



AVS-700 Series APLEX High-end Vertical Application System 8/9th Gen. Intel Core-I and Xeon[®] Processors and C246 Chipset Platform User Manual

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Aplex Technology, Inc.	
15F-1, No.186, Jian Yi Road, Zhonghe District, New Taipei City 235, Taiwa	an
Tel: 886-2-82262881 Fax: 886-2-82262883 E-mail: aplex@aplex.com.tv	<u>v</u>

URL: <u>www.aplex.com.tw</u>

Revision History

Reversion	Date	Description
1.0	2021/10/27	Official Version

Warning!

This equipment will generate, use and radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which is designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user with its own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Packing List

Accessories (as ticked)	included in this package are:
Adaptor	
Driver & manual CD disc	
Other	_(please specify)

Safety Precautions

Follow the messages below to prevent your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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1.1 Specifications

	AVS-700
System	
CPU	Intel 8/9 th Gen. Core i3/i5/i7 Processors
	Intel [®] Xeon [®] E Processors, LGA 1151 Socket
Chipset	C246
Memory	4 x 288-pin DDR4 (2400/2666MHz) ECC DIMM memory sockets,
	Dual channel, up to 128GB support.
	(Core™ i5/i7/only support non-ECC)
	Default: 8G DDR4 2666 U-DIMM
BIOS	Insyde128Mbit
Outside IO Port	
Default I/O Ports	1 x Ethernet with Intel [®] I211AT PCIe (10/100/1000Mbps)
	1 x Ethernet with Intel [®] I219LM PCIe with iAMT12.0
	(10/100/1000Mbps) (only Xeon/Core i7/i5 supports iAMT)
	4 x USB 3.1 Gen1
	2 x USB 2.0
	1 x RS-232/422/485 (RS-232 w/ power) (DB-9)
	1 x PS/2 (mini-DIN-6)
	1 x VGA (up to 1920x1200@60Hz)
	2 x DP++ (up to 4096x2160@60Hz)
	1 x Power Switch
	1 x Reset Switch
Storage Space	1
Storage	Mainboard Backside connectors:
	4x SATA3 channels (RAID 0/1/5/10):
	1 x Mini PCIe (PCIe/mSATA, share w/SATA conn. as opt./USB2.0)
	1 x M.2 2242/2280 M key (PCIe x4 NVMe, Intel Optane Memory
	Support)
	Default: 1 x M.2 256G TLC 2280 with Win10/ 1 x 2T 3.5" HDD
Expansion	

Expansion Slot	1 x PCIe x16 (Gen 3) (x8/x8 signals as opt., MOQ required)
	3 x PCle x4 (Gen 3)
	2 x PCI
Power	
Power Input	500W PSU (100V~220V AC-IN)
Misc	
Misc	1x Infineon TPM1.2/2.0 (opt., MOQ required)
	1x Watchdog Timer (256 steps)
Mechanical	
Construction	Beige Color
Mounting	Rackmount (Default)
Dimensions	451.2 x 429 x 173.6 mm (LxWxH)
Net Weight	15.3Kg
Ventilation	2 x 92cm System Fan with Quick Access Filter
Environmental	
Operating	0~45°C
Temperature	
Storage Temperature	-20~60°C
Operating Humidity	0 to 90%, non-condensing
Storage Humidity	0 to 90%, non-condensing
Certification	CE, FCC , RoHS
Operating System	Microsoft [®] Win10 IoT 64-bit Traditional Chinese, Linux
Support	

1.2 Dimensions

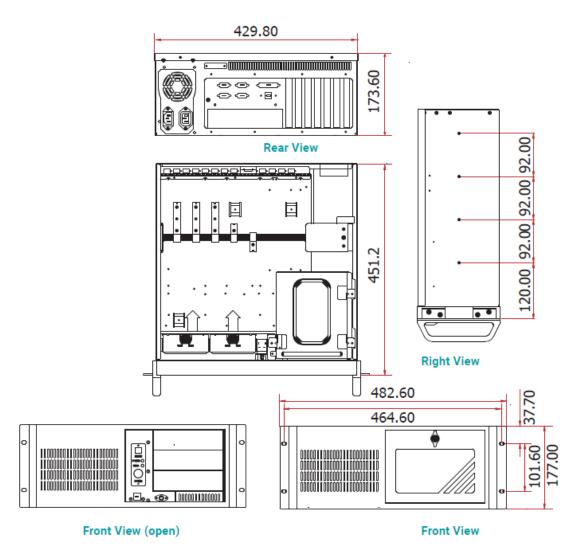


Figure 1.1: Dimension of AVS-700

1.3 Brief Description of AVS-700

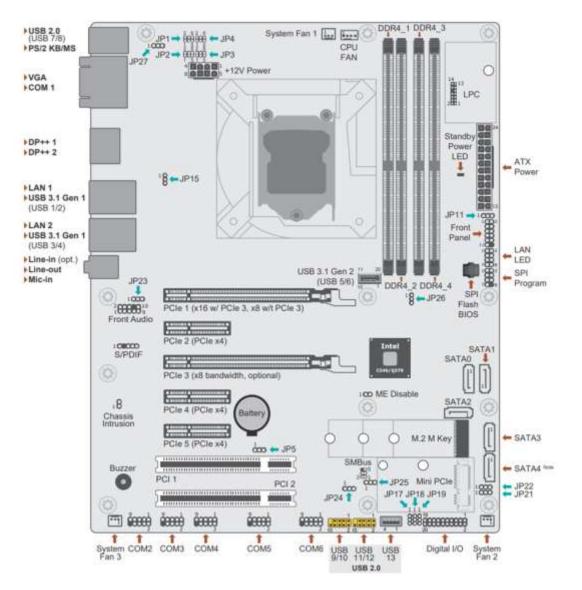
AVS-700 is designed with MB CPU fan-less and GPU card expansion with smart fan support. It is powerful with Intel 8th and 9th Generation Core i3/i5/i7 processor and Intel Xeon-E processors, and it supports 4 x 260-pin DDR4 SO-DIMM up to 128GB memory. They come with 4 x USB 3.1 Type A, 2 x USB 2.0 Type A, and 2 x USB 2.0 at front panel, 2 x LAN, 2 x DP++, 1 x VGA, 1 x COM ports, and 1 x power switch. AVS-700 supports easy-accessible 4 x 2.5" SATA3 HDD space and 100-220V AC power input. AVS-700 has up to 1 x PCIe x16(Gen3), 3 x PCIe x 4(Gen3) and 2 x PCI socket for expansion. It is plating beige color SECC chassis design, and can be rackmount. AVS-700 works well with our other products and they can provide an absolute easy way to perform control maintenance.



Figure 1.2: Front View of AVS-700



Figure 1.3: Rear View of AVS-700



2.1 Jumpers and Connectors Location

Figure 2.1: CS632 Jumpers and Connectors Location

2.2 Jumper Settings

Mini PCIe/mSATA Signal Select	JP21	COM 1 RS2	32/422/485 Select	JP3	JP1/JP2
Mini PCIe (default)	1-2 On	RS232 (defa	ult)	1-3, 4-6 On	1-3, 2-4 On
mSATA	2-3 On	RS422 Full C	Duplex	3-5, 4-6 On	3-5, 4-6 On
Mini PCIe/mSATA Power Select	JP22	RS485		3-5, 2-4 On	3-5, 4-6 On
3V3DU (default)	1-2 On	Note:		-	
3V3	2-3 On	When COM 1 RS232/422/485 is selected, JP1 and must be set in accordance to JP3.			JP1 and JP2
Clear CMOS	JP5	COM 1 RS232/Power Select JP4			P4
Normal (default)	1-2 On	RS232 (default)		1-3 (RI-), 2-4 (DCD-) On	
Clear CMOS	2-3 On	RS232 with power		3-5 (+5V), 4	4-6 (+12V) On
USB Power Select	JP15/23/24	4/25/26/27	Power-on Sele	ect	JP11
5VDU (default)	1-2	2 On	Power Button (d	lefault)	1-2 On
5V	2-3	3 On AC In			2-3 On

Digital I/O Power Select	JP17
+5VDU (default)	1-2 On
+5V	2-3 On

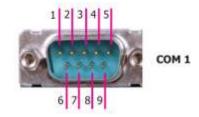
Digital I/O Output State	JP18 (DIO 0~3) JP19 (DIO 4~7)
Digital I/O Power (default)	1-2 On
GND	2-3 On

