RC-741

19” 4U High, Full-size Rackmount Chassis

• 19” 4U High, Full-size Rackmount Chassis •

• 14-slot Backplane •

• 250W ATX Power Supply •

• Eight HDD Spaces •

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Safety Instructions

Please read this section carefully and observe the instructions for you own safety and correct use of the device. It also contains information on approval and interference suppression of your machine.

Observe the warnings and instructions on the device and in the manual.

In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

- The device must be used in accordance with the instruction for use.
- The electrical installations in the room must correspond to the requirements of the respective regulations.
- Take care that there are no cables, particularly mains cables, in areas where persons can trip over them.
- DO NOT use a mains connection in sockets shared by a number of other power consumers. DO NOT use an extension cable.
- Only use the mains cable supplied.
- The unit is complete disconnected from the power source, only when the power cord is disconnected from the power source. Therefore the power cord and its connectors must always remain easily accessible.
- DO NOT set up the device in the proximity of heat sources or in a damp location. Make sure the device has adequate ventilation.
- All plugs on the connection cables must be screwed or locked to the housing.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.*

Electrostatic Discharge (ESD)

A sudden discharge of electrostatic electricity can destroy static-sensitive devices or micro-circuitry. Proper packaging and grounding techniques are necessary precautions to prevent damage. Always take the following precautions:

- Transport boards in static-safe containers such as boxes or bags.
- Keep electrostatic sensitive parts in their containers until they arrive at static-free stations.
- Always be properly grounded when touching a sensitive board, component, or assembly.
- Store electrostatic-sensitive boards in protective packaging or on conductive foam.

Grounding Methods

Guard against electrostatic damage by following these steps:

1. Cover place with approved anti-static material. Provide a wrist strap connected to a work surface and properly grounded tools and equipment.
2. Use anti-static mats, heel straps, or air ionizes to give added protection.
3. Handle electrostatic-sensitive components, boards, and assemblies by the case or the PCB edge.
4. Avoid contact with pins, leads, or circuitry.
5. Turn off power and input signals before inserting and removing connectors or test equipment.
6. Keep work area free of non-conductive materials such as ordinary plastic assembly aids and Styrofoam.
7. Use field service tools, such as cutters, screwdrivers, and vacuums that are conductive.
8. Always place drives and boards PCB-assembly-side down on the foam.

FCC Statement

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 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 residential area is likely to cause harmful interference in with case the user will be required to correct the interference at his expense.

Instructions for the CMOS Battery

The SBC is equipped with a CMOS battery. For the replacing of this battery please observe the instructions described in the SBC board user's manual. The SBC user's manual is included in the delivery or contact with your supplier.

Chapter 1

Introduction

1.1 General Description

Designed with the Internet application in mind, the rugged and stylish outlook of the RC-741 chassis delivers bountiful features for various network and/or storage requirements. Surface-coated with an exceptional treatment, the heavy-duty steel construction of this chassis complies with the industry standards for 19-inch rack installation.

Its front panel consists of two lockable latch doors with a removable air filter at the back of each. Right at the center of the front panel are the reset button, power switch, and keylock of the system. The unique frame mechanism on the front doors renders tight and waterproof capabilities for the system. Two rack brackets and two handlebars are likewise accessible on both sides of the front panel for easy rack mounting and maintenance. The chassis also accommodates and Industrial ATX motherboard, rendering convenient upgrade tasks for existing ATX platforms.

Offering users with adequate drive expandability, the RC-741 can support eight 3.5-inch drives and one 5.25-inch drive while a 12cm and two 8cm ball bearing cooling fans inside the chassis guarantees sufficient cabin airflow. Powered by a 250W/300W/400W ATX power supply. All these features indeed make the RC-741 a very competitive and robust candidate to high density and/or high capacity network storage needs.

