### GOT710A-ELK

Railway 10.4" XGA TFT LCD PANEL PC

**User's Manual** 

# USER'S MANUAL



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#### **Safety Precautions**

Before getting started, read the following important cautions.

- 1. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
- 2. Disconnect the power cords from the GOT710A Series before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the GOT710A Series is properly grounded.
- 3. Do not open the system's top cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
  - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
  - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

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## Section 1 Introduction

This chapter contains general information and detailed specifications of the GOT710A-ELK. Chapter 1 includes the following sections:





- General Description
- Specification
- Dimensions
- I/O Outlets
- Package List

#### 1.1 General Description

GOT710A-ELK is used to keep the train driver informed about the status of the train's functions.

Its design allows it to be deployed in environment with an extended temperature (-40°~70°C) and it also complies with the EMC, shock and vibration test requirements of European standard EN50155 for railway applications.

GOT710A-ELK is equipped with 10.4" TFT ruggedized touch panel computer and all lockable connectors are perfect choice for Human Machine Interface (HMI) in railway environments. The 10.4" railway touch panel PC includes a comprehensive feature set with one CAN Bus, DIO, audio, two Ethernet ports, USB ports and RS-232/422/485.

#### Railway application-EN50155 Class S3 certificated

Railway power module design support 20ms interruption, EMI EN55022 CLASS A filter, over/short current protection for its railway application.

#### Sunlight readable design

Its sunlight readable technology with LED tech 500 nits color display allows the screen legible even strong sunlight.

#### Powerful computing: Intel® Atom Elkhart Lake processors

GOT710A-ELK features Intel<sup>®</sup> Atom processors that offers reliable and stable performance and rugged environment.

#### 1.2 Specifications

#### Main CPU Board

- CPU
  - Intel<sup>®</sup> Atom<sup>®</sup> quad core x6425E 2.0GHz processor onboard
- System Memory
  - 1 DDR4 SO-DIMM supports up to 32GB memory capacity

#### • BIOS

- American Megatrends Inc. UEFI (Unified Extensible Firmware Interface) BIOS.
- 256Mbit SPI Flash, DMI, Plug and Play.
- PXE Ethernet Boot ROM.

#### I/O System

- Standard I/O
  - 2 x RS-232/422/485 (M12, A-coded)
  - 2 x 2.5Gbe LAN (M12, X-coded)
  - 2 x USB 2.0 (M12, A-coded)
  - 1 x DIO (6 input/2 output (Phoenix type)
  - 1 x CAN bus (M12, A-coded)
- Audio
  - 1 x Audio: Line-out, & Mic-in (M12, A-coded)
- Expansion
  - 2 x PCIe Mini Card slots
- Storage
  - 1 x 64GB M.2 2242 SATA interface
  - 1 x mSATA
- Power connector
  - 1 x DC for power input with isolated (M12, A-coded)

#### **System Specification**

- 10.4" XGA (1024 X 768) LCD
- Projected Capacitive Touch
- IP65, NEMA 4 rugged protection, aluminum front bezel, rest area of enclosure is IP40 rated
- Net Weight
  - 2.69 kg (5.93 lb)
- Dimension (Main Body Size)
  - 310 mm (12.20") (W) x 55 mm (2.17") (D) x 214 mm (8.43") (H)
- Operation Temperature
  - -40°C to 70°C
- Relative Humidity
  - 10% to 90% @ 40°C, Non-Condensing
- Power Input
  - 24V to 110VDC, 20ms interruption hold up (EN 50155 Class S3)



NOTE: All specifications and images are subject to change without notice.

#### 1.3 Dimensions and Outlines

The following diagrams show the dimensions and outlines of GOT710A-ELK.







### 1.4 I/O Outlets

Please refer to the following illustration for I/O locations of the GOT710A-ELK.



No	Function
1	DC for power input with isolated
2	COM2 with isolated (RS-232/422/485)
3	COM1 with isolated (RS-232/422/485)
4	USB 2.0 x 2
5	Audio (Line out / Mic in)
6	CAN Bus with isolated
7	LAN 2 (100/1000/2500 with isolated)
8	LAN 1 (100/1000/2500 with isolated)
9	DIO (6 input / 2 output with isolated)
10	MVB (option function)
11	Antenna Opening x 4

### 1.5 Packing List

When you receive the GOT710A-ELK, the bundled package should contain the following items:

- GOT710A-ELK unit x 1
- Phoenix Connector x 1
- M.2 Slot screw M3\*4L x2
- MINIPCIe Slot screw M3\*5L x2

If you cannot find the package or any items are missing, please contact Axiomtek distributors immediately.

