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Manufacturer

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General Notes

This user manual is for your information only.
The information contained herein has been checked carefully and is believed to be reliable. However, E.E.P.D. GmbH gives no guarantee or warranty concerning the accuracy of spoken information and shall not be responsible for any loss or damage of any nature resulting from the usage of or from reliance upon it.
We are thankful for all suggestions or improvements at any time.
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09/2021 Version 1.2

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Disclaimer

This document is provided for the general information of the customer. It describes the general functionality of the system and is not considered as assured characteristics. The written declarations in this specification are not constituent part of any contract.

E.E.P.D. GmbH reserves the right to modify the information contained in this manual as necessary and the customer should ensure that he has the most recent revision of this document.

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Life Support Applications

E.E.P.D. GmbH products are not intended for being used as critical components in life support appliances, devices or systems in which the failing of an E.E.P.D. GmbH product could be expected to result in personal injury.

FCC and CE Disclaimer

E.E.P.D. GmbH gives no warranty at all that their products will meet the FCC and CE standards when used in combination with other third party products or when used in any other way than specified.

Warranty

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 EM PRO 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 EM PRO 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:
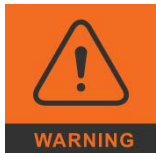**support@eepd.de**

Table of Contents

Symbols

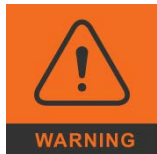|	
DANGER	The red danger sign warns you if incorrect operation puts your life or health at great risk. Both the components and the peripherals could be destroyed.
WARNING	The orange warning sign warns you that an incorrect or missing operation could seriously endanger your health or destroy the used components.
CAUTION	The yellow caution sign indicates that an incorrect or missing action could damage the components.
ESD	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.
i	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.

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Safety Instructions

Safety of People

|	
DANGER	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!
WARNING	Please follow all safety instructions at the installation site. Make sure that no or only necessary cables are connected to the BoxPC during installation.
i	If access to the BoxPC interfaces is not available after installation, all necessary connections must be made before.

Device Safety
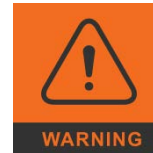
WARNING	The BoxPC operates exclusively within the specified DC voltage range. Repair work should only be made by an authorized and certified specialty retailer or by the manufacturer's customer service. Do not open the device to avoid damage.
	Modifications that have not been approved by the manufacturer void the warranty. Dust, dirt, moisture, and extreme temperatures may significantly impair proper operation.
CAUTION	The device may only be opened by a qualified person.

Cooling System

CAUTION	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 EM PRO system the following standard tools are recommended:

- Cable connection: Slot screwdriver
- Socket wrench 5.5 mm
- Torx screwdriver T10

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

External Notice

All external documentation to install the EM PRO system should be obeyed.

Software

Supported operating systems are:

Microsoft® Windows® 10
Microsoft® Windows® 10 IoT Enterprise
Linux Ubuntu 20.04 LTS.

Options

Options	Description
Memory*	V2000 processors: Max. 32 GB dual-channel DDR4 SODIMM up to 3200 MT/s, with ECC-support
SSD*	64 GB – 2 TB
Operating System*	Windows® 10, Windows® 10 IoT Enterprise, Linux Ubuntu 20.04 LTS
*factory assembled on request #ODM option	

Tab. 1: Options

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Accessories

For accessories please contact our sales department.

Accessories	Description
Power supply (180 W / 19.5 V or 120 W / 24 V))	Power supply incl. cable with EU plug
Display cable	Cable MiniDP to HDMI, 2 m, with interlock Cable MiniDP to DP, 2 m

Tab. 2: Accessories

Intended Use

The EM PRO midi is a personal computer to be used with Windows 10, Windows 10 IoT Enterprise or Ubuntu Linux 20.04 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.
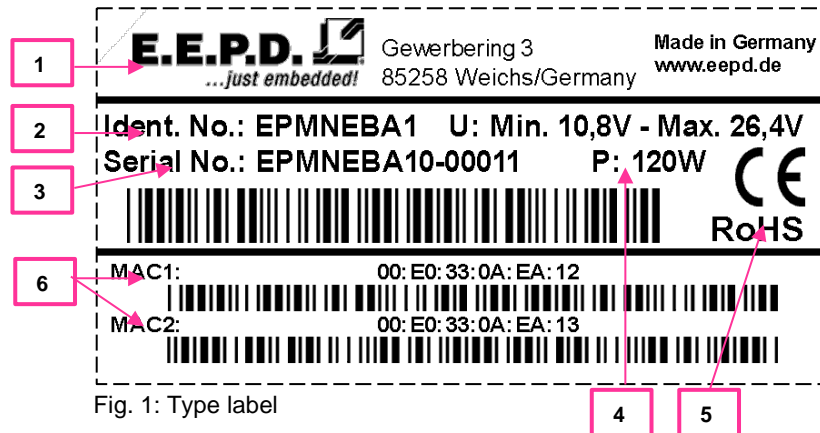
Type Label

Fig. 1: Type label

1 – Manufacturer
2 – Product name
3 – Serial number with barcode
4 – Power input
5 – Certification information
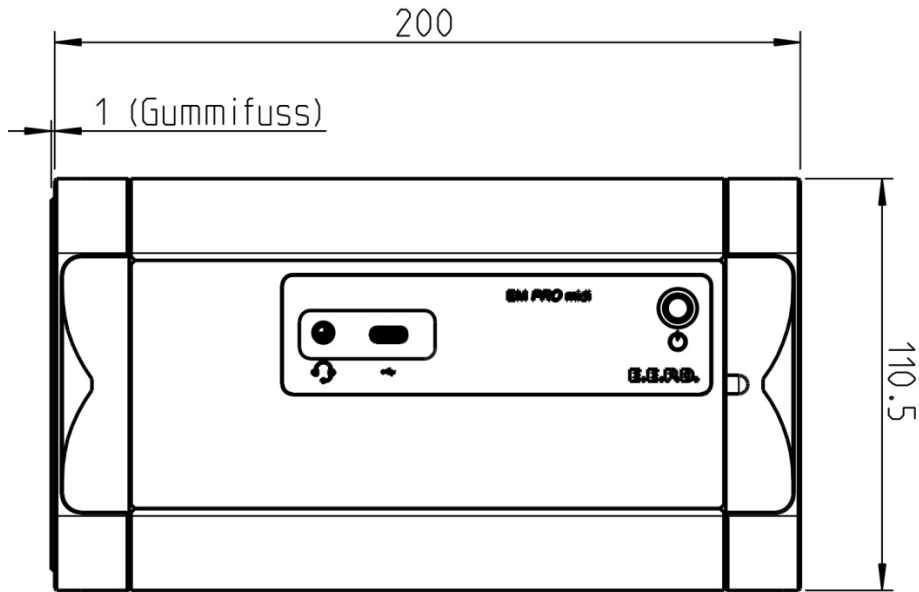**6** – MAC address

System Dimensions

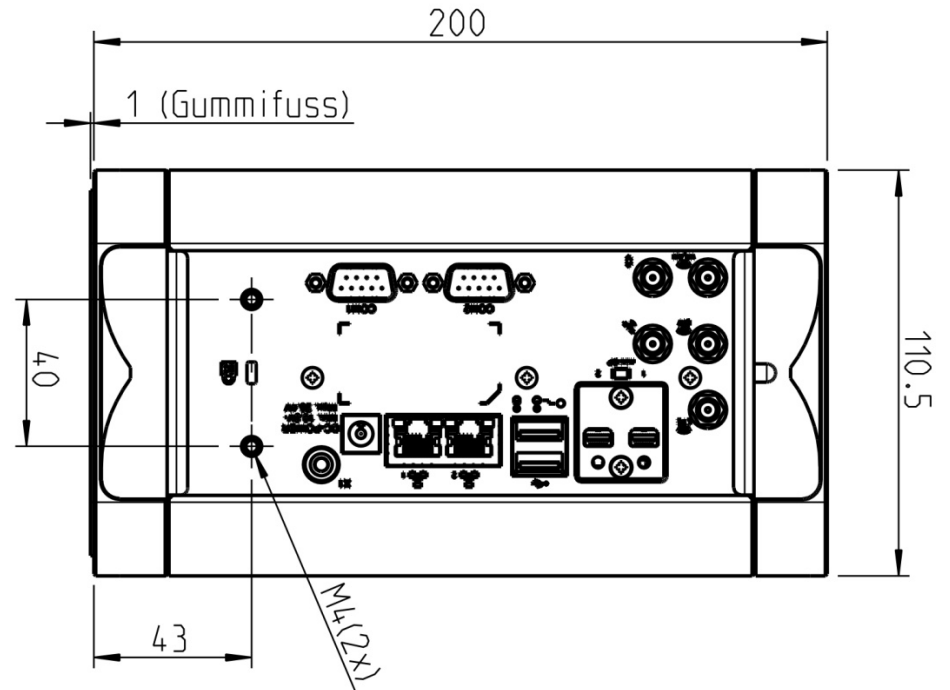Fig. 2: Dimensions front side, all values [mm] approx.

Fig. 3: Dimensions backside, all values [mm] approx.
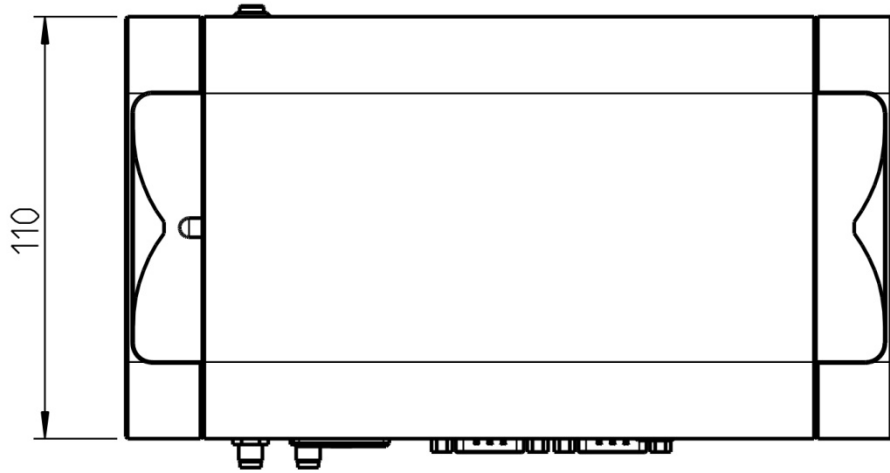
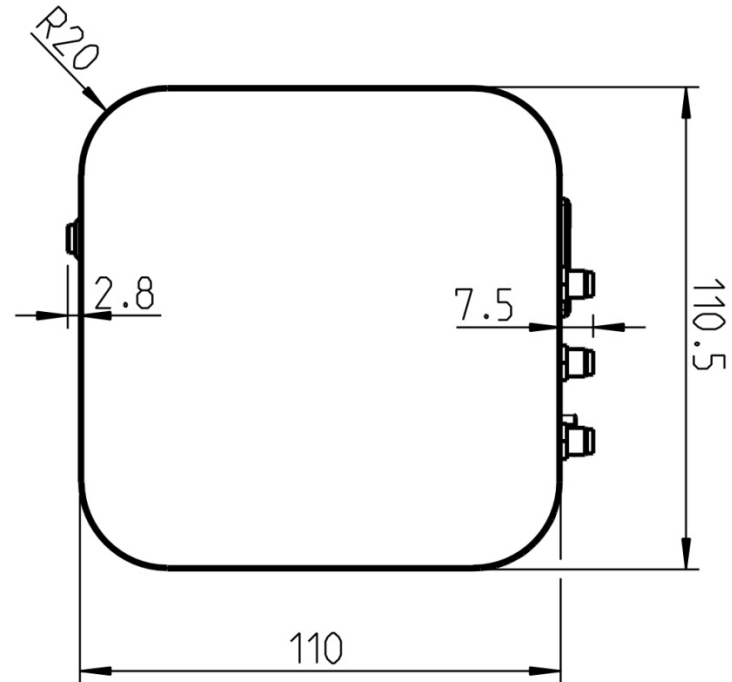Fig. 4: Dimensions side, all values [mm] approx.

Fig. 5: Dimensions top side, all values [mm] approx.

