



SPECjbb2015

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Cisco Systems Cisco UCS
C480 M5

282719 SPECjbb2015-MultiJVM max-jOPS
175585 SPECjbb2015-MultiJVM critical-jOPS

Tested by: Cisco Systems

Test Sponsor: Cisco
SystemsTest location: San Jose,
CATest date: March 13,
2019

SPEC license #: 9019

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

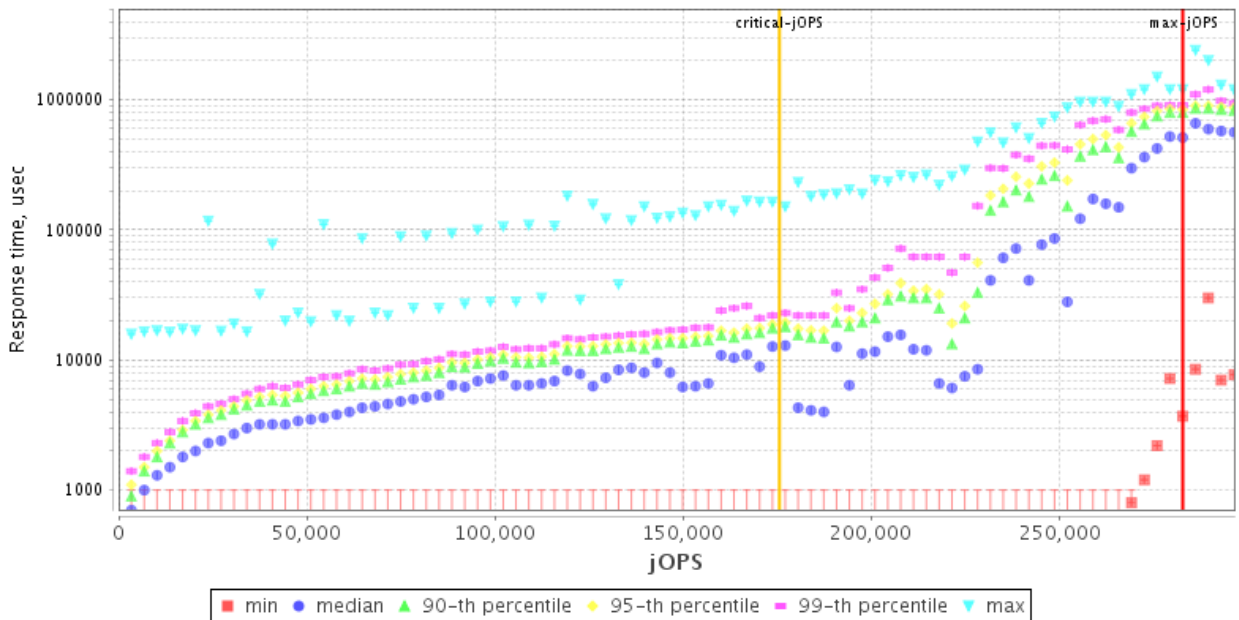
Benchmark Results Summary

**SPECjbb2015-
MultiJVM:
Multiple
JVMs/Single
Host
(# of groups:
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	112
Total Threads	224

Total Memory Amount (GB)	3072
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	None	Vendor URL	http://www.microsoft.com/
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)	Java Virtual Machine jvm_1	
Number of Systems	1	Name	Oracle Java SE 11.0.2
Nodes Per System	1	Vendor	Oracle Corporation
Chips Per System	4	Vendor URL	http://www.oracle.com
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	Other Software other_1	
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	None
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)	3072		
# and size of DIMM(s)	48 x 64GB		
Memory Details	3072 GB(48 X 64GB 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		
Other Hardware network_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](#)JVM [jvm_Ctr_1](#) : ControllerJVM [jvm_Backend_1](#) : BackendJVM [jvm_TxInjector_1](#) : TxInjector

SUT config_1 Configuration

Hardware	OS Image os_image_1
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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"> Memory Patrol Scrub disabled CPU Performance set to Enterprise Hyperthreading Enabled IMC Interleave to AUTO SNC Disabled Memory RAS configuration set to Maximum performance Power Technology set to performance
Notes	notes

