



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

### SPECfp®\_rate2006 = 229

ProLiant BL460c Gen8  
(2.00 GHz, Intel Xeon E5-2640 v2)

### SPECfp\_rate\_base2006 = 225

CPU2006 license: 3

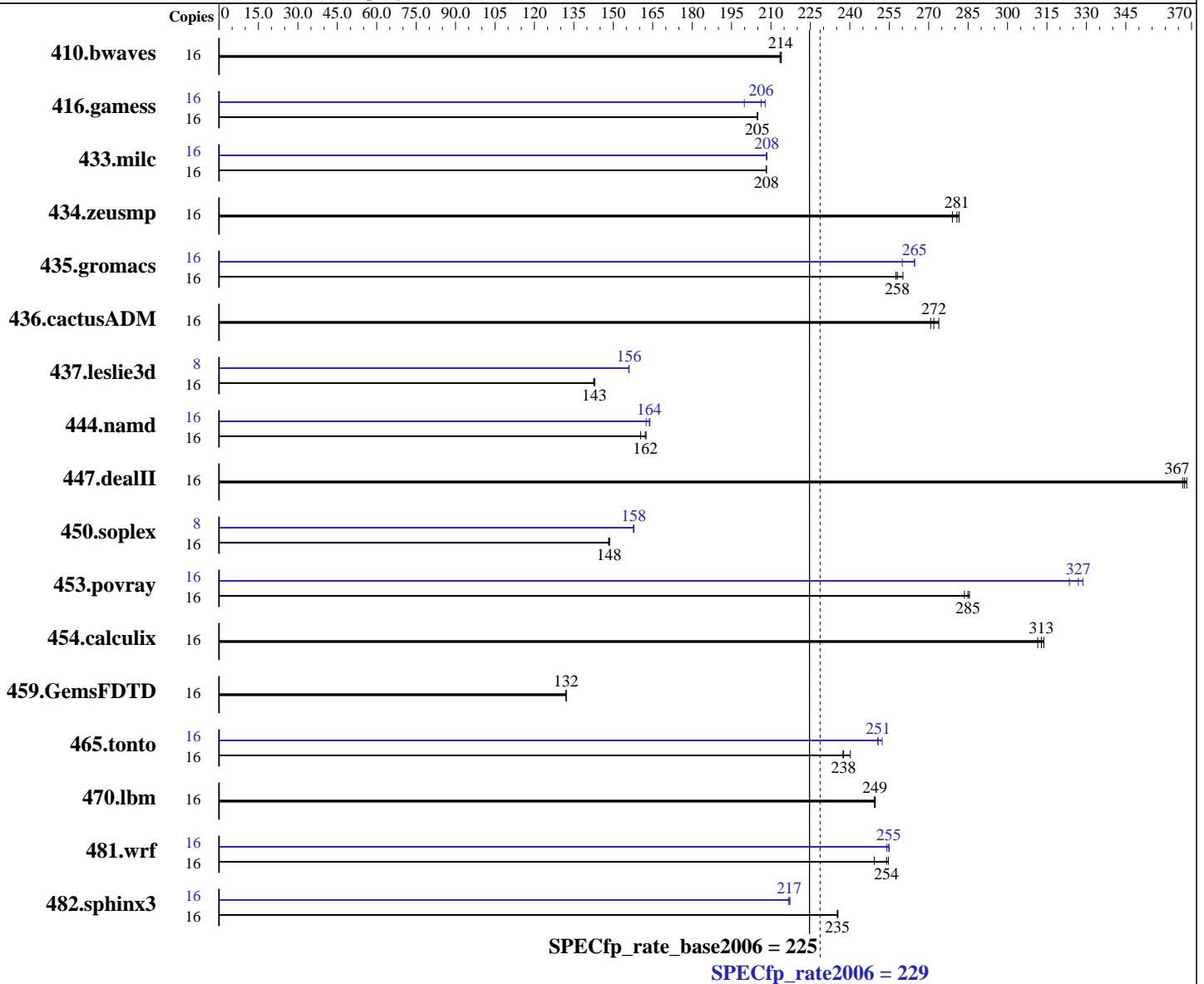
Test date: Feb-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Dec-2013

Tested by: Hewlett-Packard Company

Software Availability: Oct-2013



### Hardware

CPU Name: Intel Xeon E5-2640 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 1 chip, 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 6.4, (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

SPECfp\_rate2006 = **229**

ProLiant BL460c Gen8  
(2.00 GHz, Intel Xeon E5-2640 v2)

