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1. INTRODUCTION

1.1 PRODUCT SHOW



1.2 SPECIFICATIONS

	Onboard Intel 11 generation Tiger Lake-U series processor, TDP		
Processor	28W		
	EFI BIOS		
TPM 2.0	Built in the CPU by default, customizable for external TPM2.0		
RAM	1*DDR4 SO-DIMM, up to 32GB		
	1*M.2 M-Key 2280, default NVMe-PCIe 3.0x4 protocol, optional		
Storago	SATA3.0 protocol		
Storage	1*2.5 inch HDD interface		
	1 × SATA3.0 interface, 2Pin 5V		
	1*HDMI2.0 interface, supports 4096×2160@60hz;		
Display	1*Mini DP port, supports 4096×2160@60hz;		
Display	1*Type-C port, supports USB3.1, 4K and 5V 3A output		
	Supports synchronous or asynchronous display		
	1*Mini DP, 1*HDMI2.0, 2*USB3.0, 2*USB2.0		
	1*LAN (RTL8111 Network, optional Intel219)		
1/0	1*Power indicator, 1*HDD indicator, 1*Switch, 1*Reset button		
1/0	1*Type-C		
	1*Mic-in, 1*Line-out		
	1*DC Jack power port		
	1*M.2 E-Key (PCIe 3.0 + USB2.0 protocol, support WiFi/BT module)		
Expansion	1*M.2 B-Key (USB2.0 + USB3.0 protocol, support 4g/5G module)		
Interface/Function	1 set*RS232 pin headers, 2x5Pin, 2.00mm pitch		
	1*3Pin SYS FAN, 1*3Pin CPU FAN		
Power	DC 12-19V, 90W		
JAE80PIN Interface	HDMI2.0/DP1.4 output, automatic identification and switching		
Expansion	2 × USB2.0, 1 × USB3.0, 1 × TTL		
System Support	Windows 10, Windows11, Linux		
Dimensions	165x114mm		
Weight	120g (heatsink NOT included); 220g (heatsink included)		

2. INSTALLATION INSTRUCTION

2.1 OVERALL DIMENSIONS







2.2 ONBOARD RESOURCES-FRONT SIDE



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2.3 ONBOARD RESOURCE-BACK SIDE





2.3 PRODUCT SHOW-FRONT SIDE



2.4 PRODUCT SHOW-BACK SIDE



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3. PIN DEFINITION

3.1 JP1

JP1 is the CMOS clear jumper, using a 1x2 pin with a 2.54mm pitch.

RTC1	Functions
Close	Clear RTC CMOS
Open	Default setting

3.2 AT/ATX2

AT/ATX is the jumper for selecting the power-on mode. When Pins 1-2 are closed, upon

powering up the supply, the board is on.

PS_ON	Power-on Mode
Pin 1-2, Close	AT power-on mode
Pin 2-3, Open	ATX power-on mode
Pin3	NC
Pin 2-3, Open Pin3	ATX power-on mode

3.3 FP1

FP1 is the controller board interface, adopts 2x5Pin with 2mm pitch. Pin definition is shown

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below:



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F_PANEL1	Pin Definition
1,3	Hard flash drive read/write indicator positive and negative signal pin
2, 4	Main power indicator positive and negative signal pin
5, 7	Main board reset signal positive and negative pin
6, 8	Main board power on/off signal positive and negative pin
9, 10	Buzzer interface

3.4 CPU_FAN1, SYS_FAN1

FAN interface supports up to 0.3A. The pin definition is shown below:



PIN	Signal Name	PIN	Signal Name
1	GND	2	5VCC
3	SPEED		

Note: CPU_FAN supports 5V and SYS_FAN supports 12V. CPU_FAN supports automatic speed adjustment. The maximum fan voltage is equal to the input power supply voltage. When the input power supply voltage is high, pay attention to choose the appropriate fan. SYS_FAN does not support automatic speed adjustment.

3.5 HD_P1

1x SATA device power port, adopts CJT company A2501WV-2P device or other compatible devices. The pin definition is shown below:



PIN Signal Name		PIN	Signal Name
1	VCC	2	GND



3.6 J2

PIN	Signal Name	PIN	Signal Name PIN		Signal Name
1	CLK	2	GND	3	DATA

3.7 GPIO

2x5Pin, with a 2.00mm pitch, the pin definition is show below:



3.8 COM

Default JAE interface COM function. If it is switched to COM function on the board, 1-3 jumper should be

modified to 3-5, 2-4 jumper should be modified to 4-6.



3.9 DC-IN

DC IN, external power input for stand-alone use (not connected via JAE connector), DC JACK 12-19V, 90W.

3.10 M-KEY SLOT

NGFF-Key-B Slot, Supports 4G and 5G Modules. When using a 5G module, the 4G screw must be removed.



