MTC-7000 USER Manual

10.1"/15"/15.6"/21.5" Fanless Multi-Touch Computer,
Intel® Core™ i7/i5/i3 Processor (Whiskey Lake-U)

Vecow

1.5.0 Edition 20230529

Record of Revision

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Declaration of Conformity

FCC

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

CE

The products described in this manual comply with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

Copyright and Trademarks

Order Information

Part Number	Description
10.1"	
MTC-7010W-8665U	10.1" Fanless Multi-Touch panel PC, Intel® Core™ i7-8665UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7010W-8365U	10.1" Fanless Multi-Touch panel PC, Intel® Core™ i5-8365UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7010W-8145U	10.1" Fanless Multi-Touch panel PC, Intel® Core™ i3-8145UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7010W-4305U	10.1" Fanless Multi-Touch panel PC, Intel® Core™ Celeron® 4305UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
15"	
MTC-7015-8665U	15" Fanless Multi-Touch panel PC, Intel® Core™ i7-8665UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7015-8365U	15" Fanless Multi-Touch panel PC, Intel® Core™ i5-8365UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7015-8145U	15" Fanless Multi-Touch panel PC, Intel® Core™ i3-8145UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7015-4305U	15" Fanless Multi-Touch panel PC, Intel® Core™ Celeron® 4305UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
15.6"	
MTC-7015W-8665U	15.6" Fanless Multi-Touch panel PC, Intel® Core™ i7-8665UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7015W-8365U	15.6" Fanless Multi-Touch panel PC, Intel® Core™ i5-8365UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7015W-8145U	15.6" Fanless Multi-Touch panel PC, Intel® Core™ i3-8145UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7015W-4305U	15.6" Fanless Multi-Touch panel PC, Intel® Core™ Celeron® 4305UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
21.5"	
MTC-7021W-8665U	21.5" Fanless Multi-Touch panel PC, Intel® Core™ i7-8665UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7021W-8365U	21.5" Fanless Multi-Touch panel PC, Intel® Core™ i5-8365UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7021W-8145U	21.5" Fanless Multi-Touch panel PC, Intel® Core™ i3-8145UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V
MTC-7021W-4305U	21.5" Fanless Multi-Touch panel PC, Intel® Core™ Celeron® 4305UE, 2 GbE LAN, 2 COM, 4 USB, DC-in 9-48V

Optional Accessories

Part Number	Description
DDR4 4G	Certified DDR4 4GB 2666/2400/2133 MHz RAM
DDR4 8G	Certified DDR4 8GB 2666/2400/2133 MHz RAM
DDR4 16G	Certified DDR4 16GB 2666/2400/2133 MHz RAM
DDR4 32G	Certified DDR4 32GB 2666/2400/2133 MHz RAM
PWA-120W	120W, 24V, 90VAC to 264VAC Power Adapter with 3-pin Terminal Block
PWA-160W-WT	160W, 24V, 85VAC to 264VAC Power Adapter with 3-pin Terminal Block, Wide Temperature -30°C to +70°C
4G Module	Mini PCIe 4G/GPS Module with Antenna
WiFi & Bluetooth Module	WiFi+Bluetooth Module with Antenna

Note : Vecow suggest to install wide operation temperature memory and storage devices when system work under rush environment.

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1

GENERAL INTRODUCTION

1.1 Overview

Vecow's MTC-7000 series products are 10.1", 15", 15.6", and 21.5 fanless, high performance, low-power, all-in-one multi-touch panel computers which use as control panel on automation equipment, HMI for production line, control panel for self-service devices in digital signage, showroom interactive signage, and public service terminals, like meeting room control panel.

Powered by 8th generation Intel® Core™ i7/i5/i3/Celeron® U-Series SoC (Whiskey Lake-U) for IoT applications, Intel® IoT platform offers long-life availability, embedded use conditions, increased I/O capacity, and the latest DDR4-2400 memory. The 8th generation processors meet the increasing requirements for graphics, audio, and compute capabilities while providing the headroom to consolidate data and applications.

With different size LCD panel with LED backlight to fulfill your different applications, Projected Capacitive 10-point Multi-Touch Screen with 7H Anti-Scratch Surface, 9V to 48V wide range power input with up to 80V smart surge protection, all-in-one fanless design, -5°C to 55°C wide operating temperature, and IP65 front panel protection design, MTC-7000 series bring your more reliable using experience in your applications.

1.2 Features

- 8th generation Intel® Core™ i7/i5/i3/Celeron® U-Series Processor (Whiskey Lake-U)
- 1 DDR4 memory slot, up to 32GB
- Different Size LCD Panel with LED Backlight Control
  - 10.1" : 1280 * 800
  - 15" : 1024 * 768
  - 15.6" : 1366 * 768
  - 21.5" : 1920 * 1080
- 10-point Projected Capacitive Multi-Touch Screen with 7H Anti-Scratch Surface
- 4-port USB 3.1 Gen 2 supports up to 10Gbps data transfer
- DisplayPort and DVI-D dual display supports up to 4K display
- 9V to 48V DC-in, 80V Surge Protection
- IP65 Front Panel Protection
- Fanless Design

1.3 Product Specification

1.3.1 Specifications of MTC-7010W

Panel	
Panel Type	WSVGA TFT LED LCD
Size	10.1"
Max Resolution	1280 x 800
Display Color	262k
Brightness (cd/m^2)	300
Viewing Angle	170°/170° (H/V)
Contrast Ratio	1300 : 1
Touch Screen	
Touch Screen Type	10-point Projected Capacitive
Transparency	≥ 91%
Surface Hardness	7H Surface Hardness
Control Interface	USB Interface
System	
Processor	Intel® Core™ i7-8665UE/i5-8365UE/i3-8145UE/Celeron® 4305UE Processor (Whiskey Lake-U)
Chipset	Intel® SoC
Memory	1 DDR4 2400MHz SO-DIMM, up to 32GB
Graphics	Intel® UHD Graphics 620
Audio	Realtek ALC892, 5.1 Channel HD Audio
I/O Interface	
LAN	LAN 1 : Intel® I219 Gigabit LAN supports iAMT 12.0 LAN 2 : Intel® I210 Gigabit LAN
Serial	2 COM RS-232/422/485
USB	4 USB 3.1 Gen 2 (External)
Display	• DVI-D : Up to 1920 x 1080 @60Hz • DisplayPort : Up to 4096x 2304@60Hz
Storage	
SATA	1 2.5" SATA III (6Gbps)
mSATA	1 SATA III (Mini PCIe Type, 6Gbps)
Expansion	
Mini PCIe	2 Full Size Mini PCIe Socket : • 1 Full-size for PCIe/USB/Internal SIM Card • 1 Full-size for PCIe/USB/mSATA

Power	
Power Input	9V to 48V, DC-in
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Power Adapter	AC to DC 120W Power Adapter (Optional Accessory)
Surge Protection	Up to 80V/1ms Transient Power
Others	
TPM	Optional Infineon SLB9665 supports TPM 2.0, LPC Interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
Smart Management	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.
Software Support	
Microsoft	Window 10
Linux	Fedora 19, Ubuntu 10.04 LTS, or Linux Kernel 3.0 above
Mechanical	
Dimension	256.5mm x 178.3mm x 69.1mm (10.10" x 7.02" x 2.72")
Weight	1.85 kg (4.08 lb)
Front Panel Protection	IP65 Compliant
Mounting	• Panel Mount • VESA 75
Environment	
Operating Temperature	-5°C to 55°C (23°F to 131°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	10% to 95% Humidity, non-condensing
Relative Humidity	95% at 55°C
Shock	• IEC 60068-2-27 • 20G, Half-sine, 11ms
Vibration	• IEC 60068-2-64 • Non-operation : 10Hz to 200Hz, 1Grms, X, Y, Z, 30 mins each Axis
EMC	CE, FCC

1.3.2 Specifications of MTC-7015

Panel	
Panel Type	XGA TFT LED LCD
Size	15"
Max Resolution	1024 x 768
Display Color	16.7M
Brightness (cd/m^2)	250
Viewing Angle	160°/140° (H/V)
Contrast Ratio	700 : 1
Touch Screen	
Touch Screen Type	10-point Projected Capacitive
Transparency	≥ 91%
Surface Hardness	7H Surface Hardness
Control Interface	USB Interface
System	
Processor	Intel® Core™ i7-8665UE/i5-8365UE/i3-8145UE/Celeron® 4305UE Processor (Whiskey Lake-U)
Chipset	Intel® SoC
Memory	1 DDR4 2400MHz SO-DIMM, up to 32GB
Graphics	Intel® UHD Graphics 620
Audio	Realtek ALC892, 5.1 Channel HD Audio
I/O Interface	
LAN	LAN 1 : Intel® I219 Gigabit LAN supports iAMT 12.0 LAN 2 : Intel® I210 Gigabit LAN
Serial	2 COM RS-232/422/485
USB	4 USB 3.1 Gen 2 (External)
Display	• DVI-D : Up to 1920 x 1080 @60Hz • DisplayPort : Up to 4096x 2304@60Hz
Storage	
SATA	1 2.5" SATA III (6Gbps)
mSATA	1 SATA III (Mini PCIe Type, 6Gbps)
Expansion	
Mini PCIe	2 Full Size Mini PCIe Socket : • 1 Full-size for PCIe/USB/Internal SIM Card • 1 Full-size for PCIe/USB/mSATA

Power	
Power Input	9V to 48V, DC-in
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Power Adapter	AC to DC 120W Power Adapter (Optional Accessory)
Surge Protection	Up to 80V/1ms Transient Power
Others	
TPM	Optional Infineon SLB9665 supports TPM 2.0, LPC Interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
Smart Management	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.
Software Support	
Microsoft	Window 10
Linux	Fedora 19, Ubuntu 10.04 LTS, or Linux Kernel 3.0 above
Mechanical	
Dimension	360.9mm x 277.8mm x 77.1mm (14.20" x 10.94" x 3.04")
Weight	4.1 kg (9.04 lb)
Front Panel Protection	IP65 Compliant
Mounting	• Panel Mount • VESA 100/75
Environment	
Operating Temperature	-5°C to 55°C (23°F to 131°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	10% to 95% Humidity, non-condensing
Relative Humidity	95% at 55°C
Shock	• IEC 60068-2-27 • 20G, Half-sine, 11ms
Vibration	• IEC 60068-2-64 • Non-operation : 10Hz to 200Hz, 1Grms, X, Y, Z, 30 mins each Axis
EMC	CE, FCC

1.3.3 Specifications of MTC-7015W

Panel	
Panel Type	WXGA TFT LED LCD
Size	15.6"
Max Resolution	1366 x 768
Display Color	16.7M
Brightness (cd/m^2)	400
Viewing Angle	170°/160° (H/V)
Contrast Ratio	500 : 1
Touch Screen	
Touch Screen Type	10-point Projected Capacitive
Transparency	≥ 91%
Surface Hardness	7H Surface Hardness
Control Interface	USB Interface
System	
Processor	Intel® Core™ i7-8665UE/i5-8365UE/i3-8145UE/Celeron® 4305UE Processor (Whiskey Lake-U)
Chipset	Intel® SoC
Memory	1 DDR4 2400MHz SO-DIMM, up to 32GB
Graphics	Intel® UHD Graphics 620
Audio	Realtek ALC892, 5.1 Channel HD Audio
I/O Interface	
LAN	LAN 1 : Intel® I219 Gigabit LAN supports iAMT 12.0 LAN 2 : Intel® I210 Gigabit LAN
Serial	2 COM RS-232/422/485
USB	4 USB 3.1 Gen 2 (External)
Display	• DVI-D : Up to 1920 x 1080 @60Hz • DisplayPort : Up to 4096x 2304@60Hz
Storage	
SATA	1 2.5" SATA III (6Gbps)
mSATA	1 SATA III (Mini PCIe Type, 6Gbps)
Expansion	
Mini PCIe	2 Full Size Mini PCIe Socket : • 1 Full-size for PCIe/USB/Internal SIM Card • 1 Full-size for PCIe/USB/mSATA

Power	
Power Input	9V to 48V, DC-in
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Power Adapter	AC to DC 120W Power Adapter (Optional Accessory)
Surge Protection	Up to 80V/1ms Transient Power
Others	
TPM	Optional Infineon SLB9665 supports TPM 2.0, LPC Interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
Smart Management	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.
Software Support	
Microsoft	Window 10
Linux	Fedora 19, Ubuntu 10.04 LTS, or Linux Kernel 3.0 above
Mechanical	
Dimension	391.5mm x 242.0mm x 66.1mm (15.41" x 9.53" x 2.60")
Weight	3.6 kg (7.94 lb)
Front Panel Protection	IP65 Compliant
Mounting	• Panel Mount • VESA 100/75
Environment	
Operating Temperature	-5°C to 55°C (23°F to 131°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	10% to 95% Humidity, non-condensing
Relative Humidity	95% at 55°C
Shock	• IEC 60068-2-27 • 20G, Half-sine, 11ms
Vibration	• IEC 60068-2-64 • Non-operation : 10Hz to 200Hz, 1Grms, X, Y, Z, 30 mins each Axis
EMC	CE, FCC

1.3.4 Specifications of MTC-7021W

Panel	
Panel Type	FHD TFT LED LCD
Size	21.5"
Max Resolution	1920 x 1080
Display Color	16.7M
Brightness (cd/m^2)	250
Viewing Angle	178°/178° (H/V)
Contrast Ratio	3000 : 1
Touch Screen	
Touch Screen Type	10-point Projected Capacitive
Transparency	≥ 91%
Surface Hardness	7H Surface Hardness
Control Interface	USB Interface
System	
Processor	Intel® Core™ i7-8665UE/i5-8365UE/i3-8145UE/Celeron® 4305UE Processor (Whiskey Lake-U)
Chipset	Intel® SoC
Memory	1 DDR4 2400MHz SO-DIMM, up to 32GB
Graphics	Intel® UHD Graphics 620
Audio	Realtek ALC892, 5.1 Channel HD Audio
I/O Interface	
LAN	LAN 1 : Intel® I219 Gigabit LAN supports iAMT 12.0 LAN 2 : Intel® I210 Gigabit LAN
Serial	2 COM RS-232/422/485
USB	4 USB 3.1 Gen 2 (External)
Display	• DVI-D : Up to 1920 x 1080 @60Hz • DisplayPort : Up to 4096x 2304@60Hz
Storage	
SATA	1 2.5" SATA III (6Gbps)
mSATA	1 SATA III (Mini PCIe Type, 6Gbps)
Expansion	
Mini PCIe	2 Full Size Mini PCIe Socket : • 1 Full-size for PCIe/USB/Internal SIM Card • 1 Full-size for PCIe/USB/mSATA

Power	
Power Input	9V to 48V, DC-in
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Power Adapter	AC to DC 120W Power Adapter (Optional Accessory)
Surge Protection	Up to 80V/1ms Transient Power
Others	
TPM	Optional Infineon SLB9665 supports TPM 2.0, LPC Interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
Smart Management	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.
Software Support	
Microsoft	Window 10
Linux	Fedora 19, Ubuntu 10.04 LTS, or Linux Kernel 3.0 above
Mechanical	
Dimension	537.8mm x 329.0mm x 77.1mm (21.17" x 12.95" x 3.04")
Weight	6.35 kg (13.99 lb)
Front Panel Protection	IP65 Compliant
Mounting	• Panel Mount • VESA 100/75
Environment	
Operating Temperature	-5°C to 55°C (23°F to 131°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	10% to 95% Humidity, non-condensing
Relative Humidity	95% at 55°C
Shock	• IEC 60068-2-27 • 20G, Half-sine, 11ms
Vibration	• IEC 60068-2-64 • Non-operation : 10Hz to 200Hz, 1Grms, X, Y, Z, 30 mins each Axis
EMC	CE, FCC

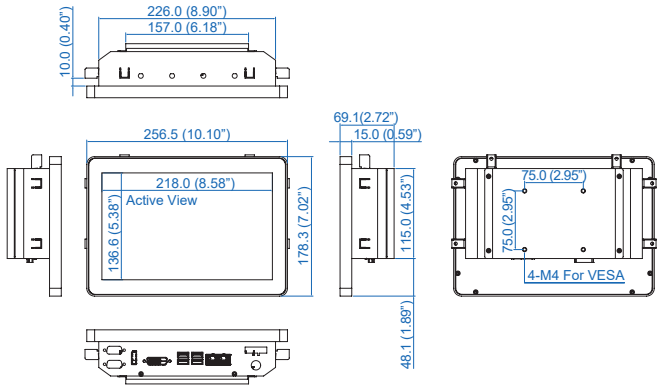
1.4 Supported CPU List

Processor No.	Cores	TDP	Cache	Max. Frequency	ECC Memory
Intel® Core™ i7-8665UE	4	15W	8M	Up to 4.4GHz	N
Intel® Core™ i5-8365UE	4	15W	6M	Up to 4.1GHz	N
Intel® Core™ i3-8145UE	2	15W	4M	Up to 3.9GHz	N
Intel® Celeron® 4305UE	2	15W	2M	Up to 2.0GHz	N

1.5 Mechanical Dimension

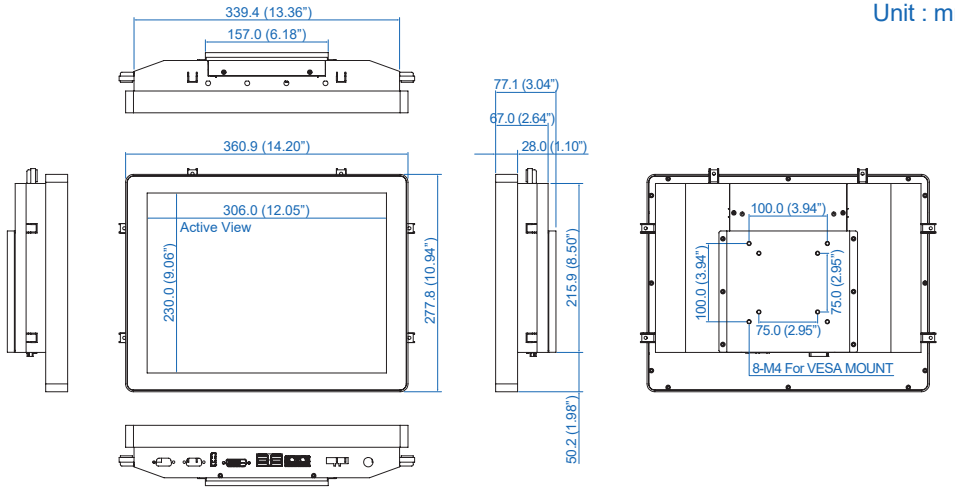
1.5.1 MTC-7010W Mechanical Drawing

Unit : mm (inch)



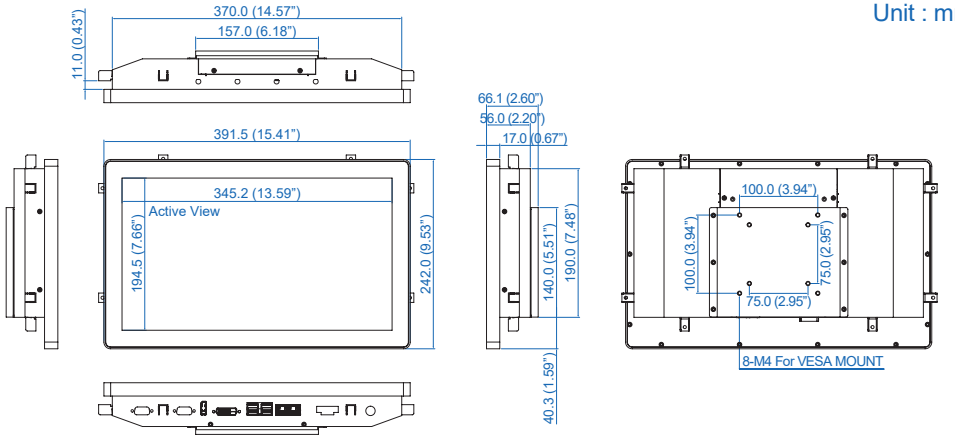
1.5.2 MTC-7015 Mechanical Drawing

Unit : mm (inch)