SPECfp\_rate\_base2006 = **225**

CPU2006 license: 3

Test date: Feb-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Dec-2013

Tested by: Hewlett-Packard Company

Software Availability: Oct-2013

L3 Cache: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (8 x 16 GB 2Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 2 x 300 GB 15 K SAS, RAID 1  
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	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1016	214	<b>1017</b>	<b>214</b>	1019	213	16	1016	214	<b>1017</b>	<b>214</b>	1019	213
416.gamess	16	<b>1530</b>	<b>205</b>	1528	205	1530	205	16	<b>1519</b>	<b>206</b>	1567	200	1507	208
433.milc	16	<b>705</b>	<b>208</b>	705	208	706	208	16	705	208	705	208	<b>705</b>	<b>208</b>
434.zeusmp	16	<b>519</b>	<b>281</b>	522	279	517	282	16	<b>519</b>	<b>281</b>	522	279	517	282
435.gromacs	16	439	260	<b>443</b>	<b>258</b>	444	258	16	439	260	<b>432</b>	<b>265</b>	432	265
436.cactusADM	16	706	271	<b>703</b>	<b>272</b>	698	274	16	706	271	<b>703</b>	<b>272</b>	698	274
437.leslie3d	16	<b>1053</b>	<b>143</b>	1055	143	1052	143	8	<b>482</b>	<b>156</b>	482	156	482	156
444.namd	16	790	163	<b>791</b>	<b>162</b>	800	160	16	<b>784</b>	<b>164</b>	789	163	783	164
447.dealII	16	499	367	<b>498</b>	<b>367</b>	497	368	16	499	367	<b>498</b>	<b>367</b>	497	368
450.soplex	16	898	149	<b>899</b>	<b>148</b>	900	148	8	423	158	423	158	<b>423</b>	<b>158</b>
453.povray	16	298	286	<b>299</b>	<b>285</b>	300	284	16	263	324	259	329	<b>260</b>	<b>327</b>
454.calculix	16	424	311	<b>422</b>	<b>313</b>	421	314	16	424	311	<b>422</b>	<b>313</b>	421	314
459.GemsFDTD	16	1287	132	<b>1285</b>	<b>132</b>	1285	132	16	1287	132	<b>1285</b>	<b>132</b>	1285	132
465.tonto	16	655	240	663	237	<b>663</b>	<b>238</b>	16	624	252	628	251	<b>628</b>	<b>251</b>
470.lbm	16	882	249	880	250	<b>881</b>	<b>249</b>	16	882	249	880	250	<b>881</b>	<b>249</b>
481.wrf	16	<b>704</b>	<b>254</b>	702	255	717	249	16	701	255	703	254	<b>701</b>	<b>255</b>
482.sphinx3	16	1324	235	1326	235	<b>1325</b>	<b>235</b>	16	<b>1437</b>	<b>217</b>	1439	217	1435	217

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

## Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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>
```



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECfp\_rate2006 = 229

ProLiant BL460c Gen8  
(2.00 GHz, Intel Xeon E5-2640 v2)

SPECfp\_rate\_base2006 = 225

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

**Test date:** Feb-2014  
**Hardware Availability:** Dec-2013  
**Software Availability:** Oct-2013

### Platform Notes

#### BIOS Configuration:

HP Power Profile set to Maximum Performance  
Memory Power Savings Mode set to Maximum Performance  
Thermal Configuration set so Maximum Cooling  
Processor Power and Utilization Monitoring set to Disabled

Sysinfo program /cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on BL460ITSC Sat Feb 1 13:20:10 2014

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 E5-2640 v2 @ 2.00GHz
 1 "physical id"s (chips)
 16 "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
cache size      : 20480 KB
```

#### From /proc/meminfo

```
MemTotal:      132119604 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 BL460ITSC 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 Jan 31 23:27

#### SPEC is set to: /cpu2006

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_bl460itsc-lv_root
                ext4      273G  77G  183G  30% /
```

#### Additional information from dmidecode:

```
BIOS HP I31 12/20/2013
```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 229**

ProLiant BL460c Gen8  
(2.00 GHz, Intel Xeon E5-2640 v2)

**SPECfp\_rate\_base2006 = 225**

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

**Test date:** Feb-2014  
**Hardware Availability:** Dec-2013  
**Software Availability:** Oct-2013

## Platform Notes (Continued)

Memory:  
8x HP 672612-081 16 GB 1600 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 128 GB and the dmidecode description should have one line reading as:  
8x HP 672612-081 16 GB 1600 MHz 2 rank

## 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  
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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 229**

ProLiant BL460c Gen8  
(2.00 GHz, Intel Xeon E5-2640 v2)

**SPECfp\_rate\_base2006 = 225**

**CPU2006 license:** 3

**Test date:** Feb-2014

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Dec-2013

**Tested by:** Hewlett-Packard Company

**Software Availability:** Oct-2013

## Base Portability Flags (Continued)

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 (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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECfp\_rate2006 = 229

ProLiant BL460c Gen8  
(2.00 GHz, Intel Xeon E5-2640 v2)

SPECfp\_rate\_base2006 = 225

CPU2006 license: 3

Test date: Feb-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Dec-2013

Tested by: Hewlett-Packard Company

Software Availability: Oct-2013

## Peak Portability Flags (Continued)

```

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

```

## 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: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
        -unroll2

```

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:

410.bwaves: basepeak = yes

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 229**

ProLiant BL460c Gen8  
(2.00 GHz, Intel Xeon E5-2640 v2)

**SPECfp\_rate\_base2006 = 225**

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

**Test date:** Feb-2014  
**Hardware Availability:** Dec-2013  
**Software Availability:** Oct-2013

## Peak Optimization Flags (Continued)

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.20131009.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.20131009.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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 21:37:23 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 11 March 2014.