USER'S Manual

MIC-3000 Series

MIC-3081

10U high 8-slot enclosure with CT bus and rear I/O for CompactPCI™ backplane

Advantech CompactPCI™

Modular Industrial Computer

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CE Notification

The MIC-3081, developed by Advantech Co., Ltd., has passed the CE test for environment specifications when shielded cables are used for external wiring. We recommend the use of shielded cables.

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 which 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's 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:

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.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
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.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

Before installation, ensure that the following materials have been received:

• One MIC-3081 CompactPCI™ enclosure with backplane

• One box of accessories

• One warranty certificate

• One CD-ROM for user's manual (PDF file)

• One quick startup guide

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Technical Support and Sales Assistance

If you have any technical questions about the MIC-3081 or any other Advantech products, please visit our support website at:

• **http://www.advantech.com.tw/support**

For more information about Advantech's products and sales information, please visit:

• **http://www.advantech.com**.

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General Information

1.1 Introduction

The MIC-3081 series CompactPCI is a 10U-high enclosure with eight CompactPCI slots for rack mounting, which is provided as a flexible, configurable development platform. It supports 8-slot backplane H.110 CT bus backplane and rear I/O, which is designed to speed the implementation of telecom Internet and Industrial automation applications.

Optimal for cooling airflow with hot-swap fans

A 2.5U space underneath the card slots accommodates two 163 CFM high-speed fans, to provide forced cooling air into the system. There are also two high-speed blowers on the top (1.5U space) for linear air flow to optimal the chassis cooling system. All the fans in this chassis are individually hot-swappable, allowing users to replace any of the fans without interrupting the operation of the system. The fan's tachometer output enables the alarm module to monitor the speed of the fans. A protective circuit has been designed into the fan backplane to reduce spikes and noise during fan hot-swapping. This design allows users to replace new fans safely without turning the system off.

System fault detection and alarm notification

The MIC-3081A is integrated with a system fault-detection and alarm notification (MIC-3921). Versatile power supply options and configurations can be made according to particular application requirements. The MIC-3081B can optional with an intelligent chassis management module, the MIC-3924A, to monitor and report internal conditions via SNMP trap, email, pager and beep sounds. The system's status including CPU (SBC) temperature, system power voltage levels, and fan speeds can be easily checked from remote web browser for administrator monitoring. The chassis management module's serial port can be linked to a modem, to communicate to a remote host for real time monitoring, module configuration and alarm reporting. No software needed for remote monitoring since the SNMP/HTTP protocol provide an open platform for all the operating system.

Hot-swap passive backplane with H.110 CT-bus

The 6U-sized 8-slot backplane of the MIC-3081 supports 32/64-bit operation, the backplane complies with PICMG 2.1 hot-swap specification. Eight CompactPCI slots are available. Slot 8 is dedicated to the system master, while slot 1 through 7are available for 32/64-bit CompactPCI peripheral boards. Connectors P3 and P5 on each peripheral slot of the telephony backplane are configured for rear I/O, while connector P4 is configured for the ECTF H.110 CT-bus (TDM telephony bus). The

backplane may be configured for +3.3V or +5V V(I/O) CompactPCI device support. A short-bar is provided on the backplane to select the desired V(I/O) voltage. The eight rear I/O are provided directly behind the backplane for IEEE1101.11 specification, 80mm depth transition board. Slot 8 is dedicated to the system master, and slot #1 through #7 are available for additional rear I/O boards.

10U-High CompactPCI™ Enclosure with 8-slot Backplane

There are two MIC-3081 models:

• **MIC-3081A/8-4R:** MIC-3081 clone system, w/ 8-slot CompactPCI™ 6U backplane (MIB-3021CT), advance intelligent alarm module (MIC-3921)

• **MIC-3081B/8-4R:** MIC-3081 clone system, w/ 8-slot CompactPCI™ 6U backplane (MIB-3081A), chassis management module (MIC-3924A)

1.2 Features
• 10U-high enclosure, 19-inch enclosure
• 8-slots 6U CompactPCI backplane
• Supports rear I/O
• H. 110 CT bus compliant (PICMG 2.5)
• 460W single ATX or 560 W N+1 redundant ATX power supply
• Hot swappable fan modules and blowers
• Advance intelligent alarm module / chassis management module as option
• Device bay accommodates up to three devices

