

## **Network Computing**

Innovative Platforms for Next Generation Network Infrastructure

# NCA-2513 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 check 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 exclamation point 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**

#### CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

#### FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **EMC** Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

### **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.

#### Lithium Battery Caution:

- 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 English Installation and Device Specifications which are to be applied.
- Do not carry the handle of power supplies when moving to another place.

#### 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).

► Lanner Electronics Inc. shall not be held liable for any losses resulting from insufficient strength for supporting the unit or use of inappropriate installation components.

#### 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.

### 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.

### 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).

### 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:要斷开电源,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 LES TOUT 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.

### **Battery Precautions**

- Lithium Battery Caution: There is danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type. Dispose of batteries according to the manufacturer's instructions.
- 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 may result in an EXPLOSION or the leakage of flammable liquid or gas.

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.

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### CHAPTER 1: PRODUCT OVERVIEW

The NCA-2513, a 1U 19" rackmount network appliance with high availability, virtualization-optimized design and Intel® Atom<sup>™</sup> C3000 Series CPU (codenamed Denverton) with up to 8 cores of processing prowess. Featuring 6~8 LAN ports, 1x NIC module slot, optional LTE module and 150W PSUs, NCA-2513 is the ideal hardware platform for uCPE, SD-WAN and edge computing with mobile connectivity

### **Package Content**

Your package contains the following items:

- 1x NCA-2513 Network Security Platform
- 1x Accessory Pack
  - 1x Power Cable
  - 1x Short Ear Rack Mount Kit with screws
  - 1x Console Cable
  - Nameplate
  - 1xSATA Cable







**Note**: If you should find any components missing or damaged, please contact your dealer immediately for assistance.



#### Warning:

1. The Harcuvar system can take up to 9 minutes from booting up to EFI shell in its first initial. In the 2nd boot, 2 minutes is all it takes for a fast boot, which is considered normal for a total of 32G DIMM. However, with DIMM of higher capacity used, the boot-up time gets longer.

2. After clearing CMOS or when PXE boot is enabled, the system boot-up time is doubled.

### **Ordering Information**

SKU No.	
NCA-2513 <b>A</b>	Intel C3758 8 Core with QAT + 8x GbE + 1x NIC (1x PCIex8/2x PCIex4)
NCA-2513 <b>B</b>	Intel C3558R 4 Core with QAT + 8x GbE + 1x NIC (1x PCIex8/2x PCIex4)
NCA-2513 <b>C</b>	Intel C3558 4 Core with QAT + 6x GbE + 1x NIC (1x PCIex8/2x PCIex4)
NCA-2513 <b>D</b>	Intel C3338R 2 Core with QAT + 6x GbE + 1x NIC (1x PCIex4)

### **Optional Accessories**

Model	Description
Riser KIT FOR NCA-2513	Riser Card KIT for the rear slot
PGN LTE KIT FOR NCA-2513	LTE KIT
WIFI KIT FOR NCA-2513	WIFI KIT
Slide rail	Slide rail KIT

### **System Specifications**

Form Factor		1U 19" Rackmount
	Processor Options	Intel® Atom™ C3000 2 to 8 Cores (Denverton)
Platform	CPU Socket	Onboard
	Chipset	SoC
	Security Acceleration	Intel® QuickAssist Technology
BIOS		AMI SPI Flash BIOS
Custom Monor	Technology	DDR4 2400MHz, ECC or non-ECC UDIMM/RDIMM
System Memory	Max. Capacity	64 GB (32GBx 2 slots)
	Socket	2x 288pin DIMM
		2x GbE RJ45 Intel® i210
	Ethernet Ports	4x GbE RJ45 Intel® SoC Integrated MAC
Networking		2x GbE RJ45 Intel® i350-AM2 (SKU A/B)
	Bypass	2pairs Gen3 (SKU A/B)
	NIC Module Slot	1
IOM	IO Interface	N/A
	OPMA slot	N/A
	Reset Button	1 (Default software reset control by GPIO)
	LED	Power/Status/Storage
	Power Button	1x ATX Power switch
I/O Interface	Console	1x RJ45
	USB	2 x USB 3.0(SKU A,B) / 2.0 (SKU C,D)
	LCD Module	2x 20 character LCM, 4 x keypads
	Display	N/A
	Power input	AC power inlet on PSU
Storage	HDD/SSD Support	2x2.5"HDD/SSD Internal (by SKU)
	Onboard Slots	1 x M.2 (SATA) 2280 B key
Expansion	PCIe	1 x PCI-E*8 FH/HL (Optional)

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		1 x Pigeon LTE module support (Optional)
	mini-PCIe / M.2	1 x mini-PCIe
	Watchdog	Yes
Miscellaneous	Internal RTC with Li-Battery	Yes
	TPM	Yes (Onboard)
Cooling	Processor	Passive CPU heatsink
cooling	System	1x smart fans
	Tomporatura	0 to 40°C Operating
Environmental Parameters	Temperature	-20 to 70°C Non-Operating
Livitoninental Farameters	Humidity (RH)	5 to 90% Operating
		5 to 95% Non-Operating
System Dimensions	(WxDxH)	438 x 319 x 44 mm
	Weight	4.8 kg
Packago Dimonsions	(WxDxH)	540 x 500 x 230 mm
	Weight	8 kg
Dower	Type/Watts	150W Single PSU
Fower	Input	100-240V~, 5A-3A, 50-60Hz
Approvals and Compliance		RoHS, CE, FCC, UL

### **Front Panel**

NCA-2513



No.	Description		
F1	LCM	With a Keypad	
F2	LED Indicators	System Power System Status HDD Activity	
F3	Reset Button	Software reset	
F4	Console Port	1x Console port	
F5	USB Port	2x USB 3.0 port (By SKU)	
F6	LAN LED Indicators	Speed Link/Active Speed Link/Active	
F7	GbE Port (SKU A/B)	2x GbE RJ45 Intel® i350-AM2	
F8	GbE Ports	2x GbE RJ45 Intel® i210-AT 4 x GbE RJ45 Intel® SoC Integrated MAC	
F9	PGN Module Slot	Support 1x PGN LTE Module	
F10	LAN Module Slot	Support 1x STD NIC module	

### **Rear Panel**



No.	Description	
R1	Rear PCIe Expansion	1x PCIex8 Expansion slot (Riser card required) (FH/HL) (By SKU)
R2	Cooling Fans	1x smart fan
R3	Power Button	1x ATX Power button
R4	Power Supply	1x 150W PSU

### 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.



### **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**

#### JRTC1 : SRTC reset

Pin	Description
1-2 (Default)	Normal
2-3	Clear CMOS

#### JRTC2 : RTEST reset

Pin	Description
1-2 (Default)	Normal
2-3	Clear CMOS

#### JRESET1 : RESET option

Pin	Description
1-2	Hardware Reset
2-3(Default)	Software Reset

#### JATX1 : AT/ATX Mode selection

Action	Description
w/o Jumper	ATX mode
w/ Jumper(default)	AT mode

#### J8 : GEN3 LAY Bypass programming

Pin	Description
1-2 (Default)	Normal
2-3	Programming





1 2 3

2





### **Pin Assignment of Power**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	+3.3V
3	+3.3V	4	-12V
5	GND	6	GND
7	+5V	8	PSON
9	GND	10	GND
11	+5V	12	GND
13	GND	12	GND
15	ATXPWGD	16	-5V
17	5VSB	18	+5V
19	+12V	20	+5V
21	+12V	22	+5V
23	+3.3V	24	GND

#### ATX1: Power Supply Connector

#### SATAPWR1: SATA Power Connector 1x4 Pins 2.54mm

Pin number	Pin signal
1	12V
2	Ground
3	Ground
4	5V

C	C	0	0
4	3	2	1

### **Pin Assignment of External Port**

Pin number	Pin signal	In/Out
1	MD0+	
2	MD0-	
3	MD1+	
4	MD2+	
5	MD2-	
6	MD1-	
7	MD3+	
8	MD3-	



#### RJ1\_2: Stack 1x2 RJ45 w/ transformer

Pin number	Pin signal	In/Out
1	MD0+	
2	MD0-	
3	MD1+	
4	MD2+	
5	MD2-	
6	MD1-	
7	MD3+	
8	MD3-	



#### LAN5\_8: 1x4 RJ45 w/o transformer

Pin number	Pin signal	In/Out
1	MD0+	
2	MD0-	
3	MD1+	
4	MD2+	
5	MD2-	
6	MD1-	
7	MD3+	
8	MD3-	



