

MECS-6120/6121

1U Edge Server with Intel® Xeon® D-1700 Processor

User's Manual



Preliminary

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LEADING EDGE COMPUTING



Preface

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Revision	Release Date	Description of Change(s)
0.1	2022-04-21	Preliminary release
0.2	2022-05-06	Add BIOS; PM updates
0.3	2022-05-20	Add Create a RAID Volume section
0.4	2022-05-20	Additional EE and Safety updates
0.5	2022-07-07	More PM updates
0.6	2023-01-04	DC power requirement updates
0.7	2023-04-19	Remove support for BIN files from "Updating BIOS via Host with BIOS Tool"

Revision History

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Conventions



Information to prevent minor physical injury, component damage, data loss, and/or program corruption when trying to complete a task. Informations destinées à prévenir les blessures corporelles mineures, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche.



Information to prevent serious physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task. Informations destinées à prévenir les blessures corporelles graves, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche spécifique.



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1 Overview

1.1 Introduction

The ADLINK MECS-6120 is a 1U 19" rackmount edge computing server with Intel® Xeon ® D processor system-on-chip. The MECS-6120 features an IO intensive architecture with up to 1x PCIe x16 Gen3 & 1x PCIe x 8 Gen3 FHFL interfaces, 2x 2.5" SATA drive bays, 8x SFP+ ports. It also features IEEE 1588v2 Precision Time Protocol (PTP) and is an ideal platform for 5G mobile edge computing infrastructure deployment.

The main features of the MECS-6120 as follows:

- 1x Intel® Xeon® D-1700 family processor
- 3x DDR4-2667 RDIMM ECC REG up to 192GB
- 2x 2.5" SATA bays (only for MECS-6120) and 2x M.2 M Key interfaces
- 1x PCIe x16 Gen3 and 1x PCIe x8 Gen3 single-slot FHFL interfaces or 1x PCIe x16 Gen3 dual-slot FHFL interface
- 420mm depth 1U 19" rackmount form factor
- Built-in Intel® QuickAssist Technology (QAT) support
- TPM 1.2/2.0 module
- Supports IEEE 1588v2, 2x RS-422 clock sync ports, and optional GPS clock module
- EMC grade: Class B
- PSUs front accessible for small footprint deployment (MECS-6121 only)



MECS-6120

1.2 Block Diagram



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1.3 Mechanical Overview

1.3.1 MECS-6120 Front Panel



1.3.2 MECS-6121 Front Panel





1.3.3 MECS-6120 Rear Panel



1.3.4 MECS-6121 Rear Panel



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1.3.5 MECS-6120 Internal Layout



See 3.1 Removing the Chassis Cover on page 15 for instructions on removing the cover.



1.3.6 MECS-6121 Internal Layout



See 3.1 Removing the Chassis Cover on page 15 for instructions on removing the cover.



1.4 Mechanical Dimensions





2 Specifications

2.1 MECS-6120 Specifications

Main System

CPU	Intel® Xeon® D Processor SoC FC-BGA (formerly Ice Lake) Intel® Xeon® D-1746TER, 10c 15MB cache, 67W Intel® Xeon® D-1747NTE, 10c 15MB cache, 80W Intel® Xeon® D-1749NT, 10c 15MB cache, 90W
Chipset	Integrated on Intel® Xeon® D SoC
Memory	3x DDR4 RDIMM memory sockets, up to 2667 MHz, max. 192GB
BIOS	AMI BIOS on SPI flash memory
Operating System	Microsoft Windows Server 2012/2016 CentOS 8.2, Ubuntu 20.04 Note: No OS installed by default
Hardware Acceleration	Built-in Intel® QAT: SSL (20G), Compression (15G) Intel® eASIC on expansion card (PCIe x16 Gen3)
Trusted Platform Module	TPM 1.2/2.0 internal header
Chassis Management	IPMI v2.0 compliant with iKVM and SOL support
Clock Sync	GPS/Beidou and clock retaining modules (optional) IEEE 1588 v2 slave and master

Interfaces

Expansion (SKU dependent)	1x PCIe x16 Gen3 single slot FHFL via riser card and 1x PCIe x8 Gen3 single slot FHFL via riser card or 1x PCIe x16 Gen3 dual-slot FHFL interface
Ethernet	8x 10G SFP+ Ethernet ports 2x RJ-45 100/1000BASE-T Ethernet ports
Remote Console	1x RJ-45 serial port
USB	1x USB 3.0/2.0 + 1x USB 2.0
Other	2x RJ-45 1PPS+TOD port 1x SMA port for GPS/Beidou signal
LEDs	Power, Alert, Drive Activity, Health Behavior, UID
Control Buttons	Power, reset, UID (front access)
Internal	1x COM port 1x VGA header 3x 1PPS SMA header 1x 10M SMA header

Storage

Drive Bays	2x 2.5" SATA 6Gb/s (MECS-6120 only)
Internal	2x onboard M.2 NVME/SATA socket, 2242/2280 M-Key



Mechanical & Environmental

Form Factor	1U 19" rackmount 438mm x 44mm x 420mm (WxHxD)	
Fans	6 fans, adaptive speed	
Power	450W 1+1 redundant PSUs AC: 100V to 240V AC @50-60Hz DC: -48V to -60V DC, 12A min., Tma = 55°C	
Temperature	Operating temp.: -5°C 55°C Storage temp.: -40°C to 70°C Note: Not including SATA drives and PCIe cards.	
Humidity	Operating: 10% to 95% RH @40°C, non-condensing Storage: 5% to 90% RH, non-condensing	
Shock	Operating: half-sine 2G, 11ms pulse, 100 pulses on each of three axes	
	Non-operating: trapezoidal, 25G, 170 inches/sec delta V, three drops on each of three axes	
Vibration	Non-operating: 2.2Grms, 10 minutes per axis on all three axes	
Acoustic	Sound pressure < 75 dBA @1m with all fans maximum speed	
Certifications (TBC)	FCC, CE, CCC Class B, UL, CB and RoHS compliant Note: Certifications were passed with 450W PSU installed.	
MTBF	150,000 hours	



3 Getting Started

3.1 Removing the Chassis Cover

Follow the instructions below to remove the chassis top cover.



All installation procedures are restricted to skilled personnel. Toutes les procédures d'installation sont réservées au personnel qualifié.

- 1. Loosen the two captive screws at the rear of the cover (arrows).
- 2. Press down on the two depressions with your thumbs and slide the cover towards the rear of the chassis and remove the cover.



To reinstall the cover, slide it towards the front of the chassis, then tighten the screws loosened in Step 1.



3.2 Installing Memory Modules

Memory modules must be populated from the right side as shown (slots 1 > 2 > 3).





All installation procedures are restricted to skilled personnel. *Toutes les procédures d'installation sont réservées au personnel qualifié.*



PCIe Card Installation 3.3

Sample installation instructions for FHFL PCIe expansion cards are described below. For detailed information on the specific installation procedures for your cards, please contact your ADLINK representative.



All installation procedures are restricted to skilled personnel. Only UL listed PCIe expansion cards or PCIe cards with openings less than 5 mm in any dimension are recommended

mise en garde

Toutes les procédures d'installation sont réservées au personnel qualifié. Seules les cartes d'extension PCIe répertoriées UL ou les cartes PCIe avec des ouvertures inférieures à 5 mm dans n'importe quelle dimension sont recommandées.



1. Remove the two screws from the front panel as shown.

2. Remove the bracket securing the PCIe bracket blanking plates.





3. Remove the PCIe bracket blanking plates.



4. Loosen the two screws to remove the internal PCIe bracket used to secure the PCIe cards inside the chassis. The diagram shows the position of the bracket for full-length cards.





5. First install the lower PCIe expansion card. Align the tab on the bracket with the opening on the rear I/O panel (A), and insert the PCIe connector into the slot on the riser card (B). Make sure the connector is fully inserted into the PCIe slot.







6. Then install the upper PCIe expansion card, if required



7. Replace the internal PCIe bracket, insert the PCIe cards into the slots (arrows), and tighten the two screws (circles) to secure the cards inside the chassis.





8. Replace the bracket to secure the PCIe I/O brackets to the chassis.



9. Secure the bracket with two screws as shown.





3.4 PCIe Slot Secondary Power Supply

The MECS-6120 is equipped with two 4-pin ATX-type 12V power connectors on the mainboard (see *1.3.5 MECS-6120 Internal Layout* on page 10) to provide secondary power for PCIe expansion cards if required. Two adapter cables are included. The pin definitions of the connectors and cables are described below.



All installation procedures are restricted to skilled personnel. Toutes les procédures d'installation sont réservées au personnel qualifié.

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4-pin ATX-type 12V Power Connector Pinout

Pin #	Signal	Color
1	GND	black
2	GND	black
3	P12V	yellow
4	P12V	yellow

Adapter Cable Connector Pinout







3.5 Rails Assembly and Rack Installation

Note: Please check rack post type before proceeding. The pre-installed rail type is for square hole posts. If the rack post has round holes, please switch to the appropriate screws as shown below.



To switch from round hole to square hole, remove the "A" type screws (pre-installed) and switch to "B" type screws.







1. Remove the inner rail.





2. Install the inner rail onto the chassis.



3. Attach the outer rail/bracket assembly to the rack.



Note: Front and rear bracket installation procedures are the same. The left and right sides of the rail are symmetrical. Repeat the installation steps for the other side.



