

# System Board D2619-N for PRIMERGY RX/TX300 S6

Technical Manual

## **Comments... Suggestions... Corrections...**

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## **Certified documentation according to DIN EN ISO 9001:2000**

To ensure a consistently high quality standard and user-friendliness, this documentation was created to meet the regulations of a quality management system which complies with the requirements of the standard DIN EN ISO 9001:2000.

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## **Before reading this manual**

### **For your safety**

This manual contains important information for safely and correctly using this product.

Carefully read the manual before using this product. Pay particular attention to the accompanying manual "Safety notes and other important information" and ensure these safety notes are understood before using the product. Keep this manual and the manual "Safety notes and other important information" in a safe place for easy reference while using this product.

### **Radio interference**

This product is a "Class A" ITE (Information Technology Equipment). In a domestic environment this product may cause radio interference, in which case the user may be required to take appropriate measures. VCCI-A

### **Aluminum electrolytic capacitors**

The aluminum electrolytic capacitors used in the product's printed circuit board assemblies and in the mouse and keyboard are limited-life components. Use of these components beyond their operating life may result in electrolyte leakage or depletion, potentially causing emission of foul odor or smoke.

As a guideline, in a normal office environment (25°C) operating life is not expected to be reached within the maintenance support period (5 years). However, operating life may be reached more quickly if, for example, the product is used in a hot environment. The customer shall bear the cost of replacing replaceable components which have exceeded their operating life. Note that these are only guidelines, and do not constitute a guarantee of trouble-free operation during the maintenance support period.

### **High safety use**

This product has been designed and manufactured for general uses such as general office use, personal use, domestic use and normal industrial use. It has not been designed or manufactured for uses which demand an extremely high level of safety and carry a direct and serious risk to life or body if such safety cannot be ensured.

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These uses include control of nuclear reactions in nuclear power plants, automatic airplane flight control, air traffic control, traffic control in mass transport systems, medical devices for life support, and missile guidance control in weapons systems (hereafter, "high safety use"). Customers should not use this product for high safety use unless measures are in place for ensuring the level of safety demanded of such use. Please consult the sales staff of Fujitsu if intending to use this product for high safety use.

### **Measures against momentary voltage drop**

This product may be affected by a momentary voltage drop in the power supply caused by lightning. To prevent a momentary voltage drop, use of an AC uninterruptible power supply is recommended.

(This notice follows the guidelines of Voltage Dip Immunity of Personal Computer issued by JEITA, the Japan Electronics and Information Technology Industries Association.)

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### **Harmonic Current Standards**

This product conforms to harmonic current standard JIS C 61000-3-2.

### **Only for the Japanese market: About SATA hard disk drives**

The SATA version of this server supports hard disk drives with SATA / BC-SATA storage interfaces. Please note that the usage and operation conditions differ depending on the type of hard disk drive used.

Please refer to the following internet address for further information on the usage and operation conditions of each available type of hard disk drive:

<http://primeserver.fujitsu.com/primergy/harddisk/>

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### Only for the Japanese market:



Although described in this manual, some sections do not apply to the Japanese market. These options and routines include:

- USB Flash Module (UFM) 対応の PC / AU-YHCEU D
- CSS (Customer Self Service)
- Replacing the lithium battery



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# 1 Introduction

This technical manual describes the system board D2619-N, which can be equipped with up to two processors.

For additional driver information (if available), refer to the Readme files located on the server hard disk and on the supplied DVDs (see Installation DVD of ServerView Suite - ServerView Software Products).

You will find further information about the BIOS setup in the "D2619-N BIOS Setup Utility for PRIMERGY RX300 S6 and TX300 S6" manual.





PRIMERGY manuals are available in PDF format on the PRIMERGY ServerView Suite DVD 2. The PRIMERGY ServerView Suite DVD 2 is part of the PRIMERGY ServerView Suite supplied with every server.

PRIMERGY Abbreviations and Glossary can also be found on the PRIMERGY ServerView Suite DVD 2.

## 1.1 Notational conventions

The following notational conventions are used in this manual:

<i>Text in italics</i>	indicates commands or menu items.
"Quotation marks"	indicate names of chapters and terms that are being emphasized.
►	describes activities that must be performed in the order shown.
 <b>CAUTION!</b>	pay particular attention to texts marked with this symbol. Failure to observe this warning may endanger your life, destroy the system or lead to the loss of data.
	indicates additional information, notes and tips.



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## 2 Important information

In this chapter you will find essential information regarding safety when working with your server.



### **CAUTION!**

With the system board installed you must open the system to access the system board. How to access the system board of your system is described in the appropriate service supplement (except for the Japanese market).

When handling the system board, refer to the specific notes on safety in the operating manual and/or service supplement for the respective server.

### 2.1 Notes on safety



#### **CAUTION!**

- The actions described in these instructions should only be performed by authorized, qualified personnel. Equipment repairs should only be performed by qualified staff. Any failure to observe the guidelines in this manual, and any unauthorized openings and improper repairs could expose the user to risks (electric shock, fire hazards) and could also damage the equipment. Please note that any unauthorized openings of the device will result in the invalidation of the warranty and exclusion from all liability.
- Transport the device only in the antistatic original packaging or in packaging that protects it from knocks and jolts.
- Only install expansions that are allowed for the system board. If you install other expansions, you may damage the requirements and rules governing safety and electromagnetic compatibility or your system. Information on which system expansions are approved for installation can be obtained from our customer service center or your sales outlet.
- The warranty expires if the device is damaged during the installation or replacement of system expansions.

