



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp®_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3

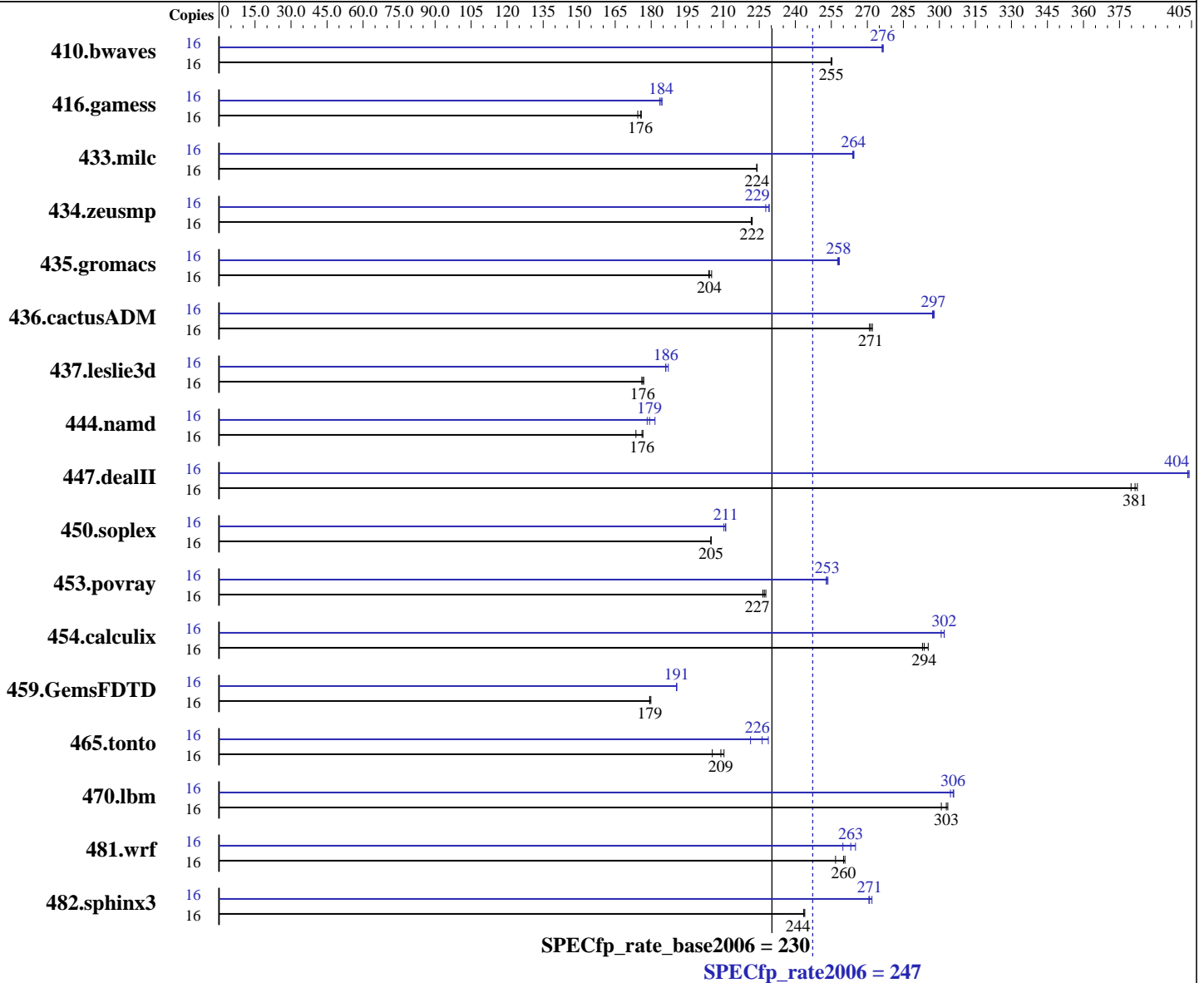
Test date: Jul-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Dec-2011



