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Kontron Carrier Grade Server TIGW1U

Document Revision 2.6

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December 2010

Revision	Date	Comments
1.0	5/17/2007	SRA version.
2.0	4/18/2008	Added info for Quad-Core Intel® Xeon® processor L5410 support, changed format, removed Syscon, added Z-U130 and other additional parts.
2.1	5/1/2008	Added TMWFANSET02W and TMLREK01 parts.
2.2	1/2009	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.
2.3	5/13/2009	Removed MM# references from Kontron products. Updated PCI-E and PCI-X riser spares with different product codes. Noted discontinuance of AXXBASICRAIL and AXXHERAIL.
2.4	6/29/2009	New Kontron template. Removed MM# references from Intel-sourced SKUs. All SKUs are now orderable directly from Kontron.
2.5	11/10/2009	Replaced AXXMINIDIMM with AXXMINIDIMM512 due to EOL of previous part.
2.6	12/20/2010	Added TMRDVDCBLSATAW spare.

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I. Introduction

The Carrier Grade Server TIGW1U is a NEBS-3 and ETSI compliant carrier-grade rack server, providing industry-leading CPU performance and power efficiency in a compact package. It features the Quad-Core Intel® Xeon® processor L5410, and the 64-bit Dual-Core Intel® Xeon® processor LV 5148 and LV 5128, providing improved performance-per-watt over previous-generation rack mount servers.

This high-performing server is an excellent choice for the demanding environment and limited space of the central office and highly available data centers. It is also ideal for Services over IP (SoIP) for next-generation telecom solutions and communications networks. Offered as a standard building block, the Carrier Grade Server TIGW1U enables OEMs and TEMs to create their own value-added solutions for a variety of telecom applications including unified messaging, SoIP, call control, media and signaling gateways, and operational system support. In addition, the TIGW1U raises the performance bar for telecom solutions with support for Intel® I/O Acceleration Technology (Intel® I/OAT)+, Intel® 64 Technology§ (Intel® 64) and dual-channel Fully Buffered DIMM (FB-DIMM) technology at either 533 or 667 MHz for maximized bandwidth.

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

http://us.kontron.com/products/systems+and+platforms/communication+rackmount+servers/carrier+grade+servers/carrier+grade+server+tigw1u.html

Purpose of this Document:

This document provides details on what parts are available for ordering of the Carrier Grade Server TIGW1U 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.

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II. Ordering TIGW1U System SKUs

The **TIGW1U System SKUs** are listed below:

Product Code		Description	Minimum Order Qty.
TMRA0201W		Carrier Grade Server TIGW1U, Base Model 0 with **AC Power Supply**. *Includes support for Quad-Core Intel® Xeon® processor **L5410** and legacy support for Dual-Core Intel® Xeon processor **L5128** and **L5148.***	1
TMRD0201W		Carrier Grade Server TIGW1U, Base Model 0 with **DC Power Supply**. *Includes support for Quad-Core Intel® Xeon® processor **L5410** and legacy support for Dual-Core Intel® Xeon processor **L5128** and **L5148***	1
Legacy Support	TMWA0201W	Carrier Grade Server TIGW1U, Base Model 0 with **AC Power Supply**. *Includes legacy support for Dual-Core Intel® Xeon processor **L5128** and **L5148** only.*	1
	TMWD0201W	Carrier Grade Server TIGW1U, Base Model 0 with **DC Power Supply**. *Includes legacy support for Dual-Core Intel® Xeon processor **L5128** and **L5148** only.*	1

See the **TIGW1U Base Model 0 Configuration** table further down in this section for a list of components included in each base model 0 SKU.

The TIGW1U system SKUs are ordered using the Product Code as the order number. Production SKUs are offered as either an AC or a DC version. The Product Identification code or PID of all SKUs contains the letter “A” for AC or “D” for DC as the 4th digit of the product code.

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.