**CAUTION!**

- Components can become very hot during operation. Ensure you do not touch components when making extensions to the system board. There is a danger of burns!
- Transmission lines to peripheral devices must be adequately shielded.
- Ethernet cabling has to comply with EN 50173 and EN 50174-1/2 standards or ISO/IEC 11801 standard respectively. The minimum requirement is a Category 5 shielded cable for 10/100 Ethernet, or Category 5e for Gigabit Ethernet.
- Never connect or disconnect data transmission lines during a storm (risk of lightning hazard).

**Batteries****CAUTION!**

- Incorrect replacement of batteries may lead to a risk of explosion. The batteries may only be replaced with identical batteries or with a type recommended by the manufacturer (this information doesn't apply to the Japanese market).

It is essential to observe the instructions in the [chapter "Replacing the lithium battery"](#).

## Modules with Electrostatic-Sensitive Devices

Modules with electrostatic-sensitive devices are identified by the following sticker:

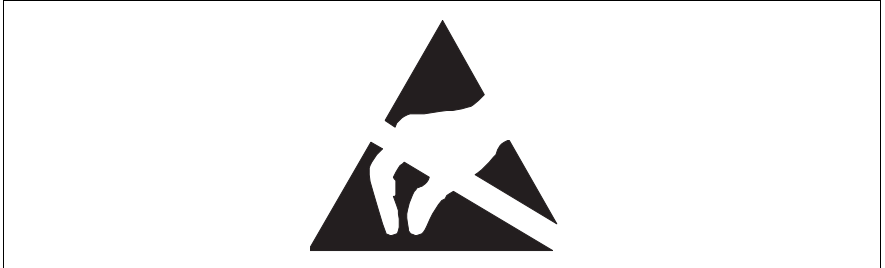


Figure 1: ESD label

When you handle components fitted with ESDs, you must always observe the following points:

- Switch off the system and remove the power plugs from the power outlets before installing or removing components with ESDs.
- You must always discharge static build-up (e.g. by touching a grounded object) before working with such components.
- Any devices or tools that are used must be free of electrostatic charge.
- Wear a suitable grounding cable that connects you to the external chassis of the system unit.
- Always hold components with ESDs at the edges or at the points marked green (touch points).
- Do not touch any connectors or conduction paths on an ESD.
- Place all the components on a pad which is free of electrostatic charge.



For a detailed description of how to handle ESD components, see the relevant European or international standards (EN 61340-5-1, ANSI/ESD S20.20).

### Notes about boards

- During installation/deinstallation of the board, observe the specific instructions described in the service supplement for the respective server.
- Shut down the server and disconnect the power plug, before you make modifications on an installed board.
- To prevent damage to the board, the components and conductors on it, please take great care when you insert or remove boards. Take great care to ensure that extension boards are slotted in straight, without damaging components or conductors on the board, or any other components, for example EMI spring contacts.
- Be careful with the locking mechanisms (catches, centring pins etc.) when you replace the system board or components on it, for example memory modules or processors.
- Never use sharp objects (screw drivers) for leverage.
- Do not damage or modify internal cables or devices. Doing so may cause a device failure, fire, or electric shock.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.

## 2.2 CE certificate of conformity



The board complies with the requirements of the EC directives 2004/108/EC regarding “Electromagnetic Compatibility” and 2006/95/EC “Low Voltage Directive”. This is indicated by the CE marking (CE = Communauté Européenne).

Compliance was tested in a typical PRIMERGY configuration.

## 2.3 Environmental protection

### Environmentally-friendly product design and development

This product has been designed in accordance with the Fujitsu standard for "environmentally friendly product design and development". This means that key factors such as durability, selection and labeling of materials, emissions, packaging, ease of dismantling and recycling have been taken into account.

This saves resources and thus reduces the harm done to the environment. Further information can be found at:

- [http://ts.fujitsu.com/products/standard\\_servers/index.html](http://ts.fujitsu.com/products/standard_servers/index.html)  
(for the EMEA market)
- <http://primeserver.fujitsu.com/primergy/concept/> (for the Japanese market)

### Energy-saving information

Devices that do not need to be constantly switched on should be switched off until they are needed as well as during long breaks and after completion of work.

### Packaging information

This packaging information doesn't apply to the Japanese market.

Do not throw away the packaging. You may need it later for transporting the system. If possible, the equipment should only be transported in its original packaging.

### Information on handling consumables

Please dispose of printer consumables and batteries in accordance with the applicable national regulations.

In accordance with EU directives, batteries must not be disposed of with unsorted domestic waste. They can be returned free of charge to the manufacturer, dealer or an authorized agent for recycling or disposal.

All batteries containing pollutants are marked with a symbol (a crossed-out garbage can). They are also marked with the chemical symbol for the heavy metal that causes them to be categorized as containing pollutants:

Cd Cadmium

Hg Mercury

Pb Lead

### Labels on plastic casing parts

Please avoid sticking your own labels on plastic parts wherever possible, since this makes it difficult to recycle them.

### Returns, recycling and disposal

Please handle returns, recycling and disposal in accordance with local regulations.



The device must not be disposed of with domestic waste. This device is labeled in compliance with European directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

This directive sets the framework for returning and recycling used equipment and is valid across the EU. When returning your used device, please use the return and collection systems available to you. Further information can be found at

<http://ts.fujitsu.com/recycling>.

Details regarding the return and recycling of devices and consumables within Europe can also be found in the "Returning used devices" manual, via your local Fujitsu branch or from our recycling center in Paderborn:

Fujitsu Technology Solutions  
Recycling Center  
D-33106 Paderborn

Tel. +49 5251 8 18010

Fax +49 5251 8 333 18010



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## 3 Features



Not all features of the system board might be used in your server system.

