



IP65 MIL-STD-810G Rugged Computer

with Intel[®] Core i7-7820EQ,

9V to 36V DC-in, Extended Temp

-40 to 70°C



User's Manual . Revision 1.2 Data : 18/08/2021 Revision 1.2 Data : 18/08/2021

Safety Information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your local distributor.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter any technical problems with the product, contact your local distributor

Statement

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- All product specifications are subject to change without prior notice



Revision History

Revision	Date(yyyy/mm/dd)	Changes
V1.0	2019/05/23	Initial release
V1.2	2020/6/10	Upgrade Motherboard
V1.3	2021/08/18	Modify rear IO X5 DVI-D pin define

Packing list

AV710 Rugged Fanless System

CD (Driver + Quick Installation Guide)

Ordering information

Model Number	Description
AV710	IP65 MIL-STD-810G Rugged Computer with Intel® Core i7-7820EQ,
	9V to 36V DC-in, Extended Temp -40 to 70°C



If any of the above items is damaged or missing, please contact your local distributor.



Revision 1.2 Data : 18/08/2021

Table Contents

Safety Information	1
Revision History	2
Packing list	2
Ordering information	2
Table Contents	3
Chapter 1: Product Introduction	4
1.1 Key Features	4
1.2 Dimensions	5
1.3 Panel Component	6
Chapter 2: Connector pin definition	7
Chapter 3: AMI BIOS UTILITY	
3.1 Starting	
3.2 Navigation Keys	
3.3 Main Menu	
3.4 Advanced Menu	11
3.4.1 CPU Configuration	
3.4.2 Power & Performance	
3.4.3 PCH-FW Configuration	
3.4.4 ACPI Setting	
3.4.5 IT8786 Super IO Configuration	15
3.4.6 Hardware Monitor	
3.4.7 CSM Configuration	
3.5 Chipset	
3.5.1 SA Configuration	
3.5.2 PCH-IO Configuration	21
3.6 Security	21
3.7 Boot	22
3.8 Save & Exit	23

Revision 1.2 Data : 18/08/2021

Chapter 1: Product Introduction

1.1 Key Features

SYSTEM

High Power Processor	Intel [®] Core™ i7-7820EQ Processor
Memory type	DDR4 Up to 32GB SO-DIMM
BIOS	AMI @BIOS
FRONT I/O	
DC-In	1 (Amphenol TV07RW-11-54P)
Power Button	1 x Power Button with LED backlight
Ground Screw	1 x M4 Screw
REAR I/O	
X1	1 x LAN (Amphenol TV07RW-13-98S)
X2	1 x LAN (Amphenol TV07RW-13-98S)
Х3	2 x USB (Amphenol TV07RW-13-98S)
Х4	2 x COM (Amphenol TV07RW-13-35S)(COM1 RS232/422/485 , COM2 Only RS232)
X5	1 x DVI-D (Amphenol TV07RW-13-98S)

MECHANICAL & ENVIRONMENTAL

construction	Aluminum chassis with fanless design
Power requirements	9V to 36V DC-IN
Dimension(W X H X D)	230 X 83 X 280 mm(9.06" x 3.27" x 11.02")
Operating Temp.	-40 to 70°C (ambient with air flow)
Storage Temp.	-40 to 85°C
Relative Humidity	5% to 95%, non-condensing.

Revision 1.2 Data : 18/08/2021

1.2 Dimensions







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Revision 1.2 Data : 18/08/2021

1.3 Panel Component



DC-IN	DC-IN 9-36V
X1	1 x Gigabit Ethernet Port
X2	1 x Gigabit Ethernet Port
X3	2 x USB2.0 Ports
X4	2 x RS232 Ports
X 5	1 x DVI-D Port



Revision 1.2 Data : 18/08/2021

Chapter 2: Connector pin definition

2.1 DC-IN

DC-IN

Connector: AMPHENOL TV07RW11-54P



2.2 LAN(X1-X2)

LAN (X1-X2)

Connector: AMPHENOL TV07RW-13-98S

Pin	Signal
А	PO
В	NO
С	P1
D	P2
E	N1
F	N2
G	P3
н	N3



Revision 1.2 Data : 18/08/2021

2.3 USB(X3)

USB(X3)

Connector: AMPHENOL TV06RW-13-98S

Pin	Signal]
А	VBUS	
В	D-	BÔH
С	D+	
D	GND] (Q Y K Q)
E	VBUS	
F	D-	
G	D+	
Н	GND	

2.4 COM(X4)

COM (X4)

Connector: AMPHENOL TV07RW-13-35S COM1 RS232/422/485 ; COM2 only RS232

Pin	Signal	RS422	RS485
1	DCD	TX-	Data-
2	RXD	TX+	Data+
3	TXD	RX+	
4	DTR	RX-	
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS		
9	RI		
10	DCD		
11	RXD		
12	TXD		
13	DTR		
14	GND		
15	DSR		
16	RTS		
17	CTS		
18	RI		





