RMC8416

4U 14-slot Rackmount Computer
Front access I/O & expansion slot
17.6-inch short depth chassis

Installation Guide

ACNODES

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INSTALLATION STEPS

To install the RMC 8416 chassis, the following installation steps must be completed:

Step 1:   Unpack the chassis.

Step 2:   Install the front handles.

Step 3:   Remove the top cover and hold-down clamp.

Step 4:   Install the PSU.

Step 5:   Install the backplane.

Step 6:   Install the CPU card.

Step 7:   Install the PCI and ISA expansion cards.

Step 8:   Install the disk drives.

Step 9:   Connect front panel cables.

Step 10: Connect PSU cable and interface cable.

Step 11: Install the hold-down clamp and PCI/ISA card shock absorbers.

Step 12: Reinstall the top cover.

The installation steps outlined above are described in detail below. Please refer to the relevant section.

STEP 1: UNPACK

The RMC 8416 is shipped in a plastic bag that is placed inside a cardboard box. The items are also shipped with the chassis. When you unpack the chassis you must:

    Make sure all the items listed above are present.

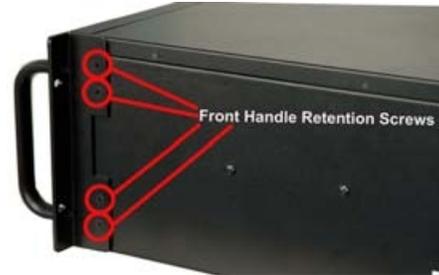   Make sure the chassis has not been damaged in any way.

STEP 2: FRONT HANDLE INSTALLATION

Two handles are shipped with the RMC 8416 chassis. The handles are installed on the sides, at the front of the chassis. Each handle is secured to the chassis by 4 retention screws. To install the handles, please follow the steps below:

Step 1:   Align the retention screw holes on the side of the chassis with the retention screws in the handle.

Step 2:   Insert 4 retention screws for each handle.

Figure 2: Insert 4   Front   Handle Retention Screws

STEP 3: TOP COVER AND HOLD-DOWN CLAMP REMOVAL

3.1: TOP COVER REMOVAL

The top cover is secured to the chassis with 6 retention screws, three on each side of the chassis. To remove the top cover, please follow the steps below:

Step 1:   Remove all 6 top cover retention screws. Remove 3 retention screws from each side of the chassis.

Figure 3: Top Cover Retention Screws

Step 2:   Slide the top cover backwards and Lift the top cover up gently.

STEP 3.2: HOLD-DOWN CLAMP REMOVAL

Detach the hold-down clamp by removing the 2 screws located on each side of the chassis and lift the hold-down clamp off the chassis.

Figure 5: Remove the 2 Hold-Down Clamp Retention Screws

Figure 6: Lift the Hold-Down Clamp off the Hold-Down Clamp Securing Hook

STEP 4: Install the Power Supply Unit (PSU)

Once the top cover and hold-down clamp have been removed, the PSU must be installed. Compatible IEI PSUs are listed in the table below.

Model No.	Input	Type	Watt	Output Range						
				+3.3V	+5V	+12V1	+12V2	-5V	-12V	+5Vsb
ACE-925AP-U-RS	AC	AT	200W	N/A	22A	11A	N/A	0.5A	0.7A	N/A
ACE-940AP-RS	AC	AT	390W	N/A	40A	15A	N/A	0.3A	0.8A	N/A
ACE-832AP-RS	AC	ATX	300W	28A	30A	15A	N/A	0.3A	0.8A	2A
ACE-841AP-S-RS	AC	ATX	400W	28A	33A	20A	N/A	0.5A	1A	2A
ACE-850AP-RS	AC	ATX	500W	27A	29A	18A	18A	0.3A	0.8A	2A

Table 2: Compatible IEI PSUs.

The PSU is installed at the rear of the chassis. The PSU is secured to the chassis with an internal PSU securing clamp and 4 retention screws from the rear of the chassis. To install the PSU, please follow the steps below:

Step 1:   To remove the PSU securing clamp, remove the 2 PSU securing clamp retention screws.

Figure 7:   PSU Securing Clamp Retention Screws

Step 2:   Correctly position the PSU at the rear of the chassis making sure that the power switch and the cable socket both face outwards.

Step 3:   Once the PSU has been correctly positioned, secure the PSU to the chassis by inserting 4 retention screws through the rear of the chassis.

