

Intel® Comet Lake-S 10th Processor with H420E/Q470E/W480E Chipset Micro-ATX





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 groundingcircuit.
- 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 mother board 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.
- Avoiddust, 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



RoHS Compliance



Perfectron RoHS Environmental Policy and Status Update

Perfectron is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with

European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

In order to meet the RoHS compliant directives, Perfectron has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard Perfectron development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which Perfectron are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant



Revision History

Revision	Date (dd.mm.yyyy)	Changes
Version 1.0	10.06.2022	Initial Release

Packing list

Item	Description	Q'ty
1	INS8266A	1
2	CD(Drivier + User's manual)	1
3	SATA Cable	1



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



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Chapter 1: Product Information

1.1 Specification

CPU10th Gen Intel® Comet Lake LGA1200 Socket Processor, Core i9/i7/i5/i3 up to 10-core TDP Max. 125WMemory typeDDR4 U-DIMM 2933MHz / Max. 64 GB / 4 x 288-pinChipsetIntel® H420E / Q470E / W480E(Support RAID 0 / 1 / 5 / 10)I/O ChipsetNuvoton NCT6126DTPMTPM HeaderH/W MonitorTemperature Monitor / Voltage Monitor / Fan MonitorWatchdog1-255 sec. or 1-255 min. software programmable and can be generate system resetSmart Fan ControlCPU Fan / System FanExpansion1 x M.2 2242 / 2260 / 2280 M key (PCle x4 ,SATA)(H420E Only support SATA) 1 x M.2 2230 E key (PCle x1, USB2.0, CNVi)PCI Slot1 x PClM21 x PCle 3.0x16 slot / PClex16 support 3 options of PCle switch: #1:1 x PCle x16, #2: 2 x PCle x8, #3: 1 x PCle X8 + 2 x PCle x4 1 x PCle 2.0 x8 slot (x4 Lanes) /PCle x4 lanes is switched with M.2 M-Key SlotDisplayUp to 1920 x 1200 @60 HzDVIUp to 4K (4096 x 2304) @60 HzHDMIUp to 4K (4096 x 2304) @60 HzeDP (Option)Up to 4K (4096 x 2304) @60 HzEthernetIntel® 1219-LM Giga LAN + 2 x Intel® 1210-AT Giga LANAudioCodecRear I/O
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Chipset Intel® I219-LM Giga LAN + 2 x Intel® I210-AT Giga LAN Audio Codec Realtek® ALC662/ALC888 Rear I/O Codec Realtek® ALC662/ALC888
Audio Codec Realtek® ALC662/ALC888 Rear I/O
Codec Realtek® ALC662/ALC888
Rear I/O
USB3.1 4(Q470E/W480E)
USB3.0 4(H420E)
Display port 1 x HDMI 1.4 ; 1 x DisplayPort 1.2 ; 1 x DVI-I(DVI-D Optional)
Lan 3(1 x Optional)
Audio Mic-in, Line-in, and Line-out
Internal I/O
Internal I/O 6(Q470E/W480E) / 4(H420E)
Internal I/O 6(Q470E/W480E) / 4(H420E) USB2.0 2
Internal I/O SATAIII 6(Q470E/W480E) / 4(H420E) USB2.0 2 USB3.0 2
Internal I/O SATAIII 6(Q470E/W480E) / 4(H420E) USB2.0 2 USB3.0 2 Display//Q 1 x eDP
Internal I/O SATAIII 6(Q470E/W480E) / 4(H420E) USB2.0 2 USB3.0 2 Display I/O 1 x eDP 1 x Backlight connector

Serial

ATX User's Manual V1.0	PerfecTron
3 (1 x Support RS-232/422/485)	
1 x 4-pin CPU Fan Connector / 1 x 4-pin System Fan Header	
1 x ATX 8pin / 1 x ATX 24pin (AT/ATX mode by jumper setting	g)
nment	

Fan	1 x 4-pin CPU Fan Connector / 1 x 4-pin System Fan Header
Power	1 x ATX 8pin / 1 x ATX 24pin (AT/ATX mode by jumper setting)
Mechanical and Enviro	nment
Form Factor	Micro ATX
Power Type	ATX 8-pin + ATX 24-pin
Dimension	244mm x 244mm(9.6" x 9.6")
Operating	ET : -20°C ~ 70°C
Temperature	UT : -40°C ~ 85°C
Storage Temperature	-40°C ~ 85°C
Relative humidity	10% to 95%, non-condensing
Standard Compliance	
Standard Compliance	CE/FCC
OS	
OS Support	Windows [®] 10 64-bit
03 Support	Linux(Support by request)



1.2 Block Diagram





1.3 Board Placement





Chapter 2: Jumpers and Connectors

2.1 Jumpers And Connectors List

Label	Function	
1	Front Audio Header	
2	COM3 Termination Resistor Switch	
3	RS232/422/485 Header	
4	RS232	
5	RS232	
6	Dual USB3.0 Header	
7	Dual USB2.0 Header	
8	Front I/O Header	
9	SATA Port	
10	SATA Port	
11	SATA Port	
12	SATA Port	
13	SATA Port	
14	SATA Port(Optional with M.2 SATA	
15	SPI Programing Header(Debug)	
16	AT/ATX Mode Selection Jumper	
17	M.2 2230 E-Key	
18	MiAPI Header	
19	ATX 24Pin	
20	TPM Header	
21	System Fan Header	
22	CPU Fan Header	
23	PCIe Bifurcation Switch	
24	ATX 8Pin	
25	NPIO Header(PClex4)	
26	PCI Slot	
27	PCIe x8 Slot(PCIe x 4 Signal)	
28	Panel Power Option	





29	M.2 2242/2280 M-Key		
30	PCIe x16 Slot		
31	LVDS Backlight Header		
32	LVDS/eDP Connecotr		
33	CPU Socket		
34	4 x DDR4 U-DIMM		
35	CMOS Reset Header		
36	Intrusion Header		
37	Debug Header		

2.2 Jumper Settings And Connector Pin Define

Front Audio Header

PIN	DEFINITION	PIN	DEFINITION
1	MIC	2	AUD_GND
3	MIC_BIAS	4	Presence
5	FP_OUT_R	6	AUD_GND
7	FIO_SENSE	8	Key
9	FP_OUT_L	10	AUD_GND

