EQM-APL

Intel® Pentium ® /Celeron® /Atom™ SoC processor Qseven Module

User's Manual

2nd Ed – 23 May 2017

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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

- 1 x EQM-APL Intel® Pentium ® /Celeron® /Atom™ SoC processor Qseven Module
- 1 x Driver/Utility DVD-ROM



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

1.3 Document Amendment History

Revision	vision Date By		Comment
1 st	March 2017	Avalue	Initial Release
2 nd	May 2017	Avalue	Update 1.5 System Specifications

1.4 Manual Objectives

This manual describes in details Avalue Technology EQM-APL QSeven version 2.1 Module.

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 EQM-APL QSeven Module 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					
	Apollo Lake				
	Intel® Pentium® Processor N4200 4C 1.1 GHz				
	Intel® Celeron® Processor N3350 2C 1.1 GHz				
CDU					
CPU	Apollo Lake-I(wide temperature)				
	Intel® Atom™ Processor x7 E3950 4C 1.6 GHz				
	Intel® Atom™ Processor x5 E3930 4C 1.6 GHz				
	Intel® Atom™ Processor x5 E3930 2C 1.3 GHz				
BIOS	AMI uEFI BIOS, 128Mbit SPI Flash ROM				
System Chipset	Apollo Lake SoC integrated				
I/O Chipset	EC (IT8528VG or IT8528VG-I)				
System Memory	Onboard DDR3L 1866 4GB up to 8GB, supports ECC (Factory Option)				
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec. and 1sec./step				
	Monitoring system temperature, voltage. Auto trotting control when CPU				
U/W Status Monitor	CPU temperature monitoring				
	V-Core Voltages monitoring				
	VDDQ Voltage monitoring				
I/O					
PCle	3 PCle(3 x PCle x1)				
USB	6 x USB 2.0; 2 x USB3.0				
SATA	2 x SATAIII				
oMMC	1 x eMMC 5.0 onboard flash up to 64GB(Factory Option)				
enning	(eMMC5.1 device not support wide Temp.)				
SDIO	1 x SD CARD (SDIO 3.0) (4-bit)				
Others	1 x SPI, 1 X USB-to-I2C (Option) Bus, 1 x UART, 1 x SMBus, 1 x LPC				
Others	Bus				
Display					
Chipset	Apollo lake SoC integrated Graphics				
	LVDS support 2 channels 18/24-bit, up to 1920x1200@60H (Chrontel®				
LCD	CH7511B), Optional eDP 1.3 up to 4096x2160@60Hz				
וחח	1 Port, optional configurable to HDMI 1.4b(TMDS)/DP1.2				
	HDMI up to 3840x2160 @30Hz, Optional DP up to 4096x2160 @60Hz				
Multiple Display	LVDS or eDP(Factory Option), HDMI or Display Port				
Audio					
Chipset	Intel® Apollo lake SoC integrated				
Audio interface	Audio High Definition Audio (HDA) interface with support for multiple				

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	codecs			
Ethernet				
LAN Chip	Intel I211AT or I210IT Gigabit Ethernet			
Ethernet Interface	10/100/1000 GbE			
Mechanical &				
Environmental				
Power Requirement	+5V±5%			
	Single power ATX Support S0, S3, S4, S5			
ACFI	ACPI 5.0 Compliant			
Power Type	Qseven power spec			
Operating Tomp	Standard Supports 0°C ~ 70°C (N4200/N3350)			
Operating remp.	Extended Supports -40°C ~ 85°C (E3900 series)			
Storage Temp.	-40°C to 85°C			
Operating Humidity	0%~90% relative humidity, non-condensing			
Size (L x W)	Compact Size: 70*70 mm (2.75'x 2.75')			
Weight	0.041lbs(0.03kg)			
OS	Win10(64 bit)/ Linux (64 bit)/ Android(64 bit)			



Note: Specifications are subject to change without notice.

1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EQM-APL QSeven Module.



2. Hardware Configuration

2.1 Product Overview



GF1

EQM-APL

2.2 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.

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

Connectors							
Label	Function	Note					
GF1	QSeven connector	Pin Definition follows QSeven version 2.1					

2.3 Setting Connectors

2.3.1 QSeven connector (GF1)



Note:

Pin Definition follows QSeven version 2.1.

Signal	PIN	PIN	Signal
GND	1	2	GND
LAN1_MDI3N_n	3	4	LAN1_MDI2N_n
LAN1_MDI3P_n	5	6	LAN1_MDI2P_n
LAN1_LED_100#_n	7	8	LAN1_LED_1000#_n
LAN1_MDI1N_n	9	10	LAN1_MDI0N_n
LAN1_MDI1P_n	11	12	LAN1_MDI0P_n
LAN1_LINK#	13	14	LAN1_LED_ACT_n
NC	15	16	PCH_SUS_S5#
WAKE#	17	18	PCH_SLP_S3#
PMU_SUS_STAT#	19	20	PWR_BTN_IN
NC	21	22	NC
GND	23	24	GND
GND	25	26	PWGIN
PMU_BATLOW#	27	28	PMU_RSTBTN#
SATA_TXP_0	29	30	SATA_TXP_1
SATA_TXN_0	31	32	SATA_TXN_1
SATA_LED#	33	34	GND
SATA_RXP_0	35	36	SATA_RXP_1
SATA_RXN_0	37	38	SATA_RXN_1

