



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

**SPECfp®2006 = 80.3**

ProLiant DL380e Gen8  
(2.50 GHz, Intel Xeon E5-2430 v2)

**SPECfp\_base2006 = 77.5**

CPU2006 license: 3

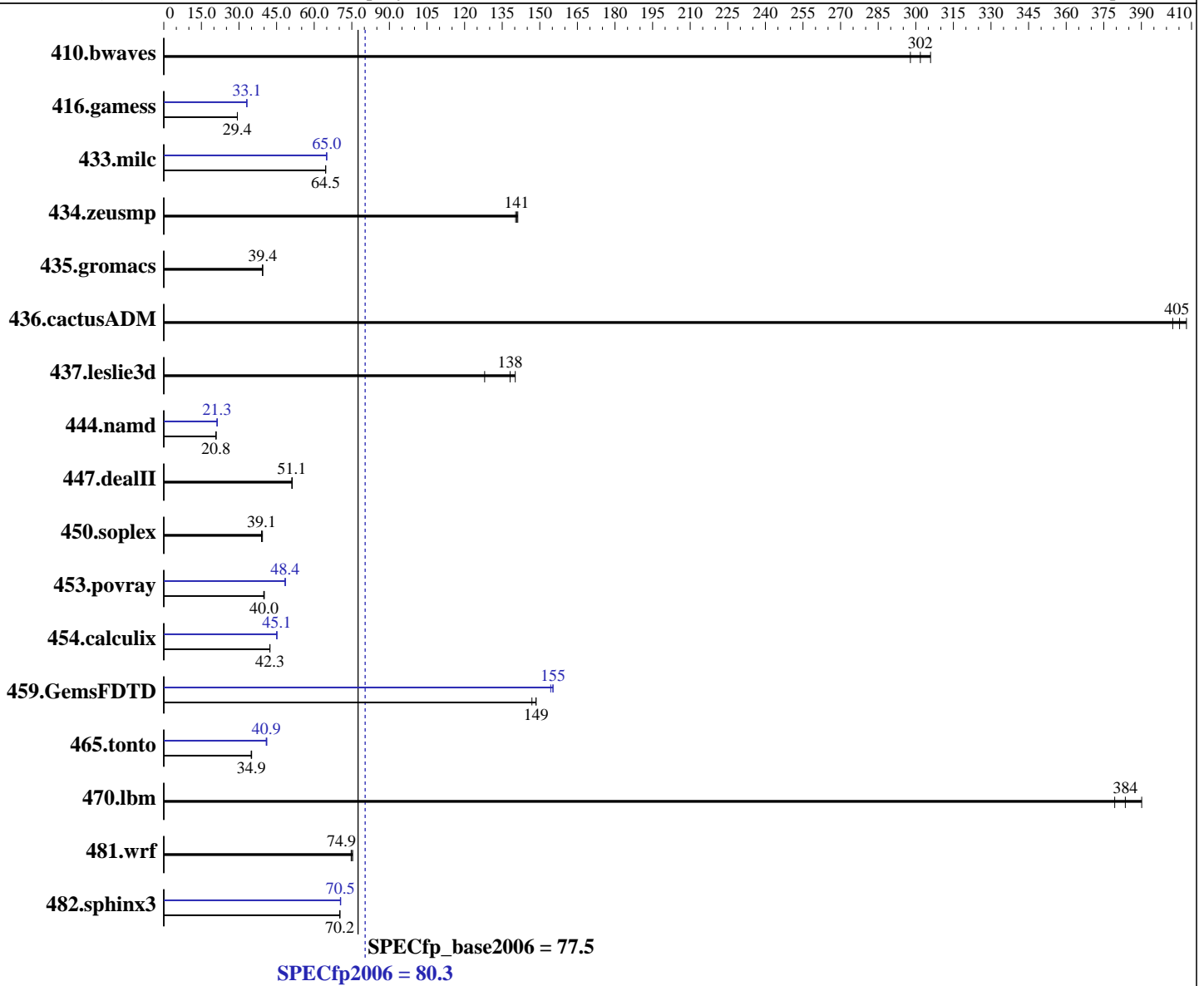
Test date: Feb-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jan-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2430 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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

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### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64) SP3  
 Kernel 3.0.76-0.11-default  
 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: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 1 x 300 GB 15 K SAS, RAID 0  
Other Hardware: None

