EPI-1817CLD2NA

EPI2.0 标准全长卡

EPI2.0 Standard Full-size Card

Version: C00

法律资讯

警告提示

为了您的人身安全以及避免财产损失，必须注意本手册中的提示。人身安全的提示用一个警告三角表示，仅与财产损失有关的提示不带警告三角。警告提示根据危险等级由高到低如下表示。

⚠危险
表示如果不采取相应的小心措施，将会导致死亡或者严重的人身伤害。

⚠警告
表示如果不采取相应的小心措施，可能导致死亡或者严重的人身伤害。

⚠小心
带有警告三角，表示如果不采取相应的小心措施，可能导致轻微的人身伤害。

注意
表示如果不注意相应的提示，可能会出现不希望的结果或状态。

合格的专业人员

本文件所属的产品/系统只允许由符合各项工作要求的合格人员进行操作。其操作必须遵照各自附带的文件说明，特别是其中的安全及警告提示。 由于具备相关培训及经验，合格人员可以察觉本产品/系统的风险，并避免可能的危险。

EVOC产品

请注意下列说明：

⚠警告
EVOC产品只允许用于目录和相关技术文件中规定的使用情况。如果要使用其他公司的产品和组件，必须得到EVOC推荐和允许。正确的运输、储存、组装、装配、安装、调试、操作和维护是产品安全、正常运行的前提。必须保证允许的环境条件。必须注意相关文件中的提示。

免责声明

本公司保留对此手册更改的权利，产品后续相关变更时，恕不另行通知。对于任何因安装、使用不当、超规格使用而导致的直接、间接、有意或无意的损坏及隐患概不负责。

订购产品前，请向经销商详细了解产品性能是否符合您的需求。

保修条款：

产品保修期两年。用户如另有要求，以双方签署的合同为准。

欲获更多信息请访问：

研祥网站：http://www.evoc.com

研祥技术支持邮箱：support@evoc.com（国际）、support@evoc.cn（国内）

免费客服热线： 4008809666

文档说明

本文档适用范围

本文档适用于EVOC EPI-1817CLD2NA型号。

约定

在本文档中，术语“本板”或“产品”有时特指EVOC EPI-1817CLD2NA产品。

说明

安全相关注意事项

为避免财产损失以及出于个人安全方面的原因，请注意本入门指南中关于安全方面的信息。 文中使用警告三角来指示这些安全信息，警告三角的出现取决于潜在危险的程度。

历史

本说明书发布版本：

版本	时间
C00	2016.1

安全须知

ESD 指令

可以通过下面的标签来识别含有静电敏感设备 (ESD, electrostatic sensitive devices) 的模块：

在操作含有 ESD 的模块时，请严格遵守下面提到的准则：

- 在操作含有 ESD 的模块之前，请务必导去身体上的静电（例如，通过触摸接地物体）。
- 所有设备和工具必须不能带有静电。
- 在安装或卸下含有 ESD 的模块之前，请务必要拔出电源插头并卸下电池。
- 只能通过其边缘来操作装配有 ESD 的模块。
- 请勿触摸含有 ESD 的模块上的任何连接器针脚或导体。

目　录

1.产品介绍

1.1 概述

本主板采用无风扇设计，使用 Intel 凌动双核 CPU（板载）嵌入式平台：D2550/N2600 CPU+ NM10 方案实现。符合 EVOC EPI2.0 总线规范，主要功能：板载 2GB DDRIII 内存，1 个 DDRIII SO-DIMM 插槽（2G 扩展内存可选，针对 D2550 CPU 主板，最高支持 4G 内存）；支持 VGA、LVDS、DVI-D 输出，并可实现独立同步或异步双显；2 个 10/100/1000M 以太网控制器；2 个 SATA 硬盘接口(其中 1 个支持标准 SATA、另一个支持 SATA DOM<D2550 主板>或者 MSATA<N2600 主板>)；8 个 USB2.0 高速接口；6 个串口（2×RS-232/RS-422/RS-485，4×RS-232）+LPC1 转 4COM 扩展接口；1 个并口；1 个 HD Audio 接口；PS/2 键盘鼠标接口。

EPI-1817CLD2NA 系列主板型号：

EPI-1817CLD2NA-D2550，板载 D2550 CPU，板载 2GB DDR3 内存，同时预留一条 204Pin，支持 NON-ECC 的 DDR3 单 Rank X8 位宽，双面 4 颗粒 Raw card B 类型的内存扩展插槽，最大内存支持 4GB，支持 SATA-DOM。

EPI-1817CLD2NA-N2600，板载 N2600 CPU，板载 2GB DDR3 内存，支持 MSATA。

1.2 机械尺寸、重量与环境

- 外形尺寸：338.6mm（长）× 126.9mm（宽）×28.9mm（高）
- 净重：0.46Kg
- 工作环境：

  温度：-10℃～60℃（D2550）

  -10℃～70℃（N2600）

  湿度：40%～95%（非凝结状态）
- 贮存环境：

温度：-20℃～80℃；

湿度：40%～95%（非凝结状态）

1.3 典型功耗

典型功耗是基于以下配置闲置状态的数值。

CPU： INTEL(R)ATOM(TM)CPU D2550@1.86GHZ

内存： 2GB/DDR3/SDRAM/PC3-8500/SAMSUNG/M471B5773CHS-CF8

硬盘： 希捷/500G

操作系统： WINXP

- +5V@ 0.641A；+5%/-3%
- +3.3V@ 0.596 A；+5%/-3%
- +12V@ 0.048 A；+5%/-3%
- +12V P4@ 0.54A；+5%/-3%
- +5VSB@ 0.156A；+5%/-3%

1.4 电源选型参考功耗

参考功耗基于以下环境的数值，扩展卡及其它外加设备功耗在电源选型时需按规格要求增加。

CPU： INTEL(R)ATOM(TM)CPU D2550@1.86GHZ

内存： 2GB/DDR3/SDRAM/PC3-8500/SAMSUNG/M471B5773CHS-CF8

硬盘： 希捷/500G

操作系统： WINXP

运行软件： Burintest7.1 1015

- +5V@ 0.864A；+5%/-3%

- +3.3V@ 0.608A；+5%/-3%
- +12V@ 0.048A；+5%/-3%
- +12V P4@ 0.78A；+5%/-3%
- +5VSB@ 0.156A；+5%/-3%

1.5 微处理器

板载Intel® Atom™ D2550（双核）/N2600（双核）处理器。封装为Micro-FCBGA11。

1.6 芯片组

Intel® ATOM™ D2550/N2600 + NM10。

1.7 系统内存

EPI-1817CLD2NA-N2600 支持板载 2GB DDR3 内存。

EPI-1817CLD2NA-D2550 支持板载2GB DDR3内存及提供1条204Pin DDR3 SO-DIMM内存插槽，支持Un-buffered ECC，单条内存插槽可支持最大内存容量 2 GB，总支持最大内存容量4GB。注：扩展内存SO-DIMM1必须使用 Raw card B 类型的DDR3 SO-DIMM 单Rank X8位宽，双面4颗粒内存条，最大容量为2GB。

例：KINGSTONE KVR1333D3S9/1G 1.5V 1RX8 DDR3 双面4颗粒

INNODISK 2GB 1600 LV 1RX8 DDR3 双面4颗粒

Transcend(创见) 2GB 1RX8 1333 DDR3双面4颗粒

1.8 显示功能

- 支持VGA、DVI-D、24位单通道LVDS显示；VGA、DVI-D支持热插拔功能；支持同步或异步的双显示输出；

- VGA支持最高分辨率及刷新率为1920×1200@60Hz； DVI-D支持最高分辨率及刷新率为1920×1200@60Hz。

注：关于 VGA+DVI-D 显示测试的设置：

1) 开机只接 VGA，不接 DVI 显示器，进入 XP 系统后再接上 DVI 显示器，DVI 显示器不会显示，原因：EMGD 驱动只会在操作系统加载显示驱动时，去侦测显示设备，驱动加载之后不会再去动态侦测显示设备，所以进系统后再接 DVI 显示器，会出现 DVI 不显示。此问题解决方法：

   A. 在 WinXP 启动过程中，进入系统之前，就接好 DVI，即 EMGD 驱动加载之前接上 DVI；

   B. 需要在 XP 桌面点击右键->属性->高级->Display Config 中设置，如下图中手动选择 DVI 显示输出；

2) 开机只接 DVI，进系统之后再接 VGA，可以实现 VGA+DVI 双显，因为驱动支持 VGA 热插拔。

1.9 网络功能

提供2个10/100/1000Mbps网络接口， LAN1可支持网络唤醒功能。

1.10 音频功能

采用HDA标准，支持MIC-IN/LINE-IN/LINE-OUT。

1.11 电源特性

采用ATX电源，支持S0、S1、S4、S5。

注：如需采用AT开机模式，请参看说明书做相应的跳线设置。

1.12 扩展总线

提供4个32位PCI插槽，兼容EPI 2.0总线标准，通过底板可扩展PCI和ISA接口。

1.13 Watchdog功能

- 支持 255 级，可编程按分或秒；
- 支持看门狗超时中断或复位系统。

1.14 操作系统

支持操作系统：WINCE/WINXP/WINXPE/WIN7/Linux。

1.15 I/O接口

- 提供 1 个并口，支持 SSP/EEP/ECP 工作模式；支持 BIOS 修改工作模式；
- 提供 6 个串口，其中 COM1、COM2 支持 RS-232/RS-422/RS-485 模式选择；
- 提供 1 个 SATA-DOM 接口 (EPI-1817CLD2NA-D2550)；
- 提供 1 个 SATA2.0 接口，支持热插拔功能；
- 提供 1 个 MSATA 接口 (EPI-1817CLD2NA-N2600)；
- 提供 8 个 USB2.0 接口；
- 提供 1 个 PS/2 键盘/鼠标接口；
- 提供 1 个 8 路数字 I/O 接口。

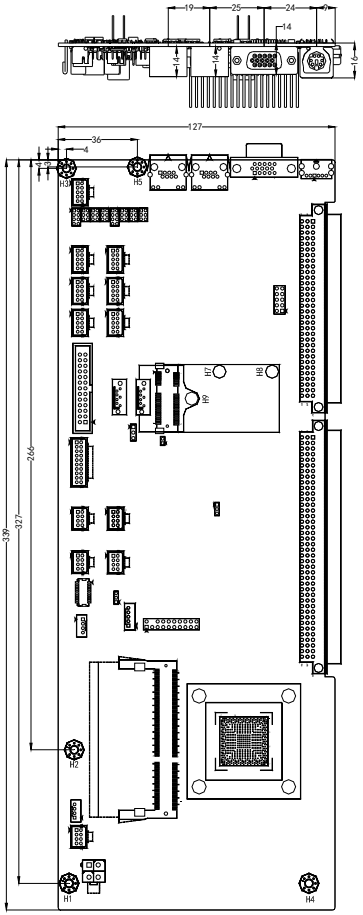
提示：如何识别报警声

1、长鸣声为系统内存出错。

2、短“嘀”一声为开机声。

2.安装说明

2.1 产品外形尺寸图

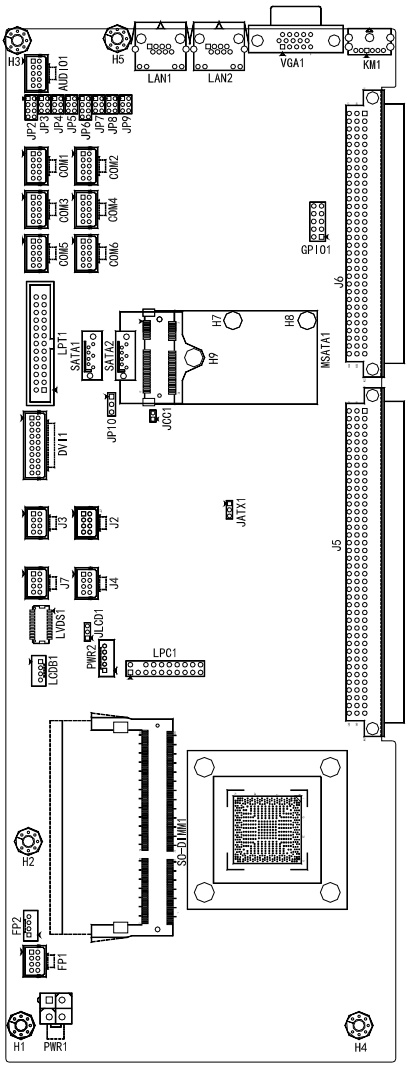


单位：mm

警告！

请务必选择合适的螺钉和使用正确的安装方法（包括板卡定位、CPU、散热器等安装），否则可能损坏板。此板推荐 H1～H5 使用 M3×6/GB/T 9074.4-1988 螺钉。

2.2 接口位置示意图

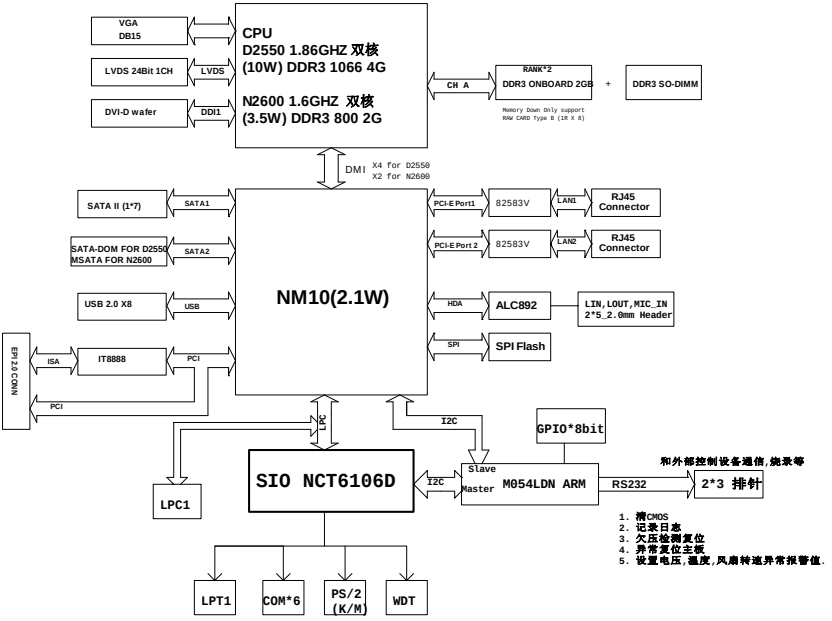

H3
H5
LAN1
LAN2
VGA1
KM1
AUDIO1
JP7
JP5
JP3
JP1
JP2
JP4
JP6
JP8
COM1
COM2
COM3
COM4
COM5
COM6
GPIO1
J6
LPT1
SATA1
SATA2
H7
H8
H9
MSATA1
JP10
JCC1
DVI1
J3
J2
JATX1
J5
J7
J4
LVDS1
LCD1
LCD61
PWR2
LPC1
SO-DIMM1
H2
FP2
FP1
H1
PWR1
H4

2.3 记录板卡的标识数据

注意
在维修时或失窃后，可凭借这些唯一的编号来识别板卡，请不要撕毁。

序列号：位于板卡上（如下图所示）

2.4 架构图



提示：如何识别跳线、接口第一脚

1、观察插头、插座旁边的文字标记，通常用“1”或加粗的线条或三角符号表示。

2、看看背面的焊盘，通常方型焊盘为第一脚。

2.5 跳线设置

1. JCC1：CMOS内容清除/保持设置（脚距：2.0mm）

CMOS由板上钮扣电池供电。清CMOS会导致永久性消除以前系统配置并将其设为原始（工厂设置）系统设置。其步骤:(1)关闭计算机，断开电源；(2)瞬间短接JCC1插针；(3)开计算机；(4)启动时按屏幕提示按键进入BIOS设置，重新加载最优缺省值；(5)保存并退出设置。设置方式如下：

	设置	功能
 JCC1	1-2 开路	正常工作状态（Default）
	1-2 短路	清除 CMOS 内容，所有 BIOS 设置恢复成出厂值

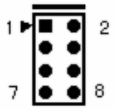
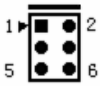
2. AT/ATX模式选择

通过组合设置JATX1选择主板AT工作模式或ATX工作模式：

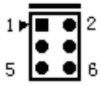
	设置	功能
 JATX1 （脚距：2.0mm）	1-2 短路	AT 模式
	2-3 短路	ATX 模式（Default）

3. 串口配置

可通过设置JP2～JP4、JP6～JP8(脚距: 2.0mm)并配合BIOS设置对COM1/COM2的串口模式进行配置。在COM1、COM2工作在RS-232和RS-422模式时，JP2和JP6的Pin7和Pin8需要断开短路帽。

	串口	管脚	信号名称		
			RS-232（Default）	RS-422	RS-485
 JP2/JP6	COM1	JP2	1-2	3-4	5-6/7-8
		JP3	1-3/2-4	3-5/4-6	3-5/4-6
		JP4	1-3/2-4	3-5/4-6	3-5/4-6
 JP3/JP4/JP7/JP8	COM2	JP6	1-2	3-4	5-6/7-8
		JP7	1-3/2-4	3-5/4-6	3-5/4-6
		JP8	1-3/2-4	3-5/4-6	3-5/4-6

4. JP5/JP9：COM1/COM2 RS-422/RS-485模式长距离传输设置

	设置	功能
 JP5/JP9 （脚距：2.0mm）	[3-5][4-6]短路	不用于长距离传输（Default）
	[1-3][2-4]短路	RS-485 模式
	2-4 短路	RS-422 模式

5. JP10:SATA2 Pin7用于SATA/DOM功能选择（脚距：2.54mm）

	设置	功能
 JP10	1-2 短路	SATA2 用于 SATA 数据接口或 Pin7(GND)SATA DOM 盘接口（Default）
	2-3 短路	SATA2 仅用于 Pin7 供电 DOM 盘接口

6. LCD工作电压选择（脚距：2.0mm）

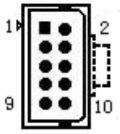
不同的LCD屏电压可能不同，本板提供了3.3V和5V两种电压选择，当所选择的LCD电压与所使用的LCD屏的工作电压一致时，LCD屏才能正常显示。

JLCDB1

设置	功能
1-2 短路	+3.3V(Default)
2-3 短路	+5V

2.6 串口

本板提供10个串口，管脚定义如下：



COM1～COM6
(脚距：2.0mm)

管脚	信号名称		
	RS-232 COM1～COM6	RS-485 COM1/COM2	RS-422 COM1/COM2
1	DCD#	DATA-	TXD-
2	RXD	DATA+	TXD+
3	TXD	NC	RXD+
4	DTR#	NC	RXD-
5	GND	GND	GND
6	DSR#	NC	NC
7	RTS#	NC	NC
8	CTS#	NC	NC
9	RI#	NC	NC
10	NC	NC	NC

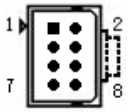
注：1、在RS-485模式下，数据收发方向为自动控制；

2、RS-232模式请在BIOS Setup相应菜单中选择“RS-232”选项，RS-485和RS-422模式时请选择“RS-485”选项。具体细节请参阅“BIOS功能介绍”部分内容；

3、COM1/COM2支持RS-232/RS-422/RS-485，COM3～COM6只支持RS-232；

4、串口必须安装Nuvoton的厂商驱动。

2.7 ATX电源开关及指示灯接口



FP1
（脚距：2.0mm）

管脚	信号名称	管脚	信号名称
1	PWRBTN#	2	GND
3	GND	4	RESET#
5	HDD_LED-	6	HDD_LED+
7	GND	8	PWR_LED+