Signal	PIN	PIN	Signal
GND	39	40	GND
BIOS_DISABLE#	41	42	SDIO_CLK#
SDIO_CLK#	43	44	NC
SDIO_CMD	45	46	SDIO_WP
SDIO_PWR#	47	48	SDIO_DAT1
SDIO_DAT0	49	50	SDIO_DAT3
SDIO_DAT2	51	52	NC
NC	53	54	NC
NC	55	56	USB_DRIVE_VBUS
GND	57	58	GND
HDA_SYNC	59	60	SMB_SCL_S5
HDA_RST#	61	62	SMB_SDA_S5
HDA_BCLK	63	64	SMB_ALERT#_S5
HDA_SDI	65	66	I2C0_CLK
HDA_SDO	67	68	I2C0_DATA
THRM#	69	70	WDTRIG#
THRMTRIP	71	72	WDTO
GND	73	74	GND
SS_USB_TXN_0	75	76	SS_USB_RXN_0
SS_USB_TXP_0	77	78	SS_USB_RXP_0
USB_OC#	79	80	USB_OC#
USB_DN_5	81	82	USB_DN_4
USB_DP_5	83	84	USB_DP_4
USB_OC#	85	86	USB_OC#
USB_DN_3	87	88	USB_DN_2
USB_DP_3	89	90	USB_DP_2
USB_VBUS	91	92	USB_ID
USB_DN_0_OTG	93	94	USB_DN_1
USB_DP_0_OTG	95	96	USB_DP_1
GND	97	98	GND
eDP0_TX0+ / LVDS_A0+	99	100	LVDS_B0+
eDP0_TX0- / LVDS_A0-	101	102	LVDS_B0-
eDP0_TX1- / LVDS_A1-	103	104	LVDS_B1+

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Signal	PIN	PIN	Signal	Signal	PIN	PIN	Signal
eDP0_TX1-/	105	106	LVDS_B1-	UART_TXD_1	171	172	UART_RTS#_1
eDP0_TX2+ /	107	108		PCIE_TXP_1	173	174	PCIE_RXP_1
LVDS_A2+	107	100		PCIE_TXN_1	175	176	PCIE_RXN_1
LVDS_A2-	109	110	LVDS_B2-	UART_RXD_1	177	178	UART_CTS#_1
LVDS_VDDEN	111	112	LVDS_BKLTEN	PCIE_TXP_0	179	180	PCIE_RXP_0
eDP0_TX3+/ LVDS_A3+	113	114	LVDS_B3+	PCIE_TXN_0	181	182	PCIE_RXN_0
eDP0_TX3- /	115	116	LVDS_B3-	GND	183	184	GND
LVDS_A3-	117	118	GND	LPC_AD0	185	186	LPC_AD1
	117	110	GIVE	LPC_AD2	187	188	LPC_AD3
LVDS A CLK+	119	120	LVDS_B_CLK+	LPC_CLK	189	190	LPC_FRAME#
eDP0_AUX-/				LPC_SERIRQ	191	192	NC
LVDS_A_CLK-	121	122	LVDS_B_CLK-	VCC_RTC	193	194	SPKR
LVDS_BLT_CTRL	123	124	NC	FAN_TACHOIN	195	196	FAN_PWMOUT
NC	125	126	eDP0_HPD#	GND	197	198	GND
NC	127	128	NC	SPI_MOSI	199	200	SPI_CS#0
NC	129	130	NC	SPI_MISO	201	202	NC
DDI0_P3	131	132	SS_USB_TXN_1	SPI_CLK	203	204	NC
DDI0_N3	133	134	SS_USB_TXP_1	+5VSB	205	206	+5VSB
GND	135	136	GND	NC	207	208	NC
DDI0_P1	137	138	DP_AUXP	NC	209	210	NC
DDI0_N1	139	140	DP_AUXN	NC	211	212	NC
GND	141	142	GND	NC	213	214	NC
DDI0_P2	143	144	SS_USB_RXN_1	NC	215	216	NC
DDI0_N2	145	146	SS_USB_RXP_1	NC	217	218	NC
GND	147	148	GND	+5V	219	220	+5V
DDI0_P0	149	150	HDMI_CTRL_DAT	+5V	221	222	+5V
DDI0_N0	151	152	HDMI_CTRL_CLK	+5V	223	224	+5V
HDMI_HPD#	153	154	DP_HPD#	+5V	225	226	+5V
CLK_PCIE_P0	155	156	PCIE_WAKE#	+5V	227	228	+5V
CLK_PCIE_N0	157	158	PCIE_RST#	+5V	229	230	+5V
GND	159	160	GND				
NC	161	162	NC				
NC	163	164	NC				
GND	165	166	GND				
PCIE_TXP_2	167	168	PCIE_RXP_2				
PCIE_TXN_2	169	170	PCIE_RXN_2				



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

Insyde 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 <F2> immediately after switching the system on, or

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

Press <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.

