #1 to remove the screw from the cover.
2. Slide the compartment cover out to remove it.
3. Locate the Nano SIM card slot on the VIA ARTiGO A5000 system, and firmly push back to unlock it.
4. Pull up the slot and slide in the Nano SIM card, ensuring that the correct end goes in.
5. Push down the slot.
6. Gently slide back the Nano SIM card slot to lock it.

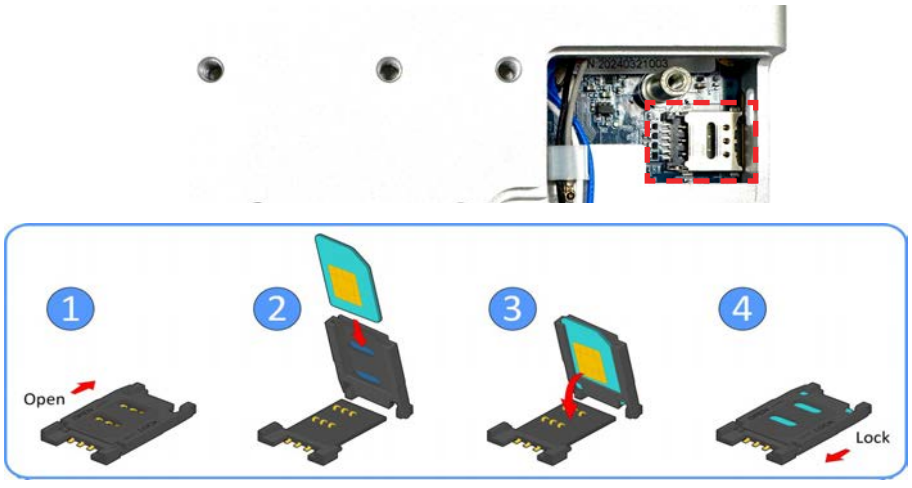

Figure 22: Installing a 4G LTE/5G Nano SIM card

7. Slide in the compartment cover removed in Step 1.
8. Insert the screw into the cover, then use the Phillips Head Screwdriver #1 to tighten the screw.

A.2 AHD Camera

An optional 1080P AHD camera with a plug cable is available for connecting to the VIA ARTiGO A5000 system to receive uncompressed high-quality video.

Figure 23: AHD camera and plug cable

Follow the instructions below to connect the AHD camera:

1. Connect the AHD camera's cable to the plug cable provided with the camera.
2. Locate the "CAMERA" port on the right panel of the VIA ARTiGO A5000 system, and connect the 2.5mm plug to the port.

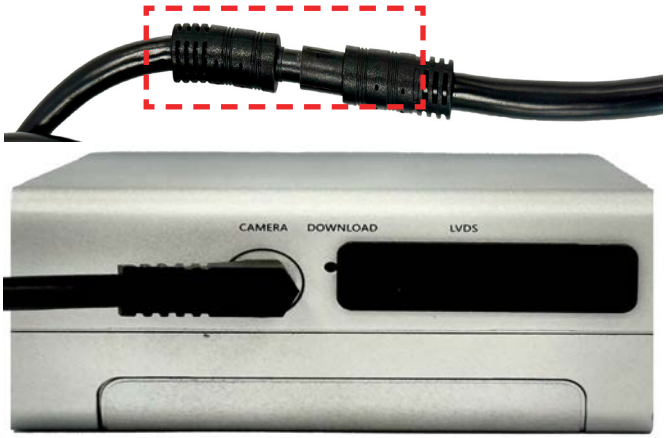

Figure 24: Connecting the AHD camera

A.3 LVDS LCD Panel

A 15.6'' 1080P LVDS LCD panel with cable is available for connecting to the VIA ARTiGO A5000 system to receive high-quality display with low power consumption and heat generation.

Figure 25: LVDS LCD panel

Follow the instructions below to connect the LVDS LCD panel:

1. Locate the "LVDS" port on the right panel of the VIA ARTiGO A5000 system.
2. Remove the cover on the port.
3. Align the plug of the LVDS LCD panel's cable with the port.
4. Insert the plug into the "LVDS" port, then press firmly to secure the connection.

