SPEC® CFP2006 Result

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Bull SAS

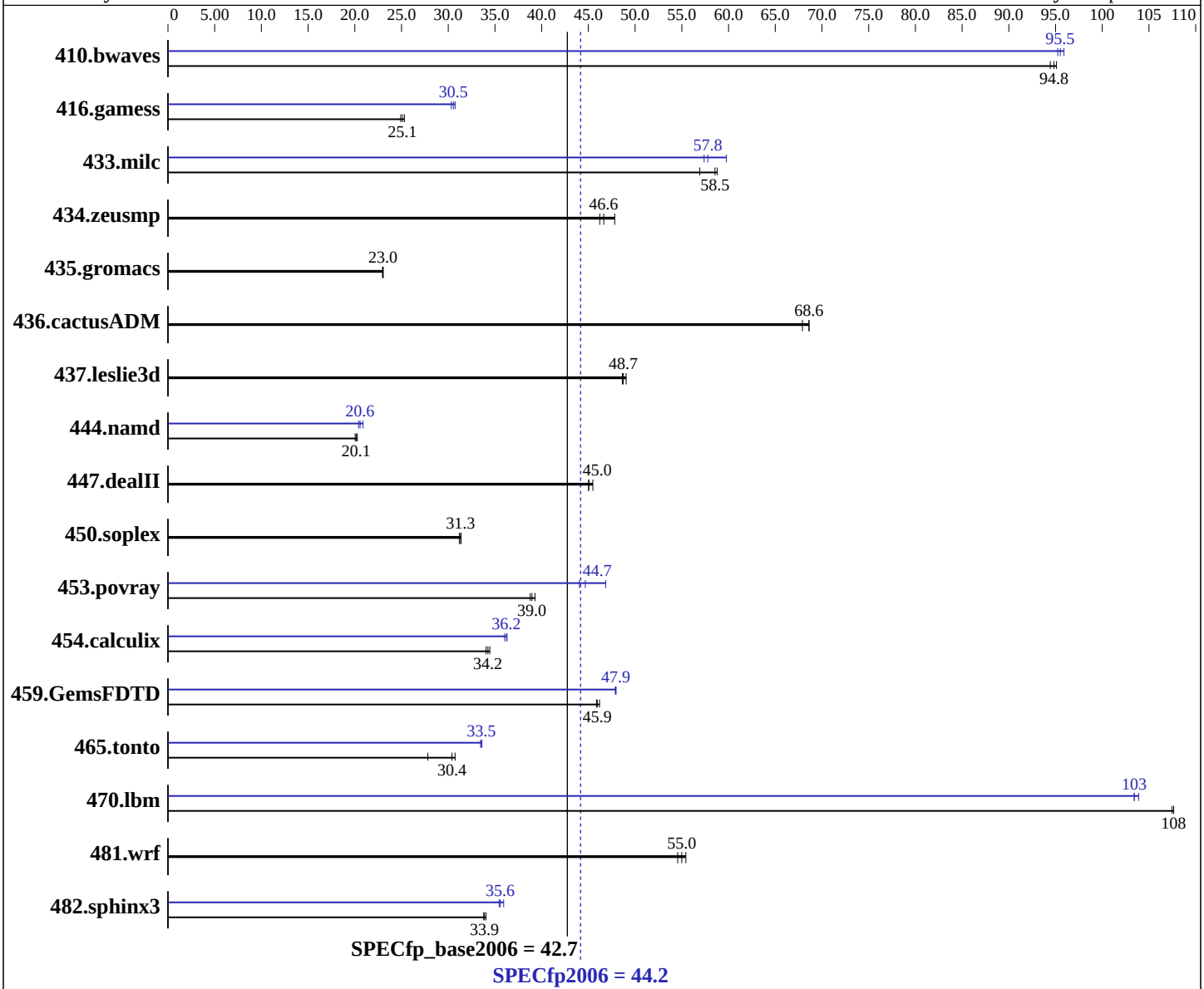
NovaScale T810B F2 (Intel Core i3-2100, 3.10 GHz)

SPECfp®2006 = 44.2

SPECfp_base2006 = 42.7

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

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



Hardware

CPU Name:	Intel Core i3-2100
CPU Characteristics:	
CPU MHz:	3100
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
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

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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 Alpha Build 20110105
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache: 3 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB (4 x 2 GB 2Rx8 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	143	95.1	144	94.4	**143**	**94.8**	143	95.2	142	95.9	**142**	**95.5**
416.gamess	**780**	**25.1**	786	24.9	774	25.3	**641**	**30.5**	637	30.7	646	30.3
433.milc	161	56.9	**157**	**58.5**	156	58.8	**159**	**57.8**	160	57.4	154	59.8
434.zeusmp	**195**	**46.6**	190	47.8	197	46.2	**195**	**46.6**	190	47.8	197	46.2
435.gromacs	**310**	**23.0**	311	23.0	310	23.0	**310**	**23.0**	311	23.0	310	23.0
436.cactusADM	176	67.9	**174**	**68.6**	174	68.6	176	67.9	**174**	**68.6**	174	68.6
437.leslie3d	193	48.6	192	49.0	**193**	**48.7**	193	48.6	192	49.0	**193**	**48.7**
444.namd	400	20.0	**398**	**20.1**	396	20.3	393	20.4	**390**	**20.6**	384	20.9
447.dealII	**254**	**45.0**	254	45.0	252	45.5	**254**	**45.0**	254	45.0	252	45.5
450.soplex	266	31.4	**266**	**31.3**	267	31.2	266	31.4	**266**	**31.3**	267	31.2
453.povray	**137**	**39.0**	135	39.3	137	38.8	114	46.9	**119**	**44.7**	121	44.0
454.calculix	242	34.0	**241**	**34.2**	239	34.4	227	36.3	**228**	**36.2**	229	36.0
459.GemsFDTD	231	45.9	**231**	**45.9**	230	46.2	221	48.0	**221**	**47.9**	222	47.9
465.tonto	**324**	**30.4**	320	30.7	354	27.8	**293**	**33.5**	293	33.6	294	33.5
470.lbm	128	107	**128**	**108**	128	108	132	104	**133**	**103**	133	103
481.wrf	**203**	**55.0**	205	54.6	202	55.4	**203**	**55.0**	205	54.6	202	55.4
482.sphinx3	577	33.8	**575**	**33.9**	573	34.0	550	35.4	542	35.9	**548**	**35.6**

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

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 900> /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)
Logical Processor = Disabled (Default = Enabled)
```

General Notes

```
OMP_NUM_THREADS set to number of cores
The Dell PowerEdge T110 II and
the Bull NovaScale T810B F2 models are electronically equivalent.
The results have been measured on a Dell PowerEdge T110 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

Base Optimization Flags

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

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Base Optimization Flags (Continued)

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: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-parallel -ansi-alias -static -auto-ilp32`

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

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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 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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 -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: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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

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