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## Section 2 Hardware and Installation

The GOT710A-ELK provides rich I/O ports and flexible expansions for you to meet different demand. The chapter will show you how to install the hardware. It includes:

- Open Back Cover
- Serial Ports Interface
- USB Ports
- Ethernet
- DIO
- Audio
- CANBus Connector
- DC Power Connector
- Mini card Installation
- Hard keys on front bezel
- LED Indicators
- Auto-dimming

#### 2.1 Installing the M.2 & Mini PCIe Card

The GOT710A-ELK provides two Mini card slots for user to install 4G LTE / Wi-Fi / mSATA or GPS cards.

This section tells users how to install M.2 & Mini PCIe Card. Please follow the steps below.



Step 1 Unscrew 8 screws on the back heatsink. Please refer the photo below.

Step 2 Open the back heatsink and find out the M.2 & mini-card slot on main board.



Insert the M.2 LAN card & Mini card to the slot. Screw it firmly on the slot.



Unscrew 4 screws on the back maintain window cover and remove the antenna plug from one antenna hole on the system chassis.



Make the antenna cable's gold connector through the antenna hole on the system chassis to screw it tight with the antenna nut and gasket and screw 4 screws on the back maintain window cover.



Connect the other end of the cable to the connector on the wireless module.



Push top cover up with SIM Card slot.

Insert a SIM Card device into the socket.



Close the top cover and push the top cover down to secure the SIM Card.



#### 2.2 **Serial Ports Interface**

This system supports RS-232/422/485 on COM1~COM2 ports. The pin assignments are listed in table below.

If you need to adjust these COM ports to work as RS-232/422/485, please refer to BIOS setting in section 3.5.

Pin	RS-232	RS-422	RS-485
1	NDCD	TX-	Data-
2	NRX	TX+	Data+
3	NTX	RX+	No use
4	NDTR	RX-	No use
5	NDSR	No use	No use
6	NRTS	No use	No use
7	NCTS	No use	No use
8	ISO_GND	ISO_GND	ISO_GND



#### 2.3 **USB** Ports

This system supports two USB ports. The pin assignments are listed in table below.

Pin	Definition
1	USB1_PWR
2	USB_DN1
3	USB_DP1
4	GND
5	USB2_PWR
6	USB_DN2
7	USB_DP2
8	GND



#### 2.4 Ethernet

The GOT710A-ELK is equipped with two high performance plug and play Ethernet interfaces with X-coded. Connection can be established by plugging one end of the Ethernet cable into this RJ-45 connector and the other end to a 2.5Gbe hub with isolated.

Pin	Definition
1	MDI 0+
2	MDI 0-
3	MDI 1+
4	MDI 1-
5	MDI 3+
6	MDI 3-
7	MDI 2-
8	MDI 2+



#### 2.5 DIO

#### 2.5.1 Digital I/O Specification

This system supports one DIO (6 input and 2 output) with isolated. The pin assignments are listed in table below.

#### **Digital Input:**

Input channels: 6, sink/source type Input voltage: 0 to 30VDC at 25Hz Input level for dry contacts: Logic level 0: close to ground Logic level 1: open Input level for wet contacts: Logic level 1: +/-3VDC max. Logic level 0: +/- 10VDC min. to +/-30VDC max. (source to digital input)

#### Digital output:

output channels: 2, sink type output current: 200mA max. per channel on-state voltage:12~ 24VDC nominal max. voltage on COM+: 30VDC

Pin	Definition
1	Common PWR+
2	DI4
3	DI5
4	DO0
5	DO1
6	Common PWR-
7	EXT_POWER
8	DIO
9	DI1
10	DI2
11	DI3
12	Isolation GND



#### 2.5.2 Digital I/O Software Programming

- I2C to GPIO PCA9554PW GPIO Group0[5:0] is Output, Group0[7:6] is Input.
- I2C address: 0b0100100x.
- Registers:

#### Register 0: Input Group0 register.

Table 4. Register 0 - Input Port register bit description

Bit	Symbol	Access	Value	Description
7	17	read only	x	determined by externally applied logic level
6	16	read only	X	
5	15	read only	Х	
4	14	read only	X	
3	13	read only	х	
2	12	read only	Х	
1	11	read only	X	
0	10	read only	Х	

