



NEXCOM International Co., Ltd.

Intelligent Platform & Services Business Unit

Digital Signage Platform

NDiS M538

User Manual

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PREFACE

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Disclaimer

The information in this document is subject to change without prior notice and does not represent commitment from NEXCOM International Co., Ltd. However, users may update their knowledge of any product in use by constantly checking its manual posted on our website: <http://www.nexcom.com>. NEXCOM shall not be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of any product, nor for any infringements upon the rights of third parties, which may result from such use. Any implied warranties of merchantability or fitness for any particular purpose is also disclaimed.

Acknowledgements

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Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

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

CE

The product(s) described in this manual complies 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.

RoHS Compliance



NEXCOM RoHS Environmental Policy and Status Update

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM.

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the “NEXCOM RMA Service Form” with the returned packages.
- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the “NEXCOM RMA Service Form” for the RMA number apply process.
- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as “Out of Warranty.”
- Any products returned by NEXCOM to other locations besides the customers’ site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.
- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.
- Replace with 3rd party products if needed.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection to protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. Do not place heavy objects on the equipment.
16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
17. **ATTENTION:** Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instructions.

CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
 - Product name and serial number
 - Detailed information of the peripheral devices
 - Detailed information of the installed software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

Conventions Used in this Manual



Warning:

Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.



Caution:

Information to avoid damaging components or losing data.



Note:

Provides additional information to complete a task easily.

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Package Contents

Before continuing, verify that the NDiS M538 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Name	Qty
1	6013300521X00	EPE	1
2	6013300709X00	EPE	1
3	60110A0015X00	Inner Box	1
4	60111A0025X00	Outside Carton	1
5	6012200053X00	PE Zipper Bag No. 3	1
6	6012200049X00	PE Zipper Bag	1
7	5060200082X00	Thermal Pad for CPU	1

Ordering Information

The following below provides ordering information for NDiS M538.

NDiS M538 (P/N: 10W00M53800X0)

8th generation Intel® Core™ socket type processor, OPS, Intel® Q370 chipset

CHAPTER 1: PRODUCT INTRODUCTION

Overview



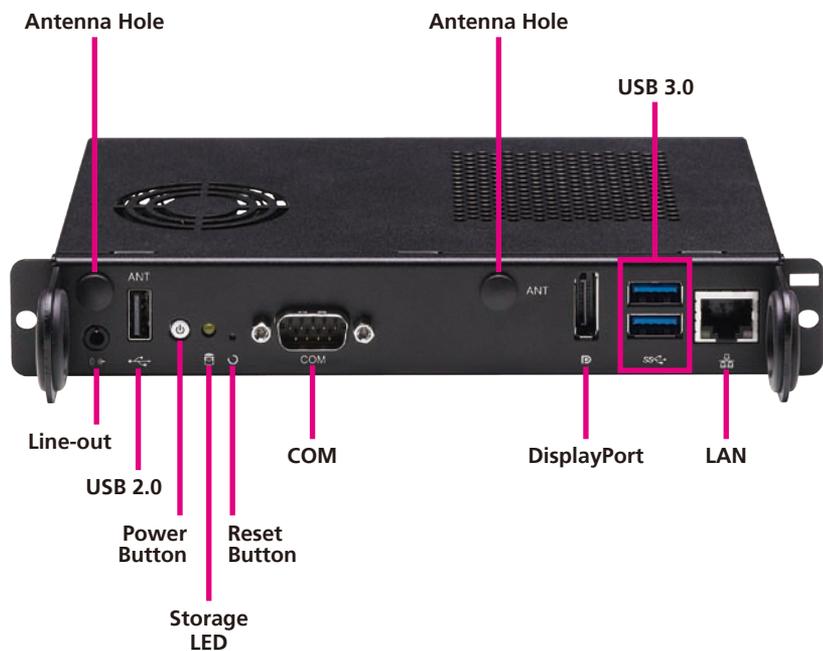
NDiS M538 is an OPS-compliant media player powered by 8th generation Intel® Core™ processors. Following open pluggable standard, NDiS M538 can perfectly fit into a myriad of OPS-panels and is compact in size. Yet, NDiS M538 has high scalability, allowing for easy storage capacity expansion through M.2 M Key storage and effortless function extension through M.2 E Key modules. Changing system memory is also made simple. In addition, NDiS M538 leverages the future generation Intel® Core™ processors to deliver outstanding graphics and support 3 independent 4K2K video outputs. The superb but power-efficient NDiS M538 can therefore maximize visual impacts for digital signage applications.

Key Features

- 8th generation Intel® Core™ processor
- Support socket type CPU up to 35W
- Intel® UHD 630 graphics engine
- Support 3 independent 4K2K video outputs
- Dual DDR4 SO-DIMM support
- Support M.2 storage and Wi-Fi module
- Onboard TPM 2.0
- Compliant with Intel® vPro™ and Intel® Active Management Technology

Physical Features

Front Panel



Rear Panel



Hardware Specifications

CPU Support

- 8th generation Intel® Core™ socket type processor
 - Intel® Core™ i7-8700T 2.40 GHz, 6 Core, 35W
 - Intel® Core™ i5-8500T 2.10 GHz, 6 Core, 35W
 - Intel® Core™ i3-8100T 3.10 GHz, 4 Core, 35W

Chipset

- Intel® Q370 PCH

Graphics

- Intel® HD Graphics 630 series

Main Memory

- 2 x 260-pin SO-DIMM sockets, support DDR4 1866/2133 MHz non-ECC, un-buffered memory up to 32G (single socket max. 16GB).

I/O Interface-Front

- 1 x Power button with LED
- 1 x Reset button
- 1 x DP connector for DisplayPort++
- 1 x RJ45 with LEDs for Gigabit LAN
- 2 x USB 3.0
- 1 x USB 2.0
- 1 x COM port (COM2)
- 1 x Audio line-out
- 2 x Antenna connectors
- Onboard TPM 2.0 IC
- Compliant with Intel® vPro™ and Intel® Active Management Technology

I/O Interface-Rear (TX25)

- 1 x HDMI 2.0a supporting 4K2K resolution
- 1 x DisplayPort 1.2 supporting 4K2K resolution
- 1 x UART TX, RX 3.3V TTL (COM 1)
- 1 x Audio line-out R/L
- 3 x USB 2.0
- 1 x USB 3.1
- 1 x COM port (COM2)
- 1 x Audio line-out
- Control signals (PWR_STATUS, PS_ON#, PB_DET, CEC, SYS_FAN)

Storage

- 1 x M.2 2280 M Key, supports SATA 3.0/PCIe Gen 3 signal

Expansion

- 1 x M.2 2230 E Key, supports PCIe/USB 2.0 Wi-Fi module

Dimensions

- 200mm (W) x 119mm (D) x 30mm (H) (7.8" x 4.7" x 1.1")

Power Supply

- DC power input +12V~+19V

Environment

- Operating temperature: 0°C to 45°C
- Storage temperature: -20°C to 80°C
- Humidity: 95% (non-condensing)