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TIGW1U Base Model 0 Configuration

All Production SKUs are base model 0 SKUs (no processor, heatsink, memory, hard drive 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 (450W)	1 included	-
DC power supply (450W)	-	1 included
Filler Panel in 2nd power supply bay	1 included	
Chassis (sheet metal, top cover, PCI carrier)	1 included	
Bezel (grey)	1 included	
S5000PHB Baseboard	1 included	
FH-FL Bracket with PCI-X Riser	1 included	
DVD-CDR Optical Drive	1 included	
CD-ROM Carrier	1 included	
FB-DIMM slots (memory not included)	6 included	
Drive bays for hot-swap 2.5" SAS HDD	3 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 Kit	Optional Accessory[2]	
Mounting kit for Z-U130 Solid State Drives	Optional Accessory[2]	
Intel® Remove Management Module 2	Optional Accessory[2]	
PCI-Express Riser	Optional Accessory[2]	
Rack Mount Kits[3]	Optional Accessory[3]	
Rail Enabling Kit (to enable AXXBASRAIL13, AXXHERAIL2, AXXBASICRAIL, and AXXHERAIL kits)	Optional Accessory[3]	
Processor (refer to "Details on Ordering Processors")	Purchase separately[4]	
Heatsink (copper required)	Accessory or purchase separately	
Memory	Purchase separately[4]	
Hard Disk Drive	Purchase separately[4]	

Some items above available as optional accessories as noted:

[1]Refer to AC power cord accessory in this section

[2]Refer to "Production Spares/Accessory List" in section III

[3]Refer to "Rack Mounting Options" in the Appendix

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

Note: For these SKUs to be functional, one or more of the following is required: Power cord, CPU, Memory, Hard Drive, Operating System, Heat Sinks (Copper Heat Sinks are required).

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Notes on the TIGW1U Model 0 Configuration and Options:

- **PCI Riser**
  - The base configuration comes standard with one PCI Riser supporting one PCI-X slot.
  - An alternate full-height, full-length riser, single-slot PCI-Express (PCIe) riser is also supported. It is available as an accessory (*refer to "Production Spares/Accessories List" in section III*) and may be purchased as a replacement for the PCI-X riser.

- **HW RAID**
  - While SW (Software/Firmware) RAID 0/1/10 is supported on the base configuration, HW (Hardware) RAID 0/1/10 and 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 TIGW1U product page on the Kontron website.

- **Solid State Drives**
  - Support for solid state drives (with USB interface) is available by purchasing a mounting kit accessory (**TMWVSSDRIVE01W**) to mount the drive inside the chassis (*refer to "Production Spares/Accessories List" in section III*).
  - The following solid state drives are supported:
    - SMART Z-U130 eUSB Drive (*http://www.smartm.com/product/m_intel_z-u130.cfm*)
      - *Note: This replaces the Intel® Z-U130 Value Solid State Drive*
    - Intel® Z-U130 Value Solid State Drive *(legacy support)*
  - Solid state drives are available in several sizes and securely mount inside the chassis. They enabling an array of product customization options.
    - Storage: independent of traditional disk drives
    - Boot OS from solid state drive; store data on hard drive
    - Store backup image of boot drive
    - Add a server partition to the server

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- **Air Filters** are not provided with the TIGW1U base system.

- **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.*

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Details on Ordering of Processors:

The TIGW1U supports the Quad-Core Intel® Xeon® processor 5400 Series, and the Dual-Core Intel® Xeon processor L5100 series shown in the table below.

Processors Supported by TIGW1U:

	Processor Number	Cores	Speed	TDP	FSB	Kontron P/N	Intel P/N	Intel MM#
	L5410	Quad	2.33 GHz	50W	1333 MHz	K00029-001	AT80574JJ053N	898603
Legacy	**LV 5148**	Dual	2.33 GHz	40W	1333 MHz	*N/A*	HH80556JJ0534M	891675
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 L5410 processor is recommended with the TIGW1U for highest performance and longest availability and support. It is orderable from Kontron or Intel using the indicated part number.
- The above 5100 processor SKUs are also supported on the TIGW1U 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 TMWHSNK01W 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 NEBS thermal requirements. For this reason, **Kontron does not recommend the use of Boxed processors with this product.**

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III. Ordering TIGW1U Spares/Accessories

