

EM PRO mini – Revision 1 - Device Reference Manual – P –



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The warranty and/or guarantee conditions according to the current terms and conditions of E.E.P.D. GmbH apply.

Reshipment

If you return the BoxPC system to E.E.P.D. GmbH please remove all connections and peripheral equipment.

Protect the unit with a suitable packaging, preferably use the original packaging.

Packaging

The BoxPC system is in a protective package to avoid damage during transport.

This protective package should be recycled in an environmentally friendly way after use.

Disposal of Device



At the end of the lifetime please dispose and/or recycle the components of the device accordingly.

Technical Support

For technical information about hardware and software please contact:
support@eepd.de

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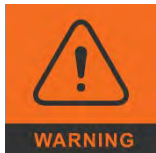
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Symbols



The red danger sign warns you if incorrect operation puts your life or health at great risk. Both the components and the peripherals could be destroyed.



The orange warning sign warns you that an incorrect or missing operation could seriously endanger your health or destroy the used components.



The yellow caution sign indicates that an incorrect or missing action could damage the components.



The yellow ESD symbol indicates that electrostatic sensitive components could be destroyed. Unpack shielded components only with ESD protection such as an ESD wristband or on an ESD protected area.



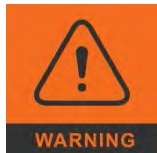
The information sign gives you further information and advice for optimal use of this product. For example, it draws your attention to necessary or optional accessories.

Safety Instructions

Safety of People



The product generates considerable heat. The housing transports this heat to the environment and thus becomes hot. Take care if you touch the housing as this may cause burns!



Please follow all safety instructions at the installation site. Make sure that no or only necessary cables are connected to the BoxPC during installation.



If access to the BoxPC interfaces is not available after installation, all necessary connections must be made before.

Device Safety



The BoxPC operates exclusively within the specified DC voltage range. Repair work should only be made by an authorized and certified specialty retailer or by the manufacturer's customer service. Do not open the device to avoid damage.

Modifications that have not been approved by the manufacturer void the warranty. Dust, dirt, moisture, and extreme temperatures may significantly impair proper operation.

Cooling System



The BoxPC consists of a compact, robust metal housing with ventilation holes. It is equipped with an automated fan. To ensure sufficient heat dissipation, never cover the ventilation holes of the case. Do not place any objects onto the device.

System Information

Required Tools

For the installation of the BoxPC system the following standard tools are recommended:

- Rail mounting: Torx screwdriver T10
- Cable connection: Slot screwdriver

Other required tools are depending on the installation place and method.

External Notice

All external documentation to install the BoxPC system should be obeyed.

Software

Supported operating systems are:

Microsoft® Windows® 10
 Microsoft® Windows® 10 IoT Enterprise
 Linux Ubuntu 18.04 LTS.

Options

| Options | Description |
|--|---|
| Memory* | V1000 processors: Max. 32 GB dual-channel DDR4 SODIMM up to 3200 MT/s R1000 processors: Max. 32GB dual-channel DDR4 SODIMM up to 2400 MT/s R1000 R1102G processor: Max. 16GB single-channel DDR4 SODIMM up to 2400 MT/s |
| SSD* | 64 GB – 512 GB |
| Operating System* | Windows® 10, Windows® 10 IoT Enterprise, Linux Ubuntu 18.04 LTS |
| *factory assembled on request #ODM option | |

Tab. 1: Options

Accessories

For accessories please contact our sales department.

| Accessories | Description |
|----------------------------|--|
| 4-pin power cable | Power cable with open ends |
| Power supply (90 W / 19 V) | Power supply incl. cable with EU plug |
| Display cable | Cable MiniDP to HDMI, 2 m, with interlock |
| DIN rail clip | DIN rail clip with screws for „TS35“ DIN rails |
| VESA mounting kit | VESA mounting plate with screws |

Tab. 2: Accessories

Intended Use

The EM PRO mini is a personal computer to be used with Windows 10, Windows 10 IoT or Ubuntu Linux 18.04 LTS. It has been designed for office and workshop environments.

Scope of Delivery

Before you begin installation, please check that your shipment is complete and contains the items listed on the delivery note.

Type Label

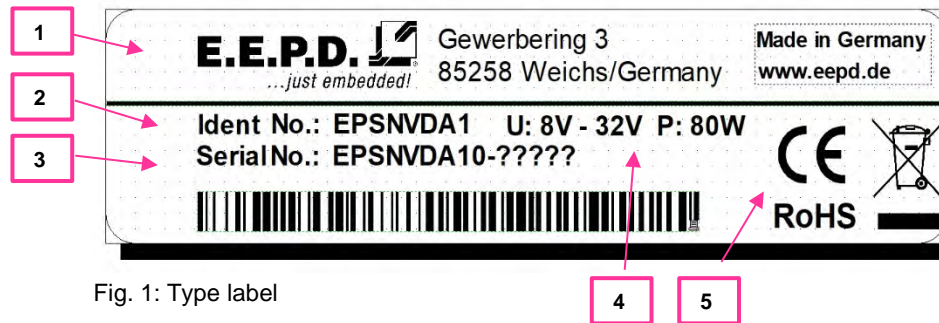


Fig. 1: Type label

- 1 – Manufacturer
- 2 – Product name
- 3 – Serial number with barcode
- 4 – Power input
- 5 – Certification information

System Dimensions

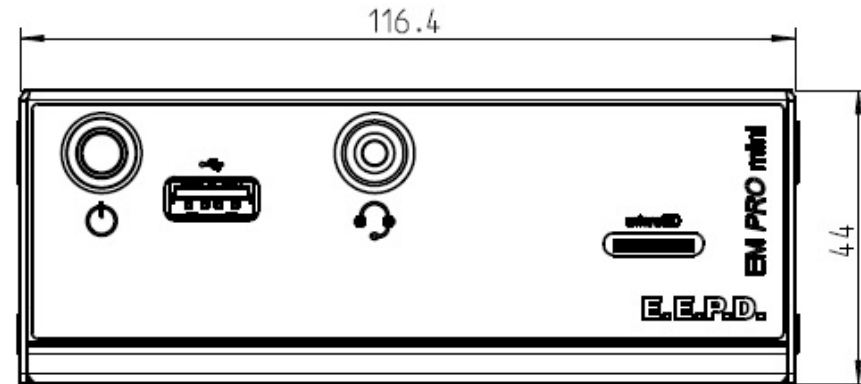


Fig. 2: Dimensions frontside, all values approx. in mm

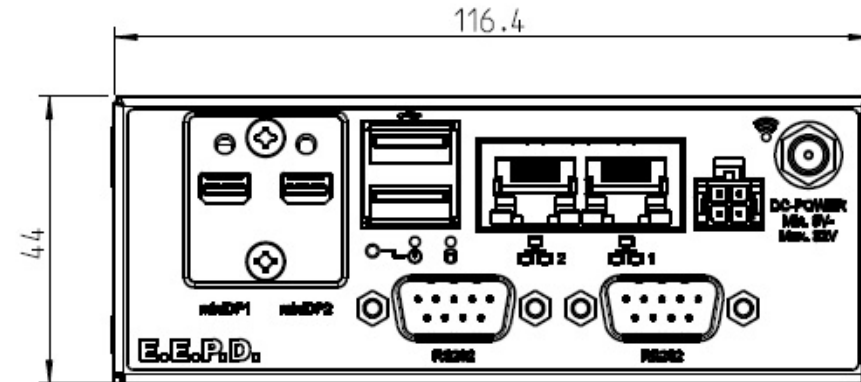


Fig. 3: Dimensions backside, all values approx. in mm

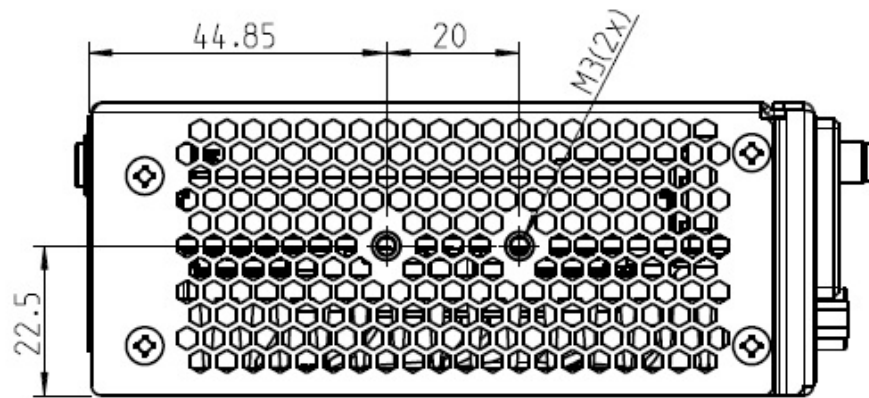


Fig. 4: Dimensions left side, all values approx. in mm

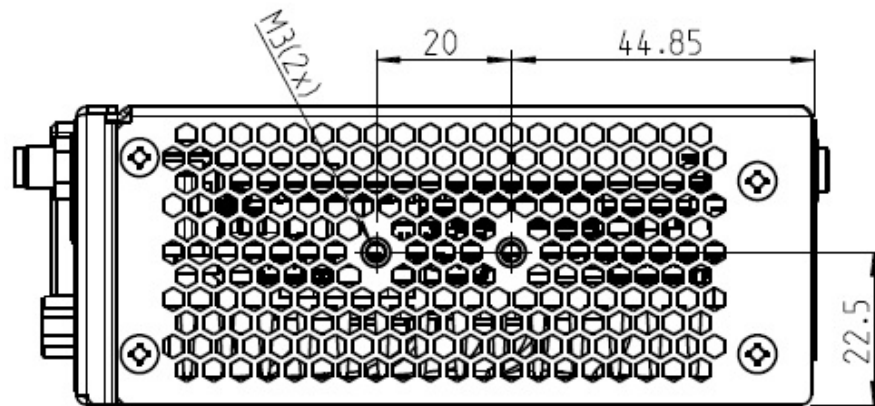


Fig. 5: Dimensions right side, all values approx. in mm

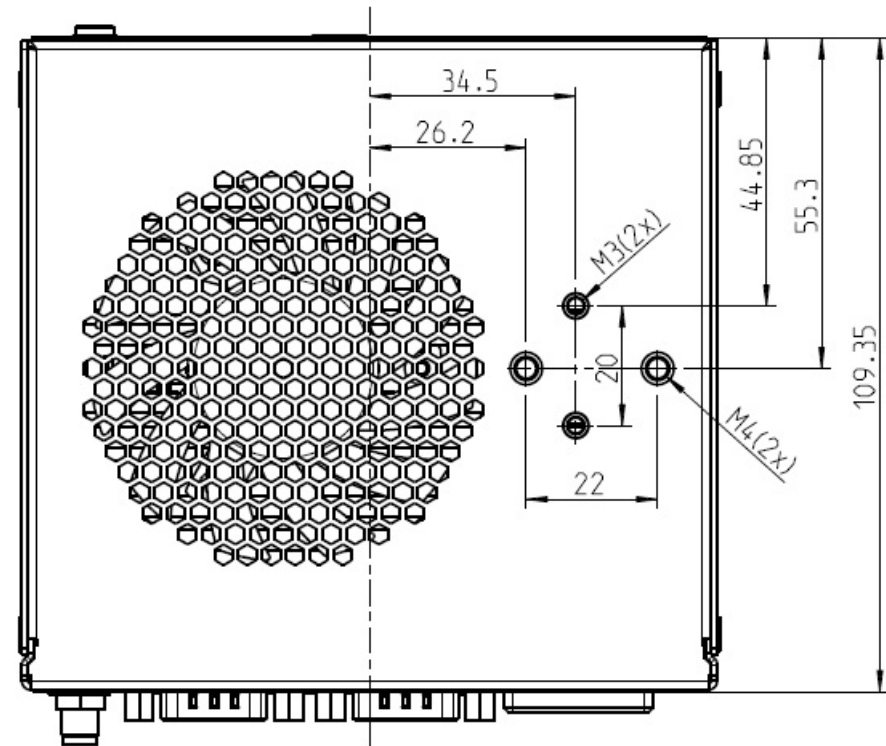


Fig. 6: Dimensions bottom side, all values approx. in mm

DIN Rail Mounting (optional)

The BoxPC is also designed for DIN rail mounting. There are drilled holes for mounting the optional DIN rail holder in various positions (Fig.7).



Symbolic view for both sides.

Fig. 7: DIN rail holder positions

Please follow the instructions below:

- Mount the top-hat rail holder with the two provided screws at the intended fastening points (see Fig.7). The top-hat rail holder is suitable for "TS35" DIN rails.
- Place the system on the DIN rail. Swivel it inwards until it snaps securely into place.
- To detach the system, push it from bottom to top. Swivel it outwards and remove it.

VESA Mounting (optional)

The BoxPC is also designed for VESA mounting. There is an optional VESA mount available (Fig.8).

