NEXCOM International Co., Ltd.

Intelligent Platform & Services Business Unit

PICMG Single Board Computer (PICMG 1.3)

PEAK 889VL2

User Manual

NEXCOM International Co., Ltd.
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Chapter 3: BIOS Setup

PREFACE

Copyright

Disclaimer

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Acknowledgements

PEAK 889VL2 is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

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. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

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.

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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. CAUTION: 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.

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.

Global Service Contact Information

Headquarters

NEXCOM International Co., Ltd.
9F, No. 920, Chung-Cheng Rd.,
ZhongHe District, New Taipei City, 23586,
Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
www.nexcom.com

Asia

Taiwan

NexAIoT Co., Ltd.

Taipei Office
13F, No.920, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7796
Fax: +886-2-8226-7792
Email: sales@nexcom.com.tw
www.nexcom.com.tw

NexAIoT Co., Ltd.

Taichung Office
16F, No.250, Sec. 2, Chongde Rd.,
Beitun Dist.,
Taichung City 406, R.O.C.
Tel: +886-4-2249-1179
Fax: +886-4-2249-1172
Email: sales@nexcom.com.tw
www.nexcom.com.tw

NexCOBOT Taiwan Co., Ltd.
13F, No.916, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7796
Fax: +886-2-8226-7792
Email: sales@nexcom.com.tw
www.nexcom.com.tw

GreenBase Technology Corp.
13F, No.922,Chung-Cheng Rd.,
Zhonghe Dist.,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7900
Email:sales@nexcom.com.tw
www.nexcom.com.tw

China

NEXSEC Incorporated
Floor 5, No.4, No.7 fengxian middle Rd.,
(Beike Industrial Park), Haidian District,
Beijing, 100094, China
Tel: +86-10-5704-2680
Fax: +86-10-5704-2681
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Shanghai
Room 603/604, Huiyinmingzun Plaza Bldg., 1,
No. 609, Yunlin East Rd.,
Shanghai, 200062, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Surveillance Technology Corp.
Floor 5, Building C, ZhenHan Industrial Zone,
GanKeng Community, Buji Street,
LongGang District,
ShenZhen, 518112, China
Tel: +86-755-8364-7768
Fax: +86-755-8364-7738
Email: steveyang@nexcom.com.tw
www.nexcom.cn

NEXCOM United System Service
Room 603/604, Huiyinmingzun Plaza Bldg. 1,
No. 609, Yunlin East Rd.,
Shanghai, 200062, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: renwang@nexcom.com.tw
www.nexcom.cn

NEXGOL
1st Floor, Building B4, Electronic 2nd Area,
(Phoenix Lake Industrial Park), Yongchuan Dist.,
Chongqing City, 402160, China
Tel: +86-23-4960-9080
Fax: +86-23-4966-5855
Email: sales@nexcobot.com
www.nexgol.com/NexGoL

Beijing NexGemo Technology Co.,Ltd.
5th Floor, Gemotech Building, No.1, Development Rd.,
Changping International Information Industry Base,
Changping District,
Beijing,102206, China
Tel: +86-10-8190-9399
Fax:+86-10-8190-9456

Japan
NEXCOM Japan
9F, Tamachi Hara Bldg.,
4-11-5, Shiba Minato-ku,
Tokyo, 108-0014, Japan
Tel: +81-3-5419-7830
Fax: +81-3-5419-7832
Email: sales@nexcom-jp.com
www.nexcom-jp.com

Europe
United Kingdom
NEXCOM EUROPE
10 Vincent Avenue,
Crownhill Business Centre,
Milton Keynes, Buckinghamshire
MK8 0AB, United Kingdom
Tel: +44-1908-267121
Fax: +44-1908-262042
Email: sales.uk@nexcom.eu
www.nexcom.eu

America
USA
NEXCOM USA
2883 Bayview Drive,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcom.com

Package Contents

Before continuing, verify that the PEAK 889VL2 package that you received is complete. Your package should have all the items listed in the following table.

Item	Name	Qty
1	PEAK 889VL2 Serial Motherboard	1
2	Print 25 to 2.0mm 26-pin PIT:1.0mm L:260mm w/Bracket	1
3	COM Port 9-pin to Housing 10-pin PIT:2.0mmx2 L:150mm+-10mm	1
4	SATA Cable ACMELUX:19922413 Standard L:300mm	1
5	PS2 Y Cable CONNTEK:A02-A052-V01 PS2 to JST 6P PH:2.0 L=250mm	1

Optional Accessories

Item	Part Number	Name	Description
1	603USB0006X00	USB 3.0 Cable	ST:13-450-E007 USB A/Fx2 to 2x10P L=380mm
2	6030000197X00	DP Cable	PIT:1.25mm L=200mm w/Bracket x1
3	5050200022X00	LGA115X CPU Cooler COOLJAG	128.96×128.96×61.4mm AL6063+Copper 1100 FAN 4500RPM L:200mm

Ordering Information

The following information below provides ordering information for PEAK 889VL2.

PEAK 889VL2-Q (P/N: 10P00088901X0)

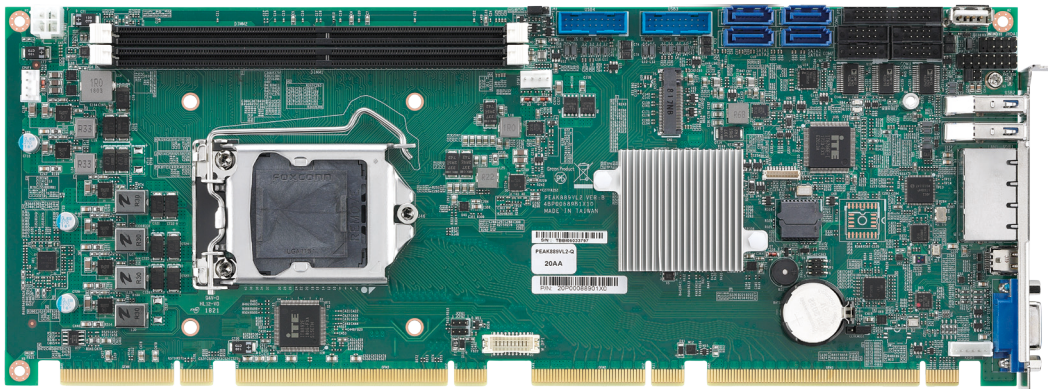
PICMG 1.3 Full-size SBC, Q370, Intel® LGA1151, DDR4 DIMM, support triple display, LAN x 2, USB 3.1 Gen1/2 x 2, USB 3.1 Gen1 x 4, USB 2.0 x 1, SATA 3.0 x 4, M.2 (supports SATA & PCIe storage), COM x 4, LPT x 1.

PEAK 889VL2-H (P/N: 10P00088901X0)

PICMG 1.3 Full-size SBC, H310, Intel® LGA1151, DDR4 DIMM, support dual display, LAN x 2, USB 3.1 Gen1 x 4, SATA 3.0 x 2, COM x 4, LPT x 1.

Chapter 1: Product Introduction

Overview



Key Features

- Support 8th generation Intel® Core™ i7/i5/i3 processor, 65W TPD, LGA1151 socket
- Support Intel® Q370 / H310 PCH chipset PICMG 1.3 specification
- Support two DDR4 Long-DIMM 288-pin sockets
- Support multiple displays from VGA & Mini DisplayPort & DisplayPort
- SATA III x 4, GbE LAN x 2, COM x 4, LPT x 1, USB 3.1 Gen1 x 4, USB 2.0 x 2, HD Audio and M.2 x 1
- Optional: TPM, CPU cooler and M.2 storage

Hardware Specifications

CPU Support

- 8th generation Intel® Core™ i7/i5/i3 processor 65W TDP

Platform Control Hub

- Intel® Q370 Express Chipset PCH
- Intel® H310 Express Chipset PCH

BIOS

- AMI system BIOS
- 256MBit SPI depended on AMT function

Display

- VGA connector
- Mini DisplayPort connector
- DisplayPort connector

System

- 2 x Dual channel DDR4 2666, support up to 32GB, non-ECC
- 2 x Intel I219LM & I211 PCIe GbE LAN controller

Q370 PCH:

- 2 x USB 3.1 Gen1/2, 4 x USB 3.1 Gen1 and 5 USB 2.0 ports:
  - 2 ports through I/O bracket (USB 3.1 Gen1/2+redriver)
  - 4 ports through 2x10 box header 2.0mm (USB 3.1 Gen1)
  - 1 port (USB 2.0 Type A)
  - 4 ports through backplane (USB 2.0)
- Storage device:
  - 4 x SATA III 6.0Gb/s.
  - SATA 0,1 use switch to PICMG 1.3 connector (BIOS setting)
  - 1 x M.2 2280 M key with SATA III & PCIe x4 (NVMe Gen 3), supports Intel RST

H310 PCH:

- 4 x USB 3.1 Gen1:
  - 2 ports through I/O bracket (USB 3.1 Gen1)
  - 2 ports through 2x10 box header 2.0mm (USB 3.1 Gen1)
  - 1 port (USB 2.0 Type A)
- Storage device:
  - 4 x SATA III 6.0Gb/s.
  - SATA 0,1 by backplane
- 4 x Serial ports:
  - 1 x RS232/485/422 and +5V/RI/+12V select by COM2
  - 3 x RS232 by COM1, COM3 and COM4
- 1 x LPT
- 1 x PS/2 JST connector
- WDT 1~255 steps by software program
- 1 x HD Audio header (compatible with NEXCOM audio daughter board P/N: 10E000HDA00X0 EBK-HAD)
- 1 x Front panel connector
- 1 x ATX 4-pin power connector

