# UNO-2172

**Pentium-M/Celeron-M
Universal Network Controller
with PCI-104 Expansion**

# User Manual

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This manual is for UNO-2172.

**Product Warranty**

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year from the date of purchase.

This warranty does not apply to any products that have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

Step 1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.

Step 2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

Step 3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.

Step 4. Carefully pack the defective product, a fully completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

Step 5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

**Declaration of Conformity**

**CE**

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

**FCC Class A**

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Technical Support and Assistance**

Step 1. Visit the Advantech web site at **www.advantech.com/support** where you can find the latest information about the product.
Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

# Contents

# Overview

This chapter provides an overview of UNO-2172's specifications.

Sections include:

- Introduction
- Hardware specification
- Safety precautions
- Chassis dimensions

# Chapter 1  Overview

## 1.1  Introduction

UNO-2172 is an embedded Application Ready Platform (ARP) that can shorten your development time and offers rich networking interfaces to fulfill extensive needs in different projects. Advantech's Universal Network Controller is designed to be a total solution for network enabled Application Ready Platforms.

Leveraging field-approved and worldwide approved real-time OS technology, Advantech's UNO-2000 series provides a Windows CE .NET and Windows XP Embedded ready solution, and supports several standard networking interfaces, such as Ethernet, Wireless LAN, RS-232/422/485 and so on. Because of its openness, great expansion capability and reliable design (fanless and diskless), the UNO-2000 series are ideal embedded platforms for implementing custom applications for diversified applications.

## 1.2 Hardware Specifications

- **CPU:** Pentium M/ Celeron M
- **Memory:** 1GB or 512MB on board
- **Battery-backup RAM:** 512 KB Battery-backup RAM
- **Keyboard/Mouse:** PS/2 keyboard & mouse
- **Display:** DVI-I, support dual display
- **Serial Ports:** $2 \times$ RS-232 and 2 x RS-232/422/485 with DB-9 connectors. Automatic RS-485 data flow control
- **Serial Speeds:** RS-232: 50~115.2 kbps, RS-422/485: 50~921.6 kbps
- **LAN:** Two 10/100/1000 Base-T RJ-45 Ports
- **USB Interface:** Two USB ports, USB EHCI, Rev. 2.0 compliant
- **Audio:** Mic in, Line in, Line out
- **PC Card:** One PC Card slot. Supports CardBus (Card-32) Card and 16-bit (PCMCIA 2.1/JEIDA4.2) Card. Supports +5 V, +3.3 V working power
- **SSD:** One internal Type I / Type II CompactFlash card slot
- **LEDs:** Power (Power Standby: Orange, Power on : Green), IDE, Alarm for RAM Backup Battery
- **PCI-104**: PCI-104 slot, Supports +3.3V/5V Power
- **HDD:** One standard 2.5" SATA or PATA HDD
- **Watch Dog Timer:** Programmable
- **Anti-Shock:** 20 G @ Wall mounting, IEC 68 2-27, half sine, 11 ms w/ HDD50 G @ Wall mounting, IEC 68 2-27, half sine, 11 ms w/CF
- **Anti-Vibration:** 2 Grms w/CF @IEC 68 section 2-64, random, 5 ~ 500 Hz, 1 Oct./min, 1 hr/axis. 1 Grms w/ HDD @ IEC 68 section 2-64, random, 5 ~ 500 Hz, 1 Oct./min, 1 hr/axis
- **Power Requirement:** Min. 48 W (9 ~ 36 VDC) (5A, MAX) (ATX)
- **Power Consumption:** 45W (Typical)
- **Operating Temperature:**

    -20 ~ 50° C (-4~122° F) (For Pentium 1.6GHZ and Celeron 1.5GHZ)

    -20 ~ 60° C (-4~149° F) (For Celeron 1GHZ)
- **Storage Temperature**: -20~80° C (-4~176° F)
- **Relative Humidity:** 95% @ 40°C

- **Weight:** 2.8 kg
- **Chassis Size (W × L × H):** 255 x 152 x 69 mm (10"× 6.0"× 2.7")
- **Software options:** Windows XP Embedded, Win/2000/XP
- **Certification**: CE, FCC Class A, UL

## 1.3 Safety Precautions

The following sections tell how to make each connection. In most cases, you will simply need to connect a standard cable.

*Warning!* *Always disconnect the power cord from your chassis whenever you are working on it. Do not connect while the power is on. A sudden rush of power can damage sensitive electronic components. Only experienced electronics personnel should open the chassis.*

*Caution!* *Always ground yourself to remove any static electric charge before touching UNO-2172. 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.*
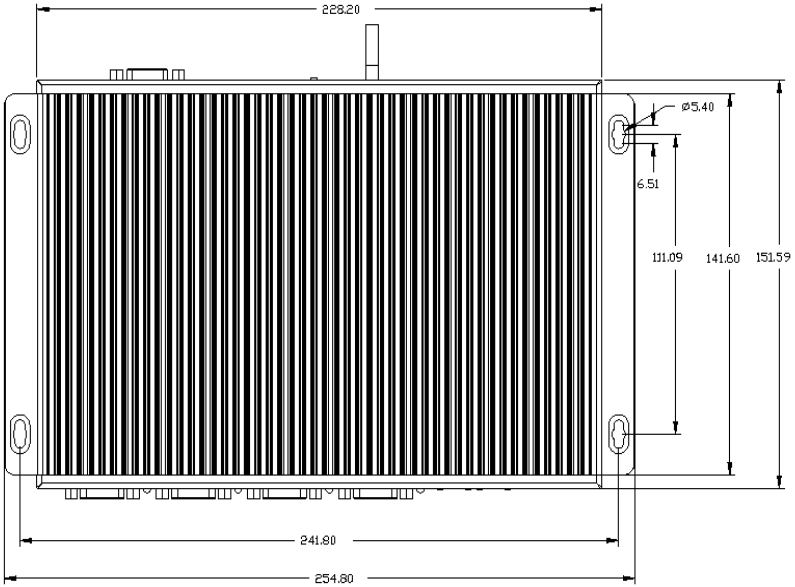
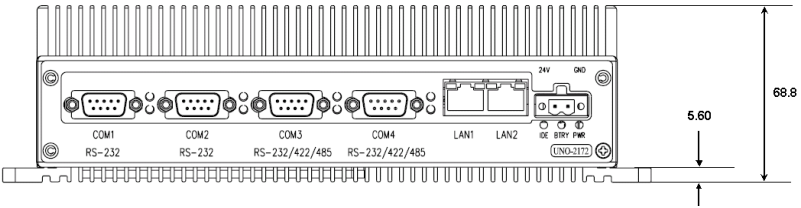## 1.4 Chassis Dimensions



