

PRIMERGY TX300 S5

System configurator and order-information guide

December 2009

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Change report



PRIMERGY Server

Instructions

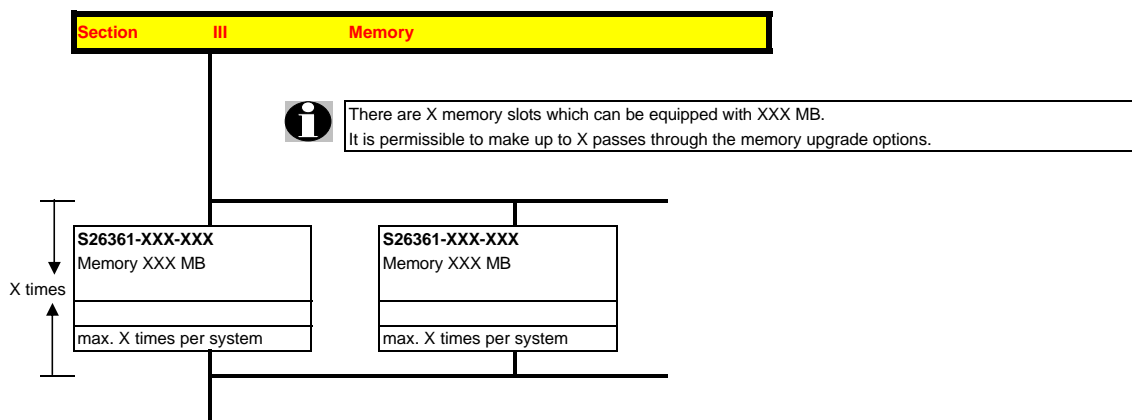
This document contains basic product and configuration information that will enable you to configure your system via PC-/SystemArchitect.

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

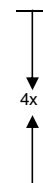
You can configure your individual PRIMERGY server in order to adjust your specific requirements.

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

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.



For further information see:

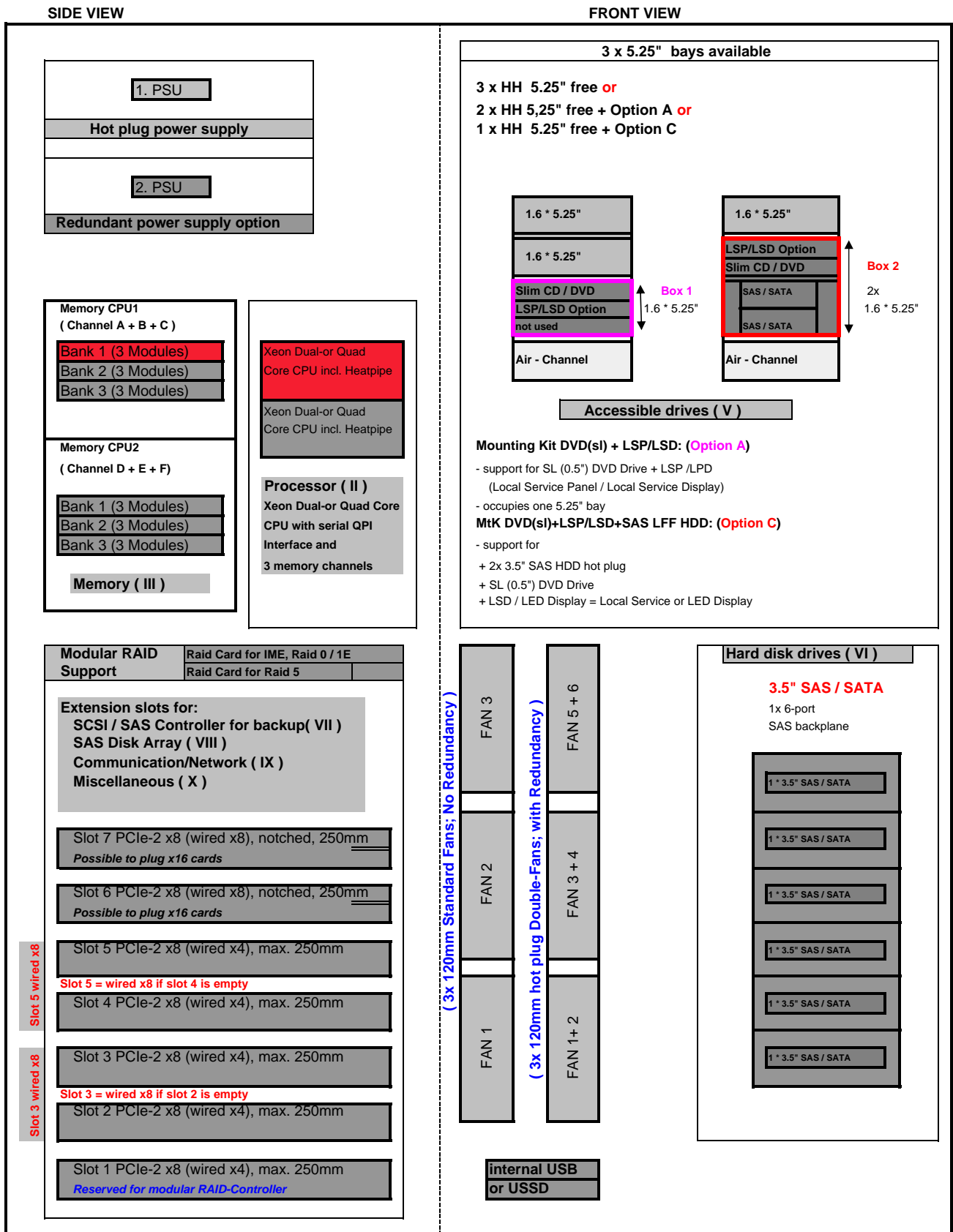
http://ts.fujitsu.com/products/standard_servers/index.html (internet)

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

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

Configuration diagram PRIMERGY TX300 S5

System unit (I)

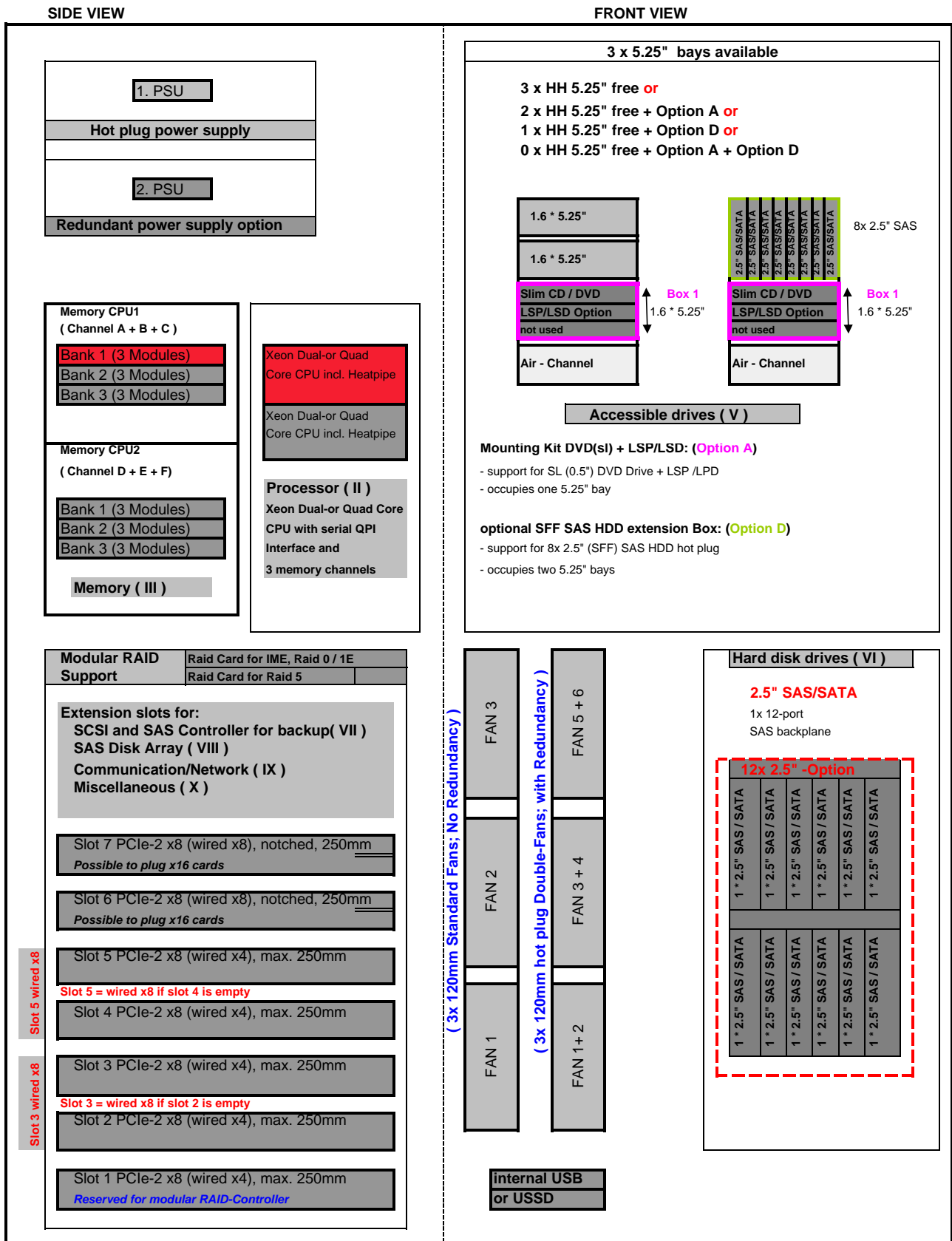


Key: Included in basic unit Option (LP ready = Slots for low profile boards)

One CPU (first CPU) and one memory per CPU (first memory) has to be selected for an orderable basic unit.

Configuration diagram PRIMERGY TX300 S5

System unit (I)



Key: Included in basic unit Option (LP ready = Slots for low profile boards)
 One CPU (first CPU) and one memory per CPU (first memory) has to be selected for an orderable basic unit.