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"> Power Options is set to High performance Processor scheduling is set to Programs Lock Pages in Memory is Enabled HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters and add a new entry . Value Name: MaxUserPort Value Type: DWORD Value data: 65534
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:-UseAdaptiveSizePolicy -XX:+AlwaysPreTouch -XX:-UseBiasedLocking -XX:MaxMetaspaceSize=256m -XX:MetaspaceSize=256m -XX:+UseLargePages -XX:+UseParallelOldGC -Xms710g -Xmx710g -Xmn690g -XX:SurvivorRatio=68 -XX:TargetSurvivorRatio=95 -XX:ParallelGCThreads=56 -XX:MaxTenuringThreshold=15 -XX:+UseRTMLocking -XX:InlineSmallCode=10k -XX:MaxGCPauseMillis=300
Tuning	Affinitized each Backend JVM to a NUMA node <ul style="list-style-type: none"> start /NODE [0-3]
Notes	None

JVM Instance jvm_TxInjector_1

Parts of Benchmark	TxInjector
JVM Instance Description	jvm_1
Command Line	-showversion -Xmn3584m -Xms4g -Xmx4g -XX:+UseLargePages -XX:+UseParallelOldGC -XX:LargePageSizeInBytes=2
Tuning	Affinitized each Tx Injector JVM to a NUMA node <ul style="list-style-type: none"> start /NODE [0-3]
Notes	None

max-jOPS and critical-jOPS Details

max-jOPS = jOPS passed before the First Failure

Pass/Fail	Pass	Pass	Fail	Fail	Fail
jOPS	279312	282719	286125	289531	292937

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	83453	188100	207213	226515	226515	175585

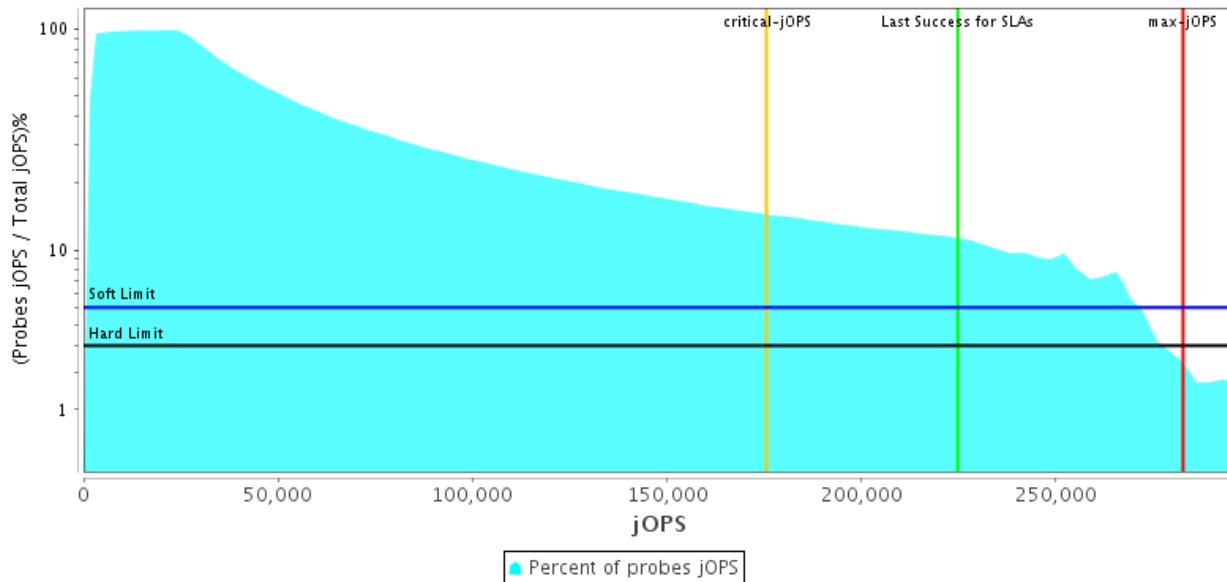
Last Success jOPS/First Failure jOPS for SLA points

	Percentile					
	10-th	50-th	90-th	95-th	99-th	100-th
500us	- / 3406	- / 3406	- / 3406	- / 3406	- / 3406	- / 3406
1000us	27250 / 30656	6812 / 10219	3406 / 6812	- / 3406	- / 3406	- / 3406
5000us	228219 / 231625	187344 / 81750	44281 / 47687	34062 / 37469	30656 / 34062	- / 3406
10000us	252062 / 235031	228219 / 160094	112406 / 102187	91969 / 95375	81750 / 85156	- / 3406
25000us	255469 / 258875	228219 / 231625	224812 / 204375	221406 / 200969	194156 / 166906	85156 / 23844
50000us	265687 / 258875	252062 / 235031	228219 / 231625	224812 / 228219	221406 / 204375	132844 / 23844
75000us	265687 / 269094	252062 / 245250	228219 / 231625	228219 / 231625	224812 / 228219	132844 / 23844
100000us	265687 / 269094	252062 / 255469	228219 / 231625	228219 / 231625	224812 / 228219	132844 / 23844
200000us	275906 /	265687 /	252062 /	231625 /	228219 /	197562 /

