



SPEC® CINT2006 Result

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NEC Corporation

SPECint®2006 = 58.2

Express5800/T110i (Intel Pentium G4560)

SPECint_base2006 = 56.0

CPU2006 license: 9006

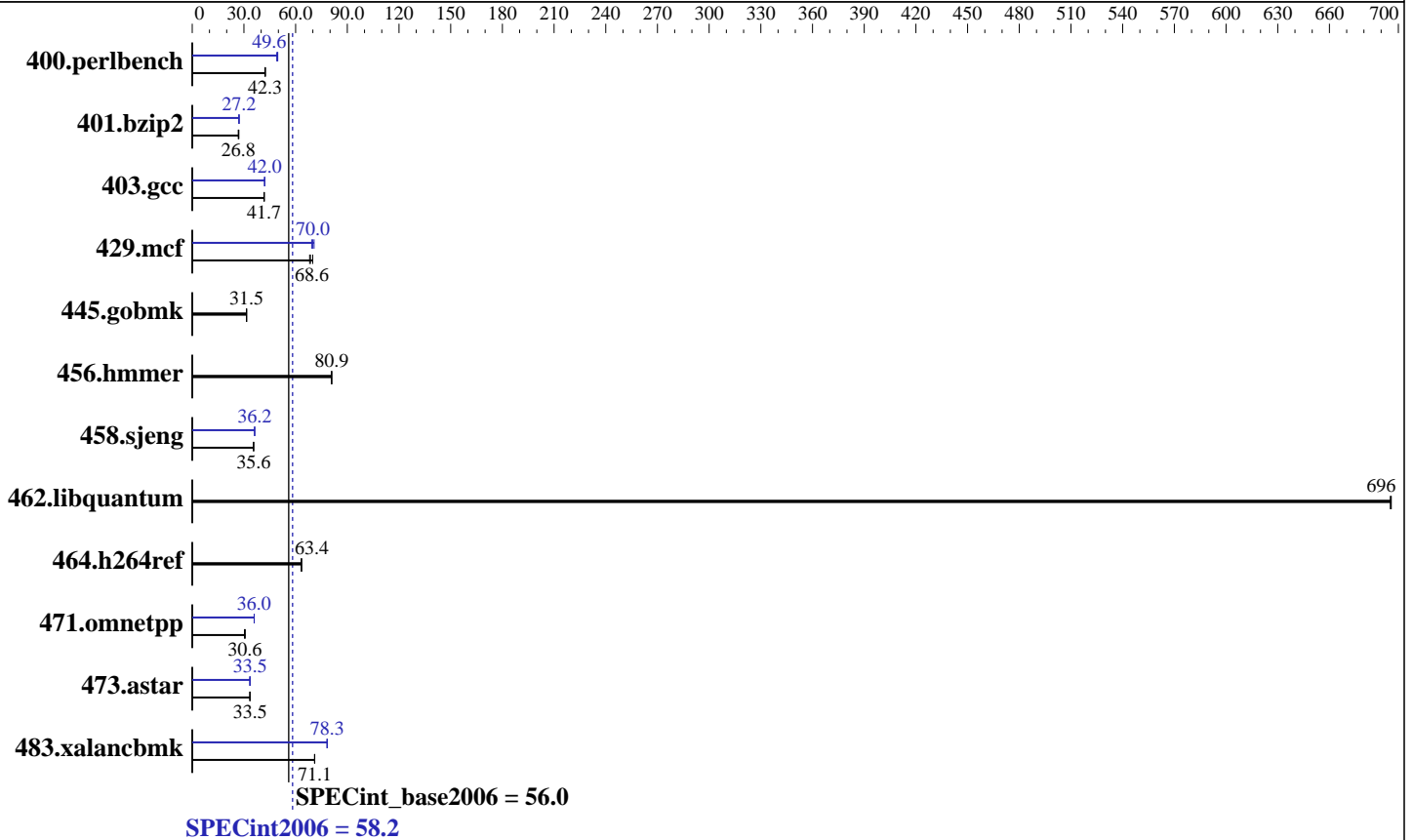
Test date: Apr-2017

Test sponsor: NEC Corporation

Hardware Availability: Apr-2017

Tested by: NEC Corporation

Software Availability: Jan-2017



Hardware

CPU Name: Intel Pentium G4560
 CPU Characteristics:
 CPU MHz: 3500
 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: 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>231</u> | <u>42.3</u> | 232 | 42.2 | 230 | 42.5 | 199 | 49.0 | 197 | 49.6 | <u>197</u> | <u>49.6</u> |
| 401.bzip2 | 356 | 27.1 | 361 | 26.8 | <u>360</u> | <u>26.8</u> | 354 | 27.2 | <u>355</u> | <u>27.2</u> | 357 | 27.0 |
| 403.gcc | 192 | 41.8 | <u>193</u> | <u>41.7</u> | 193 | 41.7 | 192 | 42.0 | <u>192</u> | <u>42.0</u> | 192 | 42.0 |
| 429.mcf | <u>133</u> | <u>68.6</u> | 130 | 69.9 | 134 | 68.1 | <u>130</u> | <u>70.0</u> | 129 | 70.7 | 132 | 69.3 |
| 445.gobmk | 333 | 31.5 | <u>333</u> | <u>31.5</u> | 333 | 31.5 | 333 | 31.5 | <u>333</u> | <u>31.5</u> | 333 | 31.5 |
| 456.hammer | 115 | 80.8 | 115 | 81.0 | <u>115</u> | <u>80.9</u> | 115 | 80.8 | 115 | 81.0 | <u>115</u> | <u>80.9</u> |
| 458.sjeng | <u>340</u> | <u>35.6</u> | 340 | 35.6 | 340 | 35.6 | 334 | 36.2 | 334 | 36.2 | <u>334</u> | <u>36.2</u> |
| 462.libquantum | 29.8 | 695 | <u>29.8</u> | <u>696</u> | 29.8 | 696 | 29.8 | 695 | <u>29.8</u> | <u>696</u> | 29.8 | 696 |
| 464.h264ref | <u>349</u> | <u>63.4</u> | 349 | 63.5 | 350 | 63.3 | <u>349</u> | <u>63.4</u> | 349 | 63.5 | 350 | 63.3 |
| 471.omnetpp | 203 | 30.7 | <u>204</u> | <u>30.6</u> | 206 | 30.3 | 174 | 36.0 | <u>174</u> | <u>36.0</u> | 174 | 35.9 |
| 473.astar | <u>209</u> | <u>33.5</u> | 209 | 33.5 | 210 | 33.4 | 210 | 33.4 | <u>209</u> | <u>33.5</u> | 209 | 33.6 |
| 483.xalancbmk | 97.1 | 71.1 | 97.2 | 71.0 | <u>97.1</u> | <u>71.1</u> | <u>88.2</u> | <u>78.3</u> | 88.2 | 78.3 | 88.0 | 78.4 |

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
Hyper-Threading: Disabled

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 = "2"

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:

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

C++ benchmarks:

-xSSE4.2 -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

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: -DSPEC_CPU_LP64
 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.xalanbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.2(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) -xSSE4.2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div -auto-ilp32 -qopt-prefetch

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

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
 -auto-p32

445.gobmk: basepeak = yes

456.hmmmer: basepeak = yes

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -unroll4

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.2(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 -lsmarheap

473.astar: -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh10.2 -lsmarheap64

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch
-Wl,-z,muldefs -L/sh10.2 -lsmarheap

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.

Tested with SPEC CPU2006 v1.2.

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