英康仕
STEP BY STEP

User Manual Ver1.1

NIS-H897

NUC 迷你电脑

- Intel®Core4/Core5 U系列低功耗处理器

  Intel Brodwell Core I7-5557U-3.4GHz CPU

  Intel Haswell Core I5-4210U-2.7GHz CPU

  Intel Haswell Core I3-4030U-1.9GHz CPU

  Intel Haswell Celeron-2957U-1.4GHz CPU
- Intel® HD Graphics集成显卡
- 2 x HDMI显示接口
- 2 x REALTEK RTL8111E GbELAN
- 2 x RS232 COM Option
- 1 x SODIMM DDR3低电压内存插槽
- 2 x USB3.0 和 1 x USB2.0
- 9V~19V宽范围输入

INNOVATIVE CHANGEABLE STRICT

www.szics.com

版权声明

认可声明

如需技术支持和服务，请访问深圳市英康仕电子有限公司网站： **http://www.SZICS.com**

产品质量保证 （1 年）

从购买之日起，英康仕为原购买商提供两年的产品质量保证。但对那些未经授权的维修人员维修过的产品不予提供质量保证。英康仕对于不正确的使用、灾难、错误安装产生的问题有免责权利。

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1. 收集您所遇到的问题信息 （例如，CPU主频、使用的英康仕产品及其它软件、硬件等）。请注意屏幕上出现的任何不正常信息显示。
2. 打电话给您的供货商，描述故障问题。请借助手册，产品和任何有帮助的信息。
3. 如果您的产品被诊断发生故障，请从您的供货商那里获得 RMA (Return Material Authorization)序列号。这可以让我们尽快的进行故障产品的回收。
4. 请仔细的包装故障产品，并在包装中附上完整的售后服务卡片和购买日期证明（如销售发票）。我们对无法提供购买日期证明的产品不提供质量保证服务。

符合性声明

FCC A级

注意：根据FCC规则第15款，本设备已经过检测并被判定符合A级数字设备标准。这些限制旨在为居住环境下的系统操作提供合理保护，使其免受有害干扰。本设备会产生、耗费和发射无线电频率能量，如果没有按照手册说明正确安装和使用，可能会对无线电通讯造成有害干扰。此时，用户需自行解决干扰问题。

技术支持与服务

1. 有关该产品的最新信息，请访问英康仕公司的网站：

   http://www.szics.com

2. 用户若需技术支持，请与当地分销商、销售代表或英康仕客服中心联系。进行技术咨询前，用户须将下面各项产品信息收集完整：

   - 产品名称及序列号
   - 外围附加设备的描述
   - 用户软件的描述 （操作系统、版本、应用软件等）
   - 产品所出现问题的完整描述
   - 每条错误信息的完整内容

警告与注意

警告！ 在操作过程中，用户须特别注意该手册中的警告信息，以免造成人身伤害。

注意！ 该手册中的注意信息可帮助用户避免损坏硬件或丢失数据，例如：如果电池放置不正确，将有爆炸的危险。因此，只可以使用制造商推荐的同一种或者同等型号的电池进行替换。请按照制造商的指示处理旧电池。

注！ 此项提供其它额外信息。

安全指示

1. 请仔细阅读此安全操作说明。
2. 请妥善保存此用户手册供日后参考。
3. 用湿抹布清洗设备前，请从插座拔下电源线。请不要使用液体或去污喷雾剂清洗设备。
4. 对于使用电源线的设备，设备周围必须有容易接触到的电源插座。
5. 请不要在潮湿环境中使用设备。
6. 请在安装前确保设备放置在可靠的平面上，意外跌落可能会导致设备损坏。
7. 设备外壳的开口是用于空气对流，从而防止设备过热。请不要覆盖这些开口。
8. 当您连接设备到电源插座上前，请确认电源插座的电压是否符合要求。
9. 请将电源线布置在人们不易绊到的位置，并不要在电源线上覆盖任何杂物。
10. 请注意设备上的所有警告标识。
11. 如果长时间不使用设备，请将其同电源插座断开，避免设备被超标的电压波动损坏。
12. 请不要让任何液体流入通风口，以免引起火灾或者短路。
13. 请不要自行打开设备。为了确保您的安全，请由经过认证的工程师来打开设备。
14. 如遇下列情况，请由专业人员来维修：

    电源线或者插头损坏；

    设备内部有液体流入；

    设备曾暴露在过于潮湿的环境中使用；

    设备无法正常工作，或您无法通过用户手册来使其正常工作；

    设备跌落或者损坏；设备有明显的外观破损。
15. 请不要把设备放置在超出我们建议的温度范围的环境，即不要低于-20°C（-4°F）或高于70°C（140°F），否则可能会损坏设备。
16. 注意：计算机配置了由电池供电的实时时钟电路，如果电池放置不正确，将有爆炸的危险。因此，只可以使用制造商推荐的同一种或者同等型号的电池进行替换。请按照制造商的指示处理旧电池。

根据 IEC 704-1:1982 的规定，操作员所在位置的声压级不可高于 70dB(A)。

免责声明：该安全指示符合 IEC 704-1 的要求。英康仕公司对其内容的准确性不承担任何法律责任。

包装清单

安装系统之前，用户需确认包装中含有本设备以及下面所列各项，并确认设备完好。 若有任何不符，请立即与经销商联系。

1 x NIS-H897 BOX PC

AC-DC电源适配器，DC 12V@3A 36W,

订购信息

型号名	说明
NIS-H897-2CBSCL	INTEL® Haswell 2957U 1.4GHz CPU, Intel® HD Graphics 集成显卡，2 x HDMI 显示接口， 2 x REALTEK RTL8111E GbELAN，2 x RS232 COM Option，1 x SODIMM DDR3 低电压内存插槽，2 x USB3.0 和 1 x USB2.0，9V~19V 宽范围输入
NIS-H897-2CBSI3	INTEL® Haswell I3-4030U 1.9GHz CPU, Intel® HD Graphics 集成显卡，2 x HDMI 显示接口， 2 x REALTEK RTL8111E GbELAN，2 x RS232 COM Option，1 x SODIMM DDR3 低电压内存插槽，2 x USB3.0 和 1 x USB2.0，9V~19V 宽范围输入
NIS-H897-2CBSI3	INTEL® Haswell I5-4210U 2.7GHz CPU, Intel® HD Graphics 集成显卡，2 x HDMI 显示接口， 2 x REALTEK RTL8111E GbELAN，2 x RS232 COM Option，1 x SODIMM DDR3 低电压内存插槽，2 x USB3.0 和 1 x USB2.0，9V~19V 宽范围输入
NIS-H897-2CBSI3	INTEL® Brodwell I7-5557U 3.4GHz CPU, Intel® HD Graphics 集成显卡，2 x HDMI 显示接口， 2 x REALTEK RTL8111E GbELAN，2 x RS232 COM Option，1 x SODIMM DDR3 低电压内存插槽，2 x USB3.0 和 1 x USB2.0，9V~19V 宽范围输入

Contents

第 1 章

产品介绍

1.1 产品简介

NIS-H897为带风扇嵌入式系统设计，尺寸仅为117x112x41 mm。NIS-H897支持2个HDMI同步或异步显示， 2个REALTEK RTL8111E千兆网络，2 x USB3.0 和 1 x USB2.0, and 2 x RS232可选。NIS-H897还支持2.5” SATA HDD和Msata SSD，DC9-19V宽范围电源输入。

1.2 产品特性

主要特性

- 超紧凑、带风扇运行，低功耗系统。
- 支持Intel®Haswell™和Brodwell™ U系列低功耗CPU
- 支持 2.5” HDD/M-SATA SSD
- HDMI 2个同步或异步显示,支持4K分辨率
- 2个REALTEK RTL8111E千兆网络
- 2 x USB3.0 和 1 x USB2.0,and 2 x RS232,
- 支持VESA壁挂、桌面安装

1.3 产品规格

1.3.1 一般

- CPU：Intel®Haswell™Celeron® Celeron 2957/Core I3/I5/I7 U系列低功耗双核CPU

CPU 型号	I7-5557U	i5-4210U	i3-4030U	Celeron 2957U
系统总线	5 GT/s	5 GT/s	5 GT/s	5 GT/s
Cache	4 MB Smart Cache	3 MB Smart Cache	3 MB Smart Cache	2 MB Smart Cache
CPU 指令集	64-bit,SSE 4.1/4.2, AVX 2.0	64-bit,SSE 4.1/4.2, AVX 2.0	64-bit,SSE 4.1/4.2, AVX 2.0	64-bit,SSE 4.1/4.2, AVX 2.0
CPU 制程	22 nm	22 nm	22 nm	22 nm
CPU 核心	2 核 4 线程	2 核 4 线程	2 核 4 线程	2 核 2 线程
基本工作主频	3 .1GHz	1.7 GHz	1.9 GHz	1.4 GHz
最大睿频	3.4 GHz	2.7 GHz		
典型功耗	28 W	15W	15 W	15 W
内存类型	低电压 DDR3-1600	低电压 DDR3-1600	低电压 DDR3-1600	低电压 DDR3-1600
集成显示型号	Intel® Iris™ Graphics 6100	Intel® Iris™ Graphics 4400	Intel® HD Graphics 4400	Intel® Iris™ Graphics 4400
显卡主频	300MHz-1.1GHz	200MHz-1.0GHz	200MHz-1.0GHz	200MHz-1.0GHz
显卡分辨率	4K	4K	4K	2K

- 系统芯片组：Intel®Haswell™ SOC 芯片组，集成显卡
- BIOS：16 Mbit Flash BIOS
- 系统内存：SODIMM插槽，DDR3-1600低电压内存，最大支持16GB
- 看门狗定时器：255级间隔定时器，根据软件设置
- 串行端口： 2 x RS232
- USB：
  - 1 x 符合 USB 2.0 的接口
  - 2 x 符合 USB 3.0 的接口
- Realtek ALC6622 声卡，带 MIC/声音输出
- 扩展接口：支持1个全长Mini-PCIe，3G UIM卡；
- 存储： 支持 Msata SSD 和 1 x 2.5”SATAIII HDD

1.3.2 显示

- 芯片组：Intel® HD4000、HD5000系列 Graphics,200MHz-1.2GHz主频

- HDMI 2个同步或异步显示接口
  - 分辨率：最高支持4K显示
  - GPU对视频/图片进行硬件加速。比如可以解码AVC、JPEG、Motion JPEG、MVC（Multi-view Video Coding）以及SVC（Scalable Video Codec）等流媒体。
  - GPU中通过色域转换功能可以使显示出的色彩尽可能与文件原色彩一致
  - Frame Rate Conversion（帧率转换），可以在相邻两帧中插入新帧，让视频播放的更流畅。
  - 支持视频防抖、高帧JEPG等。

1.3.3 以太网

- 芯片组：Realtek8111E千兆网络
- 速度：10/100/1000 Mbps，支持网络唤醒和Link/Speed LED灯
- 接口：2 x RJ45接口
- 标准 :符合 IEEE 802.3、IEEE 802.3u、IEEE 802.3x、IEEE 8023y、IEEE 802.ab

