



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/B140a-T  
(Intel Xeon E7310)

**SPECint®2006 = 14.6**

**SPECint\_base2006 = 12.9**

CPU2006 license: 9006

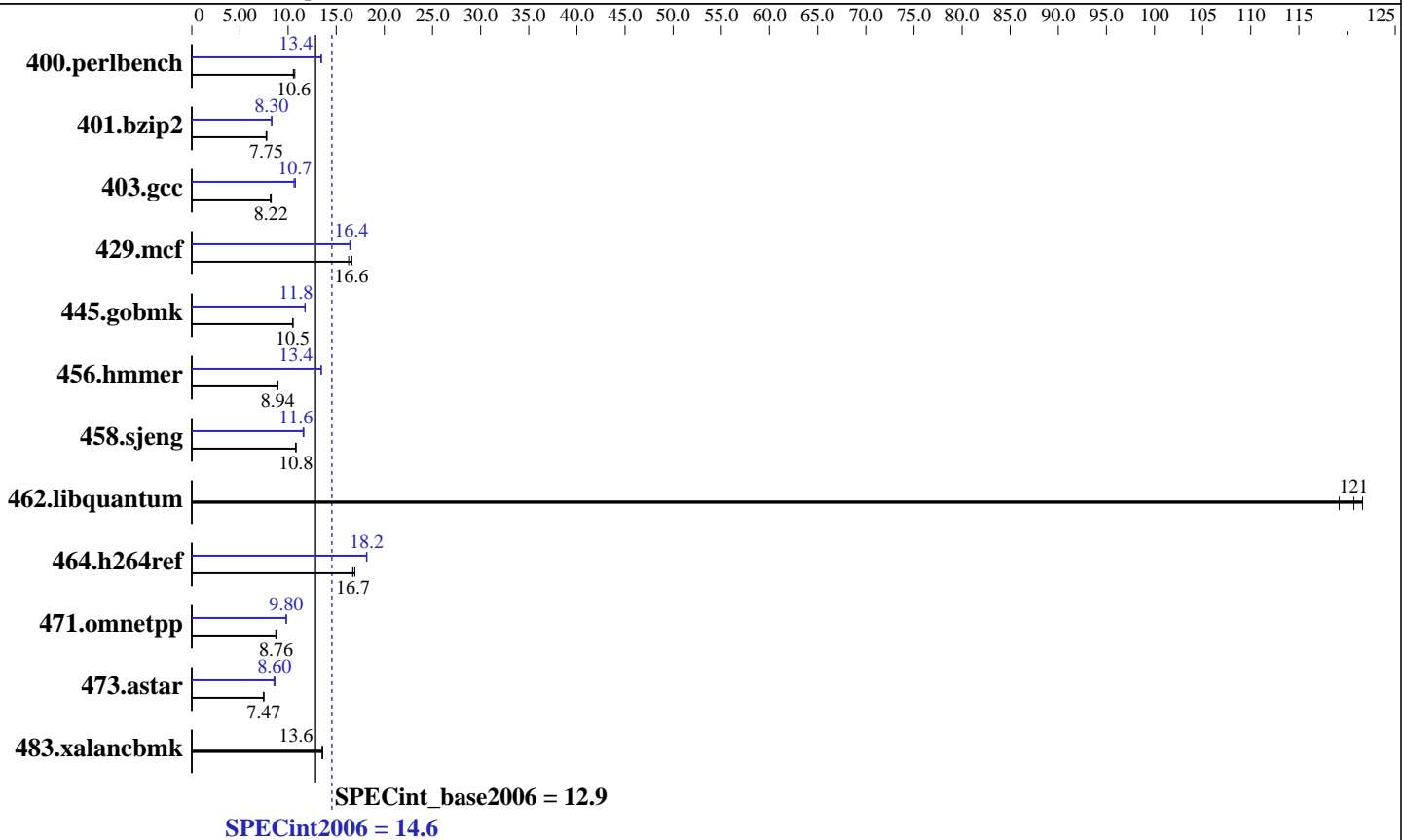
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Feb-2009

