Fujitsu Korea PRIMEQUEST 4000 series

Features and Architecture

Contents

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1. Hardware redundancy

By using a redundant hardware configuration, even if some components fail, the remaining components can maintain sufficient processing power, enabling continuous operation. PRIMEQUEST employs a redundant configuration for almost all parts of its hardware, including memory, CPU, I/O, transmission lines, and power supply systems. This allows for continued operation without affecting the software even in the event of hardware failures, such as memory failures, ensuring high reliability and availability.

Thorough duplication and redundancy of internal components

Even in the event of hardware failures, including memory failures, the system continues to operate without affecting the software (avoiding system downtime).

- Memory mirroring, multiplexing of CPU-to-CPU paths and CPU-to-I/O paths.
- In the event of a malfunction, the faulty part can be isolated, allowing for continued operation.

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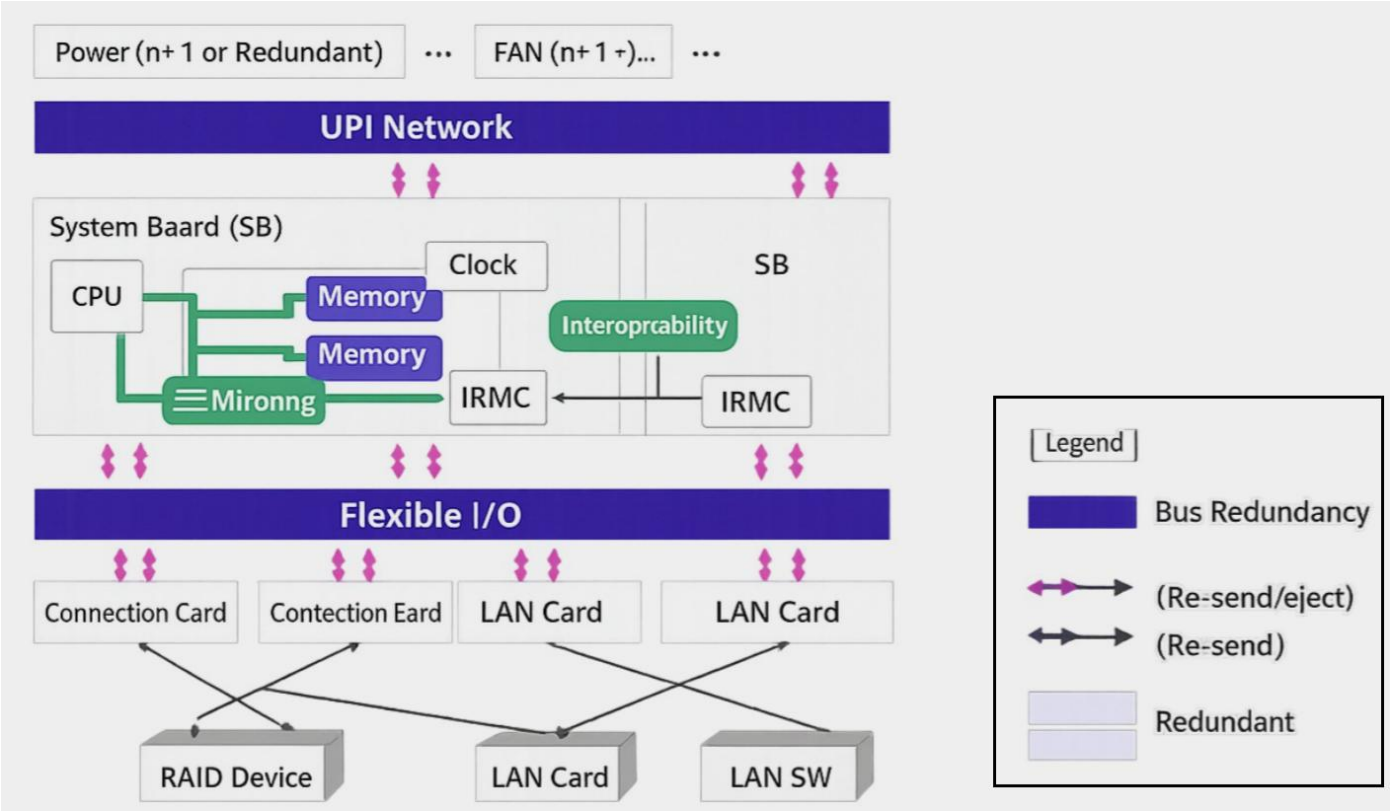

- *iRMC:

A dedicated chip for controlling and monitoring servers: Integrated Remote Management Controller

- *Note:

For partitions to which memory mirroring is applied, the physical memory capacity must be twice the memory capacity seen by the software.

