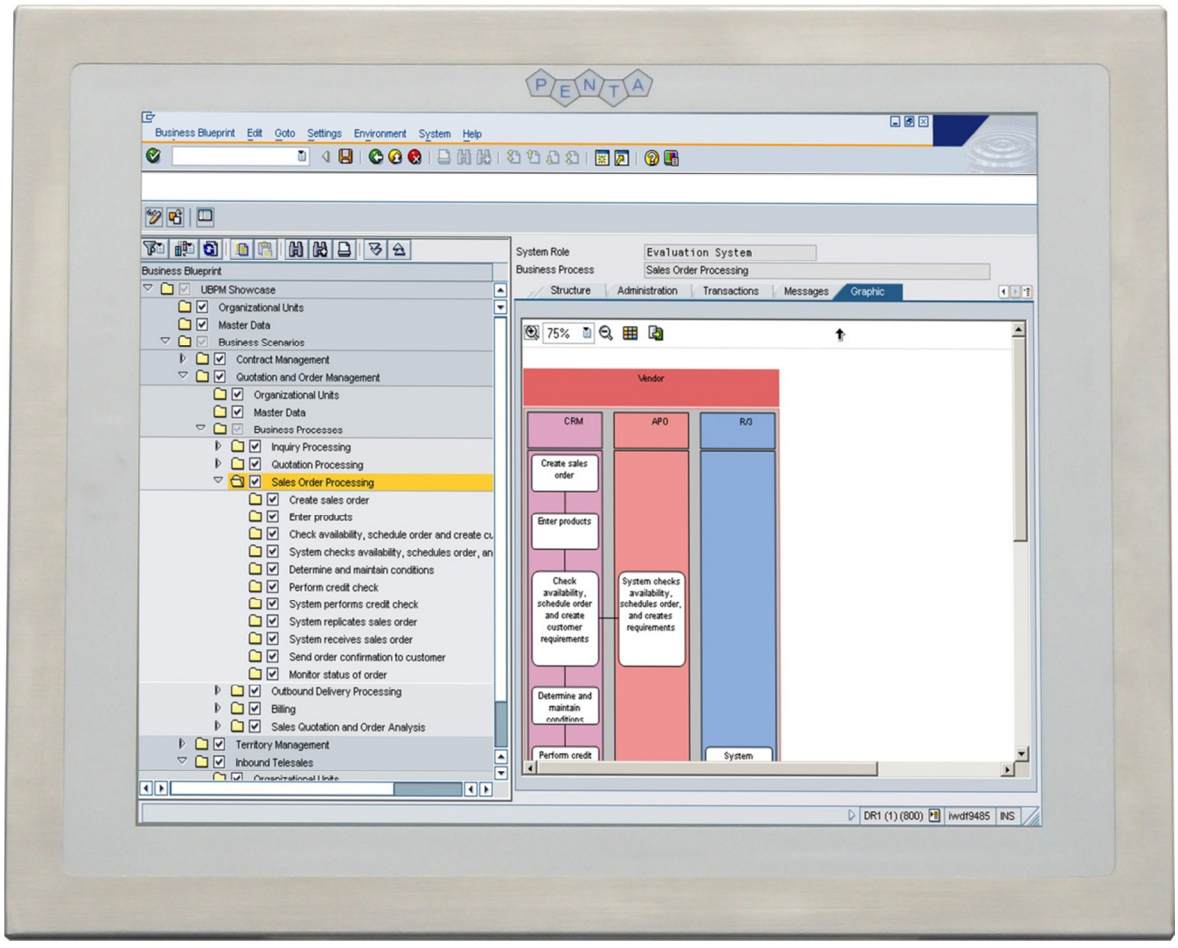
Where Innovation Meets Quality

# Giant / Food




**Technical Manual Revision 1.0**

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# 2. COMMON INFORMATION

This technical manual is neither thought to provide all details, or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

If further information's are needed or in case of particular problems arise which are not covered sufficiently for the purchaser's purposes, do not hesitate to contact your next **PENTA** GmbH office.

The contents of this technical manual shall not become part or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligations of **PENTA** GmbH. The warranty contained in the contract between the parties is the sole warranty of **PENTA** GmbH.

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# 3. USER INFORMATION

## 3.1. General

In this document **PENTA** GmbH will also be referred to by the short form **PENTA** or **PENTA GmbH**.

The information in this document has been checked carefully. However, no responsibility is assumed for inaccuracies. Furthermore, **PENTA** reserves the right to make changes to any portion of this manual - also without advertising it before. **PENTA** does not assume any liability for damages, which refer directly or indirectly to the delivery, performance or usage of this material.

For the latest documentation, tools or drivers please visit the **PENTA** web page at www.penta.de or contact your nearest **PENTA** (sales) representative.

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Documentation from 20th September 2011.

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## 3.2. Trademarks

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Intel, Pentium®, MMX and Celeron are registered trademarks of Intel Corporation.
Adobe and Acrobat are registered trademarks of Adobe Corporation.
Realtek is a trademark of Realtek Semiconductor Corporation.
Fintek is a registered trademark of Feature Integration Technology, Inc..

All other products and designations mentioned in this documentation are in most cases also registered trademarks of their respective owners and are thus subject to law.

## 3.3. Warranty information

Each shipped **PENTA** product is tested carefully and thoroughly before being shipped. If unlikely some problems will occur during operation, please check the BIOS and operating system settings of your system. This is often the source of problems due to resource conflicts.

If you need to send back your **PENTA** IPC because of unsolvable problems, please request, fill out and sent back a **R**eturn **M**aterial **A**uthorization (RMA) form first, available at the **PENTA** web site.
In order to repair your **PENTA** IPC as fast as possible this information is urgently required.

Within the warranty period the repair is free of charge as long as the warranty conditions are observed. Because of the high test expenditure you will be charged with the test cost if no fault is found. Repair after warranty period will be charged.



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Your **PENTA** product is warranted against defects in material and workmanship for the warranty period from the date of shipment. During the warranty period, **PENTA** will as its option either repair or replace defective products.

For warranty service or repair, the product must be returned to a service facility designated by **PENTA** **free of charge!**

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance or handling by customer, unauthorised modification or misuse, operation outside of the product's environmental specifications, improper handling, shipment, installation or maintenance.

**PENTA** will not be responsible for any defects or damages to other products not supplied by **PENTA**, which are caused by a faulty **PENTA** product.

## 3.4. Support, problems and failure analysis

A base knowledge about standard PC technology is required for using **PENTA products** which will not be explained within this manual.

Before contacting **PENTA**, please visit the **PENTA** web page or the hard- and/or software manufacturers web page. If you can't solve the problem with this documents and/or updates by your own, do not hesitate to contact **PENTA** by email or phone.

Please prepare yourself to answer a few questions like:

- which **PENTA** product is concerned?
- what serial number does this system have?
- which BIOS version does this system have?
- is this problem already reported (by whom/to whom)?
- since when is the problem known?
- etc……

### 3.4.1. Drivers

Drivers for your **PENTA** Giant / Food are available on provided Drivers & Manual CD or on http://www.penta.de. If you experience any problems, please always download latest drivers for your system on http://www.penta.de before contacting **PENTA** support team (support@penta.de).

## 3.5. Maintenance and service intervals

There is no recommended service or maintenance interval for the **PENTA** Giant / Food as all of them are made of highest quality, industrial components.

Nevertheless we suggest a complete system check after about 5000 hours of operation.

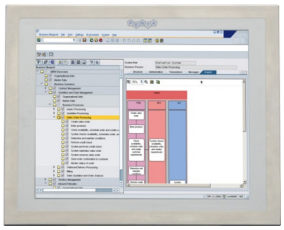
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# 4. UNPACKING

## 4.1. Packing List

If any of the components listed below are missing, do not proceed with the installation. Contact your **PENTA** reseller or vendor the Giant / Food was purchased from or contact your local **PENTA** sales representative by sending an email to info@penta.de.

The **PENTA** Giant / Food is shipped with the following components:

| Qty. | Item and Part number | Picture |
|---|---|---|
| 1 | **PENTA** Giant / Food<br><br>**PENTA** Part no.:<br><br>For Food mITX : FI34-xxxx-xx<br><br>For Giant mITX : GI34-xxxx-xx |  |
| 1 | Connector cable Europe<br><br>**PENTA** Part no.: 040-01-COS-001 |  |
| 1 | Drivers & Manual CD |  |

## 4.2. Optional Items

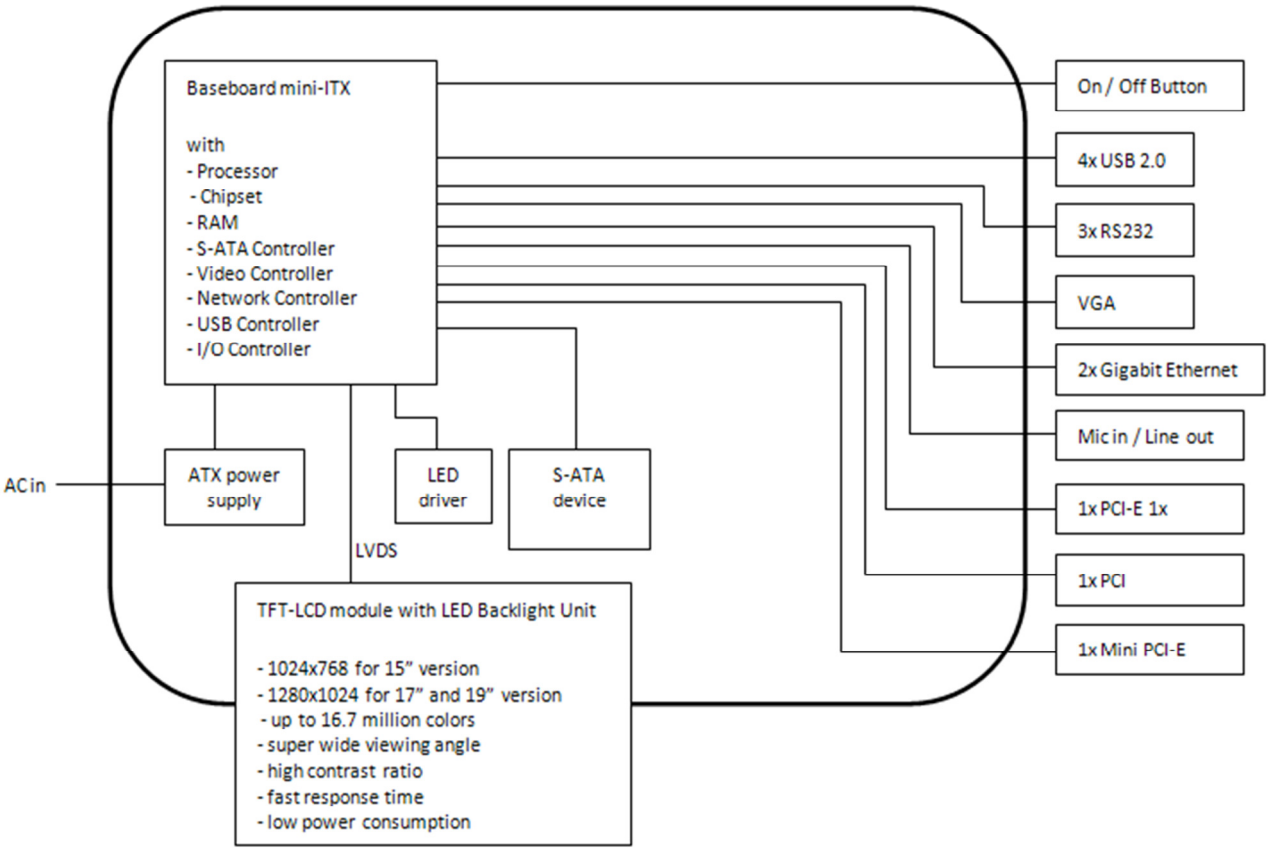
The following items are optional components which may be separately purchased:

| Qty. | Item and Part number | Picture |
|---|---|---|
| 1 | Cable cover for **PENTA** Giant / Food<br><br>**PENTA** Part no.:<br>For Food mITX :ZUB-08-COV-014<br>For Giant mITX :ZUB-08-COV-015 |  |
| 1 | Connector cable US<br><br>**PENTA** Part no.: 040-01-COS-002 |  |

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# 5. SYSTEM OVERVIEW

## 5.1. Block diagram of system components




## 5.2. Technical Data

| Giant / Food | | |
|---|---|---|
| System | Processor | Intel® Atom™ D525 (1MB L2 Cache, 1.8GHz) |
| | Chipset | Intel® ICH8M |
| | Memory | Two 204-pin SO-DIMM sockets support 800 MHz 4.0 GB (max.) DDR3 SDRAM SO-DIMM |
| | BIOS | UEFI BIOS |
| | Video | Intel® GMA 3150 |
| | Supported API | DirectX 9c, OpenGL 1.5 |
| | Display resolution | max. 1366x768 18bit single channel LVDS or 1920x1080 24bit dual channel LVDS via Novatek 68667UFG |
| | Graphic memory | max. 384MB |
| | Audio | Realtek ALC888 HD 7.1 channel audio codec |
| | Network controller | 2x Realtek RTL8111E PCIe GbE controllers with ASF 2.0 support on LAN1 |
| | Super I/O | Fintek F81865 |
| | Watchdog | 1~255 sec. system reset |
| | Operating System | Windows 7<br>Windows XP<br>Windows 2000<br>Windows XP embedded<br>Linux (on request, customized) |




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| | | |
|---|---|---|
| **Power Supply** | Power Supply | Integrated fanless 100W power supply |
| **Display** | Integrated TFT-LCD | 15” version:<br>1024 x 768 pixel resolution, 16.7 mio. colors, brightness 400Cd, contrast ration 700:1, viewing angle H/V:<br><br>17” version:<br>1280 x 1024 pixel resolution, 16.7 mio. colors, brightness 250Cd, contrast ration 1000:1, typical response time 6ms, viewing angle H/V: 170°/160°<br><br>19” version:<br>1280 x 1024 pixel resolution, 16.7 mio. colors, brightness 250Cd, contrast ration 1000:1, typical response time 6ms, viewing angle H/V: 170°/160 |
| **Touchpanel** | One-point Touch | resistive touch-screen |
| **Mass Storage** | Harddisk | 2,5” automotive S-ATA harddisk up to 100 GB (more capacity on request)<br>(-25° to +85°C operating temperature) |
| | CD-/DVD Burner | N/A |
| | Floppy Drive | N/A |
| **Interfaces** | COM ports | 3x RS232<br>1x RS485 (optional) |
| | Parallel Ports | 1x LPT (optional) |
| | USB Ports | 4x USB 2.0 |
| | S-ATA Interface | 2x S-ATA 3.0GBit/s (S-ATA II) |
| | Keyboard/Mouse | Via USB-Interface |
| | Monitor | 1x VGA |
| **Network** | RJ45 | 2x Realtek RTL8111E PCIe GbE controllers with ASF 2.0 support on LAN1 |
| | Wireless LAN | Optional: WLAN on mini-PCIe |
| **Slots** | PCI/PCI Express | 1x PCIe mini slot<br>1x PCIe 1x slot<br>1x PCI slot |
| **Media interface** | MIC in | Mic in for microphone connection (e.g. Headset) |
| | Line out | Line out for speaker connection |
| **Capacitive keys** | System keys | Power on/off |
| **Housing** | Device | Stainless steel or anodized aluminum |
| | Mounting | VESA 100 on back of the system and different VESA adapters for wall- and ceiling-mounting |
| | Size | See dimensioned sketch |
| | Weight | 15” Version: 8.6kg<br>17” Version: 10.7kg<br>19” Version: 11.2kg |
| **Power Specification** | Power Consumption | |
| **Environmental conditions** | Ambient temperature (operating) | -10°C to +50°C |
| | Ambient temperature (storage) | -20°C to +60°C |
| | Humidity (operating) | 10% to 90% relative humidity (not condensing) |
| | Humidity (storage) | 5% to 95% relative humidity (not condensing) |
| **Certificates** | | CE Certificate of Conformity |
| | Proofed on: | |
| | Medical Directive 93/42/EEC + 2007/47/EC | |

# 6. DESCRIPTION OF INTERFACES

## 6.1. Control elements

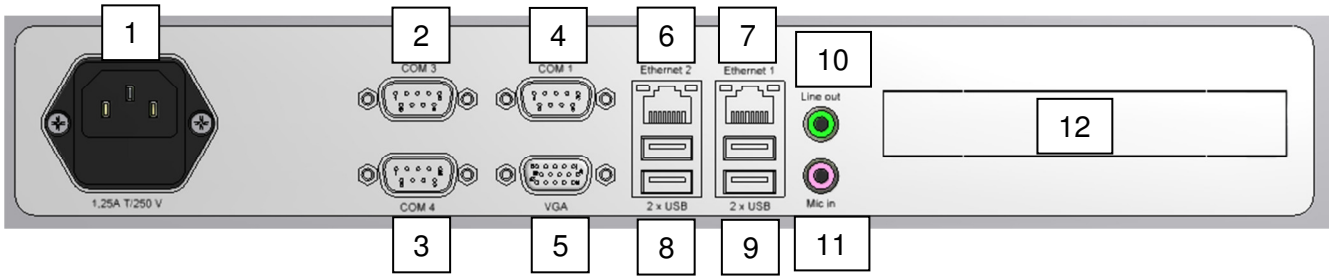


The Power switch is located at the right side of the system

- *Power on/off:* operates as power switch.

