

PRIMERGY BX2580 M2

System configurator and order-information guide

Contents

Instructions

Configuration diagram

Configurator

X	BX2580 Dual Socket
XI	Processor
XII	Storage
XIII	Memory
XIV	iRMC S4, Graphics
XV	Mezzanine Cards



PRIMERGY Server

Instructions

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

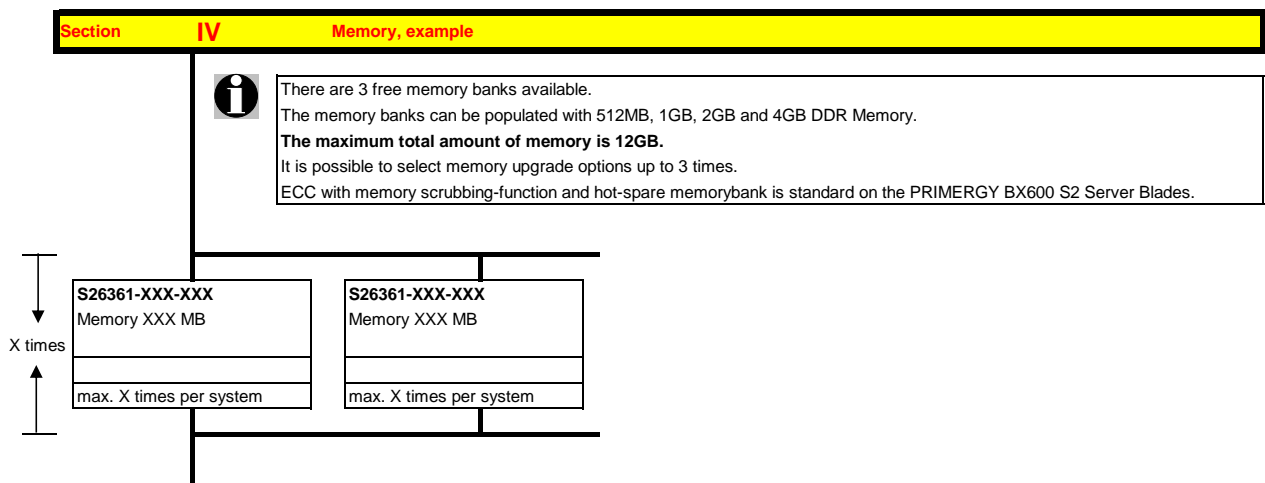
Only the tool "System-Architect" will ensure a fast and proper configuration of your PRIMERGY server or your complete PRIMERGY Rack system.

Please pay attention to the naming conventions: **BX2580 M2** Dual Server Blade M2

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 3x) as the arrow indicates.



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



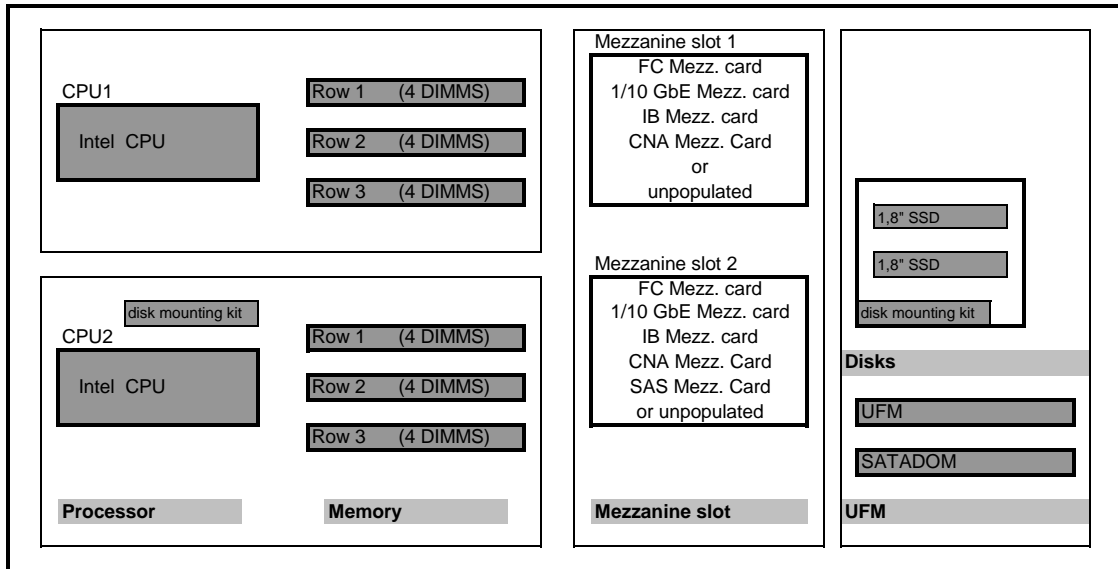
For further information see:

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

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

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

Configuration diagram Dual Server Blade BX2580 M2

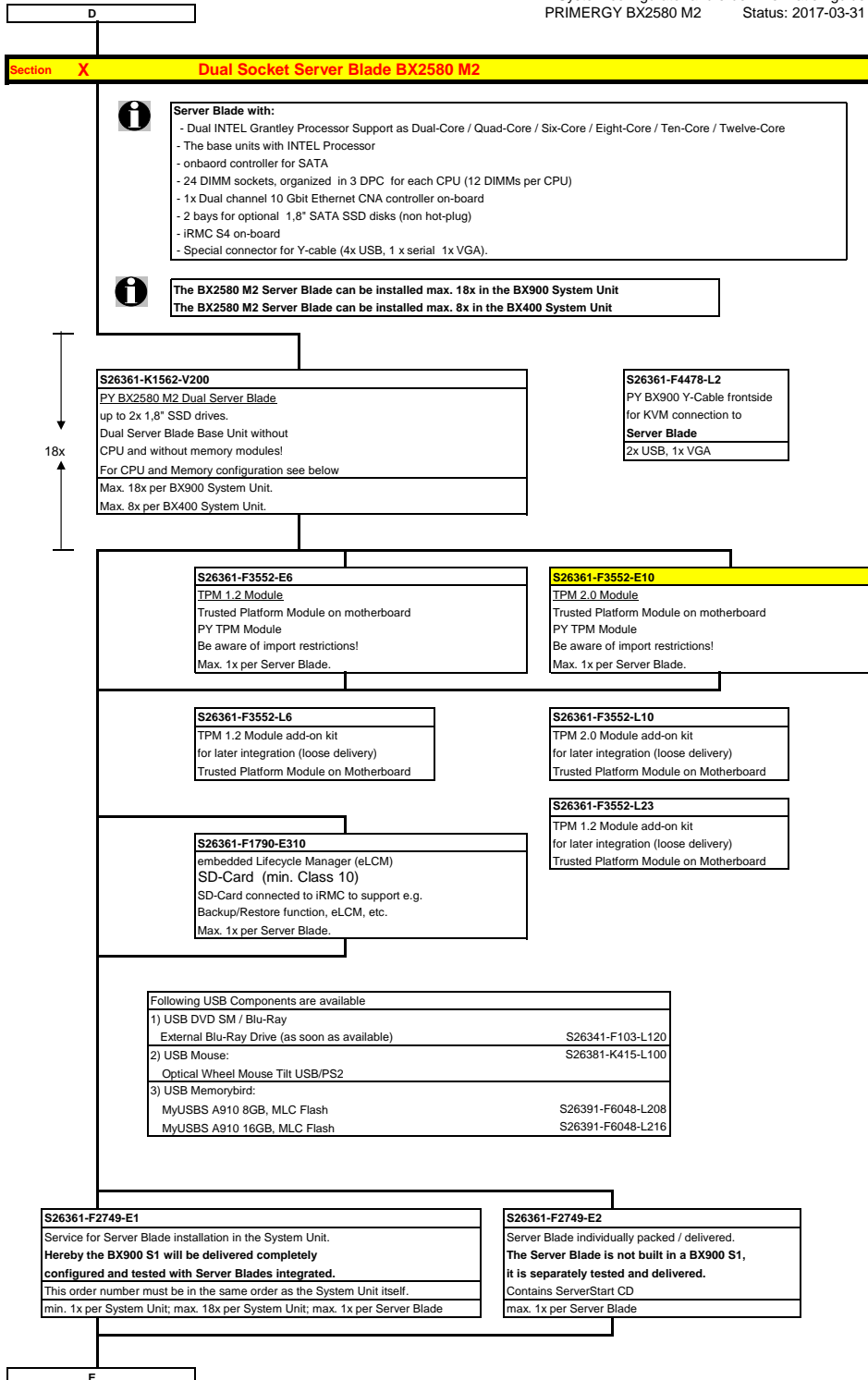


Key:

Included in basic unit Option

The population order for the CPU is: CPU1 first, then CPU2

The population order for the DIMMs: for each CPU, the DIMM row 1 (DIMMS 1A 1B 1C 1D) (DIMMS 1E 1F 1G 1H) first, then row 2 (DIMMs 2A, 2B, 2C 2D) (DIMMs 2E 2F 2G 2H) then row 3 (DIMMs 3A, 3B, 3C 3D) (DIMMs 3E 3F 3G 3H)




18x

E


Section XI Processor

There are 2 processor sockets available.
 The first socket must always be equipped with the **first CPU** which can be selected via configurator
Two processors with different clock frequencies are not possible

 Due to thermal conditions a larger heat sink is necessary for first CPU if two CPUs are mounted. This leads to a limitation on the memory array to 22 DIMM modules.

