SPEC® CFP2006 Result
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Bull SAS

NovaScale R410B F2 (Intel Xeon E3-1260L, 2.40 GHz)

$SPECfp^®\_rate2006 = \quad 101$

$SPECfp\_rate\_base2006 = \quad 98.4$
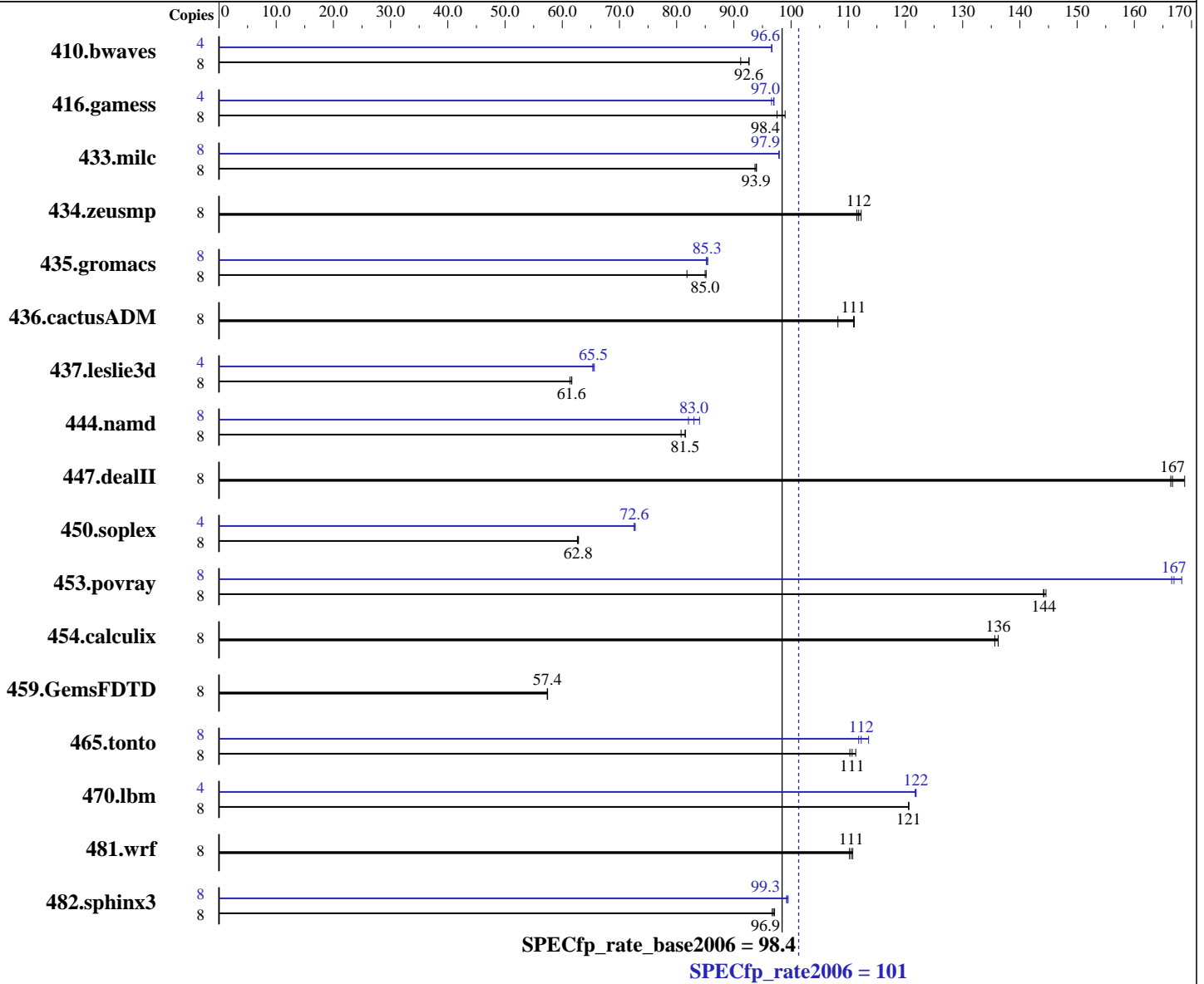
CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Dell Inc.

