MX3965U

Intel® 6th Generation ULT Processor Thin Mini ITX Motherboard

User's Manual

3rd Ed – 30 April 2018

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(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

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1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x MX3965U motherboard
- 1 x SATA cable
- 1 x SATA power cable
- 1 x I/O Shield



If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	Ву	Comment
1 st	February 2017		Initial Release
2 nd	September 2017		Update Setting Jumpers & Connectors
3 rd	April 2018		Update System Specifications and Setting Jumpers & Connectors

1.4 Manual Objectives

This manual describes in details the MX3965U motherboard.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up MX3965U or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

System				
CPU Onboard 6th Gen Intel® Core™ SoC i7/i5/i3 & Celeron®BGA Processor				
BIOS	AMI uEFI BIOS, 128Mbit SPI Flash ROM			
I/O Chip EC IT8528E				
System Momory	Two 260-pin DDR4 2133 MHz SO-DIMM socket, supports up to 32GB Max (non ECC			
System Memory	only)			
Watchdog Timer	H/W Reset, 1sec. – 65535sec./min.1sec. or 1min. step			
EEPROM	AMI uEFI BIOS, 128Mbit SPI Flash ROM			
H/W Status	CPU temperature monitoring			
Monitor	Voltages monitoring			
	CPU fan speed control			
	1 x M.2 Type B 3042/2242/2260/2280 (with 2 x PCI-e x 1 (default) or 1 x PCI-e x 2			
	(By OEM BIOS ME SET), USB 2.0, USB3.0, SATA Signal) with 1 x SIM card slot,			
	support WWAN+GNSS or SSD with 1 x SIM card slot, support WWAN+GNSS or			
Expansion	SSD.			
	1 x M.2 Type A 2230 support WiFi module, 1 x PCI-e x 1, USB 2.0 Signal)			
	1 x SD card slot support SDXC/ SDHC 3.0 Card (Optional)			
	1 x PCI-e x 1			
S3/S4	Yes (S0/S3/S4/S5)			
I/O				
USB	4 x USB 3.0, 4 x USB 2.0			
GPIO	16-bits GPIO			
Display				
Chipset	Intel® Processor Graphics			
	1 x HDMI 1.4b: 3840 x 2160 @ 30 Hz, 2560 x 1600@ 30 Hz			
Resolution	2 x DP: DisplayPort 1.2a : 4096x2160 @ 60Hz (1 x HDMI/DP, 1 x DP++)			
Resolution	2CH 18/24bits LVDS 1920 x 1080 (Chrontel. CH7511B eDP to LVDS Converter)			
	Co-lay eDP 1.3: 4096x2160 BOM optional			
Multiple Display Triple Display				
Display	1 x DP++, 1 x HDMI/DP, 1 x HDMI			
LCD Interface	Dual channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS) or eDP (optional)			
Audio				
AC97 Codec	Realtek ALC892 HD Audio Decoding Controller			
Audio Amp	TI TPA3113D2PWP Stereo Class-D 6W x 2			
Ethernet				
LAN Chip	1 x Intel® I219LM Gigabit Ethernet PHY			

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	1 x Intel® I211AT PCI-e Gigabit Ethernet			
Ethernet Gigabit Ethernet				
Interface				
Internal I/O Conn	ectors			
Fan	1 x 1 x 4 pin, pitch 2.54mm CPU fan connector with smart fan function supported			
System 1 I2C	1 x 1 x 5 pin, pitch 2.00mm, +3.3S Level			
Buzzer	Onboard			
CMOS Battery	1 x horizontal type battery connector (Battery cable 170mm length)			
Dower ON	1 x 2 x 5 pin, pitch 2.54mm connector for front panel 1			
Power ON	1 x 2 x 5 pin, pitch 2.54mm connector for front panel 2			
Audio	1 x 2 x 5 pin, pitch 2.54mm connector for front Audio			
	Storage:			
	1 x M.2 Type B 3042/2242/2260/2280 (with 2 x PCI-e x 1 (default) or 1 x PCI-e x 2			
	(By OEM BIOS ME SET), USB 2.0, USB3.0, SATA Signal) with 1 x SIM card slot,			
	support WWAN+GNSS or SSD.			
	1 x M.2 Type A 2230 support WiFi module, 1 x PCI-e x 1, USB 2.0 Signal)			
	- 2 x SATA III			
	- 2 x SATA power connectors			
	COM:			
	COM 1 & COM2			
	-COM 1 & COM2 support RS232/422/485 connector, with / +5V & +12V Supported			
	and RS422/485 by BIOS setting			
	2 x 2 x 5 pin, pitch 2.00mm connector for COM1: support RS-232 connector, Pin 9			
	with / +5V & +12V Supported			
External 1/0	2 x 2 x 3 pin, pitch 2.00mm connector for COM1: support RS422/485 connector, Pin			
Connector	5 with / +5V Supported			
Connector	СОМ3~6:			
	- 4 x 2 x 5 pin, pitch 2.00mm connector for COM2~6: support RS-232 connector, Pin			
	9 with / +5V & +12V Supported			
	2 x 2 x 5 pin, pitch 2.54mm connector for 4 USB 2.0			
	1 x 2 x 10 pin, pitch 2.00mm connector for GPIO: 16 bits & +3.3S Level SMBus			
	1 x 2 x 4 pin, pitch 2.00mm connector for BIOS SPI			
	1 x 2 x 5 pin, pitch 2.00mm connector for EC SPI			
	1 x 2 x 5 pin, pitch 2.0mm connector for LPC			
	1 x horizontal type battery connector (Battery cable 170mm length)			
	1 x 2 x 5 pin, pitch 2.54mm connector for front panel 1			
	1 x 2 x 5 pin, pitch 2.54mm connector for front panel 2			
	1 x 2 x 20 pin, pitch 1.25mm connector for LVDS (must be using WF40H6-7GAA178			
	connector)			
	1 x 2 x 10 pin, pitch 1.25mm connector for eDP			

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	1 x 1 x 5 pin, pitch 2.00mm Wafer connector for LCD inverter backlight connector		
	(5V/12V)		
	1 x 1 x 3 pin, pitch 2.54mm connector LCD backlight brightness adjustment		
	(PWM/DC)		
	1 x 2 x 5 pin, pitch 2.54mm connector for front Audio		
	1 x 3 pin, pitch 2.54mm connector for S/PDIF		
	1 x 4 pin, pitch wafer 2.00mm connector for 6W x 2 Speaker		
	1 x 3 pin, pitch 2.00mm connector for CMOS clear		
	1 x 1 x 4 pin, pitch 2.54mm CPU fan connector with smart fan function supported		
	2 x 1 x 4 pin, pitch 2.00mm connector for LAN Activity Indicator LED		
	1 x 1 x 5 pin, pitch 2.54mm for Digital MIC in		
	1 x 2 x 2 pin, pitch 4.20mm connector for power input connector		
	1 x 1 x 3 pin, pitch 2.54mm connector for AT/ATX mode Fanless Operating		
Rear I/O Connect	ors		
USB	4 x USB3.0		
	1 x Intel® I219LM Gigabit Ethernet PHY		
LAN	1 x Intel® I211AT PCI-e Gigabit Ethernet		
Display 1 x DP++, 1 x HDMI/DP			
LED	2 x 1 x 4 pin, pitch 2.00mm connector for LAN Activity Indicator LED		
	2 x RJ-45		
	4 x USB 3.0		
Rear Side	1 x HDMI/DP		
External I/O	1 x HDMI		
Connector	1 x DP++		
	1 x Mic-In and 1 x Line-out		
	1 x DC Jack lockable connector type		
Mechanical & Env	vironmental		
Power			
Requirement	DC III +12V~24V		
	Single power ATX Support S0, S3, S4, S5		
ACFI	ACPI 5.0 Compliant		
Power Type	AT / ATX mode Switchable Through Jumper		
Operating Temp.	0 ~ 60°C (32~140°F)		
Storage Temp.	-40 ~ +75°C		
Operating			
Humidity	u% ~ 90% relative numidity, non-condensing		
Size (L x W)	6.7" x 6.7" (170mm x 170mm)		
Weight	0.40 kg		

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1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of MX3965U.



2. Hardware Configuration

2.1 Product Overview



Note:

If M.2 Type B 3042/2242/2260/2280 using PCI-e x2 device, it requires OEM BIOS ME setting; hence PCI-e slot is not workable.



Note:

SD card support list please refer to HW Storage Compatibility Test report.

2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:

0 0		1 2 3 O
Open	Closed	Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Jumpers		
Label	Function	Note
JRI1/2/3/4/5/6	Serial port 1/2/3/4/5/6 pin9 signal select	3 x 2 header, pitch 2.00mm
JSBKL1	LVDS Back Light power selection	3 x 1 header, pitch 2.00mm
JSATX1	AT/ATX Power Mode Select	3 x 1 header, pitch 2.54mm
JCOMS1	Clear CMOS	3 x 1 header, pitch 2.00mm

The following tables list the function of each of the board's jumpers and connectors.

