

IPC-603MB

Ultra Compact 2U-high Rack-mount IPC Chassis

User Manual

Copyright

The documentation and the software included with this product are copyrighted 2005 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

Acknowledgements

Intel and Pentium are trademarks of Intel Corporation.

Microsoft Windows and MS-DOS are registered trademarks of Microsoft Corp.

All other product names or trademarks are properties of their respective owners.

IPC-603MB, AIMB-740, AIMB-741, AIMB-742, AIMB-744, AIMB-750, AIMB-760, and AIMB-560 are all trademarks of Advantech Co., Ltd.

Note

The information in this document is provided for reference only. Advantech does not assume any liability arising out of the application or use of the information or products described herein. This manual is subject to change without notice.

Part No. 2002060300

Printed in Taiwan

1st Edition

November 2005

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years 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.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

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 instruction 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.

Technical Support and Assistance

1. Visit the Advantech web site at **www.advantech.com/support** where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such comments in writing to: support@advantech.com

Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- Item XXXXXXXXX
- Box XXXXXXXXX

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User 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 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 - 20° C (-4° 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.

Wichtige Sicherheitshinweise

1. Bitte lesen Sie sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssig- oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlußsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation, die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen, die sich an den Geräten befinden, sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten, ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
 - a. Netzkabel oder Netzstecker sind beschädigt.

- b. Flüssigkeit ist in das Gerät eingedrungen.
 - c. Das Gerät war Feuchtigkeit ausgesetzt.
 - d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
 - e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
 - f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
15. **VORSICHT:** Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlene-mähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.
16. **ACHTUNG:** Es besteht die Explosionsgefahr, falls die Batterie auf nicht fach-männische Weise gewechselt wird. Verfangen Sie die Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weniger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.

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

Chapter	1	General Information	2
	1.1	Introduction	2
	1.2	Specifications	2
	1.3	Environmental Specifications	3
	1.4	Power Supply	3
	1.5	Dimensions of IPC-603MB	4
Chapter	2	System Setup	6
	2.1	Removing the Cover	7
	2.2	Installing a Motherboard	7
	2.3	Installing Disk Drives	9
	2.4	Installing Add-in Cards	11
	2.5	Installing Rackmount Brackets & Handles	11
Chapter	3	Operation	14
	3.1	The Front Section of IPC-603MB	14
	3.1.1	Switches	14
	3.1.2	LED indicators	14
		Table 3.1: System Status LED Summary	14
	3.2	Replacing the Fans	15
	3.3	Replacing the filters	16
	3.4	Replacing the power supply	17
Appendix A		Exploded Diagram	20

CHAPTER 1

General Information

Chapter 1 General Information

1.1 Introduction

IPC-603MB is an ultra compact 2U-high rackmount industrial computer chassis designed for space-conscious applications. With only 310 mm depth, IPC-603MB can accept any of Advantech ATX/mATX motherboards, and up to three half-sized add-in cards with the supported riser card.

1.2 Specifications

- **Construction:** Heavy-duty steel
- **Disk drive capacity:** one slim-type CD-ROM and one internal HDD
- **Indicators on front panel:** LEDs for Power and HDD
- **Switches on front panel:** Power and Reset
- **Cooling fans:** dual 47 CFM
- **Air filters:** three 85 x 80 mm filters on the rear plate
- **Riser card:** supports up to three PCI add-in cards

Note The riser card (P/N: 9696070000) is specially designed to support the Advantech AIMB-700 series (except for AIMB-762) and AIMB-500 series. There might be compatibility issues with other vendor's motherboards.