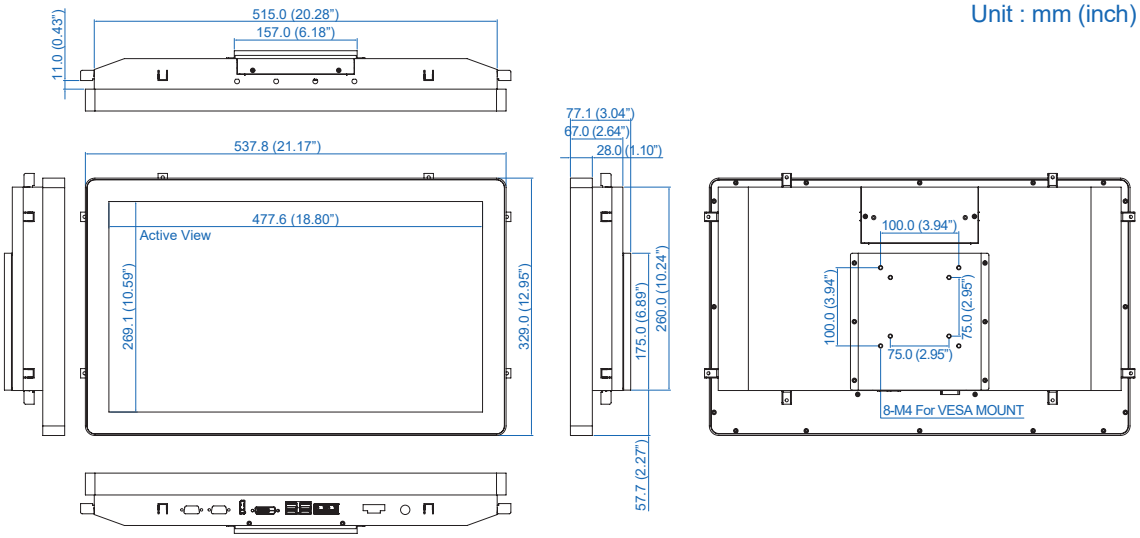
1.5.3 MTC-7015W Mechanical Drawing

Unit : mm (inch)



1.5.4 MTC-7021W Mechanical Drawing

Unit : mm (inch)



2

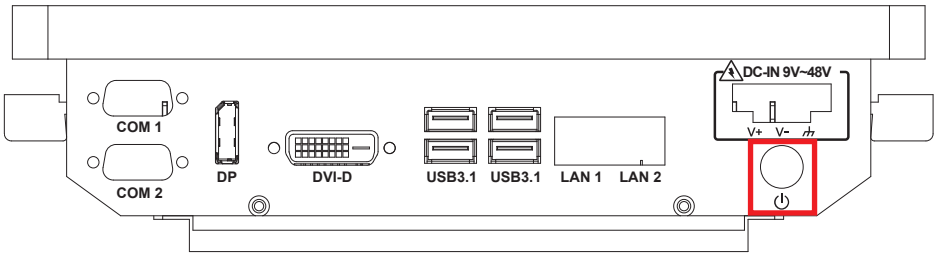
GETTING TO KNOW YOUR MTC-7000

2.1 Packing List

Item	Description	Qty
1	MTC-7000 Series Panel PC, (10.1" – 21.5")	1
2	• Waterproof rubber when panel mount use • Mounting clip • M2.5x6L screw for Mini PCIe Socket (P/N : 53-2426906-30B) • M4x10 screw for VESA mount kit • Screws for HDD bracket • Terminal block	1 8 2 4 4 1

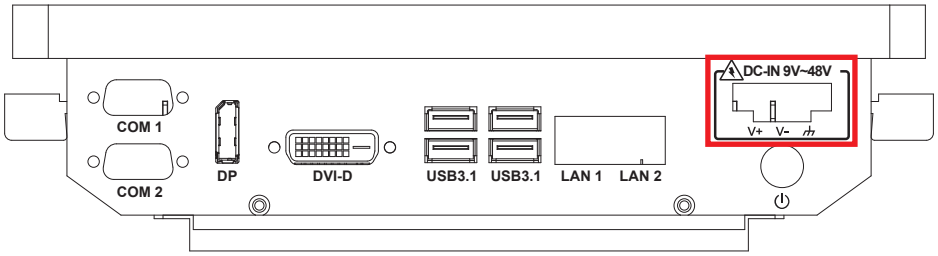
2.2 I/O & Functions

2.2.1 Power Button



The power button is a non-latched switch. In case of system halts, you can press and hold the power button for 4 seconds to compulsorily shut down the system. Please note that a 4 seconds interval is kept by the system between two on/off operations (i.e. once turning off the system, you shall wait for 4 seconds to initiate another power-on operation).

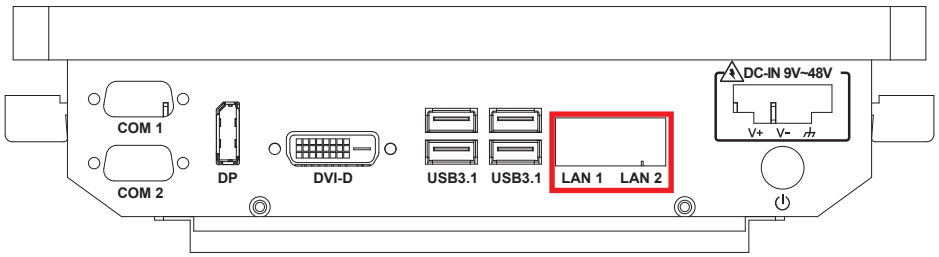
2.2.2 Power Input



MTC-7000 supports 9V to 48V DC power input.

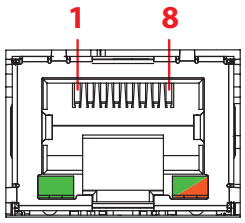
Pin No.	Definition
1	V+
2	V-
3	Earth GND

2.2.3 LAN Connector

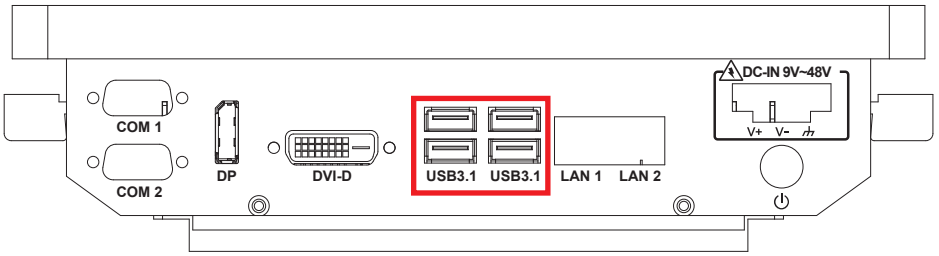


There are dual 8-pin RJ-45 jacks supporting 10/100/1000 Mbps Ethernet connections in the front side. LAN 1 is powered by Intel® i219 Ethernet Phy; LAN 2 is powered by Intel® I210 Ethernet engine. When both of LANs work in normal status, iAMT function is enabled. Using suitable RJ-45 cable, you can connect the system to a computer, or to any other devices with Ethernet connection, for example, a hub or a switch. Moreover, both of LANs support Wake on LAN and Pre-boot functions.

LED Location	LED Color	10Mbps	100Mbps	1000Mbps
Right	Green/ Orange	Off	Solid Green	Solid Orange
Left	Green	Twinkling Green	Twinkling Green	Twinkling Green

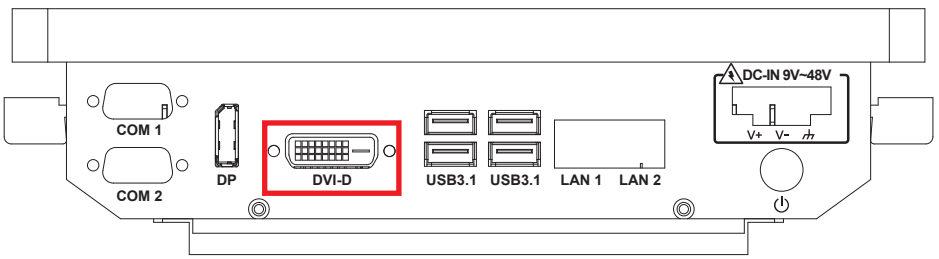


2.2.4 USB 3.1 Connector



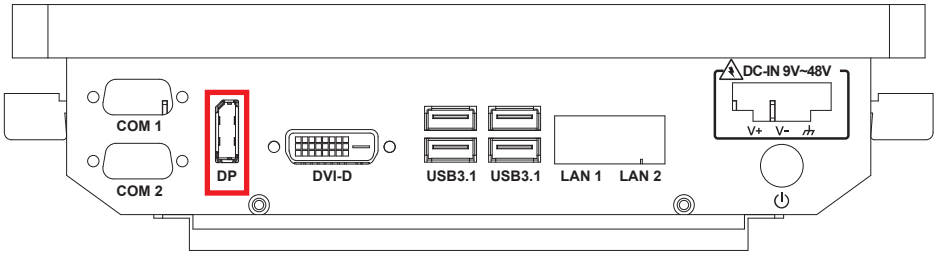
There are 4 USB 3.1 connections available supporting up to 10GB per second data rate on MTC-7000 series panel pc. It also compliant with the requirements of Super Speed (SS), high speed (HS), full speed (FS) and low speed (LS).

2.2.5 DVI-D Connector



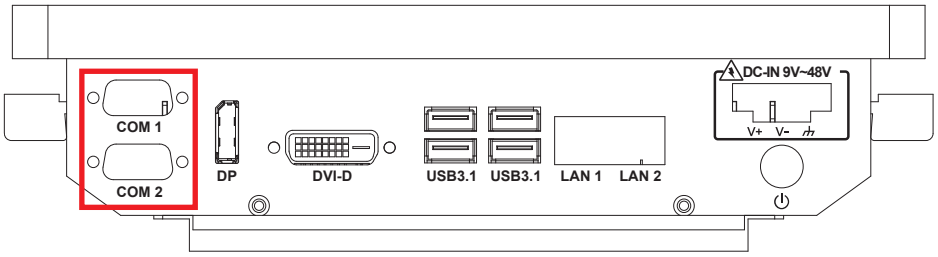
The DVI output mode supports up to 1920 x 1080 resolution. The DVI is automatically selected according to the display device connected. You will need a DVI-D cable when connecting to a display device.

2.2.6 DisplayPort



DisplayPort connection supports up to 4096 x 2304 resolution at 60Hz.

2.2.7 Series port



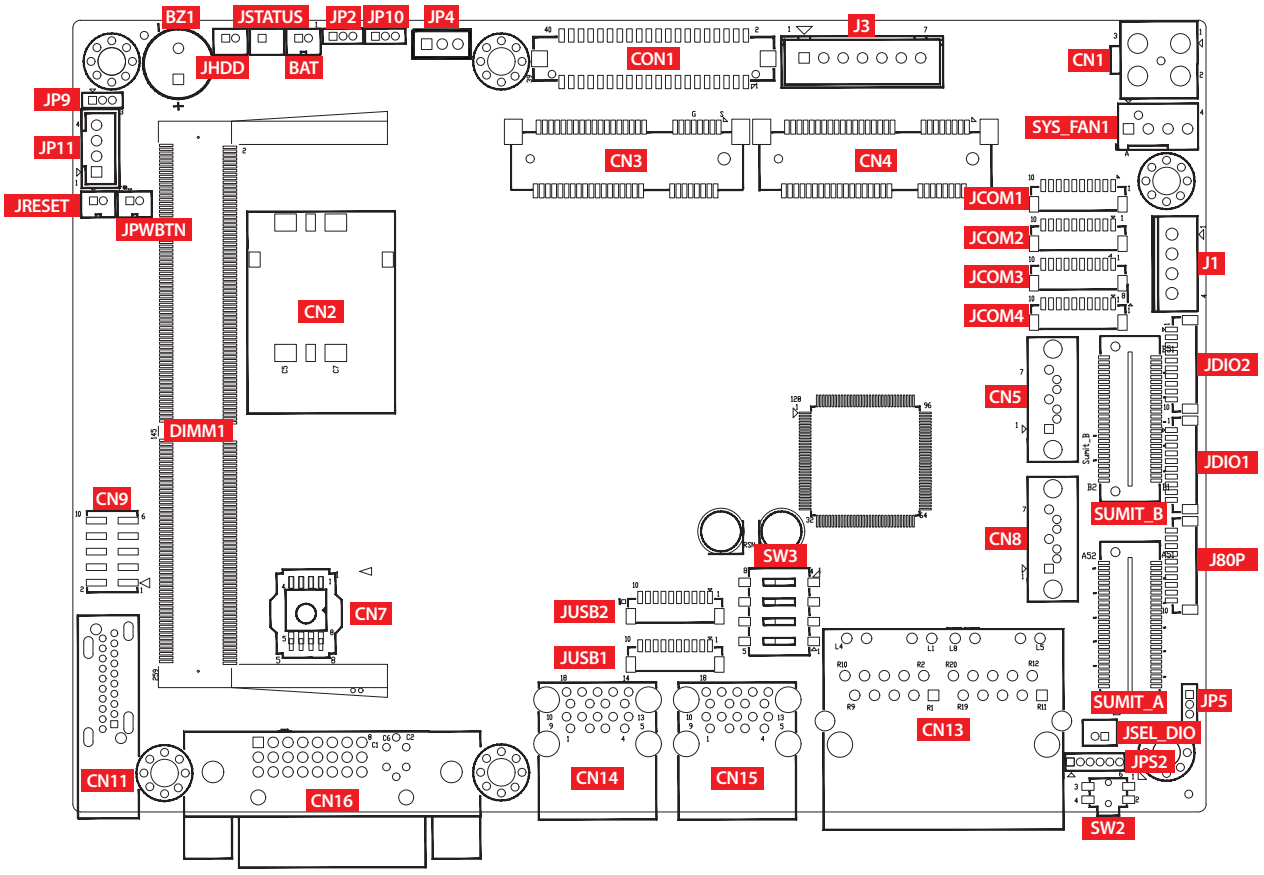
Serial port can be configured for RS-232, RS-422, or RS-485 with auto flow control communication. The default definition is RS-232, but if you want to change to RS-422 or RS-485, you can find the settings in BIOS.

BIOS Setting	Function
COM 1 COM 2	RS-232
	RS-422 (5-wire)
	RS-422 (9-wire)
	RS-485
	RS-485 w/z auto-flow control

The pin assignments are listed in the following table :

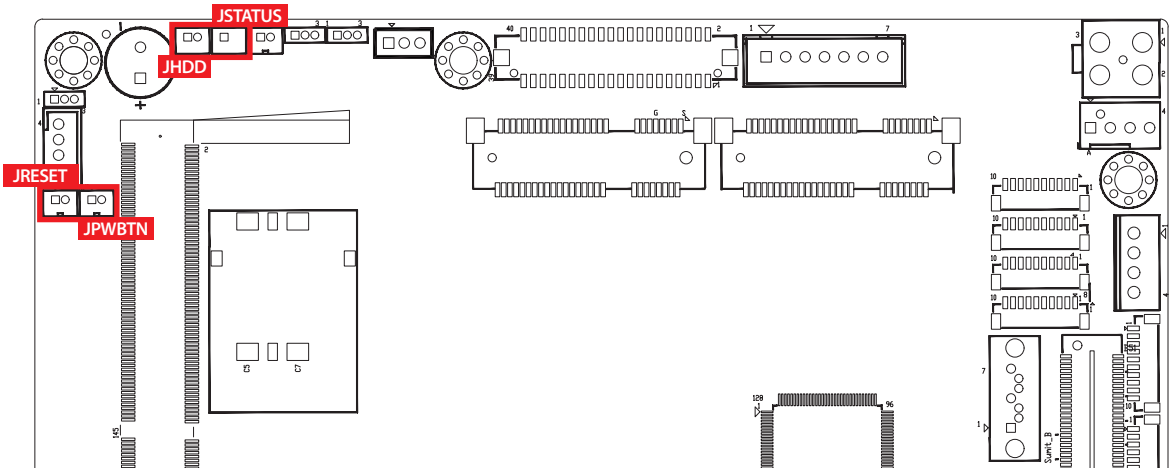
Serial Port	Pin No.	RS-232	RS-422 (5-wire)	RS-422 (9-wire)	RS-485 (3-wire)
1, 2	1	DCD	TXD-	TXD-	DATA-
	2	RXD	TXD+	TXD+	DATA+
	3	TXD	RXD+	RXD+	----------
	4	DTR	RXD-	RXD-	----------
	5	GND	GND	GND	GND
	6	DSR	----------	RTS-	----------
	7	RTS	----------	RTS+	----------
	8	CTS	----------	CTS+	----------
	9	RI	----------	CTS-	----------
	10	DCD	TXD-	TXD-	DATA-

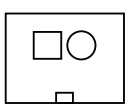
2.3 Connector/Jumper Locations



2.3.1 JPWBTN, JRESET, JSTATUS, JHDD : Miscellaneous Pin Header

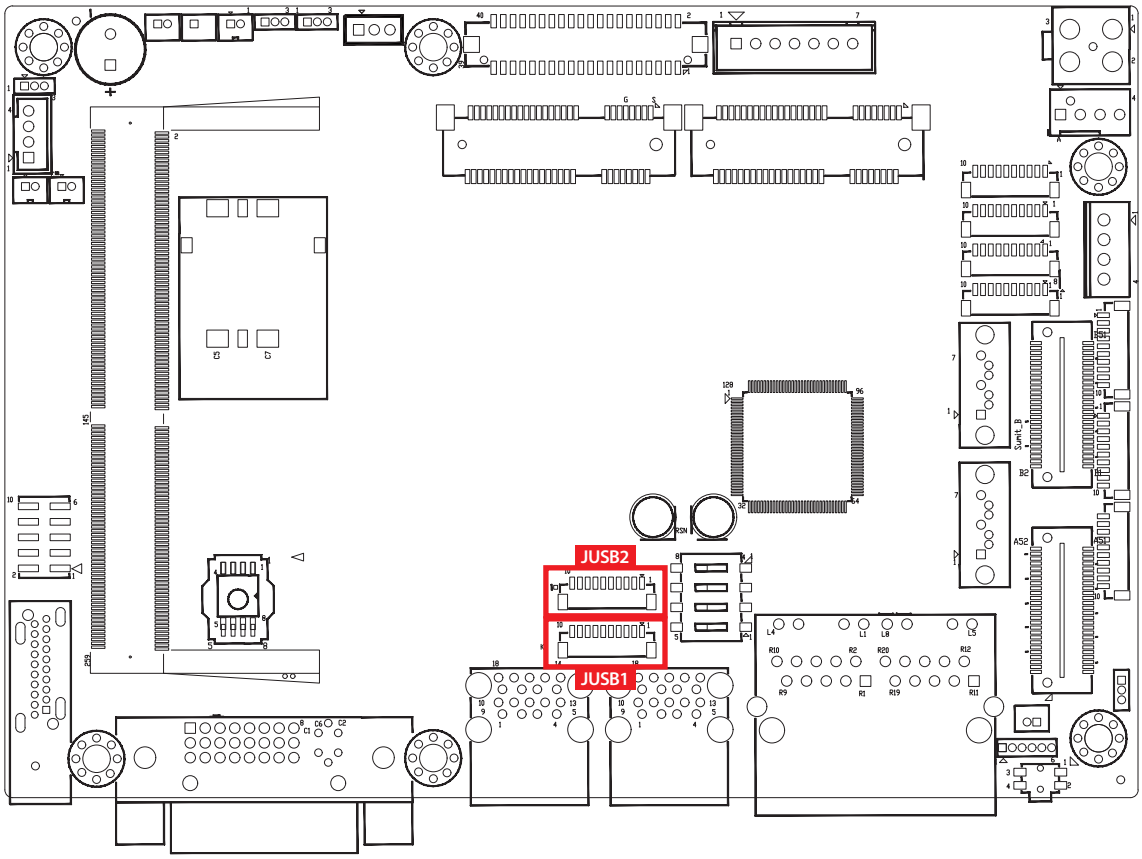
These pin headers can be used as a backup for the following functions : hard drive, LED indicator, reset button, power LED indicator, and power on/off buttons, which already can be accessed by front panel and top panel. The pinouts of Miscellaneous port are listed in following table :





Group	Pin No.	Description
JPWBTN	1	GND
	2	FP_PWR_BTN_IN
JRESET	1	GND
	2	FP_RST_BTN_N
JSTATUS	1	PWR_LED_N
	2	PWR_LED_P
JHDD	1	HDD_LED_N
	2	HDD_LED_P

2.3.2 JUSB1, JUSB2 : Internal USB 2.0 Connector

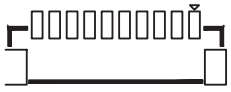


The EMBC-3000 main board provides maxima eight expansion USB ports. The USB interface supports 480Mbps transfer rate which comply with high speed USB specification Rev. 2.0.

