

CPC-1817CLD5NA

6U Compact PCI 海军标标准主板

6U Compact PCI Board Compliant with Navy
Standard

Version: C01



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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其边缘部分的习惯；
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。

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第一章 产品介绍

简介

主板CPC-1817CLD5NA 采用Intel® Calpella + ECC 平台板载i7-610E/620LE 2.53GHz/2GHz 高性能处理器, QM57 Express Chipset 芯片。Core™i7-610E/620LE 处理器采用32nm工艺, 双核四线程处理机制, 可通过Intel® Turbo Boost 技术提升处理性能, 4MB SmartCache, 额定功耗分别为35W/25W。

在存储方面, CPC-1817CLD5NA板载4GB DDR3 ECC SDRAM 800/1066MHz 内存, 板载1个SATA硬盘和1个CF Card Type II卡 (SATA/CF在结构上二选一), 两路SATA到后IO板, 前面板、后IO板分别提供一路硬盘指示灯 (共用), 当SATA/CF/SSD有数据传输时, 硬盘指示灯闪亮。板载2个USB2.0接口, 4个USB2.0接口到后IO板。板载8GB SSD。

在图形处理方面, 采用Core™i7-610E/620LE 处理器集成的Intel® HD Graphics, 支持最大动态频率766MHz。前板VGA 最大支持2048×1536分辨率(75Hz刷新频率)。后I/O板支持“DVI-I”+“DVI-D”双屏上下、左右扩展显示模式、VGA LVDS。DVI最大分辨率为1920×1200@60Hz, VGA显示最大分辨率为2048×1536 (75Hz 刷新频率), LVDS (36bit) 显示最大分辨率为1600×1200。其中前后板VGA接口二选一使用, LVDS与DVI-D二选一使用。

音频功能: 板载HD audio解码器, Line-in/Line-out/MIC-in, 后出线到I/O板。支持stereo Audio。

CPC-1817CLD5NA是一款高端6U Compact PCI主板, 搭配CPC-RP807后IO板使用可以满足用户对接口的不同需求, 主要应用于信息通信, 网络存储, 网络音频处理, 网络图像处理, 工业控制, 军事等高端应用领域的CPCI产品。

备注: 此系列主板只能插在背板的系统槽(带三角形标识符)使用, 如需插于其他外设槽使用, 请咨询我司客服。

机械尺寸、重量与环境

- 外形尺寸：233.4mm（长）×162mm（宽）×20.3mm（高）
- 净重：0.71Kg；
- 工作环境：
 - 温度：-20℃～55℃；
 - 湿度：10%～95%（非凝结状态）；
- 贮存环境：
 - 温度：-55℃～85℃；
 - 湿度：10%～95%（非凝结状态）。

典型功耗

典型功耗是基于以下配置闲置状态的数值。

CPU：板载Intel® Core i7 610E 2.53GHz

内存：板载Samsung DDRIII800 K4B1G0846E-HCH9 4GB

操作系统：Windows XP SP3

硬盘：ADATA S391 128GB SATA 3GB/S SSD

- +5V@3.426A；+5%/-3%；
- +3.3V@1.75A；+5%/-3%；
- +12V@0.046A；+5%/-3%；

微处理器

CPC-1817CLD5NA板载Intel® Core™ i7620LE CPU，该CPU采用BGA1288封装，DMI：2.5GT/S，采用32nm工艺，双核四线程处理机制，主频为2GHz，可通过Intel® Turbo Boost技术将主频提升至2.8GHz，4MB SmartCache，TDP热功耗为25W。

CPC-1817CLD5NA-H板载Intel® Core™ i7610E CPU，该CPU采用BGA1288封装，

DMI: 2.5GT/S, 采用32nm工艺, 双核四线程处理机制, 主频为2.53GHz, 可通过 Intel® Turbo Boost技术将主频提升至3.2GHz, 4MB SmartCache, TDP热功耗为35W。

芯片组

Mobile Intel® QM57 Express Chipset

系统内存

提供板载 DDR3 ECC SDRAM 800/1066MHz 内存颗粒, 支持 Un-buffered ECC, 支持双通道功能。单条内存通道可支持最大内存容量 2GB, 总支持最大内存容量 4GB。

显示功能

- 采用Core™i7-610E/620LE 处理器集成的Intel® HD Graphics显示芯片;
- 支持独立双显CRT+LVDS、“DVI-I”+LVDS、CRT+“DVI-D”、“DVI-I”+“DVI-D”; 支持热插拔功能; 都为同步输出。(注意: 1、LVDS与DVI-D接口在CPCI连接器上共用Pin脚, 因此不能同时支持LVDS和DVI-D。用户可根据需求选择只支持LVDS的版本或只支持DVI-D的版本。2、后I/O板DVI-I接口, 当实现DVI-I转VGA显示时需在BIOS设置中把DDC Switch 选项设成Disable时才能显示, 而当实现前面板VGA显示时需在BIOS设置中把DDC Switch 选项设成enable时才能显示。)
- VGA支持的最大分辨率及刷新率为2048×1536 @75Hz, DVI支持的最大分辨率及刷新率为1920×1200 @60Hz, LVDS (36bit) 显示最大分辨率为1600×1200。

网络功能

提供5个10/100/1000Mbps网络接口，其中网络3和网络4必须切换使用，不能同时使用；其中板载1路千兆以太网口，2路独立的10/100/1000M以太网口到后IO板（带数据传输指示灯），2路冗余千兆以太网提供PICMG2.16功能到背板。所有网口都不可支持网络唤醒功能，可支持网络PXE启动。

音频功能

支持HDA，支持MIC-in/Line-in/Line-out功能。

电源特性

采用CPCI电源，支持S0，S5。

扩展总线

- 提供 5 个 64 位 CPCI 插槽，兼容 Compact PCIe 标准。
- 提供 2 个 32bit 33MHz 的 PMC 插槽，兼容 PCI2.3 标准。
- 提供 1 个 PCI-E X8 XMC 插槽，兼容 PCIe2.0 标准。

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。

操作系统

- 支持操作系统：Windows XP、Vxworks。
- 不支持操作系统：Windows 2000。

I/O接口

- 提供 3 个串口，其中板载 1 个串口支持 RS-232 模式；另外 2 路串口后出线到后 I/O 板支持 RS-232/RS-422/RS-485 模式选择。

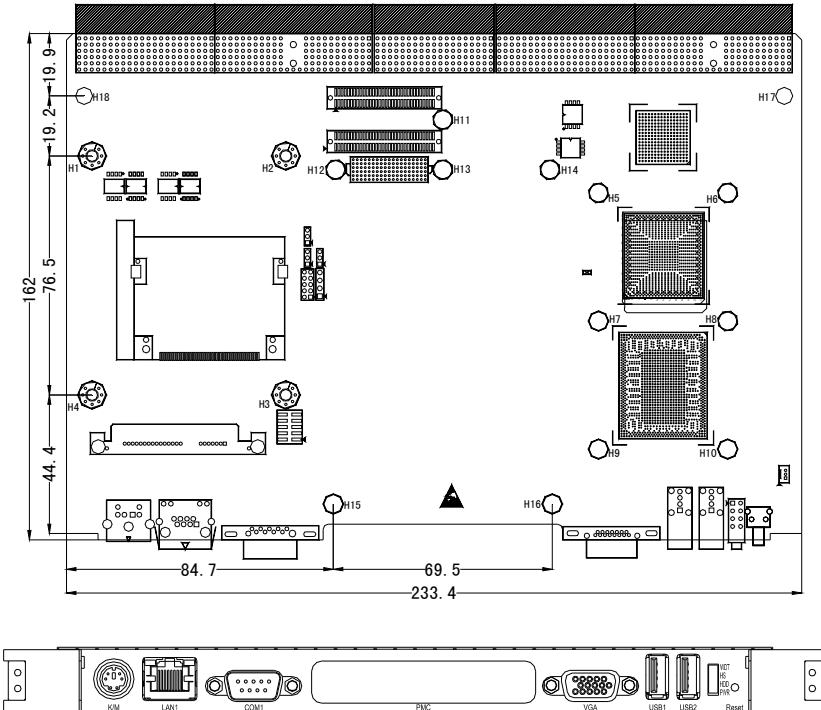
- 提供 3 个 SATA 接口，其中板载 1 个 SATA 硬盘接口，另外 2 路 SATA 后出线到后 I/O 板。
- 提供 1 个 CF 卡接口。（CF 卡接口与 SATA 硬盘接口二选一）
- 提供 6 个 USB2.0 接口，其中板载 2 个 USB2.0 接口；另外 4 路 USB2.0 接口后出线到后 I/O 板。
- 提供 2 个 PS/2 键盘/鼠标接口；其中板载 1 个，另外 1 个后出线到后 I/O 板。（两路不能同时使用）。

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。

第二章 安装说明

产品外形尺寸图



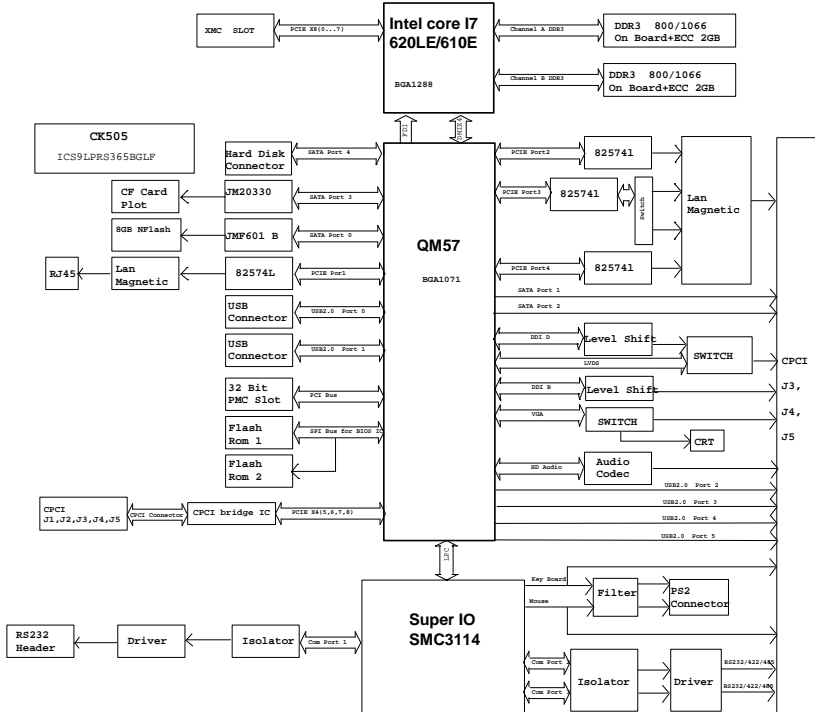
单位：mm

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~H4 使用 M3×6 GB9074. 4-88 螺钉，H5~H18 使用 M2.5×5 GB9074. 1-88 螺钉。

架构图

CPC-1817CLD5NA Function Block Diagram



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。

跳线设置

1. JCC1: CMOS内容清除/保持设置

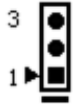
CMOS由板上钮扣电池供电。清CMOS会导致永久性消除以前系统配置并将其设为原始（工厂设置）系统设置。其步骤：(1)关闭计算机，断开电源；(2)瞬间短接JCC1；(3)开计算机；(4)启动时按屏幕提示按键进入BIOS设置，重新加载最优缺省值；(5)保存并退出设置。设置方式如下：



设置	功能
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。

JCC1

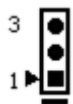
2. JLCD1: LCD工作电压选择（脚距：2.0mm）



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

JLCD1

3. JCF1: CF卡电压选择（脚距：2.0mm）

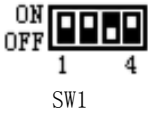


设置	功能
1-2 短路	+3.3V
2-3 短路	+5V (Default)

JCF1

4. SW1、SW2: Compact PCI桥模式设置

SW1、SW2为Compact PCI桥的模式设置，设置方式如下：



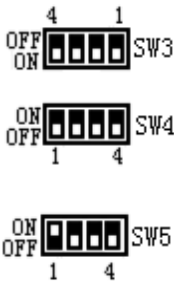
SW1 开关	系统状态	
	ON=0	OFF=1
1	非 NT (Default)	NT
2	用于调置桥芯片的工作频率，使用默认值时，可以根据外设卡来进行自动选择频率 66MHz 或 33MHz。若外设卡不支持自动选择，则 4 也为 ON 时可选择 33MHz，否则为 66MHz。（Default: 2=ON; 3=OFF; 4=ON）	
3		
4		



SW2 开关	系统状态	
	ON=0	OFF=1
1	正向 (Default)	反向
2	EEPROM 配置	SMBUS 配置 (Default)
3	CLKOUT 关闭	CLKOUT 输出 (Default)
4	内部仲裁器 (Default)	外部仲裁器

5. SW3、SW4、SW5: COM2模式选择 (COM2在IO板CPC-RP807上)

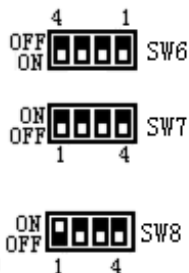
SW3、SW4、SW5 (在背面) 为COM2的RS-232/RS-422/RS-485模式选择，设置方式如下：