COM3 Termination Resistor Switch



ON : Pull High, OFF : NC

Termination Mode, 1.RS422 Pull H/L in RX/DCD 2.RS485 Pull H/L in RX/DCD and TX/DTR

RS232/RS422/RS485 Header

PIN	DEFINITION	PIN	DEFINITION
1	DCD	2	RXD#
3	TXD#	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	Key(no pin)



RS232 Header

PIN	DEFINITION	PIN	DEFINITION
1	DCD	2	RXD#
3	TXD#	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	Key(no pin)



Dual USB3.0 Header

PIN	DEFINITION	PIN	DEFINITION
1	+5V DC		Key(no pin)
2	2.0 Data (negative)	19	+5V DC
3	2.0 Data (positive)	18	2.0 Data (negative)
4	GND	17	2.0 Data (positive)
5	3.0 Data (negative)	16	GND
6	3.0 Data (positive)	15	3.0 Data (negative)
7	GND	14	3.0 Data (positive)
8	3.0 Data (negative)	13	GND
9	3.0 Data (positive)	12	3.0 Data (negative)
10	No Connect	11	3.0 Data (positive)



USB2.0 Header

PIN	DEFINITION	PIN	DEFINITION	2 10
1	5V_USB	2	5V_USB	
3	Data (negative)	4	Data (negative)	
5	Data (positive)	6	Data (positive)	
7	GND	8	GND	
9	Key (no pin)	10	No Connect	1 9

Front I/O Header

PIN	DEFINITION	PIN	DEFINITION	2			10
1	HDD_POWER_LED	2	POWER_LED_MAIN				\bigcap
3	HDD_LED#	4	POWER_LED_ALT		\bigcirc		
5	GND	6	POWER_SWITCH#				\bigcirc
7	RESET_SWITCH#	8	GND				
9	+5V_DC	10	KEY (no pin)	1			9

SPI Programing Header





AT/ATX Mode Selection Header

PIN	DEFINITION	
1-2	AT Mode	
2-3	ATX Mode(Default)	

MiAPI Header

PIN	DEFINITION	PIN	DEFINITION	
1	MAPI_GPIO1	2	VCC	
3	MAPI_GPIO2	4	MAPI_GPIO6	
5	MAPI_GPIO3	6	MAPI_GPIO7	2 20
7	MAPI_GPIO4	8	MAPI_GPIO8	
9	MAPI_GPIO5	10	MAPI_GPIO9	
11	WD_Time	12	MAPI_GPIO10	
13	Power Button	14	SMBUS_DATA	1 19
15	UART_TX	16	SMBUS_CLK	
17	UART_RX	18	5VSB	
19	GND	20	N/A	

TPM Header

PIN	DEFINITION	PIN	DEFINITION	
1	VCC3_TPM	2	TPM_CS2	$2 \qquad - \qquad - \qquad 14$
3	TPM_MISO	4	Key(no pin)	
5	TPM_MOSI	6	PLTRST_N	
7	PRIQ_N	8	GND	
9	NC	10	SPI_CLK	
11	NC	12	TPM_DET	
13	NC	14	VSB_3V3	

System FAN Header

PIN	DEFINITION	
1	GND	4
2	+12V	$ \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc $
3	System_FAN_TACH	
4	System FAN_CTRL	

CPU FAN Header

PIN	DEFINITION	
1	GND	1 4
2	+12V	
3	CPU_FAN_TACH	
4	CPU_FAN_CTRL	



PCIe Bifurcation Switch



ON : Pull Low, OFF : NC

CFG[6:5]: PCle Bifurcation

- $00 = 1 \times 8$, 2 x 4 PCle
- 01 = reserved
- 10 = 2 x 8 PCle
- 11 = 1 x 16 PCIe(Default)

NPIO Header

PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	
A1	REFCLK+	B1	PERST#	C1	VCC 3.3V	D1	SMDAT	
A2	REFCLK+	B2	CLKREQ#	C2	N.C	D2	SMCLK	
A3	GND	B3	GND	С3	GND	D3	GND	
A4	PERp1	B4	PERp0	C4	PETp1	D4	PETp0	C1 C9
A5	PERn1	B5	PERn0	C5	PETn1	D5	PETn0	В1 В9
A6	GND	B6	GND	C6	GND	D6	GND	
A7	PERp3	B7	PERp2	C7	PETp3	D7	PETp2	
A8	PERn3	B8	PERn2	C8	PETn3	D8	PETn2	
A9	GND	B9	GND	C9	GND	D9	GND	

Panel Power Option

PIN	DEFINITION	PIN	DEFINITION	2 6	
1	Key(no pin)	2			
3	+12V	4	LCD_VCC_SEL		
5	Key(no pin)	6	VCC		
		3.3V			
	5V(Default)	1		

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LVDS Backlight Header

PIN	DEFINITION	
1	BKLT_EN	
2	BKLT_CTRL	1 8
3	BKLT_PWR	
4	BKLT_PWR	
5	GND	
6	GND	
7	BRIGHT_UP-	
8	BRIGHT_DOWN-	

LVDS Connector

PIN	DEFINITION	PIN	DEFINITION			
1	VCC3	2	Panel Power			
3	VCC3	4	Panel Power			
5	LVDS_DDC_SCL		LVDS_DDC_SDA			
7	GND (CABLE_ID1)	8	GND			
0	ТВОР	10	ТАОР			
	(LVDS ChA diff data output – positive)	10	(LVDS ChA diff data output – positive)			-
11	TBON	12	TAON			
111	(LVDS ChA diff data output – negative)	IZ	(LVDS ChA diff data output –negative)		lõ õ	
13	GND	14	GND		0 0	
15	TDOP	16	TDOP		00	
15	(LVDS ChA diff data output – positive)	10	(LVDS ChA diff data output – positive)		00	
17	TDON	10	TCON		00	
	(LVDS ChA diff data output – negative)	10	(LVDS ChA diff data output –negative)		00	
19	GND	20	GND			
21	TB1P	22	TA1P			
21	(LVDS ChB diff data output – positive)	22	(LVDS ChB diff data output – positive)		lõ õ	
22	TB1N	24	TA1N		0 0	
25	(LVDS ChB diff data output – negative)	24	(LVDS ChB diff data output –negative)		00	
25	GND	26	GND		00	
27	TD1P	20	TC1P		00	
21	(LVDS ChB diff data output – positive)	20	(LVDS ChB diff data output – positive)		00	
20	TD1N	20	TC1N		00	
29	(LVDS ChB diff data output – negative)	50	(LVDS ChB diff data output –negative)	4		ω
31	GND	32	GND	C		ω
22	TCK1P	3/	ТСКОР			
55	(LVDS ChB diff data output – positive)	54	(LVDS ChA diff data output – positive)			
25	TCK1N	26	TCKON			
35	(LVDS ChB diff data output – negative)	30	(LVDS ChA diff data output –negative)			
37	GND	38	GND			
39	NC	40	NC			

eDP Connector(Optional)

