Datasheet
Fujitsu Server PRIMEQUEST 2800E3 Mission Critical



The mission critical open system Fujitsu PRIMEQUEST provides high-end server functionality using superior Fujitsu technology, long cultivated and refined over generations of computer system development.

The most cost-efficient enterprise server

The mission critical x86 server "Fujitsu PRIMEQUEST" is a high-end data center system focused on the needs of the growing enterprise. Based on technologies and innovations Fujitsu has refined over generations of highly reliable mainframe and UNIX servers, it provides mission critical class high-performance, excellent service availability and the openness of x86 servers.

Global standard Linux® and/or Microsoft® Windows® operating systems, with highly advanced Fujitsu reliability, stability and manageability technologies, make Fujitsu PRIMEQUEST a highly cost effective mission critical open platform.

Customer investment is fully secured by:

- Ability to operate a 24-hour, 365-day business.
- Outstanding performance and reliability.
- Excellent flexibility and scalability in an open server.
- A radically improved cost/performance profile.
- Use optimization and scalability for the future.

Platform of standards and high availability

With outstanding redundancy, Fujitsu PRIMEQUEST 2800E3 provides the high uptime required from true enterprise platforms. The heart of the server, the system boards including CPUs and memory modules, can be instantly recovered on failure, enabling smooth operation of mission-critical workloads. In fact, almost every component can be redundantly configured.

This new PRIMEQUEST is the world-first open server platform which enables online addition and replacement of system boards and I/O boards – Customers can be freed from system business disruption.

Under the strict quality standards in Fujitsu's production processes - from server design to manufacturing and quality assurance – Fujitsu PRIMEQUEST can dramatically reduce failure rates.

Using Intel® Xeon® E7-8800 v4 product family and Fujitsu's super fast I/O technologies, Fujitsu PRIMEQUEST 2800E3 has hit highest performance scores in the large systems server arena. This is further proof that Fujitsu can deliver best-matched products, conforming to open systems standards that handle enterprise workloads. For instance, PRIMEQUEST 2800E3 combined with variety of Solid State Drive products can leap data throughput from what existing mission critical servers could provide.

Platform of high performance per cost

Based on state-of-the art technologies such as smart cooling, Intel processors and other components Fujitsu PRIMEQUEST 2800E3 provides the best cost-efficiency in the enterprise server arena. It also reduces datacenter costs by lowering power consumption and minimizing the server footprint.

Fujitsu PRIMEQUEST 2800E3can also free you from the risks and complicated steps of system virtualization. Physical partitioning does not require performance testing or a "Plan B". New partitions can be mixed with software virtualization environments such as VMware, Hyper-V, and Red Hat Enterprise Linux KVM.

Fujitsu PRIMEQUEST 2800E3 with its high availability, performance scalability, cost-efficiency, and risk-free virtualization can lift the Return on Investment (ROI) of your IT system.

Main features	Benefits
Complete redundancy and online recovery function	
■ Almost all the components can be redundantly configured ■ Unique redundancy at the heart of server, including system boards and system interconnects, offers even greater protection ■ System Boards or I/O Units can be replaced online if any of them fails.	■ Systems on Fujitsu PRIMEQUEST 2800E3 can continue operation even if a component fails ■ Central component failure is usually fatal for continued system operation. Fujitsu PRIMEQUEST's unique levels of redundancy eliminates such causes of major system failure making it suitable for enterprise operation. ■ Dynamic Reconfiguration can recover from failure without system interruption by Dynamic Reconfiguration
Highest data throughput in mission critical arena	
■ Highest level of database performance in Mission Critical arena ■ High performance for computation, memory access, and I/O access ■ High data throughput even for very large data	■ Fujitsu PRIMEQUEST 2800E3 can satisfy customers demand to expand business platform without disruption ■ Max. 96 TB of SSD storage allows move any large data to SSD.
Only grow as you need, only buy for that growth	
■ Online addition of System Board or I/O Units can increase performance in simple manner.	■ Customers can save money for system investment until business growth requires system expansion
Rich variety of I/O products	
■ Solid State Drive products for disk drives and flash memory connected through PCIe are selectable according to customers demands such as cost efficiency and high performance	■ For demands for cost-efficiency and performance upgrade, SSD disk drives can be the best solution. For demands for high performance upgrade, PCIe SSD can be the best solution
Secure confidential data	
■ Even if confidential data is stolen, the stolen data cannot be used maliciously	■ Intel Xeon's on-chip encryption greatly reduces encryption/decryption time making database encryption a practical solution for protecting intellectual property
Much lower operational costs	
■ Fujitsu PRIMEQUEST 2800E3 can halve reduce power consumption compared to predecessor model at similar performance ■ With Intel Xeon E7-8800 v4 having high performance per core and super fast I/O technology, PRIMEQUEST provides high performance with small number processor core	■ As server resource utilization changes, PRIMEQUEST 2800E3 power consumption stays low. In particular it only consumes power according to its application workload ■ PRIMEQUEST can triple database performance per Oracle database license compared the last generation of PRIMEQUEST
Simplified server lifecycle management	
■ An integrated suite of tools takes care of servers and their component products in your datacenter over the entire life of the server	■ Human resource costs for server management, including: installation, integration, monitoring, maintenance, and upgrading are reduced
Risk-free virtualization	
■ Physical Partitioning of up to four partitions and Extended Partitioning of up to eight partitions are available.	■ For customers undertaking system virtualization for the first time, Physical partitioning is the best entry strategy. There are no performance overheads and no incompatibilities with applications ■ Extended Partitioning, doubling the number of partitions, can save operational costs by server consolidation.