开关	管脚	模式		
		RS-232 (Default)	RS-422	RS-485
SW3	1	ON	OFF	OFF
	2	ON	OFF	OFF
	3	ON	OFF	OFF
	4	ON	OFF	OFF
SW4	1	OFF	ON	ON
	2	OFF	ON	ON
	3	OFF	ON	ON
	4	OFF	ON	ON
SW5	1	ON	OFF	OFF
	2	OFF	ON	OFF
	3	OFF	OFF	ON
	4	保留		

6. SW6、SW7、SW8: COM3模式选择 (COM3在IO板CPC-RP807上)

SW6、SW7、SW8 (在背面) 为COM3的RS-232/RS-422/RS-485模式设置, 设置方式如下:



开关	管脚	模式		
		RS-232 (Default)	RS-422	RS-485
SW6	1	ON	OFF	OFF
	2	ON	OFF	OFF
	3	ON	OFF	OFF
	4	ON	OFF	OFF
SW7	1	OFF	ON	ON
	2	OFF	ON	ON
	3	OFF	ON	ON
	4	OFF	ON	ON
SW8	1	ON	OFF	OFF
	2	OFF	ON	OFF
	3	OFF	OFF	ON
	4	保留		

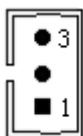
7. JP1: Compact PCI桥复位设置 (脚距: 2.0mm)



JP1

设置	功能
1-2 短路	复位输出 (Default)
2-3 短路	复位输入

CPCI热插拔微动开关



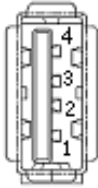
JP2

脚距: 1.25mm

管脚	信号名称
1	VCC3
2	GND
3	EJECT

USB 接口

本板提供2个标准的USB接口。

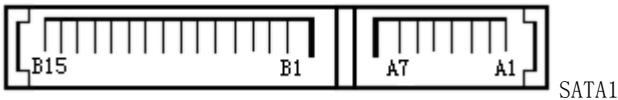


USB1/USB2

管脚	信号名称
1	+5V
2	USB_Data-
3	USB_Data+
4	GND

SATA接口

本板提供1个7+15Pin的串行ATA接口。

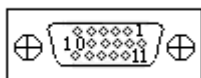


SATA1

管脚	信号名称	管脚	信号名称
A1	GND	B5	GND
A2	TX+	B6	GND
A3	TX-	B7	+5VL
A4	GND	B8	+5V
A5	RX-	B9	+5V
A6	RX+	B10	GND
A7	GND	B11	GND
B1	+3.3V	B12	GND
B2	+3.3V	B13	+12VL
B3	+3.3VL	B14	+12V
B4	GND	B15	+12V

显示接口

本板提供一个15芯D型VGA显示器接口。



VGA1

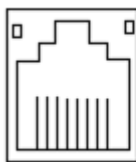
管脚	信号名称	管脚	信号名称
1	Red	2	Green
3	Blue	4	NC
5	GND	6	GND
7	GND	8	GND
9	NC	10	GND
11	NC	12	DDCDATA
13	HSYNC	14	VSUNC
15	DDCCLK		

网络接口

本板提供1个10/100/1000Mbps网络接口，LILED和ACTLED是以太网接口两边的LED，以显示LAN的活动和传输状态。请参考以下每一个LED的状态描述：

MX0, MX0-: 正/负数据通道 0	MX1, MX1-: 正/负数据通道 1
MX2, MX2-: 正/负数据通道 2	MX3, MX3-: 正/负数据通道 3
ACTLED: 网络活动状态灯	LILED: 网络链路状态灯

ACTLED LILED



8

1

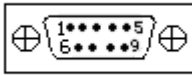
MX0+ (Pin#1)
 MX0- (Pin#2)
 MX1+ (Pin#3)
 MX2+ (Pin#4)
 MX2- (Pin#5)
 MX1- (Pin#6)
 MX3+ (Pin#7)
 MX3- (Pin#8)

LAN1

ACTLED (单色: 绿色灯)	网络活动指 示状态	LILED (双色: 橙/绿灯)	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

串口

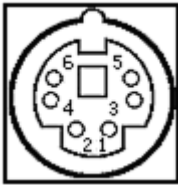
本板提供1个DB9串口。



COM1

管脚	信号名称
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

Mini一转二PS/2 接口

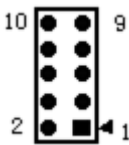


KM1

管脚	信号名称
1	KB_DATA
2	MS_DATA
3	GND
4	+5V
5	KB_CLK
6	MS_CLK

JTAG接口

通过板上的JTAG1烧录CPLD所需资料（脚距：2.0mm）。

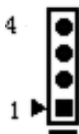


JTAG1

管脚	信号名称
1	TCK
2	GND
3	TDO
4	VCC
5	TMS
6	NC
7	NC
8	NC
9	TDI
10	GND

烧录接口

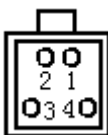
USB3（脚距：2.54mm）在本板中仅限于烧录SSD开卡软件。



USB3

管脚	信号名称
1	+5V
2	Data0-
3	Data0+
4	GND

复位按钮



SW9

管脚	信号名称	管脚	信号名称
1	RESET#	2	GND
3	GND_CHASSIS	4	GND_CHASSIS

指示灯



WDT 绿灯
HS 蓝灯
HDD 绿灯
PWR 红灯

LED1

灯	状态	描述
看门狗 (WDT)	OFF	看门狗未操作
	ON	看门狗正在操作当中
热交换 (HS)	OFF	正常工作状态
	ON	正处于热交换状态中
硬盘 (HDD)	OFF	硬盘闲置
	ON	硬盘运转
电源 (PWR)	OFF	电源失败
	ON	电源正常

CF卡接口

CF卡在系统中处于Master状态。Compact Flash 插槽的引脚定义如下（板上标识为CF1）。

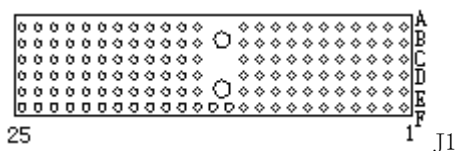
管脚	信号名称	管脚	信号名称
1	GND	26	CD1#
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CS0#	32	CS1#
8	GND	33	VS1#
9	ATASEL#	34	IOR#
10	GND	35	IOW#
11	GND	36	WE#
12	GND	37	IRQ
13	VCC	38	VCC
14	GND	39	CSEL#
15	GND	40	VS2#
16	GND	41	RESET#
17	GND	42	IORDY
18	A2	43	DREQ
19	A1	44	DACK#
20	A0	45	DASP#
21	D0	46	ATA66_DET
22	D1	47	D8
23	D2	48	D9
24	WP/IOCS16#	49	D10
25	CD2#	50	GND

注：

- 1、使用CF Card 安装系统过程中，运行到硬盘分区的时候一定要将板载的SSD和CF Card都分区，如果只给CF Card分区，系统会提示无法继续进行安装；
- 2、CF Card在安装系统过程中，当在DOS下安装完成系统自动重启后无法进入windows介面继续安装，而是又再一次重新回DOS界面安装，此时让系统第二次在DOS下安装完成重启后方可进入到windows介面继续正常安装完成。

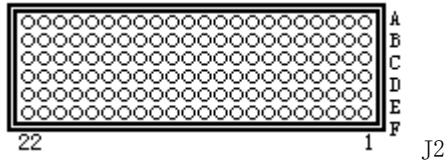
Compact PCI接口

J1接头引脚信号定义



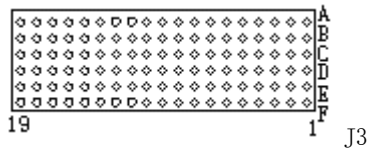
管脚	信号名称					
	A	B	C	D	E	F
1	+5V	-12V	TRST#	+12V	+5V	GND
2	TCK	+5V	TMS#	NC	TDI	GND
3	INTA#	INTB#	INTC#	5V_LONG	INTD#	GND
4	IPMB_PWR	HEALTHY#	VIO_L1	INTP	INTS	GND
5	NC	NC	PCI_RST#	GND	GNT0#	GND
6	REQ0#	GND	3V_LONG	CLK0	AD31	GND
7	AD30	AD29	AD28	NC	AD27	GND
8	AD26	GND	V(I/O)	AD25	AD24	GND
9	C/BE3#	SIDSEL	AD23	GND	AD22	GND
10	AD21	GND	+3.3V	AD20	AD19	GND
11	AD18	AD17	AD16	GND	C/BE2#	GND
12	KEY AREA					
13						
14						
15	+3.3V	FRAME#	IRDY#	BD_SEL#	TRDY#	GND
16	DEVSEL#	PCIXCAP	V(I/O)	STOP#	LOCK#	GND
17	+3.3V	IPMB_SCL	IPMB_SDA	GND	PERR#	GND
18	SERR#	GND	+3.3V	PAR	C/BE1#	GND
19	+3.3V	AD15	AD14	GND	AD13	GND
20	AD12	GND	V(I/O)	AD11	AD10	GND
21	+3.3V	AD9	AD8	M66EN	C/BE0#	GND
22	AD7	GND	3V_LONG	AD6	AD5	GND
23	+3.3V	AD4	AD3	5V_LONG	AD2	GND
24	AD1	+5V	VIO_L2	AD0	ACK64#	GND
25	+5V	REQ64#	ENUM#	+3.3V	+5V	GND

J2接头引脚信号定义



管脚	A	B	C	D	E	F
22	GA4	GA3	GA2	GA1	GA0	GND
21	CLK6	GND	NC	NC	NC	GND
20	CLK5	GND	NC	GND	NC	GND
19	GND	GND	NC	NC	VCC3_3SB	GND
18	NC	NC	NC	GND	NC	GND
17	NC	GND	CPCI_PRST-	REQ6#	GNT6#	GND
16	NC	NC	VIO_PCI	GND	NC	GND
15	NC	GND	VIO_PCI	REQ5#	GNT5#	GND
14	AD35	AD34	AD33	GND	AD32	GND
13	AD38	GND	V(I/O)	AD37	AD36	GND
12	AD42	AD41	AD40	GND	AD39	GND
11	AD45	GND	V(I/O)	AD44	AD43	GND
10	AD49	AD48	AD47	GND	AD46	GND
9	AD52	GND	V(I/O)	AD51	AD50	GND
8	AD56	AD55	AD54	GND	AD53	GND
7	AD59	GND	V(I/O)	AD58	AD57	GND
6	AD63	AD62	AD61	GND	AD60	GND
5	CBE5#	64EN-	V(I/O)	CBE4#	PAR64	GND
4	VIO_PCI	NC	CBE7#	GND	CBE6#	GND
3	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
2	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	CLK1	GND	REQ1#	GNT1#	REQ2#	GND

J3接头引脚信号定义



管脚	A	B	C	D	E	F
19	I/O	I/O	I/O	I/O	I/O	GND
18	LAN2_TX0+	LAN2_TX0-	GND	LAN2_TX2+	LAN2_TX2-	GND
17	LAN2_TX1+	LAN2_TX1-	GND	LAN2_TX3+	LAN2_TX3-	GND
16	LAN3_TX0+	LAN3_TX0-	GND	LAN3_TX2+	LAN3_TX2-	GND
15	LAN3_TX1+	LAN3_TX1-	GND	LAN3_TX3+	LAN3_TX3-	GND
14	LAN2_LINK_ACT-	LAN2_LINK_100-	I/O	I/O	I/O	GND
13	I/O	LAN2_LINK_1000-	I/O	I/O	I/O	GND
12	I/O	I/O	I/O	I/O	I/O	GND
11	I/O	I/O	I/O	I/O	I/O	GND
10	I/O	I/O	I/O	I/O	I/O	GND
9	I/O	I/O	I/O	I/O	I/O	GND
8	I/O	I/O	I/O	I/O	I/O	GND
7	I/O	I/O	I/O	I/O	I/O	GND
6	I/O	I/O	I/O	I/O	I/O	GND
5	I/O	I/O	I/O	I/O	I/O	GND
4	I/O	I/O	I/O	I/O	I/O	GND
3	I/O	I/O	I/O	I/O	I/O	GND
2	I/O	I/O	I/O	I/O	I/O	GND
1	I/O	I/O	I/O	I/O	I/O	GND

