



# SPEC<sup>®</sup> CINT2006 Result

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## Bull SAS

NovaScale R460 E2  
(Intel Xeon E5504, 2.00 GHz)

SPECint<sup>®</sup>\_rate2006 = 136

SPECint\_rate\_base2006 = 127

CPU2006 license: 20

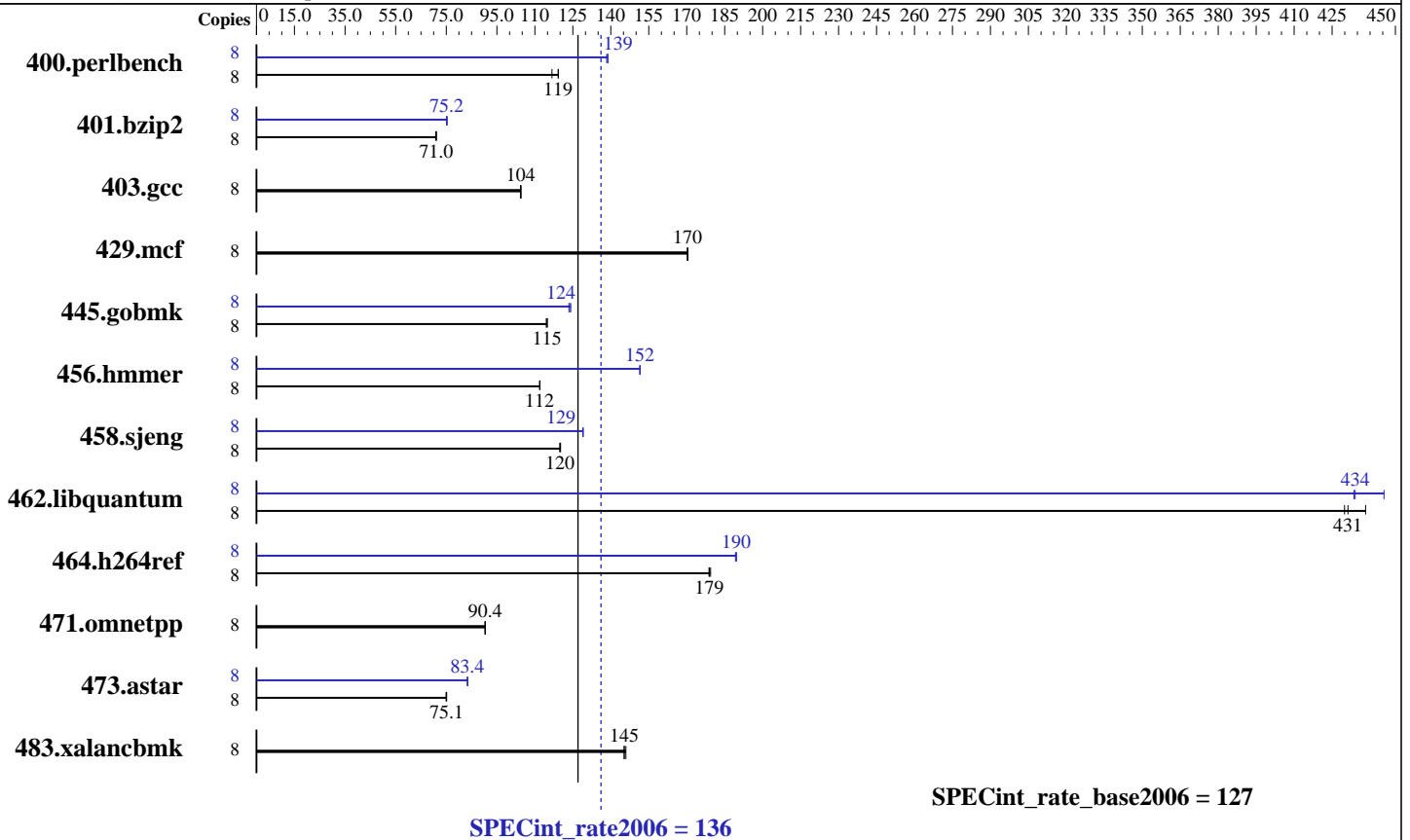
Test sponsor: Bull SAS

Tested by: NEC Corporation

Test date: Mar-2009

Hardware Availability: Apr-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon E5504  
 CPU Characteristics:  
 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: 256 KB I+D on chip per core  
 L3 Cache: 4 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 X 4 GB PC3-8500R running at 800 MHz)  
 Disk Subsystem: 1x146.5 GB SAS, 15000 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64)  
 SP2 with patch Linux kernel 20090119,  
 Kernel 2.6.16.60-0.34-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux  
 Build 20090131 Package ID: l\_cproc\_p\_11.0.081  
 Auto Parallel: No  
 File System: ReiserFS  
 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	8	669	117	655	119	<b>656</b>	<b>119</b>	8	565	138	<b>563</b>	<b>139</b>	563	139
401.bzip2	8	1086	71.1	<b>1088</b>	<b>71.0</b>	1089	70.9	8	1025	75.3	1028	75.1	<b>1027</b>	<b>75.2</b>
403.gcc	8	<b>616</b>	<b>104</b>	617	104	616	104	8	<b>616</b>	<b>104</b>	617	104	616	104
429.mcf	8	<b>428</b>	<b>170</b>	429	170	428	170	8	<b>428</b>	<b>170</b>	429	170	428	170
445.gobmk	8	<b>731</b>	<b>115</b>	733	115	730	115	8	676	124	680	123	<b>678</b>	<b>124</b>
456.hammer	8	667	112	666	112	<b>667</b>	<b>112</b>	8	493	152	493	152	<b>493</b>	<b>152</b>
458.sjeng	8	808	120	806	120	<b>807</b>	<b>120</b>	8	751	129	<b>750</b>	<b>129</b>	750	129
462.libquantum	8	378	438	386	430	<b>384</b>	<b>431</b>	8	372	446	382	434	<b>382</b>	<b>434</b>
464.h264ref	8	990	179	987	179	<b>989</b>	<b>179</b>	8	935	189	<b>934</b>	<b>190</b>	934	190
471.omnetpp	8	554	90.3	553	90.4	<b>553</b>	<b>90.4</b>	8	554	90.3	553	90.4	<b>553</b>	<b>90.4</b>
473.astar	8	<b>748</b>	<b>75.1</b>	750	74.9	748	75.1	8	<b>674</b>	<b>83.4</b>	673	83.4	674	83.4
483.xalancbmk	8	380	145	378	146	<b>380</b>	<b>145</b>	8	380	145	378	146	<b>380</b>	<b>145</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.  
numactl was used to bind copies to the cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## Platform Notes

BIOS setting:  