## 6.2. Interfaces for attachable devices

### 6.2.1. Overview connector side




| | | | |
|---|---|---|---|
| **1** | **AC in** | **7** | **Ethernet 1** |
| **2** | **COM3** | **8** | **2x USB 2.0** |
| **3** | **COM4** | **9** | **2x USB 2.0** |
| **4** | **COM1** | **10** | **Line out** |
| **5** | **VGA** | **11** | **Mic in** |
| **6** | **Ethernet 2** | **12** | **PCI Slot bracket** |

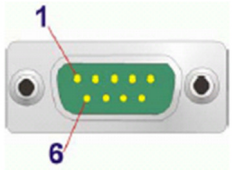
**Warning for medical appliances:**
Accessory equipment connected to the analogue and digital interfaces must be certified according to the respective IEC standards (e.g. IEC 950 for data processing equipment and IEC 601-1 for medical equipment). Furthermore all configurations shall comply with the valid version of the system standard IEC 601-1-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore responsible that the system complies with the requirements of the valid version of the system standard IEC 601-1-1. If in doubt, consult the technical service department or your local representative.

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### 6.2.2. Serial Port COM1/3/4

RS232, max. 115.200 Baud (max. cable length <2m), DB-9, 9pin, male

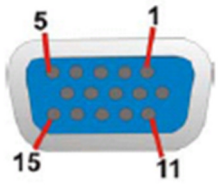
| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | DCD | 6 | DSR |
| 2 | RX | 7 | RTS |
| 3 | TX | 8 | CTS |
| 4 | DTR | 9 | RI |
| 5 | GND | | |




### 6.2.3. Ext. Monitor VGA

The **PENTA** Giant / Food has a single 15-pin female connector for connectivity to standard display devices.

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | RED | 9 | VGAVCC |
| 2 | GREEN | 10 | GROUND |
| 3 | BLUE | 11 | NC |
| 4 | NC | 12 | DDCDAT |
| 5 | GROUND | 13 | HSYNC |
| 6 | GROUND | 14 | VSYNC |
| 7 | GROUND | 15 | DDCCLK |
| 8 | GROUND | | |




### 6.2.4. Ethernet

The **PENTA** Giant / Food is equipped with two built-in R-J45 1000Mbit/s Ethernet controllers.

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | CT1 | 6 | MDI2+ |
| 2 | MDI0+ | 7 | MDI2- |
| 3 | MDI0- | 8 | MDI3+ |
| 4 | MDI1+ | 9 | MDI3- |
| 5 | MDI1- | 10 | GND |

The RJ-45 Ethernet connector has two status LEDs, one orange and one red. The orange LED indicates activity on the port and the red LED indicates the connection.

| Activity LED | | Link LED | |
|---|---|---|---|
| Status | Description | Status | Description |
| Off | No activity | Off | 10Mbps connection |
| Orange | Linked | Red | 100/1000Mbps connection |
| Blinking | TX/RX Activity | | |

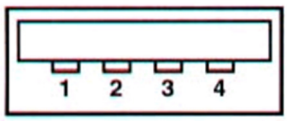


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### 6.2.5. USB

The **PENTA** Giant / Food has four external USB 2.0 ports. The ports connect to both USB 2.0 and USB 1.1 devices.

| Pin | Description |
|---|---|
| 1 | VCC |
| 2 | D- |
| 3 | D+ |
| 4 | GND |




### 6.2.6. Audio Connector

The audio jacks connect to external audio devices.

- **Line Out port (lime):** Connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.
- **Microphone (pink):** Connects a microphone



# 7. BIOS CONFIGURATION OVERVIEW

This chapter provides information about necessary BIOS settings. These settings have been carefully tested by **PENTA** and are recommended for proper operation.
On any problems please restore the default BIOS settings first by pressing <F9> key, then change the different values to the one as documented below.
Default BIOS settings are marked as "***Default***".

## 7.1. Introduction

The Bios is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings.

### 7.1.1. Starting Setup

The American Megatrends, Inc. (AMI) BIOS is activated when the computer is turned on. The setup can be started in one of two ways.

- Press the **DEL** key as soon as the system is turned on or
- Press the **DEL** key when the "**Press DEL to enter Setup"** message is shown on the screen

If the message disappears before the **DEL** key is pressed, restart the system by pressing **CTRL+ALT+DEL** and try again.

### 7.1.2. Using Setup

Use the arrow keys to highlight items, press **Enter** to select, use **+** and **-** to change entries, press **F1** for help and **ESC** to quit.

| Key | Function |
|---|---|
| Up arrow | Move to previous item |
| Down arrow | Move to next item |
| Left arrow | Move to the item on the left hand side |
| Right arrow | Move to the item on the right hand side |
| Esc | Main Menu – Quit and not save changes into CMOS<br>Status Page Setup Menu and Option Page Setup Menu – Exit current page and return to Main Menu |
| F1 | General help |
| F2 | Load previous values |
| F3 | Load optimized defaults (AMI default settings) |
| F4 | Save all the CMOS changes and exit |
| +/- | Change Option directly |

### 7.1.3. Getting help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

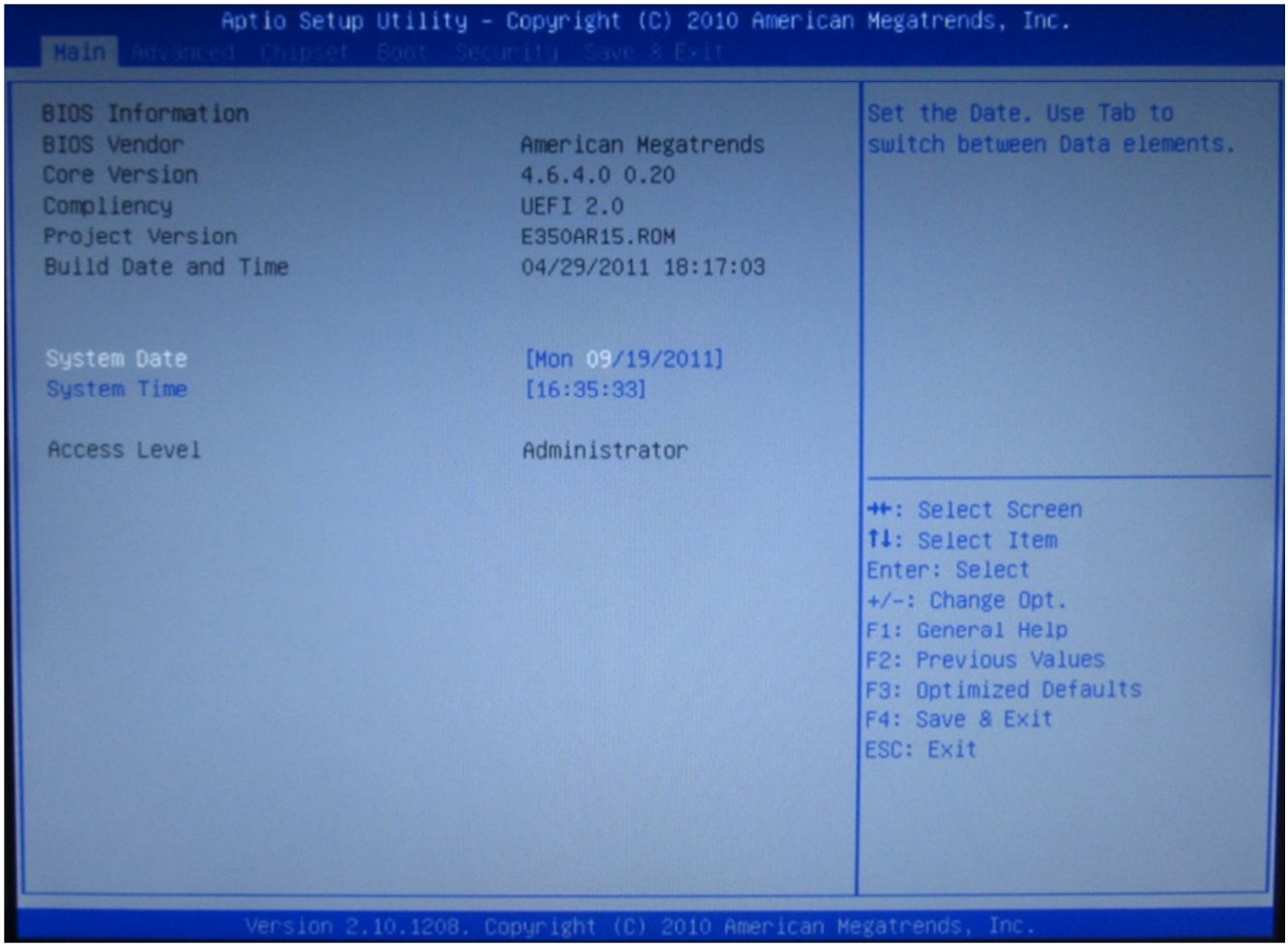
### 7.1.4. BIOS Menu

The menu bar on top of the BIOS screen has the following main items:

- **Main** – changes the basic system configuration
- **Advanced** – changes the advanced system settings
- **Chipset** – changes the chipset settings
- **Boot** – changes the system boot configuration
- **Security** – sets user and supervisor passwords
- **Save & Exit** – selects exit options and loads default settings

## 7.2. Main

The **Main** menu appears when the BIOS setup program is entered. The Main menu gives an overview of the basic system information.



BIOS Main Menu

**BIOS Information**

The **BIOS Information** lists a brief summary of the BIOS. The fields in BIOS Information cannot be changed. The Items shown in the system overview include:

- BIOS Vendor: Installed BIOS vendor
- Core Version: Current BIOS version
- Compliancy: Compliancy with Standards
- Project Version: BIOS version
- Build Date: Date the current BIOS version was made

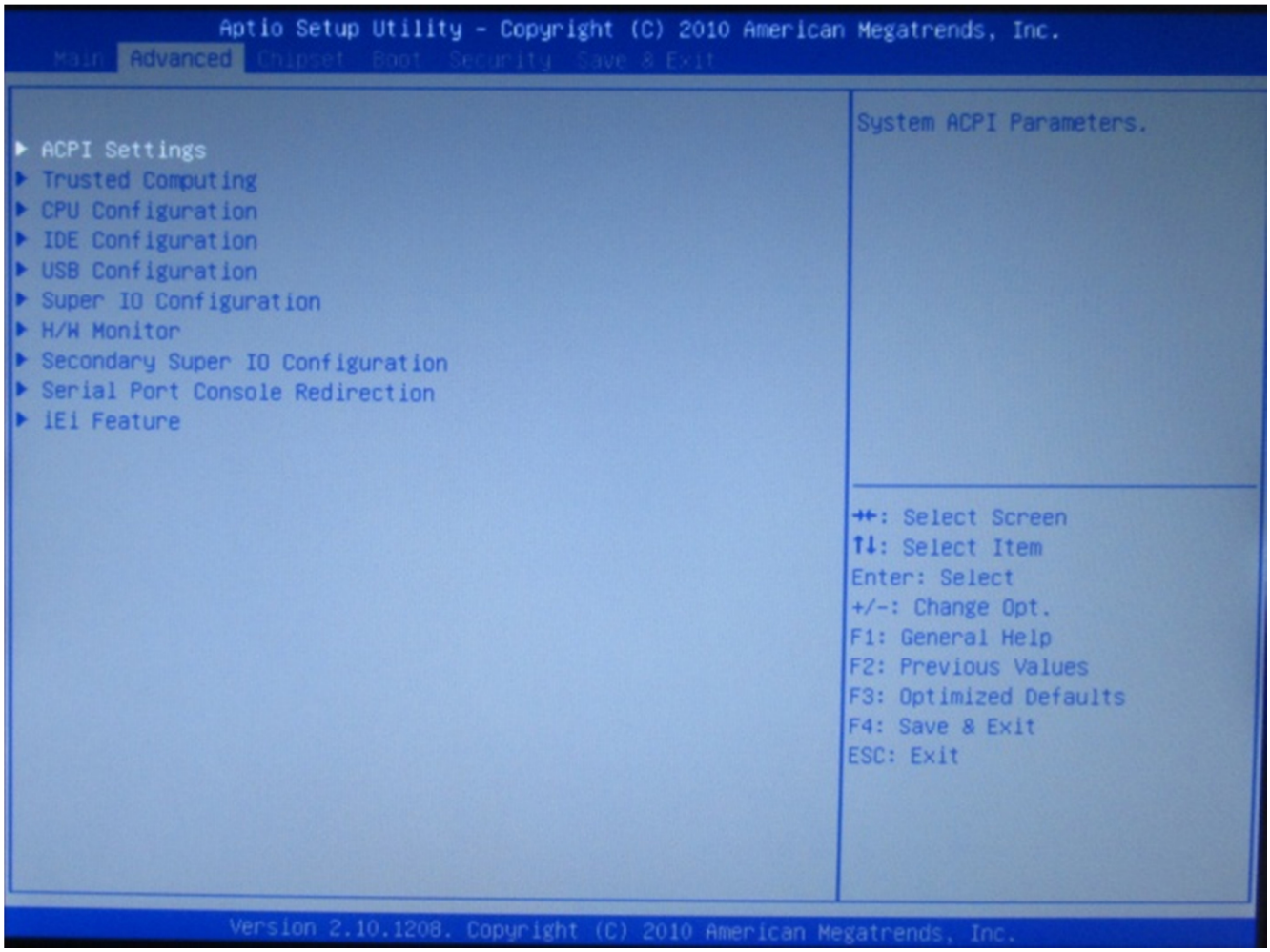
**System Date [DD/MM/YYYY]**
Use the **System Date** option to set the system date. Manually enter the day, month and year.