J4接头引脚信号定义



管脚	信号名称					
	A	B	C	D	E	F
1	USB4P_CN	LIN_R_CN	GND	I/O	I/O	GND
2	USB4N_CN	LIN_L_CN	GA_LAN5_MDI0+	I/O	I/O	GND
3	USB5P_CN	MIC_L_CN	GA_LAN5_MDI0-	I/O	I/O	GND
4	USB5N_CN	CD_RIGHT	GA_LAN5_MDI1+	I/O	I/O	GND
5	GND	CD_LEFT	GA_LAN5_MDI1-	I/O	I/O	GND
6	VCC5_USB45_F	CD_GND	GA_LAN5_MDI2+	I/O	I/O	GND
7	I/O	LOUT_R_CN	GA_LAN5_MDI2-	I/O	I/O	GND
8	I/O	LOUT_L_CN	GA_LAN5_MDI3+	I/O	I/O	GND
9	LVDSVCC (PANEL_VDD)	I/O	GA_LAN5_MDI3-	HD_IOCS16-	I/O	GND
10	LVDSVCC (PANEL_VDD)	TMDS_B_CLK+	LAN5_LINK_ACT-	I/O	I/O	GND
11	LA_BKLT_EN_RL	TMDS_B_CLK-	LAN5_LINK_100-	I/O	I/O	GND
12	KEY AREA					
13						
14						
15	I/O	DVI2_HPD	LAN5_LINK_1000-	GND	I/O	GND
16	I/O	DVI2_CTRL_DATA	VCC5	SATA_TXP2	I/O	GND
17	LA_DATAP2	DVI2_CTRL_CLK	SATA_TXP1	SATA_TXN2	I/O	GND
18	LA_DATAN2	DVI/LVDS2+ 1_D2+	SATA_TXN1	I/O	I/O	GND
19	LA_DATAP1	DVI/LVDS2-	SATA_RXP1	SATA_RXP2	I/O	GND
20	LA_DATAN1	DVI/LVDS1+	SATA_RXN1	SATA_RXN2	GND	GND
21	LA_DATAP0	DVI/LVDS1-	RTC_RST#	I/O	I/O	GND
22	LA_DATAN0	DVI/LVDS0+	I/O	I/O	I/O	GND
23	LB_CLKP	DVI/LVDS0-	DVI1_HPD0	LAN4_LINK_1000-	SATALED-	GND
24	GND	DVI/LVDS_CLK+	DVI1_CTRL_CLK	GA_LAN4_MDI2+	I/O	GND
25	LB_CLKN	DVI/LVDS_CLK-	DVI1_CTRL_DATA	GA_LAN4_MDI2-	GA_LAN4_MDI0+	GND

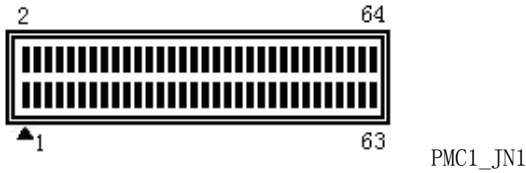
J5接头引脚信号定义

本板提供一个J5插座，管脚排列同J2，管脚定义如下：

管脚	A	B	C	D	E	F
1	TMDS_B_DA TA0P	TMDS_B_DA TA0N	LAN4_LINK_10 0-	LAN4_LINK_A CT-	GA_LAN4_MDI0-	GND
2	TMDS_B_DA TA1P	TMDS_B_DA TA1N	CRT_DDC_CLK	GA_LAN4_MDI 3+	GA_LAN4_MDI1+	GND
3	TMDS_B_DA TA2P	TMDS_B_DA TA2N	CRT_DDC_DATA	GA_LAN4_MDI 3-	GA_LAN4_MDI1-	GND
4	CRT_VSYNC	CRT_HSYNC	I/O	GND	I/O	GND
5	VGA2_BLUE _CN	VGA2_GREE _CN	I/O	I/O	I/O	GND
6	VGA2_RED_ CN	GND	I/O	I/O	I/O	GND
7	GND	I/O	I/O	I/O	I/O	GND
8	I/O	I/O	I/O	I/O	GND	GND
9	I/O	I/O	I/O	I/O	I/O	GND
10	I/O	I/O	I/O	I/O	I/O	GND
11	GND	I/O	I/O	I/O	I/O	GND
12	I/O	I/O	I/O	I/O	I/O	GND
13	I/O	I/O	I/O	GND_IL3	COM3_RI#	GND
14	I/O	I/O	I/O	COM3_DTR#	COM3_CTS#	GND
15	I/O	I/O	I/O	COM3_TXD	COM3_RTS#	GND
16	VCC5	VCC5	+5V	COM3_RXD	COM3_DSR#	GND
17	GND	GND	GND	COM3_DCD#	GND_IL2	GND
18	USB2P_CN	USB3P_CN	KB_DATA	COM2_DTR#	COM2_RI#	GND
19	USB2N_CN	USB3N_CN	KB_CLK	COM2_TXD	COM2_CTS#	GND
20	SPEAKER	VCC5	MS_DATA	COM2_RXD	COM2_RTS#	GND
21	WDT_OUT-	GND	MS_CLK	COM2_DSR#	COM2_DCD#	GND
22	RST_BUT-	VCC5_USB2 3_F	HSC_PWRGD	RTCBAT	NC	GND

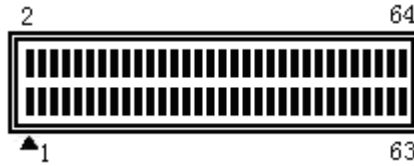
PMC接口

PMC1_JN1、PMC1_JN2为PCI扩展槽，脚距：1.0mm。信号定义见下表：



管脚	信号名称	管脚	信号名称
1	TCK	33	FRAME#
2	-12V	34	GND
3	GND	35	GND
4	PIRQA#	36	IRDY#
5	PIRQB#	37	DEVSEL#
6	PIRQC#	38	+5V
7	BM1	39	GND
8	+5V	40	PLOCK#
9	PIRQD#	41	NC
10	NC	42	NC
11	GND	43	PAR
12	+3.3V	44	GND
13	CLK1	45	VIO
14	GND	46	AD15
15	GND	47	AD12
16	GNT0#	48	AD11
17	REQ0#	49	AD9
18	+5V	50	+5V
19	VIO	51	GND
20	AD31	52	C/BE0#
21	AD28	53	AD6
22	AD27	54	AD5
23	AD25	55	AD4
24	GND	56	GND
25	GND	57	VIO
26	C/BE3#	58	AD3
27	AD22	59	AD2

28	AD21	60	AD1
29	AD19	61	AD0
30	+5V	62	+5V
31	V10	63	GND
32	AD17	64	REQ64#



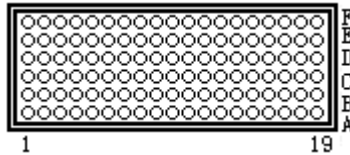
PMC1_JN2

管脚	信号名称	管脚	信号名称
1	+12V	33	GND
2	TRST# (3)	34	IDSL_B(1)
3	TMS (2)	35	TRDY#
4	TDO(1)	36	+3.3V
5	TDI (2)	37	GND
6	GND	38	STOP#
7	GND	39	PERR#
8	NC	40	GND
9	NC	41	+3.3V
10	NC	42	SERR#
11	BM2	43	C/BE1#
12	+3.3V	44	GND
13	RST#	45	AD14
14	BM3	46	AD13
15	+3.3V	47	M66EN
16	BM4	48	AD10
17	PME#	49	AD8
18	GND	50	+3.3V
19	AD30	51	AD7
20	AD29	52	REQ_B(1)
21	GND	53	+3.3V
22	AD26	54	GNT_B#(1)

23	AD24	55	NC
24	+3.3V	56	GND
25	IDSEL	57	NC
26	AD23	58	EREADEY(1)
27	+3.3V	59	GND
28	AD20	60	RSTOUT#(1)
29	AD18	61	ACK64#
30	GND	62	+3.3V
31	AD16	63	GND
32	C/BE2#	64	Monarch#(1)

XMC接口

J6为XMC扩展槽。J6引脚定义见下表：



管脚	A	B	C	D	E	F
1	DP00+	DP00-	3.3V	DP01+	DP01-	VPWR
2	GND	GND	TRST#	GND	GND	MRSTI#
3	DP02+	DP02-	3.3V	DP03+	DP03-	VPWR
4	GND	GND	TCK	GND	GND	MRSTO#
5	DP04+	DP04-	3.3V	DP05+	DP05-	VPWR
6	GND	GND	TMS	GND	GND	+12V
7	DP06+	DP06-	3.3V	DP07+	DP07-	VPWR
8	GND	GND	TDI	GND	GND	-12V
9	DP08+	DP08-	RPS	DP09+	DP09-	VPWR
10	GND	GND	TDO	GND	GND	GA0
11	DP10+	DP10-	MBIST#	DP11+	DP11-	VPWR
12	GND	GND	GA1	GND	GND	MPRESENT#

13	DP12+	DP12-	3.3V AUX	DP13+	DP13-	VPWR
14	GND	GND	GA2	GND	GND	MSDA
15	DP14+	DP14-	RPS	DP15+	DP15-	VPWR
16	GND	GND	MVMRO	GND	GND	MSCL
17	DP16+	DP16-	RFU	DP17+	DP17-	RFU
18	GND	GND	RPS	GND	GND	RPS
19	DP18+	DP18-	RPS	DP19+	DP19-	RPS

第三章 BIOS功能介绍

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。

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。

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:

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.		
Main Advanced Chipset Boot Security Save & Exit		
CPC-1817CLD5NA		Set the Date. Use 'Tab' to switch between Date elements.
BIOS Name	Y9087000	
BIOS Version	A00	
Build Date	12/14/2010 11:10:40	
Memory Information		→←: Select Screen
Total Memory	4096 MB (DDR3 800)	↑↓: Select Item
		Enter: Select
System Date	[Mon 11/01/2009]	+/-: Change Opt
System Time	[00:47:55]	F1: General Help
		F2: Previous Values
Access Level	Administrator	F3: Optimized Defaults
		F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.		

◆ Main

➤ System Time

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

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
WARNING: Setting wrong values in below sections may cause system to malfunction!	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
▶ CPU Configuration ▶ SATA Configuration ▶ USB Configuration ▶ Super IO Configuration ▶ H/W Monitor	
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

➤ CPU Configuration

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
CPU Configuration Processor Type Intel(R) Core(TM) i7 CPU EMT64 Supported Processor Speed 2527MHz Processor Stepping 20652 Microcode Revision 9 Processor Cores 2 Intel HT Technology Supported Hyper-threading [Enabled] Active Processor Cores [All] Limit CPUID Maximum [Disabled] Hardware Prefetcher [Enabled] Adjacent Cache Line Prefetch [Enabled] Intel Virtualization Technology [Disabled] Power Technology [Disabled]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

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。

- **Active Processor Cores**

使能CPU的核的个数，只对多核CPU有效。

- **Limit CPUID Maximum**

Disabled for Windows XP。

- **Hardware Prefetcher**

打开或者关闭MLC Streamer Prefetcher。

- **Adjacent Cache Line Prefetch**

打开或者关闭prefetching of adjacent cache lines。

- **Intel Virtualization Technology**

Intel虚拟技术的开关。

- **Power Technology**

打开或者关闭CPU的电源管理功能。

➤ **SATA Configuration**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.		
Advanced		
SATA Configuration		→←: Select Screen
SATA Port0	EVOC (7.8GB)	↑ ↓: Select Item
SATA Port1	Not Present	Enter: Select
SATA Port2	Not Present	+/-: Change Opt
SATA Port3	Not Present	F1: General Help
SATA Port4	Not Present	F2: Previous Values
SATA Port5	Not Present	F3: Optimized Defaults
Serial-ATA Controller 0 [Compatible]		F4: Save
Serial-ATA Controller 1 [Enhanced]		ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.		

SATA Port0~5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。

- **Serial-ATA Controller 0**

Serial-ATA Controller 0的开关，设置Serial-ATA Controller 0模式。

- **Serial-ATA Controller 1**

Serial-ATA Controller 1的开关，设置Serial-ATA Controller 1的模式。

➤ **USB Configuration**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
USB Configuration USB Devices: 1 Keyboard, 1 Mouse, 2 Hubs Legacy USB Support [Enabled]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

- **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。

➤ **Super IO Configuration**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
Super IO Configuration Super IO Chip SMSC SCH3114 ▶Floppy Disk Controller Configuration ▶Serial Port 0 Configuration ▶Serial Port 1 Configuration ▶Serial Port 2 Configuration	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

● **Serial Port 0~2 Configuration**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
Serial Port 0~2 Configuration Serial Port [Enabled] Device Settings IO=3F8h; IRQ=4; Change Settings [Auto] Device Mode [Normal]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
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*** Serial Port 0~2**

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。

* Change Settings

此项用于配置串口所用的资源（IO和IRQ）。

* Device Mode

此项用于配置串口工作的速度。

➤ H/W Monitor

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
PC Health Status CPU Temperature : +57 C SYS Temperature : +26 C Vcore : +0.95 V V3.3 : +3.296 V V5.0 : +5.007 V V12.0 : +12.091 V Vbat : +3.21 V	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

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。

- **SYS 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/V12.0**

开关电源输出电压。

- **VBAT**

CMOS电池电压。

◆ **Chipset**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
<p>WARNING: Setting wrong values in below sections may cause system to malfunction!</p> <ul style="list-style-type: none"> ▶ North Bridge ▶ South Bridge ▶ Intel IGD SWSCI OpRegion 	<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit</p>
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

➤ **North Bridge**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
<p>NB Chipset Configuration</p> <p>Low MMIO Align [64M]</p> <p>Graphic Turbo IMON Current 31</p> <p>VT-d [Disabled]</p> <p>IGD Memory [32M]</p>	<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit</p>
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

● **Low MMIO Align**

Low MMIO 资源对齐方式。

- **Graphics Turbo IMON Current**
当前支持的Graphics turbo的值。
- **VT-d**
Intel 虚拟技术的开关。
- **IGD Memory**
IGD共享的系统内存大小。