Technical Data

- AMD V2000 processor series:

  - V2516 / 6C / 12T / 2.1 GHz – 3.95 GHz / 10 – 25 W
    (ODM option only)
  - V2718 / 8C / 16T / 1.7 GHz – 4.15 GHz / 12 – 25 W
    (ODM option only)
  - V2546 / 6C / 12T / 3.0 GHz – 3.95 GHz / 35 – 54 W
    (ODM option only)
  - V2748 / 8C / 16T / 2.9 GHz – 4.25 GHz / 35 – 54 W

- Memory V2000 processor series:
  Max. 32 GB dual-channel DDR4 SODIMM up to 3200 MT/s, with ECC-support
- Ethernet: 2 Intel® i225 2.5Gbit with IEEE1588
- WiFi/BT (ODM option only): 802.11 AC with diversity / Bluetooth version 5
- SSD (optional): 1 M.2 PCIe/SATA + 1 PCIe only, 64 GB – 2 TB each slot
- USB ports: 2 USB 3.1 Gen2 **(900mA each)** at rear side, 1 USB 2.0 under top case, 1 USB-C at front side **(max. 1.5A)**
- 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 LED
- Power supply: Min. 10.8 V / Max. 26.4 V (DC)
- Operating temperature: min. 0 °C to max. +50 °C ambient
- Storage temperature: -40 °C to +85 °C
- Relative humidity: 95 % @ 40 °C, non-condensing
- Housing: sturdy metal case

- Mounting: stand alone
- Dimensions approx.: 111 x 117 x 201 mm
- Weight: approx. 1750 g + options
- Conformity: CE, ROHS, REACH

Interfaces

Connection Overview

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

1 – 2x Mini-DP++ connector
2 – Dual-USB 3.1 Gen2 port, type A **(900mA each)**
3 – 2x Ethernet 10/100/1000/2500 Mbit/s (RJ45), Port 1 supports WoL
4 – Power supply
5 – Power button (emergency power button on the rear side)
6 – 2x Serial port RS-232
7 – Sound 3.5 mm MIC in / headphone out, CTIA version
8 – USB-C port **(max. 1.5A)**
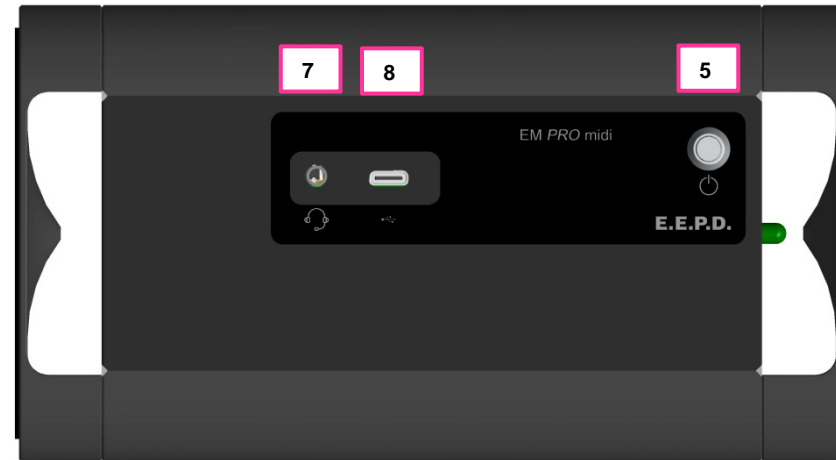**9** – WiFi/BT (ODM option only)

Front View

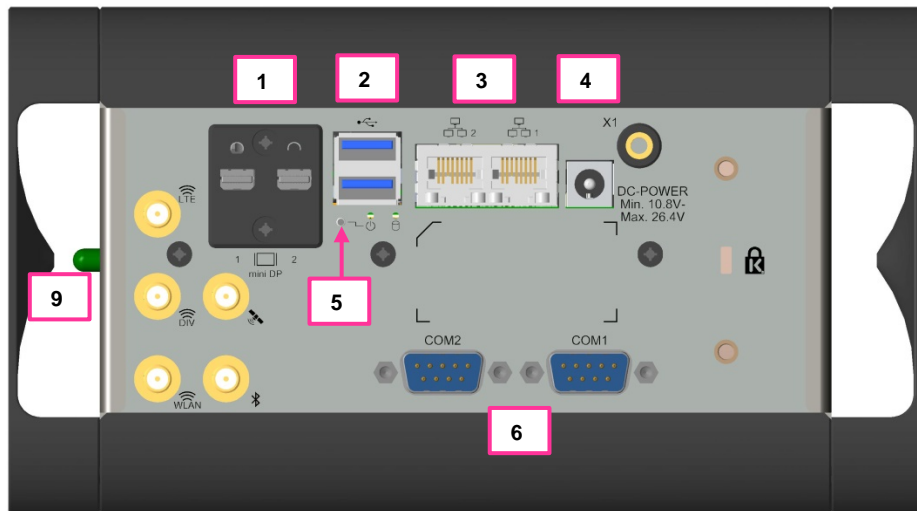Fig. 6: BoxPC EM PRO midi front view

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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.8) once to switch the computer on and off.
Press and hold the power button (>4 Sec.) to hard power off the system in an emergency.
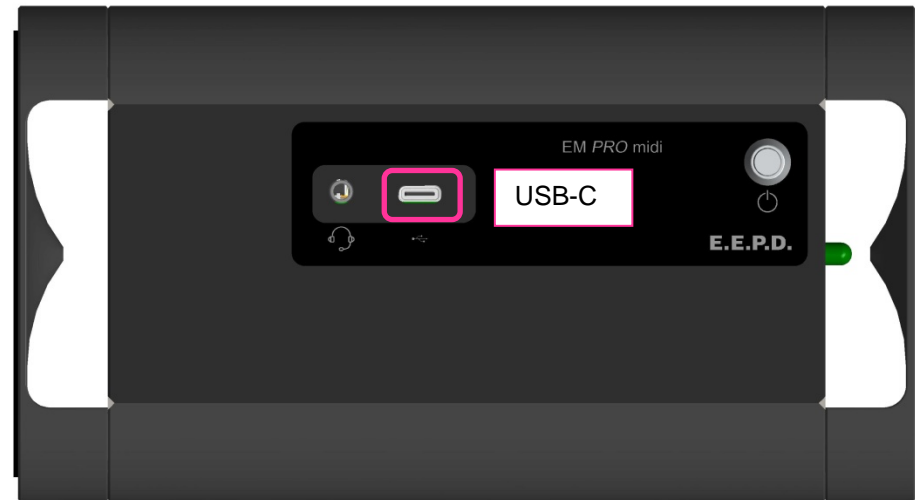
Rear View

Fig. 7: BoxPC EM PRO midi rear view

Fig. 8: Power Button with LED | USB-C

HDD/SSD LED

See fig. 9 for the location of the second Power-LED and the HDD/SSD-LED
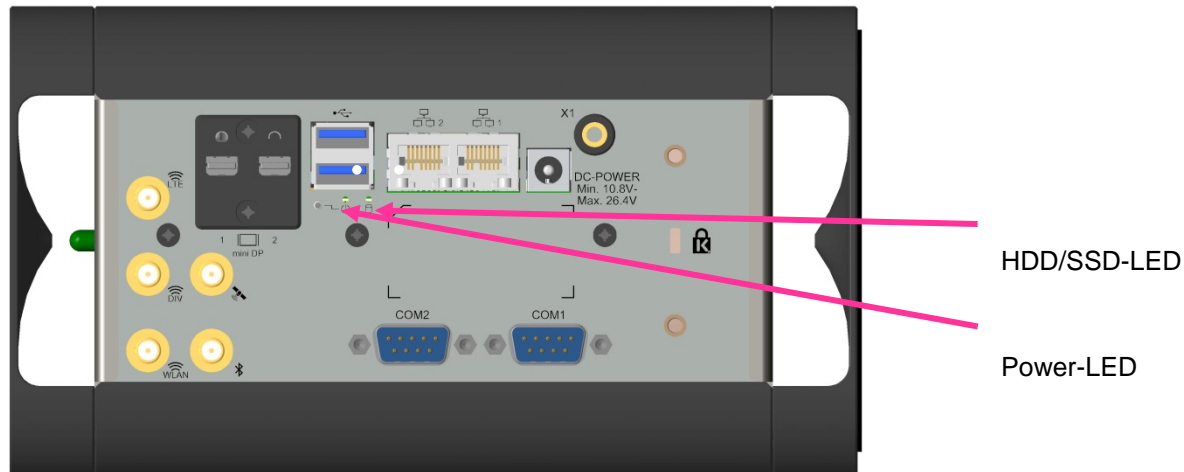

HDD/SSD-LED

Power-LED

Fig. 9: Power-LED | HDD/SSD-LED

Connections

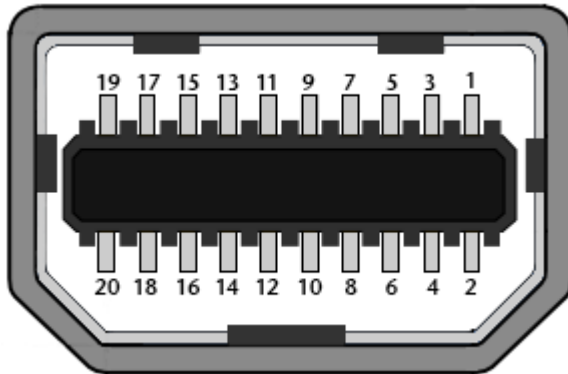## MiniDisplay Ports

Standard pin assignment

Fig. 10: 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 3.1 Gen2 (900mA each)
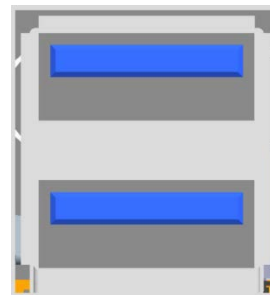
Standard pin assignment

Fig. 11: Dual-USB 3.1 Gen2 detail

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2.5 Gigabit Ethernet Dual-Port
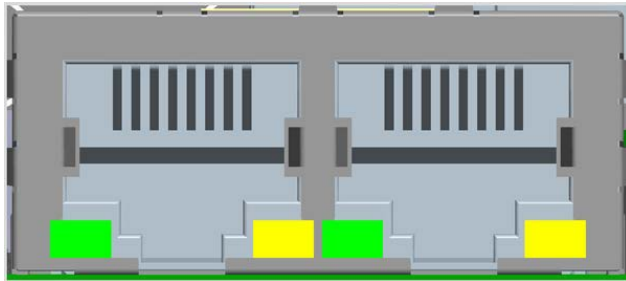
Standard pin assignment

Fig. 12: Dual-Ethernet detail

Yellow LED
Speed-LED is on during 2.5 or 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.
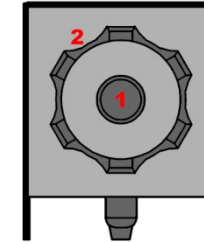
Power Connector (DC)

Fig. 13: Power connector schematic

Counterpart - plug:
CUI Devices Power Plug ID 2.5mm, AD 5.5mm
Ordering number: PP3-002B

Pin	Signal	Description
1	PVIN	DC+ (min 10.8 V to max. 26.4 V)
2	GND	Ground

Tab. 3: Pin assignment power connector

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RS232 Port 1

9-pin D-Sub	Signal
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Tab. 4: Pin assignment RS232

RS232 Port 2

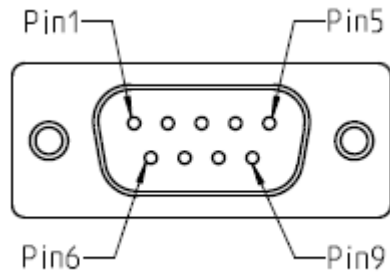| 9-pin D-Sub	Signal
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Tab. 5: Pin assignment RS232

Fig. 14: 9-pin D-SUB connector
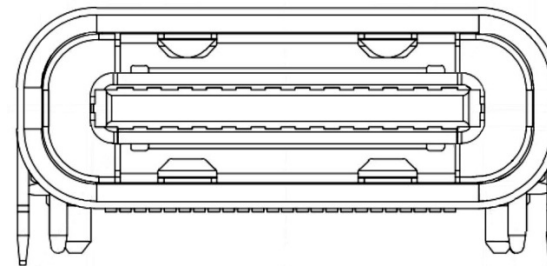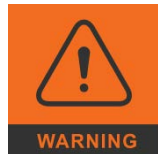
Front USB-C Port (max. 1.5A)

Standard pin assignment

Fig. 15: USB-C Detail

Commissioning

(i)	If connections are no longer accessible after system installation, connect all cables before final mounting.

⚠ WARNING	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)
- 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.

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 "ESC" key immediately after switching on.