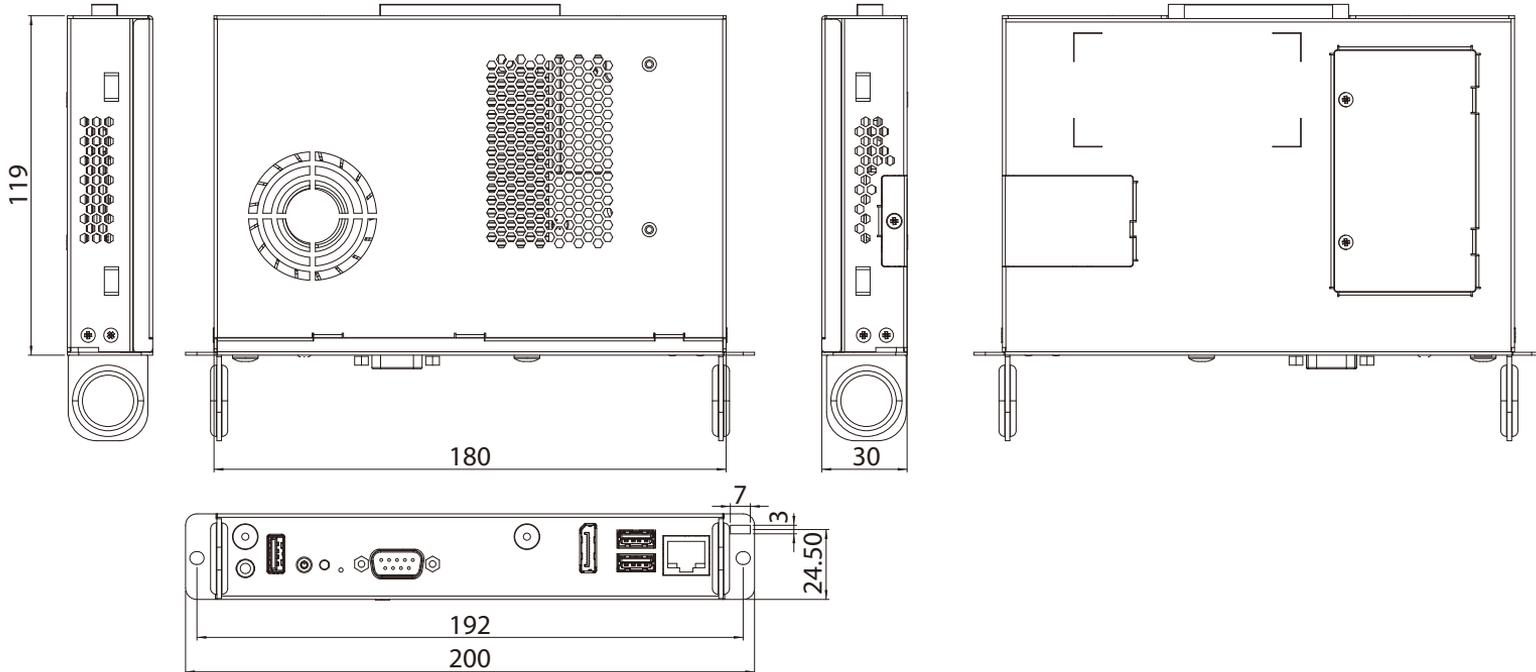
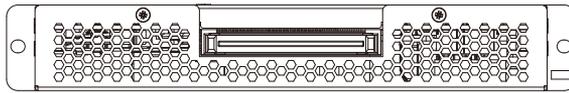
Certification

- CE/FCC Class A

Operating System

- Windows 10 (64-bit)

Mechanical Dimensions



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NDiS M538 motherboard.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
 - A Philips screwdriver
 - A flat-tipped screwdriver
 - A set of jewelers screwdrivers
 - A grounding strap
 - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than

dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

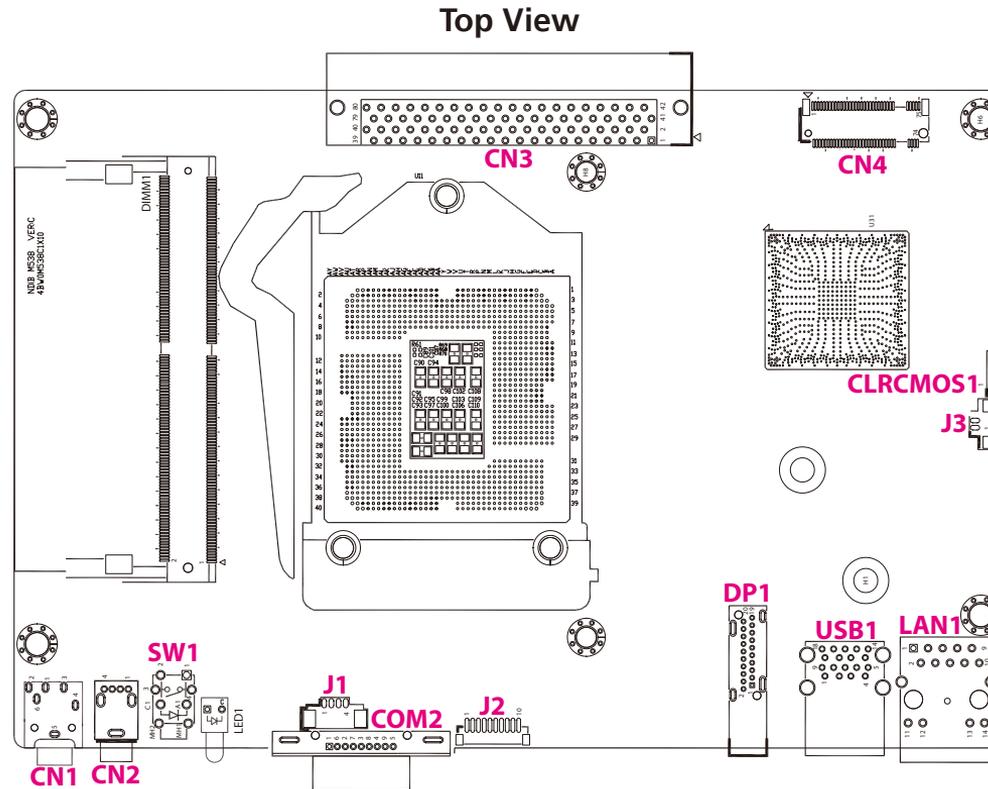
Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

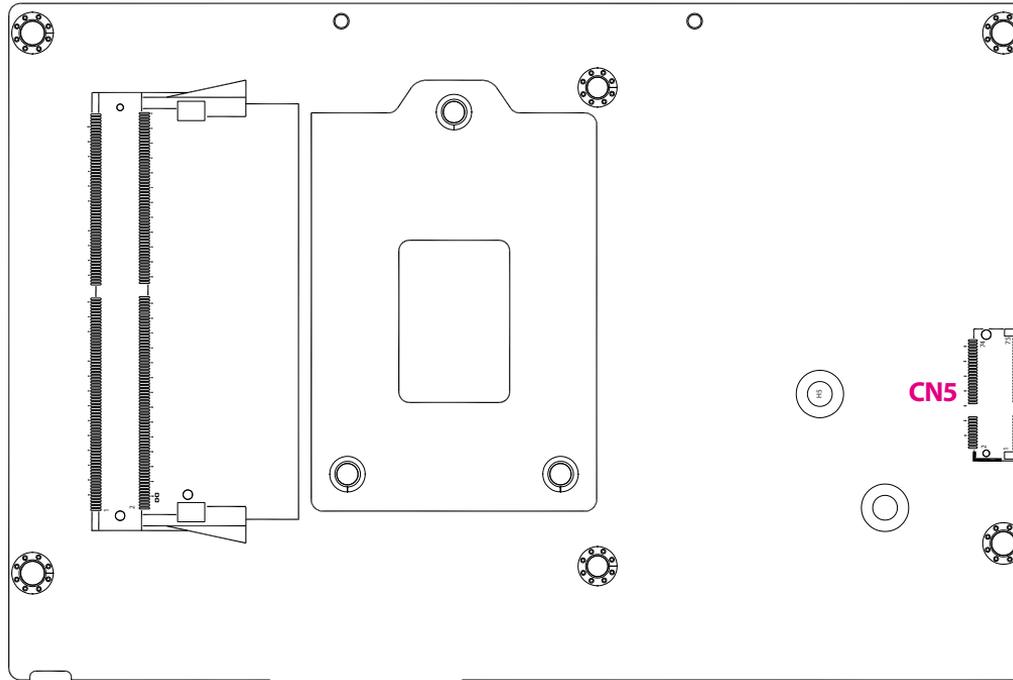
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

Locations of the Jumpers and Connectors for NDiB M538

The figure below is the top and bottom view of the NDiB M538 mainboard which is the mainboard used in NDiS M538. It shows the locations of the jumpers and connectors.