Start PRIMERGY TX300 S5

SW Configurator 32 bit

with OEM-Software
for PRIMERGY Server



Usage of OEM SW from MS is not possible under VMware

without OEM-Software
for PRIMERGY Server

OEM-SW is bound to HW and is not allowed to be ordered separately.
Exception: VMware SW

VMware-Software
- VCMS VirtualCenter Management Server
- Virtual Infrastructure 3



For all SW products listed below please refer to the corresponding software configurator accessible via the Extranet under "PC Configurations, Configurator for PRIMERGY SW", URL see below

Microsoft - Software: W **)
- Windows Server 2003 R2, Standard Edition
Enterprise Edition
! Web Edition, SP2/English

PRIMECLUSTER *)
- Clustering
- Load Balancing

Linux - Software **)
- Open Enterprise Server ***)
- SuSE Linux ES (OEM): LO
- SuSE Linux ES (Support): LS
- Red Hat EL (OEM): LO
- Red Hat EL (Support): LS

MultiPath, Duplex Data Manager (DDM)
W2K; W2K3 Linux (W-DDM)



Details eg. version numbers are published in the separate SW-Configurator

Manageability Software: V)**
- RemoteDeploy
- Altiris Server Deployment

Backup-Software: U
- ARCserve



***) 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:

for internal users:
for partners:

Continue with PRIMERGY
HW configurator

Start PRIMERGY TX300 S5

SW Configurator EM64T / IA64

with OEM-Software
for PRIMERGY Server

i Usage of OEM SW from MS is not possible under VMware

without OEM-Software
for PRIMERGY Server

VMware-Software
- VCMS VirtualCenter Management Server
- Virtual Infrastructure 3

OEM-SW is bound to HW and is not allowed to be ordered separately.
Exception: VMware SW

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

only EM64T **Microsoft - Software: W**
- Windows Server 2003 R2, Standard x64 Edition
- Enterprise x64 Edition

only x86_64 **Linux - Software *) (**)**
- SuSE Linux ES (OEM): LO
- SuSE Linux ES (Support): LS
- Red Hat EL (OEM): LO
- Red Hat EL (Support): LS

only EM64T **MultiPath, Duplex Data Manager (DDM) Linux (W-DDM)**

i Details eg. version numbers are published in the separate SW-Configurator

only EM64T **Manageability Software: V(**)**
- RemoteDeploy

i (**) Pay attention to release and order information in PRINCE -> Operating System

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

for internal users:
for partners:

Continue with PRIMERGY HW configurator

Section | SAS - Basic units

**SAS - System unit, Rack and Floorstand including:**

* By a key lockable front slider in floorstand version

* Basic units with:

A.) - 1x 800W Hot-Plug Power Supply (no redundancy) + 3x 120mm Standard Fans (no redundancy)

B.) - 2x 800W Hot-plug and redundant Power Supplies + 3x hot-plug and redundant Double Fans

- 9 memory DIMMs per CPU (max 72GB) => Total 18 DIMMs (max 144GB) for two CPU's

- SAS backplane with 6 x 1" bays for 3.5" hot plug SAS or SATA HD's

* 3 drive bays 5,25" for accessible drives free available.

* Integrated ServerView Diagnostics Technology (Diagnosis LED's) for indication of internal failed components

Options:

* 2nd hot plug power supply module 800W (PSU) for redundancy in Basic Unit A.)

* 12x 2.5" HD backplane conversion kit

* - Optional modular RAID 0/1 controllers with IME (Integrated Mirroring Enhanced) support based on LSI 1064 or LSI 1068 chipset or as alternative
- optional modular RAID 5 controller based on LSI 1078 chipset

* One 0,5" bay can be configured with an optional LC- display for LocalView in a drawer or with an optional CSS (Customer Self Service) modul for indication of a failed component via LED's
Simultaneously components are marked which can be replaced by the customer.
This LEDs can be displayed during service even without mains connection.

Systemboard D2619 with:

* Up to two Xeon Dual Core, Quad-Core or Turbo Quad Core CPU's (Nehalem-EP, LGA 1366 socket) with serial QPI links (Quick Path Interconnect) and three memory channels per CPU

First CPU has to be selected for an orderable basic unit,

* Chipset Intel® 5520P (codenamed Tylersburg-EP or 36D)

* 7 PCI slots: - 2x PCIe-2 x8 (wired x8, notched, possible to plug x16 card)

- 5x PCIe-2 x8 (wired x4)

From 4 PCIe-slots each two wired x4 slots can be combined to one wired x8 slot

One PCIe-2-slot is populated with one of two possible modular Raid-controllers.

* 18 memory slots for max. 144GB RAM DDR3 available

- Memory is divided into 9 DIMMs per CPU (3 channels with 3 slots per channel)

- Max. three 8GB modules or two 8GB / 16GB quad rank modules are possible per channel

First Memory (one module) has to be selected for an orderable basic unit per CPU

- Memory upgrade is possible module wise

- Memory mirroring is supported with 2 identical modules in channel A+B CPU 1 or D+E CPU 2

- Hot Spare Memory is supported with 3 identical modules in channel A+B+C CPU 1 or D+E+F CPU 2

- SDDC (Chipkill) is supported for memory modules,

* Dual Port 10/100/1000 x4 PCI Express* Gigabit Ethernet Intel LAN controller Zoar on-board

* iRMC S2 (integrated Remote Management Controller) on-board server management controller with dedicated 10/100 Service LAN-port and integrated graphics controller.

The Service LAN-port can be switched alternatively on standard Gbit LAN port 1

* Graphics Controller integrated in iRMC S2 (integrated Remote Management Controller):

1600x1200x16bpp 60Hz, 1280x1024x16bpp 60Hz, 1024x768x32bpp 75Hz, 800x600x32bpp 85Hz,

640x480x32bpp 85Hz

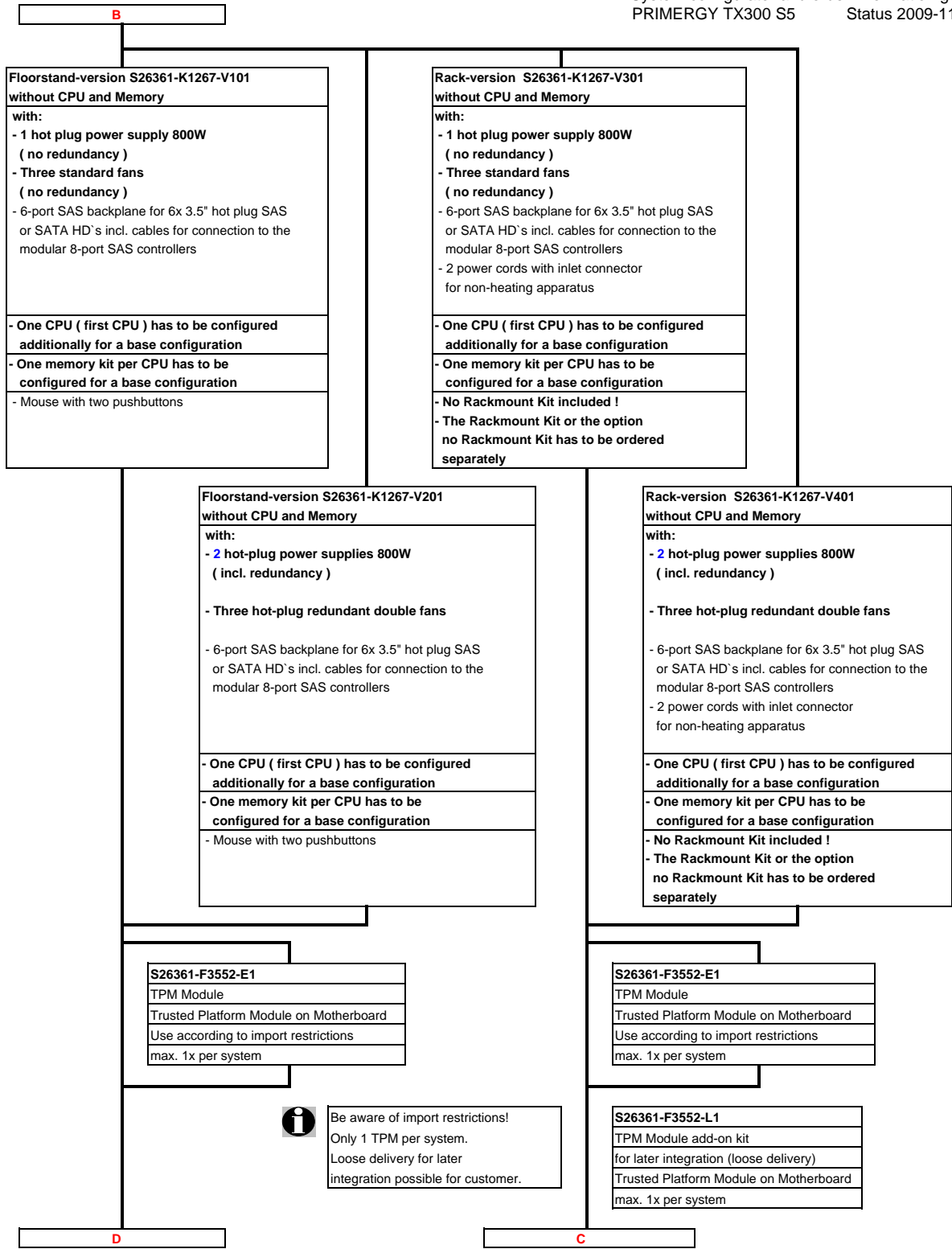
(1280x1024x24bpp 60Hz only possible if local monitor or remote video redirection is off)

A

A

| |
|--|
| Interfaces at the rear: <ul style="list-style-type: none">* 1x RS-232-C (serial, 9 pins) (usable for BMC or OS or shared)* 1x RS-232-C (serial, 9 pins)* 1x VGA (15 pins)* 4x USB 2.0 (UHCI) with 480MBit/s, no USB wakeup* 2x LAN RJ45, 1x Service-LAN RJ45 |
| Interfaces on the front: <ul style="list-style-type: none">* 3x USB 2.0 (UHCI) with 480MBit/s, no USB wakeup* 1x VGA (15 pins) as an option |
| Interfaces internal: <ul style="list-style-type: none">* 2x released internal USB Interfaces for backup devices,* 1x USB 2.0 (UHCI) with 480MBit/s for dongle functionality, no USB wakeup |
| Cables: <ul style="list-style-type: none">* SATA cable for DVD.* 2x SAS cables for connection of 4 SAS-ports each incl. signaling |
| <ul style="list-style-type: none">* Optical Wheel Mouse USB (only for floorstand version)* ServerView Suite Software package incl. ServerStart, ServerBooks, Management Software and Updates* Documentation engl. (multilingual on CD) |

B





Mounting kits for PRIMERGY TX300 S5
 - 1 pair of telescopic rails full extraction
 - 1 Vario carrier DC-PC-3rd party Rack allows toolless adjustable in depth and easy mounting
 - 1 bracket PRIMECENTER and DataCentre-Racks
Mounting kit for mounting of servers in FSC 19" PRIMECENTER- racks and all server racks conforming to EIA standard EIA-310-D for 19" racks. Therefore the mounting kit is variable in depth from 704-790mm

C
 PRIMERGY TX300 S5 Rack

S26361-F2735-E103
 RMK_F2 TX300-S4
 telescopic rail, full extraction,
 1-hand-mounting
 consisting of
 - 1 pair of telescopic rails with easy-mounting-clips
 - 1 bracket DC-PC-3rd-Rack
 1x per system

S26361-F2735-E111
 No Rackmount-Kit option
 Only for loose deliveries
 No mounting in Racks possible
 max. 1x per system



S26361-F2735-L103
 RMK_F2 TX300-S4
 for loose delivery

D

S26361-F2735-E7
 Cable management PC-Rack
 - for FSC Primecenter / Datacenter Racks
 - not for 3rd party
 1x per system

S26361-F2201-E20
 Cable arm 3rd P-Rack
 - for 3rd party
 1x per system



In case nor cable arm is ordered, Server must be prevent of beeing pulled out.



