

>> Kontron Configuration Guide <<



Kontron IP Network Server NSN2U

Document Revision 2.2

March 2011

Revision History

Revision	Date	Comments
1.0	6/26/2009	Initial production version.
1.1	11/9/2009	Added photo images for orderable SKUs. Revised organization of Spares. Adjusted MOQ of PCI riser spares. Updated descriptions of NSNBRIDGEBDQ and NSNSYSCBLKITQ to reflect BOM changes.
2.0	3/16/2010	Added support for Intel® Xeon® Processor 5600 Series.
2.1	4/29/2010	Added support for Dual port 10GbE I/O Module (AXX10GBIOMOD) and 4-port SAS I/O Module (AXXSASIOMOD)
2.2	3/30/2011	Added spares for x16 risers (NSNRISERFHLP16A, NSNRISERFH16P) and minor updates to Rack Mount Kits spares section.

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Table of Contents

I. INTRODUCTION.....	4
II. ORDERING NSN2U SYSTEMS.....	5
III. ORDERING NSN2U SPARES/ACCESSORIES	12
APPENDIX A. RACK MOUNTING OPTIONS FOR 1U AND 2U COMMUNICATIONS RACK MOUNT SERVERS.....	19

I. Introduction

Product Description:

The IP Network Server NSN2U system is the third generation product of Kontron's 2U IP Network Server products. With long product availability (3-5 years), this server combines network port density and processor performance in a compact 2U package. The NSN2U supports the Quad-Core Intel® Xeon® 5500 series and six-core 5600 series processors, coupling high performance with power efficiency to provide improved performance-per-watt over previous generation rackmount servers.

The NSN2U is an excellent choice for network security applications—including intrusion detection/intrusion prevention, VPN/firewall, and unified threat management solutions. It is also well-suited for enterprise application acceleration and content caching, and is an ideal platform for running Telco SoIP, including IMS, IPTV, video on demand (VoD), SIP application servers, IP-PBX, and IP-PSTN gateways.

To add to the many recognized benefits of Kontron's IP Network Server family, the NSN2U introduces several new important features such as support of PCI-E Gen2, Power Management Bus, DDR3 memory, hot-swap/redundant fans, and increased memory and storage capacity.

More detailed product information on the NSN2U is available on Kontron's website at:

<http://www.kontron.com/products/systems+and+platforms/communication+rackmount+servers/ip+network+servers/ip+network+server+nsn2u.html>

Purpose of this Document:

Serving as an ordering reference guide, this document provides details on what parts are available from Kontron for the IP Network Server NSN2U and its associated accessories and spares. Included are the necessary order codes and other important configuration information related to the ordering of the product.

Supported third-party components are not covered by this document, and may be found in the Tested Hardware and Operating System List (THOL) for this product.

II. Ordering NSN2U Systems

This section includes the following important information regarding how to order NSN2U systems. Please be familiar with each of these areas before placing an order.

- A. **NSN2U System SKUs** - choice of AC or DC system SKU
- B. **Required Configuration Choices** – to enable hard drive support, PCI risers, etc.
- C. **NSN2U Base Model 0 Configuration** - list of what is included in the base model system
- D. **Details on Ordering Processors** - list of which processors are supported
- E. **Notes on Configuration Options** – important notes regarding certain accessories

A. NSN2U System SKUs

The **NSN2U System SKUs** are listed in the table below:

Product Code	Description	Min. Order Qty.
 NSNA0201Q	IP Network Server NSN2U Base Model 0 with AC Power Supply .	1
 NSND0201Q	IP Network Server NSN2U Base Model 0 with DC Power Supply .	1

The NSN2U system SKUs are ordered using the Product Code as the order number. The NSN2U is offered as either an AC or DC version—as indicated by the 4th digit of the product code (“A” for AC or “D” for DC). Also, the last digit uses the letter “Q” to indicate that the SKU is RoHS 6/6 compliant (previous product codes used “W” to indicate RoHS 5/6 compliancy with solder exemption).

The above SKUs are “Base Model 0” SKUs—meaning they do not include processors, heat sinks, memory, hard drives, power cord, operating system, or plug-in adapters. Those components should be ordered separately as Accessories from Kontron or from third party vendors listed in the Tested Hardware and Operating System List (THOL).

The Mod 0 does NOT include a PCI riser or the hard drive controller modules necessary to enable hard drive support—see details below on how to enable those options.

See the **NSN2U Base Model 0 Configuration** table later in this section for a list of components included in each base model 0 SKU.

B. Required Configuration Choices

Required Choice of Hard Drive Controller Module:

Hard drive support is NOT enabled by default on the NSN2U Mod 0 base system. Therefore if hard drive support is needed on the system, then it is REQUIRED that you select the type of hard drive controller that you will need on the system—either for (1) basic SAS/SATA support or (2) HW RAID support.

Using the provided Product Codes, please order one of the two options below to enable the desired level of hard drive support for each NSN2U Mod 0 system. These items are also listed within the “Production Spares/Accessories List” in Section III.

