EMIO-100P-MPU01E Parallel Module Datasheet

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Revision History

Rev.	Date	History
0.1	2013/9/13	1. 1st draft

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1. Overview

Advantech EMIO-100P, USB to Parallel Printer module, is a high-quality electronic component developed and manufactured according to the IEEE 1284 printer. Fully USB 1.1 compliant, the adapter supports bi-directional parallel interface communications. The form factor of EMIO-100P Parallel module is designed the full-size Mini PCIe & module type combo solution. It's following the MiniPCIe definition and added USB pin header.

The EMIO-100P is as easy to install as a parallel cable. Connect the adapter to a printer's parallel port then plug it into a computer's USB port or Hub.

2. <u>Electrical Features</u>

– Universal Serial Bus Specification Rev. 1.1 compliant

– USB full speed communication and bus powered

– USB Printer Class Specification 1.0 compliant, Data Transfer Rate: 1.216Mbps (ECP mode)

– Supports IEEE-1284 (bi-directional parallel interface) specification

– Low-level printer class drivers provided for Windows serial

– Reserved another USB pin header on the module

(The EMIO-100P model is ready the USB signal on both MiniPCIe side (Pin 23, 25, 31, 33) and Pin Header (USB1). While using, please kindly select only one of the two.)

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3. Environmental Features

■ **Temperature Ranges**

– Operating : 0℃ ~ 70℃

– Storage : -40℃ ~ 85℃

■ **Humidity**

– 25% ~ 95%, 40℃

■ **Random Vibration Test**

– 5 - 500Hz, PSD 0.028G²/Hz,3.5Grms

– 3 axes, 1 hr/per axis

■ **Acquired RoHS Certificate**

■ **Dimension：50.95 mm x 30 mm x 10 mm**

■ **Weight：30 g**
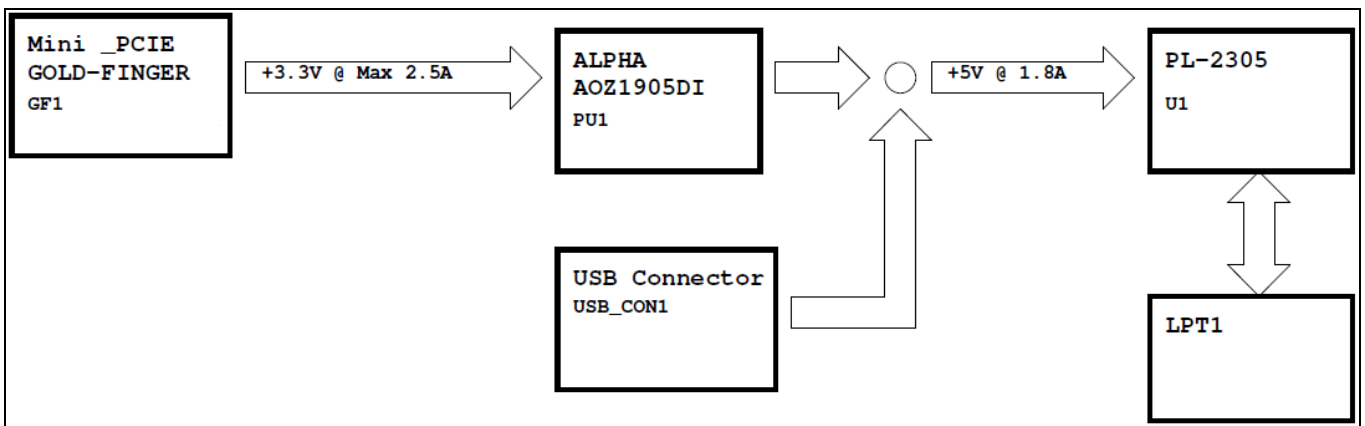
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4.   <u>Block Diagram</u>

