

# Network Appliance Platform

Hardware Platforms for Network Computing

# LUNA-D125 User Manual

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### **Icon Descriptions**

The icons are used in the manual to serve as an indication of interest topics or important messages. Below is a description of these icons:



**Note**: This mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.



**Warning**: This mark indicates that there is a caution or warning and it is something that could damage your property or product.

### **Online Resources**

The listed websites are links to the online product information and technical support.

Resources	URL
Lanner	http://www.lannerinc.com
Product Resource	http://www.lannerinc.com/download-center
RMA	http://eRMA.lannerinc.com

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### **Compliances and Certification**

#### **FCC Class A Certification**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### Notice

(1) A Unshielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

(2) Use only shielded cables to connect I/O devices to this equipment.

(3) Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### **Safety Guidelines**

Follow these guidelines to ensure general safety:

- ▶ Keep the chassis area clear and dust-free during and after installation.
- Do not wear loose clothing or jewelry that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- ▶ Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- > Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Disconnect all power by turning off the power and unplugging the power cord before installing or removing a chassis or working near power supplies
- Do not work alone if potentially hazardous conditions exist.
- ▶ Never assume that power is disconnected from a circuit; always check the circuit.

### Consignes de sécurité

Suivez ces consignes pour assurer la sécurité générale :

- Laissez la zone du châssis propre et sans poussière pendant et après l'installation.
- Ne portez pas de vêtements amples ou de bijoux qui pourraient être pris dans le châssis. Attachez votre cravate ou écharpe et remontez vos manches.
- Portez des lunettes de sécurité pour protéger vos yeux.
- N'effectuez aucune action qui pourrait créer un danger pour d'autres ou rendre l'équipement dangereux.
- Coupez complètement l'alimentation en éteignant l'alimentation et en débranchant le cordon d'alimentation avant d'installer ou de retirer un châssis ou de travailler à proximité de sources d'alimentation.
- ▶ Ne travaillez pas seul si des conditions dangereuses sont présentes.
- Ne considérez jamais que l'alimentation est coupée d'un circuit, vérifiez toujours le circuit. Cet appareil génère, utilise et émet une énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions des fournisseurs de composants sans fil, il risque de provoquer des interférences dans les communications radio.

#### **Lithium Battery Caution:**

- ▶ There is risk of Explosion if Battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.
- Installation only by a trained electrician or only by an electrically trained person who knows all Installation and Device Specifications which are to be applied.
- > Do not carry the handle of power supplies when moving to another place.
- > Please conform to your local laws and regulations regarding safe disposal of lithium BATTERY.
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- Leaving a battery in an extremely high temperature surrounding environment can result in an explosion or the leakage of flammable liquid or gas.
- A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

#### **Operating Safety**

- Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.

- Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- ▶ Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is available, ground yourself by touching the metal part of the chassis.
- Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

#### **Mounting Installation Precaution**

#### Environment:

- ▶ Do not install and/or operate this unit in any place that flammable objects are stored or used in.
- ► If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Installation of the equipment (especially in a rack) should consider the ventilation of the system's intake (for taking chilled air) and exhaust (for emitting hot air) openings so that the amount of air flow required for safe operation of the equipment is not compromised.
- ▶ To avoid a hazardous load condition, be sure the mechanical loading is even when mounting.
- Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable earthing should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

#### Installation & Operation:

- ► The installation of this product must be performed by trained specialists; otherwise, a non-specialist might create the risk of the system's falling to the ground or other damages.
- ► Lanner Electronics Inc. shall not be held liable for any losses resulting from insufficient strength for supporting the system or use of inappropriate installation components.

### Avertissement concernant la pile au lithium

- ▶ Risque d'explosion si la pile est remplacée par une autre d'un mauvais type.
- Jetez les piles usagées conformément aux instructions.
- L'installation doit être effectuée par un électricien formé ou une personne formée à l'électricité connaissant toutes les spécifications d'installation et d'appareil du produit.
- ▶ Ne transportez pas l'unité en la tenant par le câble d'alimentation lorsque vous déplacez l'appareil.
- La machine ne peut être utilisée qu'à un lieu fixe comme en laboratoire, salle d'ordinateurs ou salle de classe.

### Sécurité de fonctionnement

L'équipement électrique génère de la chaleur. La température ambiante peut ne pas être adéquate pour refroidir l'équipement à une température de fonctionnement acceptable sans circulation adaptée. Vérifiez que votre site propose une circulation d'air adéquate.

- Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- Les décharges électrostatiques (ESD) peuvent endommager l'équipement et gêner les circuits électriques. Des dégâts d'ESD surviennent lorsque des composants électroniques sont mal manipulés et peuvent causer des pannes totales ou intermittentes. Suivez les procédures de prévention d'ESD lors du retrait et du remplacement de composants.
- Portez un bracelet anti-ESD et veillez à ce qu'il soit bien au contact de la peau. Si aucun bracelet n'est disponible, reliez votre corps à la terre en touchant la partie métallique du châssis.
- Vérifiez régulièrement la valeur de résistance du bracelet antistatique, qui doit être comprise entre 1 et 10 mégohms (Mohms).

# Grounding Procedure for DC Power Source

- ▶ Loosen the screw of the earthing point.
- Connect the grounding cable to the ground.
- The protection device for the DC power source must provide 30 A current.
- This protection device must be connected to the power source before DC power



### **Electrical Safety Instructions**

- ▶ Before turning on the device, ground the grounding cable of the equipment.
- Proper grounding (grounding) is very important to protect the equipment against the harmful effects of external noise and to reduce the risk of electrocution in the event of a lightning strike.
- ► To uninstall the equipment, disconnect the ground wire after turning off the power.
- A ground wire is required and the part connecting the conductor must be greater than 4 mm2 or 10 AWG.

# Procédure de mise à la terre pour source d'alimentation CC

- Desserrez la vis du terminal de mise à la terre.
- Branchez le câble de mise à la terre à la terre.
- L'appareil de protection pour la source d'alimentation
  CC doit fournir 30 A de courant.
- Cet appareil de protection doit être branché à la source d'alimentation avant l'alimentation CC.



### Consignes de sécurité électrique

- Avant d'allumer l'appareil, reliez le câble de mise à la terre de l'équipement à la terre.
- Une bonne mise à la terre (connexion à la terre) est très importante pour protéger l'équipement contre les effets néfastes du bruit externe et réduire les risques d'électrocution en cas de foudre.
- > Pour désinstaller l'équipement, débranchez le câble de mise à la terre après avoir éteint l'appareil.
- Un câble de mise à la terre est requis et la zone reliant les sections du conducteur doit faire plus de 4 mm2 ou 10 AWG.



CAUTION: TO DISCONNECT POWER, REMOVE ALL POWER CORDS FROM UNIT. 注意:要断开电源,请将所有电源线从本机上拔下。

**WARNUNG:** Wenn Sie das Gerät zwecks Wartungsarbeiten vom Netz trennen müssen, müssen Sie beide Netzteile abnehmen.

**ATTENTION:** DÉBRANCHER TOUS LES CORDONS D'ALIMENTATION POUR DÉCONNECTER L'UNITÉ DU SECTEUR.

This equipment must be grounded. The power cord for product should be connected to a socket-outlet with earthing connection.

Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.

Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75.

The machine can only be used in a restricted access location, such as labs or computer facilities with the proper authorization.

Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT.

Chapter 1: Product Overview	10
Package Content	
Ordering Information	
Optional Accessories	
System Specifications	
Front Panel	
Rear Panel	14
Chapter 2: Motherboard Information	15
Block Diagram	15
Motherboard Layout	16
Chapter 3: Hardware Setup	19
Opening the Chassis	20
Opening the Chassis Replacing the System Memory	20
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD)	20 21 22
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD) Installing LTE Kit (M.2 LTE Card with Antenna)	20 21 22 23
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD) Installing LTE Kit (M.2 LTE Card with Antenna) Installing Wi-Fi Kit (Mini PCIe Wi-Fi Card with Antenna)	20 21 22 23 27
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD) Installing LTE Kit (M.2 LTE Card with Antenna) Installing Wi-Fi Kit (Mini PCIe Wi-Fi Card with Antenna) WiFi/LTE Cable Routing Example	20 21 22 23 23 27 31
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD) Installing LTE Kit (M.2 LTE Card with Antenna) Installing Wi-Fi Kit (Mini PCIe Wi-Fi Card with Antenna) WiFi/LTE Cable Routing Example Rackmounting the System (with the Adapter Holder)	20 21 22 23 27 31 32
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD) Installing LTE Kit (M.2 LTE Card with Antenna) Installing Wi-Fi Kit (Mini PCIe Wi-Fi Card with Antenna) WiFi/LTE Cable Routing Example Rackmounting the System (with the Adapter Holder)	
Opening the Chassis	
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD) Installing LTE Kit (M.2 LTE Card with Antenna) Installing Wi-Fi Kit (Mini PCIe Wi-Fi Card with Antenna) WiFi/LTE Cable Routing Example Rackmounting the System (with the Adapter Holder) <b>Chapter 4: BIOS Setup</b> Main Setup Advanced Setup	
Opening the Chassis Replacing the System Memory Installing M.2 Card (SSD) Installing LTE Kit (M.2 LTE Card with Antenna) Installing Wi-Fi Kit (Mini PCIe Wi-Fi Card with Antenna) WiFi/LTE Cable Routing Example Rackmounting the System (with the Adapter Holder) Rackmounting the System (with the Adapter Holder) Main Setup Main Setup CSTIPC Setup	

Event Logs Setup	76
Security Setup	77
Boot Setup	
Save & Exit Setup	79
Annendix A·I ED Indicator Explanations	
Appendix B: Installing Intel® LAN Controller Driver fo	or Linux 81
Appendix B: Installing Intel® LAN Controller Driver fo Appendix C: Terms and Conditions	or Linux 81 82
Appendix B: Installing Intel <sup>®</sup> LAN Controller Driver for Appendix C: Terms and Conditions Warranty Policy	or Linux 81 
Appendix B: Installing Intel <sup>®</sup> LAN Controller Driver for Appendix C: Terms and Conditions Warranty Policy RMA Service	or Linux 81 

# **CHAPTER 1: PRODUCT OVERVIEW**

LUNA-D125 series is an Intel Rangeley (ATOM) based system desktop platform, based on 2-Core CPU with 4x GbE ports. This system is targeted at low cost desktop with ECC DDR3L Memory support.