The USB interface is accessed through one 10-pin JST 1.0mm connector. You will need an adapter cable if you use a standard USB connector. The adapter cable has a 10-pin connector on one end and a USB connector on the other.

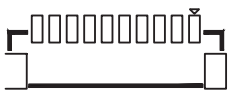
The pin assignments of JUSB1 and JUSB2 are listed in the following table :

JUSB1



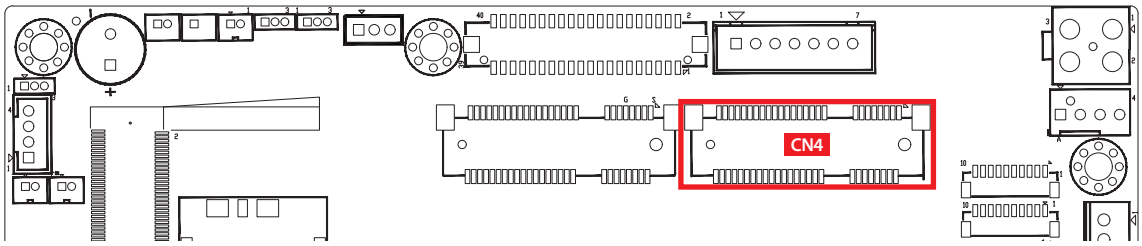
Pin No.	Definition	Pin No.	Definition
1	USB_VCC	2	USB_VCC
3	USB_VCC	4	USB_D_4N
5	USB_D_4P	6	USB_D_5N
7	USB_D_5P	8	GND
9	GND	10	GND

JUSB2



Pin No.	Definition	Pin No.	Definition
1	USB_VCC	2	USB_VCC
3	USB_VCC	4	USB_D_6N
5	USB_D_6P	6	USB_D_7N
7	USB_D_7P	8	GND
9	GND	10	GND

2.3.3 CN4 : Mini PCIe, mSATA



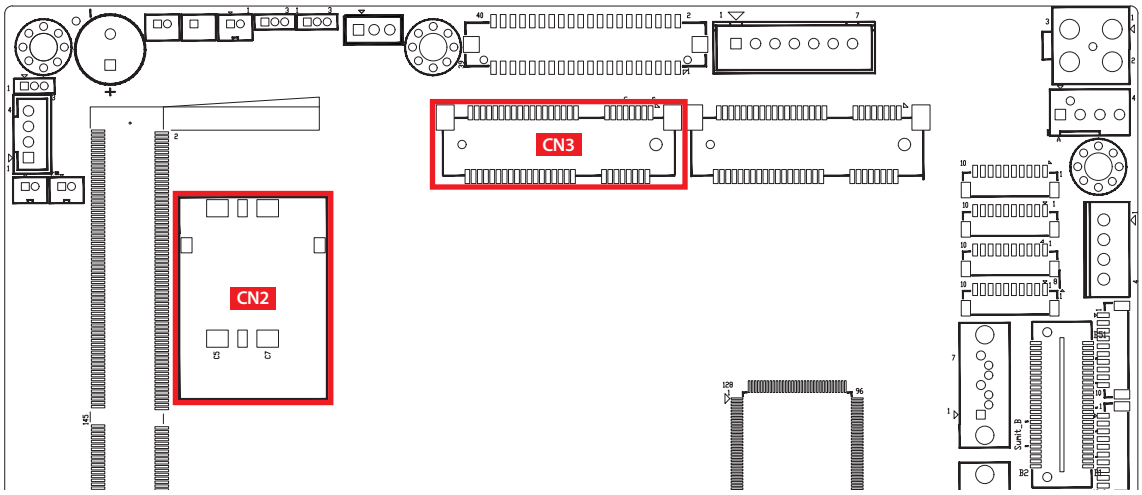
Both mSATA and Mini PCIe share the same form factor and similar electrical pinout assignments on their connectors. There was no clear mechanism to distinguish if a mSATA drive or a Mini PCIe device is plugged into the socket until recently that SATA I/O issued an ECN change (ECN #045) to redefine pin43 on mSATA connector as "no connect" instead of "return current path" (or GND).

When an mSATA drive is inserted, its pin-43 is "no connect", and the respective pin on the socket is being pulled-up to logic 1. When a Mini PCIe device is inserted, its pin-43 forces the respective pin on the socket to ground, or logic 0.

The pin assignments of CN4 are listed in the following table :

Pin No.	Signal Name	Pin No.	Signal Name
51	Reserved	52	+3.3Vaux
49	Reserved	50	GND
47	Reserved	48	+1.5V
45	Reserved	46	Reserved
43	SATA_PCIE_SEL	44	Reserved
41	+3.3Vaux	42	Reserved
39	+3.3Vaux	40	GND
37	GND	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	PERp0	26	GND
23	PERn0	24	+3.3Vaux
21	GND	22	PERST#
19	Reserved	20	reserved
17	Reserved	18	GND
Mechanical Key			
15	GND	16	Reserved
13	REFCLK+	14	Reserved
11	REFCLK-	12	Reserved
9	GND	10	Reserved
7	CLKREQ#	8	Reserved
5	Reserved	6	1.5V
3	Reserved	4	GND
1	WAKE#	2	3.3Vaux

2.3.4 CN3 : Mini PCIe, Micro-SIM

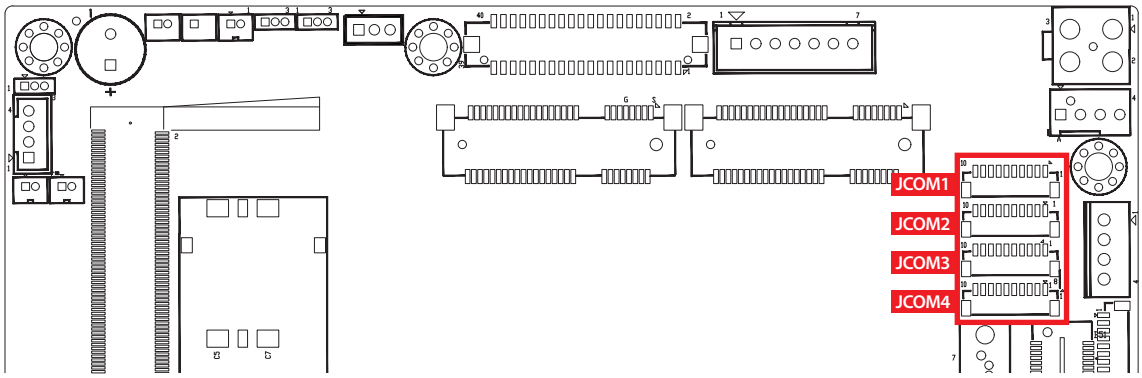


Note : The SIM card socket (CN2) do not support hot-plug. Please make sure to unplug the system power before inserting the SIM card.

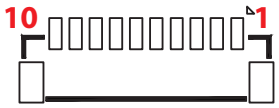
The pin assignments of CN3 are listed in the following table :

Pin No.	Signal Name	Pin No.	Signal Name
51	Reserved	52	+3.3Vaux
49	Reserved	50	GND
47	Reserved	48	+1.5V
45	Reserved	46	Reserved
43	GND	44	Reserved
41	+3.3Vaux	42	Reserved
39	+3.3Vaux	40	GND
37	GND	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	PERp0	26	GND
23	PERn0	24	+3.3Vaux
21	GND	22	PERST#
19	Reserved	20	reserved
17	Reserved	18	GND
Mechanical Key			
15	GND	16	UIM_VPP
13	REFCLK+	14	UIM_RESET
11	REFCLK-	12	UIM_CLK
9	GND	10	UIM_DATA
7	CLKREQ#	8	UIM_PWR
5	Reserved	6	1.5V
3	Reserved	4	GND
1	WAKE#	2	3.3Vaux

2.3.5 JCOM1, JCOM2, JCOM3, JCOM4 : Serial Port



Serial port 1 to 4 (JCOM 1 to 4) can be configured for RS-232, RS-422, or RS-485 with auto flow control communication. The default definition of COM 1 to 4 is RS-232, if you want to change to RS-422 or RS-485, you can find the setting in BIOS.

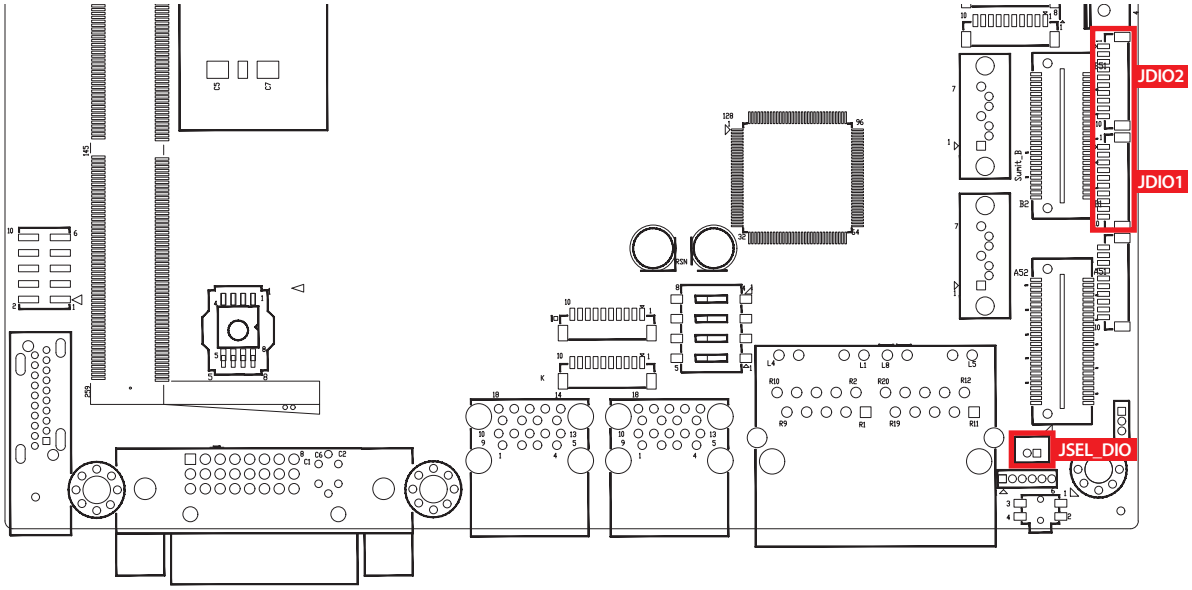


BIOS Setting	Function
COM 1 (JCOM1) COM 2 (JCOM2) COM 3 (JCOM3) COM 4 (JCOM4)	RS-232
	RS-422 (5-wire)
	RS-422 (9-wire)
	RS-485
	RS-485 w/z auto-flow control

The pin assignments are listed in the following table :

Serial Port	Pin No.	RS-232	RS-422 (5-wire)	RS-422 (9-wire)	RS-485 (3-wire)
1, 2 3, 4	1	GND_EARTH	GND_EARTH	GND_EARTH	GND_EARTH
	2	GND	GND	GND	GND
	3	RI	----------	CTS-	RI
	4	DTR	RXD-	RXD-	----------
	5	CTS	----------	CTS+	----------
	6	TXD	RXD+	RXD+	----------
	7	RTS	----------	RTS+	----------
	8	RXD	TXD+	TXD+	DATA+
	9	DSR	----------	RTS-	----------
	10	DCD	TXD-	TXD-	DATA-

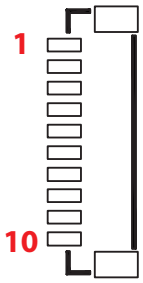
2.3.6 JDIO1, JDIO2 : GPIO from Super I/O



There is a 16-bit GPIO connector in the Top side. Each GPIO channel can be configuration GPI or GPO.

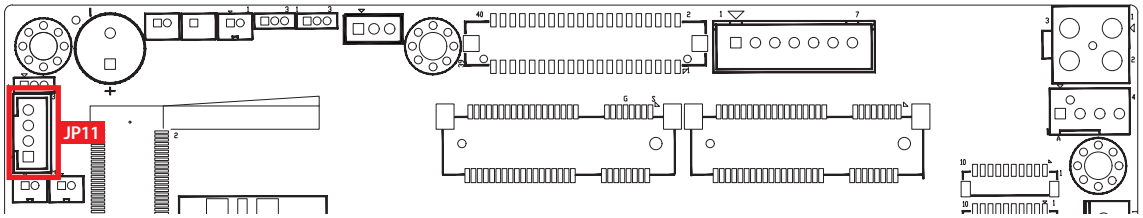
JSEL_DIO header is for SINK/SOURCE mode selection on ISO_DIO board (DMX-100-E)

JDIO1 and JDIO2 pins are defined in the following table :



Pin No.	JDIO1 Definition	JDIO2 Definition
1	SIO_GPI80	SIO_GPO70
2	SIO_GPI81	SIO_GPO71
3	SIO_GPI82	SIO_GPO72
4	SIO_GPI83	SIO_GPO73
5	SIO_GPI84	SIO_GPO74
6	SIO_GPI85	SIO_GPO75
7	SIO_GPI86	SIO_GPO76
8	SIO_GPI87	SIO_GPO77
9	+3.3V	+3.3V
10	GND	GND

2.3.7 JP11 : IGNITION Control and Remote Power on switch



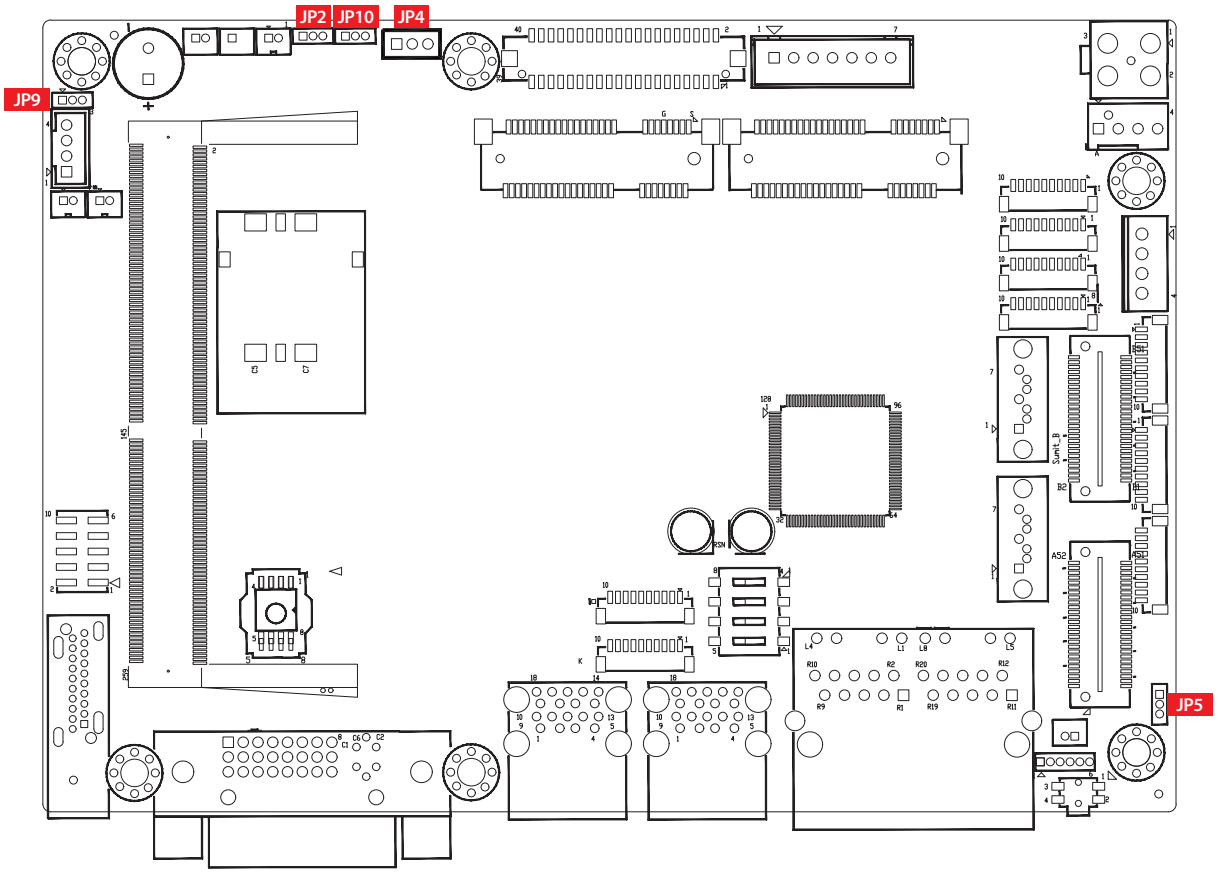
Pin assignment as the following table :

Pin No.	Definition	Pin No.	Definition
1	FP_PWR_BTN_P	2	GND
3	IGNITION	4	GND

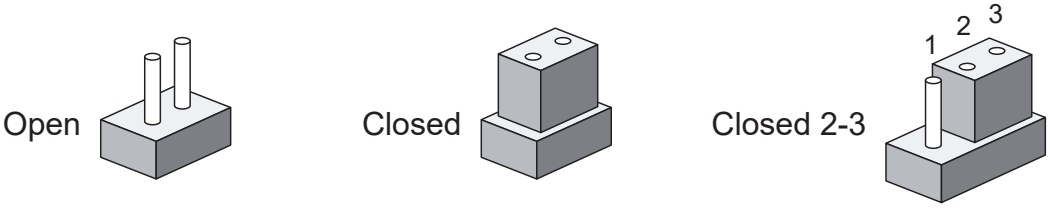
2.4 MTC-7000 Main Board Jumper Settings

2.4.1 Front View of Main Board With Jumper Location

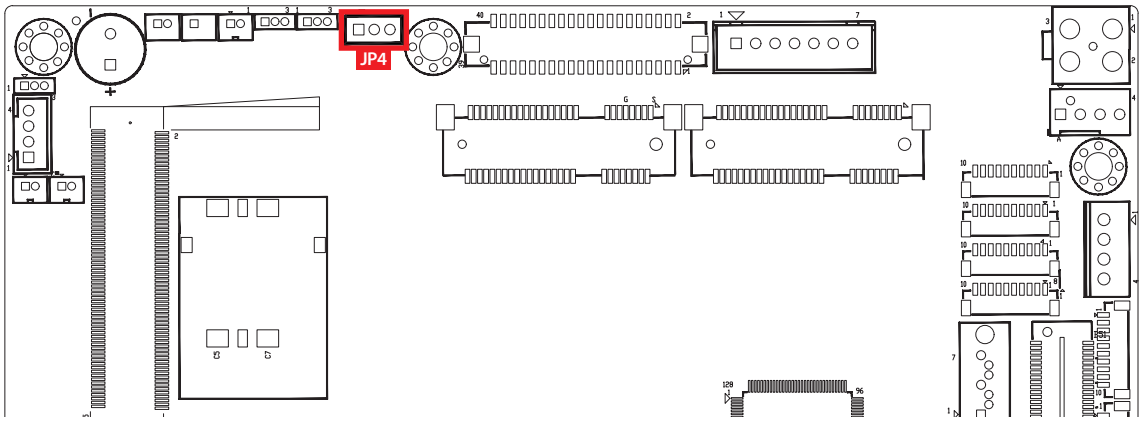
The figure below is the top view of the EMBC-3000 main board. It shows the location of the jumpers.



