IBM System x3450 Type 7948
Quick Start User's Guide

Thank you for buying an IBM server. This document contains information to help you assemble the server and install components in your IBM System x3450 server.

This guide and other supporting documents are located on the web at http://www.ibm.com/systems/support/.

If you are not familiar with ESD (Electrostatic Discharge) precautions used when working in the system, see the *Service Guide* on the *IBM Resource CD* that accompanied the server, or at http://www.ibm.com/systems/support/.

Read the Safety Information and the Installation Guidelines in the *Service Guide* on the *IBM Resource CD* before installing components in the server.

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1 Preparing the Chassis

Observe normal ESD (Electrostatic Discharge) procedures.

Place your IBM System x3450 on a flat anti-static surface to perform the following integration procedures. Always touch the chassis frame first, before reaching inside to make server board connections or to install components.

2 Remove Top Cover

A Remove the top cover screw.

B Slide the cover back and lift upward.

Attention:
Before proceeding, check the server for components or cables that might have become loose or disconnected during shipping.

3 Remove the Air Baffle and Processor Air Duct

A Remove the air baffle.

B Remove the processor air duct.

4a Installing the Processor(s)

Note: If you are only using one processor on your server board, use the socket labeled "CPU1" in the Reference Diagram.

Attention: When unpacking a processor, hold it by the edges only to avoid touching the contacts.

A Push the lever handle down and away from the socket to release it.

B Pull the lever and open it all the way.

Open the Socket Lever

Open the Load Plate

A Push the rear tab with your finger tip to bring the front end of the load plate up slightly.

B Open the load plate as shown.

Remove the Processor Protective Cover

A Take the processor out of the box and remove the protective shipping cover.

Tools Required

Phillips* screwdriver

Anti-static wrist strap

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4b Installing the Processor(s) continued...

A Orient the processor so that its cutouts match the socket's notches.

B Gently place the processor on the socket as shown.

Remove Socket Protective Cover

A Grasp the socket protective cover tab and pull it away from the load plate as shown.

B Remove the socket protective cover and store for future use.

Close Load Plate and Socket Lever

A Close the load plate all the way as shown.

B With your finger, push down on the load plate as shown.

C Close the socket lever and ensure that the load plate tab engages under the socket lever when fully closed.

5 Install Heat Sink(s)

Note: Only passive heat sinks are supported in this system.

Attention: The heat sink has thermal interface material (TIM) on the underside of it. Use caution so that you do not damage the thermal interface material. *Use gloves to avoid sharp edges.*

A Remove the protective film on the TIM if present.

B Align heat sink fins to the front and back of the chassis for correct airflow. *Airflow goes from front-to-back of chassis.*

Each heat sink has four captive fasteners and should be tightened using the following procedure:

C Using a #2 Phillips* screwdriver, finger-tighten each fastener diagonally, according to the numbers shown.

D Tighten each fastener again in the same order as performed in Step C.

Note: Heat sink styles may vary.

Attention: Do not over-tighten fasteners.

Air Flow

Chassis Front

TIM

6a Install Memory DIMMs

DDR2 FBDIMM Memory Identification:

DDR2 DIMMs that are not FBD memory are not supported on this server board.

FBDIMM DDR2 memory varies in height. Only use DIMMs approved for use in a 1U chassis.

DIMM notch and socket bump must align as shown.

DDR2 FBDIMM

DDR2

Memory Configurations and Population Order:

Memory Type: Minimum of one 512MB, DDR2 FBDIMM 667/800 MHz-compliant 240-pin DIMM.

DIMMs must be populated in matching pairs across channels within a given branch. When populating DIMM pairs, the population order would be as follows: A1 & B1; C1 & D1; A2 & B2; C2 & D2;A3 & B3; C3 & D3; A4 & B4; C4 & D4;

DIMMs that makeup a given pair must match with respect to size, speed, and organization.

DIMM size from one DIMM pair to another can be different. However, speed and organization must be the same. For example: DIMM pair A1 and B1 are populated with x8 1GB DDR2-667 DIMMs, DIMM pair C1 and D1 can be populated with x8 2GB DDR2-667 DIMMs.

