

**PCI-104 Module**

**PFM-T800**

**PFM-T800**

PCI-104 Expansion Card

Four COM Ports

Four USB Ports

PFM-T800 Manual Rev.A 1st Ed.

Mar. 2007

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## Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 2 USB Cables
- 4 Serial Port Cables
- 1 Quick Installation Guide
- 1 Utility CD
- 1 PFM-T800

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

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Chapter

1

**General  
Information**

## 1.1 Introduction

---

AAEON, a professional Industrial Embedded boards manufacturer, recently announced a brand new PCI-104 expansion card--PFM-T800. The PFM-T800 was designed to serve the customers who have the need for PCI-104 interface expansion.

PFM-T800 features a PCI-104 form factor that satisfies market demands. In addition, the PFM-T800 has three main functions of PCI to ISA, USB and COM port expansions. AAEON designed this expansion card as a flexible solution. Customers can choose different expansion interfaces to fit their needs or they can decide to equip all three functions onboard.

The PFM-T800 adopts ITE IT8888 ISA bridge chipset and OXFORD OXmPCI954 COM chip as optional functions. Rich I/O functions of four COM ports and four USB ports ensure the most flexible and compatible module to coincide with your existing system planning devices. This PCI-104 expansion card is a cost effective and flexible choice for you.



## 1.2 Features

---

- Supports ISA Bridge (PCI-104 to PC/104)
- Supports Four COM Ports
- Supports Four USB Ports

**Note:**

For avoiding any errors occurred while installing the PFM-T800, please install the mainboard OS before installing the PFM-T800 to the mainboard.

### 1.3 Specifications

---

#### System

- Form Factor PCI-104
- ISA Bridge Chipset ITE IT8888F-A
- COM Chip OXFORD OXmPCI954,  
four COM ports
- Universal Serial Bus Chip VIA VT6212, four USB  
ports
- Board Size 3.55"(L) x 3.78"(W) (90mm  
x 96mm)

Chapter

2

# Quick Installation Guide

**Notice:**

*The Quick Installation Guide is derived from Chapter 2 of user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.*



## 2.1 Safety Precautions

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**Warning!**

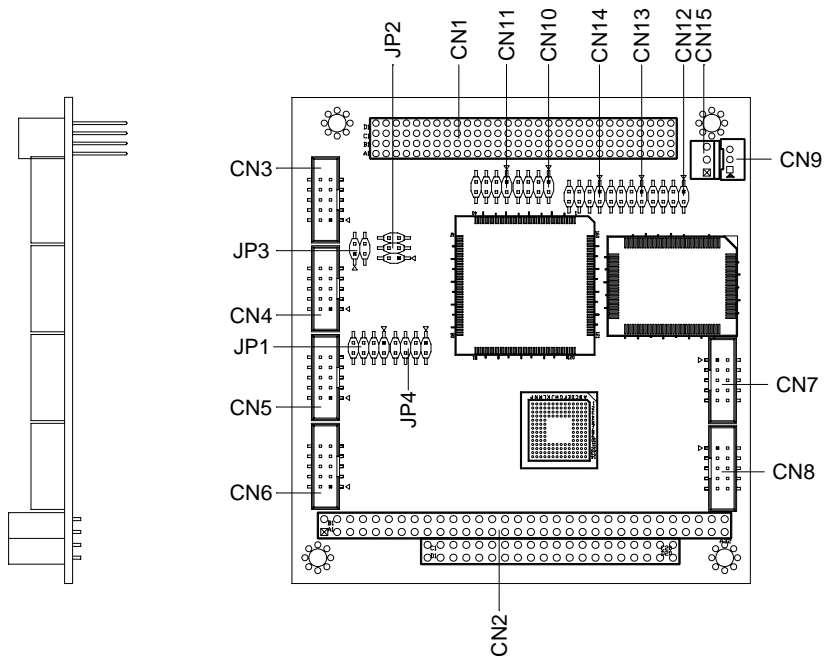
*Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.*