**System time [HH:MM:SS]**
Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

**Access Level**
This value cannot be changed.

## 7.3. Advanced

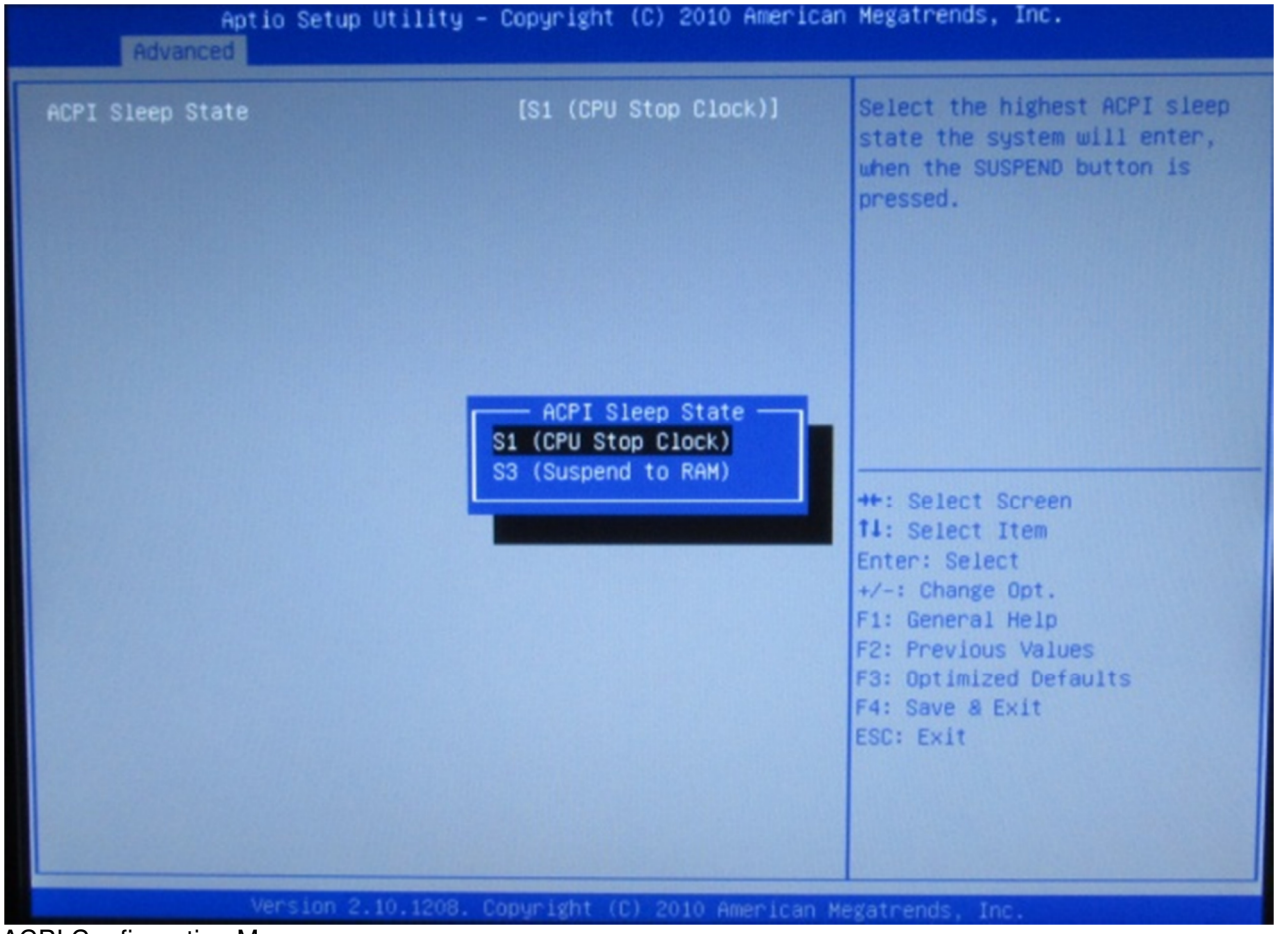
Use the **Advanced** menu to configure the CPU and peripheral devices through the following sub-menus:



BIOS Advanced Menu

### 7.3.1. ACPI Settings

The **ACPI Settings** menu configures the Advanced Configurationd Power Interface (ACPI) options.



ACPI Configuration Menu

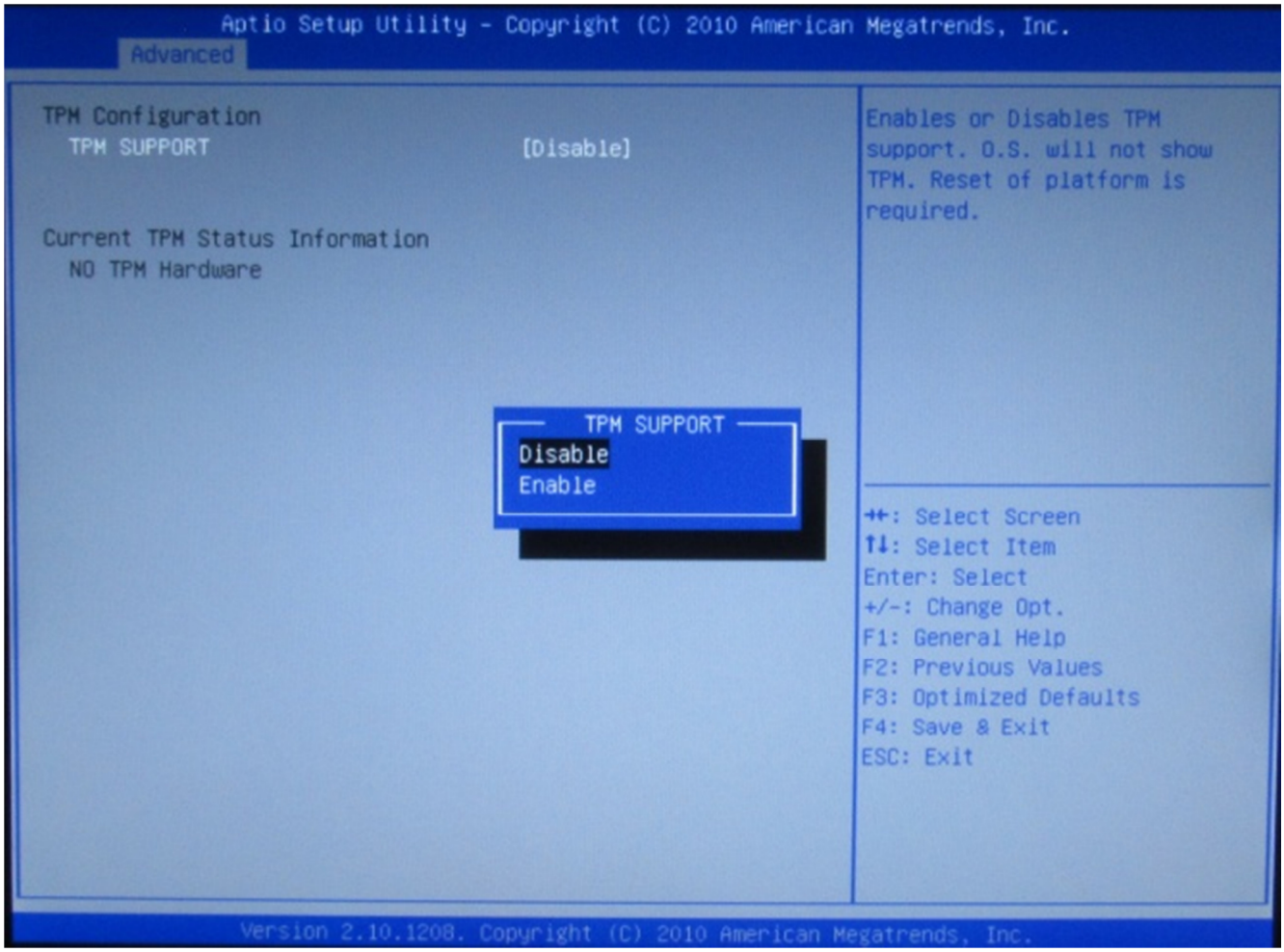
- **ACPI Sleep State**

  Use the **ACPI Sleep State** option to specify the sleep state the system enters when it's not being used.

  - **S1 (CPU Stop Clock)** ***Default*** The system enters S1 sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running a low power mode.
  - **S3 (Suspend to RAM)** The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but more power is saved.

### 7.3.2. Trusted Computing

The **Trusted Computing** configures TPM support:



TPM Configuration Menu

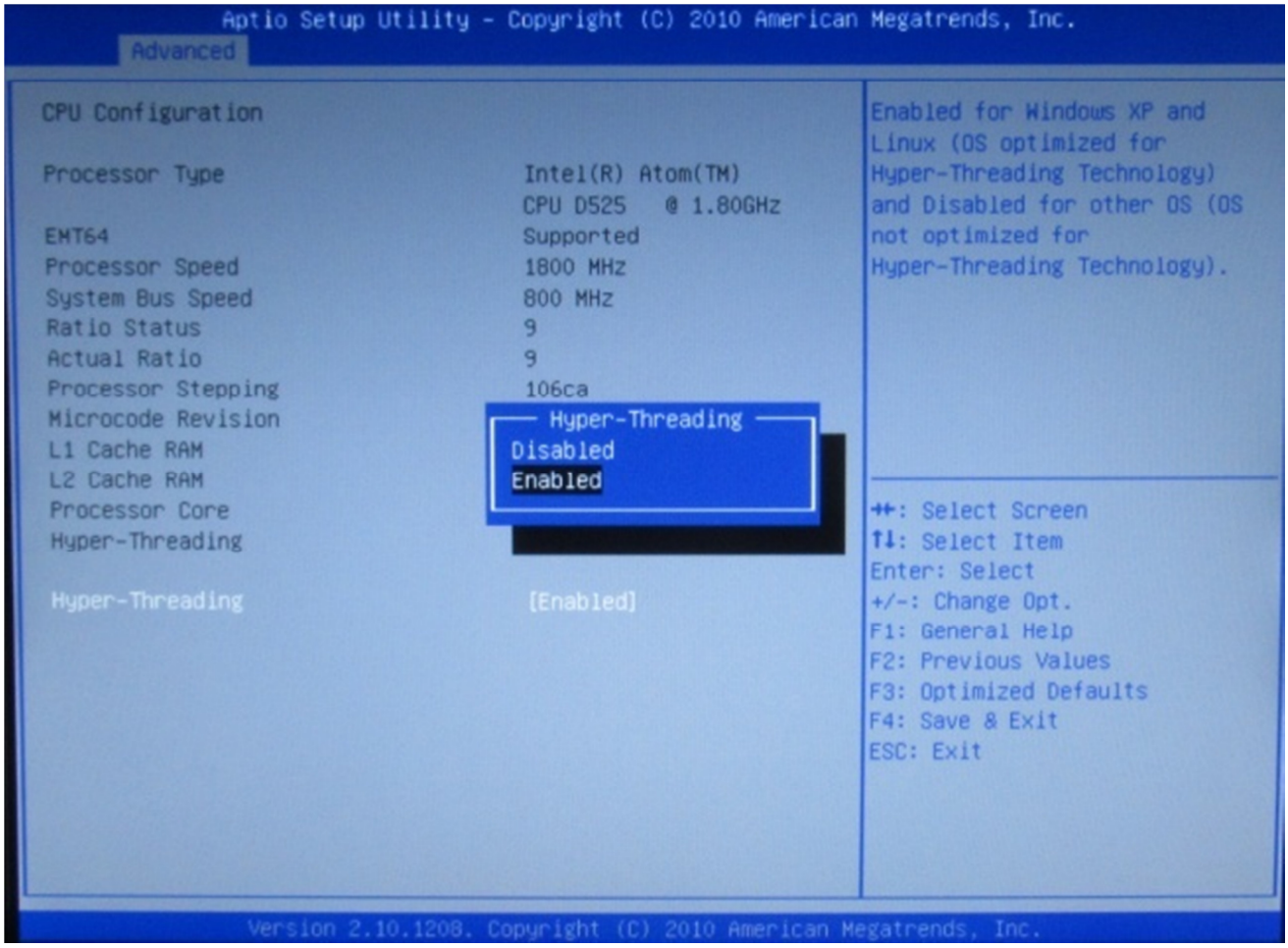
- **TPM Support**

  Use the **TPM Support** option to enable or disable TPM support.

  - **Disabled** ***Default*** TPM Support disabled
  - **Enabled** TPM Support enabled

### 7.3.3. CPU Configuration

The **CPU Configuration** menu lists details about the integrated Intel(R) Atom(TM) CPU




- Processor Type: Lists the brand name of the CPU being used
- EMT64: Indicates if the EM64T is supported by the CPU
- Processor Speed: Lists the CPU processing speed
- System Bus Speed: Lists the System Bus processing speed
- Ratio Status:
- Actual Ratio
- Processor Stepping: Lists the CPU processing stepping
- Microcode Revision: Lists the microcode revision
- L1 Cache RAM:
- L2 Cache RAM:
- Processor Cores: Lists the number of the processor cores
- Hyper Threading: Indicates if the Intel HT Technology is supported by the CPU