S26361-F2735-L7
 Cable management PC-Rack
 for loose delivery



for 3rd party rack cable routing please order
S26361-F2201-L20
 Cable arm 3rd party racks
 for loose delivery

PRIMERGY PRIMECENTER-rack

SNP:SY-F1647E301-P
 Installation ex works for one server or subsystem.
 Hereby the rack will be delivered completely pre-mounted and all wired connections are tested.
 With racks 12U, 24U, 38U:
 Systems and components will be delivered installed in the rack
 With racks 46U:
 Systems and components will be delivered separately
 To be ordered only together with a PRIMERGY PRIMECENTER rack
 e.g.:
 S26361-K826-V10x
refer configurator PC-Rack
 max. 1x per System

PRIMERGY 42/23U rack

"Rack-mounting ex factory"
 This service is to be ordered once per installable server/storage subsystem, in order to get the server/storage subsystem mounted into the PRIMERGY racks.
 In case of the 46 U PRIMERGY Rack, this service has to be ordered, to get the mounting kits and the cables installed.












| For later conversion the following kits are available: | FSC PC-/DC-/3rd party- Rack |
|---|---|
| 1.) Conversion kit 3 Floor -> Rack Conversion PRIMERGY TX300 S5 base unit floorstand into base unit rack including 2 power cords with inlet connector for non-heating apparatus. Only conversion, no mounting kit. Mounting kit has to be ordered separatly | S26361-F1729-L240 plus |
| 2.) Mounting Kit FSC PC-/DC-/3rd party- Rack incl. DC- PC- bracket, no cable management This kit will fit in server racks conforming to EIA standards EIA-310-D for 19" racks. | S26361-F2735-L103 RMK_F1 TX300-S4 and |
| 3.) cable management or cable arm to be ordered additionally FSC PC-/DC- Rack cable management or 3rd party- Rack cable arm | either one to be ordered S26361-F2735-L7 or S26361-F2201-L20 |

D

D

Cables included in basic unit

| Connections | Cable |
|---|---|
| 1. SATA DVD |  —————  |
| 2. Basic unit with 6-port SAS backplane for 6 3.5" SAS/SATA hard disks |  2 SAS cables  for 4 SAS-ports each |
| 1x cable for SAS signaling |  —————  |

Key:
 68pins
 IDE
 terminator

Only possible for basic units S26361-K1267-V101 and -V301
 Provides PSU redundancy for Basic Units without redundancy

S26113-F541-E10
2nd power supply 800W (hot plug) for redundancy
 occupies one bay for hot plug power supply
 max. 1x per system



Only floorstand versions
 A second, redundant power supply requires an additional country specific power cord (section XIII)

for later upgrade of basic units S26361-K1267-V101 and -V301
 with **redundant fan upgrade kit**

| | |
|--|-------------------------|
| Hot Plug Redundant Fan Upgrade Kit: For upgrade of standard into redundant fans Consist of three fan boxes with one redundant 120mm double fan each | S26361-F2544-L83 |
|--|-------------------------|

| | |
|---|------------------------|
| 1 power supply module 800W hot plug: Supplementary module | S26113-F541-L10 |
|---|------------------------|

E

E

Section II Processor



There are 2 processor sockets available.
 The first socket is always equipped with the **first CPU** which can be selected via configurator
 It is also possible to upgrade a dual-processor system later on with a **second CPU**
Two processors with different clock frequencies are not possible
 A multi-processor operating system is required for a dual-processor system.

| | |
|---|-----------------------------------|
| Max. two CPU's can be selected per basic unit | |
| One of following CPU's has to be selected as first CPU | |
| for an orderable basic unit | |
| Optional second CPU has to be the same type like the first CPU | |
| Dual-Core CPU with max. DDR3 Bus Speed 800MHz | |
| - 1x 64-bit Intel Xeon DP (4MB shared TLC = Third Level Cache) and passive heat sink occupies socket for one CPU | |
| Xeon DP E5502 (1,86GHz/4M/4,8GT) / 80W | S26361-F3277-E186 |
| Quad-Core CPU's with max. DDR3 Bus Speed 800MHz | |
| - 1x 64-bit Intel Xeon DP (4MB shared TLC = Third Level Cache) and passive heat sink occupies socket for one CPU | |
| Xeon DP E5504 (2,00GHz/4M/4,8GT) / 80W | S26361-F3278-E200 |
| Xeon DP E5506 (2,13GHz/4M/4,8GT) / 80W | S26361-F3278-E213 |
| Turbo Quad-Core CPU's with max. DDR3 Bus Speed 1066MHz | |
| - 1x 64-bit Intel Xeon DP (8MB shared TLC = Third Level Cache); Hyper-Threading (HT) and passive heat sink occupies socket for one CPU | |
| Xeon DP E5520 (2,26GHz/8M/5,86GT) / 80W | S26361-F3279-E226 |
| Xeon DP E5530 (2,40GHz/8M/5,86GT) / 80W | S26361-F3279-E240 |
| Xeon DP E5540 (2,53GHz/8M/5,86GT) / 80W | S26361-F3279-E253 |
| Turbo Quad-Core CPU's with max. DDR3 Bus Speed 1333MHz | |
| - 1x 64-bit Intel Xeon DP (8MB shared TLC = Third Level Cache); Hyper-Threading (HT) and passive heat sink occupies socket for one CPU | |
| Xeon DP X5550 (2,66GHz/8M/6,4GT) / 95W | S26361-F3280-E267 |
| Xeon DP X5560 (2,80GHz/8M/6,4GT) / 95W | S26361-F3280-E280 |
| Xeon DP X5570 (2,93GHz/8M/6,4GT) / 95W | S26361-F3280-E293 |
| Xeon DP W5590 (3,33GHz/8M/6,4GT) / 130W | S26361-F3337-E333 |
| Low Voltage Quad-Core CPU with max. 800MHz DDR3 speed (4.8GT/s) | |
| - 1x 64-bit Intel Xeon DP (4MB shared TLC = Third Level Cache) and passive heat sink occupies socket for one CPU | |
| Xeon LV DP L5506 (2,13GHz/4M/4,8GT) / 60W | S26361-F3281-E213 |
| Low Voltage Turbo Quad-Core CPU's with max. DDR3 Bus Speed 1066MHz | |
| - 1x 64-bit Intel Xeon DP (8MB shared TLC = Third Level Cache); Hyper-Threading (HT) and passive heat sink occupies socket for one CPU | |
| Xeon LV DP L5520 (2,26GHz/8M/5,86GT) / 60W | S26361-F3281-E226 |
| Xeon LV DP L5530 (2,40GHz/8M/5,86GT) / 60W | S26361-F3281-E240 |

Note: Max. DDR3 Bus Speed depends on:

- max. DDR3 Bus Speed from the CPU and
- max. DDR3 Memory Speed and
- max. memory modules on one memory channel

F

F

Section III Memory



- There are 9 memory slots for max. 72GB DDR3 RAM per CPU available with 8GB DIMMs
 => max. 144GB for two CPU's (72GB per CPU)
 (For explanation of following terms refer to section "Memory Configurations"

- The memory area is divided into 3 channels per CPU with 3 slots per channel
- Slot 1 of each channel belongs to memory bank 1, the slot 2 belongs to memory bank 2 and slot 3 belongs to memory bank 3

No mix of dual rank and quad rank modules possible for the configuration of the same CPU

1.) In the independent channel mode is following configuration possible
 - Each slot can optionally be equipped with 2GB **single rank**, 4GB and 8GB **dual rank** DDR3 modules or with 8GB **quad rank** DDR3 modules

2.) In the spare channel mode is following configuration possible
 - Each memory bank can optionally be equipped with 3x2GB **single rank**, 3x4GB and 3x8GB dual rank DDR3 modules or with 3x8GB **quad rank** DDR3 modules
Each slot of one bank has to be equipped with identical modules for spare channel mode
 In channel A and B of CPU 1 or channel D and E of CPU 2 are always the active memory modules, in channel C of CPU 1 and channel F of CPU 2 is always the spare module

3.) In the mirrored channel mode is following configuration possible
 - Each memory bank can optionally be equipped with 2x2GB **single rank**, 2x4GB and 2x8GB dual rank DDR3 modules or with 2x8GB **quad rank** DDR3 modules
In each memory bank channel A and B of CPU 1 or channel D and E of CPU 2 have to be equipped with identical modules for mirrored channel mode. Channel C of CPU 1 and channel F of CPU 2 is not equipped
 In channel B is always the mirrored memory of channel A of CPU 1
 In channel E is always the mirrored memory of channel D of CPU 2

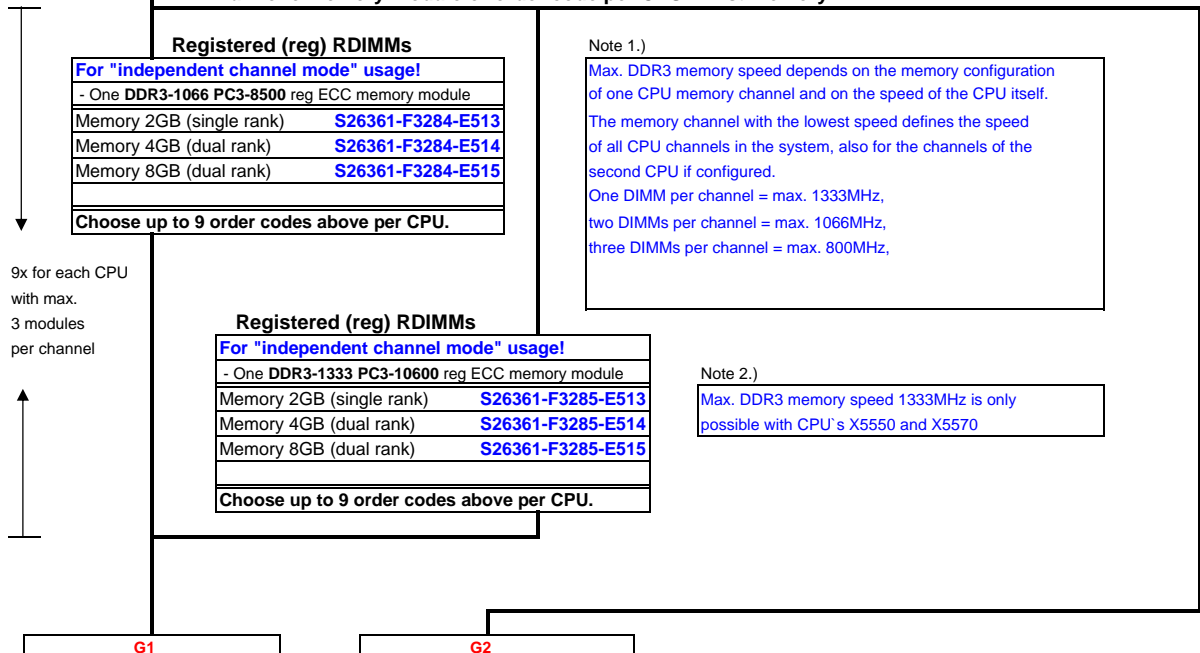
DDR3 1066 and 1333MHz modules can be mixed, but run always with the slower speed.
With three DIMMs per channel only 800MHz is possible.

