

# PRIMERGY RX4770 M1

## *System configurator and order-information guide*

June 2014

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Change report

**PRIMERGY Server**

# Instructions

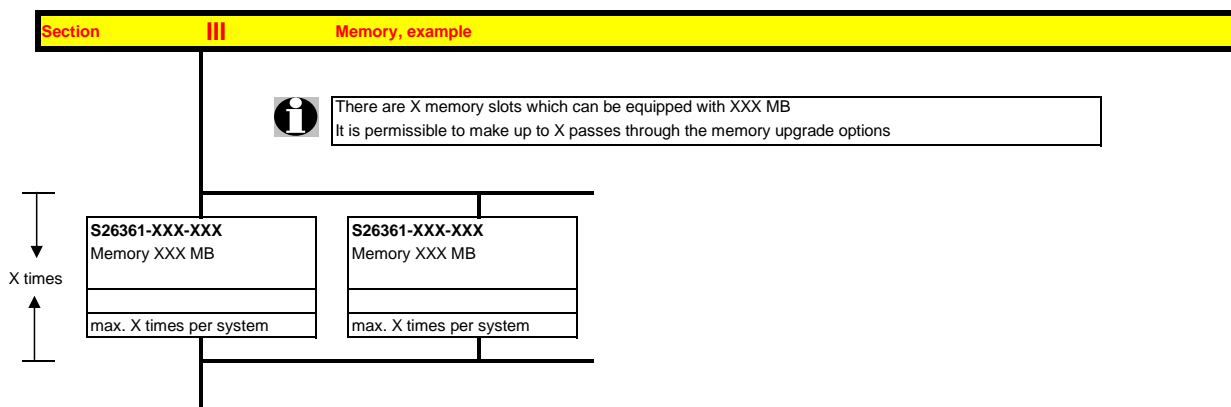
This document contains basic product and configuration information that will enable you to configure your system via PC-/System-Architect

Only these tools will ensure a fast and proper configuration of your PRIMERGY server or your complete PRIMERGY Rack system.

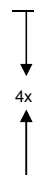
You can configure your individual PRIMERGY server in order to adjust your specific requirements.

The System configurator is divided into several chapters that are identical to the current price list and PC-/System-Architect.

Please follow the lines. If there is a junction, you can choose which way or component you would like to take. Go through the configurator by following the lines from the top to the bottom.



In one chapter you can only select as many components (here 4x) as the arrow indicates.



Please note that there are information symbols which indicate necessary information.



### Further information in the internet see:

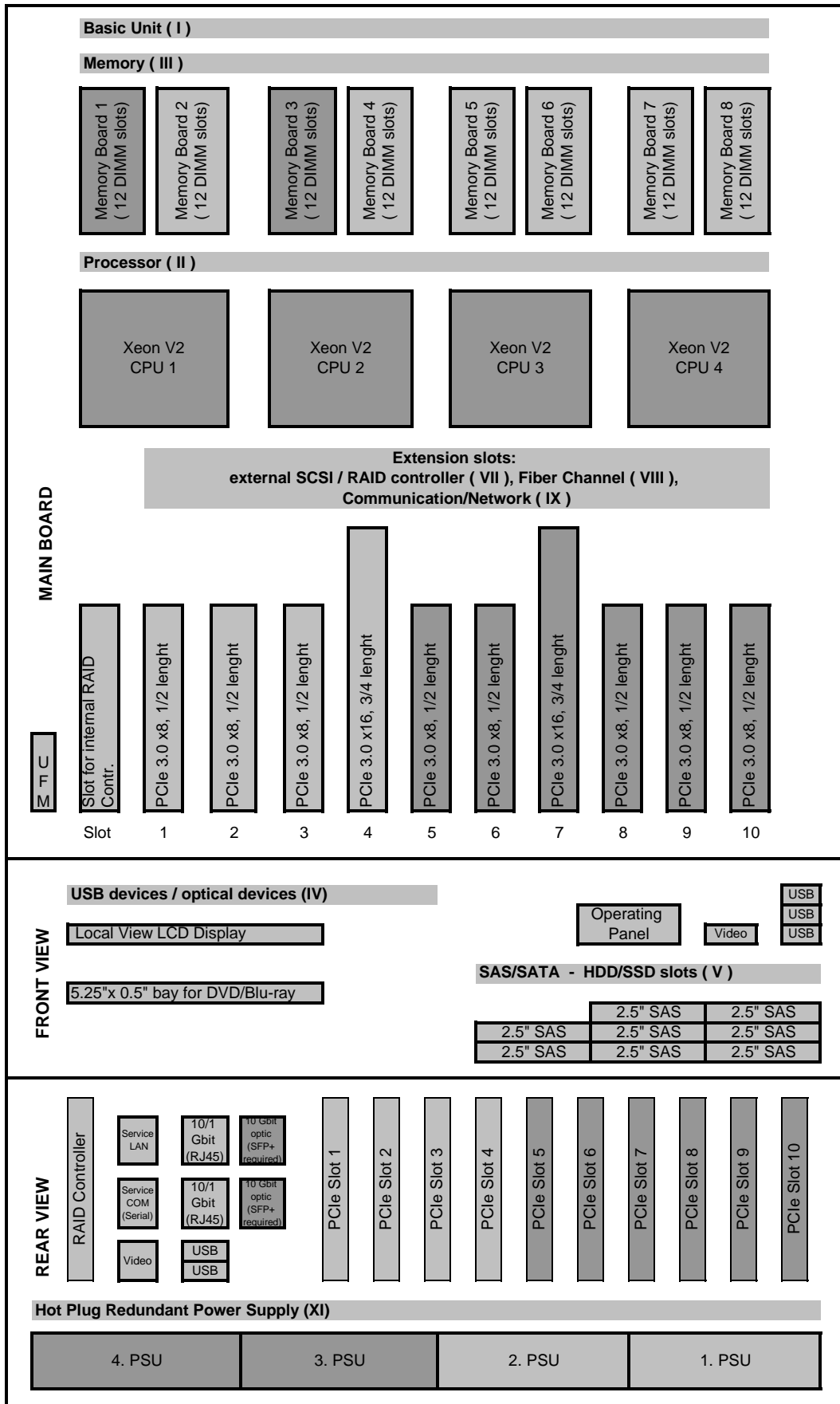
[http://ts.fujitsu.com/products/standard\\_servers/index.html](http://ts.fujitsu.com/products/standard_servers/index.html)

(internet)

[https://partners.ts.fujitsu.com/com/order-supply/configurators/primergy\\_config/current/P](https://partners.ts.fujitsu.com/com/order-supply/configurators/primergy_config/current/P) (extranet)

Prices and availability see price list and PC-/System-Architect.  
Subject to change and errors excepted.

