PRIMERGY RX4770 M2
4-way / 4U Rack Server

Chapter	Folder	Content
	Cover	configurator, abbreviations
	Description	System Description for easier understanding
1	Base	describes base unit of RX4770 M2
2		describes rack mount kits and services
3	CPU	Order code and Infos of E7-x800v3 series processors
4	RAM	DDR4 System memory (RAM) and memory modes
5	RAID	SAS / RAID Controller and components
6	ODD	optical disk drives (DVD, DVD-rw, Blu ray)
7	PCIe Flash SSD	PCIe Flash dev. (2.5" SFF SSD and PCIe AIC SSD)
8	HD_SSD	Storage drives - PCIe SSD - SAS/SATA SSD & HDD
9	LAN_FC_IB	LAN Components
10		Fibre Channel Controller
11		Infiniband Controller
12	PSU	Power supply units, power cables
13	USB_devices	Keyboards, Mice, USB devices
14	others	System Management, ATD, RS232 port, TPM module

Instructions

This document contains basic product and configuration information that supports you in more complicated configurations. In any case we recommend to use the PC-/SystemArchitect to make sure, that you configure a valid system.

This System configurator is divided into several chapters. They are identical to the current price list and PC-/SystemArchitect.

Please follow this document step by step from the top to the bottom.

Chapter xx - description of chapter

Text fields with grey color offer extra information for related topics (e.g prerequesites, technical back ground, configuration rules, limitations, ...

S26361-F4610-E2 **S26361-F4610-L3**	<-- order code E-part (bold) -- <-- order code L-part (bold)
PLAN 2x1Gb Ethern. Controller	<-- "name" of this part
i350-T2 chip (based on Intel Powerville) offers 2x1Gb RJ45 connectors	<--description of this part, in same cases as well description of content
PCIe Gen2 x4 full height card	<--requires a free PCIe slot --> means total amount of PCIe slots reduced
max. 6x per system	<--indicates how often this part can be configured in the related Server

For further information see:

Link to datasheet:
http:// xxx

http://ts.fujitsu.com/products/standard_servers/index.html
(internet)

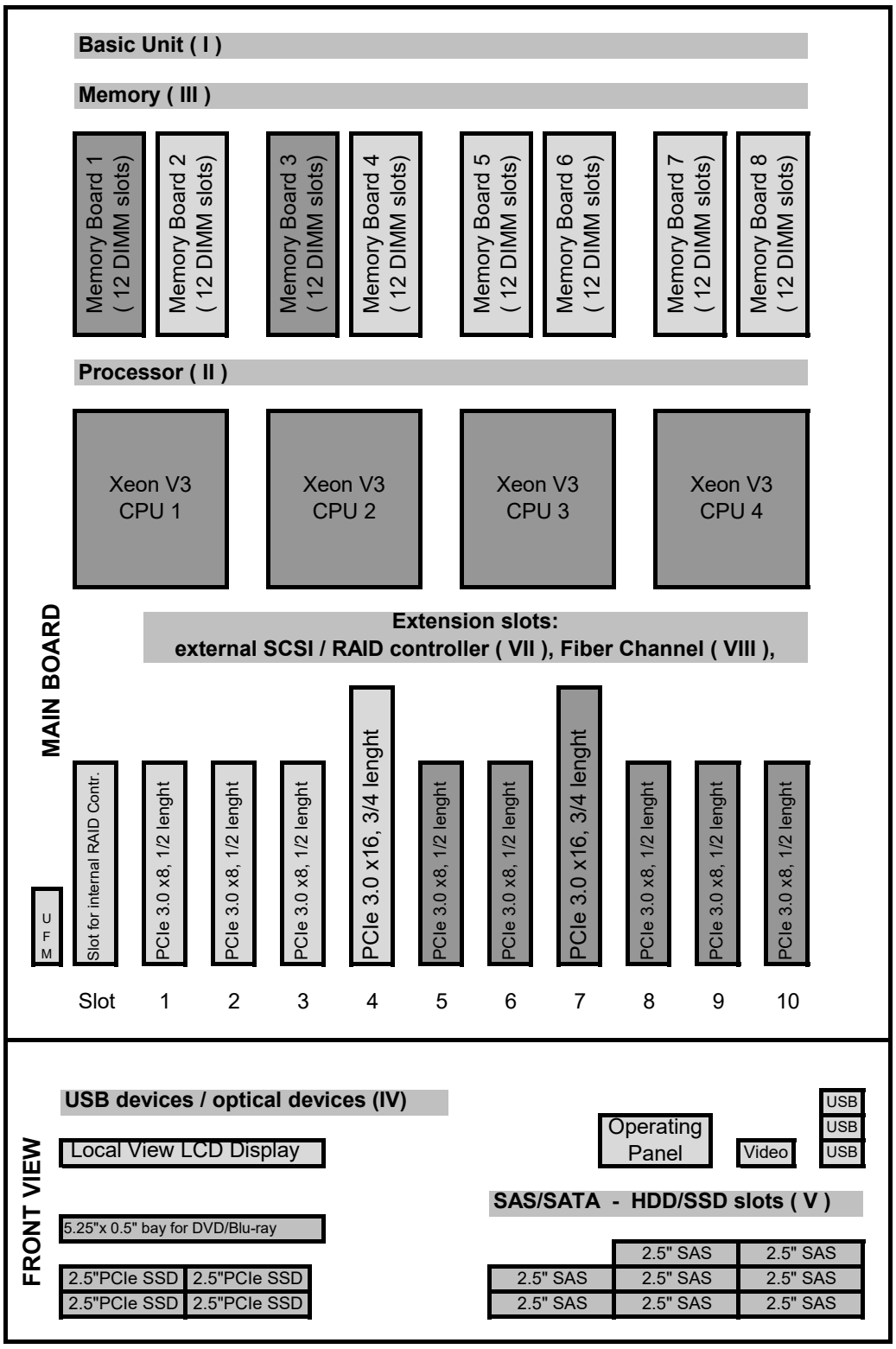
https://partners.ts.fujitsu.com/com/order-supply/configurators/primergy_config/Pages/default.aspx
(extranet)

Fujitsu is providing the content of this document with very high accuracy. In case you identify a mistake, we would kindly encourage you to inform us. We kindly ask for understanding, that errors still may occur and that Fujitsu may change this document without notice

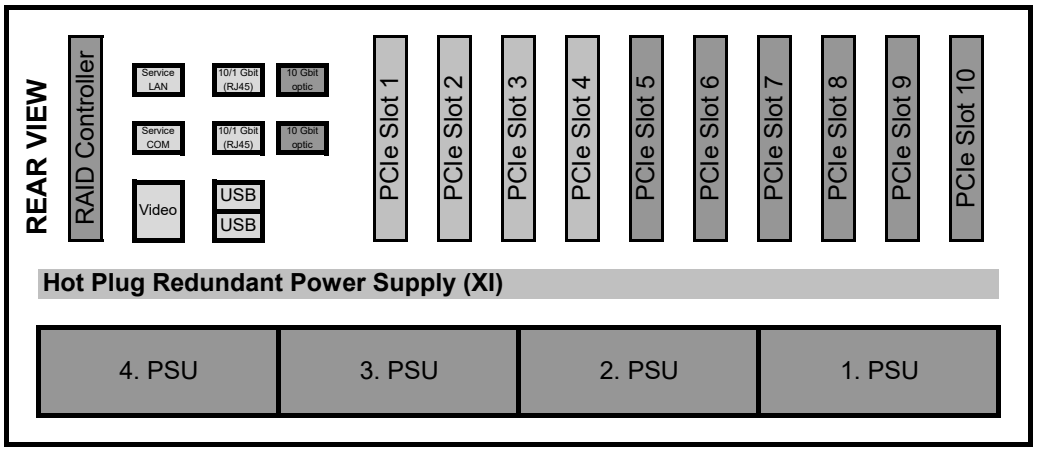
Abbreviations

SAS	Drives, RAID	Serial attached SCSI Device (HDD, SSD, LTO drives); SAS2.0 = 6GBit/s; SAS3.0 = 12GBit/s
SATA	Drives, RAID	Serial ATA (HDD, SSD) current SATA speed = 6GBit/s
HDD	Drives	Hard disk drive (Non volatile storage device), 2.5" (SFF) or 3.5" (LFF)
SSD	Drives	Solid state disk (Non volatile storage device), 2.5" (SFF)
SFF	Drives	small form factor (=2.5")
LFF	Drives	large form factor (=3.5")
CPU	Processor	central processing unit ("processor")
RAID	Drives, RAID	RAID 0 = max speed, RAID 1 = mirroring, RAID 5 = 1 out of x drives is spare
Spaces	OS	Microsoft spaces, optimized in Win2012 R2 offers software RAID and storage tiering
vSAN	OS	
storage tiering	RAID	offers optimized storage allocation (fast area for "hot data"; slower area for "cold data")
hot data	Drives	Data which are currently being processed
cold data	Drives	Data which are currently not processed (only stored)
ODD	Drives	optical disk drive (i.e. DVD-player, DVD-burner, Blu ray player, blu ray burner)
OS	operating system	OS=operating system - required for running, organize and administrating the server
E-Part	"Einbau-Part"	"e.g. S26361-F1234-**E**240" ordercode with "E" means it is either integrated into to Server (CPU, Mem, ..) or integrated in the shipping box /Keyboard, Mouse, ..)
L-Part	"Lose Lieferung-Part"	"e.g. S26361-F1234-**L**240" ordercode with "L" means, the part will be shipped with extra package, may be as well with extra shipment

