



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

### SPECfp®\_rate2006 = 223

ProLiant BL460c Gen8  
(2.40 GHz, Intel Xeon E5-2609)

### SPECfp\_rate\_base2006 = 219

CPU2006 license: 3

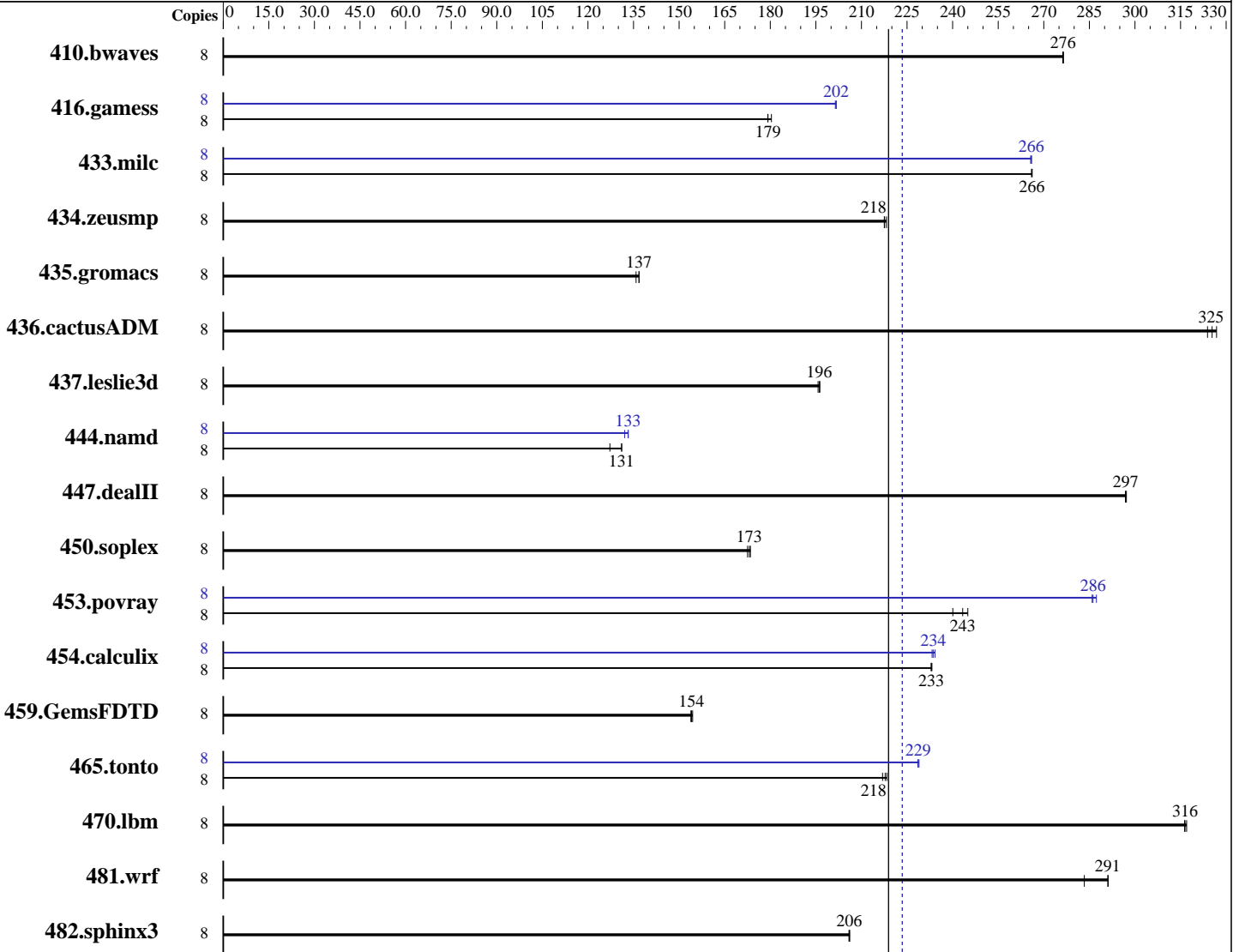
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Apr-2011

Hardware Availability: Jun-2012

Software Availability: Mar-2012



SPECfp\_rate\_base2006 = 219

SPECfp\_rate2006 = 223

### Hardware

CPU Name: Intel Xeon E5-2609  
 CPU Characteristics:  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 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 6.2, (Santiago)  
 Kernel 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.2.273 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 = **223**

ProLiant BL460c Gen8  
(2.40 GHz, Intel Xeon E5-2609)

SPECfp\_rate\_base2006 = **219**

CPU2006 license: 3

Test date: Apr-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Mar-2012

L3 Cache: 10 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz and CL7)  
Disk Subsystem: 1 x 146 GB 15 K SAS  
Other Hardware: None

System State: Run level 3 (multi-user)  
Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: HP Array Configuration Utility, CLI version

