PPC-1006

10.1″加固平板电脑

10.1″ Rugged Panel PC

Version: C00

法律资讯

警告提示

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

⚠危险
表示如果不采取相应的小心措施，将会导致死亡或者严重的人身伤害。

⚠警告
表示如果不采取相应的小心措施，可能导致死亡或者严重的人身伤害。

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

注意
表示如果不注意相应的提示，可能会出现不希望的结果或状态。

合格的专业人员

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

EVOC产品

请注意下列说明：

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

免责声明

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

订购产品前，请向经销商详细了解产品性能是否符合您的需求。

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保修条款：

产品保修期两年。用户如另有要求，以双方签署的合同为准。

欲获更多信息请访问：

研祥网站：http://www.evoc.com

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

免费客服热线： 4008809666

文档说明

本文档适用范围

本文档适用于EVOC PPC-1006型号。

约定

在本文档中，术语“整机”或“产品”有时特指EVOC PPC-1006产品。

说明

安全相关注意事项

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

历史

本说明书发布版本：

版本	时间
B00	2016.2
B01	2016.7
C00	2017.4

安全须知

通用安全说明

⚠小心
除非您阅读过相关的安全说明，否则请不要扩展您的设备。

本设备符合CCC的相关安全措施要求。如果您对在规划环境中安装的有效性存有疑问，请联系您的服务代表。

维修

只能由经过授权的人员对设备进行维修。

⚠警告
未经授权打开设备以及不当修理都可能导致设备严重损坏或危及用户安全。

系统扩展

仅安装专为此设备设计的系统扩展设备。安装其它扩展设备可能会损坏系统并违反无线电干扰抑制规定。请联系技术支持团队或设备购买地，以了解可安全安装的系统扩展设备。

⚠小心
如果因安装或更换系统扩展设备而将设备损坏，担保将失效。

电池

只能由合格人员来更换电池。

⚠小心
如果未按指示更换电池，将会有爆炸危险。 只能使用相同类型的电池或制造商建议的同等类型的电池来更换。用过的电池必须按照当地法规来处理。

⚠警告
存在爆炸及释放有害物质的风险！为此，请勿将锂电池投入火中、焊接到池体、打开、短路、颠倒正负极或加热到 100℃以上，应按规定进行处理，使其避免受到阳光直射、受潮和凝露。

ESD 指令

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

在操作含有 ESD 的模块时，请严格遵守下面提到的准则：

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

安全使用小常识

- 产品使用前，务必仔细阅读产品说明书。
- 切勿将电池置于有水的环境下或使其受潮。
- 如果长时间不使用电池 （一个月以上）的话，将其充电或放电 （使用）直至剩余电池电量变为 30% 至 40%后，保管在阴凉干燥之处。
- 本计算机通过仅当剩余电量约低于93%电量时才充电来防止电池的过度充电。
- 刚购买的计算机的电池是没有充电的。初次使用前务必要将其充电。当将电源适配器与计算机连接时，充电会自动开始。
- 如果电池泄漏，电解液进入到眼内的话，切勿揉眼睛。要立即用清水冲洗眼睛并尽可能请医生进行医疗处理。
- 请不要放置在婴幼儿可触及的地方。
- 请不要将电池作为垃圾投弃。应按贵地的法令或法规以及贵公司的安全标

准处理。

- 充电或正常使用过程中，电池可能会变热。这完全属于正常现象。
- 如果电池的内部温度超过容许的温度范围 （0℃至60℃），充电不会开始。一旦达到容许温度范围要求，将自动开始充电。注意根据使用条件不同，充电时间也不同。（当温度为10℃或以下时，充电时间可能比平常要略长一些。）
- 如果温度低的话，工作时间将会缩短。只能在允许温度范围内使用计算机。
- 本计算机备有高温模式功能，可防止高温环境下电池老化。高温模式时的100%电量约相当于普通温度模式的80%电量。
- 电池为消耗品。如果计算机使用某一特定电池的运行时间大大缩短且反复充电仍不能恢复其性能的话，应用新的电池予以更换。

目　录

1.产品介绍

1.1 概述

PPC-1006 是一款高性能低功耗平台的 10.1 寸手持式加固平板电脑，10.1″高亮液晶屏，分辨率 1280×800，多点电容触摸屏，内置电池供电，航空头接口。

本产品采用模块化、密闭、超薄设计，此机器作为信息化终端，承担通信、勘察测绘、数据采集与处理等多项应用任务，适应于军工、车载等极端严酷环境。

PPC-1006-02

PPC-1006-03/PPC-1006-03KW


PPC-1006-04


PPC-1006-08

1.2 配置订购需求

序号	产品型号	产品描述	搭配主板
1	PPC-1006-01	保留	
2	PPC-1006-02	N2930/4GB DDR3L/128G mSATA/1×USB/1×网口/2×串口/1×HDMI/摄像头/WIFI/蓝牙/触摸/电池	ECS-1820(B)
3	PPC-1006-03	N2930/4GB DDR3L/128G mSATA/2×USB/1×网口/1×串口/1×HDMI/触摸/电池	ECS-1820(B)
4	PPC-1006-03KW	N2930/4GB DDR3L/128G mSATA/2×USB/1×网口/1×串口/1×HDMI/触摸/电池	ECS-1820(B)-KW
5	PPC-1006-04	N2930/4GB DDR3L/128G mSATA/2×USB/1×网口/1×串口/1×HDMI/摄像头/触摸/电池	ECS-1820(B)
6	PPC-1006-05	保留	
7	PPC-1006-06	保留	
8	PPC-1006-07	保留	
9	PPC-1006-08	i5-4300U/8GB DDR3L/128G mSATA/2×USB/1×网口/1×HDMI/1×耳机接口/触摸/电池/全航插	ECS-1825

1.3 规格

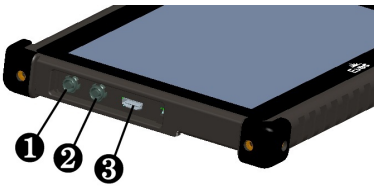
项目		定义
主要功能指标	微处理器	Intel® Celeron N2930 1.83GHz（02/03/03KW/04 配置） Intel® Core™ i5-4300U 1.9GHz（08 配置）
	内存	板载4G DDR3L（02/03/03KW/04配置） 板载8G DDR3L（08配置）
	显示功能	单通道24位LVDS接口+HDMI接口
	网络功能	提供 1 个 10/100/1000Mbps 网络接口，航空头引出
	音频功能	支持内置 MIC，内置 SPEAKER
	LCD 屏本体特性	➢ 显示屏：10.1″ TFT LCD ➢ 分辨率：1280×800 ➢ 亮度：400cd/m2 ➢ 对比度：800：1 ➢ 可视角度（CR≥10） 水平：-80° ～80° ；垂直：-80° ～80°
	触摸屏	➢ 接口形式：USB形式 ➢ 类型：电容式
	摄像头	提供 1 个 200 万像素自动对焦后置摄像头(02/04 配置)
	存储	提供一个 mSATA 位，标配 128G
	扩展	提供 1 个 miniPCIE 接口，可扩展 WIFI/蓝牙(02/03/03KW/04 配置)，02 标配 N-7260 无线网卡（含蓝牙）

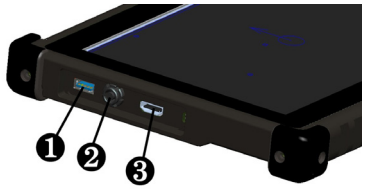
	外部 IO 接口	➢ 提供 2 个 USB2.0 接口，航空头引出 (08 配置)； 1～2 个 Type A 标准接口引出(02/03/03KW/04 配置) ➢ 提供 1 个千兆网，航空头引出 ➢ 提供 1～2 个串口,航空头引出(02/03/03KW/04 配置) ➢ 提供 1 个标准 HDMI 接口 ➢ 提供 1×3.5mm headphone（08 配置）
主要性能指标	**外形尺寸**	290mm（宽）×204mm（高）×31mm（深）
	重量	1.45Kg（不含适配器）
	温度	➢ 工作温度： -20℃～+55℃（02/03/04/08 配置） -40℃～+55℃（03KW 配置） ➢ 存储温度： -40℃～+70℃
	湿度	不大于 95%
	电磁兼容性	➢ 无线电骚扰限值符合 GB9254-2008 标准 B 级 ➢ 抗扰度符合 GB/T 17618-1998 标准的限值
	可靠性	➢ 平均无故障工作时间：MTBF≥5000h ➢ 平均维修时间：MTTR≤0.5h
	安全性	满足 GB4943 的基本要求
	防护等级	整机满足 IP65 等级
	机械环境适应性	振动满足GJB150.16A-2009的相关要求
	电源特性	➢ 内置电池：11.1V/6000MAH ➢ 整机功耗：9.4W（待机状态） 整机功耗：25W（运行 3D 100%）

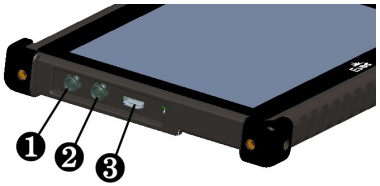
1.4 使用说明

1.4.1 外部功能

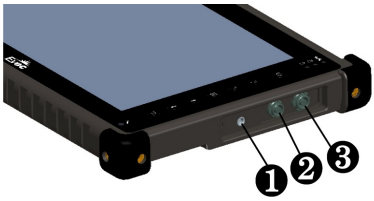
设备前视图	位置	描述
	1	指示灯
	2	电源按键
	3	亮度+按键
	4	亮度-按键
	5	菜单按键
	6	上一页翻页按键
	7	下一页翻页按键
	8	返回
	9	麦克风
	10	触摸屏

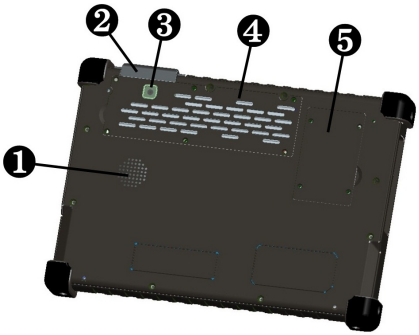
设备左侧接口图	位置	描述
 PPC-1006-02	1	COM 接口(航空头)
	2	LAN 接口(航空头)
	3	HDMI 接口

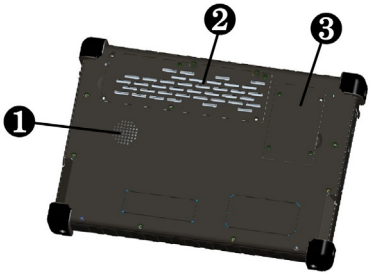
设备左侧接口图	位置	描述
 PPC-1006-03/-03KW/-04	1	USB3.0 接口
	2	LAN 接口(航空头)
	3	HDMI 接口

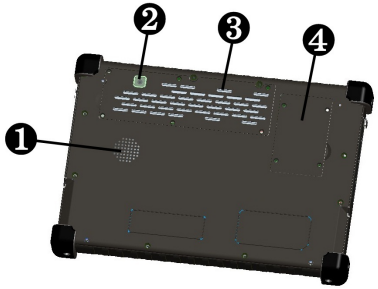
设备左侧接口图	位置	描述
 PPC-1006-08	1	LAN 接口(航空头)
	2	USB 接口(航空头)
	3	HDMI 接口

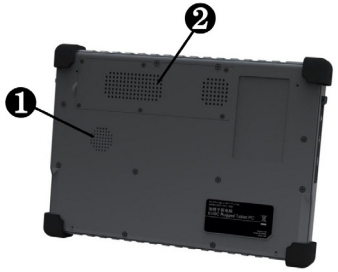
设备右侧接口图	位置	描述
 PPC-1006-02/-03/-03KW/-04	1	USB2.0 接口
	2	COM 接口(航空头)
	3	电源输入接口 (航空头)

设备右侧接口图	位置	描述
 PPC-1006-08	1	音频输出接口
	2	USB 接口(航空头)
	3	电源输入接口 (航空头)

设备后视图	位置	描述
 PPC-1006-02	1	喇叭
	2	天线
	3	摄像头
	4	散热片盖板
	5	MSATA 盖板

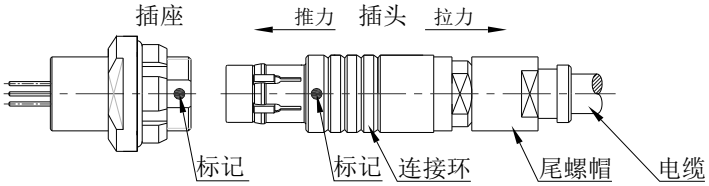
设备后视图	位置	描述
 PPC-1006-03/-03KW	1	喇叭
	2	散热片盖板
	3	MSATA 盖板

设备后视图	位置	描述
 PPC-1006-04	1	喇叭
	2	摄像头
	3	散热片盖板
	4	MSATA 盖板

设备后视图	位置	描述
 PPC-1006-08	1	喇叭
	2	风扇盖

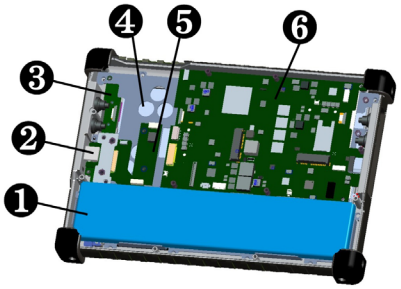
注意航空头接口操作说明(见下图)：

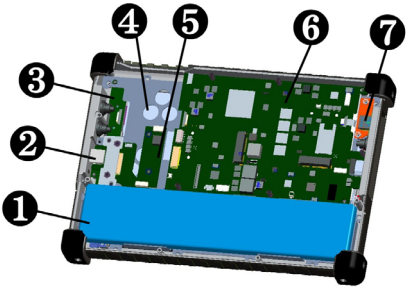
插合：将插头插座的颜色标记对齐后施加推力即可插入。

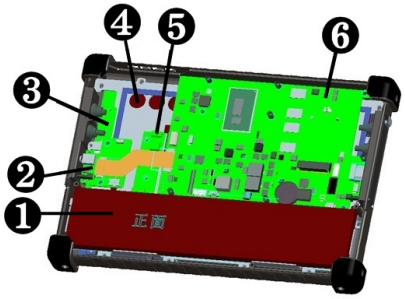


分离：分离前，先握住插头的尾螺帽处，并向插座方向施加一定的推力，然后再握住连接环，施加拉力，即可分离。

1.4.2 内部布局

设备内部布局图	位置	描述
 PPC-1006-02	1	电池
	2	USB2.0 PCBA
	3	按键板
	4	屏
	5	升压板
	6	主板

设备内部布局图	位置	描述
 PPC-1006-03/-03KW/-04	1	电池
	2	USB2.0 PCBA
	3	按键板
	4	屏
	5	升压板
	6	主板
	7	USB3.0 PCBA