E5-2637v4
E5-2643v4
E5-2667v4
E5-2697v4
E5-2697Av4
E5-2699v4 / E5-2699Av4

Max. two CPU's can be selected per basic unit
One of following CPU's can be selected once (only as first CPU) for an orderable basic unit
Optional second CPU has to be the same type like the first CPU
Xeon E5-2600v4 (R) Basic
- 1x 64-bit Intel Xeon (15MB Smart Cache) 1866 MHz DDR4 Bus; 6.4 GT/s QPI Bus occupies socket for one CPU
Xeon E5-2603v4 6C/6T 1.70GHz 15MB 6.4GT/s 1866MHz 85W S26361-F3933-E103
Xeon E5-2609v4 8C/8T 1.70GHz 20MB 6.4GT/s 1866MHz 85W S26361-F3933-E109
Xeon E5-2600v4 (R) Standard
- 1x 64-bit Intel Xeon (15/20MB Smart Cache); Hyper-Threading (HT); 2133 MHz DDR4 Bus; 8.0 GT/s QPI Bus occupies socket for one CPU
Xeon E5-2620v4 8C/16T 2.10GHz 20MB 8.0GT/s 2133MHz 85W S26361-F3933-E120
Xeon E5-2630v4 10C/20T 2.20GHz 25MB 8.0GT/s 2133MHz 85W S26361-F3933-E130
Xeon E5-2640v4 10C/20T 2.40GHz 25MB 8.0GT/s 2133MHz 90W S26361-F3933-E140
Xeon E5-2600v4 (R) Advanced
- 1x 64-bit Intel Xeon (25/30MB Smart Cache); Hyper-Threading (HT); 2400 MHz DDR4 Bus; 9.6 GT/s QPI Bus occupies socket for one CPU
Xeon E5-2650v4 12C/24T 2.20GHz 30MB 9.6GT/s 2400MHz 105W S26361-F3933-E150
Xeon E5-2660v4 14C/28T 2.00GHz 35MB 9.6GT/s 2400MHz 105W S26361-F3933-E160
Xeon E5-2680v4 14C/28T 2.40GHz 35MB 9.6GT/s 2400MHz 120W S26361-F3933-E180
Xeon E5-2690v4 14C/28T 2.60GHz 35MB 9.6GT/s 2400MHz 135W S26361-F3933-E190
Xeon E5-2600v4 (R) Frequency Optimized
- 1x 64-bit Intel Xeon (10-20MB Smart Cache); Hyper-Threading (HT); 2400 MHz DDR4 Bus; 8.0 & 9.6 GT/s QPI Bus occupies socket for one CPU
Xeon E5-2623v4 4C/8T 2.60GHz 10MB 8.0GT/s 2133MHz 85W S26361-F3933-E123
Xeon E5-2637v4 4C/8T 3.50GHz 15MB 9.6GT/s 2400MHz 135W S26361-F3933-E137
Xeon E5-2643v4 6C/12T 3.40GHz 20MB 9.6GT/s 2400MHz 135W S26361-F3933-E143
Xeon E5-2667v4 8C/16T 3.20GHz 25MB 9.6GT/s 2400MHz 135W S26361-F3933-E167
Xeon E5-2600v4 (R) High Core Count
- 1x 64-bit Intel Xeon (35-40MB Smart Cache); Hyper-Threading (HT); 2400 MHz DDR4 Bus; 9.6 GT/s QPI Bus occupies socket for one CPU
Xeon E5-2683v4 16C/32T 2.10GHz 40MB 9.6GT/s 2400MHz 120W S26361-F3933-E183
Xeon E5-2695v4 18C/36T 2.10GHz 45MB 9.6GT/s 2400MHz 120W S26361-F3933-E195
Xeon E5-2697v4 18C/36T 2.30GHz 45MB 9.6GT/s 2400MHz 145W S26361-F3933-E197
Xeon E5-2697Av4 16C/32T 2.60GHz 40MB 9.6GT/s 2400MHz 145W S26361-F3933-E191
Xeon E5-2698v4 20C/40T 2.20GHz 50MB 9.6GT/s 2400MHz 135W S26361-F3933-E198
Xeon E5-2699v4 22C/44T 2.20GHz 55MB 9.6GT/s 2400MHz 145W S26361-F3933-E199
Xeon E5-2699Av4 22C/44T 2.40GHz 55MB 9.6GT/s 2400MHz 145W S26361-F3933-E192
Xeon E5-2600v4 (R) Low Power
- 1x 64-bit Intel Xeon (20/30MB Smart Cache); Hyper-Threading (HT); 2133/2400 MHz DDR4 Bus; 8.0/9.6 GT/s QPI Bus occupies socket for one CPU
Xeon E5-2630Lv4 10C/20T 1.80GHz 25MB 8.0GT/s 2133MHz 55W S26361-F3933-E131
Xeon E5-2650Lv4 14C/28T 1.70GHz 35MB 9.6GT/s 2400MHz 65W S26361-F3933-E151

 Max. DDR4 Bus Speed depends on:

- max. DDR4 Bus Speed from the CPU and
- max. DDR4 Memory Speed and
- max. memory modules on one memory channel

For CPUs which do not offer 1866 MHz support, (Basic, Standard & Low Power class), System Architect will not offer memory modules supporting this frequency.