Topics

Almost every component redundant

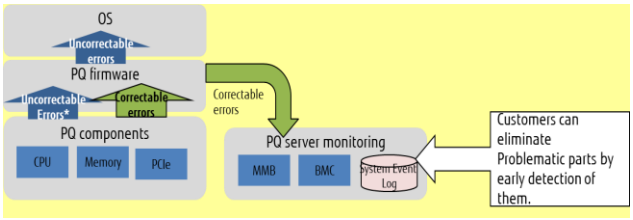
With Fujitsu PRIMEQUEST 2800E3, your most important business operations can be strictly protected from errors as follows:

- Partitions using multiple system boards (SB) can continue operation even if one full system board fails. Service may degrade a little, but the failed system board can be immediately replaced by a Reserved System Board. This means normal service levels can be very quickly resumed
- Dynamic Reconfiguration help recover from failures on System Boards or I/O Units without system stoppage

Memory can be mirrored. This means that even if a memory failure occurs the application will continue using the correct data. With Double Data Device Correction (DDDC), even if two memory chips fail, the system can continue operation without interruption. With Address Range Mirror, you can eliminate system down caused by memory failures while saving investment to make memory redundant.

- System Interconnect, called Quick Path Interconnect (QPI), provides multiple access routes. This ensures continued operation even if one route fails
- Fans, PCI Express switches, PCI Express cards, and Ethernet ports, are redundant as standard
- HDD can be configured redundant using hardware or software RAID
- Management Boards (MMB) and Power Supply Units (PSU) can be optionally configured as redundant
- With new memory technology called DDR4 inside the box, data protection of PRIMEQUEST 2800E3 has become more resilient.
- Bank SDDC/DDDC is recovery mechanism enhanced from SDDC/DDDC recovery in units of DRAM to recovery in units of bank of DRAM. Memory recovery in more granular level strengthens data protection of PRIMEQUEST – even if Maximum five banks fail all at once, read/write operations from.to memory can continue
- Multi Memory Rank Sparing allows reserves Memory Ranks of DIMM to replace Memory Ranks in correctable errors with the reserved ones without intervention of operation.

With enhancement of problem prevention mechanism called eMCA Gen2, PRIMEQUEST 2800E3 helps eliminate problems in CPU, memory, or IO by detections of recoverable errors via system trace. Even if such recoverable errors happen, servers can continue their operations.



Only grow as you need, only buy for that growth

With up to 192 cores and maximum 24TB of memory, Fujitsu PRIMEQUEST 2800E3 has sufficient capacity of resources to accommodate hundreds of workloads. Performance has doubled ensuring Fujitsu PRIMEQUEST 2800E3 capability as an enterprise workload platform continues to expand.

Much lower operational costs

Fujitsu PRIMEQUEST 2800E3 can reduce operational costs: power consumption, datacenter space, and Oracle license and support changes.

Simplified server lifecycle management

During a server's life cycle you must undertake a variety of actions including installation, integration, monitoring, maintenance, and upgrading of all servers in your datacenter. To do this you have to use different tools for different actions. It can be a nightmare. Fully integrated tools through the lifecycle are what our customers are demanding.

