MXC-3300 and MXC-3340

User's Manual

Intel® Processor N-Series and Atom® X Series

Fanless Expandable Embedded Computer



Manual Rev.: Rev. 1.0

Revision Date: January 21, 2025

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Part Number: 50M-41057-1000

Leading **EDGE COMPUTING**

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Preface

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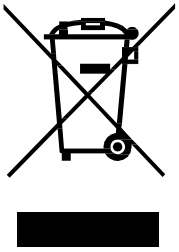
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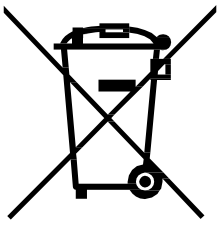
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ADLINK is committed to fulfill its social responsibility to global environmental preservation through compliance with the European Union's Restriction of Hazardous Substances (RoHS) directive and Waste Electrical and Electronic Equipment (WEEE) directive. Environmental protection is a top priority for ADLINK. We have enforced measures to ensure that our products, manufacturing processes, components, and raw materials have as little impact on the environment as possible. When products are at their end of life, our customers are encouraged to dispose of them in accordance with the product disposal and/or recovery programs prescribed by their nation or company.



Battery Labels (for products with battery)









California Proposition 65 Warning



WARNING: This product can expose you to chemicals including acrylamide, arsenic, benzene, cadmium, Tris(1,3-dichloro-2-propyl)phosphate (TDCPP), 1,4-Dioxane, formaldehyde, lead, DEHP, styrene, DINP, BBP, PVC, and vinyl materials, which are known to the State of California to cause cancer, and acrylamide, benzene, cadmium, lead, mercury, phthalates, toluene, DEHP, DIDP, DnHP, DBP, BBP, PVC, and vinyl materials, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.



NOTE:

Additional information, aids, and tips that help users perform tasks.



CAUTION:

Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.



WARNING:

Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

Revision History

Revision	Description	Date	By
1.0	Initial release	2025-01-21	AL

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1. Introduction

Featuring the latest Intel® N-series and Atom® X series processors, the Matrix MXC-3300 and MXC-3340 series excels with minimal power consumption, exceptional 3D graphics, and powerful media acceleration, delivering significant improvements in performance and cost-efficiency.

The product offers a versatile array of I/O interfaces, including isolated CAN, 16 digital I/O channels, 4 LAN ports, multi-protocol COM, and 4 USB ports, all designed to meet the demands of a wide range of industrial applications. In addition, the MXC-3300 and MXC-3340 series provide two DisplayPort outputs and one HDMI port for dual independent displays with full HD resolution.

For expanded applications, users can opt for the MXC-3340 series with three optional PCIe slots or utilize M.2 directly for enhanced flexibility.

With rugged architecture, flexibility, and rich I/O capacity, the MXC-3300's minimal power consumption, abundant features, and leading performance make it the embedded system of choice for industrial automation, facility management, intelligent transportation systems, and other applications that demand reliability in harsh environments.

1.1 Features

- Intel® N-series and Atom® X series processors Extremely compact 142 (W) x 219 (D) x 210 (H) mm
- Wide range input: 9 to 36V DC
- Removable SSD tray (only MXC-3300 series)
- Rich I/O:
  - DDR5 4800MHz memory up to 16GB
  - Two independent displays: 1 HDMI, 2 DisplayPort (up to 4K 60Hz)
  - Isolation CAN (2.5 KV)
  - Isolation RS485/422/232 (2.5 KV)
  - Isolation 8DI/8DO (2.5 KV)
  - Audio with mic-in and line-out/speaker
  - 4x Serial ports, 1x USB 3.2, 3x USB 2.0 ports
  - 4x GbE LANs (Intel i210)
  - Expansion slots, M.2 B-Key, E-Key, M-Key
  - On-board TPM
- Wall mounting

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2. Specifications

2.1 Product Specifications

Model	MXC-3300	MXC-3340
SKU	MXC-3301	MXC-3341
CPU	ADL-N, N97, 4-cores, 3.6GHz, 12W	
Memory	1x DDR5 SO-DIMMs, up to 4800MHz max 16 GB	
HDMI	1 (HDMI 2.0, 3840 x 2160 @ 60Hz)	
DisplayPort	2 (DP1.4 HBR2, 3840 x 2160 @ 60Hz)	
Gbe Port	4x GbE ports/I210IT (10/100/1000 Mbps Ethernet)	
SSD	1x SATA III 6Gb/s for 2.5inch SSD (Removable tray)	1x SATA III 6Gb/s for 2.5inch SSD
USB	1x USB 3.0 (1A,5Gbps) Type-A connector 3x USB 2.0 (0.5A) Type-A connector	
COM	2x isolated RS-232/422/485 DB9	
CAN	2x DB9 isolated CAN ports with SjA1000 CAN controller	
GPIO	8-CH DI and 8-CH DO with 1.5KV isolation	
Audio	Realtek ALC888S 1x line-in, 1x line-out, MIC-in ,1*3 Jack	
M.2	M.2 2280 M Key (PCIe x2)	
	M.2 2230 E Key with (Wi-Fi (PCIex1), BT(USB2.0)) for Wi-Fi 6	
	M.2 3042 B-key (USB2.0) for 4G/ SIM card	
TPM	Yes (TPM 2.0, Infineon SLB9670/ Nuvoton co-lay)	
Dimension	80 (W) x219 (D) x210(H) mm (WxDxH) (5.84” x 8.76” x 8.4”)	142 (W) x219 (D) x210(H) mm (WxDxH) (5.84” x 8.76” x 8.4”)
Power Supply	9-36V DC (+-5%)	9-36V DC (+-5%) or 24V DC
OS Support	Win 10 IoT LTSC 2021 Ubuntu 22.04	Win 10 IoT LTSC 2021 Ubuntu 22.04
I/O Interface	NA	1x PCIe x8, 2x PCIe x4
Operating Temperature	-20°C to 60°C ** (DC power source, 50°C for external power adapter ***)	
Storage Temperature	-40°C to 85°C (-40˚F to 185˚F) (excl. HDD/SDD/CF)	
Humidity	~95% @ 40°C (104˚F) (non-condensing)	

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Vibration Operating	3 Grms, IEC 60068-2-64, random vibration, 5 to 500 Hz, 1 hr/axis
Shock Operating	30G, IEC60068-2-27, half sine, 11m duration
ESD	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV
EMC	CE and FCC Class B
Safety	UL 62368, CB

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3. Functional Block Diagram

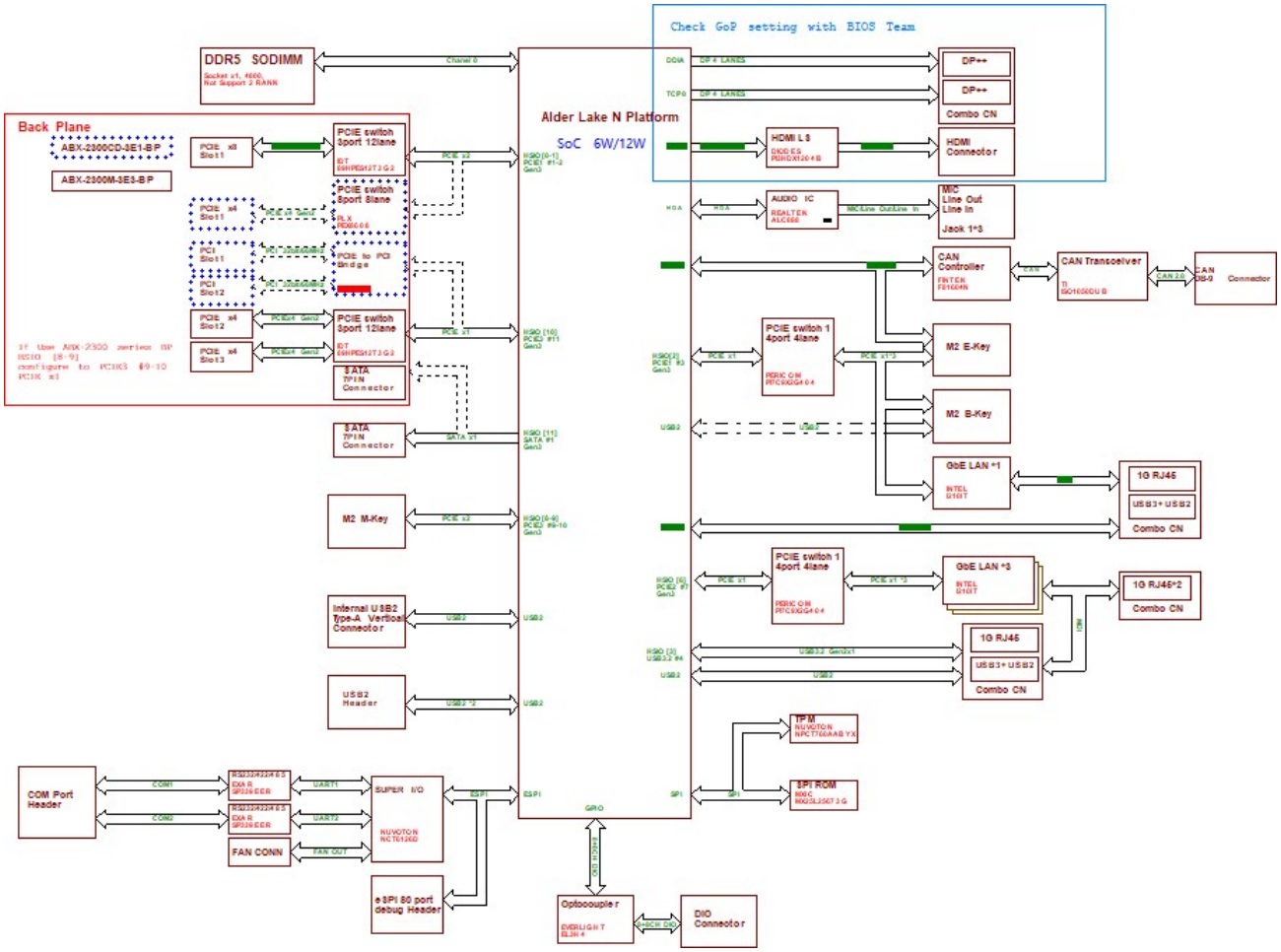


Figure 1: Functional block diagram

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4. Mechanical Layouts

4.1 Connector Locations

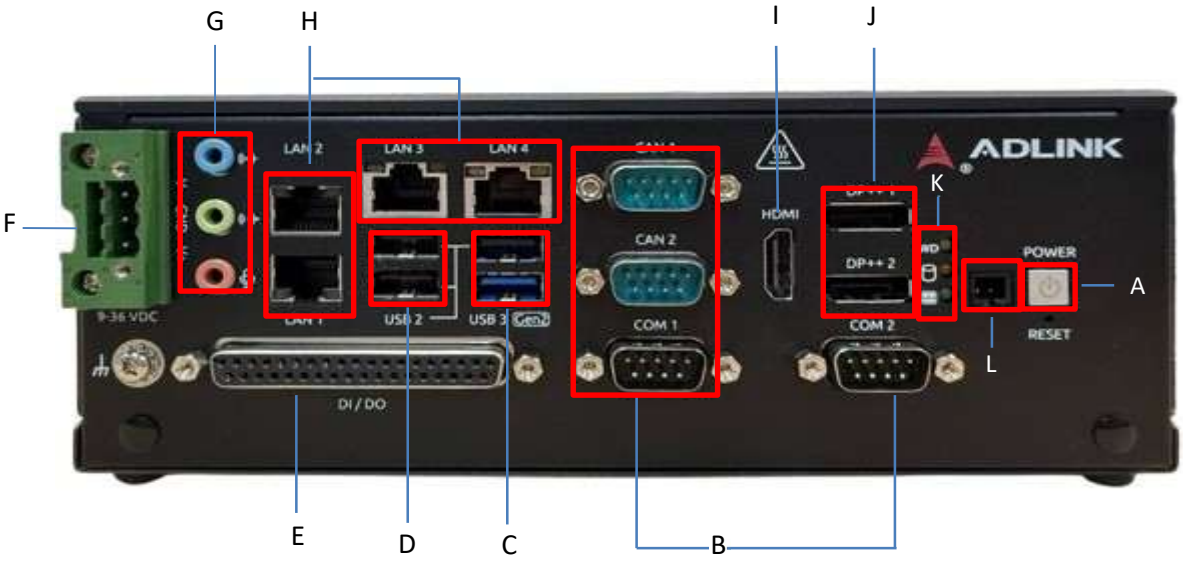


Table 1: Connector locations

A	Power Button	**G**	Audio
B	2x Isolation COM & 2x CAN	**H**	4x Ethernet LAN
C	1x USB 3.2 Gen2 1xUSB 2.0	**I**	HDMI
D	2x USB 2.0	**J**	2x DP
E	Digital I/O	**K**	LED Indicators
F	DC input	**L**	External Power Button

4.2 Mechanical Dimensions

4.2.1 MXC-3300 Mechanical Dimensions

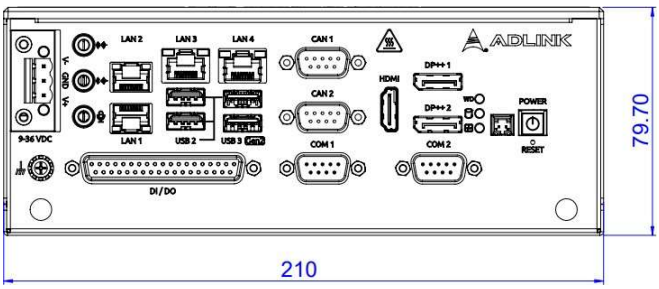


Figure 2: MXC-3300 mechanical dimensions (Front view)

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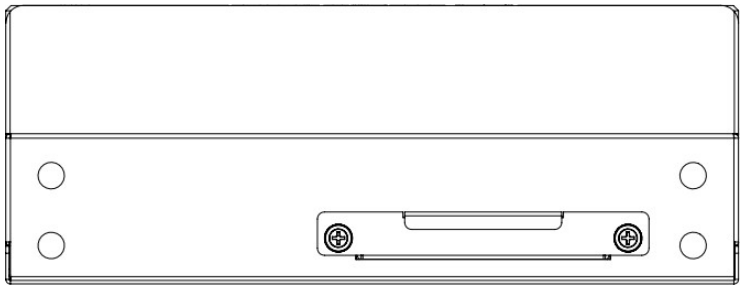