**Caution!**

*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis*

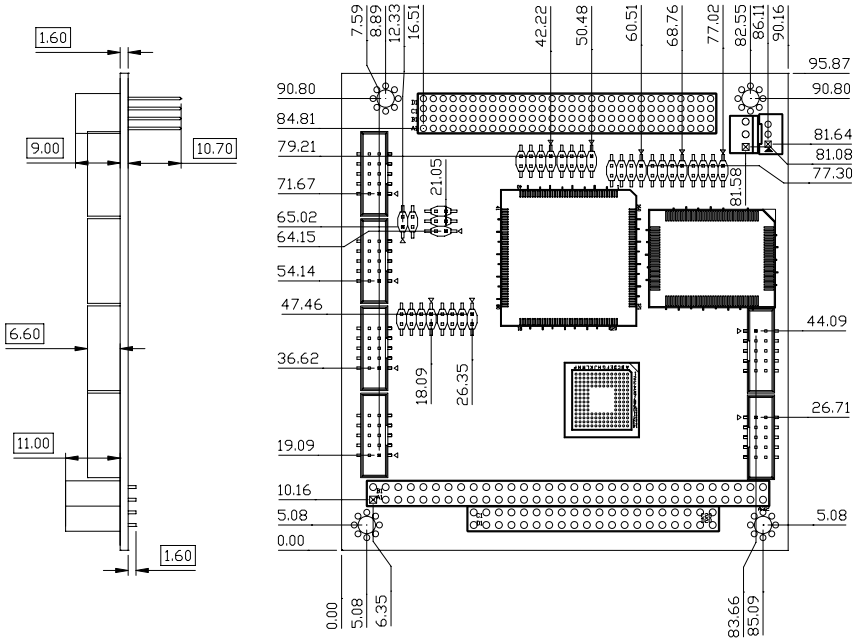
## 2.2 Location of Connectors and Jumpers

### Component Side



## 2.3 Mechanical Drawing

### Component Side



## 2.4 List of Jumpers

---

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

### Jumpers

| Label           | Function                             |
|-----------------|--------------------------------------|
| JP1 & JP2 & JP4 | COM2 RS-232/422/485 Selection        |
| JP3             | COM2 Ring/+5V Selection              |
| CN10            | INTA Selection for COM Port Function |
| CN11            | INTB Selection for COM Port Function |
| CN12            | INTA Selection for USB Port Function |
| CN13            | INTB Selection for USB Port Function |
| CN14            | INTC Selection for USB Port Function |

## 2.5 List of Connectors

---

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

**Note:** For further information about mating connectors, please refer to the appendix of manual.

### Connectors

| Label | Function                             |
|-------|--------------------------------------|
| CN1   | PCI-104 Connector                    |
| CN2   | PC/104 Connector                     |
| CN3   | RS-232 Serial Port Connector         |
| CN4   | RS-232/422/485 Serial Port Connector |
| CN5   | RS-232 Serial Port Connector         |
| CN6   | RS-232 Serial Port Connector         |
| CN7   | USB Connector                        |
| CN8   | USB Connector                        |
| CN15  | FAN Connector (Optional)             |

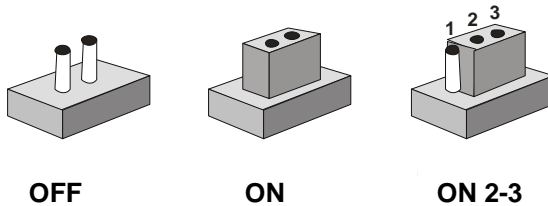


## 2.6 Setting Jumpers

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You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

## 2.7 COM2 RS-232/422/485 Selection (JP1 & JP2 & JP4)

|     | RS-232          | RS-422          | RS-485          |
|-----|-----------------|-----------------|-----------------|
| JP2 | 1-2             | 3-4             | 5-6             |
| JP1 | 1-2 3-4 5-6 7-8 | N.C.            | N.C.            |
| JP4 | N.C.            | 1-2 3-4 5-6 7-8 | 1-2 3-4 5-6 7-8 |

## 2.8 COM2 Ring /+5V Selection (JP3)

| JP3 | Function       |
|-----|----------------|
| 1-2 | +5V            |
| 3-4 | Ring (Default) |

## 2.9 INT Selection for COM Port Function (CN10 & CN11)

|      | INTA         | INTB | INTC | INTD          |
|------|--------------|------|------|---------------|
| CN10 | 1-2          | 3-4  | 5-6  | 7-8 (Default) |
| CN11 | 1-2(Default) | 3-4  | 5-6  | 7-8           |

## 2.10 INT Selection for USB Port Function (CN12 & CN13 & CN14)

|      | INTA | INTB         | INTC          | INTD          |
|------|------|--------------|---------------|---------------|
| CN12 | 1-2  | 3-4(Default) | 5-6           | 7-8           |
| CN13 | 1-2  | 3-4          | 5-6 (Default) | 7-8           |
| CN14 | 1-2  | 3-4          | 5-6           | 7-8 (Default) |

### 2.11 PCI-104 Connector (CN1)

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For more details, please refer to the appendix of the manual.

