Critical workload processing revolutionized
The impacts of increased requirements on storage capacity, computing power and network speeds are enormous. For many data centers, IT infrastructure and operations are reaching a breaking point. With unprecedented amounts of data being processed and users expecting results in real or near-real time, servers are faced with new challenges every day, especially if they host business- or even mission-critical backend services such as in-memory databases as well as resource-intensive workloads such as ERP or BI applications.

In today’s world, nearly all processes are IT-driven or IT-supported. Along with the consequently exponential growth of data and digital information, the demand for constantly available IT resources is going to escalate at the same pace. With the ongoing proliferation of intelligent systems such as smart devices and machines within industry 4.0 environments, driving assistance or carrier tracking information, this dependency is only going to increase, and it will be even less acceptable for any of these lifelines to fail. The failure of important systems in the data center can directly impair the business activity of a company and result in lost sales. For large enterprises, every minute of system downtime can lead to massive losses to the overall revenue. At the bottom line, IT departments will have to rethink and comply with much stricter regulations and standards concerning the availability, integrity, and security of their infrastructures than they do today.

Fujitsu now offers the new generation PRIMEQUEST 2000 series second generation, an x86-based solution which is able to match both the performance and resilience of an UNIX system, while convincingly winning the price-performance argument. As a result, Fujitsu presents enterprises with an alternative path for mission-critical computing deployments, where unplanned downtime is not an option and performance bottlenecks are not disputable.

Today’s hyperconnected world is driving a new industrial revolution. People, information, processes, infrastructure and computing systems are meshing together more than ever before. Massive amounts of information are being generated, creating new knowledge and a huge potential for economic growth.
What Is Mission-Critical?

The definition of mission-critical is changing as the cost and availability of suitable hardware is becoming more accessible to more businesses. In addition, the term mission-critical is often too loosely defined and gets confused with business-critical.

In former times this definition was only based on the hardware features. Nowadays it has to be focused on the ‘failure in business operations’ which will of course vary dependent on the customer’s business. For example, an organization that operates 100% over the internet would rightly define a failure in their web servers or services as a failure in business operation, and thus would define these as mission-critical.

In contrast, a consultancy service which supplies engineers to customers, even though they have a website, would not see web servers and services as mission-critical as their main business operations would not be affected by any downtime. The work of organizations and their people is heavily relying on IT as a whole. The challenge in quite a lot of organization which can be seen is that applications and their use are shifting from being a rather supportive tool to a mission-critical application – even if the core competency is not IT-services.

The PRIMEQUEST systems are available as a “B” and an “E” version. The PRIMEQUEST 2800B2 are 8-way servers with extra-large memory capacities of up to 12TB, that are ideally suited to handle bigger memory-intensive applications. The range-topping PRIMEQUEST 2400E2 (4-sockets) and 2800E2 (8-sockets) additionally adds unique features for error prevention and self-healing capabilities while delivering a flexible computing resource pool with features such as Hardware Partitioning, Dynamic Reconfiguration and Integrated Hardware Clustering using Reserve System Board (RSB) features.

The Extended Partitioning provides the capability to create more granular logical partitions within a physical hardware partition further reducing risk and ensuring optimal server sizing without the need for a software hypervisor.

The PRIMEQUEST 2400E2 and 2800E2 models incorporate another industry innovation: The Dynamic Reconfiguration feature allows online replacement of system boards and therefore enables on-the-fly re-partitioning while the system is still up and running. Workloads can be shifted from one partition to another on a running server, hence avoiding the need for any planned downtime or even operating system restarts.

The PRIMEQUEST E-Series servers support up to four physical hardware partitions. This physical partitioning divides the hardware resource into multiple systems within the cabinet and operates in independent systems (OS) as divided units. Partitions mitigate risk by controlling and isolating workloads physically to ensure that any failure affects only the partition concerned and other partitions continue to operate as normal.

Dynamic Reconfiguration enables:

- Dynamic resource balancing without stopping application.
- Hardware resources are moved dynamically between partitions.
- Adjust configuration to meet various workloads by moving hardware resources without stopping applications.

Fujitsu gave top priority to non-stop runtime for mission-critical applications when designing the PRIMEQUEST series. Each system is subjected to stringent and comprehensive quality assurance measures during the development phase. The results are extremely low failure rates below market average and outstanding hardware availability you can bank on.