I/O Interface

- 1 x PCI Express x16 (PEG Gen3)
- 1 x PCI Express x1 *4 Gen 3 (Q370); (Gen 2 only for H310)
- 4 x PCI to backplane

Rear I/O

- 2 x USB 3.1 Gen1/2 ports (Gen 1 only for H310)
- 2 x GbE LAN ports
- 1 x VGA connector
- 1 x Mini DisplayPort connector

Power Requirements

- Power source from backplane through golden finger and AUX +12V
- Support ATX/AT function by jumper setting

Mechanical & Environment

- Operating temperature: 0°C ~ 60°C
- Storage temperature: -20°C ~ 85°C
- Relative humidity: Operating 10%~90%, non-condensing

Dimensions

- 338.58mm x 126.39mm, 8 layers (single side)

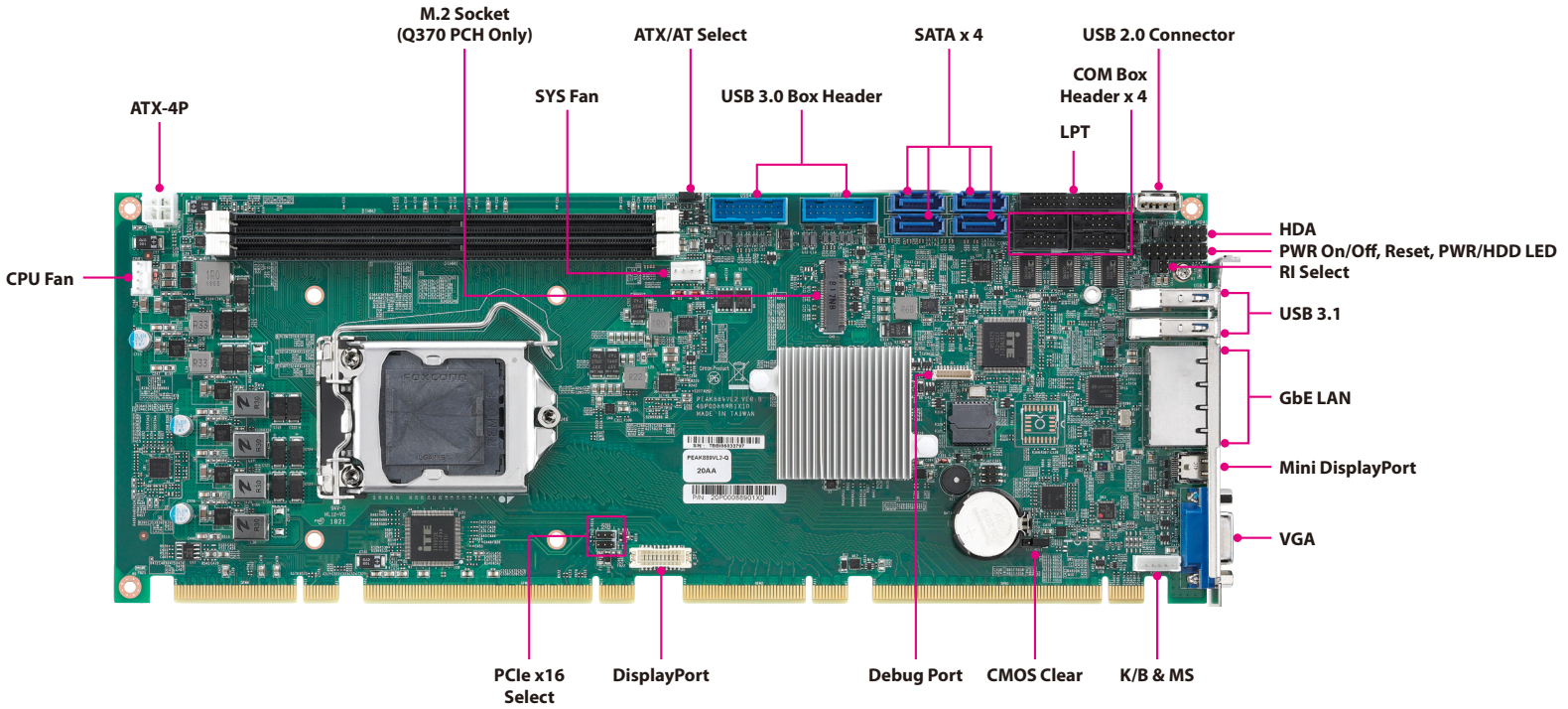
Operating System

- Windows® 10 64-bit

Certifications

- EMC & Safety (TBD)
- CE/FCC Class A (TBD)

Knowing Your PEAK 889VL2



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the PEAK 889VL2 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:

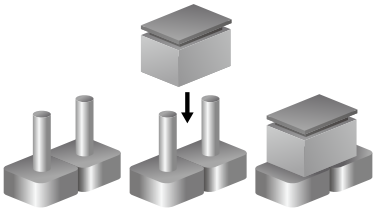
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal 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.

Jumper Settings

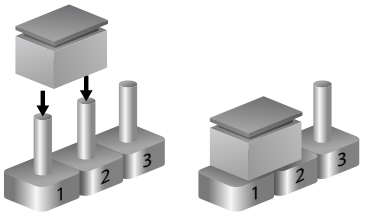
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

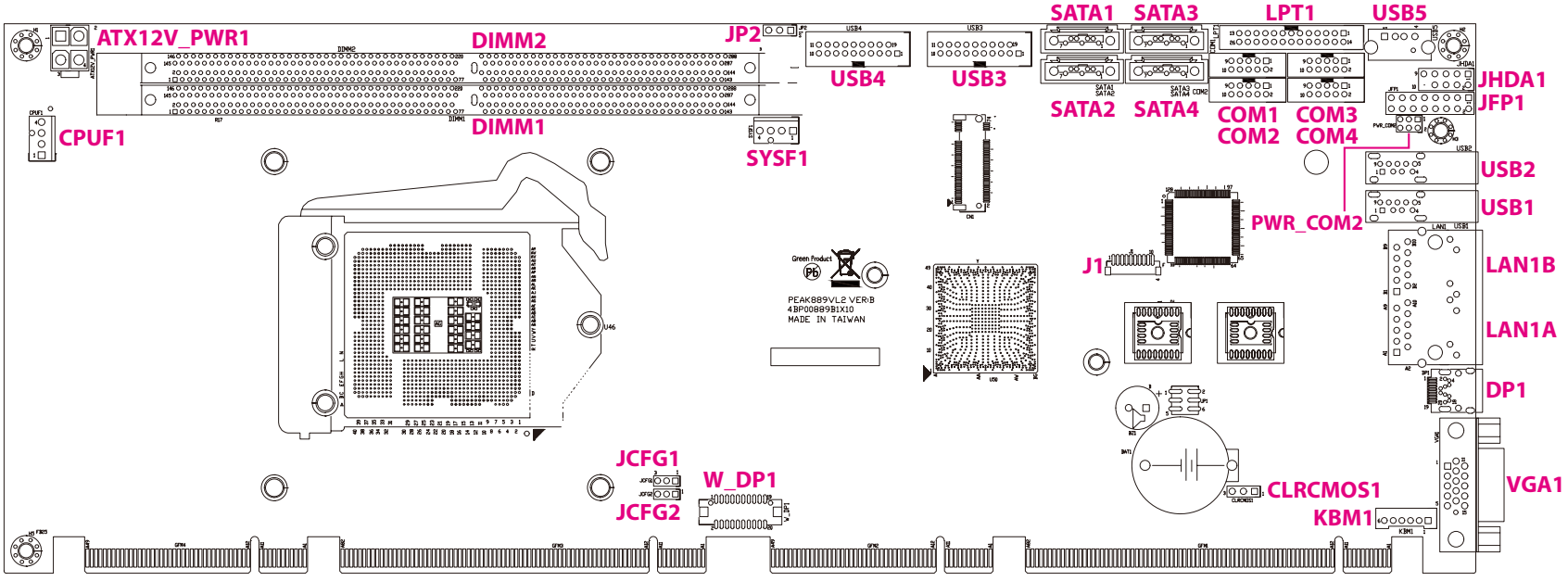


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors

The figure below shows the location of the jumpers and connectors for PEAK 889VL2.



