SPEC® CFP2006 Result
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Bull SAS

NovaScale R440 F3 (Intel Xeon E5-2637, 3.00 GHz)

$SPECfp^{®}2006 =$ 67.3

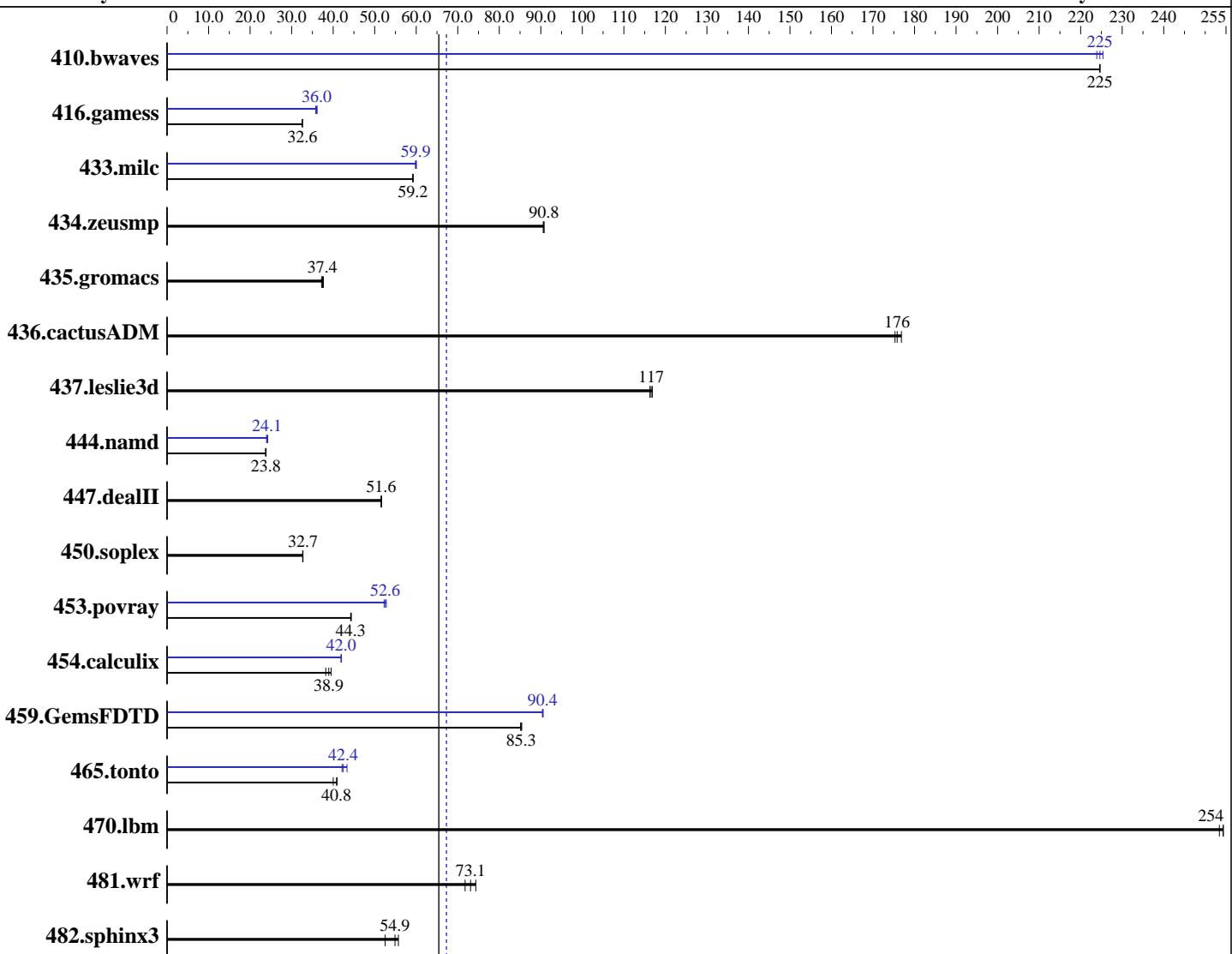$SPECfp\_base2006 =$ 65.4

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

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

Benchmark	Result
410.bwaves	225 / 225
416.gamess	36.0 / 32.6
433.milc	59.9 / 59.2
434.zeusmp	90.8
435.gromacs	37.4
436.cactusADM	176
437.leslie3d	117
444.namd	24.1 / 23.8
447.dealII	51.6
450.soplex	32.7
453.povray	52.6 / 44.3
454.calculix	42.0 / 38.9
459.GemsFDTD	90.4 / 85.3
465.tonto	42.4 / 40.8
470.lbm	254
481.wrf	73.1
482.sphinx3	54.9

SPECfp_base2006 = 65.4
SPECfp2006 = 67.3

Hardware

CPU Name: Intel Xeon E5-2637
CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz: 3000
FPU: Integrated
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default
Compiler: 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
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)

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L3 Cache:	5 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

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	60.5	225	60.5	225	**60.5**	**225**	**60.5**	**225**	60.3	225	60.7	224
416.gamess	**601**	**32.6**	601	32.6	601	32.6	**544**	**36.0**	547	35.8	542	36.1
433.milc	155	59.3	155	59.2	**155**	**59.2**	153	59.8	153	60.0	**153**	**59.9**
434.zeusmp	**100**	**90.8**	100	90.8	100	90.6	**100**	**90.8**	100	90.8	100	90.6
435.gromacs	190	37.6	192	37.2	**191**	**37.4**	190	37.6	192	37.2	**191**	**37.4**
436.cactusADM	67.6	177	68.2	175	**68.0**	**176**	67.6	177	68.2	175	**68.0**	**176**
437.leslie3d	80.4	117	80.8	116	**80.6**	**117**	80.4	117	80.8	116	**80.6**	**117**
444.namd	336	23.8	338	23.7	**337**	**23.8**	334	24.0	**333**	**24.1**	331	24.2
447.dealII	222	51.5	**222**	**51.6**	221	51.7	222	51.5	**222**	**51.6**	221	51.7
450.soplex	255	32.7	**255**	**32.7**	255	32.7	255	32.7	**255**	**32.7**	255	32.7
453.povray	120	44.4	**120**	**44.3**	120	44.2	102	52.3	**101**	**52.6**	101	52.8
454.calculix	209	39.5	**212**	**38.9**	216	38.2	**197**	**42.0**	197	41.9	196	42.0
459.GemsFDTD	124	85.4	**124**	**85.3**	125	85.1	117	90.6	117	90.4	**117**	**90.4**