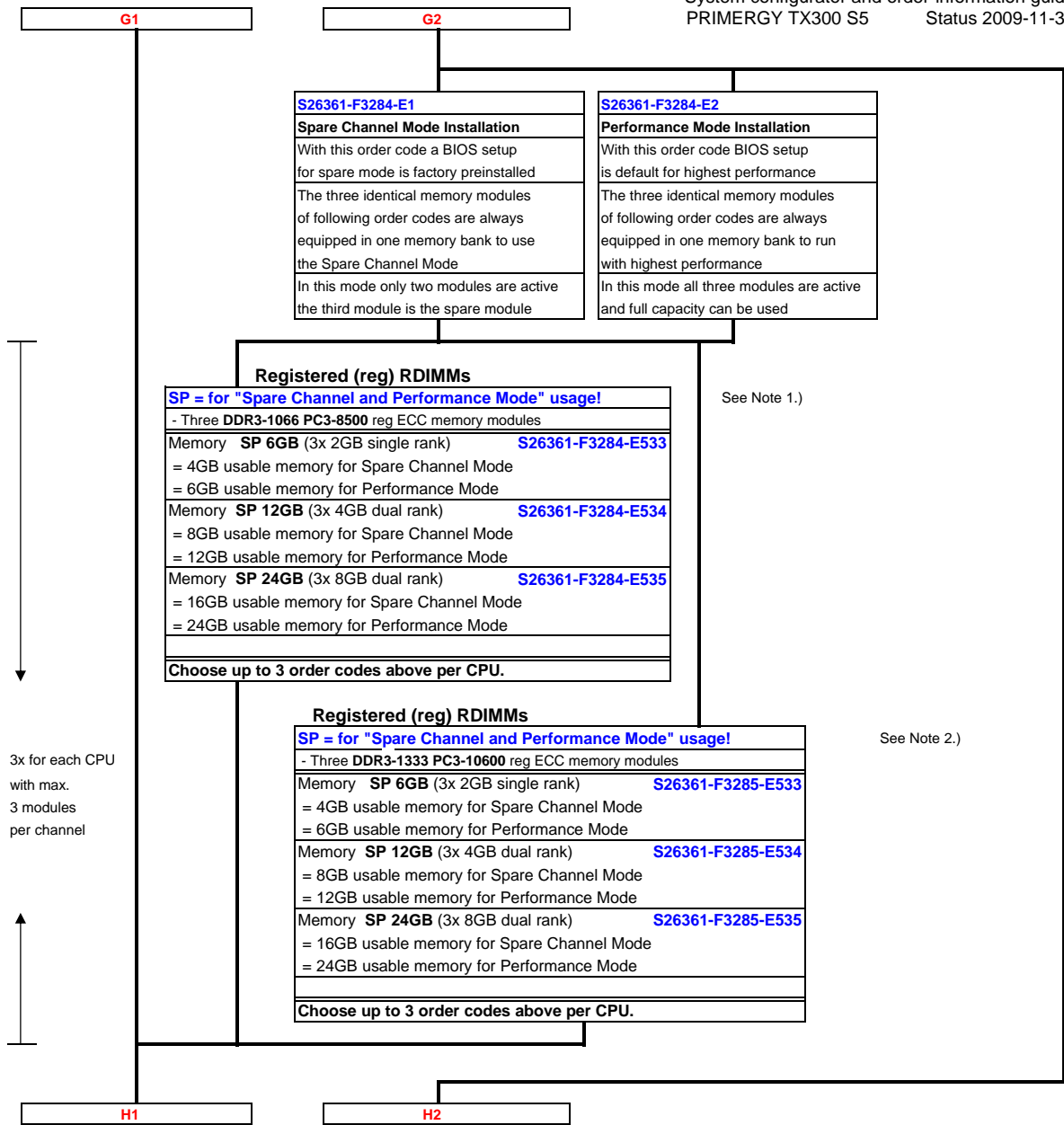
- For each CPU minimum 1 memory module has to be configured in Independent Channel Mode (=> Additional memory extensions can still be configured up to eight times per CPU) or **one bank has to be equipped with two modules (channel A+B for CPU 1 or D+E for CPU 2) in Mirrored Channel Mode** (=> Additional memory extensions can still be configured up to two times per CPU) or **one bank has to be equipped with three modules (channel A+B+C for CPU 1 or D+E+F for CPU 2) in Spare Channel Mode or Performance Mode** (=> Additional memory extensions can still be configured up to two times per CPU)

- ECC with SDDC (Chipkill) is standard for TX300 S5.

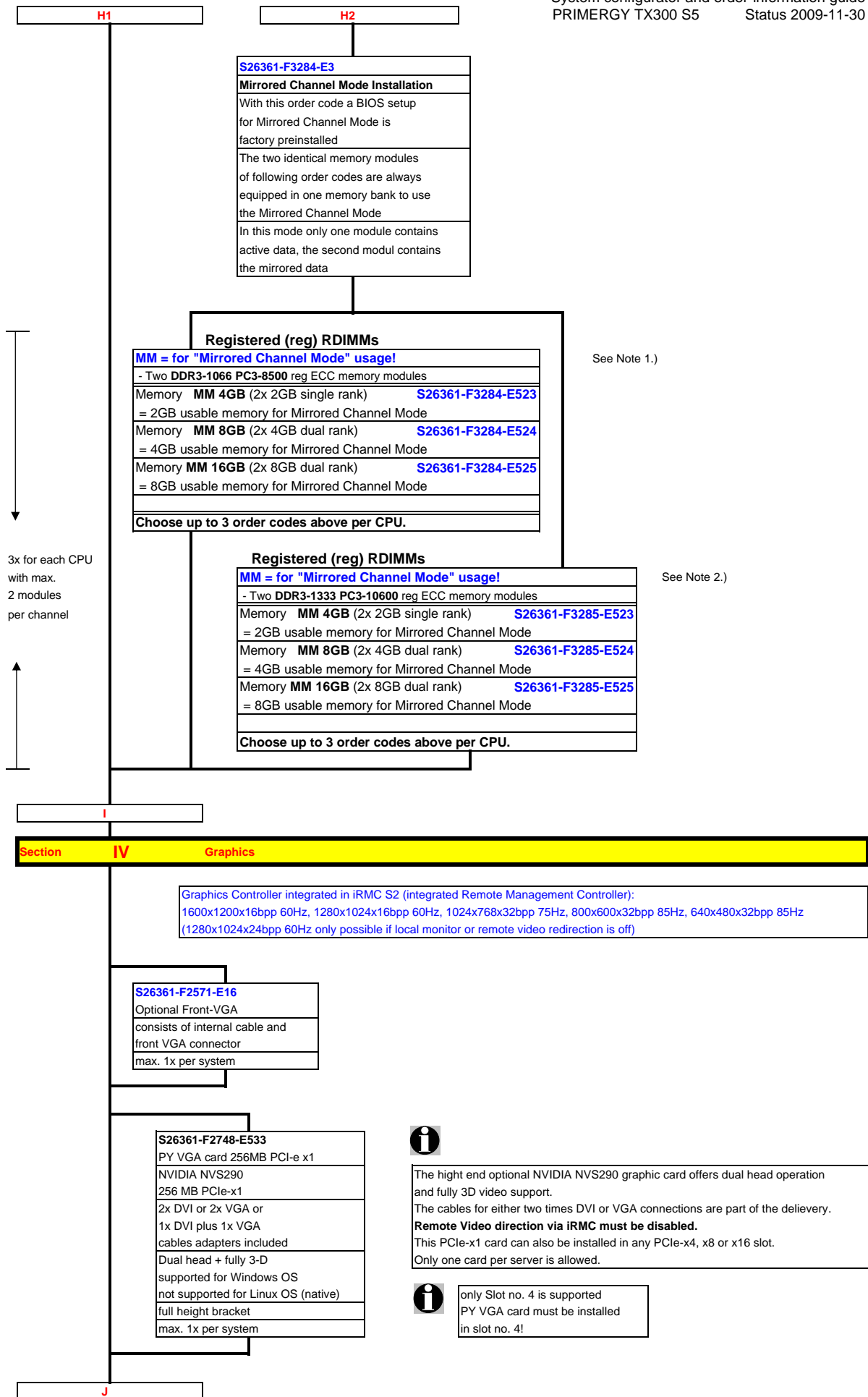
For a description of memory configurations refer to section "Memory Configurations"

Minimum one memory module or order code per CPU = first memory





3x for each CPU
with max.
3 modules
per channel



Memory Configuration PRIMERGY TX300 S5

Each CPU offers **9 Slots** for DDR3 Memory Modules organised in **3 Banks and 3 Channels**.

If you need more than 9 Slots you have to configure the 2nd CPU.

Depending on the amount of memory configured you can decide between 4 basic modes of operation (see explanation below).

For TX300 S5 only registered DDR3 memory modules (RDIMM) are available.

| Mode | Configuration | RDIMM | Application |
|--------------------------|--------------------------------|-------|---|
| chip kill support | any | yes | detect multi-bit errors |
| Independant Channel Mode | 1, 2 or 3 Modules per Bank x | x | offers max. flexibility, upgradeability, capacity use UDIMM modules for lowest cost |
| Mirrored Channel Mode | 2 identical Modules / Bank **) | x | offers maximum security |
| Performance Mode *) | 3 identical Modules / Bank **) | x | offers maximum performance and capacity |
| Spare Channel Mode *) | 3 identical Modules / Bank **) | x | balances security and capacity |

*) = Performance Mode and Spare mode use different BIOS settings.

**) = technically possible but no Order Numbers available, use at your own risk

x = order codes available

Memory-Speed:

Max. DDR3 memory speed depends on the memory configuration on one memory channel and the speed of the CPU

One DIMM per channel = max. 1333MHz, two DIMMs per channel = max. 1066MHz, three DIMMs per channel = max. 800MHz,
The memory channel with the lowest speed defines the speed of all CPU channels in the system,

| Used CPU | Max. Memory-Bus speed depending on DIMMs / channel if following memory speed is used for specific CPU's | | | | | |
|---|--|----------------------|----------------------|---------------------|----------------------|----------------------|
| | 1066MHz (1 DIMM) | 1066MHz (2 DIMMs) | 1066MHz (3 DIMMs) | 1333MHz (1 DIMM) | 1333MHz (2 DIMMs) | 1333MHz (3 DIMMs) |
| Dual-Core CPU with max. 800MHz DDR3 speed (4.8GT/s) | | | | | | |
| Xeon DP E5502 (1,86GHz/4M/4,8GT) / 80W | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz |
| Quad-Core CPU's with max. 800MHz DDR3 speed (4.8GT/s) | | | | | | |
| Xeon DP E5504 (2,00GHz/4M/4,8GT) / 80W | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz |
| Xeon DP E5506 (2,13GHz/4M/4,8GT) / 80W | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz |
| Turbo Quad-Core CPU's with max. 1066MHz DDR3 speed (5.86GT/s) | | | | | | |
| Xeon DP E5520 (2,26GHz/8M/5,86GT) / 80W | 1066 MHz | 1066 MHz | 800 MHz | 1066 MHz | 1066 MHz | 800 MHz |
| Xeon DP E5530 (2,40GHz/8M/5,86GT) / 80W | 1066 MHz | 1066 MHz | 800 MHz | 1066 MHz | 1066 MHz | 800 MHz |
| Xeon DP E5540 (2,53GHz/8M/5,86GT) / 80W | 1066 MHz | 1066 MHz | 800 MHz | 1066 MHz | 1066 MHz | 800 MHz |
| Turbo Quad-Core CPU's with max. 1333MHz DDR3 speed (6.4GT/s) | | | | | | |
| Xeon DP X5550 (2,66GHz/8M/6,4GT) / 95W | 1066 MHz | 1066 MHz | 800 MHz | 1333 MHz | 1066 MHz | 800 MHz |
| Xeon DP X5560 (2,80GHz/8M/6,4GT) / 95W | 1066 MHz | 1066 MHz | 800 MHz | 1333 MHz | 1066 MHz | 800 MHz |
| Xeon DP X5570 (2,93GHz/8M/6,4GT) / 95W | 1066 MHz | 1066 MHz | 800 MHz | 1333 MHz | 1066 MHz | 800 MHz |
| Low Voltage Quad-Core CPU with max. 800MHz DDR3 speed (4.8GT/s) | | | | | | |
| Xeon LV DP L5506 (2,13GHz/4M/4,8GT) / 60W | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz | 800 MHz |
| Low Voltage Turbo Quad-Core CPU with max. 1066MHz DDR3 speed (5.86GT/s) | | | | | | |
| Xeon LV DP L5520 (2,26GHz/8M/5,86GT) / 60W | 1066 MHz | 1066 MHz | 800 MHz | 1066 MHz | 1066 MHz | 800 MHz |