Below are the Spares parts and Accessories that may be ordered with the TIGW1U 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 TIGW1U 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)	Minimum Order Size
TMWACPSU01W	TIGW1U AC Power Supply	AC power supply	Y *one in AC SKU*	1
TMWDCPSU01W	TIGW1U DC Power Supply	DC power supply, input power connector	Y *one in DC SKU*	1
TMWHSNK01W	TIGW1U CPU Heatsink	Heatsink (Copper)	N	12 *(order in multiples of 12)*
Hardware 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)*
Remote Management				
AXXRMM2	Intel® Remote Management Module 2 (RMM2) - Single Pack	RMM2 with GCM (single-pack)	N	1

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Product Code	Description	Contents	Included in Base Model (Y/N)	Minimum Order Size
AXXRMM2BULK	Intel® Remote Management Module 2 (RMM2) - Bulk Pack (10)	RMM2 with GCM (10-pack)	N	1 *(specify '1' for each 10-pack)*
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
PCI Risers				
TMWPCIERSR01W	1U PCI-Express Riser	Riser	N	1
TMWPCIXRSR01W	1U PCI-X Riser	Riser	Y	1
Spares				
TMWMBZL01W	TIGW1U Painted Bezel	Bezel	Y	1
TMWMBZLU01W	TIGW1U Unpainted Bezel	Bezel	N	12 *(order in multiples of 12)*
TMWCBL01W	TIGW1U Cables, CD-ROM power, spare	System Cables—Flex, CD-ROM power, CD-ROM signal, SATA Signal, Front Panel Panel, Battery	Y	1
TMRDVDCBLSATAW	SATA optical drive power/data cable kit	5 cables, install guide	N	1
TMWCDRMC01W	TIGW1U CD-ROM Carrier; i/f board (no drive)	Carrier, PBA, screws, pwr cable, signal cable	Y	1
TMWFANSET01W	TIGW1U Fanset – for TMW SKU	Fans	Y	1
TMWFANSET02W	TIGW1U Fanset for TMR SKU	Fans	Y	1
FXX25HDDCAR	TIGW1U SAS HDD carrier	Carrier, black plastic filler, screws (4)	Y	10 *(order in multiples of 10)*
TMRBSBRD01W	TIGW1U Baseboard - With support for Quad-Core Intel® Xeon® processor L5410	Board	Y (TMRA0201W and TMRD0201W)	1
TMWBSBRD01W	TIGW1U Baseboard	Board	Y (TMWA0201W and TMWD0201W)	1
TMWPDB01W	TIGW1U Power Distribution Board	Board	Y	1
TMWSASFP01W	TIGW1U SAS Front Panel I/O board	Board, light pipe	Y	1

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Product Code	Description	Contents	Included in Base Model (Y/N)	Minimum Order Size
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 TIGW1U chassis*		N	1
AXXHERAIL2 *(orderable from Intel only – MM#* 901082	Fully extending Slide Rail Kit *(replaces AXXHERAIL)* *NOTE: Requires TMLREK01 to attach to TIGW1U 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 TIGW1U chassis*		N	1
AXXHERAIL *(discontinued by Intel)*	Tool-less, full extension sliding rail kit. *NOTE: Requires TMLREK01 to attach to TIGW1U 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)*

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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. Please refer to the tables below for the correct options to suit your needs.

