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

Hewlett-Packard Company

ProLiant SL230s Gen8
(2.60 GHz, Intel Xeon E5-2670)

SPECfp®_rate2006 = 481
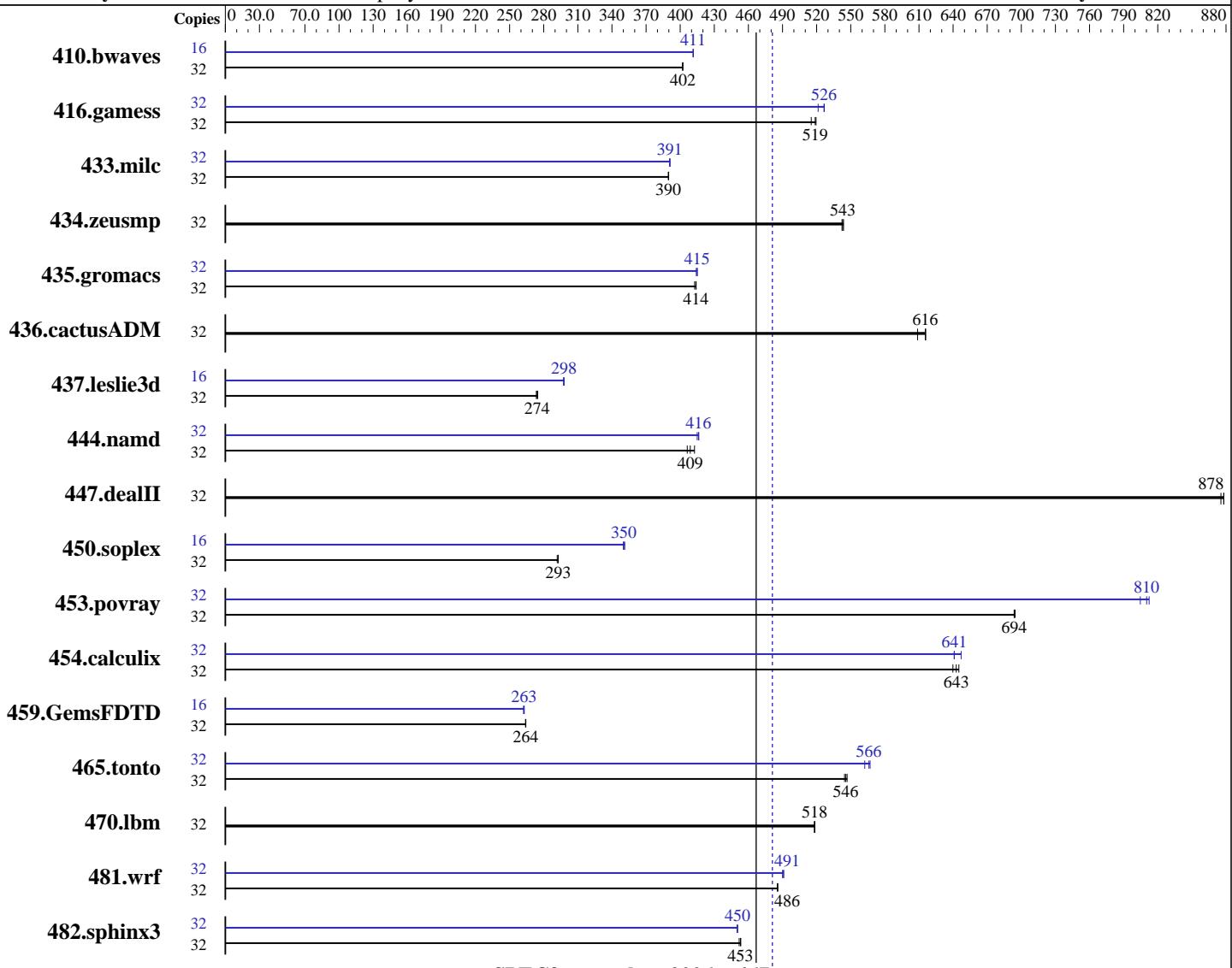
SPECfp_rate_base2006 = 467

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: May-2012

Hardware Availability: Jun-2012

Software Availability: Dec-2011

Results graph (Copies / score scale 0–880):

- 410.bwaves — 16 copies: 411; 32 copies: 402
- 416.gamess — 32 copies: 526; 32 copies: 519
- 433.milc — 32 copies: 391; 32 copies: 390
- 434.zeusmp — 32 copies: 543
- 435.gromacs — 32 copies: 415; 32 copies: 414
- 436.cactusADM — 32 copies: 616
- 437.leslie3d — 16 copies: 298; 32 copies: 274
- 444.namd — 32 copies: 416; 32 copies: 409
- 447.dealII — 32 copies: 878
- 450.soplex — 16 copies: 350; 32 copies: 293
- 453.povray — 32 copies: 810; 32 copies: 694
- 454.calculix — 32 copies: 641; 32 copies: 643
- 459.GemsFDTD — 16 copies: 263; 32 copies: 264
- 465.tonto — 32 copies: 566; 32 copies: 546
- 470.lbm — 32 copies: 518
- 481.wrf — 32 copies: 491; 32 copies: 486
- 482.sphinx3 — 32 copies: 450; 32 copies: 453