2.3 Pin Assignments

Front Panel

	Pin	Assignment		Pin	Assignment
	1	NC		2	LED Power
HD-LED	3	HDD Power	PWR-LED	4	LED Power
HD-LED	5	Signal		6	Signal
	7	GND		8	GND
RESET	9	Signal	ATX-SW	10	Signal
	11	NC		12	

COM 1 Port: RS232/RS232 with Power/RS422/RS485 COM 2/3/4/5/6 Headers: RS232



Pin	R5232	RS232 with Power	RS422 Full Duplex	R5485
1	DCD-	+12V	RX+	DATA+
2	SIN-	SIN-	RX-	DATA-
3	SO-	SO-	TX+	NC
4	DTR-	DTR-	тх-	NC
5	GND	GND	GND	GND
6	DSR-	DSR-	NC	NC
7	RTS-	RTS-	NC	NC
8	CTS-	CTS-	NC	NC
9	RI-	+5V	NC	NC

Front Audio

Pin	Assignment	Pin	Assignment
1	Mic2-L	2	GND
3	Mic2-R	4	NC
5	Line2-R	6	Mic2-JD
7	GND	8	
9	Line2-L	10	Line2-JD

Digital I/O

Pin	Assignment	Pin	Assignment
1	GND	2	+12V
3	DI07	4	+12V
5	DI06	6	GND
7	DIO5	8	+5V
9	DIO4	10	+5V
11	DIO3	12	GND
13	DIO2	14	+5DVU
15	DIO1	16	+5VDU
17	DIO0	18	GND
19	GND	20	

LPC

Pin	Assignment	Pin	Assignment
1	L_CLK	2	L_AD1
3	L_RST#	4	L_AD0
5	L_FRAME#	6	3V3
7	L_AD3	8	GND
9	L_AD2	10	
11	INT_SERIRQ	12	GND
13	5VDU	14	5V

USB 2.0 9-10/11-12 Headers

Pin	Assignment	Pin	Assignment
1	PWR	2	PWR
3	DATA-	4	DATA-
5	DATA+	6	DATA+
7	GND	8	GND
9)	10	NC

USB 3.1 Gen2 5-6 Header (opt.)

Pin	Assignment	Pin	Assignment
1	GND	20	PWR
2	TX+	19	DATA-
3	TX-	18	DATA+
4	GND	17	GND
5	RX+	16	RX+
6	RX-	15	RX-
7	GND	14	GND
8	DATA+	13	TX+
9	DATA-	12	TX-
10	PWR	11	GND

LAN LED

Pin	Assignment	Pin	Assignment
1	GBE_LED_1000-	2	GBE_LED_100-
3	GBE_LED_LINK_ACT-	4	3V3DU
5	LINK_1000_4	6	LINK_100_4
7	LINK_ACTIVITY_4	8	3V3DU

CPU	PU Fan	
Pin	Assignment	
1	GND	
2	+12V	
3	Sense	
4	Speed Control	

Syste	System Fan 1/2/3	
Pin	Assignment	
1	GND	
2	Power	
3	Sense	

+12	Power		
Pin	Assignment	Pin	Assignment
1	GND	5	12V
2	GND	6	12V
3	GND	7	12V
4	GND	8	12V

SATA 3.0 0/1/2/3/4(opt.) (If M.2 changes to mSATA mode, SATA 0

ATX Power

Assignment
+5V
SPDIF OUT
GND
SPDIF IN

has n	o function.)	
Pin	Assignment	
1	GND	
2	TX+	
3	TX-	
4	GND	
5	RX-	
6	RX+	
7	GND	

	ower		
Pin	Assignment	Pin	Assignment
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	PWR_OK	20	NC
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

Chassis Intrusion	
Pin	Assignment
1	Signal
2	GND

SMBus

Pin	Assignment	Pin	Assignment
1	3V3DU	2	GND
з	SMB_CLK	4	SMB_DATA
5	SMB_ALERT	6	1117) (1111)

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Chapter 3

3.1 Overview

Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.



The BIOS is constantly updated to improve the performance of the system board; therefore the BIOS screens in this chapter may not appear the same as the actual one. These screens are for reference purpose only.

Default Configuration

Note:

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering the BIOS Setup Utility

The BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen.

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message "Press DEL to run setup" will appear on the screen. If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and keys simultaneously.

Legends

Keys	Function
Right / Left arrow	Move the highlight left or right to select a menu
Up / Down arrow	Move the highlight up or down between submenus or fields
<enter></enter>	Enter the highlighted submenu
+ (plus key)/F6	Scroll forward through the values or options of the highlighted field
- (minus key)/F5	Scroll backward through the values or options of the highlighted field
<f1></f1>	Display general help
<f2></f2>	Display previous values
<f9></f9>	Optimized defaults
<f10></f10>	Save and Exit
<esc></esc>	Return to previous menu

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu When " \blacktriangleright " appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

3.2 Main Settings

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

Project Name BIOS Version	CS632 B197.05A	 Set the Date. Use Tab to switch between Date ele- ments.
FSP version RC version	07.00.56.50 07.00.56.50	Default Ranges: Year: 2005-2099 Months: 1-12
Intel(R) Core(TM) 17-8700 CPU @ 3 ID Stepping L1 Data Cache L2 Cache L3 Cache L3 Cache Number of Processors Microcode Revision	.20GHz 0x906EA U0 32 KB x 6 32 KB x 6 256 KB x 6 12 MB 6Core(s) / 12Thread(s) 9A	Days: dependent on month
Memory RC Version Total Memory Memory Frequency	0.7.1.100 4995 MB 2400 MHz	+I-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults
PCH SKU ME FW Version ME Firmware SKU	C246 12.0.40.1433 Corporate SKU	FIG: Save & Exit ESC: Exit
System Date	[Mon 1/07/2019]	

System Date

The date format is <month>, <date>, <year>. Press "Tab" to switch to the next field and press "-" or "+" to modify the value.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

3.3 Advanced Settings

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 your system or let you set some features according to your preference.

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.			
Main Advanced Chipset Security Boot Save & Exit			
CPU Configuration Power & Performance PCH-FW Configuration Trusted Computing NCT5116D Super ID Configuration NCT5116D NW Monitor Serial Port Console Redirection USB Configuration CSM Configuration Network Stack Configuration			
• Network Stack Configuration	: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit		

RC ACPI Configuration

RC ACPI Configuration		Enable or disable System wake on slarm event. When
Wake up hour Wake up hour Wake up second State After G3	[Enabled] 0 0 [S0 State]	enabled, System will wak on the hrominosec speci- fied
		→ : Select Screen 1: Select Item Enter: Select +/- : Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Wake system from S5

When Enabled, the system will automatically power up at a designated time every day. Once it's switched to [Enabled], please set up the time of day — hour, minute, and second — for the system to wake up.

State After G3

Select between S0 State, and S5 State. This field is used to specify what state the system is set to return to when power is re-applied after a power failure (G3 state).

 S0 State
 The system automatically powers on after power failure.

 S5 State
 The system enter soft-off state after power failure. Power-on signal input is required to power up the system.

CPU Configuration

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.		rican Megatrends, Inc.
CPU Configuration Intel (VMX) Virtualization Technology Active Processor Cores Hyper-Threading	(Enable) [Aii] [Enable]	When enabled, a VMM can utilize the additional hard- ware capabilities provided by Vanderpool Technology. : Select Screen []: Select item Enter: Select e : Change Opt. F1: General Heip F2: Previous Values F9: Optimized Defaults F1: Save & Exit ESC: Exit
Version	1 2.20.1271. Copyright (C) 2019 Amer	ican Megatrends, Inc.

Intel (VMX) Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Processor Cores

Select number of cores to enable in each processor package: all or 1.

Hyper-threading

Enables this field for Windows XP and Linux which are optimized for Hyper-Threading technology. Select disabled for other OSes not optimized for Hyper-Threading technology. When disabled, only one thread per enabled core is enabled.



Note: Some of the fields may not be available when the features are not supported by the equipped CPU.