Note: For additional memory configurations, see the *Service Guide* on the *IBM Resource CD*.

Memory sizing and configuration is supported only for qualified DIMMs. For a list of supported memory, see the tested memory list at http://www.ibm.com/servers/eserver/serverproven/compat/us/

DIMM A4, DIMM A3, DIMM A2, DIMM A1, DIMM B1, DIMM B2, DIMM B3, DIMM B4, DIMM C4, DIMM C3, DIMM C2, DIMM C1, DIMM D1, DIMM D2, DIMM D3, DIMM D4

Branch 0   Branch 1

6b To Install DIMMs:

A Open both DIMM socket levers.

B Note location of alignment notch.

C Insert DIMM making sure the connector edge of the DIMM aligns correctly with the slot.

D Push down firmly on the DIMM until it snaps into place and both levers close.

E IMPORTANT! Visually check that each latch is fully closed and correctly engaged with each DIMM edge slot.

Attention: Avoid touching contacts when handling or installing DIMMs.

7 Processor Air Duct Modification

IMPORTANT NOTE: If you are installing a single processor, disregard this step and continue to step 8.

Attention: For a single processor configuration, the air baffle must be left in place to ensure proper cooling.

A Remove air baffle by rocking back and forth until tabs break away from the duct.

Underside View

Second Processor Air Baffle, remove only if system has two processors.

8 Install Processor Air Duct

Install processor air duct as shown.

Use care to avoid pinching system cables.

9 Remove Add-in Card Riser Assembly

To remove the riser: Grasp the riser with both hands as shown and pull up to release riser assembly.

Lift straight up.

Attention: Place the riser assembly upsidedown to avoid damage to the riser card connector.

Riser Card Connector

10 Install Add-in Card (optional)

A Remove the filler panel from the selected add-in card slot.

B Insert the add-in card until it seats in riser connector.

C Secure the add-in card with a screw as shown.

Riser Connector

Riser Card

Add-in Card

Attention: Observe normal ESD precautions when installing add-in cards.

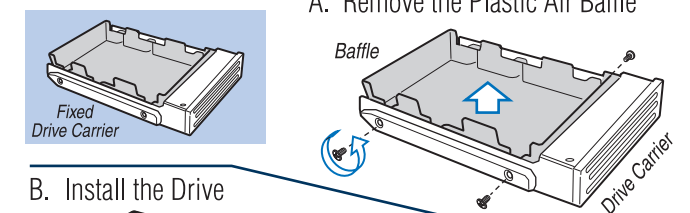## 11 Install PCI Add-in Card Riser Assembly

A Position riser card edge connector over the server board riser socket and align the two hooks in the riser with the slots at the back of the chassis.

B Press down uniformly until the two hooks on the rear of the PCI riser assembly engage the chassis back panel slots. *The riser card will seat into the matching socket on the server board.*
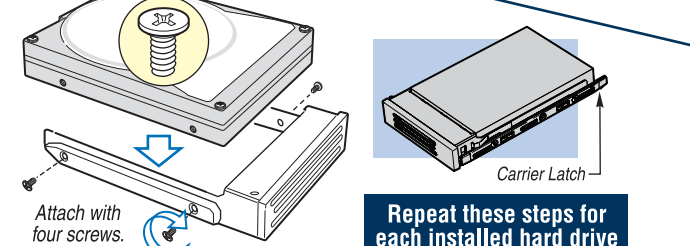
Server Board Socket

PCI Riser

Riser Card

Hooks (2)

Riser Socket

Slots (2)

44W2429

12 Installing System Components

Install Fixed Hard Drives/Carriers

A. Remove the Plastic Air Baffle

Baffle

Fixed Drive Carrier
Drive Carrier

B. Install the Drive

Carrier Latch

Attach with four screws.