1.3.4 电源和功耗

- 输入电压：DC 9-19 V 输入
- 电源适配器：AC ~ DC 12V/3A，36W
- 高级电源管理：ACPI 3.0, APM

- 工作功耗：

Voltage		Celeron 2957U 1.4GHz CPU		I3-4030U 1.9GHz CPU		I5- 4210U 2.7GHz CPU		I7-5557U 3.4GHz CPU	
		Current	Power	Current	Power	Current	Power	Current	Power
空闲模式	+12V	0.4	5	0.5	6	0.97	11.64	0.97	11.64
启动模式	+12V	0.8	10	1.1	13.2	1.9	22.8	1.9	22.8
最大工作模式	+12V	1.8	20.4	2.2	26.4	3	36	3	36

- 功耗测试条件：
  - 测试条件：Windows®7 Professional, Burntest ver6.0, 32G SSD
  - 空闲模式：指进入 Windows 系统后不运行任何应用软件时的电流功耗
  - 启动模式：指在从开机到进入操作系统过程中最大所需电流功耗
  - 最大工作模式 :指在运行 BURNTEST 时 CPU 和显卡 100%满负载运行下所需电源功耗。

  RTC 电池：Lithium 3 .3V/210mAH CR2032 battery

1.4 环境规格

- 工作温度：

  -0 ~ 60° C（宽温SSD/mSATA设备，I5/I7系列28W CPU）

  0 ~ 50° C（机械式硬盘）
- 相对湿度：95% @ 40°C（非凝结）
- 存储温度：-40 ~ 85°C (-40 ~ 185°F)
- 安规认证：符合UL、CCC
- EMC/ROSH：CE、FCC　Class A级、ROSH认证（可提供电子档证书）

Shenzhen BCTC Technology Co.,Ltd.
A.Floor 3, 44 Building, Tanglang Industrial Park B,
Taoyuan Street, Nanshan District, Shenzhen, China

Certificate of Compliance

Certificate Number: BCTC-150809703

Applicant : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Manufacturer : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Product : **Mini computer**

Trademark : 英康仕

M/N : **NIS-H897**
ENC-H897

Test Standard : **EN 55022: 2010**
EN 61000-3-2: 2014, EN 61000-3-3: 2013
EN 55024: 2010
EN 61000-4-2: 2009, EN 61000-4-3: 2006+A1:2008+A2:2010
EN 61000-4-4: 2012, EN 61000-4-5: 2014
EN 61000-4-6: 2014, EN 61000-4-8: 2010, EN 61000-4-11: 2004

The EUT described above has been tested by us with the listed standards and found in compliance with the council EMC directive 2014/30/EU. It is possible to use CE marking to demonstrate the compliance with this EMC Directive. It is only valid in connection with the test report number: BCTC-150809703.

Manager
Aug. 11, 2015

This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant. Directives have to be observed.
Tel: 400-788-9558 0755-33019988 Http://www.bctc-lab.com Http://www.btc-lab.com

Shenzhen BCTC Technology Co.,Ltd.
A.Floor 3, 44 Building, Tanglang Industrial Park B,
Taoyuan Street, Nanshan District, Shenzhen, China

Certificate of Compliance

Certificate Number: BCTC-150809704

Applicant : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Manufacturer : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Product : **Mini computer**

Trademark : 英康仕

M/N : **NIS-H897**
ENC-H897

Test Standard : **EN60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013**

The EUT described above has been tested by us with the listed standards and found in compliance with the council LVD directive 2014/35/EU. It is possible to use CE marking to demonstrate the compliance with this LVD Directive. It is only valid in connection with the test report number: BCTC-150809704.

Manager
Aug. 11, 2015

This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant. Directives have to be observed.
Tel: 400-788-9558 0755-33019988 Http://www.bctc-lab.com Http://www.btc-lab.com

Shenzhen BCTC Technology Co.,Ltd.
A.Floor 3, 44 Building, Tanglang Industrial Park B,
Taoyuan Street, Nanshan District, Shenzhen, China

Verification of Conformity

Certificate Number: BCTC-150809706

We herewith confirm the following designated product:

Applicant : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Manufacturer : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Product : **Mini computer**

Trademark : 英康仕

M/N : **NIS-H897**
ENC-H897

The submitted sample of the above equipment has been tested and found to comply with the following standards:

- **FCC Part 15, Subpart B: 2014**
- **ANSI C63.4: 2014**

This verification is part of the full test report(s) and should be read in conjunction with it. The referred Test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the essential requirements in the specified FCC standard.
This Verification does not imply assessment of the production of the product.

Manager
Aug. 11, 2015

This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant. Directives have to be observed.
Tel: 400-788-9558 0755-33019988 Http://www.bctc-lab.com Http://www.btc-lab.com

Shenzhen BCTC Technology Co.,Ltd.
A.Floor 3, 44 Building, Tanglang Industrial Park B,
Taoyuan Street, Nanshan District, Shenzhen, China

Certificate of Compliance

Certificate Number: BCTC-150809705

Applicant : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Manufacturer : **Shenzhen Industrial Computer System Co., Ltd.**
5th Floor, Building A1, Bao Shan Industrial area, Mei Long Av, Longhua Town, Baoan District, Shenzhen City, P.R.China

Product : **Mini computer**

Trademark : 英康仕

M/N : **NIS-H897**
ENC-H897

Test Standard : **IEC62321-1:2013**

The EUT described above has been consolidated by us and found in compliance with the council RoHS directive－2011/65/EU. It is possible to use CE marking to demonstrate the compliance with this RoHS Directive.

Manager
Aug. 11, 2015

This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and relevant. Directives have to be observed.
Tel: 400-788-9558 0755-33019988 Http://www.bctc-lab.com Http://www.btc-lab.com

操作系统支持

支持 Win7, Win8,WES7, Win CE 7.0, and Linux

1.5 其他功能

- 电源开关、电源指示灯
- 1-255秒的看门狗

1.6 机械尺寸

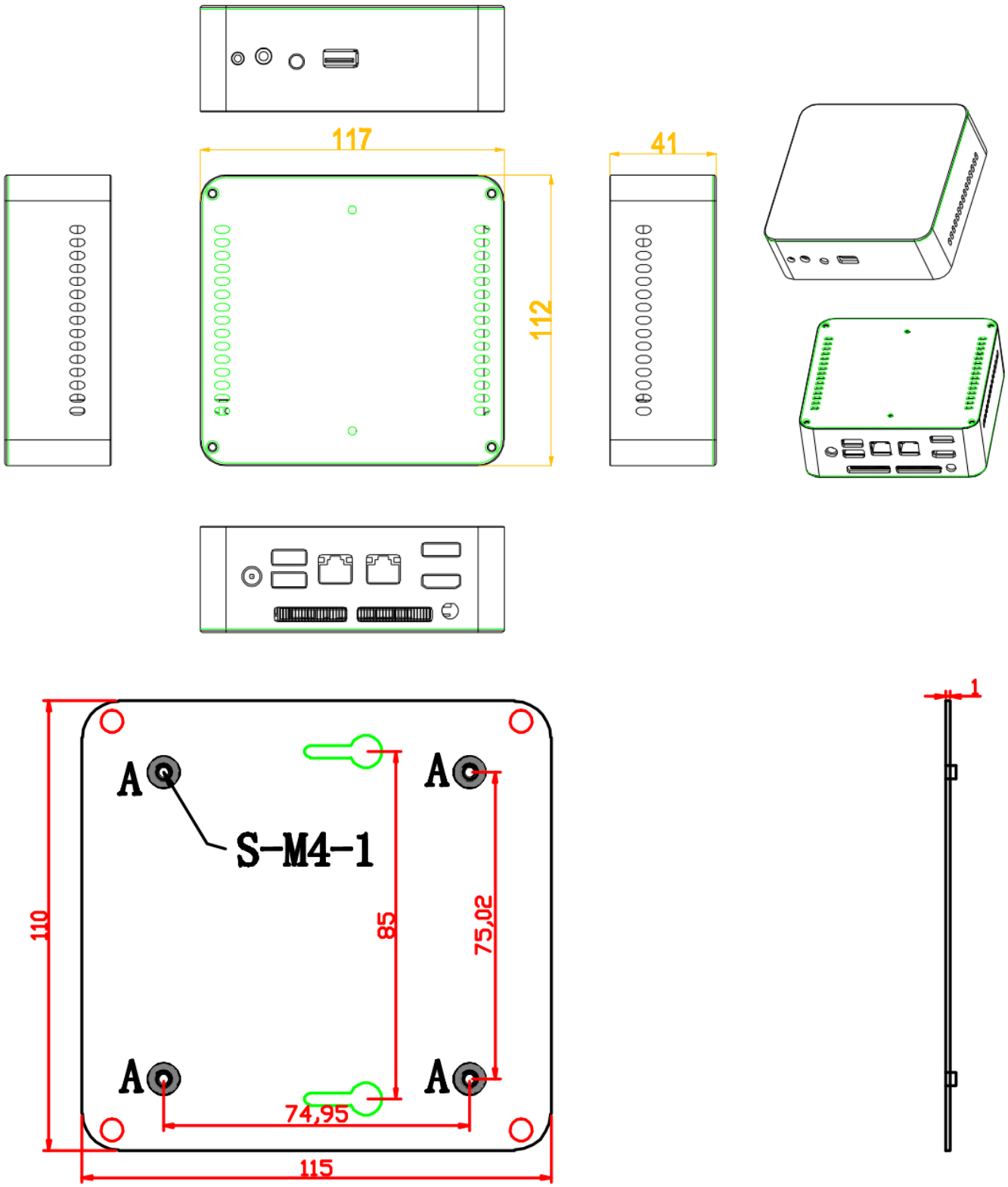


Figure 1.7 NIS-H897 mechanical dimension drawing

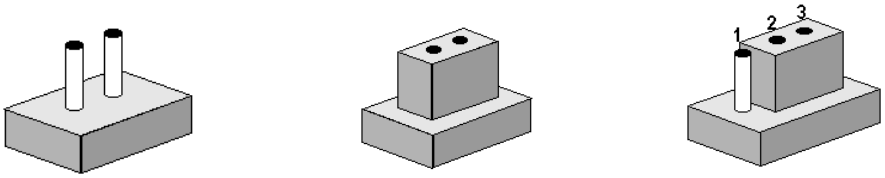
第 2 章

硬件安装

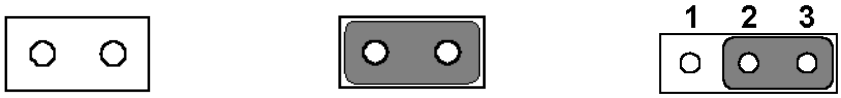
2.1 跳线和设备安装

2.1.1 跳线说明

板卡可以通过设置跳线进行配置。跳线是用来连通电路的金属桥。它包括 2个金属针脚和一个跳线帽（里面是金属夹片，外部是起保护作用的塑料套）。跳线帽可套住针脚将其连成通路。移走跳线帽则会断开线路。有时，一个跳线具有 3个针脚，分别为针 1、2、3。这种情况下，用户可以任意选择连接针脚 1、2或者针脚 2、3。



设备的跳线设置如下图所示.