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
1	Move to previous item
\downarrow	Move to next item
<i>←</i>	Move to the item in the left hand
\rightarrow	Move to the item in the right hand
Esc key	Main Menu Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F9 key	Optimized defaults
F10 key	Save & Exit Setup

• 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 the F1 key again.

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 Insyde 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 InsydeH2O 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.

Main	Apt Advanced	io Setup Chipset	Utility – Security	Copyright (C) Boot Save &	2017 Americar Exit	n Megatrends, Inc.			
BIOS BIOS ' Core ' Compl Proje Build Acces: EC 85: BIOS I Syster ▶ Intel	Information Vendor Version iancy ct Version Date and Ti s Level 28 Firmware Name m Language RC Version	.me		American Meg 5.12 UEFI 2.5; PI 1ATJS 0.22 × 03/01/2017 0 Administrato 01 QAPL-00C [English]	atrends 1.4 64 9:17:15 r	Intel Reference Code version			
Syster Syster	m Date m Time			[Tue 03/14/2 [10:15:08]	017]	++: Select Screen ↑↓: 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 Megatrends, Inc.								

Item	Description
System Language	Choose the system default language.
System Date	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 2005-2009 Months: 1-12 Days: dependent on month.
System Time	Set the Time. Use Tab to switch between Time elements.



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.

Visit the Avalue website (<u>www.avalue.com.tw</u>) to download the latest product and BIOS information.

3.6.1.1 Intel RC Version

Aptio Setup Utility - Main	Copyright (C) 2017 American	Megatrends, Inc.
Intel RC Version		
BXT SOC MRC Version PUNIT FW PMC FW TXE FW ISH FW GOP CPU Flavor Board ID	B1 0.56 1C 03.28 3.0.11.1131 N/A 10.0.1029 BXT Notebook/Desktop 0xbow Hill CRB (06)	
Fab ID Memory Information	FAB A	++: Select Screen 14: Select Item Enter: Select
Total Memory Memory Speed	4096 MB 1600 MHz	+/-: 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 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 <mark>Advanced</mark> Chipset Security Boot Save & Exit	Megatrends, Inc.
 Trusted Computing ACPI Settings IT8528 Super IO Configuration EC 8528 HW monitor S5 RTC Wake Settings Serial Port Console Redirection CPU Configuration Network Stack Configuration CSM Configuration USB Configuration Security Configuration 	System ACPI Parameters.
	<pre>++: Select Screen tl: 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	egatrends, Inc.

3.6.2.1 Trusted Computing

Aptio Setup Utility - Advanced	· Copyright (C) 2017 American	Megatrends, Inc.
Configuration Security Device Support NO Security Device Found	[Enable]		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.
			<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. C		2017 American Me	egatrends, Inc.

Item	Options	Description
Security Device Support	Disable, Enable [Default]	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.

3.6.2.2 APCI Settings



ltem	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 SUSPEND button is pressed.
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.

3.6.2.3 IT8528 Super IO Configuration

You can use this item to set up or change the IT8528 Super IO configuration for serial ports.



Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).

3.6.2.3.1 Serial Port 1 Configuration

Aptio Setup Utility Advanced	– Copyright (C) 2017 Ameri	ican Megatrends, Inc.
Serial Port 1 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	
		<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 America	an Megatrends, Inc.

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

3.6.2.4 H/W Monitor

Aptio Setup Utili Advanced	ty – Copyright (C) 201.	7 American Megatrends, Inc.
Pc Health Status Smart Fan Function ▶ Smart Fan Mode Configuration	[Enabled]	Enable or Disable Smart Fan
CPU temperature Fan1 Speed VDDQ VCORE	: +55 C : N/A : +1.371 V : +0.714 V	
	Smart Fan Funct Disabled Enabled	<pre>ion file Select Screen file Select Item Enter: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.18.126	3. Copyright (C) 2017	American Megatrends, Inc.

ltem	Options	Description
Smart Fan Function	Enabled, Disabled [Default]	Enables or Disables Smart Fan.

Smart Fan Mode Configuration CPU Smart Fan Mode Select CPU Smart Fan Mode [Manual Mode] Fan PNM 255 ++: 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 American	Megatrends, Inc.
CPU Smart Fan Mode [Manual Mode] Fan PWM 255	Smart Fan Mode Configuration		CPU Smart Fan Mode Select
++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	CPU Smart Fan Mode Fan PWM	[Manual Mode] 255	
			<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>

3.6.2.4.1 Smart Fan Mode Configuration

ltem	Option	Description
	Manual Mode [Default]/	
CPU Smart Fan Mode	Mode 01/Mode 02/Mode 03/Mode	CDU Smart Fan Mada Salaat
	04/Mode 05/ Mode 06/Mode 07/Mode	
	08/Mode 09/Mode 10/ Mode 11/Mode	CPU Smart Fan Mode Select.
	12/Mode 13/Mode 14/Mode 15/Mode 16/	
	Mode 17/Mode 18/Mode 19/Mode 20	
Fan PWM	1-255[Default]	Fan PWM duty.

