SPEC® CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Bull SAS

BL465 (Intel Xeon E7-4820, 2.00 GHz)

$SPECfp®\_rate2006 = \quad 515$

$SPECfp\_rate\_base2006 = \quad 505$

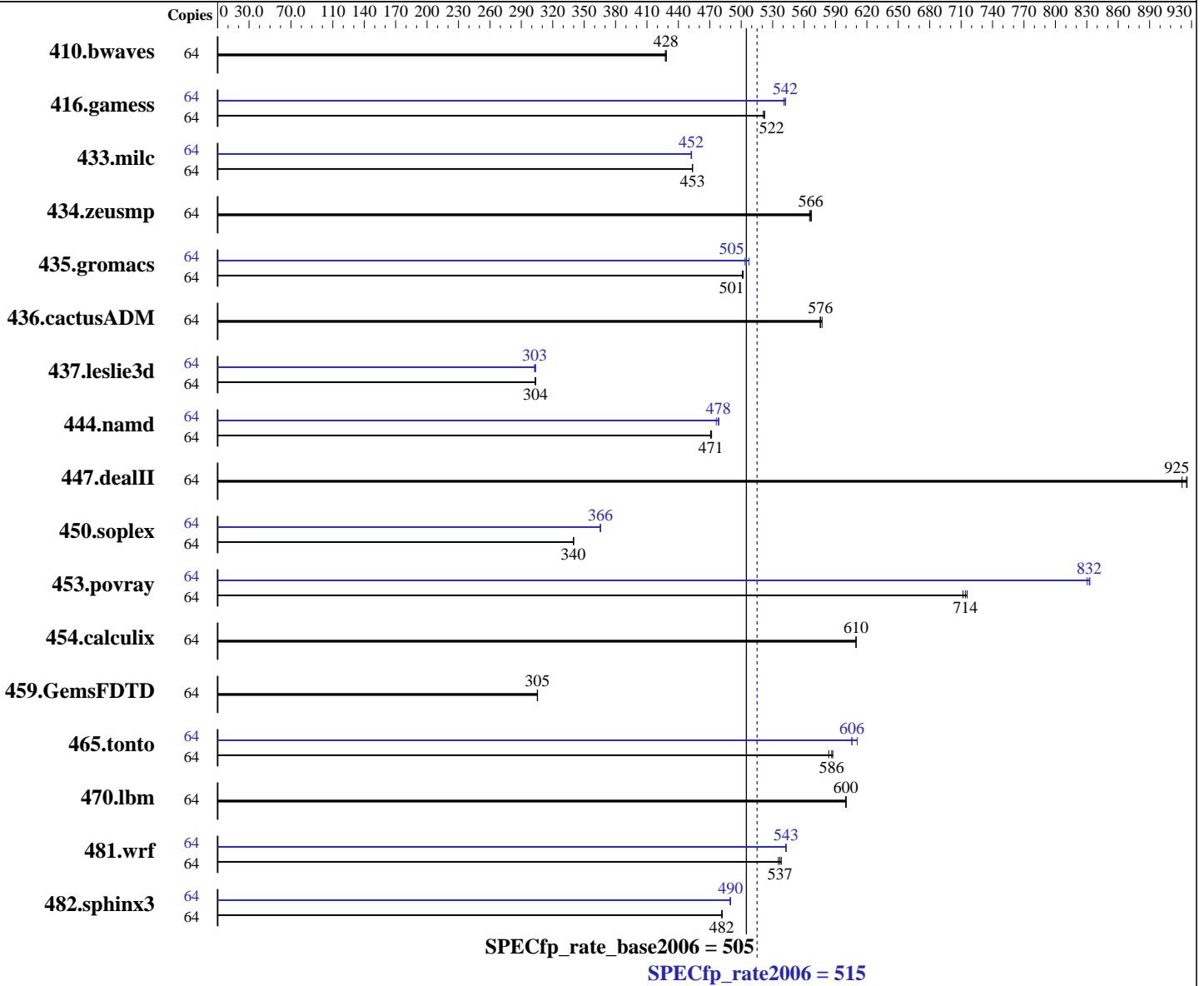**CPU2006 license:** 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Dec-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2011

Copies scale: 0 30.0 70.0 110 140 170 200 230 260 290 320 350 380 410 440 470 500 530 560 590 620 650 680 710 740 770 800 830 860 890 930

Benchmark	Copies	Result
410.bwaves	64	428
416.gamess	64 / 64	542 / 522
433.milc	64 / 64	452 / 453
434.zeusmp	64	566
435.gromacs	64 / 64	505 / 501
436.cactusADM	64	576
437.leslie3d	64 / 64	303 / 304
444.namd	64 / 64	478 / 471
447.dealII	64	925
450.soplex	64 / 64	366 / 340
453.povray	64 / 64	832 / 714
454.calculix	64	610
459.GemsFDTD	64	305
465.tonto	64 / 64	606 / 586
470.lbm	64	600
481.wrf	64 / 64	543 / 537
482.sphinx3	64 / 64	490 / 482