*Figure 1.1: Chassis Dimensions 1*



*Figure 1.2: Chassis Dimensions 2*
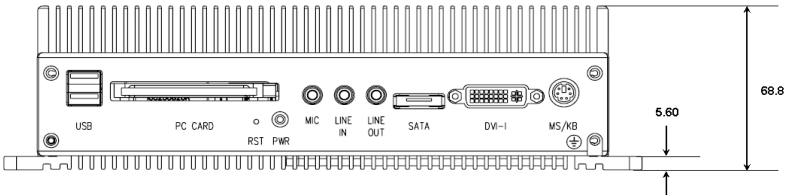


*Figure 1.3: Chassis Dimensions 3*

## 1.5 Accessories

Please refer below for the accessory list:

- 2-pin connector for power wiring (Advantech P/N : 1652002205)
- DVI-I to DVI and VGA cable (Advantech P/N : 1700004713)
- SATA signal cable (Advantech P/N : 1700004711)
- SATA power cable (Advantech P/N : 1700004712)
- 10 PCS jumper for PATA HDD (Advantech P/N : 1653302122)
- 1 PATA IDE HDD cable 15cm (Advantech P/N : 1701440151)
- Keyboard/Mouse Y cable (Advantech P/N : 1700060202)
- Driver CD
- PCI-104 bracket (Advantech P/N : 1960008884)
- 2 Standard posts for install PCI-104 card (Advantech P/N : 193A231540)
- 2 screws (M3*15L) for install PCI-104 bracket on UNO (Advantech P/N : 1935131510)
- Warranty card

If anything is missing or damaged, contact your distributor or sales representative immediately.

# Hardware Functionality

This chapter shows how to setup the UNO-2172's hardware functions, including connecting peripherals, setting switches and indicators.

Sections include:

- Peripherals
- RS-232 Interface
- RS-232/422/485 Interface
- LAN / Ethernet Connector
- Power Connector
- PS/2 Mouse and Keyboard Connector
- USB Connector
- PCMCIA: PC Card Slot
- VGA Display Connector
- Battery Backup SRAM
- Reset Button
- Power Button
- Audio
- PCI-104

# Chapter 2 Hardware Functionality

## 2.1 Introduction

The following two figures show the connectors on UNO-2172. The following sections give you detailed information about function of each peripheral.
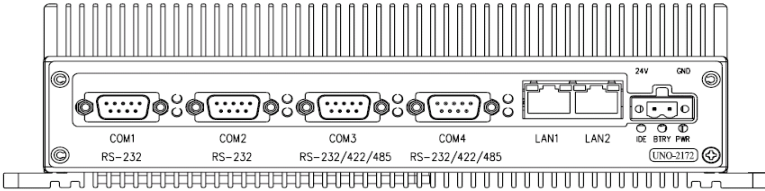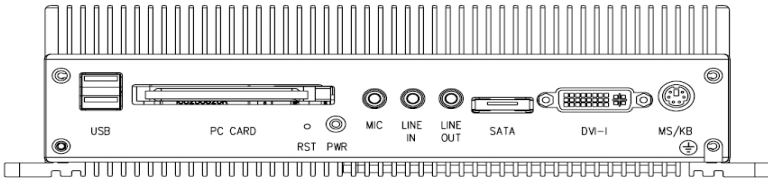


*Figure 2.1: UNO-2172 Front Panel*



*Figure 2.2: UNO-2172 Rear Panel*

## 2.2 RS-232 Interface (COM1~COM2)

The UNO-2172 offers two standard RS-232 serial communication interface ports: COM1 and COM2. Please refer to A.3 for their pin assignments.

**IRQ and Address Setting**

The IRQ and I/O address range of COM1 and COM2 are listed below:

COM1: 3F8H, IRQ4

COM2: 2F8H, IRQ3

## 2.3 RS-232/422/485 Interface (COM3~COM4)

The UNO-2172 offers two RS-232/422/485 serial communication interface ports: COM3 and COM4. Please refer to Appendix A.4 for their pin assignments. The default setting of COM3 and COM4 are RS-422/485.

### 2.3.1 16C550 UARTs with 16-byte standard
Advantech UNO-2172 comes with TI16C550 UARTs containing 16 bytes FIFOs.

### 2.3.2 RS-422/485 detection
In RS-422/485 mode, UNO-2172 automatically detects signals to match RS-422 or RS-485 networks. (No jumper change required)

### 2.3.3 Automatic Data Flow Control Function for RS-485
In RS-485 mode, UNO-2172 automatically detects the direction of incoming data and switches its transmission direction accordingly. So no handshaking signal (e.g. RTS signal) is necessary. This lets you conveniently build an RS-485 network with just two wires. More importantly, application software previously written for half duplex RS-232 environments can be maintained without modification.

### 2.3.4 Termination Resistor (CN21)
The onboard termination resistor (120 ohm) for COM3/COM4 can be used for long distance transmission or device matching. (Default Open.)