### **Package Content**

- Your package contains the following items:
- 1x LUNA-D125 Network Security Platform
- 1x Power cord ►
- 1x 36W power adaptor •
- 1x Nameplate
- 4x Rubber foot



# **Ordering Information**

SKU No.	Main Features
LUNA-D125A	Intel® Atom® C2316, 4x GbE, Intel® QuickAssist Technology



**Note**: If any component should be missing or damaged, please contact your dealer immediately for assistance.

# **Optional Accessories**

Model Name	Description
mini-PCIe Wifi Kit	1x mini-PCIe card + 2x Antennas + Accessories
M.2 3042 (B key) LTE Kit	1x M.2 card + 2x Antennas + Accessories
Rackmount Kit	2x Mounting Ears + Accessories
Adapter holder Kit	1x Adapter Holder Bracket

# System Specifications

Form Factor		Desktop
	Processor Options	Intel <sup>®</sup> Atom <sup>®</sup> C2316 (Rangeley)
Distinguis	CPU Socket	Onboard
Platform	Chipset	SoC
	Security Acceleration	Intel® QuickAssist Technology
BIOS		AMI SPI Flash BIOS
	Technology	DDR3L 1333MHz non-ECC SODIMM
System Memory	Max. Capacity	16 GB
	Socket	1x 204-pin SODIMM
	Ethernet Ports	4x GbE RJ45
Networking	Bypass	N/A
	NIC Module Slot	N/A
1014	IO Interface	N/A
LOIM	OPMA slot	N/A
	Reset Button	1
		Power/Status/Storage
		2x LED per GbE ports
	Power Button	1
I/O Interface	Console	1x RJ45
	USB	2x USB 2.0
	LCD Module	N/A
	Display	N/A
	Power input	1x DC Jack
Storage	HDD/SSD Support	N/A
Storage	Onboard Slots	8GB onboard storage, 1 x M.2 2242 (SATAIII)
	mini BCIo	1x mini PCIe Connector
		(Support PCIe x1 signal)
	M 2	1x M.2 2242 B key socket (SATAIII signal)
Expansion		1x M.2 3042 B key socket (PCIE/USB2.0/UIM )
	SIM card Slot	1x Nano SIM Card Connector for one of the
		3042 M.2 slots
	Antenna hole	4x Antenna hole
	Watchdog	Yes
Miscellaneous	Internal RTC with Li Battery	Yes
	IPM	Infineon SLB9665
Cooling	Processor	Thermal Pad
	System	Fanless
	Temperature	0~40°C Operating
Environmental Parameters		-20~70°C Non-Operating
	Humidity (RH)	5~90% Operating
		264 mm v 192 mm v 100 mm
System Dimensions	Weight	1.0 kg
		212 mm v 140 mm v 280 mm
Package Dimensions	Weight	1.3 kg
		1.5 kg
Power		$\Delta C 100 \sim 240 V @47 \sim 63 Hz$
	mput	
Approvais and Compliance		KOHS, CE, FCC Class A, UL

### **Front Panel**



No.	Description			
F1	SIM Slot	For 1x Nano SIM card		
F2	Data Connection LED Indicators	Data Speed Data Link		
F3	System LED Indicators	System Power System Status HDD Activity		



**Note**: Please refer to Appendix A: LED Indicator Explanations for descriptions of the LED Indicators

# **Rear Panel**



No.	Description		
R1	Antenna Port	4x Antennas (from left to right LTE $\rightarrow$ Wi-fi $\rightarrow$ Wi-fi $\rightarrow$ LTE)	
R2	Power Button	Push to power on/off the system	
R3	DC-in Jack	For power supply	
R4	Reset Button	Press to perform a system reset	
R5	Console Port	1x RJ45 console port	
R6	USB Ports	2x USB 2.0 port	
R7	GbE Ports	4x RJ45 port with LED ( <b>LAN1</b> for PXE Boot)	

# **CHAPTER 2: MOTHERBOARD INFORMATION**

### **Block Diagram**

The block diagram indicates how data flows among components on the motherboard. Please refer to the following figure for your motherboard's layout design.



R45 Console

### **Motherboard Layout**

The motherboard layout shows the connectors and jumpers on the board. Refer to the following picture as a reference of the pin assignments and the internal connectors.



#### **Internal Jumper & Connectors**

Jumper/Connector	Description			
LAN1~LAN4	RJ45 GbE ports			
USB1	Standard USB2.0 Type-A Connector			
COM1	RJ45 Console Debug Port			
DC_IN1	DC2.5V power supply			
DIMM1	DDR3L 204-pin SO-DIMM Slot			
BUZZ1	Buzzer			
MINI-PCIE1	Mini-PCIe Slot			
SIM1	Nano SIM Slot			
SSD	M.2 2242 B-Key Socket, supporting SATA 2.0 signal for SSD module.			
ITE	M.2 3042 B-Key Socket, supporting PCIe-X1 and USB2.0 signal with a SIM			
LIC	card for the 4G module.			
BAT	3.3V RTC battery holder			
CPU_FAN1	Reserved 4-pin system fan connector			
PWRLED1	System LED indicator			
LAN1_LED~ LAN4_LED	RJ45 Port data transmission status			
PWR_BTN	Power button			
RST_BTN	Reset button			
JBIOS	Reserved BIOS Debug port			
JDEBUG	Reserved LPC Debug port			
CSAE_OPEN	Case-open pin header			
	Clear CMOS Jumper			
ICMOS	Setting Mode			
JEWIOS	1-2 Im Normal (Default)			
	2-3 Clear CMOS			
	Configures the automatic power-on function			
	Setting Mode			
AT_ATX	1-2 Auto power-on (Default)			
	2-3 Nornal			
J1	Hardware debug pin1			
J2	Hardware/Software Reset Jumper			
J3	Hardware debug pin2			
J4	BIOS ROM selection jumper			

#### **Pin Definitions**

JP/CN	Pin#	Signal	Pin#	Signal	Remark
	1	RTS			
	2	DTR			
CON41	3	TXD			
	4	GND			DIAE Canada Dahur Dart
CONT	5	GND			RJ45 Console Debug Port
	6	RXD			
	7	DSR			
	8	CTS			
JP/CN	pin#	Signal	pin#	Signal	Remark
	1	GND			
<b>CPUL FAN1</b>	2	+12V			Reserved 4-pin connector for
	3	FAN_TAC			Smart Fan
	4	FAN_PWM			
JP/CN	pin#	Signal	pin#	Signal	Remark
	1	HOLD#	2		
	2	SPI_CS_J	4	+3.3V	
JBIOS	3	SPI_MISO	6		Reserved BIOS debug port
	4		8	SPI_CLK	-
	5	GND	10	SPI_MOSI	
JP/CN	pin#	Signal	pin#	Signal	Remark
	1	L_FRAM			
	2	LAD3			
	3	LAD2			
	4	LAD1			
JDEBUG	5	LAD0			LPC debug port
	6	GND			
	7	BUF_PLT_RET#			
	8	CLK_PCH_24M			
	9	+3.3V			
JP/CN	pin#	Signal	pin#	Signal	Remark
	1	GND			Case open pin header:
CASE_OPEN			-		1-2 detects and sends out signal
	2	CASEOPEN#			when the chassis cover is removed.
JP/CN	pin#	Signal	pin#	Signal	Remark
	1	SPI_CS0_IC			Selects BIOS BOM
J4	2	SPI_CS0			1-2 : Select on-board BIOS chip
	3	SPI_CS0_J			2-3 : Select external BIOS chip

# **CHAPTER 3: HARDWARE SETUP**

To reduce the risk of personal injury, electric shock, or damage to the equipment, please remove all power connections to completely shut down the device. Also, please wear ESD protection gloves when conducting the steps described hereafter.



Chapter 3: Hardware Setup

# **Opening the Chassis**

**1.** Loosen the **<u>four</u>** screws (indicated in the photos) that fix this unit's side panels.



2. Loosen the screw that fixes the SIM Slot cover, and then pull open the bottom panel.



### **Replacing the System Memory**

The motherboard supports DDR3L memory that features data transfer rates of 1333 MHz to meet the higher bandwidth requirements of the latest operating system and Internet applications. To replace the memory:

- **1.** Open the DIMM slot latches.
- 2. Replace the default DIMM with a new one.





Note: The system requires DDR3L 1333 memory. Do not install memories with different specifications. The system can support up to 16 GB in maximum.

# Installing M.2 Card (SSD)

1. Remove the screw located across from the slot.



**2.** Align the notches of the M.2 card with the socket keys in the slot. Tilt the end of the gold fingers down while carefully inserting the card into the slot.



**3.** Fix the card with the screw you loosened earlier.



### Installing LTE Kit (M.2 LTE Card with Antenna)

**1.** Remove the screw located across from the slot.



**2.** Align the notch of the M.2 card with the socket key in the slot. Tilt the end of the gold fingers down while carefully inserting the card into the slot.



**3.** Fix the card with the screw you loosened earlier.



4. Assemble the LTE Antenna cables using the Lock Nut and Washer onto the front panel.

(1) Take out the antenna pigtail cable from the Antenna Kit. From inside the chassis, insert the SMA Female Bulkhead through the antenna hole on the panel.



(2) From outside the panel, attach the Washer and Nut, and tighten the Nut using an SMA Torque Wrench.





**Warning**: Do not use any tool other than an SMA Torque Wrench to fasten the Nut. For example, general pliers or tweezers without limited twisting force are very likely to cause the distortion of SMA connector. (3) Snap one LTE antenna cable onto the U.FL connector for MAIN, and the other one onto the U.FL connector for AUX.