Below Figure shows the operation of Advantech EMIO-100P Parallel module from the system level, including the major hardware blocks.
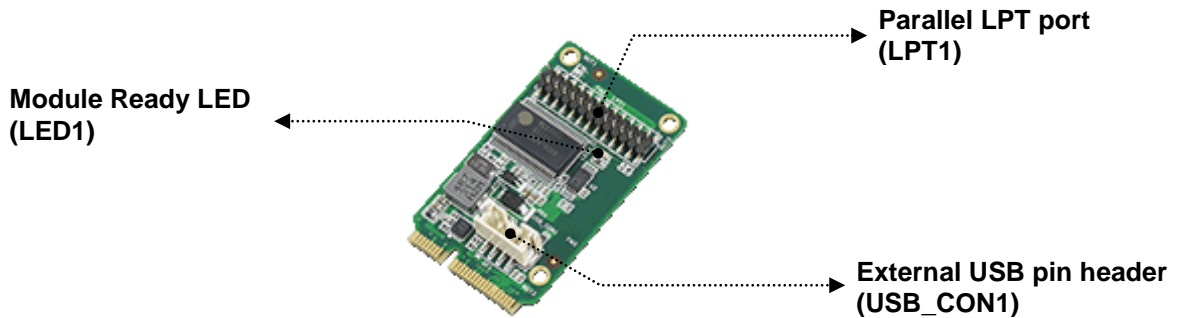
```
┌──────────────────────────────────────────────────────────────────────────────────┐
│                                                                          ┌───────┐ │
│                                                                          │ LPT1  │ │
│  ┌──────────────┐         ┌──────────────┐         ┌──────────────┐      │       │ │
│  │ Mini _PCIE   │◄══════► │ USB Connector│◄══════► │ PL-2305      │◄════► │       │ │
│  │ GOLD-FINGER  │DPLUS/   │ USB_CON1     │DPLUS/   │ U1           │       │       │ │
│  │ GF1          │DMINUS   │              │DMINUS   │              │       │       │ │
│  └──────────────┘         └──────────────┘         └──────────────┘      └───────┘ │
└──────────────────────────────────────────────────────────────────────────────────┘
```

