



# SPEC<sup>®</sup> CINT2006 Result

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## Bull SAS

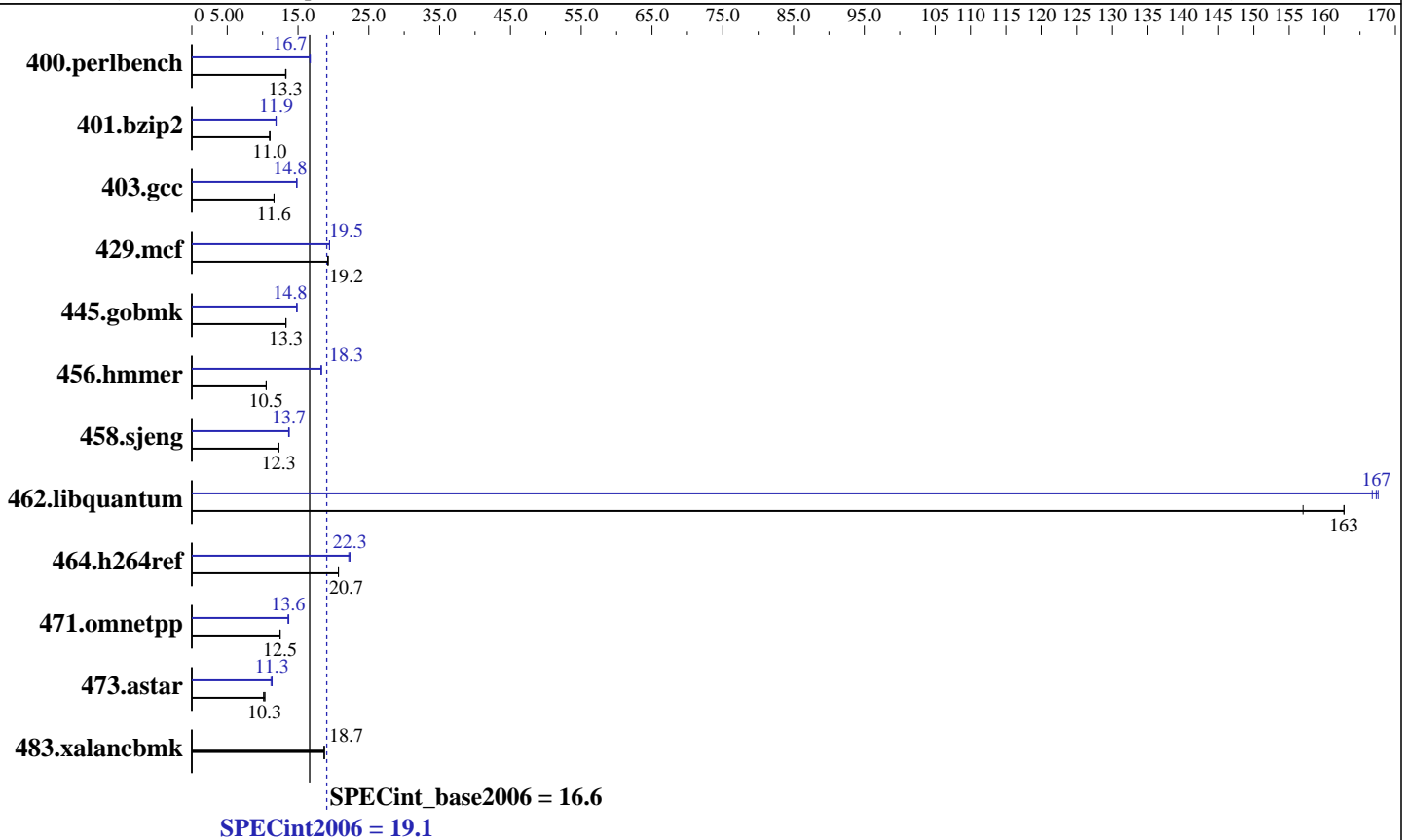
NovaScale R440 E1  
(Intel Xeon E5405,2.00GHz)

SPECint<sup>®</sup>2006 = 19.1

SPECint\_base2006 = 16.6

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

Test date: Jan-2008  
Hardware Availability: Dec-2007  
Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5405  
 CPU Characteristics: 2.00 GHz, 2x6 MB L2 shared, 1333 MHz bus  
 CPU MHz: 2000  
 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: 12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 1x73.2 GB SAS, 15000RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ Compiler for Linux32 and Linux64 version 10.1 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: MicroQuill SmartHeap library 8.1 binutils-2.17.tar.gz, Version 2.17



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<u>737</u>	<u>13.3</u>	734	13.3	737	13.3	585	16.7	583	16.7	<u>585</u>	<u>16.7</u>
401.bzip2	875	11.0	<u>876</u>	<u>11.0</u>	877	11.0	<u>811</u>	<u>11.9</u>	812	11.9	810	11.9
403.gcc	694	11.6	<u>693</u>	<u>11.6</u>	693	11.6	543	14.8	<u>543</u>	<u>14.8</u>	543	14.8
429.mcf	<u>474</u>	<u>19.2</u>	473	19.3	475	19.2	469	19.4	469	19.5	<u>469</u>	<u>19.5</u>
445.gobmk	<u>789</u>	<u>13.3</u>	790	13.3	789	13.3	<u>707</u>	<u>14.8</u>	706	14.8	707	14.8
456.hmmmer	888	10.5	<u>888</u>	<u>10.5</u>	888	10.5	510	18.3	<u>510</u>	<u>18.3</u>	511	18.3
458.sjeng	985	12.3	<u>986</u>	<u>12.3</u>	988	12.2	885	13.7	880	13.8	<u>883</u>	<u>13.7</u>
462.libquantum	<u>127</u>	<u>163</u>	132	157	127	163	124	167	124	168	<u>124</u>	<u>167</u>
464.h264ref	1069	20.7	1069	20.7	<u>1069</u>	<u>20.7</u>	991	22.3	<u>992</u>	<u>22.3</u>	998	22.2
471.omnetpp	<u>502</u>	<u>12.5</u>	502	12.4	500	12.5	456	13.7	459	13.6	<u>459</u>	<u>13.6</u>
473.astar	680	10.3	<u>682</u>	<u>10.3</u>	693	10.1	618	11.4	<u>619</u>	<u>11.3</u>	627	11.2
483.xalancbmk	369	18.7	<u>369</u>	<u>18.7</u>	369	18.7	369	18.7	<u>369</u>	<u>18.7</u>	369	18.7

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 (default).

## Platform Notes

Bios settings:  
Intel SpeedStep Technology: Disabled

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2 and 456.hmmmer,  
for peak, are compiled in 64-bit mode

The NEC Express5800/120Rh-1(Intel Xeon Processor E5405),  
the NEC Express5800/120Rj-2(Intel Xeon Processor E5405),  
the Bull NovaScale R440 E1 (Intel Xeon E5405,2.00GHz) and  
the Bull NovaScale R460 E1 (Intel Xeon E5405,2.00GHz) models are electronically equivalent.  
The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Processor E5405) model.

## Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

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:  
-fast -vec-guard-write -parallel -par-runtime-control

C++ benchmarks:  
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs  
-L/opt/SmartHeap\_8.1/lib -lsmarheap

## 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.hmmer: /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



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## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
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) -fast -ansi-alias  
-prefetch  
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32  
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  
-auto-ilp32  
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/opt/SmartHeap\_8.1/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/opt/SmartHeap\_8.1/lib -lsmartheap  
483.xalancbmk: basepeak = yes



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## 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/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.00.html>

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

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.00.xml>

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

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