Bottom View

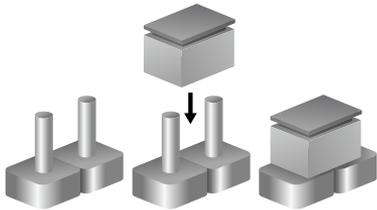


Jumper Settings

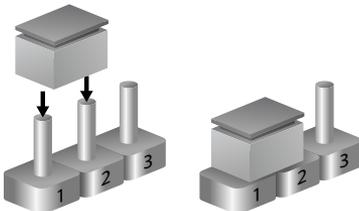
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is open.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)



Three-Pin Jumpers: Pins 1 and 2 are Short



Jumpers

RTC CMOS Clear

Connector type: 1x3 3-pin header, 2.54mm pitch

Connector location: CLRCMOS1



Pin	Settings
1-2 On	Normal
2-3 On	Clear CMOS

1-2 On: default

Connector Pin Definitions

External I/O Interfaces

Line-out Connector

Connector type: 3.5mm TRS

Connector location: CN1

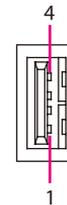


Pin	Definition	Pin	Definition
1	LINE_OUTR	2	JACK_DET#_FB
3	GND	4	LINE_OUTL
5	GND	6	GND

USB 2.0 Connector

Connector type: USB 2.0 port, Type A

Connector location: CN2



Pin	Definition	Pin	Definition
1	P5V_USB_P02	2	USB2N7_C
3	USB2P7_C	4	GND

Power Switch

Connector location: SW1

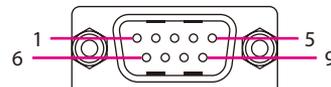


Pin	Definition	Pin	Definition
1	GND	2	H_PWRBTN#
3	H_PWRBTN#	4	GND
A1	PWRLED_N	C1	PWRLED_P

COM Port

Connector type: DB-9 port, 9-pin D-Sub

Connector location: COM2

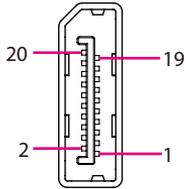


Pin	Definition	Pin	Definition
1	SP_DCD2	2	SP_RXD2
3	SP_TXD2	4	SP_DTR2
5	GND	6	SP_DSR2
7	SP_RTS2	8	SP_CTS2
9	SP_RI2	10	GND

DisplayPort

Connector type: DisplayPort

Connector location: DP1

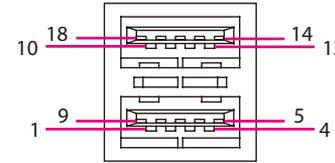


Pin	Definition	Pin	Definition
1	OUT0p	2	GND
3	OUT0n	4	OUT1p
5	GND	6	OUT1n
7	OUT2p	8	GND
9	OUT2n	10	OUT3p
11	GND	12	OUT3n
13	DP_CONFIG1	14	DP_CONFIG2
15	AUXP_SCL_DDC	16	GND
17	AUXN_SDA_DDC	18	HPD_SNK
19	GND	20	+3V3I_DP1

USB 3.0 Connectors

Connector type: USB 3.0 port, Type A

Connector location: USB1

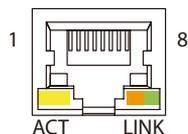


Pin	Definition	Pin	Definition
1	P5V_USB_P01	2	USB2N1_C
3	USB2P1_C	4	GND
5	USB3RN1_C	6	USB3RP1_C
7	GND	8	USB3TN1_C
9	USB3TP1_C	10	P5V_USB_P01
11	USB2N2_C	12	USB2P2_C
13	GND	14	USB3RN2_C
15	USB3RP2_C	16	GND
17	USB3TN2_C	18	USB3TP2_C

LAN1 Port

Connector type: RJ45 port with LEDs

Connector location: LAN1



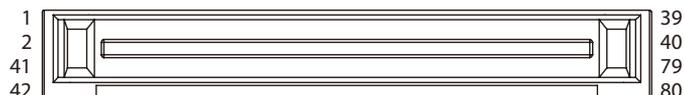
Act	Status
Flashing Yellow	Data activity
Off	No activity

Link	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

Pin	Definition	Pin	Definition
1	0V9_VDC	2	MDI_MINUS3
3	MDI_PLUS3	4	MDI_MINUS2
5	MDI_PLUS2	6	MDI_MINUS1
7	MDI_PLUS1	8	MDI_PLUS0
9	MDI_PLUS0	10	GND
11	LAN1_ACTPW	12	LAN1_LED_ACT#
13	LAN1_LED_100#	14	LAN1_LED_1000#

OPS Connector

Connector location: CN3



Pin	Definition	Pin	Definition
1	H_DDI1_TXN_3	2	H_DDI1_TXP_3
3	GND	4	H_DDI1_TXN_2
5	H_DDI1_TXP_2	6	GND
7	H_DDI1_TXN_1	8	H_DDI1_TXP_1
9	GND	10	H_DDI1_TXN_0
11	H_DDI1_TXP_0	12	GND
13	AUX_N	14	AUX_P
15	HPD	16	GND
17	HDMI2_CLK_N	18	HDMI2_CLK_P
19	GND	20	HDMI2_TX0_N
21	HDMI2_TX0_p	22	GND
23	HDMI2_TX1_N	24	HDMI2_TX1_P
25	GND	26	HDMI2_TX2_N
27	HDMI2_TX2_P	28	GND
29	HDMI2_SDA	30	HDMI2_SCL
31	HDMI2_HDP	32	GND
33	VIN_M	34	VIN_M

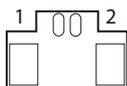
Pin	Definition	Pin	Definition
35	VIN_M	36	VIN_M
37	VIN_M	38	VIN_M
39	VIN_M	40	VIN_M
41	NC	42	NC
43	NC	44	ID1
45	ID2	46	NC
47	NC	48	NC
49	FAN_TAC2	50	SIO_GP40
51	COM1_RXD	52	COM1_TXD
53	GND	54	S_USB31_RXN3
55	S_USB31_RXP3	56	GND
57	S_USB31_TXN3	58	S_USB31_TXP3
59	GND	60	S_USB2N_3
61	S_USB2P_3	62	GND
63	S_USB2N_5	64	S_USB2P_5
65	GND	66	S_USB2N_4
67	S_USB2P_4	68	GND
69	SKPR_LOUT	70	SKPR_ROUT
71	CEC	72	GND
73	PS_ON	74	PWR_STS
75	GND	76	GND
77	GND	78	GND
79	GND	80	GND

