FUJITSU

Datasheet
Fujitsu PRIMEQUEST 1800E2 server

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 supercomputer 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 1800E2 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.

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® processor E7 family and Fujitsu's super fast I/O technologies, Fujitsu PRIMEQUEST 1800E2 has already hit high-ranked 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.

Based on state-of-the art technologies such as smart cooling, Intel processors and other components Fujitsu PRIMEQUEST 1800E2 provides the best cost-efficiency in the enterprise server arena. It also reduces data center costs by lowering power consumption and minimizing the server footprint.

Fujitsu PRIMEQUEST 1800E2 can also free you from the risks and complicated steps of system virtualization. Hardware 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 1800E2 with its high availability, performance scalability, cost-efficiency, and risk-free virtualization can lift the Return on Investment (ROI) of your IT system.

High availability for the total system

With PRIMEQUEST and Symantec High Availability software products, you can also eliminate downtime caused by applications, OS, or hardware. This:
- Ensures recovery of the failed resources. application, OS, or server
- Includes storage mirroring and network redundancy for total system high availability.
- Minimizes the affects of failures by enabling recovery of just the portion that failed.

intel inside™ Xeon®

redhat

Windows Server 2008 R2

Features and benefits

Main features	Benefits
Almost every component redundant ■ 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	■ Systems on Fujitsu PRIMEQUEST 1800E2 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.
Only grow as you need, only buy for that growth ■ Performance has leaped by around 48% compared with former PRIMEQUEST models ■ Can configure affordable application performance as an enterprise server and scale as required	■ Upgrading to Fujitsu PRIMEQUEST 1800E2 will dramatically lift cost-efficiency and performance. It will also reduce the operational costs of every application you run
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 datacenter costs ■ Fujitsu PRIMEQUEST 1800E2 can reduce power consumption across the total range of application workloads	■ As server resource utilization changes, PRIMEQUEST 1800E2 ■ power consumption stays low. In particular it only consumes power according to its application workload
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 ■ Hardware partitioning of up to four partitions is available ■ Hardware partitions and software virtualization products can be mixed in the same server ■ Standard virtualization products such as VMware vSphere 4, Hyper-V, and Red Hat Enterprise Linux KVM are supported	■ A wide variety of ISV products is available including the major and popular virtualization products. Hardware partitioning is the best entry strategy for using virtualization for the first time and even allows you to compare such environments side by side
Total-system high availability with Symantec HA products ■ Forcible switching can ensure recovery of failed servers ■ Disk mirroring setup and operations are simplified by intuitive naming and automatic configuration capability ■ When integrated with virtualization products from VMware and Red Hat Enterprise Linux, only failed Guest OS or Host OS need to be switched.	■ Swift and predictable fail-over can minimize downtime ■ Simple operation can eliminate wrong operation ■ As only the specific portion is recovered, the influence of such failures is minimized

Topics

Almost every component redundant

With Fujitsu PRIMEQUEST 1800E2, 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
- Memory can be mirrored. This means that even if a memory failure occurs the application will continue using the correct data.
- 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

Only grow as you need, only buy for that growth

With up to 80 cores and maximum 2TB of memory, Fujitsu PRIMEQUEST 1800E2 has the resources to accommodate hundreds of workloads. Performance has leaped by around 48%[1] ensuring Fujitsu PRIMEQUEST 1800E2 capability as an enterprise workload platform continues to expand – with 7% higher performance than IBM Power 770 [2].

Outstanding performance from such a compact chassis means Fujitsu PRIMEQUEST 1800E2 is the "platform for success" when you really need to improve performance and cost-efficiency.

[1] This performance ratio is based on SPECjbb2005 result.
Fujitsu PRIMEQUEST 1800E2(E7-8870/80core): 4,915,024 bops
Fujitsu PRIMEQUEST 1800E(X7560/64core) : 3,321,826 bops
For the detail, please visit www.spec.org.
[2] IBM Power 770(POWER7, 3.1GHz/64core): 4,604,894 bops according to SPECjbb2005 benchmark.

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 Xeon processor E7 family, a hacker could never maliciously use any stolen data. As an example, Oracle Database 11g R2 and Xeon processors shrink the encryption time to one-tenth (For the detail, please see the Oracle datasheet "Oracle Advanced Security"). Fujitsu PRIMEQUEST and SPARC Enterprise are the only mission critical servers which support such hardened encryption.

Much lower datacenter costs

With rising demand for Green technologies, most server venders are addressing the energy efficiency of their products. However, despite this Green wave, customers are little wiser when looking for the best energy efficient servers to fit their data centers.

The current problem with Green servers is there is no standard methodology for power efficiency. For instance, power consumption changes according the application workload. Application workloads also change. However, some venders only disclose power consumption at peak workloads and maximum configurations, while others disclose them at a peak and zero workloads.

