SPEC® CINT2006 Result

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NEC Corporation

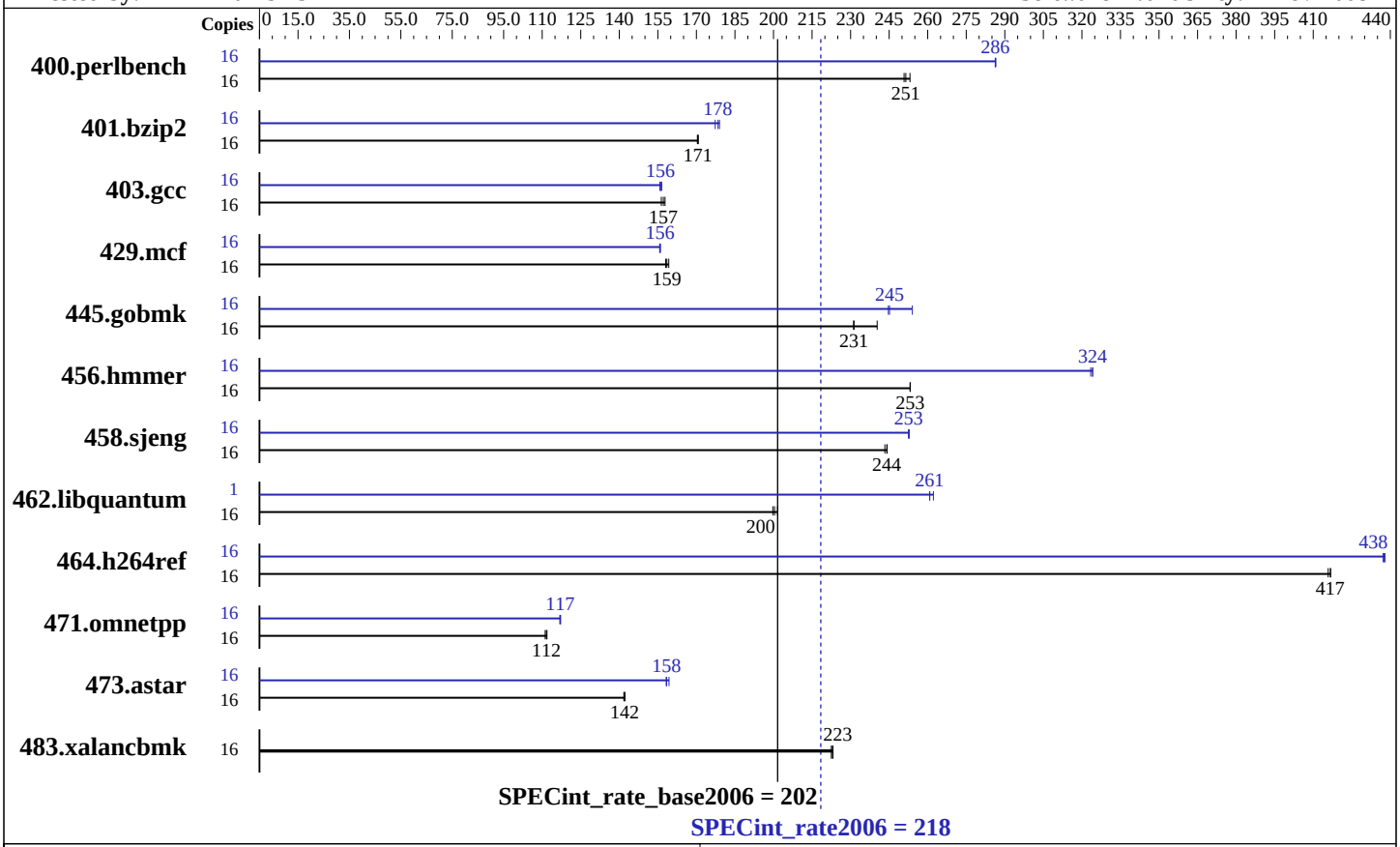
Express5800/R140a-4
(Intel Xeon E7440)

SPECint®_rate2006 = 218

SPECint_rate_base2006 = 202

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: Bull SAS

Test date: Jan-2009
Hardware Availability: Nov-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon E7440
CPU Characteristics:	1066 MHz system bus
CPU MHz:	2400
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:	6 MB I+D on chip per chip, 3 MB shared / 2 cores
L3 Cache:	16 MB I+D on chip per chip
Other Cache:	None
Memory:	32 GB (16 x 2GB DDR2-667 FBDIMM)
Disk Subsystem:	1x146 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 20080730 Package ID: l_cproc_b_11.0.042
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 V8.1 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	**622**	**251**	623	251	618	253	16	546	286	546	286	**546**	**286**
401.bzip2	16	904	171	906	170	**905**	**171**	16	**865**	**178**	871	177	863	179
403.gcc	16	**820**	**157**	816	158	824	156	16	827	156	**825**	**156**	823	157
429.mcf	16	916	159	**921**	**159**	923	158	16	**936**	**156**	936	156	937	156
445.gobmk	16	698	240	**726**	**231**	726	231	16	661	254	**685**	**245**	686	245
456.hmmer	16	590	253	**590**	**253**	590	253	16	**461**	**324**	462	323	460	324
458.sjeng	16	793	244	796	243	**793**	**244**	16	**766**	**253**	767	253	766	253
462.libquantum	16	1645	202	**1654**	**200**	1660	200	1	79.0	262	79.5	261	**79.5**	**261**
464.h264ref	16	850	417	852	416	**850**	**417**	16	810	437	**809**	**438**	809	438
471.omnetpp	16	894	112	**896**	**112**	900	111	16	853	117	856	117	**855**	**117**
473.astar	16	**791**	**142**	792	142	790	142	16	705	159	**709**	**158**	710	158
483.xalancbmk	16	495	223	496	222	**495**	**223**	16	495	223	496	222	**495**	**223**

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:
Adjacent Cache Line Prefetch = Disabled
Hardware Prefetcher = Disabled
```

General Notes

```
The NEC Express5800/R140a-4(Intel Xeon E7440) and
the Bull NovaScale R480 E1(Intel Xeon E7440, 2.40 GHz) models are electronically equivalent.
The results have been measured on a Bull NovaScale R480 E1(Intel Xeon E7440, 2.40 GHz) 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:
-xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/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/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/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) -xSSE4.1 -ipo -O3
-no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-prefetch -ansi-alias

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3

429.mcf: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo
-no-prec-div -ansi-alias

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
-ansi-alias

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4

462.libquantum: -xSSE4.1 -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) -xSSE4.1 -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) `-xSSE4.1 -ipo -O3 -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap`

473.astar: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap`

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.01.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.01.xml`

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