2.1.2 Jumper Setting

JCMOS CMOS 清除

Part Number

Description Pin Header 1x3Pin 2.54mm DIP & Jumper 2.54mm

Setting	Function	
1-2 On (Default)	Normal	
2-3 On	Clear BIOS	

警告！ 请在设置跳线或清除 CMOS 前关闭电源，以防损坏设备。再次接通电源前，请将跳线设置为由电池供电。

2.1.3 NIS-H897 I/O Indication

Figure 2.1.3 NIS-H897 mechanical dimension drawing

2.2 外部 I/O 接口和引脚定义

音频接口 AUDIO and MIC

Part Number

Description AUDIO Socket PJ-3220 AUDIO 和 MIC 5P DIP

Pin	Signal	Pin	Signal
提供线路输出和线路输入2合1串口。			

电源开关 Power Button

Part Number

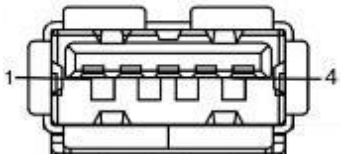
Description Power Button LED PTCT-07-A 5P 7Pin DIP

NIS-H897 带一个电源开关按钮，前面板带有LED指示灯，可用于指示其打开状态。

USB USB2.0 White Port with Front I/O panel

Part Number

Description Single USB Port Type-AFemale90°9Pin+2DIP



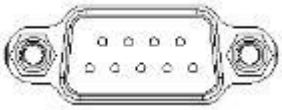
Pin	Signal	Pin	Signal
1	USB Power	2	USB_PN0
3	USB_PP0	4	GND
5	USB3.0_RN4	6	USB3.0_RX+
7	GND	8	USB3.0_TX-
9	USB3.0_TX+	10	GND
11	GND		

1. 提供了1个USB接口，支持完全即插即用和热插拔功能，可最多连接 127个外部设备。USB 接口符合USB UHCI, Rev. 2.0 标准。USB 接口支持即插即用功能，允许用户随时连接或断开设备，而不必关闭计算机。
2. USB端口提供最大1A电流的负载能力。

COM 显示接口 DB9 Com Option

Part Number

Description CONN DB9 DR5.08 Male R/A DIP 9 NPB



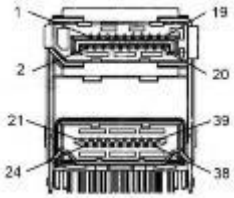
Pin	Signal	Pin	Signal
1	RX2	2	RX1
3	TX1	4	GND
5	GND	6	TX2
7	HRTS#1	8	HCTS#1
9	NC		

1. 此DB9包括了2个RS232串口，支持最大115200bps速率。
2. 其中Pin2/3/5/7/8为5线制COM1 RS232 Port
3. 其中Pin1/4/6为3线制COM2 RS232

HDMI 显示接口 Dual HDMI Port

Part Number

Description CONN Dual HDMI 38P(6 排)+4J+3 DIP-45 NPB



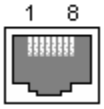
Pin	Signal	Pin	Signal
1	NC	2	NC
3	NC	4	NC
5	NC	6	GND
7	GND		
A1	HDMI_DATA2_P	B1	HDMI1_DATA2_P
A2	GND	B2	GND
A3	HDMI_DATA2_N	B3	HDMI1_DATA2_N
A4	HDMI_DATA1_P	B4	HDMI1_DATA1_P
A5	GND	B5	GND

A6	HDMI_DATA1_N	B6	HDMI1_DATA1_N
A7	HDMI_DATA0_P	B7	HDMI1_DATA0_P
A8	GND	B8	GND
A9	HDMI_DATA0_N	B9	HDMI1_DATA0_N
A10	HDMI_CLK_P	B10	HDMI1_CLK_P
A11	GND	B11	GND
A12	HDMI_CLK_N	B12	HDMI1_CLK_N
A13	NC	B13	NC
A14	NC	B14	NC
A15	HDMI_SCL	B15	HDMI1_SCL
A16	HDMI_SDA	B16	HDMI1_SDA
A17	GND	B17	GND
A18	HDMI_PWR	B18	HDMI1_PWR
A19	HDMI_HPD	B19	HDMI1_HPD

以太网接口 RJ45 Giga LAN

Part Number

Description RJ45 Port with Active/link state LED



Pin	Signal	Pin	Signal
1	MID0+	2	MID0-
3	MID1+	4	MID1-
5	CTREF	6	CTREF
7	MID2+	8	MID2-
9	MID3+	10	MID3-
11	LED_GREEN+	12	LED_GREEN-
13	LED_YELLOW+	14	LED_YELLOW-
15	GND	16	GND
1	MID0+	2	MID0-
3	MID1+	4	MID1-
5	CTREF	6	CTREF
7	MID2+	8	MID2-
9	MID3+	10	MID3-
11	LED_GREEN+	12	LED_GREEN-
13	LED_YELLOW+	14	LED_YELLOW-

1、提供了2个Realtek 8111E PCI-E 10/100/1000 Mb / s端口。

2、支持局域网唤醒和PXE。

USB USB3.0 Port

Part Number

Description Double USB Port AF90° 22Pin DIP

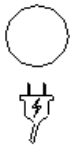
Pin	Signal	Pin	Signal
1	VCC	2	PORT6#
3	PORT6#	4	GND
5	RXDN3	6	RXDP3
7	GND	8	SSTX3-
9	SSTX3+		
S1	GND	S2	GND
S3	GND	S4	GND

3. 提供了2个USB接口，支持完全即插即用和热插拔功能，可最多连接 127个外部设备。USB接口符合USB UHCI, Rev. 3.0 标准。USB 接口支持即插即用功能，允许用户随时连接或断开设备，而不必关闭计算机。
4. USB端口提供最大1A电流的负载能力。

电源输入接口 DC-POWER-JACK

Part Number

Description DC-POWER-JACK DIP-6



Pin	Signal	Pin	Signal
1	DC	2	GND

NIS-H897带一个支持12-19V DC外部电源输入的插孔。

Chapter 3

BIOS Settings

3.1 BIOS Overview

BIOS (Basic Input and Output System) is solidified in the flash memory on the motherboard. Main functions including: initialize system hardware, set operating status of the system components, adjust operating parameters of the system components, diagnose the functions of the system components and report failures, provide hardware operating and controlling interface for the upper level software system, guide operating system etc.. BIOS provides users with a parameters for users, control power management mode and adjust the resource distribution of system device.

Enter BIOS Setup

- After powering on the system, press <Del> or <ESC> to enter BIOS setup when see post logo or post message.

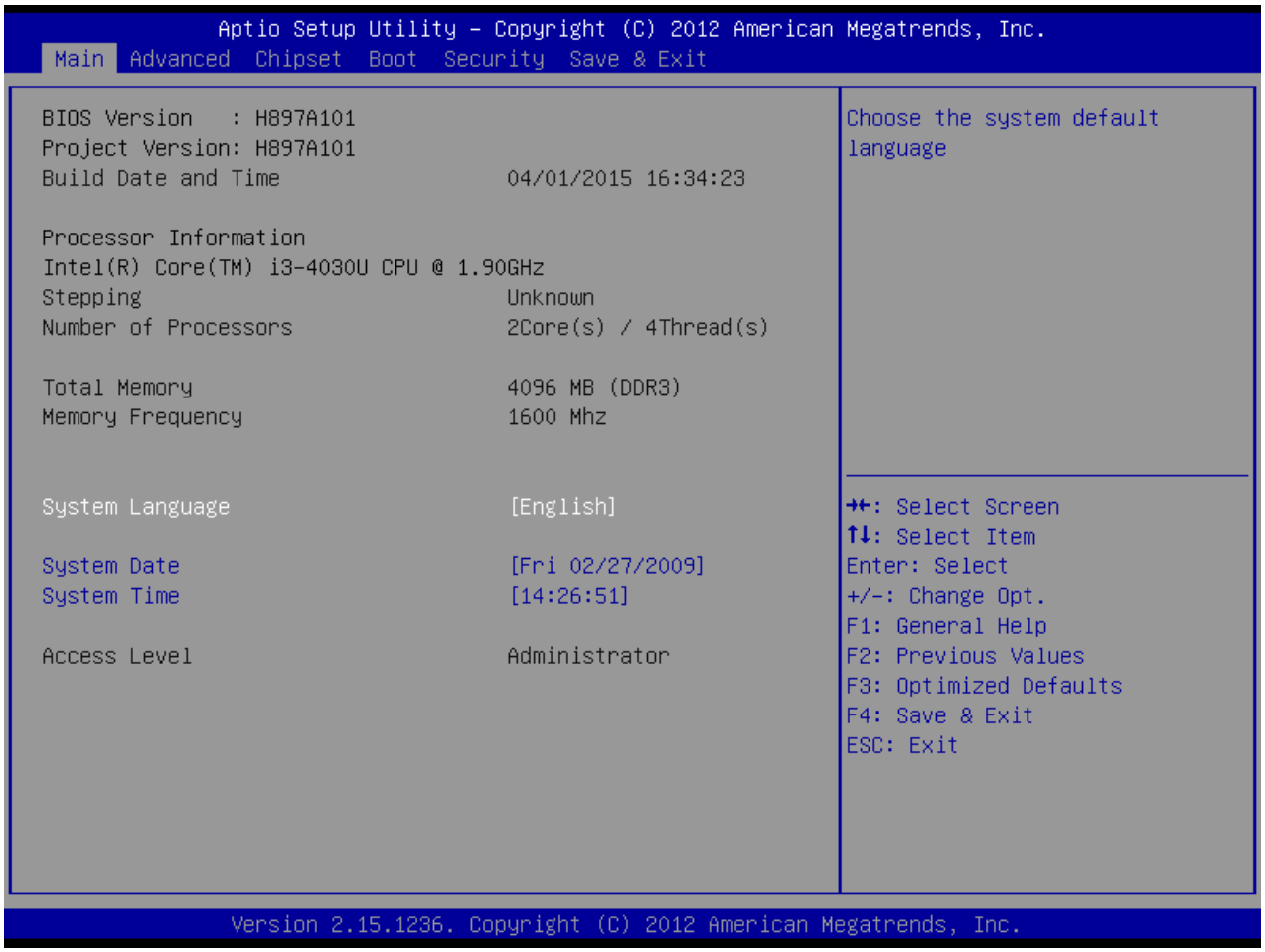
The available keys for the Menu screen are:

- Select Menu: <←> or <→>
- Select Item: <↑> or <↓>
- Select Field: <Tab>
- Change Fielsssd: <+> or <->
- Help: <F1>
- Load Defaults <F3>
- Save & Exit: <F4>
- Exits the Menu: <Esc>

NOTE!

