# SPEC® CINT2006 Result



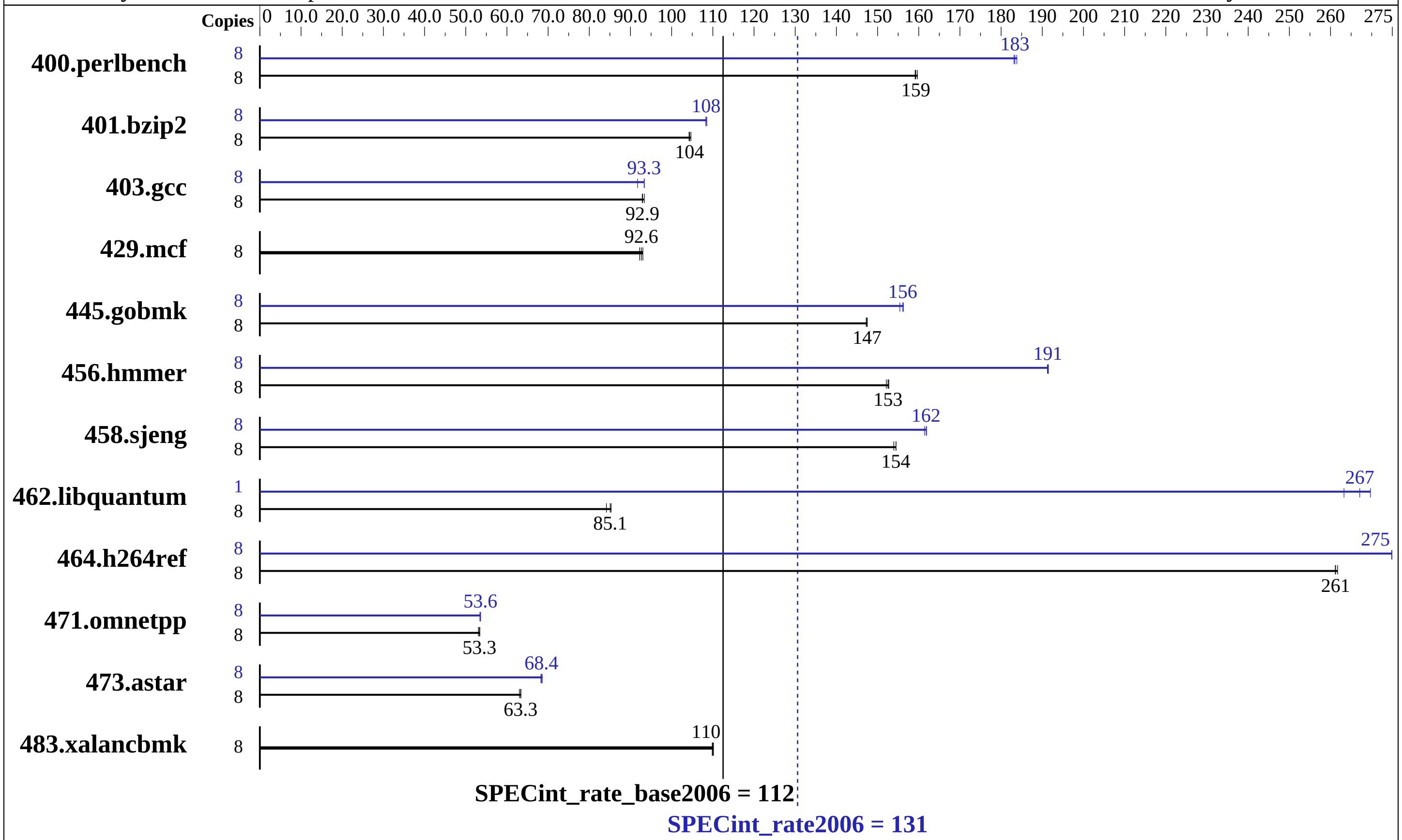
## Bull SAS

NovaScale R630 E1 MR
(Intel Xeon E5450, 3.00 GHz)

SPECint®_rate2006 = 131

SPECint_rate_base2006 = 112

| | | | |
|---|---|---|---|
| **CPU2006 license:** 20 | | **Test date:** | Nov-2008 |
| **Test sponsor:** | Bull SAS | **Hardware Availability:** | Oct-2008 |
| **Tested by:** | NEC Corporation | **Software Availability:** | Nov-2008 |




