



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®2006 = **89.9**

ProLiant DL360p Gen8
(2.90 GHz, Intel Xeon E5-2690)

SPECfp_base2006 = **84.6**

CPU2006 license: 3

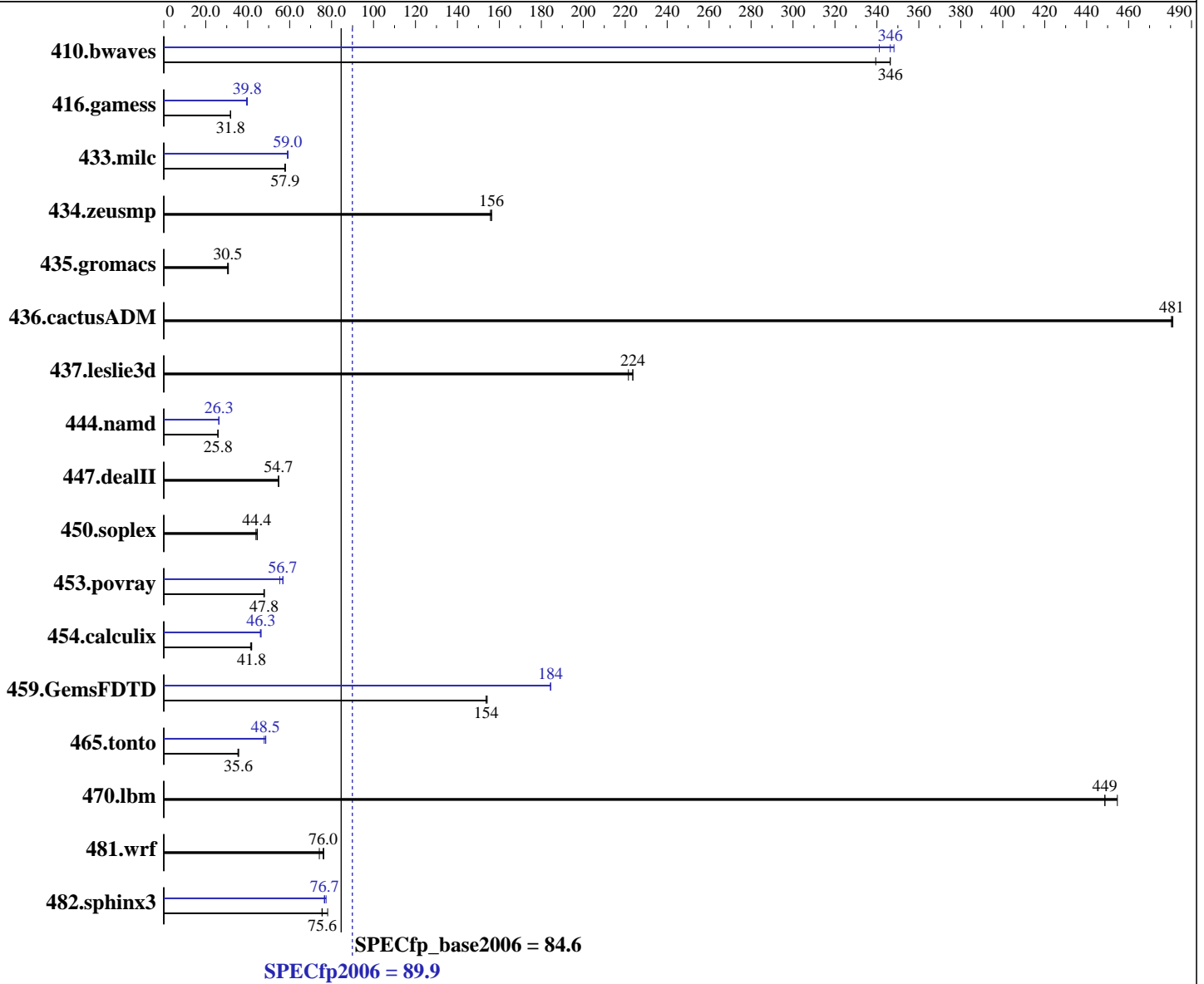
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Sep-2012

Hardware Availability: Oct-2012

Software Availability: Mar-2012



Hardware

CPU Name: Intel Xeon E5-2690
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
 CPU MHz: 2900
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 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