Configuration diagram PRIMERGY RX4770 M2

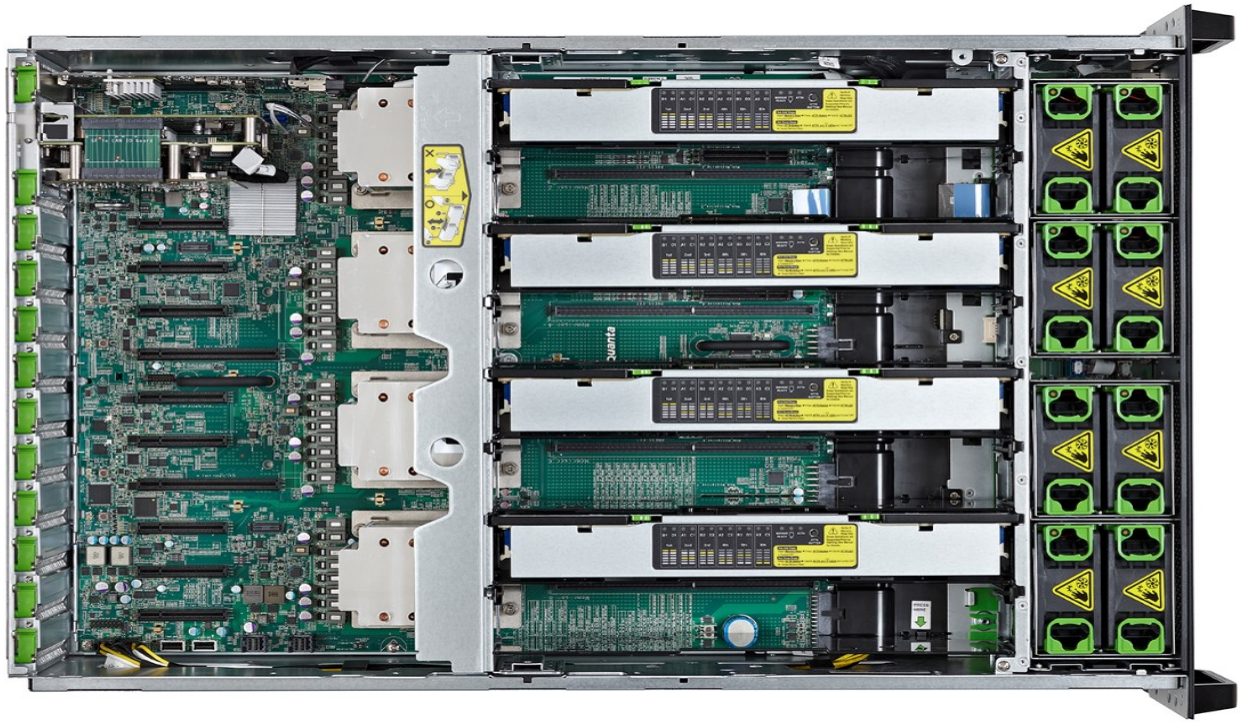


Configuration diagram PRIMERGY RX4770 M2



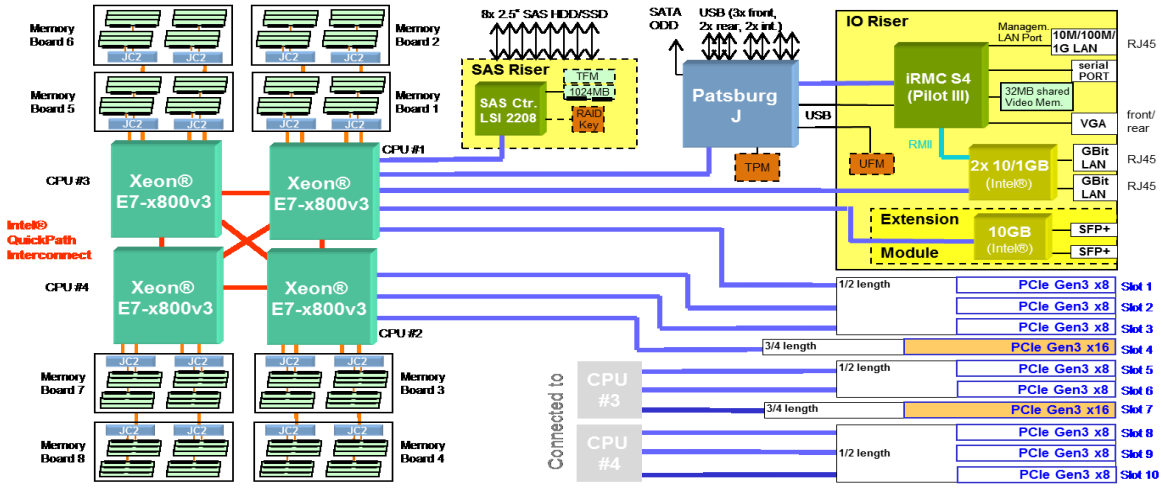
Key: Included in basic unit

Option



min. components for RX4770 M2	#
Base Unit (includes 2 Memory Boards)	1x
Processor	2x
.....Memory Mode installation	1x
DDR4 DIMM Order (each 2 DIMMs)	2x
Region kit APAC/EMEA/India or other	1x
iRMC S4 advanced pack	1x
Modular PSU 1200W or 1600W, platinum hot plug	2x

RX4770 M2 Architecture

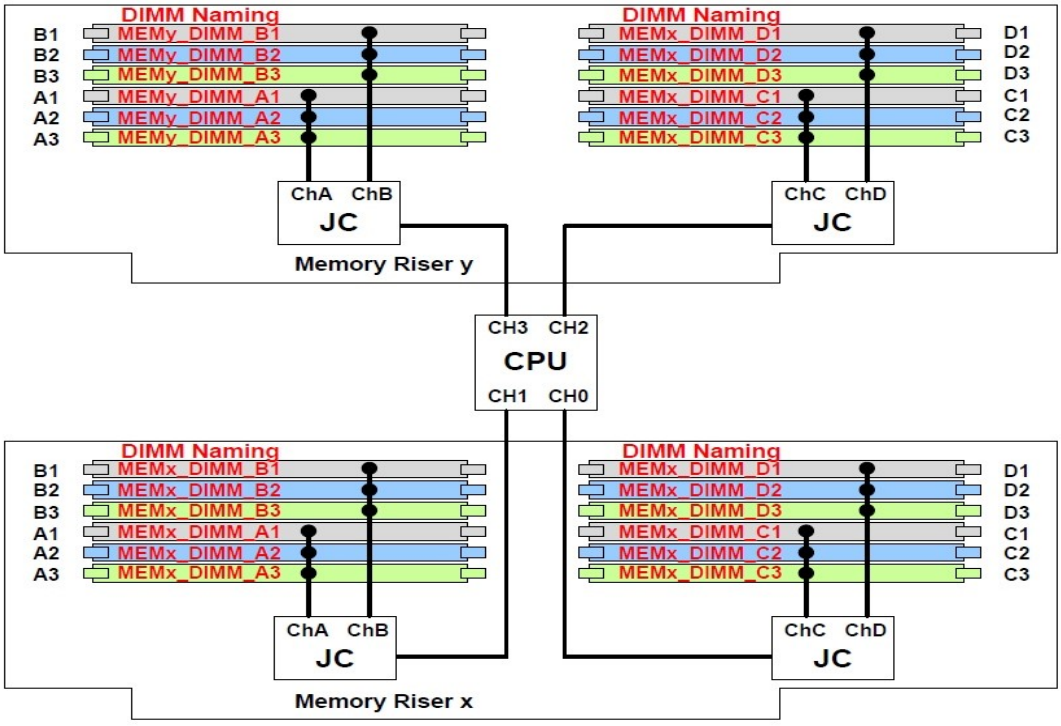


RX4770 M2 Processor Information's and Rules

Two CPU must be configured as minimum, as maximum 4 CPU´s are possible.
Empty CPU slots will be populated with CPU airflow dummy's.
Only 2 CPU or 4 CPU configurations are allowed, only same version, no mix!
Later upgrading to a 4 processor system is also possible, but may require adding of PSU and Memory modules.

RX4770 M2 Memory Information's and Rules

Basically DIMM population orders:
DIMM population order for each CPU is done by DIMM pair (2x DIMMSs) using Round Robin scheme (e.g. CPU1, CPU2, CPU3, CPU4, CPU1...)



Memory Configuration Rules (DIMM installation order)
- All DIMMs must be DDR4 DIMMs (RDIMM and LRDIMM) that support ECC. Non Buffered (UDIMMs) and Non-ECC DIMMs are not supported.
- Mixing of DDR4 operating frequencies is not validated within a socket or across sockets. If DIMMs with different frequencies are mixed, all DIMMs will run at the common lowest frequency.
- Mixing of LRDIMM with any other DIMM type is not allowed within a socket or across sockets and is not validated.
- Mixing of LRDIMM rank multiplication mode and direct mode is not supported within the same DDR4 channel. The rank multiplication factor needs to be the same for LRDIMMs on the same channel.
- Mixing of DDR operating frequencies is not validated within a socket or across sockets. If DIMMs with different frequencies are mixed, all DIMMs will run at the highest common supported frequency.
- Mixing of Intel SMI 2 Performance Mode (2:1) and Lockstep Mode (1:1) of operation is not validated within a socket or across sockets.
- DIMMs with different timing parameters can be installed on different slots within the same DDR4 channel, but only timings that support the slowest DIMM will be applied to all. As a consequence, faster DIMMs will be operated at timings supported by the slowest DIMM populated.
- When one DIMM is used, it must be populated in DIMM slot0 (farthest away from the Memory Buffer) of a given channel.
- A maximum of 8 logical ranks (ranks seen by the host iMC) per channel is allowed. Support for greater than 8 physical ranks is supported via LRDIMM rank multiplication.
- When single, dual and quad rank DIMMs are populated for 2DPC or 3DPC, always populate the higher number rank DIMM first (starting from the farthest slot), for example, first quad rank, then dual rank, and last single rank DIMM (not in 3DPC).
- Mixing of Independent and Lockstep channel mode is not allowed per platform.
- Mixing of Non-Mirrored and Mirrored mode is not allowed per platform.
- Mixing of Sparing and Non-Sparing mode is not allowed per platform.