465.tonto	240	40.9	**241**	**40.8**	246	40.0	**232**	**42.4**	234	42.1	227	43.3
470.lbm	**54.0**	**254**	54.0	254	54.2	253	**54.0**	**254**	54.0	254	54.2	253
481.wrf	150	74.3	**153**	**73.1**	156	71.8	150	74.3	**153**	**73.1**	156	71.8
482.sphinx3	350	55.7	**355**	**54.9**	371	52.5	350	55.7	**355**	**54.9**	371	52.5

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 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on unsvr Mon Mar 12 15:42:58 2012

This section contains SUT (System Under Test) info as seen by
```

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Test date: Mar-2012
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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 E5-2637 0 @ 3.00GHz
      2 "physical id"s (chips)
      8 "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 : 2
      siblings  : 4
      physical 0: cores 0 1
      physical 1: cores 0 1
   cache size : 5120 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 (54ddfaf)
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 12 09:24 last=S

SPEC is set to: /root/CPU2006-1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda1       ext3  265G   68G  183G  28% /

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 = "4"
```

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General Notes (Continued)

```
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
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
The Dell PowerEdge R620  and
the Bull NovaScale R440 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R620 model.
```

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
   454.calculix: -DSPEC_CPU_LP64 -nofor_main
   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
```

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

Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -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: basepeak = yes
```

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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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.html

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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.20120410.00.xml

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

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