Product Code	Description	Comments
NSNSASSATAQ 	SAS/SATA Controller Module (non-HW RAID)	Required for all systems that require only basic SAS/SATA hard drive support, and do <u>NOT</u> require HW RAID support.
NSNSASRAIDQ 	SAS/SATA HW RAID Controller Module	Required for all systems that require HW RAID support. Enables HW RAID 5, 6.

Required Choice of PCI Riser (to enable PCI support):

PCI risers are NOT included in the Mod 0 system. If PCI support is required, please order one of the below PCI risers using the provided product codes (*also listed in “Production Spares/Accessories List” in section III*):

Product Code	Description
ASR26XXFHLPR 	2U PCI-E “Butterfly” Riser 3 FH/FL PCIe x8 slots, and 2 LP PCIe x8 slots
ASR26XXFHXR 	2U PCI-E/PCI-X “Butterfly” Riser 2 PCI-X 133 slots, 1 FH/FL PCIe x8 slot, and 2 LP PCIe x4 slots

<p>ASR26XXFHR</p> 	<p>2U 3-slot PCI-E Passive Riser 3 FH/FL PCIe x8 slots</p>
<p>NSNRISERFHLP16A</p> 	<p>5-slot x16 PCIe Active Riser (3 FH/FL and 2 LP slots) One x16 PCIe FH/FL slot (x16 electrical), Two x8 PCIe FH/FL (x8 electrical), Two x8 PCIe LP slots (x4 electrical)</p>
<p>NSNRISERFH16P</p> 	<p>3-slot x16 PCIe Passive Riser (3 FH/FL slots) One x16 PCIe slot x16 electrical, Two x8 PCIe slots (x4 electrical)</p>

AC Power Cords:

Power cords are not included with the Mod 0 system. For AC Power cords, order the following North American power cable using the provided product code. This power cable is RoHS-compliant.

Product Code	Comments
<p>1-340000-0</p> 	<p>This AC power cable can be ordered by North America (NA) customers. International customers should procure their specific power cords directly.</p>

C. NSN2U Base Model 0 Configuration

All Production SKUs are base model 0 SKUs (no processor, heatsink, memory, hard drive, power cord, operating system, SAS/SATA module, HW RAID module, PCI risers, or plug-in adapters are provided). Those components must be ordered separately as Accessories from Kontron or from third party vendors listed in the Tested Hardware and Operating System List.

The table below lists which components are included in the base model 0 SKUs and which ones must be ordered separately or as optional accessories.

Component Description	AC Mod 0 Configuration	DC Mod 0 Configuration
Chassis (sheet metal, top cover, PCI cage, misc. parts)	1 included	
Baseboard T5520UR (Telco Urbanna), power distribution board, system boards, fans, interconnect cables	Included	
AC power supply (600 W)	1 included	-
DC power supply (600 W)	-	1 included
Filler Panel in 2 nd power supply bay	1 included	
Bezel (unpainted)	1 included	
RDIMM/UDIMM memory slots (memory not included)	12 included	
8 Bays for hot-swap 2.5" SAS/SATA Hard Disk Drives	Includes 4 carriers and 4 filler panels <i>(additional carriers available as accessories²)</i>	
Filler Panel in optical device bay	1 included	
Rear Panel GbE NIC (Cu) ports (via Server Board)	2 included	
Server Deployment Toolkit (CD)	1 included	
Quick Start Guide	1 included	
Power Cable	Purchase separately ¹	
SAS/SATA Module (enables basic hard drive support)	Optional Accessory ²	
HW RAID Module, optional battery backup	Optional Accessories ²	
SW RAID 0/1/10	Supported via SAS/SATA Module	
Remote Management Module 3 with GCM4	Optional Accessory ²	
5-slot PCI-E "Butterfly" Riser	Optional Accessory ²	
5-slot PCI-E/PCI-X "Butterfly" Riser	Optional Accessory ²	
3-slot PCI-E Passive Riser	Optional Accessory ²	
5-slot x16 PCI-E Active Riser	Optional Accessory ²	
3-slot x16 PCI-E Passive Riser	Optional Accessory ²	
Optional I/O Module	Optional Accessory ²	
Rack Mount Kits	Optional Accessory ³	
Rail Enabling Kit (enables AXXBASRAIL13 and AXXHERAIL2)	Optional Accessory ³	
Processor (refer to "Details on Ordering Processors")	Purchase separately ⁴	
Heatsink	Accessory or purchase separately	
RDIMM/UDIMM Memory	Purchase separately ⁴	
Hard Disk Drives (SAS or SATA)	Purchase separately ⁴	
Embedded USB Flash Drive	Purchase separately ⁴	
Optical Drive	Purchase separately ⁴	

¹Refer to AC power cord accessory in this section

²Refer to "Production Spares/Accessories List" in section III

³Refer to "Rack Mounting Options" in the Appendix

⁴Should be purchased separately (parts not listed in this document)

D. Details on Ordering Processors

The NSN2U is designed to support the following processor SKUs from the Intel® Xeon® processor 5500 series.