Power & Performance

Power & Performance		Allows more than two fre guency ranges to be sup
intu(R) SpeedStep(im) Turbo Mode C states	[Enabled] [Enabled] [Enabled]	ported.
		Select Screen 1: Select Item Enter: Select 4: Change Opt, F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Intel(R) SpeedStep(tm)

This field is used to enable or disable the Intel SpeedStep[®] Technology, which helps optimize the balance between system's power consumption and performance. After it is enabled in the BIOS, EIST features can then be enabled via the operating system's power management.

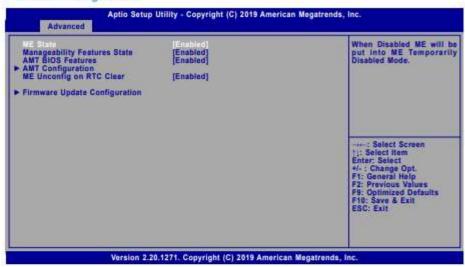
Turbo Mode

Enable or disable turbo mode of the processor. This field will only be displayed when EIST is enabled.

C states

Enable or disable CPU Power Management. It allows CPU to enter "C states" when it's idle and nothing is executing.

PCH-FW Configuration



ME State

When this field is set to Disabled, ME will be put into ME Temporarily Disabled Mode.

Manageability Features State

Enable or disable Intel(R) Manageability features. This option disables/enables Manageability Features support in FW. To disable, support platform must be in an unprovisioned state first.

AMT BIOS Features

When disabled, AMT BIOS features are no longer supported and user is no longer able to access MEBx Setup. This option does not disable manageability features in FW.

ME Unconfig on RTC Clear

Note:

When disabled, ME will not be unconfigured on RTC Clear.



The sub-menus are detailed in following sections.

► AMT Configuration

USB Provisioning of AMT • Secure Erase Configuration • OEM Flags Settings	[Disabled]	Enable/Disable of AMT USE Provisioning.
		Select Screen 1: Select Item Enter: Select +/: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit

USB Provisioning of AMT

Enable or disable AMT USB Provisioning.

► AMT Configuration ► Secure Erase Configuration

Secure Erase Force Secure Erase	(Disabled) (Disabled)	Change Secure Erase mod- ule behavior: Simulated: Performs SE flow without erasing SSD Real: Erase SSD.
		: Select Screen [j: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Secure Erase Mode

Select Secure Erase module behavior: Simulated or Real.

Force Secure Erase

Enable or disable Force Secure Erase on next boot.

► AMT Configuration ► OEM Flags Settings

Hide Unconfigure ME Confirmation Prampt Unconfigure ME	(Disabled) [Disabled]	OEMFlag Bit 6: Hide Unconfigure ME con firmation prompt when at tempting ME unconfigura tion.
		1: Solect Screen 1: Solect Itom Enter: Select 6: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Hide Unconfigure ME Confirmation Prompt

Enable or disable to hide unconfigure ME confirmation prompt when attempting ME unconfiguration.

Unconfigure ME

Enable or disable to unconfigure ME with resetting MEBx password to default.

Firmware Update Configuration

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc. Advanced		erican Megatrends, Inc.
Mo FW linege Ru-Flash	(Disabir).	Enable/Disable Me FW Im- age Re-Flash function.
		: Select Screen 1): Select Item Enter: Select 4: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Seve & Exit ESC: Exit
Versi	on 2.20.1271. Copyright (C) 2019 Amer	rican Megatrends, Inc.

Me FW Image Re-Flash

This field is used to enable or disable the ME FW Image Re-Flash function, which allows the user to update the ME firmware.

Trusted Computing

TPM20 Device Found Firmware Version Vendor:	5.62 IFX	Enables or Disables BIOS support for security de vice. O.S will not show Security Device. TCG EF
Security Device Support Pending operation	(Enable) [None]	protocol and INT1A inter face will not be available.
		11: Select Screen 11: Select Item Enter: Select +(- : Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Security Device Support

This field is used to enable or disable BIOS support for the security device such as an TPM 2.0 to achieve hardware-level security via cryptographic keys.

Pending operation

To clear the existing TPM encryption, select "TPM Clear" and restart the system. This field is not available when "Security Device Support" is disabled.

NCT6116D Super IO Configuration

NCT6116D Super IO Configuration Super IO Chip NCT6116D		WatchDog Timer Unit
		action .
WatchDog Timet Unit SuperIO WatchDog Timer	[Second] 0	
Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration Serial Port 5 Configuration Serial Port 6 Configuration		: Select Screen []: Select Item Enter: Select +-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit

WatchDog Timer Unit

Select WatchDog Timer Unit - Second or Minute.

SuperIO WatchDog Timer

Set SuperIO WatchDog Timer Timeout value. The range is from 0 (disabled) to 255.



Note: The sub-menus are detailed in following sections.

► Serial Port 1/2/3/4/5/6 Configuration

Serial Port 1 Configuration		Enable or Disable Ser Port (COM)
Scrat Port Device Settings RS485 Auto Flow	(Enabled) IO=3F5h; IRQ=4; [Disabled]	
		: Select Screen 1: Select Item Enter: Select +-: Change Opt, F1: General Help F2: Previous Values F8: Optimized Defaults F10: Save & Exit ESC: Exit

Serial Port

Enable or disable the current serial COM port.

RS485 Auto Flow

Enable or disable RS485 auto flow. This field is only available for COM ports that support RS485 mode.

NCT6116D HW Monitor

Advanced	Setup Utility - Copyright (C) 2019 Amer	ican Megatrends, Inc.
Pc Health Status		Smart Fan function setting
 Smart Fan Function 		
Case Open	[Disabled]	
System temperature CPU temperature SYS Fan1 Speed CPU Fan1 Speed SYS Fan2 Speed VBAT VCORE VDDQ SV +12V	* +37 oC : +33 oC : N/A : 2641 RPM : N/A : +3.040 V : +0.996 V : +1.200 V : +1.210 V : +12.144 V	***: Select Screen 1): Select Item Enter: Select */- : Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Versio	on 2.20.1271. Copyright (C) 2019 Ameri	can Megatrends, Inc.

This section displays the system's health information, i.e. voltage readings, CPU and system temperatures, and fan speed readings.

Case Open

Enable or disable the case open detection function.

Smart Fan Function

Smart Fan Function		1	Enable CPU SmartFan
CPU Search Fan Combrol Boundary 1 Boundary 2 Boundary 3 Boundary 4 Fan Speed Count 1 Fan Speed Count 2 Fan Speed Count 2 Fan Speed Count 4 Boundary 2 Boundary 3 Boundary 4 Fan Speed Count 1 Fan Speed Count 1 Fan Speed Count 1 Fan Speed Count 2 Fan Speed Count 2 Fan Speed Count 3 Fan Speed Count 3 Fan Speed Count 4 SYS Smart Fan (2) Control Boundary 1 Boundary 3 Boundary 3	<pre></pre>		: Select Screen 1::::Select Team Enter: Select 1::: Changs Opt. 7::: General Holp 7::: Provious Values 7::: Optimized Defaults F9:: Optimized Def

Smart Fan is a fan speed moderation strategy dependent on the current system temperature. When the system temperature goes higher than the Boundary setting, the fan speed will be turned up to the setting of the Fan Speed Count that bears the same index as the Boundary field.

▼ SYS Smart Fan/CPU Smart Fan Control = [Enabled]

Boundary 1 to Boundary 4

Set the boundary temperatures that determine the fan speeds accordingly, the value ranging from 0-127°C. For example, when the system temperature reaches Boundary 1 setting, the fan speed will be turned up to the designated speed of the Fan Speed Count 1 field.

Fan Speed Count 1 to Fan Speed Count 4

Set the fan speed, the value ranging from 1-100%, 100% being full speed. The fans will operate according to the specified boundary temperatures above-mentioned.

V SYS Smart Fan/CPU Smart Fan Control = [Disabled]

Fix Fan Speed Count

Set the fan speed, the value ranging from 1-100%, 100% being full speed. The fans will always operate at the specified speed regardless of gauged temperatures.

AVS-700 APLEX Vertical Application System User Manual

Serial Port Console Redirection

COM1 Console Redirection Console Redirection Settings	(Enabled)	Console Redirection En able or Disable.
COM2 Console Redirection Console Redirection Settings	(Enabled)	
COM3 Console Redirection Console Redirection Settings	(Enabled)	
COM4 Console Redirection Console Redirection Settings	[Enabled]	: Sciect Screen 1/1 Select item Enter: Select
COMS Console Redirection Console Redirection Settings	[Enabled]	+/- : Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults
COM6 Console Redirection Console Redirection Settings	[Enabled]	F10: Save & Exit ESC: Exit

Console Redirection

By enabling Console Redirection of a COM port, the sub-menu of console redirection settings will become available for configuration as detailed in the following.