Figure 3: MXC-3300 mechanical dimensions (Rear view)

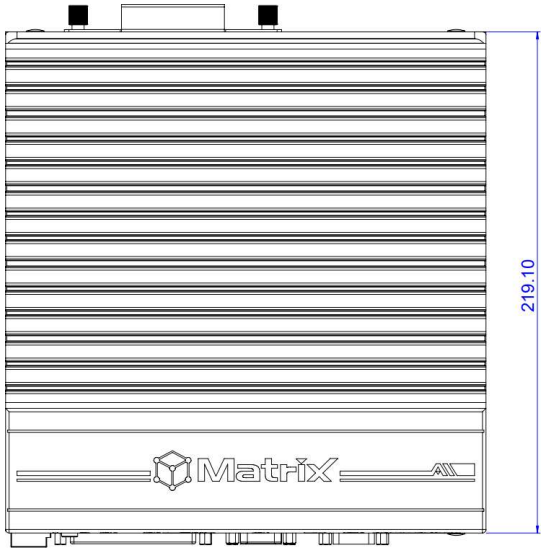


Figure 4: MXC-3300 mechanical dimensions (Top view)

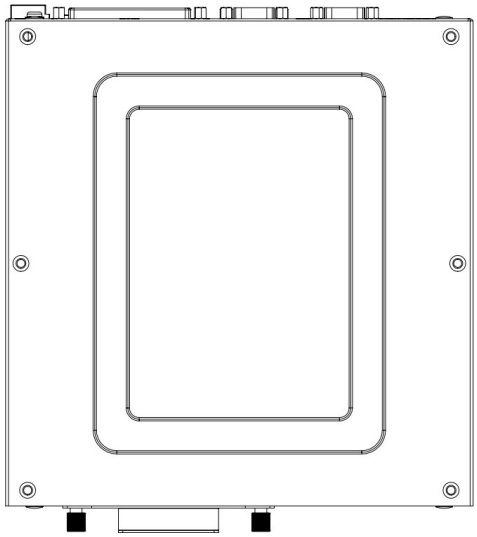


Figure 5: MXC-3300 mechanical dimensions (Bottom view)

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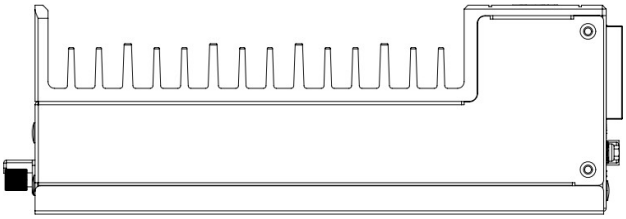


Figure 6: MXC-3300 mechanical dimensions (Side view)

4.2.2 MXC-3340 Mechanical Layout

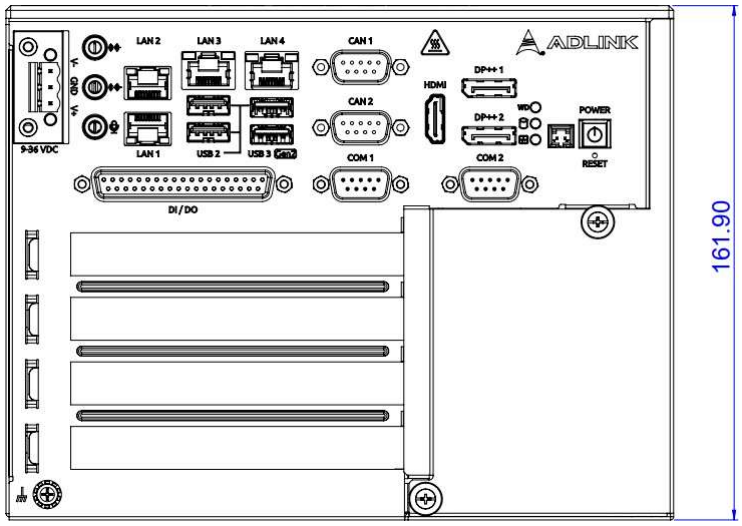


Figure 7: MXC-3340 mechanical dimensions (Front view)

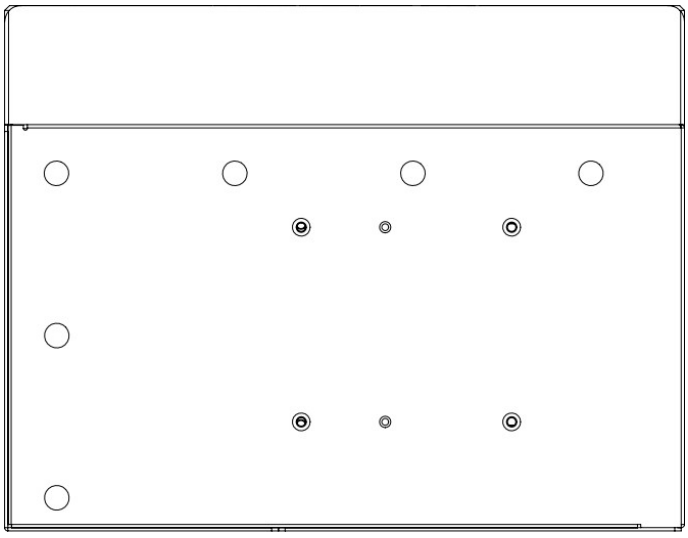


Figure 8: MXC-3340 mechanical dimensions (Rear view)

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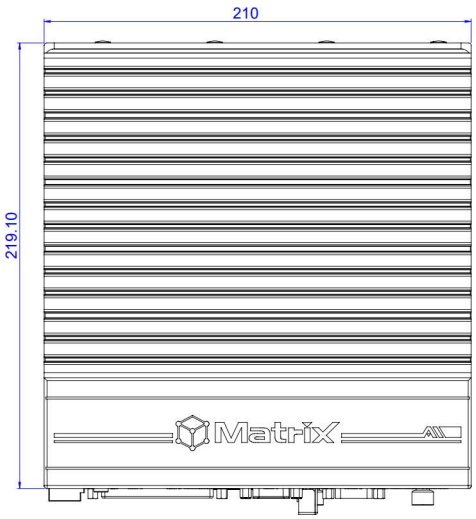


Figure 9: MXC-3340 mechanical dimensions (Top view)

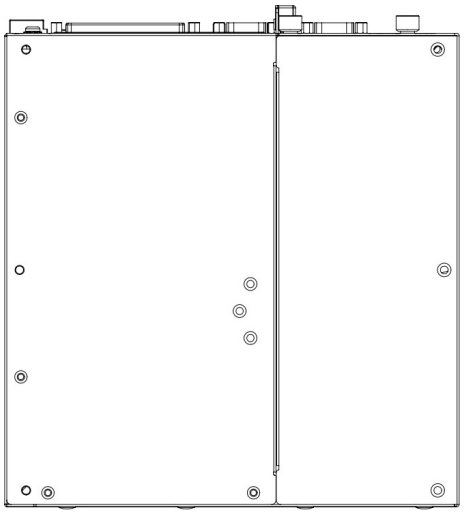


Figure 10: MXC-3340 mechanical dimensions (Bottom view)

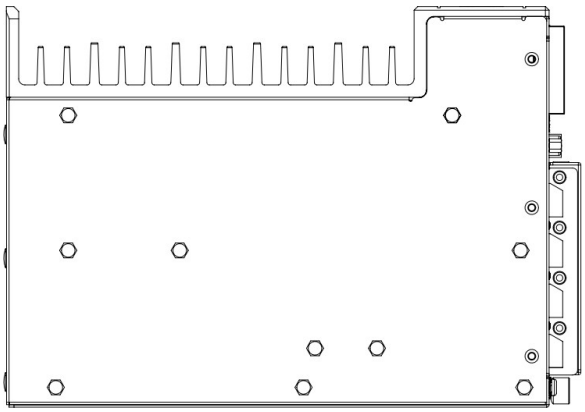


Figure 11: MXC-3340 mechanical dimensions (Side view)

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5. Quick Installation

This chapter discusses the installation of a hard disk drive and PCIe cards. In addition, it covers the connection and use of M.2 devices, as well as wall-mounting.

5.1 Unpacking Checklist

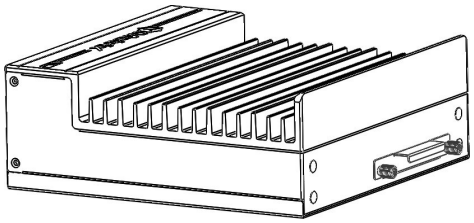
Before unpacking, check the shipping carton for any damage. If the shipping carton and/or contents are damaged, inform your dealer immediately. Keep the shipping carton and packing materials for inspection. Obtain authorization from your dealer before returning any product to ADLINK. Ensure that the following items are included in the package:

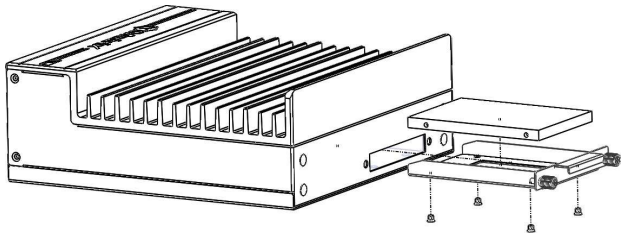
- 1x 93-41057-**** MXC-3300/MXC-3340
- 2x 34-35509-0000-A0 (Wall mount Bracket)
- 1x 20-C1F0C-0030 (Terminal block)

5.2 Installing SSD Storage

5.2.1 Installing MXC-3300 SSD

Loosen the screws on the SSD tray and pull it out to install the SATA SSD.

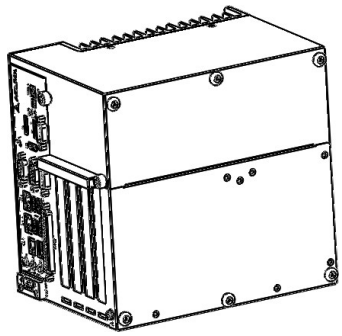


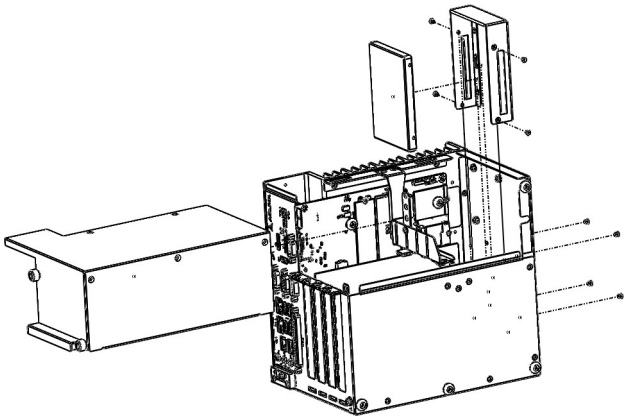


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5.2.2 Installing MXC-3340 SSD

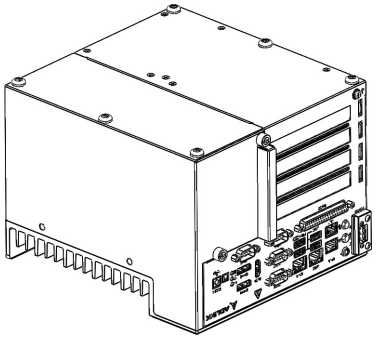
1. Loosen the screws on the front case, then pull out the cover.
2. Remove the screws and take out the SSD tray.
3. Install the SATA SSD and secure it with screws.

