ROBO-U160

Ultra-160
SCSI Daughter Board

User's Manual

P/N: 8611U1600033 Version: 1.0

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How to Use This Manual

The manual describes how to configure your ROBO-U160 system to meet various operating requirements. It is divided into four chapters, with each chapter addressing a basic concept and operation of Embedded Board Computer.

Chapter 1: Introduction. This chapter presents what you have in the box and gives you an overview of the product specifications and basic system architecture for this SCSI Daughter Board.

Chapter 2: Hardware Installation. This chapter shows you how to mount ROBO-U160 onto your system board.

Chapter 3: Software Installation. This chapter describes how to properly install software drivers, in terms of different operating systems.

The content of this manual is subject to change without prior notice. These changes will be incorporated in new editions of the document. **Portwell** may make supplement or change in the products described in this document at any time.

Updates to this manual, technical clarification, and answers to frequently asked questions will be shown on the following web site: http://isc.portwell.com.tw

CHAPTER 1

Introduction

The ROBO-U160 Ultra 160/m SCSI Daughter Board is designed to enhance the capability of any existing computer board that has external 68-pin PCI connector. As an auxiliary PCI device, this daughter board is to increase system integration potential, while still keeps a minimum physical system size. The AIC-7892 provides an Ultra160/m SCSI bus controller combined with a full-featured PCI 2.1/2.2-compliant 66.6MHz 64-bit bus master capable of supporting zero wait state 64-bt at 533 Mbytes/sec data burst rate. The design of this daughter board is completely based on Adaptec 7892 Ultra 160/m SCSI chipset that stays as the frontier of the current SCSI technology. It is good for various computing platforms.

The 7892 is Adaptec's few generation fully integrated Ultra 160/m SCSI solution. The 7892 builds on the basic functionality of the 7890. The AIC-7892 can supports data transfer rates up to 160Mbytes/sec on a wide (16-bit) SCSI bus using LVD SCSI I/Os.

1-1 Features of Adaptec

The ROBO-U160 Ultra 160/m SCSI Daughter Board adopts Adaptec Controller. Features of this SCSI controller includes:

- 32-bit PCI bus master interface
- Supports PCI Power Management
- Compatible with single ended or dual mode Low Voltage Differential (LVD) SCSI I/O
- 1-Kbyte data FIFO
- Support for PCI 2.1/2.2 compliant 66.6MHz
- Supports zero wait state 64-bit at 533Mbytes/sec data burst rate
- Supports data transfer rates up to 160 Mbytes/sec on a wide (16-bit) SCSI bus using LVD SCSI I/Os
- Supports variable execution speeds of 10/15/20 MIPS and provides 4-Kbytes of SRAM microcode storage

For detailed specification of 7892, please refer to "Overview of Ultra160 SCSI"* available in the following web-site link.

http://isc.portwell.com.tw/support/Technical%20Spec%20&%20Users%20Manual/datasheet/Adaptec/ultra160overview.pdf

** Documents are presented with Adaptec's official authorization*

1-2 ROBO-U160 Specifications

- **Core Logic Chipset**
  Adaptec AIC-7892 Ultra 160/m SCSI bus controller

- **68-pin external PCI interface**
  One 68-pin external PCI interface for quick installation with retention bar/screws

- **Standard 68-pin SCSI cable**
  Supports numbers of SCSI HDD for easy connection