Figure 8: Insert PSU Retention Screws

Step 4:   Reinstall the PSU securing clamp and reinsert the 2 previously removed PSU securing clamp   retention screws.

STEP 5: BACKPLANE INSTALLATION

The IEI backplanes listed below are compatible with the RMC 8416 chassis.

Model No.	SBC Type	PCI	ISA	PSU
BP-14S-RS-R30	ISA	0	14	AT
PCI-13SD-RS-R30	PICMG 1.0	3+4	3+3	AT/ATX
PCI-14S-RS-R30	PICMG 1.0	4	9	AT/ATX
PCI-14S2-RS-R30	PICMG 1.0	4	8	AT/ATX
PCI-14S3-RS-R30	PICMG 1.0	4	9	AT/ATX
PE-6S	PICMG 1.3	2	0	ATX
PE-10S	PICMG 1.3	4	0	ATX
PX-14S3-RS-R30	PICMG 1.0	12	2	AT/ATX
PX-14S5-RS-R30	PICMG 1.0	7	6	AT/ATX
PXAGP-13S3-RS-R30	PCIAGP	11	0	AT/ATX

Table 3: Compatible Backplanes

To install a compatible backplane please follow the instructions below:

Step 1:   Insert the copper pillars in the predrilled screw holes in the bottom of the chassis according to the distribution of the retention screw holes in the backplane you want to install.
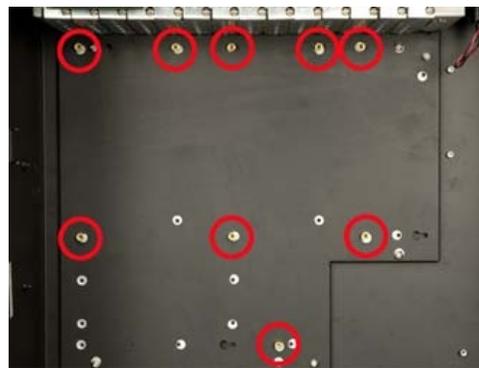

Figure 9:   Locations of the 9 Copper Pillars

Step 2:   Mount the backplane onto the copper pillars and align the backplane screw holes with the screw holes in the copper pillars.

Step 3:   Once the backplane is properly aligned with the retention screw holes, insert retention screws in all the retention screw holes in the backplane to secure the backplane to the chassis.
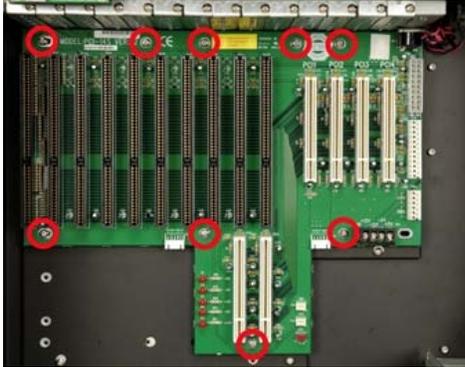

Figure 10:   Insert Backplane Retention Screws

STEP 6: CPU CARD INSTALLATION

To install the CPU card please follow the instructions below:

Step 1:   Remove the slot cover at the front of the chassis. To do this, remove the slot cover retention screw at the top of the slot cover.

Figure 11: Remove the Slot Cover Retention Screw

Step 2:   Slide the CPU card into the socket on the backplane reserved for the CPU card. If you are installing a full-size CPU card, make sure the back edge of the CPU card slots into the corresponding plastic guides located behind the cooling fans.

Step 3:   To secure the CPU card, reinsert the previously removed slot cover retention screw.

STEP 7: PCI/ISA EXPANSION CARD INSTALLATION

The RMC 8416 supports up to 13 PCI/ISA expansion cards. To install an expansion card (PCI or ISA) please follow the steps below.

Step 1:   Remove the slot cover at the back of the chassis. To do this, remove the slot cover retention screw at the top of the slot cover.

Step 2:   Slide the PCI/ISA expansion card into reserved PCI/ISA socket on the backplane.

Step 3:   To secure the PCI/ISA expansion card, reinsert the previously removed slot cover retention screw.

STEP 8: DISK DRIVES INSTALLATION

The RMC 8416 chassis has 2 drive brackets: a main drive bracket and a side bracket. To install the drives, please follow the steps outlined in the sections below.

