SPEC® CFP2006 Result

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Bull SAS

NovaScale B280
(Intel Xeon E5430, 2.66 GHz)

$SPECfp^{®}2006 =$ 21.6

$SPECfp\_base2006 =$ 18.2

CPU2006 license: 20	**Test date:** Sep-2008
Test sponsor: Bull SAS	**Hardware Availability:** Jan-2008
Tested by: Bull SAS	**Software Availability:** Nov-2007

Benchmark results:

- **410.bwaves** — 32.0 / 31.7
- **416.gamess** — 20.0 / 19.0
- **433.milc** — 10.6 / 10.6
- **434.zeusmp** — 15.5 / 16.0
- **435.gromacs** — 17.3 / 17.3
- **436.cactusADM** — 96.8 / 38.7
- **437.leslie3d** — 18.4
- **444.namd** — 14.2 / 14.1
- **447.dealII** — 27.1 / 25.5
- **450.soplex** — 14.9 / 13.3
- **453.povray** — 26.4 / 22.1
- **454.calculix** — 21.5 / 14.5
- **459.GemsFDTD** — 18.1 / 17.9
- **465.tonto** — 20.4 / 19.4
- **470.lbm** — 23.9 / 7.43
- **481.wrf** — 20.1 / 20.9
- **482.sphinx3** — 25.4 / 24.8

SPECfp_base2006 = 18.2
SPECfp2006 = 21.6

Hardware

CPU Name:	Intel Xeon E5430
CPU Characteristics:	1333 MHz system bus
CPU MHz:	2666
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores

Continued on next page

Software

Operating System:	SUSE LINUX Enterprise Server 10 (x86_64) SP1 Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel:	Yes
File System:	ext2
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

Continued on next page

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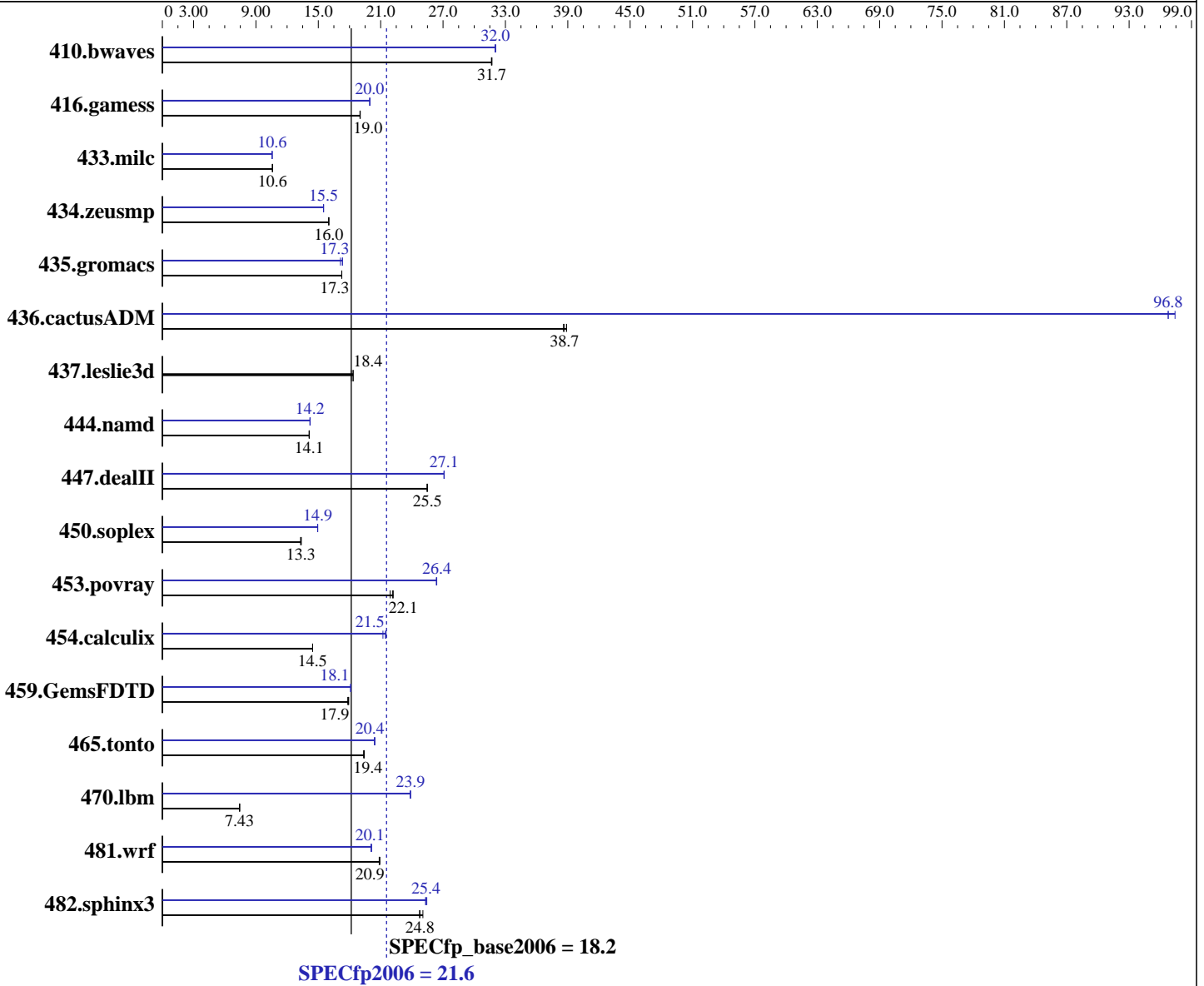$SPECfp\_base2006 =$ 18.2

