



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 G7
(2.00 GHz, Intel Xeon E7-4820)

SPECfp[®]2006 = 46.2

SPECfp_base2006 = 43.8

CPU2006 license: 3

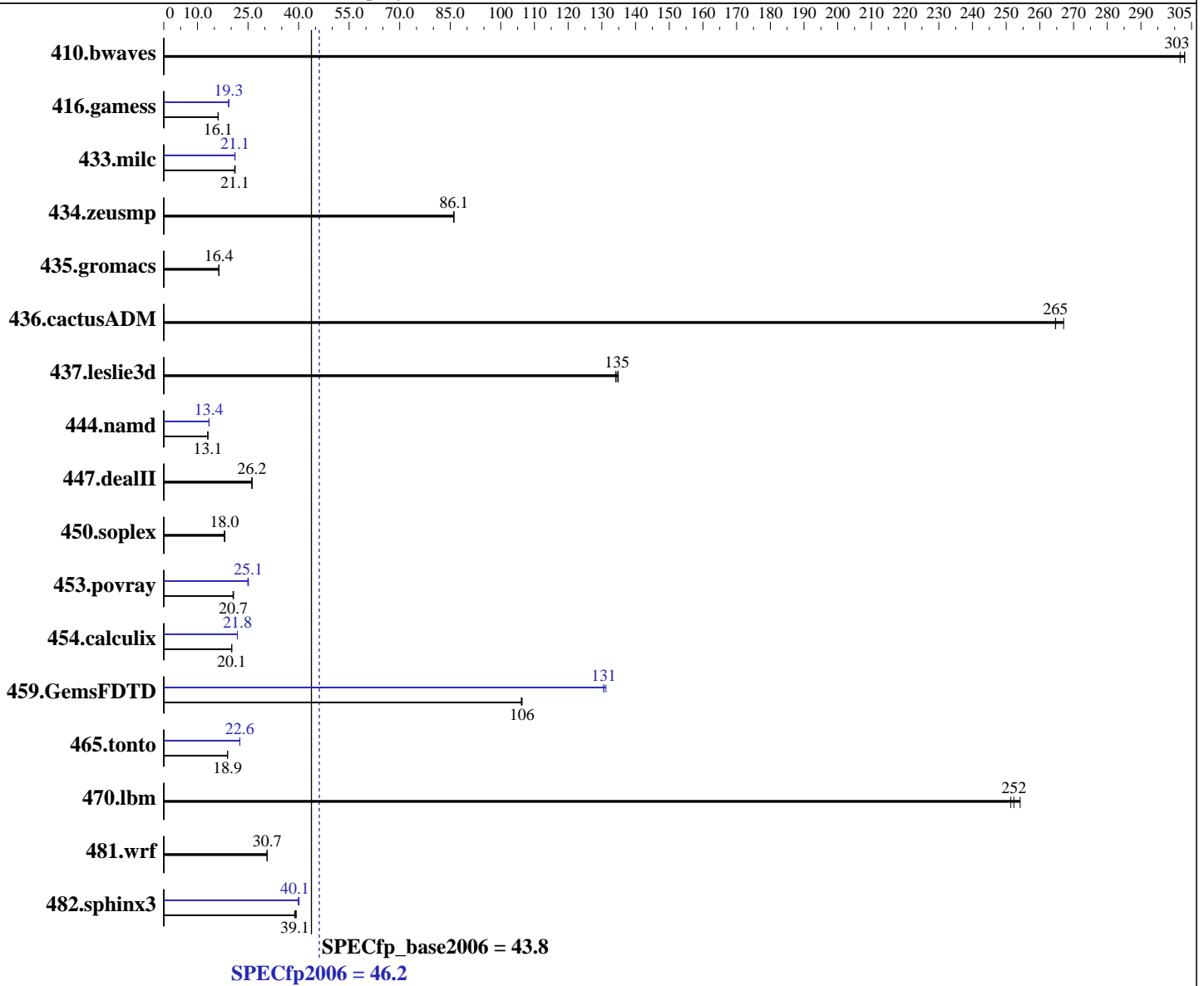
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Apr-2012

Hardware Availability: Apr-2011

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E7-4820
 CPU Characteristics: Intel Turbo Boost Technology up to 2.26 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip
 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 6.2, (Santiago)
 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: Yes
 File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp2006 = **46.2**

ProLiant DL580 G7
(2.00 GHz, Intel Xeon E7-4820)