Console Redirection Settings

COM1 Console Redirection Settings	Enable CPU SmartFan
leminal Type (V1100) Bits per second (115200) Data Bits (8) Parity (None) Stop Bits (1) Tow Control (None)	
	Select Screen 1: Select Item Enter: Select 4: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Configure the serial settings of the current COM port.

Terminal Type

Select terminal type: VT100, VT100+, VT-UTF8 or ANSI.

Bits per second

Select serial port transmission speed: 9600, 19200, 38400, 57600 or 115200.

Data Bits

Select data bits: 7 bits or 8 bits.

Parity

Select parity bits: None, Even, Odd, Mark or Space.

Stop Bits

Select stop bits: 1 bit or 2 bits.

Flow Control

Select flow control type: None or Hardware RTS/CTS. Flow Control is for RS485 mode and is only supported by Serial Port 1 (COM1).

USB Configuration

USB Configuration	Enables Legacy USB sup port. AUTO option disables
Legacy USB Support (Enabled) XHCI Hand-off [Enabled] USB Mass Storage Driver Support [Enabled]	legacy support if no USE devices are connected DISABLE option will keep USB devices available only for EFI applications.
	Select Screen †1: Select Item Enter: Select 4-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Legacy USB Support

Enabled Enable Legacy USB support.	Enabled	Enable I	Legacy	USB	support.
------------------------------------	---------	----------	--------	-----	----------

Disabled Keep USB devices available only for EFI applications.

Auto Disable Legacy support if no US8 devices are connected.

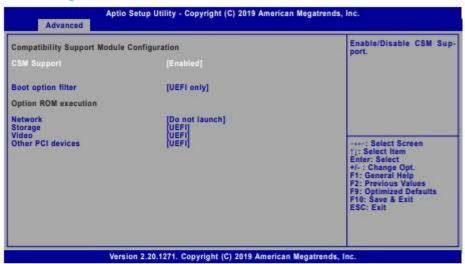
XHCI Hand-off

Enable or disable XHCI Hand-off.

USB Mass Storage Driver Support

Enable or disable USB Mass Storage Driver Support.

CSM Configuration



CSM Support

This section is used to enable or disable CSM Support. The following fields are only available when "CSM Support" is enabled.

Boot option filter

This field controls Legacy/UEFI ROMs priority. Select among UEFI and Legacy, Legacy only or UEFI only.

Network

This field controls the execution of UEFI and Legacy Network OpROM.

Storage

This field controls the execution of UEFI and Legacy Storage OpROM.

Video

This field controls the execution of UEFI and Legacy Video OpROM.

Other PCI devices

This field determines OpROM execution policy for devices other than Network, Storage or Video.

Network Stack Configuration

Network Stack Ipv4 PXE Support Ipv5 PXE Support PXE boot wait time Media detect count	[Unabled] [Disabled] [Disabled] 0 1	Enable/Disable UEFI Net work Stack
		: Select Screen †:: Select Item Enter: Select Item + : Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Network Stack

Enable or disable UEFI network stack. The following fields will appear when this field is enabled.

Ipv4 PXE Support

Enable or disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.

Ipv6 PXE Support

Enable or disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

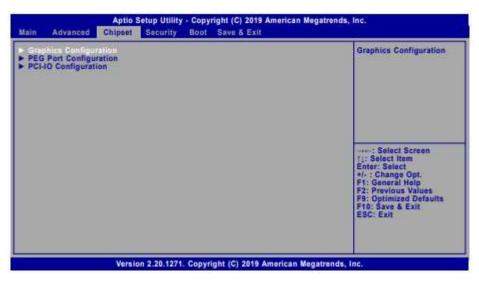
PXE boot wait time

Set the wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.

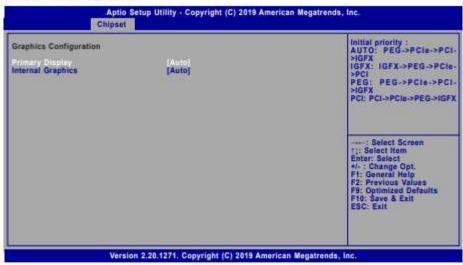
Media detect count

Set the number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.

3.4 Chipset Settings



Graphics Configuration



Primary Display

Select which of IGFX/PEG/PCI Graphics device to be the primary display.

Internal Graphics

Keep IGFX "Enabled" or "Disabled" based on the setup options, or select "Auto" for auto-detection.

PEG Port Configuration

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc. Chipset		can Megatrends, Inc.
PEG Port Configuration		Enable or Disable the Root Port
PCIE1 Enable Root Port	Not Present (Enabled)	
Max Link Speed PCIE3 (Option) Enable Root Port Max Link Speed	[Auto] Not Present [Enabled] [Auto]	
► PEG Port Feature Configura	ation	
		***: Select Screen 1: Select Item Enter: Select */-: Change Opt. F1: General Holp F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Vers	sion 2.20.1271. Copyright (C) 2019 Americ	an Megatrends, Inc.

Enable Root Port

Enable or disable the root port, or select "Auto" for auto-detection.

Max Link Speed

Configure PCIE1/PCIE3 port's Max Speed: Auto, Gen1, Gen2 or Gen3.

► PEG Port Feature Configuration

PEG Port Feature Configuration	Detect Non-Compliance PC Express Device in PEG
Datect Non-Compliance Davice [Enabled]	
	: Solect Screen 11: Select Itom Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Detect Non-Compliance Device

Enable or disable this field to detect non-compliance PCIe devices in the PEG.

PCH-IO Configuration

Aptio Setup Utility - Copyright (C) 2019 Ame Chipsot	rican Megatrends, Inc.
PCH-ID Configuration > PCI Express Configuration > SATA And RST Configuration > HD Audio Configuration LAN1(1219) Wake on LAN Enable [Enabled]	PCI Express Configuration settings
	: Select Screen 1]: Select Item Enter: Select 4: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

LAN1(1219)

Enable or disable onboard NIC.

Wake on LAN Enable

Enable or disable integrated LAN to wake the system.



Note: The sub-menus are detailed in following sections.

PCI Express Configuration

PCI Express Configuration PCIE2 PCIE2 M2 Mini PCIE LAN2(1211) PCIE5	PCI Express Root Port Se tings.
	++-: Select Screen 1: Select Item Enter: Select 4. : Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Select one of the PCI Express channels and press enter to configure the following settings.

PCIE4/PCIE2/M.2/Mini PCIE/LAN2(I211)/PCIE5

Enable or disable the PCI Express Root Port. The following fields are only available when the PCIe root port is enabled.

PCIe Speed

Select PCIe Speed of the current port - AUTO, Gen1, Gen 2, or Gen3. This field may not appear when the speed of the port is not configurable.

Hot Plug

Enable or disable hot plug function of the port. This field may not appear when the port does not support hot plug.

Detect Non-Compliance Device

Enable or disable this field to detect non-compliance PCIe devices in the PEG. This field may not appear when the port does not support Non-compliant device detection.

SATA And RST Configuration

SATA And RST Configuration		Enable or disable SAT/
SATA Controller(s) SATA Speed SATA Mode Selection	[Enabled] [Auto] [AHCI]	Device.
Serial ATA Port 0 Port 0 Hot Plug Serial ATA Port 1 Port 1 Hot Plug	Empty (Enabled) (Disabled) Empty (Enabled) (Disabled)	
Serial ATA Port 2 Port 2 Hot Plug Serial ATA Port 3 Port 3 Hot Plug	Empty (Enabled) (Disabled) Empty (Enabled) (Disabled)	Select Screen IJ: Select Item Enter: Select +/: Change Opt. F1: General Help F2: Previous Yolues
Seriel ATA Port 4 Port 4 Hot Plug	Empty [Enabled] [Disabled]	F9: Optimized Defaults F10: Save & Exit ESC: Exit

SATA Controller(s)

This field is used to enable or disable the Serial ATA controller.

SATA Speed

This field is used to select SATA speed generation limit: Auto, Gen1, Gen2 or Gen3.

SATA Mode Selection

The mode selection determines how the SATA controller(s) operates.

