

# **UNO-1150G/GH/ UNO-1150GE/GHE**

**LX800 500MHz Fanless, DIN-rail  
Mounted Embedded Automation  
Computer with 2 x LAN, 2 x USB,  
3 x COM, Audio and PCI-104**

## **User Manual**

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Part No. 2003115080      2nd Edition  
Printed in Taiwan      August 2011

## **Product Warranty (2 years)**

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

## **CE**

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring.

## **FCC Class A**

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 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.

## **CID2 (Only for UNO-1150GH/GHE)**

Hazardous locations are areas where fire or explosions may occur in normal or abnormal conditions because of the presence of flammable substances (e.g. gas, vapors, liquids, dust, fibers). Ignition sources, oxidizers and flammable substance are three basic and essential elements of an explosion. Any electrical apparatus installed in such location must be designed and tested to ensure that it can't initiate a fire or an explosion due to its hot surface, failure, arcs or impact sparks. Advantech's UNO-1100 H series are certified to be used on the Class I Division 2 Groups A, B, C and D Hazardous Locations. This series provides safe and reliable controllers to be operated in hazardous locations. The proof of the certification extends UNO-1100H series to many Oil and Gas applications including: Liquefied Natural Gas, Onshore/Offshore Drilling Production, Pipelines, and Refining. With enhanced design and reliability for hazards, UNO-1100H series not only reduces the disaster cost, but also ensures the constant operation and safety in hazardous locations.

## **Technical Support and Assistance**

- Step 1. Visit the Advantech web site at **[www.advantech.com/support](http://www.advantech.com/support)** where you can find the latest information about the product.
- Step 2. Contact your distributor or Advantech's customer service center if you need additional assistance. Have the following info ready:
- Product name and serial number
  - Description of your software (OS, version, software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages

## **Packing List**

Before setting up the system, check that the items listed below are included. If any item is not, please contact your dealer immediately.

The UNO-1150G comes with the following items:

- Software CD-ROM
- 6P-6P-6P 20cm PS/2 Mouse/Keyboard Y cable (P/N: 1700060202)
- Phoenix power connector (P/N: 1652003206)
- DIN-rail & Wallmounting accessory
- SATA cable (UNO-1150GE/GHE only)
- SATA power cable (UNO-1150GE/GHE only)
- USB holder (UNO-1150GH/GHE only)
- Spacer for PCI-104 expansion (UNO-1150GE/GHE only)

## **Safety Instructions**

1. Read these safety instructions carefully.
2. Keep this User's Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
  - a. The power cord or plug is damaged.
  - b. Liquid has penetrated into the equipment.
  - c. The equipment has been exposed to moisture.
  - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
  - e. The equipment has been dropped and damaged.
  - f. The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -10° C (14° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.**
16. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

**DISCLAIMER:** This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

## **Safety Precaution - Static Electricity**

Follow these simple precautions to protect yourself from harm and the products from damage.

1. To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.





# Contents

<b>Chapter 1</b>	<b>UNO-1150G Overview .....</b>	<b>2</b>
1.1	Introduction .....	2
1.2	Hardware Specifications .....	2
1.3	Safety Precautions .....	4
1.4	UNO-1150G Series .....	4
1.5	Chassis Dimensions.....	5
<b>Chapter 2</b>	<b>Hardware Functionality .....</b>	<b>8</b>
2.1	UNO-1150G Peripherals.....	8
2.2	COM1: RS-232 Interfaces.....	10
2.2.1	Reserved RS-232 Interfaces COM4(Optional) .....	10
2.3	COM2~COM3: RS-232/422/485 Interfaces .....	10
2.3.1	16C954 UARTs with 128-byte standard .....	11
2.3.2	Jumper-free for RS-422/485 .....	11
2.3.3	Automatic Data Flow Control Function for RS-485 ..	11
2.3.4	RS-232/422/485 Selection .....	11
2.3.5	Terminal Resistor Setup for RS-422/485 .....	13
2.4	LAN: Ethernet Connector .....	15
2.4.1	LAN Boot Agent Setup .....	15
2.5	Power Connector.....	17
2.6	LED Indicators .....	17
2.7	PS/2 Keyboard and Mouse Connector .....	17
2.8	Universal Serial Bus Connectors.....	17
2.9	VGA: VGA Display Connector .....	18
2.10	RESET: Reset Button.....	18
2.11	Audio.....	18
<b>Chapter 3</b>	<b>Initial Setup.....</b>	<b>20</b>
3.1	CompactFlash Card Installation .....	20
3.2	PCI-104 Card Installation (UNO-1150GE/GHE Only) ..	21
3.2.1	Installation Procedure .....	21
3.2.2	PCI-104 Connectors (UNO-1150GE/GHE) .....	23
3.3	Hard Drive Installation (UNO-1150GE/GHE Only) .....	24
3.4	Chassis Grounding .....	27
3.5	Power Connection .....	27
3.6	BIOS Setup and System Assignments .....	27
3.7	DIN-rail Mounting Setup .....	28
3.8	Wallmounting Setup.....	29
<b>Appendix A</b>	<b>Pin Assignments .....</b>	<b>32</b>
A.1	Board Connectors and Jumpers.....	32
A.2	RS-232 Serial Port (COM1).....	35
A.3	RS-232/422/485 Serial Port (COM2~COM3) .....	36
A.4	Ethernet RJ-45 Connector (LAN1~LAN2).....	36
A.5	Power Screw Terminal (CN8).....	37
A.6	PS/2 Keyboard and Mouse Connector (CN10).....	37
A.7	USB Connector (CN13) .....	38
A.8	VGA Display Connector (CN15).....	38

A.9	CompactFlash Master/Slave & Hard Drive Settings.....	39
A.10	RS-422/485 Signal Pull High/Low Settings.....	40
A.11	SATA Data Connector (CN100).....	41
A.12	Printer Port Connectors .....	41
<b>Appendix B</b>	<b>USB Holder Installation .....</b>	<b>44</b>
B.1	USB Holder Installation .....	44

## **UNO-1150G Overview**

Sections include:

- Introduction
- Hardware Specifications
- Safety Precautions
- UNO-1150G Series
- Chassis Dimensions

# Chapter 1 UNO-1150G Overview

## 1.1 Introduction

---

UNO-1150G is an DIN-rail mounted Embedded Automation Computer, which provides several serial communication ports and Ethernet interfaces. UNO-1150G is designed with a compact size, small footprint, and front accessible and DIN-rail design. With rich OS and driver support, such as Windows XP Embedded, WinCE 5.0/6.0, and Embedded Linux. Users can integrate applications with an application ready platform to fulfill diverse requirements.

## 1.2 Hardware Specifications

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- **CPU:** AMD Geode LX800-500
- **Chipset:** AMD CS5536
- **BIOS:** AWARD 4Mbit FLASH BIOS
- **RAM:** 256MB DDR RAM on board
- **VGA:** Supports VGA and VESA
  - Display memory: 1 ~ 16 MB share memory, set in BIOS
  - CRT display: Non-interlaced CRT monitors resolutions up to 1280 x 1024 @ 256 colors or 1024 x 768 @ 24 bpp
  - DB-15 VGA connector
- **Audio:** - Line In
  - Line Out
- **Serial Port:** One standard RS-232 ports (COM1),  
Two RS-232/422/485 ports (COM2, COM3)  
One pin header RS-232 port (Need to purchase 1700100250 and enable in BIOS to use it)
  - Data bits: 5, 6, 7, 8
  - Stop bits: 1, 1.5, 2
  - Parity: none, even, odd
  - Speed: 50~115.2kbps,(RS-232) 300~921.6kbps (RS-422/485)
  - RS-422 data signals: TxD+, TxD-, RxD+, RxD-, GND
  - RS-485 Data signal: DATA+, DATA-, GND
  - RS-232 Data signal: TxD,RxD,RTS,CTS,DTR,DSR,DCD,RI,GND
  - RS-232 Max data distance: 50 feet (15.2 meters)
  - RS-422/485 max data distance: 4000 feet (1220 meters)