Configuration hints:

- The memory sockets on the systemboard offer a color coding:

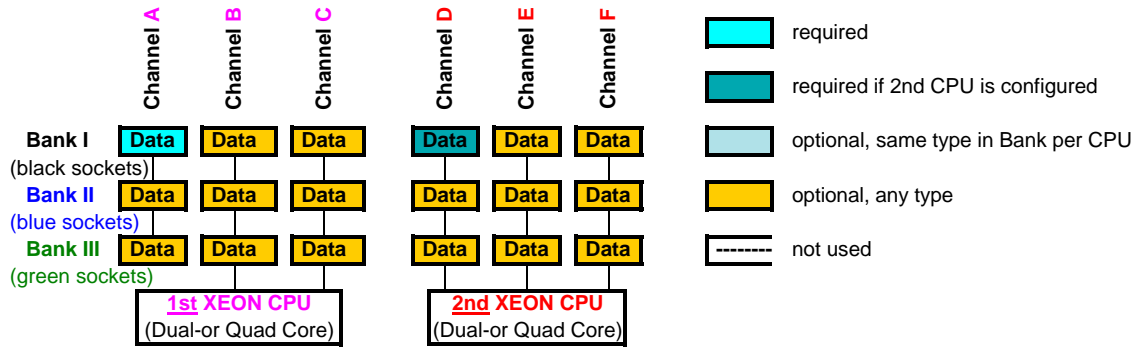
- Bank I** black sockets
- Bank II** blue sockets
- Bank III** green sockets

- A so called Bank consists of 1 memory module on every Channel available on one CPU (examples see below)

- Bank I on CPU 1** up to 3 memory modules connected to Channel A, B and C on the first CPU
- Bank II on CPU 1** up to 3 memory modules connected to Channel A, B and C on the first CPU
- Bank III on CPU 1** up to 3 memory modules connected to Channel A, B and C on the first CPU
- Bank I on CPU 2** up to 3 memory modules connected to Channel D, E and F on the second CPU
- Bank II on CPU 2** up to 3 memory modules connected to Channel D, E and F on the second CPU
- Bank III on CPU 2** up to 3 memory modules connected to Channel D, E and F on the second CPU

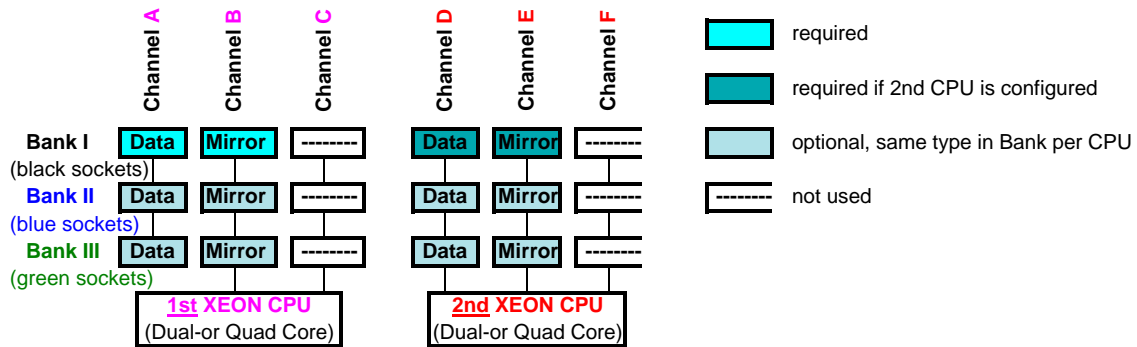
- See below and next page for a detailed descriptions of the memory configuration supported.

1. Independent Channel Mode



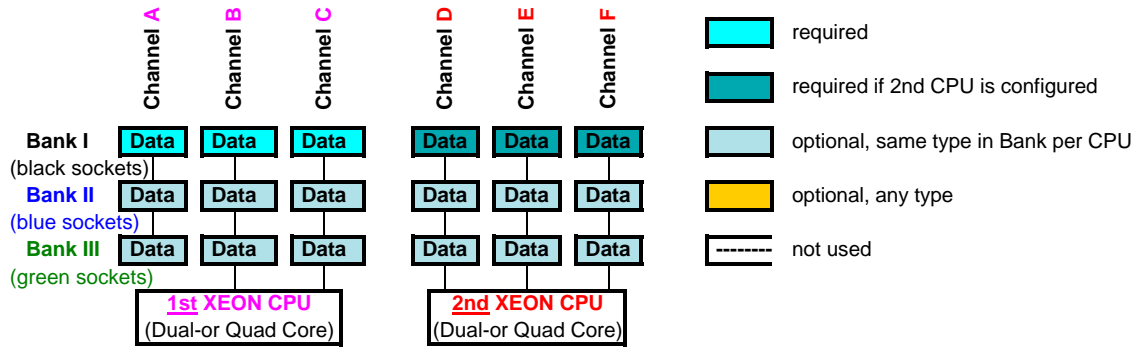
Independent Channel Mode allows all channels to be populated in any order
 Can run with differently rated DIMMs and use the settings of the slowest DIMM installed in the system

2. Mirrored Channel Mode



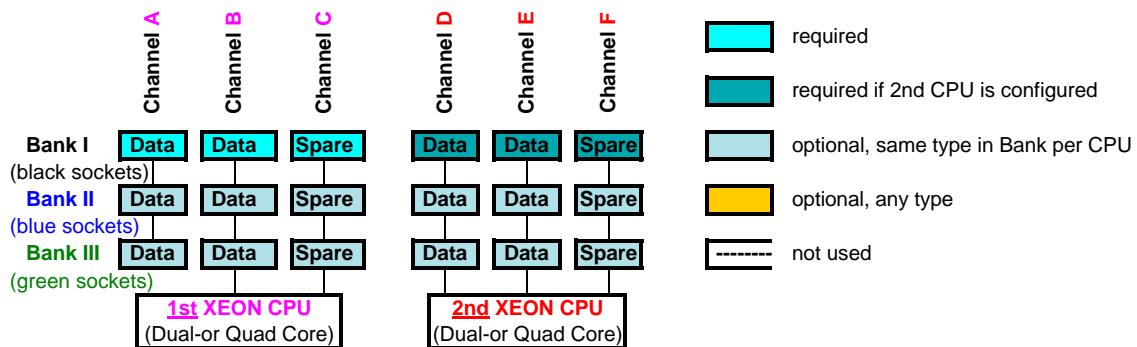
Mirrored Channel Mode requires identical modules on channel A and B (1st CPU) or channel D and E (2nd CPU)
 50% of the capacity is used for the mirror => the available memory for applications is only half of the installed memory
 Channel C (1st CPU) or channel F (2nd CPU) are not usable in Mirrored Channel Mode

3. Performance Channel Mode



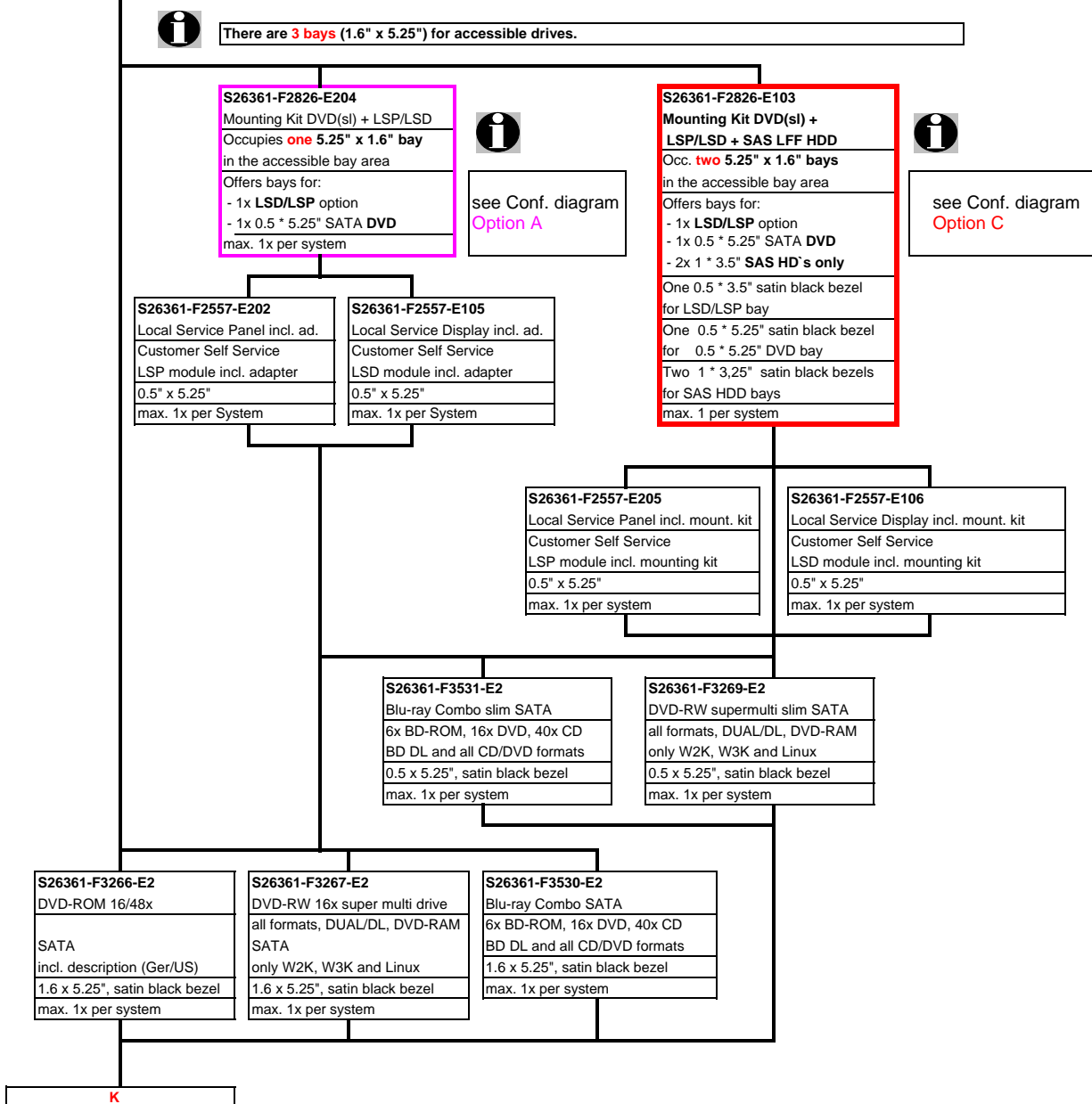
Performance Channel Mode requires identical modules on all channels of each Bank per CPU