➤ **South Bridge Configuration**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
SB Chipset Configuration	
Audio Configuration	
Azalia HD Audio	[Enabled]
Lan Switch Configuration	
Lan Switch	[Enabled]
DDC Switch Configuration	
DDC Switch	[Enabled]
Spread Spectrum	[Disabled]
▶ USB Configuration	
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

- **Azalia HD Audio**
声卡控制器的开关，默认是打开。
- **Lan Switch**
用来切换网口是用作CPCI2.16功能还是网络口。Disable是网口功能；
Enable是用作CPCI2.16功能。
- **DDC Switch**
用来切换DDC的是用作DVI的DDC还是VGA的DDC.Enable是DVI-I,Disabled是VGA。

● **Spread Spectrum**

用来设置时钟芯片的展频功能，默认是关闭。

● **USB Configuration**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
USB Configuration	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
USB Port 0	[Enabled]
USB Port 1	[Enabled]
USB Port 2	[Enabled]
USB Port 3	[Enabled]
USB Port 4	[Enabled]
USB Port 5	[Enabled]
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

* **USB Port 0~5**

USB Port 0~5的开关。

● **Intel IGD SWSCI OpRegion**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
Intel IGD SWSCI OpRegion Configuration	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
DVMT/FIXED Memory	[256MB]
IGD - Boot Type	[CRT + DVI-D]
LCD Panel Type	[800x600 LVDS]
Active LFP	[No LVDS]
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

* **DVMT/FIXED Memory**

设置在DVMT/FIXED模式下，显卡使用内存的大小。

*** IGD - 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。

*** Active LFP**

此选项用来打开LVDS功能，当需要LVDS显示时，此选项要设置成Int-LVDS。

◆ **Boot**

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
Boot Configuration Quiet Boot [Disabled] Boot Numlock State [On]	→ ←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Boot Option Priorities Boot Option #1 [Built-in EFI Shell]	
Hard Drive BBS Priorities	
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

➤ **Quiet Boot**

Boot模式选择开关，用于打开或关闭Quiet Boot功能。

➤ **Bootup Numlock State**

小键盘数字键的开关。

➤ **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。

➤ **Hard Drive BBS Priorities**

此项用于配置传统设备在BBS中的优先次序。#1优先级最高，#n最低。

◆ Security

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. Administrator Password User Password	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

➤ Setup Administrator Password

此项用于设置管理员密码。

➤ User Password

此项用于设置用户密码。

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；

如果只设置了用户密码，则开机启动时必须输入用户密码，如果进入Setup设置程序，则具有管理员权限；

如果同时设置了管理员密码和用户密码，则开机启动时必须输入管理员密码或者用户密码。如果使用管理员密码时，则在Setup设置程序中具有管理员权限；如果使用用户密码，则在Setup设置程序中只具有用户权限。

◆ Save & Exit

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Options Save Changes Discard Changes Restore Defaults Save as User Defaults Restore User Defaults Boot Override Built-in UEFI Shell	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

➤ **Save Changes and Exit**

此项用于保存修改并退出Setup设置程序。如果所作修改需要重启才能生效，则会自动进行重启。

➤ **Discard Changes and Exit**

此项用于放弃所作修改并退出Setup设置程序。

➤ **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。

➤ **Save Changes**

保存修改。

➤ **Discard Changes**

放弃修改。

➤ **Restore Defaults**

恢复默认值。

➤ **Save as User Defaults**

保存用户默认值。

➤ **Restore User Defaults**

回复用户默认值。

➤ **Boot Override**

此项中列出了所有的启动选项，用户可选择其中一项，并按下<Enter>，即可按该选项进行引导。

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	通讯串口 2
DMA1	未分配
DMA2	软驱控制器
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的主板可以有高达28个中断源。但要启用该功能必须相应的操作系统支持。

◆ I/O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#1
040h - 043h	系统计时器#1
061h - 061h	系统 Speaker
070h - 071h	系统 CMOS/实时时钟
081h - 083h	DMA 控制器#2
087h - 087h	DMA 控制器#3
089h - 08Bh	DMA 控制器#4
08Fh - 08Fh	DMA 控制器#5
0A0h - 0A1h	可编程中断控制器#2
0C0h - 0DFh	DMA 控制器#6
0F0h - 0FFh	数据数值处理器
170h - 177h	次要 IDE 通道
1F0h - 1F7h	主要 IDE 通道
274h - 277h	ISAPNP Read Data Port
279h - 279h	ISAPNP Read Data Port
2F8h - 2FFh	通讯端口（COM2）
3B0h - 3BBh	Intel(R) Graphic Media Accelerator HD
3C0h - 3DFh	Intel(R) Graphic Media Accelerator
376h - 376h	次要 IDE 通道
3E8h - 3EFh	通讯端口（COM3）
3F0h - 3F5h	Standard floppy disk controller
3F6h - 3F6h	主要 IDE 通道
3F8h - 3FFh	通讯端口（COM1）

400h - 47Fh	主板资源
4D0h - 4D1h	主板资源
500h - 57Fh	主板资源
600h - 67Fh	主板资源
A79h - A79h	ISAPNP Read Data Port

◆ 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	PS2 键盘
IRQ2	保留
IRQ3	串口#2
IRQ4	串口#1
IRQ5	保留
IRQ6	Standard floppy disk controller
IRQ7	保留
IRQ8	系统 CMOS/实时时钟
IRQ9	ACPI 兼容系统
IRQ10	保留
IRQ11	串口#3
IRQ12	鼠标
IRQ13	数据数值处理器
IRQ14	主要 IDE 通道
IRQ15	次要 IDE 通道

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

本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。

本主板可使用的中断号为：3，4，5，7，9，10，11。

以下用C语言形式提供了WDT的编程范例，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，启动或关闭WDT

(1) 进入WDT编程模式。

```
/*
```

描述：函数PreInitWDT用于初始化WDT相关的寄存器，请在设置并使用WDT之前调用一次此函数。

输入：无

输出：无

注意：此函数会修改变量pm_base的值，并且pm_base会被设置WDT的函数SetWDT引用。

```
*/
```

```
#define INDEX_PORT    0x4E
#define DATA_PORT    0x4F
unsigned int tmp_reg;
unsigned int pm_base;
```

```
VOID PreInitWDT()
```

```
{
```

```
    outportb(INDEX_PORT, 0x55);
```



```

        outputb(INDEX_PORT, 0x07);
        outputb(DATA_PORT, 0x0A);
        outputb(INDEX_PORT, 0x30);
        outputb(DATA_PORT, 0x01);
        outputb(INDEX_PORT, 0x60);
        tmp_reg = inportb(DATA_PORT);
        pm_base = tmp_reg;
        outputb(INDEX_PORT, 0x61);
        tmp_reg = inportb(DATA_PORT);
        pm_base = pmbase<<8+tmp_reg; /*此处得到变量pm_base供后续程序
        使用*/
    }

```

(2) 配置WDT工作方式，启动或关闭WDT。

/*

描述：函数SetWDT用于配置WDT需要的参数，启动或关闭WDT。

输入：Wmode: 0 - 配置WDT成复位工作方式
 IRQ_NO - 配置WDT成中断工作方式，此处请用需要
 使用的中断号替换掉常量IRQ_NO，文档前端已经列出可
 使用中断号的范围。

Wtime: 0 - 配置WDT按分计时
 1 - 配置WDT按秒计时

Timeout: 0 - 停止WDT
 TIME_OUT_VALUE - 启动WDT，以超时时间单位数量
 (0x01~0xFF)替换掉常量TIME_OUT_VALUE

注：中断模式的说明仅适用于ACPI和APIC同时打开的OS。

*/

```

SetWDT(unsigned int Wmode, unsigned int Wtime, unsigned int
Timeout)
{
    unsigned int irq;

```

```
If (Wmode == 0)
    outportb(pm_base+0x47, 0x0C);
else
    {
    unsigned int irq;
    irq = Wmode;
    irq = irq<<4;
    outportb(pm_base+0x47, 0x80);
    outportb(pm_base+0x67, irq);
    }

If (Wtime == 0)
    outportb(pm_base+0x65, 0x00);
else
    outportb(pm_base+0x65, 0x80);

outportb(pm_base+0x65, Timeout);

}
```

常见故障分析与解决

序号	故障现象	故障分析解决
1	BIOS 设置不能保存	<p>分析：可能是 CMOS 电池的问题。</p> <p>解决方法：用万用表测量 CMOS 电池，电压不足就更换新电池，重新设置保存。</p>
2	时可开机时不可开机	<p>分析：可能是电源接触不良，从主板电源插座上拔下电源，发现主板电源插针某根插针经多次用力插压，已经倒向一边。</p> <p>解决方法：关机拔下电源插头，用镊子将弯曲的电源插针弄直插上电源开关，重新启动，多次试验，没有出现此类故障。</p>
3	当接上 U 盘时，系统提示一个高速设备接到一个低速接口上。	<p>分析：U 盘是高速 USB2.0，接到电脑上有提示一个高速设备接到一个低速接口上，说明主板的接口被认为是一个 USB1.1 的接口。</p> <p>解决方法：将主板上 USB 高速传输模式打开即可。不同的主板有不同的设置。一般是将 USB 设备选项中的 FULLSPEED 改为 HISPEED 即可。</p>
4	更换新内存后屏幕无显示，呈现黑屏状态，无法正常进入系统，换上原来的内存仍然无法启动。	<p>分析：可能是由于在插拨内存的过程中操作不当引起主板上部件工作不正常，需要重点检查主板上与内存相关的电路。</p> <p>解决方法：首先检查内存、显卡等硬件，结果显示这些硬件都没有问题，都可以正常使用。仔细检查主板上内存插槽周围的电路，最终发现第一个内存插槽里的两根与内存金手指接触的针脚搭在一起，对照第二个内存插槽没有该现象，由此判断是第一个内存插槽短路了。用镊子小心地将两根针脚拨回原处，插上内存，重新启动，系统顺利启动。</p>

5	更换光驱后系统无法启动	<p>分析：可能是由于在安装光驱时不小心碰撞了硬盘的数据线，从而使硬盘数据线接口接触不良导致的，或者是硬盘和光驱上的主从跳线设置不正确。</p> <p>解决方法：首先对硬盘数据线和硬盘及主板上的 IDE 接口进行检查，发现没有问题；然后检查主从跳线的设置，发现硬盘和光驱连接在不同的数据线上，而且硬盘和光驱的跳线都设置为主盘，从而导致硬盘无法启动；将光驱的跳线设置为从盘，重新安装好。</p>
6	进入系统后无法检测到 PCI 卡	<p>分析：确认 PCI 卡功能是否正常；将 PCI 卡重插或插入其他 PCI 插槽，看能否正常；了解使用的电源类型（是 AT 还是 ATX）；了解客户的 PCI 卡的电压需求。</p> <p>解决方法：如 PCI 卡功能问题，更换 PCI 卡解决；重插或插入其他 PCI 插槽即可正常，则为 PCI 卡与插槽接触问题。如果使用的是 AT 电源，但 PCI 卡需要 3.3V 电压，因为 AT 电源不提供 3.3V 电压，电源需更换为 ATX 电源方可使用 PCI 卡。（建议：在选购电源时，先了解所使用的 PCI 卡是否需要 3.3V 电压。）</p>
7	找不到外接设备	<p>分析：没有连接；没有装驱动；设备已坏。</p> <p>解决方法：查看设备与主板的连接线是否正常，如正常则更换正常连接线确定连接无问题；重新安装设备驱动，看是否可以识别；检测设备是否正常；如设备正常考虑与主板是否兼容。</p>



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support@evoc.cn for consultation.**

Customer Service Hotline: 4008809666



Safety Instructions

1. Please read this manual carefully before using the product;
2. Leave the board or card in the antistatic bag until you are ready to use it;
3. Touch a grounded metal object (e.g. for 10 seconds) before removing the board or card from the anti-static bag;
4. Before installing or removing a board, wear the ESD gloves or ESD wrist strap; handle the board by its edges only;
5. Before inserting, removing or re-configuring motherboards or expansion cards, first disconnect the computer and peripherals from their power sources to prevent electric shock to human bodies or damage to the product;
6. Remember to disconnect the AC power cord from the socket before removing the board or moving the PC;
7. For PC products, remember to disconnect the computer and peripherals from the power sources before inserting or removing a board;
8. Before connecting or disconnecting any terminal, peripheral or any device, be sure the system is powered off and all the power sources are disconnected;
9. After turning off the computer, wait at least 30 seconds before turning it back on

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Chapter 1 Product Introduction

Overview

CPC-1817CLD5NA adopts Intel® Calpella + ECC platform with i7-610E/620LE 2.53GHz/2GHz high-performance processor and QM57 Express Chipset on-board. The Core™i7-610E/620LE processor adopts 32nm craft and dual core four threads processing mechanism; the performance can be improved via Intel® Turbo Boost technology; with 4MB SmartCache and 35W/25W rated power consumption.

Storage function: CPC-1817CLD5NA supports 4GB DDR3 ECC SDRAM 800/1066MHz memory on-board, one SATA hard disk and one CF Card TypeII card (the SATA hard disk/CF card are alternative in structure). Two SATA channels are rear wired to the rear IO board; an HDD indicator (shared) is provided on the front panel and another one on the rear IO board. When data are transmitted on the SATA/CF/SSD, the HDD indicators are on. It also provides two USB2.0 ports on-board and the other four USB2.0 ports are rear wired to the rear IO board. It supports 8GB SSD onboard.

