

AD600CA

Manual (R100)



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Chapter 1 Product Introduction

1.1. Product Specification

processor system	Onboard Intel Alder Lake-U/-P series processors			
	EFI BIOS			
Memory	2*DDR5 SO-DIMM, total maximum 64GB			
storage	1*M.2 M-Key 2280 (NVMe PCIe 3.0 x4/SATA3.0 protocol)			
	1*SATA3.0 interface, 2Pin 5V power supply			
Display	2*HDMI2.0 interface, support 4096x2160@60Hz			
	2*Type-C interface, support DP 7680x4320@60Hz and USB3.2 Gen2			
Board edge I/O	Power button, 2-in-1 audio jack, reset button, 2*USB3.2 Gen2			
interface	DC JACK, 2*HDMI, 2*Type-C, 1*LAN (can choose 2 lan)			
	Single and double networks are optional: for single network, 1*USB3.2 is used;			
	for dual network, 1*USB3.2 is required			
Extended	External TPM2.0 is optional, but not by default. The default is CPU built-in			
Interface/Function	TPM2.0			
	1*M.2 E-Key (PCIe+USB2.0 protocol, WIFI/BT module)			
	1*RS232 header, pitch 2.0mm			
	1*USB2.0 header, 2x5Pin, pitch 2.0mm			
	1*4Pin PWM CPU FAN			
power supply	DC 12-19V, above 120W			
working environment	Working temperature: -20° C ~ $+60^{\circ}$ C; Working humidity: 5% ~ 90%			
	Storage temperature: $-40^{\circ}C \sim +85^{\circ}C$; storage humidity: $5\% \sim 90\%$			
operating system	Windows10, Windows11, Linux			
support				
size	100 x100mm			
net weight	About 120g without radiator, about 220g with radiator			



1.2. Functional position diagram on the front of the product





1.3, Product Dimension Drawing(Unit: mm)





Chapter 2, PIN Definition

The first Pin is marked with a protruding triangle or square or number.

2.1. The power input is DC 12-19V, and the socket method is selected according to the customer's needs.

DC_IN1 is the 5525 DC JACK power connector; DC_IN3 is the 2Pin Phoenix terminal connector.

2.2. The power on button with light is the indicator of the power up of the motherboard after pressing the power on button, blue.

The blue LED on the motherboard is the DC power input indicator, plugged into the power supply is bright.

The blue LED on the side of the motherboard is the hard disk indicator.

2. 3 USB2 is a 2x5Pin, 2.0mm pitch row of pins defined as follows:



2. 4, FP1 is a 2x5Pin, 2.0mm pitch row of pins defined as follows:



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2. 5, JP1 is a 2x5Pin, 2.0mm pitch row of pins defined as follows:



2. 6, JP2 is a 1x2Pin, 2.0mm pitch AT/ATX power-on method selection row of pins;

Close:power on, default; Open:press power on button to power on.

2.7、 CFAN is a 4Pin CPU fan socket defined as follows:

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
1	PWM	2	FG	3	+5V	4	GND

2.8, JP1 is a 1x2Pin, 2.0mm pitch CMOS line pin defined as follows:

Status	Definition	Pin	Definition
Close	Clear CMOS	Open	default state

- 2. 9、M.2_2280 is an M.2 M-Key storage device slot with optional NVMe (PCIe4.0_x4 default) and SATA3.0 protocols in 2280 size. The hardware materials are different for the two protocols.
- 2. 10, M.2_WIFI is a WIFI/BT device slot for M.2 E-Key, PCIe+USB2.0 protocol, supports 2230 size.



- 2. 11、 2*TYPE-C ports support USB3.2+DP function.
- 2. 12、 USB or LAN is a two-choice function, so you need to pay attention to it when you place an order.
- 2.13 $\$ AUD/MIC is a 2-in-1 audio jack with audio output and microphone input.
- 2. 14、 CIR1 is a reserved function, infrared interface, which needs to be debugged with software. The definition is as follows:

Pin	Definition	Pin	Definition	Pin	Definition
1	CIRRX	2	GND	3	+5V



Chapter 3: BIOS parameter setting

3.1. Entering BIOS and Updates

3.1.1. How to enter BIOS system and key functions

- 1. Power on or reboot the system.
- 2. After powering on the system, when the self-test message appears on the screen, press

F2 to enter the BIOS SETUP interface, and press F12 to enter the BOOT selection interface.

