ACM-ICLDE7

COM Express Basic Module
Type 7 with Intel® ICE LAKE-D

User Manual

Acrosser Technology Co., Ltd.
www.acrosser.com

Disclaimer

For the purpose of improving reliability, design and function, the information in this document is subject to change without prior notice and does not represent a commitment on the part of Acrosser Technology Co., Ltd.

In no event will Acrosser Technology Co., Ltd. be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

Copyright

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of Acrosser Technology Co., Ltd.

Trademarks

The product names appear in this manual are for identification purpose only. The trademarks and product names or brand names appear in this manual are the property of their respective owners.

Purpose

This document is intended to provide the information about the features and use of the product.

Audience

The intended audiences are technical personnel, not for general audiences.

WARNING

Danger of explosion if batteries are incorrectly replaced. Always replace the battery with the same specifications. Dispose of used batteries according to the manufacturer's instructions.

Before running the system, make sure the power cord is firmly plugged into the socket.

CAUTION

IEC 60417-6042 (2010-11)

IEC 60417-6172 (2012-09)

All power cords must be disconnected during product repair.

Ver: 100
Date: Sep. 26, 2022

To read this User Manual on your smart phone, you will have to install an APP that can read PDF file format first. Please find the APP you prefer from the APP Market.

Table of Contents

1. Introduction 5

1.1. Specifications 5
1.2. Packing List 6

2. Hardware Information 7

2.1. Dimensions 7
2.2. Switches and Connectors 9
2.3. List of Connectors 10
2.3.1. AT/ATX Switch (SW1) 10
2.3.2. Battery (CN3) 10
2.3.3. EC Programming Header (CN4) 10
2.3.4. BIOS Programming Header (CN5) 11
2.3.5. ROW A/B Connector (CN8) 11
2.3.6. ROW C/D Connector (CN9) 14
2.3.7. LPC (CN10) 18
2.3.8. LAN GPIO (i210IT) (CN11) 18
2.4. DIMM Population Configurations 19
2.4.1. DDR4 2933 ECC SoDIMM Validation Results 20
2.5. Function Block Diagram 21
2.6. Hardware Assembly 22
2.6.1. CPU Cooler Assembly 22

3. AMI BIOS Setup 24

3.1. System Test and Initialization 24
3.2. AMI BIOS Setup 24
3.3. Setup Submenu: Main 25
3.4. Setup Submenu: Advanced 26
3.4.1. Trusted Computing 26
3.4.2. NVMe Configuration 28
3.4.3. Hardware Monitor 28
3.4.4. SIO Configuration 29
3.4.5. Serial Port Configuration 29
3.4.6. Serial Port Console Redirection 30
3.4.7. BIOS Robot 31
3.4.8. Power Management 32
3.4.9. Digital IO Port Configuration 33

3.5. Setup Submenu: Platform Configuration 34
3.5.1. PCH-IO Configuration 34
3.5.2. PCI Express Configuration 35
3.5.3. SATA Configuration 36
3.5.4. Server ME Configuration 37
3.6. Setup Submenu: Socket Configuration 37
3.6.1. Processor Configuration 38
3.6.2. Memory Configuration 38
3.6.3. Memory Topology 39
3.6.4. IIO Configuration 40
3.6.5. Socket0 Configuration 40
3.7. Setup Submenu: Security 41
3.7.1. Secure Boot 42
3.7.2. Secure Boot 43
3.8. Setup Submenu: Boot 44
3.8.1. BBS Priorities 45
3.9. Setup Submenu: Save & Exit 46

4. Drivers Installation 47

4.1. Drivers Download and Installation 47

5. Appendix 48

5.1. I/O Information 48
5.1.1. I/O Address Map 48
5.1.2. Memory Address Map 49
5.1.3. IRQ Mapping Chart 51

6. FAQ 54

Q 1. Where can I find the serial number of this product? 54

1. Introduction

ACM-ICLDE7 is the latest COM Express Type 7 product of Acrosser, which is equipped with an Intel Ice Lake D server-grade processor. Especially, it is included a 4 x integrated 10GbE KR high-speed signal on board except for Standard Type 7 with 32 PCIe Lanes. The form factor that meets the popular COM Express standard Basic Module size of 125mm x 95mm completely, this one can fulfill all of your embedded requirements ideally, and make your embedded idea to reality.

ACM-ICLDE7 is equipped with 5 CPU grades totally for your choosing, which can be helpful for all of your applications in a high-speed 10 GbE ethernet communication environment.

Model Name:

ACM-ICLDE7-A1 (D-1746TER, 10c)

ACM-ICLDE7-A2 (D-1735TR, 8c)

ACM-ICLDE7-A3 (D-1732TE, 8c)

ACM-ICLDE7-A4 (D-1715TER, 4c)

ACM-ICLDE7-A5 (D-1712TR, 4c)

1.1. Specifications

(Specifications are subject to change without notice.)

Form Factor	• COM Express Basic size, Type 7
CPU	• Intel® Idaville Platform Ice Lake-D (XEON-D) LCC series
CPU Frequency	• Up to 2.00 GHz, D-1746TER
Chipset	• Intel® SoC
BIOS	• AMI UEFI
Memory	• 4x DDR4 SO-DIMM up to 128GB
10 GbE Ethernet	• 4x 10GBASE KR (10 GbE with KR interface & NC-SI) • Support PXE Boot function
GbE Ethernet	• 1x GbE (Intel® i210IT GbE) • Support PXE Boot function
SATA	• 2x SATA III (6.0Gb/s)
USB	• 4x USB2.0 • 4x USB3.2 Gen1
Serial Port	• 2x RS-232 (Only TX & RX)
GPIO	• 8-bit

Expansion	• 32x PCI Express 3.0 lanes • 1x PCI-e x16 • 4x PCI-e x4 • I2C • LPC • SMBus
OS Support	• Windows 10 Linux Kernel 64-bit (Ubuntu 20.04)
Watchdog Timer	• 255 levels
Power Mode	• AT / ATX Mode
Operating Temp	• 0~60°C (32~104°F)
Dimension	• 125 x 95mm (4.92” x 3.74”)
Safety	• CE, FCC class A

1.2. Packing List

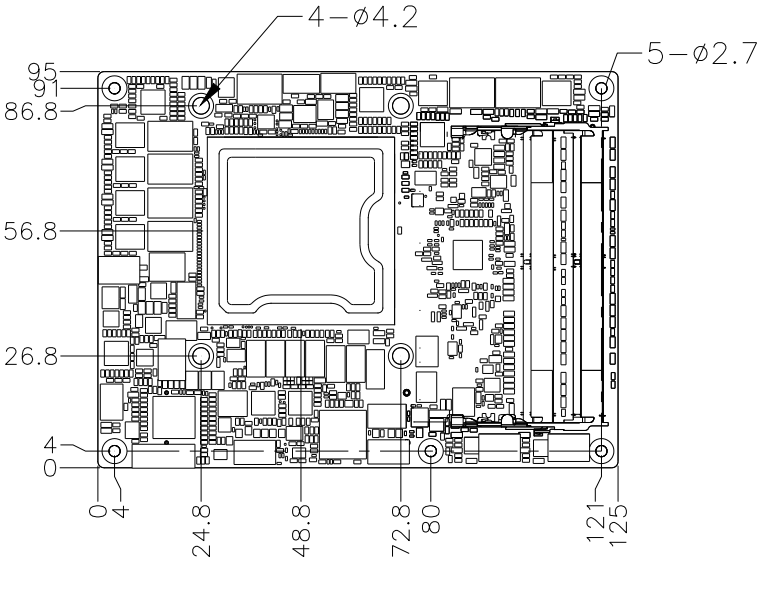
Check if the following items are included in the package.

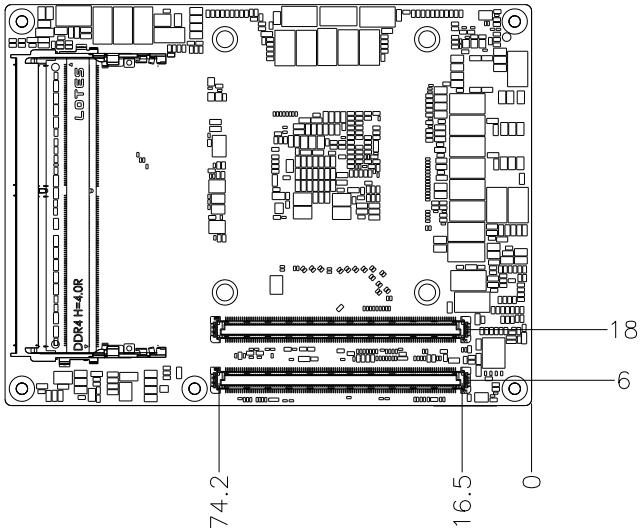
	Item	Q’ty
☐	ACM-ICLDE7	1
☐	FAN + Heatsink	1

2. Hardware Information

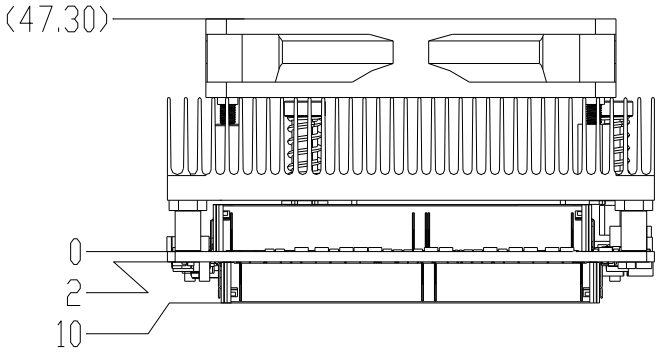
2.1. Dimensions

(Unit: mm)



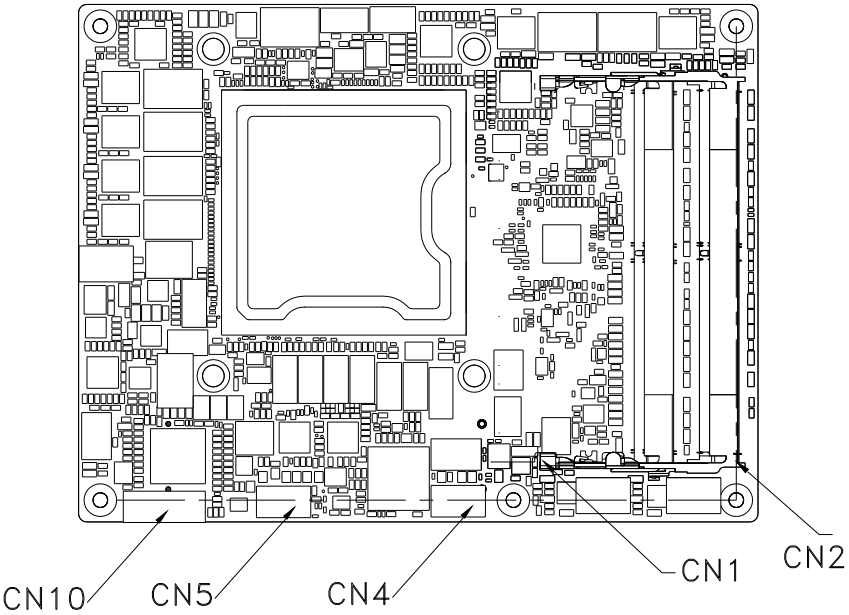


With Active Cooler:

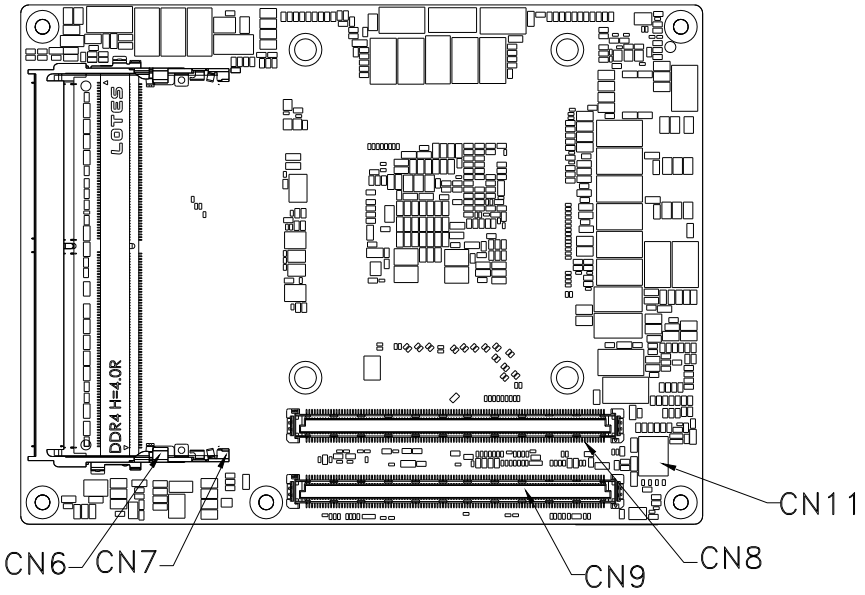


2.2. Switches and Connectors

Top Side:



Bottom Side:



2.3. List of Connectors

Label	Function
SW1	AT/ATX Switch
CN3	Battery
CN4	EC Programming Header
CN5	BIOS Programming Header
CN8	ROW A/B
CN9	ROW C/D
CN10	LPC
CN11	LAN GPIO (i210IT)

2.3.1. AT/ATX Switch (SW1)

Pin #	ON	OFF
1	AT Mode (Default)	ATX Mode
2	RTC Reset	RTC Normal (Default)

2.3.2. Battery (CN3)

Pin #	Signal
1	+3.3V
2	GND

2.3.3. EC Programming Header (CN4)

Pin #	Signal
1	SPI_MISO
2	GND
3	SPI_CLK
4	+3.3VSB
5	SPI_MOSI
6	SPI_CS
7	NC

2.3.4. BIOS Programming Header (CN5)

Pin #	Signal
1	SPI_MISO
2	GND
3	SPI_CLK
4	+3.3VSB
5	SPI_MOSI
6	SPI_CS
7	NC

2.3.5. ROW A/B Connector (CN8)

Row A		Row B	
Pin #	**Signal**	**Pin #**	**Signal**
A1	GND(FIXED)	B1	GND(FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	LPC_DRQ0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND(FIXED)	B11	GND(FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND(FIXED)	B21	GND(FIXED)

Row A		Row B	
Pin #	**Signal**	**Pin #**	**Signal**
A22	PCIE_TX15+	B22	PCIE_RX15+
A23	PCIE_TX15-	B23	PCIE_RX15-
A24	SUS_S5#	B24	PWR_OK
A25	PCIE_TX14+	B25	PCIE_RX14+
A26	PCIE_TX14-	B26	PCIE_RX14-
A27	BATLOW#	B27	WDT
A28	(S)ATA_ACT#	B28	RSVD
A29	RSVD	B29	RSVD
A30	RSVD	B30	RSVD
A31	GND(FIXED)	B31	GND(FIXED)
A32	RSVD	B32	SPKR
A33	RSVD	B33	I2C_CK
A34	BIOS_DIS0#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	PCIE_TX13+	B36	PCIE_RX13+
A37	PCIE_TX13-	B37	PCIE_RX13-
A38	GND	B38	GND
A39	PCIE_TX12+	B39	PCIE_RX12+
A40	PCIE_TX12-	B40	PCIE_RX12-
A41	GND(FIXED)	B41	GND(FIXED)
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	ESPI_EN
A48	RSVD	B48	RSVD
A49	RSVD	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND(FIXED)	B51	GND(FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPIO	B54	GPO1

Row A		Row B	
Pin #	**Signal**	**Pin #**	**Signal**
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND(FIXED)	B60	GND(FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND(FIXED)	B70	GND(FIXED)
A71	PCIE_TX8+	B71	PCIE_RX8+
A72	PCIE_TX8-	B72	PCIE_RX8-
A73	GND	B73	GND
A74	PCIE_TX9+	B74	PCIE_RX9+
A75	PCIE_TX9-	B75	PCIE_RX9-
A76	GND	B76	GND
A77	PCIE_TX10+	B77	PCIE_RX10+
A78	PCIE_TX10-	B78	PCIE_RX10-
A79	GND	B79	GND
A80	GND(FIXED)	B80	GND(FIXED)
A81	PCIE_TX11+	B81	PCIE_RX11+
A82	PCIE_TX11-	B82	PCIE_RX11-
A83	GND	B83	GND
A84	NCSI_TX_EN	B84	VCC_5V_SBY
A85	GPI3	B85	VCC_5V_SBY
A86	RSVD	B86	VCC_5V_SBY
A87	RSVD	B87	VCC_5V_SBY

Row A		Row B	
Pin #	**Signal**	**Pin #**	**Signal**
A88	PCIE_CK_REF+	B88	BIOS_DIS1#
A89	PCIE_CK_REF-	B89	NCSI_RX_ER
A90	GND(FIXED)	B90	GND(FIXED)
A91	SPI_POWER	B91	NCSI_CLK_IN
A92	SPI_MISO	B92	NCSI_RXD1
A93	GPO0	B93	NCSI_RXD0
A94	SPI_CLK	B94	NCSI_CRS_DV
A95	SPI_MOSI	B95	NCSI_TXD1
A96	TPM_PP	B96	NCSI_TXD0
A97	TYPE10#	B97	SPI_CS#
A98	SER0_TX	B98	NCSI_ARB_IN
A99	SER0_RX	B99	NCSI_ARB_OUT
A100	GND(FIXED)	B100	GND(FIXED)
A101	SER1_TX	B101	FAN_PWMOUT
A102	SER1_RX	B102	FAN_TACHIN
A103	LID#	B103	SLEEP#
A104	VCC_12V	B104	VCC_12V
A105	VCC_12V	B105	VCC_12V
A106	VCC_12V	B106	VCC_12V
A107	VCC_12V	B107	VCC_12V
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND(FIXED)	B110	GND(FIXED)

2.3.6. ROW C/D Connector (CN9)

Row C		Row D	
Pin #	**Signal**	**Pin #**	**Signal**
C1	GND(FIXED)	D1	GND(FIXED)
C2	GND	D2	GND
C3	USB_SSRX0-	D3	USB_SSTX0-
C4	USB_SSRX0+	D4	USB_SSTX0+
C5	GND	D5	GND

Row C		Row D	
Pin #	**Signal**	**Pin #**	**Signal**
C6	USB_SSRX1-	D6	USB_SSTX1-
C7	USB_SSRX1+	D7	USB_SSTX1+
C8	GND	D8	GND
C9	USB_SSRX2-	D9	USB_SSTX2-
C10	USB_SSRX2+	D10	USB_SSTX2+
C11	GND(FIXED)	D11	GND(FIXED)
C12	USB_SSRX3-	D12	USB_SSTX3-
C13	USB_SSRX3+	D13	USB_SSTX3+
C14	GND	D14	GND
C15	10G_PHY_MDC_SCL3	D15	10G_PHY_MDIO_SDA3
C16	10G_PHY_MDC_SCL2	D16	10G_PHY_MDIO_SDA2
C17	10G_SDP2	D17	10G_SDP3
C18	GND	D18	GND
C19	PCIE_RX6+	D19	PCIE_TX6+
C20	PCIE_RX6-	D20	PCIE_TX6-
C21	GND(FIXED)	D21	GND(FIXED)
C22	PCIE_RX7+	D22	PCIE_TX7+
C23	PCIE_RX7-	D23	PCIE_TX7-
C24	10G_INT2	D24	10G_INT3
C25	GND	D25	GND
C26	10G_KR_RX3+	D26	10G_KR_TX3+
C27	10G_KR_RX3-	D27	10G_KR_TX3-
C28	GND	D28	GND
C29	10G_KR_RX2+	D29	10G_KR_TX2+
C30	10G_KR_RX2-	D30	10G_KR_TX2-
C31	GND(FIXED)	D31	GND(FIXED)
C32	10G_SFP_SDA3	D32	10G_SFP_SCL3
C33	10G_SFP_SDA2	D33	10G_SFP_SCL2
C34	10G_PHY_RST_23	D34	10G_PHY_SEL_23
C35	10G_PHY_RST_01	D35	10G_PHY_SEL_01
C36	10G_LED_SDA	D36	RSVD
C37	10G_LED_SCL	D37	RSVD
C38	10G_SFP_SDA1	D38	10G_SFP_SCL1

Row C		Row D	
Pin #	**Signal**	**Pin #**	**Signal**
C39	10G_SFP_SDA0	D39	10G_SFP_SCL0
C40	10G_SDP0	D40	10G_SDP1
C41	GND(FIXED)	D41	GND(FIXED)
C42	10G_KR_RX1+	D42	10G_KR_TX1+
C43	10G_KR_RX1-	D43	10G_KR_TX1-
C44	GND	D44	GND
C45	10G_PHY_MDC_SCL1	D45	10G_PHY_MDIO_SDA1
C46	10G_PHY_MDC_SCL0	D46	10G_PHY_MDIO_SDA0
C47	10G_INT0	D47	10G_INT1
C48	GND	D48	GND
C49	10G_KR_RX0+	D49	10G_KR_TX0+
C50	10G_KR_RX0-	D50	10G_KR_TX0-
C51	GND(FIXED)	D51	GND(FIXED)
C52	PCIE_RX16+	D52	PCIE_TX16+
C53	PCIE_RX16-	D53	PCIE_TX16-
C54	TYPE0#	D54	RSVD
C55	PCIE_RX17+	D55	PCIE_TX17+
C56	PCIE_RX17-	D56	PCIE_TX17-
C57	TYPE1#	D57	TYPE2#
C58	PCIE_RX18+	D58	PCIE_TX18+
C59	PCIE_RX18-	D59	PCIE_TX18-
C60	GND(FIXED)	D60	GND(FIXED)
C61	PCIE_RX19+	D61	PCIE_TX19+
C62	PCIE_RX19-	D62	PCIE_TX19-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PCIE_RX20+	D65	PCIE_TX20+
C66	PCIE_RX20-	D66	PCIE_TX20-
C67	RSVD	D67	GND
C68	PCIE_RX21+	D68	PCIE_TX21+
C69	PCIE_RX21-	D69	PCIE_TX21-
C70	GND(FIXED)	D70	GND(FIXED)
C71	PCIE_RX22+	D71	PCIE_TX22+

Row C		Row D	
Pin #	**Signal**	**Pin #**	**Signal**
C72	PCIE_RX22-	D72	PCIE_TX22-
C73	GND	D73	GND
C74	PCIE_RX23+	D74	PCIE_TX23+
C75	PCIE_RX23-	D75	PCIE_TX23-
C76	GND	D76	GND
C77	RSVD	D77	RSVD
C78	PCIE_RX24+	D78	PCIE_TX24+
C79	PCIE_RX24-	D79	PCIE_TX24-
C80	GND(FIXED)	D80	GND(FIXED)
C81	PCIE_RX25+	D81	PCIE_TX25+
C82	PCIE_RX25-	D82	PCIE_TX25-
C83	RSVD	D83	RSVD
C84	GND	D84	GND
C85	PCIE_RX26+	D85	PCIE_TX26+
C86	PCIE_RX26-	D86	PCIE_TX26-
C87	GND	D87	GND
C88	PCIE_RX27+	D88	PCIE_TX27+
C89	PCIE_RX27-	D89	PCIE_TX27-
C90	GND(FIXED)	D90	GND(FIXED)
C91	PCIE_RX28+	D91	PCIE_TX28+
C92	PCIE_RX28-	D92	PCIE_TX28-
C93	GND	D93	GND
C94	PCIE_RX29+	D94	PCIE_TX29+
C95	PCIE_RX29-	D95	PCIE_TX29-
C96	GND	D96	GND
C97	RSVD	D97	RSVD
C98	PCIE_RX30+	D98	PCIE_TX30+
C99	PCIE_RX30-	D99	PCIE_TX30-
C100	GND(FIXED)	D100	GND(FIXED)
C101	PCIE_RX31+	D101	PCIE_TX31+
C102	PCIE_RX31-	D102	PCIE_TX31-
C103	GND	D103	GND
C104	VCC_12V	D104	VCC_12V

Row C		Row D	
Pin #	**Signal**	**Pin #**	**Signal**
C105	VCC_12V	D105	VCC_12V
C106	VCC_12V	D106	VCC_12V
C107	VCC_12V	D107	VCC_12V
C108	VCC_12V	D108	VCC_12V
C109	VCC_12V	D109	VCC_12V
C110	GND(FIXED)	D110	GND(FIXED)

2.3.7. LPC (CN10)

Pin #	Signal
1	LAD0
2	LAD1
3	LAD2
4	LAD3
5	+3.3V
6	LFRAME#
7	LRESET#
8	GND
9	LCLK
10	NC
11	NC
12	NC

2.3.8. LAN GPIO (i210IT) (CN11)

Pin #	Signal
1	SDP1
2	SDP2
3	SDP3
4	SDP4
5	GND
6	GND

2.4. DIMM Population Configurations

Please refer to the table below for all of the board's DDR slot configurations that you can configure for your application.

DIMM	Slot Configuration	Memory Type
1	CN2	DDR4 2933
1	CN6	DDR4 2933
2	CN2 & CN6	DDR4 2666
4	CN1 & CN2 & CN7 & CN8	DDR4 2400

Note: Memory supports 8GB to 32GB per SoDIMM.