Connectors				
Label	Function	Note		
FPT1	Miscellaneous setting connector 1	5 x 2 header, pitch 2.54mm		
FPT2	Miscellaneous setting connector 2	5 x 2 header, pitch 2.54mm		
SODIMM1/2	206-pin DDR4 SO-DIMM socket			
FAUD1	Front Audio connector	5 x 2 header, pitch 2.54mm		
JBKL1	LCD Inverter connector	5 x 1 wafer, pitch 2.00mm		

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JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
JEC_SPI	EC Debug	5 x 2 header, pitch 2.00mm
COM1	Serial Port 1 connector	5 x 2 header, pitch 2.00mm
COM2	Serial Port 2 connector	5 x 2 header, pitch 2.00mm
COM3	Serial Port 3 connector	5 x 2 header, pitch 2.00mm
COM4	Serial Port 4 connector	5 x 2 header, pitch 2.00mm
COM5	Serial Port 5 connector	5 x 2 header, pitch 2.00mm
COM6	Serial Port 6 connector	5 x 2 header, pitch 2.00mm
DIO1	General purpose I/O connector	10 x 2 header, pitch 2.00mm
SPK1	Speaker connector	4 x 1 wafer, pitch 2.00mm
LVDS1	LVDS Connector	20 x 2 wafer, pitch 1.25mm
USB1/2	USB connector 1/2	
USB3/4	USB connector 3/4	5 x 2 header, pitch 2.54mm
SPDIF1	Sony/Philips Digital Interface	3 x 1 header, pitch 2.54mm
LAN1/2	RJ-45 Ethernet 1/2	
PCIE1	PCIe connector	
LED1	LED indicator connector 1	4 x 1 header, pitch 2.00mm
LED2	LED indicator connector 2	4 x 1 header, pitch 2.00mm
BT1	Battery connector	2 x 1 wafer, pitch 1.25mm
M2KA1	M.2 2230 Type A Slot	
M2KB1	M.2 3042/2242/2260/2280 Type B Slot	
DP1/2	DP connector 1/2	
EDP1	eDP_Panel connector	10 x 2 wafer, pitch 1.25mm
JRS485_1/2	Serial Port 1/2 RS485/422 Mode connector	3 x 2 header, pitch 2.00mm
JLPC	LPC connector	5 x 2 header, pitch 2.00mm
DCIN1	DC Power-in connector	
PWR1	Power connector	2 x 2 wafer, pitch 4.20mm
SATA1/2	Serial ATA connector 1/2	
SPWR1/2	SATA Power connector 1/2	4 x 1 wafer, pitch 2.54mm
I2C1	I2C connector	5 x 1 header, pitch 2.00mm
HDMI1	HDMI connector	
LOUT1	Line-out audio jack	
MIC1	Mic-in audio jack	
DMIC1	Mic-in connector	5 x 1 header, pitch 2.54mm
<u> </u>		

SIM1	SIM card slot	
FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm

2.3 Setting Jumpers & Connectors

2.3.1 Serial port 1/2/3/4/5/6 pin9 signal select (JRI1/JRI2/JRI3/JRI4/JRI5/JRI6)



Ring*



+5V



+12V

1	5

* Default

2.3.2 LVDS Back Light power selection (JSBKL1)



PWM Mode*

3	1

DC Mode



* Default

2.3.3 AT/ATX Power Mode Select (JSATX1)





* Default

2.3.4 Clear CMOS (JCOMS1)



* Default

Protect*



Clear CMOS



2.3.5 LCD Inverter connector (JBKL1)





PIN	Signal	Max current
5	+5V	2A
4	LVDS_BKLTCTL	
3	LVDS_BKLT_EN	
2	GND	
1	+12V	2A

2.3.6 General purpose I/O connector (DIO1)



1					19

Signal	PIN	PIN	Signal
DI0	1	2	DO0
DI1	3	4	DO1
DI2	5	6	DO2
DI3	7	8	DO3
DI4	9	10	DO4
DI5	11	12	DO5
DI6	13	14	DO6
DI7	15	16	DO7
SMB_CLK_S	17	18	SMB_DATA_S
GND	19	20	+5V(Max current = 0.5A)

2.3.7 Serial port 1/2 connector (COM1/2)



1		9

Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND	5	6	DSR
RTS	7	8	CTS
RI (Max current = 0.5A)	9	10	NC

2.3.8 Serial port 3/4/5/6 connector (COM3/4/5/6)



	9
	1

Signal	PIN	PIN	Signal	
NC	10	0	RI	
NC	10	9	9	(Max current = 0.5A)
CTS	8	7	RTS	
DSR	6	5	GND	
DTR	4	3	TXD	
RXD	2	1	DCD	

2.3.9 Serial Port 1/2 RS485/422 Mode connector (JRS485_1/2)



1	5

Signal	PIN	PIN	Signal
485_422TX-	1	2	422RX-
485_422TX+	3	4	422RX+
+5V (Max current = 0.5A)	5	6	GND

2.3.10 SATA Power connector 1/2 (SPWR1/2)





PIN	Signal	Max current
1	+V5S_SATA	1A
2	GND	
3	GND	
4	+V12S_SATA	1A

2.3.11 Power connector (PWR1)





Signal	PIN	PIN	Signal
GND	2	4	+VIN
GND	1	3	+VIN

2.3.12 USB connector 3 (USB3)





Signal	PIN	PIN	Signal
+V5A_USB78	1	2	+V5A_USB78
USB_DN7	3	4	USB_DN8
USB_DP7	5	6	USB_DP8
GND	7	8	GND
		10	NC

2.3.13 USB connector 4 (USB4)



7		1

Signal	PIN	PIN	Signal
+V5A_USB78	1	2	+V5A_USB78
USB_DN9	3	4	USB_DN10
USB_DP9	5	6	USB_DP10
GND	7	8	GND
		10	NC

2.3.14 Battery connector (BT1)





Signal	PIN
+3V	1
GND	2

2.3.15 LVDS connector (LVDS1)



	£	4	4	4	4	4	4		4	4	4	4	<u>n</u>	4	<u>n</u>	4	4	1	4	д,	_	
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-	20	a																		1		

Signal	PIN	PIN	Signal
+5V	2	1	+3.3V
+5V	4	3	+3.3V
NC	6	5	NC
GND	8	7	GND
LVDS_DATA0_P	10	9	LVDS_DATA1_P
LVDS_DATA0_N	12	11	LVDS_DATA1_N
GND	14	13	GND
LVDS_DATA2_P	16	15	LVDS_DATA3_P
LVDS_DATA2_N	18	17	LVDS_DATA3_N
GND	20	19	GND
LVDS_DATA4_P	22	21	LVDS_DATA5_P
LVDS_DATA4_N	24	23	LVDS_DATA5_N
GND	26	25	GND
LVDS_DATA6_P	28	27	LVDS_DATA7_P
LVDS_DATA6_N	30	29	LVDS_DATA7_N
GND	32	31	GND
LVDS_CLK1_P	34	33	LVDS_CLK2_P
LVDS_CLK1_N	36	35	LVDS_CLK2_N
GND	38	37	GND
+12V	40	39	+12V

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2.3.16 Audio connector (FAUD1)





Signal	PIN	PIN	Signal
LINE2_JD	10	9	LINE2_LIN
		7	SENSE_B
MIC2_JD	6	5	LINE2_RIN
AUD_FRONT_DET	4	3	MIC2_RIN
GND	2	1	MIC2_LIN

2.3.17 EC Debug (JEC_SPI)



1		9

Signal	PIN	PIN	Signal
+3VSPI_EC	1	2	GND
EC_FSCE#	3	4	EC_FSCK
EC_FMISO	5	6	EC_FMOSI
EC_HOLD#	7	8	NC
EC_SMCLK	9	10	EC_SMDAT

2.3.18 SPI connector (JSPI1)



	7
	1

Signal	PIN	PIN	Signal
		7	HOLD#
SPI_SI	6	5	SPI_SO
SPI_CLK	4	3	SPI0_CS0#
GND	2	1	+3.3A_SPI

2.3.19 Sony/Philips Digital Interface (SPDIF1)



l	
l	1

Signal	PIN
GND	3
SPDIF_OUT	2
+5V	1

2.3.20 Miscellaneous setting connector 1 (FPT1)



1	
9	
	-

Signal	PIN	PIN	Signal
HD_LED+	1	2	PWR_LED+
HD_LED-	3	4	PWE_LED-
Reset+	5	6	PWR_BNT+
Reset-	7	8	PWR_BNT-
NC	9		

2.3.21 Miscellaneous setting connector 2 (FPT2)



1	
9	

Signal	PIN	PIN	Signal
Speaker+	1	2	BLK_VR(10K)
NC	3	4	BLK_UP
NC	5	6	BLK_DN
Speaker-	7	8	GND
NC	9	10	

Note:

1. Pin2 with GND: Control LVDS Backlight by use Variable Resistor.

2. BLK_UP with GND/BLK_DN with GND: Step control LVDS Backlight by use button and BIOS must to be set "BR Button". (Please refer to page.61)

2.3.22 LED indicator connector 1 (LED1)





Signal	PIN
LAN1_1000#_LED	4
LAN1_100#_LED	3
LAN1_ACT_N	2
LAN1_ACT_P	1

2.3.23 LED indicator connector 2 (LED2)



	1

Signal	PIN
LAN2_1000#_LED	4
LAN2_100#_LED	3
LAN2_ACT_N	2
LAN2_ACT_P	1





Signal	PIN
SPK_R-	4
SPK_R+	3
SPK_L-	2
SPK_L+	1

2.3.25 Mic-in connector (DMIC1)





Signal	PIN
NC	5
DMIC_CLK	4
GND	3
DMIC_DATA	2
+3.3V	1

2.3.26 I2C connector (I2C1)



1		5

Signal	PIN
+3.3V	1
INT_I2C0#	2
I2C0_CLK	3
I2C0_DATA	4
GND	5

2.3.27 eDP_Panel connector (EDP1)



Note:

Default 3.3V.