- **Weight:** 8 kg (17.6 lb) with 300 W power supply
- **Dimensions (W x H x D):** 482 x 88 x 310 mm (19" x 3.46" x 12.2")

1.3 Environmental Specifications

- Temperature:
(Operating) 0 ~ 40° C (32 ~ 104° F)
(Storage) -20 ~ 60° C (-4 ~ 140° F)
- Humidity:
(Operating) 10 ~ 95% @ 40° C, non-condensing
- Vibration (5 ~ 500 MHz):
(Operating) 1Grms
(Non-operating) 2 G
- Shock:
(Operating) 10G with 11 ms duration, half sine wave
(Non-operating) 30G 11 ms duration
- **Acoustic Noise:** < 52dB sound pressure at 5 ~ 28° C (41 ~ 82° F)
- **Altitude (Operating):** 0 to 3,048 m (0 ~ 10,000ft)
- **Safety:** CE compliant, UL/cUL approved

1.4 Power Supply

1U-high 300 W ATX Power Supply with PFC (Part Number: 1757000160)

- Output rating: 300 W max.
- Input rating: 100 ~ 240 V_{AC} @ 50 ~ 60 Hz (Full range)
- Output voltage: +5 V @ 25 A, +3.3 V @ 14 A, +12 V @ 16 A, -12 V @ 1 A, -5 V @ 0.5 A, +5 Vsb @ 1.5 A (peak 2 A)
- Minimum load: +5 V @ 3 A, +12 V @ 2 A, -5 V @ 0.05 A, -12 V @ 0.05A, +3.3 V @ 1 A, +5 Vsb @ 0.1 A
- MTBF: 100,000 hours @ 25° C, full load
- Safety: CE/UL/TUV/CB/CCC

1.5 Dimensions of IPC-603MB

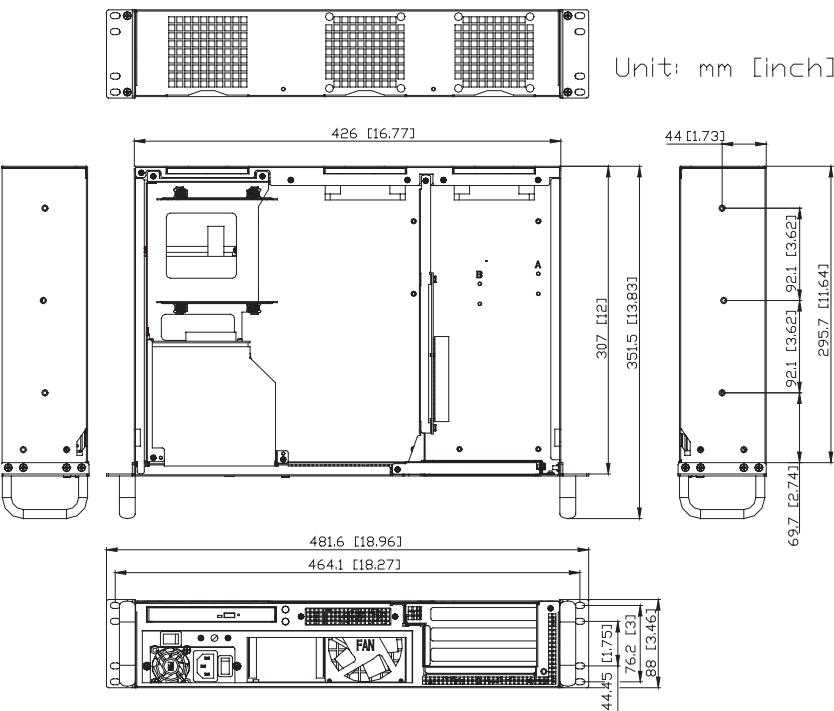


Figure 1-1 Dimension of IPC-603MB

CHAPTER 2

System Setup

Chapter 2 System Setup

The following procedures are provided to assist you in installing a motherboard, drives, and add-in cards into an IPC-603MB chassis. Refer to Appendix A, Exploded Diagram, for the names of each part used in this manual.