Memory configuration modes with minimum need of DIMMs per CPU and further Stepping (see Population #):

Memory-Mode / Memory pieces	**2 CPU**		**4 CPU**	
Mode	First population/ Minimum DIMMs (Order-Bundles)	Additionally Step DIMMs (Order-Bundles)	First population/ Minimum DIMMs (Order-Bundles)	Additionally Step DIMMs (Order-Bundles)
Independent	4 (2)	2 (1)	8 (4)	2 (1)
Independent with Mirroring	4 (2)	2 (1)	8 (4)	2 (1)
Independent with Sparing	8 (4)	4 (2)	16 (8)	4 (2)
Lockstep	8 (4)	4 (2)	16 (8)	4 (2)
Lockstep with Mirroring	8 (4)	4 (2)	16 (8)	4 (2)
Lockstep with Sparing	16 (8)	8 (4)	32 (16)	8 (4)

Server Rules for Combination CPU and Memory Boards:
- A minimum of one Memory Board per each CPU must be populated.
- If two Memory Boards per CPU will be used, each CPU have to be populated with two Memory Boards.
- Following Configurations of CPU and Memory Boards per Server are possible:
--- Two CPU with two Memory Boards.
--- Two CPU with four Memory Boards.
--- Four CPU with four Memory Boards.
--- Four CPU with eight Memory Boards

Memory example Table for one CPU with two Memory Boards:

		CPU#n							
		Memory Riser#x				Memory Riser#y			
	DIMM Slot#	MEMx_ DIMM_A1	MEMx_ DIMM_B1	MEMx_ DIMM_C1	MEMx_ DIMM_D1	MEMx_ DIMM_A1	MEMx_ DIMM_B1	MEMx_ DIMM_C1	MEMx_ DIMM_D1
		MEMx_ DIMM_A2	MEMx_ DIMM_B2	MEMx_ DIMM_C2	MEMx_ DIMM_D2	MEMx_ DIMM_A2	MEMx_ DIMM_B2	MEMx_ DIMM_C2	MEMx_ DIMM_D2
		MEMx_ DIMM_A3	MEMx_ DIMM_B3	MEMx_ DIMM_C3	MEMx_ DIMM_D3	MEMx_ DIMM_A3	MEMx_ DIMM_B3	MEMx_ DIMM_C3	MEMx_ DIMM_D3
	Independent	3	1	3	1	4	2	4	2
		7	5	7	5	8	6	8	6
		11	9	11	9	12	10	12	10
	Lockstep	1	1	1	1	2	2	2	2
		3	3	3	3	4	4	4	4
		5	5	5	5	6	6	6	6

Complete Memory population tables are shown in Server Manuals.

SMI2 Channel modes, Independent or Lockstep, are selectable in BIOS setup menu.

Lockstep Mode with DDR4:
- **Lockstep --> default mode**, parallel Throughput to both MEM Lines of one SMI2.
- Bus frequency ratio SMI2 to MEM Line is 1:1
- Max. SMI2 frequency are 3200 MHz, means in Lockstep-Mode **1866 MHz DIMMs can also used with 1866 MHz**
- Memory Interleaving function ate only via 2 level, required for interleaving are same - Memory capacity on DDR channels.
- **Mirror Mode or Sparing Mode can be combined with Lockstep Mode.**
- In Lockstep Channel Mode, each memory access is a 128-bit data access that spans Channel 0 and Channel 1, and Channel 2 and Channel 3. Lockstep Channel mode allows SDDC/DDDC. **Lockstep Channel Mode requires that Channel 0 and Channel 1, and Channel 2 and Channel 3 must be populated identically** with regards to size and organization. DIMM slot populations within a channel do not have to be identical but the same DIMM slot location across Channel 0 and Channel 1 and across Channel 2 and Channel 3 must be populated the same.

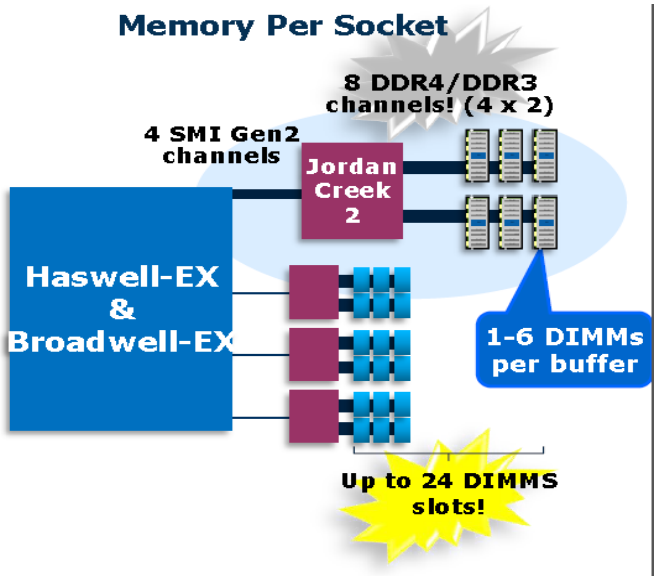
Intel Independent (Performance) Mode with DDR4:
- Bus frequency ratio SMI2 to MEM Line is 2:1
- Max. SMI2 frequency are 3200 MT/s, means in Independent -Mode fast 1866 MHz - **DIMMs can be used with Max. with 1600 MHz**
- Memory Interleaving function ate via all 3 memory level what will be **result in faster memory throughput than Lockstep Mode,** required for interleaving are same Memory capacity on DDR channels.
- **Mirror Mode or Sparing Mode can be combined with Independent Mode.**
- **Channels can be populated in any order in Independent Channel Mode**. All four channels may be populated in any order and have no matching requirements. All DDR channels must run at the same interface frequency but individual channels may run at different DIMM timings (RAS latency, CAS latency, and so forth) Independent Channel mode allows SDDC.

Max Capacity / Features
The system can be equipped with up to 96 DIMMs (distributed on 8 memory boards)
Each DIMM slot can optionally be equipped with 8GB, 16GB DDR4 RDIMM or 32GB, 64GB DDR4 LV DIMM modules, so the maximal memory size is 6144 GB with 64GB modules.

Max. Memory Speed depends on CPU QPI Speed and Memory Type, but is limited to 1866 MHz.
See also description above!

Memory Controller Independent Mode and Lockstep Mode can be switched by BIOS setup menu.
Independent Mode (higher I/O, B/W)
Lockstep Mode (highest DDR4 speeds)
Can be combined with in ordering Mirroring Mode or Spare Mode!

Memory Mirroring Mode:
In Mirrored Channel Mode, the memory contents are mirrored between SMI2 Channel 0 and SMI2 Channel 1 and also between SMI2 Channel 2 and SMI2 Channel 3. **As a result of the mirroring, the total physical memory available to the system is half of what is populated**. Mirrored Channel Mode requires that SMI2 Channel 0 and SMI2 Channel 1, and SMI2 Channel 2 and SMI2 Channel 3 must be populated identically with regards to size and organization



Memory Sparing Mode:
Sparing will be done by Rank Sparing within the same Memory Line (DDR channel).
For Ivy-Bridge Processors, Rank Sparing can be achieved if there are 2Ranks in each DDR channel.
DIMM number is unrelated.
Memory Controller on CPU can handle up to 8 logical RANKs per DDR4 channel. Requirement to configure RANK-sparing is as follows.
- In case of 1R/2R RDIMM, at least two DIMMs should be populated on the DDR4 channel.
- In case of 4R RDIMM or LR-DIMM, one DIMM population is allowed.
In Spare Mode the used Ranks as Spare Ranks shrinked the direct access able Memory:
Example: Rank Information in Memory Order Number description: xxGB (2xxxGB) **2R**x4 L DDR4-1600 R ECC

The total number of spared physically rank on a DDR channel withby one Rank Sparing			
	Populated DIMM slots in Channel:		
	1DPC	2DPC	3DPC
8 GB R DIMM(1pr)	Not possible,	1	1
16 GB R DIMM(2pr)	1	1	1
32GB LR DIMM(4pr)	1	1	2
64GB LR DIMM(4pr)	tbd	tbd	tbd

Date of change	Folder / order code / description	Name	What has been changed / comment
25.03.2015	New format	Risse	First final version
21.07.2015	RAID	A.Ertl	RAID controller updated
01.10.2015	S26361-F5243-E660	Linne	Changed comment for FastPath and CacheCade
16.03.2016	T26139-Y1742-E10	Fabian Seil	changed color to black
21.03.2016	S26361-F1452-E140	Fabian Seil	added region kit europe
02.06.2016	S26361-F5243-E4/L4	Fabian Seil	added
25.07.2016	S26361-F3718-E1/-L1	M.Maridakis	Availability extended to APAC
03.11.2016	S26341-F103-L140	Fabian Seil	added
13.12.2016	S26361-F5243-E4/L4	Fabian Seil	VS50 for EMEA only
09.02.2017	S26361-F5243-E4/L4	Fabian Seil	comment added
29.03.2017	S26361-F5243-E4/L4	Fabian Seil	comment changed
27.04.2017	USB Devices	M.Maridakis	New ext. ODD added
13.06.2017	RAID	Fabian Seil	descriptions of FBU options changed
04.08.2017	T26139-Y1741-E90	Klaus-Dieter Ruf	Changed USA power cord
05.08.2014	Initial Configurator	Your Name	Start

Chapter 1 - base unit

Start | A

Power supply units & cooling
The PRIMERGY RX4770 M2 offer up to 4x bays for direct attached hot plug (opt. redundant and opt. DPF) power supply units of 1200W or 1600W with up to 96% efficiency.

Server Management
iRMC S4 (integrated Remote Management Controller) on-board with dedicated (or shared) 10/100/1000 Service LAN-port and integrated graphics controller. With the integrated onboard indicators and controls You can highlight easily failed components via LEDs. The LEDs can be displayed during service even without mains connection by simply pressing the "indicate CSS" button.

Platform
Fujitsu Systemboard D3349 made in Germany based on Intel®C602J chipset
> 3 serial QPI links (Quick Path Interconnect)
> Up to four Xeon E7-4800 v3 or E7-8800 v3series CPUs
Slots:
- One dedicated PCIe slot for internal SAS RAID Controller are active.
Additionally PCIe slots:
- Within 2 CPU populated 4 PCIe slots are on Board active (in Summery 1 + 4 -> 5 PCIe slots).
- Within 4 CPU populated 10 PCIe slots are on Board active (in Summery 1 + 10 -> 11 PCIe slots).
Please see schematics in "description" too.
Dedicated PCIe slot for internal SAS RAID Controller (- supports modular RAID functions) @ to first CPU
> additionally 4 slots on Board Full height @ first and second CPU:
Slot 1 PCIe-Gen3 x8, 1/2 lengh
Slot 2 PCIe-Gen3 x8, 1/2 lengh
Slot 3 PCIe-Gen3 x8, 1/2 lengh
Slot 4 PCIe-Gen3 x16, 3/4 lengh
> additionally 6 slots on Board Full height @ third and fourth CPU:
Slot 5 PCIe-Gen3 x8, 1/2 lengh
Slot 6 PCIe-Gen3 x8, 1/2 lengh
Slot 7 PCIe-Gen3 x16, 3/4 lengh
Slot 8 PCIe-Gen3 x8, 1/2 lengh
Slot 9 PCIe-Gen3 x8, 1/2 lengh
Slot 10 PCIe-Gen3 x8, 1/2 lengh

System RAM up to DDR4-1866 MHz
8x Memory Boards with 12x DDDR4 DIMM slots each, based on Intel® C114 Scalable Memory Buffer.
96 memory slots for max. 6TB DDR4 RAM available (24 slots per CPU). Memory speed depends on CPU and configuration.

