



SPEC[®] CINT2006 Result

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NEC Corporation

SPECint[®]2006 = **57.1**

Express5800/R120e-2M (Intel Xeon E5-2650 v2)

SPECint_base2006 = **52.7**

CPU2006 license: 9006

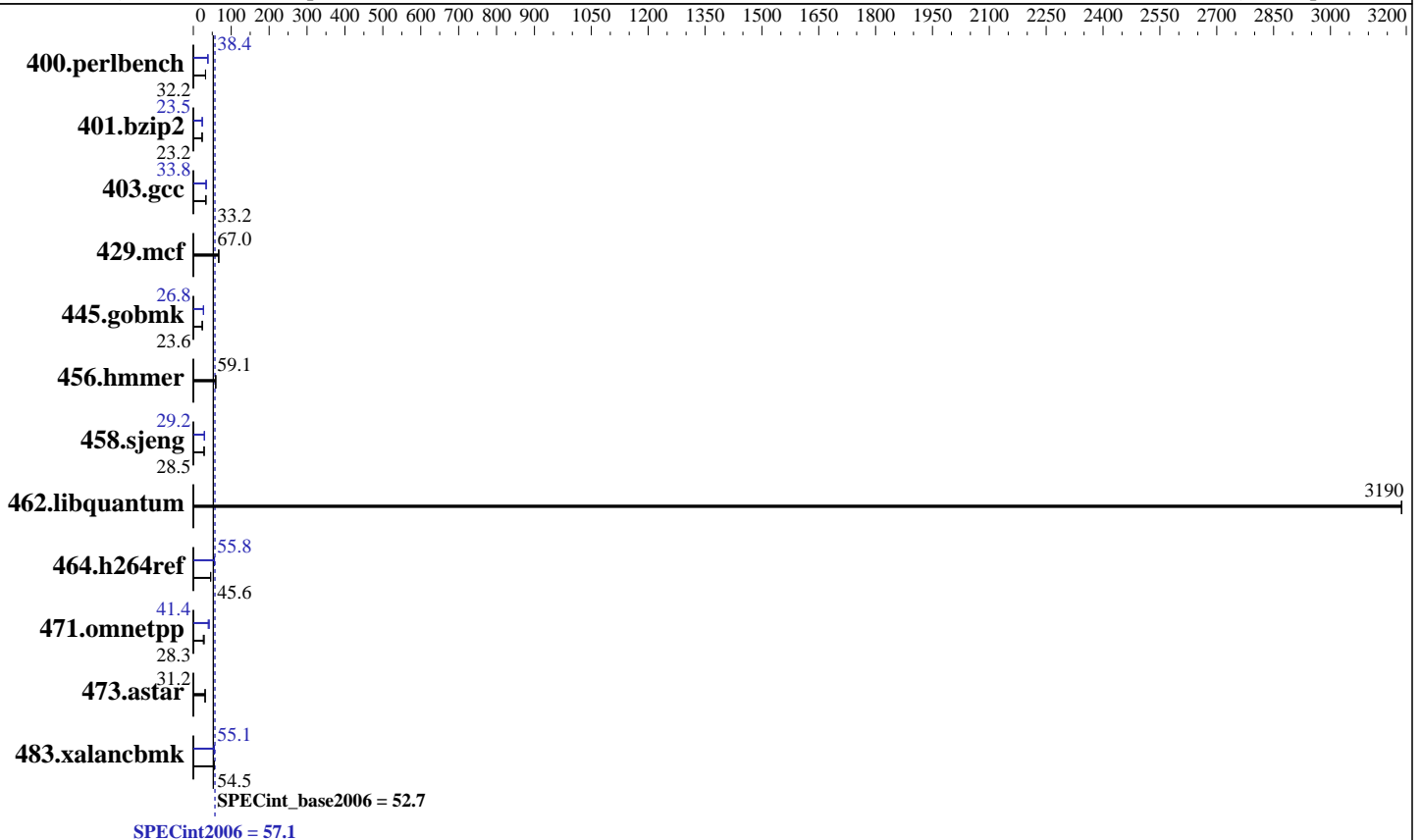
Test date: Oct-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2650 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 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: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 Kernel 2.6.32-358.18.1.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V8.1