1.3 Specifications
1.3.1 General

• **6U Slot:** 6U CompactPCI x 8, transition x 8 (80mm, IEEE1101.11 compatible)

• **Bus:** 32-bit/33MHz, 64-bit/66MHz

• **VI/O Voltage:** 3.3 V/5 V (short-bar selectable)

• **Fan:** 2 (163 CFM/each, 15 cm) on the chassis bottom (Inlet)

• **Blowers:** 2 (40 CFM/each, 12 cm) on the chassis top (Outlet)

• **Power Requirement Input:** AC 100-240V @ 47-63 Hz, full range

• **Safety:** CE, TUV, CUL, UL

• **Dimensions** (W x H x D, mounting flanges not included)**:** 444 x 446 x 342 mm (17.48″ x 17.56″ x 13.46″)

• **Weight:** 18 kg (39.65 lb)

• **Serviceability MTTR:** 5 minutes

• **Standard:** PICMG 2.0, R3.0 CompactPCI specifications

PICMG 2.1, R2.0 CompactPCI Hot-Swap specifications

PICMG 2.5, R1.0 CompactPCI Computer Telephony specification

1.3.2 MIC-3081A/8-10R 560W N+1 redundant ATX MIC-3921 & MIC-3081B/8-10R 560W N+1 redundant ATX MIC-3924A

• **Output:** 560 W (N+1 redundant) ATX*

• **Max. Load:** +3.3 V @ 36 A*, +5 V @ 58 A*, -5 V @ 0.5 A, +12 V @ 20 A -12 V @ 1.5 A, +5 V @ 1.5 A

• **Min. Load:** +3.3 V @ 0.3 A*, +5 V @ 2.0 A*, -5 V @ 0.0 A, +12 V @ 0.5 A -12 V @ 0.0 A, +5 V @ 0.1 A

• **Temperature:** 0-50°C, (32-122°F)

• **Shock:** 10 G

• **Vibration (5-500 Hz):** 1.0 Grms

1.3.3 MIC-3081A/8-10A 460W single ATX MIC-3921

• **Output:** 460 W (N+1 redundant) ATX*

• **Max. Load:** +3.3 V @ 45 A**, +5 V @ 40A*, -5 V @ 0.0 A, +12 V @ 16 A -12 V @ 1.5 A, +5 V @ 1.5 A

• **Min. Load:** +3.3 V @ 0.3 A*, +5 V @ 2.0 A*, -5 V @ 0.0 A, +12 V @ 0.5 A -12 V @ 2.0 A, +5 V @ 3.5 A

• **Temperature:** -20 ~ 80 °C, (-4 ~ 176 °F)