- 4. Insert chassis with mounted inner rails to complete the installation.
 - Ensure the ball bearing retainer is located at the front of the rail.
 - Insert the chassis into the outer rails.
 - **③** When the chassis is fully inserted, pull/push the release tab on the inner rails.
 - Secure the system to the rack using the captive screws located on the rack handles of the system.





3.6 Uninstalling the Rails from the Chassis

• M4 x3.2 or #6-32 x5

② Release the latch to detach the inner rail.





Detach the outer rail/bracket assembly from the rack.



Note: Front and rear bracket detachment procedures are the same. The left and right sides of the rail are symmetrical. Repeat the steps for the other side.



Loosen the captive screws and then pull out the chassis.
 Pull release button A or B to remove the chassis.





3.7 Connecting the System to Ground

AC Version

The MECS-6120 is connected to ground by the ground pin of the 3-prong IEC power cord. Please use the power cord provided with the system for your region.

A grounding stud (M4 size) is provided on the rear of the chassis for additional connection to ground. The bonding wire shall be minimum 18 AWG and with green-and yellow insulation jacket.



DC Version

A grounding stud (M3.5, steel zinc plated) is provided on the rear of the chassis for connection to ground. The bonding wire shall be minimum 14 AWG and with green-and yellow insulation jacket.





3.8 System Power Cable Installation

AC PSU Input

3-prong IEC power cord



DC PSU Input

DC Negative: connect to -48V DC Positive: connect to RTN





All installation procedures are restricted to skilled personnel. The terminal block is suitable for a minimum 14 AWG, minimum 60V, minimum 105 °C, VW-1 power cord. Torque value is 1.2 N·m.

Toutes les procédures d'installation sont réservées au personnel qualifié. Le bornier est adapté à un cordon d'alimentation VW-1 minimum de 14 AWG, minimum 60 V, minimum 105 °C. La valeur de couple est de 1,2 $N \cdot m$.



3.9 Login to the BMC via Console Port

Step 1

Set the Console Port to BMC mode using the 4-pole DIP Console Port Mode Switch (SW1) on the mother board inside the chassis (see *4.8 Board Layout* on page 55).

Pin	Default	BMC Debug
1	On	Off
2	On	Off
3	Off	On
4	Off	On

Step 2

Use the included RJ-45 to DB-9 console port adapter cable to connect the PC to the RJ-45 console port of the MECS-6120 (see *1.3.1 MECS-6120 Front Panel* on page 8). See *4.4 Dual USB 3.0 and RJ-45 Console Port* on page 50 for the adapter cable pin definition.





Step 3

Open a serial port console tool (such as PuTTY), choose the higher COM port (it may be different depending on the computer), then set the baud rate to 115200.

🕵 PuTTY Configuration	? ×
Category: 	Basic options for your PuTTY session Specify the destination you want to connect to Serial line COM3 Connection type: Raw Telnet Rlogin SSH Serial Load, save or delete a stored session Saved Sessions COM3 Default Settings COM3 Default Settings COM3 Default Settings COM3 Cont Cont Cont Cont Cont Cont Cont Cont
About Help	Open Cancel

Step 3

Input the user name "sysadmin" and password "superuser" to login to the system.

Putty			×
AMI00306425F122 login: sysadmin			^
Password:			
login[1773]: pam_unix(login:account): account sysadmin has passwo uture	rd cha	nged i	n f
<pre>login[1773]: pam_unix(login:session): session opened for user sys uid=0)</pre>	admin	by LOC	IN (
[1773 INFO]SERIAL Login from IP:127.0.0.1 user:sysadmin			
login[1773]: [1773 INFO]SERIAL Login from IP:127.0.0.1 user:sysad	nin		
login[1773]: root login on 'ttyS4'			
~ #			
			\sim



3.10 Login to the BMC via Network

Step 1

Use a LAN cable to connect eth0 of the MECS-6120 to the PC;



eth0

Step 2

Open a serial port console tool (such as PuTTY) enter the IP address, and open a connection to the BMC (login using serial console first to check the IP address).

🕵 PuTTY Configuration (Save mode : File)		_		×
Category:				
 Session Logging Terminal Keyboard Bell Features ExtraPuTTY Settings StatusBar FilesTransfer Window Appearance Behaviour Translation 	Basic options for your PuTTY session			
	Host Name (or IP address) 10.0.0.7	Port 22		
	Connection type: Raw Telnet Rlogin SSH Cygtem Load, save or delete a stored session Saved Sessions	C) Serial	
	Default Settings 2080 com-6150 remote vm		Load	
	Close window on exit: Always Never, Auto-Connect	Only on c	clean exit	
About	Open		Cancel	



Step 3

Input the user name "sysadmin" and password "superuser" to login to the system.




3.11 BMC eth0 Default and Static IP Settings

The default IP setting is DHCP. Users can login to the BMC to modify the IP.

Static IP Settings:

Show the current LAN setting ipmitool lan print 1

Set the IP source to static ipmitool lan set 1 ipsrc static

Set the IP address ipmitool lan set 1 ipaddr xxx.xxx.xxx

Set the netmask address ipmitool lan set 1 netmask xxx.xxx.xxx

Set the gateway address ipmitool lan set 1 defgw ipaddr xxx.xxx.xxx.xxx

Restore Default:

Set IP source to DHCP ipmitool lan set 1 ipsrc dhcp

Note: BMC IP can be set in the BIOS. Refer to "**Error! Reference source not found. Error! Reference source not found.**".



3.12 BIOS Update

Users can update the MECS-6120 system BIOS over various interfaces (Gigabit LAN, KCS, console port).

3.12.1 Updating the BIOS via Network with BMC Tool

- 1. Install a Linux distribution, such as Ubuntu 14, to the debug PC.
- 2. Install "expect" to your debug PC (ex: sudo apt-get install expect).
- 3. Copy the BMC FW package "BMC_MECS-6120_Release_Vx.xx" to the debug PC;

Upgrade Procedure:

 Check the IP of the BMC of MECS-6120. Power on the MECS-6120, boot the BMC to Linux (username: sysadmin; Passwd: superuser), and type "ifconfig" check its IP address.



2. On the debug PC, execute the following commands to perform the upgrade.

cd BMC_MECS-6120_Release_Vx.xx cd BIOS ./adlinktool.sh upgradebios1 BIOS_xxxx.bin 11.0.0.11

Note: Only "bin" files are supported when updating the BIOS via Network.



3.12.2 Updating BIOS via Host with BIOS Tool

- 1. Boot/Login to Shell
- 2. Update the BIOS over host with the following commands.

Example:

AfuEfix64 BIOS.ROM /p /b /n /x (to update BIOS without ME)

Directory o	f: FS1:\BIO	SFLS\MECS-6120\M	ECS-6120_01110_FullImage
04/18/2022	10:02 <dir< td=""><td>> 16,384</td><td></td></dir<>	> 16,384	
04/18/2022	10:02 <dir< td=""><td>> 16,384</td><td></td></dir<>	> 16,384	
12/14/2021	09:19	568,144	AfuEfix64.efi
12/14/2021	09:20	7,376	HISTORY.txt
12/14/2021	09:19	67,108,864	MECS-6120_01110.BIN
12/14/2021	09:19	16,777,216	MECS-6120_01110.ROM
12/14/2021	09:19	399	pBIOS.nsh
5	File(s) 8	4,461,999 bytes	
2	Dir(s)		

Note: Only "ROM" files are supported when updating the BIOS via Host.



3.13 BMC Firmware Update via Network

The MECS-6120 supports a BMC Chassis Management firmware, IPMI v2.0 compliant. To update the BMC firmware via network, perform the following steps.

- 1. Install a Linux distribution, such as Ubuntu 14, to the debug PC.
- 2. Install "expect" to your debug PC (ex: sudo apt-get install expect).
- 3. Copy the BMC FW package "BMC_MECS-6120_Release_Vx.xx" to the debug PC;

Upgrade Procedure:

 Check the IP of the BMC of MECS-6120. Power on the MECS-6120, boot the BMC to Linux (username: sysadmin; Passwd: superuser), and type "ifconfig" check its IP address.



2. On the debug PC, execute the following commands to perform the upgrade.

cd BMC_MECS-6120_Release_Vx.xx

cd FW

./adlinktool.sh bmc1 rom.ima 11.0.0.11



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3.14 BMC Firmware Update via Host with Yafuflash

The MECS-6120 supports a BMC Chassis Management firmware, IPMI v2.0 compliant. To update the BMC firmware via host with Yafuflash, perform the following steps.