Memory Mirroring function

This system duplicates memory and writes data to both duplicated memory locations. If an uncorrectable error occurs in one memory location, the data in the other location is used. This protects data from multi-bit errors that cannot be corrected by ECC (Error Check and Correction) and from memory controller failures that DDDC (Double Device Data Correction) cannot fully cover, ensuring continuous and stable system operation. PRIMEQUEST also supports address range memory mirroring. By duplicating only the memory areas specified by the BIOS or OS, the reliability of the hypervisor or specific VMs can be increased (support varies depending on the OS).

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2. Flexible I/O and partitioning capabilities

A variety of partition configurations are possible.

Flexible I/O

Flexible I/O is a feature that allows you to configure physical partitions by combining any SB and I/O units, regardless of their mounting location. Flexible I/O enables you to freely

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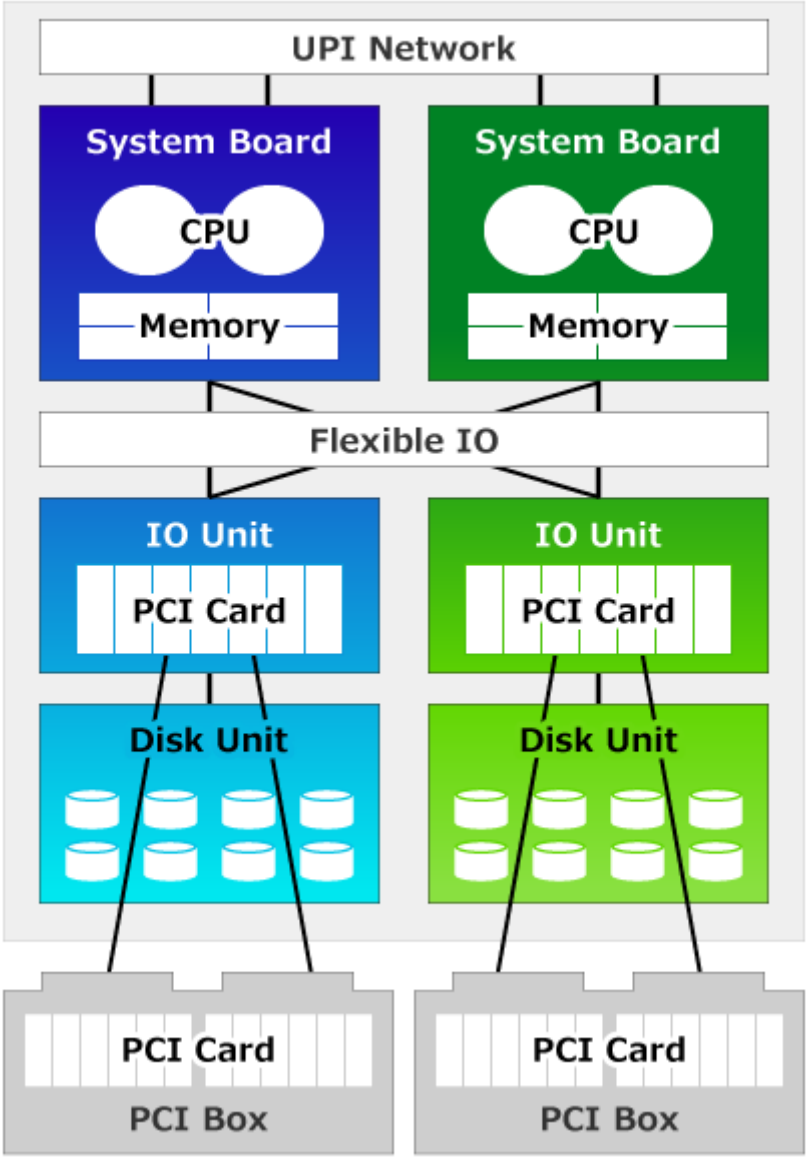
change the PCI Express connections between SBs and I/O units (IOUs) via a PCIe network. By maintaining a constant PCI bus tree structure visible to the system even when SBs and I/O units are added or removed, it can flexibly respond to resource changes and degradation in the event of failure. This feature makes it possible to prepare alternative SBs, enabling the Reserved SB function.