Jumpers

CMOS Clear Select

Connector type: 1x3 3-pin header
Connector location: CLRCMOS1

Pin	Settings
1-2 On	Normal
2-3 On	Clear BIOS Setting

1-2 On: default

AT/ATX Select

Connector type: 1x3 3-pin header
Connector location: JP2

Pin	Settings
1-2 On	AT Mode
2-3 On	ATX Mode

1-2 On: default

PCIe x16 Select

Connector type: 1x3 3-pin header
Connector location: JCFG1

Pin	Settings
1-2 On	1(CFG5)
2-3 On	0

Pin	Definition
1	VCCIO
2	CPU_CFG5_C
3	GND

PCIe x16 Select

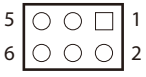
Connector type: 1x3 3-pin header
Connector location: JCFG2

Pin	Settings
1-2 On	1(CFG6)
2-3 On	0

Pin	Definition
1	VCCIO
2	CPU_CFG6_C
3	GND

COM2 RI Select

Connector type: 2x3 6-pin header
Connector location: PWR_COM2



Pin	Settings
1-2 On	+5V
3-4 On	+12V
5-6 On	RI

5-6 On: default

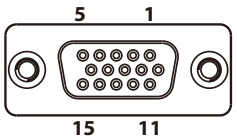
Pin	Definition
1	+5V
2	PWR_RI#_COM2
3	PWR_RI#_COM2
4	+12V
5	COM_RI#2
6	PWR_RI#_COM2

Connector Pin Definitions

External Connectors

VGA Port

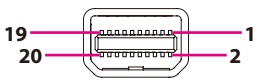
Connector type: DB-15 port, 15-pin D-Sub
Connector location: VGA1



Pin	Definition	Pin	Definition
1	VGA_RED_C	2	VGA_GREEN_C
3	VGA_BLUE_C	4	NC
5	GND	6	VGA_GND
7	VGA_GND	8	VGA_GND
9	+VGA_5V	10	GND
11	NC	12	VGA_DDCDATA_C
13	VGA_HSYNC_C	14	VGA_VSYNC_C
15	VGA_DDCCLK_C		

Mini DisplayPort

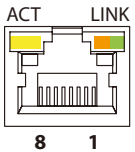
Connector type: Mini DisplayPort
Connector location: DP1



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

LAN1 Port

Connector type: RJ45 port with LEDs
Connector location: LAN1A



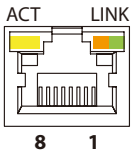
Act	Status
Flashing Yellow	Data activity
Off	No activity

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

Pin	Definition	Pin	Definition
1	MDI_PLUS0_C_0	2	MDI_MINUS0_C_0
3	MDI_PLUS1_C_0	4	MDI_MINUS1_C_0
5	TCT_0	6	TCTG_0
7	MDI_PLUS2_C_0	8	MDI_MINUS2_C_0
9	MDI_PLUS3_C_0	10	MDI_MINUS3_C_0
11	LAN0_LED2+	12	LED2_100#_C_0
13	LED0_ACT_C_0	14	LAN0_LED1+
MH1	CHASSIS_GND	MH2	CHASSIS_GND

LAN2 Port

Connector type: RJ45 port with LEDs
Connector location: LAN1B



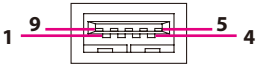
Act	Status
Flashing Yellow	Data activity
Off	No activity

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

Pin	Definition	Pin	Definition
1	LAN2_MDI0P	2	LAN2_MDI0N
3	LAN2_MDI1P	4	LAN2_MDI1N
5	AVDD12_PHY2	6	LAN2TCTG
7	LAN2_MDI2P	8	LAN2_MDI2N
9	LAN2_MDI3P	10	LAN2_MDI3N
11	LAN2_LINK1G#	12	LAN2_LINK100#
13	LAN2_LED_ACT#	14	LAN2_ACT_P
MH1	CHASSIS_GND	MH2	CHASSIS_GND

USB 3.0 Port

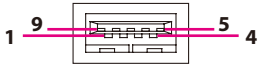
Connector type: USB 3.0 port, Type A
Connector location: USB1



Pin	Definition	Pin	Definition
1	+5V_USB3_P12	2	USB2N_1
3	USB2P_1	4	GND
5	USB31_RXN1	6	USB31_RXP1
7	GND	8	USB31_TXP1
9	USB31_TXN1	MH1	CHASSIS_GND
MH2	CHASSIS_GND	MH3	
MH4			

USB 3.0 Port

Connector type: USB 3.0 port, Type A
Connector location: USB2

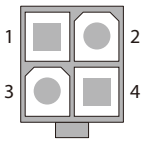


Pin	Definition	Pin	Definition
1	+5V_USB3_P12	2	USB2N_2
3	USB2P_2	4	GND
5	USB31_RXN2	6	USB31_RXP2
7	GND	8	USB31_TXP2
9	USB31_TXN2	MH1	CHASSIS_GND
MH2	CHASSIS_GND	MH3	
MH4			

Internal Connectors

Power Input Connector

Connector type: 2x2 4-pin header, 3.5mm pitch
Connector location: ATX12V_PWR1

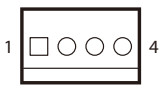


Pin	Definition	Pin	Definition
1	GND	2	GND
3	+12V	4	+12V

Note:
This is a 12V accessory power supply that must be connected.

CPU Fan Connector

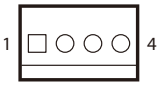
Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: CPUF1



Pin	Definition	Pin	Definition
1	GND	2	+12V
3	FAN TAC	4	FAN CTL

System Fan Connector

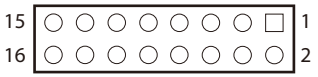
Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: SYSF1



Pin	Definition	Pin	Definition
1	GND	2	+12V
3	FAN TAC	4	FAN CTL

Power On/Off/Reset & PWR/HDD LED Pin Header

Connector type: 2x8 16-pin header, 2.54mm pitch
Connector location: JFP1



Pin	Definition	Pin	Definition
1	HDD_LED	2	PWR_LED
3	HDD_LED#	4	GND
5	GND	6	SHB_PWR_BTN#
7	SHB_RST_BTN#	8	GND
9	SPKR_P	10	SMB_CLK_MAIN
11	SPKR_P	12	SMB_DATA_MAIN
13	SPKR_N	14	SYS_TIN_3
15	SPKR_N	16	HW_AGND

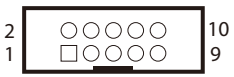
Debug Port

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J1

Pin	Definition	Pin	Definition
1	GND	2	PLTRST#_BUFF_1
3	CLKOUT_LPC1	4	LFRAME#
5	LAD3	6	LAD2
7	LAD1	8	LAD0
9	SERIRQ	10	+3V3

COM1 RS232 Box Header Connector

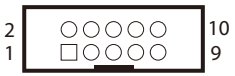
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM1



Pin	Definition	Pin	Definition
1	COM_DCD#1	2	COM_RXD1
3	COM_TXD1	4	COM_DTR#1
5	GND	6	COM_DSR#1
7	COM_RTS#1	8	COM_CTS#1
9	COM_RI#1	10	GND

COM2 RS232/422/485 Box Header Connector

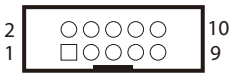
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM2



Pin	Definition	Pin	Definition
1	COM_DCD#2	2	COM_RXD2
3	COM_TXD2	4	COM_DTR#2
5	GND	6	COM_DSR#2
7	COM_RTS#2	8	COM_CTS#2
9	PWR_RI#_COM2	10	GND

COM3 RS232 Box Header Connector

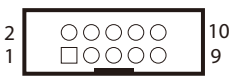
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM3



Pin	Definition	Pin	Definition
1	COM_DCD#3	2	COM_RXD3
3	COM_TXD3	4	COM_DTR#3
5	GND	6	COM_DSR#3
7	COM_RTS#3	8	COM_CTS#3
9	COM_RI#3	10	GND

COM4 RS232 Box Header Connector

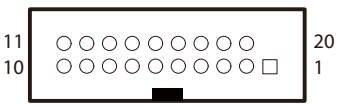
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: COM4



Pin	Definition	Pin	Definition
1	COM_DCD#4	2	COM_RXD4
3	COM_TXD4	4	COM_DTR#4
5	GND	6	COM_DSR#4
7	COM_RTS#4	8	COM_CTS#4
9	COM_RI#4	10	GND

USB 3.0 Box Header

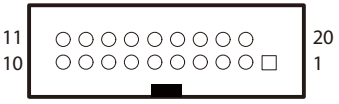
Connector type: 2x10 20-pin header, 2.0mm pitch
Connector location: USB3



Pin	Definition	Pin	Definition
1	+5V_USB3_P34	2	USB31_RXN4
3	USB31_RXP4	4	GND
5	USB31_TX_C_N4	6	USB31_TX_C_P4
7	GND	8	USB2N_4
9	USB2P_4	10	NC
11	USB2P_3	12	USB2N_3
13	GND	14	USB31_TX_C_P3
15	USB31_TX_C_N3	16	GND
17	USB31_RXP3	18	USB31_RXN3
19	+5V_USB3_P34		

USB 3.0 Box Header

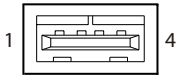
Connector type: 2x10 20-pin header, 2.0mm pitch
Connector location: USB4



Pin	Definition	Pin	Definition
1	+5V_USB3_P9A	2	USB31_RXN10
3	USB31_RXP10	4	GND
5	USB31_TX_C_N10	6	USB31_TX_C_P10
7	GND	8	USB2N_10
9	USB2P_10	10	NC
11	USB2P_9	12	USB2N_9
13	GND	14	USB31_TX_C_P9
15	USB31_TX_C_N9	16	GND
17	USB31_RXP9	18	USB31_RXN9
19	+5V_USB3_P9A		

USB 2.0 Connector

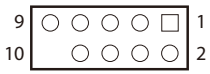
Connector type: USB 2.0 port
Connector location: USB5



Pin	Definition	Pin	Definition
1	+5V_USB2_P14	2	USB2N_14
3	USB2P_14	4	GND
MH1	GND	MH2	GND

HDA Pin Header

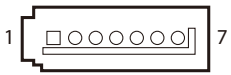
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: JHDA1



Pin	Definition	Pin	Definition
1	S_HDA_SDO	2	VCC5
3	S_HDA_RST#	4	GND
5	S_HDA_SYNC	6	+12V
7	S_HDA_SDI0	8	S_HDA_SDI1
9	S_HDA_BCLK	10	NC

SATA1 Connector

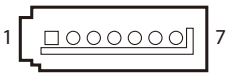
Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA1



Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0
3	SATA_TXN0	4	GND
5	SATA_RXN0	6	SATA_RXP0
7	GND		

SATA2 Connector

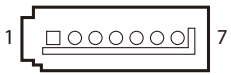
Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA2



Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP1
3	SATA_TXN1	4	GND
5	SATA_RXN1	6	SATA_RXP1
7	GND		

SATA3 Connector

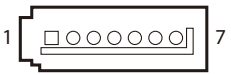
Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA3



Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP2
3	SATA_TXN2	4	GND
5	SATA_RXN2	6	SATA_RXP2
7	GND		

SATA4 Connector

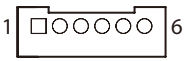
Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA4



Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP3
3	SATA_TXN3	4	GND
5	SATA_RXN3	6	SATA_RXP3
7	GND		

Keyboard and Mouse Pin Header

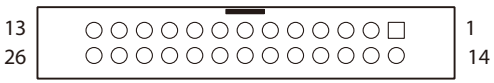
Connector type: 1x6 6-pin header, 2.0mm pitch
Connector location: KBM1



Pin	Definition	Pin	Definition
1	+5V_KBM	2	LKBDAT
3	LKBCLK	4	LMDAT
5	LMCLK	6	GND

Printer Port

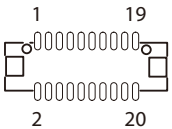
Connector type: 2x13 26-pin header, 2.0mm pitch
Connector location: LPT1



Pin	Definition	Pin	Definition
1	RPSTB	2	RPSTB0
3	RPSTB1	4	RPSTB2
5	RPSTB3	6	RPSTB4
7	RPSTB5	8	RPSTB6
9	RPSTB7	10	S1_LPTACK#
11	S1_LPTBUSY	12	S1_LPTPE
13	S1_LPTSLCT	14	S1_LPTAFD#
15	S1_LPTERR#	16	S1_LPTINIT#
17	S1_LPTSLIN#	18	GND_P1
19	GND_P1	20	GND_P1
21	GND_P1	22	GND_P1
23	GND_P1	24	GND_P1
25	GND_P1	26	NC

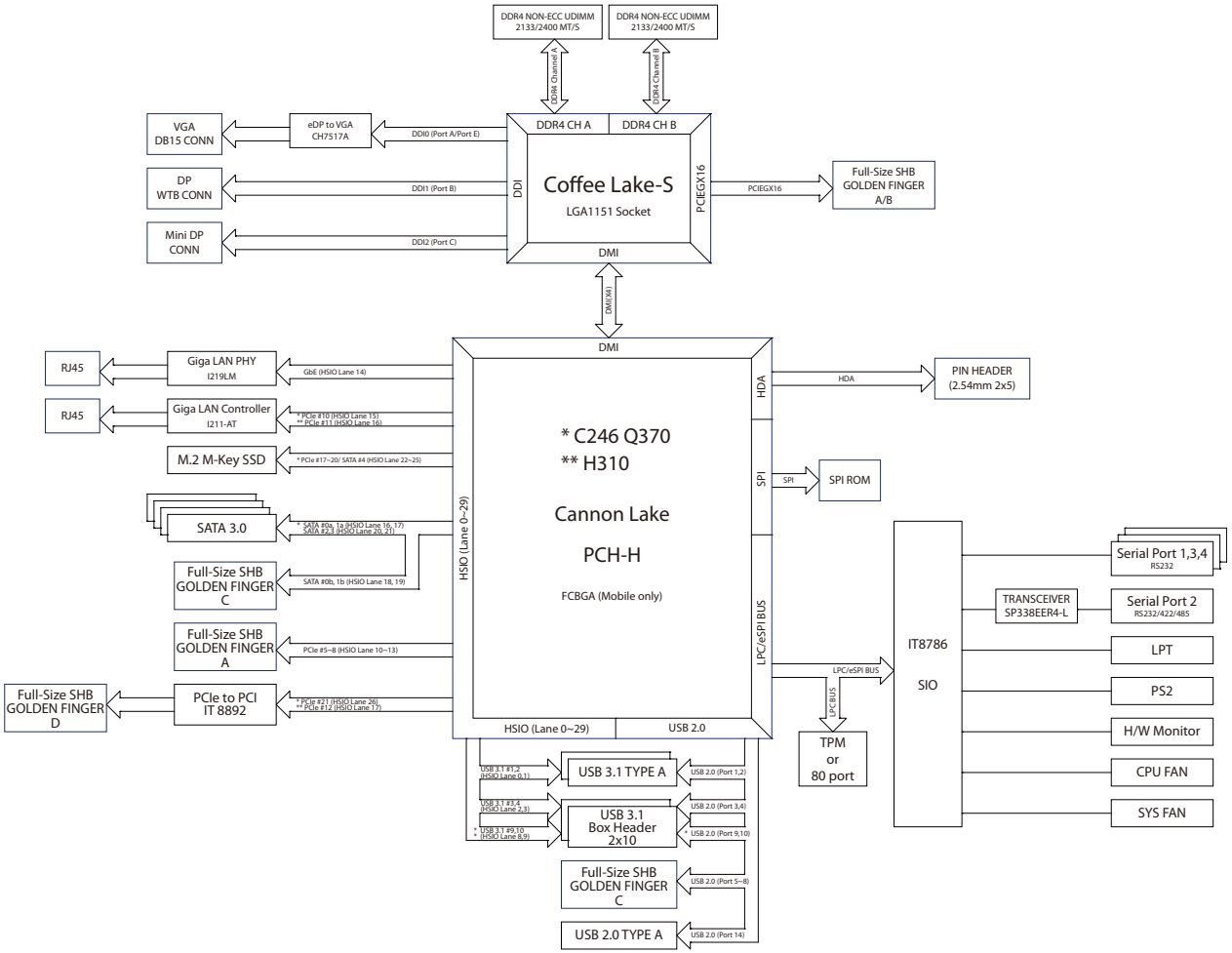
DisplayPort Connector

Connector type: 2x10 20-pin header, 1.25mm pitch
Connector location: W_DP1



Pin	Definition	Pin	Definition
1	+3V3_DP_PWR	2	+3V3_DP_PWR
3	GND	4	GND
5	LANE1_N	6	LANE3_N
7	LANE1_P	8	LANE3_P
9	GND	10	GND
11	LANE0_N	12	LANE2_N
13	LANE0_P	14	LANE2_P
15	GND	16	GND
17	AUX_P	18	HPD
19	AUX_N	20	GND_P1

Block Diagram



Chapter 3: BIOS Setup

This chapter describes how to use the BIOS setup program for the PEAK 889VL2. 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 Web site 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 <Del> 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 

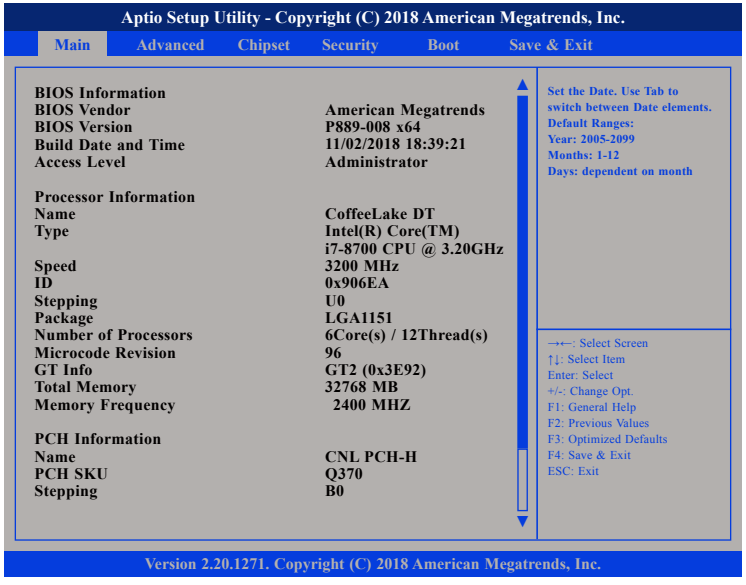
.

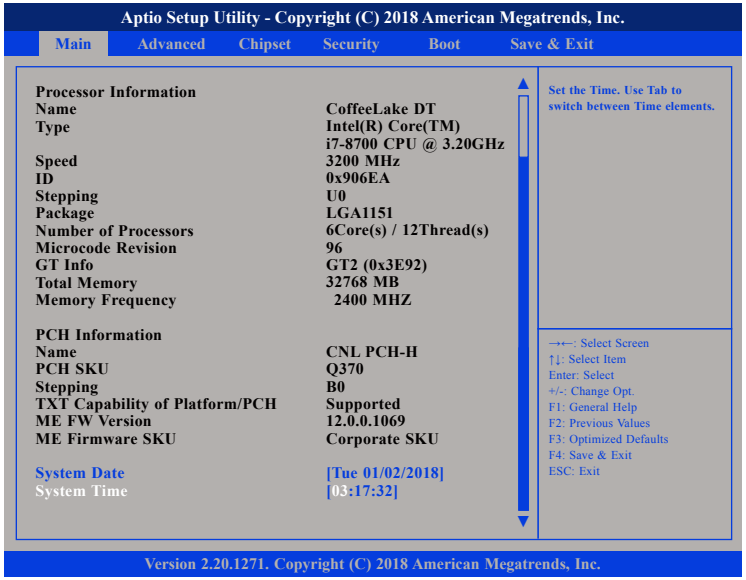
BIOS Setup Utility

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 Enter 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.