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4. BIOS PARAMETER SETTING

4.1 HOW TO ENTER BIOS

- 1. Open the system power or restart the system.
- 2. After booting, when the screen displays self-test information, press F2 to enter BIOS SETUP

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interface. Press F12 to start disk selection interface.

4.1.1 KEY FUNCTIONS IN BIOS

- \rightarrow \rightarrow \leftarrow : select screen
- \rightarrow $\uparrow\downarrow$: select item
- Enter: select
- ➤ +/-: change Opt.
- F1: general help
- F3: previous values
- F9: optimized defaults
- F10: save & exit
- ➢ ESC: exit

4.1.2 PRECAUTIONS

1. BIOS setting can directly affect the computer's functions and using.

2. Setting incorrect parameters can cause malfunctions, damage, or even prevent the computer from booting.

3. In case of boot failure due to incorrect settings, please restore to factory mode.



4.2 MAIN

	Aptio Setup - AHI
Main Settings Hovanced Chipset	Security Buot Save & CAT
610S Information 810S Vendor Core Version Compliancy Project Version Build Date and Time Access Level	American Megatrends 5.19 UEFI 2.7; PI 1.6 TL500 1.02 ×64 12/31/2020 14:17:37 Administrator
Board Information Board Name Board ID Fab ID LAN PHY Revision	Default string N/A Default string A6 (B2 Stepping)
Processor Information Name Type Speed ID Stepping Package Number of Processors Hicrocode Revision GT Info	TigerLake ULTTi: Select ItemTigerLake ULTEnter: SelectIntel(R) Celeron(R)+/-: Change Opt.6305 @ 1.80GHzF1: General Help1800 MHzF3: Previous Values0x806C1F9: Optimized DefaultsB0F10: Save & ExitNot Implemented YetESC: Exit2Core(s) / 2Thread(s)*

- System date: set the system date
- System time: set the system time

The black font section contains read-only information, including BIOS ID, version,

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and manufacturer. Detailed CPU information includes the CPU manufacturer, model,

frequency, as well as memory information and more.



4.3 SETTINGS

He to assess and advanced	Chipset	Aptio S Security	Boot	AHI Save & Exit	
AC Power Loss Setting AC Power Loss Setting Special Setting					Enable system to wake from SS using RTC alarm
					<pre>++: Select Screen t1: Select Item Enter: Select */-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

- SS RTC Wake Setting: S5 real-time wake setting
- > AC Power Loss Setting: Auto power-on upon incoming call.
- Special Setting

4.4 ADVANCED

Aptio Setup - AHI Main Settings Advanced Chipset Security Boot Save & Exit		
MC AOFI Settings Connectivity Configuration CPU Configuration Power & Performance PCIE Configuration Thermal Configuration Thermal Configuration Platform Settings ACPI D3Cold settings ACPI D3Cold settings OverClocking Performance Henu AMT Configuration BCLK Configuration BCLK Configuration BCLK Configuration BCLK Configuration BCLK Configuration BCLK Configuration BCLK Settings Debug Configuration Trusted Computing ACPI Settings SMART Settings SMART Settings IT9665EC Super 10 Configuration Hardware Honitor IT67865EC Super 10 Configuration DEFI Variables Protection Intel TXT Information ACOMIC Section Configuration Switchable Graphics AMI Graphic Dutput Protocol Policy	System ACPI Parameters. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F9: Save & Exit ESC: Exit	

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RC ACPI Settings: RC ACPI setting

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- **Connectivity Configuration** \geq
- CPU Configuration: CPU model, frequency, threads, cache, and related \geq information and settings.
- Power & Performance: Common configuration options for CPU Turbo Boost, \geq power consumption, etc.
- **PCIE** Configuration \geq
- PCH-FM Configuration \geq
- Thermal Configuration \geq
- owesomer \geq Platform Settings: Serial console redirection
- \geq ACPI D3Cold Settings
- **OverClocking Performance Menu** \geq
- AMT Configuration Release \geq
- **BCLK** Configuration \geq
- **Debug Settings** \geq
- **Debug Configuration** \geq
- Trusted Computing: computing configuration \geq
- ACPI Settings: advanced configuration and power management port \geq
- \geq IT8613 Super IO Configuration: Super IO configuration
- Hardware Monitor: display CPU temperature, fan speed and the auto-setting of \geq the fan speed
- IT8786SEC Super IO Configuration: Super IO configuration