### 2.12 PC/104 Connector (CN2)

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For more details, please refer to the appendix of the manual.

### 2.13 COM1 RS-232 Serial Port Connector (CN3)

---

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | DCD    | 2   | RXD    |
| 3   | TXD    | 4   | DTR    |
| 5   | GND    | 6   | DSR    |
| 7   | RTS    | 8   | CTS    |
| 9   | RI/+5V | 10  | N.C    |

### 2.14 COM2 RS-232 Serial Port Connector (CN4)

---

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | DCD    | 2   | RXD    |
| 3   | TXD    | 4   | DTR    |
| 5   | GND    | 6   | DSR    |
| 7   | RTS    | 8   | CTS    |
| 9   | RI/+5V | 10  | N.C    |

**2.15 COM3 RS-232 Serial Port Connector (CN5)**

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | DCD    | 2   | RXD    |
| 3   | TXD    | 4   | DTR    |
| 5   | GND    | 6   | DSR    |
| 7   | RTS    | 8   | CTS    |
| 9   | RI/+5V | 10  | N.C    |

**2.16 COM4 RS-232 Serial Port Connector (CN6)**

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | DCD    | 2   | RXD    |
| 3   | TXD    | 4   | DTR    |
| 5   | GND    | 6   | DSR    |
| 7   | RTS    | 8   | CTS    |
| 9   | RI/+5V | 10  | N.C    |

**2.17 USB 1 & USB 2 Connector (CN7)**

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | +5V    | 2   | GND    |
| 3   | USB1-  | 4   | GND    |
| 5   | USBD1+ | 6   | USBD2+ |
| 7   | GND    | 8   | USBD2- |

---

|   |     |    |     |
|---|-----|----|-----|
| 9 | GND | 10 | +5V |
|---|-----|----|-----|

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### **2.18 USB 3 & USB 4 Connector (CN8)**

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| <b>Pin</b> | <b>Signal</b> | <b>Pin</b> | <b>Signal</b> |
|------------|---------------|------------|---------------|
| 1          | +5V           | 2          | GND           |
| 3          | USBD3-        | 4          | GND           |
| 5          | USBD3+        | 6          | USBD4+        |
| 7          | GND           | 8          | USBD4-        |
| 9          | GND           | 10         | +5V           |

### **2.19 FAN Connector (CN15) (Optional)**

---

| <b>Pin</b> | <b>Signal</b> |
|------------|---------------|
| 1          | GND           |
| 2          | +5V           |
| 3          | N.C.          |

## Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

## AAEON Main Board/ Daughter Board/ Backplane

| 部件名称            | 有毒有害物质或元素 |           |           |                 |               |                 |
|-----------------|-----------|-----------|-----------|-----------------|---------------|-----------------|
|                 | 铅<br>(Pb) | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| 印刷电路板<br>及其电子组件 | ×         | ○         | ○         | ○               | ○             | ○               |
| 外部信号<br>连接器及线材  | ×         | ○         | ○         | ○               | ○             | ○               |
|                 |           |           |           |                 |               |                 |
|                 |           |           |           |                 |               |                 |
|                 |           |           |           |                 |               |                 |
|                 |           |           |           |                 |               |                 |
|                 |           |           |           |                 |               |                 |
|                 |           |           |           |                 |               |                 |
|                 |           |           |           |                 |               |                 |
|                 |           |           |           |                 |               |                 |

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在  
SJ/T 11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出  
SJ/T 11363-2006 标准规定的限量要求。

备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。

Chapter

3

**Driver  
Installation**

The PFM-T800 comes with an CD-ROM that contains all drivers and utilities that can help you to install the driver.

There are two drivers that have to be installed. You have to install the Chipset Driver first and then install the COM Port Driver. Therefore, please follow the sequence below to install the drivers.