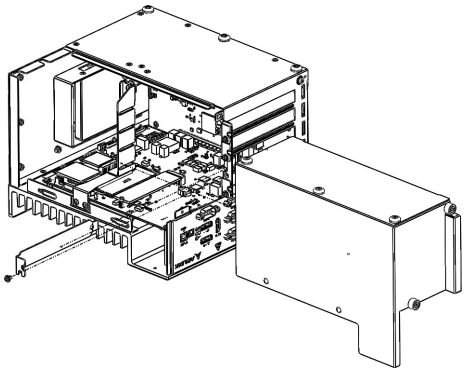


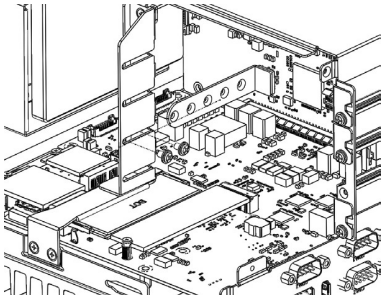


5.3 Installing PCIe Card

1. Loosen the screws on the front case, then pull off the cover.

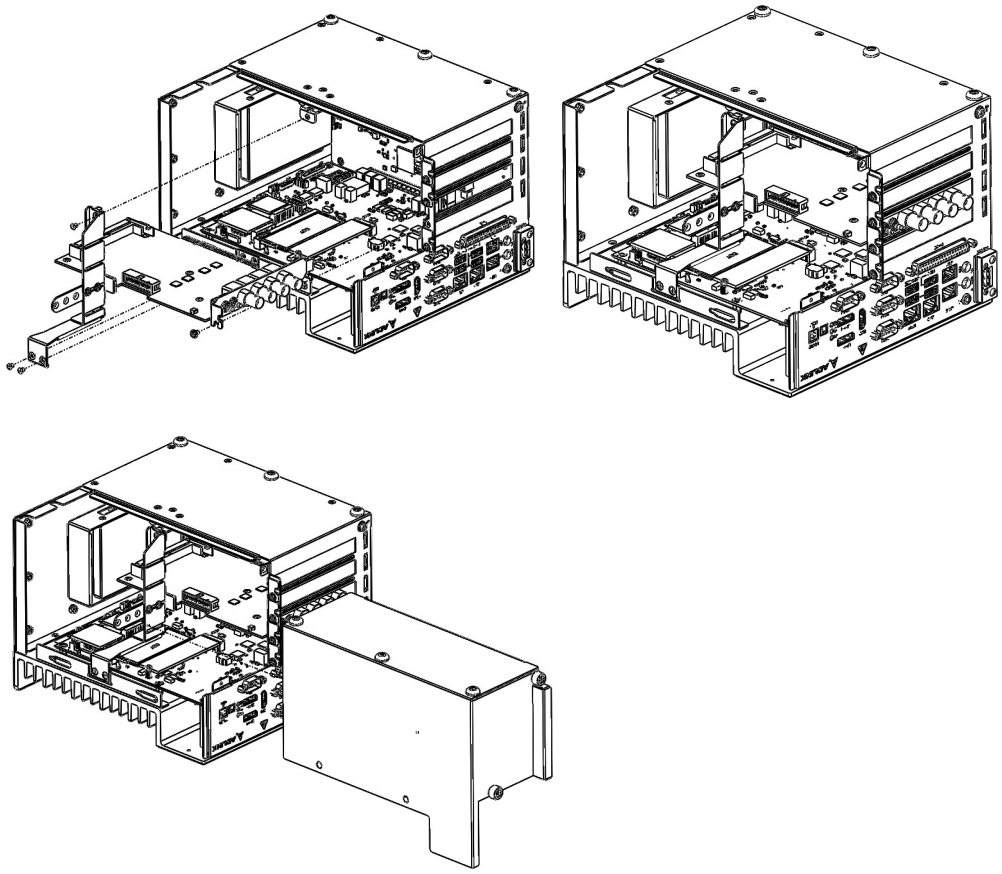






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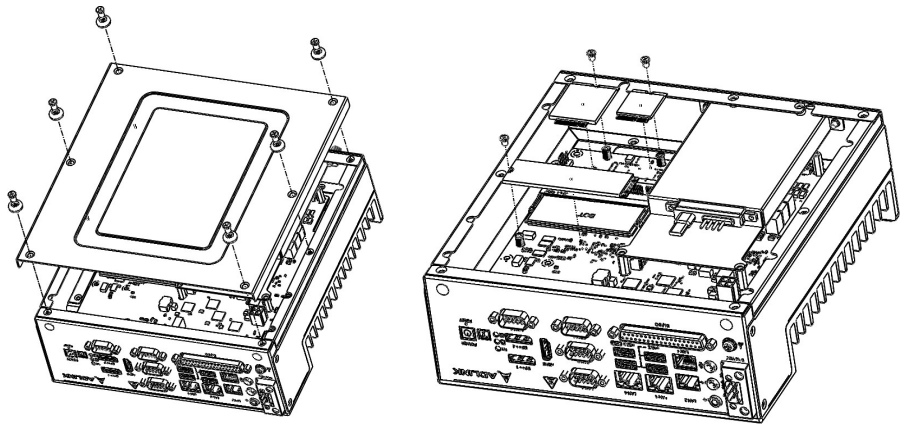
2. Remove the PCIe bracket, then install the PCIe card.



5.4 Installing M.2 Module

5.4.1 Installing MXC-3300 M.2 Module

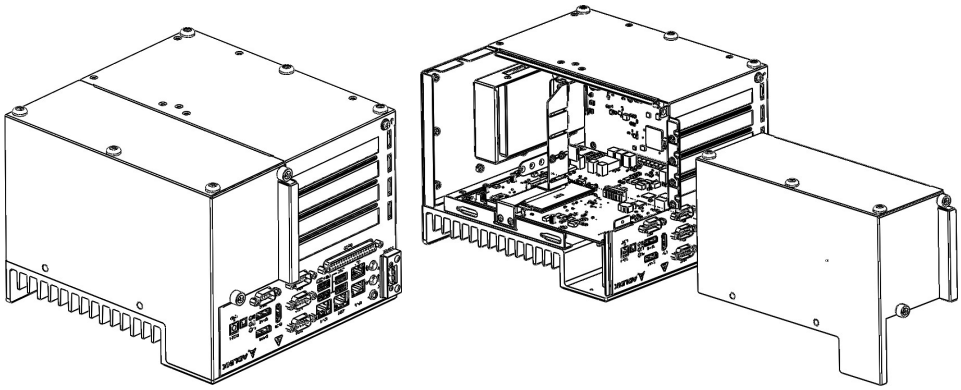
1. Remove the 6 screws from the rear panel and the case.
2. Install the M.2 module in the location specified in Section 1.6.



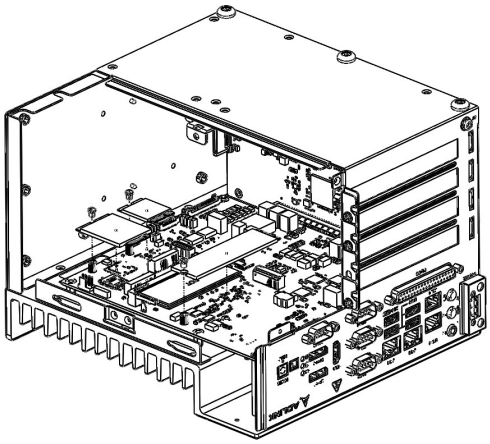
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5.4.2 Installing MXC-3340 M.2 Module

1. Loosen the screws on the front case, then pull off the cover.
2. Install the M.2 module in the location specified in Section 6.2.



3. Install the M.2 module in the location specified in Section 6.2.



CAUTION:

Be careful not to remove or damage any wires while installing the module.

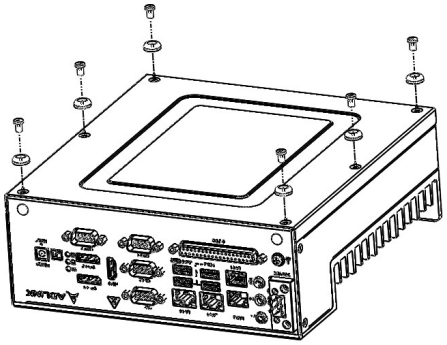
Veillez à ne pas retirer ou endommager les fils lors de l'installation du module

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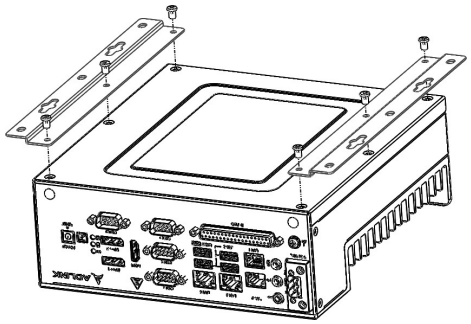
5.5 Installing Wall-Mounted Brackets

5.5.1 Installing Wall-Mounted MXC-3300 Brackets

1. Remove the 6 screws from the rear panel.

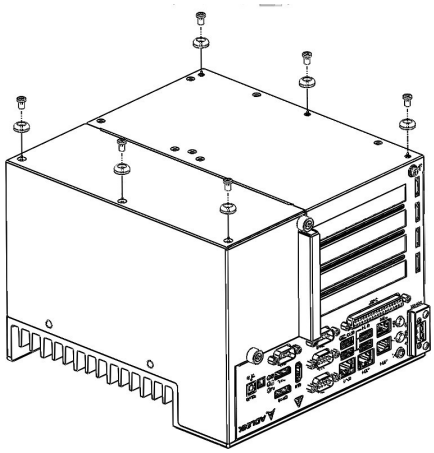


2. Install the wall-mounted brackets and secure it with screws.



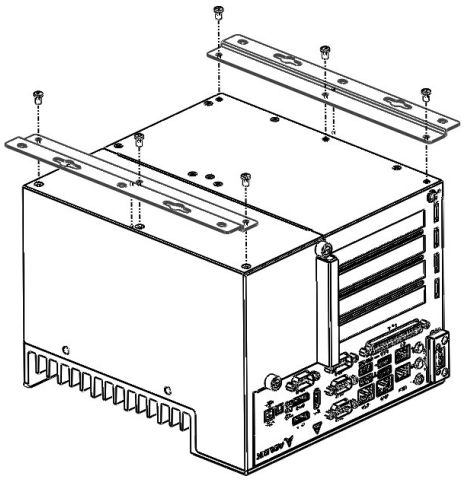
5.5.2 Installing Wall-Mounted MXC-3340 Brackets

1. Remove the 6 screws from the rear panel.



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2. Install the wall-mounted brackets and secure it with screws.



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6. Connectors and Jumpers

6.1 Front Panel I/O Connectors

6.1.1 Power Button and LEDs

The power button is a non-latched push button with a blue LED indicator. System is turned on when button is pressed, and the power LED lit. If the system hangs, pressing the button for 5 seconds powers down the system.

System status	Power LED
System turn on	Light ON
Suspend (S3)	Blinking
Hybernation (S4)	Blinking
Power OFF (S5)	Light OFF

6.1.2 LED Status Indicators

There are three LEDs on the front panel, apart from the power LED, indicating the following operations.

LED Indication	Location	Color	Description
Watchdog Timer (WDT)	LED1	Yellow	It indicates the watchdog timer status. When watchdog timer starts, the LED flashes. When the timer is expired, the LED remains lit.
Hard Disk Drive (HDD)	LED2	Orange	When blinking, it indicates the SATA HDD & SSD are active.
Diagnostics (DG)	LED3	Grenn	If the light is continuous, it indicates no physical storage is connected.

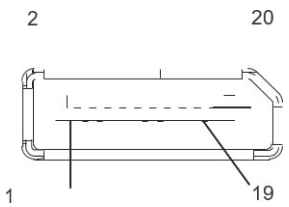
6.1.3 Reset Button

The reset button executes hard reset for the MXC-3300 & MXC-3340.

6.1.4 DisplayPort Connector

A single DisplayPort connector supporting DP 1.4 standard specification facilitates connectivity to VGA, DVI, HDMI, and DisplayPort monitors using adapter cables, supporting resolutions up to 3840 x 2160 at 60Hz.

Pin	Signal	Pin	Signal
1	ML_Lane0_P	11	GND
2	GND	12	ML_Lane3_N
3	ML_Lane0_N	13	Config1
4	ML_Lane1_P	14	Config2
5	GND	15	Aux_P
6	ML_Lane1_N	16	GND
7	ML_Lane2_P	17	Aux_N
8	GND	18	Hot Plug
9	ML_Lane2_N	19	Return
10	ML_Lane3_P	20	DP_PWR_+3.3V



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6.1.5 Gigabit Ethernet Ports

Four Gigabit Ethernet ports on the front panel support the Inteli210IT GbE controller, which provides:

- IEEE 802.3az Energy Efficient Ethernet
- IEEE 1588/802.1AS precision time synchronization
- IEEE 802.3av traffic shaper
- Interrupt moderation, VLAN support, IP checksum offload
- PCIe OBFF (Optimized Buffer Flush/Fill) for improved system power management
- Four transmit and four receive queues
- RSS and MSI-X to lower CPU utilization in multi-core systems
- ECC - error correcting memory in packet buffers
- Wake-On-LAN
- NC-SI for greater bandwidth pass-through
- Preboot eXecution Environment (PXE) flash interface sup-port
- Jumbo frame support

LED	LED Color	Status	Description
Active/Link	Yellow	OFF	The Ethernet port is disconnected
		ON	The Ethernet port is connected with noactivity
		Flashing	The Ethernet port is connected and active
Speed	Green/ Orange	OFF	10 Mbps
		Green	100Mbps
		Yellow	1G bps

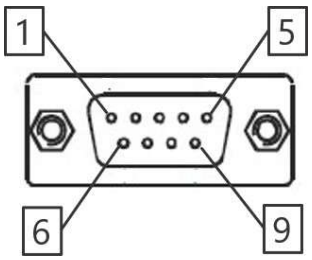
6.1.6 USB

There are 3x USB 2.0 ports (0.5A current/port) and 1x USB 3.0 port (1A current) on the front panel. All ports have over current protection.

6.1.7 DB-9P COM Port Connector

Through a D-sub 9-pin connector, COM1 or COM2 supports RS-232/RS-422/RS-485mode by BIOS setting.

Pin	Signal		
	RS-232	RS-422	RS-485
1	DCD#	TXD422-	485-
2	RXD	TXD422+	485+
3	TXD	RXD422+	N/C
4	DTR#	RXD422-	N/C
5	GND	N/C	N/C
6	DSR#	N/C	N/C
7	RTS#	N/C	N/C
8	CTS#	N/C	N/C
9	RI#	N/C	N/C



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6.1.8 DB-9P CAN Port Connector

Through a D-sub 9-pin connector, CAN1 or CAN2 supports CAN Bus2.0.

Pin	Signals	Pin	Signals
1	NC	6	NC
2	CAN_L	7	CAN_H
3	NC	8	NC
4	NC	9	NC
5	NC		

6.1.9 Digital I/O Connectors

There are 8 DI and 8 DO on the wafer connector. The DO signal has a PH *P_+5V_S0 on the motherboard (MB) side, with an output current of 8mA. The DI signal has a 100kΩ pull-down resistor on the MB side.

Connector info:

Manufacturer: HIROSE

MFG P/N: DF13E-40DP-1.25V (52)

ADLINK P/N: 61-61000-2200

8-CH Isolated DI

Logic high: 5 to 24 V

Logic low: 0 to 1.5 V

Input resistance: 8.2K @ 0.75W

Isolation type: photocoupler, 1.5KV

8-CH Isolated DO

Output Type: MOSFET transistor

Sink current up to 100 mA (sustained loading) or 250 mA

(Peak loading) on each isolated output channel

Supply voltage: 5 to 35 V DC

Isolated 5V DC Power Source for DO

Supply voltage: 5 ± 0.5V DC

Supply current: 180 mA (maximum)

Isolation type: DC-to-DC transformer, 1.5KV

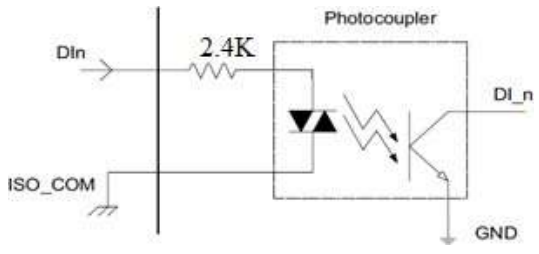
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Signals	DB37(F)	Signals	DB37(F)
DI0_H	1	V5DIO_CN_ISO	18
DI0_L	2	GND	19
DI1_H	3	DO0	20
DI1_L	4	DO1	21
DI2_H	5	DO2	22
DI2_L	6	DO3	23
DI3_H	7	DO4	24
DI3_L	8	DO5	25
DI4_H	9	DO6	26
DI4_L	10	DO7	27
DI5_H	11	GND	28
DI5_L	12	GND	29
DI6_H	13	GND	30
DI6_L	14	GND	31
DI7_H	15	VDD	35
DI7_L	16	V5DIO_CN_ISO	36
VDD	17	GND	37

DI	DIn_H	High input of isolated differential DI channel (n=0 to 7)
	DIn_L	Low input of isolated differential DI channel (n=0 to 7)
	DIn	Input of isolated DI channel (n=8 to 15)
	ISO_COM	Common ground of isolated DI channel 8 to 15
DO	DOn	Output of isolated DO channel (n=0 to 15)
	EOGND	Ground return path of isolated DO channel 0 to 15 and +V5DIO_CN_ISO
	+VDD	Power input signal for flywheel diode of isolated DO channel 0 to 15
	+V5DIO_CN_ISO	Isolated 5V DC power, maximum output 180mA

6.1.10 Isolated Digital Input Circuits

Input accepts voltages from 5V to 24V, with input resistors of 2.4 kΩ, and connections between external signals as shown.



