



# SPECjbb2015

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Cisco Systems Cisco UCS  
C480 M5

**327501 SPECjbb2015-MultiJVM max-jOPS**  
**108859 SPECjbb2015-MultiJVM critical-jOPS**

Tested by: Cisco Systems

Test Sponsor: Cisco  
SystemsTest location: San Jose,  
CATest date: March 12,  
2019

SPEC license #: 9019

Hardware Availability:  
April-2019Software Availability:  
Jan-2019Publication: MMM DD,  
YYYY

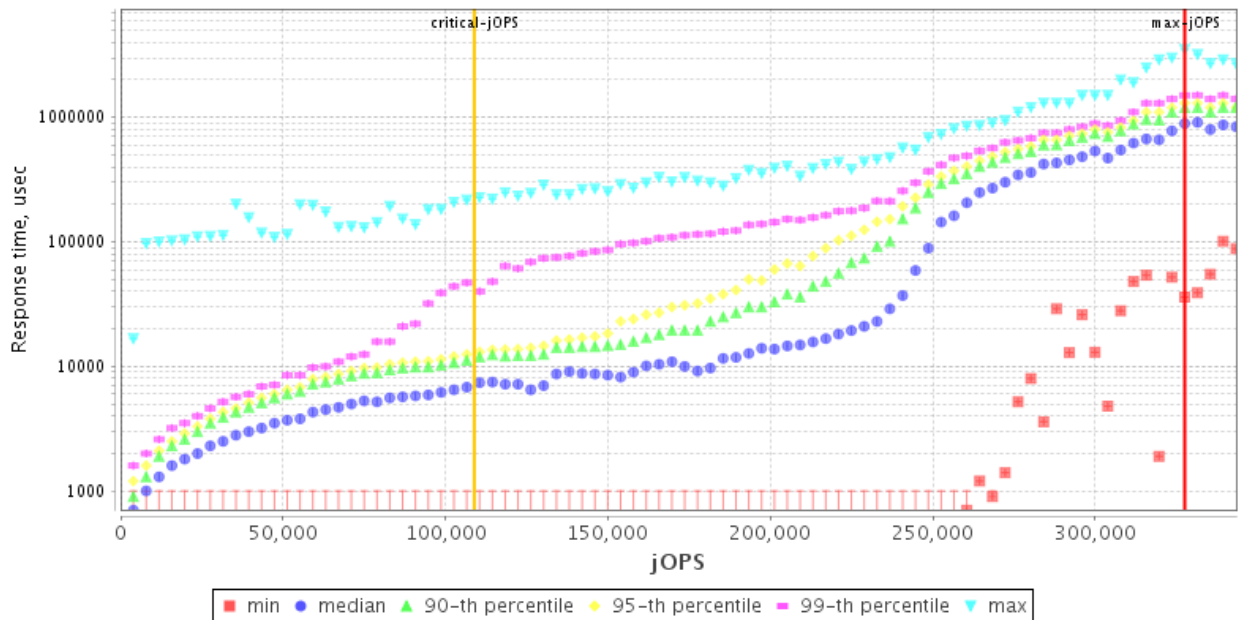
## Benchmark Results Summary

**SPECjbb2015-  
MultiJVM:  
Multiple  
JVMs/Single  
Host  
(# of groups:  
8)**

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Description](#)  
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### Overall Throughput RT curve



## Overall SUT (System Under Test) Description

|                           |   |
|---------------------------|---|
| Vendor                    | Cisco Systems   |
| Vendor URL                | <a href="http://www.cisco.com/">http://www.cisco.com/</a> |
| System Source             | Single Supplier   |
| System Designation        | Server Rack   |
| Total Systems             | 1   |
| All SUT Systems Identical | YES   |
| Total Nodes               | 1   |
| All Nodes Identical       | YES   |
| Nodes Per System          | 1   |
| Total Chips               | 4   |
| Total Cores               | 112   |
| Total Threads             | 224   |

|                          |             |
|--------------------------|-------------|
| Total Memory Amount (GB) | 1536        |
| Total OS Images          | 1           |
| SW Environment           | Non-virtual |

