



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]_rate2006 = 620

ProLiant DL380p Gen8
(3.30 GHz, Intel Xeon E5-2667 v2)

SPECfp_rate_base2006 = 604

CPU2006 license: 3

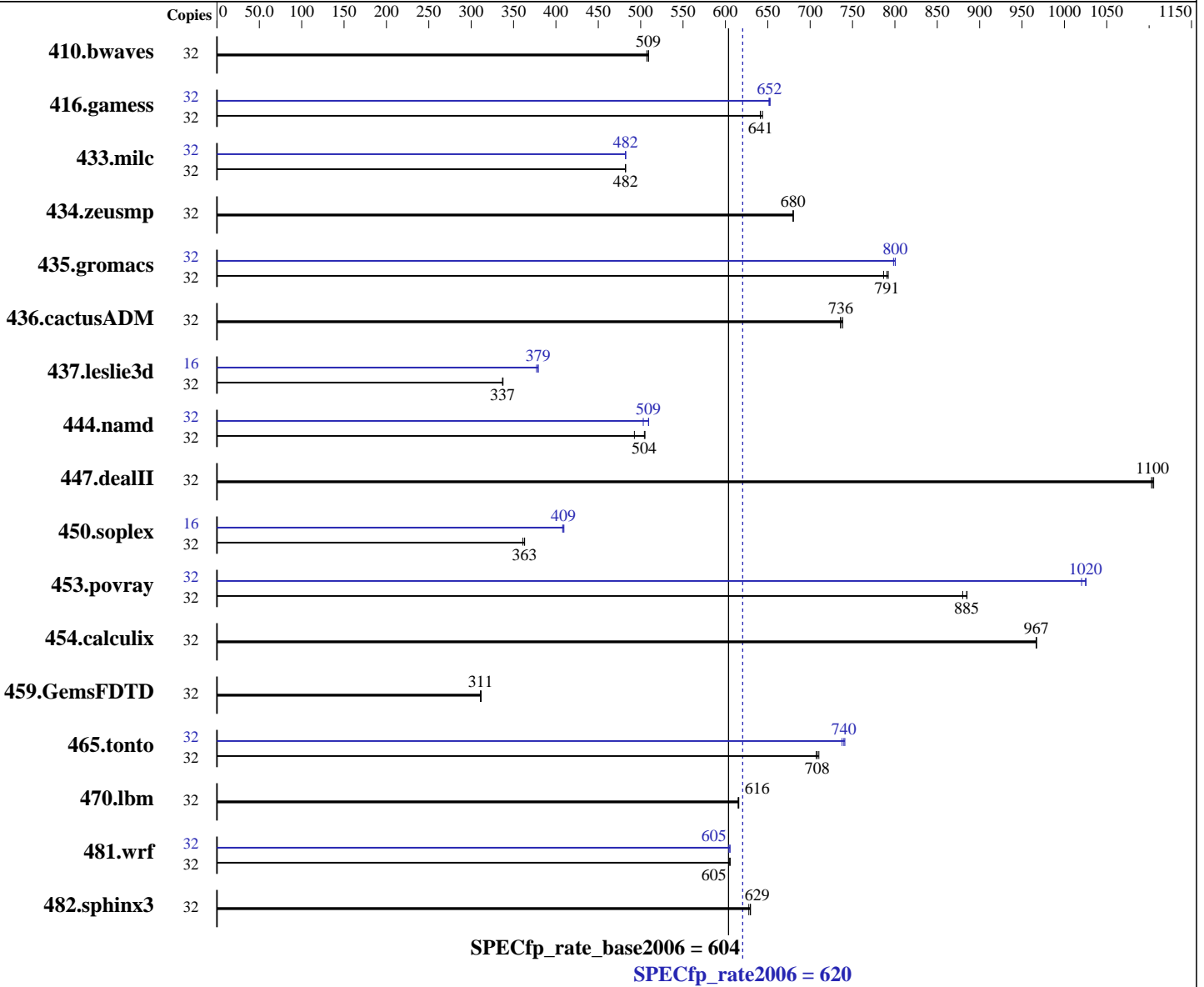
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Feb-2014

Hardware Availability: Dec-2013

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2667 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 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 6.4
 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
 System State: Run level 3 (multi-user)

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L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 300 GB GB 10 K SAS, RAID 0
Other Hardware: None

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	32	857	507	854	509	854	509	32	857	507	854	509	854	509		
416.gamess	32	977	641	973	644	977	641	32	961	652	960	653	962	651		
433.milc	32	609	482	609	482	609	482	32	609	482	609	482	609	482		
434.zeusmp	32	428	680	428	680	428	680	32	428	680	428	680	428	680		
435.gromacs	32	290	787	288	792	289	791	32	285	800	285	800	286	798		
436.cactusADM	32	518	739	519	736	520	736	32	518	739	519	736	520	736		
437.leslie3d	32	891	338	892	337	892	337	16	399	377	397	379	397	379		
444.namd	32	508	505	521	493	509	504	32	504	509	504	509	510	503		
447.dealII	32	332	1100	332	1100	331	1110	32	332	1100	332	1100	331	1110		
450.soplex	32	735	363	735	363	739	361	16	326	409	326	409	327	408		
453.povray	32	193	880	192	885	192	885	32	166	1020	167	1020	166	1030		
454.calculix	32	273	967	273	967	273	967	32	273	967	273	967	273	967		
459.GemsFDTD	32	1089	312	1092	311	1091	311	32	1089	312	1092	311	1091	311		
465.tonto	32	443	710	444	708	445	707	32	426	740	425	741	427	738		
470.lbm	32	714	616	715	615	714	616	32	714	616	715	615	714	616		
481.wrf	32	590	606	591	605	591	605	32	592	604	591	605	590	605		
482.sphinx3	32	991	630	994	628	991	629	32	991	630	994	628	991	629		

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>
```



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Platform Notes

BIOS Configuration:

HP Power Profile set to Maximum Performance
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 DL380p-Gen8-0SB Sat Feb 22 15:11:00 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 E5-2667 v2 @ 3.30GHz
 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 1 2 3 4 8 9 10 11
  physical 1: cores 1 2 3 4 8 9 10 11
cache size     : 25600 KB
```

```
From /proc/meminfo
MemTotal:      132119284 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
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 DL380p-Gen8-0SB 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 Feb 22 05:28

```
SPEC is set to: /cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       ext4      273G  112G  148G  43% /
```

Additional information from dmidecode:
BIOS HP P70 12/20/2013

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Platform Notes (Continued)

Memory:
16x HP 712382-071 8 GB 1866 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:

16x HP 712382-071 8 GB 1866 MHz 2 rank

Regarding the sysinfo display about the CPU cores from /proc/cpuinfo, the correct mapping should display as cores 0 through 7. The mapping should read as the following:

physical 0: cores 0 1 2 3 4 5 6 7

physical 1: cores 0 1 2 3 4 5 6 7

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

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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 -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:

```

icc -m64

```

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

```



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Peak 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
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

```

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: basepeak = yes

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) -unroll14 -ansi-alias

```

Fortran benchmarks:

Continued on next page



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Peak Optimization Flags (Continued)

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: -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/HP-Platform-Flags-Intel-V1.2-revB.html>
<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.xml>
<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

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