1.2 Features

- 19” 4U high, rackmount chassis compliant to EIA RS-310C standard
- Detachable card cage for easy installation and maintenance
- 250W/300W/400W ATX power supply
- Supports 14-slot backplane or industrial ATX motherboard
- One 5.25” and eight 3.5” drive spaces
- One 12cm and two 8cm ball bearing cooling fans
- Dual lockable latch doors
- FCC/CE industrial Class A approval
- System environmental monitor (optional)

1.3 Specifications

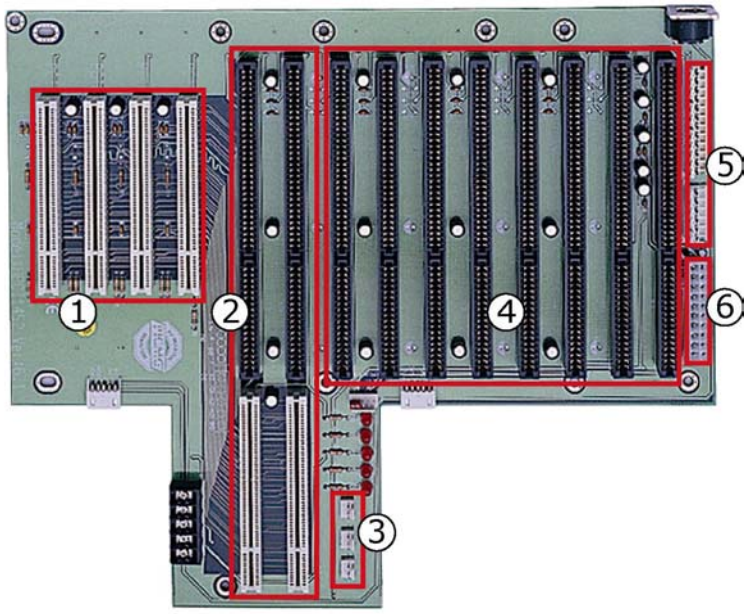
- **Chassis:** Meet EIA RS-310C 19” 4U high, rackmount standard; heavy-duty steel, SECC 1.2t (Japan)
- **Drive Space:** One 5.25” and eight 3.5” drive spaces
- **Front Panel:** Power on/off, reset switch and USB or PS/2 keyboard connectors; power and HDD active LED
- **Thermal Solution:** One 12cm and two 8cm ball bearing cooling fans; system environmental monitor (optional) and removable air filter
- **Altitude:** 15,000 feet
- **Power Supply:** 250W/300W/400W ATX power supply
- **Temperature:** 0~50°C (operating); 0~70°C (storage)
- **Humidity:** 5~95%; non-condensing
- **Safety Standard:** FCC/CE on chassis and FCC/CE/UL/TUV on power supply
- **Dimensions:** 48.0 x 17.68 x 42.7 cm
- **Weight:** 15 kgs.

1.4 Backplane

On your system is integrated a 32-bit PCI butterfly backplane.

The backplane is provided for the standard version with:

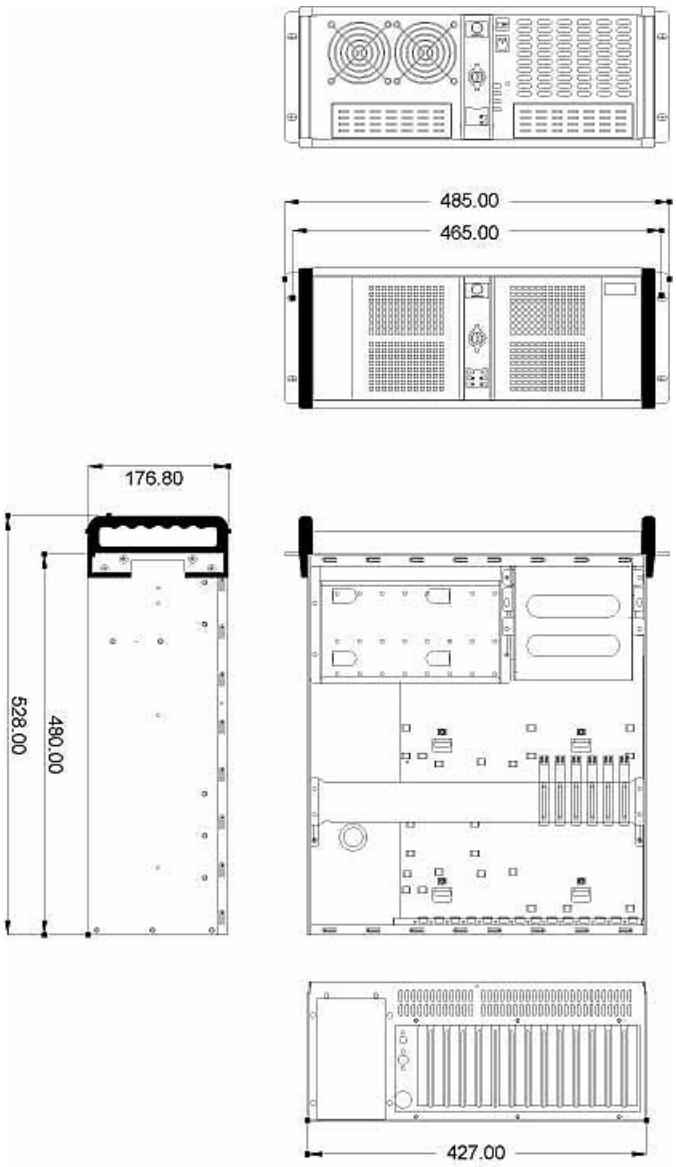
- PICMG slot x 2, PCI slot x 4, ISA slot x 8
- AT/ATX power, fan power connectors



HPCI-14S2 v6.1

NO.	Description	NO.	Description
1	PCI Extension Slot	4	ISA Extension Slot
2	PICMG SBC Slot	5	AT Power Connector
3	Fan Power Connector	6	ATX Power Connector

1.5 Chassis Dimensions



Chapter 2

Unpacking

In this chapter, we give the description of RC-741's delivery package and front/rear panel layout.

2.1 Delivery Package

The RC-741 is packed in a thick plastic bag and PU bracings that protect it from vibration during shipment. The chassis may come with components that are easily damaged during transport or shipment. After opening the carton containing the chassis, lift the PU bracings along with the chassis or turn the carton upside down and lift the carton. Carefully inspect the packaging for any damage that might have occurred during shipment.

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately. The RC-741 delivery package contains the following items:

- **RC-741 Chassis x 1**
- **Necessary Accessories Package x 1**
- **User's Manual x 1**

Necessary Accessories Package			
NO.	**Description**	**NO.**	**Description**
1	Cable Tie	6	6#-32 Pan Head Screws
2	Bracket	7	Doors Key
3	Wire Saddle	8	6#-32 Hex Head Screws
4	6#-32 Hex Pillar Screws	9	M3 Hex Head Screws
5	6#-32 Flat Head Screws	10	AT Power Switch

2.2 Front Sides

There are two front panel doors on the RC-741 chassis. The front panel doors are only a safety provision that protects the disk drives from dust and harmful liquids. The knob at the center top area of the front door is turned clockwise when locking and counterclockwise when releasing the lock.

Front Sides Layout			
NO.	**Description**	**NO.**	**Description**
1	5.25” CD-ROM Cover	6	Reset Button
2	8cm Ball Bearing Cooling Fan	7	Power On/Off Switch
3	LED Panel	8	Dual Lockable Latch Doors
4	Door Lock	9	12cm Ball Bearing Cooling Fan Cover
5	USB Connector		

LED Status

LED Status			
NO.	**Description**	**NO.**	**Description**
1	Power ON/OFF	4	Alarm LED
2	HDD LED	5	Fan
3	System 1	6	System 2

Power Controller

Power Switch			
NO.	**Description**	**NO.**	**Description**
1	Reset Switch	2	Power ON/OFF

By operation of the “Power Switch”, the system will be turned on or off. The system must be connected to corresponding power source.