## SUT Description

| Hardware hw_1                                |   | Operating System os_1             |   |
|--|---|-----------------------------------|---|
| Name   | Cisco UCS C480 M5   | Name                              | Windows Server 2019 Datacenter                                    |
| Vendor                                       | None  | Vendor                            | Microsoft   |
| Vendor URL                                   | <a href="#">None</a>  | Vendor URL                        | <a href="http://www.microsoft.com/">http://www.microsoft.com/</a> |
| Available                                    | April-2019  | Version                           | Version 10.0.17763 Build 17763                                    |
| Model  | Cisco UCS C480 M5   | Available                         | October 2018  |
| Form Factor                                  | 4U Rack   | Bitness                           | 64  |
| CPU Name                                     | Intel Xeon Platinum 8280  | Notes                             | None  |
| CPU Characteristics                          | 28Cores, 2.70 GHz, 38.5MB L3 Cache (Turbo Boost Technology up to 4.0 GHz) | <b>Java Virtual Machine jvm_1</b> |   |
| Number of Systems                            | 1   | Name                              | Oracle Java SE 11.0.2   |
| Nodes Per System                             | 1   | Vendor                            | Oracle Corporation  |
| Chips Per System                             | 4   | Vendor URL                        | <a href="http://www.oracle.com">http://www.oracle.com</a>         |
| Cores Per System                             | 112   | Version                           | Java HotSpot 64-bit Server VM, version 11.0.2                     |
| Cores Per Chip                               | 28  | Available                         | Jan-2019  |
| Threads Per System                           | 224   | Bitness                           | 64  |
| Threads Per Core                             | 2   | Notes                             | note  |
| Version                                      | None  | <b>Other Software other_1</b>     |   |
| CPU Frequency (MHz)                          | 2700  | Name                              | None  |
| Primary Cache                                | 32KB(I)+32KB(D) per core  | Vendor                            | None  |
| Secondary Cache                              | 1024 KB (I+D) per core  | Vendor URL                        | <a href="#">None</a>  |
| Tertiary Cache                               | 38.5MB (I+D) on chip per chip   | Version                           | None  |
| Other Cache                                  | None  | Available                         | None  |
| Disk   | 1x 400GB SSD SAS  | Bitness                           | None  |
| File System                                  | NTFS  | Notes                             | None  |
| Memory Amount (GB)                           | 1536  |                                   |   |
| # and size of DIMM(s)                        | 48 x 32GB   |                                   |   |
| Memory Details                               | 1536 GB(48 X 32GB 2Rx4 PC4-2933V)   |                                   |   |
| # and type of Network Interface Cards (NICs) | 2 x 10 Gbit NIC   |                                   |   |
| Power Supply Quantity and Rating (W)         | 4 x 1600W   |                                   |   |
| Other Hardware                               | None  |                                   |   |
| Cabinet/Housing/Enclosure                    | None  |                                   |   |
| Shared Description                           | None  |                                   |   |
| Shared Comment                               | None  |                                   |   |
| Notes  | None  |                                   |   |
| <b>Other Hardware network_1</b>              |   |                                   |   |
| Name   | None  |                                   |   |
| Vendor                                       | None  |                                   |   |
| Vendor URL                                   | <a href="#">None</a>  |                                   |   |
| Version                                      | None  |                                   |   |
| Available                                    | None  |                                   |   |
| Bitness                                      | None  |                                   |   |
| Notes  | None  |                                   |   |

## Topology

SUT

Hardware [config\\_1](#)OS Image [os\\_image\\_1](#)JVM [jvm\\_Ctr\\_1](#) : ControllerJVM [jvm\\_Backend\\_1](#) : BackendJVM [jvm\\_TxInjector\\_1](#) : TxInjector