STEP 8.1: REMOVE THE SIDE BRACKET

Before any drives can be installed, the side bracket attached to the main drive bracket must be removed. To remove the side bracket, remove the 2 retention screws from the top of the side bracket that secure the side bracket to the main bracket.

Figure 12: Remove the Side Bracket

STEP 8.2: 3.5" DRIVE INSTALLATION INTO THE SIDE BRACKET

The side bracket supports one 3.5" drive. If you want to install a 3.5" drive into the side bracket, please follow the steps below:

Step 1:   Place a 3.5" FDD drive into the bracket. Make sure the FDD PCB board is facing the surface of the bracket and the 4-pin power connector and the IDE/SATA interface connector are facing the rear of the bracket.

Step 2:   To secure the 3.5" HDD to the side bracket, insert 4 retention screws, two on each side.

Figure 13: Insert 4 HDD Retention Screws

STEP 8.3: REMOVE THE MAIN DRIVE BRACKET

If you wish to install a 5.25" optical drive or more than one 3.5" drive (HDD or FDD), the main drive bracket must be removed. To remove the main drive bracket from the chassis, follow the steps below:

Step 1:   Remove the side bracket (See STEP 8.1: REMOVE THE SIDE BRACKET above).

Step 2:   Remove the 4 retention screws that secure the main drive bracket to the base of the chassis.
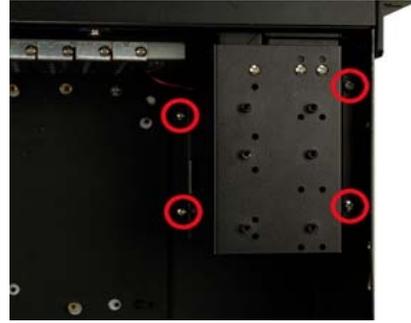

Figure 14: Remove the 4 Main Bracket Retention Screws

STEP 8.4: 3.5" DRIVE INSTALLATION IN THE MAIN DRIVE BRACKET

The main drive bracket supports one 5.25" optical drive and one 3.5" drive (FDD or HDD). If you want to install a 3.5" drive (FDD or HDD) into the main drive bracket, please follow the steps below:

Step 1:   Remove the front metal cover from the 3.5" drive bay by removing the 2 front cover retention screws on both sides, one on each side, of the 3.5" drive bay.

Figure 15: Remove the Front Metal Cover Retention Screws

Step 2:   Slide a 3.5" drive into the 3.5" drive bay. Make sure the drive is upright and the 4-pin power connector and the IDE/SATA drive interface connector are at the rear of the drive bay.

Step 3:   Secure the 3.5" drive to the drive bay by inserting 4 retention screws, two on each side, through the sides of the main drive bracket and into the 3.5" drive.

Figure 16: Insert Four 3.5" Drive Retention Screws

STEP 8.5: 5.25" DRIVE INSTALLATION IN THE MAIN DRIVE BRACKET

If you want to install a 5.25" optical drive into the main drive bracket, follow the steps below:

Step 1:   Remove the front metal cover from the 5.25" drive bay by removing the 4 front cover retention screws, on both sides, two on each side, of the 5.25" drive bay.

Figure 17: Remove the 4 Retention Screws on the Sides of the Main Bracket

Step 2:   Slide a 5.25" optical drive into the drive bay. Make sure the 4-pin power connector and the IDE/SATA drive interface connector are facing the rear of the chassis.

Step 3:   Secure the 5.25" optical drive to the drive bay by inserting 4 retention screws (two on each side) through the sides of the drive bracket and into the 5.25" optical drive.

Figure 18: Install a 5.25" Disk Drive into the Main Drive Bracket

STEP 8.6: REINSTALL THE DRIVE BRACKETS

Once all the drives have been installed into the drive brackets, reinstall the drive brackets into the chassis. To reinstall the drive brackets into the chassis, please follow the steps below:

Step 1:   Place the main drive bracket into the chassis making sure that the front of the 5.25" optical drives are facing out of the chassis and the 4-pin drive power connectors and IDE/SATA interface connectors are all facing the rear of the chassis.

Step 2:   Reinsert the 4 previously removed main drive bracket retention screws.

Step 3:   Correctly mount the side drive bracket onto the main drive bracket making sure the 4-pin power connector and IDE/SATA interface connector both face the rear of the chassis; and the clip at the bottom of the internal HDD bracket slots into the space between the clip on the right side of the main drive bracket and the main drive bracket.

