PowerBrick™Ultra

User's Manual Edition 4.0



Slim and Rugged Industrial Computer with Intel® Gen4 Core™ i7-4650U



Acura Embedded Systems Inc.

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1.0 INTRODUCTION

1.1 Model Specification



| System | |
|---------------------|---|
| CPU | Intel Gen4 /Core i3 or i7-4650U CPU |
| Memory | 1 x DDR3L-1600 SO-DIMM up to 8GB (Default 4GB) |
| Graphics | Intel HD Graphics |
| АТА | 2 x Serial ATA ports with 6GB/s HDD Transfer Rate |
| LAN Chipset | 2 x Intel i210-AT Gigabit Ethernet |
| Watchdog(Optional) | 1 ~ 255 level reset |
| I/O | |
| Serial Port | Support 3 x RS-232 Ports (2 x RS232/422/485) |
| USB Port | 2 x USB 2.0 Ports and 2 x USB 3.0 |
| LAN | 2 x RJ45 Ports for GbE |
| Wireless (Optional) | 1 x WIFI and 1x Bluetooth |
| Video Port | 1 x HDMI and DVI Output |
| GPIO Port(Optional) | Support 4 In and 4 Out GPIO Ports (5V Level) |
| Audio | 1 x Line-out and 1 x Microphone-in |

| Storage | | | |
|-------------------|--|--|--|
| Туре | 1 x 2.5" drive bay for SATA Type Hard Disk Drive / SSD 1 x SATA DOM | | |
| Environment | | | |
| Operating Temp. | -30 ~ 60ºC, ambient w/ air | | |
| Storage Temp. | -40 ~ 85°C | | |
| Relative Humidity | 10 ~ 95% @ 40°C (non-condensing) | | |
| Power Input | DC 12V Input | | |
| Mechanical | | | |
| Construction | Aluminum alloy | | |
| Mounting | Wall-mount | | |
| Weight | 1.2 Kg / 3 LBs | | |
| Dimensions | 182 x 167.6 x 40 mm | | |

1.2 System's I/O



1.3 System's Dimensions (Unit: mm)



2.0 BIOS Settings

2.1 Enter The BIOS

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press (DEL) key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

- The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.
- Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format.

Control Keys

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press (DEL) key to enter Setup.

| <↑> | Move to the previous item |
|-----------------|---|
| <↓> | Move to the next item |
| <←> | Move to the item in the left hand |
| <→> | Move to the item in the right hand |
| <enter></enter> | Select the item |
| <esc></esc> | Jumps to the Exit menu or returns to the main menu from a submenu |
| <+/PU> | Increase the numeric value or make changes |
| <-/PD> | Decrease the numeric value or make changes |
| <f1></f1> | General Help |
| <f3></f3> | Load Optimized Defaults |
| <f4></f4> | Save all the CMOS changes and exit |

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys $(\uparrow \downarrow)$ to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (\downarrow) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

2.2 Main



» System Date

This setting allows you to set the system Date. The time format is <Day> <Month> <Date> <Year>.

» System Time

This setting allows you to set the system time. The time format is <Hour> <Minute> <Second>.

2.3 Advanced



2.4 CPU Configuration

| Aptic Setup Utility | – Copyright (C) 2012 | American Megatrends, Inc. |
|---------------------------------|----------------------|--|
| FS8 Speed | 100 MHz | Enabled for Windows XP and |
| Max CPU Speed | 1700 MHz | Linux (OS optimized for |
| Min CPU Speed | 800 MHz | Hyper-Threading Technology) |
| CPU Speed | 1700 MHz | and Disabled for other OS (OS |
| Processor Cores | 2 | not optimized for |
| Intel HT Technology | Supported | Hyper-Threading Technology). |
| Intel VT-x Technology | Supported | When Disabled only one thread |
| Intel SMX Technology | Supported | per enabled core is enabled. |
| 64-bit | Supported | |
| EIST Technology | Supported | |
| CPU C3 state | Supported | |
| CPU C6 state | Supported | |
| CPU C7 state | Supported | No. And Annual Contraction of the Annual Con |
| | | ++: Select Screen |
| L1 Data Cache | 32 KB × 2 | 14: Select Item |
| L1 Code Cache | 32 kB x 2 | Enter: Select |
| L2 Cache | 256 kB x 2 | +/-: Change Opt. |
| L3 Cache | 4096 KB | F1: General Help |
| | | F2: Previous Values |
| Hyper-threading | [Enabled] | F3: Optimized Defaults |
| Active Processor Cores | [A11] | F4: Save & Exit |
| Limit CPUID Maximum | [Disabled] | ESC: Exit |
| Intel Virtualization Technology | [Enabled] | |
| EIST | [Enabled] | |
| Turbo Mode | [Disabled] | |
| | | |
| | | Anon lease Magazanda Trac |
| Version 2.15.1236. | Copyright (C) 2012 F | American Megatrenus, inc. |