This a BOM optional part.

1 19 J.....E

Signal	PIN	PIN	Signal
GND	1	2	GND
EDP_PanelTXN0	3	4	EDP_PanelTXN3
EDP_PanelTXP0	5	6	EDP_PanelTXP3
GND	7	8	NC
EDP_PanelTXN1	9	10	GND
EDP_PanelTXP1	11	12	EDP_PanelAUXN
GND	13	14	EDP_PanelAUXP
EDP_PanelTXN2	15	16	GND
EDP_PanelTXP2	17	18	EDP_Panel_HPD
+V3512_EDP	19	20	+V3512_EDP

2.3.28 LPC connector (JLPC)



1		9

Signal	PIN	PIN	Signal
LPC_AD0	1	2	+3.3V
LPC_AD1	3	4	PCH_PLTRST#
LPC_AD2	5	6	LPC_FRAME#
LPC_AD3	7	8	LPC_CLK
LPC_SERIRQ	9	10	GND

2.3.29 CPU fan connector (FAN1)





Signal	PIN
GND	1
+12V	2
CPU_FANIN	3
FAN_PWM0	4
2.3.30 HDMI1/DP1/DP2/LVDS1



Display	Location
HDMI	HDMI1
DP	DP1
DP++	DP2
LVDS	LVDS1

Display: 1 x DP++(DP2 connector), 1 x HDMI(HDMI1 connector), 1 x DP (DP1 connector), LVDS(LVDS1 connector)

Note: HDMI1 and DP1 share one circuit for display output depending on which monitor input is engaged. (Only one display port can be output, HDMI1 or DP1)

Triple display:

HDMI & DP++ & LVDS DP & DP++ & LVDS MX3965U User's Manual



3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The AMI BIOS[™] is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing or <F2> immediately after switching the system on, or

By pressing the or <F2> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press or <F2> to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to Continue, DEL to enter SETUP

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑↓→←	Move
Enter	Select
+/-	Value
Esc	Exit
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit Setup
<k></k>	Scroll help area upwards
<m></m>	Scroll help area downwards

Navigating Through The Menu Bar

Use the left and right arrow keys to choose the menu you want to be in.

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

• To Display a Sub Menu

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A " \geq " pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or <Enter> key.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6 BIOS setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.

Aptio Setup Util Main Advanced Chipset Secu	.ity – Copyright (C) 2017 Ameri rity Boot Save & Exit	ican Megatrends, Inc.
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level EC 8528 Firmware BIOS Name	American Megatrends 5.11 UEFI 2.4; PI 1.3 1ASOI 0.39 x64 03/01/2017 15:33:28 Administrator OC XSKLU00M	Platform Information
System Language ▶ Platform Information	[English]	
System Date System Time	[Fri 03/03/2017] [13:09:28]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.12	263. Copyright (C) 2017 America	an Megatrends, Inc.
Aptio Setup Util Main	ity – Copyright (C) 2017 Ameri	ican Megatrends, Inc.
Processor Information Name Brand String Frequency Processor ID	SkyLake Intel(R) Celeron(R) CPU 3955U @ 2.00GHz 1900 MHz 406E3	, ▲
Stepping	DO /KO	

Number of Processors 2Core(s) / 2Thread(s) 9E GT1 Microcode Revision GT Info Memory RC Version 2.1.0.0 Total Memory 16384 MB Memory Frequency 2133 MHz ++: Select Screen ++: Select Scree
f↓: Select Item
Enter: Select
+/-: Change Opt. PCH Information SKL PCH-LP Name PCH SKU PCH-LP Mobile (U) F1: General Help Premium SKU F2: Previous Values F3: Optimized Defaults Stepping 21/01 LAN PHY Revision B2 F4: Save & Exit ESC: Exit ME FW Version 11.0.22.1000 ME Firmware SKU Corporate SKU

3.6.1.1 System Language

This option allows choosing the system default language.

3.6.1.2 System Date

Use the system date option to set the system date. Manually enter the day, month and year.

3.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.



Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

3.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

Aptio Setup Utility – Copyright (C) 2017 American Main Advanced Chipset Security Boot Save & Exit	Megatrends, Inc.
 Trusted Computing ACPI Settings AMT Configuration PCH-FW Configuration IT8528 Super IO Configuration EC 8528 HW monitor SS RTC Wake Settings Serial Port Console Redirection CPU Configuration Intel TXT Information SATA Configuration Network Stack Configuration CSM Configuration SDIO Configuration USB Configuration 	Trusted Computing Settings ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263. Copyright (C) 2017 American M	egatrends, Inc.

3.6.2.1 Trusted Computing

Aptio Setup Utility - Advanced	Copyright (C) 2017 American	Megatrends, Inc.
TPM20 Device Found Security Device Support Active PCR banks Available PCR banks	[Enable] SHA-1,SHA256 SHA-1,SHA256	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.
TPM2.0 UEFI Spec Version Physical Presence Spec Version TPM 20 InterfaceType	[TCG_2] [1.2] [TIS]	
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. Co	opyright (C) 2017 American M	egatrends, Inc.

Item	Options	Description
Security Device Support	Disable Enable [Default]	Enables or Disables BIOS support for security devices. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

3.6.2.2 APCI Settings

Aptio Setup Utility – Advanced	Copyright (C) 2017 American	Megatrends, Inc.
ACPI Settings		ErP Function (Deep S5).
Enable Hibernation ACPI Sleep State ACPI Low Power SO Idle ErP Function PWR-On After PWR-Fail Watch Dog USB Standby Power Setting	[Enabled] [S3 (Suspend to RAM)] [Disabled] [Off] [Disabled] [Enabled]	
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. Co	opyright (C) 2017 American M	egatrends, Inc.

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Item	Options	Description
Enable Hibernation	Disabled Enabled [Default] ,	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM) [Default]	Select the highest ACPI sleep state the system will enter when the SUSPEDN button is pressed.
ACPI Low Power S0 Idle	Disabled [Default] Enabled,	Enable or Disable ACPI Low Power S0 Idle Support.
ErP Function	Disabled [Default] Enabled,	ErP Function (Deep S5).
PWR-On After PWR-Fail	Off [Default] On Last state	AC loss resume.
Watch Dog	Disabled [Default] , 30 sec 40 sec 50 sec 1 min 2 min 10 min 30 min	Select WatchDog.
USB Standby Power Setting	Disabled Enabled [Default]	Enabled/Disabled USB Standby Power during S3/S4/S5.

3.6.2.3 AMT Configuration

Ap Advanced	tio Setup Utility – Copyright (C) 2017 Americar	Megatrends, Inc.
Intel AMT Un-Configure ME	[Enabled] [Disabled]	Enable/Disable Intel (R) Active Management Technology BIOS Extension. Note : iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
1	/ersion 2.18.1263. Copyright (C) 2017American M	legatrends. Inc.

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Item	Options	Description
Intel AMT	Disabled Enabled [Default] ,	Enable/Disable Intel® Active Management Technology BIOS Extension. Note: iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device.
Un-Configure ME	Disabled [Default] Enabled,	OEMFlag Bit 15: Un-Configure ME without password.

3.6.2.4 PCH-FW Configuration

Aptio Setup Utility - Advanced	- Copyright (C) 2017 American	Megatrends, Inc.
ME FW Version ME Firmware Mode ME Firmware Type ME Firmware SKU PTT Capability / State NFC Support ME Unconfig on RTC Clear State ME State > Firmware Update Configuration	11.0.22.1000 Normal Mode Full Sku Firmware Corporate SKU 1 / 0 Disabled [Enabled] [Enabled]	Configure Management Engine Technology Parameters
		<pre>+: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. (Copyright (C) 2017 American M	legatrends, Inc.