#### Register 2: Output Group0 register.

#### Table 5. Register 1 - Output Port register bit description Legend: \* default value. Bit Description Symbol Access Value 7 07 R 1\* reflects outgoing logic levels of pins defined as outputs by Register 3 6 06 R 1\* 1\* 5 05 R 4 04 R 1\* 3 03 R 1\* 2 02 R 1\* R 1\* 1 01 0 00 R 1\*

#### 2.5.3 Digital Input Wiring

#### DRY contact

Logic level 0: close to ground

Logic level 1: open

EXT_POWE	R SW1
XIN1	
XIN2	
XIN3	SW3
XIN4	SW4
XTN5	SW5
VINC	SW6
XIN6	
DIO_GND	

WET contact Logic level 1: +/-3VDC max. Logic level 0: +/- 10VDC min. to +/-30VDC max

	+ Vdc - Max:+30V	
EXT_POWE	R	
XIN1		SW1
VINO		SW2
NINZ		SW3
XIN3		SW4
XIN4		SW5
XIN5		SW6
XIN6	<b>`</b>	
DIO_GND		

#### 2.5.4 Digital Output Wiring



#### 2.6 Audio

This system supports one Audio (Line out / Mic in). The pin assignments are listed in table below.

Pin	Definition
1	MIC-IN-JD
2	MIC-IN
3	AUDIO_OUT_L
4	AUDIO_OUT_R
5	FRONT-JD
6	NA
7	NA
8	AUDIO_GND



Note: pin# 5 is connected and detected the signal of line- out, signal is switching to line-out.

### 2.7 CAN Bus Connector

This system supports one CAN Bus. The pin assignments are listed in table below.

Pin	Definition
1	CAN_HO
2	CAN_LO
3	CAN_GND
4	NA
5	NA
6	NA
7	NA
8	NA



### 2.8 DC Power Connector

The system supports one DC for power input with isolated. The pin assignments are listed in table below.

Pin	Definition
1	PWR_V+
2	PWR_V+
3	PWR_V-
4	PWR_V-
5	IGN



NOTE: Default IGN Trigger: Disabled, refer to Smart Ignition Management

#### Hard keys on front bezel (Optional) 2.9

Hard Keys on front bezel:

- UIC 612-01 compliant •
- Keys for pre-defined functions Key backlighting: dimmable •
- •

	, , , , , , , , , , , , , , , , , , , ,
SYMBOL	FUNCTION
<b>•</b>	Press for windows power button setting
F	short press for 1 second (backlight on/off)
	Lona press for 3 seconds(Auto dimmina on/off)
Ľ	Customer programming
	Customer programming
∽	Customer programming
	Volume Up
	Volume Down
*	Brightness Up
•	Brightness Down
••	Customer programming
° –	backspace
1	Cursor Left
	Cursor Right
	Cursor Up
	Cursor Dwon
<b>-</b>	Enter
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	0
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6

Front panel hotkeys define

NOTE: Keeping pressing one button after 0.8 seconds, the function will be triggered 4 times per seconds repeatedly.

#### 2.10 LED Indicators

LED lights make sure that whether the MCU is working properly and facilitating to debug in the phrase of research and development. It is not necessarily the actual system mounting LED lights.

The following table summarizes LED indication of the device:

Status	PWR (Green)	S2 (Yellow)	S1 (Red)
Power up	ON	ON	ON
Device working properly	ON	OFF	OFF
High-temperature reminder	ON	Flash	OFF
High-temperature warning	ON	Flash	Flash
Key pressed	Flash	Х	х



S2 setting: LED light flashes when the internal temperature of the system reaches 85-95  $^\circ\!\mathrm{C}$  .

S1 setting: LED light flashes when the internal temperature of the system reaches 95-100°C.

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## Section 3 AMI BIOS Setup Utility

The AMI UEFI BIOS provides users with a built-in setup program to modify basic system configuration. All configured parameters are stored in a flash chip to save the setup information whenever the power is turned off. This chapter provides users with detailed description about how to set up basic system configuration through the AMI BIOS setup utility.

#### 3.1 Starting

To enter the setup screens, follow the steps below:

- 1. Turn on the computer and press <F2> or <Del> during the Power On Self Test (POST) to enter BIOS setup, otherwise, POST will continue with its test routines.
- After you press the <Del> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Advanced and Chipset menus.