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

UEFI/BIOS

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

Entering Setup

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

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Main Menu

Once you enter the Setup Utility, the Main Menu (Figure 16) will appear on the screen.
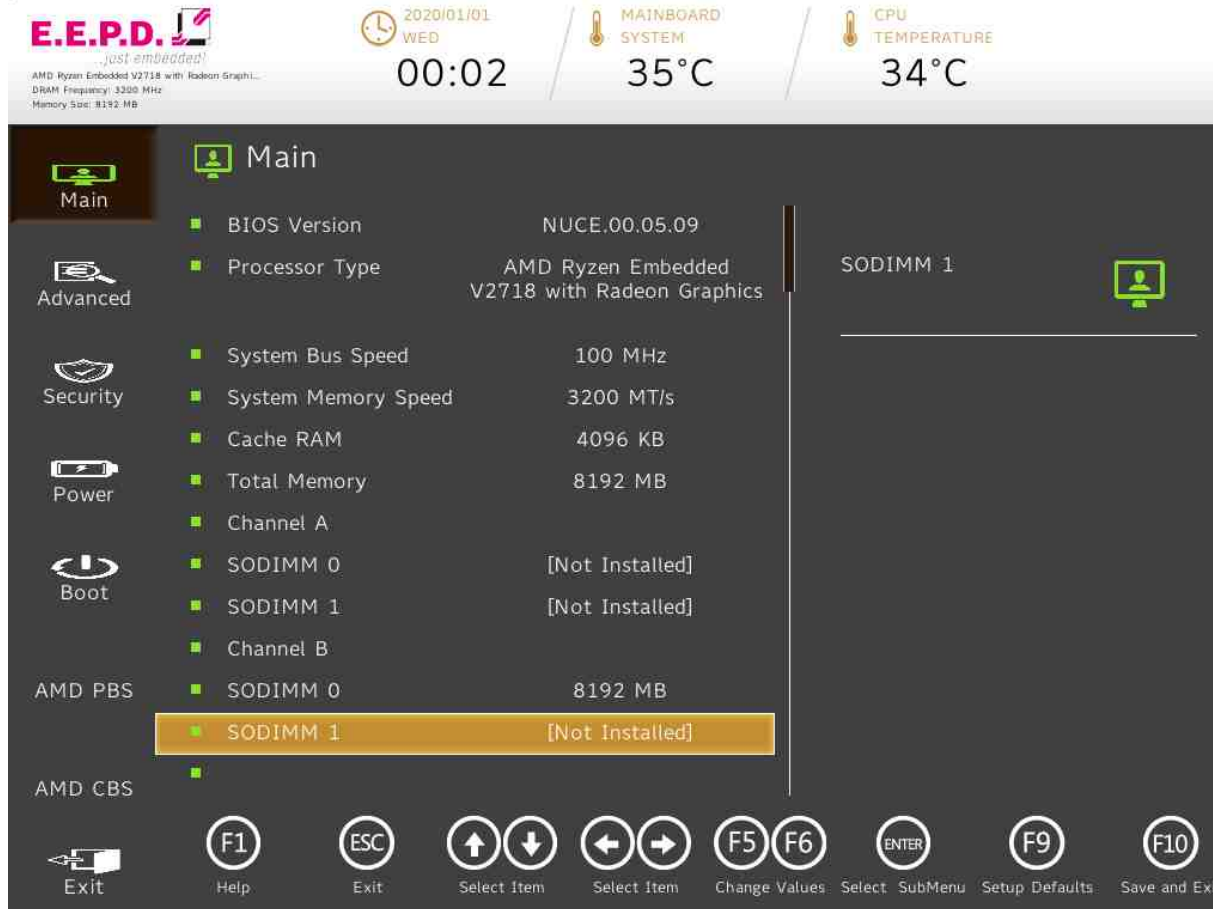
Fig. 16: Main Menu 1

Fig. 17: Main Menu 2
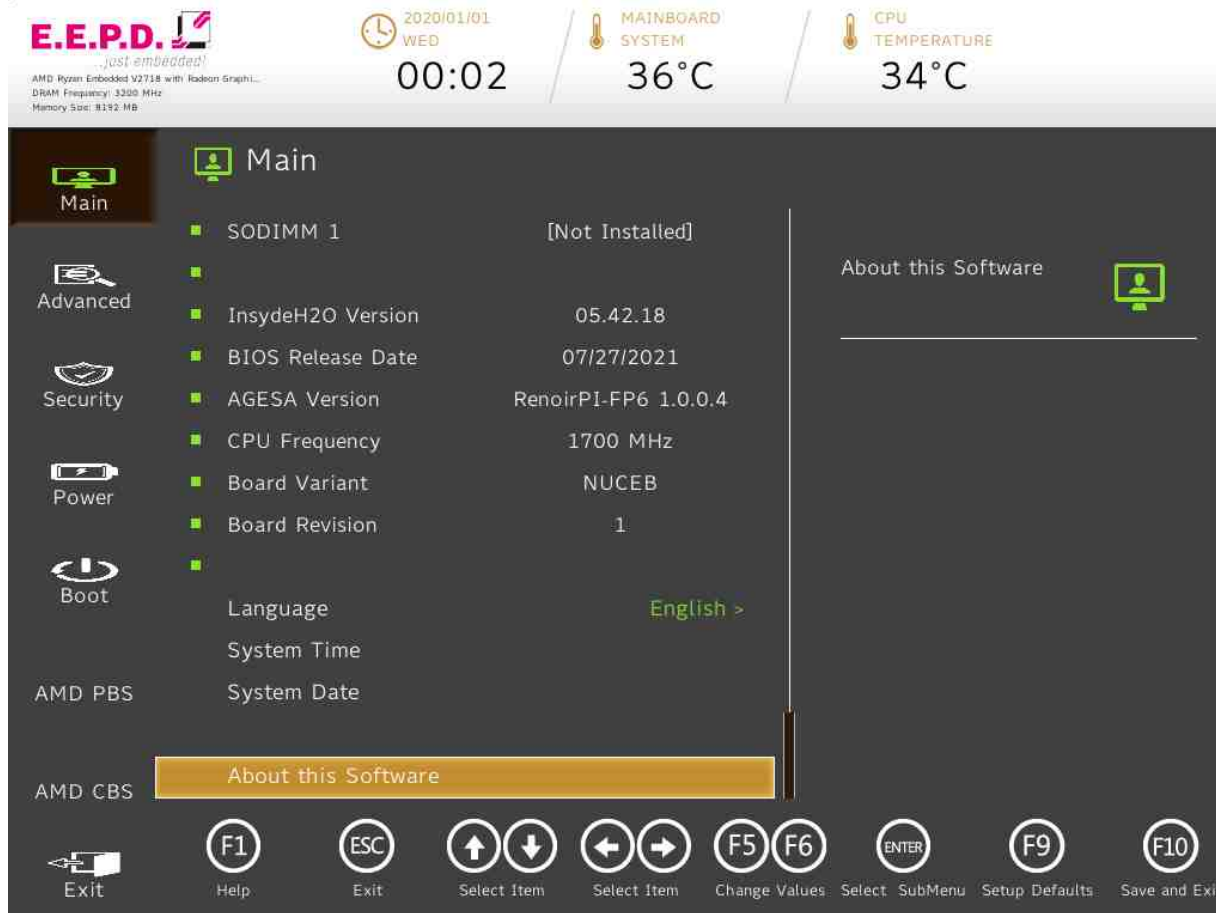
BIOS Settings	Options	Description
Language	<English>*	Select the current default language used by the InsydeH2O.
System Time	No options	This is the help for the hour, minute, second field. Valid range is from 0 to 23, 0 to 59, 0 to 59. INCREASE/REDUCE : +/-.
System Date	No options	This is the help for the month field, day field, year field. Valid range is from 1 to 12, 1 to 31, 2000 to 2099. (Error checking will be done against month/day/year combinations that are not supported.) INCREASE/REDUCE : +/-.
About this Software		

Tab. 6: Main Menu

Advanced Menu

Fig. 18: Advanced Menu

BIOS Settings	Options	Description
PCI Express Configurations	No options	PCI Express Configurations
Boot Configuration	No options	Configures Boot Settings.
Peripheral Configuration	No options	Configures the peripheral devices.
IDE Configuration	No options	Select the IDE controller and hard disk drive type installed in your system
USB Configuration	No options	Configure the USB support
Chipset Configuration	No options	Advanced Chipset Configuration Options.
ACPI Table/Features Control	No options	Configures ACPI Tables/Features setting.
CPU Related setting	No options	CPU Related setting
Above 4GB MMIO	<Disabled> <Enabled>*	Enable/Disable above 4GB MemoryMappedIO BIOS assignment. It's only available with Uefi Boot Mode.
NUCE options	No options	NUCE options: Configure PIC watchdog!
SIO SCH3223	No options	SIO SCH3223 configuration menu

Tab. 7: Advanced Menu

PCI Express Configurations

Fig. 19: PCI Express Configurations

BIOS Settings	Options	Description
PSPP Policy	<Disabled> <Performance> <Balanced-High> <Balanced-Low>* <Power Saving> <Auto>	PCIe speed power policy

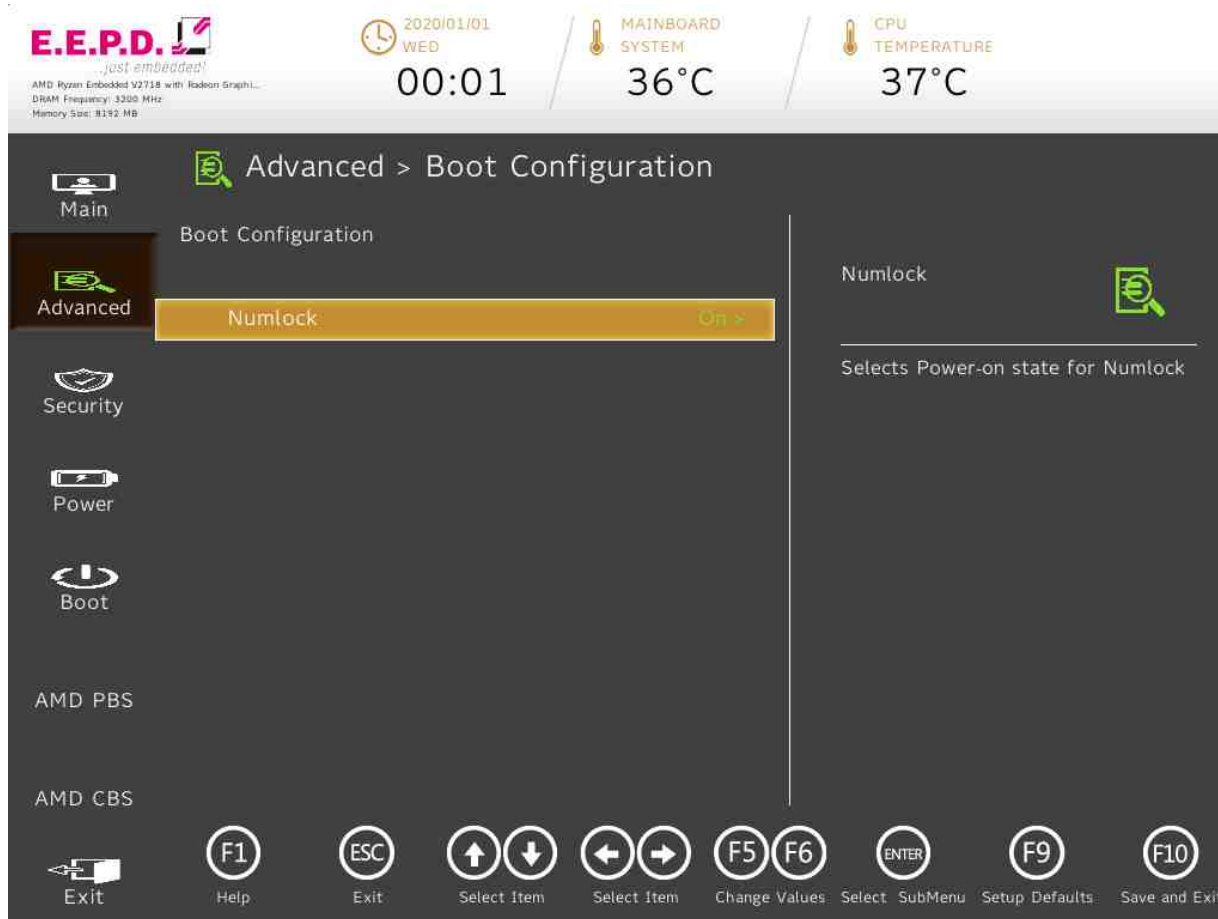Tab. 8: PCI Express Configurations

Boot Configuration

Fig. 20: Boot Configuration

BIOS Settings	Options	Description
Numlock	<Off> <On>*	Selects Power-on state for Numlock