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Software

Operating System: Red Hat Enterprise Linux Server release 6.2, (Santiago)
 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

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 2 x 146 GB 15 K SAS, RAID 1
Other Hardware: None

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	39.2	346	40.0	339	<u>39.2</u>	<u>346</u>	39.0	348	39.8	341	<u>39.2</u>	<u>346</u>
416.gamess	615	31.8	615	31.8	<u>615</u>	<u>31.8</u>	492	39.8	<u>492</u>	<u>39.8</u>	497	39.4
433.milc	159	57.7	<u>159</u>	<u>57.9</u>	158	58.0	155	59.3	<u>156</u>	<u>59.0</u>	156	59.0
434.zeusmp	<u>58.2</u>	<u>156</u>	58.2	156	58.4	156	<u>58.2</u>	<u>156</u>	58.2	156	58.4	156
435.gromacs	<u>234</u>	<u>30.5</u>	232	30.8	234	30.5	<u>234</u>	<u>30.5</u>	232	30.8	234	30.5
436.cactusADM	24.9	480	24.8	481	<u>24.9</u>	<u>481</u>	24.9	480	24.8	481	<u>24.9</u>	<u>481</u>
437.leslie3d	42.0	224	42.4	222	<u>42.0</u>	<u>224</u>	42.0	224	42.4	222	<u>42.0</u>	<u>224</u>
444.namd	311	25.8	310	25.8	<u>310</u>	<u>25.8</u>	305	26.3	305	26.3	<u>305</u>	<u>26.3</u>
447.dealII	209	54.7	<u>209</u>	<u>54.7</u>	209	54.7	209	54.7	<u>209</u>	<u>54.7</u>	209	54.7
450.soplex	<u>188</u>	<u>44.4</u>	187	44.6	190	43.9	<u>188</u>	<u>44.4</u>	187	44.6	190	43.9
453.povray	111	48.0	<u>111</u>	<u>47.8</u>	111	47.7	93.6	56.9	96.2	55.3	<u>93.8</u>	<u>56.7</u>
454.calculix	<u>197</u>	<u>41.8</u>	199	41.4	197	41.9	178	46.3	179	46.0	<u>178</u>	<u>46.3</u>
459.GemsFDTD	69.0	154	<u>69.0</u>	<u>154</u>	68.8	154	<u>57.5</u>	<u>184</u>	57.5	184	57.5	184
465.tonto	276	35.7	278	35.4	<u>276</u>	<u>35.6</u>	202	48.6	206	47.9	<u>203</u>	<u>48.5</u>
470.lbm	30.2	455	<u>30.6</u>	<u>449</u>	30.6	449	30.2	455	<u>30.6</u>	<u>449</u>	30.6	449
481.wrf	<u>147</u>	<u>76.0</u>	146	76.3	151	74.1	<u>147</u>	<u>76.0</u>	146	76.3	151	74.1
482.sphinx3	258	75.4	<u>258</u>	<u>75.6</u>	249	78.1	<u>254</u>	<u>76.7</u>	252	77.4	255	76.5

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



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Platform Notes

BIOS Configuration:

Collaborative Power Control set to Disabled
 HP Power Regulator set to HP Static High Performance Mode
 Hp Power Profile set to Custom
 Thermal Configuration set to Maxium Cooling
 Mininum Processor Idle Power Package State set to Package C6 (non-retention) State
 Mininum Processor Idle Power Power State set to Package C6

Sysinfo program /cpu2006/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on 380-2670 Sun Jul 15 01:35:01 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 E5-2690 0 @ 2.90GHz
 2 "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     : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
cache size    : 20480 KB
```

```
From /proc/meminfo
MemTotal:      132119932 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 380-2670 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 Jul 14 20:03

```
SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3        ext4      133G  22G  105G  17% /
```

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Platform Notes (Continued)

Additional information from dmidecode:

BIOS HP P71 08/12/2012

Memory:

16x HP 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,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.deallI: -DSPEC_CPU_LP64

450.soplex: -DSPEC_CPU_LP64

453.povray: -DSPEC_CPU_LP64

454.calculix: -DSPEC_CPU_LP64 -nofor_main

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Base Portability Flags (Continued)

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 -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -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



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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) -static -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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
-static

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: -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

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

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-ic12.1-official-linux64.20120425.html>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.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.20120829.xml>

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