SPEC® CFP2006 Result

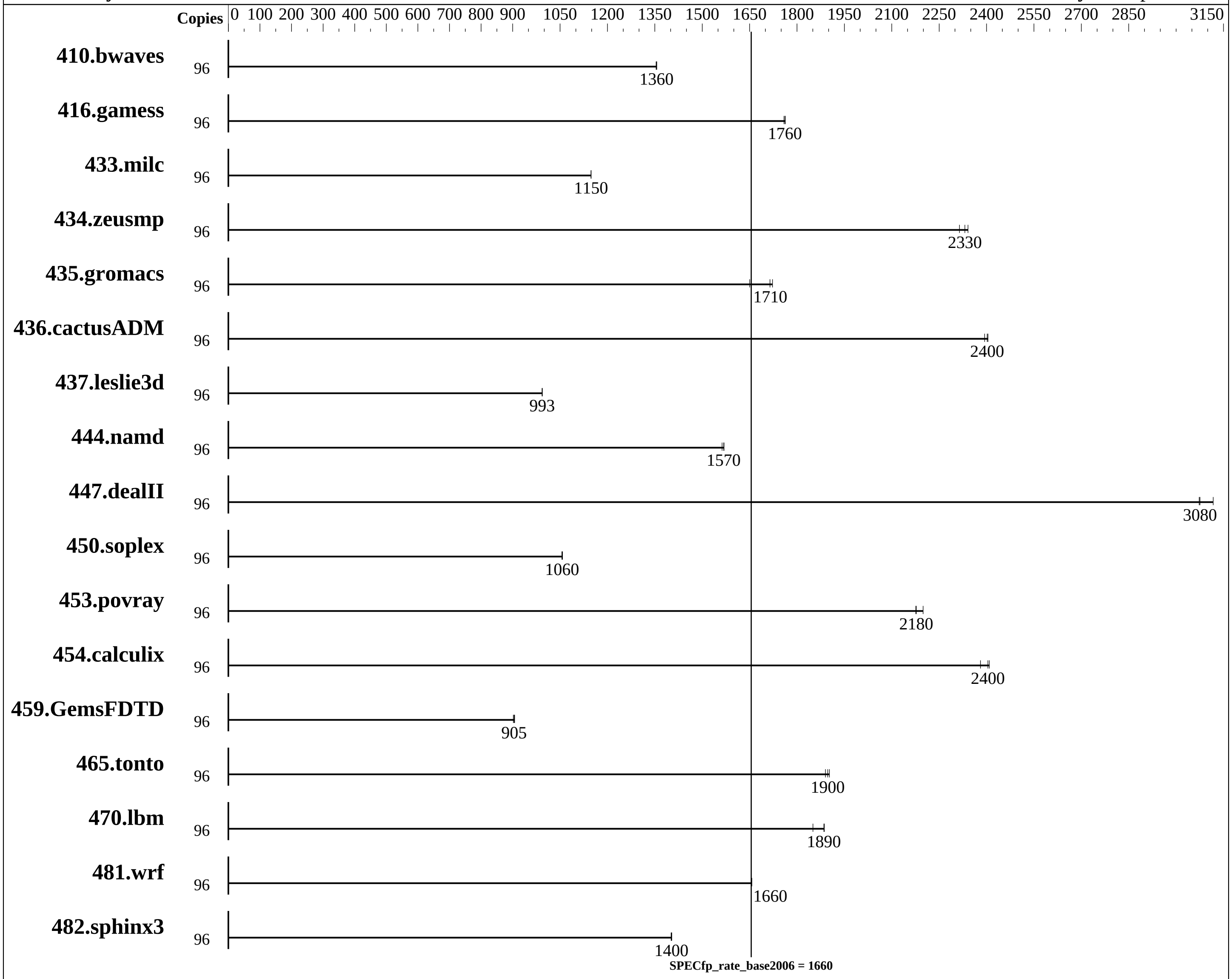
Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL385 Gen10
(2.30 GHz, AMD EPYC 7451)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1660

