



SPEC® CFP2006 Result

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Bull SAS

SPECfp®2006 = 49.1

BL465 (Intel Xeon E7-4820, 2.00 GHz)

SPECfp_base2006 = 46.0

CPU2006 license: 20

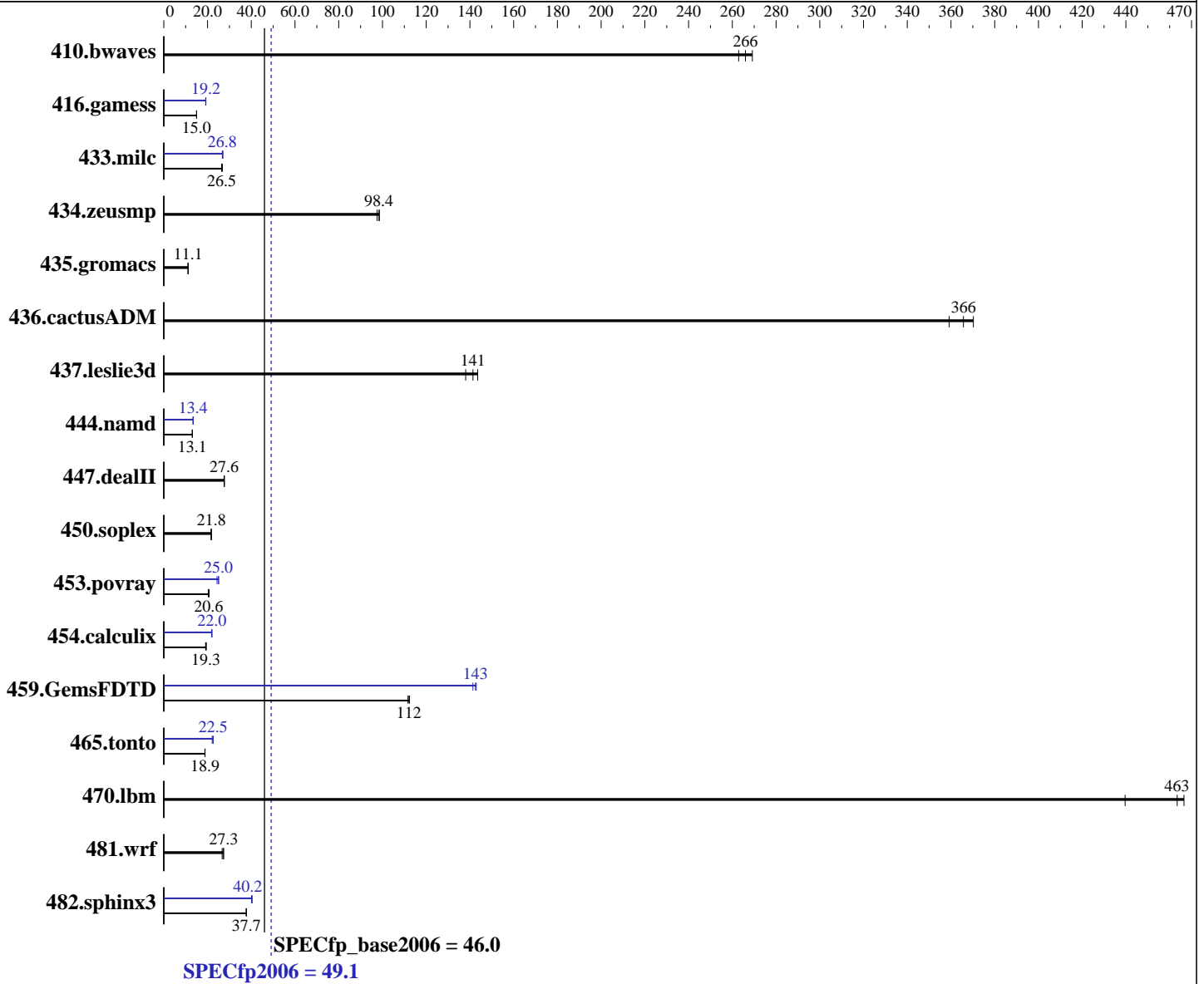
Test date: Dec-2011

Test sponsor: Bull SAS

Hardware Availability: Apr-2011

Tested by: Bull SAS

Software Availability: Sep-2011



Hardware

CPU Name: Intel Xeon E7-4820
 CPU Characteristics: Intel Turbo Boost Technology up to 2.27 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 chips
 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: Red Hat Enterprise Linux Server release 6.1 (Santiago)
 2.6.32-131.0.15.el6.x86_64
 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: ext4

Continued on next page



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L3 Cache: 18 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3L-10600R-9 VLP, ECC)
 Disk Subsystem: 4 x 50 GB SSD, RAID 0
 Other Hardware: None