Internal Connectors

RTC Battery Connector

Connector type: 1x2 2-pin header, 2.54mm pitch

Connector location: J3

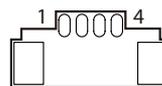


Pin	Definition
1	GND
2	BAT

Fan Connector

Connector type: 1x4 4-pin header, 1.25mm pitch

Connector location: J1



Pin	Definition	Pin	Definition
1	GND	2	+5V
3	FAN_TAC1	4	FAN_CTRL_B

Debug Port Connector

Connector type: 1x10 10-pin header, 1.0mm pitch

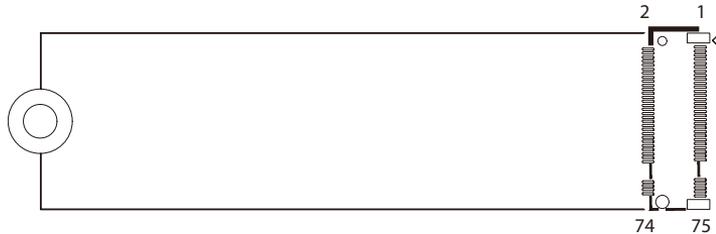
Connector location: J2



Pin	Definition	Pin	Definition
1	GND	2	PLTRST#_BUFF_1
3	CLK_PCI_P80	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_ADO
9	INT_SERIRQ	10	+3V3

M.2 M Key Connector

Connector location: CN4

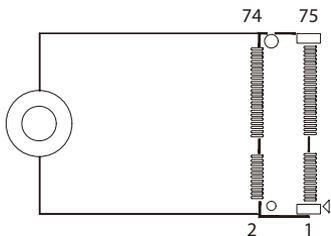


Pin	Definition	Pin	Definition
1	GND	2	+3VSB
3	GND	4	+3VSB
5	S_PCIE_RXN16	6	NC
7	S_PCIE_RXP16	8	NC
9	GND	10	DSS#_1
11	S_PCIE_TXN16	12	+3VSB
13	S_PCIE_TXP16	14	+3VSB
15	GND	16	+3VSB
17	S_PCIE_RXN15	18	+3VSB
19	S_PCIE_RXP15	20	NC
21	GND	22	NC
23	S_PCIE_TXN15	24	NC
25	S_PCIE_TXP15	26	NC
27	GND	28	NC
29	S_PCIE_RXN14	30	NC
31	S_PCIE_RXP14	32	NC
33	GND	34	NC
35	S_PCIE_TXN14	36	NC

Pin	Definition	Pin	Definition
37	S_PCIE_TXP14	38	SATA_DEVSLP4
39	GND	40	NC
41	S_PCIE_RXP13	42	NC
43	S_PCIE_RXN13	44	NC
45	GND	46	NC
47	S_PCIE_TXN13	48	NC
49	S_PCIE_TXP13	50	PERST#1
51	GND	52	SRCLKREQ_N11
53	S_CLKOUT_PCIE_N11	54	PEWAKE_N1
55	S_CLKOUT_PCIE_P11	56	NC
57	GND	58	NC
HW Latch			
67	NC	68	SUSCLK2
69	S_SATAXPICIE0	70	+3VSB
71	GND	72	+3VSB
73	GND	74	+3VSB
75	GND		

M.2 E Key Connector

Connector location: CN5



Pin	Definition	Pin	Definition
1	GND	2	NGFF_3V3
3	M2_E_USBP	4	NGFF_3V3
5	M2_E_USBN	6	NC
7	GND	8	NC
9	NC	10	GND
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC	24	
HW Latch			
31	HW Latch	32	NC
33	GND	34	NC
35	S_PCIE_TXP8	36	NC
37	S_PCIE_TXN8	38	NC
39	GND	40	NC
41	S_PCIE_RXP8	42	NC

Pin	Definition	Pin	Definition
43	S_PCIE_RXN8	44	NC
45	GND	46	NC
47	S_CLKOUT_PCIE_P10	48	NC
49	S_CLKOUT_PCIE_N10	50	SUSCLK3
51	GND	52	RST_M2E
53	SRCLKREQ_N10	54	CONFIG_1
55	S_WAKE#	56	CONFIG_2
57	GND	58	NC
59	S_PCIE_TXP7	60	NC
61	S_PCIE_TXN7	62	NC
63	GND	64	NC
65	S_PCIE_RXP7	66	RST_M2E
67	S_PCIE_RXN7	68	SRCLKREQ_N9
69	GND	70	S_WAKE#
71	S_CLKOUT_PCIE_P9	72	NGFF_3V3
73	S_CLKOUT_PCIE_N9	74	NGFF_3V3
75	GND		

CHAPTER 3: SYSTEM SETUP

Removing the Chassis Cover



Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. The screws on the back are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.



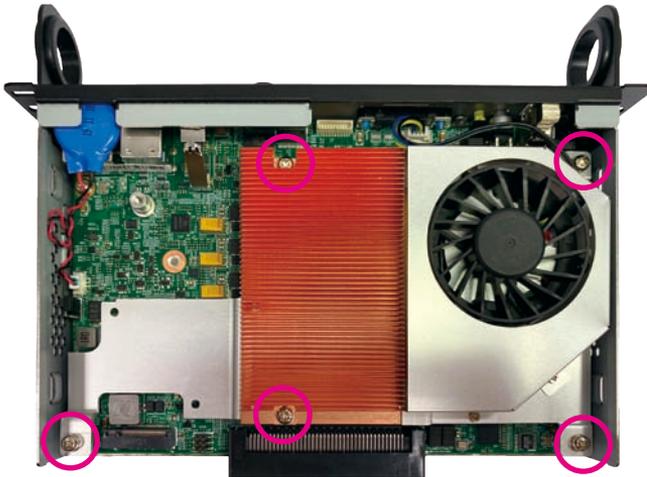
Screws on the back

2. With the screws removed, lift up the cover and remove it from the chassis.



Installing SO-DIMM Memory Modules

1. Unscrew the 5 screws on the CPU cooler then remove it from the mainboard.



2. Unplug the fan connector cable.



3. Locate the SO-DIMM socket.

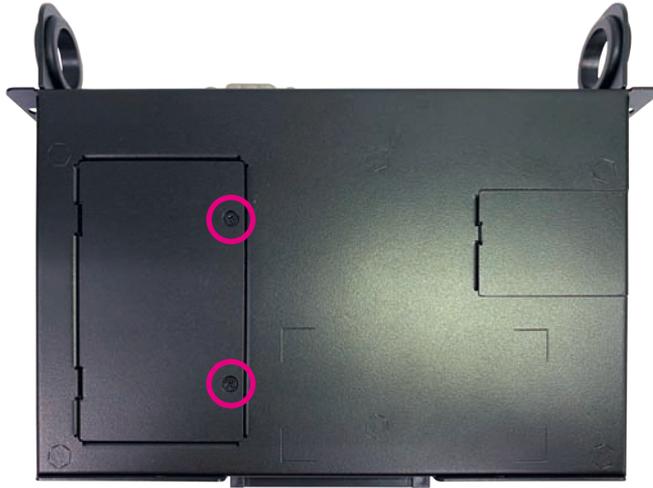


4. Insert the module into the socket at a 30-degree angle. Then push the module down until the clips on both sides of the socket lock into position. You will hear a distinctive “click” sound, indicating the module is correctly locked into position.

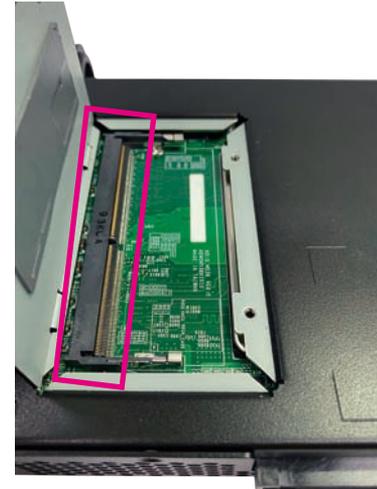


Memory Module

5. To install a second memory module, turn the system over and remove the 2 screws on the bottom side.



6. Remove the cover and locate the SO-DIMM socket.



7. Insert the module into the socket at a 30-degree angle. Then push the module down until the clips on both sides of the socket lock into position. You will hear a distinctive “click” sound, indicating the module is correctly locked into position.