LAN
LAN on Motherboard based on high performance Chip Intel X540 with 2 port 10/1 Gbit copper.
Optional expansion for LAN on Motherboard submodule, Chip Intel 82599 Niantic with 2 port 10 Gbit optic SFP+.

Software
* ServerView Suite Software incl. ServerStart, ServerBooks, Management Software and Updates

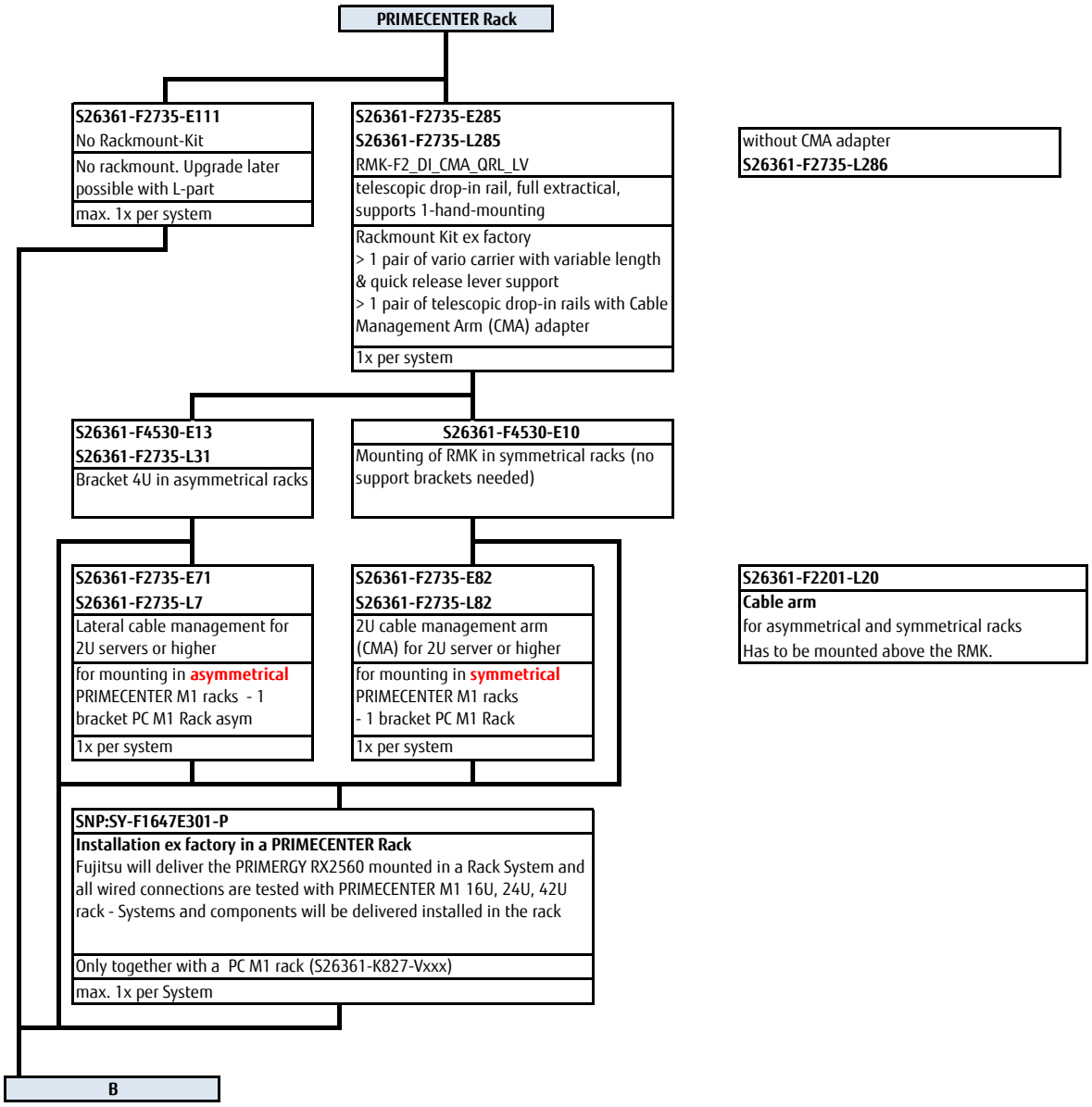
Connectivity

Interfaces at rear side	Interfaces at front
- 1 service LAN RJ45 (1 Gbit)	- 2x USB 2.0 no USB wakeup
- 1 service serial COM	Interfaces internal
- 1x VGA (15 pins)	- 2x internal SATA connectors
- 3x USB 2.0 on, no USB wakeup	----1xfor OOD device
LoM with these options:	----1x may SATA DOM
- fix: RJ45: 2x10/1Gbit, copper	- 2x USB 2.0, 1x UFM
- optional: SFP+: 2x10Gbit	

S26361-K1503-V200
RX4770 M2 Rack based Server with 4 RU
Rack base unit with D3349 systemboard
- 1 System Board
- 2 memory boards (up to 6 additional boards optional)
- 8 bays for 2.5" SAS/SATA HDD´s/SSD´s
- 4 bays for SFF(2.5") PCIe SSD´s (later, NOT to server release!)
- 1 bay (0,5" height) for optical disc drives
- LCD-Display for LocalView (Service Display)
- w/o Power supply units
- w/o Power cord for rack mounting (ICE 320 C14->C13 plug)
- no Rack- mounting kit included

B

Chapter 2 - Rack architecture



Chapter 3 - CPU

B

There are 4 processor sockets available. Please configure minimum 2 Processor, maximum 4 processors (step of 3 is not released).
>> All processor must be the same processor version.
>> To first two processors LOM, iRMC, dedicated SAS RAID Card slot and additionally 4 PCIe slots are useable
>> Only with population four processors all PCIe slots are useable.
>> Each empty CPU slot have to fill up with CPU Dummy!

Intel Xeon processor E7-4800v3 / E7-8800v3 series

XEON E7-48xxv3 Series Basic & Standard		
Xeon E7-4809v3 8C/16T 2.00GHz 20MB 6.40GT/s 115W	**S26361-F3896-E309**	**S26361-F3896-L309**
Xeon E7-4820v3 10C/20T 1.90GHz 25MB 6.40GT/s 115W	**S26361-F3896-E320**	**S26361-F3896-L320**
Xeon E7-4830v3 12C/24T 2.10GHz 30MB 8.00GT/s 115W	**S26361-F3896-E330**	**S26361-F3896-L330**
Xeon E7-4850v3 14C/28T 2.20GHz 35MB 8.00GT/s 115W	**S26361-F3896-E350**	**S26361-F3896-L350**
XEON E7-88xxv3 Series Advanced		
Xeon E7-8860v3 16C/32T 2.20GHz 40MB 9.60GT/s 140W	**S26361-F3896-E360**	**S26361-F3896-L360**
Xeon E7-8870v3 18C/36T 2.10GHz 45MB 9.60GT/s 140W	**S26361-F3896-E370**	**S26361-F3896-L370**
Xeon E7-8880v3 18C/36T 2.30GHz 45MB 9.60GT/s 150W	**S26361-F3896-E380**	**S26361-F3896-L380**
Xeon E7-8890v3 18C/36T 2.50GHz 45MB 9.60GT/s 165W	**S26361-F3896-E390**	**S26361-F3896-L390**
XEON E7-88xxv3 Series Segment Optimized		
Xeon E7-8867v3 16C/32T 2.50GHz 45MB 9.60GT/s 165W	**S26361-F3896-E367**	**S26361-F3896-L367**
Xeon E7-8891v3 10C/20T 2.80GHz 45MB 9.60GT/s 165W	**S26361-F3896-E391**	**S26361-F3896-L391**
Xeon E7-8893v3 4C/8T 3.20GHz 45MB 9.60GT/s 140W	**S26361-F3896-E393**	**S26361-F3896-L393**

Dummy		
CPU airflow Dummy	**S26361-F5295-E999**	----------

C

Chapter 4 - DDR4 System memory

C

The Systemboard of RX4770 M2, D3349, offers 8 slots for Memory Board, each Memory Board offer 12 DIMM slots.
Up to 6 TB Memory per Server possible by use of 64 GB DIMMs.
3 TB GB DDR4 LRDIMM with by use of 2 CPU (4 Memory Board x 48 DIMM slots x 64GB 4R)
6 TB GB DDR4 LRDIMM with by use of 4 CPU (8 Memory Board x 96 DIMM slots x 64GB 4R)
The memory area is divided into 4 channels (SMI2) per CPU with 1 JC2 Memry Buffer each and 2 Memory Lines per JC2, 3 DIMM slots each
Intel SMI2 max. 3200MT/s
- Performance Mode (IntelSMI2 @ 2X DDR speed) DDR4 Support: 1333 MT/s; 1600 MT/s, depending on DIMMs per Line and CPU type
- Lockstep Mode (Intel SMI 2 runs at DDR speed) DDR4 Support: 1333 MT/s, 1600 MT/s, 1866MT/s, depending on DIMMs per Line and CPU type
DDR4 memory is operated at 1.2V
Registered and load reduced DIMM cannot be operated together in one Server.

S26361-F5295-E1
Memory Lockstep Mode
BIOS setup for Memory Lockstep Mode
Pre-Installation ex factory
max. 1x per system

S26361-F5295-E4
Memory Independent Mode
BIOS setup for Memory Independent Mode
Pre-Installation ex factory
max. 1x per system

S26361-F5295-E2
Memory Mirror Mode
BIOS setup for Mirrored Mode
Pre-Installation ex factory
max. 1x per system

S26361-F5295-E3
Memory Spare Mode
BIOS setup for Spare Mode
Pre-Installation ex factory
max. 1x per system

The total number of spared physically rank on a DDR channel			
	Populated DIMM slots in Channel:		
	1DPC	2DPC	3DPC
8 GB R DIMM(1pr)	Not possible,	1	1
16 GB R DIMM(2pr)	1	1	1
32GB LR	1	1	2
64GB LR	tbd	tbd	tbd

Be aware that Memory Spare Mode is not released with LR-DIMMs (32GB dimm and 64 GB DIMM)!
Only released with R-DIMMs (8 GB DIMM and 16 GB DIMM)!

Mix of memory, RDIMMs and LR-DIMMs are not allowed.
Frequency Mix is not validated, all DIMMs run on lowest frequency.

