



# SPEC<sup>®</sup> CINT2006 Result

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## Bull SAS

SPECint<sup>®</sup>\_rate2006 = 152

NovaScale T860 F2 (Intel Xeon L5609, 1.86 GHz)

SPECint\_rate\_base2006 = 142

CPU2006 license: 20

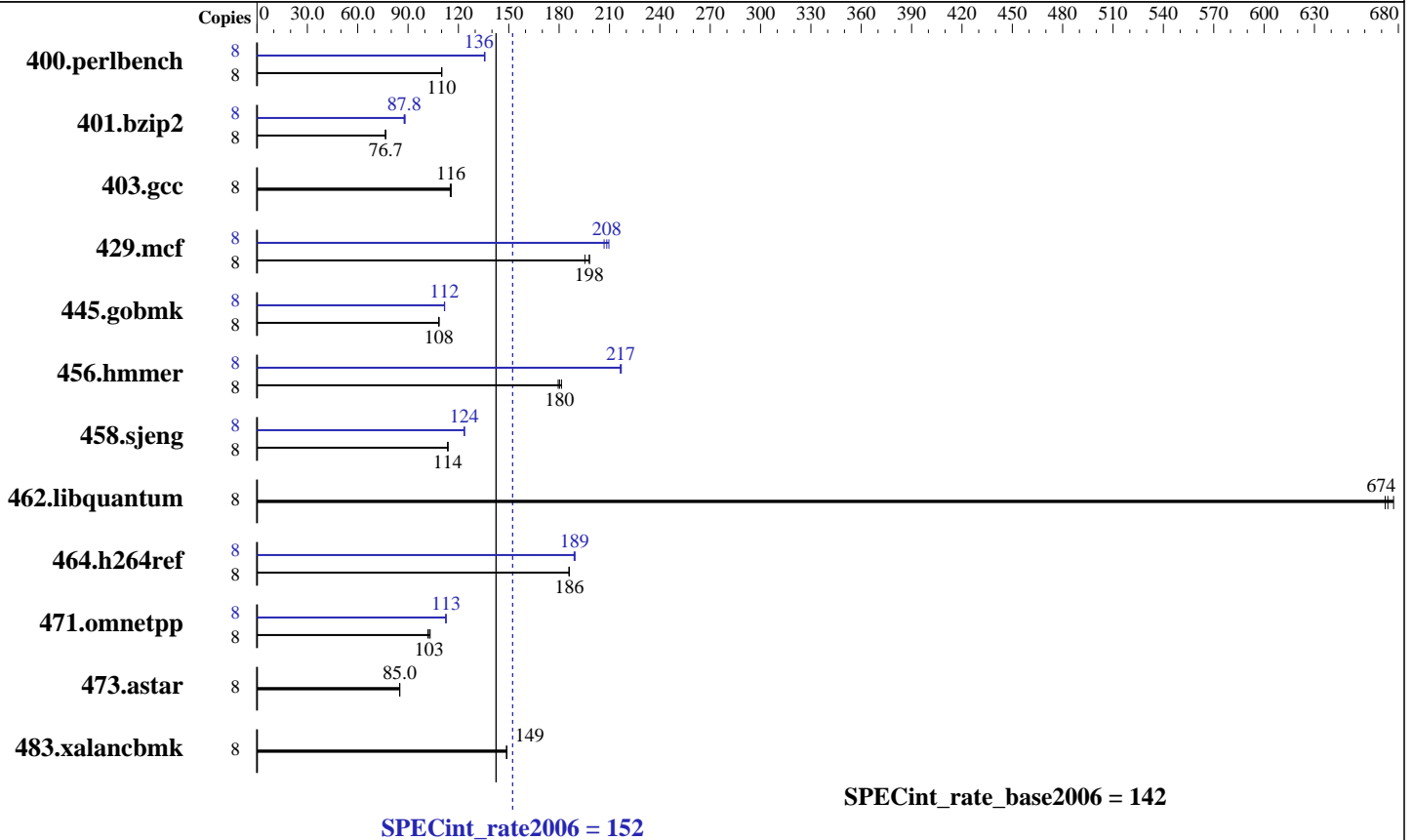
Test date: Jun-2011

Test sponsor: Bull SAS

Hardware Availability: Mar-2010

Tested by: Dell Inc.