CN21
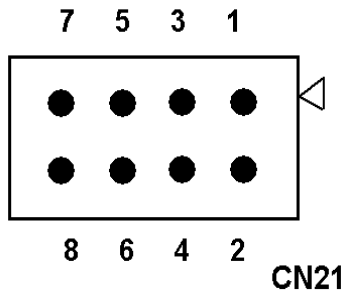
| Pin | Description |
|-----|-------------|
| 1-2 | TX+/TX- for COM3<br>Data+/Data- for COM3 |
| 3-4 | RX+/RX- for COM3 |
| 5-6 | TX+/TX- for COM4<br>Data+/Data- for COM4 |
| 7-8 | RX+/RX- for COM4 |

### 2.3.5 RS-232/422/485 Selection

COM3 and COM4 support 9-wire RS-232, RS-422 and RS-485 interfaces. The system detects RS-422 or RS-485 signals automatically in RS-422/485 mode.

To select between RS-422/485 and RS-232 for COM3, adjust CN24.

To select between RS-422/485 and RS-232 for COM4, adjust CN25.

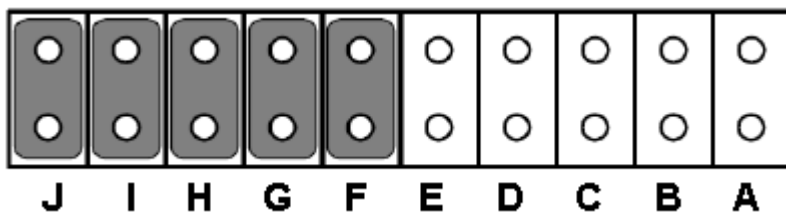Jumper setting for RS-422/485 interface: (Default setting). (CN24/CN25)



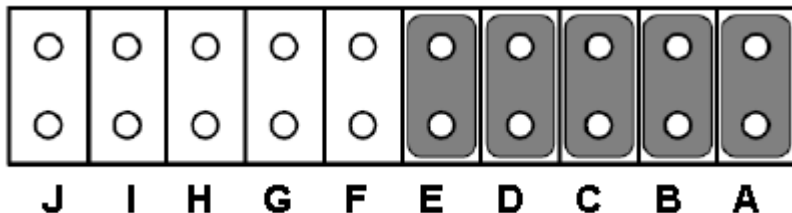*Figure 2.3: RS-422/485 Jumper Setting*

Jumper setting for RS-232 interface: (CN24 and CN25)

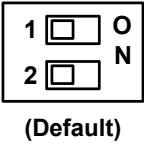

*Figure 2.4: RS-232 Jumper Setting*
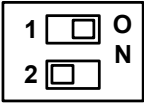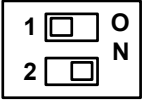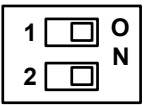
### 2.3.6 RS-485 Auto Flow & RS-422 Master/Slave Mode

You can set the "Auto Flow Control" mode of RS-485 or "Master/Slave" mode of RS-422 by using the SW4 DIP switch for each RS-422/485 port.

In RS-485, if the switch is set to "Auto", the driver automatically senses the direction of the data flow and switches the direction of transmission. No handshaking is necessary.

In RS-422, if DIP switch is set to "On," the driver is always enabled, and always in high or low status.

| *Table 2.1: Auto Flow & Slave/Master Selection* | | |
|---|---|---|
| **SW4 DIP Switch Setting** | **COM Port** | **Mode Selections** |
| **(Default)** | COM3 | RS-422: Slave mode |
| | | RS-485: Auto flow control |
| | COM4 | RS-422: Slave mode |
| | | RS-485: Auto flow control |
| | COM3 | RS-422: Master mode |
| | | RS-485: N/A |
| | COM4 | RS-422: Slave mode |
| | | RS-485: Auto flow control |
| | COM3 | RS-422: Slave mode |
| | | RS-485: Auto flow control |
| | COM4 | RS-422: Master mode |
| | | RS-485: N/A |
| | COM3 | RS-422: Master mode |
| | | RS-485: N/A |
| | COM4 | RS-422: Master mode |
| | | RS-485: N/A |
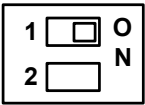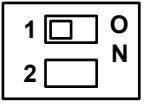
## 2.3.7 IRQ and Address Setting
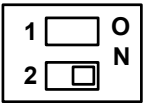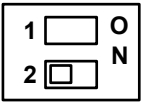
The IRQ and I/O address range of COM3 and COM4 are listed below:

- **COM3:** $3E8_H$, IRQ10 (Independent IRQ), IRQ10 (Share IRQ)

- **COM4:** $2E8_H$, IRQ5 (Independent IRQ), IRQ10 (Share IRQ)

- **Vector address for share IRQ:** $1D0_H$

You can set "Share IRQ" or "Independent IRQ" by the first switch of SW5.

| Table 2.2: IRQ Setting via switch 1 at SW5 | |
|---|---|
| **Switch 1 at SW5 setting** | **Function** |
| 1 □ O N 2 | Share IRQ (default) |
| 1 □ O N 2 | Independent IRQ |

You can adjust the transmission rate by the second switch of SW5.

| Table 2.3: IRQ Setting via switch 1 at SW5 | |
|---|---|
| **Switch 1 at SW5 setting** | **Function** |
| 1 O N 2 □ | Speed x 8* |
| 1 O N 2 □ | Speed x 1 (default) |

* To increase the normal baud rates by eight times, (e.g. if 115.2K bps is set, the baud rate will be increased to 921.6K bps), set switch 2 of SW5 to "on".

## 2.4   LAN: Ethernet Connector

The UNO-2172 is equipped with a Realtek RTL8111B Ethernet LAN controller that is fully compliant with IEEE 802.3u 10/100Mbps Ethernet and also IEEE 802.3ab 1000Mbps Ethernet.. The Ethernet port provides a standard RJ-45 jack on board, and LED indicators on the front side to show its Link (Green : 1000 Mbps network, Orange : 100 Mbps network, Blank : 10Mbps network.) and Active (Yellow LED) status.