Figure 19: Clips Locations

Step 4:   Reinsert the 2 previously removed side bracket retention screws into the top of the side bracket.

STEP 9: CONNECT FRONT PANEL CABLES

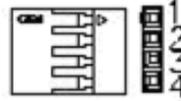The RMC 8416 has LEDs, buttons and ports on the front bezel.

o   1 x Power LED

o   1 x HDD activity LED

o   1 x Power switch

o   1 x Reset button o   2 x USB ports

These components are all connected to the CPU card with cables. To correctly connect these cables, please refer to the technical documentation that came with your CPU card. The connectors that are provided with the chassis are listed below.

No.	Name
2	 USB cable
1	 Power LED cable
1	 Reset Switch cable
1	 HDD LED cable
1	 Power switch cable

Table 4: Chassis Connectors

The pin definitions for the USB cable are shown below

PIN No.	Description	Color
1	+5V	Red
2	D-	Dark Yellow
3	D+	Yellow
4	GND	Brown

Table 5: Pin Definitions of USB Cable

STEP 10: PSU CABLE AND INTERFACE CABLE CON-NECTIONS

Before you reinstall the hold-down clamp and the cover, the following cables need to be connected.

Step 1:   Connect the PSU cables from the PSU to the backplane, full-size CPU card, HDD, FDD, cooling fans and optical drives power connector.

Step 2:   The drive interface connectors must be connected to the CPU card.

STEP 11: HOLD-DOWN CLAMP AND PCI/ISA CARD SHOCK ABSORBERS INSTALLATION

The RMC 8416 comes with 9 shock absorbers, 2 long shock absorbers and 7 short shock absorbers, used for securing the PCI/ISA cards from vibration. Because the shock absorbers are attached to the hold-down clamp, the shock absorbers should be installed after hold-down clamp is reinstalled. To install the hold-down clamp and shock absorbers, please follow the steps below:

Step 1:   Slide the end of the hold-down clamp with 2 holes for the hold-down clamp hooks into the hold-down clamp securing hook on the right side of the chassis.

Step 2:   Align the retention screw holes in the other end of the hold-down clamp with two retention screw holes in the clip stretches out from the internal side HDD bracket.

Hold-Down Clamp Retenton Screw Holes

Figure 20: Hold-Down Clamp Retention Screw Holes in the Clip of the Side HDD bracket

Step 3:   Reinsert the 2 hold-down clamp retention screws.

Step 4:   Press the rubber of a shock absorber with proper length against the top of the PCI/ISA card you want to secure, according to the height of the installed PCI/ISA card.

Step 5:   Align the retention screw hole in the shock absorber with the corresponding retention screw hole in the hold-down clamp.

Step 6:   Insert one retention screw for each shock absorber to secure it to the hold-down clamp.

Figure 21: PCI/ISA Card Shock Absorber

STEP 12: COVER REINSTALLATION

After you have completed the above procedures, the cover can be reinstalled. To do this, slide the cover back over the chassis and reinsert the 6 previously removed retention screws.

There are three 8 cm cooling fans inside the RMC 8416 chassis. To replace a fan, please follow the instructions below:

Step 1:   Loosen 2 thumbscrews for the fan that must be replaced.

Figure 22:   Locations of the Fan Bracket Thumbscrews

Step 2:   Unplug the power cable that is connected to the fan.

Figure 23: Unplug the Fan Power Cable

Step 3:   Remove the fan by removing the four fan retention screws.

Figure 24: Remove the Fan Retention Screws

Step 4:   Replace the fan and secure a new fan to the fan bracket with the 4 previously removed retention screws.

Step 5:   Reinstall the fan bracket into the chassis and secure it to the chassis with the 2 previously loosened thumbscrews.

FAN FILTER REPLACEMENT

To replace the fan filter, please follow the steps below:

Step 1:   Loosen the 2 fan filter bracket retention screws at the top of the fan filter bracket and open the bracket.

Figure 25: Remove the Fan Filter

Step 2:   Replace the fan filter pad inside.

Step 3:   Reinstall the fan filter bracket and secure it to the chassis with the 2 previously removed retention screws.

CABINET INSTALLATION

Supporting rails, rack trays, or slide rails can be implemented using the mounting holes on the sides of the chassis. The four mounting holes in the two handles on the sides of the chassis are used to secure the chassis to the front rack posts in your rack cabinet to prevent the chassis from falling forwards.

Figure 26:   Locations of the 4 Mounting Holes