## Bull SAS

NovaScale R480 F2 (Intel Xeon E7-4820, 2.00 GHz)

**SPECfp®_rate2006 = 552**

**SPECfp_rate_base2006 = 529**

### CPU2006 license:
20

**Test date:** Mar-2011

**Hardware Availability:** Apr-2011

**Software Availability:** Apr-2011

| Benchmark | Copies | 30.0 | 70.0 | 110 | 140 | 170 | 200 | 230 | 260 | 290 | 320 | 350 | 380 | 410 | 440 | 470 | 500 | 530 | 560 | 590 | 620 | 650 | 680 | 710 | 740 | 770 | 800 | 830 | 860 | 890 | 920 | 940 |
|-----------|--------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 410.bwaves | 64     |      |      |     |     |     |     |     |     |     |     |     |     | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 416.gamess  | 64     |      |      |     |     |     |     |     |     |     |     |     |     | 64  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 433.milc   | 64     | 456  | 528  |     |     | 547 | 577 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 434.zeusmp | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 435.gromacs | 64    |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 436.cactusADM | 64 |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 437.leslie3d | 64   |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 444.namd   | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 447.dealII | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 450.soplex | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 453.povray | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 454.calculix | 64 |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 459.GemsFDTD | 64 |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 465.tonto  | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 470.lbm    | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 481.wrf    | 64     |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 482.sphinx3 | 64    |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

### Hardware

- **CPU Name:** Intel Xeon E7-4820
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.27 GHz
- **CPU MHz:** 2000
- **FPU:** Integrated
- **CPU(s) enabled:** 32 cores, 4 chips, 8 cores/chip, 2 threads/core
- **CPU(s) orderable:** 2,4 chips
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core

### Software

- **Operating System:** SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
- **Compiler:** Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64
- **Auto Parallel:** No
- **File System:** ext3
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit

Continued on next page
### SPEC CFP2006 Result

**Bull SAS**  
NovaScale R480 F2 (Intel Xeon E7-4820, 2.00 GHz)

**SPEC CFP2006 Result**  
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**SPECfp_rate2006** = 552  
**SPECfp_rate_base2006** = 529

- **CPU2006 license:** 20  
- **Test sponsor:** Bull SAS  
- **CPU2006 license:** Dell Inc.  
- **Test date:** Mar-2011  
- **Test sponsor:** Bull SAS  
- **Test date:** Apr-2011  
- **Hardware Availability:** Apr-2011  
- **Tested by:** Dell Inc.  
- **Software Availability:** Apr-2011  
- **Software Availability:** None

#### Results Table

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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.

### 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 57600 > /proc/sys/vm/nr_hugepages  
export HUGETLB_MORECORE=yes  
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
Bull SAS
NovaScale R480 F2 (Intel Xeon E7-4820, 2.00 GHz)

SPECfp_rate2006 = 552
SPECfp_rate_base2006 = 529

CPU2006 license: 20
Test date: Mar-2011
Test sponsor: Bull SAS
Hardware Availability: Apr-2011
Tested by: Dell Inc.
Software Availability: Apr-2011

Platform Notes

BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)

General Notes

The Dell PowerEdge R910 and the Bull NovaScale R480 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R910 model. Binaries were compiled on RHEL5.5

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64 -nofor_main
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
463.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
Bull SAS
NovaScale R480 F2 (Intel Xeon E7-4820, 2.00 GHz)

SPECfp_rate2006 = 552
SPECfp_rate_base2006 = 529

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Dell Inc.

Test date: Mar-2011
Hardware Availability: Apr-2011
Software Availability: Apr-2011

Base Optimization Flags

C benchmarks:
- xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

C++ benchmarks:
- xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

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

Benchmarks using both Fortran and C:
- xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64
482.sphinx3: icc -m32

C++ benchmarks (except as noted below):
icpc -m64
450.soplex: icpc -m32

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64

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Bull SAS

NovaScale R480 F2 (Intel Xeon E7-4820, 2.00 GHz)

**SPEC CFP2006 Result**

**SPECfp_rate2006 = 552**

**SPECfp_rate_base2006 = 529**

**CPU2006 license:** 20

**Test sponsor:** Bull SAS

**Tested by:** Dell Inc.

**Test date:** Mar-2011

**Hardware Availability:** Apr-2011

**Software Availability:** Apr-2011

### Peak Portability Flags (Continued)

- 470.lbm: -DSPEC_CPU_LP64
- 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

### Peak Optimization Flags

#### C benchmarks:

- 433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
- 470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
  -ansi-alias -opt-prefetch -static -auto-ilp32
- 482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll12

#### C++ benchmarks:

- 444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
  -auto-ilp32
- 447.dealII: basepeak = yes
- 450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
  -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT
- 453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
  -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

#### Fortran benchmarks:

- 410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -static
- 416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
  -inline-level=0 -scalar-rep -static
- 434.zeusmp: basepeak = yes
- 437.leslie3d: basepeak = yes
- 459.GemsFDTD: basepeak = yes

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Bull SAS
NovaScale R480 F2 (Intel Xeon E7-4820, 2.00 GHz)

SPECfp_rate2006 = 552
SPECfp_rate_base2006 = 529

CPU2006 license: 20
Test sponsor: Bull SAS
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Peak Optimization Flags (Continued)

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -03(pass 2)
        -no-prec-div(pass 2) -prof-use(pass 2) -unroll14 -auto
        -inline-calloc -opt-malloc-options=3
        -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: basepeak = yes
481.wrf: basepeak = yes

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.20110308.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.20110308.xml

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For other inquiries, please contact webmaster@spec.org.

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