2.8 SATA1 接口

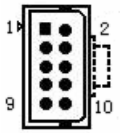
SATA1

管脚	信号名称
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

注：SATA2 可做标准SATA接口或SATA-DOM，需要通过JP10来选择。

2.9 音频接口

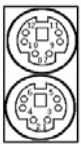
本板提供1个2×5Pin的音频接口。



AUDIO1
（脚距：2.0mm）

管脚	信号名称	管脚	信号名称
1	LOUT_R	2	LOUT_L
3	GND_AUDIO	4	GND_AUDIO
5	LIN_R	6	LIN_L
7	GND_AUDIO	8	GND_AUDIO
9	MIC_L	10	MIC_R

2.10 KB/MS接口

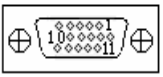


KM1

管脚	信号名称	管脚	信号名称
1	KB_DATA	7	MS_DATA
2	NC	8	NC
3	GND	9	GND
4	+5V	10	+5V
5	KB_CLK	11	MS_CLK
6	NC	12	NC

2.11 显示接口

1、本主板提供1个标准DB15 VGA接口，管脚定义如下：

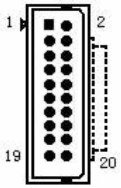


VGA1

管脚	信号名称	管脚	信号名称
1	Red	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DDCDATA
13	HSYNC	14	VSYNC
15	DDCCLK	-	-

2、 DVI-D接口

本主板提供1个2×10Pin wafer DVI接口(脚距：2.0mm)，管脚定义如下：

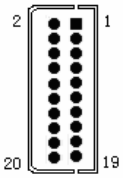


DVI1

管脚	信号名称	管脚	信号名称
1	DATA2-	2	DATA2+
3	GND	4	GND
5	DATA1-	6	DATA1+
7	GND	8	GND
9	DATA0-	10	DATA0+
11	GND	12	GND
13	CLK+	14	CLK-
15	+5V	16	HPDET
17	DDCDATA	18	DDCCLK
19	GND	20	GND

3、LVDS接口

本板提供1个双通道24bitLVDS接口（LVDS1）（脚距：1.0mm），使用单通道的18位/24位的LVDS屏时，LVDS数据线要接在LVDS1位置。管脚定义如下：



LVDS1

管脚	信号名称	管脚	信号名称
1	LVDSO_D0+	2	LVDSO_D0-
3	GND	4	GND
5	LVDSO_D1+	6	LVDSO_D1-
7	GND	8	GND
9	LVDSO_D2+	10	LVDSO_D2-
11	GND	12	GND
13	LVDSO_CLK+	14	LVDSO_CLK-
15	GND	16	GND
17	LVDSO_D3+	18	LVDSO_D3-
19	VDD	20	VDD

2.12 LCD背光控制接口（脚距：2.0mm JST）

LCDB1

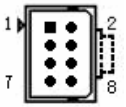
管脚	信号名称
1	+12V
2	LCD_BKLTCTL
3	LCD_BKLTEN
4	GND

注：LCD_BKLTCTL---背光控制（该信号由北桥直接输出，为PWM信号，电压幅值0V—3.3V，占空比在0%～100%之间）；

LCD_BKLTEN ---背光使能，高有效（此板该信号由北桥直接输出，CMOS输出，电压幅值为0V-3.3V）。

2.13 USB接口

本板提供4个2×5Pin插针USB接口（J2、J3、J4、J7 脚距：2.0mm），共可支持8个USB设备。

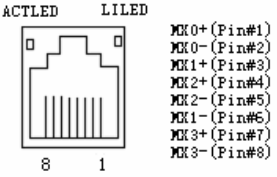


J2/J3/J4/J7

管脚	信号名称	管脚	信号名称
1	+5V_USB	2	+5V_USB
3	USB1_DATA-	4	USB2_DATA-
5	USB1_DATA+	6	USB2_DATA+
7	GND	8	GND

2.14 网络接口

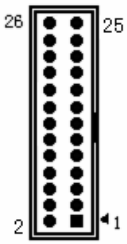
本板提供2个10/100/1000Mbps网络LAN1和LAN2。LAN1支持网络唤醒功能。ACTLED和LILED是以太网接口两边的绿色和双色LED，它们显示着LAN的活动指示状态和网络速度指示状态。请参考以下每一个LED的状态描述：



LAN1、LAN2

ACTLED （单色：绿色灯）	网络活动 指示状态		LILED （双色：橙绿双色）	网络速度 指示状态
			绿色	1000Mbps
闪烁	有数据传输		橙色	100Mbps
灭	无数据传输		灭	10Mbps

2.15 LPT接口(IDC连接器)

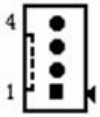


LPT1

（脚距：2.54mm）

管脚	信号名称	管脚	信号名称
1	STB#	2	AFD#
3	PD0	4	ERR#
5	PD1	6	INIT#
7	PD2	8	SLIN#
9	PD3	10	GND
11	PD4	12	GND
13	PD5	14	GND
15	PD6	16	GND
17	PD7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

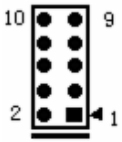
2.16 扬声器输出接口



FP2
（脚距：2.0mm）

管脚	信号名称
1	BUZ-
2	NC
3	GND
4	BUZ+

2.17 GPIO接口



GPIO1
（脚距：2.0mm）

管脚	信号名称	管脚	信号名称
1	INPUT0	2	OUTPUT0
3	INPUT1	4	OUTPUT1
5	INPUT2	6	OUTPUT2
7	INPUT3	8	OUTPUT3
9	GND	10	NC

注：出厂 GPIO Default 值为 TTL 输入/输出，输入输出信号的电压范围为 0～5V。

2.18 主板供电接口

1、4Pin CPU电源接口（脚距：4.2mm）

PWR1

管脚	信号名称
1	GND
2	GND
3	+12V
4	+12V

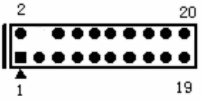
2、主板提供1个1×5pin的电源接口（脚距：2.0mm），用于给LPC总线扩展卡供电，管脚定义如下：

PWR2

管脚	信号名称
1	GND
2	+5V
3	+5V
4	GND
5	+5V

2.19 LPC总线接口

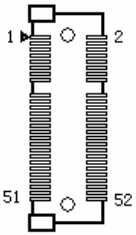
本主板提供1个2×10Pin 的LPC插针接口，管脚定义如下：



LPC1
（脚距：2.54mm）

管脚	信号名称	管脚	信号名称
1	LPC_CLK	2	GND
3	LPC_FRAME#	4	NA
5	PLT_RST#	6	+5V
7	LPC_AD3	8	LPC_AD2
9	+3.3V	10	LPC_AD1
11	LPC_AD0	12	GND
13	SMB_CLK	14	SMB_DATA
15	+3.3VSB	16	SERIRQ
17	GND	18	CLKRUN
19	SUS_STA-	20	LPC_DRQ#

2.20 MSATA1 接口



MSATA1

管脚	信号名称	管脚	信号名称
1	WAKE#	2	+3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	CLKREQ#	8	NC
9	GND	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	W_DISABLE#
21	GND	22	NC
23	SATA_RX+	24	+3.3V
25	SATA_RX-	26	GND
27	GND	28	+1.5V
29	GND	30	NC
31	SATA_TX-	32	NC
33	SATA_TX+	34	GND
35	GND	36	NC
37	GND	38	NC
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	Reserved	52	+3.3V

2.21 SATA硬盘热插拔

SATA 硬盘热插拔需注意：

（1） 硬盘必须支持：SATA2.0 接口以上，并且采用 15 芯 SATA 硬盘电源接口；

（2） SATA 硬盘仅工作在 AHCI 模式下且打开热拔插选项时支持热插拔功能；

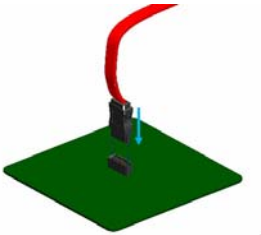
（3） 芯片组驱动程序支持 SATA 硬盘的热插拔；

（4） 不能对操作系统所在的 SATA 硬盘进行带电热插拔。

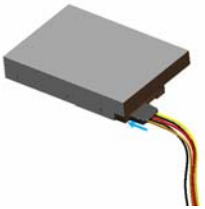
注：请按照如下步骤进行 SATA 硬盘热插拔，否则，操作不当会导致硬盘损坏和数据丢失。

热插入SATA硬盘步骤：

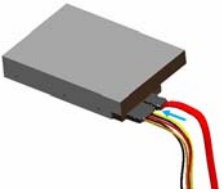
步骤1：将SATA数据线接到主板上的SATA接口；



步骤2：将SATA电源线15-针脚接口（黑色）一端接到SATA硬盘；



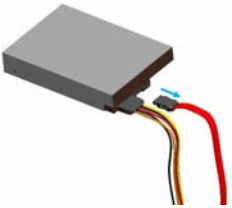
步骤3：将SATA数据线接到SATA硬盘。



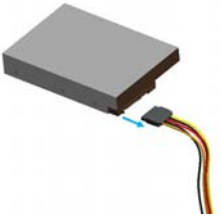
热拔出SATA硬盘步骤：

步骤 1：从设备管理器中卸载该硬盘；

步骤 2：从 SATA 硬盘一侧拔去 SATA 数据线；



步骤 3：从 SATA 硬盘一侧拔去 SATA 15-针脚电源线接口（黑色）。



3.BIOS功能介绍

3.1 UEFI简介

UEFI（Unified Extensible Firmware Interface：标准的可扩展固件接口），是新一代的计算机固件，用于取代传统的BIOS。UEFI固件存储在主板的闪存存储器中，主要功能包括：初始化系统硬件，设置各系统部件的工作状态，调整各系统部件的工作参数，诊断系统各部件的功能并报告故障，给上层软件系统提供硬件操作控制接口，引导操作系统等。UEFI提供用户一个菜单式的人机接口，方便用户配置各系统参数设置，控制电源管理模式，调整系统设备的资源分配等。

正确设置UEFI的各项参数，可使系统稳定可靠地工作，同时也能提升系统的整体性能。不适当的甚至错误的UEFI参数设置，则会使系统工作性能大为降低，使系统工作不稳定，甚至无法正常工作。

3.2 UEFI参数设置

每当系统接通电源，正常开机后，便可看见进入UEFI设置程序提示的信息。此时(其它时间无效)，按下提示信息所指定的按键（通常为<Del>键或<F2>键）即可进入UEFI设置程序。

通过UEFI设置程序修改的所有设置值（除了日期、时间）都保存在系统的闪存存储器中，即使掉电或拔掉主板电池，其内容也不会丢失；而日期、时间则保存在系统的CMOS存储器中，该CMOS存储器由电池供电，即使切断外部电源，其内容也不会丢失，除非执行清除CMOS内容的操作。

注意！UEFI的设置直接影响到电脑的性能，设置错误的参数将造成电脑的损坏，甚至不能开机，请使用UEFI内置缺省值来恢复系统正常运行。

由于本公司不断研发更新UEFI，其设置界面也会略有不同，以下的画面供您参考，有可能跟您目前所使用的UEFI设置程序不完全相同。

3.3 UEFI基本功能设置

当SETUP程序启动之后，您可以看到Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.主画面如下：

◆ **Main**

➢ **System Date**

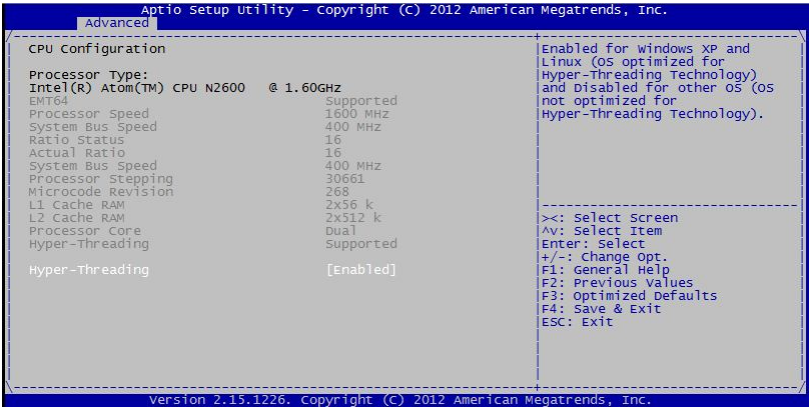
选择此选项，用< + > / < - >来设置目前的日期。以月/日/年的格式来表示。各项目合理的范围是：Month/月(1-12)，Date/日(01-31)，Year/年(最大至2099)，Week/星期(Mon.～ Sun.)。

➢ **System Time**

选择此选项，用< + > / < - >来设置目前的时间。以时/分/秒的格式来表示。各项目合理的范围是：Hour/时(00-23)， Minute/分(00-59)，Second/秒(00-59)。

◆ Advanced

➢ CPU Configuration

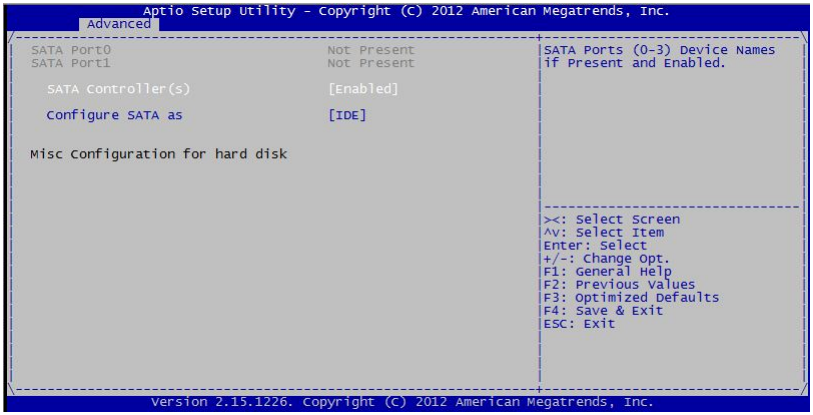


显示CPU的相关信息。注意，CPU的Type，Speed，Core，HT等跟平台所安装的CPU有关，不同系列的CPU所显示的信息不同。

✧ Hyper-Threading

Hyper Threading Technology功能的控制开关。

➢ IDE Configuration



SATA Port0～1动态侦测主板上有没有接SATA设备，如果对应的Port上有接设备，则显示该SATA设备的型号。否则，显示Not Present。

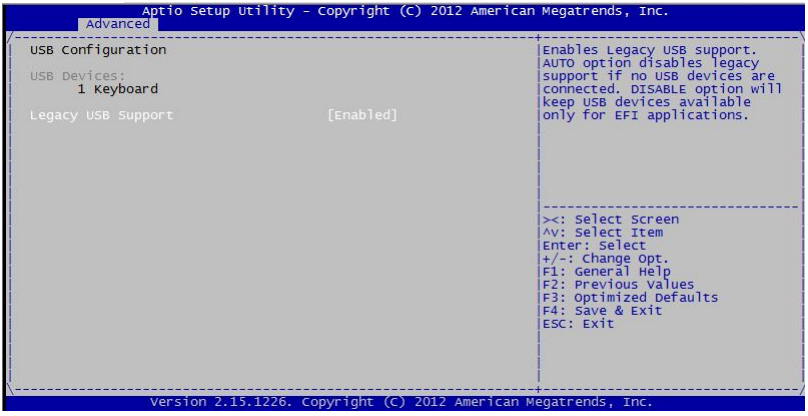
✧ SATA Controller(S)

SATA控制器用来打开或关闭SATA Port上的设备。

✧ Configure SATA as

配置SATA设置的类型：IDE或AHCI。

➢ USB Configuration



✧ **Legacy USB Support**

此选项用于支持传统的USB设备（键盘，鼠标，存储设备等），当该项设为Enabled时，即使不支持USB的操作系统如DOS下也能使用USB设备。当设置成Disabled时，传统设备在不支持USB的操作系统中将不可用。

