



# SPEC® CINT2006 Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

ProLiant DL360 Gen10  
(2.60 GHz, Intel Xeon Gold 6142)

**SPECint®\_rate2006 = Not Run**

**SPECint\_rate\_base2006 = 1700**

**CPU2006 license:** 3

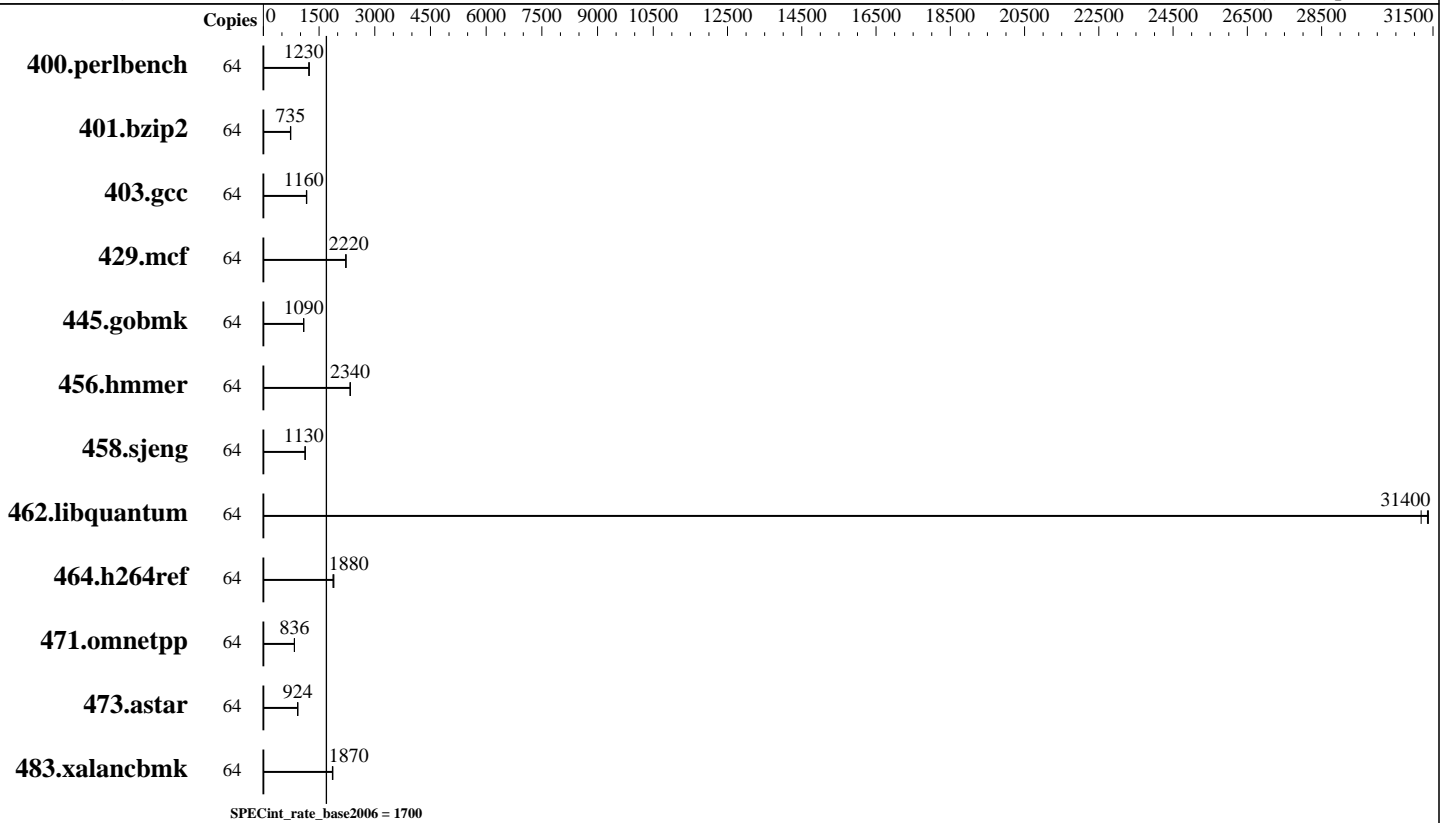
**Test sponsor:** HPE

**Tested by:** HPE

**Test date:** Nov-2017

**Hardware Availability:** Oct-2017

**Software Availability:** Sep-2017



## Hardware

CPU Name: Intel Xeon Gold 6142  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 2 chips, 16 cores/chip, 2 threads/core  
 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  
 L3 Cache: 22 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)  
 Disk Subsystem: 1 x 480 GB SATA SSD, RAID 0  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 12 (x86\_64) SP2  
 Kernel 4.4.21-69-default  
 Compiler: C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux  
 Auto Parallel: No  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: Not Applicable  
 Other Software: Microquill SmartHeap V10.2



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## Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
400.perlbench	64	510	1230	<u>507</u>	<u>1230</u>	507	1230									
401.bzip2	64	<u>841</u>	<u>735</u>	840	735	847	729									
403.gcc	64	441	1170	<u>443</u>	<u>1160</u>	445	1160									
429.mcf	64	<u>263</u>	<u>2220</u>	262	2230	263	2220									
445.gobmk	64	618	1090	619	1080	<u>618</u>	<u>1090</u>									
456.hammer	64	255	2340	256	2340	<u>255</u>	<u>2340</u>									
458.sjeng	64	687	1130	<u>688</u>	<u>1130</u>	689	1120									
462.libquantum	64	<u>42.3</u>	<u>31400</u>	42.5	31200	42.3	31400									
464.h264ref	64	746	1900	<u>752</u>	<u>1880</u>	755	1880									
471.omnetpp	64	<u>478</u>	<u>836</u>	478	836	478	836									
473.astar	64	485	926	486	924	<u>486</u>	<u>924</u>									
483.xalancbmk	64	238	1860	<u>237</u>	<u>1870</u>	236	1870									

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 by default
Filesystem page cache cleared with:
  shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
irqbalance disabled with "service irqbalance stop"
tuned profile set with "tuned-adm profile throughput-performance"
VM Dirty ratio was set to 40 using "echo 40 > /proc/sys/vm/dirty_ratio"
Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa_balancing"
```

## Platform Notes

```