# Configuration diagram PRIMERGY RX4770 M1




Key: Included in basic unit  
 Option

Start "PRIMERGY XXX"

**SW Configurator 64 bit (EM64T / IA64)**

**with OEM-Software**  
for PRIMERGY Server

**without OEM-Software**  
for PRIMERGY Server

 For all SW products please refer to the corresponding software configurator accessible via the Extranet under "Configuration & Tools, -All configurations, -Software, URL see below.

OEM- SW is bound to HW and is not allowed to be ordered separately.  
Exceptions: VMware SW, Citrix XenServer

**VMware-Software**  
- VMware vCenter Management Server for any server released for Windows Servers  
- VMware Hypervisor ESXi for PRIMERGY systems

**Citrix XenServer / Essentials for XenServer**  
- XenCenter Management Server for any server released for Windows 2000/XP/Vista and Server 2003/2008  
XenServer editions released for PRIMERGY except all mono PRIMERGY systems (see release matrix for details)

**Microsoft Hyper-V Server 2012 R2**  
- Microsoft Hyper-V Server 2012 R2 - Free Microsoft Download

**Microsoft Hyper-V Server 2012**  
- Microsoft Hyper-V Server 2012 - Free Microsoft Download

available by second release step  
available by second release step

**Microsoft - Windows Server 2012 R2 Server Licenses**  
- Windows Server 2012 R2 Datacenter  
- Windows Server 2012 R2 Standard

**Microsoft - Windows Server 2012 Client Access Licenses**  
- Windows Server 2012 Device CAL  
- Windows Server 2012 User CAL  
- Windows Server 2012 Device Remote Desktop Services Device CAL  
- Windows Server 2012 Device Remote Desktop Services User CAL

**Microsoft - Windows Server 2012 Server Licenses**  
- Windows Server 2012 Datacenter **available by second release step**  
- Windows Server 2012 Standard **available by second release step**

**Microsoft - Windows Server 2012 Client Access Licenses**  
- Windows Server 2012 Device CAL  
- Windows Server 2012 User CAL  
- Windows Server 2012 Device Remote Desktop Services Device CAL  
- Windows Server 2012 Device Remote Desktop Services User CAL

**Microsoft - Windows Server 2008 R2 Server Licenses**  
- Windows Server 2008 R2 Datacenter  
- Windows Server 2008 R2 Enterprise  
- Windows Server 2008 R2 Standard

**Microsoft Windows Small Business Server 2011 Client Access Licenses**  
- Windows Small Business Server 2011 Standard I Premium Device CAL  
- Windows Small Business Server 2011 Standard I Premium User CAL  
- Windows Server 2008 Remote Desktop Services Device CAL  
- Windows Server 2008 Remote Desktop Services User CAL

**Microsoft - Downgrade Media Only**  
- Windows Server 2008 Enterprise  
- Windows Server 2008 Standard

**Microsoft - Windows Server 2008 Client Access Licenses**  
- Windows Server 2012 Device CAL  
- Windows Server 2012 User CAL  
- Windows Server 2012 Remote Desktop Services Device CAL  
- Windows Server 2012 Remote Desktop Services User CAL  
- Windows Server 2008 Remote Desktop Services Device CAL  
- Windows Server 2008 Remote Desktop Services User CAL

**Linux - Software \*) \*\*)**  
#  
- SUSE Linux ES (OEM): LO  
- Red Hat EL (OEM): LO

**ServerView Resource Orchestrator VE\*)**  
Virtual Edition (ROR VE) Resource management  
Windows, Linux, VMware, Solaris Server  
for PRIMERGY BX/RX/TX, PRIMEQUEST, SPARC


**ServerView Resource Orchestrator CE\*)**  
Cloud Edition (ROR CE) Resource orchestration  
Windows, Linux, VMware, Solaris Server  
for PRIMERGY BX/RX/TX, PRIMEQUEST, SPARC

Symantec Veritas Storage Foundation Standard W-SFW  
Symantec Veritas Storage Foundation Enterprise W-SFEW  
Win Server 2008 R2, 2012, 2012 R2

**only EM64T**  
**Manageability Software: V\*\*)**  
- iRMC advanced Pack  
- RemoteView Software  
- RemoteView Service Board  
- RemoteView Diagnosis  
- RemoteDeploy

 **\*) Please consult the ROR VE release and ordering information in the Extranet under <https://partners.ts.fujitsu.com/com/products/software/resco/Pages/default.aspx>**

**\*\*) Please consult the ROR CE release and ordering information in the Extranet under <https://partners.ts.fujitsu.com/com/products/software/ror/Pages/default.aspx>**

 **\*\*) Pay attention to release and order information in PRINCE -> Operating System <https://partners.ts.fujitsu.com/com/products/servers/primergy/Pages/default.aspx>**

