Datasheet
Fujitsu Software BS2000
JENV V11.0

BS2000 Environment for Java

Topics

Product characteristic

The Internet programming language Java™ and its corresponding runtime environment are having a significant impact on the whole of enterprise computing. The Java concept ("write once, run anywhere") allows applications to be run via networks of heterogeneous computer systems - embracing the most varied platforms and operating systems.

The BS2000 Environment for Java™ (JENV) enables BS2000 systems to run all Java programs created on any platform. Similarly, Java applications developed for BS2000 can also run on other platforms. Programs created with JENV V11.0 can be run on any platforms that have a JAVA-compatible runtime environment.

Product description

Fujitsu Software BS2000 JENV V11.0 is an implementation of "Java Platform, Standard Edition" (Java SE) on basis of OpenJDK 11 for the FUJITSU Software BS2000 operating system with the complete name "BS2000 Environment for Java™ V11.0".

JENV V11.0 contains a runtime environment (JRE) which conforms to the following relevant specifications:

- "The Java™ Language Specification, Java SE 11 Edition"
  http://docs.oracle.com/javase/specs/jls/se11/html/index.html

- "The Java™ Virtual Machine Specification, Java SE 11 Edition" http://docs.oracle.com/javase/specs/jvms/se11/html/index.html
- Version specific API Specification "Java™ Platform, Standard Edition & Java Development Kit Version 11 API Specification" https://docs.oracle.com/en/java/javase/11/docs/api/

The components for running Java programs comprise:

- the Java runtime system (java, also referred to as the Java Virtual Machine, JVM) together with some utilities,
- a highly optimizing HotSpot® client VM

To deliver high performance on x86-based Server Units of BS2000 SE series, a variant optimized for this platforms has been provided. The HotSpot client VM contained in it generates x86 code directly.

The product also includes a development environment (JDK) providing a wide array of development tools. These can be used to develop applications or applets conforming to the above-mentioned API specification.

The implementation of JENV V11.0A is based on OpenJDK 11.

The components for developing java programs comprise:
- Java compiler (javac)
- Java debugger (jdb)
- The Java classes
- The program for Java archive files (jar) and other utility programs.

Functional description

The main functions of Java can be summarized as follows:
- Java programs are platform-independent and portable. As soon as the virtual machine (VM) is part of the operating system, Java applications can run immediately without recompilation.
- Java applications are secure, even when loaded off the internet. The virtual machine provides a separate runtime environment enabling integrated, flexible, finely tunable control over access to the software and data.
- The Java syntax is simple. It is based on C++, but avoids the latter's complexity and potential error sources (memory leaks).
- Java supports the current object-oriented concepts such as classes, polymorphism, or simple inheritance.
- Java is very robust. Memory bottlenecks are avoided by automatic garbage collection, while runtime errors can be intercepted and dealt with by exception handling.
- Java programs are interpreted, thus enabling shorter development cycles.
- In JENV a Fujitsu in-house thread implementation is used.
- Large files (> 32GB) are also supported.
- JENV contains the package JRIO (Java Record I/O). A collection of Java classes enabling direct (native) access to files with a record- and/or block structure and supporting record- and/or page-oriented input/output to/from such files. These, of course, include in particular BS2000 DMS/DVS files.
- JENV V8.1 contains as new feature the Java-COBOL-Interface (JCI).

Differences to OpenJDK 11

- Audio-Features, JDGA (Java Direct Graphic Access), Class Data Sharing, Oracle Java Mission Control, Java Flight Recorder, Advanced Management Console, Usage Tracker, Java Web Start, the Java-Plugin for Web-Browser and the modules jdk.hotspot.agent and jdk.internal.vm.ci. are not supported.
- As VM technology only the HotSpot-Client-VM is used.
- OpenJDK demo programs are not embedded in the product.
- JENV V11.0 contains additional font files from the DejaVu Font Package.

Important license information

- JENV V11.0 is Open-Source Software.
- All relevant license information can be found at: JENV V11.0_License_Information.

Technical Details

Requirements	
Technical Requirements Hardware	BS2000 Business Server
Technical Requirements Software	Fujitsu Software BS2000 JENV V11.0 is included as part of the shipments of the BS2000 operating system OSD/BC (and therefore also with OSD/XC) as of V11.0 as also of OS DX as of V1.0. JENV V11.0 is thus delivered as part of the basic configuration of the operating system. For developing "Java native interfaces" (C or C++ code called by Java programs) you need a C/C++ compiler or and CRTE. For the components POSIX-BC, BLSSERV, CRTE-BASYS, C/C++ compiler..., correction levels as described in the Release Note are to be used.
User Requirements	Knowledge of BS2000

Installation	
Operating Mode	Dialog or batch
Implementation Language	C++, C, Java and Assembler
User Interface	Alphanumeric or graphical
Installation	Please refer to the relevant release notices.

Documentation and Training	
Documentation	The manuals for JENV are available on the [manual server.](#)

Purchase and Delivery	
Conditions	This software product is supplied to the customer under the conditions laid down in our system contract.
Order and Delivery	The software product may be obtained from your local Fujitsu regional office. JENV V11.0 is part of all shipments of the BS2000 operating system and is delivered free of charge automatically with SOLIS.

Fujitsu Platform Solutions

In addition to Fujitsu Software BS2000, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Fujitsu Portfolio Built on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions, and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offerings. This allows customers to select from alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

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Fujitsu Green Policy Innovation

Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at https://www.fujitsu.com/global/about/environment

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