

PRIMERGY CX420 S1 / CX272 S1

System configurator and order-information guide

April 2016

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PRIMERGY Server

Instructions

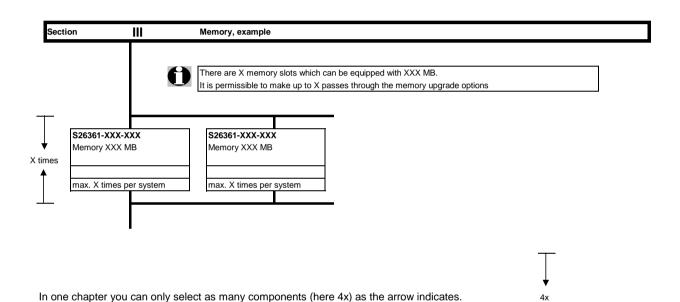
This document contains basic product and configuration information that will enable you to configure your system via PC-/System-Architect.

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-/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.



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



For further information see:

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

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

Configuration diagram PRIMERGY CX420 S1

System unit (1)

with up to 12x 3.5" or 2.5" for shared HDDs plus up to 2x internal HDD per node for OS boot HDDs

CX400 S1 3,5" HDD cage standard (S26361-K1461-V135)



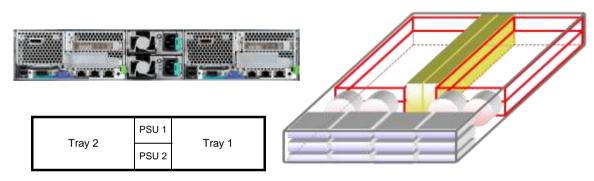
Key:

Included in basic unit

Option

Note: each CX420 S1 should install 2x CX272 S1 always

Each nodes are hot plugable and must be identical configuration



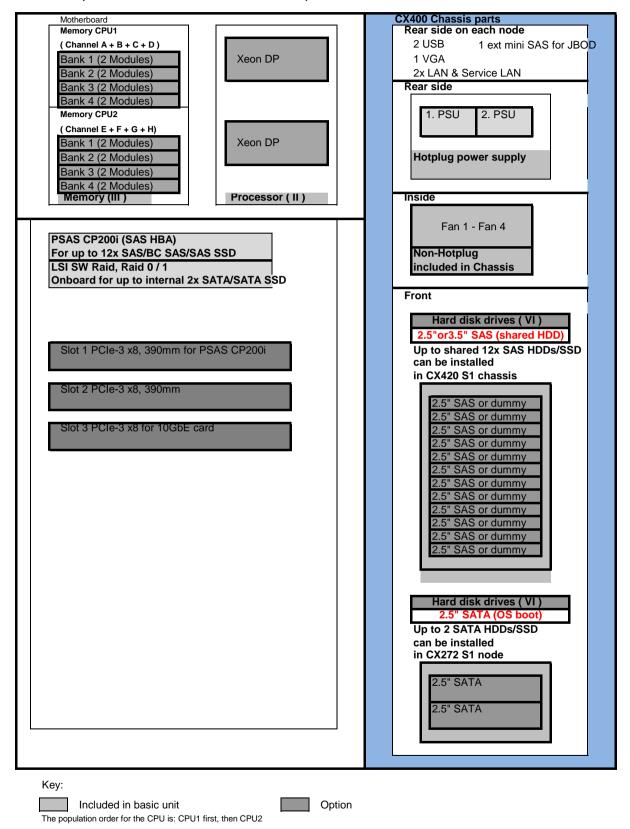
CX272 S1 half wide two U server node



Configuration diagram PRIMERGY CX272 S1

System unit (1)

with up to 12x 3.5" or 2.5" HDDs for shared HDDs plus 2x internal HDDs for OS boot HDDs





System unit consisting of:

- 2U Housing with power supply modules, Rack Rails and HDD cages Basic units with:
- 2 Hot-Plug Power Supply rated 1,200W
- 4 non-hot plug Fans (redundancy)
- Dual port SAS Backplane for 12x 3.5"or 2.5" HD

