SPEC® CFP2006 Result
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Hewlett Packard Enterprise
(Test Sponsor: HPE)

$SPECfp^{®}2006 =$ **Not Run**

ProLiant DL380 Gen10
(2.50 GHz, Intel Xeon Platinum 8180)

$SPECfp\_base2006 =$ **149**

CPU2006 license: 3	**Test date:** Jun-2017
Test sponsor: HPE	**Hardware Availability:** Sep-2017
Tested by: HPE	**Software Availability:** May-2017

Benchmark results (SPECfp_base2006 = 149):

- 410.bwaves: 1160
- 416.gamess: 50.4
- 433.milc: 85.2
- 434.zeusmp: 304
- 435.gromacs: 52.0
- 436.cactusADM: 1180
- 437.leslie3d: 505
- 444.namd: 36.6
- 447.dealII: 75.1
- 450.soplex: 54.2
- 453.povray: 71.7
- 454.calculix: 73.7
- 459.GemsFDTD: 268
- 465.tonto: 51.1
- 470.lbm: 1650
- 481.wrf: 138
- 482.sphinx3: 76.6

SPECfp_base2006 = 149

Hardware

CPU Name:	Intel Xeon Platinum 8180
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	56 cores, 2 chips, 28 cores/chip
CPU(s) orderable:	1,2 chip(s)
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

Software

Operating System:	SUSE Linux Enterprise Server 12 (x86_64) SP2 Kernel 4.4.21-68-default
Compiler:	C/C++: Version 17.0.4.196 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.4.196 of Intel Fortran Compiler for Linux
Auto Parallel:	Yes
File System:	btrfs
System State:	Run level 3 (multi-user)

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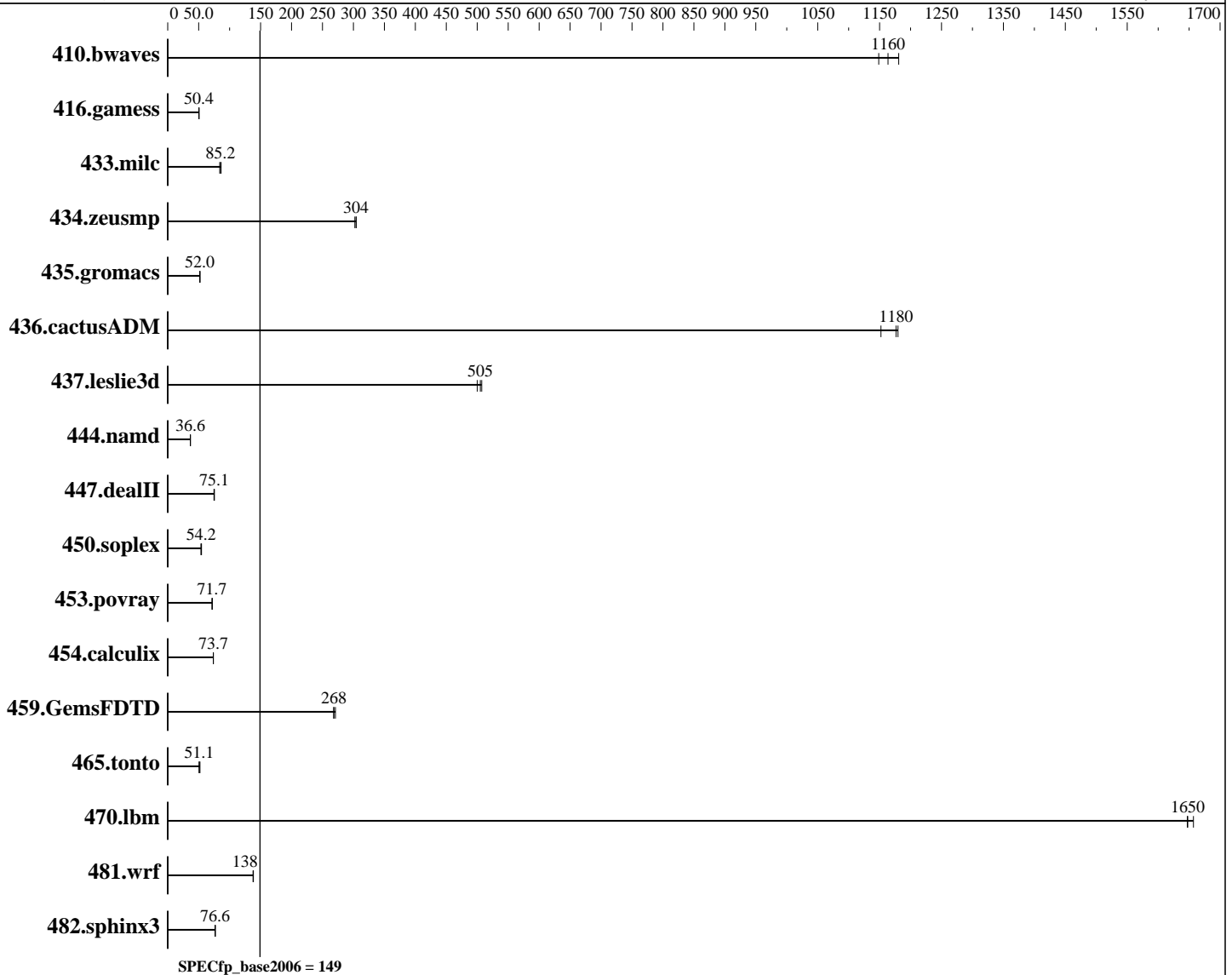|	
CPU2006 license: 3	**Test date:** Jun-2017
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L3 Cache:	38.5 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)	Other Software:	None
Disk Subsystem:	1 x 450 GB SATA SSD, RAID 0		
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	11.8	1150	11.5	1180	**11.7**	**1160**						
416.gamess	**388**	**50.4**	388	50.4	388	50.5						
433.milc	**108**	**85.2**	109	84.0	106	86.2						
434.zeusmp	29.9	304	30.1	302	**29.9**	**304**						
435.gromacs	138	51.8	137	52.1	**137**	**52.0**						
436.cactusADM	**10.2**	**1180**	10.4	1150	10.1	1180						
437.leslie3d	**18.6**	**505**	18.5	507	18.8	500						
444.namd	219	36.6	219	36.6	**219**	**36.6**						
447.dealII	152	75.3	**152**	**75.1**	153	74.7						
450.soplex	153	54.6	**154**	**54.2**	155	53.7						
453.povray	**74.1**	**71.7**	74.2	71.7	73.9	72.0						
454.calculix	**112**	**73.7**	112	73.7	112	73.6						
459.GemsFDTD	39.2	271	**39.5**	**268**	39.6	268						
465.tonto	195	50.6	189	52.1	**193**	**51.1**						
470.lbm	8.34	1650	**8.34**	**1650**	8.29	1660						
481.wrf	81.1	138	**80.8**	**138**	80.7	138						
482.sphinx3	**254**	**76.6**	253	76.9	255	76.4						