You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper, you connect the pins with the clip. To "open" a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



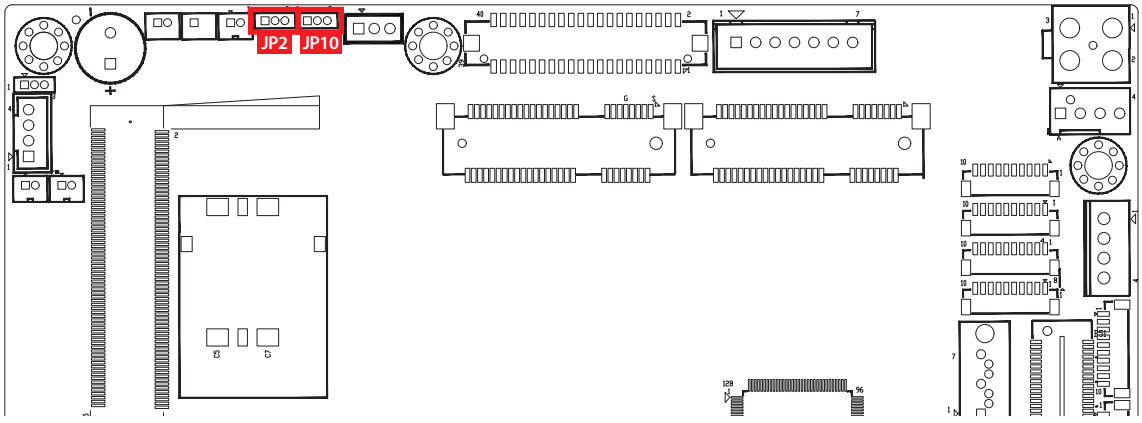
2.4.2 JP4 : Power Selection for LVDS Module



JP4 provides LVDS voltage selection function, Closing Pin 1 and Pin 2 is for 3.3V LVDS power input; closing Pin 2 and Pin 3 is for 5V LVDS power input.

	Pin No.	Definition
1 □○○ 3	1-2	+3.3V (Default)
	2-3	+5V

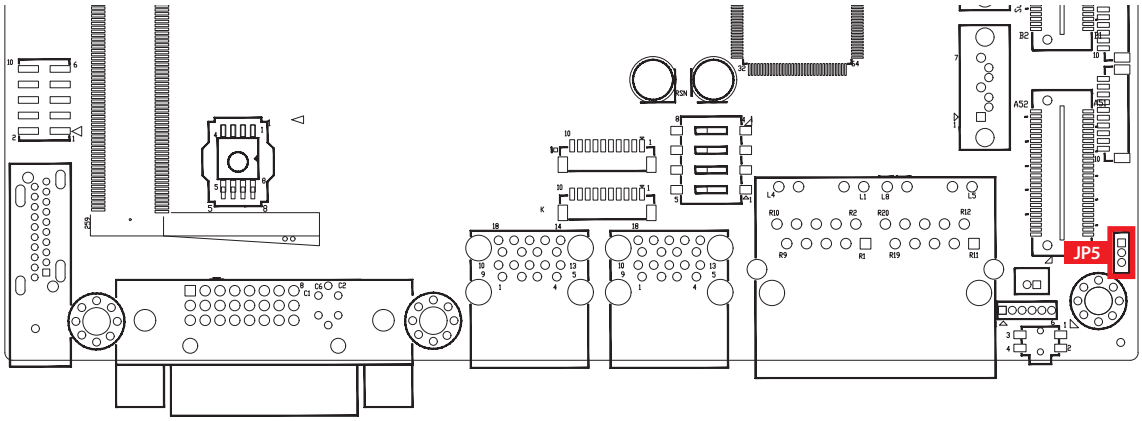
2.4.3 JP2 : Clear CMOS, JP10 : Clear ME



JP2	Pin No.	Definition
1 □○○ 3	1-2	Normal
	2-3	Clear CMOS

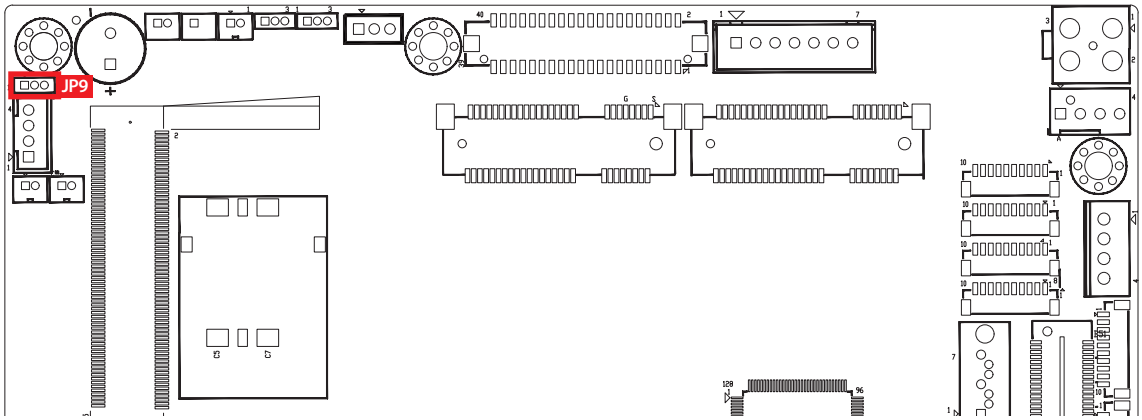
JP10	Pin No.	Definition
1 □○○ 3	1-2	Normal
	2-3	Clear ME

2.4.4 JP5 : Power Selection for EXT and INT USB 3.1 Gen2/USB 2.0 Ports



1 □○○ 3	Pin No.	Power
	1-2	+5V Standby Power
	2-3	+5V System Power

2.4.5 JP9 : Backlight Control Level Selection



1 □○○ 3	Pin No.	Power
	1-2	3.3V
	2-3	5V

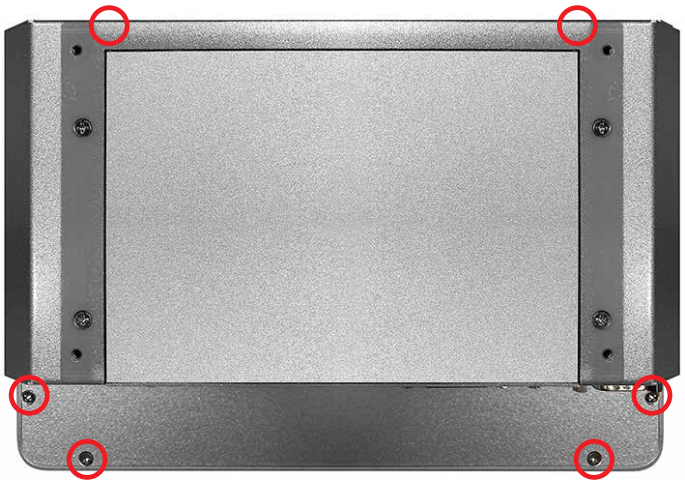
3

SYSTEM SETUP

3.1 Installing HDD/SDD Storage Devices

3.1.1 MTC-7010

Step 1 Remove 4pcs screws from system chassis.
Please take care of internal LVDS cable, backlight control cable and touch cable when opening back chassis.



Step 2 Remove 4pcs M3x4 screws of SSD/HDD Tray from back cover.

Step 3 Lock up 2.5" SSD/HDD on HDD bracket and plug-in SATA cable to SSD/HDD.

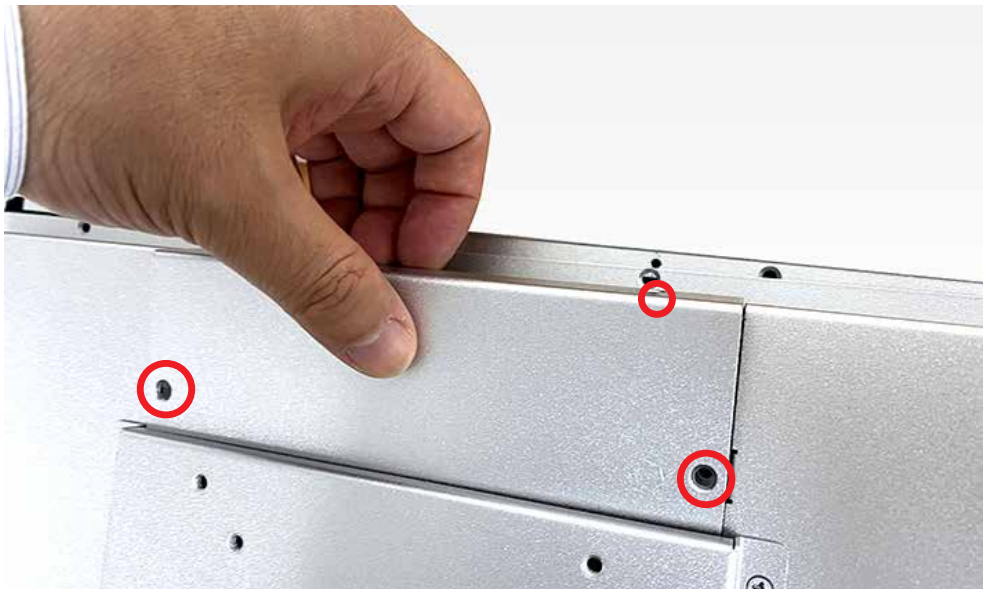
Step 4 Lock up 4pcs screws (marked in red) to fix the SSD/HDD on the tray.

Note 1 :
We strongly recommend you to buy wide temp. RAM and pre-install by VECOW for MTC-7000 series panel pc.

Note 2 :
We strongly recommend you to buy storage and pre-install by VECOW for MTC-7010W, 10.1" Multi-touch panel pc.

3.1.2 MTC-7015/7015W/7021W

Step 1 Remove 4pcs screws from external storage cover.



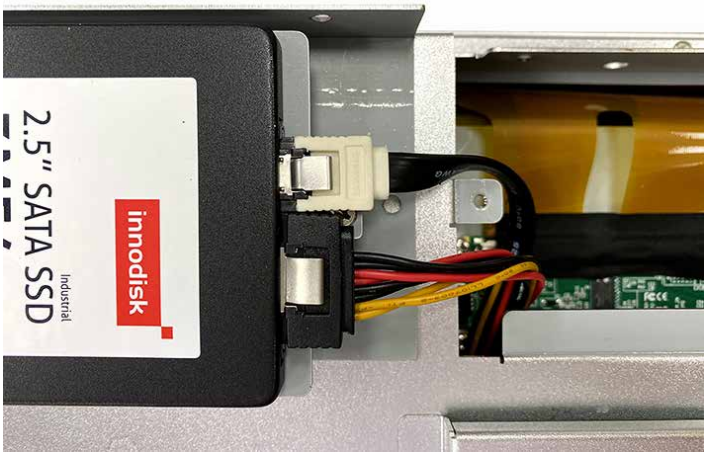
Step 2 Loosen 2pcs screws from SSD/HDD bracket.

Step 3 Put 2.5" SDD/HDD on HDD bracket and lock up storage with 4 pcs screws on the 2.5" SSD/HDD back side.

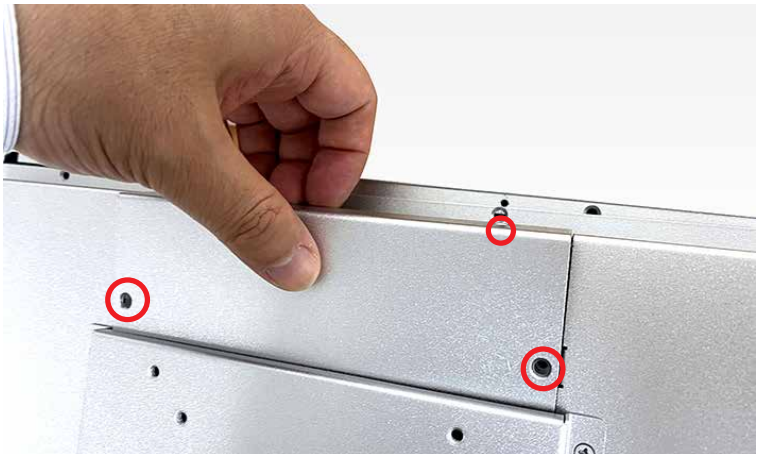
Note : Please notice direction of SATA connector when lock up storage device.

Step 4 Lock up HDD bracket on HDD cover with 2 pcs screws.

Step 5 Plug STAT cable and power cable on your storage.



Step 6 Put back storage cover with storage bracket to system and puck up it with 4 pcs screws.

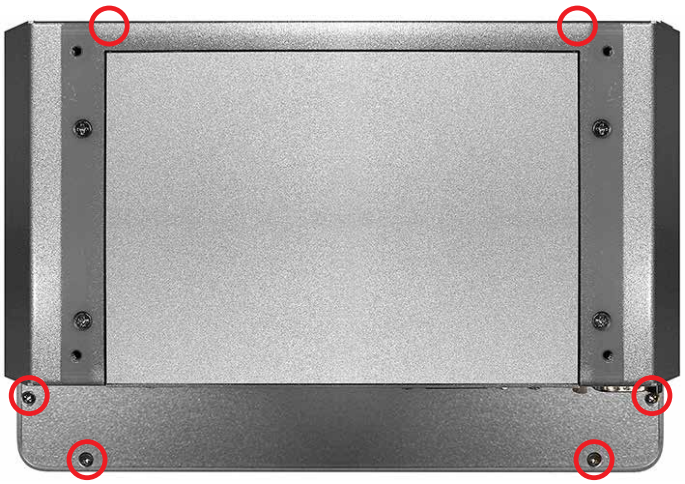


Note 1 : We strongly recommend you to buy wide temp. RAM and pre-install by VECOW for MTC-7000 series panel pc.

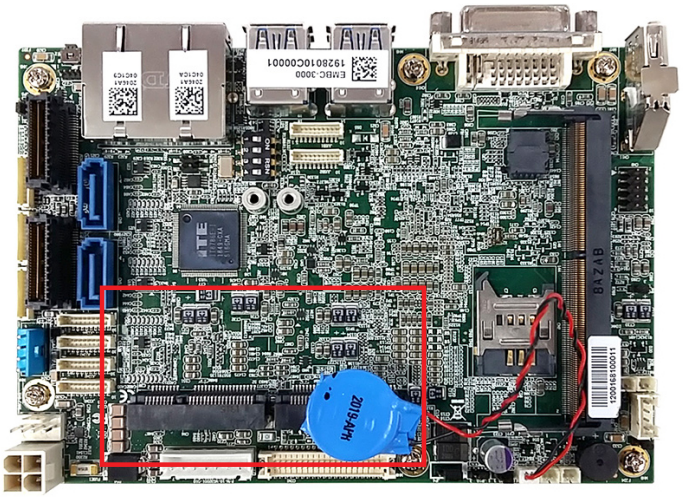
Note 2 : We strongly recommend you to buy storage and pre-install by VECOW for MTC-7010W, 10.1" Multi-touch panel pc.

3.2 Installing Mini PCIe Cards

Step 1 Remove 4pcs screws from system chassis.

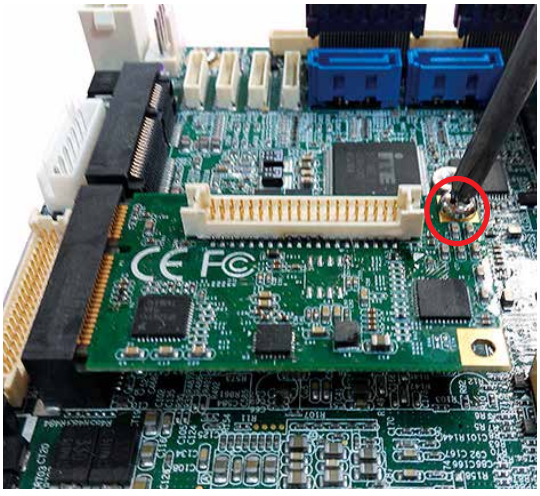


Step 2 Install Mini PCIe card into Mini PCIe socket.



Step 3 Install Mini PCIe card into the Mini PCIe slot.

Step 4 Fasten one M2.5 screw.



3.3 Mounting For MTC-7000 Series

Step 1 Put the panel PC into the wall or device you want.

Step 2 Put our panel mounting clips and fasten it to panel mount hole.

Step 3 Lock screw and finish.

4

BIOS SETUP

4.1 BIOS Setting

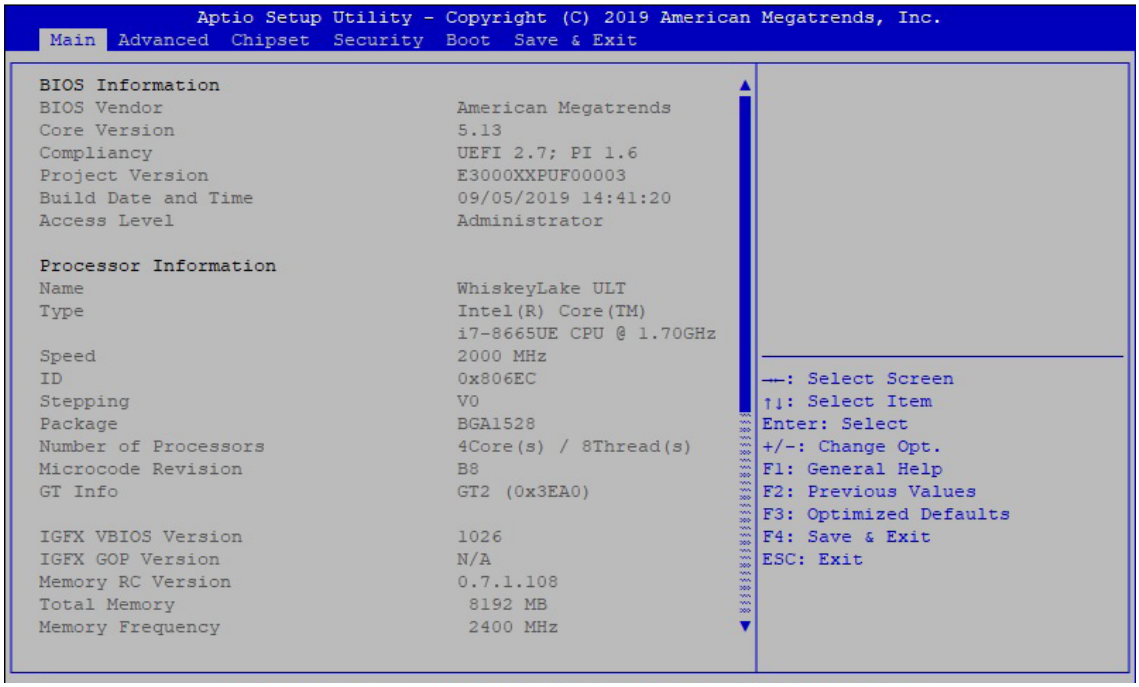


Figure 4-1 : Entering Setup Screen

BIOS provide an interface for user to check and change system configuration. The BIOS setup program is accessed by pressing the <Del> key when POST display output then main BIOS Setup menu screen is displayed.

4.2 Main Manu

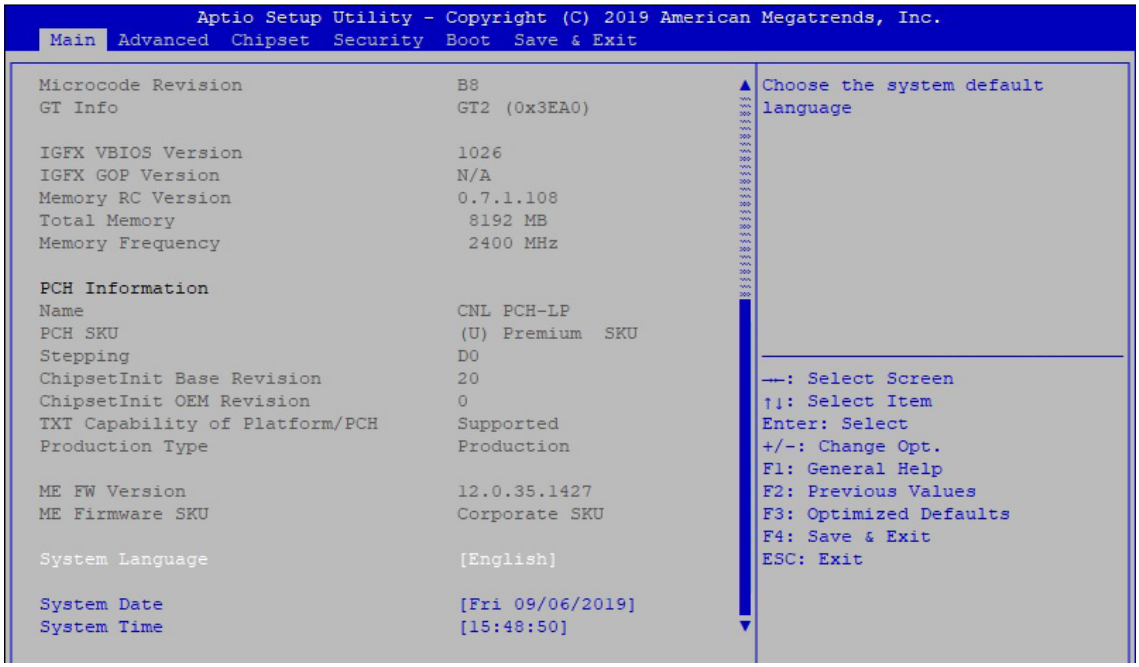


Figure 4-2 : BIOS Main Menu

The Main menu display BIOS version and system information. There are two options on Main menu.