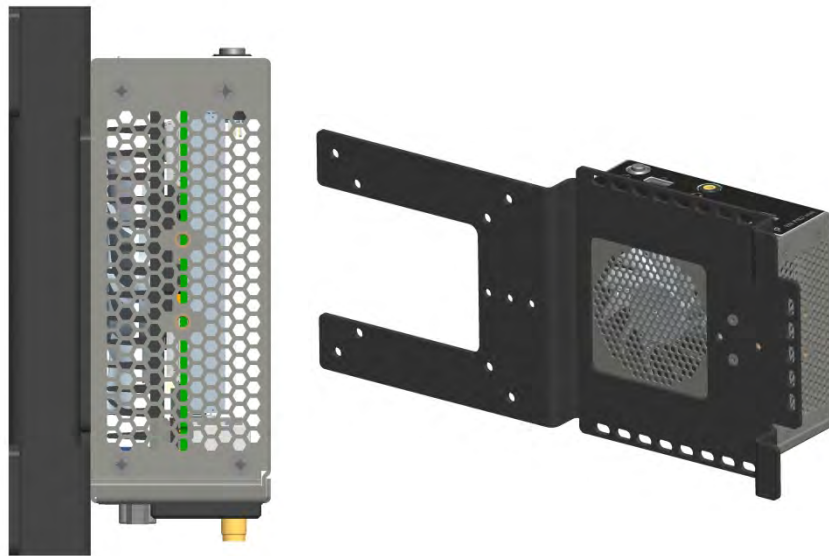


Fig. 8: Side View VESA mounted system

Technical Data

- AMD V1000 processor series:
 - V1202B / 2C / 4T / 2.3 GHz – 3.2 GHz / 12 – 25 W (ODM option only)
 - V1605B / 4C / 8T / 2.0 GHz – 3.6 GHz / 12 – 25 W
 - V1756B / 4C / 8T / 3.25 GHz – 3.6 GHz / 35 – 54 W (max.35W TDP supported by design | ODM option only)
 - V1807B / 4C / 8T / 3.35 GHz – 3.8 GHz / 35 – 54 W (max.35W TDP supported by design)
- AMD R1000 processor series
 - R1102G / 2C / 2T / 1.2 GHz – 2.6 GHz / 6 W
 - R1305G / 2C / 4T / 1.5 GHz – 2.8 GHz / 8 - 10 W
 - R1505G / 2C / 4T / 2.4 GHz – 3.3 GHz / 12 – 25 W
 - R1606G / 2C / 4T / 2.6 GHz – 3.5 GHz / 12 – 25 W | ODM option only
- Memory V1000 processor series: max. 32 GB dual-channel DDR4
- Memory R1000 processor series: max. 32 GB dual-channel DDR4
- Memory R1102G processor: max. 16GB single-channel
- Ethernet: 2 Intel® i210 with IEEE1588
- WiFi/BT (ODM option only): 802.11 AC with diversity / Bluetooth version 5
- SSD (optional): M.2 SATA 128 – 512 GB
- SSD (ODM option only): M.2 NVME 128 – 512 GB
- SD card: with MicroSD slot, not bootable
- USB ports: 3 USB 3.1 Gen1
- Serial ports: 2 RS-232
- 2 Mini-DP++ connectors up to 4096 x 2160 @ 60 Hz
- Sound 3.5 mm MIC In / headphone Out, CTIA version
- Controlled FAN (PWM + Tacho) and hardware monitoring
- Power and Status LED
- Power supply: Min. 8 V / Max. 32 V (DC)
- Operating temperature: min. 0 °C to max. +50 °C ambient
 - Operating temperature of EM PRO mini with V1807B processor is limited to: min. 0 °C to max. +40 °C ambient
- Storage temperature: -40 °C to +85 °C
- Relative humidity: 95% @ 40 °C, non-condensing
- Housing: sturdy metal case
- Mounting: stand alone or top-hat rail
- Dimensions approx: 117 x 44 x 113 mm
- Weight: approx. 700g + memory + ssd
- Conformity: CE, ROHS, REACH

Interfaces

Connection Overview

The EM PRO mini BoxPC is equipped with the following standard interfaces:

- 1 – 2x Mini-DP++ connector
- 2 – Dual-USB 3.0 port, type A
- 3 – 2x Ethernet 10/100/1000 Mbit/s (RJ45)
- 4 – Power supply
- 5 – Power button (emergency power button on the rear side)
- 6 – MicroSD card slot
- 7 – USB 3.0 port, type A
- 8 - Sound 3.5 mm MIC In / headphone Out, CTIA version

Front View

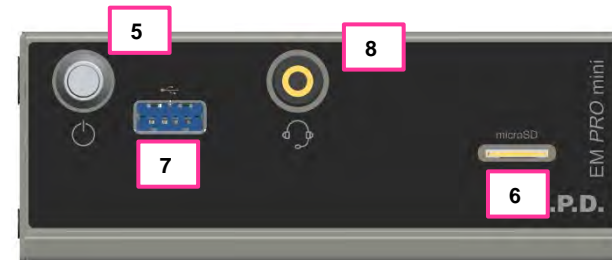


Fig. 9: BoxPC EM PRO mini front view

Rear View

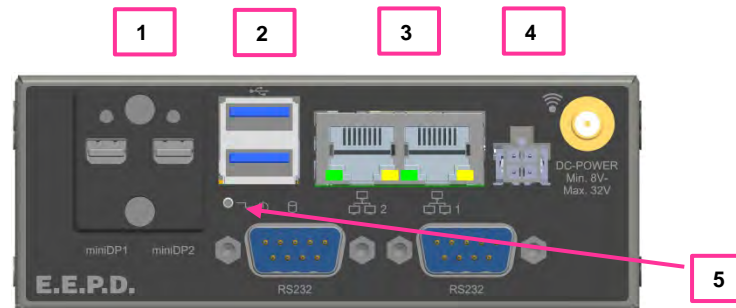


Fig. 10: BoxPC EM PRO mini rear view

MicroSD Card

To lock the card, slide it completely with the connection pins facing downwards into the slot until you hear a click. To remove it, first push the card inwards.

Power Button with LED

The Power Button has an integrated LED that lights up a green ring around the Power button when the system is turned on.

Press the power button (Fig.10) once to switch on the computer.

Hold the power button (>4 Sec.) to turn the system off.



Fig. 11: Power Button with LED | MicroSD Card Slot

HDD/SSD LED

See fig. 11 for the location of the second Power-LED and the HDD/SSD-LED

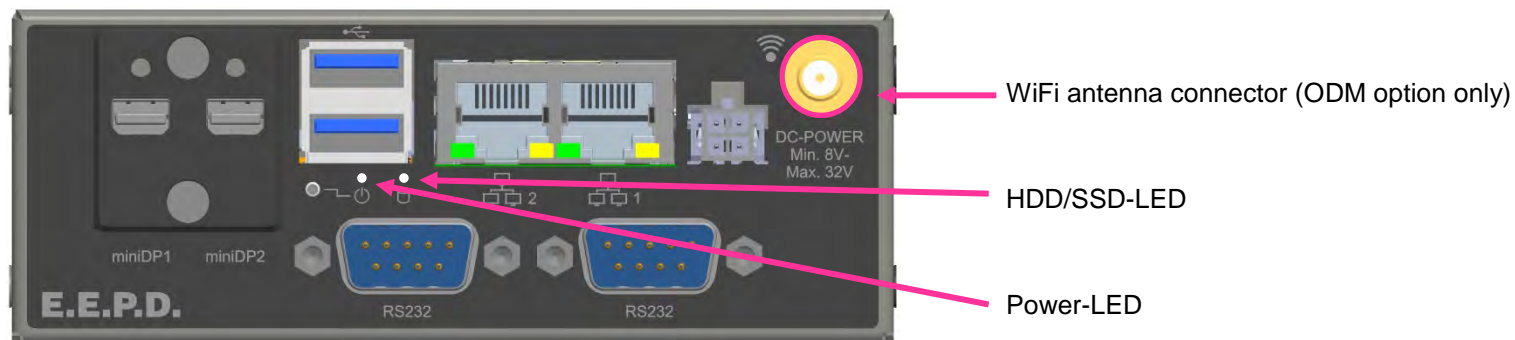


Fig. 12: Power-LED | HDD/SSD-LED

Connections

MiniDisplay Ports

Standard pin assignment

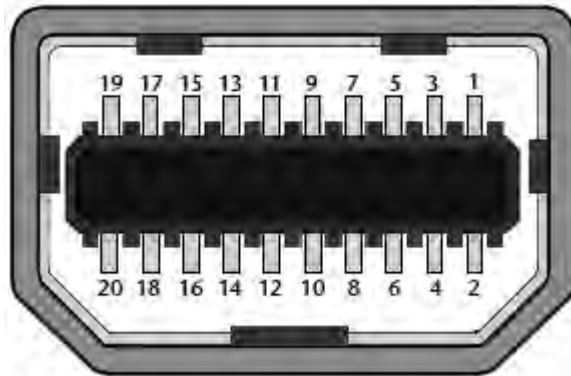


Fig. 13: MiniDisplay port schematic

Important Note:



There are two kinds of DisplayPort cables available:

Cables for direct connection to a MiniDisplay Port monitor with Pin 20 on both ends of the cable NOT connected.

Cables for use with dongles (e.g. MiniDisplay Port to Display Port, MiniDisplay Port to HDMI) with Pin 20 on both ends of the cable connected.

Possible effects if wrong cable is used:

- System might not start up properly.
- Dongle doesn't work properly (e.g. black display).

Dual-USB 3.0

Standard pin assignment



Fig. 14: Dual-USB 3.0 detail

Gigabit Ethernet Dual-Port

Standard pin assignment

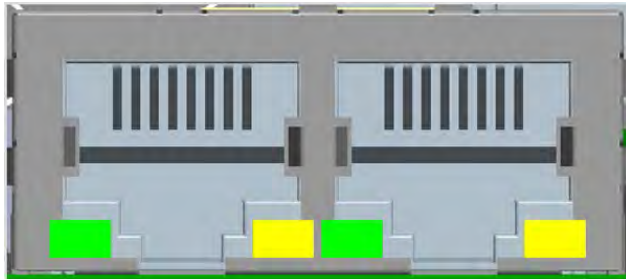


Fig. 15: Dual-Ethernet detail

Yellow LED

Speed-LED is on during 1 Gbit transmission and switched off during 10/100 Mbit transmission.

Green LED

Link-/Activity-LED is permanently on to indicate an active connection on the Ethernet port. LED flashes during communication with the Ethernet network.

Power Connector (DC)

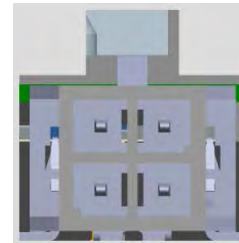


Fig. 16: Power connector detail

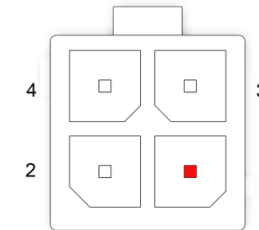


Fig. 17: Power connector schematic



Counterpart - plug:

Nexus Series 2300, 3.00 mm Micro MF Housing with Lock
Ordering Number: 2300P04XXX



| Pin | Signal | Description |
|-----|-----------------|-----------------------------|
| 1 | GND_IN | Ground |
| 2 | GND_IN | Ground |
| 3 | PVIN | DC+ (min. 8 V to max. 32 V) |
| 4 | Connect to PVIN | PVIN detection |

Tab. 3: Pin assignment power connector

Pin 3 and Pin 4 must be always connected to the same power supply!

RS232 Port 1

This option must be enabled in the BIOS.
The 9-pin standard D-Sub connector (Fig.20) is connected to four wires.

| 9-pin D-Sub | Signal |
|-------------|----------|
| 2 | RXD1_X |
| 3 | TXD1_X |
| 5 | GND |
| 7 | RTS1_X_m |
| 8 | CTS1_X_m |

Tab. 4: Pin assignment RS232

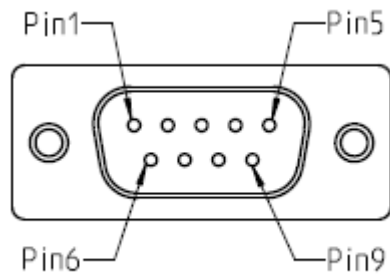


Fig. 18: 9-pin D-SUB connector

RS232 Port 2

This option must be enabled in the BIOS.
The 9-pin standard D-Sub connector (Fig.20) is connected to four wires.

| 9-pin D-Sub | Signal |
|-------------|----------|
| 2 | RXD1_X |
| 3 | TXD1_X |
| 5 | GND |
| 7 | RTS1_X_m |
| 8 | CTS1_X_m |

Tab. 5: Pin assignment RS232

Front USB 3.0 Port

Standard pin assignment

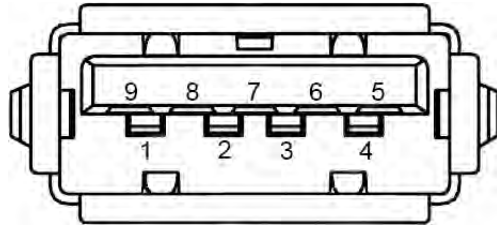


Fig. 19: USB 3.0 Detail

MicroSD Slot

Standard pin assignment



Fig. 20: MicroSD slot detail

Commissioning



If connections are no longer accessible after system installation, connect all cables before final mounting. If necessary, also insert the MicroSD card in advance.



Only connect the power cable when the power supply is switched off.

Before commissioning, we recommend connecting or inserting:

- Monitor
- USB keyboard and mouse
- Network cable (optional)
- MicroSD card
- DC power supply

Other plug & play devices can be connected after commissioning.

Switching on the device / Operation

After all preparations have been made, the system is ready to be connected to the power supply.

Press the power button to switch on the system. When the system is powered, the Power LED on the power button will be on. When the system boots, the Status LED on the housing lights up to indicate that all internal voltages are at normal levels.

If an operating system is installed, it will start now. An operating system installation can be performed with all common installation media such as USB stick, USB DVD drive or remote network start. The BIOS boot order has to be adjusted accordingly. To enter the BIOS setup, press the "Del" key immediately after switching on.

Please refer to the operating system manual for switching off / shutting down.

BIOS

The BIOS ROM has a built-in Setup program that allows users to modify the basic system configurations. This type of information is stored in battery-backed CMOS RAM, so that Setup information is retained when the power is turned off.

Entering Setup

Power on the board and press and hold [Del] immediately to enter Setup.

Main Menu

Once you enter the Setup Utility, the Main Menu (Figure 2) will appear on the screen.