设备内部布局图	位置	描述
 PPC-1006-08	1	电池
	2	音频接口板
	3	按键板
	4	屏
	5	升压板
	6	主板

1.5 状态指示灯

显示	含义	LED	描述
电源指示灯	电源状态指示灯	不亮	机器未上电
		绿常亮	设备运行中
		绿闪烁	待机
HDD	显示硬盘访问状态	不亮	无访问数据
		绿色闪烁	有访问数据
电池包指示灯	电池包状态指示	红色指示灯点亮	表示电池正在充电
		红色指示灯闪烁	表示电池电量很低（残余电量约为 6% 以下），请连接电源适配器进行充电。如果没有电源适配器的话，请保存好数据并关闭计算机
		绿色指示灯点亮	表示电池已充满

1.6 在S0 状态下电源按键使用说明(仅 08 配置)

电源键持续按下的时间T	实现功能
当按键松开时，若 T 小于 1S	锁屏，关/开背光
当 T 大于 2S	开始正常关机

当出现死机时，可长时间按下电源键，强制关机（若还是无法关机时，拔掉电源适配器再试）。

2.应用规划

2.1 运输

包装好的产品能以任何交通工具，运往任何地点，在长途运输时不得装在敞开的船舱和车厢中，中途转运时不得存放在露天仓库中，在运输过程中不允许和易燃、易爆、易腐蚀的物品同车（或其他运输工具）装运，并且产品不允许经受雨、雪或液体物质的淋湿与机械损坏。

2.2 贮存

产品贮存时应存放在原包装箱内，存放产品的仓库环境温度为 0℃～40℃，相对湿度为 20%～85%。仓库内不允许有各种有害气体、易燃、易爆炸的产品及有腐蚀性的化学物品，并且无强烈的机械振动、冲击和强磁场作用。包装箱应垫离地面至少 10cm，距离墙壁、热源、冷源、窗口或空气入口至少 50cm。

产品含有内置式锂电池组，长期存放产品时，为保证电池的使用寿命，请每三个月对产品至少进行一次充放电操作。

小心
损坏设备的风险！ **在寒冷天气状况下运输设备时，应注意温度的极端变化。 这种情况下，请确保设备上或设备内部没有形成水滴（凝露）。如果设备上形成了凝露，请在接通设备前至少等待12个小时。**

2.3 开箱及检查交付的设备

2.3.1 开箱检查设备

设备开箱时请注意以下几点：

- 建议您不要丢弃原包装材料。 请保留原包装材料以备再次运输设备时使用。
- 请将附带文档存放在安全的地方。 初始调试设备时需用到该文档，并且它是设备的一部分。
- 检查交付的设备，查看是否在运输途中造成了任何明显的损坏。
- 验证所运货物是否包含完整的设备以及您单独订购的附件。 如有任何不符或存在运输损坏，请联系客户服务人员。

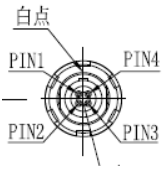
3.调试

3.1 操作系统

- 支持操作系统：WIN7、 LINUX

3.2 整机产品对外接口定义

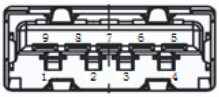
3.2.1 USB接口（航空头）



USB

管脚	信号名称
1	+5V
2	DATA-
3	DATA+
4	GND

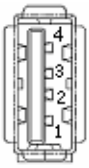
3.2.2 USB3.0 标准接口



USB

管脚	信号名称
1	+5V_USB
2	USB_DATA-
3	USB_DATA+
4	GND
5	USB_SSRX-
6	USB_SSRX+
7	GND
8	USB_SSTX-
9	USB_SSTX+

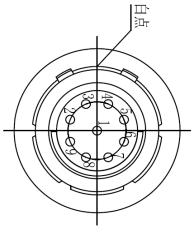
3.2.3 USB2.0 标准接口



USB

管脚	信号名称
1	+5V
2	DATA-
3	DATA+
4	GND

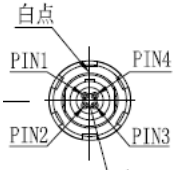
3.2.4 LAN接口（航空头）



LAN

管脚	信号名称
9	MX0+
8	MX0-
7	MX1+
6	MX1-
5	MX2+
4	MX2-
3	MX3+
2	MX3-

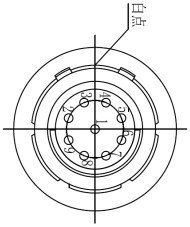
3.2.5 电源接口（航空头）



POWER

管脚	信号名称
1	GND
2	GND
3	VCC
4	VCC

3.2.6 COM接口（航空头）



COM

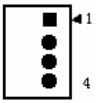
管脚	信号名称
1	DCD
2	DSR
3	RXD
4	CTS
5	RI
6	TXD
7	RTS
8	DTR
9	GND

3.3 主板连接器定义

3.3.1 ECS-1820(B)/ ECS-1820(B)-KW主板

3.3.1.1 电源输入接口

连接器型号：2331-016161　单排 4P 间距 2.5mm 90 度 WAFER WGB104-A02-01

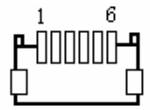


PWR1

管脚	信号名称	管脚	信号名称
1	DC19V_IN	2	DC19V_IN
3	GND	4	GND

3.3.1.2 电池供电接口

连接器型号：2331-013581　6P 间距 1.5mm 卧式 WAFER 88260-06

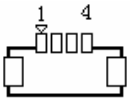


J8

管脚	信号名称	管脚	信号名称
1	BATTA+	2	BATTA+
3	BATTA+	4	GND
5	GND	6	GND

3.3.1.3 电池信号接口

连接器型号：2331-017971　1×4P 间距 1.25mm 高 3.4mm 卧式 WDC104-A01-05

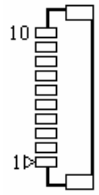


J7

管脚	信号名称	管脚	信号名称
1	SMBUSA_CLK	2	SMBUSA_DATA
3	BATTA_IN-	4	GND

3.3.1.4 COM 接口

连接器型号：2331-009121 87213-1001G 1.0PITCH

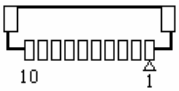


COM1/COM2

管脚	信号名称	管脚	信号名称
1	NC	2	COM_DCD-_CN
3	COM_DSR-_CN	4	COM_RXD_CN
5	COM_CTS-_CN	6	COM_RI-_CN
7	COM_TXD_CN	8	COM_RTS-_CN
9	COM_DTR-_CN	10	GND

3.3.1.5 网络接口

连接器型号：2331-009121 87213-1001G 1.0PITCH

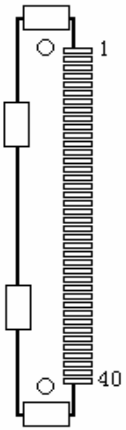


LAN2

管脚	信号名称	管脚	信号名称
1	NC	2	NC
3	LAN1_TX3-	4	LAN1_TX3+
5	LAN1_TX2-	6	LAN1_TX2+
7	LAN1_TX1-	8	LAN1_TX1+
9	LAN1_TX0-	10	LAN1_TX0+

3.3.1.6 LVDS接口

连接器型号：2331-009451 40P 间距 0.5mm LVC-C40SFYG+TB2A

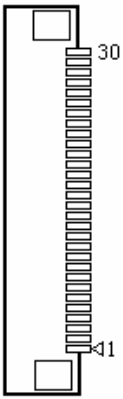


LVDS1

管脚	信号名称	管脚	信号名称
1	VCC3_LCD	2	VCC3_LCD
3	VCC3_LCD	4	VCC3_LCD
5	GND	6	LVDS_D7P
7	LVDS_D7N	8	LVDS_D6P
9	LVDS_D6N	10	GND
11	LVDS_D5P	12	LVDS_D5N
13	LVDS_D4P	14	LVDS_D4N
15	GND	16	LVDS_CLK1_P
17	LVDS_CLK1_N	18	LVDS_D3P
19	LVDS_D3N	20	GND
21	LVDS_D2P	22	LVDS_D2N
23	LVDS_D1P	24	LVDS_D1N
25	GND	26	LVDS_D0P
27	LVDS_D0N	28	LVDS_CLK0_P
29	LVDS_CLK0_N	30	GND
31	BKLT_PWM	32	BKLT_ON
33	GND	34	GND
35	GND	36	GND
37	VCC_12	38	VCC_12
39	VCC_12	40	VCC_12

3.3.1.7 IO板扩展接口（与EF-EIO-109PPC板连接）

连接器型号:2331-009161 1×30P 间距 0.5mm 卧式 带锁杆 乳白色 87152-30071

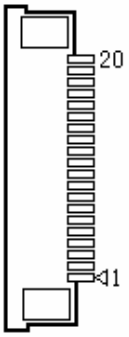


J5

管脚	信号名称	管脚	信号名称
1	VCC5_USB34	2	VCC5_USB34
3	VCC5_USB34	4	VCC5_USB34
5	VCC5	6	VCC5
7	VCC3_3SB	8	GND
9	GND	10	GND
11	GND	12	GND
13	GND	14	SYS_RST-
15	VCC5_CAMERA	16	VCC5_CAMERA
17	USB_DM1_H_CN	18	USB_DP1_H_CN
19	GND	20	USB_DP3
21	USB_DM3	22	SMB_CLK
23	SMB_DATA	24	USB_DM4_H_CN
25	USB_DP1_H_CN	26	GND
27	HP_OUTL	28	HP_OUTR
29	HP_JD	30	GND_AUDIO

3.3.1.8 IO板扩展接口J1（与EF-EIO-078PPC板连接）

连接器型号：2331-022071 FPC 20P 间距 0.5mm 卧式 下接式 5140-20RZBWWR01

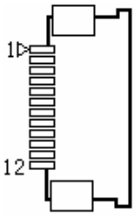


J1

管脚	信号名称	管脚	信号名称
1	PWRBTN+	2	PWRBTN+_SW
3	SATA_LED-	4	GND
5	GND	6	VCC3_3
7	VCC3_3	8	VCC3_3SB
9	VCC3_3SB	10	LED_PWR_LED
11	EC_KEY6	12	EC_KEY5
13	EC_KEY4	14	EC_KEY3
15	EC_KEY2	16	EC_KEY1
17	LED_BATB_STAT	18	LED_BATB_CHG
19	LED_BATA_STAT	20	LED_BATA_CHG

3.3.1.9 IO板扩展接口USB1（与EF-EIO-110PPC板连接）

连接器型号:2331-009181 1×12P 间距 0.5mm 卧式 带锁杆 乳白色 87152-12071



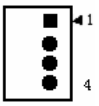
USB1

管脚	信号名称	管脚	信号名称
1	VCC5_USB1	2	VCC5_USB1
3	VCC5_USB1	4	USB3_RXN0_CN
5	USB3_RXP0_CN	6	GND
7	USB_DP3_CN	8	USB_DN3_CN
9	GND	10	USB3_TXN0_CN
11	USB3_TXP0_CN	12	GND

3.3.2 ECS-1825 主板

3.3.2.1 电源输入接口

连接器型号：2331-016161　单排 4P 间距 2.5mm 90 度 WAFER WGB104-A02-01

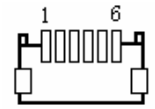


PWR1

管脚	信号名称	管脚	信号名称
1	DC19V_IN	2	DC19V_IN
3	GND	4	GND

3.3.2.2 电池供电接口

连接器型号：2331-013581　6P 间距 1.5mm 卧式 WAFER 88260-06

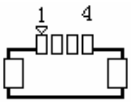


J6

管脚	信号名称	管脚	信号名称
1	BATTA+	2	BATTA+
3	BATTA+	4	GND
5	GND	6	GND

3.3.2.3 电池信号接口

连接器型号：2331-017971　1×4P 间距 1.25mm 高 3.4mm 卧式 WDC104-A01-05

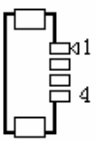


J5

管脚	信号名称	管脚	信号名称
1	SMBUSA_CLK	2	SMBUSA_DATA
3	BATTA_IN-	4	GND

3.3.2.4 USB接口

连接器型号：2331-017971　1×4P 间距 1.25mm 高 3.4mm 卧式 WDC104-A01-05

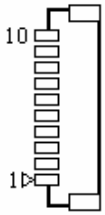


USB2

管脚	信号名称	管脚	信号名称
1	VCC_USB1	2	USB_DN0_CN
3	USB_DP0_CN	4	GND

3.3.2.5 网络接口

连接器型号：2331-009121 87213-1001G 1.0PITCH

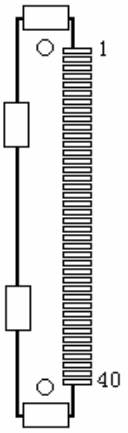


LAN1

管脚	信号名称	管脚	信号名称
1	NC	2	NC
3	LAN1_TX3-	4	LAN1_TX3+
5	LAN1_TX2-	6	LAN1_TX2+
7	LAN1_TX1-	8	LAN1_TX1+
9	LAN1_TX0-	10	LAN1_TX0+