# NOTE: If your computer cannot boot after making and saving system changes with BIOS setup, you can restore BIOS optimal defaults by setting CLRCMOS1 (see section 2.3.1).

If you wish to enter BIOS setup after POST, restart the system by pressing <Ctrl>+<Alt>+ <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

It is strongly recommended that you should avoid changing the chipset's defaults. Both AMI and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

NOTE: Because the BIOS setup software is constantly being updated, the following setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

#### 3.2 Menu Bar

Menu Bar	Description
Main	To set up the system time/date information.
Advanced	To set up the advanced BIOS features.
H/W Monitor	To display current hardware status.
Boot	To set up the default system device to locate and load the operating system.
Security	To set up the security features.
Exit	To exit the current screen or the BIOS setup utility.

The top of the screen has a menu bar with the following selections:

Use < key or < > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

#### 3.3 **Navigation Keys**

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F7>, <Enter>, <ESC>, <Arrow> keys, and so on.

### NOTE: Some of the navigation keys differ from one screen to another.

Please check the following table for the function description of each navigation key.

Hot Keys	Description
→← Left/Right	The Left and Right <arrow> keys allow you to select a setup screen.</arrow>
<b>↑</b> ↓ Up/Down	The Up and Down <arrow> keys allow you to select a setup screen or sub- screen.</arrow>
+– Plus/Minus	The Plus and Minus <arrow> keys allow you to change the field value of a particular setup item.</arrow>
Enter	The <enter> key allows you to display or change the setup option listed for a particular setup item. The <enter> key can also allow you to display the setup sub- screens.</enter></enter>
F1	The <f1> key allows you to display the General Help screen.</f1>
F7	Discard changes.
F9	The <f9> key allows you to load optimal default values for all the settings.</f9>
F10	The <f10> key allows you to save any changes you have made and exit Setup. Press the <f10> key to save your changes.</f10></f10>
Esc	The <esc> key allows you to discard any changes you have made and exit the Setup. Press the <esc> key to exit the setup without saving your changes.</esc></esc>

#### 3.4 Main Menu

When you first enter the setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. System Time/Date can be set up as described below. The Main BIOS setup screen is shown below.

Main Advanced Chipset Secur	Aptio Setup – AMI ity Boot Save & Exit	
BIOS Information Build Date and Time Project Version	07/04/2024 17:23:35 PSB527 X011	Set the Date. Use Tab to switch between Date elements. Default Ranges:
Firmware Information Firmware Version ME Firmware Version	PSB527 X06 15.40.30.2879	Year: 1998–9999 Months: 1–12 Days: Dependent on month Range of Years may vary.
ME Firmware Mode ME Firmware SKU Sustem Date	Normal Mode Consumer SKU	
System Time	[10:42:06]	
NUCC33 LEVE1		<pre>fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Vanc	ion 2 02 4222 Comunicht (2) 2	0.94 AVT

#### **BIOS Information**

Display the auto-detected BIOS information.

#### System Date/Time

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

#### 3.5 Advanced Menu

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

- F81216 Super IO Configuration
- Hardware Monitor
- Smart Ignition Management
- Trusted Computing
- CPU Configuration
- Storage Configuration
- Memory Configuration
- USB Configuration
- Device Configuration

Main Advanced Chipset Se	Apt: curity Boot	io Setup – AMI Save & Exit	
<ul> <li>F81216 Super IO Configuration</li> <li>Hardware Monitor</li> <li>Smart Ignition Management</li> <li>Trusted Computing</li> <li>CPU Configuration</li> <li>Storage Configuration</li> <li>Memory Configuration</li> <li>USB Configuration</li> <li>Device Configuration</li> </ul>	on		System Super IO Chip Parameters. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	/ersion 2.22.12	282 Copyright (C) 202	4 AMI

For items marked with "▶", please press <Enter> for more options.

#### • F81216 Super IO Configuration

Use this screen to select options for the Super IO Configuration and change the value of the selected option.

Advanced	Aptio Setup — AMI	
F81216 Super IO Configuration		Set Parameters of Serial Port
Super IO Chip • Serial Port 1 Configuration • Serial Port 2 Configuration	F81216	<pre>1 (COMA)  ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults</pre>
		F4: Save & Exit ESC: Exit
Version	2.22.1282 Copyright (C) 2024	AMI

#### Serial Port 1-2 configuration

#### 1. Serial port:

This option used to enable or disable the serial port.