Non-stop runtime at x86 cost efficiency

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The PRIMEQUEST E-Series servers have been designed to provide the most reliable x86-based alternative to legacy UNIX/RISC platforms providing unique functionalities not available on other-standard x86 servers.

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Fujitsu gave top priority to non-stop runtime for mission-critical applications when designing the PRIMEQUEST series. Systems feature self-healing advanced reliability, availability, and serviceability (RAS) components that have a built-in resilience to faults that may develop during runtime – but which can otherwise cause systems to shut down. PRIMEQUEST is able to detect and automatically compensate for these faults, ensuring that systems keep on running.
New levels of x86 server performance for resource-intensive applications

The PRIMEQUEST 2800E2 model also sets new benchmark world records for enterprise- and technical computing, datacenter virtualization and online transaction processing. This additionally proves Fujitsu’s new mission-critical systems are dominant market leaders in terms of performance.

The VMware VMmark benchmarks demonstrate Fujitsu’s virtualization pre-eminence in several different core classes using matched-pair configurations. The PRIMEQUEST 2800E2 also set the overall world record in VMmark 2.5 Performance. But also in a 2 node 4-way configuration (matched pair), the 2800E2 achieved a class world record in Performance as well as in Server Power within the benchmark framework of VMmark 2.5. These results attest to the superior flexibility and efficiency that can be achieved by using hardware-partitioning capabilities, and extend Fujitsu’s consistent outperformance of its closest rivals.

In a 2-socket and 8-socket configuration, the 2800E2 model also achieved two world records with SPEC benchmarks for technical and general computing. Simultaneously, the 8-Way E2-version has set the overall world record in WMmark 2.5 Performance. But also in a 2 node 4-way configuration (matched pair), the 2800E2 achieved a class world record in Performance as well as in Server Power within the benchmark framework of VMmark 2.5. These results attest to the superior flexibility and efficiency that can be achieved by using hardware-partitioning capabilities, and extend Fujitsu’s consistent outperformance of its closest rivals.

These impressive results prove that the system is ideal for running mission-critical applications, large scale databases and real-time analytics, which require high performance plus the availability levels equivalent to those of UNIX systems.

(1) The VMmark results were achieved by Fujitsu PRIMEQUEST 2800E2 systems. Full test results including system specification, further details and current results can be found at: http://www.vmware.com/a/vmmark/. The comparison reflects the status at May 5, 2015.


(3) The SAP Sales and Distribution (SD) Standard Application Benchmark performed on April 1, 2015, by Fujitsu in Paderborn, Germany, was certified by SAP on behalf of the SAP Benchmark Council on May 5, 2015. Further information can be found at http://download.sap.com/download.epd?context=40E2D9D5E00EEF77E4A9977F257ECD4D7F1004BDC65175C71038E1E3BD7B417

PRIMEQUEST: Trusted around the world

With the expanding market, many industries are looking for solutions for critical workload processing to clear their informational obstacles.

Thanks to their outstanding performance and reliability, generations of PRIMEQUEST systems are already trusted around the world for mission-critical applications. Below you can find typical customers challenges, the solution approach and resulting advantages of a PRIMEQUEST usage scenario:

Customer Profile:

The customer is in the business of providing technology and services to enable financial transactions for banks, brokers, dealers, and investment managers.

The Challenges:

The customer has witnessed a radical change over time in the way companies interact with technology. For the purpose of market expansion and to provide added value to the business, the customer recognized a need to restructure and improve its use of technology in a way that strengthened their competitive edge. The customer maintains a strong focus on ensuring their customers have the necessary access to all offered services. This initiative also took into consideration a reduction of licensing costs as well as environmental activities like the reduction of their carbon footprint. The company directive was to reduce the number of physical servers, to increase processing capabilities in the data center as well as to optimize their use of IT resources to better align them to the business needs.

Fujitsu Solution:

FUJITSU Server PRIMEQUEST systems were implemented into the data center to improve processing with fewer servers and facilitate consolidation and virtualization across the new platform. As a result Fujitsu’s mission critical PRIMEQUEST servers safeguard the continuous business operations and provide scalability for the company’s rapid growth.

Business Benefits:

- Deliver reliable, uninterrupted services
- Provide a robust solution, developed specifically for critical applications
- Improve efficiency and performance of servers
- Reduce operational and maintenance costs