To enable customers to choose the Greenest servers, Fujitsu discloses power consumption for both peak and zero workloads, proving PRIMEQUEST 1800E2 can save power even at low workloads.
- 4,000 Watts for max. configuration at peak workload

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.

Topics

Risk-free virtualization

Using Fujitsu PRIMEQUEST and industry standard virtualization, such as VMware vSphere™ 4, Hyper-V, and KVM lets you more easily create the right platform for your demands. It means, simple migration using hardware partitioning with no performance overheads. High reliability is guaranteed by hardware partitioning as failures in one partition can never spread to other partitions. With VMware vSphere™ 4, hundreds of virtual machines can be created on one server with 256 virtual CPUs and 64 physical CPU cores. (For the detail, please see VMware datasheet "Datasheet for VMware ESX and VMware ESXi").

Fujitsu PRIMEQUEST hardware 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 hardware partitioning. Such state-of-art virtualization means applications can share system resources more flexibly, while main systems remain fully protected.
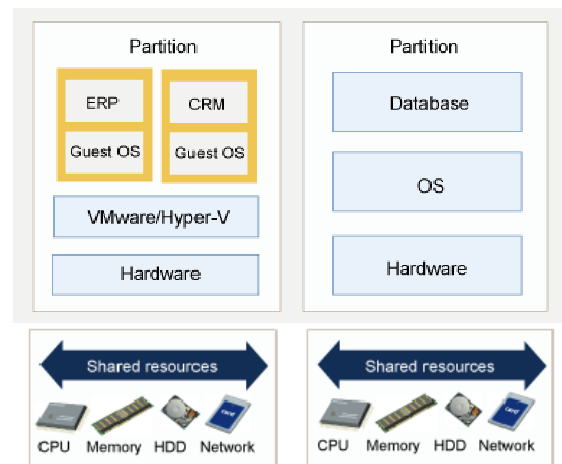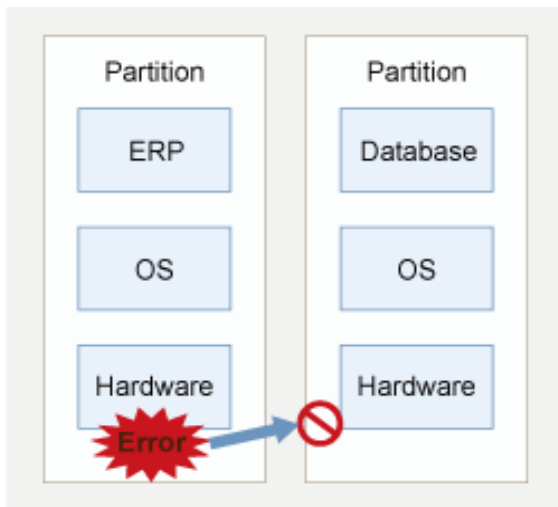
Technical details

Mainboard

Processor quantity and type	1-8 x Xeon processor E7 family
Processor options	1 x Xeon processor E7-8870(10 cores, 2.4GHz, 30MB L3 cache per chip)
	1 x Xeon processor E7-8830 (8 cores, 2.13GHz, 24MB L3 cache per chip)
Memory slots	128
Memory slot type	DDR3
Memory capacity (min. - max.)	8GB-2TB
Note	Max. 4TB memory capacity will be available in future
Memory protection	ECC
	Extended ECC
	Memory Patrol
	Memory Mirroring
Memory modules	4 x 2GB DIMM
	4 x 4GB DIMM
	4 x 8GB DIMM
	4 x 16GB DIMM
Note	32GB DIMM will be available in future

Drive bays

Hard disk bay configuration	Max. 16 x 2.5-inch for SAS
Hard disk drive	146GB 2.5-inch 15,000rpm
	300GB 2.5-inch 10,000rpm
	600GB 2.5-inch 10,000rpm
	900GB 2.5-inch 10,000rpm
	64GB SSD
- Note	SSD is not available for Red Hat Enterprise Linux.
Optical drive	1xCD-ROM/DVD-ROM

Interfaces

LAN	16 x 1Gbps Ethernet (1000Base-T) ports
VGA	1 port

Slots

PCI Express	16x PCI-Express (x8, full-height, short)
Note	Expandable to 40 slots when using External PCI boxes

Connectable components

Fibre channel controllers	Single Channel 8Gbps Fiber Channel Card
	Dual Channel 8Gbps Fiber Channel Card
	Dual Channel FCoE card (10Gbps)
	SFP+ Module for 10GBASE-SR (FCoE)
LAN controllers	Dual Channel 1000BASE-T Card
	Dual Channel LAN Card (10Gbps)
	10GBASE-SR SFP+ Optical Module

Service Processor

Management Board (MMB)	1 x COM Port (D-SUB 9 pines)
	4 x LAN ports (2 x user ports(1000Base-T/100Base-T/10Base-T), 1 x maintenance port (100Base-TX), 1 x REMCS port (100Base-TX))