Min. - Max. Memory Boards Rules:
Minimum Memory board rules:
--- One Memory Board for each CPU
--- By step to two Memory Boards per CPU all CPUs have to populated with two Memory Boards.
Per CPU max. 2 Memory Boards can be installed
- with 2 CPU = max. 4 Memory boards (two included in the Base unit)
- with 4 CPU = max. 8 Memory boards
- on each CPU must be populated a minimum of Memory defined by rules of specific Memory Mode.
Default in Base Unit included two Memory Boards can be populated with 12 DIMMs (6 Memory Order Numbers) each!
Server populated with 8 Memory Boards an be populated with 96 DIMMs (48 Memory Order Numbers)!

Registered Memory (RDIMM) with SDDC (chipkill) and ECC support			
16GB (2x8GB) 1Rx4 DDR4-2133 R ECC **Not to use, not released with Lockstep Mode!**	single rank	S26361-F3897-E642	S26361-F3897-L642
32GB (2x16GB) 2Rx4 DDR4-2133 R ECC	Dual rank	S26361-F3897-E643	S26361-F3897-L643
64GB (2x32GB) 2Rx4 DDR4-2133 R ECC	Dual rank	S26361-F3897-E641	S26361-F3897-L641

Load Reduced Memory (LRDIMM) with SDDC (chipkill) and ECC support			
Load Reduced Memory (LRDIMM)			
64GB (2x32GB) 4Rx4 DDR4-2133 LR ECC	Quad rank	S26361-F3897-E644	S26361-F3897-L644
128GB (2x64GB) 4Rx4 DDR4-2133 LR ECC	Quad rank	S26361-F3897-E645	S26361-F3897-L645

Additionally Memory Board			
Memory Board RX4770 M2	With 12 DIMM slots	S26361-F5295-E200	S26361-F5295-L200
Up to 6 additionally Memory Boards can be ordered per server.			

D

Detailed information

Min. - Max. Memory DIMM Rules:
Minimum Memory DIMM rules:
- Two Memory DIMMs are ordered with one order number, but following description will talk about DIMM pieces.
- Minimum DIMM population differenced by Memory Mode will be informed by table below.
- Because each CPU can be populated with 1 or 2 Memory Boards homogenous, for each CPU same, DIMM population on Memory Boards should be homogenous too.

Board for each CPU
- By step to two Memory Boards per CPU all CPUs have to populated with two Memory Boards.

Per CPU max. 2 Memory Boards can be installed
- with 2 CPU = max. 4 Memory boards (two included in the Base unit)
- with 4 CPU = max. 8 Memory boards
- on each CPU must be populated a minimum of Memory defined by rules of specific Memory Mode.

Memory-Mode / Memory pieces	**2 CPU**		**4 CPU**	
Mode	First population/ Minimum DIMMs (Order-Bundles)	Additionally Step DIMMs (Order-Bundles)	First population/ Minimum DIMMs (Order-Bundles)	Additionally Step DIMMs (Order-Bundles)
Independent	4 (2)	2 (1)	8 (4)	2 (1)
Independent with Mirroring	4 (2)	2 (1)	8 (4)	2 (1)
Independent with Sparing	8 (4)	4 (2)	16 (8)	4 (2)
Lockstep	8 (4)	4 (2)	16 (8)	4 (2)
Lockstep with Mirroring	8 (4)	4 (2)	16 (8)	4 (2)
Lockstep with Sparing	16 (8)	8 (4)	32 (16)	8 (4)

Chapter 5 - SAS / RAID Controller

D

Internal drive RAID / SAS Controllers

S26361-F3842-E1 **S26361-F3842-L501**
PRAID CP400i RAID Contr.
based on LSI SAS3008
8 ports 3, 6 & 12Gb/s SAS/SATA HDD/ SSD
No Cache
RAID 0, 1, 1E, 10, 5, 50
requires 1x FH PCIe 3.0 x8
max. 1x per system

S26361-F5243-E1 **S26361-F5243-L1**
PRAID EP400i RAID Contr.
based on LSI SAS3108
8 ports 3, 6 & 12Gb/s SAS/SATA HDD/ SSD
1GB Cache, opt. TFM, FBU
RAID 0, 1, 1E, 10, 5, 50, 6, 60
requires 1x FH PCIe 3.0 x8
max. 1x per system

S26361-F5243-E2* **S26361-F5243-L2**
PRAID EP420i RAID Contr.
based on LSI SAS3108
8 ports 3, 6 & 12Gb/s SAS/SATA HDD/ SSD
2GB Cache, opt. TFM, FBU
RAID 0, 1, 1E, 10, 5, 50, 6, 60
requires 1x FH PCIe 3.0 x8
max. 1x per system

**It is strongly recommended to order SafeStore (SED) RAID controller with SED HDD or SSD devices for SafeStore (SED) functionality

S26361-F5243-E4/L4*
PRAID EP420i for SafeStore supports HDD Encryption

S26361-F5243-E100 **S26361-F5243-L100**
TFM module for 1GB Cache
NV-RAM & FBU control logic
max. 1x per controller

S26361-F5243-E200 **S26361-F5243-L200**
TFM module for 2GB Cache
NV-RAM & FBU control logic
max. 1x per controller

S26361-F5243-E170 **S26361-F5243-L110**
FBU Option for PRAID EP4xx
Supercap securing the power supply of the RAID controller in case of power failure including cable with 70cm lenght
max. 1x per controller
max. 2x per server

RAID Advanced Software
free of charge test licence
available: PRIMERGY-PM

FastPath is free of charge

S26361-F5243-E670 **S26361-F5243-L670**
RAID Advanced SW Option CacheCade License Activation Key for CacheCade 2.0
max. 1x per controller

all SAS3.0 RAID Controllers support OOB-RAID including OOB-HDD monitoring and require no OOB-HDD cable
the OOB-HDD cable is automatically equipped for onboard or HBA Controller

Explanation PCI Slot population:
RX4770M1 can be installed 2pcs of FBUs, FBU1 and FBU2.
Normally FBU1 is for Internal RAID and FBU2 is for External RAID.

FBU cables for External RAID connection can be reached to following slots:
FBU-A: PCIe Slot 1,2,3,4 or to slot for internal RAID controller
FBU-B: Slot 4,5,6,7,8,9,10
Slot 4 is connected with CPU2, to use by External RAID w/ FBU with in 2-CPU-scoket configuration.
If no internal RAID with FBU, FBU-A can be connected to PCI Slot 1~4.
Summery:
Slot 1,2,3 : Support when no FBU for internal RAID controller Slot 4,5,6,7,8,9,10 : Support

E

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External drive RAID / SAS Controllers

All external SAS controller are restricted for use in PCIe slot #5 up to #10 if PCIe Switch cards used in #4!

S26361-F3845-E1 **S26361-F3845-L501**
PSAS CP400e SAS Controller
based on LSI SAS3008
8 ports external 3, 6 & 12Gb/s SAS/SATA HDD/ SSD or LTO drives
No Cache
no RAID
requires 1x LP PCIe 3.0 x8
max. 3x per system
Not allowed on slot #4

S26361-F3847-E202 (-E2 FH) **S26361-F3847-L502**
PRAID EP420e RAID Controller
based on LSI SAS 3108
8 ports external 3, 6 & 12Gb/s SAS/SATA HDD/ SSD or LTO drives
2GB Cache, opt. TFM, FBU
RAID 0, 1, 10, 5, 50, 6, 60
requires 1x LP PCIe 3.0 x8
max. 2x per system
Not allowed on slot #4

S26361-F5243-E200 **S26361-F5243-L200**
TFM module for 2GB Cache
NV-RAM & FBU control logic
max. 1x per controller

S26361-F5243-E170 **S26361-F5243-L110**
FBU Option for PRAID EP4xx
Supercap securing the power supply of the RAID controller in case of power failure including cable with 70cm lenght
max. 1x per controller
max. 2x per server

RAID Advanced Software
free of charge test licence
available: PRIMERGY-PM

FastPath is free of charge

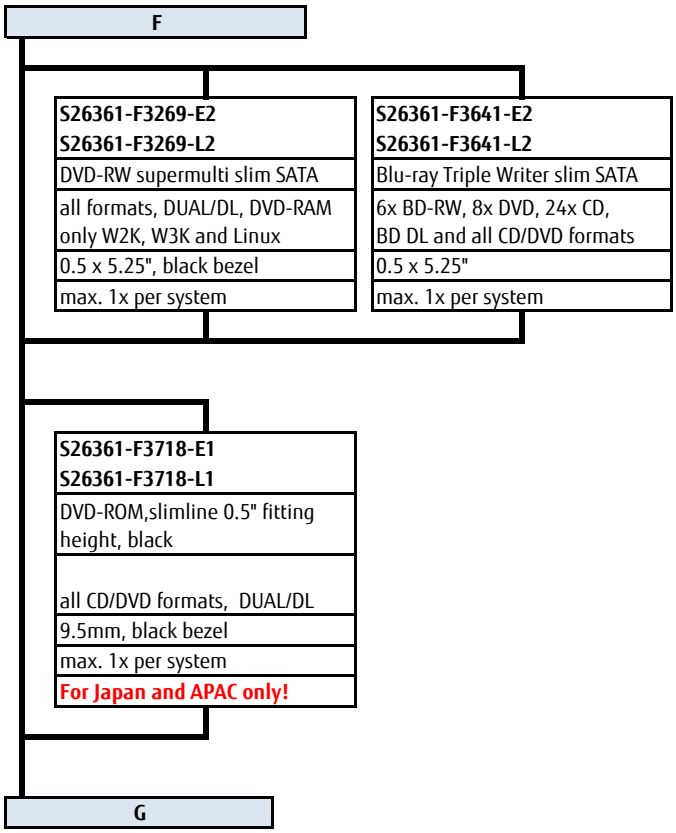
S26361-F5243-E670 **S26361-F5243-L670**
RAID Advanced SW Option CacheCade License Activation Key for CacheCade 2.0
max. 1x per controller

F

Explanation PCI Slot population:
RX4770M1 can be installed 2pcs of FBUs, FBU1 and FBU2.
Normally FBU1 is for Internal RAID and FBU2 is for External RAID.

