>> Kontron Configuration Guide <<

Kontron IP Network Server NSC2U

Document Revision 3.5

December 2010

Revision History

Revision	Date	Comments
1.0	6/14/2007	Initial Production version
2.0	3/13/2008	Updated to reflect added support for Xeon 5400 processor series; updates to spares section; format/structure changes.
2.1	3/13/2008	Includes ordering details for L5410 processor (NDA).
2.2	3/28/2008	Updated for public availability of L5410 processor support.
2.3	4/7/2008	Updated Processor section, regarding heatsinks.
3.0	8/29/2008	Updated to reflect added SATA drive support and basic rail kit support. System PID/MM#s replaced with new ones.
3.1	1/31/2009	Added EPSD rails section to Appendix A; updated processor section with latest steppings; updated RAID BBU spare to Li-Ion version; updated SSD spare information; replaced Intel references with Kontron references.
3.2	5/13/2009	Removed MM# references from Kontron products. Noted discontinuance of AXXBASICRAIL and AXXHERAIL.
3.3	6/29/2009	Removed MM# references from Intel-sourced SKUs. All SKUs are now orderable directly from Kontron.
3.4	11/10/2009	Replaced AXXMINIDIMM with AXXMINIDIMM512 due to EOL of previous part.
3.5	12/20/2010	Added NSCSASBKPLNSW spare.

Table of Contents

I. Introduction

Product Description:

The IP Network Server NSC2U system is the second generation product of 2U IP Network Server products, having long product life and 20-inch depth chassis. This server combines network port density and processor performance in a compact 2U package. The NSC2U supports a number of processor speeds for the Quad-Core Intel® Xeon® 5300 and 5400 series processors, coupling high performance with power efficiency to provide improved performance-per-watt over previous-generation rack-mount servers. The NSC2U also supports a number of processor speeds for the Dual-Core Intel® Xeon® 5100 series processors.

The NSC2U is an excellent choice for network data applications with large I/O requirements, while providing extended lifecycle support, DC power capabilities, compact form factor, and the ruggedness found on carrier-grade servers. Ideal for network security, it is an excellent choice for intrusion detection/intrusion prevention, VPN/firewall, and unified threat management solutions. In addition, it is a valuable platform for running Telco SoIP, including IMS, IPTV, Video on Demand (VoD), SIP application servers, IP-PBX, and IP-PSTN Gateways. Other network applications well-suited for this platform are enterprise application acceleration and content caching.

More detailed product information is available at the following link on the Kontron website:

http://us.kontron.com/products/systems+and+platforms/communication+rackmount+servers/ip+network+servers/ip+network+server+nsc2u.html

Purpose of this Document:

This document provides details on what parts are available for ordering of the IP Network Server NSC2U production systems and 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 NSC2U System SKUs

The **NSC2U System SKUs** that can be ordered are listed below:

Product Code	Description	Min. Order Qty.
NSCA0202W	IP Network Server NSC2U, Base Model 0 with **AC Power Supply**	1
NSCD0202W	IP Network Server NSC2U, Base Model 0 with **DC Power Supply**	1

See the **NSC2U Base Model 0 Configuration** table further down in this section for a list of components included in each base model 0 SKU.

The NSC2U system SKUs are ordered using the Product Code as the order number. Production SKUs are offered as either an AC or DC version. The Product Identification code, or PID, of all SKUs contains either the letter "A" for AC or "D" for DC as the 4th digit of the PID.

All Production SKUs are base model 0 SKUs, (no processor, heatsink, memory, hard drive, power cord, operating system, 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 (THOL).

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
1-340000-0	This AC power cable can be ordered by North America (NA) customers. International customers should procure their specific power cords directly.

Note: Ensure that customers have the appropriate technical support and contact before placing their first order.

NSC2U Base Model 0 Configuration:

All Production SKUs are base model 0 SKUs (no processor, heatsink, memory, hard drive, power cord, operating system, 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 (THOL).

