



# SPEC® CINT2006 Result

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## Bull SAS

NovaScale R440  
(Intel Xeon processor E5320,1.86GHz)

SPECint®\_rate2006 = 68.9

SPECint\_rate\_base2006 = 64.8

CPU2006 license: 20

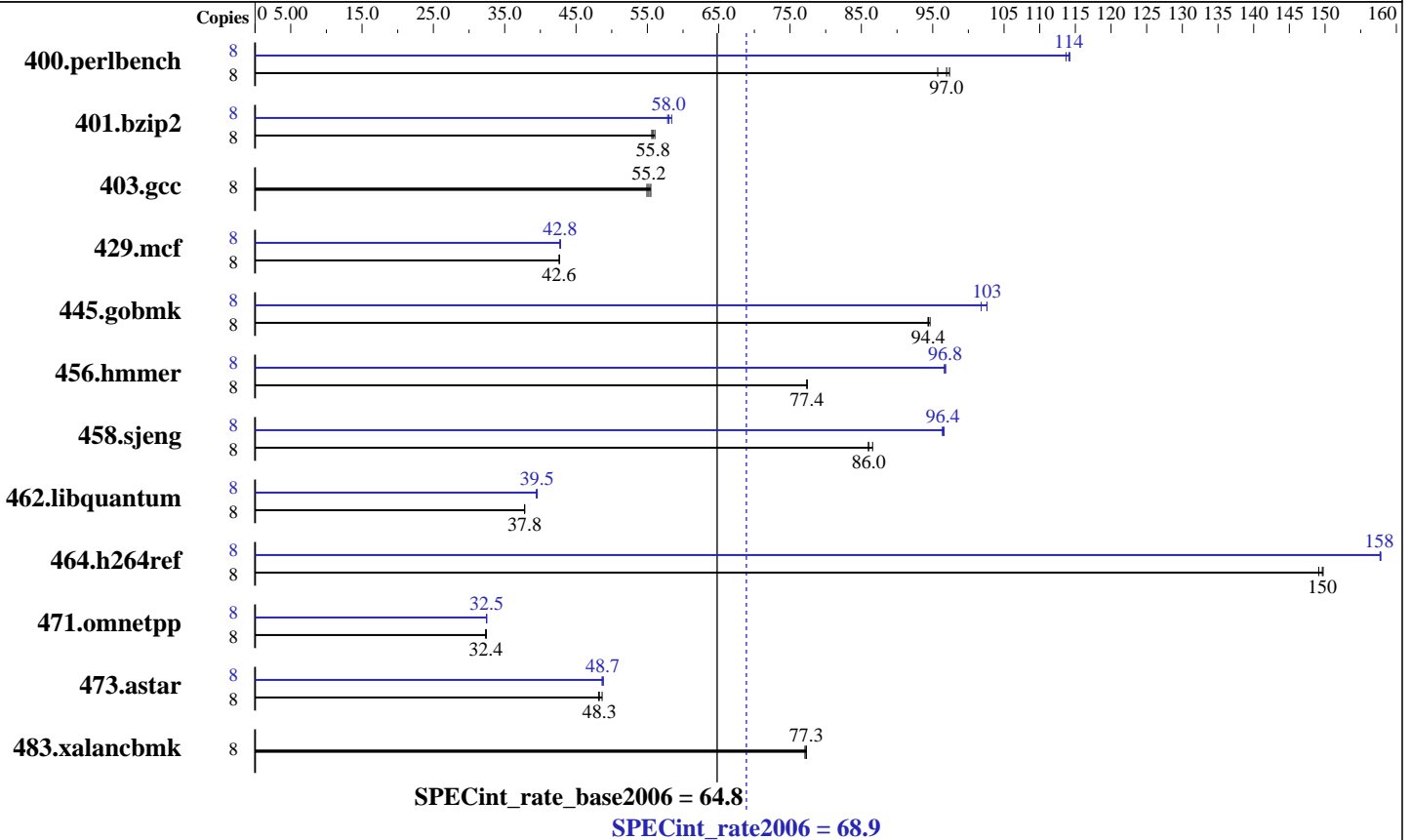
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jul-2007

Hardware Availability: Mar-2007

Software Availability: May-2007



### Hardware

CPU Name: Intel Xeon E5320  
 CPU Characteristics: 1.86 GHz, 8 MB L2, 1066 MHz system bus  
 CPU MHz: 1866  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1 to 2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 8 MB I+D on chip per chip, 4 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 12 GB (12x1 GB) FB-DIMM PC2-4200F ECC CL4  
 Disk Subsystem: 1x73 GB SAS, 15000 RPM  
 Other Hardware: None

### Software

Operating System: SUSE LINUX Enterprise Server 10  
 Kernel 2.6.16.21-0.8-smp for x86\_64  
 Compiler: Intel C++ Compiler for Linux32 and Linux64 version 10.0  
 Build 20070426 Package ID: 1\_cc\_p\_10.0.023  
 Auto Parallel: No  
 File System: ext2  
 System State: Multi-user run level 3  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: SmartHeap library V8.1  
 Binutils 2.17.50.0.15