Repeat these steps for each installed hard drive

Attention: Empty drive bays must be occupied by carriers with baffles to maintain proper system cooling. To avoid possible damage to the chassis, use only carriers that came with your server.
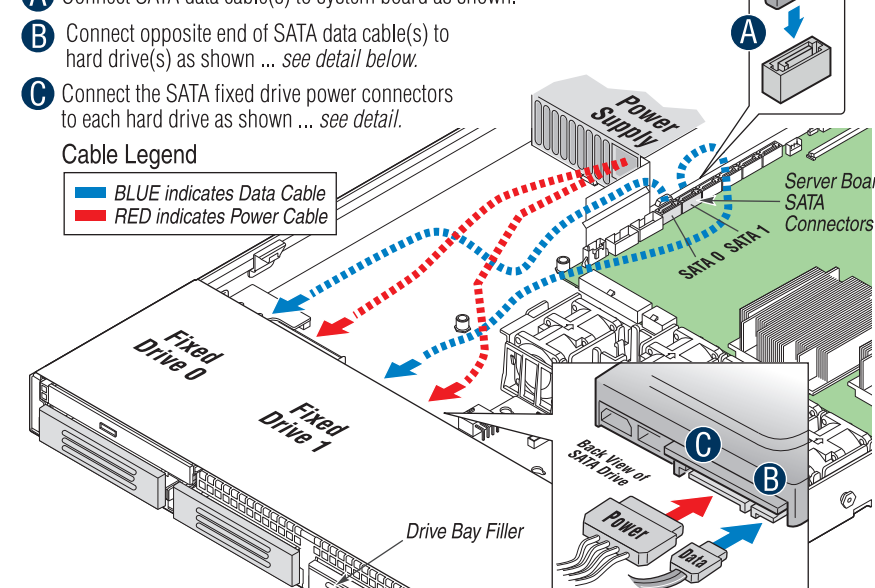
Install Hard Drive Cables

A Connect SATA data cable(s) to system board as shown.
B Connect opposite end of SATA data cable(s) to hard drive(s) as shown ... *see detail below.*
C Connect the SATA fixed drive power connectors to each hard drive as shown ... *see detail.*

Cable Legend

- BLUE indicates Data Cable
- RED indicates Power Cable

Power Supply

Server Board SATA Connectors

SATA 0 SATA 1

Fixed Drive 0
Fixed Drive 1

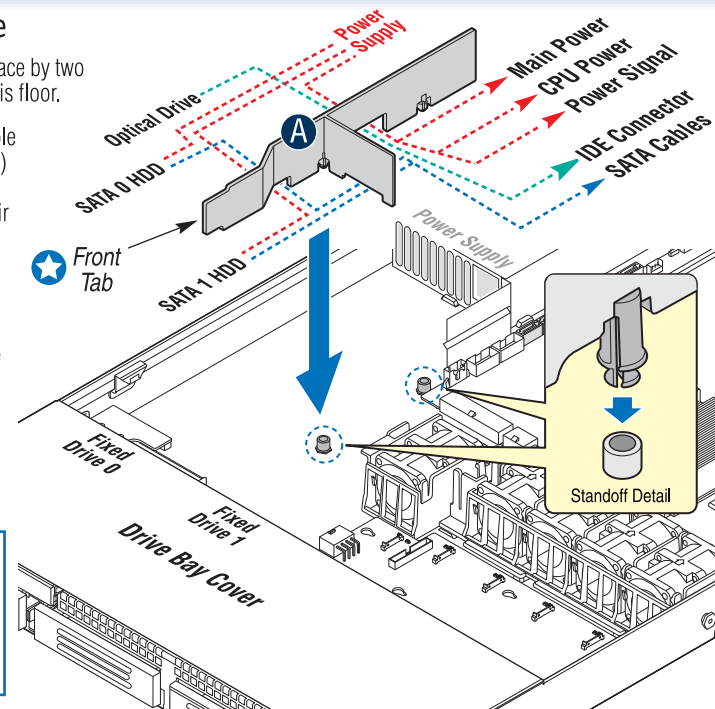Rear View of SATA Cable

Drive Bay Filler

Install Air Baffle

The baffle is held in place by two standoffs on the chassis floor.