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
AC power supply (600 W)	1 included	-
DC power supply (600 W)	-	1 included
Filler Panel in 2nd power supply bay	1 included	
Chassis (sheet metal, top cover, PCI carrier)	1 included	
Bezel (unpainted)	1 included	
Server Board T5000PAL	1 included	
PCI Riser FH-FL (two PCI-Express and one PCI-X slots)	1 included	
PCI Riser LP (two PCI-Express slots)	1 included	
FB-DIMM slots (memory not included)	8 included	
Trays for hot-swap 2.5" SAS Hard Disk Drives	6 included	
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]	
SW RAID 0/1/10	Supported	
HW RAID 5	Optional Accessory[2]	
Mounting kit for Z-U130 Solid State Drives	Optional Accessory[2]	
Intel® Remote Management Module 2	Optional Accessory[2]	
PCI-X FH-FL Riser (3 PCI-X slots)	Optional Accessory[2]	
Ethernet I/O Module (dual Gigabit rear ports)	Optional Accessory[2]	
SAS I/O Expansion Module (x4 external rear port)	Optional Accessory[2]	
Rack Mount Kits	Optional Accessory[4]	
Rail Enabling Kit (to enable AXXBASRAIL13, AXXHERAIL2, AXXBASICRAIL, and AXXHERAIL kits)	Optional Accessory[4]	
Processor (refer to "Details on Ordering Processors")	Purchase separately[5]	
Heatsink (copper required)	Accessory or purchase separately	
Memory	Purchase separately[5]	
Hard Disk Drive	Purchase separately[5]	
Optical Drive	Purchase separately[5]	
Accessories for NIC-in-Front Capability[3]		
Quad Port Bypass Adapter (Copper)	Optional Accessory[3]	
Quad Port Bypass Adapter (Fiber)	Optional Accessory[3]	
Quad NIC-in-Front Mounting Kit (Copper)	Optional Accessory[3]	
Quad NIC-in-Front Mounting Kit (Fiber)	Optional Accessory[3]	

[1]Refer to AC power cord accessory in this section
[2]Refer to "Production Spares/Accessories List" in section III
[3]Refer to "Quad Port Bypass NIC Capability" in section IV
[4]Refer to "Rack Mounting Options" in the Appendix
[5]Should be purchased separately (parts not listed in this document)

Notes on the NSC2U Model 0 Configuration and Options:

- **PCI Risers**
  - The base configuration comes standard with two PCI Risers supporting up to five PCI slots. These include:
    - One low-profile riser supporting two PCI-Express (PCIe) slots
    - One full-height, full-length riser supporting three slots: two PCIe x4 and one PCI-X.
  - Additional full-height, full-length risers (below) are supported and available as accessories (*refer to "Production Spares/Accessories List" in section III*).
    - PCI-X (active): three independent PCI-X, each with maximum 133 MHz
    - PCI-X (passive): two PCI-X with maximum 100 MHz and one PCI-X (66 MHz) all on a shared PCI bus

- **HW RAID**
  - While SW RAID 0/1/10 is supported on the base configuration, HW RAID 5 support can be enabled via a set of optional accessories (*refer to "Production Spares/Accessories List" in section III*).
  - Components required are **NSCRAID01W** (NSC2U RAID5 Kit – includes the I-Button (license), battery cable) and the **AXXMINIDIMM512** (512 MB Mini DIMM registered DDR-2 for RAID cache).
  - An additional option is the **AXXRSBBU3** (Intel® RAID Smart Battery Backup module provides up to 72 hours of cache memory retention when used with AXXMINIDIMM512). The cable to connect the battery is included in the NSCRAID01W kit.
    - Note: The AXXRSBBU3 is now a Li-Ion (Lithium-ion) version that replaces the previous Ni-Mh version. A firmware update is required to enable the Li-Ion version and is posted in the Downloads/Software section of the NSC2U product page on the Kontron website.

- **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.
    - A special mounting kit, **TMWVSSDRIVE01W,** is required in order to mount the drive inside the chassis (*refer to "Production Spares/Accessories List" in section III*).
    - Product information is available at: http://www.smartmodular.com/product/product.cfm?productID=65
    - Replaces the former Intel® Z-U130 Value Solid State Drive

- **IO Option Modules**
  - These modules, available as optional accessories, attach to the system board via a proprietary connector, and provide additional IO through the rear bulkhead.
    - The **AXXGBIOMO** option module provides two Gigabit Ethernet NICs.
    - The **AXXSASIOMOD** option module provides one x4 external SAS port.
  - *For ordering details, refer to "Production Spares/Accessories List" in section III.*

- **Quad Port Bypass NIC Capability**
  - The NSC2U is capable of supporting up to eight ports of front or rear-accessible Gigabit Ethernet (either Copper or Fiber) using Quad NIC adapters designed by Intel. Optional accessories are available to enable these features. *For more information and ordering details, refer to "Quad Port Bypass NIC Capability" in section IV.*

- **Rack Mounting Options**
  - Rack mounting kits for 2-post or 4-post, 19-inch or 23-inch racks are offered by Kontron 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, AXXHERAIL2, AXXBASICRAIL, or AXXHERAIL from Intel will be used, then a Rail Enabling Kit (TMLREK01) must be purchased from Kontron to enable support of these rails.
    - *For ordering details, refer to "Production Spares/Accessories List" in section III.*

- **Hard Drive Support**
  - The NSC2U supports 2.5" SAS or SATA hard disk drives (*purchased separately*). Please refer to the NSC2U Tested Hardware and Operating System List (THOL) for a complete list of supported drives.

