Hewlett-Packard

IND Product Marketing Infrastructure Products

hp StorageWorks director 2/64 and 2/140
Order and configuration guide

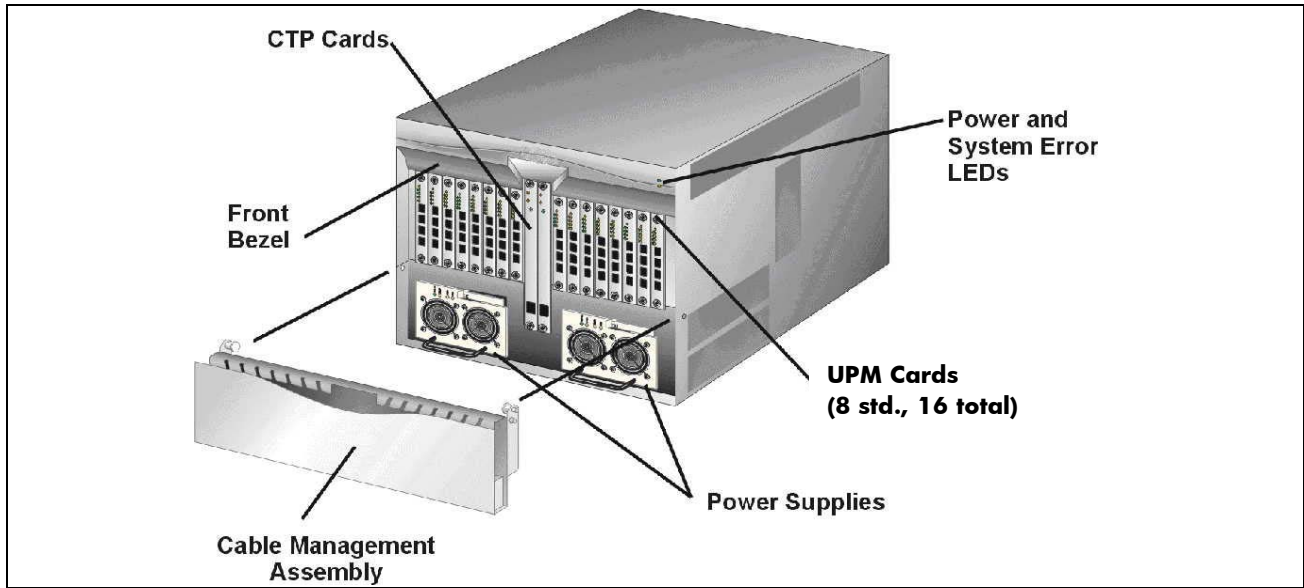February 10, 2003
Version 1.03

Introduction

HP's StorageWorks director-class offerings include the high availability (HA) 2/64 and 2/140 products. These products offer the highest availability on the market—99.999%.

- The director 2/64 provides smaller enterprises with the availability, manageability, scalability, and 1 Gb/s or 2 Gb/s performance needed to build powerful, flexible storage area networks (SANs) and to consolidate data access.
  - The 2/64 is orderable as 286809-B21 for both field rack or configure to order (CTO)/factory mount options, and
  - The 2/64 is orderable as A6534B for field rack options or as the A6534BZ for factory mount options.

- The director 2/140 provides larger enterprises with the availability, manageability, scalability, and 2 Gb/s performance needed to build powerful, flexible SANs and to consolidate data access.
  - The 2/140 is orderable as 316093-B21 for both field rack or configure to order (factory mount) options, and
  - The 2/140 is orderable as 316093-B21 for field rack options.

HP StorageWorks Director 2/64 Views
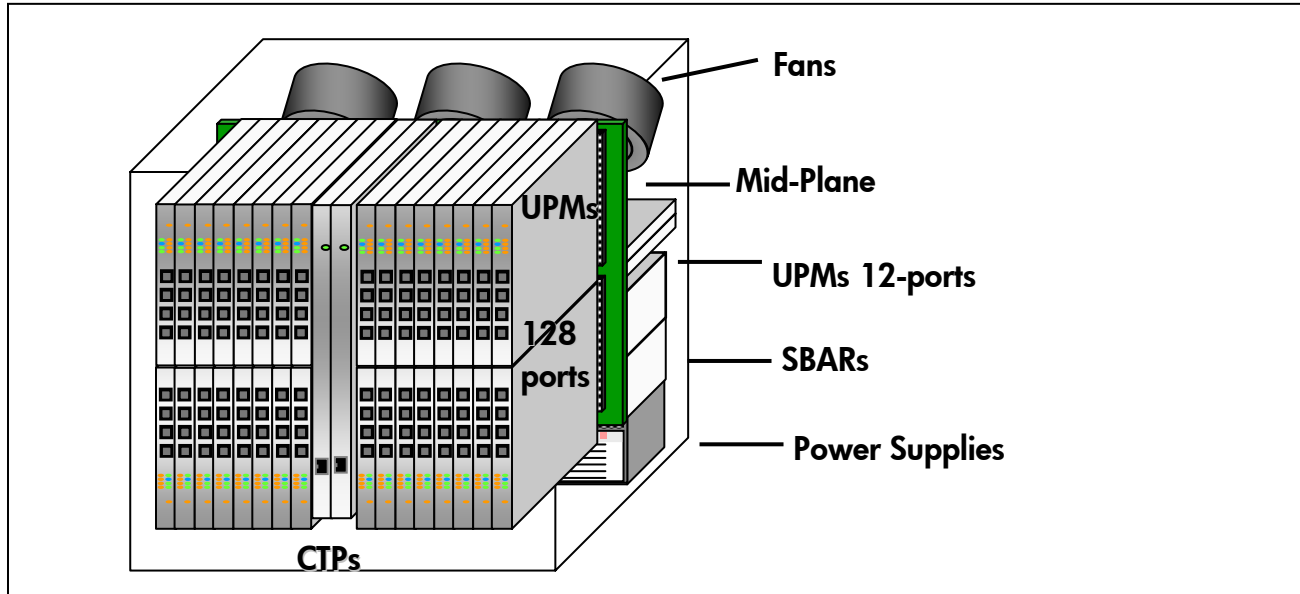
Director 2/64 front view (64 ports)	