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

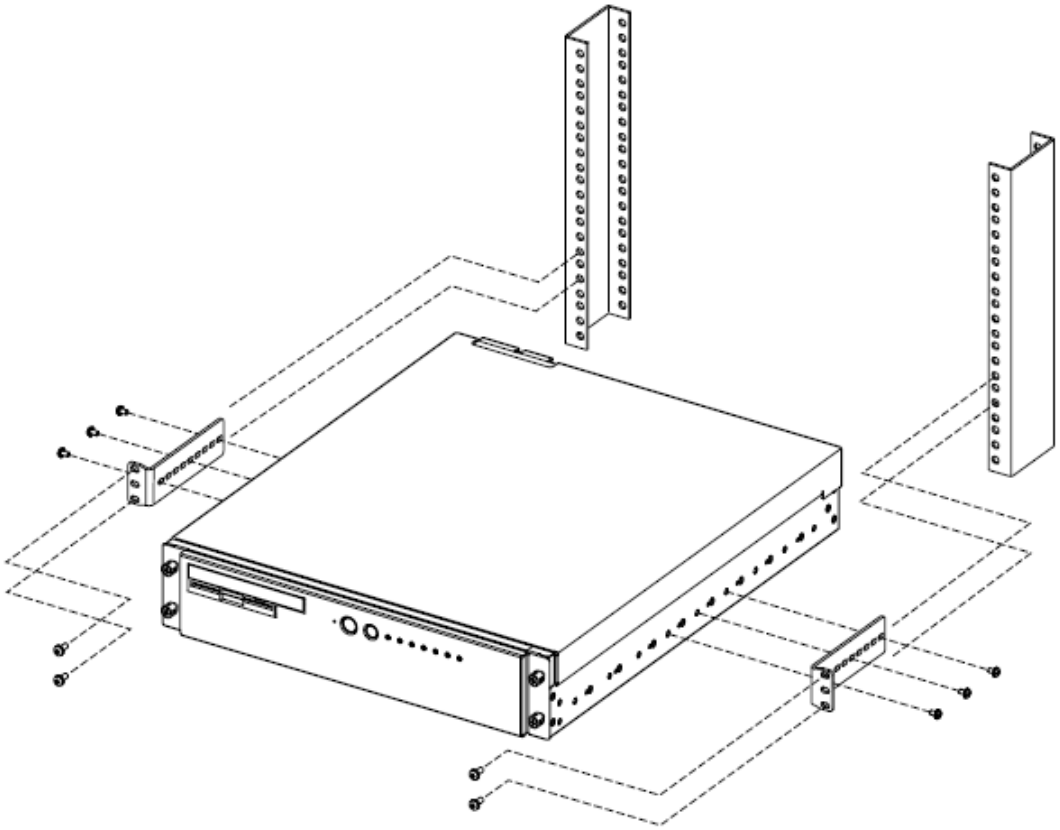
Applicable kits:	Rack width		Front-post to rear-post distance		Rack fastener hole spacing		
	19 inch	**23 inch**	**Min (inches)**	**Max (inches)**	**EIA-Wide**	**EIA-Universal**	**ETSI**
TMLPMOUNT**41**	●		20	24		●	
TMLPMOUNT**51**	●		20	24	●	●	
TMLPMOUNT**52**		●	20	24	●	●	●
TMLP**SLIDE01**[†]	●		22.5	28 or **34**[††]		●	

[†]The **TMLPSLIDE01** kit contains server securing brackets.
[††]**34-inch** span requires the optional Accuride "Long Bracket" kit.

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TMLCMOUNT21

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



TMLCMOUNT21

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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" wide racks. These racks are considered standard EIA (universal hole spacing) racks.