SPECfp_rate_base2006 = 505

SPECfp_rate2006 = 515

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: No
File System: ext4
Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Bull SAS

BL465 (Intel Xeon E7-4820, 2.00 GHz)

$SPECfp\_rate2006 =$ 515

$SPECfp\_rate\_base2006 =$ 505

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Dec-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2011

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

Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	**2031**	**428**	2030	428	2035	428	64	**2031**	**428**	2030	428	2035	428
416.gamess	64	2405	521	2399	522	**2400**	**522**	64	**2312**	**542**	2310	542	2318	541
433.milc	64	1296	453	**1296**	**453**	1295	454	64	1298	453	1299	452	**1299**	**452**
434.zeusmp	64	1030	565	1027	567	**1028**	**566**	64	1030	565	1027	567	**1028**	**566**
435.gromacs	64	910	502	912	501	**912**	**501**	64	900	508	907	504	**905**	**505**
436.cactusADM	64	1325	577	1329	575	**1328**	**576**	64	1325	577	1329	575	**1328**	**576**
437.leslie3d	64	1980	304	1984	303	**1982**	**304**	64	1981	304	1987	303	**1986**	**303**
444.namd	64	**1090**	**471**	1088	472	1090	471	64	1078	476	1072	479	**1073**	**478**
447.dealII	64	**791**	**925**	791	926	795	921	64	**791**	**925**	791	926	795	921
450.soplex	64	1570	340	1572	340	**1571**	**340**	64	**1460**	**366**	1459	366	1461	365
453.povray	64	**477**	**714**	476	716	478	712	64	410	830	409	833	**409**	**832**
454.calculix	64	866	610	866	610	**866**	**610**	64	866	610	866	610	**866**	**610**
459.GemsFDTD	64	2224	305	2223	306	**2224**	**305**	64	2224	305	2223	306	**2224**	**305**
465.tonto	64	1079	584	**1074**	**586**	1072	587	64	**1040**	**606**	1040	606	1031	611
470.lbm	64	1466	600	**1466**	**600**	1465	600	64	1466	600	**1466**	**600**	1465	600
481.wrf	64	1328	538	**1331**	**537**	1335	536	64	**1317**	**543**	1318	542	1317	543
482.sphinx3	64	**2591**	**482**	2589	482	2591	481	64	**2547**	**490**	2546	490	2549	489

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.

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

Continued on next page

Bull SAS

BL465 (Intel Xeon E7-4820, 2.00 GHz)

SPECfp_rate2006 = 515

SPECfp_rate_base2006 = 505

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Dec-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2011

Platform Notes (Continued)

```
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Sat Dec 17 12:45:14 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

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 16 16:38

SPEC is set to: /spec/cpu2006.1.2
   Filesystem    Type    Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_root
                 ext4    178G   62G  107G  37% /

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

(End of data from sysinfo program)
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Bull SAS

BL465 (Intel Xeon E7-4820, 2.00 GHz)

$SPECfp\_rate2006 = 515$

$SPECfp\_rate\_base2006 = 505$

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Dec-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2011

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/cpu2006.1.2/libs/32:/spec/cpu2006.1.2/libs/64"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages disabled with:
 echo never  > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Bull SAS

BL465 (Intel Xeon E7-4820, 2.00 GHz)

$SPECfp\_rate2006 = 515$

$SPECfp\_rate\_base2006 = 505$

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Dec-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2011

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

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
```

Continued on next page

Bull SAS

BL465 (Intel Xeon E7-4820, 2.00 GHz)

$SPECfp_rate2006 = $ 515

$SPECfp_rate_base2006 = $ 505

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Dec-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2011

Peak Portability Flags (Continued)

```
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
```

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) -opt-mem-layout-trans=3(pass 2)
           -prof-use(pass 2) -static -auto-ilp32
```

```
  470.lbm: basepeak = yes
```

```
482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
           -unroll2
```

C++ benchmarks:

```
 444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
           -prof-use(pass 2) -fno-alias -auto-ilp32
```

```
447.dealII: basepeak = yes
```

```
450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
           -prof-use(pass 2) -opt-malloc-options=3
```

```
453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -opt-mem-layout-trans=3(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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Bull SAS

BL465 (Intel Xeon E7-4820, 2.00 GHz)

$SPECfp\_rate2006 = 515$

$SPECfp\_rate\_base2006 = 505$

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Dec-2011
Hardware Availability: Apr-2011
Software Availability: Sep-2011

Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

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) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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

---

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

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 02:08:23 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 17 January 2012.