

SPECjbb2015

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Cisco Systems Cisco UCS C240 M5		171642 SPECjbb2015-MultiJVM max-jOPS 56027 SPECjbb2015-MultiJVM critical-jOPS	
Tested by: Cisco Systems	Test Sponsor: Cisco Systems	Test location: San Jose, CA	Test date: March 12, 2019
SPEC license #: 9019	Hardware Availability: April-2019	Software Availability: Jan-2019	Publication: MMM DD, YYYY

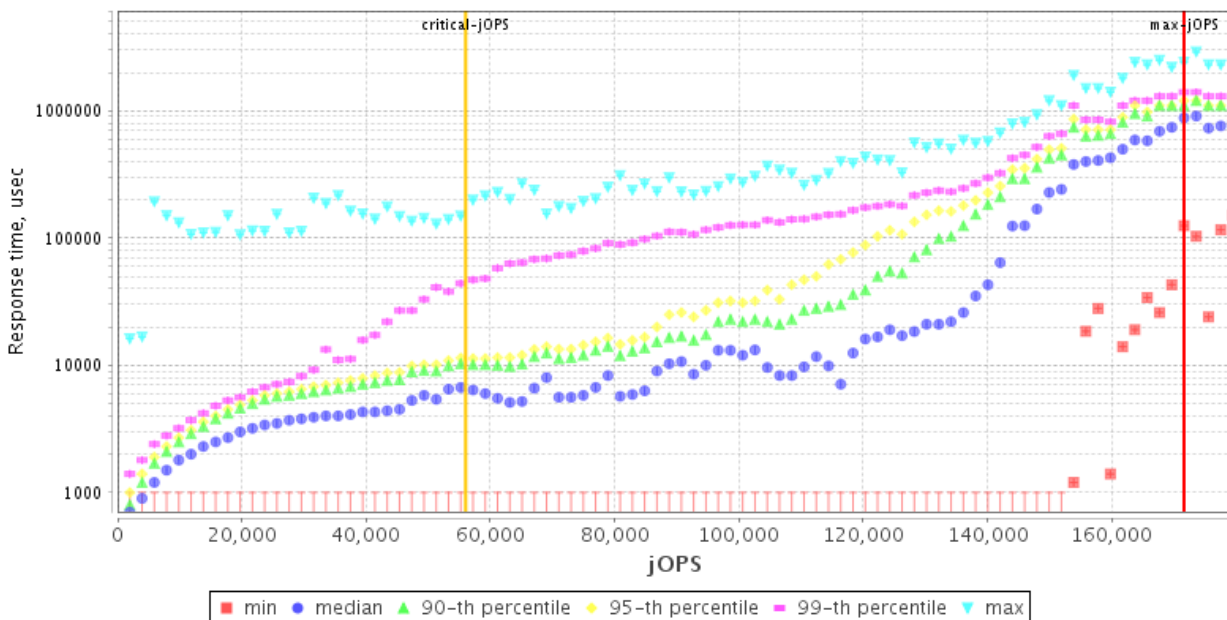
Benchmark Results Summary

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	2
Total Cores	56
Total Threads	112

Total Memory Amount (GB)	768
Total OS Images	1
SW Environment	Non-virtual

SUT Description

Hardware hw_1		Operating System os_1	
Name	Cisco UCS C240 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 C240 M5	Available	October 2018
Form Factor	2U 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	2	Vendor URL	http://www.oracle.com
Cores Per System	56	Version	Java HotSpot 64-bit Server VM, version 11.0.2
Cores Per Chip	28	Available	Jan-2019
Threads Per System	112	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)	768		
# and size of DIMM(s)	24 x 32GB		
Memory Details	768 GB(24 X 32GB 2Rx4 PC4-2933V)		
# and type of Network Interface Cards (NICs)	2 x 10 Gbit NIC		
Power Supply Quantity and Rating (W)	2 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)	JVM Instances	jvm_Ctr_1(1), jvm_Backend_1(4), jvm_TxInjector_1(4)
Hardware Description	hw_1	OS Image Description	os_1
Number of Systems	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
SW Environment	non-virtual	Notes	None
Tuning	BIOS tuning <ul style="list-style-type: none"> Memory Patrol Scrub disabled CPU Performance set to Enterprise Hyperthreading Enabled IMC Interleave to one-way SNC Enabled Memory RAS configuration set to Maximum performance Power Technology set to performance 	JVM Instance jvm_Ctr_1	
Notes	notes	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	-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
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