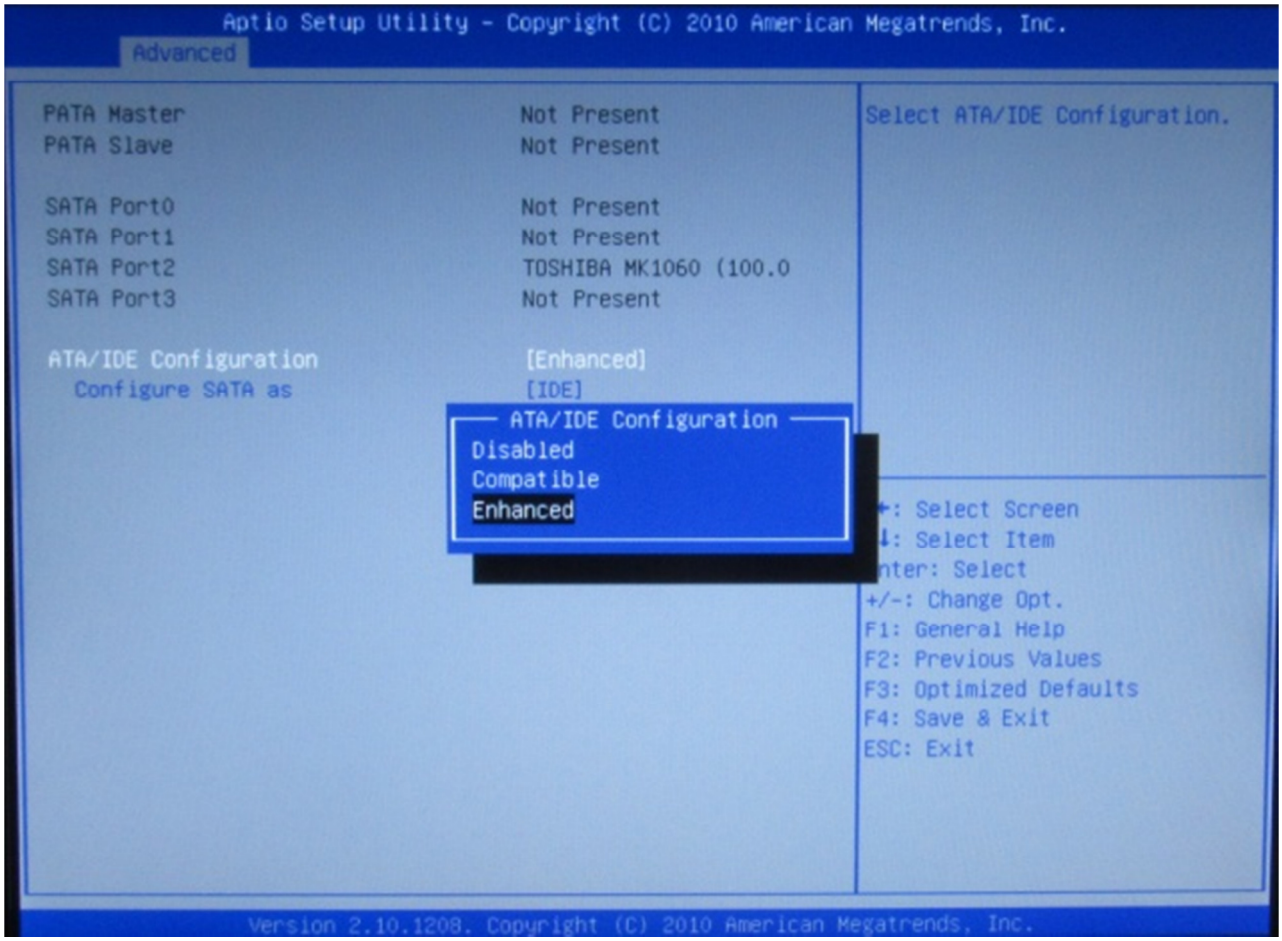
- **Hyper Threading**

  Use the **Hyper Threading** option to configure Hyper Threading (HT) support

  - **Enabled** ***Default*** Enables HT support.
  - **Disabled** Disables HT support

### 7.3.4. IDE Configuration

Use the **IDE Configuration** menu to change ATA/IDE Configuration




**ATA/IDE Configuration**

- **Disabled**

  Disable ATA/IDE ports

- **Compatible**

  Configure ATA/IDE ports to use compatibility mode.

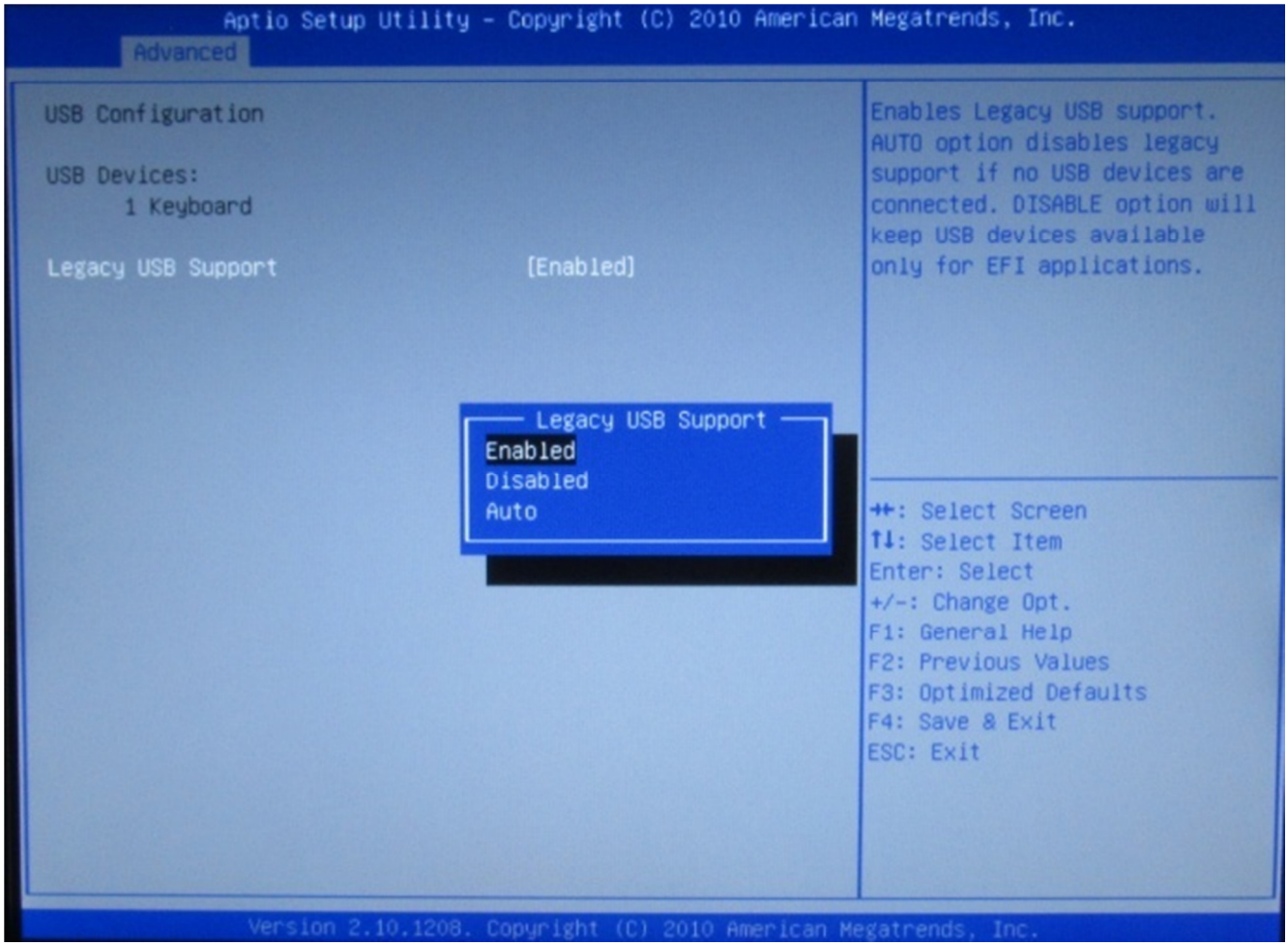
- **Enhanced**

  **Configure SATA as**

  - **IDE** Configure SATA HDD as IDE for older OS
  - **AHCI** ***Default*** Configure SATA HDD to use AHCI mode

### 7.3.5. USB Configuration

Use the **USB Configuration** menu to enable or disable Legacy USB Support



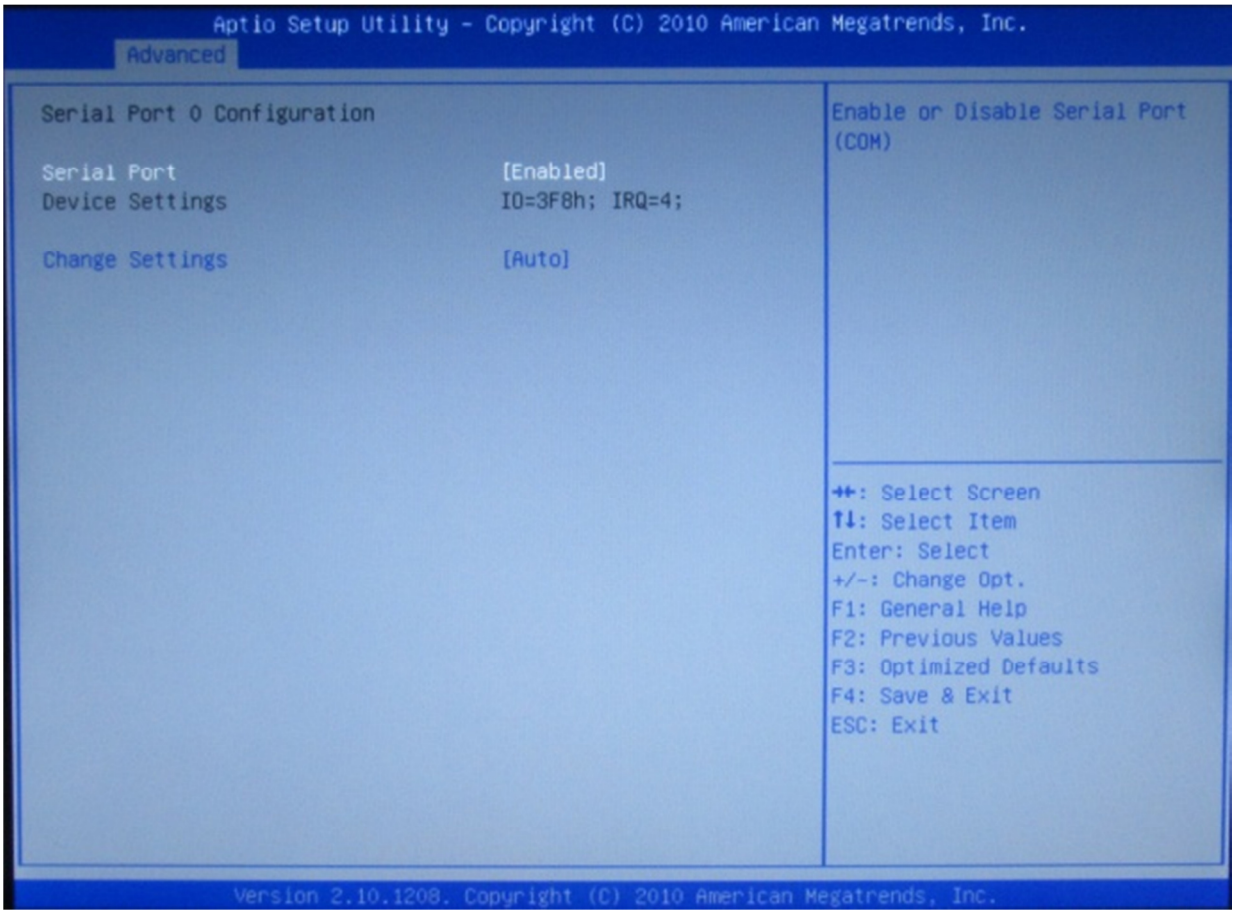

Enables Legacy USB support.

- **Enabled** Enables Legacy USB support
- **Disabled** Disable Legacy USB support
- **Auto** Auto configure Legacy USB support

### 7.3.6. Super IO Configuration

- **Serial Port n Configuration**

  Use the **Serial Port n Configuration** menu to configure the serial port 'n'.




  - **Serial Port**

    Use the **Serial Port** option to enable or disable the serial port.

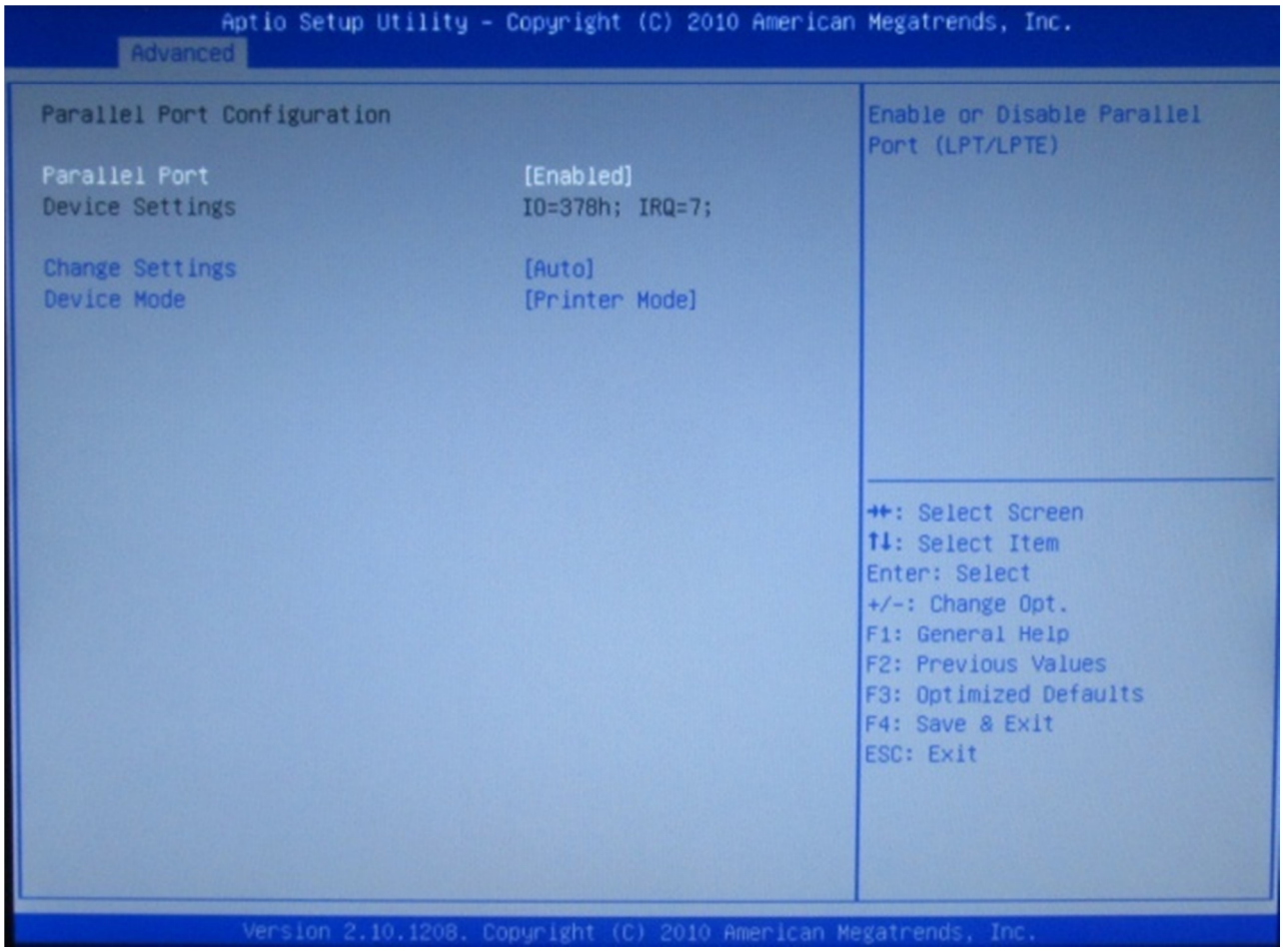
    - **Disabled** ***Default for Port 1*** Disable the serial port
    - **Enabled** ***Default for Port 0,2,3*** Enable the serial port

  - **Change Settings**

    Use the **Change Settings** option to change the serial port IO address and interrupt address. The assortment of settings differs according to the selected Serial Port. Possible settings will *not* be listed below. The default setting is [Auto].

    - **Auto** ***Default*** The serial port IO address and interrupt address are automatically detected.

- **Parallel Port  Configuration**




- **Parallel Port**
  - **Disabled** ***Default*** Disable the parallel port
  - **Enabled** Enable the parallel port

- **Change setting**

Use the **Change Settings** option to change the parallel port IO address and interrupt address. The assortment of settings differs according to the Serial Ports. Possible settings will *not* be listed below. The default setting is [Auto].

  - **Auto** ***Default*** The serial port IO address and interrupt address are automatically detected.

