SPEC® CINT2006 Result

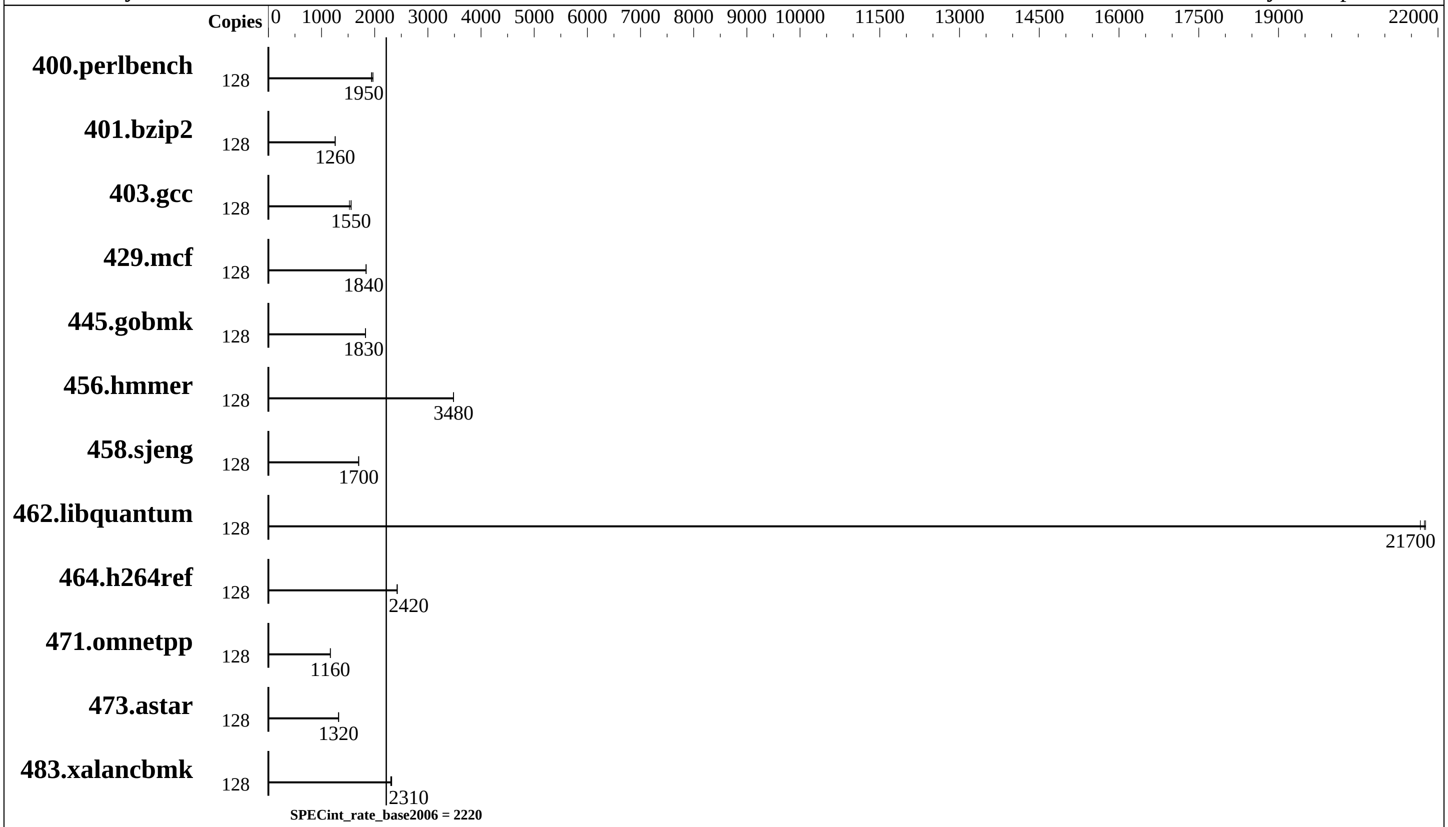
Dell Inc.

PowerEdge R7425
(AMD EPYC 7601, 2.20 GHz)

SPECint®_rate2006 = Not Run

SPECint_rate_base2006 = 2220

CPU2006 license: 55		**Test date:**	Nov-2017
Test sponsor:	Dell Inc.	**Hardware Availability:**	Dec-2017
Tested by:	Dell Inc.	**Software Availability:**	Sep-2017



Hardware

CPU Name:	AMD EPYC 7601
CPU Characteristics:	AMD Turbo CORE technology up to 3.20 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	64 cores, 2 chips, 32 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
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 / 4 cores
Other Cache:	None
Memory:	1 TB (16 x 64 GB 4Rx4 PC4-2666V-L)
Disk Subsystem:	1 x 960 GB SATA SSD
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:	32/64-bit
Other Software:	MicroQuill SmartHeap 10.0 32-bit Library for Linux

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	128	635	1970	645	1940	**642**	**1950**							
401.bzip2	128	980	1260	984	1250	**983**	**1260**							
403.gcc	128	661	1560	**663**	**1550**	676	1520							
429.mcf	128	636	1840	**636**	**1840**	634	1840							
445.gobmk	128	736	1830	**735**	**1830**	735	1830							
456.hmmer	128	343	3480	**343**	**3480**	343	3480							
458.sjeng	128	910	1700	914	1700	**911**	**1700**							
462.libquantum	128	**122**	**21700**	122	21700	122	21800							
464.h264ref	128	1167	2430	1171	2420	**1169**	**2420**							
471.omnetpp	128	686	1170	**687**	**1160**	687	1160							
473.astar	128	**681**	**1320**	678	1320	682	1320							
483.xalancbmk	128	381	2320	384	2300	**382**	**2310**							

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

Transparent huge pages were enabled for this run (OS default)

Set vm/nr_hugepages=114688 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

Platform Notes

```
BIOS settings:
Memory Interleaving set to Channel Interleaving
Virtualization Technology disabled
```

Continued on next page

Platform Notes (Continued)

```
System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost enabled
C States disabled
Memory Patrol Scrub disabled
Memory Refresh Rate set to 1x
PCI ASPM L1 Link Power Management disabled
```

General Notes

```
Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
LD_LIBRARY_PATH = "/home/cpu2006_o64/amd1603-rate-libs-revA/32:/home/cpu2006_o64/amd1603-rate-libs-revA/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/
Binaries were compiled on a system with 2x AMD Opteron 6378 chips + 128GB Memory using RHEL 6.3

NA: 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://www.spec.org/osg/policy.html

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:
`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.hmmer: -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
-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/Dell-Platform-Flags-PowerEdge14G-revD.20171221.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/Dell-Platform-Flags-PowerEdge14G-revD.20171221.xml

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Feb 20 18:12:11 2018 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 February 2018.