Director 2/64 component breakdown

HP StorageWorks Director 2/140 Views

Director 2/140 front view (128 ports)	Director 2/140 rear view (12ports)

Director 2/140 component breakdown

Features

The hp StorageWorks HA director-class products include a 64-port 1Gb/s or 2Gb/s director and a 140-port 2Gb/s director. Both the 2/64 and 2/140 are highly available, redundant products that provides continuous data access at high performance levels even in the event of a failure. Automatic failover is the result of redundant power supplies and cooling fans, along with redundant active components. These products also allow non-disruptive maintenance without the loss of data access.

- The 2/140 compliments the 2/64 by providing a larger building block for large SANs
- Both products share a common architecture and port cards:
    - UPM cards may be used and swapped between products
    - Same availability and performance characteristics between the two
- SANtegrity Binding creates high integrity fabrics, from the network core to the edge, preventing security breaches and keeping your SAN operational
- The 2/64 accommodates smaller fabrics that will never exceed 64 ports
- The 2/140 maximizes scalability in fabrics that require 64 ports or more at the core

Other high-availability capabilities common to both products include hot swapping for all field-replaceable units, non-disruptive firmware updates, and automatic fault detection and isolation. In addition, "call-home" and e-mail capabilities automatically alert HP support and maintenance personnel to accelerate problem resolution.

Summary of Features

- **available:** ensures business continuance through 99.999% availability certified to Mil-Spec 217-F

- **reliable:** maximizes availability with redundancy, automatic failover, and call-home capabilities

- **high-performance**: supports 1 Gb/s or 2 Gb/s transfer rate with no head-of-line blocking for top performance along with serial crossbar (SBAR) architecture that uses cut-through routing to ensure maximum performance under any load

- **compact**: director 2/64 offers very high port density with 64 user ports in a 9U chassis
  director 2/140 offers the highest port density with 140 user ports in a 12U chassis

- **expandable**: has non-blocking crossbar technology for large-fabric support without performance hits

- **manageable**: maximizes system administrator resources with centralized management tools

  - Command Line Interface (CLI) for *small to medium fabric*
    Scripting, Accessible via Telnet, Free

  - Embedded Web Server (EWS) for *small to medium fabric*
    Accessible via any web browser, Does not show Fabric View, No Call home, Free

  - High Availability Fabric Manager (HAFM) for *larger fabrics* or with the *2/64 or 2/140 directors*
    Multi-platform Client software, Shows all switches in Fabric, Call Home*, Fee based

  Requires customer install and verify   *analog phone line for Call Home access*

- **secure**: ensures safe server and storage access and guards against accidental reconfiguration.

- **scalable**: supports large networked fabrics and allows addition of ports as business needs grow

- **flexible**: enables flexible deployment through Fibre Channel and FICON support and allows customers to activate switch ports as needed without buying another switch or disruption during expansion

Configuration Overview

The hp StorageWorks director 2/64 and 2/140 provide a base product and accessories that expand ports, add management capabilities and connectivity. One Universal Port Module card provides four-ports, with each port delivering full-duplex data transfer at 2.125 Gb/s. Industry-leading transmission bandwidth supports full non-blocking 64-port or 140-port switch performance.

- Configurations for the 2/64 include 32 ports (standard) up to 64 ports.
- Configurations for the 1/140 include 64 ports (standard) up to 140 ports in 4-port Increments

Options include short wave and long wave SFP hot-plug optics.