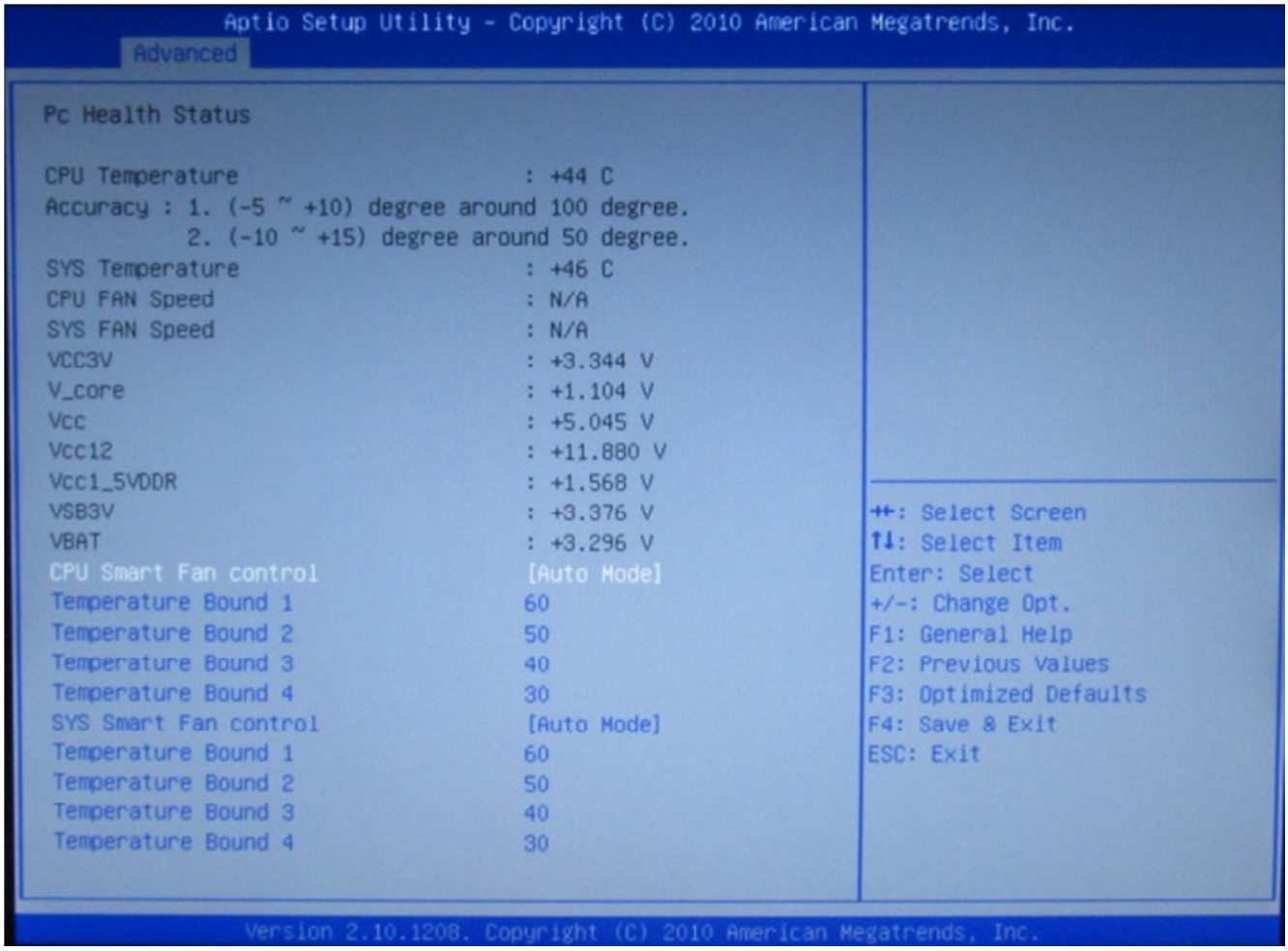
- **Device Mode**

Use the **Change Settings** option to change the Device Mode of the parallel Port. Default mode is [Printer Mode]

  - **Printer Mode** ***Default***

### 7.3.7. H/W Monitor

The **H/W Monitor** menu shows the operating temperature, fan speeds and system voltages.

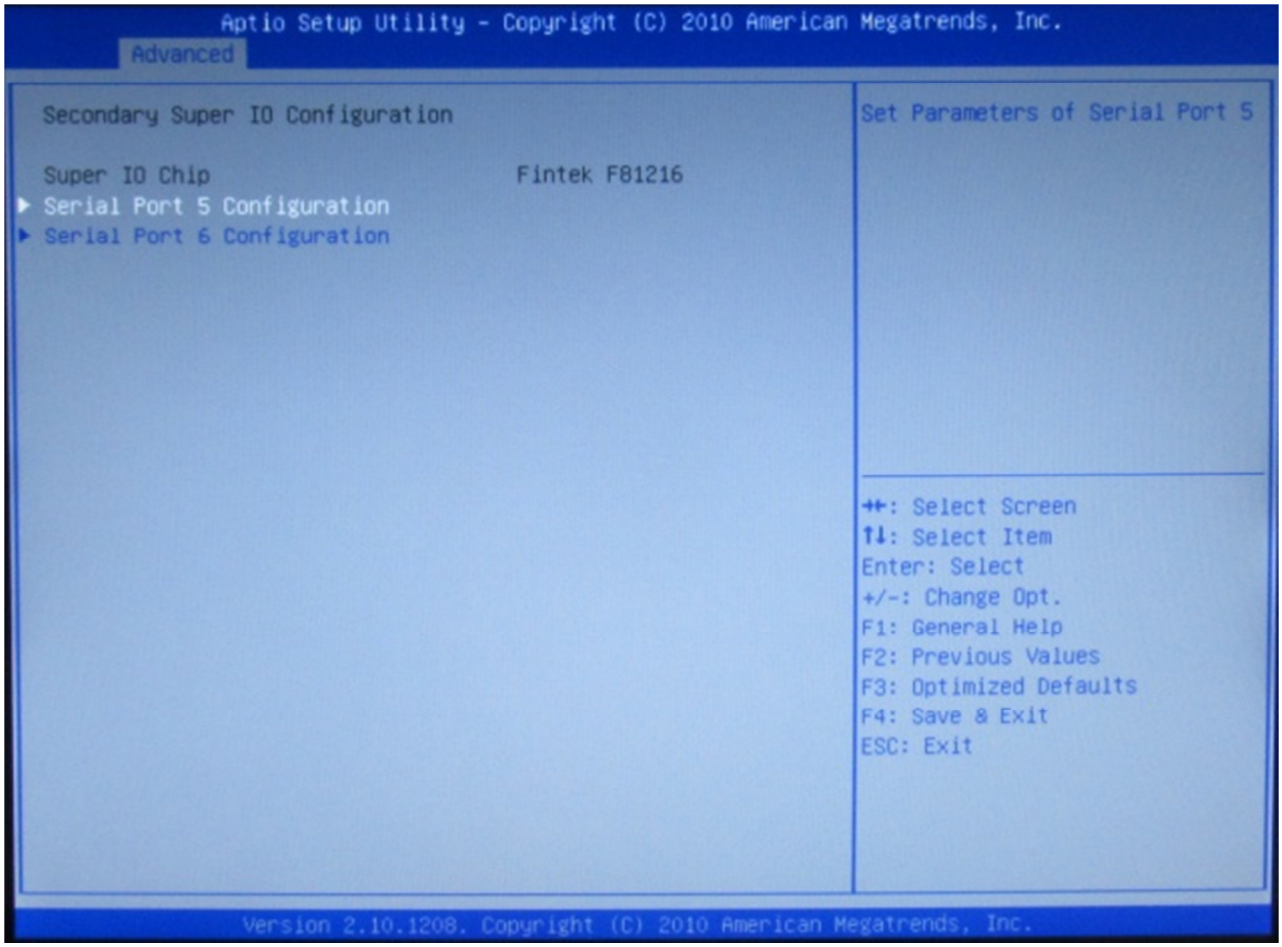



**PC Health Status**
The following system parameters and values are shown. The system parameters that are monitored are:

- CPU Temperature
- Accuracy: Accuracy of the readouts
- System Temperature
- CPU Fan Speed
- System Fan Speed
- VCC3V
- VCore
- +5V
- +12V
- +1.5V
- VSB3V
- VBAT

CPU Smart Fan control and SYS Smart Fan control allow controlling fans which are connected to the system. As **PENTA Giant** / **Food** devices operate without fans, these options will not be explained more detailed.

### 7.3.8. Secondary Super IO Configuration




- **Serial Port n Configuration**

  Use the **Serial Port n Configuration** menu to configure the serial port 'n'.

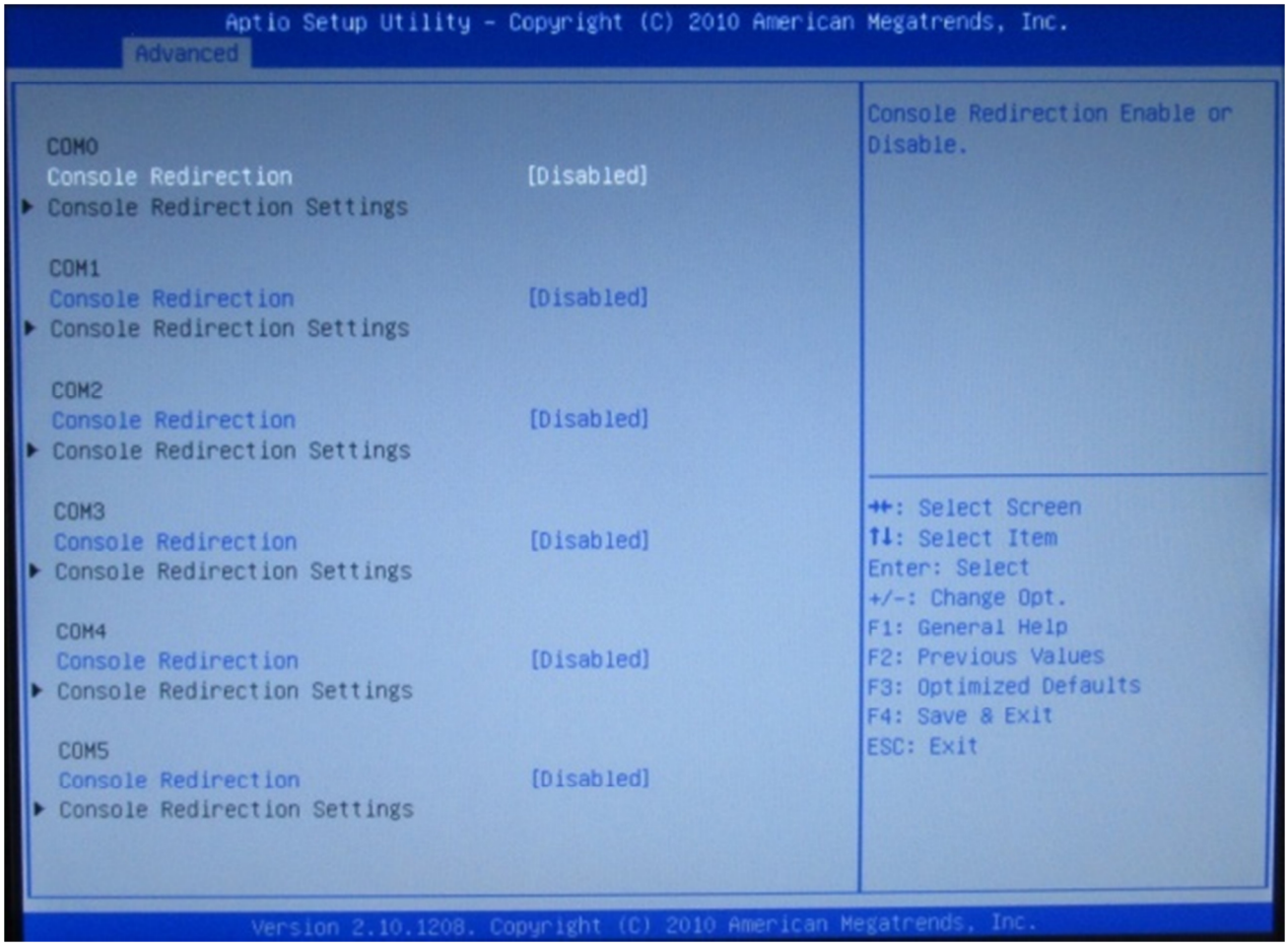
  - **Serial Port**

    Use the **Serial Port** option to enable or disable the serial port.

    - **Disabled** ***Default for Port 5,6*** Disable the serial port
    - **Enabled** Enable the serial port

### 7.3.9. Serial Port Console Redirection

The Serial Port Console Redirection menu allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by redirecting keyboard input and text output through the serial port.

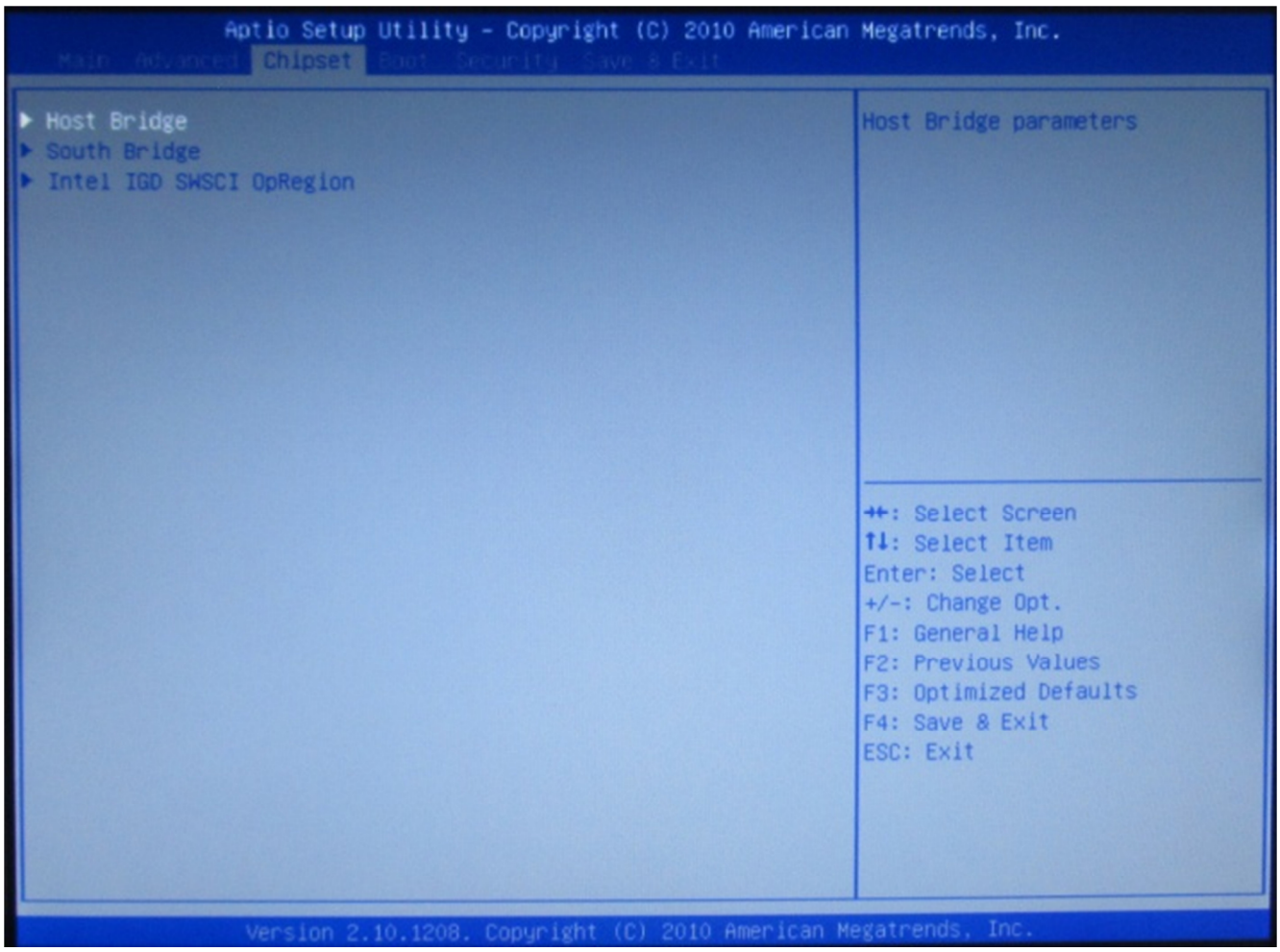



- **Console Redirection Port n Configuration**

  Use the **Console redirection** menu to configure redirection for port ‘n’.