• **Humidity:** 10-95% @ 40°C non-condensing

• **Shock:** 30 G

• **Vibration (5-500 Hz):** 2.0 Grms

1.4 Dimensions

440.00

338.00

340.00

478.00

461.00

165.09

368.29

400.00

478.00
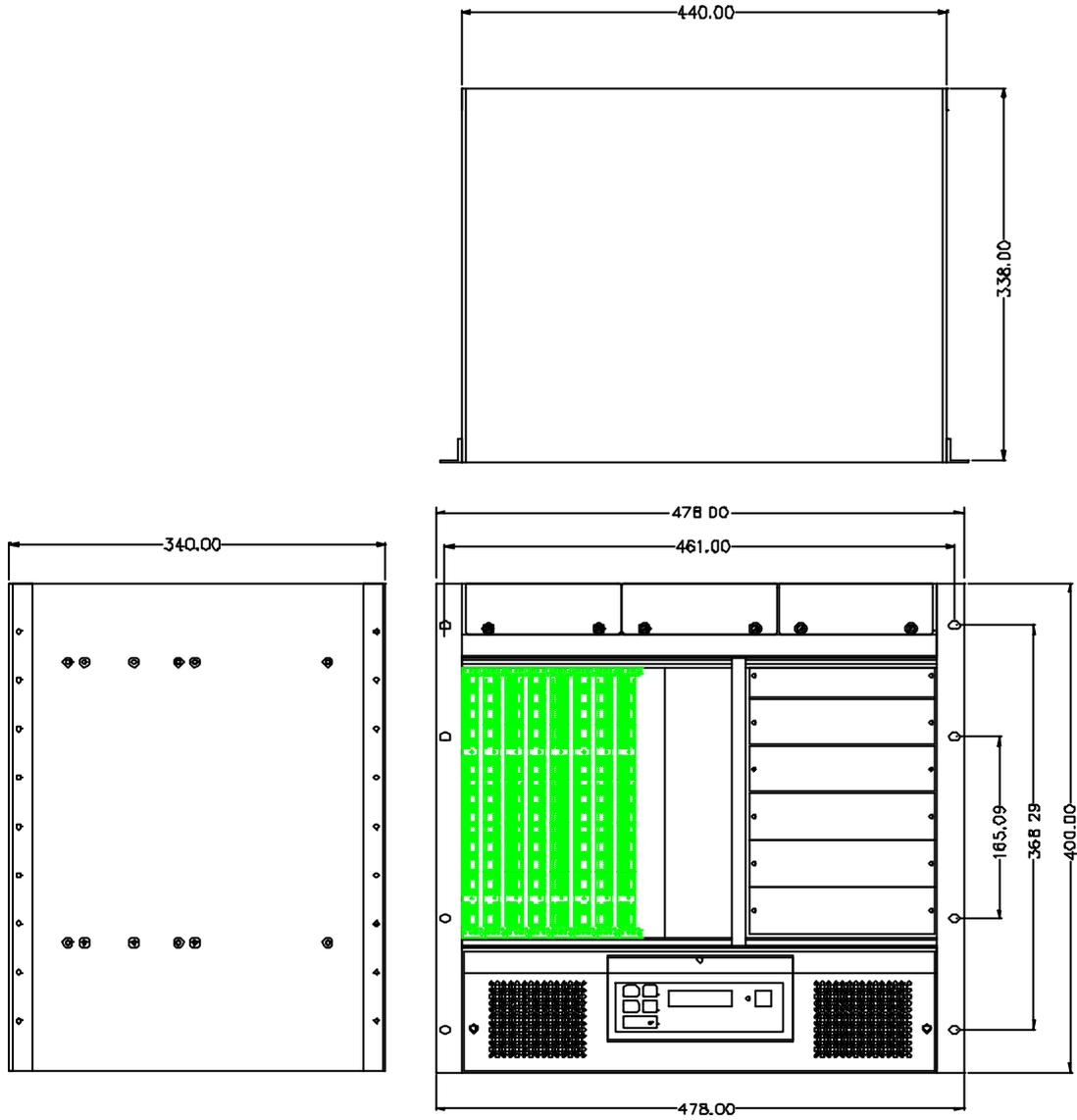
Protection door and blank panels removed

2

Installation

2.1 Initial Inspection

We have carefully inspected the MIC-3081 mechanically and electrically before shipping. It should be free of marks and scratches and in perfect working order upon receipt. As you unpack the MIC-3081, check it for signs of shipping damage (damaged box, scratches, dents, etc.). If it is damaged or fails to meet specifications, notify our service department or your local representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.

Warning! We strongly recommend that only qualified, experienced personnel install or remove components. They must exercise extreme caution when doing so.

2.2 The MIC-3081 Illustration

The MIC-3081 is designed to be installed and maintained easily.

Figure 2-1 and Figure 2-2 illustrate important components on the front and rear side of the enclosure.

Figure 2-1: Front view of MIC-3081

Figure 2-2: Rear view of MIC-3081A (with advance intelligent alarm module)

2.3 Installation Procedures

2.3.1 Card Installation and Removal

The CompactPCI™ connectors are firm and rigid, and require careful handling while plugging and unplugging. Improper installation of a card can easily damage the backplane of the chassis.

The system card can be installed only in the system slot. The CompactPCI™ specification allows the system slot to be in any position in the backplane. Do not insert the system card into any other slot, or insert a peripheral card into the system slot. The MIC-3081 accepts different backplanes, so the location of the system slot may vary. The system slot is marked by a triangle enclosing the slot number. Please refer to the backplane user's manual.

The insert/eject handles on CompactPCI™ cards help users to install and remove the cards easily and safely. Follow the procedures below to install a card into a

chassis:

To install a card:

1. Hold the card vertically. Be sure that the card is oriented correctly.
The components of the card should be pointing to the right-hand side.

2. Be sure that the handles of the card are not latched. Release the handles if they are latched. Handles from different vendors may have different latch designs.
Caution: Keep your fingers away from the latch hinges to prevent your fingers from getting pinched.