### 3.1 Installation:

---

#### Installing Chipset Driver

1. Click on **Start** button
2. Click on **Settings** button
3. Click on **Control Panel** button
4. Click on **System** button
5. Select **Hardware** and click on **Device Manager**
6. Double click on "**Other PCI Bridge Device**"
7. Click on **Update Driver**
8. Check the box of "**Install from a list or specific location (Advanced)**"
9. Click on **Next**
10. Select "**Search for the best driver in these locations**" and check the box of "**include this location in the search.**" And then click on **Next**
11. Click on **Browse**
12. Select "**OXmPCI954 Serial Port Driver for Windows**"



folder from CD-ROM and then open it

13. Click on **OK**
14. Click on **Next**
15. Click on **Finish**

### Installing COM Port Driver

1. Click on **Start** button
2. Click on **Settings** button
3. Click on **Control Panel** button
4. Click on **System** button
5. Select **Hardware** and click on **Device Manager**
6. Double click on "**PCI Serial Port**"
7. Click on **Update Driver**
8. Check the box of "**Install from a list or specific location (Advanced)**"
9. Click on **Next**
10. Select "**Search for the best driver in these locations**" and check the box of "**include this location in the search.**" And then click on **Next**
11. Click on **Browse**
12. Select "**OXmPCI954 Serial Port Driver for Windows**" folder from CD-ROM and then open it
13. Click on **OK**
14. Click on **Next**
15. Click on **Finish**

**Appendix**

**A**

**PCI-104 Connector**

## A.1 PCI-104 Connector

---

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| A1  | GND    | B1  | SERIRQ |
| A2  | VIO104 | B2  | AD2    |
| A3  | AD5    | B3  | GND    |
| A4  | C/BE0  | B4  | AD7    |
| A5  | GND    | B5  | AD9    |
| A6  | AD11   | B6  | VIO104 |
| A7  | AD14   | B7  | AD13   |
| A8  | +3.3V  | B8  | C/BE1  |
| A9  | SERR   | B9  | GND    |
| A10 | GND    | B10 | PERR   |
| A11 | STOP   | B11 | +3.3V  |
| A12 | +3.3V  | B12 | TRDY   |
| A13 | FRAME  | B13 | GND    |
| A14 | GND    | B14 | AD16   |
| A15 | AD18   | B15 | +3.3V  |
| A16 | AD21   | B16 | AD20   |
| A17 | +3.3V  | B17 | AD23   |
| A18 | IDSEL0 | B18 | GND    |
| A19 | AD24   | B19 | C/BE3  |
| A20 | GND    | B20 | AD26   |
| A21 | AD29   | B21 | +5V    |

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|     |       |     |         |
|-----|-------|-----|---------|
| A22 | +5V   | B22 | AD30    |
| A23 | REQ0  | B23 | GND     |
| A24 | GND   | B24 | REQ2    |
| A25 | GNT1  | B25 | VIO104  |
| A26 | +5V   | B26 | CLK0    |
| A27 | CLK2  | B27 | +5V     |
| A28 | GND   | B28 | INTD    |
| A29 | +12V  | B29 | INTA    |
| A30 | NC    | B30 | PPDREQ# |
| C1  | +5V   | D1  | AD0     |
| C2  | AD1   | D2  | +5V     |
| C3  | AD4   | D3  | AD3     |
| C4  | GND   | D4  | AD6     |
| C5  | AD8   | D5  | GND     |
| C6  | AD10  | D6  | GND     |
| C7  | GND   | D7  | AD12    |
| C8  | AD15  | D8  | +3.3V   |
| C9  | NC    | D9  | PAR     |
| C10 | +3.3V | D10 | NC      |
| C11 | LOCK  | D11 | GND     |
| C12 | GND   | D12 | DEVSEL  |
| C13 | IRDY  | D13 | +3.3V   |
| C14 | +3.3V | D14 | C/BE2   |
| C15 | AD17  | D15 | GND     |

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|     |         |     |        |
|-----|---------|-----|--------|
| C16 | GND     | D16 | AD19   |
| C17 | AD22    | D17 | +3.3V  |
| C18 | IDSEL1  | D18 | IDSEL2 |
| C19 | VIO104  | D19 | IDSEL3 |
| C20 | AD25    | D20 | GND    |
| C21 | AD28    | D21 | AD27   |
| C22 | GND     | D22 | AD31   |
| C23 | REQ1    | D23 | VIO104 |
| C24 | +5V     | D24 | GNT0   |
| C25 | GNT2    | D25 | GND    |
| C26 | GND     | D26 | CLK1   |
| C27 | CLK3    | D27 | GND    |
| C28 | +5V     | D28 | RST    |
| C29 | INTB    | D29 | INTC   |
| C30 | PPDGNT# | D30 | GND    |