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon L5609  
 CPU Characteristics: 1867  
 CPU MHz: 1867  
 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)  
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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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>710</b> | <b>110</b>  | 710        | 110        | 711         | 110         | 8      | 576        | 136         | 577        | 135        | <b>576</b> | <b>136</b>  |
| 401.bzip2      | 8      | 1007       | 76.7        | 1010       | 76.5       | <b>1007</b> | <b>76.7</b> | 8      | 875        | 88.2        | 881        | 87.6       | <b>879</b> | <b>87.8</b> |
| 403.gcc        | 8      | 557        | 116         | 559        | 115        | <b>557</b>  | <b>116</b>  | 8      | 557        | 116         | 559        | 115        | <b>557</b> | <b>116</b>  |
| 429.mcf        | 8      | 373        | 195         | 368        | 198        | <b>369</b>  | <b>198</b>  | 8      | 353        | 207         | 348        | 210        | <b>350</b> | <b>208</b>  |
| 445.gobmk      | 8      | 774        | 108         | <b>774</b> | <b>108</b> | 775         | 108         | 8      | 751        | 112         | 751        | 112        | <b>751</b> | <b>112</b>  |
| 456.hammer     | 8      | 416        | 179         | <b>414</b> | <b>180</b> | 411         | 181         | 8      | 345        | 217         | 344        | 217        | <b>345</b> | <b>217</b>  |
| 458.sjeng      | 8      | 850        | 114         | 852        | 114        | <b>852</b>  | <b>114</b>  | 8      | <b>783</b> | <b>124</b>  | 783        | 124        | 784        | 123         |
| 462.libquantum | 8      | 247        | 672         | <b>246</b> | <b>674</b> | 245         | 677         | 8      | 247        | 672         | <b>246</b> | <b>674</b> | 245        | 677         |
| 464.h264ref    | 8      | 953        | 186         | 951        | 186        | <b>951</b>  | <b>186</b>  | 8      | 937        | 189         | 935        | 189        | <b>935</b> | <b>189</b>  |
| 471.omnetpp    | 8      | 485        | 103         | <b>487</b> | <b>103</b> | 491         | 102         | 8      | <b>444</b> | <b>113</b>  | 444        | 113        | 444        | 113         |
| 473.astar      | 8      | <b>661</b> | <b>85.0</b> | 661        | 85.0       | 661         | 85.0        | 8      | <b>661</b> | <b>85.0</b> | 661        | 85.0       | 661        | 85.0        |
| 483.xalancbmk  | 8      | <b>371</b> | <b>149</b>  | 371        | 149        | 371         | 149         | 8      | <b>371</b> | <b>149</b>  | 371        | 149        | 371        | 149         |

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

'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 3600 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS Settings:  
Power Management = Maximum Performance (Default = Active Power Controller)  
Data Reuse = Disabled (Default = Enabled)

## General Notes

Binaries were compiled on RHEL5.5  
The Dell PowerEdge T710 and  
the Bull NovaScale T860 F2 models are electronically equivalent.  
The results have been measured on a Dell PowerEdge T710 model



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## Base Compiler Invocation

C benchmarks:  
icc -m32  
  
C++ benchmarks:  
icpc -m32

## 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 -opt-prefetch  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT  
  
C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m32  
  
400.perlbench: icc -m64  
401.bzip2: icc -m64  
456.hmmer: icc -m64  
458.sjeng: icc -m64

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## Peak Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
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) -prof-use(pass 2)  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

403.gcc: basepeak = yes

429.mcf: -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 -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias

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## Peak Optimization Flags (Continued)

C++ benchmarks:

```
471.omnetpp: -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=block -Wl,-z,muldefs
             -L/smartheap -lsmartheap
```

473.astar: basepeak = yes

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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.xml>

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

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