2.4.1. DDR4 2933 ECC SoDIMM Validation Results

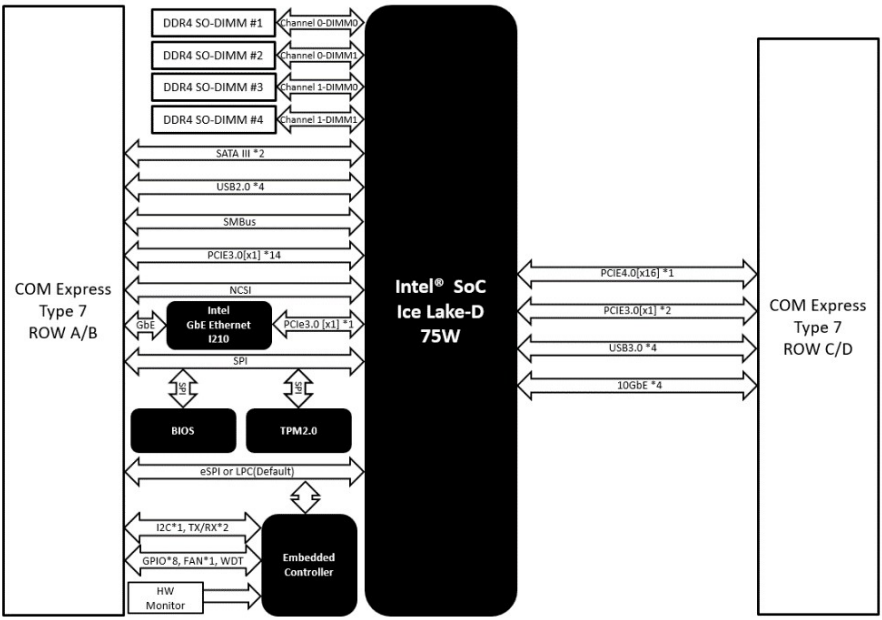
Listed below are validation results from a small sample of DDR4 2933 ECC SoDIMM tested on Intel reference platforms.

DDR4 2933 ECC SoDIMM, 1DIMM/ch, 2 channels, tested at 1.2V Vdd:

DIMM Supplier	DIMM Part Number	DIMM Size	Raw Card
Micron	MTA18ASF4G72HZ-3G2B1	32GB	G1
Samsung	M474A4G43AB1-CVF	32GB	G1
Samsung	M474A4G43AB1-CWE	32GB	G1
Samsung	M474A2K43DB1-CVF	16GB	G1
Samsung	M474A2K43DB1-CWE	16GB	G1
Samsung	M474A1K43DB1-CVF	8GB	D1
Samsung	M474A1K43DB1-CWE	8GB	D1
SK	HMA82GS7DJR8N-WMT0	16GB	G1
SK	HMA82GS7DJR8N-XNT0	16GB	G1
SK	HMA81GS7DJR8N-WMT0	8GB	D1

DRAM Supplier	DRAM Part Number	DRAM Density	DRAM Width	DRAM Date Code	Die Revision
Micron	MT40A2G8VA-062E:B	16Gb	x8	1946	B
Samsung	K4AAG085WA-BCVF	16Gb	X8	1946	A
Samsung	K4AAG085WA-BCWE	16Gb	X8	2004	A
Samsung	K4A8G085WD-BCVF	8Gb	X8	1949	D
Samsung	K4A8G085WD-BCWE	8Gb	X8	2004	D
Samsung	K4A8G085WD-BCVF	8Gb	X8	1949	D
Samsung	K4A8G085WD-BCWE	8Gb	X8	2001	D
SK Hynix	H5AN8G8NDJR-WMC	8Gb	X8	2001	D
SK Hynix	H5AN8G8NDJR-XNC	8Gb	X8	2010	D
SK Hynix	H5AN8G8NDJR-WMC	8Gb	X8	2001	D

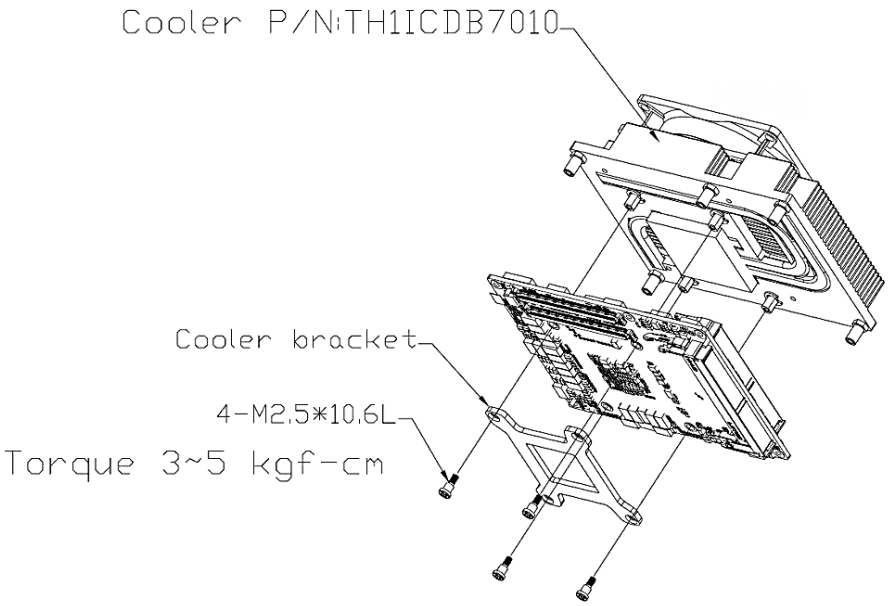
2.5. Function Block Diagram



2.6. Hardware Assembly

2.6.1. CPU Cooler Assembly

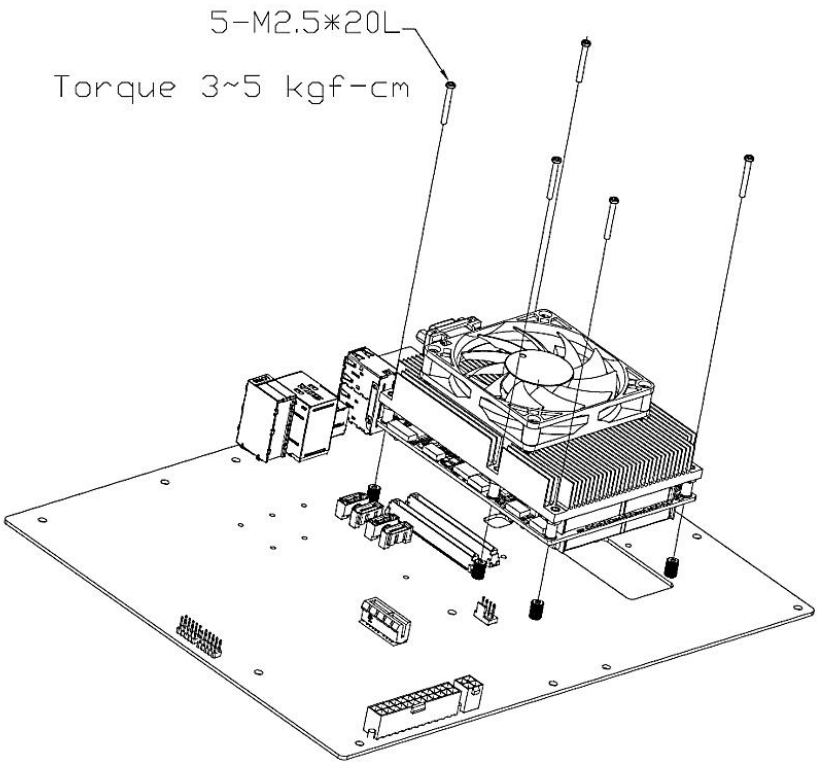
Step 1:



Note: Slightly tighten all four screws in diagonal order. Then, repeat with torque 3~5 kgf-cm with proper tools.

Note: According to the CPU spec, the CPU Tcase should be kept at or below 85°C for your thermal design consideration.

Step 2:



3. AMI BIOS Setup

3.1. System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

System configuration verification

These routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

1. You are starting your system for the first time.
2. You have changed the hardware attached to your system.
3. The system configuration is reset by Clear-CMOS jumper.
4. The CMOS memory has lost power and the configuration information has been erased.

The ACM-ICLDE7 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2. AMI BIOS Setup

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM and BIOS NVRAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> or <ESC> immediately. This will allow you to enter Setup.

Main

Set the date, use tab to switch between date elements.

Advanced

Enable disable boot option for legacy network devices.

Platform Configuration

Chipset and ME Parameters.

Socket Configuration

Processor and Memory Parameters.

Security

Set setup administrator password

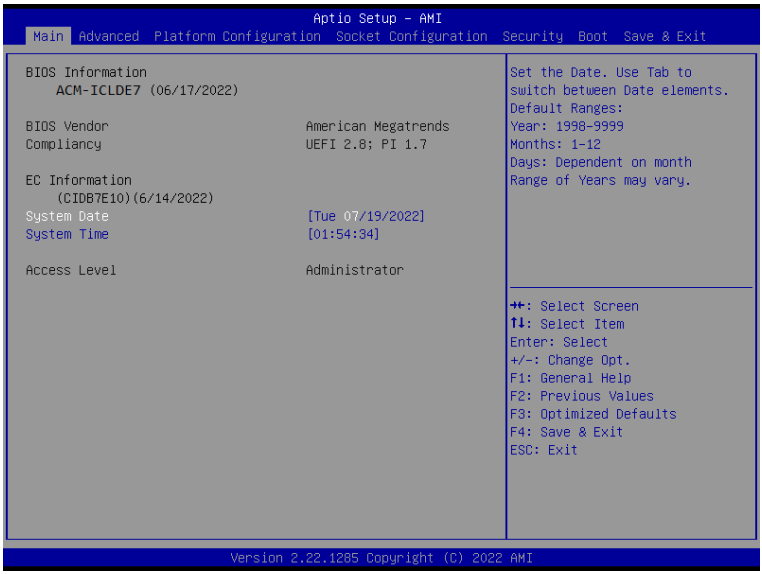
Boot

Enables/disable quiet boot option.

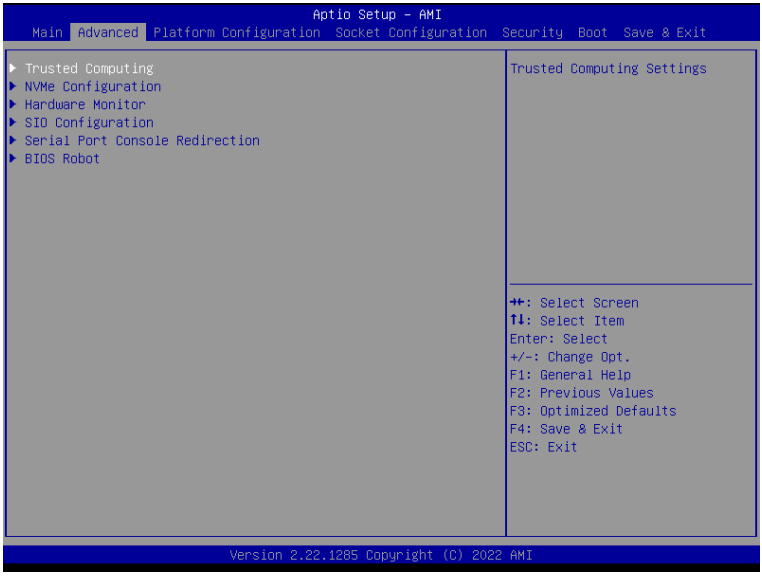
Save & Exit

Exit system setup after saving the changes.