3. Insert the card into the chassis by sliding the upper and lower edges of the card into the card guides.

4. Push the card into the slot gently by sliding the card along the card guide until the handles meet the rectangular holes of the cross rails. 1 2
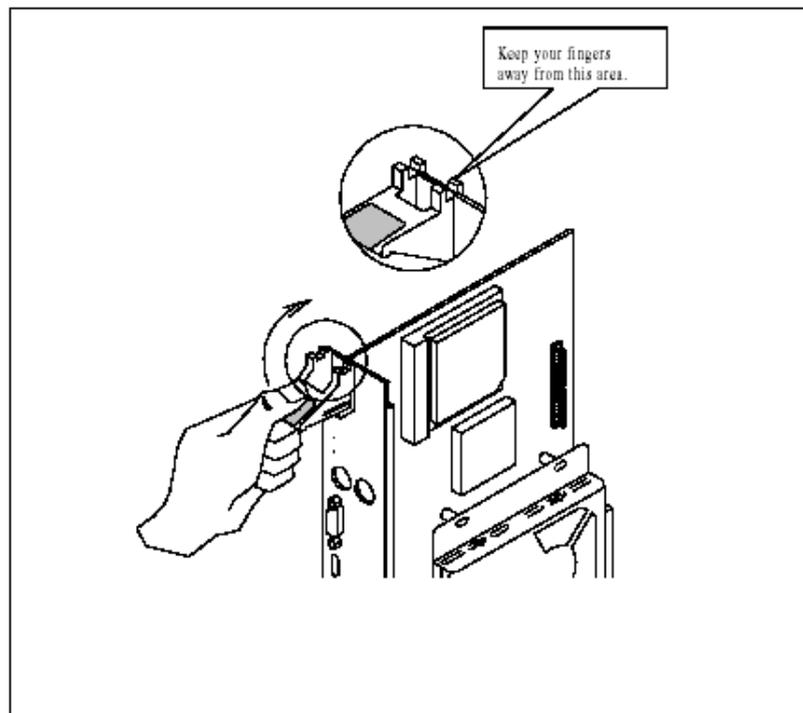

Figure 2-3: Installing a card into the chassis

Note: If the card is correctly positioned and has been slid all the way into the chassis, the handles should match the rectangular holes. If not, remove the card from the card guide and repeat step 3 again. Do not try to install a card by forcing it into the chassis.

5. Pull the upper handle down and lift the lower handle up to push the card into place.

6. Secure the card by locking the handles into place.

To remove a card:

1. Unscrew the screws on the card front panel. Release the locking latches on the handles.

2. Lift the upper handle up and press the lower handle down to release the card from the backplane.

3. Slide the card out.

2.3.2 Before Operating the System

Before operating your system, first check your power supply source. Adjust the switch on the power supply to the correct voltage. Two mounting flanges are included for users who would like to install the MIC-3081 on a 19" rack or on a panel. These flanges can be installed on the front side for rack mounting or on the rear side for panel mounting. Four rubber stands can be attached to the bottom of the chassis for desktop operation. They are not required for rack mounting.

2.3.3 Installing Peripherals

The device bay of the MIC-3081 accepts three devices, include two 5.25"/3.5" devices and one 3.5" floppy disk drive. There are two types of mounting brackets shipped with the MIC-3081. Three pairs of mounting brackets are designed for mounting 5.25" devices such as hard disk drives or CD-ROM drives. Please refer to Figure 2-4 for an illustration of mounting. However, if users would like to use a 3.5" hard disk drive in the MIC-3081, extension brackets (3.5" to 5.25") are required. These extension brackets are commonly available in PC shops, or users can contact an Advantech distributor to order them. For mounting a 3.5" floppy disk drive, a pair of mounting brackets is provided. Users can mount the floppy disk drive on the top tray in the device bay. Please refer to Figure 2-5 for an illustration of mounting. Figure 2-6 shows the recommended device bay configuration.