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	394	276	<b>393</b>	<b>276</b>	393	276	8	394	276	<b>393</b>	<b>276</b>	393	276
416.gamess	8	874	179	868	180	<b>874</b>	<b>179</b>	8	777	202	778	201	<b>777</b>	<b>202</b>
433.milc	8	<b>276</b>	<b>266</b>	276	266	276	266	8	<b>276</b>	<b>266</b>	276	266	276	266
434.zeusmp	8	335	218	<b>335</b>	<b>218</b>	334	218	8	335	218	<b>335</b>	<b>218</b>	334	218
435.gromacs	8	417	137	421	136	<b>418</b>	<b>137</b>	8	417	137	421	136	<b>418</b>	<b>137</b>
436.cactusADM	8	295	324	292	327	<b>294</b>	<b>325</b>	8	295	324	292	327	<b>294</b>	<b>325</b>
437.leslie3d	8	<b>383</b>	<b>196</b>	383	196	384	196	8	<b>383</b>	<b>196</b>	383	196	384	196
444.namd	8	504	127	<b>490</b>	<b>131</b>	489	131	8	482	133	<b>482</b>	<b>133</b>	486	132
447.dealII	8	<b>308</b>	<b>297</b>	308	297	308	297	8	<b>308</b>	<b>297</b>	308	297	308	297
450.soplex	8	<b>385</b>	<b>173</b>	385	173	387	173	8	<b>385</b>	<b>173</b>	385	173	387	173
453.povray	8	<b>175</b>	<b>243</b>	174	245	177	240	8	<b>149</b>	<b>286</b>	148	287	149	286
454.calculix	8	283	233	<b>283</b>	<b>233</b>	283	233	8	282	234	283	233	<b>283</b>	<b>234</b>
459.GemsFDTD	8	550	154	<b>551</b>	<b>154</b>	552	154	8	550	154	<b>551</b>	<b>154</b>	552	154
465.tonto	8	<b>361</b>	<b>218</b>	363	217	361	218	8	344	229	<b>344</b>	<b>229</b>	344	229
470.lbm	8	347	317	<b>347</b>	<b>316</b>	347	316	8	347	317	<b>347</b>	<b>316</b>	347	316
481.wrf	8	315	283	307	291	<b>307</b>	<b>291</b>	8	315	283	307	291	<b>307</b>	<b>291</b>
482.sphinx3	8	757	206	<b>757</b>	<b>206</b>	756	206	8	757	206	<b>757</b>	<b>206</b>	756	206

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>
```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

SPECfp\_rate2006 = 223

ProLiant BL460c Gen8  
(2.40 GHz, Intel Xeon E5-2609)

SPECfp\_rate\_base2006 = 219

CPU2006 license: 3

Test date: Apr-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Mar-2012

## Operating System Notes (Continued)

Drive Write Cache set to Enabled in HP Array Configuration Utility, CLI version  
Accelerator Ratio for Reads/Writes set to = 100% Read / 0% Write in HP Array Configuration Utility, CLI version

## Platform Notes

### BIOS Configuration:

HP Power Profile set to Custom  
Energy/Performance Bias is set to Maximum Performance  
Thermal Configuration set to Maximum Cooling  
Collaborative Power Control set to Disabled  
Processor Power and Utilization Monitoring set to Disabled  
Sysinfo program /cpu2006/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 # \$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on rh62 Sun Apr 17 02:40:51 2011

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 E5-2609 0 @ 2.40GHz
 2 "physical id"s (chips)
 8 "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    : 4
  siblings     : 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
cache size     : 10240 KB
```

### From /proc/meminfo

```
MemTotal:      132120004 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 rh62 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 16 18:01
```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 223**

ProLiant BL460c Gen8  
(2.40 GHz, Intel Xeon E5-2609)

**SPECfp\_rate\_base2006 = 219**

**CPU2006 license:** 3

**Test date:** Apr-2011

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2012

**Tested by:** Hewlett-Packard Company

**Software Availability:** Mar-2012

## Platform Notes (Continued)

SPEC is set to: /cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/vg_rh62-lv_root	ext4	50G	18G	30G	37%	/

Additional information from dmidecode:

BIOS HP I31 02/13/2012

Memory:

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 2x Xeon E5-2667 CPU + 256GB memory using SLES11 SP2,RC3

## 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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 223**

ProLiant BL460c Gen8  
(2.40 GHz, Intel Xeon E5-2609)

**SPECfp\_rate\_base2006 = 219**

**CPU2006 license:** 3

**Test date:** Apr-2011

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2012

**Tested by:** Hewlett-Packard Company

**Software Availability:** Mar-2012

## Base Portability Flags (Continued)

```

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 -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:

```

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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 223**

ProLiant BL460c Gen8  
(2.40 GHz, Intel Xeon E5-2609)

**SPECfp\_rate\_base2006 = 219**

**CPU2006 license:** 3

**Test date:** Apr-2011

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Jun-2012

**Tested by:** Hewlett-Packard Company

**Software Availability:** Mar-2012

## 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: basepeak = yes

### 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.dealIII: basepeak = yes

450.soplex: basepeak = yes

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: 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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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: basepeak = yes

436.cactusADM: basepeak = yes

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

ProLiant BL460c Gen8  
(2.40 GHz, Intel Xeon E5-2609)

**SPECfp\_rate2006 = 223**

**SPECfp\_rate\_base2006 = 219**

**CPU2006 license:** 3

**Test sponsor:** Hewlett-Packard Company

**Tested by:** Hewlett-Packard Company

**Test date:** Apr-2011

**Hardware Availability:** Jun-2012

**Software Availability:** Mar-2012

## Peak Optimization Flags (Continued)

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 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 04:48:17 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 9 May 2012.