Fujitsu provides an integrated suite of tools that take care of server products at your datacenter for the entire life of the server. ServerView Suite, a bundled product with Fujitsu PRIMEQUEST and PRIMERGY, can help ease the pain in dealing with servers. This includes:

- Automated OS installation on multiple servers
- Automated RAID configuration
- Automated driver updates, hot fixes and security patch applications
- Integrated monitoring of multiple Fujitsu PRIMEQUEST and Fujitsu PRIMERGY servers
- Simplified setup and monitoring of disk array controllers, HDD, and logical drives

The suite also enables early problem detection and resolution via intuitive diagnostics, look-and-feel operation and pro-active error alerts.

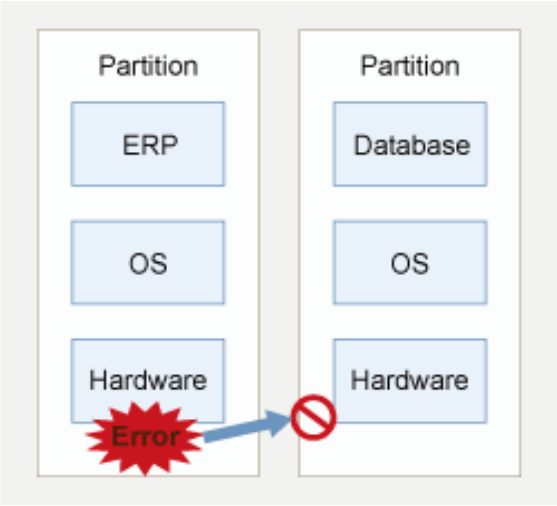
Secure confidential data

Fujitsu PRIMEQUEST embeds security measures into its hardware and OS. Due to swift encryption by Advanced Encryption Standard New Instructions (AES-NI) with the Intel Xeon E7-8800 v4 product family, a hacker could never maliciously use any stolen data. As an example, Oracle Database 24cores and Xeon processors shrink the encryption time to one-tenth.

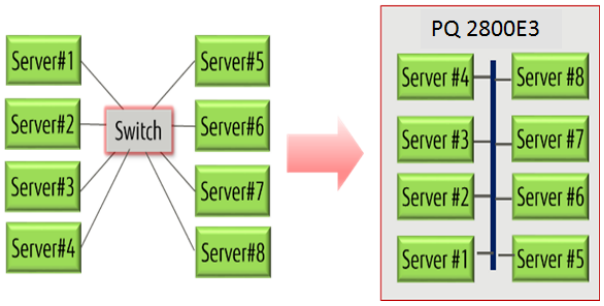
Risk-free virtualization

Using Fujitsu PRIMEQUEST and industry standard virtualization, such as VMware vSphere™ 6, Hyper-V, and KVM lets you more easily create the right platform for your demands. It means, simple migration using Physical partitioning with no performance overheads. High reliability is guaranteed by Physical partitioning as failures in one partition can never spread to other partitions. With VMware vSphere™ 6, hundreds of virtual machines can be created on one server.

Fujitsu PRIMEQUEST Physical partitioning delivers risk-free and reliable virtualization. Such partitioning without performance overheads also requires no elaborate performance testing on your application environments. Further your main mission critical applications, such as databases, can be fully isolated from failures in all other partitions.



If you are planning to accommodate greater numbers of workloads, you can mix standard virtualization products with Physical Partitioning. Such state-of-the-art virtualization means applications can share system resources more flexibly, while main systems remain fully protected.
If you plan to save server operational costs by consolidation of five or eight servers, you can use Extended Partitioning.



