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 2800E3 can 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.
### Features and 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.

#### 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

#### 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.

#### 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

#### Secure confidential data
- Even if confidential data is stolen, the stolen data cannot be used maliciously

#### Much lower operational costs
- Fujitsu PRIMEQUEST 2800E3 can halve 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

#### 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

#### Risk-free virtualization
- Physical Partitioning of up to four partitions and Extended Partitioning of up to eight partitions are available.
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.

Topics

![Diagram](image-url)
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.
# Specifications

<table>
<thead>
<tr>
<th>Physical partition</th>
<th>Max. four Physical partitions form max. four System Boards, max. four IO Units, and max. two Disk Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended Partition</td>
<td>Max. eight Extended Partitions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mainboard type</th>
<th>Up to 4 x System Board</th>
</tr>
</thead>
</table>

### System Boards

<table>
<thead>
<tr>
<th>Processor quantity</th>
<th>2 Processor per System Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor type</td>
<td>Intel Xeon® processor E7-8860v4 (18C/36T, 2.2GHz, TLC:45MB, 140W)</td>
</tr>
<tr>
<td></td>
<td>Intel Xeon® processor E7-8867v4 (18C/36T, 2.4GHz, TLC:45MB, 165W)</td>
</tr>
<tr>
<td></td>
<td>Intel Xeon® processor E7-8870v4 (20C/40T, 2.1GHz, TLC:50MB, 140W)</td>
</tr>
<tr>
<td></td>
<td>Intel Xeon® processor E7-8880v4 (22C/44T, 2.2GHz, TLC:55MB, 150W)</td>
</tr>
<tr>
<td></td>
<td>Intel Xeon® processor E7-8890v4 (24C/48T, 2.2GHz, TLC:60MB, 165W)</td>
</tr>
<tr>
<td></td>
<td>Intel Xeon® processor E7-8891v4 (10C/20T, 2.8GHz, TLC:60MB, 165W)</td>
</tr>
<tr>
<td></td>
<td>Intel Xeon® processor E7-8893v4 (4C/8T, 3.2GHz, TLC:60MB, 140W)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory slots</th>
<th>192</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory slot type</td>
<td>DDR4</td>
</tr>
<tr>
<td>Memory capacity (min.- max.)</td>
<td>16GB-24TB</td>
</tr>
</tbody>
</table>

- **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

Memory modules are delivered in units of 2 DIMMs per order code

- **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, MRDIMM, ECC
- 256 GB (2 x 128GB) DDR4, MRDIMM, ECC

### Memory modules notes

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.
- 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
**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 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise emission</td>
<td>60 dB</td>
</tr>
<tr>
<td>Operating ambient temperature</td>
<td>5 – 35 degree C</td>
</tr>
<tr>
<td>Operating relative humidity</td>
<td>20 – 80 %</td>
</tr>
<tr>
<td>Operating altitude</td>
<td>3000 m</td>
</tr>
<tr>
<td>Operating environment</td>
<td>Gaseous and Particulate Contamination Guidelines for Datacenters</td>
</tr>
</tbody>
</table>

### Electrical values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated operating range</td>
<td>200 - 240 VAC ±10%</td>
</tr>
<tr>
<td>Rated frequency range</td>
<td>50/60 Hz ±2%, -4%</td>
</tr>
<tr>
<td>Active power max.</td>
<td>5,650 Watts</td>
</tr>
<tr>
<td>Heat emission</td>
<td>19278.6 BTU</td>
</tr>
<tr>
<td>Rush currency</td>
<td>Max. 20 A</td>
</tr>
</tbody>
</table>

### 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](http://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

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/

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/

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