hp e3000
business servers

java
product brief

invent

write once, run best on hp e3000

Java™ is a simple, yet powerful programming language that provides the key to success in an Internet and e-services world through platform independence and portability. This means that Java applications, once written, can be executed on any computer system. This "write once, run anywhere" vision of Java has been realized on the HP e3000. The MPE/iX Software Developer's Kit for Java 2 Platform, enabling your IT software developers to customize Java applications and applets, is included in the current MPE/iX operating system releases. The new MPE/iX Release 7.0 operating system includes the MPE/iX HotSpot Virtual Machine for Java, which, when coupled with the performance, reliability, integration, security, and manageability of the HP e3000 A- and N-Class servers, provides the best deployment platform for Java applications.

If your business requires the ease of application development, application mobility, and real-time information update, capabilities only Java software can offer, you need Java solutions and expertise only Hewlett-Packard and its partners can deliver. Our Java performance and scalability enhancements focus on server-side applications and a commitment to optimizing the entire application environment. These features combined with our unmatched quality and reliability, make HP the best choice for making the vision of Java a reality for your business today.

adding hp value to your internet solutions

HP believes that Java can add value to a significant number of computing environments today. Java technology is becoming pervasive so it is no longer a language or development area that only a few people or companies know about. It has been successful on the presentation or client side. Now, it is gaining ground in the middle tier, where computation or business logic is located, through application development architectures such as servlets and Enterprise Java Beans. The middle tier both interacts with database or back-end systems and updates client-side devices by downloading the latest software, as well as running new application logic. This ability to update the middle tier quickly and dynamically to accommodate changing business requirements is a huge advantage that Java provides for you and the A- and N-Class servers.

MPE/iX Software Developer's Kit for Java 2 Platform, JDBC connectivity, MPE/iX Hotspot Virtual Machine (in MPE/iX 7.0) along with our Java partners' offerings provide a solid Java offering on the HP e3000 A- and N-Class servers.

java delivers

Simply stated, Java provides extraordinary benefit to your computing environment through:

- **Ease of application development**—As a simpler, more powerful, object-oriented programming language, Java dramatically reduces software development time-from weeks to days.
- **Ease of code and component reuse**—Whether developed internally or purchased, Java code maximizes return on development investment. Plus, the Enterprise Java Bean component model (available in the open-source Lutris Enhydra application server) enables the building of reusable business applications, accelerating the delivery of server-side applications.
- **Application mobility**—Java-based applications run on any hardware platform that supports a Java Runtime Environment; in other words, Java portability is succeeding where UNIX standards promises have failed to deliver.
- **Integration of existing data, services, and applications**—Java enables and eases the tying together of legacy systems with new, Internet-based systems.
- **Security**—Java security has evolved to address initial concerns, and its object-oriented nature allows for granular, flexible, enforceable security.
- **Dynamic nature**—New or updated modules or classes can be added at runtime, providing enormous flexibility.
- **Scalability**—Java has evolved to encompass a range of systems, from those embedded in consumer devices, to applets on desktop clients, to server-side applications running on powerful application servers and integrated with back-end database servers. The HP e3000 now offers the flexibility as a reliable, scalable web, application and/or database server.

HP offers the following complementary products, capabilities, and partnerships, to form a complete solution for the development, deployment, and enhanced performance of Java applications:

- The HP e3000 A- and N-Class servers based on HP's high-performance PA-RISC technology and robust HP MPE/iX operating environment offer new, scalable levels of performance for Java applications.
- HP's high-availability (HA) solutions on the HP e3000 offering built-in fault avoidance; high availability for rapid recovery; and disaster tolerance along with such features as online device configuration, error correcting memory, Patch/iX and Stage/iX for electronic patch delivery.
- Partnerships with the leading developers of Java development and deployment solutions, such as Lutris Enhydra's open-source XML/Java application server; Minisoft's Web Dimension; and LegacyJ's PERCobol.
- HP WebWise MPE/iX Secure Web Server based on the popular Apache Web Server for full strength encryption, authentication, and overall Internet security to your web site.
- LDAP for directory services and access across various platforms
- SAMBA for seamless interoperability with NT environments
- Freeware class libraries such as: TurboIMAGE class Library for Java for direct interface into TurboIMAGE database systems and the MPE Class Library for Java-to-native call facility to enable code written in languages such as COBOL to be directly called from Java programs.
- Java servlets provided in Lutris Enhydra 3.5 (supported) and available from HP at http://jazz.external.hp.com/src/java as unsupported, but tested by HP, freeware.

HP is making Java reliable and ready for real-world, business-critical application deployment on your HP e3000. In so doing, we enable companies like yours to benefit from Java's ease of development, application portability, scalability, and dynamic capabilities-while minimizing the risk inherent in new technologies.

hp e3000, 100% pure java power in your hands

The MPE/iX Software Developer's Kit for Java 2 Platform provides the necessary environment to develop and debug 100% Pure Java applications and applets. These applications and applets can then be deployed on any platform that supports a Java Virtual Machine, including MPE/iX. The Java compiler included in the Developer's Kit generates platform-neutral "bytecode" that can be downloaded to any

computer and executed within that machine's Java runtime environment, commonly referred to as a Java Virtual Machine. In addition, it provides a comprehensive set of features by means of API library packages for creating and deploying Enterprise-wide Java applications.