Intel® Xeon® Processors Supported by the NSN2U:

Processor Number	Cores	Speed	TDP	Memory Speed Support	Kontron P/N	Intel P/N
E5645	6	2.4 GHz	80W	DDR3-1333	K00203-001	AT80614003597AC
E5620	4	2.4 GHz	80W	DDR3-1066	K00204-001	AT80614005073AB
E5540	4	2.53 GHz	80W	DDR3-1066	K00007-001	AT80602000789AA
E5504	4	2.00 GHz	80W	DDR3-800	K00009-001	AT80602000801AA

Notes:

- The above processors are on Intel's long life roadmap and are recommended with the NSN2U for highest performance and long availability and support.
- These processors are orderable from Kontron or Intel using the indicated part numbers.
- Use of the above processors requires the purchase of a passive heatsink (product code BXST100P). This heatsink is also listed in the Spares/Accessories list in section III.

E. Notes on the NSN2U Configuration & Options

Please review the following important notes regarding certain accessories and configuration options for the NSN2U.

▪ HW RAID

- While SW RAID 0/1/10 is supported on the base configuration, HW RAID 5 and 6 support can be enabled via the following optional accessories (*refer to “Production Spares/Accessories List” in section III*).
 - **NSNSASRAIDQ** (SAS/SATA HW RAID Controller Module) – includes the board, RAID activation key, and memory
 - **AXXRSBBU4** (Intel® RAID Smart Battery Backup module)
- If HW RAID is not needed, then the **NSNSASSATAQ** SAS/SATA Controller Module should be ordered instead of the above accessory options.

▪ Hard Drive Carriers

- The eight hard drive bays in the Mod0 system are populated with 4 drive carriers (bays 0→3) and 4 filler panels (bays 4→7) by default.
- If more than 4 hard drives will be used in the system, then additional hard drive carriers should be ordered (*refer to “Production Spares/Accessories List” in section III*).

▪ Flash Drives

- The **Embedded USB (EUSB) Flash Drive** from Smart Modular Technologies is supported in the system:
 - Available from SMART Modular Technologies or Kontron
 - Multiple drive capacities supported. Refer to the ‘Tested Hardware and Operating System List’ (THOL) for details on supported SKUs.
 - Mounts directly on the system baseboard and/or front panel board, without the need for special mounting kit.
 - Product information is available at:
<http://www.smartmodular.com/product/product.cfm?productID=65>
 - Replaces the former Intel® Z-U130 Value Solid State Drive

▪ I/O Option Modules

- The following optional modules attach to the system board via a proprietary connector, and provide additional I/O through the rear bulkhead.
 - The **AXX10GBIOMOD** option module provides two 10GbE NICs.
 - The **AXX4GBIOMOD2** option module provides four GbE NICs.
 - The **AXXSASIOMOD** option module provides 4 ports for external SAS
 - ❖ *Note on AXXSASIOMOD: To avoid connection failures or module interface breakage, you must well support the external cabling to the module. Do NOT let the external cabling hang in the air or leave it unsupported.*
- *For ordering details, refer to “Production Spares/Accessories List” in section III.*

▪ Rack Mounting Options

- Rack mounting kits for 2-post or 4-post, 19-inch or 23-inch racks are offered for this product. These include TMLCMOUNT21, TMLPMOUNT41, TMLPMOUNT51, TMLPMOUNT52, and TMLPSLIDE01. The Rail Enabling Kit (TMLREK01) is not required for these rack mount kits.
 - *Please refer to Appendix A to determine the correct options to suit your needs. For ordering details, refer to “Production Spares/Accessories List” in section III.*
- If AXXBASRAIL13 or AXXHERAIL2 (from Intel) will be used, then a Rail Enabling Kit (TMLREK01) must be purchased from Kontron to enable support of these Intel rail kits.
 - *For ordering details, refer to “Production Spares/Accessories List” in section III.*

III. Ordering NSN2U Spares/Accessories

In the table below are a list of the Spares and Accessories that may be ordered for the NSN2U system. Please read the following notes regarding this parts list.

- **Spares:** Any of these items may be ordered as ‘Spares’ for part replacement purposes.
- **Accessories:** Some of these items are not included in the NSN2U Mod0 base model, but may be ordered as ‘Accessories’ to upgrade the base model with additional features.
- **3rd Party Accessories:** For a listing of compatible 3rd party accessories, please refer to the Tested Hardware and Operating System List (THOL) document.
- **RoHS Compliancy:** The last digit of most of these Kontron product codes use the letter “Q” to indicate that it is RoHS 6/6 compliant (previous product codes often used a “W” to indicate RoHs 5/6 compliancy, with solder exemption).