3.6.2.4.1 Firmware Update Configuration

Aptio Setup U Advanced	tility – Copyright (C) 2017	American Megatrends, Inc.
Me FW Image Re-Flash	[Disabled]	Enable/Disable Me FW Image Re-Flash function.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18	.1263. Copyright (C) 2017 Am	merican Megatrends, Inc.

Item	Options	Description
Me FW Image Re-Flash	Disabled [Default] , Enabled	Enable/Disable Me FW Image Re-Flash function.

3.6.2.5 IT8528 Super IO Configuration

You can use this item to set up or change the IT8528 Super IO configuration for serial ports. Please refer to 3.6.2.5.1~ 3.6.2.5.6 for more information.

Aptio Setup Utility – Advanced	Copyright (C) 2017 American	Megatrends, Inc.
IT8528 Super IO Configuration		Set Parameters of Serial Port 1 (COMA)
Super IO Chip ▶ Serial Port 1 Configuration ▶ Serial Port 2 Configuration	178528	
Super IO Chip > Serial Port 3 Configuration > Serial Port 4 Configuration > Serial Port 5 Configuration > Serial Port 6 Configuration	F81216	
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. Co	opyright (C) 2017 American Me	egatrends, Inc.

Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Set Parameters of Serial Port 5 (COME).
Serial Port 6 Configuration	Set Parameters of Serial Port 6 (COMF).

3.6.2.5.1 Serial Port 1 Configuration



Item	Option	Description	
Serial Port	Enabled[Default],	Enable or Disable Serial Port (COM).	
Senarron	Disabled		
	UART 232 [Default] ,		
UART 232 422 485	UART 422,	Change the Serial Port as RS232/422/485.	
	UART 485		

3.6.2.5.2 Serial Port 2 Configuration

Aptio Setup Utility Advanced) – Copyright (C) 2017 Americar	n Megatrends, Inc.
Serial Port 2 Configuration		Change the Serial Port as
Serial Port Device Settings	[Enabled] IO=2F8h; IRQ=3;	102027 4227 400
UART 232 422 485		
	UART 232 422 485 UART 232 UART 422 UART 485	<pre>++: Select Screen t4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
VerSiun 2.10.1263.	Copyright (C) 2017 Hilerican P	iegati enus, Inc.

Item	Option	Description	
Social Dort	Enabled[Default],	Enchle or Dischle Seriel Port (COM)	
Serial Port	Disabled	Enable of Disable Senal Port (COM).	
	UART 232[Default],		
UART 232 422 485	UART 422,	Change the Serial Port as RS232/422/485.	
	UART 485		

3.6.2.5.3 Serial Port 3 Configuration

Aptio Setup Utility - Advanced	- Copyright	(C) 2017 American	Megatrends, Inc.
Serial Port 3 Configuration			Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3E8h;	IRQ=5;	(607)
			<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263.	Copyright (C) 2017 American M	egatrends, Inc.

Item	Option	Description	
Serial Port	Enabled[Default],	Enable or Disable Serial Port (COM)	
	Disabled		

3.6.2.5.4 Serial Port 4 Configuration

Aptio Setup Uti Advanced	lity – Copyright (C) 2017 Amer	rican Megatrends, Inc.
Serial Port 4 Configuration Serial Port Device Settings	[Enabled] IO=2E8h; IRQ=5;	Enable or Disable Serial Port (COM)
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1	263. Copyright (C) 2017 Americ	can Megatrends, Inc.

Item	Option	Description	
Serial Port	Enabled [Default] ,	Enable or Disable Serial Port (COM)	
	Disabled		

3.6.2.5.5 Serial Port 5 Configuration

Aptio Setup Utility Advanced	– Copyright (C) 2017 America	an Megatrends, Inc.
Serial Port 5 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=200h; IRQ=5;	(CUM)
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263.	Copyright (C) 2017 American	Megatrends, Inc.

Item	Option	Description
Conicl Dont	Enabled [Default] ,	Enable or Disable Serial Port
Senal Port	Disabled	(COM).

3.6.2.5.6 Serial Port 6 Configuration

Adva	Aptio Setup Utility – nced	Copyright	(C) 2017 American	Megatrends, Inc.
Serial Port	6 Configuration			Enable or Disable Serial Port
Serial Port Device Sett	ings	[Enabled] IO=208h;	IRQ=5;	
				++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2.18.1263. Co	opyright (C) 2017 American Me	egatrends, Inc.

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Item	Option	Description
Social Dort	Enabled [Default] ,	Enable or Disable Serial Port
Serial Port	Disabled	(COM).

3.6.2.6 H/W Monitor

Aptio Setup Utilit Advanced	ty – Copyright (C) 2017 Am∈	erican Megatrends, Inc.
Pc Health Status Smart Fan Function ▶ Smart Fan Mode Configuration	[Enabled]	Enable or Disable Smart Fan
CPU temperature Fan1 Speed VIN_L VCORE	: +33 C : 5557 RPM : +12.292 V : +0.984 V 	
	Enabled	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263	3. Copyright (C) 2017 Ameri	ican Megatrends, Inc.

Item	Options	Description
Smart Fan Function	Disabled [Default] , Enabled	Enable or Disable Smart Fan.

3.6.2.6.1 Smart Fan Mode Configuration

Aptio Setup Utility Advanced	– Copyright (C) 2017 Americ	can Megatrends, Inc.
Smart Fan Mode Configuration		CPU Smart Fan Mode Select
CPU Smart Fan Mode Fan PWM	[Manual Mode] 255	++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
CPU Smart Fan Mode	Manual Mode [Default] /Mode 01/Mode 02/Mode 03/Mode 04/Mode 05/Mode 06/Mode 07/Mode 08/Mode 09/Mode 10/Mode 11/Mode 12/Mode 13/Mode 14/Mode 15/Mode 16/Mode 17/Mode 18/Mode 19/Mode 20	CPU Smart Fan Mode Select.
Fan PWM	0-255	Fan PWM duty

3.6.2.7 S5 RTC Wake Settings

Aptio Setup Advanced	Utility – Copyright (C) 2017 An	merican Megatrends, Inc.
Wake system from S5 Wake up day of week Wake up day Wake up hour Wake up minute Wake up second	[Fixed Time] [Disabled] 0 0 0 0 Hake up day of week Disabled Worday E iday	wake up day of week.(Monday-Friday) or (Monday-Saturday)
	Monday-Saturday	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Options	Description
Wake system from S5	Disabled [Default] , Fixed Time Dynamic Time	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime, System will wake on the current time + Increase minutes(s).
Wake up day of week	Disabled [Default] , Monday-Friday Monday-Saturday	Wake up day of week. (Monday-Friday) or (Monday-Saturday).
Wake up day	1-31	Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up.
Wake up hour	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.
Wake up minute	0-59	Select 0-23 For example enter 3 for 3am and 15 for 3pm.
Wake up second	0-59	Select 0-23 For example enter 3 for 3am and 15 for 3pm.

A Advanced	ptio Setup Utility –	Copyright	(C) 2017 American	Megatrends,	Inc.
Wake system fro Wake up minute	m S5 increase	[Dynamic 1	Time]	1 - 5 ++: Select S 1: Select I Enter: Select +/-: Change F1: General F2: Previous F3: Optimize F4: Save & E ESC: Exit	ccreen item it Opt. Help : Values d Defaults xit
	Version 2.18.1263. Co	pyright (C) 2017 American Me	egatrends, Ir	IC.

Item	Options	Description
		Enable or disable System wake on alarm event.
	Disabled,	Select FixedTime, system will wake on the
Wake system from S5	Fixed Time	hr::min::sec specified. Select DynamicTime,
	Dynamic Time [Default]	System will wake on the current time + Increase
		minutes(s).
Wake up minute increase	1-5	1-5.

3.6.2.8 Serial Port Console Redirection

Aptio Setup Utility - (Advanced	Copyright (C) 2017 American	Megatrends, Inc.
COM1 Console Redirection ▶ Console Redirection Settings	[Disabled]	Console Redirection Enable or Disable.
COM1(Pci Bus0,Dev0,Func0) (Disabled) Console Redirection	Port Is Disabled	
Legacy Console Redirection ► Legacy Console Redirection Settings		
Serial Port for Out-of-Band Managemer Windows Emergency Management Services	nt∕ s (EMS)	
Console Redirection Settings	[Disabled]	<pre>++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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Item	Options	Description
Console Redirection	Disabled [Default] , Enabled	Console Redirection Enable or Disable.