3.3.2.6 LVDS接口

连接器型号：2331-009451　40P 间距 0.5mm LVC-C40SFYG+TB2A

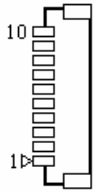


LVDS1

管脚	信号名称	管脚	信号名称
1	VCC3_LCD	2	VCC3_LCD
3	VCC3_LCD	4	VCC3_LCD
5	GND	6	LVDS_D7P
7	LVDS_D7N	8	LVDS_D6P
9	LVDS_D6N	10	GND
11	LVDS_D5P	12	LVDS_D5N
13	LVDS_D4P	14	LVDS_D4N
15	GND	16	LVDS_CLK1_P
17	LVDS_CLK1_N	18	LVDS_D3P
19	LVDS_D3N	20	GND
21	LVDS_D2P	22	LVDS_D2N
23	LVDS_D1P	24	LVDS_D1N
25	GND	26	LVDS_D0P
27	LVDS_D0N	28	LVDS_CLK0_P
29	LVDS_CLK0_N	30	GND
31	BKLT_PWM	32	BKLT_ON
33	GND	34	GND
35	GND	36	GND
37	VCC_12	38	VCC_12
39	VCC_12	40	VCC_12

3.3.2.7 IO板扩展接口（与EF-EIO-078PPC板连接）

连接器型号：2331-009121　87213-1001G 1.0PITCH

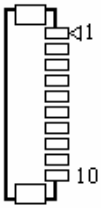


J1

管脚	信号名称	管脚	信号名称
1	LED_BATA_CHG	2	LED_BATA_STAT
3	LED_BATB_CHG	4	LED_BATB_STAT
5	EC_KEY1	6	EC_KEY2
7	EC_KEY3	8	EC_KEY4
9	EC_KEY5	10	EC_KEY6

3.3.2.8 IO板扩展接口（与EF-EIO-078PPC板连接）

连接器型号：2331-014741　1×10P 间距 1.25mm WTB 85204-10001-X

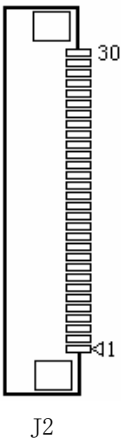


J3

管脚	信号名称	管脚	信号名称
1	LED_PWR_LED	2	VCC3_3SB
3	VCC3_3SB	4	VCC3_3
5	VCC3_3	6	GND
7	GND	8	SATA_LED-
9	PWRBTN+_SW	10	PWRBTN+

3.3.2.9 IO板扩展接口（与EF-EIO-092PPC板连接）

连接器型号:2331-009161 1×30P 间距 0.5mm 卧式 带锁杆 乳白色 87152-30071



管脚	信号名称	管脚	信号名称
1	VCC5_USB34	2	VCC5_USB34
3	VCC5_USB34	4	VCC5_USB34
5	VCC5	6	VCC5
7	VCC3_3SB	8	GND
9	GND	10	GND
11	GND	12	GND
13	GND	14	SYS_RST-
15	UIM_PWR_CN	16	UIM_VPP_CN
17	UIM_RST-_CN	18	UIM_DATA_CN
19	UIM_CLK_CN	20	USB_DN3
21	USB_DP3	22	SMB_CLK
23	SMB_DATA	24	NC
25	NC	26	NC
27	HP_OUTL_CN	28	HP_OUTR_CN
29	HP_JD	30	GND_AUDIO

4.BIOS功能介绍

(适用于PPC-1006-02/-03/-03KW/-04 机型)

4.1 UEFI简介

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

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

4.2 UEFI参数设置

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

4.3 UEFI基本功能设置

当SETUP程序启动之后,您可以看到Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.主画面如下：

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.		
Main Advanced Chipset Security Boot Save & Exit		
Motherboard Information		Set the Date. Use 'Tab' to switch between Date elements.
Project Name	ECS-1820(B)	
BIOS Name	G9211002 x64	
BIOS Version	B00	
Build Date	28/7/2016 15:50:22	→←: Select Screen ↑ ↓: Select Item
Memory Information		Enter: Select
Total Memory	4096 MB (DDR3L)	+/-: Change Opt F1: General Help
System Date	[Mon 11/01/2009]	F2: Previous Values
System Time	[00:47:55]	F3: Optimized Defaults F4: Save&Exit
Access Level	Administrator	ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.		

◆ **Main**

➢ **System Date**

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

➢ **System Time**

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

◆ **Advanced**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Main **Advanced** Chipset Security Boot Save & Exit	
▶ Super IO Configuration ▶ CPU Configuration ▶ IDE Configuration ▶ OS Install Selection ▶ CSM Configuration ▶ USB Configuration	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **Super IO Configuration**

Aptio Setup Utility – Copyright © 2013 American Megatrends, Inc.	
Advanced	
Super IO 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&Exit ESC: Exit
Version 2.17.1249 Copyright © 2013 American Megatrends, Inc.	

- Serial Port Configuration

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
Serial Port 1～2 Configuration Serial Port [Enabled] Device Settings IO=3F8h; IRQ=4; Serial Mode [232 Port]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
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*** Serial Port**

此项用于打开或关闭当前串口。

*** Device Settings**

此项用于显示串口当前的资源配置。

***Serial Mode**

此项用于选择串口的通讯模式[232]、[422]、[485]，如果选择是 422 或者 485 模式还会有 Uart RS485/422 Terminal 选项选择自动流控功能，选项选择使能自动流控功能，232 模式下必须 DISABLE。

➢ **CPU Configuration**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
CPU Configuration ►Socket 0 CPU Information CPU Speed 1834 MHZ 64-bit Supported Active Processor Cores [ALL] Intel Virtualization Tech [Enabled] Power Technology [Energy Efficient]	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

显示 CPU 的相关信息。注意，CPU 的 Socket， Speed 等跟平台所安装的 CPU 有关，不同系列、型号的 CPU 所显示的信息不同。

- **Actice Processor Cores**

  选择当前系统的核心数量

- **Intel Virtualization Technology**

  Intel 虚拟化技术，使用虚拟机或某些 Linux 系统时需要使能此功能。

- **Power Technology**

  打开或者关闭 CPU 的电源管理功能。当选择 Customer 时，EIST、Turbo Mode 等选项才会显示出来。

➢ **IDE Configuration**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.		
Advanced		
IDE Configuration		→←: Select Screen ↑ ↓: Select Item
Serial-ATA (SATA)	[Enabled]	Enter: Select
SATA Test Mode	[Enabled]	+/-: Change Opt
		F1: General Help
Serial-ATA Port 1	[Enabled]	F2: Previous Values
SATA Port1 HotPlug	[Disabled]	F3: Optimized Defaults
		F4: Save&Exit
SATA Port1	Not Present	ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.		

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

- **Serial-ATA(SATA)**

  SATA 选项的总开关，disabled 该选项的话 SATA 功能就无法使用。

- **SATA Mode**

  SATA 控制器的类型选择，对应 IDE 和 AHCI 两个选择项。

  注意，选择 AHCI 进行系统安装时，可能需要 Floppy 设备和特定芯片组对应的驱动。

- **Serial-ATA Port1**

  SATA Port 接口的开关，设置为 Disabled，则对应的 SATA 接口不可用。

- **SATA Port1 HotPlug**

SATA 设备热插拔的开关，如果需要做热插拔，则对应的选项需设置为 Enabled。

- **Os Install Selection**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
OS Selection [Windows7]	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

- **OS Selection**

安装及使用操作系统时，此项需要设置正确。比如安装或使用 Windows 7，必须设置此项为 Windows 7，否则会出现安装系统蓝屏，安装好的系统不能引导等问题。

注意，Android 选项仅供测试用，因为缺少相应的驱动，目前 Android 系统不能完全支持。

➢ **CSM Configuration**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
Compatibility Support Module Configuration Boot option filter [UEFI and Legacy] Option ROM execution order Video [Legacy first]	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

- **Boot option filter**

  启动选择筛选选项，默认为 UEFI and Legacy 为 UEFI 模式和传统模式都兼容。

- **Video**

  该选项为 Legacy first 的时候，开机首先加载 legacy VBIOS，为 UEFI first 的时候首先加载 GOP VBIOS，为 UEFI only 或者 legacy only 的话只加载对应的 VBIOS。

➢ **USB Configuration**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
USB Configuration USB Devices: 1 keyboard , 1 Mice Legacy USB Support [Enabled] USB Mass Storge Driver Support [Enabled] Mass Storage Devices: Device power-up delay [Auto]	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 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。

- **USB Mass Storage Drive Support**

  USB 大容量 USB 的支持选项。默认选择 ENABLED

- **Sandisk**

  该选项为 Sandisk 选择的功能。选项有[Auto]、[floppy]、[Forced FDD]、[Hard Disk]、[CD-ROM]

◆ Chipset

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Main Advanced **Chipset** Security Boot Save & Exit	
► North Bridge ► South Bridge	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ North Bridge

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Main Advanced **Chipset** Security Boot Save & Exit	
► Intel IGD Configuration Memory Information Total Memory 4096 MB (DDR3L)	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

显示当前系统安装内存的容量、内存类型等信息，为动态侦测信息。

- **Intel IGD Configuration**

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Main Advanced **Chipset** Security Boot Save & Exit	
Intel IGD Configuration	→←: Select Screen
	↑ ↓: Select Item
GFX Boost [Disabled]	Enter: Select
PAVC [LITE Mode]	+/-: Change Opt
DVMT Pre-Allocated [64M]	F1: General Help
DVMT Total Gfx Mem [256MB]	F2: Previous Values
	F3: Optimized Defaults
	F4: Save&Exit
	ESC: Exit
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*** GFX Boost**

此项为显卡 GPU 睿频加速功能开关。

*** PAVC**

此项为音频、视频保护控制开关，启用此技术，音频、视频在整个传输和播放过程中均处于被保护状态。注意，如果播放蓝光光碟，此项必须启用。

*** DVMT Pre-Allocated**

此项用于设置 DVMT 5.0 预分配显存容量，即 IGD 独占显存容量大小。

*** DVMT Total Gfx Mem**

此项用于设置 IGD 设备可使用的总的显存容量大小。

➢ **South Bridge**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Chipset	
▶ USB Configuration ▶ PCI Express Configuration	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **USB Configuration**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.		
Chipset		
USB Configuration		
XHCI Mode	[Auto]	→←: Select Screen ↑ ↓: Select Item
USB 2.0(EHCI) Support	[Disabled]	Enter: Select
USB Per Port Control	[Enabled]	+/-: Change Opt
USB Port 1	[Enabled]	F1: General Help
USB Port 2	[Enabled]	F2: Previous Values
USB Port 3	[Enabled]	F3: Optimized Defaults
USB Port 4	[Enabled]	F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.		

- **XHCI Mode**

  用于设置 XHCI 控制器的操作模式，此项和 EHCI 互斥。

- **USB 2.0 (EHCI) Support**

  用于控制 USB EHCI(USB 2.0)功能,有一个 EHCI 控制器必须一直是 Enabled。

- **USB Per Port Control**

  按 Port 进行 USB 设备控制开关，启用之后 USB Port0～3 可单独设置为 Enabled 或 Disabled。

- **USB Port0～3**

  用于控制各个 USB 接口的功能，如果设置为 Disabled，则对应的 USB 接口不可用。

➢ **PCI Express Configuration**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.		
Chipset		
PCI Express Configuration		
PCI Express port 1	[Enabled]	→←: Select Screen
Speed	[Gen2]	↑ ↓: Select Item
		Enter: Select
PCI Express port 2	[Enabled]	+/-: Change Opt
Speed	[Gen2]	F1: General Help
		F2: Previous Values
PCI Express port 3	[Enabled]	F3: Optimized Defaults
Speed	[Gen2]	F4: Save&Exit
		ESC: Exit
PCI Express port 4	[Enabled]	
Speed	[Gen2]	
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- **PCI Express port1～4**

  开关 PCI Express port 选项，Enabled 为开，Disabled 为关

- **Speed**

  Gen1 速度为 2.5GT/S

  Gen2 速度为 5.0GT/S

◆ **Security**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Main Advanced Chipset **Security** Boot 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.The Password length must be in the following range: Minimum length 3 Maximum length 20 Administrator Password User Password	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **Administrator Password**

此项用于设置管理员密码。

➢ **User Password**

此项用于设置普通用户密码。

◆ **Boot**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Main Advanced Chipset Security **Boot** Save & Exit	
Boot Configuration Setup Prompt Timeout [6] Bootup NumLock State [On] Quiet Boot [Disabled] Fast Boot [Disabled] **Boot Option Priorities** Boot Option #1 [Built-in EFI Shell]	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **Setup Prompt Timeout**

设置启动时屏幕提示等待时间

➢ **Boot NumLock State**

开机时小键盘状态是否开启

➢ **Quiet Boot**

Boot 模式选择开关，用于打开或关闭 Quiet Boot 功能。

➢ **Fast Boot**

➢ **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。

◆ **Save & Exit**

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.	
Main Advanced Chipset Security Boot **Save & Exit**	
Save Changes and Exit Discard Changes and Exit	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save&Exit ESC: Exit
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➢ **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。

4.4 x86 平台下UEFI所要管理的系统资源

这里的系统资源我们定义三种：I/O 端口地址，IRQ 中断号和 DMA 号。

◆ **DMA**

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

◆ APIC

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

◆ IO端口地址

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

地　址	设备描述
000h-06Fh	PCI 总线
020h - 021h	可编程中断控制器
024h - 025h	可编程中断控制器
028h - 029h	可编程中断控制器
02Ch - 02Dh	可编程中断控制器
02Eh - 02Fh	主板资源
030h - 031h	可编程中断控制器

034h - 035h	可编程中断控制器
038h - 039h	可编程中断控制器
03Ch - 03Dh	可编程中断控制器
040h - 043h	系统计时器
4Eh - 4Fh	主板资源
050h - 053h	系统计时器
60h	PS/2 标准键盘
61h	系统 speaker
62h-63h	主板资源
65h-6fh	主板资源
070h - 077h	系统 CMOS/实时时钟
80h-8Fh	主板资源
92h	主板资源
A0h-A1h	可编程中断控制器
A4h-A5h	可编程中断控制器
A8h-A9h	可编程中断控制器
ACh-ADh	可编程中断控制器
B0h-B1h	可编程中断控制器
B2h-B3h	主板资源
B4h-B5h	可编程中断控制器
B8h-B9h	可编程中断控制器
BCh-BDh	可编程中断控制器
2F8h - 2FFh	通信端口 2
3B0h - 3BBh	标准 VGA 图形适配器
3C0h - 3DFh	标准 VGA 图形适配器
3F8h - 3FFh	通信端口 1
400h-47Fh	主板资源
4D0h - 4D1h	可编程中断控制器
500h-A0Fh	主板资源
D00h - FFFFh	PCI Bus

◆ **IRQ中断分配表**

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

级别	功能
IRQ0	系统计时器
IRQ1	标准 101/102 键或 Microsoft 键盘
IRQ2	保留
IRQ3	通信端口 2
IRQ4	通信端口 1
IRQ5	保留
IRQ6	保留
IRQ7	保留
IRQ8	系统 CMOS/实时时钟
IRQ9	Microsoft ACPI-Compliant System
IRQ10	保留
IRQ11	保留
IRQ12	PS/2 鼠标
IRQ13	保留
IRQ14	ATA 通道 0
IRQ15	ATA 通道 1

(适用于PPC-1006-08 机型)

4.5 UEFI简介

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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。

4.6 UEFI参数设置

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

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

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

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

4.7 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) 2016 American Megatrends, Inc.主画面如下:

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Main Security Save & Exit	
Motherboard Information Project Name ECS-1825 BIOS Version B01 Y7314104 Build Date 01/15/2016 09:44:34 Processor Information Intel(R) Core(TM) i5-4300U CPU @ 1.90GHz Frequency 2600 MHz Total Memory 8192 MB (DDR3) System Date [Thu 01/20/2016] System Time [09:41:55] Access Level Administrator	Set the Date. Use 'Tab' to switch between Date elements. →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.17.1247. Copyright (C) 2016,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)。

◆ Security

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Main **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. Minimum length 3 Maximum length 20 Administrator Password User Password HDD Security Configuration P1:LHI-S20MIN-1	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.17.1247. Copyright (C) 2016,American Megatrends, Inc.	