## 2.5  Power Connector

The UNO-2172 comes with a Phoenix connector that carries $9 \sim 36$ VDC (ATX) external power input, and features reversed wiring protection. Therefore, it will not cause any damage to the system by reversed wiring of ground line and power line. Please refer to Appendix A.6

## 2.6  PS/2 Keyboard and Mouse Connector

The UNO-2172 provides a PS/2 keyboard and PS/2 mouse connector. A 6-pin mini-DIN connector is located on the rear panel of the UNO-2172. The UNO-2172 comes with an adapter to convert from the 6-pin mini-DIN connector to two 6-pin mini-DIN connectors for PS/2 keyboard and PS/2 mouse connection. Please refer to Appendix A.7 for its pin assignments.

## 2.7  USB Connector

The USB connector is used for connecting any device that conforms to the USB interface. Many recent digital devices conform to this standard. The USB interface supports Plug and Play, which enables you to connect or disconnect a device whenever you want, without turning off the computer.

The UNO-2172 provides two connectors of USB interfaces, which gives complete Plug & Play and hot swapping for up to 127 external devices. The USB interface complies with USB EHCI, Rev. 2.0 compliant. The USB interface can be disabled in the system BIOS setup. Please refer to Appendix A.8 for its pin assignments.

## 2.8  PCMCIA: PC Card Slot

The UNO-2172 provides one PC Card slot that supports CardBus (Card-32) cards and 16-bit (PCMCIA 2.1/JEIDA 4.2) card standards. It supports +3.3 V, +5 V. The PC Card is 85.6 mm long by 54 mm wide (3.37" x 2.126"), use a 68-pin connector and a removable module standardized by PCMCIA that is known as "PCMCIA card."

PS: PCMCIA interrupt assignment is IRQ 7.

## 2.9  VGA Display Connector

UNO-2172 provides DVI-I interface, you could link you DVI or VGA monitor through DVI-I to DVI and VGA cable. (Advantech P/N : 1700004713), As for detail DVI-I pin assigmnet, please refer A.10.

The UNO-2172 provides a VGA controller (Intel 915GM GMCH for a high resolution VGA interface. It supports CRT Mode: 1600 x 1200 @ 32bpp @ 85Hz, and up to 32 MB shared memory.

## 2.10  Battery Backup SRAM

UNO-2172 provides 512 KB of battery backed SRAM. This ensures that you have a safe place to store critical data. You can now write software applications without being concerned that system crashes will erase critical data from the memory.

There is a BTRY LED in the front panel of the UNO-2172, please replace the lithium battery with a new one if the BTRY LED is activated.

### 2.10.1 Lithium Battery Specification
• **Type:** BR2032 (Using CR2032 is NOT recommended)

• **Output voltage:** 3 $V_{DC}$

• **Location:** the backside of UNO-2172 board.

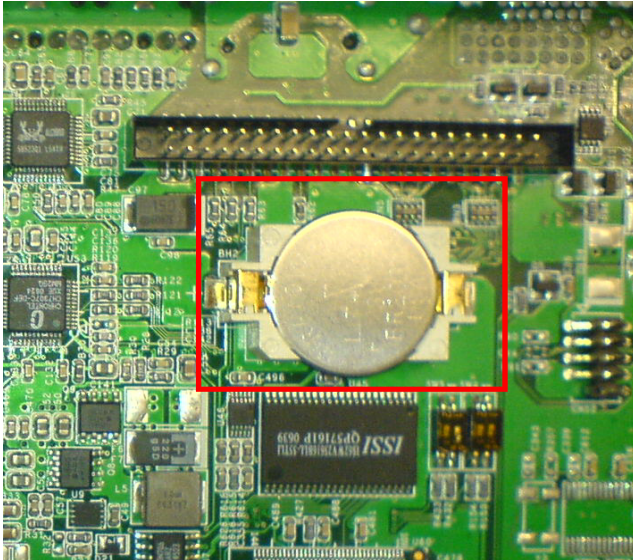  (BH2 is for SRAM, BH1 is for real time clock)

*Figure 2.5: SRAM Lithium Battery Location*

## 2.10.2 Jumper Setting for SRAM

You could set up SRAM enable or diable by jumper CN44.

| SRAM Enable/Disable Jumper Setting (CN44) | |
|---|---|
| **Status** | **Function** |
| Open | Enable SRAM function (Default) |
| Closed | Disable SRAM function |

## 2.11 Reset Button

Press the "Reset" button to activate the reset function. (SW2)

## 2.12 Power Button

Press the "Power" button to power on or power off UNO-2172. (ATX type) (SW3)

UNO-2172's power is also designed for power management only "S1" compliant.

## 2.13 Audio

UNO-2172 supports audio function with

- Microphone

- Line In

- Line Out.

## 2.14 PCI-104

UNO-2172 supports standard PCI-104 version 1.2, which supports up to 3 PCI masters (CN33). You also could install jumper (CN32) for choosing power of PCI-104 bus supplies (Jumper default setting is open).



5V        3.3V

*Figure 2.6: PCI-104  Power Selection*

# Initial Setup

This chapter introduces how to initial-
ize the UNO-2172.

Sections include:

- Chassis Grounding
- Inserting a CompactFlash Card
- Installing a Hard Disk
- Connecting Power
- BIOS Setup and System Assignments
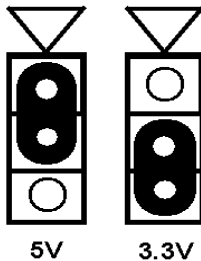- Installing PCI-104 Modules

# Chapter 3 Initial Setup

## 3.1 Chassis Grounding

The aluminum made UNO-2172 provides good EMI protection and a stable grounding base. There is an easy-to-connect chassis grounding point for you to use.

