SPEC® CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

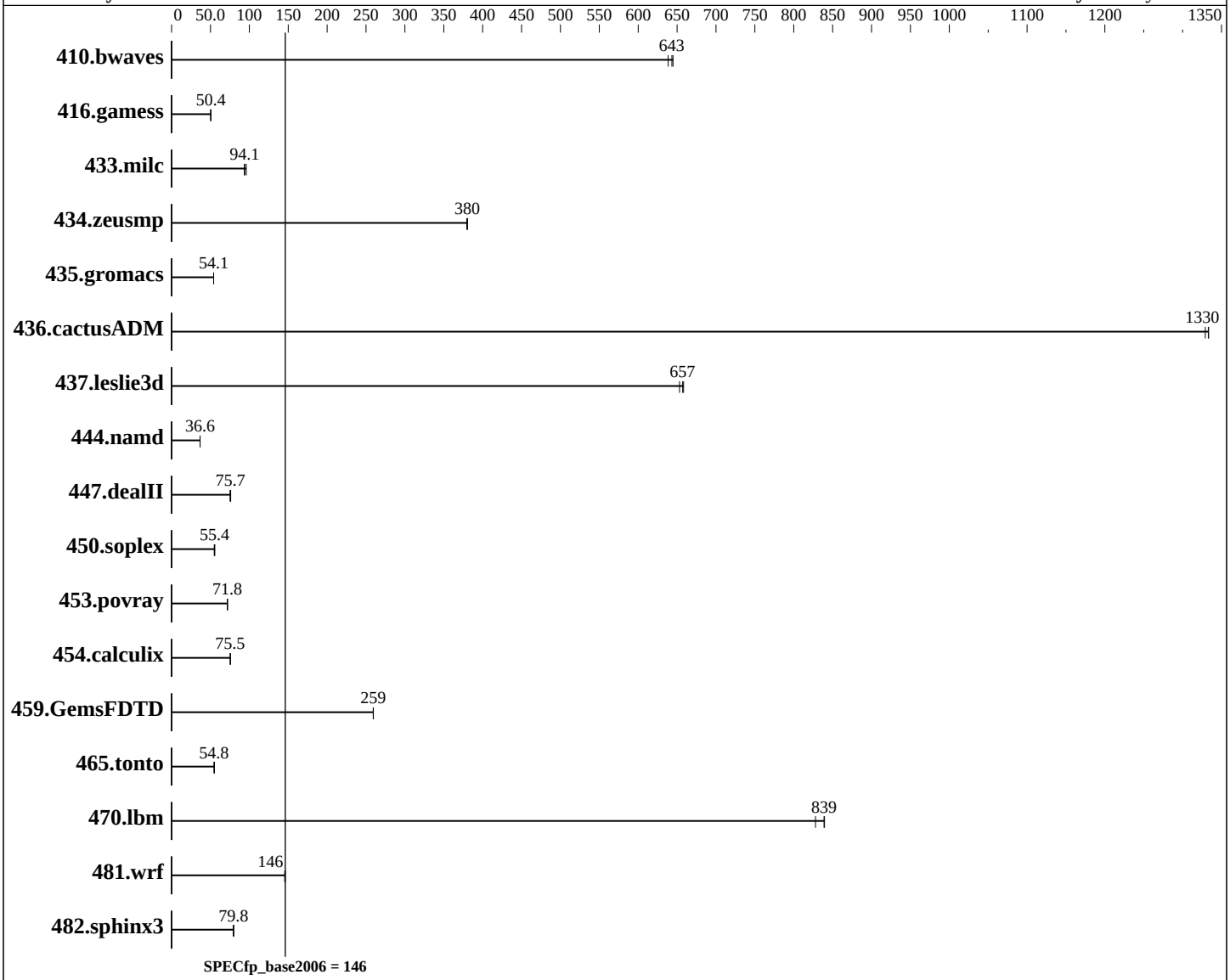
ProLiant DL380 Gen10
(2.50 GHz, Intel Xeon Platinum 8180)

SPECfp®2006 = Not Run

SPECfp_base2006 = 146

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Jun-2017
Hardware Availability: Sep-2017
Software Availability: May-2017



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:	28 cores, 1 chip, 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

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Software

Operating System:	SUSE Linux Enterprise Server 12 (x86_64) SP2 Kerenel 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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L3 Cache: 38.5 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx8 PC4-2666V-R)
Disk Subsystem: 1 x 450 GB SATA SSD, RAID 0
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	21.1	645	21.3	639	**21.1**	**643**						
416.gamess	389	50.3	**388**	**50.4**	388	50.4						
433.milc	**97.6**	**94.1**	95.6	96.0	98.1	93.6						
434.zeusmp	23.9	380	**23.9**	**380**	24.0	380						
435.gromacs	132	54.1	132	54.1	**132**	**54.1**						
436.cactusADM	8.96	1330	**8.96**	**1330**	8.99	1330						
437.leslie3d	14.4	653	14.3	658	**14.3**	**657**						
444.namd	219	36.6	219	36.6	**219**	**36.6**						
447.dealII	**151**	**75.7**	150	76.0	152	75.2						
450.soplex	150	55.5	152	54.8	**151**	**55.4**						
453.povray	74.1	71.8	**74.1**	**71.8**	74.1	71.8						
454.calculix	109	75.5	**109**	**75.5**	109	75.5						
459.GemsFDTD	40.9	259	**40.9**	**259**	40.9	259						
465.tonto	180	54.6	**180**	**54.8**	179	55.0						
470.lbm	16.6	828	**16.4**	**839**	16.4	840						
481.wrf	76.5	146	76.8	145	**76.5**	**146**						
482.sphinx3	244	79.8	246	79.3	**244**	**79.8**						

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
```

Continued on next page

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 Tue Jun 27 01:58:24 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
      1 "physical id"s (chips)
      28 "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
   cache size : 39424 KB

From /proc/meminfo
   MemTotal:       98451040 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

run-level 3 Jun 27 01:54
```

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Platform Notes (Continued)

```
SPEC is set to: /spec_cpu/cpu2006
   Filesystem     Type   Size  Used Avail Use% Mounted on
   /dev/sdb3      btrfs  445G   83G  359G  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:
   12x UNKNOWN NOT AVAILABLE
   12x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 96 GB and the dmidecode description should have one line reading as:
12x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz
```

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 = "28"

 Binaries compiled on a system with 2x Intel Xeon Platinum 8180 CPU + 384GB RAM
 memory using Redhat Enterprise Linux 7.3
```

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
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

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 other inquiries, please contact webmaster@spec.org.

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