SPEC® CFP2006 Result

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Bull SAS

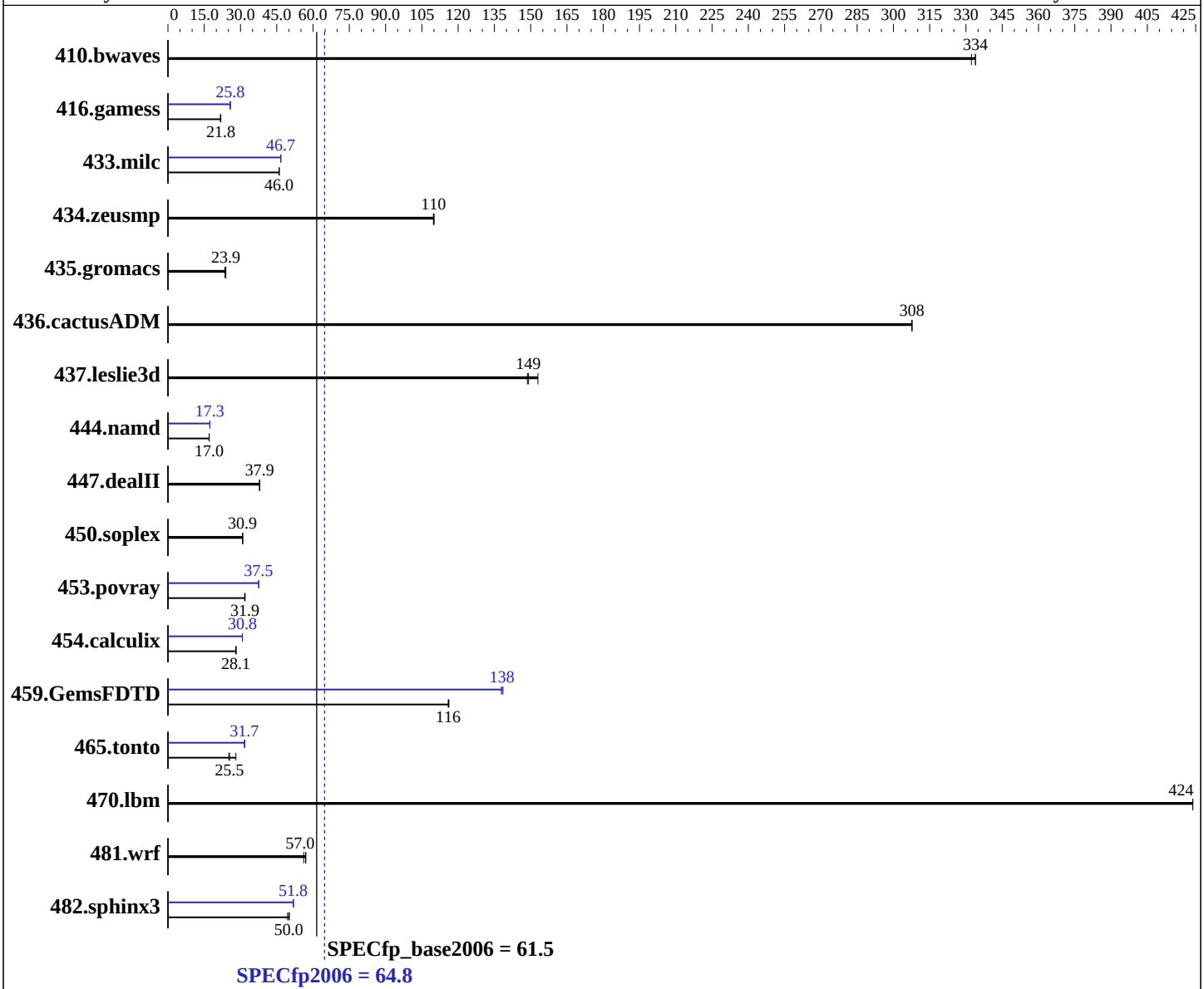
NovaScale T840 F3 (Intel Xeon E5-2630L, 2.00 GHz)

SPECfp®2006 = 64.8

SPECfp_base2006 = 61.5

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

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



Hardware

CPU Name:	Intel Xeon E5-2630L
CPU Characteristics:	Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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

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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: 15 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem: 1 x 1 TB 7200 RPM SATA
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	40.7	334	40.9	332	**40.7**	**334**	40.7	334	40.9	332	**40.7**	**334**
416.gamess	**897**	**21.8**	904	21.7	895	21.9	758	25.8	**760**	**25.8**	764	25.6
433.milc	200	46.0	200	46.0	**200**	**46.0**	197	46.7	197	46.6	**197**	**46.7**
434.zeusmp	82.9	110	82.7	110	**82.9**	**110**	82.9	110	82.7	110	**82.9**	**110**
435.gromacs	303	23.6	298	23.9	**299**	**23.9**	303	23.6	298	23.9	**299**	**23.9**
436.cactusADM	38.8	308	**38.8**	**308**	38.8	308	38.8	308	**38.8**	**308**	38.8	308
437.leslie3d	61.4	153	63.2	149	**63.0**	**149**	61.4	153	63.2	149	**63.0**	**149**
444.namd	470	17.1	471	17.0	**471**	**17.0**	463	17.3	**463**	**17.3**	463	17.3
447.dealII	302	37.9	302	37.9	**302**	**37.9**	302	37.9	302	37.9	**302**	**37.9**
450.soplex	**270**	**30.9**	270	30.8	270	30.9	**270**	**30.9**	270	30.8	270	30.9
453.povray	168	31.7	**167**	**31.9**	167	31.9	142	37.5	**142**	**37.5**	141	37.6
454.calculix	292	28.2	294	28.1	**294**	**28.1**	**268**	**30.8**	268	30.8	268	30.8
459.GemsFDTD	**91.5**	**116**	91.3	116	91.5	116	77.0	138	**76.8**	**138**	76.6	139
465.tonto	350	28.1	**386**	**25.5**	391	25.2	310	31.7	**311**	**31.7**	311	31.6
470.lbm	**32.4**	**424**	32.4	424	32.4	424	**32.4**	**424**	32.4	424	32.4	424
481.wrf	199	56.2	**196**	**57.0**	196	57.0	199	56.2	**196**	**57.0**	196	57.0
482.sphinx3	**390**	**50.0**	388	50.2	394	49.4	**376**	**51.8**	376	51.8	376	51.9

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 linux-Sandy Fri Feb 17 00:05:34 2012
```

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Platform Notes (Continued)

```
This section contains SUT (System Under Test) info as seen by
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 E5-2630L 0 @ 2.00GHz
      2 "physical id"s (chips)
      24 "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 : 6
      siblings  : 12
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       132122692 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 linux-Sandy 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 Feb 16 16:05 last=5

SPEC is set to: /root/CPU2006-1.2
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      ext3  197G   68G  120G  37% /

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 = "12"
```

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General Notes (Continued)

```
The Dell PowerEdge T620 and
the Bull NovaScale T840 F3 models are electronically equivalent.
The results have been measured on a Dell PowerEdge T620 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
    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`

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: `-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

Fortran benchmarks:

410.bwaves: basepeak = yes

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.20120328.html

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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