FBU cables for External RAID connection can be reached to following slots:
FBU-A: PCIe Slot 1,2,3,4 or to slot for internal RAID controller
FBU-B: Slot 4,5,6,7,8,9,10
Slot 4 is connected with CPU2, to use by External RAID w/ FBU with in 2-CPU-scoket configuration.
If no internal RAID with FBU, FBU-A can be connected to PCI Slot 1~4.
Summery:
Slot 1,2,3 : Support when no FBU for internal RAID controller Slot 4,5,6,7,8,9,10 : Support

Chapter 6 - ODD optical disk drives



Chapter 7 - PCIe Flash SSD storage drives

G

S26361-F5267-E1
S26361-F5267-L501
PPCI EP x16 Switch
devides PCIe3.0 x16 lanes into 4x x4 lanes
supports up to 4x 2.5" PCIe-SSD SFF
No HW RAID, No Cache
PCIe3.0 x16 occupies a PCIe3.0 x16 slot
max. 1x per system **(Pcie slot #4 only!)**

Restrictions for PCIe Slot #5, #6, #7, #8, #9 and #10

If PCIe switch Card is used on PCIe Slot #4, following PCIe Cards can NOT used on PCIe slot #5 up to #10:

S26361-F3845-E1	PSAS CP400e SAS Controller
S26361-F3847-E2	RAID Ctrl SAS 12G 8port external
S26361-F5313-E1	16GBit/s FC Controller
S26361-F5313-E2	16GBit/s FC Controller
S26361-F3631-E1	8GBit/s FC Controller
S26361-F3631-E2	8GBit/s FC Controller
S26361-F3961-E1	8GBit/s FC Controller
S26361-F3961-E2	8GBit/s FC Controller
S26361-F4994-E1	16GBit/s FC Controller
S26361-F4994-E2	16GBit/s FC Controller
S26361-F5250-E1	10GBit/s PCNA Standard
S26361-F5536-E2	10GBit/s NIC

S26361-F5295-E630
S26361-F5295-L630
PCIe cable set for PCIe switch to SFF 2.5" SSD backplane (PCIe Cable from Controller to internaly SFF SSD bay)
max. 1x per Controller

PCIe SFF 2.5" SSD devices are NOT supported by Cool Safe!

PCIe-SSD 2.5" (SFF) with hot plug/hot replace tray

capacity	*Formfactor*	*PCIe*	*Endurance*	*dwpd*	*order code E-part*	*order code L-part*
800GB	2.5" (SFF)	Gen 3 x4	mainstream	10	**S26361- F5534-E800**	**S26361- F5534-L800**
1.6TB	2.5" (SFF)	Gen 3 x4	mainstream	10	**S26361- F5534-E161**	**S26361- F5534-L161**

max. 4 per system

PCIe card Flash SSD

Occupies PCIe Card slots!

Mix of PX600 cards with PCIe switch "PPCI EP x16 Switch" is not allowed!

S26361-F5546-E131 **S26361-F5546-L131**
PACC EP PX600 1.3TB
Fusion ioMemory series PCIe 2.0 25nm Lithography PCIe x8, Low Profile Endurance 6 DWPD
max. 4x per system
Allowed only in slots #1, #4, #8, #10

S26361-F5546-E261 **S26361-F5546-L261**
PACC EP PX600 2.6TB
Fusion ioMemory series PCIe 2.0 25nm Lithography PCIe x8, Low Profile Endurance 6 DWPD
max. 4x per system
Allowed only in slots #1, #4, #8, #10

S26361-F5546-E521 **S26361-F5546-L521**
PACC EP PX600 5.2TB
Fusion ioMemory series PCIe 2.0 25nm Lithography PCIe x8, Low Profile Endurance 6 DWPD
max. 4x per system
Allowed only in slots #1, #4, #8, #10

H

Chapter 8 - SAS/SATA storage drives

H

SSD SAS 2.5" (SFF)Enterprise performance with hot plug/hot replace tray

capacity	*Formfactor*	*SAS 12G*	*Endurance*	*dwpd*	*order code E-part*	*order code L-part*
200GB	2.5" (SFF)	SAS 3.0	mainstream	10	**S26361-F5298-E200**	**S26361-F5298-L200**
400GB	2.5" (SFF)	SAS 3.0	mainstream	10	**S26361-F5298-E400**	**S26361-F5298-L400**
800GB	2.5" (SFF)	SAS 3.0	mainstream	10	**S26361-F5298-E800**	**S26361-F5298-L800**
1.6TB	2.5" (SFF)	SAS 3.0	mainstream	10	**S26361-F5298-E160**	**S26361-F5298-L160**

max. 8x devices per servewr, no mix of SATA or SAS HDD are possible

SSD SATA 2.5" (SFF) Enterprise performance with hot plug/hot replace tray

capacity	*Formfactor*	*SATA 6G*	*Endurance*	*dwpd*	*order code E-part*	*order code L-part*
100GB	2.5" (SFF)	6GBit/s	mainstream	10	**S26361-F3821-E100**	**S26361-F3821-E100**
200GB	2.5" (SFF)	6GBit/s	mainstream	10	**S26361-F3821-E200**	**S26361-F3821-E200**
400GB	2.5" (SFF)	6GBit/s	mainstream	10	**S26361-F3821-E400**	**S26361-F3821-E400**
800GB	2.5" (SFF)	6GBit/s	mainstream	10	**S26361-F3821-E800**	**S26361-F3821-E800**

max. 8x devices per servewr, no mix of SATA or SAS HDD are possible

SSD SATA 2.5" (SFF) ***Value Endurance*** (***Read Intensive)*** with hot plug/hot replace tray

capacity	*Formfactor*	*SATA 6G*	*Endurance*	*dwpd*	*order code E-part*	*order code L-part*
120GB	2.5" (SFF)	6GBit/s	read intensive	0.3	**S26361-F5525-E120**	**S26361-F5525-L120**
240GB	2.5" (SFF)	6GBit/s	read intensive	0.3	**S26361-F5525-E240**	**S26361-F5525-L240**
480GB	2.5" (SFF)	6GBit/s	read intensive	0.3	**S26361-F5525-E480**	**S26361-F5525-L480**
800GB	2.5" (SFF)	6GBit/s	read intensive	0.3	**S26361-F5525-E800**	**S26361-F5525-L800**

max. 8x devices per servewr, no mix of SATA or SAS HDD are possible

HDD SAS 2.5" 15K (SFF) Enterprise performance with hot plug/hot replace tray

capacity	*RPM*	*SAS*	*Cache*	*sector*		*order code E-part*	*order code L-part*
300GB	15 000	SAS 3.0		512n		**S26361-F5531-E530**	**S26361-F5531-L530**
450GB	15 000	SAS 3.0		512n		**S26361-F5531-E545**	**S26361-F5531-L545**
600GB	15 000	SAS 3.0		512n		**S26361-F5531-E560**	**S26361-F5531-L560**

max. 8x devices per servewr, no mix of SATA or SAS HDD are possible

HDD SAS 2.5" 10K (SFF) Enterprise performance with hot plug/hot replace tray

capacity	*RPM*	*SAS*	*Cache*	*sector*		*order code E-part*	*order code L-part*
450GB	10 000	SAS 3.0	128MB	512e		**S26361-F5543-E145**	**S26361-F5543-L145**
600GB	10 000	SAS 3.0	128MB	512e		**S26361-F5543-E160**	**S26361-F5543-L160**
900GB	10 000	SAS 3.0	128MB	512e		**S26361-F5543-E190**	**S26361-F5543-L190**
1.2TB	10 000	SAS 3.0	128MB	512e		**S26361-F5543-E112**	**S26361-F5543-L112**
1.8TB	10 000	SAS 3.0	128MB	512e		**S26361-F5543-E118**	**S26361-F5543-L118**

max. 8x devices per servewr, no mix of SATA or SAS HDD are possible

HDD SAS 2.5" 10K (SFF) Enterprise performance with hot plug/hot replace tray

capacity	*RPM*	*SAS*	*Cache*	*sector*		*order code E-part*	*order code L-part*
300GB	10 000	SAS 3.0	128MB	512n		**S26361-F5550-E130**	**S26361-F5550-L130**
600GB	10 000	SAS 3.0	128MB	512n		**S26361-F5550-E160**	**S26361-F5550-L160**
900GB	10 000	SAS 3.0	128MB	512n		**S26361-F5550-E190**	**S26361-F5550-L190**
1.2TB	10 000	SAS 3.0	128MB	512n		**S26361-F5550-E112**	**S26361-F5550-L112**

max. 8x devices per servewr, no mix of SATA or SAS HDD are possible

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HDD SAS 2.5" 10K (SFF) Enterprise performance with hot plug/hot replace tray							
capacity	*RPM*	*SAS*	*Cache*	*sector*		*order code E-part*	*order code L-part*
300GB	10 000	SAS 2.0		512n		**S26361-F3818-E130**	**S26361-F3818-L130**
450GB	10 000	SAS 2.0		512n		**S26361-F3818-E145**	**S26361-F3818-L145**
600GB	10 000	SAS 2.0		512n		**S26361-F3818-E160**	**S26361-F3818-L160**
900GB	10 000	SAS 2.0		512n		**S26361-F3818-E190**	**S26361-F3818-L190**
1.2TB	10 000	SAS 2.0		512n		**S26361-F3818-E112**	**S26361-F3818-L112**
max. 8x devices per servewr, no mix of SATA or SAS HDD are possible							

HDD SAS 2.5" 7.2K (SFF) Business critical with hot plug/hot replace tray							
capacity	*RPM*	*SAS 6G*	*Cache*	*sector*		*order code E-part*	*order code L-part*
500GB	7 200	SAS 2.0		512n		**S26361-F3817-E500**	**S26361-F3817-L500**
1.0TB	7 200	SAS 2.0		512n		**S26361-F3817-E100**	**S26361-F3817-L100**
max. 8x devices per servewr, no mix of SATA or SAS HDD are possible							

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Chapter 9 - LAN Components

10 Gbit LoM interface cards

Interface card to provide the external connectors for on-board LAN			
Onboard LAN / LoM	2x dual port 10Gbit Ethernet, Intel X540, RJ45 connector	**included in Base Unit**	
2-port LoM Extension	2 port 10Gbit SFP+, Intel 82599 (Niantic)	**S26361-F5295-E500**	**S26361-F5295-L500**
1x per system possible			

1Gb Ethernet network components

1Gb Ethernet controller with RJ45 interface (1000BASE-T)		∑ per Sys.			
PLAN CP 2x1Gbit Cu Intel I350-T2	4x	4x	2 port, Intel	**S26361-F4610-E2**	**S26361-F4610-L502**
PLAN CP 4x1Gbit Cu Intel I350-T4	4x	4x	4 port, Intel Restriction: Not allowed PCIe slots #8, #10	**S26361-F4610-E4**	**S26361-F4610-L504**
max. 4 Controller per system					