5. Flip over the system, and loosen the screw that fixes the slot cover.





**6.** Push the SIM card all the way in until it clicks into place. Make sure the angled corner of the card is positioned as shown in this picture, with its gold contact facing down.





The SIM socket supports push-push mechanism, allowing the SIM card ejection to be as easy as one push. To remove the card, push the card with your fingertip or a paperclip to have it bounce out automatically.



**7.** Attach the LTE antennas onto the front panel. Make sure the antenna cables (Main and Aux) go through the right holes as indicated in the picture.



### Installing Wi-Fi Kit (Mini PCIe Wi-Fi Card with Antenna)

**1.** Remove the screw located across from the slot.



**2.** Align the notch of the MPCIe card with the socket key in the slot. Tilt the end of the gold fingers down while carefully inserting the card into the slot.



**3.** Fix the card with the screw you loosened earlier.



4. Assemble the Wi-Fi Antenna cables using the Lock Nut and Washer onto the front panel.



(1) Take out the antenna pigtail cable from the Antenna Kit. From inside the chassis, insert the SMA Female Bulkhead through the antenna hole on the panel.



(2) From outside the panel, attach the Washer and Nut, and tighten the Nut using an SMA Torque Wrench.





**Warning**: Do not use any tool other than an SMA Torque Wrench to fasten the Nut. For example, general pliers or tweezers without limited twisting force are very likely to cause the distortion of SMA connector.

(3) Snap one Wi-Fi antenna cable onto the U.FL connector for **WIFIO**, and the other one onto the U.FL connector for **WIFI1**.



**5.** Attach the WI-FI antennas onto the front panel. Make sure the antenna cables (WIFI0 and WIFI1) go through the right holes as indicated in the picture.



# WiFi/LTE Cable Routing Example

Please make sure your Wi-Fi/LTE module is connected with the right antenna holes as shown in the picture.



Important Notice

Please avoid the exposed parts of stripped Wi-Fi cables from being in contact with the circuit board by fixing them onto the indicated areas (2 and 3) lest a short circuit should occur.



Antenna Hole	Connector
1	LTE Main
2	WIFI 0
3	WIFI 1
4	LTE Aux

#### Rackmounting the System (with the Adapter Holder)

With the Rackmount Kit, this system can be fixed onto the rack post along with the system's power adapter. Please contact Lanner's sales representative for purchasing these kits.

#### What's in the Rackmount Kit

Check the kit contents for the following items:

- ▶ 1x pair of Ear Brackets
- Screws for the fixture of the ear brackets



#### What's in the Adapter Holder Kit

Check the kit contents for the following items:

- ▶ 1x Adapter Holder
- ▶ 1x Adapter Bracket

,

 Screws for the fixture of the adapter holder and the adapter bracket.

#### Attaching the Rackmount Assembly to the Chassis

- On one side of the system, align the ear bracket to the screw holes on the side panel and fix it using <u>three</u> screws.
- **2.** Secure the other ear bracket to the other side of the system.
- Fix the adapter holder to the left bracket using two screws.
  Adapter Holder



 Attach the power adapter's connector to the power supply jack on the rear panel and fasten

the screw lock.

- **5.** Secure the adapter with the adapter bracket using two screws.
- **6.** Use the cable ties to fix the adapter's cable on the bracket.









#### Installing the System to the Rack

- **1.** In the rack, install a shelf to support the system (recommended).
- **2.** Hold the system with its front facing you, lift and carefully insert the system into the rack. Attach the brackets to the rail rack using screws and round-hole/square-hole retainer nuts.



# **CHAPTER 4: BIOS SETUP**

# **Main Setup**

To enter the BIOS setup utility, simply follow the steps below:

- 1. Boot up the system.
- 2. Pressing the **<Esc>** key immediately allows you to enter the Setup utility.

Control Keys	Description		
→←	select a setup screen		
↑↓	select an item/option on a setup screen		
<enter></enter>	select an item/option or enter a sub-menu		
+/-	adjust values for the selected setup item/option		
F1	display General Help screen		
E2	retrieve previous values, such as the last configured parameters during the last		
12	time you entered BIOS		
F3	load optimized default values		
F4	save configurations and exit BIOS		
<esc></esc>	exit the current screen		

On **Main** Setup screen, you can configure the following two settings:

Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc. Main Advanced CSTIPC IntelRCSetup Event Logs Security Boot >		
<b>BIOS Information</b> BIOS Vendor Core Version Compliancy Project Version Build Date and Time	American Megatrends 5.009 UEFI 2.3; PI 1.2 853CP 1.06 x64 07/26/2018 14:50:35	Choose the system default language
Memory Information Total Memory	2048 MB (DDR3)	
System Language	[English]	><: Select Screen
System Date System Time	[Thu 01/03/2019] [07:26:14]	V: Select ltem  Enter: Select  +/-: Change Opt.  E1: General Halp
Access Level	Administrator	F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2 17 12/5 Convright (C) 2018 American Megatrends Inc		

Item	Description	
System Date	To set the Date, use <b><tab></tab></b> to switch between Date elements. Default range of Year: 2005-2099 Default range of Month: 1-12 Days: dependent on Month.	
System Time	To set the Date, use <b><tab></tab></b> to switch between Date elements.	
# **Advanced Setup**

Use  $[\rightarrow]$  or  $[\leftarrow]$  to select **Advanced** setup screen. Under this screen, you may use  $[\uparrow] [\downarrow]$  to select an item you want to configure.

Aptio Setup Utility - Copyright (C) 2018 Amer: Main Advanced CSTIPC IntelRCSetup Event Logs	ican Megatrends, Inc. Security Boot >
Enable CRID       [Disabled]         > Trusted Computing         > ACPI Settings         > IT8786 Super IO Configuration         > Hardware Monitor         > Serial Port Console Redirection         > PCI Subsystem Settings         > Network Stack Configuration         > CSM Configuration         > USB Configuration         > iSCSI Configuration         > Intel(R) I211 Gigabit Network Connection         > Intel(R) I211 Gigabit Network Connection         > Intel(R) Ethernet Connection I354 - 00:E2:6         > Driver Health	Enable Compatible Revision ID ><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1245. Copyright (C) 2018 America	an Megatrends, Inc.

Item	Option	Description
Enable CRID	Disabled Enabled	Enable Compatible Revision ID
Trusted Computing	None	Trusted Computing Settings
AC Power Loss Setting	None	System ACPI Parameters
IT8786 Super IO Configuration	None	System Super IO Chip Parameters
Hardware Monitor	None	Monitor hardware status
Serial Port Console Redirection	None	Serial Port Console
PCI Subsystem Settings	None	PCI, PCI-X and PCI Express Settings
Network Stack Configuration	None	Network Stack Settings
CSM Configuration	None	CSM configuration: Enable/Disable, Option ROM execution settings,etc.
USB Configuration	None	USB Configuration Parameters
iSCSI Configuration	None	Configure the iSCSI parameters
Intel(R) I211 Gigabit Network Connection	None	Configure Gigabit Ethernet device 1 parameters
Intel(R) I211 Gigabit Network Connection	None	Configure Gigabit Ethernet device 2 parameters
Intel(R) Ethernet Connection I354	None	Configure Gigabit Ethernet device 3 parameters
Intel(R) Ethernet Connection I354	None	Configure Gigabit Ethernet device 4 parameters
Driver Health	None	Provides Health Status for the Drivers/Controllers

## **Trusted Computing**

On Advanced Setup screen, select and enter "Trusted Computing".

Aptio Setup Utility Advanced	– Copyright ((	C) 2018 American Megatrends, Inc.
TPM20 Device Found Security Device Sup Pending operation Platform Hierarchy Storage Hierarchy Endorsement Hierarc HashPolicy	[Enable] [None] [Enabled] [Enabled] [Enabled] [Sha-1]	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. ><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
\ Version 2.17.1245.	Copyright (C)	2018 American Megatrends, Inc.

Item	Option	Description
Security Device Sup	Disable 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.
Pending operation	None TPM Clear	Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.
Platform Hierarchy	Disabled Enabled	Platform Hierarchy HELP
Storage Hierarchy	Disabled Enabled	Storage Hierarchy HELP
Endorsement Hierarc	Disabled Enabled	Endorsement Hierarchy HELP

# **ACPI Settings**

On Advanced Setup screen, select and enter "ACPI Settings".

Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc. Advanced		
ACPI Settings		Enables or Disables
Enable ACPI Auto Conf	[Disabled]	Configuration.
Enable Hibernation ACPI Sleep State Lock Legacy Resources	[Disabled] [Suspend Disabled] [Disabled]	
		><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1245.	Copyright (C) 2018	American Megatrends, Inc.

Item	Option	Description
Enable ACPI Auto Conf	Disabled	Enables or Disables BIOS ACPI Auto Configuration
	Enabled	
	Disabled Each last a share birth a share to a	Franklas er Dischlas Lask of Lanary Descurses
LOCK LEGACY RESOURCES	Enabled	Enables of Disables Lock of Legacy Resources

#### **COM Settings**

On Advanced Setup screen, select and enter "IT8786 Super IO Configuration" for COM settings.



Select and enter "Serial Port 1 Configuration."

Aptio Setup Utility Advanced	- Copyright (C) 2018 Ameri	can Megatrends, Inc.
/ Serial Port 1 Configura	tion	+\  Enable or Disable    Social Port (COM)
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=3;	
Change Settings	[IO=3F8h; IRQ=3,4,5,]	
		<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1245.	Copyright (C) 2018 America	n Megatrends, Inc.

Item	Option	Description
	Disabled	Enable or Disable Serial Port
Serial Port	Enabled	(COM)
Change Settings	Auto IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	Select an optimal settings for Super IO Device

#### **H/W Monitor & Smart Fan Settings**

On **Advanced** Setup screen, select and enter "**Hardware Monitor**" to check information of current system temperature, voltage and CPU fan speed, or enable the "CPU\_FAN Smart Control" to utilize smart fan control function.

