



SPEC® CINT2006 Result

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NEC Corporation

Express5800/R140a-4
(Intel Xeon E7310)

SPECint®2006 = 14.5

SPECint_base2006 = 12.8

CPU2006 license: 9006

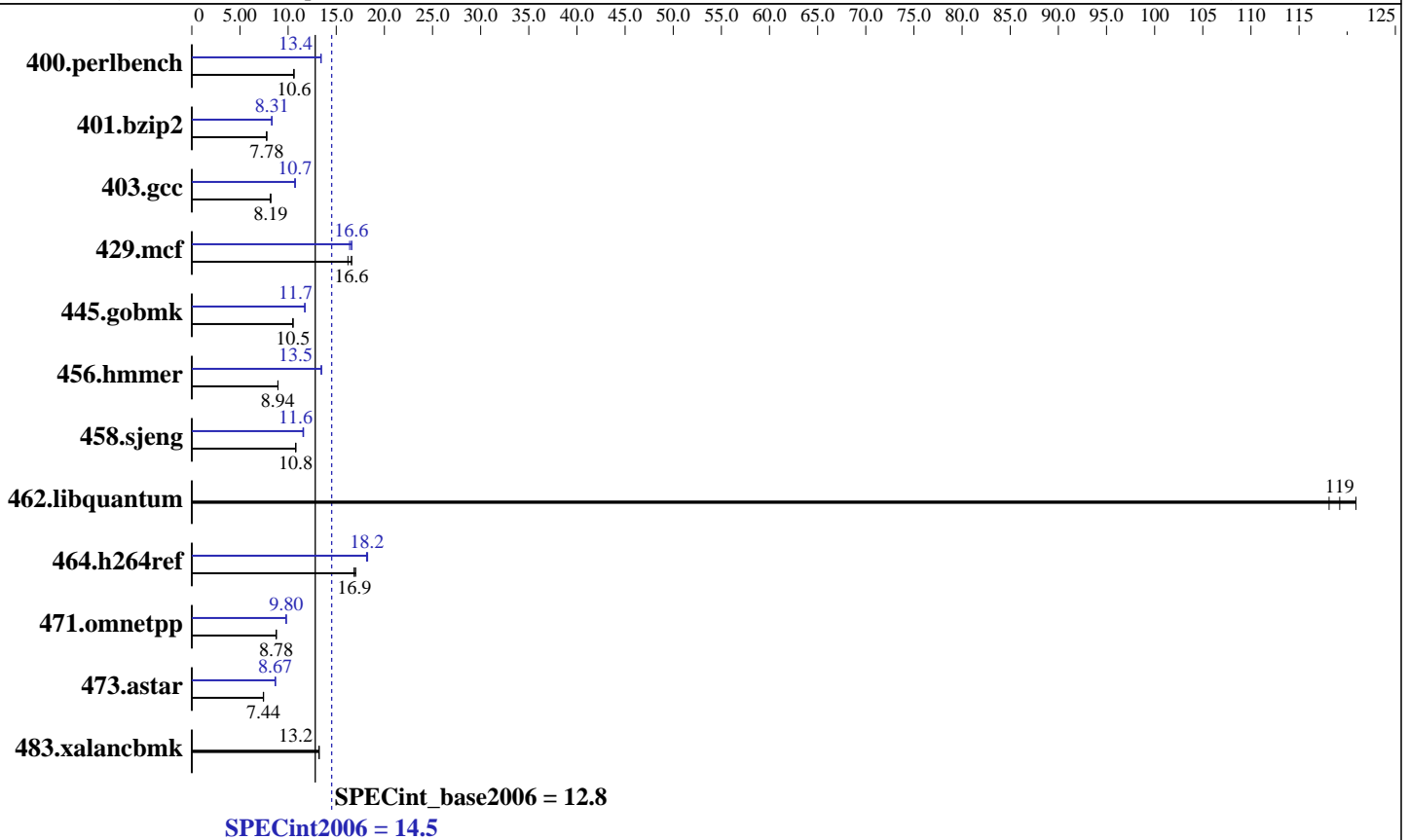
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Nov-2008

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: 1x73.2 GB SAS, 15000 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: ext2
 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 | 920 | 10.6 | 923 | 10.6 | <u>921</u> | <u>10.6</u> | 729 | 13.4 | 728 | 13.4 | <u>728</u> | <u>13.4</u> |
| 401.bzip2 | 1240 | 7.78 | 1244 | 7.76 | <u>1240</u> | <u>7.78</u> | 1160 | 8.32 | <u>1161</u> | <u>8.31</u> | 1163 | 8.30 |
| 403.gcc | <u>983</u> | <u>8.19</u> | 988 | 8.15 | 981 | 8.21 | <u>751</u> | <u>10.7</u> | 749 | 10.8 | 752 | 10.7 |
| 429.mcf | 562 | 16.2 | 549 | 16.6 | <u>550</u> | <u>16.6</u> | 549 | 16.6 | 557 | 16.4 | <u>550</u> | <u>16.6</u> |
| 445.gobmk | <u>999</u> | <u>10.5</u> | 999 | 10.5 | 998 | 10.5 | <u>893</u> | <u>11.7</u> | 893 | 11.7 | 894 | 11.7 |
| 456.hmmer | <u>1043</u> | <u>8.94</u> | 1043 | 8.95 | 1043 | 8.94 | <u>693</u> | <u>13.5</u> | 693 | 13.5 | 694 | 13.4 |
| 458.sjeng | 1119 | 10.8 | <u>1123</u> | <u>10.8</u> | 1123 | 10.8 | 1047 | 11.6 | 1042 | 11.6 | <u>1047</u> | <u>11.6</u> |
| 462.libquantum | 171 | 121 | 175 | 118 | <u>174</u> | <u>119</u> | 171 | 121 | 175 | 118 | <u>174</u> | <u>119</u> |
| 464.h264ref | 1313 | 16.9 | 1300 | 17.0 | <u>1311</u> | <u>16.9</u> | 1212 | 18.3 | 1219 | 18.1 | <u>1217</u> | <u>18.2</u> |
| 471.omnetpp | <u>712</u> | <u>8.78</u> | 714 | 8.75 | 712 | 8.78 | <u>638</u> | <u>9.80</u> | 638 | 9.80 | 638 | 9.80 |
| 473.astar | 945 | 7.43 | <u>944</u> | <u>7.44</u> | 942 | 7.46 | <u>809</u> | <u>8.67</u> | 811 | 8.65 | 808 | 8.69 |
| 483.xalancbmk | <u>522</u> | <u>13.2</u> | 522 | 13.2 | 522 | 13.2 | <u>522</u> | <u>13.2</u> | 522 | 13.2 | 522 | 13.2 |

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

General Notes

The NEC Express5800/R140a-4(Intel Xeon E7310) and the Bull NovaScale R480 E1(Intel Xeon E7310, 1.60 GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/R140a-4(Intel Xeon E7310) model.

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc



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Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
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

Continued on next page



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Peak Portability Flags (Continued)

462.libquantum: -DSPEC_CPU_LINUX
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.bzp2: -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-alloc
-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 -lsmarheap
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 -lsmarheap
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 other inquiries, please contact webmaster@spec.org.

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