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

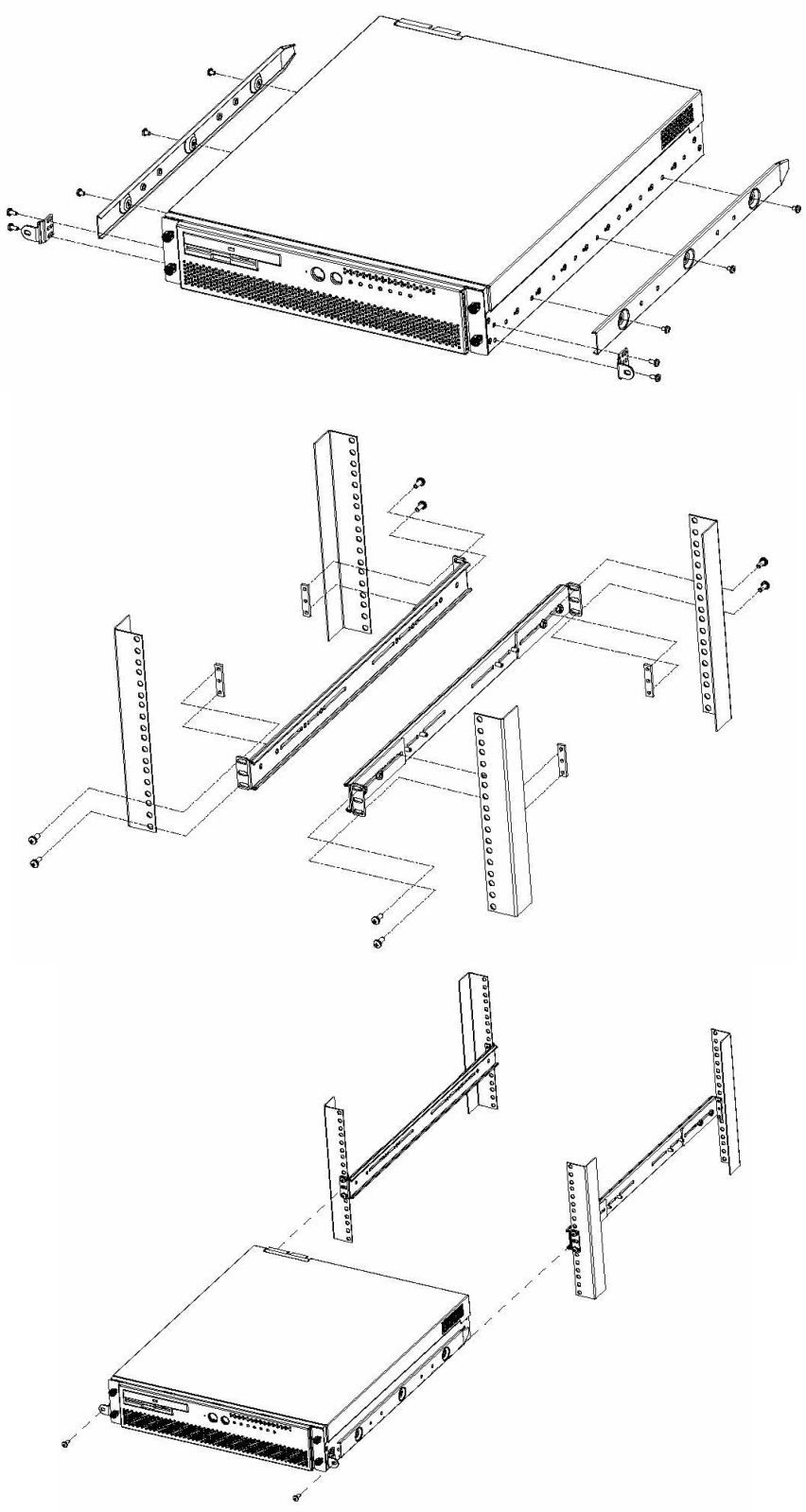
TMLPMOUNT**41/51/52** series are designed with a slide-in rail-type system. Although the mounts are designed as rails, they are not sliding rails. This means the servers can be slid into the racks for installation purpose, but the rails are not designed to support a mounted server during service.

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, else the server may fall to the ground as its being removed.
2. Plastic strips on TMLPMOUNT41 have peeled off in some customer installations. Consequence: The parts are usable, but the server may have somewhat of a "scrape-in feel" rather than "slide in". Also, the rails will fit sloppier, so the side-located chassis securing screws may 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.