	279312	269094	238437	235031	231625	180531
500000us	282719 / -	275906 / 279312	265687 / 269094	265687 / 262281	252062 / 255469	235031 / 231625
1000000us	282719 / -	282719 / -	282719 / -	282719 / -	282719 / -	265687 / 269094

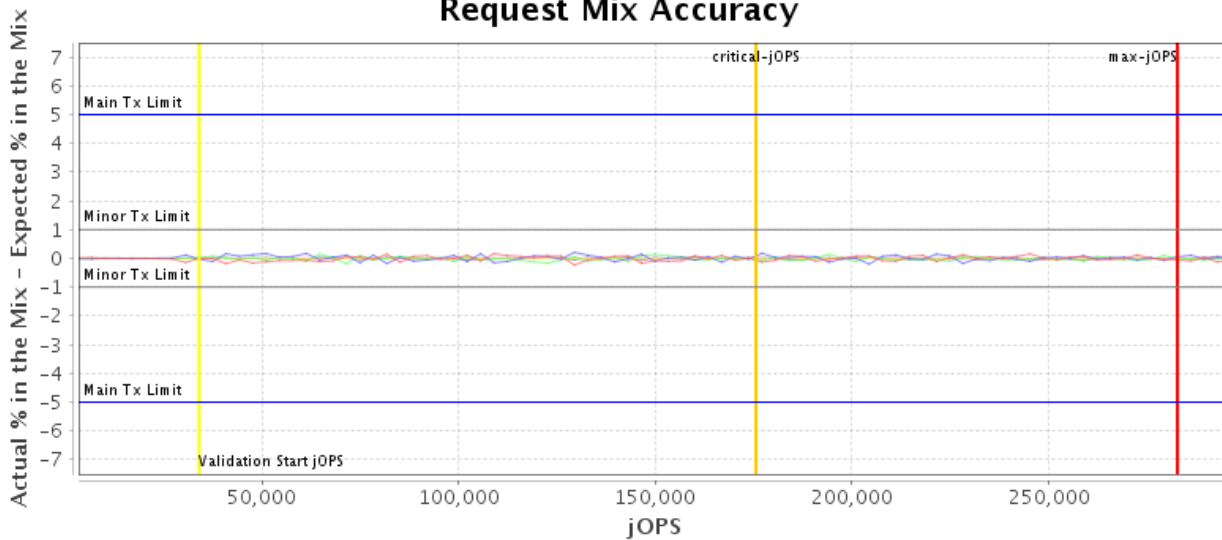
Number of probes

Probes jOPS / Total jOPS



Request Mix Accuracy

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 $< 10.0\%$

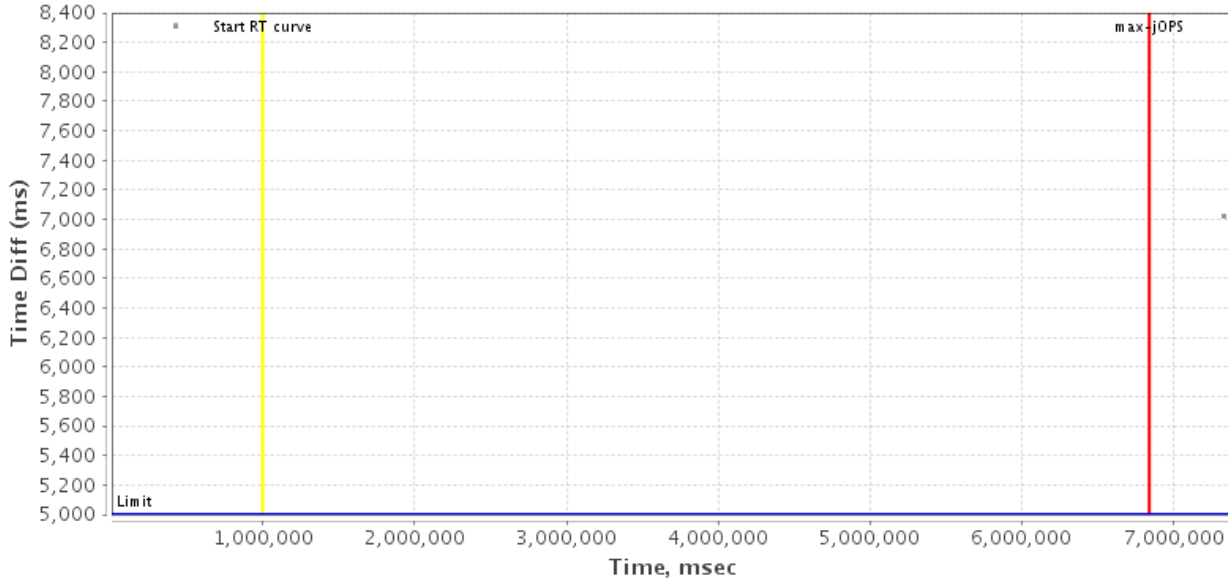
In-store Purchase [50%]	Online Purchase [35%]	Installment Purchase [10%]	Associativity of Category [0.1%]
Associativity of Product [1%]	Business Report [0.25%]	Customer Buying Behavior [1%]	Product Return [2.65%]