3.6.2.8.1 COM1

Aptio Setup Utility - Advanced	- Copyright (C) 2017 American) Megatrends, Inc.
Advanced COM1 Console Redirection Settings Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Legacy OS Redirection Resolution	[ANSI] [115200] [8] [None] [1] [None] [Enabled] [Disabled] [Disabled] [80x24]	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Putty KeyPad Redirection After BIOS POST	[VT100] [Always Enable]	<pre>++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

ltem	Option	Description
Terminal Type	VT100 VT100+ VT-UTF8 ANSI [Default]	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Bits per second	9600 19200 38400 57600 115200 [Default]	Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Data Bits	7 8 [Default]	Data Bits.
Parity	None [Default] Even Odd Mark Space	A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd:parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. They can be used as and additional data bit.
Stop Bits	1 [Default] 2	Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication

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		with slow devices may require more than 1 stop
		bit.
Flow Control	None [Default] Hardware RTS/CTS	Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.
VT-UTF8 Combo Key	Disabled	Enable VT-UTF8 Combination Key Support for
Support	Enabled[Default]	ANSI/VT100 terminals.
De conden Mede	Disabled[Default]	With this mode enabled only text will be sent.
Recorder Mode	Enabled	This is to capture Terminal data.
Decelution 400-24	Disabled[Default]	Enables or disables extended terminal
Resolution 100x31	Enabled	resolution.
Legacy OS Redirection	80x24[Default]	On Legacy OS, the Number of Rows and
Resolution	80x25	Columns supported redirection.
Putty KeyPad	VT100 [Default] LINUX XTERMR6 SCO ESCN VT400	Select FunctionKey and KeyPad on Putty.
Redirection After BIOS POST	Always Enable [Default] Boot Loader	When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enabled is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.

3.6.2.9 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.

Aptio Setup Utility Advanced	– Copyright (C) 2017 Americar	n Megatrends, Inc.
CPU Configuration		
Intel(R) Celeron(R) CPU 3955U @ 2. CPU Signature Microcode Patch Max CPU Speed CPU Speed Processor Cores Hyper Threading Technology Intel VT-x Technology Intel SMX Technology 64-bit EIST Technology CPU C3 state CPU C6 state CPU C3 state CPU C4 state CPU C9 state CPU C9 state CPU C10 state L1 Data Cache L1 Code Cache L2 Cache L3 Cache	000GHz 406E3 9E 2000 MHz 400 MHz 1900 MHz 2 Not Supported Supporte	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Aptio Setup Utility Advanced	– Copyright (C) 2017 Americar	n Megatrends, Inc.
Processor Cores Hyper Threading Technology Intel VT-× Technology G4-bit EIST Technology CPU C3 state CPU C6 state CPU C6 state CPU C7 state CPU C8 state CPU C9 state CPU C9 state CPU C10 state L1 Data Cache L1 Code Cache L2 Cache L3 Cache	2 Not Supported	Package C State limit ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. E1: General Help
C4 Cache Active Processor Cores Overclocking lock Intel Virtualization Technology Turbo Mode CPU C states Package C State limit	NUT Present [A11] [Disabled] [Enabled] [Enabled] [AUTO]	F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Options	Description
Active Processor Cores	All [Default] 1	Number of cores to enable in each processor package.

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Overclocking lock	Disabled [Default] , Enabled	FLEX_RATIO(194) MSR.
Intel Virtualization Technology	Disabled, Enabled [Default]	When enabled, a VMM can utilize the additional hardware capabilities provided by Virtualization Technology.
Turbo Mode	Disabled, Enabled [Default]	Turbo Mode.
CPU C states	Disabled, Enabled [Default]	Enable or disable CPU states.
Package C State limit	C0/C1 C2 C3 C6 C7 C7s C8 C9 C10 Auto[Default]	Package C State limit.

3.6.2.10 Intel TXT Information

Aptio Setup Utility - Advanced	Copyright (C) 2017 American	Megatrends, Inc.
Intel TXT Information		
Chipset BiosAcm Chipset Txt Cpu Txt Error Code Class Code Major Code Minor Code	Production Fused Debug Fused Not Supported None None None None	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263. Co	pyright (C) 2017 American M	egatrends, Inc.

3.6.2.11 SATA Configuration

Aptio Setup Ut. Advanced	ility – Copyright (C) 2017 Americ	can Megatrends, Inc.
SATA Controller(s) SATA Test Mode Aggressive LPM Support SATA Controller Speed Serial ATA Port 0(M.2) Software Preserve Port 1 CATA Device Ture	[Enabled] [Disabled] [Disabled] [Default] Empty Unknown [Enabled] [Colid Ctoto Prive]	Enable PCH to aggressively enter link power state.
Serial ATA Port 1 Software Preserve Port 1 SATA Device Type Serial ATA Port 2 Software Preserve Port 2 SATA Device Type	Empty Empty Unknown [Enabled] [Hard Disk Drive] Empty Unknown [Enabled] [Hard Disk Drive]	++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. E1: Ceapenal Help
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.	1263. Copyright (C) 2017 American	n Megatrends, Inc.

Item	Options	Description	
	Disabled,	Frable or disable CATA Device	
SATA Controller(s)	Enabled[Default]	Enable of disable SATA Device.	
SATA Test Mede	Disabled[Default],	Tast Mada Enable/Disable (Lean Back)	
SATA Test Mode	Enabled	Test Mode Enable/Disable (Loop Back).	
Aggrossiva I PM Support	Disabled[Default],	Enable PCH to aggressively enter link power	
Aggressive LFM Support	Enabled	state.	
	Default[Default]		
SATA Controllor Spood	Gen1	Indicates the maximum speed the SATA	
SATA Controller Speed	Gen2	controller can support.	
	Gen3		
	Disabled		
Port1/2	Enabled[Default]	Enable/Disable SATA Port.	
SATA Device Type	Hard Disk Drive	Identify the SATA port is connected to Solid	
	Solid State Drive[Default]	State Drive or Hard Disk Drive.	

3.6.2.12 Network Stack Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2017 Americar	Megatrends, Inc.
Network Stack Ipv4 PXE Support Ipv6 PXE Support PXE boot wait time Media detect count	[Enabled] [Enabled] 0 1 Network Stack Disabled Enabled	Enable/Disable UEFI Network Stack ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263. C	opyright (C) 2017 American ⊧	legatrends, Inc.

Item	Options	Description
Network Stack	Enabled Disabled [Default]	Enable/Disable UEFI Network Stack.
Inud DVE Support	Disabled	Enable Ipv4 PXE Boot Support. If disabled
ipv4 PXE Support	Enabled[Default]	IPV4 PXE boot option will not be created.
Invé DVE Support	Disabled	Enable Ipv6 PXE Boot Support. If disabled
IPV6 PXE Support	Enabled[Default]	IPV6 PXE boot option will not be created.
	0	Wait time to press ESC key to abort the PXE
PAE boot wait time		boot.
Media detect count	1	Number of times presence of media will be
		checked.

3.6.2.13 CSM Configuration



Item	Options	Description
CSM Support	Enabled [Default] Disabled,	Enable/Disable CSM Support.
GateA20 Active	Upon Request [Default] Always	UPON REQUEST – GA20 can be disabled using BIOS services. ALWAYS – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.
Option ROM Messages	Force BIOS [Default] Keep Current	Set display mode for Option ROM.
INT19 Trap Response	Immediate [Default] Postponed	BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE – execute the trap right away; POSTONED – execute the trap during legacy boot.
Boot option filter	UEFI and Legacy Legacy only [Default] UEFI only	This option controls Legacy/UEFI ROMs priority.
Network	Do not launch [Default] UEFI Legacy	Controls the execution of UEFI and Legacy PXE OpROM.
Storage	Do not launch UEFI Legacy [Default]	Controls the execution of UEFI and Legacy Storage OpROM.
Video	Do not launch UEFI Legacy [Default]	Controls the execution of UEFI and Legacy Video OpROM.
Other PCI devices	Do not launch UEFI Legacy [Default]	Determines OpROM execution policy for devices other than Network, Storage, or Video.

3.6.2.14 SDIO Configuration

Aptio Setup Advanced	Utility – Copyright (C) 201	7 American Megatrends, Inc.
SDIO Configuration SDIO Access Mode	(Auto)	▲ Auto Option: Access SD device in DMA mode if controller supports it,otherwise in PIO mode.DMA Option: Access SD device in DMA mode.PIO Option:
	SDIO Access Mo Auto ADMA SDMA PIO	de ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Item	Options	Description
SDIO Access Mode	Auto [Default] ADMA SDMA PIO	Auto Option: Access SD device in DMA mode if controller supports it, otherwise in PIO mode. DMA Option: Access SD device in DMA mode. PIO Option: Access SD device in PIO mode.

3.6.2.15 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.