注意，EFI application下USB仍然可用，如Shell下。

➢ **H/W Monitor**

显示当前所侦测到得硬件的电压，温度，风扇转速等监控信息。

✧ **System Temperature**

当前系统温度，一般主板上有热敏电阻监测。

✧ **CPU Temperature**

当前CPU温度。CPU的温度由板上的温度传感器监测。

✧ **Vcore**

CPU核心电压。

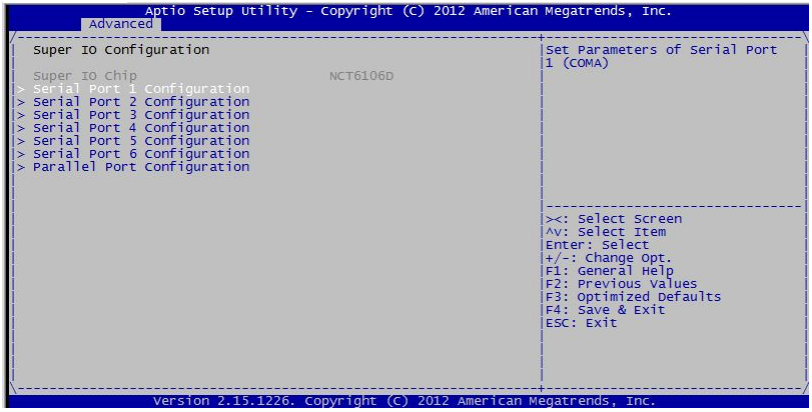
✧ **V3.3/ V5.0/V12.0**

开关电源输出电压。

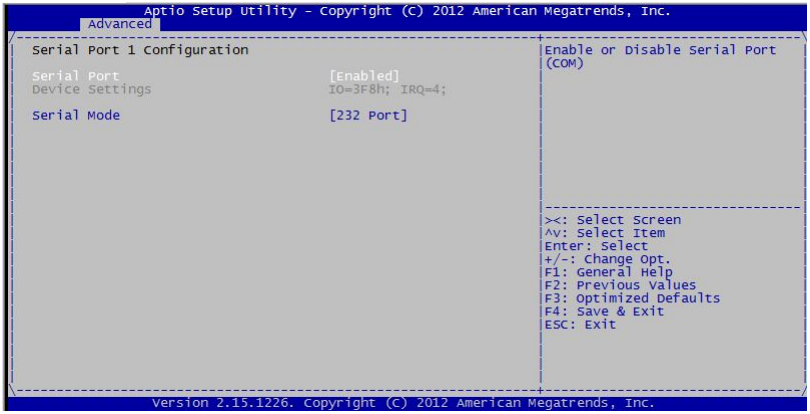
✧ **VBAT**

CMOS电池电压。

➢ Super IO Configuration



✧ Serial Port 1～6 Configuration



*** Serial Port1～6**

此项用于打开或关闭当前串口。

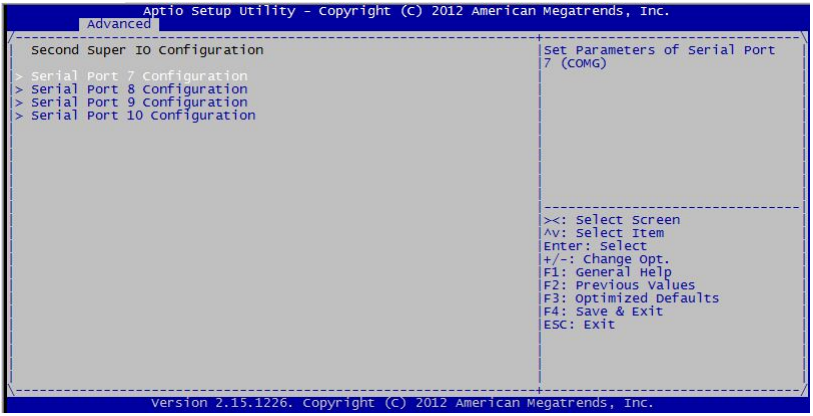
*** Device Settings**

此项用于显示串口当前的资源配置。

*** Serial Mode**

此项用于配置串口的工作模式（**仅Serial Port1和Serial Port2支持RS-485工作模式**）。

➢ Second Super IO Configuration （选配功能，需要外接EVOC Fintek串口模块）



* Serial Port1～4

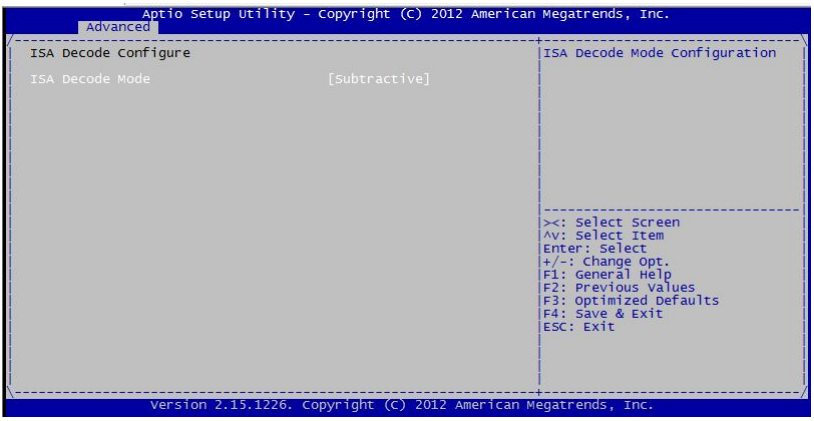
此项用于打开或关闭当前串口。

* Device Settings

此项用于显示串口当前的资源配置。

➢ ISA Decode Configure

此项用于ISA卡的IO/Memory资源配置。

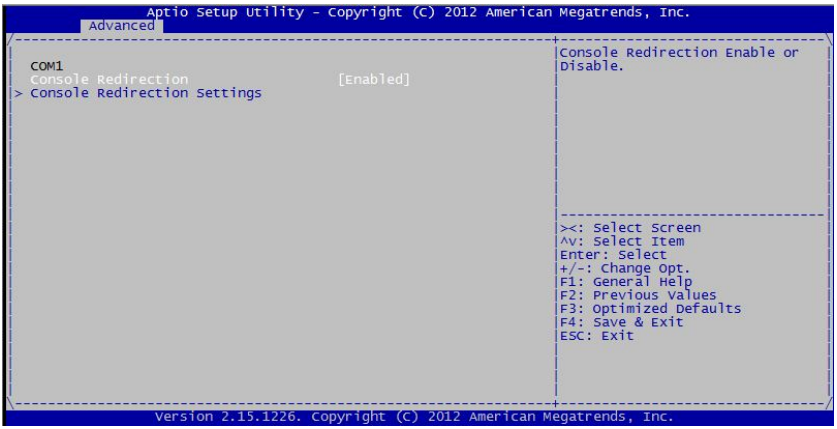


* ISA Decode Mode

此项用于设置ISA资源译码方式，建议使用BIOS默认设置，如果是Win2000系统，需要设置为Positive。

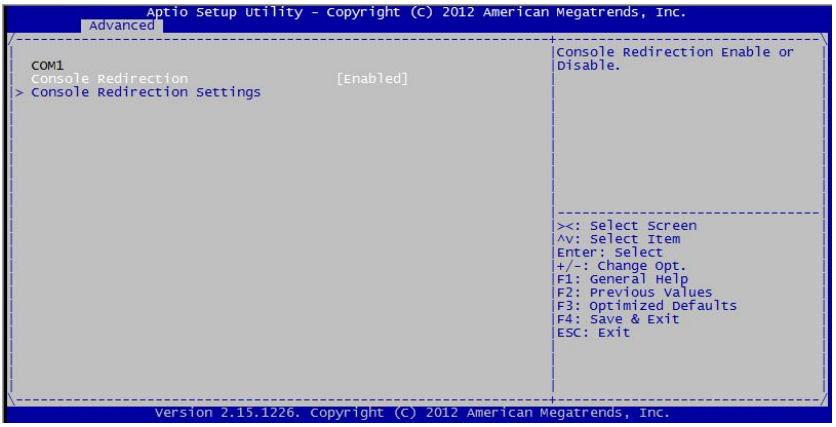
➢ Serial Port Console Redirection

该项提供串口重定向功能的配置。



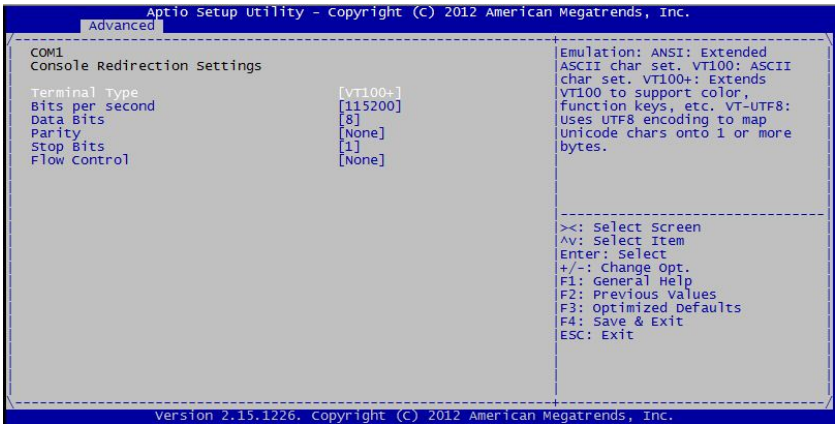
● Console Redirection

此选项用于使能或关闭串口重定向功能。



- **Console Redirection Settings**

  此选项用于串口重定向参数设置。



✧ **Terminal Type**

终端类型的设置，默认值：ANSI。

✧ **Bits per second**

波特率的设置，默认值：115200。

✧ **Data Bits**

数据位宽度的设置，配置值：8。

✧ **Parity**

校验位的设置，默认值：None。

✧ **Stop Bits**

停止位位数的设置，默认值：1。

✧ **Flow Control**

流控制的设置，默认值：None。

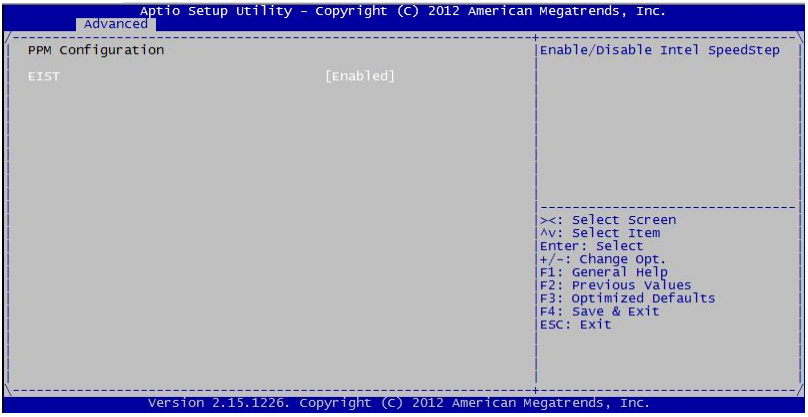
不同的串口重定向终端的键盘定义可能存在不兼容的情况，这与串口重定向终端软件本身有关系。如果存在键盘按键不兼容的情况，请使用下表所描述的组合键代替原键盘的功能。

串口重定向功能键描述如下表：

Key or Function	Sequence
Home	<ESC>h
End	<ESC>k
Insert	<ESC>+
Delete	<ESC>-
Page Up	<ESC>?
Page Down	<ESC>/
F1	<ESC>1
F2	<ESC>2
F3	<ESC>3
F4	<ESC>4
F5	<ESC>5
F6	<ESC>6
F7	<ESC>7
F8	<ESC>8
F9	<ESC>9
F10	<ESC>0
F11	<ESC>!
F12	<ESC>@

注:串口重定向功能仅支持文字界面的重定向，不支持图形界面的重定向。

➢ PPM Configuration

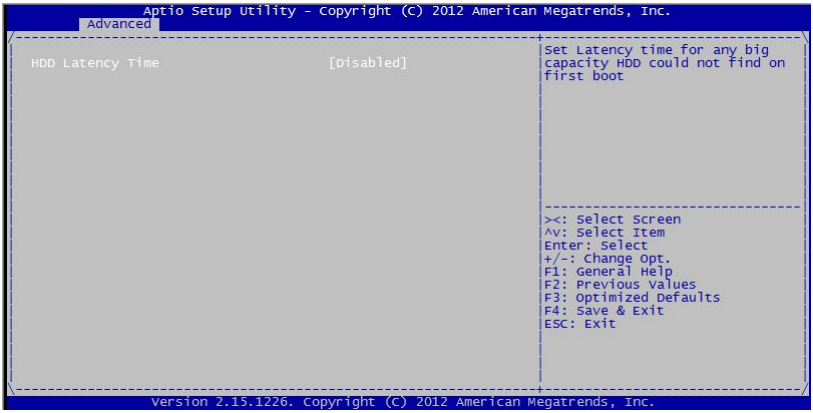


● EIST

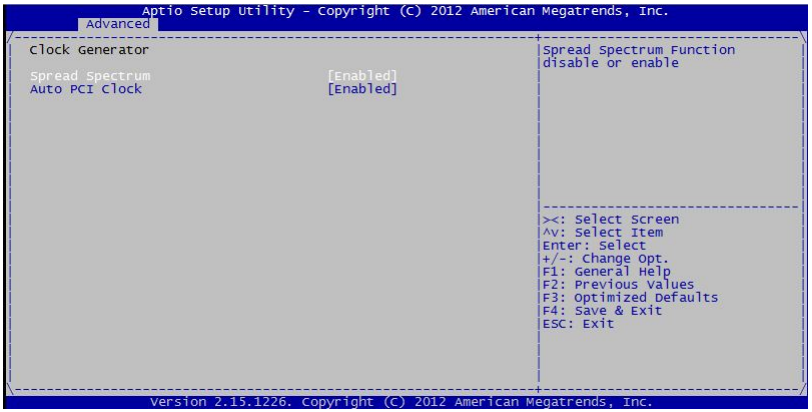
此项是支持Intel的CPU频率可调节功能。

➢ HDD Latency Time

此选项用于在BIOS POST阶段延缓对硬盘的侦测。



➢ Clock Generator



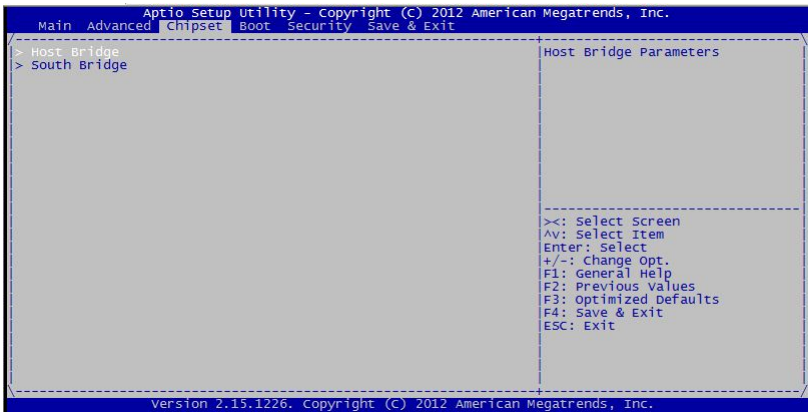
✧ Spread Spectrum

此选项用于设置时钟信号的展频功能。

✧ Auto PCI Clock

此选项用来实现PCI槽上设备的自动侦测，如果槽上无设备，则关闭该槽对应的时钟信号。

◆ Chipset



➢ Host Bridge

● Intel IGD Configration

✧ IGFX - Boot Type

设置IGD启动主显示设备。

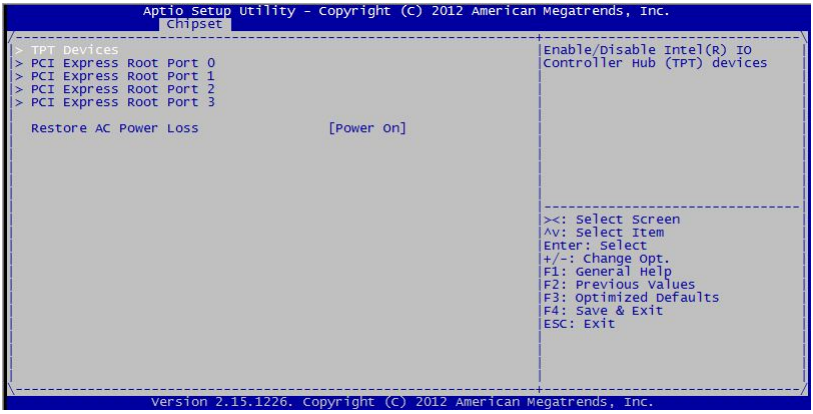
✧ LCD Panel Type

此选项用于选择Flat Panel的分辨率。

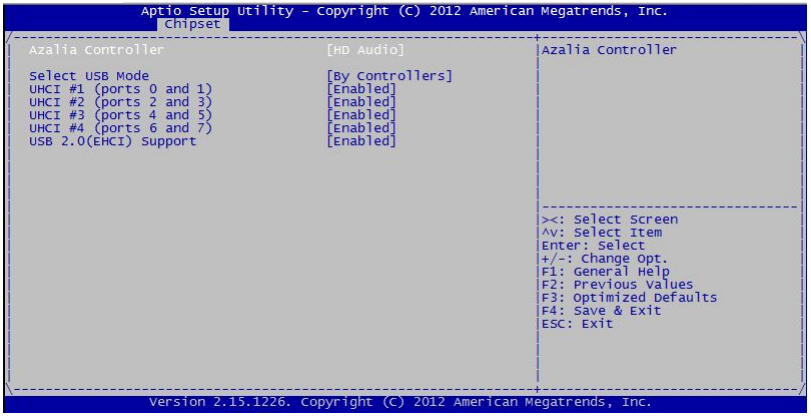
✧ Fixed Graphics Memory Size

设置显存大小。

➢ South Bridge



- TPT Devices



*** Azalia Controller**

此选项用于打开或关闭声卡控制器。

*** Select USB Mode**

此选项用于选择 USB 控制方式。

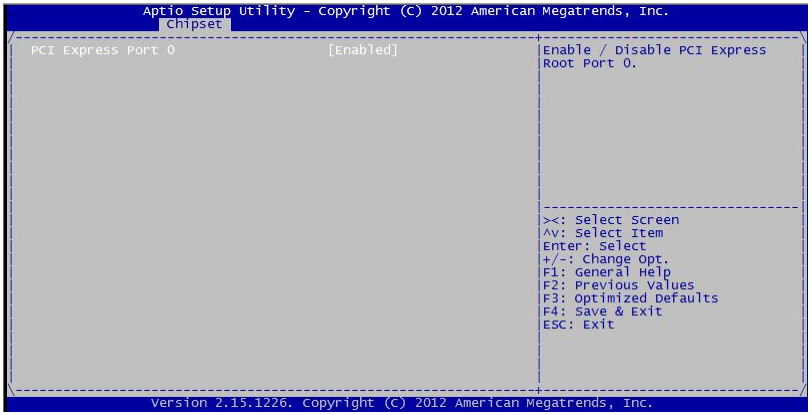
*** UHCI #X (ports X and X)**

此选项用于按控制器方式来打开或关闭。

*** USB 2.0(EHCI) Support**

此选项用于使能 USB2.0。

- PCI Express Root Port X



✧ PCI Express Port X

该选项用于打开或关闭PCIE0-3端口。

● Restore AC Power Loss

当 AC 电源断掉又供上后，期望计算机回到哪种状态的设置项。

* Power Off

S5 状态，即供上交流电后还需手动开机。

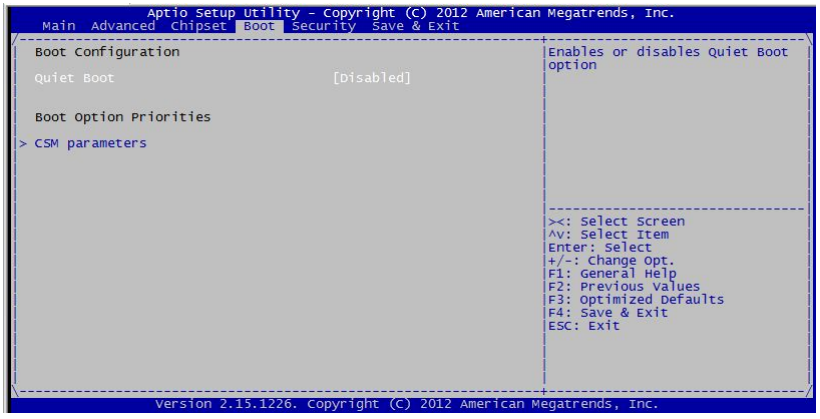
* Power On

S0 状态，即供上交流电后自动开机。

* Last State

回到 S0 还是 S5 状态，依赖于计算机断开 AC 电源时的状态。例如，断开 AC 电源时计算机处在开机状态（S0 状态），那么当重新给 AC 电源时计算机将自动开机;当断开 AC 电源时计算机已处在关机状态(S5 状态)，那么重新供给 AC 电源时不自动开机（保持 S5 状态）。

◆ Boot



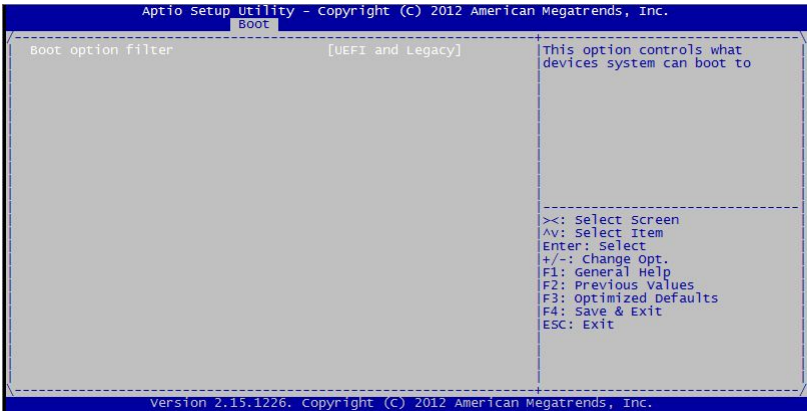
➢ Quiet Boot

Boot模式选择开关，用于打开或关闭Quiet Boot功能。

➢ **Boot Option Priorities**

此项用于配置系统引导的优先次序。其中，#1优先级最高，#n优先级最低。

➢ **CSM parameters**

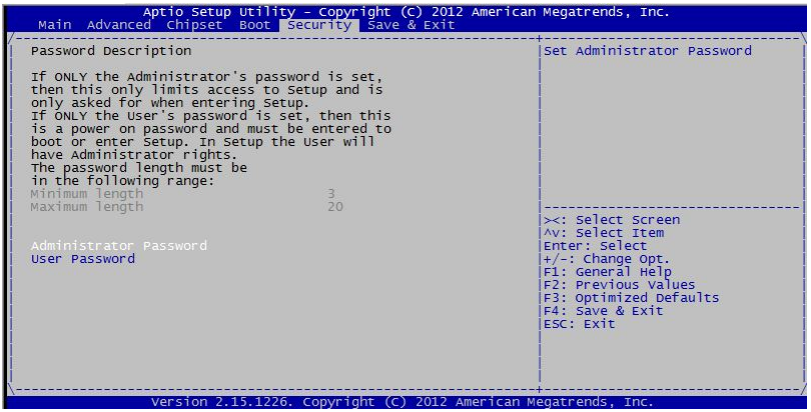


● **Boot option filter**

用于控制系统从哪种类型设备引导。

注意：如果要安装和使用GPT格式的系统，请将Boot option filter选项设为UEFI only。

◆ **Security**

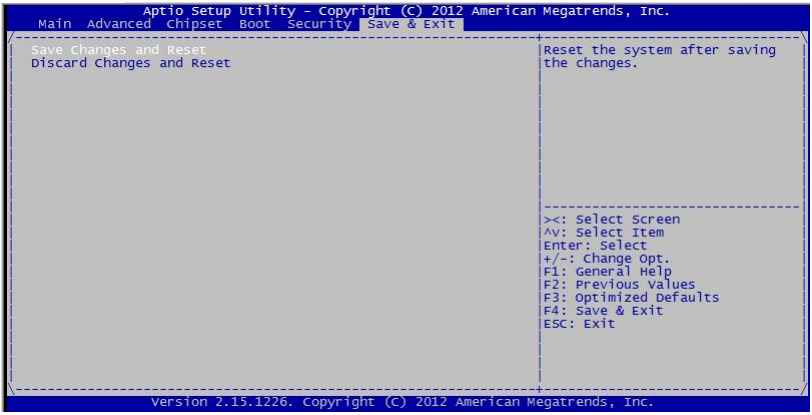


➢ Setup Administrator Password

此项用于设置管理员密码。

注：如果只设置管理员密码，则只当进入Setup设置程序时需要输入管理员密码；

◆ Save & Exit



➢ Save Changes and Reset

此项用于保存修改并重启。

➢ Discard Changes and Reset

此项用于放弃所作修改并重启。

3.4 x86 平台下UEFI所要管理的系统资源

这里的系统资源我们定义三种：I/O端口地址，IRQ中断号和DMA号。

◆ DMA

级别	功能
DMA0	未分配
DMA1	未分配
DMA2	未分配
DMA3	未分配
DMA4	用于 DMAC 的级联
DMA5	未分配
DMA6	未分配
DMA7	未分配