Tab. 9: Boot Configuration

Peripheral Configuration

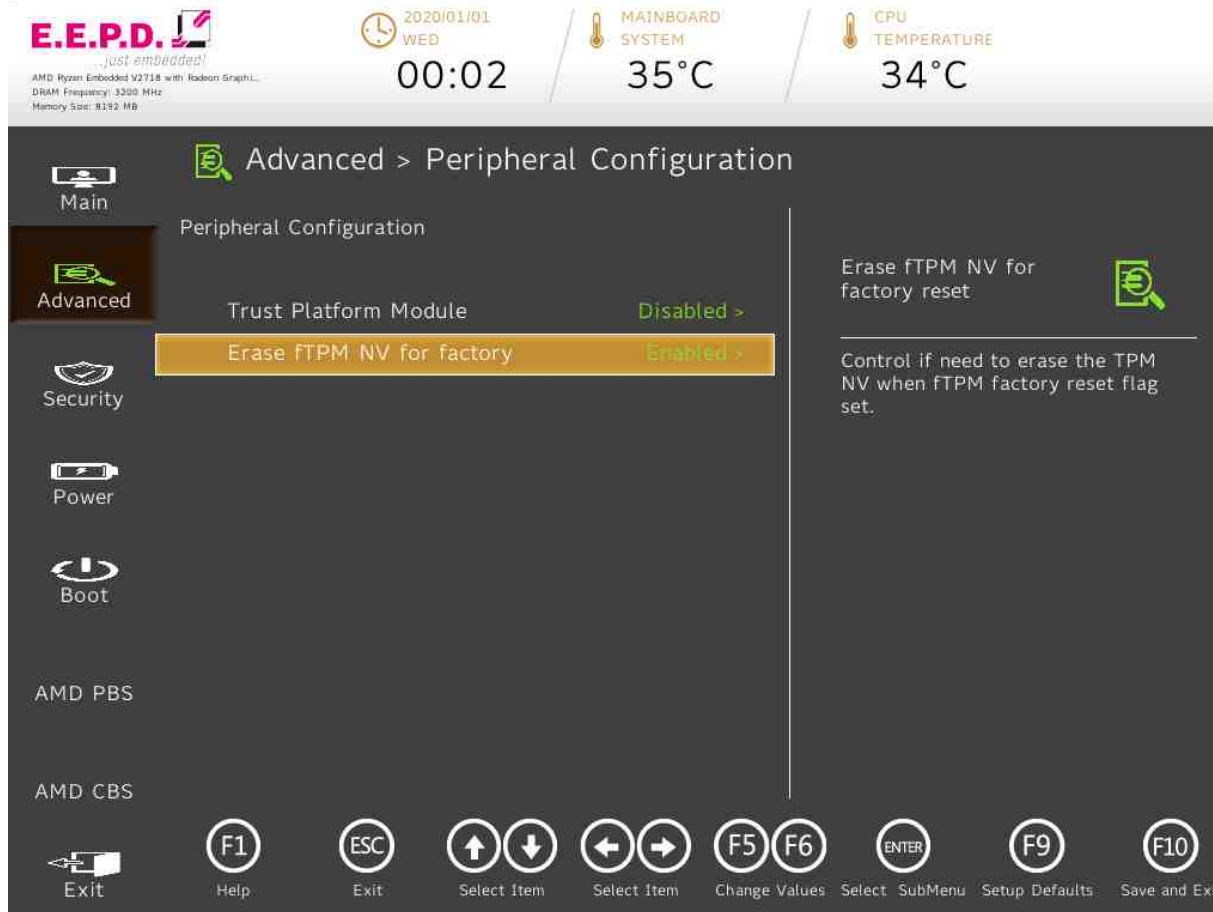Fig. 21: Peripheral Configuration

BIOS Settings	Options	Description
Trust Platform Module	<Disabled>* <Enable discrete TPM> <Enable firmware TPM>	Enable/Disable TPM physical presence. Need to reboot when set from disable to enable before selecting TPM Operation.
Erase fTPM NV for factory reset	<Disabled> <Enabled>*	Control if need to erase the TPM NV when fTPM factory reset flag set.

Tab. 10: Peripheral Configuration

IDE Configuration

Fig. 22: IDE Configuration 1

BIOS Settings	Options	Description
SATA	<Disabled> <Auto>*	AUTO: Auto detect the SATA controller. DISABLED: Disable the SATA controller
SATA Configure as	<IDE> <AHCI>*	Set SATA Configure Type
Sata Controller	No options	Enable/Disable SATA Controller
Serial ATA Port 0 [Not Installed]	No options	Serial ATA Port 0 Device configuration
Serial ATA Port 1 [Not Installed]	No options	Serial ATA Port 1 Device configuration
Serial ATA Port 2 [Not Installed]	No options	Serial ATA Port 2 Device configuration

Tab. 11: IDE Configuration

SATA-Controller

Fig. 23: SATA Controller 0

BIOS Settings	Options	Description
SATA Port 0	<Disabled> <Enabled>*	SATA Port 0 Enable/Disable
SATA Port 1	<Disabled> <Enabled>*	SATA Port 1 Enable/Disable
SATA Port 0	<Disabled> <Enabled>*	SATA Port 0 Enable/Disable

Tab. 12: SATA Controller 0

USB Configuration

Fig. 24: USB Configuration

BIOS Settings	Options	Description
Enable/Disable – VCC of USB Jacks	No options	Enable/Disable – USB VCC

Tab. 13: USB Configuration

Enable/Disable – VCC of USB Jacks

Fig. 25: USB Ports

BIOS Settings	Options	Description
USB 3.1 Rear VCC	<Disabled> <Enabled>*	In order to not exclude yourself from using input device in OS, at least one USB port should be enabled at all times!
USB C Front VCC	<Disabled> <Enabled>*	In order to not exclude yourself from using input device in OS, at least one USB port should be enabled at all times!
USB 2.0 Internal VCC	<Disabled> <Enabled>*	In order to not exclude yourself from using input device in OS, at least one USB port should be enabled at all times!

Tab. 14: USB Ports

Chipset Configuration

Fig. 26: Chipset Configuration

BIOS Settings	Options	Description
PCI Latency Timer	<32> <64>* <96> <128> <160> <192> <224> <248>	PCI Latency Timer

Tab. 15: Chipset Configuration

ACPI Table

Fig. 27: ACPI Table

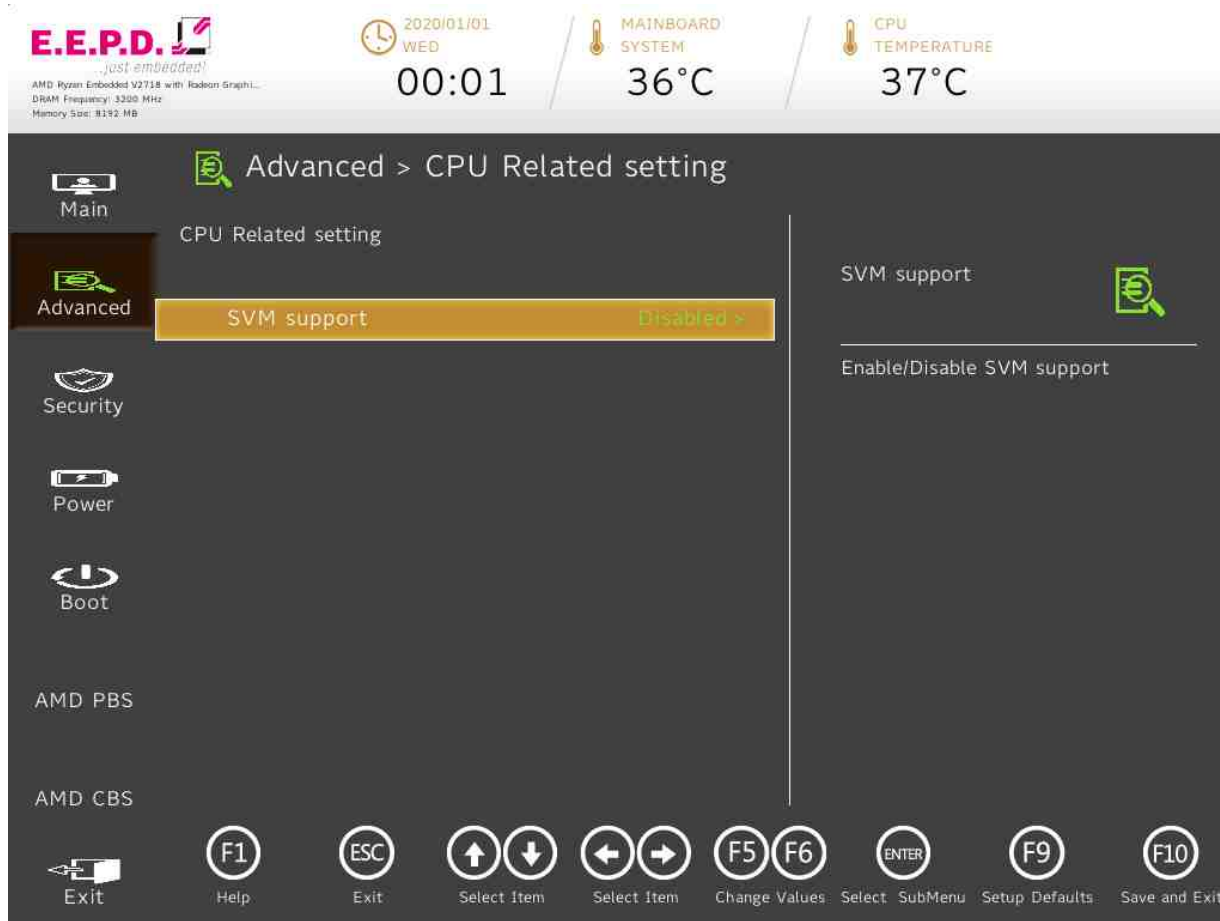| BIOS Settings	Options	Description
HPET - HPET Support	<Disabled> <Enabled>*	High Precision Event Timer is supported in Windows Vista or above. HPET controller should not been seen in Windows XP no matter enable/disable in SCU. If this feature is enabled, the HPET table will be added into ACPI Tables.

Tab. 16: ACPI Table

CPU Related setting

Fig. 28: CPU related setting

BIOS Settings	Options	Description
SVM support	<Disabled>* <Enabled>	Enable/Disable SVM support

Tab. 17: CPU Related setting

NUCE options – Watchdog
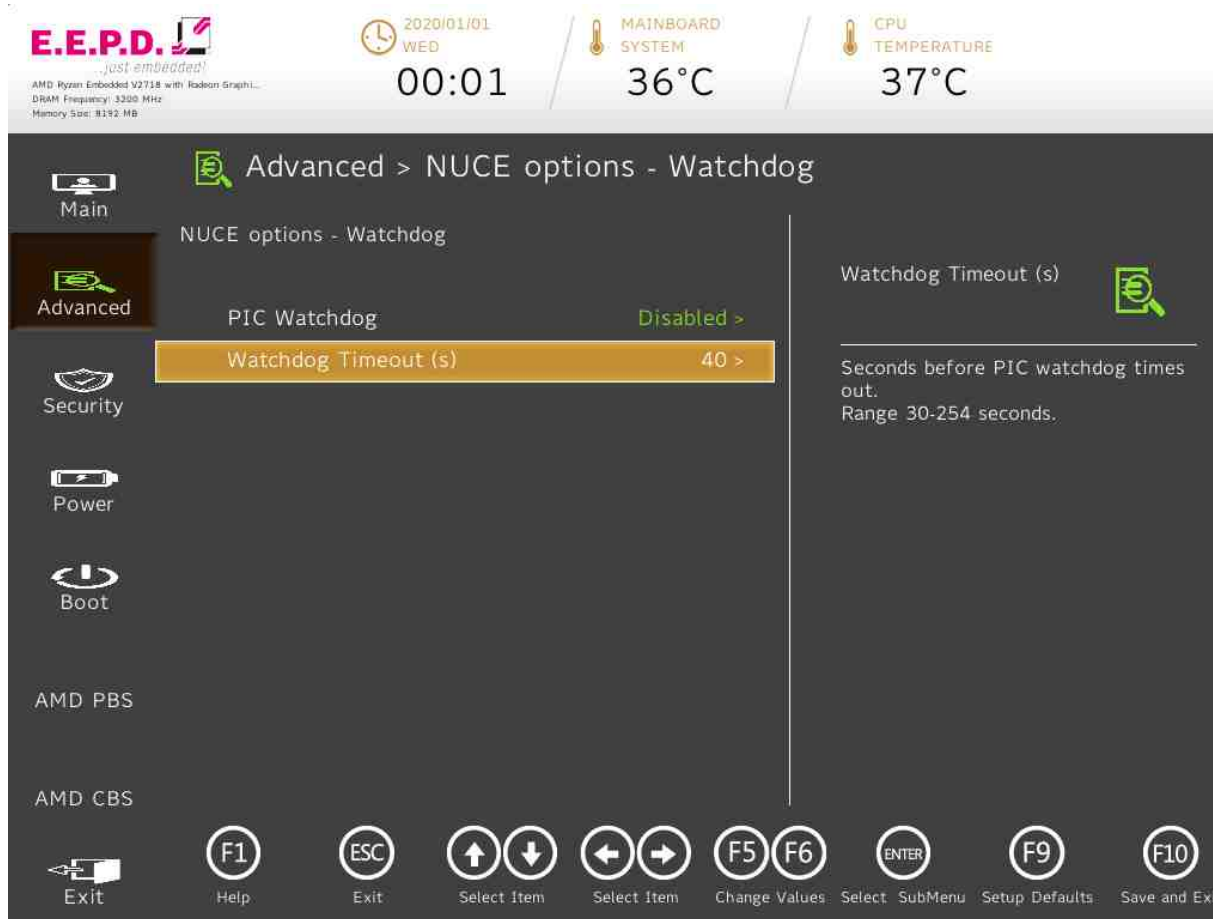
Fig. 29: NUCE options

BIOS Settings	Options	Description
PIC Watchdog	<Disabled>* <Enabled>	Enable/Disable the PIC watchdog
Watchdog Timeout (s)	Adjust value [30-254] Default value [40]	Seconds before PIC watchdog times out. Range 30-254 seconds.

