



BladeSymphony® 2000
An Enterprise-Class Blade Server

BladeSymphony 2000

HITACHI
Inspire the Next

Hitachi's BladeSymphony[®] 2000

An Enterprise-class server platform in a beautifully balanced package

Serious virtualization with blade servers has just become realistic. Hitachi's BladeSymphony 2000 integrates massive computational power, a huge memory and spectacular I/O bandwidth into a superbly balanced package. Now you can achieve all the benefits of virtualization with all the advantages of the blade server format: in short, simplicity, flexibility, reliability and efficiency.

Overcoming the Limitations

Two of the hottest topics in IT are virtualization and blade servers. But they have never played well together. Sharing the limited memory and restricted I/O bandwidth of blades between virtual machines has always compromised performance.

But not any longer.

The BladeSymphony 2000 is designed with virtualization in mind. Each blade combines the power of up to eight cores of the Intel[®] Xeon[®] 5500 Processor Series with a massive 144 GBytes of memory, and a simply spectacular 162 Gigabits per second of I/O bandwidth, to give beautifully balanced performance with no bottlenecks.

Of course, you don't *have* to run BladeSymphony 2000 with virtualization. It's perfectly OK to dedicate its massive resources to running your most demanding applications. You'll still gain all the benefits of Hitachi's enterprise-grade blade server platform.

No Compromise

The BladeSymphony 2000's chassis is fundamental to its enterprise-class capabilities.

The robust, rack mountable 10U chassis houses up to 8 server blades. Naturally, all modules, including fans and power, can be configured redundantly and hot-swapped. Thus, system uptime is maximised, as you'd expect from an enterprise-class server.

For the ultimate in I/O flexibility, the BladeSymphony 2000 provides six bays for internal switches and, uniquely for a blade server, up to sixteen slots for standard PCI Express 2.0 cards.

Of course, the BladeSymphony 2000 chassis offers the very latest in power-saving technology. With an industry-leading 92% efficiency, the power supplies

have been awarded the "80 Plus" Gold certificate and conform to the Climate Savers Computing Initiative Gold standard.

Combine this with sophisticated power-supply management, and power monitoring and capping features, the BladeSymphony 2000 is kinder to the environment as well as lowering your TCO.



Perfectly Balanced

The massive compute power of Hitachi's BladeSymphony 2000 blades is provided by quad- and dual-core CPUs from the powerful Intel® Xeon® Processor 5500 Series, with up to two CPUs per blade.



There's plenty of memory space available for loading up virtual machines to use all this

processor power: each blade provides 18 slots for memory DIMMs, allowing up to a huge 144 GBytes of shared memory to be installed.

As for I/O, each blade supports two proprietary PCI Express 2.0 (x8) mezzanine slots, and two standard PCI Express 2.0 (x8) via the backplane. Not forgetting the two on-board Gigabit Ethernet ports, this all adds up to an astonishing 162 Gbps I/O bandwidth per blade.

To complete the package, up to four small form factor, hot pluggable SAS drives can be installed on each blade, with a choice of RAID levels for data security.

Any of the server blades from the BladeSymphony 2000 range can be mixed within the server chassis, allowing you to configure precisely the machine you need, minimising acquisition costs.



Specifications

BladeSymphony 2000

Chassis	Size	10U (Rack Mountable)		
	Server Blade Modules	Up to 8 server blade modules		
	Dimensions (W x D x H)	447mm x 820mm x 441 mm		
	Power Supplies	200-240V Single phase, hot swappable, N+1 or fully redundant. Max 4 PSUs		
	Management Modules	Up to two redundantly configurable		
	I/O Capability	162 Gbps/blade backplane bandwidth		
		Internal switch modules	Six slots for switches: 1/10 Gbps LAN	
	PCI-express slots	16 slots for low-profile PCI Express 2.0 (x8) cards		
Server Blade	Processor	Dual-Core Intel® Xeon® Processor E5502	Quad-Core Intel® Xeon® Processor E5540	Quad Core Intel® Xeon® Processor X5570
	Processor Frequency	1.86 GHz	2.53 GHz	2.93 GHz
	Processors (Cores)	Min. 1 (2 cores) / Max. 2 (4 cores)	Min. 1 (4 cores) / Max. 2 (8 cores)	
	Cache	4 MB	8 MB	
	Quick Path Interconnect Freq.	4.80 GT/s	5.86 GT/s	6.40 GT/s
	Main Memory	DDR3 Registered DIMM 2 GB / 4 GB / 8 GB		
	Capacity	Max. 144 GB (18 DIMM slots)		
	Internal Hard Disk	Up to 4 x 147 GB, 10 krpm, 2.5" SAS disks, hot-pluggable. RAID 0, 1, 5		
	Internal Expansion Slot	Two internal mezzanine card slots		
	Network Interface	2 x integrated Gigabit Ethernet (SERDES) ports		
Operating Systems	Microsoft® Windows Server® 2008 Standard/Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard/Enterprise Edition (SP2) Microsoft® Windows Server® 2003 R2, Standard/Enterprise x64 Edition (SP2) Red Hat Enterprise Linux® 5.3			

