SPEC® CINT2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

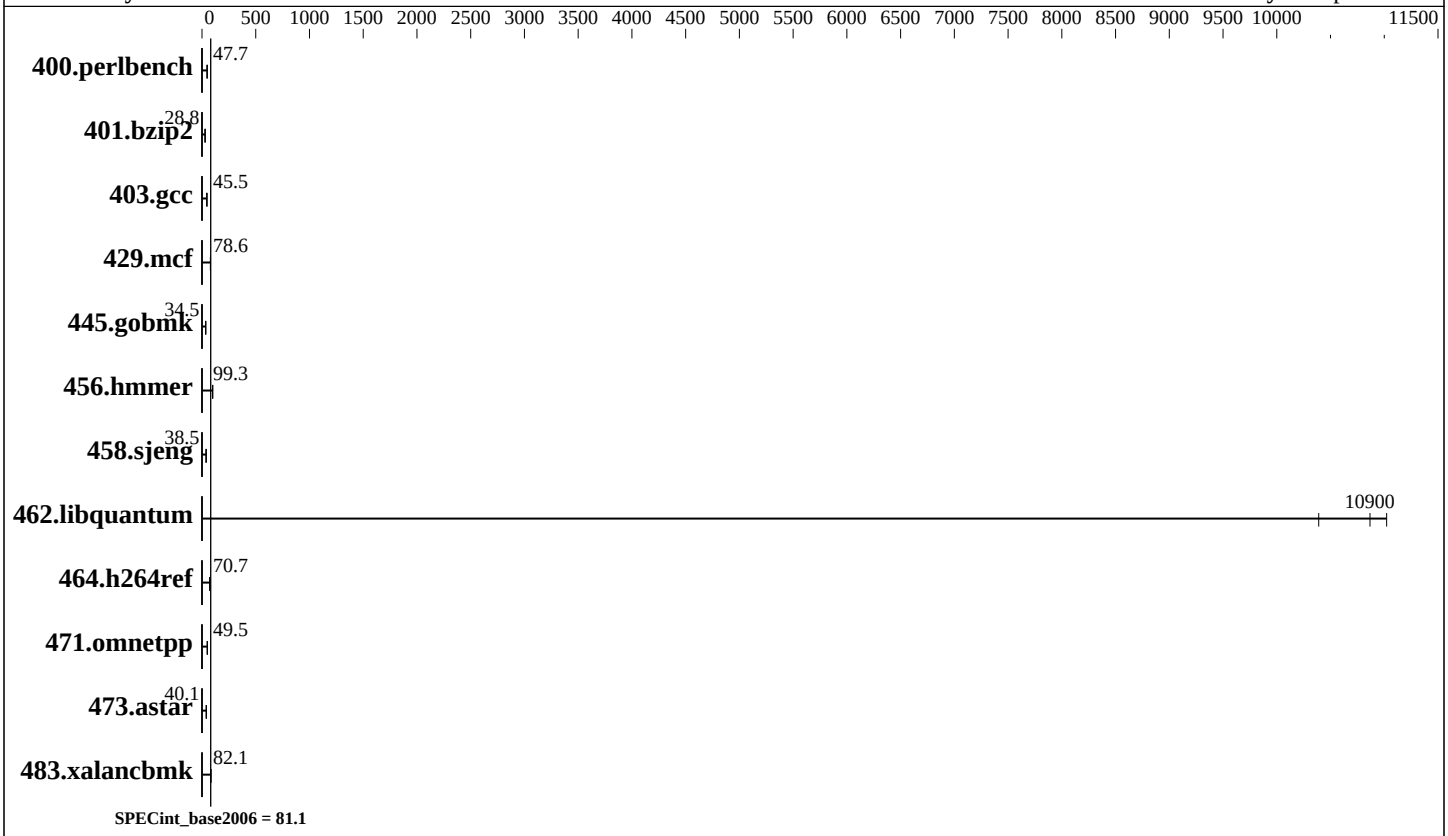
ProLiant DL560 Gen10
(2.50 GHz, Intel Xeon Platinum 8180)

SPECint®2006 = Not Run

SPECint_base2006 = 81.1

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

Test date: Jul-2017
Hardware Availability: Sep-2017
Software Availability: Apr-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:	112 cores, 4 chips, 28 cores/chip
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:	38.5 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:	32/64-bit
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	204	47.8	**205**	**47.7**	205	47.7						
401.bzip2	**335**	**28.8**	335	28.8	334	28.9						
403.gcc	176	45.6	**177**	**45.5**	178	45.3						
429.mcf	115	79.1	**116**	**78.6**	117	78.2						
445.gobmk	304	34.5	**304**	**34.5**	304	34.5						
456.hmmer	94.3	99.0	93.9	99.3	**94.0**	**99.3**						
458.sjeng	314	38.5	**314**	**38.5**	315	38.5						
462.libquantum	1.99	10400	**1.91**	**10900**	1.88	11000						
464.h264ref	315	70.1	312	70.9	**313**	**70.7**						
471.omnetpp	127	49.1	126	49.5	**126**	**49.5**						
473.astar	**175**	**40.1**	175	40.1	175	40.0						
483.xalancbmk	84.0	82.1	**84.0**	**82.1**	83.9	82.2						

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 was stopped using: 'service irqbalance stop'
```

Platform Notes

```
BIOS Configuration:
  Intel HyperThreading set to Disabled
  Thermal Configuration set to Maximum Cooling
  LLC Dead Line Allocation set to Disabled
  Stale A to S set to Enabled
  Workload profile set to General Peak Frequency Compute
Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on DL560-RHEL-TI-16g Fri Jul 14 19:20:09 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
      4 "physical id"s (chips)
      112 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
```

Continued on next page

Platform Notes (Continued)

```
      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
         physical 2: 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 3: 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:       792279444 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 DL560-RHEL-TI-16g 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 Jul 14 00:07

   SPEC is set to: /home/cpu2006
      Filesystem            Type  Size  Used Avail Use% Mounted on
      /dev/mapper/rhel-home xfs   392G   21G  372G   6% /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 U34 06/08/2017
     Memory:
      48x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz
```

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Platform Notes (Continued)

```
 (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 = "87"

 Binaries compiled on a system with 2x Intel Xeon E5-2699 v4 CPU + 256GB RAM
 memory using Redhat Enterprise Linux 7.2
```

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 -complex-limited-range -qopt-prefetch-issue-excl-hint
-ansi-alias
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/home/cpu2006/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/HPE-Compiler-Flags-Intel-V1.2-HSW-revJ.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-revJ.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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