➢ **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。

➢ **HDD Security Configuratird**

此提示项的下面选项用于设置硬盘安全密码。

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Security	
HDD Password Description Allows Access to Set, Modify and Clear HardDisk User and Master Passwords. User Password need to be installed for Enabling Security. Master Password can be Modified only when successfully unlocled with Master Password in POST HDD PASSWORD CONFIGURATION: Security Supported : Yes Security Enabled : Yes Security Locked : No Security Frozen : No HDD User Pwd Status INSTALLED HDD Master Pwd Status INSTALLED Set User Password	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.17.1247. Copyright (C) 2016,American Megatrends, Inc.	

- **Set User Password**

  此项用于设置硬盘的密码。密码的最小长度是 3 位，最大不能超过 20 位。

◆ **Save & Exit**

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Main Advanced Chipset Boot Security **Save & Exit**	
Save Changes and Reset Discard Changes and Reset	→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.17.1247. Copyright (C) 2016,American Megatrends, Inc.	

➢ **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。

4.8 x86 平台下UEFI所要管理的系统资源

这里的系统资源我们定义三种：I/O 端口地址，IRQ 中断号和 DMA 号。

◆ **DMA**

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

◆ **APIC**

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

◆ **IO端口地址**

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

地址	设备描述
000h - 00Fh	DMA 控制器#1
010h - 01Fh	主板资源
020h - 021h	可编程中断控制器#1
022h - 03Fh	主板资源
040h - 043h	系统计时器
044h - 05Fh	主板资源
060h	标准 101/102 键或 Microsoft 自然 PS/2 键盘
061h	System speaker
062h - 063h	主板资源
064h	标准 101/102 键或 Microsoft 自然 PS/2 键盘
065h - 06Fh	主板资源
070h - 071h	实时时钟，NMI
072h - 07Fh	主板资源
080h	主板资源
081h - 083h	DMA 控制器#2
084h - 086h	主板资源
087h	DMA 控制器#3

088h	主板资源
089h - 08Bh	DMA 控制器#4
08Ch - 08Eh	主板资源
08Fh	DMA 控制器#5
090h - 09Fh	主板资源
0A0h - 0A1h	可编程中断控制器#2
0A2h - 0BFh	主板资源
0C0h - 0DFh	DMA 控制器#6
0E0h - 0EFh	主板资源
0F0h - 0FFh	Numeric data processor
170h - 177h	ATA Channel 1
1F0h - 1F7h	ATA Channel 0
274h - 277h	ISAPNP Read Data Port
279h	ISAPNP Read Data Port
2F8h - 2FFh	串行端口 #2(COM2)
376h	ATA Channel 1
3B0h - 3BBh	PCI Express standard Root Port/标准 VGA 图形适配器
3C0h - 3DFh	PCI Express standard Root Port/标准 VGA 图形适配器
3F6h	ATA Channel 0
3F8h - 3FFh	串行端口#1(COM1)
400h - 453h	系统资源
454h -457h	主板资源
458h -47Fh	系统资源
4D0h - 4D1h	主板资源
500h - 57Fh	系统资源
A30h - A3Fh	主板资源
A79h	ISAPNP Read Data Port
0D00h-FFFFh	PCI bus

◆ **IRQ中断分配表**

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

级别	功能
IRQ0	系统计时器
IRQ1	PS2 键盘
IRQ2	保留
IRQ3	串口#2
IRQ4	串口#1
IRQ5	保留
IRQ6	保留
IRQ7	保留
IRQ8	系统 CMOS/实时时钟
IRQ9	ACPI 兼容系统
IRQ10	PCI 设备（SMBUS）
IRQ11	ME
IRQ12	鼠标
IRQ13	数据数值处理器
IRQ14	ATA Channel 0
IRQ15	ATA Channel 1

注：GPIO，Watch Dog 功能请参考 EVOC BPI 安装包，该安装包在 EVOC 的随机安装光盘上。

5.BPI软件说明

一、面板设置

面板设置主要提供 PPC-1006 机器上 6 个功能按键的功能选择及屏幕背光调节。每个下拉列表的值是唯一的，即不能同时设置两个按键为同一功能。每个功能按键能提供 6 个功能的选择。选项选择完毕后，点击“应用”按钮将应用到设备，立即生效。

亮度调节滑块主要对屏幕亮度的调节，手动拖动滑块对屏幕亮度进行调节。

面板设置界面：

二、设备管理

USB 存储设备：

主要提供 USB 存储设备的权限访问，对 U 盘及 USB 接口的存储设备均生效，

该功能的设置对 USB 鼠标、USB 键盘无效，按钮显示“已启用”表示系统允许 USB 存储设备的接入使用，按钮显示“已禁用”表示系统禁止 USB 存储设备的接入。设置完成后在插入 USB 存储设备时生效。设置禁用 USB 存储设备后当插入 USB 存储设备，系统不提示安装 USB 设备驱动及不显示 USB 存储设备盘符。

网络适配器设备：

主要提供网络适配器的禁用与启用功能，按钮显示“已启用”表示网络适配器开启中，能正常访问网络资源，按钮显示“已禁用”表示网络适配器禁用，不能正常访问网络资源，本地连接设置失效。

驱动盘 C 盘写保护：

主要提供 C 盘的写保护功能，按钮显示“已启用”表示系统当前状态是有对 C 盘写保护，任何对 C 盘的写操作在重启后都失效。在安装完软件后默认状态下是读取当前系统是否具有写保护功能，如果具有 C 盘写保护功能，按钮显示“已启用”，如果不具有 C 盘写保护功能，按钮显示“已禁用”。

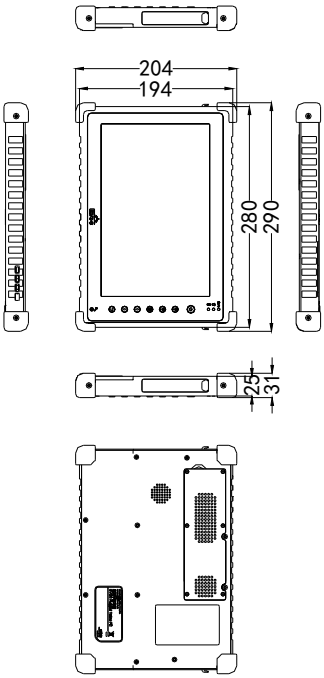
以上操作需要管理员权限才能对“设备管理”功能进行设置。

设备管理界面：


eManager
固件管理
研祥智能股份
面板设置
设备管理
USB 存储设备
已启用
网络适配器设备
已启用
驱动盘 C 盘写保护
已禁用
EVOC公司介绍
功能大全
驱动升级
如果当前没有安装阅读器，请点击安装

6.尺寸图

6.1 产品外形尺寸图



单位：mm

7.配置清单

名称	数量
主机	1套
电源适配器	1个
电源输入线	1条
USB转接线	2条(08配置)
网口转接线	1条
说明书	1份

8. 附录

8.1 常见故障分析与解决

常见故障	可能的原因	纠正或避免错误
设备不能运行	未给设备供电	检查电源接口是否连接正确 检查电源开关是否设置为ON
	输入的电源电压值不在系统支持的电压范围中	系统可能处于电源过压或欠压保护中，检查电源输入电压是否在设备允许的范围内
屏幕不亮	屏幕处于“节电”模式	按键盘上的任意键
	亮度按钮已设置为暗	设置屏幕亮度按钮以使其变亮。有关详细信息，请参见整机操作说明
		如果执行这些检查后屏幕仍不亮，请与技术支持团队联系
屏幕上不显示鼠标指针	未加载鼠标驱动程序	启动应用程序时检查鼠标驱动程序是否正确安装并存在。有关更详细的信息，请参见鼠标或应用程序手册
	未连接鼠标	检查鼠标线是否正确连接到系统单元。如果使用了适配器或鼠标延长线，则还应检查连接器
		如果执行这些检查并采取措施后鼠标指针仍然没有在屏幕上显示，请与技术支持团队联系

整机上的时间或日期不正确		在引导顺序执行期间按<F2>，打开 BIOS Setup。在设置菜单中设置时间和日期
虽然 BIOS 设置正确，但时间和日期仍不对	备用电池失效	在这种情况下，请联系您的技术支持团队

8.2 常见报警信息分析与解决

报警信息	含义及解决措施
EFI BIOS产品开机屏幕显示黄色报警信息“Warning system time is invalid，please set it to right”	主板CMOS时间设置错误，需要纠正
主板开机后屏幕显示“Reboot and Select proper Boot device or Insert Boot Media in selected Boot device and press a key”	当前磁盘无法引导，需要重新检查系统硬盘连接是否正常，或使用光驱进行操作系统重新安装

8.3 ESD 准则

ESD的定义

所有电子模块都配备了大规模集成化的 IC 或组件。 由于其自身设计原因，这些电子元件对过电压极其敏感，因此对任何静电放电都极为敏感。

静电敏感组件/模块通常被称为 ESD 设备。这也是此类设备的国际通用缩略语。

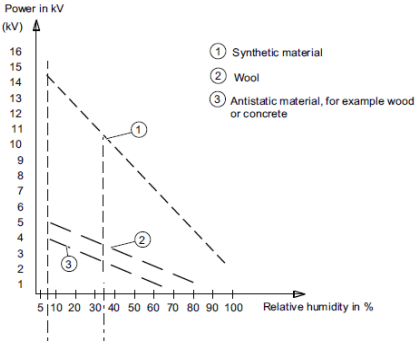
可通过以下符号来识别 ESD 模块：

小心
ESD 设备可被远低于人类能感知阈值的电压所损坏。 如果您接触设备的元件或电气连接时未释放身体中存在的静电电荷，将产生静电电压。 静电放电电流可能会导致模块出现潜在问题，损坏或许不会在当时表现得很严重，但运行中可能导致故障。

静电充电

未与周围电位相连的人体中会发生静电充电现象。

以下数据显示了人体与指定材料接触时可能产生的最大静电电压。 这些值符合 IEC 801-2规范。



操作员身上的静电电压

防止静电放电的基本保护措施

- 确保良好的等电位连接：

拿握静电敏感设备时，确保您的身体、工作区域和包装均已接地。 这样做可防止静电电荷。

- 避免直接接触：

通常只有在无法避免的情况下（例如在维修过程中）才接触静电敏感设备。 拿握模块时不接触任何芯片引脚或 PCB 电路。 这样，释放的电能将不会影响敏感设备。

处理模块之前，先释放身体中的电荷。可通过接触接地的金属部件进行放电。务必使用接地的测量仪器。

Legal Information

Warnings

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

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

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

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

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

Professional Personnel

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

EVOC Product

Please pay attention to the following instructions:

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

Copyright Notice

Information offered in this manual is believed to be correct at the time of printing, and is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer. In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of improper installation and/or use, or inability to use the product or documentation.

Trademarks

Warranty Terms:

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

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

Hotline: 4008809666

About this manual

Scope of the Manual

The manual is appropriate for EVOC PPC-1006.

Convention

The term “the PC” or “the Product” within the manual usually stands for EVOC PPC-1006.

Instructions

Safety instructions

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

History

The version of this manual:

Version	Time
B00	2016.2
B01	2016.7
C00	2017.4

Safety Instructions

General Safety Instructions

⚠Caution
Before you have read related safety instructions, please do not expand your device.

This device is compliant with related safety requirements. If you have any doubt about the effectiveness of installation in the planned environment, please contact your service representative.

Repair

The PC can only be repaired by authorized personnel.

⚠Warning
Unauthorized opening of the PC and improper repair may cause serious damage to the PC or endanger users' personal safety.

System Expansion

Only system expansion devices designed for this PC can be installed. Installing other expansion devices may damage the system and violate regulations on radio interference suppression. To know the system expansion devices that can be installed, please contact technical support team or local distributor.

⚠Caution!
If the PC is damaged due to improper installation or replacement of system expansion devices, the warranty for the product will become invalid.

Battery

The battery can only be replaced by qualified personnel.

⚠Caution!
If the battery is not replaced according to the instructions, it may have the danger of explosion. It can only be replaced by the same type of battery or batteries recommended by the manufacturer. The used battery must be disposed according to local laws and regulations.

⚠**Warning!**
Danger of explosion or release of hazardous substances may exist! Therefore, please do not put the Li-ion battery into fire, weld it onto cell body, open, short-circuit or reverse polarity of the battery, and do not heat it up to above 100℃. Dispose the battery according to the rules, and avoid direct sunlight, moisture and condensation.