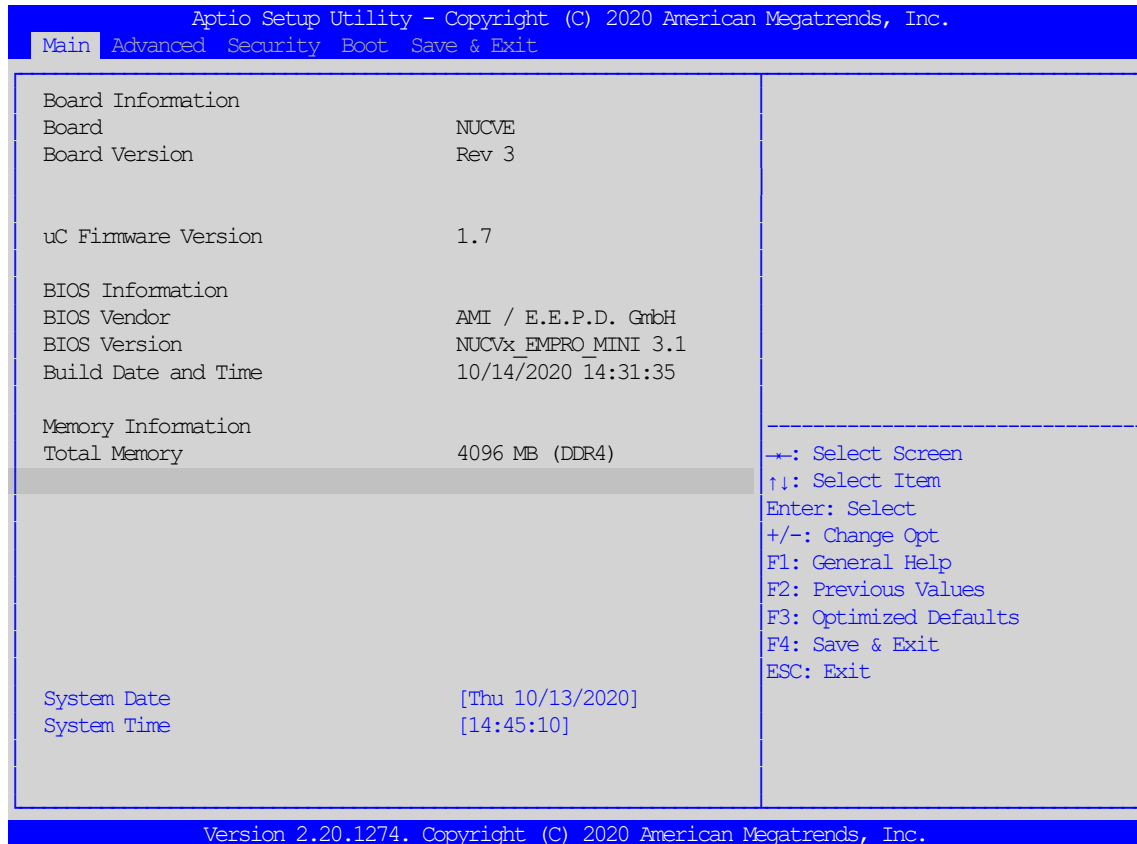


Fig. 21: Main Menu

Board Information

Board This function shows the name of the board variant

Board Version This function shows the HW Revision of the board

uC Firmware Version This function shows the firmware version of the embedded controller

BIOS Information

BIOS Vendor This function shows the vendor name of the BIOS

BIOS Version This function shows the current BIOS version

Build Date and Time This function shows the build date and time of the current BIOS version

Memory Information

Total Memory This function displays the total amount of memory available in the system

System Date/System Time

This option allows you to change the system date and time. Use the arrow keys to highlight the system date or time. Enter new values using the keyboard. Press the <Tab> key or the arrow keys to move between the fields. The date must be entered in MM/DD/YYYYY format. The time is entered in the format HH:MM:SS.

Note: The time is given in 24-hour format. For example, 17:30 is displayed as 17:30:00. The default value of the date is the BIOS build date after resetting the RTC.

Advanced Menu

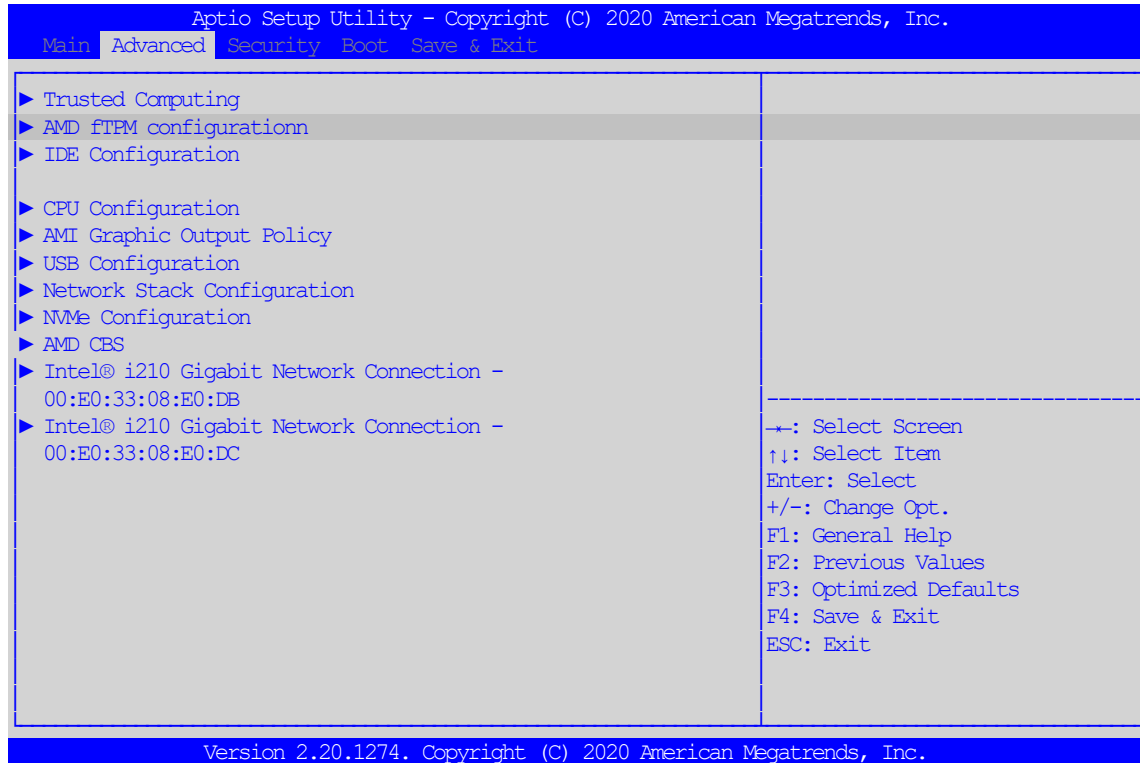


Fig. 22: Advanced Menu

Trusted Computing

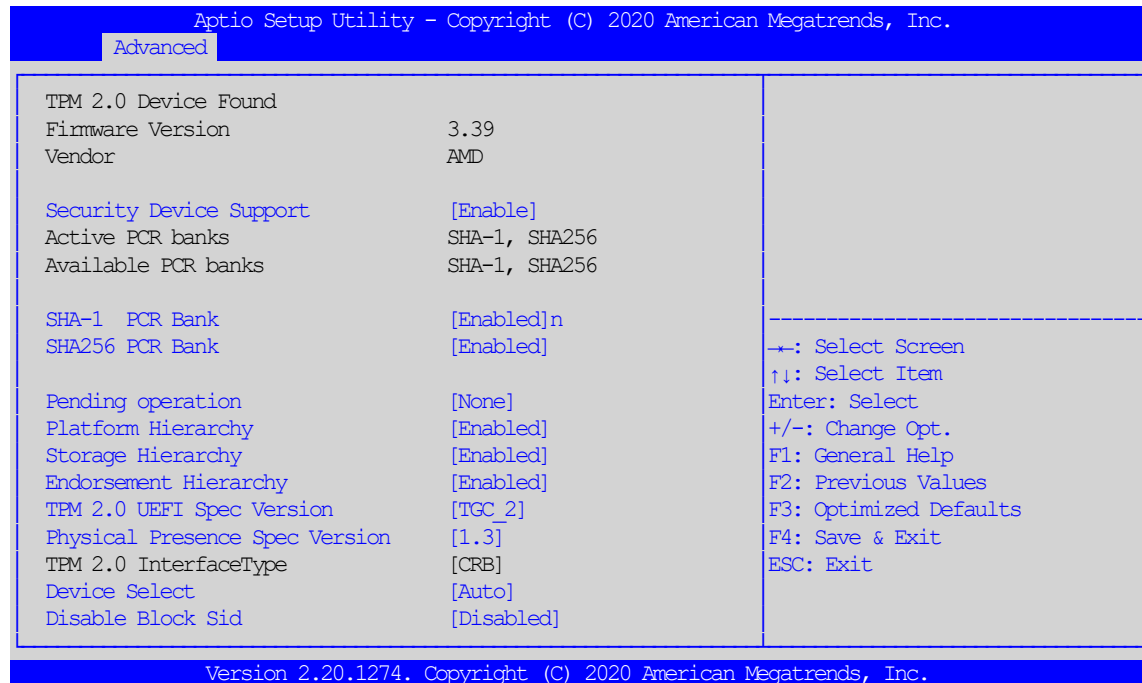


Fig. 23: Trusted Computing

| | |
|--|---|
| Security Device Support: | Enable/Disable Bios support for security device |
| SHA-1 PCR Bank: | Enable/Disable SHA-1 PCR Bank |
| SHA256 PCR Bank: | Enable/Disable SHA256 PCR Bank |
| Pending operation: | Schedule an Operation for the Security Device Note: Computer will reboot in order to change State of Security Device |
| Platform Hierarchy: | Enable/Disable Platform Hierarchy |
| Storage Hierarchy: | Enable/Disable Storage Hierarchy |
| Endorsement Hierarchy: | Enable/Disable Endorsement Hierarchy |
| | |
| TPM 2.0 UEFI Spec Version: | Select the TCG2 Spec Version TCG_1_2: compatible mode for Win8/Win10 TCG_2: new protocol and event format for Win10 or later |
| Physical Presence Spec Version: | Select to tell OS to support PPI Spec Version 1.2 or 1.3. |
| Device Select: | Select TPM 1.2 or TPM2.0 or Auto TPM1.2 restricts support to TPM 1.2 devices. TPM2.0 restricts support to TPM 2.0 devices. Auto supports both. TPM2.0 is default. If TPM2.0 devices not found, TPM 1.2 devices will be enumerated |
| Disable Block Sid: | Override to allow SID authentication in TCG Storage device. Depending on your board variant, this option may not be available. |

AMD fTPM Configuration Menu

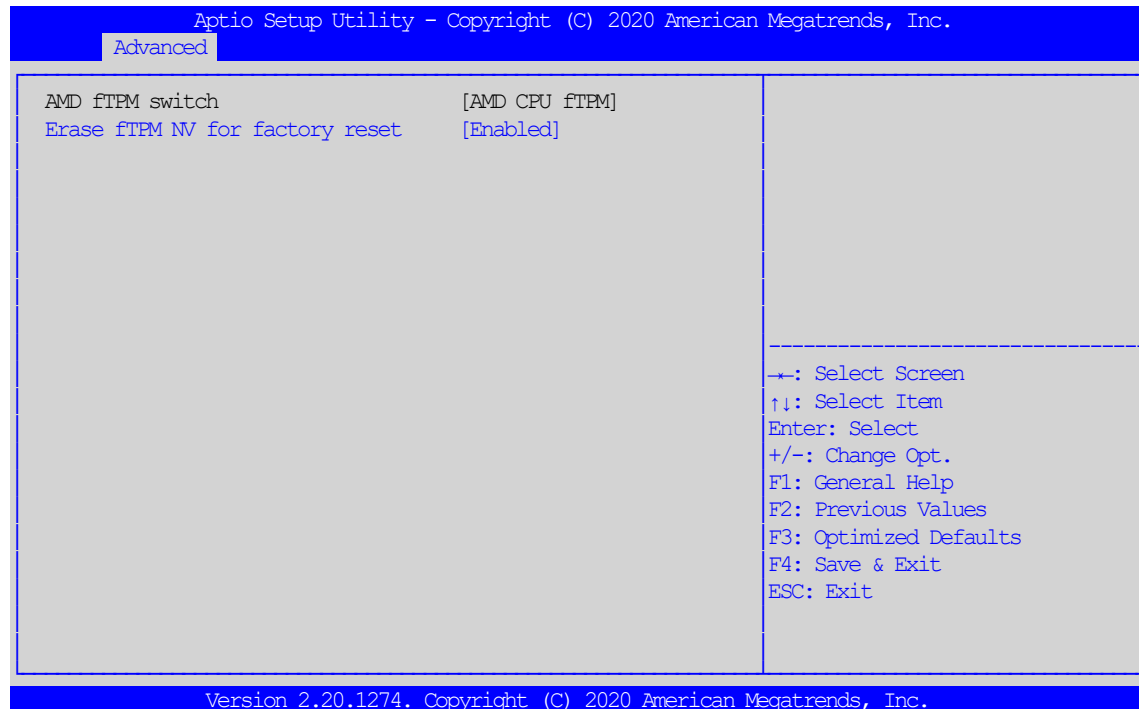


Fig. 24: AMD fTPM Configuration Menu

AMD fTPM switch

AMD CPU fTPM

Erase fTPM NV for factory reset

Select [Enabled] when a new CPU is installed. fTPM is reset. If you have BitLocker or encryption-enabled system, system will not boot without recovery key. Select [Disabled] to keep previous fTPM record and continue system boot.

