



# SPEC® CFP2006 Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen10  
(2.10 GHz, Intel Xeon Gold 6152)

**SPECfp®2006 = Not Run**

**SPECfp\_base2006 = 139**

CPU2006 license: 3

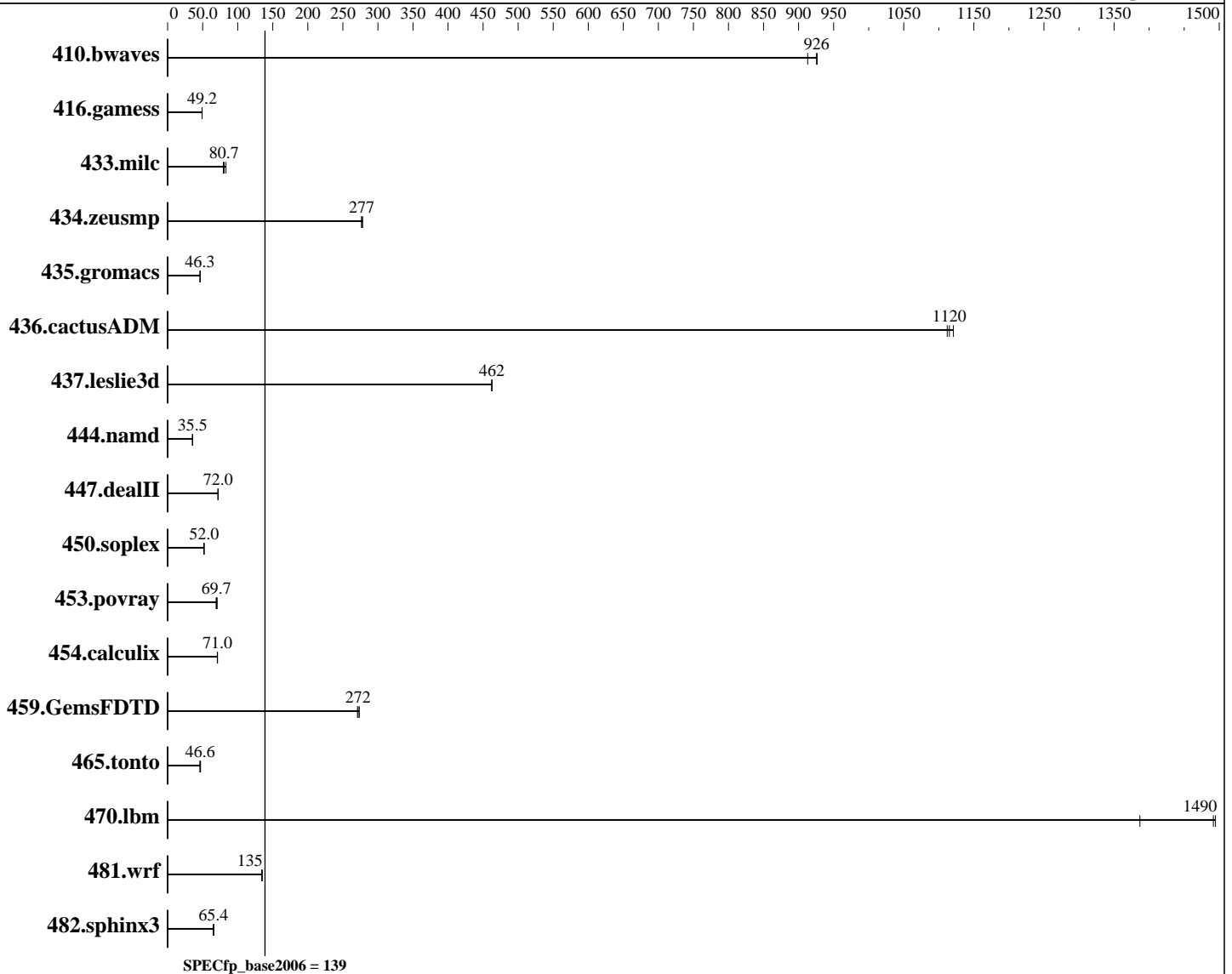
Test sponsor: HPE

Tested by: HPE

Test date: Oct-2017

Hardware Availability: Oct-2017

Software Availability: Apr-2017



## Hardware

CPU Name: Intel Xeon Gold 6152  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 44 cores, 2 chips, 22 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  
 Kernel 4.4.21-69-default  
 Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)