If your system no longer reacts, you must restart the RC-741, please press the reset button.

NOTE: *When you reset, all data in the main memory are erased.*

Dual Lockable Latch Doors

In front of the fans and behind the fan door are located an exchangeable air filter mat to protect your system from dust. Please make sure the door must be always closed.

You can protect the RC-741 from unauthorized use by means of drive doors with a safety lock.

NOTE: *The RC-741 comes equipped with one key. If the key get lost or damaged, then the drive door CAN NOT open by any one. Please take the key save in one safety place.*

Air Filter

Cleaning frequency will depend on the operating environment. If the environment is extremely dusty, clean the air filter mat more often.

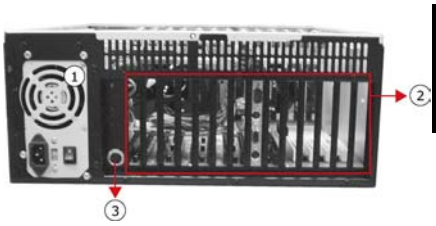
To remove the air filter mat located at the front of the system, proceed as follows steps.

1. Open the door and remove the air filter.

2. To clean the air filter mat
   - Rinse in water
   - Also possible to beat it out, vacuum it or blast it with warm compressed air
   - If the filter is soiled with greasy dust, you should rinse it with warm water with degreaser added. DO NOT clean the filter with a piercing jet of water or wring it out.
3. After cleaning and drying of the air filter, put these over the fans.

2.3 Rear Sides

The structure of the RC-741 rear panel is shown on the following figure. The keyboard connector along the rear panel is a convenient provision for users wanting to connect a keyboard from the rear or when using segmented backplane system with the RC-741. See the next section for more information.



NO.	Description
1	Power Supply
2	Extension Slots
3	PC/AT Keyboard Connector

Power Supply Unit

Each RC-741 can be equipped optionally depending on the power supply unit with a 250W AT, a 250W ATX, a 300W ATX, or a 400W ATX power supply.

Extension Interfaces

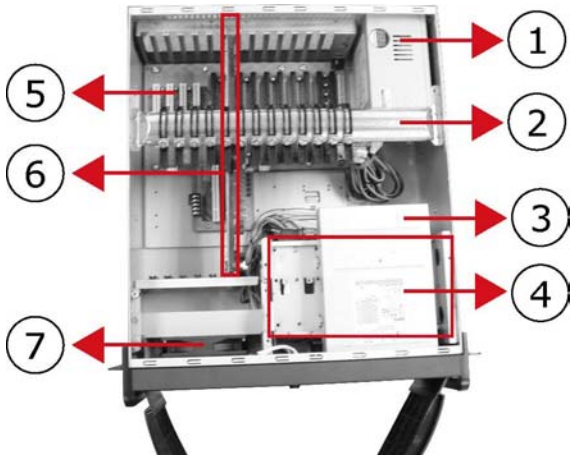
The SBC external interfaces may very depending on the board, please see the SBC user's manual for detail information.

PC/AT Keyboard Connector

If you want to use PC/AT keyboard, please make sure backplane (*CN2* or *CN3*) and SBC's 5-pin KB connector is connection.

2.4 Top Sides

If you removed the top cover, you can view the all parts in RC-741 as following:



NO.	Description	NO.	Description
1	Power Supply	5	Backplane
2	Anti-vibration Crowbar	6	SBC
3	5.25” CD-ROM	7	12cm Ball Bearing Cooling Fan
4	Detachable Cage		

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Chapter 3

Assembly, Disassembly

In this chapter, we give the description of how to install/access the components inside the RC-741.