Note *Figure 2-1 is the summary illustration for installing the whole IPC-603MB system. To shorten the total system installation time, we suggest users to install a motherboard first, then the riser card and add-in card(s), and finally, the drive bay.*

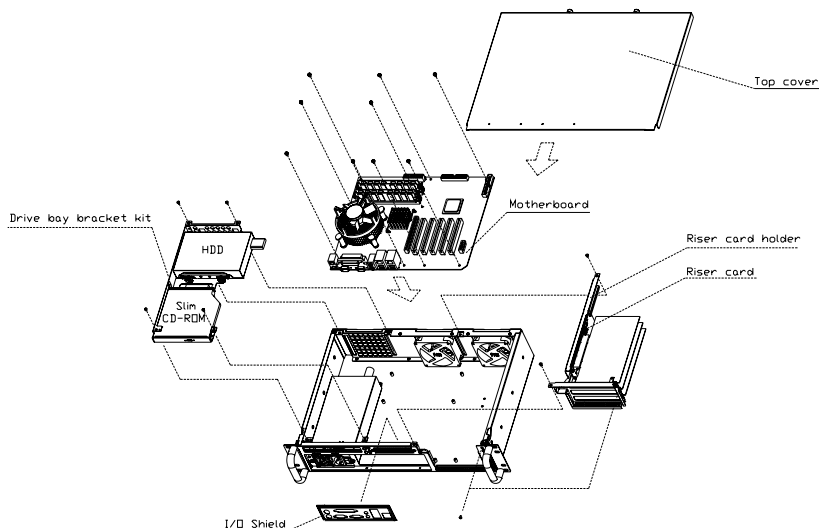


Figure 2-1 System setup

2.1 Removing the Cover

To remove the top cover of IPC-603MB, please refer to Figure 2-2.

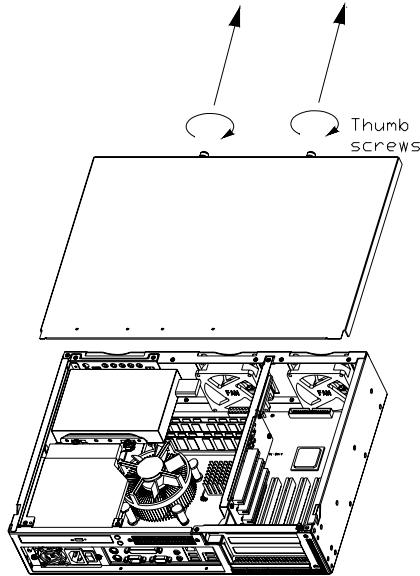


Figure 2-2 Removing the top cover

2.2 Installing a Motherboard

IPC-603MB accepts both ATX and microATX motherboards. To install a motherboard, refer to Figure 2-1 and proceed as follows:

Note *Use a CPU cooler that is less than 60 mm high to ensure the best air flow inside the chassis.*

1. Remove the three screws from the L-form riser card holder in the IPC-603MB chassis. It is NOT necessary to remove the riser card from the L-form bracket.
2. From inside of the chassis, attach the motherboard I/O shield to the front plate of the chassis.

3. Check all devices, such as CPU, CPU cooler, and RAMs and make sure they have been installed on the motherboard correctly. Carefully place the motherboard in the IPC-603MB chassis and fix it with screws.

Note

If you choose Advantech's AIMB-740, 741, 742, or 762 ATX motherboard, please find a spacer bracket in the accessory bag and mount it on location A in the bottom of the IPC-603MB chassis before installing the motherboard.

If you choose Advantech's AIMB-560 microATX motherboard, please find a spacer bracket in the accessory bag and mount it on location B in the bottom of the IPC-603MB chassis before installing the motherboard.

