Bull SAS
NovaScale R440 F3 (Intel Xeon E5-2680, 2.70 GHz)

SPECfp®2006 = 86.7
SPECfp_base2006 = 82.1

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

Hardware

<table>
<thead>
<tr>
<th>SPEC Test</th>
<th>Value</th>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>35.9</td>
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<tr>
<td>416.gamess</td>
<td>29.4</td>
</tr>
<tr>
<td>433.milc</td>
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<td>459.GemsFDTD</td>
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<td>482.sphinx3</td>
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Software

<table>
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<th>Software</th>
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<td>Operating System:</td>
<td>SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default</td>
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<td>Compiler:</td>
<td>C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux</td>
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<td>Auto Parallel:</td>
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<td>File System:</td>
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<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
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Continued on next page
SPEC CFP2006 Result

Bull SAS

NovaScale R440 F3 (Intel Xeon E5-2680, 2.70 GHz)

SPECfp2006 = 86.7
SPECfp_base2006 = 82.1

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

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 2 x 146 GB 15000 RPM SAS, RAID 0
Other Hardware: None
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>273</td>
<td>71.3</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aaa42e583f96b07f99d3
running on unsr Wed Feb 8 17:01:38 2012

This section contains SUT (System Under Test) info as seen by
Continued on next page
## SPEC CFP2006 Result

### Bull SAS

NovaScale R440 F3 (Intel Xeon E5-2680, 2.70 GHz)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>86.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>82.1</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 20  
**Test date:** Feb-2012  
**Test sponsor:** Bull SAS  
**Tested by:** Dell Inc.

### Platform Notes (Continued)

```
some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2680 0 @ 2.70GHz
  2 "physical id"s (chips)
  32 "processors"
  cores, siblings (Caution: counting these is hw and system dependent. The
  following excerpts from /proc/cpuinfo might not be reliable. Use with
  caution.)
  cpu cores : 8
  siblings : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
  cache size : 20480 KB

From /proc/meminfo
  MemTotal:        132089856 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
  SuSE-release:
  SUSE Linux Enterprise Server 11 (x86_64)
  VERSION = 11
  PATCHLEVEL = 2

uname -a:
  Linux unsvr 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012 (54ddf1f)
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 8 11:10 last=S

SPEC is set to: /root/CPU2006-1.2
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda1      ext3  265G  68G  184G  27% /

Additional information from dmidecode:

(End of data from sysinfo program)
```

### General Notes

Environment variables set by runspec before the start of the run:

- **KMP_AFFINITY = "granularity=fine,scatter"**
- **LD_LIBRARY_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"**
- **OMP_NUM_THREADS = "16"**

The Dell PowerEdge R620 and

Continued on next page
Bull SAS

NovaScale R440 F3 (Intel Xeon E5-2680, 2.70 GHz)

SPECfp2006 = 86.7
SPECfp_base2006 = 82.1

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

Test date: Feb-2012
Hardware Availability: Mar-2012
Software Availability: Feb-2012

General Notes (Continued)
the Bull NovaScale R440 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R620 model
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using 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
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
459.GemsFDTD: -DSPEC_CPU_LP64
465.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

Base Optimization Flags
C benchmarks:
-xAVX  -ipo  -03  -no-prec-div  -static  -parallel  -opt-prefetch
-ansi  -alias

Continued on next page
Bull SAS

NovaScale R440 F3 (Intel Xeon E5-2680, 2.70 GHz)

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SPECfp_base2006 = 82.1

CPU2006 license: 20
Test sponsor: Bull SAS
Test date: Feb-2012

Tested by: Dell Inc.
Hardware Availability: Mar-2012
Test sponsor: Bull SAS
Software Availability: Feb-2012

Base Optimization Flags (Continued)

C++ benchmarks:
-xAVX -ipo -03 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -03 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -03 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort  -m64

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -03 -no-prec-div -unroll2 -ansi-alias
-parallel

Continued on next page
Bull SAS
NovaScale R440 F3 (Intel Xeon E5-2680, 2.70 GHz)

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Test sponsor: Bull SAS
Tested by: Dell Inc.

Test date: Feb-2012
Hardware Availability: Mar-2012
Software Availability: Feb-2012

Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(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: basepeak = yes
453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
    -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
    -static
416.gamess: -xAVX(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: -xAVX(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 -opt-prefetch -parallel
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
    -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
    -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
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-ie12.1-official-linux64.20111122.html
SPEC CFP2006 Result

Bull SAS
NovaScale R440 F3 (Intel Xeon E5-2680, 2.70 GHz)  

| SPECfp2006 | 86.7 |
| SPECfp_base2006 | 82.1 |

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

Test date: Feb-2012  
Hardware Availability: Mar-2012  
Software Availability: Feb-2012

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120328.xml

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

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