Hardware Availability: Feb-2009

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E7310  
 CPU Characteristics: 1066 MHz system bus  
 CPU MHz: 1600  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip  
 CPU(s) orderable: 1,2,3,4 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per chip, 2 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 32 GB (16x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 1x146.5 GB SAS, 10000 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP2, Kernel 2.6.16.60-0.21-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20081105 Package ID: l\_cproc\_p\_11.0.074  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap Library 8.1 Binutils 2.18.50.0.7.20080502



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## Results Table

| Benchmark      | Base        |             |             |             |            |             | Peak        |             |             |             |             |             |
|----------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                | Seconds     | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       |
| 400.perlbench  | 926         | 10.5        | <u>922</u>  | <u>10.6</u> | 913        | 10.7        | 729         | 13.4        | <u>726</u>  | <u>13.4</u> | 726         | 13.5        |
| 401.bzip2      | 1239        | 7.79        | <u>1245</u> | <u>7.75</u> | 1250       | 7.72        | 1164        | 8.29        | 1162        | 8.30        | <u>1163</u> | <u>8.30</u> |
| 403.gcc        | 975         | 8.25        | <u>979</u>  | <u>8.22</u> | 987        | 8.16        | 748         | 10.8        | 758         | 10.6        | <u>751</u>  | <u>10.7</u> |
| 429.mcf        | 560         | 16.3        | 549         | 16.6        | <u>550</u> | <u>16.6</u> | 554         | 16.5        | 555         | 16.4        | <u>555</u>  | <u>16.4</u> |
| 445.gobmk      | <u>999</u>  | <u>10.5</u> | 999         | 10.5        | 1000       | 10.5        | 892         | 11.8        | <u>892</u>  | <u>11.8</u> | 891         | 11.8        |
| 456.hammer     | <u>1043</u> | <u>8.94</u> | 1043        | 8.95        | 1043       | 8.94        | <u>695</u>  | <u>13.4</u> | 695         | 13.4        | 694         | 13.4        |
| 458.sjeng      | <u>1119</u> | <u>10.8</u> | 1120        | 10.8        | 1118       | 10.8        | <u>1045</u> | <u>11.6</u> | 1047        | 11.6        | 1039        | 11.6        |
| 462.libquantum | <u>172</u>  | <u>121</u>  | 170         | 122         | 174        | 119         | <u>172</u>  | <u>121</u>  | 170         | 122         | 174         | 119         |
| 464.h264ref    | 1307        | 16.9        | <u>1321</u> | <u>16.7</u> | 1324       | 16.7        | 1217        | 18.2        | <u>1218</u> | <u>18.2</u> | 1220        | 18.1        |
| 471.omnetpp    | <u>714</u>  | <u>8.76</u> | 714         | 8.76        | 717        | 8.72        | 638         | 9.80        | <u>638</u>  | <u>9.80</u> | 637         | 9.81        |
| 473.astar      | 939         | 7.48        | 941         | 7.46        | <u>940</u> | <u>7.47</u> | <u>816</u>  | <u>8.60</u> | 823         | 8.53        | 814         | 8.62        |
| 483.xalancbmk  | 508         | 13.6        | <u>509</u>  | <u>13.6</u> | 510        | 13.5        | 508         | 13.6        | <u>509</u>  | <u>13.6</u> | 510         | 13.5        |

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to "physical,0"
```

## Platform Notes

Bios settings:  
Hardware Prefetcher: Enabled  
Adjacent Cache Line Prefetch: Enabled  
FSB High Bandwidth Optimization: Disabled

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32

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## Base Portability Flags (Continued)

462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xSSSE3 -ipo -O3 -no-prec-div -static -parallel  
-par-runtime-control -opt-prefetch

C++ benchmarks:

-xSSSE3 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/opt/SmartHeap\_8.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/Compiler/11.0/074/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/074/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/074/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/074/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/074/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/074/ipp/em64t/include

C++ benchmarks:

icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX

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## Peak Portability Flags (Continued)

483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3  
-no-prec-div -static -auto-ilp32 -opt-prefetch  
-ansi-alias

403.gcc: -xSSSE3 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3

429.mcf: -xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmer: -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias -auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3  
-no-prec-div -static -unroll4

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmartheap

483.xalancbmk: basepeak = yes



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## 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-ic11.0-int-linux64-revE.html>  
<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revE.xml>  
<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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