3.6.2.5 S5 RTC Wake Settings

Aptio Setup Util: Advanced	ity – Copyright (C) 2017 (American 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 Wake up day of weet Disabled	wake up day of week.(Monday-Friday) or (Monday-Saturday)
	Monday-Saturday	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.126	53. Copyright (C) 2017 Ame	erican Megatrends, Inc.

ltem	Options	Description
Wake system from S5	Disabled [Default] , Fixed Time (Selected) Dynamic Time	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(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 loke 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	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.
Wake up second	0-23	Select 0-23 For example enter 3 for 3am and 15 for 3pm.

Aptio Setup Utilit Advanced	y – Copyright	(C) 2017 American	Megatrends, Inc.
Wake system from S5 Wake up minute increase	[Dynamic 1	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 minute(s)
			++: Select Screen 14: 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 (Selected)	Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified. Select Dynamic Time, System will wake on the current time + Increase minute(s).
Wake up minute increase	1 [Default] -5	1-5.

3.6.2.6 Serial Port Console Redirection



Item	Options	Description
Concolo Rodiroction	Disabled[Default],	Canaala Dadiraction Enable or Disable
Console Redirection	Enabled	Console Redirection Enable of Disable.

3.6.2.7 CPU Configuration

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



ltem	Options	Description
Active Processor Cores	Disabled[Default]	Number of cores to enable in each processor

	Enabled	package.
Intel Virtualization Technology	Disabled Enabled [Default]	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
VT-d	Disabled [Default] Enabled	Enable/Disable CPU VT-d.
Monitor Mwait	Disabled [Default] Enabled Auto	Enable/Disable Monitor Mwait.

3.6.2.7.1 CPU Power Management Configuration

CPU Power Management Configuration EIST [Enabled] Turbo Mode [Enabled]	Enable/Disable Intel SpeedStep
	<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

Item	Option	Description
EIST	Disabled Enabled [Default]	Enable/Disable Intel SpeedStep.
Turbo Mode	Disabled Enabled [Default]	Turbo Mode.

3.6.2.7.2 Socket 0 CPU Information

Aptio Setup Utility - Advanced	Copyright (C) 2017 American	Megatrends, Inc.
Advanced Socket 0 CPU Information Intel(R) Celeron(R) CPU N3350 @ 1.10 CPU Signature Microcode Patch Max CPU Speed Min CPU Speed Processor Cores Intel HT Technology Intel VT-x Technology L1 Data Cache L1 Code Cache	GHz 506C9 1C 1100 MHz 800 MHz 2 Not Supported Supported 24 kB x 2 32 kB x 2	
L2 Cache L3 Cache	1024 kB × 1 Not Present	<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>
Version 2.18.1263. Co	pyright (C) 2017American M	egatrends, Inc.

3.6.2.8 Network Stack Configuration

Aptio Set Advanced	up Utility – Copyright (C) 2017 American	h Megatrends, Inc.
Network Stack Ipv4 PXE Support Ipv6 PXE Support Ipv6 HTTP Support PXE boot wait time Media detect count	[Enabled] [Disabled] [Disabled] [Disabled] [Disabled] 0 1 Network Stack Enabled Enabled	Enable/Disable UEFI Network Stack ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version	2.18.1263. Copyright (C) 2017 American M	Megatrends, Inc.

Item	Options	Description	
Network Stack	Disabled [Default] Enabled	Enable/Disable UEFI Network Stack.	
	Disabled[Default]	Enable Ipv4 PXE Boot Support. If disabled	
ipv4 PXE Support	Enabled	IPV4 PXE boot option will not be created.	

Inv/ HTTP Support	Disabled[Default]	Enable Ipv4 HTTP Boot Support. If disabled
	Enabled	IPV4 HTTP boot option will not be created.
Inv6 DVE Support	Disabled[Default]	Enable Ipv6 PXE Boot Support. If disabled
	Enabled	IPV4 PXE boot option will not be created.
Inve HTTP Support	Disabled[Default]	Enable Ipv6 HTTP Boot Support. If disabled
	Enabled	IPV4 HTTP boot option will not be created.
DVE boot wait time	0	Wait time to press ESC key to abort the PXE
Media detect count	0	boot.
	4	Number of time presence of media will be
	1	checked.

3.6.2.9 CSM Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2017 American	Megatrends, Inc.
Compatibility Support Module Configu	ration	Enable/Disable CSM Support.
CSM Support		
CSM16 Module Version	60,40	
GateA20 Active Option ROM Messages INT19 Trap Response	[Upon Request] [Force BIOS] [Immediate]	
Boot option filter	[Legacy only]	
Option ROM execution		tt: Calact Capaca
Network Storage Video Other PCI devices	(Do not launch) [Do not launch] [Legacy] [Legacy]	 H. Select litem Fit: 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.

Item	Options	Description
CSM Support	Disabled [Default] Enabled	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; OSTPONED – execute the trap during legacy boot.
Boot option filter	UEFI and Legacy Legacy only [Default]	This option controls Legacy/UEFI ROMs priority.

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	UEFI only	
Network	Do not launch [Default] UEFI Legacy	Controls the execution of UEFI and Legacy PXE OpROM.
Storage	Do not launch [Default] UEFI Legacy	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.