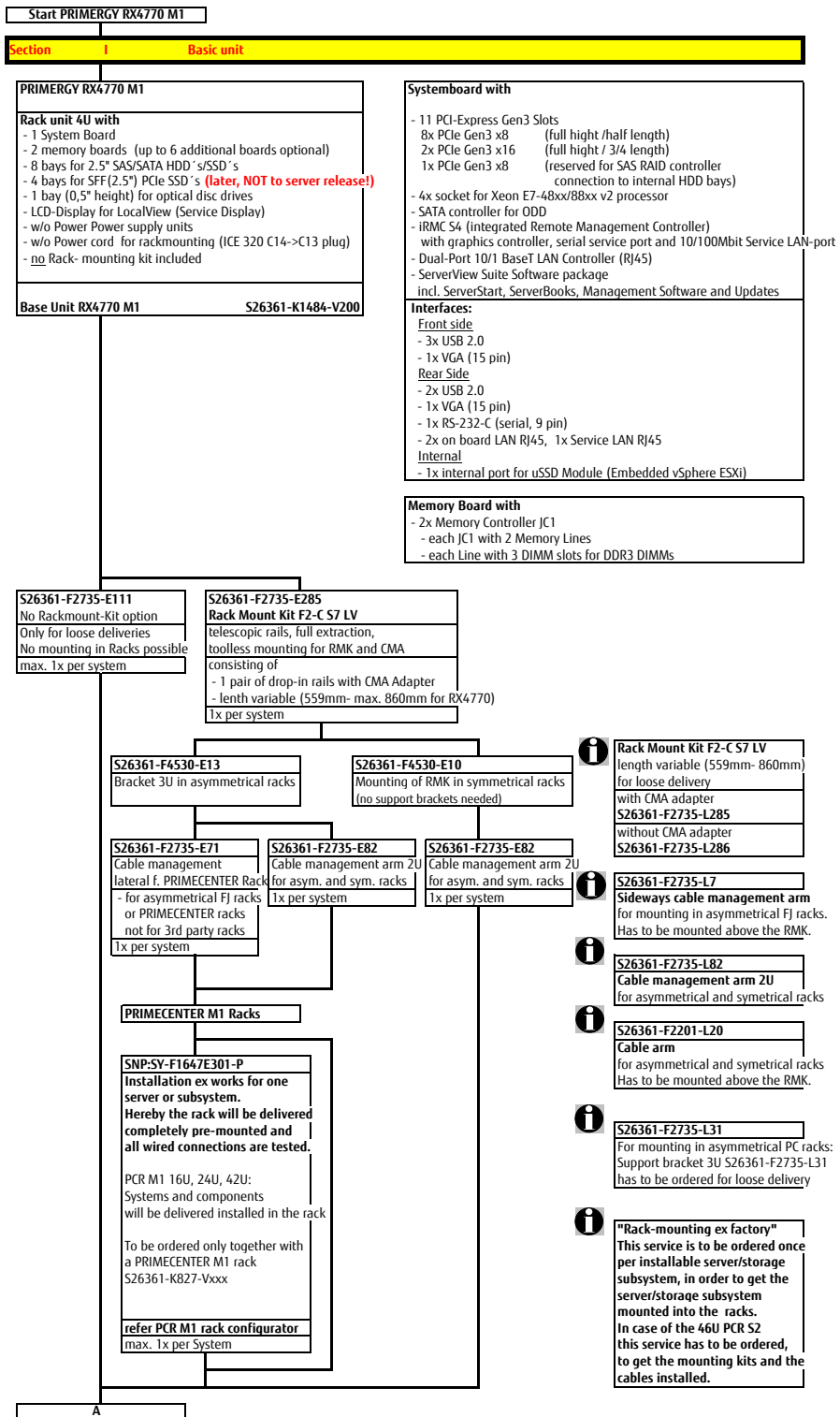
**\*\*\*\*) Supply over distribution or procurement from FSC VP BC Software**

**You'll find single software configurators and release lists (OS-matrix / system management / security) under following addresses:**

**Continue with PRIMERGY HW configurator**

for internal users: <https://partners.ts.fujitsu.com/com/products/servers/primergy/opsys/relecurrsys/Pages/default.aspx>  
for partners: <https://partners.ts.fujitsu.com/com/products/servers/primergy/opsys/relecurrsys/Pages/default.aspx>

Fujitsu x86 PRIMERGY Server



A

**Section II Processor**

**i** Two CPU must be configured as minimum, as maximum 4 CPU's are possible.  
 Only 2 CPU or 4 CPU configurations are allowed!  
 Later upgrading to a 4 processor system is also possible, but may require adding of PSU and Memory modules. Extension CPUs must be identical to the already installed CPU's.

**Following CPU's can be configured max. 4x per system  
 As minimum two CPU's must be configured**

**CPU overview**  
 - Intel Xeon processor E7-4800v2 / E7-8800v2 series  
 incl. passive heat sink  
 occupies socket for one CPU

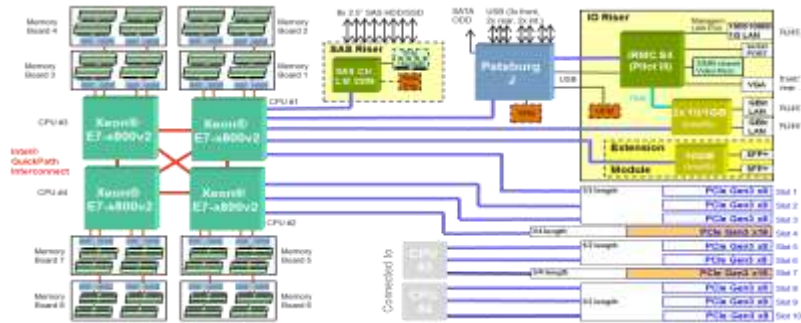
Xeon E7-4809v2 6C/6T 1.60GHz 12MB 6.40GT/s 105W	S26361-F5308-E409
Xeon E7-4820v2 8C/16T 2.00GHz 12MB 7.20GT/s 105W	S26361-F5308-E420
Xeon E7-4830v2 10C/20T 2.20GHz 20MB 7.20GT/s 105W	S26361-F5308-E430
Xeon E7-4850v2 12C/24T 2.30GHz 24MB 7.20GT/s 105W	S26361-F5308-E450
Xeon E7-4870v2 15C/30T 2.30GHz 30MB 8.00GT/s 130W	S26361-F5308-E470
Xeon E7-4880v2 15C/30T 2.50GHz 37.5MB 8.00GT/s 130W	S26361-F5308-E480
Xeon E7-4890v2 15C/30T 2.80GHz 37.5MB 8.00GT/s 155W	S26361-F5308-E490
Xeon E7-8857v2 12C/12T 3.00GHz 30MB 8.00GT/s 130W	S26361-F5308-E857
Xeon E7-8893v2 6C/12T 3.40GHz 37.5MB 8.00GT/s 155W	S26361-F5308-E893

2x OR 4x

on special release  
 on special release  
 on special release

**i** Mix of CPU Versions are not allowed.

### RX4770 M1 Architecture



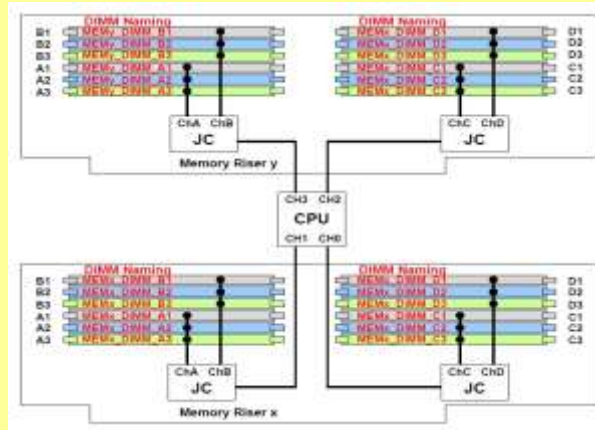
B

B

**Section III Memory**

**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...)



**BTO Order for DIMM population (DIMM installation order)**

DIMM population limitation in platform is listed as below.

