



SPEC® CINT2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen10
(2.20 GHz, AMD EPYC 7301)

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 1280

CPU2006 license: 3

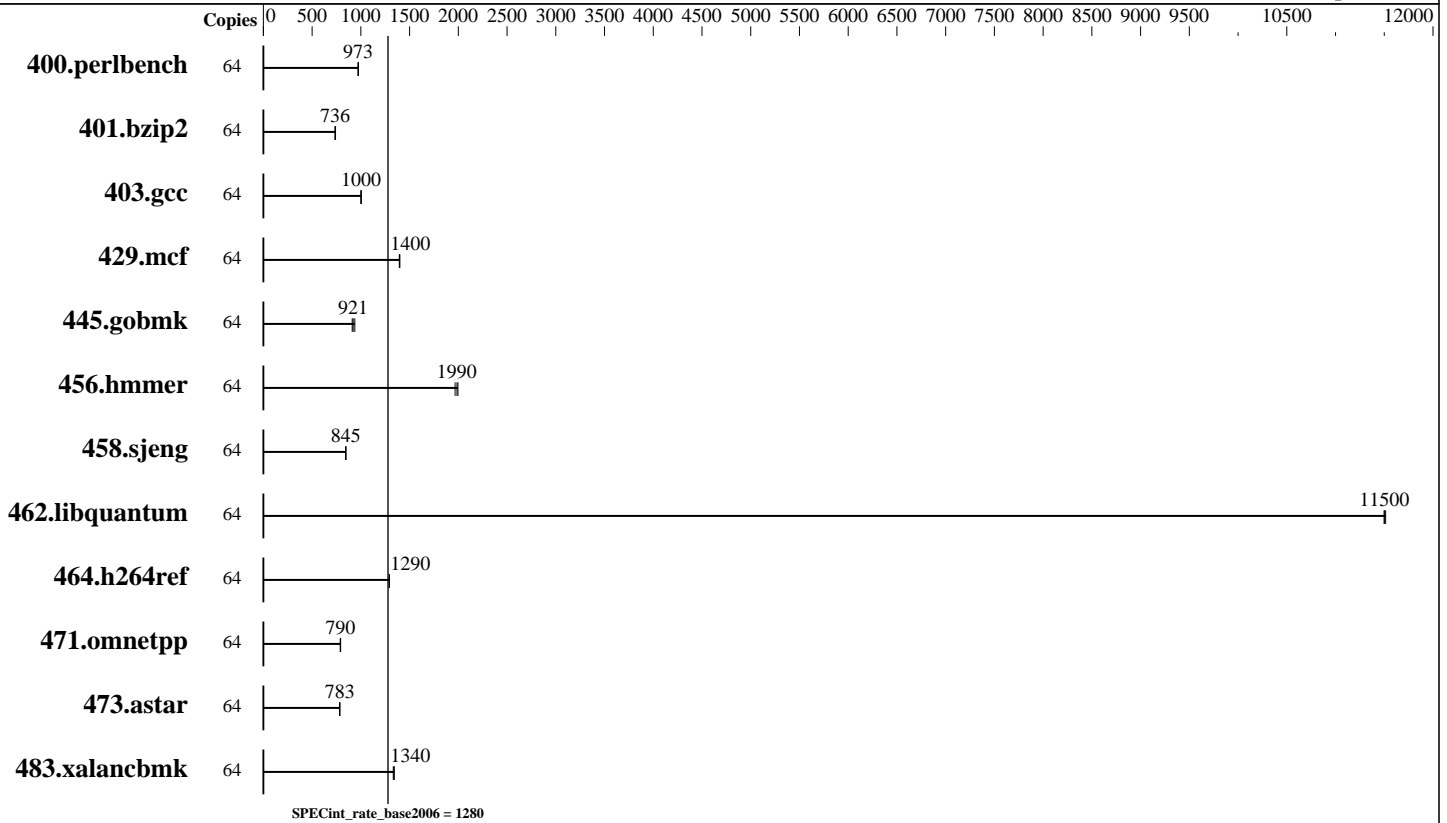
Test sponsor: HPE

Tested by: HPE

Test date: Nov-2017

Hardware Availability: Nov-2017

Software Availability: Sep-2017



Hardware

CPU Name: AMD EPYC 7301
 CPU Characteristics: AMD Turbo CORE technology up to 2.70 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 32 cores, 2 chips, 16 cores/chip, 2 threads/core
 CPU(s) orderable: 1, 2 chip(s)
 Primary Cache: 64 KB I + 32 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 64 MB I+D on chip per chip, 8 MB shared / 2 cores
 Other Cache: None
 Memory: 1 TB (16 x 64 GB 4Rx4 PC4-2666V-L)
 Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 (x86_64) SP3
 Kernel 4.4.73-5-default
 Compiler: C/C++: Version 4.5.2.1 of x86 Open64 Compiler Suite (from AMD)
 Auto Parallel: No
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: Not Applicable
 Other Software: MicroQuill SmartHeap 10.0 32-bit Library for Linux



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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	643	972	642	974	643	973									
401.bzip2	64	839	736	839	736	834	740									
403.gcc	64	514	1000	514	1000	513	1000									
429.mcf	64	419	1390	418	1400	417	1400									
445.gobmk	64	737	911	729	921	716	938									
456.hammer	64	299	2000	301	1990	304	1970									
458.sjeng	64	917	844	916	845	915	847									
462.libquantum	64	115	11500	115	11500	115	11500									
464.h264ref	64	1096	1290	1096	1290	1096	1290									
471.omnetpp	64	507	789	505	793	506	790									
473.astar	64	574	783	574	783	573	784									
483.xalancbmk	64	329	1340	331	1330	329	1340									

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Set dirty_ratio=8 to limit dirty cache to 8% of memory
Set swappiness=1 to swap only if necessary
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
sync then drop_caches=3 to reset caches before invoking runcpu
Linux governor set to performance with cpupower "cpupower frequency-set -r -g performance"