Tab. 18: NUCE options

SIO SCH3223

Fig. 30: SIO SCH3223

BIOS Settings	Options	Description
UART Port 1 Configuration	No options	UART Configuration
UART Port 2 Configuration	No options	UART Configuration

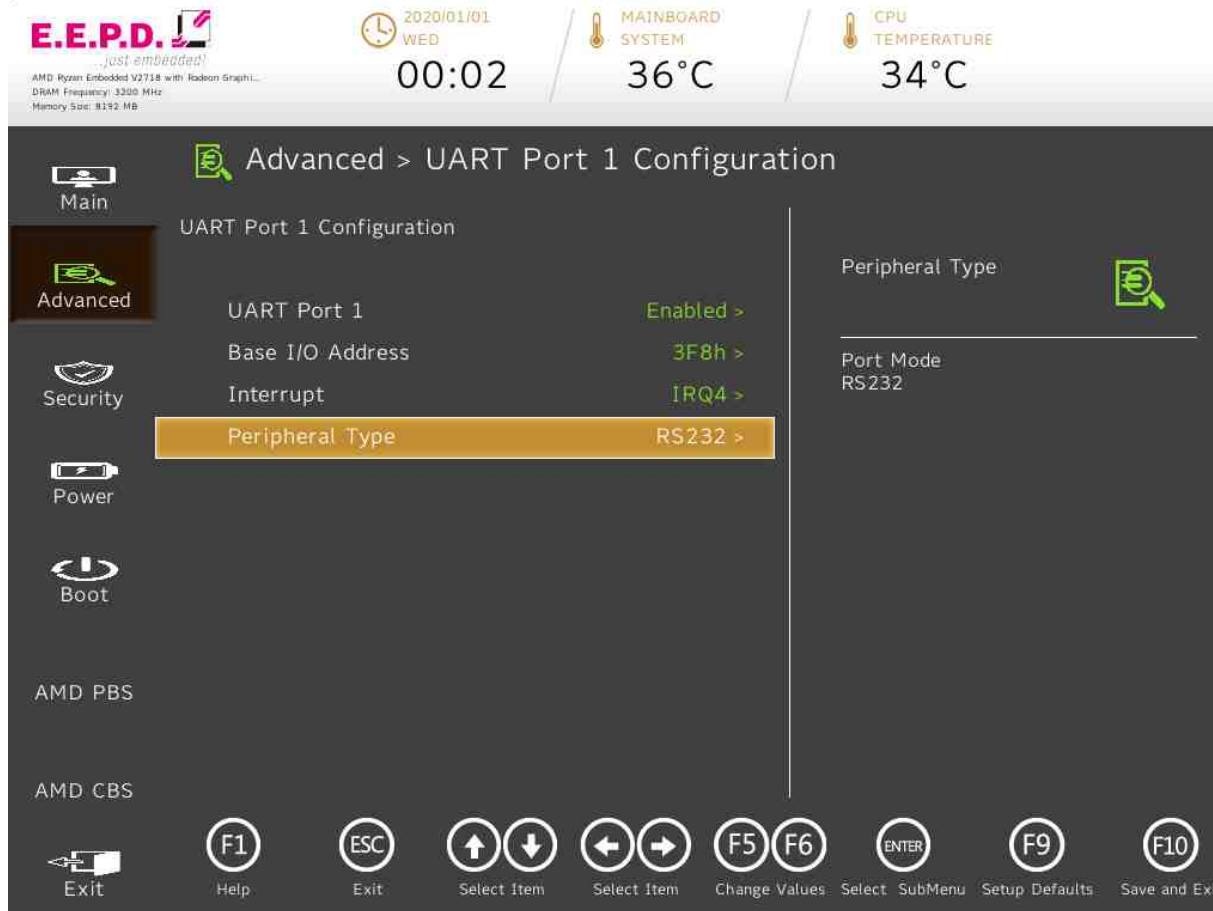Tab. 19: SIO SCH3223

UART Port 1 Configuration

Fig. 31: UART Port 1 Configuration

BIOS Settings	Options	Description
UART Port 1	<Disabled> <Enabled>*	Configure UART Port using options: [Disabled] Disable device [Enabled] Enable device and use below settings
Base I/O Address	<3F8h>* <2F8h> <3E8h> <2E8h> <338h> <228h> <220h> <238h>	System I/O base resources
Interrupt	<IRQ3> <IRQ4>* <IRQ6> <IRQ7> <IRQ11>	System interrupt resources
Peripheral Type	<RS232>*	Port Mode: RS232

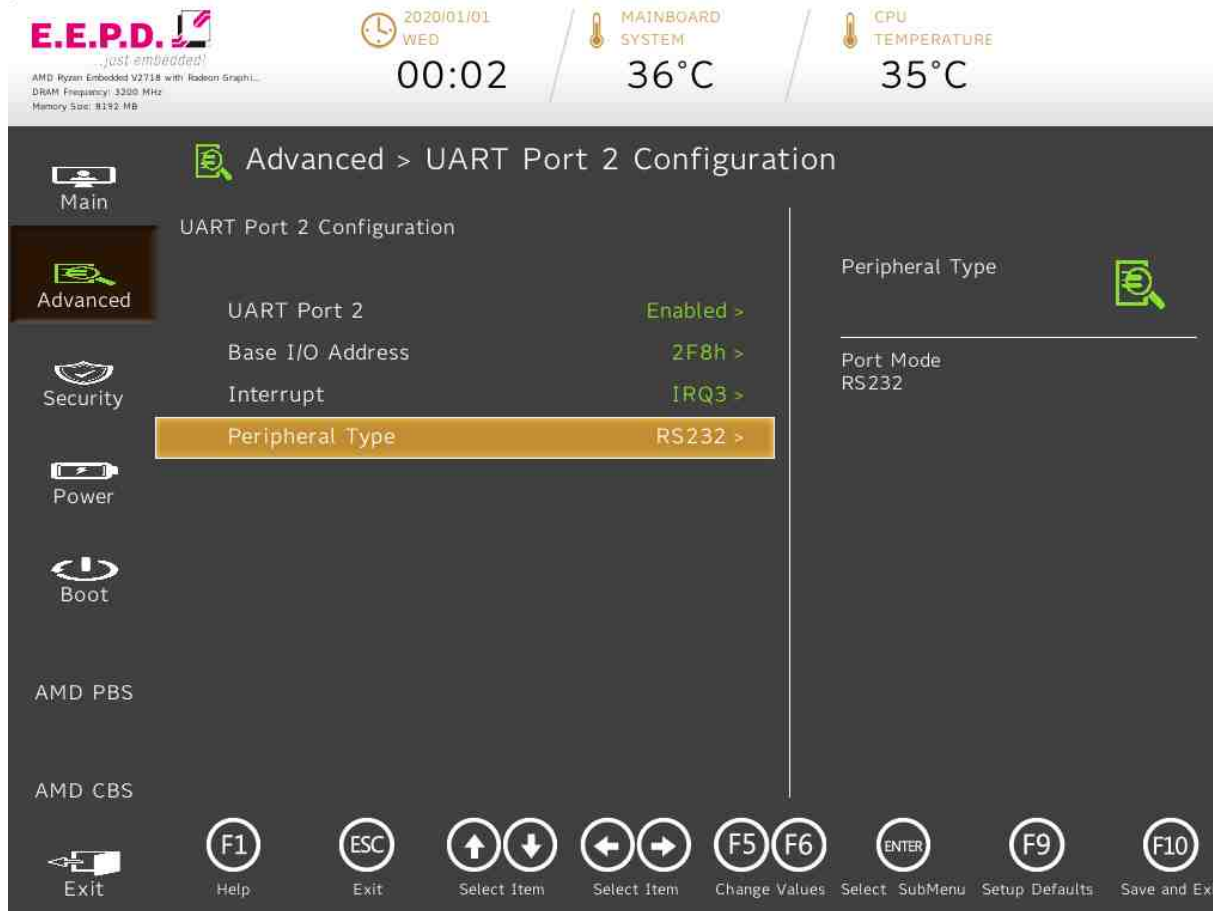Tab. 20: UART Port 1 Configuration

UART Port 2 Configuration

Fig. 32: UART Port 2 Configuration

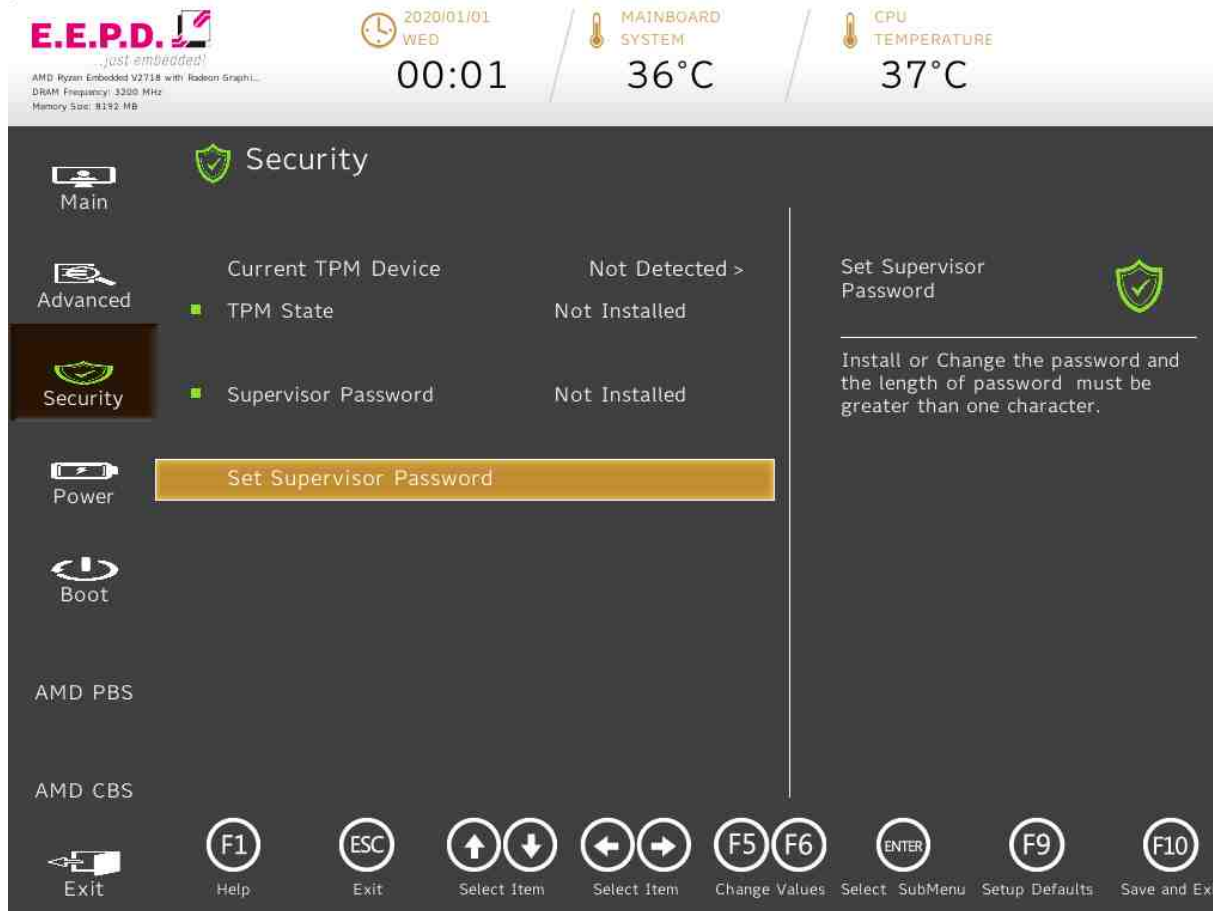| BIOS Settings	Options	Description
UART Port 2	<Disabled> <Enabled>*	Configure UART Port using options: [Disabled] Disable device [Enabled] Enable device and use below settings
Base I/O Address	<3F8h> <2F8h>* <3E8h> <2E8h> <338h> <228h> <220h> <238h>	System I/O base resources
Interrupt	<IRQ3>* <IRQ4> <IRQ6> <IRQ7> <IRQ11>	System interrupt resources
Peripheral Type	<RS232>*	Port Mode: RS232

Tab. 21: UART Port 2 Configuration

Security Menu

Fig. 33: Security Menu 1

BIOS Settings	Options	Description
Current TPM Device	<Not Detected> <TPM 1.2> <TPM 2.0>*	Current TPM Device: TPM1.2, or TPM2.0.
Set Supervisor Password	None	Install or Change the password and the length of password must be greater than one character.

