

ETX-1813CLNA 系列

嵌入式单板电脑带 CPU/LVDS/VGA/LAN
/AUDIO

Embedded Single Board Computer with
CPU/LVDS/VGA/LAN/AUDIO

版本: C00

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安全使用小常识

1. 产品使用前，务必仔细阅读产品说明书；
2. 对未准备安装的板卡，应将其保存在防静电保护袋中；
3. 在从防静电保护袋中拿出板卡前，应将手先置于接地金属物体上一会儿（比如 10 秒钟），以释放身体及手中的静电；
4. 在拿板卡时，需佩戴静电保护手套，并且应该养成只触及边缘部分的习惯；
5. 为避免人体被电击或产品被损坏，在每次对主板、板卡进行拔插或重新配置时，须先关闭交流电源或将交流电源线从电源插座中拔掉；
6. 在需对板卡或整机进行搬动前，务必先将交流电源线从电源插座中拔掉；
7. 对整机产品，需增加 / 减少板卡时，务必先拔掉交流电源；
8. 当您需连接或拔除任何设备前，须确定所有的电源线事先已被拔掉；
9. 为避免频繁开关机对产品造成不必要的损伤，关机后，应至少等待 30 秒后再开机。

目录

第一章 产品介绍 1

 简介 1

 机械尺寸、重量与环境..... 1

 典型功耗 2

 微处理器 2

 芯片组 2

 系统内存 2

 显示功能 2

 网络功能 2

 音频功能 2

 电源特性 3

 扩展总线 3

 Watchdog功能 3

 I/O接口 3

第二章 安装说明 4

 产品外形尺寸图..... 4

 接口位置示意图..... 5

 主板架构图..... 6

 跳线设置 7

 SATA接口 7

 ETX连接器..... 8

第三章 BIOS功能简介 12

简介 12

BIOS参数设置 12

BIOS基本功能设置..... 13

x86 平台下BIOS所要管理的系统资源27

第四章 驱动程序安装说明 30

附录..... 31

 Watchdog编程指引..... 31

第一章 产品介绍

简介

ETX-1813CLNA是一系列低功耗嵌入式单板，符合ETX3.02 规范。板载Intel®凌动™新一代Luna Pier 平台的超低功耗 Pineview M，支持VGA& LVDS（18bit 单通道）显示，板载1GB DDR2 内存，1个10/100Mbps 以太网控制器，支持4个PCI 总线通道，2个ISA总线通道，4个USB2.0 接口，1个EIDE 接口，2个SATA 硬盘接口，板载 HDA 音频接口，板载I/O端口提供2个COM 口，1个红外线IR接口，1个EPP/ECP/SPP 并口，看门狗定时器，PS/2 键盘/鼠标接口。

ETX-1813CLNA系列采用Intel®低功耗高性能的解决方案，主板采用ETX 结构，方便用户开发个性要求的嵌入式应用系统，通过丰富的扩展接口，可广泛应用于电力、交通、医疗和军工等各种嵌入式领域。

机械尺寸、重量与环境

- 外形尺寸： 114 mm（长）×95mm（宽）×12mm（高）
- 净重： 76.3g；
- 工作环境：
 - 温度： -40℃～85℃；
 - 湿度： 5%～95%（非凝结状态）；
- 贮存环境：
 - 温度： -40℃～85℃；
 - 湿度： 5%～95%（非凝结状态）；

典型功耗

CPU: 板载Intel® Pineview M 1.66GHz 667MHz FSB

内存: 板载DDR2 667 Samsung 1GB K4T1G164QQ-HCE6

- +3.3V@ 0.18A; +5%/-3%;
- +5V@ 2.44A; +5%/-3%;
- +12V@ 0.06A; +5%/-3%。

微处理器

板载 Pineview M 1.66GHz 667MHz FSB

芯片组

南桥: Intel® ICH8M

系统内存

板载 1GB DDR2 内存

显示功能

采用系统集成显示芯片, 支持VGA和LVDS (单通道18bit) 两种显示模式。

CRT显示支持最高分辨率1400X1050@60Hz。

网络功能

提供一个10/100Mbps网络接口, 可支持网络唤醒功能。

音频功能

一个标准的HDA音效芯片, 提供优质的声音效果, 支持MIC-in/Line-in/

Speaker-out。

电源特性

采用AT/ATX电源。

扩展总线

ETX-1813CLNA-PI: 支持4个32位的PCI总线设备和2个16位的ISA总线设备;

ETX-1813CLNA-P: 支持4个32位的PCI总线设备。

Watchdog功能

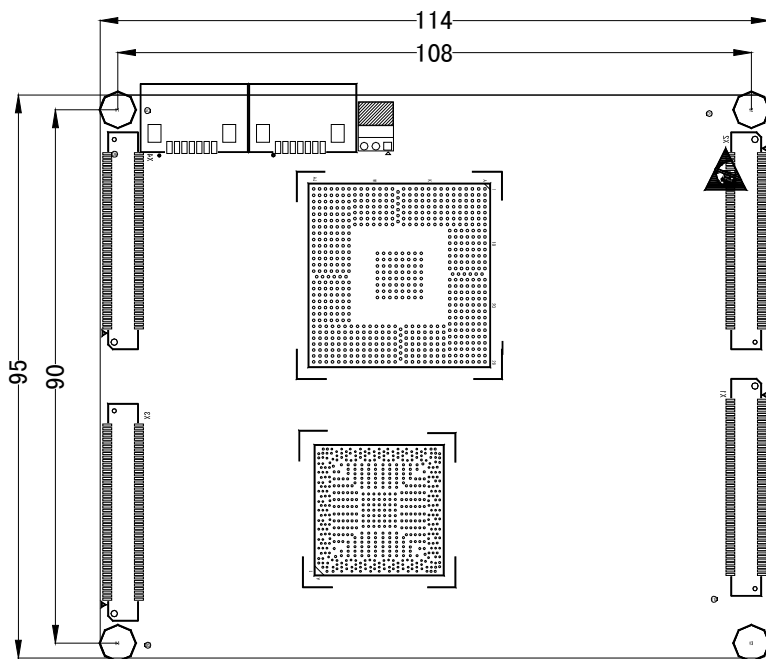
- 支持 255 级，可编程按分或秒;
- 支持看门狗超时或复位系统。

I/O接口

- 提供 1 个并口;
- 提供 2 个串口;
- 提供 1 个 IR 接口;
- 提供 1 个 IDE 接口;
- 提供 2 个 SATA 接口;
- 提供 4 个 USB2.0 接口;
- 提供 1 个 PS/2 键盘/鼠标接口。

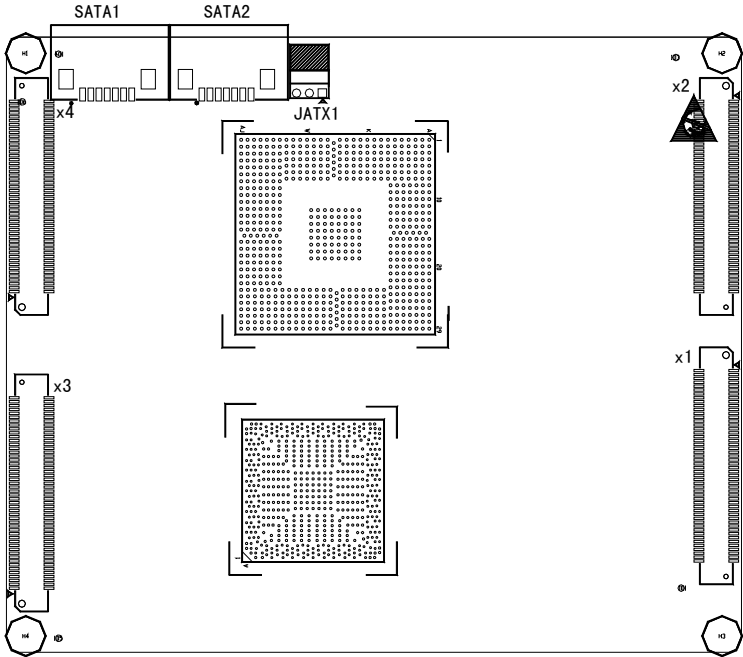
第二章 安装说明

产品外形尺寸图

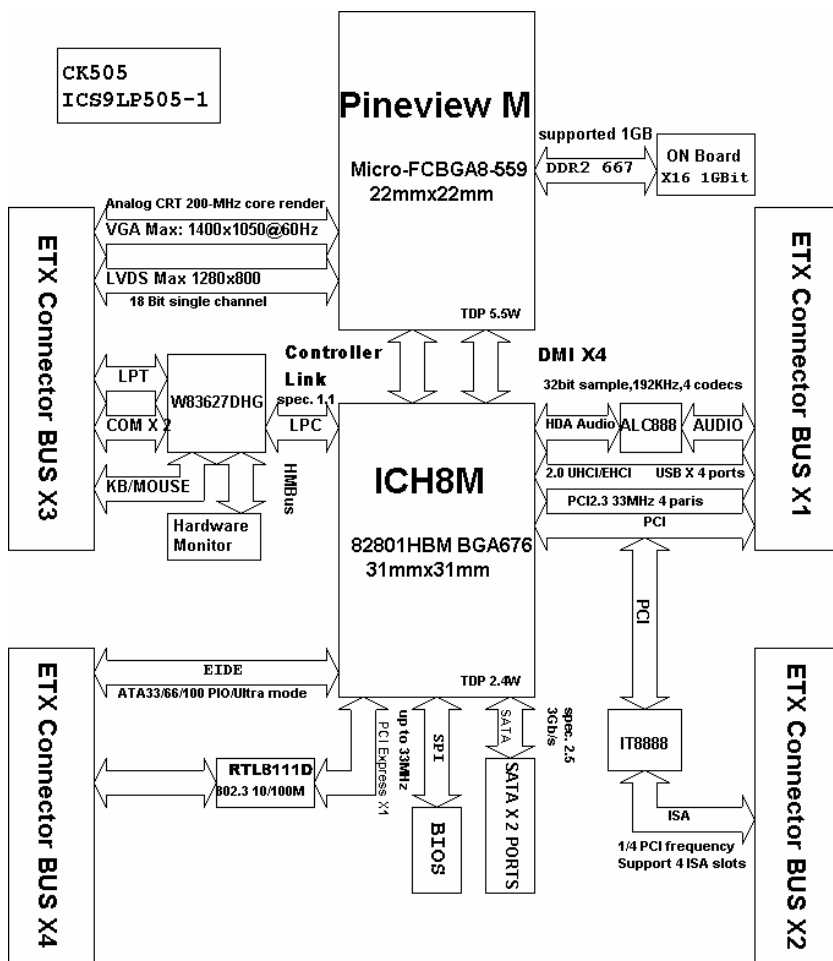


单位：mm

接口位置示意图



主板架构图



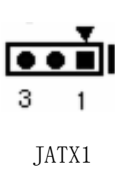
提示：如何识别跳线、接口的第一脚

- 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。
- 3、电缆上的红线或其它第一脚标记要与插座的第一脚相接。