## 7.4. Chipset

Use the **Chipset** menu to access the Northbridge and Southbridge configuration menu.




### 7.4.1. Host Bridge Configuration

Use the **Host Bridge Configuration** menu to configure the integrated graphics controller.

- **Initiate Graphics Adapter**

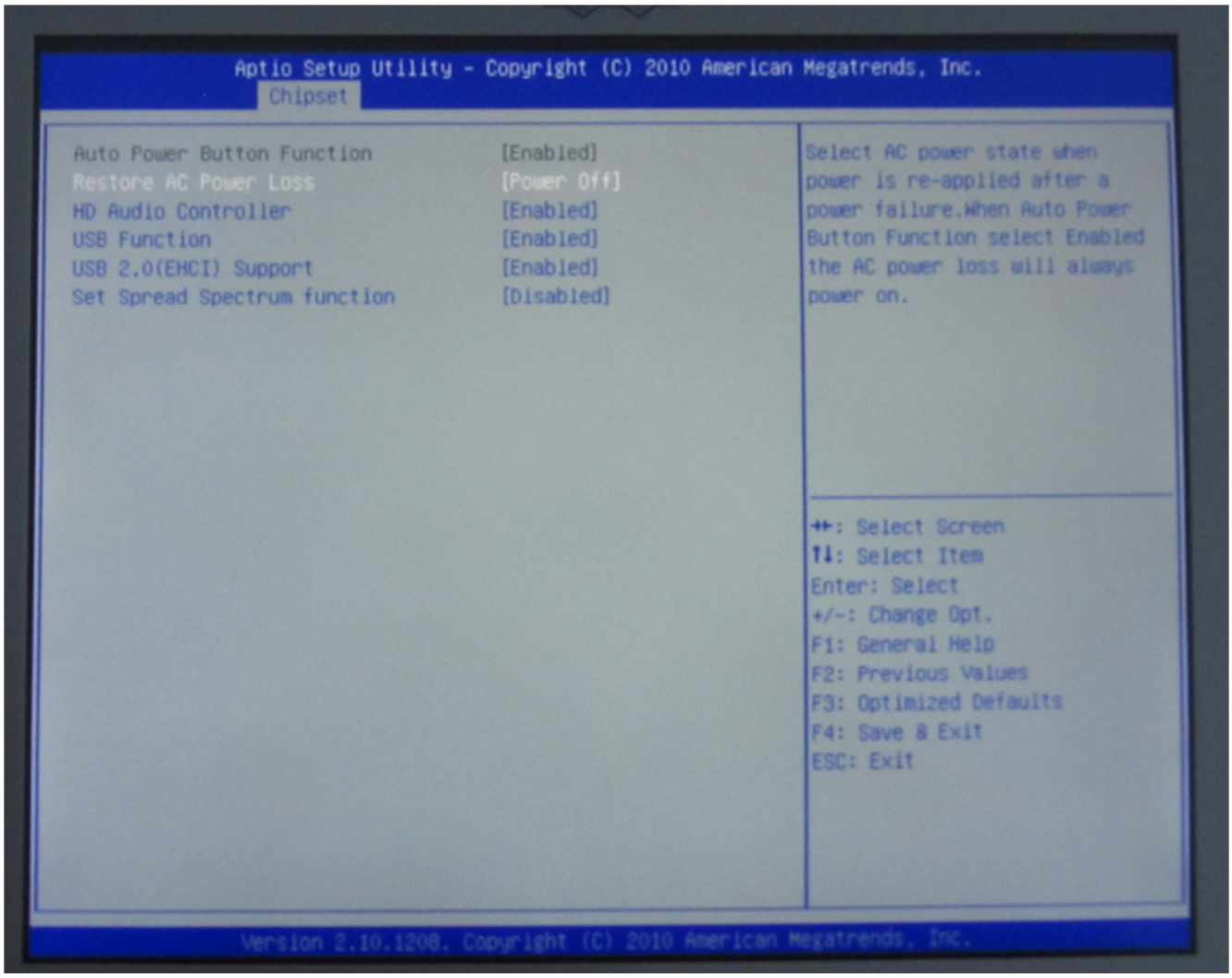
  Use the **Initiate Graphics Adapter** option to select the graphics controller used as the primary device. Select either an integrated graphics controller (IGD) or a combination of PCI graphics controller and the IGD:
  - IGD ***Default***
  - PCI/IGD

The **Host Bridge Configuration** menu also shows the memory information about the installed memory and memory frequency.

- Memory Frequency: Shows the frequency of the installed memory
- Total Memory: Amount of installed RAM
- DIMM#0: RAM in Slot 0
- DIMM#1: RAM in Slot 1

### 7.4.2. South Bridge Configuration

Use the **South Bridge Configuration** menu to configure the Southbridge chipset.




- **Restore AC Power Loss**

  Use the **Restore AC Power Loss** to select which AC power state is applied after power failure

  - **Power Off** ***Default*** Restores the system to power off.
  - **Power On** Restores the system to power on.
  - **Last State** Restores the system to last power state.

- **HD Audio Controller**

  Use the **HD Audio Controller** option to enable or disable the High Definition Audio controller.

  - **Disabled** The onboard High Definition Audio controller is disabled.
  - **Enabled** ***Default*** The onboard High Definition Audio controller is automatically detected and enabled.



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- **USB Function**

  Use the **USB Function** option to enable or disable the USB function support.

  - **Disabled** The onboard USB function support is disabled.
  - **Enabled** ***Default*** The onboard USB function support is enabled.

- **USB 2.0(EHCI) Support**

  Use the **USB 2.0(EHCI) Support** option to enable or disable the USB 2.0(EHCI) support**.**

  - **Disabled** USB 2.0 (EHCI) support disabled
  - **Enabled** ***Default*** USB 2.0 (EHCI) support enabled

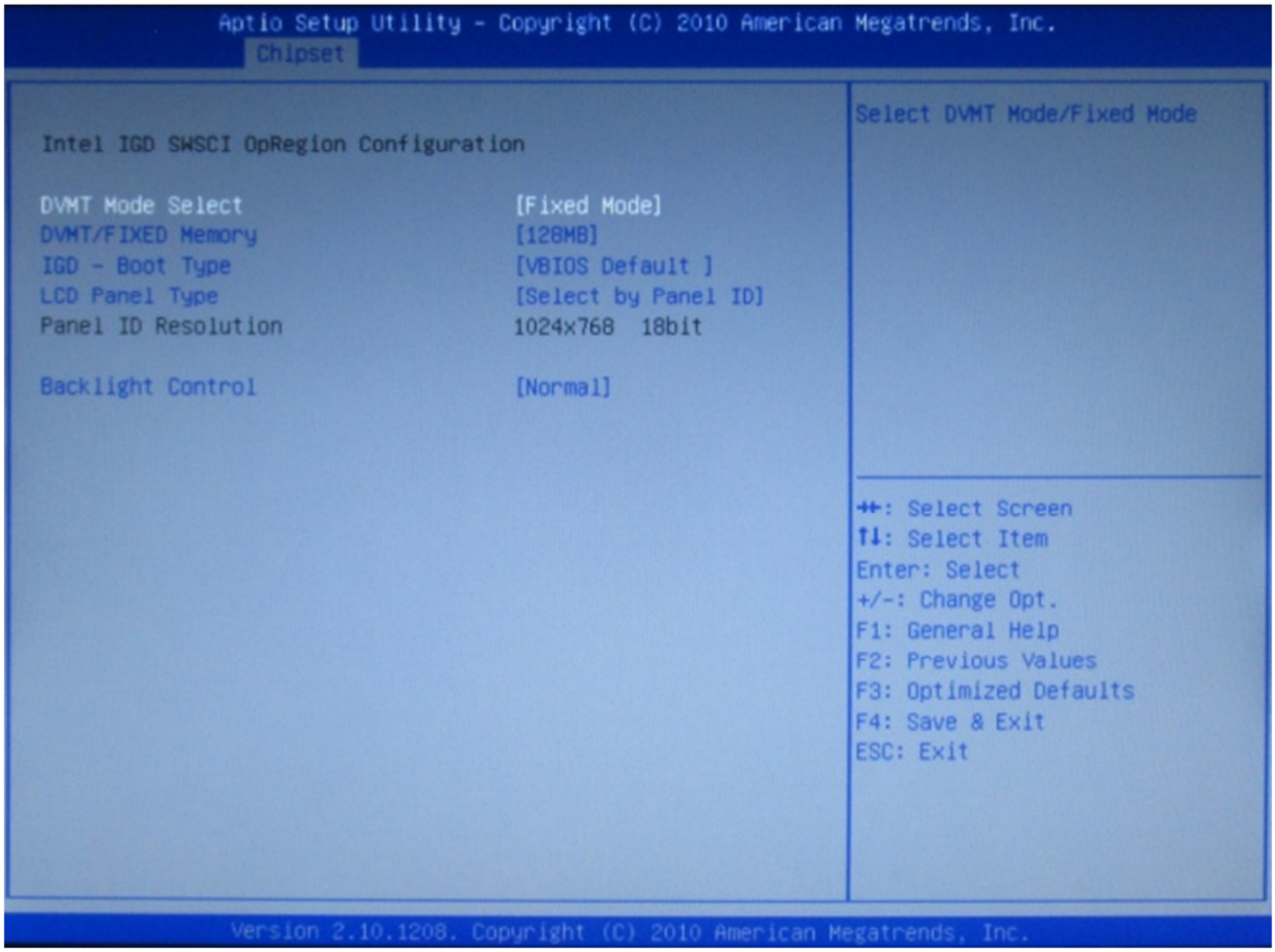
- **Set Spread Spectrum function**

  The **Set Spread Spectrum Function** option can help to improve CPU EMI issues.

  - **Disabled** ***Default*** The spread spectrum mode is disabled.
  - **Enabled** The spread spectrum mode is enabled.

### 7.4.3. Intel IGD SWSCI OpRegion Configuration

Use the **Intel IGD SWSCI OpRegion configuration** menu to configure the video device connected to the system.




- **DVMT Mode Select**

  Use the **DVMT Mode Select** option to select DVMT or Fixed Mode.

  - **Fixed Mode** Configure IGD in Fixed Mode
  - **DVMT Mode** ***Default*** Configure IGD in DVMT Mode

- **DVMT/Fixed Memory**

  Use the **DVMT/FIXED Memory** option to specify the maximum amount of memory that can be allocated as graphics memory. Configuration options are listed below.

  - **128MB**
  - **256MB** ***Default***

- **IGD – Boot Type**

  Use the **IGD - Boot Type** option to select the display device used by the system when it boots. Configuration options are listed below.

  - VBIOS Default *Default*
  - CRT
  - LFP
  - CRT + LFP

- **LCD Panel Type**

  Use the **LCD Panel Type** option to select the type of flat panel connected to the system. Configuration options are listed below:

  - Select by Panel ID ***Default***
  - 640x480 18bit
  - 800x480 18bit
  - 600x600 18bit
  - 1024x768 18bit
  - 1280x1024 18bit
  - 1366x768 18bit
  - 1280x800 18bit
  - 1280x600 18bit

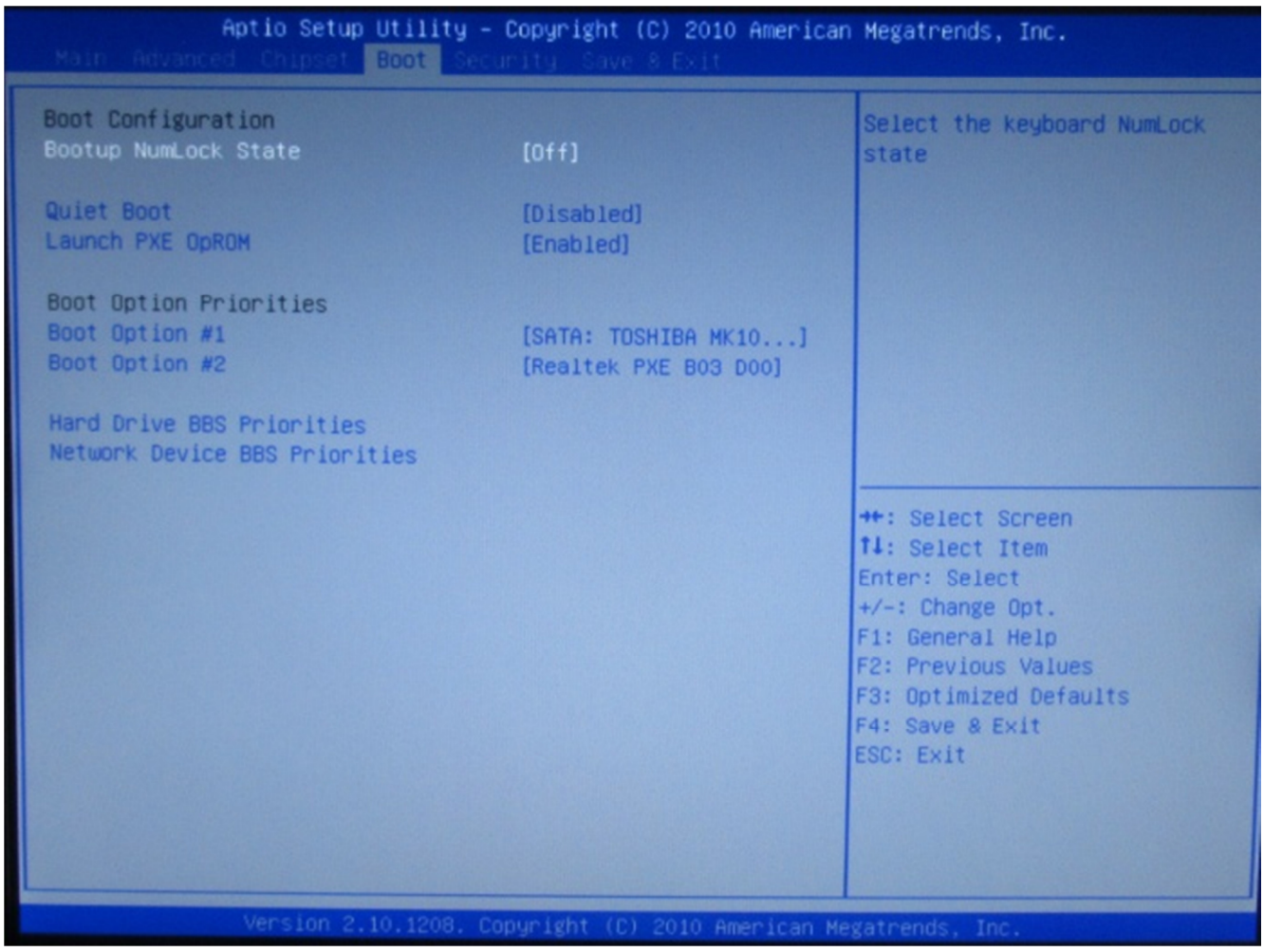
- **Backlight Control**

  Use Backlight Control setting to select whether the panel is light on Hi-Signal (Normal) or Lo-Signal (Inverted)

  - Normal *Default*
  - Inverted

## 7.5. Boot

Use the **Boot** menu to configure system boot options.




