



# SPEC® CINT2006 Result

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## Bull SAS

NovaScale R440 E1  
(Intel Xeon X5470, 3.33 GHz)

SPECint®\_rate2006 = 80.2

SPECint\_rate\_base2006 = 73.9

CPU2006 license: 20

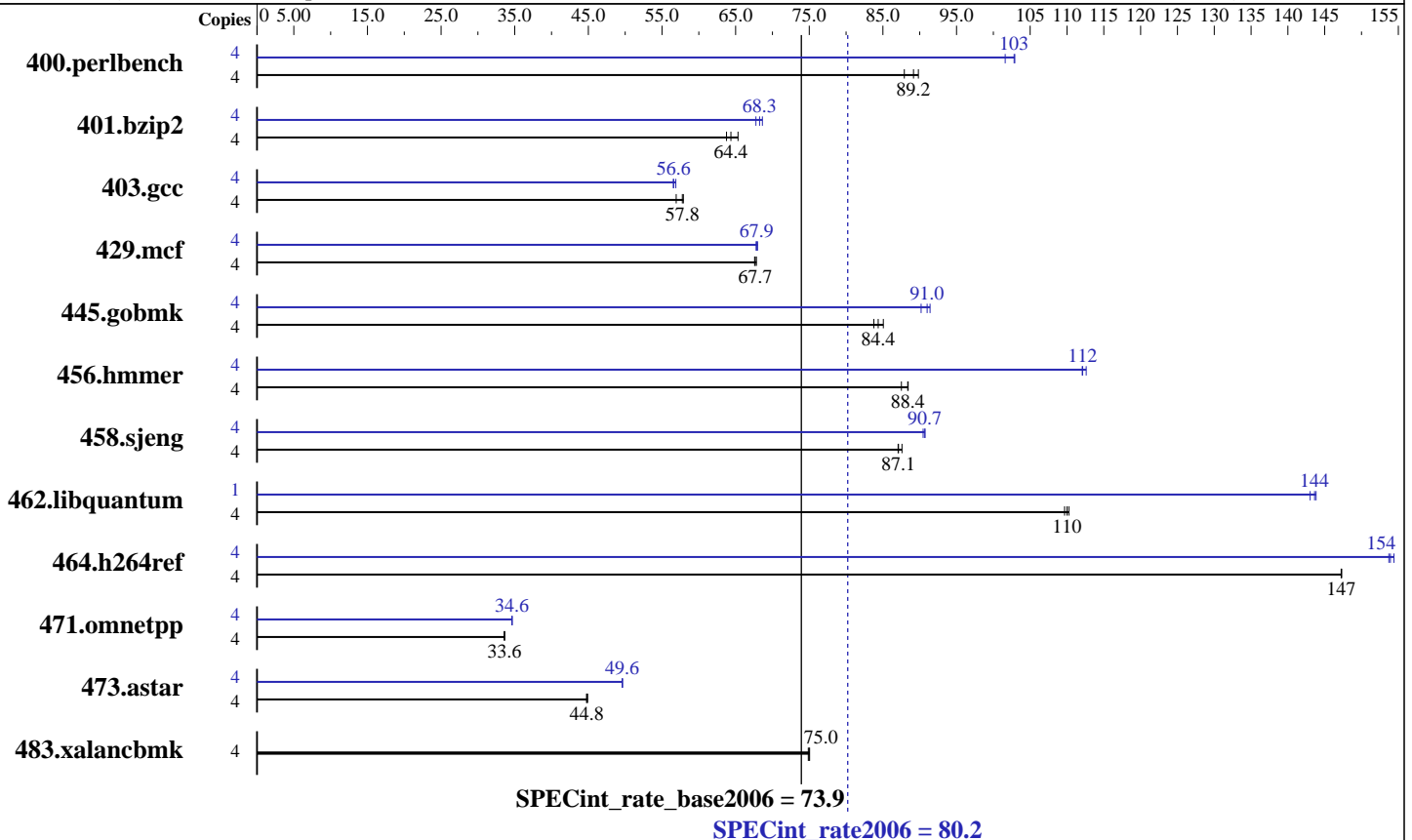
Test sponsor: Bull SAS

Tested by: NEC Corporation

Test date: Nov-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon X5470  
 CPU Characteristics: 3.33 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3333  
 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 PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 1x146.5 GB SAS, 15000RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP2, Kernel 2.6.16.60-0.21-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.044  
 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 2.18.50.0.7.20080502