DIN			
PIN	DEFINITION	PIN	DEFINITION
1	VCC3	2	Panel Power
3	VCC3	4	Panel Power
5	EDP_CPU_AUXN	6	EDP_CPU_AUXP
7	GND (CABLE_ID1)	8	HPD
9	EDP_CPU_1+	10	EDP_CPU_0+
11	EDP_CPU_1-	12	EDP_CPU_0-
13	GND	14	GND
15	NC	16	NC
17	NC	18	NC
19	GND	20	GND
21	BKLT_EN	22	PCH_BACKLIGHT_PWM
23	NC	24	NC
25	GND	26	GND
27	NC	28	NC
29	NC	30	NC
31	GND	32	GND
33	NC	34	NC
35	NC	36	NC
37	GND	38	GND
39	BKIT PWR	40	BKLT PWR

CMOS Reset Header

PIN	DEFINITION	
1-2	Clear CMOS	
2-3	Normal(Default)	

Intrusion Switch Header

PIN	DEFINITION	1 2	
1	INTRUDER_N		
2	GND		







SPI Programing Header

PIN 1	DEFINITION GND
2	ESPI_RST_N ESPI_CLK
4	ESPI_CS0_N
5	LAD_ESPI_IO_3
6	LAD_ESPI_IO_2
0	
9	VCC3
10	3VSB



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 < Del> 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.



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	TheUpandDown <arrow>keysmovesthecursortoselectasetup</arrow>
	screen or sub-screen.
+– Plus/Minus	The Plus and Minus < Arrow > keys changes the field value of a
	particular setup setting.
F1	The <f1> key offer general help.</f1>
F2	The <f3> key load previous values.</f3>
F3	The <f3> key load optimized defaults.</f3>
F4	The <f4>keysavesanychangesmadeandexitstheBlOSsetup</f4>
	utility.
Esc	The < Esc > key discards any changes made and exits the BIOS set up
	utility.
Enter	The <enter>keydisplaysasub-screenorchangesaselectedor</enter>
	highlighted option in each menu.



3.3 Main Menu

Main Advanced Event Logs	Aptio Setup – AMI Security Boot Save & Exit	
Build Date	09/11/2020	▲ Set the Time. Use Tab to
ME FW Version	14.0.39.1339	Switch between rine elements.
Processor Information		
Intel(R) Core(TM) i7–10700E	CPU @ 2.90GHz	
Microcode Revision	CA	
Memory Information		
Total Memory	16384 MB	
Memory Slot1	16384 MB (DDR4)	
Memory Slot2	0 MB (DDR4)	
Memory Slot3	0 MB (DDR4)	
Memory Slot4	0 MB (DDR4)	→+: Select Screen
Memory Frequency	2667 MHz	t↓: Select Item
		Enter: Select
Serial ATA Port 1	Empty	+/-: Change Opt.
Serial ATA Port 2	Empty	F1: General Help
Serial ATA Port 3	Empty	F2: Previous Values
Serial ATA Port 4	Empty	F3: Optimized Defaults
Serial ATA Port 5	Empty	F4: Save & Reset
Serial ATA Port 6(M.2)	Empty	ESC: Exit
System Date	[Wed 09/16/2020]	
System Time	[11:37:22]	T

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Field Name	BIOS Vendr
Default Value	American Megatrends
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Core Version
Default Value	5.17
Comment	This field is not selectable. There is no help text associated with it

Field Name	Compliancy
Default Value	UEFI 2.7 ; PI 1.6
Comment	This field is not selectable. There is no help text associated with it

Field Name	BIOS Version
Default Value	Display the version of the BIOS
Comment	This field is not selectable. There is no help text associated with it

Field Name	Build Date and Time
Default Value	Display build date of the BIOS
Comment	This field is not selectable. There is no help text associated with it.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	ME FW Version
Default Value	ME Firmware Version.
Comment	This field is not selectable. There is no help text associated with it.



Field Name	Processor Information
Default Value	Display the installed CPU brand.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Microcode Version
Default Value	Display the CPU microcode revision.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Total Memory
Default Value	Display the installed memory size.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Memory Slot1
Default Value	Display the installed memory size of slot1.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Memory Slot2
Default Value	Display the installed memory size of slot2.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Memory Slot3
Default Value	Display the installed memory size of slot3.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Memory Slot4
Default Value	Display the installed memory size of slot4.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Memory Frequency
Default Value	Display the installed memory Frequency
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Serial ATA Port 1
Default Value	Display the installed SATA device model/size of port 1
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Serial ATA Port 2
Default Value	Display the installed SATA device model/size of port 2
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Serial ATA Port 3
Default Value	Display the installed SATA device model/size of port 3
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Serial ATA Port 4
Default Value	Display the installed SATA device model/size of port 4
Comment	This field is not selectable. There is no help text associated with it.



Field Name	Serial ATA Port 5
Default Value	Display the installed SATA device model/size of port 5
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Serial ATA Port 6 (M.2)
Default Value	Display the installed SATA device model/size of port ´
Comment	This field is not selectable. There is no help text associated with it.