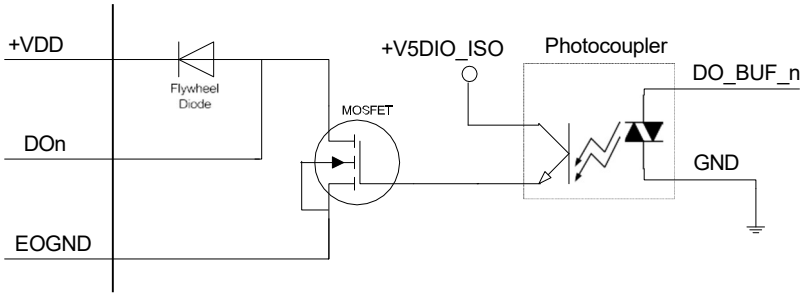
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6.1.11 Isolated Digital Output Circuits

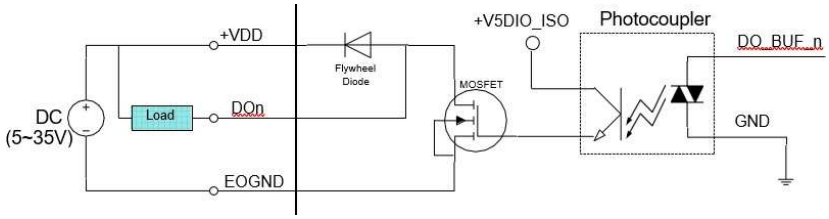
Each isolated digital output channel uses a MOSFET transistor, capable of driving a peak current of up to 250mA (sustained current up to 100mA), with voltage ranges from 5V to 35V.

The VDD pin is connected in series with a flyback diode to protect the driver during inductive loading, such as with a relay, motor, or solenoid. In this configuration, the VDD must be connected to external power to form a flyback current loop.

Isolated Digital Output Circuits



Isolated Digital Output Circuits



6.1.12 Audio Jacks

The MXC-3300 & MXC-3340 implement Intel high-definition audio on a Realtek ALC888S chip. The HD audio supports up to 24-bit, 192 kHz sample rate for high-quality headphone/line out and microphone input. Audio jack access is on the front panel. The pink jack provides microphone input, and the green jack is for line out.

Color	Signal
Blue	Line in
Green	Line out
Pink	Mic In



6.1.13 DC Power Connector

The DC power supply connector of the MXC-3300 & MXC-3340 is located on the front panel. The power supply connector consists of three pins: V+, chassis ground, and V-, from right to left, respectively. The V+ and V- pins provide DC power input, and the chassis ground pin allows the connection of the chassis to ground for better EMC compatibility. The DC power input for the MXC-3300 & MXC-3340 supports a voltage input range from 9V DC to 36V DC.

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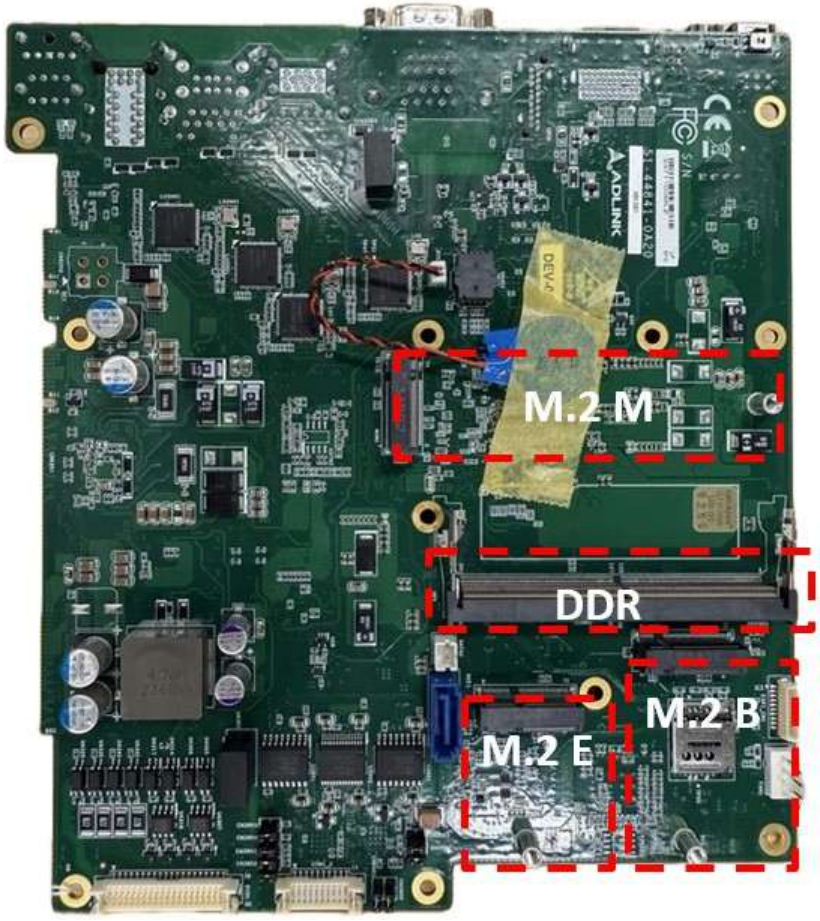


6.1.14 PCI Express Slots

The 3x PCIe slots on the backplane board, based on the PCI Express switch, can support standard PCIe Gen 1/2 cards, with link speeds of up to 1 GB/s.

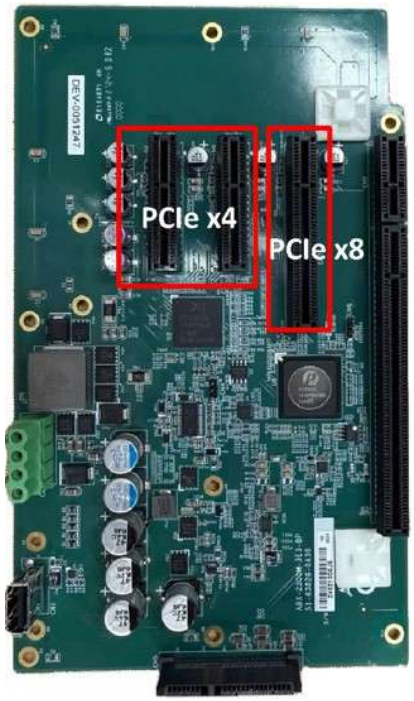
6.2 Internal I/O Connectors

MXC3300 and MXC-3340 MB



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MXC-3340 series BP



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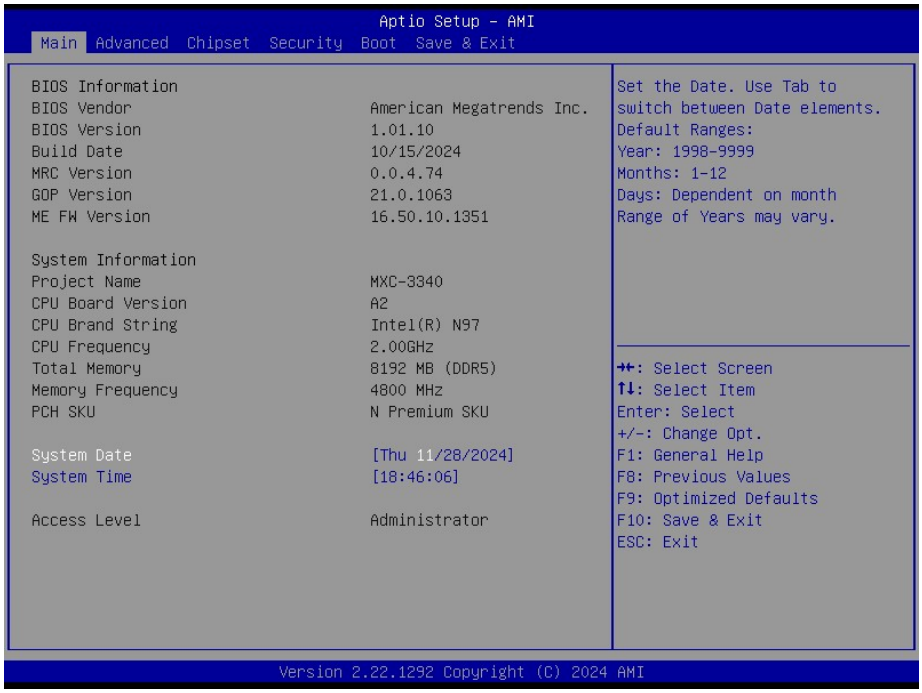
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7. BIOS Settings

7.1 Main

Contains basic system information for the MXC-3300.
Changing BIOS settings may lead to incorrect controller behavior and possible inability to boot.



BIOS Information

Shows current system BIOS code version and BIOS version.

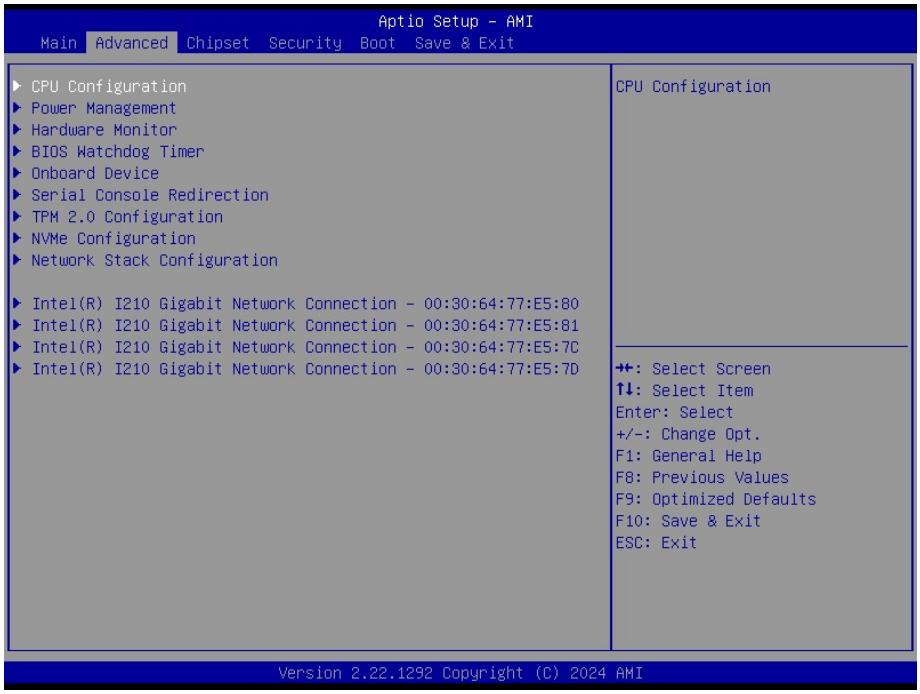
System Time/System Date

Allows adjustment of system time and date, as follows.

1. Highlight System Time or System Date using the up and down <Arrow> keys
2. Enter new values using the keyboard and select <Enter>
3. Select < Tab > to move between fields.

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7.2 Advanced

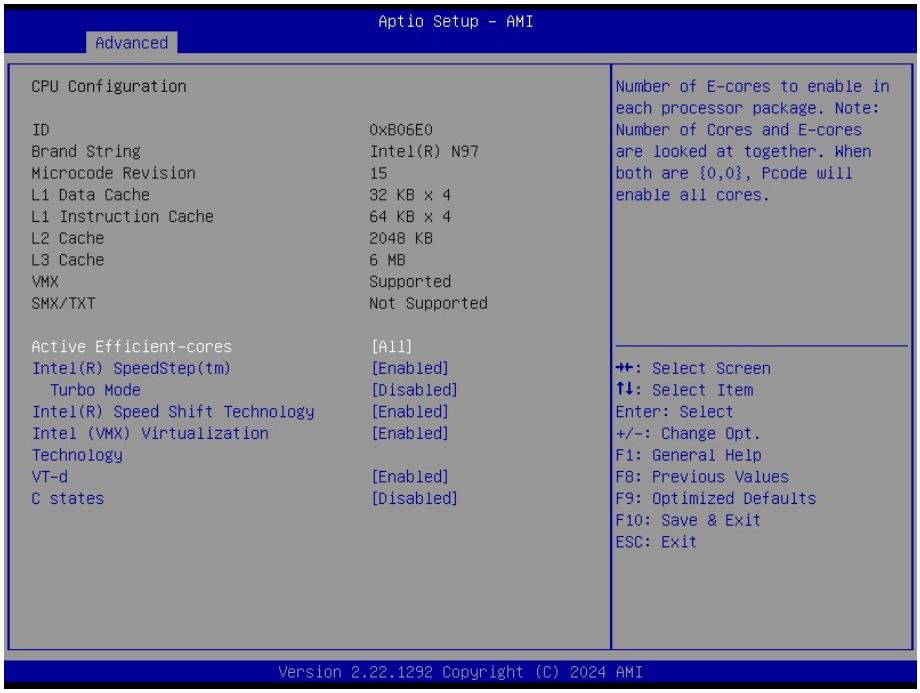


CAUTION:

Setting incorrect or conflicting values in Advanced BIOS Setup may cause system malfunction.

Configurer des valeurs incorrectes ou conflictuelles dans le menu Advanced BIOS Setup peut entraîner un dysfonctionnement du système.

7.2.1 Advanced > CPU Configuration



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Active Efficient-cores

Number of cores to enable in each processor package.

[All (Default) / 3 / 2 / 1]

Intel SpeedStep

Enable/Disable Intel SpeedStep.

[Disabled / Enabled (Default)]

Turbo Mode

Enable/Disable processor Turbo Mode (requires EMTTM to be enabled too). [Disabled (Default) / Enabled]

Intel(R) Speed Shift Technology

Enable/Disable Intel(R) Speed Shift Technology support.

Enabling will expose the CPPC v2 interface to allow for hardware-controlled P-states.

[Disabled / Enabled (Default)]

Intel (VMX) Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

[Disabled / Enabled (Default)]

VT-d

Check to enable VT-d function on MCH.