Memory Module

Installing a CPU

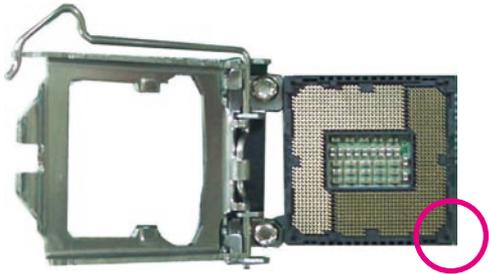
1. Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab; then lift the load lever up.
2. With the socket unlocked, lift up the load plate and remove the protective cap.



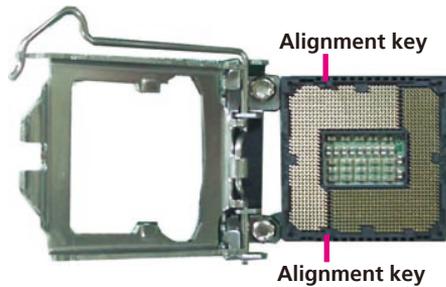
Load Lever



3. Insert the CPU into the socket. The triangular edge on the CPU must align with the corner of the CPU socket shown on the photo.



The CPU's notch will at the same time fit into the socket's alignment key.



- Handle the CPU by its edges and avoid touching the pins.
- The CPU will fit in only one orientation and can easily be inserted without exerting any force.

4. Close the load plate and then hook the load lever under the retention tab.



Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

Installing an M.2 Storage Module (M Key 2280)

1. Locate the M.2 M key slot on the mainboard.



2. Remove the screw on the copper standoff. Put the screw in a safe place for later use.



3. Insert the M.2 module into the M.2 slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.



4. Push the module down and secure it with the screw removed in step 2.

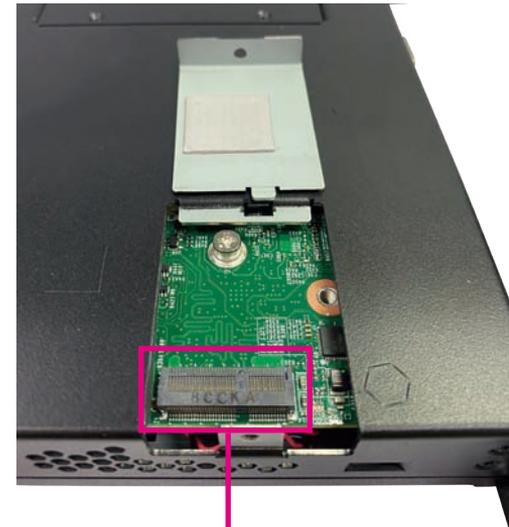


Installing an M.2 Wi-Fi

1. Remove the screw on the side of the system.



2. Remove the cover and locate the M.2 E key slot on the mainboard.



M.2 E Key Slot

3. Insert the Wi-Fi module into the M.2 slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears inside the slot.



4. Push the module down and then secure it with a mounting screw.



CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for NDiS M538. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM website at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
 - When changing the system configuration
 - When a configuration error is detected by the system and you are prompted to make changes to the setup program
 - When resetting the system clock
 - When redefining the communication ports to prevent any conflicts
 - When making changes to the Power Management configuration
 - When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing allows you to enter Setup.

Press the  key to enter Setup:

Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menus or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

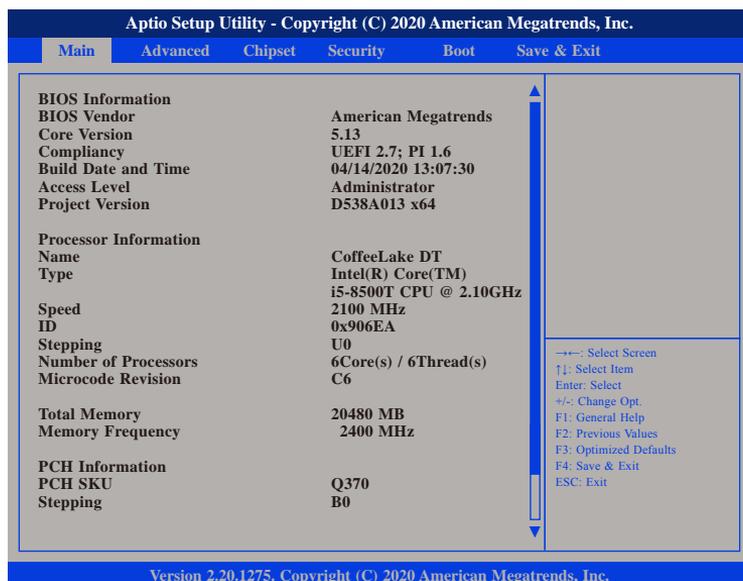
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press  to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



Access Level

Displays the access level of the current user in the BIOS.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to view CPU status and configure CPU parameters.

The screenshot shows the 'CPU Configuration' screen in the Aptio Setup Utility. The title bar reads 'Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.' and the sub-header is 'Advanced'. The main content area is divided into two columns. The left column lists various CPU parameters, and the right column provides a description and navigation options.

CPU Configuration	
Type	Intel(R) Core(TM) i5-8500T CPU @ 2.10GHz
ID	0x906EA
Speed	2100 MHz
L1 Data Cache	32 KB x 6
L1 Instruction Cache	32 KB x 6
L2 Cache	256 KB x 6
L3 Cache	8 MB
L4 Cache	N/A
VMX	Supported
SMX/TXT	Supported
Intel (VMX) Virtualization Technology	[Enabled]
Active Processor Cores	[All]

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

Navigation options:
 ←→: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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Intel® (VMX) Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Processor Cores

Select the number of cores to enable in each processor package.

Power & Performance

This section is used to configure the CPU power management features.

The screenshot shows the 'Power & Performance' screen in the Aptio Setup Utility. The title bar reads 'Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.' and the sub-header is 'Advanced'. The main content area is divided into two columns. The left column shows the 'CPU - Power Management Control' option, and the right column provides a description and navigation options.

Power & Performance	
▶ CPU - Power Management Control	CPU - Power Management Control Options

Navigation options:
 ←→: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 ESC: Exit

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CPU - Power Management Control

Enters the CPU - Power Management Control submenu.

CPU - Power Management Control



Intel® SpeedStep™

Enables or disables Intel SpeedStep technology.

Turbo Mode

Enables or disables turbo mode.

C states

Enables or disables CPU C states support for power saving.

PCH-FW Configuration

This section is used to configure the firmware update options.



ME State

Enables or disables ME state. When disabled, ME will be placed into ME Temporarily Disabled Mode.

Manageability Features State

Enables or disables Intel® Manageability Features support in firmware. To disable the support, the platform must be in an unprovisioned state first.