#### SFP1\_2: Stack Fiber CONN

PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	11	GND
2	TX Fault	12	RD-
3	TX Disable	13	RD+
4	MOD_DEF2/SDA (DATA)	14	GND
5	MOD_DEF1/SCL (CLK)	15	VCC_R (PWR2)
6	ABS_N	16	VCC_T (PWR1)
7	RS0	17	GND
8	RX_LOS	18	TD+
9	RS1	19	TD-
10	GND	20	GND



#### COM1 : RJ45 Console

Pin number	Pin signal	In/Out
1	Request To Send (RTS)	
2	Data Terminal Ready (DTR)	
3	Transmitted Data (TxD)	
4	Signal Ground	
5	Signal Ground	
6	Received Data (RxD)	
7	Data Set Ready (DSR)	
8	Clear To Send (CTS)	



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#### USB1\_2: USB3.0 Dual CONN

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB5V	10	USB5V
2	D1-	11	D2-
3	D1+	12	D2+
4	GND	13	GND
5	SSRX1-	14	SSRX2-
6	SSRX1+	15	SSRX2+
7	GND	16	GND
8	SSTX1-	17	SSTX2-
9	SSTX1+	18	SSTX2+



### **Pin Assignment of Internal Header/Socket**

#### JSATA1~2:180° SATA CONNECTOR

PIN NO.	DESCRIPTION
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

### MPCIE1: MiniPCIE SocketPinDescriptionPin

Pin	Description	Pin	Description
1	NC	27	GND
2	VCC3	28	VCC1P5
3	NC	29	GND
4	GND	30	SMB_CLK
5	NC	31	TXN
6	VCC1P5	32	SMB_DATA
7	CLKREQ	33	TXP
8	NC	34	GND
9	GND	35	GND
10	NC	36	USB_D-
11	REFCLK-	37	GND
12	NC	38	USB_D+
13	REFCLK+	39	VCC3
14	NC	40	GND
15	GND	41	VCC3
16	NC	42	NC
17	NC	43	GND
18	GND	44	NC
19	NC	45	NC
20	PH, VCC3	46	NC
21	GND	47	NC
22	RSEST	48	VCC1P5
23	RXN	49	NC
24	VCC3	50	GND
25	RXP	51	NC
26	GND	52	VCC3



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### JPCIE1: PCIe x8 G/F

Pin	Cide D	Side A
1	<u>ыае в</u>	Side A
	+12V	
2	+12V	+12V
3	+120	+12V
4 F		
5		NC
0	SIMB_DAT	NC
/	GND	
8	P3V3	
9		P3V3
11		
12	VVARE#	
12		
14		
14 1 r		
15		
17	GND	
10		
10		GND
20	PCIE_CTX_C_SLOTIRX_NO	
20	PCIE_CTA_C_SLOTTRA_PO	
21	GND	
22		
23		GND
24		
25		
20		
27		GND
20		
20		
21		
32		NC
22		NC
32		GND
35	GND	
36	GND	
37		
38	PCIE CTX C SLOTIRX P2	GND
39	GND	
40	GND	
41		GND
42		GND
43	GND	
44	GND	PCIE SLOT1TX C CRX P1
45	PCIE CTX C SLOT1RX NO	GND
46	PCIE CTX C SLOT1RX PO	GND
47	GND	
48	NC	PCIE SLOTITX C CRX PO
49	GND	GND
	5110	5110

A1

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M2\_STORAGE: M.2 B - key

Pin	Description	Pin	Description
1	GND	2	+P3V3
3	GND	4	+P3V3
5	NC	6	NC
7	NC	8	NC
9	NC	10	NC
11	GND	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC
37	NC	38	NC
39	GND	40	NC
41	mSATA_RX_DP2	42	NC
43	mSATA_RX_DN2	44	NC
45	GND	46	NC
47	mSATA_TX_DN2	48	NC
49	mSATA_TX_DP2	50	RESET#
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
67	NC	68	NC
69	GND	70	+P3V3
71	GND	72	+P3V3
73	GND	74	+P3V3
75	GND		

1



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#### JPMBUS1 : PMBUS 1x8 2.0mm w/ wafer

Pin number	Pin signal	In/Out
1	TTL1	
2	TTL2	
3	NC	
4	GND	
5	NC	
6	PMBUS_CLK	
7	PMBUS_DATA	
8	SMB_LEG_ALRT_N	



JLCM1: LCM module 2x12 2.0mm

Pin	Description	Pin	Description
1	5V	2	GND
3	SLIN	4	VEE
5	AFD	6	INIT
7	PD1	8	PD0
9	PD3	10	PD2
11	PD5	12	PD4
13	PD7	14	PD6
15	LCD_N	16	5V
17	KPA1	18	KPA2
19	КРАЗ	20	KPA4
21	RST	22	CRT_GRN
23	CTR_YLW	24	HD_LED

1		2
3	⊡ · ⊳	4
5	0 - 0-	6
7	0 - 0-	8
- á	0 - 0-	10
11	0 - 0-	12
13	-0 - 0-	1/
15	-0 - 0-	16
17	0 - 0-	18
10	0 - 0-	20
19	0 - 0-	20
21	0.0	22
2	0.0	24

#### PGN1: 2x10 box header 2.0mm

Pin	Description	Pin	Description
1	V5USB	2	NC
3	USB3_RX1_N	4	P3V3
5	USB3_RX1_P	6	P3V3
7	GND	8	P3V3
9	USB3_TX1_N	10	GND
11	USB3_TX1_P	12	P3V3
13	GND	14	VSIM2_SEL
15	D1-	16	GND
17	D1+	18	RST#
119	NC	20	NC



#### FAN1~2: 5Pin FAN connector

Pin No.	Description
1	GND
2	12V
3	FANIN1
4	FANIN2
5	FANOUT

#### COMB2:COM Port 2.0 mm Pin Header SMD 2x5, KEY10

PIN NO.	DESCRIPTION
1	Data Carrier Detect ( DCDA # )
2	Data Set Ready ( DSRA # )
3	Receive Data ( RXDA )
4	Request To Send ( RTSA # )
5	Transmit Data ( TXDA )
6	Clear To Send ( CTSA # )
7	Data Terminal Ready ( DTRA # )
8	Ring Indicator ( RIA # )
9	Ground ( GND )
10	Key pin

#### CONN2 : Power button cable

Pin	Description
1	GND
2	PWRON#

#### JOPEN1 : Case open detect cable

Pin	Description
1	GND
2	CASEOPEN0_N

#### CONN3 : Reset button cable

Pin	Description
1	GND
2	RESET_N











### Pin Assignment of Debug/Sample development

Pin	Description	Pin	Description
1	SPI_HD1#	2	NC
3	SOC_SPI_CS0#_ROM	4	V_3P3_SPI
5	SOC_SPI_MISO_ROM	6	SOC_SPI_IO3_ROM
7	NC	8	SOC_SPI_CLK_ROM
9	GND	10	SOC_SPI_MOSI_ROM

#### JSPIROM1: 2.0mm SMD Pin header SMD 2X5

2	10
1	9

#### J80PORT1: 2.0mm Pin header 2x5

PIN	DESCRIPTION	PIN	DESCRIPTION
1	CLK	2	LAD1
3	RST-	4	LAD0
5	LRAME-	6	P3V3
7	LAD3	8	KEY
9	LAD2	10	GND



#### CON2: GEN3 Bypass programming pin header

Pin	Description
1	P3VSB
2	RXD
3	GND
4	TXD



### CHAPTER 3: HARDWARE SETUP

To reduce the risk of personal injury, electric shock, or damage to the system, please <u>remove all power</u> <u>connections to completely shut down the device</u>. Also, please <u>wear ESD protection gloves when conducting</u> <u>the steps</u> narrated in this chapter.

### **Opening the Chassis**

- **1.** Power off NCA-2513 completely.
- 2. Remove the two screws at the rear, as circled in the figures below.



3. Slide and pull the top compartment as the arrow of direction below.



4. Lift the top compartment.



### Installing the System Memory

The motherboard supports 2 memory slots for DDR4 UDIMM with speeds up to 2666MHz. The CPU requires at least 2 memory modules to boot and run from.

#### Supported System Memory Summary

Total Slots	2
Number of Channels	2 (2 DIMMs per channel)
Supported DIMM Capacity	4GB, 8GB, 16GB, 32GB
Memory Size	Maximum 64 GB (32GB*2)
Memory Type	DDR4 2400/2133 MHz REG, ECC or Non-ECC UDIMM/RDIMM
Minimum DIMM Installed	At least 1 memory modules to boot and run from

#### **Memory Module Installation Instructions**

Please follow the steps below to install the DIMM memory modules.