E1

E1

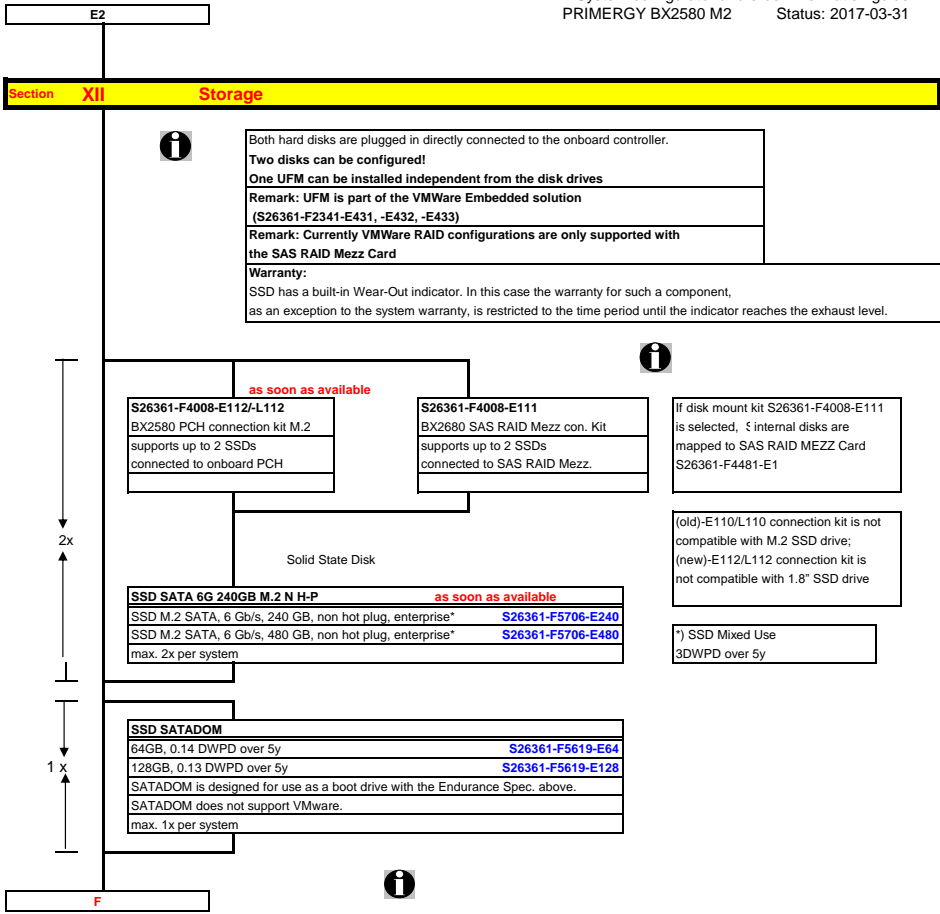
S26361-F3849-E100
 Cooling Kit 2nd CPU

One of following CPU's has to be selected as second CPU	
Optional second CPU has to be the same type like the first CPU	
Xeon E5-2600v4 (R) Basic	
- 1x 64-bit Intel Xeon (15MB Smart Cache) 1866 MHz DDR4 Bus; 6.4 GT/s QPI Bus occupies socket for one CPU	
Xeon E5-2603v4 6C/6T 1.70GHz 15MB 6.4GT/s 1866MHz 85W	S26361-F3933-E103
Xeon E5-2609v4 8C/8T 1.70GHz 20MB 6.4GT/s 1866MHz 85W	S26361-F3933-E109
Xeon E5-2600v4 (R) Standard	
- 1x 64-bit Intel Xeon (15/20MB Smart Cache); Hyper-Threading (HT); 2133 MHz DDR4 Bus; 8.0 GT/s QPI Bus occupies socket for one CPU	
Xeon E5-2620v4 8C/16T 2.10GHz 20MB 8.0GT/s 2133MHz 85W	S26361-F3933-E120
Xeon E5-2630v4 10C/20T 2.20GHz 25MB 8.0GT/s 2133MHz 85W	S26361-F3933-E130
Xeon E5-2640v4 10C/20T 2.40GHz 25MB 8.0GT/s 2133MHz 90W	S26361-F3933-E140
Xeon E5-2600v4 (R) Advanced	
- 1x 64-bit Intel Xeon (25/30MB Smart Cache); Hyper-Threading (HT); 2400 MHz DDR4 Bus; 9.6 GT/s QPI Bus occupies socket for one CPU	
Xeon E5-2650v4 12C/24T 2.20GHz 30MB 9.6GT/s 2400MHz 105W	S26361-F3933-E150
Xeon E5-2660v4 14C/28T 2.00GHz 35MB 9.6GT/s 2400MHz 105W	S26361-F3933-E160
Xeon E5-2680v4 14C/28T 2.40GHz 35MB 9.6GT/s 2400MHz 120W	S26361-F3933-E180
Xeon E5-2690v4 14C/28T 2.60GHz 35MB 9.6GT/s 2400MHz 135W	S26361-F3933-E190
Xeon E5-2600v4 (R) Frequency Optimized	
- 1x 64-bit Intel Xeon (10-20MB Smart Cache); Hyper-Threading (HT); 2400 MHz DDR4 Bus; 8.0 & 9.6 GT/s QPI Bus occupies socket for one CPU	
Xeon E5-2623v4 4C/8T 2.60GHz 10MB 8.0GT/s 2133MHz 85W	S26361-F3933-E123
Xeon E5-2637v4 4C/8T 3.50GHz 15MB 9.6GT/s 2400MHz 135W	S26361-F3933-E137
Xeon E5-2643v4 6C/12T 3.40GHz 20MB 9.6GT/s 2400MHz 135W	S26361-F3933-E143
Xeon E5-2667v4 8C/16T 3.20GHz 25MB 9.6GT/s 2400MHz 135W	S26361-F3933-E167
Xeon E5-2600v4 (R) High Core Count	
- 1x 64-bit Intel Xeon (35-40MB Smart Cache); Hyper-Threading (HT); 2400 MHz DDR4 Bus; 9.6 GT/s QPI Bus occupies socket for one CPU	
Xeon E5-2683v4 16C/32T 2.10GHz 40MB 9.6GT/s 2400MHz 120W	S26361-F3933-E183
Xeon E5-2695v4 18C/36T 2.10GHz 45MB 9.6GT/s 2400MHz 120W	S26361-F3933-E195
Xeon E5-2697v4 18C/36T 2.30GHz 45MB 9.6GT/s 2400MHz 145W	S26361-F3933-E197
Xeon E5-2697Av4 16C/32T 2.60GHz 40MB 9.6GT/s 2400MHz 145W	S26361-F3933-E191
Xeon E5-2698v4 20C/40T 2.20GHz 50MB 9.6GT/s 2400MHz 135W	S26361-F3933-E198
Xeon E5-2699v4 22C/44T 2.20GHz 55MB 9.6GT/s 2400MHz 145W	S26361-F3933-E199
Xeon E5-2699Av4 22C/44T 2.40GHz 55MB 9.6GT/s 2400MHz 145W	S26361-F3933-E192
Xeon E5-2600v4 (R) Low Power	
- 1x 64-bit Intel Xeon (20/30MB Smart Cache); Hyper-Threading (HT); 2133/2400 MHz DDR4 Bus; 8.0/9.6 GT/s QPI Bus occupies socket for one CPU	
Xeon E5-2630Lv4 10C/20T 1.80GHz 25MB 8.0GT/s 2133MHz 55W	S26361-F3933-E131
Xeon E5-2650Lv4 14C/28T 1.70GHz 35MB 9.6GT/s 2400MHz 65W	S26361-F3933-E151



