



SPEC[®] CINT2006 Result

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NEC Corporation

SPECint[®]2006 = 44.4

Express5800/R110f-1E (Intel Pentium G3220)

SPECint_base2006 = 42.4

CPU2006 license: 9006

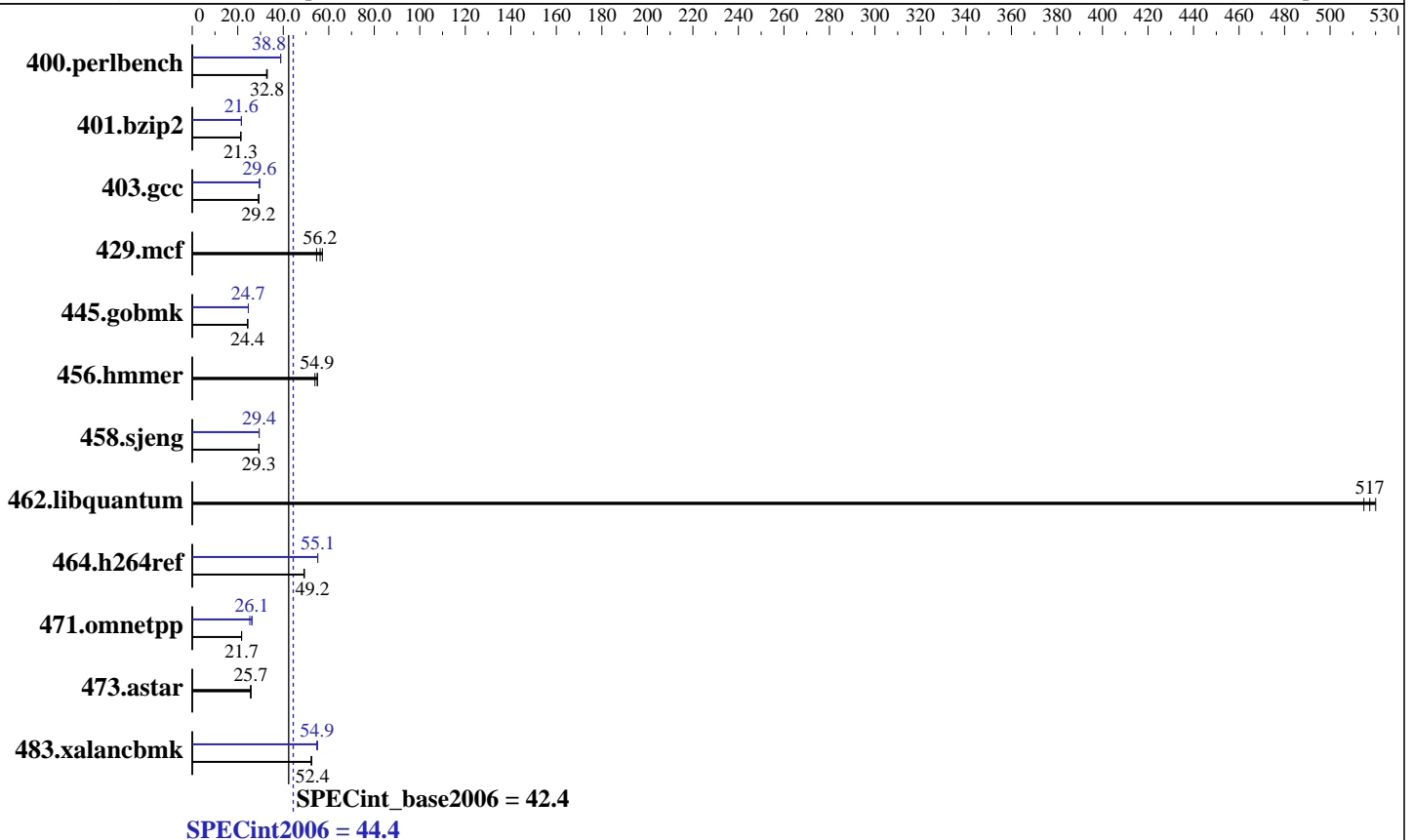
Test date: Oct-2013

Test sponsor: NEC Corporation

Hardware Availability: Oct-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



Hardware

CPU Name: Intel Pentium G3220
 CPU Characteristics:
 CPU MHz: 3000
 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 PC3L-12800E-11, ECC, running at 1333 MHz and CL9)
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 Kernel 2.6.32-358.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	299	32.7	<u>298</u>	<u>32.8</u>	296	33.0	<u>252</u>	<u>38.8</u>	251	38.9	252	38.8
401.bzip2	452	21.4	<u>452</u>	<u>21.3</u>	453	21.3	<u>446</u>	<u>21.6</u>	446	21.6	448	21.6
403.gcc	276	29.1	<u>276</u>	<u>29.2</u>	275	29.2	<u>272</u>	<u>29.6</u>	272	29.6	273	29.5
429.mcf	<u>162</u>	<u>56.2</u>	167	54.6	159	57.2	<u>162</u>	<u>56.2</u>	167	54.6	159	57.2
445.gobmk	431	24.4	<u>431</u>	<u>24.4</u>	431	24.3	<u>426</u>	<u>24.7</u>	425	24.7	426	24.6
456.hammer	<u>170</u>	<u>54.9</u>	170	55.0	173	53.9	<u>170</u>	<u>54.9</u>	170	55.0	173	53.9
458.sjeng	413	29.3	413	29.3	<u>413</u>	<u>29.3</u>	412	29.4	<u>412</u>	<u>29.4</u>	411	29.4
462.libquantum	39.8	520	<u>40.0</u>	<u>517</u>	40.2	515	39.8	520	<u>40.0</u>	<u>517</u>	40.2	515
464.h264ref	449	49.2	<u>450</u>	<u>49.2</u>	451	49.1	<u>401</u>	<u>55.1</u>	401	55.2	402	55.1
471.omnetpp	<u>288</u>	<u>21.7</u>	288	21.7	289	21.7	<u>239</u>	<u>26.1</u>	238	26.2	247	25.3
473.astar	273	25.7	272	25.8	<u>273</u>	<u>25.7</u>	273	25.7	272	25.8	<u>273</u>	<u>25.7</u>
483.xalancbmk	132	52.3	<u>132</u>	<u>52.4</u>	131	52.5	125	55.1	<u>126</u>	<u>54.9</u>	126	54.8

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 = "2"

Transparent Huge Pages enabled with:

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

Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64



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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

400.perlbench: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

C++ benchmarks (except as noted below):
 icpc -m32

473.astar: icpc -m64



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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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -inline-alloc
          -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
           -ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xSSE4.2(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

464.h264ref: -xSSE4.2(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: -xSSE4.2(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

```

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Peak Optimization Flags (Continued)

473.astar: basepeak = yes

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-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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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