## SUT config\_1 Configuration

| Hardware | OS Image os_image_1 |
|----------|---------------------|
|----------|---------------------|

|                             |   |                                 |   |
|-----------------------------|---|---------------------------------|---|
| <b>OS Images</b>            | os_Image_1(1)   | <b>JVM Instances</b>            | jvm_Ctr_1(1), jvm_Backend_1(8), jvm_TxInjector_1(8)   |
| <b>Hardware Description</b> | <a href="#">hw_1</a>  | <b>OS Image Description</b>     | <a href="#">os_1</a>  |
| <b>Number of Systems</b>    | 1   | <b>Tuning</b>                   | <ul style="list-style-type: none"> <li>Power Options is set to High performance</li> <li>Processor scheduling is set to Programs</li> <li>Lock Pages in Memory is Enabled</li> <li>HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters and add a new entry . Value Name: MaxUserPort Value Type: DWORD Value data: 65534</li> </ul> |
| <b>SW Environment</b>       | non-virtual   | <b>Notes</b>                    | None  |
| <b>Tuning</b>               | BIOS tuning <ul style="list-style-type: none"> <li>Memory Patrol Scrub disabled</li> <li>CPU Performance set to Enterprise</li> <li>Hyperthreading Enabled</li> <li>IMC Interleave to one-way</li> <li>SNC Enabled</li> <li>Memory RAS configuration set to Maximum performance</li> <li>Power Technology set to performance</li> </ul> | <b>JVM Instance jvm_Ctr_1</b>   |   |
| <b>Notes</b>                | notes   | <b>Parts of Benchmark</b>       | Controller  |
|                             |   | <b>JVM Instance Description</b> | <a href="#">jvm_1</a>   |
|                             |   | <b>Command Line</b>             | -Xmn1536m -Xms2g -Xmx2g   |
|                             |   | <b>Tuning</b>                   | None  |
|                             |   | <b>Notes</b>                    | None  |

**JVM Instance jvm\_Backend\_1**

|                                 |  |
|---------------------------------|--|
| <b>Parts of Benchmark</b>       | Backend  |
| <b>JVM Instance Description</b> | <a href="#">jvm_1</a>  |
| <b>Command Line</b>             | -showversion -server -XX:LargePageSizeInBytes=2m -XX:-UseAdaptiveSizePolicy -XX:+AlwaysPreTouch -XX:-UseBiasedLocking -XX:+UseLargePages -XX:+UseParallelOldGC -Xms29g -Xmx29g -Xmn27g -XX:SurvivorRatio=28 -XX:TargetSurvivorRatio=95 -XX:ParallelGCThreads=28 -XX:MaxTenuringThreshold=15 -XX:AllocatePrefetchInstr=2 -XX:InlineSmallCode=10k -XX:+UseRTMLocking -XX:+UseRTMDeopt -XX:-UsePerfData |
| <b>Tuning</b>                   | Affinitized each Backend JVM to a NUMA node <ul style="list-style-type: none"> <li>start /NODE [0-7]</li> </ul>  |
| <b>Notes</b>                    | None   |