Details on Ordering Processors:

The NSC2U supports the Quad-Core Intel® Xeon® 5400 and 5300 processor series, as well as selected SKUs from the Dual-Core Intel® Xeon® 5100 series processors.

Intel® Xeon® Processors Supported by NSC2U:

	Processor Number	Cores	Speed	TDP	FSB	Kontron P/N	Intel P/N	Intel MM#
	E5440	Quad	2.83 GHz	80W	1333 MHz	K00008-001	AT80574KJ073N	898592
	L5410	Quad	2.33 GHz	50W	1333 MHz	K00029-001	AT80574JJ053N	898603
Legacy	**E5345**	Quad	2.33 GHz	80W	1333 MHz	*N/A*	HH80563QJ0538M	891115
Legacy	**E5335**	Quad	2.00 GHz	80W	1333 MHz	*N/A*	HH80563QJ0418M	891116
Legacy	**5140**	Dual	2.33 GHz	65W	1333 MHz	*N/A*	HH80556KJ0534M	891730
Legacy	**5130**	Dual	2.00 GHz	65W	1333 MHz	*N/A*	HH80556KJ0414M	891731
Legacy	**LV 5128**	Dual	1.86 GHz	40W	1066 MHz	*N/A*	HH80556JH0364M	891704

Notes:

- All above processors are on Intel's long life roadmap.
- The E5440 or L5410 processors are recommended with the NSC2U for highest performance and longest availability and support. They are orderable from Kontron or Intel using the indicated part numbers.
- The above 5300 and 5100 processor SKUs are also supported on the NSC2U for legacy purposes, and are orderable from Intel only.
- Heatsinks
    - Only Tray processors are recommended with this product. The processor thermal solution for this server must include the use of a copper heat sink (e.g. see NSCSNKCLP01 in the Spares/Accessories list below). There are no clips needed for this heat sink, since the heat sink includes captive screws.
    - The boxed processors previously listed in the "supported" table have been removed since these now include an aluminum heat sink which does not provide sufficient heat dissipation to meet thermal requirements. For this reason, **Kontron does not recommend the use of Boxed processors with this product.**

III. Ordering NSC2U Spares/Accessories

Below are the Spares parts and Accessories that may be ordered with the NSC2U 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 NSC2U 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.

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
TLIACPSU003	TIGI2U AC Power Supply	AC power supply	Y (*one in AC SKU)*	1
TLIDCPSU003	TIGI2U DC Power Supply	DC power supply, input power connector	Y (*one in DC SKU)*	1
NSCSNKCLP01	NSC2U Processor Heatsink	Heat sink (copper)	N	1
NSCBEZEL01W	NSC2U Bezel (Unpainted), 12-pack	Unpainted Bezel, packaged in cartons of 12	Y *(one bezel)*	12 *(order in multiples of 12)*
NSCESCBLNK01W	NSC2U Blank Escutcheons (unpainted) – 48 pack	Unpainted blank escutcheon panel *(filler panel if front-NICs are not present)*	*2 blank panels installed in base model*	48 *(order in multiples of 48)*
HW RAID				
NSCRAID01W	NSC2U RAID5 Kit Enables full intelligent SAS RAID solution engineered around the Intel® 80333 I/O Processor @ 500MHz. Note: enabling RAID capability also requires mini DIMM – Intel AXXMINIDIMM512 (or qualified 3rd party mini DIMM).	I-Button (license), battery cable *(battery or mini-DIMM not included)*	N	1
AXXRSBBU3	Intel® RAID Smart Battery Backup Module: *For use with Intel® Integrated Server RAID (requires NSCRAID01W plus mini DIMM), provides up to 72 hours of cache memory retention when used with AXXMINIDIMM512.* Li-Ion (Lithium-ion) version *Note: requires firmware update (posted on product web page on Kontron site)*	Battery backup kit	N	5 *(order in multiples of 5)*
AXXMINIDIMM512	512 MB Mini DIMM registered DDR-2 for RAID cache. Note: enabling RAID capability also requires Intel RAID Activation Key– NSCRAID01W	Mini-DIMM	N	5 *(order in multiples of 5)*

NSC2U Spares/Accessories List (continued)

