



SPEC® CFP2006 Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL385 Gen10
(2.40 GHz, AMD EPYC 7351)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1350

CPU2006 license: 3

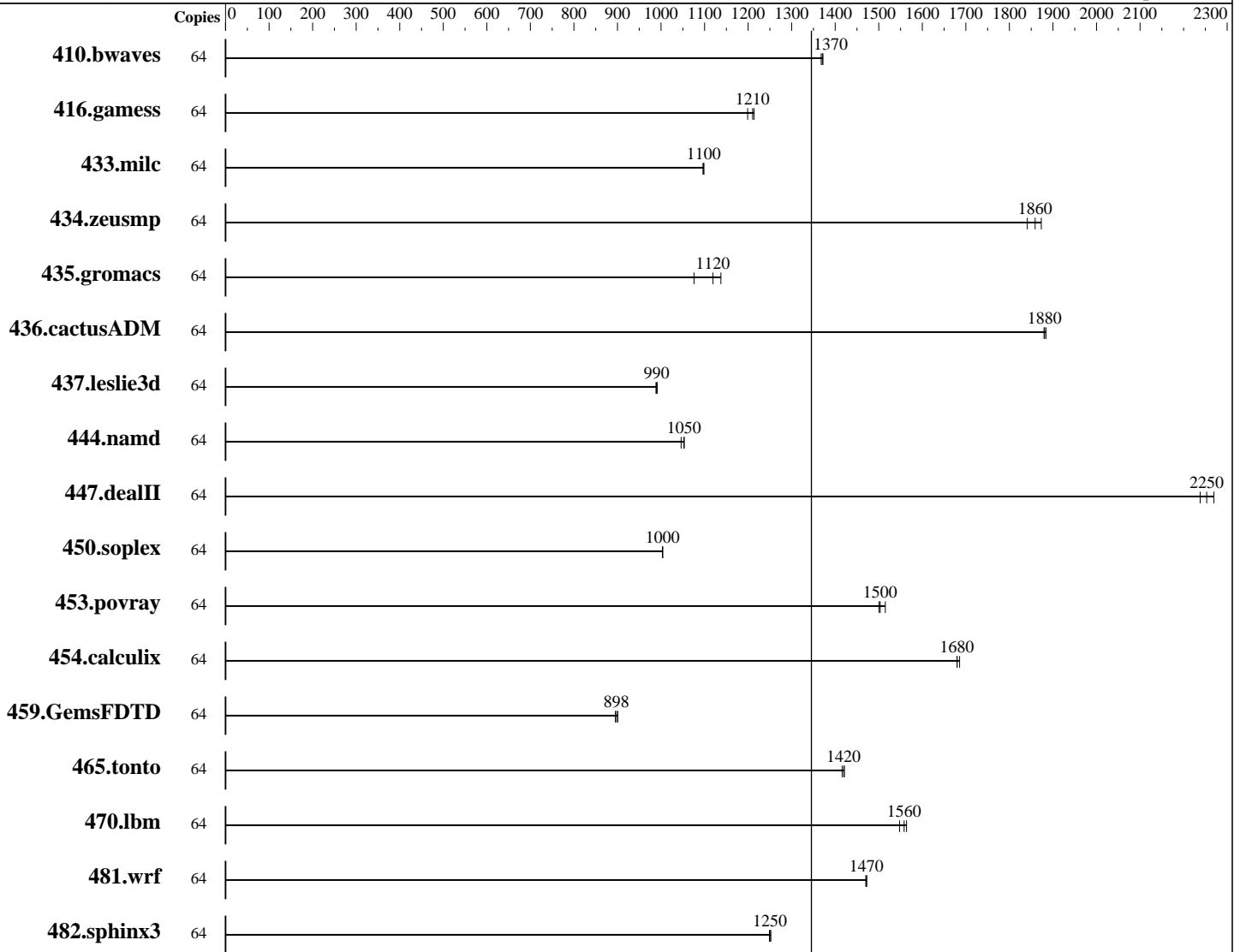
Test sponsor: HPE

Tested by: HPE

Test date: Nov-2017

Hardware Availability: Nov-2017

Software Availability: Sep-2017



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Hardware

CPU Name: AMD EPYC 7351
 CPU Characteristics: AMD Turbo CORE technology up to 2.90 GHz
 CPU MHz: 2400
 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

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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 / 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

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	634	1370	<u>635</u>	<u>1370</u>	636	1370							
416.gamess	64	1045	1200	<u>1035</u>	<u>1210</u>	1032	1210							
433.milc	64	535	1100	<u>535</u>	<u>1100</u>	536	1100							
434.zeusmp	64	<u>313</u>	<u>1860</u>	316	1840	311	1870							
435.gromacs	64	425	1080	<u>408</u>	<u>1120</u>	402	1140							
436.cactusADM	64	406	1880	<u>407</u>	<u>1880</u>	407	1880							
437.leslie3d	64	607	991	609	988	<u>608</u>	<u>990</u>							
444.namd	64	<u>487</u>	<u>1050</u>	487	1050	491	1050							
447.dealII	64	327	2240	<u>325</u>	<u>2250</u>	323	2270							
450.soplex	64	532	1000	<u>532</u>	<u>1000</u>	532	1000							
453.povray	64	<u>226</u>	<u>1500</u>	225	1520	227	1500							
454.calculix	64	<u>314</u>	<u>1680</u>	314	1680	313	1690							
459.GemsFDTD	64	754	901	759	895	<u>756</u>	<u>898</u>							
465.tonto	64	<u>444</u>	<u>1420</u>	443	1420	445	1420							
470.lbm	64	<u>564</u>	<u>1560</u>	568	1550	562	1560							
481.wrf	64	486	1470	<u>486</u>	<u>1470</u>	486	1470							
482.sphinx3	64	999	1250	996	1250	<u>998</u>	<u>1250</u>							

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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