Drives/Bays

- ives/Bays

 12 bays 1" for hot plug 3.5"/2.5" HD

 SAS I/F HDD or SSD supported

 HDD configuration per Server node

 empty bays will be covered with dummy frames

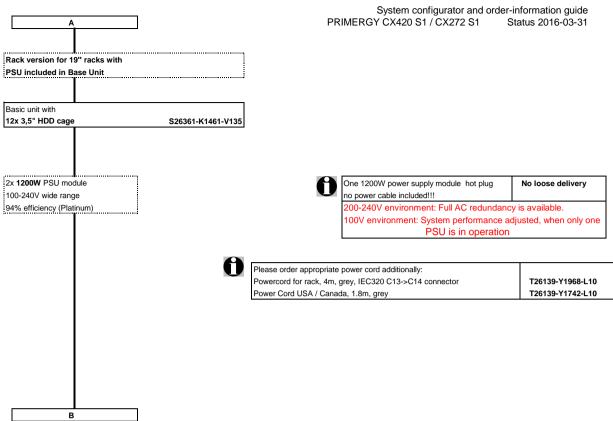
Server nodes

- each CX420 S1 can support 2x CX272 S1
- position of CX server nodes fixed

Software:

- ServerView Suite Software
- * Documentation engl. (multilingual on CD)

Α



Section Basic uni



CX272 S1 System unit consisting of:

- * 2U half wide server node (tray & motherboard) for pluggin into CX420 chassis
- * Basic units with:
- Server tray mechanics Motherboard
- 1x PCle- x8 slots for PSAS CP200i
- 1x PCle- x8 GEN3 low profile
- 1x PCle- x8 GEN3 low profile (only for 10GbE D2755 and 10GbE-T card)

Systemboard D3306 with:

* Up to two Xeon 4C, 6C & 8C CPU's (Socket-R)

with 2 serial QPI links (Quick Path Interconnect) and four memory channels per CPU CPU has to be selected for an orderable basic unit,

Chipset Intel® C600 Series

* number of PCI slots: see above

* 16 memory slots for max. 512GB RAM DDR3 available

- Memory is divided into 8 DIMMs per CPU (4 channels with 2 slots per channel)

Possible max. configurations are:

16x 16GB RDIMM (dual rank modules) = 256GB

16x 4GB UDIMM (dual rank modules) = 64GB

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

- Memory upgrade is possible by 8x memory units
- SDDC (Chipkill) is supported for memory modules,
- * Dual Port 10/100/1000 x4 PCI Express* Gigabit Ethernet Intel LAN controller Powerville on-board
- * AST2300 (integrated Baseborad 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

Graphics Controller integrated in AST2300 (integrated Baseboard Management Controller): 1600x1200x16bpp 60Hz, 1280x1024x16bpp 60Hz, 1024x768x32bpp 75Hz, 800x600x32bpp 85Hz, 640x480x32bpp 85Hz

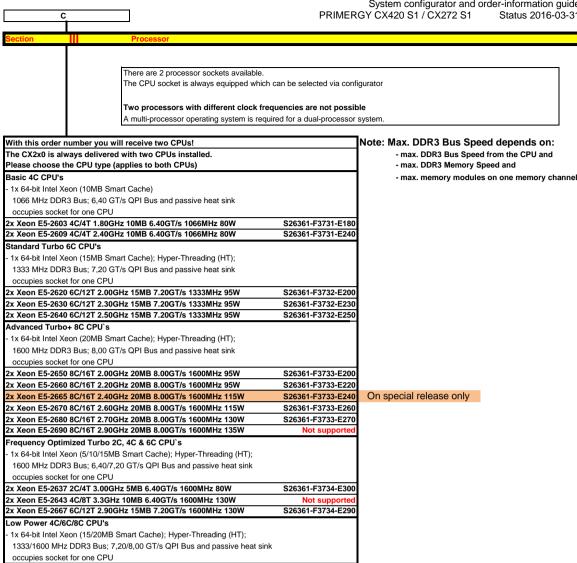
Interfaces at the rear:

- * 1x RS-232-C (serial, 9 pins)
- * 1x VGA (15 pins)
- * 2x USB 2.0 (UHCI) with 480MBit/s, no USB wakeup
- * 2x LAN RJ45, 1x Service-LAN RJ45
- * 1x External mini SAS port for external JBOD

Interfaces internal:

- * 1x USB 2.0 for UFM modul (embeded ESXi)
- * 6x SATA interface via Patsburg -A for 6 SATA HD's Non-Raid or 4 SATA HD's Raid 0/1/10 (LSI SW Raid)

Service for CX-Server nodes installation in the CX420 12x 3.5" max. 2x per system unit



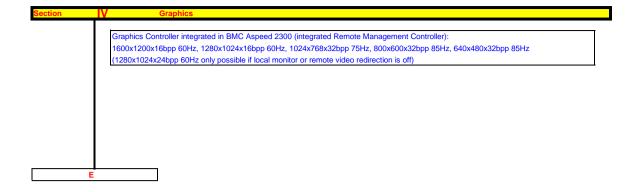
2x Xeon E5-2630L 6C/12T 2.00GHz 15MB 7.20GT/s 1333MHz 60W

2x Xeon E5-2650L 8C/16T 1.80GHz 20MB 8.00GT/s 1600MHz 70W

D

S26361-F3735-E200

S26361-F3735-E180





There are 8 memory slots per CPU for max.