### 3.1 Overview

#### Processors

- 1 or 2 Intel® Xeon™ processors of the 5500 or 5600 series
- 2 processor sockets LGA1366 for Intel® Xeon™ processors
- integrated memory controller
- 32 KB L1 cache (on-die, data per core)
- 32 KB L1 cache (on-die, instruction per core)
- 256 KB second level cache per core
- up to 12 MB onchip shared third level cache
- 2 Intel® QuickPath Interconnect with up to 6.4 GT/s in each direction
- 2x VRM 11.1 onboard (EVRD)

#### Main memory

- up to 2x 9 slots for main memory, the number of allowed memory modules is dependent on memory type
- supports DDR3 800 / 1066 / 1333 UDIMM memory modules
- supports DDR3 800 / 1066 / 1333 RDIMM memory modules
- supports DDR3 1066 / 1333 LV-UDIMM memory modules
- supports DDR3 1066 / 1333 LV-RDIMM memory modules
- maximum 192 GB of memory
- minimum 1 GB
- maximum 32 Gbit/s band width (DDR3)
- up to 3 dual rank or 2 quad rank RDIMM memory rows per channel
- up to 2 UDIMM memory rows per channel
- ECC multiple-bit error detection and single-bit error correction
- memory scrubbing functionality
- Single Device Data Correction (SDDC) function (Chipkill™)
- Mirroring
- Sparing

## **Chips on the system board**

- Intel® 5520 chip set
- Intel® ICH10 Base (Intel® 82801JIB)
- Intel® dual-port Gigabit Ethernet controller Intel 82575EB
- 2 MB SPI flash (BIOS / iSCSI, PXE Bootcode)
- Server Management controller iRMC S2 with integrated graphic controller
- 16 MB SPI flash (code) for iRMC S2
- 1 MB SPI flash (data) for iRMC S2
- 32Mx16-667 DDR2 SRAM for iRMC S2
- SMSC8700 Fast Ethernet
- ADT7462 temperature/system monitoring controller

## **Graphic**

- integrated VGA controller with PCIe x1 interface (Matrox G200)
- 8 MB graphic memory available via driver
- VESA compatible

## **LAN – Ethernet controller**

- 1x Intel® 82575EB dual-port 10/100/1000 Mbit/s Base-T Ethernet controller
- PXE 2.1 and iSCSI boot support
- IPV6 header offloading

## **Storage devices**

- 2x SATA2 (3 Gbit/s)
- 2x USB 2.0 (internal USB backup drives)
- 1x internal USB 2.0 memory stick

## **Internal connectors**

- 2x serial ATA connectors
- 1x operating panel connector
- 1x video connector (VGA) at the front side
- 1x internal USB stick connector
- 1x USB connector for 3 USB connectors at the front side
- 2x USB connectors for USB tape drives
- 1x connector for USB Flash Module (optional)
- 1x connector for Trusted Platform Module (optional)
- 1x power connector (12 V and 5 V auxiliary)
- 1x combined connector for HDD power supply and fan

- 2x power connectors
- 1x connector for HDD activity LED
- 1x intrusion connector (only used for TX300 S6)

### External connectors

- 2x serial connectors (COM)
- 4x USB 2.0 connectors with 480 Mbit/s at the rear side
- 1x video connector (VGA)
- 2x RJ45 LAN connectors
- 1x RJ45 service LAN connector

### PCI slots

- 2x PCI-Express 2.0 x8 slots
- 1x PCI-Express 2.0 x4 slot
- 4x PCI-Express 2.0 x4 slots, can be alternatively configured as four x4 slots or two x8 slots (if the neighbour slot isn't equipped)

### Server Management controller iRMC S2

- basic functionalities: fan control, voltage supervision for onboard voltages, temperature monitoring, System Event Log and ASR&R (Automatic Server Reconfiguration and Restart)
- PDA
- Global Error/CSS/ID LED
- HD LED support (SAS, SATA)
- Inventory Identification Control
- pre-failure warranty for memory
- CSS functionality
- power consumption control
- text console redirection
- Advanced Video Redirection - AVR
- remote storage

### Security features

- Supervisor and User password
- recovery BIOS support
- flash write protection against virus

**Power management**

- ACPI (states S0, S1, S5)
- 3.3 V standby power on the PCI Express slots
- on/off/sleep/wake by power button
- on/off by software
- wake on by RTC, external serial ports, LAN, PCI Express controller and iRMC S2
- power on by power button, external serial ports, LAN, PCI Express controller and iRMC S2

**BIOS features**

- Phoenix SecureCore
- SMBIOS 2.5 (DMI)
- MultiProcessor specification
- Server Hardware Design Guide
- WfM
- ACPI support
- LSI SAS/RAID BIOS
- USB keyboard/mouse
- boot possible from:
  - hard disk (SATA, SAS, SCSI, USB)
  - USB stick
  - CD/DVD (IDE, SATA, SAS)
  - LAN
- console redirection support
- OEM logo
- CPU, memory disable
- Mirroring and Spare memory support

**Environmental protection**

Battery in holder for recycling

**Form factor, slot compatibility list**

- 415 x 417mm
- ACPI 2.0, OnNow, PCI Express 2.0, LPC 1.1, WfM 2.0, SHDG 3.0, MPS 1.4, IPMI 2.0, PCI SHPC 1.0 and PCI Express card electromechanical specification rev. 1.0, USB2.0, SATA 2.0

### CSS (Customer Self Service)

This system board supports the CSS functionality. You will find a description of CSS functionality in the operating manual of your server.