Power Supplies/Cord:

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
NSNACPSUQ 	NSN2U AC Power Supply	AC power supply	Y (<i>one in AC SKU</i>)	1
NSNDCPSUQ 	NSN2U DC Power Supply	DC power supply, input power connector	Y (<i>one in DC SKU</i>)	1
1-340000-0 	AC Power Cord	Should be ordered by North America customers. International customers should procure their specific power cords directly.	N	1

Heatsink:

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
BXSTS100P 	Heatsink (passive)	25.5mm Tall Passive Heatsink (copper base with aluminum fins)	N	4

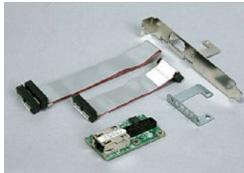
Storage/RAID Options:

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
NSNSASSATAQ 	SAS/SATA Controller Module (non-HW RAID)	Board	N	1
NSNSASRAIDQ 	SAS/SATA HW RAID Module	Board, RAID activation key, memory. <i>Battery not included.</i>	N	1
AXXRSBBU4 	Intel® RAID Smart Battery Backup module: for use with Intel® Integrated Server RAID (requires NSNSASRAIDQ).	Battery backup kit	N	5 <i>(order in multiples of 5)</i>
NSNSASHDDCARQ 	NSN2U SAS HDD Carrier	Carrier, black plastic filler, screws (4)	Y <i>(four included)</i>	12 <i>(order in multiples of 12)</i>

Bezels:

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
NSNBEZEL01Q 	NSN2U Bezel (Unpainted)	Unpainted Bezel	Y (one bezel)	12 (order in multiples of 12)

Remote Management Module:

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
AXXRMM3 	Intel® Remote Management Module 3 kit	Module, mounting brackets, long and short cables	N	1

PCI Risers:

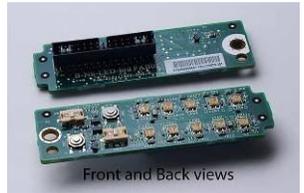
Product Code	Description	Included in Base Model (Y/N)	Min. Order Qty
ASR26XXFHLPR 	5 slot PCI-e active Riser Provides: <ul style="list-style-type: none"> • 1 full-size x16 physical x8 electrical slots • 2 full-size x8 physical x8 electrical slot • 2 low-profile x8 physical x8 electrical slots. 	N	5
ASR26XXFHXR 	5 slot PCI-e / PCI-X active Riser Provides: <ul style="list-style-type: none"> • 2 full-size PCI-X 133 slots • 1 full-size x8 physical x8 electrical slot • 2 low-profile x8 physical x8 electrical slots 	N	5
ASR26XXFHR 	3-slot PCI-e passive Riser Provides: <ul style="list-style-type: none"> • 1 full-size x16 physical x8 electrical slot • 2 full-size x8 physical x8 electrical slots 	N	5

<p>NSNRISERFHLP16A</p> 	<p>5-slot x16 PCIe Active Riser (3 FH/FL and 2 LP slots)</p> <p>Provides:</p> <ul style="list-style-type: none"> • One x16 PCIe FH/FL slot (x16 electrical) • Two x8 PCIe FH/FL (x8 electrical) • Two x8 PCIe LP slots (x4 electrical) 	N	
<p>NSNRISERFH16P</p> 	<p>3-slot x16 PCIe Passive Riser (3 FH/FL slots)</p> <p>Provides:</p> <ul style="list-style-type: none"> • One x16 PCIe slot x16 electrical) • Two x8 PCIe slots (x4 electrical) 	N	

I/O Modules:

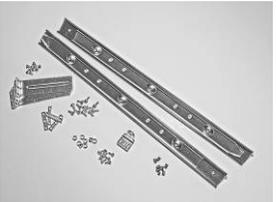
Product Code	Description	Included in Base Model (Y/N)	Min. Order Qty
<p>AXX10GBIOMOD</p> 	Dual port 10GbE I/O Module	N	1
<p>AXX4GBIOMOD2</p> 	Quad port GbE I/O Module	N	1
<p>AXXSASIOMOD</p> 	Four-port external SAS I/O Expansion Module	N	1

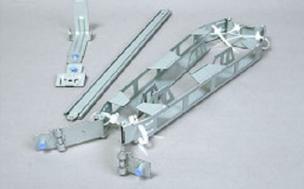
Replacement Spares:

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
NSNBASEBDQ 	NSN2U T5520UR Server Baseboard	Board	Y	1
NSNPWRDISBDQ 	NSN2U Power Distribution Board	Power distribution board	Y	1
NSNFPIOBDQ 	NSN2U Front Panel IO board	Board	Y	1
NSNLEDSWITCHBDQ  <p>Front and Back views</p>	NSN2U LED / Switch board	Board	Y	1
NSNSASBKPLNQ 	NSN2U SAS Backplane	Backplane	Y	1
NSNBRIDGEBDQ 	NSN2U Bridge board & serial port cable	Board, insulator, serial port cable	Y	1