#### 2. Device Setting:

This item specifies the base I/O port address and Interrupt Request address of serial port. The port 1 Optimal setting is *3F8/IRQ4*. The port 2 Optimal setting is *2F8/IRQ3* 

#### 3. Serial type:

#### This option used to select RS232/422/485 function.

Advanced	Aptio Setup — AMI	
Serial Port 1 Configuration		COM Port Type: RS232, RS422,
Serial Port Device Settings	<mark>[Enabled]</mark> IO=3F8h; IRQ=4;	R\$485
COM Port Type Terminal Mode	[RS232] [Enabled]	
	COM Port Type RS232 RS422 RS485	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Versio	on 2.22.1282 Copyright (C) 2024	4 AMI

#### Hardware Monitor

	Aptio Setup — AMI		
Advanced			
Pc Health Status			
CPU Temperature System Temperature VBAT +1.8V +3.3V_SBY	: +24 % : +29 % : +3.23 V : +1.79 V : +3.28 V	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>	
Ve	ersion 2.22.1282 Copyright (C) 20	024 AMI	

This screen shows the Hardware Health Configuration.

#### • Smart Ignition Configuration

Press Enter to access the sub-menu. Calculated based on the 24-hour military-time clock.

Advanced	Aptio Setup — AMI	
Smart Tanition Management		Change nower mode
Manufacturer	Aviomtek	Enabled · In-Vehicle
Model	MID307	Disabled : AT/Raiwau
Firmware Version	V101	*PSU and sustem would reset
		after save setting
PSU State	System On	
Power Mode	AT Mode	
Vin Voltage(V)	23.3	
IGN Signal	Off	
Shutdown Delay Timer (IGN Off)	00:00:02	
Shutdown Delay Timer (Low Voltage)	00:03:00	
Tabition Newsdowent		the Colort Concer
Ignition Management	[DISADIEU]	tl: Select Item
Auto Power On	[Enabled]	Frien: Select
	[Lindbied]	+/-: Change Ont
Advance Setting		E1: General Help
		F2: Previous Values
		F3: Optimized Defaults
▶ Save Settings		F4: Save & Exit
Restore Factory Settings		ESC: Exit

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BIOS menu item	Description
lgnition Management	Enabled Switch to In-Vehicle mode *Note: IGN signal will only be triggered when M12 pin5 IGN is connected to VCC, ignition power or ignition control signal. Disabled Switch to AT/Railway mode *Note: System will be reset after Ignition Management setting has been changed and saved. If you want to use IGN signal, please go to the advance setting menu to enable the IGN Trigger option and go back to the previous menu and select save settings to save the changes.
Auto Power On	<ul> <li>Enabled</li> <li>System will turn on automatically under following conditions.</li> <li>Manually disconnect and reconnect system power</li> <li>Power interruption: Resume power after power failure</li> <li>Disabled</li> <li>System will not turn on automatically when power is connected or when power resumes from a power failure.</li> </ul>
Advance Setting	Set system on/off timing and voltage threshold levels
Save Settings	Save the current settings
Restore Factory Settings	<ul> <li>Restores factory defaults to remove any incorrect or corrupt settings that might have prevented the system from properly powering on/off.</li> </ul>

Advanced	Aptio Setup – AMI	
=======       Voltage       =======         Activate Voltage Trigger(V)         Low Voltage Trigger(V)         Shutdown Delay Timer (Low Voltage)         Minuium Timer         Maximum Timer         Hour         Minute         Second         =======       IGN Function	16 14 00:01:00 03:00:00 0 3 0	The counter will be activated once power source voltage is smaller than the value of [Low Voltage Trigger],then, system will be forced to turn off when time's up
		++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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Advanced	Aptio Setup – AMI	
======= Voltage =======		Enable : IGN signal would
Activate Voltage Trigger(V)	16	trigger [System Turn On Delay]
Low Voltage Trigger(V)	14	and [Shutdown Delay]
Obuddaum Dallau Timen (Lau Hallaara)		Disable: IGN signal would not
Snutdown Delay Timer (Low Voltage)		affect any power managment
Minulum Timer	00:01:00	
Maximum Timer	03:00:00	
Hour	0	
Minute	3	
Second	0	
======= IGN Function ========		
IGN Trigger		
System Turn On Delay Timer(IGN On)		++: Select Screen
Minuium Timer	00:00:02	11: Select Item
Maximum Timer	00:30:00	Enter: Select
Hour	0	+/-: Change Opt.
Minute	0	F1: General Help
Second	2	F2: Previous Values
Shutdown Delay Timer (IGN Off)	-	F3: Optimized Defaults
Minuium Timer	00:00:01	F4: Save & Exit
Maximum Timer	06:00:00	ESC: Exit
Hour	0	
Minute	0	
Second	2	
Second		
Version	2 22 1298 Conucidat (C)	2029 AMT