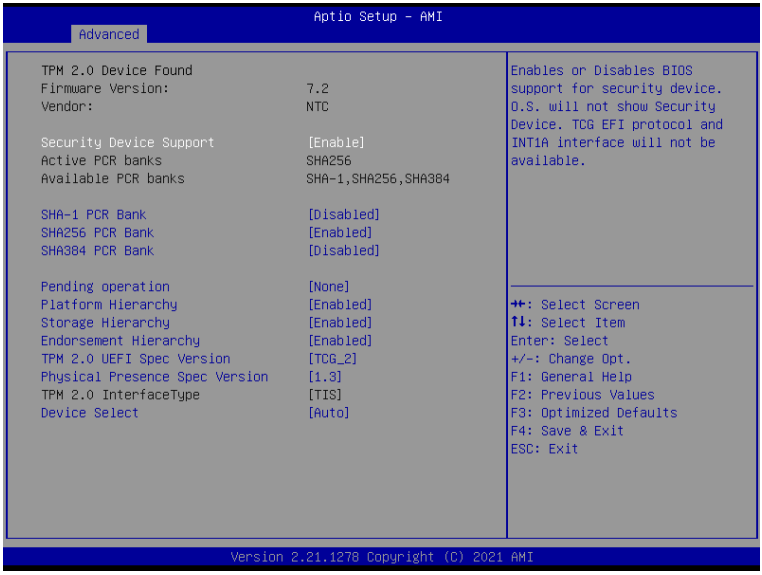
3.3. Setup Submenu: Main



3.4. Setup Submenu: Advanced



3.4.1. Trusted Computing



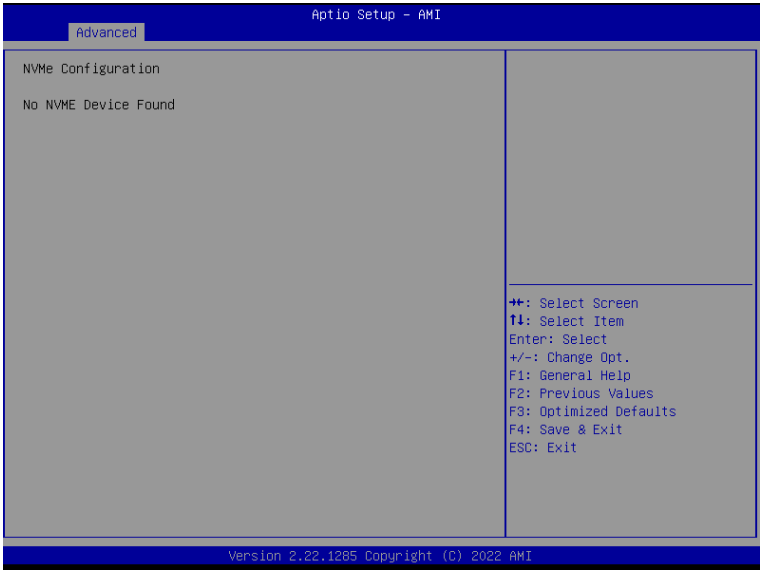
- **Security Device Support**
  Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
- **SHA-1 PCR Bank**
  Enable or Disable SHA-1 PCR Bank.
- **SHA256 PCR Bank**
  Enable or Disable SHA256 PCR Bank.
- **SHA384 PCR Bank**
  Enable or Disable SHA384 PCR Bank.
- **SM3_256 PCR Bank**
  Enable or Disable SM3_256 PCR Bank.
- **Pending Operation**
  Schedule an Operation for the Security Device. Note: Your Computer will reboot during restart in order to change State of Security Device.
- **Platform Hierarchy**
  Enable or Disable Platform Hierarchy.
- **Storage Hierarchy**
  Enable or Disable Storage Hierarchy.
- **Endorsement Hierarchy**
  Enable or Disable Endorsement Hierarchy.
- **TPM 2.0 UEFI Spec Version**
  Select the TCH2 Spec Version Support.

  TCG_1_2: The Compatible mode for Win8/Win10.

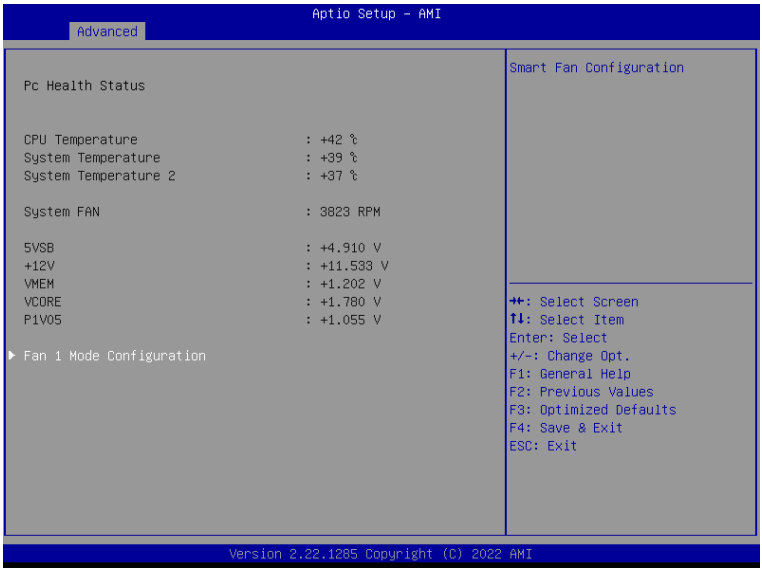
  TCG_2: Support new TCG2 protocol and event format for Win10 or later.
- **Physical Presence Spec Version**
  Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.
- **Device Select**
  TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM 2.0 devices if not found,

  TPM 1.2 devices will be enumerated.

3.4.2. NVMe Configuration



3.4.3. Hardware Monitor

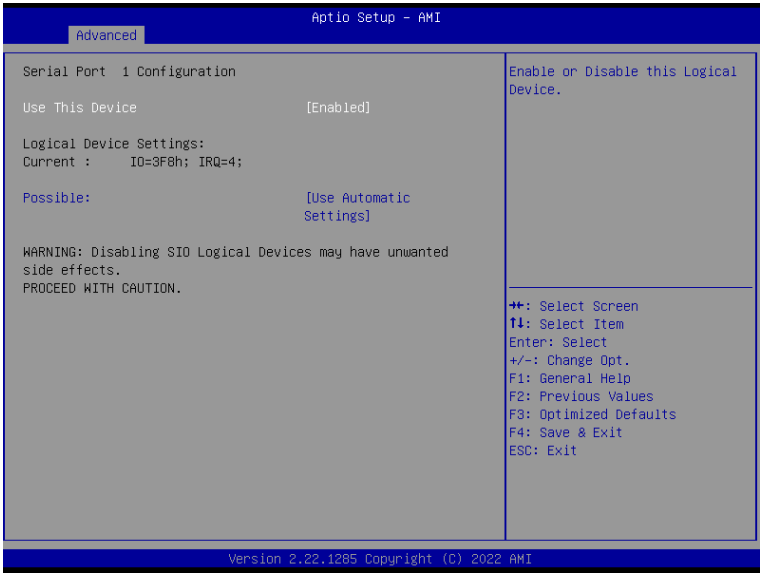


- **System Fan**
  Smart fan configuration.

- **PWM signal**
  Select output PWM of inverting or non-uninverting signal.

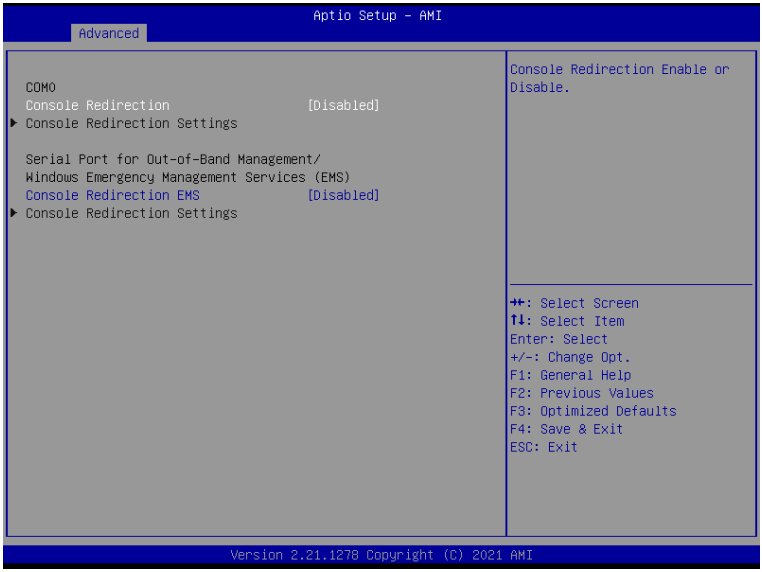
3.4.4. SIO Configuration

3.4.5. Serial Port Configuration



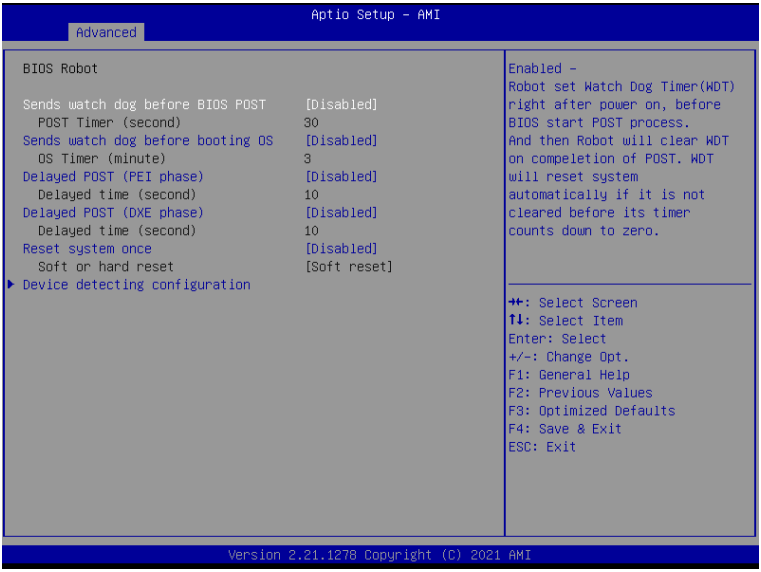
- **Use This Device**
  Enable or Disable this Logical Device.
- **Possible:**
  Allows user to change Device's Resource settings. New settings will be reflected on This Setup Page after System restarts.

3.4.6. Serial Port Console Redirection



- **Console Redirection**
  Console Redirection Enable or Disable.
- **Console Redirection EMS**
  Console Redirection Enable or Disable.

3.4.7. BIOS Robot



- **Sends watch dog before BIOS POST**

  Enabled - Robot set Watch Dog Timer (WDT) right after power on, before BIOS start POST process. And then Robot will clear WDT on completion of POST. WDT will reset system automatically if it is not cleared before its timer counts down to zero.

- **POST Timer (second)**

  Timer count set to Watch Dog Timer for POST. Warning: Do not set to a value equal or shorter than normal POST time, otherwise system may never complete POST unless clearing BIOS settings. More than 2 x normal POST time is suggested.

- **Sends watch dog before booting OS**

  Enabled - Robot set Watch Dog Timer (WDT) after POST completion, before BIOS transfer control to OS. Warning: Before enabling this function, a program in OS must be in responsible for clearing WDT. Also, this function should be disabled if OS is going to update itself.

- **OS Timer (minute)**

  Timer count set to Watch Dog Timer for OS loading.

- **Delayed POST (PEI phase)**

  Enabled - Robot holds BIOS from starting POST, right after power on. This allows BIOS POST to start with stable power or start after system is physically warmed-up.

  Note: Robot does this before 'Sends watch dog'.

- **Delayed time (second)**

  Period of time for Robot to hold BIOS from POST.

- **Delayed POST (DXE phase)**

  Enabled - Robot holds BIOS before POST completion. This allows BIOS POST to start with stable power or start after system is physically warmed-up. Note: Robot does this after 'Sends watch dog before BIOS POST'.

- **Delayed time (second)**

  Period of time for Robot to hold BIOS from POST.

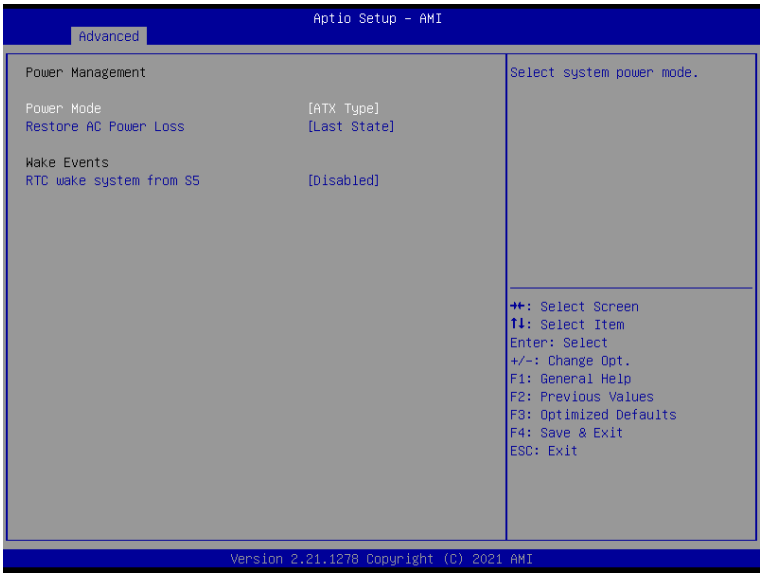
- **Reset system once**

  Enabled - Robot resets system for one time on each boot. This will send a soft or hard reset to onboard devices, thus puts devices to more stable state.

- **Soft or hard reset**

  Select reset type robot should send on each boot.

