

SPECjbb2015

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Cisco Systems Cisco UCS
C460 M4

189334 SPECjbb2015-MultiJVM max-jOPS
128990 SPECjbb2015-MultiJVM critical-jOPS

Tested by: Cisco Systems

Test Sponsor: Cisco Systems

Test location: San Jose, CA

Test date: May 9, 2016

SPEC license #: 9019

Hardware Availability: June-2016

Software Availability: June-2016

Publication: MMM DD, YYYY

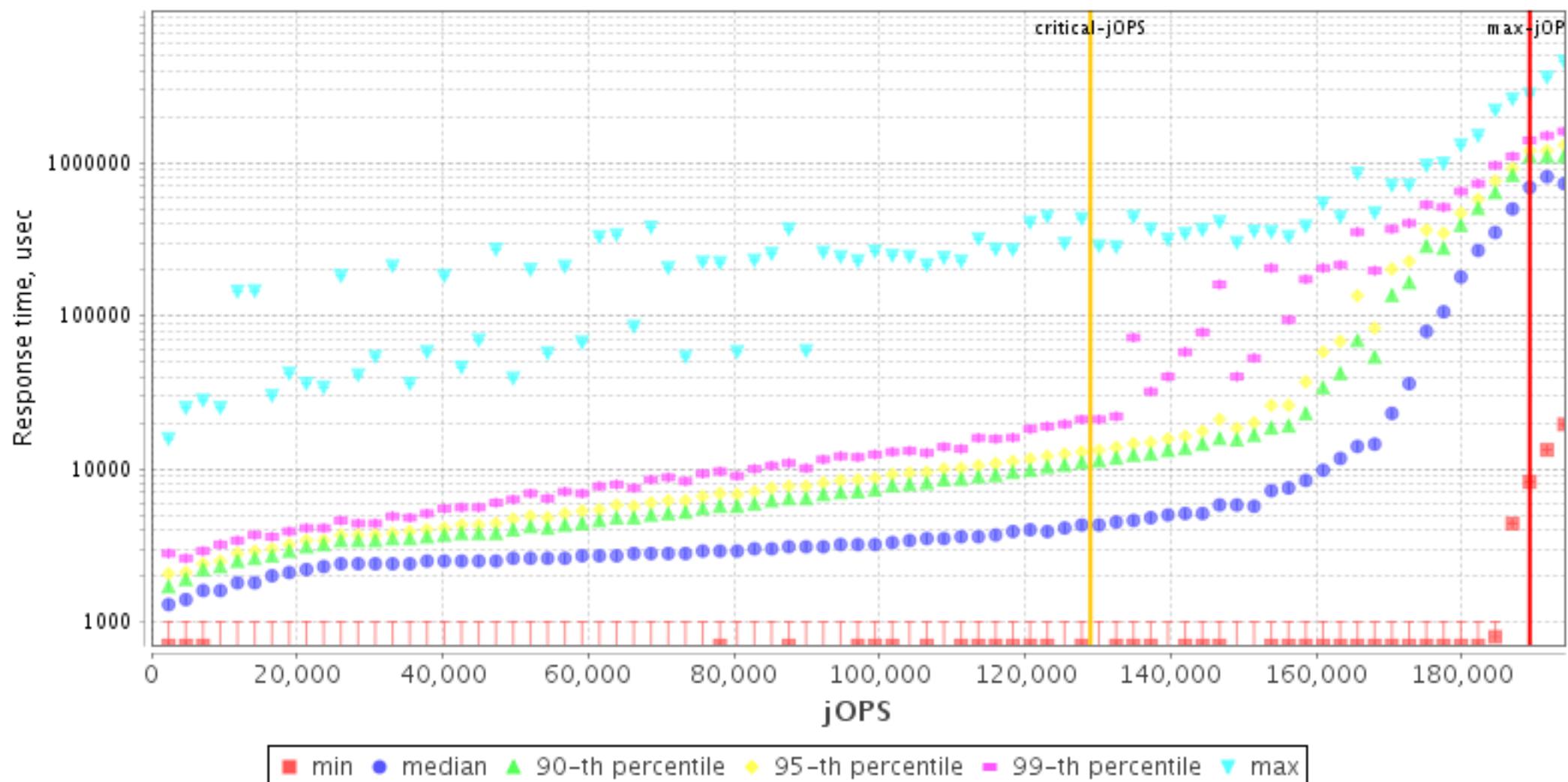
Benchmark Results Summary

SPECjbb2015-
MultiJVM:
Multiple
JVMs/Single
Host
(# of groups:
4)

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Overall Throughput RT curve



Overall SUT (System Under Test) Description

Vendor	Cisco Systems
Vendor URL	http://www.cisco.com/
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	96
Total Threads	192
Total Memory Amount (GB)	2048
Total OS Images	1
SW Environment	Non-virtual

SUT Description

Hardware hw_1	
Name	Cisco UCS C460 M4
Vendor	Cisco Systems
Vendor URL	http://www.cisco.com
Available	June-2016
Model	Cisco UCS C460 M4
Form Factor	4U Rack
CPU Name	Intel Xeon E7-8890 v4
CPU Characteristics	24Cores, 2.20 GHz, 60MB L3 Cache (Turbo Boost Technology up to 2.60 GHz)
Number of Systems	1
Nodes Per System	1
Chips Per System	4
Cores Per System	96
Cores Per Chip	24
Threads Per System	192
Threads Per Core	2
Version	None
CPU Frequency (MHz)	2200
Primary Cache	32KB(I)+32KB(D) per core
Secondary Cache	256 KB (I+D) per core
Tertiary Cache	60MB (I+D) on chip per chip
Other Cache	None
Disk	1x 300GB 15K RPM SAS
File System	ext4
Memory Amount (GB)	2048
# and size of DIMM(s)	64 x 32 GB
Memory Details	32 GB 2Rx4 PC4-2400T-R, running at 1600 MHz