Figure 26: Connecting the LVDS LCD panel

A.4 LVDS Touch Display Panel

A 5'' 720P LVDS touch display panel with cable is available for connecting to the VIA ARTiGO A5000 system to receive high-quality display and touch input with low power consumption and heat generation. Users can tap, swipe, or use multi-touch gestures for interaction with the display.

Figure 27: LVDS touch display panel

Follow the instructions below to connect the touch display panel:

1. Locate the "LVDS" port on the right panel of the VIA ARTiGO A5000 system.
2. Remove the cover on the port.
3. Align the plug of the LVDS touch display panel's cable with the port.
4. Insert the plug into the "LVDS" port, then press firmly to secure the connection.

Figure 28: Connecting the LVDS touch display panel

A.5 Development Kit

The optional development kit includes a USB to UART debug board and a 3-pin cable to connect the VIA ARTiGO A5000 system to a host PC for debugging.

Note:
Make sure that the VIA ARTiGO A5000 system is powered OFF before setting the debug board jumpers and switch, and installing the development kit.

A.5.1 Debug Board Jumper and Switch Settings

Jumper Description

A jumper consists of a pair of conductive pins used to close in or bypass an electronic circuit to set up or configure a particular feature using a jumper cap. The jumper cap is a small metal clip covered by plastic. It performs like a connecting bridge to short (connect) the pair of pins. The usual colors of the jumper cap are black/red/blue/white/yellow.

There are two settings of the jumper pin: 'Short' and 'Open'. The pins are 'Short' when a jumper cap is placed on the pair of pins. The pins are 'Open' if the jumper cap is removed.

Jumper Settings

The debug board has two UART routing jumpers labeled 'J7' and 'J8', a UART routing switch set labeled 'SW1', and a UART voltage switch 'SW2'.

The 'J7' jumper has six pins and the 'J8' jumper has 3 pins arranged as follows:

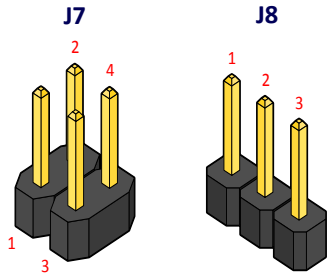

Figure 29: Debug system jumpers

The UART routing switch set 'SW1' has two switches labeled '1' and '2' that can be toggled ON/OFF. The UART voltage switch 'SW2' can be toggled 1.8V/3.3V.

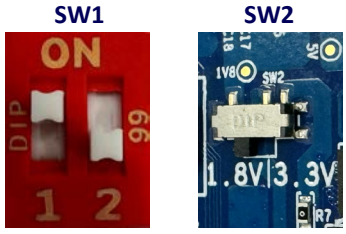

Figure 30: Debug system switches

To set the USB to UART route and UART voltage, set the debug board jumpers and switches as described below. It is recommended to use a long-nose plier or forceps for setting the jumpers and the switches.

Caution:
Make sure to install the jumper caps and set the switches correctly to avoid damage and malfunctioning.