Tab. 22: Security Menu

Storage Password Setup Page

Fig. 34: Storage Password Setup Page

BIOS Settings	Options	Description
TCG Storage Action	<No Operation>* <Enable_BlockSIDFunc> <Disable_BlockSIDFunc> <PPRequiredForEnableBlockSID_True> <PPRequiredForEnableBlockSID_False> <PPRequiredForDisableBlockSID_True> <PPRequiredForDisableBlockSID_False>	Change BlockSID actions, Includes enable or disable BlockSID, Require or not require physical presence when remote enable or disable BlockSID

Tab. 23: Storage Password Setup

Power Menu
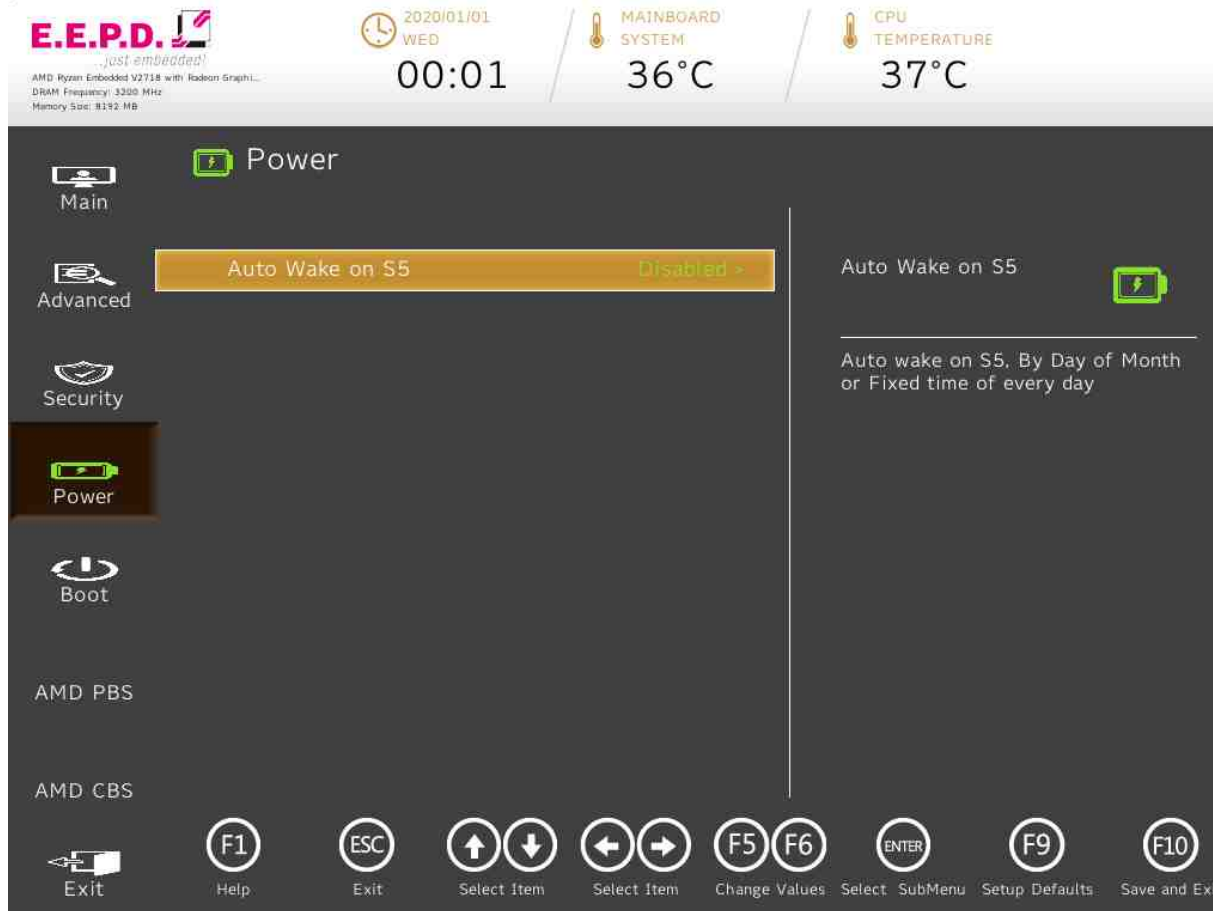
Fig. 35: Power Menu

BIOS Settings	Options	Description
Auto Wake on S5	<Disabled>* <By Every Day> <By Day of Month>	Auto wake on S5, By Day of Month or Fixed time of every day

Tab. 24: Power Menu

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Boot Menu

Fig. 36: Boot Menu 1
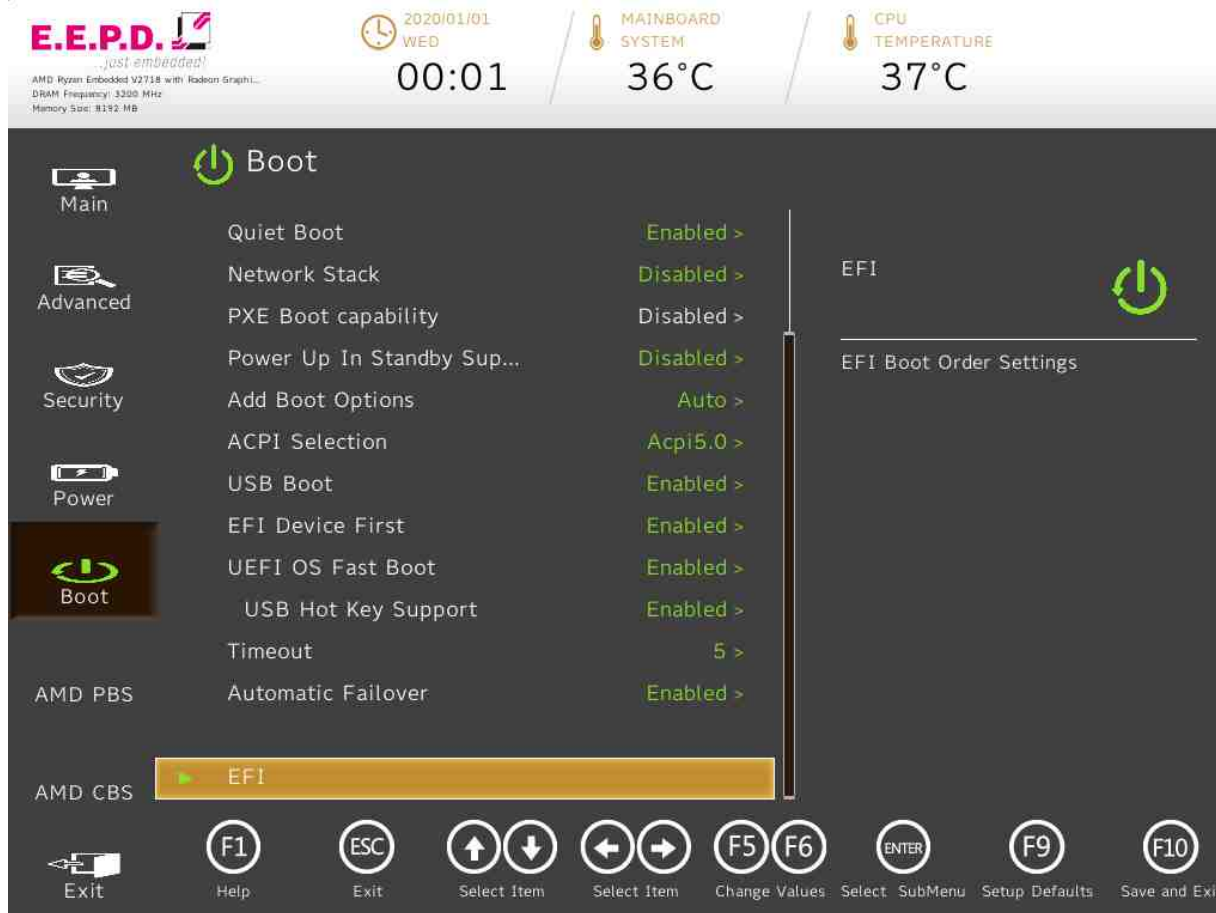
Fig. 37: Boot Menu 2

BIOS Settings	Options	Description
Boot Type	\<Dual Boot Type> \<Legacy Boot Type> \<UEFI Boot Type>*	Select boot type to Dual type, Legacy type or UEFI type
Quick Boot	\<Enabled>* \<Disabled>	Allows InsydeH2O to skip certain tests while booting. This will decrease the time needed to boot the system.
Quiet Boot	\<Enabled>* \<Disabled>	Disables or enables booting in Text Mode.
Network Stack	\<Disabled>* \<Enabled>	Network Stack Support: Windows 8 BitLocker Unlock UEFI IPv4/IPv6 PXE Legacy PXE OPROM
PXE Boot capability	\<Disabled>*	Disabled : Support Network Stack UEFI PXE : IPv4/IPv6 Legacy : Legacy PXE OPROM only
Power Up In Standby Support	\<Enabled> \<Disabled>*	Disable or enable Power Up In Standby Support. The PUIS feature set allows devices to be powered-up into the Standby power management state to minimize inrush current at power-up and to allow the host to sequence the spin-up of devices.
Add Boot Options	\<First> \<Last> \<Auto>*	Position in Boot Order for Shell,Network and Removables
ACPI Selection	\<Acpi4.0> \<Acpi5.0>* \<Acpi6.0> \<Acpi6.1> \<Acpi6.2> \<Acpi6.3>	Select booting to Acpi3.0/Acpi1.0B
USB Boot	\<Enabled>* \<Disabled>	Disables or enables booting to USB boot devices.

EFI Device First	<Disabled> <Enabled>*	Determine EFI device first or legacy device first. If enable, it is EFI device first. If disable, it is Legacy device first.
UEFI OS Fast Boot	<Enabled>* <Disabled>	If enabled the system firmware does not initialize keyboard and check for firmware menu key.
USB Hot Key Support	<Disabled>* <Enabled>	Enable/Disable to support USB hot key while booting. This will decrease the time needed to boot the system.
Timeout	Adjust value [0-10] Default value [5]	The number of seconds that the firmware will wait before booting the original default boot selection.
Automatic Failover	<Disabled> <Enabled>*	Enable: if boot to default device fail, it will directly try to boot next device. Disable: if boot to default device fail, it will pop warning message then go into firmware UI.
EFI	No options	EFI Boot Order Settings