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

	Copies	
410.bwaves	4	96.6
	8	92.6
416.gamess	4	97.0
	8	98.4
433.milc	8	97.9
	8	93.9
434.zeusmp	8	112
435.gromacs	8	85.3
	8	85.0
436.cactusADM	8	111
437.leslie3d	4	65.5
	8	61.6
444.namd	8	83.0
	8	81.5
447.dealII	8	167
450.soplex	4	72.6
	8	62.8
453.povray	8	167
	8	144
454.calculix	8	136
459.GemsFDTD	8	57.4
465.tonto	8	112
	8	111
470.lbm	4	122
	8	121
481.wrf	8	111
482.sphinx3	8	99.3
	8	96.9

SPECfp_rate_base2006 = 98.4

SPECfp_rate2006 = 101

Hardware

CPU Name: Intel Xeon E3-1260L
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
CPU(s) orderable: 1 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 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 Version 12.0.1.116 Build 20101116
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

Continued on next page

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L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	8 GB (4 x 2 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	1 x 146 GB 15000 RPM SAS
Other Hardware:	None

Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1192	91.2	1173	92.7	**1174**	**92.6**	4	562	96.6	**563**	**96.6**	563	96.6
416.gamess	8	1606	97.5	**1591**	**98.4**	1583	99.0	4	811	96.6	**808**	**97.0**	807	97.0
433.milc	8	784	93.7	782	94.0	**782**	**93.9**	8	**750**	**97.9**	750	97.9	750	97.9
434.zeusmp	8	653	112	649	112	**651**	**112**	8	653	112	649	112	**651**	**112**
435.gromacs	8	698	81.8	671	85.2	**672**	**85.0**	8	671	85.2	**670**	**85.3**	669	85.4
436.cactusADM	8	884	108	**862**	**111**	861	111	8	884	108	**862**	**111**	861	111
437.leslie3d	8	1219	61.7	1225	61.4	**1220**	**61.6**	4	576	65.3	573	65.6	**574**	**65.5**
444.namd	8	787	81.5	794	80.8	**787**	**81.5**	8	764	84.0	**773**	**83.0**	782	82.1
447.dealII	8	542	169	**549**	**167**	550	166	8	542	169	**549**	**167**	550	166
450.soplex	8	**1063**	**62.8**	1062	62.8	1065	62.6	4	**459**	**72.6**	458	72.8	460	72.6
453.povray	8	294	145	295	144	**295**	**144**	8	**255**	**167**	253	168	256	167
454.calculix	8	**485**	**136**	487	136	485	136	8	**485**	**136**	487	136	485	136
459.GemsFDTD	8	1479	57.4	1478	57.4	**1478**	**57.4**	8	1479	57.4	1478	57.4	**1478**	**57.4**
465.tonto	8	**711**	**111**	707	111	714	110	8	704	112	693	114	**701**	**112**
470.lbm	8	**912**	**121**	912	121	912	121	4	451	122	**451**	**122**	452	122
481.wrf	8	811	110	**809**	**111**	807	111	8	811	110	**809**	**111**	807	111
482.sphinx3	8	1605	97.1	1612	96.7	**1609**	**96.9**	8	1567	99.5	**1570**	**99.3**	1572	99.2

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
    'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
    echo 3600> /proc/sys/vm/nr_hugepages
    export HUGETLB_MORECORE=yes
    export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

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Platform Notes

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

General Notes

```
   The Dell PowerEdge R210 II and
   the Bull NovaScale R410B F2 models are electronically equivalent.
   The results have been measured on a Dell PowerEdge R210 II 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
   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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Base Optimization Flags

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

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

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

Benchmarks using both Fortran and C:
```
-xAVX -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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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: -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

470.lbm: -xAVX(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 -auto-ilp32

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2
```

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: -xAVX(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: -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
            -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

Fortran benchmarks:

```
410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -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: -xAVX -ipo -O3 -no-prec-div
              -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes
```

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Peak Optimization Flags (Continued)

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
      -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
      -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
      -static -auto-ilp32

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.20110524.00.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.20110524.00.xml

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

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