Graphics processing function: it adopts the Intel® HD Graphics integrated by the Core™i7-610E/620LE processor with the maximum dynamic frequency up to 766MHz. The maximum resolution supported by the VGA on front panel is up to 2048x1536 (75Hz refresh frequency). The rear I/O board supports “DVI-I”+“DVI-D” dual screens extendable display mode, VGA and LVDS. The maximum resolution for DVI is 1920×1200 @60Hz, that for VGA is 2048x1536 (75Hz refresh frequency) and that for LVDS (36bit) is 1600x1200. The VGA connectors on the front panel and the rear panel are alternative, so are the LVDS and DVI-D connectors.

Audio function: it provides HD audio decoder on-board, Line-in/Line-out/MIC-in, which is rear wired to the I/O board. It supports stereo Audio.

CPC-1817CLD5NA is a high-end 6U CompactPCI motherboard, which can meet customers' different requirements for connectors. The product is mainly applied in the high-end CPCI products in the fields of information communication, network storage, network audio processing, network graphics processing, industrial control and military, etc.

Note: This series of motherboards can only be inserted into the system slot (with a triangular sign) of backplane. If they need to be inserted into other peripheral slots, please consult customer service of our company.

Mechanical Dimensions, Weight and Environment

- Dimensions: 233.4mm (L) x 162mm (W) x 20.3mm (H);
- Net Weight: 0.71Kg;
- Operating Environment:
 - Temperature: -20°C ~ 55°C;
 - Humidity: 10% ~ 95% (non-condensing);
- Storage Environment:
 - Temperature: -55°C ~ 85°C;
 - Humidity: 10% ~ 95% (non-condensing);

Typical Consumption

The typical consumption is based on the following idle status values.

CPU: Intel® Core i7 610E 2.53GHz on-board

Memory: Samsung DDRIII 800 K4B1G0846E-HCH9 4GB on-board

Operating System: Windows XP SP3

Hard Disk: ADATA S391 128GB SATA 3GB/S SSD

- +5V@3.426A; +5%/-3%;
- +3.3V@1.75A; +5%/-3%;
- +12V@0.046A; +5%/-3%;

Microprocessor

CPC-1817CLD5NA contains Intel® Core™ i7620LE CPU of BGA1288 package on-board, DMI: 2.5GT/S, 32nm craft, dual core four threads processing mechanism with 2GHz main frequency, which can be improved to 2.8GHz Intel® Turbo Boost technology; with 4MB SmartCache and 25W TDP.

CPC-1817CLD5NA-H contains Intel® Core™ i7610E CPU of BGA1288 package on-board, DMI: 2.5GT/S, 32nm craft, dual core four threads processing mechanism with 2.53GHz main frequency, which can be improved to 3.2GHz Intel® Turbo Boost technology; with 4MB SmartCache and 35W TDP.

Chipset

Mobile Intel® QM57 Express Chipset;

System Memory

Provides DDR3 ECC SDRAM 800/1066MHz memory IC on-board, supporting Un-buffered ECC and dual-channel function. The maximum memory capacity supported by a single memory bank is up to 2GB and 4GB in all.

Display Function

- Adopts the Intel® HD Graphics chip integrated via Core™i7-610E/620LE processor;
- Supports independent dual display CRT+LVDS, “DVI-I”+LVDS, CRT+“DVI-D” and “DVI-I”+“DVI-D” with hot-swap function, all of which are synchronous output; (Note: 1. LVDS and DVI-D share pins on CPCI connector; therefore, the LVDS and DVI-D cannot be supported simultaneously. Users may choose to support LVDS version or DVI-D version according to their requirements. 2. When realizing DVI-I-to-VGA display, the DVI-I connector on

the rear IO board can be displayed only when the DDC switch in BIOS setting is disabled. When realizing VGA display on front panel, it can be displayed when the DDC switch in BIOS setting is enabled.)

- The maximum resolution and refresh frequency supported by VGA is up to 2048x1536 @75Hz, that supported by DVI is up to 1920x1200 @60Hz; the maximum resolution for LVDS (36bit) is up to 1600x1200.

Network Function

Provides five 10/100/1000Mbps LAN port: LAN3 and LAN4 shall be switched before using and cannot be used synchronously; it provides one Gigabit Ethernet port on-board, two independent 10/100/1000M Ethernet ports are brought to the rear IO board (with data transmission indicator) and the other two redundant Gigabit Ethernet ports provide PICMG2.16 function to the backplane. None of the LAN ports support Wake-on-LAN function, however, LAN PXE boot is supported.

Audio Function

Supporting HDA and MIC-in/Line-in/Line-out function.

Power Feature

Adopts CPCI power, supporting S0 and S5.

Expansion Bus

- Five 64-bit CPCI slots, complying with CompactPCIe standard;
- Two 32bit 33MHz PMC slots, complying with PCI2.3 standard;
- One PCI-E x8 XMC slot, complying with PCIE2.0 standard.

Watchdog Function

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

Operating System

- Supported OSs: Windows XP and Vxwork;
- Unsupported OSs: Windows 2000.

On-board I/O

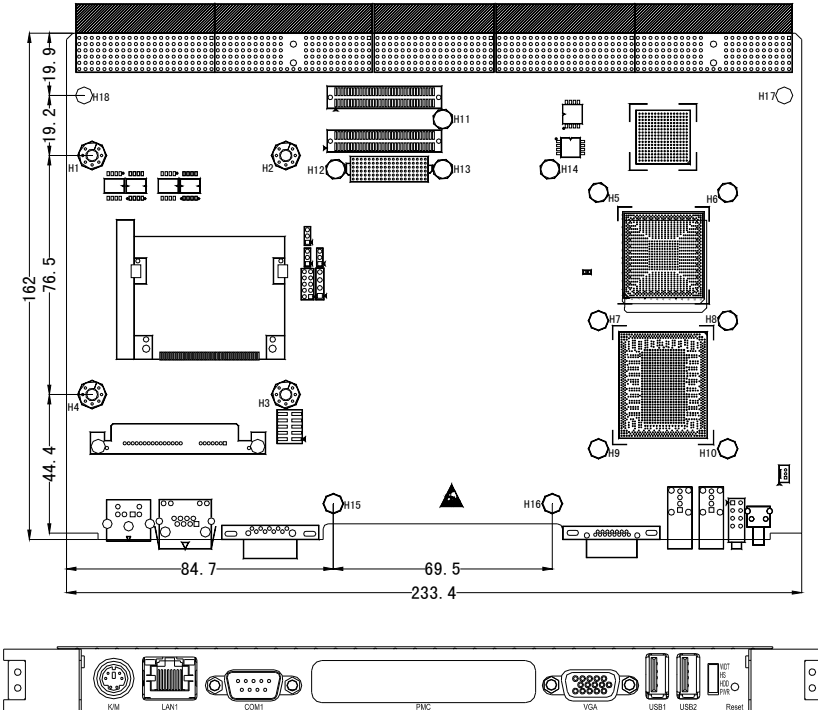
- Three serial ports: one serial port on-board supports RS-232 mode while the other two serial ports are rear wired to the rear I/O board and support RS-232/RS-422/RS-485 mode selection;
- Three SATA connectors: one is the SATA hard disk connector on-board while the other two SATA connectors are rear wired to the rear I/O board;
- One CF card connector (the CF card connector and the SATA hard disk connector are alternative);
- Six USB2.0 ports: two are USB2.0 ports on-board while the other four USB2.0 ports are rear wired to the rear I/O board;
- Two PS/2 keyboard/mouse connectors: one is on-board and the other is rear wired to the rear I/O board (the two connectors are alternative).

Tips: how to identify the alarms

1. Long “beep” indicates system memory error;
2. Short “beep” indicates to power on the computer.

Chapter 2 Installation

Product Outline

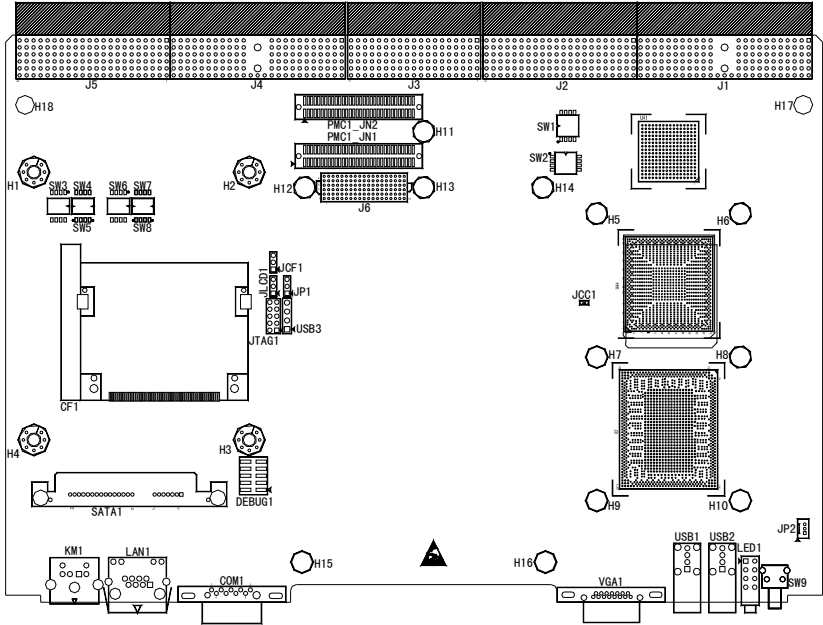


Unit: mm

Warning!

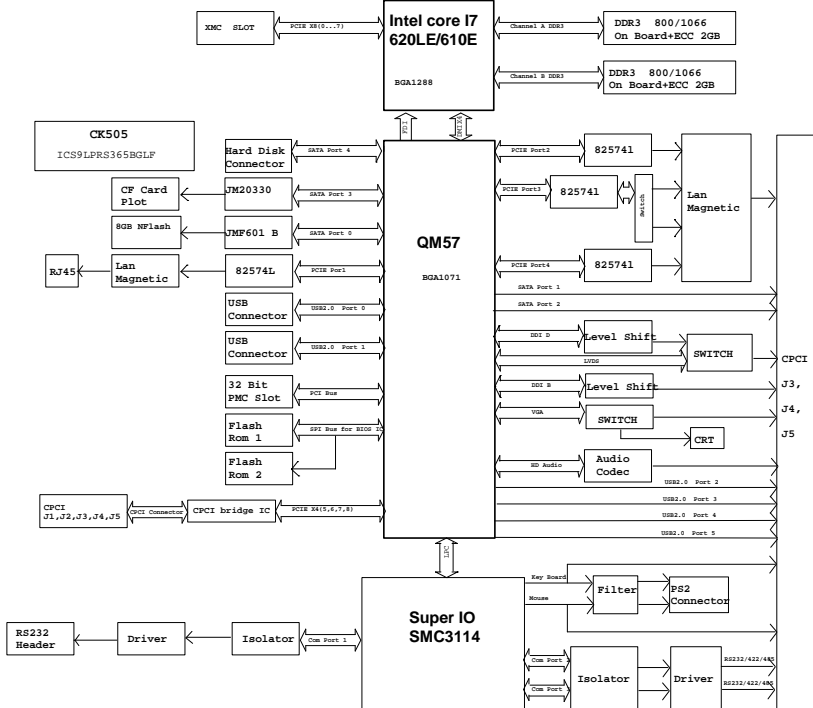
Please adopt appropriate screws and proper installation methods (including board allocation, CPU and heat sink installation, etc); otherwise, the board may be damaged. It is recommended to use M3x6 GB9074.4-88 screws at H1 ~ H4 and M2.5x5 GB9074.1-88 screws at H5 ~ H18.

Locations of Connectors



Structure

CPC-1817CLD5NA Function Block 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; the square pad is the first pin.