CAUTION: *Check and make sure that the power supply matches the environment line voltage in your area before turning on the system power. Turn off the system power before connection or disconnecting any peripherals or cables. Electric currents can cause electric shock or damage to the system.*

3.1 Removing the Top Cover

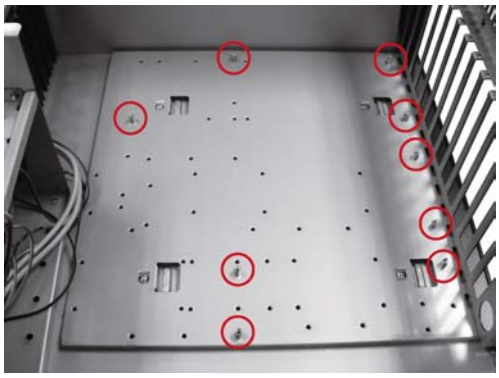
Removal of the top cover allows you to access the internal system components of the RC-741. When removing the top cover, follow the instructions listed below.

1. Move your fingertips around the top cover and locate the screws that attach it to the chassis. A total of six (6) screws should be removed to free the top cover.
2. There are 2 screws located at the rear side of the chassis, another 2 on the left side and 2 on the right side of the top chassis rim. Loosen the screws. Secure the screws in a safe place; you will need them when affixing back the top cover.
3. After removing the six (screws), slide the top cover backwards to completely disengage it from the chassis. Lift the top cover and place it aside.

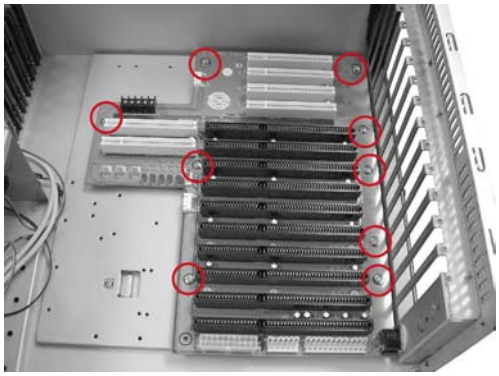
3.2 Assembly Backplane & Power Supply

3.2.1 Backplane Installation

1. Put hex pillar screws on positions fit for screw holes of the backplane.



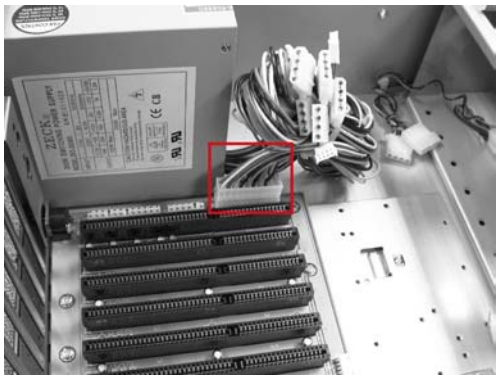
2. Match the holes and put the backplane on the chassis. Secure backplane with 6#-32 pan head screws.



3.2.2 Power Supply Installation

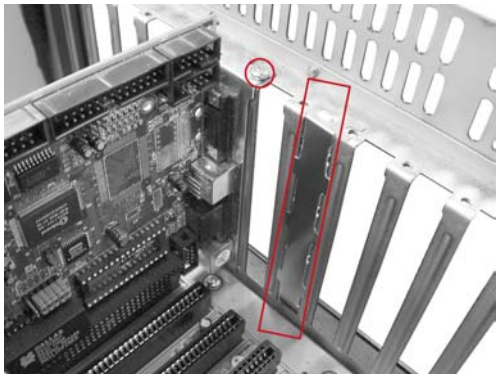
1. Secure the power supply unit with 6#-32 hex screws on the chassis.

2. Connect the 20-pin ATX power plug to the ATX power connector on backplane.

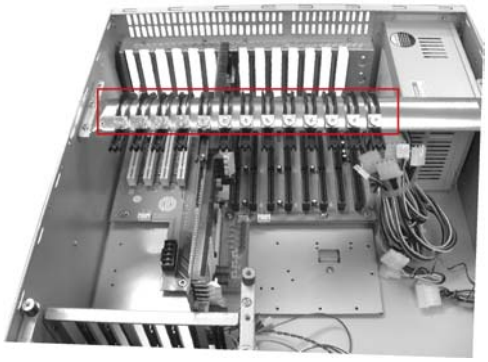


3.2.3 SBC and Extension Cards Installation

1. Align the SBC (or expansion cards) connector with the slot and press firmly unit the card is completely seated on the slot. Secure card with 6#-32 flat head screws, and lock metal blankets on un-using places.