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
Remote Management				
AXXRMM2	Intel® Remote Management Module 2 (RMM2) - Single Pack	RMM2 with GCM (single-pack)	N	1
AXXRMM2BULK	Intel Remote Management Module 2 (RMM2) – 10-Pack	RMM2 with GCM (10-pack)	N	1 *(specify '1' for each 10-pack)*
PCI Risers and I/O Options				
ASR2500FHR	SR2400 (2U) Full Height PCI-Express riser (two PCI-Express slots, one PCI-X slot)	Riser	Y	1
ADRACTRIS	SR2500 (2U) Full Height PCI-X "active" high performance riser card (three PCI-X slots)	Riser	N	1
ADRPCIXRIS	SR2500 (2U) Full Height PCI-X "passive" riser card (three PCI-X slots)	Riser	N	1
FSR2500LPR	Two-slot Low Profile PCI-Express riser	Riser	Y	1
AXXGBIOMOD	Dual Gigabit Ethernet I/O Module	Dual Gigabit rear ports	N	1
AXXSASIOMOD	Four-port external SAS I/O Expansion Module	x4 external rear port	N	1
Solid State Drive Support				
TMWVSSDRIVE01W	Mounting kit for Z-U130 Solid State Drives *Interface support for:* • *SMART Z-U130 eUSB Drive* • *Intel® Z-U130 Value Solid State Drive (legacy)* *(drives purchased separately)*	Interposer board, cable, mounting screws *(flash drive not included)*	N	1
Spares				
NSCPWRDISBDW	NSC2U Power Distribution Board	Power distribution board, with integrated wire harness	Y	1
NSCFPIOBDLPW	NSC2U Front Panel IO Board with LED pipe	Board, set of front panel light pipes	Y	1
NSCSASBSBDW	NSC2U T5000PAL Server board	Board	Y	1
NSCSASBKPLNSW	NSC2U SAS Backplane (*Supports SATA optical drives only)*	Backplane, cabling, instructions	N	1
NSCSASBKPLNW	NSC2U SAS Backplane (*Supports PATA optical drives only)*	Backplane	Y	1
NSCBRIDGEBDW	NSC2U Bridge board	Board, insulator	Y	1

NSC2U Spares/Accessories List (continued)

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
Spares				
NSCCBLMSCW	NSC2U System Interconnect Cable Kit	Flex cable (SAS interface, front panel signals), front panel power cable, serial port cable, CD-ROM cable, alarm cable, TAM module cable	Y	1
NSCFANSETW	NSC2U Fan Assembly (set of four)	80 mm CPU fans (2), 40 mm PCI fans (2), plastic fasteners (8)	Y	1
NSCDVDENGTABW	NSC2U DVD Drive Engagement Tab	Blue plastic engagement bracket and black plastic locking clip, screws	Y	1
FXX25HDDCAR	TIGW1U SAS HDD carrier	Carrier, black plastic filler, screws (4)	Y	10 *(order in multiples of 10)*
Rack Mount Kits *(refer to Appendix A for additional details)*				
TMLCMOUNT21	Server Spare TMLPMOUNT21		N	10
TMLPMOUNT41	Server Spare TMLPMOUNT41		N	10
TMLPMOUNT51	Server Spare TMLPMOUNT51		N	1
TMLPMOUNT52	Server Spare TMLPMOUNT52		N	1
TMLPSLIDE01	Server Spare TMLPSLIDE01		N	10
AXXBASRAIL13 *(orderable from Intel only – MM# 899080*	Basic Slide Rail Kit *(replaces AXXBASICRAIL)* *NOTE: Does not support Cable Management Arm.* *NOTE: Requires TMLREK01 to attach to NSC2U chassis*		N	1
AXXHERAIL2 *(orderable from Intel only – MM#* 901082	Fully extending Slide Rail Kit *(replaces AXXHERAIL)* *NOTE: Requires TMLREK01 to attach to NSC2U chassis*		N	1
AXXRACKARM2 *(orderable from Intel only – MM#* 901084	Cable Management Arm *NOTE: To be used with AXXHERAIL2 only*		N	1
AXXBASICRAIL *(discontinued by Intel)*	Basic Slide Rail Kit. *NOTE: Requires TMLREK01 to attach to NSC2U chassis*		N	1
AXXHERAIL *(discontinued by Intel)*	Tool-less, full extension sliding rail kit. *NOTE: Requires TMLREK01 to attach to NSC2U chassis*		N	1
TMLREK01	Rail Enabling Kit *Enables AXXBASRAIL13, AXXHERAIL2, AXXBASICRAIL, and AXXHERAIL kits*	Rackmount ears (2), rackmount shoulder screws (4), screws (2) per kit	N	10 *(order in multiples of 10)*

Note: There are also accessories/spares specific to Quad Port Bypass NIC capability. For these items, *please refer to Section IV "Quad Port Bypass NIC Capability".*

IV. Quad Port Bypass NIC Capability

This section is intended for customers that plan to use the Quad Port NIC with Bypass capability on the NSC2U. It describes what parts must be ordered to enable this capability.