ESD Instructions

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

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

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

Safety Instructions

- Please read this manual carefully before using the product;
- Do not expose the battery pack to water, or allow it to become wet.
- If the battery will not be used for a long time (a month or more), charge or discharge (use) the battery until the remaining battery level becomes 30% to 40% and store it in a cool, dry place.
- This computer prevents overcharging of the battery by recharging only when the remaining power is less than approx. 93% of capacity.
- This battery is flat when the computer is first purchased. Charge the battery for the first-time use. When the AC adapter is connected to the computer, charging

begins automatically.

- Should the battery leak and the fluid gets into your eyes, do not rub your eyes. Immediately flush your eyes with clean water and see a doctor for medical treatment as soon as possible.
- Keep the battery away from kids.
- Please do not dump this battery as garbage. Treat it according to the local edicts or rules and the safety standards of your company.
- The battery may become warm during recharging or normal use. This is completely normal.
- Recharging will not commence if internal temperature of battery is out of the allowable temperature range (0°C to 50°C). Once the allowable range requirement is satisfied, charging begins automatically. Note that the recharging time varies depending on the usage conditions. (Recharging takes longer than usual when the temperature is 10°C or below.)
- If the temperature is low, the operating time will be shortened. So please only use the computer within the allowable temperature range.
- This computer has a high temperature mode function that prevents the degradation of the battery in high temperature environments. A power level of 100% in high temperature mode is about a power level of 80% in the normal temperature mode.
- A battery has a limited battery life. If a battery on a PC show signs of remarkably reduced use time and cannot be restored to normal levels after charging, it is advisable to replace it with a new one.

Contents

1. Product Introduction

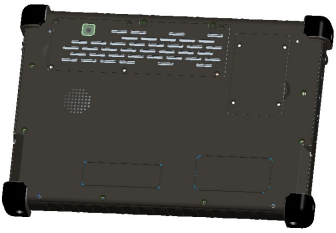
1.1 Overview

PPC-1006 is a high-performance low-power platform 10.1-inch handheld rugged panel PC, which contains 10.1″ high-brightness LCD screen, resolution up to 1280×800, multi-point capacitor touch screen, built-in battery, and aviation connectors.

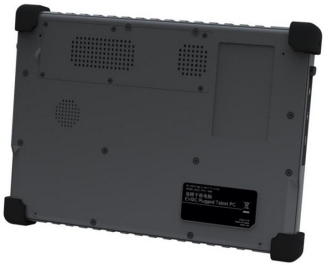
With modular, fully-sealed and ultra-slim design, this PC serves as an information terminal to carry out communication, surveying and mapping, data acquisition and processing, and many other applications and tasks. The product is ideally suitable for extreme harsh and hostile environments, such as military industry and vehicle-mounted applications.

PPC-1006-02

PPC-1006-03/PPC-1006-03KW



PPC-1006-04



PPC-1006-08

1.2 Configuration and Ordering Demand

No.	Product Model	Product Description	Mated motherboard
1	PPC-1006-01	Reserved	
2	PPC-1006-02	N2930/4GB DDR3L/128G mSATA/1×USB/1×LAN/2×COM/ 1×HDMI/Camera/WIFI/Bluetooth/ touch/battery	ECS-1820(B)
3	PPC-1006-03	N2930/4GB DDR3L/128G mSATA/2×USB/1×LAN/1×COM/ 1×HDMI/Touch/Battery	ECS-1820(B)
4	PPC-1006-03KW	N2930/4GB DDR3L/128G mSATA/2×USB/1×LAN/1×COM/ 1×HDMI/Touch/Battery	ECS-1820(B)-KW
5	PPC-1006-04	N2930/4GB DDR3L/128G mSATA/2×USB/1×LAN/1×COM/ 1×HDMI/Camera/Touch/Battery	ECS-1820(B)
6	PPC-1006-05	Reserved	
7	PPC-1006-06	Reserved	
8	PPC-1006-07	Reserved	
9	PPC-1006-08	i5-4300U/8GB DDR3L/128G mSATA/2×USB/1×LAN/1×HDMI/ 1× earphone port/Touch/Battery/ all aviation connectors	ECS-1825

1.3 Specifications

Item		Definition
Major Function Indices	**Micro Processor**	Intel® Celeron N2930 1.83GHz (02/03/03KW/04 configuration) Intel® Core™ i5-4300U 1.9GHz (08 configuration)
	Memory	Onboard 4G DDR3L (02/03/03KW/04 configuration) Onboard 8G DDR3L (08 configuration)
	Display	Single-channel 24-bit LVDS port + HDMI port
	Network	1 x 10/100/1000Mbps LAN port, brought out by aviation port
	Audio	Supports built-in MIC, with built-in SPEAKER
	LCD screen features	➢ LCD: 10.1″ TFT LCD ➢ Resolution: 1280×800 ➢ Brightness: 400cd/m2 ➢ Contrast ratio: 800：1 ➢ View angle (CR≥10) Horizontal: -80°～80°; Vertical: -80°～80°
	Touch screen	➢ Port type: USB ➢ Type: capacitor type
	camera	1 x 2 million pixels auto focus rear camera (02/04 models)

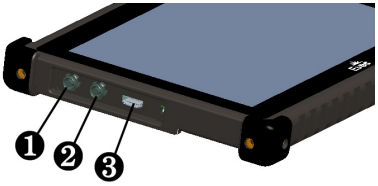
	Storage	Provides one mSATA interface, 128G as standard configuration
	Expansion	1 x miniPCIE slot, expandable to WIFI/Bluetooth(02/03/03KW/04 models), 02 with N-7260 wireless LAN port (including Bluetooth as standard configuration).
	External IO ports	➢ 2 x USB2.0 port, brought out by aviation port (08 model); Brought out by 1～2 Type A standard ports (02/03/03KW/04 models) ➢ 1 x 1000Mbps, brought out by aviation port; ➢ 1～2 COM ports, brought out by aviation port (02/03/03KW/04 models); ➢ 1 x standard HDMI port; ➢ 1×3.5mm headphone (08 model)
Major performance Indices	**Dimensions**	290mm (W) x 204mm(H) x 31mm(D)
	Weight	1.45Kg (Excluding adapter)
	Temperature	➢ Operating temperature: -20℃～+55℃(02/03/04/08 models) -40℃～+55℃(03KW model) ➢ Storage temperature: -40℃～+70℃

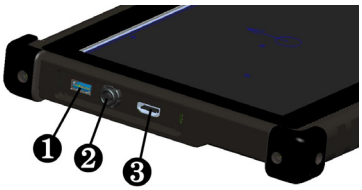
	Humidity	No more than 95%
	EMC	➢ Radio disturbance limit is compliant with GB9254-2008 standard Class B ➢ The Immunity is compliant with the limit of GB/T 17618-1998 standard.
	Reliability	➢ MTBF≥5000h ➢ MTTR≤0.5h
	Safety	Meets basic requirements of GB4943
	Protection grade	The PC meets IP65 level.
	Mechanical environment adaptability	The vibration performance meets related requirements of GJB150.16A-2009
	Power features	➢ Built-in battery: 11.1V/6000MAH ➢ Power consumption of the PC: 9.4W (standby status) Power consumption of the PC: 25W (operating 3D 100%)

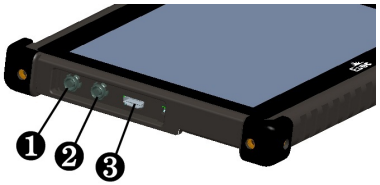
1.4 Using Instructions

1.4.1 External Function

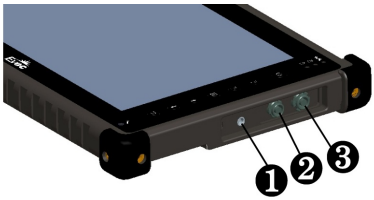
Front view	Position	Description
	1	LED
	2	Power button
	3	Brightness+ button
	4	Brightness- button
	5	Menu button
	6	Last page button
	7	Next page button
	8	Return
	9	Mic
	10	Touch screen

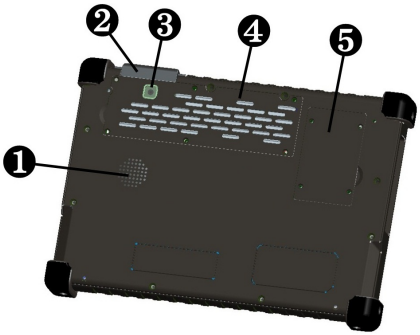
Left side view	Position	Description
 PPC-1006-02	1	COM port (aviation port)
	2	LAN port (aviation port)
	3	HDMI port

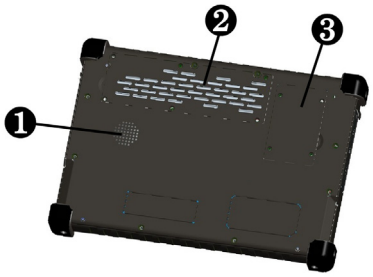
Left side view	Position	Description
 PPC-1006-03/-03KW/-04	1	USB3.0 port
	2	LAN port (aviation port)
	3	HDMI port

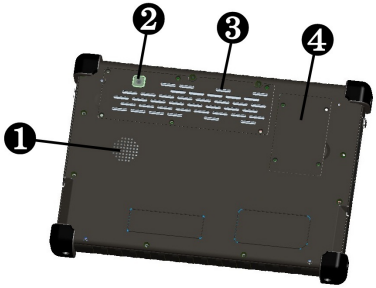
Left side view	Position	Description
 PPC-1006-08	1	LAN port (aviation port)
	2	USB port (aviation port)
	3	HDMI port

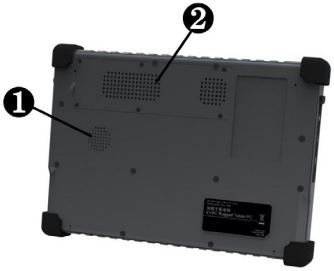
Right side view	Position	Description
 PPC-1006-02/-03/-03KW/-04	1	USB2.0 port
	2	COM port (aviation port)
	3	Power input connector (aviation port)

Right side view	Position	Description
 PPC-1006-08	1	Audio output port
	2	USB port (aviation port)
	3	Power input connector (aviation port)

Rear view	Position	Description
 PPC-1006-02	1	Speaker
	2	Antenna
	3	Camera
	4	Heat sink cover board
	5	MSATA cover board

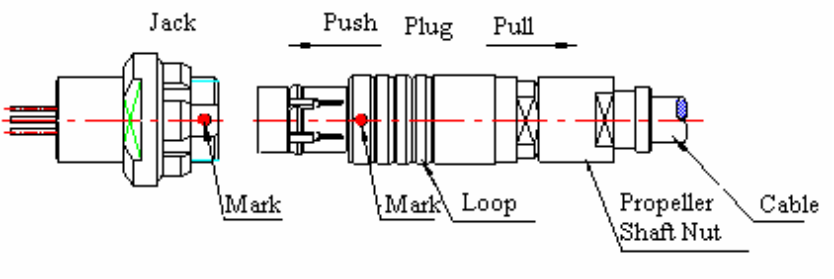
Rear view	Position	Description
 PPC-1006-03/-03KW	1	Speaker
	2	Heat sink cover board
	3	MSATA cover board

Rear view	Position	Description
 PPC-1006-04	1	Speaker
	2	Camera
	3	Heat sink cover board
	4	MSATA cover board

Rear view	Position	Description
 PPC-1006-08	1	Speaker
	2	Fan cover

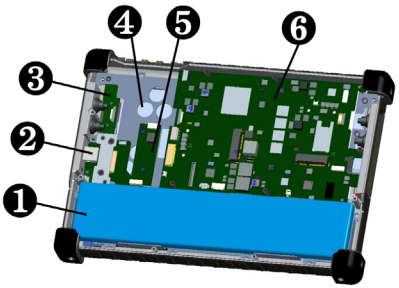
Please pay attention to the operating instructions for aviation connectors (see the figure below):

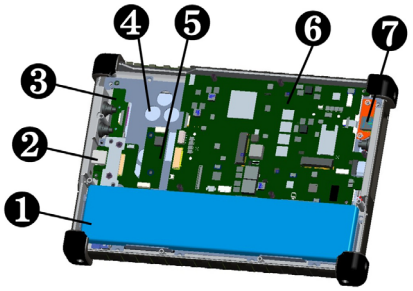
Insertion: After aligning the marks on the plug and socket, exert a pushing force to insert it.

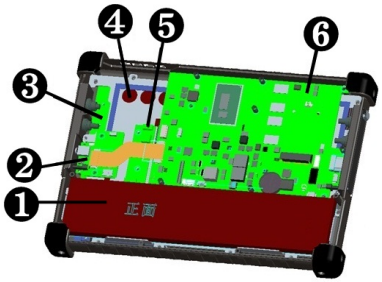


Disengagement: Before disengagement, hold the tail nut of the plug, and exert certain pushing force toward the socket direction, then hold the connecting ring, and exert a pulling force to disengage it.

1.4.2 Internal Layout

Internal layout	Position	Description
 PPC-1006-02	1	Battery
	2	USB2.0 PCBA
	3	Button board
	4	Screen
	5	Inverter board
	6	Motherboard

Internal layout	Position	Description
 PPC-1006-03/-03KW/-04	1	Battery
	2	USB2.0 PCBA
	3	Button board
	4	Screen
	5	Inverter board
	6	motherboard
	7	USB3.0 PCBA

Internal layout	Position	Description
 PPC-1006-08	1	Battery
	2	Audio port board
	3	Button board
	4	Screen
	5	Inverter board
	6	Motherboard

1.5 Status LED

Display	Meaning	LED	Description
Power LED	Power status LED	Off	Not connected to power
		ON	Being operating
		Green flashing	Standby
HDD	Indicating access to hard drive	Off	Not being accessed
		Green flashing	Being accessed
Battery LED	Battery status indication	Red LED on	The battery is being charged
		Red LED flashing	It means the battery level is very low (remaining batter level is below 6%). Please connect the power adapter to charge it. If there is no power adapter, please save your data and power off the PC.
		Green LED on	It means the battery is fully charged.

1.6 Power Button Using Instructions under S0 Status (only for 08 model)

The duration (T) to hold the power button	Function to realize
When the button is released, if T is less than 1S	Lock the screen, turn off/on the backlight.
When T is larger than 2S	Start to power off the PC normally

If the computer is down, you can press and hold the power button for a long time, to shut down the PC. (If the PC still cannot be shut down, pull off the power adapter and try it again).