3.1.2. The function of each key in the BOIS screen is as follows;

 $\rightarrow \leftarrow$: Select menu

- $\uparrow\downarrow$: Select item
- Enter : Confirm selection
- +/- : Change value
- F1 : Help
- F2 : Abandon this modification and return to the last set value.
- F9 : Restore factory defaults
- F10 : Save changes and exit
- ESC : Go back to the previous screen

3.1.3, Precautionary:

1. BIOS settings directly affect the performance of the computer and the use of its functions.

2. Setting the wrong parameters will cause damage to the computer and even prevent it

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from booting.

3. If the wrong settings cause the computer not to boot up, please restore the factory mode.

3. 1. 4、 BIOS update step (If you need to update the BIOS, please contact our technical support staff.)

1. Prepare a USB flash disk in FAT32 format.

2. Copy the EFI directory provided by our company to the root directory of the USB

disk.

3. Press F12 to select the startup item when you turn on the computer, choose to boot

from UEFI:USB flash disk, and enter into the SHELL interface as below:



4. After entering the SHELL, wait for 5s, it will be automatically refreshed (the process of updating can not power off, if the update process interrupt the power, it will cause not

boot).

Pictures of the BIOS update process:



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5. As shown in the following figure is the interface that has finished updating the BIOS,

and then reboot on it.

24KB of 24KB - 100 percent complete. Programming Flash [0x010F000] - Erasing Flash Block [0x1BE000] - 100 percent complete. - Programming Flash [0x01BE000] 4KB of 4KB - 100 percent complete. - Erasing Flash Block [0x206000] - 100 percent complete. - Programming Flash [0x0206000] 24KB of 24KB - 100 percent complete. Erasing Flash Block [0x240000] - 100 percent complete. - Programming Flash [0x0240000] 132KB of 132KB - 100 percent complete. - Verifying Flash [0x0800000] 8192KB of 8192KB - 100 percent complete. RESULT: The data is identical. FPT Operation Successful. C:>> 6 C:>>



3.2. Main Menu

Main DEMFast Advanced Chipset	Aptio Setup – AMI Security Boot Save & Exit	
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level	American Megatrends 5.25 UEFI 2.8; PI 1.7 AD600CA 1.06 ×64 04/25/2023 14:06:44 Administrator	
Processor Information Name Type Speed ID Stepping Package Number of Efficient-cores Number of Performance-cores Microcode Revision GT Info eDRAM Size IGFX GOP Version Memory RC Version Total Memory	AlderLake ULT 12th Gen Intel(R) Core(TM) 17-1270P 2000 MHz 0x906A3 L0 Not Implemented Yet 8Core(s) / 8Thread(s) 4Core(s) / 8Thread(s) 424 0x4626 N/A 21.0.1065 0.0.3.116 16384 MB	<pre>++: Select Screen t4: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

The black font part is the read-only information item; it contains the BIOS ID, version, and CPU details, including the CPU manufacturer, model, frequency, L1 cache size, L2 cache size, and other information.

3.2.1、System Language:

3.2.2, **System Date:** Sets the system date. It is expressed in the format of

Month/Day/Year. The setting range is: Mon month (Jan.-Dec.), Date/day (01-31), Year/year (up to 2099).

3.2.3, **System Time:** Sets the system time. Expressed in hour/minute/second format.

The setting range is: Hou hour (00-23), Minute/minute (00-59), Second/second (00-59).



3.3. Advanced: Advanced Settings

	Main DEMFast Advanced	Chipset	Aptio Security	Setup Boot	- AMI Save &	Exit	an dia kanala
****	TPM Device Selection Tcc Activation Offset Turbo Mode S5 RTC Wake Control AC Power Loss Watchdog Control Power Manager Control		(PTT) 15 (Enable	d]			Selects TPM device: dTPM. PTT - Enables f SkuMgr dTPM 1.2 - Dis in SkuMgr Warning 1 will be disabled and saved on it will be .
							<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Default: F10: Save & Exit ESC: Exit</pre>
		Version	1 2.22.1284	Copyr	ight (C)	2023	AMI

TPM Device selection: Built-in and external selection, when PTT is selected, it is built-in TPM chip and DTPM is external.

Tcc Activation offset: temperature compensation value

Turbo Mode: CPU RPM setting.

S5 RTC Wake Control: Timed power on setting.