- **USB Interface:** USB EHCI, Rev. 2.0 compliant
  - **Ethernet Port:** Dual 10/100Base-T Ethernet
    - LAN chip: Realtek 8100CL chipset supports
    - LED on the front side
  - **Storage SSD:** 1 x internal type I/II CompactFlash slot inside the chassis  
HDD: 2.5" SATA HDD bracket (UNO-1150GE/GHE )
  - **PC/104 Slot:** PCI-104 slot, supports 3.3 V & +5 V (UNO-1150GE/GHE)
  - **Mini PCI:** 1 x MiniPCI (UNO-1150GE/GHE only)
  - **LED:** 1xPower LED, 1xIDE LED, 3 pairs of serial flow indicators (Tx, Rx )
  - **Watchdog Timer:** Programmable 256 level timer interval,  
from 1 to 255 sec, with Winbond 83627
  - **Keyboard/Mouse Connector:** Mini-DIN connector supports PS/2 keyboard  
and a PS/2 mouse
  - **Printer Port:** 1 x printer port pin head (reserved for projects only)
- Power Supply Voltage:** 9-36 V<sub>DC</sub>, reversed wiring protection  
9 (Min.) ~ 36 V<sub>DC</sub> (Max.) (UNO-1150GH/GHE only)
- **Power Consumption:** 15W (typical)
  - **Power Requirement:** 24W
  - **Operating Temperature:** -10~60°C (14~140°F)
  - **Shock Protection:** IEC 68 2-27
    - CompactFlash: 50 G @ wall mount, half sine, 11 ms
    - HDD: 20 G @ wall mount, half sine, 11 ms (UNO-1150GE/GHE)
  - **Vibration Protection:** IEC 68 2-64 (Random 1 Oct./min, 1hr/axis.)
    - CompactFlash: 2 Grms @ 5 ~ 500 Hz,
    - HDD: 1 Grms @ 5 ~ 500 Hz (Only for UNO-1150GE/GHE)
  - **Chassis Size (WxLxH):** 71 x 152 x 139 mm (UNO-1150G/GH)  
96.5 x 152 x 139 mm (UNO-1150GE/GHE)
  - **Weight:** 1.6 kg (UNO-1150G/GH)  
2kg (UNO-1150GE/GHE)

## 1.3 Safety Precautions

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The following sections tell how to make each connection. In most cases, you will simply need to connect a standard cable. All of the connector pin assignments are shown in Appendix A.

**Warning!** *Always disconnect the power cord from your chassis when 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-1150G. 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 UNO-1150G Series

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There are four products in UNO-1150G series listed as below:

- **UNO-1150G:** UNO-1150G hardware platform
- **UNO-1150GE:** UNO-1150G with PCI-104 expansion hardware platform
- **UNO-1150GH:** UNO-1150G CID2 version
- **UNO-1150GHE:** UNO-1150GE CID2 version

# 1.5 Chassis Dimensions

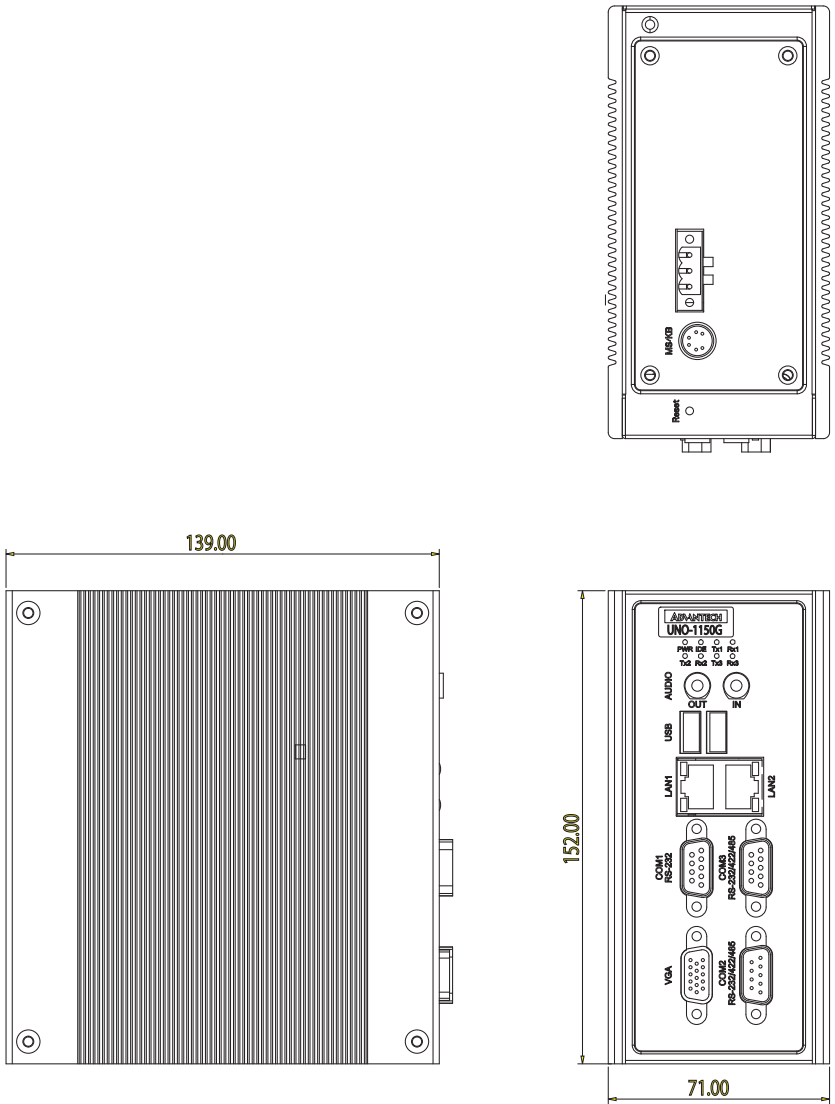
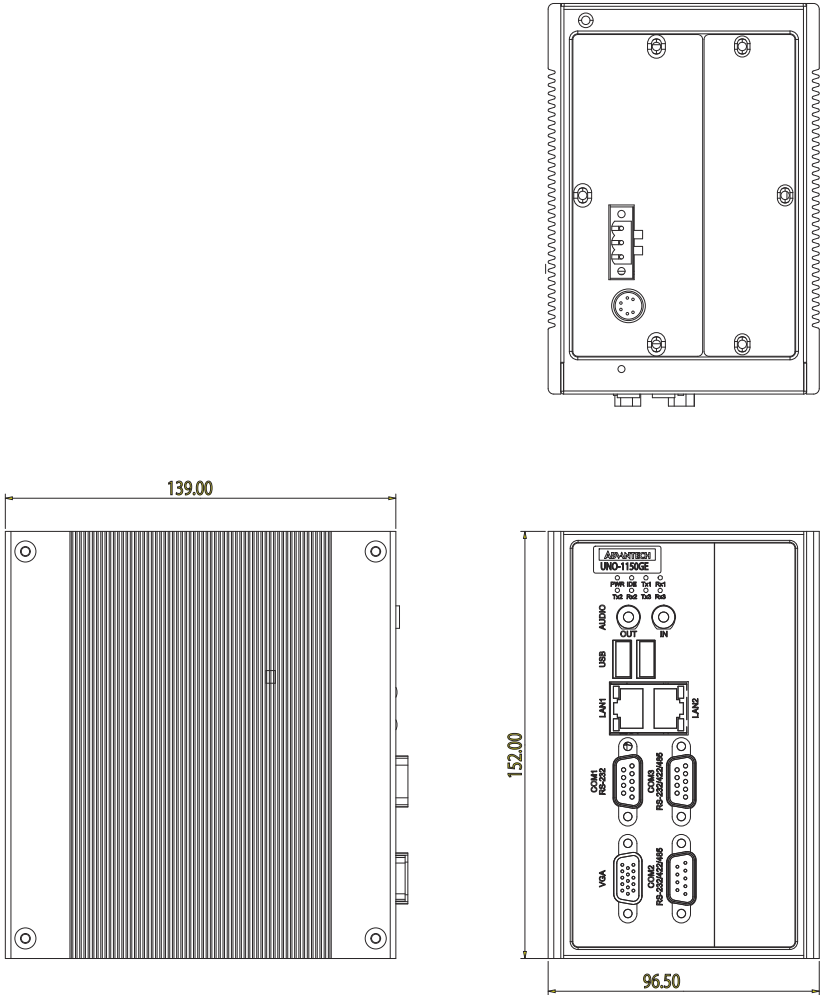