Please connect chassis ground of UNO-2172 with "EARTH" as ground.
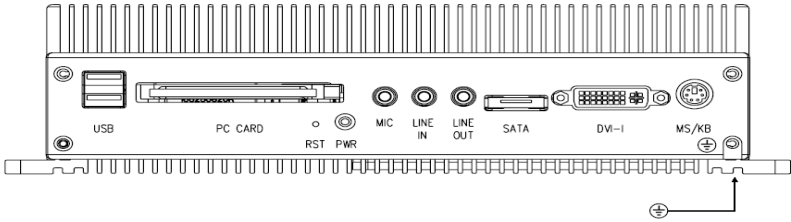


*Figure 3.1: Chassis Grounding Connection*

*Note:*       *UNO-2172 is design as system power ground and chassis ground is separated.*

## 3.2 Inserting a CompactFlash Card

The procedure for installing a CompactFlash card into the UNO-2172 is detailed below, please follow these steps carefully.

1.    Remove the power cord.

2.    Unscrew the four screws from the rear panel.

3.    Remove the storage panel.

4.    Plug a CompactFlash card with your OS and application program into a CompactFlash card slot on board. (CN8)

5.    Screw back the rear panel with four screws

*Note*  *CN8 is primary's master*

*CN7 is Primary*

*Please do not use CN8 and CN7 at same time.*

*If your OS is build in CF card and program,application and data are save in HDD, please install CF in CN8 and connect SATA HDD in CN40 (SATA signal) and CN41 (SATA power), please also refer CN40 and CN41 pin assignment in A.11.*

## 3.3  Installing a Hard Disk

The procedure for installing a hard disk into the UNO-2172 is below. Please follow these steps carefully.

1.  Remove the power cord.

2.  Unscrew six screws from the down storage panel of the UNO-2172.

3.  Remove the storage panel.

4.  Install 2.5" HDD on storage panel and please notice the cable connector on HDD for IDE should be near bottom triangle sign of storage panel, and screw 4 screws on the back side of storage panel connector IDE cable with Standard PATA and CN7 or SATA HDD with CN40 (SATA signal) and CN41 (SATA power), , please also refer CN40 and CN41 pin assginment in A.11



5.  Screw back the down storage panel with 6 screws

*Note:*      *CN8 is Primary's master*
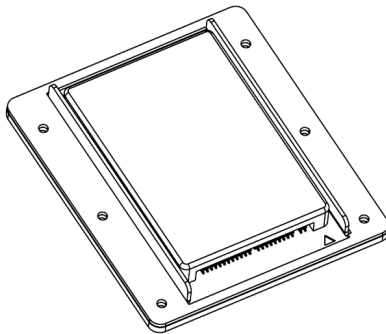
*CN7 is Primary*

*Please do not use CN8 and CN7 at same time.*

*If your OS is build in CF card and program,application and data are save in HDD, please install CF in CN8 and connect SATA HDD in CN40 (SATA signal) and CN41 (SATA power), please also refer CN40 and CN41 pin assignment in A.10*

*Also you could apply external SATA connector to link with your storage device for data storage, this connector only provides signal, but not power. As for external SATA connector pin definitions, please refer to A.11.*

## 3.4 Connecting Power

Connect the UNO-2172 to a 9 ~ 36 VDC power source. The power source can either be from a power adapter or an in-house power source.

## 3.5 BIOS Setup and System Assignments

UNO-2172 adopts Advantech's SOM-5780 CPU module. Further information about the SOM-5780 CPU module, can be found in SOM-5780 user's manual. You can find this manual on the UNO-2172's driver and utility CD-ROM.

Please note that you can try to "LOAD BIOS DEFAULTS" from the BIOS Setup manual if the UNO-2172 does not work properly.

## 3.6 Installing PCI-104 Modules

If you need install PCI-104 module on UNO-2172, please refer below procedure.