AMT BIOS Features

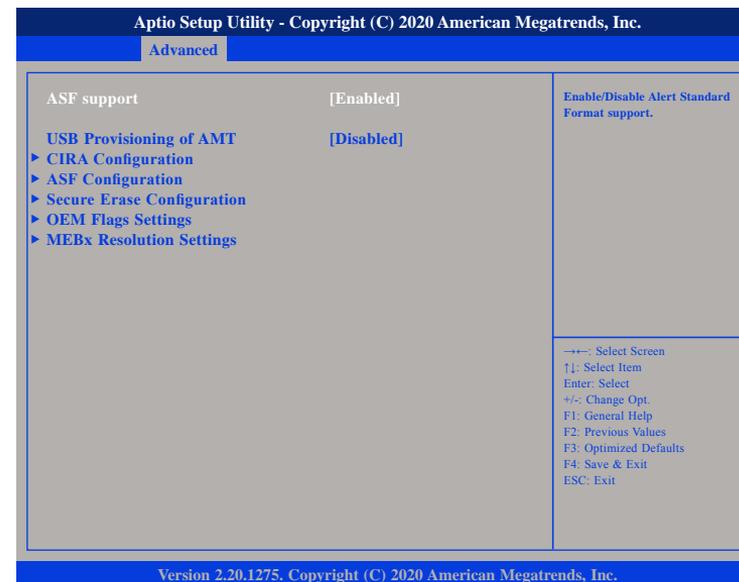
When disabled AMT BIOS Features are no longer supported and user is no longer able to access MEBx Setup. Please note that this option does not disable Manageability Features in firmware.

ME Unconfig on RTC Clear

Enables or disables ME Unconfig on RTC Clear. When disabled, ME will not be unconfigured on RTC clear.

AMT Configuration

This section is used to configure AMT settings.



ASF support

Enables or disables Alert Standard Format support.

USB Provisioning of AMT

Enables or disables AMT USB Provisioning.

CIRA Configuration

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.		
Advanced		
Activate Remote Assistance Process	[Disabled]	Trigger CIRA boot Note: Network Access must be activated first from MEBx Setup.
CIRA Timeout	0	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.		

Activate Remote Assistance Process

Enables or disables Remote Assistance Process. Please note that Network Access must be activated first from MEBx Setup.

ASF Configuration

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.		
Advanced		
PET Progress	[Enabled]	Enable/Disable PET Events Progress to receive PET Events.
WatchDog	[Disabled]	
OS Timer	0	
BIOS Timer	0	
ASF Sensors Table	[Disabled]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.		

PET Progress

Enables or disables PET Events Progress to receive PET Events.

WatchDog

Enables or disables watchdog timer function.

ASF Sensors Table

Enables or disables adding ASF Sensor Table into the ASF ACPI Table.

Secure Erase Configuration



Secure Erase mode

Configures the Secure Erase module behavior.

Simulated: Performs SE flow without erasing SSD.

Real: Erases SSD.

Force Secure Erase

Enables or disables the option to Force Secure Erase on next boot.

OEM Flags Settings



MEBx hotkey Pressed

Enables or disables automatic MEBx hotkey press.

MEBx Selection Screen

Enables or disables MEBx selection screen with 2 options.

- Press 1 to enter ME configuration screens.
- Press 2 to initiate a remote connection.

Hide Unconfigure ME Confirmation Prompt

Enables or disables the option to hide unconfigure ME confirmation prompt when attempting ME unconfiguration.

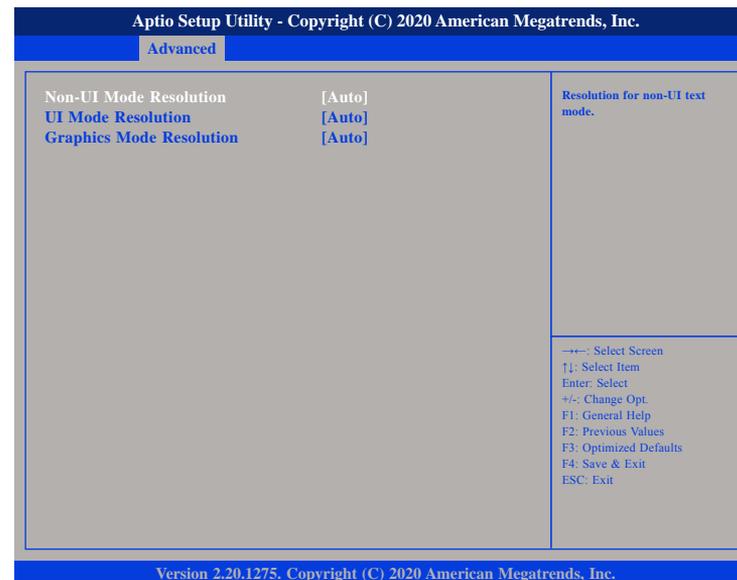
MEBx OEM Debug Menu Enable

Enables or disables OEM debug menu in MEBx.

Unconfigure ME

Enables Unconfigure ME without password or disables Unconfigure ME.

MEBx Resolution Settings



Non-UI Mode Resolution

Configures the resolution for non-UI text mode.

UI Mode Resolution

Configures the resolution for UI text mode.

Graphics Mode Resolution

Configures the resolution for graphics mode.

Firmware Update Configuration

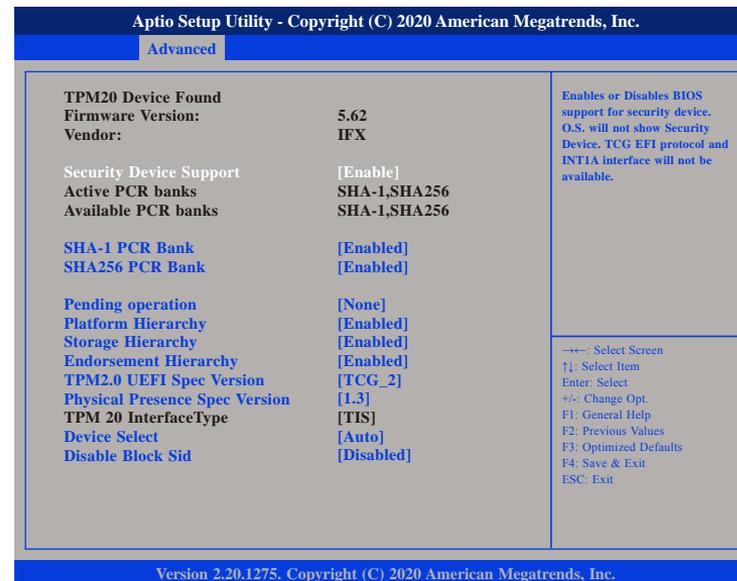


Me FW Image Re-Flash

Enables or disables the ME firmware image re-flash function.

Trusted Computing

This section is used to configure Trusted Platform Module (TPM) settings.



Security Device Support

Enables or disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

SHA-1 PCR Bank

Enables or disables SHA-1 PCR Bank.

SHA256 PCR Bank

Enables or disables SHA256 PCR Bank.

Pending operation

Schedules an operation for the security device.

Platform Hierarchy

Enables or disables Platform Hierarchy.

Storage Hierarchy

Enables or disables Storage Hierarchy.

Endorsement Hierarchy

Enables or disables Endorsement Hierarchy.

TPM2.0 UEFI Spec Version

Configures the TPM2.0 UEFI spec version.

TCG_1_2: The compatible mode for Windows 8/Windows 10.

TCG_2: Support new TCG2 protocol and event format for Windows 10 or later.

Physical Presence Spec Version

Configures which physical presence spec version the OS will support. Please note that some HCK tests might not support 1.3.

