

# Data Sheet

## FUJITSU Server PRIMERGY CX270 S2 Dual Socket Server Node

HPC optimized server node for PRIMERGY CX400 S2

FUJITSU Server PRIMERGY systems provide the most powerful and flexible data center solutions for companies of all sizes, across all industries and for any type of workload. This includes expandable PRIMERGY tower servers for remote and branch offices, versatile rack-mount servers, compact and scalable blade systems, as well as density-optimized scale-out servers. They convince by business proven quality with a wide range of innovations, highest efficiency cutting operational cost and complexity, and provide more agility in daily operations in order to turn IT faster into a business advantage.

The FUJITSU Server PRIMERGY CX scale-out systems are the ideal basis for cloud, hyper-converged and high performance computing solutions. They provide data centers as well as branch offices with massive computing power for virtualized environments, complex calculations as well as consolidation and high-availability scenarios.

### PRIMERGY CX270 S2

Two Fujitsu Server PRIMERGY CX270 S2 dual socket server nodes, each with a condensed half-wide 2U form factor can be packaged into the PRIMERGY CX400 S2 Multi-Node server system, including up to 8 local storage drives in a condensed 2 U rack enclosure.

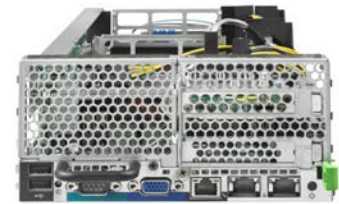
The server node features an optional GPGPU (General Purpose Graphics Processing Unit) from the world's fastest parallel processing NVIDIA® Tesla™ K-series or a new Intel® Xeon Phi™ coprocessor, to provide the optimal expansion for hardware assisted acceleration in High Performance Computing, analytics and graphic processing, enabling a ten-fold performance boost in HPC applications.

With 16 DIMMs for high bandwidth memory modules (1,024 GB), two top-bin CPUs out of the Intel® Xeon® processor E5-2600 family, and 3 PCIe Gen3 IO card slots (1x for GPGPU support)

the server node provides great versatility for very ambitious high performance workloads. A range of powerful communication and networking low profile PCIe cards, from 1 to 10 Gb Ethernet, 56 Gb FDR Infiniband, and SAS 2.0 RAID support future proof high speed node connectivity as required in creating large scale-out infrastructures.

The CX270 S2 combines high-end computational and graphics performance with high energy efficiency while using shared local fans and power supply units located in the CX400 S2 Multi-Node system.

With its condensed half-wide form factor it optimizes large data center scale-out deployment by minimum rack space used and low power envelopes.