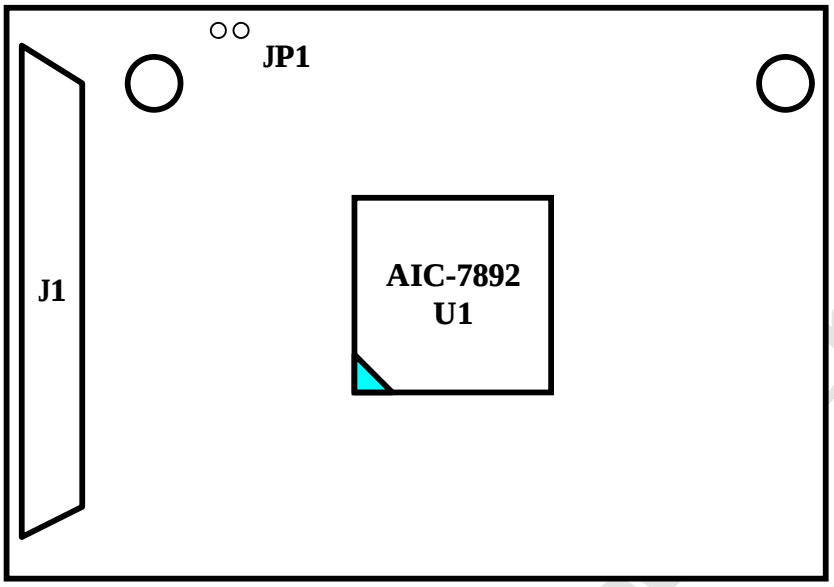
- **Third-Party Support for various Operating Systems**
  - ◈ Software supports MicroSoft Windows-95 OSR2, Windows-98/98SE/2000, Windows-NT 4.0, SCO Unixware, SCO OpenServer, OS/2, Novell 5, and Solaris 8.
  - ◈ Drivers are provided for these Operating Systems

- **Physical and Environmental Requirements**
  - ➢ Outline Dimension (L X W): 76.7mm X 50.7mm
  - ➢ PCB layout: 4 layer
  - ➢ Operating Temperature: 0°C ~ 60°C (32°F ~ 140°F)
  - ➢ Storage Temperature: -20°F ~ 80°F
  - ➢ Relative Humidity: 5% ~ 95%, non-condensing

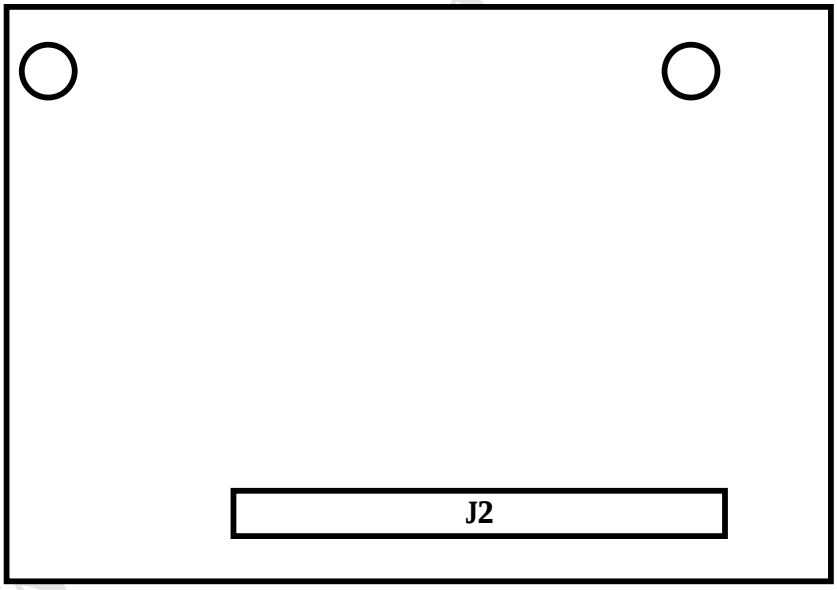
1-3 Check List

- ➢ ROBO-U160 SCSI Daughter Board
- ➢ SCSI Cable
- ➢ Retention modules with screws, plastic hoses, and nuts for securing the board firmly