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L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8x2 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem:	1x73 GB SAS, 15000 RPM
Other Hardware:	None

Peak Pointers:	32/64-bit
Other Software:	Binutils 2.17.50.0.15

Results Table

Benchmark	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**429**	**31.7**	429	31.7	429	31.7	425	32.0	**424**	**32.0**	424	32.1
416.gamess	1029	19.0	1030	19.0	**1029**	**19.0**	982	19.9	981	20.0	**981**	**20.0**
433.milc	**867**	**10.6**	867	10.6	866	10.6	**869**	**10.6**	869	10.6	870	10.6
434.zeusmp	569	16.0	568	16.0	**568**	**16.0**	**587**	**15.5**	587	15.5	587	15.5
435.gromacs	**414**	**17.3**	414	17.3	414	17.3	412	17.3	**412**	**17.3**	417	17.1
436.cactusADM	**309**	**38.7**	310	38.6	307	38.9	123	97.4	**123**	**96.8**	124	96.8
437.leslie3d	512	18.4	**512**	**18.4**	517	18.2	512	18.4	**512**	**18.4**	517	18.2
444.namd	568	14.1	567	14.1	**568**	**14.1**	**565**	**14.2**	565	14.2	564	14.2
447.dealII	**449**	**25.5**	449	25.5	449	25.5	**422**	**27.1**	422	27.1	422	27.1
450.soplex	624	13.4	**626**	**13.3**	627	13.3	**558**	**14.9**	558	14.9	559	14.9
453.povray	243	21.9	**240**	**22.1**	240	22.2	**202**	**26.4**	202	26.4	202	26.4
454.calculix	571	14.5	**571**	**14.5**	571	14.4	389	21.2	**385**	**21.5**	383	21.5
459.GemsFDTD	**592**	**17.9**	595	17.8	592	17.9	586	18.1	**586**	**18.1**	585	18.1
465.tonto	507	19.4	508	19.4	**507**	**19.4**	481	20.4	**482**	**20.4**	483	20.4
470.lbm	**1848**	**7.43**	1847	7.44	1851	7.42	575	23.9	**576**	**23.9**	577	23.8
481.wrf	**535**	**20.9**	534	20.9	536	20.9	555	20.1	**556**	**20.1**	556	20.1
482.sphinx3	**787**	**24.8**	778	25.1	788	24.7	770	25.3	766	25.4	**768**	**25.4**

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
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 200M
```

General Notes

```
All benchmarks compiled in 64-bit mode except 450.soplex,
470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
```

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Base Compiler Invocation

C benchmarks:
    icc

C++ benchmarks:
    icpc

Fortran benchmarks:
    ifort

Benchmarks using both Fortran and C:
    icc ifort

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:
    -fast -parallel

C++ benchmarks:
    -fast -parallel

Fortran benchmarks:
    -fast -parallel

Benchmarks using both Fortran and C:
    -fast -parallel

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

    433.milc: `icc`

C++ benchmarks (except as noted below):
```
icpc
```

    450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib`
           `-I/opt/intel/cc/10.1.008/include`

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icc ifort
```

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`
      481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

    433.milc: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias`
        `-auto-ilp32`

    470.lbm: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2`
        `-scalar-rep- -prefetch -opt-malloc-options=3`

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Peak Optimization Flags (Continued)

    482.sphinx3: `-fast -unroll2`

C++ benchmarks:

    444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32`

    447.dealII: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-`

    450.soplex: `-prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3`

    453.povray: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias`

Fortran benchmarks:

    410.bwaves: `-fast -prefetch -parallel`

    416.gamess: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-`

    434.zeusmp: `-prof-gen(pass 1) -prof-use(pass 2) -fast`

    437.leslie3d: basepeak = yes

  459.GemsFDTD: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch -parallel`

    465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto`

Benchmarks using both Fortran and C:

    435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32`

  436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32`

    454.calculix: `-fast -unroll-aggressive -auto-ilp32`

    481.wrf: `-fast -parallel -prefetch -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.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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