# Features & Benefits

Main Features	Benefits
<p><b>Efficient High-End HPC server nodes with doubled-up server density</b></p> <ul style="list-style-type: none"> <li>Two CX270 S2 server nodes, each with two multi-core processors, up to 1,024 GB memory, optional high-end GPGPU/coprocessor from Nvidia or Intel, and a local storage capacity of up to four drives can be smartly packaged into a condensed 2U rack enclosure, using shared cooling and power.</li> </ul>	<ul style="list-style-type: none"> <li>50% less rack space used as compared to equivalently configured standard rack servers.</li> <li>Double the server density results in more performance achieved per rack unit.</li> <li>With GPGPU or coprocessor support, up to 10 times faster execution per server node in HPC computing is achieved.</li> <li>Decreased energy consumption, lower investment, yet still redundant operation.</li> <li>Lower energy budgets for a comparable performance as with standard rack servers.</li> <li>Up to 70% performance improvement over Xeon 56xx series, more depending on applications.</li> <li>60 % improvement in I/O bandwidth for heavy load I/O communication.</li> <li>Its flexible memory dimension fits to any application requirement.</li> <li>High performance GPGPUs/coprocessors from Nvidia or Intel make them ideal for seismic processing, biochemistry simulations, weather and climate modeling, signal processing, computational finance, CAE, CFD, data analytics and other high performance computing areas.</li> <li>Combined with density optimized CX270 S2 server nodes, they optimize large data center scale-out deployment for less rack space used and lower power envelopes.</li> <li>Each single server can be serviced without affecting the other node in the chassis.</li> <li>Redundancy for shared components provides uniform higher availability.</li> <li>Flexibility to select the suitable drive technology, best supporting the application demands; all drives come with full 3-year warranty.</li> <li>Up to four drives per CX270 S1 server node are allocated per standard, with support of hardware RAID by optional low profile SAS/RAID controller.</li> <li>A fined tuned granularity for large scale-out server deployment is achieved, using replicable CX400 S2 systems. Enables to Scale-out Smart as regards           <ul style="list-style-type: none"> <li>target server density goals</li> <li>target performance goals</li> <li>pre-defined energy budgets at lower overall investment.</li> </ul> </li> </ul>
<p><b>Fanless server nodes with shared power and cooling</b></p> <ul style="list-style-type: none"> <li>CX270 S2 server nodes come w/o local fans or power supplies. Instead they share central cooling fans and hot plug power supplies per 2 U chassis.</li> </ul>	
<p><b>Latest Intel® Xeon® processor E5-2600 v2 product family</b></p> <ul style="list-style-type: none"> <li>4 to 12 core processors and Turbo Boost 2.0</li> <li>PCIe Gen 3 support</li> <li>16 DIMMs per server node with up to 1,024 GB DDR3 memory and up to 1,866 MHz DRAM bandwidth.</li> </ul>	
<p><b>Choice of High-end GPGPU and Coprocessors for scale-out HPC computing</b></p> <ul style="list-style-type: none"> <li>1 optional GPGPU/coprocessor compute module per CX270 S2 server node, selected from the market leading NVIDIA® Tesla™ K-series, or from the Intel® Xeon Phi product family, both in between the world's fastest parallel computing (co)processors for high performance computing (HPC).</li> <li>Up to 1.3 TFLOPS of double precision double the performance of the predecessors. World's most energy efficient supercomputers with up to 2,500 MFLOPS/W are equipped with these modules.</li> </ul>	
<p><b>Easy serviceability</b></p> <ul style="list-style-type: none"> <li>Hot-plug for server nodes, power supplies and disk drives enable enhanced availability and easy serviceability.</li> </ul>	
<p><b>Variable local storage</b></p> <ul style="list-style-type: none"> <li>All storage drives are embedded in the shared CX400 S2 system chassis. The 2.5" chassis provides choice of four hot-plug 2.5" SAS or SATA HDDs or SSDs.</li> <li>Alternatively three 3.5" hot-plug SAS or SATA HDDs with high capacity can be chosen with the 3.5" chassis version.</li> </ul>	
<p><b>Smart Scale-out building block</b></p> <ul style="list-style-type: none"> <li>The new CX270 S2 half-width server node features large scale-out HPC deployments by sliding up to 2 nodes ( incl. GPGPU) into a 2U condensed CX400 S2 multi-node server system.</li> </ul>	

# Technical details

## PRIMERGY CX270 S2

### Mainboard

Mainboard type	D 3196
Chipset	Intel® C600
Processor quantity and type	2 x Intel® Xeon® processor E5-2600 v2 product family