Partitioning function

Partitioning is a function that divides the hardware resources within a chassis into multiple systems, allowing each divided unit to operate as an independent system. Because partitioning is done at the hardware level, it offers excellent fault isolation between systems, enabling the efficient deployment of numerous systems with different applications, scales, and required reliability, while maximizing the high processing power of PRIMEQUEST. Partitioning has the following features:

- Multiple business processes can be built within the same enclosure, enabling flexible system operation.

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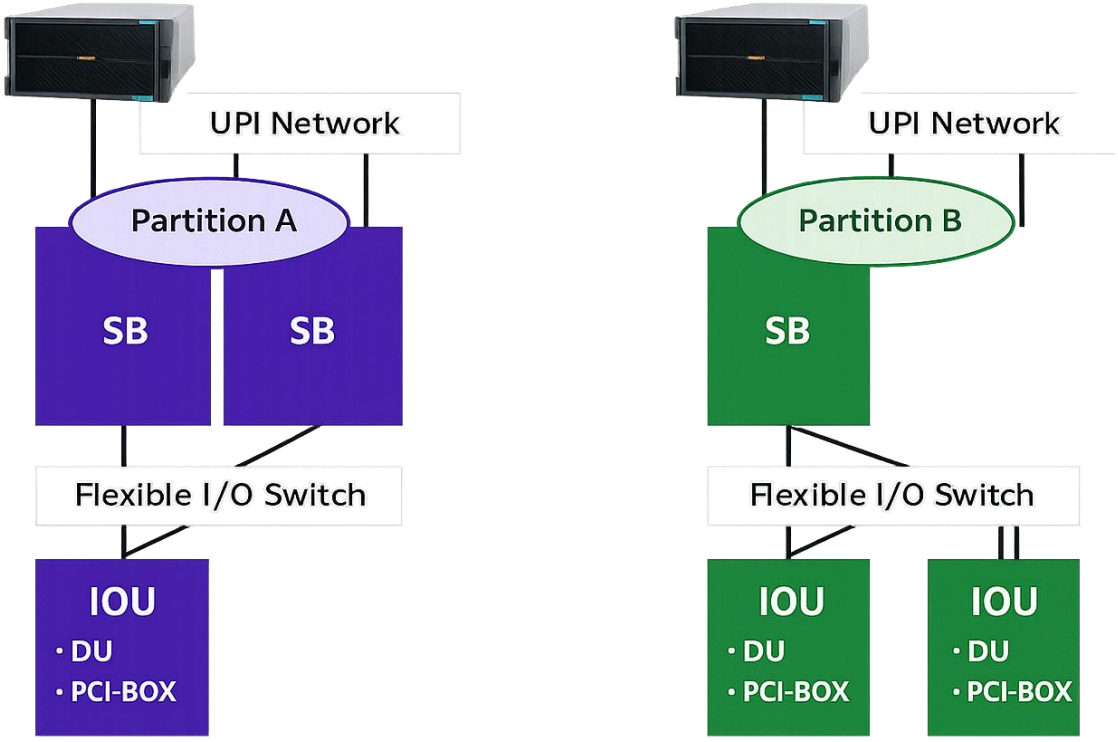
- Hardware protects against failures in any partitioned system from affecting other partitioned systems.

Effective use of hardware resources

Optimize hardware resources (CPU, memory, I/O) according to the characteristics of each task and reduce unnecessary resources.

- Partition A: Allocates more CPU and memory resources.
- Partition B: Allocate more I/O resources
- *

In servers where the SB and I/O units are integrated or fixedly connected, wasted resources (excessive CPU/memory, excessive I/O) occur.



Workload adjustment

The hardware configuration can be flexibly changed (requires a reboot) to match fluctuations in workload, such as daytime/nighttime, weekdays/holidays, and normal/peak seasons, reducing the need for extra servers.
[This is achieved as a hardware function, without requiring virtualization software or middleware.]