跳线设置

JATX1：AT/ATX电源选择（脚距：2.0mm）

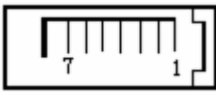
JATX1用于选配AT或ATX电源供电。



设 置	功 能
1-2短路	ATX电源（Default）
2-3短路	AT电源

SATA接口

本板提供2个串行ATA接口， 管脚定义如下：



SATA1、SATA2

管脚	信号名称
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

ETX连接器

EXT-1813CLNA系列主板背面有四个ETX连接器（X1～X4）。以下是X1-X4连接器的功能说明及引脚定义。（注：灰色为主板未接信号。）

1. X1连接器接口定义 (PCI-Bus、USB、Sound)



X1

管脚	信号名称	管脚	信号名称	管脚	信号名称	管脚	信号名称
1	GND	2	GND	51	+5V	52	+5V
3	PCI_CLK3	4	PCI_CLK4	53	PAR	54	SERR#
5	GND	6	GND	55	PERR#	56	RESERVED
7	PCI_CLK1	8	PCI_CLK2	57	PME#	58	USB2_data-
9	REQ3#	10	GNT3#	59	PLOCK#	60	DEVSEL#
11	GNT2#	12	+3.3V	61	TRDY#	62	USB3_data-
13	REQ2#	14	GNT1#	63	IRDY#	64	STOP#
15	REQ1#	16	+3.3V	65	FRAME#	66	USB2_data+
17	GNT0#	18	RESERVED	67	GND	68	GND
19	+5V	20	+5V	69	AD16	70	C/BE2#
21	SERIRQ	22	REQ0#	71	AD17	72	USB3_data+
23	AD0	24	+3.3V	73	AD19	74	AD18
25	AD1	26	AD2	75	AD20	76	USB0_data-
27	AD4	28	AD3	77	AD22	78	AD21
29	AD6	30	AD5	79	AD23	80	USB1_data-
31	C/BE0#	32	AD7	81	AD24	82	C/BE3#
33	AD8	34	AD9	83	+5V	84	+5V
35	GND	36	GND	85	AD25	86	AD26
37	AD10	38	LIN_L	87	AD28	88	USB0_data+
39	AD11	40	MIC_IN	89	AD27	90	AD29
41	AD12	42	LIN_R	91	AD30	92	USB1_data+
43	AD13	44	VCC_AUDIO	93	PCI_RESET#	94	AD31
45	AD14	46	LOUT_L	95	PIRQC#	96	PIRQD#
47	AD15	48	GND_AUDIO	97	PIRQA#	98	PIRQB#
49	C/BE1#	50	LOUT_R	99	GND	100	GND

2. X2连接器接口定义 (ISA-Bus)



管脚	信号名称	管脚	信号名称	管脚	信号名称	管脚	信号名称
1	GND	2	GND	51	+5V	52	+5V
3	SD14	4	SD15	53	SA6	54	IRQ5
5	SD13	6	MASTER#	55	SA7	56	IRQ6
7	SD12	8	DREQ7	57	SA8	58	IRQ7
9	SD11	10	DACK7#	59	SA9	60	SYSCLK
11	SD10	12	DREQ6	61	SA10	62	REFSH#
13	SD9	14	DACK6#	63	SA11	64	DREQ1
15	SD8	16	DREQ5	65	SA12	66	DACK1#
17	MEMW#	18	DACK5#	67	GND	68	GND
19	MEMR#	20	DREQ0	69	SA13	70	DREQ3
21	LA17	22	DACK0#	71	SA14	72	DACK3#
23	LA18	24	IRQ14	73	SA15	74	IOR#
25	LA19	26	IRQ15	75	SA16	76	IOW#
27	LA20	28	IRQ12	77	SA18	78	SA17
29	LA21	30	IRQ11	79	SA19	80	SMEMR#
31	LA22	32	IRQ10	81	IOCHRDY	82	AEN
33	LA23	34	IOCS16#	83	+5V	84	+5V
35	GND	36	GND	85	SD0	86	SMEMW#
37	SBHE#	38	MEMCS16#	87	SD2	88	SD1
39	SA0	40	OSC	89	SD3	90	NOWS#
41	SA1	42	BALE	91	DREQ2	92	SD4
43	SA2	44	TC	93	SD5	94	IRQ9
45	SA3	46	DACK2#	95	SD6	96	SD7
47	SA4	48	IRQ3	97	IOCHCK#	98	RSTDRV
49	SA5	50	IRQ4	99	GND	100	GND

3. X3 连接器接口定义(VGA、LCD、Video、COM1、COM2、 LPT、IrDA、Mouse、Keyboard):



管脚	信号名称	管脚	信号名称	管脚	信号名称	管脚	信号名称
1	GND	2	GND	51	LPT/FLPY#	52	NC
3	RED	4	BLUE	53	+5V	54	GND
5	HSYNC	6	GREEN	55	STB#	56	AFD#
7	VSYSN	8	DDCLK	57	NC	58	PD7
9	DETECT#	10	DDCDATA	59	IRRX	60	ERR#
11	LCD_D016	12	LCD_D018	61	IRTX	62	PD6
13	LCD_D017	14	LCD_D019	63	RXD2	64	INIT#
15	GND	16	GND	65	GND	66	GND
17	LCD_D013	18	LCD_D015	67	RTS2#	68	PD5
19	LCD_D012	20	LCD_D014	69	DTR2#	70	SLIN#
21	GND	22	GND	71	DCD2#	72	PD4
23	LCD_D08	24	LCD_D011	73	DSR2#	74	PD3
25	LCD_D09	26	LCD_D010	75	CTS2#	76	PD2
27	GND	28	GND	77	TXD2#	78	PD1
29	LCD_D04	30	LCD_D07_CLK+	79	RI2#	80	PD0
31	LCD_D05	32	LCD_D06_CLK-	81	+5V	82	+5V
33	GND	34	GND	83	RXD1	84	ACK#
35	LCD_D01	36	LCD_D03	85	RTS1#	86	BUSY#
37	LCD_D00	38	LCD_D02	87	DTR1#	88	PE
39	+5V	40	+5V	89	DCD1#	90	SLCT#
41	JILI_DATA	42	LTGI00	91	DSR1#	92	MS_CLK
43	JILI_CLK	44	BLON#	93	CTS1#	94	MS_DATA
45	BIASON	46	DIGON	95	TXD1#	96	KB_CLK
47	COMP	48	Y	97	RI1#	98	KB_DATA
49	SYNC	50	C	99	GND	100	GND

4. X4 连接器接口定义(IDE、Ethernet、Miscellaneous)



管脚	信号名称	管脚	信号名称	管脚	信号名称	管脚	信号名称
1	GND	2	GND	51	SIDE_IOW#	52	PIDE_IOR#
3	+5VSB	4	PWGIN	53	SIDE_DRQ	54	PIDE_IOW#
5	PS_ON#	6	SPEAKER	55	SIDE_D15	56	PIDE_DRQ
7	PWRBTN#	8	BATT	57	SIDE_D0	58	PIDE_D15
9	KBINH	10	LILED	59	SIDE_D14	60	PIDE_D0
11	RSMRST#	12	ACTLED	61	SIDE_D1	62	PIDE_D14
13	ROMKBCS#	14	SPEEDLED	63	SIDE_D13	64	PIDE_D1
15	EXT_PRG	16	I2CLK	65	GND	66	GND
17	+5V	18	+5V	67	SIDE_D2	68	PIDE_D13
19	OVCR#	20	GPCS#	69	SIDE_D12	70	PIDE_D2
21	EXTSMI#	22	I2DATA	71	SIDE_D3	72	PIDE_D12
23	SMB_CLK	24	SMB_DATA	73	SIDE_D11	74	PIDE_D3
25	SIDE_CS3#	26	SMBALRT#	75	SIDE_D4	76	PIDE_D11
27	SIDE_CS1#	28	DASP_S	77	SIDE_D10	78	PIDE_D4
29	SIDE_A2	30	PIDE_CS3#	79	SIDE_D5	80	PIDE_D10
31	SIDE_A0	32	PIDE_CS1#	81	+5V	82	+5V
33	GND	34	GND	83	SIDE_D9	84	PIDE_D5
35	ATA66_DET_S	36	PIDE_A2	85	SIDE_D6	86	PIDE_D9
37	SIDE_A1	38	PIDE_A0	87	SIDE_8	88	PIDE_D6
39	SIDE_IRQ	40	PIDE_A1	89	GPE2#	90	CBLID_P#
41	BATLOW#	42	GPE1#	91	RXD#(LAN)	92	PIDE_D8
43	SIDE_AK#	44	PIDE_IRQ	93	RXD(LAN)	94	SIDE_D7
45	SIDE_RDY	46	PIDE_AK#	95	TXD#(LAN)	96	PIDE_D7
47	SIDE_IOR#	48	PIDE_RDY	97	TXD(LAN)	98	HDRST#
49	+5V	50	+5V	99	GND	100	GND

第三章 BIOS功能简介

简介

BIOS (Basic Input and Output System: 基本输入输出系统) 固化在 CPU 板上的闪存存储器中, 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。BIOS 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等。

正确设置 BIOS 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 BIOS 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。

BIOS参数设置

每当系统接通电源, 正常开机后, 便可看见进入 BIOS 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(通常为键)即可进入 BIOS 设置程序。

CMOS 中 BIOS 设置内容被破坏时, 系统也会要求进入 BIOS 设置或选择某种默认设置值。

通过BIOS修改的所有设置值都保存在系统的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! BIOS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, 请清CMOS后再使用BIOS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BIOS, 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BIOS设置程序不完全相同。

BIOS基本功能设置

当SETUP程序启动之后，您可以看到CMOS Setup Utility主画面如下：

BIOS SETUP UTILITY	
System Overview	←→ Select Screen ↑ ↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
Processor Type : Genuine Intel(R) CPU @ 1.66GHz Speed :1666MHz System Memory Size :1015MB System Time [00:47:55] System Date [Wed 01/02/2002]	
V02.57 (c)Copyright 1985-2004,American Megatrends, Inc.	