### Processor

Intel® Xeon® processor E5-2603v2 (4C/4T, 1.80 GHz, TLC: 10 MB, Turbo: No, 6.4 GT/s, Mem bus: 1,333 MHz, 80 W)
Intel® Xeon® processor E5-2609v2 (4C/4T, 2.50 GHz, TLC: 10 MB, Turbo: No, 6.4 GT/s, Mem bus: 1,333 MHz, 80 W)
Intel® Xeon® processor E5-2620v2 (6C/12T, 2.10 GHz, TLC: 15 MB, Turbo: Yes, 7.2 GT/s, Mem bus: 1,600 MHz, 80 W)
Intel® Xeon® processor E5-2630Lv2 (6 Cores / 12 Threads, 2.40 GHz, TLC: 15 MB, Turbo: Yes, 7.2 GT/s, Mem bus: 1,600 MHz, 60 W)
Intel® Xeon® processor E5-2630v2 (6 Cores / 12 Threads, 2.60 GHz, TLC: 15 MB, Turbo: Yes, 7.2 GT/s, Mem bus: 1,600 MHz, 80 W)
Intel® Xeon® processor E5-2637v2 (4C/8T, 3.50 GHz, TLC: 15 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 130 W)
Intel® Xeon® processor E5-2640v2 (8 Cores / 16 Threads, 2.00 GHz, TLC: 20 MB, Turbo: Yes, 7.2 GT/s, Mem bus: 1,600 MHz, 95 W)
Intel® Xeon® processor E5-2643v2 (6C/12T, 3.50 GHz, TLC: 25 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 130 W)
Intel® Xeon® processor E5-2650Lv2 (10C/20T, 1.70 GHz, TLC: 25 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,600 MHz, 70 W)
Intel® Xeon® processor E5-2650v2 (8 Cores / 16 Threads, 2.60 GHz, TLC: 20 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 95 W)
Intel® Xeon® processor E5-2660v2 (10C/20T, 2.20 GHz, TLC: 25 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 95 W)
Intel® Xeon® processor E5-2667v2 (8 Cores / 16 Threads, 3.30 GHz, TLC: 25 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 130 W)
Intel® Xeon® processor E5-2670v2 (10C/20T, 2.50 GHz, TLC: 25 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 115 W)
Intel® Xeon® processor E5-2680v2 (10C/20T, 2.80 GHz, TLC: 25 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 115 W)
Intel® Xeon® processor E5-2690v2 (10C/20T, 3.00 GHz, TLC: 25 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 130 W)
Intel® Xeon® processor E5-2695v2 (MC-3BCA11, 2.40 GHz, TLC: 30 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 115 W)
Intel® Xeon® processor E5-2697v2 (MC-3BCA11, 2.70 GHz, TLC: 30 MB, Turbo: Yes, 8.0 GT/s, Mem bus: 1,866 MHz, 130 W)

Memory slots	16 / 4 channels per CPU with 8 DIMMs per CPU = 16 DIMMs in total
Memory capacity (min. - max.)	16 GB - 1024 GB
Memory protection	Advanced ECC SDDC (only for registered DIMMs)

Memory notes Supports LV-R-DIMM, LV-LR-DIMM and upon special release LV-U-DIMM

### Memory options

4 GB (1 module(s) 4 GB) DDR3 LV, registered, ECC, 1,600 MHz, PC3-12800, DIMM, single rank
8 GB (1 module(s) 8 GB) DDR3 LV, registered, ECC, 1,600 MHz, PC3-12800, DIMM, dual rank
8 GB (1 module(s) 8 GB) DDR3 LV, registered, ECC, 1,600 MHz, PC3-12800, DIMM, single rank
8 GB (1 module(s) 8 GB) DDR3, registered, ECC, 1,866 MHz, PC3-14900, DIMM, dual rank
16 GB (1 module(s) 16 GB) DDR3 LV, registered, ECC, 1,600 MHz, PC3-12800, DIMM, dual rank
16 GB (1 module(s) 16 GB) DDR3, registered, ECC, 1,866 MHz, PC3-14900, DIMM, dual rank
32 GB (1 module(s) 32 GB) DDR3 LR, registered, ECC, 1,600 MHz, PC3-12800, DIMM, quad rank

Memory options 8 GB (1 module(s) 8 GB) DDR3, unbuffered, ECC, 1,600 MHz, PC3-12800, DIMM, dual rank

Upgrade notes 2x in CX400 S2

### Interfaces

USB 2.0 ports	2 x USB 2.0 (rear)
Graphics (15-pin)	1 x VGA (1x rear)
LAN / Ethernet (RJ-45)	3 / 2x Gbit/s Ethernet + 1x 100Mbit service LAN Onboard
Management LAN (RJ45)	Management LAN traffic can be switched to shared onboard Gbit LAN port

### Onboard or integrated Controller

RAID controller	RAID 0/1 for internal drives
SATA Controller	Intel® C600, for up to 4/3x 2.5-/3.5-inch SATA HDD or SSD Raid 0/1
LAN Controller	Intel® Ethernet Controller I350. 2 x 10/100/1000 Mbit/s Ethernet (TCP/IP acceleration)
Remote management controller	Baseboard management controller (BMC) IPMI 2.0 compatible