Figure 1.1: UNO-1150G/GH Chassis Dimensions



**Figure 1.2: UNO-1150GE/GHE Chassis Dimensions**



## Hardware Functionality

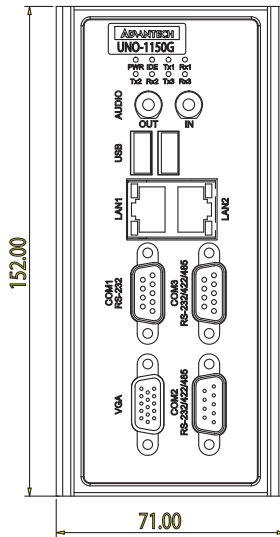
Sections include:

- UNO-1150G Peripherals
- COM1: RS-232 Interfaces
- COM2~3: RS-232/422/485 Interfaces
- LAN: Ethernet Connector
- Power Connector
- LED Indicators
- PS/2 Keyboard and Mouse Connector
- Universal Serial Bus Connectors
- VGA: VGA Display Connector
- RESET: Reset Button
- Audio
- PCI-104 Voltage Selection

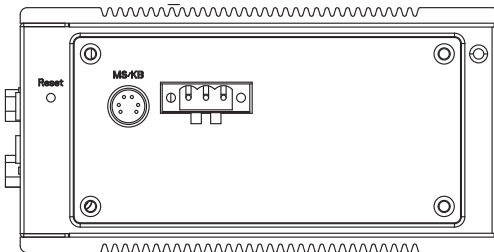
# Chapter 2 Hardware Functionality

## 2.1 UNO-1150G Peripherals

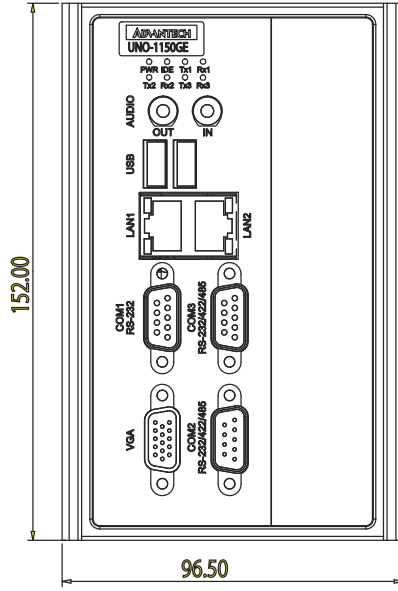
The following figures show the connectors on UNO-1150G/GH and UNO-1150GE/GHE. Information in this chapter is applied to both UNO-1150G/GH and UNO-1150GE/GHE. Therefore, in this chapter, we just mention UNO-1150G to represent the series product. The following sections give you detailed information about function of each peripheral.



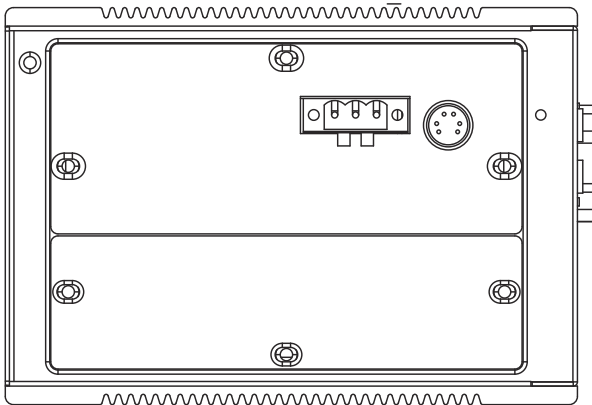
**Figure 2.1: UNO-1150G/GH Front View**



**Figure 2.2: UNO-1150G/GH Top View**



**Figure 2.3: UNO-1150GE/GHE Front View**



**Figure 2.4: UNO-1150GE/GHE Top View**

## 2.2 COM1: RS-232 Interfaces

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The UNO-1150G offers one standard RS-232 serial communication interface port on COM1. Please refer to A.2 for pin assignments.

### 2.2.1 Reserved RS-232 Interfaces COM4(Optional)

On the UNO-1150G/1150GE motherboard, there's a reserved RS-232 pin header. The default of this COM ports is "Disabled". In order to use it, please follow these steps:

1. Purchase the the DB-9 COM port cable (P/N: 1700100250).
2. Connect the end of the cable on CN20 of the main board. For the location of CN20, please refer to Figure A.1 in Appendix A.1.
3. Boot up or reset the system, press Del to enter into BIOS
4. Select Integrated Peripherals → Super I/O device → Onboard Serial Port 2.
5. Change the IRQ and IO address from Disable to "2F8H, IRQ3".
6. Press F10 or Back to "Save and Exit Setup" to finish setup change.

While using Windows XP, please set this COM port to COM4 if it originally showed other device name.

## 2.3 COM2~COM3: RS-232/422/485 Interfaces

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The UNO-1150G offers two RS-232/422/485 serial communication interface ports, and they are COM2 and COM3. Both port can be configured individually to either RS-232, RS422/485 by using on-board jumpers. Please refer to A.3 for pin assignments and Table 2.1 lists the default setting of each port.

**Table 2.1: COM2 & COM3 Default Settings**

COM Port	Default Setting
COM2	RS-422/485
COM3	RS-422/485

### 2.3.1 16C954 UARTs with 128-byte standard

Advantech UNO-1150G comes standard with Oxford 16PC1952 UARTs containing 128 bytes FIFOs. These upgraded FIFOs greatly reduce CPU overhead and are an ideal choice for heavy multitasking environments.

### 2.3.2 Jumper-free for RS-422/485

In RS-422/485 mode, UNO-1150G automatically sense signals to match RS-422 or RS-485 network. No need to change jumpers.

### 2.3.3 Automatic Data Flow Control Function for RS-485

In RS-485 mode, UNO-1150G automatically senses the direction of incoming data and switches its transmission direction accordingly. Therefore no handshaking signal (e.g. RTS signal) is necessary. This feature lets you simply and quickly 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 need for modification.

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

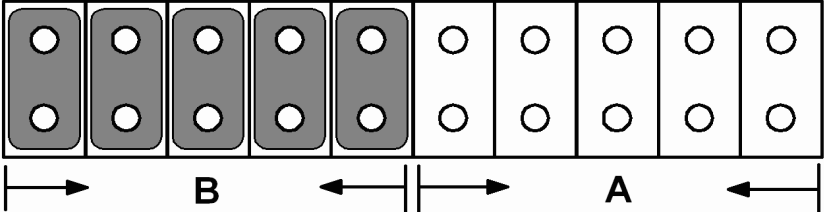
COM2 and COM3 support 9-wire RS-232, RS-422 or RS-485 interfaces, and you can set corresponding jumpers to select serial ports as RS-232 or RS-422/485 interfaces shown in Table 2.2. Please note to reset the system to adapt this configuration change

The system detects RS-422 or RS-485 signals automatically in RS-422/485 mode.

**Table 2.2: Selecting RS-232/422/485 (COM2&3)**

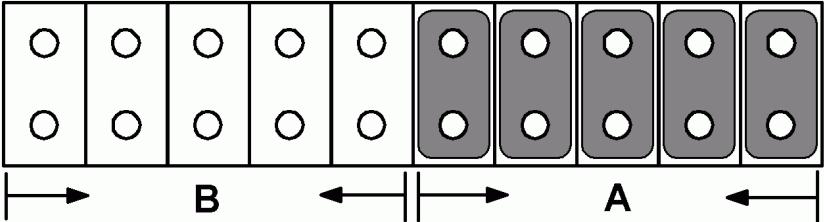
Serial Port	Corresponding Jumper to Select RS-232/422/485
COM2	CN4
COM3	CN11

**Jumper Setting for RS-422/485 Interface: (Default Setting)**



*Figure 2.5: RS-422/485 Jumper Settings*

**Jumper Setting for RS-232 Interfaces:**



*Figure 2.6: RS-232 Jumper Settings*

### 2.3.5 Terminal Resistor Setup for RS-422/485

The onboard termination resistor (120 Ohm) for COM2/COM3 can be used for long distance transmission or device matching. (Default Open.) Each terminal resistor responds to different channels for RS-422/485.