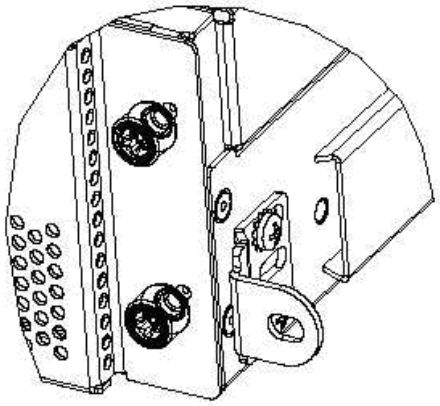
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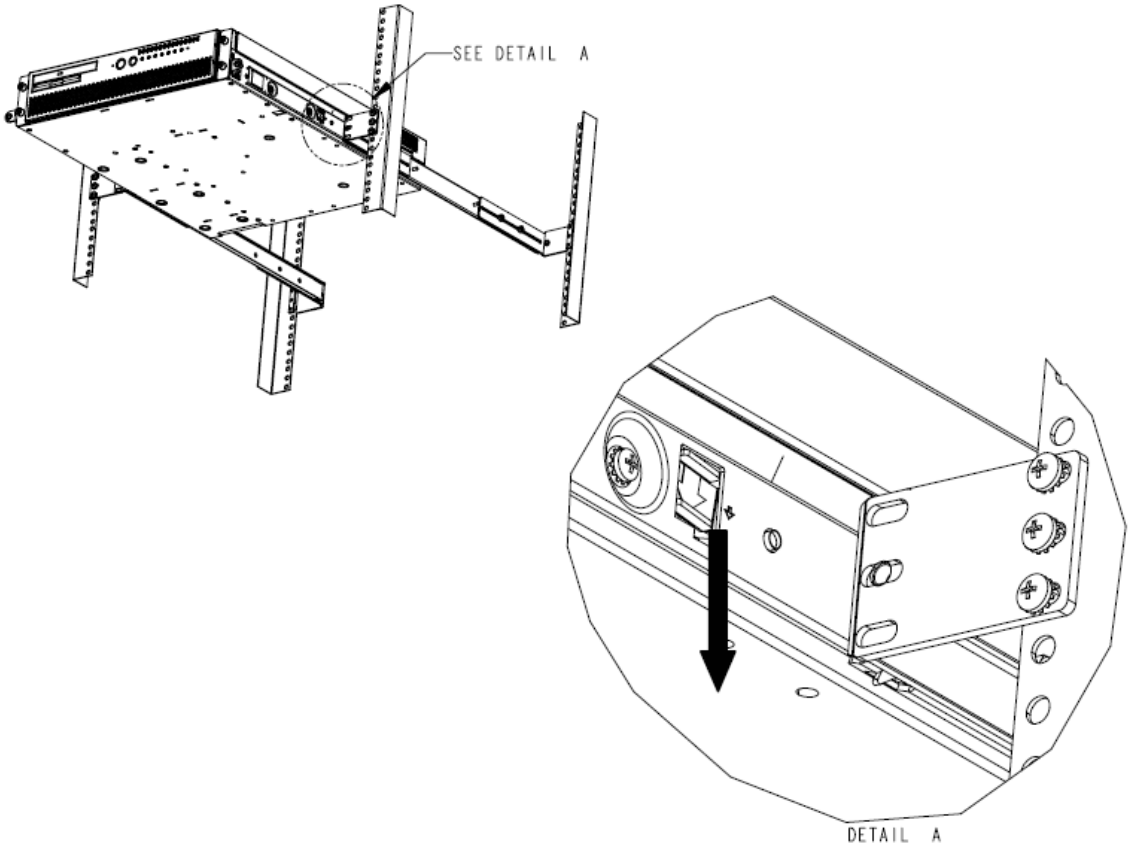
The diagrams above summarize the components and “slide-in rail-type” system of the TMLPMOUNT41. It can be adapted for a 2-post or 4-post installation.

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The main difference between the TMLPMOUNT**41** and TMLPMOUNT**51/52** series is that the TMLPMOUNT**41** series uses a screw to lock the server in place via the Universal Mounting Bracket, whilst the TMLPMOUNT**51/52** series has an additional Slide Pull-Out Locking feature.



The Universal Front Mounting Bracket on the TMLPMOUNT41

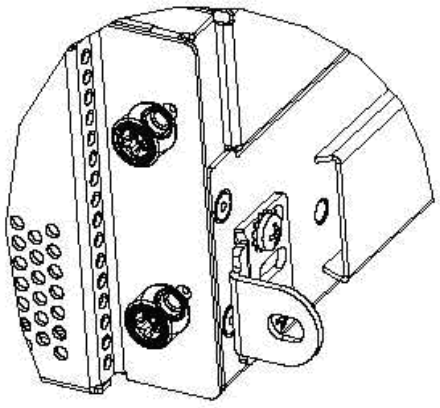


The Slide Pull-Out Locking feature on the TMLPMOUNT51/52

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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 may result in non-compliance with Seismic Zone 4 requirements of NEBS-3 certification.

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