<b>Slots</b>	
PCI-Express 3.0 x8	2 x low profile via x16 riser
PCI-Express 3.0 x16	1 x special riser w/ PCIe Gen2 for GPGPU only
<b>Drive bays</b>	
Storage drive bays	4x 2.5-inch or 3x 3.5-inch in CX400 S2
Storage drive bay configuration	depending on CX400 S2 chassis version (2.5 or 3.5-inch version)
<b>General system information</b>	
Number of fans	0
Fan configuration	Centralized non-hot plug fans part of CX400 Chassis
<b>Operating panel</b>	
Operating buttons	On/off switch ID button
Status LEDs	Power (green) System status (orange) LAN speed (green / yellow) LAN connection (green) Identification (blue)
<b>BIOS</b>	
BIOS features	Remote PXE boot support
<b>Operating Systems and Virtualization Software</b>	
Certified or supported operating systems and virtualization software	Microsoft® Hyper-V Server 2012 Microsoft® Windows Server® 2012 Datacenter Microsoft® Windows Server® 2012 Standard Microsoft® Hyper-V™ Server 2008 R2 Microsoft® Windows Server® 2008 R2 Datacenter Microsoft® Windows Server® 2008 R2 Enterprise Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows® Web Server 2008 R2 SUSE® Linux Enterprise Server 11 Red Hat® Enterprise Linux 6 Red Hat® Enterprise Linux 5
Operating system notes	Certified for Citrix XenServer 6.2 (planned)
Operating system release link	<a href="http://docs.ts.fujitsu.com/dl.aspx?id=d4ebd846-aa0c-478b-8f58-4cfb3230473">http://docs.ts.fujitsu.com/dl.aspx?id=d4ebd846-aa0c-478b-8f58-4cfb3230473</a>
<b>Dimensions</b>	
Weight	5.5 kg
Node size	2 U half wide (W176 x D500 x H82 mm)
<b>Environmental</b>	
Operating ambient temperature	10 - 35 °C (50 - 95 °F)
Operating relative humidity	10 - 85 % (non condensing)
Maximum altitude	3000 m
Operating environment	FTS 04230 – Guideline for Data Center (installation specification)
Operating environment link	<a href="http://docs.ts.fujitsu.com/dl.aspx?id=e4813edf-4a27-461a-8184-983092c12dbe">http://docs.ts.fujitsu.com/dl.aspx?id=e4813edf-4a27-461a-8184-983092c12dbe</a>
<b>Compliance</b>	
Global	CB RoHS (Substance limitations in accordance with global RoHS regulations) WEEE (Waste electrical and electronic equipment) IEC 60950
Europe	CE Class A * EN 60950 - 1 EN 50371 EN 55022 EN 61000-3-3 EN 55024

<b>Compliance</b>	
<b>USA/Canada</b>	UL/CSA ICES-003 / NMB-003 Class A
<b>Japan</b>	VCCI Class A
<b>Taiwan</b>	CNS 13436 CNS 13438 class A
<b>Compliance link</b>	<a href="http://globalsp.ts.fujitsu.com/sites/certificates">http://globalsp.ts.fujitsu.com/sites/certificates</a>
<b>Compliance notes</b>	There is general compliance with the safety requirements of all European countries and North America. National approvals required in order to satisfy statutory regulations or for other reasons can be applied for on request. * Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Components