Rate of Non-Critical Failures

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

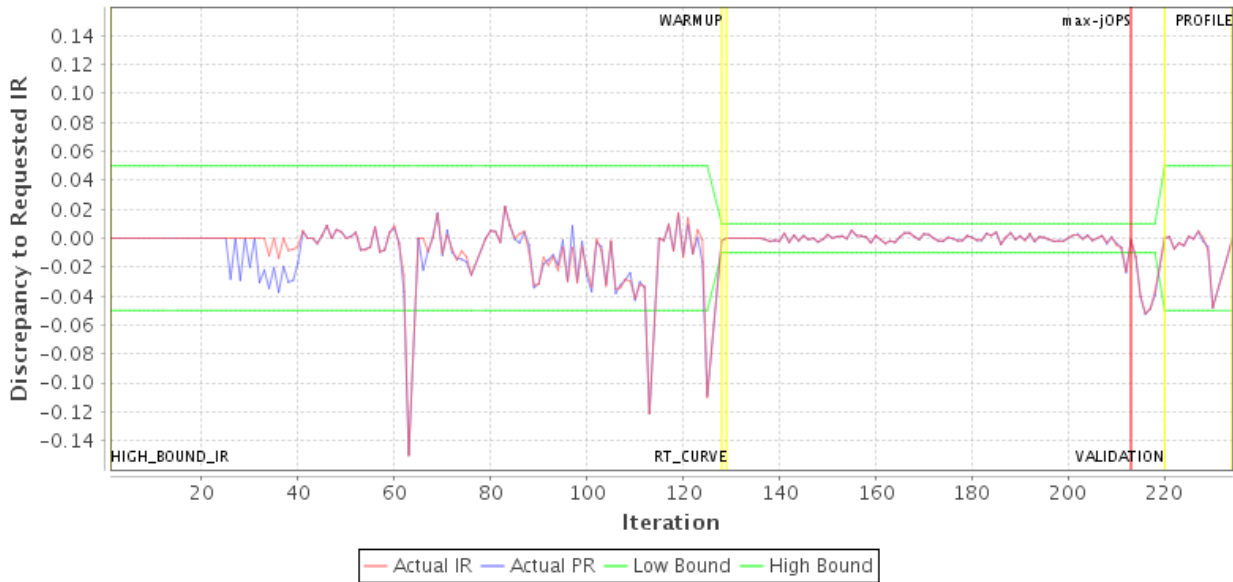
Delay between performance status pings during RT Curve (Response-Throughput Curve)

Delay between performance status pings above threshold



IR/PR Accuracy

IR/PR Accuracy



Run Properties

This section lists properties only set by user

Property Name	Default	Controller
specjbb.comm.connect.selector.runner.count	0	12
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	32
specjbb.comm.connect.worker.pool.min	1	32
specjbb.customerDriver.threads	64	{=64, probe=64, saturate=64, service=64}
specjbb.forkjoin.workers	56	{Tier1=180, Tier2=1, Tier3=25}
specjbb.group.count	1	4
specjbb.heartbeat.threshold	100000	800000
specjbb.mapreducer.pool.size	56	196
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 340625 IR

High-bound (settled) is 306003 IR

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