HP StorageWorks Director 2/64 Product Structure

Product Number - Name
286809-B21- hp StorageWorks director 2/64   64 port chassis, Field Rack or CTO/Factory Rack options (32 ports inc., 8 x 4 ports)

A6534B - hp StorageWorks director 2/64
    64 port chassis, Field Rack options (32 ports inc., 8 x 4 ports)
A6534BZ - hp StorageWorks director 2/64
    64 port chassis, Factory Rack/CTO options (32 ports inc., 8 x 4 ports)

A6574B or 300833-B21- Director 2/64 8-port add-on kit
A6575B or 287406-B21 - hp StorageWorks high availability -fabric manager 6.0 software
A6582A hp StorageWorks ha-fabric manager OmniBook add-on kit
A6579A - Director FC-64 2Gb Upgrade Kit (8 4-port UPM, SFP's)   option 001 (adds 2 "CTP2" cards)
A6515A or 300834-B21 - Short wave SFP
A6516A or 300835-B21 - Long wave SFP
300836-B21 - 35K Long wave SFP extended reach SFP

warranty	A6534B/BZ service and support:	286809-B21 service and support:
	4G: 1 year on-site, 8x5, next business day response. Installation is not included.	(1-1-1) 1 year on-site, 8x5, next business day response.

UPM = Universal Port Module (2 Gb/s)
FPM = Fibre Port Module (1 Gb/s)
SFP = Small Form Factor Pluggable
CTP2 = Control Processor card (2 Gb/s)

HP StorageWorks Director 2/140 Product Structure

Product Number – Name
316093-B21 - hp StorageWorks director 2/140   140-port chassis, Field Rack or CTO/Factory Rack options (64 ports inc., 16 x 4 ports)

316093-B21 - hp StorageWorks director 2/64
    140-port chassis, Field Rack (64 ports inc., 16 x 4 ports)
    140-port chassis, Factory Rack/CTO (64 ports inc., 16 x 4 ports)

A6574B or 300833-B21- Director 2/140 8-port add-on kit
A6575B or 287406-B22 - hp StorageWorks high availability -fabric manager 6.03
A6582A hp StorageWorks ha-fabric manager OmniBook add-on kit
A6515A or 300834-B21 – 300M Short wave SFP A6516A or 300835-B21 – 10K Long wave SFP 300836-B21 - 35K Long wave SFP extended reach SFP

Ordering and Configuration Steps:

Step 1: Choose Field rack or Factory rack part number

Step 2: Select Add on ports (if applicable)

Step 3: Select HA-Fabric manager and server (required on Initial unit)

Step 4: Select SANtegrity Binding Options

Step 5: Select Service and Support

Step 6: Select Director FC-64 2Gb or Upgrade (if applicable)

HP Referenced Product Accessories

Step 1: Choose Field Rackable Director 2/64 or 2/140

Part Number

A6534B or 286809-B21- hp StorageWorks director 2/64

    64 port chassis, Field Rack (32 ports Inc., 8 x 4 ports) 316093-B21

316093-B21 - hp StorageWorks director 2/140

    140 port chassis, Field Rack (64 ports inc., 16 x 4 ports)

Standard with each Director 2/64 (A6534B or 286809-B21)

- Two CTP cards
- Eight 4-port UPM cards (with thirty two SFP's)
- Rack-mount kit (tray, hardware, and brackets)[1]
- Accessory kit *(Install guide, Documentation on CD: Service manual, Product Manager User Guide, HA-Fabric Mgr User Guide, SAN Environment Planning Guide, SNMP Guide, CLI Guide & Firmware 4.01.x)*
- Torque driver and bit (5/32")
- Null modem cable (RS-232, 3m)

- Two Ethernet Cables (CAT5, 10')
- Loopback plug
- Velcro straps for cable management
- Two power distribution units (PDUs) power cords *(250V/10A 2.5m)*
- Two Power cords *(C13/5-15P 125V/10A 3m)*
- Enterprise safety and regulatory information

Standard with each Director 2/140 (316093-B21)

- Two CTP cards
- Sixteen 4-port UPM cards (with sixty-four SFP's)
- Rack-mount kit (tray, hardware, and brackets)[1]
- Accessory kit *(Install guide, Documentation on CD: Service manual, Product Manager User Guide, HA-Fabric Mgr User Guide, SAN Environment Planning Guide, SNMP Guide, CLI Guide & Firmware4.01.x)*
- Torque driver and bit (5/32")
- Null modem cable (RS-232, 3m)

- Two Ethernet Cables (CAT5, 10')
- Loopback plug
- Velcro straps for cable management
- Two power distribution units (PDUs) power cords *(250V/10A 2.5m)*
- Enterprise safety and regulatory information

Choose Factory Rackable/CTO Director 2/64 or 2/140

Part number

A6534BZ - hp StorageWorks director 2/64
        64 port chassis, Factory Rack (32 ports Inc., 8 x 4 ports)
316093-B21 - hp StorageWorks director 2/140
        140 port chassis, CTO/Factory Rack (64 ports inc., 16 x 4 ports)

Standard with each Director 2/64 (A6534BZ)

- Two CTP2 cards
- Eight 4-port UPM cards (with thirty two SFP's)
- Rack-mount kit (tray, hardware, and brackets)[1]
- Accessory kit *(Install guide, Documentation on CD: Service manual, Product Manager User Guide, HA-Fabric Mgr User Guide, SAN Environment Planning Guide, SNMP Guide, CLI Guide & Firmware4.01.x)*
- Torque driver and bit (5/32")
- Null modem cable (RS-232, 3m)
- Two Ethernet Cables (CAT5, 10')
- Loopback plug
- Velcro straps for cable management
- Two power distribution units (PDUs) power cords *(250V/10A 2.5m)*
- Two Power cords *(C13/5-15P 125V/10A 3m)*
- Enterprise safety and regulatory information