fTPM will not be enabled with new CPU unless fTPM is reset

IDE Configuration

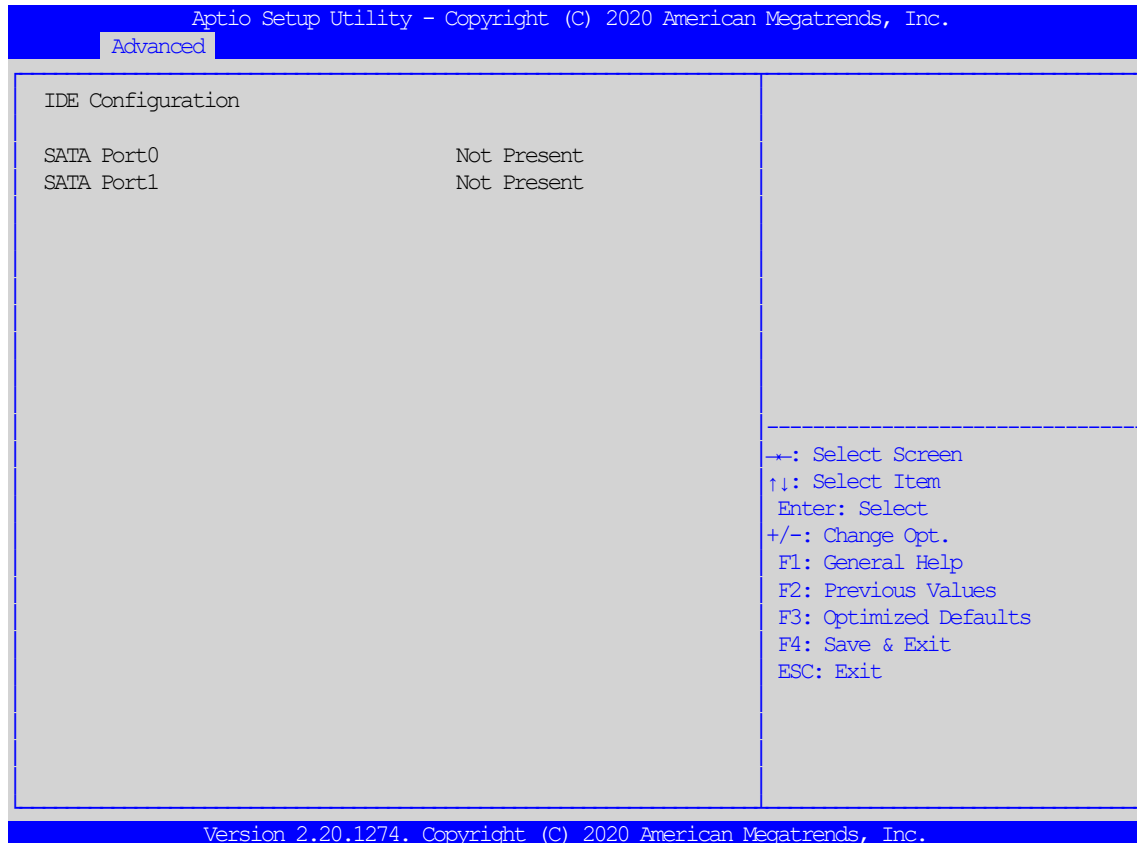


Fig. 25: IDE Configuration

This page provides information about SATA configuration.

CPU Configuration

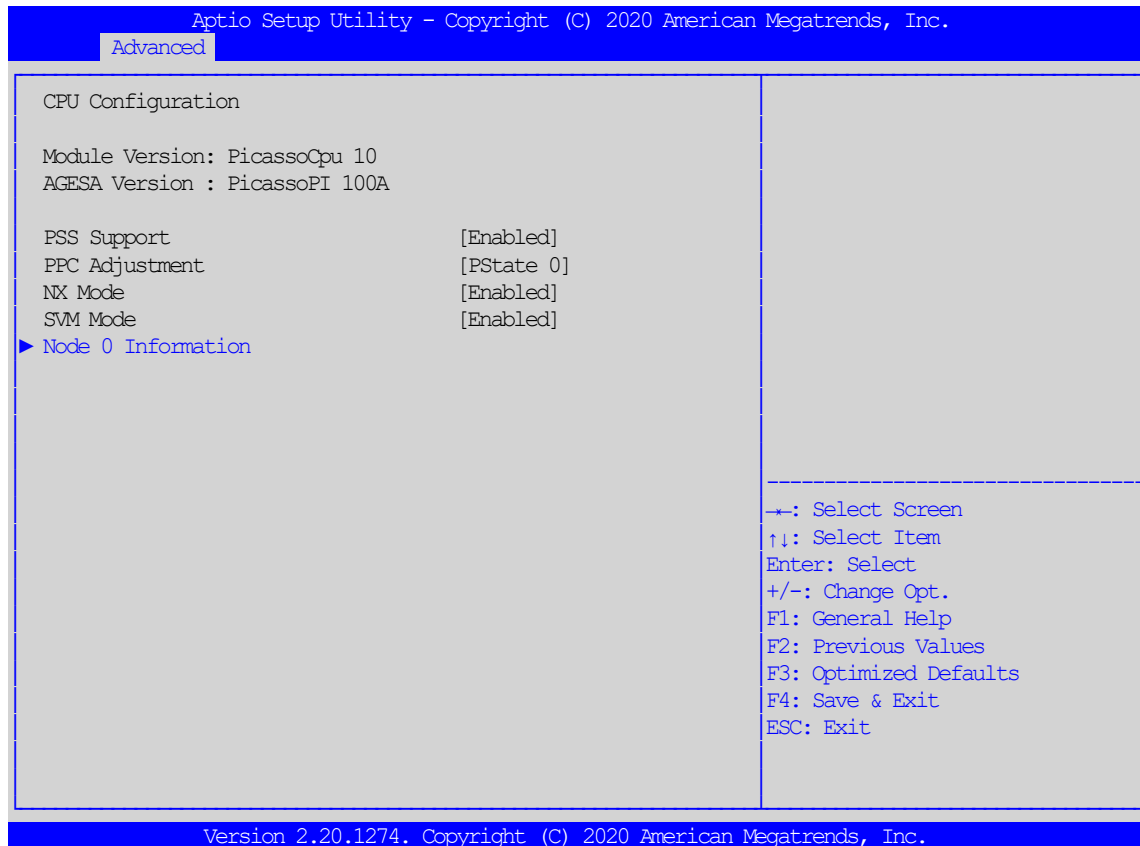


Fig. 26: CPU Configuration

Node 0 Information: Detailed Information on CPU.
 Processor Family | Processor Model | CPU ID | MAX/MIN Speed (Frequency) | Cache

Graphic Output Protocol Policy

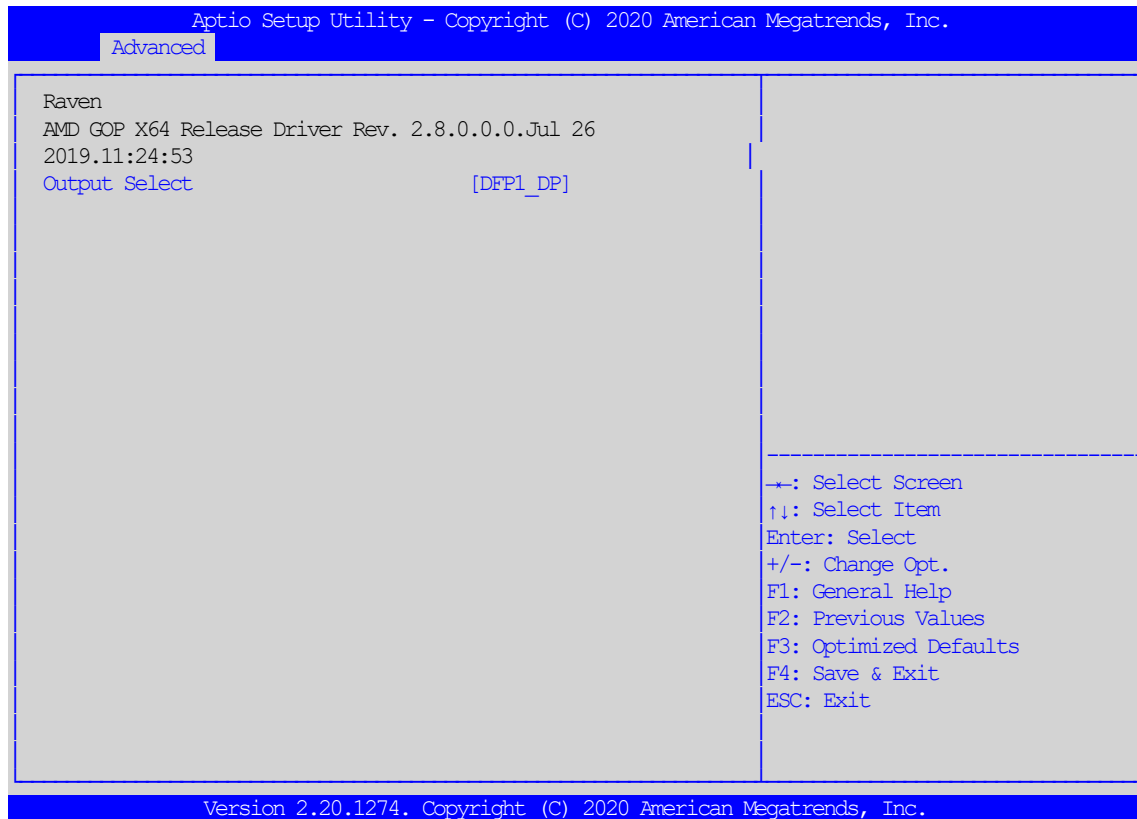


Fig. 27: Graphic Output Protocol Policy

Output Select

In Dual Screen Operation, select the pre-OS boot graphic output Interface.

USB Configuration

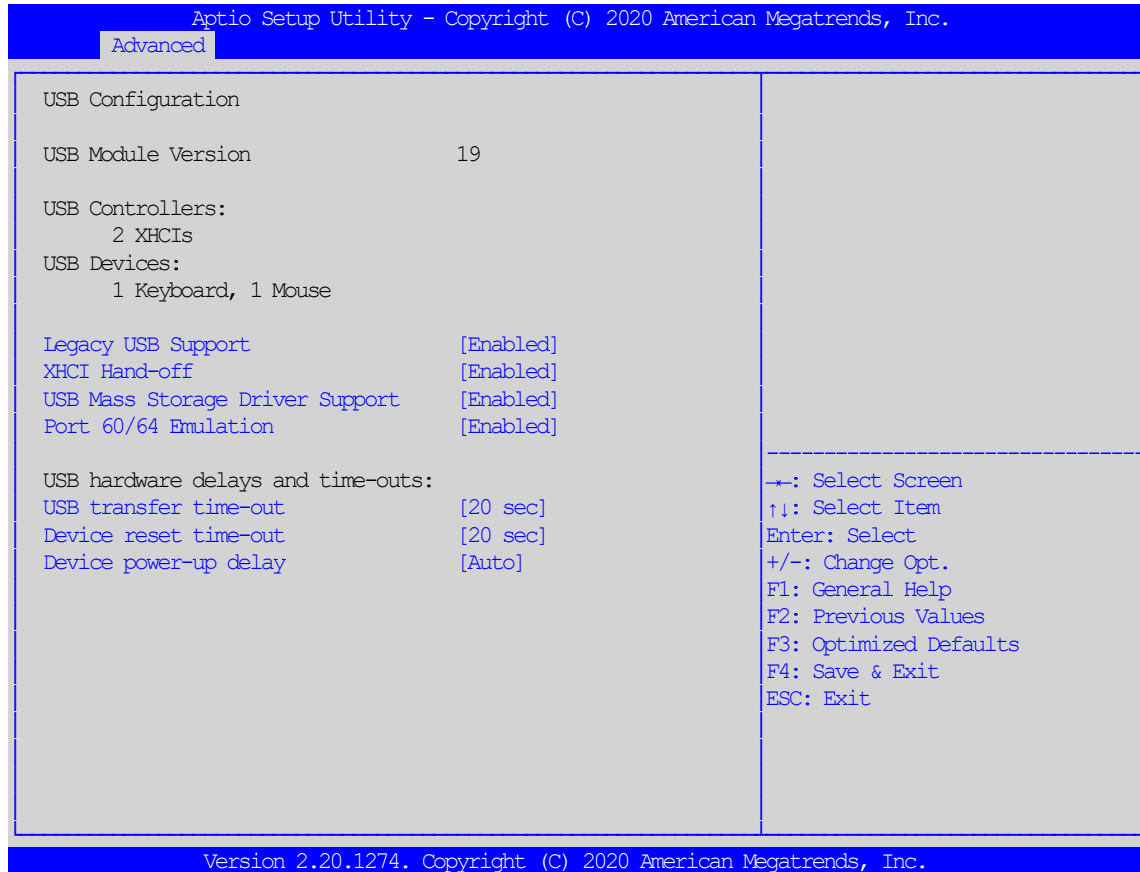


Fig. 28: USB Configuration

USB Configuration

| | |
|--|--|
| USB Module Version: | Shows the USB module version used by the UEFI firmware |
| USB Controllers: | Shows the number of XHCI controllers that are available |
| USB Devices: | Shows the connected USB devices |
| Legacy USB Support: | Select Enabled to support legacy onboard USB devices. Select Auto to disable support for legacy USB devices if no legacy USB devices are present. Select Disabled to have all USB devices available for EFI applications only. The options are Enabled, Disabled and Auto. |
| XHCI Hand-off: | This is a workaround for operating systems that do not support XHCI (Extensible Host Controller Interface) passing. The XHCI change of ownership should be requested by the XHCI driver. The available settings are Enabled or Disabled. |
| USB Mass Storage Driver Support: | Select Enabled for USB mass storage device support. The options are Disabled and Enabled. |
| Port 60/64 Emulation: | Enables I/O port 60/64 emulation support |
| USB hardware delays and time-outs | |
| USB transfer time-out: | Select time-out section. The time-out value for control, mass and interrupt transfers. Default setting is 20sec. |
| USB reset time-out: | Select device time-out section. USB mass storage devices start unit command time-out. Default setting is 20sec. |
| USB power-up time-out: | Select device power-up section. Maximum time the device takes before it properly reports itself to the host controller. Auto uses a default value: for a root port, it is 100 ms, for a hub port the delay is taken from the hub descriptor. |