### USB Flash Module (option)

The system board can be equipped with an USB Flash Module (UFM) by the manufacturer or by an add-on kit. The module can be used as optional memory for software (e.g. VMware) or as a software dongle.



The USB Flash Module can not be used together with an USB device in the internal USB stick connector.

### Internal USB stick (option)

The system board can be equipped with an internal USB stick by the manufacturer.



The internal USB stick can not be used together with an installed UFM.

### TPM (option)

The system board can be equipped with a TPM (Trusted Platform Module) by the manufacturer or by an add-on kit. This module enables programs from third party manufacturers to store key information (e.g. drive encryption using Windows Bitlocker Drive Encryption).

The TPM is activated via the BIOS system (for more information, refer to the BIOS manual).



#### CAUTION!

- When using the TPM, note the program descriptions provided by the third party manufacturers.
- You must also create a backup of the TPM content. To do this, follow the third party manufacturer's instructions. Without this backup, if the TPM or the system board is faulty you will not be able to access your data.
- If a failure occurs, please inform your service about the TPM activation before it takes any action, and be prepared to provide them with your backup copies of the TPM content.

## 3.2 Main memory

The system board supports up to 192 GB main memory. 18 slots for main memory are available. Each slot can be populated with 1 GB, 2 GB single or dual rank UDIMM or 1 GB, 2 GB, 4 GB, 8 GB, 16 GB single, dual or quad rank RDIMM memory modules. Besides low-voltage DIMMs are supported. The minimum population in the Independent Channel Mode is one DIMM.

ECC with memory scrubbing and with the Single Device Data Correction (SDDC) function is supported.



You will find the descriptions how to install memory modules in the Options Guide of your server.

### 3.2.1 Module population

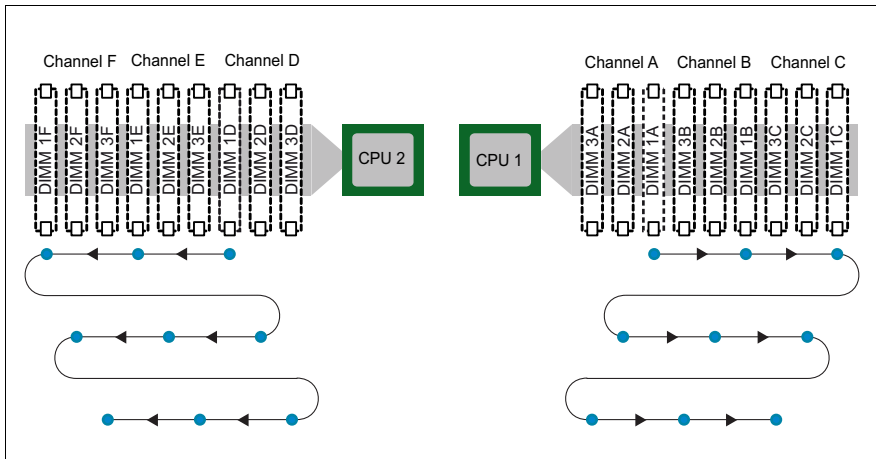


Figure 2: Assembly of the main memory in channels and slots

The arrows in [figure 2](#) show the direction of the population of the memory slots.

- The memory modules are organized in 6 channels (A - F). Each channel has three slots (1-3).
- The channels A - C are controlled by CPU 1 and the channels D - F are controlled by CPU 2.

### 3.2.1.1 Types of memory modules

#### RDIMM memory modules

Technology: DDR3 800 / 1066 / 1333 buffered single rank (SR), dual rank (DR) or quad rank (QR) RDIMM memory modules with ECC.

#### LV-RDIMM memory modules

Technology: DDR3 800 / 1066 / 1333 buffered single rank (SR), dual rank (DR) or quad rank (QR) LV-RDIMM memory modules with ECC.

LV-RDIMM memory modules are not supported by Intel® Xeon™ processors of the 5500 series.

#### UDIMM memory modules

Technology: DDR3 800 / 1066 / 1333 unbuffered single rank (SR) or dual rank (DR) UDIMM memory modules with ECC.

#### LV-UDIMM memory modules

Technology: DDR3 800 / 1066 / 1333 unbuffered single rank (SR) or dual rank (DR) LV-UDIMM memory modules with ECC.

LV-UDIMM memory modules are not supported by Intel® Xeon™ processors of the 5500 series.

## Restrictions

The following configurations are not supported:

- 2DPC QRRDIMMs at DDR3-1066 speed or above
- 1DPC QRRDIMM at DDR3-1333 speed or above
- 3DPC SR/DR RDIMMs at DDR3-1066 speed or above
- Mixing QR RDIMMs on one channel and 3DPC SR/DR RDIMMs on another channel on same CPU socket
- Mixing RDIMMs and UDIMMs anywhere on same system
- Any DIMMs using 256 Mbit, 512 Mbit or 4Gbit DRAM technologies
- x16DRAM on RDIMM or x4DRAM on UDIMM and QR UDIMM
- If 1.35 V (DDR3L) and 1.50 V (DDR3) DIMMs are mixed, the DIMMs will run at 1.50 V.
- DIMMs with different timing parameters can be installed on different slots within the same channel, but only timings that support the slowest DIMM will be applied to all. As a consequence, faster DIMMs will be operated at timings supported by the slowest DIMM populated. The same interface frequency (DDR3-800, DDR3-1066, or DDR3-1333) will be applied to all DIMMs on all channels on the platform (both processors).
- If one quad rank DIMM is used, it must be populated in DIMM slot 0 (farthest away from the CPU) of a given channel.