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L3 Cache: 30.25 MB I+D on chip per chip  
Other Cache: None  
Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)  
Disk Subsystem: 1 x 960 GB SATA SSD, RAID 0  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: Not Applicable  
Other Software: None

## Results Table

| Benchmark     | Base        |             |             |             |             |             | Peak    |       |         |       |         |       |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|---------|-------|---------|-------|---------|-------|
|               | Seconds     | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves    | 14.9        | 913         | <b>14.7</b> | <b>926</b>  | 14.7        | 926         |         |       |         |       |         |       |
| 416.gamess    | 398         | 49.2        | <b>398</b>  | <b>49.2</b> | 398         | 49.2        |         |       |         |       |         |       |
| 433.milc      | 116         | 79.5        | <b>114</b>  | <b>80.7</b> | 110         | 83.2        |         |       |         |       |         |       |
| 434.zeusmp    | <b>32.9</b> | <b>277</b>  | 32.7        | 278         | 32.9        | 277         |         |       |         |       |         |       |
| 435.gromacs   | <b>154</b>  | <b>46.3</b> | 154         | 46.3        | 154         | 46.5        |         |       |         |       |         |       |
| 436.cactusADM | 10.7        | 1110        | 10.7        | 1120        | <b>10.7</b> | <b>1120</b> |         |       |         |       |         |       |
| 437.leslie3d  | 20.3        | 463         | <b>20.3</b> | <b>462</b>  | 20.3        | 462         |         |       |         |       |         |       |
| 444.namd      | <b>226</b>  | <b>35.5</b> | 226         | 35.5        | 226         | 35.5        |         |       |         |       |         |       |
| 447.dealII    | <b>159</b>  | <b>72.0</b> | 159         | 71.7        | 159         | 72.1        |         |       |         |       |         |       |
| 450.soplex    | 160         | 52.2        | 162         | 51.6        | <b>160</b>  | <b>52.0</b> |         |       |         |       |         |       |
| 453.povray    | 76.9        | 69.2        | 75.2        | 70.7        | <b>76.3</b> | <b>69.7</b> |         |       |         |       |         |       |
| 454.calculix  | 116         | 71.2        | <b>116</b>  | <b>71.0</b> | 116         | 70.9        |         |       |         |       |         |       |
| 459.GemsFDTD  | 38.8        | 273         | 39.2        | 271         | <b>39.0</b> | <b>272</b>  |         |       |         |       |         |       |
| 465.tonto     | 214         | 46.0        | 209         | 47.0        | <b>211</b>  | <b>46.6</b> |         |       |         |       |         |       |
| 470.lbm       | 9.91        | 1390        | <b>9.21</b> | <b>1490</b> | 9.19        | 1490        |         |       |         |       |         |       |
| 481.wrf       | 82.8        | 135         | 83.2        | 134         | <b>82.9</b> | <b>135</b>  |         |       |         |       |         |       |
| 482.sphinx3   | 296         | 65.9        | 298         | 65.4        | <b>298</b>  | <b>65.4</b> |         |       |         |       |         |       |

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  
IRQ balance service was stop using "service irqbalance stop"  
Tuned-adm profile was set to Throughput-Performance

## Platform Notes

BIOS Configuration:  
Intel Hyperthreading set to Disabled  
Thermal Configuration set to Maximum Cooling  
LLC Prefetch set to Enabled  
LLC Dead Line Allocation set to Disabled

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## Platform Notes (Continued)

Memory Patrol Scrubbing set to Disabled  
 Workload Profile set to General Peak Frequency Compute  
 Energy/Performance Bias set to Maximum Performance  
 Workload Profile set to Custom  
 NUMA Group Size Optimization set to Flat  
 Sysinfo program /home/cpu2006/config/sysinfo.rev6993  
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
 running on linux-vjuij Mon Oct 30 19:12:21 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) Gold 6152 CPU @ 2.10GHz
 2 "physical id"s (chips)
 44 "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 : 22
  siblings  : 22
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
 28
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
 28
cache size : 30976 KB
```

```
From /proc/meminfo
MemTotal:      395927184 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"
```

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## Platform Notes (Continued)

```
uname -a:
Linux linux-vjuj 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Oct 30 16:57
```

SPEC is set to: /home/cpu2006

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda4        xfs      852G  7.2G  845G   1% /home
```

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 I42 09/27/2017

Memory:

24x UNKNOWN NOT AVAILABLE 16 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=core,compact"

LD\_LIBRARY\_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"

OMP\_NUM\_THREADS = "44"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2

## 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



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## 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.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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html>

<http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revF.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml>

<http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revF.xml>



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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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