**JVM Instance jvm\_TxInjector\_1**

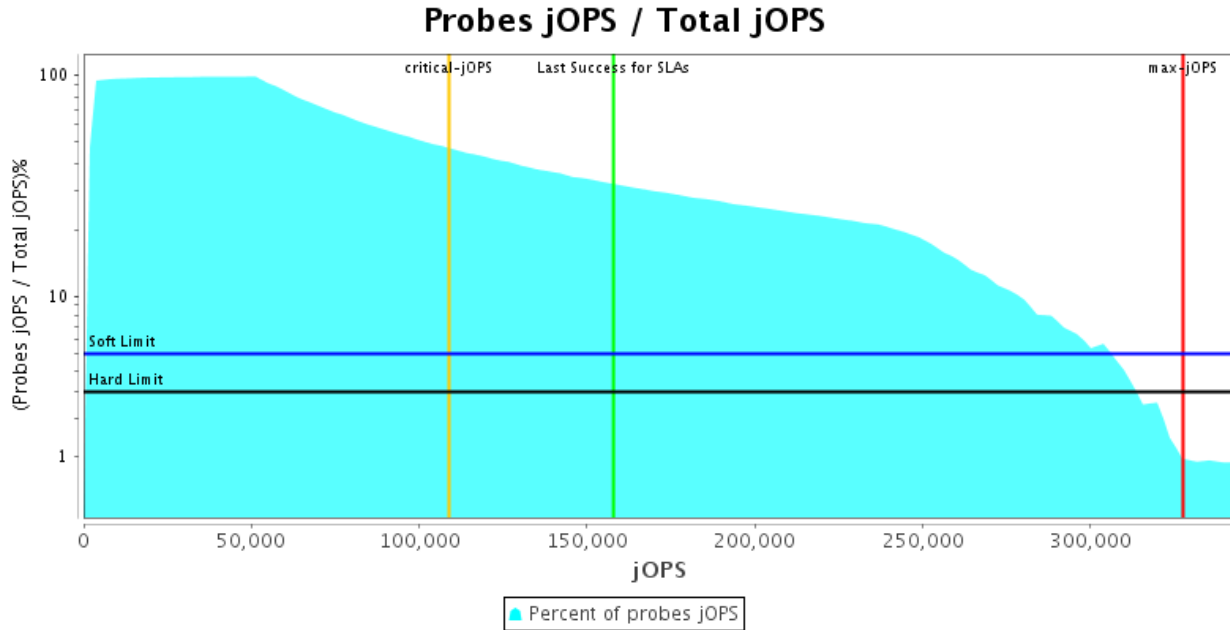
|                                 |   |
|---------------------------------|---|
| <b>Parts of Benchmark</b>       | TxInjector  |
| <b>JVM Instance Description</b> | <a href="#">jvm_1</a>   |
| <b>Command Line</b>             | -showversion -Xmn3584m -Xms4g -Xmx4g -XX:+UseLargePages -XX:+UseParallelOldGC -XX:LargePageSizeInBytes=2            |
| <b>Tuning</b>                   | Affinitized each Tx Injector JVM to a NUMA node <ul style="list-style-type: none"> <li>start /NODE [0-7]</li> </ul> |
| <b>Notes</b>                    | None  |