1. Login to the OS with root user permission.

2. Update the BMC over host using the commands below:

Example:

\$ sudo ./Yafuflash .kcs rom.ima

YAFUFlash - Firmware Upgrade Utility (Version 4.117.7) (C)Copyright 2016, American Megatrends Inc. The Module root allocated size is different from the one in the Image So, Type (Y/y) to do Full Firmware Upgrade or (N/n) to exit Enter your Option : Y WARNI NG! FIRMWARE UPGRADE MUST NOT BE INTERRUPTED ONCE IT IS STARTED. PLEASE DO NOT USE THIS FLASH TOOL FROM THE REDIRECTION CONSOLE. Uploading Firmware Image : 100%... done Skipping [boot] Module Flashing [conf] Module Fl ashi ng Firmware Image : 100%... done Verifying Firmware Image : 100%... done Flashing [root] Module ... Fl ashi ng Firmware Image : 100%... done Verifying Firmware Image : 100%... done Flashing [osimage] Module ... Firmware Image : 100%... done FI ashi ng Verifying Firmware Image : 100%... done Flashing [www] Module Fl ashi ng Firmware Image : 100%... done Verifying Firmware Image : 100%... done Flashing [testapps] Module ... Fl ashi ng Firmware Image : 100%... done Verifying Firmware Image : 100%... done Flashing [ast2500e] Module ... Flashing Firmware Image : 100%... done Verifying Firmware Image : 100%... done Resetting the firmware..... Open IPMI Drivers Loading Open IPMI Driver: ipmi_devintf BMC is booting up, Please load ipmi_si Open IPMI Driver after the BMC Boots up!!!!

Loading Open IPMI Driver: ipmi_msghandler





3.15 Enter BIOS Setup

To enter the BIOS setup screen, follow these steps:

- 1. Power on the MECS-6120.
- Press the <Delete> or <ESC> key on your keyboard when you see the following text prompt: "Press DEL or ESC to enter Setup".
 (Note: If Quick Boot is enabled, the screen below will not display, but pressing the <Delete> or <ESC> key will still allow you to enter the BIOS setup screen.)



3. After pressing the <Delete> or <ESC> key, the main BIOS setup menu will display. You can access the other setup screens from the main BIOS setup menu, such as Chipset and Power menus.



3.16 Create a RAID Volume

To create a RAID volume, the RAID option must be enabled in the BIOS so that the system loads the RAID option ROM code (refer to *5.3.1.2 SATA Configuration* on page 63).

- 1. Go to Platform Configuration > PCH-IO Configuration > SATA Configuration > Controller 1 SATA Configuration.
- 2. Set SATA Mode Selection to RAID, save changes, and reboot the system.





To create a RAID volume, go to the Advanced menu

Aptio Setup – AMI Main Platform Configuration Advanced Socket Co	onfiguration Server Mgmt 🕨	
 Serial Port Console Redirection NVMe Configuration PCI Subsystem Settings Network Stack Configuration Advanced Power Management Configuration Trusted Computing Pcie Delay support [Disabled] 	This formset allows the user to manage RAID volumes on the Intel(R) RAID Controller	
 Tis Auth Configuration All Cpu Information Emulation Configuration RAM Disk Configuration Intel(R) VROC sSATA Controller Intel(R) I210 Gigabit Network Connection - 00:30:64:6F:70:6C Intel(R) I210 Gigabit Network Connection - 00:30:64:6F:70:6D 	<pre>**: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>	
Version 2.22.1285 Copyright (C) 2022 AMI AB		

Enter the Intel(R) VROC sSATA Controller submenu and click on Create RAID Volume.

Aptio Setup — AMI Advanced		
Intel(R) VROC 7.7.0.1054 sSATA Driver ▶ Create RAID Volume	This page allows you to create a RAID volume	
Non-RAID Physical Disks: ▶ Port 6, TS256GSSD452K SN:G604260001, 238.47GB ▶ Port 7, ADATA SP580 SN:2L07292G472R, 223.57GB		
	 ↔: Select Screen ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit 	
Version 2.22.1283 Copyright (C) 2022 AMI		



3.17 Clear CMOS

See 4.8 Board Layout on page 55 for the location of the Clear CMOS jumper (J1).

J1	Setting
1-2	default
2-3	Clear CMOS



4 System Interfaces



4.1 **Status LEDs**

Power LED (green)

The Power LED will light when the system is booted up (S0 state).

Alert LED (red)

Off: Indicates normal system operation. On: Indicates a critical alarm.

Drive Activity (HDD) LED (yellow)

The Drive Activity (HDD) LED is controlled by SATALED# from the chipset. When SATA storage is active (read/write), the LED will blink.

Note: This LED can also be user defined. Refer to 4.6 HDD/User LED Jumper and 4.7



User LED Commands on page 52.

UID Button and LED (blue)

The UID button/indicator is used to conveniently locate the server. The LED can be turned off or on manually by pressing the UID button or remotely controlled by management command.

Health Behavior LED (green/red)

The Health Behavior LED has the following behavior.

- Default: Green (blinking) indicates healthy BMC status.
- Override: User can use the OEM LED command (LED1/LED2) to override the LED status to reflect the system health status.



4.2 LAN Ports

Pin #	Signal	
1	TX1+	
2	TX1-	
3	TX2+	
4	TX2-	
5	TX3+	
6	TX3-	
7	TX4+	
8	TX4-	



LAN LED Behaviour

The LAN LEDs are integrated into the RJ-45 connector. Their behavior is as follows:

The LED1 (Speed) indicates the speed of the LAN connection.

LED1 (Speed)		
10 Mbps	Off	
100 Mbps	Green	
1000 Mbps	Orange	

The LED2 (Link/Activity) indicates that a link has been established by lighting orange. When data is transmitted the LED blinks orange.

LED2 (Link/Activity)		
Link with no activity	Steady	
Link with activity	Blinking	





4.3 SFP+ Ports

Pin	Signal
	Name
1	GND
2	TX_FAULT
3	TX_DSBL
4	SDA
5	SCL
6	MOD_ABS
7	RS0
8	RX_,OS
9	RS1
10	GND
11	GND
12	RD-
13	RD+
14	GND
15	VCCR
16	VCCT
17	GND
18	TX+
19	TX-
20	GND



SFP+ LED Behaviour



The LEDs point to the respective port.

LED	Status	Behavior
Link Status	Link up	Green (steady)
	Link down	Off
Link Activity	Active	Green 1G / Orange 10G (blinking)
	Not active	Off



4.4 Dual USB 3.0 and RJ-45 Console Port

Pin	Signal Name
R1	N/C
R2	N/C
R3	COM_TXD
R4	GND
R5	GND
R6	COM_RXD
R7	N/C
R8	N/C
U1	5V
U2	USB2_N
U3	USB2_P
U4	GND
U5	SSRX_N
U6	SSRX_P
U7	GND
U8	SSTX_N
U9	SSTX_P
U10	5V
U11	USB2_N
U12	USB2_P
U13	GND
U14	SSRX_N
U15	SSRX_P
U16	GND
U17	SSTX_N
U18	SSTX_P

R8	
U18	
U10	
U9	
U1	

Preliminary

The MECS-6120 comes with an RJ-45 to DB-9 console port adapter cable.

DB-9 Pin	Signal
1	_
2	RXD
3	TXD
4	DTR
5	SG
6	DSR
7	RTS
8	CTS
9	





4.5 1PPS/TOD Connector

Pin #	Signal (Upper)	Signal (Lower)
1	NC	NC
2	NC	NC
3	1PPS_TXD_N	1PPS_RXD_N
4	GND	GND
5	GND	GND
6	1PPS_TXD_P	1PPS_RXD_P
7	TOD_TXD_N	TOD_RXD_N
8	TOD_TXD_P	TOD_RXD_P





4.6 HDD/User LED Jumper

The HDD/User LED Jumper (SW5, see *4.8 Board Layout* on page 55) can be used to set the function of the Drive Activity LED (default is Drive Activity).



SW5	Setting
1-2	SATA Drive Activity (default)
2-3	User Defined



4.7 User LED Commands

4.7.1 OEM ADLINK Set LED Status

NetFn=2Eh, Cmd=10h

Byte	Data Field
1-3	ADLINK Manufacturer ID – 005F13h, LS byte first.
4	LED ID: 01h= UID LED (blue) 02h = USR LED (yellow, HDD shared) 03h = Alert LED (red) 04h = LED1 (green) 05h = LED2 (red) Other values: reserved
5	LED Function: 00h = LED OFF override. 01h - 1Eh = LED BLINKING override. The off duration is specified by the value of this byte, and the on duration is specified by the value of byte 5. Both values specify the time in hundreds of milliseconds (100 ms-3 s). 1Fh = LED state is restored to Local Control state 20h-FEh Reserved FF = LED ON override
6	On-duration: The LED on-time in hundreds of milliseconds if (01h < = Byte 6 < = 1Eh) and ignored otherwise. Otherwise, this field is ignored and is set to 0h.
-	Response Field
1	Completion Code
2-4	ADLINK Manufacturer ID – 005F13h, LS byte first.



4.7.2 OEM ADLINK Get LED Status

NetFn=2Eh, Cmd=11h

Byte	Data Field	
1-3	ADLINK Manufacturer ID – 005F13h, LS byte first.	
4	LED ID: 01h= UID LED (blue, UID led) 02h = USR LED (yellow, HDD shared) 03h = Alert LED (red) 04h = LED1 (green, default blink) 05h = LED2 (red, default off) Other values: reserved	
	Response Field	
1	Completion Code	
2-4	ADLINK Manufacturer ID D of ran, LS byte first.	
5	LED ID: 01h= UID LED (blue) 02h = USR LED (yellow, HDD shared) 03h = Alert LED (red) 04h = LED1 (green, default blink) 05h = LED2 (red) Other values: reserved	
6	LED Function: 00h = LED OFF override. 01h - 1Eh = LED BLINKING override. The off duration is specified by the value of this byte, and the on duration is specified by the value of byte 7. Both values specify the time in hundreds of milliseconds (100 ms-3 s). 1Fh = LED is in Local Control state 20h-FEh Reserved FF = LED ON override	
7	On-duration : The LED on-time in hundreds of milliseconds if (01h Byte 6 1Eh) and ignored otherwise set to 0h.	