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	45.6	298	44.4	306	<b>45.0</b>	<b>302</b>	45.6	298	44.4	306	<b>45.0</b>	<b>302</b>
416.gamess	667	29.4	<b>667</b>	<b>29.4</b>	667	29.3	<b>591</b>	<b>33.1</b>	592	33.1	591	33.1
433.milc	142	64.6	142	64.5	<b>142</b>	<b>64.5</b>	141	65.0	<b>141</b>	<b>65.0</b>	141	64.9
434.zeusmp	64.4	141	<b>64.6</b>	<b>141</b>	64.8	140	64.4	141	<b>64.6</b>	<b>141</b>	64.8	140
435.gromacs	181	39.5	<b>181</b>	<b>39.4</b>	182	39.3	181	39.5	<b>181</b>	<b>39.4</b>	182	39.3
436.cactusADM	29.7	403	<b>29.5</b>	<b>405</b>	29.3	408	29.7	403	<b>29.5</b>	<b>405</b>	29.3	408
437.leslie3d	<b>68.0</b>	<b>138</b>	73.4	128	67.0	140	<b>68.0</b>	<b>138</b>	73.4	128	67.0	140
444.namd	<b>385</b>	<b>20.8</b>	385	20.8	385	20.8	377	21.3	377	21.3	<b>377</b>	<b>21.3</b>
447.dealII	224	51.1	<b>224</b>	<b>51.1</b>	223	51.3	224	51.1	<b>224</b>	<b>51.1</b>	223	51.3
450.soplex	214	39.0	212	39.4	<b>213</b>	<b>39.1</b>	214	39.0	212	39.4	<b>213</b>	<b>39.1</b>
453.povray	133	40.1	<b>133</b>	<b>40.0</b>	133	39.9	110	48.4	110	48.5	<b>110</b>	<b>48.4</b>
454.calculix	<b>195</b>	<b>42.3</b>	195	42.3	195	42.3	183	45.1	183	45.1	<b>183</b>	<b>45.1</b>
459.GemsFDTD	72.2	147	<b>71.4</b>	<b>149</b>	71.4	149	68.3	155	68.7	154	<b>68.3</b>	<b>155</b>
465.tonto	282	34.9	281	35.1	<b>282</b>	<b>34.9</b>	239	41.1	241	40.9	<b>240</b>	<b>40.9</b>
470.lbm	36.2	379	<b>35.8</b>	<b>384</b>	35.2	390	36.2	379	<b>35.8</b>	<b>384</b>	35.2	390
481.wrf	149	74.7	148	75.4	<b>149</b>	<b>74.9</b>	149	74.7	148	75.4	<b>149</b>	<b>74.9</b>
482.sphinx3	<b>277</b>	<b>70.2</b>	277	70.3	278	70.1	276	70.6	<b>276</b>	<b>70.5</b>	277	70.4

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
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
Reclaim mode enabled with:
echo 1 > /proc/sys/vm/zone_reclaim_mode
runspec command invoked through numactl i.e.:
numactl --localalloc runspec <etc>
```



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### Platform Notes

#### BIOS Configuration:

Intel Hyperthreading Options set to Disabled  
 HP Power Profile set to Maximum Performance  
 Minimum Processor Idle Power Core State set to C6  
 Minimum Processor Idle Power Package State set to C6 (non-retention)  
 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 dl380e-gen8-cxd Sat Feb 22 02:51:43 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 E5-2430 v2 @ 2.50GHz
 2 "physical id"s (chips)
 12 "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 : 6
  siblings  : 6
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

```

#### From /proc/meminfo

```

MemTotal:      98903452 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

#### /usr/bin/lsb\_release -d

```
SUSE Linux Enterprise Server 11 (x86_64)
```

#### From /etc/\*release\* /etc/\*version\*

```

SuSE-release:
  SUSE Linux Enterprise Server 11 (x86_64)
  VERSION = 11
  PATCHLEVEL = 3

```

#### uname -a:

```
Linux dl380e-gen8-cxd 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
(ccab990) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Feb 13 18:38 last=S
```

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## Platform Notes (Continued)

SPEC is set to: /cpu2006

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda3	ext3	273G	13G	247G	5%	/

Additional information from dmidecode:

BIOS HP P73 11/12/2013

Memory:

12x HP 689911-071 8 GB 1600 MHz

(End of data from sysinfo program)

## General Notes

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

KMP\_AFFINITY = "granularity=fine,compact"

LD\_LIBRARY\_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"

OMP\_NUM\_THREADS = "12"

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

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## Base Portability Flags (Continued)

```

447.deallI: -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 -parallel -opt-prefetch -ansi-alias

C++ benchmarks:  
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

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

Benchmarks using both Fortran and C:  
-xAVX -ipo -O3 -no-prec-div -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



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## 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) -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

### 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.dealII: 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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

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## Peak Optimization Flags (Continued)

454.calculix: -xAVX -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-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>

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