A Route all applicable cables (see below) through the baffle notches and set air baffle into place.

Cabling Legend:
- Main Power Cable
- CPU Power Cable
- Power Signal Cable
- Optical Drive Data Cable
- SATA 0-1 HDD Data Cables
- SATA 1 HDD Power Cable

Front Tab

Power Supply

Optical Drive
SATA 0 HDD
SATA 1 HDD

Main Power
CPU Power
Power Signal
IDE Connector
SATA Cables

Fixed Drive 0
Fixed Drive 1
Drive Bay Cover

Standoff Detail

Note: Front tab of air baffle must fit under the drive bay cover prior to lowering into chassis standoffs to ensure a proper fit.
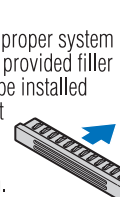
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13 Install Optical Device (optional)

1. Remove the Empty Tray

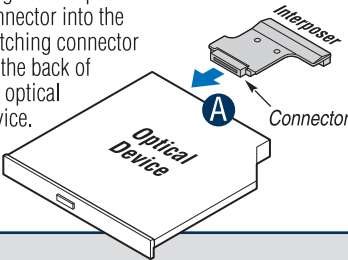A Remove the empty tray and screw from the accessory kit box.
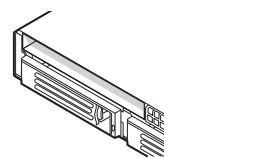
Attention: To maintain proper system cooling, the provided filler blank must be installed if you do not install a device at this location.

2. Install the Interposer Board

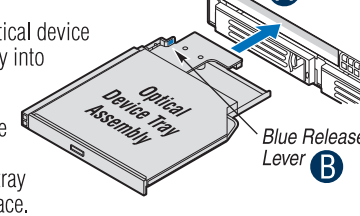A Plug the interposer board connector into the matching connector on the back of the optical device.

Interposer
Connector
Optical Device

3. Install Device into the Tray

A Align the two holes on the left edge of the optical device with the two metal tabs in the tray.

Metal Tab

B Lower the opposite side of the optical device into the tray until it clicks into place.

4. Secure Interposer Board to Device Tray

A Make sure that the interposer board fits onto the alignment pin on the device tray.

B Attach with a screw as shown.

Tray alignment pin fits into this hole.
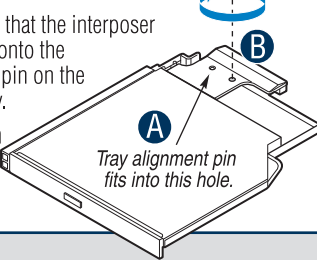
5. Install Optical Device Tray Assembly into Chassis

A Insert the optical device tray assembly into the chassis.

Optical Device Tray Assembly

B Verify that the blue release lever on the tray locks into place.

Blue Release Lever

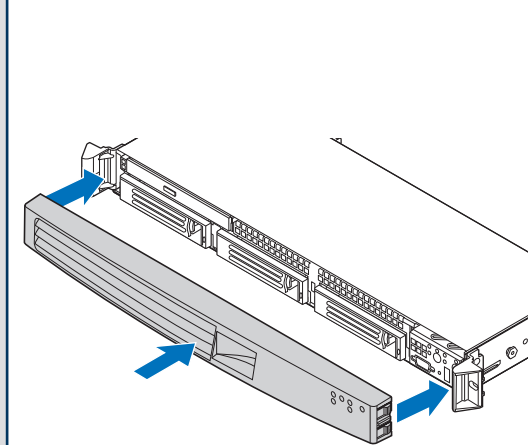### Install Optical Device Data Cable
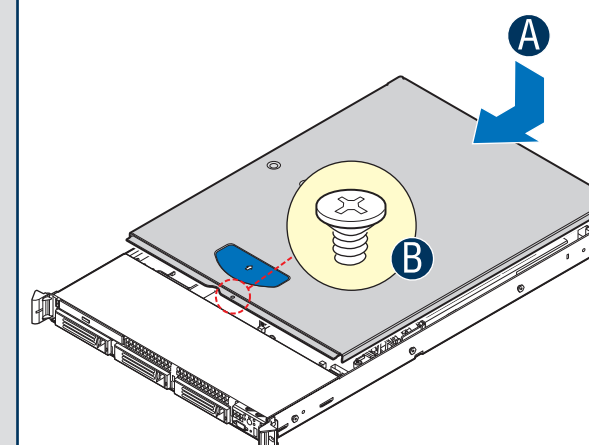
Note: Both ends of the IDE cable are labeled.