- AHCI This option allows the Serial ATA controller(s) to use AHCI (Advanced Host Controller Interface).
- Intel RST Premium With Intel Optane System Acceleration This option allows you to create RAID or Intel Rapid Storage configuration along with Intel* Optane" system acceleration on Serial ATA devices.

Use RST Legacy OROM

This field shows up when SATA Mode Selection is set to Intel RST Premium With Intel Optane System Acceleration. Enable or disable to use RST Legacy OROM when CSM is enabled.

Port 0/1/2/3/4/ and Hot Plug

Enable or disable the Serial ATA port and its hot plug function.

HD Audio Configuration

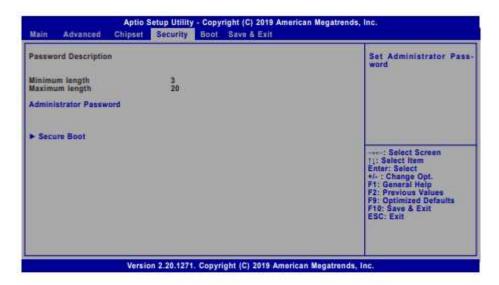
HD Audio Subsystem Conf	iguration Settings	Control Detection of the HD-Audio device.
HD Audio		Disabled = HDA will be un conditionally disabled Enabled = HDA will be un conditionally enabled.
		: Salect Screen [1 Select Rem Enter: Select 4/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	fersion 2.20.1271. Copyright (C) 2019 America	an Megatrends, Inc.

HD Audio

Control the detection of the HD Audio device.

Disabled	HDA will be unconditionally disabled.
Enabled	HDA will be unconditionally enabled.

3.5 Security Settings



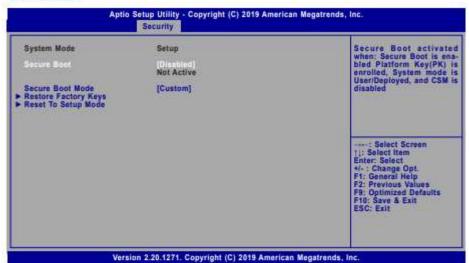
Administrator Password

Set the administrator password. To clear the password, input nothing and press enter when a new password is asked. Administrator Password will be required when entering the BIOS.

User Password

Set the user password. To clear the password, input nothing and press enter when a new password is asked. User Password will be required when powering up the system.

Secure Boot



Secure Boot

The Secure Boot store a database of certificates in the firmware and only allows the OSes with authorized signatures to boot on the system. To activate Secure Boot, please make sure that "Secure Boot" is "[Enabled]", Platform Key (PK) is enrolled, "System Mode" is "User", and CSM is disabled. After enabling/disabling Secure Boot, please save the configuration and restart the system. When configured and activated correctly, the Secure Boot status will be "Active".

Secure Boot Customization

Select the secure boot mode - Standard or Custom. When set to Custom, the following fields will be configurable for the user to manually modify the key database.

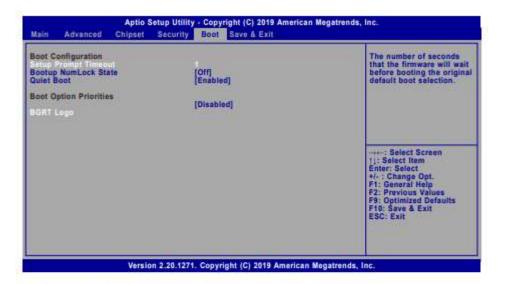
Restore Factory Keys

Force system to User Mode. Load OEM-defined factory defaults of keys and databases onto the Secure Boot. Press Enter and a prompt will show up for you to confirm.

Reset To Setup Mode

Clear the database from the NVRAM, including all the keys and signatures installed in the Key Management menu. Press Enter and a prompt will show up for you to confirm.

3.6 Boot Settings



Setup Prompt Timeout

Set the number of seconds to wait for the setup activation key. 65535 (0xFFFF) denotes indefinite waiting.

Bootup NumLock State

Select the keyboard NumLock state: On or Off.

Quiet Boot

This section is used to enable or disable quiet boot option.

Boot Option Priorities

Note:

Rearrange the system boot order of available boot devices.

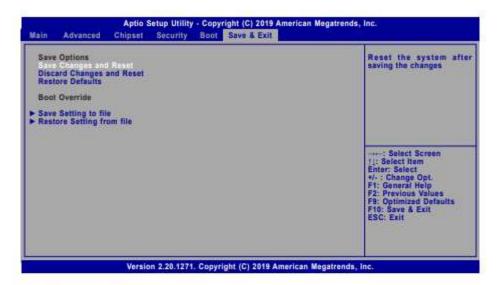
BGRT Logo

It is used to enable or disable to support display logo with ACPI BGRT table.



If "Boot option filter" of "CSM Configuration" is set to "UEFI and Legacy" or "UEFI only" and "Quiet Boot" is set to enabled, "BGRT Logo" will show up for configuration. Refer to the Advanced > CSM Configuration for more information.

3.7 Save & Exit Settings



Save Changes and Reset

To save the changes, select this field and then press <Enter>. A dialog box will appear. Select Yes to reset the system after saving all changes made.

Discard Changes and Reset

To discard the changes, select this field and then press <Enter>. A dialog box will appear. Select Yes to reset the system setup without saving any changes.

Restore Defaults

To restore and load the optimized default values, select this field and then press <Enter>. A dialog box will appear. Select Yes to restore the default values of all the setup options.

Boot Override

Move the cursor to an available boot device and press Enter, and then the system will immediately boot from the selected boot device. The Boot Override function will only be effective for the current boot. The "Boot Option Priorities" configured in the Boot menu will not be changed.

Save Setting to file

Select this option to save BIOS configuration settings to a USB flash device.

Restore Setting from file

This field will appear only when a USB flash device is detected. Select this field to restore setting from the USB flash device.

4.1 Introduction

Overview

Intel Active Management Technology (Intel® AMT) combines hardware and software solution to provide maximum system defense and protection to networked systems. The hardware and software information are stored in non-volatile memory. With its built-in manageability and latest security applications, Intel® AMT provides the following functions.

Discover

Allows remote access and management of networked systems even while PCs are powered off; significantly reducing desk-side visits.

Repair

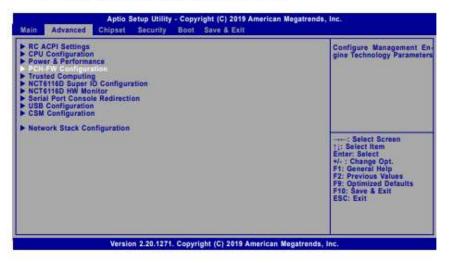
Remotely repair systems after OS failures. Alerting and event logging help detect problems quickly to reduce downtime.

Protect

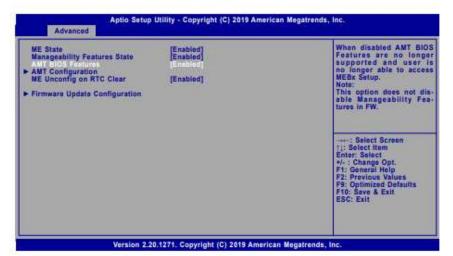
Intel AMT's System Defense capability remotely updates all systems with the latest security software. It protects the network from threats at the source by proactively blocking incoming threats, reactively containing infected clients before they impact the network, and proactively alerting when critical software agents are removed.

4.2 Enable Intel[®] AMT in the AMI BIOS

- 1. Power-on the system then press to enter the main menu of the AMI BIOS.
- 2. In the Advanced menu, select PCH-FW Configuration.



3. Set the AMT BIOS Features field to Enabled.



 Press F4, or go to the Save & Exit menu, select Save Changes and Reset and then press <Enter>. A dialog box will appear. Select Yes and press Enter to reset the system after saving all changes made.



4.3 Entering Management Engine BIOS Extension (MEBX)

When the system reboots, the following message will be displayed. Press <Ctrl + P> as soon as the message is displayed. This message will only be displayed very briefly.



4.4 MEBX

Main Menu

Select MEBx Login under Main Menu and press Enter. A prompt that requires password input will show up.

