



SPEC® CINT2006 Result

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NEC Corporation

SPECint®2006 = 55.3

Express5800/T110h-S (Intel Pentium G4400)

SPECint_base2006 = 53.6

CPU2006 license: 9006

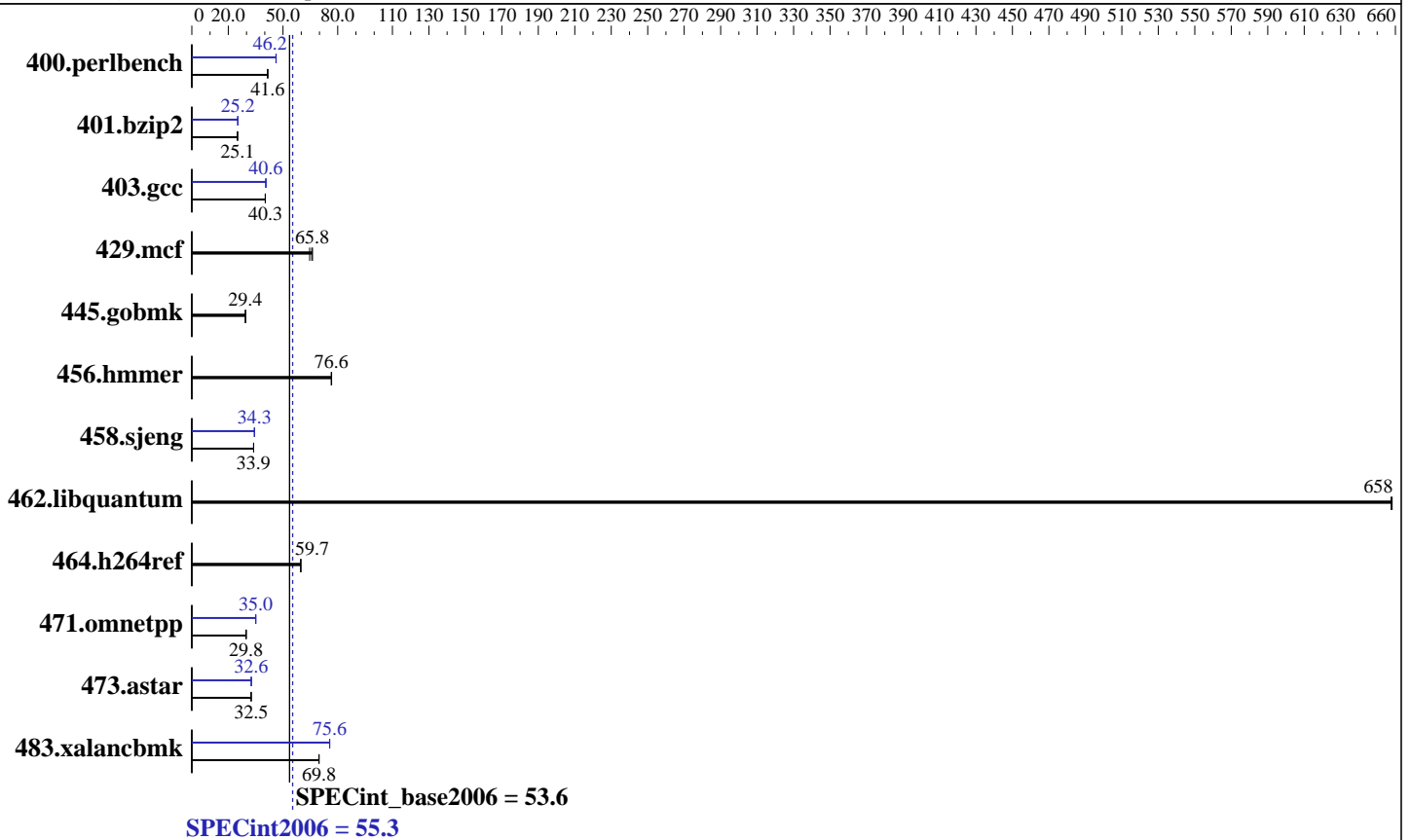
Test date: Dec-2015

Test sponsor: NEC Corporation

Hardware Availability: Mar-2016

Tested by: NEC Corporation

Software Availability: Nov-2015



Hardware

CPU Name: Intel Pentium G4400
 CPU Characteristics:
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 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: 3 MB I+D on chip per chip
 Other Cache: None
 Memory: 16 GB (2 x 8 GB 2Rx8 PC4-2133P-E)
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)
 Kernel 3.10.0-327.el7.x86_64
 Compiler: C/C++: Version 16.0.0.101 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 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 | 234 | 41.7 | 235 | 41.5 | <u>235</u> | <u>41.6</u> | <u>211</u> | <u>46.2</u> | 212 | 46.1 | 211 | 46.2 |
| 401.bzip2 | <u>385</u> | <u>25.1</u> | 386 | 25.0 | 384 | 25.1 | <u>383</u> | <u>25.2</u> | 383 | 25.2 | 381 | 25.3 |
| 403.gcc | 200 | 40.3 | 200 | 40.2 | <u>200</u> | <u>40.3</u> | <u>198</u> | <u>40.6</u> | 198 | 40.6 | 198 | 40.6 |
| 429.mcf | 141 | 64.6 | 138 | 66.2 | <u>139</u> | <u>65.8</u> | 141 | 64.6 | 138 | 66.2 | <u>139</u> | <u>65.8</u> |
| 445.gobmk | <u>357</u> | <u>29.4</u> | 357 | 29.4 | 357 | 29.4 | <u>357</u> | <u>29.4</u> | 357 | 29.4 | 357 | 29.4 |
| 456.hammer | 122 | 76.4 | 122 | 76.7 | <u>122</u> | <u>76.6</u> | 122 | 76.4 | 122 | 76.7 | <u>122</u> | <u>76.6</u> |
| 458.sjeng | <u>357</u> | <u>33.9</u> | 357 | 33.9 | 357 | 33.9 | 352 | 34.3 | <u>352</u> | <u>34.3</u> | 352 | 34.3 |
| 462.libquantum | 31.5 | 658 | 31.5 | 658 | <u>31.5</u> | <u>658</u> | 31.5 | 658 | 31.5 | 658 | <u>31.5</u> | <u>658</u> |
| 464.h264ref | 371 | 59.7 | <u>371</u> | <u>59.7</u> | 370 | 59.8 | 371 | 59.7 | <u>371</u> | <u>59.7</u> | 370 | 59.8 |
| 471.omnetpp | 209 | 29.9 | <u>210</u> | <u>29.8</u> | 210 | 29.7 | 178 | 35.1 | 178 | 35.0 | <u>178</u> | <u>35.0</u> |
| 473.astar | 215 | 32.6 | 216 | 32.5 | <u>216</u> | <u>32.5</u> | 216 | 32.6 | 215 | 32.6 | <u>215</u> | <u>32.6</u> |
| 483.xalancbmk | <u>98.9</u> | <u>69.8</u> | 98.9 | 69.8 | 99.0 | 69.7 | 91.2 | 75.6 | <u>91.3</u> | <u>75.6</u> | 91.3 | 75.6 |

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/sh"
OMP_NUM_THREADS = "2"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled



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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:

-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xSSE4.2 -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

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Peak Compiler Invocation (Continued)

400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):

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

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: -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: -D_FILE_OFFSET_BITS=64
 473.astar: -DSPEC_CPU_LP64
 483.xalanbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(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 -ansi-alias

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

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc
 -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

458.sjeng: -xSSE4.2(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

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| | | |
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| Test sponsor: NEC Corporation | Hardware Availability: | Mar-2016 |
| Tested by: NEC Corporation | Software Availability: | Nov-2015 |

Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xSSE4.2(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-ra-region-strategy=block
 -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xSSE4.2 -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-ic16.0-official-linux64.html>

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

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-V1.2-110h-RevA.xml>

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

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