Device Select

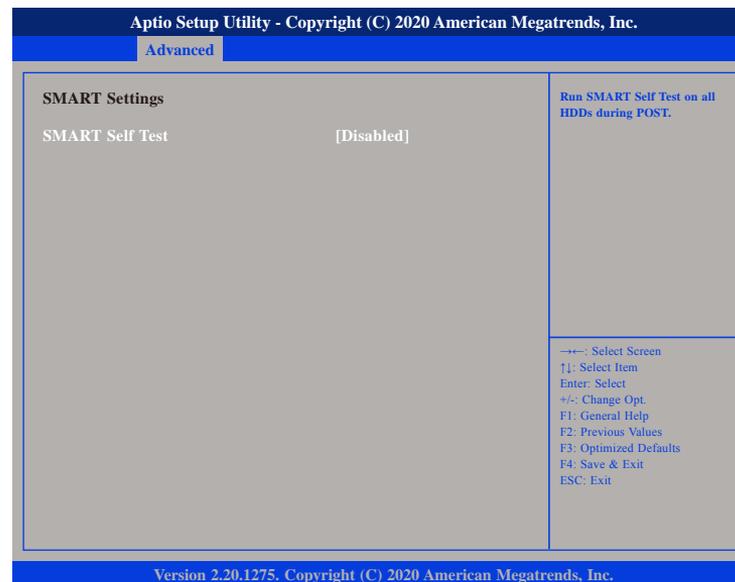
TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support to TPM 2.0 devices. Auto will support both TPM 1.2 and 2.0 devices with the default set to TPM 2.0 devices if not found, and TPM 1.2 devices will be enumerated.

Disable Block Sid

Enables or disables the option to allow SID authentication in TCG storage device.

SMART Settings

This section is used to configure S.M.A.R.T settings for storage drives.

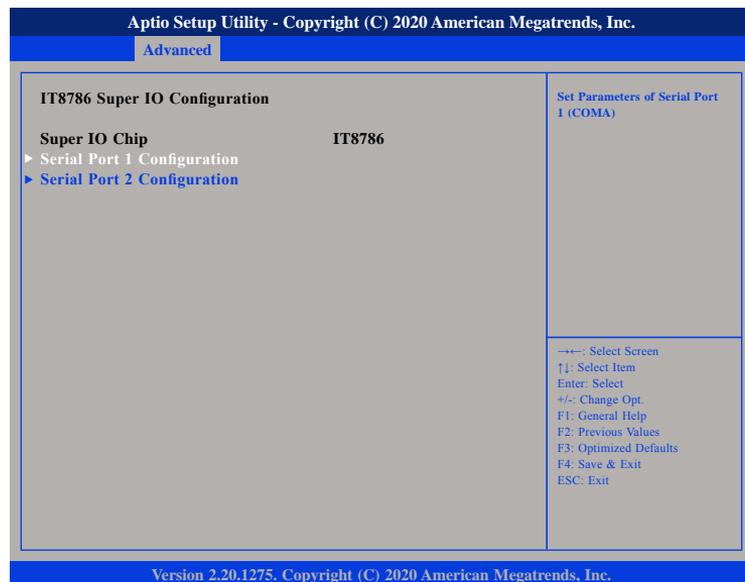


SMART Self Test

Enables or disables SMART self test feature on all storage drives during system POST.

IT8786 Super IO Configuration

This section is used to configure the serial ports.



Super IO Chip

Displays the Super I/O chip used on the board.

Serial Port 1 Configuration

This section is used to configure serial port 1.

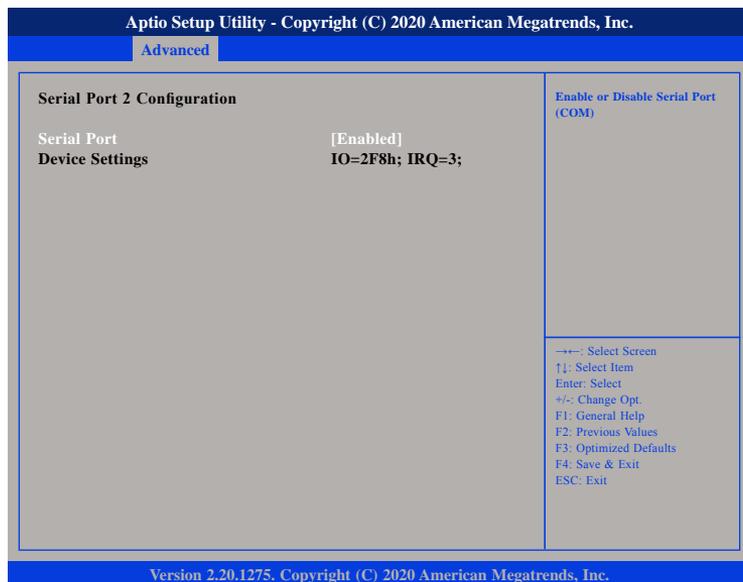


Serial Port

Enables or disables the serial port.

Serial Port 2 Configuration

This section is used to configure serial port 2.

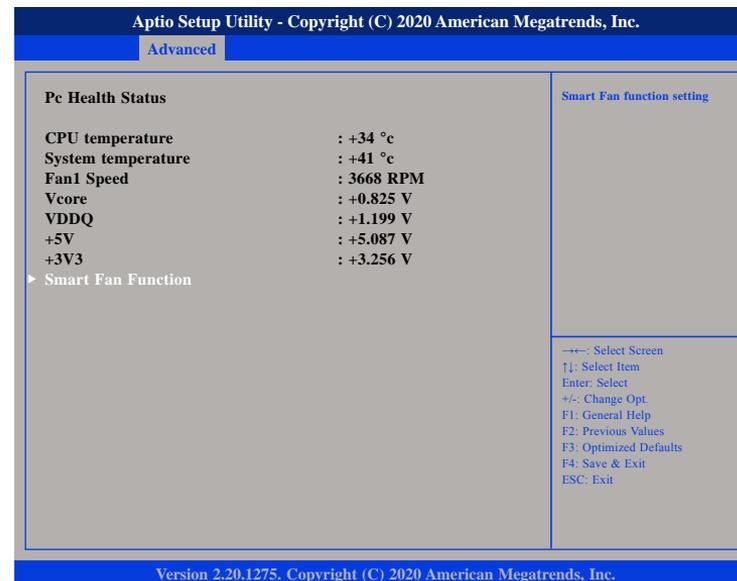


Serial Port

Enables or disables the serial port.

Hardware Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.



CPU temperature

Detects and displays the current CPU temperature.

System temperature

Detects and displays the current system temperature.

Fan1 Speed

Detects and displays the current fan speed of the fan connected to Fan1.

Vcore to +3V3

Detects and displays the output voltages.

Smart Fan Function

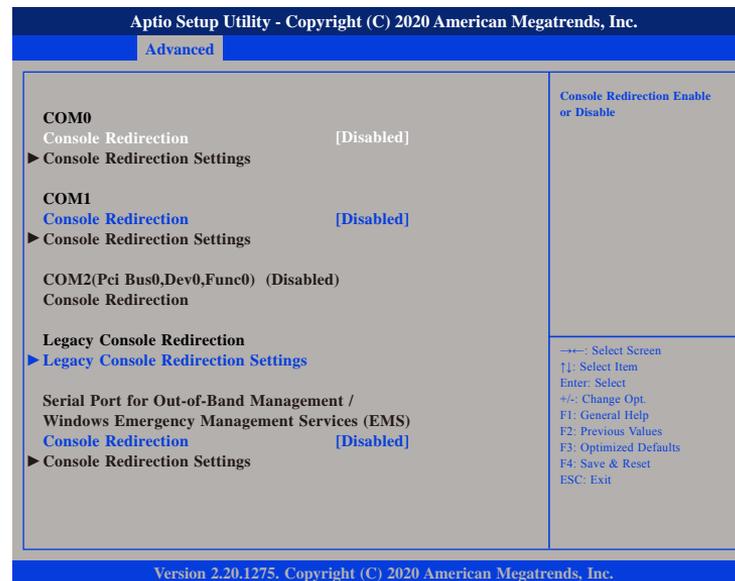


Fan Mode

Enables or disables Smart Fan Mode.

Serial Port Console Redirection

This section is used to configure the serial port that will be used for console redirection.



Console Redirection (COM0/COM1/EMS)

Enables or disables console redirection for COM0/COM1/EMS.