4.8 Board Layout





Α	Intel® Xeon® D Processor	J	Primary BIOS SPI Flash
В	DDR4 Socket	К	Secondary BIOS SPI Flash
С	Debug Port (Port 80)	L	OCP Connector
D	BMC/MECS-6120 LAN RJ-45	М	1PPS+TOD Ports
Е	Console Port RJ-45 + USB 3.0	Ν	PCIe x32 Connector
F	SFP+ Connectors	0	Clear CMOS Jumper (J1)
G	M.2 Slot	Р	BMC Mode Switch (SW1)
н	Status LEDs	Q	HDD/User LED Switch (SW5)
I	BMC SPI Flash		



5 BIOS Setup

5.1 BIOS Setup Menu

The BIOS setup utility is invoked by pressing <ESC> or keys. User can change BIOS settings during setup utility runs. A system reset is required for new settings to take effect.

In the BIOS setup utility, there are several hot keys are designed for specific purposes, as listed below.

- <F1>: General help in setup menu
- <F8>: Load previous BIOS values
- <F9>: Load BIOS default in setup utility
- <F10>: Save & Exit setup utility

To navigate through the BIOS setup menu, use the following.

Left/Right. The Left and Right < Arrow > keys allow you to select a setup
screen.
For example: Main screen, Advanced screen, Chipset screen, and so on.
Up/Down The <i>Up and Down</i> < Arrow > keys allow you to select a setup item or sub-screen.
Plus/Minus The <i>Plus and Minus</i> < Arrow > keys allow you to change the field value of a particular setup item. For example: Date and Time.
The < Tab > key allows you to select setup fields.

5.1.1 Menu Selection Bar

The Menu Selection Bar is located at the top of the screen. It displays the top level available menus to the user:

- Main Menu
- Advanced Menu
- Platform Configuration Menu
- Server Mgmt
- Security Menu
- Boot Menu
- Save & Exit Menu



5.1.2 Menu Conventions

The appearance of the setup menu listed in this chapter is a sample to describe the item list. It is shown on a VT100 terminal via serial console. The menu conventions are as follows.

Using color

The mandatory BIOS setup fields are in black. The BIOS setup fields currently not used are in grey. The display only strings are in black.

Using brackets

Editable menu options are marketed with squares '[' and ']' to distinguish them from display only fields that can't be modified.

5.2 Main Menu

The Main Menu provides read-only information about the system and also allows you to set the system date and time. The tables below show screen shots of the Main menu details, submenus and settings.

Aptio Setup – AMI Main Platform Configuration Advanced Socket Configuration Server Mgmt ▶				
BIOS Information BIOS Vendor	American Megatrends	Set the Time. Use Tab to switch between Time		
BIOS Version	0.11.10	elements.		
Build Date	04/13/2022			
RC Version	21.D01			
ME FW Version	11:5.0.0.60			
Sustem Information				
Project Name	MECS-6120			
CPU Board Version	A2	<u>12</u>		
CPU Brand String	Intel (R)Xeon(R) D-1749	++: Select Screen		
CPU Frequency	3.00GHz	↑↓: Select Item		
Total Memory	32768 MB (DDR4)	Enter: Select		
Memory Frequency	2666 MHz	+/-: Change Opt.		
PCH SKU	CDF SKU	F1: General Help		
		F8: Previous Values		
System Date	[Wed 04/13/2022]	F9: Optimized Defaults		
System Time	[20:00:20]	▼ F10: Save & Exit		
		ESC: Exit		
AB.				



5.2.1 BIOS Information

BIOS Item	_Options	Description
BIOS Vendor	Info-only.	Display vendor name of system BIOS.
	American Megatrends	
BIOS Version	Info-only.	Display version of booting BIOS.
	x.yy.zz	
Build Date	Info-only.	It shows the date that BIOS was built.
	MM/DD/YYYY	
MRC Version	Info-only.	Display the revision of MRC code
	xxx.Ryy	which is implemented in BIOS.
ME FW Version	Info-only.	Display the version of Intel
	ww:x.y.z.aaa	manageability firmware which is
		implemented in BIOS.

5.2.2 System Information

BIOS Item	Options	Description
Project Name	Info-only.	Shows Project Name
CPU Board Version	Info-only.	Shows Main Board Version
CPU Brand String	Info-only. Intel(R) Core, …	Shows what CPU is booting the system.
CPU Frequency	Info-only. XXXX MHz	Shows CPU frequency.
Total Memory	Info-only. XXXX MB (DDR4)	Shows total memory size used on the motherboard and memory type.
Memory Frequency	Info-only. XXXX MHz	Shows memory frequency.
System Date	MM/DD/YYYY	For configuring/showing system date. When setting the Date, use <tab> key to switch between Date elements.</tab>
System Time	HH:MM:SS	For configuring/showing system time. When setting the Time, use <tab> key to switch between Time elements.</tab>
Access Level	Info-only. Administrator/User	It shows what access level is used to enter BIOS setup menu.



5.3 Platform Configuration Menu

This menu contains the Platform Configuration settings.

	Ap	tio Setup	- AMI			
Main	Platform Configuration	Advanced	Socket	Configuration	Server Mgmt	₽
PCH-IO Miscel Networ System	Configuration laneous Configuration K Configuration Event Log			PCH Paramet	ers	
Setup Settin Values	Warning: g items on this Screen t	o incorrec	t	tt. Select	Screen	
may ca				<pre>↑↓: Select Enter: Sele +/-: Change F1: General</pre>	Item ct Opt. Help	
				F8: Previou F9: Optimiz F10: Save 8 ESC: Exit	s Values ed Defaults Exit	
	Version 2.22.	1282 Copyr	ight (C)) 2022 AMI		ЭB

BIOS Item	Options	Description
PCH-IO Configuration	Sub-Menu	For PCH-IO setting
Miscellaneous Configuration	Sub-Menu	For Miscellaneous Configuration
Network Configuration	Sub-Menu	For configuring Network.
System Event Log	Sub-Menu	System Event Log



5.3.1 PCH-IO Configuration

Aptio Setup – AMI Platform Configuration	I	
PCH−IO Configuration ▶ PCI Express Configuration ▶ SATA Configuration	PCI Express Configuration settings	
Serial IRQ Mode [Continuous] State After G3 [SO State]	++: Select Screen fJ: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	
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BIOS Item	Options	Description
PCI Express	Sub-Menu	PCI Express Configuration
Configuration		
SATA Configuration	Sub-Menu	SATA Configuration
Serial IRQ Mode	Quiet	Configure Serial IRQ Mode.
	Continuous	
State After G3	S0 State	Specify what state to go to when power
	S5 State	is re-applied after a power failure



5.3.1.1. PCI Express Configuration

Aptio Setup – Platform Configuration	AMI
 PCI Express Configuration ▶ PCI Express Root Port Cluster 0(x8) ▶ PCI Express Root Port 9(I210) ▶ PCI Express Root Port 10(I210) 	PCI Express Root Port Settings.

BIOS Item	Options	Description
PCI Express	Sub-Menu	To enable or disable PCI-E Port.
Configuration		



5.3.1.2. SATA Configuration

Aptio Setup – AM Platform Configuration	MI
 Controller 1 SATA Configuration Controller 2 SATA Configuration 	SATA Controller 1 Device Options Settings

Aptio Setup – AMI Platform Configuration		
Controller 1 SATA Confi	guration	SATA test settings
SATA Configuration SATA Mode Selection	[Enabled] [AHCI]	
SATA Port O Port O Hot Plug	TS64GMTS400 – 64.0 GB [Enabled] [Disabled]	
Configured as eSATA SATA Port 1 Port 1 Hot Plug Configured as eSATA SATA Port 2 Port 2	Hot Plug supported [Not Installed] [Enabled] [Disabled] Hot Plug supported [Not Installed] [Enabled]	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values</pre>
Hot Plug Configured as eSATA	[Disabled] Hot Plug supported	F9: Optimized Defaults F10: Save & Exit ESC: Exit

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BIOS Item	Options	Description
SATA Configuration	Disabled	To enable or disable SATA Controller.
_	Enabled	
SATA Mode Selection	AHCI	For SATA operating mode setting.
	RAID	
SATA Port X	Info Only	To show installed SATA info
Port X	Enable	To enable or disable this SATA port
	Disable	
Hot Plug	Enable	To enable or disable this port as Hot
_	Disable	Pluggable



5.3.2 Miscellaneous Configuration

Aptio Setup – AMI Platform Configuration	
Miscellaneous Configuration Wake On Lan Support [Disable] Active Video [Auto] RTC Wake system from [Disable] S4/S5	Enable or Disable Wake On Lan Support **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit
	LOG. EXIC

BIOS Item	Options	Description
Wake On LAN Support	Disabled	To enable or disable WOL
	Enabled	
Active Video	Auto	Select BIOS display device
	Onboard Device	
	PCIE Device	
RTC Wake system	Disabled	System will wake on the
from S4/S5	Enabled	day::hr::min::sec specified



5.3.3 Network Configuration

Aptio Setup – AMI Platform Configuration		
Legacy Option ROMs support	[Disabled]	Enable/Disable Legacy PXE Option ROM
EFI Network	[Disabled]	execution for LANs.
		++: Select Screen
		I↓: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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BIOS Item	Options	Description
Legacy Option ROMs	Enabled	Enable or disable Legacy PXE
support	Disabled	Option ROM
EFI Network	Enabled	Enable or disable EFI Network
	Disabled	Driver



5.3.4 System Event Log

Platform Con	Aptio Setup – AMI figuration	
System Event Log 		System Error Enable/Disable setup options.
System Errors RAS Log Level	[Enable] [MIN (BASIC_FLOW)]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Ve	rsion 2.22.1282 Copyright (C) 2022 AMI

BIOS Item	Options	Description
System Errors	Disabled	To enable or disable system
-	Enabled	error log
RAS Log Level	MIN (BASIC_FLOW) MID (BASIC_FLOW, FUNC_FLOW) MAX(BASIC_FLOW, FUNC_FLOW, REG)	RAS Log setup options.