Tab. 25: Boot Menu

EFI
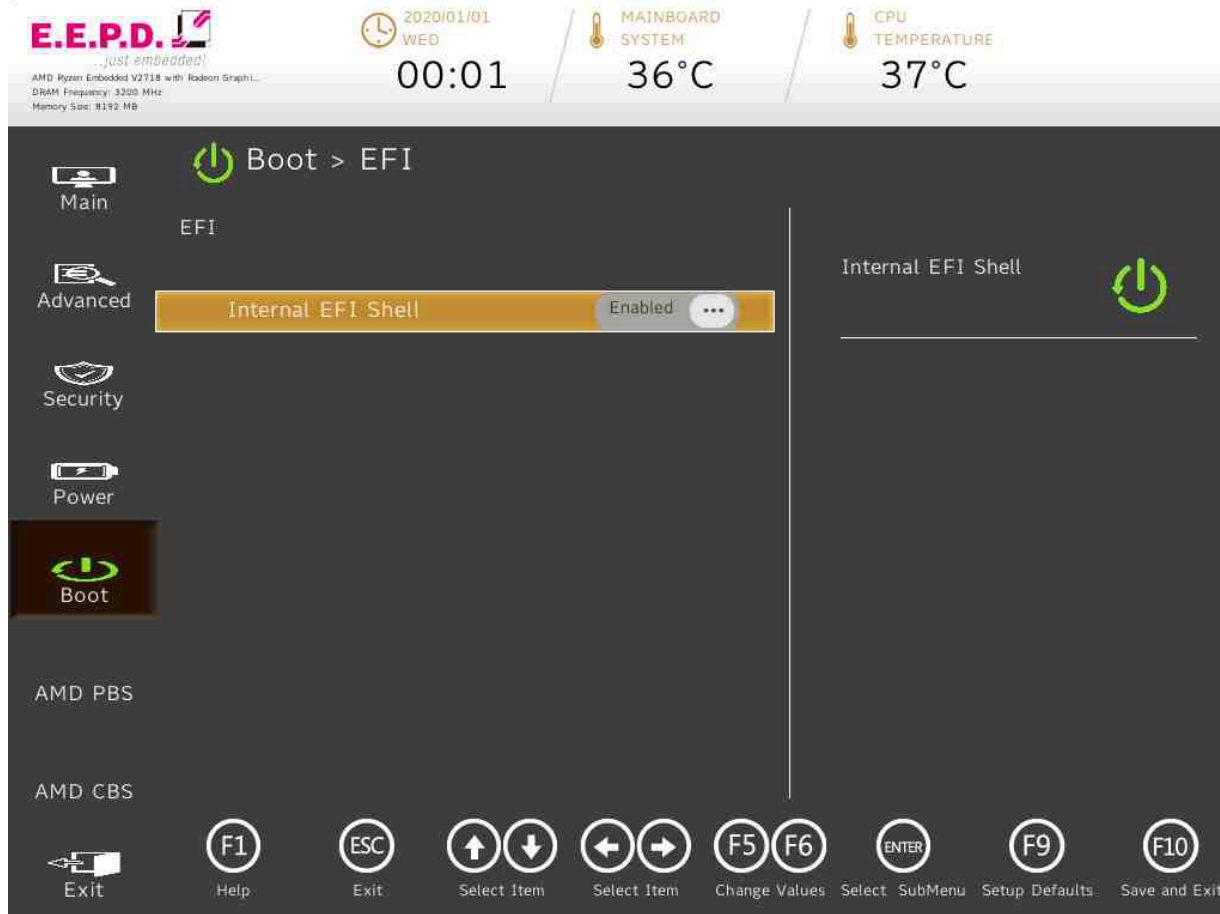
Fig. 38: EFI

BIOS Settings	Options	Description
Internal EFI Shell	[ ]* [X]	

Tab. 26: EFI

AMD PBS Menu

Fig. 39: AMD PBS Option

BIOS Settings	Options	Description
AMD Firmware Version	No options	Show all of AMD Firmware Version
M.2 Key M SATA/PCIE Selection	<Force PCIE> <Force SATA> <Auto Detection>*	M.2 Key M SATA/PCIE Selection usage: SATA, PCIE or Auto Detection
M.2 Key B Power Enable	<Disabled> <Enabled>*	Enable/Disable power of M.2 Key B Slot
M.2 Key E Antenna Power Enable	<Disabled> <Enabled>*	Enable/Disable antenna power of M.2 Key E Slot
Above 4GB MMIO Limit	<35bit (32GB)> <36bit (64GB)> <37bit (128GB)> <38bit (256GB)> <39bit (512GB)> <40bit (1TB)>* <41bit (2TB)> <42bit (4TB)> <43bit (8TB)> <44bit (16TB)> <45bit (32TB)> <46bit (64TB)> <47bit (128TB)> <48bit (256TB)>	Select Above 4GB MMIO Limit to 35~48bits limit.
S3/Modern Standby Support	<S3 Enable>* <Modern Standby Enable>	Switch S3/Modern Standby
Wake on PME	<Disabled> <Enabled>*	Determines the action taken when the system power is off and a PCI Power Management Enable wake up event occurs.

Tab. 27: AMD PBS Option

AMD Firmware Version
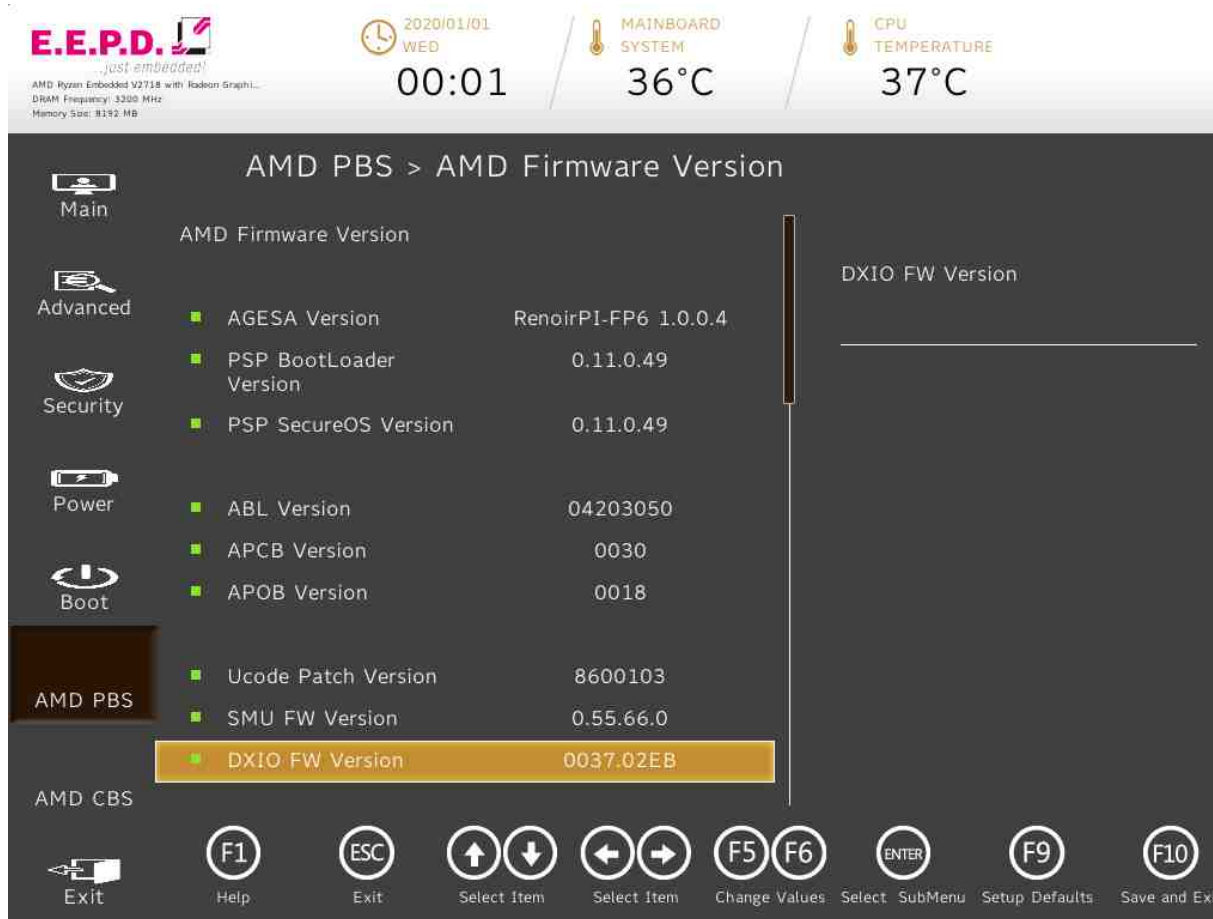
Fig. 40: AMD Firmware Version 1
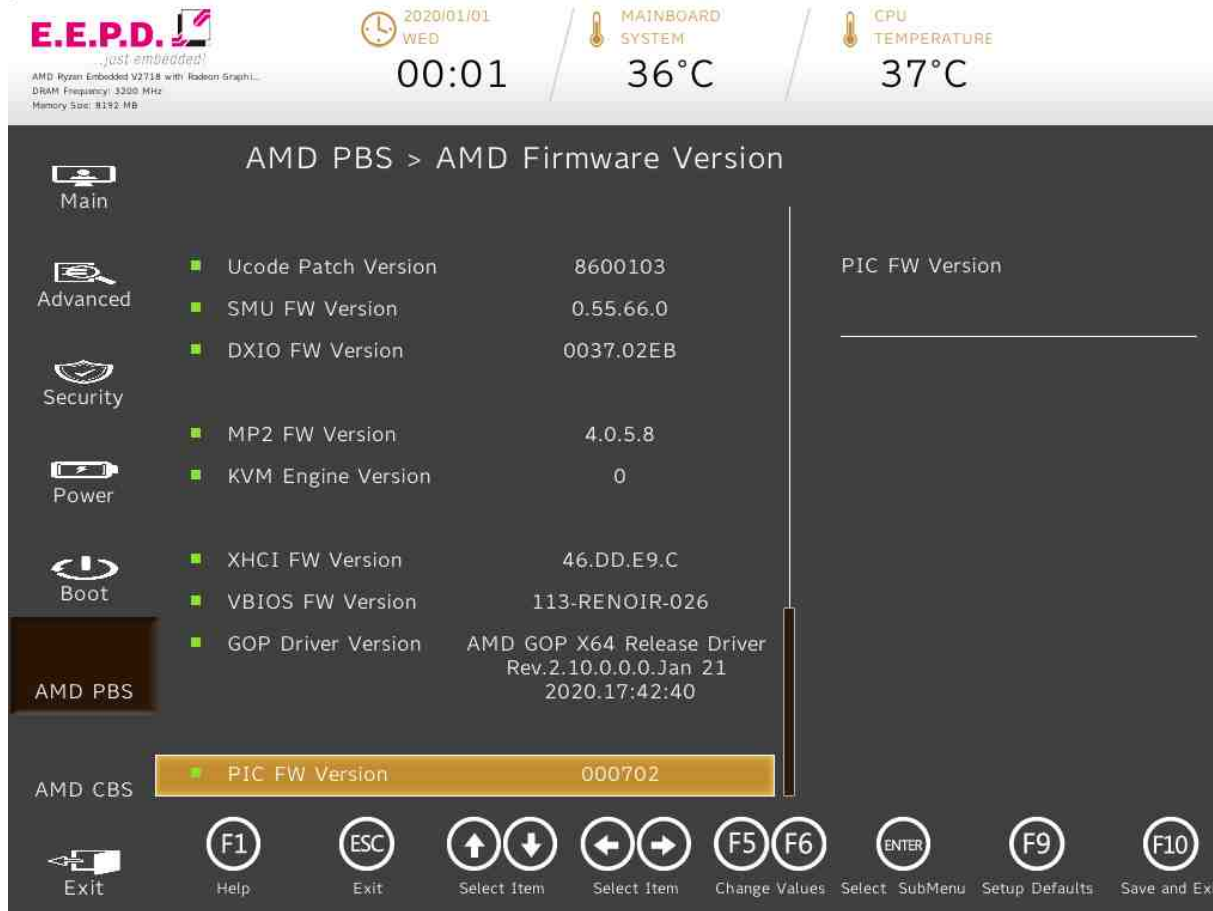
Fig. 41: AMD Firmware Version 2

AMD CBS Menu

Fig. 42: AMD CBS

BIOS Settings	Options	Description
CPU Common Options	No options	CPU Common Options
NBIO Common Options	No options	NBIO Common Options
FCH Common Options	No options	FCH Common Options