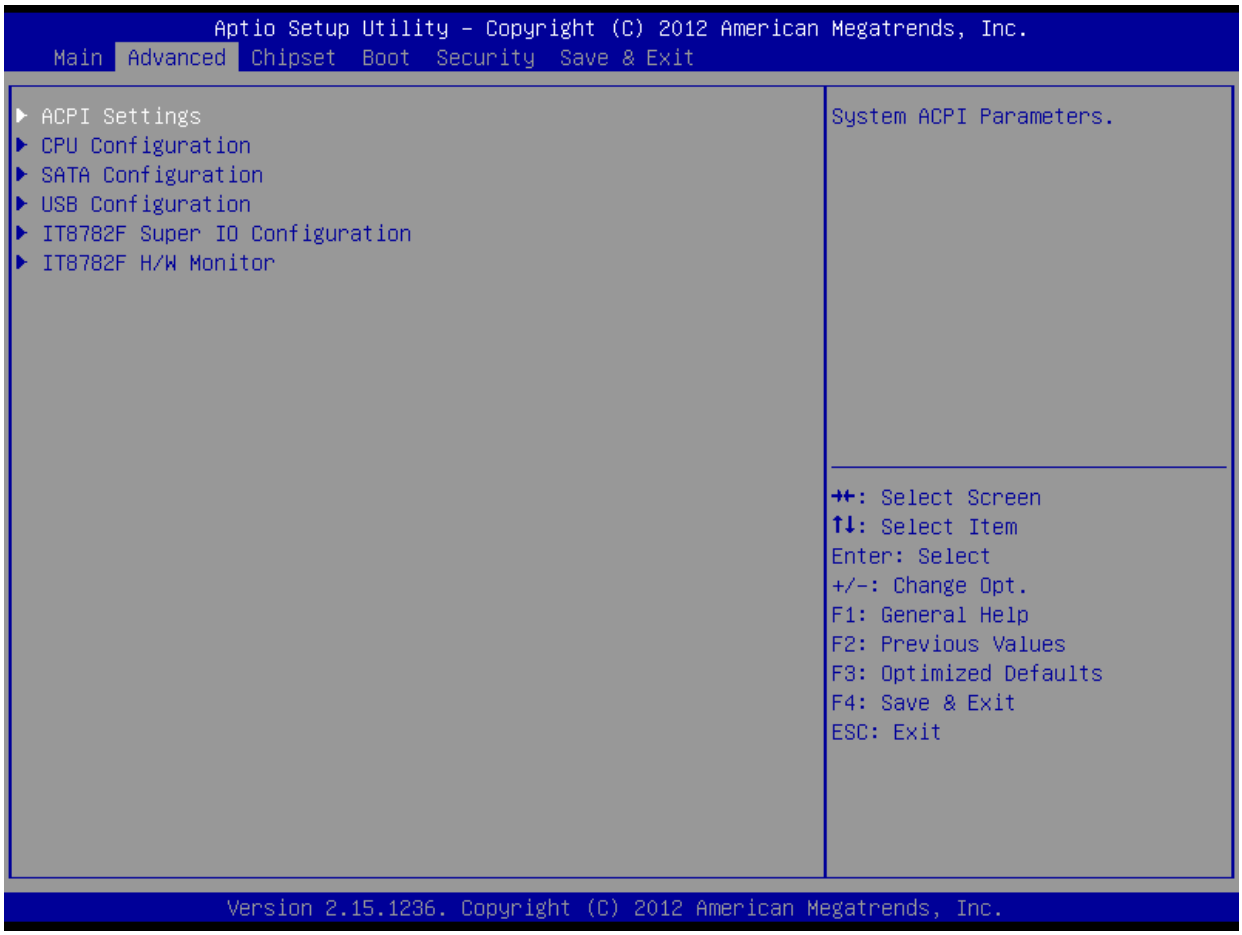
BOIS setting will affect computer performance directly. Improper parameter setting would cause damage to the computer; it may even unable to power on. Please use internal default value of BIOS to restore the system. Our company is constantly updating BIOS, so the setup interface may varies sometimes. The default options bellow are just for reference only.

3.2 Main Menu



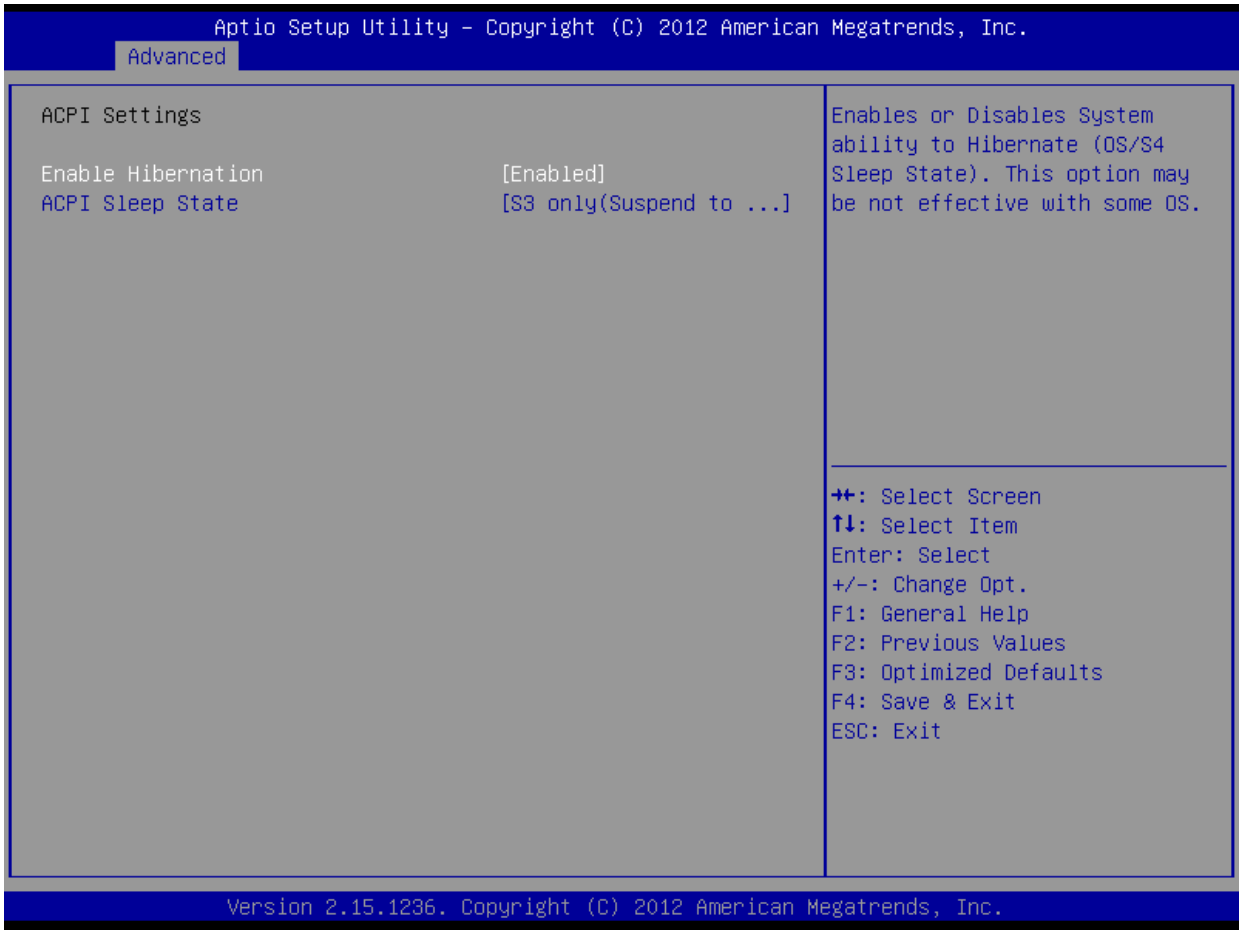
- BIOS Information (read only): To display BIOS info, including Project Name, Build Date ect.
- Processor Information: To display the basic Processor Information
- Total Memory: To display the Total Memory
- Memory Frequency: To display the Frequency Memory is running
- System Date: Set the system date
- System Time: Set the system time

3.3 Advanced Menu



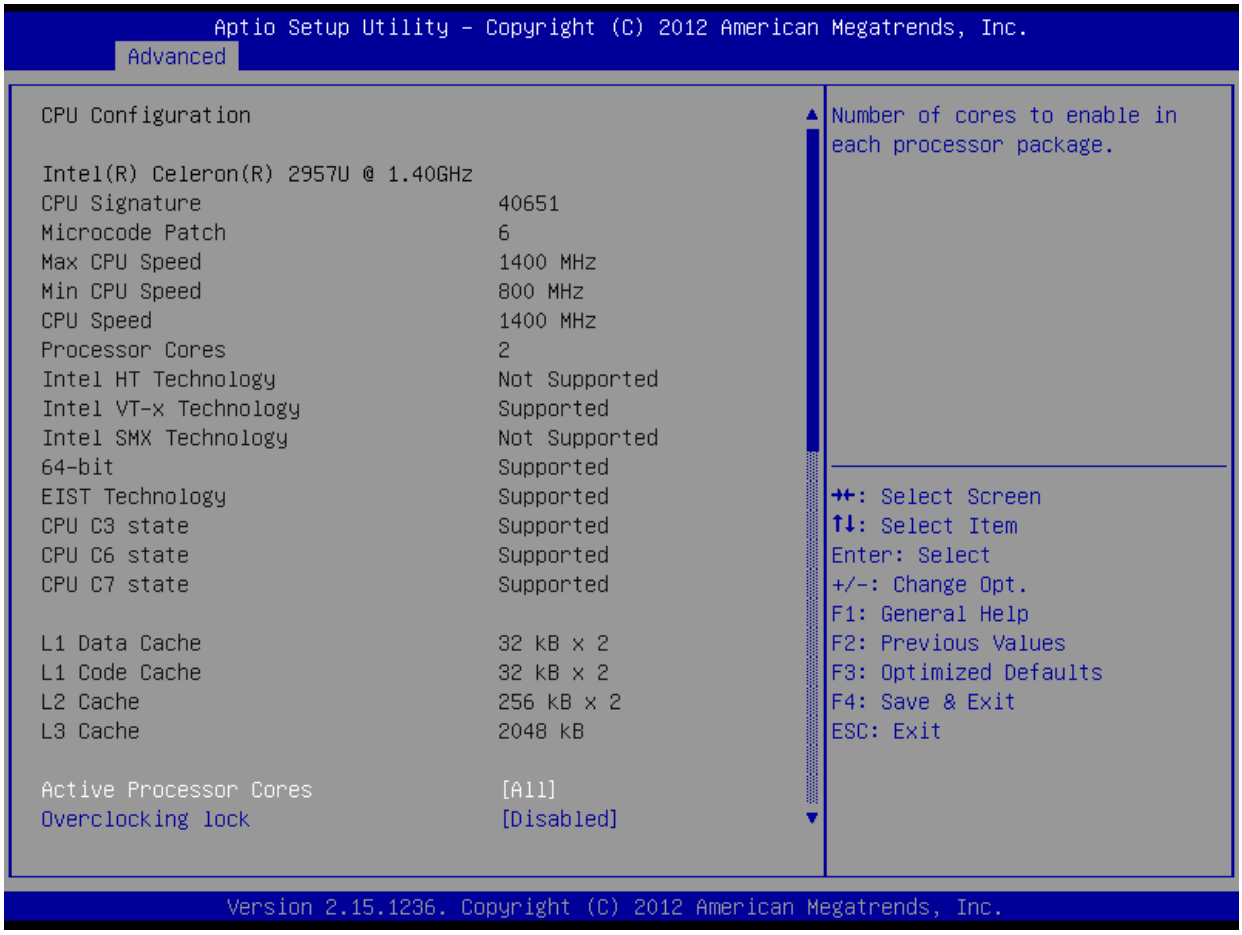
- ACPI Settings.
- CPU Configuration.
- SATA Configuration.
- USB Configuration.
- Super IO Configuration.
- H/W Monitor.

3.3.1 ACPI Settings



- Enable Hibernation: Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS..
- ACPI Sleep State: Select the ACPI state used for system suspend.(S3 state) .