Field Name	System Date
Default Value	[Www mm/dd/yyyy]
Possible Value	Www : Mon/Tue/Wed/Thu/Fri/Sat/Sun
	mm : 1-12
	dd : 1-31
	уууу : 1998-2099
Help	Set the Date. Use Tab to switch between Date elements. Default
	Rangers
	Year : 1998-2099
	Months : 1-12
	Days : Dependent on month Range of Years may vary

Field Name	System Time
Default Value	[hh :mm :ss]
Possible Value	hh : 0-23
	mm : 0-59
	ss : 0-59
Help	Set the Time. Use Tab to switch between Time elements.



3.4 Advance Page

Aptio Setup – AMI Main Advanced Event Logs Security Boot Save & Exit	
 Onboard Device CPU Configuration Trusted Computing Super IO Configuration Hardware Monitor SS RTC Wake Settings Network Stack Configuration NVMe Configuration Intel(R) Rapid Storage Technology 	Onboard Device Configuration
	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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Field Name	Onboard Device
Help	Onboard Device Configuration
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	CPU Configuration
Help	CPU Configuration Parameters
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	Trusted Computing
Help	Trusted Computing Settings
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	Super IO Configuration
Help	System Super IO Chip Parameters.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	HW Monitor
Help	Monitor hardware status
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	S5 RTC Wake Settings
Help	Enable system to wake from S5 using RTC alarm

Comment Press Enter when selected to go into the associated Sub-Menu.

Field Name	Network Stack Configuration
Help	Network Stack Settings.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	NVMe Configuration	
Help	NVMe Device Options Settings	
Comment	Press Enter when selected to go into the associated Sub-Menu.	

Field Name	Intel (R) Rapid Storage Technology (Suppressed if SATA Mode)
Help	This formset allow the user to manage RAID volumes on the
	Intel(R) RAID Controller.
Comment	Press Enter when selected to go into the associated Sub-Menu.

PerfecTron

3.4.1 Onboard Device

Advanced	Aptio Setup – AMI	
Turbo Mode State After G3 DVMT Pre-Allocated DVMT Total Gfx Mem SATA Mode Selection Wake on LAN Enable HD Audio ME Update DeepSx Power Policies Chassis Intrusion LCD Panel Type	[Enabled] [S5 State] [64M] [256M] [AHCI] [Enabled] [Enabled] [Disabled] [Disabled] [Disabled] [Auto Detect]	Enable/Disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled). ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
	Version 2.21.1278 Copyright (C) 2	020 AMI

Field Name	Turbo Mode
Default Value	[Enabled]
Possible Value	Enabled
	Disabled
Help	Enable/Disable processor Turbo Mode (requires Intel Speed Step or Intel
	Speed Shift to be available and enabled).

Field Name	State After G3
Default Value	[S5 State]
Possible Value	S0 State
Help	Specify what state to go to when power is re-applied after a power
	failure

Field Name	DVMT Pre-Allocated
Default Value	[64M]
Possible Value	64M
	32M/F7
	36M
	40M
	44M
	48M
	52M

Help	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by
	the Internal Graphics Device.

Field Name	DVMT Total Gfx Mem
Default Value	[256M]
Possible Value	128M
	256M
	MAX
Help	Select DVMT5.0 Total Graphic Memory size used by the Internal
	Graphics Device.

Field Name	SATA Mode Selection
Default Value	[AHCI]
Possible Value	AHCI / Intel RST With Intel Optane System Acceleration
Help	Determines how SATA controller(s) operate.

Field Name	PCIe Storage Dev On Port 9 (Available when SATA Mode Selection set to "Intel RST Premium With Intel Optane System Acceleration")
Default Value	[Not RST Controlled]
Possible Value	Not RST Controlled / RST Controlled
Help	Enable/Disable RST Pcie Storage Remapping.

Field Name	Wake on LAN Enable
Default Value	[Enabled]
Possible Value	Enabled
	Disabled
Help	Enable/Disable integrated LAN to wake the system.

Field Name	HD Audio
Default Value	[Enabled]
Possible Value	Enabled
	Disabled
Help	Control Detection of the HD-Audio device.
	Disabled = HDA will be unconditionally disabled.
	Enabled = HDA will be unconditionally enabled.

Field Name	ME Update
Default Value	[Disabled]
Possible Value	Enabled
	Disabled
Help	Temporary disable Intel CSME for ME FW Update. Enabled = Intel CSME
	disabled after first time reboot only

Field Name	DeepSx Power Policies
Default Value	[Disabled]
Possible Value	Enabled in S4-S5 Disabled
Help	Configure the DeepSx Mode configuration.

PerfecTron



Field Name	Chassis Intrusion
Default Value	[Disabled]
Possible Value	Disabled
	Enabled
	Reset
Help	Configure Chassis Intrusion.

Field Name	LCD Panel Type
Default Value	[Auto Detect]
Possible Value	Auto Detect
	800x480 eDP
Help	Select LCD panel used by Internal Graphics Device by selecting the
	appropriate setup item.

3.4.2 CPU Configuration

Advanced	Aptio Setup — AMI	
Advanced CPU Configuration Type ID Speed L1 Data Cache L1 Instruction Cache L2 Cache L3 Cache L4 Cache VMX SMX/TXT Intel Trusted Execution Technology	Aptio Setup - AMI Intel(R) Core(TM) i5-10500 CPU @ 3.10GHz 0xA0650 3100 MHz 32 KB x 6 32 KB x 6 256 KB x 6 12 MB N/A Supported Supported [Disabled]	Enables utilization of additional hardware capabilities provided by Intel (R) Trusted Execution Technology. Changes require a full power cycle to take effect. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2	21 1278 Conuright (C) 2020	AMT

Field Name	Туре
Default Value	[Intel CPU Brand String]
Comment	This field is not selectable. There is no help text associated with it.

Field Name	ID
Default Value	Displays CPU Signature
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Speed
Default Value	Displays the CPU Speed

Comment	This field is not selectable. There is no help text associated with it.
	·

Field Name	L1 Data Cache
Default Value	L1 Data Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	L1 Instruction Cache
Default Value	L1 Instruction Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	L2 Cache
Default Value	L2 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	L3 Cache
Default Value	L3 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	L4 Cache
Default Value	L4 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	VXM
Default Value	L3 Cache Size
Comment	This field is not selectable. There is no help text associated with it.