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5450 |
| CPU Characteristics: | 1333 MHz system bus |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 1,2 chips (fault tolerant, see Platform Notes) |
| 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 (6x4 GB PC2-5300F, 2 rank, CL5-5-5, ECC) |
| Disk Subsystem: | 2x146.5 GB SAS, 15000 RPM, Software RAID Level1 |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 5.2 Advanced Platform, Kernel 2.6.18-92.1.13.el5 on an x86_64 |
| Compiler: | Intel C++ Compiler 11.0 for Linux Build 20081105 Package ID: l_cproc_p_11.0.074 |
| Auto Parallel: | Yes |
| File System: | ext3 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | MicroQuill SmartHeap Library 8.1<br>ft Server Control Software 6.0.2-198 |

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## Results Table

| | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Benchmark** | **Copies** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Copies** | **Seconds** | **Ratio** | **Seconds** | **Ratio** | **Seconds** | **Ratio** |
| 400.perlbench | 8 | **491** | **159** | 491 | 159 | 489 | 160 | 8 | 427 | 183 | **426** | **183** | 425 | 184 |
| 401.bzip2 | 8 | 738 | 105 | 741 | 104 | **740** | **104** | 8 | 713 | 108 | 711 | 109 | **712** | **108** |
| 403.gcc | 8 | **693** | **92.9** | 690 | 93.3 | 693 | 92.9 | 8 | **690** | **93.3** | 702 | 91.7 | 690 | 93.4 |
| 429.mcf | 8 | 791 | 92.2 | 784 | 93.0 | **788** | **92.6** | 8 | 791 | 92.2 | 784 | 93.0 | **788** | **92.6** |
| 445.gobmk | 8 | 569 | 148 | **569** | **147** | 570 | 147 | 8 | 540 | 155 | **538** | **156** | 537 | 156 |
| 456.hmmer | 8 | **489** | **153** | 489 | 153 | 491 | 152 | 8 | 390 | 191 | **390** | **191** | 390 | 191 |
| 458.sjeng | 8 | **627** | **154** | 627 | 154 | 629 | 154 | 8 | 598 | 162 | 600 | 161 | **598** | **162** |
| 462.libquantum | 8 | 1970 | 84.2 | **1948** | **85.1** | 1943 | 85.3 | 1 | 78.7 | 263 | 76.8 | 270 | **77.6** | **267** |
| 464.h264ref | 8 | **678** | **261** | 678 | 261 | 676 | 262 | 8 | 644 | 275 | 644 | 275 | **644** | **275** |
| 471.omnetpp | 8 | 942 | 53.1 | **938** | **53.3** | 936 | 53.4 | 8 | 933 | 53.6 | 936 | 53.4 | **934** | **53.6** |
| 473.astar | 8 | 891 | 63.0 | **887** | **63.3** | 886 | 63.4 | 8 | 819 | 68.6 | 823 | 68.3 | **821** | **68.4** |
| 483.xalancbmk | 8 | 501 | 110 | 502 | 110 | **502** | **110** | 8 | 501 | 110 | 502 | 110 | **502** | **110** |

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

```
This Express5800/320Fd-MR is a fault-tolerant server.
Two modules are installed in this server.
Each module physically has "2CPU chips,24GB memory", The total physical configuration
is "4CPU chips,48GB memory".
Using fault-tolerant lockstep technology, these two modules communicate with each other
and execute the same instructions at the same time, The operating system only sees
"2CPU chips,24GB memory" as the other components add only redundancy and do not
contribute to any performance benefit.
```

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## General Notes

```
 The NEC Express5800/320Fd-MR(Intel Xeon E5450) and
 the Bull NovaScale R630 E1 MR(Intel Xeon E5450, 3.00 GHz) models are electronically equivalent.
 The results have been measured on a NEC Express5800/320Fd-MR(Intel Xeon E5450) model.
```

## 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-calloc
-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/11.0/074/bin/intel64/icc
-L/opt/intel/Compiler/11.0/074/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/074/ipp/em64t/include

Continued on next page

## Peak Compiler Invocation (Continued)

456.hmmer: `/opt/intel/Compiler/11.0/074/bin/intel64/icc -L/opt/intel/Compiler/11.0/074/ipp/em64t/lib -I/opt/intel/Compiler/11.0/074/ipp/em64t/include`

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-calloc -opt-malloc-options=3`

429.mcf: `basepeak = yes`

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`

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# Peak Optimization Flags (Continued)

C++ benchmarks:

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



For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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