3.3.2 CPU Configuration



- Show the detail information of the processor and setting for it.

3.3.3 SATA Configuration

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
Advanced

SATA Controller(s)                    [Enabled]          Enable or disable SATA Device.
SATA Mode Selection                   [AHCI]
SATA Controller Speed                 [Default]

Serial ATA Port 0                     Empty
  Software Preserve                   Unknown
  Port 0                              [Enabled]
  Hot Plug                            [Disabled]
  External SATA                       [Disabled]
  SATA Device Type                    [Hard Disk Drive]
  Spin Up Device                      [Disabled]
  Device Sleep                        [Disabled]
  SATA DEVSLEP Idle Timeout Config    [Disabled]
Serial ATA Port 1                     Empty              →←: Select Screen
  Software Preserve                   Unknown            ↑↓: Select Item
  Port 1                              [Enabled]          Enter: Select
  Hot Plug                            [Disabled]         +/-: Change Opt.
  External SATA                       [Disabled]         F1: General Help
  SATA Device Type                    [Hard Disk Drive]  F2: Previous Values
  Spin Up Device                      [Disabled]         F3: Optimized Defaults
  Device Sleep                        [Disabled]         F4: Save & Exit
  SATA DEVSLEP Idle Timeout Config    [Disabled]         ESC: Exit
Serial ATA Port 2                     Empty
  Software Preserve                   Unknown
  Port 2                              [Enabled]

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

- SATA Controller(s): Enable or disable SATA Device.
- SATA Mode Selection: Determines how SATA controller(s) operate.
- SATA Controller Speed: Indicates the maximum speed the SATA controller can support.
- Serial ATA Port X(0-3): Show the sata device information detected on this port
- Port X(0-3) : Enable or Disable this sata port