<p>NSNSYSCBLKITQ</p> 	<p>NSN2U System Interconnect Cable Kit</p>	<p>Flex cable (SAS interface, front panel signals), HDD Power cable, front panel power cable, LED/Switch bd power/sig cable, CD-ROM Pwr/Sig cable, 60mm fan cable, 80mm fan cable.</p>	<p>Y</p>	<p>1</p>
<p>NSNFANSETQ</p> 	<p>NSN2U Fan Assembly (6 fans)</p>	<p>2x 60mm fans, plus 4x 80m assembly fans. Includes plastic parts (finger guard).</p>	<p>Y</p>	<p>1</p>
<p>NSCDVDENGTABW</p> 	<p>DVD Drive Retention Bracket (for NSN2U, NSC2U, TIGH2U)</p>	<p>Blue plastic retention bracket</p>	<p>Y</p>	<p>1</p>

Rack Mount Kits *(refer to Appendix A for additional details)*

Product Code	Description	Included in Base Model (Y/N)	Min. Order Qty
<p>TMLCMOUNT21</p> 	<p>Rack Mount Kit TMLCMOUNT21</p> <p>Used for mounting servers on a 19-inch wide, 2-post rack</p>	<p>N</p>	<p>10</p>
<p>TMLPMOUNT41</p> 	<p>Rack Mount Kit TMLPMOUNT41</p> <p>Used for mounting servers on 19-inch wide, 2-post or 4-post racks</p>	<p>N</p>	<p>10</p>

<p>TMLPMOUNT51</p> 	<p>Rack Mount Kit TMLPMOUNT51</p> <p>Used for mounting servers on 19-inch wide, 2-post or 4-post racks</p>	<p>N</p>	<p>1</p>
<p>TMLPMOUNT52</p> 	<p>Rack Mount Kit TMLPMOUNT52</p> <p>Used for mounting servers on 23-inch wide, 2-post or 4-post racks</p>	<p>N</p>	<p>1</p>
<p>TMLPSLIDE01</p> 	<p>Universal Front Mounting Brackets</p> <p>Accessory kit designed for use in conjunction with slide rails. Each kit contains two Universal Front Mounting Brackets that secure the server to the front of the rack.</p>	<p>N</p>	<p>10</p>
<p>AXXBASRAIL13</p>  <p><i>(orderable from Intel only – MM# 899080)</i></p>	<p>Basic Slide Rail Kit</p> <p><i>NOTE: Does not support Cable Management Arm.</i> <i>NOTE: Requires TMLREK01 to attach to CG2100 chassis</i></p> <p><i>(orderable from Intel only –MM# 899080)</i></p>	<p>N</p>	<p>1</p>
<p>AXXHERAIL2</p>  <p><i>(orderable from Intel only – MM# 901082)</i></p>	<p>Full extending Slide Rail Kit</p> <p><i>NOTE: Requires TMLREK01 to attach to CG2100 chassis</i></p> <p><i>(orderable from Intel only – MM# 901082)</i></p>	<p>N</p>	<p>1</p>
<p>AXXRACKARM2</p>  <p><i>(orderable from Intel only – MM# 901084)</i></p>	<p>Cable Management Arm</p> <p><i>NOTE: To be used with AXXHERAIL2 only</i></p> <p><i>(orderable from Intel only – MM# 901084)</i></p>	<p>N</p>	<p>1</p>
<p>TMLREK01</p>	<p>Rail Enabling Kit</p> <p><i>Enables AXXBASRAIL13 and AXXHERAIL2 on CG2100</i></p>	<p>Each kit includes:</p> <ul style="list-style-type: none"> • rackmount ears (2) • rackmount shoulder screws (4) • screws (2) 	<p>N</p> <p>10 <i>(order in multiples of 10)</i></p>

Appendix A. Rack Mounting Options for 1U and 2U Communications Rack Mount Servers

Rack mounting kits for 2-post or 4-post, 19-inch or 23-inch racks are offered for this product. For ordering details, refer to “Production Spares/Accessories List” in section III. Please refer to the tables below for the correct options to suit your needs.

Although these mounts have been designed for industry standard racks, please consult with your Field Application or Sales Engineer before selecting racks for these servers. Compatible rack mounting kits can also be obtained from 3rd party suppliers.

All rack mount kits listed are suitable for 1U and 2U Communications Rack Mount Servers. Installation instructions are included in each kit.

2-post Rack Mounting Kit Options							
Applicable kits:	Rack width		Post depth		Rack fastener hole spacing		
	19 inch	23 inch	3 inch	5 inch	EIA-Wide	EIA-Universal	ETSI
TMLCMOUNT21	√		√	√	√	√	
TMLPMOUNT41	√		√	√		√	
TMLPMOUNT51	√		√	√	√	√	
TMLPMOUNT52		√	√	√	√	√	√