- Mixing of LRDIMM with any other DIMM type is not allowed per platform.
- Mixing of DDR3 voltages is not validated within a socket or across sockets. (If 1.35V (DDR3L) and 1.50V (DDR3) DIMMs are mixed, the DIMMs will run at 1.50V.)
- Mixing of DDR3 operating frequencies is not validated within a socket or across. (If DIMMs with different frequencies are mixed, all DIMMs will run at the common lowest frequency.)
- A maximum of 8 logical ranks (ranks seen by the host) per channel is allowed.
- 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 #):**

Population #	SMI2 Channel Mode	Memory Mirror Mode	Memory Spare Mode	DIMM population #
1	Independent mode	Off	Off	2
2	Independent mode	On	Off	2
3	Independent mode	Off	On	4
4	Lockstep mode	Off	Off	4
5	Lockstep mode	On	Off	4
6	Lockstep mode	Off	On	8

**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 population Table:

TDB

SMI2 Channel modes are selectable in BIOS setup menu.  
 Lockstep Mode is default Mode if HW configuration makes it possible.  
 Performance Mode can be switched on.

**Lockstep Mode:**

- **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 2666 MHz, means in Lockstep-Mode **1600 MHz DIMMs can also used with 1600 MHz.**
- Memory Interleaving functionate only via 2 level, required for interleaving are same - Memory capacity on DDR channels.
- **Mirror Mode and Sparing Mode can be combined.**
- 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 Mode:**

- Bus frequency ratio SMI2 to MEM Line is 2:1
- Max. SMI2 frequency are 2666 MHz, means in Independent -Mode fast 1600 MHz - **DIMMs can be used with Max. with 1333 MHz.**
- Memory Interleaving functionate 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 and Sparing Mode can be combined.**
- **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

C



**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, 32GB or 64GB DDR3 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 1600 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 DDR3 speeds)

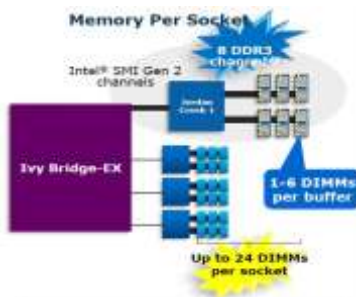
**Can be combined with in ordering Mirroring Mode or Spare Mode!**

DIMM population tables will be added later!

**Background for access able Memory capacity calculation:**

**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 DDR3 channel. Requirement to configure RANK-sparing is as follows.

- In case of 1R/2R RDIMM, at least two DIMMs should be populated on the DDR3 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) 2Rx4 L DDR3-1600 R ECC

	Populated DIMM slots in Channel:		
	1DPC	2DPC	3DPC
8 GB R DIMM(1pr)	Not possible, because min. 2 DIMMs	1	1
16 GB R DIMM(2pr)	1	1	1
32GB LR DIMM(4pr)	1	1	2
64GB LR DIMM(8pr)	4	4	4

**S26361-F5295-E1**

Memory Lockstep Mode  
 BIOS setup for Memory Lockstep Mode  
 Preinstallation ex factory  
 max. 1x per system

**S26361-F5295-E4**

Memory Independent Mode  
 BIOS setup for Memory Independent Mode  
 Preinstallation ex factory  
 max. 1x per system

**S26361-F5295-E2**

Memory Mirror Mode  
 BIOS setup for Mirrored Mode  
 Preinstallation ex factory  
 max. 1x per system

**S26361-F5295-E3**

Memory Spare Mode  
 BIOS setup for Spare Mode  
 Preinstallation ex factory  
 max. 1x per system

up to 12x memory upgrades in base unit

up to 6 additional memory boards

with up to 36x memory upgrades

**DDR3 Memory Module with SDDC (chipkill) support**

Choose up to 12 order codes per CPU / 6 per Memory Board in total max. 48x order codes per system

**Registered Memory (RDIMM)**

16GB (2x8GB) 1Rx4 L DDR3-1600 R ECC S26361-F5309-E642  
 32GB (2x16GB) 2Rx4 L DDR3-1600 R ECC S26361-F5309-E643

**Load Reduced Memory (LRDIMM)**

64GB (2x32GB) 4Rx4 L DDR3-1600 LR ECC S26361-F5309-E644  
 128GB (2x64GB) 8Rx4 L DDR3-1333 LR ECC S26361-F5309-E645

loose delivery: S26361-F5295-L100

**S26361-F5295-E100**

Memory Board RX4770 M1  
 for 12 DIMM modules / 6 order codes each  
 max. 6x per system

**DDR3 Memory Module with SDDC (chipkill) support**

Choose up to 12 order codes per CPU / 6 per Memory Board in total max. 48x order codes per system

**Registered Memory (RDIMM)**

16GB (2x8GB) 1Rx4 L DDR3-1600 R ECC S26361-F5309-E642  
 32GB (2x16GB) 2Rx4 L DDR3-1600 R ECC S26361-F5309-E643

**Load Reduced Memory (LRDIMM)**

64GB (2x32GB) 4Rx4 L DDR3-1600 LR ECC S26361-F5309-E644  
 128GB (2x64GB) 8Rx4 L DDR3-1333 LR ECC S26361-F5309-E645



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.



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

loose delivery Memory option numbers:

- S26361-F5309-L642
- S26361-F5309-E643
- S26361-F5309-E644
- S26361-F5309-E645



D

**Section IV USB devices / optical devices / UFM**



Setup RX4770 M1 by SV Installation Manager is supported with following configurations:  
**built in CD/DVD or USB CD/DVD, no Floppy disk drive:**  
 UNC Network share reachable

If installation is done locally, make sure you have USB stick available for driver installation.



Following USB Components are available

1) USB DVD SM / Blu-Ray External SuperMulti Drive	S26341-F103-L119	as long as available
2) USB Memorybird:		
A-DATA USB3.0 Flash Stick UE700 32GB	S26391-F6048-L332	as long as available
A-DATA USB3.0 Flash Stick UE700 64GB	S26391-F6048-L364	as long as available

Additionally a monitor can be connected to the VGA 15-pin interface.