» Limit CPUID Maximum

The CPUID instruction of some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, enable this field to limit the return value to 3 or less than 3.

» Intel Virtualization Technology

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

» EIST

This field is used to enable or disable the Intel Enhanced Speed Step Technology

2.5 Super IO Configuration



» Serial Port 0/1/2/3 Enable or Disable

Select an Enable or Disable for the specified serial ports.

» COM1 RS232/422/485 Select





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» COM2 RS232/422/485 Select





2.6 Hardware Health Configuration

These items display the current status of all monitored hardware devices/components such as voltages, temperatures and all fans' speeds.



2.7 Chipset

PCH-IO Configuration

| PCH-IO Configuration System Agent (SA) Configuration | PCH Parameters |
|---|--|
| | |
| | ++: Select Screen †4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit 54: Save & Exit |
| | |

2.0 BIOS



System Agent (SA) Configuration

» Graphics Configuration

| Aptic Setup Utility Chipset |) – Copyright (C) 2012 f | American Megatrends, Inc. |
|---|--|---|
| System Agent Bridge Name System Agent RC Version VT-d Capability | Haswell 1.8.0.0 Supported | Config Graphics Settings. |
| VT-d CHAP Device (B0:D7:F0) Thermal Device (B0:D4:F0) CPU SA Audio Device (B0:D3:F0) Enable NB CRID BDAT ACPI Table Support Screphics Configuration | [Enabled] [Disabled] [Disabled] [Enabled] [Disabled] [Disabled] | |
| DMI Configuration Memory Configuration Memory Thermal Configuration GT - Power Management Control | | <pre>++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre> |
| Version 2.15.1236 | . Copyright (C) 2012 Am | erican Megatrends, Inc. |

2.0 BIOS



2.8 Boot



» 1st/2nd/3rd Boot Device

The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

» Try Other Boot Devices

Setting the option to [Enabled] allows the system to try to boot from other device if the system fail to boot from the 1st/2nd/3rd boot device.



» Hard Disk Drives, CD/DVD Drives, USB Drives

These settings allow you to set the boot sequence of the specified devices.

2.9 Security

| Decouved Deconintion | The state of the s | 1000 |
|---------------------------------|--|--|
| Passiona Description | | Set |
| If ONLY the Administrator's pas | sword is set, | |
| then this only limits access to | Setup and is | |
| only asked for when entering Se | stup. | |
| If ONLY the User's password is | set, then this | 1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1 |
| is a power on password and must | be entered to | |
| have edministraton nights | the user will | |
| The nassuned length must be | | |
| in the following range: | | |
| Minimum length | 3 | |
| Maximum length | 20 | |
| | | |
| | | T4: |
| | | Ent |
| User Password | | +/- |
| | | F1: |
| HDD Security Configuration: | | F2: |
| HDDO:Hitachi HTS5 | | Fa. |
| hour miss | | ESC |
| UEFI Secure Boot Management | | 200 |
| Secure Boot control | (Enabled) | |
| Secure Boot Policy | | |

» Administrator Password

Administrator Password controls access to the BIOS Setup utility. These settings allow you to set or change the administrator password.

» User Password

User Password controls access to the system at boot. These settings allow you to set or change the user password.

» Boot Sector Virus Protection

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you will need to disable this Flash Protection function.

2.10 Exit



» Save Changes and Exit

Save changes to CMOS and exit the Setup Utility.

» Discard Changes and Exit

Abandon all changes and exit the Setup Utility.

» Discard Changes

Abandon all changes and continue with the Setup Utility.

» Load Optimal Defaults

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

» Load Failsafe Defaults

Use this menu to load the default values set by the BIOS vendor for stable system performance.



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