128GB RDIMM (8x 16GB dual rank)

32GB UDIMM (8x 4GB) => max. 256GB per node

- The memory area is divided into 4 channels per CPU with 2 slots per channel
- Slot 1 of each channel belongs to memory bank 1, the slot 2 belongs to memory bank 2

Registered, LR DIMMs and unbuffered memory modules can be selected No mix of registered, load reduced and unbuffered modules allowed.

Memory can be operated at 1.5V or 1.35V, even if the modules are of low voltage type.

In a 2 DIMMs per channel configuration, following frequencies are supported:

- 1.5V 1600MHz max (depending on CPU, special memory modules)
- 1.35V 1333MHz max (depending on CPU)

SDDC (Chipkill) is supported for registered / load reduced memory modules only (not unbuffered)

"Independent Channel Mode" is following configuration possible

Each slot can optionally be equipped with any registered or load reduced or unbuffered DDR3 modules: No mix of registered, load reduced and unbuffered modules allowed.

"Performance Mode" configuration

- In this configuration, the memory module population ex factory is spread across all channels.

The BIOS is set to the max. performance for memory Minimum configuration is: 4x identical modules per CPU

'Rank Sparing Mode" configuration

The Spare Rank is held in reserve and is not available as system memory

For the effective memory capacity, please refer to the spreadsheet below.

The BIOS is set to the rank sparing setting.

Minimum configuration is: 2x 1R, 2x 2R or 1x4R DDR3 module per channel

This mode is not supported by unbuffered memory modules

equipped with identical modules for mirrored channel mode.

"Mirrored Channel Mode" is following configuration possible

Each memory bank can optionally be equipped with 4x registered or load reduced or unbuffered DDR3 modules In each memory bank channel A and B / C and D of CPU 1 or channel E and F / G and H of CPU 2 have to be

In channel B / D is always the mirrored memory of channel A / B of CPU 1

In channel F / H is always the mirrored memory of channel E / G of CPU 2

Minimum configuration is: 4x identical modules

This mode is not supported by unbuffered memory modules



Performance Mode Installation

Number of memory modules is always 4 / CPU, so all channels are populated and the max. memory performance can be achieved. Four identical memory modules will be equipped in one memory bank to achieve highest memory performance. All four modules are active and full capacity can be used.

Multiple of 4 identical modules to be configured per CPU

S26361-F3694-E10 Independent Mode

Independent Channel Mode allows all channels to be populated in any order. No specific Memory RAS features are defined

Requires min 1 memory Module per CPU

S26361-F3694-E1 Rank Sparing Mode Installation

BIOS Setup factory preinstalled to this mode. One Rank is spare of other ranks on the same channel. Spare Rank is not shown in System Memory. For effective capacity within a channel, please have a look below.

Supported for RDIMM only.

Requires min 2x 1R/2R or 1x 4R modules per CPU S26361-F3694-E3 Mirrored Channel Mode Installation as soon as available

BIOS Setup factory preinstalled to this mode. Four identical memory modules are always equipped in one memory bank to use the

Mirrored channel Mode. Only two modules contain active data, the remain two modules contain mirrored data

Supported for RDIMM only.

Multiple of 4 identical modules to be configured per CPU



Unbuffered Memory (UDIMM) no SDDC (chipkill) support one DDR3 unbuffered ECC mem. Module. 1.35V

Choose 4 or 8 order codes per CPU

4GB (1x4GB) 2Rx8 L DDR3-1600 U ECC

Registered Memory (RDIMM) no SDDC (chipkill) support one DDR3 registered ECC mem. Module, 1,35V

No mix with any other types of memory modules possible 1600MHz supported with up to 2DPC (8 modules/CPU) at 1.5V

Choose 4 or 8 order codes per CPU

4GB (1x4GB) 2Rx8 L DDR3-1600 R ECC S26361-F3695-E614

Registered Memory (RDIMM) with SDDC (chipkill) support

one DDR3 registered ECC mem. Module, 1.35V 1600MHz supported with up to 2DPC (8 modules/CPU) at 1.5V

Choose 4 or 8 order codes per CPU

S26361-F3697-E614 4GB (1x4GB) 1Rx4 L DDR3-1600 R ECC 8GB (1x8GB) 2Rx4 L DDR3-1600 R ECC S26361-F3697-E615 16GB (1x16GB) 2Rx4 L DDR3-1600 R ECC

Max. DDR3 memory speed depends on the memory configuration. (No of mem modules per channel) as well as on the CPU type.

