SPEC® CINT2006 Result

Bull SAS

NovaScale R460 F2 (Intel Xeon X5670, 3.33 GHz)

$SPECint®2006 =$ 39.4

$SPECint\_base2006 =$ 36.8

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Dell Inc.

Test date: May-2010
Hardware Availability: Mar-2010
Software Availability: Dec-2009

Benchmark results chart. Scale: 0 20.0 50.0 80.0 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 640

- 400.perlbench: 30.0 / 25.8
- 401.bzip2: 19.5 / 19.5
- 403.gcc: 27.4 / 24.5
- 429.mcf: 47.8 / 43.9
- 445.gobmk: 26.4 / 24.2
- 456.hmmer: 48.4 / 47.1
- 458.sjeng: 26.7 / 25.8
- 462.libquantum: 605 / 624
- 464.h264ref: 40.6 / 36.9
- 471.omnetpp: 27.7 / 22.2
- 473.astar: 21.1 / 20.4
- 483.xalancbmk: 37.3

SPECint_base2006 = 36.8
SPECint2006 = 39.4

Hardware

CPU Name:	Intel Xeon X5670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC)
Disk Subsystem:	1 x 146 GB 15000 RPM SAS
Other Hardware:	None

Software

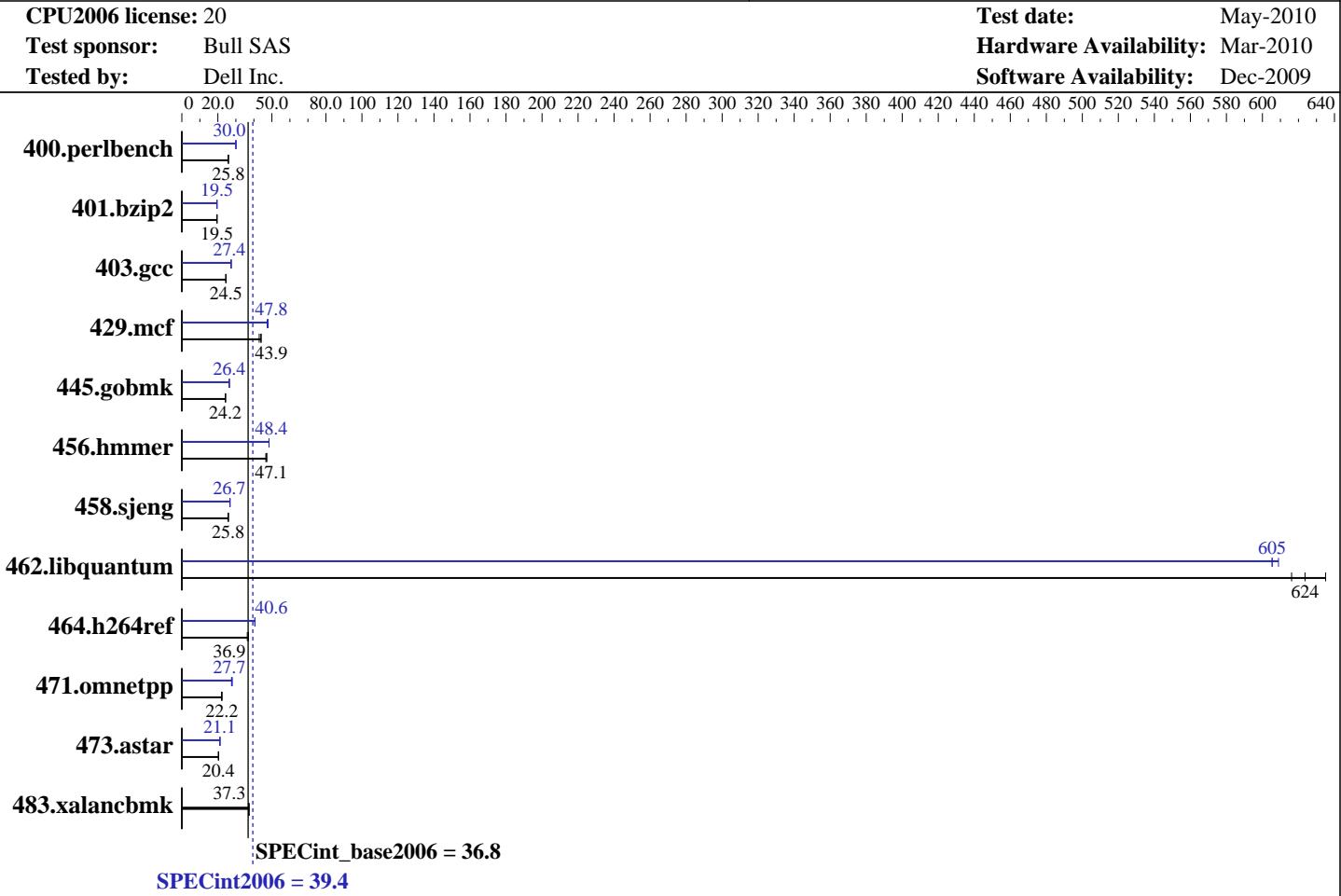|	
Operating System:	SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-smp
Compiler:	Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	379	25.8	378	25.9	**378**	**25.8**	325	30.1	326	30.0	**325**	**30.0**
401.bzip2	494	19.5	495	19.5	**495**	**19.5**	496	19.5	**494**	**19.5**	494	19.5
403.gcc	**329**	**24.5**	328	24.5	330	24.4	295	27.3	293	27.5	**294**	**27.4**
429.mcf	207	44.1	212	43.0	**208**	**43.9**	**191**	**47.8**	192	47.4	190	47.9
445.gobmk	**433**	**24.2**	433	24.2	433	24.2	398	26.3	**398**	**26.4**	398	26.4
456.hmmer	**198**	**47.1**	198	47.1	200	46.6	193	48.4	**193**	**48.4**	193	48.4
458.sjeng	469	25.8	**469**	**25.8**	470	25.8	**453**	**26.7**	452	26.8	453	26.7
462.libquantum	**33.2**	**624**	32.6	635	33.6	616	34.0	609	**34.2**	**605**	34.2	605
464.h264ref	598	37.0	609	36.3	**600**	**36.9**	545	40.6	545	40.6	**545**	**40.6**
471.omnetpp	284	22.0	**281**	**22.2**	280	22.3	223	28.0	**226**	**27.7**	226	27.6
473.astar	344	20.4	346	20.3	**345**	**20.4**	**332**	**21.1**	334	21.0	330	21.2
483.xalancbmk	**185**	**37.3**	185	37.3	186	37.1	**185**	**37.3**	185	37.3	186	37.1