Usually, these resistors are needed for both ends of the communication wires and the value of the resistors should match the characteristic impedance of the wires used.

**Table 2.3: Terminal Resistor Settings**

COM port	Switch No.	Pin	Setting	Description
COM2	SW1	1	ON	120 Ohm between Data+/Data- (RS-485) Or 120 Ohm between Tx+/Tx- (RS-422)
			OFF	Open (Default)
		2	ON	120 Ohm between Rx+/Rx- (RS-422)
			OFF	Open (Default)
COM3	SW4	1	ON	120 Ohm between Data+/Data- (RS-485) Or 120 Ohm between Tx+/Tx- (RS-422)
			OFF	Open (Default)
		2	ON	120 Ohm between Rx+/Rx- (RS-422)
			OFF	Open (Default)

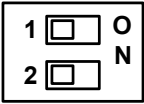
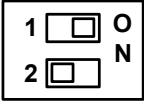
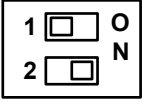
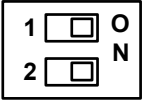
### 2.3.6 RS-485 Auto Flow & RS-422 Master/Slave Mode

You can set the “Auto Flow Control” mode of RS-485 or “Master/Slave” mode of RS-422 by using the SW2 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 2.4: Auto Flow & Slave/Master Selection**

SW2 DIP Switch Setting	COM Port	Mode Selections
	COM3	RS-422: Slave mode
		RS-485: Auto flow control
	COM2	RS-422: Slave mode
		RS-485: Auto flow control
	COM3	RS-422: Master mode
		RS-485: N/A
	COM2	RS-422: Slave mode
		RS-485: Auto flow control
	COM3	RS-422: Slave mode
		RS-485: Auto flow control
	COM2	RS-422: Master mode
		RS-485: N/A
	COM3	RS-422: Master mode
		RS-485: N/A
	COM2	RS-422: Master mode
		RS-485: N/A



## 2.4 LAN: Ethernet Connector

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The UNO-1150G is equipped with two Realtek RTL8100CL Ethernet LAN controllers that are fully compliant with IEEE 802.3u 10/100Base-T CSMA/CD standards. The Ethernet port provides a standard RJ-45 jack onboard, and LED indicators on the front side to show its Link (Yellow LED) and Active (Green LED) status. Please refer to A.4 for its pin assignments.

### 2.4.1 LAN Boot Agent Setup

UNO-1150G allows the user to control the ‘Boot Agent Setup’ menu.

#### **LAN Boot device setup:**

1. Boot ROM setup will be required in order to control Boot Agent Setup. Power on the computer, in POST screen, press "Del" to enter into setup screen.
2. Select "Advance BIOS Features" and press enter to enter into sub menu.
3. Move to "First Boot Device"(or other device you like to set), select "LAN", and exit.
4. Press "F10" and "Enter"to save the setting and exit. The system will reboot after exit.

Now you are able to Boot from LAN.

#### **LAN Boot Agent Setup:**

When finished with the BIOS setup, the next step is to configure the “Boot ROM” setup.

1. During booting you will see the following on the screen:

*Realtek RTL8139(X)/8130/810X boot Agent*

*Press Shift-F10 to configure.*

2. Press "Shift"+ "F10" to get into the “Boot Agent Configuration” setup screen.
3. After entering the “Boot Agent” setup menu you will see the following information on the screen:

Network Boot Protocol	PXE
Boot Order	Int 19
Show Config Message	Enable
Show Message Time	3 seconds

Please press "Up" or "Down" to select the item, which users want to setup, and then press space bar to change the value.

**Network Boot Protocol**

This category determines the protocol that will be used when Boot ROM is booting.

- PXE PXE Network Protocol (Not supported in UNO-1150)
- RPL RPL Network Protocol

**Boot Order**

This category determines the boot order to boot the operation system.

- Int 18h Boot the devices ordered in BIOS Setup
- Int 19h Always boot network first then local devices
- PnP/BEV(BBS) Boot ordered by BBS BIOS if BBS BIOS Present
- ROM Disable Network boot disable, boot local devices

**Show Config Message**

Set the Config Message will show on the screen

- Disable Disable to show Config Message
- Enable Enable to shoe Config Message

**Show Message Time**

Set the Message Time

- 3 seconds Set the Show message to 3 seconds
- 5 seconds Set the Show message to 5 seconds
- 8 seconds Set the Show message to 8 seconds

4. After finished the setup configuration, please press "F4" to save and exit, and then users can boot from LAN.

## 2.5 Power Connector

---

The UNO-1150G comes with a Phoenix connector that carries 10~36 VDC external power input, and has 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 A.5 for its pin assignments.

## 2.6 LED Indicators

---

There are three kinds of LEDs on the UNO-1150G front panel

- **PWR:** system power status
- **IDE:** IDE bus status
- **Txn, Rxn:** Serial communication status of COM Port n

## 2.7 PS/2 Keyboard and Mouse Connector

---

The UNO-1150G 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-1150G. The UNO-1150G 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 mouse connections. Please refer to Appendix A.6 for pin assignments.

## 2.8 Universal Serial Bus Connectors

---

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 & Play, which enables you to connect or disconnect a device whenever you want without turning off the computer.

The UNO-1150G provides two connectors with USB interfaces, which gives complete Plug & Play and hot swapping for up to 127 external devices. The USB interface complies with USB specification EHCI, Rev. 2.0 compliant. The USB interface can be disabled in the system BIOS setup. Please refer to Appendix A.7 for its pin assignments.

## **2.9 VGA: VGA Display Connector**

---

The UNO-1150G provides a VGA controller for a high resolution VGA interface. It supports VGA and VESA, up to 1280 x 1024 @ 256 color and 1024 x 768 @ 24bpp resolution and up to 16 MB share memory. The VGA interface is reserved for system testing and debugging.

## **2.10 RESET: Reset Button**

---

UNO-1150G provides a reset button on the top of the device.

## **2.11 Audio**

---

UNO-1150G supports audio function with:

- Line In
- Line Out

## Initial Setup

Sections include:

- CompactFlash Installation
- PCI-104 Card Installation (UNO-1150GE/GHE)
- Hard Drive Installation (UNO-1150GE/GHE)
- Chassis Grounding
- Power Connection
- BIOS Setup and System Assignments

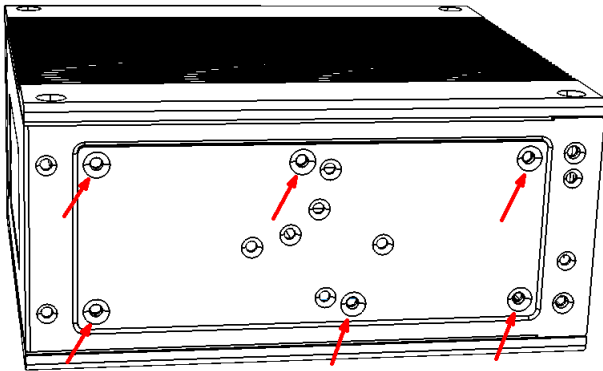
# Chapter 3 Initial Setup

## 3.1 CompactFlash Card Installation

---

The procedure for installing a CompactFlash card into the UNO-1150G/GH/GE/GHE is as follows, please follow these steps carefully. Although the outside appearance of the UNO-1150GE is different from the figures shown below, the procedure is the same.

1. Remove the power.
2. Unfasten the six screws on the rear cover of UNO-1150G/GH/GE/GHE.



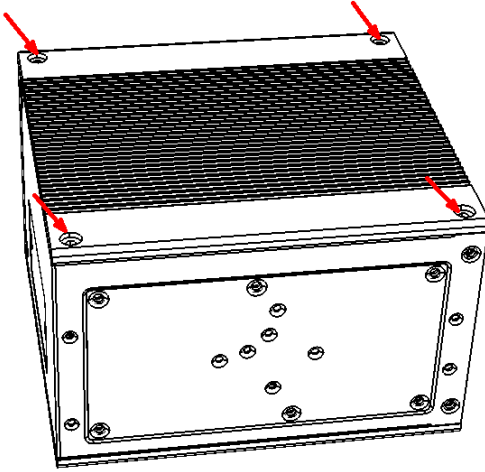
3. Remove the rear cover.
4. Plug a CompactFlash card with user's OS and application program into a CompactFlash card slot on board.
5. Re-attach the rear cover with the six screws.

