SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2695 v2)

$SPECfp^{®}\_rate2006 = 673$

$SPECfp\_rate\_base2006 = 654$
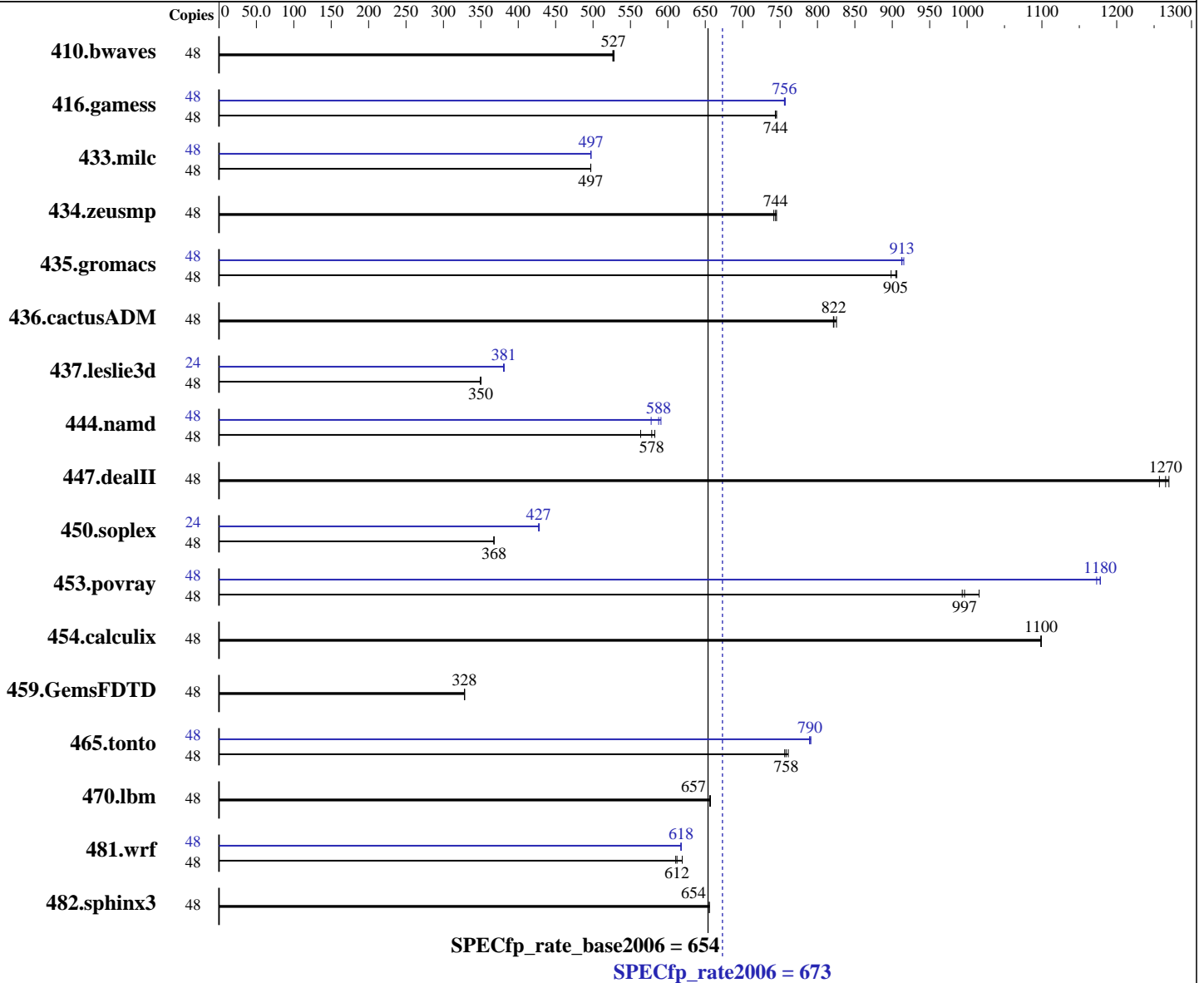
CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Nov-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013

Benchmark	Copies	Result
410.bwaves	48	527
416.gamess	48 / 48	756 / 744
433.milc	48 / 48	497 / 497
434.zeusmp	48	744
435.gromacs	48 / 48	913 / 905
436.cactusADM	48	822
437.leslie3d	24 / 48	381 / 350
444.namd	48 / 48	588 / 578
447.dealII	48	1270
450.soplex	24 / 48	427 / 368
453.povray	48 / 48	1180 / 997
454.calculix	48	1100
459.GemsFDTD	48	328
465.tonto	48 / 48	790 / 758
470.lbm	48	657
481.wrf	48 / 48	618 / 612
482.sphinx3	48	654

SPECfp_rate_base2006 = 654

SPECfp_rate2006 = 673

Hardware

CPU Name: Intel Xeon E5-2695 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
Kernel 2.6.32-358.el6.x86_64
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 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

Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2695 v2)

SPECfp_rate2006 = 673

SPECfp_rate_base2006 = 654

CPU2006 license: 3	**Test date:** Nov-2013
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Sep-2013
Tested by: Hewlett-Packard Company	**Software Availability:** Sep-2013