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
```

Platform Notes

```
BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)
Data Reuse = Disabled (Default = Enabled)
```

General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
The Dell PowerEdge R710 and
the Bull NovaScale R460 F2 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R710 model.
```

Base Compiler Invocation

C benchmarks:
```
icc -m64
```

C++ benchmarks:
```
icpc -m64
```

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CPU2006 license: 20		**Test date:**	May-2010
Test sponsor:	Bull SAS	**Hardware Availability:**	Mar-2010
Tested by:	Dell Inc.	**Software Availability:**	Dec-2009

Base Portability Flags

```
      400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
         401.bzip2: -DSPEC_CPU_LP64
           403.gcc: -DSPEC_CPU_LP64
           429.mcf: -DSPEC_CPU_LP64
        445.gobmk: -DSPEC_CPU_LP64
        456.hmmer: -DSPEC_CPU_LP64
         458.sjeng: -DSPEC_CPU_LP64
     462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
        464.h264ref: -DSPEC_CPU_LP64
        471.omnetpp: -DSPEC_CPU_LP64
          473.astar: -DSPEC_CPU_LP64
     483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

C++ benchmarks:

```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m64
```

```
400.perlbench: icc -m32
```

```
429.mcf: icc -m32
```

```
445.gobmk: icc -m32
```

```
464.h264ref: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc -m64
```

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Hardware Availability: Mar-2010
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Peak Compiler Invocation (Continued)

471.omnetpp: `icpc -m32`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

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

    401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div -static(pass 2) -prof-use(pass 2)
               -auto-ilp32 -opt-prefetch -ansi-alias

      403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
               -opt-malloc-options=3 -auto-ilp32

      429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

    456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
               -ansi-alias -auto-ilp32

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

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
               -opt-prefetch -par-schedule-static=32768 -ansi-alias

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

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
`-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
`-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs`
`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap`

473.astar: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
`-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
`-ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs`
`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64`

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-ic11.1-linux64-revE.20100330.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 08:57:49 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 June 2010.