1. Enter the default password "admin".

-
-
-

- 2. Enter a new password and then press Enter. The password must include
 - 8-32 characters;
 - Strong 7-bit ASCII characters excluding : , and " characters;
 - At least one digit character (0, 1, ...9);
 - At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. !, \$, ;);
 - At least one lower case and one upper case characters.
- 3. Enter the new password again to verify the new password.



Intel(R) ME General Settings

Select Intel(R) ME General Settings under Main Menu and then press Enter.

	MAIN MENU	
Intel(R) ME General Intel(R) AMT Configu MEBx Exit		

Change ME Password

If you want to change ME password, select Change ME Password and then press Enter. A prompt that requires password input will show up.

1. Enter the current password and then press Enter.

INTEL(K	() ME PLATFORM CONFIGURATION	
hange ME Password		
local FW Update	<enabled></enabled>	
1		
	Intel(R) ME Password	
Intel(R) ME Ne	w Password	
Intel(R) ME Ne	w Password	
Intel(R) ME Ne	w Password	

- 2. Enter a new password and then press Enter. The password must include
 - 8-32 characters;
 - Strong 7-bit ASCII characters excluding : , and " characters;
 - At least one digit character (0, 1, ...9);
 - At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. I, \$, ;);
 - At least one lower case and one upper case characters.
- 3. Enter the new password again to verify the new password.

Verify password

Local FW Update

Select Local FW Update then press Enter. Select Enabled or Disabled or Password Protected then press Enter.



Intel(R) AMT Configuration

Select Intel(R) AMT Configuration under Main Menu and then press Enter.

MAIN MENU	
 Intel(R) ME General Settings Intel(R) AMT Configuration MEBx Exit 	

Manageability Feature Selection

Select Enabled or Disabled then press Enter. When disabled, all the following fields will be hidden. After disabling the field, system restart is required.

INTEL(R) AMT CON	FIGURATION
Manageability Feature Selection SOL/Storage Redirection/KVM User Consent	<enabled></enabled>
Password Policy	<anytime></anytime>
Network Setup Activate Network Access Unconfigure Network Access Remote Setup And Configuration Power Control	

> SOL/Storage Redirection/KVM

INTEL(R) AMT CONFIGURATION		
Manageability Feature Selection SOL/Storage Redirection/KVM	<enabled></enabled>	
User Consent Password Policy Network Setup	<anytime></anytime>	
Activate Network Access Unconfigure Network Access Remote Setup And Configuration	<full unprovision=""></full>	
Power Control		
↑↓] =Move Highlight [Enter] =Select.	Entry [Esc] =Exit	

Press Enter to enter the submenu.

> SOL/Storage Redirection/KVM

SOL/Storage Redirection/KVM		
Jsername and Password SOL Storage Redirection CVM Feature Selection	<enabled> <enabled> <enabled> <enabled></enabled></enabled></enabled></enabled>	
↓] =Move Highlight = <enter> =Ci</enter>	omplete Entry [Esc] =Discard Change	

Move the cursor to select a field and press Enter to display options.

Username and Password

Select Enabled or Disabled then press Enter.

SOL

Select Enabled or Disabled then press Enter.

Storage Redirection

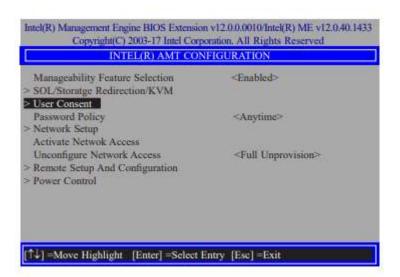
Select Enabled or Disabled then press Enter.

KVM Feature Selection

Select Enabled or Disabled then press Enter.



> User Consent



Press Enter to enter the submenu.

AVS-700 APLEX Vertical Application System User Manual

> User Consent



Move the cursor to select a field and press Enter to display options.

User Opt-in

Select NONE or KVM or ALL then press Enter.



Opt-in Configurable from Remote IT

Select Enabled or Disabled then press Enter.



Password Policy

INTEL(K) 2	AMT CONFIGURATION
Manageability Feature Select SOL/Storage Redirection/KV	
Password Policy Network Setup Activate Network Access	<anytime></anytime>
Unconfigure Network Access Remote Setup And Configure	<full unprovision=""></full>
Power Control	Default Password Only During Setup And Configuration

Under the Intel(R) AMT Configuration menu, select Password Policy then press Enter. You may choose to use a password only during setup and configuration or to use a password anytime the system is being accessed.

> Network Setup

Under the Intel(R) AMT Configuration menu, select Network Setup and then press Enter.

INTEL(R) AMT CON	NFIGURATION
Manageability Feature Selection > SOL/Storage Redirection/KVM > User Consent	<enabled></enabled>
Password Policy Network Setup Activate Network Access	<anytime></anytime>
Unconfigure Network Access > Remote Setup And Configuration > Power Control	<full unprovision=""></full>

> Intel(R) ME Network Name Settings

Under the Intel(R) ME Network Setup menu, select Intel(R) ME Network Name Settings and then press Enter.

CONSIGNATION OF THE REAL PROPERTY OF THE REAL PROPE	e BIOS Extension v12.0.00 03-17 Intel Corporation. All	10/Intel(R) ME v12.0.40.1433 Rights Reserved
INTI	L(R) ME NETWORK SE	TUP
Intel(R) ME Network > TCP/IP Settings	Name Settings	
[↑↓] =Move Highlight	[Enter] =Select Entry	[Esc] =Exit

Move the cursor to select a field and press Enter to display options.

INTEL(R) ME NI	TWORK NAME SETTINGS
Host Name Domain Name Shared/Dedicated FQDN Dynamic DNS Update	Shared> <disabled></disabled>
<enter></enter>	=Complete Entry [Esc] =Discard Changes

Host Name

Enter the computer's host name and then press Enter.



Domain Name

Enter the computer's domain name and then press Enter.



Shared/Dedicated FQDN

Select Shared or Dedicated and then press Enter.



MEBX	Intel(R) AMT Configuration	 Network Setup 	Intel(R) ME Network Name Settings
------	----------------------------	-----------------------------------	-----------------------------------

Dynamic DNS Update

Select Enabled or Disabled then press Enter. When Dynamic DNS Update is Enabled, the following fields will show up.



Periodic Update Interval

Enter a value and then press Enter.

Copyright(C) 2003-17 la	Extension v12.0.0.0010/Intel(R) ME v12.0.40.1433 atel Corporation. All Rights Reserved
INTEL(K) ME N	ETWORK NAME SETTINGS
Host Name Domain Name Shared/Dedicated FQDN Dynamic DNS Update Periodic Update Interval TTL	<shared> <enabled> 1440 900 uc=0 or >=20 0</enabled></shared>
<enter< td=""><td>>=Complete Entry [Esc] =Discard Changes</td></enter<>	>=Complete Entry [Esc] =Discard Changes

TTL

Enter a value for the Time-to-live (TTL) field and then press Enter.



MEBX Intel(R) AMT Configuration	Network Setup
---------------------------------	---------------

> TCP/IP Settings

Under the Intel(R) ME Network Setup menu, select TCP/IP Settings and then press Enter.

Copyright(C) 2	003-17 Intel Corporation, All	And a state of the
INT	EL(R) ME NETWORK SE	TUP
Intel(R) ME Network TCP/IP Settings	Name Settings	
[↑↓] =Move Highlight	[Enter] =Select Entry	[Esc] =Exit

> Wired LAN IPV4 Configuration

Under TCP/IP Settings, select Wired LAN IPV4 Configuration and then press Enter.

	ne BIOS Extension v12.0.0.0 2003-17 Intel Corporation, AI	010/Intel(R) ME v12.0.40.1433 I Rights Reserved
	TCP/IP SETTINGS	
≥ Wired LAN IPV4 Co	nfiguration	
[↑↓] =Move Highlight	[Enter] =Select Entry	[Esc] =Exit

MEBX Intel(R) AMT Configuration	Network Setup	TCP/IP Settings
---------------------------------	---------------	-----------------

DHCP Mode

Select Enabled or Disabled then press Enter. Please make sure there is a DHCP server in the network when this field is enabled.

DHCP Mode	<enabled></enabled>
	Disabled Enabled

When DHCP is **Disabled**, please manually input a static route by configuring the fields as shown below.

WIRED LAN IPV	4 CONFIGURATION
DHCP Mode IPV4 Address Subact Mask Address Default Gateway Address Preferred DNS Address Alternate DNS Address	<disabled> 0.00.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0</disabled>

IPv4 Address

Assign a valid and available IP address to the system. Insert a value from 0.0.0.0 to 255.255.255.255 in IPv4 format.