[Disabled / Enabled (Default)]

C states

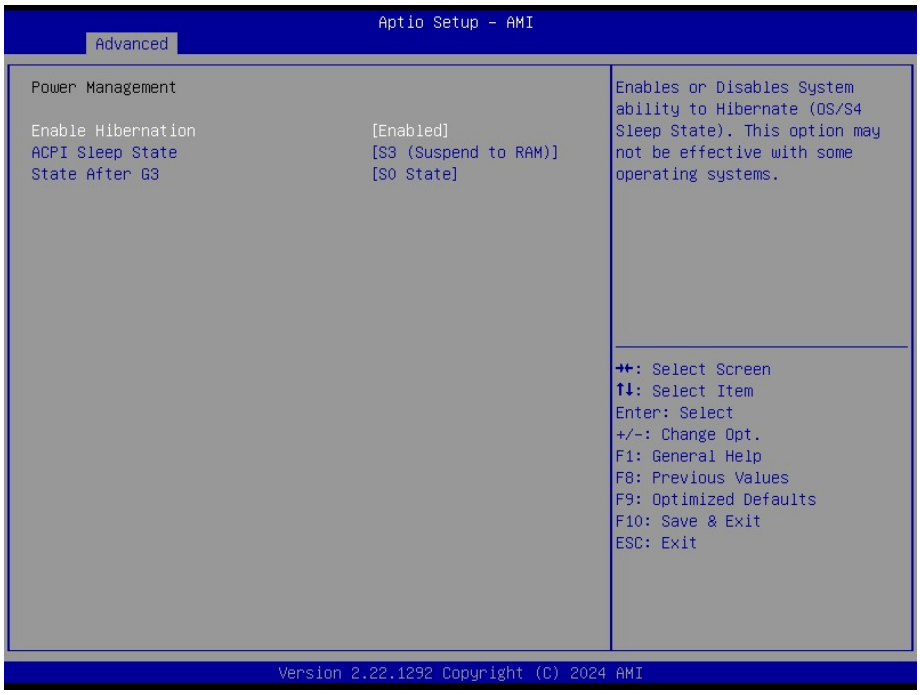
Enable/Disable CPU Power Management.

Allows CPU to go to C states when it's not 100% utilized.

[Disabled (Default) / Enabled]

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7.2.2 Advanced > Power Management



Enable Hibernation

Enables or Disables System ability to Hibernate (OS/S4 Sleep State).

This option may not be effective with some operating systems.

[Disabled / Enabled (Default)]

ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

[Suspend Disabled / S3 (Suspend to RAM) (Default)]

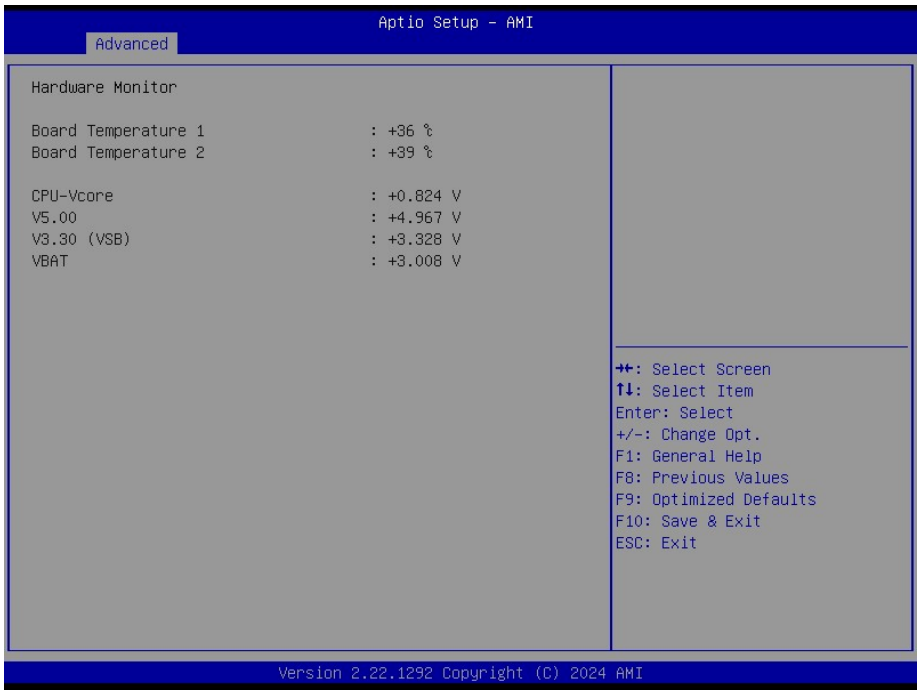
State After G3

Specify what state to go to when power is re-applied after a power failure (G3 state).

[S0 State (Default) / S5 State / Last State]

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7.2.3 Advanced> Hardware Monitor



7.2.4 Advanced > BIOS Watchdog Timer



BIOS POST Watchdog

Disabled: Disable the watchdog timer

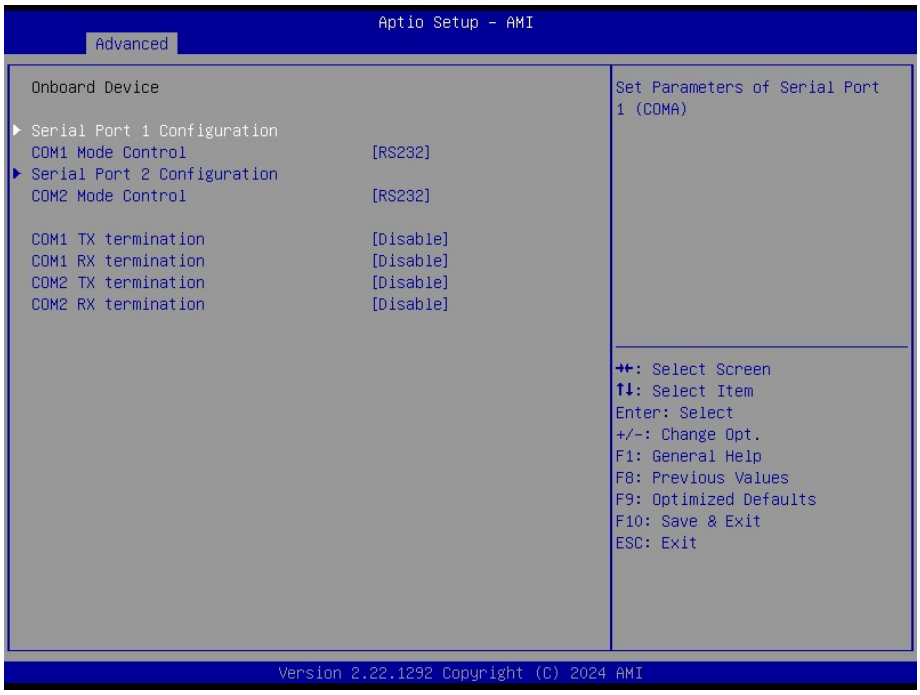
Second Mode: Enable watchdog timer in second mode

Minute Mode: Enable watchdog Timer in minute mode.

[Disabled (Default) / Second Mode / Minute Mode]

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7.2.5 Advanced > Onboard Device



Serial Port 1/2 Configuration

Set Parameters of Serial Port 1/2 (COMA/COMB).

Serial Port

Enable or Disable Serial Port (COM).

[Disabled / Enabled (Default)]

Change Settings

Select an optimal setting for Super IO Device.

COM1: [Auto (Default)/ IO=3F8h; IRQ=4; / IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; / IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; / IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; / IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;]

COM2: [Auto (Default)/ IO=2F8h; IRQ=3; / IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; / IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; / IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; / IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;]

COM 1/2 Mode Control

Select COM1/COM2 mode. RS232, RS422, RS485.

[RS232 (Default) / RS422 / RS485]

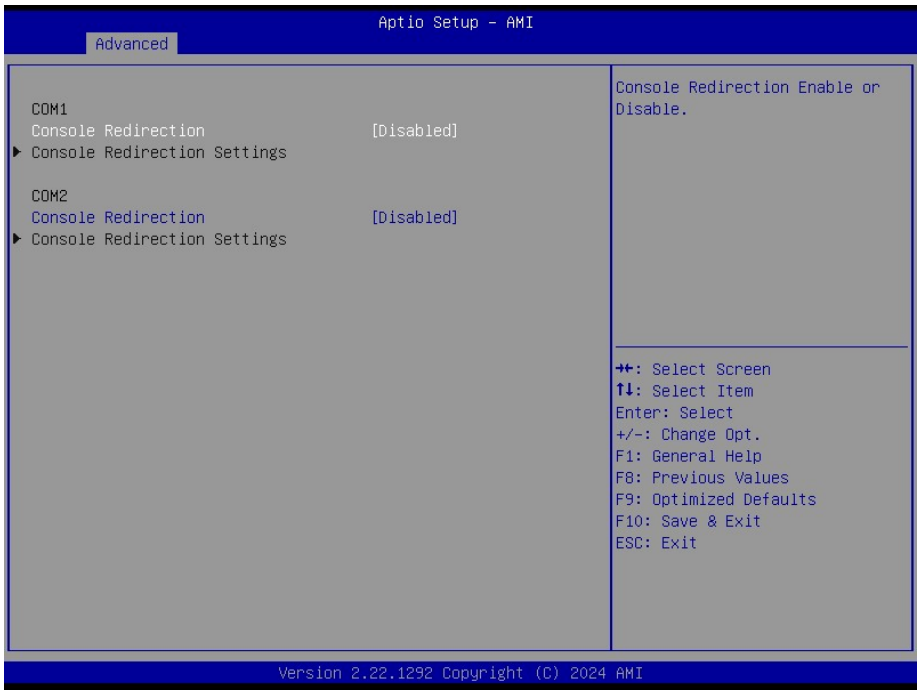
COM 1/2 TX/RX Termination

COM1/COM2 TX/RX termination Enable/Disable.

[Enable / Disable (Default)]

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7.2.6 Advanced > Serial Console Redirection



COM1/ COM2 Console Redirection

Enables/disables Console Redirection of COM1/ COM2.

[Disabled (Default)/ Enabled] When Enabled:

Console Redirection Settings

Terminal Type

Selects the transmission protocol for the remote terminal console. [VT100 / VT100Plus / VT-UTF8 / ANSI (Default)]

VT100

ASCII char set VT100Plus

Extends VT100 to support color, function keys, etc. VT-UTF8

Uses UTF8 encoding to map unicode chars onto 1 or more bytes

ANSI

Extended ASCII char set

Bits per second

Selects serial port transmission speed, which must be matched on the other side. Long or noisy lines may require lower speeds.

[9600/ 19200 / 38400 / 57600/ 115200 (Default)]

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Data Bits Data bit count [7/ 8 (Default)] *Parity*

A parity bit can be sent with the data bits to detect some transmis- sion errors.

[None (Default) / Even / Odd / Mark / Space] Even

Parity bit is 0 if 1 count in the data bits is even. Odd

Parity bit is 0 if 1 count 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.

Stop Bits

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.

[1 (Default)/ 2]

Flow Control

Flow control can prevent data loss from buffer overflow. [None (Default)/ Hardware RTS/ CTS]

VT-UTF8 Combo Key Support

Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

[Disabled / Enabled (Default)]

Recorder Mode

When enabled only text will be sent, to capture Terminal data.

[Disabled (Default)/ Enabled]

Resolution 100x31

Enables/disables extended terminal resolution.

[Disabled (Default)/ Enabled]

Putty KeyPad

Selects Function Key and KeyPad on Putty.

[VT100 (Default) / LINUX / XTERMR6 / SCO / ESCN / VT400]

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7.2.7 Advanced > TPM 2.0 Configuration



Security Device Support

Enable/Disable Security Device.

Note: Your Computer will reboot during restart in order to change State of the Device.

[Enable (Default) / Disable]

SHA256 PCR Bank

Enable or Disable SHA256 PCR Bank.

[Enable (Default) / Disable]

SHA512 PCR Bank

Enable or Disable SHA512 PCR Bank.

[Enable / Disable (Default)]

Pending Operation

Enable or Disable Pending operation.

[None (Default) / TPM Clear]

Platform Hierarchy

Enable or Disable Platform Hierarchy.

[Disable / Enable (Default)]

Storage Hierarchy

Enable or Disable Storage Hierarchy.

[Disable / Enable (Default)]

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Endorsement Hierarchy

Enable or Disable Endorsement Hierarchy.

[Disable / Enable (Default)]

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.

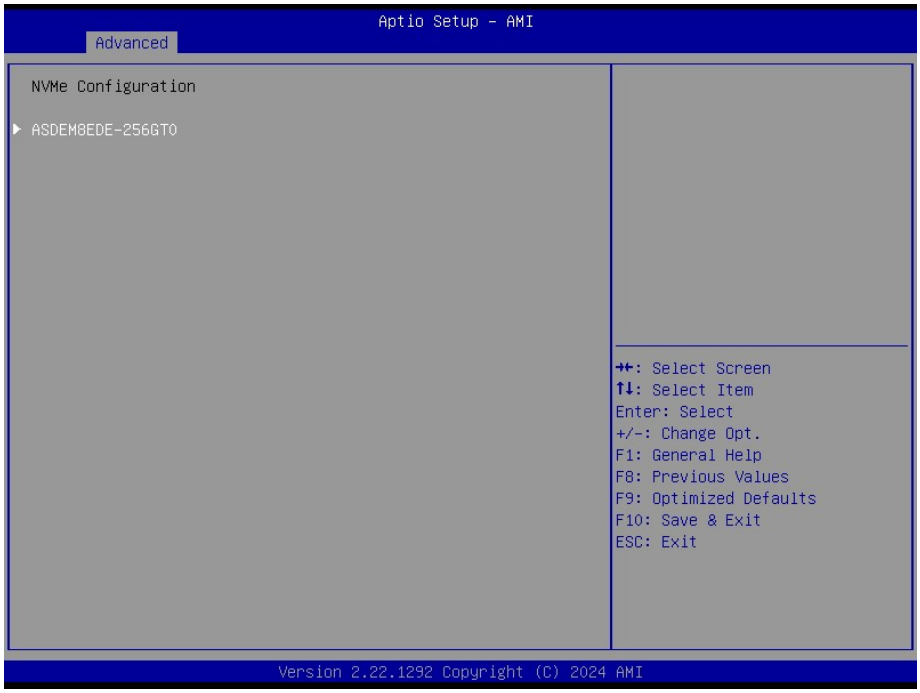
[1.2 / 1.3 (Default)]

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.