◆ APIC

高级可编程中断控制器。在现代P4以上级别的主板中，大都支持APIC，可以提供多于16个中断源，如IRQ16—IRQ23，部分主板如支持PCI-X的主板可以有多达28个中断源。但要启用该功能必须相应的操作系统支持。

◆ IO端口地址

X86的I/O地址线只设计16条，从0～0FFFFh，I/O地址空间总共有64K，在传统的ISA接口，只使用到前面的1024个（0000～03FFh），0400h以上的端口为PCI接口与EISA接口所使用。每一外围设备都会占用一段I/O地址空间。下表给出了X86平台大致上所要用到的I/O接口列表。

地　址	设备描述
000h - 000Fh	DMA 控制器#1
020h - 021h	可编程中断控制器
024h - 025h	可编程中断控制器
028h - 029h	可编程中断控制器
02Ch - 02Dh	可编程中断控制器

030h - 031h	可编程中断控制器
034h - 035h	可编程中断控制器
038h - 039h	可编程中断控制器
03Ch - 03Dh	可编程中断控制器
040h - 043h	系统计时器
050h - 053h	系统计时器
060h - 060h	PS/2 标准键盘
064h - 064h	PS/2 标准键盘
070h - 071h	系统 CMOS/实时时钟
081h - 091h	DMA 控制器
093h - 09Fh	DMA 控制器
0A0h - 0A1h	可编程中断控制器
0A4h - 0A5h	可编程中断控制器
0A8h - 0A9h	可编程中断控制器
0ACh - 0ADh	可编程中断控制器
0B0h - 0B1h	可编程中断控制器
0B4h - 0B5h	可编程中断控制器
0B8h - 0B9h	可编程中断控制器
0BCh - 0BDh	可编程中断控制器
0C0h - 0DFh	DMA 控制器
0F0h - 0FFh	数据数值处理器
2E0h - 2E7h	通信端口 5
2E8h - 2EFh	通信端口 4
2F0h - 2F7h	通信端口 6
2F8h - 2FFh	通信端口 2
3B0h - 3BBh	Intel(R) Graphic Media Accelerator
3C0h - 3DFh	Intel(R) Graphic Media Accelerator
3E8h - 3EFh	通信端口 3
3F8h - 3FFh	通信端口 1
4D0h - 4D1h	可编程中断控制器
D00h - FFFFh	PCI Bus

◆ **IRQ中断分配表**

系统共0有15个中断源，有些已被系统设备独占。只有未被独占的中断才可分配给其它设备使用。ISA设备要求独占使用中断；只有即插即用ISA设备才可由UEFI或操作系统分配中断。而多个PCI设备可共享同一中断，并由UEFI或操作系统分配。下表给出了X86平台部分设备的中断分配情况，但没有给出PCI设备所占用的中断资源。

级别	功能
IRQ0	系统计时器
IRQ1	标准 101/102 键或 Microsoft 键盘
IRQ2	保留
IRQ3	通信端口 2
IRQ4	通信端口 1
IRQ5	保留
IRQ6	保留
IRQ7	通信端口 3 4 5 6
IRQ8	系统 CMOS/实时时钟
IRQ9	保留
IRQ10	保留
IRQ11	保留
IRQ12	PS/2 鼠标
IRQ13	数据数值处理器
IRQ14	保留
IRQ15	保留

4.驱动程序安装说明

本产品的驱动程序可依据配套光盘内容安装，在此不做介绍。

5.附录

5.1 常见故障分析与解决

常见故障	检查点
通电之后不开机	1. 请确认电源连接线是否连接正常 2. 请确认所用电源是否满足主板的供电要求 3. 查看CPU是否安装到位，CPU卡扣是否扣好 4. 尝试重新插拔内存条 5. 尝试更换内存条 6. 尝试根据主板说明书清除主板CMOS 7. 请确认是否有外接卡，去除外接卡后是否正常
BIOS Setup设置不能保存	1. 请确认CMOS电池电压是否低于2.8V，如低于2.8V，请更换新电池，重新设置保存
提示无法找到可引导设备	1. 请确认硬盘电源线、数据线是否连接正常 2. 请确认硬盘是否有物理损坏 3. 请确认硬盘中是否正常安装操作系统
进入系统过程中蓝屏或死机	1. 请确认内存条及外接卡是否松动 2. 尝试去掉新安装的硬件，卸载驱动或软件 3. 尝试更换内存
进入操作系统缓慢	1. 尝试使用第三方软件检查硬盘是否有坏道 2. 请确认系统所在分区剩余空间是否过少 3. 请确认 CPU 散热风扇是否正常转动
系统自动重启	1. 请确认 CPU 散热风扇是否正常转动 2. 请确认是否误触发工控机复位按钮 3. 请使用杀毒软件确认系统是否感染病毒 4. 请确认内存条及外接卡是否松动 5. 请确认所用电源带载能力是否足够，可尝试更换电源

无法检测到USB设备	1. 请确认 USB 设备是否需要单独供电 2. 请确认 USB 接口是否存在接触不良 3. 请确认 BIOS Setup 中 USB 控制器是否打开
无法检测到PCI卡	1. 请确认 PCI 卡是否需要额外供电 2. 请确认 PCI 卡工作所需电压与主板 PCI 提供电压（默认 5V）是否相符 3. 请确认更换 PCI 槽位后能否被识别
无法检测到ISA卡	1. 依据 ISA 卡手册确定 ISA 卡所使用的资源已经被 BIOS 预留--大部分主板 BIOS Setup 中有针对 ISA 使用 I/O 或 memory 资源的预留选项，ISA 卡所使用的 IRQ 是否在 BIOS Setup 中被 reserved 2. ISA 卡一般在系统下无法直接识别，Windows 系统需在“控制面板”中选择“添加硬件”进行添加

5.2 缩略语

缩略语	述语	含义
AC	交流	交流
APM	高级电源管理	用于监视和降低 PC 功耗的工具
ACPI	高级配置与电源接口	
AHCI	高级主控接口/高级主机控制器接口	串行 ATA 的标准控制接口，Microsoft windows XP (高于 SP1 版本)和 IAA 驱动程序支持该接口
APIC	高级可编程中断控制器	扩张的可编程中断控制器
ASPM	活动状态电源管理	一种对 PCIE 设备空闲节电模式控制
ATM	异步传输模式	
ASCII	美国信息交换标准代码	
API	应用程序编程接口	

ATM	异步传输模式	
AT	高级技术	AT 电源
ATX	高级技术扩展	ATX 主板结构或 ATX 电源
AWG	美国线缆规格	区分电缆直径的美国标准
BIOS	基本输入输出系统	BIOS 代码
bps	位/秒	数据传输速率的一种描述
BGA	球状矩阵排列	一种芯片封装形式
Buffer	缓冲器	
Battery	电池	
BBS	电子公告牌系统	
BMP	位图	一种图形格式
CAN	控制器局域网络	一种通用的工业现场总线
CD-ROM	只读光盘	大数据存储只读光盘
CD-RW	可读写光盘	刻录光盘
CE	欧洲共同体(CE 认证符号)	欧盟产品的统一认证标示
CF	CF 卡	
CGA	彩色图形设配器	标准监视器接口
CLK	时钟脉冲	时钟信号
CMOS	互补金属氧化物半导体	
COA	真品证书	Microsoft Windows 产品密钥
CoL	许可证书	许可证授权
COM	串行通信端口	串行接口
CP	通信处理器	通信计算机
CPU	中央处理单元	
CRT	阴极射线管	CRT 显示器
CSA	加拿大标准协会	按照本国或两国标准(使用 UL/USA)进行测试和认证的加拿大组织
CTS	清除发送	
CPCI	紧凑型 PCI	一种高性能工业总线接口标准
CISC	复杂指令集计算机	

CRC	循环冗余校验码	一种错误校验编码
CGI	通用网关界面	
Cache	高速缓冲存储器	
DRAM	动态随机存取存储器	
DDRAM	双数据随机存取存储器	带有高速接口的存储器芯片
DC	直流	
DCD	数据载波检测	数据载波信号检测
DMA	直接存储器存取	直接内存存取
DOS	磁盘操作系统	无图形界面的操作系统
DP	显示端口	Display Port
DQS	德国质量与环境管理体系认证机构	
DSR	数据设置就绪	操作就绪
DTR	数据终端就绪	
DVD	数字多功能光盘	
DVI-D	数字视频接口	数字显示器接口
DVI-I	数字视频接口	具备数字和VGA模拟信号的显示器接口
dB	分贝	一种纯计数单位,表示两个量的比值大小
DCE	数据通信设备	数据通信终端设备
DOM	DOM电子硬盘	Disk on module的缩写
DOC	单芯片快闪磁盘	Disk on chip的缩写
DDC	显示数据通道	显示器和主机通信总线标准
DDR	双倍数据速率	一种内存规范
Decode	指令解码	
DFP	数字平面显示器	
DHCP	动态主机设置协议	一种局域网的网络协议
DES	数据加密算法	一种对称加密算法
DIMM	双列直插式存储模块	

DMI	直接媒体接口	处理器 CPU 和 IO 控制器(PCH, ICH)间的数据传输通道
DNS	域名系统	因特网的一项核心服务
Dot Pitch	点距	显示屏相邻两个像素点的间距
DPMS	显示能源管理信号	VESA 组织制定的一种显示能源管理标准
DVMT	动态分配共享显存技术	用于设定显卡可使用的共享内存大小的技术
ECC	错误检查修正	
ECP	扩展的功能端口	扩展的并行端口
EGA	增强型图形适配器	PC 和监视器的接口
ESD	静电释放	
EDID	扩展显示标识数据	一种 VESA 标准数据格式
EIDE	增强型 IDE	增强形电子集成驱动器
EISA	扩展工业标准体系结构	扩展的 ISA 标准
EM64T	64 位内存扩展技术	
EN	欧洲标准	成员国的国家标准必须与 EN 标准保持一致
EEPROM	电可擦可编程只读存储器	使用 EEPROM 芯片的子模块
EPP	增强型并行端口	
ESC	退出字符	控制字符
EC	嵌入式控制器	
EMI	电磁干扰	
EMC	电磁兼容	
ES	能源之星	
ESCD	可扩展系统配置数据	
EIA	电子工业协会	
FAQ	常见问题解答	
FAT32	32 位文件分配表	

FDD	软盘驱动器	
FSB	前端总线	外部总线
FCPGA	倒装芯片针脚栅格阵列	一种芯片封装形式
FCBGA	倒装球拴栅格阵列	一种芯片封装形式
FIFO	先入先出队列	
FireWire	火线	IEEE1394 标准
Firmware	固件	固化的软件
FWH	固件中心	
FPU	浮点运算单元	
FTP	文件传输协议	
GND	接地	
GB	千兆位	
GPS	全球定位系统	
GSM	全球移动通信系统	
GUI	图形用户界面	
GMCH	图形和内存控制中心	
GPU	图形处理器	
HDD	硬盘驱动器	
HDTV	高清晰度电视	
HEX	十六进制	
HTML	超文本标记语言	用于创建 Internet 页面的脚本语言
HTTP	超文本传输协议	Internet 上的数据传输协议
HardWare	硬件	
HW Monitor	硬件监控	
Hz	赫兹	
HDMI	高清晰度多媒体接口	一种高清晰显示接口
H D A	高保真音频	
HT	超线程技术	
HS	热插拔 Hot-plug	开机状态下的设备卡带电拔插操作

I/O	输入输出	计算机的数据输入/输出
IDE	电子集成驱动器	
IGD	集成的图形设备	
IP	防护等级	
IP	Internet 通信协议	
IR	红外线	一种低速近距离的无线传输
IRDA	红外线数据协会	用于通过 IR 模块传输数据的标准
IRQ	中断请求	
ISA	工业标准体系结构	用于扩展模块的总线
IC	集成电路	
IDSL	因特网数字用户线路	
IE	微软因特网浏览器	
IEEE	电机及电子学工程师联合会	
IPC	工业控制计算机	
ISO	国际标准化组织	
IT	信息技术	
IA	英特尔架构	
ICH	输入/输出控制中心	
ID	身份标识号码	
IDF	英特尔开发者论坛	
INI File	初始化文件	
ISP	因特网服务提供商	
IPMI	智能平台管理接口	
JEDEC	固态技术协会	存储设备的标准规范制定协会
KB	键盘	
Kbps	千位每秒钟	传输速率的一种
L2 Cache	二级缓存	
LAN	局域网	局限于本地通讯的计算机网络
LCD	液晶显示器	

LED	发光二极管	
LPT	打印机端口	
LVDS	低电压差分信号	
Latency time	潜伏延迟时间	
LBA	逻辑块寻址	一种机械硬盘的块寻址模式
LFP	LCD 平板	LCD 平板显示器
MAC	介质访问控制	
MMC	微型存储卡	32×24.5mm 格式的存储卡
MPI	用于编程设备的多点接口	
MS-DOS	微软磁盘操作系统	
MTBF	平均无故障间隔时间	
MB	兆字节	
MPEG	动态影像压缩标准	一种视频的压缩标准
MTTR	平均修复时间	
MBR	主引导记录	
MHz	兆赫兹	一种频率的单位
MCU	微控制单元	单片微型计算机的一种
MODEM	调制解调器	
NA	空	
NC	未连接	
NP	未安装	
NCQ	原生命令队列	自动将文件和磁盘存取重新排列,以提高性能
NMI	不可屏蔽中断	
NTFS	新技术文件系统	Windows XP、Windows Server 2008、
		Vista 和 Windows 7 的标准文件系统
NIC	网络接口卡	网络适配器
NB	北桥	北桥芯片
ODD	光盘驱动器	

OS	操作系统	
OSD	屏幕显示菜单	
PATA	并行 ATA	存储接口标准的一种
PC	个人电脑	个人计算机
PCI	外围设备互连	PCI 总线
PCIE	Peripheral Component Interconnect Express	一种高速串行差分全双工的总线传输规范
PCMCIA	个人计算机存储卡国际协会	
PEG	PCI EXPRESS 图形	
POST	开机自检	
PXE	预引导执行环境	用于通过网络运行没有硬盘数据 PC 的软件
PMC	PCI 夹层卡	PCI Mezzanine Card
PS2	PS2 接口设备	IBM 开发的 PS2 鼠标键盘标准接口形式
PICMG	PCI 工业计算机制造商协会	
RAID	独立磁盘冗余阵列	冗余硬盘阵列
RI	振铃输入	呼入唤醒信号
RS485	协调子层 485	设计用于多大 32 个节点的双向总线系统
RTC	实时时钟	
RTS	发送数据请求	
RXD	接收数据	
RF	射频	频率范围从 300KHz～30GHz 之间的无线发射电磁波
RSV	保留使用引脚	
RST	复位	Reset
SCSI	小型计算机系统接口	
SDK	软件开发工具包	

SSD	固态电子盘	
SV	标准电压	
SMART	自我检视,分析和报告技术	硬盘错误诊断程序
SO-DIMM	小外形双列内存模组	笔记本内存的一种
SRAM	静态随机存取存储器	
SDRAM	同步动态随机存储器	
SVGA	超级视频图形阵列	
SW	软件	Software
S5	关机	所有硬件设备（包括电源）全部都关闭
S4	挂起到硬盘	内存信息写入硬盘，然后所有部件停止工作
S3	挂起到内存	将运行中的数据写入内存后关闭硬盘
S1	POS（Power on Suspend）	CPU 停止工作，其他的硬件设备仍然正常工作
S0	电脑正常工作	所有硬件设备全部处于打开或正常工作的状态
SMB	全系统管理总线	
SMD	表面安装设备	
SMI	系统管理中断	只有触发 SMI 才能进入 SMM 模式
SMM	系统管理模式	
SNR	信噪比	
SPD	串行存在探测	一个 256KB 的 EEPROM
S/PDIF	索尼/飞利浦数字接口	一种民用数字音频接口协议
SCI	系统控制中断	硬件产生的通知 OS 的 ACPI 中断事件
TFT	薄膜晶体管	LCD 平面屏幕类型
TxD	发送数据	数据传送信号
TDP	热量设计功耗	Thermal Design Power
TTL	晶体管 to 晶体管逻辑电路	

Turbo	瞬间加速自动超频技术	英特尔睿频加速技术 Turbo boost
TPM	可信任平台模组	
USB	通用串行总线	
UPS	不间断电源	
UL	美国保险商实验室	UL 认证
U	服务器尺寸单位,1U=44.45mm	
UEFI	统一的可扩展固件接口	Intel 全新固件接口标准,采用 C 语言
VGA	视频图形阵列	满足工业标准的视频适配器
VRM	电压调整模块	
VT	虚拟化技术	通过 Internet 技术可以使用模拟封闭环境
VID	电压识别定义	
VSYNC	垂直同步	垂直同步刷新
VESA	视频电子标准协会	
VRAM	视讯随机存取存储器	
VIO	VIO 电压	PCI 总线设备上的 IO 电压
VPX	新一代高速串行总线	
WDT	看门狗	Watch dog
WLAN	无线局域网	
WOL	网络唤醒	局域网唤醒
WWW	环球信息网	万维网
WAN	广域网络	Wide Area Network
WAP	无线应用协议	
XGA	扩展图形阵列	最大分辨率支持 1024×768
XMC	XMC 夹层过渡卡	XMC Switched Mezzanine Card

Legal Information

Warnings

Please pay attention to the tips within the manual so as to avoid personal injury or property losses. The tips for personal injury are indicated in warning triangles while the tips only related to property losses have no warning triangles. The warning tips are listed as follows with the hazardous scale from severe to slight.

⚠ **Danger**
If handled carelessly, death or severe human injury will occur.

⚠ **Warning**
If handled carelessly, death or severe human injury might occur.

⚠ **Caution**
Warning triangle indicates that slight human injury might occur if handled carelessly.

Note
Unexpected result or status might occur, if not handled according to the tips.

Professional Personnel

The product/system covered by the manual can only be handled by qualified and professional personnel. During operation, please follow the respective instructive manuals, especially the safety warnings. The professional personnel have been trained and possess relevant experiences; therefore, he/she could be aware of the risks of the product/system and avoid possible damages.

EVOC Product

Please pay attention to the following instructions:

⚠ **Warning**
EVOC product can only be used according to the descriptions within the manual, including the contents and the relevant technical documents. If the products or components from other companies are required, please get the recommendation and grant from EVOC first. Proper transportation, storage, assembly, installation, debugging, operation and maintenance are prerequisite to ensure product safety and normal operation; therefore, please ensure permitted environment conditions and pay attention to the tips within the manual.

