



SPEC[®] CINT2006 Result

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NEC Corporation

SPECint[®]_rate2006 = 1750

Express5800/A2040b (Intel Xeon E7-8891 v2)

SPECint_rate_base2006 = 1690

CPU2006 license: 9006

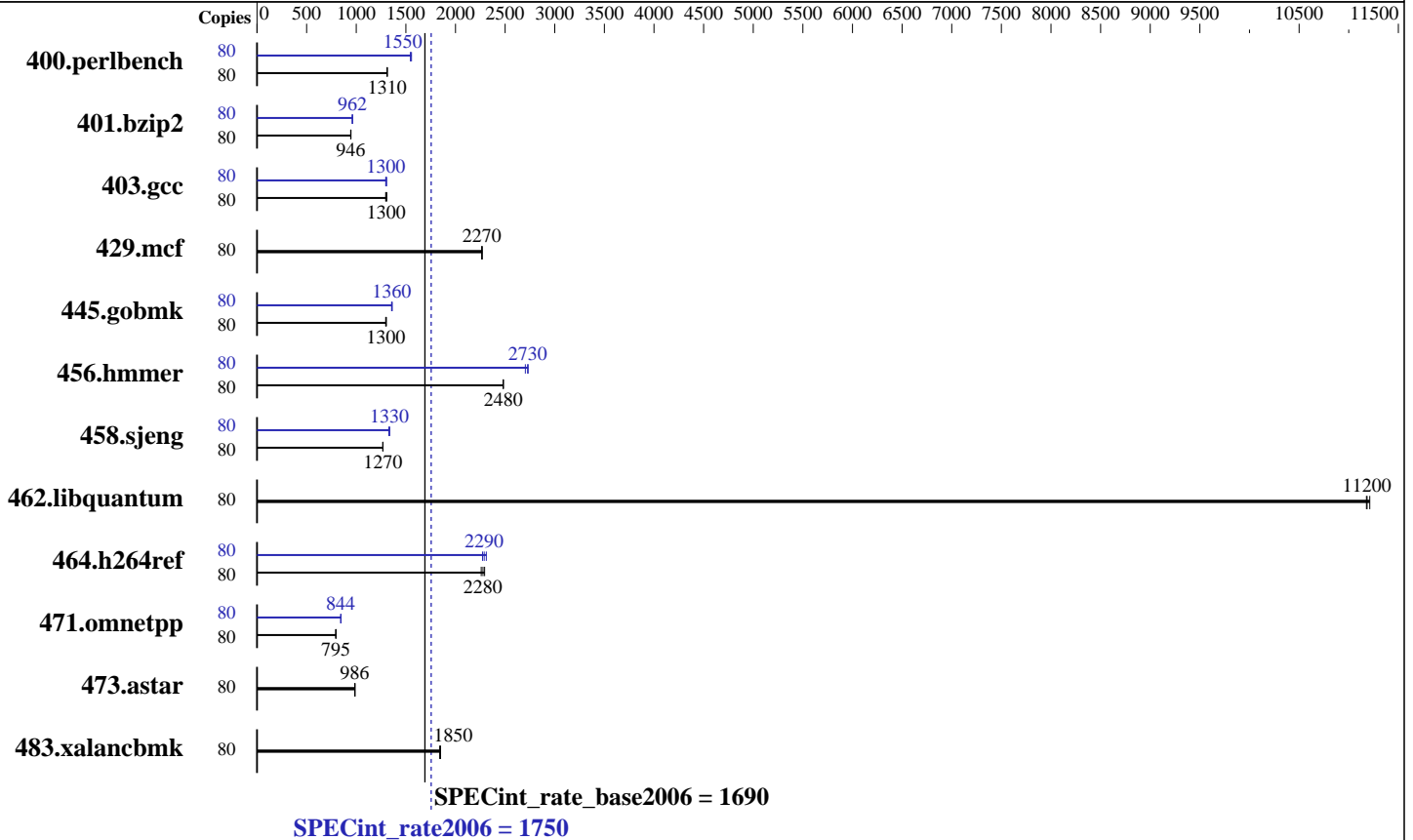
Test date: Apr-2014

Test sponsor: NEC Corporation

Hardware Availability: Mar-2014

Tested by: NEC Corporation

Software Availability: Oct-2013



Hardware

CPU Name: Intel Xeon E7-8891 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3200
 FPU: Integrated
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip, 2 threads/core
 CPU(s) orderable: 2,3,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 37.5 MB I+D on chip per chip
 Other Cache: None
 Memory: 1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)
 Disk Subsystem: 1 x 300 GB SAS, 10000 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 Kernel 2.6.32-358.23.2.el6.x86_64
 Compiler: C/C++: Version 14.0.1.106 of Intel C++ Studio XE for Linux
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap Multi-Core V10.01



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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	80	596	1310	596	1310	<u>596</u>	<u>1310</u>	80	502	1560	<u>505</u>	<u>1550</u>	505	1550
401.bzip2	80	818	944	816	946	<u>816</u>	<u>946</u>	80	804	960	802	962	<u>803</u>	<u>962</u>
403.gcc	80	497	1300	493	1310	<u>495</u>	<u>1300</u>	80	497	1300	<u>495</u>	<u>1300</u>	493	1310
429.mcf	80	322	2270	321	2270	<u>322</u>	<u>2270</u>	80	322	2270	321	2270	<u>322</u>	<u>2270</u>
445.gobmk	80	<u>646</u>	<u>1300</u>	644	1300	647	1300	80	619	1360	616	1360	<u>618</u>	<u>1360</u>
456.hammer	80	301	2480	<u>301</u>	<u>2480</u>	301	2480	80	276	2700	<u>274</u>	<u>2730</u>	273	2730
458.sjeng	80	<u>763</u>	<u>1270</u>	763	1270	763	1270	80	724	1340	729	1330	<u>725</u>	<u>1330</u>
462.libquantum	80	148	11200	<u>148</u>	<u>11200</u>	148	11200	80	148	11200	<u>148</u>	<u>11200</u>	148	11200
464.h264ref	80	<u>777</u>	<u>2280</u>	784	2260	772	2290	80	<u>773</u>	<u>2290</u>	766	2310	779	2270
471.omnetpp	80	<u>629</u>	<u>795</u>	630	793	629	796	80	<u>592</u>	<u>844</u>	592	844	591	846