2. Make sure SBC and expansion cards were installed completely, fix the anti-vibrate to insure cards against loosing while vibrating.



3.2.4 Installation Disk Drives

The RC-741 has shock-resistant drive bay providing mounting space for up to one removable shock-resistant drives Drive sizes can be in eight 3.5" HDD and one 5.25" CD-ROM. 5.25" CD-ROM out of the installed drives is accessible from the front panel.

1. Examine the disk drive cage and locate the screws attached to it.
2. There are four screws that hold the drive cage from the external right side of the panel. See the figure on the right for the exact location of these four screws. Remove these screws then gently pull the drive cage off the chassis. You may now install the drives at your preferred locations.

3. Secure the mounting of all the drives before you return the drive cage back into its original position.

4. Mount back the screws you removed from Steps 2 and 3.

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Chapter 4

250W ATX Power Supply

This specification defines the performance characteristics of a grounded, single-phase, 250 watts, 6 output levels power supply. This specification also defines worldwide safety requirements and manufactures process test requirements.

4.1 Specifications

- **Input Voltage:** 90~135VAC (input 115VAC); 180~260VAC (input 230VAC)
- **Input Frequency:** The input frequency range will be 47Hz~63Hz
- **Input Current:** 7A for 115VAC at without AC outlet; 3.5A for 230VAC
- **Inrush Current:** 70A max. at cold start
- **Switching Frequency:** 30KHz typical
- **Hold Up Time:** 16ms min.
- **Brown Out Voltage:** 95VAC max. at 60Hz
- **Output Power:** 250W at 45°C
- **Power Up Time:** <20ms for +5V output voltage
- **Power Good Signal:** The power good signal will not be higher than 100~500ms after the +5V output stabilizes at its operating value when the unit is turned on
- **Power Failure:** The TTL compatible signal will go down at least 1ms before +5V below 4.75V
- **PS ON Signal:** TTL compatible signal (active low)
- **Efficiency:** 75% min. at full load (AC input 230V)
- **Altitude:** 10,000 feet
- **Over Voltage Protection:** +3.3V from 3.8~4.3V, +5V from 5.7~7V, +12V from 13.4~15.6V
- **Over Load Protection:** Total output from 130% min. to 150% max.
- **Short Circuit Protection:** Latch Off
- **Thermal System:** Forced air ventilation by DC ball bearing cooling fan, fan status monitoring is optional
- **Temperature Coefficient:** +0.05% per°C
- **Temperature:** 0~50°C (operating); -10~+70°C (storage)
- **Humidity:** 20~90% RH (operating); 10~98% RH (storage)
- **Dimensions:** 15.0 x 14.0 x 8.6 cm
- **MTBF:** 100,000 hrs.

	V1	V2	V3	V4	V5	V6
Output Voltage	+3.3V	+5V	+12V	-5V	-12V	+5Vsb
Max. Current	14A(I1)	25A(I2)	10A	0.5A	1A	1.5A
Min. Current	0.3A	1A	0.4A	0A	0A	0A
Load Regulation	5%	5%	5%	10%	10%	5%
Line Regulation	1%	1%	1%	2%	2%	1%
Ripple & Noise	50mV	50mV	75mV	150mV	150mV	50mV
****	Total 125W Max.	****	****	****	****	****

- **(V1 * I1) + (V2 * I2) < 125W**
- **A low pass filter will be added to outputs during measurement. (exp: 0.47uF Tan-cap. + 0.1uF Ceramic-cap.)**

4.2 Dimensions