Aptio Setup Utility Advanced	- Copyright	(C) 2018 American Megatrends, Inc.
Pc Health Status SYS temperature CPU FAN Speed VCORE PVNN +V5s +V3.3s	: +33 C : N/A : +0.768 V : +0.996 V : +5.040 V : +3.308 V	Enable/Disable the CPU_FAN as SmartFan according to the system temperature.
VBAT CPU_FAN Smart Control	: +3.483 V_ [Enabled]	><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1245.	Copyright (C	) 2018 American Megatrends, Inc.

Item	Option	Description
CPU_FAN Smart Control	Disabled	Enable/Disable the CPU_FAN as SmartFan
	Enabled	according to the system temperature

# **Console Redirection Settings**

On Advanced Setup screen, select and enter "Serial Port Console Redirection."

Aptio Setup Utility - Copyright (C) 2018 Ameri Advanced	can Megatrends, Inc.	
RJ45 Console Redirection [Enabled] > Console Redirection Settings COM2 (Disabled) Console Redirection Port Is Disabled	Console Redirection Enable or Disable.	
Legacy Console Redirection > Legacy Console Redirection Settings	Select Screen	
Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS) Console Redirection [Enabled] > Console Redirection Settings	<pre>^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>	
Version 2.17.1245. Copyright (C) 2018 American Megatrends, Inc.		

Item	Option	Description
Console Redirection	Disabled Enabled	Console Redirection Enable or Disable.
Console Redirection Settings	None	The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
Legacy Console Redirection Settings	None	Legacy Console Redirection Settings

Aptio Setur	Utility -	Copyright (C) 2018 American Megatrends, Inc.
RJ45 Console Redirect Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo k Recorder Mode Resolution 100x Legacy 0S Redir Putty KeyPad Redirection Aft	tion Settin (1) (1) (1) (2) (2) (2) (2) (3) (2) (3) (3) (3) (4) (5) (4) (5) (5) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7	Image: set
Item	Option	Description
Terminal Type	VT100 VT100+ VT-UTF8 ANSI	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
Bits per second	9600 19200 38300 57600 115200	Selects 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	Data Bits
Parity	None 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
Stop Bits	1 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 with slow devices may require more than 1
Flow Control	None 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 Sup	Disabled Enabled Disabled Enabled	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals With this mode enabled only text will be sent. This is to capture Terminal data.

 $\label{eq:select} Select \ and \ enter \ ``Console \ Redirection \ Settings'' \ for \ more \ advanced \ settings.$ 

Resolution 100x31	Disabled Enabled	Enables or disables extended terminal resolution	
Legacy OS Redirection	<mark>80x24</mark> 80x25	On Legacy OS, the Number of Rows and Columns supported redirection	
Putty KeyPad	VT100 LINUX XTERMR6 SCO ESCN VT400	Select FunctionKey and KeyPad on Putty.	
Redirection After BIO	Always Enable BootLoad er	The Settings specify if BootLoader is selected then Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy console Redirection is enabled for Legacy OS.	

#### Select and enter "Legacy Console Redirection Settings" to select the port.

(Disabled)



Port

OS and Legacy OPROM Messages

#### **PCI Subsystem Settings**

On Advanced Setup screen, select and enter "PCI Subsystem Settings"

Aptio Setup Utility - Copyright (C) 2019 Advanced	American Megatrends, Inc.
PCI Bus Driver VersioA5.01.06PCI Devices Common Settings: PCI Latency Timer132 PCI Bus Clocks]PCI-X Latency Timer164 PCI Bus Clocks]VGA Palette Snoop[Disabled]PERR# Generation[Disabled]SERR# Generation[Disabled]	Value to be programmed into PCI Latency Timer Register.
Hbove 46 Decoding [Disabled] > PCI Express Settings > PCI Express GEN 2 Settings	<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

Version 2.17.1245. Copyright (C) 2019 American Megatrends, Inc.

Item	Option	Description
	32 PCI Bus Clocks	
	64 PCI Bus Clocks	
	96 PCI Bus Clocks	
	128 PCI Bus Clocks	Value to be programmed into PCI
PCI Latency Timer	160 PCI Bus Clocks	Latency Timer Register
	192 PCI Bus Clocks	
	224 PCI Bus Clocks	
	248 PCI Bus Clocks	
	32 PCI Bus Clocks	
	64 PCI Bus Clocks	
	96 PCI Bus Clocks	
	128 PCI Bus Clocks	Value to be programmed into PCI
PCI-X Latency Timer	160 PCI Bus Clocks	Latency Timer Register
	192 PCI Bus Clocks	
	224 PCI Bus Clocks	
	248 PCI Bus Clocks	
VCA Palatta Succus	Disabled	Enables or Disables VGA Palette
VGA Palette Shoop	Enabled	Registers Snooping
	Disabled	Enables or Disables PCI Device to
PERR# Generation	Enabled	Generate PERR#
	Disabled	Enables or Disables PCI Device to
SERR# Generation	Enabled	Generate SERR#

		Enables or Disables 64bit capable
Above 1C Deceding	Disabled	Devices to be Decoded in Above 4G
Above 46 Decouning	Enabled	Address Space (Only if System
		Supports 64bit PCI Decoding)
PCI Express Settings	None	Change PCI Express Devices Settings
DCI Funnana CEN 2 Catting	None	Change PCI Express GEN Devices
PCI Express GEN 2 Settings		Settings

o Setup Utility – Copyright (C) 2018 American Megatrends, Inc. <mark>Ivanced</mark>	
ess Device Register Settings Indering [Disabled] Tag [Disabled] [Enabled] Payload [Auto] Read Request [Auto]	PCI ced
ess Link Register Settings ort [Disabled] Enabling ASPM may cause some PCI-E devices to fail ><: Select Screen Synch [Disabled] 'v: Select Item Enter: Select ning Retry [5] +/-: Change Opt. ning Timeout 1000 ted Links [Keep Link ON] F2: Previous Values PCIE Register [Disabled] F3: Optimized Defaul	lts
ning Timeout 1000 (F1: General Help ted Links [Keep Link ON] (F2: Previous Val CIE Register [Disabled] (F3: Optimized De F4: Save & Exit (ESC: Exit	) lues efaul

Select and enter "PCI Express Settings" for PCI Express devices settings:

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Item	Option	Description
Relaxed Ordering	Disabled Enabled	Enables or Disables PCI Express Device Relaxed Ordering
Extended Tag	Disabled Enabled	If ENABLED allows Device to use 8-bit Tag field as a requester
No Snoop	Disabled Enabled	Enables or Disables PCI Express Device No Snoop option
Maximum Payload	Auto 128 Bytes 256 Bytes 512 Bytes 1024 Bytes 2048 Bytes 4096 Bytes	Set Maximum Payload of PCI Express Device or allow System BIOS to select the value
Maximum Read Request	Auto 128 Bytes 256 Bytes 512 Bytes 1024 Bytes 2048 Bytes 4096 Bytes	Set Maximum Read Request Size of PCI Express Device or allow System BIOS to select the value
ASPM Support	Disabled Auto	Set the ASPM Level: Force L0s - Force all links to L0s State AUTO - BIOS auto configure DISABLE - Disables ASPM
Extended Synch	Disabled Enabled	If ENABLED, it allows for generation of Extended Synchronization patterns
Link Training Retry	Disabled 2 3 5	Defines number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful.

Link Training Timeout	1000	Defines number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Value ranges from 10 to 10000 uS.
Unpopulated Links	Keep Link ON Disable Link	In order to save power, software will disable unpopulated PCI Express links, if this option set to 'Disable Link'.
Restore PCIE Register	Enabled Disabled	On non-PCI Express aware OS's (Pre Windows Vista) some devices may not be correctly reinitialized after S3. Enabling this restors PCI Express device configurations on S3 resume. Warning: Enabling this may cause issues with other hardware after S3 resume.

Aptio Setup Utility - Copyright (C) 2018 Advanced	American Megatrends, Inc.
PCI Express GEN2 Device Register Settings Completion TimeoutDefault1ARI Forwarding[Disabled]AtomicOp Requester En[Disabled]AtomicOp Egress Block[Disabled]IDO Request Enable[Disabled]IDO Completion Enable[Disabled]LTR Mechanism Enable[Disabled]End-End TLP Prefix B1[Disabled]Clock Power Managemen[Disabled]Clock Power Managemen[Disabled]Hardware Autonomous W[Enabled]Hardware Autonomous S[Enabled]	In device Functions that support Completion Timeout programmability, allows system software to modify the Completion Timeout value. 'Default' 50us to 50ms. If 'Shorter' is 
Version 2.17.1245. Copyright (C) 2018 Ar	merican Megatrends. Inc.