HP is releasing two compiler alternatives on the HP e3000 that significantly improve Java Runtime Environment performance:

- An improved Just-In-Time (JIT) Compiler: Along with the Java Runtime Environment, HP includes a JIT that transparently boosts runtime performance by compiling the Java bytecode program into native HP e3000 machine code.

- An Enhanced Virtual Machine, Hotspot: HotSpot raises the bar on performance by combining a fast, stable virtual machine and advanced, adaptive-optimization technology. An add-on to Java 2, HotSpot transparently improves performance by up to an order of magnitude, depending on application type, while maintaining full application mobility.

boost your performance

Like the Just-in-Time compiler (JIT) included in previous versions of the SDK, the HotSpot VM, provided in the new MPE/iX 7.0, provides a performance boost by compiling the platform-independent Java bytecodes (class files) into an optimized set of PA-RISC instructions. HotSpot goes beyond JIT technology in dynamically profiling code to identify the 'hot spots' that can best benefit from compilation and optimization. The HotSpot VM also improves performance over previous virtual machines in the areas of garbage collection; thread synchronization, and multiprocessor scalability. Overall, the HotSpot Virtual Machine provides a performance improvement of from 2x to 5x the performance of the Classic VM with JIT for typical applications. The MPE/iX Software Developer's Kit for the Java 2 Platform also includes the Virtual Machine with JIT for Java; users can choose between using the new HotSpot VM or the "Classic" VM with JIT. Both the HotSpot and Classic VMs also support options to suppress compilation and run in interpreted mode if desired.

presenting your new image to the world

Java servlets are server-side Java code for creating dynamic web pages and developing web applications. Servlets are similar to Java applets except they run on a server instead of in a browser.

Servlets provide a powerful alternative to traditional Common Gateway Interface (CGI) applications. Although they can be used wherever CGI applications might normally be used, servlets allow for session persistence and faster startup times than traditional CGI. Servlets also have all the advantages of the Java language such as ease of development, platform independence, and a large set of available APIs.

Like CGI applications, servlets extend the functionality of a web server. For example, a servlet could be written to do any of the following:

- Process and/or store data from an HTML form
- Provide dynamic content (such as returning the results from a database query)
- Manage state information such as for an online shopping cart system

benefits

- reduced costs and ease of application software development
- faster delivery of applications
- maximized return on development investment through code and/or component reuse
- faster integration of legacy systems with new Internet-based systems
- application mobility across different platforms
- real-time information update capabilities

But servlets have several advantages over CGI applications:

- They do not run as a separate process and so do not incur the overhead of creating a new process for every request.
- Servlets stay in memory between requests and do not need to be loaded and started as a CGI program would.
- A single instance of a servlets can answer multiple requests concurrently. With only one instance, memory is better utilized and servlets can easily manage persistent data.
- A servlet can run in its own zone (restricted area) for increased security.

Please visit the Lutris Technologies website at www.lutris.com for information about the servlet engine in Lutris Enhydra 3.5 and in open source Enhydra. Also please visit the HP website at http://jazz.external.hp.com /src/java for more information about Java servlets HP freeware for MPE/iX.

giving you a head start with best-in-class partners

A key way HP is optimizing Java performance and Java offerings on the HP e3000 is by working closely with leading Java partners to provide the solutions you need to maximize your business. HP works actively with the leaders of Java development tools, Web servers, and application servers to test, optimize, and integrate solutions on HP platforms. These efforts allow HP to offer you the ultimate flexibility in selecting the components of your Java-oriented solutions, with the assurance of performance and reliability.

Some of these partners include Lutris Technologies, a leading provider of open-source enterprise software and services for Java, XML and wireless technologies; Legacy J, providing software solutions that bridge legacy applications with the power of Java technology; and Minisoft specializing in connectivity solutions and Java components. These best-in-class partnerships assure you of the opportunity to choose among a broad selection of state-of-the-art Java solutions-solutions you can count on to meet the needs of your business.

HP's enhancements to the Java platform, combined with other innovative HP and partner technologies, provide the industry's best Java performance on the HP e3000.

hp's commitment today and into the future

HP is fully committed to Java, the language and the platform. Our products are based on 100% Pure Java technology, which we enhance with innovative HP technologies and pass through stringent quality assurance processes to produce the industry's most reliable Java Developer's Kit and Java Runtime Environment. We have made a fundamental commitment to enhancing Java to improve its performance and reliability in running real-world, mission-critical applications for businesses like yours using the HP e3000. In the spirit of inventing, HP will continue to develop innovative technologies to improve overall Java performance and reliability, enabling you to evolve and expand your business in the Internet world.

keeping you informed

Documentation for Java is included with HP e3000 A- and N-Class servers that have the Java offerings bundled in the MPE/iX 7.0 operating system. Documentation and other information about MPE/iX and Java offerings are also available at the following web site: http://jazz.external.hp.com/src/java/. For information about the freeware Java Class Libraries and to download, please visit the Interex Shared Source site at http://www.interex.org/tech/3000/hp30003.html. Also, for more information about our partners visit their websites at www.lutris.com, www.legacyj.com and www.minisoft.com

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