SPECfp_rate_base2006 = 467

SPECfp_rate2006 = 481

Hardware

CPU Name: Intel Xeon E5-2670

CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz

CPU MHz: 2600

FPU: Integrated

CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core

CPU(s) orderable: 1,2 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 6.2, Kernel 2.6.32-220.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

System State: Run level 3 (multi-user)

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant SL230s Gen8
(2.60 GHz, Intel Xeon E5-2670)

SPECfp_rate2006 = 481

SPECfp_rate_base2006 = 467

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: May-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

L3 Cache:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	1 x 500 GB 7.2 K SAS
Other Hardware:	None

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

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	1081	402	**1081**	**402**	1081	402	16	**528**	**411**	528	412	529	411
416.gamess	32	1216	515	**1208**	**519**	1206	519	32	1189	527	1202	521	**1190**	**526**
433.milc	32	753	390	**754**	**390**	754	390	32	752	391	751	391	**751**	**391**
434.zeusmp	32	**536**	**543**	536	544	537	542	32	**536**	**543**	536	544	537	542
435.gromacs	32	**552**	**414**	552	414	554	413	32	**551**	**415**	552	414	551	415
436.cactusADM	32	628	609	621	616	**621**	**616**	32	628	609	621	616	**621**	**616**
437.leslie3d	32	**1097**	**274**	1095	275	1100	273	16	**505**	**298**	505	298	506	297
444.namd	32	622	413	**628**	**409**	632	406	32	618	415	616	416	**617**	**416**
447.dealII	32	**417**	**878**	418	876	417	878	32	**417**	**878**	418	876	417	878
450.soplex	32	911	293	**912**	**293**	914	292	16	381	350	380	351	**381**	**350**
453.povray	32	245	695	245	694	**245**	**694**	32	210	812	212	805	**210**	**810**
454.calculix	32	409	645	**411**	**643**	413	640	32	412	641	408	647	**412**	**641**
459.GemsFDTD	32	1285	264	1286	264	**1285**	**264**	16	**646**	**263**	646	263	647	262
465.tonto	32	576	547	578	545	**577**	**546**	32	555	567	560	562	**556**	**566**
470.lbm	32	849	518	848	518	**849**	**518**	32	849	518	848	518	**849**	**518**
481.wrf	32	736	486	**736**	**486**	736	485	32	**728**	**491**	728	491	729	490
482.sphinx3	32	1380	452	1376	453	**1377**	**453**	32	**1385**	**450**	1386	450	1385	450

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"
Transparent Huge Pages enabled with:
echo always > /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 --localalloc runspec <etc>

SPEC CFP2006 Result

Hewlett-Packard Company

ProLiant SL230s Gen8
(2.60 GHz, Intel Xeon E5-2670)

$SPECfp_rate2006 = $ 481

$SPECfp_rate_base2006 = $ 467

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: May-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

Platform Notes

```
BIOS configuration:
 HP Power Profile set to Maximum Performance
 Thermal Configuration set to Maximum Cooling
 Energy/Performance Bias set to Max Performance

Sysinfo program /cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on sl230bid Fri May  4 04:57:34 2012

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 E5-2670 0 @ 2.60GHz
      2 "physical id"s (chips)
      32 "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 3 4 5 6 7
      physical 1: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       132129200 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.2 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux sl230bid 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 3 17:08

SPEC is set to: /cpu2006
   Filesystem      Type    Size  Used Avail Use% Mounted on
   /dev/sda3       ext4    457G   40G  394G  10% /

Additional information from dmidecode:
   BIOS HP P75 03/16/2012
   Memory:
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant SL230s Gen8
(2.60 GHz, Intel Xeon E5-2670)

SPECfp_rate2006 =   481

SPECfp_rate_base2006 =   467

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: May-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

Platform Notes (Continued)

```
      16x Not Specified Not Specified 8 GB 1600 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,compact,1,0"
LD_LIBRARY_PATH = "/cpu2006/libs2/32:/cpu2006/libs2/64"

 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
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant SL230s Gen8
(2.60 GHz, Intel Xeon E5-2670)

SPECfp_rate2006 = 481

SPECfp_rate_base2006 = 467

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: May-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

Base Optimization Flags

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

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

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -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

Hewlett-Packard Company

ProLiant SL230s Gen8
(2.60 GHz, Intel Xeon E5-2670)

$SPECfp\_rate2006 =$ 481

$SPECfp\_rate\_base2006 =$ 467

CPU2006 license: 3		**Test date:**	May-2012
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Jun-2012
Tested by:	Hewlett-Packard Company	**Software Availability:**	Dec-2011

Peak Portability Flags (Continued)

```
454.calculix: -DSPEC_CPU_LP64 -nofor_main
   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: -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
          -opt-mem-layout-trans=3

 470.lbm: basepeak = yes

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

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
              -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant SL230s Gen8
(2.60 GHz, Intel Xeon E5-2670)

$SPECfp_rate2006 = $ 481

$SPECfp_rate_base2006 = $ 467

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: May-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

Peak Optimization Flags (Continued)

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

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120425.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120425.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 13:26:40 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 4 December 2012.