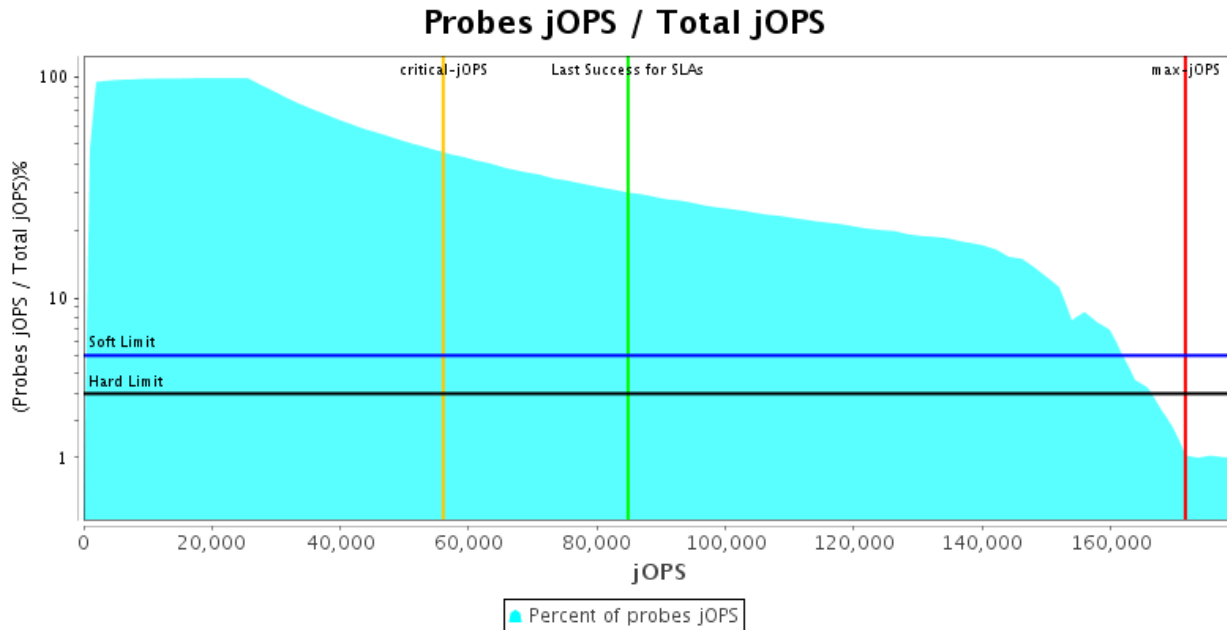
Parts of Benchmark	TxInjector
JVM Instance Description	jvm_1
Command Line	-showversion -Xmn3584m -Xms4g -Xmx4g -XX:+UseLargePages -XX:+UseParallelOldGC -XX:LargePageSizeInBytes=2
Tuning	Affinitized each Tx Injector JVM to a NUMA node <ul style="list-style-type: none"> start /NODE [0-3]
Notes	None

