



SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECint®_rate2006 = 2170

Express5800/A2040d (Intel Xeon E7-8891 v4)

SPECint_rate_base2006 = 2070

CPU2006 license: 9006

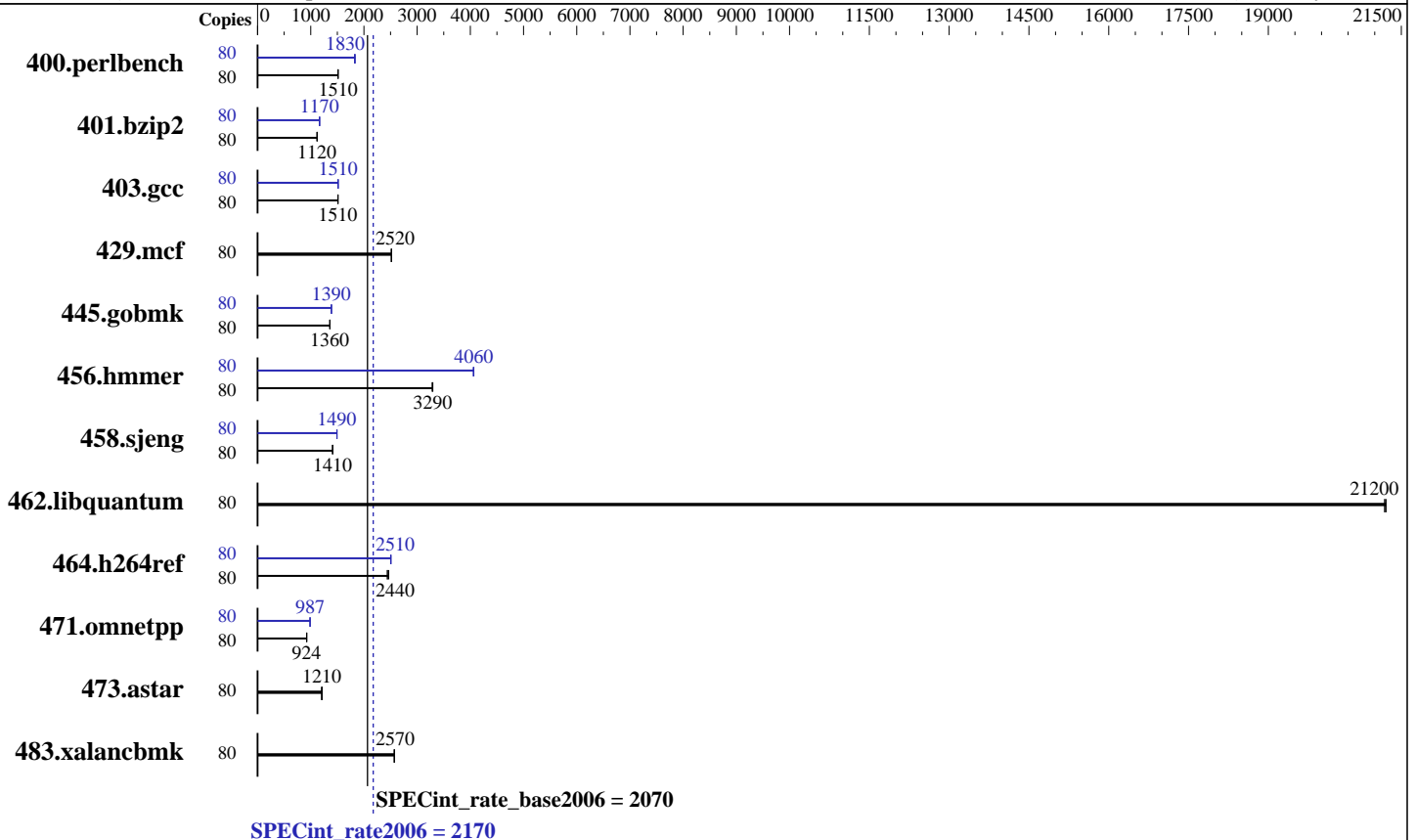
Test date: Sep-2016

Test sponsor: NEC Corporation

Hardware Availability: Sep-2016

Tested by: NEC Corporation

Software Availability: May-2016



Hardware

CPU Name: Intel Xeon E7-8891 v4
 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: 60 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (64 x 8 GB 1Rx4 PC4-2133P-R, running at 1600 MHz)
 Disk Subsystem: 1 x 600 GB SAS, 15000 RPM, RAID 0
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.8 (Santiago)
 Kernel 2.6.32-642.el6.x86_64
 Compiler: C/C++: Version 16.0.0.109 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



