



SPEC[®] CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen10
(2.00 GHz, AMD EPYC 7551)

SPECfp[®]_rate2006 = Not Run

SPECfp_rate_base2006 = 1750

CPU2006 license: 3

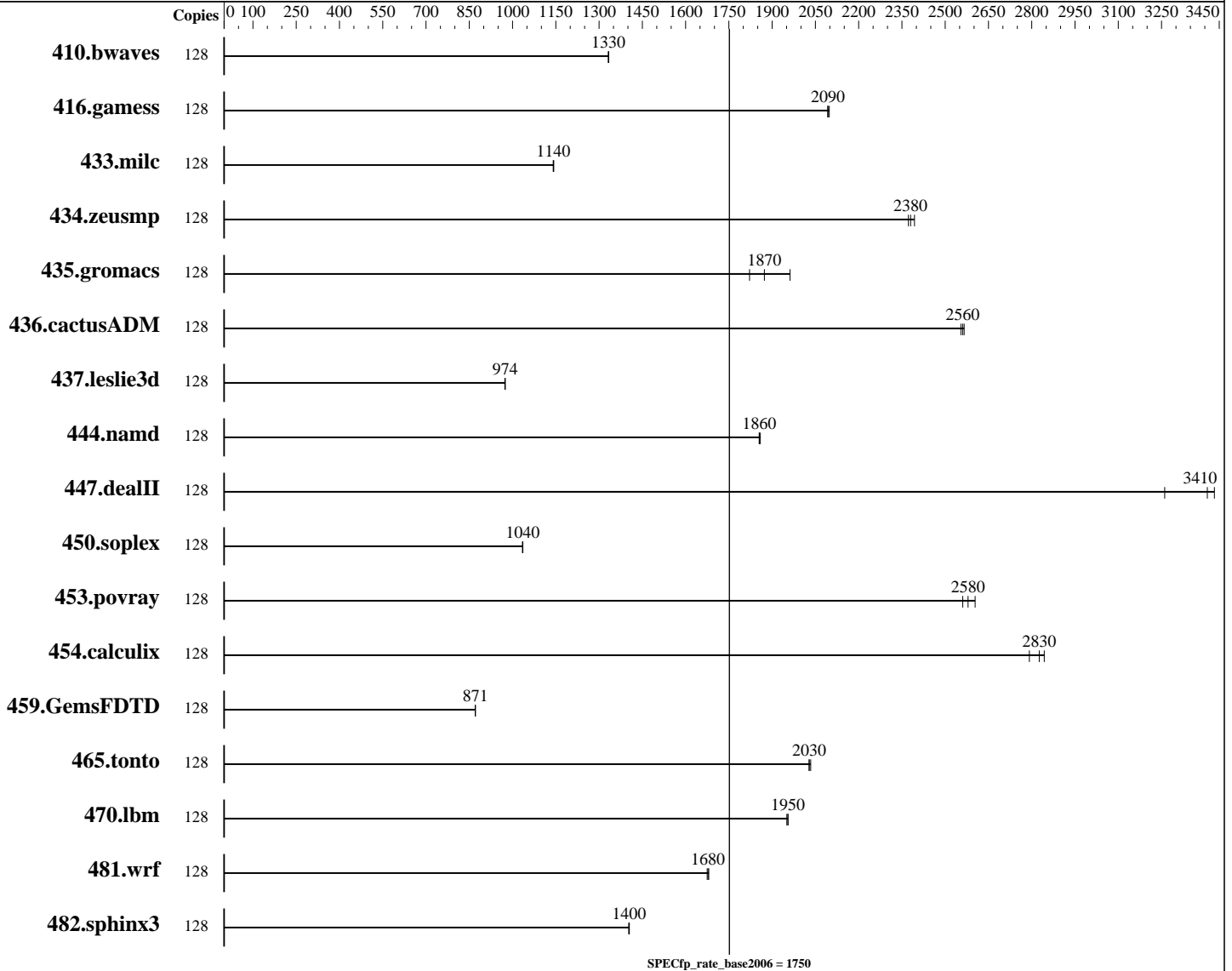
Test sponsor: HPE

Tested by: HPE

Test date: Dec-2017

Hardware Availability: Nov-2017

Software Availability: Sep-2017



Hardware

CPU Name: AMD EPYC 7551
 CPU Characteristics: AMD Turbo CORE technology up to 3.00 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 64 cores, 2 chips, 32 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 / 4 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

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	128	1305	1330	<u>1305</u>	<u>1330</u>	1306	1330							
416.gamess	128	<u>1197</u>	<u>2090</u>	1195	2100	1198	2090							
433.milc	128	1028	1140	<u>1029</u>	<u>1140</u>	1030	1140							
434.zeusmp	128	<u>489</u>	<u>2380</u>	487	2390	491	2370							
435.gromacs	128	<u>488</u>	<u>1870</u>	466	1960	502	1820							
436.cactusADM	128	599	2550	<u>597</u>	<u>2560</u>	596	2570							
437.leslie3d	128	1235	975	<u>1235</u>	<u>974</u>	1236	973							
444.namd	128	552	1860	553	1860	<u>553</u>	<u>1860</u>							
447.dealII	128	427	3430	<u>430</u>	<u>3410</u>	449	3260							
450.soplex	128	<u>1031</u>	<u>1040</u>	1031	1040	1032	1030							
453.povray	128	<u>264</u>	<u>2580</u>	262	2600	266	2560							
454.calculix	128	<u>374</u>	<u>2830</u>	378	2790	371	2840							
459.GemsFDTD	128	<u>1559</u>	<u>871</u>	1559	871	1560	871							
465.tonto	128	621	2030	619	2030	<u>621</u>	<u>2030</u>							
470.lbm	128	<u>900</u>	<u>1950</u>	901	1950	900	1960							
481.wrf	128	851	1680	854	1670	<u>852</u>	<u>1680</u>							
482.sphinx3	128	1779	1400	<u>1776</u>	<u>1400</u>	1776	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
```



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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>



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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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