IP address (e.g.	123.123.123.100)
0.0.0.0	

Subnet Mask Address

Insert a value from 0.0.0.0 to 255.255.255.255 in IPv4 format.

Subnet m	ask (e.g. 255.25	5.255.0)
0.0.0.0		

Default Gateway Address

Insert a value from 0.0.0.0 to 255.255.255.255 in IPv4 format.

Default Gateway address	
0.0.0.0	

Preferred DNS Address

Insert a value from 0.0.0.0 to 255.255.255.255 in IPv4 format.

Preferred DNS address	m
0.0.0.0	

Alternate DNS Address

Insert a value from 0.0.0.0 to 255.255.255.255 in IPv4 format.



MEBX Intel(R) AMT Configuration

Activate Network Access

Under the Intel(R) AMT Configuration menu, select Activate Network Access and press Enter, and then press Y to activate the ME network connection with the settings configured previously, or press N to abort.

INI	EL(R) AMT CON	FIGURATION
Manageability Featu SOL/Storage Redire User Consent		<enabled></enabled>
Password Policy Network Setup Activate Network A		<anytime></anytime>
Unconfigure Network Remote Setup And	rk Access	<full unprovision=""></full>
Power Control	and opens the M	rrent network settings AE network interface nue: (Y/N)

Unconfigure Network Access

Under the Intel(R) AMT Configuration menu, select Undconfigure Network Access and press Enter, and then press Enter to fully deactivate the ME network connection and reset configuration to factory default. Press Y to confirm or N to abort.

INTEL(R) AMT CO	NFIGURATION
Manageability Feature Selection > SOL/Storage Redirection/KVM	<enabled></enabled>
> User Consent Password Policy > Network Setup	<anytime></anytime>
Activate Network Access Unconfigure Network Access > Remote Setup And Configuration	<full unprovision=""></full>
> Power Control	ull Unprovision

> Remote Setup And Configuration

Under the Intel(R) AMT Configuration menu, select Remote Setup And Configuration then press Enter.

INTEL(R) AMT CON	NFIGURATION
Manageability Feature Selection > SOL/Storage Redirection/KVM > User Consent	<enabled></enabled>
Password Policy > Network Setup Activate Network Access	<anytime></anytime>
Unconfigure Network Access Remote Setup And Configuration Power Control	<full unprovision=""></full>
↑↓] =Move Highlight [Enter] =Select	Entry [Esc] =Exit
ntel(R) Management Engine BIOS Extension Copyright(C) 2003-17 Intel Corp	a v12.0.0.0010/Intel(R) ME v12.0.40.1433 oration. All Rights Reserved
ntel(R) Management Engine BIOS Extension Copyright(C) 2003-17 Intel Corp INTEL (R) REMOTE SETUP Current Provisioning Mode	a v12.0.0.0010/Intel(R) ME v12.0.40.1433 oration. All Rights Reserved
ntel(R) Management Engine BIOS Extension Copyright(C) 2003-17 Intel Corp INTEL (R) REMOTE SETUP	n v12.0.0.0010/Intel(R) ME v12.0.40.1433 oration. All Rights Reserved

> RCFG > TLS PKI

[Î↓] =Move Highlight [Enter] =Select Entry [Esc] =Exit

Current Provisioning Mode

The current mode - Public Key Infrastructure (PKI) - is displayed.



Provisioning Server FQDN

Enter the Fully Qualified Domain Name (FQDN) of the server and then press Enter.



MEBX
 Intel(R) AMT Configuration
 Remote Setup And Configuration

> RCFG

Press Enter, select Start Configuration, and then press Enter to activate Remote Configuration (RCFG). Press Y to confirm or N to abort.

	ine BIOS Extension v12.0.0.0 2003-17 Intel Corporation. A	0010/Intel(R) ME v12.0.40.1433 Il Rights Reserved
INTEL	(R) REMOTE CONFIGUE	RATION
Start Configuration		
This wi	l activate Remote Configur Continue: (Y/N)	ation.
[↑↓] =Move Highlight	[Enter] =Select Entry	[Esc] =Exit

> TLS PKI

The system adopts PKI for encryption and authentication, and the TLS protocol for communication security to ensure remote configuration safety.

and the second se	e BIOS Extension v12.0.0.00 03-17 Intel Corporation, All	10/Intel(R) ME v12.0.40.1433 Rights Reserved
INTEL(R) REMOTE CONFIGUR/	ATION
Remote Configuration * PKI DNS Suffix > Manage Hashes	• Enabled	
[↑↓] =Move Highlight	<enter> =Complete Entry</enter>	[Esc] =Discard Changes

Remote Configuration **

Select Enabled or Disabled then press Enter.



PKI DNS Suffix

Specify the DNS Suffix of the PKI server, and then press Enter.

Enter PKI DNS Suffix

> Manage Hashes

Select a hash name and then press the following keys to execute a function.

Insert	- enter a custom hash certificate name,
Delete	- delete a hash
Enter	- view hash information
+	- activate or deactivate a hash
Esc	- exit

Copyright(C) 2003-17 Intel Corporation. All Rights Reserved					
INTEL(R) REMOTE CONFIGURATION					
Hash Name	Active	Default	Algorithm		
VeriSign Class 3	Active: [*]	Default: [*]	SHA256		
VeriSign Class 3	Active: [*]	Default: [*]	SHA256		
Go Daddy Class 2	Active: [*]	Default: [*]	SHA256		
Comodo AAA CA	Active: [*]	Default: [*]	SHA256		
Starfield Class 2	Active: [*]	Default: [*]	SHA256		
VeriSign Class 3	Active: [*]	Default: [*]	SHA256		
VeriSign Class 3	Active: [*]	Default: [*]	SHA256		
VeriSign Class 3	Active: [*]	Default: [*]	SHA256		
GTE CyberTrust G1	Active: [*]	Default: [*]	SHA256		
Baltimore Cyber Tr	Active: [*]	Default: [*]	SHA256		
Cyber Trust Global	Active: [*]	Default: [*]	SHA256		
Verizon Global Ro	Active: [*]	Default: [*]	SHA256		
Entrust. net CA (2	Active: [*]	Default: [*]	SHA256		
Entrust Root CA	Active: [*]	Default: [*]	SHA256		
VeriSign Universa	Active: [*]	Default: [*]	SHA256		
Go Daddy Root CA	Active: [*]	Default: [*]	SHA256		
Entrust Root CA -	Active: [*]	Default: [*]	SHA256		
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[hts]Add New Hash [*4]Move Highlight	[Delete] -Delete Hash [Enter] -View Hash	+ =Activate Haa [Esc] =Eaŭ	2		

ME8X	Intel(R) AMT	Configuration

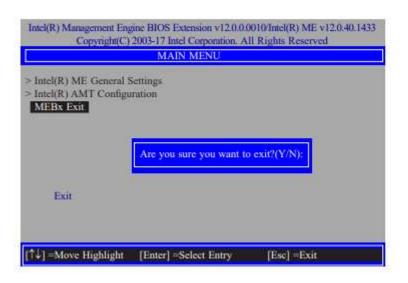
> Power Control

Under the Intel(R) AMT Configuration menu, select Power Control then press Enter.

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ntel(R) AMT ON in Host Sleep States elect an option and then press Enter. Desktop: ON in S0 Desktop: ON in S0, ME Wake in S3, S4-5 Ile Timeout Inter a timeout value and press Enter.	g has started . ME Wake in	y after AMT provision < Ocsktop: ON in S S3, S4-5> 	tions are effective onl	Intel(R) AMT ON
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MEBx Exit

Under the Main Menu, select MEBx Exit and then press Enter. Press Y to confirm or N to abort.



Chapter 5

The system board allows configuring RAID on Serial ATA drives. It supports RAID 0, RAID 1, RAID 5 and RAID 10.

RAID Levels

RAID 0 (Striped Disk Array without Fault Tolerance)

RAID 0 uses two new identical hard disk drives to read and write data in parallel, interleaved stacks. Data is divided into stripes and each stripe is written alternately between two disk drives. This improves the I/O performance of the drives at different channel; however it is not fault tolerant. A failed disk will result in data loss in the disk array.