HITACHI

Embedded Virtualization

Hitachi's Virtualization Manager (HVM) is built in to every BladeSymphony 2000 blade.

With HVM, Hitachi brings decades of mainframe hardware virtualization experience to the Intel® Xeon® server platform. Hitachi's hypervisor gives guest operating systems direct access to the BladeSymphony hardware, eliminating overheads and complexity.

For maximum performance and security, HVM can dedicate processors to OS partitions. Or for maximum flexibility, HVM can share processors between partitions, with fine-grained control of CPU allocation, and optional performance capping.

HVM Essential is installed as standard and allows up to two guest OSs to be loaded. An upgrade to *HVM Enterprise* gives you up to 16 OS partitions per blade.

Fully supported by the BladeSymphony Management Suite, and Hitachi's N+M cold-standby high-availability feature, you can deploy HVM with confidence to virtualize your most mission-critical applications.

Simply A Pleasure to Manage

BladeSymphony's optional management software suite provides centralised management and control of all server, network, and storage resources. And it can manage your virtual resources as well.

It's straightforward to set-up and configure servers, monitor server resources, integrate with enterprise management software via SNMP, provide automatic failure notification, and manage server assets. It's easy to manage multiple BladeSymphony chassis, so you can scale up without moving to a new management platform.

From Hitachi, the Ideal Partner for Growth

Hitachi is one of the world's largest, most diverse technology companies. When you purchase BladeSymphony servers, you benefit from Hitachi's rich heritage as a server market leader—a legacy of expertise in computers ranging from mainframes and supercomputers to PC servers. You also position your organization to take full advantage of the breadth and depth of Hitachi's multiple product lines, including industry-leading storage systems; award-winning consulting services and strategic alliances with third-party technology vendors worldwide; and Hitachi's unmatched reputation for responsive, comprehensive service and support.

BladeSymphony 2000 at a Glance

Enterprise-class capability

- Quad-core Intel® Xeon® Processor 5500 Series processors
- Huge 144 GByte memory capacity
- Immense 162 Gbps I/O bandwidth per blade

Ultimate flexibility

- Up to 16 industry standard PCI Express slots per chassis
- Six slots for integrated switch modules
- Choice of Gigabit Ethernet, 10 Gigabit Ethernet, and 8 Gbps Fibre Channel modules

Simple to deploy and manage

- Integrated management console for all your physical and virtual BladeSymphony assets

A Perfect Virtualization Platform

- Plenty of memory; plenty of bandwidth
- Hitachi's built-in virtualization as standard
- Support for a range of virtualization technologies

High reliability for enterprise workloads

- Hot-swap components, redundant switch and management modules, N+M cold stand-by feature, N+1 and fully redundant power supplies, and hot-swappable fan modules

Lower TCO

- Advanced power management features for lower energy costs
- Support for industry standards: Intel®, Windows®, Linux®

HITACHI
Inspire the Next

©2009 Hitachi Europe Ltd. All rights reserved. Descriptions and specifications contained in this document are subject to change without notice and may differ from country to country. Hitachi is a registered trademark of Hitachi, Ltd. and/or its affiliates. BladeSymphony is a registered trademark of Hitachi, Ltd. in the United States. Intel, Intel logo, Intel Inside, Intel Inside logo, Xeon, and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries. Linux is a registered trademark of Linus Torvalds in the United States and other countries. Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries. All other trademarks, service marks, company names or logos are properties of Hitachi, Ltd., or their respective owners. 5/09

HITACHI EUROPE LTD
SYSTEMS SOLUTIONS DIVISION

Whitebrook Park,
Lower Cookham Road
Maidenhead, Berkshire
SL6 8YA, UK

phone: +44 1628 585581
email: blade@hitachi-eu.com
web: www.hitachi.eu/blade