Copyright Notice

Warranty Terms:

The warranty on the product lasts for two years. If the user has additional requirements, the contract signed between the two sides shall prevail.

Please visit our website: http://www.evoc.com for more information,
or send an email to the Technical Support Mailbox support@evoc.com (International) or support@evoc.cn (Domestic) for consultation.

Hotline: 4008809666

About this manual

Scope of the Manual

The manual is appropriate for EVOC EPI-1817CLD2NA.

Convention

The term “the Board” or “the Product” within the manual usually stands for EVOC EPI-1817CLD2NA.

Instructions

Safety instructions

To avoid property losses or individual injury, please pay attention to the safety instructions within the manual. The warnings within the manual are marked with warning triangle ⚠, whose existence is dependent upon the scale of the potential hazard.

History

Version release of this manual:

Version	Time
C00	2016.1

Safety Instructions

ESD Instructions

The following label can be used to identify the modules that contain electrostatic sensitive devices:

When operating the modules that contain electrostatic sensitive devices, please follow the instructions below:

- When operating the modules that contain electrostatic sensitive devices, make sure to release static electricity on your body (for example, by touching a grounded object).
- All the devices and tools should not contain ESD.
- Before installing or removing modules that contain ESD, make sure to pull out the power plug and remove the battery.
- When assembling modules that contain ESD, always handle them by their edge.
- Please do not touch any connector pin or conductive part on the modules that contain ESD.

Contents

1. Product Introduction

1.1 Overview

This motherboard adopts fanless design, and uses Intel Atom dual-core CPU (onboard) embedded platform: D2550/N2600 CPU+ NM10 solution. It is compliant with EVOC EPI2.0 bus specifications, and has the following functions: onboard 2GB DDRIII memory, 1 x DDRIII SO-DIMM slot (2G expansion memory optional, for D2550 CPU motherboard, supporting up to 4G memory); supports VGA, LVDS and DVI-D output, and independent synchronous or asynchronous dual-display; 2 x 10/100/1000M Ethernet controller; 2 x SATA HDD interface (one supports standard SATA, the other supports SATA DOM<D2550 motherboard> or MSATA<N2600 motherboard>); 8 x USB2.0 high speed port; 6 x COM port (2 x RS-232/RS-422/RS-485, 4 x RS-232) + LPC1 to 4COM expansion slot; 1 x parallel port; 1 x HD Audio port; PS/2 keyboard/mouse port.

EPI-1817CLD2NA family motherboard models:

EPI-1817CLD2NA-D2550, onboard D2550 CPU, onboard 2GB DDR3 memory. Meanwhile it reserves one 204Pin, supporting NON-ECC DDR3 single Rank X8 bit width, double-side 4-chip Raw card B type memory expansion slot, and supporting maximum memory capacity of 4GB, and SATA-DOM.

EPI-1817CLD2NA-N2600, onboard N2600 CPU, onboard 2GB DDR3 memory, supporting MSATA.

1.2 Mechanical Dimensions, Weight and Environment

- Dimensions: 338.6mm (L) x 126.9mm (W) x 28.9mm (H)
- Net weight: 0.46Kg
- Operating environment:

Temperature: -10℃～60℃ (D2550)

-10℃～70℃ (N2600)

Humidity: 40%～95% (non-condensing)

- Storage environment:

  Temperature: -20℃～80℃

  Humidity: 40%～95% (non-condensing)

1.3 Typical Power Consumption

The typical power consumption is calculated based on the following configurations in idle status:

CPU: INTEL(R)ATOM(TM)CPU D2550@1.86GHZ

Memory: 2GB/DDR3/SDRAM/PC3-8500/SAMSUNG/M471B5773CHS-CF8

HDD: Seagate/500G

Operating system: WINXP

- +5V@ 0.641A; +5%/-3%
- +3.3V@ 0.596 A; +5%/-3%
- +12V@ 0.048 A; +5%/-3%
- +12V P4@ 0.54A; +5%/-3%
- +5VSB@ 0.156A; +5%/-3%

1.4 Reference power consumption for power supply model selection

The reference power consumption is based on the following configurations. If there is expansion card or other peripheral device, power consumption must be added for model selection according to the specifications requirements.

CPU: INTEL(R)ATOM(TM)CPU D2550@1.86GHZ

Memory: 2GB/DDR3/SDRAM/PC3-8500/SAMSUNG/M471B5773CHS-CF8

HDD: Seagate/500G

Operating system: WINXP

Operating software: Burintest7.1 1015

- +5V@ 0.864A; +5%/-3%
- +3.3V@ 0.608A; +5%/-3%
- +12V@ 0.048A; +5%/-3%
- +12V P4@ 0.78A; +5%/-3%
- +5VSB@ 0.156A; +5%/-3%

1.5 Microprocessor

Onboard Intel® Atom™ D2550 (dual-core)/N2600 (dual-core) CPU.

Micro-FCBGA11 package.

1.6 Chipset

Intel® ATOM™ D2550/N2600 + NM10.

1.7 System Memory

EPI-1817CLD2NA-N2600 supports onboard 2GB DDR3 memory.

EPI-1817CLD2NA-D2550 supports onboard 2GB DDR3 memory and provides one 204Pin DDR3 SO-DIMM memory slot, and supports Un-buffered ECC. A single memory slot supports a maximum memory capacity of 2GB, which brings the total memory capacity to 4GB. Note: The expansion memory SO-DIMM1 must use Raw card B type DDR3 SO-DIMM single Rank X8 bit width, double-side 4-chip memory module, with up to 2GB memory capacity.

Example: KINGSTONE KVR1333D3S9/1G 1.5V 1RX8 DDR3 double-side 4-chip

INNODISK 2GB 1600 LV 1RX8 DDR3 double-side 4-chip

Transcend 2GB 1RX8 1333 DDR3 double-side 4-chip

1.8 Display

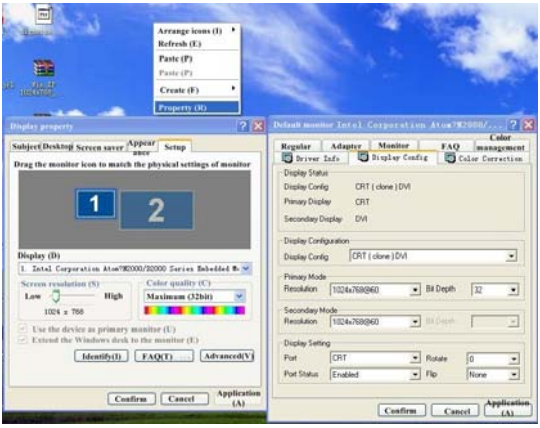
- Supports VGA, DVI-D and 24-bit single-channel LVDS display; VGA, DVI-D supports hot swap function; supports synchronous or asynchronous dual-display output;
- The maximum resolution rate and refresh rate supported by VGA is: 1920×1200@60Hz; The maximum resolution rate and refresh rate supported by DVI-D is 1920×1200@60Hz.

Note: About setup of VGA+DVI-D display test:

1） After boot-up, only VGA is connected, DVI display is not connected. After entering into XP system, connect the DVI display, but it does not work. The reason is: only when the operating system is loading display driver, will the EMGD driver detect the display device. If the driver has already been loaded, it will not dynamically detect display device. Therefore, if DVI display is connect after entering the system, DVI display does not work. The solution for this problem is as follows:

A. During WinXp bootup, connect DVI before entering the system, i.e., connect DVI before EMGD driver is loaded;

B. Users need to right click the mouse, select Property->Advanced->Display Config for the setup. Manually select DVI display output as shown in the picture below:



2) During the bootup, only connect the DVI; after entering the system, connect the VGA, to realize VGA+DVI dual display, because the driver supports VGA hot swap.

1.9 Network

2 x 10/100/1000Mbps LAN port; LAN1 supports Wake-On-LAN.

1.10 Audio

HDA standard, supporting MIC-IN/LINE-IN/LINE-OUT.

1.11 Power Feature

ATX power supply, supporting S0, S1, S4, S5.

Note: If AT boot-up mode needs to be used, please carry out jumper setting according to the user manual.

1.12 Expansion Bus

4 x 32-bit PCI slot, compliant with EPI 2.0 bus standard, expandable to PCI and ISA slots by backplane.

1.13 Watchdog

- Supports 255 levels, programmable by minute/second;
- Supports Watchdog timeout interrupt or reset system.

1.14 Operating System

Supported operating systems: WINCE/WINXP/WINXPE/WIN7/Linux.

1.15 I/O Ports

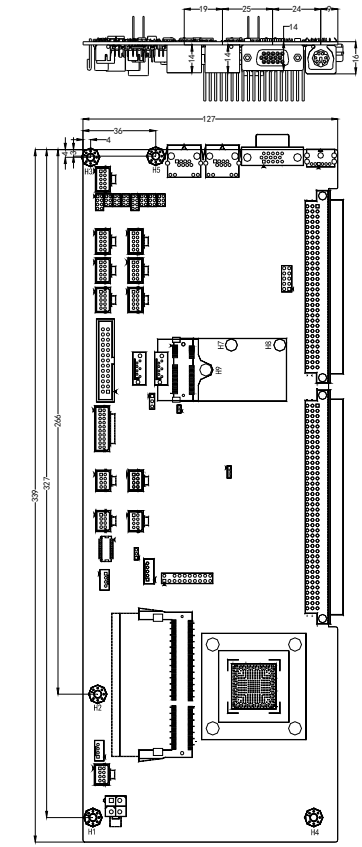
- 1 x parallel port, supporting SSP/EEP/ECP working modes, and BIOS modification work mode;
- 6 x COM port; COM1 and COM2 support RS-232/RS-422/RS-485 mode selection;
- 1 x SATA-DOM interface (EPI-1817CLD2NA-D2550);
- 1 x SATA2.0 interface, supporting hot swap;
- 1 x MSATA port (EPI-1817CLD2NA-N2600);
- 8 x USB2.0 port;
- 1 x PS/2 keyboard/mouse port;
- 1 x 8-channel digital I/O port.

Note: How to identify alarms

1. A long beep means a system memory error;
2. A short beep means boot-up.

2. Installation Instructions

2.1 Product Dimensions Drawing

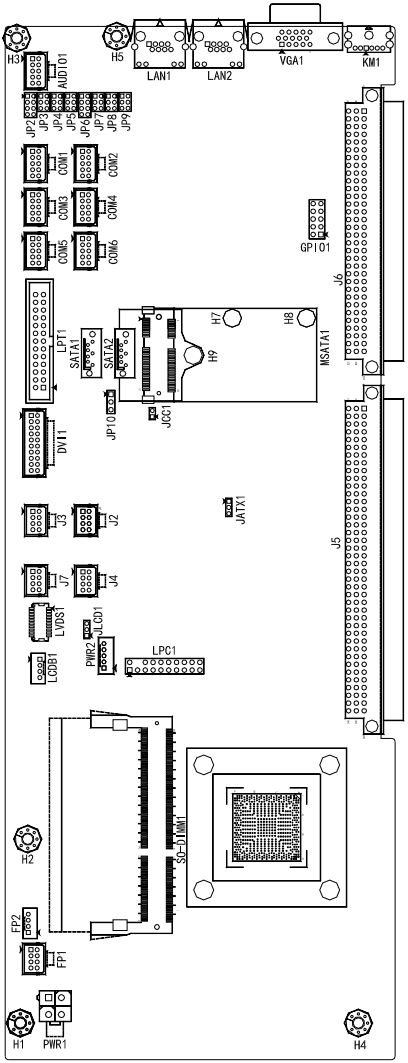


Unit: mm

Warning!

Please adopt appropriate screws and proper installation methods (including board allocation, CPU and heat sink installation); otherwise, the board may be damaged. It is recommended to use M3x6/GB/T 9074.4-1988 screws at H1 ~ H5.

2.2 Port Location

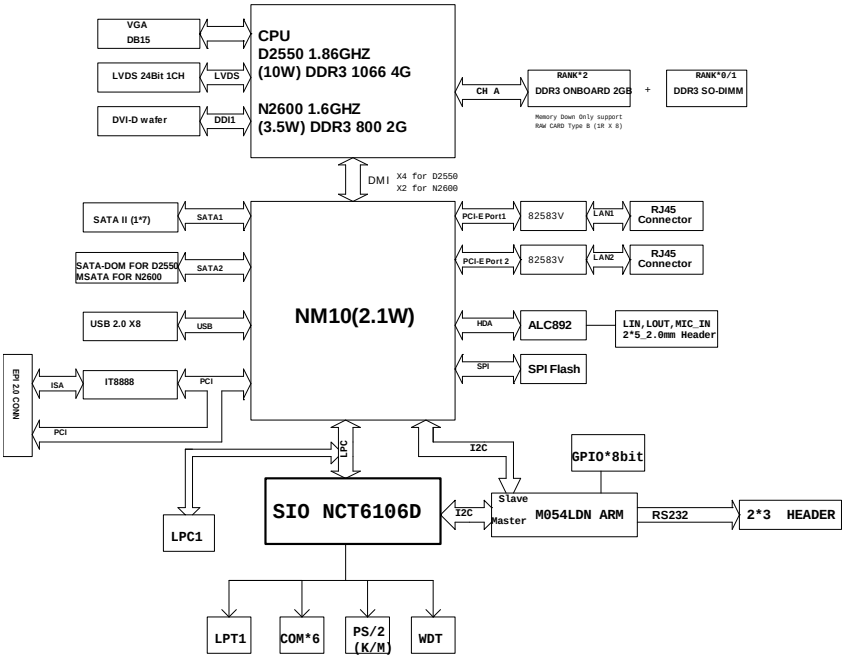


2.3 Data to Identify the Board

Attention
During maintenance or after the product is stolen, this code can be used to identify the PC. Please do not rip it off.

Serial No.: Located on the board (as shown below)

2.4 Structure Diagram



Tip: How to identify the first pin of the jumpers and connectors

1. Observe the letter beside the socket, the first pin is usually marked with “1” or bold lines or triangular symbols;
2. Observe the solder pad on the back: usually the square pad is the first pin.

2.5 Jumper Setting

1. JCC1: Clear/Keep CMOS Setting (Pitch: 2.0mm)

CMOS is powered by the button battery on board. Clearing CMOS will restore original settings (factory default). The steps are listed as follows: (1) Turn off the computer and unplug the power cable; (2) Instantly short circuit JCC1; (3) Turn on the computer; (4) Follow the prompt on screen to enter BIOS setup when booting the computer, load optimized defaults; (5) Save and exit. Please set as follows:

	Setup	Function
 JCC1	1-2 Open	Normal (Default)
	1-2 Short	Clear the contents of CMOS and all BIOS settings will restore to factory default values.

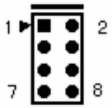
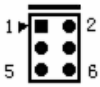
2. AT/ATX mode selection

AT or ATX working mode can be selected by combination setup of JATX1.

	Setup	Function
 JATX1 (pitch: 2.0mm)	1-2 Short	AT mode
	2-3 Short	ATX mode (Default)

3. COM port configuration

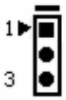
COM1/COM2 port mode can be configured by setting up JP2～JP4, JP6～JP8 (pitch: 2.0mm) and BIOS. When COM1 and COM2 are working at RS232 and RS422 mode, short circuit jumper of Pin7 and Pin8 of JP2 and JP6 must be open.

	COM port	Pin	Signal Name		
			RS-232（Default）	RS-422	RS-485
 JP2/JP6	COM1	JP2	1-2	3-4	5-6/7-8
		JP3	1-3/2-4	3-5/4-6	3-5/4-6
		JP4	1-3/2-4	3-5/4-6	3-5/4-6
 JP3/JP4/JP7/JP8	COM2	JP6	1-2	3-4	5-6/7-8
		JP7	1-3/2-4	3-5/4-6	3-5/4-6
		JP8	1-3/2-4	3-5/4-6	3-5/4-6

4. JP5/JP9: COM1/COM2 RS-422/RS-485 mode long-distance transmission setup

	Setup	Function
 JP5/JP9 (pitch: 2.0mm)	[3-5][4-6] short	Not to be used for long-distance transmission (Default)
	[1-3][2-4] short	RS-485 mode
	2-4 short	RS-422 mode

5. JP10: SATA2 Pin7 used for SATA/DOM function selection (pitch: 2.54mm)

	Setup	Function
 JP10	1-2 short	SATA2 used for SATA data interface or Pin7(GND)SATA DOM interface (Default)
	2-3 short	SATA2 only used for Pin7 to supply power to DOM

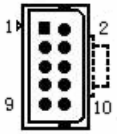
6. LCD working voltage selection (pitch: 2.0mm)

Different LCD screens may have different voltages. This board provides two voltage options: 3.3V and 5V. Only when the selected LCD voltage is consistent with the working voltage ofLCD screen used, can LCD screen deliver normal display.

	Setup	Function
 JLCDB1	1-2 short	+3.3V(Default)
	2-3 short	+5V

2.6 COM port

This board provides 10 COM ports. Their pin definitions are as follows:



COM1～COM6
(pitch: 2.0mm)

Pin	Signal Name		
	RS-232 COM1～COM6	RS-485 COM1/COM2	RS-422 COM1/COM2
1	DCD#	DATA-	TXD-
2	RXD	DATA+	TXD+
3	TXD	NC	RXD+
4	DTR#	NC	RXD-
5	GND	GND	GND
6	DSR#	NC	NC
7	RTS#	NC	NC
8	CTS#	NC	NC
9	RI#	NC	NC
10	NC	NC	NC

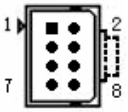
Note: 1. Under the RS-485 mode, and the data receive/send is automatically controlled.

2. As for RS-232 mode, please select “RS-232” option in the corresponding menu of BIOS Setup. As for RS-485 and RS-422 mode, please select “RS-485” option. For details, please refer to “BIOS Setup” part of this manual;

3. COM1/COM2 support RS-232/RS-422/RS-485, COM3～COM6 only support RS-232;

4. Nuvoton’s manufacturer driver must be installed for COM ports.

2.7 ATX Power Switch and LED Port



FP1
(Pitch: 2.0mm)

Pin	Signal Name	Pin	Signal Name
1	PWRBTN#	2	GND
3	GND	4	RESET#
5	HDD_LED-	6	HDD_LED+
7	GND	8	PWR_LED+

2.8 SATA1 Interface

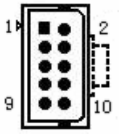
SATA1

Pin	Signal Name
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

Note: SATA2 can be standard SATA interface or SATA-DOM, which needs to be selected by JP10.

2.9 Audio Port

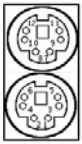
This board provides one 2×5Pin audio port.