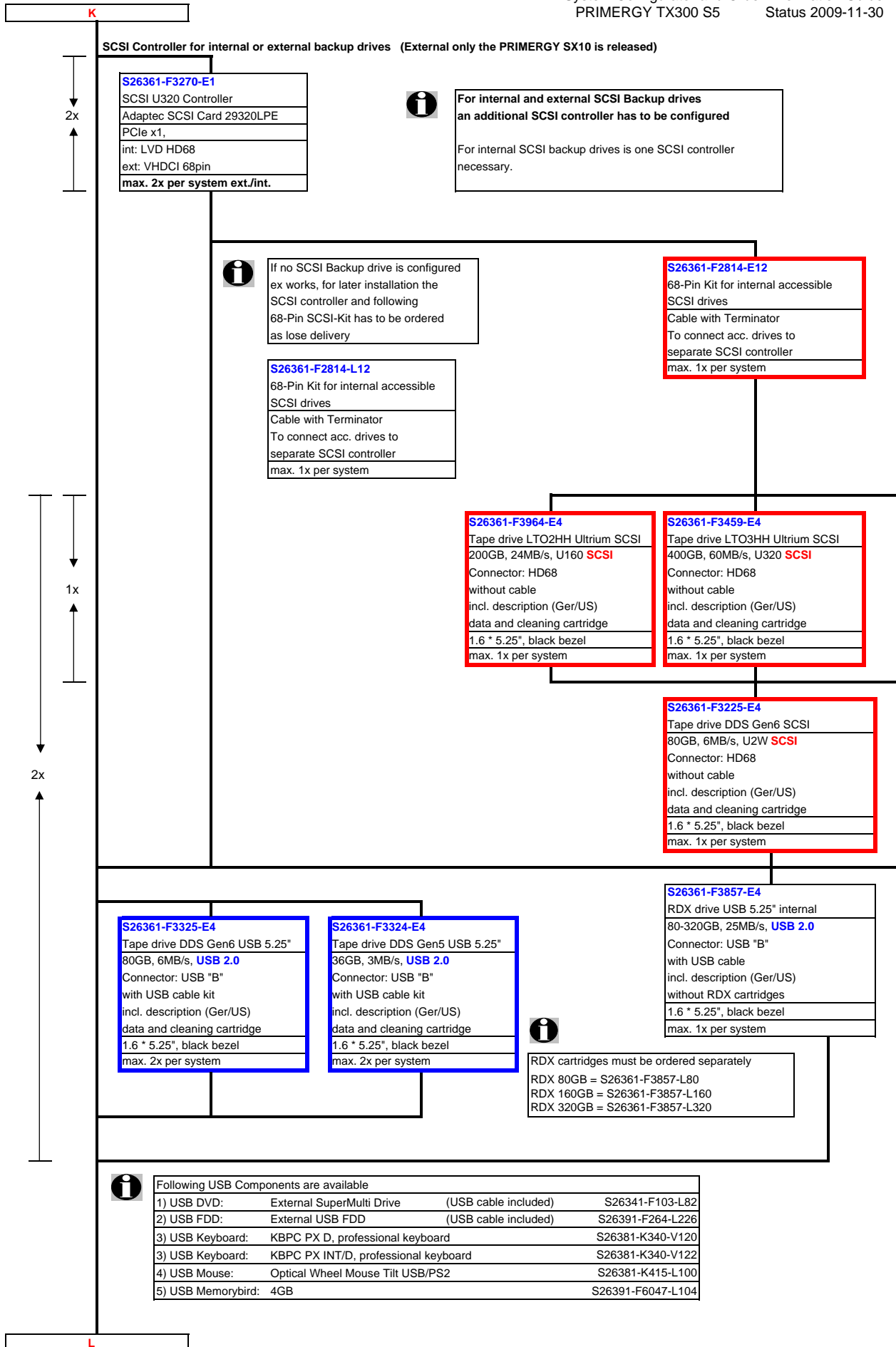
4. Spare Channel Mode

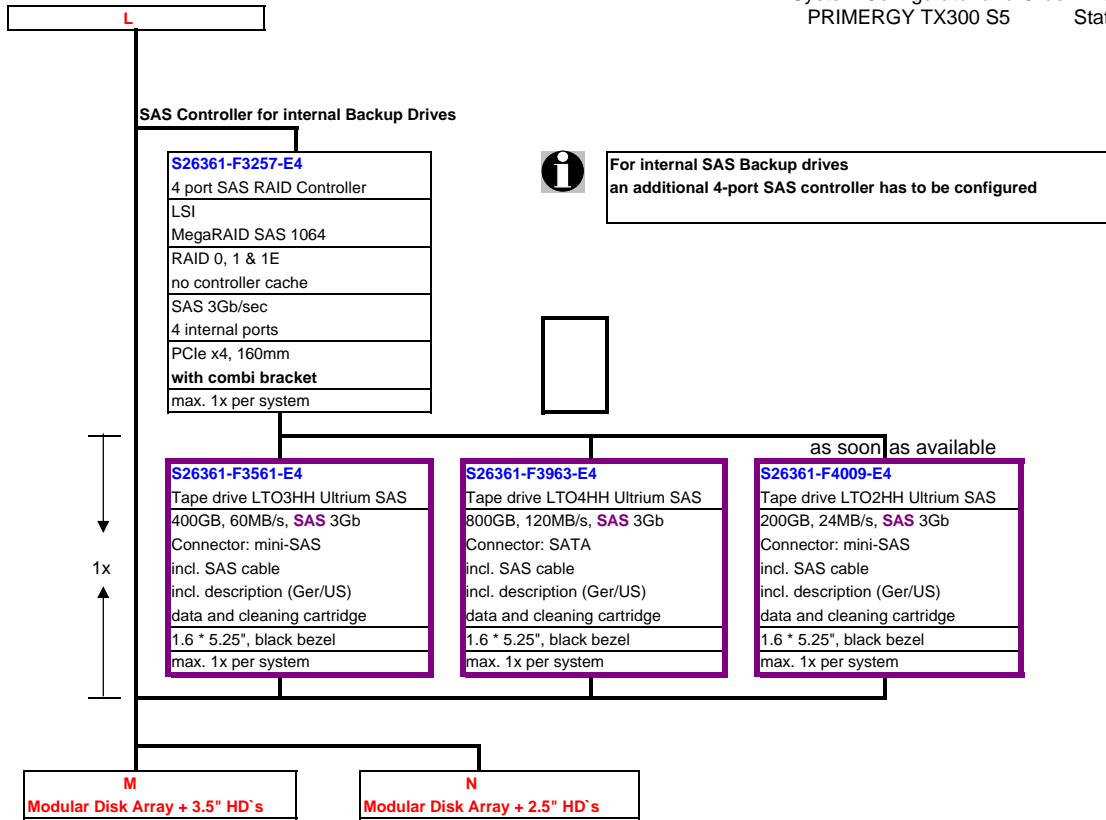


Spare Channel Mode requires identical modules on all channels of each Bank per CPU
 one third of the capacity is used for the spare => the available memory for applications is two thirds of the installed memory

Section V Accessible drives and 3.5" SAS / SATA HDD extension box







M

Section M-VI Modular Raid 0/1 and Raid5 Controller for 3.5" Hard Disks

For internal 3.5" hard disks one of the following modular RAID-controllers is required

| | |
|--------------------|----------------------------|
| 1x | S26361-F3257-E8 |
| | 8 port SAS RAID Controller |
| | LSI |
| | MegaRAID SAS 1068 |
| | no Cache, no BBU |
| | RAID 0, 1 & 1E |
| | SAS 3Gb/sec |
| | 8 internal ports |
| | PCIe x4, 160mm |
| | with combi bracket |
| max. 1x per system | |

Modular Raid 0/1 controller with IME support for SAS/SATA-HDs

This RAID controller supports 6 HDDs on the 6 internal SAS ports or 8 HD's with F-D-L-HDD-Box 2 if configured.

IME (Integrated Mirroring Enhanced) offers the RAID levels 0, 1, 1E. IME is a RAID 0, 1 implementation, whereby RAID 1 can operate an odd number of hard disks. Up to 8 hard disks including one hot spare HD are possible (limited by HDD slots in system).

Administration of IME is possible with the LSI Global Array Manager (GAM). Windows2000/2003 as well as SUSE and RedHat Linux are supported (Restrictions refer to Software Configurator)

The SAS IME solution supports 2 independent RAID volumes.

| | |
|--------------------|----------------------------|
| 1x | S26361-F3257-E256 |
| | 8 port SAS RAID Controller |
| | LSI |
| | MegaRAID SAS 1078 |
| | 256MB Cache with ECC |
| | optional BBU |
| | SAS 3Gb/sec |
| | 8 internal ports |
| | PCIe x4, 160mm |
| | with combi bracket |
| max. 1x per system | |

Modular Raid 5 controller for SAS/SATA-HDs

RAID levels 0, 1, 10, 5, 50, 6 and 60 are supported

These RAID controllers supports 6 HDDs on the 6 internal SAS ports or 8 HD's with F-D-L-HDD-Box 2 if configured.

Tapes and optical devices (e.g. DVD) are not supported.

Also there is no support of any external storage by this RAID solution.

Additionally two internal 3.5" SAS or SATA HD's in the F-D-L-HDD-Box 2 are supported by usage of the remaining 2 SAS ports.

| | |
|--------------------|----------------------------|
| 1x | S26361-F3257-E512 |
| | 8 port SAS RAID Controller |
| | LSI |
| | MegaRAID SAS 1078 |
| | 512MB Cache with ECC |
| | optional BBU |
| | SAS 3Gb/sec |
| | 8 internal ports |
| | PCIe x4, 160mm |
| | with combi bracket |
| max. 1x per system | |

| |
|---------------------------|
| S26361-F3257-E170 |
| Cache Battery Backup Unit |
| with 70cm cable set |
| max. 1x per Controller |

| |
|---------------------------|
| S26361-F3257-E170 |
| Cache Battery Backup Unit |
| with 70cm cable set |
| max. 1x per Controller |

BBU max. 2x per system possible
 for loose delivery please order
S26361-F3257-L110

M1

M1

Section M-VII 3.5" SAS / SATA Hard disk drives

In a basic unit with a 6x 3.5" HD backplane, the remaining 2 SAS ports of the 8-port modular SAS RAID-controllers can be used for additional two SAS or SATA HD's through the configuration of the 3.5" HD SAS / SATA extension F-D-L-HDD-Box 2 which offers extra two bays for SAS or SATA HD's

Up to 6 or 8 (with F-D-L-HDD-Box 2) 3.5" SAS or SATA hard disks can be configured.
3.5" SAS drives and 3.5" SATA drives can be mixed, but not used in one logical RAID volume

as soon as available

S26361-F3293-E160
 HD 160GB 7.2krpm 3.5"
 7200rpm,<9.0 ms, 8MB Cache
SATA 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

S26361-F3294-E250
 HD 250GB 7.2krpm 3.5"
 7200rpm,<9.0 ms, 8MB Cache
SATA 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