# and type of Network Interface Cards (NICs)	1x 1 Gbit NIC
Power Supply Quantity and Rating (W)	4 x 1400W
Other Hardware	None
Cabinet/Housing/Enclosure	None
Shared Description	None
Shared Comment	None
Notes	None
Other Hardware network_1	
Name	None
Vendor	None
Vendor URL	None
Version	None
Available	None
Bitness	None
Notes	None

Operating System os_1	
Name	Red Hat Enterprise Linux Server 7.2
Vendor	Red Hat
Vendor URL	http://www.redhat.com/
Version	Red Hat Enterprise Linux Server release 7.2
Available	Nov-2015
Bitness	64
Notes	None
Java Virtual Machine jvm_1	
Name	Oracle Java SE 8u91
Vendor	Oracle Corporation
Vendor URL	http://www.oracle.com
Version	Java HotSpot 64-bit Server VM, version 1.8.0_91
Available	April-2016
Bitness	64
Notes	None
Other Software other_1	
Name	None
Vendor	None
Vendor URL	None
Version	None
Available	None
Bitness	None
Notes	None

Topology

SUT

Hardware [config_1](#)

OS Image [os_image_1](#)

SUT config_1 Configuration

Hardware

OS Images	os_Image_1(1)
Hardware Description	hw_1
Number of Systems	1
SW Environment	non-virtual
Tuning	BIOS tuning <ul style="list-style-type: none"> • Energy Performance set to Performance Mode • CPU Performance set to Enterprise • Memory Low Voltage DDR Mode set to Performance Mode • Processor C6 Report set to disabled • QPI Snoop Mode set to Home Directory Snoop with OSB
Notes	notes

OS Image os_Image_1

JVM Instances	jvm_Ctr_1(1), jvm_Backend_1(4), jvm_TxInjector_1(4)
OS Image Description	os_1
Tuning	<ul style="list-style-type: none"> • SE Linux = Disabled • tuned-adm profile set to Throughput Performance • echo 16000000 > /proc/sys/kernel/sched_latency_ns
Notes	None