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Specifications

Physical partition	Max. four Physical partitions form max. four System Boards, max. four IO Units, and max. two Disk Units
Extended Partition	Max. eight Extended Partitions
Mainboard type	Up to 4 x System Board
System Boards	
Processor quantity	2 Processor per System Board
Processor type	Intel Xeon® processor E7-8860v4 (18C/36T, 2.2GHz, TLC:45MB, 140W)
	Intel Xeon® processor E7-8867v4 (18C/36T, 2.4GHz, TLC:45MB, 165W)
	Intel Xeon® processor E7-8870v4 (20C/40T, 2.1GHz, TLC:50MB, 140W)
	Intel Xeon® processor E7-8880v4 (22C/44T, 2.2GHz, TLC:55MB, 150W)
	Intel Xeon® processor E7-8890v4 (24C/48T, 2.2GHz, TLC:60MB, 165W)
	Intel Xeon® processor E7-8855v4 (14C/28T, 2.1GHz, TLC:35MB, 140W)
	Intel Xeon® processor E7-8891v4 (10C/20T, 2.8GHz, TLC:60MB, 165W)
	Intel Xeon® processor E7-8893v4 (4C/8T, 3.2GHz, TLC:60MB, 140W)
Memory slots	192
Memory slot type	DDR4
Memory capacity (min.- max.)	16GB-24TB
- Note	24TB of memory with 256GB Memory is available as Special Release. 12TB of memory with 128GB Memory is available as General Release.
Memory protection	ECC
	Extended ECC
	Double Data Device Correction
	Memory Patrol
	Memory Mirroring ; full and address range memory mirroring
	Bank DDDC/SDDC
	Multi Memory Rank Sparing
	Address Based Memory Mirror
Memory notes	Up to 192 DIMM slots per server within 4 system boards, each equipped with 2 Memory Mezzanine cards. 24TB will be available with 256GB memory modules, which are available as Special Release.
Memory modules	16 GB (2 x 8GB) DDR4, RDIMM, ECC
	32 GB (2 x 16GB) DDR4, RDIMM, ECC
	64 GB (2 x 32GB) DDR4,RDIMM, , ECC
	128 GB (2 x 64GB) DDR4,LRDIMM, ECC
	256 GB (2 x 128GB) DDR4,LRDIMM, ECC
Memory modules notes	Memory modules are delivered in units of 2 DIMMs per order code
	256 GB memory is available as Special Release

Drive bays	
	Disks can be mounted in max. four System Boards and in max. two Disk Units
Hard disk bay configuration	- Internal storage : Max. 24 x 2.5-inch for SAS
	- External storage : Max. 576 x 2.5-inch for SAS
Hard disk drive	HDD SAS, 12Gb/s, 300 GB, 15,000 rpm, hot-plug, 2.5-inch, enterprise

	HDD SAS, 12Gb/s, 300 GB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 12Gb/s, 600 GB, 15,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 12Gb/s, 600 GB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 12Gb/s, 900 GB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 12Gb/s, 1.2 TB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
	HDD SAS, 12Gb/s, 1.8 TB, 10,000 rpm, hot-plug, 2.5-inch, enterprise
RAID Controller	PRAID EP420i (2GB cache) RAID 0/1/10/5/50/6/60 and hot spare supported
	Optional FBU, License Activation Key for CacheCade 2.0 and FastPath for PRAID EP420i
Interfaces	
	LAN ports in max. four IO Units are available.
LAN	Max. four sets of LAN ports below selectable
	- 1 x dual 1Gbps Ethernet (RJ45) ports for IOU 1GbE
	- 1 x dual 10Gbps Ethernet (RJ45) ports for IOU 10GbE
Graphics (15-pin)	1 per System Board
Serial 1 (9-pin)	1 per Management Board
Management LAN (RJ45)	1 per Management Board
Slots	
	PCIe slots in max. four IO units and max. four PCI Boxes are available.
PCI Express	Max. four sets of PCIe 3 slots below selectable
	- 4 low profile PCIe 3 slots for IOU 1GbE
	- 1 low profile PCIe 3 slots and 2 PCIe 3.0 full height slots for IOU 10GbE
Note	Expandable to 56 slots when using PCI Boxes
Drive bays	
Storage drive bays	2.5-inch hot-plug SAS
Storage drive bay configuration	Max. 24 x 2.5-inch
General system information	
Number of fans	6 fan modules contained in PSU and FANU
Fan configuration	Hot plug
Operating panel	
Status LED	System status (orange / yellow) Power (amber / green) Identification (blue)
Connectable components	
Fiber channel controllers	Single Channel 8Gbps Fiber Channel Card
	Dual Channel 8Gbps Fiber Channel Card
	Single Channel 16Gbps Fiber Channel Card
	Dual Channel 16Gbps Fiber Channel Card
LAN controllers	Dual Channel 1000BASE-T Card
	Quad Channel 1000BASE-T Card
	Dual Channel 10G BASE-T LAN Card
	Dual Channel 10G BASE LAN Card
	10GBASE-SR SFP+ Optical Module
FcoE Cards	Dual Channel FCoE Card (10Gbps)
Infiniband controllers	Single Channel 56Gbps Infiniband card
	Dual Channel 56Gbps Infiniband card

