



## Hiperware Platform

### Rapid Cluster and Multi-core Application Development with Java

Taking advantage of Multi-core and Cluster hardware involves exceptional development skills and extraordinary development time and risk.

Yet, as these technologies become commonplace, enterprise software and SaaS projects stand to have far-reaching gains – added performance (speed), scalability (support for more users) or previously impracticable capabilities (real-time decision making).

You can rapidly address these business opportunities by combining multi-core or cluster computing with Hiperware and its unprecedented performance, ease of development and interactivity.

***“Hiperware enables multi-core or clustered Java application with very little development effort.”***

***“This means (almost) mindless performance for enterprise applications and scalability for SaaS”***

Once developers identify major performance bottlenecks (using any Java profiler tool), Hiperware enables the Java application to be partitioned and redeployed to different CPUs, servers or virtual machines.

Yet, developers need not re-program their code, incorporate messaging or understand complex distributed programming.

***“Hiperware can be applied equally well to legacy software or new software.”***

***“Developers need no understanding of distributed programming concepts or threading to turbo-charge applications.”***

From customer experiences, Java applications as diverse as business reporting, business intelligence, online transaction processing, defense, homeland-security can be scaled seamlessly across multiple servers to deliver very-high to real-time performance. (See XML Mark benchmark on page 2).

#### Features

#### Benefits

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##### **Comprehensive Platform**

A complete platform that allows businesses to harness the low cost and effectiveness of multi-core and cluster-computing

Hiperware enables the complete cycle of creating business software that can straddle across a cluster of computers, multiple CPU-cores or virtual computers

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##### **Development**

Productive separation of development tasks between software-architect and developers

Hiperware provides an effective means for software to be divided into parts (sections of Java-code) that can run on different computers, and then work together as a whole.

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Made easy for developers

Hiperware provides a highly simplified Java API for developers. Developers focus on business-logic rather than the difficult intricacies of distributed-programming. Skills expected of developers significantly reduced.

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##### **Testing and Deployment**

A visual dataflow programming tool to conceptualize and deploy the application

Hiperware includes a visual dataflow tool – allowing the application to be conceptualized from simple modules, and its execution articulated across servers or CPU-cores, all visually.

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##### **Administration**

Integrated Monitoring, maintenance and re-configuration of cluster-application

Hiperware enables visual monitoring and reconfiguration of distributed applications. Status and health of application can be monitored centrally.

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##### **Optimized Architecture**

Communication and execution performance-optimized – so that ease-of-use is not at the expense of performance.

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##### **Multi-platform support**

Support for Linux, Windows XP, Solaris 10.

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##### **Partner-friendly**

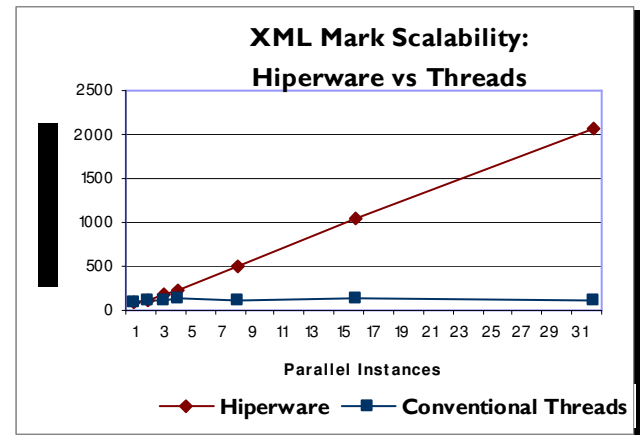
Hiperware is ready to be used and customized by qualified IT-services partners.



## Performance Scalability Benchmark

The Sun Microsystems' *XML Mark<sup>i</sup>* is used as a representative benchmark to evaluate Hiperware Platform's performance – because XML document processing is integral to both business transaction-processing systems as well as service-oriented architectures. The original benchmark uses *thread programming*, which only works on a single server and is very hard to program.

When Hiperware-enabled program is compared against one that uses thread programming, the thread-based program stops scaling when it has used all the CPU-cores on one server (dual-CPU Intel Xeon 3.0GHz). The Hiperware-based program continues to scale almost linearly when tested for even up to 32 CPU-cores – and is developed without a need to understand distributed programming or threading. This clearly means high-performance scalability, while reducing development time and skills.



<sup>1</sup> [http://java.sun.com/performance/reference/whitepapers/XML\\_Test-I\\_0.pdf](http://java.sun.com/performance/reference/whitepapers/XML_Test-I_0.pdf)

## Hiperware Platform Datasheet

### Functional Specifications

- Platform to simplify development of high-performance or real-time Java-applications
- Java-application virtualization across multi-core, multi-servers (cluster) or virtual-machines
- Graphical tool for visual design, deployment and monitoring of application

### Features – Hiperware Core

- Seamlessly combine multi-core & cluster computing
- High-performance communication using Java standards
- Simplified API minimizes developer time, skills required
- Run-time assignment of Java-objects to designated CPUs/ cores
- Transparent communication among cooperating Java-objects in distributed application
- High-performance communication of binary object-data and file-data between CPUs/ cores
- Instrumentation and messaging service for centralized monitoring and debugging

### Features – Quascade

- Automatic or manual assignment of Java-objects to specific CPUs/ CPU-cores/ virtual machines
- Graphical dataflow configuration of Java-classes
- Visual application execution, monitoring. Consolidated *stdout*, *stderr* messages with highlighting and filtering

### Features – Q-Aware

- Maximize available computing capacity based on dynamic load balancing of transaction-data
- Intelligent algorithms to optimize queuing, assignment of transaction-data in relation to resource-availability

### Format and Version specifications

- Support for Java 1.5
- Configurable XML formats for definition and export of Component and Macro information

### Programming and enabling tools

- Command-line interface tool, *Parley* for application execution and monitoring
- Support for the Sun Java programming language
- Support for integrating C/C++ libraries using JNI
- Support for integrating native binaries
- Support for other languages on case by case-basis

### Hardware System Features

- Support for Linux, Solaris, Windows XP, Windows 2000/3 operating systems
- System optimization for maximum-performance

### Support and Services

- Online documentation for developers, users
- Provision for multi-level support and SLAs for partner companies (remote, phone, email, on-site).



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