3.6.2.10 USB Configuration

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

Aptio Setup Utility – Advanced	Copyright (C) 2017 Americ:	an Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Module Version	16	support if no USB devices are connected. DISABLE option will
USB Controllers: 1 XHCI		keep USB devices available only for EFI applications.
USB Devices: 1 Drive, 1 Keyboard, 1 Mouse,	1 Hub	
Legacy USB Support XHCI Hand-off	[Enabled] [Enabled]	
USB Mass Storage Driver Support	[Fuapied]	·
USB hardware delays and time-outs: USB transfer time-out Device reset time-out Device power-up delay	[20 sec] [20 sec] [Auto]	++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. E1: Compress Hein
Mass Storage Devices:		F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263. D	onuright (C) 2017 American	Megatrends. Inc

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	Disabled Enabled [Default]	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.		
USB Mass Storage Driver Support	Disabled Enabled [Default]	Enable/Disable USB Mass Storage Driver Support.		
USB transfer time-out	1 sec 5 sec 10 sec	The time-out value for Control, Bulk, and Interrupt transfers.		

	20 sec[Default]	
	10 sec	
Dovice react time out	20 sec[Default]	USB mass storage device Start Unit command
Device reset time-out	30 sec	time-out.
	40 sec	
		Maximum time the device will take before it
Dovice newer up delay	Auto[Default]	properly reports itself to the Host Controller. 'Auto'
Device power-up delay	Manual	uses default value: for a Root port it is 100ms, for
		a Hub port the delay is taken form Hub descriptor.

3.6.2.11 Security Configuration

Advance	Aptio Setup Utility – Copyright (C) 2017 American I	Megatrends, Inc.
TXE HMRFPO TXE EOP Messag	[Disabled] e [Enabled]	++: 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.

Item	Options	Description	
TXE HMRFPO	Enabled Disabled [Default]	TXE HMRFPO.	
TXE EOP Message	Enabled [Default] Disabled	Send EOP Message Before Enter OS.	

3.6.3 Chipset

Main	Ap Advanced	tio Setup Chipset	Utility – Security	Copyri Boot	.ght (C) Save & E	2017 Exit	American	Megatrends, Inc.
North South Uncore South	Bridge Bridge : Configura Cluster Co	ition onfiguratio	on					North Bridge Parameters ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
		/ersion 2.	18.1263. C	opyrigh	it (C) 20	017 AM	erican Mu	egatrends, Inc.

3.6.3.1 North Bridge

	Aptio Setup Utility – Copy Chipset	right (C) 2017 American	Megatrends, Inc.
Memory Inform	ation		Maximum Value of TOLUD.
Total Memory	409	6 MB (LPDDR3)	
Memory Slot0 Memory Slot1	409 Not	6 MB (LPDDR3) Present	
Max TOLUD			
			++: Select Screen ↑↓: Select Item
			Enter: Select +/-: Change Opt.
			F1: General Help F2: Previous Values F3: Optimized Defaults
			F4: Save & Exit ESC: Exit
	Version 2.18.1263. Copyri:	ght (C) 2017 American Mu	egatrends, Inc.

Item	Option	Description
Max TOLUD	2 GB [Default]	
	2.25 GB	
	2.5 GB	Maximum value of TOLOD.
	2.75 GB	

3.6.3.2 South Bridge



Item	Option	Description
Serial IBO Mode	Quiet	Configure Serial IBO Mode
Serial IKQ Mode	Continuous[Default]	Configure Senar Into Mode.
	Windows[Default]	
OS Selection	Android	Select the target OS.
	Intel Linux	

3.6.3.3 Uncore Configuration

Aptio Setup Utility - Chipset	Copyright (C) 2017 Americar) Megatrends, Inc.
GOP Configuration GOP Driver	[Enable]	Active Internal LVDS(eDP->Ch7511-to-LVDS)
IGD Configuration Cd Clock Frequency	[624 MHz]	
IGD - LCD Control Active LVDS(Ch7511) CH7511 EDID Panel Option Brightness Control Method LVDS Back Light PWM LVDS Back Light PWM Frequency	[Enabled] [1024x768 24/1] [BIOS] [100%] [200]	
		++: 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 American ⊬	legatrends, Inc.

Item	Option	Description
	Enable[Default]	Enable GOP Driver will unload VBIOS ;
GOP Driver	Disable	Dsiable it will load VBIOS.
	144 MHz	
	288 MHz	Salast the highest Cd Cleak frequency
Cd Clock Frequency	384 MHz	Select the highest Cd Clock frequency
	576 MHz	supported by the platform.
	624 MHz [Default]	
	Disabled	Active Internal
Active LVDS (CH/311)	Enabled[Default]	LVDS(eDP->Ch7511-to-LVDS).
	1024x768 24/1[Default]	
	800x600 18/1	
	1024x768 18/1	
	1366x768 18/1	
	1024x600 18/1	
	1280x800 18/1	
CUZE44 EDID Denel Ontion	1920x1200 24/2	Port1-EDP to LVDS(Chrotel 7511) Panel
CH7511 EDID Panel Option	1920x1080 18/2	EDID Option.
	1280x1024 24/2	
	1440x900 18/2	
	1600x1200 24/2	
	1366x768 24/1	
	1920x1080 24/2	
	1680x1050 24/2	
	00%	
	25%	
LVDS Back Light PWM	50%	Select LVDS back light PWM duty.
	75%	
	100%[Default]	
	200[Default]	
	300	
	400	
LVDS Back Light PWM Frequency	500	
	700	
	1k	Select LVDS back light PWM Frequency.
	2k	
	3k	
	5k	
	10k	
	20k	