1.  Make sure power core is not connected with UNO-2172.

2.  Unscrew the four screws from the rear panel.

3.  Slide off down cover of UNO-2172.

4.  Unscrew four screws from PCB, please refer below picture.
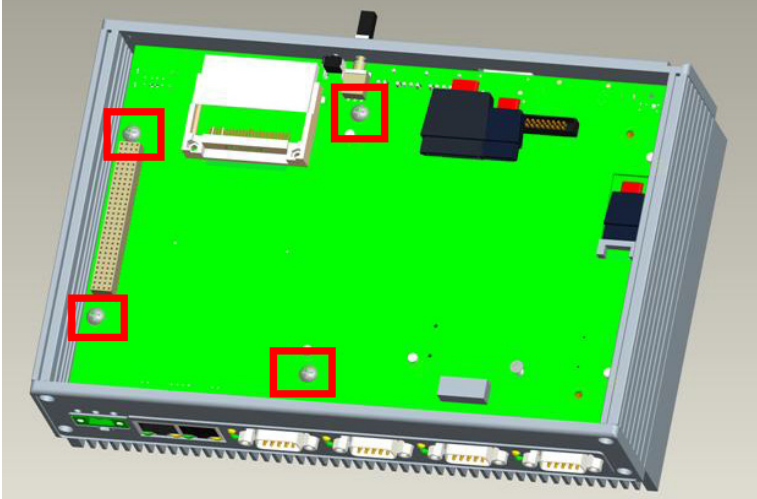


5.  Screw up 2 post and PCI-104 bracket in accessory, please refer below picture.
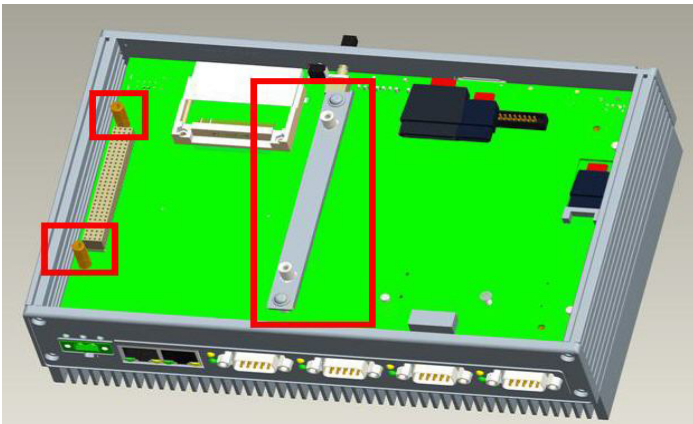
6.  Install PCI-104 card and screw up 4 screws which removed from UNO-2172 PCB, please refer below picture.
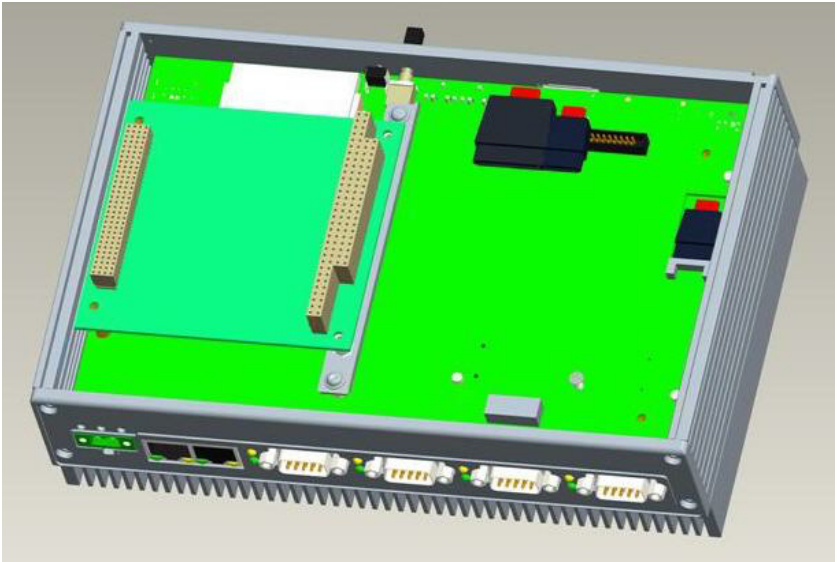


7.  Installation complete.


*Note:       If only function test, UNO-2172 could integrate PCI-104 card without UNO-PCM22, if you need a whole set chassis, you have to assembly with UNO-PCM22 for whole UNO set.*

# System Settings and Pin Assignments

# Appendix A  System Settings & Pin Assignments

## A.1  System I/O Address & Interrupt Assignments

*Table A.1:  UNO-2172 System I/O Ports*

| Address Range | Device |
| --- | --- |
| 000-00F | DMA controller |
| 020-03F | Interrupt controller 1, (master) |
| 040-05F | Timer/counter |
| 060-06F | (keyboard controller) |
| 070-07F | Real-time clock, non-maskable interrupt (NMI) |
| | Mask |
| 080-09F | DMA page register |
| 0A0-0BF | Interrupt controller 2 (slave) |
| 0C0-0DF | DMA controller |
| 0F0 | Clear math co-processor |
| 0F1 | Reset math co-processor |
| 0F8-0FF | Math co-processor |
| 1F0-1F7 | Primary IDE channel |
| 200-207 | Game I/O |
| 274-279 | ISAPNP Read Data Port |
| 2E8-2EF | Serial port 4 |
| 2F8-2FF | Serial port 2 |
| 3B0-3DF | Intel 915GM Express Chipset Family |
| 3E8-3EF | Serial port 3 |
| 3F0-3F5 | FDD Controller |
| 3F8-4D1 | Serial port 1 |
| 500-51E | Intel 82801 SMbus Controller– 266A |
| DC000-DFFFF | Battery back-up RAM |
| E000-E01F | Intel 82801 USB Host Controller - 2658 |
| E100-E11F | Intel 82801 USB Host Controller - 2659 |
| E200-E21F | Intel 82801 USB Host Controller - 265A |
| E300-E31F | Intel 82801 USB Host Controller - 265B |
| 1D0 | Vector address; for COM port share IRQ |
| 1E0 | Battery backup resource |
| 11E | Battery backup resource |
| 1F0-1F8 | 1st fixed disk |
| 200-207 | Game I/O |
| 278-27F | Reserved |

*Table A.1: UNO-2172 System I/O Ports*

| Address Range | Device |
|---|---|
| 2E8-2EF | Serial port 4 |
| 2F8-2FF | Serial port 2 |
| 380-38F | SDLC, bisynchronous 2 |
| 3A0-3AF | Bisynchronous 1 |
| 3B0-3BF | Monochrome display |
| 3C0-3CF | Reserved |
| 3D0-3DF | Color/graphics monitor adapter |
| 3F0-3F7 | Diskette controller |
| 3E8-3EF | Serial port 3 |
| 3F8-3FF | Serial port 1 |
| DC000-DFFFF | Battery backup resource |

*Table A.2: UNO-2172 Interrupt Assignment*

| Interrupt No. | Interrupt Source |
|---|---|
| NMI | Parity error detected |
| IRQ 0 | Interval timer |
| IRQ 1 | Keyboard |
| IRQ 2 | Interrupt from controller 2 (cascade) |
| IRQ 3 | COM2 |
| IRQ 4 | COM1 |
| IRQ 5 | COM4 (Independent IRQ) |
| IRQ 6 | Diskette controller (FDC) |
| IRQ 7 | PCMCIA |
| IRQ 8 | Real-time clock |
| IRQ 10 | COM3 (Independent IRQ)/COM3&COM4 Share IRQ |
| IRQ 11 | Reserved for watchdog timer |
| IRQ 12 | PS/2 mouse |
| IRQ 13 | INT from co-processor |
| IRQ 14 | Primary IDE |
| IRQ 15 | Secondary IDE for CompactFlash |