Transparent huge pages were enabled for this run (OS default)

Set vm/nr_hugepages=57344 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

BIOS Configuration:
Thermal Configuration set to Maximum Cooling
Performance Determinism set to Power Deterministic
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Platform Notes (Continued)

Memory Patrol Scrubbing set to Disabled
Workload Pofile set to General Throughput Compute
Minimum Processor Idle Power Core C-State set to C6 State

General Notes

Environment variables set by runspec before the start of the run:

HUGETLB_LIMIT = "896"

LD_LIBRARY_PATH = "/home/cpu2006/amd1603-rate-libs-revB/32:/home/cpu2006/amd1603-rate-libs-revB/64"

The binaries were built with the x86 Open64 Compiler Suite,
which is only available from (and supported by) AMD at
<http://developer.amd.com/tools-and-sdks/cpu-development/x86-open64-compiler-suite/>

Base Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

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.hmmr: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-Ofast -CG:local_sched_alg=1 -INLINE:aggressive=ON -IPA:plimit=8000
-IPA:small_pu=100 -HP:bd=2m:heap=2m -mso -LNO:prefetch=2
-march=bdver1 -mno-fma4 -mno-xop -mno-tbm

C++ benchmarks:
-Ofast -m32 -INLINE:aggressive=on -CG:cmp_peep=on -D__OPEN64_FAST_SET
-march=bdver1 -mno-fma4 -mno-xop -mno-tbm

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Base Optimization Flags (Continued)

C++ benchmarks (continued):

-L/root/work/libraries/SmartHeap-10/lib -lsmartheap

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

<http://www.spec.org/cpu2006/flags/x86-openflags-rate-revA-I.html>

<http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-AMD-V1.2-EPYC-revC.html>

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

<http://www.spec.org/cpu2006/flags/x86-openflags-rate-revA-I.xml>

<http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-AMD-V1.2-EPYC-revC.xml>

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Dec 12 17:06:51 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 December 2017.