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

Hewlett-Packard Company

$SPECfp®\_rate2006 =$ 180

ProLiant DL180 G6
(2.40 GHz, Intel Xeon E5620)
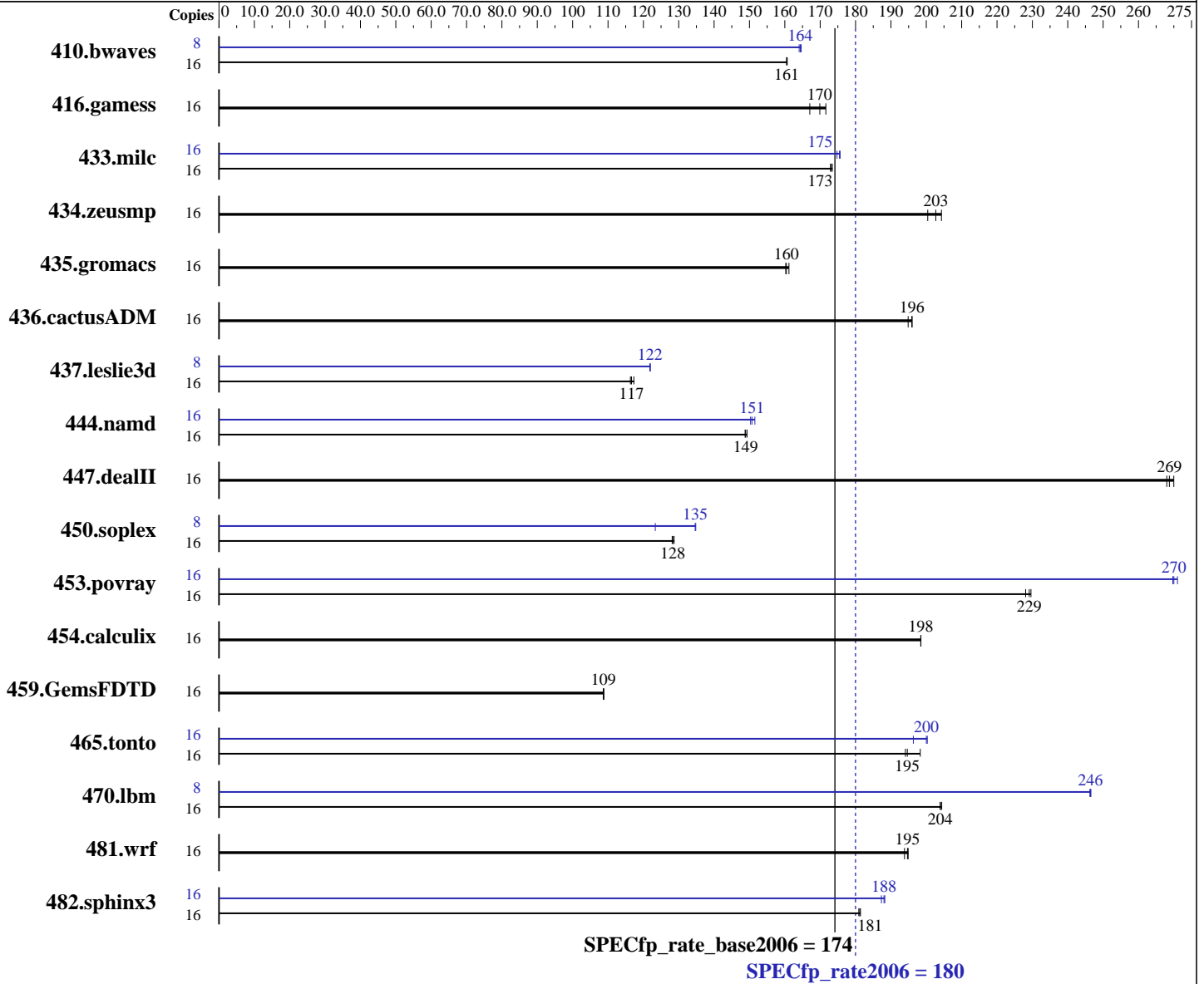
$SPECfp\_rate\_base2006 =$ 174

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

Test date: Jul-2011
Hardware Availability: Mar-2010
Software Availability: Jan-2011

Copies

Benchmark	Copies	Value
410.bwaves	8	164
410.bwaves	16	161
416.gamess	16	170
433.milc	16	175
433.milc	16	173
434.zeusmp	16	203
435.gromacs	16	160
436.cactusADM	16	196
437.leslie3d	8	122
437.leslie3d	16	117
444.namd	16	151
444.namd	16	149
447.dealII	16	269
450.soplex	8	135
450.soplex	16	128
453.povray	16	270
453.povray	16	229
454.calculix	16	198
459.GemsFDTD	16	109
465.tonto	16	200
465.tonto	16	195
470.lbm	8	246
470.lbm	16	204
481.wrf	16	195
482.sphinx3	16	188
482.sphinx3	16	181

SPECfp_rate_base2006 = 174

SPECfp_rate2006 = 180

Hardware

CPU Name: Intel Xeon E5620
CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 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: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL180 G6
(2.40 GHz, Intel Xeon E5620)