- 1. Power off the system.
- 2. Pull open the DIMM slot latches.
- 3. Align the notch of the module with the socket key in the slot and carefully insert the card into the slot.



**4.** Push the module down into the slot until it is firmly seated. Press vertically on both corners of the card until it clicks into place.



### Installing the M.2 Storage Card

This system supports the M.2 storage module (2242 B Key) through the M2\_1 slot.

1. Locate the M2\_1 slot.



**2.** Insert the M.2 module into the slot at 15° angle, align the notch on the module with the corresponding socket key in the slot, and then secure it with a screw.





### Installing the NIC Modules

This system can accommodate one **NIC** slim type modules at the front and another one at rear **FH/HL** PCIe expansion slot. Based on your application requirements, employ a combination of Riser Cards to fulfill your needs:

 Rotate the two lock-screws counterclockwise and loosen them.

2. Remove the door and locate the PCIe slot for module insertion.

- Insert your NIC Ethernet module. (The module shown in the image below is for reference only).
- Once the module is firmly seated, rotate clockwise and tighten the two lock-screws.







### **Installing Mini PCI-E Module**

1. Locate the Mini PCI-E module slot on the motherboard.



2. Align the notch of the module with the socket key in the slot. Tilt the end of the golden fingers down while carefully inserting the card into the slot. Press vertically on the other end of the card until it clicks into place. Lock the module to the motherboard in the circle area.



### Installing the Hard Disks

The system can accommodate two 2.5" SSD/HDD at its front disk bay. With the optional SSD swappable cage, you can add another two SSD disks for system storage. After you install the hard drives, make sure the SATA data cables and SATA power cables are connected to the designated connectors on the motherboard, as indicated in the picture below.



**1.** Locate the disk drive tray at the corner of the system. Loosen the screw indicated in the picture and slide the tray downwards to have it loosened from the four latching spots. Take the tray out and prepare to install SATA 2.5" disk drives.



**2.** Place the disk drive in the tray, as shown in the image below. Apply two disk screws with two rubber washers for each side of the disk drive. If you are going to install two disks, always start by installing the disk in the lower slot.



- **3.** Place the tray with HDD/SSD installed back to its original spot inside the system. Remember to aim at the four latching holes. Then slide the tray upwards to get it locked and secure it with the original screw.
- **4.** Attach the SATA cables to the disks, and insert the cable ends into the corresponding connectors on Motherboard.



### Mounting the System

There are two methods for installing this system into a rack:

#### ▶ With **Mounting Ear Brackets** only

This method is quick and easy by fixing this system to the front posts of the rack, but it also makes servicing the system more difficult. Please note that the use of these brackets must go with a rack shelf or slide rails to prevent the chassis from falling over, for the <u>bracket assembly</u> <u>alone cannot provide sufficient support to the chassis</u>.



The system shall be installed on the rack along with a shelf or slide rails, for the "Mounting Ears" are meant to secure the system, not to support it.

#### With Slide Rail Kit + Mounting Ear Brackets

This method is rather complicated, but the slidable rails allow you to access the system easily while securing it in the rack solidly.



The Slide Rail Kit can secure the system while providing sufficient weight support for the device.

#### Installing the System Using Mounting Ear Brackets Only

- **1.** Check the accessory pack for the following items:
- ▶ 1x Screw Pack
- 2x Ear Brackets
- Align the bracket to the side of the chassis and make sure the screw-holes are matched, and then secure the bracket onto the chassis with three provided screws.
- **3.** Repeat Step 2 to attach the bracket to the other side of the chassis.

4. Install the chassis into the rack with the brackets fixed onto the posts using the provided screws. The actual approach you adopt and the needed parts for assembly will depend on the supporting accessory (shelf or rail kit) you use.











#### Installing the System Using the Slide Rail Kit (with Mounting Ear Brackets)

 Check the package contents of the Slide Rail Kit. The kit shall include the following items:

▶ 1x pack of <u>M4X4L</u> screws (for securing the Rail Brackets on the system)

► 1x pack of <u>7.1 Round Hole</u> screws (for securing the system on the rail posts)

2x Slide Rails

A rail consists of the following parts:







 Unpack a slide rail and slide the Inner Rail all the way to the end.

**3.** Stretch the bracket to the fullest.

 Remove the bracket from the Inner Rail by pushing the Release Tab on the bracket outwards while sliding it out.





5. Align the bracket to the side of the chassis and make sure the screwholes are matched, and then secure the bracket onto the chassis with three provided <u>M4X4L</u> screws.



Align the screws with the holes indicated on the brackets and the screw holes on the side of the chassis.

- 6. Repeat Steps 2~5 to attach the bracket to the other side of the chassis.
- **7.** Follow the instructions in <u>Installing the System Using Mounting Ear Brackets Only</u> to attach the Mounting Ear Brackets.



Now, you shall install the slide rail assemblies onto the rack.

8. This slide-rail kit does NOT require screw-fixing. Simply aim at three available screw holes on the rack front and snap the rail front into the rack post as shown in the image. You should hear a "click" sound once it is firmly attached.





36
**9.** For the rear rack installation, slide the rail to aim and engage the bolts on the rail's rear end with the two available holes on the post, and the rail assembly will click into place.



10. Stretch both of the Inner Rails out to their fullest extent. You will hear a click sound when they are fully stretched and locked.



**11.** Hold the system with its front facing you, lift the chassis and gently engage the brackets on the system while aligning them with the Inner Rails as shown in the image, and then push the system into the cabinet.



 While pushing in the system, also push and hold the Rail Lock tab on both brackets.



Push the system all the way in until it stops.



To remove the system from the rack, gently pull it outwards, towards you, while pushing the Release Tab on both sides of the brackets.



# CHAPTER 4: BIOS SETUP

### **Enter BIOS Setup**

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

- **1.** Boot up the system.
- Press < Delete > during the boot-up if you connect a keyboard to this unit. But if you connect
  a PC to this unit through console USB/Serial connection, then press <Tab>. Your system
  should be running POST (Power-On-Self-Test) upon booting up.
- 3. Then you will be directed to the BIOS main screen.
- 4. Instructions of BIOS navigations:

Control Keys	Description		
→←	select a setup screen, for instance, [Main], [IntelRCSetup], [Security],		
	[Boot], and [Save & Exit]		
$\uparrow \downarrow$	select an item/option on a setup screen		
<enter></enter>	select an item/option or enter a sub-menu		
+/-	to adjust values for the selected setup item/option		
F1	to display General Help screen		
F2	to retrieve previous values, such as the parameters configured the last		
	time you had entered BIOS.		
F3	to load optimized default values		
F4	to save configurations and exit BIOS		
<esc></esc>	exit the current screen		

### Main Page

Setup main page contains BIOS information and project version information.

Aptio Setup Utility Main Advanced IntelR	Copyright (C) 2020 Ameri CSetup Security Boot Sav	i <b>can Megatrends, Inc.</b> 7e & Exit
/   BIOS Information   BIOS Vendor	American Megatrends	Set the Date. Use Tab
Core Version	5.13 0.36 x64	lelements.
Compliancy	UEFI 2.6; PI 1.4	Default Ranges:
Project Version	FNCA2513A00006T006	Year: 2005-2099
Build Date and Time	04/30/2020 13:44:23	Months: 1-12
Access Level	Administrator	Days: dependent on month
System Date	[Sun 01/06/2008]	1
I System Time	[23.32.05]	IX: Select Screen
1		^v: Select Item
l.		Enter: Select
I		+/-: Change Opt.
I		F1: General Help
I		F2: Previous Values
I		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2 10 1266	Converight (C) 2020 America	n Megatranda Inc

Feature	Description		
	BIOS Vendor: American Megatrends		
	Core Version: AMI Kernel version, CRB code base, X64		
BIOS	Compliancy: UEFI version, PI version		
Information	Project Version: BIOS release version		
	Build Date and Time: MM/DD/YYYY		
	Access Level: Administrator / User		
	To set the Date, use <b><tab></tab></b> to switch between Date elements.		
System Date	Default Range of Year: 2005-2099		
	Default Range of Month: 1-12		
	Days: dependent on Month.		
System Tine	To set the Date, use <b><tab></tab></b> to switch between Date elements.		

## **Advanced Page**

Select the **Advanced** menu item from the BIOS setup screen to enter the "Advanced" setup screen. Users can select any of the items in the left frame of the screen.