One UFM (USB Flash Module) can be configured  
 The UFM is bundeld with VMWare offering:  
 VMware vSphere Embedded UFM Device S26361-F2341-E431

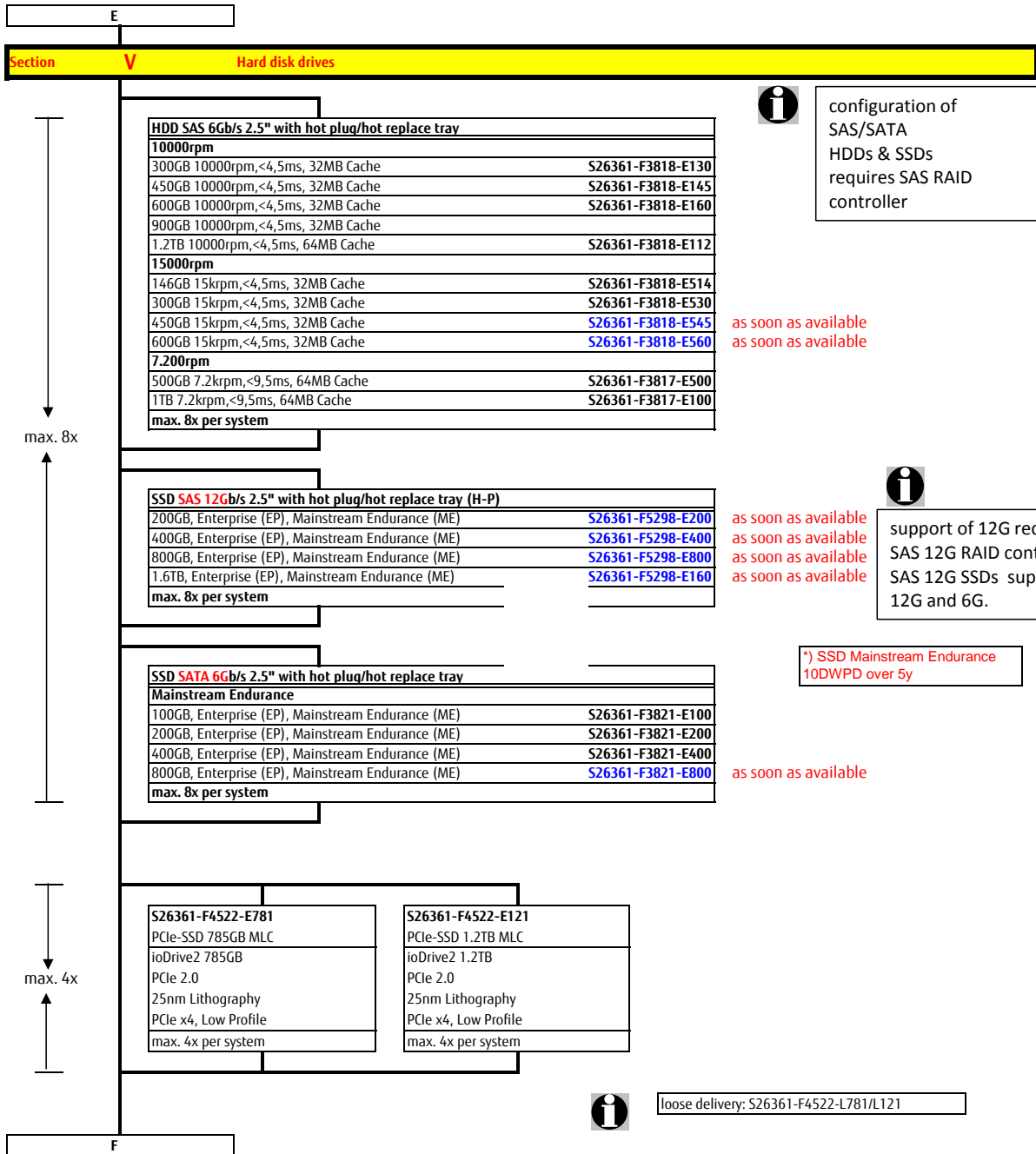


**S26361-F3269-E2**  
 DVD-RW supermulti slim SATA  
 all formats, DUAL/DL, DVD-RAM  
 only W2K, W3K and Linux  
 0.5 x 5.25", black bezel  
 max. 1x per system

**S26361-F3641-E2**  
 Blu-ray Triple Writer slim SATA  
 6x BD-RW, 8x DVD, 24x CD  
 BD DL and all CD/DVD formats  
 0.5 x 5.25"  
 max. 1x per system

**S26361-F3718-E1**  
 DVD-ROM, slimline 0.5" fitting height, black  
 all CD/DVD formats, DUAL/DL  
 0.5 x 5.25", black bezel  
 max. 1x per system  
**Only for FJJ Sales Market!**