3.6.3.4 South Cluster Configuration

Aptio Setup <mark>Chipset</mark>	Utility – Copyrigh	t (C) 2017 Ame	rican Megatrends, Inc.
 HD-Audio Configuration PCI Express Configuration SATA Drives SCC Configuration USB Configuration 			HD-Audio Configuration Settings
			<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 2.1	8.1263. Copyright	(C) 2017 Ameri	can Megatrends, Inc.

3.6.3.4.1 HD-Audio Configuration

Aptio Setu Chipset	o Utility – Copyright	(C) 2017 American	Megatrends, Inc.
HD-Audio Configuration HD-Audio Support	[Enable]		Enable/Disable HD-Audio Support
			11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

ltem	Option	Description
HD-Audio Support	Disable Enable [Default]	Enable/Disable HD-Audio Support.

3.6.3.4.2 PCI Express Configuration

Aptio Setup Utility — C Chipset	Copyright (C) 2017 American	Megatrends, Inc.
<pre>PCI Express Configuration Compliance Mode > PCI Express Root Port 3(Q7 port1) > PCI Express Root Port 4(Q7 port2) > PCI Express Root Port 5(Q7 port3) > PCI Express Root Port 6(Q7 Lan)</pre>	[Disabled]	Compliance Mode Enable/Disable
		++: 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. Cop	oyright (C) 2017 American Mi	egatrends, Inc.

Item	Option	Description
Compliance Mode	Disabled [Default] Enabled	Compliance Mode Enable/Disable.

3.6.3.4.2.1 PCI Express Root Port 3(Q7 port1)

Aptio Setup Utility Chipset	– Copyright (C) 2017 A	merican Megatrends, Inc.
PCI Express Root Port 3(Q7 port1) ASPM L1 Substates PCIe Speed	[Enable] [Disable] [Disabled] [Auto]	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port #*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Copyright (C) 2017 Ame	rican Megatrends. Inc.

Item	Option	Description
PCI Express Root Port 3(Q7 port1)	Disable Enable [Default] Auto	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe

		root port.
	Disable[Default]	
	LOs	PCI Express Active State Power
ASPM	L1	Management settings
	L0sL1	Management Settings.
	Auto	
	Disabled[Default]	
14 Substates	L1.1	DCI Everage 14 Substates actings
L'I Substates	L1.2	POT Express LT Substates settings.
	L1.1 & L1.2	
	Auto[Default]	
PCIe Speed	Gen1	Configure PCIe Speed.
	Gen2	

3.6.3.4.2.2 PCI Express Root Port 4(Q7 port2)

PCI Express Root Port 4(Q7 port2) [Enable] ASPM [Disable] L1 Substates [Disabled] PCIe Speed [Auto] PCIe Speed [Auto] Autol Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port Disable: Disable PCIe root port PCIe Speed **: Select Screen **: Select Item Enter: Select */-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Aptio Setup Utility - Chipset	- Copyright (C) 201 ⁻	7 American Megatrends, Inc.
	PCI Express Root Port 4(Q7 port2) ASPM L1 Substates PCIe Speed	[Enable] [Disable] [Disabled] [Auto]	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port ====================================

Item Option		Description
		Control the PCI Express Root Port. AUTO:
PCI Express Boot Bort 4/07	Disable	To disable unused root port automatically for
POI EXPless Root Poil 4(Q7	Enable[Default]	the most optimum power savings. Enable:
portzj	Auto	Enable PCIe root port Disable: Disable PCIe
		root port.
	Disable[Default]	
	LOs	PCI Express Active State Rower
ASPM	L1	Monogoment actings
	L0sL1	Management settings.
	Auto	
	Disabled[Default]	
1.4 Substates	L1.1	DCI Everage 1.1 Substates pattings
LI Substates	L1.2	POI Express LT Substates settings.
	L1.1 & L1.2	

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	Auto[Default]	
PCIe Speed	Gen1	Configure PCIe Speed.
	Gen2	

3.6.3.4.2.3 PCI Express Root Port 5(Q7 port3)

Aptio Setup Utility - Chipset	- Copyright (C) 2017 Amer	rican Megatrends, Inc.
Chipset PCI Express Root Port 5(Q7 port3) ASPM L1 Substates PCIe Speed	[Enable] [Disable] [Disabled] [Auto]	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port #*: 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	nnunight (P) 2017 Americ	ran Megatrande. Inc