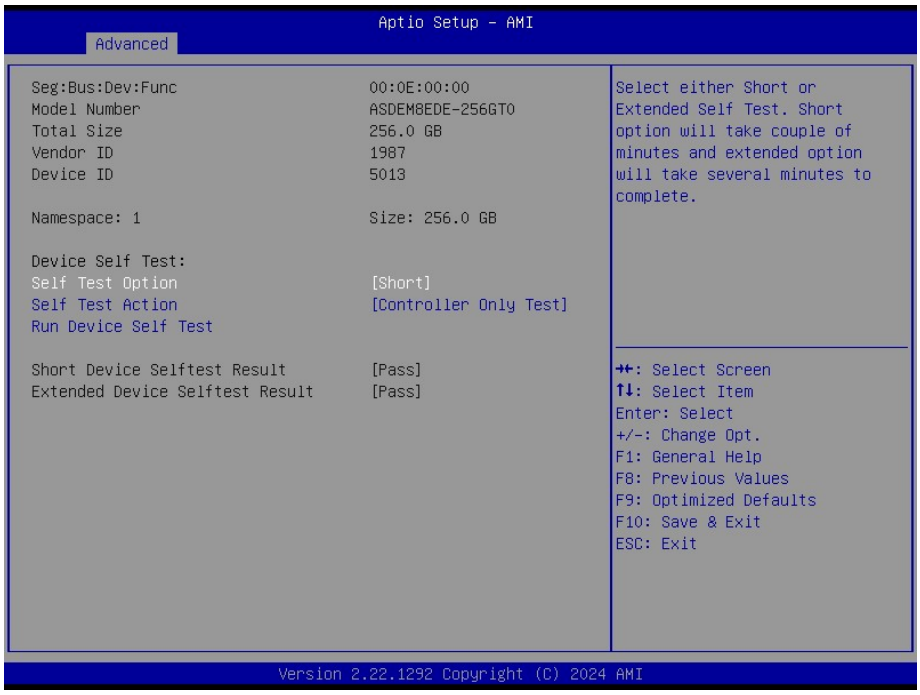
[TPM 1.2 / TPM 2.0 / Auto (Default)]

7.2.8 Advanced > NVMe Configuration



Show the mounted NVMe device in the system.

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When the NVMe device is shown, select it to enter the sub-menu.

Self-Test Option

Select either Short or Extended Self-Test.

Short option will take couple of minutes and extended option will take several minutes to complete.

[Short / Extended]

Self-Test Action

Select either to test Controller alone or Controller and NameSpace.

Selecting Controller and Namespace option will take lot longer to complete the test.

[Controller Only Test / Controller and NameSpace Test]

Run Device Self-Test

Perform device self-test for the corresponding option and action selected by the user. Pressing 'Esc' key will abort the test. The recent result logged in the device is shown here.

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7.2.9 Advanced > Network Stack Configuration



Network Stack

Enable/Disable UEFI Network Stack.

[Disabled (Default) / Enabled]

When Enabled

IPv4 PXE Support

Enable/Disable IPv4 PXE boot support.

If disabled, IPv4 PXE boot support will not be available.

[Disabled (Default) / Enabled]

IPv4 HTTP Support

Enable/Disable IPv4 HTTP boot support.

If disabled, IPv4 HTTP boot support will not be available.

[Disabled (Default) / Enabled]

IPv6 PXE Support

Enable/Disable IPv6 PXE boot support.

If disabled, IPv6 PXE boot support will not be available.

[Disabled (Default) / Enabled]

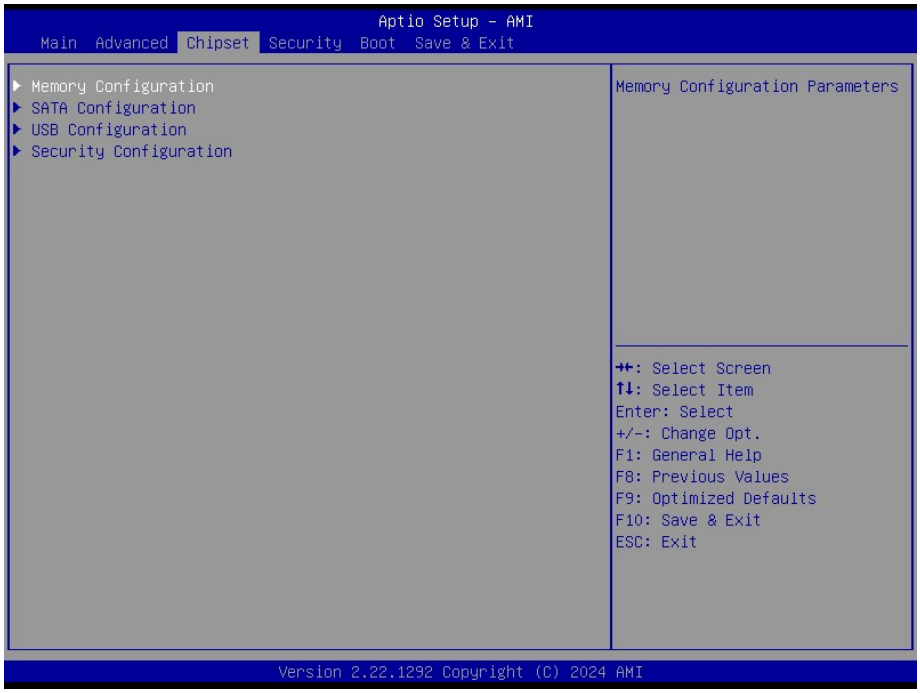
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IPv6 HTTP Support

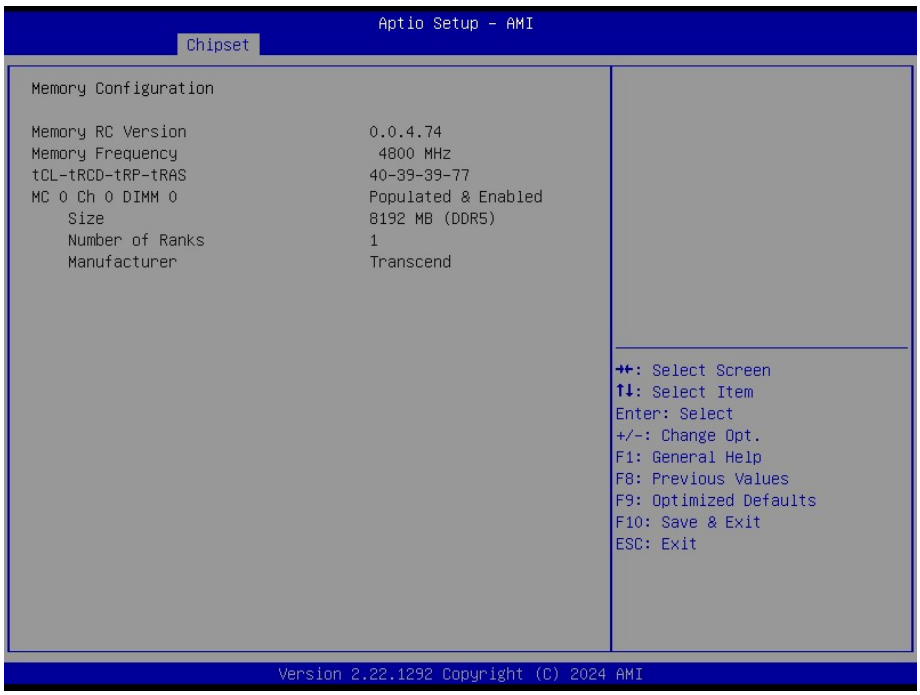
Enable/Disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

[Disabled (Default) / Enabled]

7.3 Chipset

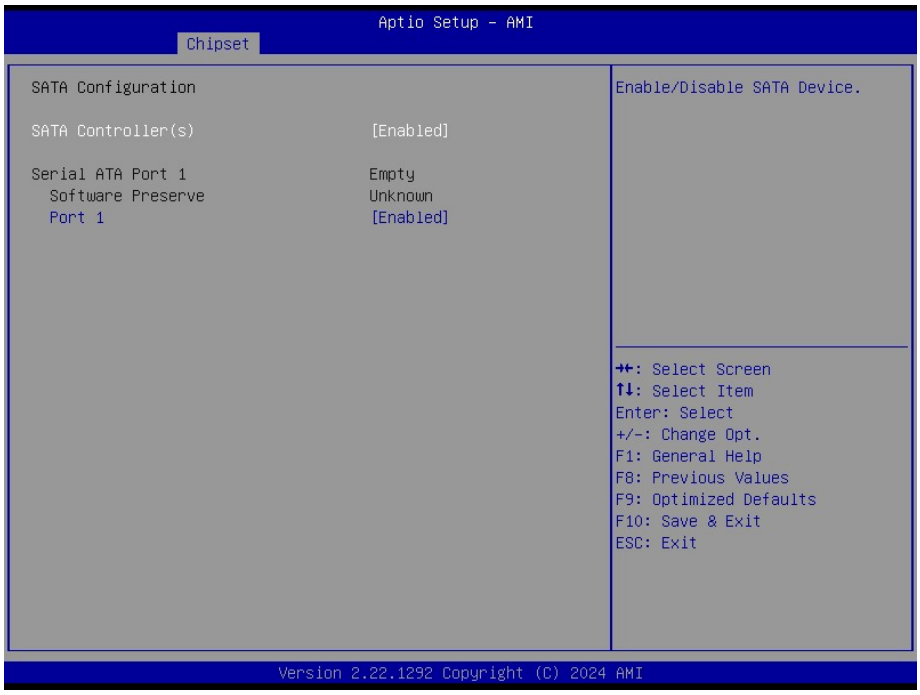


7.3.1 Chipset > Memory Configuration



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7.3.2 Chipset > SATA Configuration



SATA Controller(s)

Enable/Disable SATA Device.

[Enabled (Default) / Disabled]

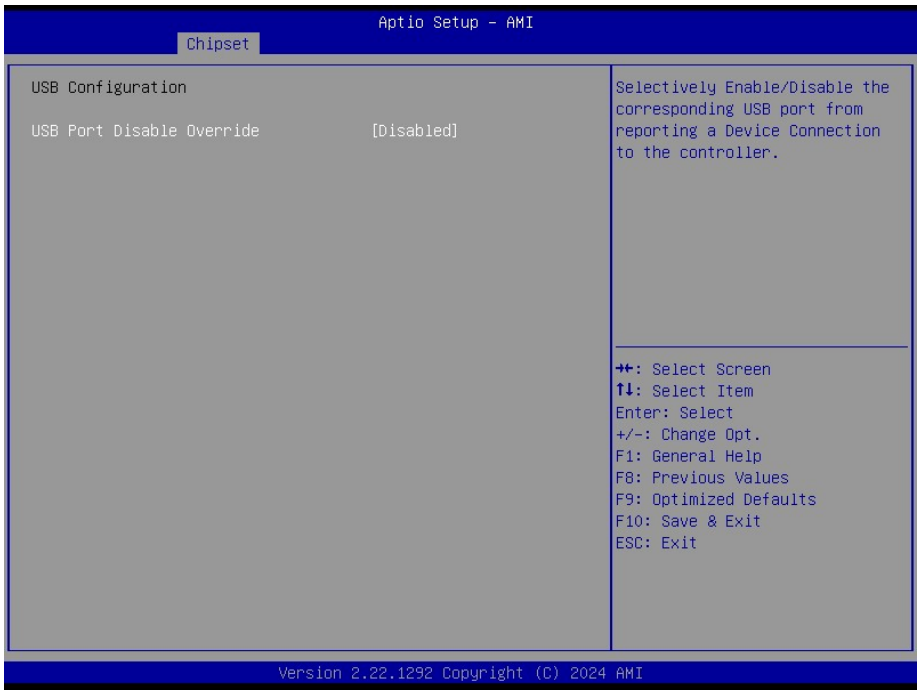
Port 1

Enable or Disable SATA Port.

[Disabled / Enabled (Default)]

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7.3.3 Chipset > USB Configuration

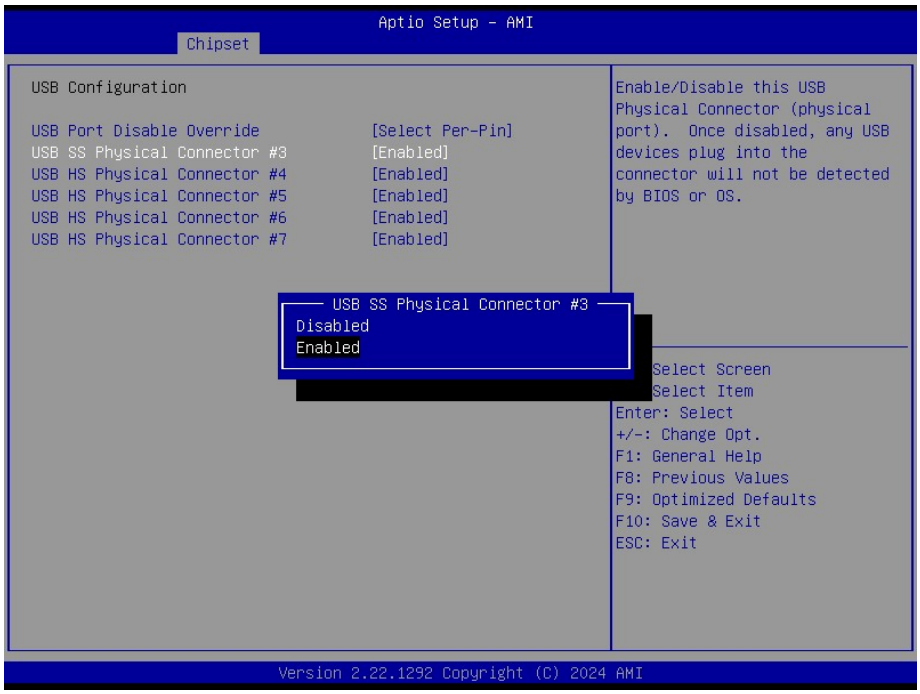


USB Port Disable Override

Enable/Disable the corresponding USB port from reporting a device connection to the controller.

[Disabled (Default) / Select Per-Pin]

When Select Per-Pin is chosen.