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 by default.
    Filesystem page cache cleared with:
     shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
    irqbalance service stopped using: "systemctl stop irqbalance.service"
```

Platform Notes

```
    BIOS Configuration:
     Hyper-Threading set to Disabled
     Thermal Configuration set to Maximum Cooling
     LLC Dead Line Allocation set to Disabled
     XPT Prefetch set to Disabled
     Workload Profile set to General Peak Frequency Compute
```

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Hardware Availability: Sep-2017
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Platform Notes (Continued)

```
  Energy/Performance Bias set to Maximum Performance
 Sysinfo program /spec_cpu/cpu2006/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on local Sat Jun 24 08:18:23 2017

 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) Platinum 8180 CPU @ 2.50GHz
       2 "physical id"s (chips)
       56 "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 : 28
       siblings  : 28
       physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
       25 26 27 28 29 30
       physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
       25 26 27 28 29 30
    cache size : 39424 KB

 From /proc/meminfo
    MemTotal:       197536940 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 12 SP2

 From /etc/*release* /etc/*version*
    SuSE-release:
       SUSE Linux Enterprise Server 12 (x86_64)
       VERSION = 12
       PATCHLEVEL = 2
       # This file is deprecated and will be removed in a future service pack or
       release.
       # Please check /etc/os-release for details about this release.
    os-release:
       NAME="SLES"
       VERSION="12-SP2"
       VERSION_ID="12.2"
       PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
       ID="sles"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:12:sp2"

 uname -a:
    Linux local 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016 (63cf368)
    x86_64 x86_64 x86_64 GNU/Linux
```
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Platform Notes (Continued)

```
run-level 3 Jun 24 05:54

SPEC is set to: /spec_cpu/cpu2006
   Filesystem      Type    Size  Used Avail Use% Mounted on
   /dev/sdb3       btrfs  445G   84G  361G  19% /
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 HPE U30 06/08/2017
   Memory:
    24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 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 = "/spec_cpu/cpu2006/lib/ia32:/spec_cpu/cpu2006/lib/intel64:/spec_cpu/cpu2006/sh10.2"
OMP_NUM_THREADS = "56"

 Binaries compiled on a system with 2x Intel Xeon Platinum 8180 CPU + 384GB RAM
 memory using SUSE Linux Enterprise Server 12 SP2
```

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

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Base Portability Flags (Continued)

```
    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
      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:

```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
    -ansi-alias -fp-model fast=2
```

C++ benchmarks:

```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ansi-alias
    -fp-model fast=2
```

Fortran benchmarks:

```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
    -fp-model fast=2
```

Benchmarks using both Fortran and C:

```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
    -ansi-alias -fp-model fast=2
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/HPE-Compiler-Flags-Intel-V1.2-HSW-revK.html
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revB.html

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/HPE-Compiler-Flags-Intel-V1.2-HSW-revK.xml
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revB.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Fri Aug 11 13:23:27 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 August 2017.