10Gb Ethernet network components

10Gb Ethernet controller with RJ45 interface (10GBASE-T)		∑ per Sys.			
Eth Ctrl 2x10GBase-T PCIe x8 X540-T2	6x		2 port NIC, Intel	**S26361-F3752-E2**	**S26361-F3752-L502**
PLAN EP OCe14102 2x 10GBase-T	3x	6x	2 port NIC with RDMA, Emulex Restriction: Only eight ports can be configured as SAN boot ports.	**S26361-F5557-E1**	**S26361-F5557-L501**
10Gb Ethernet controller with SFP+ interface (for SFP+ modules or twinax cables, Fujitsu / Intel based)					
Eth Ctrl 2x10Gbit PCIe x8 D2755 SFP+	6x		2 port NIC, Intel 82599 based Restriction: Not allowed PCIe slots #4	**S26361-F3629-E2**	**S26361-F3629-L502**
optional 10Gb SFP+ module with LC connector for Fujitsu / Intel based controller					
SFP+ Module MMF 10GbE LC	2x		MMF / SR SFP+ module, up to 400m	**S26361-F3986-E3**	**S26361-F3986-L3**
SFP+ Module SMF 10GbE LC	2x		SMF / LR SFP+ module, up to 10km	**S26361-F3986-E4**	**S26361-F3986-L4**
Twinax Anschlussplatz Primergy	2x		virtual connector for twinax cables	**V:TWX CONNECTOR-PY**	
SFP+ active Twinax Cable Fujitsu	2x		customized cable length (best fitting cable length is defined during rack installation at the factory)	**S26361-F3989-E600**	**see table at the botton of this page**
SFP+ active Twinax Cable Brocade	2x			**S26361-F3873-E500**	
SFP+ passive Twinax Cable Cisco	2x			**S26361-F4571-E500**	
max. 2x SFP+ or Twinax Cable per controller					
10Gb Ethernet controller with SFP+ interface (for SFP+ modules or twinax cables, Emulex) **Restriction: All CNA controller (FCoE) are restricted for use in PCIe slot #5 up to #10 if PCIe Switch cards used in #4!**					
		∑ per Sys.			
PLAN EP OCe14102 2x10Gb	6x	6x	2 port NIC with RDMA, Emulex	**S26361-F5536-E2**	**S26361-F5536-L502**
PCNA EP OCe14102 2x 10Gb	6x	6x	2 port CNA with FCoE & RDMA, Emulex Restriction: Only eight ports can be configured as SAN boot ports.	**S26361-F5250-E1**	**S26361-F5250-L501**
PCNA EP OCec14102 2x 10Gb DMF	2x		2 port CNA with FCoE & DMF for PAN, Emulex Restriction: "PCNA EP OCec14102 2x10Gbit Cloud Card – Emulex Skyhawk, 2 channel" is only for Cloud Computing with expliciet FW part for Egenera PAN Manager and there is no mix with any other PCIe Controller in a server released.	**S26361-F5250-E10**	**S26361-F5250-L510**
optional 10Gb SFP+ module with LC connector for Emulex controller					
PCNA SFP+ MMF Modul OCe14102	2x		MMF / SR SFP+ module, up to 400m	**S26361-F5250-E110**	**S26361-F5250-L110**
Twinax Anschlussplatz Primergy	2x		virtual connector for twinax cables	**V:TWX CONNECTOR-PY**	
SFP+ active Twinax Cable Fujitsu	2x		customized cable length (best fitting cable length is defined during rack installation at the factory)	**S26361-F3989-E600**	**see table at the botton of this page**
SFP+ active Twinax Cable Brocade	2x			**S26361-F3873-E500**	
SFP+ passive Twinax Cable Cisco	2x			**S26361-F4571-E500**	
max. 2x SFP+ or Twinax Cable per controller					

Legend: ∑ per Sys. =^ max. summery pieces of Controller by Controller group per server (marked by same colored field background)!
Cases:
- Green Background, it is possible to install CNA OCe14102-UX and PLAN OCe14102-NX (10Gb NIC) and PLAN OCe14102-NT(10G Base-T) until six per system.
- Ocher Background, it is possible to install I350-T2 and I350-T4 until four per system.

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40Gb Ethernet network components

40Gb Ethernet controller with QSFP+ interface (for QSFP+ modules or twinax cables, Emulex)				
PCNA EP OCe14401 1x 40Gb **If used, Server have NO FCC EMC class A (USA and Canada) certification!**	4x	1x QSFP+ plug for twinax or modules Restriction: Only allowed PCIe slots #1, #4, #7 and #10	**S26361-F5539-E1**	**S26361-F5539-L501**
optional 40Gb QSFP+ module with MTO connector for Emulex controller				
SFP+ Module MMF 10GbE LC	1x	MMF / SR SFP+ module, up to 400m	**S26361-F5539-E140**	**S26361-F5539-L140**
Twinax Anschlussplatz Primergy	1x	virtual connector for twinax cables	**V:TWX CONNECTOR-40**	
Break-Out Twinax cable	1x	QSFP 4x 10Gb Break-Out Twinax cable	**n.a.**	**S26361-F5539-L240**
QSFP+ active Twinax Cable	1x	customized cable length (best fitting cable length is defined during rack installation at the factory)	**S26361-F3986-E400**	**see table at the botton of this page**
QSFP+ aktives Twinax Kabel Brocade	1x		**S26361-F5317-E40**	
rmax. 1x QSFP+ or Twinax Cable per controller				
max. 1 Controller per system				

Legend: ∑ per Sys. =^ max. summery pieces of Controller by Controller group per server (marked by same colored field background)!
Cases:
- Green Background, it is possible to install CNA OCe14102-UX and PLAN OCe14102-NX (10Gb NIC) and PLAN OCe14102-NT(10G Base-T) until six per system.
- Ocher Background, it is possible to install I350-T2 and I350-T4 until four per system.

Network cables for later upgrade

Fujitsu active SFP+ Twinax 10Gb cable	
SFP+ active Twinax Cable Fujitsu 2m	**S26361-F3989-L102**
SFP+ active Twinax Cable Fujitsu 5m	**S26361-F3989-L105**
SFP+ active Twinax Cable Fujitsu 10m	**S26361-F3989-L110**

Brocade active SFP+ Twinax 10Gb cable	
SFP+ active Twinax Cable Brocade 1m	**S26361-F3873-L501**
SFP+ active Twinax Cable Brocade 3m	**S26361-F3873-L503**
SFP+ active Twinax Cable Brocade 5m	**S26361-F3873-L505**

Cisco passive SFP+ Twinax 10Gb Ethernet	
SFP+ passive Twinax Cable Cisco 1m	**S26361-F4571-L101**
SFP+ passive Twinax Cable Cisco 3m	**S26361-F4571-L103**
SFP+ passive Twinax Cable Cisco 5m	**S26361-F4571-L105**
SFP+ active Twinax Cable Cisco 7m	**S26361-F4571-L107**
SFP+ active Twinax Cable Cisco 10m	**S26361-F4571-L110**

Fujitsu QSFP+ / QSFP+ Twinax 40Gb cable	
QSFP+ passive Twinax Cable Fujitsu 2m	**S26361-F3986-L402**
QSFP+ passive Twinax Cable Fujitsu 5m	**S26361-F3986-L405**
QSFP+ active Twinax Cable Fujitsu 10m	**S26361-F3986-L410**

Brocade active QSFP+ / QSFP+ Twinax 40Gb cable	
QSFP+ active Twinax Cable Brocade 1m	**S26361-F5317-L41**
QSFP+ active Twinax Cable Brocade 3m	**S26361-F5317-L43**
QSFP+ active Twinax Cable Brocade 5m	**S26361-F5317-L45**
40GE Direct Attached QSFP-QSFP,10m,1pack	**D:QSFP-QSFP-AOC10L**
Brocade active QSFP+ / 4xSFP+ Twinax 40Gb cable	
QSFP+/4xSFP+ Breakout Cable Brocade 1m	**S26361-F5317-L401**
QSFP+/4xSFP+ Breakout Cable Brocade 3m	**S26361-F5317-L403**
QSFP+/4xSFP+ Breakout Cable Brocade 5m	**S26361-F5317-L405**
4x10GE Direct QSFP-4SFP Cable,10m,1-pack	**D:QSFP-4SFP-AOC10L**

K

Chapter 10 - Fibre Channel Controller

L

S26361-F3631-E1	S26361-F3631-E2	S26361-F3961-E1	S26361-F3961-E2
S26361-F3631-L1	**S26361-F3631-L2**	**S26361-F3961-L1**	**S26361-F3961-L2**
FC Ctrl 8Gb/s 1 ch. QLE2560 MMF LC	FC Ctrl 8Gb/s 2 ch. QLE2562 MMF LC	FC Ctrl 8Gb/s 1 ch. LPe1250 MMF LC	FC Ctrl 8Gb/s 1 ch. LPe12002 MMF LC
Qlogic QLE2560 1 channel 8Gbit/s FC Controller	Qlogic QLE2562 2 channel 8Gbit/s FC Controller	Emulex LPe1250 1 channel 8Gbit/s FC Controller	Emulex LPe12002 2 channel 8Gbit/s FC Controller
LC Interface for 50µm Fibre	LC Interface for 50µm Fibre	LC Interface for 50µm Fibre	LC Interface for 50µm Fibre
PCIe Gen2 x8 full height bracket	PCIe Gen2 x8 full height bracket	PCIe Gen2 x8 full height bracket	PCIe Gen2 x8 full height bracket
max. 8x per system	max. 8x per system	max. 8x per system	max. 8x per system
Not allowed on slot #4	Not allowed on slot #4		

S26361-F5313-E1	S26361-F5313-E2	S26361-F4994-E1	S26361-F4994-E2
S26361-F5313-L501	**S26361-F5313-L502**	**S26361-F4994-L501**	**S26361-F4994-L502**
PFC EP QLE2670 1x 16Gb	PFC EP QLE2672 2x 16Gb	PFC EP LPe16000 1x 16Gb	PFC EP LPe16002 2x 16Gb
Qlogic QLE2670 1 channel 16Gbit/s FC Controller	Qlogic QLE2672 2 channel 16Gbit/s FC Controller	Emulex LPe16000 1 channel 16Gbit/s FC Controller	Emulex LPe16002 2 channel 16Gbit/s FC Controller
LC Interface for 50µm Fibre	LC Interface for 50µm Fibre	LC Interface for 50µm Fibre	LC Interface for 50µm Fibre
PCIe Gen3 x8 full height bracket	PCIe Gen3 x8 full height bracket	PCIe Gen3 x8 full height bracket	PCIe Gen3 x8 full height bracket
max. 8x per system	max. 8x per system	max. 8x per system	max. 8x per system
Not allowed slots #2, #3, #6, #7	Not allowed slots #2, #3, #6, #7		

M

All FC controller are restricted for use in PCIe slot #5 up to #10 if PCIe Switch cards used in #4!