For system relevant information please refer to the configurator of the server:

[http://ts.fujitsu.com/products/standard\\_servers/tower/primergy\\_tx300s6.html](http://ts.fujitsu.com/products/standard_servers/tower/primergy_tx300s6.html) or  
[http://ts.fujitsu.com/products/standard\\_servers/rack/primergy\\_rx300s6.html](http://ts.fujitsu.com/products/standard_servers/rack/primergy_rx300s6.html)  
(for the EMEA market)

<http://primeserver.fujitsu.com/primergy/system.html> (for the Japanese market)



### 3.2.1.2 Modes of operation

There are three modes of operation for the main memory:

- Independent Channel Mode (maximum population) / Performance Mode (recommended)

The populated memory of the six channels (A - F) can be used completely.

- Mirrored Channel Mode (maximum security)

Only the populated memory of the two channels A and D can be used. The channels B and E serve as safeguarding against failure. The memory belonging to the channels B and E contain the mirrored data of the memory belonging to channel A and D. The channels C and F are not used.

- Spare Channel Mode (large population and large security)

Only the populated memory of the four channels A, B, D and E can be used. The channels C and F serve as safeguarding against failure.

Depending on the mode of operation there are different population requirements for the main memory.




For system relevant information please refer to the configurator of the server:

[http://ts.fujitsu.com/products/standard\\_server/tower/primergy\\_tx300s6.html](http://ts.fujitsu.com/products/standard_server/tower/primergy_tx300s6.html) or  
[http://ts.fujitsu.com/products/standard\\_server/rack/primergy\\_rx300s6.html](http://ts.fujitsu.com/products/standard_server/rack/primergy_rx300s6.html)  
(for the EMEA market)

<http://primeserver.fujitsu.com/primergy/system.html> (for the Japanese market)

### 3.3 PCI slots

The system board offers seven PCI-Express slots. The slots 1-5 are wired as x4 interfaces. If the slots 2 and 4 remain empty, the slots 3 and 5 can be used as x8 interfaces.



Slot 1 is the preferred slot for the HDD controller (bootable).

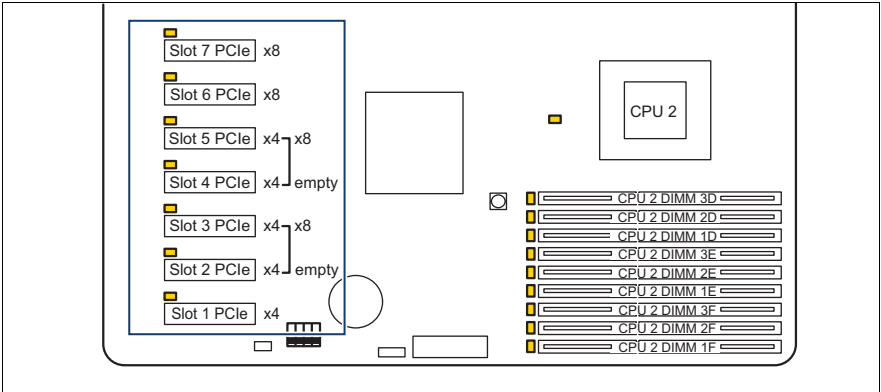


Figure 3: PCIe slots

The following table shows an overview of the PCIe slots:

PCI slot	Description
1	PCIe x4 slot for RAID controller
2	PCIe x4 slot
3	PCIe x4 slot (if slot 2 empty: x8)
4	PCIe x4 slot
5	PCIe x4 slot (if slot 4 empty: x8)
6	PCIe x8 slot
7	PCIe x8 slot

### 3.4 Screen resolution

Depending on the operating system used the screen resolutions in the following table refer to the graphic controller on the system board. The graphic controller is integrated in the iRMC S2 (integrated Remote Management Controller).

Screen resolution (pixel)	Maximum refresh rate (Hz)	Max. number of colours
640x480	85	32 bit
800x600	85	32 bit
1024x768	75	32 bit
1152x864	60	16 bit
1280x1024	60	24 bit
1600x1200	60	16 bit

If you are using an external graphic controller, you will find details of supported screen resolutions in the operating manual or technical manual supplied with the graphic controller.

### 3.5 Temperature / system monitoring

Temperature and system monitoring aim to reliably protect the computer hardware against damage caused by overheating. In addition, any unnecessary noise is also prevented by reducing the fan speed, and information is provided about the system status.

The temperature and system monitoring are controlled by the iRMC S2 (integrated Remote Management Controller).

The following functions are supported:

#### Temperature monitoring

Measurement of the processor and the system internal temperature by an onboard temperature sensor, measurement of the ambient temperature by a I<sup>2</sup>C temperature sensor.

**Fan monitoring**

The power supply unit and system fans are monitored. Fans that are no longer available, blocked or stuck fans are detected.

**Fan control**

The fans are regulated according to temperature.

**Sensor monitoring**

The removal of, or a fault in, a temperature sensor is detected. Should this happen all fans monitored by this sensor run at maximum speed, to achieve the greatest possible protection of the hardware.

**Voltage monitoring**

When voltage exceeds warning level high or falls below warning level low an alert will be generated.

**Cover monitoring (only TX300 S6)**

Unauthorized opening of the cover is detected, even when the system is switched off. However, this will only be indicated when the system is switched on again.