The NSC2U is capable of supporting:

- Up to eight ports of front-accessible Gigabit Ethernet (either Copper or Fiber) using Quad NIC adapters designed by Intel. The front-accessible NIC configuration also requires the purchase of an internal cabling/mounting kit including an escutcheon for securing the front ports.
- Up to eight ports of rear-accessible Gigabit Ethernet (Copper or Fiber) using Quad NIC adapters also designed by Intel.

The Quad Bypass adapters and the cabling/mounting kits come in packages of five units each. These kits include five of the NIC cables designed for the NSC2U system, as well as the escutcheons, cable management bracket, and associated screws to complete the installation of the Bypass adapter in the system. Also there are bulk pack (48 count) escutcheon kits (copper, fiber, and filler panel) available to streamline the customization and painting process of the system.

Below are the Accessories that may be ordered to enable the Quad Port Bypass NIC capability on the NSC2U system. Parts indicated with an asterisk (*) should be ordered from Intel. All other parts should be ordered from Kontron.

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
Copper NIC				
*** EXPI9014PTBLK** (Bypass rear access) *(orderable from Intel)*	Intel® PRO/1000 PT Quad Port Bypass Adapter (Copper) – 5 Pack	Quad-port design, based on two Intel® 82571GB dual-port PCI Express* GbE controllers	N	5
*** EXPI9024PTBLK** (Bypass NIC-in-front) *(orderable from Intel)*	Intel® PRO/1000 PT Quad Port Bypass Adapter (Copper, NIC-in-Front) – 5 Pack	Quad-port design, based on two Intel® 82571GB dual-port PCI Express* GbE controllers	N	5
NSCCBLFNICW	NSC2U Quad NIC-in-Front Mounting Kit (Copper) – 5 Pack	Quad NIC-in-front cable assembly, escutcheon and screws for copper ports, cable management bracket and screw	N	5 *(order in multiples of 5)*
NSCESCCPR01W	NSC2U Escutcheons for Copper ports (unpainted) – 48 Pack	Unpainted escutcheons for use with NSCCBLFNICW *Intended for prep (painting) purposes.*	N *Note: Five escutcheons are included in NSCCBLFNICW*	48 *(order in multiples of 48)*

Product Code	Description	Contents	Included in Base Model (Y/N)	Min. Order Qty
Fiber NIC				
*** EXPI9014PFBLK** (Bypass rear access) *(orderable from Intel)*	Intel® PRO/1000 PF Quad Port Bypass Adapter (Fiber) – 5 Pack	Quad-port design, based on two Intel® 82571GB dual-port PCI Express* GbE controllers	N	5
*** EXPI9024PFBLK** (Bypass NIC-in-front) *(orderable from Intel)*	Intel® PRO/1000 PF Quad Port Bypass Adapter (Fiber, NIC-in-Front) – 5 Pack	Quad-port design, based on two Intel® 82571GB dual-port PCI Express* GbE controllers	N	5
NSCCBLFNICFBRW	NSC2U Quad NIC-in-Front Mounting Kit (Fiber) – 5 Pack	Quad NIC-in-front escutcheon, and LED cable for fiber ports, cable management bracket and screw	N	5 *(order in multiples of 5)*
NSCESCFBR01W	NSC2U Escutcheons for Fiber ports (unpainted) – 48 Pack	Unpainted escutcheons for use with NSCCBLFNICFBRW *Intended for prep (painting) purposes.*	*N* *Note: Five escutcheons are included in* NSCCBLFNICFBRW	48 *(order in multiples of 48)*
Miscellaneous				
NSCESCBLNK01W	NSC2U Escutcheons filler panel (unpainted) – 48 pack	Unpainted blank escutcheon panel *(filler panel if front-NICs are not present)*	*2 blank panels installed in base model*	48 *(order in multiples of 48)*

Note: For a list of other tested Network Interface Cards (NICs) refer to the Tested Hardware and Operating System List (THOL).

Overview of Intel® PRO/1000 Quad Port Bypass Server Adapters:

The Intel® PRO/1000 PT and PF Quad Port Bypass Server Adapters provide in-line server appliances, such as Intrusion Protection Servers (IPSes), with high-performance, low-latency, in-line connectivity, and a bypass mode to ensure business continuity. These adapters also use the PCI Express* serial bus for greater throughput, and they support Intel® I/O Acceleration Technology (Intel® I/OAT) for further performance enhancement, including the reduced overhead so important to IPS applications.