	Single Channel 100Gbps Infiniband card
	Dual Channel 100Gbps Infiniband card
SAS Controllers	Dual Channel SAS RAID control card
	Dual Channel SAS control card
PCIe SSD	PCIe SSD card (800 GB)
	PCIe SSD card (1.6 TB)
	PCIe SSD card (2.0 TB)

Optional Software	
Server Management	ServerView Suite

Operating System	
Microsoft Windows Server® 2012 R2	Microsoft Windows Server® 2012 R2 Standard Edition (64-bit)
	Microsoft Windows Server® 2012 R2 Datacenter Edition (64-bit)
Red Hat Enterprise Linux	Red Hat Enterprise Linux 6 (for Intel64)
	Red Hat Enterprise Linux 7 (for Intel64)
SUSE Linux Enterprise Server	Novell SUSE Linux Enterprise Server 11
	Novell SUSE Linux Enterprise Server 12
VMware	VMware vSphere 6

Optional Software	
Server Management	
	ServerView Suite – Control SV Operations Manager including PDA and ASR & R (Pre-failure and analysis; Automatic Server Recovery and Restart) SV Performance Manager SV Power Management SV RAID Manager ServerView Suite – Maintain SV Remote Management SV Update Management SV Asset Management SV Online Diagnostics ServerView Suite - Integrate

RAS features	
Redundant components	Memory (memory mirroring), HDD (RAID1/1E/5/6/10), Power Supply Unit (option), PCI card (option), FAN, System Board (Reserved System Board), Management Board (option), Dual Power Supply to server (option), Processor core degradation
Problem prevention	eMCA Gen2
Online maintenance	Online replacement of IO Units is available using Dynamic Reconfiguration and Red Hat Enterprise Linux 6. Online replacement of System Boards is supported as hardware level. Online replacement of PCIe slots in PCI Box is available
	Online Firmware Update
Online upgrade	Online addition of System Boards and IO Unit is available using Dynamic Reconfiguration and Red Hat Enterprise Linux 6
Quick Path Interconnect	Data transferred between system boards protected by system interface error detection, re-transmission, and degradation.
Cable-less Design in chassis	Removes cabling errors, cabling work and cable problems when changing partition configurations.

Dimensions / Weight	
Weight	150 Kg (332 lb.)
Rack-mount (W x D x H)	445 x 778 x 438 mm, 10U

Environment	
Noise emission	60 dB
Operating ambient temperature	5 – 35 degree C
Operating relative humidity	20 – 80 %
Operating altitude	3000 m
Operating environment	Gaseous and Particulate Contamination Guidelines for Datacenters
Operating environment link	http://www.fujitsu.com/downloads/PRMQST/documents/PQ-Gaseous-Particulate-Contamination-Guidelines-DataCenter.pdf

Electrical values	
Rated operating range	200 - 240 VAC ±10%
Rated frequency range	50/60 Hz +2%, -4%
Active power max.	5,650 Watts
Heat emission	19278.6 BTU
Rush currency	Max. 20 A

Compliance	
Europe	EMC Directive 2004/108/EC
	Low Voltage Directive 2006/95/EC
	RoHS Directive(2002/95/EC)
USA/Canada	FCC
	ICES-003
Japan	VCCI

Service link	
Service link	www.fujitsu.com/support

More information

Fujitsu platform solutions

In addition to Fujitsu PRIMEQUEST 2800E3, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures
With the Fujitsu Dynamic Infrastructures approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure-as-a-Service. How much you benefit from Fujitsu technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing products
www.fujitsu.com/global/services/computing/
- PRIMERGY: Industrial standard server
- Fujitsu M10: UNIX server
- PRIMEQUEST: Mission-critical IA server
- ETERNUS: Storage system

Software
www.fujitsu.com/software/
- Interstage: Application infrastructure software
- Systemwalker: System management software

More information

Learn more about Fujitsu PRIMEQUEST 2800E3, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website.
www.fujitsu.com/primequest/

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 resolve issues of environmental energy efficiency through IT. Please find further information at:
www.fujitsu.com/global/about/environment/



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