473.astar	80	569	988	<u>570</u>	<u>986</u>	570	985	80	569	988	<u>570</u>	<u>986</u>	570	985
483.xalancbmk	80	<u>299</u>	<u>1850</u>	298	1850	300	1840	80	<u>299</u>	<u>1850</u>	298	1850	300	1840

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Zone reclaim mode enabled with:
echo 1 > /proc/sys/vm/zone_reclaim_mode

Platform Notes

BIOS Settings:
Memory RAS Mode: Independent mode

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = */opt/SmartHeap_10mc/lib:/opt/SmartHeap_10mc/lib64:/opt/intel/composer_xe_2013_sp1.1.106/compiler/lib/ia32:/opt/intel/composer_xe_2013_sp1.1.106/compiler/lib/intel64*

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>



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Base Compiler Invocation

C benchmarks:

icc -m32

C++ benchmarks:

icpc -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/opt/SmartHeap_10mc/lib -lsmarheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32



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Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
 401.bzip2: -DSPEC_CPU_LP64
 456.hmmer: -DSPEC_CPU_LP64
 458.sjeng: -DSPEC_CPU_LP64
 462.libquantum: -DSPEC_CPU_LINUX
 483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
 -auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
 -opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
 -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
 -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
 -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
 -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
 -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
 -L/opt/SmartHeap_10mc/lib -lsmartheap

473.astar: basepeak = yes

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Peak Optimization Flags (Continued)

483.xalanbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/NEC-platform-Settings-V1.2-A2040b-RevA.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/NEC-platform-Settings-V1.2-A2040b-RevA.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 23:25:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 April 2014.