SPEC® CINT2006 Result

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NEC Corporation

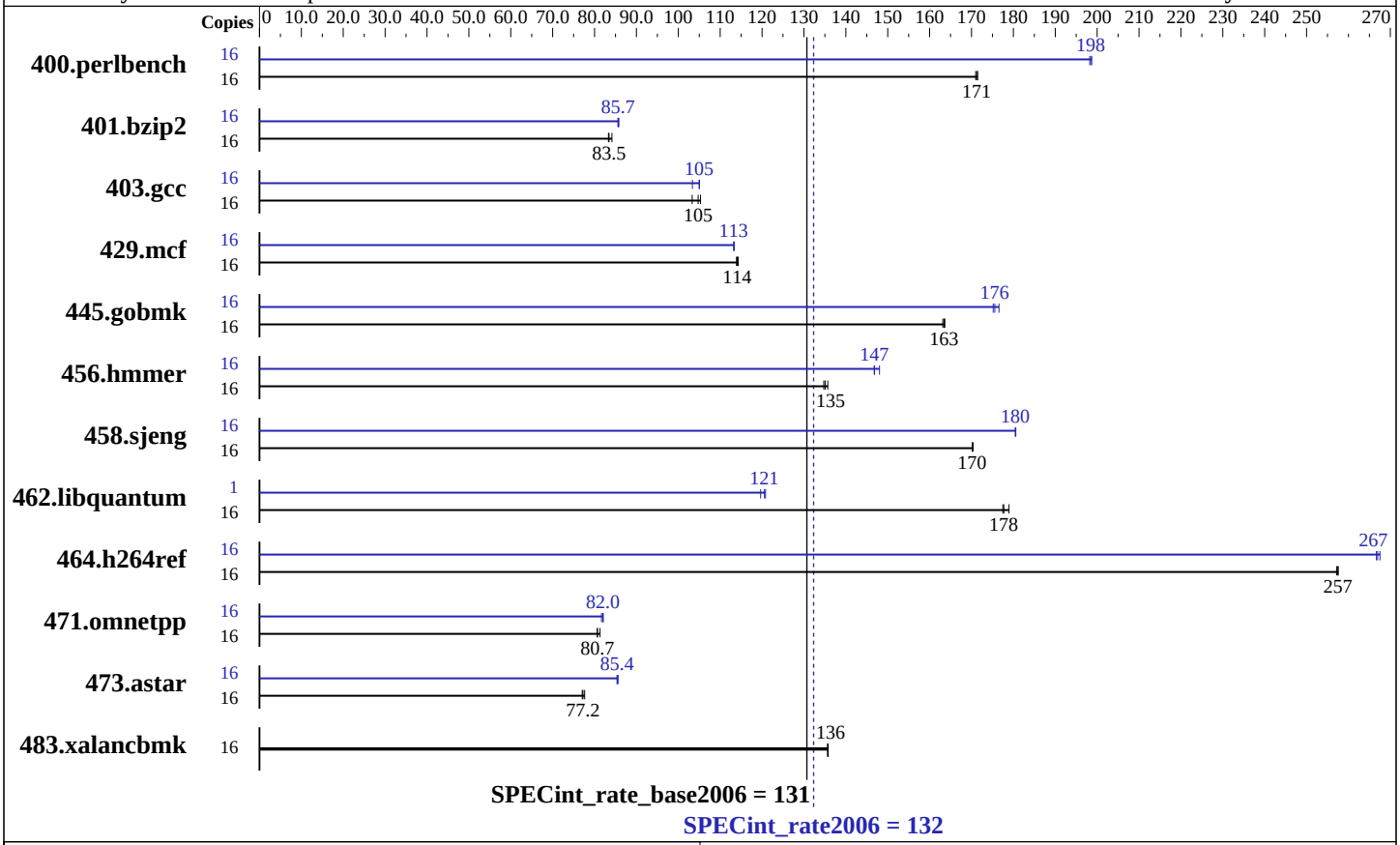
Express5800/R140a-4
(Intel Xeon E7310)

SPECint®_rate2006 = 132

SPECint_rate_base2006 = 131

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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	912	171	914	171	**913**	**171**	16	789	198	787	199	**788**	**198**
401.bzip2	16	**1850**	**83.5**	1835	84.2	1853	83.3	16	**1802**	**85.7**	1799	85.8	1804	85.6
403.gcc	16	**1230**	**105**	1247	103	1223	105	16	1246	103	1226	105	**1227**	**105**
429.mcf	16	1277	114	1281	114	**1279**	**114**	16	**1289**	**113**	1289	113	1287	113
445.gobmk	16	**1027**	**163**	1029	163	1026	164	16	**956**	**176**	958	175	951	177
456.hmmer	16	1100	136	**1105**	**135**	1108	135	16	**1017**	**147**	1008	148	1017	147
458.sjeng	16	1136	170	1138	170	**1138**	**170**	16	1073	180	**1073**	**180**	1072	181
462.libquantum	16	1853	179	**1865**	**178**	1868	177	1	**172**	**121**	171	121	173	120
464.h264ref	16	**1375**	**257**	1377	257	1375	258	16	1324	268	**1326**	**267**	1328	267
471.omnetpp	16	1230	81.3	**1239**	**80.7**	1240	80.7	16	1218	82.1	**1220**	**82.0**	1225	81.7
473.astar	16	1447	77.6	**1454**	**77.2**	1458	77.1	16	1312	85.6	1316	85.4	**1315**	**85.4**
483.xalancbmk	16	**813**	**136**	813	136	814	136	16	**813**	**136**	813	136	814	136

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.
 taskset was used to bind processes to cores except
 for 462.libquantum peak
```

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"
 KMP_STACKSIZE set to 64M
```

Platform Notes

```
Bios settings:
Hardware Prefetcher:            Disabled
Adjacent Cache Line Prefetch:   Disabled
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

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 -inline-calloc
-opt-malloc-options=3 -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

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Peak Compiler Invocation (Continued)

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
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 -opt-prefetch -ansi-alias

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

429.mcf: -prof-gen(pass 1) -prof-use(pass 2) -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

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

462.libquantum: -xSSSE3 -ipo -O3 -no-prec-div -static
-opt-malloc-options=3 -parallel -par-runtime-control
-opt-prefetch

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

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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`

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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