3.4.8. Power Management



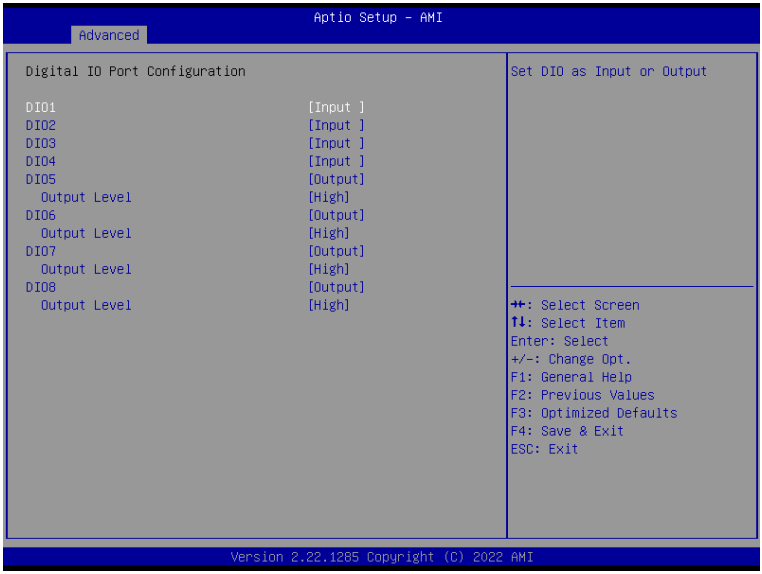
- **Power Mode**
  Select power supply mode.

- **Restore AC Power Loss**
  Select power state when power is re-applied after a power failure.

- **RTC wake system from S5**
  Fixed Time: System will wake on the hr::min::sec specified.

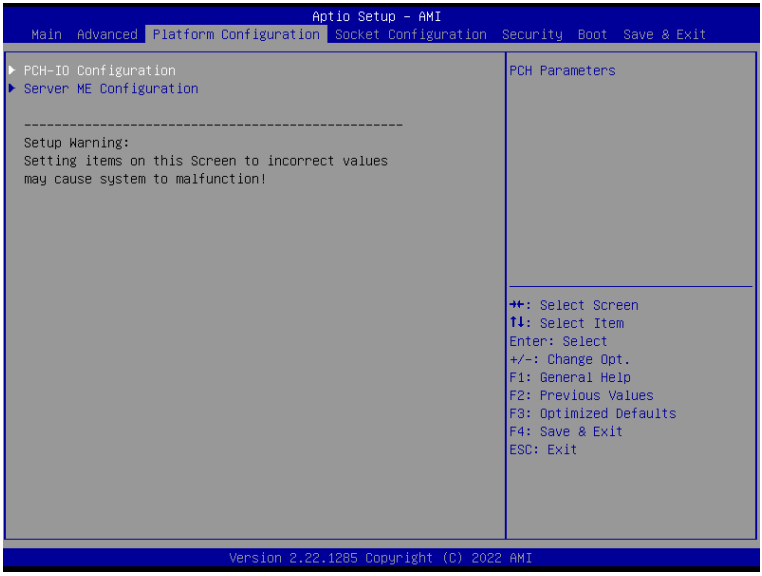
  Dynamic Time: System will wake on the current time + Increase minute(s).

3.4.9. Digital IO Port Configuration

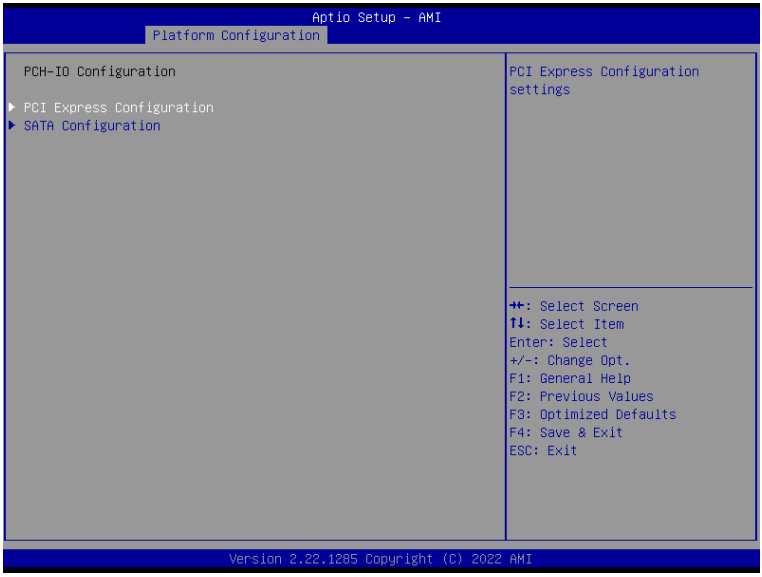


- **DIO Port***
  Set DIO as Input or Output.
- **Output Level**
  Set output level when DIO pin is output.

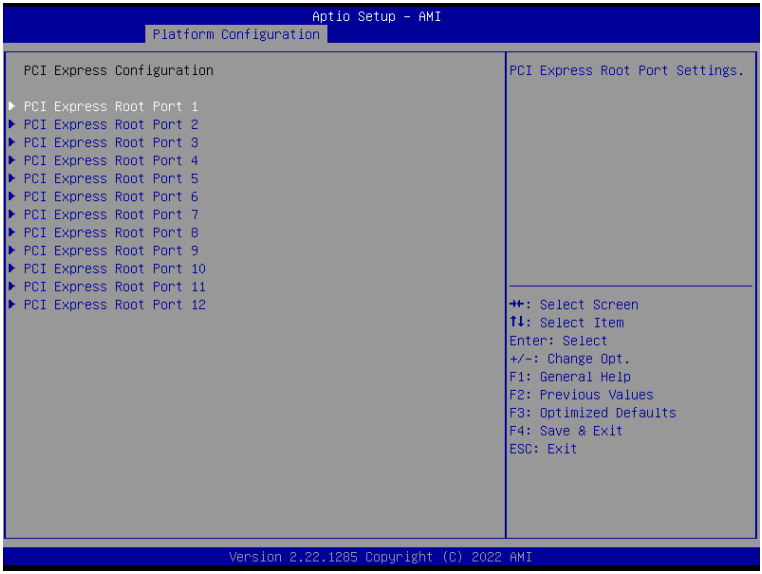
3.5. Setup Submenu: Platform Configuration



3.5.1. PCH-IO Configuration

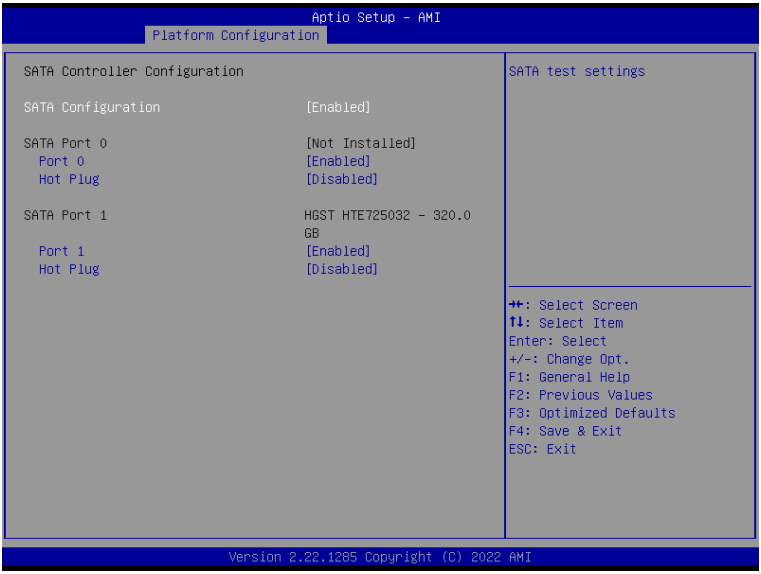


3.5.2. PCI Express Configuration



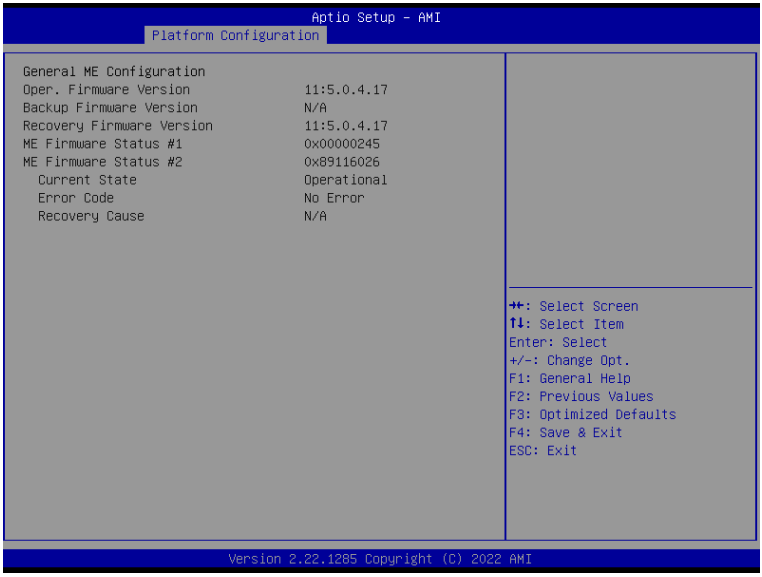
- **PCI Express Root Port***
  Control the PCI Express Root Port.
- **ASPM**
  Control the PCI Express Root Port.
- **PCI Express Root Port***
  PCI Express Active State Power Management settings.
- **Hot Plug**
  PCI Express Hot Plug Enable/Disable.
- **PCIe Speed**
  Configure PCIe Speed Auto is equal to Gen2 or Gen3 depending on DTR soft strap.

3.5.3. SATA Configuration

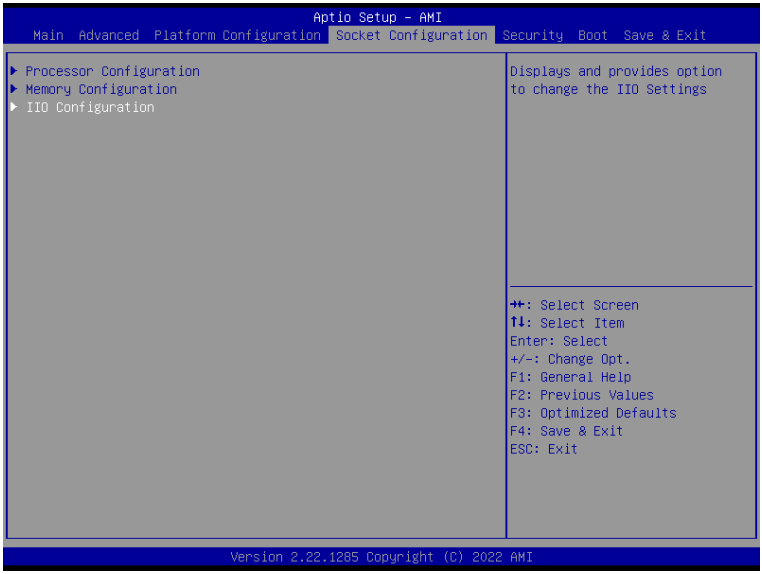


- **SATA Configuration**
  SATA test settings.
- **Port***
  Enable or Disable SATA Port.
- **Hot Plug**
  Designates this port as Hot Pluggable.