S26361-F3294-E500
 HD 500GB 7.2krpm 3.5"
 7200rpm,<9.0 ms, 8MB Cache
SATA 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

S26361-F3294-E750
 HD 750GB 7.2krpm 3.5"
 7200rpm,<9.0 ms, 8MB Cache
SATA 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

6x or 8x with SAS/SATA F-D-L-HDD-Box 2

S26361-F3294-E100
 HD 1TB 7.2krpm 3.5"
 7200rpm,<9.0 ms, 8MB Cache
SATA 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

S26361-F3291-E573
 HD 73GB 15krpm 3.5"
 15.000rpm,<4ms, 8MB Cache
SAS 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

S26361-F3291-E514
 Hard disk 146GB 15krpm 3.5"
 15.000rpm,<4ms, 8MB Cache
SAS 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

S26361-F3291-E530
 HD 300GB 15krpm 3.5"
 15.000rpm,<4ms, 8MB Cache
SAS 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

S26361-F3291-E545
 HD 450GB 15krpm 3.5"
 15.000rpm,<4ms, 8MB Cache
SAS 3Gb/s
 hot plug/hot replace tray
 max. 6x (or 8x) per system

O

N

Section N-VI Upgrade-Kit to 2.5" HD Basic Unit

S26361-F2826-E134
Conversion Option to 2.5" HD Basic Unit
 Drive Bay with one backplane for up to 12x 2.5" HD slots
 max. 1x per system

Section N-VII Modular Raid 0/1 and Raid5 Controller for 2.5" Hard Disks + 2.5" HD extension box

For internal 2.5" hard disks one of the following modular RAID-controllers is required



Modular Raid 5 controller MegaRAID SAS 1078 for SAS/SATA-HDs
RAID levels 0, 1, 10, 5, 50, 6 and 60 are supported
 These RAID controllers support via an expander on the **Conversion Option to 2.5" HD Basic Unit** 12 HDDs on the internal 12 SAS ports.
 Tapes and optical devices (e.g. DVD) are not supported.
 Also there is no support of any external storage by this RAID solution.
 A second controller is necessary if the 8x 2.5" HD Extension Box is configured

1x

S26361-F3257-E256
 8 port SAS RAID Controller
 LSI
 MegaRAID SAS 1078
 256MB Cache with ECC
 optional BBU
 SAS 3Gb/sec
 8 internal ports
 PCIe x4, 160mm
with combi bracket
 max. 1x per system

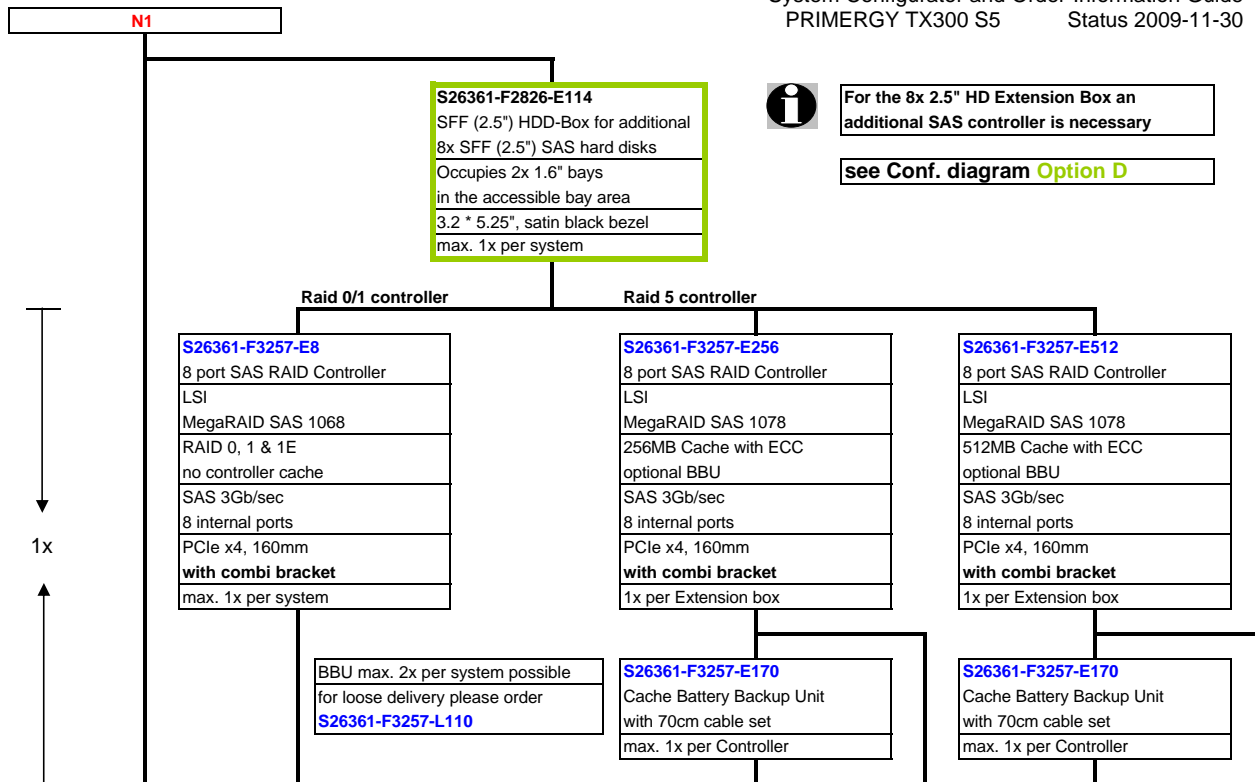
S26361-F3257-E512
 8 port SAS RAID Controller
 LSI
 MegaRAID SAS 1078
 512MB Cache with ECC
 optional BBU
 SAS 3Gb/sec
 8 internal ports
 PCIe x4, 160mm
with combi bracket
 max. 1x per system

S26361-F3257-E170
 Cache Battery Backup Unit
 with 70cm cable set
 max. 1x per Controller

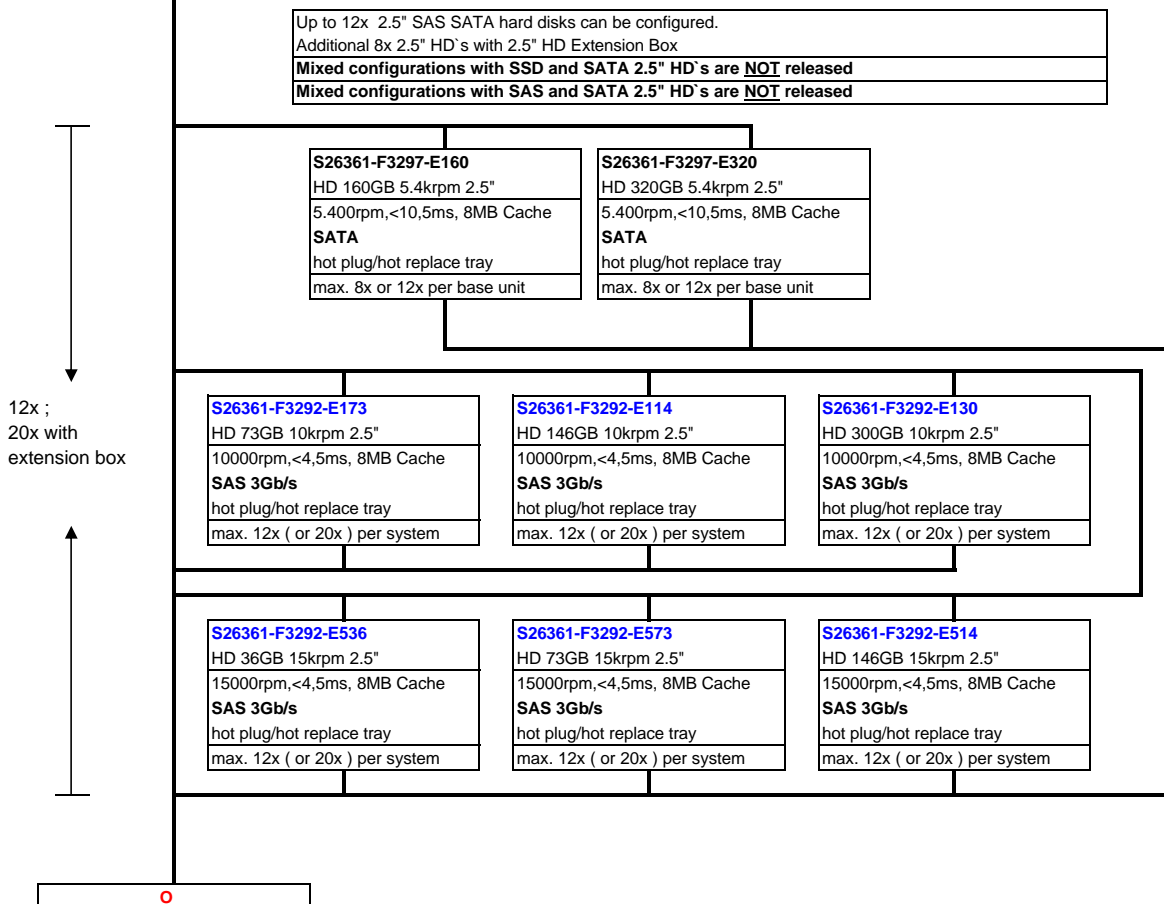
S26361-F3257-E170
 Cache Battery Backup Unit
 with 70cm cable set
 max. 1x per Controller

BBU max. 2x per system possible
 for loose delivery please order
S26361-F3257-L110

N1



Section N-VIII 2.5" SAS / SATA Hard disk drives



O

Section IX External SAS Disk Array, SAS backup drives or SCSI peripheral devices

SAS RAID controller for JBOD subsystems

1x

| |
|------------------------------|
| S26361-F3890-E1 |
| 8 port SAS RAID Controller |
| LSI |
| MegaRAID SAS8880E |
| 512MB Cache with ECC |
| RAID 0, 1, 10, 5, 50, 6 & 60 |
| without iBBU |
| SAS 3Gb/sec |
| 8 port external |
| PCIe x4, 167mm |
| full height bracket |
| max. 1x per system |

| |
|------------------------------|
| S26361-F3890-E30 |
| 8 port SAS RAID Controller |
| LSI |
| MegaRAID SAS8880E |
| 512MB Cache with ECC |
| RAID 0, 1, 10, 5, 50, 6 & 60 |
| with iBBU |
| SAS 3Gb/sec |
| 8 port external |
| PCIe x4, 167mm |
| full height bracket |
| max. 1x per system |

| | |
|----------------------------------|----------------|
| iBBU max. 2x per system possible | |
| for loose delivery please order | |
| S26361-F3890-L501 | Contr. w/o BBU |
| S26361-F3890-L13 | optional BBU |

SAS-controller for external backup drives

2x

| |
|--------------------------------|
| S26361-F3271-E1 |
| SAS Controller 3Gb/s 8 port LP |
| LSI SAS3442E-R Low Profile |
| PCIe x4, |
| int: 4 port |
| ext: 4 port |
| max. 2x per system |