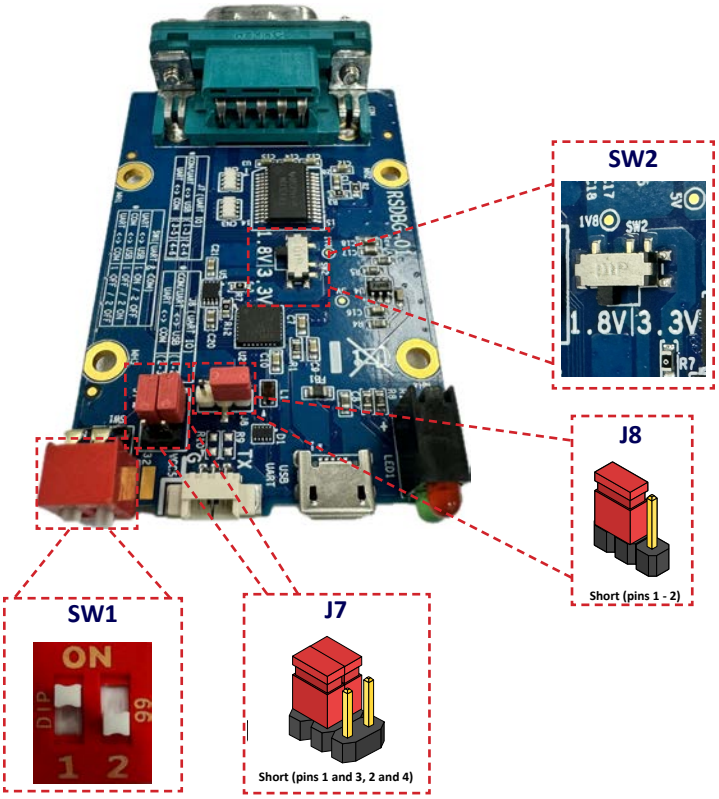

Figure 31: Debug system jumpers and switches diagram

Settings	J7		J8			SW1	
	Pins 1 and 3	Pins 2 and 4	Pin 1	Pin 2	Pin 3	Switch 1	Switch 2
USB to UART	Short Together	Short Together	Short	Short	Open	ON	OFF

Table 11: UART routing jumpers and switch settings

SW2	
1.8V	3.3V
ON	OFF

Table 12: UART voltage switch settings

A.5.2 Installation

Follow the steps described below to connect the USB to UART debug board to the VIA ARTiGO A5000 system:

1. Locate the cover on the bottom panel of the VIA ARTiGO A5000 system, and use a Phillips Head Screwdriver #1 to remove the screw from the cover.
2. Slide the compartment cover out to remove it.
3. Locate the UART debug connector on the VIA ARTiGO A5000 system, and insert one end of the 3-pin debug cable into the UART debug connector.
4. Insert the opposite end of the 3-pin debug cable into the 3-pin port located on the USB to UART debug board.

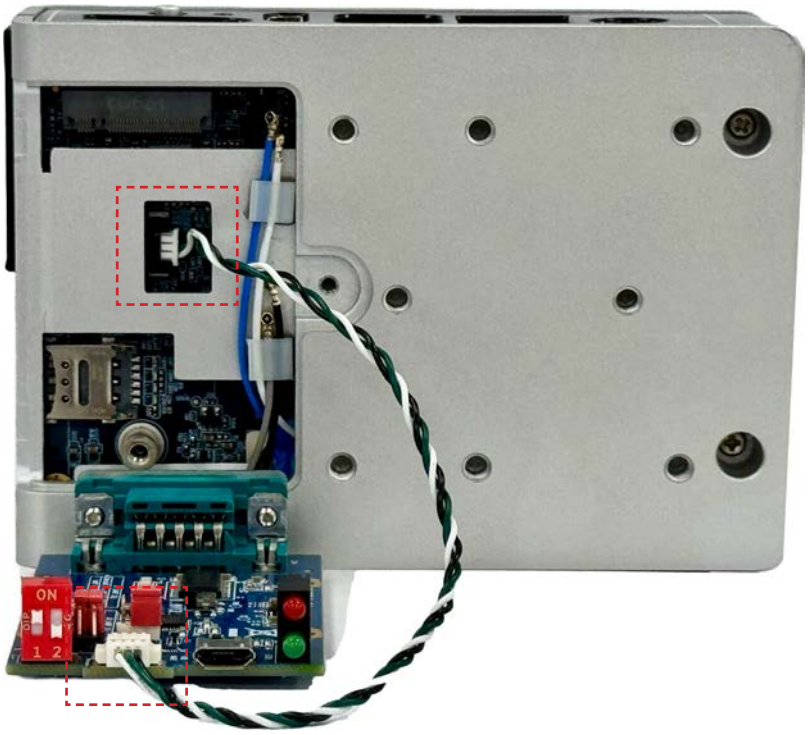

Figure 32: Connecting the 3-pin cable between the VIA ARTiGO A5000 system and debug board

5. Connect the Windows 10 host machine through the Micro USB 2.0 port on the USB to UART debug board using a Micro USB cable (not provided).
6. Power ON the VIA ARTiGO A5000 system. While debugging, the red RX LED on the debug board flashes when a signal is received, and the green TX LED flashes when a signal is transmitted.

Figure 33: Debug system RX/TX LEDs

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