Jumper Setting

1. JCC1: Clear/Keep CMOS Setting


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, reload optimized defaults; (5) Save and exit. Please set as follows:



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

JCC1


2. JLCD1: Select LCD Operating Voltage (Pitch: 2.0mm)



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

JLCD1

3. JCF1: Select CF Card Voltage (Pitch: 2.0mm)

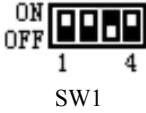


Setup	Function
1-2 Short	+3.3V
2-3 Short	+5V (Default)

JCF1

4. SW1 and SW2: Set CompactPCI Bridge Mode

SW1 and SW2 are used to set mode for CompactPCI bridge; please set as follows:



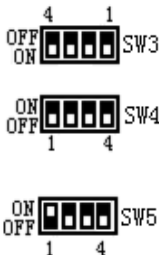
SW1 Switch	System Status	
	ON=0	OFF=1
1	Non-NT(Default)	NT
2	Used to adjust the operating frequency of the bridge chip. When the default value is adopted, the peripheral card can select between 66MHz and 33MHz automatically; if the peripheral card doesn't support automatic selection, then the operating frequency is 33MHz when 4=ON; otherwise the operating frequency is 66MHz. (Default: 2=ON; 3=OFF; 4= ON)	
3		
4		



SW2 Switch	System Status	
	ON=0	OFF=1
1	Forward (Default)	Backward
2	EEPROM Configuration	SMBUS Configuration (Default)
3	Disable CLKOUT	Output CLKOUT(Default)
4	Internal Arbitrator (Default)	External Arbitrator

5. SW3, SW4 and SW5: Select Mode for COM2 (COM2 locates on the IO board, CPC-RP807)

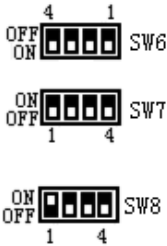
SW3, SW4 and SW5 (on the rear of the board) are used to select RS-232/RS-422/RS-485 mode for COM2; please set as follows:



Switch	Pin	Mode		
		RS-232 (Default)	RS-422	RS-485
SW3	1	ON	OFF	OFF
	2	ON	OFF	OFF
	3	ON	OFF	OFF
	4	ON	OFF	OFF
SW4	1	OFF	ON	ON
	2	OFF	ON	ON
	3	OFF	ON	ON
	4	OFF	ON	ON
SW5	1	ON	OFF	OFF
	2	OFF	ON	OFF
	3	OFF	OFF	ON
	4	Reserved		

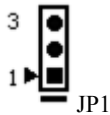
6. SW6, SW7 and SW8: Select Mode for COM3 (COM3 locates on the IO board, CPC-RP807)

SW6, SW7 and SW8 (on the rear of the board) are used to select RS-232/RS-422/RS-485 mode for COM3; please set as follows:



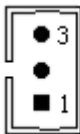
Switch	Pin	Mode		
		RS-232 (Default)	RS-422	RS-485
SW6	1	ON	OFF	OFF
	2	ON	OFF	OFF
	3	ON	OFF	OFF
	4	ON	OFF	OFF
SW7	1	OFF	ON	ON
	2	OFF	ON	ON
	3	OFF	ON	ON
	4	OFF	ON	ON
SW8	1	ON	OFF	OFF
	2	OFF	ON	OFF
	3	OFF	OFF	ON
	4	Reserved		

7. JP1: CompactPCI Bridge Reset Setting (Pitch: 2.0mm)



Setup	Function
1-2 Short	Reset Output (Default)
2-3 Short	Reset Input

CPCI Hot-swappable Micro-switch

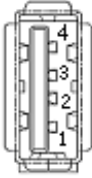


JP2
Pitch: 1.25mm

Pin	Signal Name
1	VCC3
2	GND
3	EJECT

USB Port

The board provides two standard USB ports.

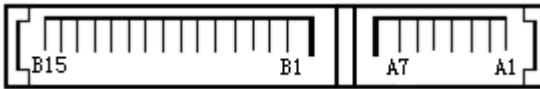


USB1/USB2

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

SATA Connector

The board provides one 7+15Pin SATA connector.

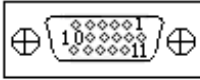


SATA1

Pin	Signal Name	Pin	Signal Name
A1	GND	B5	GND
A2	TX+	B6	GND
A3	TX-	B7	+5VL
A4	GND	B8	+5V
A5	RX-	B9	+5V
A6	RX+	B10	GND
A7	GND	B11	GND
B1	+3.3V	B12	GND
B2	+3.3V	B13	+12VL
B3	+3.3VL	B14	+12V
B4	GND	B15	+12V

Display Connector

The board provides one 15-pin D-sub VGA connector.



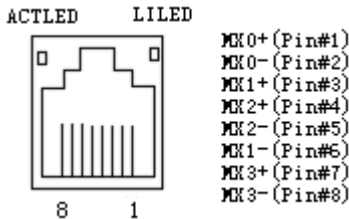
VGA1

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		

LAN Port

The board provides one 10/100/1000Mbps LAN port. ACTLED and LILED are the LEDs beside the Ethernet port, which respectively indicates the activity status and transmission status of LAN. Please refer to the status description for each LED:

MX0, MX0-: positive/negative data channel 0	MX1, MX1-: positive/negative data channel 1
MX2, MX2-: positive/negative data channel 2	MX3, MX3-: positive/negative data channel 3
ACTLED: LAN activity status indicator	LILED: LAN linked status indicator

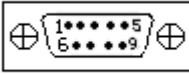


LAN1

ACTLED (Green)	LAN Activity Status Indicator	LILED (Dual-Color: O/G)	LAN Speed Indicator
		Green	1000Mbps
Blink	Data Transmitting	Orange	100Mbps
Off	No Data to Transmit	Off	10Mbps

Serial Port

The board provides one DB9 serial port.



COM1

Pin	Signal Name
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

Mini 1-2 PS/2 Connector

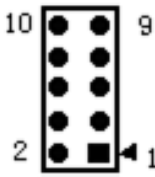


KM1

Pin	Signal Name
1	KB_DATA
2	MS_DATA
3	GND
4	+5V
5	KB_CLK
6	MS_CLK

JTAG Connector

Record the data required by CPLD via JTAG1 on-board (Pitch: 2.0mm).



JTAG1

Pin	Signal Name
1	TCK
2	GND
3	TDO
4	VCC
5	TMS
6	NC
7	NC
8	NC
9	TDI
10	GND

Burning Connector

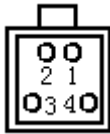
As for USB3 (Pitch: 2.54mm) on CPC-1817CLD5NA, it is only used to burn the SSD card enabling software.



USB3

Pin	Signal Name
1	+5V
2	Data0-
3	Data0+
4	GND

Reset Button



SW9

Pin	Signal Name	Pin	Signal Name
1	RESET#	2	GND
3	GND_CHASSIS	4	GND_CHASSIS

Indicator



WDT Green
HS Blue
HDD Green
PWR Red

LED1

LED	Status	Description
WDT	OFF	Watchdog unoperated
	ON	Watchdog is operating
HS	OFF	Normal operating status
	ON	Under hot-swapping status
HDD	OFF	Hard disk is idle
	ON	Hard disk is operating
PWR	OFF	Power failure
	ON	Power normal

CF Card Connector

The CF card is at Master status in system. The pin definitions of the CompactFlash slot are as follows (Marked as CF1 in figure).

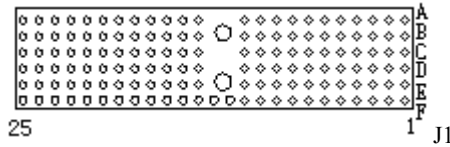
Pin	Signal Name	Pin	Signal Name
1	GND	26	CD1#
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CS0#	32	CS1#
8	GND	33	VS1#
9	ATASEL#	34	IOR#
10	GND	35	IOW#
11	GND	36	WE#
12	GND	37	IRQ
13	VCC	38	VCC
14	GND	39	CSEL#
15	GND	40	VS2#
16	GND	41	RESET#
17	GND	42	IORDY
18	A2	43	DREQ
19	A1	44	DACK#
20	A0	45	DASP#
21	D0	46	ATA66 DET
22	D1	47	D8
23	D2	48	D9
24	WP/IOCS16#	49	D10
25	CD2#	50	GND

Note:

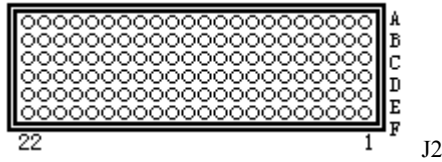
1. During system installation process via CF card, please partition the on-board SSD as well as the CF card when implementing hard disk partition. If only the CF card is partitioned, the system will prompt that the installation cannot continue;
2. During system installation process via CF card, the system installation is completed and rebooted under DOS; however instead of entering Windows system to continue installation, it returns to the DOS installation interface. At that time, please reboot the system under DOS again and then it will enter the Windows interface to continue installation.

CompactPCI Connector

The pin definitions for J1



Pin	Signal Name					
	A	B	C	D	E	F
1	+5V	-12V	TRST#	+12V	+5V	GND
2	TCK	+5V	TMS#	NC	TDI	GND
3	INTA#	INTB#	INTC#	5V_LONG	INTD#	GND
4	IPMB_PWR	HEALTHY#	VIO_L1	INTP	INTS	GND
5	NC	NC	PCI_RST#	GND	GNT0#	GND
6	REQ0#	GND	3V_LONG	CLK0	AD31	GND
7	AD30	AD29	AD28	NC	AD27	GND
8	AD26	GND	V(I/O)	AD25	AD24	GND
9	C/BE3#	SIDSEL	AD23	GND	AD22	GND
10	AD21	GND	+3.3V	AD20	AD19	GND
11	AD18	AD17	AD16	GND	C/BE2#	GND
12	KEY AREA					
13						
14						
15	+3.3V	FRAME#	IRDY#	BD_SEL#	TRDY#	GND
16	DEVSEL#	PCIXCAP	V(I/O)	STOP#	LOCK#	GND
17	+3.3V	IPMB_SCL	IPMB_SDA	GND	PERR#	GND
18	SERR#	GND	+3.3V	PAR	C/BE1#	GND
19	+3.3V	AD15	AD14	GND	AD13	GND
20	AD12	GND	V(I/O)	AD11	AD10	GND
21	+3.3V	AD9	AD8	M66EN	C/BE0#	GND
22	AD7	GND	3V_LONG	AD6	AD5	GND
23	+3.3V	AD4	AD3	5V_LONG	AD2	GND
24	AD1	+5V	VIO_L2	AD0	ACK64#	GND
25	+5V	REQ64#	ENUM#	+3.3V	+5V	GND

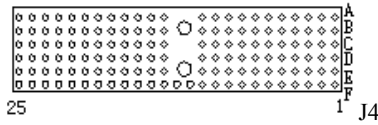
The pin definitions for J2


Pin	A	B	C	D	E	F
22	GA4	GA3	GA2	GA1	GA0	GND
21	CLK6	GND	NC	NC	NC	GND
20	CLK5	GND	NC	GND	NC	GND
19	GND	GND	NC	NC	VCC3_3SB	GND
18	NC	NC	NC	GND	NC	GND
17	NC	GND	CPCI_PRST-	REQ6#	GNT6#	GND
16	NC	NC	VIO_PCI	GND	NC	GND
15	NC	GND	VIO_PCI	REQ5#	GNT5#	GND
14	AD35	AD34	AD33	GND	AD32	GND
13	AD38	GND	V(I/O)	AD37	AD36	GND
12	AD42	AD41	AD40	GND	AD39	GND
11	AD45	GND	V(I/O)	AD44	AD43	GND
10	AD49	AD48	AD47	GND	AD46	GND
9	AD52	GND	V(I/O)	AD51	AD50	GND
8	AD56	AD55	AD54	GND	AD53	GND
7	AD59	GND	V(I/O)	AD58	AD57	GND
6	AD63	AD62	AD61	GND	AD60	GND
5	CBE5#	64EN-	V(I/O)	CBE4#	PAR64	GND
4	VIO_PCI	NC	CBE7#	GND	CBE6#	GND
3	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
2	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	CLK1	GND	REQ1#	GNT1#	REQ2#	GND

The pin definitions for J3



Pin	A	B	C	D	E	F
19	I/O	I/O	I/O	I/O	I/O	GND
18	LAN2_TX0+	LAN2_TX0-	GND	LAN2_TX2+	LAN2_TX2-	GND
17	LAN2_TX1+	LAN2_TX1-	GND	LAN2_TX3+	LAN2_TX3-	GND
16	LAN3_TX0+	LAN3_TX0-	GND	LAN3_TX2+	LAN3_TX2-	GND
15	LAN3_TX1+	LAN3_TX1-	GND	LAN3_TX3+	LAN3_TX3-	GND
14	LAN2_LINK_ACT-	LAN2_LINK_100-	I/O	I/O	I/O	GND
13	I/O	LAN2_LINK_1000-	I/O	I/O	I/O	GND
12	I/O	I/O	I/O	I/O	I/O	GND
11	I/O	I/O	I/O	I/O	I/O	GND
10	I/O	I/O	I/O	I/O	I/O	GND
9	I/O	I/O	I/O	I/O	I/O	GND
8	I/O	I/O	I/O	I/O	I/O	GND
7	I/O	I/O	I/O	I/O	I/O	GND
6	I/O	I/O	I/O	I/O	I/O	GND
5	I/O	I/O	I/O	I/O	I/O	GND
4	I/O	I/O	I/O	I/O	I/O	GND
3	I/O	I/O	I/O	I/O	I/O	GND
2	I/O	I/O	I/O	I/O	I/O	GND
1	I/O	I/O	I/O	I/O	I/O	GND

The pin definitions for J4


Pin	Signal Name					
	A	B	C	D	E	F
1	USB4P_CN	LIN_R_CN	GND	I/O	I/O	GND
2	USB4N_CN	LIN_L_CN	GA_LAN5_ MDI0+	I/O	I/O	GND
3	USB5P_CN	MIC_L_CN	GA_LAN5_ MDI0-	I/O	I/O	GND
4	USB5N_CN	CD_RIGHT	GA_LAN5_ MDI1+	I/O	I/O	GND
5	GND	CD_LEFT	GA_LAN5_ MDI1-	I/O	I/O	GND
6	VCC5_USB45_ F	CD_GND	GA_LAN5_ MDI2+	I/O	I/O	GND
7	I/O	LOUT_R_CN	GA_LAN5_ MDI2-	I/O	I/O	GND
8	I/O	LOUT_L_CN	GA_LAN5_ MDI3+	I/O	I/O	GND
9	LVDSVCC (PANEL_VDD)	I/O	GA_LAN5_ MDI3-	HD_IOC16-	I/O	GND
10	LVDSVCC (PANEL_VDD)	TMDS_B_CLK+	LAN5_LINK _ACT-	I/O	I/O	GND
11	LA_BKLT_EN RL	TMDS_B_CLK-	LAN5_LINK _100-	I/O	I/O	GND
12	KEY AREA					
13						
14						
15	I/O	DVI2_HPD	LAN5_LINK _1000-	GND	I/O	GND
16	I/O	DVI2_CTRL_DAT A	VCC5	SATA_TXP2	I/O	GND
17	LA_DATAP2	DVI2_CTRL_CLK	SATA_TXP1	SATA_TXN2	I/O	GND
18	LA_DATAN2	DVI/LVDS2+ 1_D2+	SATA_TXN1	I/O	I/O	GND