Aptio Setup Utility - Copyright (C) 2020 Ame	rican Megatrends, Inc.
Main Advanced IntelRCSetup Security Boot S	ave & Exit
/	+\
> Trusted Computing	Trusted Computing
<pre>&gt; Super IO Configuration</pre>	Settings
> H/W Monitor	- I
<pre>&gt; Watch Dog Timer Configuration</pre>	- I
<pre>&gt; Status LED Configuration</pre>	- I
> Serial Port Console Redirection	- I
<pre>&gt; PCI Subsystem Settings</pre>	- I
I> Network Stack Configuration	- I
<pre>&gt; CSM Configuration</pre>	- I
<pre>&gt; USB Configuration</pre>	
<pre>&gt; Control Legacy PXE Boot</pre>	≻: Select Screen
I contraction of the second	^v: Select Item
I contraction of the second	Enter: Select
I contract of the second s	+/-: Change Opt.
I contraction of the second	F1: General Help
I contract of the second s	F2: Previous Values
I contract of the second s	F3: Optimized Defaults
I contract of the second s	F4: Save & Exit
I contract of the second s	ESC: Exit
\	+/
Version 2.19.1266. Copyright (C) 2020 Ameri	can Megatrends, Inc.

### Trusted Computing

Aptio Setup Utility Advanced	- Copyright (	C) 2020 American Megatrends, Inc.
/		\
I Contraction of the second		^[Enables or Disables
TPM20 Device Found		* BIOS support for
Vendor: IFX		* security device. 0.S.
Firmware Version: 7.8	5	*   will not show Security
		* Device. TCG EFI
Security Device	[Enable]	* protocol and INT1A
Support		* interface will not be
Active PCR banks	SHA-1,SHA256	* available.
Available PCR banks	SHA-1,SHA256	*
I Contraction of the second		*
SHA-1 PCR Bank	[Enabled]	*  ><: Select Screen
SHA256 PCR Bank	[Enabled]	* ^v: Select Item
		* Enter: Select
Pending operation	[None]	+ +/-: Change Opt.
Platform Hierarchy	[Enabled]	+ F1: General Help
Storage Hierarchy	[Enabled]	+ F2: Previous Values
Endorsement	[Enabled]	+ F3: Optimized Defaults
Hierarchy		v F4: Save & Exit
l		ESC: Exit
(		/
Version 2.19.1266.	Copyright (C)	2020 American Megatrends, Inc.

Aptio Setup Utility Advanced	y – Copyright (C)	2017 American Megatrends, Inc.
Active PCR banks Available PCR banks	SHA-1,SHA256 SHA-1,SHA256	▲ TPM 1.2 will restrict support to TPM 1.2 devices TPM 2.0 will
SHA-1 PCR Bank SHA256 PCR Bank	[Enabled] [Enabled]	restrict support to TPM 2.0 devices, Auto will support both with the
Pending operation Platform Hierarchy Storage Hierarchy	[None] [Enabled] [Enabled]	default set to TPM 2.0 devices if not found,
Hierarchy	[Enabled]	++: Select Screen
Version	[106_2]	Enter: Select Item
Physical Presence Spec Version	[1.3]	+/-: Change Opt. F1: General Help
TPM 20 InterfaceType	[TIS]	F2: Previous Values F3: Optimized Defaults
Device Select	[Auto]	▼ F4: Save & Exit ESC: Exit

Feature	Options	Description	
		Enables or disables BIOS support for security device.	
Security Device	Enabled	By disabling this function, OS will not show Security	
Support	Disabled	Device. TCG EFI protocol and INT1A interface will not	
		be available.	
SUA_1 DCP Bank	Enabled	Enables or disables SHA_1 PCP Bank	
	Disabled		
SUA256 DCD Bank	Enabled	Enables or disables SHADE6 DCD Bank	
STA250 FCK Bark	Disabled		
Pending	None	Schedules an Operation for the Security Device. NOTE:	
operation	TPM Clear	Your computer will reboot during restart in order to	
operation		change State of Security Device.	
Platform	Enabled	Enables or disables Platform Hierarchy	
Hierarchy	Disabled		
Storage Hierarchy	Enabled	Enables or disables Storage Hierarchy	
	Disabled		
Endorsement	Enabled	Enables or disables Endorsement Hierarchy	
Hierarchy	Disabled		
		Select the TCG2 Spec Version,	
TPM2.0 UEFI Spec	TCG 1 2	<b>TCG_1_2</b> : Supports the Compatible mode for	
Version	TCG 2	Win8/Win10	
Version		<b>TCG_2</b> : Supports new TCG2 protocol and event format	
		for Win10 or later.	
Physical Presence	1.2	Select to tell OS to support PPI Spec Version 1.2 or 1.3.	
Spec Version	1.3	NOTE: Some HCK tests might not support 1.3.	
TPM 20	TIS	Select TPM 20 Device for the Communication	
InterfaceType	115	Interface.	
		<b>TPM 1.2</b> will restrict support to TPM 1.2 devices; while	
	TPM 1.2	TPM 2.0 will restrict support to TPM 2.0 devices; Auto	
Device Select	TPM 2.0	will support both with the default set to TPM 2.0	
	Auto	devices. If not found, TPM 1.2 devices will be	
		enumerated.	

### Super IO Configuration

Aptio Setup Utility - Copyright (C) 2020 Ameri Advanced	ican Megatrends, Inc.
/	-+'
Super IO Configuration	Set Parameters of
	Serial Port 1 (COMA)
I IN Comial Dowt 1 Configuration	(outries for the fourth of the former of the
Serial Fort I Configuration	
> Serial Port 2 Configuration	1
> Parallel Port Configuration	- I
	1
	1
	<pre>&gt;&lt;: Select Screen</pre>
I	^v: Select Item
	Enter: Select
	+/-: Change Opt.
	IF1: General Help
	F2: Provious Values
	TZ: FIEVIOUS Values
	(F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit
\	-+,
Version 2.19.1266. Copyright (C) 2020 America	an Megatrends, Inc.

### Serial port 1 Configuration

Aptio Setup Ut: Advanced	ility - Copyright (C) 2020 J	American Megatrends, Inc.
Serial Port 1 Conf:	iguration	Enable or Disable  Serial Port (COM)
Serial Port	[Enabled]	l l
Device Settings	IO=3F8h; IRQ=4;	1
		I. I.
		I. I.
		I. I.
		IV: Select Screen
		Inv: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

Feature	Options	Description	
Serial Port	Enabled	Enables or disables Serial Port 1.	
	Disabled		
Device Settings	NA	IO=3F8h; IRQ = 4	

### Serial port 2 Configuration

j	Aptio Setup Utilit Advanced	y - Copyright (C) 2	020 American Megatrends, Inc.
/   Seria	al Port 2 Configur	ation	Enable or Disable  Serial Port (COM)
Seria	al Port	[Enabled]	
Devid	ce Settings	IO=2F8h; IRQ=3;	
1	-		
1			
1			
1			<pre>&gt;&gt;: Select Screen</pre>
1			^v: Select Item
1			Enter: Select
1			+/-: Change Opt.
1			F1: General Help
i.			F2: Previous Values
i i			IF3: Optimized Defaults
			IF4: Save & Exit
			IFSC: Evit
1			ILDO. EATO
/	Thursday 0, 40, 40,00		
	version 2.19.1266	. copyright (C) 202	U American Megatrends, Inc.

Feature	Options	Description
Serial Port	Enabled	Enable or Disable Serial Port 2.
	Disabled	
Device Settings	NA	IO=2F8h; IRQ = 3

### **Parallel Port Configuration**

Aptio Setup Util Advanced	lity - Copyright (C) 2020 .	American Megatrends, Inc.
Parallel Port Config	guration	<pre>+ [Enable or Disable [Parallel Port (LPT/LPTE)]</pre>
Parallel Port	[Enabled]	
Device Settings	IO=378h; IRQ=5;	I. I
		I. State of the second s
		I. State of the second s
		L. C.
		L. L
		I. I.
		<pre>&gt;&lt;: Select Screen</pre>
		^v: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
		+

Feature	Options	Description
Parallel Port	Enabled	Enable or Disable Parallel Port.
	Disabled	
Device Settings	NA	IO=378h; IRQ = 5

#### H/W Monitor

Aptio Setup Utility	- Copyright (C) 2020 Americ	can Megatrends, Inc.
/		+\
Pc Health Status		Smart Fan Parameters
> Smart Fan Control		I
I		I
SYS1 Temp	: +32 C	I
SYS2 Temp	: +28 C	I
FAN1 Speed	: N/A	I
FAN2 Speed	: N/A	I
VDIMM	: +1.200 V	I
CPU VCORE	: +1.120 V	I
I 5V	: +5.100 V	
12V	: +12.000 V	≻: Select Screen
3.3V	: +3.344 V	^v: Select Item
VBAT	: +3.040 V	Enter: Select
VSB3.3V	: +3.336 V	+/-: Change Opt.
I		F1: General Help
I		F2: Previous Values
I		F3: Optimized Defaults
I		F4: Save & Exit
l		ESC: Exit
\		+,
Version 2.19.1266.	Copyright (C) 2020 American	n Megatrends, Inc.