System Date

Set the Date. Use Tab to switch between Date elements.

System Time

Set the Time. Use Tab to switch between Time elements.

4.3 Advanced Functions

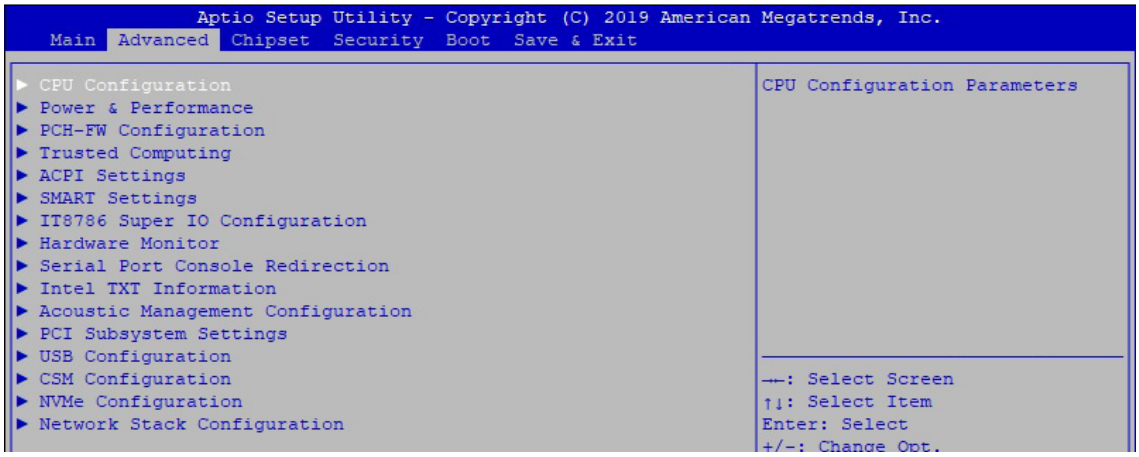


Figure 4-3 : BIOS Advanced Menu

Select Advanced tab to enter advanced BIOS Setup options such as CPU Configuration, SATA Configuration and USB Configuration.

4.3.1 CPU Configuration

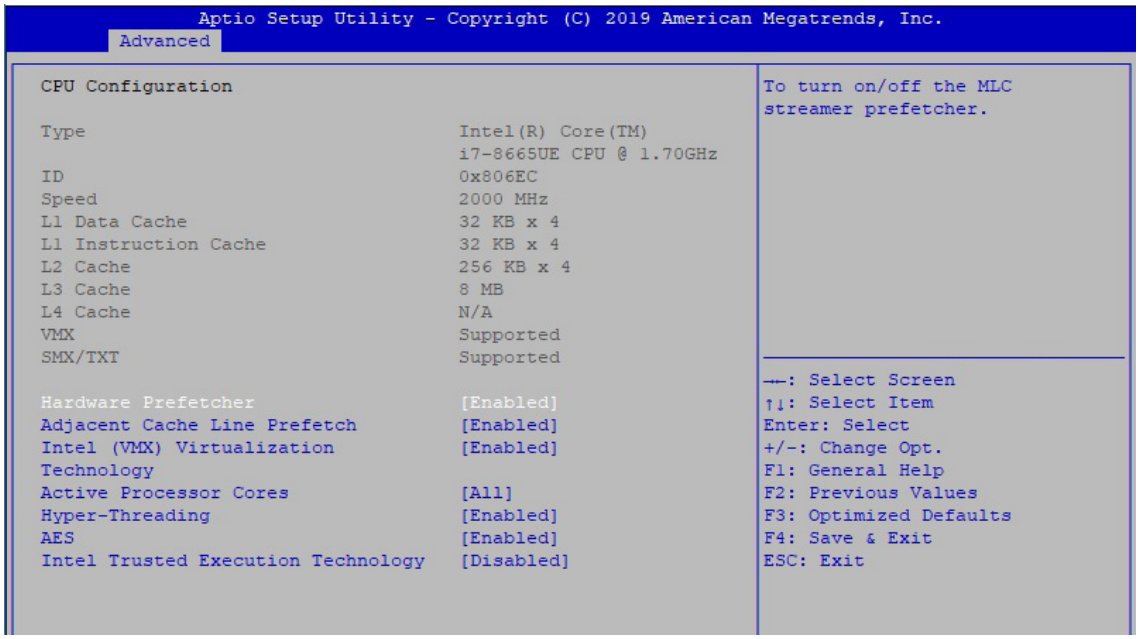


Figure 4-3-1 : CPU Configuration

Display CPU related information and features supported.

Hardware Prefetcher

To turn on/off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

To turn on/off prefetching of adjacent cache lines.

Intel (VMX) Virtualization Technology

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

Active Processor Cores

Number of cores to enable in each processor package.

Hyper-threading

Enabled or Disabled Hyper-Threading Technology.

AES

Enable/Disable AES (Advanced Encryption Standard).

Intel Trusted Execution Technology

Enables utilization of additional hardware capabilities provided by Intel Trusted Execution Technology.

Changed require a full power cycle to take effect.

4.3.2 Power & Performance

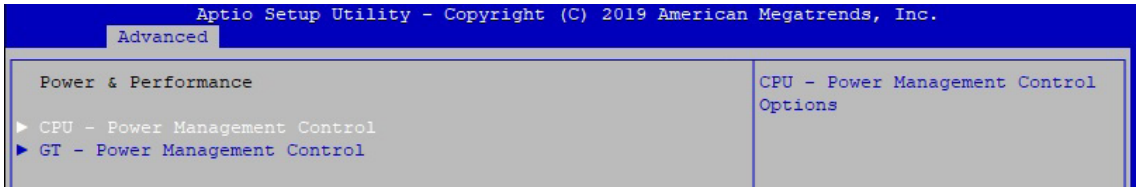


Figure 4-3-2 : Power & Performance

4.3.2.1 CPU - Power Management Control

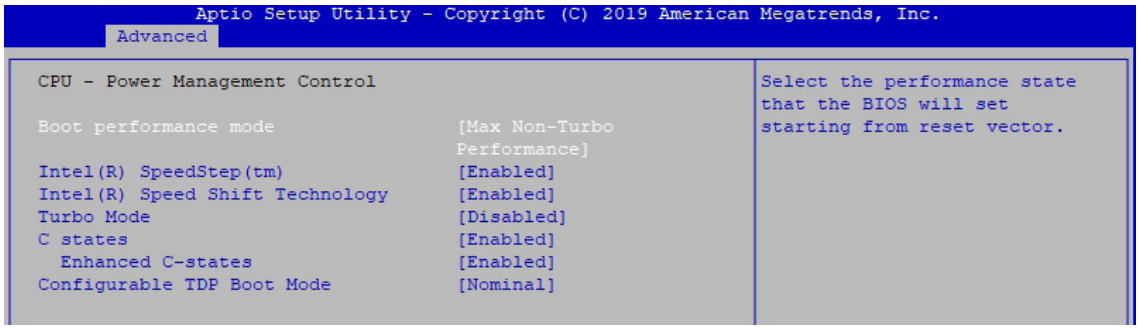


Figure 4-3-2-1 : CPU - Power Management Control

Boot performance mode

Select the performance state that the BIOS will set starting from reset vector.

Intel® SpeedStep™

Allow more than two frequency ranges to be supported.

Intel® Speed shift Technology

Enable/Disable Intel® Speed shift Technology support. Enabling will expose the CPPCv2 interface to allow for hardware controlled P-states.

Turbo Mode

Enable/Disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled).

C states

Enable or disable CPU Power management. Allows CPU to go to C states when it's no 100% utilized.

Enhanced C-states

Enable/disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.

Configurable TDP Boot Mode

Configurable TDP Mode as Nominal/Up/Down/Deactivate TDP selection. Deactivate option will set MSR to Nominal and MMIO to Zero. Configurable TDP allows operation in situation where extra cooling is available or situations where a cooler and quieter mode of operation is desired.

4.3.2.2 GT - Power Management Control

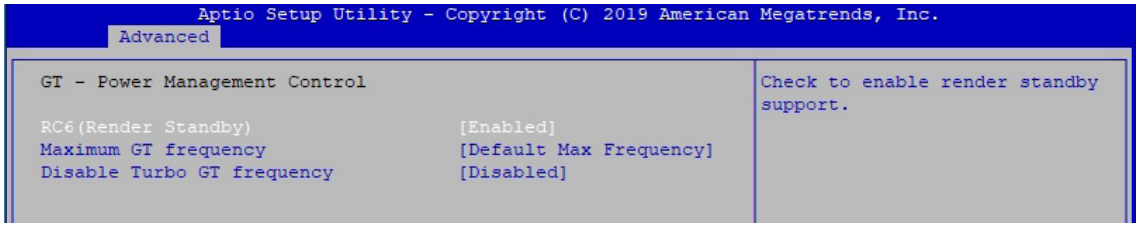


Figure 4-3-2-2 : GT - Power Management Control

RC6 (Render Standby)

Check to enable render standby support.

Maximum GT frequency

Maximum GT frequency limited by the user. Choose between 300MHz (RPN) and 1150 MHz (RP0). Value beyond the range will be clipped to min/max supported by SKU.

Disable Turbo GT frequency

Enabled : Disables Turbo GT frequency. Disabled : GT frequency is not limited.

4.3.3 PCH-FW Configuration

Figure 4-3-3 : PCH-FW Settings

ME State

When Disabled ME will be put into ME Temporarily Disabled Mode.

AMT BIOS Features

When disabled AMT BIOS Features are no longer supported and user is no longer able to access MEBx Setup. Note : This option does not disable Manageability Features in FW.

AMT Configuration

Configure Intel Active Management Technology Parameters.

ME Unconfig on RTC Clear

Disabling this option will cause ME not be unconfigured on RTC clear.

4.3.4 Trusted Computing

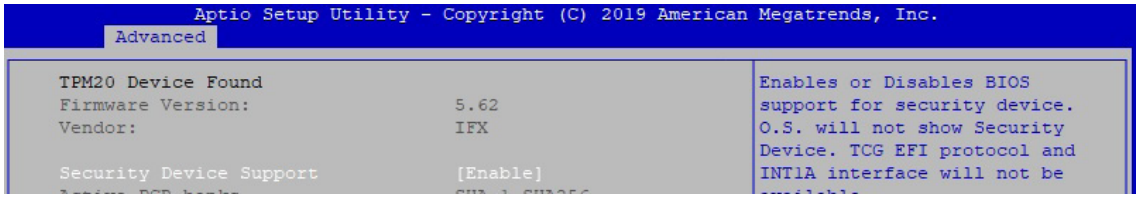
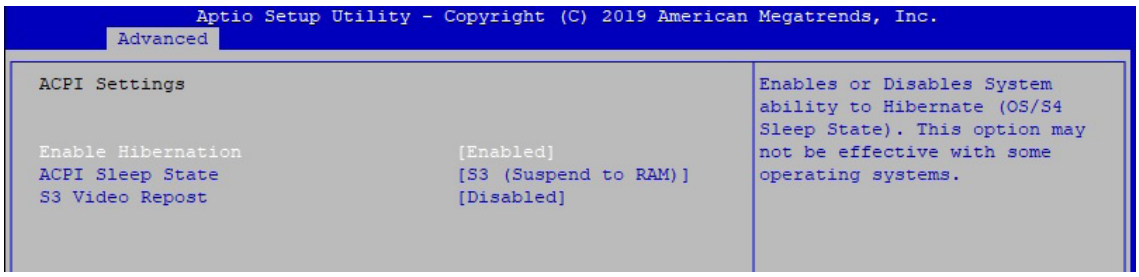


Figure 4-3-4 : Trusted Computing

Control the TPM device status and display related information if TPM chip is present.

4.3.5 ACPI Settings



igure 4-3-5 : ACPI Settings

Enable Hibernation :

Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

ACPI Sleep State

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

S3 Video Repost

Enable or Disable S3 Video Repost.

4.3.6 SMART Settings

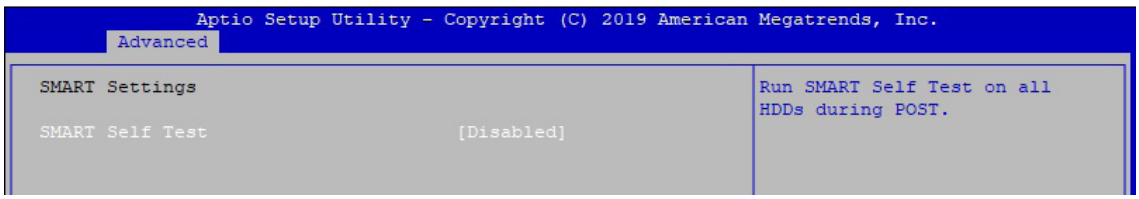


Figure 4-3-6 : SMART Settings

SMART Self Test

Run SMART Self-test on all HDDs during POST.

4.3.7 IT8786 Super IO Configuration

Figure 4-3-7 : Super IO Settings

Serial Port 1 Configuration

Set Parameters of Serial Port 1 (COM1).

Serial Port 2 Configuration

Set Parameters of Serial Port 2 (COM2).

Serial Port 3 Configuration

Set Parameters of Serial Port 3 (COM3).

Serial Port 4 Configuration

Set Parameters of Serial Port 4 (COM4).

4.3.8 Hardware Monitor

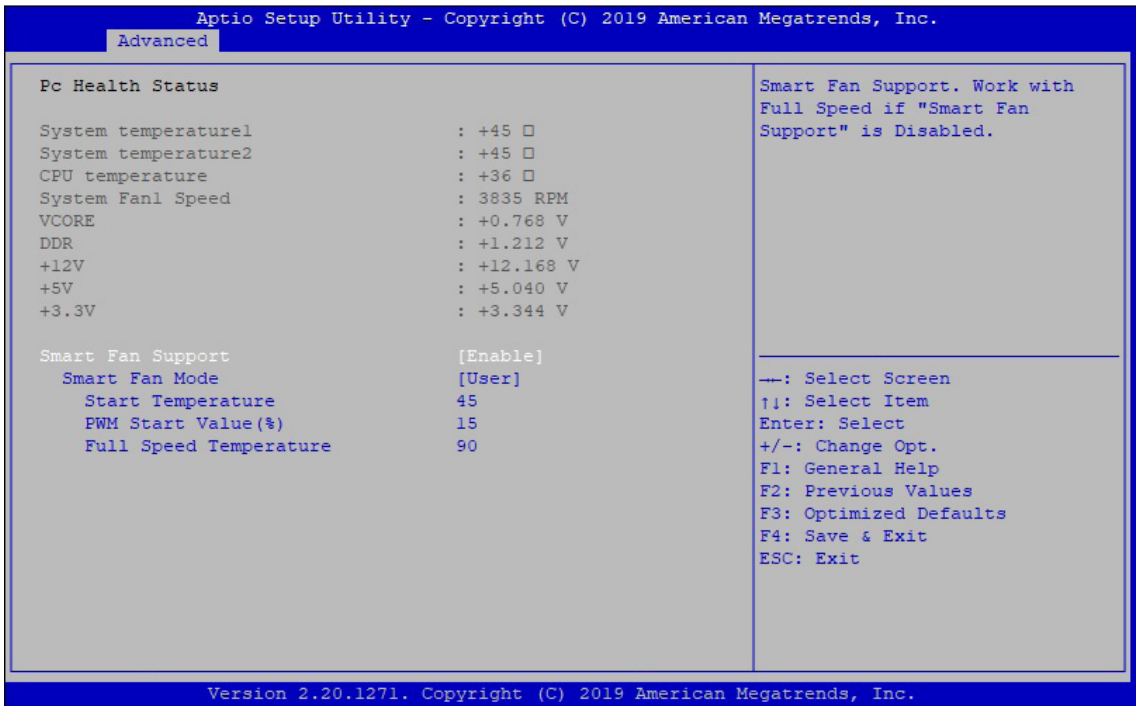


Figure 4-3-8 : Hardware Monitor Settings

The IT8786 SIO features an enhanced hardware monitor providing thermal, fan speed and system voltages status monitoring.

Smart Fan Support

Smart Fan Support. Work with full Speed if "Smart Fan Support" is Disabled.

Smart Fan Mode

Default : Using the default smart fan table.
User : Setting parameters by user.

Start Temperature

Temperature Limit value of Fan Start (Degree C).
(Range : 10-80)

PWM Start Value (%)

Default PWM Value of Fan.
(Range : 15%-100%)

Full Speed Temperature

Temperature Limit value of Fan Full Speed (Degree C).
(Range : 50-90)

4.3.9 Serial Port Console Redirection

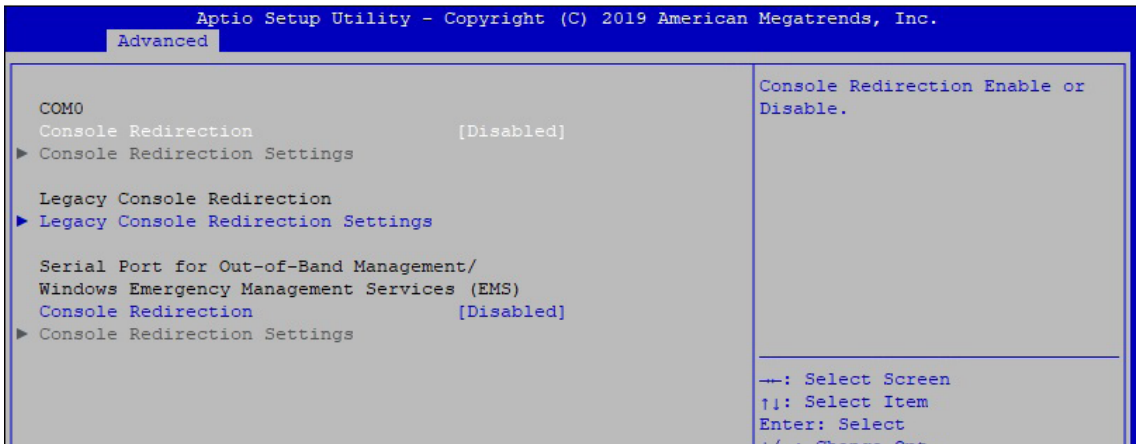


Figure 4-3-9 : Serial Port Console Redirection Settings

Console Redirection

Console Redirection Enable or Disable.

Console Redirection Settings

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Legacy Console Redirection Settings

Legacy Console Redirection Settings

Serial Port for Out-of-Band management/Windows Emergency Management Services (EMS)

Console Redirection Enable or Disable.

4.3.10 Intel TXT Information

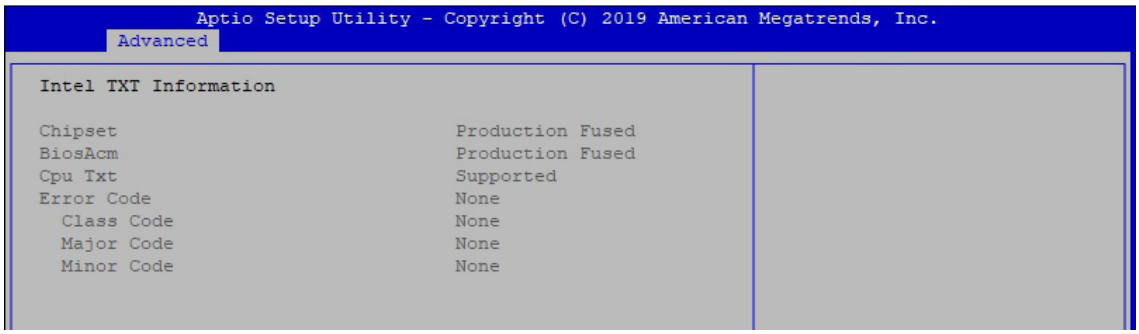


Figure 4-3-10 : Intel TXT Information

Display Intel TXT information.