Separate orderable CPU upgrade kits	
S26361-F3933-L803	Xeon E5-2603v4 6C/6T 1.70GHz 15MB 6.4GT/s 1866MHz 85W
S26361-F3933-L809	Xeon E5-2609v4 8C/8T 1.70GHz 20MB 6.4GT/s 1866MHz 85W
S26361-F3933-L820	Xeon E5-2620v4 8C/16T 2.10GHz 20MB 8.0GT/s 2133MHz 85W
S26361-F3933-L830	Xeon E5-2630v4 10C/20T 2.20GHz 25MB 8.0GT/s 2133MHz 85W
S26361-F3933-L840	Xeon E5-2640v4 10C/20T 2.40GHz 25MB 8.0GT/s 2133MHz 90W
S26361-F3933-L850	Xeon E5-2650v4 12C/24T 2.20GHz 30MB 9.6GT/s 2400MHz 105W
S26361-F3933-L823	Xeon E5-2623v4 4C/8T 2.60GHz 10MB 8.0GT/s 2133MHz 105W

E2



F

Section III Memory



- There are 12 memory slots per CPU for max.
768GB LRDIMM (12x 64GB 4R)
384GB RDIMM (12x 32GB 2R)
=> max. 1.536GB for two CPUs (768GB per CPU), using LRDIMM
=> max. 3.072GB for two CPUs, using upcoming 8Rx4 LRDIMM technology with 128GB per module
- The memory area is divided into 4 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,
slot 3 belongs to memory bank 3

Registered and Load Reduced DIMMs can be selected
No mix of registered and load reduced modules is allowed.
Memory will be operated at 1.2V.
Depending on the CPU following memory speeds will be reached:
In a single DIMM per channel configuration 2400MHz will be supported
This is also valid for a dual LRDIMM configurations (2400MHz)
In a dual RDIMM configuration 2400MHz will be supported
All 3DPC configurations support 1866MHz
SDDC (Chipkill) is supported for registered and load reduced x4 organized memory modules

1.) **"Independent Channel Mode" configuration**
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 channels must run at the same interface frequency but individual channels may run at different DIMM timings (RAS latency, CAS latency, and so forth)
No mix of registered and load reduced modules is allowed.

2.) **"Rank Sparing Mode" configuration**
Within a memory channel, one rank is a spare of the other ranks.
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 DDR4 module per channel

3.) **"Performance Mode" configuration**
In this configuration, the memory module population ex factory is spread across all channels.
The BIOS is set to the maximum performance for memory.
Minimum configuration is four identical modules per CPU

4.) **"Mirrored Channel Mode" configuration**
Each memory bank can optionally be equipped with four registered or load reduced DDR4 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 equipped with identical modules for mirrored channel mode.
In channel B / D is always the mirrored memory of channel A / C of CPU 1
In channel F / H is always the mirrored memory of channel E / G of CPU 2
Minimum configuration is four identical modules per CPU

F1

F1

1x 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.	
Requires min 2x 1R/2R or 1x 4R modules per CPU	
S26361-F3694-E2	Performance Mode Installation
BIOS Setup factory preinstalled for maximum Performance, 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-E3	Mirrored Channel Mode Installation
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	
Multiple of 4 identical modules to be configured per CPU	

Effective Memory capacity / Rank Sparing Mode, 1 Channel populated

	RDIMM			LRDIMM	
	8GB 1R	16GB 2R	32GB 2R	64GB 4R	128GB 8R
1DPC				48GB	112GB
2DPC	8GB	24GB	48GB	112GB	240GB
3DPC	16GB	40GB	80GB	176GB	368GB

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

Note 1)
 Max. DDR4 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

Note 2)
 Mix of memory modules is only possible within the same group

12x per CPU, max. 3 modules per channel

Registered Memory (RDIMM) with SDDC (chipkill) support	
- one DDR4 registered ECC memory Module, 1.2V	
Choose up to 12 order codes per CPU	
8GB (1x8GB) 1Rx4 DDR4-2400 R ECC	S26361-F3934-E611
16GB (1x16GB) 2Rx4 DDR4-2400 R ECC	S26361-F3934-E612
32GB (1x32GB) 2Rx4 DDR4-2400 R ECC	S26361-F3934-E615
Registered Memory (RDIMM 3DS)	
64GB (1x64GB) 4Rx4 DDR4-2400 3DS ECC	S26361-F3934-E617
Registered Memory (RDIMM) without SDDC (chipkill) support	
- one DDR4 registered ECC memory Module, 1.2V	
Choose up to 12 order codes per CPU	
8GB (1x8GB) 2Rx8 DDR4-2400 R ECC	S26361-F3934-E614
16GB (1x16GB) 2Rx8 DDR4-2400 R ECC	S26361-F3934-E613
Load Reduced Memory (LRDIMM) with SDDC (chipkill) support	
- one DDR4 load reduced ECC memory Module, 1.2V	
Choose up to 12 order codes per CPU	
64GB (1x64GB) 4Rx4 DDR4-2400 LR ECC	S26361-F3935-E616
128GB (1x128GB) 8Rx4 DDR4-2400 LR ECC	S26361-F3935-E617

available from Q4/2017

on special release only

late availability expected

G

Memory Configuration PRIMERGY BX2580 M2

Each CPU offers 12 Slots for DDR4 Memory Modules organised in 3 Banks and 4 Channels.