### Watch Dog Timer Configuration

Aptio Setup Utility Advanced	– Copyright (C) 2017 Ameri	can Megatrends, Inc.
Watch Dog Timer Configu	ration	Enabled or Disabled Watch Dog Timer function
Watch Dog Timer	[Disabled]	
		<ul> <li>↔: Select Screen</li> <li>↑↓: Select Item</li> <li>Enter: Select</li> <li>+/-: Change Opt.</li> <li>F1: General Help</li> <li>F2: Previous Values</li> <li>F3: Optimized Defaults</li> <li>F4: Save &amp; Exit</li> <li>ESC: Exit</li> </ul>
Version 2.19.1266.	Copyright (C) 2017 America	n Megatrends, Inc.

Feature	Options	Description	
Watch Dog	Enabled	Freebles on dischlas Watch Den Timen function	
Timer	Disabled	Enables of disables Watch Dog Timer function	

### Status LED Configuration

Aptio Setup Utility Advanced	– Copyright (C) 2017 Ameri	can Megatrends, Inc.
Status LED Configuration		Configure Status LED.
Status LED	[OFF]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.19.1269.	Copyright (C) 2017 America	n Megatrends, Inc.

Feature	Options	Description
	OFF	
Status LED	GREEN	Configures Status LED color
	RED	

#### Serial Port Console Redirection

Aptio Setup Utility – Copyright (C) 2017 Americ Advanced	can Megatrends, Inc.
COMO Console Redirection [Enabled] • Console Redirection Settings Legacy Console Redirection • Legacy Console Redirection Settings	Console Redirection Enable or Disable.
	<ul> <li>✦✦: Select Screen</li> <li>✦↓: Select Item</li> <li>Enter: Select</li> <li>✦/-: Change Opt.</li> <li>F1: General Help</li> <li>F2: Previous Values</li> <li>F3: Optimized Defaults</li> <li>F4: Save &amp; Exit</li> <li>ESC: Exit</li> </ul>
Version 2.19.1269. Copyright (C) 2017 American	n Megatrends, Inc.

Feature	Options	Description
COM0	<mark>Enabled</mark> Disabled	
Console		Enables or disables Console Redirection
Redirection		

### **Console Redirection Settings**

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc. Advanced		
Console Redirection Settings		Emulation: ANSI: Extended ASCII char
Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key	[VT100+] [115200] [8] [None] [1] [None] [Enabled]	set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode
Support Recorder Mode Putty KeyPad	[Disabled] [VT100]	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2,18,1263	. Conuright (C) 2017 Ameri	ican Megatrends. Inc.

Feature	Options	Description	
		VT100: ASCII char set	
	VT100	VT100+:Extends VT100 to support color,	
Torminal Type	VT100+	function keys, etc.	
теппінаі туре	VT-UTF8	VT-UTF8:Uses UTF8 encoding to map Unicode	
	ANSI	chars onto 1 or more bytes	
		ANSI: Extended ASCII char set	
	9600		
	19200	Selects serial port transmission speed. The	
Bits per second	38400	speed must be matched on the other side.	
	57600	Long or noisy lines may require lower speeds.	
	115200		
Data Dite	7	Data Pita	
Dala Bils	8		
	None		
Parity	Even	A parity hit can be cent with the data hits to	
	Odd	A parity bit can be sent with the data bits to	
	Mark		
	Space		

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Stop Bits	1 2	Indicates the end of a serial data packet.
Flow Control	None Hardware RTS/CTS	Flow Control can prevent data loss from buffer overflow.
VT-UTF8 Combo Key	Disabled	Enables VT-UTF8 Combination Key Support for
Support	Enabled	ANSI/VT100 terminals
Decender Mede	Disabled	With this mode enabled, only text will be sent.
Recorder Mode	Enabled	This is to capture Terminal data.
	VT100	
	LINUX	
Putty KeyPad	XTERM86	Solacts EurotionKov and KovPad on Putty
	SCO	Selects Functionikey and keyPad on Putty.
	ESCN	
	VT400	

### **Console Redirection Settings**

Aptio Setup Utility	– Copyright (C) 2017 Amer	rican Megatrends, Inc.
Legacy Console Redirect	ion Settings	Select a COM port to display redirection of
Redirection COM Port Resolution Redirect After POST	[COMO] [80x24] [Always Enable]	Legacy OS and Legacy OPROM Messages
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.19.1269.	Copyright (C) 2017 Americ	an Megatrends, Inc.

Feature	Options	Description	
Redirection COM	COM0	Select a COM port to display redirection of Legacy	
Port		OS and Legacy OPROM Messages.	
Recolution	80x24	On Legacy OS, the Number of Rows and	
Resolution	80x25	Columns supported redirection.	
Redirection After BIOS POST	Always Enable BootLoader	When <b>Bootloader</b> is selected, Legacy Console Redirection is disabled before booting to legacy OS. When <b>Always Enable</b> is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option	
		is set to <b>Always Enable</b> .	

### PCI Subsystem Settings

Aptio Setup Util Advanced	ity – Copyright (C) 20:	18 American Megatrends, Inc.
PCI Bus Driver Version	A5.01.12	Enables or Disables 64bit capable Devices to be Decoded in Above
PCI Devices Common S	ettings:	4G Address Space (Only
Above 4G Decoding SR-IOV Support	[Disabled] [Disabled]	if System Supports 64 bit PCI Decoding).
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit</pre>
Version 2 19 12	66 Copuright (C) 2018	American Megatrends Inc

Feature	Options	Description
Above 4G Decoding	Disabled Enabled	Enable or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).

►

Feature	Options	Description
SR-IOV Support	Disabled Enabled	If the system has SR-IOV capable PCIe Devices, this option enables or disables Single Root IO

#### 2.3.1 Network Stack Configuration

Network Stack [Disabled] Enable/Disable U Network Stack	inc.
++: Select Scree	UEFI
1: Select Item         Enter: Select         +/-: Change Opt.         F1: General Help         F2: Previous Val         F3: Optimized Date         F4: Save & Exit         ESC: Exit	p lues efaults

Feature	Options	Description	
	Disabled	Frables or disables UEFI Natural Stade	
Network Stack	Enabled	Enables of disables DEFI Network Stack	
Inva DVE Support	Disabled	Enables Ipv4 PXE Boot Support. If IPV4 is disabled,	
IPV4 PXE Support	Enabled	PXE boot option will not be created.	
Inva UTTD Support	Disabled	Enables Ipv4 HTTP Boot Support. If IPV4 is	
Ipv4 HTTP Support	Enabled	disabled, HTTP boot option will not be created.	
Ipv6 PXE Support	Disabled	Enables Ipv6 PXE Boot Support. If IPV6 is disabled,	
	Enabled	PXE boot option will not be created.	
Invé LITTE Support	Disabled	Enables Ipv6 HTTP Boot Support. If IPV6 is	
Ipvo HTTP Support	Enabled	disabled, HTTP boot option will not be created.	
PXE boot wait time	0	Wait time to press <b><esc></esc></b> key to abort the PXE	
		boot	
	1	Number of times the presence of media will be	
iviedia detect count		checked	

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### CSM Configuration

Aptio Setup Utility – Copyright (C) 2018 American Megatrends, Inc. Advanced			
Compatibility Support Module Configuration Enable/Disable CSM			
CSM Support	[Enabled]	δυρροίτ.	
CSM16 Module Version	07.81		
Option ROM execution			
Network Storage Video Other PCI devices	[Legacy] [Legacy] [Legacy] [Legacy]	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>	

Version 2.19.1266. Copyright (C) 2018 American Megatrends, Inc.