5.4 Advanced Menu

This menu contains the Advanced settings.

Aptio Setup – AMI Main Rlatform Confiduration Advanced Socket C	onfiguration Conver Mamt
Harri Frattorin com iguration havanceu socket c	
 Serial Port Console Redirection NVMe Configuration PCI Subsystem Settings Network Stack Configuration Advanced Power Management Configuration Trusted Computing 	Pcie Delay support function, setting delay time to scan PCIe card
<pre>Pcie Delay support [Enabled] Delay Time in seconds 0 TIs Auth Configuration All Cpu Information Emulation Configuration RAM Disk Configuration Intel(R) I210 Gigabit Network Connection - 00:30:64:6F:70:B2 Intel(R) I210 Gigabit Network Connection - 00:30:64:6F:70:B3</pre>	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit Esc: Ewit</pre>

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BIOS Item	_Options	Description
Serial Port Console Redirection	Sub-Menu	For configuring serial console.
NVME Configuration	Sub-Menu	For NVME devices
PCI Subsystem Settings	Sub-Menu	PCI settings
Network Stack Configuration	Sub-Menu	For configuring Network Stack.
Advanced Power Management	Sub-Menu	For Advanced Power Management
Configuration		
Trusted Computing	Sub-Menu	For TPM settings
PCIe Delay support	Disabled	PCIe Delay support function, setting
	Enabled	delay time to scan PCIe card
		default is 0s,max is 10s
TIs Auth Configuration	No Detail	Dynamic page
All CPU Information		
Emulation Configuration		
Intel(R) I210 Gigabit Network	Sub-Menu	Onboard Ethernet controller
Connection		configuration loaded by EFI driver. The
Intel(R) Ethernet Connection		setup page is designed by Intel and is
E823-L 10GbE SFP+		shown when running the Ethernet EFI
		driver. It is related to the "Network"
		settings on the Boot setup page.

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5.4.1 Serial Port Console Redirection

Aptio Setup – AMI Advanced		
COMO Console Redirection [Enabled] ▶ Console Redirection Settings	▲ Console Redirection Enable or Disable.	
COM1 Console Redirection [Disabled] ▶ Console Redirection Settings		
COM2 Console Redirection [Disabled] ▶ Console Redirection Settings	<pre>++: Select Screen +↓: Select Item Enter: Select</pre>	
COM3 Console Redirection [Disabled] ▶ Console Redirection Settings	+/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults	
COM4(Pci Bus0,Dev26,Func0) F10: Save & Exit ESC: Exit Version 2.22.1282 Copyright (C) 2022 AMI		
	AB	
BIOS Itom Ontions	acarintian	

BIOS Item	Options	Description
Console Redirection	Enabled	Enable or disable serial port
	Disabled	console redirection function.
Console Redirection	Sub-Menu	For configuring serial port settings
Settings		when console redirection function
_		is enabled.



5.4.1.1. Serial Port Console Redirection > COM0

Aptio Setup - AMI Advanced		
COMO Console Redirection Se Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Putty KeyPad	ettings [ANSI] [115200] [8] [None] [1] [None] [Enabled] [Disabled] [Disabled] [VT100]	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100Plus: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode • **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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BIOS Item	Options	Description
Terminal Type	VT100 VT100+ VT-UTF8 ANSI	Configure type of console emulation. Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Bits per second	9600 19200 38400 57600 115200	Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speed.
Data Bits	7 8	Configure the number of data bits in each transmitted or received serial character for both serial ports.
Parity	None Even Odd Mark Space	Configures if parity bit is generated (transmit data) or checked. A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. They can be used as an additional data bit.



BIOS Item	Options	Description
Stop Bits	1 2	Configures the number of stop bits transmitted and received in each serial character for both serial ports. Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.
Flow Control	None Hardware RTS/CTS	Configures flow control for console redirection. Hardware flow control uses RTC/CTS.
VT-UTF8 Combo Key Support	Disabled Enabled	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals
Recorder Mode	Disabled Enabled	This mode only text wil be sent
Resolution 100x31	Disabled Enabled	To enable or disable extended terminal resolution
Putty Keypad	VT100	Select Function Key and keypad on Putty



5.4.2 NVMe Configuration

	Aptio Setup - AMI Advanced	
Seg:Bus:Dev:Func Model Number Total Size Vendor ID Device ID	00:02:00:00 TS256GMTE452T 256.0 GB 126F 2263	Select either Short or Extended Self Test. Short option will take couple of minutes and extended option will take several minutes to
Namespace: 1	Size: 256.0 GB	complete.
Device Self Test: Self Test Option Self Test Action Run Device Self Test	[Short] [Controller Only Test]	++: Select Screen ↑↓: Select Item Enter: Select
Short Device Selftest	[Not Available]	+/-: Change Opt.
Result Extended Device Selftest Result	[Not Available]	F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1282 Copyright (C) 2022 AMI		
		AB



5.4.3 PCI Subsystem Settings

Aptio Setup – AMI Advanced		
PCI Bus Driver Version	A5.01.26	Enables or Disables 64bit capable Devices
PCI Devices Common Setti	ngs:	to be Decoded in Above
Above 4G Decoding SR-IOV Support	[Enabled] [Enabled]	4G Address Space (Only if System Supports 64 bit PCI Decoding).
		++: Select Screen †1: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1282 Copyright (C) 2022 AMI		

BIOS Item	Options	Description
Above 4G Decoding	Disabled	To enable or disable decoded in above
	Enabled	4G address space.
SR-IOV Support	Disabled	Enable or disable Single Root IO
	Enabled	virtualization support


5.4.4 Network Stack Configuration

Aptio Setup – AMI Advanced		
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack ++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1282 Copyright (C) 2022 AMI AB		

BIOS Item	Options	Description
Network Stack	Disabled	To enable or disable network stack.
	Enabled	



5.4.5 Advanced Power Management

	Aptio Setup – AMI Advanced	
Advanced Power Management CPU P State Control Hardware PM State Control CPU C State Control Package C State Control CPU Thermal Management CPU - Advanced PM Tuning	Configuration	P State Control Configuration Sub Menu, include Turbo, XE and etc.
		<pre> ++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
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BIOS Item	Options	Description
CPU P State Control	Sub-Menu	P State Control (Turbo, EIST and ETC.)
Hardware PM State	Sub-Menu	Hardware P-State settings
Control		
CPU C State Control	Sub-Menu	CPU C State settings
Package C State Control	Sub-Menu	Package C State settings
CPU Thermal	Sub-Menu	CPU Thermal related settings
Management		
CPU – Advanced PM	Sub-Menu	Advanced PM Tuning settings
Tuning		



5.4.5.1. CPU P State Control

Aptio Setup – AMI Advanced		
CPU P State Control SpeedStep (Pstates) Boot performance mode Energy Efficient Turbo Turbo Mode	[Enable] [Max Performance] [Enable] [Enable]	Enable/Disable EIST (P–States)
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
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BIOS Item	Options	Description
SpeedStep (Pstates)	Disable	Enhanced Intel SpeedStep
	Enable	Technology
Boot performance mode	Max Performance	Select the performance state
	Max Efficient	that the BIOS will set before OS
	Set by Intel Node Manager	hand off.
Energy Efficient Turbo	Disable	Energy Efficient Turbo Disable,
	Enable	MSR 0x1FC [19]
Turbo Mode	Disable	Enable/Disable processor
	Enable	Turbo Mode



5.4.5.2. Hardware PM State Control

Hardware PM State Control	Disable: Hardware
Hardware P–States [Native Mode]	on OS Request (Legacy P-States) Native Mode:Hardware chooses a P-state based on OS guidance Out of Band **: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

BIOS Item	Options	Description
Hardware P-States	Disable	Disable: Legacy P-States.
	Native Mode	Native Mode: Hardware chooses a P-state
	Native Mode with	based on OS guidance.
	No Legacy Support	Native Mode with No Legacy Support:
		Hardware autonomously chooses a P-state.