**max-jOPS and critical-jOPS Details**

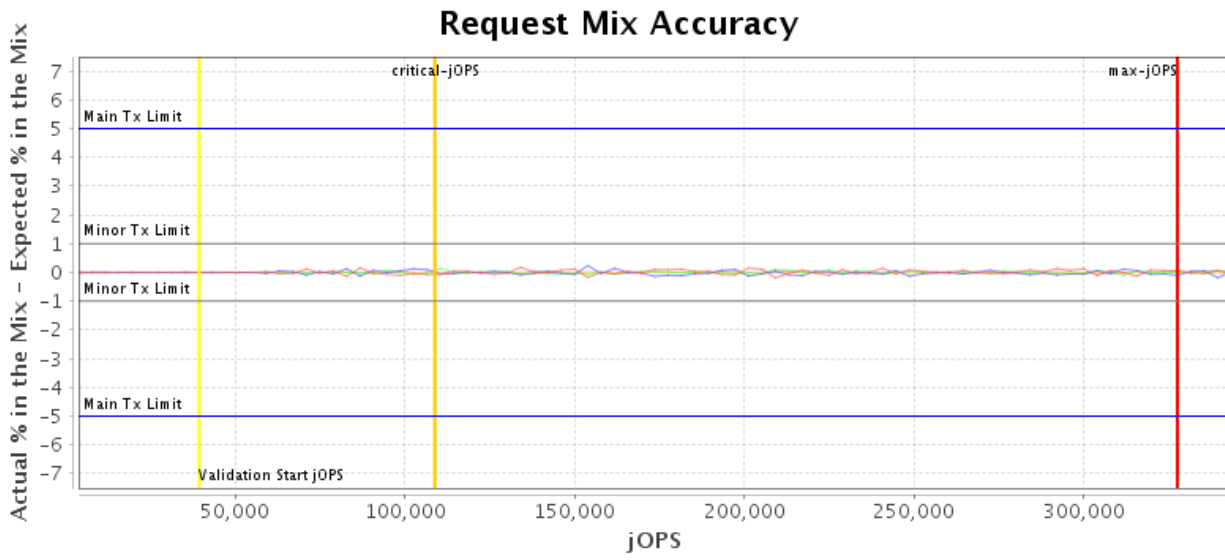
| max-jOPS = jOPS passed before the First Failure                             |        |        |        |        |        |         | Last Success jOPS/First Failure jOPS for SLA points |                 |                 |                 |                 |                 |               |  |  |  |
|---|--------|--------|--------|--------|--------|---------|---|-----------------|-----------------|-----------------|-----------------|-----------------|---------------|--|--|--|
| Pass/Fail   | Pass   | Pass   | Fail   | Fail   | Fail   | Fail    | Percentile  |                 |                 |                 |                 |                 |               |  |  |  |
| jOPS  | 323555 | 327501 | 321446 | 325392 | 339338 |         | 10-th   | 50-th           | 90-th           | 95-th           | 99-th           | 100-th          |               |  |  |  |
| critical-jOPS = Geomean ( jOPS @ 10000; 25000; 50000; 75000; 100000; SLAs ) |        |        |        |        |        |         | 500us   | - / 3946        | - / 3946        | - / 3946        | - / 3946        | - / 3946        | - / 3946      |  |  |  |
|   |        |        |        |        |        |         | 1000us  | 11837 / 15783   | 7892 / 11837    | 3946 / 7892     | - / 3946        | - / 3946        | - / 3946      |  |  |  |
|   |        |        |        |        |        |         | 5000us  | 201235 / 197289 | 71024 / 74970   | 39458 / 43404   | 35512 / 39458   | 27621 / 31566   | - / 3946      |  |  |  |
| Response time percentile is 99-th   |        |        |        |        |        |         | 10000us   | 232802 / 236747 | 181506 / 161777 | 94699 / 98645   | 78916 / 82862   | 63133 / 67078   | - / 3946      |  |  |  |
| SLA (us)  | 10000  | 25000  | 50000  | 75000  | 100000 | Geomean | 25000us   | 248585 / 252531 | 232802 / 236747 | 185452 / 189398 | 157832 / 161777 | 90753 / 94699   | 3946 / 7892   |  |  |  |
| jOPS  | 65105  | 92726  | 116401 | 136130 | 159804 | 108859  | 50000us   | 248585 / 252531 | 240693 / 244639 | 217018 / 220964 | 197289 / 201235 | 114428 / 118374 | 3946 / 7892   |  |  |  |
|   |        |        |        |        |        |         | 75000us   | 256476 / 260422 | 244639 / 248585 | 228856 / 232802 | 209127 / 213073 | 134157 / 138103 | 3946 / 7892   |  |  |  |
|   |        |        |        |        |        |         | 100000us  | 260422 / 264368 | 248585 / 252531 | 232802 / 236747 | 217018 / 220964 | 157832 / 161777 | 11837 / 15783 |  |  |  |
|   |        |        |        |        |        |         | 200000us  | 280151 /        | 256476 /        | 244639 /        | 240693 /        | 228856 /        | 98645 /       |  |  |  |

|           |                 |                 |                 |                 |                 |                 |
|-----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|           | 276205          | 260422          | 248585          | 244639          | 232802          | 35512           |
| 500000us  | 323555 / 327501 | 303826 / 299880 | 272260 / 276205 | 268314 / 272260 | 260422 / 264368 | 236747 / 240693 |
| 1000000us | 327501 / -      | 327501 / -      | 319609 / 323555 | 311717 / 315663 | 307772 / 311717 | 272260 / 276205 |