Feature	Options	Description
CSM Support	Disabled Enabled	Enables or disables CSM Support
Network	Do Not Launch UEFI Legacy	Controls the execution of UEFI and Legacy PXE OpROM
Storage	Do Not Launch UEFI Legacy	Controls the execution of UEFI and Legacy Storage OpROM
Video	Do Not Launch UEFI <mark>Legacy</mark>	Controls the execution of UEFI and Legacy Video OpROM
Other PCI device	Do Not Launch UEFI <mark>Legacy</mark>	Determines OpROM execution policy for devices other than Network, Storage, or Video

### USB Configuration

Aptio Setup Utility Advanced	y – Copyright (C) 2017 Ameria	can Megatrends, Inc.
USB Configuration		Enables Legacy USB
USB Module Version	19	disables legacy support
USB Controllers: 1 XHCI		connected. DISABLE
USB Devices: 4 Drives, 2 Keybo	pards, 2 Mice, 2 Hubs	devices available only for EFI applications.
Legacy USB Support	[Fnahled]	
XHCI Hand-off	[Enabled]	↔: Select Screen
USB Mass Storage	[Enabled]	↑↓: Select Item
Driver Support		Enter: Select
Port 60/64 Emulation	[Enabled]	+/-: Change Opt.
		F1: General Help
USB hardware delays		F2: Previous Values
and time–outs:		F3: Optimized Defaults
USB transfer time-out	[20 sec]	F4: Save & Exit
		ESC: Exit

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Feature	Options	Description
		Enables Legacy USB support.
	Enabled	Auto option disables legacy support if no USB
Legacy USB	Disabled	devices are connected;
Support	Auto	<b>Disabled</b> option will keep USB devices available only
		for EFI applications.
XHCI Hand-off	Enabled Disabled	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	Enabled Disabled	Enables or disables USB Mass Storage Driver Support.
USB transfer	1 sec/5 sec	The time-out value for Control, Bulk, and Interrupt
time-out	10 sec/ <mark>20 sec</mark>	transfers
Device reset	1 sec/5 sec	USB mass storage device Start Unit command time-
time-out	10 sec/ <mark>20 sec</mark>	out

		Maximum time the device will take before it properly
Device power-	Auto	reports itself to the Host Controller. Auto uses
up delay	Manual	default value: for a Root port, it is 100 ms, for a Hub
		port the delay is taken from Hub descriptor.

### Control Legacy PXE Boot

### (For : SKU-A)

Aptio Setup Utility - Copyright (C) 2020 Advanced	) American Megatrends, Inc.
Control Legacy PXE Boot	Control Legacy PXE Boot  from which Lan
Control Legacy PXE [Disabled] Boot from	
/ Control Legacy PXE Bo   Disabled   Lan2   Lan3 \	oot from        ect Screen ect Item
	Enter: Select  +/-: Change Opt.  El: General Help
	F2: Previous Values  F3: Optimized Defaults  F4: Save & Exit
	ESC: Exit

Feature	Options	Description
Control Legacy PXE	Disabled	Control Legacy PXE Boot from which
Boot From	Lan2	Lan.
	Lan3	

Control Legacy PXE Boot

(For : SKU-C)

Aptio Setup Utility - Copyright (C) 2020 Advanced	D American Megatrends, Inc.
Control Legacy PXE Boot	Control Legacy PXE Boot  from which Lan
Boot from	
/ Control Legacy PXE Bo   Disabled   Lan0   Lan1	pot from> I I ect Screen ect Item
	Enter: Select  +/-: Change Opt.  F1: General Help
	F2: Previous Values  F3: Optimized Defaults  F4: Save & Exit  ESC: Exit
Version 2.19.1266. Copyright (C) 2020 A	American Megatrends, Inc.

Feature	Options	Description
Control Legacy PXE	Disabled	Control Legacy PXE Boot from which
Boot From	Lan0	Lan.
	Lan1	

### IntelRCSetup

Select the IntelRCSetup menu item from the BIOS setup screen to enter the Platform Setup screen. Users can select any of the items in the left frame of the screen.

Aptio Setup Utility – Copyright (C) 2018 American Megatrends, Inc. Main Advanced <mark>IntelRCSetup</mark> Security Boot Save & Exit				
Relax Security [Disabled] Configuration Processor Configuration Server ME Configuration North Bridge Chipset Configuration South Bridge Chipset Configuration System Event Log Restore On Power Loss [Last State]	Displays and provides option to change the Processor Settings			
	<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>			

FeatureOptionsDescriptionRelax SecurityDisableRelaxes the security configuration to be<br/>able to use BIOS update tool.ConfigurationEnabledable to use BIOS update tool.Restore On Power LossPower OnSpecify what state to go to when power is<br/>re-applied after a power failure (G3 state).Last StateLast State

### Processor Configuration

Aptio Setup Utility IntelP	y - Copyright (C) 2020 Am RCSetup	erican Megatrends, Inc.
/   Processor Version   	Intel(R) Atom(TM) CPU C3758 @ 2.20GHz	<pre>^  Enable/disable AES-NI +   support +  </pre>
EIST (GV3)   Turbo	[Disable] [Enable]	+1 +1
CPU C State   Package C State limit	[Disable] [No Limit]	*  *
Max Core C-State   Enhanced Halt State	[C6] [Enable]	*  *
(C1E)   Monitor/Mwait	[Enable]	*  * >: Select Screen
L1 Prefetcher   L2 Prefetcher	[Enable] [Enable] [Enable]	* ^v: Select Item * Enter: Select
Machine Check   Execute Disable Bit	[Enable] [Enable] [Enable]	* F1: General Help * F2: Previous Values
VMX   AES-NI	[Enable] [Enable]	* F3: Optimized Defaults v F4: Save & Exit
 \		ESC: Exit
Version 2.19.1266.	. Copyright (C) 2020 Amer	ican Megatrends, Inc.

Feature	Options	Description
	Disable	Enables/Disable EIST. GV3 must be
EIST (GV3)	Enable	enable for Turbo.
	Enable	Enable or Disable CPU Turbo capability.
Turbo	Dicable	This option only applies to ES2 and
	Disable	above.
	Disable	Enable the Enhanced Cx state of the CPU,
	Enable	takes effect after reboot.
	No Pkg C-state	
Package C state limit	No S0Ix	Package C state limit.
	No limit	
May coro Cistata	C1	Options are: (1 and (6
Max core C-state	<b>C</b> 6	
Enhanced Halt	Disable	Enables the enhanced C1E state of the
State(C1E)	Enble	CPU, takes effects after reboot.
Monitor/Mwait	Enable	Enable or Disable the Monitor/Mwait
	Disable	Instruction.

L1 Prefetcher	Enable	Enable/Disable L1 Prefetch.	
	Disable		
L2 Prefetcher	Enable	Enable/Disable L2 Prefetch	
	Disable		
Fast String	Disable	When enables, enable fast strings for REP	
	Enable	MOVS/STOS.	
Machine Check	Disable	Enable or Disable the Machine Check.	
	Enable		
Execute Disable Bit	Disable	When disabled, forces the XD feature flag	
	Enable	to always return 0.	
VMS	Disable	Enables the Vanderpool Technology,	
	Enable	takes effect after reboot.	
AES-NI	Disable	Enable/disable AES-NI support.	
	Enable		

### Server ME Configuration

Aptio Setup Utility Intell	<b>y - Copyright (C)</b> RCSetup	2020 American	Megatrends, Inc.
General ME Configuratio	n		
Operational Firmware Version	OB:4.0.4.193		
ME Firmware Type	SPS	1	
Recovery Firmware Version	OB:4.0.4.193		
ME Firmware Status #1	0x000F0345	1	
ME Firmware Status #2	0x88110020	1	
Current State	Operational	- I -	
Error Code	No Error		
		l×	: Select Screen
		^v	: Select Item
		En	ter: Select
		1+/-	-: Change Opt.
		F1	: General Help
		F2	: Previous Values
		F3	: Optimized Defaults
		F4	: Save & Exit
		(ES	C: Exit
		+	
Version 2.19.1266	. Copyright (C) 20	020 American M	egatrends, Inc.