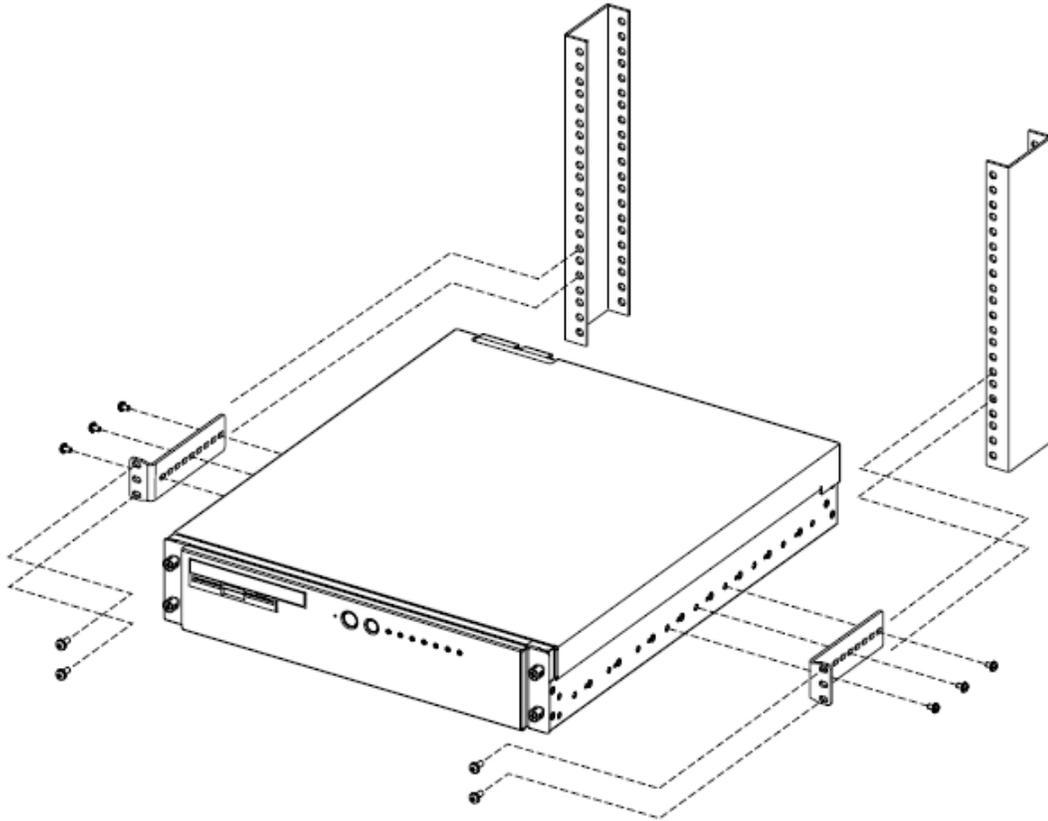
4-post Rack Mounting Kit Options							
Applicable kits:	Rack width		Front-post to rear-post distance		Rack fastener hole spacing		
	19 inch	23 inch	Min (inches)	Max (inches)	EIA-Wide	EIA-Universal	ETSI
TMLPMOUNT41	√		20	24		√	
TMLPMOUNT51	√		20	24	√	√	
TMLPMOUNT52		√	20	24	√	√	√
TMLPSLIDE01 [†]	√		22.5	28 or 34 ^{††}		√	

[†]The TMLPSLIDE01 kit contains server securing brackets.

^{††}34-inch span requires the optional Accuride "Long Bracket" kit.

TMLCMOUNT21

The TMLCMOUNT21 kit mounts Communication Rack Mount Servers to a 2-post, central office type, 19-inch wide rack. This kit consists of L-shaped brackets that fasten to the sides of the server and to the rack.



TMLCMOUNT21

TMLPMOUNT41, TMLPMOUNT51 and TMLPMOUNT52

TMLPMOUNT41/51/52 series mounts Communication Rack Mount Servers to 2-post or 4-post racks.

TMLPMOUNT41 and TMLPMOUNT51 are used for mounting servers on 19-inch wide racks. These racks are considered standard EIA (universal hole spacing) racks.