System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 2005 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

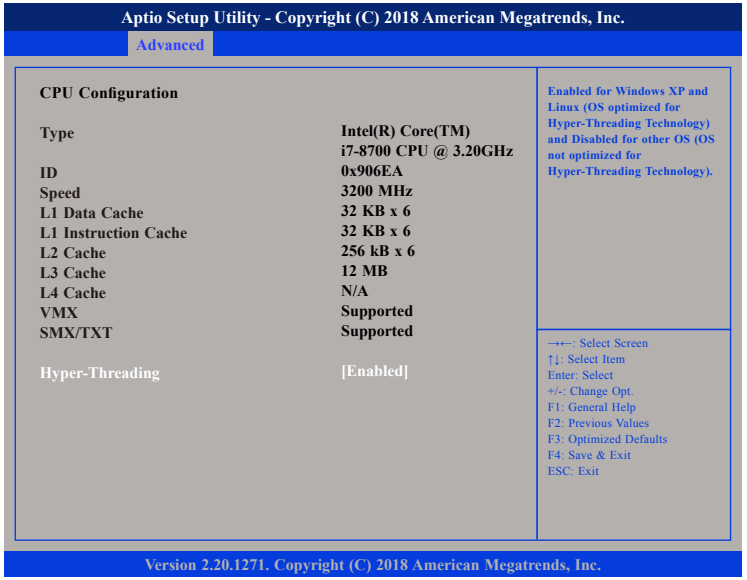
Advanced

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 configure the CPU.

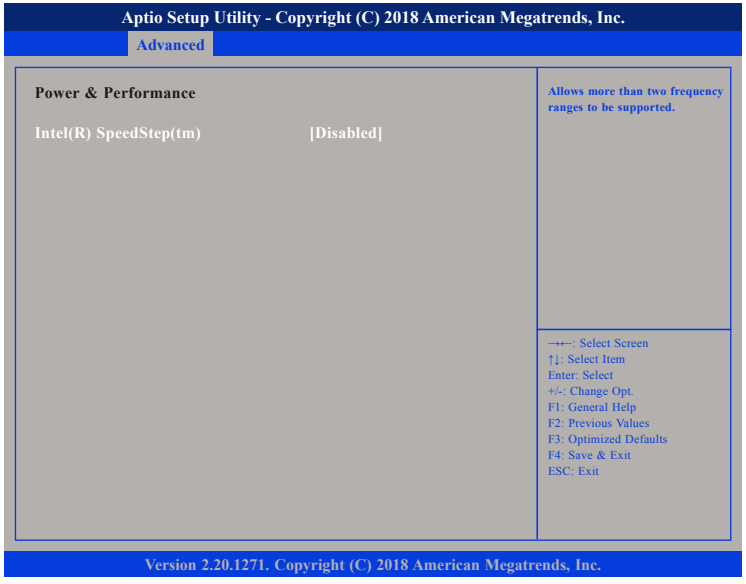


Hyper-Threading

Enables or disables hyper-threading technology.

Power & Performance

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



Intel® SpeedStep™
Enables or disables Intel SpeedStep.

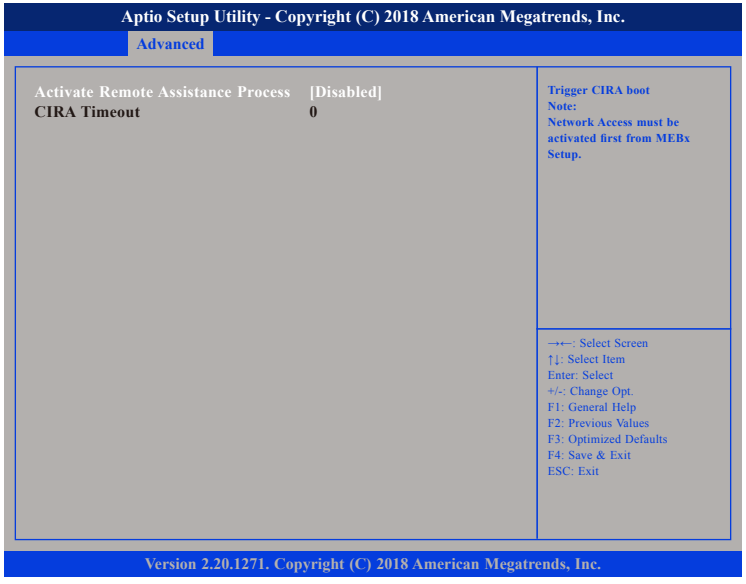
AMT Configuration

This section is used to configure AMT settings.

ASF support
Enables or disables Alert Standard Format support.

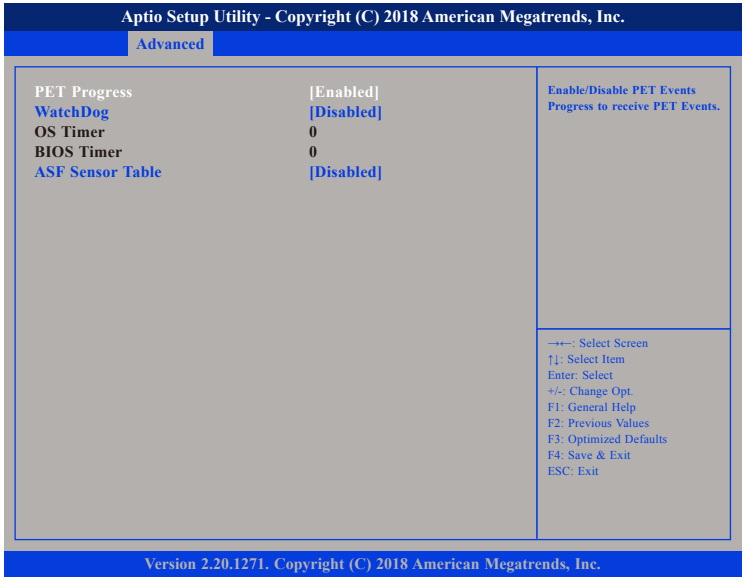
USB Provisioning of AMT
Enables or disables USB Provisioning of AMT.

CIRA Configuration



Activate Remote Assistance Process
Enables or disables Activate Remote Assistance Process.

ASF Configuration

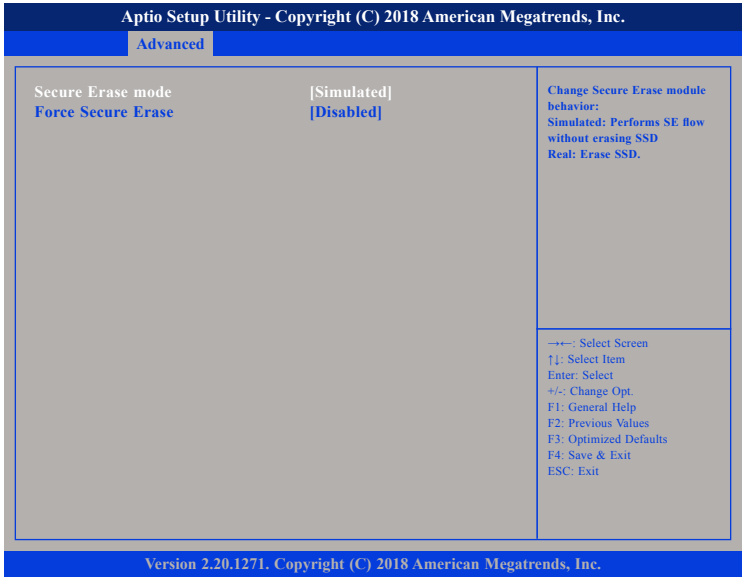


PET Progress
Enables or disables PET Events Progress to receive PET Events.

WatchDog
Enables or disables watchdog timer.

ASF Sensors Table
Enables or disables the option to add ASF Sensor Table into 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 diables 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

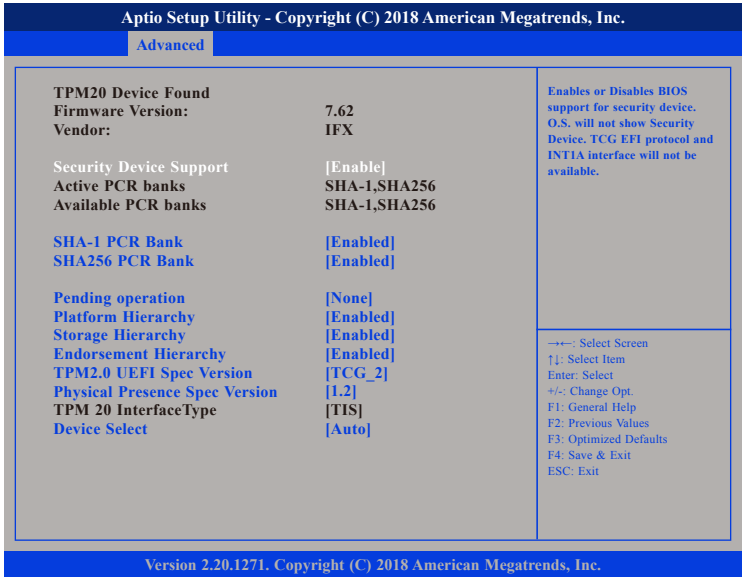
Non-UI Mode Resolution
Configures the resolution for non-UI text mode.

UI Mode Resolution
Configures the resolution for UI text mode.

UI Mode Resolution
Configures the resolution for graphics mode.

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.