BIOS menu item	Description
Activate Voltage Trigger	The system turns on when the voltage delivered by the power source is higher than the value you set here.
Low Voltage Trigger	The system will begin the countdown once voltage drops below the value you set here.
	If the power source voltage does not return to the value higher than [Activate Voltage Trigger] within the time you set for [Shutdown Delay Time (Low Voltage)], the system will shut down and remain off.
Shutdown Delay Timer (Low Voltage)	The timer will be activated once power source voltage drops below the value defined in [Low Voltage Trigger]. The system will be forced to turn off once timer completes countdown.
IGN Trigger	Enable [System Turn On Delay] and [Shutdown Delay] will be trigged by IGN. Disable IGN signal will not affect any power management.



NOTE: Please refer to APPENDIX B for setting the motion in OS application

#### • Trusted Computing

This sub-menu will allow you to enable/disable Trusted Platform Module (TPM) support and to configure the TPM State. Select Trusted Computing and press Enter to access the sub-menu.

Select the Security Device Support item to enable the TPM device.

navaneca		
TPM 2.0 Device Found Firmware Version: Vendor: Security Device Support	1.258 STM ∫Enable]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be
Active PCR banks Available PCR banks	SHA256 SHA256	available.
		<pre>→+: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults</pre>
		F4: Save & Exit ESC: Exit

#### CPU Configuration

This screen shows the CPU configuration, and you can change the value of the selected option.

	Aptio Setup – AMI	
Advanced		
CPU Configuration		When enabled, a VMM can utilize the additional
Туре	Intel Atom(R) x6425E Processor @ 2.00GHz	hardware capabilities provided by Vanderpool Technology.
ID	0x90661	
Speed	2000 MHz	
L1 Data Cache	32 KB x 4	
L1 Instruction Cache	32 KB × 4	
L2 Cache	1536 KB × 4	
L3 Cache	4 MB	
L4 Cache	NZA	
VMX	Supported	
SMX/TXT	Not Supported	
Package C State Limit	[Auto]	++: Select Screen
		It: Select Item
Intel (VMX) Virtualization	[Enabled]	Enter: Select
Tetal(R) CreadCtar(tr)	[Epobled]	+/-: Unange upt.
Tupbo Mode	[Enabled]	F1. General netp
Configurable TDP Boot Mode	[Nominel]	E3: Ontimized Defaults
Disable Turbo GT frequencu	[Nominal]	F4: Save & Exit
Boot performance mode	[Max Non-Turbo	ESC: Exit
	Performancel	Loor Entr
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#### Intel Virtualization Technology

Enable or disable Intel Virtualization Technology. When enabled, a VMM (Virtual Machine Mode) can utilize the additional hardware capabilities.

It allows a platform to run multiple operating systems and applications independently, hence enabling a computer system to work as several virtual systems.

#### Intel(R) Speed Shift Technology

Enable or disable Intel Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware-controlled P-states.

#### **Turbo Mode**

Enable or disable processor Turbo Mode.

#### • Storage Configuration

During system boot up, the BIOS automatically detects the presence of SATA devices. In the SATA Configuration menu, you can see all hardware currently installed in SATA ports.



#### SATA Controller(s)

Enable or disable the SATA Controller feature. The default is Enabled.

#### • Memory Configuration

Display memory information with inserted the system.

Advanced	Aptio Setup – AMI	
Memory Configuration		
Memory Size Frequency	4096 MB 2400 MTPS	
Channel O Slot O Size Number of Ranks Manufacturer Channel 1 Slot O	Populated & Enabled 4096 MB (DDR4) 1 UnKnown Not Populated / Disabled	<pre>**: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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• USB Configuration Display all detected USB devices.