Field Name	SMX/TXT
Default Value	SMX/TXT Supported or Not
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Intel Trusted Execution Technology	
Default Value	[Disabled]	
Possible Value	Enabled	
	Disabled	
Help	Enables utilization of additional hardware capabilities provided by Intel	
	(R) Trusted Execution Technology.	
	Changes require a full power cycle to take effect.	

PerfecTron

3.4.3 Trusted Computing

Aptio Setup - AMI Advanced		
TPM 2.0 Device Found Firmware Version: Vendor:	500.14 INTC	Enables or Disables BIOS support for security device. O.S. will not show Security
Security Device Support Pending operation	[Enable] [None]	INT1A interface will not be available.
		++: Select Screen ↑↓: Select Item
		Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		F4: Save & Reset ESC: Exit
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Field Name	Firmware Version	
Default Value	TPM module version.	
Comment	This field is not selectable. There is no help text associated with it.	

Field Name	Vendor
Default Value	TPM module vendor name.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Security Device Support
Default Value	[Enable]
Possible Value	Enable
	Disable
Help	Enables or Disables BIOS support for security device. O.S. will not show
	Security Device. TCG EFI protocol and INT1A interface will not be
	available.

Field Name	Pending operation
Default Value	[None]
Possible Value	None
	TPM Clear
Help	Schedule an Operation for the Security Device. NOTE: Your Computer
	will reboot during restart in order to change State of Security Device.



3.4.4 Super IO Configuration

Advanced	Aptio Setup — AMI	
Super IO Configuration		Set Parameters of Serial Port
Super IO Chip > Serial Port 1 Configuration > Serial Port 2 Configuration > Serial Port 3 Configuration > Serial Port 4 Configuration	NCT6126D	1 (COMA) ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version	2.21.1278 Copyright (C) 2020	AMI

Field Name	Serial Port 1 Configuration	
Help	Set Parameters of Serial Port 1 (COMA)	
Comment	Press Enter when selected to go into the associated Sub-Menu.	

Field Name	Serial Port 2 Configuration	
Help	Set Parameters of Serial Port 2 (COMB)	
Comment	Press Enter when selected to go into the associated Sub-Menu.	

Field Name	Serial Port 3 Configuration (Gray outin Q470-Entry / H420e skus)	
Help	Set Parameters of Serial Port 3 (COMA)	
Comment	Press Enter when selected to go into the associated Sub-Menu.	

Field Name	Serial Port 4 Configuration	
Help	Set Parameters of Serial Port 4 (COMB)	
Comment	Press Enter when selected to go into the associated Sub-Menu.	



3.4.5 Serial Port 1 Configuration

Advanced	Aptio Setup — AMI	
Serial Port 1 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	(con)
Change Settings	[Auto]	
		<pre> ++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version	2.21.1278 Copyright (C) 2020	AMI

Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled
	Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	Device Settings
Default Value	Device Super IO COM1 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Change Settings
Default Value	[AUTO]
Possible Value	Auto
	IO=3F8h; IRQ=4;
	IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device



3.4.6 Serial Port 2 Configuration

Advanced	Aptio Setup – AMI	
Serial Port 2 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=2F8h; IRQ=3;	(COM)
Change Settings	[Auto]	
		<pre>**: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version	2.21.1278 Copyright (C) 20	20 AMI

Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled
	Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	Device Settings	
Default Value	Device Super IO COM2 Address and IRQ.	
Comment	This field is not selectable. There is no help text associated with it.	

Field Name	Change Settings
Default Value	[AUTO]
Possible Value	Auto
	IO=2F8h; IRQ=3;
	IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device



3.4.7 Serial Port 3 Configuration



Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled
	Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	Device Settings	
Default Value	Device Super IO COM3 Address and IRQ.	
Comment	This field is not selectable. There is no help text associated with it.	

Field Name	Change Settings
Default Value	[AUTO]
Possible Value	Auto
	IO=3F8h; IRQ=7;
	IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device

Field Name	Mode Configuration
Default Value	[3T/5R RS232]
Possible Value	1T/1R RS422
	3T/5R RS232;



	1T/1R RS485 TX ENABLE Low Active;
	1T/1R RS422 with termination resistor;
	1T/1R RS485 with termination resistor TX ENABLE Low Active;
	Disabled
Help	Configure serial port as RS232/RS422/RS485.

3.4.8 Serial Port 4 Configuration

Advanced	Aptio Setup – AMI	
Serial Port 4 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=228h; IRQ=7;	(COP)
Change Settings	[Auto]	
		<pre> ++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Version 2	21 1278 Copupight (C) 2020	OMT

Field Name	Serial Port
Default Value	[Enabled]
Possible Value	Disabled
	Enabled
Help	Enable or Disable Serial Port(COM)

Field Name	Device Settings
Default Value	Device Super IO COM3 Address and IRQ.
Comment	This field is not selectable. There is no help text associated with it.

Field Name	Change Settings
Default Value	[AUTO]
Possible Value	Auto
	IO=220h; IRQ=7;
	IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;
	IO=228h; IRQ=3,4,5,6,7,9,10,11,12;
Help	Select an optimal settings for Super IO Device

3.4.9 Hardware Monitor

Advanced	Aptio Setup — AMI	
PC Health Status		If Enabled, POST monitors
Hardware Monitor Alert Enable System Fan Enable	[Enabled] [Disabled]	status. If these values are out of range, BIOS display warping message and turn on
CPU Temperature CPU VR Temperature DIMM Temperature CPU Fan Speed Front Fan Speed VCORE 3VSB	: +46 % : +32 % : +29 % : 1652 RPM : N/A : +0.896 V : +3.311 V	beep sound.
VBAT 12V VCCST	: +3.072 V : +12.288 V : +1.048 V	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>

Туре	Range
CPU Temperature	-20 ~ (By Processor Tjmax) °C
CPU VR Temperature	-20 ~ 120 °C
DIMM Temperature	-20 ~ 120 °C
CPU Fan Speed	There are many kinds of the fan could be installed into the
Front Fan Speed	syste so we could only set 0 RPM for the failed fan speed, and
	there is also no high RPM limitation.
CPU Vcore	0~1.52V
3VSB	3.135~3.465V
VBAT	2.6~3.3V
12V	11.4 ~ 12.6V
VCCST	1.029~1.071V

Field Name	Hardware Monitor Alert Enable
Default Value	[Disabled]
Possible Value	Enabled
	Disabled
Help	If Enabled, POST monitors voltage, temperature, and fan status. If these
	values are out of range, BIOS display warning message and tur on beep
	sound.