System State: Run level 3 (multi-user)
 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	<u>51.1</u>	<u>266</u>	50.5	269	51.7	263	<u>51.1</u>	<u>266</u>	50.5	269	51.7	263
416.gamess	1305	15.0	<u>1306</u>	<u>15.0</u>	1308	15.0	1023	19.1	<u>1019</u>	<u>19.2</u>	1018	19.2
433.milc	347	26.5	343	26.8	<u>346</u>	<u>26.5</u>	339	27.1	<u>343</u>	<u>26.8</u>	343	26.8
434.zeusmp	92.3	98.6	<u>92.5</u>	<u>98.4</u>	93.3	97.5	92.3	98.6	<u>92.5</u>	<u>98.4</u>	93.3	97.5
435.gromacs	<u>643</u>	<u>11.1</u>	643	11.1	641	11.1	<u>643</u>	<u>11.1</u>	643	11.1	641	11.1
436.cactusADM	33.3	359	<u>32.7</u>	<u>366</u>	32.3	370	33.3	359	<u>32.7</u>	<u>366</u>	32.3	370
437.leslie3d	68.1	138	<u>66.5</u>	<u>141</u>	65.5	144	68.1	138	<u>66.5</u>	<u>141</u>	65.5	144
444.namd	614	13.1	<u>614</u>	<u>13.1</u>	614	13.1	<u>598</u>	<u>13.4</u>	598	13.4	598	13.4
447.dealII	413	27.7	<u>414</u>	<u>27.6</u>	414	27.6	413	27.7	<u>414</u>	<u>27.6</u>	414	27.6
450.soplex	<u>383</u>	<u>21.8</u>	386	21.6	383	21.8	<u>383</u>	<u>21.8</u>	386	21.6	383	21.8
453.povray	262	20.3	<u>258</u>	<u>20.6</u>	257	20.7	219	24.3	<u>213</u>	<u>25.0</u>	212	25.1
454.calculix	<u>427</u>	<u>19.3</u>	432	19.1	425	19.4	378	21.8	375	22.0	<u>375</u>	<u>22.0</u>
459.GemsFDTD	<u>94.6</u>	<u>112</u>	94.4	112	95.0	112	75.0	141	74.2	143	<u>74.4</u>	<u>143</u>
465.tonto	522	18.9	524	18.8	<u>522</u>	<u>18.9</u>	445	22.1	436	22.6	<u>437</u>	<u>22.5</u>
470.lbm	<u>29.6</u>	<u>463</u>	31.3	440	29.4	467	<u>29.6</u>	<u>463</u>	31.3	440	29.4	467
481.wrf	419	26.7	<u>409</u>	<u>27.3</u>	409	27.3	419	26.7	<u>409</u>	<u>27.3</u>	409	27.3
482.sphinx3	515	37.8	<u>517</u>	<u>37.7</u>	517	37.7	485	40.2	483	40.4	<u>484</u>	<u>40.2</u>

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

BIOS Setting:

Turbo Boost Power Optimization set to Traditional

Sysinfo program /spec/cpu2006.1.2/config/sysinfo.rev6800

\$Rev: 6800 \$ \$Date:: 2011-10-11 # \$ 6f2ebdff5032aaa42e583f96b07f99d3

running on localhost.localdomain Mon Dec 19 11:39:15 2011

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>

Continued on next page



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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E7- 4820 @ 2.00GHz
 4 "physical id"s (chips)
 64 "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 : 8
  siblings  : 16
  physical 0: cores 0 1 2 8 17 18 24 25
  physical 1: cores 0 2 8 9 16 17 18 25
  physical 2: cores 0 2 8 9 16 17 18 25
  physical 3: cores 1 2 8 9 16 17 18 24
cache size : 18432 KB

```

```

From /proc/meminfo
MemTotal:      264656344 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.1 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux localhost.localdomain 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10
15:42:40 EDT 2011 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Dec 19 11:36

```

SPEC is set to: /spec/cpu2006.1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_root
                ext4      178G  128G   41G  77% /

```

```

Additional information from dmidecode:
Memory:
 32x Samsung M392B1K70CM0-YH9 8 GB 1333 MHz 2 rank

```

(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 = "/spec/cpu2006.1.2/libs/32:/spec/cpu2006.1.2/libs/64"
OMP_NUM_THREADS = "32"

```

Continued on next page



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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 enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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.deallI: -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:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

Continued on next page



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Base Optimization Flags (Continued)

C++ benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

C++ benchmarks:

Continued on next page



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Peak Optimization Flags (Continued)

444.namd: -xSSE4.2(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.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -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/Bull-Platform-Settings-V1.2-revA.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/Bull-Platform-Settings-V1.2-revA.xml>



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