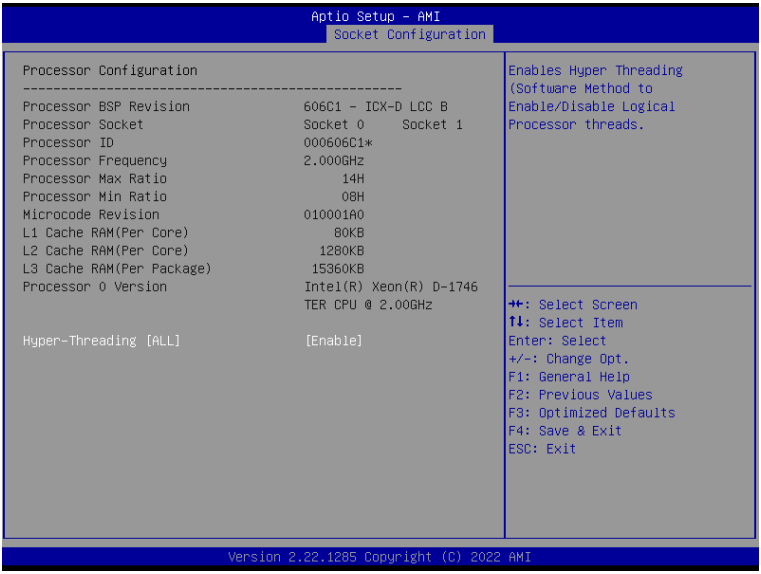
3.5.4. Server ME Configuration



3.6. Setup Submenu: Socket Configuration

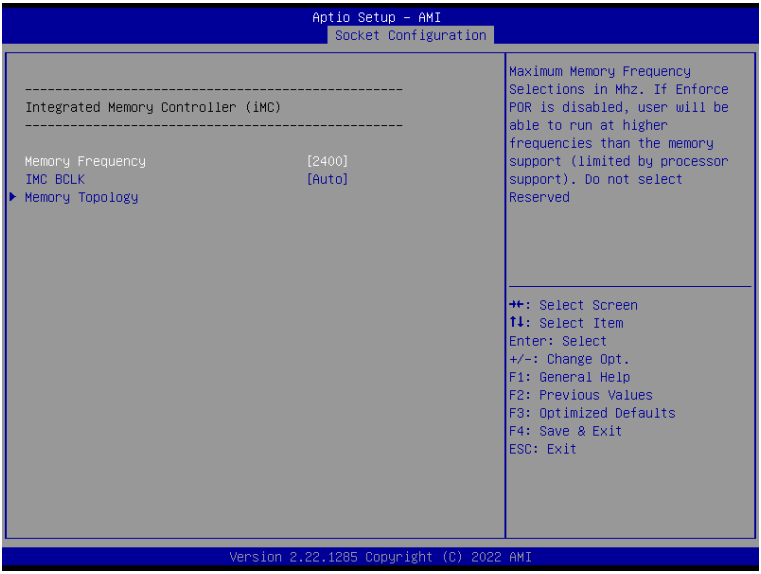


3.6.1. Processor Configuration



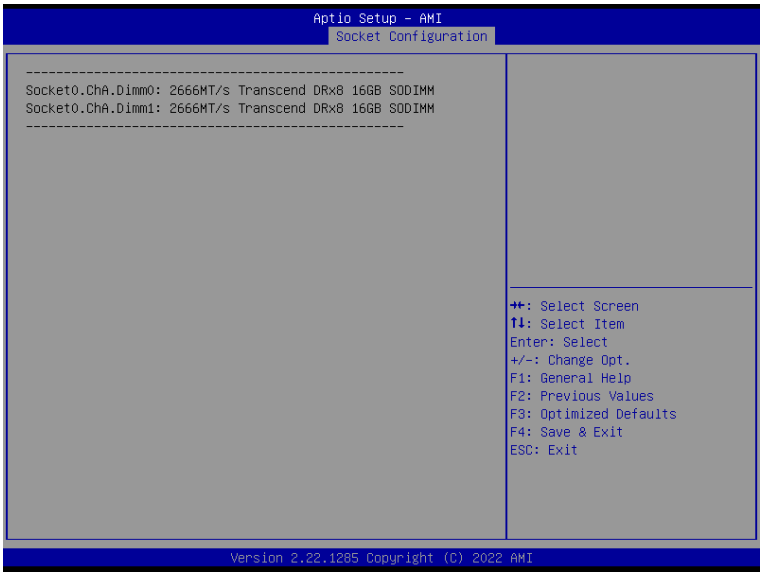
- **Hyper-Threading [ALL]**
  Enable Hyper Threading (Software Method to Enable/Disable Logical Processor threads).

3.6.2. Memory Configuration

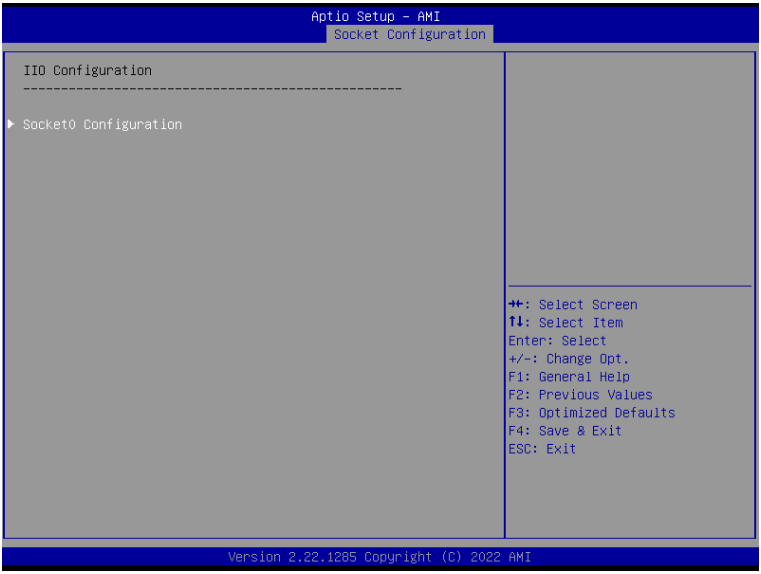


- **Memory Frequency**
  Maximum Memory Frequency Selections in MHz. If Enforce POR is disabled, user will be able to run at higher frequencies than the memory support (limited by processor support). Do not select Reserved.

3.6.3. Memory Topology



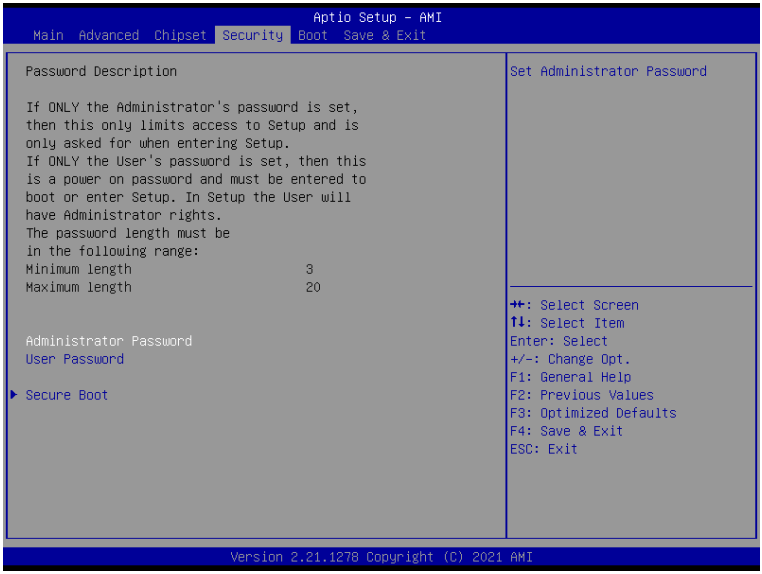
3.6.4. IIO Configuration



3.6.5. Socket0 Configuration

- **IOU0 (IIO PCIe Port 1)**
  Selects PCIe port Bifurcation for selected slot(s).

3.7. Setup Submenu: Security

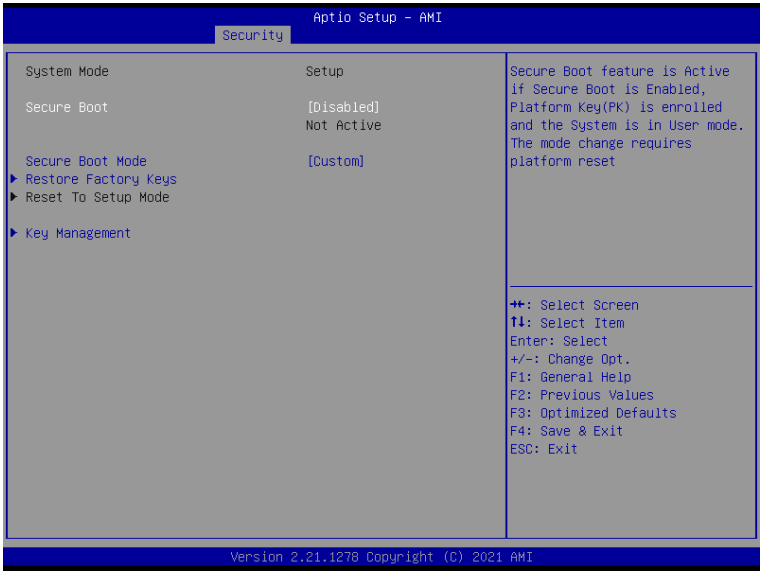


- **Change User/Super visor Password**
  You can install a Super visor password, and if you install a super visor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

  If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

- **Removing the Password**
  Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

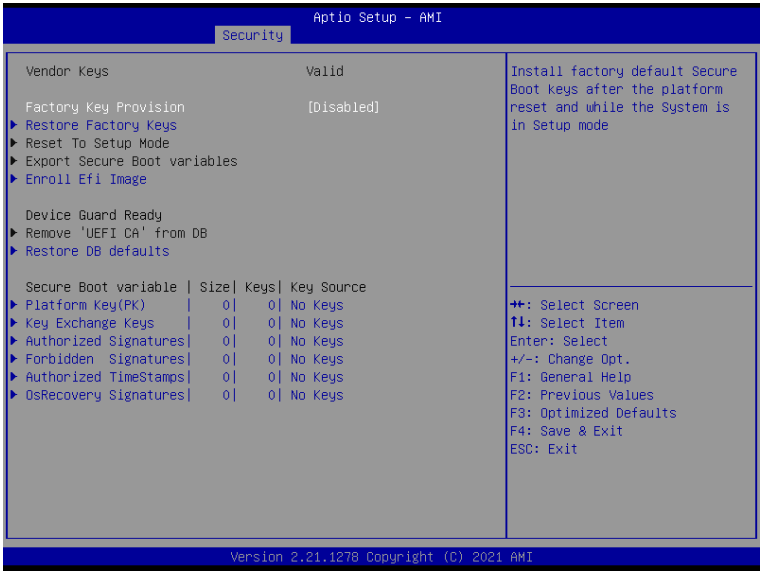
3.7.1. Secure Boot



- **Secure Boot**
  Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.
- **Secure Boot Mode**
  Secure Boot mode options: Standard or Custom.

  In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.
- **Restore Factory Keys**
  Force System to User Mode. Install factory default Secure Boot key databases.
- **Reset to Setup Mode**
  Delete all Secure Boot key databases from NVRAM.

3.7.2. Secure Boot

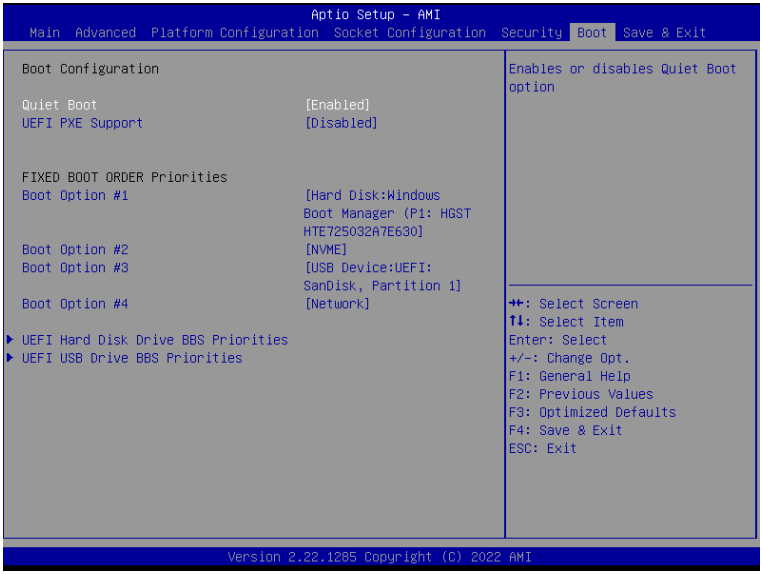


- **Factory Key Provision**
  Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.
- **Restore Factory Keys**
  Force System to User Mode. Install factory default Secure Boot key databases.
- **Reset to Setup Mode**
  Delete all Secure Boot key databases from NVRAM.
- **Export Secure Boot variables**
  Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.
- **Enroll Efi Image**
  Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).
- **Remove ‘UEFI CA’ from DB**
  Device Guard ready system must not list ‘Microsoft UEFI CA’ Certificate in Authorized Signature database (db).
- **Restore DB defaults**
  Restore DB variable to factory defaults.