4.3.11 Acoustic Management Configuration

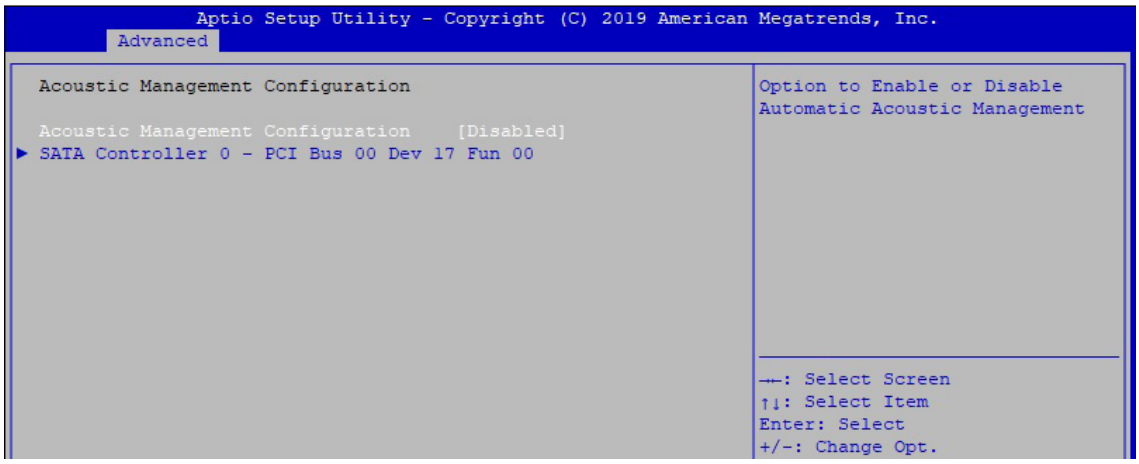


Figure 4-3-11 : Acoustic Management Settings

Acoustic Management Configuration

Option to Enable or Disable Automatic Acoustic Management.

4.3.12 PCI Subsystem Settings

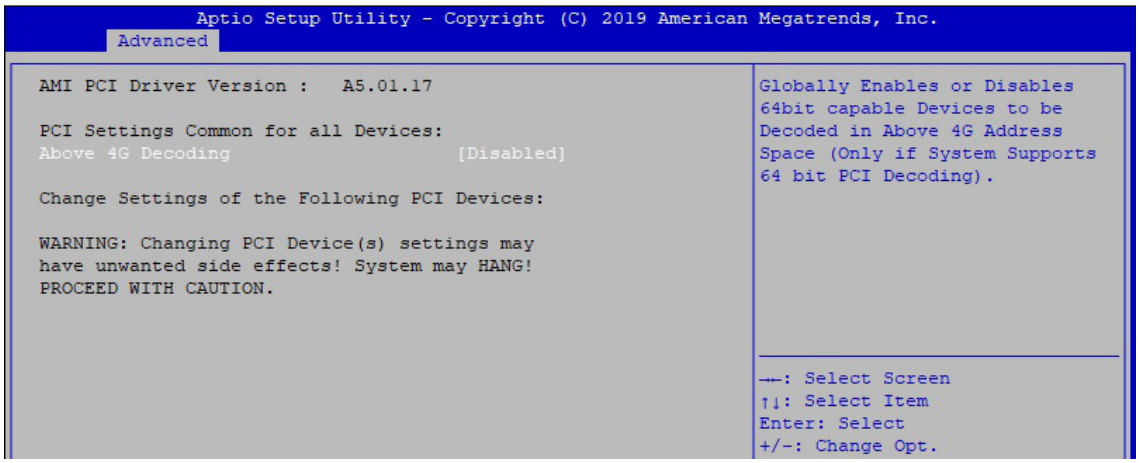


Figure 4-3-12 : PCI Subsystem Settings

Above 4G Decoding

Globally Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).

4.3.13 USB Configuration

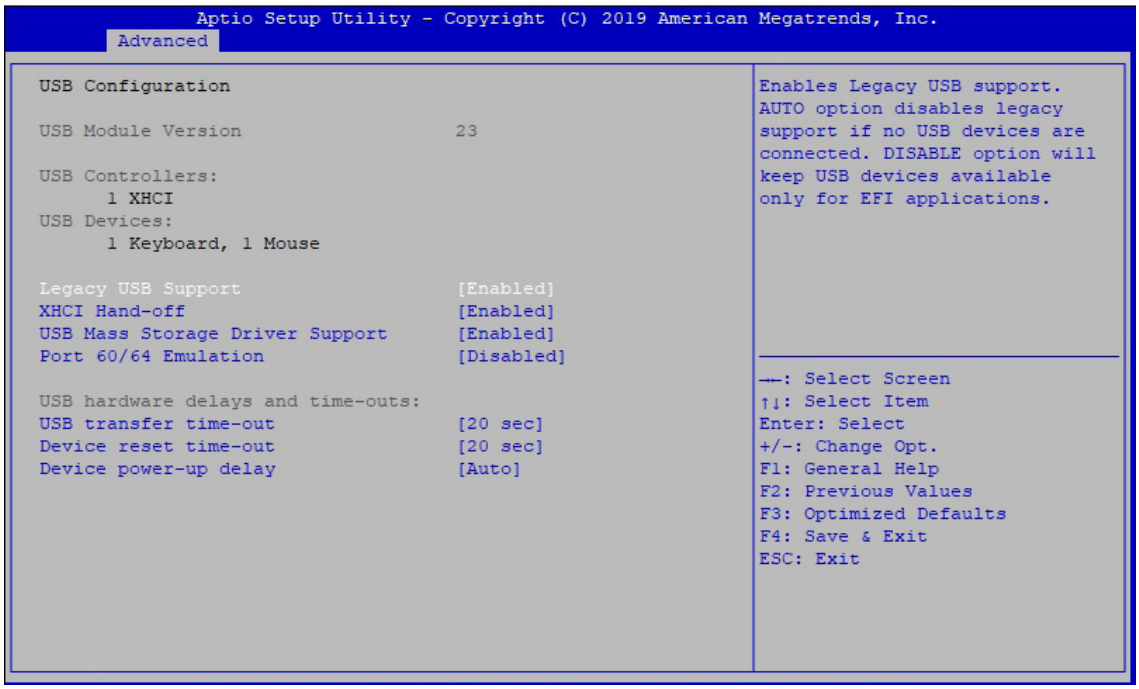


Figure 4-3-13 : USB Settings

Legacy USB Support

Enables Legacy USB support.
AUTO option disables legacy support if no USB devices are connected.
ISABLE option will keep USB devices available only for EFI applications.

XHCI Hand-off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

USB Mass Storage Driver Support

Enable/Disable USB Mass Storage Driver Support.

Port 60/64 Emulation

Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

USB transfer time-out

The time-out value for Control, Bulk, and Interrupt transfers.

Device reset time-out

USB mass storage device Start Unit command time-out.

Device power-up delay

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

4.3.14 CSM Configuration

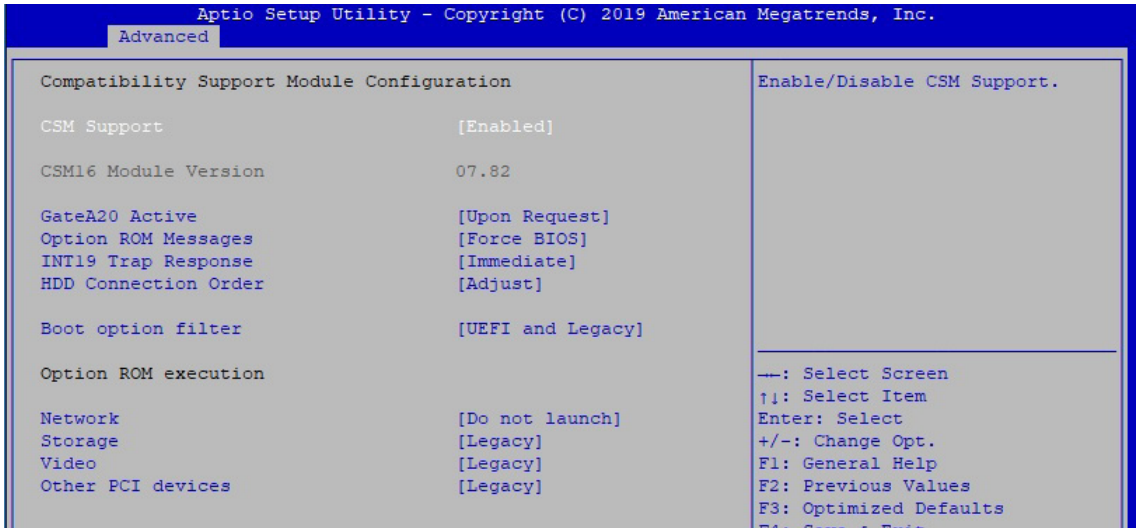


Figure 4-3-14 : CSM Settings

CSM Support

Enable/Disable CSM Support.

GateA20 Active

UPON REQUEST - GA20 can be disabled using BIOS services.
ALWAYS - do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages

Set display mode for Option ROM.

INT19 Trap Response

BIOS reaction on INT19 trapping by Option ROM :
IMMEDIATE - execute the trap right away;
POSTPONED - execute the trap during legacy boot.

HDD Connection Order

Some OS require HDD handles to be adjusted, i.e. OS is installed on drive 80h.

Boot option filter

This option controls Legacy/UEFI ROMs priority.

Network

Controls the execution of UEFI and Legacy PXE OpROM.

Storage

Controls the execution of UEFI and Legacy Storage OpROM.

Video

Controls the execution of UEFI and Legacy Video OpROM.

Other PCI devices

Determines OpROM execution policy for devices other than Network, Storage, or Video.

4.3.15 NVMe Configuration

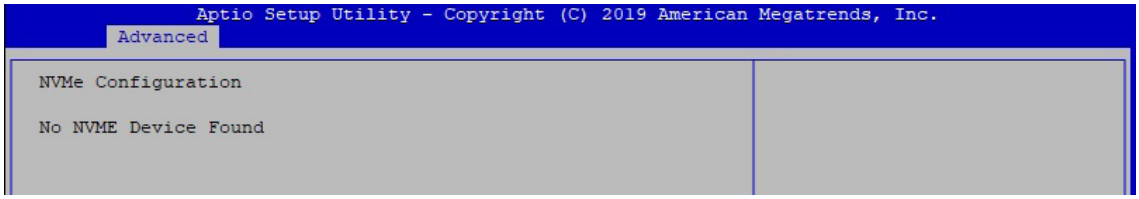


Figure 4-3-15 : NVMe Configuration

Display NVMe Controller and drive information.

4.3.16 Network Stack Configuration

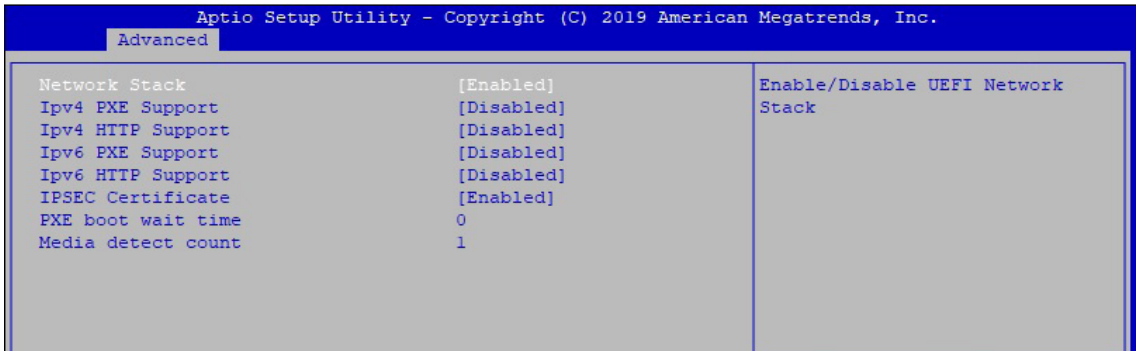


Figure 4-3-16 : Network Stack Settings

Network Stack

Enable/Disable UEFI Network Stack.

Ipv4 PXE Support

Enable/disable IPv4 PXE boot support.

Ipv4 HTTP Support

Enable/disable IPv4 HTTP boot support.

Ipv6 PXE Support

Enable/disable IPv6 PXE boot support.

Ipv6 HTTP Support

Enable/disable IPv6 HTTP boot support.

IPSEC Certificate

Support to Enable/disable IPSEC certificate for Ikev.

PXE boot wait time

Wait time to press ESC key to abort the PXE boot.

Media detect count

Number of times presence of media will be checked.

4.4 Chipset Functions

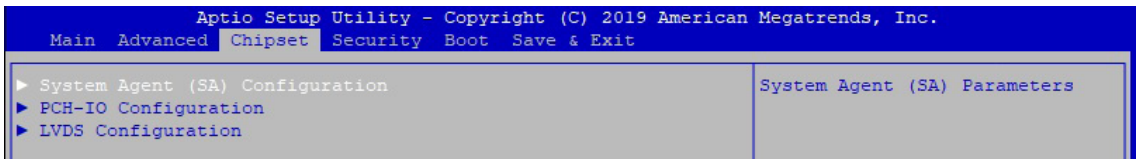


Figure 4-4 : BIOS Chipset Menu

System Agent (SA) Configuration
System Agent (SA) Parameters.

PCH-IO Configuration
PCH Parameters.

LVDS Configuration
LVDS Configuration.

4.4.1 System Agent (SA) Configuration

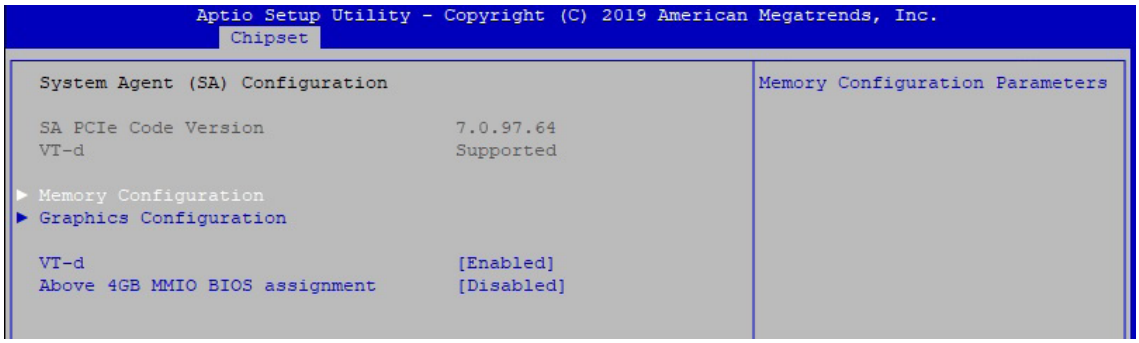


Figure 4-4-1 : System Agent Settings

VT-d
VT-d capability.

Above 4GB MMIO BIOS assignment
Enable/Disable above 4GB MemoryMappedIO BIOS assignment. This is disabled automatically when Aperture Size is set to 2048MB.

4.4.1.1 Memory Configuration

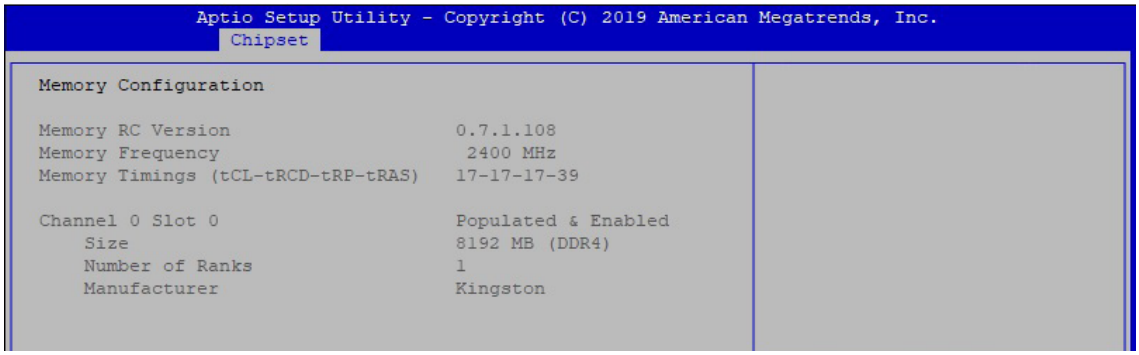


Figure 4-4-1-1 : Memory Information

Display memory information.

4.4.1.2 Graphics Configuration

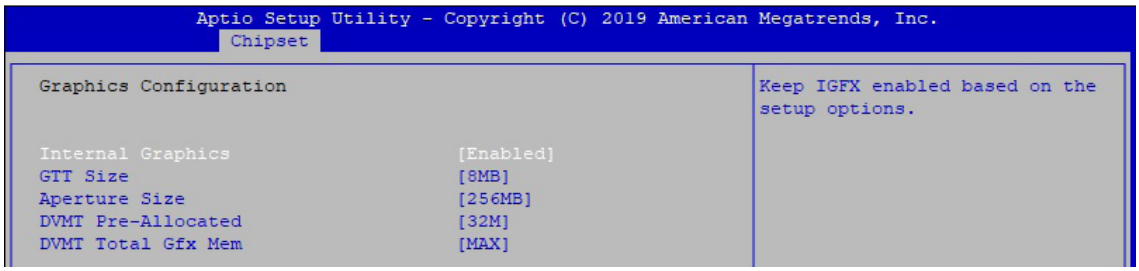


Figure 4-4-1-2 : Graphics Settings

Internal Graphics
Keep IGFX enabled based on the setup options.

GTT Size
Select the GTT size.

Aperture Size
Select the aperture size.

Note : Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM support.

DVMT Pre-Allocated
Select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.

DVMT Total Gfx Mem
Select DVMT 5.0 total graphic memory size used by the internal graphics device.

4.4.2 PCH-IO Configuration

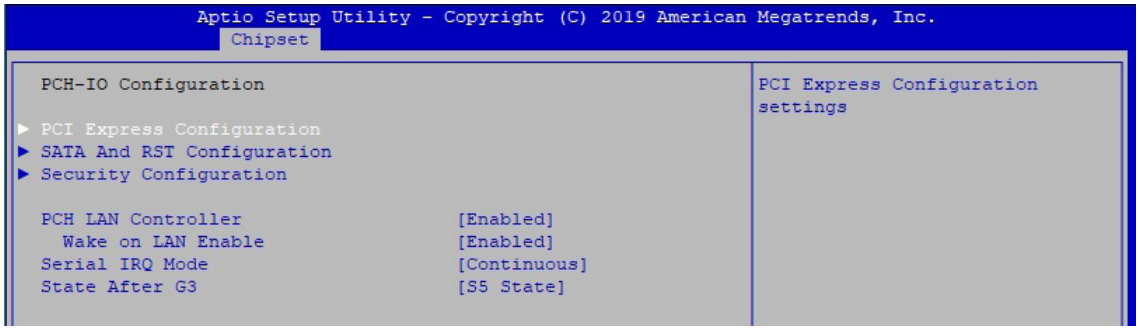


Figure 4-4-2 : PCH-IO Settings

PCH LAN Controller
Enable or disable onboard NIC.

Wake on LAN
Enable or disable integrated LAN to wake the system. (The Wake On LAN cannot be disabled if ME is on at Sx state.).

Serial IRQ Mode
Configure Serial IRQ Mode.