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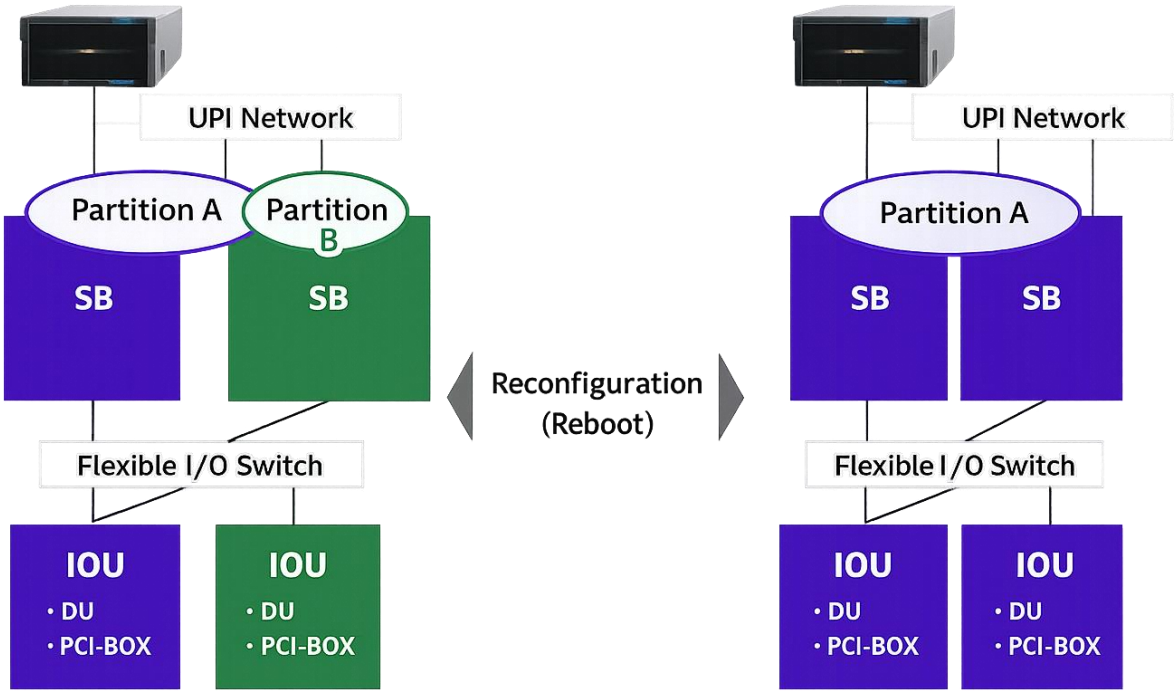

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3. Reserved SB function

The Reserved SB function allows for the pre-installation of a spare system board (SB) within the chassis. In the event of a system board failure during production operation, the system can autonomously disconnect the faulty system board and quickly install the spare system board (via reboot) to replace it. All models in the PRIMEQUEST 4000 series support the Reserved SB function. Using the Reserved SB function offers the following advantages when a hardware failure occurs on the system board:

- System board resources are not reduced, allowing for quick recovery.
- With a single partition on the system board, recovery is possible even if the system board fails (SB degradation).

Additionally, SBs within partitions currently in operation (development systems) can also be designated as backup SBs. This feature allows for more effective utilization of backup SBs.

- *

The backup SB can be used for development and testing purposes (it will shut down in the event of a failure).

Early system recovery during SB failures

By having a backup system board available, if a system board in operation fails, the system can be switched to the backup board to quickly restore operations. Depending on the level of reliability requirements, it can also be used as a cluster alternative.