19	LA_DATAP1	DVI/LVDS2-	SATA_RXP1	SATA_RXP2	I/O	GND
20	LA_DATAN1	DVI/LVDS1+	SATA_RXN1	SATA_RXN2	GND	GND
21	LA_DATAP0	DVI/LVDS1-	RTC_RST#	I/O	I/O	GND
22	LA_DATAN0	DVI/LVDS0+	I/O	I/O	I/O	GND
23	LB_CLKP	DVI/LVDS0-	DVI1_HPD0	LAN4_LINK_1000-	SATALED-	GND
24	GND	DVI/LVDS_CLK+	DVI1_CTRL_CLK	GA_LAN4_MDI2+	I/O	GND
25	LB_CLKN	DVI/LVDS_CLK-	DVI1_CTRL_DATA	GA_LAN4_MDI2-	GA_LAN4_MDI0+	GND

The pin definitions for J5

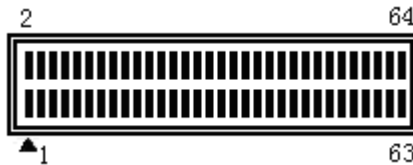
The board provides a socket, J5; the pin arrangements are the same as that of J2; the pin definitions are as follows:

Pin	A	B	C	D	E	F
1	TMDS_B_D ATA0P	TMDS_B_ DATA0N	LAN4_LIN K_100-	LAN4_LINK_ ACT-	GA_LAN4_M DI0-	GND
2	TMDS_B_D ATA1P	TMDS_B_ DATA1N	CRT_DDC_ CLK	GA_LAN4_M DI3+	GA_LAN4_M DI1+	GND
3	TMDS_B_D ATA2P	TMDS_B_ DATA2N	CRT_DDC_ DATA	GA_LAN4_M DI3-	GA_LAN4_M DI1-	GND
4	CRT_VSYN C	CRT_HSY NC	I/O	GND	I/O	GND
5	VGA2_BLU E_CN	VGA2_GR EEN_CN	I/O	I/O	I/O	GND
6	VGA2_RED_ CN	GND	I/O	I/O	I/O	GND
7	GND	I/O	I/O	I/O	I/O	GND
8	I/O	I/O	I/O	I/O	GND	GND
9	I/O	I/O	I/O	I/O	I/O	GND
10	I/O	I/O	I/O	I/O	I/O	GND
11	GND	I/O	I/O	I/O	I/O	GND
12	I/O	I/O	I/O	I/O	I/O	GND
13	I/O	I/O	I/O	GND_IL3	COM3_RI#	GND
14	I/O	I/O	I/O	COM3_DTR#	COM3_CTS#	GND
15	I/O	I/O	I/O	COM3_TXD	COM3_RTS#	GND
16	VCC5	VCC5	+5V	COM3_RXD	COM3_DSR#	GND
17	GND	GND	GND	COM3_DCD#	GND_IL2	GND

18	USB2P_CN	USB3P_CN	KB_DATA	COM2_DTR#	COM2_RI#	GND
19	USB2N_CN	USB3N_CN	KB_CLK	COM2_TXD	COM2_CTS#	GND
20	SPEAKER	VCC5	MS_DATA	COM2_RXD	COM2_RTS#	GND
21	WDT_OUT-	GND	MS_CLK	COM2_DSR#	COM2_DCD#	GND
22	RST_BUT-	VCC5_USB23_F	HSC_PWRGD	RTCBAT	NC	GND

PMC Connector

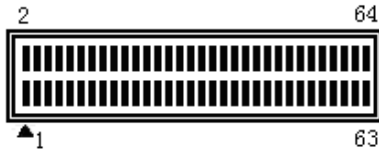
PMC1_JN1 and PMC1_JN2 are PCI expansion slots, Pitch: 1.0mm. The pin definitions are as follows:



PMC1_JN1

Pin	Signal Name	Pin	Signal Name
1	TCK	33	FRAME#
2	-12V	34	GND
3	GND	35	GND
4	PIRQA#	36	IRDY#
5	PIRQB#	37	DEVSEL#
6	PIRQC#	38	+5V
7	BM1	39	GND
8	+5V	40	PLOCK#
9	PIRQD#	41	NC

10	NC	42	NC
11	GND	43	PAR
12	+3.3V	44	GND
13	CLK1	45	VIO
14	GND	46	AD15
15	GND	47	AD12
16	GNT0#	48	AD11
17	REQ0#	49	AD9
18	+5V	50	+5V
19	VIO	51	GND
20	AD31	52	C/BE0#
21	AD28	53	AD6
22	AD27	54	AD5
23	AD25	55	AD4
24	GND	56	GND
25	GND	57	VIO
26	C/BE3#	58	AD3
27	AD22	59	AD2
28	AD21	60	AD1
29	AD19	61	AD0
30	+5V	62	+5V
31	VIO	63	GND
32	AD17	64	REQ64#

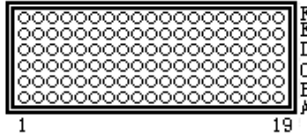


PMC1_JN2

Pin	Signal Name	Pin	Signal Name
1	+12V	33	GND
2	TRST#(3)	34	IDSL_B(1)
3	TMS(2)	35	TRDY#
4	TDO(1)	36	+3.3V
5	TDI(2)	37	GND
6	GND	38	STOP#
7	GND	39	PERR#
8	NC	40	GND
9	NC	41	+3.3V
10	NC	42	SERR#
11	BM2	43	C/BE1#
12	+3.3V	44	GND
13	RST#	45	AD14
14	BM3	46	AD13
15	+3.3V	47	M66EN
16	BM4	48	AD10
17	PME#	49	AD8
18	GND	50	+3.3V
19	AD30	51	AD7
20	AD29	52	REQ_B(1)
21	GND	53	+3.3V
22	AD26	54	GNT_B#(1)
23	AD24	55	NC
24	+3.3V	56	GND
25	IDSEL	57	NC
26	AD23	58	ERREADY(1)
27	+3.3V	59	GND
28	AD20	60	RSTOUT#(1)
29	AD18	61	ACK64#
30	GND	62	+3.3V
31	AD16	63	GND
32	C/BE2#	64	Monarch#(1)

XMC Connector

J6 is the XMC expansion slot; the pin definitions for J6 are as follows:



Pin	A	B	C	D	E	F
1	DP00+	DP00-	3.3V	DP01+	DP01-	VPWR
2	GND	GND	TRST#	GND	GND	MRSTI#
3	DP02+	DP02-	3.3V	DP03+	DP03-	VPWR
4	GND	GND	TCK	GND	GND	MRSTO#
5	DP04+	DP04-	3.3V	DP05+	DP05-	VPWR
6	GND	GND	TMS	GND	GND	+12V
7	DP06+	DP06-	3.3V	DP07+	DP07-	VPWR
8	GND	GND	TDI	GND	GND	-12V
9	DP08+	DP08-	RPS	DP09+	DP09-	VPWR
10	GND	GND	TDO	GND	GND	GA0
11	DP10+	DP10-	MBIST#	DP11+	DP11-	VPWR
12	GND	GND	GA1	GND	GND	MPRESENT#
13	DP12+	DP12-	3.3V AUX	DP13+	DP13-	VPWR
14	GND	GND	GA2	GND	GND	MSDA
15	DP14+	DP14-	RPS	DP15+	DP15-	VPWR
16	GND	GND	MVMRO	GND	GND	MSCL
17	DP16+	DP16-	RFU	DP17+	DP17-	RFU
18	GND	GND	RPS	GND	GND	RPS
19	DP18+	DP18-	RPS	DP19+	DP19-	RPS

Chapter 3 BIOS Setup

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.

UEFI Parameter Setup

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

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

Basic Function Setting for UEFI

After starting SETUP program, the main interface of Aptio Setup Utility - Copyright

(C) 2009 American Megatrends, Inc. will appear:

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc. 2009		
Main Advanced Chipset Boot Security Save & Exit		
CPC-1817CLD5NA		Set the Date. Use ‘Tab’ to switch between Date elements.
BIOS Name	Y9087000	
BIOS Version	A00	
Build Date	12/14/2010 11:10:40	
Memory Information		→←: Select Screen
Total Memory	4096 MB (DDR3 800)	↑↓: Select Item
		Enter: Select
System Date	[Mon 11/01/2009]	+/-: Change Opt
System Time	[00:47:55]	F1: General Help
		F2: Previous Values
Access Level	Administrator	F3: Optimized Defaults
		F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.		

◆ Main

➤ System Time

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).

- **Hyper Threading Technology**
Control switch of the Hyper Threading Technology function.
- **Active Processor Cores**
Active CPU core number, only available for multi-core CPU.
- **Limit CPUID Maximum**
Disabled for Windows XP.
- **Hyper-Threading**
Control switch for Hyper Threading Technology function.
- **Active Processor Cores**
Active CPU core numbers, which is only available for the CPU with multi-core.
- **Hardware Prefetcher**
Enable or disable the MLC Streamer Prefetcher
- **Adjacent Cache Line Prefetch**
Enable or disable the prefetching of adjacent cache lines
- **Intel Virtualization Technology**
Switch of the Intel virtualization technology.
- **Power Technology**
Enable or disable the CPU power management function.

➤ **SATA Configuration**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.		
Advanced		
SATA Configuration		→←: Select Screen
SATA Port0	EVOC (7.8GB)	↑↓: Select Item
SATA Port1	Not Present	Enter: Select
SATA Port2	Not Present	+/-: Change Opt
SATA Port3	Not Present	F1: General Help
SATA Port4	Not Present	F2: Previous Values
SATA Port5	Not Present	F3: Optimized Defaults
Serial-ATA Controller 0 [Compatible]		F4: Save
Serial-ATA Controller 1 [Enhanced]		ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.		

SATA Port0 ~ 5 dynamically detect whether there are SATA devices connected with the motherboard. If devices are connected with the corresponding ports, then it will display the SATA device type. Otherwise, it will display “Not Present”.

- **Serial-ATA Controller 0**

Switch for Serial-ATA Controller 0, sets the mode for Serial-ATA Controller 0.

- **Serial-ATA Controller 1**

Switch for Serial-ATA Controller 1, sets the mode for Serial-ATA Controller 1.

➤ **USB Configuration**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
USB Configuration USB Devices: 1 Keyboard, 1 Mouse, 2 Hubs Legacy USB Support [Enabled]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

- **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.

➤ **Super IO Configuration**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
Super IO Configuration Super IO Chip SMSC SCH3114 ▶ Floppy Disk Controller Configuration ▶ Serial Port 0 Configuration ▶ Serial Port 1 Configuration ▶ Serial Port 2 Configuration	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

● **Serial Port 0 ~ 2 Configuration**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
Serial Port 0 ~ 2 Configuration Serial Port [Enabled] Device Settings IO=3F8h; IRQ=4; Change Settings [Auto] Device Mode [Normal]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

* **Serial Port 0 ~ 2**

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.

* **Change Settings**

This option is used to configure the resource adopted by the serial port (IO and IRQ).

*** Device Mode**

This option is used to configure the operating speed of the serial port.

➤ **H/W Monitor**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Advanced	
<p>PC Health Status</p> <p>CPU Temperature : +57 C SYS Temperature : +26 C</p> <p>Vcore : +0.95 V V3.3 : +3.296 V V5.0 : +5.007 V V12.0 : +12.091 V Vbat : +3.21 V</p>	<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit</p>
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

Display the currently detected hardware monitoring information, such as voltage, temperature, fan speed, etc.

- **System Temperature**
Current system temperature, monitored by the thermal resistor on motherboard.
- **CPU Temperature**
Current CPU temperature, monitored by the temperature sensor on motherboard.
- **Vcore**
CPU core voltage.
- **V3.3/ V5.0/V12.0**
Turn on/off the power to output voltage.
- **VBAT**
CMOS battery voltage.

◆ Chipset

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
WARNING: Setting wrong values in below sections may cause system to malfunction! ▶ North Bridge ▶ South Bridge ▶ Intel IGD SWSCI OpRegion	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

➤ North Bridge

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
NB Chipset Configuration Low MMIO Align [64M] Graphic Turbo IMON Current 31 VT-d [Disabled] IGD Memory [32M]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

● Low MMIO Align

Low MMIO resource alignment.

● Graphics Turbo IMON Current

Currently supported Graphics turbo value.

● VT-d

Switch for the Intel virtualization technology.

- **IGD Memory**

System memory size shared by IGD.