The memory channel with the lowest speed defines the speed of all CPU channels in the system, also for the channels of the second CPU if configured.

For real memory speed (depending on memory type / population), please check the spreadsheet "Memory speed" below

Memory Configuration PRIMERGY CX272 S1

Each CPU offers 8 Slots for DDR3 Memory Modules organised in 2 Banks and 4 Channels.

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

There are 3 different kinds of DDR3 Memory Modules available: UDIMM / RDIMM UDIMM / RDIMM offer different functionality. Mix of UDIMM / RDIMM is not alloved.

If 1.5V and 1.35V DIMMs are mixed, the DIMMs will run at 1.5V

Mode	Configuration	UDIMM	RDIMM	RDIMM	Application				
		х8	х8	x4					
SDDC (chipkill) support	any	no	no	yes	detect multi-bit errors				
Performance Mode	4 identical Modules / Bank	yes	yes	yes	offers maximum performance and capacity				

^{*)} For the delivery ex works the system will be prepared with dedicated BIOS setting.

Capacity	Configuration	UDIMM	RDIMM	Notes
Min. Memory per CPU	4 Module / CPU	1x4GB	4x4GB	with one CPU
Max. Memory per CPU	8 Modules / CPU	8x4GB	8x16GB	with one CPU
Max. Memory per System	16 Modules / System	64GB	256GB	if second CPU is configured

Memory-Speed:

Max. DDR3 memory speed depends on the memory configuration on one memory channel and the speed of the CPU The memory channel with the lowest speed defines the speed of all CPU channels in the system

Mem. Speed provided by CPU	, , ,								ing on CPU type, memory configuration (DPC) talled memory module									
	UDIMM 1600MHz						RDIMM 1600MHz											
Voltage setting (BIOS)	1.5V [default]			1.35V			1.5V [default]			1.35V								
	1	2	3	1	2	3	1	2	3	1	2	3						
	DPC	DPC	DPC	DPC	DPC	DPC	DPC	DPC	DPC	DPC	DPC	DPC						
CPU with 1600MHz DDR3 Bus	1333	1333	-	1066	1066	-	1600	1600	-	1333	1333	-						
CPU with 1333MHz DDR3 Bus	1333	1333	-	1066	1066	-	1333	1333	-	1333	1333	-						
CPU with 1066MHz DDR3 Bus	1066	1066	-	1066	1066	-	1066	1066	-	1066	1066	-						

1R - Single Rank

2R - Dual Rank 4R - Quad Rank

1DPC = 1 DIMM per Channel

2DPC = 2 DIMM per Channel 3DPC = 3 DIMM per Channel

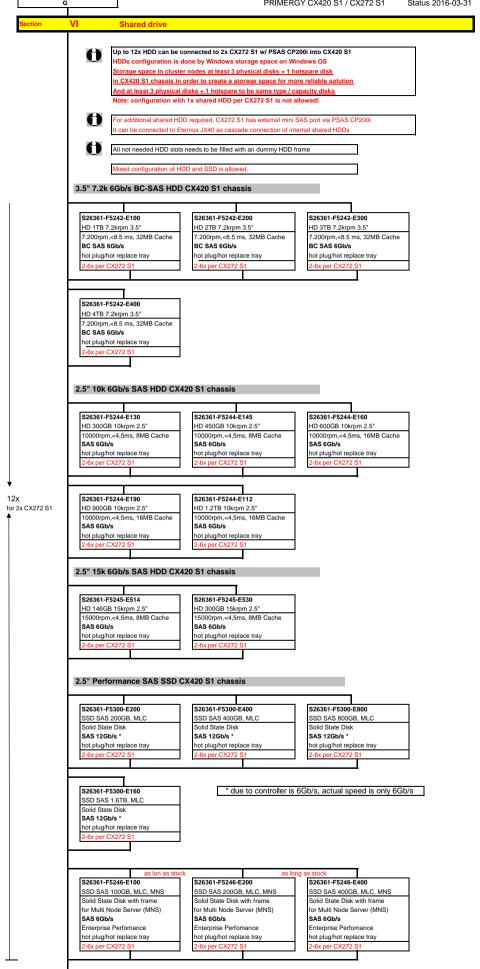
Configuration hints:

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

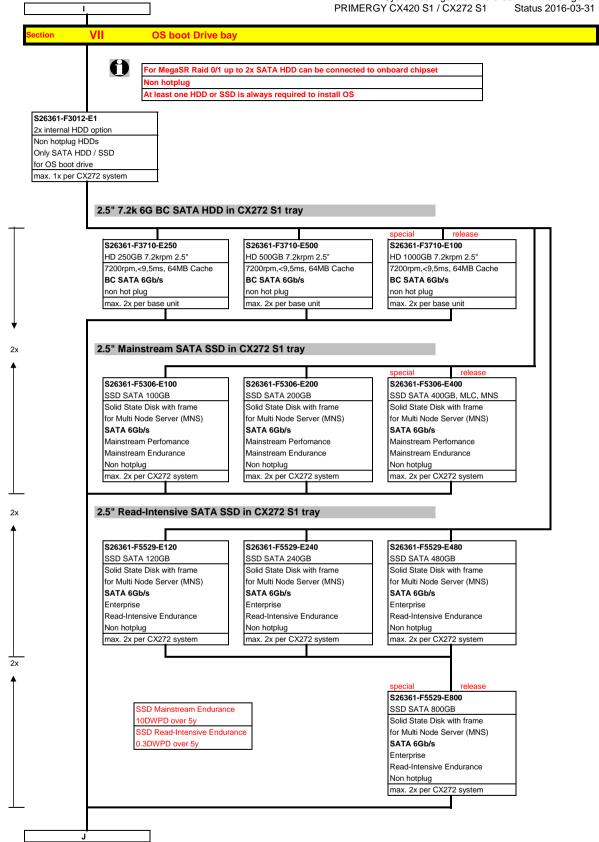
Bank I black sockets Bank II blue sockets

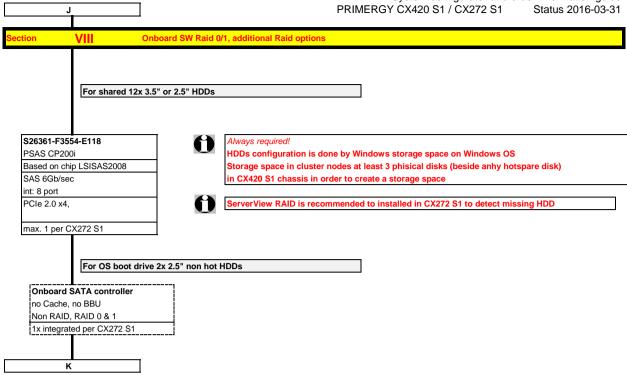
- A so called Bank consits of 1 memory module on every Channel available on one CPU (examples see below) Bank I on CPU 1/2 up to 4 memory modules connected to Channel A - H on the 1st/2nd CPU up to 4 memory modules connected to Channel A - E on the 1st/2nd CPU (can not be populated by UDIMM or 4R RDIMM memory modules)

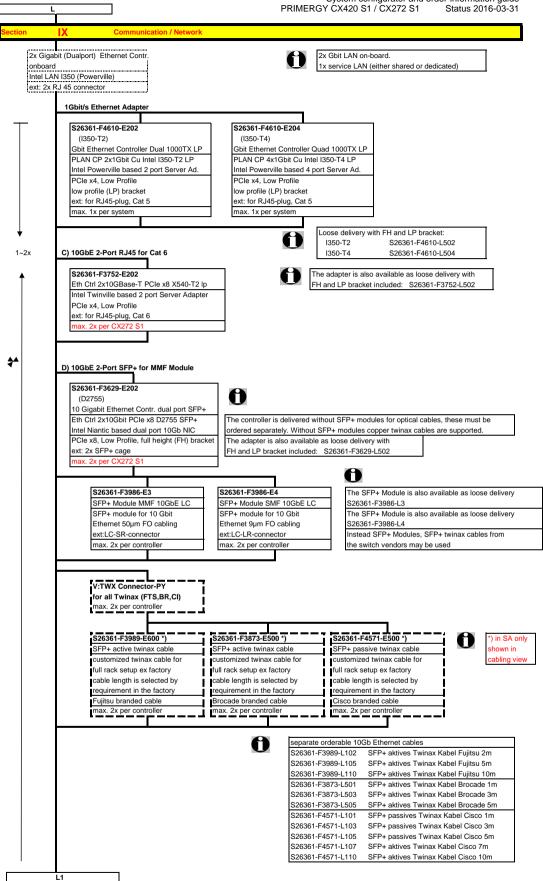
- See below and next page for a detailed descriptions of the memory configuration supported.