BIOS Configuration:
Thermal Configuration set to Maximum Cooling
LLC Prefetch set to Enabled
LLC Dead Line Allocation set to Disabled
Memory Patrol Scrubbing set to Disabled
Workload Profile set to General Throughput Compute
Minimum Processor Idle Power Core C-State set to C1E
Sysinfo program /cpu2006/config/sysinfo.rev6993
```

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## Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on linux-0s5n Wed Nov 8 02:01:12 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 6142 CPU @ 2.60GHz
 2 "physical id"s (chips)
 64 "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 : 16
  siblings  : 32
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size : 22528 KB
```

```
From /proc/meminfo
MemTotal:      197550460 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
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 linux-0s5n 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 Nov 8 01:38
```

```
SPEC is set to: /cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb3       xfs   407G  139G  269G  35% /home
```

Additional information from dmidecode:

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## Platform Notes (Continued)

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 U32 09/29/2017

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:

LD\_LIBRARY\_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh10.2"

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 -m32 -L/opt/intel/compilers\_and\_libraries\_2018.0.082/linux/lib/ia32

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2018.0.082/linux/lib/ia32

## Base Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -D\_FILE\_OFFSET\_BITS=64  
403.gcc: -D\_FILE\_OFFSET\_BITS=64  
429.mcf: -D\_FILE\_OFFSET\_BITS=64  
445.gobmk: -D\_FILE\_OFFSET\_BITS=64  
456.hmmer: -D\_FILE\_OFFSET\_BITS=64  
458.sjeng: -D\_FILE\_OFFSET\_BITS=64  
462.libquantum: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX  
464.h264ref: -D\_FILE\_OFFSET\_BITS=64  
471.omnetpp: -D\_FILE\_OFFSET\_BITS=64  
473.astar: -D\_FILE\_OFFSET\_BITS=64  
483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/cpu2006/sh10.2 -lsmartheap
```

## Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

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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