- **Bootup NumLock State**
  - Off *Default*
  - On

- **Quiet Boot**

  Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

  - **Disabled** Normal POST messages displayed
  - **Enabled** ***Default*** OEM Logo displayed instead of POST messages

- **Launch PXE OpROM**

  Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

  - **Disabled** ***Default*** Ignore all PXE Option ROMs
  - **Enabled** Load PXE Option ROMs.

- **Boot Option #1**

  Select Boot Device #1

- **Boot Option #2**

  Select Boot Device #2

- **Hard Drive BBS Priorities**

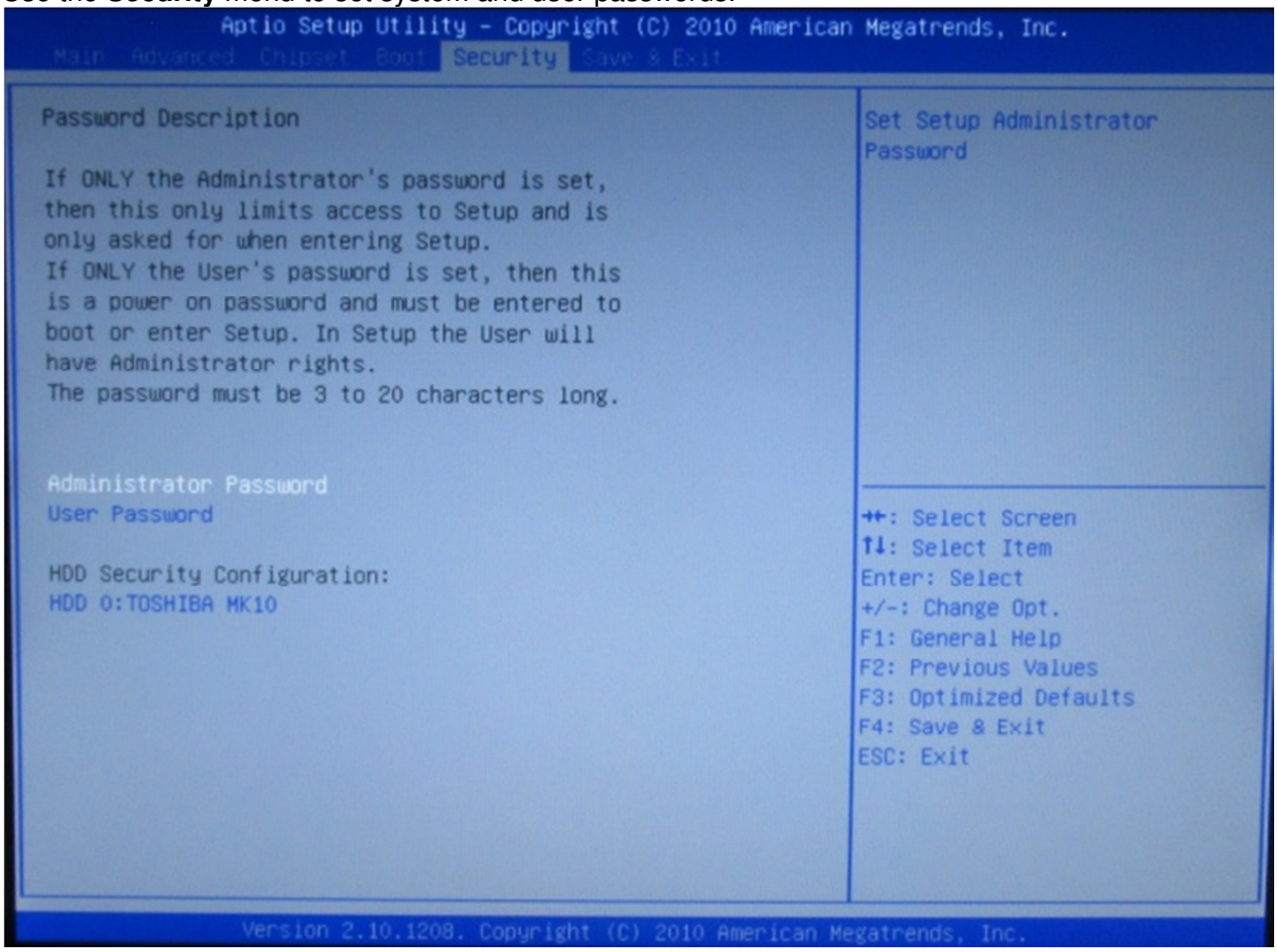
  Select Hard Drive Boot Priority

- **Network Device BBS Priorities**

  Select Network Device Boot Priority

## 7.6. Security

Use the **Security** menu to set system and user passwords.




- **Administrator Password**

  Use the **Administrator Password** to set or change a administrator password.

- **User Password**

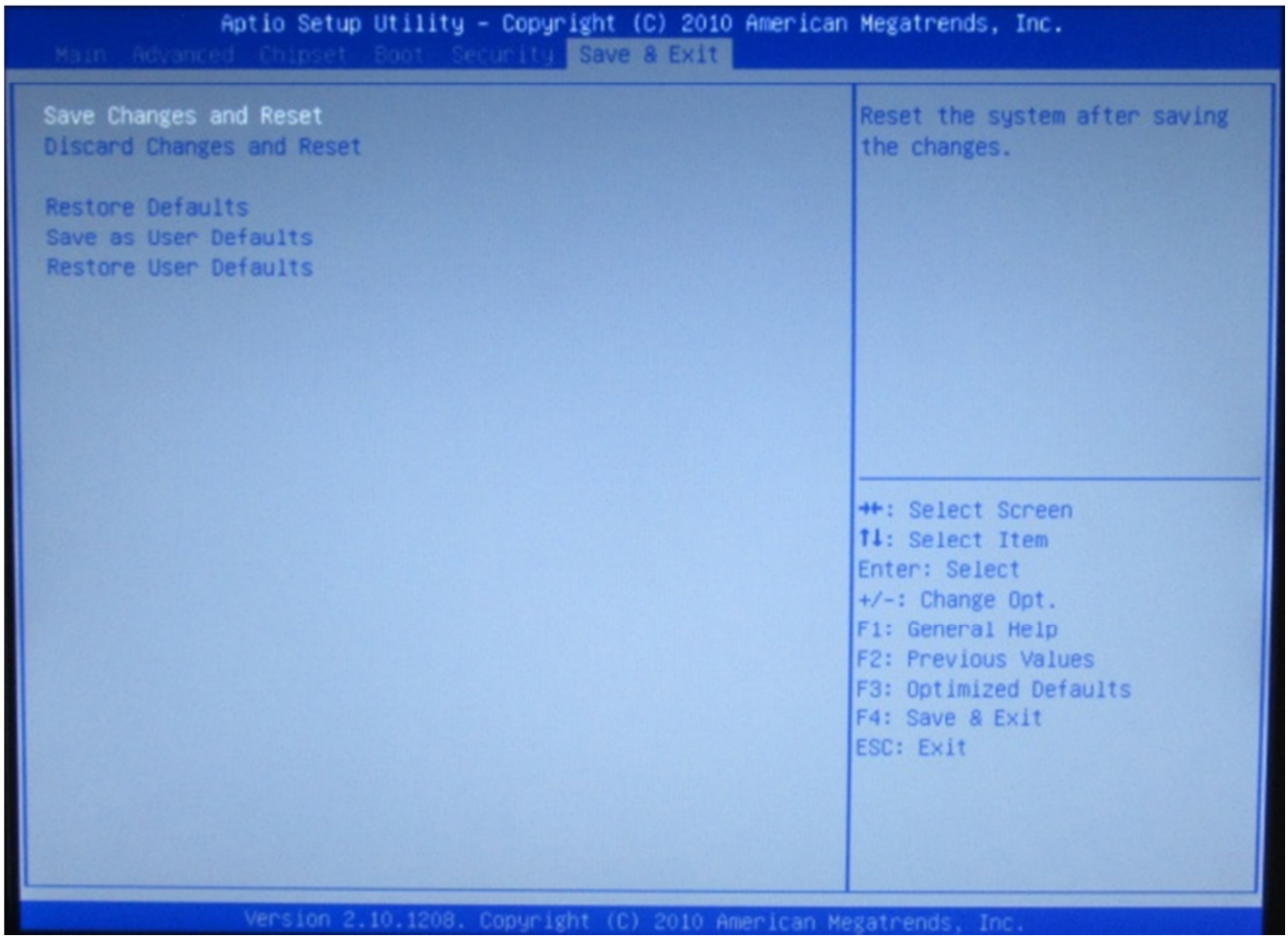
  Use the **User Password** to set or change a user password.

- **HDD Security Configuration**

  Use the **User HDD Security Configuration** to set or change a HDD password.

## 7.7. Exit

Use the **Exit** menu to load default BIOS values, optimal failsafe values and to save configuration changes.




- **Save Changes and Reset**

  Use the **Save Changes and Reset** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

- **Discard Changes and Reset**

  Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

- **Restore Defaults**

  Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation!**

- **Save as User Defaults**

  Save the changes done so far as User Defaults.

- **Restore User Defaults**

  Restore the User Defaults to all the setup options.

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# 8. OPTIONS

## 8.1. Cable cover

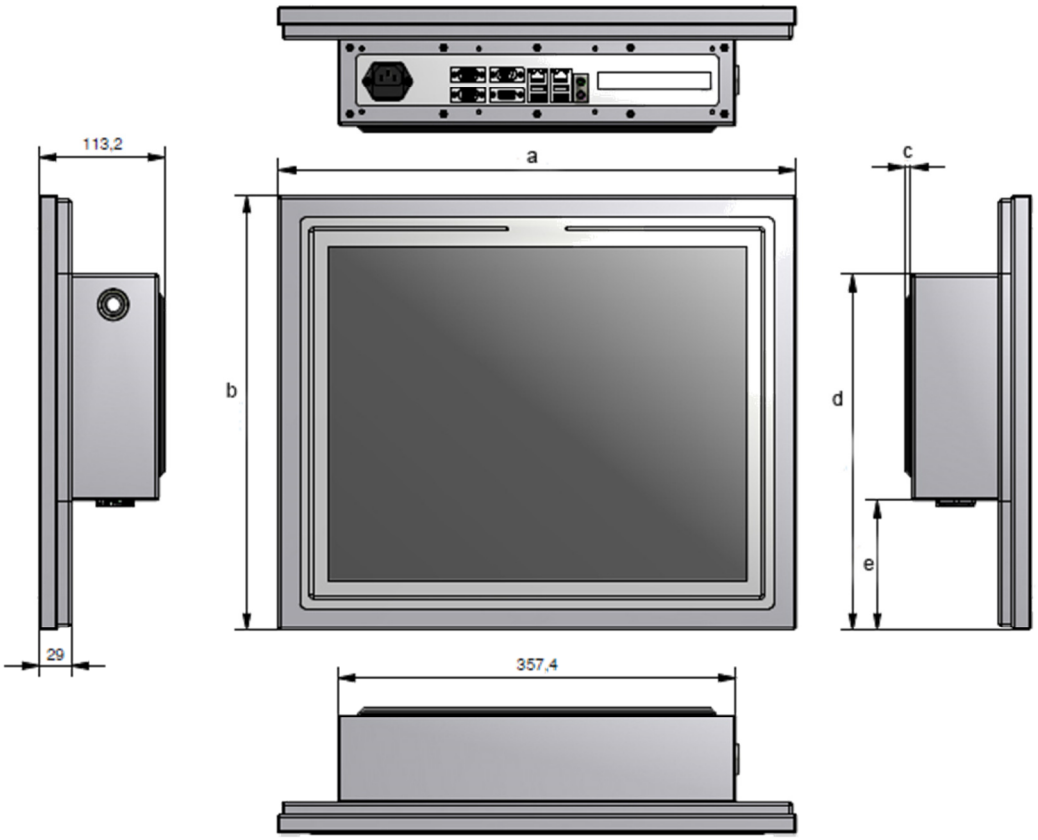
The **PENTA** Giant / Food can optionally be ordered with a cable cover. Only with this **PENTA** Giant / Food cable cover, **PENTA** will assure that the system full fills the IP65 compliance.

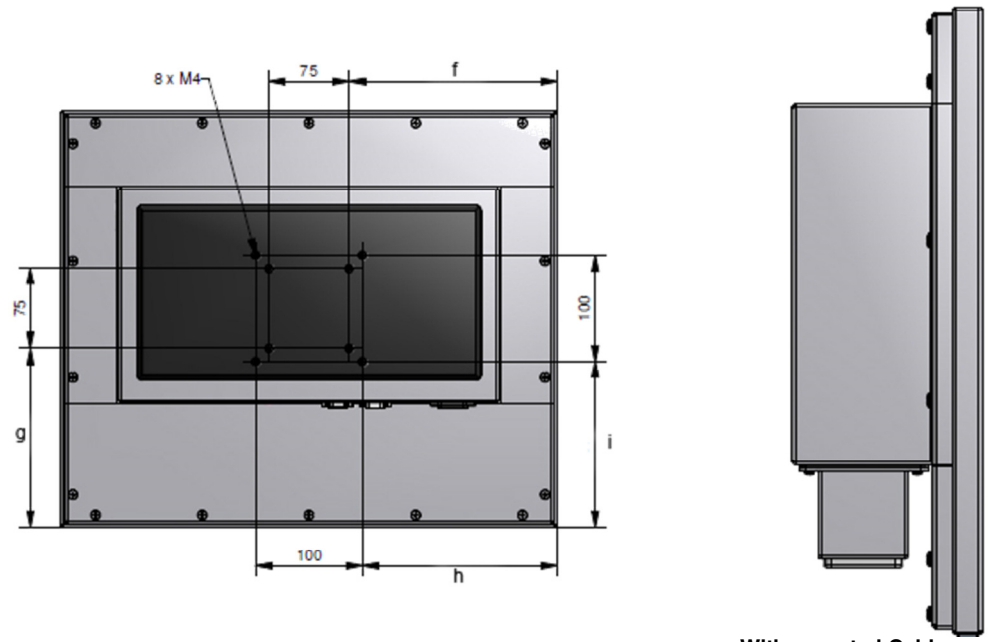
**PENTA** part no.:
For Food mITX :ZUB-08-COV-014
For Giant mITX :ZUB-08-COV-015

# 9. SPECIFICATIONS

## 9.1. Mechanical specifications

The following drawings show the dimensions of the **PENTA** Giant / Food in sizes 15", 17" and 19":




