



# SPEC® CINT2006 Result

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## Bull SAS

## SPECint®\_rate2006 = 341

### NovaScale R440 F2 (Intel Xeon X5660, 2.80 GHz)

## SPECint\_rate\_base2006 = 319

CPU2006 license: 20

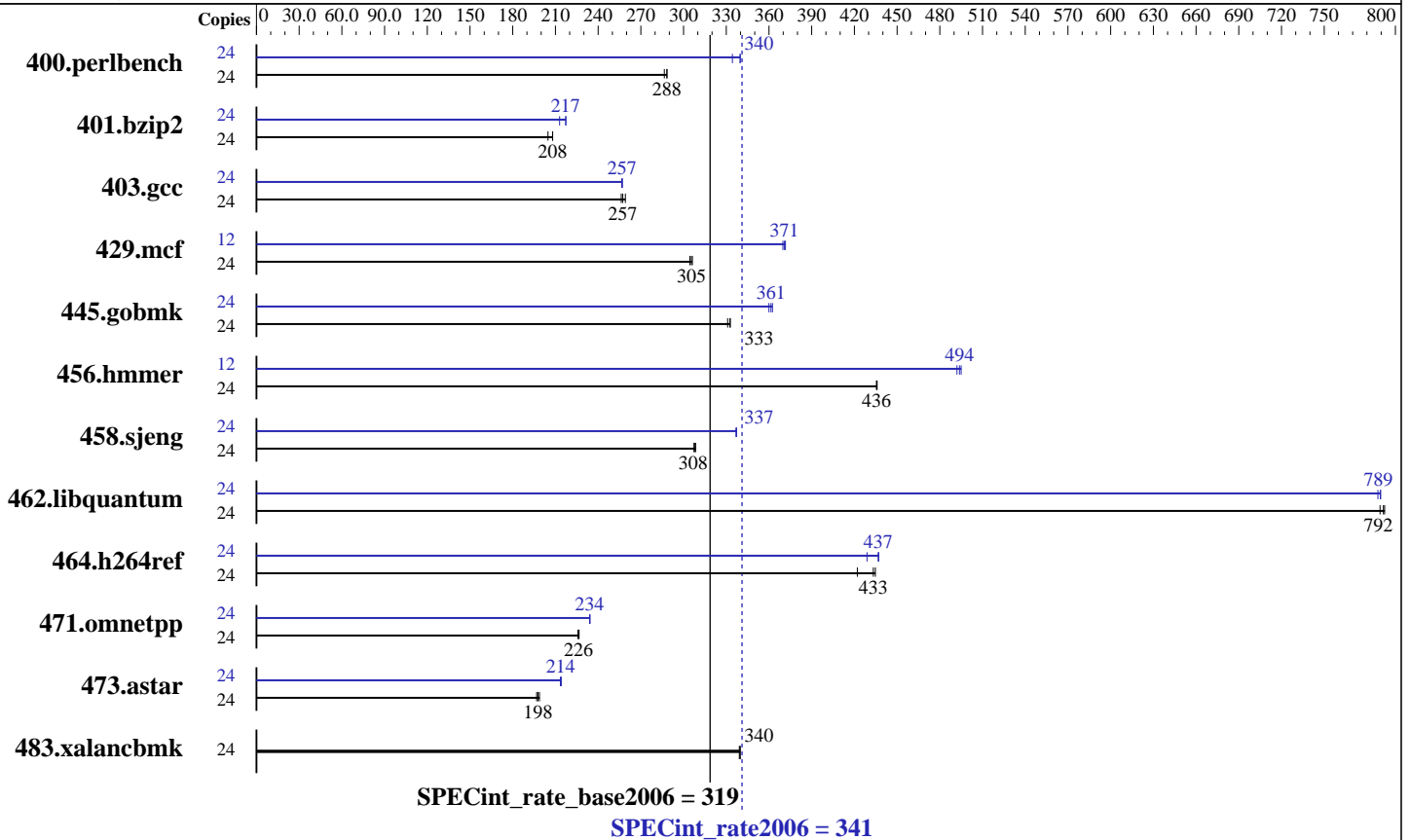
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon X5660  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 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 DDR3-1333 DR RDIMM)  
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-smp  
 Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1  
 Build 20091130 Package ID: l\_cproc\_p\_11.1.064  
 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 V8.1  
 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  | 24     | 818               | 286               | <b><u>813</u></b>  | <b><u>288</u></b> | 813               | 288               | 24     | 701               | 334               | <b><u>690</u></b>  | <b><u>340</u></b> | 690                | 340               |
| 401.bzip2      | 24     | 1131              | 205               | <b><u>1114</u></b> | <b><u>208</u></b> | 1113              | 208               | 24     | 1088              | 213               | <b><u>1066</u></b> | <b><u>217</u></b> | 1066               | 217               |
| 403.gcc        | 24     | 746               | 259               | <b><u>751</u></b>  | <b><u>257</u></b> | 754               | 256               | 24     | <b><u>752</u></b> | <b><u>257</u></b> | 753                | 257               | 752                | 257               |
| 429.mcf        | 24     | 719               | 304               | <b><u>716</u></b>  | <b><u>305</u></b> | 715               | 306               | 12     | 296               | 370               | <b><u>295</u></b>  | <b><u>371</u></b> | 295                | 372               |
| 445.gobmk      | 24     | 756               | 333               | <b><u>757</u></b>  | <b><u>333</u></b> | 761               | 331               | 24     | 695               | 362               | 699                | 360               | <b><u>697</u></b>  | <b><u>361</u></b> |
| 456.hammer     | 24     | 514               | 436               | <b><u>514</u></b>  | <b><u>436</u></b> | 514               | 436               | 12     | 226               | 495               | <b><u>227</u></b>  | <b><u>494</u></b> | 228                | 492               |
| 458.sjeng      | 24     | 941               | 308               | 945                | 307               | <b><u>944</u></b> | <b><u>308</u></b> | 24     | 861               | 337               | 862                | 337               | <b><u>861</u></b>  | <b><u>337</u></b> |
| 462.libquantum | 24     | 630               | 789               | <b><u>628</u></b>  | <b><u>792</u></b> | 628               | 792               | 24     | 631               | 788               | 630                | 790               | <b><u>630</u></b>  | <b><u>789</u></b> |