Select and enter "PCI Express GEN 2 Settings" for PCI Express GEN devices settings:

Item	Option	Description	
Completion Timeout	Default Shorter Longer Disabled	In-device Functions that support Completion Timeout programmability, allowing the system software to modify the Completion Timeout value. 'Default' is 50us to 50ms. If 'Shorter' is selected, software will use shorter timeout range supported by hardware. If 'Longer' is selected, software will use longer timeout ranges.	
ARI Forwarding	Disabled Enabled	If supported by hardware and set to 'Enabled', the Downstream Port disables its traditional Device Number field being 0 enforcement when turning a Type1 Configuration Request into a Type0 Configuration Request, permitting access to Extended Functions in an ARI Device immediately below the Port.	
AtomicOp Requester En	Disabled Enabled	If supported by hardware and set to 'Enabled', this function initiates AtomicOp Requests only if Bus Master Enable bit is in the Command Register Set.	
AtomicOp Egress Block	Disabled Enabled	If supported by hardware and set to 'Enabled', outbound AtomicOp Requests via Egress Ports will be blocked.	
IDO Request Enable	Disabled Enabled	If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated	
IDO Completion Enable	Disabled Enabled	If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated	

LTR Mechanism	Disabled	If supported by hardware and set to 'Enabled', this enables
Enable	Enabled	the Latency Tolerance Reporting (LTR) Mechanism
End-End TLP Prefix Bl	Disabled Enabled	If supported by hardware and set to 'Enabled', this function will block forwarding of TLPs containing End-End TLP Prefixes.
Target Link Speed	Auto Force to 2.5 GT/s Force to 5.0 GT/s	If supported by hardware and set to 'Force to 2.5 GT/s' for Downstream Ports, this sets an upper limit on Link operational speed by restricting the values advertised by the Upstream component
Clock Power Managemen	Disabled Enabled	If supported by hardware and set to 'Enabled', the device is permitted to use CLKREQ# signal for power management of Link clock in accordance to protocol defined in appropriate form factor specification.
Compliance SOS	Disabled Enabled	If supported by hardware and set to 'Enabled', this will force LTSSM to send SKP Ordered Sets between sequences when sending Compliance Pattern or Modified Compliance Pattern
Hardware Autonomous W	Disabled Enabled	If supported by hardware and set to 'Disabled', this will disable the hardware's ability to change link width except width size reduction for the purpose of correcting unstable link operation.
Hardware Autonomous S	Disabled Enabled	If supported by hardware and set to 'Disabled', this will disable the hardware's ability to change link speed except speed rate reduction for the purpose of correcting unstable link operation.

## **Network Stack Settings**

On Advanced Setup screen, select and enter "Network Stack Settings"

Aptio Setup Advanced	Utility - Copyright (C	;) 2018 American Megatrends, Inc.
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack
Version 2.1	7.1245. Copyright (C)	Stack ><: Select Screen v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit 2018 American Megatrends, Inc.
Item	Option	Description

Item	Option	Description
Network Stack	Disabled	Enable/Disable LIEEI Network Stack
	Enabled	

## **CSM Configuration Settings**

On Advanced Setup screen, select and enter "CSM Configuration Settings"

Aptio Setup Utility Advanced	) – Copyright (C) 2018 Am	merican Megatrends, Inc.
Compatibility Support M	odule Configuration	Enable/Disable CSM
CSM Support	[Enabled]	
CSM16 Module Version	07.75	
GateA20 Active Option ROM Messages INT19 Trap Response	[Upon Request] [Force BIOS] [Immediate]	
Boot option filter	[Legacy only]	><: Select Screen
Option ROM execution		Enter: Select
I211-2 NetWork PXE Fu Storage Video Other PCI devices	[Do not launch] [Legacy] [Legacy] [VEFI]	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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Item	Option	Description
CSM Support	Disabled Enabled	Enable/Disable CSM Support.
GateA20 Active	Upon Request 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 Keep Current	Set display mode for Option ROM
INT19 Trap Response	Immediate Postponed	BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE - execute the trap right away; POSTPONED - execute the rap during legacy boot.
Boot option filter	UEFI and Legacy Legacy only UEFI only	This option controls Legacy/UEFI ROMs priority
I211-2 NetWork PXE Fu	Do not launch Legacy	Controls the execution of i211 Lan Legacy PXE OpROM
Storage	Do not launch UEFI Legacy	Controls the execution of UEFI and Legacy Storage OpROM
Video	Do not launch UEFI Legacy	Controls the execution of UEFI and Legacy Video OpROM
Other PCI devices	UEFI Legacy	Determines OpROM execution policy for devices other than Network, Storage, or Video

#### **USB Configuration Settings**

On Advanced Setup screen, select and enter "USB Configuration Settings"



Item	Option	Description
Legacy USB Support	Disabled Enabled	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	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
EHCI Hand-off	Disabled Enabled	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
USB Mass Storage Driv	Disabled Enabled	Enable/Disable USB Mass Storage Driver Support.
USB transfer time-out	1 sec 5 sec 10 sec <mark>20 sec</mark>	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	<mark>Auto</mark> 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 100 ms, for a Hub port the delay is taken from Hub descriptor.

# **CSTIPC Setup**

Use  $[\rightarrow]$  or  $[\leftarrow]$  to select **CSTIPC** setup screen. Under this screen, you may use  $[\uparrow][\downarrow]$  to select an item you want to configure.

Aptio Setup Uti Main Advanced CS	lity - Copy TIPC _Intel	vright (C) 2018 American Megatrends, Inc. IRCSetup Event Logs Security Boot >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
/	s ng	Enable system to wake from \$5 using RTC alarm
		><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1	245. Copyri	ight (C) 2018 American Megatrends, Inc.
Item	Option	Description
S5 RTC Wake Settings	None	Enable system to wake from S5 using RTC alarm

S5 RTC Wake Settings	None	Enable system to wake from S5 using RTC alarm
Watchdog Setting	None	Watchdog Setting
AC Power Loss Setting	None	AC Power Loss Setting

## System Wakeup Settings

On CSTIPC Setup screen, select and enter "Wake system with Fixe"

Aptio Setup Utility - Copyright	(C) 2018 American Megatrends, Inc.
/Wake system with Fixe [Disabled]	Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified
	><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1245. Convright ((	2018 American Megatrends, Inc.

Aptio Setup Utility	– Copyright (C) 2	018 American Megatrends, Inc.
/ Wake system with Fixe Wake up hour Wake up minute Wake up second	[Enabled] 0 0 0	select 0-23 For example enter 3 for 3am and 15 for 3pm
		<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

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Item	Option	Description	
Wake system with Fixe	Disabled	Enable system to wake from S5 using RTC alarm	
	Enabled		
Wake up hour	0-23	Wake up hour setting	
Wake up minute	0-59	Wake up minute setting	
Wake up second	0-59	Wake up second setting	

# Watchdog Settings

On **CSTIPC** Setup screen, select and enter "Watchdog"

Aptio Setup	Utility - Copyright (C) 2018 CSTIPC	3 American Megatrends, Inc.
/WatchDog	[Disabled]	Set Watchdog Timer
		<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

Aptio Setup U	tility – Copyright (C) 20 <mark>CSTIPC –</mark>	18 American Megatrends, Inc.
/WatchDog	[Disabled]	Set Watchdog Timer ><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17	.1245. Copyright (C) 2018	American Megatrends, Inc.

Item	Option	Description	
WatchDog	Disabled	Set Watchdog Timer	
	10S		
	20S		
	30S		

#### **AC Power Loss Settings**

Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc. CSTIPC Select AC power state when power is re-applied after a power failure. --- Restore AC Power Loss Power Off Power On Last State Select Screen Select Item Enter: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit Version 2.17.1245. Copyright (C) 2018 American Megatrends, Inc. Option Description Select AC power state when power is re-applied after a power failure: Power off: Motherboard will stay off after power is • Power off back. Restore AC Power On • Power On: Motherboard will be powered-on right Power Loss Last State after power is back.

On CSTIPC Setup screen, select and enter "AC Power Loss Setting"

• Power On: Motherboard will restore the last state

before the power failure.

# IntelRCSetup

Use  $[\rightarrow]$  or  $[\leftarrow]$  to select **IntelRCSetup** setup screen. Under this screen, you may use  $[\uparrow] [\downarrow]$  to select an item you want to configure.

Aptio Setup Utility - Copyright (	C) 2018 American Megatrends, Inc.
Main Advanced CSTIPC IntelRCSetup	Event Logs Security Boot >>
<pre>/</pre>	<pre>     Relaxes the security     configuration to be     able to use BIOS update     tools     *</pre>
¦ Setup Warning:	v ESC: Exit
\	//
Version 2.17.1245. Copyright (C)	2018 American Megatrends, Inc.

Item	Option	Description
Dolov Socurity Config	Enabled	Relaxes the security configuration to be
Relax Security Coning	Disabled	able to use BIOS update tools
Processor Configuration	Nono	Displays and provides option to change
Frocessor Configuration	None	the Processor Settings
Thermal Configuration	None	Thermal Configuration Parameters
USB Configuration	None	USB Configuration Parameters
CK420 Configuration	None	CK420 Configuration
Network Configuration	None	Network Configuration
North Bridge Chipset	Nono	North Bridge Chipset Configuration
Configuration	None	North Bruge Chipset Conngulation
Wake On Lan Configuration	None	Wake On Lan Configuration settings
South Bridge Chipset	Nono	South Bridge Persmotors
Configuration	inone	South bridge Parameters

#### **Processor Configuration**

On IntelRCSetup screen, select and enter "Processor Configuration."

Aptio Setup Utility	- Copyright (C) 2018 A IntelRCSetup	Mmerican Megatrends, Inc.	
/ Processor Configuration		^¦Enable/Disable EIST.	/ 
Processor ID Processor Frequency L1 Cache RAM L2 Cache RAM Processor Version MSR 610 PKG_TURBO_PWR MSR 606 PKG_POWER_SKU	000406D8 1.494GHz 112KB 1024KB Intel(R) Atom(TM) CPU 468426005B836B A1003	<ul> <li>NVS and TMT must be</li> <li>enabled for TM2 to be</li> <li>available. GV3 must be</li> <li>enabled for Turbo. Auto</li> <li>- Enable for B0 CPU</li> <li>* stepping, all others</li> <li>disabled, change</li> <li>setting to override.</li> </ul>	
EIST (GV3) P-state Coordination TM1 TM2 Mode CPU C State Enhanced Halt State ( ACPI C2 Monitor/Mwait L1 Prefetcher	[Auto] [Package] [Enable] [Adaptive Throttling] [Auto] [Disable] [C6 NS] [Enable] [Enable]	<pre>+ &gt;&lt;: Select Screen + ^v: Select Item + Enter: Select + +/-: Change Opt. + F1: General Help + F2: Previous Values + F3: Optimized Defaults + F4: Save &amp; Exit v ESC: Exit</pre>	
Version 2.17.1245.	Copyright (C) 2018 Ame	rican Megatrends. Inc.	