Standard with each Director 2/140 (316093-B21)

- Two CTP2 cards
- Sixteen 4-port UPM cards (with sixty-four SFP's)
- Rack-mount kit (tray, hardware, and brackets)[1]
- Accessory kit *(Install guide, Documentation on CD: Service manual, Product Manager User Guide, HA-Fabric Mgr User Guide, SAN Environment Planning Guide, SNMP Guide, CLI Guide & Firmware4.01.x)*
- Torque driver and bit (5/32")
- Null modem cable (RS-232, 3m)
- Two Ethernet Cables (CAT5, 10')
- Loopback plug
- Velcro straps for cable management
- Two power distribution units (PDUs) power cords *(250V/10A 2.5m)*
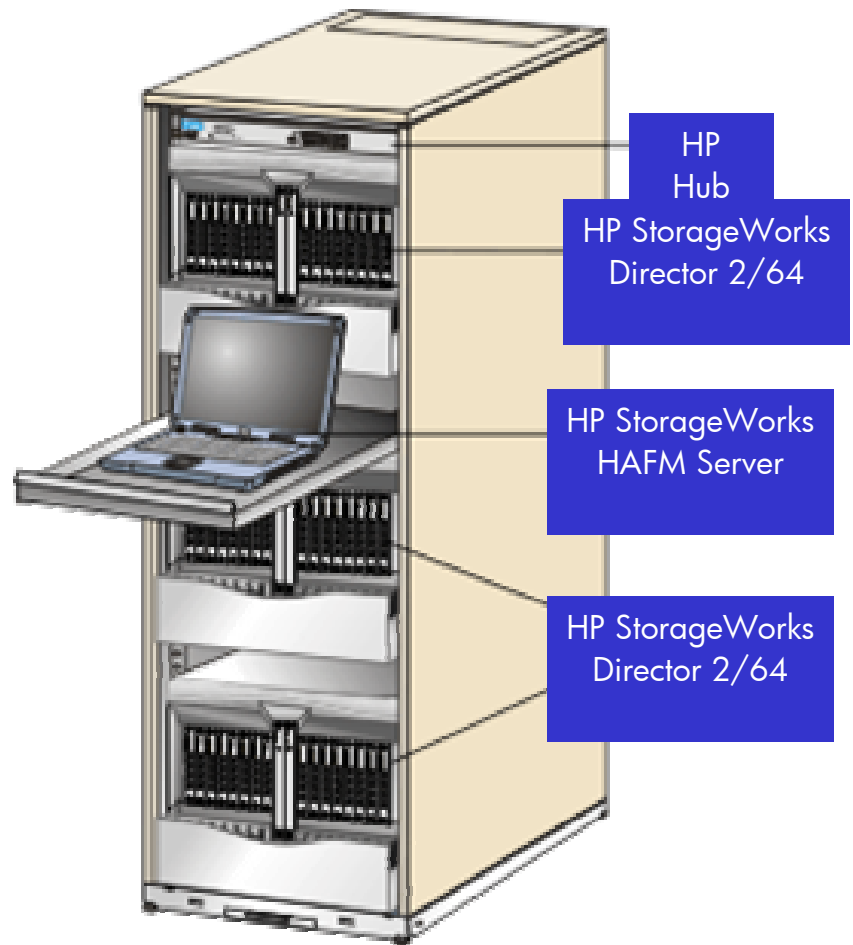- Enterprise safety and regulatory information

HP Storageworks Director 2/64 in Rack With Laptop and Hub

Plan for AC power:
Plan for facility power sources for each equipment rack. Directors in a rack operate at 50 to 60 Hertz (Hz) and 100 to 240 volts alternating current (VAC), and require a minimum dedicated 5-ampere service. If two power sources are supplied (optional but recommended for high availability), the equipment rack contains two customer-specified external power cords. Each cord should be connected to a separate power circuit, or both should be connected to an uninterruptible power supply (UPS). Several types of power cables and plugs are available to meet local electrical requirements.

Director 2/64 Air Flow:
Airflow enters in the FRONT of the director, pulled UP and exits out the BACK and the SIDES.

HP Hub
HP StorageWorks Director 2/64

HP StorageWorks HAFM Server

HP StorageWorks Director 2/64

HP Storageworks Director 2/140 in Rack with Laptop and Hub

Plan for AC power:
Plan for facility power sources for each equipment rack. Directors in a rack operate at 60 Hertz (Hz) and 240 volts alternating current (VAC), and require a minimum dedicated 5-ampere service. If two power sources are supplied (optional but recommended for high availability), the equipment rack contains two customer-specified external power cords. Each cord should be connected to a separate power circuit, or both should be connected to an uninterruptible power supply (UPS). Several types of power cables and plugs are available to meet local electrical requirements.