- **Platform Key (PK)**
- **Key Exchange Keys**
- **Authorized Signatures**
- **Forbidden Signatures**
- **Authorized Timestamps**
- **OS Recover y Signatures**
  Enroll Factory Defaults or load certificates from a file:
  1. Public Key Certificate:
     a) EFI_SIGNATURE_LIST
     b) EFI_CERT_X509 (DER)
     c) EFI_CERT_RSA2048 (bin)
     d) EFI_CERT_SHAXXX
  2. Authenticated UEFI Variable
  3. EFI PE/COFF Image (SHA256)

  Key Source: Factory, External, Mixed

3.8. Setup Submenu: Boot

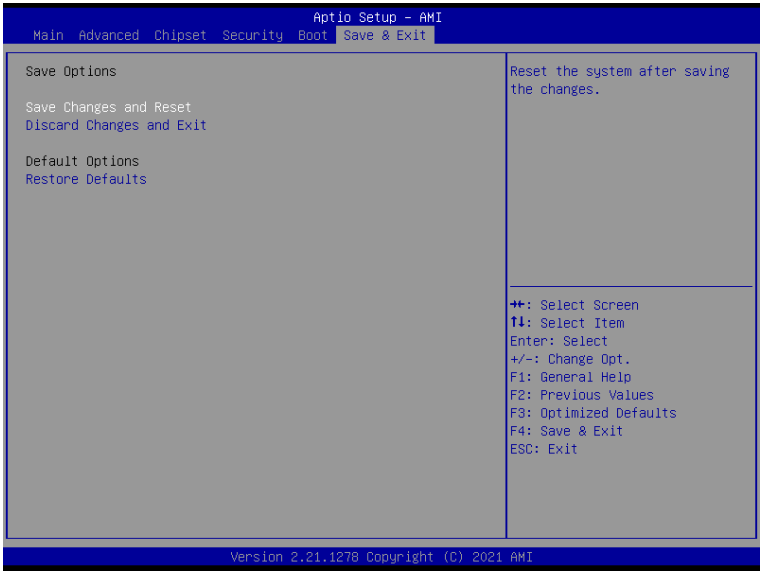


- **Quiet Boot**
  Enable or Disable Quiet Boot option.
- **UEFI PXE Support**
  Enable/Disable UEFI Network Stack.

- **FIXED BOOT ORDER Priorities**
  Sets the system boot order.

3.8.1. BBS Priorities

3.9. Setup Submenu: Save & Exit



- **Save Changes and Reset**
  Reset the system after saving the changes.
- **Discard Changes and Exit**
  Exit system setup without saving any changes.
- **Restore Defaults**
  Restore/Load Default values for all the setup options.

4. Drivers Installation

4.1. Drivers Download and Installation

Drivers for the ACM-ICLDE7 can be downloaded from the product page on the Acrosser website by following this link:

https://www.acrosser.com/en/Support/Download/

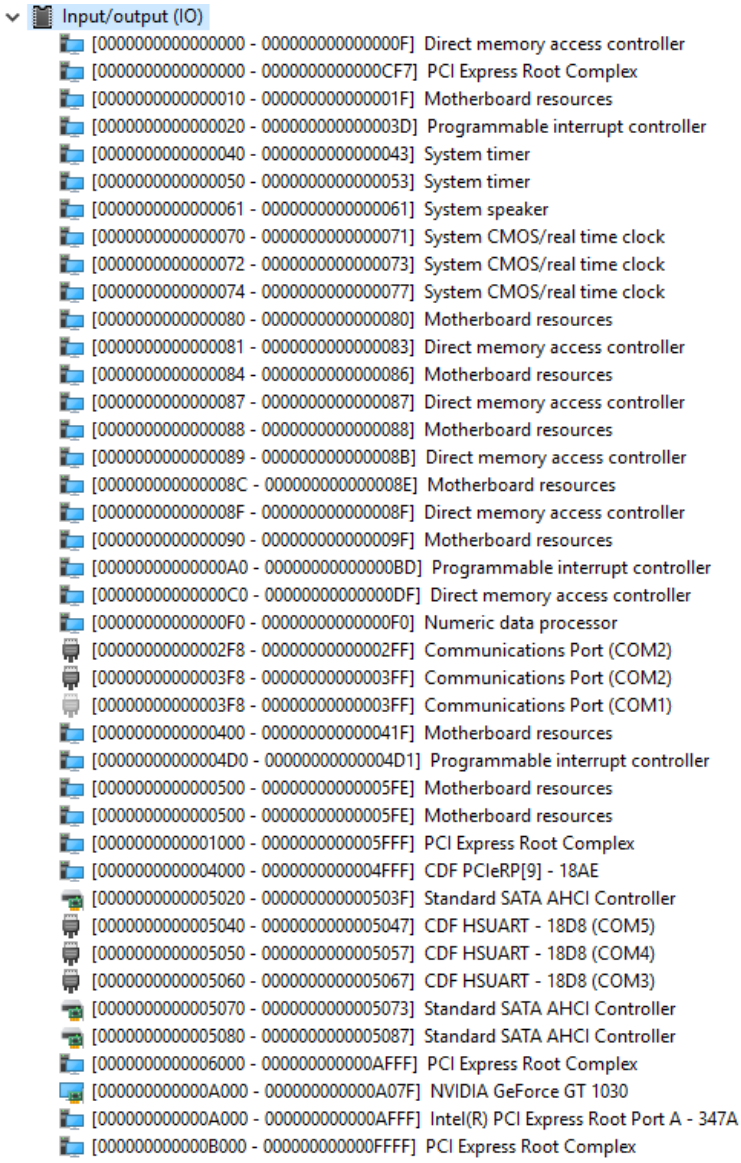
Download the driver(s) you need and extract the zip. Then, follow the steps below to install the drivers.

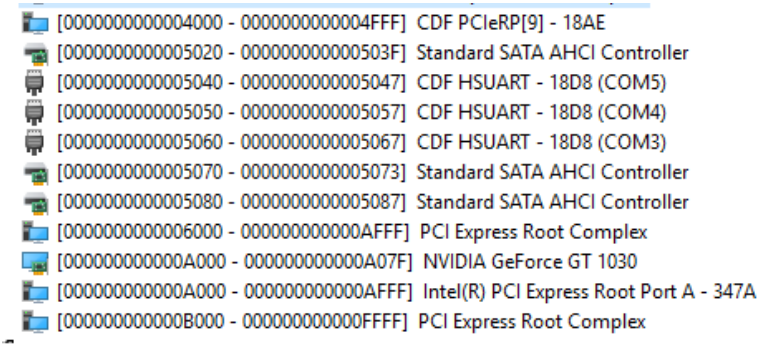
- **Chipset Driver (Windows 10)**
  1. Open the folder where you unzipped the **Chipset Drivers**
  2. Run the **SetupChipset.exe** file in the folder
  3. Follow the instructions
  4. Drivers will be installed automatically
- **LAN Drivers (Windows 10)**
  1. Open the folder where you unzipped the **LAN Drivers**
  2. Click the **ProWinx64.exe** file in the folder.
  3. Follow the instructions
  4. Drivers will be installed automatically
- **Network Adapter Drivers (Windows 10)**
  1. Open the folder where you unzipped the **Network Adapter Drivers**
  2. Click the **Autorun.exe** file in the folder.
  3. Follow the instructions
  4. Drivers will be installed automatically