◆ Main

➤ 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)。

➤ 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(Jan.-Dec.)， Date/日(01-31)，Year/年(最大至 2099)， Week/星期(Mon. ~ Sun.)。

◆ Advanced

BIOS SETUP UTILITY	
Advanced Settings	Configure CPU
WARNING:Setting wrong values in below sections may cause system to malfunction ▶CPU Configuration ▶IDE Configuration ▶Super I/O Configuration ▶ISA I/O Decode Configuration ▶ISA Memory Decode Configuration ▶Hardware Health Configuration ▶USB Configuration ▶Power Management Configuration ▶Clock Generator Configuration	
V02.57 (c)Copyright 1985-2004, American Megatrends, Inc.	

➤ CPU Configuration

BIOS SETUP UTILITY	
Configure advanced CPU settings	
Brand String:	
Genuine Intel(TM)2 CPU @1.66GHz	
Frequency; :1.66GHz	←→ Select Screen
FSB Speed; :667MHz	↑ ↓ Select Item
Cache L1; :24 KB	+ - Change Field
Cache L2; :512KB	Tab Select Field
Ratio Actual Value :10	F1 General Help
Hyper Threading Technology [Enabled]	F10 Save and Exit
Intel(R) SpeedStep(tm)tech [Enabled]	ESC Exit
V02.57 (c)Copyright 1985-2004, American Megatrends, Inc	

● **Hyper Threading Technology**

Intel Hyper Threading Technology功能的控制开关。

● **Intel(R) SpeedStep(tm) tech**

Intel SpeedStep tech功能的控制开关。

➤ **IDE Configuration**

BIOS SETUP UTILITY	
IDE Configuration	
ATA/IDE Configuration	[Enhanced]
Configure SATA as	[IDE]
Legacy IDE Channels	[SATA Pri, PATA Sec]
▶Primary IDE Master	: [Not Detected]
▶Primary IDE Slave	: [Not Detected]
▶Secondary IDE Master	: [Not Detected]
▶Secondary IDE Slave	: [Not Detected]
▶Third IDE Master	: [Not Detected]
▶Third IDE Slave	: [Not Detected]
▶AHCI Port0	[Not Detected]
▶AHCI Port1	[Not Detected]
▶AHCI Port2	[Not Detected]
V02.57 (c)Copyright 1985-2004, American Megatrends, Inc.	

←→

Select Screen

↑ ↓

Select Item

+ -

Change Field

Tab

Select Field

F1

General Help

F10

Save and Exit

ESC

Exit

● **ATA/IDE Configuration**

此选项用来配置ATA的工作模式，Enhanced和Compatible分别对应增强模式和兼容模式。

● **Configure SATA as**

SATA控制器的类型选择，对应IDE，RAID和AHCI三个选择项，仅在ATA/IDE Configuration为增强模式时才支持RAID和AHCI。

RAID和AHCI功能同时需要硬件芯片和操作系统支持。

- **Legacy IDE Channels**

配置兼容模式下IDE通道类型，对应SATA Only，SATA Pri，PATA Sec和PATA Only选择项。

- **Primary~Third IDE Master/Slave**

- * **Type**

Not Installed: 系统没有检测到IDE设备

AUTO: 系统开机自动检测IDE参数

CD/DVD: 用于ATAPI CDRom

ARMD: 用于各种模拟IDE设备

- * **LBA/Large Mode**

用于设置是否支持LBA模式。

- * **Block(Multi-sector Transfer)**

用于设置是否支持多扇区同时传输的功能。

- * **PIO Mode**

用于PIO模式设置。

- * **DMA Mode**

用于DMA模式设置。

- * **S. M. A. R. T**

此选项用于设置是否启用硬盘S. M. A. R. T功能，只对支持该功能的硬盘有效。

- * **32Bit Data Transfer**

此选项用于使能32位的硬盘访问模式，可以使硬盘读写速度达到最佳。

- **AHCI Port0~2**

AHCI 端口配置菜单，仅在SATA控制器配置成AHCI或RAID时显示。

- * **SATA Port0~2**

Auto: 系统开机自动检测SATA设备。

Not Installed: 关闭该端口，不做检测。

*** S. M. A. R. T**

此选项用于设置是否启用硬盘S. M. A. R. T功能，只对支持该功能的硬盘有效。

➤ **Super I/O Configuration**

BIOS SETUP UTILITY	
Configure Super I/O Chipset	Allows BIOS to Enable or Disable Floppy Controller.
Floppy A [Disabled]	
OnBoard Floppy Controller [Enabled]	
Serial Port1 Address [3F8/IRQ4]	
Serial Port2 Address [2F8/IRQ3]	
Serial Port2 Mode [Normal]	
Parallel Port Address [378]	
Parallel Port Mode [Normal]	
Parallel Port IRQ [IRQ7]	
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● **Floppy A**

软盘驱动器类型配置。

● **OnBoard Floppy Controller**

用于使能软驱控制器。

● **Serial Port 1 Address**

(缺省值为3F8H/IRQ4)，设定主机板上串口1的地址及IRQ，选项有：
Disabled、3F8H/IRQ4、3E8/IRQ4、2E8/IRQ3、2F8H/IRQ3。

● **Serial Port 2 Address**

(缺省值为2F8H/IRQ3)，设定主机板上串口2的地址及IRQ，选项有：
Disabled、3F8H/IRQ4、3E8/IRQ4、2E8/IRQ3、2F8H/IRQ3。

- **Serial Port 2 Mode**

此选项用于选择串口2的模式，当选择红外模式时，串口功能将不存在。

- **Parallel Port Address**

设定主机板上并口的地址，地址缺省值为378。

- **Parallel Port Mode**

设定主机板上并口的模式。

- **Parallel Port IRQ**

设定主机板上并口的中断。

➤ **ISA I/O Decode Configuration**

BIOS SETUP UTILITY		
Configure ISA I/O Address		
Decode I/O Space 0	[Enabled]	
Decode I/O Base 0	[0100h]	
Decode I/O Size 0	[64 Bytes]	
Decode I/O Space 1	[Enabled]	
Decode I/O Base 1	[0140h]	
Decode I/O Size 1	[32 Bytes]	
Decode I/O Space 2	[Enabled]	
Decode I/O Base 2	[0200h]	←→ Select Screen
Decode I/O Size 2	[128 Bytes]	↑ ↓ Select Item
Decode I/O Space 3	[Enabled]	+ - Change Field
Decode I/O Base 3	[0300h]	Tab Select Field
Decode I/O Size 3	[64 Bytes]	F1 General Help
Decode I/O Space 4	[Enabled]	F10 Save and Exit
Decode I/O Base 4	[0340h]	ESC Exit
Decode I/O Size 4	[32 Bytes]	
Decode I/O Space 5	[Enabled]	
Decode I/O Base 5	[0A70h]	
Decode I/O Size 5	[16 Bytes]	
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● **Decode I/O Space(0-5)**

I/O解码空间开关(n)。

● **Decode I/O Base(0-5)**

I/O解码空间基地址。

● **Decode I/O Size(0-5)**

I/O解码空间大小。

➤ **ISA Memory Decode Configuration**

BIOS SETUP UTILITY		
Configuration ISA Memory Address By WB83628		←→ Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
Memory Space 0	[Disabled]	
Decode MEM Base 0	[0000]	
Decode MEM Size 0	[16 KB]	
Memory Space 1	[Disabled]	
Decode MEM Base 1	[0000]	
Decode MEM Size 1	[16 KB]	
Memory Space 2	[Disabled]	
Decode MEM Base 2	[0000]	
Decode MEM Size 2	[16 KB]	
Memory Space 3	[Disabled]	
Decode MEM Base 3	[0000]	
Decode MEM Size 3	[16 KB]	
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● **Memory Space(0-3)**

Memory解码空间开关。

● **Decode MEM Base(0-3)**

Memory解码空间基地址。

● **Decode MEM Size(0-3)**

Memory解码空间大小。

➤ **Hardware Health Configuration**

BIOS SETUP UTILITY		
Hardware Health Configuration		Enables Hardware Health Monitoring Device
System Temperature	: 34°C/93°F	
CPU Temperature	: 34°C/93°F	
Vcore	: 1.088 V	←→ Select Screen
V3.3	: 3.360 V	↑ ↓ Select Item
V5.0	: 5.043 V	+ - Change Field
VBAT	: 3.248 V	Tab Select Field
		F1 General Help
		F10 Save and Exit
		ESC Exit
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● **System Temperature**

当前系统温度，一般主板上热敏电阻监测。

● **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**

开关电源输出电压。

➤ USB Configuration

BIOS SETUP UTILITY	
USB Configuration	Enables USB host controllers.
USB Devices Enabled :	
1 Keyboard, 1 Drive	←→ Select Screen
USB Function [4 USB Ports]	↑ ↓ Select Item
USB 2.0 Controller [Enabled]	+ - Change Field
Legacy USB Support [Auto]	F1 General Help
►USB Mass Storage Device Configuration	F10 Save and Exit
	ESC Exit
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● USB Function

此选项设置USB控制器的数量，即确定支持几个USB控制器，通常一个控制器有两个USB接口。

● USB 2.0 Controller

此选项用来选择是否支持USB 2.0 控制器。

● 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。

● USB Mass Storage Device Configuration

此选项用于配置USB块存储设备，其中包括Reset 延时设置及枚举类型。

➤ Power Management Configuration

BIOS SETUP UTILITY	
Power Management Configuration	←→ Select Screen
ACPI APIC Support [Enabled]	↑ ↓ Select Item
Power Supply [AT]	+ - Change Field
Restore on AC Power Loss [Last state]	F1 General Help
Resume on RTC Alarm [Disabled]	F10 Save and Exit
	ESC Exit
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- **ACPI APIC Support**