2. Application Scheme

2.1 Transportation

Well-packaged products are suited for transportation by all kinds of vehicles. During transportation, products should not be put in open cabin or carriage. During transshipping, products should not be stored in open air without protection from the atmospheric conditions. Products should not be transported together with inflammable, explosive and corrosive substances and are not allowed to be exposed to rain, snow and liquid substances and mechanical force.

2.2 Storage

Products should be stored in package box when it is not used. And warehouse temperature should be 0°C ~ 40°C, and relative humidity should be 20% ~ 85%. In the warehouse, there should be no harmful gas, inflammable, explosive products, and corrosive chemical products, and strong mechanical vibration, shock and strong magnetic field interference. The package box should be at least 10cm above ground, and 50cm away from wall, thermal source, window and air inlet.

The product contains built-in Li-on battery kit. To ensure using life of the battery, please charge and discharge the product every three months when the product is to be left idle for a long period of time.

Caution
Risk of destroying the device! **When shipping the PC in cold weather, please pay attention to the extreme temperature variation. Under this circumstance, please make sure no water drop (condensation) is formed on the surface or interior of the device. If condensation is formed on the device, please wait for over twelve hours before connecting the device.**

2.3 Opening the Box and Initial Examination

2.3.1 Opening the Box to Examine the PC

Please pay attention to the following issues when opening the box:

- Do not discard the original packing material. Please keep the original packing material for re-transportation.
- Please keep the documentation at a safe place. The documentation, which is a part of the device, is required for initial device debugging.
- When doing the initial examination, please check whether there are distinct damages to the device caused during the transport.
- Please check whether the delivery contains the intact device and all of the independently ordered accessories. Please contact the customer service when any unconformity or transportation damages occur.

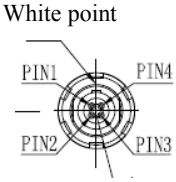
3. Debugging

3.1 Operating Systems

- Supported operating systems: WIN7, LINUX.

3.2 Definitions of External Ports of the PC Product

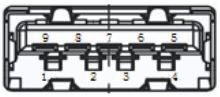
3.2.1 USB Port (aviation port)



USB

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

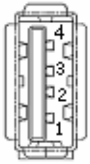
3.2.2 USB3.0 Standard Port



USB

Pin	Signal Name
1	+5V_USB
2	USB_DATA-
3	USB_DATA+
4	GND
5	USB_SSRX-
6	USB_SSRX+
7	GND
8	USB_SSTX-
9	USB_SSTX+

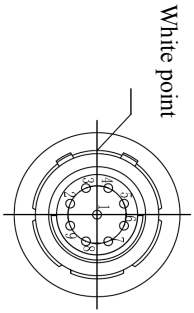
3.2.3 USB2.0 Standard Port



USB

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

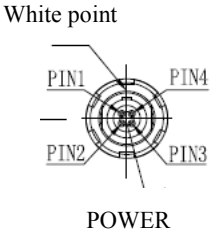
3.2.4 LAN Port (Aviation Port)



LAN

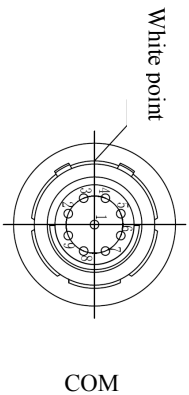
Pin	Signal Name
9	MX0+
8	MX0-
7	MX1+
6	MX1-
5	MX2+
4	MX2-
3	MX3+
2	MX3-

3.2.5 Power Connector (Aviation Port)



Pin	Signal Name
1	GND
2	GND
3	VCC
4	VCC

3.2.6 COM Port (Aviation Port)



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

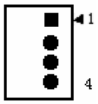
3.3 Definition of Motherboard Connector

3.3.1 ECS-1820(B)/ ECS-1820(B)-KW Motherboard

3.3.1.1 Power Input Connector

Connector model: 2331-016161 Single-row 4P pitch 2.5mm 90 degree WAFER

WGB104-A02-01

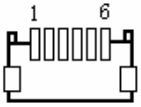


PWR1

Pin	Signal Name	Pin	Signal Name
1	DC19V_IN	2	DC19V_IN
3	GND	4	GND

3.3.1.2 Power Supply Connector

Connector Model: 2331-013581 6P pitch 1.5mm horizontal type WAFER 88260-06



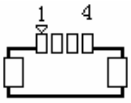
J8

Pin	Signal Name	Pin	Signal Name
1	BATTA+	2	BATTA+
3	BATTA+	4	GND
5	GND	6	GND

3.3.1.3 Battery Signal Port

Connector model: 2331-017971 1×4P pitch 1.25mm height 3.4mm horizontal type

WDC104-A01-05

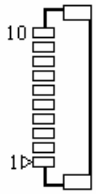


J7

Pin	Signal Name	Pin	Signal Name
1	SMBUSA_CLK	2	SMBUSA_DATA
3	BATTA_IN-	4	GND

3.3.1.4 COM Port

Connector model: 2331-009121 87213-1001G 1.0PITCH

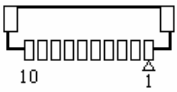


COM1/COM2

Pin	Signal Name	Pin	Signal Name
1	NC	2	COM_DCD-_CN
3	COM_DSR-_CN	4	COM_RXD_CN
5	COM_CTS-_CN	6	COM_RI-_CN
7	COM_TXD_CN	8	COM_RTS-_CN
9	COM_DTR-_CN	10	GND

3.3.1.5 LAN Port

Connector model: 2331-009121 87213-1001G 1.0PITCH

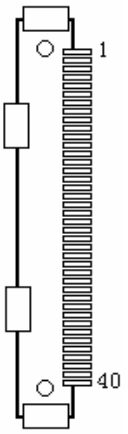


LAN2

Pin	Signal Name	Pin	Signal Name
1	NC	2	NC
3	LAN1_TX3-	4	LAN1_TX3+
5	LAN1_TX2-	6	LAN1_TX2+
7	LAN1_TX1-	8	LAN1_TX1+
9	LAN1_TX0-	10	LAN1_TX0+

3.3.1.6 LVDS Port

Connector model: 2331-009451 40P pitch 0.5mm LVC-C40SFYG+TB2A

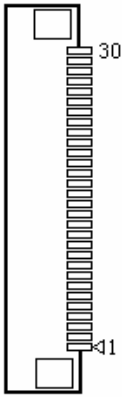


LVDS1

Pin	Signal Name	Pin	Signal Name
1	VCC3_LCD	2	VCC3_LCD
3	VCC3_LCD	4	VCC3_LCD
5	GND	6	LVDS_D7P
7	LVDS_D7N	8	LVDS_D6P
9	LVDS_D6N	10	GND
11	LVDS_D5P	12	LVDS_D5N
13	LVDS_D4P	14	LVDS_D4N
15	GND	16	LVDS_CLK1_P
17	LVDS_CLK1_N	18	LVDS_D3P
19	LVDS_D3N	20	GND
21	LVDS_D2P	22	LVDS_D2N
23	LVDS_D1P	24	LVDS_D1N
25	GND	26	LVDS_D0P
27	LVDS_D0N	28	LVDS_CLK0_P
29	LVDS_CLK0_N	30	GND
31	BKLT_PWM	32	BKLT_ON
33	GND	34	GND
35	GND	36	GND
37	VCC_12	38	VCC_12
39	VCC_12	40	VCC_12

3.3.1.7 IO Board Expansion Slot (to be connected with EF-EIO-109PPC board)

Connector model: 2331-009161 1×30P pitch 0.5mm horizontal type with lock rod creamy white 87152-30071

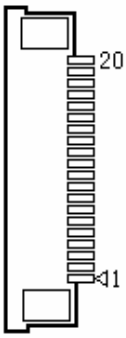


J5

Pin	Signal Name	Pin	Signal Name
1	VCC5_USB34	2	VCC5_USB34
3	VCC5_USB34	4	VCC5_USB34
5	VCC5	6	VCC5
7	VCC3_3SB	8	GND
9	GND	10	GND
11	GND	12	GND
13	GND	14	SYS_RST-
15	VCC5_CAMERA	16	VCC5_CAMERA
17	USB_DM1_H_CN	18	USB_DP1_H_CN
19	GND	20	USB_DP3
21	USB_DM3	22	SMB_CLK
23	SMB_DATA	24	USB_DM4_H_CN
25	USB_DP1_H_CN	26	GND
27	HP_OUTL	28	HP_OUTR
29	HP_JD	30	GND_AUDIO

3.3.1.8 IO Board Expansion Slot J1 (to be connected to EF-EIO-078PPC board)

Connector model: 2331-022071 FPC 20P pitch 0.5mm horizontal type, down connection type 5140-20RZBWWR01

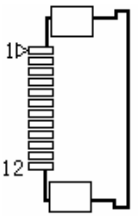


J1

Pin	Signal Name	Pin	Signal Name
1	PWRBTN+	2	PWRBTN+_SW
3	SATA_LED-	4	GND
5	GND	6	VCC3_3
7	VCC3_3	8	VCC3_3SB
9	VCC3_3SB	10	LED_PWR_LED
11	EC_KEY6	12	EC_KEY5
13	EC_KEY4	14	EC_KEY3
15	EC_KEY2	16	EC_KEY1
17	LED_BATB_STAT	18	LED_BATB_CHG
19	LED_BATA_STAT	20	LED_BATA_CHG

3.3.1.9 IO Board Expansion Slot USB1 (to be connected with EF-EIO-110PPC board)

Connector model: 2331-009181 1×12P pitch 0.5mm horizontal type, with lock rod, creamy white 87152-12071



USB1

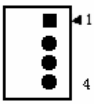
Pin	Signal Name	Pin	Signal Name
1	VCC5_USB1	2	VCC5_USB1
3	VCC5_USB1	4	USB3_RXN0_CN
5	USB3_RXP0_CN	6	GND
7	USB_DP3_CN	8	USB_DN3_CN
9	GND	10	USB3_TXN0_CN
11	USB3_TXP0_CN	12	GND

3.3.2 ECS-1825 Motherboard

3.3.2.1 Power Input Connector

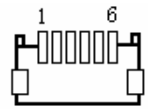
Connector model: 2331-016161 Single-row 4P pitch 2.5mm 90 degree WAFER

WGB104-A02-01

	Pin	Signal Name	Pin	Signal Name
 PWR1	1	DC19V_IN	2	DC19V_IN
	3	GND	4	GND

3.3.2.2 Battery Power Supply Connector

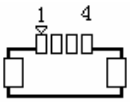
Connector model: 2331-013581 6P pitch 1.5mm horizontal type WAFER 88260-06

	Pin	Signal Name	Pin	Signal Name
 J6	1	BATTA+	2	BATTA+
	3	BATTA+	4	GND
	5	GND	6	GND

3.3.2.3 Battery Signal Port

Connector model: 2331-017971 1×4P pitch 1.25mm height 3.4mm horizontal type

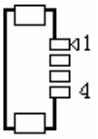
WDC104-A01-05

	Pin	Signal Name	Pin	Signal Name
 J5	1	SMBUSA_CLK	2	SMBUSA_DATA
	3	BATTA_IN-	4	GND

3.3.2.4 USB Port

Connector model: 2331-017971 1×4P pitch 1.25mm height 3.4mm horizontal type

WDC104-A01-05

	Pin	Signal Name	Pin	Signal Name
 USB2	1	VCC_USB1	2	USB_DN0_CN
	3	USB_DP0_CN	4	GND

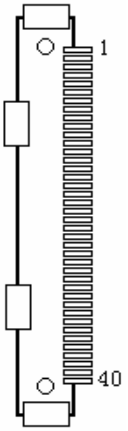
3.3.2.5 LAN Port

Connector model: 2331-009121 87213-1001G 1.0PITCH

	Pin	Signal Name	Pin	Signal Name
 LAN1	1	NC	2	NC
	3	LAN1_TX3-	4	LAN1_TX3+
	5	LAN1_TX2-	6	LAN1_TX2+
	7	LAN1_TX1-	8	LAN1_TX1+
	9	LAN1_TX0-	10	LAN1_TX0+

3.3.2.6 LVDS Port

Connector model: 2331-009451 40P pitch 0.5mm LVC-C40SFYG+TB2A



LVDS1

Pin	Signal Name	Pin	Signal Name
1	VCC3_LCD	2	VCC3_LCD
3	VCC3_LCD	4	VCC3_LCD
5	GND	6	LVDS_D7P
7	LVDS_D7N	8	LVDS_D6P
9	LVDS_D6N	10	GND
11	LVDS_D5P	12	LVDS_D5N
13	LVDS_D4P	14	LVDS_D4N
15	GND	16	LVDS_CLK1_P
17	LVDS_CLK1_N	18	LVDS_D3P
19	LVDS_D3N	20	GND
21	LVDS_D2P	22	LVDS_D2N
23	LVDS_D1P	24	LVDS_D1N
25	GND	26	LVDS_D0P
27	LVDS_D0N	28	LVDS_CLK0_P
29	LVDS_CLK0_N	30	GND
31	BKLT_PWM	32	BKLT_ON
33	GND	34	GND
35	GND	36	GND
37	VCC_12	38	VCC_12
39	VCC_12	40	VCC_12

3.3.2.7 IO Board Expansion Slot (to be connected with EF-EIO-078PPC board)

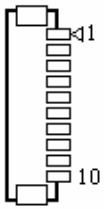
Connector model: 2331-009121 87213-1001G 1.0PITCH

J1

Pin	Signal Name	Pin	Signal Name
1	LED_BATA_CHG	2	LED_BATA_STAT
3	LED_BATB_CHG	4	LED_BATB_STAT
5	EC_KEY1	6	EC_KEY2
7	EC_KEY3	8	EC_KEY4
9	EC_KEY5	10	EC_KEY6

3.3.2.8 IO Board Expansion Slot (to be connected with EF-EIO-078PPC board)

Connector model: 2331-014741 1×10P pitch 1.25mm WTB 85204-10001-X

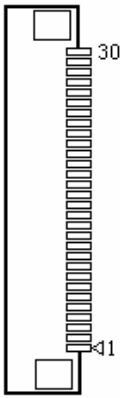


J3

Pin	Signal Name	Pin	Signal Name
1	LED_PWR_LED	2	VCC3_3SB
3	VCC3_3SB	4	VCC3_3
5	VCC3_3	6	GND
7	GND	8	SATA_LED-
9	PWRBTN+_SW	10	PWRBTN+

3.3.2.9 IO Board Expansion Slot (to be connected with EF-EIO-092PPC board)

Connector model: 2331-009161 1×30P, pitch 0.5mm, horizontal type, with lock rod, creamy white 87152-30071



J2

Pin	Signal Name	Pin	Signal Name
1	VCC5_USB34	2	VCC5_USB34
3	VCC5_USB34	4	VCC5_USB34
5	VCC5	6	VCC5
7	VCC3_3SB	8	GND
9	GND	10	GND
11	GND	12	GND
13	GND	14	SYS_RST-
15	UIM_PWR_CN	16	UIM_VPP_CN
17	UIM_RST-_CN	18	UIM_DATA_CN
19	UIM_CLK_CN	20	USB_DN3
21	USB_DP3	22	SMB_CLK
23	SMB_DATA	24	NC
25	NC	26	NC
27	HP_OUTL_CN	28	HP_OUTR_CN
29	HP_JD	30	GND_AUDIO

4. BIOS Setup

(Applicable to PPC-1006-02/-03/-03KW/-04 models)

4.1 UEFI Overview

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

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

4.2 UEFI Parameter Setup

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

All the setup values modified by UEFI (excluding data and time) are saved in the flash storage in system; the contents will not be lost even if powered down or remove the

battery of the board. The data and time are saved in CMOS storage, which is powered by battery; unless clearing CMOS is executed, its contents would not be lost even if powered off.