**System Event Log (SEL)**

All monitored events of the system board are signaled via the Global Error LED or CSS LED and recorded in the System Event Log. They could be retrieved in the BIOS Setup, iRMC S2's Web interface or via the ServerView Operations Manager.

**PRIMERGY Local Diagnostic LEDs**

Optical signaling through the LEDs on the system board identifies defective modules and components (CSS functionality) as well as gaining information on the PDA (Prefailure Detection and Analysis).

## 3.6 Connectors and indicators

### 3.6.1 System board

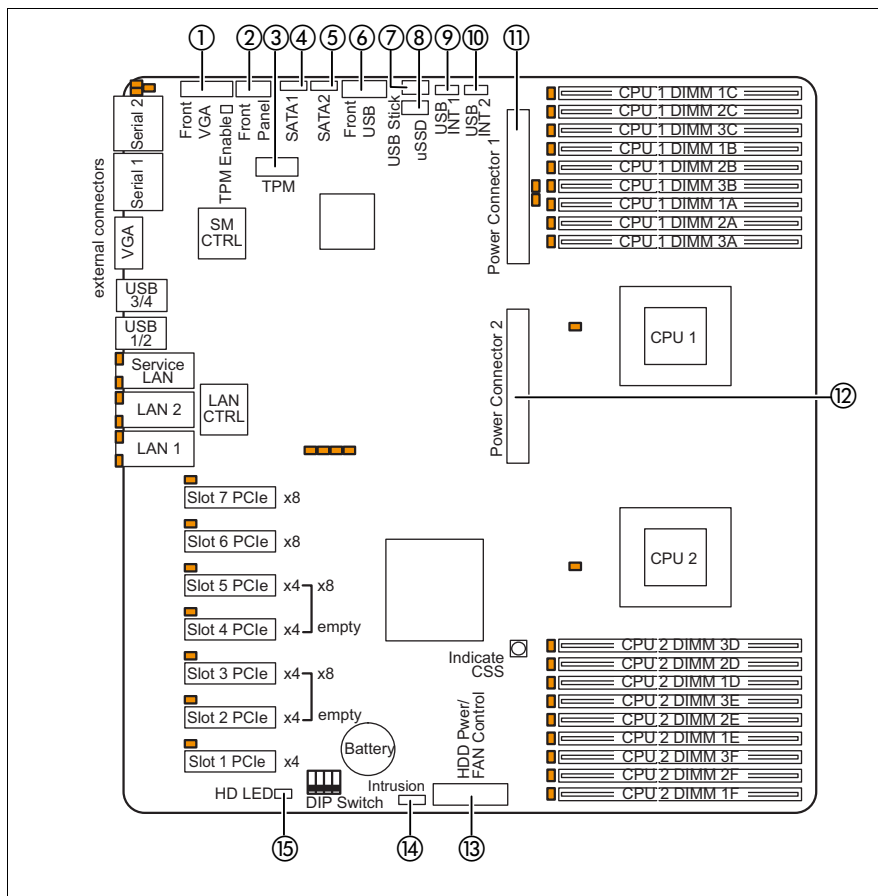


Figure 4: Internal connectors of the system board D2619-N

No.	Print	Description
1	Front VGA	Front VGA connector
2	Front Panel	Front panel connector
3	TPM	Connector for TPM
4	SATA 1	SATA1 connector
5	SATA 2	SATA2 connector
6	Front USB	USB connector for USB on the front side
7	USB Stick	USB stick connector
8	uSSD	Connector for USB Flash Module (UFM)
9	USB INT 1	Internal USB connector 1
10	USB INT 2	Internal USB connector 2
11	Power Connector 1	Power supply connector 1
12	Power Connector 2	Power supply connector 2
13	HDD Power/FAN Control	Power supply connector for fans and HDDs
14	Intrusion	Intrusion connector (only used for TX300 S6)
15	HD LED	Connector for HDD activity LED