Operating System

Microsoft Windows Server® 2008	Microsoft Windows Server® 2008, Standard Edition (SP2) (64-bit)
	Microsoft Windows Server® 2008, Enterprise Edition (SP2) (64-bit)
	Microsoft Windows Server® 2008, Datacenter Edition (SP2) (64-bit)
	Microsoft Windows Server® 2008, Standard Edition (SP2) (32-bit)
	Microsoft Windows Server® 2008, Enterprise Edition (SP2) (32-bit)
	Microsoft Windows Server® 2008, Datacenter Edition (SP2) (32-bit)
	Microsoft Windows Server® 2008 R2, Standard Edition (64-bit)
	Microsoft Windows Server® 2008 R2, Enterprise Edition (64-bit)
	Microsoft Windows Server® 2008 R2, Datacenter Edition (64-bit)
	Microsoft Windows Server® 2008 R2 SP1, Standard Edition (64-bit)
	Microsoft Windows Server® 2008 R2 SP1, Enterprise Edition (64-bit)
	Microsoft Windows Server® 2008 R2 SP1, Datacenter Edition (64-bit)
Red Hat Enterprise Linux	Red Hat Enterprise Linux 5.6 or later (for Intel 64)
	Red Hat Enterprise Linux 5.6 or later (for x86)
	Red Hat Enterprise Linux 6 (for Intel64)
	Red Hat Enterprise Linux 6 (for x86)
VMware	VMware vSphere ESX 4.1
- Note	*For servers with 8 core CPU chips, Advanced or Enterprise plus edition is required.*
	For a physical memory size over 256GB, Enterprise plus edition is required.
	VMware vSphere ESXi 5 *(planed to be released end of May 2012)* + ServerView CIM Manager

Other Operating Systems where PRIMEQUEST is certified

- Note	PRIMEQUEST 1800E2 is also a certified server platform for the Operating Systems stated below. Please note however, that statements in the certifications referenced below do not guarantee a specific level of quality for each stated PRIMEQUEST 1800E2 configuration with these Operating Systems.
Oracle VM Server for x86	Oracle VM 3.0 For detail of the certified configuration, refer to Oracle's Certified System List.
SUSE Linux Enterprise Server	SUSE Linux Enterprise Server 11 with KVM SP1 For detail of the certified configuration, refer to Novell's statement.
	SUSE Linux Enterprise Server 11 SP1 For detail of the certified configuration, refer to Novell's statement.
	SUSE Linux Enterprise Server 10 SP4 For detail of the certified configuration, refer to Novell's statement

Optional Software

High Availability	Veritas™ Cluster Server from Symantec
	Veritas™ Storage Foundation HA from Symantec
	Veritas™ Volume Manager from Symantec
	https://sort.symantec.com/productmatrix

Server Management	ServerView Suite
	ServerView Resource orchestrator (option)

RAS features

Redundant components	Memory (memory mirroring), HDD (RAID0/1/1E/5/6/10), Power Supply Unit (option), PCI card (option), FAN, System Board (Reserved System Board), Management Board (option), Power Supply to server (option)
- Note	For PCI card redundancy, redundancy software is required.
Hot-swap components	HDD, Power Supply Unit (option), FAN, PCI-card, DVD-RW drive, Management Board (option)
- Note	For both software and hardware RAID, only Red Hat Linux supports HDD hot swapping.
	For hot-swapping PCI cards, a redundant software and PCI Hot Plug are required. OS products available for PCI card hot swapping are as follows. ■ Red Hat Enterprise Linux (For Intel64/x86) ■ Microsoft Windows Server 2008/2008 R2(32-bit/64-bit) Please note such redundancy is not available with VMware vSphere 4
Other RAS features	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	150kg (330 lb.)
Rack-mount (W x D x H)	482 x 800 x 530 mm, 12U

Environment

Noise emission	59 dB
Operating ambient temperature	5 – 35 degree C
Operating relative humidity	20 – 80 %
Operating relative altitude	3000 m
Operating environment	FTS 04230 Guideline for Data Center (installation locations)
Operating environment Link	http://docs.ts.fujitsu.com/dl.aspx?id=e4813edf-4a27-461a-8184-983092c12dbe

Electrical values

Rated operating range	200 - 240 VAC ±10%
Rated frequency range	50/60 Hz +2%, -4%
Active power max.	4,000 Watts
Active apparent power max.	4210 VA
Heat emission	14,400 kJ/h[13,649 BTU/h]
Rush currency	20 or less 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

Warranty

Standard Warranty	3 Years
Service level	Service level On-site Service (depending on country)

Service link

Service link	www.fujitsu.com/support

More information

Fujitsu platform solutions

In addition to Fujitsu PRIMEQUEST 1800E2, 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
- SPARC Enterprise: 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 1800E2, 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/

Copyright

Disclaimer

Contact
FUJITSU Technology Solutions

Website: www.ts.fujitsu.com

2012-04-02 CE-EN