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

4.4.2.1 PCI Express Configuration of PCH-IO

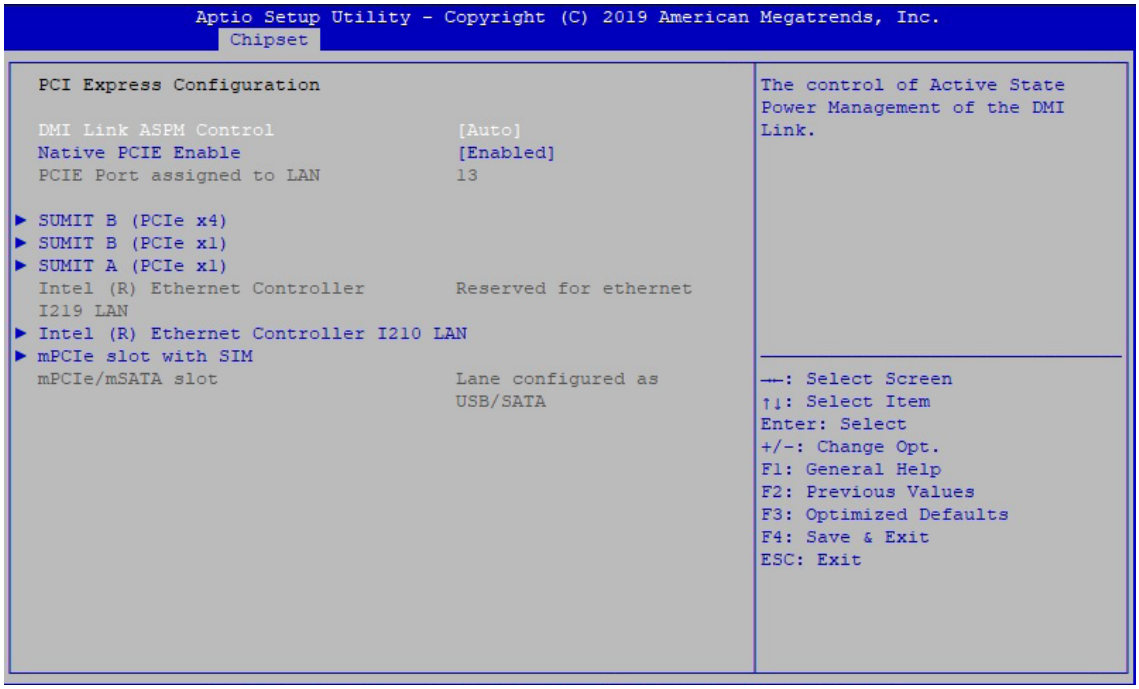


Figure 4-4-2-1 : PCI Express Configuration

DMI Link ASPM Control

The control of Active State Power Management of the DMI Link.

Native PCIE Enable

PCI Express Native Support Enable/Disable. This feature is available in vista and beyond Windows OS.

PCI Express device settings

BIOS options for PCI Express device setting.

4.4.2.2 SATA And RST Configuration

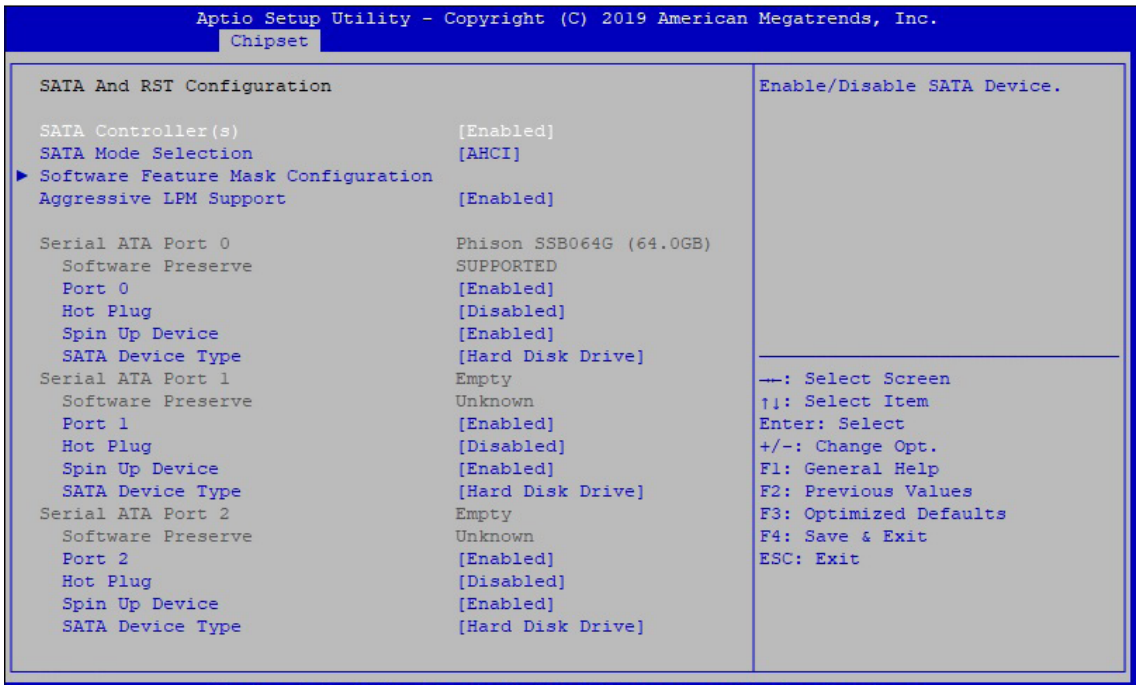


Figure 4-4-2-2 : SATA Devices Settings

SATA Controller(s)

Enable or disable SATA Device.

SATA Mode Selection

Determines how SATA controllers operate.

Software Feature Mask Configuration

RST Legacy OPROM/RST UEFI driver will refer to the SWFW configuration to enable/disable the storage features.

Aggressive LPM Support

Enable PCH to aggressively enter link power state.

Options for each SATA port.

Port n

Enable or disable SATA port.

Hot Plug

Designates this port as Hot Pluggable.

Spin Up Device

On an edge detect from 0 to 1, the PCH starts a COMRESET initialization sequence to the device.

SATA Device Type

Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

4.4.2.3 BIOS Security Configuration of PCH-IO

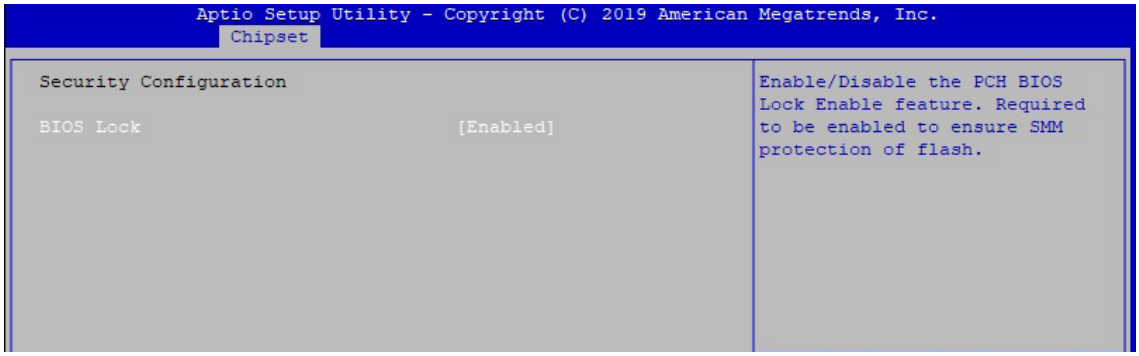


Figure 4-4-2-3 : BIOS Security Settings

BIOS Lock

Enable/Disable the PCH BIOS Lock Enable (BLE bit) feature.

4.4.3 LVDS Configuration

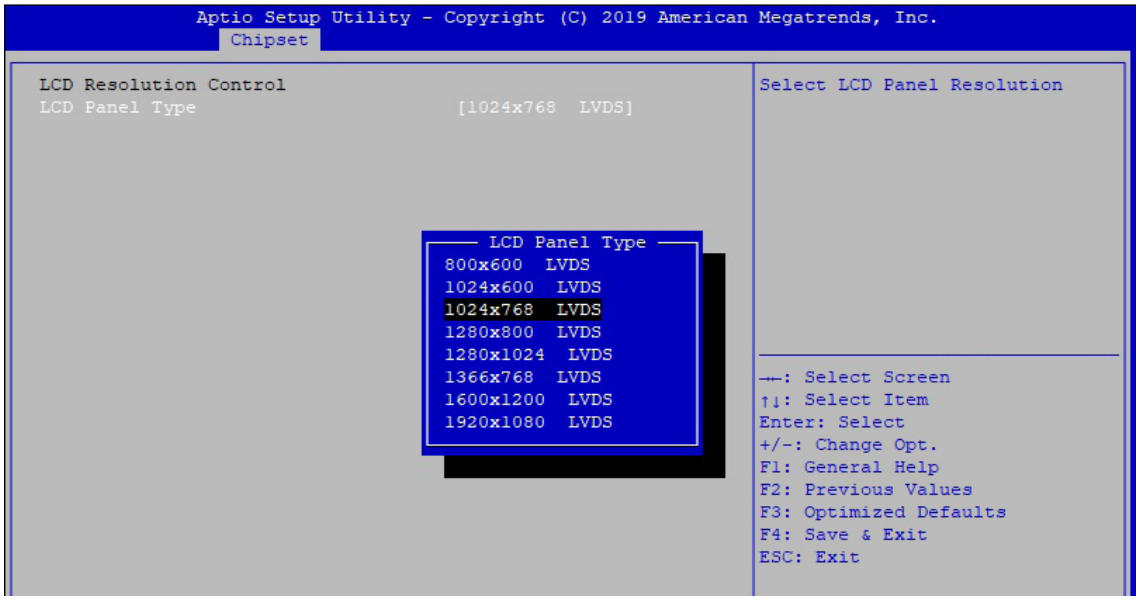


Figure 4-4-3 : LVDS Panel Settings

The LVDS Configuration option will be present if LVDS panel is connected on system.

LCD Panel Type

Select LCD Panel Resolution.

4.5 Security

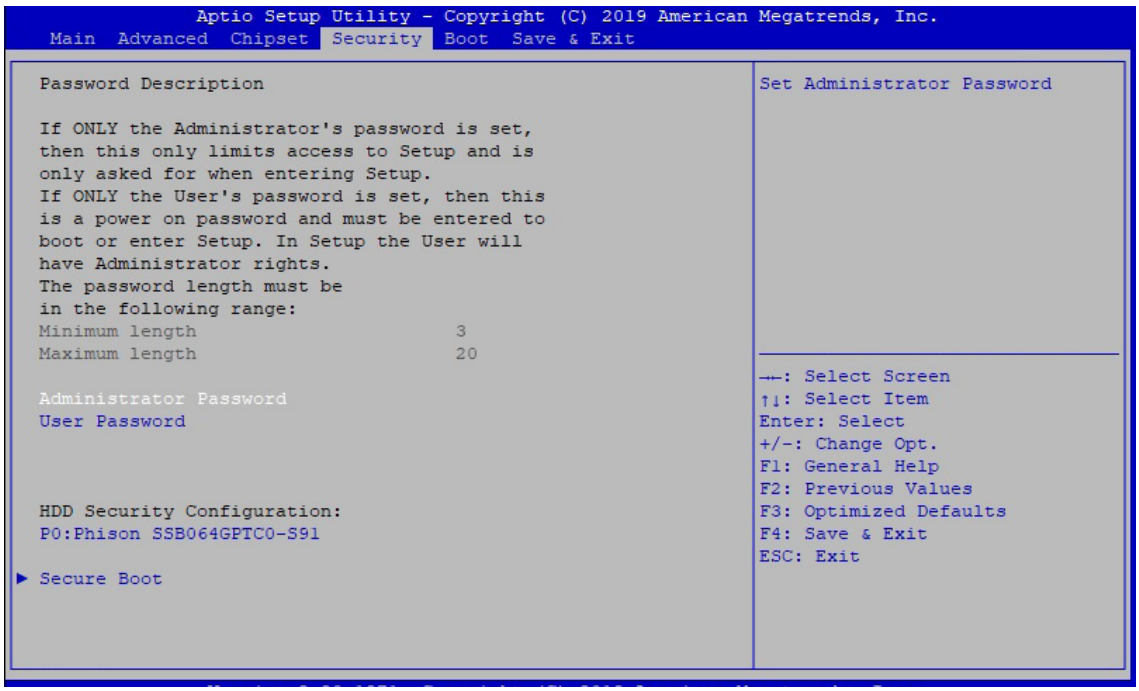


Figure 4-5 : BIOS Security Menu

Administrator Password

Set administrator password.

User Password

Set user password.

Secure Boot

Secure Boot coonfiguration.

4.5.1 HDD Security Configuration

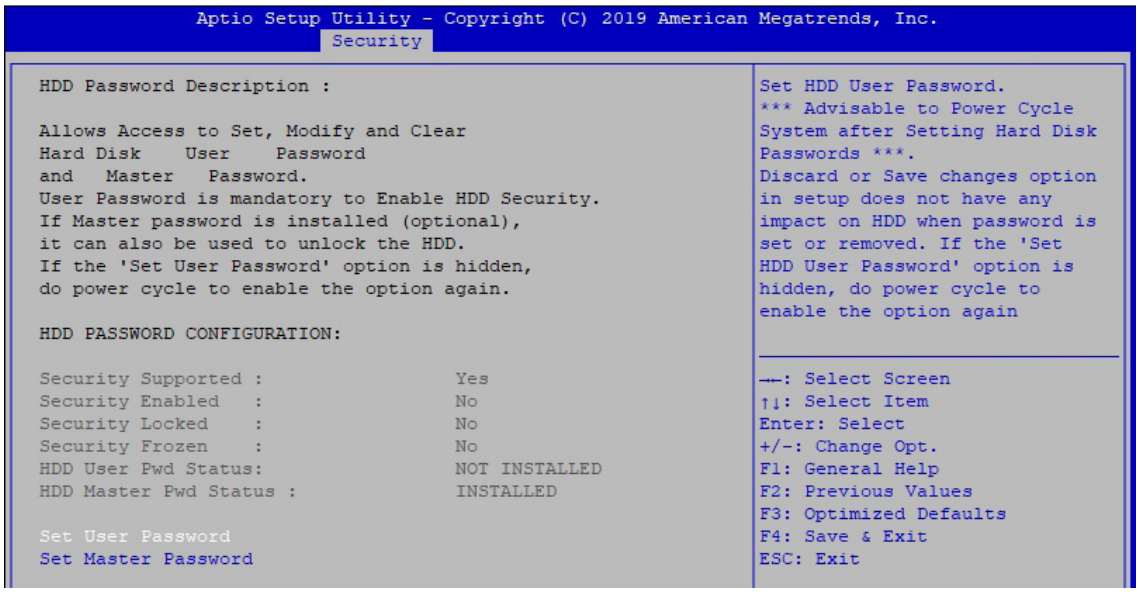


Figure 4-5-1 : HDD Security Settings

Set User Password

Set HDD user password.

*** Advisable to power cycle system after setting hard disk passwords***.

Discard or save changes option in setup does not have any impact on HDD when password is set or removed. If the 'Set HDD user Password' option is gray, do power cycle to enable the option again.

4.5.2 Security Boot

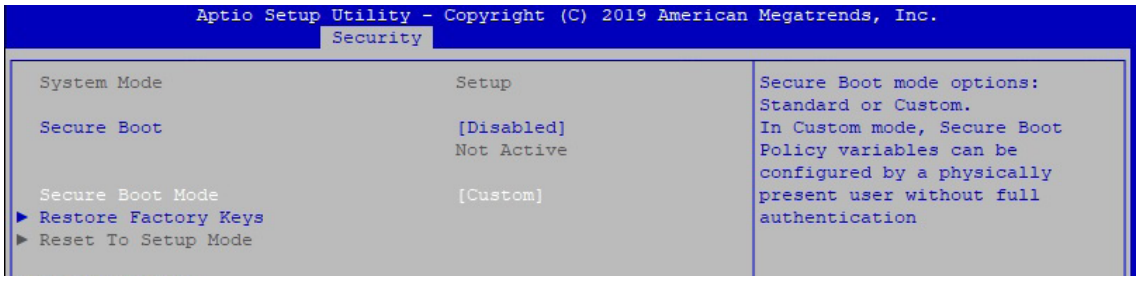


Figure 4-5-2 : Security Boot Settings

Secure Boot

Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.

Secure Boot Mode

Secure Boot mode options : Standard or Custom.
In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

Key Management

Enables expert users to modify Secure Boot Policy variables without full authentication.

4.6 Boot Functions

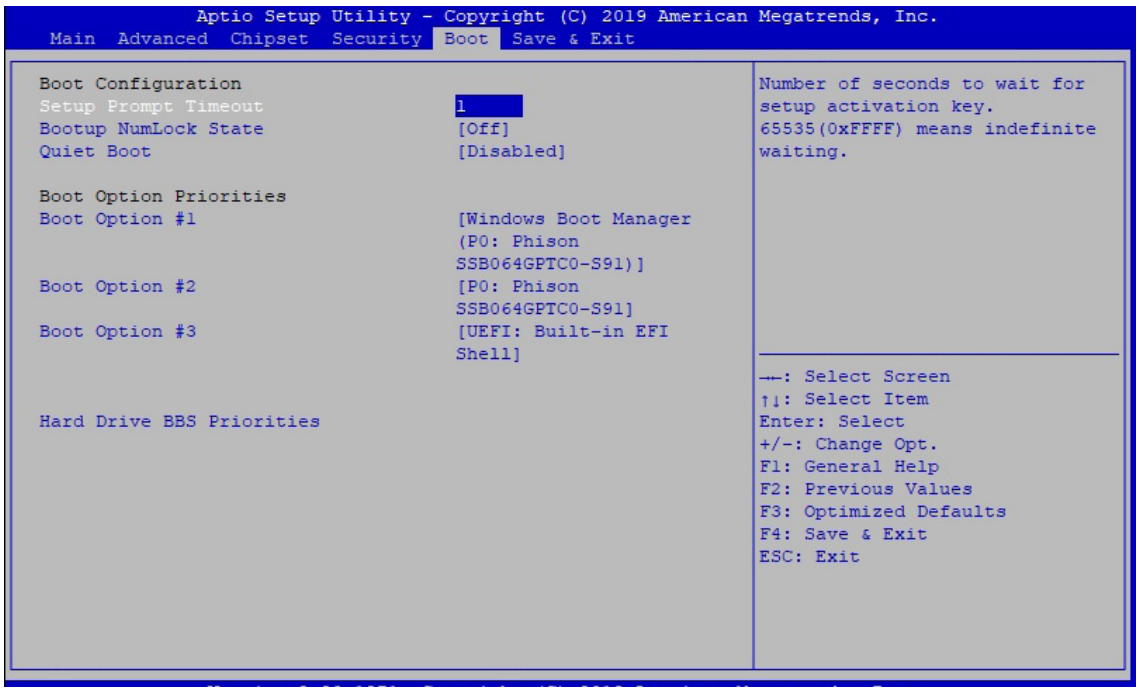


Figure 4-6 : BIOS Boot Menu

Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

Bootup NumLock State

Select the keyboard NumLock state.

Quiet Boot

Enables or disables Quiet Boot option.

Boot Option #x

Sets the system boot order.

Hard Drive BBS Priorities

Set the order of the legacy devices in this group.

4.7 Save & Exit

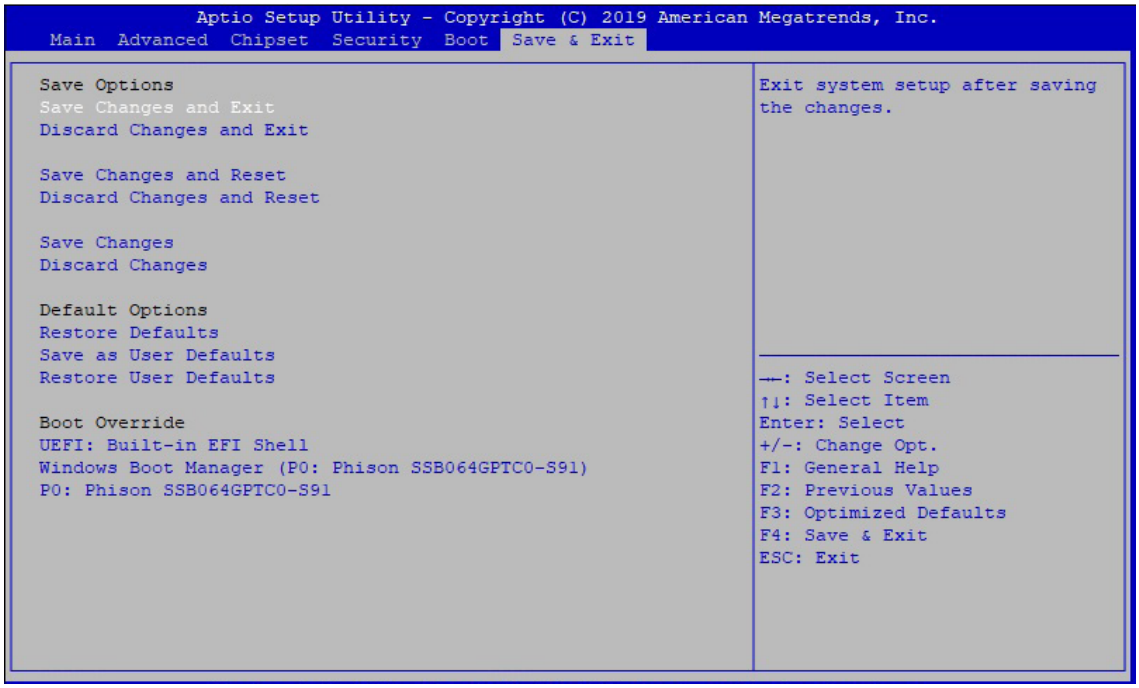


Figure 4-7 : BIOS Save and Exit Menu

Save Changes and Exit

Exit system setup after saving the changes.