### North Bridge Chipset Configuration

Aptio Setup Utili Inte	<b>ty - Copyright</b> 1RCSetup	(C) 202	0 American Megatrends, Inc.
/   North Bridge Chipset	Configuration		 Enables/Disables fast boot which skips memory
Memory Information			training and attempts
MRC Version	0.149.4.64		to boot using last
Total Memory	16384 MB		known good
Memory Frequency	DDR4 - 2400	MHz	configuration.
L. C.			I I I I I I I I I I I I I I I I I I I
Fast Boot	[Enabled]		I I I I I I I I I I I I I I I I I I I
Memory Frequency	[DDR-2400]		I I I I I I I I I I I I I I I I I I I
VT-d	[Enabled]		
I			<pre>&gt;&lt;: Select Screen</pre>
I			^v: Select Item
I			Enter: Select
I			+/-: Change Opt.
I			F1: General Help
I			F2: Previous Values
I			F3: Optimized Defaults
I			F4: Save & Exit
I			ESC: Exit
\			+/

Version 2.19.1266. Copyright (C) 2020 American Megatrends, Inc.

Feature	Options	Description
Fast Boot	Disabled Enabled	Enables/Disables fast boot which skips memory training and attempts to boot using fast known good configuration.
Memory	DDR-1600	DDR memory frequency:
Frequency	DDR-1867	DDR4 up to DDR-2666
	DDR-2133	DDR3 up to DDR-1867.
	DDR-2400	
VT-d	Disable	Option to enable /Disable VT-d.
	Enable	

South Bridge Chipset Configuration

Aptio Setup Utility – Copyright (C) 2017 IntelRCSetup	American Megatrends, Inc.
<ul> <li>SATA Configuration</li> <li>PCIE IP Configuration</li> <li>IQAT Configuration</li> </ul>	Configuration of SATA Controller
	++: Select Screen †↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.1266. Copyright (C) 2017 A	merican Megatrends, Inc.

# SATA Configuration

Aptio Setup Utility IntelR	- Copyright CSetup	(C) 2020 American Megatrends, Inc.
/   SATA 0   Enable controller   LPM   ALPM	[Enabled] [Disabled]	Enables/Disables Link  Power Management 
Speed limit  > SATA1 on Controller port	[Gen 3] t	
1 1 1		
SATA 1		
Enable controller   LPM   ALPM	[Enabled] [Disabled] [Disabled]	≻: Select Screen  ^v: Select Item  Enter: Select
Speed limit  > SATA2 on Controller port	[Gen 3] t	+/-: Change Opt.  F1: General Help
> M2SATA on Controller po:     	rt	F2: Previous Values  F3: Optimized Defaults  F4: Save & Exit  ESC: Exit
\ Version 2.19.1266.	Copyright (C	) 2020 American Megatrends, Inc.

Feature	Options	Description
Enable controller	Enabled	Enables/Disables SATA Controller if supported by
		current CPU sku
LPM	Enabled	Enables/Disables Link Power Management
	Disabled	
ALPM	Enabled	Enable/Disables Agresive Link Power Management
	Disabled	
Speed Limit	Gen 1	Indicates the highest allowable speed of the interface
	Gen 2	
	Gen 3	

### **SATA1** on Controller port

Aptio Setup Utility Intel®	<b>( - Copyright (C)</b> RCSetup	2020 American Megatrends, Inc.
/   SATA 0 Port 7   Device Information:   Device Size:   Enable/disable port   Hot plug   Spin up   	[Not Installed] [Unknown] [Enabled] [Enabled] [Disabled]	Enables/Disables SATA    Controller port if    supported by current    cpu SKU.       
             		<pre>    &gt;&lt;: Select Screen    ^vv: Select Item    Enter: Select    +/-: Change Opt.    F1: General Help    F2: Previous Values   F3: Optimized Defaults    F4: Save ≤ Exit    ESC: Exit   </pre>
Version 2.19.1266.	Copyright (C) 20	020 American Megatrends, Inc.

Feature	Options	Description
Enable/disable port	Enabled	Enables/Disables SATA Controller port if
	Disabled	supported by current cpu SKU.
Hot plug	Enabled	Hot plug
	Disabled	
Spin up	Enabled	Spin up
	Disabled	

### SATA2 on Controller port

Aptio Setup Utilit Intel	<b>y - Copyright (C) 2</b> RCSetup	020 American Megatrends, Inc.
SATA 1 Port 1 Device Information: Device Size: Enable/disable port Hot plug Spin up	[Not Installed] [Unknown] [Enabled] [Enabled] [Disabled]	Enables/Disables SATA  Controller port if  supported by current  cpu SKU.   
		    ≻: Select Screen  ^v: Select Item  Enter: Select
		<pre> +/-: Change Opt.  F1: General Help  F2: Previous Values  F3: Optimized Defaults  F4: Save 5 Fuit</pre>
Version 2 19 1266	Convright (C) 202	IF4: Dave & EXIT ESC: Exit O American Megatrends Tro

Feature	Options	Description
Enable/disable port	Enabled	Enables/Disables SATA Controller port if
	Disabled	supported by current cpu SKU.
Hot plug	Enabled	Hot plug
	Disabled	
Spin up	Enabled	Spin up
	Disabled	

#### **M2SATA on Controller port**

Aptio Setup Utility IntelR0	- Copyright (C) Setup	2020 American Megatrends, Inc.
/   SATA 1 Port 4   Device Information:   Device Size:   Enable/disable port   Hot plug   Spin up   	[Not Installed] [Unknown] [Enabled] [Enabled] [Disabled]	Inables/Disables SATA    Controller port if    supported by current    cpu SKU.         
               		  ><: Select Screen    ^v: Select Item    Enter: Select    +/-: Change Opt.    F1: General Help    F2: Previous Values    F3: Optimized Defaults    F4: Save & Exit    ESC: Exit
Version 2.19.1266.	Copyright (C) 20	020 American Megatrends, Inc.

Feature	Options	Description
Enable/disable port	Enabled	Enables/Disables SATA Controller port if
	Disabled	supported by current cpu SKU.
Hot plug	Enabled	Hot plug
	Disabled	
Spin up	Enabled	Spin up
	Disabled	

# **PCIE IP Configuration**

Aptio Se	etup Utility IntelR	- Copyright CSetup	(C) 20	20 Amerio	can Megatrends, Inc.
/					+\
Bifurcation	PCIEO	[x4x4]			Select and force Root
Bifurcation	PCIE1	[x2x2x2x2]			Complex Bifurcation
I					Configuration
I. Contraction of the second sec					regardless board or
I. Contraction of the second sec					trident detection
I. Contraction of the second sec					I I
1					I I
1					I I
1					I
1					
1					≻: Select Screen
1					^v: Select Item
1					Enter: Select
1					+/-: Change Opt.
1					F1: General Help
1					F2: Previous Values
1					F3: Optimized Defaults
1					F4: Save & Exit
1					ESC: Exit
\					+)
Versio	n 2.19.1266.	Copyright ((	<li>c) 2020</li>	America	n Megatrends, Inc.

Feature	Options	Description
Bifurcation PCIE0	Auto	Select and force Root Complex Bifurcation
	X8	Configuration regardless board or trident
	x4x4	detection.
	x4x2x2	
	X2x2x4	
	X2x2x2x2	
Bifurcation PCIE1	Auto	Select and force Root Complex Bifurcation
	X8	Configuration regardless board or trident
	X4x4	detection.
	X4x2x2	
	X2x2x4	
	X2x2x2x2	

### **IQAT Configuration**

Aptio Setup Uti In	lity – Copyright (C) 20 telRCSetup	017 American Megatrends, Inc.
IQAT Set IQAT FUSECTL Set 64B MRR/MPL	[Enabled] [Disabled] [Enabled]	Hides IQAT device from an OS
		<pre> ++: Select Screen  14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.19.1	266. Copyright (C) 201 <sup>-</sup>	7 American Megatrends, Inc.

Feature	Options	Description
IQAT	Enabled	Hides IQAT device from and OS
	Disabled	
## System Event Log

Aptio Setup	Utility - Copyright IntelRCSetup	(C) 2020 American Megatrends, Inc.
/ System Event Log	J	(Press <enter> to view    or change the WHEA    configuration.</enter>
System Errors  > Whea Settings       	[Disable]	
		<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 2.3	19.1266. Copyright (C	C) 2020 American Megatrends, Inc.
Feature	Options	Description
System Errors	Disable	System Error enabling and logging setup
	Enable	option.
	Auto	
WHEA Support	Disable	Enable/Disable WHEA ACPI support.
	Enable	
WHEA Error Injecti	on Disable	When EINJ ACPI 5.0 support for set error
5.0 Extension	Enable	type with address and vendor extensions.
Whea Logging	Disable	Enable/Disable Whea logging of errors.
	Enable	
WHEA PCIe Error	Disable	Enable/Disable WHEA PCIe Error
Injection	Enable	Injection .

## Security

Select the Security menu item from the BIOS setup screen to enter the Security Setup screen. Users can select any of the items in the left frame of the screen.