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 302 | 32.3 | 303 | 32.2 | <u>303</u> | <u>32.2</u> | <u>255</u> | <u>38.4</u> | 254 | 38.5 | 255 | 38.4 |
| 401.bzip2 | 415 | 23.2 | 416 | 23.2 | <u>416</u> | <u>23.2</u> | 409 | 23.6 | <u>410</u> | <u>23.5</u> | 410 | 23.5 |
| 403.gcc | 242 | 33.3 | <u>243</u> | <u>33.2</u> | 244 | 33.0 | 238 | 33.8 | 238 | 33.9 | <u>238</u> | <u>33.8</u> |
| 429.mcf | 136 | 66.9 | <u>136</u> | <u>67.0</u> | 136 | 67.2 | 136 | 66.9 | <u>136</u> | <u>67.0</u> | 136 | 67.2 |
| 445.gobmk | 444 | 23.6 | <u>444</u> | <u>23.6</u> | 444 | 23.6 | <u>392</u> | <u>26.8</u> | 392 | 26.8 | 391 | 26.8 |
| 456.hammer | <u>158</u> | <u>59.1</u> | 158 | 59.0 | 158 | 59.1 | <u>158</u> | <u>59.1</u> | 158 | 59.0 | 158 | 59.1 |
| 458.sjeng | <u>425</u> | <u>28.5</u> | 425 | 28.5 | 425 | 28.5 | 414 | 29.3 | <u>414</u> | <u>29.2</u> | 414 | 29.2 |
| 462.libquantum | 6.50 | 3190 | 6.50 | 3190 | <u>6.50</u> | <u>3190</u> | 6.50 | 3190 | 6.50 | 3190 | <u>6.50</u> | <u>3190</u> |
| 464.h264ref | 484 | 45.7 | <u>485</u> | <u>45.6</u> | 485 | 45.6 | <u>397</u> | <u>55.8</u> | 396 | 55.8 | 397 | 55.7 |
| 471.omnetpp | <u>221</u> | <u>28.3</u> | 220 | 28.4 | 238 | 26.2 | 160 | 39.2 | 150 | 41.7 | <u>151</u> | <u>41.4</u> |
| 473.astar | 226 | 31.1 | 225 | 31.2 | <u>225</u> | <u>31.2</u> | 226 | 31.1 | 225 | 31.2 | <u>225</u> | <u>31.2</u> |
| 483.xalancbmk | <u>127</u> | <u>54.5</u> | 126 | 54.6 | 127 | 54.4 | 125 | 55.2 | 125 | 55.1 | <u>125</u> | <u>55.1</u> |

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

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Settings:
Energy Performance: Performance

General Notes

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

KMP_AFFINITY = "granularity=fine,compact,1,0"

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP_NUM_THREADS = "16"

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

The Express5800/R120e-1M and

the Express5800/R120e-2M models are electronically equivalent.

The results have been measured on the Express5800/R120e-1M model.

Base Compiler Invocation

C benchmarks:

icc -m64

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

Base Portability Flags

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

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
-L/sh -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64

400.perlbench: icc -m32

445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32

401.bzip2: -DSPEC_CPU_LP64

403.gcc: -DSPEC_CPU_LP64

429.mcf: -DSPEC_CPU_LP64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

473.astar: -DSPEC_CPU_LP64

483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-ansi-alias

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

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: basepeak = yes

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

462.libquantum: basepeak = yes

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Peak Optimization Flags (Continued)

464.h264ref: -xAVX(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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

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-R120d-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-R120d-RevA.xml>

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

Tested with SPEC CPU2006 v1.2.

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