Discard Changes and Exit

Exit system setup without saving any changes.

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Save Changes

Save Changes done so far to any of the setup options.

Discard Changes

Discard Changes done so far to any of the setup options.

Default Options :

Restore Defaults

Restore/Load Default values for all the setup options.

Save as User Defaults

Save the changes done so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all the setup options.

APPENDIX A : SOFTWARE GUIDE

A.1 Function Description

The MTC-7000 offers a watchdog timer.

A.2 Software Package Contain

Distribution folder include x32 and x64 versions, use batch file for installation.

There are included as followed :

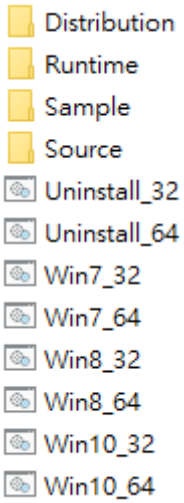
Win7_32.bat :
Installation for 32-bit driver

Win7_64.bat :
Windows update package which driver required (need to restart), and Installation for 64-bit driver

Win8_32.bat, Win8_64.bat :
Installation for driver, and guideline to Framework 3.5 distribution for sample

Win10_32.bat, and Win10_64.bat :
Installation for driver, and installation to Framework 3.5 distribution for sample

Uninstall_32.bat, and Uninstall_64.bat :
Uninstallation for driver



Run batch file as Administrator.

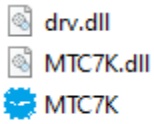
Support Windows 7 above.

Make sure it is Windows version before installation.

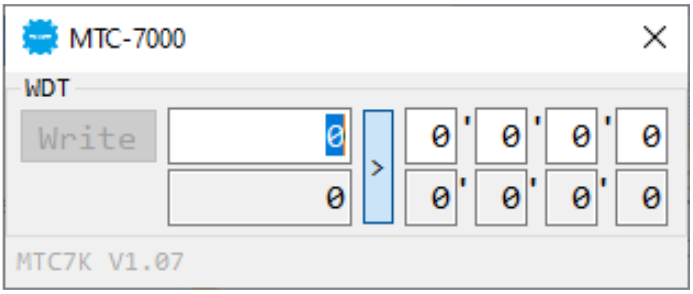
Runtime folder includes head file for software developer or System Integration. Sample folder includes sample program, driver library, and API library. Source folder includes sample program source code that compile on Visual Studio 2008.

A.3 Sample

Sample folder include x32 and x64 versions, as shown below :



Sample MTC-7000.exe, as shown below :



WDT group :

Write button:
Set WDT when WDT setup text is valid.
Stop button:
Cancel WDT and counting.
Use after Write button action.
WDT setup text:
User setting, WDT value, unit: second.
Use for Write button activate.
WDT counting text (read only):
WDT counting by program timer after set WDT.
Shown after Write button action.
WDT setup day format texts (user setting):
User setting, WDT value, format: day‘hour’minute’second.
WDT counting day format text (read only):
WDT counting, format: day‘hour’minute’second.

B

APPENDIX B : SOFTWARE FUNCTIONS

B.1 Driver API Guide

In Runtime folder, on MTC7K.h :

_DLL_IMPORT_ definition is used on LoadLibrary API for MTC7K.dll.
MTC7K _EXPORTS definition is used on MTC7K.dll building.

BOOL Initial()
Initial machine for watchdog timer
Return :
TRUE (1) : Success;
FALSE (0) : Fail (Driver not exists, or initial error (version is too old, or machine not match))

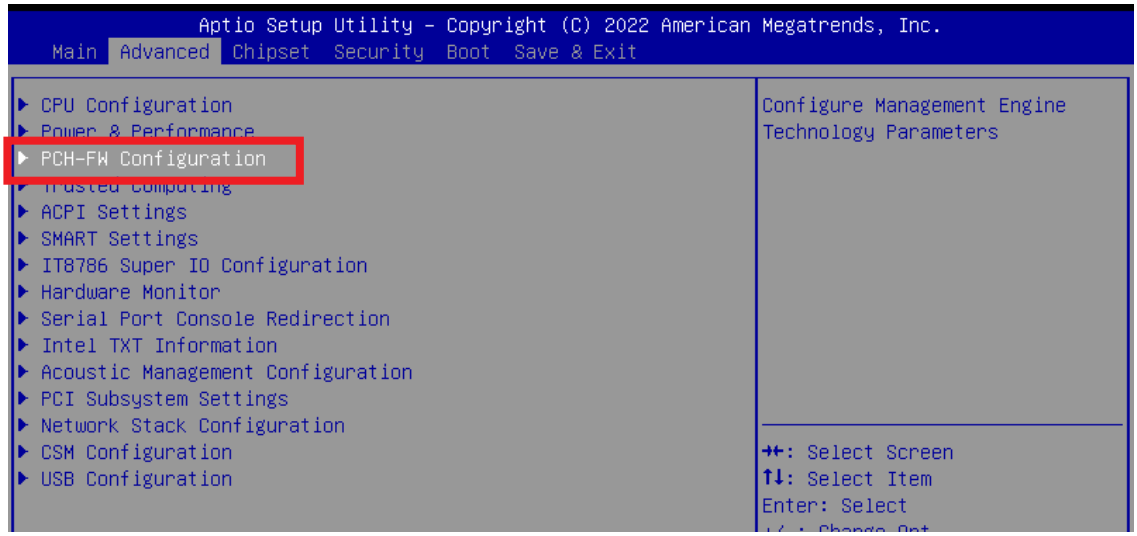
BOOL GetWDT(DWORD *WDT)
Get watchdog timer setup
WDT : watchdog timer setup
Unit : second. (Range : 0 ~ 65535 sec, 1093 ~ 65535 min (=65580 ~ 3932100 sec))
Return :
TRUE (1) : Success;
FALSE (0) : Fail (Initial error, or call by pointer error, or hardware problem)

BOOL SetWDT(DWORD WDT)
Set watchdog timer setup
WDT : watchdog timer setup
Unit : second. (Range : 1 ~ 65535 sec, 1093 ~ 65535 min (=65580 ~ 3932100 sec))
Return :
TRUE (1) : Success;
FALSE (0) : Fail (Initial error, or setup 0 error, or hardware problem)

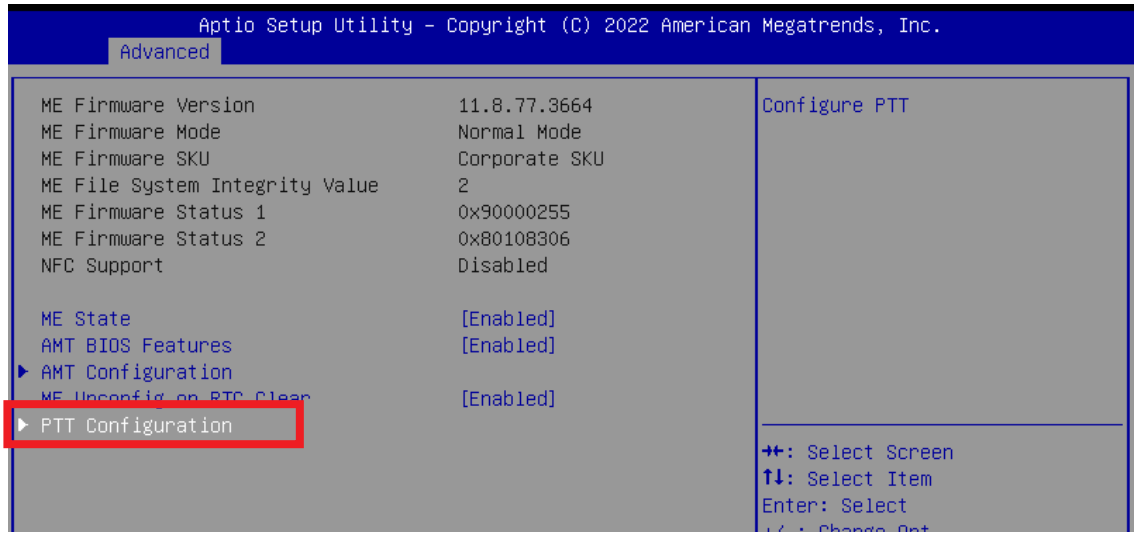
BOOL CancelWDT()
Cancel watchdog timer
Return :
TRUE (1) : Success;
FALSE (0) : Fail (Initial error, or hardware problem)

APPENDIX C : Install Win11 (BIOS TPM Setting)

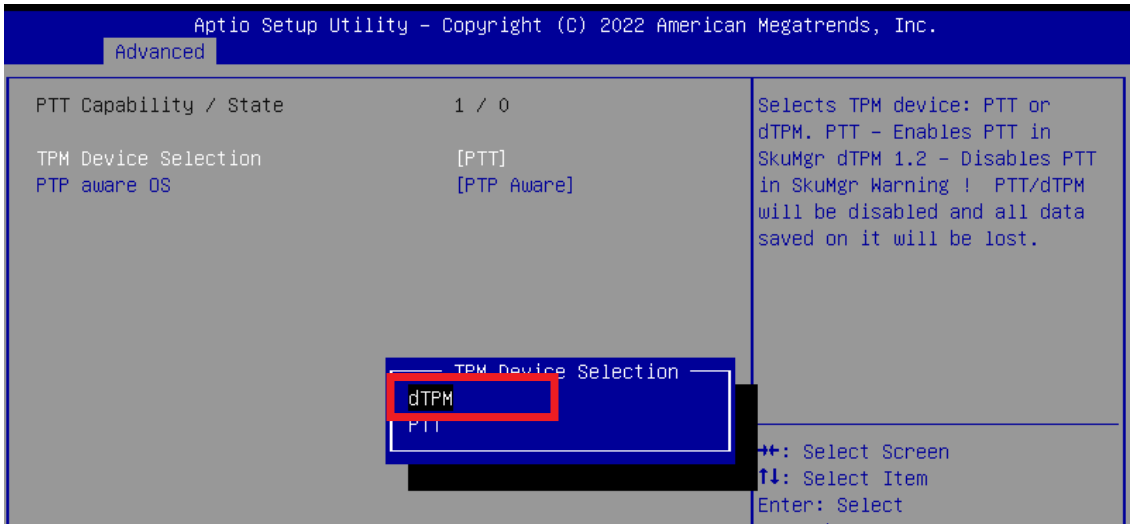
Step 1 Click on “Advanced”, then click on “PCH-FW Configuration”

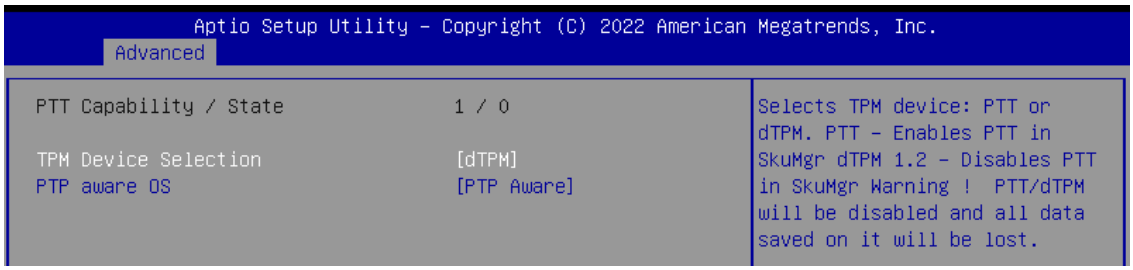


Step 2 Click on “PTT Configuration”

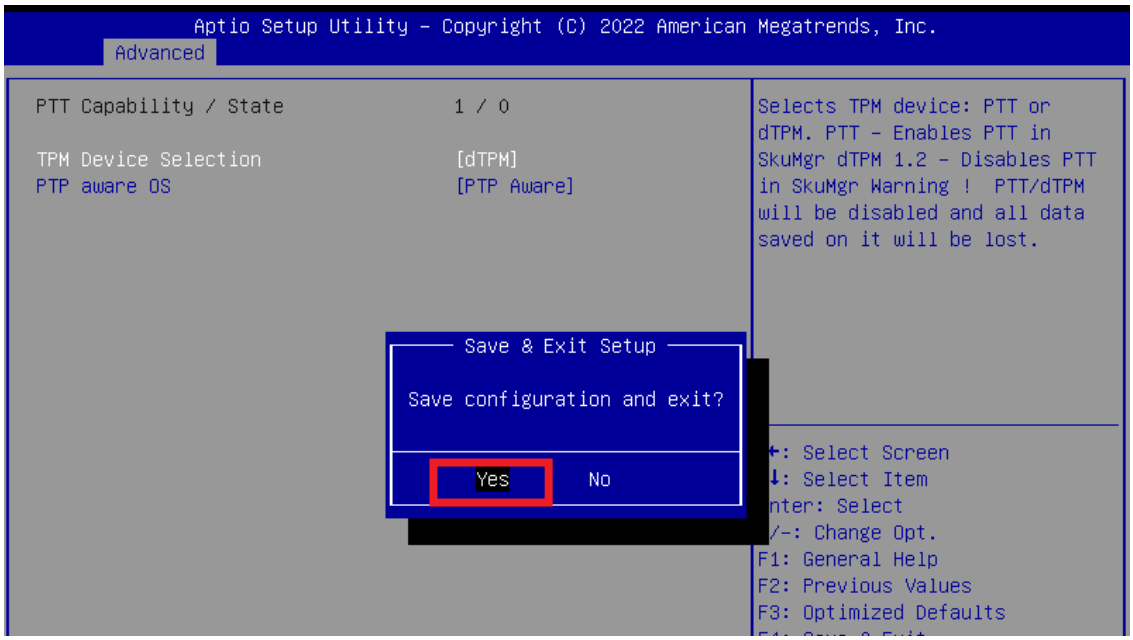


Step 3 Click on “dTPM” (TPM Device Selection)

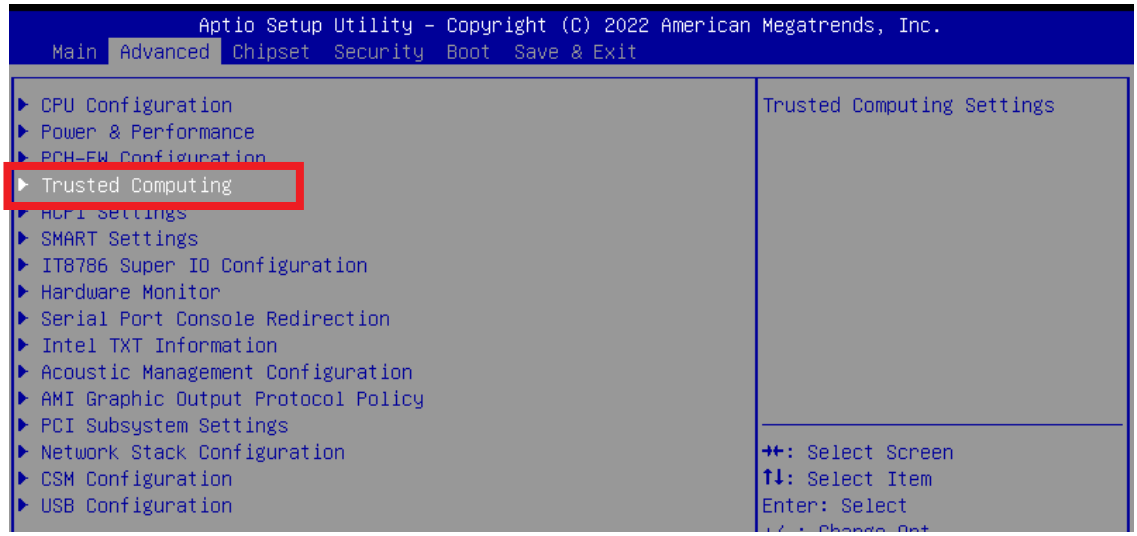




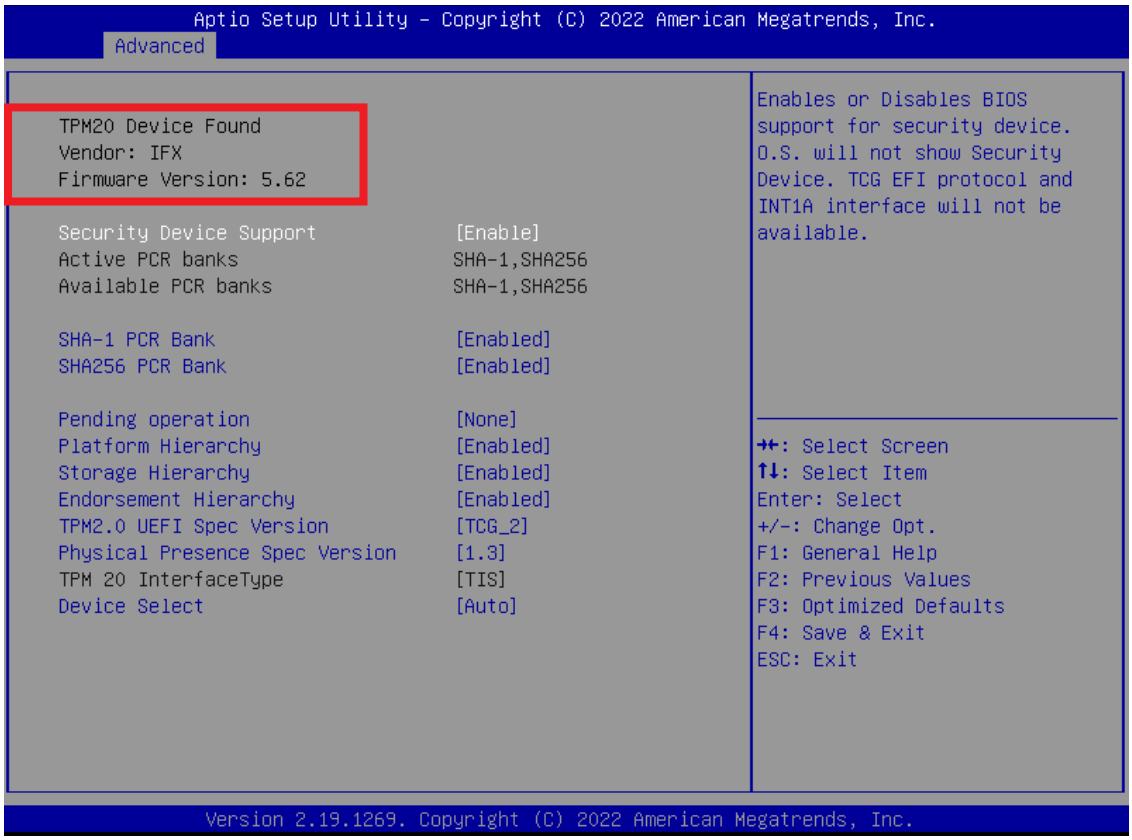
Step 4 Please save the BIOS settings by pressing F4. Please press Enter when the pop-up window which asks “Save configuration and exit?” appears. The computer will then restart.



Step 5 Click on “Trusted Computing”



Step 6 If the window shows “TPM2.0 Device Found Firmware Version:5.62”, then the setting is completed.



** If more help is needed, please contact Vecow technical support **

Vecow

For further support information, please visit www.vecow.com