Revision 1.2 Data : 18/08/2021

2.5 DVI-D(X5)

DVI-D (X5)

Connector: AMPHENOL TV07RW-13-35S

connee	Contrainmentoe morran 15	333
Pin	Signal	
1	TMDS DATA 2-	
2	TMDS DATA 2+	
3	DDC_CLOCK (SCL)	
4	DDC_DATA (SDL)	
5	TMDS DATA 1-	
6	TMDS DATA 1+	
7	TMDS DATA 0-	
8	TMDS DATA 0+	2260 528
9	TMDS clock -	
10	TMDS clock +	144 00000
15	TMDS DATA2/4 shield	700
17	TMDS DATA1/3 shield	
18	TMDS DATA1/5 shield	
19	TMDS CLOCK shield	
20	GND	
21	Ground	
22	5VDC	

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Revision 1.2 Data : 18/08/2021

Chapter 3: AMI BIOS UTILITY

This chapter provides users with detailed descriptions on how to set up a basic system configuration through the AMI BIOS setup utility.

3.1 Starting

To enter the setup screens, perform the following steps:

- Turn on the computer and press the key immediately.
- After the key is pressed, the main BIOS setup menu displays. Other setup screens can be accessed from the main BIOS setup menu, such as the Chipset and Power menus.

3.2 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. Some of the hot keys are <F1>, <F10>, <Enter>, <ESC>, and <Arrow> keys.

1.4		1.14		
IIV.				
IB				λ.
13				
	-	-	_	

Some of the navigation keys may differ from one screen to another.

Left/Right	The Left and Right < Arrow > keys moves the cursor to select a
	menu.
Up/Down	The Up and Down <arrow> keys moves the cursor to select a</arrow>
	setup screen or sub-screen.
+- Plus/Minus	The Plus and Minus < Arrow > keys changes the field value of a
	particular setup setting.
Tab	The <tab> key selects the setup fields.</tab>
F1	The <f1> key displays the General Help screen.</f1>
F10	The <f10> key saves any changes made and exits the BIOS setup</f10>
	utility.
Esc	The <esc> key discards any changes made and exits the BIOS</esc>
	setup utility.
Enter	The <enter> key displays a sub-screen or changes a selected or</enter>
	highlighted option in each menu.

Revision 1.2 Data : 18/08/2021

3.3 Main Menu

The Main menu is the screen that first displays when BIOS Setup is entered, unless an error has occurred.



System Date

Use this function to change the system date.

Select System Date using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

The date setting must be entered in MM/DD/YY format.

System Time

Use this function to change the system time.

Select System Time using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

The time setting is entered in HH:MM:SS format.

Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

Access Level

Display the access level of the current user in the BIOS.

3.4 Advanced Menu

The Advanced Menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of

Revision 1.2 Data : 18/08/2021

your system or let you set some features according to your preference. Setting incorrect field values

may cause the system to malfunction.



3.4.1 CPU Configuration

CPU Configuration		When enabled, a VMM can
Туре	Intel(R) Core(TM)	hardware capabilities provide
TD	i7-7820EQ CPU @ 3.00GHz	by Vanderpool Technology.
10 Deced	0×906E9	
Speed	3000 MHz	
Li Data Lache	32 KB X 4	
12 Cache	JE KB X 4	
L3 Cache	230 ND X 4	
14 Cache	N/A	
VMX	Supported	
SMX/TXT	Supported	1 Alexandre and a second s
		→+: Select Screen
		↑↓: Select Item
Technology	F	Enter: Select
Active Processor Cores	[AII] [Epobled]	+/-: Change Upt.
Hyper-Inreading	[Ellabied]	F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit



Revision 1.2 Data : 18/08/2021

3.4.2 Power & Performance



Revision 1.2 Data : 18/08/2021

3.4.3 PCH-FW Configuration



3.4.4 ACPI Setting





Revision 1.2 Data : 18/08/2021

3.4.5 IT8786 Super IO Configuration



User can choose a mode (RS232/RS422/RS485) on each serial port.





Revision 1.2 Data : 18/08/2021

A	Aptio Setup Utility – (dvanced	Copyright	(C) 2020 American	Megatrends, Inc.
Serial P	ort 2 Configuration			Enable or Disable Serial Port (COM)
Serial F Device S	Port Settings	[Enabled] IO=2F8h;	IRQ=3;	
				++: Select Screen †↓: Select Item
				Enter: Select +/-: Change Opt. F1: General Help F2: Providence Values
				F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2.18.1263. C	opyright (C) 2020 American Me	gatrends, Inc.

	Aptio Setur Advanced	Utility - Copyright	(C) 2020 American	Megatrends, Inc.
Serial Serial Device	Advanced Port 3 Configurat. Port Settings	lon [Enabled] IO=3E8h;	IRQ=11;	<pre>thegotiends, inc. Enable or Disable Serial Port (COM) ++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
	Version	2.18.1263. Copyright (C) 2020 American Mer	gatrends, Inc.