3.3.4 USB Configuration

```
Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced

USB Configuration                                   Enables Legacy USB support.
                                                    AUTO option disables legacy
USB Devices:                                        support if no USB devices are
      1 Drive, 1 Keyboard, 1 Hub                    connected. DISABLE option will
                                                    keep USB devices available
Legacy USB Support                  [Enabled]       only for EFI applications.
USB3.0 Support                      [Enabled]
XHCI Hand-off                       [Enabled]
EHCI Hand-off                       [Disabled]
USB Mass Storage Driver Support     [Enabled]

USB hardware delays and time-outs:
USB transfer time-out               [20 sec]        →←: Select Screen
Device reset time-out               [20 sec]        ↑↓: Select Item
Device power-up delay               [Auto]          Enter: Select
                                                    +/-: Change Opt.
Mass Storage Devices:                               F1: General Help
KingstonDataTraveler 2.01.00        [Auto]          F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```
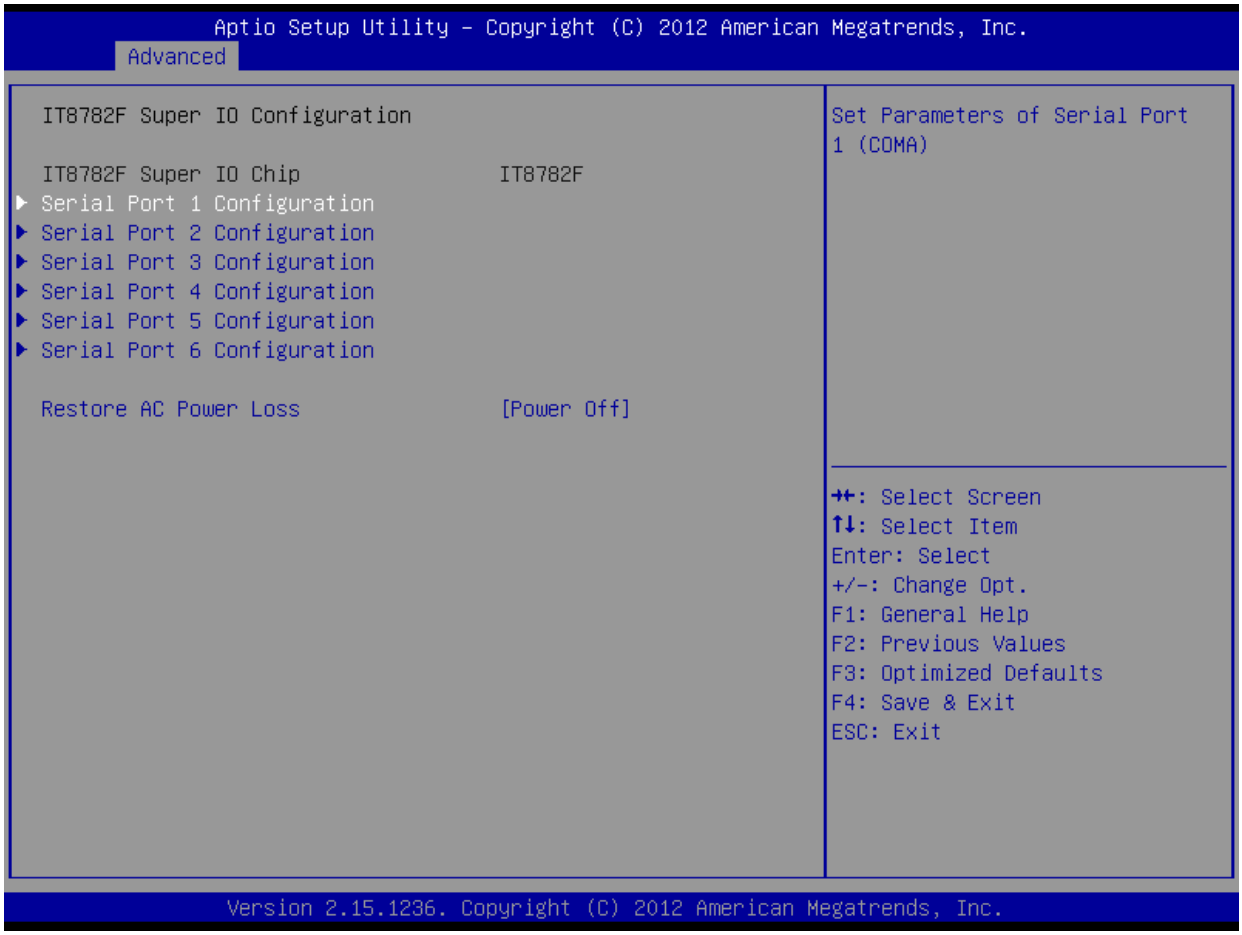

- Legacy USB support:
  1. Enables support for legacy USB keyboard.
  2. Auto option disables legacy support if no USB devices are connected.
  3. DISABLE option will keep USB devices available only for EFI applications.
- USB3.0 Support: Enable/Disable USB3.0 (XHCI) Controller support.
- XHCI Hand-off:
  1. This is a workaround for OSes without XHCI hand-off support.