1-4 Pin-Assignment



Component Side

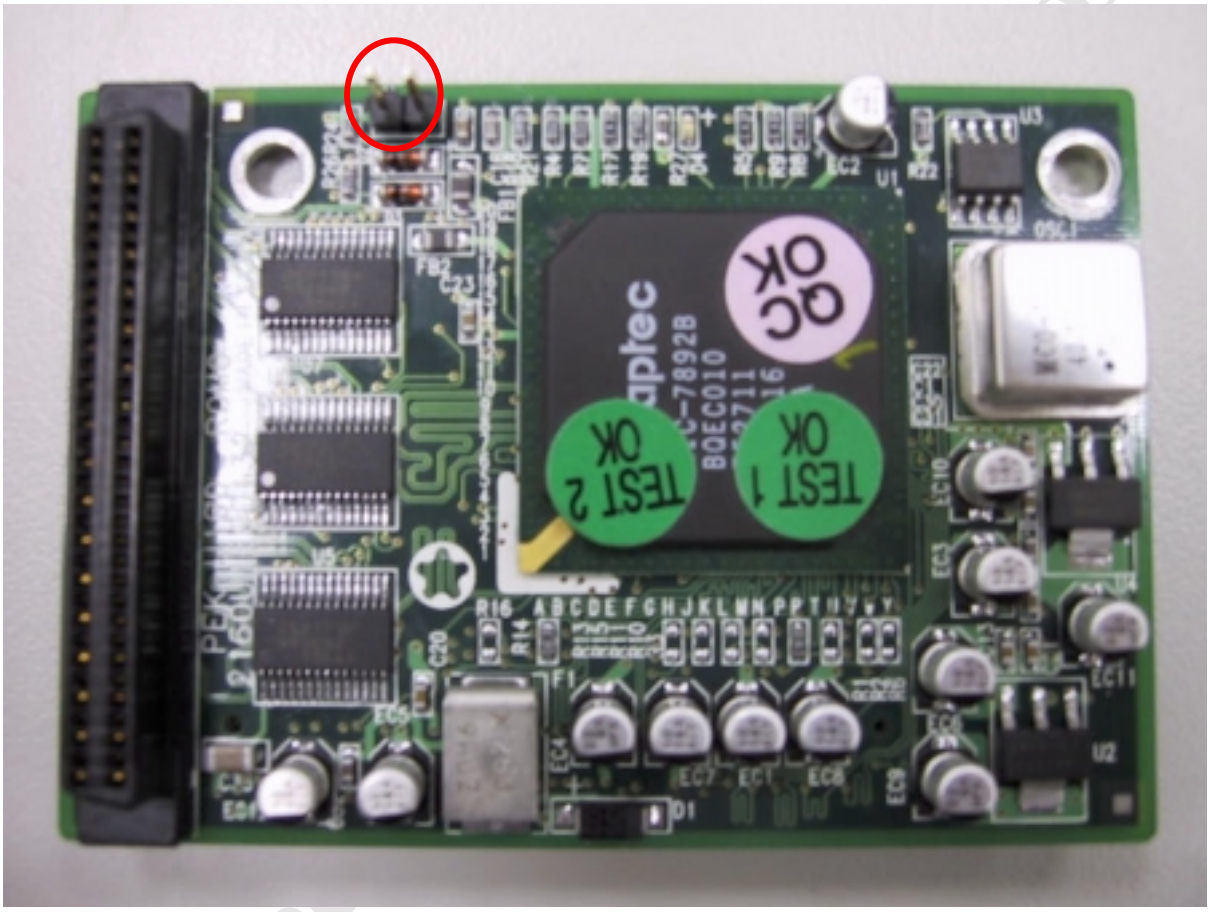


Solder Side

Figure 1-1 ROBO-U160 Pin-Assignment

JP1 : Terminator jumper

JP1	Function
On	Terminator is disabled
Off	Terminator is enabled



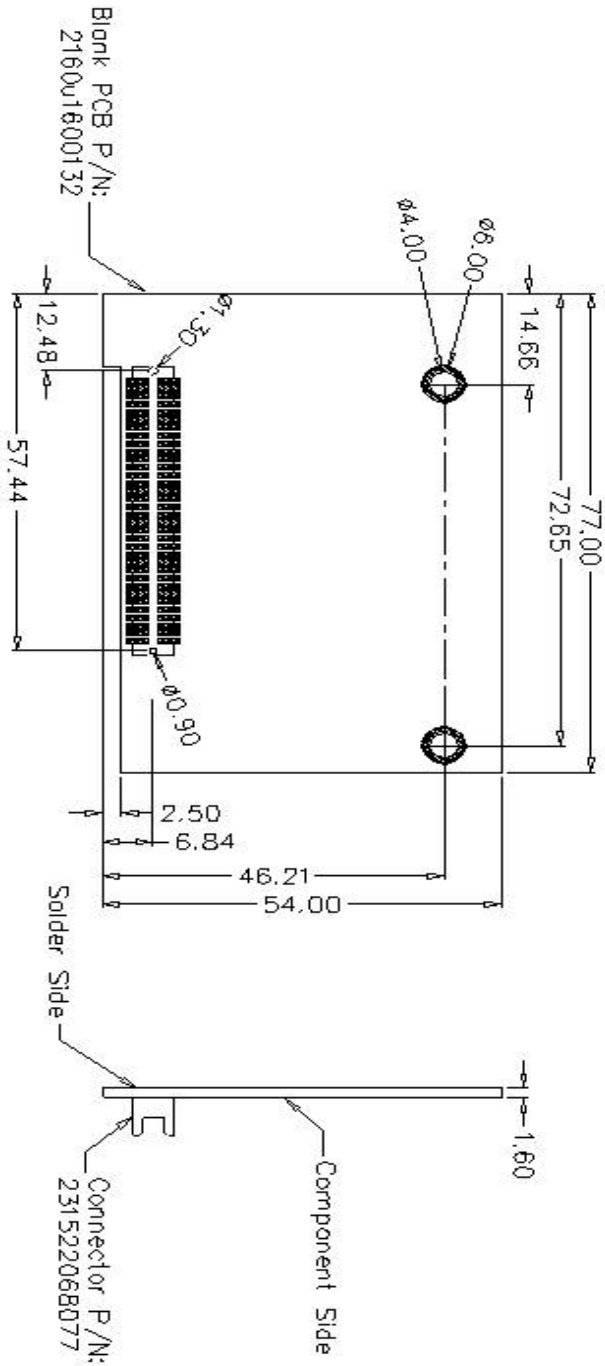
J2 : 68 pin PCI Connector

PIN No.	Signal Description	PIN No.	Signal Description
1	VCC	2	AD0
3	AD1	4	AD2
5	AD3	6	AD4
7	AD5	8	AD6
9	AD7	10	GND
11	VCC	12	AD8
13	AD9	14	AD10
15	AD11	16	AD12
17	AD13	18	AD14
19	AD15	20	GND
21	VCC	22	AD16
23	AD17	24	AD18
25	AD19	26	AD20
27	AD21	28	AD22
29	AD23	30	GND
31	VCC	32	AD24
33	AD25	34	AD26
35	AD27	36	AD28
37	AD29	38	AD30
39	AD31	40	GND
41	VCC	42	BE#0
43	BE#1	44	BE#2
45	BE#3	46	PAR
47	Frame#	48	TRDY#
49	IRDY#	50	GND
51	VCC	52	STOP#
53	Devsel#	54	Reserved for PERR#
55	SERR#	56	REQ#2
57	GNT#2	58	Reserved for REQ#3
59	Reserved for GNT#3	60	GND
61	PCI Clock1	62	PCI Clock2
63	PCIRST#	64	LOCK#
65	IRQ#A	66	IRQ#B
67	IRQ#C	68	IRQ#D

