



# SPEC® CINT2006 Result

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## NEC Corporation

**SPECint®2006 = 58.1**

### Express5800/T110i-S (Intel Pentium G4560)

**SPECint\_base2006 = 56.0**

CPU2006 license: 9006

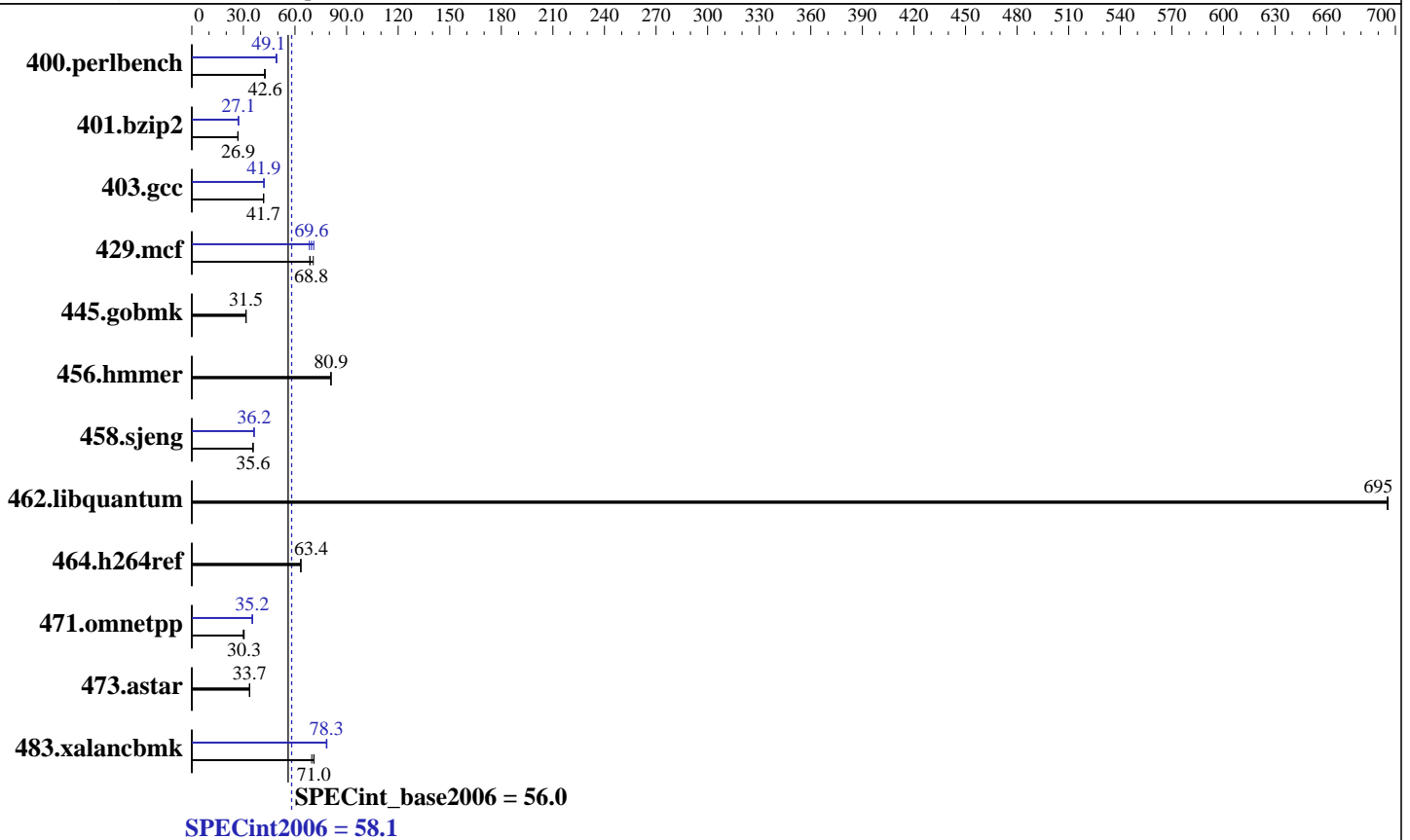
Test date: Apr-2017

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	231	42.3	229	42.6	<b><u>229</u></b>	<b><u>42.6</u></b>	198	49.4	199	49.0	<b><u>199</u></b>	<b><u>49.1</u></b>
401.bzip2	<b><u>359</u></b>	<b><u>26.9</u></b>	361	26.7	359	26.9	356	27.1	355	27.2	<b><u>356</u></b>	<b><u>27.1</u></b>
403.gcc	193	41.8	<b><u>193</u></b>	<b><u>41.7</u></b>	193	41.7	<b><u>192</u></b>	<b><u>41.9</u></b>	192	42.0	192	41.9
429.mcf	129	70.6	133	68.6	<b><u>133</u></b>	<b><u>68.8</u></b>	129	70.9	133	68.3	<b><u>131</u></b>	<b><u>69.6</u></b>
445.gobmk	333	31.5	<b><u>333</u></b>	<b><u>31.5</u></b>	333	31.5	333	31.5	<b><u>333</u></b>	<b><u>31.5</u></b>	333	31.5
456.hammer	<b><u>115</u></b>	<b><u>80.9</u></b>	115	81.0	115	80.9	<b><u>115</u></b>	<b><u>80.9</u></b>	115	81.0	115	80.9
458.sjeng	340	35.6	340	35.6	<b><u>340</u></b>	<b><u>35.6</u></b>	<b><u>334</u></b>	<b><u>36.2</u></b>	334	36.2	334	36.2
462.libquantum	29.8	695	<b><u>29.8</u></b>	<b><u>695</u></b>	29.8	696	29.8	695	<b><u>29.8</u></b>	<b><u>695</u></b>	29.8	696
464.h264ref	<b><u>349</u></b>	<b><u>63.4</u></b>	349	63.4	349	63.4	<b><u>349</u></b>	<b><u>63.4</u></b>	349	63.4	349	63.4
471.omnetpp	205	30.4	<b><u>206</u></b>	<b><u>30.3</u></b>	209	29.9	177	35.3	<b><u>178</u></b>	<b><u>35.2</u></b>	178	35.1
473.astar	<b><u>209</u></b>	<b><u>33.7</u></b>	208	33.7	210	33.5	<b><u>209</u></b>	<b><u>33.7</u></b>	208	33.7	210	33.5
483.xalancbmk	<b><u>97.2</u></b>	<b><u>71.0</u></b>	97.2	71.0	98.9	69.8	<b><u>88.1</u></b>	<b><u>78.3</u></b>	87.8	78.6	88.1	78.3

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-alloc`  
`-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/shl0.2 -lsmarheap

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch  
-Wl,-z,muldefs -L/shl0.2 -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](mailto:webmaster@spec.org).

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