此选项用于打开或关闭ACPI OS下的APIC（高级中断控制器）。

- **Power Supply**

此选项用于设置计算机电源类型，有ATX和AT两个选择项。默认为AT电源。

注意此选项需要与实际电源类型保持一致。

- **Restore on AC Power Loss**

使用该选项可以设置计算机在交流电停电后再来电时系统所处状态。

“Power Off”，让系统处于关机状态，“Power On”，系统自动开启，“Last State”，则保持到断电前的状态。

- **Resume on RTC Alarm**

此项用来打开或关闭系统闹钟，当到达指定时间时，会将系统从节电模式甚至关机状态唤醒，该功能必须有ATX电源的支持。

➤ **Clock Generator Configuration**

BIOS SETUP UTILITY	
Configure Clock Generator	
Spread Spectrum Control	[Enabled]
Auto PCI Clock	[Enabled]
←→ Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit	
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- **Spread Spectrum Control**

此选项用来控制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**

BIOS SETUP UTILITY		
Advanced Chipset Settings	←→ Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit	
WARNING: Setting wrong values in below sections may cause system to malfunction.		
NorthBridge Configuration		
DRAM Frequency		[Auto]
Configure DRAM Timing by SPD		[Enabled]
Initiate Graphic Adapter		[PCI/IGD]
Boot Display Device		[CRT+LVDS]
Flat Panel Type		[800x600LVDS]
SouthBridge Configuration		
Onboard Audio Controller		[Enabled]
GbE Controller		[Enabled]
GbE LAN Boot		[Disabled]
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➤ **DRAM Frequency**

配置DRAM的频率，此处建议使用自动，手动更改配置可能会因为DRAM不支持而不开机。

➤ **Configure DRAM Timing by SPD**

BIOS按照SPD芯片上的内容配置SDRAM内存的时序。绝大多数内存条上有一个保存内存时序和容量等参数的一个小芯片，即SPD芯片。

➤ **Boots Graphic Adapter Priority**

此选项用于指定优先启动的显示设备类型。

➤ **Boot Display Device**

此选项用于选择开机默认的显示输出设备。

➤ **Flat Panel Type**

此选项用于选择Flat Panel的分辨率。备选项User Define，可以根据用户自定义配置平板显示类型。

➤ **Onboard Audio Controller**

选择是否打开声卡控制器。

➤ **GbE Controller**

选择是否打开GbE控制器。

➤ **GbE LAN Boot**

此项用于启动网络引导功能。

◆ **PCIPnP**

BIOS SETUP UTILITY		
Advanced PCI/PnP Settings		←→ Select Screen ↑ ↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
WARNING:Setting wrong values in below sections may cause system to malfunction.		
IRQ3	[Available]	
IRQ4	[Available]	
IRQ5	[Available]	
IRQ7	[Available]	
IRQ9	[Available]	
IRQ10	[Available]	
IRQ11	[Available]	
IRQ14	[Available]	
IRQ15	[Available]	
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➤ **IRQ3~15**

此系列选项用以指定对应IRQ号是PNP方式还是保留给ISA使用。

◆ Boot

BIOS SETUP UTILITY	
Boot Settings	←→ Select Screen
Quick Boot [Enabled]	↑ ↓ Select Item
Quiet Boot [Disabled]	Enter Go to Sub
Waite For 'F1' If Error [Enabled]	Screen
Boot Device Priority	F1 General Help
1 st Boot Device [USB:aigo USB DISK]	F10 Save and Exit
	ESC Exit
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➤ Quick Boot

配置在BIOS引导期间是否允许跳过某些项的测试， 减少BIOS引导时间。

➤ Quiet Boot

配置是否显示OEM LOGO内容。

➤ Wait For 'F1' If Error

配置在系统出错时是否提示按”F1” 键。

➤ 1st~4th Boot Device

配置系统启动时优先权高低的启动设备。

◆ Security

BIOS SETUP UTILITY	
Security Settings	Install or Change the password
Supervisor Password :Not Installed	←→ Select Screen
User Password :Not Installed	↑ ↓ Select Item
Change Supervisor Password	Enter Change
Change User Password	F1 General Help
	F10 Save and Exit
	ESC Exit
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➤ **Change User/ Supervisor Password**

当按Change User/ Supervisor Password后，在对话框中输入新的密码后，此栏会显示用户密码已安装。

◆ **Exit**

South Bridge Configuration	
Exit Options	Exit system setup after saving the changes.
Save Changes and Exit	
Discard Changes and Exit	
Discard Changes	←→ Select Screen ↑ ↓ Select Item Enter Go to Sub Screen
Load Optimal Defaults	F1 General Help
Load Failsafe Defaults	F10 Save and Exit
	ESC Exit
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➤ **Save Changes and Exit**

当您完成了所有的修改操作，想将原来的设置参数覆盖掉时，可执行此项功能，新的设置参数将保存在CMOS的存储器中。要执行此操作，先选定此选项并按下< Enter >键，再按< Enter >键即可退出。

➤ **Discard Changes and Exit**

当您所做的任何更改设置的动作不想存入CMOS的存储器中，可先选定此选项并按下< Enter >键，再按<Enter >键即可退出。

➤ **Discard Changes**

当您所做的任何更改设置的动作有误而需要忽略时，可先选定此选项并按下< Enter >键，然后可以再次进入相应选项进行重新设置。

➤ **Load Optimal Defaults**

此菜单用于在你的系统配置中装入缺省值。这些缺省设置是最优的，可以发挥所有硬件的高性能。

➤ **Load Failsafe Defaults**

该选项的功能是将各项设置初始化为实现最基本的和最安全的系统功能的值。要执行此项功能，先选中此选项按下< Enter >即可，接着系统会在屏幕上显示出要您确认的信息，按下< Enter >键确定执行该项功能。

x86 平台下BIOS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	DRAM 刷新
DMA1	未分配
DMA2	未分配
DMA3	未分配（有时用于硬盘）
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的主板可以有长达28个中断源。但要启用该功能必须相应的操作系统支持，目前只有windows 2000以上的操作系统支持。

◆ I/O端口地址

系统I/O地址空间总共有64K，每一外围设备都会占用一段I/O地址空间。下表给出了本CPU卡部分设备的I/O 地址分配，由于PCI设备（如PCI网卡）的地址是由软件配置的，表中没有列出。

地 址	设备描述
000h - 00Fh	DMA 控制器#1
020h - 021h	可编程中断控制器#1
040h - 043h	系统计时器
060h - 064h	标准 101/102 键盘控制器
070h - 071h	实时时钟, NMI
080h - 09Fh	DMA 页寄存器
0A0h - 0A1h	可编程中断控制器#2
0C0h - 0DFh	DMA 控制器#2
0F0h - 0FFh	数据数值处理器
1F0h - 1F7h	主要 IDE 通道
274h - 279h, A79h	PnP 组态寄存器端口
2F8h - 2FFh	串行端口 #2 (COM2)
378h - 37Fh	并行端口#1 (LPT1)
3F6h - 3F6h	主要 IDE 通道
3F8h - 3FFh	串行端口#1 (COM1)
400h - 41Fh	SMBus 控制器

◆ **IRQ中断分配表**

系统共有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BIOS或操作系统分配中断。而多个PCI设备可共享同一中断，并由BIOS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	可编程的中断控制器
IRQ3	串口#2
IRQ4	串口#1
IRQ5	保留
IRQ6	保留给软驱控制器
IRQ7	并口
IRQ8	系统 CMOS/实时时钟
IRQ9	ACPI
IRQ10	保留
IRQ11	保留
IRQ12	PS/2 鼠标
IRQ13	数学协处理器
IRQ14	主 IDE
IRQ15	保留

第四章 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。

附录

Watchdog编程指引

主板提供一个可按分或按秒计时的，最长达255级的可编程看门狗定时器(以下简称WDT)。通过编程，WDT超时事件可用来将系统复位或者产生一个可屏蔽中断。以下用C语言形式描述了WDT的编程。必须注意：在对WDT进行操作之前，需先进入WDT编程模式；在结束对WDT的操作之后，退出WDT。

对WDT的编程需遵循以下步骤：

- 进入WDT编程模式
- 设置WDT工作方式/启动WDT/关闭WDT
- 退出WDT编程模式

需要include 以下几个文件：

```
#include <stdio.h>
```

```
#include <dos.h>
```

```
#include <bios.h>
```

```
#include <stdlib.h>
```

```
#include <string.h>
```

(1) 进入WDT编程模式

```
outportb(0x2e, 0x87); //进入WDT编程模式，在INDEX PORT 写2次87
outportb(0x2e, 0x87); //INDEX PORT [4e /2e], DATA PORT[4F/2F]
outportb(0x2e, 0x07); //reg0X07，用来选择logic device
outportb(0x2f, 0x08); //选择logic device8，
outportb(0x2e, 0x30); //reg0x30，设备使能寄存器，0=disable, 1=enable
outportb(0x2f, 0x01); //enable device8
```

(2) 设置WDT工作方式，复位或中断方式，选择一种：

```
outportb(0x2e, 0x2D);
```

```
char oldval = inportb(DATAP);
```

a. **配置WDT成复位工作方式**

```
oldval &= 0xfe;
```

```
/*reg0x2d.bit0, 复位方式此位置0
```

```
1=GPI050
```

```
0=WDTO
```

```
*/
```

```
outportb(0x2f, oldval);
```

b. **配置WDT成中断工作方式**

```
oldval |= 0x01;
```

```
/* reg0x2d.bit0, 中断方式此位置1
```

```
1=GPI050
```

```
0=WDTO
```

```
*/
```

```
outportb(0x2f, oldval);
```

```
outportb(0x2e, 0xf7); //选择WDT中断号
```

```
outportb(0x2f, IRQ_RESOURCE);
```

其中, IRQ_RESOURCE =0: 禁止使用任何中断

```
/*
```

```
register 0xF7
```

```
bit[3:0]WDT interrupt Mapping
```

```
1111=IRQ 15
```

```
.....
```

```
0011=IRQ3
```

```
0010=IRQ2
```

0001=IRQ1

0000=Disable

*/

(3) 选择WDT按分或按秒计时，选择一种：

a. 选择WDT按分计时用以下语句：

;假定已处于WDT编程状态

outportb(0x2e, 0xf5); //选择按分计时，register 0xf5.bit3=1。

outportb(0x2f, 0x08);

b. 选择WDT按秒计时以下语句：

;假定已处于WDT编程状态

outportb(0x2e, 0xf5); //选择按秒计时，register 0xf5.bit3=0。

outportb(0x2f, 0);

(4) 启动/禁止WDT

;假定已处于WDT编程状态

outportb(0x2e, 0xf6); //写入预设的时间TIME-OUT-VALUE

outportb(0x2f, TIME-OUT-VALUE);

注意：TIME-OUT-VALUE的取值范围从1到255，计时单位为“分”或“秒”。如果TIME-OUT-VALUE为零，则禁止WDT。

TIME-OUT-VALUE为任何非零值都将启动WDT。

(5) 退出WDT编程模式

outportb(0x2e, 0xaa);

ICH8M IRQ14, IRQ15 不能同时给 ISA 用, 测 IRQ15 时需要将 Bus0 Dev31 Fun2 REG90h 的 BIT1 置 1. 测 IRQ14 时 此位清 0.