  2. The XHCI ownership change should be claimed by XHCI driver.
- EHCI Hand-off:
  1. This is a workaround for OSes without EHCI hand-off support.
  2. The EHCI ownership change should claim by EHCI driver.
- USB Mass Storage Driver Support: Enable/Disable USB Mass Storage Driver Support.

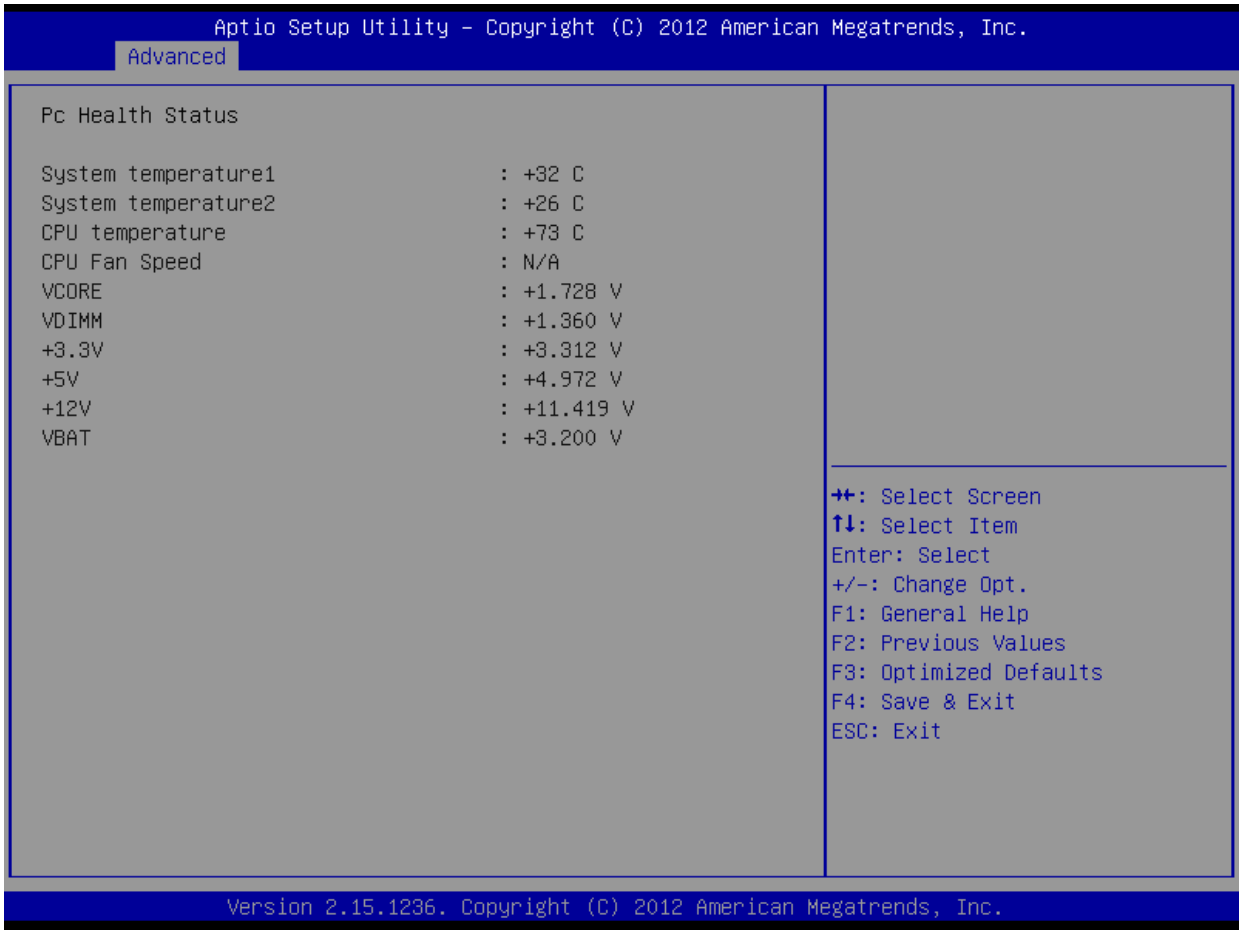
- USB transfer time-out: The time-out value for Control, Bulk, and Interrupt transfers.
- Device reset time-out :USB mass storage device Start Unit command time-out.
- Device power-up delay: Maximum time the device will take before it properly reports itself to the Host Controller.

3.3.5 Super IO Configuration



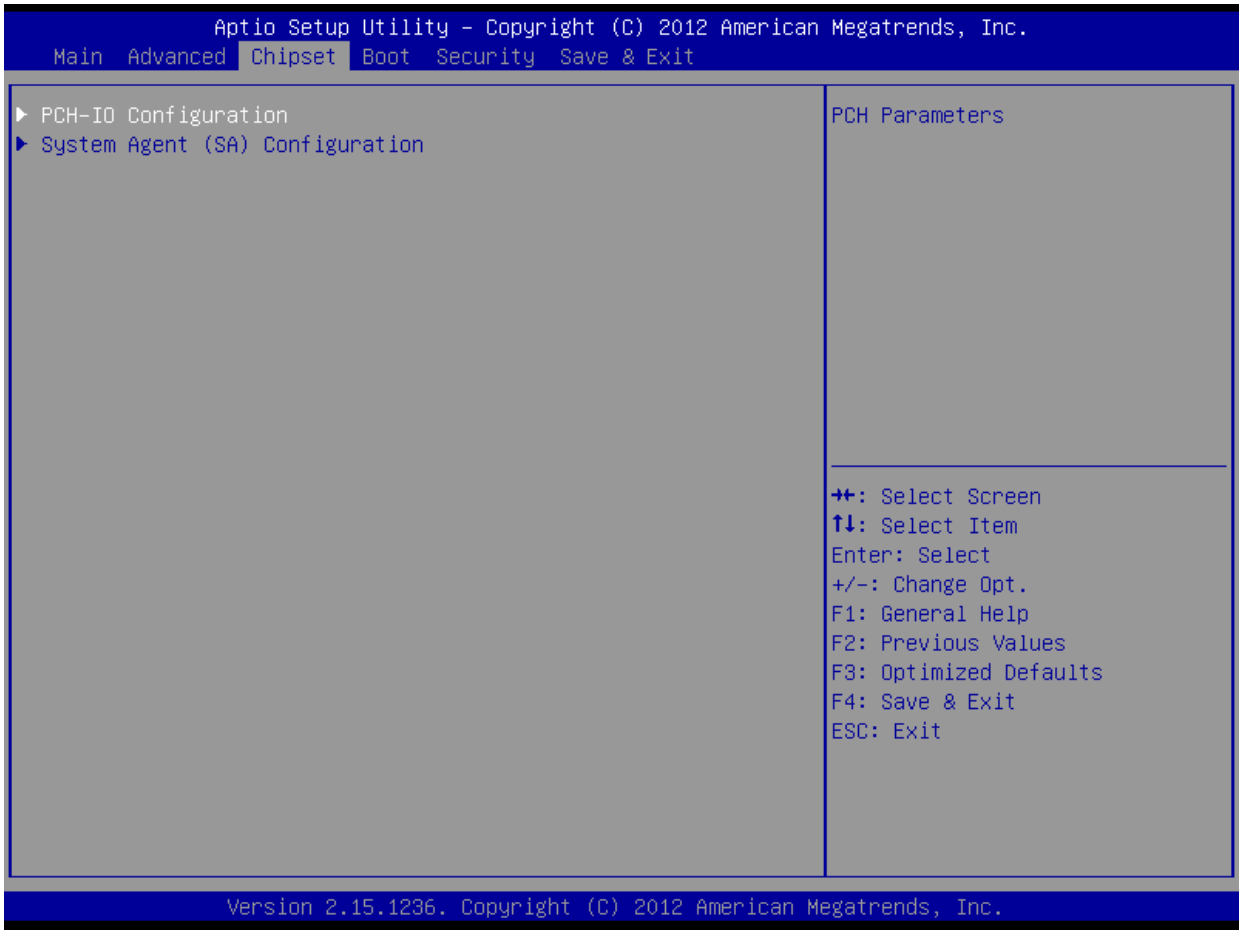
- Super IO Chip: Read only, to display Super IO chipset model.
- Serial Port 1-6 Configuration: 6 COM setup, including interruption and default address.
- Restore AC Power Loss: Specify what state to go to when power is re-applied after a power failure (G3 state)..
  1. Power on: System will always power on when restore AC power
  2. Power Off: System will not power on when restore AC power
  3. Last State: whether power on depend on the state when Power Loss

3.3.6 H/W Monitor



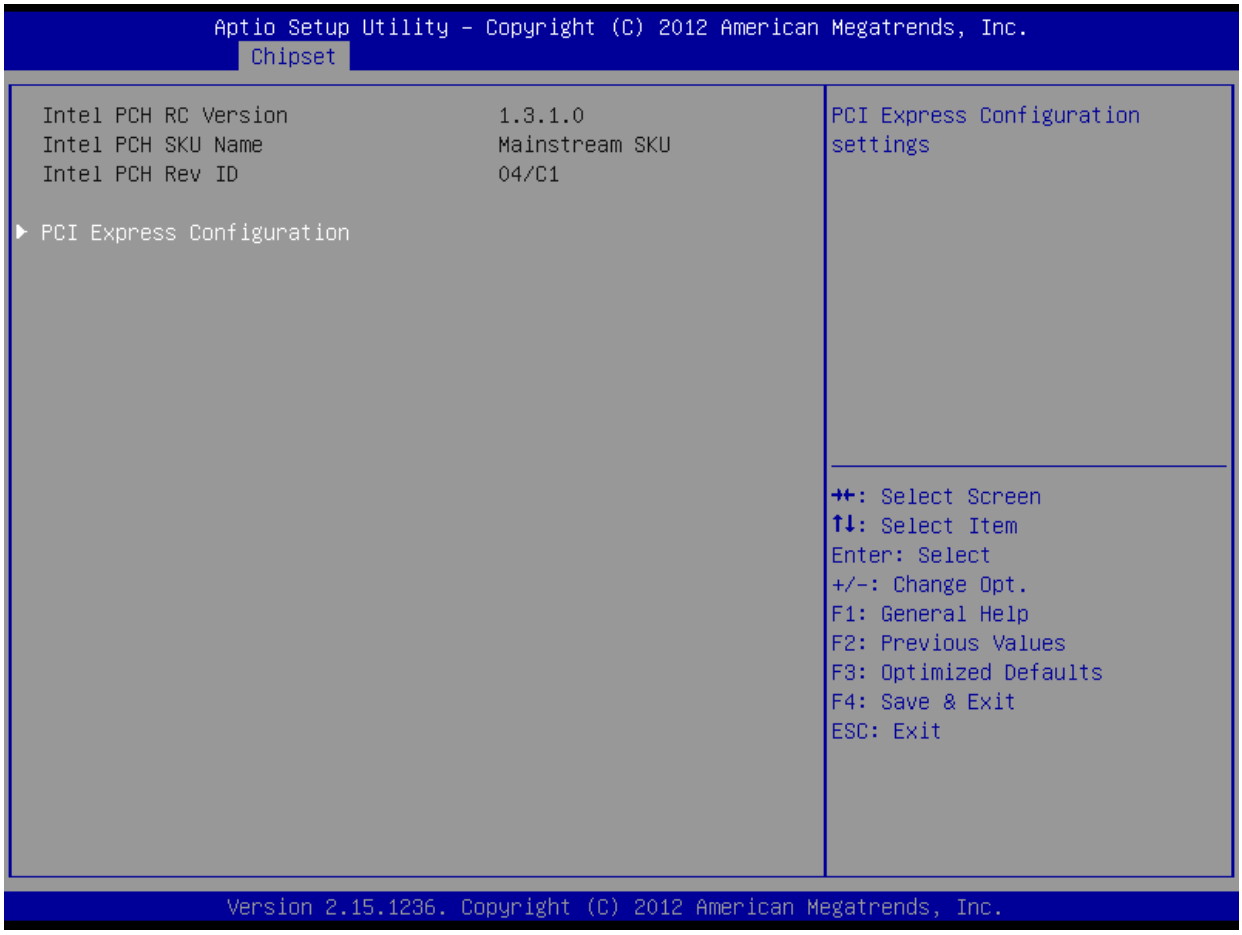
- PC Health Status: read only, including CPU/System temperature, Fan Speed, VCORE, VDIMM, +3.3V , +5V , +12V, VBAT.

3.4 Chipset



- PCH-IO Configuration: PCH Parameters
- System Agent (SA) Configuration: System Agent (SA) Parameters

3.4.1 PCH-IO Configuration

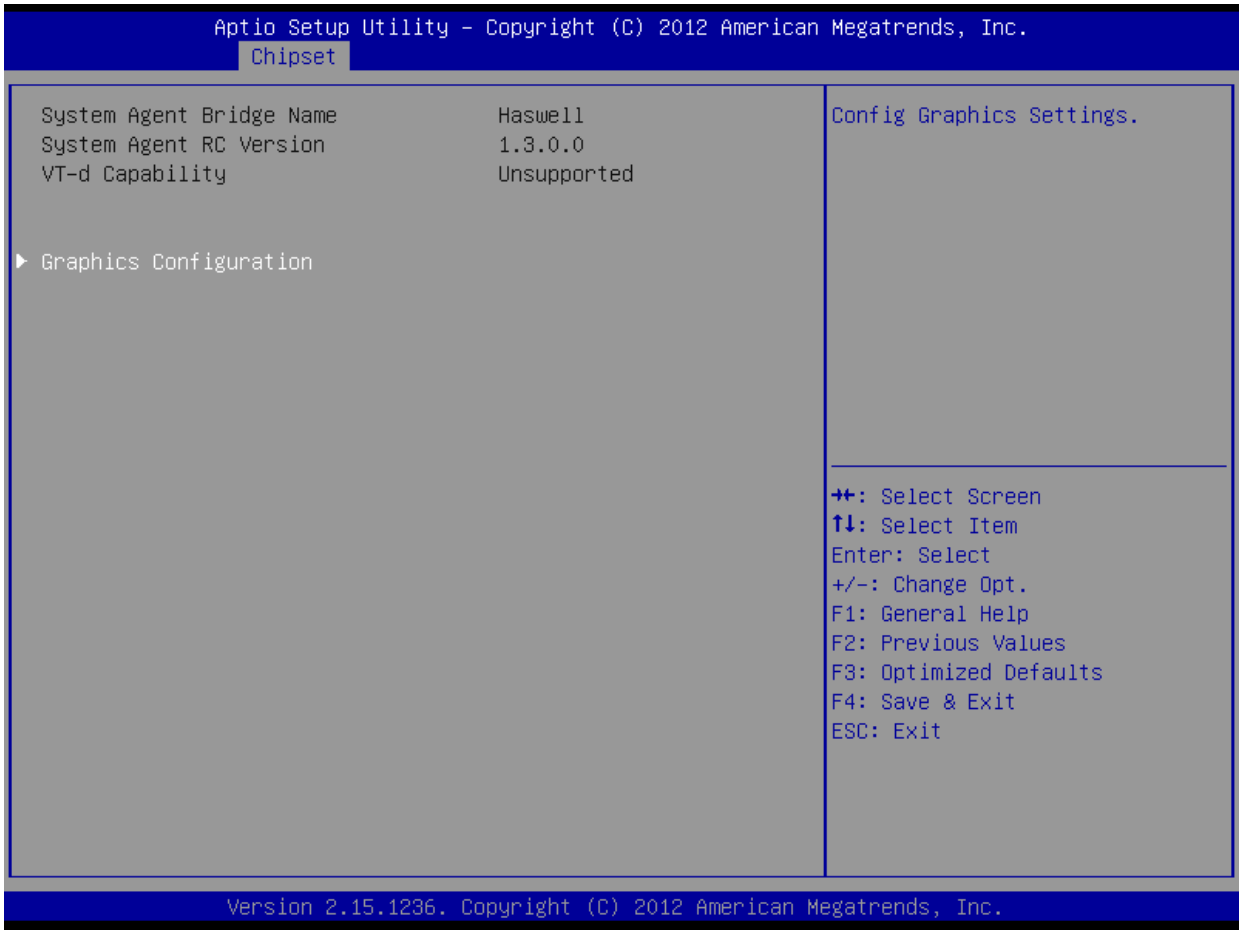


- PCI Express configuration: PCI Express Root Port 1-6 Setting

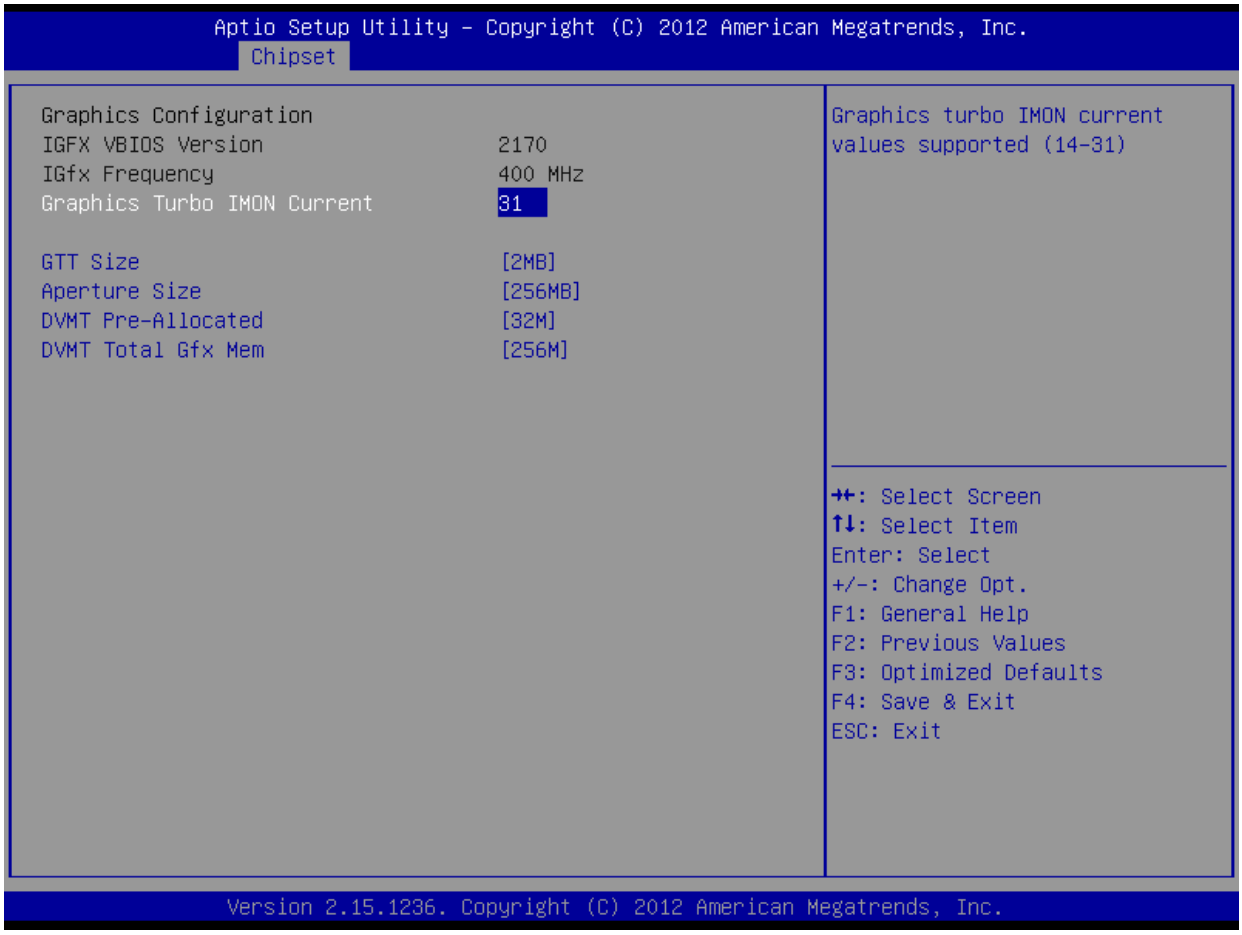
```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                    Chipset