Item	Option	Description
		Control the PCI Express Root Port. AUTO:
PCI Express Poot Port 5(07	Disable	To disable unused root port automatically for
nort3)	Enable[Default]	the most optimum power savings. Enable:
portoj	Auto	Enable PCIe root port Disable: Disable PCIe
		root port.
	Disable[Default]	
	LOs	PCI Express Active State Power
ASPM	L1	Management sottings
	L0sL1	Management Settings.
	Auto	
	Disabled[Default]	
L 1 Substates	L1.1	PCI Express I 1 Substates settings
LI Substates	L1.2	FOI Express LT Substates settings.
	L1.1 & L1.2	
	Auto[Default]	
PCIe Speed	Gen1	Configure PCIe Speed.
	Gen2	

Aptio Setup Utility - Chipset	- Copyright (C) 2017 Am	erican Megatrends, Inc.
PCI Express Root Port 6(Q7 Lan) ASPM L1 Substates PCIe Speed	[Enable] [Disable] [Disabled] [Auto]	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe 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>

3.6.3.4.2.4 PCI Express Root Port 6(Q7 Lan)

ltem	Option	Description
PCI Express Root Port 6(Q7 Lan)	Disable Enable [Default] Auto	Control the PCI Express Root Port. AUTO: To disable unused root port automatically for the most optimum power savings. Enable: Enable PCIe root port Disable: Disable PCIe root port.
Disable [Defa L0s L1 L0sL1		PCI Express Active State Power Management settings.
L1 Substates	Disabled [Default] L1.1 L1.2 L1.1 & L1.2	PCI Express L1 Substates settings.
PCIe Speed	Auto [Default] Gen1 Gen2	Configure PCIe Speed.

3.6.3.4.3 SATA Drivers



ltem	Option	Description
		Enables or Disables the Chipset SATA
Chinsot SATA	Enable[Default]	Controller. The Chipset SATA controller
Chipset SATA	Disable	supports the 2 black internal SATA ports (up
		to 3Gb/s supported per port).
Aggrossive I PM Support	Disabled[Default]	Enable PCH to aggressively enter link power
Aggressive LFM Support	Enabled	state.
Dort 0/4	Disabled	Enchle or Dischle SATA Dart
Port 0/1	Enabled[Default]	Enable of Disable SATA Polt.
	Hard Disk Drive[Default]	Identify the SATA port is connected to Solid
SATA Device Type	Solid State Drive	State Drive or Hard Disk Drive.
SATA Port & DoviSin	Disabled[Default]	Enable/Disable SATA Port 0 DevSlp. Board
SATA Port U DevSip	Enabled	rework for LP needed before enable.

3.6.3.4.4 SCC Configuration

Aptio Se Chips	tup Utility – Copyrig et	ıt (C) 2017 American	Megatrends, Inc.
SCC SD Card Support (D) SCC eMMC Support (D28:1	27:F0) [Enabl F0) [Disab	:] e]	Enable/Disable SCC SD Card Support
			++: 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.

Item Option		Description
SCC SD Card Support (D27:F0)	Disable Enable [Default]	Enable/Disable SCC SD Card Support.
SCC eMMC Support (D28:F0)	Disable [Default] Enable	Enable/Disable SCC eMMC Support.

3.6.4 Security



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• Setup Administrator Password

Set setup Administrator Password

User Password

Set User Password

3.6.4.1 Secure Boot



Item	Option	Description
Attempt Secure Boot	Disabled Enabled [Default]	Secure Boot activated when Platform Key(PK) is enrolled, System mode is User/Deployed, and CSM function is disabled.
Secure Boot Mode	Standard [Default] Customized	Secure Boot Mode – Custom_Standard, Set UEFI Secure Boot Mode to STANDARD mode or CUSTOM mode, this change is effect after save. And after reset, the mode will return to STANDARD mode.

3.6.5 Boot



Item	Option	Description		
Satur Brompt Timoout	1~ 65535	Number of seconds to wait for setup activation		
Setup Frompt Timeout		key. 65535(0xFFFF) means indefinite waiting.		
Pootun Numi ook Stato	On [Default]	Coloct the Keyboard Numberly state		
Bootup NullEock State	Off	Select the Reyboard Numbock state		
Quiet Boot	Disabled[Default]	Enables or disables Quiet Post option		
	Enabled			
Boot Option #1	Set the system boot orde	e system boot order.		

3.6.6 Save and exit



3.6.6.1 Save Changes and Reset

Reset the system after saving the changes.

3.6.6.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.6.3 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.6.4 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

4. Drivers Installation



Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

4.1 Install Chipset Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to /Driver_Chipset/Intel/EQM-APL.



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.





Step 3. Click Install.







Step 2. Click Accept.

Step 4. Complete setup.

4.2 Install TXE Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to /Utility/EQM-APL_TXE.



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.

Setup			×
Intel® Trusted Execution Engine Welcome		(inte	
You are about to install the following product:			
Intel® Trusted Execution Engine			
It is strongly recommended that you exit all programs Click Next to continue, or click Cancel to exit the setu	before continuing, p program.		
Intel Corporation			

Step1. Click Next to start installation.