JVM Instance jvm_Ctr_1

Parts of Benchmark	Controller
JVM Instance Description	jvm_1
Command Line	-Xmn1536m -Xms2g -Xmx2g
Tuning	None
Notes	None

JVM Instance jvm_Backend_1

Parts of Benchmark	Backend
JVM Instance Description	jvm_1
Command Line	-XX:-UsePerfData -server -XX:AllocatePrefetchInstr=2 -XX:LargePageSizeInBytes=2m -XX:+AggressiveOpts -XX:-UseAdaptiveSizePolicy -XX:+AlwaysPreTouch -XX:-UseBiasedLocking -XX:+UseLargePages -XX:+UseParallelOldGC -Xms475g -Xmx475g -Xmn440g -XX:SurvivorRatio=48 -XX:TargetSurvivorRatio=90 -XX:ParallelGCThreads=48 -XX:MaxTenuringThreshold=15 -XX:+PrintTenuringDistribution -XX:+PrintGCDetails -XX:+PrintGCTimeStamps
Tuning	numactl used to affinity each Backend JVM to a single memory node <ul style="list-style-type: none"> • numactl --cpunodebind=0 --localalloc • numactl --cpunodebind=1 --localalloc • numactl --cpunodebind=2 --localalloc • numactl --cpunodebind=3 --localalloc
Notes	None

JVM Instance jvm_TxInjector_1

Parts of Benchmark	TxInjector
JVM Instance Description	jvm_1
Command Line	-Xmn1536m -Xms2g -Xmx2g
Tuning	None
Notes	None

max-jOPS and critical-jOPS Details

Last Success jOPS/First Failure jOPS for SLA points

Percentile					
10-th	50-th	90-th	95-th	99-th	100-th

max-jOPS = jOPS passed before the First Failure

Pass/Fail	Pass	Pass	Pass	Fail	Fail
jOPS	184601	186968	189334	191701	194068

critical-jOPS = Geomean (jOPS @ 10000; 25000; 50000; 75000; 100000; SLAs)

