



SPEC® CINT2006 Result

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IBM Corporation

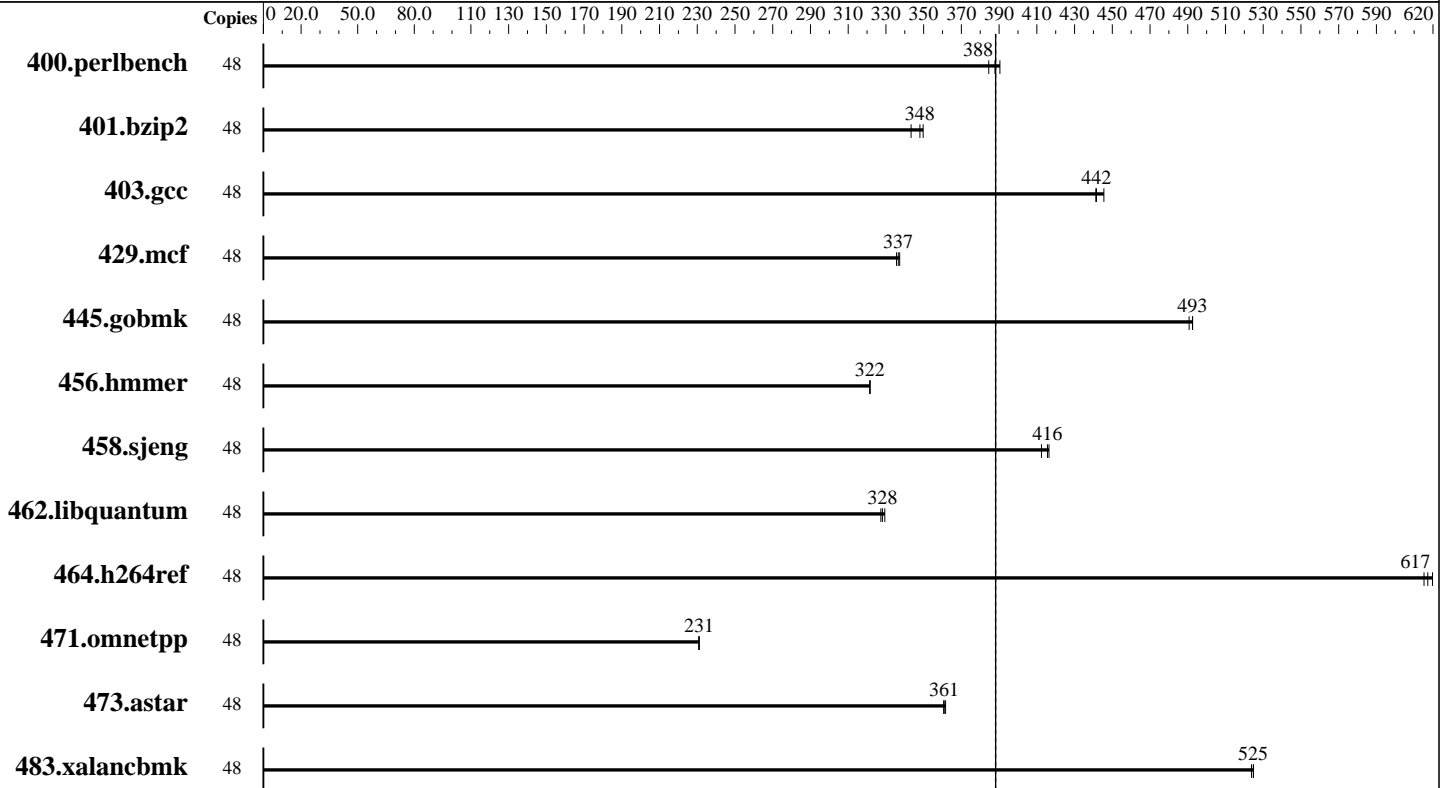
SPECint®_rate2006 = 388

IBM Power 730 Express (3.7 GHz, 12 core, RedHat)

SPECint_rate_base2006 = 388

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2011
Hardware Availability: Sep-2010
Software Availability: Aug-2011



