SPEC® CINT2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

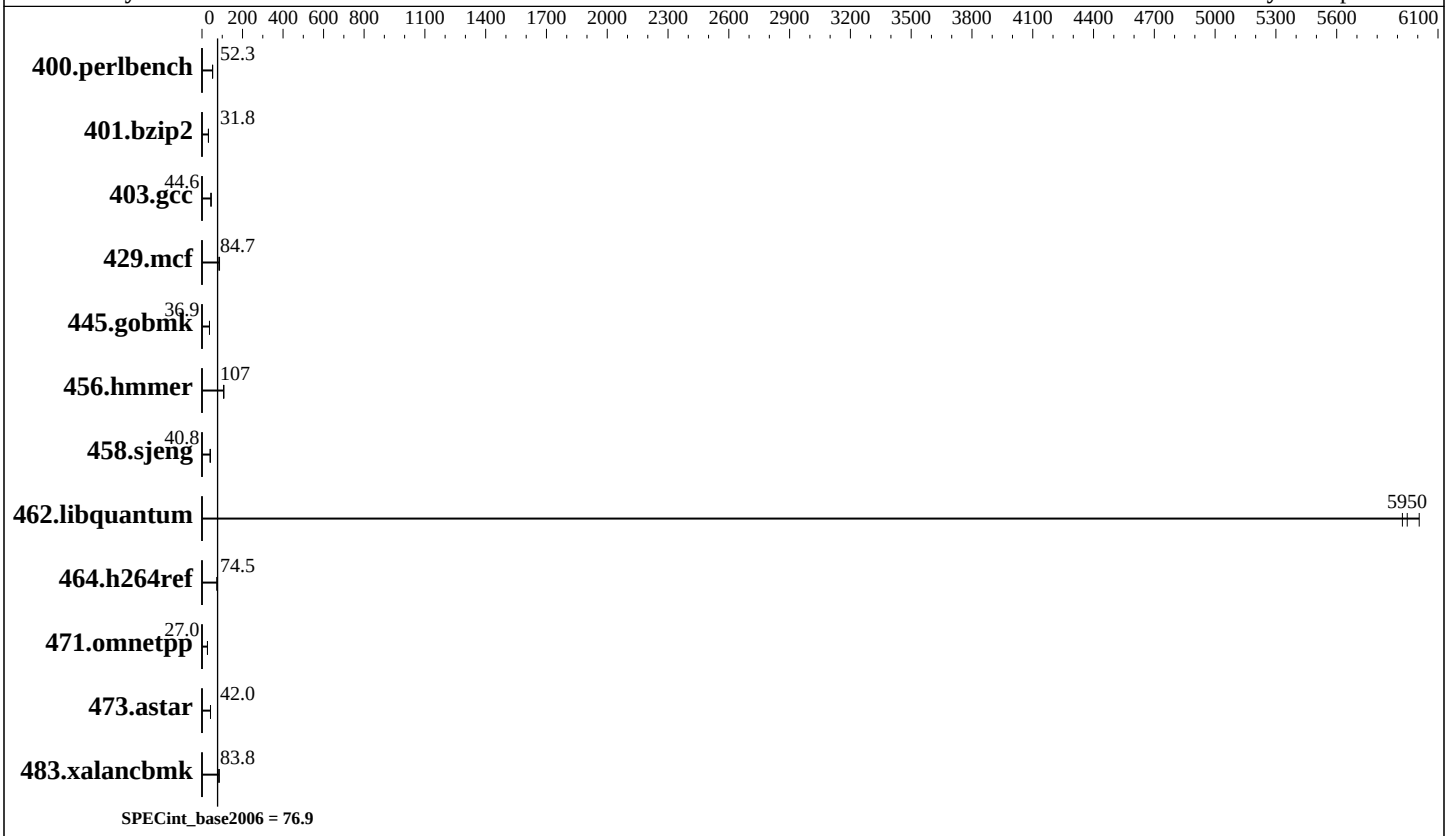
ProLiant DL560 Gen10
(3.50 GHz, Intel Xeon Gold 6144)

SPECint®2006 = Not Run

SPECint_base2006 = 76.9

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

Test date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017



Hardware

CPU Name:	Intel Xeon Gold 6144
CPU Characteristics:	Intel Turbo Boost Technology up to 4.20 GHz
CPU MHz:	3500
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	1, 2, 4 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:	24.75 MB I+D on chip per chip
Other Cache:	None
Memory:	768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)
Disk Subsystem:	1 x 480 GB SATA SSD, RAID 0
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo) Kernel 3.10.0-514.el7.x86_64
Compiler:	C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	Not Applicable
Other Software:	Microquill SmartHeap V10.2

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	**187**	**52.3**	187	52.1	187	52.3						
401.bzip2	303	31.8	303	31.8	**303**	**31.8**						
403.gcc	**181**	**44.6**	181	44.6	180	44.6						
429.mcf	**108**	**84.7**	105	86.5	109	83.9						
445.gobmk	**284**	**36.9**	284	36.9	284	37.0						
456.hmmer	86.5	108	87.8	106	**87.1**	**107**						
458.sjeng	**296**	**40.8**	296	40.8	297	40.8						
462.libquantum	3.45	6010	3.50	5920	**3.48**	**5950**						
464.h264ref	298	74.3	297	74.6	**297**	**74.5**						
471.omnetpp	232	26.9	231	27.1	**231**	**27.0**						
473.astar	**167**	**42.0**	168	41.9	167	42.0						
483.xalancbmk	82.4	83.7	**82.4**	**83.8**	81.9	84.3						

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 disabled with "systemctl stop irqbalance"
tuned profile set wtih "tuned-adm profile throughput-performance"
```

Platform Notes

```
BIOS Configuration:
 Thermal Configuration set to Maximum Cooling
 LLC Prefetch set to Enabled
 LLC Dead Line Allocation set to Disabled
 Stale A to S set to Enabled
 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 RHEL7.3-DQW Mon Dec 11 13:43:50 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
```

Continued on next page

Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) Gold 6144 CPU @ 3.50GHz
      4 "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 : 8
      siblings  : 16
      physical 0: cores 0 2 3 9 16 19 26 27
      physical 1: cores 0 2 3 9 16 19 26 27
      physical 2: cores 0 2 3 9 16 19 26 27
      physical 3: cores 0 2 3 9 16 19 26 27
   cache size : 25344 KB

From /proc/meminfo
   MemTotal:       792071360 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.3 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.3"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

uname -a:
   Linux RHEL7.3-DQW 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 8 11:51

SPEC is set to: /home/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda4      xfs   442G   24G  419G   6% /
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 U34 09/29/2017
  Memory:
```

Continued on next page

Platform Notes (Continued)

```
      48x 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=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"
OMP_NUM_THREADS = "64"

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

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.


This benchmark result is intended to provide perspective on
past performance using the historical hardware and/or
software described on this result page.

The system as described on this result page was formerly
generally available. At the time of this publication, it may
not be shipping, and/or may not be supported, and/or may fail
to meet other tests of General Availability described in the
SPEC OSG Policy document, http://wwww.spec.org/osg/policy.htm.

This measured result may not be representative of the result
that would be measured were this benchmark run with hardware
and software available as of the publication date.
```

Base Compiler Invocation

C benchmarks:

```
icc -m64
```

C++ benchmarks:

```
icpc -m64
```

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch -auto-p32

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64

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-revH.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-revH.xml

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

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