**Number of probes**



**Request Mix Accuracy**



**Note**

(Actual % in the Mix - Expected % in the Mix) must be within:

- 'Main Tx' limit of +/-5.0% for the requests whose expected % in the mix is  $\geq 10.0\%$
- 'Minor Tx' limit of +/-1.0% for the requests whose expected % in the mix is  $< 10.0\%$

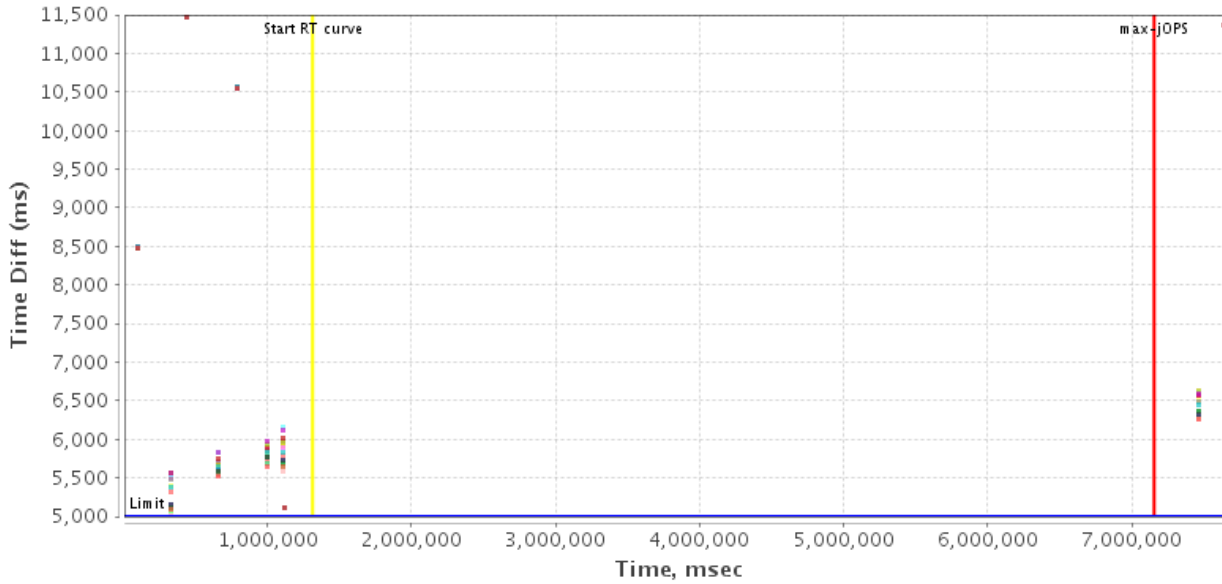
|                               |                         |                               |                                  |
|-------------------------------|-------------------------|-------------------------------|----------------------------------|
| In-store Purchase [50%]       | Online Purchase [35%]   | Installment Purchase [10%]    | Associativity of Category [0.1%] |
| Associativity of Product [1%] | Business Report [0.25%] | Customer Buying Behavior [1%] | Product Return [2.65%]           |