**With mounted Cablecover**

| | a | b | c | d | e | f | g | h | i |
|---|---|---|---|---|---|---|---|---|---|
| 15" | 408 | 314,1 | 6 | 289,3 | 86,3 | 166,5 | 137,8 | 154 | 125,3 |
| 17" | 438 | 354 | 5 | 299,2 | 96,2 | 181,5 | 147,7 | 169 | 135,2 |
| 19" | 465,1 | 390,6 | 5 | 319,7 | 116,7 | 195,05 | 168,2 | 182,55 | 155,7 |

**All sizes in mm**



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## 9.2. Electrical specifications

The system is equipped with a wide input range power supply which allows the usage nearly all around the world.

| | |
|---|---|
| Input range: | 90V~ to 263V~ |
| Max. input current: | 1A |
| Frequency: | 50Hz – 60Hz |
| Main Fuse: | T1.25A / 250V~ |

## 9.3. Environmental specifications

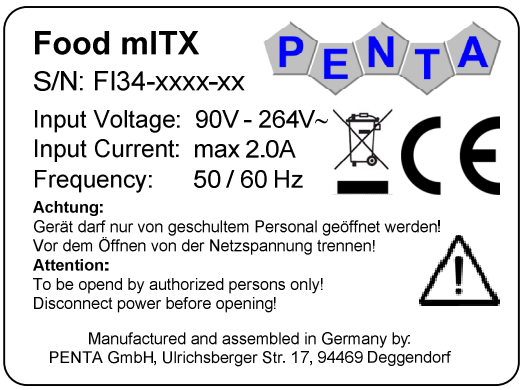
| | |
|---|---|
| **Operating ambient temperature range** | 0°C to +45°C |
| **Storage ambient temperature range** | -10°C to +65°C |
| **Operating ambient humidity range** | 10%..90% (non condensing) |
| **Non operating ambient humidity range** | 5%..95% (non condensing) |

## 9.4. Labels

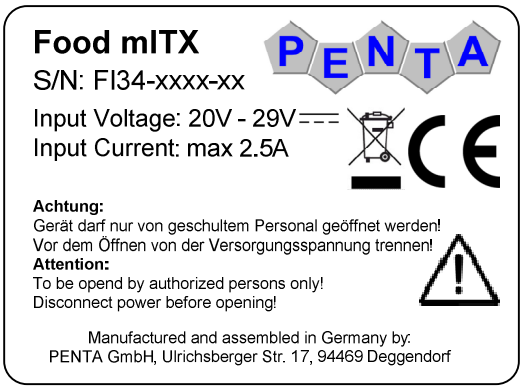
### 9.4.1. Serial number label

The device itself is labelled on its back side. The label complies in detail the following example layout.

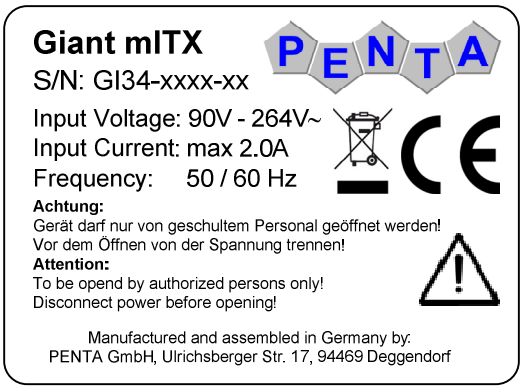
### 9.4.2. Food mITX AC Power Version :




### 9.4.3. Food mITX 24V-DC Version

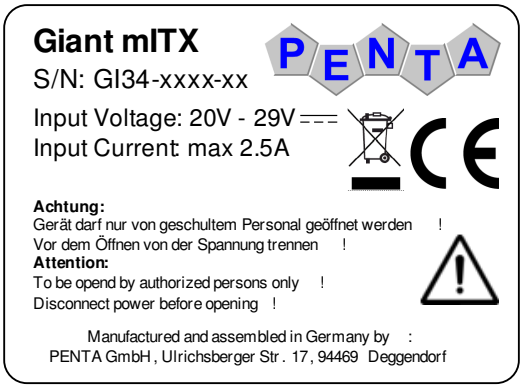



### 9.4.4. Giant mITX AC Power Version :




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### 9.4.5. Giant mITX 24V-DC Version




### 9.4.6. Explanation of serial number label symbols

| Symbol | Explanation/Meaning |
|---|---|
|  | Marks a warning or attention advice |
|  | Do not dispose this device or parts of it!<br><br>For further information, refer to:<br>**DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment (WEEE)** |
|  | CE mark to confirm, that this device meets all appropriate regulations and directives |

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# 10. CERTIFICATIONS AND NORMS

## 10.1. Declaration of conformity

The complete CE Declaration of conformity is provided with your **PENTA** IPC on Drivers & Manual CD. If you don´t have your Drivers & Manual CD available, please ask your local dealer for the following document:

CE Selbsterklärung FI34.pdf / GI34.pdf

## 10.2. EMC test compliance

If you need to have the complete EMC test report, please ask your local sales representative.

## 10.3. Environmental test compliance

If you need to have the complete environmental test report, please ask your local sales representative.

## 10.4. IP65 compliance

The unit full fills with appropriate cable cover the IP65 compliance.

IP6x compliance according to EN 60529 (dust intrusion) is met.
IPx5 compliance according to EN 60529 (splash water intrusion) is met.

## 10.5. Tables according EN60601-1-2:2001:

### 10.5.1. Table 201 – Guidance and manufacturer´s declaration – electromagnetic emission – for all EQUIPMENT AND SYSTEMS (see 6.8.3.201 a) 3))

<table>
<tr><td></td><td colspan="3">Guidance and manufacturer´s declaration – electromagnetic emission</td></tr>
<tr><td></td><td colspan="3">The PENTA is intended for use in the electromagnetic environment specified below. The customer or the user of the PENTA should assure that it is used in such an environment.</td></tr>
<tr><td></td><td>Emissions test</td><td>Compliance</td><td>Electromagnetic environment – guidance</td></tr>
<tr><td></td><td>RF emissions<br><br>CISPR 11</td><td>Group 1</td><td>The PENTA uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td></tr>
<tr><td></td><td>RF emissions<br><br>CISPR 11</td><td>Class B</td><td rowspan="3">The PENTA is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td></tr>
<tr><td></td><td>Harmonic emissions<br><br>IEC 61000-3-2</td><td>Class A</td></tr>
<tr><td></td><td>Voltage fluctuations / flicker emissions<br><br>IEC 61000-3-3</td><td>Complies</td></tr>
</table>

### 10.5.2. Table 202 – Guidance and manufacturer's declaration – electromagnetic immunity – for all EQUIPMENT and SYSTEMS (see 6.8.3.201 a) 6))

| Guidance and manufacturer´s declaration – electromagnetic immunity | | | |
|---|---|---|---|
| The PENTA is intended for use in the electromagnetic environment specified below. The customer or the user of the PENTA should assure that it is used in such an environment. | | | |
| Immunity test | **IEC 60601 test level** | **Compliance level** | **Electromagnetic environment - guidance** |
| Electrostatic discharge (ESD)<br><br>IEC 61000-4-2 | ± 6 kV contact<br><br>± 8 kV air | ± 6 kV contact<br><br>± 8 kV air | Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %. |
| Electrical fast transient / burst<br><br>IEC 61000-4-4 | ± 2 kV for power supply lines<br><br>± 1 kV for input/output lines | ± 2 kV for power supply lines<br><br>± 1 kV for input/output lines | Mains power quality should be that of a typical commercial or hospital environment. |
| Surge<br><br>IEC 61000-4-5 | ± 1 kV differential mode<br><br>± 2 kV common mode | ± 1 kV differential mode<br><br>± 2 kV common mode | Mains power quality should be that of a typical commercial or hospital environment. |
| Voltage dips, short interruptions and voltage variations on power supply input lines<br><br>IEC 61000-4-11 | < 5 % $U_T$ (>95 % dip in $U_T$ ) for 0,5 cycle<br><br>40 % $U_T$ (60 % dip in $U_T$ ) for 5 cycles<br><br>70 % $U_T$ (30 % dip in $U_T$ ) for 25 cycles<br><br>< 5 % $U_T$ (>95 % dip in $U_T$ ) for 5 sec | < 5 % $U_T$ (>95 % dip in $U_T$ ) for 0,5 cycle<br><br>40 % $U_T$ (60 % dip in $U_T$ ) for 5 cycles<br><br>70 % $U_T$ (30 % dip in $U_T$ ) for 25 cycles<br><br>< 5 % $U_T$ (>95 % dip in $U_T$ ) for 5 sec | Mains power quality should be that of a typical commercial or hospital environment. If the user of the PENTA requires continued operation during power mains interruptions, it is recommended that the PENTA be powered from an uninterruptible power supply or a battery. |

| | | | |
|---|---|---|---|
| Power frequency (50/60 Hz) magnetic field<br><br>IEC 61000-4-8 | 3 A/m | 30 A/m | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment. |
| NOTE | $U_T$ is the a. c. mains voltage prior to application of the test level. | | |

### 10.5.3. Table 204 – Guidance and manufacturer´s declaration – electromagnetic immunity – for EQUIPMENT and SYSTEM that are not LIFE-SUPPORTING (see 6.8.3.201 b))

| Guidance and manufacturer´s declaration – electromagnetic immunity | | | |
|---|---|---|---|
| The PENTA is intended for use in the electromagnetic environment specified below. The customer or the user of the PENTA should assure that it is used in such an environment. | | | |
| Immunity test | **IEC 60601 test level** | **Compliance level** | **Electromagnetic environment – guidance** |
| Conducted RF<br>IEC 61000-4-6 | 3 V<br>150 kHz to 80 MHz | 10 V | Portable and mobile RF communications equipment should be used no closer to any part of the PENTA, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.<br>**Recommended separation distance**<br>$d = 0{,}35\sqrt{P}$ |
| Radiated RF<br>IEC 61000-4-3 | 3 V/m<br>80 MHz to 2,5 GHz | 10 V/m | $d = 0{,}35\sqrt{P}$ 80 MHz to 800 MHz<br>$d = 0{,}7\sqrt{P}$ 800 MHz to 2,5 GHz<br>where *p* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the recommended separation distance in metres (m).[b]<br>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b]<br>Interference may occur in the vicinity of equipment marked with the following symbol:<br> |
| NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.<br>NOTE 2 These guidelines may not apply in all situations. Electromagnetic is affected by absorption and reflection from structures, objects and people. | | | |
| [a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the PENTA is used exceeds the applicable RF compliance level above, the PENTA should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the PENTA.<br>[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m. | | | |

### 10.5.4. Table 206 – Recommended separation distances between portable and mobile RF communications equipment and the EQUIPMENT or SYSTEM - for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING (see 6.8.3.201 b))

| Recommended separation distances between portable and mobile RF communications equipment and the PENTA | | | |
|---|---|---|---|
| The PENTA is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the PENTA can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the PENTA as recommended below, according to the maximum output power of the communications equipment | | | |
| Rated maximum output of transmitter<br>W | Separation distance according to frequency of transmitter<br>m | | |
| | 150 kHz to 80 MHz<br>$d = 0{,}35\sqrt{P}$ | 80 MHz to 800 MHz<br>$d = 0{,}35\sqrt{P}$ | 800 MHz to 2,5 GHz<br>$d = 0{,}7\sqrt{P}$ |
| 0,01 | 0,04 | 0,04 | 0,07 |
| 0,1 | 0,11 | 0,11 | 0,22 |
| 1 | 0,35 | 0,35 | 0,70 |
| 10 | 1,11 | 1,11 | 2,21 |
| 100 | 3,50 | 3,50 | 7,00 |
| For transmitters rated at a maximum output power not listed above the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.<br><br>NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.<br><br>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people. | | | |

# 11. COMMON WARNINGS, HANDLING AND SAFETY INSTRUCTIONS



Only use an original power-supply provided by **PENTA**. If you need to use another power-supply, ask your **PENTA** partner for authorisation. Non observance can result in property damage, severe personal injury and the loss of your warranty!



Before connecting the power cable all peripheral devices (e.g. keyboard/mouse …) must be connected to your **PENTA** IPC. Non-Observance can result in property damage. Please see ***appropriate*** chapters for additional information about installation of peripheral devices!



Before connecting peripheral devices, switch off the power supply of your **PENTA** IPC. The system has to be grounded as well. Otherwise the **PENTA** IPC and/or connected devices may be damaged.



Electrical installation only should be done by qualified personal. Non observance of the safety instructions can result in personal injury, death or property damage!



**Warning for medical appliances:**
Do not touch unused interfaces like USB or COM ports and a patient at the same time!
Secure unused interfaces with supplied covers.



Although your **PENTA** IPC is resistant against a lot of aggressive chemicals, some of them like acids and others can damage the housing, the seals and your display or touch panel. Please ask your local **PENTA** (sales) representative for further information.



**Information and warning for medical appliances:**
The **PENTA** IPC can be disinfected with all common used disinfectants.
Power down the system and use a moistened tissue to clean the device.
Avoid unconditionally intrusion of disinfectants and chemicals (i.e. via interfaces)!



The **PENTA** IPC is designed to meet **IP65 class specifications**.
This specification is met only, if all (interface) covers are mounted.



If you use a touch panel it will only operate with your fingers or a special input pen.
Never use hard, sharp, pointed, wooden, metal, plastic… devices, pencils, pens, knives ….. They will destroy your touch panel.

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Never shock, hit, overheat, burn, scratch, smash, … your **PENTA** IPC. This will destroy your **PENTA** IPC or parts thereof.



The administrator password for the used operating system and/or BIOS is very important! The loss of the password can cause data loss or will heavily influence the software installation of your system.
Because the administrator password is the main key for your system (access to all data, possibility to change all options … ) it is very important, that only authorised persons will have access to this password!



Invalid changes of BIOS settings can make your system useless or will cause data loss and/or hardware damage!
Any damages and/or problems caused through invalid BIOS changes will not be covered by warranty!



**Hazardous voltages** are present in this electrical equipment during operation. Failure to proper equipment maintenance can result in death, severe personal injury or substantial property damage. The instructions contained in this chapter have to be followed.

- Maintenance shall be performed only by qualified personal.
- Always de-energise and ground the equipment before maintenance.
- ESD can destroy your Hardware – always ground yourself before touching parts inside the **PENTA** product.
- Use only authorised parts to repair/upgrade the equipment.
- Unqualified intervention will cause system damage and leads to warranty loss.



Computer components are highly sensitive devices. ESD and wrong treatment can damage and destroy your IPC and / or your add-on cards.
Only qualified personnel should handle your computer hardware
Beware from ESD – ground yourself and your hardware first!



**Warning for medical appliances:**
Accessory equipment connected to the analog and digital interfaces must be certified according to the respective IEC standards (e.g. IEC 950 for data processing equipment and IEC 601-1 for medical equipment). Furthermore all configurations shall comply with the valid version of the system standard IEC 601-1-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore responsible that the system complies with the requirements of the valid version of the system standard IEC 601-1-1. If in doubt, consult the technical service department or your local representative.

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# 12. REVISION HISTORY

| Date | Doc.-Revision # | Author | Changes |
|---|---|---|---|
| **17.02.2011** | 0.1 | M. Schuhbaum / **PENTA** | Document created |
| **21.09.2011** | 0.2 | D. Steinbeisser / **PENTA** | |
| **25.10.2011** | 0.3 | P. Wierobski / **PENTA** | Added: Cover, Packing List, Labels, Mechanical Specifications |

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