Network Stack Configuration

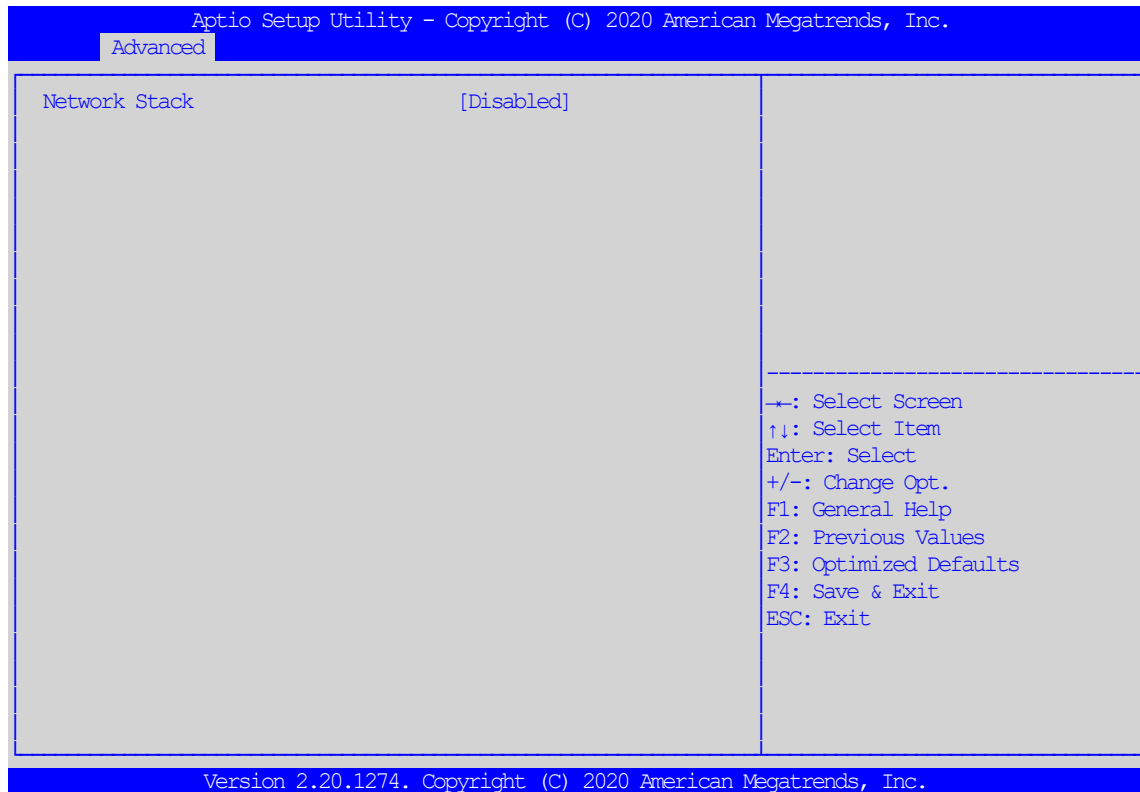


Fig. 29: Network Stack Configuration

Network Stack:

Select Enabled to enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are Disabled and Enabled. * ***When the above function is set to Enabled, the following functions are available for configuration:***

Ipv4 PXE Support:

Select Enabled to enable IPv4 PXE boot support. The options are Disabled or **Enabled**

Ipv4 HTTP Support:

Select Enabled to enable IPv4 HTTP boot support. The options are **Disabled** or Enabled

Ipv6 PXE Support:

Select Enabled to enable IPv6 PXE boot support. The options are Disabled or **Enabled**

Ipv6 HTTP Support:

Select Enabled to enable IPv6 HTTP boot support. The options are **Disabled** or Enabled

IPSEC Certificate:

The function is displayed when network stacking is enabled. Internet Protocol Security (IPSEC) provides a secure connection for remote computers through a secure tunnel. The options are Disabled or Enabled

PXE boot wait time:

This function allows you to set the waiting time for pressing the ESC key to cancel the PXE boot process. Press "+" or "-" on your keyboard to change the value. The default setting is 0.

Media detect count:

This function allows you to specify how often media should be checked. Press "+" or "-" on your keyboard to change the value. The default setting is 1.

NVME Configuration

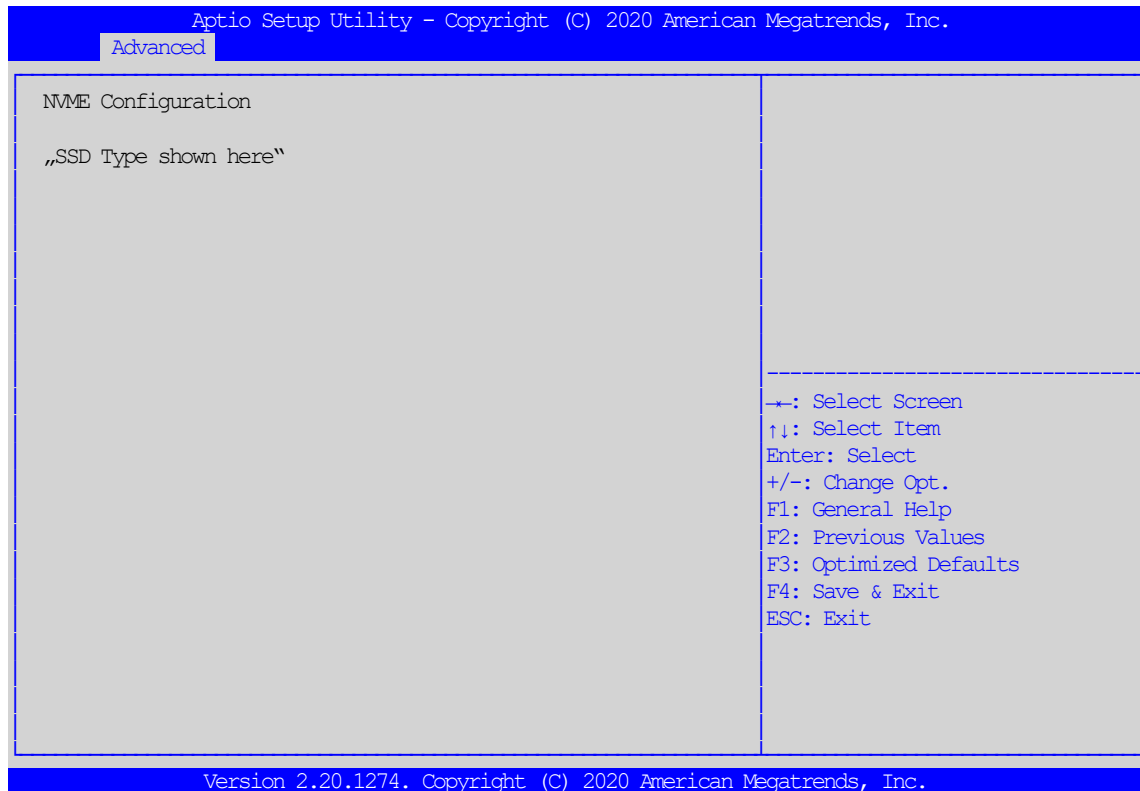


Fig. 30: NVME Configuration

NVME Configuration

This function shows the connected NVME device.

AMD CBS

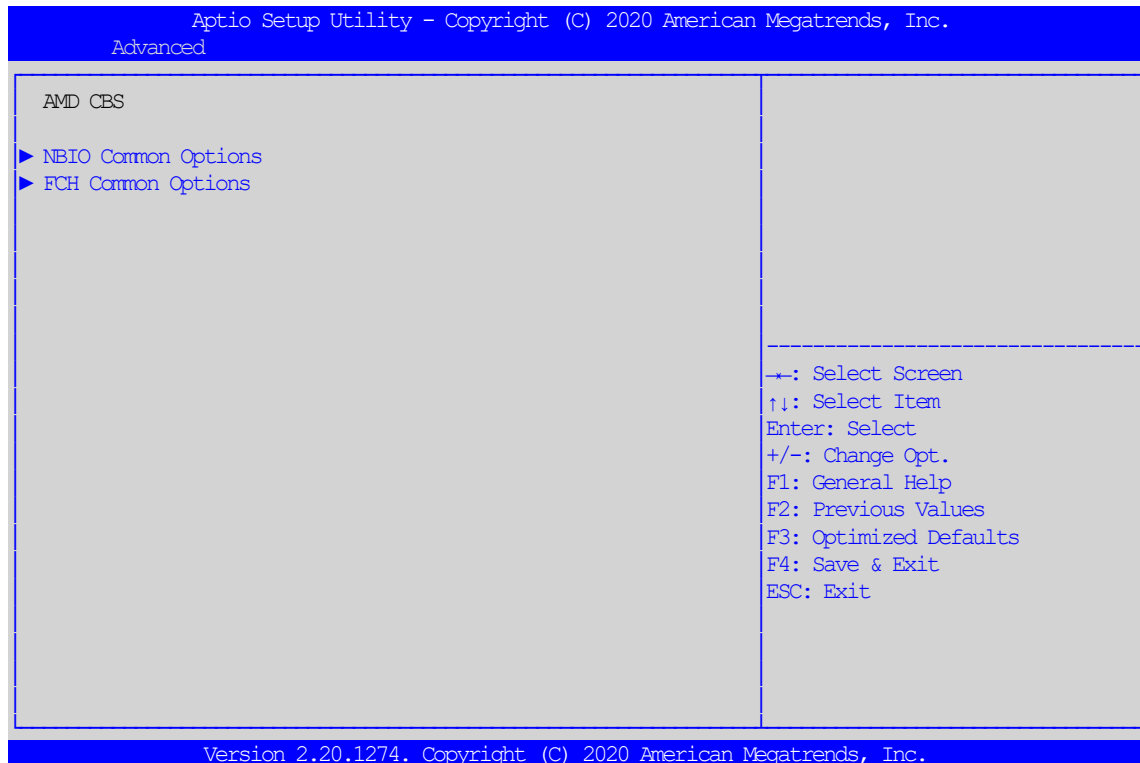


Fig. 31: AMD CBS Screen

NBIO Common Options

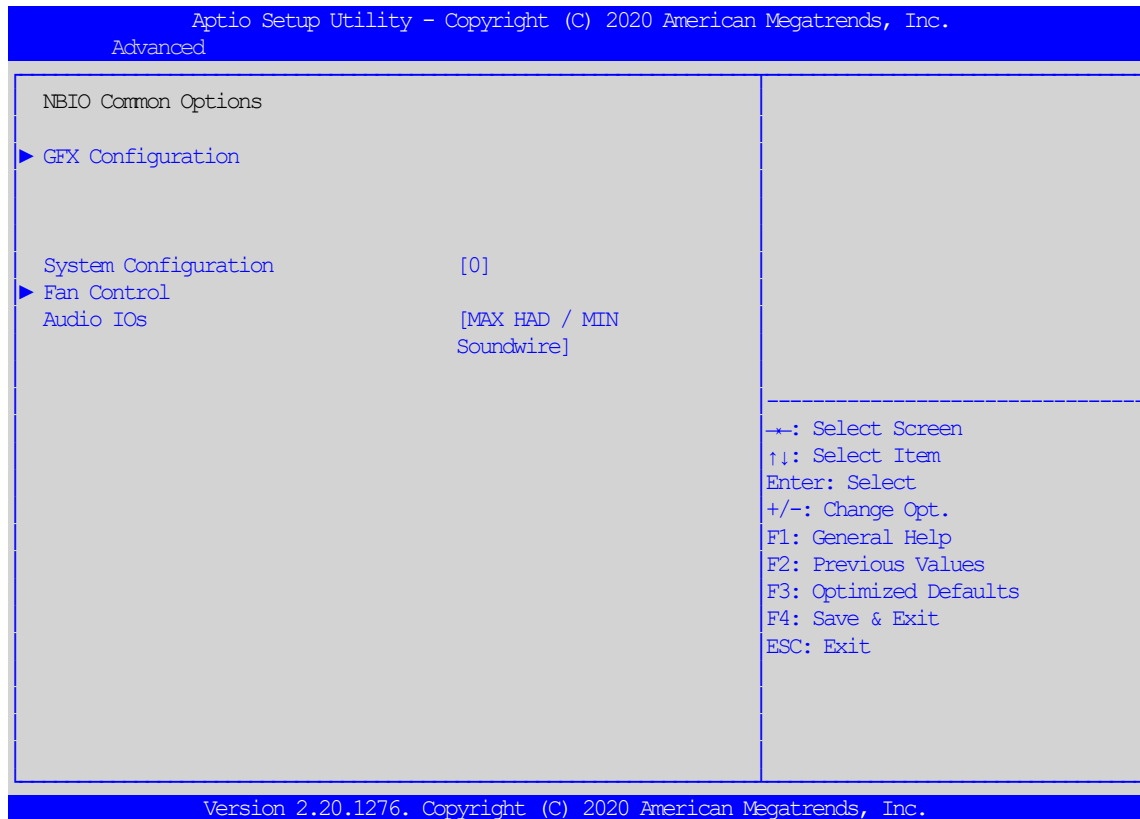


Fig. 32: NBIO Common Options

System configuration:

With this function the max system performance can be set. 0 = default, value is read from the corresponding register of the CPU.

Audio IOs:

This function shows the used audio interface.