| 464.h264ref    | 24     | 1222              | 435               | <b><u>1226</u></b> | <b><u>433</u></b> | 1258              | 422               | 24     | 1215              | 437               | 1238               | 429               | <b><u>1216</u></b> | <b><u>437</u></b> |
| 471.omnetpp    | 24     | 662               | 227               | 664                | 226               | <b><u>663</u></b> | <b><u>226</u></b> | 24     | 641               | 234               | 640                | 234               | <b><u>641</u></b>  | <b><u>234</u></b> |
| 473.astar      | 24     | 848               | 199               | <b><u>852</u></b>  | <b><u>198</u></b> | 856               | 197               | 24     | 789               | 213               | 787                | 214               | <b><u>788</u></b>  | <b><u>214</u></b> |
| 483.xalancbmk  | 24     | <b><u>488</u></b> | <b><u>340</u></b> | 487                | 340               | 488               | 339               | 24     | <b><u>488</u></b> | <b><u>340</u></b> | 487                | 340               | 488                | 339               |

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

## General Notes

The Dell PowerEdge R610 and the Bull NovaScale R440 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R610 model.

## Base Compiler Invocation

C benchmarks:  
icc -m32

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## Base Compiler Invocation (Continued)

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 -static -opt-prefetch

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/home/cmplr/usr3/alrahate/cpu2006.1.1.icl1.1/libicl1.1-32bit -lsmarheap

## Base Other Flags

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

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m32

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

462.libquantum: icc -m64

C++ benchmarks (except as noted below):  
icpc -m32

473.astar: icpc -m64



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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_LP64 -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

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: -xSSE4.2 -ipo -O3 -no-prec-div -static

429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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 -auto-ilp32
                -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: -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/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap

```

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## Peak Optimization Flags (Continued)

```
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 -Wl,-z,muldefs
          -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

483.xalancbmk: basepeak = yes

## 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/Intel-ic11.1-linux64-revE.20100330.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml>

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

Tested with SPEC CPU2006 v1.1.

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