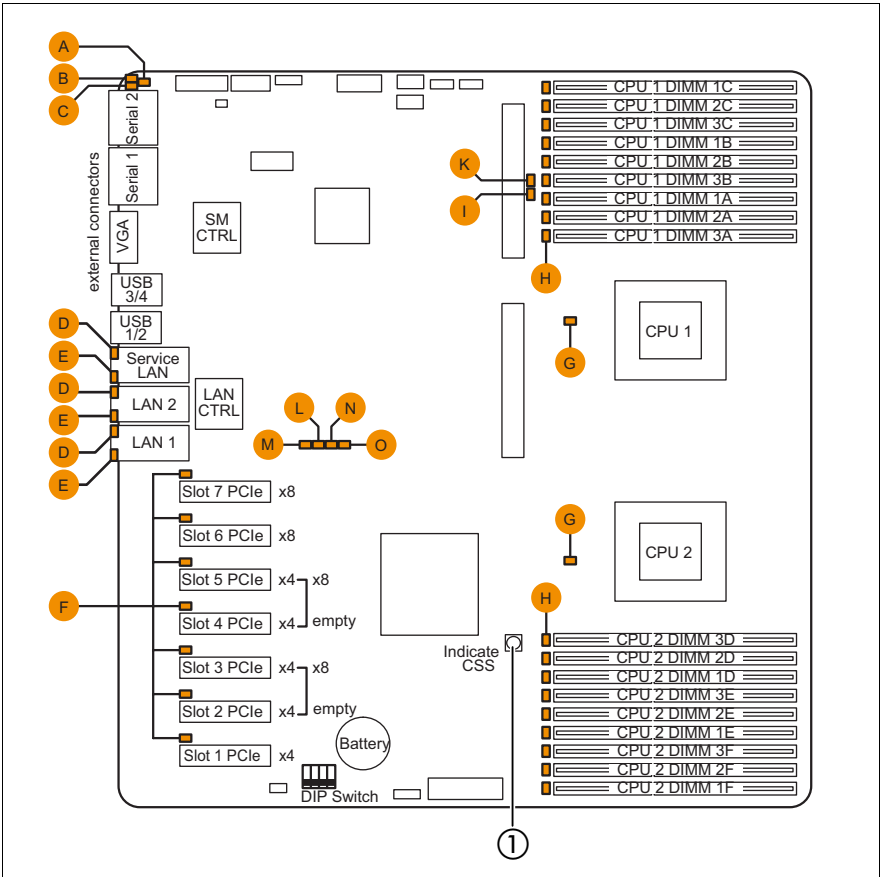


Figure 5: Indicators on the system board and CSS indicate button

No.	Description
1	CSS indicate button

LEDs A, B, C, D and E are visible from outside on the rear of the server. All the other LEDs are only visible, if the cover of the server has been opened.

If the server has been powered off (power-plugs must be disconnected) it is possible to indicate the faulty component by pressing the CSS indicate button.

The LEDs have the following meaning:

LED	Indicator	Meaning
A - Identification	blue on	server is identified via the ServerView Operations Manager
	blue flashing	local monitor off via AVR
B - CSS (Customer Self Service)	off	no error (CSS component)
	yellow on	indicates a prefailure (CSS component)
	yellow flashing	indicates a failure (CSS component)
C - GEL (Global Error LED)	off	no error (non CSS component)
	orange on	indicates a prefailure (non CSS component)
	orange flashing	indicates a failure of a non CSS component. Reasons for a failure may be: - over temperature measured by one of the sensors - sensor is defective - CPU error - software detected an error
D - LAN link/ transfer	Indicator and meaning see <a href="#">"LAN connectors" on page 34.</a>	
E - LAN speed	Indicator and meaning see <a href="#">"LAN connectors" on page 34.</a>	
F - PCI card	off	PCI card okay
	orange on	PCI card failure
G - CPU	off	CPU okay
	orange on	CPU failure
H - memory	off	memory module running
	orange on	memory module failure
I - PS CTRL ok	green on	Power supply controller okay
K - PS CTRL error	orange on	Power supply controller error
L - main power	green on	main power okay



LED	Indicator	Meaning
M - standby power	yellow on	all standby voltages are okay
N - board error	red on	system board is faulty
O - iRMC	green flashing	iRMC S2 is okay

### 3.6.2 Connector panel

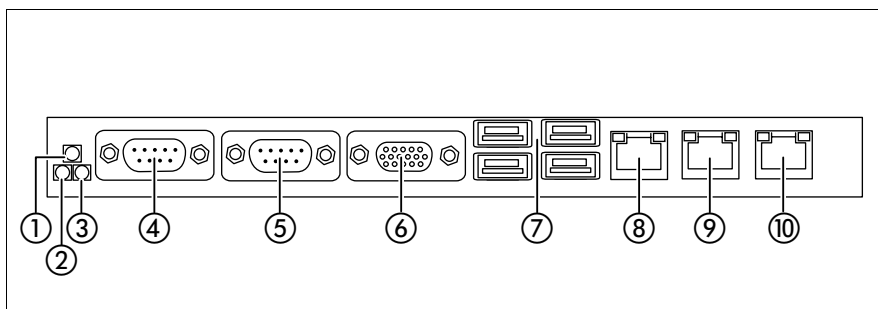


Figure 6: Connector panel

No.	Description
1	ID indicator (blue)
2	CSS indicator (yellow)
3	Global error indicator (orange)
4	Serial connector COM2
5	Serial connector COM1
6	Video connector (VGA)
7	USB connectors
8	Service LAN connector, for iRMC S2 server management function
9	System LAN connector (LAN 2)
10	System LAN connector (LAN 1)

The serial connector COM1 can be used as default interface or to communicate with the iRMC S2.

LAN connectors

The system board is equipped with an Intel® dual-port Gigabit Ethernet controller (Intel 82575EB). The LAN controller supports transmission rates of 10 Mbit/s, 100 Mbit/s and 1 Gbit/s.

The LAN controller also supports WOL functionality by means of Magic Packet™. It is also possible to start a system via a LAN without a separate boot hard disk drive. PXE is supported here.

The separate service LAN connector is used as a management interface (iRMC S2) and is prepared for operation with the Remote Management.

Each LAN connector has two LEDs which display the speed of the connection and its status:

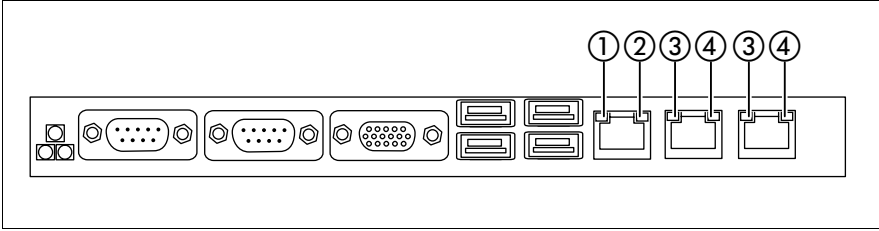


Figure 7: LAN LEDs

No	Indicator	Description
1	LAN link/transfer (service LAN)	<b>Steady green signal</b> when a LAN connection exists. <b>Remains dark</b> when no LAN connection exists. <b>Flashes green</b> when LAN transfer takes place.
2	LAN speed (service LAN)	<b>Steady green signal</b> in the event of a LAN transfer rate of 100 Mbit/s. <b>Remains dark</b> in the event of a LAN transfer rate of 10 Mbit/s.
3	LAN link/transfer (system LAN)	<b>Steady green signal</b> when a LAN connection exists. <b>Remains dark</b> when no LAN connection exists. <b>Flashes green</b> when LAN transfer takes place.