*Note:    USB and Ethernet IRQ is set automatically by system*

## A.2 Board Connectors and Jumpers

There are several connectors and jumpers on the UNO-2172 board. The following sections tell you how to configure the UNO-2172 hardware setting. Figure A-1 and Figure A-2 show the locations of UNO-2172's connectors and jumpers.
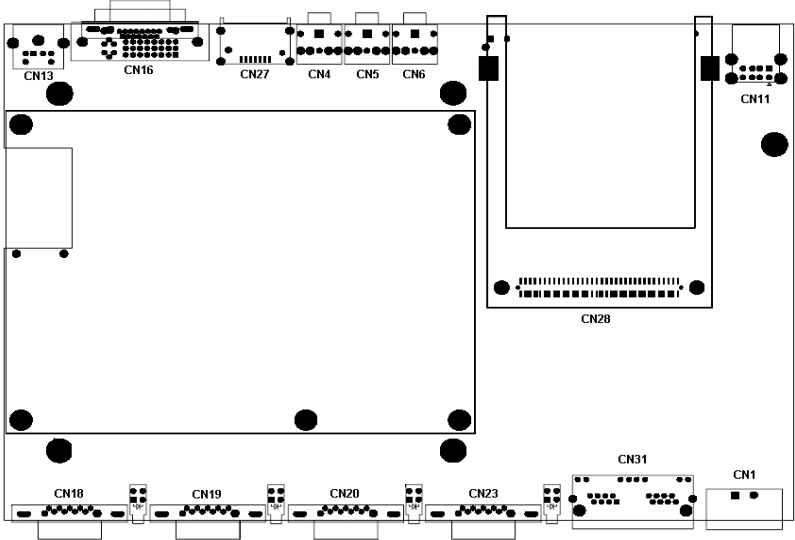
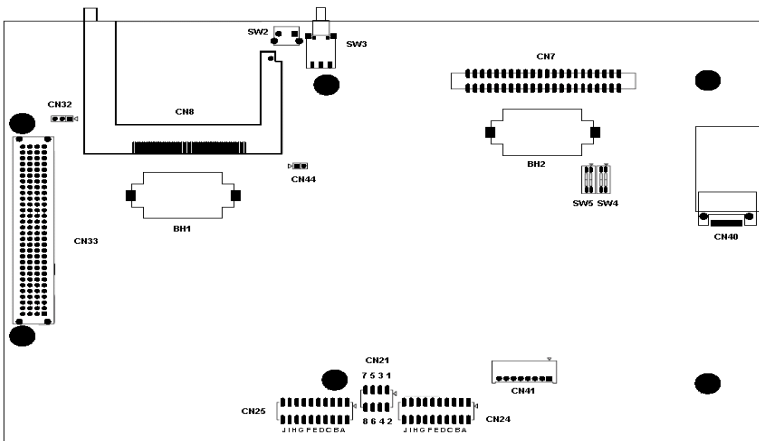

*Figure A.1: Connectors & Jumpers (frontside)*



*Figure A.2: Connectors & Jumpers (backside)*

*Table A.3: UNO-2172 Connectors and Jumpers*

| Label | Function |
|-------|----------|
| CN1 | Phoenix power connector |
| CN31 | Ethernet port 1 & 2 |
| CN18 | COM1 RS-232 serial port |
| CN19 | COM2 RS-232 serial port |
| CN20 | COM3 RS-232/422/485 serial port |
| CN23 | COM4 RS-232/422/485 serial port |
| SW4 | COM3/COM4 RS-422 master/slave selection |
| SW5 | Share IRQ/Independent IRQ selection /Speed selection |
| CN24 | COM3 RS-232/422/485 selection |
| CN25 | COM4 RS-232/422/485 selection |
| CN21 | Terminator resistor (120 ohm) for COM3/COM4 (RS-422/RS-485) |
| CN13 | PS/2 keyboard and mouse connector |
| CN8 | Primary's master CF card connector |
| CN7 | Primary IDE connector |
| CN11 | USB connector |
| CN40 | Internel SATA signal connector |
| CN41 | Internel SATA power connector |
| CN27 | External SATA |
| CN33 | PCI-104 slot |
| CN32 | PCI-104 power selection |
| CN16 | DVI-I display connector |
| CN28 | PC card slot |
| SW3 | Power button |
| SW2 | Reset button |
| BH1 | Battery for RTC |
| BH2 | Battery for SRAM |
| CN44 | Enable/disble battery back RAM jumper |
| CN4 | Audio's Line-out |
| CN5 | Audio's Line-in |
| CN6 | Audio's MIC |

## A.3 RS-232 Standard Serial Port (COM1~COM2)
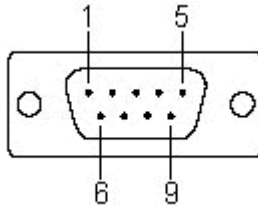


*Table A.4: RS-232 standard serial port pin assignments*

| Pin | RS-232 Signal Name |
|-----|--------------------|
| 1 | DCD |
| 2 | RxD |
| 3 | TxD |
| 4 | DTR |
| 5 | GND |
| 6 | DSR |
| 7 | RTS |
| 8 | CTS |
| 9 | RI |

## A.4 RS-232/422/485 Serial Port (COM3~COM4)
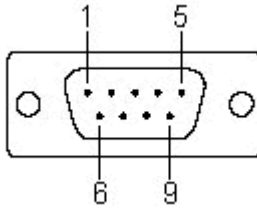


*Table A.5: RS-232/422/485 serial port pin assignments*

| Pin | RS-232 | RS-422 | RS-485 |
|---|---|---|---|
| 1 | DCD | Tx- | DATA- |
| 2 | RxD | Tx+ | DATA+ |
| 3 | TxD | Rx+ | NC |
| 4 | DTR | Rx- | NC |
| 5 | GND | GND | GND |
| 6 | DSR | NC | NC |
| 7 | RTS | NC | NC |
| 8 | CTS | NC | NC |
| 9 | RI | NC | NC |

## A.5 Ethernet RJ-45 Connector (LAN1~LAN2)

*Table A.6: Ethernet RJ-45 connector pin assignments*

| Pin | 10/100/1000Base-T Signal Name |
|---|---|
| 1 | XMT+ |
| 2 | XMT- |
| 3 | RCV+ |
| 4 | NC |
| 5 | NC |
| 6 | RCV- |
| 7 | NC |
| 8 | NC |