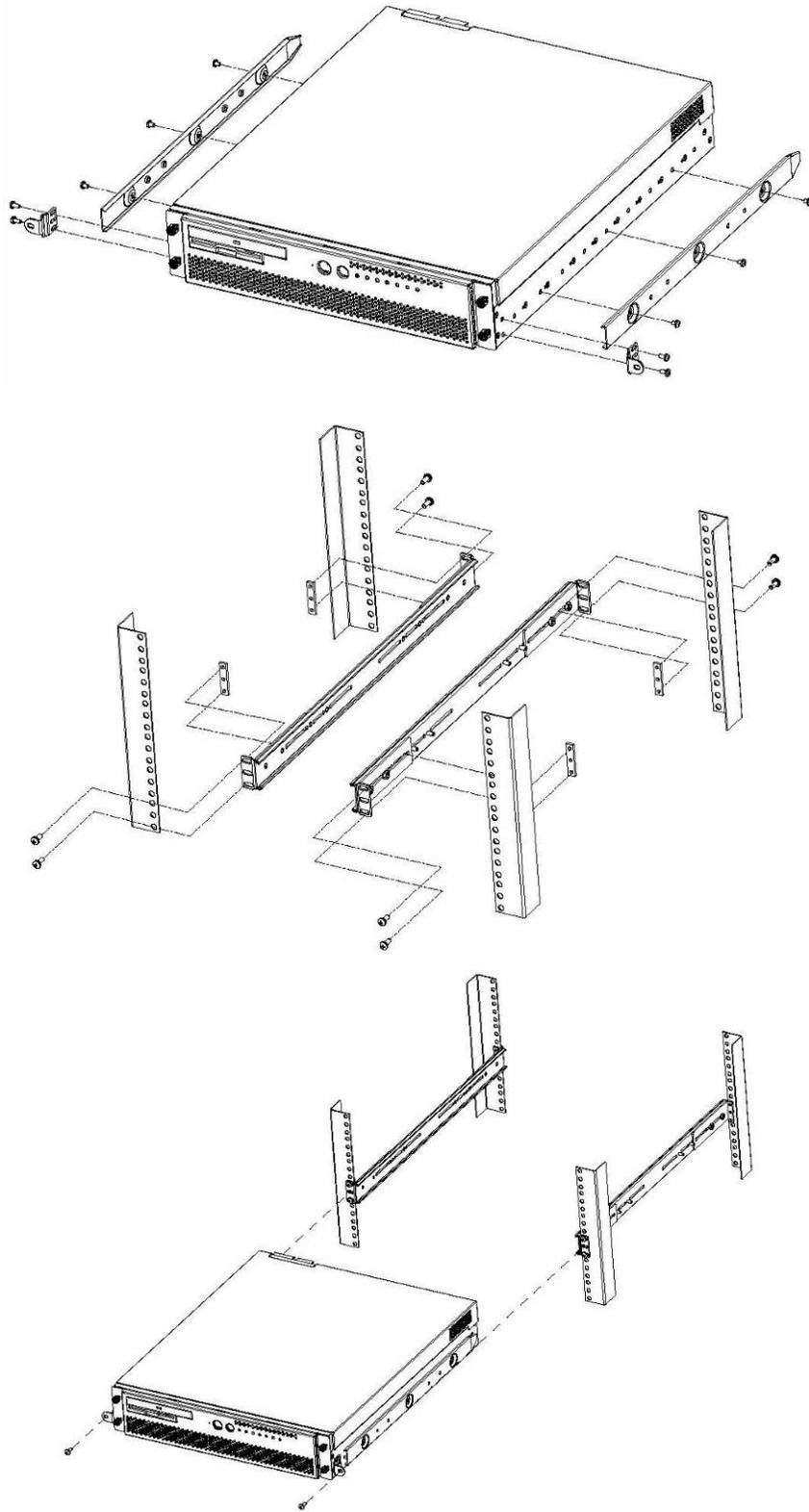
TMLPMOUNT52 is used for mounting servers on 23-inch wide racks. These racks could be standard EIA (universal or wide hole spacing) or ETSI (European) racks.

TMLPMOUNT41/51/52 series are designed with a slide-in rail-type system. Although the mounts are designed as rails, they are not sliding rails. This means the servers can be slid into the racks for installation purpose, but the rails are not designed to support a mounted server during service.

TMLPMOUNT4x/5x Feature Comparison						
	Slide pull-out locking feature	Slide interface material	4-post rack hole spacing	2U-tall nut bar	2-post chassis securing screw location	"HP Mulan rack interference"
TMLPMOUNT41	No ¹	Plastic strips ²	EIA-Universal	Not included	Side access ⁶	Interference
TMLPMOUNT51	Yes	Xylan coating ³	EIA-Wide or EIA-Universal ⁴	Included ⁵	Front access	No Interference
TMLPMOUNT52	Yes	Xylan coating ³	EIA-Wide, EIA-Universal or ETSI	Included ⁵	Front access	N/A

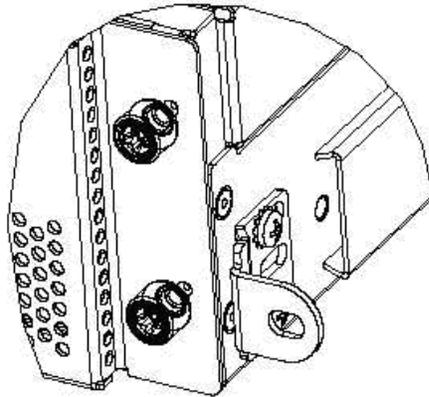
Notes:

1. Extra care must be exercised with TMLPMOUNT41 to securely hold the server with one's hands when sliding it out of the rack; otherwise, the server could fall to the ground as it is being removed.
2. Plastic strips on TMLPMOUNT41 have peeled off in some customer installations. The result of this is that the parts are usable, but the server could have somewhat of a "scrape-in feel" rather than "slide in". Also, the rails will fit sloppier, so the side-located chassis securing screws could be difficult to align in 2-post installations. Replacement material is available from the plastic strip manufacturer.
3. Xylan is a tough, low-friction coating similar to Teflon.
4. EIA-Wide spacing doesn't have the interstitial hole that is present in EIA-Universal. TMLPMOUNT51 contains an adapter bracket to overcome this EIA-Wide issue.
5. This component (2U Nut Bar) enables installation of a rail kit into a 1U rack slot when there is already equipment installed both above and below that open slot.
6. The sides of the server must be accessible when using TMLPMOUNT41 in 2-post racks.