E

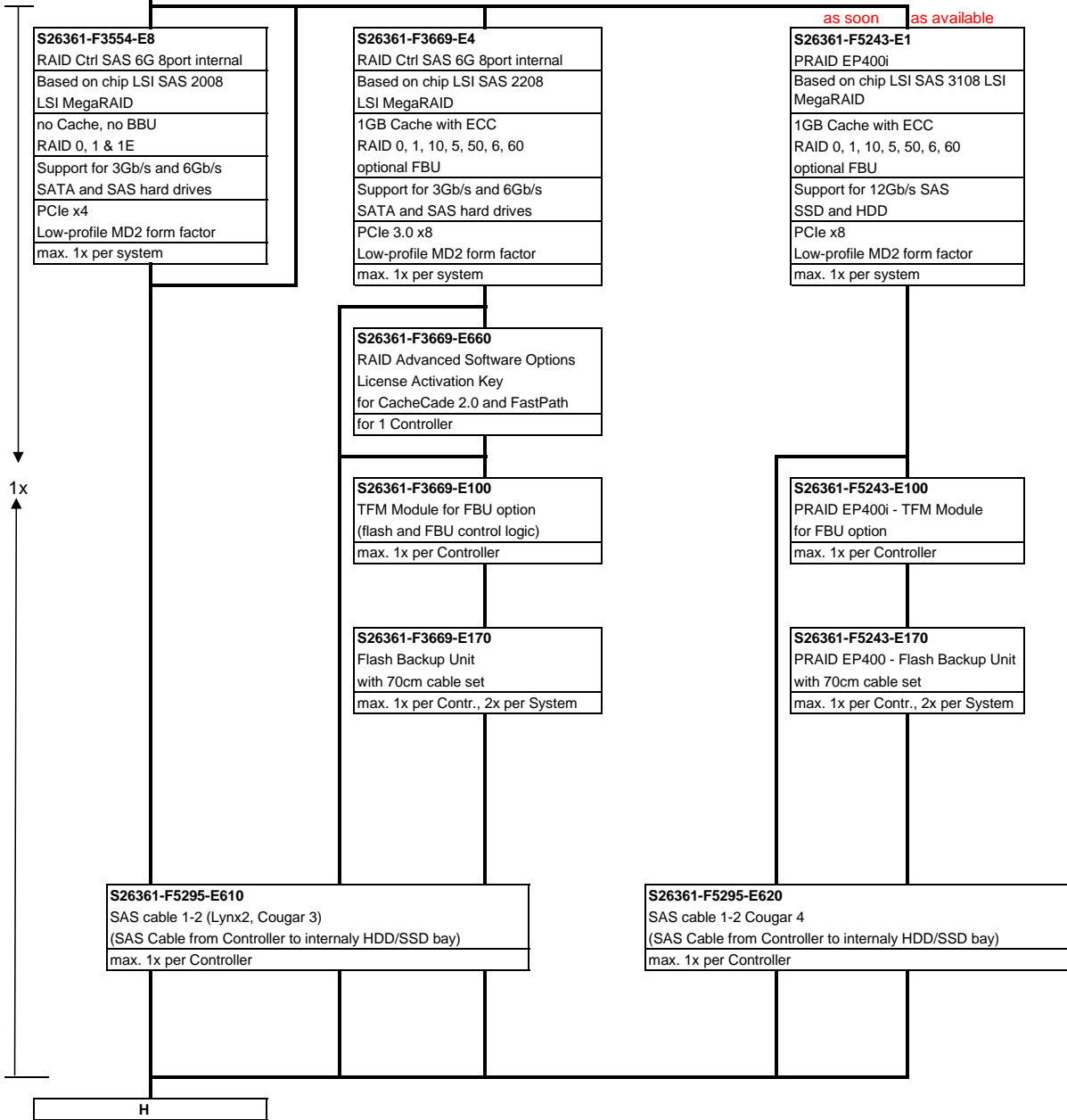


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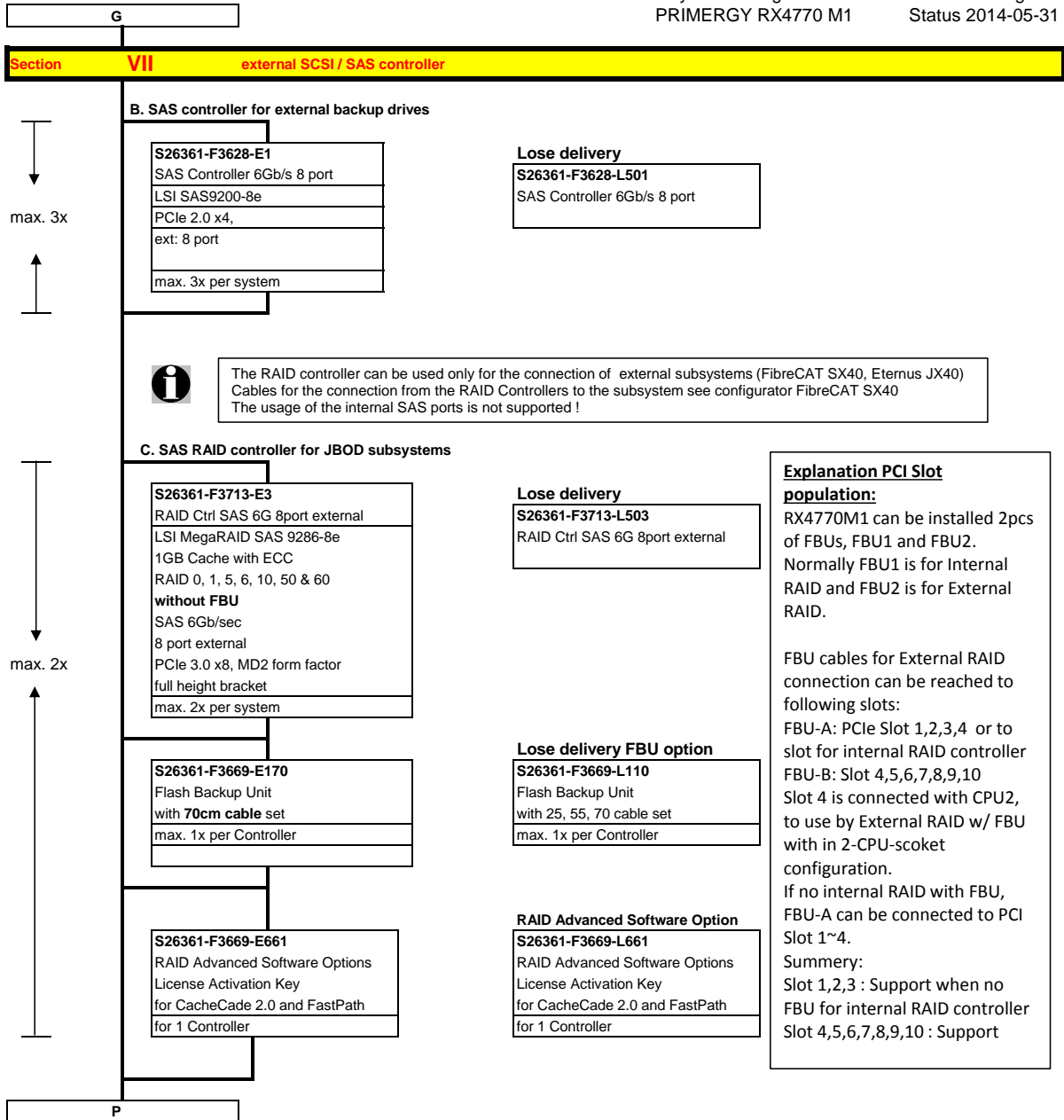
**Section VI internal SAS RAID 0/1 and RAID5 Controller for HDD's**