When the system is connected to power supply, and after normal power-on, prompt message for BIOS setting can be seen. At that time (invalid at other time), press the key specified in the prompt message (usually <Del>) to enter BIOS setting.

When the BIOS settings in the CMOS have been damaged, the system will also require entering into BIOS Setup, or selecting certain default values.

All the setup values modified by BIOS are saved in the CMOS storage in system. The CMOS storage is powered by battery. So 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.

4.3 Basic Function Setting for UEFI

After starting SETUP program, the main interface of Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc. will appear:

Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc. copyright (C)	
Main Advanced Chipset Security Boot Save & Exit	
Motherboard Information Project Name ECS-1820(B) BIOS Name G9211002 x64 BIOS Version B00 Build Date 28/7/2016 15:50:22 Memory Information Total Memory 4096 MB (DDR3L) System Date [Mon 11/01/2009] System Time [00:47:55] Access Level Administrator	Set the Date. Use'Tab' to switch between Date elements. →←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

◆ **Main**

➢ **System Date**

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

➢ **System Time**

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

◆ **Advanced**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Main **Advanced** Chipset Security Boot Save & Exit	
▶ Super IO Configuration ▶ CPU Configuration ▶ IDE Configuration ▶ OS Install Selection ▶ CSM Configuration ▶ USB Configuration	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **Super IO Configuration**

Aptio Setup Utility – Copyright © 2013 **American Megatrends, Inc.**	
Advanced	
Super IO 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&Exit ESC：Exit
Version 2.17.1249 Copyright © 2013 American Megatrends, Inc.	

- **Serial Port Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Advanced	
Serial Port 1～2 Configuration Serial Port [Enabled] Device Settings IO=3F8h; IRQ=4; Serial Mode [232 Port]	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

*** Serial Port**

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

*** Device Settings**

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

***Serial Mode**

This option is used to select communication mode of serial ports [232], [422], [485]. If 422 or 485 mode is selected, there is Uart RS485/422 Terminal option to select automatic flow control function, and the automatic flow control function must be enabled. Under 232 mode, it must be DISABLED.

➢ **CPU Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Advanced	
CPU Configuration ►Socket 0 CPU Information CPU Speed 1834 MHZ 64-bit Supported Active Processor Cores [ALL] Intel Virtualization Tech [Enabled] Power Technology [Energy Efficient]	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

To display information related to CPU. Please note that, Socket and Speed of CPU are related to CPUs installed on the platform, and different families or models of CPU have different information.

- **Active Processor Cores**

  To configure number of active processor cores.

- **Intel Virtualization Technology**

  Intel virtualization technology, which is needed when virtual machine or certain Linux system is used.

- **Power Technology**

  To enable or disable power management function of CPU. When Customer is selected, EIST, Turbo Mode and other options will appear.

➢ **IDE Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Advanced	
IDE Configuration Serial-ATA (SATA) [Enabled] SATA Test Mode [Enabled] Serial-ATA Port 1 [Enabled] SATA Port1 HotPlug [Disabled] SATA Port1 Not Present	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

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

- **Serial-ATA(SATA)**

  General switch for SATA options. When it is disabled, SATA function cannot be used.

- **SATA Mode**

  SATA controller options, corresponding to IDE and AHCI modes.

  Please note that, when AHCI is selected for system installation, Floppy device may need drivers corresponding to certain chipset.

- **Serial-ATA Port1**

  Switch for SATA Port. When it is set to Disabled, the corresponding SATA port

cannot be used.

- **SATA Port1 HotPlug**

  Switch for hotplug of SATA device. If hotplug is needed, the corresponding option should be set to Enabled.

➢ **Os Install Selection**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**		
Advanced		
OS Selection	[Windows7]	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.		

- **OS Selection**

  When installing and using operating system, this option must be set correctly. For example, if Windows 7 is to be installed and used, this option must be set to Windows 7, otherwise blue screen of installed system may occur, or the installed system cannot be booted.

  Note: Android option is for test only. Because there is no corresponding driver, Android system is not fully supported for the moment.

➢ **CSM Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Advanced	
Compatibility Support Module Configuration Boot option filter [UEFI and Legacy] Option ROM execution order Video [Legacy first]	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

- **Boot option filter**

  Boot option filter. The default is UEFI and Legacy, which supports both UEFI mode and Legacy mode.

- **Video**

  When the option is set to Legacy first, after bootup, legacy VBIOS is first loaded; when the option is set to UEFI first, GOP VBIOS is first loaded. If UEFI only or legacy only is set, only corresponding VBIOS is loaded.

➢ **USB Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Advanced	
USB Configuration USB Devices: 1 keyboard ， 1 Mice Legacy USB Support [Enabled] USB Mass Storage Driver Support [Enabled] Mass Storage Devices： Device power-up delay [Auto]	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 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.

- **USB Mass Storage Drive Support**

  USB mass storage USB support option. ENABLED by default.

- **Sandisk**

  This option is for functions selected by Sandisk. The options are [Auto], [floppy], [Forced FDD], [Hard Disk], [CD-ROM]

◆ **Chipset**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Main Advanced **Chipset** Security Boot Save & Exit	
► North Bridge ► South Bridge	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **North Bridge**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Main Advanced **Chipset** Security Boot Save & Exit	
► Intel IGD Configuration Memory Information Total Memory 4096 MB (DDR3L)	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

To display capacity and memory model of installed memory module on the current system, which is dynamic detection information.

- **Intel IGD Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Main Advanced **Chipset** Security Boot Save & Exit	
Intel IGD Configuration GFX Boost [Disabled] PAVC [LITE Mode] DVMT Pre-Allocated [64M] DVMT Total Gfx Mem [256MB]	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

*** GFX Boost**

This option is a switch for graphics card GPU Turbo boost function.

*** PAVC**

This option is a control switch for audio and video protection. When this technology is enabled, audio and video will be protected during the whole transmission and play process. Please note that this option must be enabled for blue ray disc.

*** DVMT Pre-Allocated**

This option is used to set DVMT 5.0 pre-allocated video memory capacity, namely the capacity of IGD exclusive memory.

*** DVMT Total Gfx Mem**

This option is used to set total video memory capacity which can be used by IGD device.

➢ **South Bridge**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Chipset	
▶ USB Configuration ▶ PCI Express Configuration	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **USB Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**		
Chipset		
USB Configuration		
XHCI Mode	[Auto]	→←：Select Screen ↑↓：Select Item
USB 2.0(EHCI) Support	[Disabled]	Enter：Select
USB Per Port Control	[Enabled]	+/-：Change Opt
USB Port 1	[Enabled]	F1：General Help
USB Port 2	[Enabled]	F2：Previous Values
USB Port 3	[Enabled]	F3：Optimized Defaults
USB Port 4	[Enabled]	F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.		

- **XHCI Mode**

  Used to set operation mode of XHCI controller. This option is incompatible with EHCI.

- **USB 2.0（EHCI）Support**

  Used to control USB EHCI(USB 2.0) function. One EHCI controller must be always Enabled.

- **USB Per Port Control**

  The control switch of USB device by Port. When it is enabled, USB Port0～3 can be separately set to Enabled or Disabled.

- **USB Port0～3**

  Used to control function of each USB port. If it is set to Disabled, the corresponding USB port cannot be used.

➢ **PCI Express Configuration**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**		
Chipset		
PCI Express Configuration		
PCI Express port 1	[Enabled]	→←：Select Screen
Speed	[Gen2]	↑↓：Select Item
		Enter：Select
PCI Express port 2	[Enabled]	+/-：Change Opt
Speed	[Gen2]	F1：General Help
		F2：Previous Values
PCI Express port 3	[Enabled]	F3：Optimized Defaults
Speed	[Gen2]	F4：Save&Exit
		ESC：Exit
PCI Express port 4	[Enabled]	
Speed	[Gen2]	
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.		

- **PCI Express port1～4**

  PCI Express port switch options: Enabled and Disabled.

- **Speed**

  Gen1 speed is 2.5GT/S

  Gen2 speed is 5.0GT/S

◆ **Security**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Main Advanced Chipset **Security** Boot 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. The Password length must be in the following range: Minimum length 3 Maximum length 20 Administrator Password User Password	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **Administrator Password**

This option is used to set administrator password.

➢ **User Password**

This option is used to set common user password.

◆ **Boot**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Main Advanced Chipset Security **Boot** Save & Exit	
Boot Configuration Setup Prompt Timeout [6] Bootup NumLock State [On] Quiet Boot [Disabled] Fast Boot [Disabled] **Boot Option Priorities** Boot Option #1 [Built-in EFI Shell]	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **Setup Prompt Timeout**

To set screen prompt waiting time during bootup.

➢ **Boot NumLock State**

To set whether Numlock state is enabled during bootup.

➢ **Quiet Boot**

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

➢ **Fast Boot**

➢ **Boot Option Priorities**

This option is used to configure priorities for system boot. Among them, #1 represents highest priority, #n represents lowest priority.

◆ **Save & Exit**

Aptio Setup Utility – Copyright (C) 2013 **American Megatrends, Inc.**	
Main Advanced Chipset Security Boot **Save & Exit**	
Save Changes and Exit Discard Changes and Exit	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save&Exit ESC：Exit
Version 2.17.1249 Copyright (C) 2013 American Megatrends, Inc.	

➢ **Save Changes and Exit**

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

➢ **Discard Changes and Exit**

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

4.4 System Resource Managed by UEFI under X86 Platform

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

◆ **DMA**

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

◆ **APIC**

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

◆ **IO Port Address**

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

Address	Device Description
000h-06Fh	PCI bus
020h - 021h	Programmable Interrupt Controller
024h - 025h	Programmable Interrupt Controller
028h - 029h	Programmable Interrupt Controller
02Ch – 02Dh	Programmable Interrupt Controller
02Eh – 02Fh	Motherboard resource
030h - 031h	Programmable Interrupt Controller

034h - 035h	Programmable Interrupt Controller
038h - 039h	Programmable Interrupt Controller
03Ch – 03Dh	Programmable Interrupt Controller
040h - 043h	System timer
4Eh – 4Fh	Motherboard resource
050h – 053h	System timer
60h	PS/2 standard keyboard
61h	System speaker
62h-63h	Motherboard resource
65h-6fh	Motherboard resource
070h - 077h	System CMOS/real-time clock
80h-8Fh	Motherboard resource
92h	Motherboard resource
A0h-A1h	Programmable Interrupt Controller
A4h-A5h	Programmable Interrupt Controller
A8h-A9h	Programmable Interrupt Controller
ACh-ADh	Programmable Interrupt Controller
B0h-B1h	Programmable Interrupt Controller
B2h-B3h	Motherboard resource
B4h-B5h	Programmable Interrupt Controller
B8h-B9h	Programmable Interrupt Controller
BCh-BDh	Programmable Interrupt Controller
2F8h – 2FFh	COM2
3B0h – 3BBh	Standard VGA graphics adapter
3C0h – 3DFh	Standard VGA graphics adapter
3F8h – 3FFh	COM1
400h-47Fh	Motherboard resource
4D0h – 4D1h	Programmable Interrupt Controller
500h-A0Fh	Motherboard resource
D00h – FFFFh	PCI Bus

◆ **IRQ Assignment Table**

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

Level	Function
IRQ0	System Timer
IRQ1	Standard 101/102-key or Microsoft keyboard
IRQ2	Reserved
IRQ3	COM2
IRQ4	COM1
IRQ5	Reserved
IRQ6	Reserved
IRQ7	Reserved
IRQ8	System CMOS/ Real Time Clock
IRQ9	Microsoft ACPI-Compliant System
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 mouse
IRQ13	Reserved
IRQ14	ATA channel 0
IRQ15	ATA channel 1

(Applicable to PPC-1006-08 model)

4.5 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.

4.6 UEFI Parameter Setup

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

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

Note! 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.

4.7 Basic Function Setting for UEFI

After starting SETUP program, the main interface of Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc. will appear:

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Main Security Save & Exit	
Motherboard Information Project Name ECS-1825 BIOS Version B01 Y7314104 Build Date 01/15/2016 09:44:34 Processor Information Intel(R) Core(TM) i5-4300U CPU @ 1.90GHz Frequency 2600 MHz Total Memory 8192 MB (DDR3) System Date [Thu 01/20/2016] System Time [09:41:55] Access Level Administrator	Set the Date. Use'Tab' to switch between Date elements. →←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save ESC：Exit
Version 2.17.1247. Copyright (C) 2016,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).