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 2170

Express5800/A2040d (Intel Xeon E7-8891 v4)

SPECint_rate_base2006 = 2070

CPU2006 license: 9006

Test date: Sep-2016

Test sponsor: NEC Corporation

Hardware Availability: Sep-2016

Tested by: NEC Corporation

Software Availability: May-2016

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	80	516	1510	516	1510	517	1510	80	427	1830	426	1840	428	1820
401.bzip2	80	690	1120	691	1120	689	1120	80	662	1170	661	1170	663	1160
403.gcc	80	426	1510	426	1510	426	1510	80	426	1510	424	1520	426	1510
429.mcf	80	290	2510	290	2520	290	2520	80	290	2510	290	2520	290	2520
445.gobmk	80	618	1360	617	1360	617	1360	80	604	1390	604	1390	605	1390
456.hammer	80	227	3280	227	3290	227	3290	80	184	4070	184	4050	184	4060
458.sjeng	80	686	1410	686	1410	686	1410	80	649	1490	648	1490	649	1490
462.libquantum	80	78.2	21200	78.2	21200	78.1	21200	80	78.2	21200	78.2	21200	78.1	21200
464.h264ref	80	718	2470	726	2440	725	2440	80	706	2510	708	2500	707	2510
471.omnetpp	80	541	924	541	925	542	923	80	506	987	507	987	507	987
473.astar	80	467	1200	463	1210	463	1210	80	467	1200	463	1210	463	1210
483.xalancbmk	80	214	2570	215	2570	215	2570	80	214	2570	215	2570	215	2570

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"

Platform Notes

BIOS Settings:
Memory RAS Mode: Independent mode
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

General Notes

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

ID_LIBRARY_PATH = */opt/SmartHeap_10mc/lib*/opt/SmartHeap_10mc/lib64*/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/ia32_lin*/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/intel64_lin*

Transparent Huge Pages enabled with:

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 2170

Express5800/A2040d (Intel Xeon E7-8891 v4)

SPECint_rate_base2006 = 2070

CPU2006 license: 9006

Test date: Sep-2016

Test sponsor: NEC Corporation

Hardware Availability: Sep-2016

Tested by: NEC Corporation

Software Availability: May-2016

General Notes (Continued)

```
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 -L/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/ia32_lin
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/ia32_lin
```

Base Portability Flags

```
400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -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:

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 2170

Express5800/A2040d (Intel Xeon E7-8891 v4)

SPECint_rate_base2006 = 2070

CPU2006 license: 9006

Test date: Sep-2016

Test sponsor: NEC Corporation

Hardware Availability: Sep-2016

Tested by: NEC Corporation

Software Availability: May-2016

Base Other Flags (Continued)

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32 -L/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/ia32_lin

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers_and_libraries_2016.0.109/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32
401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch
-auto-ilp32 -ansi-alias

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 2170

Express5800/A2040d (Intel Xeon E7-8891 v4)

SPECint_rate_base2006 = 2070

CPU2006 license: 9006

Test date: Sep-2016

Test sponsor: NEC Corporation

Hardware Availability: Sep-2016

Tested by: NEC Corporation

Software Availability: May-2016

Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

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

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

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

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-ansi-alias

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/NEC-platform-Settings-V1.2-A2040d-RevA.html>



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECint_rate2006 = 2170

Express5800/A2040d (Intel Xeon E7-8891 v4)

SPECint_rate_base2006 = 2070

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Sep-2016

Hardware Availability: Sep-2016

Software Availability: May-2016

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

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/NEC-platform-Settings-V1.2-A2040d-RevA.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 Wed Oct 19 10:29:01 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 18 October 2016.