/	Aptio Setup	Utility - Copyrigh IntelRCSe	(C) 2018 American Megatrends, Inc. <mark>up</mark>	
PECI Enable[Disable]*["v: Select ItemPECI Trusted[Disable]*[Enter: SelectPECI SMBus Speed[Standard (80 kHz)]*[+/-: Change Opt.Turbo[Enable]*[F1: General Help	/ L1 Prefetcher L2 Prefetcher ACPI 3.0 T-State Fast String Machine Check Execute Disable VMX BIST Selection MTRR Default as Extended APIC AES-NI	Enable] Enable] Enable] Enable] Enable] Bit [Enable] [Enable] [Disable] uncac [Disable] [Enable] [Enable] [Enable]	<pre>^ Number of cores to + enable in SoC package + + + + + + + + * * * * * * * * * * *</pre>	· · · · · · · · · · · · · · · · · · ·
KHPL       LEnableJ       * [F2: Previous Value         MSR 670 PKG_TURB0_CFG       40c001       * [F3: Optimized Defa         MSR 672 TURB0_WKLD_CF       0       + [F4: Save & Exit         Active Processor Core       [All1]_       v [ESC: Exit	PECI Enable PECI Trusted PECI SMBus Speed Turbo RAPL MSR 670 PKG_TURE MSR 672 TURBO_WH Active Processor	IDisable] [Disable] d [Standard [Enable] 30_CFG 40c001 KLD_CF 0 - Core [All1_	*  v: Select Item * Enter: Select 80 kHz)] * +/-: Change Opt. * F1: General Help * F2: Previous Values * F3: Optimized Default + F4: Save & Exit v ESC: Exit	s /

Item	Option	Description
		Enable/Disable EIST. GV3 and TM1 must be
	Disable	enabled for TM2 to be available. GV3 must be
EIST (GV3)	Enable	enabled for Turbo. Auto- Enable for B0 CPU
	Auto	stepping, all others disabled, change setting to
		override.
Distate	Hardware	Choose Package or Module level P-state Ratio
P-state	Package	coordination. VID always resolves to the highest
Coordination	Module	P-state VID of any core in the SoC.

Item	Option	Description	
	Disabled	Enable/Disable TM1. TM1 and GV3	
TM1	Enabled	must be enabled in order to support	
		TM2	
TM2 Mode	LFM Throttling	Select LFM throttling or adaptive	
	Adaptive Throttling	throttling for TM2 mechanisms.	
		Enables the Enhanced Cx state of the	
	Disabled	CPU, takes effect after reboot. Auto -	
CPU C State	Enabled	Enable for B0 CPU stepping, all	
	Auto	others disabled, change setting to	
		override.	
Enhanced Halt	Disabled	Enables the Enhanced C1E state of	
State	Enabled	the CPU, takes effect after reboot.	
	Disable	Configure CPU (ACPI C2) reported to	
ACPI C2	C6 NS	OS, C6 No Shrink or C6 Full Shrink	
	C6 FS		
Monitor/Mwait	Disabled	Enable or Disable the Monitor/Mwait	
	Enabled	instruction	
11 Prefetcher	Enable	Enable/Disable I 1 Prefetch	
	Disable		
L2 Prefetcher	Enable	Enable/Disable L2 Prefetch	
	Disable		
ACPI 3.0 T-States	Disabled	Enable/Disable ACPI 3.0 T-States	
	Enabled		
Fast String	Disabled	When enabled, enable fast strings for	
g	Enabled	REP MOVS/STOS	
Machine Check	Disabled	Enable or Disable the Machine Check	
	Enabled		
Execute Disable	Disabled	When disabled, forces the XD feature	
Bit	Enabled	flag to always return 0.	
VMX	Disabled	Enables the Vanderpool Technology,	
V IVIX	Enabled	takes effect after reboot.	
BIST Selection	Disabled	Enables BIST takes effect after report	
	Enabled		
MTRR Default as	Disabled	EFI_CACHE_IA32_MTRR_DEF_TYPE	
uncac	Enabled	msr(2FF) as uncacheable	
Extended ADIC	Disabled	Enable/disable extended APIC support	
Extended APIC	Enabled	Enable/disable extended APIC support	

AES-NI	Disabled Enabled	Enable/disable AES-NI support
PECI Enable	Enable Disable	Enable/disable Punit PECI support
PECI Trusted	Disabled Enabled	Enable/disable Punit Trusted PECI support
PECI SMBus Speed	Standard (80 kHz)Standard Standard (100 kHz) Fast Mode (400 kHz) Fast Mode Plus (1 MHz)	PECI SMBus Speed: Value to indicate what speed physical bus must operate.
Turbo	Disabled Enabled	Enable or Disable CPU Turbo capability. This option only applies to ES2 and above.
MSR 670 PKG_TURBO_CFG	40c001	Specifies various parameters used for Turbo, Min Energy [28:16], SoC TDP Policy [11:9], ICCMax Control [4:3], Turbo Mode [2:0] and others
MSR 672 TURBO_WKLD_CF	0	Specifies ICCMax Throttle Ratio for C6 exits when PKG_TURBO_CFG1[4:3] ==10y
Active Processor Core	All 4 2	Number of cores to enable in SoC package.
CPU Flex Ratio Overri	Disabled Enabled	Enable/Disable CPU Flex Ratio Programming

# **USB Configuration**

On IntelRC Setup screen, select and enter "USB Configuration"

Aptio Setup Utility	– Copyright (C) 2018 Ameri IntelRCSetup	can Megatrends, Inc.
USB Configuration USB Support USB IO PM	[Enabled] [Enabled]	USB Support Parameters
	I	<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1245.	Copyright (C) 2018 America	n Megatrends, Inc.

Item	Option	Description	
USB Support	Disabled	USB Support Parameters	
	Enabled		
	Disabled	Enable/Dicable IO PM	
	Enabled		

#### **Network Configuration**

On IntelRCSetup screen, select and enter "Network Configuration"

Aptio Setup Utility	- Copyright (C) 2018 Ameri IntelRCSetup	can Megatrends, Inc.
FI Network GBE controller 0 GBE controller 1 GBE controller 2 GBE controller 3	[Disabled] [Enabled] [Enabled] [Enabled] [Enabled]	Enable/Disable EFI Network support for LANs.
		<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/├: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1245.	Copyright (C) 2018 America	n Megatrends, Inc.

Item	Option	Description
EEI Notwork	Enabled	Enable (Disable EEI Naturark support for LANs
EFINELWOIK	Disabled	Enable/Disable EFI Network support for LANS.
CPE controllor 0	Enabled	Enable/Disable the GBE hardware controller if
GBE controller 0	Disabled	supported by SKU
GBE controller 1	Enabled	Enable/Disable the GBE hardware controller if
	Disabled	supported by SKU
CPE controllor 2	Enabled	Enable/Disable the GBE hardware controller if
GBE CONTOINER 2	Disabled	supported by SKU
GBE controller 3	Enabled	Enable/Disable the GBE hardware controller if
	Disabled	supported by SKU

#### North Bridge Chipset Configuration

On IntelRCSetup screen, select and enter "North Bridge Chipset Configuration".

Aptio Setup Utility	- Copyright (C) IntelRCSetup	2018 American Megatrends, Inc.
/ North Bridge Chipset Configuration		^ Configure Pass Gate and   * Pass Gate Test
 Memory Information Total Memory Memory Frequency	2048 MB DDR3 - 1333 MHz	* * * * * * *
> Pass Gate Setup	(D)   ] -  ]	* + +
Fast Boot Smm Size (MB) Force Memory Map Ax Memory Frequency Memory Channels MRC Debug Messages DDR Voltage Fine Ddr Voltage Mmio High CKE Power Down	[Disabled] [8] [Enabled] [Auto] [Auto] [Medium] [Auto] 100 [Auto] [Enabled]	<pre>+ + &gt;&lt;: Select Screen + `v: Select Item + Enter: Select + +/-: Change Opt. + F1: General Help + F2: Previous Values + F3: Optimized Defaults + F4: Save &amp; Exit v ESC: Exit</pre>
Version 2.17.1245.	Copyright (C) 20	18 American Megatrends, Inc.

Aptio Setup Utility	- Copyright (C IntelRCSetup	) 2018 American Megatrends, Inc.
<pre>CKE Power Down ECC Support Faulty Part Tracking On Correctable Faulty Patrol Scrub Enable Patrol Scrub Period Demand Scrub Enable AB Segments in DRAM E Segment in DRAM F Segment in DRAM ZQ Calibration Rank Margin Tool RMT CPGC exp_loop_cnt RMT CPGC num_bursts Propagate Errors to C CMD Rate Out of order memory p Out of order aging th New request bypass</pre>	[Enabled] [Enabled] [Disabled] [Halt] [Enabled] [24 hours] [Enabled] [Disabled] [Enabled] [Enabled] [Disabled] [12] [6] [Disable] [Auto] [Enabled] 31 [Enabled]	<pre>     Fnables new memory     requests to be     processed immediately,     skipping the     In-Progress queue, if     the queue is empty     *</pre>
Version 2.17.1245.	Copyright (C)	2018 American Megatrends, Inc.

Aptio Setup Utility	- Copyright (C) IntelRCSetup	2018 American Megatrends, Inc.
<pre>/</pre>	161 [Disable] [Auto] [Enabled] 31 [Enabled] [Enabled] 4 7 [Disabled] [Disabled] [Enabled] [Disabled] [Disabled] [Disabled]	<pre>^ Set the CPGC num_bursts + field for RMT execution + 2^(num_bursts -1) + + + + + + + + + + + + + + + + + + +</pre>
Version 2.17.1245.	Copyright (C) 2	018 American Megatrends, Inc.