If you need more than 12 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).

There are 2 different kinds of DDR4 Memory Modules available: RDIMM and LRDIMM

Mix of RDIMM and LRDIMM is not allowed.

Mode	Configuration	RDIMM	RDIMM	Application
		x8	x4	
SDDC (chipkill) support	any	no	yes	detect multi-bit errors
Independant Channel Mode	1, 2 or 3 Modules per Bank	yes	yes	offers max. flexibility, upgradeability, capacity
Mirrored Channel Mode *)	4 identical Modules / Bank	no	yes	offers maximum security
Performance Mode	4 identical Modules / Bank	yes	yes	offers maximum performance and capacity
Rank Sparing Mode *)	min. 2 Ranks / Channel	no	yes	balances security and capacity

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

Capacity	Configuration	RDIMM	LRDIMM	Notes
Min. Memory per CPU	1 Module / CPU	1x8GB	1x64GB	with one CPU
Max. Memory per CPU	12 Modules / CPU	12x32GB	12x128GB	with one CPU
Max. Memory per System	24 Modules / System	768GB	3.072GB	if second CPU is configured

Memory-Speed:

Max. DDR4 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	Real maximum memory-bus speed depending on CPU type, memory configuration (DPC) and voltage setting (BIOS)					
	RDIMM 2400MHz			LRDIMM 2400MHz		
	1.2V			1.2V		
Voltage setting (BIOS)	1	2	3	1	2	3
	DPC	DPC	DPC	DPC	DPC	DPC
CPU with 2400MHz DDR4 Bus	2400	2400	1866	2400	2400	1866
CPU with 2133MHz DDR4 Bus	2133	2133	1866	2133	2133	1866
CPU with 1866MHz DDR4 Bus	1866	1866	1866	1866	1866	1866

1R - Single Rank 4R - Quad Rank
 2R - Dual Rank 8R - Eight 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

Bank III green sockets

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

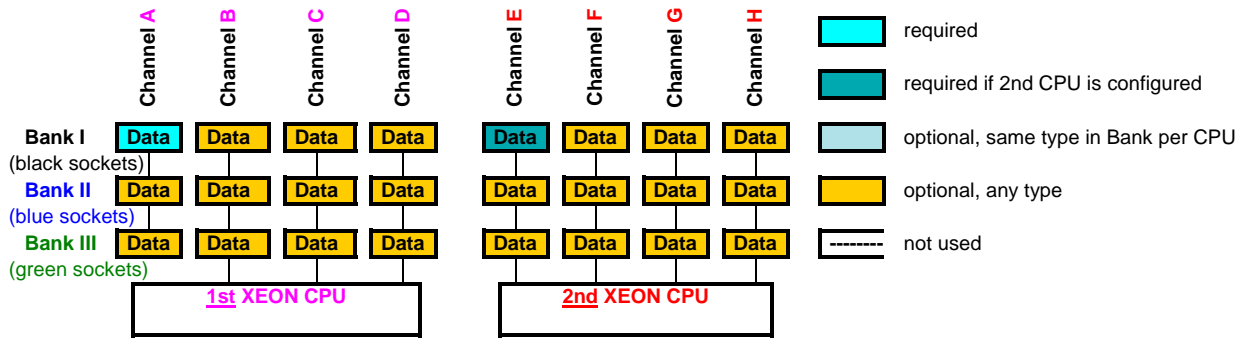
Bank I on CPU 1/2 up to 4 memory modules connected to Channel A - H on the 1st/2nd CPU

Bank II on CPU 1/2 up to 4 memory modules connected to Channel A - H on the 1st/2nd CPU

Bank III on CPU 1/2 up to 4 memory modules connected to Channel A - H on the 1st/2nd CPU

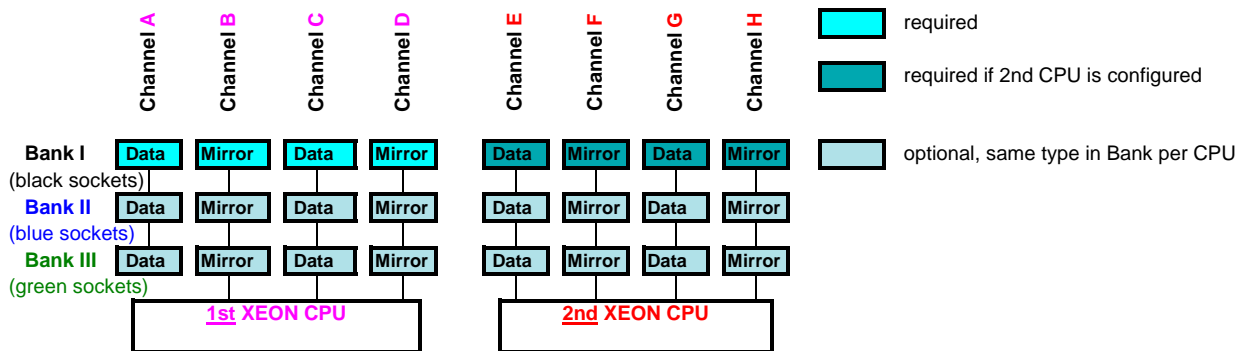
- See below and next page for a detailed descriptions of the memory configuration supported.