Aptio Setup Utility – Advanced	Copyright (C) 2017 American	Megatrends, Inc.
USB Configuration		Enable/Disable USB Mass
USB Module Version	17	stundge briver support.
USB Controllers: 1 XHCI		
USB Devices: 1 Drive, 1 Keyboard, 1 Mouse,	1 Hub	
Legacy USB Support XHCI Hand-off USB Mass Storage Driver Support Port 60/64 Emulation	(Enabled) (Enabled) (Enabled) (Disabled)	
USB hardware delaws and time-outs:		++: Select Screen
USB transfer time-out	[20_sec]	Enter: Select
Device reset time-out	[20 sec]	+/-: Change Opt.
Device power-up delay	[Auto]	F1: General Help
		F2: Previous Values
Mass Storage Devices:		F3: Optimized Defaults
hp V220W 1100	[Auto]	F4: Save & Exit
		LOOP EAST
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Item	Options	Description
Legacy USB Support	Enabled [Default] Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
XHCI Hand-off	Enabled [Default] Disabled	This is a workaround for OSew without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Enabled [Default] Disabled	Enable/Disable USB Mass Storage Driver Support.
Port 60/64 Emulation	Enabled Disabled [Default]	Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec [Default]	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec [Default] 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto [Default] Manual	Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken form Hub descriptor.
Mass Storage Devices	Auto [Default] Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

3.6.3 Chipset

Main Advan	Aptio Setup Utility – ced Chipset Security	Copyright (C Boot Save &) 2017 Amer: Exit	rican Megatrends, Inc.	
▶ System Agent ▶ PCH-IO Confi	(SA) Configuration guration			System Agent (SA) Parameters ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
	Version 2.18.1263. C	opyright (C)	2017 America	can Megatrends, Inc.	

3.6.3.1 System Agent (SA) Configuration

Aptio Ch:	Setup Utility – Copyri; ipset	ht (C) 2017 American	Megatrends, Inc.
System Agent Bridge SA PCIe Code Versior VT-d	Name Skyla 1 2.1.0 Suppor	e O ted	Memory Configuration Parameters
VT-d	[Enab	ed]	
 Graphics Configurat: Memory Configuration 	Lon 1		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help
			F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Vens:	ion 2.18.1263. Copyrigh	(C) 2017 American M	egatrends, Inc.

Item	Option	Description
VT-d	Enabled [Default] Disabled	VT-d capability.

3.6.3.1.1 Graphics Configuration

Aptio Setup Utility - Chipset	Copyright (C) 2017 Ameri	can Megatrends, Inc.
Graphics Configuration		Active Internal LVDS(eDP->Ch7511-to-LVDS)
Active LVDS(Ch7511) CH7511 EDID Panel Option Brightness Control Method LVDS Back Light PMM LVDS Back Light PMM Frequency	[Enabled] [1024x768 24/1] [BIOS] [100%] [200]	++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263. C	opyright (C) 2017 America	n Megatrends, Inc.

Item	Option	Description
	Enabled[Default]	Active Internal
Active LVDS(CH7511)	Disabled	LVDS(eDP->Ch7511-to-LVDS).
	1024x768 24/1[Default]	
	800x600 18/1	
	1024x768 18/1	
	1366x768 18/1	
	1024x600 18/1	
	1280x800 18/1	
CH7511 EDID Banal Ontion	1920x1200 24/2	Port1-EDP to LVDS (Chrotel 7511)
CH7511 EDID Panel Option	1920x1080 18/2	Panel EDID Option.
	1280x1024 24/2	
	1440x900 18/2	
	1600x1200 24/2	
	1366x768 24/1	
	1920x1080 24/2	
	1680x1050 24/2	
	BIOS[Default]	IVDS Brightness Control Mothed
Brightness Control Method	BR Button	1 BIOS 2 Brightness Button
Biginness control Method	VR	3 Variable Resistor 4 OS Driver
	OS driver	
	00%	
LVDS Back Light PWM	25%	
	50%	Soloct LV/DS back light DWM duty
	75%	
	100% [Default]	

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	200[Default]	
	300	
	400	
LVDS Back Light PWM Frequency	500	
	700	Salaat LV/DS baak light DW/M
	1k Select	Select LVDS back light PVVW
	2k	Frequency.
	Зk	
	5k	
	10k	
	20k	

3.6.3.1.2 Memory Configuration

Aptio Setup Utility - Chipset	Copyright (C) 2017 Americ	can Megatrends, Inc.
Memory Configuration Memory RC Version Memory Frequency Total Memory VDD	2.1.0.0 2133 MHz 16384 MB 1200	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller
DIMM#0 DIMM#2 Memory Timings (tCL-tRCD-tRP-tRAS)	16384 MB Not Present 15–35	
Max TOLUD		
		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. C	opyright (C) 2017 Americar	n Megatrends, Inc.

Item	Option	Description
Max TOLUD	Dynamic [Default] /1GB/1.25GB/1.5GB/1.75GB /2GB/2.25GB/2.5GB/2.75GB	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

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3.6.3.2 PCH-IO Configuration

Aptio Setup Chipset	Utility – Copyright (C) 2017 American	Megatrends, Inc.
Intel PCH RC Version Intel PCH SKU Name	2.1.0.0 PCH-LP Mobile (U) Premium SKU	Enable or disable onboard NIC.
Intel PCH Rev ID	21/01	
 PCI Express Configuration USB Configuration HD Audio Configuration SCS Configuration 		
PCH LAN Controller		
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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Item	Option	Description
PCH LAN Controller	Disabled Enabled [Default]	Enable or disable onboard NIC.

3.6.3.2.1 PCI Express Configuration

Aptio Setup Utility – Copyright (C) 2017 (<mark>Chipset</mark>	American Megatrends, Inc.
PCI Express Configuration	PCI Express Root Port 5 Settings.
 PCIE Port 4 is assigned to LAN PCI Express Root Port 5(i210/211) PCI Express Root Port 6(PCIe Slot) PCI Express Root Port 7(M.2 KeyB share SATA) PCI Express Root Port 8(M.2 KeyB) PCI Express Root Port 9(M.2 KeyA) 	
	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. Copyright (C) 2017 Am	erican Megatrends, Inc.

Apt	tio Setup Utility – (Chipset	Copyright (C) 2017 American	Megatrends, Inc.
PCI Express Root ASPM Support L1 Substates PCIe Speed	Port 5	[Enabled] [Disabled] [Disabled] [Auto]	Control the PCI Express Root Port. ++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Ve	project 2 10 1262 Per	aunight (P) 2017 Amonicon Ma	adataanda Taa

3.6.3.2.1.1 PCI Express Root Port 5 (i210/211)

Item	Option	Description	
PCI Express Root Port 5	Enabled [Default] ,	Control the PCI Express Root Port.	
	Disabled		
	Disabled [Default]		
	LOs	Set the ASPM Level: Force L0s – Force all	
ASPM Support	L1	links to L0s State AUTO – BIOS auto	
	L0sL1	configure DISABLE – Disables ASPM.	
	Auto,		
	Disabled[Default]		
14 Substates	L1.1	PCI Express L1 Substates settings.	
LI Substates	L1.2		
	L1.1 & L1.2,		
PCIe Speed	Auto[Default]		
	Gen1	Salast DCI Everage part apoad	
	Gen2	Select FOI Express port speed.	
	Gen3		

3.6.3.2.1.2 PCI Express Root Port 6 (PCIe Slot)

A	ptio Setup Utility — (Chipset	Copyright (C) 2017 American	Megatrends, Inc.
PCI Express Roo ASPM Support L1 Substates PCIe Speed	t Port 6	[Enabled] [Disabled] [L1.1 & L1.2] [Auto]	Control the PCI Express Root Port.
			<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
	Version 2,18,1263, Co.	ouright (C) 2017 American M	egatrends. Inc.

Item	Option	Description	
DOI Furnisse De st Deut 6	Enabled[Default],	Control the DCI Everges Rest Part	
PCI Express Root Port 6	Disabled	Control the PCI Express Root Port.	
	Disabled[Default]		
	L0s	Set the ASPM Level: Force L0s – Force all	
ASPM Support	L1	links to L0s State AUTO – BIOS auto	
	L0sL1	configure DISABLE – Disables ASPM.	
	Auto,		
	Disabled		
L1 Substates	L1.1	PCI Express I.1 Substates settings	
LI Substates	L1.2	FOI Express LT Substates settings.	
	L1.1 & L1.2[Default]		
	Auto[Default]		
PCIe Speed	Gen1	Solact PCI Express part speed	
	Gen2	Select FOI Express port speed.	
	Gen3		

3.6.3.2.1.3 PCI Express Root Port 7 (M.2 KeyB share SATA)

ltem	Option	Description	
PCI Express Root Port 7	Enabled [Default] ,	Control the PCI Express Root Port.	
•	Disabled	·	
	Disabled[Default]		
	LOs	Set the ASPM Level: Force L0s – Force all	
ASPM Support	L1	links to L0s State AUTO – BIOS auto	
	L0sL1	configure DISABLE – Disables ASPM.	
	Auto,		
	Disabled		
L1 Substates	L1.1	PCI Express L1 Substates settings.	
LI Substates	L1.2		
	L1.1 & L1.2[Default]		
	Auto[Default]		
PCIe Speed	Gen1	Salast DCI Everage part anod	
	Gen2	Select FOI Express port speed.	
	Gen3		