5.4.5.3. CPU C State Control

Aptio Setup – AMI Advanced		
CPU C State Control Enable Monitor MWAIT CPU C1 auto demotion CPU C1 auto undemotion CPU C6 report Enhanced Halt State (C1E) OS ACPI Cx	[Enable] [Enable] [Auto] [Enable] [ACPI C2]	Allows Monitor and MWAIT instructions. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt
		F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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BIOS Item	Options	Description
Enable Monitor MWAIT	Disable	Allows Monitor and MWAIT
	Enable	Instructions
CPU C1 auto demotion	Disable	Allows CPU to automatically
	Enable	demote to C1. Takes effect
		after reboot
CPU C1 auto undemotion	Disable	Allows CPU to automatically
	Enable	undemote from C1
CPU C6 report	Disable/Enable/Auto	Enable/Disable CPU C6(ACPI
		C3) report to OS
Enhanced Halt State (C1E)	Disable/Enable	Core C1E auto promotion
		Control.
OS ACPI Cx	ACPI C2	Report CC3/CC6 to OS ACPI
	ACPI C3	C2 or ACPI C3

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5.4.5.4. Package C State Control

Aptio Setup – AMI Advanced		
Package C State Control		Package C State limit
Package C State C2C3TT Dynamic L1 PKG C-state Lat. Neg. LTR IIO Input	[CO/C1 state] O [Enable] [Disable] [Ignore IIO LTR input.]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Version	2.22.1282 Copyright (C) 2	022 AMI

BIOS Item	Options	Description
Package C State Control	C0/C1 state	Package C State limit
	C2 state	
	C6 (non-retention) state	
	Auto	
C2C3TT	0	Default = 0, means [AUTO]
Dynamic L1	Disable	PCU_MISC_CONFIG Bit[21] =
	Enable	dynamic L1 enable
PKG C-state Lat. Neg.	Disable/Enable	MSR 1FCh Bit[30]
		PCH_NEG_DISABLE
LTR IIO Input	Take IIO LTR input.	MSR 1FCh Bit[29] =
	Ignore IIO LTR input	LTR_IIO_DISABLE.
		Disable = Ignore IIO LTR input



5.4.5.5. CPU Thermal Management



BIOS Item	Options	Description
CPU T State Control	Sub-menu	CPU T State settings

	Aptio Setup — AMI Advanced	
CPU T State Control		Enable/Disable Software
Software Controlled T–States	[Disable]	

BIOS Item	Options	Description
Software Controlled T-States	Disable Enable	Software Controlled T State setting

5.4.5.6. CPU-Advanced PM Tuning

Aptio Setup - AMI Advanced			
CPU – Advanced PM Tunin	ıg	If disable, user can input Uncore Frequency.	
Uncore Freq Scaling	[Enable]		
Uncore Freq RAPL	[Enable]		

BIOS Item	Options	Description
Uncore Freq Scaling	Disable	If disable, user can input Uncore
	Enable	Frequency



5.4.6 Trusted Computing

	Aptio Setup – AMI Advanced	
Configuration Security Device Support Disable Block Sid NO Security Device Found	[Enable] [Disabled]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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BIOS Item	Options	Description
Security Device	Disabled	Enable or Disable security device, such
	Enabled	as TPM



5.4.7 Intel(R) I210 Gigabit Network Connection

When the BIOS boots the system, it will launch the onboard Intel® Ethernet I210 controller's UEFI driver. The driver provides a setup page for configuring Ethernet parameters and shows information about Ethernet controller. When EFI Network is disabled, the Ethernet UEFI driver is not executed and this setup page will not be shown (see 5.3.3 Network Configuration on page 65).

Aptio Setup – AMI Advanced				
 Firmware Image Propertie NIC Configuration iSCSI Configuration Device Level Configurat: 	es 🔺	View device firmware version information.		
Blink LEDs	0			
UEFI Driver	Intel(R) PRO/1000 9.7.06 PCI-E			
Adapter PBA	000300-000			
Device Name	Intel(R) I210 Gigabit Network Connection	<pre>→+: Select Screen f↓: Select Item</pre>		
Chip Type	Intel i210	Enter: Select		
PCI Device ID	1533	+/-: Change Opt.		
PCI Address	03:00:00	F1: General Help F8: Previous Values		
Link Status	[Disconnected]	F9: Optimized Defaults		
Link Speed Status	[Auto Negotiated]	F10: Save & Exit ESC: Exit		
Version	2 22 1282 Conuright (C) 2	022 AMT		
(C) 310		AB		

BIOS Item	Options	Description
NIC Configuration		For configuring link speed and wake
		function.



5.4.8 Intel(R) Ethernet Connection E823-L for 10GbE

When the BIOS boots the system, it will launch the onboard Intel® Ethernet E823-L controller's UEFI driver. The driver provides a setup page for configuring Ethernet parameters and shows information about Ethernet controller. When EFI Network is disabled, the Ethernet UEFI driver is not executed and this setup page will not be shown (see 5.3.3 Network Configuration on page 65).

Aptio Setup — AMI Advanced				
 Firmware Image Propert NIC Configuration 	ies	View device firmware version information.		
Blink LEDs	0			
UEFI Driver Adapter PBA Device Name	Intel(R) 100GbE 3.1.18 N/A Intel(R) Ethernet Connection E823–L for SEP			
Chip Type PCI Device ID PCI Address	Intel E823–L 124D F4:00:01	<pre>++: Select Screen f↓: Select Item Enter: Select +/=: Change Ont</pre>		
Link Status	[Disconnected]	F1: General Help F8: Previous Values		
MAC Address Virtual MAC Address	00:00:00:00:01:01 00:00:00:00:00:00	F9: Optimized Defaults F10: Save & Exit ESC: Exit		
Version 2.22.1282 Copyright (C) 2022 AMI AB				

BIOS Item	Options	Description
NIC Configuration		For configuring link speed and wake
		function.



5.5 Socket Configuration Menu

This menu contains the settings for Socket Configuration.

	Ap	tio Setup	- AMI			
Main	Platform Configuration	Advanced	Socket	Configuration	Server Mgmt	
 Proces Common Memory IIO Co 	sor Configuration RefCode Configuration Configuration nfiguration			Displays an option to c Processor S ++: Select fl: Select Enter: Sele F1: General F8: Previou F9: Optimiz F10: Save & ESC: Exit	d provides change the settings Screen Item sct ct ct ct ct ct s Values red Defaults a Exit	
	Version 2.22.	1282 Copyr	ight (C) 2022 AMI	A	B

BIOS Item	Options	Description
Processor Configuration	Sub-Menu	For CPU settings
Common RefCode Configuration	Sub-Menu	For RC settings
Memory Configuration	Sub-Menu	PCU_MISC_CONFIG Bit[21] = dynamic L1 enable
IIO Configuration	Sub-Menu	MSR 1FCh Bit[30] PCH_NEG_DISABLE



5.5.1 Processor Configuration

	Aptio Setup – AMI Socket Co	onfiguration
Processor BSP Revision Processor Socket Processor ID Processor Frequency Processor Max Ratio Processor Min Ratio Microcode Revision L1 Cache RAM(Per Core) L2 Cache RAM(Per	606C1 - ICX-D LCC B Socket 0 Socket 1 000606C1* 3.000GHz 1EH 08H 01000132 80KB 1280KB	Enables the Vanderpool Technology, takes effect after reboot.
L3 Lache KHM(Per Package) Processor O Version	15360КВ Intel (R)Xeon(R) D-1749 NT CPU @ 3.00GHz	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Ont</pre>
Hyper–Threading [ALL] Enable Intel(R) TXT VMX	[Enable] [Disable] [Enable]	F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Versior	n 2.22.1282 Copyright (C) 2	2022 AMI AB

BIOS Item	Options	Description
CPU string	Info only	To show CPU info
Hyper-Threading [ALL]	Disable	To enable or disable logical processor
	Enable	threads
Enable Intel(R) TXT	Disable	Enables Intel(R) TXT
	Enable	
VMX	Enable	To enable or disable the Vanderpool
	Disable	Technology(VTx)



5.5.2 Common RefCode Configuration

Common RefCode Configur	ation	Select MMCFG Base
 MMCFG Base MMIO High Base MMIO High Granularity Size Numa	[Auto] [Auto] [2T] [64G] [Enable]	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

BIOS Item	Options	Description
MMCFG Base	1G/1.5G/1.75G	Select MMCFG Base
	Auto	
MMCFG Size	1G/2G	Select MMCFG Size
	Auto	
MMIO High Base	2T /1T/512G	Select MMIO High Base
MMIO High Granularity Size	16G/ 64G /256G	Selects the allocation size used to
		assign mmioh resources
Numa	Disable	Enable or Disable Non uniform
	Enable	Memory Access

Preliminary



5.5.3 Memory Configuration

Integrated Memory Controller (iMC) Enforce POR [POR] Enforce Population POR [Enforce Supported Populations] Memory Frequency [Auto] IMC BCLK [Auto] Memory Topology Memory Timings Override	Enable - Enforces Plan Of Record restrictions for DDR4 frequency and voltage programming. Disable - Disables this feature and user is able to run at higher frequencies, specified • ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

BIOS Item	Options	Description
Enforce POR		
Enforce Population POR		
Memory Frequency	Auto 800 1000 1066 1200	To select maximum memory frequency
Attempt Fast Boot	Auto Disable Enable	To enable or disable skip memory reference code on warm boots, Auto is Enable now
Attempt Fast Cold Boot	Auto Disable Enable	To enable or disable skip memory reference code on cold boots, Auto is Enable now