Appendix

**B**

**PC/104 Connector**

## B.1 PC/104 Connectors

---

| Pin | Signal  | Pin | Signal  |
|-----|---------|-----|---------|
| A1  | IOCHK   | B1  | GND     |
| A2  | SD7     | B2  | RSTDRV  |
| A3  | SD6     | B3  | +5V     |
| A4  | SD5     | B4  | IRQ9    |
| A5  | SD4     | B5  | -5V     |
| A6  | SD3     | B6  | DRQ2    |
| A7  | SD2     | B7  | -12V    |
| A8  | SD1     | B8  | ZWS     |
| A9  | SD0     | B9  | +12V    |
| A10 | IOCHRDY | B10 | GND     |
| A11 | AEN     | B11 | SMEMW   |
| A12 | SA19    | B12 | SMEMR   |
| A13 | SA18    | B13 | IOW     |
| A14 | SA17    | B14 | IOR     |
| A15 | SA16    | B15 | DACK3   |
| A16 | SA15    | B16 | DRQ3    |
| A17 | SA14    | B17 | DACK1   |
| A18 | SA13    | B18 | DRQ1    |
| A19 | SA12    | B19 | REFRESH |
| A20 | SA11    | B20 | SYSCLK  |
| A21 | SA10    | B21 | IRQ7    |

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|     |      |     |         |
|-----|------|-----|---------|
| A22 | SA9  | B22 | IRQ6    |
| A23 | SA8  | B23 | IRQ5    |
| A24 | SA7  | B24 | IRQ4    |
| A25 | SA6  | B25 | IRQ3    |
| A26 | SA5  | B26 | DACK2   |
| A27 | SA4  | B27 | TC      |
| A28 | SA3  | B28 | BALE    |
| A29 | SA2  | B29 | +5V     |
| A30 | SA1  | B30 | OSC     |
| A31 | SA0  | B31 | GND     |
| A32 | GND  | B32 | GND     |
| C1  | GND  | D1  | GND     |
| C2  | SBHE | D2  | MEMCS16 |
| C3  | LA23 | D3  | IOCS16  |
| C4  | LA22 | D4  | IRQ14   |
| C5  | LA21 | D5  | IRQ13   |
| C6  | LA20 | D6  | IRQ12   |
| C7  | SA19 | D7  | IRQ11   |
| C8  | SA18 | D8  | IRQ10   |
| C9  | SA17 | D9  | DACK0   |
| C10 | MEMR | D10 | DRQ0    |
| C11 | MEMW | D11 | DACK5   |
| C12 | SD8  | D12 | DRQ5    |
| C13 | SD9  | D13 | DACK6   |



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|     |      |     |        |
|-----|------|-----|--------|
| C14 | SD10 | D14 | DRQ6   |
| C15 | SD11 | D15 | DACK7  |
| C16 | SD12 | D16 | DRQ7   |
| C17 | SD13 | D17 | +5V    |
| C18 | SD14 | D18 | MASTER |
| C19 | SD15 | D19 | GND    |
| C20 | GND  | D20 | GND    |

Appendix

C

Mating Connector

## C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

| Connector Label | Function                                       | Mating Connector |   | Available Cable      | Cable P/N  |
|-----------------|--|------------------|---|----------------------|------------|
|                 |  | Vendor           | Model no  |                      |            |
| CN3             | RS-232<br>Serial Port<br>Connector             | CATCH            | 2.00mm Pitch 10<br>pins ( CATCH<br>H754-2x5 or<br>compatible) | Serial Port<br>Cable | 1701100206 |
| CN4             | RS-232/4<br>22/485<br>Serial Port<br>Connector | CATCH            | 2.00mm Pitch 10<br>pins ( CATCH<br>H754-2x5 or<br>compatible) | Serial Port<br>Cable | 1701100206 |
| CN5             | RS-232<br>Serial Port<br>Connector             | CATCH            | 2.00mm Pitch 10<br>pins ( CATCH<br>H754-2x5 or<br>compatible) | Serial Port<br>Cable | 1701100206 |
| CN6             | RS-232<br>Serial Port<br>Connector             | CATCH            | 2.00mm Pitch 10<br>pins ( CATCH<br>H754-2x5 or<br>compatible) | Serial Port<br>Cable | 1701100206 |
| CN7             | USB<br>Connector                               | CATCH            | 2.00mm Pitch 10<br>pins ( CATCH<br>H754-2x5 or                | USB<br>Cable         | 1709100201 |

|      |                        |       |  |           |            |
|------|------------------------|-------|--|-----------|------------|
|      |                        |       | compatible)  |           |            |
| CN8  | USB Connector          | CATCH | 2.00mm Pitch 10 pins ( CATCH H754-2x5 or compatible) | USB Cable | 1709100201 |
| CN15 | FAN connector( option) | CATCH | 2.54mm Pitch wafer 1x3P 180D                         | FAN Cable | N.C        |