•			
Ap:	tio Setup Utility - Chinset	Copyright (C) 2017 Americar) Megatrends, Inc.
PCI Express Root ASPM Support L1 Substates PCIe Speed	Port 8	[Enabled] [Disabled] [L1.1 & L1.2] [Auto]	Control the PCI Express Root Port. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	1 0 10 1010 0		

3.6.3.2.1.4 PCI Express Root Port 8 (M.2 KeyB)

Item	Option	Description	
PCI Express Root Port 8	Enabled [Default] , Disabled	Control the PCI Express Root Port.	
	Disabled[Default]		
	LOs	Set the ASPM Level: Force L0s – Force all	
ASPM Support	L1	links to L0s State AUTO – BIOS auto	
	L0sL1	configure DISABLE – Disables ASPM.	
	Auto,		
	Disabled		
1 1 Substatos	L1.1	DCI Express I 1 Substates acttings	
El Substates	L1.2	FOI Express ET Substates settings.	
	L1.1 & L1.2[Default]		
	Auto[Default]		
PCIe Speed	Gen1	Select BCI Express part apoad	
	Gen2	Select FOI Express port speed.	
	Gen3		

Aptio Setup U [.] Chipset	ility – Copyright (C) 2017 Ame	rican Megatrends, Inc.
PCI Express Root Port 9 ASPM Support L1 Substates PCIe Speed	[Enabled] [Disabled] [L1.1 & L1.2] [Auto]	Control the PCI Express Root Port.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

3.6.3.2.1.5 PCI Express Root Port 9 (M.2 KeyA)

ltem	Option	Description
PCI Express Root Port 9	Enabled[Default],	Control the PCI Express Root Port.
	Disabled	
ASPM Support	Disabled[Default]	
	LOs	Set the ASPM Level: Force L0s – Force all
	L1	links to L0s State AUTO – BIOS auto
	L0sL1	configure DISABLE – Disables ASPM.
	Auto,	
L1 Substates	Disabled	
	L1.1	PCI Express L1 Substates settings.
	L1.2	
	L1.1 & L1.2[Default]	
PCIe Speed	Auto[Default]	
	Gen1	Select PCI Express port speed.
	Gen2	
	Gen3	

3.6.3.2.2 USB Configuration



Item	Option	Description
USB Precondition	Enabled	Precondition work on USB host controller
	Disabled[Default],	and root ports for faster enumeration.
XHCI Disable Compliance Mode	FALSE [Default] , TRUE	Option to disable Compliance Mode. Default
		is FALSE to not disable Compliance Mode.
		Set TRUE to disable Compliance Mode.

3.6.3.2.3 HD Audio Configuration

Aptio Setup Utility – Copyright (C) 2017 Am Chipset	erican Megatrends, Inc.	
HD Audio Configuration	Amplifier Gain	
HD Audio Amplifler Gain [20db] 20db 26db 32db 32db 36db	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit</pre>	
Version 9, 10, 1969 - Convolution - (P) - 0013 - Arrow	ESC: Exit	
Item	Option	Description
----------------	----------------	--
		Control Detection of the HD-Audio device.
	Disabled	Disable = HDA will be unconditionally
HD Audio	Enabled	disabled Enabled = HDA will be
	Auto[Default],	unconditionally enabled Auto = HDA will be
		enabled if present, disabled otherwise.
	20db[Default]	
Amplifier Cain	26db	Amplifier Coin
Ampinier Gain	32db	Ampliner Gain.
	36db	

3.6.3.2.4 SCS Configuration

SCS Configuration Enable of Controll eMMC 5.0 Controller [Disabled] SDCard 3.0 Controller [Enabled] ##: Sele 14: Sele 14: Sele Enter: S */-: Cha F1: Gene F2: Prev F3: Opti F4: Solt F4: Solt F2: Prev F3: Opti F4: Solt F4: Solt F4: Solt F4: Solt F4: Solt F4: Solt F2: Prev F3: Opti F4: Solt F4: Solt F5:	or Disable SCS eMMC 5.0 ler ect Screen ect Item Select ange Opt. eral Help vious Values imized Defaults e & Exit it

Item	Option	Description	
oMMC 5.0 Controllor	Disabled[Default]	Enable or Disable SCS eMMC 5.0 Controller	
ewiwic 5.0 Controller	Enabled		
SDCard 3.0 Controller	Disabled	Enable or Disable SCS SDHC 3.0 Controller	
SDCard 5.0 Controller	Enabled[Default]		

3.6.4 Security

Aptio Setup U Main Advanced Chipset S	tility – Copyright (C) 2017 ecurity <mark>Boot Save & Exit</mark>	American Megatrends, Inc.
Password Description 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.	password is set, s to Setup and is g Setup. is set, then this must be entered to up the User will	Set Administrator Password
in the following range: Minimum length Maximum length	3 20	++: Select Screen
Administrator Password User Password > Secure Boot menu		<pre>T↓: Select Item Enter: Select +/-: Change Opt. F1: General Help</pre>
		F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18	.1263. Copyright (C) 2017 A	merican Megatrends, Inc.

• Administrator Password

Set setup Administrator Password

• User Password

Set User Password

3.6.4.1 Secure Boot menu

Aptio S	etup Utility – Copyright (C) 2017 Security	American Megatrends, Inc.
System Mode Secure Boot Vendor Keys Secure Boot Secure Boot Mode Key Management	Setup Not Active Not Active [Disabled] [Custom]	Enables experienced users to modify Secure Boot variables
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Versio	n 2.18.1263. Copyright (C) 2017 Am	erican Megatrends, Inc.

Item Option		Description	
Secure Boot	Disabled [Default] Enabled	Secure Boot can be enabled if 1.System running in User mode with enrolled Platform Key(PK) 2.CSM function is disabled.	
Secure Boot Mode	Standard Custom [Default]	Secure Boot mode selector. 'Custom' Mode enables users to change Image Execution policy and manage Secure Boot Keys.	

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3.6.4.1.1 Key Management

	Aptio Setup Utility Securit	– Copyright	(C)	2017 Am	erican	Megatrends, Inc.
	Provision Factory Default keys Enroll all Factory Default keys	[Disabled	4]			Force System to User Mode – install all Factory Default Keys(PK,KEK,db,dbt,dbx).
	Save all Secure Boot variables					Change takes effect after reboot
* * * * *	Secure Boot variable Size Key Platform Key(PK) 0 Key Exchange Keys 0 Authorized Signatures 0 Forbidden Signatures 0 Authorized TimeStamps 0	# Key source)))))	9			
						<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
	Version 2.18.1263.	Copyright ((C) 20	17 Amer	ican Me	gatrends, Inc.

Item	Option	Description	
Provinion Footomy Default know	Disabled[Default]	Install factory default Secure Boot keys when	
Provision Factory Default keys	Enabled	System is in Setup Mode.	

3.6.5 Boot



Item	Option Description		
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.	
Bootup NumLock State	On [Default] Off	Select the Keyboard NumLock state	
Fast Boot	Disabled [Default] Enabled	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.	
Boot Option #1	Set the system boot order.		

3.6.6 Save and exit

Aptio Setup Utility – Copyright (C) 2017 American Main Advanced Chipset Security Boot <mark>Save & Exit</mark>	Megatrends, Inc.
Save Options Save Changes and Reset Discard Changes and Reset	Reset the system after saving the changes.
Default Options Restore Defaults	
Boot Override UEFI: hp v220w 1100, Partition 1 Launch EFI Shell from filesystem device	
	<pre>++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.1263. Copyright (C) 2017 American Me	gatrends, Inc.

3.6.6.1 Save Changes and Reset

Reset the system after saving the changes.

3.6.6.2 Discard Changes and Reset

Reset system setup without saving any changes.

3.6.6.3 Restore Defaults

Restore/Load Default values for all the setup options.

3.6.6.4 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.



4.1 Install Chipset Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of our products automatically. If not, locate Index.htm and choose the product from the menu left.



Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.

Intel(R) Chipset Device Software	intel
You are about to install the following product: Intel(R) Chipset Device Software	
It is strongly recommended that you exit all programs before continuing. Press Next to continue, or press Cancel to exit the setup program.	
Next	Cancel

Step1. Click Next.



Step 2. Click Accept.



Step 3. Click Install.

Intel(R) Chipset Device Software Completion	(intel)
You have successfully installed the following product: $Intel(R)$ Chipset Device Software	
You must restart this computer for the changes to take effect.	
View Log Files Restart Now	Restart Later

Step 4. Complete setup.

4.2 Install VGA Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of our products automatically. If not, locate Index.htm and choose the product from the menu left.



Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.



Step 3. Click Next.