No	Indicator	Description
4	LAN speed (system LAN)	<b>Steady yellow signal</b> in the event of a LAN transfer rate of 1 Gbit/s  <b>Steady green signal</b> in the event of a LAN transfer rate of 100 Mbit/s.  <b>Remains dark</b> in the event of a LAN transfer rate of 10 Mbit/s.

### 3.7 Settings

#### 3.7.1 Jumper

##### Jumper TPM Enable

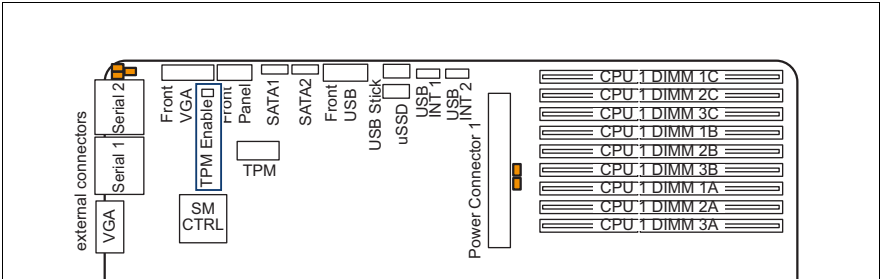


Figure 8: Position of the jumper TPM Enable



Default setting: pins 1 and 2 are connected. Without this setting the TPM function is disabled.

Default	Pin	Signal	Description
	1	TPM_RESET_L	Reset of the TPM
	2	ICH_TMP_DIS_L	Reset of the ICH10

3.7.2 Switches

DIP switches

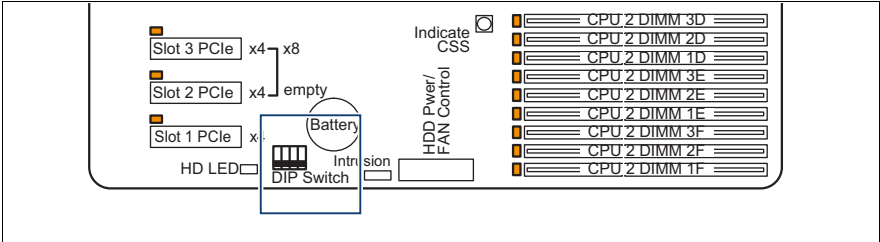


Figure 9: Position of the DIP switches

**i** Default setting: switches 1 to 4 are set to *Off*.

Default	Switch	Function	Status	Description
	S1-1	Recovery BIOS	On	Boot block enabled
			Off	Normal boot
	S1-2	Password skip	On	Password skip enabled
			Off	Password skip disabled
	S1-3	BIOS flash write-protect	On	BIOS can only be read
			Off	BIOS can both be read and written to
	S1-4	Not used		

**i** *Recovery BIOS*

Switch 1 enables recovery of the old system BIOS after an attempt to update has failed. To restore the old system BIOS you need a Flash BIOS medium (see the BIOS manual or please call our customer service centre).

*Password skip*

Switch 2 is used to define whether the password is skipped at system startup, if the password protection is enabled in the BIOS Setup (in *Security* menu, the *Password on boot* field must be set to *Enabled*).



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## 4 Replacing the lithium battery

In order to save the system information permanently, a lithium battery is installed to provide the CMOS-memory with a current. When the charge is too low or the battery is empty, a corresponding error message is provided. The lithium battery must then be replaced.



The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (CR2450). This information doesn't apply to the Japanese market.

Do not throw lithium batteries into the trash can. It must be disposed of in accordance with local regulations concerning special waste.

Make sure that you insert the battery the right way round. The plus pole must be on the top!

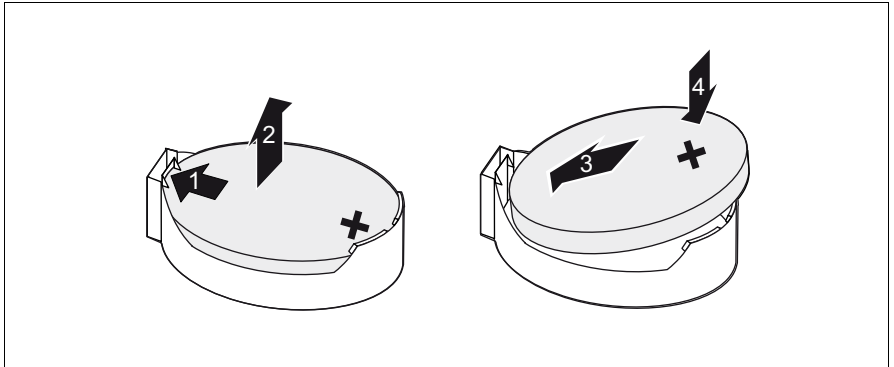


Figure 10: Replacing the lithium battery

- ▶ Press the locking spring into direction of the arrow (1), so that the lithium battery jumps out of its socket.
- ▶ Remove the battery (2).
- ▶ Insert a new lithium battery of the same type into the socket (3) and (4).