◆ **Security**

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Main **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. Minimum length 3 Maximum length 20 Administrator Password User Password HDD Security Configuration P1:LHI-S20MIN-1	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save ESC：Exit
Version 2.17.1247. Copyright (C) 2016,American Megatrends, Inc.	

➢ **Administrator Password**

This option is used to set up administrator password.

➢ **User Password**

This option is used to set up user password.

➢ **HDD Security Configuration**

This option is used to set HDD security password.

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Security	
HDD Password Description Allows Access to Set, Modify and Clear HardDisk User and Master Passwords. User Password need to be installed for Enabling Security. Master Password can be Modified only when successfully unlocked with Master Password in POST HDD PASSWORD CONFIGURATION: Security Supported : Yes Security Enabled : Yes Security Locked : No Security Frozen : No HDD User Pwd Status INSTALLED HDD Master Pwd Status INSTALLED Set User Password	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save ESC：Exit
Version 2.17.1247. Copyright (C) 2016,American Megatrends, Inc.	

- **Set User Password**

  This item is used to set HDD password. The shortest length of the password is 3 digits, and the longest length should not be more than 20.

◆ **Save & Exit**

Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.	
Main Advanced Chipset Boot Security **Save & Exit**	
Save Changes and Reset Discard Changes and Reset	→←：Select Screen ↑↓：Select Item Enter：Select +/-：Change Opt F1：General Help F2：Previous Values F3：Optimized Defaults F4：Save ESC：Exit
Version 2.17.1247. Copyright (C) 2016,American Megatrends, Inc.	

➢ **Save Changes and Reset**

This option is used to save changes and reset.

➢ **Discard Changes and Reset**

This option is used to discard changes and reset.

4.8 System Resource Managed by UEFI under X86 Platform

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

◆ **DMA**

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

- **APIC**

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

- **IO Port Address**

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

Address	Device Description
000h - 00Fh	DMA controller #1
010h - 01Fh	Motherboard resource
020h - 021h	Programmable interrupt controller#1
022h - 03Fh	Motherboard resource
040h - 043h	System timer
044h - 05Fh	Motherboard resource
060h	Standard 101/102 key or Microsoft natural PS/2 keyboard
061h	System speaker
062h – 063h	Motherboard resource
064h	Standard 101/102 key or Microsoft natural PS/2 keyboard
065h - 06Fh	Motherboard resource
070h - 071h	Real-time clock, NMI
072h – 07Fh	Motherboard resource
080h	Motherboard resource
081h - 083h	DMA controller#2
084h - 086h	Motherboard resource

087h	DMA controller#3
088h	Motherboard resource
089h - 08Bh	DMA controller#4
08Ch - 08Eh	Motherboard resource
08Fh	DMA controller#5
090h - 09Fh	Motherboard resource
0A0h - 0A1h	Programmable interrupt controller#2
0A2h – 0BFh	Motherboard resource
0C0h - 0DFh	DMA controller#6
0E0h - 0EFh	Motherboard resource
0F0h - 0FFh	Numeric data processor
170h - 177h	ATA Channel 1
1F0h - 1F7h	ATA Channel 0
274h – 277h	ISAPNP Read Data Port
279h	ISAPNP Read Data Port
2F8h - 2FFh	COM port #2(COM2)
376h	ATA Channel 1
3B0h – 3BBh	PCI Express standard Root Port/standard VGA graphics adapter
3C0h – 3DFh	PCI Express standard Root Port/ standard VGA graphics adapter
3F6h	ATA Channel 0
3F8h – 3FFh	COM port #1(COM1)
400h – 453h	System resource
454h –457h	Motherboard resource
458h –47Fh	System resource
4D0h – 4D1h	Motherboard resource
500h – 57Fh	System resource
A30h – A3Fh	Motherboard resource
A79h	ISAPNP Read Data Port
0D00h-FFFFh	PCI bus

◆ **IRQ Assignment Table**

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

Level	Function
IRQ0	System timer
IRQ1	PS2 keyboard
IRQ2	Reserved
IRQ3	COM2
IRQ4	COM1
IRQ5	Reserved
IRQ6	Reserved
IRQ7	Reserved
IRQ8	System CMOS/real-time clock
IRQ9	ACPI-compliant system
IRQ10	PCI device (SMBUS)
IRQ11	ME
IRQ12	Mouse
IRQ13	Data numerical processor
IRQ14	ATA Channel 0
IRQ15	ATA Channel 1

Note: As for GPIO and Watch Dog function, please refer to EVOC BPI installation kit, which is on the enclosed CD of EVOC.

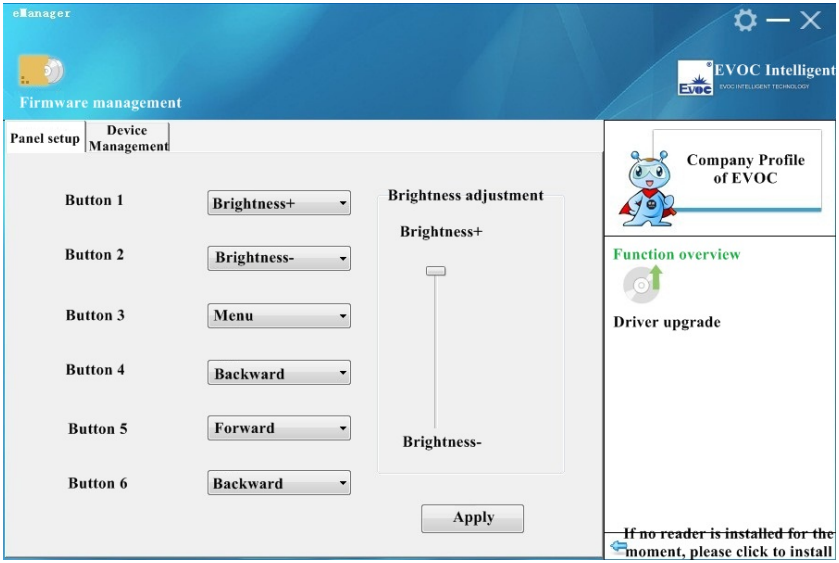
5. BPI Software Instructions

1. Panel Setup

The panel setup mainly provides function selection for six function buttons and screen backlight adjustment on PPC-1006. The value of each drop-down list is unique, namely, you cannot set two buttons at a same function. Each function button can provide six function options. After the option is selected, click “Apply” button to apply it to the device, making it effective immediately.

The brightness adjustment slider is mainly for adjusting the screen brightness. Manually dragging the slider can adjust the screen brightness.

Panel setup interface:



2. Device Management

USB storage device:

It mainly provides permission to access USB storage device, which is effective to U disk and storage device on USB port. This function setup is not effective to USB mouse and USB keyboard. The button displaying “Enabled” means the system allows USB storage device to be accessed and used; the button display “Disabled” means the system prohibits USB storage device to be accessed. After setup, insert the USB storage device to make it effective. After setting disabling USB storage device, and inserting USB storage device, the system does not prompt installing USB device driver and does not display USB storage device disk sign.

Network adapter device:

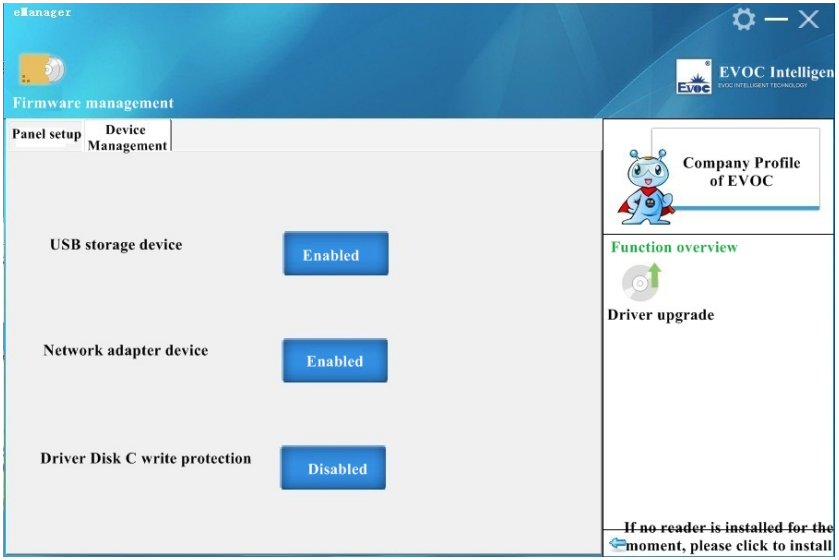
It mainly provides “Enable” and “Disable” function for network adapter. The button displaying “Enabled” means the network adapter is enabled, and network resource can be normally accessed; the button displaying “Disabled” means the network adapter is disabled, and network resource cannot be normally accessed, and local connection setting becomes invalid.

Drive disk C disk write protection:

It mainly provides write protection function for C disk. The button displaying “Enabled” means the current status of system has write protection for C disk, and any write operation to C disk become invalid after reboot. After software is installed, the default status is to read whether the current system has write protection function. If it has C disk write protection function, the button displays “Enabled”; if it has no C disk write protection function, the button displays “Disabled”.

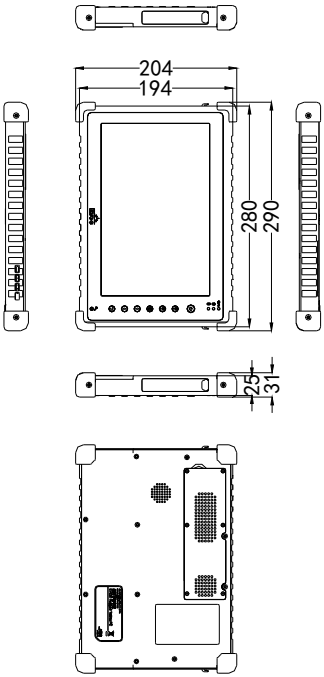
As for the above operations, the “Device management” function can only be set up with administrator rights.

Device Management interface:



6. Dimensions Drawing

6.1 Product Outer Dimensions Drawing



Unit: mm

7. Configuration List

Name	Quantity
PC	1 set
Power adapter	1
Power input cable	1
USB converter cable	2 (08 model)
LAN port converter cable	1
User Manual	1

8. Appendix

8.1 Troubleshooting and Solutions

Common Malfunctions	Possible Reasons	Corrective measures or mistake prevention
The device is not operating	No power supply	Please check whether the power connector is correctly connected. Make sure the power switch is set to ON.
	The input power supply voltage is not within the voltage range supported by the system.	Maybe the system is under over-voltage or under-voltage protection, please examine whether the input voltage is within the allowed range.
The external display is black	The display is under "power saving" mode	Press any key on the keyboard.
	The luminance control is set to "Black".	Increase the screen luminance by luminance control. Please refer to the instructions of the display for detailed information.
		Contact Technique Support if the screen remains black after implementing the above measures.
Mouse cursor cannot be moved	Mouse driver program has not been loaded.	When starting the application program, examine whether the mouse driver has been correctly installed. For more detailed information, please refer to the mouse or application program manual.

	The mouse is not connected.	Check whether the mouse cable is connected to the system unit. If adapter or mouse extension cord is used, the connector should also be examined.
		If the measures above have been executed and the mouse cursor still cannot be seen on the screen, please contact the technical support team.
Incorrect time or date on PC		Press <F2> during boot priority execution, and open BIOS Setup. Set the time and date in the setup menu.
BIOS setting is correct while the time and date are incorrect.	Invalid backup battery	In this circumstance, please contact your technical support team.

8.2 Common Alarm Information Analysis and Solution

Alarm Information	Meaning and Solution
EFI BIOS product boot-up screen indicates yellow alarm information: "Warning system time is invalid，please set it to right"	Motherboard CMOS time setup error needs to be corrected.
After the motherboard is booted up, the screen indicates: "Reboot and Select proper Boot device or Insert Boot Media in selected Boot device and press a key"	Current disk cannot boot, recheck the system HDD connection cables, or use optical drive for reinstallation of operating system.

8.3 ESD Guideline

Definition of ESD:

All the electronic modules are equipped with large-scale integrated ICs or assemblies. Due to their own design, these electronic components are extremely sensitive to over-voltage, therefore, they are extremely sensitive to any electrostatic discharge. ESD-sensitive assemblies/modules are usually called ESD devices. This is also the internationally universal abbreviation for these devices.

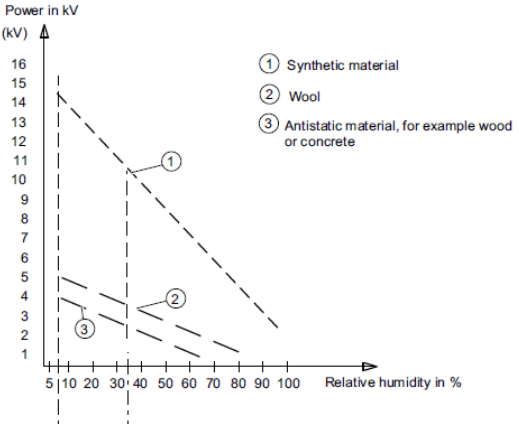
The following sign can be used to identify ESD modules:

Caution
ESD devices can be damaged by any voltage far lower than that can be felt by human. If you do not release electrostatic charges on your body when you contact a component of the device or carry out electrical connection for the device, electrostatic voltage will be generated. The current of electrostatic discharge may cause potential problem to the module. The damage may not seem serious for the moment, but may lead to malfunction during later operation.

Electrostatic charging

Human body not connected to surrounding electrical level may have electrostatic charging.

The following data indicates the maximum electrostatic voltages generated when human bodies contact specific materials. These values are compliant with IEC 801-2 specifications.



Electrostatic voltage on the operator

Basic protection measures to prevent electrostatic discharge:

- Ensure excellent equipotential connection:

When holding an ESD-sensitive device, make sure your body, working area and package are all grounded. This can prevent electrostatic charges.

- Avoid direct contact:

Contact ESD-sensitive devices only when it is unavoidable (for example during repair). Do not touch any chip pin or PCB circuit when holding a module. In this way, the released electric energy will not affect the ESD-sensitive device.

Before handling the module, release charges on your body. They can be released by touching a grounded metal component. Make sure a grounded measuring instrument is used.