Aptio Setup Utility – Copyright (C) 2017 Amer Main Advanced Platform Socket <mark>Security</mark> Boot	ican Megatrends, Inc. Save & Exit
Password Description	Set Administrator Password
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 password length must be	++: Salact Senson
Minimum length 3	↑↓: Select Item
Maximum length 20	Enter: Select +/-: Change Opt.
Administrator Password	F1: General Help
User Password	F2: Previous Values F3: Optimized Defaults
▶ Secure Boot	F4: Save & Exit ESC: Exit

FeatureDescriptionAdministrator PasswordIf ONLY the Administrator's password is set, it only limits<br/>access to Setup and is only asked for when entering<br/>Setup.User PasswordIf ONLY the User's password is set, it serves as a power-<br/>on password and must be entered to boot or enter<br/>Setup. In Setup, the User will have Administrator rights.

### Secure Boot

Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc. Security		
System Mode Secure Boot Vendor Keys Attempt Secure Boot Secure Boot Mode • Key Management	Setup Not Active Active [Disable] [Custom]	Secure Boot activated when Platform Key(PK) is enrolled, System mode is User/Deployed, and CSM function is disabled ++: 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 19 1268	Conuright (C) 2017 America	n Megatrends Inc

Feature	Options	Description	
Secure Boot Enable	Disabled Enabled	Secure Boot is activated when Platform Key(PK) is enrolled, System mode is User/Deployed, and CSM function is disabled.	
		Customizable Secure Boot mode: In Custom mode,	
Secure Boot	Standard	Secure Boot Policy variables can be configured by	
Mode	Custom	a physically present user without full	
		authentication.	

### Key Management

Aptio Setup Utilit	y – Copyright (C) 2017 Ameri Security	can Megatrends, Inc.
Provision Factory Defaults ▶ Install Factory Defaul	[Disable] t keys	Allow to provision factory default Secure Boot keys when System is in Setup Mode
<ul> <li>Save all Secure Boot v</li> <li>Secure Boot variable  </li> <li>Platform Key(PK)  </li> </ul>	ariables Size  Keys#  Key Source 0  0  No Key	
<ul> <li>Key Exchange Keys</li> <li>Authorized Signatures</li> <li>Forbidden Signatures</li> <li>Authorized TimeStamps</li> <li>OsRecovery Signatures</li> </ul>	0  0  No Key 0  0  No Key 0  0  No Key 0  0  No Key 0  0  No Key	<pre>++: Select Screen  f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help</pre>
		F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Feature	Options	Description
Factory Key	Disabled	Provision factory default keys on next re-boot only
Provision	Enabled	when System in Setup Mode.
Restore Factory keys	None	Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys.
Enroll Efi Image None		Allows the image to run in Secure Boot mode. Enroll SHA256 hash of the binary into Authorized Signature Database (db)

## **Boot Menu**

Select the Boot menu item from the BIOS setup screen to enter the Boot Setup screen. Users can select any of the items in the left frame of the screen.

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc. Main Advanced IntelRCSetup Security Boot Save & Exit		
/		-+\
Boot Configuration		Number of seconds to
Setup Prompt Timeout	5	wait for setup
Bootup NumLock State	[On]	activation key.
Quiet Boot	[Disabled]	65535(OxFFFF) means
I		indefinite waiting.
Boot mode select	[LEGACY]	1
I		1
FIXED BOOT ORDER Priori	ties	1
Boot Option #1	[Hard Disk]	1
Boot Option #2	[USB	
I	Device:JetFlashTranscend	≻: Select Screen
I	4GB 1100]	^v: Select Item
Boot Option #3	[CD/DVD]	Enter: Select
Boot Option #4	[Network:IBA XE Slot	+/-: Change Opt.
I	0900 v2413]	F1: General Help
L		F2: Previous Values
> USB Drive BBS Prioritie	F3: Optimized Defaults	
> NETWORK Drive BBS Priorities		F4: Save & Exit
I contract of the second s		ESC: Exit
\		-+/
Waggion 2 10 1255	Converight (C) 2020 America	n Magatranda Tha

Feature	Options	Description
		The number of seconds to wait for setup
Setup Prompt Timeout	5	activation key.
		65535 means indefinite waiting.
Bootup NumLock	On	Coloct the keybeard Number of state
State	Off	Select the Reyboard NumLock state
Quiet Reat	Disabled	Enables or disables Quiet Boot ention
Quiet Boot	Enabled	Enables of disables Quiet Boot option.
	LEGACY	
Boot mode select	UEFI	Select boot mode for LEGACY or UEFI.
	DUAL	

- Choose boot priority from boot option group.
- Choose specifies boot device priority sequence from available Group device.

## Save and Exit Menu

Select the Save and Exit menu item from the BIOS setup screen to enter the Save and Exit Setup screen. Users can select any of the items in the left frame of the screen.

Aptio Setup Utility - Copyright (C) 2020 A	merican Megatrends, Inc.
Main Advanced Interresetup Security Boot	
Save Options	Exit system setup
Discard Changes and Exit	without saving any
Save Changes and Reset	changes.
l .	I. I.
Default Options	I. I.
Restore Defaults	
Boot Override	
IBA XE Slot 0900 v2413	
JetFlashTranscend 4GB 1100	
Launch EFI Shell from filesystem device	≻: Select Screen
I and the second se	^v: Select Item
I and the second se	Enter: Select
l i de la companya d	+/-: Change Opt.
Letter and the second	F1: General Help
I see a second	F2: Previous Values
l de la constante de	F3: Optimized Defaults
l in the second s	F4: Save & Exit
l de la constante de	ESC: Exit
\	+
Version 2.19.1266, Copyright (C) 2020 Ame	rican Megatrends, Inc.

#### Save Changes and Reset

When Users have completed the system configuration changes, select this option to save the changes and exit from BIOS Setup in order for the new system configuration parameters to take effect. The following window will appear after selecting the "**Save Changes and Exit**" option is selected. Select "**Yes**" to Save Changes and Exit Setup.



### Discard Changes and Exit

Select this option to quit Setup without saving any modifications to the system configuration. The following window will appear after the "**Discard Changes and Exit**" option is selected. Select "**Yes**" to Discard changes and Exit Setup.



### Restore Defaults

Restore default values for all setup options. Select "Yes" to load Optimized defaults.

Load Optimized Defaults	
	?
Yes No	

PS: The items under Boot Override were not same with image. It should depend on devices connect on system.

# APPENDIX A: SETTING UP CONSOLE REDIRECTIONS

Console redirection lets you monitor and configure a system from a remote terminal computer by redirecting keyboard input and text output through the serial port. The following steps illustrate how to use this feature. The BIOS of the system allows the redirection of the console I/O to a serial port. With this configured, you can remotely access the entire boot sequence through a console port.

- **1.** Connect one end of the console cable to console port of the system and the other end to the serial port of the Remote Client System.
- 2. Configure the following settings in the BIOS Setup menu:

**BIOS** > **Advanced** > **Serial Port Console Redirection** > **Console Redirection Settings**, select **115200** for the Baud Rate, **None**. for Flow control, **8** for the Data Bit, **None** for Parity Check, and **1** for the Stop Bit.

**3.** Configure console redirection related settings on the client system. You can use a terminal emulation program that features communication with serial COM ports such as *TeraTerm* or *Putty*. Make sure the serial connection properties of the client conform to those set in Step 1 for server.

# APPENDIX B: INSTALLING INTEL<sup>®</sup> LAN CONTROLLER DRIVER FOR LINUX

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	I210 or I350	
Product Category	Network I/O→Ethernet Products→Intel® Gigabit Server Adapters→ Intel® Ethernet Server Adapter I210 Series Intel® Ethernet Server Adapter I350 Series	
Download Type	Drivers	
Operating System	Linux*	
Product page	Intel® Network Adapter Driver for 82575/6, 82580, I350, and I210/211-Base Gigabit Network Connections for Linux*	

## 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 the 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 Retur	Reasons to Return:  _ Repair(Please include failure details) _ Testing Purpose	
Compa	any:	Contact Person:		
Phone	No.	Purchased Date:		
Fax No	».:	Applied Date:		
Return Shippi D Othe	n Shipping Addr ng by: □ Air Fre ers:	ess: eight □ Sea □ Express 		
Item Model Name Serial Number Configuration		Configuration		
	nouel nume			

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

#### **Request Party**

 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)

#### **Confirmed By Supplier**

Authorized Signature / Date

Authorized Signature / Date