Intel® Installation Framework		<u></u>		×
Intel® Graphics Drive	er			
Welcome to the Setup Program			(int	el
This setup program will install the following compon - Intel® Graphics Driver - Intel® Display Audio Driver	ents:			
It is strongly recommended that you exit all progra	ms before conti	inuing, Click Ne	xt to continu	ie.
Automatically run WinSAT and enable the Wind	ows Aero deskt	op theme (if su	pported).	
	< <u>B</u> ack	<u>N</u> ext >	<u>C</u> anc	el
		— Intel® Ins	tallation Fra	mework

Step 1. Click Next to continue installation.



Intel® Installation Framework Intel® Capphics Driver Setup Progress Please wait while the following setup operations are performed: Deleting Registry Key: HKLM\SOFTWARE\Intel\GDI Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\Intel\(R) HD Graphics i Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\Intel\(R) HD Graphics i Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\Intel\(R) HD Graphics i Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\(R) HIG(R) HD Graphics Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\(R) HIG(R) HD Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\(R) HIG(R) HIC(R) HIG(R) Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\(R) HIG(R) HIC(R) HIC(R) Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\(R) HIC(R) HIC(R) Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\(R) HIC(R) HIC(R) Deleting File: C:\ProgramData\Wircosoft\Windows\Start Menu\Programs\Intel\(R) HIC(R) Deleting File: C:\ProgramData\Wircosoft\Vird(R) HIC(R) HIC(R) Deleting File: C:\Vird(R) HIC(R) HIC(R) HIC(R) HIC(R) Deleting File: C:\Vird(R) HIC(R) HIC(R) HIC(R) HIC(R) HIC(R) Deleting File: C:\Vird(R) HIC(R) HIC(R) HIC(R) HIC(R) HIC(R) HIC(R) Deleting File: C:\Vird(R) HIC(

Step 4. Click Next.



Step 5. Click Finish to complete setup.

Step 2.

Click Yes to accept license agreement.

4.3 Install Serial IO Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of our products automatically. If not, locate Index.htm and choose the product from the menu left.



Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.

Setup		×
Intel® Serial IO Welcome	(intel)	Nave and
You are about to install the following product: Intel® Serial IO		
It is strongly recommended that you exit all program Click Next to continue, or click Cancel to exit the set	s before continuing. Jp program.	
Intel Corporation	e Back Next > Can	-



Setup	×
Intel® Serial IO License Agreement	tel
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single Use	er) 🔨
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load this software and any associated materials (collectively, the "S until you have carefully read the following terms and conditions. By loading or usir Software, you agree to the terms of this Agreement. If you do not wish to so agr install or use the Software.	oftware") 1g the ee, do not
Please Also Note: * If you are an Original Equipment Manufacturer (OEM), Independent Hardware V (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT * If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGI applies.	'endor Γ applies; REEMENT,
For OEMs, IHVs, and ISVs:	
LICENSE. This Software is licensed for use only in conjunction with Intel componer Use of the Software in conjunction with non-Intel component products is not licens	nt products. sed v
\Box I accept the terms in the License Agreement.	
Intel Corporation < Back	> <u>C</u> ancel

Step 2. Click Next.

Setup		×
Intel® Serial IO Readme File Information	(intel	
•		**** ^
* Production Version Release		
* Microsoft Windows* 8.1/10 64 bit		
* Intel(R) Serial IO Driver *		
* January 2016 *		
* NOTE: This document refers to systems containing the * following Intel processors/chipsets:		
* Skylake PCH Platfrom		
* Installation Information *		
* This document makes references to products developed * Intel. There are some restrictions on how these products	by s	~
Intel Corporation	<back next=""></back>	Cancel

Step 3. Click Next.

Setup			×
Intel® Serial IO Confirmation		(inte	D
You are about to install the following components:			
- Intel® Serial IO UART Driver			
Intel Corporation	< <u>B</u> ack	Next >	<u>C</u> ancel

Step 4. Click Next.

Setup			×
Intel Compl	Serial IO letion	(inte	
S	You have successfully installed the followin Intel® Serial IO	g product:	_
Click h	<u>ere</u> to open log file location.	<bark nexts<="" td=""><td>Finish</td></bark>	Finish

Step 5. Click Finish to complete setup.

MX3965U User's Manual 4.4 Install ME Driver

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of our products automatically. If not, locate Index.htm and choose the product from the menu left.



Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.



Step 1. Click Next to continue setup.



Step 2. Click Next.

Destination Folder	(intel)
Tick Next to install to the default folder, or dick Change to choose	e another dectination folder
C:\Program Files (x86)\Intel\Intel(R) Management Engine Comp	onents
	Change.

Step 3. Click Next.

Completion	inter	_
ou have successfully installed the following components:		
- Intel® Management Engine Interface - Serial Over LAN - Local Management Service - Intel® Security Assist		

Step 4. Click Finish to complete setup.

4.5 Install Audio Driver (For Realtek ALC892 HD Audio)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of our products automatically. If not, locate Index.htm and choose the product from the menu left.

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



Step1. Click Next to Install.



Step 2. Click Finish to complete setup.

4.6 Install LAN Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of our products automatically. If not, locate Index.htm and choose the product from the menu left.



Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.

歸 Intel(R) Network Connections Install Wizard	×
Welcome to the install wizard for Intel(R) Network Connections	(intel)
Installs drivers, Intel(R) Network Connections, and Advanced Networking Services.	
WARNING: This program is protected by copyright law and international treaties.	
< Back Next >	Cancel

Step 1. Click Next to continue installation.





Step 3. Click Next.

1	There is an issue with Microsoft* Advanced Network Services (Inte correctly. You may install the feat create Intel(R) ANS Teams and VL feature?	Windows* 10 that prevent ((R) ANS) feature from wo ture, although you will be .ANs. Do you wish to inst.	s the Intel(R) rking unable to all the
		<u>Y</u> es	No

Step	4.	Click	Yes.
------	----	-------	------



Step 5. Click Install.

Step 2. Click Next.

🖟 Intel(R) Network Connections Install Wizard	×
Install wizard Completed	(intel)
To access new features, open Device Manag properties of the network adapters.	ger, and view the
< Back	Einish Cancel

Step 6. Click Finish to complete setup.

4.7 Install RST Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of our products automatically. If not, locate Index.htm and choose the product from the menu left.



Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.

Setup			×
Intel® Rapid Storage Technology Welcome		(inte	
You are about to install the following product:			
Intel® Rapid Storage Technology			
It is strongly recommended that you exit all programs before Click Next to continue, or click Cancel to exit the setup progr	e continuing, ram,		
Intel Corporation	< <u>B</u> ack	Next >	Cancel

Step 1. Click Next to continue installation.

etup	×
ntel® Rapid Storage Technology License Agreement	(intel)
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV	stribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR L Do not use or load this software and any associated mate until you have carefully read the following terms and cond Software, you agree to the terms of this Agreement. If yo install or use the Software.	NG. Is (collectively, the "Software") ons. By loading or using the do not wish to so agree, do not
Please Also Note: * If you are an Original Equipment Manufacturer (OEM), I (IHV), or Independent Software Vendor (ISV), this comple * If you are an End-User, then only Exhibit A, the INTEL S applies.	ependent Hardware Vendor LICENSE AGREEMENT applies; FTWARE LICENSE AGREEMENT,
l For OEMs, IHVs, and ISVs:	
LICENSE. This Software is licensed for use only in conjunc Use of the Software in conjunction with non-Intel compon	n with Intel component products. t products is not licensed ~
☑ I accept the terms in the License Agreement.	
ntel Corporation	< Back Next > Cancel

Step 2. Click Next.

Setup		×
Intel® Rapid Storage Technology Readme File Information	(intel)	
***************************************	******	^
* Tantallation Danders for	************************	
 Installation Readme for Intel(R) Rapid Storage Technology (Intel(R) RST). 		
* Refer to the system requirements for the operating * systems supported by Intel Rapid Storage Technology.		
* This document makes references to products developed * Intel. There are some restrictions on how these produc * may be used, and what information may be disclosed to * others. Please read the Disclaimer section at the botton * of this document, and contact your Intel field * representative if you would like more information. *	ed by cts m	
*****	****************************	
***************************************	********	
*****	*******************************	
* Intel is making no daims of usability, efficacy or		~
ntel Corporation	< Back Next > Ca	ancel

Step 3. Click Next.

Setup	;
Intel® Rapid Storage Technology Destination Folder	(intel)
Click Next to install to the default folder, or click Change to	o choose another destination folder.
C:\Program Files\Intel\Intel(R) Rapid Storage Technology	(
	C <u>h</u> ange
intel Corporation	< <u>B</u> ack <u>N</u> ext > <u>C</u> ance

Step 4. Click Next.

Setup	×
Intel® Rapid Storage Technology Confirmation	(intel)
You are about to install the following components:	
- Intel® Rapid Storage Technology	
Intel Corporation	< <u>Back</u> <u>N</u> ext > <u>C</u> ancel

Step 5. Click Next.



Step 6. Click Finish to complete setup.





Unit: mm



Unit: mm





Unit: mm

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