  PCI Express Configuration                    PCI Express Root Port 1
                                               Settings.
▶ PCI Express Root Port 1
▶ PCI Express Root Port 2
▶ PCI Express Root Port 3
▶ PCI Express Root Port 4
▶ PCI Express Root Port 5
▶ PCI Express Root Port 6

                                               →←: Select Screen
                                               ↑↓: Select Item
                                               Enter: Select
                                               +/-: Change Opt.
                                               F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit

          Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

```
Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                    Chipset

  PCI Express Root Port 1          [Enabled]     Control the PCI Express Root
  ASPM Support                     [Auto]        Port.
  L1 Substates                     [L1.1 & L1.2]
    URR                            [Disabled]
    FER                            [Disabled]
    NFER                           [Disabled]
    CER                            [Disabled]
    CTO                            [Disabled]
    SEFE                           [Disabled]
    SENFE                          [Disabled]
    SECE                           [Disabled]
    PME SCI                        [Disabled]
    Hot Plug                       [Disabled]
  PCIe Speed                       [Auto]        →←: Select Screen
  Detect Non-Compliance Device     [Disabled]    ↑↓: Select Item
  Extra Bus Reserved               0             Enter: Select
  Reseved Memory                   10            +/-: Change Opt.
  Prefetchable Memory              10            F1: General Help
  Reserved I/O                     4             F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit

          Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

3.4.2 System Agent (SA) Configuration

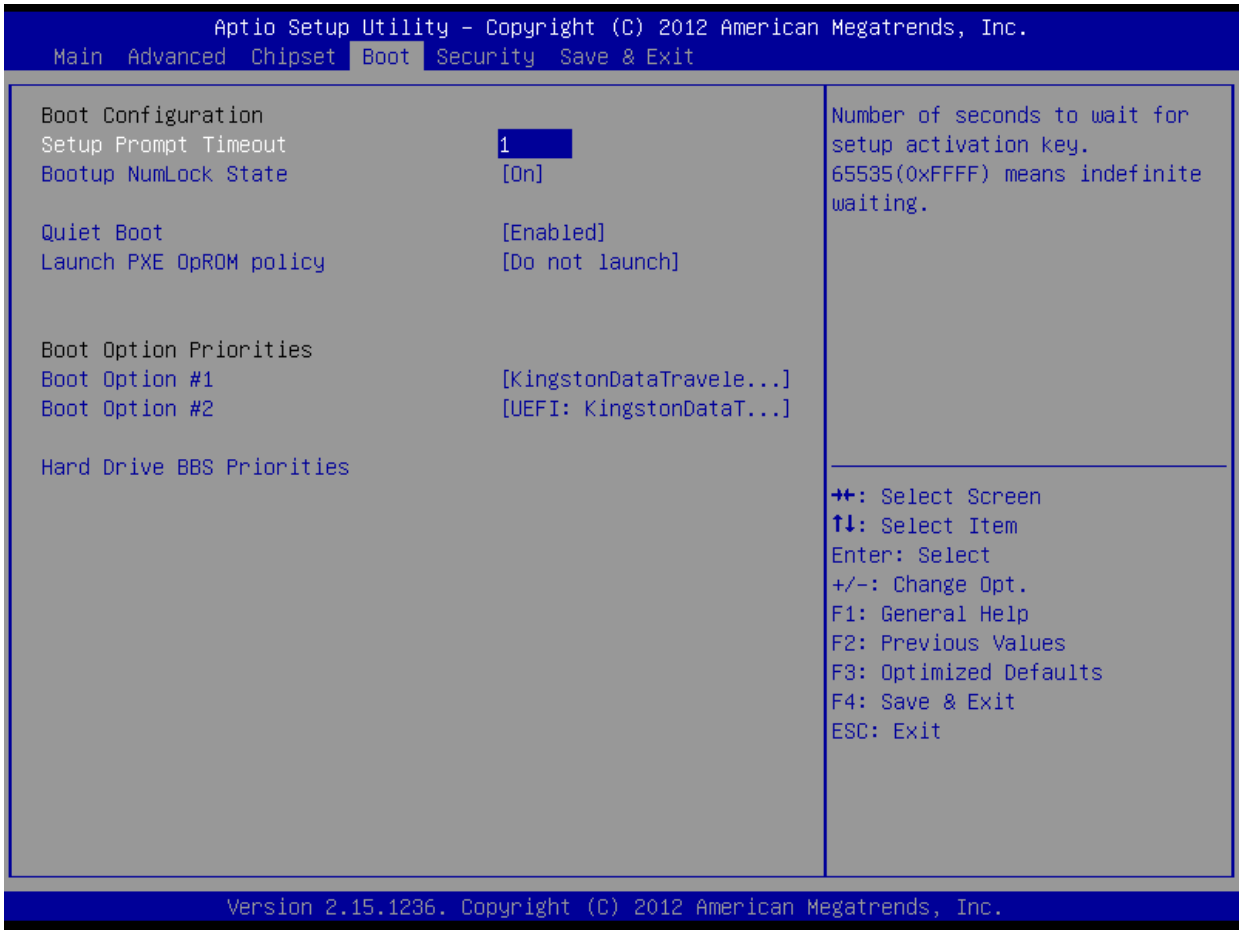


- Graphics Configuration : Graphics Device Settings.



- Graphics Turbo IMON Current: Graphics turbo IMON current values supported (14-31)
- GTT Size: Select the GTT Size that is pre-allocated to support the Internal Graphics Translation Table.
- Aperture Size: Select the size of Internal graphics translation window(GMADR), which is used to access graphics memory allocated using the graphics translation table.
- DVMT Pre-Allocated: Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
- DVMT Total Gfx Mem: Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

3.5 Boot Menu



3.5.1 Boot Configuration

- Setup Prompt Timeout: Setup prompt timeout, to display waiting time.
- Boot up Num lock State: Select Power-on state for num lock, ON/OFF;
- Quiet Boot: Configure whether to display the content of customized Logo.
  1. Disabled: Displays normal POST messages;
  2. Enabled: Displays OEM Logo (no POST messages);
- Launch PXE OpROM policy: Enable or Disable Lan PXE Boot Function;

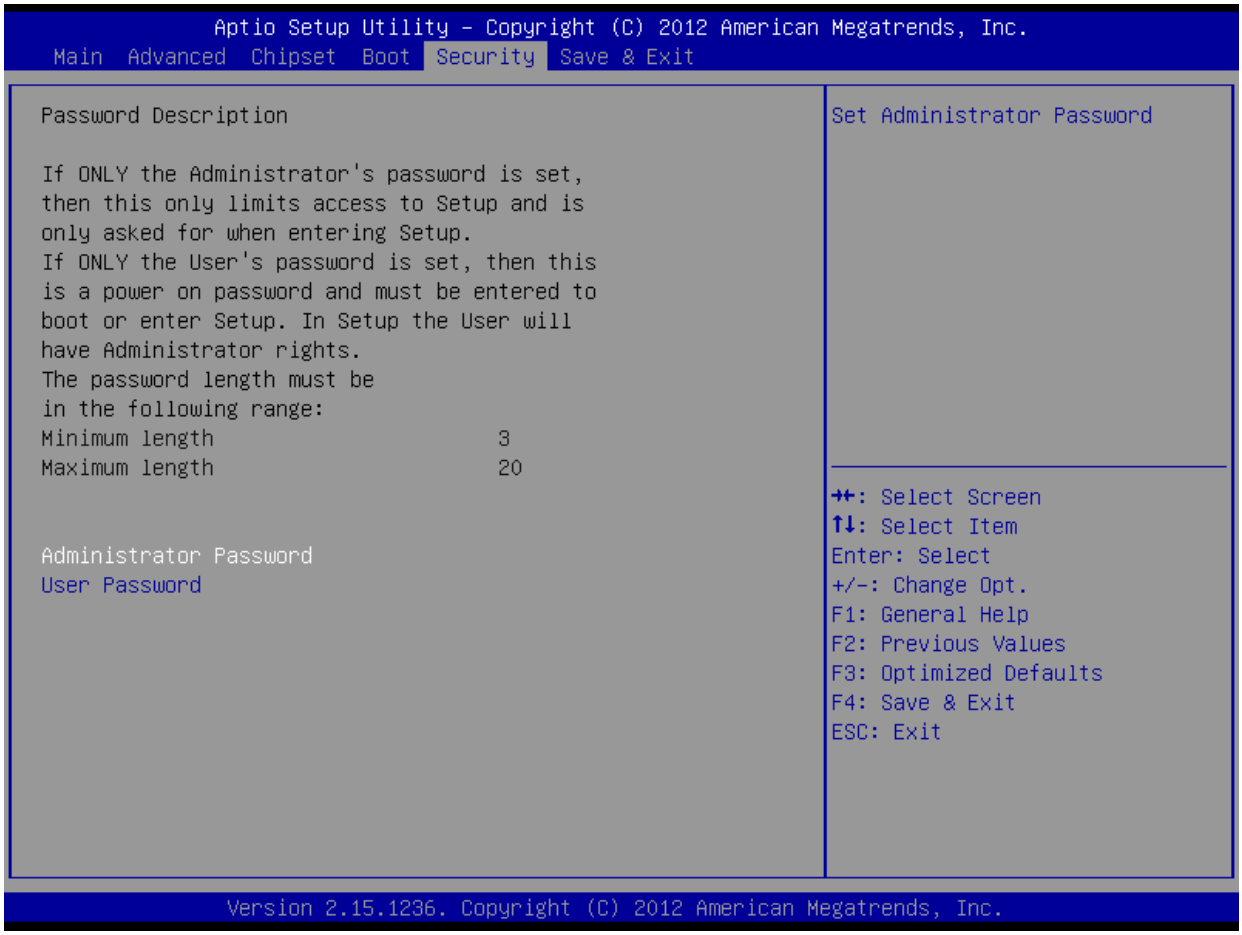
3.5.2 Boot Option Priorities

- Configure the preference of the start-up sequence for devices when the system starts up.

Note: When pressing <F7> while booting it is possible manually to select boot device.

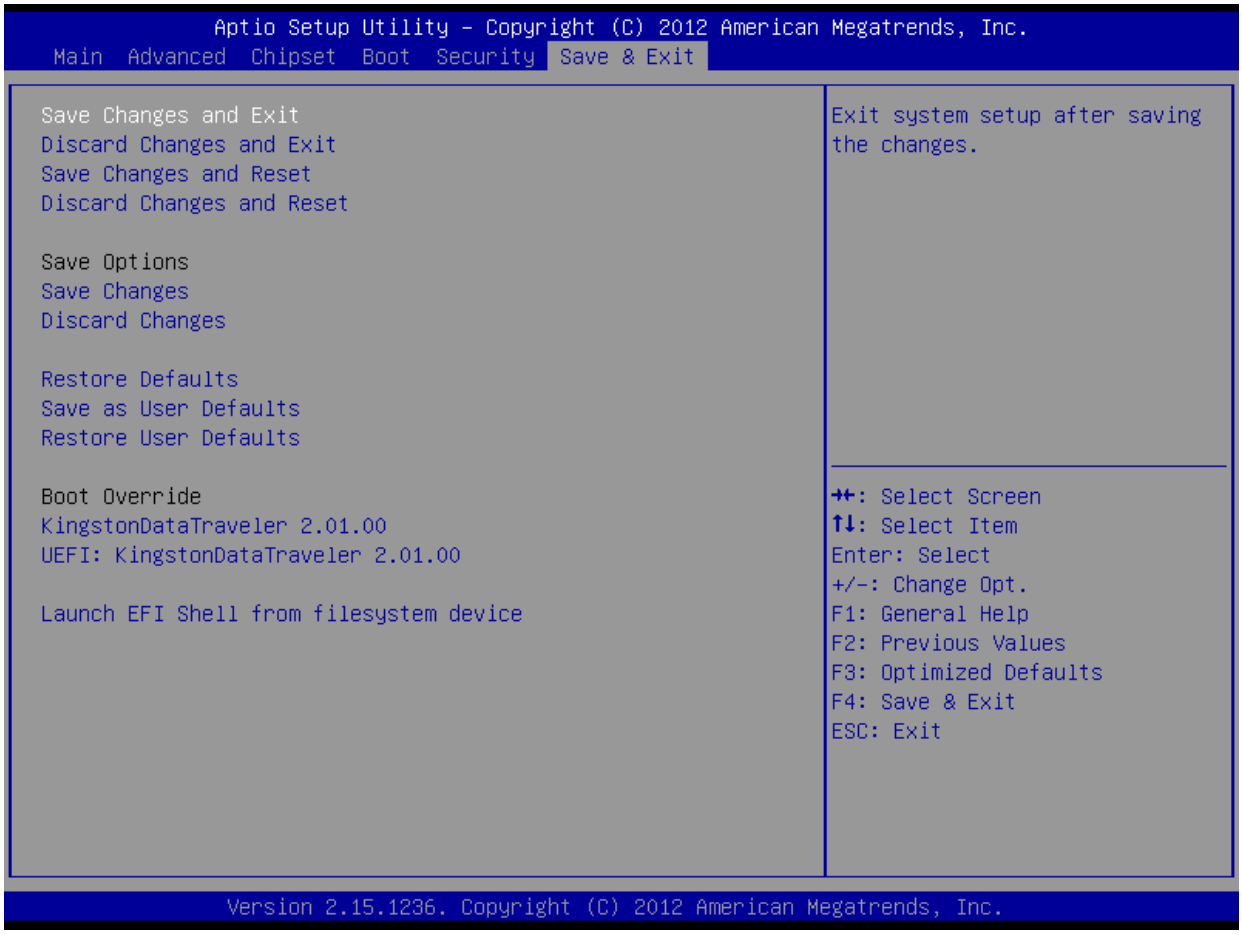
1. Boot Option #1: Setting first boot device.
2. Boot Option #2: Setting second boot device.
3. Hard Drive BBS Priorities: Setting the boot priority of Hard Disk

3.6 Security Menu



- Change Administrator / User Password:
- After pressing change Administrator/User password and input new password in the dialogue box, this column will indicate that the user's password has been installed.

3.7 Save & Exit



- **Save Changes and Exit**
  This item allows you to exit system setup after saving the changes.
- **Discard Changes and Exit**
  This item allows you to exit system setup without saving any changes.
- **Save Changes and Reset**
  This item allows you to reset the system after saving the changes.
- **Discard Changes and Reset**
  This item allows you to rest system setup without saving any changes.
- **Save Changes**
  This item allows you to save changes done so far to any of the options.
- **Discard Changes**
  This item allows you to discard changes done so far to any of the options.
- **Restore Defaults**
  This item allows you to restore/load default values for all the options.
- **Save as User Defaults**
  This item allows you to save the changes done so far as user defaults.
- **Restore User Defaults**
  This item allows you to restore the user defaults to all the options.
- **Boot Override**
  Boot device select can override your boot priority.

第 4 章

软件安装

4.1 软件服务介绍

提供基于以下方面的软件服务

- Windows7, Windows8,Linux 操作系统下的驱动
- WES7 的裁剪定制服务;
- 看门狗例程
- GPIO 例程
- BIOS 升级和定制化服务

4.2 Watchdog program example

A watchdog timer (abbreviated as WDT) is a hardware device which triggers an action, e.g. rebooting the system, if the system does not reset the timer within a specific period of time. The WDT program example provides developers with functions such as starting the timer, resetting the timer, and setting the timeout value if the hardware requires customized timeout values.

Please contact our service personnel for program example source code and packaging EXE executable file.

4.2.1 WDT Programming Model

You can use the tool WDT.exe under DOS to test the watchdog function.
Usage:
WDT -? : Show help screen
WDT -S Value: Set Watchdog as seconds mode, and Value is the time
WDT -M Value: Set Watchdog as minutes mode, and Value is the time
Example:
WDT -S 5 : Set Watchdog as 5 seconds
WDT -M 2 : Set Watchdog as 2 minutes

第 5 章

索引: A

A.1 系统 I/O 地址位

Addr.	Range
000-01F	DMA
020-021	Interrupt
040-043	Timer/Counter
060-06F	8042
070-07F	Real-time
080-09F	DMA
0A0-0BF	Interrupt
0C0-0DF	DMA
274-279	ISAPNP read data port
2F8-2FF	COM2
3B0-3DF	VgaSave
3F8-3FF	COM1
400-4D1	Interrupt
500-77F	Motherboard
A79-A79	ISAPNP read data port
B78-B7F	Motherboard

Table 5.1: System I/O Ports

A.2 1st MB Memory Map

Addr. Range (Hex)	Device
00000000h - 00003FFFh	Motherboard resources
000A0000h - FEBFFFFFh	PCI bus
FEC00000h - FEC00FFFh	Motherboard resources
FED00000h - FED003FFh	High precision event timer
FED14000h - FED19FFFh	System board
FED1C000h - FEE00FFFh	Motherboard resources
FF000000h - FFFFFFFFh	Intel 82802 firmware Hub Device

Table 5.2: 1st MB Memory Map

A.3 DMA 通道占用

Channel	Function
0	Available
1	Available
2	Available
3	Available
4	Direct memory access controller
5	Available
6	Available
7	Available

Table 5.3: DMA Channel Assignments

A.4 中断占用

Interrupt#	Interrupt source
IRQ0	System timer
IRQ1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
IRQ3	COM2
IRQ4	COM1
IRQ8	System CMOS/real time clock
IRQ9	Microsoft ACPI-Compliant System
IRQ11	SMBUS Controller
IRQ16	Network /USB
IRQ17	Network
IRQ18	USB
IRQ19	SATA
IRQ22	HDA
IRQ23	USB

Table 5.4: Interrupt Assignments

Contact Us

www.szics.com

深圳市英康仕电子有限公司

Shenzhen Industrial Computer System Co.,Ltd.

Tel.: 400-6566-510 / 0755-61887555

Add.:深圳市龙华新区梅龙路民治街道宝山工业区 A1 栋 5 楼