GFX Configuration

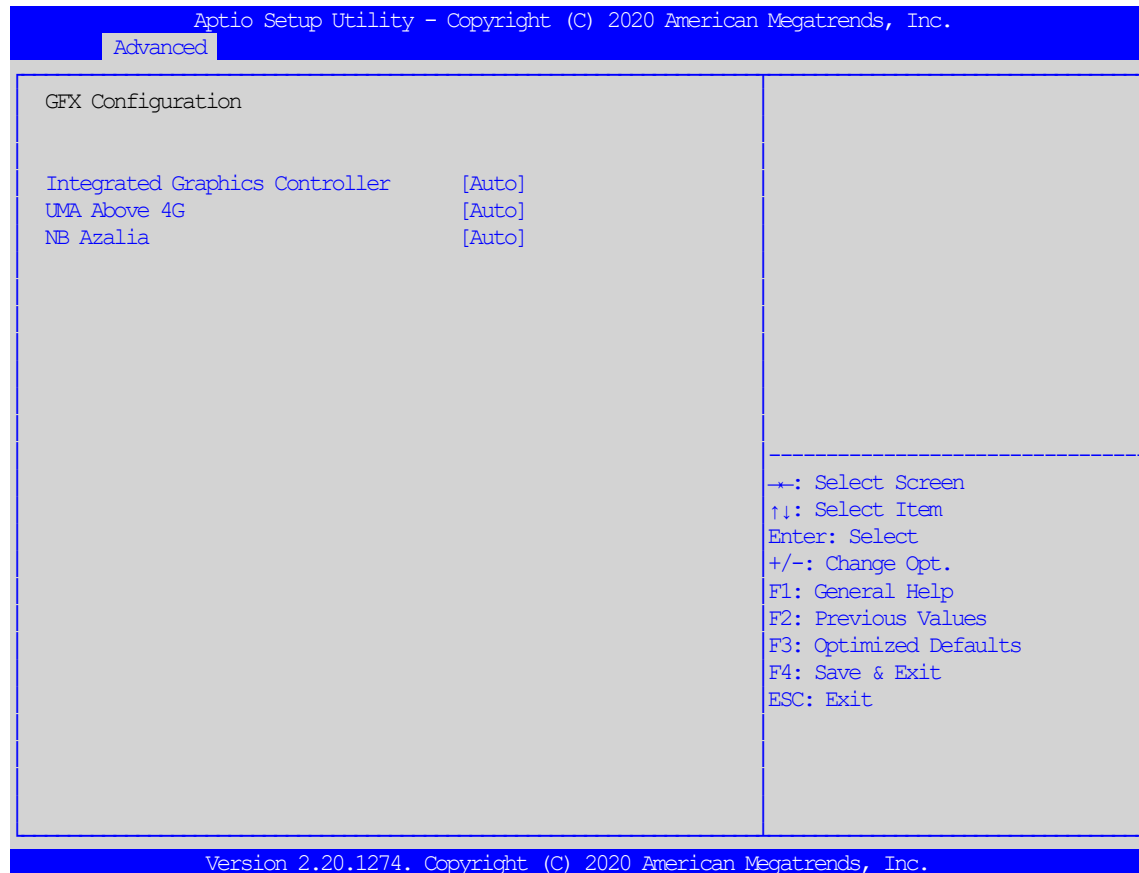


Fig. 33: GFX Configuration

GFX Configuration

Integrated Graphics Controller:

This function allows you to enable or disable the integrated graphics controller

UMA Above 4G:

This option enables or disables 64-bit capable devices to be decoded in above 4G address space. It only works if the system supports 64-bit PCI decoding.

Configuration options: Disabled, Enabled, Auto

NB Azalia:

Select Enabled to enable the Azalia High Definition Audio feature

Configuration options: Disabled, Enabled, Auto

Fan Control

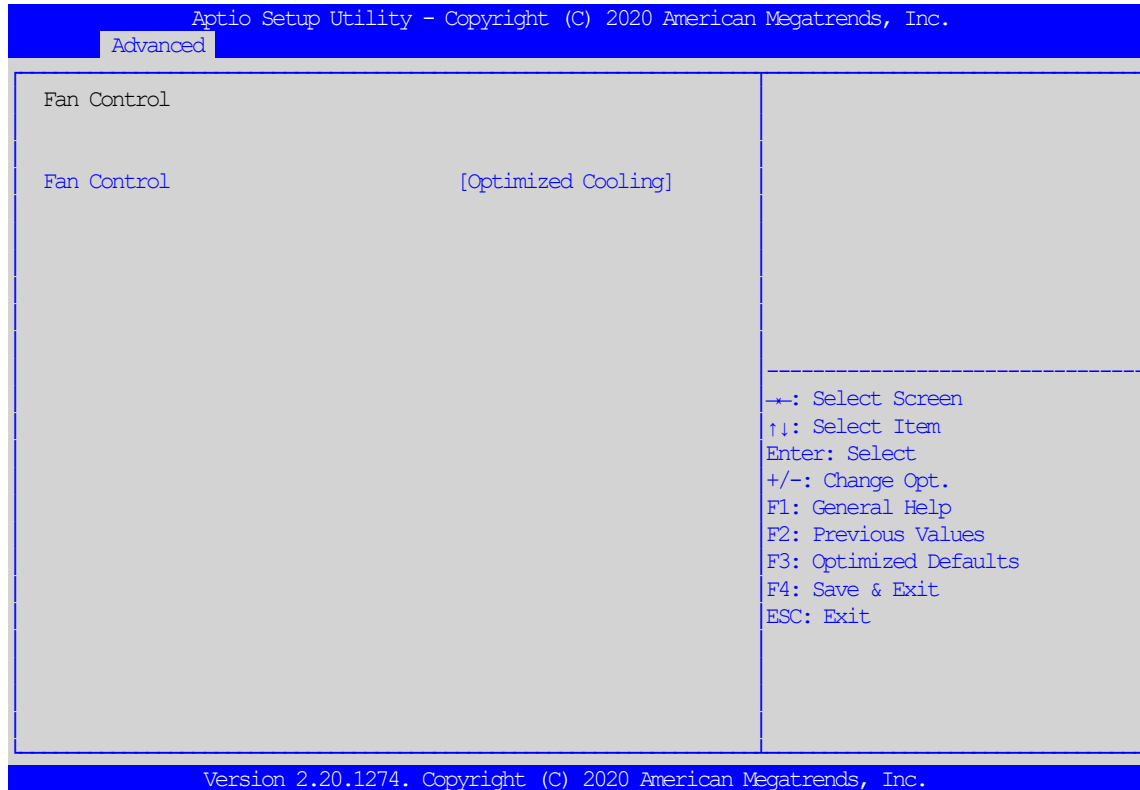


Fig. 34: Fan Control

FAN Control:

This function selects predefined cooling profiles. Configuration options: Optimized Cooling, Silent Mode, Max Cooling.

FCH Common Options

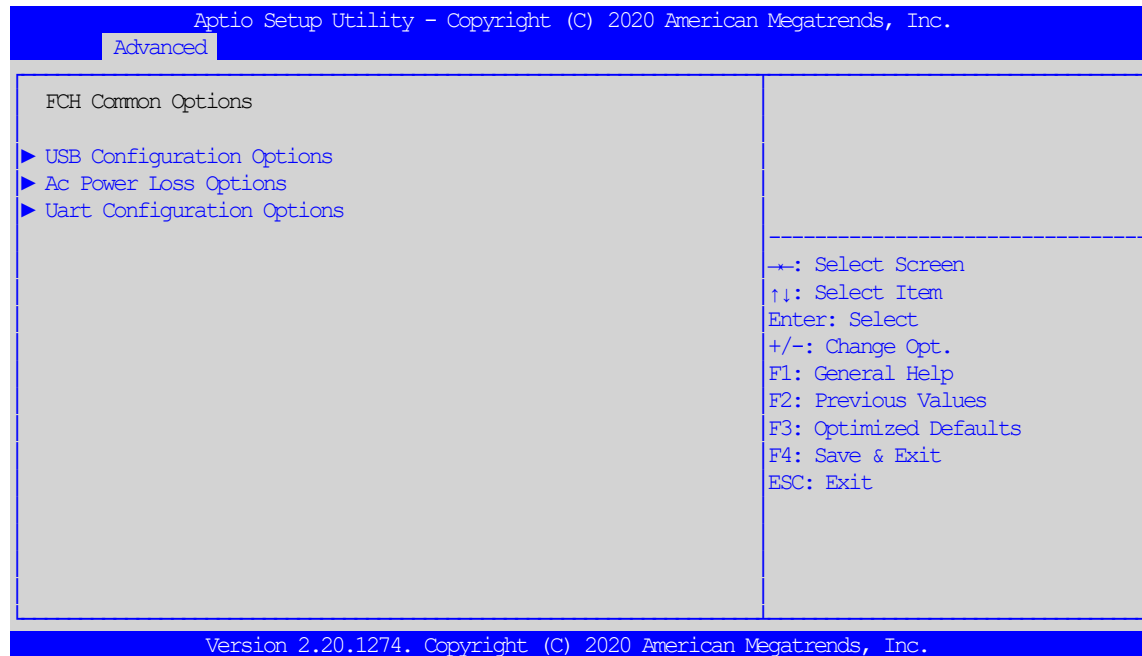


Fig. 35: FCH Common Options

USB Configuration Options

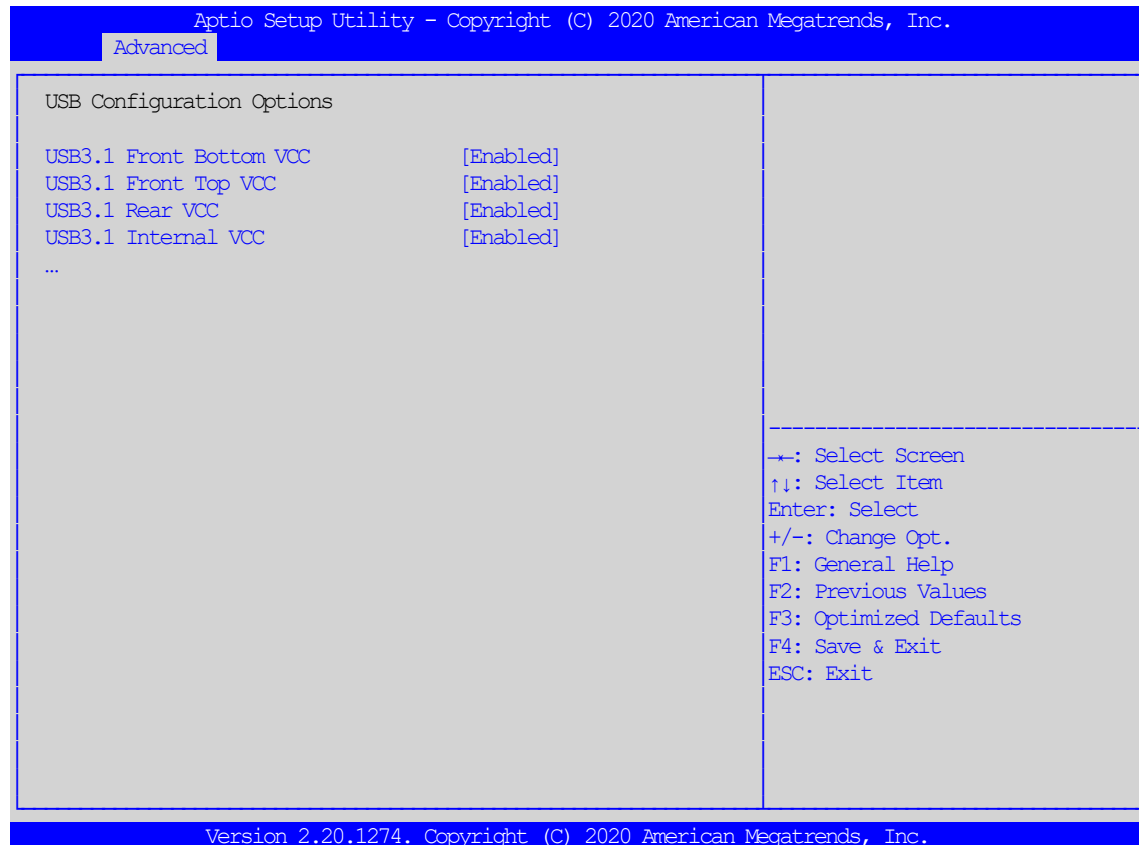


Fig. 36: USB Configuration Options

USB Configuration Options

- USB3.1 Front Bottom VCC:** This function allows you to enable or disable the power for the Front Bottom USB port.
- USB3.1 Front Top VCC:** This function allows you to enable or disable the power for the Front Top USB port.
- USB3.1 Rear VCC:** This function allows you to enable or disable the power for the Rear USB port.
- USB3.1 Internal VCC:** This function allows you to enable or disable the power for the internal USB header.

Note: In order to not exclude yourself from the BIOS setup, at least one USB port should be enabled at all times. In case you select the “Disabled” option on all ports, the “USB31Front Bottom VCC” port will automatically be enabled by the system.