**Rate of Non-Critical Failures**

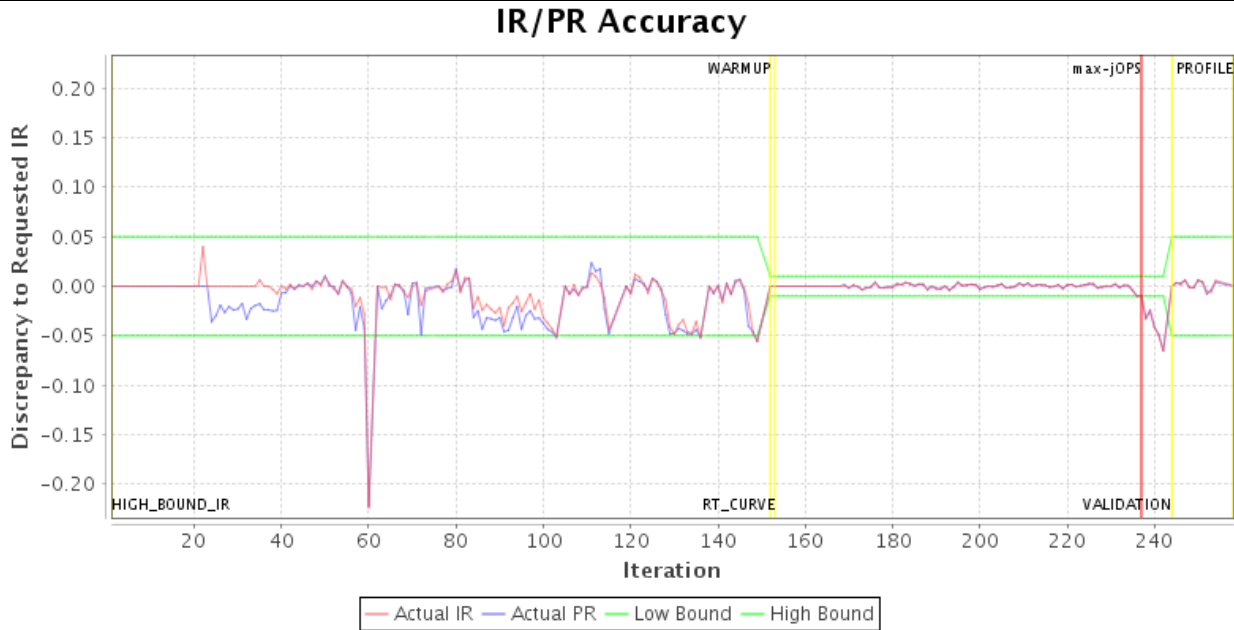
There were no non-critical failures in Response Time curve building

**Delay between performance status pings during RT Curve (Response-Throughput Curve)**

### Delay between performance status pings above threshold



### IR/PR Accuracy



### Run Properties

This section lists properties only set by user

| Property Name                              | Default | Controller                               |
|--|---------|--|
| specjbb.comm.connect.client.pool.size      | 256     | 192                                      |
| specjbb.comm.connect.selector.runner.count | 0       | 4  |
| specjbb.comm.connect.timeouts.connect      | 60000   | 800000                                   |
| specjbb.comm.connect.timeouts.read         | 60000   | 800000                                   |
| specjbb.comm.connect.timeouts.write        | 60000   | 800000                                   |
| specjbb.comm.connect.worker.pool.max       | 256     | 60                                       |
| specjbb.comm.connect.worker.pool.min       | 1       | 60                                       |
| specjbb.customerDriver.threads             | 64      | {=64, probe=64, saturate=64, service=64} |
| specjbb.forkjoin.workers                   | 56      | {Tier1=170, Tier2=1, Tier3=26}           |
| specjbb.group.count                        | 1       | 8  |
| specjbb.heartbeat.threshold                | 100000  | 600000                                   |
| specjbb.mapreducer.pool.size               | 56      | 4  |
| specjbb.txi.pergroup.count                 | 1       | 1  |

[View table in csv format](#)

### Validation Details

#### Validation Reports

Level: COMPLIANCE

| Check                          | Agent | Result |
|--------------------------------|-------|--------|
| Check properties on compliance | All   | PASSED |

Level: CORRECTNESS

| Check                       | Agent | Result |
|-----------------------------|-------|--------|
| Compare SM and HQ Inventory | All   | PASSED |

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Other Checks

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High-bound (max attempted) is 394579 IR

High-bound (settled) is 343266 IR

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