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Hardware

CPU Name: POWER7
 CPU Characteristics: Intelligent Energy Optimization enabled, up to 3.92 GHz
 CPU MHz: 3724
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 4 threads/core
 CPU(s) orderable: 12 cores
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 4 MB I+D on chip per core
 Other Cache: None
 Memory: 128 GB (16 x 8 GB) DDR3 1066 MHz
 Disk Subsystem: 2 x 146.8 GB SAS SFF 15K RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.1 (ppc64), Kernel 2.6.32-131.0.15.el6.ppc64
 Compiler: C/C++: Version 4.6.1 of IBM Advance Toolchain 5.0-0 gcc/g++ compiler
 Auto Parallel: No
 File System: ext4
 System State: Run Level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32-bit
 Other Software: IBM Advance Toolchain 5.0-0
 MicroQuill SmartHeap 9



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	1220	384	<u>1209</u>	388	1201	390	48	1220	384	<u>1209</u>	388	1201	390
401.bzip2	48	1349	343	<u>1331</u>	348	1324	350	48	1349	343	<u>1331</u>	348	1324	350
403.gcc	48	876	441	867	446	875	<u>442</u>	48	876	441	867	446	875	<u>442</u>
429.mcf	48	1301	<u>337</u>	1304	336	1298	337	48	1301	<u>337</u>	1304	336	1298	337
445.gobmk	48	1026	491	<u>1022</u>	493	1022	493	48	1026	491	<u>1022</u>	493	1022	493
456.hammer	48	1393	<u>322</u>	1393	322	1393	321	48	1393	<u>322</u>	1393	322	1393	321
458.sjeng	48	1395	416	1408	412	1397	<u>416</u>	48	1395	416	1408	412	1397	<u>416</u>
462.libquantum	48	3031	<u>328</u>	3038	327	3019	329	48	3031	<u>328</u>	3038	327	3019	329
464.h264ref	48	1727	615	<u>1721</u>	617	1714	620	48	1727	615	<u>1721</u>	617	1714	620
471.omnetpp	48	1299	<u>231</u>	1300	231	1298	231	48	1299	<u>231</u>	1300	231	1298	231
473.astar	48	934	<u>361</u>	932	362	934	361	48	934	<u>361</u>	932	362	934	361
483.xalancbmk	48	631	525	<u>631</u>	525	632	524	48	631	525	<u>631</u>	525	632	524

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.
Benchmarks bound to a processor using numactl on the submit command.

Operating System Notes

ulimit -s (stack) set to 1048576.
Large pages reserved as follows by root user:
echo 4224 > /proc/sys/vm/nr_hugepages
The following environment variables were set before the runspec command:
XLFRTIOPTS=intrinths=1
HUGETLB_VERBOSE=0
HUGETLB_MORECORE=yes

General Notes

For more information about IBM Advance Toolchain, see
http://linuxpatch.ncsa.uiuc.edu/toolchain/at/at5.0/redhat/RHEL6/release_notes.at5.0-5.0-0.html

Base Compiler Invocation

C benchmarks:
/opt/at5.0/bin/gcc

C++ benchmarks:
/opt/at5.0/bin/g++



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Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_PPC
462.libquantum: -DSPEC_CPU_LINUX
464.h264ref: -fsigned-char
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-O3 -mcpu=power7 -mtune=power7 -fpeel-loops -funroll-loops
-ffast-math -ftree-vectorize -ftree-loop-linear -mvsx -maltivec
-mpopcntd -mrecip=rsqrt -flto -fwhole-program -fuse-linker-plugin
-lhugetlbfs

C++ benchmarks:

-O3 -mcpu=power7 -mtune=power7 -fpeel-loops -funroll-loops
-ffast-math -ftree-vectorize -ftree-loop-linear -mvsx -maltivec
-mpopcntd -mrecip=rsqrt -flto -fwhole-program -fuse-linker-plugin
-lsmartheap

Base Other Flags

C benchmarks:

-m32

C++ benchmarks:

-m32

Peak Optimization Flags

C benchmarks:

400.perlbench: basepeak = yes
401.bzip2: basepeak = yes
403.gcc: basepeak = yes
429.mcf: basepeak = yes
445.gobmk: basepeak = yes
456.hmmmer: basepeak = yes

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Peak Optimization Flags (Continued)

458.sjeng: basepeak = yes

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

The flags file that was used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/CPU2006_flags.20111025.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/CPU2006_flags.20111025.xml

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For other inquiries, please contact webmaster@spec.org.

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