2.3.4 Installing a 5.25" Device

Follow the procedures below to install a 5.25"/3.5" device:

1. Fasten one pair of mounting brackets to both sides of a 5.25" device (or a 3.5" device with extension brackets). Note that the guide edges of the mounting brackets should be on the lower side.
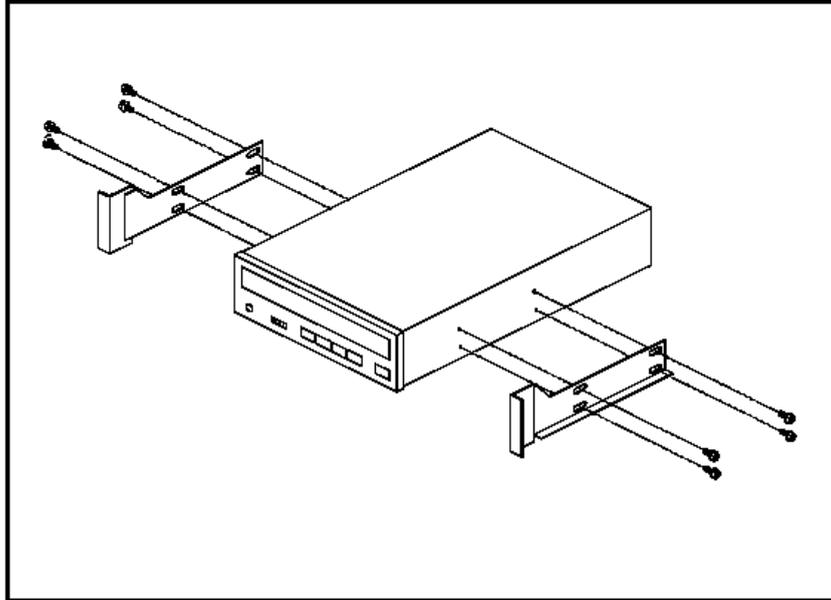
Figure 2-4: Attaching the mounting brackets to a 5.25" device

2. Unfasten and remove the cover plate of the device tray.

3. Insert the device with attached mounting brackets into the device tray.

4. Fasten the mounting brackets to the device bay, and then fasten the cover plate (for internal devices only).

5. Open the back cover of the chassis, and connect the cables to the installed device and to the rear transition board.

6. Close the back cover.

2.3.5 Installing a 3.5" Floppy Disk Drive

A space is reserved for a 3.5" floppy disk drive on the top of the device bay. Follow the procedures below to install a 3.5" floppy disk drive.

1. Fasten one pair of mounting brackets to both sides of a 3.5" floppy disk drive.

Note that the guide edges of the mounting brackets should be on the lower side.

2. Unfasten and remove the top cover plate of the device tray.

3. Insert the floppy disk drive with attached mounting brackets into the device tray.

4. Fasten the mounting brackets to the device bay.

5. Open the back cover of the chassis, and connect the cables to the installed device and to the rear transition board.
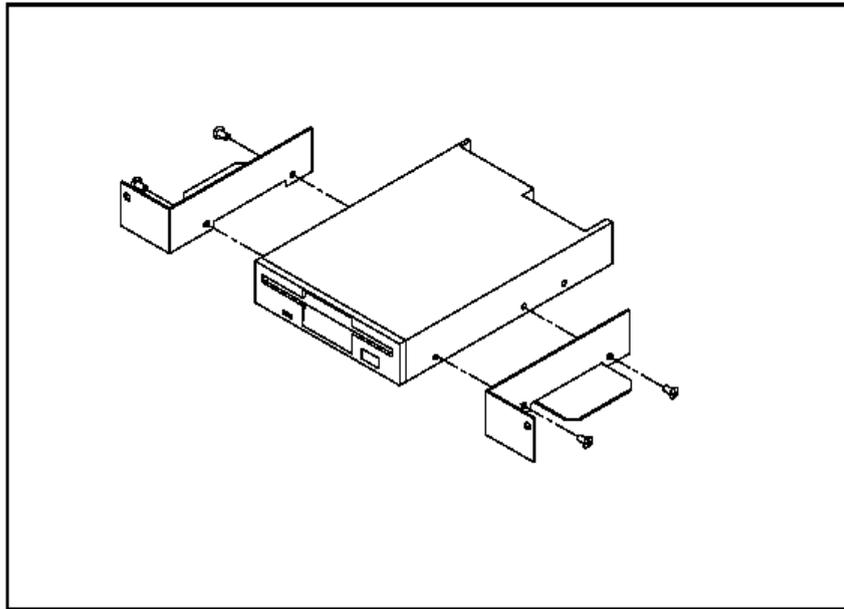
6. Close the back cover.