5.5.3.1. Memory Topology

	Aptio S	etup – AMI	
		Socket Co	nfiguration
SocketO.ChA.DimmO: 2 16GB RDIMM	8666MT/s Transce	nd SRx8	
Socket0.ChB.Dimm0: 2 16GB RDIMM	666MT/s Transce?	nd SR×8	
			<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit F00: Souther F00: F00: Souther F00: F00: F00: F00: F00: F00: F00: F00:</pre>
Ven	sion 2.22.1282	Copyright (C) 2	OZZ AMI AB
BIOS Item	Options	Descrip	lion
SocketX.ChX.DimmX	Info only	To show	channel /dimm spd info

5.5.3.2. Memory Timings Override

Aptio Setup – AMI Socket Configuration			
XMP Profile	[Disable]	Selects the XMP profile to use	

BIOS Item	Options	Description
XMP Profile	Disable Enable	To enable or disable Intel Extreme Memory Profiles to support memory over-clock



5.5.4 IIO Configuration



5.5.4.1. Sub-Menu: Socket0 Configuration

Aptio Setup – AMI Socket Configuration		
IOUO (IIO PCIe Port 1) [x16] ▶ Port 1A	Selects PCIe port Bifurcation for selected slot(s)	
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BIOS Item	Options	Description
IOU0 (IIO PCIe Port 1)	X4x4x4x4 / X4x4x8	Selects PCIe port bifurcation for riser
	X8x4x4 / X8x8 / X16	card upstream port
Port 1A	Sub Page	To show PCIe port link status



Socket0 Configuration > Port 1A

Aptio Setup – AMI Socket Configuration			
Port 1A PCI-E Port Link Speed Override Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed	[Enable] [Gen 3 (8 GT/s)] [x16] [-3.5 dB] Link Did Not Train Max Width x16 Link Did Not Train	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used • ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	
Versior	1 2.22.1282 Copyright (C) 2	2022 AMI AB	

BIOS Item	Options	Description
PCI-E Port	Disable/ Enable	To enable or disable PCI-E Port
Link Speed	Gen 1 (2.5 GT/s)	Choose Link Speed
	Gen 2 (5 GT/s)	
	Gen 3 (8 GT/s)	
Override Max Link Width	Auto/X1/X2/X4/X8/X16	Override the max link width that was
		set by bifurcation
PCI-E Port DeEmphasis	-3.5 dB / -6.0 dB	De-Emphasis control (LNKCON2[6])
PCI-E Port Link Status	Info Only	To show PCIE-E Port link or lot;
PCI-E Port Link Max		width; speed
PCI-E Port Link Speed		



5.5.4.2. Intel(R) VT for Directed I/O (vt-d)

Aptio Setup – AMI Socket Configuration		
Intel® VT for Direc	ted I/O (VT–d)	Enable/Disable Intel® Virtualization Technology for Directed
Intel® VT for Directed I/O	[Enable]	<pre>ive (vi-d) bg reporting the I/O device assignment to VMM through DMAR ACPI Tables. ++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
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BIOS Item	Options	Description
Intel(R) VT for Directed	Disable	To enable or disable Intel Virtualization
I/O (VT-d)	Enable	Technology for Directed I/O



5.6 Server Mgmt Menu

This menu contains the Server Management settings.

Aptio Setup — AMI			
Main Platform Configu	ration Advanced	Socket Configuration Server Mgmt	D
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version	PASSED 32 1 1.02 2.0	▲ Wait For BMC response for specified time out. In PILOTII, BMC starts at the same time when BIOS starts during AC	Î
BMC Support Wait For BMC Time Zone(UTC Offset) Current Time Zone POST Watchdog Timer POST Watchdog Timer POST Watchdog Timer Policy OS Watchdog Timer OS Wtd Timer Timeout OS Wtd Timer Policy	<pre>[Enabled] [Enabled] 0x07FF +00:00 [Disabled] [6 minutes] [Do Nothing] [Disabled] [10 minutes] [Reset]</pre>	<pre>++: Select Screen ++: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>	

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BIOS Item	Options	Description
BMC Self Test Status	Info-only	To show BMC self test status
BMC Device ID	Info-only	To show BMC Device ID
BMC Device Revision	Info-only	To show BMC Device Revision
BMC Firmware Revison	Info-only	To show BMC Firmware version
IPMI Version	Info-only	To show IPMI version
BMC Interfaces(s)	Info-only	To show BMC interface such as KCS
BMC support	Enabled Disabled	To enable or disable communicate with BMC
Wait For BMC	Enabled Disabled	To enable or disable wait for BMC 30s before sending Self Test command
Time Zone (UTC Offset) Current Time Zone	0x7FFF Info-only	Enter UTC Offset in hours, ox7FFF to consider BIOS time as local time
POST Watchdog Timer	Enabled Disabled	Enable or Disable POST Watchdog Timer(FRB-2 timer)
POST Watchdog timeout	3mins/4mins 5mins/ 6mins	Select 3mins/4mins/5mins/6mins for POST Watchdog Timer Expiration value
POST Watchdog Timer Policy	Do Nothing Reset Power Down Power Cycle	Configure how the system should respond if the POST Watchdog Timer (FRB-2 Timer) expires. Not available if Timer is disabled.

Preliminary

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BIOS Item	Options	Description
OS Watchdog Timer	Enabled Disabled	If enabled, starts a BIOS timer which can only be shut off by Management Software after the OS loads. Helps determine that the OS successfully loaded or follows the OS Boot Watchdog Timer policy.
OS Watchdog timeout	5 minutes 10 minutes 15 minutes 20 minutes	Select 5mins/10mins/15mins/20mins for OS Boot Watchdog Timer Expiration. Not available if OS Boot Watchdog Timer is disabled.
OS Watchdog Timer Policy	Do Nothing Reset Power Down Power Cycle	Configure how the system should respond if the OS Boot Watchdog Timer expires. Not available if OS Boot Watchdog Timer is disabled.
BMC network configuration	Sub-Menu	Configure BMC network parameters

5.6.1 BMC Network Configuration

	Aptio Setup – AMI		Server Mant
			Server Mgnit
BMC network configura	tion		Select to configure LAN 🔺
****			channel parameters
Configure IPv4 support			statically or
****			dynamically(by BIOS or BMC). Unspecified
Lan channel 1			option will not modify
Configuration Address	[DynamicBmcDhcp]		any BMC network
source			parameters during BIOS 🔹
Current Configuration	DynamicAddressBmcDhcp		
Address source			
Station IP address	0.0.0.0		++: Select Screen
Subnet mask	0.0.0.0		↑↓: Select Item
Station MAC address	00-30-64-6F-70-B2		Enter: Select
Router IP address	0.0.0.0		+/-: Change Opt.
Router MAC address	00-00-00-00-00		F1: General Help
			F8: Previous Values
Lan channel 2			F9: Optimized Defaults
			F10: Save & Exit
			ESC: Exit
		-	

Δ	B
н	ы

BIOS Item	Options	Description
Configure IPV4 support	Read only	
Configuration Address	Static	Select to configure LAN channel
source	DynamicBmcDhcp	parameters statically or dynamically(by
		BIOS or BMC)
Configure IPV6 support	Read only	
IPV6 Support	Disable / Enable	Enable or Disable LAN IPV6 Support
Configuration Address	Static	To configure LAN Address source when
source	DynamicBmcDhcp	IPV6 supported



5.7 Security Menu

This menu contains the Security settings.

Aptio Setup – AMI <mark>⊲ Security</mark> Boot Save & Exit	
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 in the following range: Minimum length 3 Maximum length 20	Secure Boot configuration
Administrator Password User Password ► Secure Boot	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults</pre>
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BIOS Item	Options	Description
Administrator Password	Enter to set password	Configure/Clear Administrator Password. When pressing enter, a menu will be popped up for creating new password. When password installed, press enter without inputting password, it will clear password.
User Password	Enter to set password	Configure/Clear User Password. When pressing enter, a menu will be popped up for creating new password. When password installed, press enter without inputting password, it will clear password.
Secure Boot	Sub-Menu	Secure Boot Menu. Default is Disabled.



5.8 Boot Menu

This menu contains the settings for bootable devices in the system.

≺ Security Boot Save	Aptio Setup – AMI & Exit	
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot	<mark>3</mark> [On] [Enabled]	▲ Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Configuration Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5 Boot Option #6	[Hard Disk:Windows Boot Manager (PO: TS64GMTS400] [NVME:ubuntu (TS256GMTE452T)] [UEFI AP:UEFI: Built-in EFI Shell] [CD/DVD] [SD] [USB Hard Disk]	<pre>++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

BIOS Item	Options	Description
Setup Prompt Timeout	3	Number of seconds to wait for setup activation
Bootup NumLock State	On Off	
Quiet Boot	Enabled Disabled	
Boot Option #1 ~ #9	 #1: Hard Disk #2: CD/DVD #3: SD #4: USB Hard Disk #5: USB CD/DVD #6: USB Key #7: USB Floppy #8: USB LAN #9: Network 	For boot priority setting.
XXXX Drive BBS Priorities	Sub-Menu	When the bootable device is attached to system and found by BIOS, it will be listed at boot option #. If there are many devices with the same device type found, it can set priority among these devices through this sub-menu.

