

## ZING

### Zing is a Java JVM

A JVM that is compatible and compliant with the Java SE specification.

### C4 Garbage Collector

Continuous, concurrent, and consistent memory behavior.

### Falcon JIT

Modern, modular server tier compiler.

### ReadyNow! Technology

Solves Java warm-up problems, gives fine-grained control over compilation and allows reusing accumulated optimizations.

### Zing Vision (ZVision)

A zero-overhead, always-on production time monitoring tool for rapid troubleshooting of applications using Zing.

# Zing: The best JVM for the enterprise

## The Performance Standard for Low Latency, Memory-Intensive or Interactive Applications

### INTRODUCING ZING

Today Java is ubiquitous across the enterprise. Flexible and powerful, Java is the ideal choice for development teams worldwide.

Zing builds upon Java's advantages by delivering a robust, highly scalable Java Virtual Machine (JVM) to match the needs of today's real time enterprise. Zing is the best JVM choice for all Java workloads, including low-latency financial systems, SaaS or Cloud-based deployments, Web-based eCommerce applications, insurance portals, multi-user gaming platforms, Big Data, and other use cases – anywhere predictable Java performance is essential.

Zing enables developers to make effective use of memory – without the stalls, glitches and jitter that have been part of Java's heritage, and solves JVM "warm-up" problems that can degrade performance at start up. With improved memory-handling and a more stable, consistent runtime platform, Java developers can build and deploy richer applications incorporating real-time data processing and analytics, driving new revenue and supporting new business innovations.

Whether your application is machine-scale, measuring peak response time in microseconds, or requires human-scale response times, Zing allows you to meet even the most demanding service level agreements without depending upon JVM tuning experts – helping you take advantage of new business opportunities faster and with lower operating costs.

### INSIDE ZING

At its core, Zing uses Azul's Continuously Concurrent Compacting Collector (C4) instead of the garbage collectors built into Oracle's Hotspot. The C4 collector eliminates the "stop-the-world" garbage collection (GC) pauses that limit the scalability of all legacy JVMs. Azul provides the Falcon server tier compiler, leveraging industry efforts in the LLVM compiler engine, for rock solid performance. Azul's ReadyNow! technology is also built in to Zing, allowing Java applications to start fast and stay fast, even across reboots. For production instance control and issue resolution, Zing adds a with zero-overhead, always-on management for production-time diagnostics plus Zing integrates with many third party application performance management suites.

Zing is simple to install and requires no coding changes to existing applications. Because Zing has been optimized for today's servers, configuration and setup are typically reduced to just a few parameters, instead of the myriad of tuning flags necessary to reach peak performance that characterize many Java-based production environments. Simply point your application or startup scripts to use Zing, and you're running on the most robust, scalable JVM with the fastest time-to-market for any business application.

## ZING ADVANTAGES

- › Takes advantage of the large memory and multiple CPU cores available in today's servers
- › Supports Java heaps up to 2 TB, reducing or eliminating the need for off-heap technologies
- › Scales rapidly, with sustained memory allocation rates beyond 30GB/sec
- › Removes Java Garbage Collection pauses as a factor limiting your business
- › Eliminates response time and latency outliers
- › Delivers a better user experience
- › Minimizes JVM and application tuning for faster time to market
- › Starts fast and stays fast with no need for "warm up"
- › 50% reduction in TCO vs. other Java platforms
- › Optimized for Intel x86/64 servers and multiple Linux distros

## Zing Features

- Compatible and compliant with the Java SE specification
- Eliminates stalls, jitter, and latency outliers
- Unique garbage collector technology: Azul C4 (Continuously Concurrent Compacting Collector)
- Controlled (elastic) scaling of Java application instances under memory pressure based on real-time demands
- Optimized for 64-bit Linux on x86
- Java heap sizes comfortably at 8GB to 64GB, and with operating range up to 2TB
- Optimistic Thread Concurrency for hardware transactional memory CPUs
- Support for Java 8, 7 and 6
- Azul-optimized Falcon server tier JIT compiler
- Azul ReadyNow! APIs that control compilation policy, reduce deoptimization, and direct aggressive initialization tactics that minimize the need to “warm up” the JVM
- Save and reuse accumulated compiler optimizations
- Supports languages beyond Java (e.g. Scala, JRuby and others)

## Processor

- Intel: Xeon server class processors released 2009 and later
- AMD: Opteron server class processors released 2010 and later

## Memory and CPU Cores Recommended

- 16 GB or more
- 6 cores or more

## Operating Range

- 1 GB to 2 TB heap
- 2 cores or more

## Supported Operating Systems

- 64 bit Linux (Intel x86-64)
- Red Hat Enterprise Linux/CentOS 7.0 or later
- Red Hat Enterprise Linux/CentOS 6.0 or later
- Red Hat Enterprise MRG Realtime 6
- SUSE Linux Enterprise Server 12 SP1, 11 SP4
- Oracle Linux 5.x or 6.x (kernel specific)
- Ubuntu 16.04 LTS
- Ubuntu 14.04 LTS
- Ubuntu 12.04 LTS
- Debian Jessie and Wheezy
- Amazon Linux
- Other Linux distributions supported via Dynamic Kernel Module System

## JDK Versions

Java 8, 7 and 6

## Zing Management and Diagnostic Tools:

### Zing Vision

- Always-on, zero-overhead visibility into production workloads
- Fast diagnosis of issues when and where they happen
- Both granular and broad visibility into the details of instance level performance
- Thread-level analysis
- Code hotspot detection
- Lock contention detection
- Method profiling
- Runtime memory leak detection

### Zing Robot

- Automate collection of Zing Vision data

### Zing MxBean

- Standard and extended C4-aware JMX metrics

## Selected Zing use cases:

- Low-latency financial systems
- SaaS deployments
- Cloud-based solutions
- In-memory Big Data analytics
- Web-scale IT
- Real-time advertising networks
- Large-scale online and social gaming
- Retail eCommerce platforms
- Complex event processing
- Real-time messaging
- NoSQL and graph databases
- Enterprise search

## Monotype™

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