AUDIO1
(pitch: 2.0mm)

Pin	Signal Name	Pin	Signal Name
1	LOUT_R	2	LOUT_L
3	GND_AUDIO	4	GND_AUDIO
5	LIN_R	6	LIN_L
7	GND_AUDIO	8	GND_AUDIO
9	MIC_L	10	MIC_R

2.10 KB/MS Port

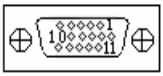


KM1

Pin	Signal Name	Pin	Signal Name
1	KB_DATA	7	MS_DATA
2	NC	8	NC
3	GND	9	GND
4	+5V	10	+5V
5	KB_CLK	11	MS_CLK
6	NC	12	NC

2.11 Display Port

1. This motherboard provides one standard DB15 VGA port. Its pin definition is as follows:

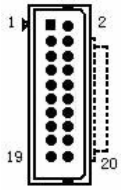


VGA1

Pin	Signal Name	Pin	Signal Name
1	Red	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DDCDATA
13	HSYNC	14	VSYNC
15	DDCCLK	-	-

2. DVI-D port

This motherboard provides one 2×10Pin wafer DVI port (pitch: 2.0mm). Its pin definition is as follows:

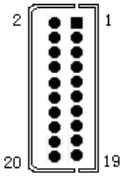


DVI1

Pin	Signal Name	Pin	Signal Name
1	DATA2-	2	DATA2+
3	GND	4	GND
5	DATA1-	6	DATA1+
7	GND	8	GND
9	DATA0-	10	DATA0+
11	GND	12	GND
13	CLK+	14	CLK-
15	+5V	16	HPDET
17	DDCDATA	18	DDCCLK
19	GND	20	GND

3、 LVDS port

This board provides one dual-channel 24bitLVDS port (LVDS1) (pitch: 1.0mm). When single-channel 18-bit/24-bit LVDS screen is used, LVDS data cable should be connected to position of LVDS1. Its pin definition is as follows:



LVDS1

Pin	Signal Name	Pin	Signal Name
1	LVDSO_D0+	2	LVDSO_D0-
3	GND	4	GND
5	LVDSO_D1+	6	LVDSO_D1-
7	GND	8	GND
9	LVDSO_D2+	10	LVDSO_D2-
11	GND	12	GND
13	LVDSO_CLK+	14	LVDSO_CLK-
15	GND	16	GND
17	LVDSO_D3+	18	LVDSO_D3-
19	VDD	20	VDD

2.12 LCD Backlight Control Connector (Pitch：2.0mm JST)

LCDB1

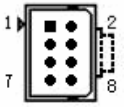
Pin	Signal Name
1	+12V
2	LCD_BKLTCTL
3	LCD_BKLTEN
4	GND

Note: LCD_BKLTCTL---Backlight Control (The signal is output as PWM signal via North Bridge directly; the voltage amplitude is 0V-3.3V while the duty cycle is between 0% ~ 100%);

LCD_BKLTEN ---Backlight Enable, Active High (The signal is output as CMOS output via North Bridge directly; the voltage amplitude is 0V-3.3V).

2.13 USB Port

This board provides four 2×5Pin pin header USB ports (J2, J3, J4, J7 pitch: 2.0mm), supporting up to 8 USB device.

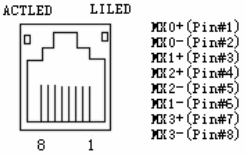


J2/J3/J4/J7

Pin	Signal Name	Pin	Signal Name
1	+5V_USB	2	+5V_USB
3	USB1_DATA-	4	USB2_DATA-
5	USB1_DATA+	6	USB2_DATA+
7	GND	8	GND

2.14 Network Port

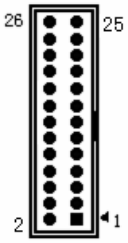
The board provides two 10/100/1000Mbps LAN ports: LAN1 and LAN2. LAN1 supports Wake-on-LAN. ACTLED and LILED are the green and dual color LEDs on both sides of the Ethernet port, which respectively indicates the activity status and the speed of LAN. Please refer to the status description for each LED:



LAN1, LAN2

ACTLED (single color: green LED)	Network activity		LILED (dual-color: orange and green)	Network speed
			Green	1000Mbps
Flash	Data being transmitted		Orange	100Mbps
Off	No data being transmitted		Off	10Mbps

2.15 LPT Port (IDC connector)

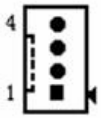


LPT1

(pitch: 2.54mm)

Pin	Signal Name	Pin	Signal Name
1	STB#	2	AFD#
3	PD0	4	ERR#
5	PD1	6	INIT#
7	PD2	8	SLIN#
9	PD3	10	GND
11	PD4	12	GND
13	PD5	14	GND
15	PD6	16	GND
17	PD7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

2.16 Speaker Output Port

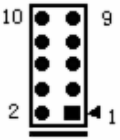


FP2

(pitch: 2.0mm)

Pin	Signal Name
1	BUZ-
2	NC
3	GND
4	BUZ+

2.17 GPIO Port



GPIO1

(pitch: 2.0mm)

Pin	Signal Name	Pin	Signal Name
1	INPUT0	2	OUTPUT0
3	INPUT1	4	OUTPUT1
5	INPUT2	6	OUTPUT2
7	INPUT3	8	OUTPUT3
9	GND	10	NC

Note: The factory GPIO Default is TTL input/output, and the voltage range of input/output signal is 0～5V.

2.18 Motherboard Power Connector

1. 4Pin CPU power connector (pitch: 4.2mm)

PWR1

Pin	Signal Name
1	GND
2	GND
3	+12V
4	+12V

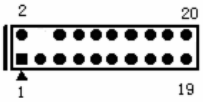
2. The motherboard provides one 1×5pin power connector (pitch: 2.0mm), which is used to provide power for LPC bus expansion card. Its pin definition is as follows:

PWR2

Pin	Signal Name
1	GND
2	+5V
3	+5V
4	GND
5	+5V

2.19 LPC Bus Port

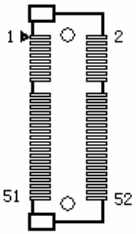
This motherboard provides one 2×10Pin LPC pin header port. Its pin definition is as follows:



LPC1
(pitch: 2.54mm)

Pin	Signal Name	Pin	Signal Name
1	LPC_CLK	2	GND
3	LPC_FRAME#	4	NA
5	PLT_RST#	6	+5V
7	LPC_AD3	8	LPC_AD2
9	+3.3V	10	LPC_AD1
11	LPC_AD0	12	GND
13	SMB_CLK	14	SMB_DATA
15	+3.3VSB	16	SERIRQ
17	GND	18	CLKRUN
19	SUS_STA-	20	LPC_DRQ#

2.20 MSATA1 Interface



MSATA1

Pin	Signal Name	Pin	Signal Name
1	WAKE#	2	+3.3V
3	NC	4	GND
5	NC	6	+1.5V
7	CLKREQ#	8	NC
9	GND	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	W_DISABLE#
21	GND	22	NC
23	SATA_RX+	24	+3.3V
25	SATA_RX-	26	GND
27	GND	28	+1.5V
29	GND	30	NC
31	SATA_TX-	32	NC
33	SATA_TX+	34	GND
35	GND	36	NC
37	GND	38	NC
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	Reserved	52	+3.3V

2.21 SATA HDD Hot Swap

Please pay attention to the following when carrying out SATA HDD hot swap:

（1） The hard disk must support SATA2.0 interface or above, and 15-pin SATA HDD power connector is used;

（2） The SATA hard disk only supports hot swap function only at AHCI mode and when the hot swap function is enabled.

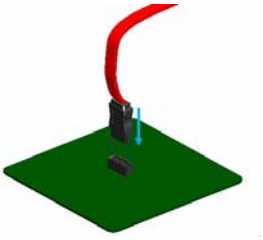
（3） The driver of chipset shall support the hot-swap of SATA hard disk.

（4） Do not hot swap SATA hard disk where the operating system is located when system is powered-on.

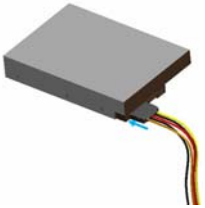
Please carry out hot plugging as follows. Improper operation may destroy the hard disk or result in data loss.

Steps for hot plugging SATA hard drive:

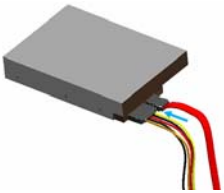
Step1: Connect the SATA data cable with the SATA interface on the motherboard;



Step2: Insert the SATA power cable 15-pin connector (black) into the SATA hard disk;



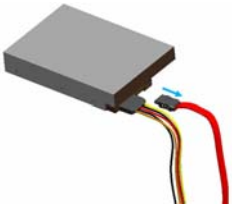
Step3: Insert the SATA data cable into the SATA hard disk.



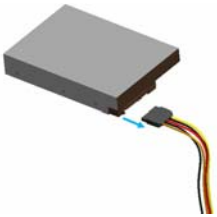
Steps for hot Unplugging SATA hard drive:

Step1: Uninstall the hard drive from the device manager.

Step2：Unplug the SATA data cable from the SATA hard drive.



Step 3: Unplug the SATA 15-pin power connector (black) from the SATA hard drive.



3. BIOS Setup

3.1 UEFI Overview

UEFI (Unified Extensible Firmware Interface) is the latest computer firmware to replace traditional BIOS. UEFI is solidified in the flash memory on the CPU board. Its main functions include: initialize system hardware, set the operating status of the system components, adjust the 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 and so on. UEFI provides users with a human-computer interface in menu style to facilitate the configuration of system parameters for users, control power management mode and adjust the resource distribution of system device, etc.

Setting the parameters of the UEFI correctly could enable the system operating stably and reliably; it could also improve the overall performance of the system at the same time. Inadequate even incorrect UEFI parameter setting will decrease the system operating capability and make the system operating unstably even unable to operate normally.

3.2 UEFI Parameter Setup

Prompt message for UEFI setting may appear once powering on the system. At that time (invalid at other time), press the key specified in the prompt message (usually <Del> or <F2>) to enter UEFI setting.

All the setup values modified by UEFI (excluding data and time) are saved in the flash storage in system; the contents will not be lost even if powered down or remove the battery of the board. The data and time are saved in CMOS storage, which is powered by battery; unless clearing CMOS is executed, its contents would not be lost even if powered off.

Note! BIOS setting will influence the computer performance directly. Setting parameter improperly will cause damage to the computer; it may even be unable to power on. Please use the internal default value of BIOS to restore the system after clearing CMOS.

Our company is constantly researching and updating BIOS, its setup interface may be a bit different. The figure below is for reference only; it may be different from your BIOS setting in use.

3.3 Basic Function Setting for UEFI

After starting SETUP program, the main interface of Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc. will appear:

◆ **Main**

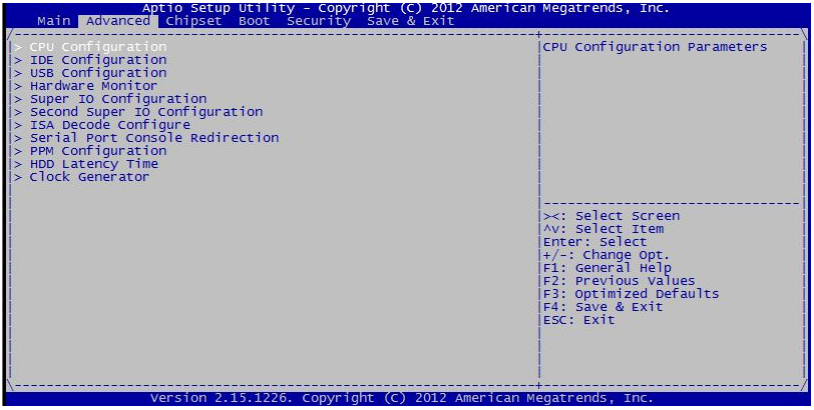
➢ **System Date**

Choose this option and set the current date by < + > / < - >, which is displayed in format of month/date/year. Reasonable range for each option is: Month (1-12), Date (01-31), Year (Maximum to 2099), Week (Mon. ~ Sun.).

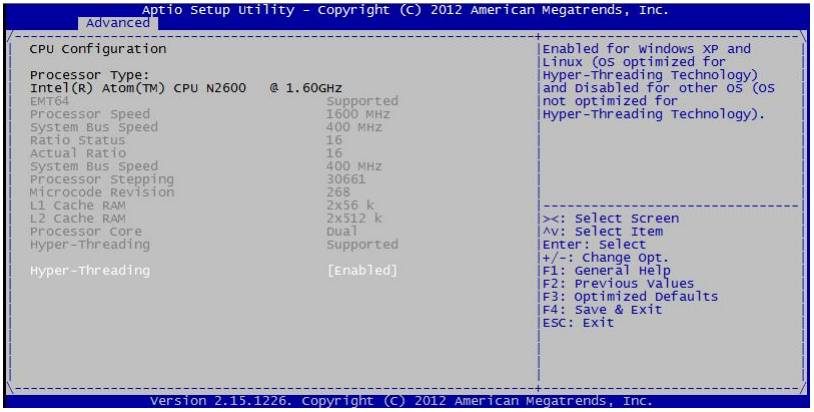
➢ **System Time**

Choose this option and set the current time by < + > / < - >, which is displayed in format of hour/minute/second. Reasonable range for each option is: Hour (00-23), Minute (00-59), Second (00-59).

◆ Advanced



➢ CPU Configuration

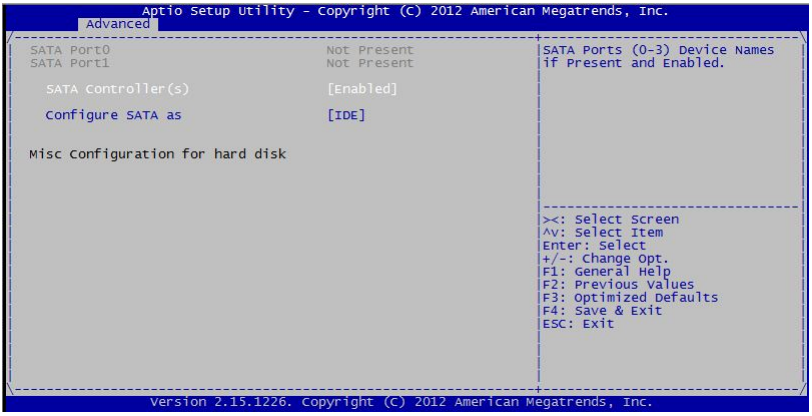


This option displays related information of CPU. Please note that the CPU Type，Speed, Core and HT are related to the CPU installed; different families of CPUs will display different information.

✧ Hyper-Threading

Control switch of Hyper Threading Technology function.

➢ **IDE Configuration**



SATA Port0～1 dynamically detect whether the motherboard is connected to SATA device. If the corresponding Port is connected to a device, the model number of the SATA device will be displayed. Otherwise, it will indicate “Not Present”.

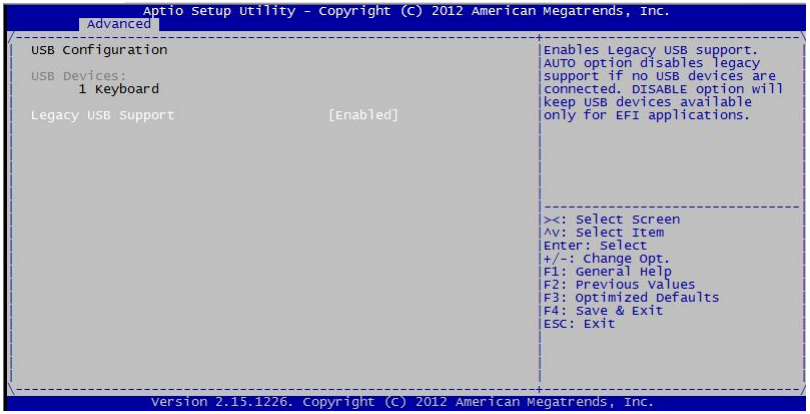
✧ **SATA Controller(S)**

To enable or disable devices on SATA Port.

✧ **Configure SATA as**

To configure the type of SATA setup: IDE or AHCI.

➢ **USB Configuration**

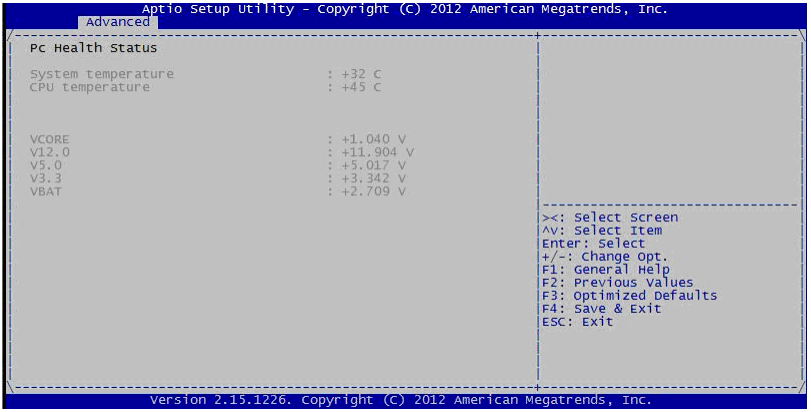


✧ **Legacy USB Support**

This option is used to support legacy USB devices (keyboard, mouse, storage device, etc). When it is set to Enabled, the USB devices can be used in the OS that does not support USB, such as DOS. When it is set to Disabled, the legacy devices cannot be used in the OS that does not support USB.

Note: USB can be used in EFI application, such as in Shell.

➢ **H/W Monitor**



To display currently detected hardware voltage, temperature, fan speed and other information.

✧ **System Temperature**

Current system temperature, usually monitored by thermal resistor on the motherboard.

✧ **CPU Temperature**

Current CPU temperature, monitored by temperature sensor on the motherboard.

✧ **Vcore**

CPU core voltage.

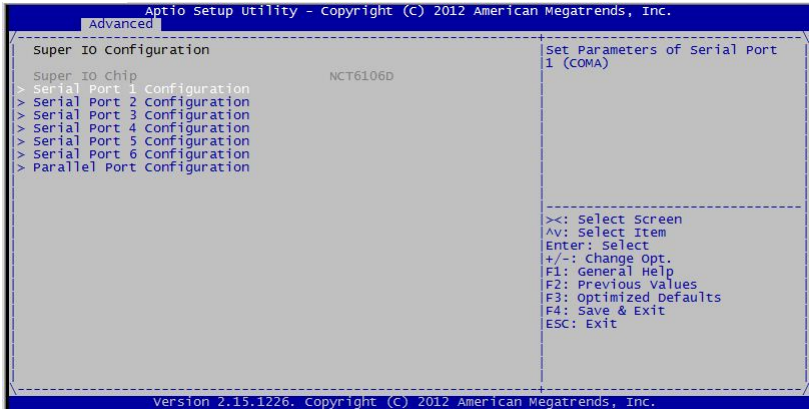
✧ **V3.3/ V5.0/V12.0**

Switch power output voltage.

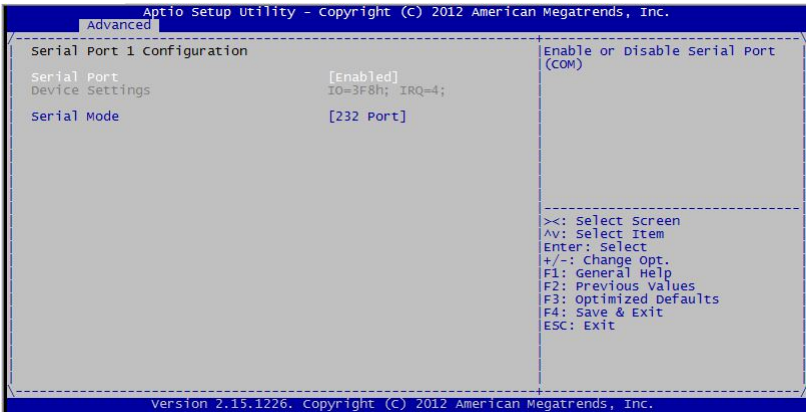
✧ **VBAT**

CMOS battery voltage.

➢ **Super IO Configuration**



✧ **Serial Port 1～6 Configuration**



*** Serial Port1～6**

This option is used to enable or disable the current serial port.

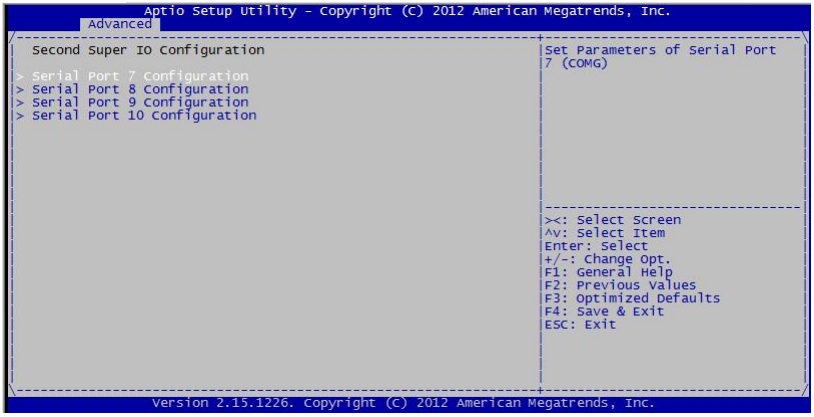
*** Device Settings**

This option is used to display the current resource configuration of the serial port.