1. Independent Channel Mode



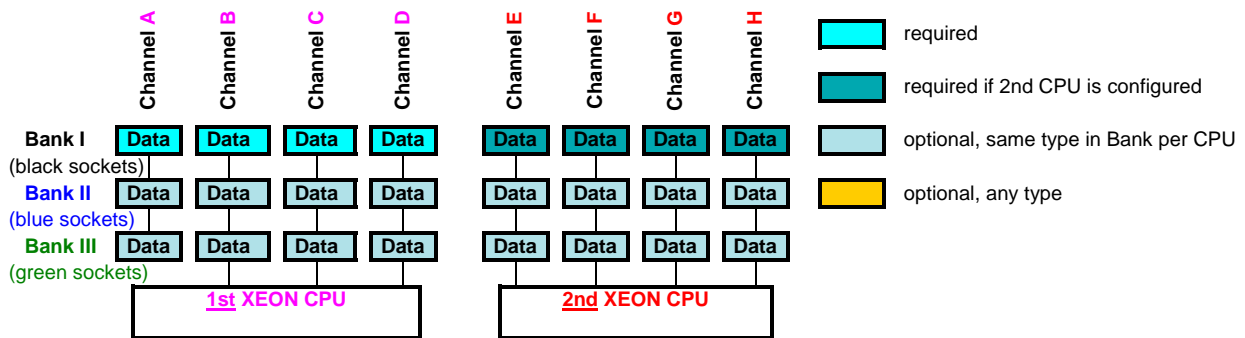
Independent Channel Mode allows all channels to be populated in any order
 Can run with differently rated DIMMs and use the settings of the slowest DIMM installed in the system

2. Mirrored Channel Mode



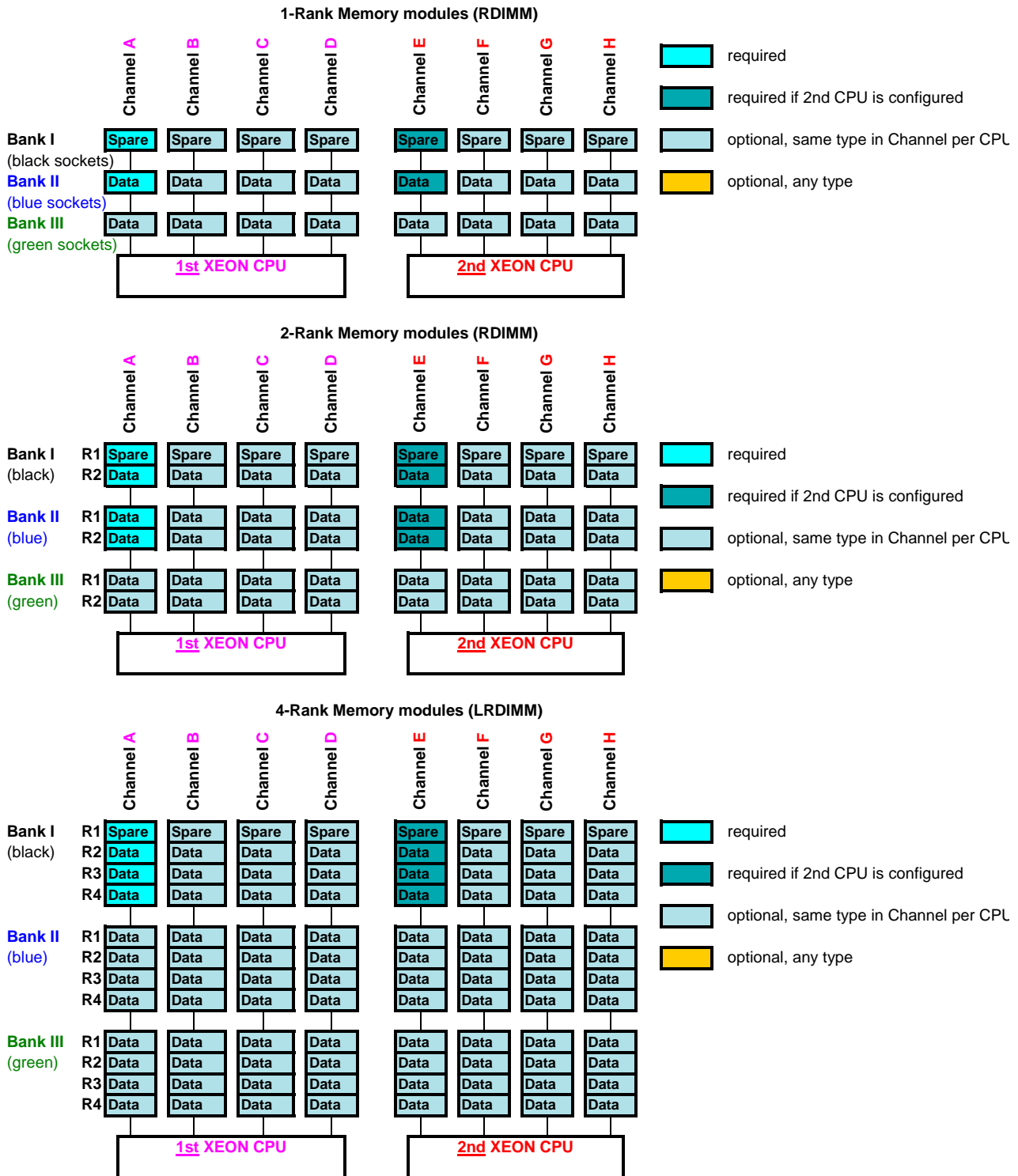
Mirrored Channel Mode requires identical modules on channel A,B, C, D (1st CPU) or channel E, F, G and H (2nd CPU)
 50% of the capacity is used for the mirror => the available memory for applications is only half of the installed memory
 If this mode is used, a multiple of 4 identical modules has to be ordered.