$SPECfp\_rate2006 =$ 180

$SPECfp\_rate\_base2006 =$ 174

CPU2006 license: 3	**Test date:** Jul-2011
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Mar-2010
Tested by: Hewlett-Packard Company	**Software Availability:** Jan-2011

L3 Cache:	12 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	None
Memory:	48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)		
Disk Subsystem:	1 x 160 GB 7.2 K SATA		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1353	161	**1354**	**161**	1355	161	8	660	165	**661**	**164**	663	164
416.gamess	16	**1844**	**170**	1875	167	1826	172	16	**1844**	**170**	1875	167	1826	172
433.milc	16	**849**	**173**	849	173	847	173	16	840	175	836	176	**837**	**175**
434.zeusmp	16	713	204	**718**	**203**	727	200	16	713	204	**718**	**203**	727	200
435.gromacs	16	709	161	**712**	**160**	713	160	16	709	161	**712**	**160**	713	160
436.cactusADM	16	976	196	**976**	**196**	981	195	16	976	196	**976**	**196**	981	195
437.leslie3d	16	1293	116	**1289**	**117**	1282	117	8	617	122	**617**	**122**	617	122
444.namd	16	**862**	**149**	859	149	863	149	16	**851**	**151**	854	150	847	152
447.dealII	16	683	268	**681**	**269**	678	270	16	683	268	**681**	**269**	678	270
450.soplex	16	1037	129	**1040**	**128**	1041	128	8	541	123	495	135	**496**	**135**
453.povray	16	373	228	**372**	**229**	371	230	16	**315**	**270**	316	270	314	271
454.calculix	16	**665**	**198**	665	198	665	198	16	**665**	**198**	665	198	665	198
459.GemsFDTD	16	1562	109	1560	109	**1561**	**109**	16	1562	109	1560	109	**1561**	**109**
465.tonto	16	**809**	**195**	794	198	811	194	16	**787**	**200**	786	200	802	196
470.lbm	16	1076	204	**1078**	**204**	1078	204	8	446	247	**446**	**246**	446	246
481.wrf	16	917	195	922	194	**918**	**195**	16	917	195	922	194	**918**	**195**
482.sphinx3	16	**1721**	**181**	1719	181	1724	181	16	1665	187	**1658**	**188**	1656	188

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

Submit Notes

    The config file option 'submit' was used.
    numactl was used to bind copies to the cores

Operating System Notes

    'nodev   /mnt/hugepages   hugetlbfs   defaults   0 0' added to /etc/fstab
     'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
    echo 7200 > /proc/sys/vm/nr_hugepages
    export HUGETLB_MORECORE=yes
    export LD_PRELOAD=/usr/lib64/libhugetlbfs.so

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL180 G6
(2.40 GHz, Intel Xeon E5620)

$SPECfp\_rate2006 =$ 180

$SPECfp\_rate\_base2006 =$ 174

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

Test date: Jul-2011
Hardware Availability: Mar-2010
Software Availability: Jan-2011

Platform Notes

```
   BIOS configuration:
    HP Power Profile set to Maximum Performance
    Thermal Configuration set to Increased Cooling
    Data Reuse set to Disabled
```

General Notes

```
   Binaries were compiled on 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 DL180 G6
(2.40 GHz, Intel Xeon E5620)

$SPECfp\_rate2006 =$ 180

$SPECfp\_rate\_base2006 =$ 174

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

Test date: Jul-2011
Hardware Availability: Mar-2010
Software Availability: Jan-2011

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

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
   454.calculix: -DSPEC_CPU_LP64 -nofor_main
 459.GemsFDTD: -DSPEC_CPU_LP64
      465.tonto: -DSPEC_CPU_LP64
```

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL180 G6
(2.40 GHz, Intel Xeon E5620)

SPECfp_rate2006 =   180

SPECfp_rate_base2006 =   174

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Jul-2011

Hardware Availability: Mar-2010

Software Availability: Jan-2011

Peak Portability Flags (Continued)

```
        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) -prof-use(pass 2) -static -auto-ilp32

        470.lbm: -xSSE4.2(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
                 -ansi-alias -opt-prefetch -static -auto-ilp32

     482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2
```

C++ benchmarks:

```
      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.dealII: basepeak = yes

      450.soplex: -xSSE4.2(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
                  -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

      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
                  -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

Fortran benchmarks:

```
      410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -prof-use(pass 2) -static

     416.gamess: basepeak = yes

     434.zeusmp: basepeak = yes

     437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div
                   -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

   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
```

Hewlett-Packard Company

ProLiant DL180 G6
(2.40 GHz, Intel Xeon E5620)

$SPECfp_rate2006 = $ 180

$SPECfp_rate_base2006 = $ 174

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

Test date: Jul-2011
Hardware Availability: Mar-2010
Software Availability: Jan-2011

Peak Optimization Flags (Continued)

465.tonto (continued):
```
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.xml

SPEC and SPECfp are registered trademarks of the Standard Performance
Evaluation Corporation. All other brand and product names appearing in
this result are trademarks or registered trademarks of their respective
holders.

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 22:15:49 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 18 August 2011.