max-jOPS and critical-jOPS Details

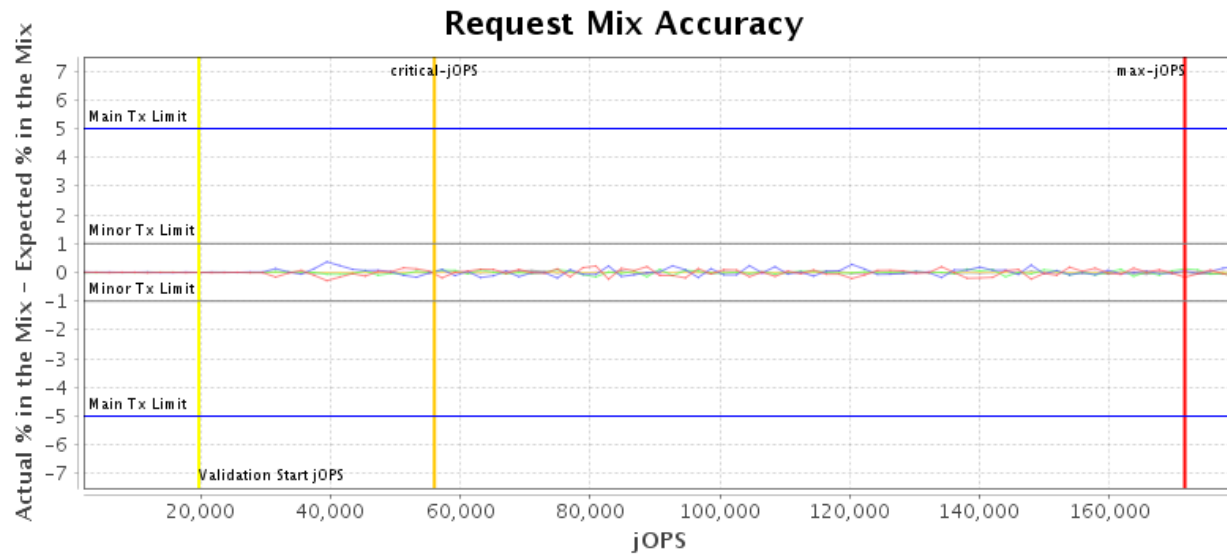
max-jOPS = jOPS passed before the First Failure							Last Success jOPS/First Failure jOPS for SLA points						
Pass/Fail	Pass	Pass	Fail	Fail	Fail	Fail	Percentile						
jOPS	169669	171642	173615	175588	177561		10-th	50-th	90-th	95-th	99-th	100-th	
critical-jOPS = Geomean (jOPS @ 10000; 25000; 50000; 75000; 100000; SLAs)							500us	- / 1973	- / 1973	- / 1973	- / 1973	- / 1973	- / 1973
							1000us	5919 / 7892	3946 / 5919	1973 / 3946	1973 / 3946	- / 1973	- / 1973
							5000us	126266 / 96672	45377 / 47350	21702 / 23675	19729 / 21702	15783 / 17756	- / 1973
Response time percentile is 99-th							10000us	140076 / 138103	116401 / 88780	63133 / 55241	47350 / 49322	31566 / 33539	- / 1973
SLA (us)	10000	25000	50000	75000	100000	Geomean	25000us	144022 / 145995	134157 / 136130	108509 / 110482	92726 / 90753	43404 / 45377	3946 / 5919
jOPS	32552	44390	60173	73983	85821	56027	50000us	145995 / 147967	140076 / 142049	122320 / 124293	112455 / 114428	59187 / 61160	3946 / 5919
							75000us	147967 / 149940	142049 / 144022	128238 / 130211	116401 / 118374	72997 / 74970	3946 / 5919
							100000us	149940 / 151913	142049 / 144022	132184 / 134157	120347 / 122320	84835 / 86808	3946 / 5919
							200000us	153886 /	147967 /	140076 /	138103 /	126266 /	74970 /

	155859	149940	142049	140076	128238	31566
500000us	169669 / 171642	161778 / 163751	151913 / 153886	149940 / 151913	145995 / 147967	134157 / 128238
1000000us	171642 / -	171642 / -	165724 / 167696	165724 / 163751	159805 / 153886	147967 / 149940