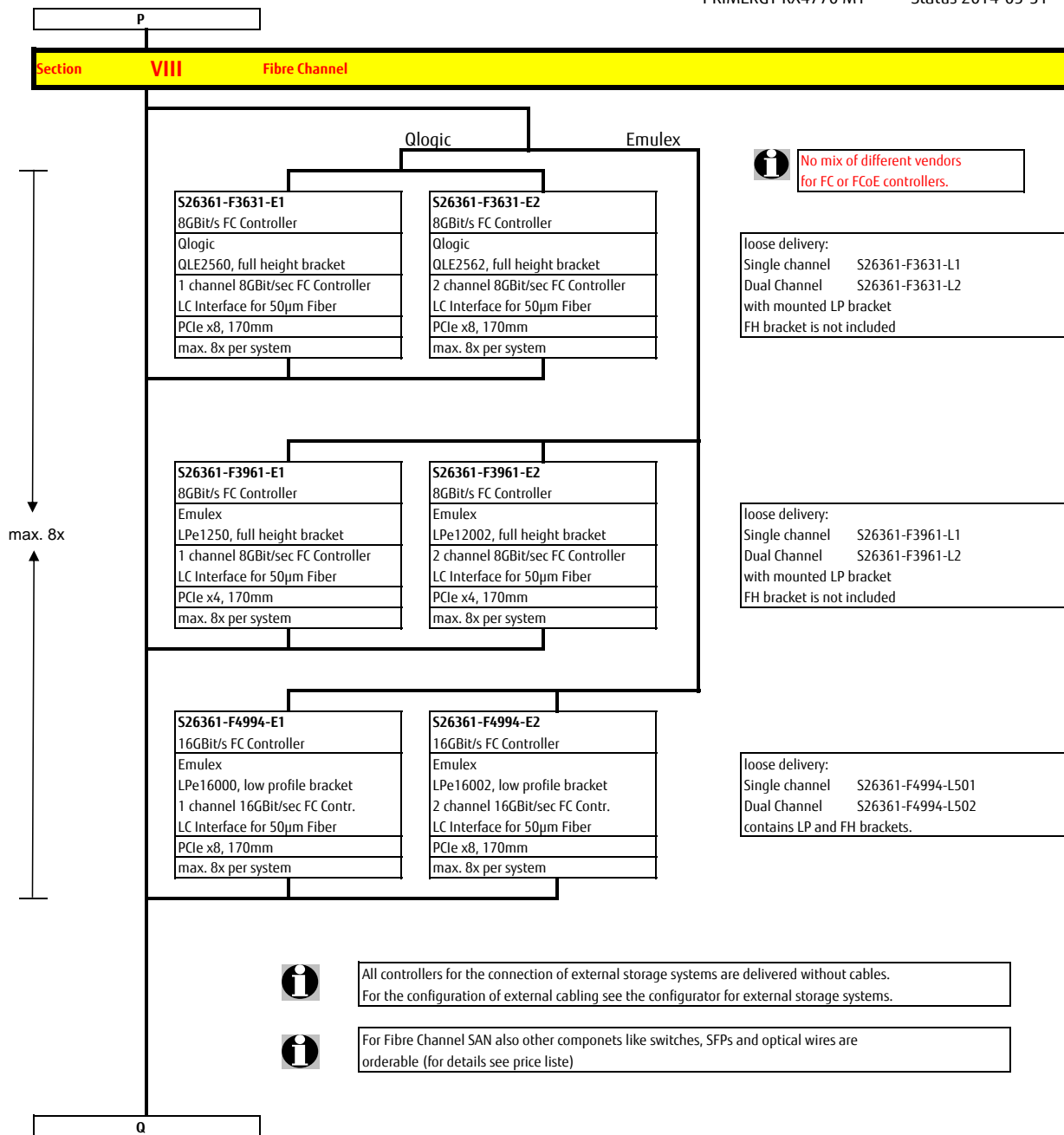
**i** RAID Controller must be ordered, if at least one internal HDD is configured!

**suitable SAS cable for RAID controller must be added to SKU in the factory , tbd !!!!**









I

**Section IX Communication / Network / CNA / IB**

**on-board LAN Controller**

2x Dual 10Gbit Ethernet Contr. on-board  
 Intel X540 (Intel Twinville)  
 ext: 2x RJ45 connector



**Teaming: Failover, Load Balancing**

The Intel LAN Controllers Pro 1000MT, 1000MF, 1000PT, 1000PF can be used with the on-board controller in Teaming Mode  
 Two onboard LAN ports can likewise educate a team.



**A) 2-Port Copper PCIe Adapter 1000TX**

**S26361-F4610-E2**  
 (I350-T2)  
 Gigabit Ethernet Controller Dual 1000TX  
 PLAN CP 2x1Gbit Cu Intel I350-T2  
 Intel Powerville based 2 port Server Adapter  
 PCIe x4, Low Profile  
 full height (FH) bracket  
 ext: for RJ45-plug, Cat 5  
 max. 4x per system



Loose delivery with FH and LP bracket:

I350-T2 S26361-F4610-L502  
 I350-T4 S26361-F4610-L504

**B) 4-Port Copper PCIe Adapter 1000TX**

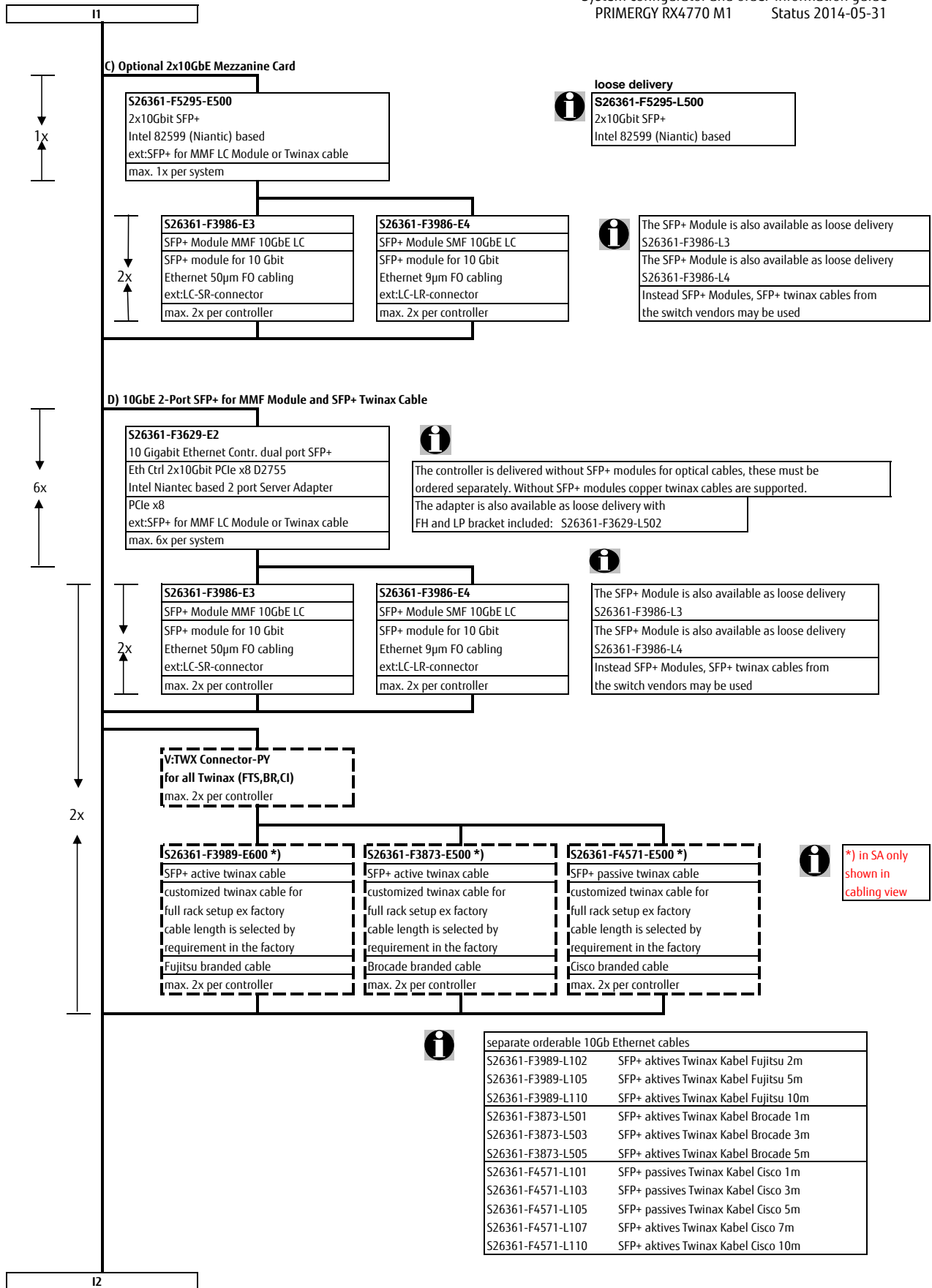
**S26361-F4610-E4**  
 (I350-T4)  
 Gigabit Ethernet Controller Quad 1000TX  
 PLAN CP 4x1Gbit Cu Intel I350-T4  
 Intel Powerville based 4 port Server Adapter  
 PCIe x4, Low Profile  
 full height (FH) bracket  
 ext: for RJ45-plug, Cat 5  
 max. 4x per system



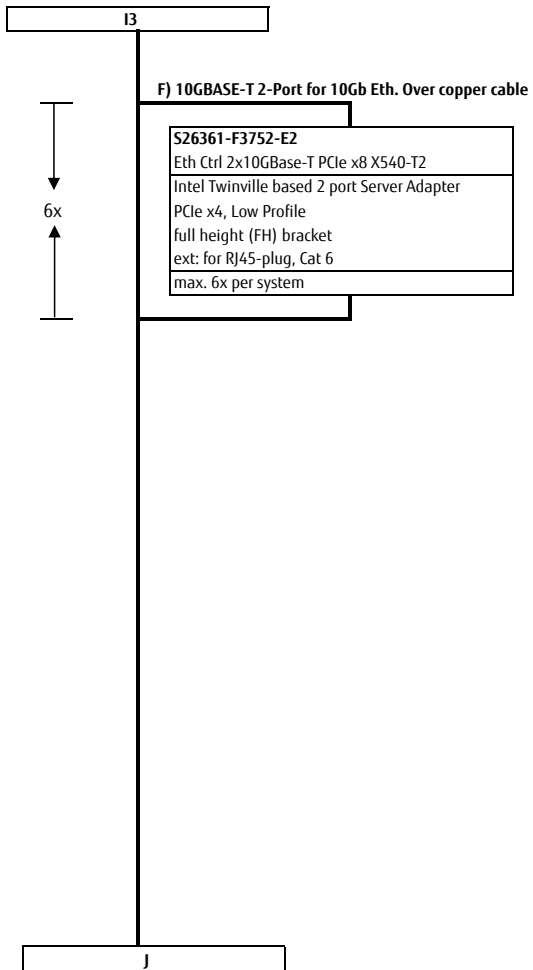
I350-T4 S26361-F4610-E4/L504

Use excepted for PCIe Slot 8 and 10!

II

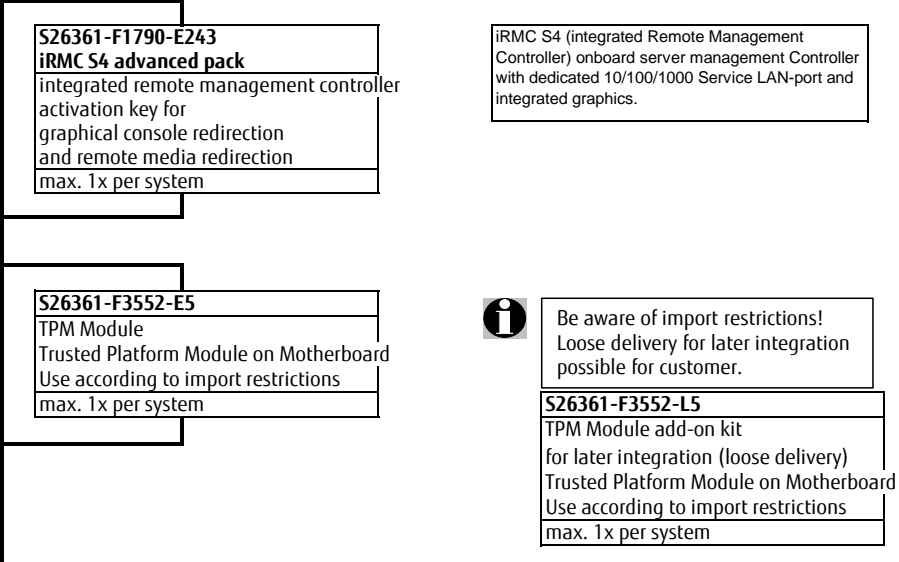






The adapter is also available as loose delivery with  
FH and LP bracket included: S26361-F3752-L502

**Section X System Management Products (RemoteView) iRMC S2 advanced pack / TPM**



**Section XI Optional PSU / Power cords / Region kit**

