SPEC® CINT2006 Result

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Bull SAS

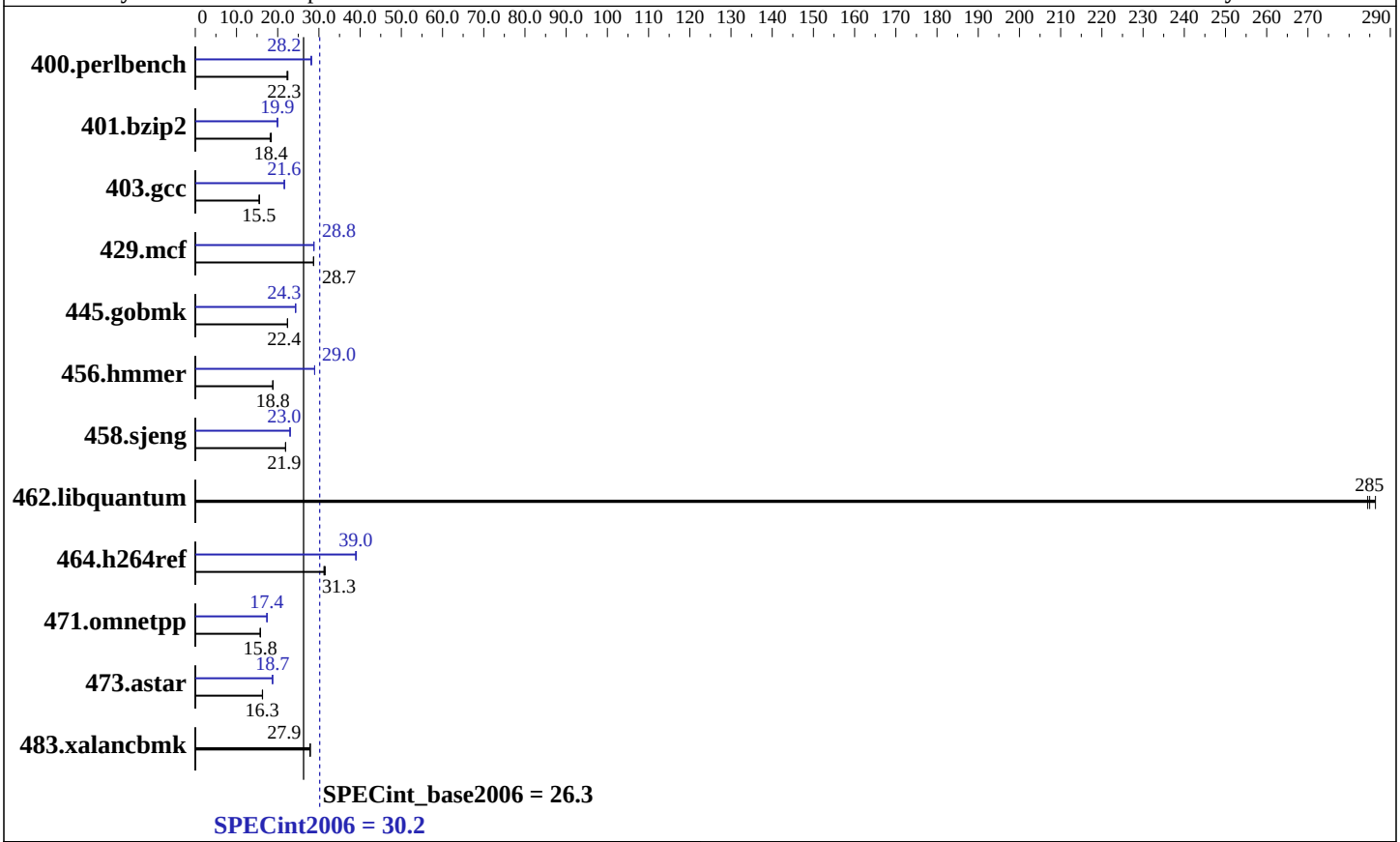
NovaScale R460 E1
(Intel Xeon X5470, 3.33 GHz)

SPECint®2006 = 30.2

SPECint_base2006 = 26.3

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: NEC Corporation

Test date: Oct-2008
Hardware Availability: Oct-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon X5470
CPU Characteristics:	3.33 GHz, 2x6 MB L2 shared, 1333 MHz system bus
CPU MHz:	3333
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem:	1x146.5 GB SAS, 15000RPM
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_11.0.044
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	**437**	**22.3**	438	22.3	435	22.5	**347**	**28.2**	346	28.2	348	28.1
401.bzip2	523	18.4	**525**	**18.4**	531	18.2	485	19.9	**484**	**19.9**	483	20.0
403.gcc	520	15.5	517	15.6	**519**	**15.5**	373	21.6	372	21.6	**372**	**21.6**
429.mcf	318	28.7	317	28.7	**317**	**28.7**	**317**	**28.8**	317	28.7	317	28.8
445.gobmk	469	22.4	469	22.4	**469**	**22.4**	431	24.3	431	24.3	**431**	**24.3**
456.hmmer	**495**	**18.8**	496	18.8	495	18.8	322	29.0	**322**	**29.0**	322	29.0
458.sjeng	**552**	**21.9**	552	21.9	552	21.9	526	23.0	**526**	**23.0**	526	23.0
462.libquantum	**72.7**	**285**	72.8	285	72.3	286	**72.7**	**285**	72.8	285	72.3	286
464.h264ref	708	31.2	702	31.5	**707**	**31.3**	568	38.9	566	39.1	**568**	**39.0**
471.omnetpp	397	15.7	**396**	**15.8**	396	15.8	360	17.4	**359**	**17.4**	359	17.4
473.astar	430	16.3	**431**	**16.3**	431	16.3	375	18.7	374	18.8	**374**	**18.7**
483.xalancbmk	247	27.9	248	27.8	**248**	**27.9**	247	27.9	248	27.8	**248**	**27.9**

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
```

General Notes

```
The NEC Express5800/120Rh-1(Intel Xeon X5470),
the NEC Express5800/120Rj-2(Intel Xeon X5470),
the Bull NovaScale R440 E1(Intel Xeon X5470, 3.33 GHz) and
the Bull NovaScale R460 E1(Intel Xeon X5470, 3.33 GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon X5470) 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 -parallel
-par-runtime-control -opt-prefetch

C++ benchmarks:
-xSSE4.1 -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/11.0/044/bin/intel64/icc
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/044/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/044/bin/intel64/icc
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/044/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

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) -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 -auto-ilp32 -opt-prefetch -ansi-alias

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

429.mcf: -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 -auto-ilp32

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

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

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/opt/SmartHeap_8.1/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/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-revD.20090713.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-revD.20090713.xml`
`http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml`

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