Director 2/140 Air Flow:
Airflow enters in the FRONT of the director, pulled UP and exits out the BACK and the SIDES.
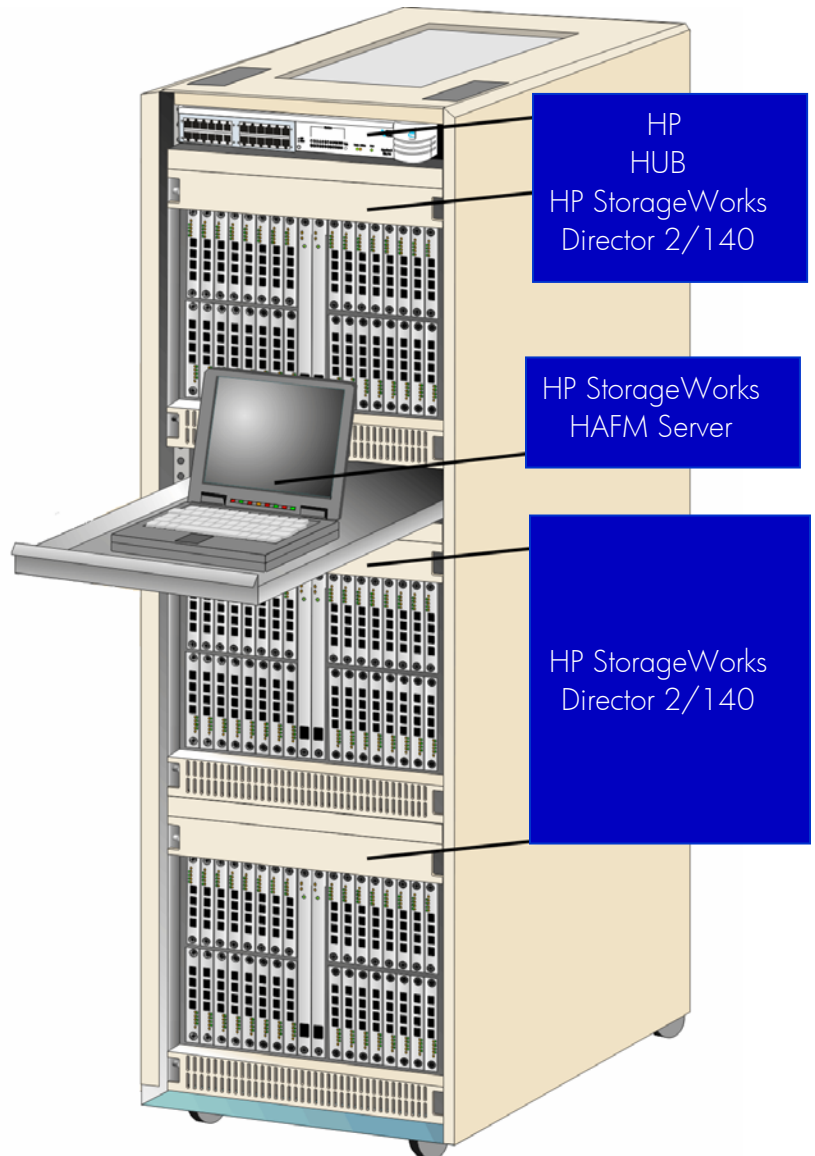
HP
HUB
HP StorageWorks
Director 2/140

HP StorageWorks
HAFM Server

HP StorageWorks
Director 2/140

Racking the Directors: The following HP racks are available for integration of products and peripherals that are ordered with the directors:

- A4900A HP System/E25: Std 19" Rack (25U), 1.25 meters
- A4901A HP System/E33 Std 19" Rack (33U), 1.6 meters
- A4902A HP System/E41 Std 19" Rack (41U), 2.0 meters
- HP 9000 Series Rack: 9142 (42U) Rack Cabinet - Pallet (120663-B21)
- HP 9000 Series Rack: 9142 (42U) Rack Cabinet - Shock Pallet (120663-B22)
- HP 9000 Series Rack: 9142 (42U) Rack Cabinet - Crated (120663-B23)
- HP 9000 Series Rack: 9136 (36U) Rack Cabinet - Pallet (120664-B21)
- HP 9000 Series Rack: 9136 (36U) Rack Cabinet - Shock Pallet (120664-B22)
- HP 9000 Series Rack: 9136 (36U) Rack Cabinet - Crated (120664-B23)
- HP 9000 Series Rack: 9122 (22U) Rack Cabinet - Pallet (120665-B21)
- HP 9000 Series Rack: 9122 (22U) Rack Cabinet - Shock Pallet (120665-B22)
- HP 9000 Series Rack: 9122 (22U) Rack Cabinet - Crated (120665-B23)