UEFI Variables Protection

4.5 CHIPSET

Aptio Setup - AMI Hain Settings Advanced Chipsel Security Boot Save & Exit	
* Sustem Ogent (SA) Configuration * PCH-ID Configuration	System Agent (SA) Parameters
	<pre>+*: Select Screen T1: Select Item Enter: Select +/-: Change Opt. F1: Beneral Help F3: Previous Values F5: Optimized Defaults F5: Optimized Defaults F5: Exit</pre>
System Agent (SA) Configuration	KOK
PCH-IO Configuration	$\langle O \rangle$
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- System Agent (SA) Configuration \triangleright
- PCH-IO Configuration

4.6 SECURITY

Main Settings Advanced Chipset Security Boot Save & Exit		
Password Description		Set Administrator Password
If ONLY the Administrator's then this only limits access only asked for when entering If ONLY the User's password is a power on password and m boot or enter Setup. In Setu have Administrator rights. The password length must be in the following range: Minimum length	password is set, to Setup and is Setup. is set, then this wast be entered to up the User will 3	
Maximum length Administrator Password User Password	20	++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help
• Secure Boot		F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Administrator password: This command line is used to set the superuser

ANOTE

password.

User password: set the password for regular users.

Note: The password must be a minimum of 3 characters and a maximum of 20 characters. In case of a forgotten password, short-circuit the JCMOS pins for 5 seconds or remove the BAT1, short-circuiting the positive and negative terminals

for 5 seconds to clear the password.

Secure Boot menu

4.7 BOOT

Boot Configuration Setup Promot Timeput Bootup NumLock State Quiet Boot	1 [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Boot Option #1 51 Fast Boot []	[UEFI: Built-in EFI Sheil] [Disabled]	
		++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

- Setup Prompt Timeout: Self-check interface stay time settings
- Bootup Numlock State: Option to turn on the Num Lock light upon startup
- Quiet Boot: this project allows you to display the supplier logo on the startup screen.
- Boot Option Priorities

- Boot Option #1: The setting for the first boot option.
- Boot Option #2: The setting for the second boot option.
- Fast Boot
- 4.8 SAVE&EXIT

Aptio Setup - AHI		
Main Settings Advanced	Chipset Security Boot	Save a Exit
Main Settings Advanced Save Options Save Changes and Exit Discard Changes and Reset Discard Changes and Reset Save Changes Discard Changes Discard Changes Default Options Restore Defaults Save as User Defaults Restore User Defaults Boot Override UEFI: Built-in EFI Shell	CUIDSEY SECONTRY BOOT	Exit system setup after saving the changes. ++: Select Screen Ti: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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- Save Changes and Exit
- Discard Changes and Exit
- Save Changes and Reset
- Discard Changes and Reset
- Save Changes
- Discard Changes
- Restore Defaults
- Save as User Defaults
- Restore User Defaults

Boot Override



Failure	Solutions
Failure to Power On After Powering Up	 Check if the power connection cable is properly connected. Verify if the power supply meets the board's power requirements. Plug the memory module again. Replace the memory module. Try clearing the board CMOS following the manual instructions. Check for any external cards. Remove them and check if the system boots normally.
Monitor Not Displaying After Powering On	 Check if the monitor is powered on. Ensure the power cables are correctly connected to both the monitor and the system unit. Check if the monitor cable is properly connected to the system unit and the monitor. Check the brightness control of the display. Increase brightness using the control. Refer to the monitor manual for detailed instructions. The monitor might be in "power-saving" mode. Press any key on the keyboard.
BIOS Setup Settings Cannot Be Saved	 Check if the CMOS battery voltage is below 8V. If it is low, replace the battery and reconfigure the settings. If the BIOS settings are incorrect, adjust the time and date in the BIOS Setup as indicated by the boot screen (DEL key).
Boot Device Not Found Error	 Ensure the hard drive power and data cables are properly connected. Check if the hard drive has any physical damage. Verify if the operating system is correctly installed on the hard drive
Blue Screen or System Freeze During System Startup	 Check if the memory modules and external cards are loose. Try removing newly installed hardware, uninstalling drivers, or software. Attempt to replace the memory.
Slow System Startup	1. Use third-party software to check for bad sectors on the hard drive.

Appendix: Troubleshooting Analysis and Solutions



	2. Check if the remaining space in the system
	partition is insufficient.
	3. Verify if the CPU cooling fan is functioning
	properly.
	1. Check if the CPU cooling fan is operating
	properly.
	2. Verify if the industrial computer's reset button
	was accidentally triggered.
	3. Use antivirus software to check for virus
Automatic System Restart	infections in the system.
	4. Check if the memory modules and external
	cards are loose.
	5. Confirm if the power supply's load capacity is
	adequate, try replacing the power supply if
	necessary.
	1. Check if the USB device requires separate
	power.
USB Device Not Detected	2. Ensure there are no poor contacts in the USB
	interface.
	3. Verify if the USB controller is enabled in the
	BIOS Setup.
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