Legacy Console Redirection Settings

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.	
Advanced	
Legacy Console Redirection Settings	
Redirection COM Port	[COM0]
Resolution	[80x24]
Redirect After POST	[Always Enable]
Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages	
→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Reset ESC: Exit	
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Redirection COM Port

Configures the COM port to display redirection of legacy OS and legacy OPROM messages.

Resolution

Configures the number of rows and column supported for redirection.

Redirect After POST

BootLoader: Legacy console redirection is disabled before booting to legacy OS.

Always Enable: Legacy console redirection is enabled for legacy OS.

USB Configuration

This section is used to configure the USB.

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.	
Advanced	
USB Configuration	
USB Module Version	23
USB Controllers: 1 XHCI	
USB Devices: 1 Keyboard, 1 Mouse	
Legacy USB Support	[Enabled]
XHCI Hand-off	[Enabled]
USB Mass Storage Driver Support	[Enabled]
USB hardware delays and time-outs:	
USB transfer time-out	[20 sec]
Device reset time-out	[20 sec]
Device power-up delay	[Auto]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.	
→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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Legacy USB Support

Enable Enables Legacy USB.

Auto Disables support for Legacy when no USB devices are connected.

Disable Keeps USB devices available only for EFI applications.

XHCI Hand-off

This is a workaround for OSs that does not support XHCI hand-off. The XHCI ownership change should be claimed by the XHCI driver.

USB Mass Storage Driver Support

Enables or disables USB mass storage device driver support.

USB transfer time-out

The time-out value for control, bulk, and Interrupt transfers.

Device reset time-out

Selects the USB mass storage device's start unit command timeout.

Device power-up delay

Maximum time the value 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.

NVMe Configuration

This section is used to configure the NVMe devices installed.



NVMe Device (SAMSUNG MZVLW128HEGR-00000)

Enters the submenu of the NVMe device.

NVMe Device (SAMSUNG MZVLW128HEGR-00000)

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.		
Advanced		
Seg:Bus:Dev:Func	00:01:00:00	Select either Short or Extended Self Test. Short option will take couple of minutes and extended option will take several minutes to complete.
Model Number	SAMSUNG MZVLW128HEGR-00000	
Total Size	128.0 GB	
Vendor ID	144D	
Device ID	A804	
Namespace: 1	Size: 128.0 GB	
Device Self Test:		
Self Test Option	[Short]	
Self Test Action	[Controller Only Test]	
Run Device Self Test		
Short Device Selftest Result	[Not Available]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Extended Device Selftest Result	[Not Available]	
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Run Device Self Test

Run the device self test according to the self test option and action selected. Pressing the Esc key will abort the test.

Self Test Option

Configures the method used for self test.

Short Short option will take couple of minutes to complete.
 Extended Extended option will take several minutes to complete.

Self Test Action

Configures the items used for self test. Controller Only Test and Controller and NameSpace Test options are available. Selecting Controller and NameSpace Test will take longer to complete.

Network Stack Configuration

This section is used to configure the network stack.



Network Stack

Enables or disables UEFI network stack.

Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



System Agent (SA) Configuration

System Agent (SA) parameters.

PCH-IO Configuration

PCH-IO parameters.

System Agent (SA) Configuration

This section is used to configure the System Agent (SA) configuration.



Graphics Configuration

Enters the Graphics Configuration submenu.

PEG Port Configuration

Enters the PEG Port Configuration submenu.

Graphics Configuration

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.	
Chipset	
Graphics Configuration Primary Display [Auto] Internal Graphics [Auto]	Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx. →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Primary Display

Select which IGFX/PEG/PCI graphics device should be the primary display or select SG for Switchable Gfx.

Internal Graphics

Keep IGFX enabled based on the setup options.

PEG Port Configuration

Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.	
Chipset	
PEG Port Configuration PEG 0:1:0 Not Present Enable Root Port [Auto] Max Link Speed [Auto]	Enable or Disable the Root Port →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Enable Root Port

Enables or disables the root port.

Max Link Speed

Configures the maximum link speed of the PEG device.

Security



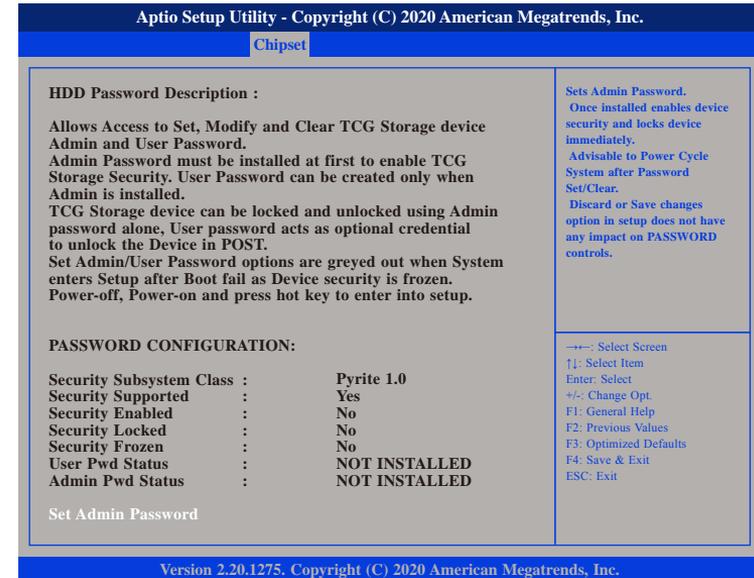
Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

TCG Storage Security Configuration



Set User Password

Select this to configure the TCG storage admin security password.

Boot



Setup Prompt Timeout

Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

Bootup NumLock State

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

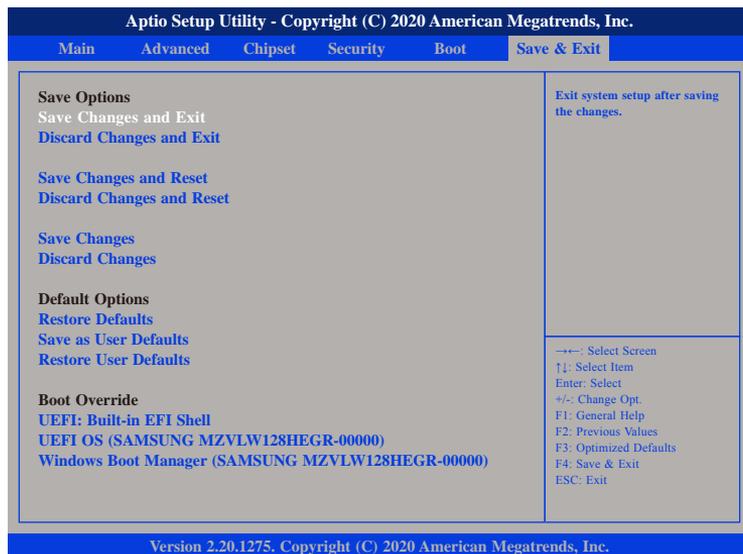
Quiet Boot

Enabled Displays OEM logo instead of the POST messages.
 Disabled Displays normal POST messages.

Boot Option Priorities

Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Save & Exit



Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F4> to save and exit Setup.

Discard Changes and Exit

To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting. You can also press <ESC> to exit without saving the changes.

Save Changes and Reset

To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset

To exit the Setup utility and reset without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

Save Changes

To save changes and continue configuring the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

Restore Defaults

To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Save as User Defaults

To use the current configurations as user default settings for the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Restore User Defaults

To restore the BIOS to user default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Boot Override

To bypass the boot sequence from the Boot Option List and boot from a particular device, select the desired device and press <Enter>.