AC Power Loss: AT/ATX option

Watchdog Control: Watchdog setting

Power Manger Control: Power Management Settings



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Main DEMEast Advanced Chipset	Aptio Setup – AMI Security Boot Save & Exit	
 Connectivity Configuration CPU Configuration Power & Performance OverClocking Performance Menu AMT Configuration Trusted Computing ACPI Settings ITB613 Super IO Configuration Hardware Monitor Serial Port Console Redirection Acoustic Management Configuration USB Configuration Network Stack Configuration CSM Configuration NVMe Configuration 		Configure Connectivity related options →+: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

CPU Configuration: Processor parameter information and common setting options

Trusted Computing: TPM Settings

ACPI Settings: Advanced Configuration and Power Management

IT8613 Super IO Configuration: COM Port Setting Options

Hardware: Fan-related information and setup options

USB Configuration: USB information and control options

CSM Configuration: UEFI, PXE and other related settings

NVMe Configuration: NVME hard disk related options

3.5、Security:

Administrator Password: This line is used to set the super user password.

User Password: The prompt line is used to set the normal user password.

Secure Boot: Secure boot settings

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Prompt:

The minimum length of password is 3 digits and the maximum length is 20 digits.

If you forget the password; short the pin RTC1 for 5 seconds or pull out the battery of

BAT1 and short the positive and negative terminals for 5 seconds to clear the password.

3.6、Boot:



Boot configuraion: Boot option settings

Bootup Numlock state: option to switch the keypad light on/off after bootup

Quiet Boot: This item allows you to display the supplier logo on the boot screen.

Fast Boot: Fast boot settings

Boot Option Priorities: Boot priority options

Boot Option # 1: First boot item setting

Boot Option # 2: Second boot option setting

New Boot option policy: New boot option setting

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3.7、Save & Exit

	Aptio Setup	- AMI	
Main UEMPast Advanced Chi	set Security Boot	Save & Exit	
Save Options Save Changes and Exit Discard Changes and Exit			Exit system setup after saving the changes.
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			+/-: Change Opt. +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	cion 2 22 1284 Conu	right (C) 2023	AMI

Save Changes and Exit: Save Changes and Exit

Discard Changes: Discard Changes and go back to the previous save.

Save Changes and Reset: Saves changes and restarts the computer

Discard Changes and Reset: Discard changes and restart the computer.

Save Changes: Save Changes

Discard Changes: Discard changes

Restore Defaults: If selected, the system will restore factory settings.



Appendix: Common Failure Analysis and Resolution

Malfunction	Checkpoints
	1. Please make sure that the power supply cable is connected properly.
	2. Make sure the power supply meets the power requirements of the
	motherboard.
No power on after	3. Try to re-plug the memory stick
power on	4. Try to replace the memory stick
	5. Try to clear the motherboard CMOS according to the motherboard manual.
	6. Please confirm whether there is an external card, remove the external card
	after the normal
	1. Check whether the monitor is turned on
	2. Check whether the power cable is correctly connected to the monitor and the
	system unit
VGA does not	3. Check whether the monitor cable is correctly connected to the system unit
display after	and the monitor
power on	4. Check if the display brightness control is set to dark, you can increase the
	brightness by using the brightness control. For more information, refer to the
	monitor operating instructions
	5. The monitor is in the "power saving" mode, press any key on the keyboard.
	1. Please make sure whether the CMOS battery voltage is lower than 2.8V, if it
BIOS Setup	is lower than 2.8V, please replace it with a new one.
cannot be saved	2. BIOS setting is not correct, according to the key (DEL) prompted by the boot
	screen, adjust the time and date in BIOS Setup.
	1. Please make sure whether the power cable and data cable of the hard disk are
Cannot find	connected normally.
bootable device	2. Make sure the hard disk is not physically damaged.
	3. Make sure the operating system is installed properly in the hard disk.
Blue screen or	1. Make sure the memory stick and external card are not loose.
crash during	2. Try to remove the newly installed hardware, uninstall the driver or software.
system entry	3. Try to replace the memory
Slow to onter the	1. Try to use third-party software to check whether there are bad sectors on the
suctom	hard disk.
59510111	2.Please make sure whether the remaining space of the system partition is too



	small.				
	3. Make sure the CPU cooling fan is rotating normally.				
	1. Make sure the CPU cooling fan is rotating normally.				
	2. Please make sure whether the reset button of the industrial computer is				
	triggered by mistake.				
System restarts	3. Please use antivirus software to confirm whether the system is infected with				
automatically	viruses.				
	4. Please make sure that the memory stick and external card are not loose.				
	5. Please make sure whether the power supply with load capacity is enough,				
	you can try to replace the power supply.				
II. able to detect	1. Please make sure whether the USB device needs to be powered separately.				
Unable to detect	2. Please make sure that there is no poor contact with the USB port.				
USB device	3.Please make sure that the USB controller is turned on in BIOS Setup.				