## 3.2 PCI-104 Card Installation (UNO-1150GE/GHE Only)

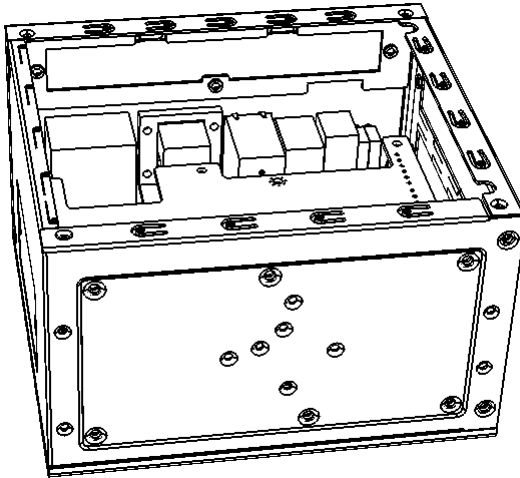
### 3.2.1 Installation Procedure

The procedure for installing a PCI-104 card is as follows.

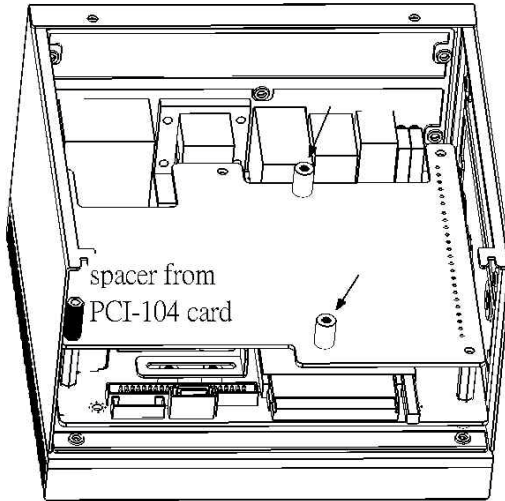
1. Remove the power.
2. Unscrew four screws from UNO-1150GE/GHE indicated below.



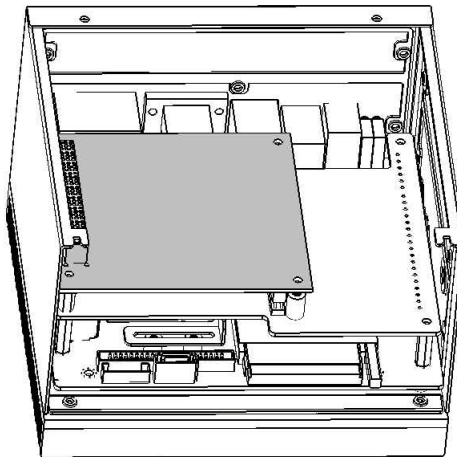
3. Remove the rear cover.



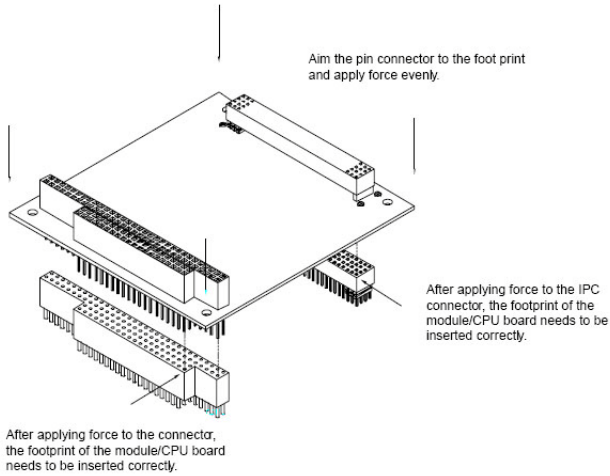
4. Find 2 metal spacers from the accessory bag, and screw them in the location indicated below. (Note: There were spacers soldered on the daughterboard already). Normally you will also get some hexagon spacers from your PCI-104 card packaging.



5. Please refer to section 2.12 for PCI-104 card voltage setting before installing the PCI-104 card.
6. Stack the PCI-104 card and related cables.







7. Screw the rear cover and the four screws. Now you are done with the PCI-104 card installation.

*Note: You can use two PCI-104 cards at the same time if you're not using a hard drive. Using a hard drive will limit the number of PCI-104 cards allowed to one only.*

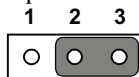
### 3.2.2 PCI-104 Connectors (UNO-1150GE/GHE)

UNO-1150GE/GHE supports up to two PCI-104 cards. The cards will be installed on connector noted CN3-A. Please check your PCI-104 card support voltage to adjust the jumper on CN4.

**Table 3.1: PCI-104 Voltage Jumper Settings**

Voltage	Jumper close position setting
+5V	1-2
+3.3V	2-3

Jumper Setting (+3.3V) example:

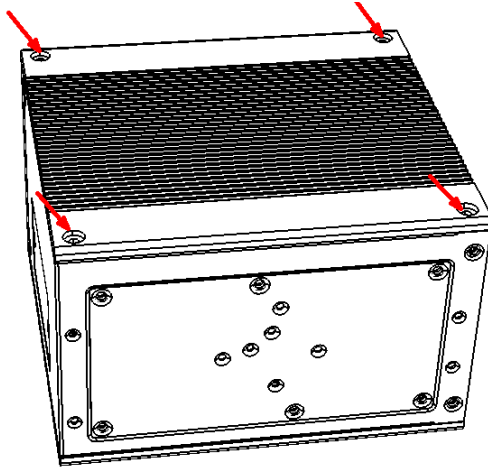


**closed 2-3**

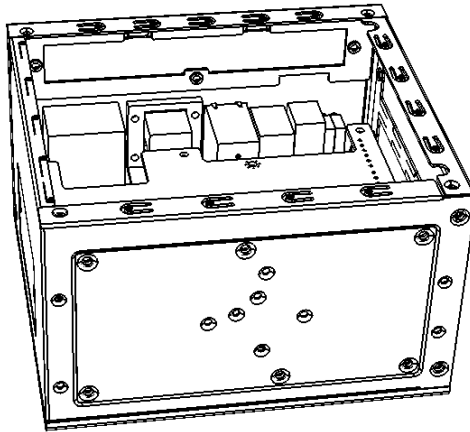
### 3.3 Hard Drive Installation (UNO-1150GE/GHE Only)

---

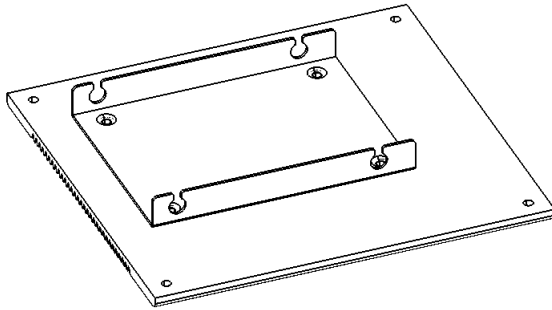
1. Remove the power.



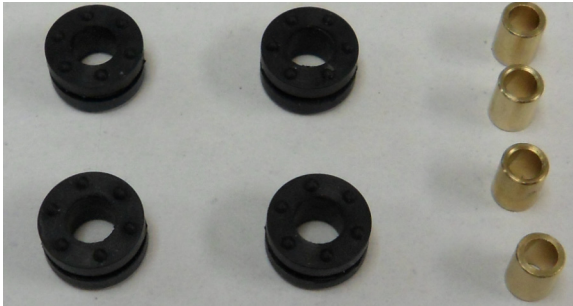
2. Unscrew four screws from UNO-1150GE/GHE indicated below.