Chapter 11 - Infiniband Controllers

M

S26361-F4475-E103
S26361-F4475-L103
IB HCA 40Gb 1channel QDR
40GBit 1channel Infiniband Controller with QDR technology
Q-SFP+ connector
PCIe x8 full height Card, 170mm
max. 4x per system

S26361-F4475-E203
S26361-F4475-L203
IB HCA 40Gb 2channel QDR
40GBit 2channel Infiniband Controller with QDR technology
Q-SFP+ connector
PCIe x8 full height Card, 170mm
max. 4x per system

S26361-F4533-E102
S26361-F4533-L102
IB HCA 56Gb 1channel FDR
56GBit 1channel Infiniband Controller with FDR technology
Q-SFP+ connector
PCIe x8 full height Card, 170mm
max. 4x per system

S26361-F4533-E202
S26361-F4533-L202
IB HCA 56Gb 2channel FDR
56GBit 2channel Infiniband Controller with FDR technology
Q-SFP+ connector
PCIe x8 full height Card, 170mm
max. 4x per system

For the US market only:
Due to EMI restrictions, only **one** IB FDR HCA can be installed per system

S26361-F5540-E102
S26361-F5540-L102
PIB EP 100GB 1 PORT EDR
100GBit 1channel Infiniband Controller with EDR technology
Transceiver within cable
PCIe x16
max. 2x per system

S26361-F5540-E202
S26361-F5540-L202
PIB EP 100GB 2 PORT EDR
100GBit 2channel Infiniband Controller with EDR technology
Transceiver within cable
PCIe x16
max. 2x per system

Because at moment no additionally capsule available, no FCC EMC Class A (USA and Canada) certification available.
If customer strong require FCC EMC Class A for IB HCA, EDR controller can not offered!

Network Components, Controller and cables for later upgrade

only within a rack configuration

S26361-F3996-E556
InfiniBand Cu Cable 56Gb customized. QSFP, 1m and 3m

only loose delivery

Cables for 40Gbit and 56 Gbit Controller:
If additional length of copper cable or optical cable are needed, Copper cable are also available for loose delivery as S26361-F3996-L561, QSFP, 56Gb, 1m S26361-F3996-L563, QSFP, 56Gb, 3m

For loose delivery and in Rack customizing

Cables for 100Gbit Controller:
S26361-F5549-L561 MELLANOX COP. CABLE, 100GB/S, QSFP,LSZH, 1M
S26361-F5549-L563 MELLANOX COP. CABLE, 100GB/S, QSFP,LSZH, 3M

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Chapter 12 - Power supply unit, power cable

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S26113-F5295-E120 **S26113-F5295-L120** 1200W platinum power supply unit	**S26113-F5295-E160** **S26113-F5295-L160** 1600W platinum power supply unit
1200W PSU module platinum 1st or 2nd PSU for redundancy and DPF. 94% efficiency 110V range: 1020W	1600W PSU module platinum PSU for redundancy and DPF. 94% efficiency
100-240V, 50-60Hz	200-240V, 50-60Hz
occupies hot plug PSU slot	occupies hot plug PSU slot
min. 2 / max. 4x per system	min. 2 / max. 4x per system

Be aware that in worst case 1200W PSU population do not solve all configuration possibilities!
Mix of PSU Versions are not allowed!

Rack

Power cord option for Rack Server, 4m, grey (1x per PSU)	
T26139-Y1968-E100	Powercord for rack, IEC 320 C14 connector
T26139-Y1741-E90	USA, Canada, 15A, 1.8m, black
T26139-Y3850-E10	Option "no powercord", for Countries without specific cable orderable like e.g. China

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Accessories

USB Mouse:	
Mouse M510 Grey	S26381-K457-E101 / L101
Laser Mouse USB/PS2 Combo	S26381-K430-E100 / L100
USB sticks (FOR PROJECTS ONLY) - no standard release	
ADATA USB 3.0 Flash Stick UE700 – 32GB	S26391-F6048-L332
ADATA USB 3.0 Flash Stick UE700 – 64GB	S26391-F6048-L364
3) external optical drives: very low request --> no standard offer	
One UFM (USB Flash Module) can be configured The UFM is bundeld with VMWare offering:	
VMware vSphere Embedded UFM Device 4 GB	S26361-F2341-E432

http://www.fujitsu.com/de/products/computing/peripheral/accessories/

http://www.fujitsu.com/de/products/computing/peripheral/accessories/input-devices/mice/mouse-m510.html
http://www.fujitsu.com/de/products/computing/peripheral/accessories/input-devices/mice/laser-mouse-combo-usb-ps2.html

http://www.fujitsu.com/de/products/computing/peripheral/accessories/storage/usb3-flash-stick-ue700.html

!! changed listing:
ascending with order code

USB keyboards for floorstand versions for following countries:		
USB professional Keyboard KBPC PX ECO	**Country version**	**FUJITSU Keyboard KB521 USB (grey)**
S26381-K341-E104	Czech/Slovak	S26381-K521-E104
S26381-K341-E110	USA / international	S26381-K521-E110
S26381-K341-E120	Germany	S26381-K521-E120
S26381-K341-E122	Germany / Int	S26381-K521-E122
S26381-K341-E140	France	S26381-K521-E140
S26381-K341-E154	Sweden / Finland	S26381-K521-E154
S26381-K341-E165	United Kingdom	S26381-K521-E165
S26381-K341-E170	Switzerland	S26381-K521-E170
S26381-K341-E180	Spain	S26381-K521-E180
S26381-K341-E185	Italy	S26381-K521-E185

http://www.fujitsu.com/de/products/computing/peripheral/accessories/input-devices/keyboards/keyboard-kb521.html

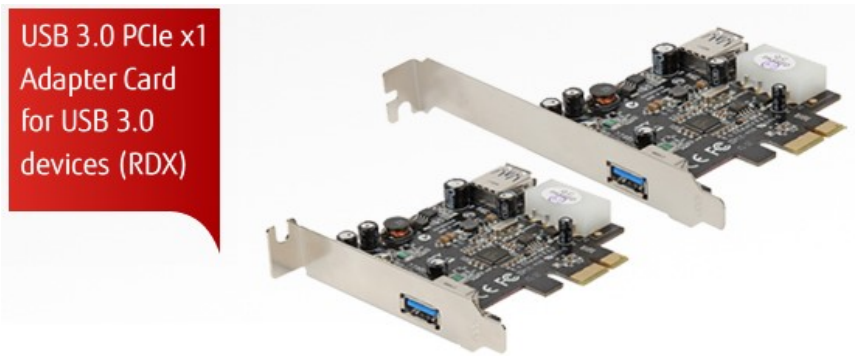
USB Optical Disc Drive	
External Ultra Slim Portable DVD Writer (Hitachi-LG)	**S26341-F103-L142**

USB 3.0 adapter

S26361-F3749-E1
USB3.0 PCIe x1 adapter card (Full height) Sunrich U-720
1 port intern, 1 port extern, USB3.0A connectors
requires 1x PCIe *1
max. 1x per system

S26361-F3749-L501
USB3.0 PCIe x1 adapter card (Low profile) Sunrich U-720
1 port intern, 1 port extern, USB3.0A connectors; incl LP / FH brackets
requires 1x PCIe *1
max. 1x per system

http://www.fujitsu.com/de/products/computing/servers/primergy/components/pmod_124391.html



SX05, external Tape Box on USB

S26361-K1418-V110
19" enclosure unit 1U for max 2 HH 5.25" USB backup devices
Planned devices in SX05 will be: - DAT72 - DAT160 - RDXUSB3.0
For SX05 internal and Rack configurability please refer to SX05 S1 Configuration Guide itself!
max. ?x per system
Planned connectors at RX4770: **- USB 2.0 connectors on rear side** **- USB 2.0 connectors on front side** **- USB 3.0 connector by PCIe card Sunrich U-720.**

PRIMERGY SX05 S1 USB planned to be release at RX4770 M2.

Chapter 14 - others

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S26361-F1790-E243
S26361-F1790-L244
iRMC S4 advanced pack
integrated remote Management controller activation key for graphical console redirection and remote media redirection
max. 1x per system

Executing system updates, controlling the hardware setup or running diagnostic tests on components are frequent tasks of IT administrators to ensure a continuous 24x7 server operation. ServerView embedded Lifecycle Management (eLCM) for Fujitsu PRIMERGY servers greatly supports such routine tasks by consolidating and enhancing management functions directly available (“embedded”) within the server.

S26361-F1790-E310
embedded Lifecycle Management (eLCM)
Server Online Update
OS driver Update
Hardware firmware update
Server Offline Update
Hardware update via Update Manager Express
PrimeCollect
Autonomous creation of Primecollect archives
Creation and use of PrimeCollect archives over AIS connect
Custom Image (Jukebox function)
Automatic and manual download of CD and DVD Images
Automatic and manual start of CD and DVD Images
max. 1x per system

Loose delivery
eLCM Activation Pack
(Node Locked License)
BDL:ELCM-PACK
options contains:
- 16GB SD card
- Paper with TAN for Licensekey

S26361-F3776-E101
Cool-safe ® Advanced Thermal design
enables the PRIMERGY Server to cope with temperatures from 5-40° in operating mode due to extended Fan settings
this setting can be activated ex factory only
max. 1x per system

Restrictions with by Cool-Safe Mode (up to 40°C degrees):
- CPU Throttling can generated in extremely situations.
- PCIe-SSD 2.5" (SFF) will not be supported!

S26361-F3552-E5
S26361-F3552-L5
TPM Module V1.2
TPM module
max. 1x per system

S26361-F1452-E100
REGION KIT APAC/America/EMEA/India
For Shipments to Asia pacific, America, EMEA or India regions
1x per system

S26361-F1452-E110
REGION KIT JP
For Shipments to Japan regions
1x per system

S26361-F1452-E140
REGION KIT Europe
1x per system

Your Server is ready