➤ **South Bridge Configuration**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
SB Chipset Configuration Audio Configuration Azalia HD Audio [Enabled] Lan Switch Configuration Lan Switch [Enabled] DDC Switch Configuration DDC Switch [Enabled] Spread Spectrum [Disabled]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
▶ USB Configuration	
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

- **Azalia HD Audio**

Switch for the audio card controller, which is set to “Enable” in standard configuration.

- **LAN Switch**

This option is used to switch the LAN port between CPCI2.16 function and LAN port. When it is set to Enabled, it is set to LAN port function; when it is set to Disabled, it is set to CPCI2.16 function.

- **DDC Switch**

This option is used to switch the DDC between DVI and VGA. When it is set to Enabled, it is set to DVI-I; when it is set to Disabled, it is set to VGA.

- **Spread Spectrum**

It is used to set the spread spectrum function of the clock chip; it is set to disabled in default configuration.

● USB Configuration

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
USB Configuration	
USB Port 0	[Enabled]
USB Port 1	[Enabled]
USB Port 2	[Enabled]
USB Port 3	[Enabled]
USB Port 4	[Enabled]
USB Port 5	[Enabled]
	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

* USB Port 0 ~ 5

Switch for USB Port 0 ~ 5.

● Intel IGD SWSCI OpRegion

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Chipset	
Intel IGD SWSCI OpRegion Configuration	
DVMT/FIXED Memory	[256MB]
IGD – Boot Type	[CRT + DVI-D]
LCD Panel Type	[800x600 LVDS]
Active LFP	[No LVDS]
	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
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*** DVMT/FIXED Memory**

Set the memory size occupied by video card under DVMT/FIXED mode.

*** IGD – Boot Type**

Set the primary display device booted by IGD.

*** LCD Panel Type**

This option is used choose the resolution for the Flat Panel.

***Active LFP**

This option is used to enable the LVDS function. When LVDS display is required, please set this option to Int-LVDS.

◆ **Boot**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
<p>Boot Configuration</p> <p>Quiet Boot [Disabled]</p> <p>Boot Numlock State [On]</p> <p>Boot Option Priorities</p> <p>Boot Option #1 [Built-in EFI Shell]</p> <p>Hard Drive BBS Priorities</p>	<p>→←: Select Screen</p> <p>↑↓: Select Item</p> <p>Enter: Select</p> <p>+/-: Change Opt</p> <p>F1: General Help</p> <p>F2: Previous Values</p> <p>F3: Optimized Defaults</p> <p>F4: Save</p> <p>ESC: Exit</p>
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➤ **Quiet Boot**

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

➤ **Bootup Numlock State**

Switch for the Numlock.

➤ **Boot Option Priorities**

This option is used to configure the system booting priorities. #1 represents the highest priorities while #n represents the lowest priorities.

➤ **Hard Drive BBS Priorities**

This option is used to configure the priorities of the legacy devices in BBS. #1 represents the highest priorities while #n represents the lowest priorities.

◆ **Security**

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.</p> <p>If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.</p> <p>Administrator Password User Password</p>	<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit</p>
Version 2.00.1201. Copyright (C) 2009,American Megatrends, Inc.	

➤ **Setup Administrator Password**

This option is used to set administrator password.

➤ **User Password**

This option is used to set user password.

Note: If ONLY the Administrator's password is set, then this is only asked for when entering Setup;

If ONLY the User's password is set, then this must be entered to boot the computer. When entering Setup, the User will have Administrator privileges;

When both Administrator's password and User's password are set, Administrator's password or User's password is required when booting. If Administrator's password is adopted, the User will have Administrator's privileges when entering Setup; while if User's password is adopted, the User will have User's privileges when entering Setup.

◆ Save & Exit

Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.	
Main Advanced Chipset Boot Security Save & Exit	
Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Options Save Changes Discard Changes Restore Defaults Save as User Defaults Restore User Defaults Boot Override Built-in UEFI Shell	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.	

➤ Save Changes and Exit

This option is used to save changes and exit Setup program. If the changes are effective after rebooting, then it will reboot automatically.

➤ **Discard Changes and Exit**

This option is used to discard changes and exit Setup program.

➤ **Save Changes and Reset**

The option is used to save changes and reset.

➤ **Discard Changes and Reset**

The option is used to discard changes and reset.

➤ **Save Changes**

Save changes.

➤ **Discard Changes**

Discard changes.

➤ **Restore Defaults**

Restore default values.

➤ **Save as User Defaults**

Save user defaults.

➤ **Restore User Defaults**

Restore user defaults.

➤ **Boot Override**

This option lists all the booting options; users may choose one of the options and press <Enter>, then you may boot according to the option.

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	COM2
DMA1	Unassigned
DMA2	FDD Controller
DMA3	Unassigned
DMA4	Cascade used by DMAC
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**

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 adopted while the ports above 0400h are adopted by PCI and EISA connectors. Each peripheral will occupy portion of the space. The table below shows parts of the I/O connectors used in X86 platform.

Address	Device Description
000h - 000Fh	DMA Controller #1
020h - 021h	Programmable Interrupt Controller #1

040h - 043h	System Timer#1
061h - 061h	System Speaker
070h - 071h	System CMOS/Real Time Clock
081h - 083h	DMA Controller #2
087h - 087h	DMA Controller #3
089h - 08Bh	DMA Controller #4
08Fh - 08Fh	DMA Controller #5
0A0h - 0A1h	Programmable Interrupt Controller #2
0C0h - 0DFh	DMA Controller #6
0F0h - 0FFh	Numeric data processor
170h - 177h	Secondary IDE Channel
1F0h - 1F7h	Primary IDE Channel
274h - 277h	ISAPNP Read Data Port
279h - 279h	ISAPNP Read Data Port
2F8h - 2FFh	COM2
3B0h - 3BBh	Intel(R) Graphic Media Accelerator HD
3C0h - 3DFh	Intel(R) Graphic Media Accelerator
376h - 376h	Secondary IDE Channel
3E8h - 3EFh	COM3
3F0h - 3F5h	Standard floppy disk controller
3F6h - 3F6h	Primary IDE Channel
3F8h - 3FFh	COM1
400h - 47Fh	Motherboard Resource
4D0h - 4D1h	Motherboard Resource
500h - 57Fh	Motherboard Resource
600h - 67Fh	Motherboard Resource
A79h - A79h	ISAPNP Read Data Port

◆ 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	PS2 Keyboard
IRQ2	Reserved
IRQ3	COM#2
IRQ4	COM#1
IRQ5	Reserved
IRQ6	Standard floppy disk controller
IRQ7	Reserved
IRQ8	System CMOS/Real Time Clock
IRQ9	ACPI-Compliant System
IRQ10	Reserved
IRQ11	COM#3
IRQ12	Mouse
IRQ13	Numeric data processor
IRQ14	Primary IDE Channel
IRQ15	Secondary IDE Channel

Chapter 4 Install the Drivers

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

Appendix

Watchdog Programming Guide

The board provides a programmable watchdog timer (WDT) up to 255 levels and timed by minute or second. Watchdog timeout event can be programmed to reset system or generate maskable interrupts.

The available IRQ numbers for this board are: 3, 4, 5, 7, 9, 10 and 11.

The following describes WDT program in C language. The steps to program WDT are listed as follows:

- Enter WDT programming mode;
- Set WDT operating mode, enable WDT/disable WDT.

(1) Enter WDT Programming Mode

/*

Description: the function, PreInitWDT, is used to initialize the registers relevant to WDT; please invoke the function before configuring and using WDT.

Input: none

Output: none

Note: the function will modify the value of the variable pm_base, which will be quoted by the function SetWDT.

*/

```
#define INDEX_PORT 0x4E
#define DATA_PORT 0x4F
unsigned int tmp_reg;
unsigned int pm_base;
```

```
VOID PreInitWDT()
```

```
{
```

```
    outportb(INDEX_PORT, 0x55);
```

```
    outportb(INDEX_PORT, 0x07);
```

```

    outportb(DATA_PORT, 0x0A);
    outportb(INDEX_PORT, 0x30);
    outportb(DATA_PORT, 0x01);
    outportb(INDEX_PORT, 0x60);
    tmp_reg = inportb(DATA_PORT);
    pm_base = tmp_reg;
    outportb(INDEX_PORT, 0x61);
    tmp_reg = inportb(DATA_PORT);
    pm_base = pmbase<<8+tmp_reg; /*Get the variable pm_base for later
    use*/
}

```

(2) Configure the WDT operating mode to enable or disable WDT

/*

Description: the function, SetWDT, is used to configure the parameter required when configuring WDT to enable or disable WDT.

Input: Wmode: 0 - Configure WDT to reset mode
 IRQ_NO - Configure WDT to interrupt mode. Please
 replace the constant IRQ_NO with the interrupt number
 need to be used. The available range of the interrupt number
 has been listed in the beginning of this chapter

Wtime: 0 - Configure WDT to time by minute
 1 - Configure WDT to time by second

Timeout: 0 - disable WDT
 TIME_OUT_VALUE - Enable WDT. Please replace the
 constant TIME_OUT_VALUE with the unit number of
 timeout value (0x01 ~ 0xFF)

Note: the instructions for the interrupt mode are only suitable for the OS with both ACPI and APIC enabled.

*/

```
SetWDT(unsigned int Wmode, unsignedint Wtime, unsigned int Timeout)
```

```
{
    unsigned int irq;

    If (Wmode == 0)
        outputb(pm_base+0x47, 0x0C);
    else
    {
        unsigned int irq;
        irq = Wmode;
        irq = irq<<4;
        outputb(pm_base+0x47, 0x80);
        outputb(pm_base+0x67, irq);
    }

    If (Wtime == 0)
        outputb(pm_base+0x65, 0x00);
    else
        outputb(pm_base+0x65, 0x80);

    outputb(pm_base+0x65, Timeout);
}
```

Troubleshooting and Solutions

NO.	Phenomenon	Troubleshooting and Solution
1	BIOS setting cannot be saved	Analysis: it could be the problem of the CMOS battery.
		Solution: measure the CMOS battery with a multi-meter; if the voltage is insufficient, replace the battery; re-set the BIOS and save again.
2	The computer can only be powered-on occasionally	Analysis: it may be caused by poor connection. Remove the power plug from power socket on motherboard, you may find that certain pin of the motherboard power has been collapsed to one side after some forceful insertion.
		Solution: power off the computer and remove the power plug; erect the bended power pin with tweezers and re-insert in the power socket. Reboot the computer and test for several times until the problem no longer exists.
3	When connecting with a USB flash drive, the system prompts that a high-speed device has been connected with a low-speed connector.	Analysis: A USB flash drive is a high-speed USB2.0; when connecting with the computer, it prompts that a high-speed device has been connected with a low-speed connector, which indicates that the connector on motherboard is regarded as a USB1.1 port.
		Solution: enable the USB high-speed transmission mode on the motherboard. Different motherboards may have different settings. Change the FULLSPEED option to HISPEED in USB device option.
4	The screen has no display after replacing with a new memory and cannot enter system; even when the former memory is re-installed, the system cannot be booted as well.	Analysis: it could result from improper operation when inserting or removing the memory and cause abnormal operation of the components on the motherboard. Focus on the circuit related to the memory on the motherboard.
		Solution: check the hardware such as memory, video card first; if it shows that the hardware are all OK, then check the circuit around the memory slot on motherboard carefully; you may find that the two pins connected with the gold finger in the first memory slot are shorted while the second memory slot is normal, then you may know that there is short circuit in the first memory slot. Remove the two pins to their original location with tweezers carefully, insert the memory, reboot the system and the system will be booted smoothly.

5	The system cannot be booted after replacing a CD-ROM.	<p>Analysis: the data cable of the hard disk may get knocked when installing the CD-ROM, which leads to poor connection of the hard disk data cable, or the master and slave jumpers on hard disk and CD-ROM are wrongly set.</p> <p>Solution: check the data cable of the hard disk and the IDE connectors on hard disk and motherboard first; if there are no problems, then check the master and slave jumper setting. You may find that the hard disk and CD-ROM are connected with different data cables while their jumpers are all set to master; thus, the hard disk cannot be booted. Set the CD-ROM jumper to slave and then re-install it.</p>
6	No PCI card can be detected after entering the system.	<p>Analysis: make sure the PCI card functions normally; re-insert the PCI card or insert it into another PCI slot to see whether it is normal; find out the power type in use (AT or ATX); find out users' requirement for the PCI card voltage.</p> <p>Solution: if the PCI card functions abnormally, replace it with a new one; if it functions normally when re-inserted or inserted in another PCI slot, then there is something wrong between the PCI card and the slot. If AT power is adopted and the PCI card requires 3.3V voltage, then the AT power shall be replaced with ATX power because AT power cannot provide 3.3V voltage. (Suggestion: when purchasing power supplies, please check whether the PCI card in use requires 3.3V voltage or not).</p>
7	No peripheral devices can be detected.	<p>Analysis: devices are not connected; no drivers are loaded; devices are broken.</p> <p>Solution: check whether the cable between the device and the motherboard is normal; if it is normal, replace it with a new cable to make sure the connection is OK. Re-install the device driver and check whether it can be recognized; check whether the device is normal; if the device is normal, then check whether the device is compatible with the motherboard.</p>