Field Name	System Fan Enable (Suppressed if Hardware Monitor Alert is Disabled)
Default Value	[Disabled]

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Possible Value	Enabled
	Disabled
Help	If Enabled, POST monitors voltage, temperature, and fan status. If these values are out of range, BIOS display warning message and tur on beep sound.

3.4.10 S5 RTC Wake Settings

Advanced	Aptio Setup – American Megatrends Internati	onal, LLC.
Wake system from S5	[Disabled]	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified.
		<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
Ver. 2.21	,1277 Conuright (C) 2020 American Megatrends	International, LLC.

Field Name	Wake system from S5
Default Value	[Disabled]
Possible Value	Disabled
	Fixed Time
Help	Enable or disable System wake on alarm event, Select FixedTime,
	system will wake on the hr::min::sec specified.

Field Name	Wake up hour(Show when Wake system from S5 set to Fixed Time)	
Default Value	0	
Possible Value	0-23	
Help	Select 0-23 For example enter 3 for 3am and 15 for 3pm	

Field Name	Wake up hour(Show when Wake system from S5 set to Fixed Time)
Default Value	0
Possible Value	0-59
Help	Select 0-59 For Minute

Field Name	Wake up hour(Show when Wake system from S5 set to Fixed Time)
Default Value	0



Possible Value	0-59
Help	Select 0-59 For Second

3.4.11 Network Stack Configuration

Advanced	Aptio Setup – American Megatrends Internati	onal, LLC.
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Ver.	2.21.1277 Copyright (C) 2020 American Megatrends	International, LLC.

Field Name	Network stack
Default Value	[Disabled]
Possible Value	Disabled
	Enabled
Help	Enable/Disable UEFI Network stack.

Field Name	Ipv4 PXE Support (Available when Network stack Enabled)
Default Value	[Enabled]
Possible Value	Disabled
	Enabled
Help	Enable/Disable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot
	support will not be available.

Field Name	Ipv6 PXE Support (Available when Network stack Enabled)
Default Value	[Enabled]
Possible Value	Disabled
	Enabled
Help	Enable/Disable Ipv6 PXE Boot Support. If disabled IPV6 PXE boot
	support will not be available.



3.4.12 NVMe Configuration

NVMe Configuration No NVME Device Found ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit	Aptio Advanced	Setup – AMI
No NVME Device Found +t: Select Screen t: Select Item Enter: Select	NVMe Configuration	
<pre>#: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>	No NVME Device Found	
++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit		
++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit		
<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>		
++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit		
Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit		++: Select Screen t1: Select Item
F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit		Enter: Select +/-: Change Opt.
F3: Optimized Defaults F4: Save & Reset ESC: Exit		F1: General Help F2: Previous Values
ESC: Exit		F3: Optimized Defaults F4: Save & Reset
		ESC: Exit
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Field Name	Ipv4 PXE Support (Available when Network stack Enabled)
Comment	Press Enter when selected to go into the associated Sub-Menu.



3.4.13 Intel® Rapid Storage Technology

Aptio Setup – American Megatrends Internati Advanced	onal, LLC.
Intel(R) RST 17.8.2.4684 RAID Driver	Select to see more information about the disk
Non-RAID Physical Disks: ▶ SATA 0.0, ST2000NM0008-2F3100 ZDS07YB2, 1.8TB	
	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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Field Name	Create RAID Volume
Help	This page allows you to create a RAID volume

Field Name	Raid Volume
Help	Select to see more information about the RAID Volume.

Field Name	Non-RAID Physical Disks:
Help	Select to see more information about the disk.



3.5 Event Logs

Aptio Setup – American Megatrends Internation Main Advanced <mark>Event Logs</mark> Security Boot Save & Exit	onal, LLC.
 Change Smbios Event Log Settings View Smbios Event Log 	Press <enter> to change the Smbios Event Log configuration.</enter>
Ven 2 21 1277 Conunight (C) 2020 American Medatrende	International LLC

Field Name	Change Smbios Event Log Settings
Help	Press to change the Smbios Event Log configuration.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	View Smbios Event Log
Help	Press to view the Smbios Event Log records.
Comment	Press Enter when selected to go into the associated Sub-Menu.



3.5.1 Change Smbios Event Log Settings

Aptio Setup – American Megatrends International, LLC. Event Logs		
Enabling/Disabling Options Smbios Event Log	[Enabled]	Change this to enable or disable all features of Smbios
Erasing Settings Erase Event Log When Log is Full	[No] [Do Nothing]	Event Logging during boot.
		++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		ESC: Exit

Field Name	Smbios Event Log
Default Value	[Enabled]
Possible Value	Enabled
	Disabled
Help	Change this to enable or disable all features of Smbios Event Logging
	during boot.

Field Name	Erase Event Log
Default Value	[No]
Possible Value	No
	Yes, Next reset
	Yes, Every reset
Help	Choose options for erasing Smbios Event Log. Erasing is done prior to
	any logging activation during reset.

Field Name	When Log is Full
Default Value	[Do Nothing]
Possible Value	Do Nothing
	Erase Immediately
Help	Choose options for reactions to a full Smbios Event Log



3.5.2 View Smbios Event Log

Aptio Set Event Logs	up – America	an Megatrends Internati	onal, LLC.
DATE TIME ERROR CODE	SEVERITY	COUNT	DESCRIPTION
06/04/20 06:35:10 Smbios 0x16			Log Area Reset and Count is applicable only for Multi-Events ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
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Field Name	DATE / TIME / ERROR CODE / SEVERITY / COUNT
Default Value	MM/DD/YY HH:MM:SS Smbios 0x16 N/A N/A
Possible Value	By Events.
Help	By Events.