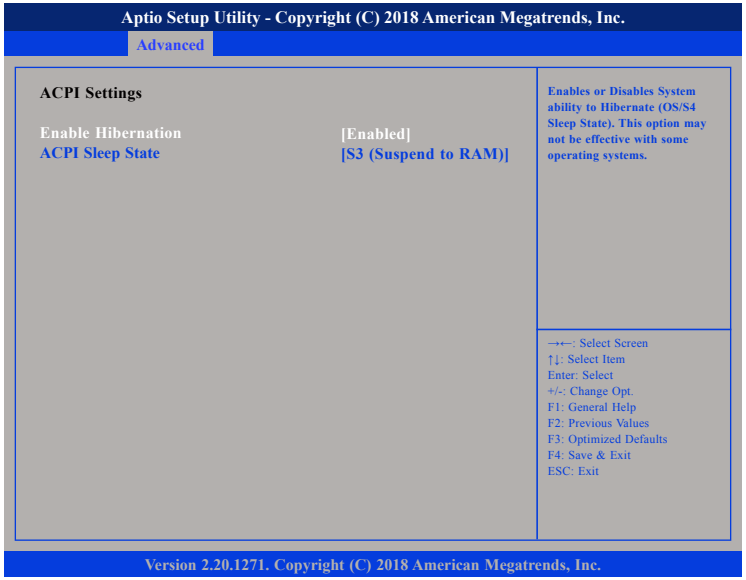
TCG_1_2:	The compatible mode Windows 8/Windows 10.
TCG_2:	Support new TCG2 protocol and event format for Windows 10 or later.

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.

ACPI Settings

This section is used to configure ACPI settings.



Enable Hibernation

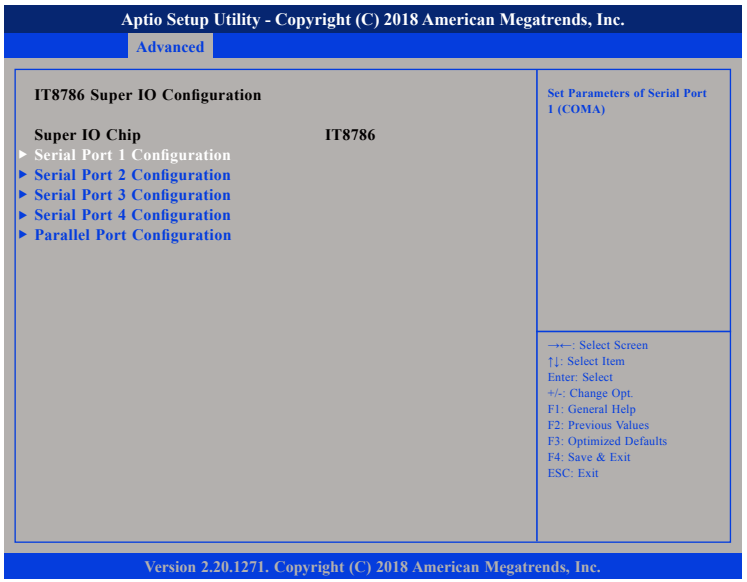
Enables or disables system ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.

ACPI Sleep State

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

IT8786 Super IO Configuration

This section is used to configure the I/O functions supported by the onboard Super I/O chip.

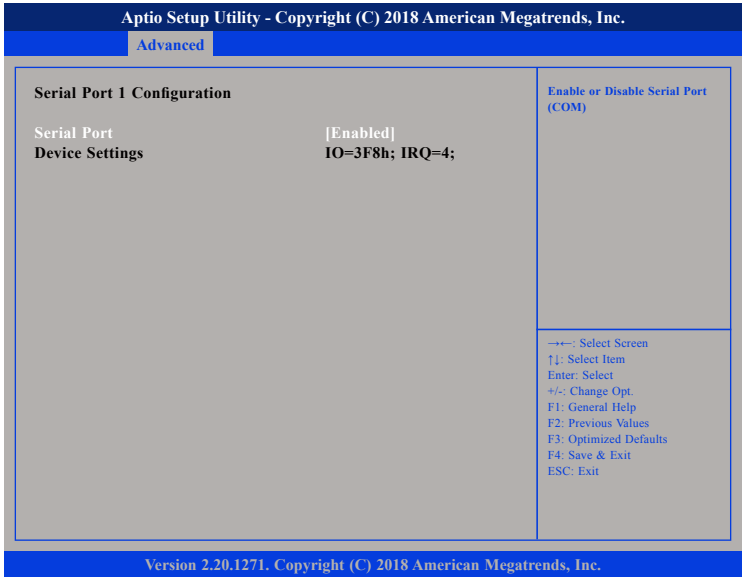


Super IO Chip

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.

Onboard Serial Port Mode

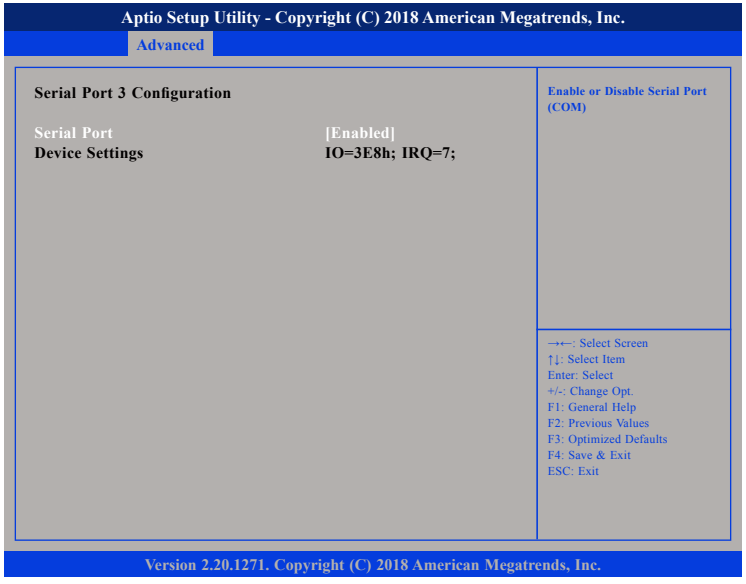
Configures the serial port mode to RS232, RS422, RS485 or RS485 Auto.

Terminal 120 Ohm

Enables or disables serial port terminal resistance.

Serial Port 3 Configuration

This section is used to configure serial port 3.

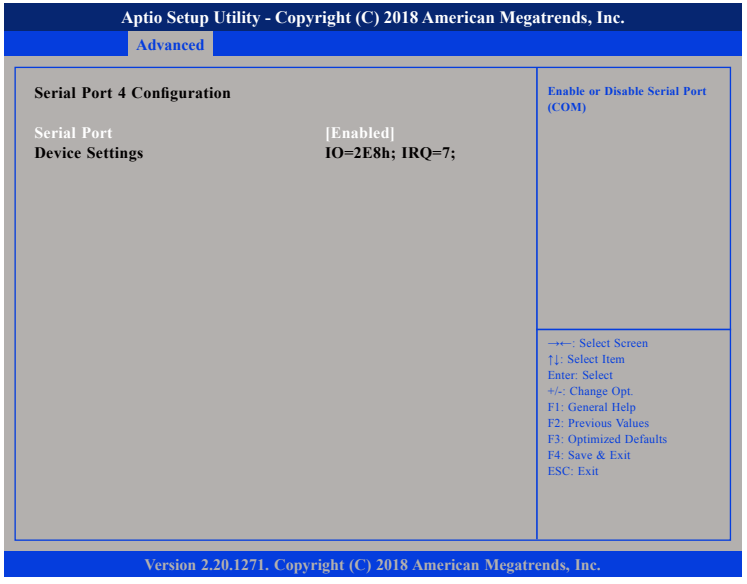


Serial Port

Enables or disables the serial port.

Serial Port 4 Configuration

This section is used to configure serial port 4.

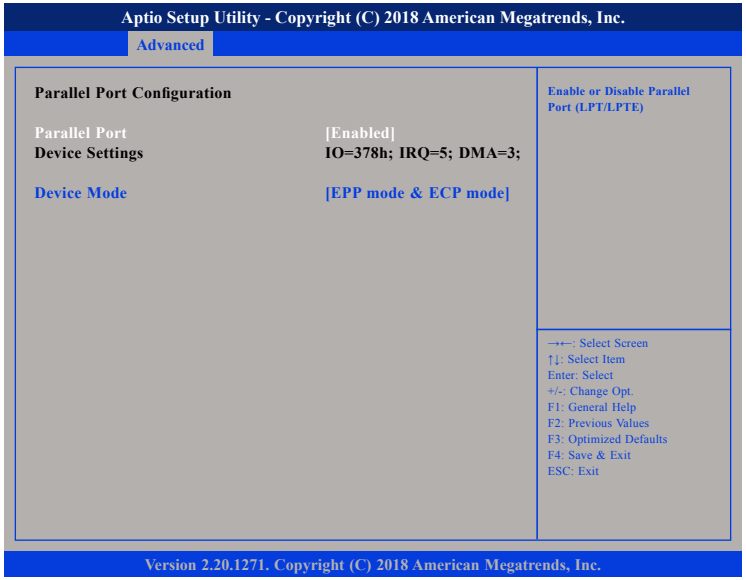


Serial Port

Enables or disables the serial port.

Parallel Port Configuration

This section is used to configure the parallel port.



Parallel Port

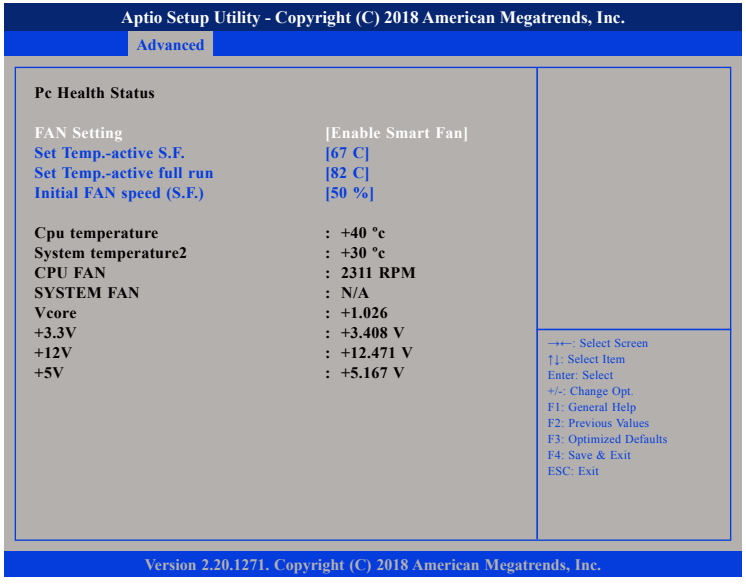
Enables or disables the parallel port.