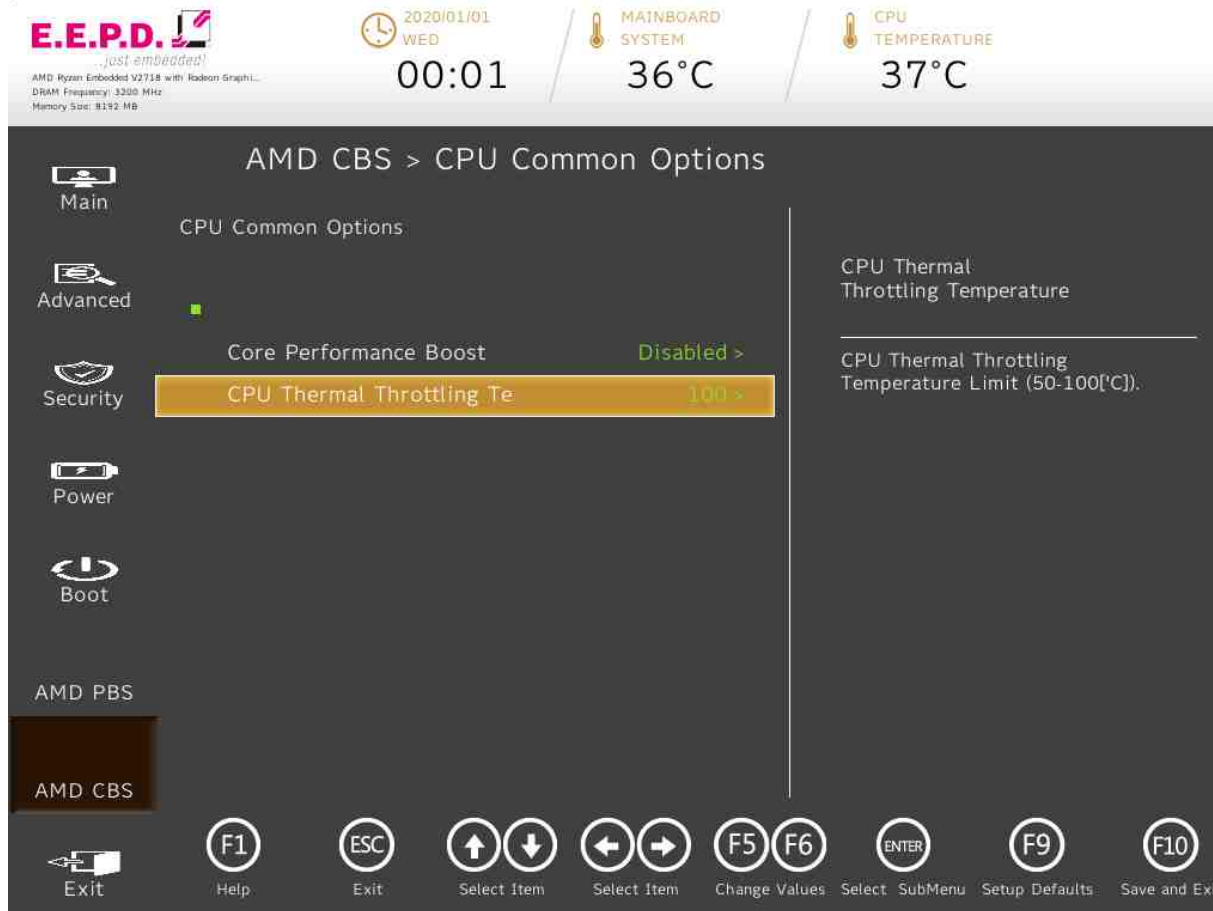Tab. 28: AMD CBS

CPU Common Options

Fig. 43: CPU Common Options

BIOS Settings	Options	Description
Core Performance Boost	<Disabled*> <Auto>	Disable CPB
CPU Thermal Throttling Temperature	Adjust value [50-100] Default value [100]	CPU Thermal Throttling Temperature Limit (50-100[°C])

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NBIO Common Options

Fig. 44: NBIO Common Options

BIOS Settings	Options	Description
GFX Configuration	No options	GFX Configuration
SMU Common Options	No options	SMU Common Options

Tab. 29: NBIO Common Options

GFX Configuration
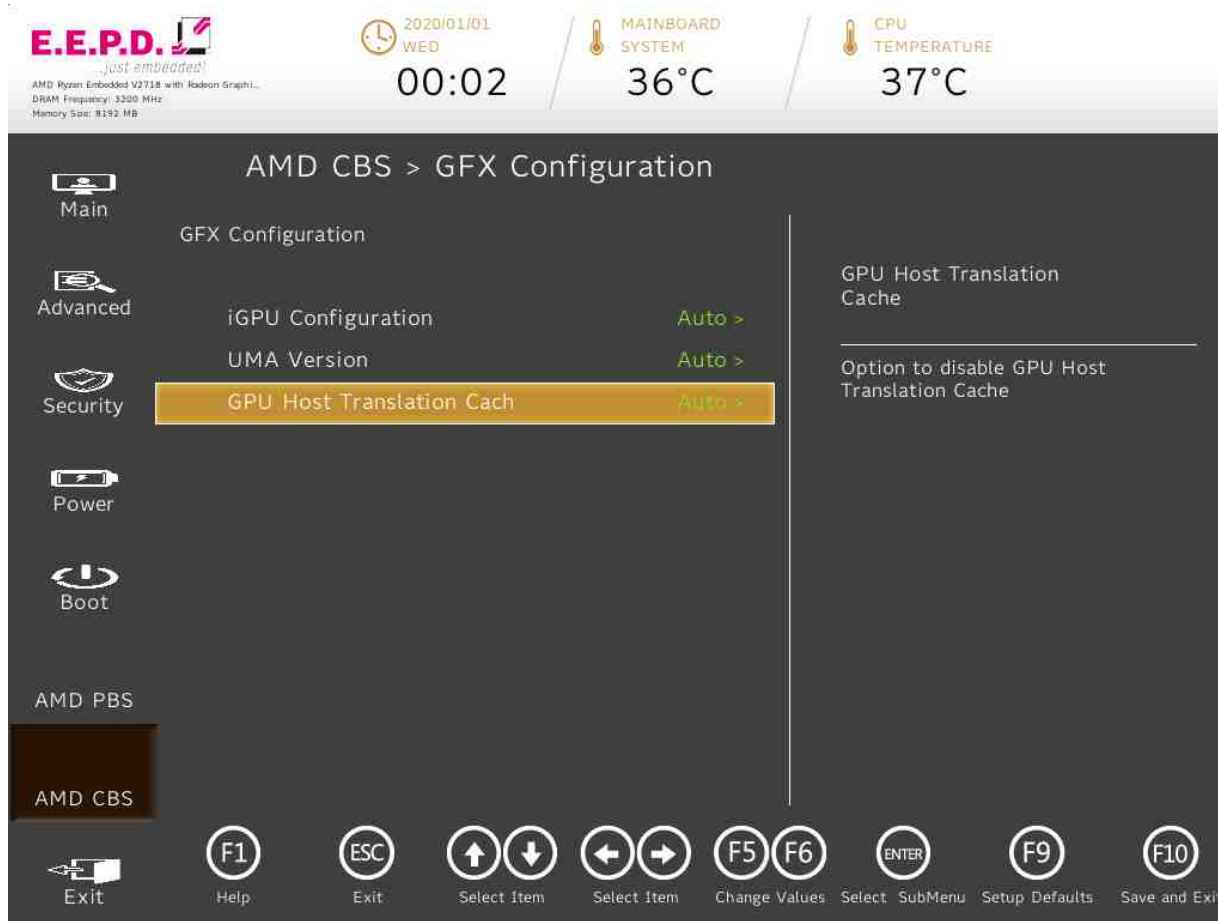
Fig. 45: GFX Configuration

BIOS Settings	Options	Description
iGPU Configuration	<Auto>* <iGPU Disabled> <UMA_SPECIFIED> <UMA_AUTO> <UMA_GAME_OPTIMIZED>	UMA Mode
UMA Version	<Legacy> <Non-Legacy> <Hybrid Secure> <Auto>*	UMA Legacy Version UMA Non Legacy Version Hybrid Secure
GPU Host Translation Cache	<Disabled> <Enabled> <Auto>*	Option to disable GPU Host Translation Cache

Tab. 30: GFX Configuration

SMU Common Options

Fig. 46:SMU Common Options

BIOS Settings	Options	Description
CPU and Auxiliary Fan Control	No options	CPU and Auxiliary Fan Control
System Configuration	<35W POR Configuration> <45W POR Configuration> <54W POR Configuration>	Warning: Select System Configuration may cause the system to hang, as some System Configuration may not be supported by your OPN.

Tab. 31: SMU Common Options

CPU and Auxiliary Fan Control

Fig. 47: CPU and Auxiliary Fan Control

BIOS Settings	Options	Description
CPU Fan Control	<Optimized Cooling>* <Silent Mode> <Maximum Cooling> <No Cooling>	User can set: Optimized Cooling Silent Mode → Less noise Maximum Cooling → Always on No Cooling → Always off
Auxiliary Fan Control	<Optimized Cooling> <Silent Mode> <Maximum Cooling> <No Cooling>*	User can set: Optimized Cooling Silent Mode → Less noise Maximum Cooling → Always on No Cooling → Always off

Tab. 32: CPU and Auxiliary Fan Control

FCH Common Options

Fig. 48: FCH Common Options

BIOS Settings	Options	Description
USB Configuration Options	No options	USB Configuration Options
Ac Power Loss Options	No options	Ac Power Loss Options

Tab. 33: FCH Common Options

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USB Configuration Options
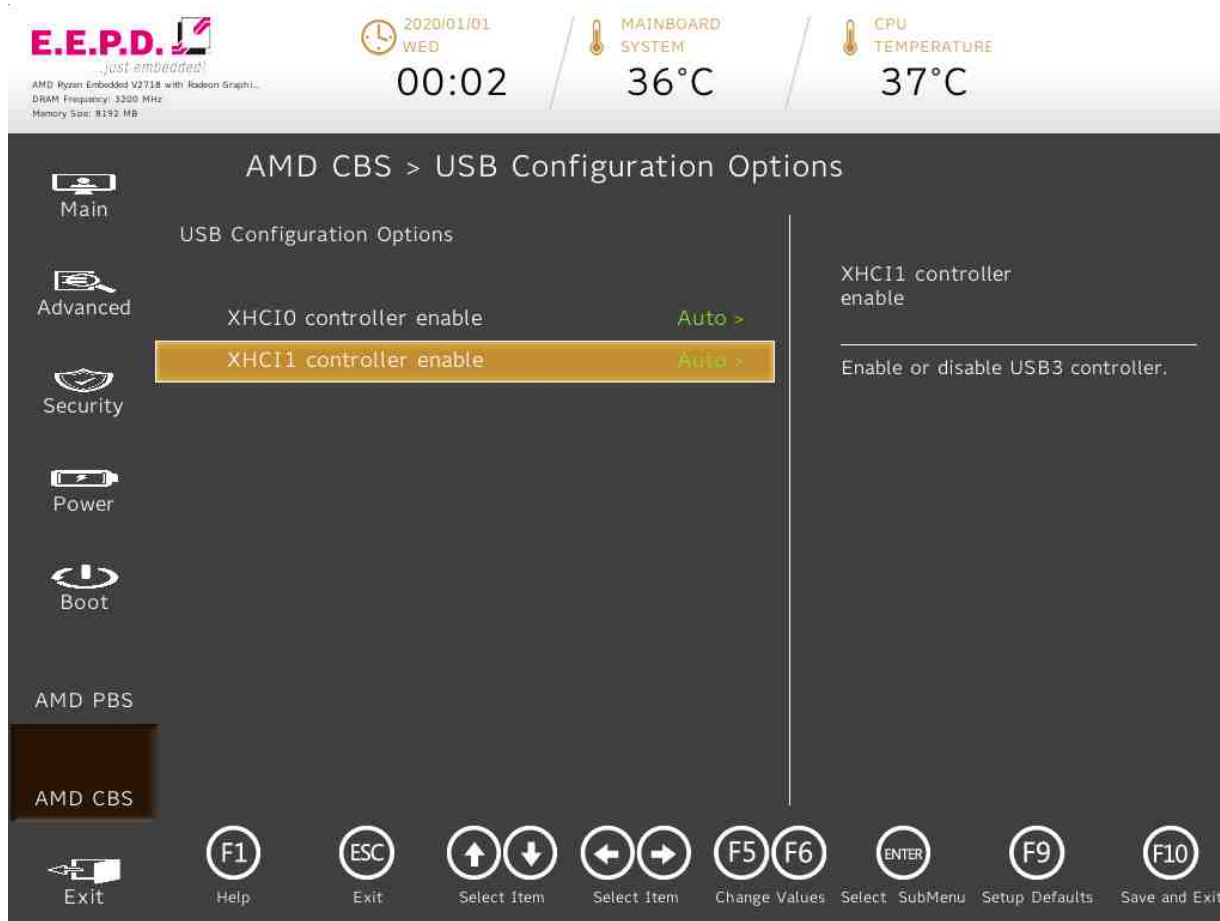
Fig. 49: USB Configuration Options

BIOS Settings	Options	Description
XHCI0 controller enable	<Enabled> <Disabled> <Auto>*	Enable or disable USB3 controller.
XHCI1 controller enable	<Enabled> <Disabled> <Auto>*	Enable or disable USB3 controller.

Tab. 34: USB Configuration Options

Ac Power Loss Options

Fig. 50: Ac Power Loss Options

BIOS Settings	Options	Description
Ac Loss Control	<Always Off> <Always On> <Reserved> <Previous>* <Auto>	Select Ac Loss Control Method

Tab. 35: Ac Power Loss Options

Exit Menu

Fig. 51: Exit Menu

BIOS Settings	Options	Description
Exit Saving Changes		Exit system setup and save your changes.
Save Change Without Exit		Save your changes and without exiting system.
Exit Discarding Changes		Exit system setup and without saving your changes.
Load Optimal Defaults		Load Optimal Defaults.
Load Custom Defaults		Load Custom Defaults.
Save Custom Defaults		Save Custom Defaults
Discard Changes		Discard Changes

Tab. 36: Exit Menu

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Revision History

Date	Version	Changes
21.05.2021	1.0	First release
29.07.2021	1.1	BIOS Update and some corrections
23.09.2021	1.2	Some corrections

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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

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