



# SPEC® CINT2006 Result

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## Bull SAS

NovaScale R460 E1  
(Intel Xeon E5430, 2.66 GHz)

SPECint®\_rate2006 = 120

SPECint\_rate\_base2006 = 98.2

CPU2006 license: 20

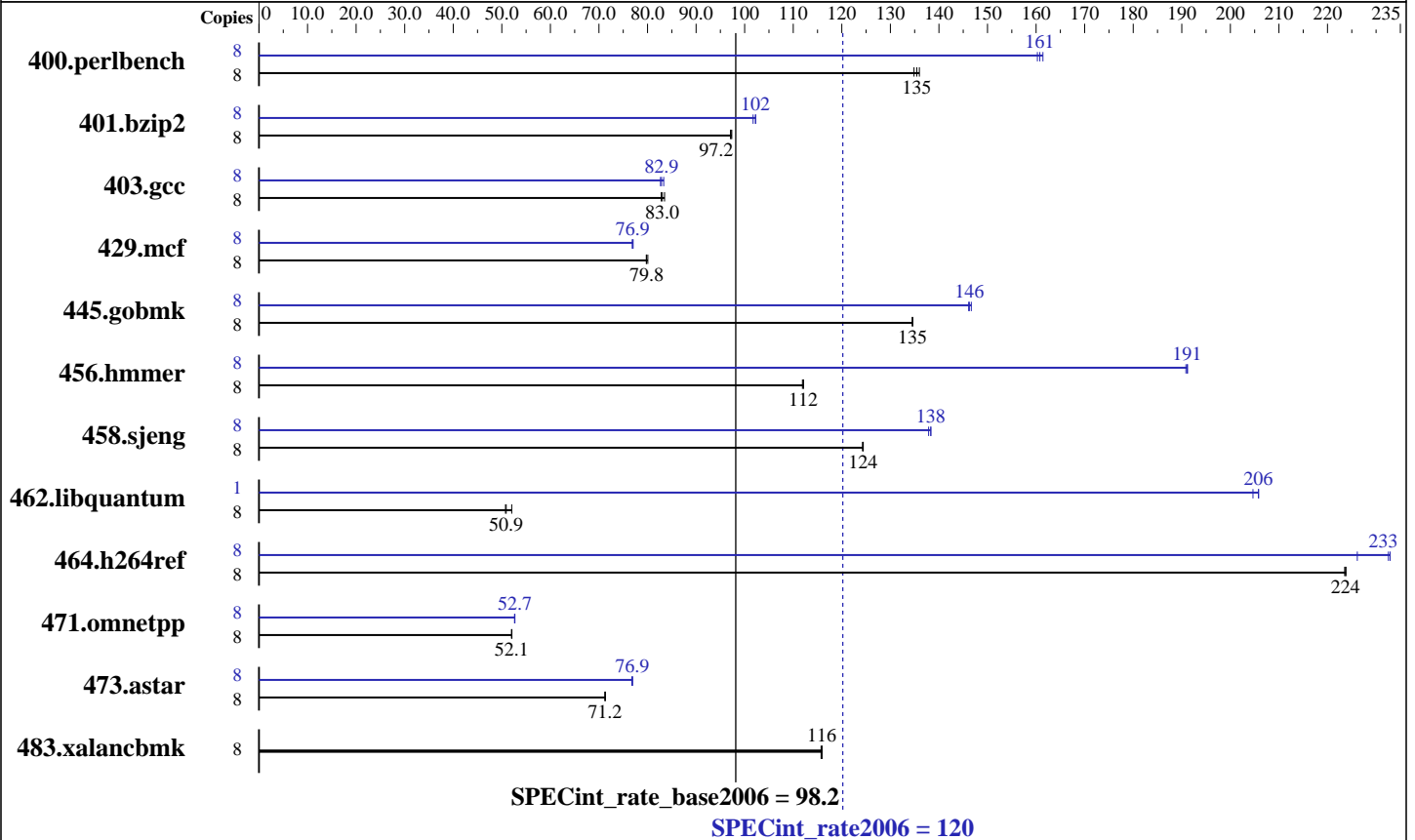
Test sponsor: Bull SAS

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: 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: 24 GB (12x2 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	8	<b>577</b>	<b>135</b>	575	136	580	135	8	488	160	<b>486</b>	<b>161</b>	484	161
401.bzip2	8	795	97.1	793	97.3	<b>794</b>	<b>97.2</b>	8	<b>755</b>	<b>102</b>	755	102	759	102
403.gcc	8	778	82.8	771	83.5	<b>775</b>	<b>83.0</b>	8	773	83.3	779	82.7	<b>777</b>	<b>82.9</b>
429.mcf	8	915	79.7	<b>914</b>	<b>79.8</b>	911	80.1	8	<b>949</b>	<b>76.9</b>	949	76.9	947	77.0
445.gobmk	8	<b>624</b>	<b>135</b>	624	135	624	135	8	574	146	572	147	<b>574</b>	<b>146</b>
456.hammer	8	667	112	666	112	<b>666</b>	<b>112</b>	8	390	191	391	191	<b>391</b>	<b>191</b>
458.sjeng	8	778	124	<b>778</b>	<b>124</b>	779	124	8	702	138	700	138	<b>700</b>	<b>138</b>
462.libquantum	8	3185	52.0	<b>3256</b>	<b>50.9</b>	3266	50.8	1	<b>101</b>	<b>206</b>	101	206	101	205
464.h264ref	8	792	224	791	224	<b>791</b>	<b>224</b>	8	783	226	<b>761</b>	<b>233</b>	760	233
471.omnetpp	8	960	52.1	<b>960</b>	<b>52.1</b>	962	52.0	8	<b>949</b>	<b>52.7</b>	949	52.7	950	52.6
473.astar	8	<b>788</b>	<b>71.2</b>	788	71.2	787	71.3	8	730	76.9	<b>731</b>	<b>76.9</b>	732	76.8
483.xalancbmk	8	476	116	477	116	<b>476</b>	<b>116</b>	8	476	116	477	116	<b>476</b>	<b>116</b>

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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Tested with SPEC CPU2006 v1.0.  
Report generated on Tue Jul 22 20:00:22 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 8 July 2008.