SPECfp_base2006 = **43.8**

CPU2006 license: 3

Test date: Apr-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2011

Tested by: Hewlett-Packard Company

Software Availability: Dec-2011

L3 Cache: 18 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 4 x 146 GB 15 K SAS, 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	44.9	303	44.9	303	45.1	302	44.9	303	44.9	303	45.1	302
416.gamess	1213	16.1	1213	16.1	1216	16.1	1016	19.3	1017	19.3	1016	19.3
433.milc	437	21.0	434	21.1	434	21.2	435	21.1	434	21.2	435	21.1
434.zeusmp	106	86.1	106	86.1	106	86.1	106	86.1	106	86.1	106	86.1
435.gromacs	436	16.4	436	16.4	437	16.4	436	16.4	436	16.4	437	16.4
436.cactusADM	45.1	265	45.2	265	44.7	267	45.1	265	45.2	265	44.7	267
437.leslie3d	69.9	135	69.7	135	70.1	134	69.9	135	69.7	135	70.1	134
444.namd	614	13.1	613	13.1	613	13.1	597	13.4	597	13.4	597	13.4
447.dealII	437	26.2	438	26.1	436	26.2	437	26.2	438	26.1	436	26.2
450.soplex	463	18.0	463	18.0	460	18.1	463	18.0	463	18.0	460	18.1
453.povray	257	20.7	257	20.7	259	20.5	213	24.9	212	25.1	212	25.1
454.calculix	409	20.2	410	20.1	410	20.1	378	21.8	378	21.8	378	21.8
459.GemsFDTD	99.8	106	100	106	99.8	106	81.3	131	80.8	131	81.3	131
465.tonto	520	18.9	520	18.9	521	18.9	436	22.6	436	22.6	436	22.6
470.lbm	54.5	252	54.1	254	54.7	251	54.5	252	54.1	254	54.7	251
481.wrf	364	30.7	364	30.6	364	30.7	364	30.7	364	30.6	364	30.7
482.sphinx3	502	38.9	496	39.3	498	39.1	486	40.1	486	40.1	489	39.9

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"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Platform Notes

BIOS Configuration:
HP Power Profile set to Maximum Performance
Thermal Configuration set to Increased Cooling
Collaborative Power Control set to Disabled
Intel Hyperthreading set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6800

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 G7
(2.00 GHz, Intel Xeon E7-4820)

SPECfp2006 = 46.2

SPECfp_base2006 = 43.8

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

Test date: Apr-2012
Hardware Availability: Apr-2011
Software Availability: Dec-2011

Platform Notes (Continued)

\$Rev: 6800 \$ \$Date:: 2011-10-11 # \$ 6f2ebdff5032aaa42e583f96b07f99d3
running on dl580g7-da Tue Apr 24 05:53:35 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 E7- 4820 @ 2.00GHz
 4 "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  : 8
  physical 0: cores 0 1 8 9 16 17 24 25
  physical 1: cores 0 1 2 9 16 18 24 25
  physical 2: cores 0 1 2 8 17 18 24 25
  physical 3: cores 0 1 2 9 16 18 24 25
cache size : 18432 KB
```

```
From /proc/meminfo
MemTotal:      529265536 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 dl580g7-da 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 Apr 24 04:52
```

```
SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       ext4      537G  102G  408G  20% /
```

```
Additional information from dmidecode:
BIOS HP P65 05/23/2011
Memory:
 32x Not Specified Not Specified 16 GB 1333 MHz 2 rank
```

(End of data from sysinfo program)



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 G7
(2.00 GHz, Intel Xeon E7-4820)

SPECfp2006 = 46.2

SPECfp_base2006 = 43.8

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Apr-2012

Hardware Availability: Apr-2011

Software Availability: Dec-2011

General Notes

Environment variables set by runspec before the start of the run:

```
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64"
OMP_NUM_THREADS = "16"
```

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
```

Base Optimization Flags

C benchmarks:

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 G7
(2.00 GHz, Intel Xeon E7-4820)

SPECfp2006 = 46.2

SPECfp_base2006 = 43.8

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Apr-2012

Hardware Availability: Apr-2011

Software Availability: Dec-2011

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`

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 G7
(2.00 GHz, Intel Xeon E7-4820)

SPECfp2006 = 46.2

SPECfp_base2006 = 43.8

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

Test date: Apr-2012
Hardware Availability: Apr-2011
Software Availability: Dec-2011

Peak Optimization Flags (Continued)

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.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-alloc
-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-linux64.20120425.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>



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 G7
(2.00 GHz, Intel Xeon E7-4820)

SPECfp2006 = 46.2

SPECfp_base2006 = 43.8

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Apr-2012

Hardware Availability: Apr-2011

Software Availability: Dec-2011

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 v1.2.
Report generated on Thu Jul 24 08:51:15 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 May 2012.