SPEC® CFP2006 Result

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Hewlett-Packard Company

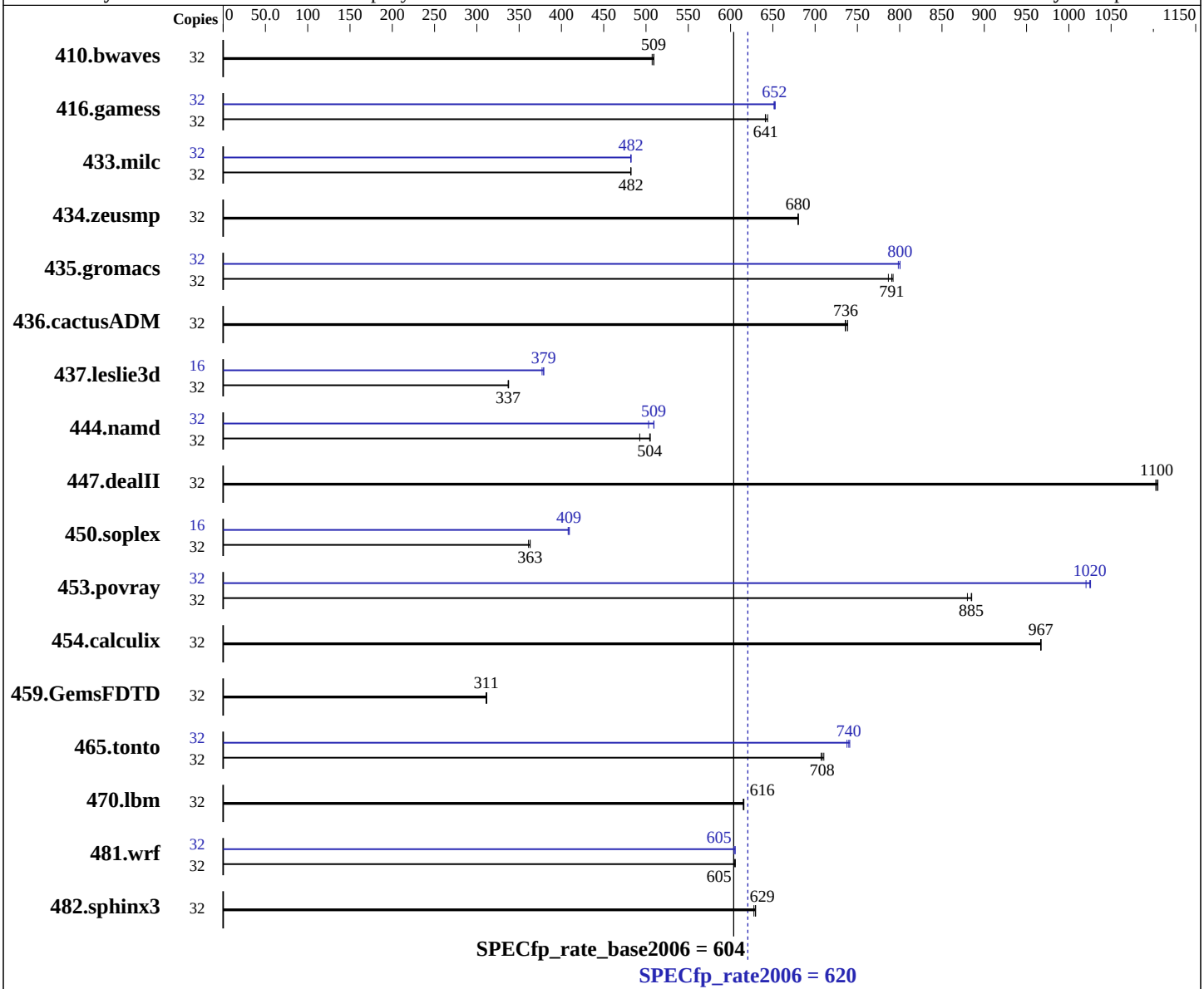
ProLiant DL380p Gen8
(3.30 GHz, Intel Xeon E5-2667 v2)

SPECfp®_rate2006 = 620

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

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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>
```

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.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
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

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) -unroll4 -ansi-alias

Fortran benchmarks:

Continued on next page

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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