- HP 9000 Series Rack: 9842 (42U) Rack Cabinet – Pallet (222192-B21)
- HP 10000 Series Rack: 10647 (47U) Rack Cabinet - Pallet (245160-B21)
- HP 10000 Series Rack: 10647 (47U) Rack Cabinet - Crate (245160-B23)
- HP 10000 Series Rack: 10642 (42U) Rack Cabinet - Pallet (245161-B21)
- HP 10000 Series Rack: 10642 (42U) Rack Cabinet - Shock Pallet (245161-B22)
- HP 10000 Series Rack: 10642 (42U) Rack Cabinet - Crated (245161-B23)
- HP 10000 Series Rack: 10636 (36U) Rack Cabinet - Pallet (245162-B21)
- HP 10000 Series Rack: 10636 (36U) Rack Cabinet - Shock Pallet (245162-B22)
- HP 10000 Series Rack: 10636 (36U) Rack Cabinet - Crated (245162-B23)
- HP 10000 Series Rack: 10622 (22U) Rack Cabinet - Pallet (245163-B21)
- HP 10000 Series Rack: 10622 (22U) Rack Cabinet - Shock Pallet (245163-B22)
- HP 10000 Series Rack: 10622 (22U) Rack Cabinet - Crated (245163-B23)
- HP 10000 Series Rack: 10842 (80 mm wide, 42U) Rack Cabinet - Pallet (257415-B21)
- HP 10000 Series Rack: 10842 (800 mm wide, 42U) Rack Cabinet - Shock (257415-B22)

Notes:
- Director is also compatible with Standard Rittal 19" rack. The 2.0-meter rack supports 41U and a maximum weight of 2000 lbs.
- HP 9000 and 10000 series racks come equipped with 220 to 240 V Redundant PDU.
- For HP 9000 and 10000 series racks, it is mandatory to use a shock pallet in order to ship racks with equipment installed
- The system/e cabinet requires: Rack Mount Kit A6534-87951
  The 9000,10000,110000 cabinets require: Rack Mount Kit 302659-B21
  To support the director 2/24, the M Series cabinet requires Rack Mount Kit:254520-B21

The 2.0-meter rack supports 41U and a maximum weight of 2000 lbs. The Director 2/140 (12U) with 1U cable management space between Directors occupies 13U high and each switch weighs ~67 lbs. Therefore, the 2.0 meter rack will support three Director 2/140's Per Rack (w/ Hub and HAFM OmniBook kit, see image below).

Step 2: Choose Add on Ports

To expand the director 2/64 and 2/140, HP offers 8-port and4-port upgrade kits. The Director 2/64 comes standard with 32 ports (8 UPM cards). The Director 2/140 comes standard with 64 ports (16 UPM cards). Customers can upgrade up with 4- or 8-port add on kits to fully populate the Director 2/64 and 2/140. The 4 port kit includes 1 port card and 4 optics. The 8 port kit has 2 port cards and 8 optics.

A6574B/300833-B21 - Director 2/64 8-port add-on kit

2 Gb 4-Port UPM Cards (2)
Documentation, Torque Warning
Director 2/64 Port Card Install Sheet

ESD WRISTSTRAP
Add-On label

316094-B21 - Director 2/140 4-port add-on kit

2 Gb 4-Port UPM Cards (1)
Documentation, Torque Warning
Director 2/140 Port Card Install Sheet

ESD WRISTSTRAP
Add-On label

A6574B/300833-B21 - Director 2/140 8-port add-on kit

2 Gb 4-Port UPM Cards (2)
Documentation, Torque Warning
Director 2/140 Port Card Install Sheet

ESD WRISTSTRAP
Add-On label

Step 3: Select HA-Fabric Manager and OmniBook Server (Required on Initial unit)

The director 2/64 and 2/140 offer HA-Fabric Manager and HA-Fabric Manager OmniBook server as the SAN fabric management solution. HA-Fabric Manager Server Software supports up to 48 directors (multiple SANS) and 36 directors (single SAN). HAFM OmniBook Server (Laptop) supports up to 48 directors (multiple SANS) and 36 directors (single SAN).

A6575B/287406-B21 - hp StorageWorks HA-Fabric Manager 6.03x software

HAFM Software CD

A6582A - hp StorageWorks HA-Fabric Manager OmniBook Server add-on kit

• HP OmniBook VT6200 *(Pentium 4 1.6GHz processor, 14.1" XGA display, 256MB RAM, 32MB VRAM, 30GB HDD, 8x DVD, 56k modem, 10/100 LAN, 8-cell Lithium battery, Win XP Pro pre-loaded/Windows 2000 CD [2])*
• Sliding Shelf kit[3]
• PDU Adapter Cord (PC power supply to PDU)s
• HP Zip Drive Module, 250MB
• Zip Media, 100MB
• Ethernet Cable 14 ft CAT5 M/M
• Documentation, OmniBook Add-on kit

[2] HAFM is only tested and support with the OmniBook server running Windows 2000.
   HP Customer Engineer will install OS and HAFM during site installation if installation is purchased.