欲获更多信息请访问研祥网站：<http://www.evoc.com>。

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Safety Instructions

1. Please carefully read the users' manual before handling the product;
2. For the board which is not ready to be installed, please put it in the anti-static packaging;
3. Before taking the board out from anti-static packaging, please put your hand on grounded metal object for a while (about 10 seconds) to discharge static;
4. Please wear static protective gloves when holding the board; and always hold the board by edges;
5. Before inserting, removing or re-configuring the motherboard or the expansion card, please firstly disconnect the AC power or unplug the AC power cable from the power source to prevent damage to the product and ensure your personal safety;
6. Before removing the boards or Box PC, firstly turn off all power resources and unplug the power cable from power source;
7. For Box PC products, when inserting or removing boards, please disconnect the AC power in advance;
8. Before connecting or disconnecting any device, make sure all power cables are unplugged in advance;
9. To avoid unnecessary damage caused by turning on/off computer frequently, wait at least 30 seconds before re-turning on the computer.

Contents

Chapter 1 Product Introduction.....	1
Overview.....	1
Mechanical Dimension, Weight and Environment.....	1
Typical Consumption.....	2
Microprocessor.....	2
Chipset.....	2
System Memory.....	2
Video Function.....	2
Network Function.....	2
Audio Function.....	2
Power Feature.....	3
Expansion Bus.....	3
Watchdog Function.....	3
I/O Connectors.....	3
Chapter 2 Installation.....	4
Product Outline.....	4
Locations of Connectors.....	5
Motherboard Structure.....	6
Jumper Setting.....	7
SATA Connector.....	7
ETX Connector.....	8
Chapter 3 BIOS Setup.....	12

Overview.....	12
BIOS Parameter Setup	12
Basic Function Setting for BIOS.....	13
System Resource Managed by BIOS under X86 Platform.....	28
Chapter 4 Install the Driver	31
Appendix	32
Watchdog Programming Guide	32

Chapter 1 Product Introduction

Overview

ETX-1813CLNA series is an embedded single-board with low power consumption, which is compliant with ETX3.02 specification. On-board super-low power consumption Pineview M of Intel® Atom™ new generation Luna Pier platform, supports VGA&LVDS (18bit single-channel) display, on-board 1GB DDR2 memory, one 10/100Mbps Ethernet controller, supports four PCI bus channels, two ISA bus channels, four USB2.0 ports, one EIDE connector, two SATA hard disk connectors, HDA audio connector; the I/O connectors on-board provides two COMs, one IR connector, one EPP/ECP/SPP parallel port, watchdog timer and PS/2 keyboard/mouse connector.

ETX-1813CLNA series adopts Intel® solution of low power consumption and high performance. The motherboard adopts ETX structure, which enables customers to develop embedded application system with personality. The product can be widely applied in various embedded fields such as electric power, transportation, medical and military, etc., via abundant expansion connectors.

Mechanical Dimension, Weight and Environment

- Dimension: 114 mm (L) × 95mm (W) × 12mm (H);
- Net Weight: 76.3g;
- Operating Environment:
 - Temperature: -40℃ ~ 85℃;
 - Humidity: 5% ~ 95% (non-condensing);
- Storage Environment:
 - Temperature: -40℃ ~ 85℃;
 - Humidity: 5% ~ 95% (non-condensing);

Typical Consumption

CPU: on-board Intel® Pineview M 1.66GHz 667MHz FSB

Memory: on-board DDR2 667 Samsung 1GB K4T1G164QQ-HCE6

- +3.3V@ 0.18A; +5%/-3%;
- +5V@ 2.44A; +5%/-3%;
- +12V@ 0.06A; +5%/-3%;

Microprocessor

On-board Pineview M, 1.66GHz 667MHz FSB;

Chipset

South Bridge: Intel® ICH8M

System Memory

On-board 1GB DDR2 memory;

Video Function

System integrated chip, support two display modes: VGA and LVDS (18bit single channel). CRT supports maximum resolution up to 1400x1050@60Hz.

Network Function

One 10/100Mbps LAN port, it supports Wake-on-LAN function.

Audio Function

One standard HDA sound effect chip which provides excellent sound effect and supports MIC-in/Line-in/Speaker-out;

Power Feature

Adopt AT/ATX power;

Expansion Bus

ETX-1813CLNA-PI: support four 32-bit PCI bus devices and two 16-bit ISA bus devices;

ETX-1813CLNA-P: support four 32-bit PCI bus devices.

Watchdog Function

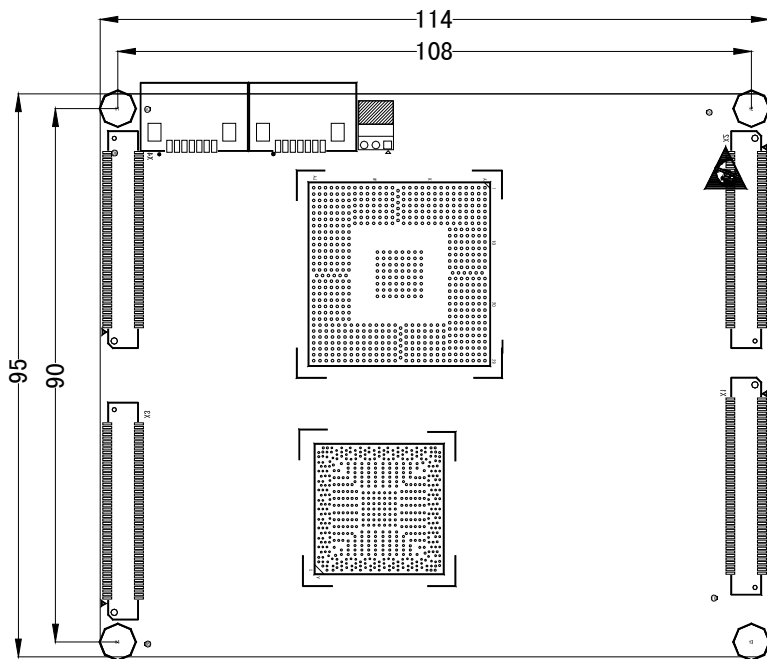
- Support 255 levels, programmable by minute or second;
- Support watchdog overtime or reset system.

I/O Connectors

- One parallel port;
- Two COMs;
- One IR connector;
- One IDE connector;
- Two SATA connectors;
- Four USB2.0 ports;
- One PS/2 keyboard/mouse connector.

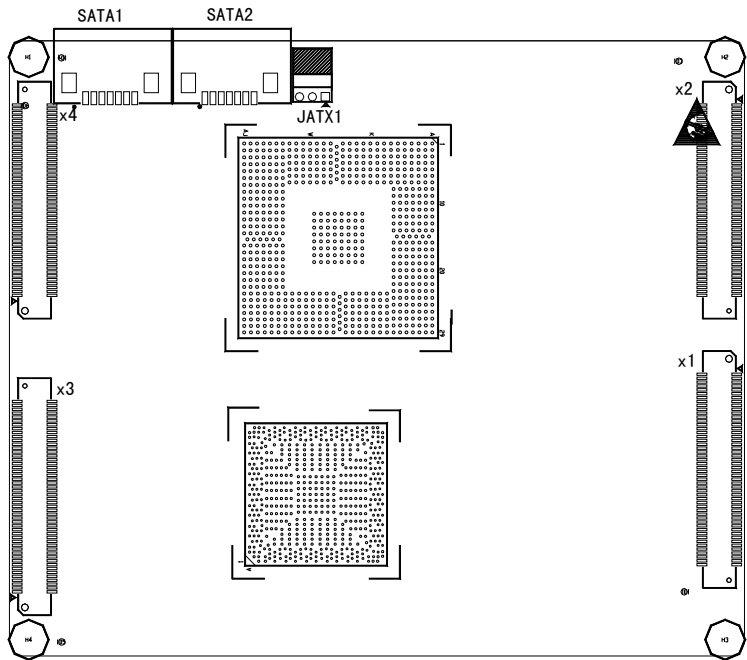
Chapter 2 Installation

Product Outline

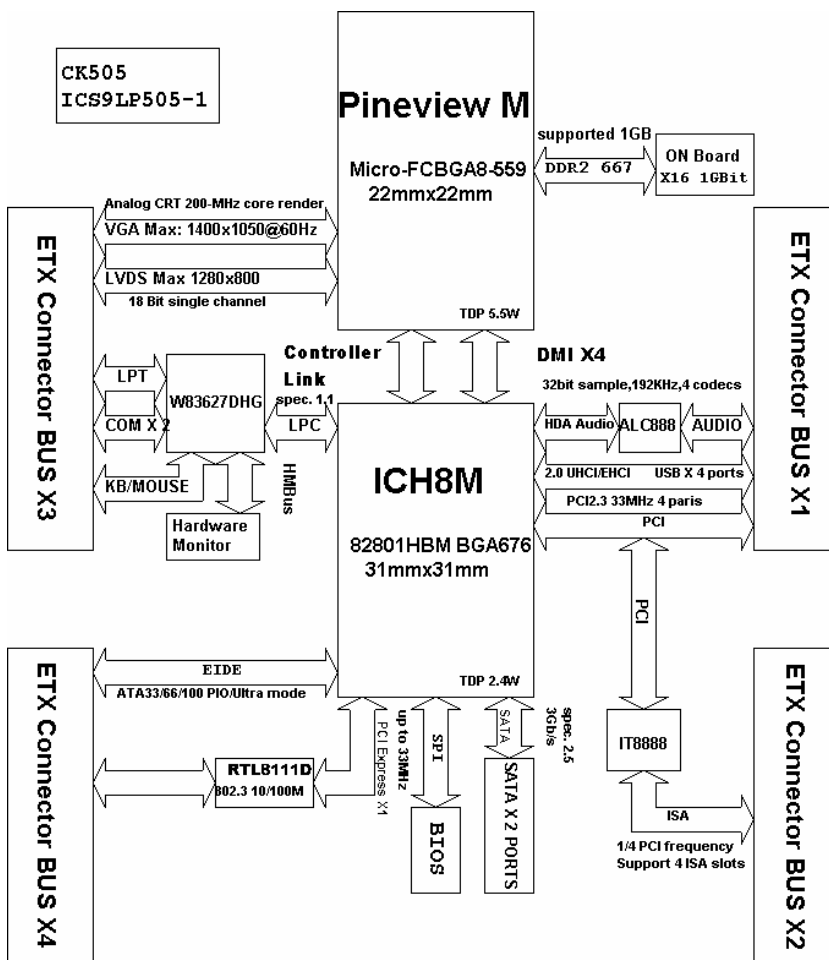


Unit: mm

Locations of Connectors



Motherboard Structure



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

1. Observe the letter beside the socket, it would be marked with “1” or thickened lines or triangular symbols;
2. The square pad on the rear is the first pin;
3. The red line on the cable or other marks show that they should be connected with the first pin of the socket.