CPU2006 license: 3		**Test date:**	Dec-2017
Test sponsor:	HPE	**Hardware Availability:**	Nov-2017
Tested by:	HPE	**Software Availability:**	Sep-2017



Hardware

CPU Name:	AMD EPYC 7451
CPU Characteristics:	AMD Turbo CORE technology up to 3.20 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	48 cores, 2 chips, 24 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

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Software

Operating System:	SUSE Linux Enterprise Server 12 (x86_64) SP3 Kernel 4.4.73-5-default
Compiler:	C/C++/Fortran: 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:	64-bit
Peak Pointers:	Not Applicable

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L3 Cache: 64 MB I+D on chip per chip, 8 MB shared / 3 cores
Other Cache: None
Memory: 1 TB (16 x 64 GB 4Rx4 PC4-2666V-L)
Disk Subsystem: 1 x 300 GB 15 K RPM SAS, RAID 0
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	96	**962**	**1360**	962	1360	964	1350							
416.gamess	96	**1067**	**1760**	1066	1760	1069	1760							
433.milc	96	767	1150	**768**	**1150**	768	1150							
434.zeusmp	96	**375**	**2330**	377	2310	373	2340							
435.gromacs	96	**400**	**1710**	398	1720	415	1650							
436.cactusADM	96	479	2390	**478**	**2400**	477	2400							
437.leslie3d	96	**908**	**993**	908	994	909	993							
444.namd	96	**491**	**1570**	493	1560	491	1570							
447.dealII	96	357	3070	**357**	**3080**	352	3120							
450.soplex	96	757	1060	758	1060	**758**	**1060**							
453.povray	96	235	2180	232	2200	**235**	**2180**							
454.calculix	96	**329**	**2400**	333	2380	329	2410							
459.GemsFDTD	96	1124	906	**1126**	**905**	1129	902							
465.tonto	96	497	1900	**498**	**1900**	500	1890							
470.lbm	96	**700**	**1890**	713	1850	699	1890							
481.wrf	96	**647**	**1660**	647	1660	647	1660							
482.sphinx3	96	1333	1400	1335	1400	**1334**	**1400**							

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

```
Set vm/nr_hugepages=86016 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
 Memory Patrol Scrubbing set to Disabled
 Workload Profile set to General Throughput Compute
 Minimum Processor Idle Power Core C-State set to C6 State
 Processor Power and Utilization Monitoring set to Disabled
```

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

Fortran benchmarks:
openf95

Benchmarks using both Fortran and C:
opencc openf95

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LP64
-fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-Ofast -OPT:malloc_alg=1 -HP:bd=2m:heap=2m -IPA:plimit=8000
-IPA:small_pu=100 -mso -march=bdver1 -mno-fma4 -mno-xop -mno-tbm
-WB, -Wl, -z,muldefs

C++ benchmarks:
-Ofast -static -CG:load_exe=0 -OPT:malloc_alg=1 -INLINE:aggressive=on
-HP:bd=2m:heap=2m -D__OPEN64_FAST_SET -march=bdver2 -mno-fma4
-mno-xop -mno-tbm -WB, -Wl, -z,muldefs

Fortran benchmarks:
-Ofast -LNO:blocking=off -LNO:simd_peel_align=on -OPT:rsqrt=2
-OPT:unroll_size=256 -HP:bd=2m:heap=2m -mso -march=bdver1 -mno-fma4
-mno-xop -mno-tbm -WB, -Wl, -z,muldefs

Benchmarks using both Fortran and C:
-Ofast -OPT:malloc_alg=1 -HP:bd=2m:heap=2m -IPA:plimit=8000
-IPA:small_pu=100 -mso -march=bdver1 -mno-fma4 -mno-xop -mno-tbm
-WB, -Wl, -z,muldefs -LNO:blocking=off -LNO:simd_peel_align=on
-OPT:rsqrt=2 -OPT:unroll_size=256

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-revD.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-revD.xml

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

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