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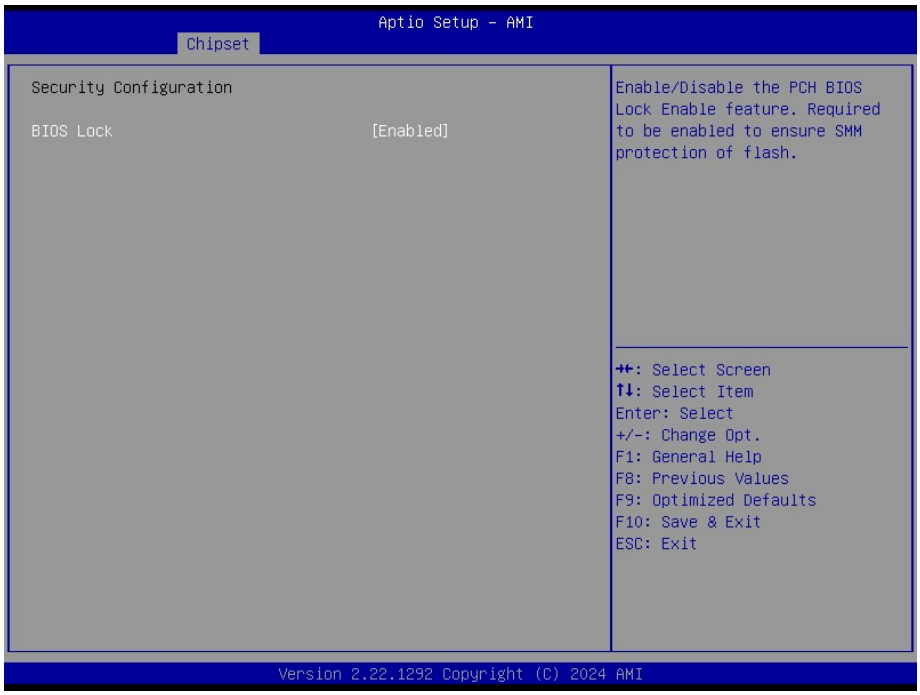
USB SS/HS Physical Connector #3/#4/#5/#6/#7

Enable/Disable this USB Physical Connector (physical port).

Once disabled, any USB device plugged into the connector will not be detected by BIOS or OS.

[Disabled / Enabled (Default)]

7.3.4 Chipset > Security Configuration



BIOS Lock

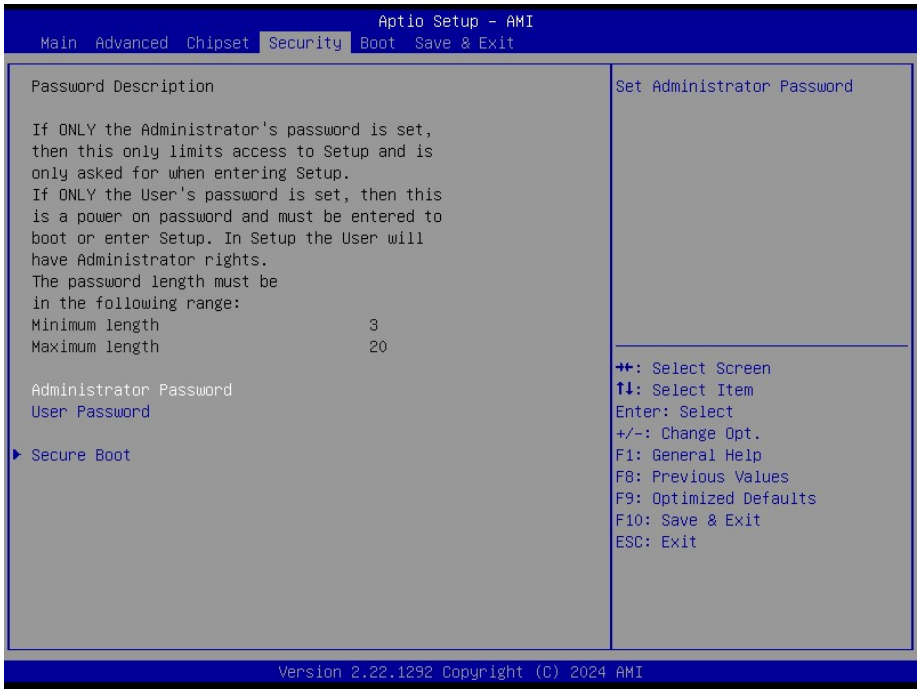
Enable/Disable the PCH BIOS Lock Enable feature.

Required to be enabled to ensure SMM protection of flash.

[Disabled / Enabled (Default)]

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7.4 Security



7.4.1 Security > Administrator Password

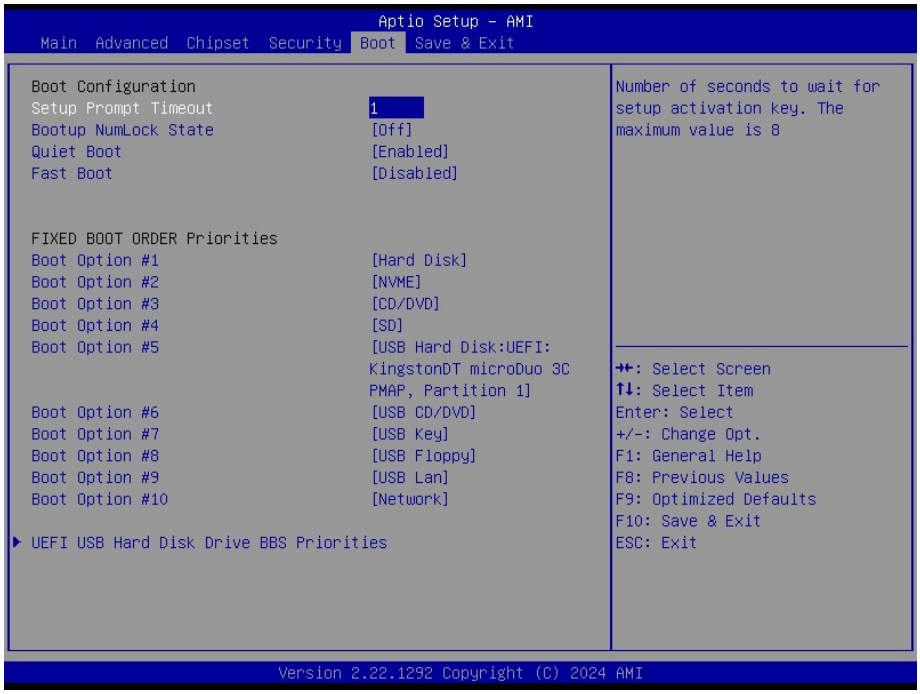
If only the Administrator password is set, it limits access to Setup and is requested only when entering Setup.

7.4.2 Security > User Password

If only the user password is set, it functions as a power-on password and must be entered to boot or enter Setup. In Setup, the user will have Administrator rights.

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7.5 Boot



7.5.1 Boot > Boot Configuration

Setup Prompt Timeout

Number of seconds to wait for setup activation key (DEL), with input 65535 sets indefinite waiting.

[1]

Bootup NumLock State

Selects keyboard NumLock state.

[On (Default)/ Off]

Quiet Boot

Enables/disables Quiet Boot option.

[Disabled/ Enabled (Default)] *Disabled*

Directs BIOS to display POST messages.

Enabled

Directs BIOS to display the OEM logo.

Fast Boot

Enables/disables boot with initialization of a minimal set of devices required to launch active boot option.

Has no effect on BBS (BIOS Boot Specification) boot options.

[Disabled (Default)/ Enabled]

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7.5.2 Boot > Boot Option Priorities

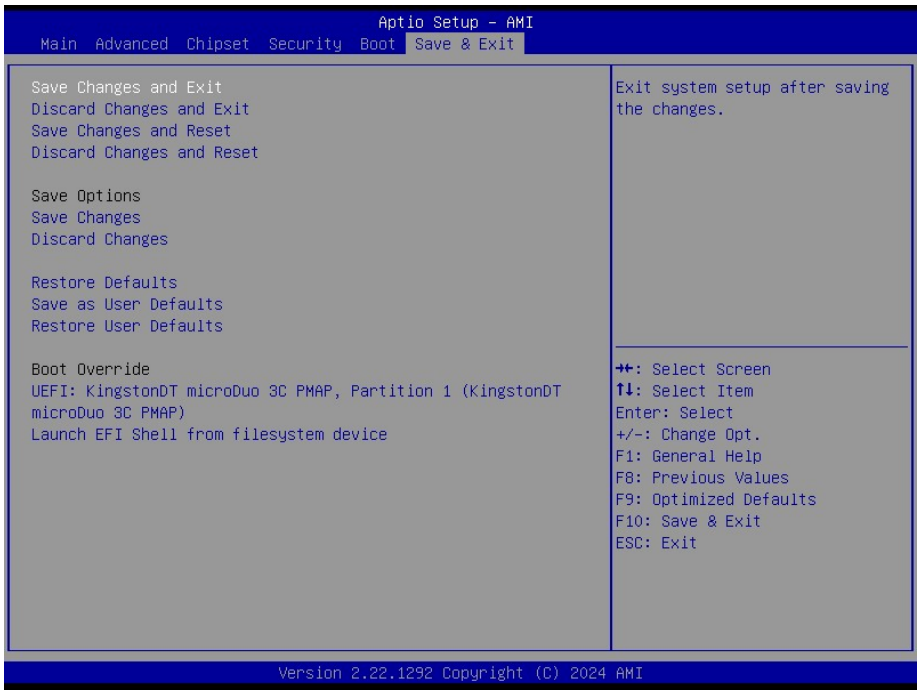
Boot Option #

Specifies the priority of boot devices, with all installed boot devices detected during POST displayed.

7.5.3 Boot > Hard Drive BBS Priorities

Sets the order of legacy devices in this group.

7.6 Save & Exit



Discard Changes and Exit

Discards all changes and exits BIOS setup.

Save Changes and Reset

Saves all changes and reboots the system, with new settings taking effect.

Discard Changes

Resets system setup without saving any changes.

Restore Defaults

Sets all BIOS options to default settings, designed for maximum system stability but less than maximum performance. Select Restore Defaults if the computer encounters system configuration problems.

Save as User Defaults

Saves all changes to this point as user defaults.

Restore User Defaults

Restores user defaults to all setup options.

Launch EFI Shell from filesystem device

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

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8. Appendix A Power Consumption



NOTE:

Information in this Appendix is for power budget planning and design purposes only.
Actual power consumption may differ based on final application.

Les informations contenues dans cette annexe sont uniquement destinées à la planification du budget énergétique et à des fins de conception. La consommation réelle d'énergie peut varier en fonction de l'application finale.

8.1 Power Consumption Reference

Power consumption data, as follows, is based on lab measurements in which 24V DC is applied, and current is measured by the DC power supply. The power consumption (W) is calculated as the product of the applied voltage (V) and current (A).

The platforms tested for this data have available external I/O interfaces and are connected to supported devices such as HDMI/DP monitors, keyboard/mouse, USB dummy load (5V DC, 500mA), COM loopback, audio loopback, and an internal hard disk drive. No internal M.2 modules or PCIe slots are occupied.

The information is presented for reference only. Actual power consumption will vary depending on the attached devices and platform operations.

MXC-3300		
IDLE mode/Disable EIST	20	W
IDLE mode/Enable EIST	20.4	W
MAX mode/Enable EIST	36.2	W
Typical mode/Enable EIST	38.6	W
MAX mode/Disable EIST	26	W
Typical mode/Disable EIST	32.1	W
S3 Mode	9.2	W
S4 Mode	9.3	W
S5 Mode	9.3	W

MXC-3340		
IDLE mode/Disable EIST	24.3	W
IDLE mode/Enable EIST	25.3	W
MAX mode/Enable EIST	32.2	W
Typical mode/Enable EIST	42.2	W
MAX mode/Disable EIST	32.7	W
Typical mode/Disable EIST	36.5	W
S3 Mode	7.9	W
S4 Mode	7.3	W
S5 Mode	7.7	W

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9. Appendix B BIOS Settings

The Basic Input/Output System (BIOS) is a program that provides basic communication between the processor and peripherals. In addition, the BIOS also contains code for various advanced features applied to the MXC-3300. The BIOS setup program includes menus for configuring settings and enabling features of the MXC-3300. Most users do not need to use the BIOS setup program, as the MXC-3300 ships with default settings that work well for most configurations.

To enter the BIOS setup, select DEL when the system is powered on, and the POST (Power-On Self-Test) message is displayed. The MXC-3300 controller supports a one-time Boot Menu, allowing selection of the boot device. Enter the Boot Menu by selecting F7 during POST.



- BIOS options listed are for reference only.
- Different configurations can affect BIOS behavior.
- Displayed material may reflect only the BIOS version corresponding to initial release and may differ from that of the purchased motherboard.
- Users are welcome to download the latest BIOS version from our official website.

WARNING

- Les options du BIOS listées sont fournies à titre de référence uniquement.
- Différentes configurations peuvent influencer le comportement du BIOS.
- Les informations affichées peuvent correspondre uniquement à la version du BIOS initialement publiée et peuvent différer de celles de la carte mère achetée.
- Les utilisateurs sont invités à télécharger la dernière version du BIOS sur notre site officiel.

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10. Appendix C Watchdog Timer (WDT) Function Library

This appendix describes the use of the watchdog timer (WDT) function library for the MXC-3300 controller. The watchdog timer is a hardware mechanism provided to reset the system if the operating system or an application stall. After starting, the watchdog timer in the application must be periodically reset before it expires. Once the watchdog timer expires, a hardware-generated signal is sent to reset the system.

10.1 WDT with API/Windows

The WDT API library files and a demo program (incl. source code) can be found on the included driver CD or downloaded from http://www.adlinktech.com.

To use the WDT function library for MXC-2300, include the header file WDT.h and linkage library WDT.lib in the C++ project.

10.1.1 InitWDT

Initializes the watchdog timer function. Must be called before the invocation of any other WDT function.

Syntax

C/C++

```
BOOL InitWDT()
```

Parameters

None

Return codes

TRUE If watchdog timer has successfully initialized.

FALSE If watchdog timer fails to initialize.

10.1.2 SetWDT

Sets the timeout value of the watchdog timer. This function takes two parameters: one to indicate the timeout ticks and the other to specify the unit. ResetWDT or StopWDT should be called before the expiration of watchdog timer, or the system will reset.

Syntax

C/C++

```
BOOL SetWDT(BYTE tick, BYTE unit)
```

Parameters

- tick

Specify the number of ticks for watchdog timer. A valid value is 1 - 255.

- unit

Specifies the timeout ticks of the watchdog timer.