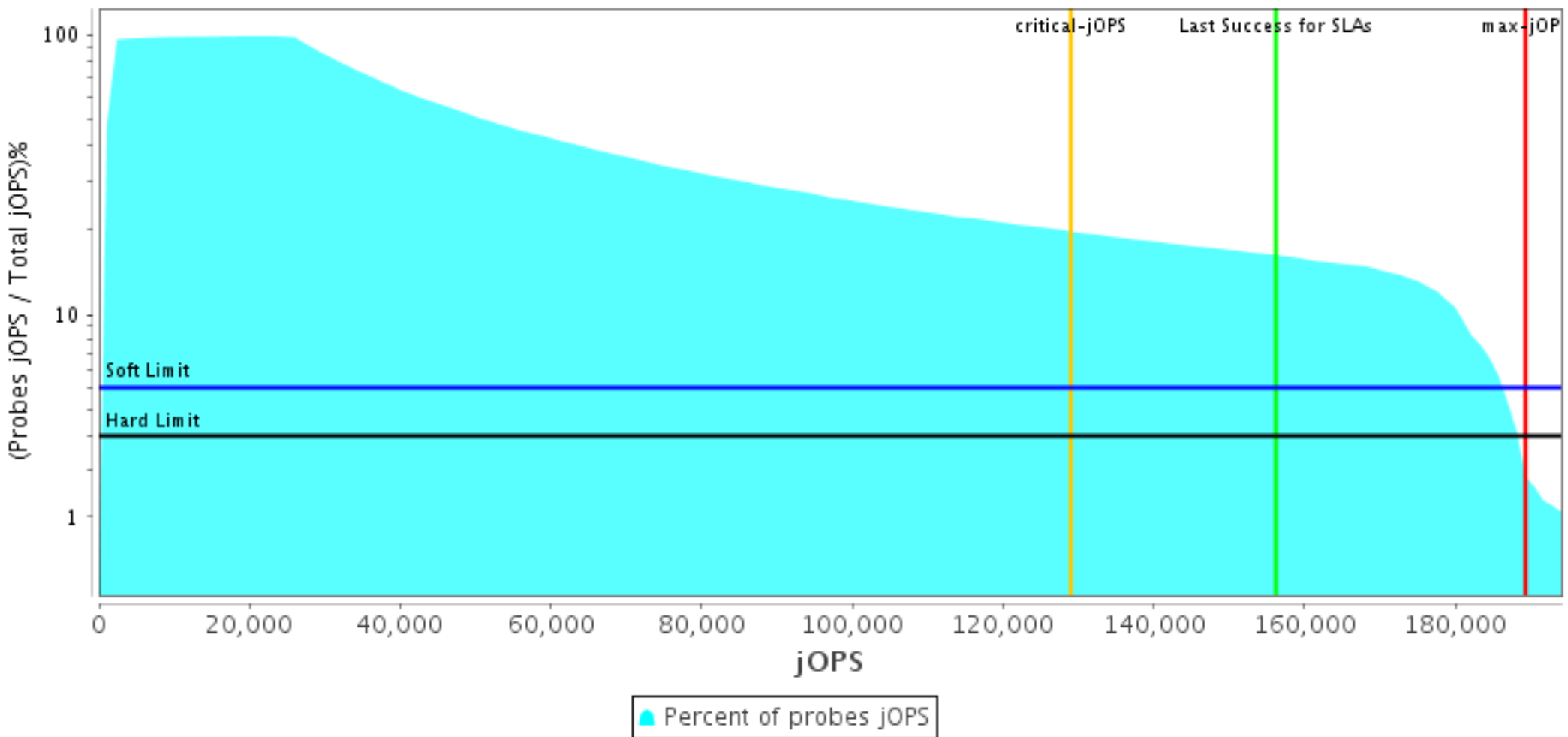
Response time percentile is 99-th

SLA (us)	10000	25000	50000	75000	100000	Geomean
jOPS	84017	133717	140986	147917	152414	128990

500us	- / 2367	- / 2367	- / 2367	- / 2367	- / 2367	- / 2367
1000us	- / 2367	- / 2367	- / 2367	- / 2367	- / 2367	- / 2367
5000us	170401 / 172768	139634 / 142001	68634 / 71000	54434 / 56800	35500 / 37867	- / 2367
10000us	175134 / 177501	160934 / 163301	120701 / 123067	108867 / 111234	82834 / 85200	- / 2367
25000us	177501 / 179868	170401 / 172768	158568 / 160934	151468 / 153834	132534 / 134901	9467 / 7100
50000us	179868 / 182234	172768 / 175134	163301 / 165668	158568 / 160934	149101 / 134901	49700 / 11833
75000us	179868 / 182234	172768 / 175134	168034 / 170401	163301 / 165668	151468 / 144367	89934 / 11833
100000us	182234 / 184601	175134 / 177501	168034 / 170401	168034 / 165668	156201 / 146734	89934 / 11833
200000us	184601 / 186968	179868 / 182234	172768 / 175134	168034 / 170401	168034 / 153834	89934 / 33134
500000us	189334 / -	186968 / 189334	179868 / 182234	179868 / 182234	172768 / 175134	168034 / 160934
1000000us	189334 / -	189334 / -	186968 / 189334	186968 / 189334	184601 / 186968	177501 / 179868