Advanced	Aptio Setup — AMI	
USB Configuration		
USB Module Version	25	
USB Devices: 1 Drive, 1 Keyboard, 2 Mice, 1	. Point	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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#### • Device Configuration

You can use this screen to select options for the 8-bit Digital I/O Configuration. A description of the selected item appears on the right side of the screen. For items marked with "▶", please press for more options.

Advanced	Aptio Setup – AMI	
Onboard DIO Configuration DIO Modification ▶ DIO port 1–8	[Disabled]	Enabled or Disabled DIO Modification
		++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
Version	2 22 1282 Convright (C) 2024	F4: Save & Exit ESC: Exit

#### **DIO Modification**

Enable or disable digital I/O modification. If modification is disabled, the DIO status sub screen is as follows:

Advanced	Aptio Setup – AMI	
DIO status 1. Input/Output Status 2. Input/Output Status 3. Input/Output Status 4. Input/Output Status 5. Input/Output Status 7. Input/Output Status 8. Input/Output Status	In & High In & High In & High In & High In & High Out & High Out & High	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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Once it is enabled, you can load manufacture default and access to the DIO status sub screen to set output or input, see image below.

#### **Chipset Menu** 3.6

System Agent (SA) Configuration This screen shows the memory information.

#### **PCH-IO Configuration**

You can use this screen to select options for the LVDS Configuration.

Main Advanced Chipset Security	Aptio Setup – AMI Boot Save & Exit	
System Agent (SA) Configuration Max TOLUD	[Dynamic]	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically
Graphics Configuration	18 0 1041	based on largest MMIO length
IGFX VBIOS Version	N/A	
Primary Display Internal Graphics	[Auto] [Auto]	
PCH-IO Configuration		
State After G3	[S5 State]	
LVDS Panel Device LVDS Panel Type	[Enabled] [1024x768 24Bit]	<pre> ++: Select Screen  fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2	2024 (C) 2024 Copyright.	AMI

#### 3.7

**3.7** Security Menu The security menu allows users to change the security settings for the system.

Aptio Setup – AMI Main Advanced Chipset <mark>Security</mark> Boot Save & Exit		
Password Description		Set Administrator Password
If ONLY the Administrator's then this only limits access only asked for when enterin If ONLY the User's password is a power on password and boot or enter Setup. In Set have Administrator rights. The password length must be in the following range: Minimum length	s password is set, ss to Setup and is ng Setup. I is set, then this must be entered to up the User will	
Maximum length	20	++: Select Screen
Administrator Password		↑↓: Select Item
User Password		Enter: Select
		+/-: Change Opt.
▶ Secure Boot		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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#### Administrator Password

This item indicates whether an administrator password has been set (installed or uninstalled).

#### User Password

This item indicates whether a user password has been set (installed or uninstalled).

#### Secure Boot

	Aptio Setup – AMI Security	
System Mode	Setup	Secure Boot feature is Active
Secure Boot	[Disabled] Not Active	Platform Key(PK) is enrolled and the System is in User mode.
Secure Boot Mode • Restore Factory Keys • Reset To Setup Mode	[Custom]	platform reset
▶ Key Management		
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.

#### Secure Boot Mode

Secure Boot mode options : Standard or Custom. In Custom mode,

Secure Boot Policy variables can be configured by a physically present user without full authentication.

**Restore Factory Keys** Force the system into User Mode. Install factory default Secure Boot key databases.

#### **Key Management**

Enables expert users to modify Secure Boot Policy variables without full authentication.

#### 3.8 Boot Menu

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus:

Main Advanced Chipset	Aptio Setup – AMI Security <mark>Boot</mark> Save & Exit	
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot MINI CARD type(scn1) Network Stack	<mark>1</mark> [On] [Disabled] [PCIe] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities		
Boot Option #1 Boot Option #2	[Windows Boot Manager (PO: AXIOMTEK Corp.FSA064GS42MW4T)] [UEFI:	
	JetFlashTranscend 32GB 1100, Partition 1 (JetFlashTranscend 32GB 1100)]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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#### Setup Prompt Timeout

Set the Timeout for wait press key to enter Setup Menu

#### Bootup NumLock State

Use this item to select the power-on state for the NumLock. The default setting is on.

#### **Quiet Boot**

Use this item to enable or disable the Quite Boot state. The default setting is disable.

#### MINI CARD type (SCN1)

Set PCI-Express Mini Card (SCN3) to work as PCIe or mSATA. The default is PCIe.

#### **Network Stack**

Use this item to enable or disable the PXE boot Execution Environment. The default setting is disable.

