



SPEC® CINT2006 Result

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NEC Corporation

SPECint®2006 = 68.5

Express5800/R110i-1 (Intel Xeon E3-1220 v6)

SPECint_base2006 = 66.4

CPU2006 license: 9006

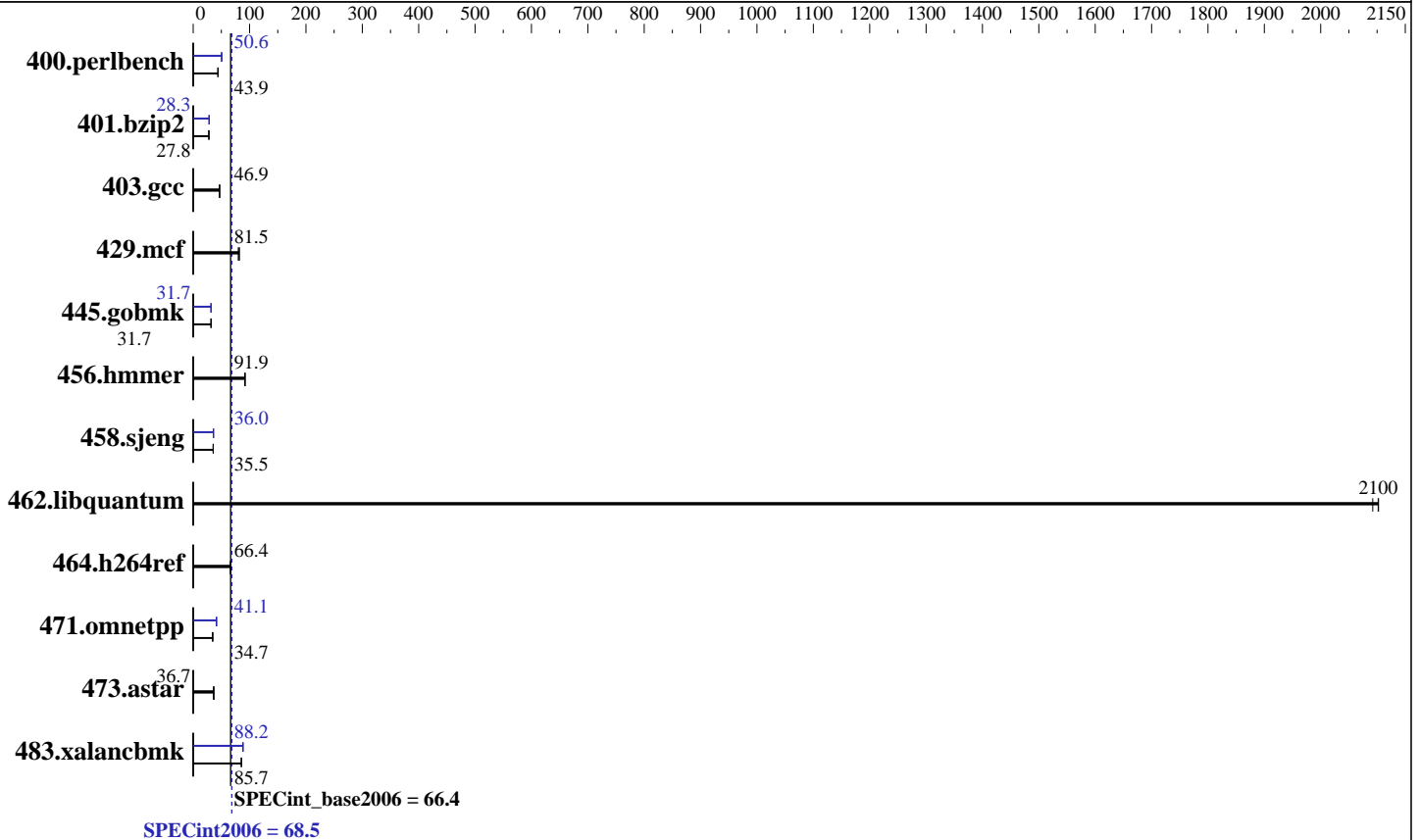
Test date: Mar-2017

Test sponsor: NEC Corporation

Hardware Availability: Apr-2017

Tested by: NEC Corporation

Software Availability: Jan-2017



Hardware

CPU Name: Intel Xeon E3-1220 v6
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 32 GB (2 x 16 GB 2Rx8 PC4-2400T-E)
 Disk Subsystem: 1 x 1 TB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
 Kernel 3.10.0-514.6.1.el7.x86_64
 Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler 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 V10.2



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<u>222</u>	<u>43.9</u>	221	44.2	223	43.8	195	50.2	193	50.7	<u>193</u>	<u>50.6</u>
401.bzip2	347	27.8	<u>347</u>	<u>27.8</u>	345	28.0	341	28.3	341	28.3	<u>341</u>	<u>28.3</u>
403.gcc	172	46.9	<u>172</u>	<u>46.9</u>	172	46.8	172	46.9	<u>172</u>	<u>46.9</u>	172	46.8
429.mcf	<u>112</u>	<u>81.5</u>	114	79.9	111	81.9	<u>112</u>	<u>81.5</u>	114	79.9	111	81.9
445.gobmk	330	31.7	<u>331</u>	<u>31.7</u>	331	31.7	331	31.7	<u>331</u>	<u>31.7</u>	331	31.7
456.hammer	<u>102</u>	<u>91.9</u>	102	91.9	101	92.0	<u>102</u>	<u>91.9</u>	102	91.9	101	92.0
458.sjeng	<u>341</u>	<u>35.5</u>	341	35.5	341	35.5	336	36.0	336	36.0	<u>336</u>	<u>36.0</u>
462.libquantum	9.85	2100	<u>9.86</u>	<u>2100</u>	9.90	2090	9.85	2100	<u>9.86</u>	<u>2100</u>	9.90	2090
464.h264ref	<u>333</u>	<u>66.4</u>	333	66.5	334	66.3	<u>333</u>	<u>66.4</u>	333	66.5	334	66.3
471.omnetpp	180	34.7	<u>180</u>	<u>34.7</u>	182	34.3	153	40.9	149	41.8	<u>152</u>	<u>41.1</u>
473.astar	<u>192</u>	<u>36.7</u>	191	36.7	195	35.9	<u>192</u>	<u>36.7</u>	191	36.7	195	35.9
483.xalancbmk	<u>80.6</u>	<u>85.7</u>	80.5	85.7	81.0	85.2	78.2	88.2	78.0	88.5	<u>78.2</u>	<u>88.2</u>

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.

Operating System Notes

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

Platform Notes

BIOS Settings:
Power Management Policy: Custom
Energy Performance: Performance

General Notes

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

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh10.2"
OMP_NUM_THREADS = "4"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2
Transparent Huge Pages enabled by default.



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Base Compiler Invocation

C benchmarks:
icc -m64

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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
-auto-p32

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh10.2 -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

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

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Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

445.gobmk: `icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

C++ benchmarks (except as noted below):

`icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

429.mcf: `-DSPEC_CPU_LP64`

445.gobmk: `-D_FILE_OFFSET_BITS=64`

456.hmmmer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

464.h264ref: `-DSPEC_CPU_LP64`

471.omnetpp: `-D_FILE_OFFSET_BITS=64`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-prefetch`

401.bzip2: `-prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -auto-ilp32 -qopt-prefetch`

403.gcc: `basepeak = yes`

429.mcf: `basepeak = yes`

445.gobmk: `-prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2)`

456.hmmmer: `basepeak = yes`

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Peak Optimization Flags (Continued)

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-ra-region-strategy=block
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-Wl,-z,muldefs -L/sh10.2 -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-ic17.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-110i-RevA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-110i-RevA.xml>

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

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