The Intel® PRO/1000 PT and PF Quad Port Bypass Server Adapters are intended for use by equipment manufacturer hardware designers in application-specific in-line server appliances, where a bypass mode is desirable. Given that equipment manufacturers typically write specific software applications for their in-line platforms, Intel only provides open source reference drivers for these adapters. Interested hardware designers may contact their local Intel representative for additional product or purchase information.

More information on **Intel® PRO/1000 Quad Port Bypass Server Adapters** is available at:

http://www.intel.com/network/connectivity/products/pro1000_quad_bypass_server_adapters.htm

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.

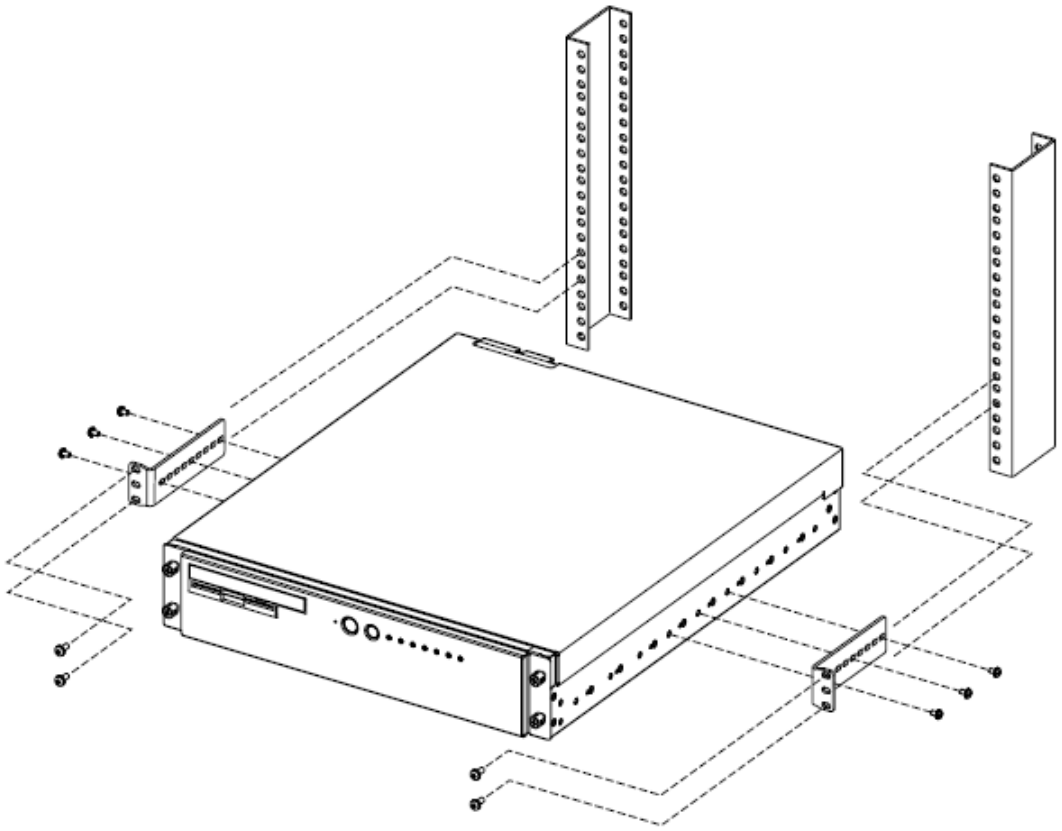
2-post Rack Mounting Kit Options							
Applicable kits:	**Rack width**		**Post depth**		**Rack fastener hole spacing**		
	19 inch	**23 inch**	**3 inch**	**5 inch**	**EIA-Wide**	**EIA-Universal**	**ETSI**
TMLCMOUNT**21**	√		√	√	√	√	
TMLPMOUNT**41**	√		√	√		√	
TMLPMOUNT**51**	√		√	√	√	√	
TMLPMOUNT**52**		√	√	√	√	√	√

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**
TMLPMOUNT**41**	√		20	24		√	
TMLPMOUNT**51**	√		20	24	√	√	
TMLPMOUNT**52**		√	20	24	√	√	√
TMLP**SLIDE01**†	√		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

TMLPMOUNT**41/51/52** series mounts Communication Rack Mount Servers to 2-post or 4-post racks.

TMLPMOUNT**41** and TMLPMOUNT**51** are used for mounting servers on 19-inch wide racks. These racks are considered standard EIA (universal hole spacing) racks.