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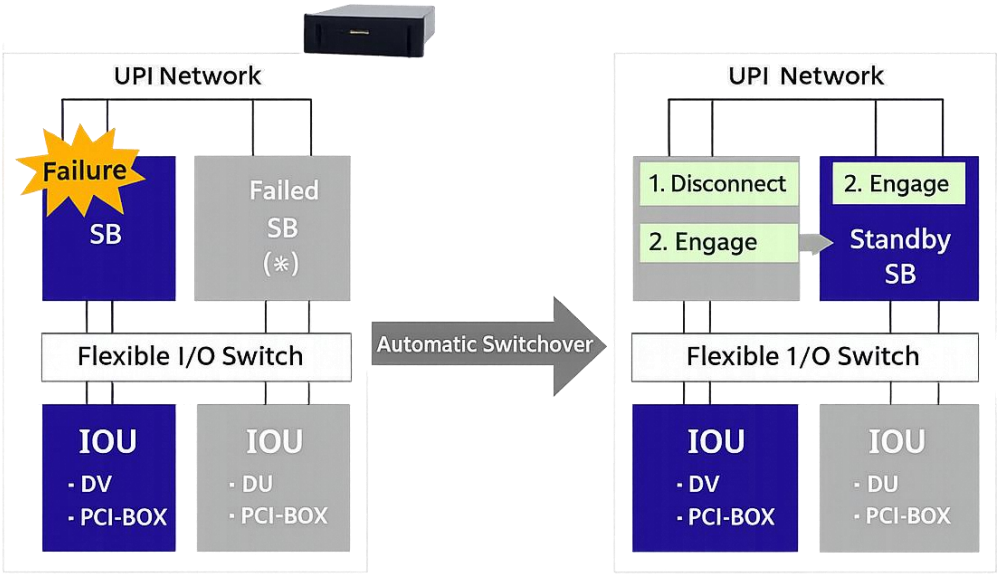

(*), Usually avallable for development / besting environment

Reduced recovery time for standby servers even in cluster configurations.

PRIMEQUEST reliability + cluster configuration + Reserved SB function

Server recovery is possible without waiting for hardware replacement.

1. SB failure
2. Cluster-based failover
3. SB switching of a failed server using the Reserved SB function
4. Standby server recovery
5. SB replacement

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4. Server Operation Management

ServerView Installation Manager (SVIM)

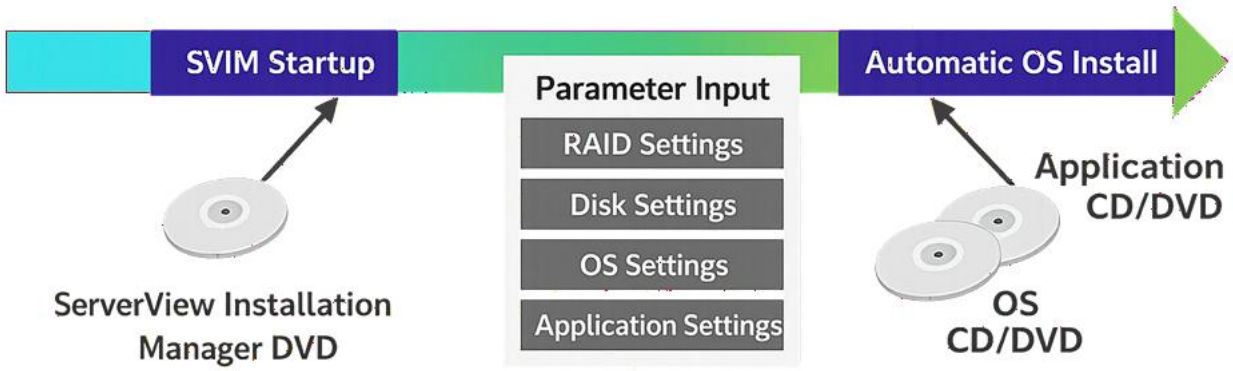
ServerView Installation Manager (software included with the unit) is a setup support tool that assists with the initial installation and reconstruction of the PRIMEQUEST 4000 series. It ensures stable operation by simplifying the installation process and ensuring the reliable installation of recommended drivers and security patches.

OS installation support

- Pre-configure the parameters required for OS installation.
- Setup is complete simply by swapping the OS/APL CD/DVD.
- Automation of RAID configuration
- When installing multiple partitions with the same configuration, the settings can be reused.
- The necessary files, such as the OS and Service Packs, are stored on a separate server on the network, allowing for OS installation via the network.

Operation start support

- Download/install the latest drivers using the "Automatic Driver Application Tool".
- A guide to installing bundled software that is useful for server operation.
- Automatically applies "critical" level hotfixes and security patches to the OS.



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