



# SPEC® CINT2006 Result

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## Bull SAS

NovaScale R440 E1  
(Intel Xeon E5430, 2.66 GHz)

SPECint®\_rate2006 = 65.6

SPECint\_rate\_base2006 = 55.3

CPU2006 license: 20

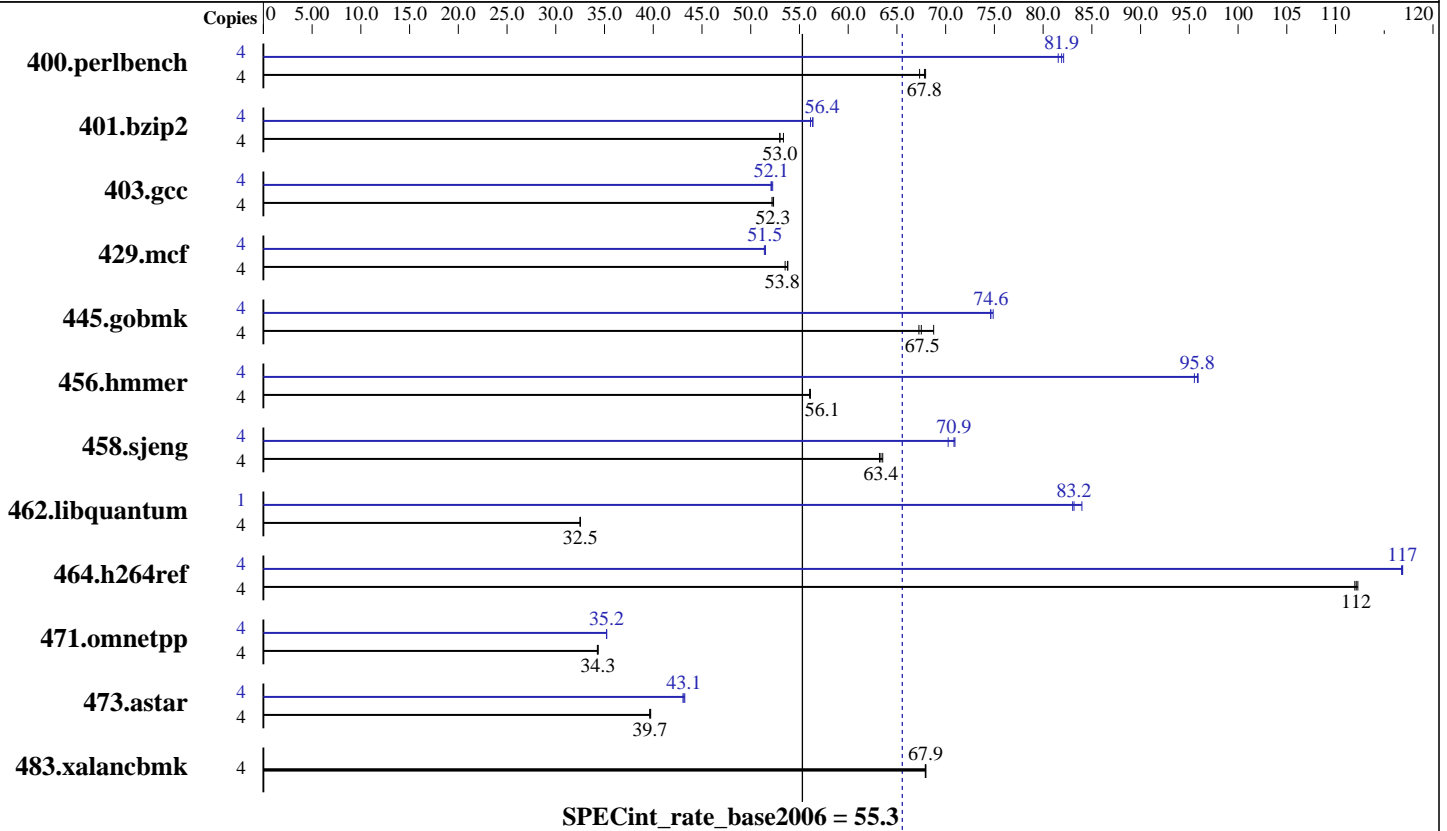
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: May-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5430  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 2666  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 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) FB-DIMM PC2-5300F ECC CL5  
 Disk Subsystem: 1x73 GB SAS, 15000 RPM  
 Other Hardware: None