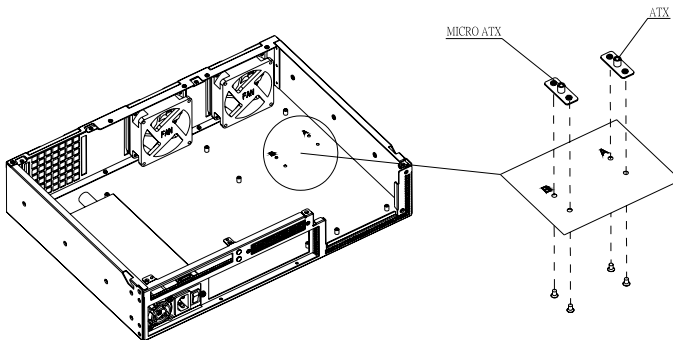


Figure 2-3 Placing a spacer bracket

4. Plug in the 24- or 20-pin ATX power connector and the +12 V power connector from the power supply.
5. Connect the POWER SW, RESET SW, Power LED, and HDD LED cables to the motherboard.

6. Connect the power connectors of the two system fans (on the rear plate of IPC-603MB) to the motherboard.
7. Re-install the L-form riser card holder (together with the riser card) and fasten it with screws.

2.3 Installing Disk Drives

The IPC-603MB accepts one slim type CD-ROM/-RW and one internal SATA/ATA HDD. To install the disk drives, refer to Figures 2-4 and 2-5 and proceed as follows:

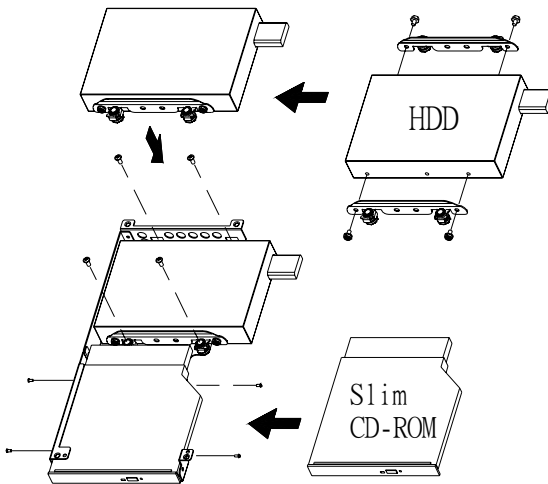


Figure 2-4 Install a slim CD-ROM and a HDD

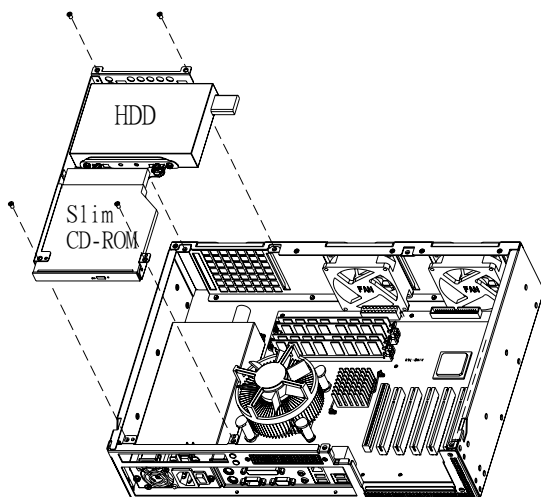


Figure 2-5 Place the drive bay bracket kit into IPC-603MB chassis

1. Open the top cover of IPC-603MB chassis.
2. Remove the four screws that mount the drive bay bracket kit in IPC-603MB chassis.
3. Remove the blank cover of the slim-type CD-ROM from the bracket kit.
4. Refer to Figure 2-4 and mount a slim-type CD-ROM/-RW and a 3.5" HDD with screws.
5. Refer to Figure 2-5 to return the drive bay bracket kit into the IPC-603MB chassis and fix it with screws.
6. Connect a 40-pin flat cable from the motherboard to the slim-type CD-ROM/-RW, and another 40-pin flat cable to an ATA (IDE) HDD or a SATA cable to a SATA HDD. Insert the proper power connectors into each drive.