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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	445	87.9	435	89.8	<b>438</b>	<b>89.2</b>	4	385	102	380	103	<b>380</b>	<b>103</b>
401.bzip2	4	591	65.3	605	63.8	<b>600</b>	<b>64.4</b>	4	570	67.8	562	68.6	<b>566</b>	<b>68.3</b>
403.gcc	4	556	57.9	<b>557</b>	<b>57.8</b>	566	56.9	4	566	56.9	570	56.5	<b>569</b>	<b>56.6</b>
429.mcf	4	538	67.8	<b>539</b>	<b>67.7</b>	540	67.6	4	<b>538</b>	<b>67.9</b>	538	67.8	537	68.0
445.gobmk	4	501	83.8	493	85.1	<b>497</b>	<b>84.4</b>	4	465	90.2	459	91.4	<b>461</b>	<b>91.0</b>
456.hammer	4	422	88.4	<b>422</b>	<b>88.4</b>	426	87.5	4	333	112	<b>333</b>	<b>112</b>	331	113
458.sjeng	4	<b>556</b>	<b>87.1</b>	556	87.1	553	87.6	4	534	90.7	535	90.5	<b>534</b>	<b>90.7</b>
462.libquantum	4	756	110	<b>753</b>	<b>110</b>	752	110	1	<b>144</b>	<b>144</b>	145	143	144	144
464.h264ref	4	601	147	<b>601</b>	<b>147</b>	601	147	4	573	154	576	154	<b>575</b>	<b>154</b>
471.omnetpp	4	<b>744</b>	<b>33.6</b>	745	33.6	743	33.6	4	<b>722</b>	<b>34.6</b>	722	34.6	722	34.6
473.astar	4	627	44.8	<b>627</b>	<b>44.8</b>	625	44.9	4	566	49.6	<b>566</b>	<b>49.6</b>	566	49.6
483.xalancbmk	4	368	75.0	369	74.9	<b>368</b>	<b>75.0</b>	4	368	75.0	369	74.9	<b>368</b>	<b>75.0</b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The config file option 'submit' was used.  
taskset was used to bind processes to cores except  
for 462.libquantum peak

## 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  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 64M

## Platform Notes

Bios settings:  
Hardware Prefetcher: Enabled  
Adjacent Cache Line Prefetch: Disabled

## General Notes

The NEC Express5800/120Rh-1(Intel Xeon X5470),  
the NEC Express5800/120Rj-2(Intel Xeon X5470),  
the Bull NovaScale R440 E1(Intel Xeon X5470, 3.33 GHz) and  
the Bull NovaScale R460 E1(Intel Xeon X5470, 3.33 GHz) models are electronically equivalent.  
The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon X5470) model.



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## Base Compiler Invocation

C benchmarks:  
icc  
  
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:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -inline-alloc  
-opt-malloc-options=3 -opt-prefetch  
  
C++ benchmarks:  
-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/opt/SmartHeap\_8.1/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/Compiler/11.0/044/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/044/ipp/em64t/include  
  
456.hmmer: /opt/intel/Compiler/11.0/044/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/044/ipp/em64t/include

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## Peak Compiler Invocation (Continued)

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  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch  
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch -ansi-alias  
403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-alloc  
-opt-malloc-options=3  
429.mcf: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch  
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo  
-no-prec-div -ansi-alias  
456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias  
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4  
462.libquantum: -xSSE4.1 -ipo -O3 -no-prec-div -static  
-opt-malloc-options=3 -parallel -par-runtime-control  
-opt-prefetch  
464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

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## Peak Optimization Flags (Continued)

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-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) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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