Device Mode

Configures the operating mode of the parallel port.

Hardware Monitor

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



FAN Setting
Configures the operating mode of the fan.

Set Temp.-active S.F.
Configures the temperature threshold to activate smart fan.

Set Temp.-active full run
Configures the temperature threshold to activate the fan in full speed.

Initial FAN Speed (S.F.)
Configures the starting fan speed of smart fan.

Cpu temperature
Detects and displays the current CPU temperature.

System temperature2
Detects and displays the current system temperature.

CPU FAN
Detects and displays the current CPU fan speed.

SYSTEM FAN
Detects and displays the current system fan speed.

Vcore
Detects and displays the Vcore voltage.

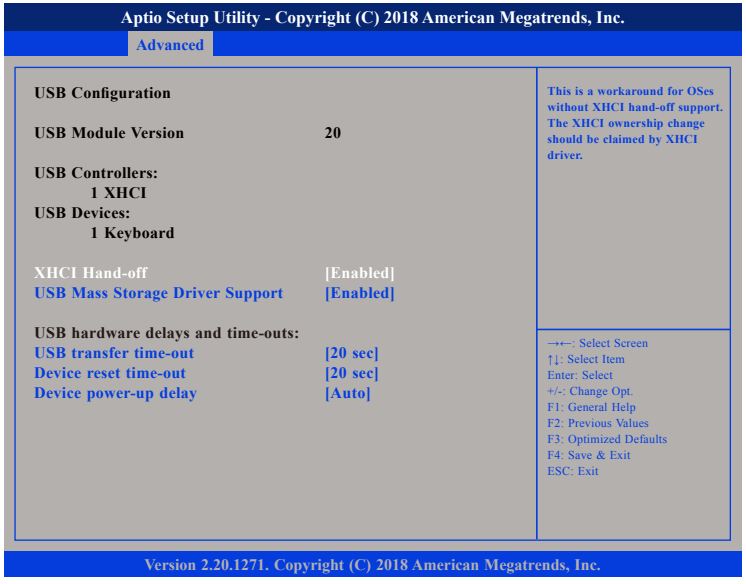
+3.3V
Detects and displays 3.3V voltage.

+12V
Detects and displays 12V voltage.

+5V
Detects and displays 5V voltage.

USB Configuration

This section is used to configure the USB.



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

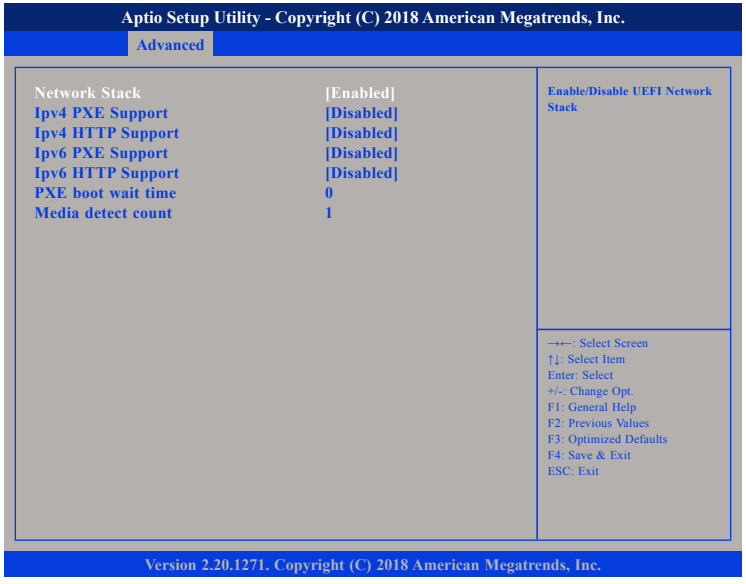
Selects the USB mass storage device's start unit command timeout.

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.

Network Stack Configuration

This section is used to configure the network stack.



Network Stack
Enables or disables UEFI network stack.

Ipv4 PXE Support
Enables or disables IPv4 PXE support. If disabled, the IPv4 boot option will not be created.

Ipv4 HTTP Support
Enables or disables IPv4 HTTP support.

Ipv6 PXE Support
Enables or disables IPv6 PXE support. If disabled, the IPv6 boot option will not be created.

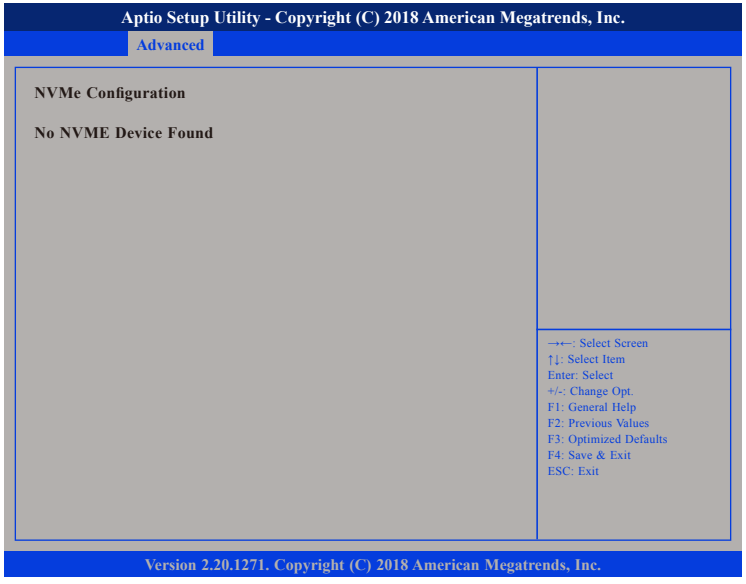
Ipv6 HTTP Support
Enables or disables IPv6 HTTP support.

PXE boot wait time
Configures the wait time to press the ESC key to abort the PXE boot.

Media detect count
Configures the number of times the media will be checked.

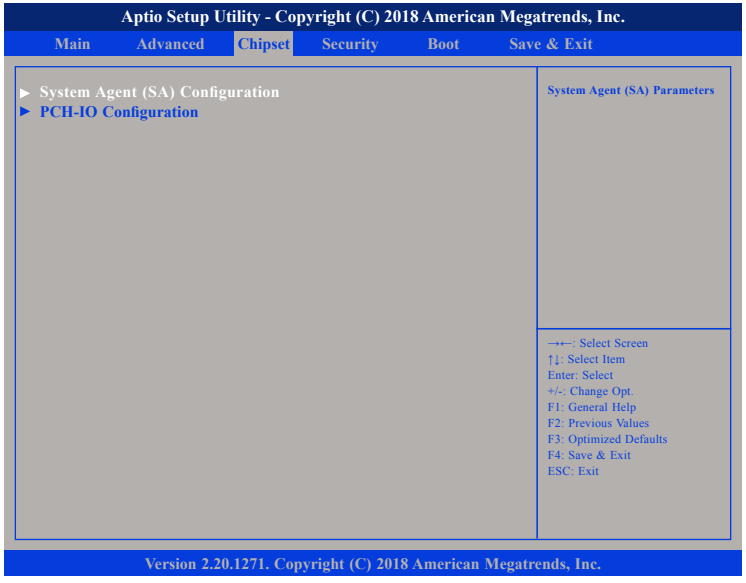
NVMe Configuration

This section is used to display information on the NVMe devices installed.



Chipset

This section is used to configure the system based on the specific features of the chipset.



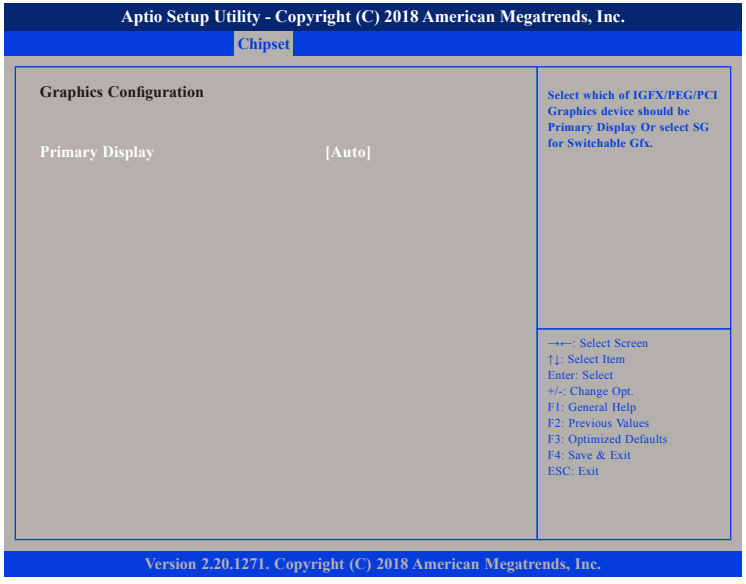
Setting incorrect field values may cause the system to malfunction.

System Agent (SA) Configuration

VT-d

Enables or disables VT-d function on MCH.