Jumper Setting

JATX1: Select AT/ATX Power (Pin Distance: 2.0mm)

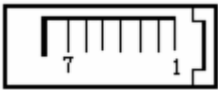
JATX1 is used to configure AT or ATX power supply.



Setup	Function
1-2 Short	ATX Power (Default)
2-3 Short	AT Power

SATA Connector

The board provides two SATA connectors, the pin definitions are as follows:



SATA1/SATA2

Pin	Signal Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

ETX Connector

EXT-1813CLNA series motherboard provides four ETX connectors (X1 ~ X4) on the rear. The functional instruction and pin definitions of X1-X4 connectors are as follows. (Note: the grey parts are the NC signals.)

1. Pin Definitions of Connector X1 (PCI-Bus, USB, Sound)



Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	GND	2	GND	51	+5V	52	+5V
3	PCI_CLK3	4	PCI_CLK4	53	PAR	54	SERR#
5	GND	6	GND	55	PERR#	56	RESERVED
7	PCI_CLK1	8	PCI_CLK2	57	PME#	58	USB2_data-
9	REQ3#	10	GNT3#	59	PLOCK#	60	DEVSEL#
11	GNT2#	12	+3.3V	61	TRDY#	62	USB3_data-
13	REQ2#	14	GNT1#	63	IRDY#	64	STOP#
15	REQ1#	16	+3.3V	65	FRAME#	66	USB2_data+
17	GNT0#	18	RESERVED	67	GND	68	GND
19	+5V	20	+5V	69	AD16	70	C/BE2#
21	SERIRQ	22	REQ0#	71	AD17	72	USB3_data+
23	AD0	24	+3.3V	73	AD19	74	AD18
25	AD1	26	AD2	75	AD20	76	USB0_data-
27	AD4	28	AD3	77	AD22	78	AD21
29	AD6	30	AD5	79	AD23	80	USB1_data-
31	C/BE0#	32	AD7	81	AD24	82	C/BE3#
33	AD8	34	AD9	83	+5V	84	+5V
35	GND	36	GND	85	AD25	86	AD26
37	AD10	38	LIN_L	87	AD28	88	USB0_data+
39	AD11	40	MIC_IN	89	AD27	90	AD29
41	AD12	42	LIN_R	91	AD30	92	USB1_data+
43	AD13	44	VCC_AUDIO	93	PCI_RESET#	94	AD31
45	AD14	46	LOUT_L	95	PIRQC#	96	PIRQD#
47	AD15	48	GND_AUDIO	97	PIRQA#	98	PIRQB#
49	C/BE1#	50	LOUT_R	99	GND	100	GND

2. Pin Definitions of Connector X2 (ISA-Bus)



Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	GND	2	GND	51	+5V	52	+5V
3	SD14	4	SD15	53	SA6	54	IRQ5
5	SD13	6	MASTER	55	SA7	56	IRQ6
7	SD12	8	DREQ7	57	SA8	58	IRQ7
9	SD11	10	DACK7#	59	SA9	60	SYSCCLK
11	SD10	12	DREQ6	61	SA10	62	REFSH#
13	SD9	14	DACK6#	63	SA11	64	DREQ1
15	SD8	16	DREQ5	65	SA12	66	DACK1#
17	MEMW#	18	DACK5#	67	GND	68	GND
19	MEMR#	20	DREQ0	69	SA13	70	DREQ3
21	LA17	22	DACK0#	71	SA14	72	DACK3#
23	LA18	24	IRQ14	73	SA15	74	IOR#
25	LA19	26	IRQ15	75	SA16	76	IOW#
27	LA20	28	IRQ12	77	SA18	78	SA17
29	LA21	30	IRQ11	79	SA19	80	SMEMR#
31	LA22	32	IRQ10	81	IOCHRD	82	AEN
33	LA23	34	IOCS16#	83	+5V	84	+5V
35	GND	36	GND	85	SD0	86	SMEMW
37	SBHE#	38	MEMCS	87	SD2	88	SD1
39	SA0	40	OSC	89	SD3	90	NOWS#
41	SA1	42	BALE	91	DREQ2	92	SD4
43	SA2	44	TC	93	SD5	94	IRQ9
45	SA3	46	DACK2#	95	SD6	96	SD7
47	SA4	48	IRQ3	97	IOCHCK#	98	RSTDRV
49	SA5	50	IRQ4	99	GND	100	GND

3. Pin Definitions of Connector X3 (VGA, LCD, Video, COM1, COM2 , LPT, IrDA, Mouse, Keyboard):



Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	GND	2	GND	51	LPT/FLPY#	52	NC
3	RED	4	BLUE	53	+5V	54	GND
5	HSYNC	6	GREEN	55	STB#	56	AFD#
7	VSYNC	8	DDCCLK	57	NC	58	PD7
9	DETECT#	10	DDCDATA	59	IRRX	60	ERR#
11	LCD_DO16	12	LCD_DO18	61	IRTX	62	PD6
13	LCD_DO17	14	LCD_DO19	63	RXD2	64	INIT#
15	GND	16	GND	65	GND	66	GND
17	LCD_DO13	18	LCD_DO15	67	RTS2#	68	PD5
19	LCD_DO12	20	LCD_DO14	69	DTR2#	70	SLIN#
21	GND	22	GND	71	DCD2#	72	PD4
23	LCD_DO8	24	LCD_DO11	73	DSR2#	74	PD3
25	LCD_DO9	26	LCD_DO10	75	CTS2#	76	PD2
27	GND	28	GND	77	TXD2#	78	PD1
29	LCD_DO4	30	LCD_DO7_CLK+	79	RI2#	80	PD0
31	LCD_DO5	32	LCD_DO6_CLK-	81	+5V	82	+5V
33	GND	34	GND	83	RXD1	84	ACK#
35	LCD_DO1	36	LCD_DO3	85	RTS1#	86	BUSY#
37	LCD_DO0	38	LCD_DO2	87	DTR1#	88	PE
39	+5V	40	+5V	89	DCD1#	90	SLCT#
41	JILI_DATA	42	LTGIO0	91	DSR1#	92	MS_CLK
43	JILI_CLK	44	BLON#	93	CTS1#	94	MS_DATA
45	BIASON	46	DIGON	95	TXD1#	96	KB_CLK
47	COMP	48	Y	97	R11#	98	KB_DATA
49	SYNC	50	C	99	GND	100	GND

4. Pin Definitions of Connector X4 (IDE, Ethernet, Miscellaneous)



Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
1	GND	2	GND	51	SIDE_IOW#	52	PIDE_IOR#
3	+5VSB	4	PWGIN	53	SIDE_DRQ	54	PIDE_IOW#
5	PS_ON#	6	SPEAKER	55	SIDE_D15	56	PIDE_DRQ
7	PWRBTN#	8	BATT	57	SIDE_D0	58	PIDE_D15
9	KBINH	10	LILED	59	SIDE_D14	60	PIDE_D0
11	RSMRST#	12	ACTLED	61	SIDE_D1	62	PIDE_D14
13	ROMKBCS#	14	SPEEDLED	63	SIDE_D13	64	PIDE_D1
15	EXT_PRG	16	I2CLK	65	GND	66	GND
17	+5V	18	+5V	67	SIDE_D2	68	PIDE_D13
19	OVCRA#	20	GPCS#	69	SIDE_D12	70	PIDE_D2
21	EXTSMI#	22	I2DATA	71	SIDE_D3	72	PIDE_D12
23	SMB_CLK	24	SMB_DATA	73	SIDE_D11	74	PIDE_D3
25	SIDE_CS3#	26	SMBALRT#	75	SIDE_D4	76	PIDE_D11
27	SIDE_CS1#	28	DASP_S	77	SIDE_D10	78	PIDE_D4
29	SIDE_A2	30	PIDE_CS3#	79	SIDE_D5	80	PIDE_D10
31	SIDE_A0	32	PIDE_CS1#	81	+5V	82	+5V
33	GND	34	GND	83	SIDE_D9	84	PIDE_D5
35	ATA66_DET_S	36	PIDE_A2	85	SIDE_D6	86	PIDE_D9
37	SIDE_A1	38	PIDE_A0	87	SIDE_8	88	PIDE_D6
39	SIDE_IRQ	40	PIDE_A1	89	GPE2#	90	CBLID_P#
41	BATLOW#	42	GPE1#	91	RXD#(LAN)	92	PIDE_D8
43	SIDE_AK#	44	PIDE_IRQ	93	RXD(LAN)	94	SIDE_D7
45	SIDE_RDY	46	PIDE_AK#	95	TXD#(LAN)	96	PIDE_D7
47	SIDE_IOR#	48	PIDE_RDY	97	TXD(LAN)	98	HDRST#
49	+5V	50	+5V	99	GND	100	GND

Chapter 3 BIOS Setup

Overview

BIOS (Basic Input and Output System) 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. BIOS 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 BIOS 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 BIOS parameter setting will decrease the system operating capability and make the system operating unstably even unable to operate normally.

BIOS Parameter Setup

Prompt message for BIOS setting may appear once powering on the system. At that time (inefficient at other time), press the key specified in the prompt message (usually) to enter BIOS setting.

When the BIOS setting in CMOS is destroyed, system may also require entering BIOS setting or selecting certain default value.

All the setup values modified by BIOS are saved in the CMOS storage in system. The CMOS storage is powered by battery; unless clearing CMOS contents, or else its contents will not be lost even if powered off.