3. Remove the rear cover. The hard drive bracket should be fastened together with the cover.



4. Find four hard drive dampers and four small copper spacers from the accessory bag.



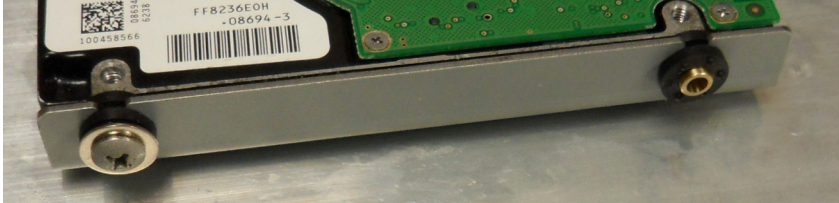
5. Slide the hard drive damper into the cutout.



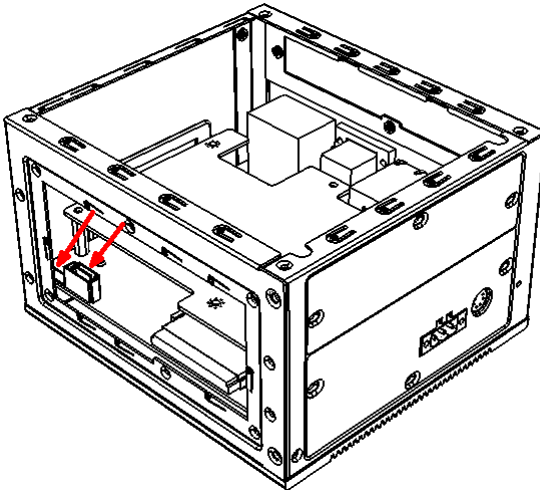
6. Place the hard drive on the bracket.

7. Place the washer on the screw. Fasten both to the hard drive damper.

*Note: Be sure to align the connector direction as shown in figure*



8. Connect the SATA power and SATA connector on the hard drive.
9. Unscrew six screws of the rear cover of UNO-1150GE/GHE. Remove the rear cover. Connect the other end of SATA cable on the board which the arrow indicated in below picture.



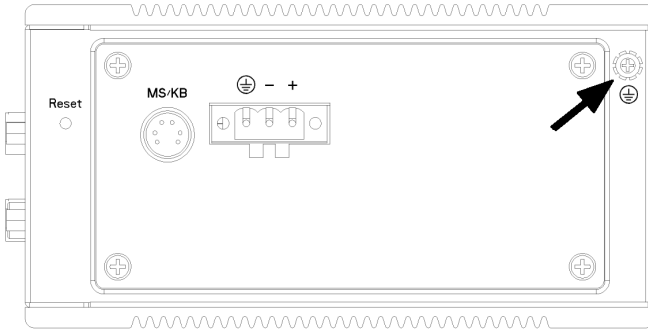
10. Fasten all the screws back and finish.

*Note: There are switch setting about SATA hard drive below, please refer to the section A.9 for detail. The hard drive might not work correctly if the switch setting is incorrect*

### 3.4 Chassis Grounding

---

UNO-1150G/GH/GE/GHE provides good EMI protection and a stable grounding base. There is an easy-to-connect chassis grounding point for you to use. Please also note that system ground and chassis ground are separated in UNO-1150G/GH/GE/GHE.



*Figure 3.1: Chassis Grounding Connection*

### 3.5 Power Connection

---

Connect the UNO-1150G/GE to a 10 ~ 30 V<sub>DC</sub> power source or the UNO-1150GH/GHE to a 9(Min.)~36(Max.)V<sub>DC</sub> power source. The power source can either be from a power adapter or an in-house power source.

### 3.6 BIOS Setup and System Assignments

---

UNO-1150G uses the Advantech SOM-2355 CPU module. For UNO-1150G BIOS setup and system assignments, you can refer to SOM-2355's Chapter 4 "Award BIOS Setup" and Appendix A "System Assignments". The SOM-2355 user's manual is in the "Manual" folder on the DVD-ROM.

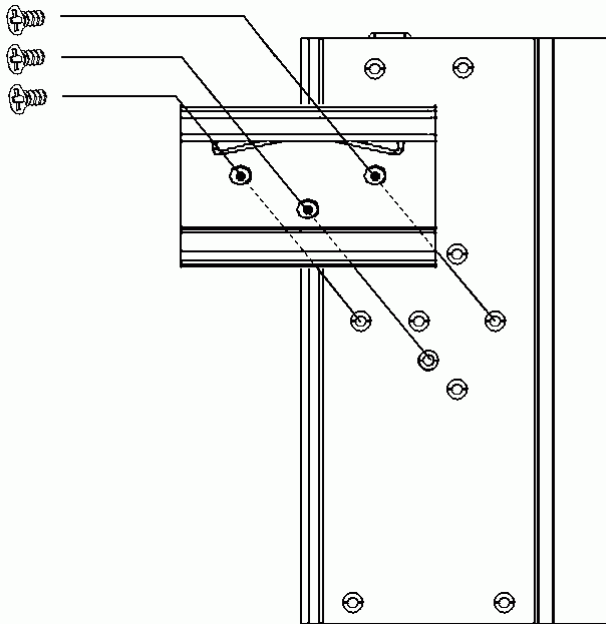
Please note that you can try to "LOAD BIOS DEFAULTS" from the BIOS Setup manual if UNO-1150G does not work properly.

### 3.7 DIN-rail Mounting Setup

---

Please follow the below steps to mount the UNO-1150G on the DIN-Rail.

1. Screw the provided DIN-Rail Kit on the rear side of UNO-1150G as the diagram shown below.



2. Hang the UNO-1150G to the DIN-Rail with angle of inclination about 30 degree.
3. Let UNO-1150G down straight to slide over the Rail smoothly.

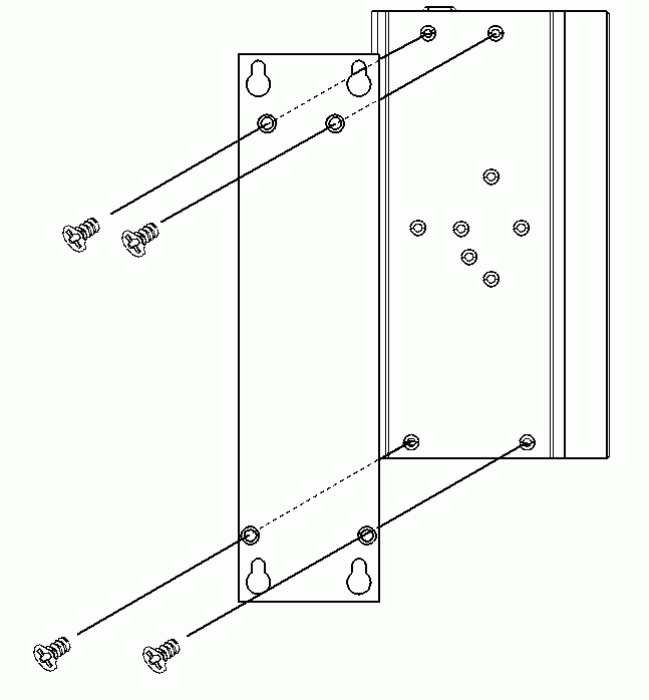
**Note:** To get the UNO-1150G down from the Rail, push the device top to down then pull the bottom of the device to let it off the Rail smoothly.

### 3.8 Wallmounting Setup

---

Please follow the below steps to mount the UNO-1150G on the wall.