5. Appendix

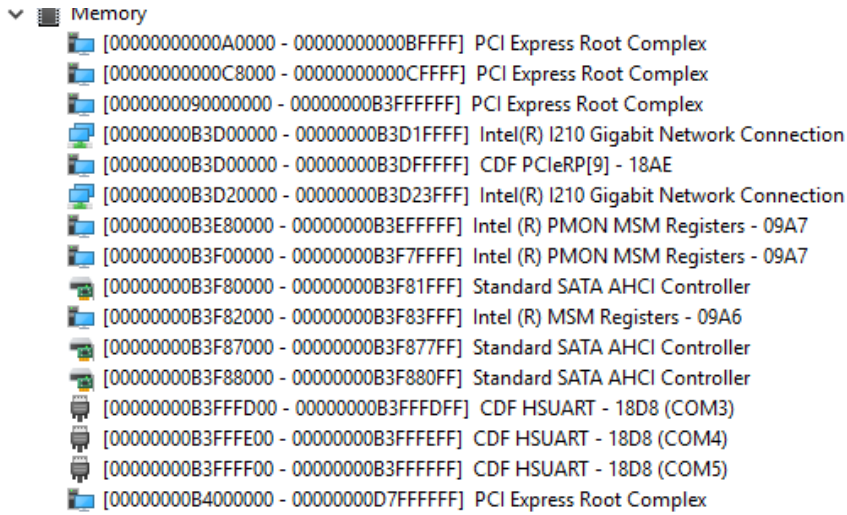
5.1. I/O Information

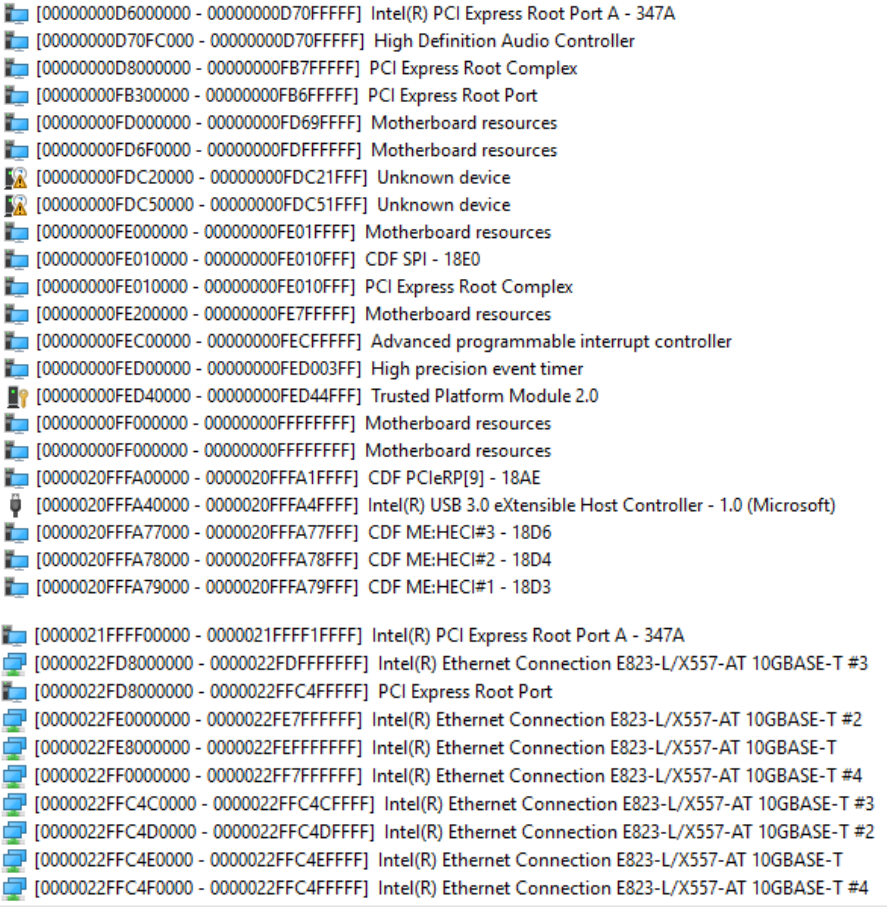
5.1.1. I/O Address Map



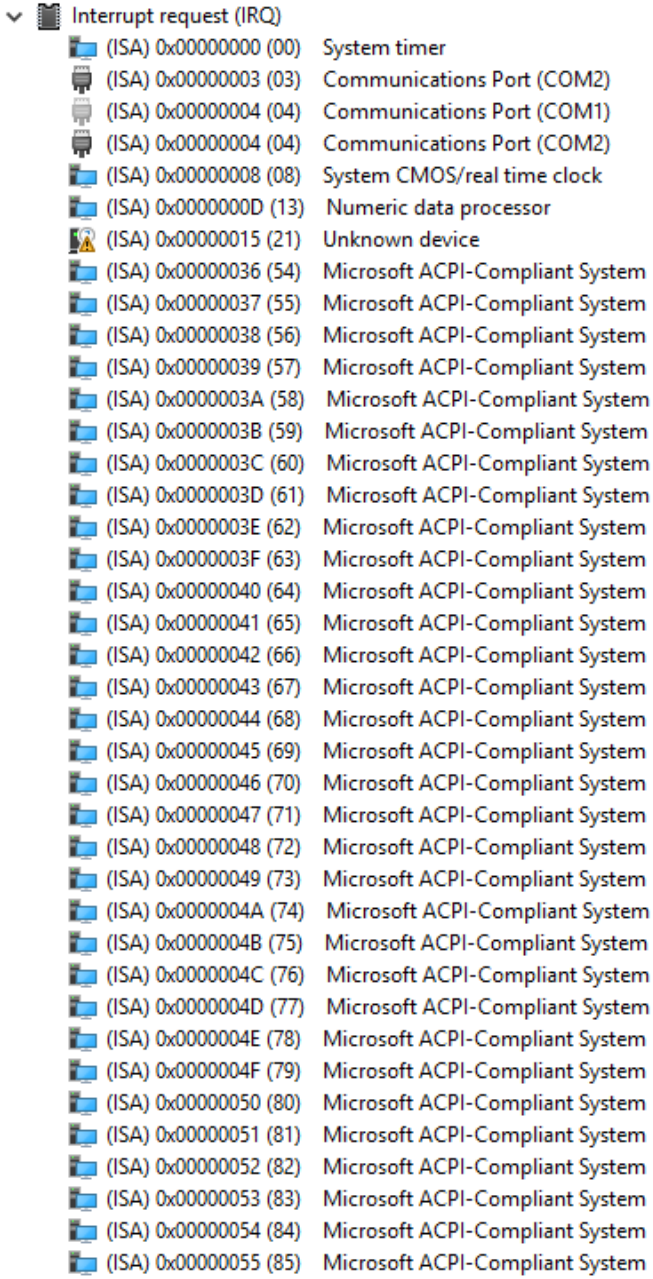


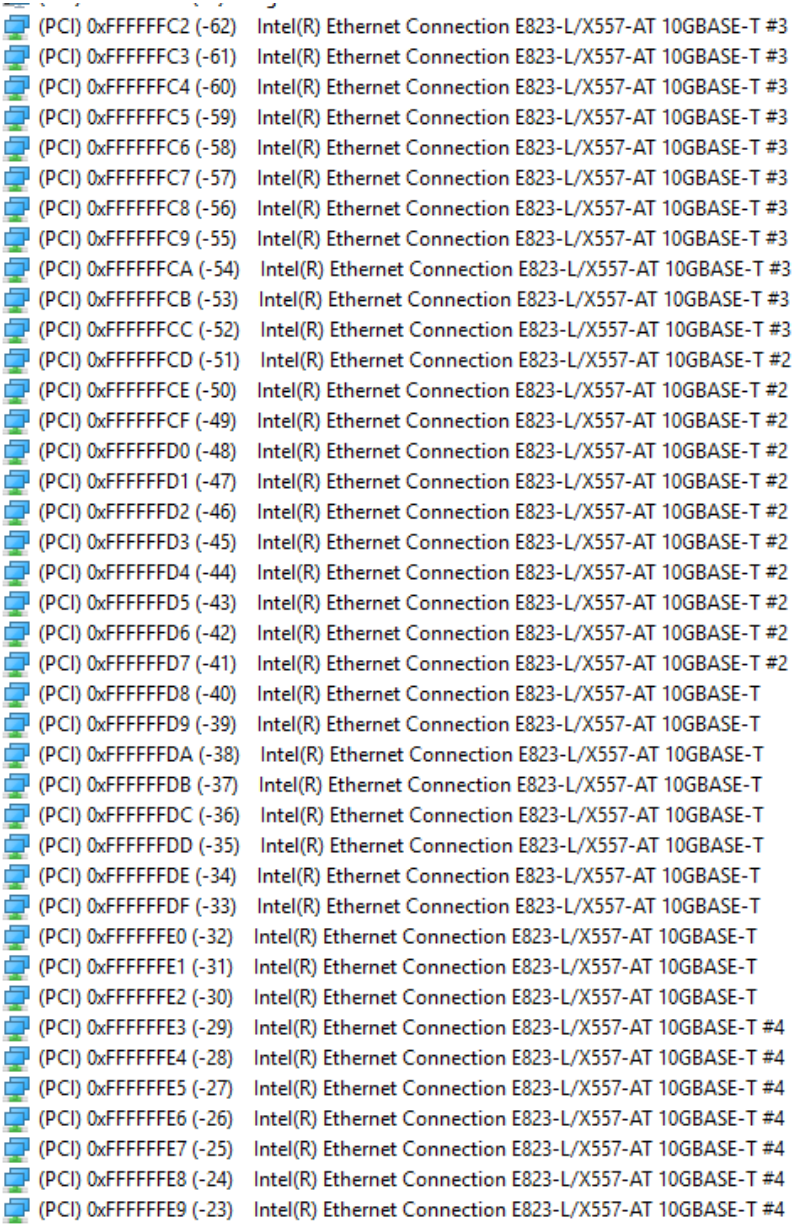
5.1.2. Memory Address Map

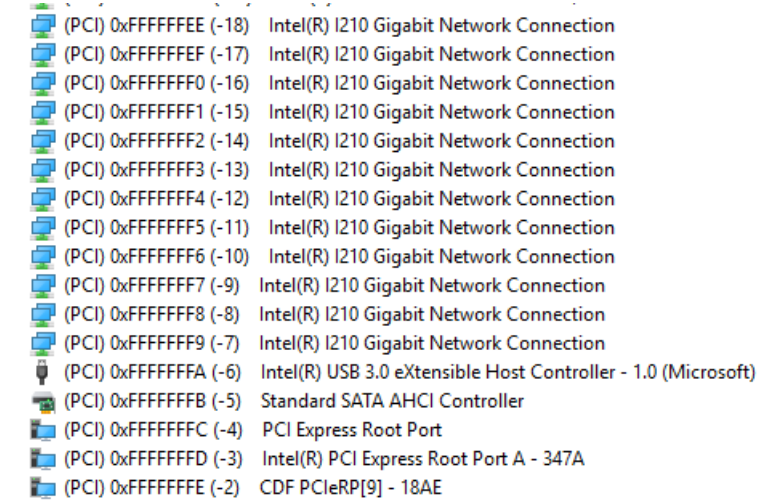



[00000000D6000000 - 00000000D70FFFFF] Intel(R) PCI Express Root Port A - 347A
[00000000D70FC000 - 00000000D70FFFFF] High Definition Audio Controller
[00000000D8000000 - 00000000FB7FFFFF] PCI Express Root Complex
[00000000FB300000 - 00000000FB6FFFFF] PCI Express Root Port
[00000000FD000000 - 00000000FD69FFFF] Motherboard resources
[00000000FD6F0000 - 00000000FDFFFFFF] Motherboard resources
[00000000FDC20000 - 00000000FDC21FFF] Unknown device
[00000000FDC50000 - 00000000FDC51FFF] Unknown device
[00000000FE000000 - 00000000FE01FFFF] Motherboard resources
[00000000FE010000 - 00000000FE010FFF] CDF SPI - 18E0
[00000000FE010000 - 00000000FE010FFF] PCI Express Root Complex
[00000000FE200000 - 00000000FE7FFFFF] Motherboard resources
[00000000FEC00000 - 00000000FECFFFFF] Advanced programmable interrupt controller
[00000000FED00000 - 00000000FED003FF] High precision event timer
[00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0
[00000000FF000000 - 00000000FFFFFFFF] Motherboard resources
[00000000FF000000 - 00000000FFFFFFFF] Motherboard resources
[0000020FFFA00000 - 0000020FFFA1FFFF] CDF PCIeRP[9] - 18AE
[0000020FFFA40000 - 0000020FFFA4FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[0000020FFFA77000 - 0000020FFFA77FFF] CDF ME:HECI#3 - 18D6
[0000020FFFA78000 - 0000020FFFA78FFF] CDF ME:HECI#2 - 18D4
[0000020FFFA79000 - 0000020FFFA79FFF] CDF ME:HECI#1 - 18D3
[0000021FFFF00000 - 0000021FFFF1FFFF] Intel(R) PCI Express Root Port A - 347A
[0000022FD8000000 - 0000022FDFFFFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
[0000022FD8000000 - 0000022FFC4FFFFF] PCI Express Root Port
[0000022FE0000000 - 0000022FE7FFFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
[0000022FE8000000 - 0000022FEFFFFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
[0000022FF0000000 - 0000022FF7FFFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4
[0000022FFC4C0000 - 0000022FFC4CFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
[0000022FFC4D0000 - 0000022FFC4DFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
[0000022FFC4E0000 - 0000022FFC4EFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
[0000022FFC4F0000 - 0000022FFC4FFFFF] Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4

5.1.3. IRQ Mapping Chart




(PCI) 0xFFFFFFC2 (-62) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFC3 (-61) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFC4 (-60) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFC5 (-59) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFC6 (-58) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFC7 (-57) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFC8 (-56) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFC9 (-55) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFCA (-54) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFCB (-53) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFCC (-52) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #3
(PCI) 0xFFFFFFCD (-51) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFCE (-50) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFCF (-49) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD0 (-48) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD1 (-47) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD2 (-46) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD3 (-45) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD4 (-44) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD5 (-43) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD6 (-42) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD7 (-41) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #2
(PCI) 0xFFFFFFD8 (-40) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFD9 (-39) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFDA (-38) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFDB (-37) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFDC (-36) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFDD (-35) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFDE (-34) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFDF (-33) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFE0 (-32) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFE1 (-31) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFE2 (-30) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T
(PCI) 0xFFFFFFE3 (-29) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4
(PCI) 0xFFFFFFE4 (-28) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4
(PCI) 0xFFFFFFE5 (-27) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4
(PCI) 0xFFFFFFE6 (-26) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4
(PCI) 0xFFFFFFE7 (-25) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4
(PCI) 0xFFFFFFE8 (-24) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4
(PCI) 0xFFFFFFE9 (-23) Intel(R) Ethernet Connection E823-L/X557-AT 10GBASE-T #4


(PCI) 0xFFFFFFEE (-18) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFEF (-17) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF0 (-16) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF1 (-15) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF2 (-14) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF3 (-13) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF4 (-12) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF5 (-11) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF6 (-10) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF7 (-9) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF8 (-8) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFF9 (-7) Intel(R) I210 Gigabit Network Connection
(PCI) 0xFFFFFFFA (-6) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
(PCI) 0xFFFFFFFB (-5) Standard SATA AHCI Controller
(PCI) 0xFFFFFFFC (-4) PCI Express Root Port
(PCI) 0xFFFFFFFD (-3) Intel(R) PCI Express Root Port A - 347A
(PCI) 0xFFFFFFFE (-2) CDF PCIeRP[9] - 18AE

6. FAQ

Q 1. Where can I find the serial number of this product?

- The serial number (S/N) is a label printed with alpha-numeric character. You can find the S/N label on the bottom of this product or on its packing box.

Technical Support Form

We deeply appreciate your purchase of Acrosser products. Please find the "**tech_form.doc**" file in our utility CD. If you have any questions or problems about Acrosser products, please fill in the following information. We will answer your questions in the shortest time possible.

Describe Your Info and Acrosser System Info

- Your Company Name: _____
- Your Contact Info: _____ Phone Number: _____
- Your E-Mail Address: _____
- Your Company Address: _____

  _____
- Acrosser Model Name: _____
- Acrosser Serial Number: _____

Describe System Configuration

- CPU Type: _____
- Memory Size: _____
- Storage Device (e.g. HDD, CF, or SSD): _____
- Additional Peripherals (e.g. Graphic Card): _____
- Operating System & Version (e.g. Windows 7 Embedded): _____
- Special API or Driver: _____

  (If yes, please provide it for debug.)
- Running Applications: _____
- Others: _____

Describe Your Problems or Questions:

Send the above information to one of the following Acrosser contacts:

- Acrosser Local Sales Representative
- Acrosser Authorized Sales Channels
- Acrosser Inquiry --- http://www.acrosser.com/inquiry.html
- Acrosser FAX Number --- 886-2-29992887

To Make Your
Embedded
Idea a Reality

Acrosser Headquarters

241402新北市三重區重新路5段609巷4號3樓之8
Rm. 8, 3F., No. 4, Ln. 609, Sec. 5, Chongxin Rd., Sanchong Dist., New Taipei City 241402, Taiwan (R.O.C.)
TEL: +886-2-29999000
FAX: +886-2-29992887

Acrosser Taichung Office

414台中市烏日區僑仁街8號10樓之1
10F.-1, No.8, Qiaoren St., Wuri Dist., Taichung City 414, Taiwan (R.O.C.)
TEL: +886-4-2337-0715
FAX: +886-4-2337-3422

Acrosser China Subsidiary

深圳市欣扬通电子有限公司
深圳市福田区泰然八路安华工业区6号楼7层706室 (邮编: 518040)
Room 706, floor 7, building 6, Anhua Industrial Zone, Tairan 8th Road, Futian District, Shenzhen, China (Postal: 518040)
TEL: +86-755-83542210
FAX: +86-755-83700087

Acrosser Nanjing Office

欣扬通电子有限公司 南京办事处
江苏省南京市江宁区天元东路228号504室 (邮编: 211100)
Room 504, No. 228, Tian Yuan East Rd., Jiang Ning Dist., Nanjing City, Jiangsu Province, China (Postal: 211100)
Mobile: 13611932003
TEL: +86-025-86137002
FAX: +86-025-86137003

Acrosser Beijing Office

欣扬通电子有限公司 北京办事处
北京市昌平区沙河镇沙阳路巩华新村8号楼2单元1403室 (邮编: 102206)
Room 1403, Unit 2, Building 8, Gonghua Village, Shahe Town, Changping District, Beijing, China (Postal: 102206)
Mobile: 13311317329

Acrosser USA Inc.

8351 Elm Ave. Suite 107, Rancho Cucamonga, CA91730, USA
TEL: +1-909-476-0071
FAX: +1-909-466-9951