J1 : Ultra-160/m 68 pin high density SCSI connector

PIN No.	Signal Description	PIN No.	Signal Description
1	LVDP12	2	LVDP13
3	LVDP14	4	LVDP15
5	LVDPHP	6	LVDP0
7	LVDP1	8	LVDP2
9	LVDP3	10	LVDP4
11	LVDP5	12	LVDP6
13	LVDP7	14	LVDPLP
15	Ground	16	DIFFSEN
17	LVTRMPWR	18	LVTRMPWR
19	N/C	20	Ground
21	LVATNP	22	Ground
23	LVBSYP	24	LVACKP
25	LVRSTP	26	LVMSGP
27	LVSELP	28	LVCDP
29	LVREQP	30	LVIOP
31	LVDP8	32	LVDP9
33	LVDP10	34	LVDP11
35	LVDP12	36	LVDP13
37	LVDP14	38	LVDP15
39	LVDPHM	40	LVDM0
41	LVDM1	42	LVDM2
43	LVDM3	44	LVDM4
45	LVDM5	46	LVDM6
47	LVDM7	48	LVDPLM
49	Ground	50	SENSE_A (Pull-up)
51	LVTRMPWR	52	LVTRMPWR
53	N/C	54	Ground
55	LVATNM	56	Ground
57	LVBSYM	58	LVACKM
59	LVRSTM	60	LVMSGM
61	LVSELM	62	LVCDM
63	LVREQM	64	LVIOM
65	LVDM8	66	LVDM9
67	LVDM10	68	LVDM11

1-5 Mechanical Drawing

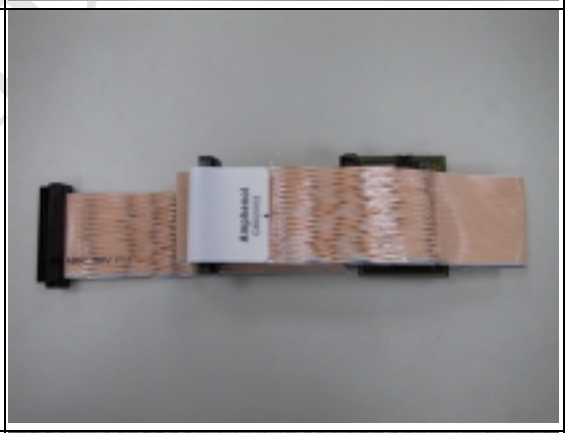
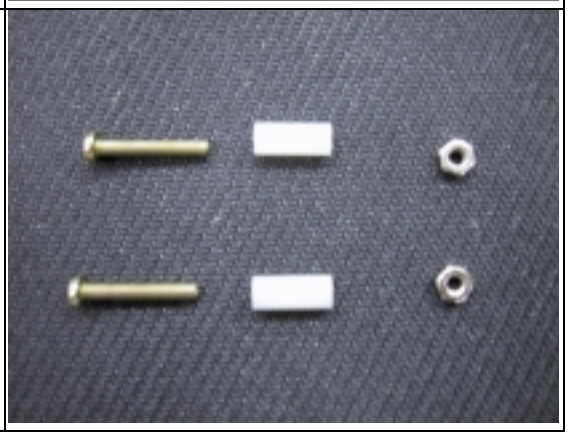


CHAPTER 2

Hardware Installation

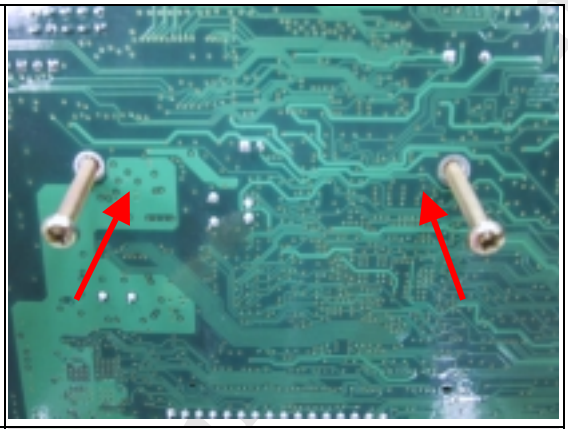
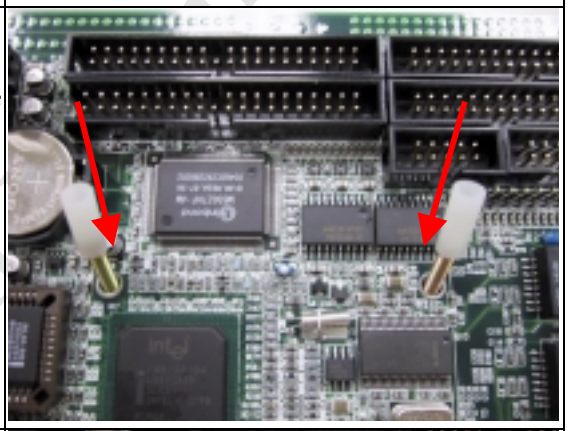
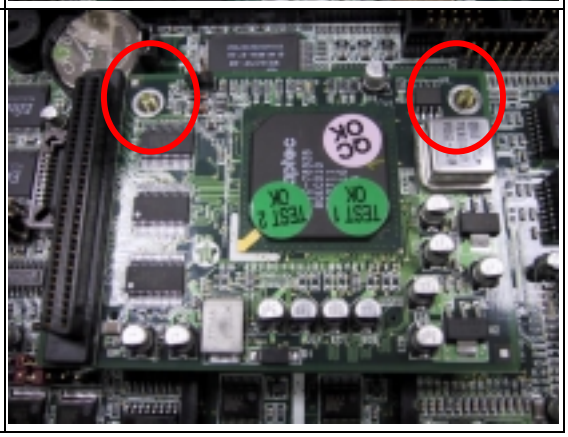
Opening the box