1. Screw the provided Wall Mounting Kit on the rear side of UNO-1150G as the diagram shown below.



2. Mount the device on the wall by the 2 pairs hooking hole provided by the Wallmounting Kit.





## Pin Assignments

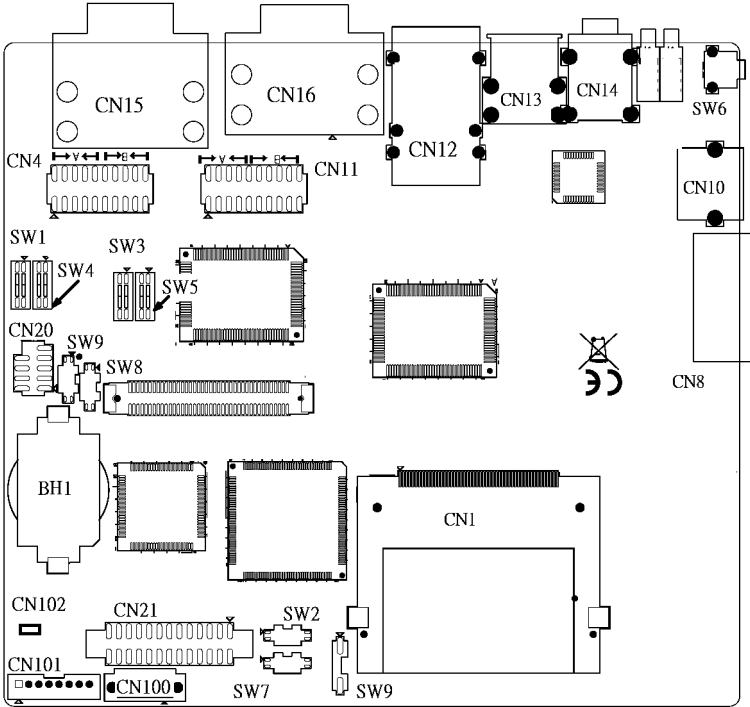
This appendix shows the UNO-1150G pin assignments

- Board Connectors and Jumpers
- RS-232 Serial Port (COM 1)
- RS-232/422/485 Serial Port (COM2~3)
- Ethernet RJ-45 Connector
- Power Screw Terminal
- PS/2 Keyboard and Mouse Connector
- USB Connector
- VGA Display Connector
- CompactFlash Master/Slave Jumper Setting
- SATA Data Connector

# Appendix A Pin Assignments

## A.1 Board Connectors and Jumpers

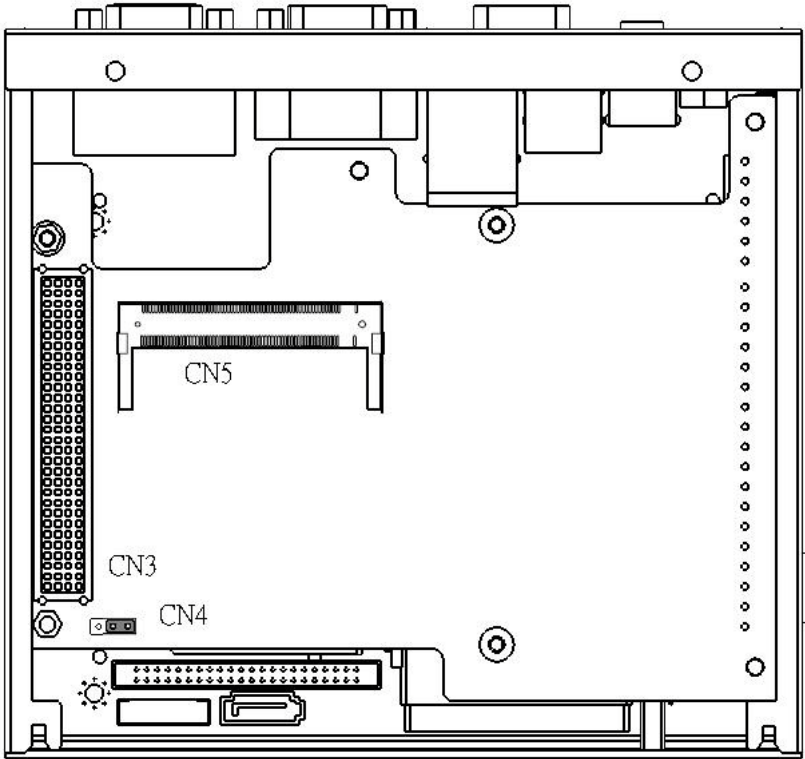
There are connectors and jumpers on the UNO-1150G board. The following sections tell you how to configure the UNO-1150G hardware setting. Figure A-1 and figure A-2 show the locations of UNO-1150G connectors and jumpers.



**Figure A.1: Connector & Jumper Locations (Top)**

**Table A.1: Connectors & Jumpers**

<b>BH1</b>	Lithium battery for BIOS
<b>CN1</b>	Internal CompactFlash card slot
<b>CN4</b>	COM3 RS-232/422/485 selection
<b>CN8</b>	Power Screw Terminal
<b>CN10</b>	PS/2 keyboard and mouse connector
<b>CN11</b>	COM2 RS-232/422/485 selection
<b>CN12</b>	Ethernet port 1 / Ethernet port 2
<b>CN13</b>	USB connector
<b>CN14</b>	Audio line in / Audio line out
<b>CN15</b>	VGA DB15 display connector/ COM2 RS-232/422/485 serial port
<b>CN16</b>	COM1 RS-232 serial port / COM3 RS-232/422/485 serial port
<b>CN21</b>	Printer Port header
<b>CN102</b>	Clear CMOS
<b>CN100</b>	SATA data
<b>CN101</b>	SATA power
<b>SW1</b>	Terminal resistor for COM2
<b>SW2</b>	RS-485 auto-flow and RS-422 Master/Slave mode for COM2/3
<b>SW3</b>	Pull high/low for COM2 Data+/- (RS-485) and Tx+/- (RS-422)
<b>SW4</b>	Terminal resistor for COM3
<b>SW5</b>	Pull high/low for COM2 Rx+/- (RS-422)
<b>SW7</b>	CompactFlash Master/Slave Setting
<b>SW8</b>	Pull high/low for COM3 Data+/- (RS-485) and Tx+/- (RS-422)
<b>SW9</b>	Pull high/low for COM3 Rx+/- (RS-422)
<b>SW10</b>	SATA enable

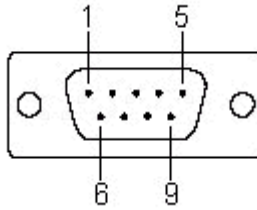


**Figure A.2: Connector & Jumper Locations (UNO-1150GE/GHE)**

<b>Table A.2: Connectors &amp; Jumpers (UNO-1150GE/GHE only)</b>	
CN3-A	PCI-104 card connector
CN5	Mini PCI card connector
CN4	Jumper of PCI-104 card voltage selection (+3.3V or +5V)

## A.2 RS-232 Serial Port (COM1)

---

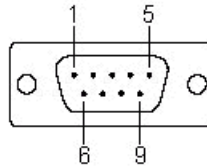


**Table A.3: RS-232 Serial Port Pin Assignments**

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

### A.3 RS-232/422/485 Serial Port (COM2~COM3)

---



**Table A.4: RS-232/422/485 Serial Ports**

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.4 Ethernet RJ-45 Connector (LAN1~LAN2)

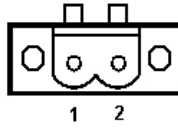
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**Table A.5: Ethernet RJ-45 Connector Pin Assigns**

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

## A.5 Power Screw Terminal (CN8)

---

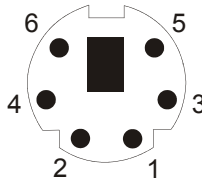


**Table A.6: Phoenix Power Connector Pin Assigns**

Pin	Signal Name
1	VIN (10 ~ 36 V <sub>DC</sub> )
2	GND
3	Field Ground

## A.6 PS/2 Keyboard and Mouse Connector (CN10)

---



**Table A.8: Keyboard & Mouse Connector Pin Assigns**

Pin	Signal Name
1	KB DATA
2	MS DATA
3	GND
4	VCC
5	KB CLOCK
6	MS CLOCK

## A.7 USB Connector (CN13)

---

**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.8 VGA Display Connector (CN15)

---

**Table A.10: VGA Adaptor Cable Pin Assignments**

Pin	Signal Name	Pin	Signal Name
1	RED	9	EDID Power
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	NC
5	GND	13	H-SYNC
6	GND	14	V-SYNC
7	GND	15	NC
8	GND		

### Chipset

The UNO-1150G uses a AMD CS5536 chipset for its SVGA controller. It supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

### Display Memory

With 1 ~ 16 MB share memory, the VGA controller can drive CRT displays or color panel displays with resolutions up to 1024 \* 768 at 24 bpp. For 1024 \* 768 at 24 bpp resolution, display is expanded to 16 MB in BIOS.



