



SPEC® CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

NEC Corporation

SPECint®_rate2006 = 1950

Express5800/A2040c (Intel Xeon E7-8891 v3)

SPECint_rate_base2006 = 1890

CPU2006 license: 9006

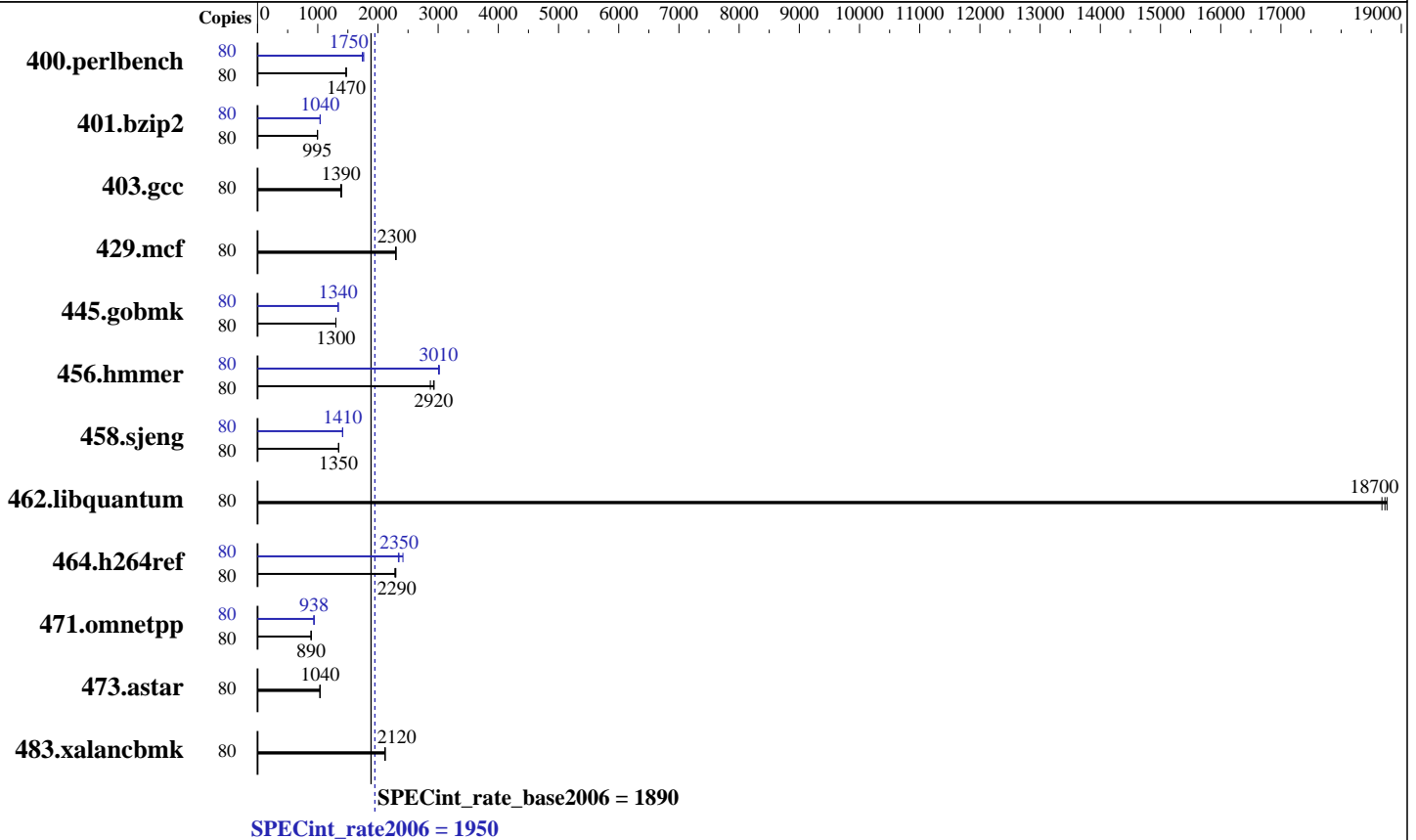
Test date: Jun-2015

Test sponsor: NEC Corporation

Hardware Availability: Jul-2015

Tested by: NEC Corporation

Software Availability: Mar-2015



Hardware

CPU Name: Intel Xeon E7-8891 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 2800
 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: 45 MB I+D on chip per chip
 Other Cache: None
 Memory: 1 TB (64 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
 Disk Subsystem: 3 x 300 GB SAS, 15000 RPM, RAID 0
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.6 (Santiago)
 Kernel 2.6.32-504.12.2.el6.x86_64
 Compiler: C/C++: Version 14.0.3.174 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	530	1470	<u>531</u>	<u>1470</u>	532	1470	80	449	1740	<u>447</u>	<u>1750</u>	443	1760		
401.bzip2	80	777	994	<u>776</u>	<u>995</u>	775	996	80	743	1040	<u>742</u>	<u>1040</u>	742	1040		
403.gcc	80	461	1400	466	1380	<u>464</u>	<u>1390</u>	80	461	1400	466	1380	<u>464</u>	<u>1390</u>		
429.mcf	80	318	2290	<u>317</u>	<u>2300</u>	317	2300	80	318	2290	<u>317</u>	<u>2300</u>	317	2300		
445.gobmk	80	645	1300	<u>645</u>	<u>1300</u>	645	1300	80	627	1340	<u>627</u>	<u>1340</u>	627	1340		
456.hammer	80	260	2870	254	2930	<u>255</u>	<u>2920</u>	80	248	3010	247	3020	<u>248</u>	<u>3010</u>		
458.sjeng	80	718	1350	719	1350	<u>718</u>	<u>1350</u>	80	685	1410	<u>685</u>	<u>1410</u>	685	1410		
462.libquantum	80	88.3	18800	<u>88.5</u>	<u>18700</u>	88.7	18700	80	88.3	18800	<u>88.5</u>	<u>18700</u>	88.7	18700		
464.h264ref	80	<u>772</u>	<u>2290</u>	776	2280	771	2300	80	<u>754</u>	<u>2350</u>	733	2420	757	2340		
471.omnetpp	80	561	892	562	889	<u>562</u>	<u>890</u>	80	<u>533</u>	<u>938</u>	533	939	534	937		
473.astar	80	540	1040	543	1030	<u>540</u>	<u>1040</u>	80	540	1040	543	1030	<u>540</u>	<u>1040</u>		
483.xalancbmk	80	260	2120	261	2110	<u>260</u>	<u>2120</u>	80	260	2120	261	2110	<u>260</u>	<u>2120</u>		

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
VT-x : Disabled
Processor C6 Report : Disabled
OS Performance Tuning : Disabled
Energy Performance : Performance
Patrol Scrub : Disabled
Demand Scrub : Disabled
Memory P.E. Retry : Disabled



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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_sp1.3.174/compiler/lib/ia32:/opt/intel/composer_xe_2013_sp1.3.174/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>
```

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:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

```
-opt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

```
-opt-mem-layout-trans=3 -Wl,-z,muldefs
```

```
-L/opt/SmartHeap_10mc/lib -lsmartheap
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```



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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

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: -xCORE-AVX2(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: -xCORE-AVX2(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: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4 -auto-ilp32

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(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: -xCORE-AVX2(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

483.xalancbmk: 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-A2040c-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-A2040c-RevA.xml>

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

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