Item	Option	Description
Pass Gate Setup	None	Configure Pass Gate and Pass Gate Test
Fast Boot	Disabled Enabled	Enables/Disables fast boot which skips memory training and attempts to boot using last known good configuration.
Smm Size (MB)	2 4 8 16	Specify the size of the SMM/TSEG region 1 MB aligned
Force Memory Map Ax	Auto Enabled	Force Memory Map for Ax parts
Memory Frequency	Auto DDR3-1333 DDR3-1600	DDR3 memory frequency
Memory Channels	Auto Single Channel	DDR3 memory channels enabled
MRC Debug Messages	Disabled Minimum <mark>Medium</mark> Maximum	Enable to display debug output in MRC
DDR Voltage	Auto 1.25V 1.35V 1.50V	Select the desired DDR voltage
Fine Ddr Voltage	100	Select between -100 to 100 mV in steps of 5mv. 0 -> -100mV :: 100 ->0mV :: 200 -> 100mV

Item	Option	Description
	Auto	
	256MB	
	512MB	Configure the MMIO High. AUTO: will leave the
Mmio High	1024MB	MMIOH according with the total memory installed
	2048MB	in the system
	4096MB	
	8192MB	
	Disabled	
CKE Power Down	Enabled	Enables/Disables the CKE Power Down
500.0	Disabled	
ECC Support	Enabled	Select to enable/disable ECC Support
Faulty Part	Disabled	Cale at the second la faile facility on and the align of
Tracking	Enabled	Select to enable/disable faulty part tracking
Patrol Scrub	Disabled	
Enable	Enabled	Select to enable/disable Patrol Scrub Support
	24 hours	
	10 hours	
Patrol Scrub Period	4 hours	Select the Patrol Scrub Period
	1 hour	
Demand Scrub	Disabled	
Enable	Enabled	Select to enable/disable Demand Scrub Support
AB Segments in	Disabled	When this bit is set reads and writes targeting
DRAM	Enabled	AorB-segments are routed to DRAM
E Segment in	Disabled	When this bit is set reads and writes targeting E
DRAM	Enabled	segment are routed to DRAM
F Segment in	Disabled	When this bit is set reads and writes targeting F
DRAM	Enabled	segment are routed to DRAM
70.0-11	Disabled	
ZQ Calibration	Enabled	Enables ZQ Calibration.
	Disabled	
Rank Margin Tool	Enabled	Enable Rank Margin Tool support
	1	
	2	
RMT CPGC	3	Set the CPGC exp_loop_cnt field for RMT execution
exp_loop_cnt	4	2^(exp_loop_cnt -1)
_	5	
	6	

7
8
9
10
11
12

Item	Option	Description	
	1		
	2		
	3		
	4		
	5	Set the CPGC num_bursts field for RMT execution	
RMT CPGC	6		
num_bursts	7	2^(num_bursts -1)	
	8		
	9		
	10		
	11		
	12		
Propagate Errors to	Enable	To configure the Bunit Machine Check Mode to	
С	Disable	propagate errors to cores	
	Auto		
CMD Bata	1N	Set CMD Rate to Auto /1N / 2N / 3N	
CIVID Rate	2N		
	2N		
Out of order	Disabled	Enables out of order memory processing,	
memory p	Enabled	improving performance	
Out of order oping		Specifies the number of requests that can be	
	31	processed ahead of another request sitting in the	
th		In-Progress request queue before OOO is disabled	
Now request	Dischlad	Enables new memory requests to be processed	
hypeop	Disabled	immediately, skipping the In-Progress queue, if	
bypass	Enabled	the queue is empty	
Dynamic Self	Disabled	Enable/Disable dynamic self refresh in memory	
Refresh	Enabled	controller	
PMOP Value for	Λ	Power Made Opcode for PCO	
PC0	4		
PMOP Value for	7	Power Mode Opcode for PCX	

PCX		
Per-Bit Margins	Disabled Enabled	Enable to show per-bit margins in MRC training
Open Page Policy Time	Disabled Inmediate 30-60 ns 60-120 ns 120-240 ns 240-480 ns 480-960 ns	Set Page Closure Timer to Disabled / Immediate / 30-60 ns / 60-120ns / 120-240ns / 240-480ns / 480-960ns / 1-2us
	1-2 us	

Item	Option	Description
	Disabled	Enable/Disable Memory Thermal Management
Memory memai	Enabled	mode
Scrambler	Disabled	Freeble / Disable the examples
Scrambler	Enabled	Enable / Disable the scrambler
Slow Power Down	Disabled	Enable / Disable Slow Power Down Exit from
Exit	Enabled	pre-charge
Extended	Disabled	Enable / Disable Extended Temperature Dense
Temperature	Enabled	Enable / Disable Extended Temperature Range
Vref Override	Disabled	Franklas (Disphas) Virat Overvide Frankla
Enable	Enabled	Enables/Disables viet Override Enable
Timing	Nono	Configures the timing for the memory
Configuration	none	configures the timing for the memory

## Wake On Lan Configuration

On IntelRC Setup screen, select and enter "Wake On Lan Configuration".

Aptio Setup Utility - Copyright (C) 2018 Ame IntelRCSetup	rican Megatrends, Inc.
/ 	Wake On Lan Configuration settings
 Wake On Lan Configura [Enable] / Wake On Lan Configuratio	n\
Disable Enable	/ lect Screen
	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values
Version 2.17.1245. Copyright (C) 2018 Ameri	IF3: Uptimized Defaults IF4: Save & Exit IESC: Exit / can Megatrends, Inc.

Item	Option	Description
Wake On Lan Configura	Disabled	Wake On Lan Configuration settings
	Enabled	

### South Bridge Chipset Configuration

On IntelRC Setup screen, select and enter "South Bridge Chipset Configuration".

Aptio Setup Utility	- Copyright (C) 2018 Am IntelRCSetup	erican Megatrends, Inc.
<pre>/ South Bridge Chipset Cor &gt; IOAT Configuration SMBUS Controller SMBusIOSFClockGating Restore On Power Loss &gt; SATA Configuration &gt; PCI Express Ports Config &gt; PPM Config</pre>	nfiguration [Enabled] [Enabled] [Auto] guration	IQAT Configuration ><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1245.	Copyright (C) 2018 Amer	ican Megatrends, Inc.

Item	Option	Description	
IQAT Configuration	None	IQAT Configuration	
SMRUS Controllor	Disabled	SMPLIS Controller entions	
SINDUS COntroller	Enabled	Simbus Controller options	
SMBusIOSFClock	Disabled	SMPusIOSEClockCating	
Gating	Enabled	SMBUSIOSFCIOCKGating	
Restore On Power Loss	Auto	Restore On AC Power Loss Options	
	Power On		
	Power Off		
SATA	Disabled	CATA Configuration	
Configuration	Enabled	SATA Configuration	
PCI Express Ports	None	Enable or Disable the PCI Express Ports in he	
Configuration	none	Chipset.	
PPM Config	None	PPM Config	

Select	<b><i>"IQAT</i></b>	Configuration	"for IQAT settings:	
--------	---------------------	---------------	---------------------	--

Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc. IntelRCSetup		
IQAT	[Enabled]	Hides IQAT device from an OS
\		<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Versi	on 2.17.1245. Copyright (C) 2018 Hme	rican Megatrends, Inc.

Item	Option	Description
IQAT	Enabled Disabled	Hides IQAT device from an OS

SATA 3 controller			Enables/Disables sata controller if supported
Sata 3 controller Sata mode Sata 3 speed LPM Overwrite SIR values	[Enabled] [AHCI] [Gen 3] [Disabled] [Disabled]		by current cpu sku.
SATA Port Ø	BIWIN SSD	- 64.0 GB	
Sata 3 port 0 Spin up Hot plug External device Mechanical Switch	[Enabled] [Disabled] [Enabled] [Disabled] [Disabled]		<pre>'v: Select Item 'v: Select Item Enter: Select I+/-: Change Opt. IF1: General Help IF2: Previous Values IF3: Optimized Defaults IF4: Save &amp; Exit IESC: Exit</pre>

On South Bridge Chipset Configuration Setup screen, select and enter "SATA Configuration".

Item	Option	Description	
Sata 3 controller	Enabled	Enables/Disables sata controller if supported by	
	Disabled	current cpu SKU.	
Sata mode	IDE	Sata mode	
	AHCI		
	Gen 1	Indicates the bighest allowable speed of the	
Sata 3 speed	Gen 2	indicates the highest allowable speed of the	
	Gen 3	Interface	
LPM	Enabled	Fachlas (Dischlas Link Dawer Managers and	
	Disabled	Enables/Disables Link Power Management	
Overwrite SIR values	Disabled	Overwrite SID values	
	Enabled	Overwrite SIR values	
Sata 2 part 0	Enabled	Enables/Disables sata device if supported by	
Sala S port 0	Disabled	current cpu SKU.	
Caintur	Enabled	Spin up	
Spiri up	Disabled	Spin up	
Hotplug	Enabled		
Hot plug	Disabled	Hot plug	
Extornal doutes	Enabled	External CATA device	
	Disabled	External SATA device	
Machanical Quitat	Enabled	Mashaniaal Guitab	
Mechanical Switch	Disabled	Mechanical Switch	
### On South Bridge Chipset Configuration Setup screen, select and enter PCI Express Ports Configuration.

Aptio Setup Utility - Copyright IntelRCSet	: (C) 2018 American Megatrends, Inc. up
<pre>/ PCI Express Ports Configuration &gt; PCI Express Root Port 1 &gt; PCI Express Root Port 2 &gt; PCI Express Root Port 3 &gt; PCI Express Root Port 4 &gt; PCI-to-PCI Bridge &gt; Root Ports De-emphasis Lane Power Gate [Enabled] Bifurcation [Auto] Clock Gating Settings [Enabled]</pre>	PCI Express Root Port 1 Settings ><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1245. Copyright (	C) 2018 American Megatrends, Inc.

