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**Inspire the Next**

# Hitachi Compute Blade

Hitachi Compute Blade logical partitioning (LPAR) feature brings the performance and reliability of mainframe-class virtualization to blade computing.

## Enable Secure, Mission-critical Virtualization across the Data Center

### Virtualization: Getting More from Less

IT departments everywhere face the challenge of diminishing budgets and increasing demand. Blade servers such as those from Hitachi Data Systems increase data center density and minimize power use, but compute and I/O resources may still be over-allocated or underutilized. Virtualization technologies allow these unused resources to be put to effective use, increasing return on investment or even delaying the need to buy new equipment.

Virtualization also frees applications from the rigid boundaries of hardware. System resources can be increased to satisfy peak workloads or freed up for other applications when demand falls. When used with the Hitachi Compute Blade 2000 SMP feature, an application can even use the combined capacity of multiple blades.

All virtualization technologies are not created equal, however.

With the introduction of Hitachi Compute Blade logical partitioning (LPAR) feature,

Hitachi Compute Blade customers benefit from decades of development work on mainframe virtualization technology, to bring mainframe-class virtualization to blade computing.

With flexible deployment options, high performance, security and extreme reliability, Hitachi LPAR virtualization technology firmly positions the Hitachi Compute Blade platform as a true enterprise-class system.

### Hitachi LPAR: Embedded Virtualization

Hitachi LPAR virtualization enables physical server resources to be allocated among multiple securely isolated partitions to maximize the efficiency and utilization of blade server hardware. Each logical partition hosts its own independent guest operating system and application environment.

Individual CPU cores can either be assigned to specific logical partitions for maximum security (dedicated mode), or shared between partitions for maximum utilization (shared mode).

CPU and other resources assigned to shared mode partitions can be dynamically re-allocated to allow rapid response to changes in application workload.

#### Fibre Channel Virtualization

Multiple logical partitions can access a shared storage device through a single Fibre Channel card, reducing the number of connections required between server and storage.

#### Virtual NIC

The virtual network interface card (VNIC) function allows sharing of I/O resources and enables communication between partitions without the need for physical network interface hardware.

#### Integrated System Management

Secure and integrated, Hitachi system management software provides full visibility and management of the virtualized environment, including dynamic allocation of resources among logical partitions without interrupting operations.

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## HITACHI COMPUTE BLADE WITH HITACHI LPAR VIRTUALIZATION

| System (Blade Model) | Hitachi Compute Blade 320 (X51P5B) | Hitachi Compute Blade 2000 (X55A2) | Hitachi Compute Blade 2000 (X57A2) |
|---|---|---|---|
| LPARs per Server | 2-16 | 2-60 | 2-60 |
| Max Processors per Server | 2 Processors (8 Cores) | 2 Processors (12 Cores) | 8 Processors (80 Cores)* |
| Max Memory Allocation per Partition | 94.75GB | 145.75GB | 1534.50GB* |
| Max I/O Allocation per Partition | 1xPCIe, 1xMezzanine card | 16xPCIe, 2xMezzanine card | 16xPCIe, 2xMezzanine card (64xPCIe, 8xMezzanine in 4 blade SMP mode)* |
| Supported Guest Operating Systems | Red Hat Enterprise Linux 5.4, 5.6, 6.0, 6.1, Microsoft Windows Server 2008 R2 SP1 | Red Hat Enterprise Linux 5.4, 5.6, 6.0, 6.1, Windows Server 2008 R2 SP1 | Red Hat Enterprise Linux 5.6, 6.0, 6.1, Windows Server 2008 R2 SP1 |
| Hitachi Compute Blade Management Software Features | LPAR Configuration Management, Power Control, N+1 Cold Standby, Operating System Deployment, Cloning | | |
| Power Management Features | CPU Idle Time Power Saving Feature, Power Capping, NTP Time Synchronization | | |

## KEY FEATURES

**High Performance**
- Hardware-level resource management
- Mainframe-style direct execution

**High Security**
- Secure isolation of guest operating systems
- Enhanced security in multitenant environments

**High Reliability**
- Monitors I/O and memory requests
- Blocks malfunctions and reports errors

**High Flexibility**
- Rapid response to changing workloads with dynamic provisioning

**High Efficiency**
- Optimized use of CPU and I/O resources
- Reduced power consumption
- Reduced floor and rack space

**High Compatibility**
- Requires minimal host intervention
- Higher software compatibility than host emulation virtualization solutions

* Multibade SMP Configuration

### High Performance

Because embedded logical partitioning allocates system resources at the hardware level, Hitachi LPARs have a natural performance advantage over host-emulation virtualization methods. Guest operating systems are directly executed in the virtualized environment without the need for host intervention.

### Next Steps

Contact Hitachi Data Systems to see how Hitachi Compute Blade LPAR feature can bring the performance and reliability of mainframe-class virtualization to your blade computing environment. For more information, visit www.hds.com.

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