Ac Power Loss Options

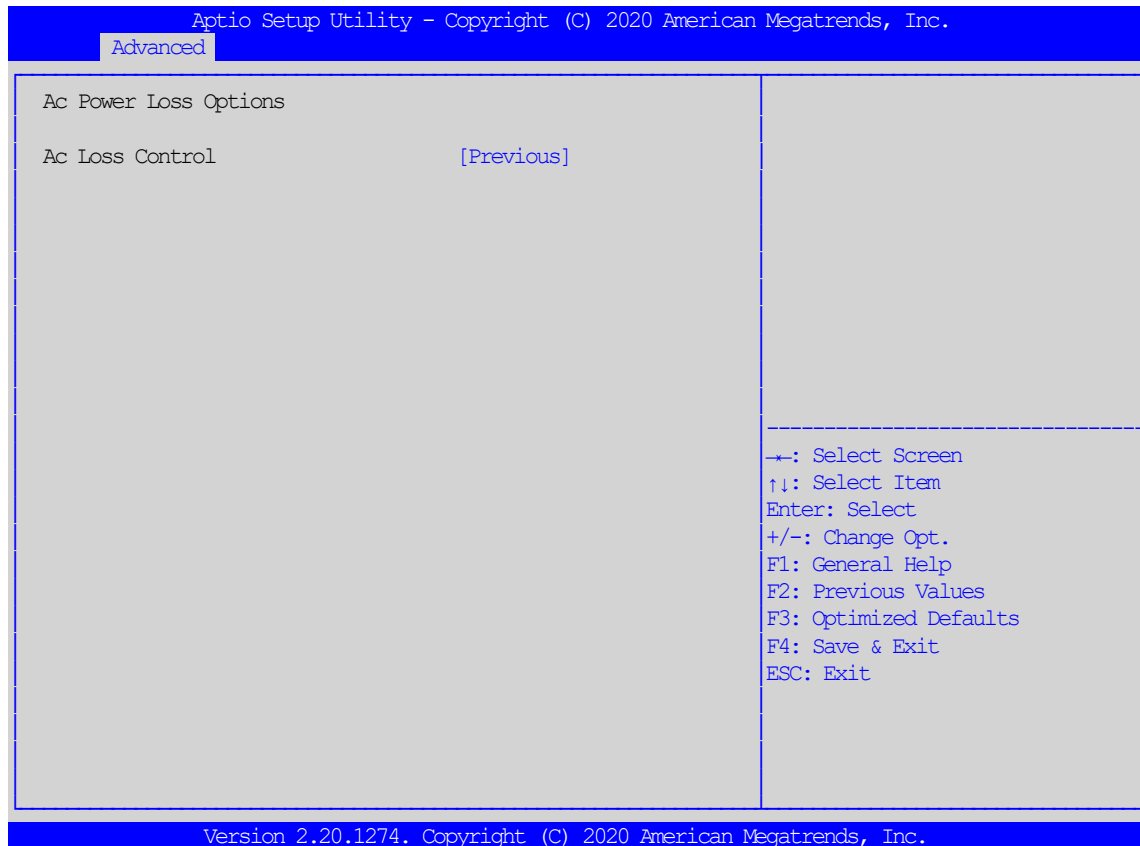


Fig. 37: Ac Power Loss Options

Ac Power Loss Options

Ac Loss Control:

This function allows you to set the power status after a power failure. Select Always Off to keep the system power off after a power failure. Select Always On to turn on the system power after a power failure. Select Previous to allow the system to resume its last power state before a power failure. Configuration options: Always On, Always Off, Previous.

Uart Configuration Options

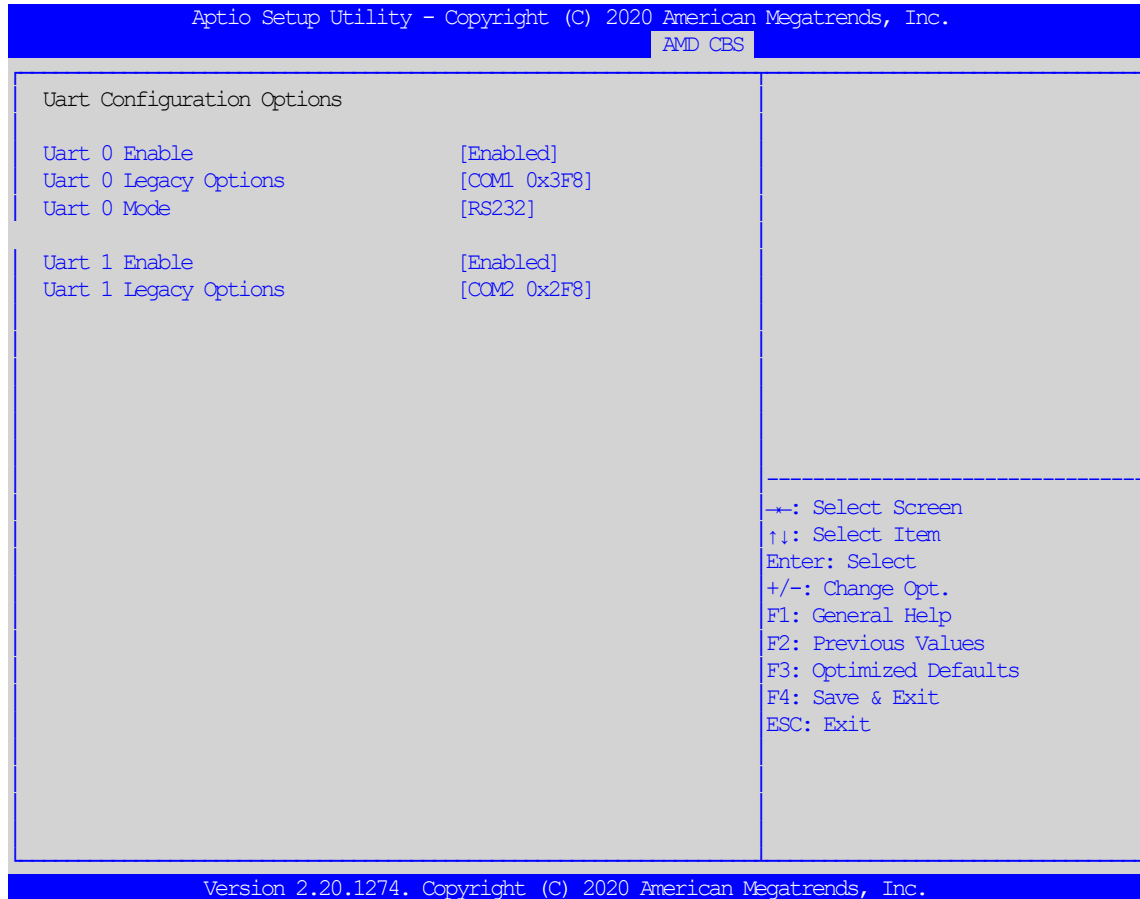


Fig. 38: Uart Configuration Options

UART Configuration Options

UART 0 Enable:

This function allows you to enable or disable the UART0 port. Configuration options: Disabled, Enabled, Auto

UART 0 Legacy Options:

This function specifies the base I/O port address of a user-specified serial port. Select Auto to allow the BIOS to automatically assign the base I/O address. Configuration options: Disabled | COM1 0x3F8 | COM2 0x2F8 | COM3 0x3E8 | COM4 0x2E8 | Auto

UART 0 Mode:

Shows the UART Mode – RS232

UART 1 Enable:

This function allows you to enable or disable the UART1 port. Configuration options: Disabled, Enabled, Auto

UART 1 Legacy Options:

This function specifies the base I/O port address of a user-specified serial port. Select Auto to allow the BIOS to automatically assign the base I/O address. Configuration options: Disabled | COM1 0x3F8 | COM2 0x2F8 | COM3 0x3E8 | COM4 0x2E8 | Auto

FCH Common Options

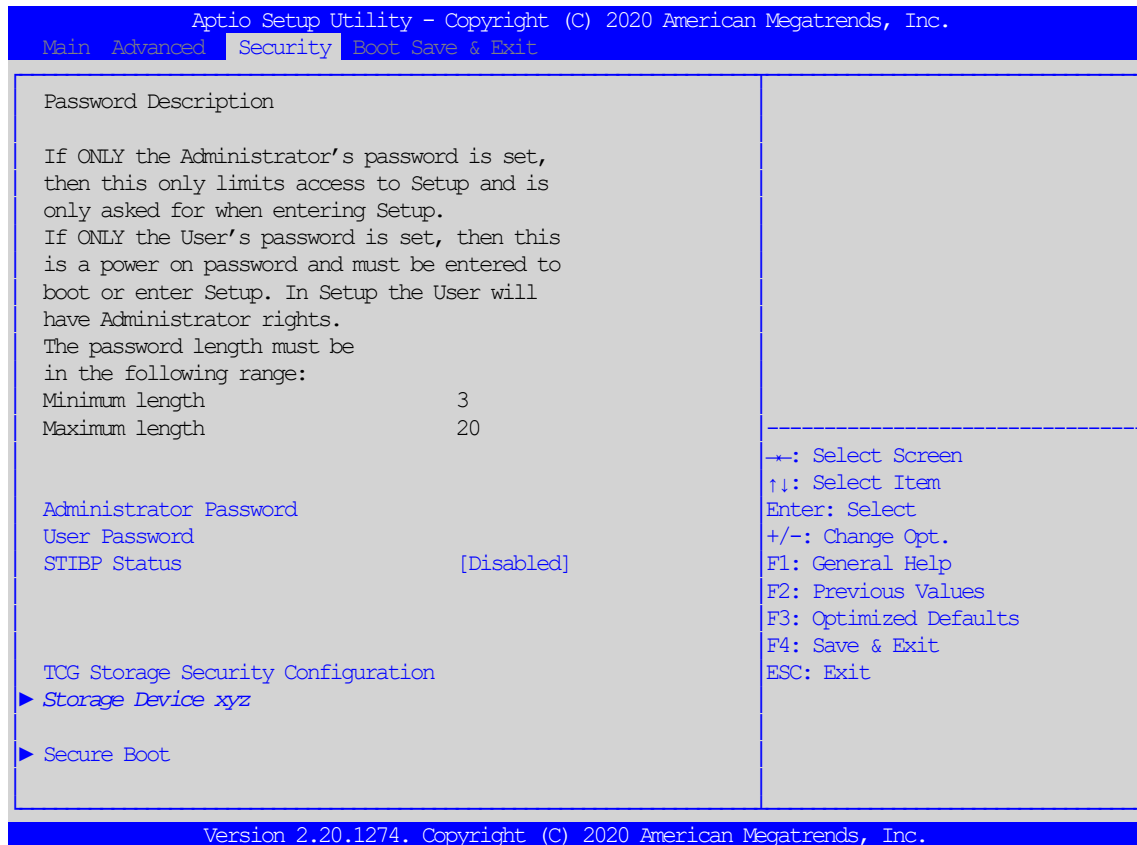


Fig. 39: FCH Common Options

- Administrator Password:** Use this feature to set the administrator password required to enter the BIOS setup utility. The password should be 3 to 20 characters long. - this controls access to the BIOS setup ONLY
- User Password:** Press Enter to create a new, or change an existing User password. - this password must be entered at each system start or boot and also has administrator rights in the setup.
- STIBP Status:** The STIBP-BIOS function (Single Thread Indirect Branch Predictor, STIBP) mitigates the Spectre variant 2 vulnerability on systems with AMD processors. Enabling STIBP may have some performance impact depending on system load.

Secure Boot

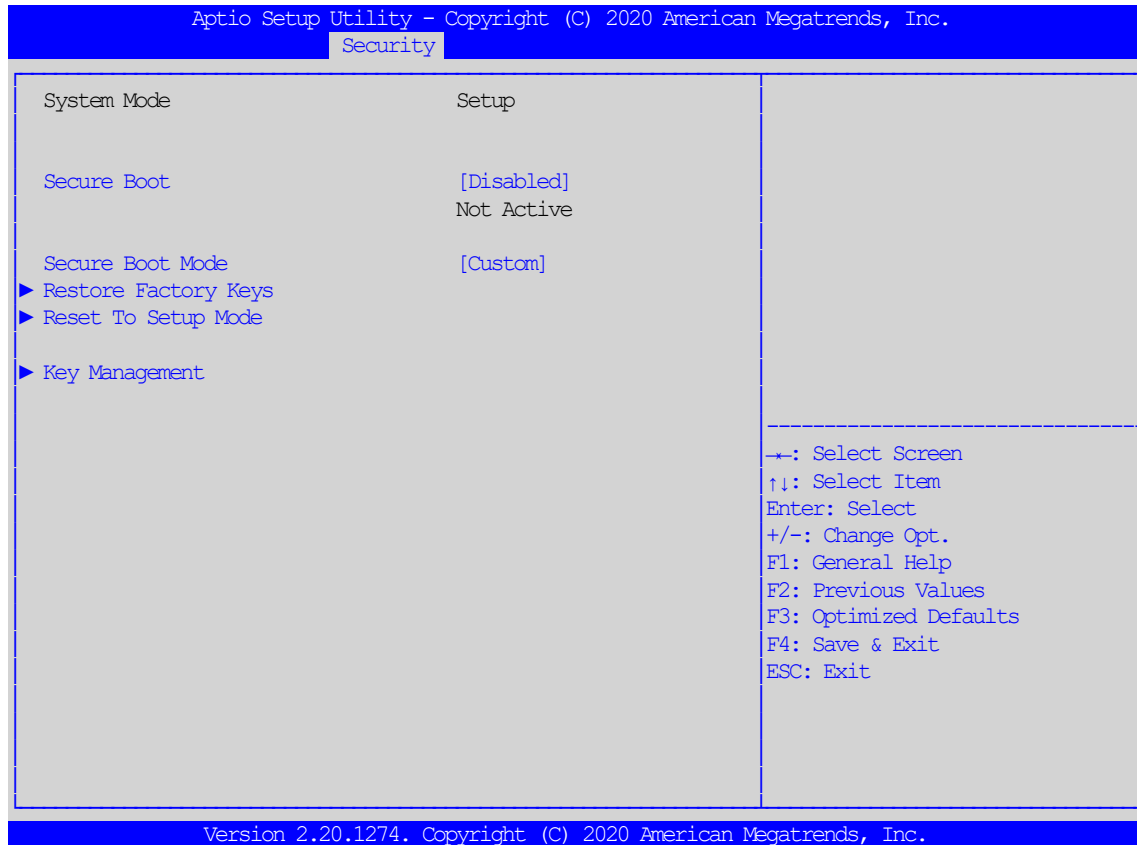


Fig. 40: Secure Boot

Secure Boot

Secure Boot Mode:

This function allows you to select the desired secure boot mode for the system. The options are Standard and Custom. When the Secure Boot Mode is set to Custom, Key Management functions are available for configuration

Key Management

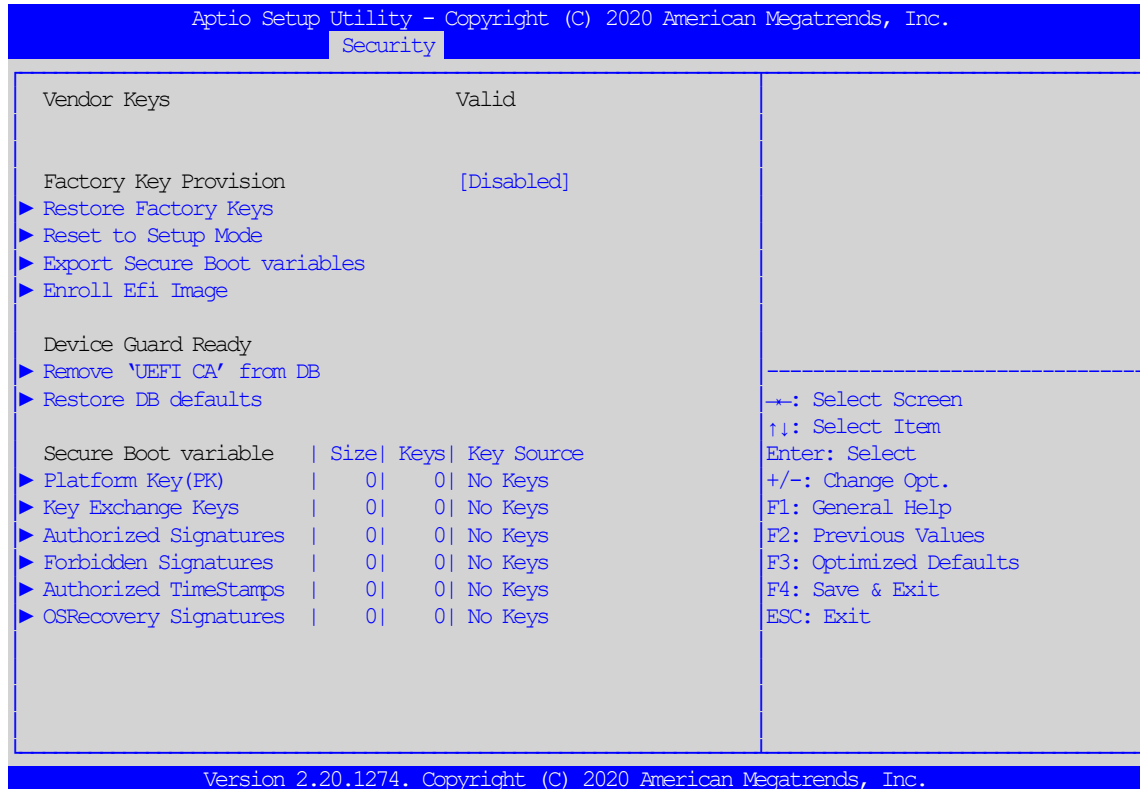


Fig. 41: Key Management

Vendor Keys

| | |
|--------------------------------------|--|
| Factory Key Provision: | The options are Disabled or Enabled. Select Enabled to install the default Secure Boot Keys set by the manufacturer. |
| Restore Factory Keys: | Force System to User Mode. Install factory default Secure Boot key databases |
| Reset To Setup Mode: | Delete all Secure Boot key databases from NVRAM and force the system to Setup Mode. |
| Export Secure Boot variables: | Use this feature to copy NVRAM content of the Secure Boot variables to a file in a root folder on a file system device |
| Enroll Efi Image: | This feature allows the image to run in Secure Boot mode |
| Remove 'UEFI CA' from DB: | Use this feature to remove the Microsoft UEFI CA certificate from the database |
| Restore DB defaults: | Restore all DBs to the factory default settings |
| Secure Boot variable: | |
| Platform Key (PK): | Options are Details, Export, Update or Delete |
| Key Exchange Keys: | Options are Details, Export, Update, Append or Delete |
| Authorized Signatures | Options are Details, Export, Update, Append or Delete |
| Forbidden Signatures | Options are Details, Export, Update, Append or Delete |
| Authorized TimeStamps | Options are Update or Append |
| OsRecovery Signatures | Options are Update or Append |

Boot Menu

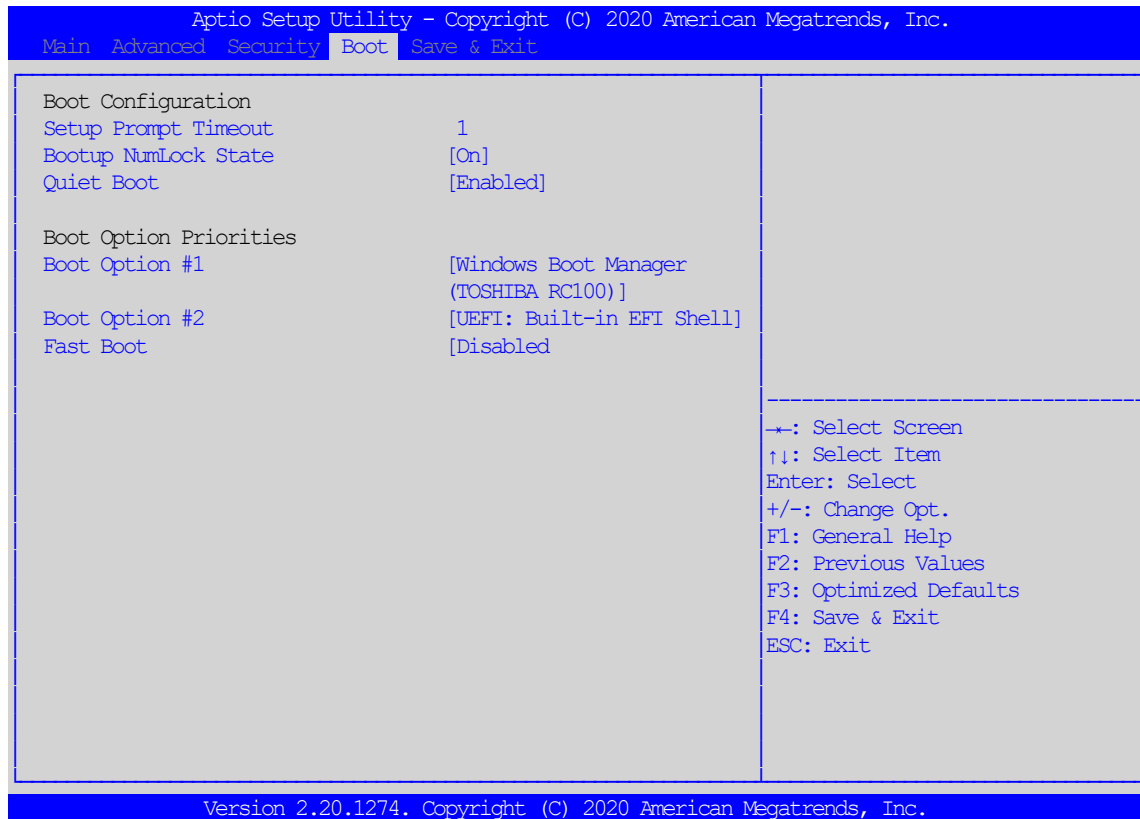


Fig. 42: Boot Menu

Boot

- Boot Configuration:** Use this menu to configure boot settings
- Setup Prompt Timeout** This function allows you to specify the amount of time (in seconds) the BIOS should wait before rebooting the system when the Setup Activation key is pressed. Enter the value 65535 (0xFFFF) that the BIOS should wait indefinitely. The default setting is 1.
- Boot NumLock State:** Select the keyboard NumLock state
- Quiet Boot:** This function allows you to select the screen display between POST messages or the E.E.P.D. logo at startup. Select 'Enabled' to display the E.E.P.D logo instead of the normal POST messages. Select 'Disabled' to display the POST messages.
- Boot Option Priorities:** This option prioritizes the order of bootable devices from which the system is booted. Press <Enter> on each entry from top to bottom to select devices.
- Fast Boot:** Fast Boot is a BIOS feature that shortens the boot time. The computer will boot with a minimal set of required devices.

If one if the following options is disabled, they will not be available until after OS Boot: SATA Support, NVMe Support, VGA Support, USB Support, PS2 Support, Network Stack Driver Support, Redirection Support

Save & Exit Menu

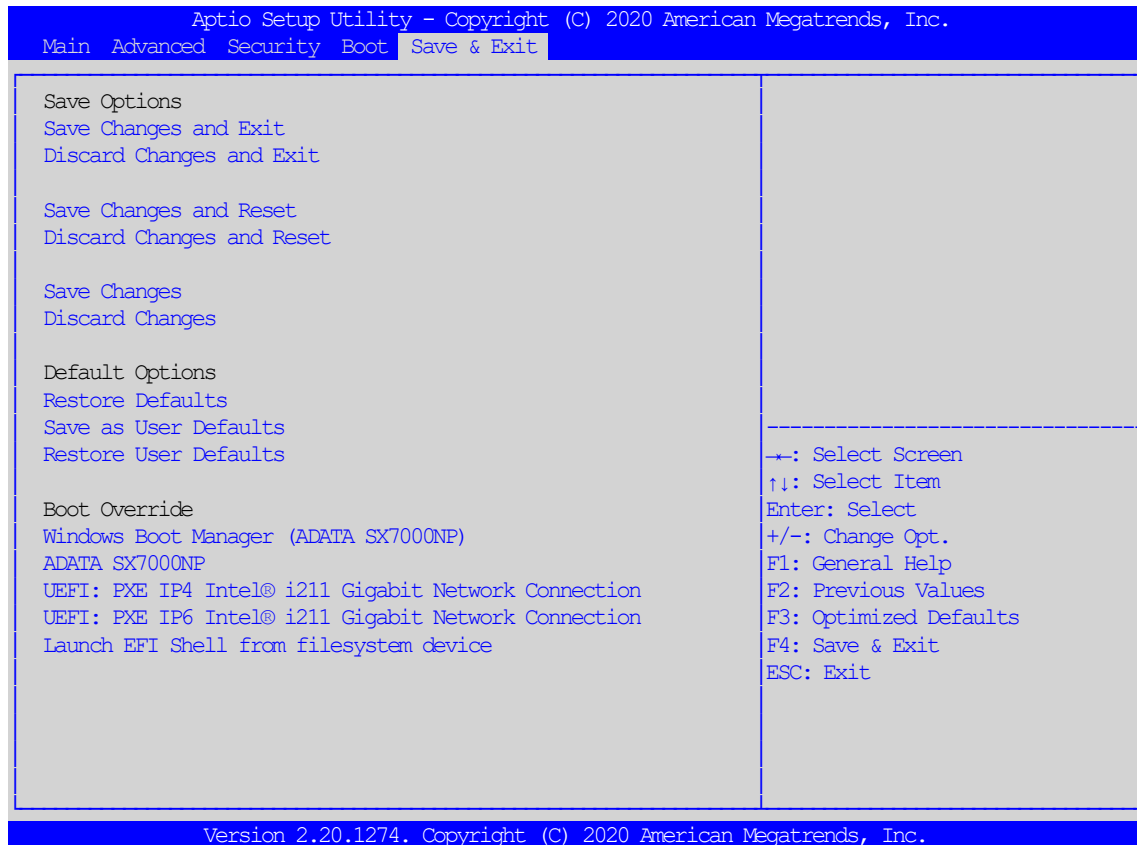


Fig. 43: Save & Exit Menu

Save Options

- Save Changes and Exit:** Select this option to save all changes made. This will exit the BIOS setup and reboot the system.
- Discard Changes and Exit:** Select this function to exit the BIOS setup without making permanent changes to the system configuration and restart the computer.
- Save Changes and Reset:** Select this option to save all changes made and reset the system.
- Discard Changes and Reset:** Reset the system setup without saving any changes.
- Save Changes:** Save changes done so far and stay in BIOS setup
- Discard Changes:** Discard changes done so far and stay in BIOS setup

Default Options

- Restore Defaults:** Restore/Load Default values for all 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.
- Boot Override** Set this feature to override a previously defined boot device. The available Boot Options are listed below.

Revision History

| Date | Version | Changes |
|------------|---------|-------------------------|
| 30.10.2020 | 1.0 | First release |
| 03.11.2020 | 1.1 | Minor text improvements |

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List of Abbreviations

| | |
|--------|--|
| AC | Alternating current |
| APAC | Asia Pacific and countries |
| BIOS | Basic input/output system |
| BT | Bluetooth |
| DC | Direct current |
| DDR4 | Fourth generation „double data rate“ memory technology |
| DP | Display port |
| EMEA | Europe, Middle East, Africa |
| GND | Ground |
| GNSS | Global Navigation Satellite System |
| IoT | Internet of Things |
| LTE | Long Term Evolution |
| MIC | Microphone |
| M.2 | Next generation mSATA |
| NVME | Non-Volatile Memory Express |
| PWM | Pulse-width modulation |
| RAM | Random access memory |
| RS-232 | Serial standard interface |
| RS-485 | Serial standard interface |
| SD | Secure digital memory card |
| SIM | Subscriber identity module |
| SMA | Subminiature version A connector |
| SODIMM | Small outline dual inline memory module |
| SSD | Solid state drive |
| UART | Universal Asynchronous Receiver / Transmitter |
| USB | Universal serial bus |
| WLAN | Wireless local area network |