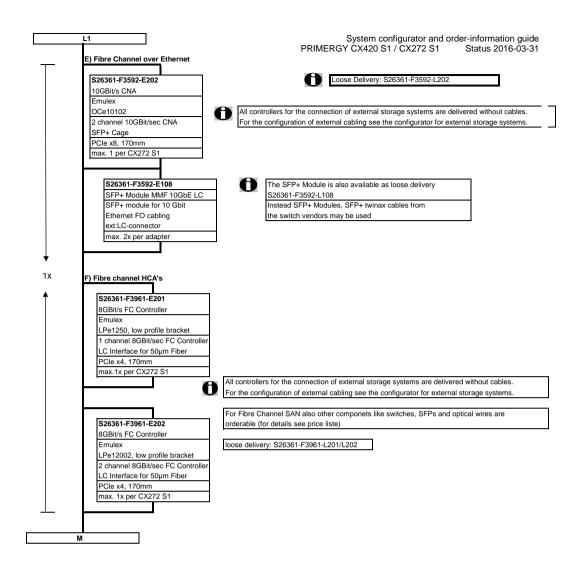


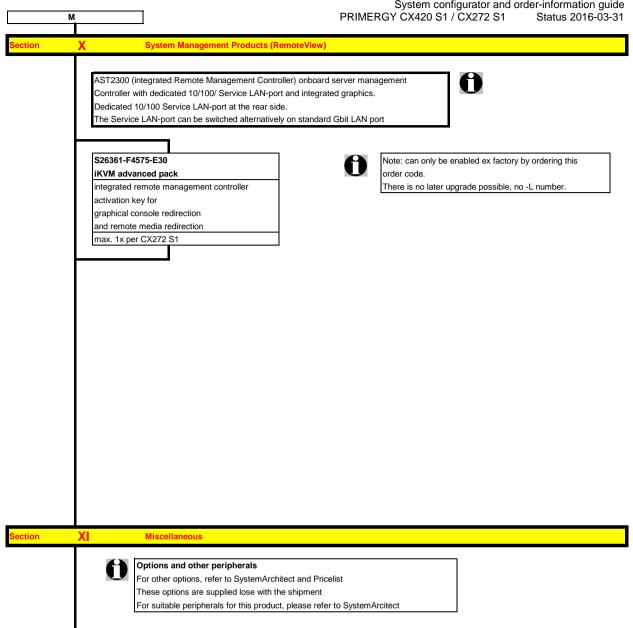
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End PRIMERGY CX272 S1

Change Report

Date	Order number	Changes
2015-02-20		Read-Intensive Boot SSDs added.
2014-06-20		D3035/D3045 GbE cards removed
2014-06-18		Release GbE card (I350-T2 / I350-T4)
2014-05-15		corrected memory configuration
2014-04-01		corrected S26361-F4530-E12 and S26361-F4530-E10
2014-02-28		SAS SSD and SAS 1.2TB HDD added
2014-02-20		External SAS port for Eternus JX40 described
2014-02-17		SSD *F5247* removed, *F5306* added.
2013-12-19		1,200W wide range PSU is available
2013-11-08		Mixed HDD and SSD configuration is allowed for shared HDDs
2013-09-11		1,200W PSU supported voltage range updated
2013-07-02		SFP+ moduel / Twinax cable for 10GbE is updated
2013-04-18		Add remark that shared HDDs configuration always require to prepare hotspare disk.
2013-04-11		Adjustment for "conf. diagram CX272" sheet based on availability of 3rd PCIe slot
2013-03-22		Memory spare / mirror modes are released
		3rd PCIe slot is avalable only for below
2013-03-22		10GbE-SR card (D2755) and 10GbE-T card are released into 3rd PCle Slot
2013-03-19		2.5" SATA SSD for OS boot device will be released in next update
2013-03-01		Add min. requirement of HDDs quantity for storage space in cluster
2013-02-20		Initial version