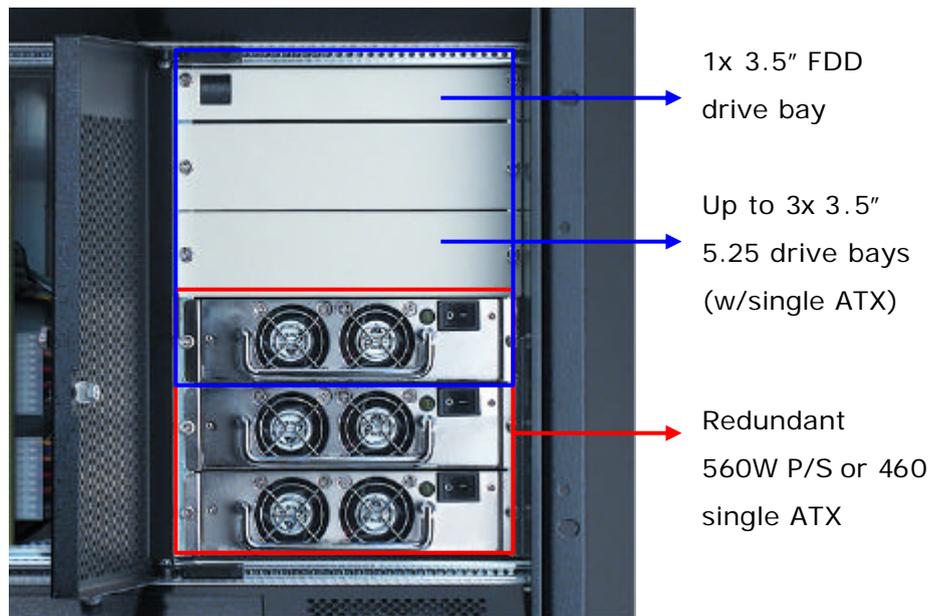Figure 2-5: Attaching the mounting brackets to a 3.5" floppy disk drive

1x 3.5″ FDD drive bay

Up to 3x 3.5″ 5.25 drive bays (w/single ATX)

Redundant 560W P/S or 460 single ATX

Figure 2-5: Recommended device bay configuration

2.3.6 Replacing the Hot-swap Fan and Air Filter

The MIC-3081 provides two hot-swap fans underneath the card slots and two blowers on the top. Each fan/blower can be individually replaced. This can be done without turning off the system power or interrupting system operation.

Follow these steps to replace a fan:

1. Unfasten the fan's holder.

2. Slide the fan's holder out.

3. Replace the old fan with a new one.

4. Slide the fan's holder in.

5. Fasten the new fan's holder.
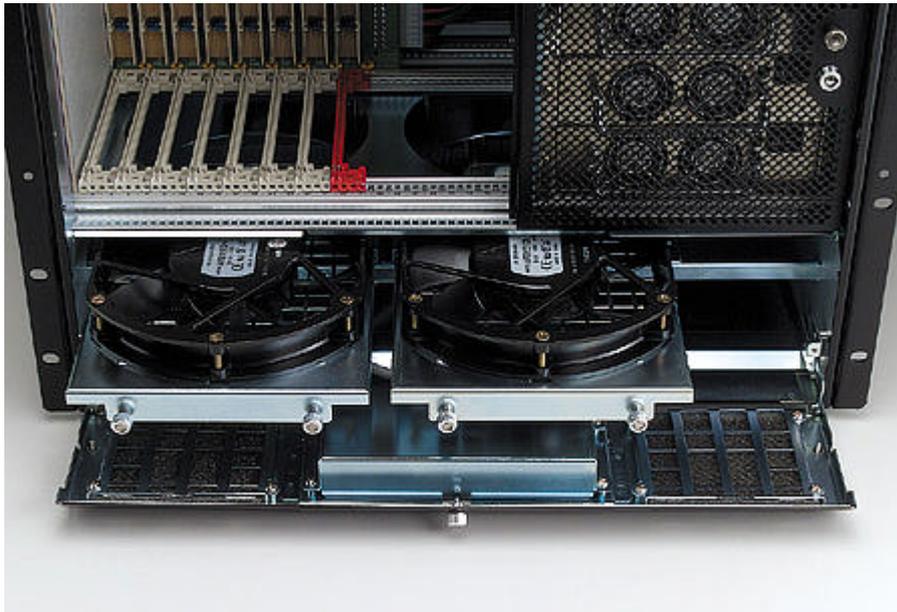
The air filter may become dirty after a period of time. Follow these steps to replace a filter:

1. Remove the filter cover.

2. Replace the dirty filter with a clean one.

3. Reattach the filter cover.

Repeat steps 1 to 3 to replace other filters.