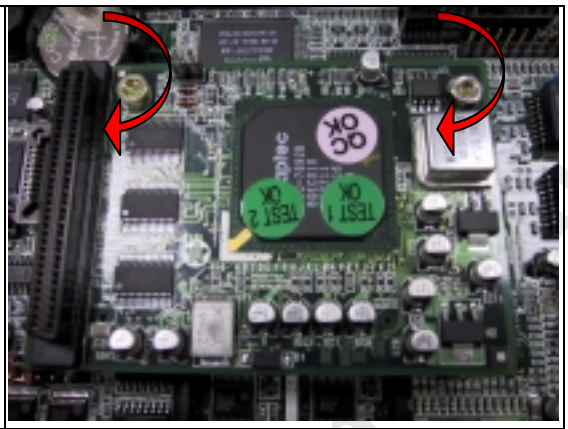
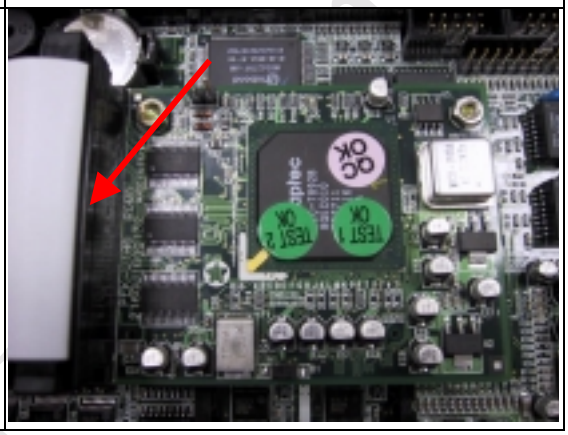
After you open ROBO-U160 package, you should find three hardware items.

I. ROBO-U160 Ultra-160 SCSI Daughter Board. IDSelect: AD19	
II. ROBO-U160 68pin SCSI cable	
III. ROBO-U160 Retention Modules Screw x 2 Plastic hose x 2 Nut x 2	

Installation steps

Please follow the steps below to correct mount ROBO-U160 onto your system board. Portwell ROBO-678 Single Computer Board is used as demonstrated sample here. The same installation step may be applied onto ROBO-668 as well.

I. Apply the two screws (from the retention modules) on the rear side (Soldering Side) of your system board (ROBO-678).	
II. Enhance the two long screws with plastic hoses (from the retention modules) on the component side of your system board (ROBO-678).	
III. Please mount the ROBO-U160 SCSI Daughter Board onto the onboard 68-pin PCI connector (J2) of your system board (ROBO-678). You need to make sure the two mounting holes of ROBO-U160 are correctly and evenly aligned with the two screws.	

IV. Apply the two screw nuts onto the screws and fascinate them firmly.	
V. Apply the 68-pin SCSI cable onto J1 (68-pin).	

CHAPTER 3

Software Installation

Please refer to the installation guide in the enclosed Adaptec SCSI Driver read-me file.