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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	8	<b>806</b>	<b>97.0</b>	803	97.4	817	95.7	8	687	114	684	114	<b>685</b>	<b>114</b>
401.bzip2	8	<b>1384</b>	<b>55.8</b>	1388	55.6	1377	56.1	8	1335	57.8	<b>1331</b>	<b>58.0</b>	1322	58.4
403.gcc	8	1172	54.9	1161	55.5	<b>1167</b>	<b>55.2</b>	8	1172	54.9	1161	55.5	<b>1167</b>	<b>55.2</b>
429.mcf	8	<b>1711</b>	<b>42.6</b>	1711	42.6	1709	42.7	8	1707	42.7	1704	42.8	<b>1706</b>	<b>42.8</b>
445.gobmk	8	<b>889</b>	<b>94.4</b>	887	94.6	890	94.3	8	824	102	818	103	<b>818</b>	<b>103</b>
456.hmmer	8	965	77.4	<b>965</b>	<b>77.4</b>	964	77.4	8	772	96.6	<b>771</b>	<b>96.8</b>	771	96.8
458.sjeng	8	1126	86.0	<b>1125</b>	<b>86.0</b>	1118	86.6	8	1005	96.4	1002	96.6	<b>1004</b>	<b>96.4</b>
462.libquantum	8	4387	37.8	<b>4386</b>	<b>37.8</b>	4386	37.8	8	4204	39.4	<b>4196</b>	<b>39.5</b>	4189	39.6
464.h264ref	8	1182	150	1187	149	<b>1183</b>	<b>150</b>	8	1123	158	<b>1122</b>	<b>158</b>	1122	158
471.omnetpp	8	1542	32.4	1546	32.3	<b>1545</b>	<b>32.4</b>	8	1540	32.5	<b>1540</b>	<b>32.5</b>	1541	32.4
473.astar	8	<b>1163</b>	<b>48.3</b>	1154	48.7	1166	48.2	8	1155	48.6	1150	48.8	<b>1152</b>	<b>48.7</b>
483.xalancbmk	8	714	77.3	<b>714</b>	<b>77.3</b>	716	77.1	8	714	77.3	<b>714</b>	<b>77.3</b>	716	77.1

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  
'/usr/bin/taskset' used to bind processes to CPUs  
All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmer,  
for peak, are compiled in 64-bit mode

## General Notes

The NovaScale R440 and the NovaScale R460 models are electronically equivalent.  
The results have been measured on a NovaScale R460 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 -Wl,-z,muldefs

C++ benchmarks:  
-xT -ipo -O3 -no-prec-div -ansi-alias -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/10.0.023/bin/icc  
-L/opt/intel/cce/10.0.023/lib  
-I/opt/intel/cce/10.0.023/include

456.hmmer: /opt/intel/cce/10.0.023/bin/icc  
-L/opt/intel/cce/10.0.023/lib  
-I/opt/intel/cce/10.0.023/include

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

Continued on next page



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## Peak Portability Flags (Continued)

483.xalanbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof\_gen(pass 1) -prof\_use(pass 2) -fast -ansi-alias  
-prefetch -Wl,-z,muldefs

401.bzip2: -prof\_gen(pass 1) -prof\_use(pass 2) -fast -Wl,-z,muldefs

403.gcc: basepeak = yes

429.mcf: -fast -prefetch -Wl,-z,muldefs

445.gobmk: -prof\_gen(pass 1) -prof\_use(pass 2) -xT -O2 -ipo  
-no-prec\_div -ansi-alias -Wl,-z,muldefs

456.hmmer: -prof\_gen(pass 1) -prof\_use(pass 2) -fast -unroll2  
-ansi-alias -Wl,-z,muldefs

458.sjeng: -prof\_gen(pass 1) -prof\_use(pass 2) -fast -unroll4  
-Wl,-z,muldefs

462.libquantum: -prof\_gen(pass 1) -prof\_use(pass 2) -fast -unroll4 -Ob0  
-prefetch -opt-streaming-stores always -Wl,-z,muldefs

464.h264ref: Same as 456.hmmer

C++ benchmarks:

471.omnetpp: -prof\_gen(pass 1) -prof\_use(pass 2) -xT -O3 -ipo  
-no-prec\_div -ansi-alias -Wl,-z,muldefs  
-L/spec/cpu2006/lib -lsmartheap

473.astar: Same as 471.omnetpp

483.xalanbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



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The flags file that was used to format this result can be browsed at  
[http://www.spec.org/cpu2006/flags/EM64T\\_Intel100\\_flags.20090714.html](http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.20090714.html)

You can also download the XML flags source by saving the following link:  
[http://www.spec.org/cpu2006/flags/EM64T\\_Intel100\\_flags.20090714.xml](http://www.spec.org/cpu2006/flags/EM64T_Intel100_flags.20090714.xml)

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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