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 $< 10.0\%$

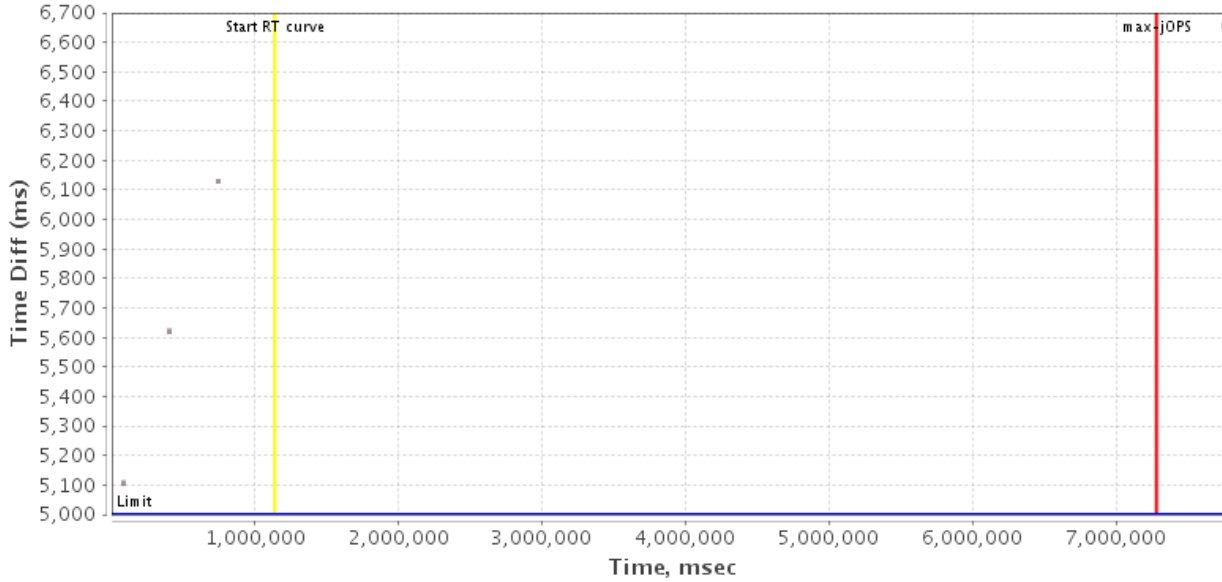
In-store Purchase [50%]	Online Purchase [35%]	Installment Purchase [10%]	Associativity of Category [0.1%]
Associativity of Product [1%]	Business Report [0.25%]	Customer Buying Behavior [1%]	Product Return [2.65%]

Rate of Non-Critical Failures

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

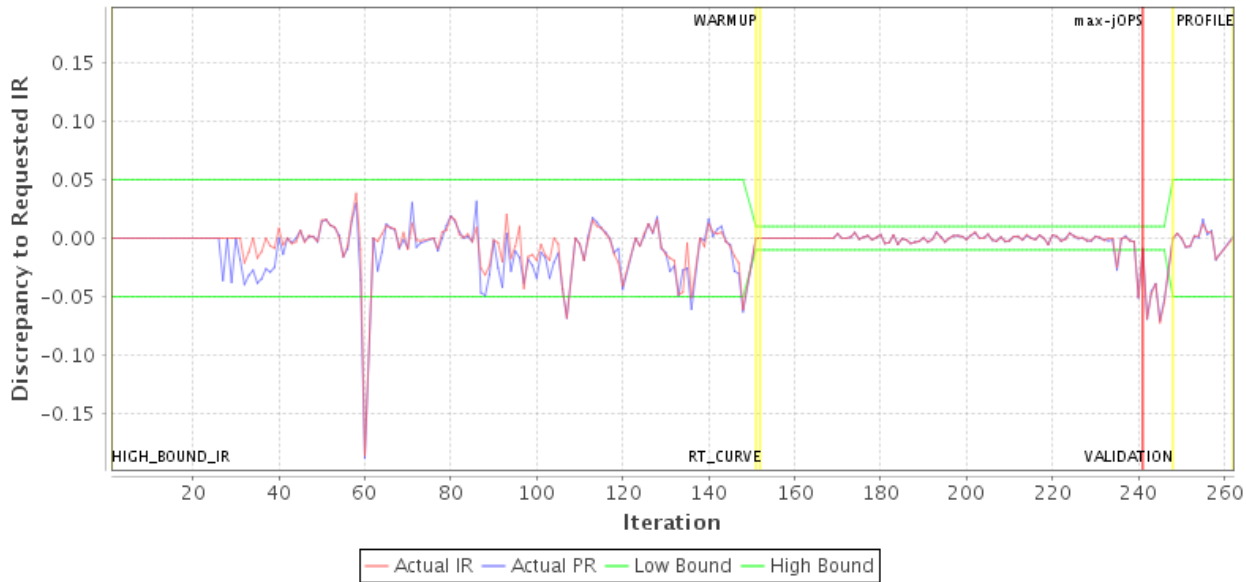
Delay between performance status pings during RT Curve (Response-Throughput Curve)

Delay between performance status pings above threshold



IR/PR Accuracy

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	58
specjbb.comm.connect.worker.pool.min	1	58
specjbb.customerDriver.threads	64	{=64, probe=64, saturate=64, service=64}
specjbb.forkjoin.workers	56	{Tier1=160, Tier2=1, Tier3=28}
specjbb.group.count	1	4
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

Other Checks

High-bound (max attempted) is 197290 IR

High-bound (settled) is 177734 IR

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