Item	Option	Description
PCI Express Root Port 1	None	PCI Express Root Port 1 Settings
PCI Express Root Port 2	None	PCI Express Root Port 2 Settings
PCI Express Root Port 3	None	PCI Express Root Port 3 Settings
PCI Express Root Port 4	None	PCI Express Root Port 4 Settings
PCI-to-PCI Bridge	None	P2P Controls Settings
Root Ports De-emphasis	None	Selectable De-emphasis (SD)
Lane Power Gate	Disabled Enabled	Power Gate for PCIe Root Ports
Bifurcation	Auto P0 X16 P2P0 X8X8 P2P1P0 X8X4X4 P3P2P0 X4X4X8 P3P2P1P0 X4X4X4X4	Select Root Complex Bifurcation Config
Clock Gating Settings	Disabled Enabled	Enable/Disable CL for PCIe Devices

Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc. IntelRCSetup		
C-state POPUP	[Enabled]	Enable/Disable C-state
\	/ C-state POPU   Disabled   Enabled 	P ><: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1	.245. Copyright (C) 2018	American Megatrends, Inc.

### On South Bridge Chipset Configuration Setup screen, select and enter "PPM Config".

Item	Option	Description	
C-state POPUP	Disabled	Enable/Disable C-state POPUP	
	Enabled		

## System Event Log Setup

On System Event Log Setup screen, select and enter "System Event Log".

Aptio Setup Utility	) - Copyright (C) 2018 Ameri IntelRCSetup	can Megatrends, Inc.
System Event Log  System Errors > Memory Event Log > PCIe Event Log > Whea Settings Native AER	[Enable]	System Error Enable/Disable/ Auto setup options. If Auto is selected the enabling or disbling of errors in the driver is skipped.
	I	<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1245.	Copyright (C) 2018 America	an Megatrends, Inc.

Item	Option	Description
	Disabled	System Error Enable/Disable/Auto Setup options. If
System Errors	Enabled	Auto is selected the enabling or disabling of errors
	Auto	in the drive is skipped
Memory Event Log	None	
PCIe Event Log	None	
Whee Settings	Nega	Press <enter> to view or change the WHEA</enter>
Whea Settings	None	configuration.
Native AER Enabled	Disabled	Enable/Disable Native Advanced Error reporting
	Enabled	capability.

# **Event Logs Setup**

Use  $[\rightarrow]$  or  $[\leftarrow]$  to select **Event Logs** setup screen. Under this screen, you may use  $[\uparrow][\downarrow]$  to select an item you want to configure.

Hptio Setup Utility - Copyright (C) 2018 H Main Advanced CSTIPC IntelRCSetup Event L	merican Megatrends, Inc. ogs Security Boot →
Change Smbios Event Log Settings View Smbios Event Log	Press <enter> to view the Smbios Event Log records. &gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help</enter>
	F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Option	Description
Change Smbios	Nega	Press <enter> to change the Smbios Event Log</enter>
Event Log Settings	None	configuration.
View Smbios Event	Nega	Press <enter> to view the Smbios Event Log</enter>
Log	none	records.

# **Security Setup**

Use  $[\rightarrow]$  or  $[\leftarrow]$  to select **Security** setup screen. Under this screen, you may use  $[\uparrow][\downarrow]$  to select an item you want to configure.

Aptio Setup Utility - Copyright (C) 2018 Ameri Main Advanced CSTIPC IntelRCSetup Event Logs	can Megatrends, Inc. Security Boot →
Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The pagement length must be	Set Administrator Password
in the following range: Minimum length 3 Maximum length 20	≻<: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help
Administrator Password User Password	F2: Previous Values  F3: Optimized Defaults  F4: Save & Exit  ESC: Exit +/
Version 2.17.1245. Copyright (C) 2018 America	n Megatrends, Inc.

Item	Option	Description
Administrator Password	None	If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
View Smbios Event Log	None	If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.

## **Boot Setup**

Use  $[\rightarrow]$  or  $[\leftarrow]$  to select **Boot** setup screen. Under this screen, you may use  $[\uparrow] [\downarrow]$  to select an item you want to configure.

Aptio Setup Utility Main Advanced CSTIPC	- Copyright (C) 2018 Ameri : IntelRCSetup Event Logs	can Megatrends, Inc.
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot HDD BootSector Write	1 [On] [Disabled] [Normal]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Boot Option #1 Hard Drive BBS Prioriti	[P0: BIWIN SSD] es	<pre>&gt;&lt;: Select Screen ^v: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.17.1245.	Copyright (C) 2018 America	an Megatrends, Inc.

Item	Option	Description
Setup Prompt	1	Number of seconds to wait for setup activation key.
Timeout	L	65535(0xFFFF) means indefinite waiting.
Bootup NumLock	On	Select the keybeard Numlesk state
State	Off	Select the Reyboard NumEOCK State
Quiet Reat	Disabled	Fachlas an dischlas Oxist Da stantism
	Enabled	
HDD BootSector	Normal	Enables or disables writes to Hard Dick Sector 0
Write	Write Protect	Enables of disables writes to Hard Disk Sector 0
Hard Drive BBS	Niewe	Catality and an effet a large static size in this survey
Priorities	inone	Set the order of the legacy devices in this group

Note :

### Please configure "Boot Option #1" for "Hard Drive BBS Priorities".

Boot Option #1 Boot Option #2	IPO: BIWIN SSD] Sets the sys [SanDisk] order	tem boot:
	/> Boot Option #1>   P0: BIWIN SSD   SanDisk   Disabled  / elect S	creen tem

## Save & Exit Setup

Use  $[\rightarrow]$  or  $[\leftarrow]$  to select **Save & Exit** setup screen. Under this screen, you may use  $[\uparrow][\downarrow]$  to select an item you want to configure.

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 Save & Exit

 Save & Exit

 Save Changes and Exit

 Save Changes and Reset

 Discard Changes and Reset

 Discard Changes

 Discard Changes

 Discard Changes

 Save Options

 Save Changes

 Discard Changes

 Discard Changes

 Discard Changes

 Discard Changes

 Discard Changes

 Discard Changes

 Restore Defaults

 Save as User Defaults

 Restore User Defaults

 Boot Override

 P0: BIWIN SSD

 SanDisk

 Launch EFI Shell from filesystem device

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Item	Option	Description
Save Changes and Exit	None	Exit system setup after saving the changes.
Discard Changes and Exit	None	Exit system setup without saving any changes.
Save Changes and Reset	None	Reset the system after saving the changes.
Discard Changes and Reset	None	Reset system setup without saving any changes.
Save Changes	None	Save Changes done so far to any of the setup options.
Discard Changes	None	Discard Changes done so far to any of the setup options.
Restore Defaults	None	Restore/Load Default values for all the setup options.
Save as User Defaults	None	Save the changes done so far as User Defaults.
Restore User Defaults	None	Restore the User Defaults to all the setup options.
Launch EFI Shell from filesystem device	None	Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices

# **APPENDIX A: LED INDICATOR EXPLANATIONS**

The status explanations of LED indicators on Front Panel are as follows:



#### System Power

Solid Green	The system is powered on
Off	The system is powered off

#### System Status

This LED indicator is programmable. You could program it to display the operating status of the

behaviors described below:

Solid Green	Defined by GPIO
Solid Red	Defined by GPIO
Off	Defined by GPIO

#### HDD Activity

If this LED blinks, it indicates data access activities; otherwise, it remains off.

<b>Blinking Amber</b>	Data access activity
Off	No data access activity



#### Link Activity

Blinking Amber	Link has been established and there is activity on this port
Solid Amber	Link has been established and there is no activity on this port
Off	No link is established

#### Speed

Solid Amber	Operating as a Gigabit connection (1000 Mbps)
Solid Green	Operating as a 100-Mbps connection
Off	Operating as a 10-Mbps connection

# APPENDIX B: INSTALLING INTEL® LAN CONTROLLER DRIVER FOR LINUX

To install the Intel® LAN controller base driver for the Red Hat® and Linux operating system, please visit, enter the product category and download the utility package of this system.

For the latest driver update, please visit Intel® download center at <u>https://downloadcenter.intel.com/</u>, use the keyword search or the filter to access the driver's product page, and then download the latest controller driver as well as the ReadMe document.

Product Name Keyword	I211-AT
Download Type	Drivers
Operating System	Linux*
	https://downloadcenter.intel.com/product/64404/Intel-Ethern
Product page	et-Controller-I211-AT

# **APPENDIX C: TERMS AND CONDITIONS**

## **Warranty Policy**

- **1.** All products are under warranty against defects in materials and workmanship for a period of one year from the date of purchase.
- **2.** The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after service freight charges for goods returned to the user.
- **3.** The buyer will pay for repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
- **4.** If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service", RMA goods will be returned at customer's expense.
- 5. The following conditions are excluded from this warranty:
  - ▶ Improper or inadequate maintenance by the customer
  - ▶ Unauthorized modification, misuse, or reversed engineering of the product
  - ▶ Operation outside of the environmental specifications for the product.

## **RMA Service**

### **Requesting an RMA#**

- 1. To obtain an RMA number, simply fill out and fax the "RMA Request Form" to your supplier.
- **2.** The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
- 3. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
- 4. Mark the RMA# clearly on the box.



**Note**: Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s). All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.

## **RMA Service Request Form**

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

RMA N	0:		Reasons to Return: DR Desting Purpose	epair(Please include failure details)
Compa	any:		Contact Person:	
Phone	No.		Purchased Date:	
Fax No	.:		Applied Date:	
Return	Shipping Addr	ess:		
Shippii D Othe	ng by: □ Air Fre rs:	eight ⊡Se	ea 🗆 Express	
Item	Model Name	Serial Nur	nber	Configuration

Item	Problem Code	Failure Status

\*Problem Code: 01:D.O.A. 02: Second Time R.M.A. 03: CMOS Data Lost 04: FDC Fail 05: HDC Fail 06: Bad Slot

07: BIOS Problem 08: Keyboard Controller Fail 09: Cache RMA Problem 10: Memory Socket Bad 11: Hang Up Software 12: Out Look Damage

 13: SCSI
 19: DIO

 14: LPT Port
 20: Buzzer

 15: PS2
 21: Shut Down

 16: LAN
 22: Panel Fail

 17: COM Port
 23: CRT Fail

 18: Watchdog Timer
 24: Others (Pls specify)

Request	Party
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**Confirmed By Supplier** 

Authorized Signature / Date

Authorized Signature / Date

83