3.6 Security Page

Main Advanced Event Logs	Aptio Setup – Security Boot Save &	AMI Exit
Password Description		Set Administrator Password
If ONLY the Administrator's then this only limits acces only asked for when enterin If ONLY the User's password is a power on password and boot or enter Setup. In Set have Administrator rights. The password length must be in the following range:	password is set, s to Setup and is g Setup. is set, then this must be entered to up the User will	
Minimum length	3	
Maximum length Administrator Password User Password HDD Security Configuration:	20	++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
P0:ST2000NM0008-2F3100		F4: Save & Reset ESC: Exit
▶ Secure Boot ▶ BIOS Update		
	Vencion 0.04 4070 Conunia	(c) 2020 ANT

Field Name	Administrator Password
Help	Set Administrator Password

Field Name	User Password
Help	Set User Password.

Field Name	Secure Boot
Help	Set User Password.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	BIOS Update
Help	BIOS Update support
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	HDD Security drive
Help	HDD Security Configuration for selected drive
Comment	Press Enter when selected to go into the associated Sub-Menu.



3.6.1 HDD Security

Security	Aptio Setup – AMI	
HDD Password Description : Allows Access to Set, Modify and Clea Hard Disk User Password User Password is mandatory to Enable If the 'Set User Password' option is do power cycle to enable the option a HDD PASSWORD CONFIGURATION: Security Supported : Security Enabled : Security Enabled : Security Frozen : HDD User Pwd Status:	r HDD Security. hidden, gain. Yes No Yes NOT INSTALLED	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit
Version 2.	21.1278 Copyright (C) 2020	AMI

Field Name	Set User Password
Help	Set HDD User Password. *** Advisable to Power Cycle System after
	Setting Hard Disk Passwords ***.Discard or Save changes option in
	setup does not have any impact on HDD when password is set or
	removed. If the 'Set HDD User Password' option is hidden, do power
	cycle to enable the option again

3.6.2 Secure Boot

	Aptio Setup – AMI Security	
System Mode	Setup	Secure Boot feature is Active
Secure Boot	[Enabled] Not Active	Platform Key(PK) is enrolled and the System is in User mode. The mode chanke requires
<pre>Secure Boot Mode Restore Factory Keys Reset To Setup Mode Enter Audit Mode Key Management</pre>	[Standard]	platform reset
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
	Version 2.21.1278 Copyright (0	C) 2020 AMI

Field Name	Secure Boot
Default Value	[Enabled]
Possible Value	Enabled
	Disabled
Help	Secure Boot feature is Active if Secure Boot is Enabled,Platform Key(PK) is enrolled and the System is in User mode.The mode change requires platform reset

Field Name	Secure Boot Mode
Default Value	[Standard]
Possible Value	Standard
	Custom
Help	Secure Boot mode options:Standard or Custom.In Custom mode,
	Secure Boot Policy variables can be configured by a physically present
	user without full authentication

Field Name	Restore Factory Keys
Help	Force System to User Mode. Install factory default Secure Boot key
	databases

Field Name	Reset to Setup Mode
Help	Delete all Secure Boot key databases from NVRAM



Field Name	Key Management
Help	Enables expert users to modify Secure Boot Policy variables without full authentication
Comment	Enables expert users to modify Secure Boot Policy variables without full authentication

3.6.3 Key Management(Secure Boot Mode set to Custom)

Aptio Se	etup – American Megatrends Internati <mark>Security</mark>	onal, LLC.
Vendor Keys	Valid	Install factory default Secure
Factory Key Provision Restore Factory Keys Reset To Setup Mode Export Secure Boot variables Enroll Efi Image	[Disabled]	reset and while the System is in Setup mode
Device Guard Ready ▶ Remove 'UEFI CA' from DB ▶ Restore DB defaults		
Secure Boot variable Size Platform Key(PK) 0	Keys Key Source 0 No Keys	++: Select Screen
 Key Exchange Keys Authorized Signatures 0 	0 No Keys 0 No Keys	f↓: Select Item Enter: Select
Forbidden Signatures 0 Authorized TimeStamps	0 No Keys 0 No Keys	+/-: Change Opt. E1: General Heln
▶ OsRecovery Signatures 0	0 No Keys	F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit

Field Name	Factory Key Provision
Default Value	[Disabled]
Possible Value	Enabled
	Disabled
Help	Install factory default Secure Boot keys after the platform reset and
	while the System is in Setup mode

Field Name	Restore Factory Keys
Help	Force System to User Mode. Install factory default Secure Boot key
	databases

Field Name	Reset to Setup Mode
Help	Delete all Secure Boot key databases from NVRAM

Field Name	Export Secure Boot variables
Help	Copy NVRAM content of Secure Boot variables to files in a root folder on
	a file system device

Field Name Enroll Efi Image

Help	Allow the image to run in Secure Boot mode. Enroll SHA256 Hash
	certificate of a PE image into Authorized Signature Database (db)

Field Name	Remove 'UEFI CA' from DB
Help	Device Guard ready system must not list 'Microsoft UEFI CA' Certificate
	in Authorized Signature database (db)

Field Name	Restore DB defaults
Help	Restore DB variable to factory defaults

Field Name	Platform Key (PK)
Default Value	Size:0, Keys:0, Key source: No Keys
Help	Enroll Factory Defaults or load certificates from a file:
	1.Public Key Certificate:
	a)EFI_SIGNATURE_LIST
	b)EFI_CERT_X509 (DER)
	c)EFI_CERT_RSA2048 (bin)
	d)EFI_CERT_SHAXXX
	2.Authenticated UEFI Variable
	3.EFI PE/COFF Image(SHA256)
	Key Source:
	Factory,External,Mixed
Comment	Press Enter when selected to go into the associated Sub-Menu "Key
	Management".

Field Name	Key Exchange Keys
Default Value	Size:0, Keys:0, Key source: No Keys
Help	Enroll Factory Defaults or load certificates from a file:
	1.Public Key Certificate:
	a)EFI_SIGNATURE_LIST
	b)EFI_CERT_X509 (DER)
	c)EFI_CERT_RSA2048 (bin)
	d)EFI_CERT_SHAXXX
	2.Authenticated UEFI Variable
	3.EFI PE/COFF Image(SHA256)
	Key Source:
	Factory,External,Mixed
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	Authorized Signatures
Default Value	Size:0, Keys:0, Key source: No Keys
Help	Enroll Factory Defaults or load certificates from a file:
	1.Public Key Certificate:
	a)EFI_SIGNATURE_LIST
	b)EFI_CERT_X509 (DER)
	c)EFI_CERT_RSA2048 (bin)
	d)EFI_CERT_SHAXXX
	2.Authenticated UEFI Variable
	3.EFI PE/COFF Image(SHA256)

PerfecTron



Tactory,External,Mixed	
Comment Press Enter when selected to go into the associated Sub-M	lenu.