2.4 Installing Add-in Cards

The IPC-603MB can accept up to three half-sized PCI add-in cards via the riser card, which is inserted in the sixth slot of the enclosed ATX motherboard and mounted on the L-form riser card bracket. To install an add-in card, face to the rear side of the chassis and proceed as follows:

1. Find the riser-card slot(s) in which card(s) are to be inserted, then remove the slot's blank bracket(s) from the front plate of the chassis.
2. Horizontally and evenly push the card leftwards until the gold fingers are completely inserted into a PCI slot of the riser card. Make sure that the card bracket has been inserted properly. Fasten the card at the top of the bracket with a screw.
3. Repeat the previous step if there is more than one card.

2.5 Installing Rackmount Brackets & Handles

The IPC-603MB provides a pair of rackmount brackets and handles in the accessory pack. To install the rackmount brackets and handles onto the IPC-603MB, refer to Figure 2-6.

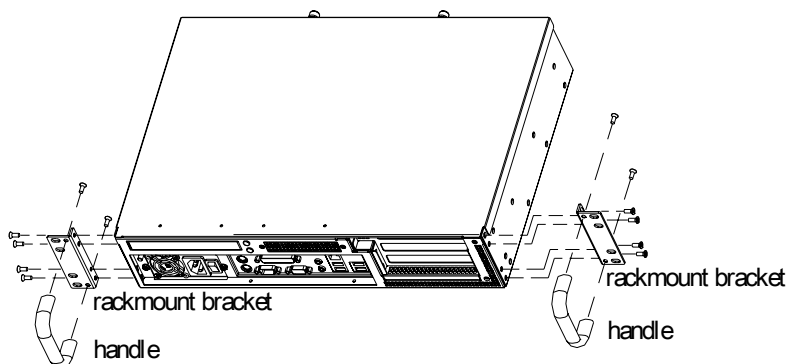


Figure 2-6 Install rackmount brackets and handles

CHAPTER 3

Operation

Chapter 3 Operation

3.1 The Front Section of IPC-603MB

3.1.1 Switches

Two switches are used for system power on-off and system reset. Press the System Reset Switch to reinitialize the system. Press the Power On-Off Switch to turn the system power on or off.

3.1.2 LED indicators

Two LEDs indicate the system status. Refer to Table 3-1 for the LED summary.

<i>Table 3.1: System Status LED Summary</i>		
LED	Description	Green/Orange
PWR	System Power	Normal
HDD	Hard Drive Disk Activity	Data Access

If the system is connected to a single power supply, the PWR LED is always green while the power is on.

3.2 Replacing the Fans

There are two fans on the rear plate of IPC-603MB chassis. To change any failed fan, refer to Figure 3-1 and proceed as follows:

1. Open the top cover of IPC-603MB chassis.
2. Unplug the power connector of a failed fan from the motherboard and the fan filter behind the failed fan.
3. Remove the four screws, which mount the failed fan to the chassis and lift it with two fingers.
4. Place a new fan on the proper location, and fasten it with four screws.
5. Return the fan filter and plug in the fan power connector.
6. Repeat Steps 3 ~ 5 if you want to change the other fan.

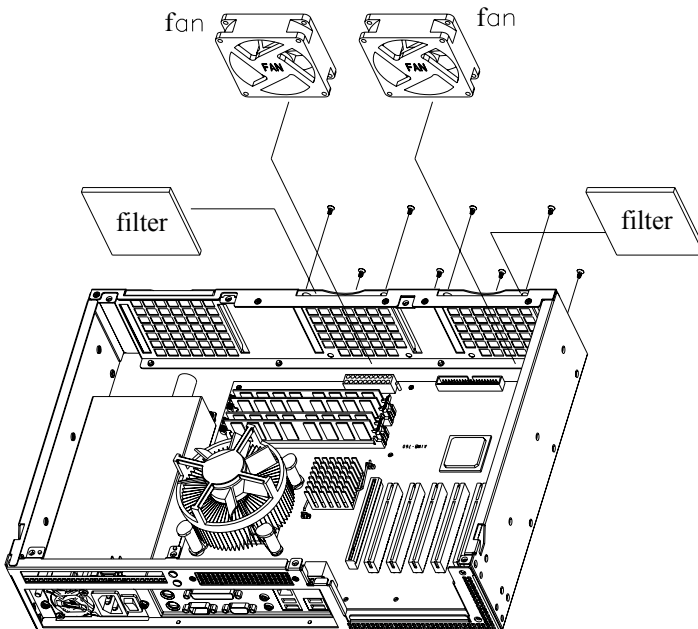


Figure 3-1 Changing the fans

3.3 Replacing the filters

To change the filters, refer to Figure 3-2 and proceed as follows:

1. Open the top cover of IPC-603MB chassis.
2. Remove the filter(s) with two fingers and replace it with a new one.

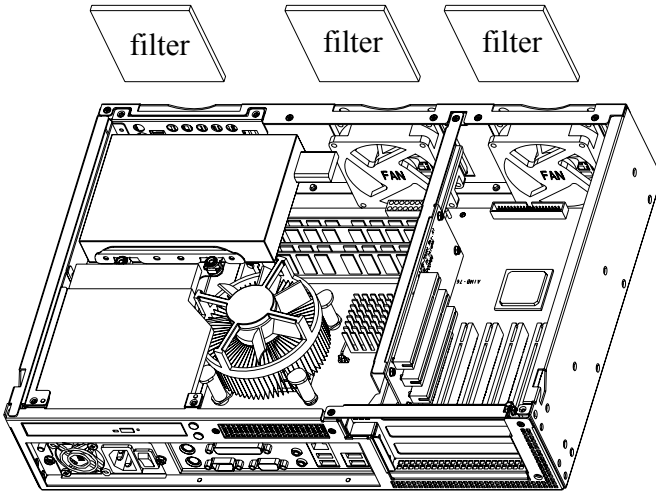


Figure 3-2 Changing the filters

3.4 Replacing the power supply

IPC-603MB supports a single 1U-high power supply. To change the power supply, refer to Figure 3-3 and proceed as follows:

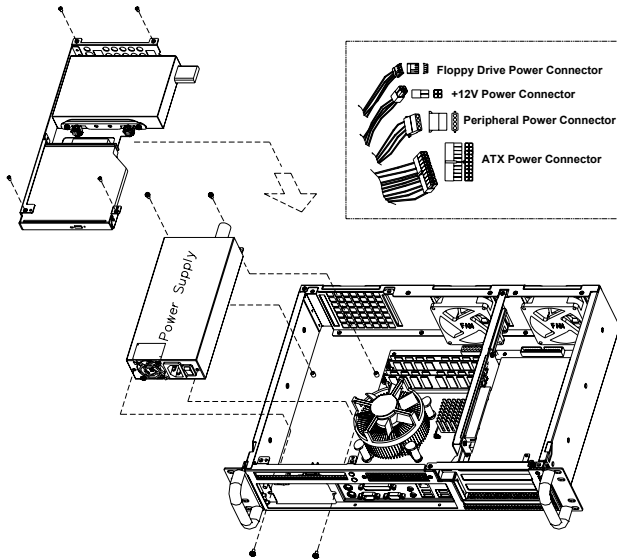


Figure 3-3 Changing the power supply

1. Unplug the power cord from the power supply of IPC-603MB.
2. Remove the top cover of IPC-603MB.
3. Unplug the ATX power connector and +12 V power connector from the motherboard, and the peripheral power connector(s) from the disk(s).
4. Refer to Figure 3-3 to remove the drive bay above the power supply.
5. Refer to Figure 3-3 to remove the six screws, which mount the power supply to the chassis, then lift the power supply.
6. Place a new power supply into the chassis and fasten it with the screws.
7. Return the drive bay to the chassis.

8. Plug the ATX power connector and +12V power connector into the motherboard, and the peripheral power connector(s) into the proper disk(s).
9. Replace the cover of IPC-603MB and plug in the power cord.

APPENDIX A

Exploded Diagram

Appendix A Exploded Diagram