Number of probes

Probes jOPS / Total jOPS



Request Mix Accuracy

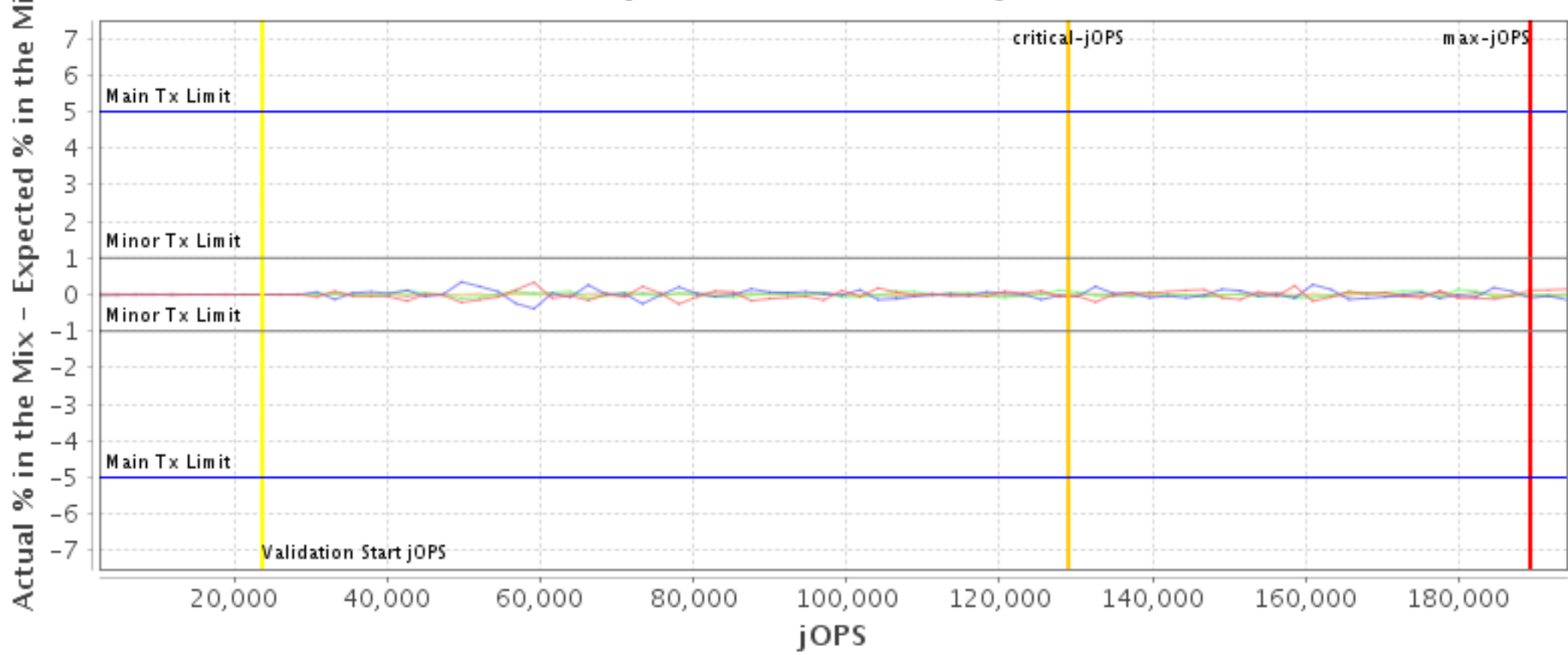
Note

(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 $< 10.0\%$

Request Mix Accuracy



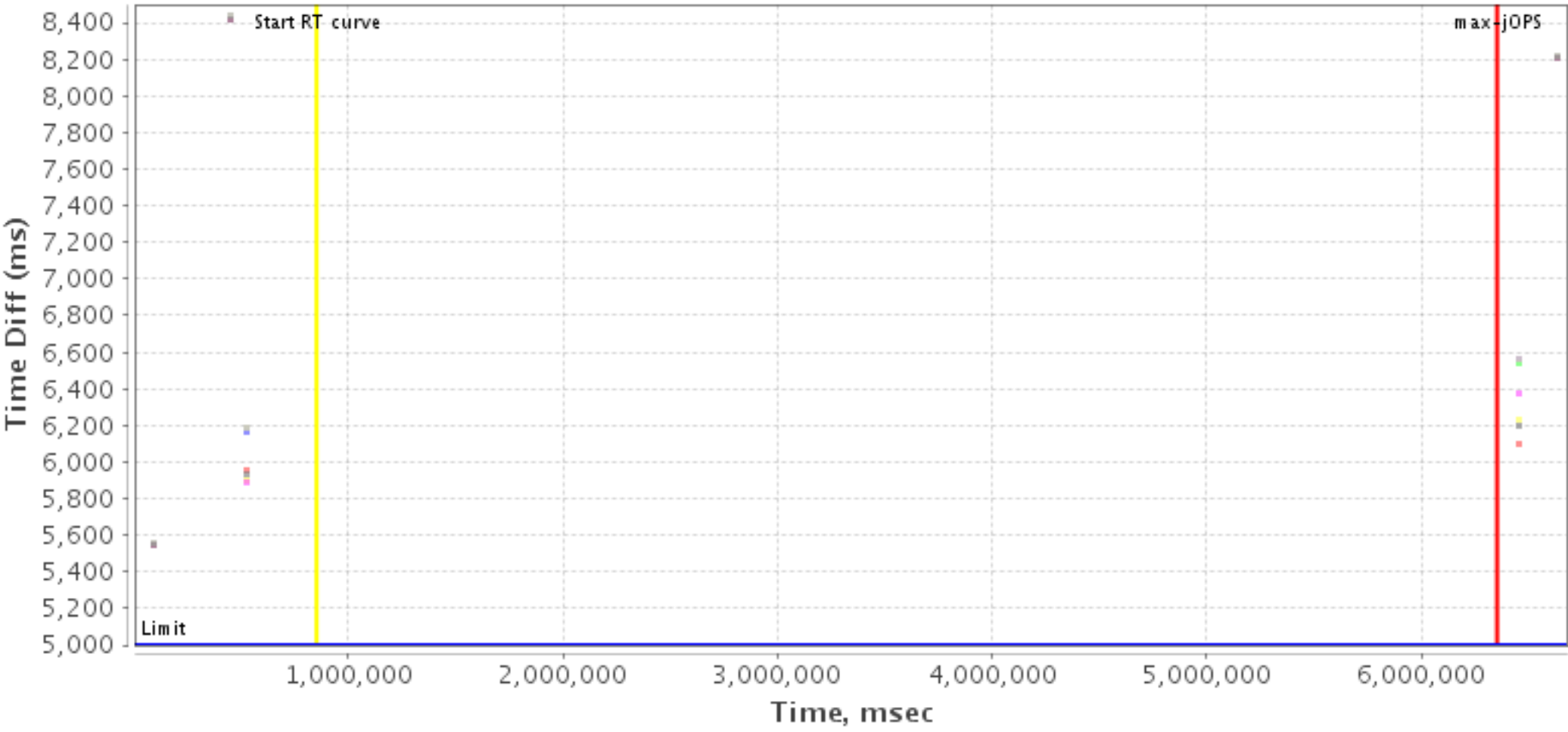
In-store Purchase [50%]	Online Purchase [35%]	Installment Purchase [10%]	Associativity of Category [0.1%]
Associativity of Product [1%]	Business Report [0.25%]	Customer Buying Behavior [1%]	Product Return [2.65%]