System Block Diagram

```
┌──────────────────────────────────────────────────────────────────────────────────┐
│  ┌──────────────┐                       ┌──────────────┐           ┌─────────────┐ │
│  │ Mini _PCIE   │  +3.3V @ Max 2.5A     │ ALPHA        │   ○       │ PL-2305     │ │
│  │ GOLD-FINGER  │ ═════════════════════►│ AOZ1905DI    │══►  +5V @  │ U1          │ │
│  │ GF1          │                       │ PU1          │     1.8A   │             │ │
│  └──────────────┘                       └──────────────┘           └─────────────┘ │
│                                                                          ▲▼         │
│                                         ┌──────────────┐           ┌─────────────┐ │
│                                         │ USB Connector│           │ LPT1        │ │
│                                         │ USB_CON1     │           │             │ │
│                                         └──────────────┘           └─────────────┘ │
└──────────────────────────────────────────────────────────────────────────────────┘
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Power Distribution

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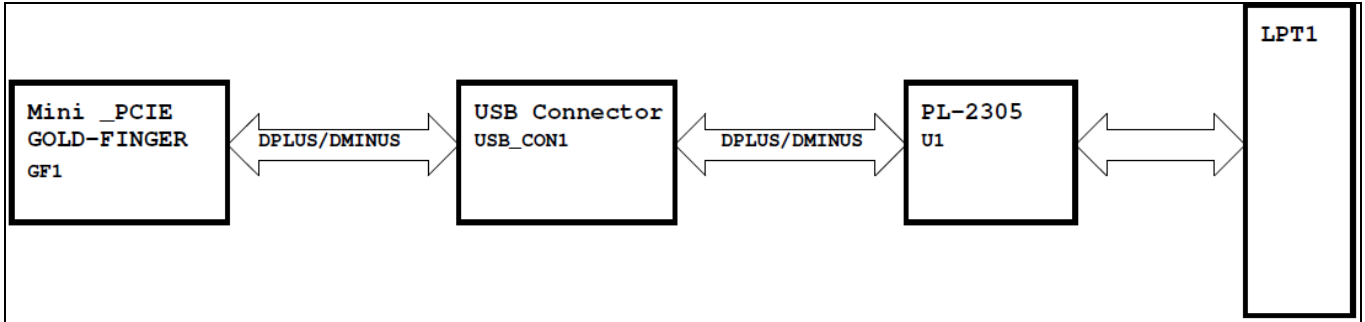
5. Pin Assignment and Description

5.1 Connector and LED Location

Parallel LPT port (LPT1)

Module Ready LED (LED1)

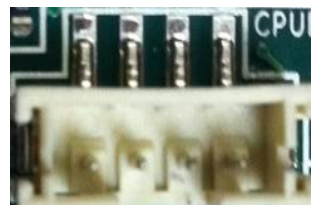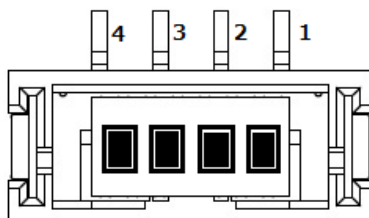**External USB pin header (USB_CON1)**

LED #	Function
LED1	Red, Module Ready LED

5.2 USB Interface Connector, USB_CON1

The USB interface connector, USB_CON1, is a 2.0mm 4-pins 180 degree, Male type Wafer Box connector. The pins are numbered as shown in the table below.

USB_CON1 Pin #	Signal Name	Signal Function
1	+5V_CON	USB Power (+5V)
2	USB_DM_CN	USB D-
3	USB_DP_CN	USB D+
4	GND	Ground

USB Connector