Field Name	Forbidden Signatures
Default Value	Size:0, Keys:0, Key source: No Keys
Help	Enroll Factory Defaults or load certificates from a file:
	1.Public Key Certificate:
	a)EFI_SIGNATURE_LIST
	b)EFI_CERT_X509 (DER)
	c)EFI_CERT_RSA2048 (bin)
	d)EFI_CERT_SHAXXX
	2.Authenticated UEFI Variable
	3.EFI PE/COFF Image(SHA256)
	Key Source:
	Factory,External,Mixed
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	Authorized TimeStamps
Default Value	Size:0, Keys:0, Key source: No Keys
Help	Enroll Factory Defaults or load certificates from a file:
	1.Public Key Certificate:
	a)EFI_SIGNATURE_LIST
	b)EFI_CERT_X509 (DER)
	c)EFI_CERT_RSA2048 (bin)
	d)EFI_CERT_SHAXXX
	2.Authenticated UEFI Variable
	3.EFI PE/COFF Image(SHA256)
	Key Source:
	Factory,External,Mixed
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	OsRecovery Signatures
Default Value	Size:0, Keys:0, Key source: No Keys
Help	Enroll Factory Defaults or load certificates from a file:
	1.Public Key Certificate:
	a)EFI_SIGNATURE_LIST
	b)EFI_CERT_X509 (DER)
	c)EFI_CERT_RSA2048 (bin)
	d)EFI_CERT_SHAXXX
	2.Authenticated UEFI Variable
	3.EFI PE/COFF Image(SHA256)
	Key Source:
	Factory,External,Mixed
Comment	Press Enter when selected to go into the associated Sub-Menu.



3.6.4 BIOS Update

Aptio Setup – American Megatrends Interr <mark>Security</mark>	national, LLC.
▶ Path for ROM Image Notice : ROM Image must in the root folder of storage device. File name must match with current BIOS project.	Enter the path to the BIOS update option
	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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Field Name	Path for ROM Image
Help	Enter the path to the Secure flash option



3.7 Boot Page

Aptio Setup – Am Main Advanced Event Logs Securit	erican Megatrends Internati y Boot Save & Exit	onal, LLC.
Boot Configuration Setup Prompt Timeout Bootup NumLock State	1 [Off]	Number of seconds to wait for setup activation key. 65535(0×FFFF) means indefinite waiting.
FIXED BOOT ORDER Priorities Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5 Boot Option #6 Boot Option #7 Boot Option #8 • UEFI Hard Disk Drive BBS Priorities • UEFI USB Key Drive BBS Priorities	[USB Floppy] [CD/DVD] [USB CD/DVD] [Hard Disk] [USB Key] [USB Hard Disk] [NVME] [Network]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>
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Field Name	Setup Prompt Timeout
Default Value	1
Possible Value	1~65535
Comment	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

Field Name	Bootup NumLock State
Default Value	[Off]
Possible Value	On
	Off
Comment	Select the keyboard NumLock state

Field Name	Boot Option #1
Default Value	[USB Floppy]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk ,
	NVME, Network, Disabled
Comment	Sets the system boot order

Field Name	Boot Option #2
Default Value	[USB CD/DVD]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk ,
	NVME, Network, Disabled
Comment	Sets the system boot order



Field Name	Boot Option #3
Default Value	[Hard Disk]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk ,
	NVME, Network, Disabled
Comment	Sets the system boot order

Field Name	Boot Option #4
Default Value	[USB Key]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk ,
	NVME, Network, Disabled
Comment	Sets the system boot order

Field Name	Boot Option #5
Default Value	[USB Hard Disk]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled
Comment	Sets the system boot order

Field Name	Boot Option #6
Default Value	[NVME]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk ,
	NVME, Network, Disabled
Comment	Sets the system boot order

Field Name	Boot Option #7
Default Value	[Network]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled
Comment	Sets the system boot order

Field Name	Boot Option #8
Default Value	[Network]
Possible Value	USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled
Comment	Sets the system boot order

Field Name	(UEFI) USB Floppy Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available USB Floppy
	Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	(UEFI) USB CDROM/DVD ROM Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available USB
	CDROM/DVD Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.



Field Name	(UEFI) Hard Disk Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available Hard Disk
	Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.
Field Name	(UEFI) USB KEY Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available Hard Disk

	Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

Field Name	(UEFI) USB Hard Disk Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available Hard Disk
	Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.

1		
Field Name	(UEFI) NVME Drive BBS Priorities	
Help	Specifies the Boot Device Priority sequence from available Hard Disk	
	Drives.	
Comment	Press Enter when selected to go into the associated Sub-Menu.	

Field Name	(UEFI) NETWORK Drive BBS Priorities
Help	Specifies the Boot Device Priority sequence from available Hard Disk
	Drives.
Comment	Press Enter when selected to go into the associated Sub-Menu.



3.7.1 (List Boot Device Type) Drive BBS Priorities

	Aptio Setup – American Megatrends Internati Boot	onal, LLC.
Boot Option #1	[Windows Boot Manager (ST2000NM0008–2F3100)]	Sets the system boot order
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit</pre>

Field Name	Boot Option #1
Default Value	
Possible Value	Boot Device Name 1 of this type, Disable
Help	Sets the system boot order



3.8 Save & Exit Page

Aptio Setup – American Megatrends International, LLC. Main Advanced Event Logs Security Boot <mark>Save & Exit</mark>	
Save Changes and Reset Discard Changes and Reset	Reset the system after saving the changes.
Restore Defaults	
	++: Select Screen f4: Select Item
	Enter: Select +/-: Change Opt.
	F1: General Help F2: Previous Values F3: Optimized Defaults
	F4: Save & Reset ESC: Exit
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Field Name	Save Changes and Reset
Help	Reset the system after saving the changes.

Field Name	Discard Changes and Rest
Help	Reset system setup without saving any changes.

Field Name	Restore Defaults
Help	Restore/Load Default values for all the setup options.