3. Performance Channel Mode



Performance Channel Mode requires identical modules on all channels of each Bank per CPU.
 If this mode is used, a multiple of 4 identical modules has to be ordered.

4. Rank Sparing Mode



Rank Sparing Mode requires identical modules (same capacity and technology) within the same channel.
 The available memory for applications will vary depending on configuration. Please refer to the spreadsheet above
 "Effective Memory capacity with active Rank Sparing Mode". Population rule for Rank sparing mode is to achieve max.
 available memory, e.g. 6 DIMMs will be spread across two channels, each with 3DPC

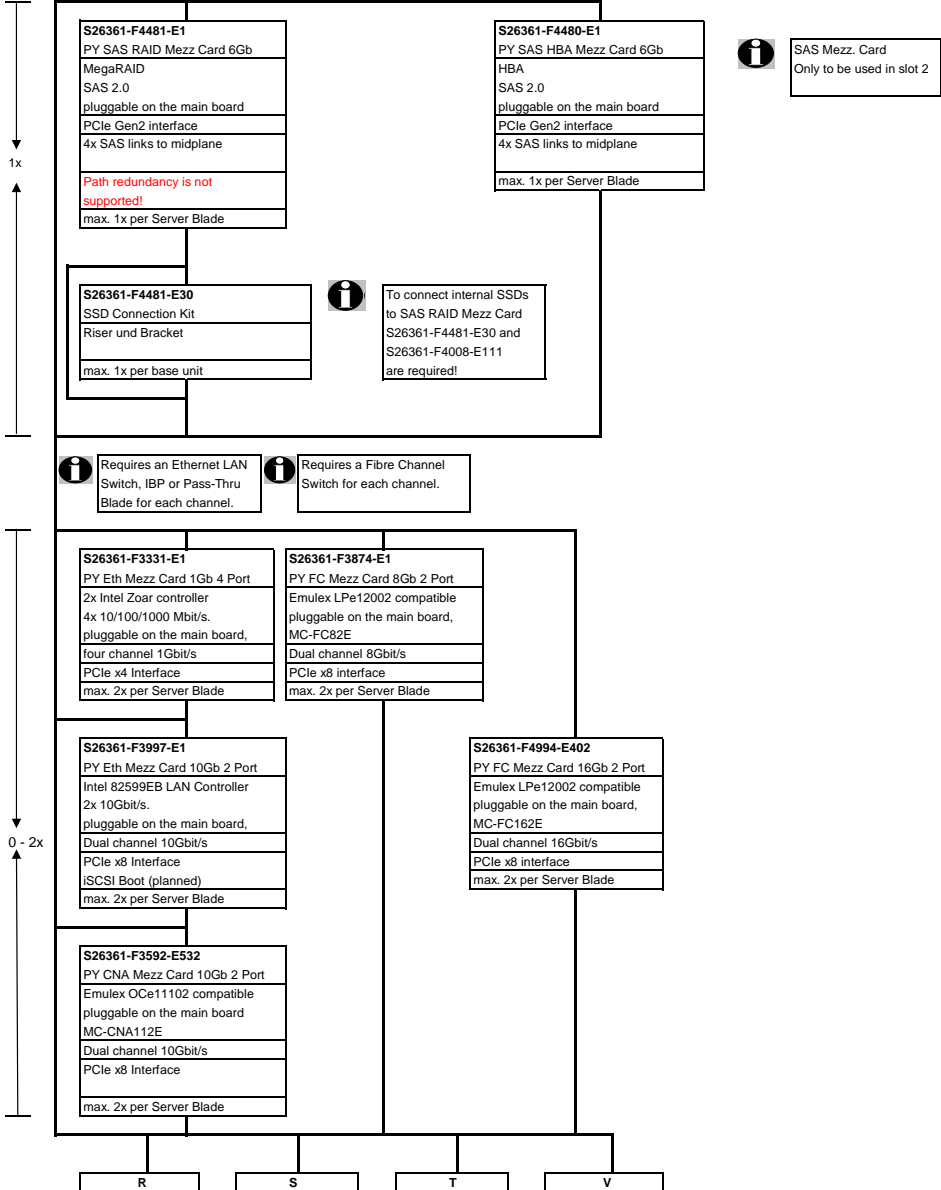
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Section XIV iRMC S3, Graphics

- i** Graphic Controller is part of the onboard Management Controller iRMC S3. Other graphics are not possible.
- i** The iRMC S3 advanced pack is included in the system delivery. A corresponding license order is not necessary.

Section XV Mezzanine cards for Dual Socket Server Blade

i The Dual Server Blade supports the following optional mezzanine cards. A Fibre Channel Switch / Pass-Thru blade, an Ethernet LAN Switch / Pass-Thru blade, respectively an InfiniBand switch is required in the system unit for this functionality.



- i** R: see separate BX900 System Unit configurator, sheet "1 GB Ethernet"
 - i** S: see separate BX900 System Unit configurator, sheet "10 GB Ethernet"
 - i** T: see separate BX900 System Unit configurator, sheet "Fibre Channel"
 - i** V: see separate BX900 System Unit configurator, sheet "CB SAS"
- https://partners.ts.fujitsu.com/com/order-supply/configurators/primergy_config/current/Pages/default.aspx