Graphics Configuration



Primary Display

Select which IGFX/PEG/PCI graphics device should be primary display or select SG for switchable GFx.

PEG Port Configuration

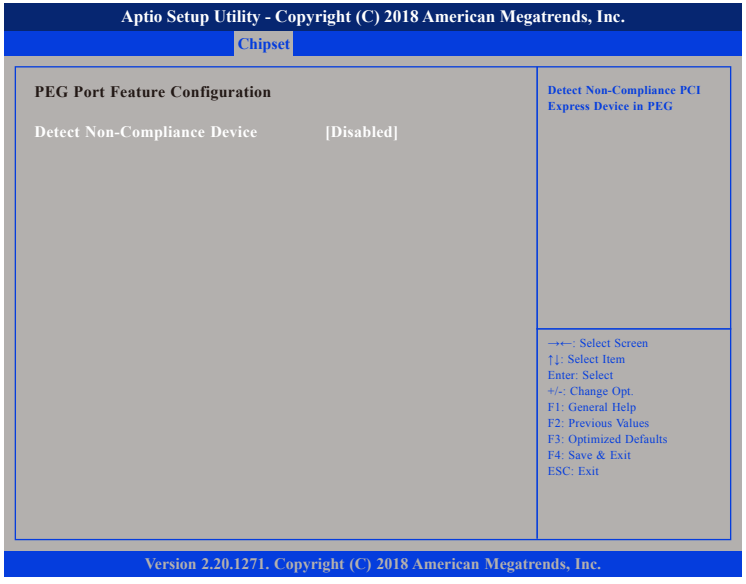
Enable Root Port

Enables or disables the root port.

Max Link Speed

Select the maximum link speed of the PEG device.

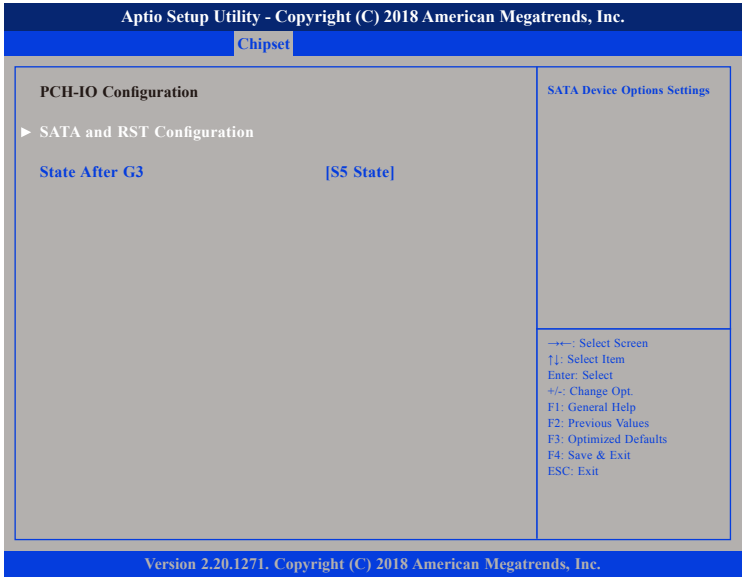
PEG Port Feature Configuration



Detect Non-Compliance Device

Enables or disables the detection of non-compliance PCI Express device in PEG.

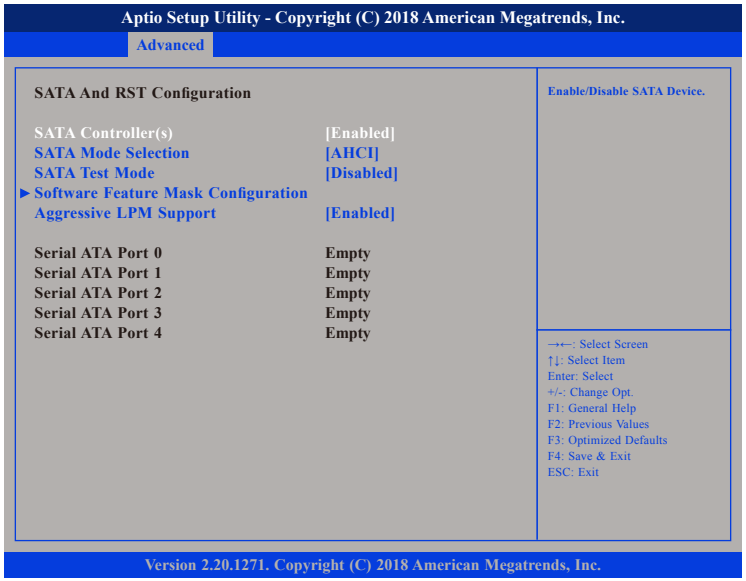
PCH-IO Configuration



State After G3

Configures the state the system will enter when power is reapplied after a power failure (G3 state).

SATA and RST Configuration



SATA Controller(s)
Enables or disables the SATA controller.

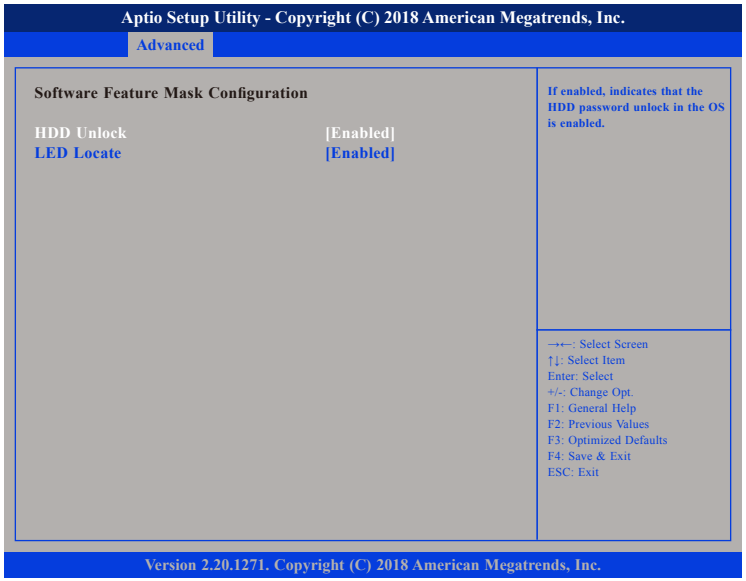
SATA Mode Selection
Configures the SATA as AHCI mode.

AHCI This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

SATA Test Mode
Enables or disables SATA test mode.

Aggressive LPM Support
Enables or disables PCH to aggressively enter link power state.

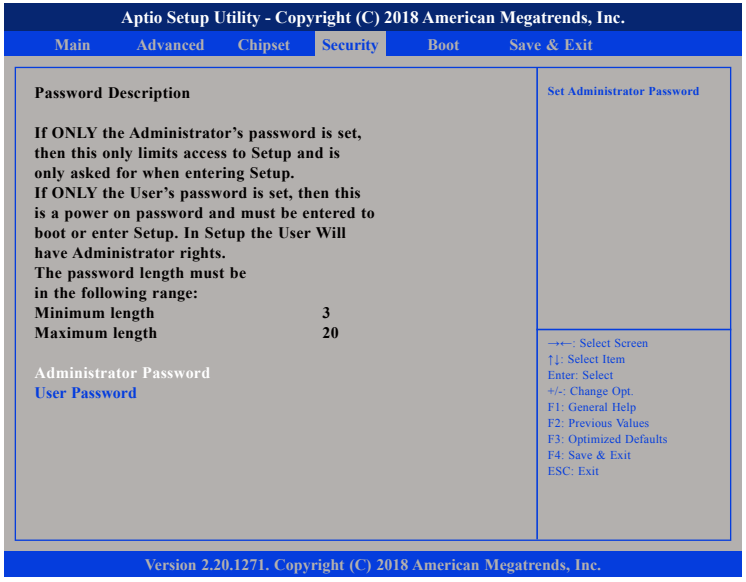
Software Feature Mask Configuration



HDD Unlock
Enables or disables HDD password unlock in the OS.

LED Locate
Enables or disables detection of LED/SGPIO hardware and ping-to-locate feature.

Security



Administrator Password
Select this to reconfigure the administrator's password.

User Password
Select this to reconfigure the user's password.

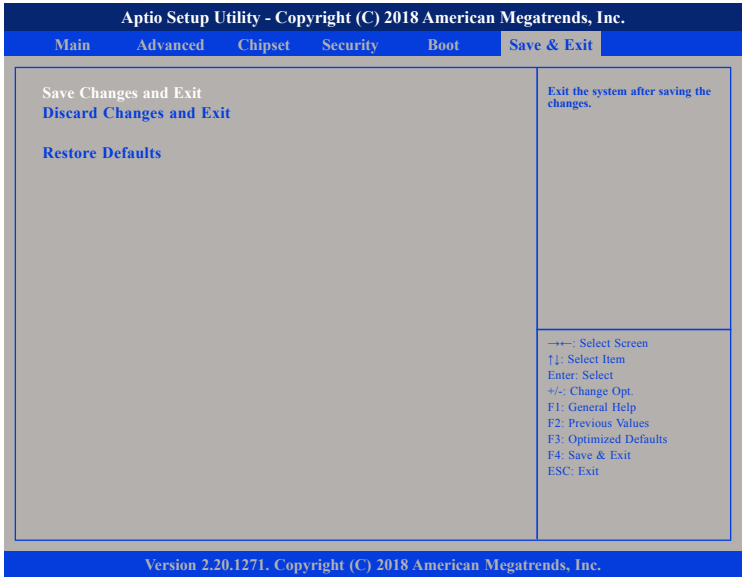
Boot

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

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, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

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.

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