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

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.

Basic Function Setting for BIOS

After starting SETUP program, the main interface of CMOS Setup Utility will appear:

BIOS SETUP UTILITY	
System Overview	←→ Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
Processor Type : Genuine Intel(R) CPU @ 1.66GHz Speed :1666MHz System Memory Size :1015MB System Time [00:47:55] System Date [Wed 01/02/2002]	
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◆ **Main**

➤ **System Time**

Choose this option and set 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).

➤ **System Date**

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

◆ Advanced

BIOS SETUP UTILITY	
Advanced Settings	Configure CPU
WARNING:Setting wrong values in below sections may cause system to malfunction ▶CPU Configuration ▶IDE Configuration ▶Super I/O Configuration ▶ISA I/O Decode Configuration ▶ISA Memory Decode Configuration ▶Hardware Health Configuration ▶USB Configuration ▶Power Management Configuration ▶Clock Generator Configuration	
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➤ CPU Configuration

BIOS SETUP UTILITY	
Configure advanced CPU settings	
Brand String:	
Genuine Intel(TM)2 CPU @1.66GHz	
Frequency;	:1.66GHz
FSB Speed;	:667MHz
Cache L1;	:24 KB
Cache L2;	:512KB
Ratio Actual Value	:10
Hyper Threading Technology	[Enabled]
Intel(R) SpeedStep(tm)tech	[Enabled]
←→ Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit	
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● **Hyper Threading Technology**

Controlling switch for Intel Hyper Threading Technology function;

● **Intel(R) SpeedStep(tm) tech**

Controlling switch for Intel SpeedStep tech function;

➤ **IDE Configuration**

BIOS SETUP UTILITY	
IDE Configuration	
ATA/IDE Configuration [Enhanced]	
Configure SATA as	[IDE]
Legacy IDE Channels	[SATA Pri, PATA Sec]
▶Primary IDE Master	:[Not Detected]
▶Primary IDE Slave	:[Not Detected]
▶Secondary IDE Master	:[Not Detected]
▶Secondary IDE Slave	:[Not Detected]
▶Third IDE Master	:[Not Detected]
▶Third IDE Slave	:[Not Detected]
▶AHCI Port0	[Not Detected]
▶AHCI Port1	[Not Detected]
▶AHCI Port2	[Not Detected]
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● **ATA/IDE Configuration**

This option is used to configure the operating mode for ATA; Enhanced and Compatible are corresponding with Enhanced mode and Compatible mode.

● **Configure SATA as**

This option is used to select the type of SATA controller; there are three options for this item: IDE, RAID and AHCI. Only when ATA/IDE Configuration is under Enhanced mode, are RAID and AHCI supported.

Both RAID and AHCI functions require supports from hardware chip and OS.

- **Legacy IDE Channels**

Configure IDE channel type under compatible modes, corresponding with SATA Only, SATA Pri, PATA Sec and PATA Only.

- **Primary ~ Third IDE Master/Slave**

- * Type**

- Not Installed: IDE device cannot be detected by system;

- AUTO: automatic detection of IDE parameters when power on;

- CD/DVD: used for ATAPI CDRom;

- ARMD: used for various analog IDE devices.

- * LBA/Large Mode**

- Used to set whether to support LBA mode or not.

- * Block(Multi-sector Transfer)**

- Used to set whether to support multi-sector simultaneous transfer or not.

- * PIO Mode**

- Used for PIO mode setting.

- * DMA Mode**

- Used for DMA mode setting.

- * S.M.A.R.T**

- Used to set whether to enable S.M.A.R.T function and it is only effective for the hard disk supporting this function.

- * 32Bit Data Transfer**

- This option is used to enable 32-bit hard disk accessing mode, which could optimize hard disk read and write speed.

- **AHCI Port0 ~ 2**

AHCI port configuration menu, it is only displayed when SATA controller is configured to AHCI or RAID.

*** SATA Port0 ~ 2**

Auto: automatic detection of SATA devices when power on;

Not Installed: disable this port and do not inspect.

*** S.M.A.R.T**

This option is used to set whether to enable the S.M.A.R.T function of hard disk and it is only effective for the hard disk supporting this function.

➤ **Super I/O Configuration**

BIOS SETUP UTILITY		
Configure Super I/O Chipset		Allows BIOS to Enable or Disable Floppy Controller.
Floppy A	[Disabled]	
OnBoard Floppy Controller	[Enabled]	
Serial Port1 Address	[3F8/IRQ4]	
Serial Port2 Address	[2F8/IRQ3]	
Serial Port2 Mode	[Normal]	
Parallel Port Address	[378]	
Parallel Port Mode	[Normal]	
Parallel Port IRQ	[IRQ7]	
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● **Floppy A**

Configure floppy driver type;

● **OnBoard Floppy Controller**

Used to enable floppy controller;

● **Serial Port 1 Address**

(Default value is 3F8H/IRQ4), set the address and IRQ of COM1 on motherboard, the options are: Disabled, 3F8H/IRQ4, 3E8/IRQ4, 2E8/IRQ3 and 2F8H/IRQ3.

● **Serial Port 2 Address**

(Default value is 2F8H/IRQ3), set the address and IRQ of COM2 on motherboard, the options are: Disabled, 3F8H/IRQ4, 3E8/IRQ4, 2E8/IRQ3 and 2F8H/IRQ3.

- **Serial Port 2 Mode**

This option is used to select mode for COM2; when choosing IR mode, there is no serial port function.

- **Parallel Port Address**

Set the address of the parallel port on motherboard, the default value is 378.

- **Parallel Port Mode**

Set the mode of the parallel port on motherboard.

- **Parallel Port IRQ**

Set the IRQ of the parallel port on motherboard.

➤ **ISA I/O Decode Configuration**

BIOS SETUP UTILITY		
Configure ISA I/O Address		←→ Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
Decode I/O Space 0	[Enabled]	
Decode I/O Base 0	[0100h]	
Decode I/O Size 0	[64 Bytes]	
Decode I/O Space 1	[Enabled]	
Decode I/O Base 1	[0140h]	
Decode I/O Size 1	[32 Bytes]	
Decode I/O Space 2	[Enabled]	
Decode I/O Base 2	[0200h]	
Decode I/O Size 2	[128 Bytes]	
Decode I/O Space 3	[Enabled]	
Decode I/O Base 3	[0300h]	
Decode I/O Size 3	[64 Bytes]	
Decode I/O Space 4	[Enabled]	
Decode I/O Base 4	[0340h]	
Decode I/O Size 4	[32 Bytes]	
Decode I/O Space 5	[Enabled]	
Decode I/O Base 5	[0A70h]	
Decode I/O Size 5	[16 Bytes]	
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- **Decode I/O Space(0-5)**

Decode IO space switch (n).

- **Decode I/O Base(0-5)**

Decode IO space base address

- **Decode I/O Size(0-5)**

Decode IO space size

➤ **ISA Memory Decode Configuration**

BIOS SETUP UTILITY		
Configuration ISA Memory Address By WB83628		←→ Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
Memory Space 0	[Disabled]	
Decode MEM Base 0	[0000]	
Decode MEM Size 0	[16 KB]	
Memory Space 1	[Disabled]	
Decode MEM Base 1	[0000]	
Decode MEM Size 1	[16 KB]	
Memory Space 2	[Disabled]	
Decode MEM Base 2	[0000]	
Decode MEM Size 2	[16 KB]	
Memory Space 3	[Disabled]	
Decode MEM Base 3	[0000]	
Decode MEM Size 3	[16 KB]	
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- **Memory Space(0-3)**

Memory decode space switch

- **Decode MEM Base(0-3)**

Memory decode space base address

- **Decode MEM Size(0-3)**

Memory decode space size

➤ **Hardware Health Configuration**

BIOS SETUP UTILITY	
Hardware Health Configuration	Enables Hardware Health Monitoring Device
System Temperature : 34°C/93°F	
CPU Temperature : 34°C/93°F	
Vcore : 1.088 V	←→ Select Screen
V3.3 : 3.360 V	↑↓ Select Item
V5.0 : 5.043 V	+ - Change Field
VBAT : 3.248 V	Tab Select Field
	F1 General Help
	F10 Save and Exit
	ESC Exit
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● **System Temperature**

Current system temperature, it is monitored by thermal resistor on motherboard.

● **CPU Temperature**

Current CPU temperature, it is monitored by temperature sensors on motherboard.

● **Vcore**

The core voltage of CPU.

● **V3.3/ V5.0**

Turn on/off power to output voltage.

➤ **USB Configuration**

BIOS SETUP UTILITY	
USB Configuration	Enables USB host controllers.
USB Devices Enabled : 1 Keyboard, 1 Drive	←→ Select Screen ↑↓ Select Item + - Change Field
USB Function [4 USB Ports]	F1 General Help
USB 2.0 Controller [Enabled]	F10 Save and Exit
Legacy USB Support [Auto]	ESC Exit
► USB Mass Storage Device Configuration	
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● **USB Function**

This option sets the amount of USB controller; that is to confirm how many USB controllers are supported. One controller usually supports two USB ports.

● **USB 2.0 Controller**

This option is used to select whether to support USB 2.0 controller.

● **Legacy USB Support**

This option is used to support legacy USB devices (keyboard, mouse storage device, etc); when this option is set to Enabled, the USB device could be used even if under OS that doesn't support USB, such as DOS.

● **USB Mass Storage Device Configuration**

This option is used to configure USB mass storage device, including Reset delay setting and enumerate type.

➤ Power Management Configuration

BIOS SETUP UTILITY	
Power Management Configuration	←→ Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
ACPI APIC Support [Enabled]	
Power Supply [AT]	
Restore on AC Power Loss [Last state]	
Resume on RTC Alarm [Disabled]	
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● ACPI APIC Support

This option is used to enable or disable the APIC under ACPI OS.

● Power Supply

This option is used to set computer power type, the options are ATX and AT (Default). Note: this option shall be in accord with the actual power type.

● Restore on AC Power Loss

This option could set the system status when the computer is re-electrified after being powered off under AC. “Power Off” is to make the system at power off status; “Power On” is to make the system power on automatically; “Last State” is to retain the status before powering off.

● Resume on RTC Alarm

This option is used to enable or disable the system clock. When the specified time is expired, it will wake the system from power saving mode, even from power off mode. This function shall be supported by ATX power.