<b>Hard disk drives</b>	
	HDD SATA, 6 Gb/s, 500 GB, 7,200 rpm, hot-plug, 3.5-inch, business critical
	HDD SATA, 6 Gb/s, 500 GB, 7,200 rpm, hot-plug, 2.5-inch, business critical
	HDD SATA, 6 Gb/s, 250 GB, 7,200 rpm, hot-plug, 2.5-inch, business critical
	HDD SATA, 6 Gb/s, 3 TB, 7,200 rpm, hot-plug, 3.5-inch, business critical
	HDD SATA, 6 Gb/s, 2 TB, 7,200 rpm, hot-plug, 3.5-inch, business critical
	HDD SATA, 6 Gb/s, 1 TB, 7,200 rpm, hot-plug, 3.5-inch, business critical
	HDD SATA, 6 Gb/s, 1 TB, 7,200 rpm, hot-plug, 2.5-inch, business critical
	HDD SAS, 6 Gb/s, 900 GB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 6 Gb/s, 600 GB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 6 Gb/s, 450 GB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 6 Gb/s, 300 GB, 15,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 6 Gb/s, 300 GB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 6 Gb/s, 146 GB, 15,000 rpm, hot-plug, 2.5-inch, enterprise
<b>Solid-State-Drive</b>	
	SSD SATA, 6 Gb/s, 400 GB, MLC, hot-plug, 2.5-inch, enterprise
	SSD SATA, 6 Gb/s, 200 GB, MLC, hot-plug, 2.5-inch, enterprise
	SSD SATA, 6 Gb/s, 100 GB, MLC, hot-plug, 2.5-inch, enterprise
	SSD SAS, 6 Gb/s, 400 GB, MLC, hot-plug, 2.5-inch, enterprise
	SSD SAS, 6 Gb/s, 200 GB, MLC, hot-plug, 2.5-inch, enterprise
	SSD SAS, 6 Gb/s, 100 GB, MLC, hot-plug, 2.5-inch, enterprise
<b>RAID Controller</b>	
	RAID 5/6 Ctrl., SAS/SATA 6 Gbit/s, Fujitsu RAID Ctrl SAS 6G 5/6 512MB (D2616), 8 ports int. RAID level: 0, 1, 10, 5, 50, 6, 60, 512 MB Cache
<b>Communication, Network</b>	
	Ethernet Ctrl. 2 x 10 Gbit/s PCIe 2.0 x8 SFP+ ( Fujitsu )
	Ethernet Ctrl. 2 x 10 Gbit/s PCIe 2.1 x8 RJ45 ( Intel® )
	InfiniBand HCA 1 x 40 Gbit/s PCIe 3.0 x8 QSFP ( Mellanox )
	InfiniBand HCA 1 x 56 Gbit/s PCIe 3.0 x8 QSFP for the US market max. one IB HCA 56Gb controller can be installed ( Mellanox )
	InfiniBand HCA 2 x 40 Gbit/s PCIe 3.0 x8 QSFP ( Mellanox )
	InfiniBand HCA 2 x 56 Gbit/s PCIe 3.0 x8 QSFP for the US market max. one IB HCA 56Gb controller can be installed ( Mellanox )
<b>Coprocessor</b>	
	NVIDIA® Tesla® K20, 2,496 cores, PCIe 2.0 x16
	NVIDIA® Tesla™ K20X, 2,688 cores, PCIe 2.0 x16
<b>Graphics add on cards (optional)</b>	
	NVIDIA® GRID™ K1 16 GB, 768 cores, PCIe 3.0 x16

<b>Coprocessor</b>	Intel® Xeon Phi™ 3120P, 57 Cores / 228 Threads, PCIe 2.0 x16
	Intel® Xeon Phi™ 5110P, 60 Cores / 240 Threads, PCIe 2.0 x16
	Intel® Xeon Phi™ 7120P, 61 Cores / 244 Threads, PCIe 2.0 x16
<b>Warranty</b>	
<b>Warranty period</b>	3 years
<b>Service level</b>	Onsite warranty
<b>Product Support Services - the perfect extension</b>	
<b>Recommended Service</b>	24x7, Onsite Response Time: 4h - For locations outside of EMEA please contact your local Fujitsu partner.
<b>Service Weblink</b>	<a href="http://ts.fujitsu.com/Supportservice">http://ts.fujitsu.com/Supportservice</a>

## More information

### Fujitsu OPTIMIZATION Services

In addition to Fujitsu PRIMERGY CX270 S2, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

### Fujitsu Portfolio

Build on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offering. This allows customers to leverage from alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

### Computing Products

[www.fujitsu.com/global/products/computing/](http://www.fujitsu.com/global/products/computing/)

### Software

[www.fujitsu.com/software/](http://www.fujitsu.com/software/)

### More information

Learn more about Fujitsu PRIMERGY CX270 S2, please contact your Fujitsu sales representative or Fujitsu Business partner, or visit our website.  
<http://www.fujitsu.com/PRIMERGY>

### Fujitsu green policy innovation

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to contribute to the creation of a sustainable environment for future generations through IT. Please find further information at <http://www.fujitsu.com/global/about/environment>



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