# A.6 Phoenix Power Connector (PWR)
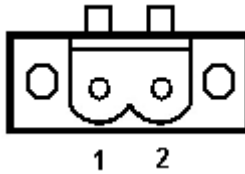


*Table A.7: Power connector pin assignments*

| Pin | Signal Name |
|-----|-------------|
| 1   | +9 ~36 VDC  |
| 2   | GND         |

# A.7 PS/2 Keyboard and Mouse Connector
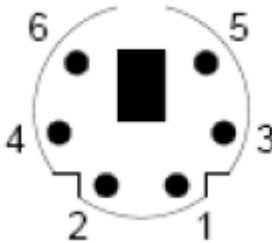


*Table A.8: Keyboard and Mouse connector pin assignments*

| Pin | Signal Name |
|-----|-------------|
| 1   | KB DATA     |
| 2   | MS DATA     |
| 3   | GND         |
| 4   | VCC         |
| 5   | KB Clock    |
| 6   | MS Clock    |

# A.8 USB Connector (USB1~USB2)

*Table A.9: USB connector pin assignments*

| Pin | Signal Name | Cable Color |
|-----|-------------|-------------|
| 1 | VCC | Red |
| 2 | DATA- | White |
| 3 | DATA+ | Green |
| 4 | GND | Black |

# A.9 VGA Display Connector (DVI-I to DVI & VGA Cable)
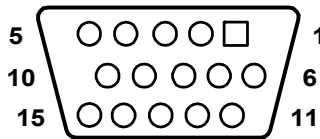


*Table A.10: VGA adaptor cable pin assignment*

| Pin | Signal Name |
|-----|-------------|
| 1 | Red |
| 2 | Green |
| 3 | Blue |
| 4 | NC |
| 5 | GND |
| 6 | GND |
| 7 | GND |
| 8 | GND |
| 9 | NC |
| 10 | GND |
| 11 | NC |
| 12 | NC |
| 13 | H-SYNC |
| 14 | V-SYNC |
| 15 | NC |

## A.10 DVI-I Connector
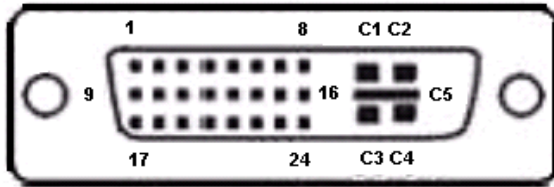


*Table A.11: DVI-I connector pin assignment*

| Pin | Signal Name |
| --- | --- |
| 1 | TMDS_C2# |
| 2 | TMDS_C2 |
| 3 | GND |
| 4 | CRT_DDC_CLK |
| 5 | CRT_DDC_DATA |
| 6 | MDVI_CLK |
| 7 | MDVI_DATA |
| 8 | VGAVSY |
| 9 | TMDS_C1# |
| 10 | TMDS_C1 |
| 11 | GND |
| 12 | - |
| 13 | - |
| 14 | VCC_DVI |
| 15 | VGA Detect |
| 16 | HP_DET |
| 17 | TMDS_C0# |
| 18 | TMDS_C0 |
| 19 | GND |
| 20 | - |
| 21 | - |
| 22 | GND |
| 23 | TMDS_CK# |
| 24 | TMDS_CK |
| C1 | VGAR |
| C2 | VGAG |
| C3 | VGAB |
| C4 | VGAHSY |
| C5 | GND |

# A.11 External & Internal SATA Connectors
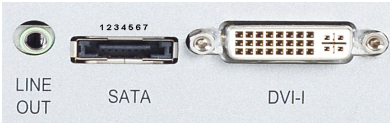


| Table A.12: External SATA connector pin assignment | |
|---|---|
| **Pin** | **Signal name** |
| 1 | GND |
| 2 | TX+ |
| 3 | TX- |
| 4 | GND |
| 5 | RX- |
| 6 | RX+ |
| 7 | GND |
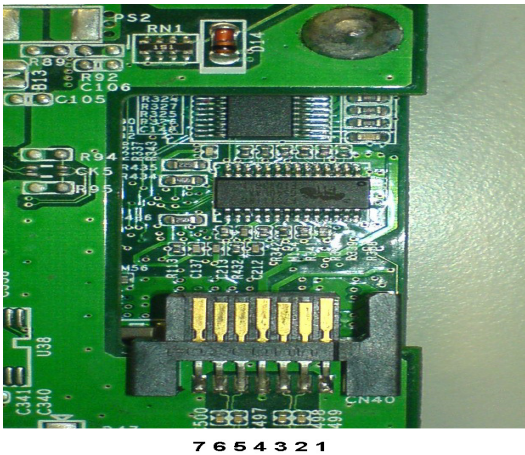


7 6 5 4 3 2 1

| Table A.13: Internal SATA DATA Connectors (CN40) | |
|---|---|
| **Pin** | **Signal name** |
| 1 | GND |
| 2 | TX+ |
| 3 | TX- |
| 4 | GND |
| 5 | RX- |
| 6 | RX+ |
| 7 | GND |
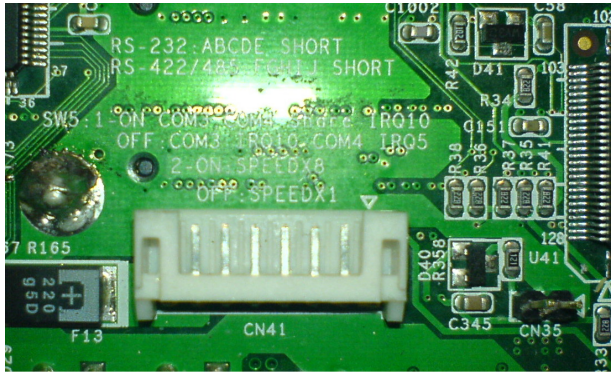
**8 7 6 5 4 3 2 1**

| Table A.14: Internal SATA Power Connectors (CN41) | |
|---|---|
| Pin | Signal name |
| 1 | GND |
| 2 | GND |
| 3 | +12V |
| 4 | +12V |
| 5 | +5V |
| 6 | +5V |
| 7 | +3V |
| 8 | +3V |