Rate of Non-Critical Failures

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

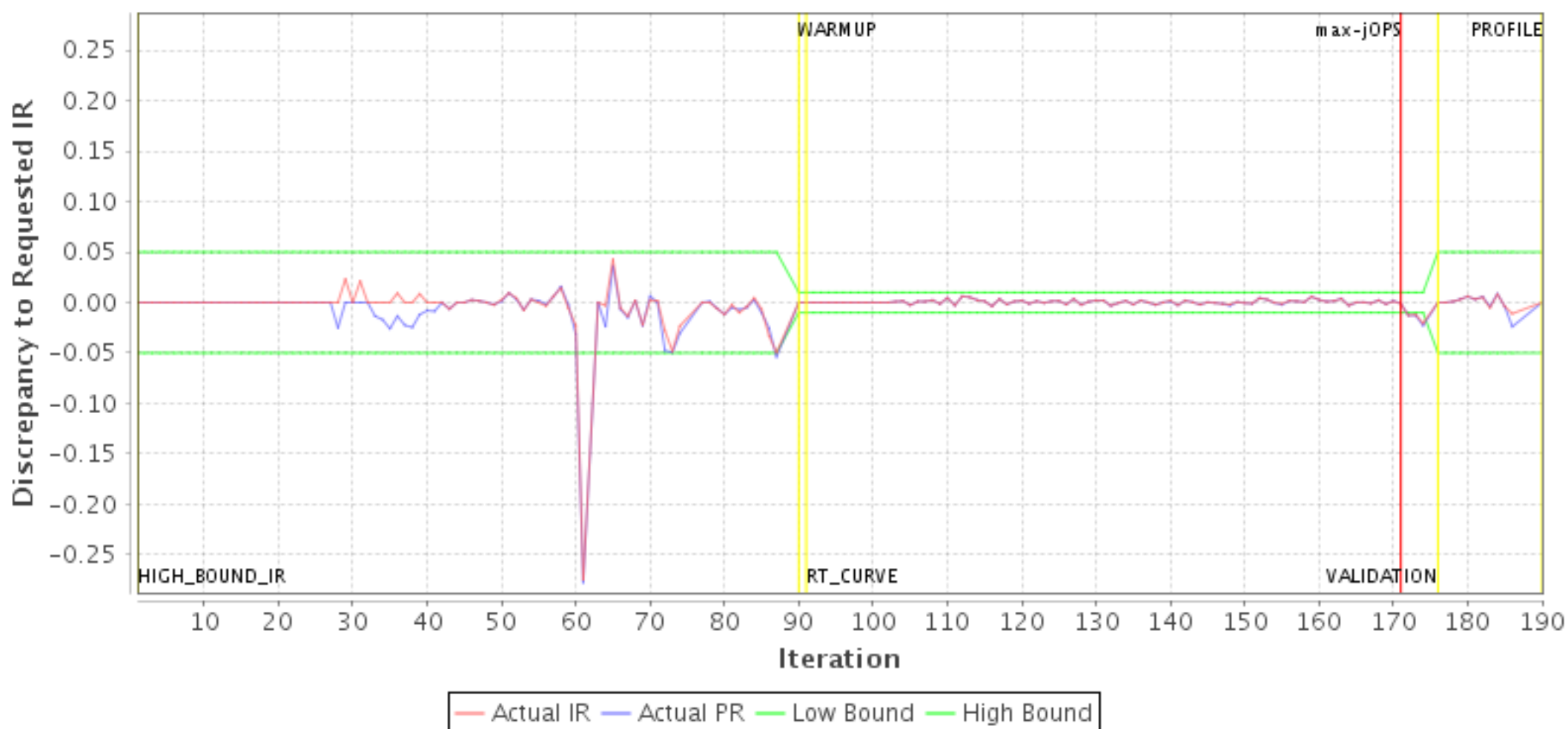
Delay between performance status pings during RT Curve (Response-Throughput Curve)

Delay between performance status pings above threshold



IR/PR Accuracy

IR/PR Accuracy



Run Properties

This section lists properties only set by user

Property Name	Default	Controller
specjbb.comm.connect.selector.runner.count	0	4
specjbb.comm.connect.timeouts.connect	60000	600000
specjbb.comm.connect.timeouts.read	60000	600000
specjbb.comm.connect.timeouts.write	60000	600000
specjbb.comm.connect.worker.pool.max	256	64
specjbb.controller.maxir.maxFailedPoints	3	1
specjbb.forkjoin.workers	192	{Tier1=260, Tier2=70, Tier3=30}
specjbb.group.count	1	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

Other Checks

High-bound (max attempted) is 236668 IR

High-bound (settled) is 197290 IR

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