SCSI-controller for external drives and peripheral devices

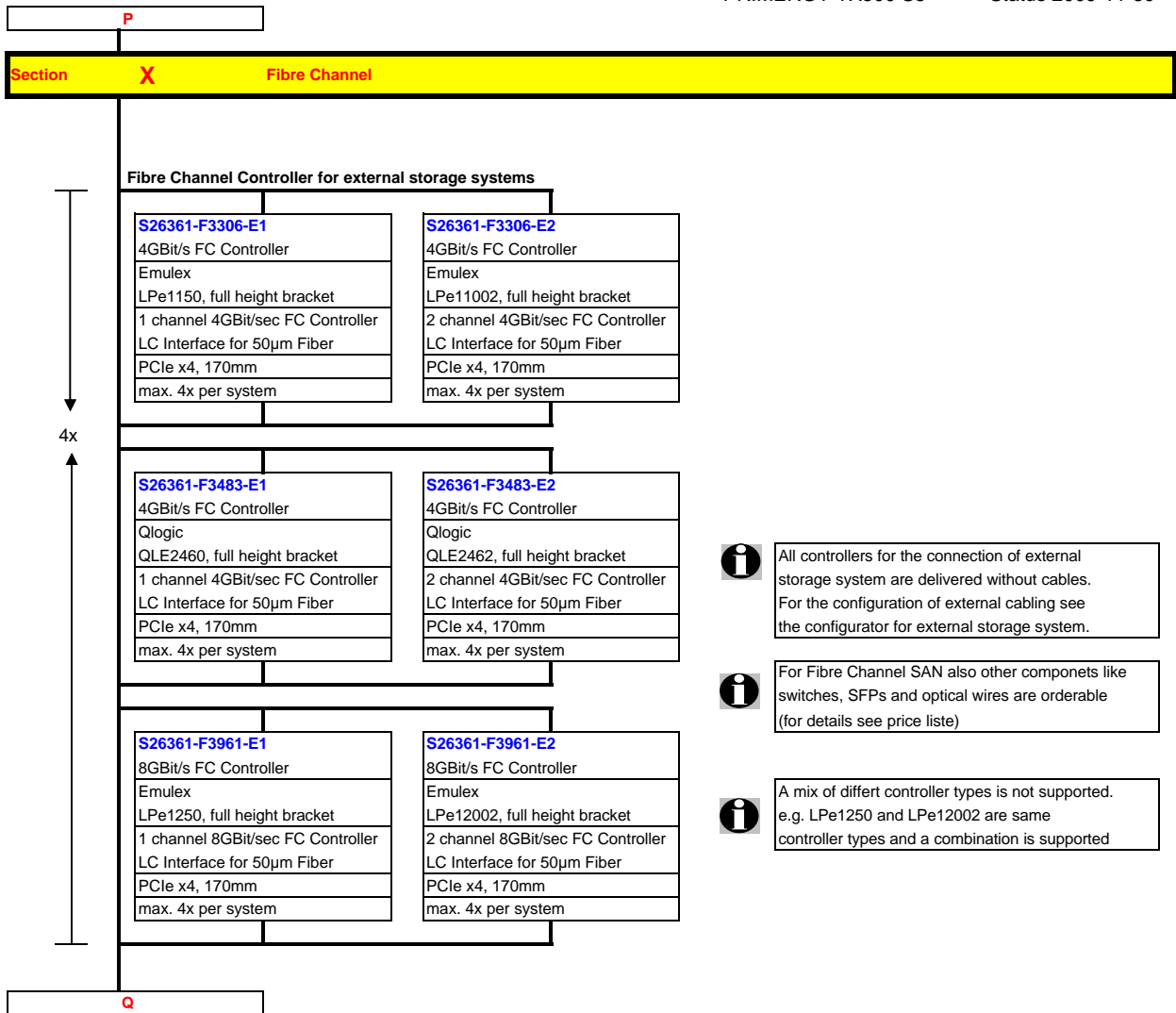
2x

| |
|----------------------------|
| S26361-F3270-E1 |
| SCSI U320 Controller |
| Adaptec SCSI Card 29320LPE |
| PCIe x1, |
| int: LVD HD68 |
| ext: VHDCI 68pin |
| max. 2x per system |



Only released for SX10. All contr. for the connection of external storage systems are delivered without cables. For the configuration of external cabling see configurator

P



i All controllers for the connection of external storage system are delivered without cables. For the configuration of external cabling see the configurator for external storage system.

i For Fibre Channel SAN also other componets like switches, SFPs and optical wires are orderable (for details see price liste)

i A mix of differt controller types is not supported. e.g. LPe1250 and LPe12002 are same controller types and a combination is supported

Q

Section XI Communication / Network

Dual Port GBit on-board LAN Controller

| |
|--------------------------------------|
| Gigabit Ethernet Controller on-board |
| Dual Port GBit LAN controller |
| Intel 82575EB (Zoar) * |
| ext: for RJ 45-connector |
| SW: AFT, VLAN, Fast Channel |



Teaming: Failover, Load Balancing

The Intel LAN Controllers 1000TX and 1000SX can be used with the on-board controller in Teaming Mode. Two onboard LAN ports can likewise educate a team.

* Supporting iSCSI boot (also diskless) by system BIOS and native iSCSI initiators

* 2 PCIe-2 slots wired x8 and 5 PCIe-2 slots wired x4:
 Slot 7 and 6 are wired x8
 Slot 5 is wired x8 if slot 4 is not populated
 Slot 3 is wired x8 if slot 2 is not populated
 Slot 1 is wired x4 populated by modular RAID



A PCIe-2 x4 card can also be plugged in a PCIe-2 x8 slot
 A PCIe-2 x8 card can also be plugged in a PCIe-2 x4 slot (mechanical x8)
 A PCIe-2 x16 card can be plugged in a notched PCIe-2 x8 slot

A) 1-Port Copper PCI-Express Adapter 1000TX

| |
|--|
| S26361-F3516-E1 (Shelter Island) |
| Gigabit Ethernet Controller 1000TX LP |
| Eth Ctrl 1x1Gbit PCI-e Gigabit CT DT Cu LP |
| Intel® Gigabit CT Desktop Adapter |
| PCIe x1 |
| ext: for RJ45-connector, Cat 5 |
| max. 4x per system |

| |
|--------------------------------------|
| S26361-F3241-E1 (Glyndon) |
| Gigabit Ethernet Contr. 1000TX |
| Eth Ctrl 1x1Gbit PCI-e Pro/1000PT Cu |
| Intel PRO/1000 PT Server Adaptor |
| PCIe x1 |
| ext: for RJ45-connector, Cat 5 |
| max. 4x per system |

B) 1-Port MMF PCI-Express Adapter 1000SX

| |
|---|
| S26361-F3242-E1 (Sheepshead Bay) |
| Gigabit Ethernet Contr. 1000SX |
| Eth Ctrl 1x1Gbit PCI-e Pro/1000PF LC |
| Intel PRO/1000 PF Server Adapter |
| PCIe x4 |
| ext:LC-connector |
| max. 4x per system |

C) 2-Port Copper PCIe Adapter 1000TX

| |
|---|
| S26361-F3228-E1 (Redwater) |
| Gigabit Ethernet Controller Dual 1000TX |
| Eth. Ctrl 2x1Gbit PCIe PRO/1000PT Cu |
| Intel Pro/1000PT dual Server Adapter |
| PCIe x4 |
| ext: for RJ45-plug, Cat 5 |
| max. 4x per system |

D) 4-Port Copper PCIe Adapter 1000TX

| |
|---|
| S26361-F3462-E1 (Kirkwood 2) |
| Gigabit Ethernet Controller Quad 1000TX |
| Eth. Ctrl 4x1Gbit PCIe PRO/1000PT Cu |
| Intel Pro/1000PT quad Server Adapter |
| PCIe x4 |
| ext: for RJ45-plug, Cat 5 |
| max. 3x per system |

E) 10GbE 2-Port MMF

| |
|---|
| S26361-F3505-E1 |
| (Green Fountain SR) |
| 10 Gigabit Ethernet Controller dual port LC |
| Eth Ctrl 2x10Gbit PCIe x8 XF SR LC |
| Intel 10 Gigabit XF SR Dual Port Server Ad. |
| PCIe x8 |
| ext:LC-connector |
| max. 2x per system |



R

R

Section XII System Management Products (RemoteView)

S26361-F1790-E241
iRMC S2 advanced pack
integrated remote management controller
activation key for
graphical console redirection
and remote media redirection
max. 1x per system

iRMC S2 (integrated Remote Management Controller) onboard server management controller with dedicated 10/100 Service LAN-port and integrated graphics controller. The Service LAN-port can be switched alternatively on standard Gbit LAN port

S

S

Section XIII Country specific power cord

i A power cord has to be ordered for country specific floorstand versions:
 - once per basic unit and additional a second power cord
 - if an additional hot plug, redundant power supply modul is ordered

PRIMERGY TX300 S5 Floorstand

PRIMERGY TX300 S5 Rack

Power cord for floorstand versions for following countries:
 1.8m, grey

2x

| | |
|------------------|---|
| T26139-Y1740-E10 | D, A, B, F, NL, FIN, N, S, E, P, RUS, TR |
| T26139-Y1742-E10 | USA, Canada |
| T26139-Y1743-E10 | Switzerland |
| T26139-Y1744-E10 | UK, IR |
| T26139-Y1745-E10 | Italy |
| T26139-Y1746-E10 | Denmark |
| T26139-Y3850-E10 | Option "no powercord", for Countries without specific cable orderable like e.g. China |

i Country specific power cords are not required for rack versions, except for USA & Canada. 2 power cords are shipped in a rack version with inlet connector for non-heating apparatus.

i **T26139-Y1742-E10 USA, Canada**
 For shipments to USA&Canada, you have to order one power cord (1.8m, grey) per power supply.

option for floorstand

USB keyboards for floorstand versions for following countries:

| USB standard keyboard KB500 | | | USB professional Keyboard KB PC PX | |
|-----------------------------|-------------|---------------------|------------------------------------|--|
| S26381-K500-E170 | KB500 CH | Switzerland | S26381-K340-E170 | |
| S26381-K500-E104 | KB500 CZ SK | Czech/Slovak | S26381-K340-E104 | |
| S26381-K500-E120 | KB500 D | Germany | S26381-K340-E120 | |
| S26381-K500-E180 | KB500 E | Spain | S26381-K340-E180 | |
| S26381-K500-E140 | KB500 F | France | S26381-K340-E140 | |
| S26381-K500-E165 | KB500 GB | United Kingdom | S26381-K340-E165 | |
| S26381-K500-E185 | KB500 I | Italy | S26381-K340-E185 | |
| S26381-K500-E155 | KB500 S FIN | Sweden / Finland | S26381-K340-E155 | |
| S26381-K500-E110 | KB500 USA | USA / international | S26381-K340-E110 | |

Power cord for optional monitor connection for the following countries:
 1.8m, grey

| | |
|------------------|--|
| T26139-Y1740-L10 | D, A, B, F, NL, FIN, N, S, E, P, RUS, TR |
| T26139-Y1742-L10 | US, CDN |
| T26139-Y1744-L10 | UK, IR |
| T26139-Y1745-L10 | Italy |
| T26139-Y1746-L10 | Denmark |

i Attention: For connection of a monitor to the system an additional country specific power cord has to be ordered as option.

i **Options and other peripherals**
 For other options, refer to SystemArchitect and Pricelist.
 These options are supplied lose with the shipment.
 For suitable peripherals for this product, please refer to SystemArcitect.

End PRIMERGY TX300 S5