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Aptio Setup Utility – C Advanced	Copyright (C) 2020 Americar	n Megatrends, Inc.
Serial Port 4 Configuration		Enable or Disable Serial Port
Serial Port	[Enabled]	
Device Settings	IO=2E8h; IRQ=11;	
		++ · Select Screen
		↑↓: Select Item
		Enter: Select
		+/-: Change Upt. F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		ESC: Exit
Version 2.18.1263. Co	opyright (C) 2020 American Me	gatrends, Inc.

3.4.6 Hardware Monitor

Aptio Setup Utility – (Advanced	Copyright (C) 2020 America	n Megatrends, Inc.
Pc Health Status FAN Setting Set Tempactive S.F. Set Tempactive full run Initial FAN speed (S.F.) CPU Temperature System Temperature Fan Speed Vcore VDDQ +12V +5V	[Enable Smart Fan] [67 C] [82 C] [50 %] : +56 % : +39 % : 1785 RPM : +0.895 V : +1.803 V : +11.191 V : +4.600 V	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. Co	pyright (C) 2020 American Me	gatrends, Inc.

Revision 1.2 Data : 18/08/2021

3.4.7 CSM Configuration



3.5 Chipset



Revision 1.2 Data : 18/08/2021

3.5.1 SA Configuration

	Aptio Setup Utility - (Chipset	Copyright (C) 2020 America	n Megatrends, Inc.
System Agent	(SA) Configuration		Graphics Configuration
SA PCIe Code VT-d	Version	2.9.0.0 Supported	
► Graphics Con	figuration		 ★: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2.18.1263. Co	pyright (C) 2020 American Me	gatrenus, inc.

3.5.1.1 Graphics Configuration





Revision 1.2 Data : 18/08/2021

3.5.1.2 LCD Control

Aptio Setup Utility - Chipset	- Copyright (C) 2020 America	n Megatrends, Inc.
LCD Control Primary IGFX Boot Display LCD Panel Type Panel Scaling Backlight Control Active LFP Panel Color Depth Backlight Brightness	[VBIDS Default] [VBIDS Default] [Auto] [PMM Normal] [No eDP] [18 Bit] 255	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263.	Copyright (C) 2020 American M	egatrends, Inc.

Primary IGFX Boot Display: Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

LCD Panel Type: Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

SDVO-LFP Panel Type: Select SDVO panel used by Internal Graphics Device by selecting the appropriate setup item.

Panel Scaling: Select the LCD panel scaling option used by the Internal Graphics Device.

Backlight control: backlight control setting

Panel Color Depth: select the LFP panel color depth.



Revision 1.2 Data : 18/08/2021

3.5.2 PCH-IO Configuration

	Aptio Setup Utility - Chipset	- Copyright (C) 2	2020 American Megat	rends, Inc.	
PCH-IO Confi	guration		SATA D	Device Options Se	ttings
 SATA And RST Security Con 	Configuration				
			++: Sel †4: Sel	ect Screen ect Item	
			+/-: Cha F1: Gene	ange Opt. eral Help	
			F2: Prev F3: Opti F4: Save	mized Defaults & Exit	
			ESC: EXI	τ	
13					

3.6 Security



Revision 1.2 Data : 18/08/2021

3.7 Boot

Aptio Setup Main Advanced Chipset	Utility – Copyright (C) 2020 Amer Security Boot Save & Exit	rican Megatrends, Inc.
Boot Configuration Bootup NumLock State Quiet Boot	ion] [Enabled]	Select the keyboard NumLock state
Boot Option Priorities Fast Boot	[Disable]	
New Boot Option Policy	[Default]	
		<pre>##: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version	2.18.1263. Copyright (C) 2020 Americ	an Megatrends, Inc.

Bootup NumLock State: Select the keyboard NumLock state.

Quiet Boot: Enables or disables Quiet Boot option.

Fast Boot: Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Boot option priorities

Boot Option #1: Sets the system boot order.



Revision 1.2 Data : 18/08/2021

3.8 Save & Exit

Aptio Setup Utility – Copyright (C) 2020 Americar Main Advanced Chipset Security Boot Save & Exit	Megatrends, Inc.
Save Options Save Changes and Exit Discard Changes and Reset Discard Changes and Reset Discard Changes Discard Changes Default Options Restore Defaults Save as User Defaults Restore User Defaults Boot Override Launch EFI Shell from filesystem device	<pre>++: Select Screen tl: Select Item Enter: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. Copyright (C) 2020 American Meg	gatrends, Inc.

This screen provides functions for handling changes made to the BIOS settings and the exiting of the Setup program.

Save Changes and Exit

Exit system setup after saving the changes.

Discard Changes and Exit

Exit system setup without saving any changes.

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Save Options

Save Changes: Save Changes done so far to any of the setup options.

Discard Changes: Discard Changes done so far to any of the setup options.

