



# SPEC<sup>®</sup> CINT2006 Result

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## NEC Corporation

SPECint<sup>®</sup>\_rate2006 = 81.2

Express5800/T110g-E (Intel Pentium G3240)

SPECint\_rate\_base2006 = 78.2

CPU2006 license: 9006

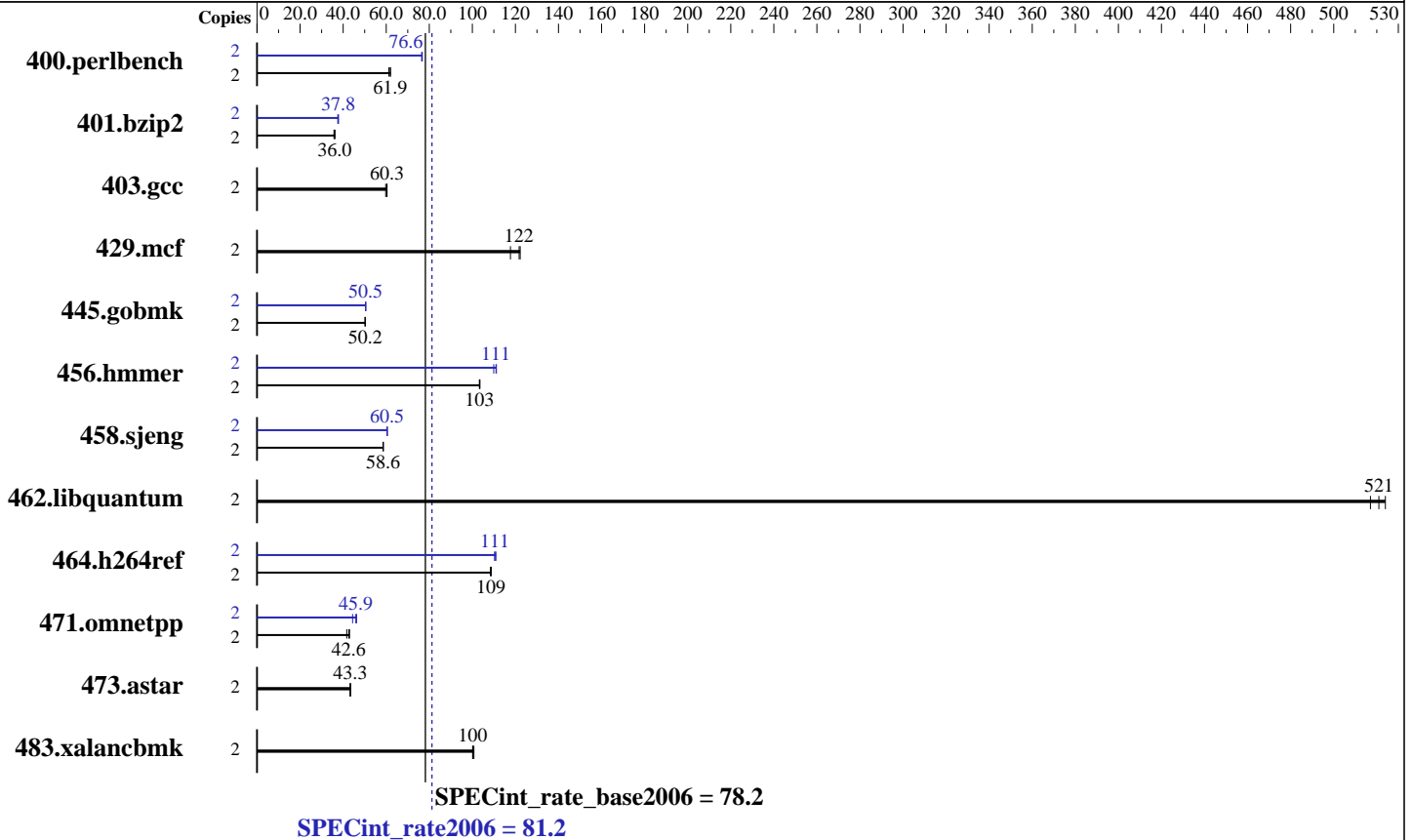
Test date: Aug-2014

Test sponsor: NEC Corporation

Hardware Availability: Jul-2014

Tested by: NEC Corporation

Software Availability: Jan-2014



### Hardware

CPU Name: Intel Pentium G3240  
 CPU Characteristics:  
 CPU MHz: 3100  
 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 PC3-12800E-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 6.5 (Santiago)  
 Kernel 2.6.32-431.el6.x86\_64  
 Compiler: C/C++: Version 14.0.2.144 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	2	<b><u>316</u></b>	<b><u>61.9</u></b>	315	62.0	319	61.2	2	<b><u>255</u></b>	<b><u>76.6</u></b>	256	76.5	255	76.8
401.bzip2	2	540	35.7	<b><u>535</u></b>	<b><u>36.0</u></b>	533	36.2	2	515	37.5	<b><u>511</u></b>	<b><u>37.8</u></b>	511	37.8
403.gcc	2	<b><u>267</u></b>	<b><u>60.3</u></b>	269	59.8	267	60.4	2	<b><u>267</u></b>	<b><u>60.3</u></b>	269	59.8	267	60.4
429.mcf	2	<b><u>150</u></b>	<b><u>122</u></b>	155	118	149	122	2	<b><u>150</u></b>	<b><u>122</u></b>	155	118	149	122
445.gobmk	2	418	50.2	<b><u>418</u></b>	<b><u>50.2</u></b>	417	50.3	2	416	50.5	416	50.4	<b><u>416</u></b>	<b><u>50.5</u></b>
456.hammer	2	<b><u>180</u></b>	<b><u>103</u></b>	181	103	180	103	2	170	110	168	111	<b><u>168</u></b>	<b><u>111</u></b>
458.sjeng	2	413	58.6	413	58.6	<b><u>413</u></b>	<b><u>58.6</u></b>	2	400	60.5	401	60.4	<b><u>400</u></b>	<b><u>60.5</u></b>
462.libquantum	2	<b><u>79.5</u></b>	<b><u>521</u></b>	80.1	517	79.1	524	2	<b><u>79.5</u></b>	<b><u>521</u></b>	80.1	517	79.1	524
464.h264ref	2	408	108	407	109	<b><u>408</u></b>	<b><u>109</u></b>	2	399	111	401	110	<b><u>401</u></b>	<b><u>111</u></b>
471.omnetpp	2	<b><u>293</u></b>	<b><u>42.6</u></b>	291	43.0	300	41.7	2	270	46.3	282	44.4	<b><u>272</u></b>	<b><u>45.9</u></b>
473.astar	2	324	43.3	323	43.5	<b><u>324</u></b>	<b><u>43.3</u></b>	2	324	43.3	323	43.5	<b><u>324</u></b>	<b><u>43.3</u></b>
483.xalancbmk	2	137	101	138	100	<b><u>138</u></b>	<b><u>100</u></b>	2	137	101	138	100	<b><u>138</u></b>	<b><u>100</u></b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## 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:  
LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1 > /proc/sys/vm/drop\_caches  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>



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## Base Compiler Invocation

C benchmarks:

icc -m32

C++ benchmarks:

icpc -m32

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/sh -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32



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## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
 401.bzip2: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LINUX  
 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)  
 -auto-ilp32

401.bzip2: -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 -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
 -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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 -auto-ilp32

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)  
 -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs  
 -L/sh -lsmartheap

473.astar: basepeak = yes

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## Peak Optimization Flags (Continued)

483.xalanbmk: basepeak = yes

## 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-R120-RevB.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-R120-RevB.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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