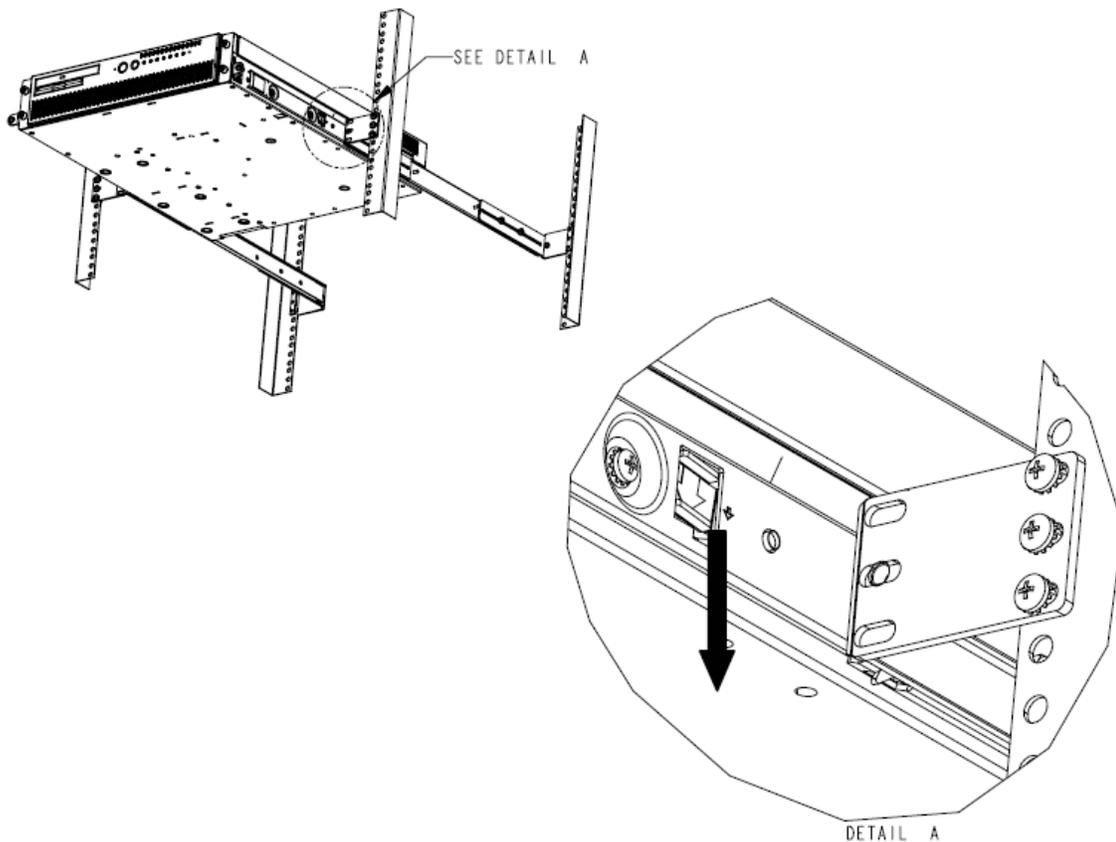


The diagrams above summarize the components and “slide-in rail-type” system of the TMLPMOUNT41. It can be adapted for a 2-post or 4-post installation.

The main difference between the TMLPMOUNT41 and TMLPMOUNT51/52 series is that the TMLPMOUNT41 series uses a screw to lock the server in place using the Universal Mounting Bracket, whilst the TMLPMOUNT51/52 series has an additional Slide Pull-Out Locking feature.



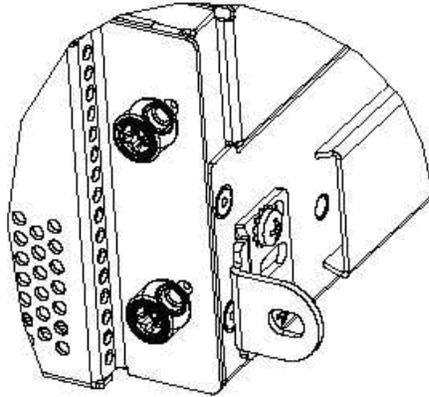
Universal Front Mounting Bracket on the TMLPMOUNT41



Slide Pull-Out Locking feature on the TMLPMOUNT51/52

TMLPSLIDE01

The TMLPSLIDE01 is an accessory kit designed for use in conjunction with slide rails to produce a rack mounted serviceable server. The TMLPSLIDE01 kit contains two Universal Front Mounting Brackets that secure the server to the front of the rack. The sliding rails and optional mounting brackets required to mount the server must be purchased through the channel. For example, the Accuride 22-inch Model 305A-LR slide rails are designed to mount a server for "in-rack service." This example would also use an Accuride mounting bracket kit and the TMLPSLIDE01.



Universal Front Mounting Bracket with securing tab

Note: Using slide rails could result in non-compliance with Seismic Zone 4 requirements of NEBS-3 certification.