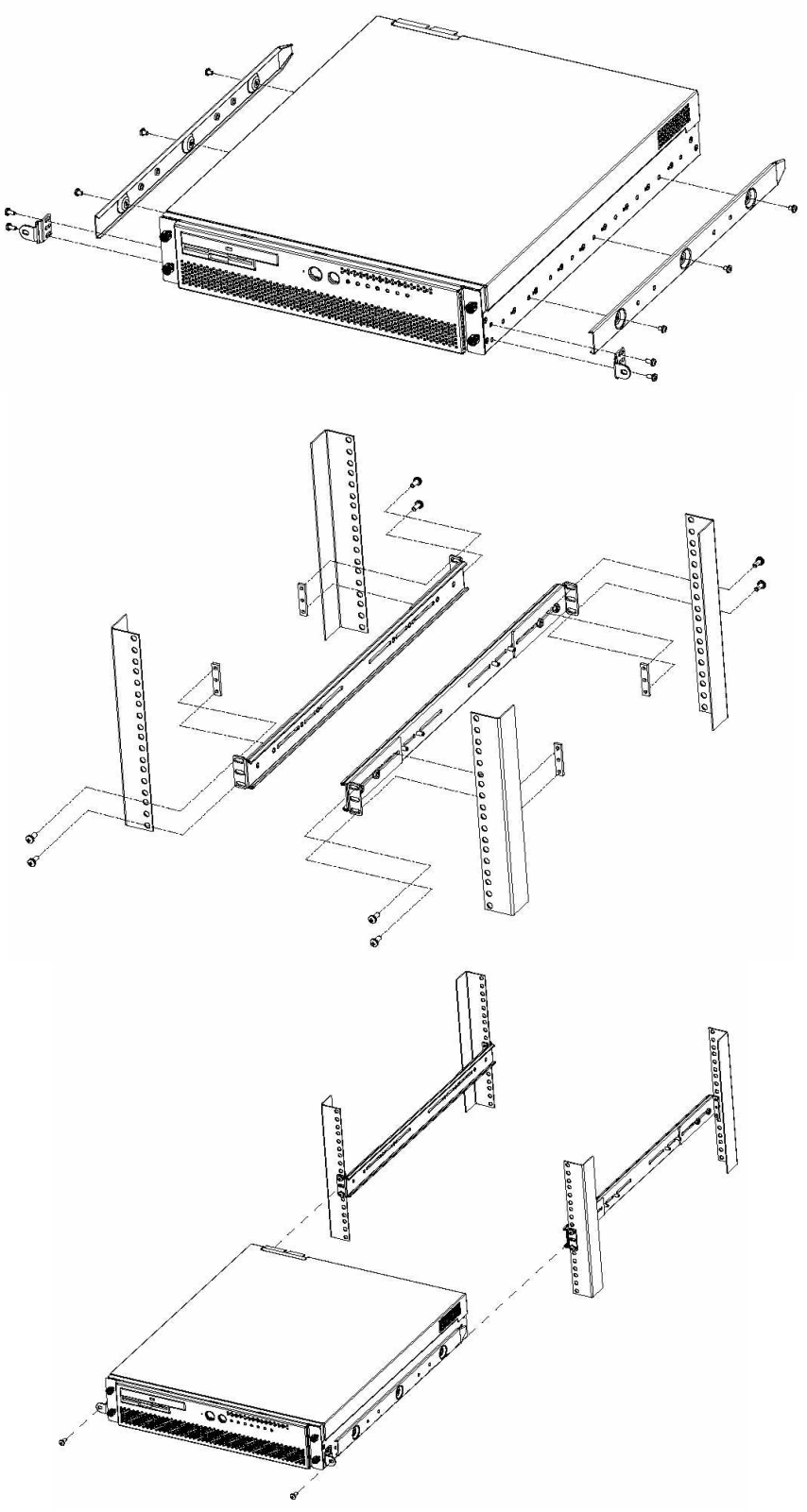
TMLPMOUNT**52** is used for mounting servers on 23-inch wide racks. These racks could be standard EIA (universal or wide hole spacing) or ETSI (European) racks.