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5.9 Save & Exit Menu

Aptio Setup – A⊬ ≺ Security Boot Save & Exit	11
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset	▲ Exit system setup after saving the changes.
Save Changes Discard Changes	
Default Options Restore Defaults Save as User Defaults Restore User Defaults	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. E1: General Help</pre>
Boot Override Windows Boot Manager (PO: TS64GMTS400) ubuntu (TS256GMTE452T)	 F8: Previous Values F9: Optimized Defaults ▼ F10: Save & Exit ESC: Exit
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BIOS Item	Options	Description
Save Changes and Exit	Enter	Save changed settings and exit BIOS
		setup utility.
Discard Changes and	Enter	Skip changed setting and exit BIOS
Exit		setup utility.
Save Changes and	Enter	Save all changed settings and let system
Reset		do reset to boot system.
Discard Changes and	Enter	Discard all changed settings and let
Reset		system do reset to boot system.
Save Changes	Enter	Save all changed settings.
Discard Changes	Enter	Discard changes done so far to any of
		the setup options.
Restore Default	Enter	Load the default made when BIOS was
		built.
Save as User Default	Enter	Save all changed done so far as User
		Defaults.
Restore User Default	Enter	Load the default that user save as user
		defaults.
Boot Override	Info-only	



Important Safety Instructions

For user safety, please read and follow all **instructions**, **WARNINGS**, **CAUTIONS**, and **NOTES** marked in this manual and on the associated equipment before handling/operating the equipment.

- 1. Read these safety instructions carefully.
- 2. Keep this user's manual for future reference.
- 3. Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- 4. The equipment can be operated at an ambient temperature of 55°C.
- 5. When installing/mounting or uninstalling/removing equipment; or when removal of the chassis lid required for user servicing (Section 3.1-3.5):
 - Turn off power and unplug any power cords/cables, and
 - Reinstall the chassis lid before restoring power.



Hazardous moving parts. Keep body parts out of the motion path.



- 6. To avoid electrical shock and/or damage to equipment:
 - Keep equipment away from water or liquid sources;
 - Keep equipment away from high heat or high humidity;
 - Keep equipment properly ventilated (do not block or cover ventilation openings);
 - Make sure to use recommended voltage and power source settings;
 - Always install and operate equipment near an easily accessible electrical socketoutlet;
 - Secure the power cord (do not place any object on/over the power cord);
 - Only install/attach and operate equipment on stable surfaces and/or recommended mountings;
 - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.
 - The power cord must be connected to a socket or outlet with a ground connection.
- 7. Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.
- 8. An RTC battery may be provided for uninterrupted, backup or emergency power.



Risk of explosion if battery is replaced with one of an incorrect type. Discard used batteries according to the manufacturer's instructions.



- 9. This equipment is not suitable for use in locations where children are likely to be present.
- 10. Equipment must be serviced by authorized technicians when:
 - The power cord or plug is damaged;
 - Liquid has penetrated the equipment;
 - It has been exposed to high humidity/moisture;
 - It is not functioning or does not function according to the user's manual;
 - It has been dropped and/or damaged; and/or,
 - It has an obvious sign of breakage.
- 11. Please pay strict attention to all warnings and advisories appearing on the device, to avoid injury or damage.
- 12. The equipment may have more than one power supply input. To reduce the risk of electrical shock, trained personnel should disconnect all power supply inputs before servicing.



Shock hazard! Disconnect all power supply inputs before servicing.





Multiple power sources

- 13. It is recommended that equipment be installed only in a server room or computer room where access is:
 - Restricted to qualified service personnel or users familiar with restrictions applied to the location, reasons therefor, and any precautions required;
 - Only afforded by the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.
- 14. Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.
- 15. This product is intended to be supplied by a certified DC power source providing reinforced/double insulation from AC mains with an output rating of -48V to -60V DC, 12A min., Tma = 55°C. All power connection wiring must be performed by a qualified electrician in accordance with National Electrical Code, ANSI/NFPA 70 and Canadian Electrical Code, Part I, CSA C22.1. The DC power supply should be well-grounded to ensure safe operation. The protective earthing conductor shall be minimum 14 AWG and having green-and-yellow insulation. The ground wire should be installed first (before "+" and "-") and then removed.
- 16. When using a Fiber Optic Small-Form Pluggable (SFP) module, ensure it is IEC 60825-1, IEC 60825-2 and IEC 60950-1 or IEC 62368-1 certified and a Class 1 Laser Product.



Consignes de Sécurité Importantes

Pour assurer la sécurité de l'utilisateur, veuillez lire et suivre toutes les **directives**, ainsi que les **AVERTISSEMENTS**, **MISES EN GARDE** et **REMARQUES** de ce manuel et indiqués sur l'équipement associé avant de manipuler ou utiliser l'équipement.

- 1. Veuillez lire attentivement ces instructions de sécurité avec soin.
- 2. Veuillez conserver ce manuel pour référence future.
- 3. Veuillez lire la section des spécifications de ce manuel pour avoir des informations détaillées sur l'environnement d'exploitation de cet équipement.
- 4. L'équipement peut être utilisé à une température ambiante de 55 °C.
- 5. Lors de l'installation ou du montage et de la désinstallation ou de la dépose de l'équipement; ou lors de la dépose du couvercle du châssis pour procéder à l'entretien par l'utilisateur (Sections 3.1-3.5):
 - Coupez l'alimentation et débranchez les cordons et les câbles d'alimentation, et
 - Reposez le couvercle du châssis avant de remettre l'alimentation.



Pièces mobiles dangereuses. Gardez les parties du corps hors de la trajectoire.



- 6. Pour éviter un risque d'électrocution et pour éviter d'endommager l'équipement :
 - Éloignez l'équipement de l'eau et de toute source liquide;
 - Éloignez l'équipement de toute source de chaleur ou d'humidité élevée;
 - Gardez l'équipement correctement ventilé (ne pas bloquer ou couvrir les ouvertures de ventilation);
 - Veillez à utiliser la tension recommandée et les réglages adéquats pour la source d'alimentation;
 - Veuillez toujours installer et exploiter l'équipement à proximité d'une prise de courant facilement accessible;
 - Assurez-vous que le cordon d'alimentation est acheminé de manière sécuritaire (ne déposez aucun objet dessus);
 - Installez, fixez et utilisez l'équipement sur des surfaces stables ou sur les fixations recommandées uniquement;
 - Si l'équipement n'est pas utilisé pendant une longue période, éteignez-le et débranchez-le de sa source d'alimentation.
 - Le cordon d'alimentation doit être connecté à une prise ou à une prise de courant avec mise à la terre.
- 7. N'essayez jamais de réparer l'équipement. L'équipement ne doit être réparé que par du personnel qualifié.



8. Une pile au lithium peut être installée pour assurer l'alimentation de secours ou d'urgence en continu.



Risque d'explosion si la batterie est remplacée par une batterie d'un type incorrect. Jetez les piles usagées conformément aux instructions du fabricant.

9. Cet équipement ne convient pas à une utilisation dans des lieux pouvant accueillir des enfants.

10. L'équipement doit être entretenu par des techniciens agréés lorsque :

- le cordon d'alimentation est endommagé ou lorsque la fiche électrique est endommagée;
- du liquide a pénétré à l'intérieur de l'équipement;
- l'équipement a été exposé à un taux d'humidité élevé;
- l'équipement ne fonctionne pas ou ne fonctionne pas conformément au manuel de l'utilisateur;
- l'équipement est tombé ou lorsqu'il a été endommagé;
- l'équipement présente un signe évident de défaillance.
- 11. Veuillez porter une attention rigoureuse à tous les avertissements et à tous les avis figurant sur l'appareil, pour éviter des blessures ou des dommages.
- 12. L'équipement peut avoir plus d'une entrée d'alimentation. Pour réduire le risque d'électrocution, le personnel qualifié devrait déconnecter toutes les entrées d'alimentation avant de procéder à l'entretien.



Risque d'électrocution! Débranchez toutes les entrées d'alimentation avant de procéder à l'entretien.





Sources d'alimentation multiples

- 13. Il est recommandé que l'équipement soit installé que dans une salle de serveur ou de la salle informatique où:
 - L'accès est limité au personnel de maintenance qualifié ou utilisateurs familiers avec les restrictions appliquées à l'emplacement, motifs, et tout les précautions nécessaires, et;
 - L'accès est uniquement assurée par l'utilisation d'un outil ou clé, ou d'autres moyens de sécurité, et est contrôlé par l'autorité responsable de l'emplacement.
- 14. 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.
- 15. Ce produit est destiné à être alimenté par une source d'alimentation CC certifiée fournissant une isolation renforcée/double du secteur CA avec une puissance de sortie de -48 V à -60 V CC, 12 A min., Tma = 55°C. Tout le câblage de connexion d'alimentation doit être effectué par un électricien qualifié conformément au Code national de l'électricité, ANSI / NFPA 70 et au Code canadien de l'électricité, Partie I, CSA C22.1. L'alimentation CC doit être bien mise à la terre pour garantir un fonctionnement sûr. Le conducteur de mise à la terre de protection doit être au minimum 14 AWG et avoir une isolation verte et jaune. Le fil de terre doit être installé en premier (avant «+» et «-») puis retiré.



Getting Service

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