### Software

Operating System: SUSE LINUX Enterprise Server 10 SP1  
 Kernel 2.6.16.46-0.12-smp for x86\_64  
 Compiler: Intel C++ Compiler 10.1 for Linux  
 Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Binutils 2.17.50.0.15  
 SmartHeap library V8.1



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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	4	575	67.9	580	67.3	<b>576</b>	<b>67.8</b>	4	<b>477</b>	<b>81.9</b>	479	81.6	476	82.1
401.bzip2	4	729	53.0	723	53.4	<b>728</b>	<b>53.0</b>	4	688	56.1	<b>685</b>	<b>56.4</b>	685	56.4
403.gcc	4	<b>616</b>	<b>52.3</b>	617	52.2	615	52.3	4	616	52.3	<b>618</b>	<b>52.1</b>	618	52.1
429.mcf	4	<b>678</b>	<b>53.8</b>	682	53.5	678	53.8	4	708	51.5	710	51.4	<b>709</b>	<b>51.5</b>
445.gobmk	4	624	67.3	610	68.8	<b>622</b>	<b>67.5</b>	4	562	74.6	560	74.9	<b>562</b>	<b>74.6</b>
456.hammer	4	665	56.1	<b>665</b>	<b>56.1</b>	666	56.0	4	391	95.5	389	95.9	<b>389</b>	<b>95.8</b>
458.sjeng	4	766	63.2	<b>764</b>	<b>63.4</b>	762	63.5	4	689	70.3	<b>683</b>	<b>70.9</b>	682	71.0
462.libquantum	4	2548	32.5	<b>2550</b>	<b>32.5</b>	2551	32.5	1	<b>249</b>	<b>83.2</b>	250	83.0	247	84.0
464.h264ref	4	788	112	791	112	<b>789</b>	<b>112</b>	4	<b>757</b>	<b>117</b>	758	117	757	117
471.omnetpp	4	<b>728</b>	<b>34.3</b>	728	34.3	730	34.3	4	<b>710</b>	<b>35.2</b>	710	35.2	710	35.2
473.astar	4	707	39.7	708	39.6	<b>708</b>	<b>39.7</b>	4	652	43.1	649	43.2	<b>651</b>	<b>43.1</b>
483.xalancbmk	4	<b>406</b>	<b>67.9</b>	406	67.9	406	68.0	4	<b>406</b>	<b>67.9</b>	406	67.9	406	68.0

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  
'/usr/bin/taskset' used to bind processes to CPUs  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 64M

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hammer, for peak, are compiled in 64-bit mode  
The Bull NovaScale R440 E1 (Intel Xeon E5430, 2.66 GHz) and the Bull NovaScale R460 E1 (Intel Xeon E5430, 2.66 GHz) models are electronically equivalent. The results have been measured on a Bull NovaScale R460 E1 (Intel Xeon E5430, 2.66 GHz) 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:  
-fast -inline-calloc -opt-malloc-options=3  
C++ benchmarks:  
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs  
-L/spec/cpu2006/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/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include  
456.hmmmer: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include  
C++ benchmarks:  
icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX

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## Peak Portability Flags (Continued)

483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias  
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

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

456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/spec/cpu2006/lib -lsmartheap

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

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

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## Peak Other Flags (Continued)

403.gcc: -Dalloca=\_alloca

The flags file that was used to format this result can be browsed at

[http://www.spec.org/cpu2006/flags/EM64T\\_Intel101\\_int\\_flags.20090713.00.html](http://www.spec.org/cpu2006/flags/EM64T_Intel101_int_flags.20090713.00.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/cpu2006/flags/EM64T\\_Intel101\\_int\\_flags.20090713.00.xml](http://www.spec.org/cpu2006/flags/EM64T_Intel101_int_flags.20090713.00.xml)

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