[3] Sliding shelf kit will fit 9000, 10000, 11000, System/E cabinets as well as Standard 19" racks.
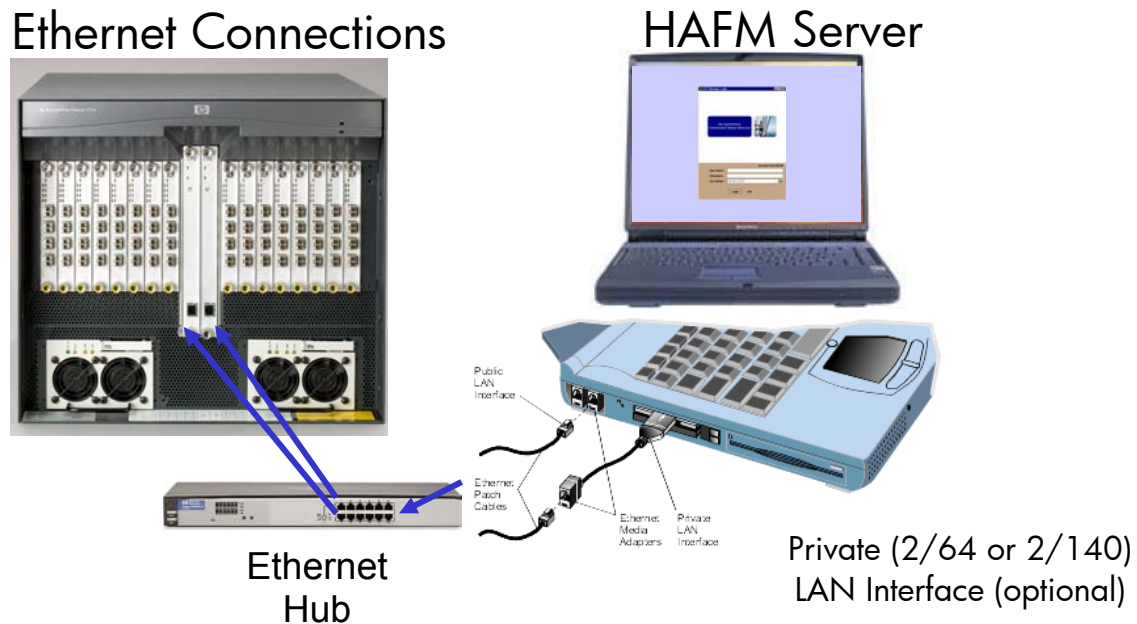
Ethernet Access to Director 2/64 and 2/140

The HP J3294A 10/100 Ethernet Hub 12 is recommended to connect the HAFM OmniBook Server to multiple director 2/64 and 2/140 switches. The J3294A is an industry standard 10/100 Ethernet hub. Hub dependencies (number of ports, number of hubs) vary on site/rack configurations.

Ethernet cables available:

C7533A   5183-2683   Ethernet Cable 4 ft CAT 5 M/M
C7535A   5183-2685   Ethernet Cable 7 ft CAT 5 M/M
C7536A   5183-2686   Ethernet Cable 14 ft CAT 5 M/M
C7537A   5183-2687   Ethernet Cable 25 ft CAT 5 M/M

Ethernet Access to Director 2/64, 2/140, and HA-Fabric Manager OmniBook Server

Ethernet Connections

HAFM Server

Ethernet Hub

Public LAN Interface

Ethernet Patch Cables

Ethernet Media Adapters

Private LAN Interface

Private (2/64 or 2/140) LAN Interface (optional)

Step 4: Select SANtegrity Binding Option

To take advantage of fabric security features, which manage connection permissions, each switch requires a SANtegrity bindings license.

317072-B21 or QM-70MAA-AA- hp StorageWorks SANtegrity Binding, 2/64 LTU

> License to Use, SANtegrity binding, 2/64

317073-B21 QM-70NAA-AA - hp StorageWorks SANtegrity Binding, 2/140 LTU

> License to Use, SANtegrity binding, 2/140

Step 5: Select Service and Support

The director 2/64 and 2/140 come standard with the following warranties:

warranty	A6534B/BZ service and support:	286809-B21 service and support:
	4G: 1 year on-site, 8x5, next business day response. Installation is not included.	(1-1-1) 1 year on-site, 8x5, next business day response.

HP offers SupportPack solutions and Support Option Contracts for the Director 2/64 and 2/140.

SupportPack solutions

support #	support description
H5545A/E	3 yr Next Day Onsite Response
H5546A/E	**3 yr 4 hr Onsite, Extended Hours Response**
H5547A/E	3 yr 4 hr Onsite Response, 24x7
H7724A/E	3 yr Call-to-Repair (Onsite/24 x 7)

For Support Option Contracts, contact your HP Sales representative for availability.

Step 6: Select Director FC-64 2Gb Upgrade (If applicable)

1Gb FC-64 (A6534A/AZ) or SAN Director 64 (254512-B21) customers can upgrade their director switch to 2 Gbps performance. The upgrades come in two formats. A6579A is for customers that have "CTP2" control processor cards already installed. Customers who purchased prior to February 2002, could have "CTP" control processor cards. For those customers, the correct part number to order is A6579A option 001. The option includes 2 "CTP2" control processor cards.