TMLPMOUNT**41/51/52** 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"**
TMLPMOUNT**41**	No[1]	Plastic strips[2]	EIA-Universal	Not included	Side access[6]	Interference
TMLPMOUNT**51**	Yes	Xylan coating[3]	EIA-Wide or EIA-Universal[4]	Included[5]	Front access	No Interference
TMLPMOUNT**52**	Yes	Xylan coating[3]	EIA-Wide, EIA-Universal or ETSI	Included[5]	Front access	N/A

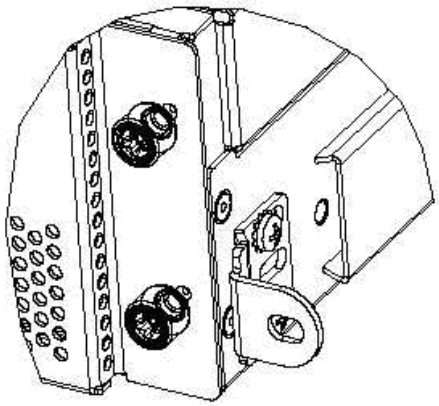
Notes:

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.

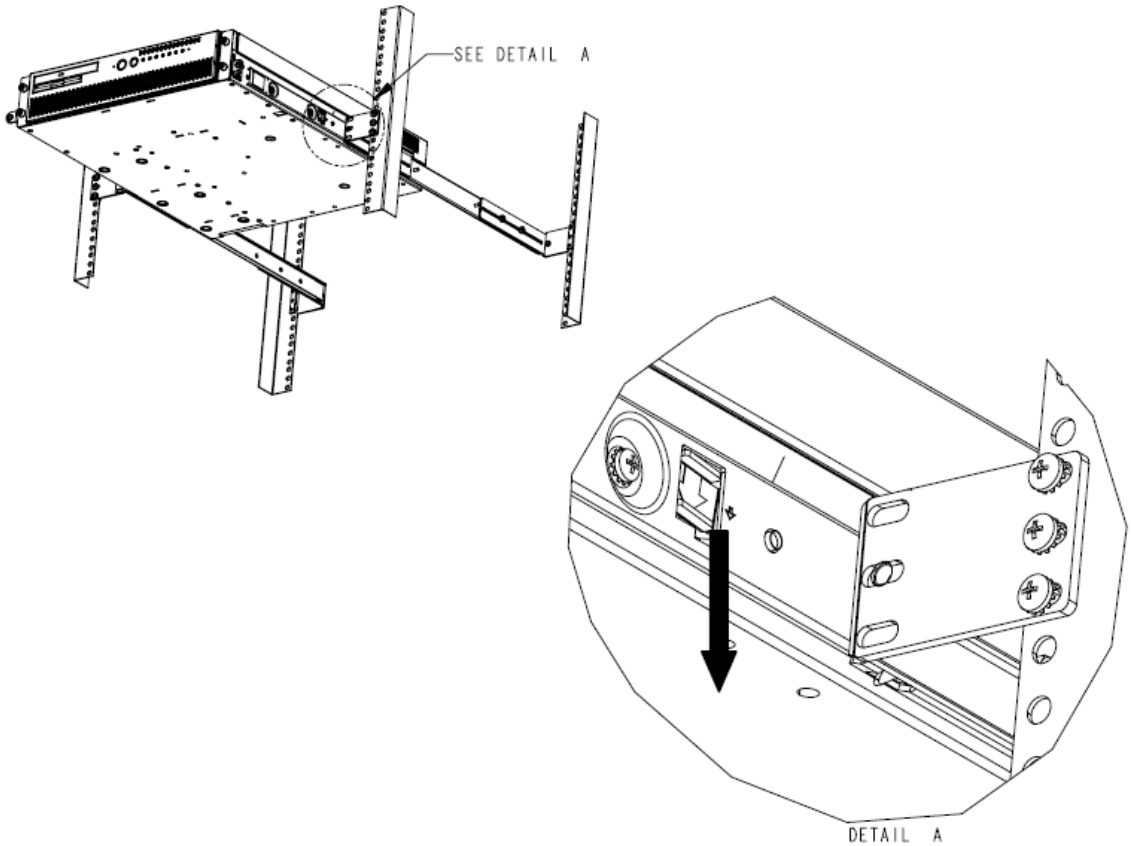


The diagrams above summarize the components and “slide-in rail-type” system of the TMLPMOUNT41. It can be adapted for a 2-post or 4-post installation.

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.



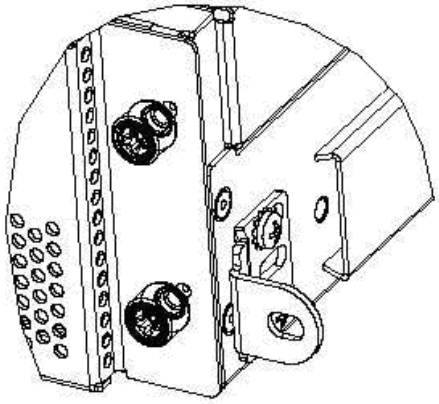
Universal Front Mounting Bracket on the TMLPMOUNT41



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.