Value	Description
0	The unit for one tick is one second. For example, when one tick is specified as 100 and the unit as 0, the timeout value is 100 seconds.
1	The unit for one tick is one minute. For example, when one tick is specified as 100 and the unit as 1, the timeout value is 100 minutes.

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Return codes

TRUE If timeout value of watchdog timer is successfully set.

FALSE If timeout value of watchdog timer is failed to set.

10.1.3 StartWDT

Start the watchdog timer function. Once StartWDT is invoked, the watchdog timer starts. RESETWDT or StopWDT should be called before the expiration of the watchdog timer, or the system will reset.

Syntax

C/C++

```
BOOL StartWDT()
```

Parameters

None

Return codes

TRUE If watchdog timer has successfully started.

FALSE If watchdog timer fails to start.

10.1.4 ResetWDT

Reset the watchdog timer. The invocation of ResetWDT allows restoration of the watchdog timer to the initial timeout value specified in the SetWDT function. ResetWDT or StopWDT should be called before the expiration of the watchdog timer, or the system will reset.

Syntax

C/C++

```
BOOL ResetWDT()
```

Parameters

None

Return codes

TRUE If watchdog timer has successfully reset.

FALSE If watchdog timer fails to reset.

10.1.5 StopWDT

Stops the watchdog timer.

Syntax

C/C++

```
BOOL StopWDT()
```

Parameters

None

Return codes

TRUE If watchdog timer has successfully stopped.

FALSE If watchdog timer fails to stop.

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10.2 WDT with DOS/Linux

Under Linux, program the WDT function using the same LPC I/O registers according to the sample program below:

```
#include <dos.h>

#include <stddef.h>

#include <stdio.h>


/* Config LPC IO ITE8783 to enter config mode */

EnterConfig(void)

{
outp(0x2E,  0x87);

outp(0x2E,  0x01);

outp(0x2E,  0x55);

outp(0x2E, 0x55);}


/* Config LPC IO to exit config mode */

ExitConfig(void)

{
outp(0x2E, 0x02);

outp(0x2F, 0x02);

}


/* Read byte from LPC IO register */

unsigned char r_reg(unsigned char regoffset)

{
outp(0x2E, regoffset);

return inp(0x2F);

}


/* Write byte to LPC IO register */


   void  w_reg(unsigned  char  regoffset,  unsigned  char data)

   {
   outp(0x2E, regoffset);

   outp(0x2F, data);

   }
```


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```
   main(void)
   {
   unsigned int     count;
   /* print program title  */
   printf("-----------------------MXC-2300 WDT Demo-----------------
   - ---\n");
   printf("Init           and           config           GPIO
   ports<<<<<<<<<<<<<<<<<<<<<<<<<\n");
   printf("
   - ---\n");


   EnterConfig();


   /* config WDT registers */
   w_reg(0x07,0x07);


   /* enable keyboard interrupt to reset WDT timeout value */
   w_reg(0x71,r_reg(0x71)|0x20);


   /* set unit as second */
   w_reg(0x72,r_reg(0x72)|0x80);


   /* enable reset when timeout  */
   w_reg(0x72,r_reg(0x72)|0x40);
/* set timeout value as 10 seconds */
/* WDT start automatically while timeout value is set
*/
w_reg(0x73,0x0A);


printf("
- --- \n");
printf("WDT     is     set     and     counting     down now.<<<<<<<<<<<<<<<<<<\n");
printf("
- --- \n");


for(count=10;count!=0;count--)
{
printf("Countdown  %2d  :  0xF6=%2x  Press  any  key  to  invoke  keyboard
interrupt.\n",count,r_reg(0xF6));
/* reset WDT timeout value to 10 seconds */
/* w_reg(0x73,0x0A); */
```


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```
            sleep(1);
}

printf("At least one keyboard interrupt must occur during countdown.\n");
printf("Otherwise WDT has already reset system.\n\n"); printf("Try again and leave
keyboard.\n\n");

/* disable WDT */
/* WDT stop while timeout value is set to zero */
        w_reg(0x73,0x00);
printf("WDT is disable. Program is terminating.");

ExitConfig();

return 0;
}
```


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11. Appendix D DI/O with API/Windows

Please download the Matrix DI/O API library files and a demo program from http://www.adlinktech.com.

To use the DI/O function library for MXC-3300 in your C++ project, please:

1. Include the **header file matrix_dio.h**
2. Link with the **static import library matrix_dio64.lib**
3. Deploy the **runtime dynamic link library matrix_dio64.dll**

The DI/O functions are implemented in the matrix_dio64.dll, which must be placed alongside your executable file. The available functions include the following:

GPIO_Init

Reserves system resources for digital input/output API ser- vice.It is necessary to call this function before using other MXC-3300 DI/O functions.

@ Syntax

C/C++

```
I16 GPIO_Init(void)
```

@ Parameters

None

@ Return code

```
NoError ErrorOpenDriverFailed ErrorDeviceIoctl
```

GPI_Read()

Reads the digital logic state of the digital input line.

@ Syntax

C/C++

```
I16 GPI_Read(U16 *pwState)
```

@ Parameters

pwState

Returns the digital logic state of MXC-3300 digital input chan- nels 1~4 (bit 0~3)

@ Return code

```
NoError ErrorOpenDriverFailed ErrorDeviceIoctl
```

GPO_Write()

Sets the digital logic state of the digital output line.

@ Syntax

C/C++

```
I16 GPO_Write(U16 wState)
```

@ Parameters

State

Sets the digital logic state of MXC-3300 digital output channels 1~4 (bit 0~3) to 0 or 1.

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@ Return code

```
NoError ErrorOpenDriverFailed ErrorDeviceIoctl
```

GPO_Read()

Reads the digital logic state of the digital output line.

@ Syntax

C/C++

```
I16 GPO_Read(U16 *pwState)
```

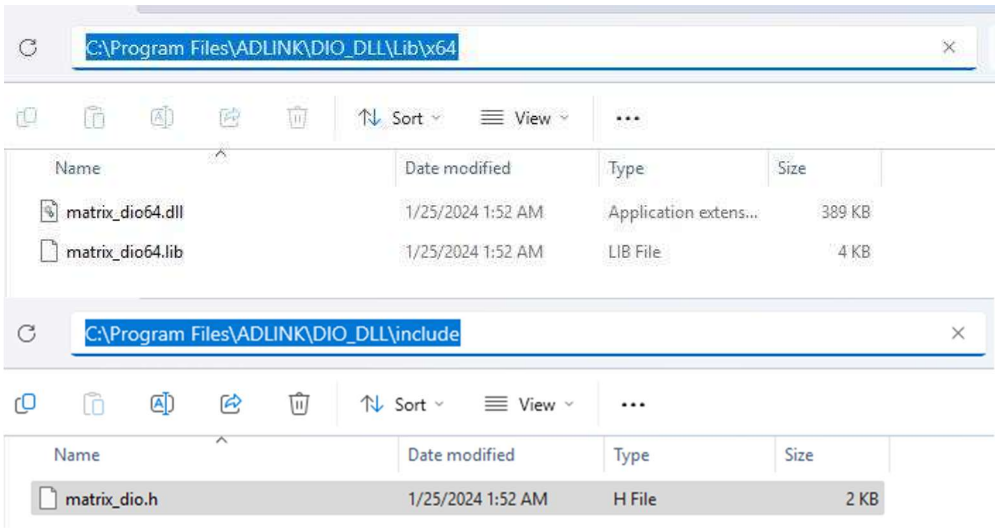
@ Parameters

pwState

Returns the digital logic state of MXC-3300 digital output chan- nels 1~4 (bit 0~3).

@ Return code

```
NoError
ErrorOpenDriverFailed
ErrorDeviceIoctl
```



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Safety Instructions

For user safety, please read and follow all instructions, Warnings, Cautions, and Notes marked in this manual and on the associated device before handling/operating the device, to avoid injury or damage.

S'il vous plaît prêter attention stricte à tous les avertissements et mises en garde figurant sur l'appareil , pour éviter des blessures ou des dommages.

- Read these safety instructions carefully.
- Keep the User's Manual for future reference.
- Read the Specifications section of this manual for detailed information on the recommended operating environment.
- The device can be operated at an ambient temperature of 60ºC with DC input; 50 ºC with adapter input.
- When installing/mounting or uninstalling/removing device; or when removal of a chassis cover is required for user servicing (See "Getting Started" on page 9.):
  [> Turn off power and unplug any power cords/cables.
  [> Reinstall all chassis covers before restoring power.
- To avoid electrical shock and/or damage to device:
  [> Keep device away from water or liquid sources.
  [> Keep device away from high heat or humidity.
  [> Keep device properly ventilated (do not block or cover ventilation openings).
  [> Always use recommended voltage and power source settings.
  [> Always install and operate device near an easily accessible electrical outlet.
  [> Secure the power cord (do not place any object on/over the power cord) and connect it to a socket-outlet with earthing connection.
  [> The computer is powered by an adapter or DC source. Please ensure that the adapter or DC source has an earth connection if it includes protective earthing.
  [> Only install/attach and operate device on stable surfaces and/or recommended mountings.
- If the device will not be used for long periods of time, turn off and unplug from its power source.
- Never attempt to repair the device, which should only be serviced by qualified technical personnel using suitable tools.
- A Lithium-type battery may be provided for uninterrupted backup or emergency power.



Risk of explosion if battery is replaced with one of an incorrect type; please dispose of used batteries appropriately.

Risque d'explosion si la pile est remplacée par une autre de type incorrect. Veuillez jeter les piles usagées de façon appropriée.

- The device must be serviced by authorized technicians when:
  [> The power cord or plug is damaged.
  [> Liquid has entered the device interior.
  [> The device has been exposed to high humidity and/or moisture.
  [> The device is not functioning or does not function according to the User's Manual.
  [> The device has been dropped and/or damaged and/or shows obvious signs of breakage.
- Disconnect the power supply cord before loosening the thumbscrews and always fasten the thumbscrews with a screwdriver before starting the system up.
- It is recommended that the device 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 therefore, and any precautions required.
  [> Only afforded by the use of a tool or lock and key, or other means of security, and controlled by the authority responsible for the location.
- The wires of the terminal block should be fixed by an authorized technician. The recommended wire range is 30-10 AWG solid/stranded, wire type: Cu, and the torque (Lb·in) should be 5.3.

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- Please use an approved power source certified by IEC or UL. If you need an adapter, optional accessories, or further assistance, please contact ADLINK for more information.

	**BURN HAZARD** Touching this surface could result in bodily injury. To reduce risk, allow the surface to cool before touching. ***RISQUE DE BRÛLURES*** *Ne touchez pas cette surface, cela pourrait entraîner des blessures.*

- Lisez attentivement ces consignes de sécurité
- *Conservez le manuel de l'utilisateur pour pouvoir le consulter ultérieurement*
- *Lisez la section Spécifications de ce manuel pour des informations détaillées sur l'environnement d'exploitation recommandé*
- *Le dispositif peut être utilisé à une température ambiante de 60ºC avec une entrée DC ; 50ºC avec une entrée d'adaptateur.*
- *Pour éviter les chocs électriques et/ou d'endommager l'appareil :*
  - *Tenez l'appareil à l'écart de toute source d'eau ou de liquide*
  - *Tenez l'appareil à l'écart d'une forte chaleur ou d'une humidité élevée*
  - *Maintenez l'appareil correctement ventilé (n'obstruer ou ne couvrez pas les ouvertures de ventilation)*
  - *Utilisez toujours les réglages de tension et de source d'alimentation recommandés*
  - *Installez et utilisez toujours l'appareil près d'une prise de courant facilement accessible*
  - Fixez le cordon d'alimentation (ne placez aucun objet sur/au-dessus du cordon d'alimentation) et connectez-le à une prise de courant avec mise à la terre
  - L'ordinateur Smart Touch est alimenté par un adaptateur ou une source CC. Veuillez vous assurer que l'adaptateur ou la source CC doit conserver la connexion à la terre s'il est doté d'une protection.
- N'essayez jamais de réparer l'appareil, qui doit être réparé uniquement par du personnel technique qualifié *et utilisant des outils appropriés.*
  - *Lors de l'installation/montage ou de la désinstallation/retrait d'un périphérique, ou lorsque le retrait d'un couvercle de châssis est requis pour l'entretien par l'utilisateur :*
  - *Coupez l'alimentation et débranchez tous les cordons/câbles d'alimentation.*
- *Réinstallez tous les capots du châssis avant de rétablir l'alimentation. Installez/fixez et utilisez l'appareil uniquement sur des surfaces stables et/ou des supports recommandés.*
- *Si l'appareil n'est pas utilisé pendant une longue période, éteignez-le et débranchez-le de sa source d'alimentation.*
- *Une batterie de type lithium peut être fournie pour une alimentation de secours ou de secours ininterrompue.*
  - *L'appareil doit être réparé par des techniciens agréés lorsque :*
  - *Le cordon d'alimentation ou la fiche est endommagé.*
  - *Du liquide est entré dans l'appareil. € L'appareil a été exposé à une humidité élevée et/ou à l'humidité.*
  - *L'appareil ne fonctionne pas ou ne fonctionne pas conformément au manuel de l'utilisateur.*
- *L'appareil est tombé et/ou a été endommagé et/ou présente des signes évidents de casse.*
- *Débranchez le cordon d'alimentation avant de desserrer les vis moletées et fixez toujours les vis moletées avec un tournevis avant de démarrer le système.*
- *Il est recommandé d'installer l'appareil uniquement dans une salle de serveurs ou une salle informatique dont l'accès est :*
  - *Réservé au personnel de service qualifié ou aux utilisateurs familiers avec les restrictions appliquées à l'emplacement, les raisons de celles-ci et les précautions requises.*
  - *Autorisé uniquement par l'utilisation d'un outil ou d'une serrure et d'une clé, ou d'autres moyens de sécurité, et contrôlé par l'autorité responsable du lieu.*

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- *Le fil du bornier doit être fixé par un technicien agréé et recommandation pour la gamme de fils : 30-10 sol/str, type de fil : Cu, couple (Lb IN.) : 5,3*
- *Veuillez utiliser une source d'alimentation approuvée et certifiée par la norme IEC ou UL. Si vous avez besoin d'un adaptateur, d'accessoires en option ou d'une assistance supplémentaire, veuillez contacter ADLINK pour plus d'informations.*

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Getting Service

Ask an Expert: https://www.adlinktech.com/en/Askanexpert

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Please visit the Contact page at www.adlinktech.com for information on how to contact the ADLINK regional office nearest you.

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