#### **Boot Option Priorities**

Specifies the overall boot order from the available devices.

#### 3.9 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or fail-safe default values.

Aptio Setup – AMI Main Advanced Chipset Security Boot Save & Exit	
Save Options Save Changes and Exit Discard Changes and Exit	
Save Changes and Reset Discard Changes and Reset	
Save Changes Discard Changes	
Default Options Restore Defaults Save as User Defaults	
Restore User Defaults	++: Select Screen ↑↓: Select Item
Boot Override Windows Boot Menager (PO: AVIONTEK Corp. ESA0646842MW4T)	Enter: Select
UEFI: JetFlashTranscend 32GB 1100, Partition 1	F1: General Help
(JetFlashTranscend 32GB 1100)	F2: Previous Values
	F4: Save & Exit
	ESC: Exit
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#### Save Changes and Exit

When you have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.

#### **Discard Changes and Exit**

Select this option to quit Setup without making any permanent changes to the system configuration and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.

#### Save Changes and Reset

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

#### **Discard Changes and Reset**

Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

#### **Save Changes**

When you have completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

#### **Discard Changes**

Select this option to quit Setup without making any permanent changes to the system configuration. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

#### **Restore Defaults**

It automatically sets all Setup options to a complete set of default settings when you select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.

#### Save as User Defaults

Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

#### **Restore User Defaults**

It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

#### **Boot Override**

Select a drive to immediately boot that device regardless of the current boot order

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## Appendix A Watchdog Timer

#### A.1 About Watchdog Timer

After the system stops working for a while, it can be auto reset by the watchdog timer. The integrated watchdog timer can be set up in the system reset mode by program.

#### A.2 How to Use Watchdog Timer

Assemb	ly sample code:	
mov	dx , fa10	; 5 seconds(Maximum is 65535 seconds; fill in ; 0xFA10 and 0xFA11 register, ex: 0xFA11=0x01, ; 0xFA10=0x68 means 360 seconds)
mov out	al , 05 dx,al	
mov mov out	dx,fa12 al,01 dx,al	;Enable WDT

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## Appendix B Windows Power Button Setting

Please enter the power button setting through the PC console, and then follow below steps to complete the setting.



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See also
Power Options
I Search Control Panel + Hardware and Sound + Power Options
Search Control Panel + Hardware and Sound + Power Options
Control Panel Home
Choose what the power plan
Choose what the power plan
Choose when to turn off the display
Choose when to turn off the display brightness, sleep, etc.) that manages how your computer uses power. Tell me more about power plans
Preferred plans<

When IGN function has been used, the power button's setting must be switched to "Shut down" as below. Then the system can be shut down normally, after IGN has been turned off.

Step-4	
<b>\$</b>	System Settings 🚽 🗖 🗙
€ → - ↑ 🔰	→ Control Panel → Hardware and Sound → Power Options → System Settings v C Search Control Panel P
	Define power buttons and turn on password protection Choose the power settings that you want for your computer. The changes you make to the settings on this page apply to all of your power plans. Change settings that are currently unavailable Power and sleep button settings When I press the power button: Do nothing v When I press the sleep button: v
	Shutdown settings  I lock
	Show in account picture menu.
	Save changes Cancel

Step-5	
<b>\$</b>	System Settings – 🗖 🗙
€	<ul> <li>Control Panel &gt; Hardware and Sound &gt; Power Options &gt; System Settings v © Search Control Panel P</li> <li>Define power buttons and turn on password protection</li> <li>Choose the power settings that you want for your computer. The changes you make to the settings on this page apply to all of your power plans.</li> <li>Change settings that are currently unavailable</li> <li>Power and sleep button settings</li> <li>When I press the power buttor:</li> <li>Shut down</li> <li>Shut</li></ul>
	Save changes Cancel

#### GOT710A-ELK User's Manual

Step-6	
8	System Settings 🛛 🗕 🗖 🗙
😧 🗇 🔻 1 🕷	Control Panel > Hardware and Sound > Power Options > System Settings v C Search Control Panel P
	Define power buttons and turn on password protection         Choose the power stings that you wont for your computer. The changes you make to the settings on this page apply to all of your power plans.         Image settings that are currently unavailable         Power and sleep button settings         Image with a press the power buttor:         Image settings         Image with a press the power buttor:         Image settings         Image settings
	Save changes Cancel