Current installed base customers:

• Need to replace the 1Gb/s (FPM) port modules with 2Gb/s (UPM) port modules for the FC-64 to become a 2Gb product

• All modules must be UPM's for all ports of the director to function at 2Gb/s

- If any FPM modules are mixed with UPM's, the all ports of director will function at <u>1Gb/s*</u>
  *The Upgraded 2 Gb Director FC-64 can function at 1Gb with FPM and UPM's installed. If FPM and UPM's are installed AND the director speed is set to 2Gb, the FPM's are deactivated while the UPM's run at 2Gb.FW 02.00.xx and HA-Fabric Manager 06.00.xx versions are required for the FC-64 to perform at 2Gb/s

A6579A Director FC-64 2Gb Upgrade Kit

2 Gb 4-Port UPM Cards (8)
Documentation, Torque Warning
2 Gb Upgrade Instructions
ESD WRISTSTRAP
HA-Fabric Manager 6.0 software CD
Firmware 2.0

CD Documentation

Service manual
Product Manager User Guide
HA-Fabric Mgr User Guide
SAN Environment Planning Guide
SNMP Guide, CLI Guide
Upgrade label

A6579A opt. 001 Director FC-64 2Gb Upgrade Kit

Contents of A6579A above and:

Director Switch 2 Gb CTP2 Card (2)
FC 64M Port Card Install Sheet

HP Referenced Product Accessories

SFP optics for the director 2/64 and 2/140 include short- and long-wave options.

Short Wave SFP Optics:
A6515A/300834-B21 – 300M SW SFP

300M Short-wave SFP optical transceiver
Installation sheet
ES ESD WRISTSTRAP

Extended Reach SFP Optics
300836-B21 – 35K LW SFP

35K Long wave SFP extended reach optical transceiver
Installation sheet
ES ESD WRISTSTRAP

Long Wave SFP Optics:
A6516A/300835-B21 -10K LW SFP

10K Long wave SFP optical transceiver
Installation sheet
ES ESD WRISTSTRAP

SFP Optical Modules

SFP replaces GBIC modules. SFP = small form factor pluggable. Some companies call the same module SFF for "small form factor," but that doesn't designate if it's pluggable.

- Shortwave SFP's have black dots visible from the front
- Longwave SFP's have blue dots visible from the front

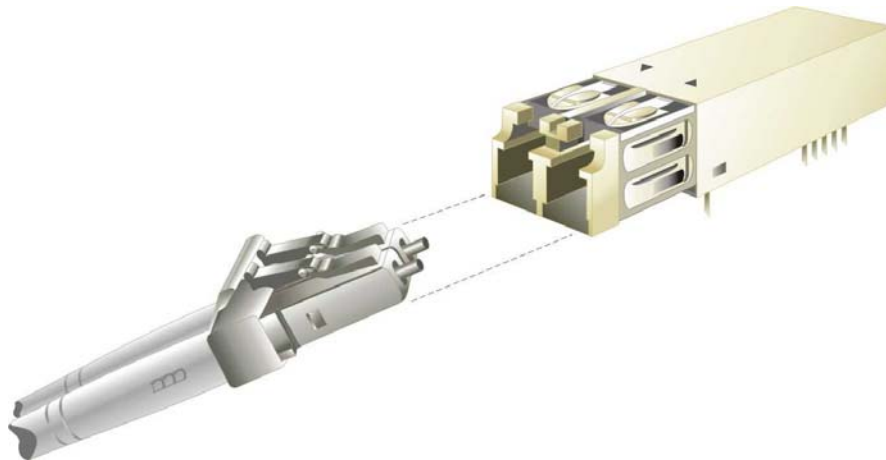The SFP's qualified by HP are 1Gb/2Gb capable.

LC connector cables
For connecting inter switch links (ISL's) from one director to another, use the LC-to-LC cables.

LC-to-LC cables M/M (50/125 um)

C7524A	2m LC-to-LC Fibre Channel cable	221692-B21	2m LC-to-LC multi-mode FC cable
C7525A	16m LC-to-LC Fibre Channel cable	221692-B22	5m LC-to-LC multi-mode FC cable
C7526A	50m LC-to-LC Fibre Channel cable	221692-B23	15m LC-to-LC multi-mode FC cable
C7527A	200m LC-to-LC Fibre Channel cable	221692-B26	30m LC-to-LC multi-mode FC cable
		221692-B27	50m LC-to-LC multi-mode FC cable

LC cable connector and SFP Optic module

Configuration Requirements

The configuration requirements and 2/64 and 2/140 director manuals are accessible via the Web. Please use the following URLs to get the most up-to-date configuration.

Product Information	URL
Director 2/64	http://www.hp.com/go/san http://www.hp.com/products1/storage/products/san/fibreswitches/director_264/index.html
Director 2/140	http://www.hp.com/go/san http://www.hp.com/products1/storage/products/san/fibreswitches/director_2140/index.html
Warranty and Support options	http://h18004.www1.hp.com/products/storageworks/warranty.html http://www.compaq.com/services/*CarePAQ*/us/install/cp_storage.html http://www.compaq.com/services/*CarePAQ*/us/hardware/cp_storage.html http://www.compaq.com/services/CarePAQ/index.html

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