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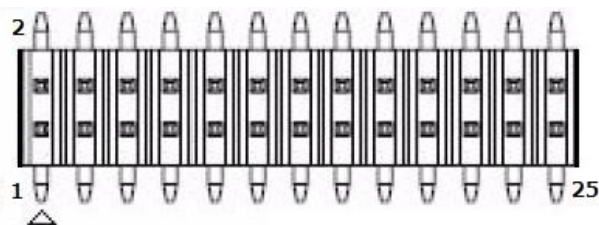REV 0.1   Page 8 of 12   Sep. 13, 2013

5.3 Parallel LPT Port, LPT1

The EMIO-100P has designed 1-channel of parallel LPT port which is LPT1. It is a 2.0mm 13x2-pins 180 degree, Male type pin header connector. The pins are numbered as shown in the table below.
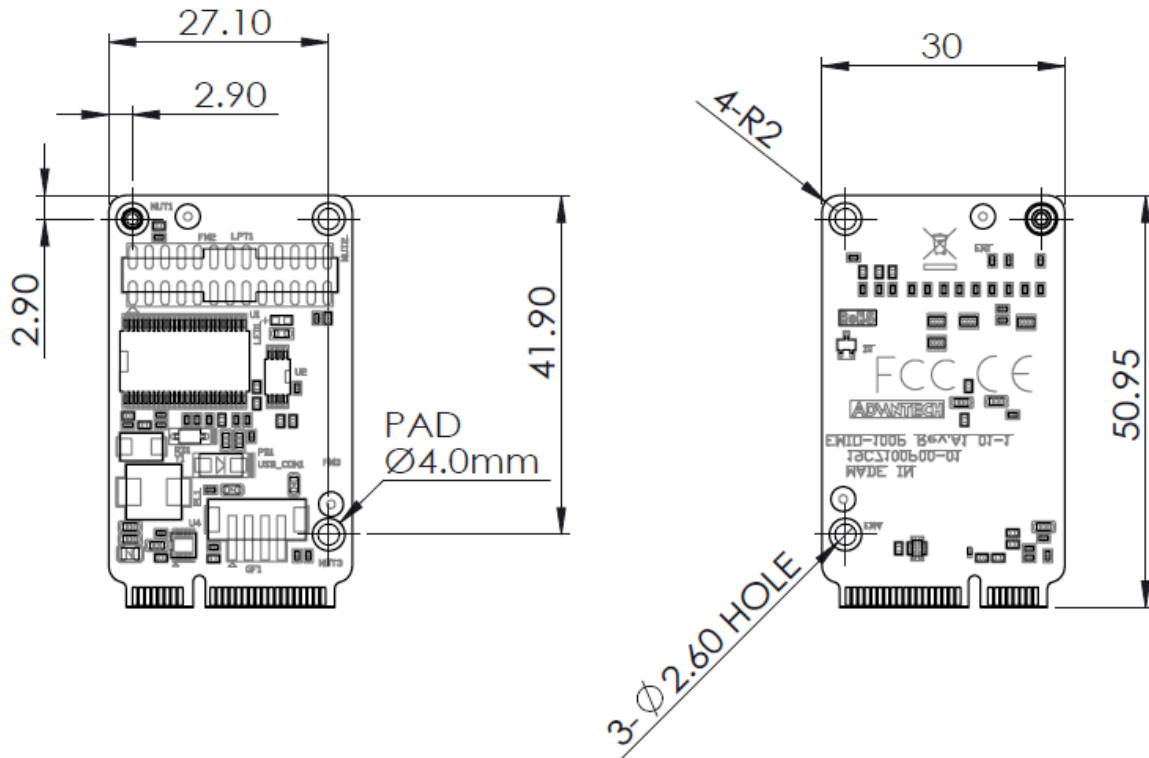
LPT1 Pin #	Signal Name	LPT1 Pin #	Signal Name
1	LPT_STB#	2	LPT_AFD#
3	LPT_PD0	4	LPT_ERR#
5	LPT_PD1	6	LPT_INIT#
7	LPT_PD2	8	LPT_SLIN#
9	LPT_PD3	10	GND
11	LPT_PD4	12	GND
13	LPT_PD5	14	GND
15	LPT_PD6	16	GND
17	LPT_PD7	18	GND
19	LPT_ACK#	20	GND
21	LPT_BUSY	22	GND
23	LPT_PE	24	GND
25	LPT_SLCT	26	N/A

Parallel LPT Connector

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6. Physical Dimension

EMIO-100P Parallel LPT module (Unit: mm)

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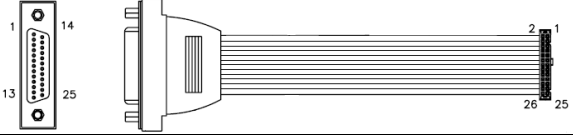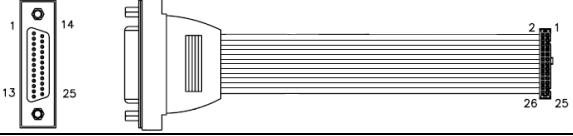REV 0.1   Page 10 of 12   Sep. 13, 2013

Appendix I: Part Number Table
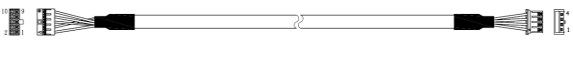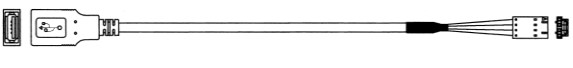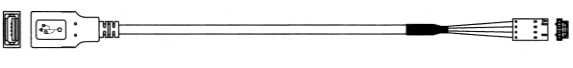
Product Description	Advantech P/N
Advantech EMIO-100P Parallel LPT module, 1-Ch, USB I/F (0~70°C)	EMIO-100P-MPU01E

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Appendix II: Peripheral Cable recommendation

1.   Parallel LPT1 cable

Advantech P/N	Description	Picture
1700019693	Cable, 26P-2.0mm to D-SUB 25P(F), L=15cm	
1700260250	Cable, 26P-2.0mm to D-SUB 25P(F), L=25cm	

2.   Between the USB_CON1 and Main Board

Advantech P/N	Description	Picture
1700019261	Cable, 2x5P-2.0mm to 1x4P-2.0mm, L=40cm	
1700020814-01	Cable, 2x5P-2.0mm to 1x4P-2.0mm, L=50cm	
1700021861-01	Cable, USB-A(F) to 1x4P-2.0mm, L=15cm	
1700013354	Cable, USB-A(F) to 1x4P-2.0mm, L=125cm	

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