RAID 1 (Mirroring Disk Array with Fault Tolerance)

RAID 1 copies and maintains an identical image of the data from one drive to the other drive. If a drive fails to function, the disk array management software directs all applications to the other drive since it contains a complete copy of the drive's data. This enhances data protection and increases fault tolerance to the entire system. Use two new drives or an existing drive and a new drive but the size of the new drive must be the same or larger than the existing drive.

RAID 5

RAID 5 stripes data and parity information across hard drives. It is fault tolerant and provides better hard drive performance and more storage capacity.

RAID 10 (Mirroring and Striping)

RAID 10 is a combination of data striping and data mirroring providing the benefits of both RAID 0 and RAID 1. Use four new drives or an existing drive and three new drives for this configuration.

RAID Level	Min. Drives	Protection	Description
RAID 0	2	None	Data striping without redundancy
RAID 1	2	Single Drive Failure	Disk mirroring
RAID 5	3	Single Drive Failure	Block-level data striping with distributed parity
RAID 10	4	1 Disk Per Mirrored Stripe (not same mirror)	Combination of RAID 0 (data striping) and RAID 1 (mirroring)

Setup Procedure

To enable the RAID function, the following settings are required.

- 1. Install SATA drives.
- 2. Enable RAID in the Insyde BIOS.
- 3. Create a RAID volume.
- 4. Install the Intel Rapid Storage Technology Utility.

Step 1: Install SATA Drives

Refer to chapter 2 for details on connecting the Serial ATA drives.

 Important:
 Please make sure the SATA drives that you are to create a RAID volume with are connected and powered, and are able to be detected by the system. Otherwise, the RAID BIOS utility would not be accessible.

While creating a RAID volume, please make sure the system, drives, and cables are perfectly steady and mounted correctly. Disturbance during creating a RAID volume will result in irreversible data corruption sotred on the drive.

Step 2: Enable RAID in the AMI BIOS

- 1. Power-on the system then press to enter the main menu of the AMI BIOS.
- Go to "Chipset" menu and select the "PCH-IO Configuration" menu then "SATA And RST Configuration" menu.
- Change the "SATA Mode Selection" to "Intel RST Premium With Intel Optane System Acceleration" mode.
- 4. Press F10 to save the changes.
- 5. Reboot the system.

Step 3: Create a RAID Volume

 Go to the "Advanced" menu of the AMI BIOS and select "Intel(R) Rapid Storage Technology".

RC ACPI Settings CPU Configuration Power & Performance PCH-FW Configuration Trusted Computing NCT6116D Super 10 Configuration NCT6116D HW Monitor Serial Port Console Redirection USB Configuration CSM Configuration	This formset allows the user to manage RAID vol umes on the intel(R) RAID Controller
Network Stack Configuration Inter(R) Rapid Storage Technology	: Select Screen [1: Select Item Enter: Select +1-: Change Opt. F1: General Heip F2: Provious Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

- The screen displays all available drives. Select "Create RAID volume" to create a RAID volume".
- 3. Use the up or down arrow keys to select the RAID level and press <Enter>.
- Use the up or down arrow keys to scroll through the list of hard drives and press <Enter> to select the drive.
- 5. Press <Enter>.
- 6. Use the up or down arrow keys to select the strip size and press <Enter>.
- 7. Enter the volume size and press <Enter>.
- 8. At the prompt, press <Y> to confirm volume creation.

Step 4: Install the Intel Rapid Storage Technology Utility

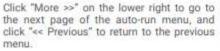
The Intel Rapid Storage Technology Utility can be installed from within Windows. It allows RAID volume management (create, delete, migrate) from within the operating system. It will also display useful SATA device and RAID volume information. The user interface, tray icon service and monitor service allow you to monitor the current status of the RAID volume and/or SATA drives. It enables enhanced performance and power management for the storage subsystem.

Chapter 6 Supported Software

Install drivers, utilities and software applications that are required to facilitate and enhance the performance of the system board. You may acquire the software from your sales representatives, from an optional DVD included in the shipment, or from the website download page at https://www.dfi.com/DownloadCenter.

Auto-run Menu

After inserting your DVD-ROM into your optical drive or executing your DVD image, the System Utility auto-run menu may pop up. Click on the utility or driver that is to be installed on the system. Please refer to the following sections that correspond to your selection for more information.





Exit

6.1 Intel Chipset Software Installation Utility

The Intel Chipset Software Installation Utility is used for updating Windows[®] INF files so that the Intel chipset can be recognized and configured properly in the system.

 Setup is ready to install the utility. Click "Next".

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1	Not Canad

Read the license agreement then click "Accept".



 Go through the readme document for more installation tips then click "Install".



The step displays the installing status in the progress.

Intel(R) Chipset Device Software Promi	(intel)
	Cented

 After completing installation, click "Restart Now" to exit setup.

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6.2 Intel[®] HD Graphics Drivers

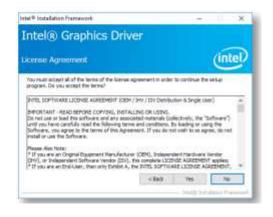
 Setup is now ready to install the graphics driver. Click "Next".



By default, the "Automatically run WinSAT and enable the Windows Aero desktop theme" is enabled. With this enabled, after installing the graphics driver and the system rebooted, the screen will turn blank for 1 to 2 minutes (while WinSAT is running) before the Windows 10 desktop appears. The "blank screen" period is the time Windows is testing the graphics performance.

We recommend that you skip this process by disabling this function then click "Next".

Read the license agreement then click "Yes".



 Go through the readme document for system requirements and installation tips then click "Next".

 Setup is now installing the driver. Click "Next" to continue.

 Click "Yes, I want to restart this computer now" then click "Finish".

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Intel® Graphics Driver	
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6.3 Realtek Audio Drivers

 Setup is ready to install the driver. Click "Next".



 Click "Yes, I want to restart my computer now" then click "Finish".



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license agreement" then click	License Agreement	
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6.4 Intel[®] LAN Driver

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6.5 Intel[®] ME Drivers

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6.6 Intel[®] Serial IO Drivers

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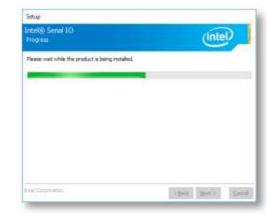
Tick "I accept the terms in the License Agreement" then click "Next". Go through the readme document for system requirements and installation tips then click "Next".



 Setup is ready to install the driver. Click "Next".



5. Setup is now installing the driver.



 Click "Yes, I want to restart this computer now" then click "Finish".



6.7 Intel[®] Rapid Storage Technology

The Intel Rapid Storage Technology is a utility that allows you to monitor the current status of the SATA drives. It enables enhanced performance and power management for the storage subsystem.

 Setup is ready to install the utility. Click "Next".

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Intel® Rapid Storage Technology Website		(intel)
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 Read the license agreement and click "I accept the terms in the License Agreement". Then, click "Next". 3. Go through the readme document to view system requirements and installation information then click "Next".

4. Click "Next" to install to the default folder or click "Change to choose another destination folder".

5. Confirm the installation and click "Next".

6. Click "Yes, I want to restart this computer now" to complete the installation and then click "Finish".



Tratellation Readins for Instally Read Storage Technology (tratel[2]:RST): - Stola[2] (Sector (PD) Herein (Sector Acceleration *** - Instel[3] Sector Resource Technology *** - YOTE: Score for the Technology *** - YOTE: Score for the Technology *** The document makes references to products developed by Intel. There are some restrictions on have these products rate the cells, and while information may be disclosed to offens. Reserved the Document section of the bottom of this document, and contact your Intel field representative if you vouid like more information. Intal is making no classic of usability, efforcy to overanity. The 24TE, SCPTIXARE LICENSE * AGREEMENT contained herein completely defines the looke and use of the authorie. <Balk Flext > Cancel Intel # Installation Frames Intello Rapid Storage Technology

Intel # Installation Framework

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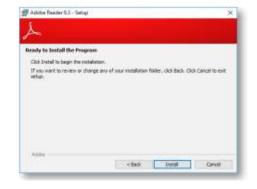
intel

6.8 Adobe Acrobat Reader 9.3

 Click "Next" to install or click "Change Destination Folder" to select another folder.



Click "Install" to begin installation.



3. Setup is now installing the driver.



4. Click "Finish" to exit installation.