*** Serial Mode**

This option is used to configure working mode of serial port (only Serial Port1 and Serial Port2 support RS-485 working mode).

- **Second Super IO Configuration (optional function, which needs externally connected EVOC Fintek serial port module**



*** Serial Port1～4**

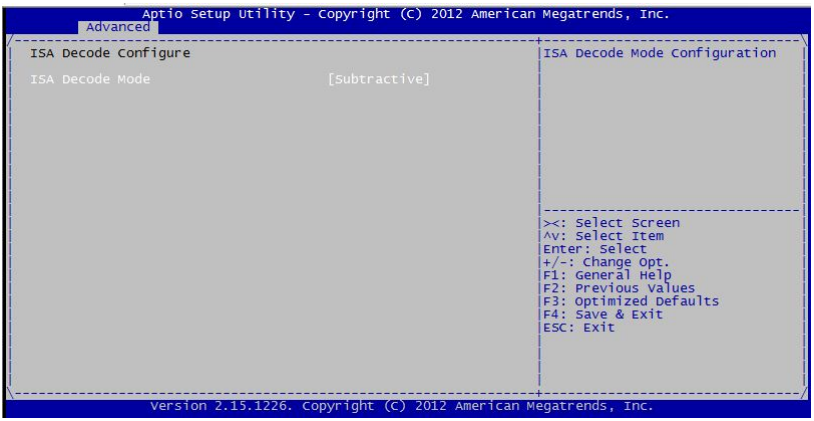
This option is used to enable or disable current serial port.

*** Device Settings**

This option is used to display current resource configuration of serial port.

- **ISA Decode Configure**

This option is used for IO/Memory resource configuration of ISA card.

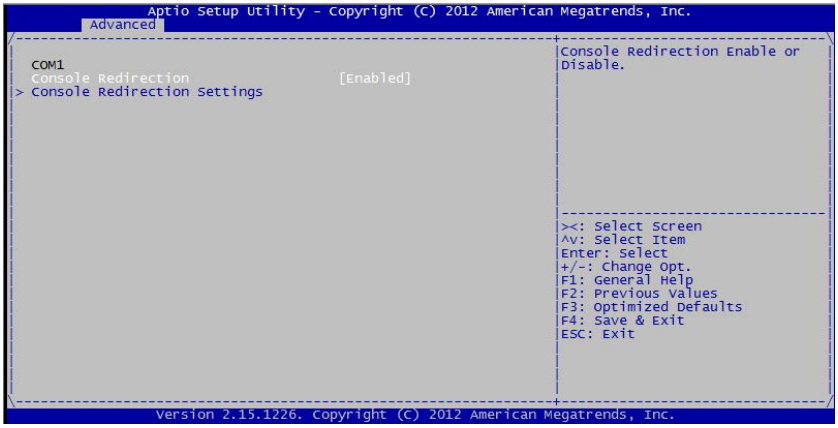


*** ISA Decode Mode**

This option is used to set ISA decode mode. It is recommended to use BIOS default setting. If the system is Win2000, the mode should be set to Positive.

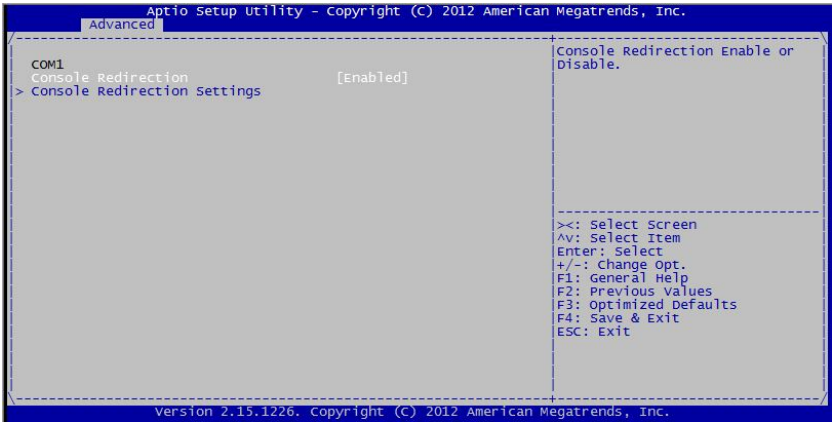
➢ **Serial Port Console Redirection**

This option provides configuration of serial port redirection function.



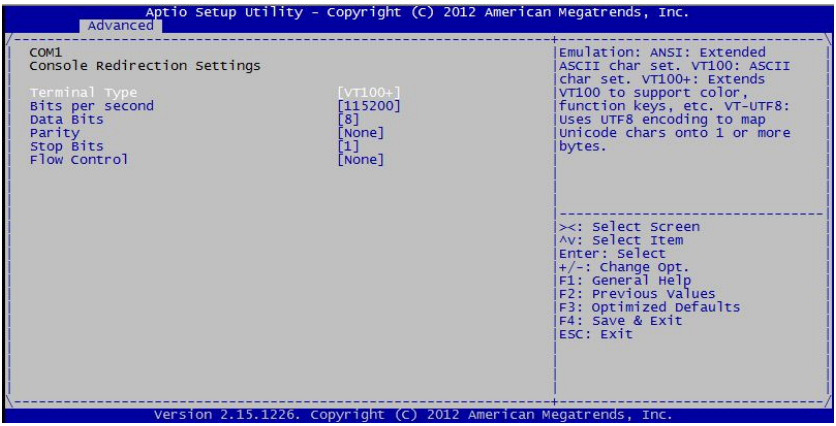
- **Console Redirection**

This option is used to enable or disable serial port redirection function.



- **Console Redirection Settings**

  This option provides parameter configuration of serial port redirection function.



✧ **Terminal Type**

To set terminal type; the default value: ANSI.

✧ **Bits per second**

To set baud rate; the default value: 115200.

✧ **Data Bits**

To set data bit width; the set value: 8.

✧ **Parity**

To set parity; the default value: None.

✧ **Stop Bits**

To set stop bits; the default value: 1.

✧ **Flow Control**

To set flow control; the default value: None.

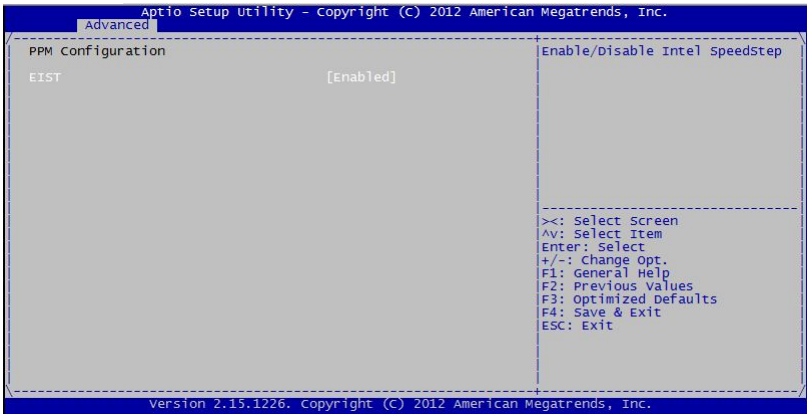
The keyboard definitions of different COM port redirection terminals may be incompatible with each other, which has to do with the COM port redirection terminal software itself. If keyboard key incompatibility exists, please use the combo keys described below to replace the original keyboard function.

The function keys of COM port redirection function are shown in the table below:

Key or Function	Sequence
Home	<ESC>h
End	<ESC>k
Insert	<ESC>+
Delete	<ESC>-
Page Up	<ESC>?
Page Down	<ESC>/
F1	<ESC>1
F2	<ESC>2
F3	<ESC>3
F4	<ESC>4
F5	<ESC>5
F6	<ESC>6
F7	<ESC>7
F8	<ESC>8
F9	<ESC>9
F10	<ESC>0
F11	<ESC>!
F12	<ESC>@

Note: The COM port redirection function only supports redirection of text interface, does not supports redirection of graphics interface.

➢ **PPM Configuration**

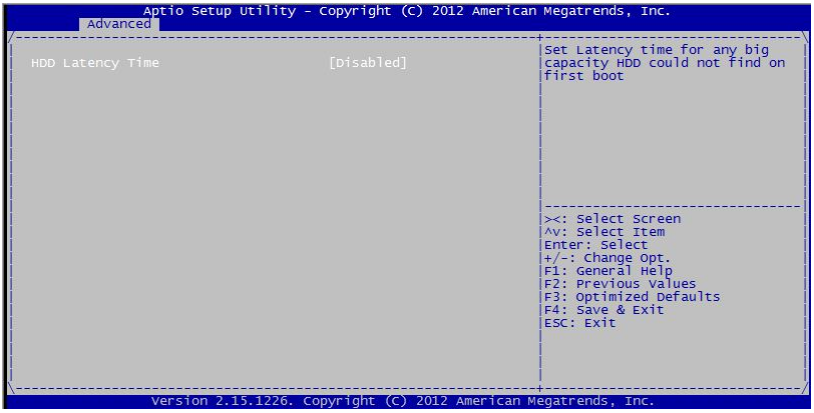


- **EIST**

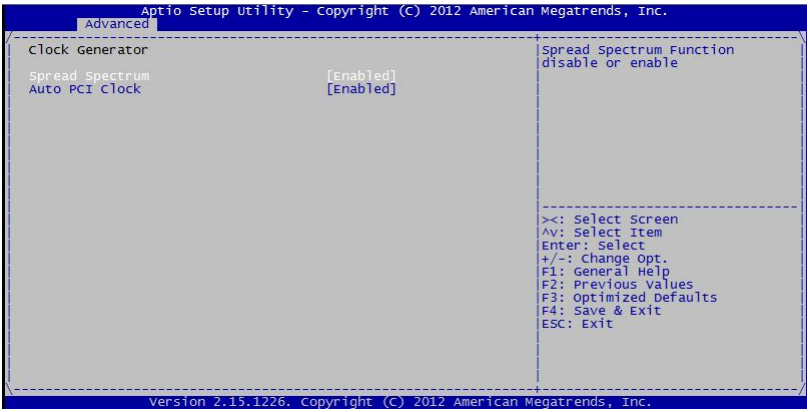
  Control switch of Enhanced Intel SpeedStep Technology.

➢ **HDD Latency Time**

This option is used to delay HDD detection during BIOS POST.



➢ **Clock Generator**



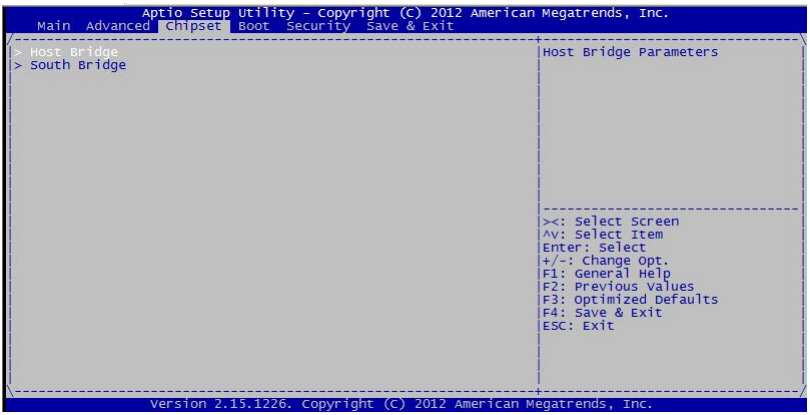
✧ **Spread Spectrum**

This option is used to set spread spectrum function of clock signal.

✧ **Auto PCI Clock**

This option is used to realize automatic detection of devices on PCI slot. If there is no device on the slot, disable the clock signal corresponding to the slot.

◆ **Chipset**



➢ **Host Bridge**

● **Intel IGD Configuration**

✧ **IGFX – Boot Type**

To set IGD boot primary display device.

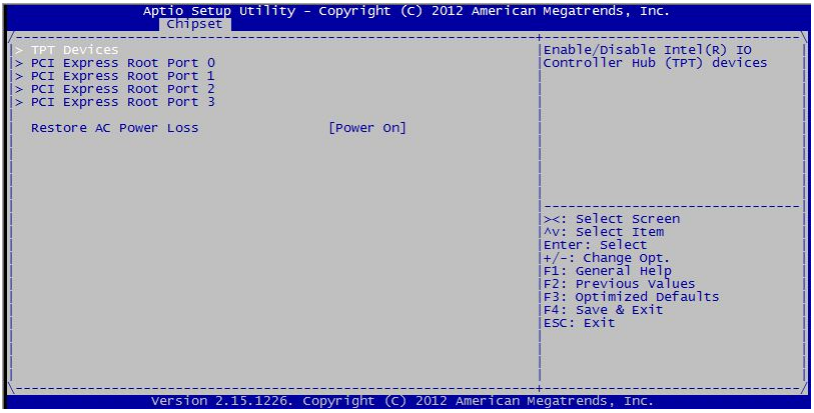
✧ **LCD Panel Type**

This option is used to choose resolution rate of Flat Panel.

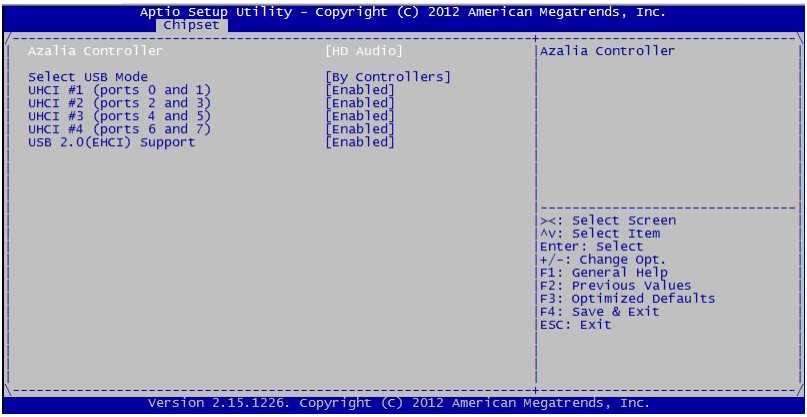
✧ **Fixed Graphics Memory Size**

To set the graphics memory size.

➢ **South Bridge**



- **TPT Devices**



*** Azalia Controller**

This option is used to enable or disable audio card controller.

*** Select USB Mode**

This option is used to select USB control mode.

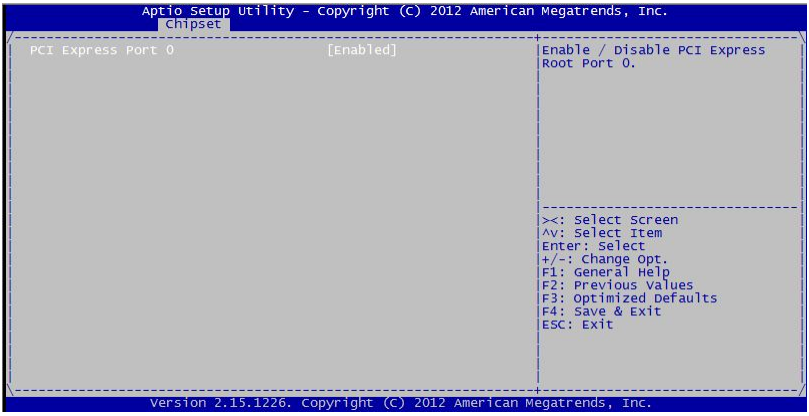
* **UHCI #X (ports X and X)**

This option is used to enable or disable by controller method.

*** USB 2.0(EHCI) Support**

This option is used to enable USB2.0.

- **PCI Express Root Port X**



✧ **PCI Express Port X**

This option is used to enable or disable PCIE0-3 port.

- **Restore AC Power Loss**

This option could set the system status when the computer is re-electrified after powered off under AC.

* **Power Off**

S5 status: The system needs to be manually powered on after it is connected to AC power supply.

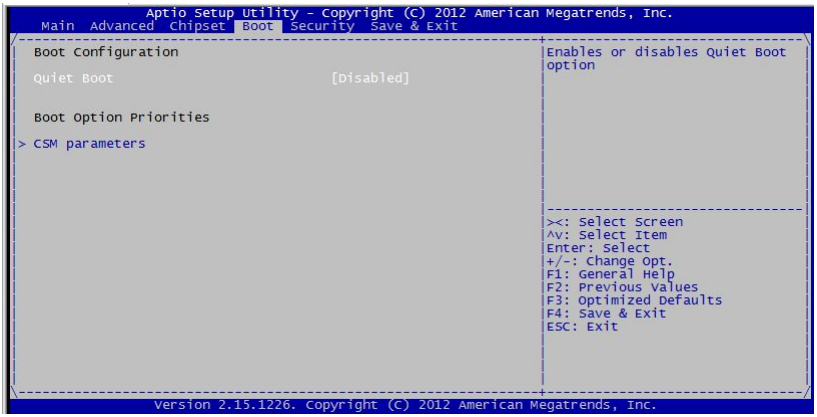
* **Power On**

S0 status: The system is automatically powered on when it is connected to AC power supply.

* **Last State**

Whether the system returns to S0 or S5 status depends on the status when the computer is disconnected from AC power. For example, if the computer is at power-on status (S0 status) when it is disconnected from AC power, the computer will be powered on automatically when it is connected to AC power; if the computer is at power-off status (S5 status) when it is disconnected from AC power, the computer will not be automatically powered on when it is connected to AC power (remain at S5 status).

◆ **Boot**



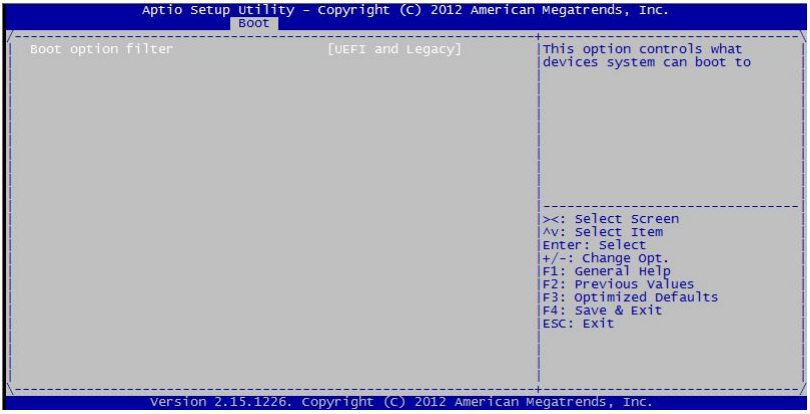
- **Quiet Boot**

  Boot mode selection switch, used to enable or disable Quiet Boot.

- **Boot Option Priorities**

  This option is used to configure system boot priorities. The larger the number, the lower the priority. For example, #1 has highest priority.

- **CSM parameters**

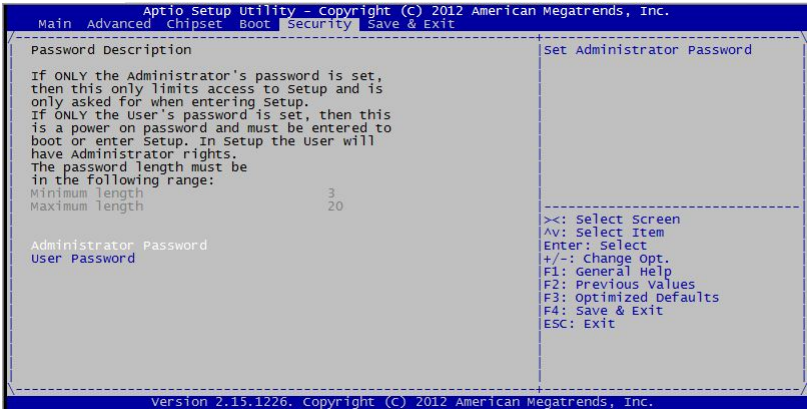


- **Boot option filter**

  Used to control from which type of device the system is booted.