L3 Cache:	30 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	400 GB SAS SSD, RAID 0	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	1239	526	**1237**	**527**	1235	528	48	1239	526	**1237**	**527**	1235	528
416.gamess	48	1261	745	1264	744	**1263**	**744**	48	1244	756	1242	757	**1243**	**756**
433.milc	48	887	497	**887**	**497**	887	497	48	**886**	**497**	886	497	887	497
434.zeusmp	48	589	742	586	745	**587**	**744**	48	589	742	586	745	**587**	**744**
435.gromacs	48	**379**	**905**	381	898	378	906	48	374	915	376	913	**375**	**913**
436.cactusADM	48	695	825	698	821	**698**	**822**	48	695	825	698	821	**698**	**822**
437.leslie3d	48	**1290**	**350**	1288	350	1291	349	24	**593**	**381**	593	380	592	381
444.namd	48	**666**	**578**	683	564	661	583	48	652	591	666	578	**655**	**588**
447.dealII	48	**434**	**1270**	432	1270	437	1260	48	**434**	**1270**	432	1270	437	1260
450.soplex	48	1088	368	**1089**	**368**	1090	367	24	467	428	468	427	**468**	**427**
453.povray	48	**256**	**997**	257	993	251	1020	48	218	1170	**217**	**1180**	217	1180
454.calculix	48	**360**	**1100**	360	1100	360	1100	48	**360**	**1100**	360	1100	360	1100
459.GemsFDTD	48	**1552**	**328**	1553	328	1551	328	48	**1552**	**328**	1553	328	1551	328
465.tonto	48	621	761	**623**	**758**	625	756	48	597	791	**598**	**790**	598	789
470.lbm	48	1004	657	1005	656	**1004**	**657**	48	1004	657	1005	656	**1004**	**657**
481.wrf	48	866	619	**876**	**612**	878	611	48	868	618	**868**	**618**	869	617
482.sphinx3	48	**1430**	**654**	1431	654	1427	656	48	**1430**	**654**	1431	654	1427	656

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 --interleave=all runspec <etc>
Disabled unused Linux services through "stop_services.sh" before running.

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2695 v2)

$SPECfp\_rate2006 = 673$

$SPECfp\_rate\_base2006 = 654$

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

Test date: Nov-2013
Hardware Availability: Sep-2013
Software Availability: Sep-2013

Platform Notes

```
BIOS Configuration:
  HP Power Profile set to Maximum Performance
  Memory Power Savings Mode set to Maximum Performance
  Thermal Configuration set to Maximum Cooling
  Collaborative Power Control set to Disabled
  Dynamic Power Capping Functionality set to Disabled
  Processor Power and Utilization Monitoring set to Disabled
  Memory Refresh Rate set to 1x

Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on DL380p-Gen8-0S9 Wed Nov  6 17:52:42 2013

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 E5-2695 v2 @ 2.40GHz
      2 "physical id"s (chips)
      48 "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 : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
   cache size : 30720 KB

From /proc/meminfo
   MemTotal:      264493708 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux DL380p-Gen8-0S9 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST
   2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 6 17:50

SPEC is set to: /cpu2006
   Filesystem     Type     Size  Used Avail Use% Mounted on
   /dev/sda3      ext4     365G   90G  257G  26% /
```
Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2695 v2)

$SPECfp\_rate2006 =$ **673**

$SPECfp\_rate\_base2006 =$ **654**

CPU2006 license: 3	**Test date:**	Nov-2013
Test sponsor: Hewlett-Packard Company	**Hardware Availability:**	Sep-2013
Tested by: Hewlett-Packard Company	**Software Availability:**	Sep-2013

Platform Notes (Continued)

```
   Additional information from dmidecode:
     BIOS HP P70 09/08/2013
     Memory:
      16x HP 712383-081 16 GB 1866 MHz 2 rank
       8x UNKNOWN NOT AVAILABLE

   (End of data from sysinfo program)
   Regarding the sysinfo display about the memory installed, the correct amount of
   memory is 256 GB and the dmidecode description should have one line reading as:
      16x HP 712383-081 16 GB 1866 MHz 2 rank
   Regarding the sysinfo display about the CPU cores from /proc/cpuinfo, the correct
   mapping should display as cores 0 through 11. The mapping should read as the
   following:
      physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11
      physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11
```

General Notes

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

   Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
   memory using RedHat EL 6.4
```

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
```

Continued on next page

Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2695 v2)

$SPECfp\_rate2006 =$ 673

$SPECfp\_rate\_base2006 =$ 654

CPU2006 license: 3		**Test date:**	Nov-2013
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Sep-2013
Tested by:	Hewlett-Packard Company	**Software Availability:**	Sep-2013

Base Portability Flags (Continued)

```
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 -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

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

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

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

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

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
```

Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2695 v2)

$SPECfp_rate2006 = $ 673

$SPECfp_rate_base2006 = $ 654

CPU2006 license: 3		**Test date:**	Nov-2013
Test sponsor: Hewlett-Packard Company		**Hardware Availability:**	Sep-2013
Tested by: Hewlett-Packard Company		**Software Availability:**	Sep-2013

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
      470.lbm: -DSPEC_CPU_LP64
        481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
   482.sphinx3: -DSPEC_CPU_LP64
```

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

    470.lbm: basepeak = yes

 482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
   444.namd: -xAVX(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: -xAVX(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: -xAVX(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:

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2695 v2)

$SPECfp\_rate2006 =$ 673

$SPECfp\_rate\_base2006 =$ 654

CPU2006 license: 3		**Test date:**	Nov-2013
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Sep-2013
Tested by:	Hewlett-Packard Company	**Software Availability:**	Sep-2013

Peak Optimization Flags (Continued)

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-

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

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

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.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 18:17:28 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 December 2013.