



SPEC® CINT2006 Result

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NEC Corporation

SPECint®2006 = 44.4

Express5800/T110f-E (Intel Pentium G3220)

SPECint_base2006 = 42.3

CPU2006 license: 9006

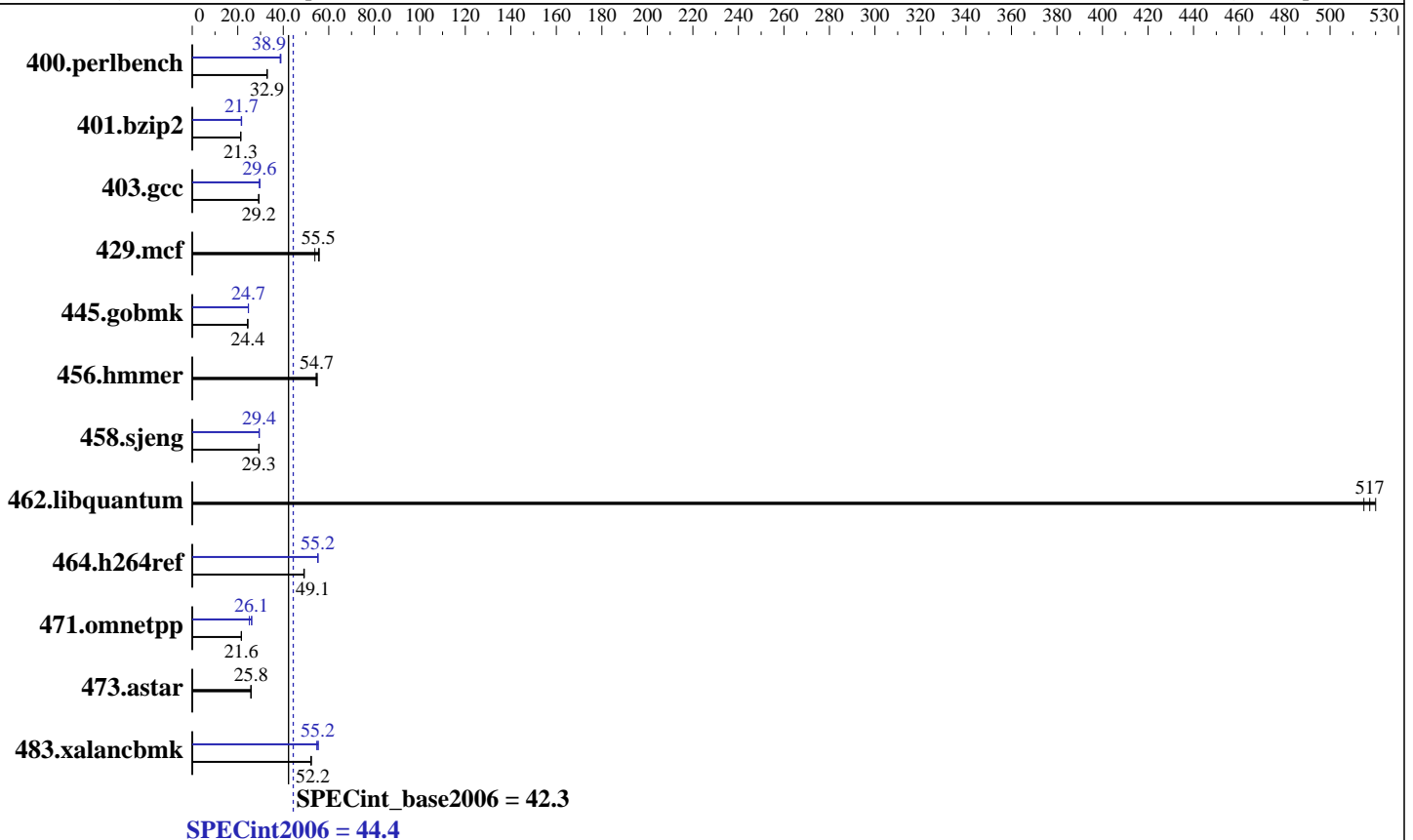
Test date: Nov-2013

Test sponsor: NEC Corporation

Hardware Availability: Oct-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



Hardware

CPU Name: Intel Pentium G3220
 CPU Characteristics: 3000
 CPU MHz: Integrated
 FPU: 2 cores, 1 chip, 2 cores/chip
 CPU(s) enabled: 1 chip
 CPU(s) orderable: 32 KB I + 32 KB D on chip per core
 Primary Cache: 256 KB I+D on chip per core
 Secondary Cache: 3 MB I+D on chip per chip
 L3 Cache: None
 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	297	32.9	<u>297</u>	<u>32.9</u>	297	32.9	253	38.6	<u>251</u>	<u>38.9</u>	251	38.9
401.bzip2	454	21.3	452	21.4	<u>453</u>	<u>21.3</u>	448	21.5	444	21.7	<u>446</u>	<u>21.7</u>
403.gcc	275	29.3	<u>275</u>	<u>29.2</u>	276	29.2	272	29.6	<u>272</u>	<u>29.6</u>	272	29.6
429.mcf	<u>164</u>	<u>55.5</u>	169	53.9	163	55.8	<u>164</u>	<u>55.5</u>	169	53.9	163	55.8
445.gobmk	<u>430</u>	<u>24.4</u>	430	24.4	430	24.4	425	24.7	<u>425</u>	<u>24.7</u>	426	24.6
456.hammer	170	54.9	<u>170</u>	<u>54.7</u>	171	54.4	170	54.9	<u>170</u>	<u>54.7</u>	171	54.4
458.sjeng	413	29.3	<u>413</u>	<u>29.3</u>	413	29.3	411	29.4	411	29.4	<u>411</u>	<u>29.4</u>
462.libquantum	40.2	515	<u>40.0</u>	<u>517</u>	39.8	520	40.2	515	<u>40.0</u>	<u>517</u>	39.8	520
464.h264ref	449	49.3	451	49.1	<u>451</u>	<u>49.1</u>	400	55.3	401	55.2	<u>401</u>	<u>55.2</u>
471.omnetpp	290	21.5	289	21.7	<u>289</u>	<u>21.6</u>	249	25.1	239	26.2	<u>240</u>	<u>26.1</u>
473.astar	<u>272</u>	<u>25.8</u>	272	25.8	271	25.9	<u>272</u>	<u>25.8</u>	272	25.8	271	25.9
483.xalancbmk	132	52.4	<u>132</u>	<u>52.2</u>	132	52.1	<u>125</u>	<u>55.2</u>	125	55.4	126	54.7

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 other inquiries, please contact webmaster@spec.org.

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