Note: If GPI format system needs to be installed and used, please set the Boot option filter option to UEFI only.

- **Security**



➢ **Setup Administrator Password**

This option is used to set up administrator password.

> **Note: If only the administrator password is set, the password needs to be keyed in only when entering into Setup program.**

◆ **Save & Exit**

➢ **Save Changes and Reset**

This option is used to save changes and reset.

➢ **Discard Changes and Reset**

This option is used to discard changes and reset.

3.4 System Resource Managed by UEFI under X86 Platform

We define three kinds of system resources here: I/O port address, IRQ interrupt number and DMA number.

◆ **DMA**

Level	Function
DMA0	Unassigned
DMA1	Unassigned
DMA2	Unassigned
DMA3	Unassigned
DMA4	Used for DMAC cascade
DMA5	Unassigned
DMA6	Unassigned
DMA7	Unassigned

◆ **APIC**

Advanced programmable interrupt controller. Most motherboards above P4 level support APIC and provide more than 16 interrupt sources, like IRQ16 - IRQ23; while some others can have up to 28 interrupt sources, such as motherboard supporting PCI-X. However, relevant OS are required to enable that function.

◆ **IO Port Address**

Only 16 IO address lines are designed for X86, from 0 ~ 0FFFFh; there is 64K for the system I/O address space. In traditional ISA connector, only the foregoing 1024 (0000 ~ 03FFh) are used while the ports above 0400h are used by PCI and EISA connectors. Each peripheral will occupy portion of the space. The table below shows the I/O connectors used in X86 platform.

Address	Device Description
000h - 000Fh	DMA controller #1
020h - 021h	Programmable Interrupt Controller
024h - 025h	Programmable Interrupt Controller
028h - 029h	Programmable Interrupt Controller
02Ch – 02Dh	Programmable Interrupt Controller

030h - 031h	Programmable Interrupt Controller
034h - 035h	Programmable Interrupt Controller
038h - 039h	Programmable Interrupt Controller
03Ch – 03Dh	Programmable Interrupt Controller
040h - 043h	System Timer
050h - 053h	System Timer
060h - 060h	PS/2 standard keyboard
064h – 064h	PS/2 standard keyboard
070h - 071h	System CMOS/ Real Time Clock
081h - 091h	DMA controller
093h – 09Fh	DMA controller
0A0h – 0A1h	Programmable Interrupt Controller
0A4h – 0A5h	Programmable Interrupt Controller
0A8h – 0A9h	Programmable Interrupt Controller
0ACh – 0ADh	Programmable Interrupt Controller
0B0h – 0B1h	Programmable Interrupt Controller
0B4h – 0B5h	Programmable Interrupt Controller
0B8h – 0B9h	Programmable Interrupt Controller
0BCh – 0BDh	Programmable Interrupt Controller
0C0h – 0DFh	DMA controller
0F0h – 0FFh	Numeric data processor
2E0h – 2E7h	COM5
2E8h – 2EFh	COM4
2F0h – 2F7h	COM6
2F8h – 2FFh	COM2
3B0h – 3BBh	Intel(R) Graphic Media Accelerator
3C0h – 3DFh	Intel(R) Graphic Media Accelerator
3E8h – 3EFh	COM3
3F8h – 3FFh	COM1
4D0h – 4D1h	Programmable Interrupt Controller
D00h – FFFFh	PCI Bus

◆ **IRQ Assignment Table**

There are 15 interrupt sources of the system. Some have been occupied by the system devices. Only the ones that are not occupied can be assigned to other devices. ISA device requests exclusive use of its interrupt. Only the plug and play ISA devices can be assigned by the UEFI or the OS. And several PCI devices can share one interrupt, which is assigned by UEFI or OS. Interrupt assignment of some devices of X86 platform is shown in the table below, but it does not show the interrupt source occupied by the PCI devices.

Level	Function
IRQ0	System Timer
IRQ1	Standard 101/102-key or Microsoft keyboard
IRQ2	Reserved
IRQ3	COM2
IRQ4	COM1
IRQ5	Reserved
IRQ6	Reserved
IRQ7	COM3, COM4, COM5, COM6
IRQ8	System CMOS/ Real Time Clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 mouse
IRQ13	Numeric data processor
IRQ14	Reserved
IRQ15	Reserved

4. Installing the Drivers

Regarding installation of driver program of this product, please refer to the enclosed CD.

5. Appendix

5.1 Troubleshooting and Solutions

Common Malfunctions	Items to be Checked
Unable to power on after connected to power supply	1. Please make sure whether the power cord is well connected; 2. Please make sure whether the adopted power supply meets the power requirement of the motherboard; 3. Please check whether the CPU has been properly installed and whether the CPU has been buckled properly; 4. Remove and install the memory bank again; 5. Replace the memory bank; 6. Please clear the CMOS according to the Manual; 7. Please make sure whether there are peripheral cards connected, and whether it is normal after removing the peripheral cards;
BIOS Setup cannot be saved	Please make sure whether the CMOS battery voltage is lower than 2.8V; if so, replace it with a new battery, set and save the BIOS Setup again.
No bootable device can be found	1. Please make sure whether the power cable or data cable of the hard disk is connected properly; 2. Please make sure whether there are physical damage on the hard disk; 3. Please make sure whether operating system has been normally installed in the hard disk.
Blue screen or computer crush occurred when entering system	1. Please make sure whether the memory bank or the peripheral card is loose; 2. Try to remove the newly installed hardware, uninstall the driver or software; 3. Try to replace the memory.

Slow to enter operating system	1. Please check whether there are bad tracks on the hard disk by third party software; 2. Please make sure whether the remaining space on the system partition is enough; 3. Please make sure whether the CPU fan is operating normally.
System reboots automatically	1. Please make sure whether the CPU fan is operating normally; 2. Please make sure whether the reset button has been triggered by accident; 3. Please make sure whether the system is affected by virus using anti-virus software; 4. Please make sure whether the memory bank or the peripheral card is loose; 5. Please make sure whether the loading capability of the adopted power supply is enough; please try to replace the power.
No USB device can be detected	1. Please make sure whether independent power supply is required on the USB device; 2. Please make sure whether ill contact exists on the USB port; 3. Please make sure whether the USB controller in BIOS Setup has been enabled.
No PCI card can be detected	1. Please make sure whether additional power supply is needed on the PCI card; 2. Please make sure whether the operating voltage of the PCI card is in accord with that supplied by motherboard (5V by default); 3. Please make sure whether the PCI slot can be identified after replacement.

No ISA card can be detected	1. Please make sure the resources used by ISA card have been reserved by BIOS according to the ISA card manual. There are reserving options in BIOS Setup for ISA used I/O or memory resource on most of the motherboards; whether the IRQ used by ISA card has been reserved in BIOS Setup; 2. The ISA card usually cannot be identified directly within system; please choose "Add in Hardware" in the "Control Panel" in Windows system to set.

5.2 Abbreviations

Abbreviation	Terminology	Meaning
AC	Alternate current	Alternate current
APM	Advanced Power Management	A tool used to monitor and lower PC power consumption.
ACPI	Advanced Configuration and Power Interface	
AHCI	Advanced Host Controller Interface	Standard control interface of serial ATA, Microsoft windows XP (above SP1 version) and IAA driver program supports the interface
APIC	Advanced Programmable Interrupt Controller	Extended programmable interrupt controller
ASPM	Active State Power Management	A power saving mode control for PCIE devices in idle status
ATM	Asynchronous Transfer Mode	
ASCII	American Standard Code	

	for Information Interchange	
API	Application Program Interface	
ATM	Asynchronous Transfer Mode	
AT	Advanced Technology	AT power supply
ATX	Advanced Technology Extended	ATX motherboard structure or ATX power supply
AWG	American wire gauge	An American standard to differentiate wire diameter
BIOS	Basic Input/Output System	BIOS code
Bps	Bit/Second	A description of data transfer rate
BGA	Ball Grid Array	A chip package type
Buffer	Buffer	
Battery	Battery	
BBS	Bulletin Board System	
BMP	Bitmap	A graphics format
CAN	Controller Area Network	A universal industrial site bus
CD-ROM	Compact Disc Read-only Memory	Large data storage read-only disc
CD-RW	CD Read & Write	Burner disc
CE	Communate Europpene (European Conformity) (CE Certificate Mark)	Unified certificate mark of European Union products
CF	CF card	
CGA	Color Graphic Adapter	Standard monitor interface
CLK	Clock Pulse	Clock Signal
CMOS	Complementary Metal-oxide Semi-conductor	

COA	Certificate Of Authenticity	Microsoft Windows product key
CoL	Certificate of License	License authorization
COM	Serial Communication Port	Serial Port
CP	Communications Processor	Communication PC
CPU	Central Processing Unit	
CRT	Cathode Ray Tube	CRT monitor
CSA	Canada Standard Association	A Canada organization which carries out test and certification by the standard of Canada or the two countries (using UL/USA)
CTS	Clear to Send	
CPCI	Compact PCI	A high-performance industrial bus port standard
CISC	Complicated Instruction Set Computer	
CRC	Cycle Redundant Check	An error check code
CGI	Common Gateway Interface	
Cache	High Speed Cache Memory	
DRAM	Dynamic Random Access Memory	
DDRAM	Double Data Rate Random Access Memory	Memory chip with high speed port
DC	Direct Current	
DCD	Data Carrier Detect	Data carrier signal detect
DMA	Direct Memory Access	Direct memory access
DOS	Disk Operating System	Operating system without graphic interface
DP	Display Port	Display Port
DQS	German Certification body for Quality and	

	Environment Management Systems	
DSR	Data Set Ready	Operation ready
DTR	Data Terminal Ready	
DVD	Digital Video Disc	
DVI-D	Digital Video Interface	Digital monitor interface
DVI-I	Digital Video Interface	Monitor port with digital and VGA analog signals
dB	Decibel	A counting unit to indicate ratio of two values
DCE	Data Communications Equipment	Data communication terminal device
DOM	DOM electronic hard disk	Abbreviation of Disk on module
DOC	Disk On Chip	Abbreviation of Disk on Chip
DDC	Display Data Channel	Bus standard for communication between monitor and host
DDR	Double Data Rate	A memory specification
Decode	Command Decode	
DFP	Digital Flat Panel	
DHCP	Dynamic Host Configuration Protocol	A network protocol of local area network
DES	Data Encryption Standard	A symmetrical encryption algorithm
DIMM	Double In-Line Memory Module	
DMI	Direct Media Interface	Data transmission channel between CPU and IO controller (PCH, ICH).
DNS	Domain Name System	A core service of Internet
Dot Pitch	Dot Pitch	Distance between two neighboring pixel dots on the

		screen
DPMS	Display Power Management Signaling	A display power management standard stipulated by VESA organization
DVMT	Dynamic video memory technology	A technology used to set shared memory size which can be used by video card
ECC	Error Correcting Code	
ECP	Enhanced Capability Port	Extended parallel port
EGA	Enhanced Graphics Adapter	Connector between PC and monitor
ESD	Electrostatic Discharge	
EDID	Extend display Identification Data	A VESA standard data format
EIDE	Enhanced IDE	Enhanced electronic integrated drive
EISA	Extended Industry Standard Architecture	Extended ISA standard
EM64T	Extended Memory 64 Technology	
EN	European Norm	The national standards of member countries must be compliant with EN standards
EEPROM	Electrically Erasable Programmable Read-Only Memory	Use sub-module of EEPROM chip
EPP	Enhanced Parallel Port	
ESC	Character for exit	Control character
EC	Embedded Controller	
EMI	ElectroMagnetic	

	Interference	
EMC	Electro Magnetic Compatibility	
ES	Energy Star	
ESCD	Extended System Configuration Data	
EIA	Electronic Industries Association	
FAQ	Frequently Asked Question	
FAT32	32-bit File Allocation Table	
FDD	Floppy Disk Drive	
FSB	Front Side Bus	External bus
FCPGA	Flip Chip Pin Grid Array	A chip package type
FCBGA	Flip Chip Ball Grid Array	A chip package type
FIFO	First IN First Out	
FireWire	Fire Wire	IEEE1394 standard
Firmware	Firmware	Firm software
FWH	Firm Ware Hub	
FPU	Float Point Unit	
FTP	File Transfer Protocol	
GND	Grounding	
GB	Gigabit	
GPS	Global Positioning System	
GSM	Global System for Mobile communication	
GUI	Graphical User Interface	
GMCH	Graphics & Memory controller hub	
GPU	Graphics Processing Unit	
HDD	Hard Disk Drive	

HDTV	High Definition TV	
HEX	Hexadecimal	
HTML	Hyper Text Markup Language	Used to create script language of Internet page
HTTP	Hyper Text Transfer Protocol	Data transfer protocol on the Internet
HardWare	Hardware	
HW Monitor	Hardware monitor	
Hz	Hertz	
HDMI	High Definition Multimedia Interface	A high definition display port
HAD	High Definition Audio	
HT	Hyper-Thread technology	
HS	Hot Swap	Hotswap operation of device card under power-on status
I/O	Input/Output	Data input/out of the computer
IDE	Integrated Drive Electronics	
IGD	Integrated Graphic Device	
IP	Ingress Protection	
IP	Internet Protocol	
IR	Infrared	A low-speed short-distance wireless transmission
IRDA	Infrared Data Association	Used for the standard of data transmitted by IR module
IRQ	Interrupt Request	
ISA	Industrial Standard Architecture	Used for bus of extended module
IC	Integrated Circuit	
IDSL	Internet Digital Subscriber Line	

IE	Internet Explorer	
IEEE	Institute of Electrical and Electronic Engineers	
IPC	Industrial PC	
ISO	International Standards Organization	
IT	Information Technology	
IA	Intel Architecture	
ICH	I/O Controller Hub	
ID	Identity code	
IDF	Intel Development Forum	
INI File	Initialization File	
ISP	Internet Server Provider	
IPMI	Intelligent Platform Management Interface	
JEDEC	Solid State Technology Association	Standard and specification formulation association for storage devices
KB	Keyboard	
Kbps	Kb per second	A transmission rate
L2 Cache	Level2 Cache	
LAN	Local Area Network	Computer network confined for local communication
LCD	Liquid Crystal Display	
LED	Light Emitting Diode	
LPT	Line Print Terminal	
LVDS	Low-Voltage Differential Signaling	
Latency time	Latency Time	
LBA	Logic Block Addressing	A block addressing mode for

		mechanical hard drive
LFP	LCD Flat Panel	LCD flat panel display
MAC	Media Access Control	
MMC	Micro Memory Card	32*24.5mm format memory card
MPI	Multiple Point Interface Used for Programming Devices	
MS-DOS	Microsoft Disk Operating System	
MTBF	Meantime between Failure	
MB	Megabyte	
MPEG	Moving Pictures Experts Group	A video compression standard
MTTR	Meantime to Repair	
MBR	Main Boot Record	
MHz	Mega Hertz	A unit of frequency
MCU	Micro Control Unit	A single-chip micro computer
MODEM	MOdulator/DEModulator	
NA	Not Available	
NC	Not Connected	
NP	Not Installed	
NCQ	Native Command Queuing	Automatically rearrange the files and disc access, to improve performance
NMI	Non Maskable Interrupt	
NTFS	New Technology File System	Windows XP, Windows Server 2008
		Vista and Windows 7 standard file system
NIC	Network Interface Card	Network adapter

NB	Northbridge	Northbridge chip
ODD	Optical Disc Drive	
OS	Operating System	
OSD	On-screen Display	
PATA	Parallel ATA	A storage interface standard
PC	Personal PC	Personal computer
PCI	Peripheral Component Interconnect	PCI bus
PCIE	Peripheral Component Interconnect Express	A high-speed serial differential full-duplex bus transfer specification
PCMCIA	Personal Computer Memory Card International Association	
PEG	PCI EXPRESS Graphics	
POST	Power On Self Test	
PXE	Pre-boot Execution Environment	Used to operate software without HDD data PC via network
PMC	PCI Mezzanine Card	PCI Mezzanine Card
PS2	PS2 Interface Device	PS2 mouse/keyboard standard port type developed by IBM
PICMG	The PCI Industrial Computer Manufacturers Group	
RAID	Redundant Arrays of independent Disks	Redundant HDD array
RI	Ringing	Call in wake-up signal
RS485	Reconciliation Sub layer 485	Designed to be used for bidirectional bus system of up to 32 nodes
RTC	Real Time Clock	

RTS	Request to Send	
RXD	Receive Data	
RF	Radio Frequency	Wireless transmission of electro-magnetic wave with frequency ranging from 300KHz～30GHz
RSV	Reserve Use of Pin	
RST	Reset	Reset
SCSI	Small Computer System Interface	
SDK	Software Development Kit	
SSD	Solid State Drive	
SV	Standard Voltage	
SMART	Self-Monitoring, Analysis and Reporting Technology	Hard drive error diagnosis program
SO-DIMM	Small Outline Dual Inline Memory Module	A laptop memory
SRAM	Static Random Access Memory	
SDRAM	Synchronous Dynamic Random Access Memory	
SVGA	Super Video Graphics Array	
SW	Software	Software
S5	Power-off	All hardware devices (including power supply) are shut off
S4	Suspend to Disk	Write the memory information into hard drive, and all components stop working
S3	Suspend to Memory	Write the data in operation into

		memory and shut off hard disk
S1	POS (Power on Suspend)	CPU stops working, and all the other hardware devices are still working normally
S0	Normal Operation of the Computer	All hardware devices are turned on or in normal operation status
SMB	System Management Bus	
SMD	Surface Mounted Devices	
SMI	System Management Interrupt	Only when SMI is triggered, can the system enter into SMM mode
SMM	System Management Mode	
SNR	Signal to Noise Ratio	
SPD	Serial Presence Detect	A 256KB EEPROM
S/PDIF	Sony/Philips Digital Interconnect Format	A civil digital audio interface protocol
SCI	System Control Interrupt	Notification of ACPI interrupt event of OS generated by hardware
TFT	Thin Film Transistor	An LCD screen type
TxD	Transmit Data	Data transmission signal
TDP	Thermal Design Power	Thermal Design Power
TTL	Transistor-Transistor-Logic	
Turbo	Instantaneous Acceleration Automatic Overclocking Technology	Intel Turbo boost
TPM	Trusted Platform Module	
USB	Universal Serial Bus	
UPS	Uninterruptible Power Supply	
UL	Underwriters Laboratories	UL certification

U	Server size unit, 1U=44.45mm	
UEFI	Unified Extensible Firmware Interface	Intel latest firmware interface standard, using C language
VGA	Video Graphics Array	A video adapter to meet industrial standard
VRM	Voltage Regulator Module	
VT	Virtualization Technology	Analog closed environment can be used by Internet technology
VID	Voltage Identification	
VSYNC	Vertical Synchronization	Vertical synchronization update
VESA	Video Electronics Standards Association	
VRAM	Video Random Access Memory	
VIO	VIO voltage	IO voltage on PCI bus equipment
VPX	New-generation High-speed Serial Bus	
WDT	Watchdog	Watch dog
WLAN	Wireless Local Area Network	
WOL	Wake-On-LAN	LAN wakeup
WWW	World Wide Web	World Wide Web
WAN	Wide Area Network	Wide Area Network
WAP	Wireless Application Protocol	
XGA	Extended Graphics Array	Supports maximum resolution of 1024×768
XMC	XMC Express Mezzanine Card	XMC Switched Mezzanine Card