Hewlett-Packard Company
ProLiant DL580 Gen8
(2.80 GHz, Intel Xeon E7-4890 v2)

SPECfp®2006 = 106
SPECfp_base2006 = 101

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Feb-2014
Hardware Availability: Feb-2014
Software Availability: Feb-2013

<table>
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<tr>
<th>SPECfp2006</th>
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<tr>
<th>Benchmark</th>
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<td>410.bwaves</td>
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<td>482.sphinx3</td>
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</table>

Hardware
- CPU Name: Intel Xeon E7-4890 v2
- CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
- CPU MHz: 2800
- FPU: Integrated
- CPU(s) enabled: 60 cores, 4 chips, 15 cores/chip
- CPU(s) orderable: 2,4 chips
- Primary Cache: 32 KB I + 32 KB D on chip per core
- Secondary Cache: 256 KB I+D on chip per core

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)

Continued on next page
### Results Table

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<tr>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>74.1</td>
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</tbody>
</table>

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

### Platform Notes

BIOS Configuration:  
HP Power Profile was set to Maximum Performance  
Intel Hyperthreading Options was set to Disabled  
Memory Double Refresh Rate was set to Disabled  
Processor Power and Utilization Monitoring was set to Disabled  
Sysinfo program /home/cpu2006/config/sysinfo.rev6874.hp  
$Rev: 6874 $ $Date:: 2013-11-20 #$ e05b96ddac6c3d74bfe176502a0a2391

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SPEC CFP2006 Result

Hewlett-Packard Company

ProLiant DL580 Gen8
(2.80 GHz, Intel Xeon E7-4890 v2)

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SPECfp_base2006 = 101

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

CPU2006 Test Result

Test date: Feb-2014
Hardware Availability: Feb-2014
Software Availability: Feb-2013

Platform Notes (Continued)

running on dl580-rwen Mon Feb 10 00:35:52 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 E7-4890 v2 @ 2.80GHz
4 "physical id"s (chips)
60 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 15
siblings : 15
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
cache size : 38400 KB

From /proc/meminfo
MemTotal: 1058730268 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 dl580-rwen 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 9 07:27 last=S

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb3 ext3 275G 8.7G 265G 4% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to
hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS HP P79 01/15/2001

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SPEC CFP2006 Result

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Platform Notes (Continued)

Memory:
64x HP 712383-081 16 GB 1866 MHz, configured at 1333 MHz
32x UNKNOWN NOT AVAILABLE

(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 = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "60"

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
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

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SPEC CFP2006 Result

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Base Portability Flags (Continued)

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

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

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Hewlett-Packard Company
ProLiant DL580 Gen8
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Peak Optimization Flags (Continued)

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
-inlne-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
-inlne-level=0 -opt-prefetch -pparallel
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
454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
481.wrf: basepeak = yes
Hewlett-Packard Company

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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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For other inquiries, please contact webmaster@spec.org.

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