NUMA configuration: Enabled

## General Notes

The NEC Express5800/R120a-1(Intel Xeon E5504),  
the NEC Express5800/R120a-2(Intel Xeon E5504),  
the Bull NovaScale R440 E2 (Intel Xeon E5504, 2.00 GHz) and  
the Bull NovaScale R460 E2 (Intel Xeon E5504, 2.00 GHz) models are electronically equivalent.  
The results have been measured on a NEC Express5800/R120a-2(Intel Xeon E5504) 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:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:  
-xSSE4.2 -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/11.0/081/bin/intel64/icc  
456.hmmer: /opt/intel/Compiler/11.0/081/bin/intel64/icc  
458.sjeng: /opt/intel/Compiler/11.0/081/bin/intel64/icc

C++ benchmarks (except as noted below):  
icpc

473.astar: /opt/intel/Compiler/11.0/081/bin/intel64/icpc



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## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

### C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
-prof-use(pass 2) -ansi-alias -opt-prefetch  
401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
-prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32  
403.gcc: basepeak = yes  
429.mcf: basepeak = yes  
445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2  
-ipo -no-prec-div -ansi-alias  
456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias -auto-ilp32  
458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
-prof-use(pass 2) -unroll4 -auto-ilp32  
462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static  
-opt-malloc-options=3 -opt-prefetch  
464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -static(pass 2)  
-prof-use(pass 2) -unroll2 -ansi-alias

### C++ benchmarks:

471.omnetpp: basepeak = yes  
473.astar: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=routine -auto-ilp32  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib64 -lsmartheap64

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## Peak Optimization Flags (Continued)

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-revF.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.20090710.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-revF.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.20090710.xml>

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

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