## A.9 CompactFlash Master/Slave & Hard Drive Settings

*Note: Please check your storage device configuration settings carefully while using storage device.*

UNO-1150G/GH has one internal Compact Flash card slot which supports Compact Flash type I (3mm thick) and type II (5 mm thick) cards. The CompactFlash interface uses a primary IDE channel, which can be set as the master or slave device by changing the setting of SW7.

**Table A.11: CompactFlash Master/Sl**

Pin	Setting	Description
1	ON (Default)	CF is Master Device
	OFF	CF is Slave Device
2	Keep default setting (Off)	

For UNO-1150GE/GHE:

1. The CompactFlash interface uses a primary IDE channel. In UNO-1150GE please set the Compact Flash as Master device by switch SW7-1 as on.
2. Please refer to the following table for switch setting while using CF or SATA Hard drive.

**Table A.12: SATA Enable Settings**

	SW7-1	SW7-2	SW10
<b>CF Only</b>	ON	OFF	OFF
<b>CF Master SATA Slave</b>	ON	OFF	ON
<b>SATA Master CF Slave</b>	OFF	ON	ON
<b>SATA Only</b>	OFF	ON	ON

- Note:*
1. If you develop WinCE OS on a CompactFlash card yourself, we strongly recommend setting it to Master.
  2. Only one hard drive is allowed.
  3. Using CompactFlash and HDD together is not recommended. If it is necessary, please set CompactFlash as Master (1: On) and set SATA Enable (2-On)

## A.10 RS-422/485 Signal Pull High/Low Settings

(SW3/SW5/SW8/SW9)

**Table A.13: Terminal Resistor Settings**

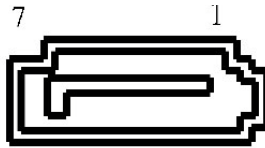
COM	Switch	Pin	Related Line	Setting	Description
COM2	SW8	1	Data- (RS-485) Tx- (RS-422)	* ON	Pull low to GND (4.7K Ohm)
				OFF	Open
		2	Data+ (RS-485) Tx+ (RS-422)	* ON	Pull high to 5V (4.7K Ohm)
				OFF	Open
	SW9	1	Rx- (RS-422)	* ON	Pull low to GND (4.7K Ohm)
				OFF	Open
		2	Rx+ (RS-422)	* ON	Pull high to 5V (4.7K Ohm)
				OFF	Open
COM3	SW3	1	Data- (RS-485) Tx- (RS-422)	* ON	Pull low to GND (4.7K Ohm)
				OFF	Open
		2	Data+ (RS-485) Tx+ (RS-422)	* ON	Pull high to 5V (4.7K Ohm)
				OFF	Open
	SW5	1	Rx- (RS-422)	* ON	Pull low to GND (4.7K Ohm)
				OFF	Open
		2	Rx+ (RS-422)	* ON	Pull high to 5V (4.7K Ohm)
				OFF	Open

**Note1:** \* indicate the default setting.

**Note2:** The line would have the risk to be floating if it is set to be Open. This setting is only for special purpose.

## A.11 SATA Data Connector (CN100)

---



**Table A.14: SATA DATA Connectors (CN100)**

1	GND
2	A+
3	A-
4	GND
5	B-
6	B+
7	GND

## A.12 Printer Port Connectors

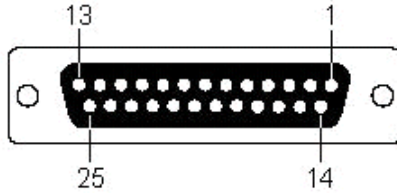
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### Optional, reserved for project only

In UNO-1150GE/GHE, user can enable printer port reserved on motherboard. The default of this LPT ports is "Disabled". In order to use it, you will need to purchase the LPT cable (P/N: 1700260250).

1. Connect the end of the cable on CN21 of the main board. For the location of CN21, please refer to Figure A.1 in Appendix A.1.
2. Boot up or reset the system, press Del to enter into BIOS
3. Select Integrated Peripherals → Super I/O device → Onboard Parallel Port.
4. Change the IRQ and IO address from Disabled to Enable.
5. Press F10 or Back to "Save and Exit Setup" to finish setup change.

The pin assignment is as follows:



**Figure A.3: Printer Port Connector**

**Table A.15: Printer Port Connector**

Pin	Signal Name	Pin	Signal Name
1	STROBE*	14	AUTO FEED*
2	PD0	15	ERROR
3	PD1	16	INIT*
4	PD2	17	SELECT IN*
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK*	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

**Note:** "\*" represents "No Connection"

## **USB Holder Installation**

This appendix shows how to install the USB holder on the UNO-1150/GH/GHE

- USB Holder Installation

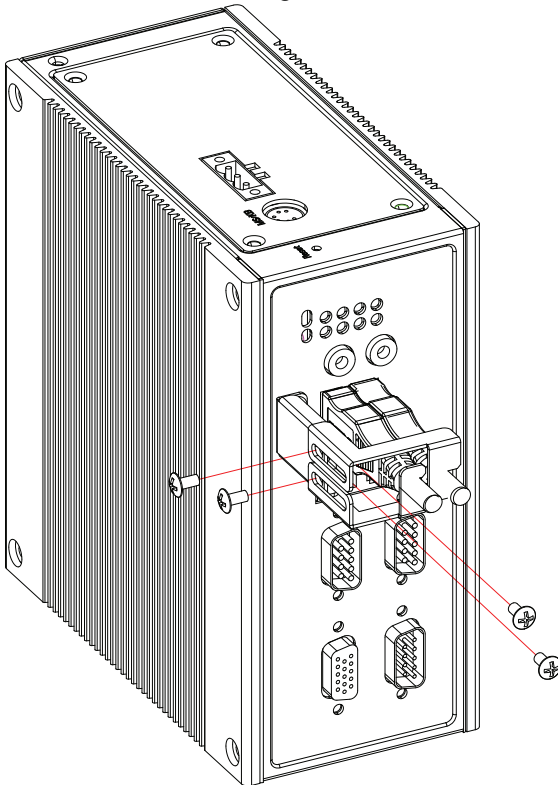
# Appendix B USB Holder Installation

## B.1 USB Holder Installation

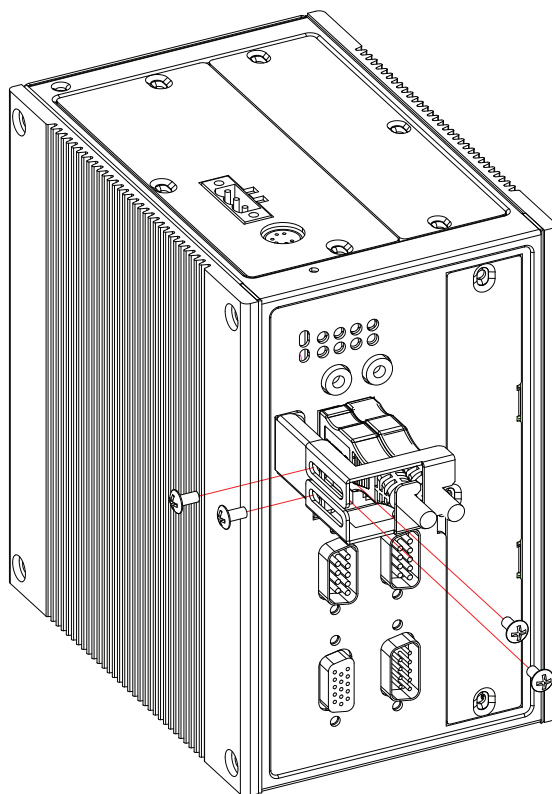
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In hazardous locations, sparks caused by the movement from a USB connector which is even slightly loose could lead to a disaster. To prevent this, we provide a set of accessories to secure the USB connectors. Follow the below instructions to complete the installation. (The contents may vary but the installation procedure is the same.)

1. Find the USB holders (3 pcs in total) in the accessory bag.
2. Refer to the following figures and attach the holders to the UNO-1150GH/GHE for securing the USB connector



**Figure B.1: 1150GH USB Installation**



**Figure B.2: 1150GHE USB Installation**