➤ Clock Generator Configuration

BIOS SETUP UTILITY	
Configure Clock Generator	←→ Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit
Spread Spectrum Control [Enabled]	
Auto PCI Clock [Enabled]	
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- **Spread Spectrum Control**

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

- **Auto PCI Clock**

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

◆ Chipset

BIOS SETUP UTILITY	
Advanced Chipset Settings	
WARNING: Setting wrong values in below sections may cause system to malfunction.	
NorthBridge Configuration	
DRAM Frequency	[Auto]
Configure DRAM Timing by SPD	[Enabled]
Initiate Graphic Adapter	[PCI/IGD]
Boot Display Device	[CRT+LVDS]
Flat Panel Type	[800x600LVDS]
SouthBridge Configuration	
Onboard Audio Controller	[Enabled]
GbE Controller	[Enabled]
GbE LAN Boot	[Disabled]

←→ Select Screen
 ↑↓ Select Item
 Enter Go to Sub Screen
 F1 General Help
 F10 Save and Exit
 ESC Exit

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➤ **DRAM Frequency**

Configure the frequency for DRAM; it is recommended to use automatic modification instead of manual modification; otherwise, it will not be able to power on because it is not supported by DRAM.

➤ **Configure DRAM Timing by SPD**

BIOS configures the time sequence of the SDRAM according to the contents of the SPD chip. Most of the memory bank has one small chip to save the time sequence and capacity of the memory, i.e. the SPD chip.

➤ **Boots Graphic Adapter Priority**

This option is used to specify the booted priority of video device type.

➤ **Boot Display Device**

This option is used to select the default video output device when booting.

➤ **Flat Panel Type**

This option is used to select the resolution of the Flat Panel. The prepared resolution is User Define, which configures the flat panel type according to user define.

➤ **Onboard Audio Controller**

Select whether to enable the audio card controller.

➤ **GbE Controller**

Select whether to enable GbE controller.

➤ **GbE LAN Boot**

This option is used to enable LAN boot function.

◆ PCIPnP

BIOS SETUP UTILITY	
Advanced PCI/PnP Settings	
WARNING: Setting wrong values in below sections may cause system to malfunction.	
IRQ3	[Available]
IRQ4	[Available]
IRQ5	[Available]
IRQ7	[Available]
IRQ9	[Available]
IRQ10	[Available]
IRQ11	[Available]
IRQ14	[Available]
IRQ15	[Available]
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➤ IRQ3 ~ 15

This option is used to specify whether the IRQ number is in PNP mode or reserved for ISA.

◆ Boot

BIOS SETUP UTILITY	
Boot Settings	
Quick Boot	[Enabled]
Quiet Boot	[Disabled]
Waite For 'F1' If Error	[Enabled]
Boot Device Priority	
1 st Boot Device	[USB: aigo USB DISK]
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➤ **Quick Boot**

During BIOS booting period, configure whether to permit skipping certain test, to reduce BIOS booting time.

➤ **Quiet Boot**

Configure whether to display the content of OEM LOGO.

➤ **Wait For 'F1' If Error**

Configure whether to prompt pressing "F1" during system error.

➤ **1st ~ 4th Boot Device**

Configure the preference of the startup sequence for devices when the system starts.

◆ **Security**

BIOS SETUP UTILITY	
Security Settings	Install or Change the password
Supervisor Password :Not Installed	←→ Select Screen ↑↓ Select Item Enter Change F1 General Help F10 Save and Exit ESC Exit
User Password :Not Installed	
Change Supervisor Password	
Change User Password	
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➤ **Change User/ Supervisor Password**

After pressing Change User/ Supervisor Password and input new password in the dialog box, this column will indicate that user's password has been installed.

◆ **Exit**

South Bridge Configuration	
Exit Options	Exit system setup after saving the changes.
Save Changes and Exit	
Discard Changes and Exit	
Discard Changes	←→ Select Screen
	↑↓ Select Item
	Enter Go to Sub Screen
Load Optimal Defaults	F1 General Help
Load Failsafe Defaults	F10 Save and Exit
	ESC Exit
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➤ **Save Changes and Exit**

When you have finished all the changes and want to cover the original parameters, you may implement this operation and save the new parameters into CMOS storage. To implement this operation, you may choose this option and press < Enter >; press < Enter > again to exit.

➤ **Discard Changes and Exit**

If you do not want to save the change into CMOS storage, please choose this option and press < Enter >; press < Enter > again to exit.

➤ **Discard Changes**

If error occurs in your change and need to be neglected, please choose this option and press < Enter > in order to enter corresponding options again and reset it.

➤ **Load Optimal Defaults**

This menu is used to input default value in system configuration. These default values are optimized and could give play to the high capability of all hardware.

➤ **Load Failsafe Defaults**

The function of this option is to initialize the setup of each option to realize the most fundamental and secure system functional value. To implement this function, choose this option and press < Enter >; messages to be confirmed will display on the screen, press < Enter > to implement this function.

System Resource Managed by BIOS 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	DRAM Refresh
DMA1	Unassigned
DMA2	Unassigned
DMA3	Unassigned (sometimes used for hard disk)
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, and currently, only the OS above Windows 2000 could support that function.

◆ IO Port Address

There is 64K for the system I/O address space. Each external device will occupy portion of the space. The table below shows parts of the distribution of the I/O address. As the address of PCI device (e.g. PCI network card) is configured by software, it is not listed in this table.

Address	Device Description
000h - 00Fh	DMA Controller #1
020h - 021h	Programmable Interrupt Controller #1
040h - 043h	System Timer
060h - 064h	Standard 101/102 Keyboard Controller
070h - 071h	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0A1h	Programmable Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h - 0FFh	Numeric Data Processor
1F0h - 1F7h	Primary IDE Channel
274h - 279h, A79h	PnP Configuration Register Port
2F8h - 2FFh	COM2
378h - 37Fh	LPT1
3F6h - 3F6h	Primary IDE Channel
3F8h - 3FFh	COM1
400h- 41Fh	SMBus Controller

◆ **IRQ Assignment Table**

There are 15 interrupt sources of the system. Some are occupied by the system devices. Only the ones that are not occupied can be distributed. The ISA devices claim to engross the interrupt .Only the plug and play ISA devices can be distributed by the BIOS or the OS .And several PCI devices share one interrupt through the distribution of BIOS or OS. The diagram below shows parts of the interrupt distribution under X86 platform, 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	Programmable Interrupt Controller
IRQ3	COM #2
IRQ4	COM #1
IRQ5	Reserved
IRQ6	Reserved for Floppy Driver
IRQ7	Parallel Port
IRQ8	System CMOS/Real Time Clock
IRQ9	ACPI
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 Mouse
IRQ13	Maths Co-processor
IRQ14	Master IDE
IRQ15	Reserved

Chapter 4 Install the Driver

Please refer to the equipped CD for the driver program of this product and it is omitted here.

Appendix

Watchdog Programming Guide

The board provides a programmable watchdog timer (WDT) up to 255 levels and time by minute or second. Watchdog timer overtime event can be programmed to reset system or generate maskable interrupts. The following describes WDT program in C language. Note: before operating WDT, users shall firstly enter WDT programming mode; after finishing WDT configuration, exit WDT.

The steps to program WDT are as follows:

- Enter WDT programming mode
- Setup WDT operating methods/ enable WDT/disable WDT
- Exit WDT programming mode

The following files shall be included:

```
#include <stdio.h>
```

```
#include <dos.h>
```

```
#include <bios.h>
```

```
#include <stdlib.h>
```

```
#include <string.h>
```

(1) Enter WDT programming mode

```
outportb(0x2e,0x87); //enter WDT programming mode, write 87 twice in INDEX
```

```
PORT
```

```
outportb(0x2e,0x87); //INDEX PORT [4e /2e], DATA PORT[4F/2F]
```

```
outportb(0x2e,0x07); //reg0X07, used to select logic device
```

```
outportb(0x2f,0x08); //select logic device8,
```

```
outportb(0x2e,0x30); //reg0x30, device enabling register, 0=disable, 1=enable
```

```
outportb(0x2f,0x01); //enable device8
```

(2) Setup WDT operating mode, reset mode or interrupt mode

```
outportb(0x2e,0x2D);
```

```
char oldval = inportb(DATAP);
```

a. Configure WDT to Reset Mode

```
oldval &= 0xfe;
```

```
/*reg0x2d.bit0, set the bit to 0 under reset  
mode  
1=GPIO50  
0=WDTO  
*/
```

```
outportb(0x2f, oldval);
```

b. Configure WDT to Interrupt Mode

```
oldval |= 0x01;
```

```
/* reg0x2d.bit0, set this bit to 1 under  
interrupt mode  
1=GPIO50  
0=WDTO  
*/
```

```
outportb(0x2f, oldval);
```

```
outportb(0x2e, 0xf7); //select interrupt number for WDT
```

```
outportb(0x2f, IRQ_RESOURCE);
```

wherein, IRQ_RESOURCE =0: disable any interrupts

```
/*  
register 0xF7  
bit[3:0]WDT interrupt Mapping  
1111=IRQ 15  
.....  
0011=IRQ3
```

0010=IRQ2

0001=IRQ1

0000=Disable

*/

(3) WDT timer selection: time by minute or second

a. Select to time by minute with the following words:

; suppose it is under WDT programming mode

outportb(0x2e,0xf5); //select to time by minute, register 0xf5.bit3=1.

outportb(0x2f,0x08);

b. Select to time by second with the following words:

; suppose it is under WDT programming mode

outportb(0x2e,0xf5); //select to time by seconds, register 0xf5.bit3=0.

outportb(0x2f,0);

(4) Enable/Disable WDT

; suppose it is under WDT programming mode

outportb(0x2e,0xf6); //write the preset time TIME-OUT-VALUE

outportb(0x2f,TIME-OUT-VALUE);

Note: the range of TIME-OUT-VALUE is from 1 to 255, the timing unit is “second” or “minute”. If TIME-OUT-VALUE is zero, WDT is disabled.

If TIME-OUT-VALUE is any non-zero value, WDT will be enabled.

(5) Exit WDT Programming Mode

Outportb (0x2e, 0xaa);

ICH8M IRQ14 and IRQ15 can not be used by ISA at the same time; set BIT1 of Bus0 Dev31 Fun2 REG90h to 1 when measuring IRQ15; clear this bit to zero when measuring IRQ14.

Please visit our website: <http://www.evoc.com> for more information.