Setup	×
Intel® Trusted Execution Engine License Agreement	(intel)
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distrib	n & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load this software and any associated materials (or until you have carefully read the following terms and conditions. Software, you agree to the terms of this Agreement. If you do r install or use the Software.	ctively, the "Software") loading or using the wish to so agree, do not
Please Also Note: * If you are an Original Equipment Manufacturer (OEM), Indeper (IHV), or Independent Software Vendor (ISV), this complete LIC * If you are an End-User, then only Exhibit A, the INTEL SOFTW applies.	nt Hardware Vendor E AGREEMENT applies; E LICENSE AGREEMENT,
For OEMs, IHVs, and ISVs:	
LICENSE. This Software is licensed for use only in conjunction wi Use of the Software in conjunction with non-Intel component pro	ntel component products. cts is not licensed v
I accept the terms in the License Agreement.	
Intel Corporation	ack <u>N</u> ext > <u>C</u> ancel

Step 2. Click Next.



Step 3. Click Next to continue installation.

Completion	(intel)	
You have successfully installed the following produ Intel® Trusted Execution Engine	ict:	
Click <u>here</u> to open log file location.		

Step 4. Click Finish to complete setup.

4.3 Install VGA Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **/VGA/EQM-APL**.



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

Intel® Installation Framework		<u></u>		×
Intel® Graphics Driver				
Welcome to the Setup Program			(inl	tel
This setup program will install the following components: - Intel® Graphics Driver - Intel® Display Audio Driver				
It is strongly recommended that you exit all programs before	continuing, C	lick Next	to continu	Je.
Automatically run WinSAT and enable the Windows Aero o	lesktop them	e (if supp	oorted).	
< <u>B</u> ac	k <u>N</u> ex	tt >	<u>C</u> anc	el
	Inte	augo Insta	silacion Hra	amework

Step 1. Click Next to continue installation.



Step 2.

Click **Yes** to accept license agreement.



Step 3. Click Next.

ntel® Graphics Driver	
etup Progress	intel
Please wait while the following setup operations are p	erformed:
Deleting File: C:\ProgramData\Vicrosoft\Windows\Sta Deleting File: C:\ProgramData\Vicrosoft\Windows\Sta Deleting File: C:\ProgramData\Vicrosoft\Windows\Sta Deleting File: C:\Users\Public\Desktop\Intel(R) HD Gr Deleting File: C:\Users\Public\Desktop\Intel(R) HD Gr	art Menu Vprograms Untell (Intell (R) HD Grap is art Menu Vprograms (Intell (R) HD Graphics art Menu Vprograms (Intell (Intell (R) Graphics aphics Control Panel.Ink art Menu Vprograms (Intell (R) Intell (R) ics and Media Control Panel.Ink art Menu Vprograms (Intell (Intell (R) Ints(TM) 4) Graphics Control Panel.Ink themal Nurleight (R) Ints(TM)
Deleting Registry Key: Incl ^o SOFTWARE (Intel\GFX)(I Deleting Registry Key: HKLM\SOFTWARE\Intel\GFX)(I Click Next to continue	nternal AudioFix

Step 4. Click Next.

Intel® Installation Framework	×
Intel® Graphics Drive	r
Setup Is Complete	intel
You must restart this computer for the changes to t computer now?	take effect. Would you like to restart the
• Yes, I want to restart this computer now.	
○ No, I will restart this computer later.	
Click Finish, then remove any installation media from	m the drives.
	Intel® Installation Framewor

Step 5. Click Finish to complete setup.

4.4 Install Audio Driver

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

/Driver_Audio/Realtek/EQM-APL_Audio.



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 Finish to complete the setup.

EQM-APL 4.5 Install Serial IO Driver

Insert the Supporting CD-ROM to CD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to /Utility/EQM-APL_SerialIO.



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

Setup			×
ntel® Serial IO Welcome		(inte	
You are about to install the following product:			
Intel® Serial IO			
It is strongly recommended that you exit all pr Click Next to continue, or click Cancel to exit t	ograms before continuing he setup program.	g.	
ntel Corporation	< Back	Next >	Cancel





Step 2. Click Next.



Step 3. Click Next to continue setup.

Intel® Serial IO			
Confirmation		Inte	
You are about to install the following components:			
- Intel® Serial IO GPIO Driver			
Intel Corporation	< <u>B</u> ack	Next >	Cancel

Step 4. Click Next.

Setup				×
Intel® Compl) Serial IO etion		(intel)	
٢	You have successfully installed the following Intel® Serial IO	product:		
Click he	ere to open log file location.			
Intel Co	poration	< <u>B</u> ack	Next >	Einish

Step 5. Click Finish to complete the setup.

4.6 Install Ethernet Driver

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

/Driver_Gigabit/Intel/I210IT/EQM-APL.



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



Step 1. Click Install Drivers and Software.





Step 3. Click Next to continue setup.

Intel(R) Network Connections Install Wiz	ard		×
Setup Options Select the program features you want i	nstalled.		(intel)
Install:			
OIntel(R) PROSet for Windows* Dev Of Advanced Network Services Of Windows* PowerShell Module Of Intel(R) Network Connections SNMi	ice Manager P Agent		
Feature Description			
	< <u>B</u> ack	Next >	Cancel





Step 5. Click Install.

Step 2. Click Next.

EQM-APL



Step 6. Click Finish to complete the setup.

5. Mechanical Drawing



Unit: mm