A Connect one end of the IDE cable to the rear of the interposer board.
B Connect the opposite end of the IDE cable to the system board IDE connector.
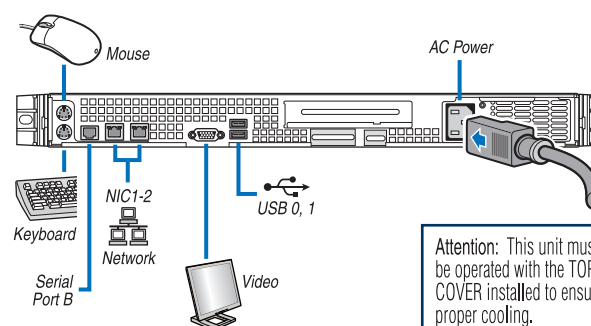
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14 Install Bezel

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15 Install Top Cover

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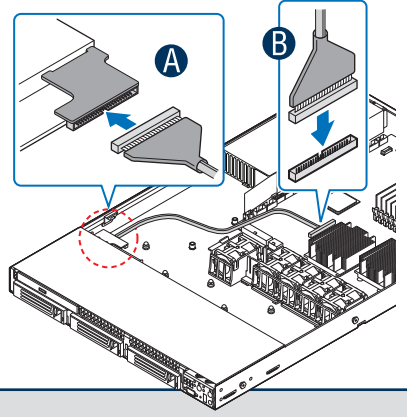
16 Completing the Installation

Before installing the operating system, you must complete the system installation, connect the back panel I/O connectors, and connect the AC power.
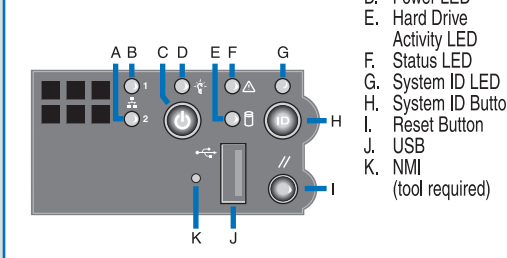
1. Re-install the system cover.
2. Connect the keyboard, mouse, video and other I/O cables/devices as shown. *Then connect the AC power cord.*

Mouse
AC Power
Keyboard
NIC1-2
Network
USB 0, 1
Serial Port B
Video

Attention: This unit must be operated with the TOP COVER installed to ensure proper cooling.

Reference

Front Panel *Controls and Indicators*

Standard Control Panel

A B C D E F G

A. NIC2
B. NIC1
C. Power Button
D. Power LED
E. Hard Drive Activity LED
F. Status LED
G. System ID LED
H. System ID Button
I. Reset Button
J. USB
K. NMI (tool required)

K J

System Board Component Layout

POST LEDs
Status LED
USB 5-6
ID LED
NIC2
NIC1
Serial Port B
PS2 KB
Video

Serial A

4-pin IPMB

Riser Card Slot

16 DIMM Sockets

Serial B Config Jumper

3-pin IPMB
Intrusion
Jumpers

RAID5 Key

SATA 5
SATA 4
SATA 3
SATA 2
SATA 1
SATA 0
SATA Jumper
USB 0-1
BIOS Jumper

MCH

Bridge Board Conn.

IDE Optical Drive

CPU 1 Socket
CPU 2 Socket

Power Supply Signal Conn.

Battery

Control Panel

CPU Power

Main Power Conn.

Fan Board Connector

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