Hardware

CPU Name: AMD Opteron 6212
 CPU Characteristics: AMD Turbo CORE technology up to 3.20 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
 CPU(s) orderable: 1,2 chips

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.2, Kernel 2.6.32-220.el6.x86_64
 Compiler: C/C++/Fortran: Version 4.5.1 of x86 Open64 Compiler Suite (from AMD)
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3

Test date: Jul-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Dec-2011

Primary Cache: 256 KB I on chip per chip,
64 KB I shared / 2 cores;
16 KB D on chip per core

Secondary Cache: 8 MB I+D on chip per chip, 2 MB shared / 2 cores

L3 Cache: 16 MB I+D on chip per chip, 8 MB shared / 4 cores

Other Cache: None

Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)

Disk Subsystem: 1 x 72 GB SAS, 15 K RPM

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	16	853	255	852	255	853	255	16	787	276	787	276	786	277		
416.gamess	16	1796	174	1781	176	1785	176	16	1702	184	1698	185	1707	184		
433.milc	16	655	224	656	224	656	224	16	557	264	556	264	555	264		
434.zeusmp	16	656	222	656	222	657	222	16	639	228	636	229	636	229		
435.gromacs	16	557	205	559	204	560	204	16	442	258	443	258	443	258		
436.cactusADM	16	706	271	704	271	703	272	16	643	297	642	298	643	297		
437.leslie3d	16	852	176	850	177	854	176	16	804	187	808	186	808	186		
444.namd	16	728	176	739	174	727	177	16	716	179	720	178	707	182		
447.dealII	16	482	380	480	381	479	382	16	453	404	454	404	454	403		
450.soplex	16	651	205	651	205	651	205	16	635	210	632	211	632	211		
453.povray	16	376	226	374	228	375	227	16	337	253	336	253	336	254		
454.calculix	16	447	295	451	293	450	294	16	437	302	437	302	439	301		
459.GemsFDTD	16	946	179	944	180	947	179	16	891	191	891	191	891	191		
465.tonto	16	753	209	766	205	749	210	16	711	221	696	226	688	229		
470.lbm	16	731	301	726	303	724	304	16	722	305	718	306	719	306		
481.wrf	16	687	260	696	257	686	261	16	679	263	674	265	688	260		
482.sphinx3	16	1280	244	1278	244	1281	244	16	1152	271	1151	271	1147	272		

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

Transparent hugepage disabled: "echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled" before the run.
Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Jul-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

Operating System Notes (Continued)

```
Set vm/nr_hugepages=14336 in /etc/sysctl.conf
Set "nodev /mnt/hugepages hugetlbfs defaults 0 0"
```

Platform Notes

BIOS Configuration:

```
HP Power Profile - Maximum Performance
Thermal Configuration - Maximum Cooling
Minimum Process Idle Power Cle State - Enabled
System Locality Information Table - Disabled
Sysinfo program /cpu2006/Docs/sysinfo-rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ bb9c007959452bf0f152f4fdd865dbe3
running on dl385p-gen8-jfb Tue Jul 24 07:27:37 2012
```

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: <http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

```
model name : AMD Opteron(TM) Processor 6212
 2 "physical id"s (chips)
 16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
  cpu cores : 4
  siblings  : 8
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
cache size : 2048 KB
```

From /proc/meminfo

```
MemTotal:      132125400 kB
HugePages_Total: 14336
Hugepagesize:  2048 kB
```

/usr/bin/lsc_release -d

```
Red Hat Enterprise Linux Server release 6.2 (Santiago)
```

From /etc/*release* /etc/*version*

```
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux dl385p-gen8-jfb 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST
2011 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jul 23 08:48
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Jul-2012
Hardware Availability: Jun-2012
Software Availability: Dec-2011

Platform Notes (Continued)

SPEC is set to: /cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 ext4 66G 8.7G 54G 15% /

Additional information from dmidecode:
BIOS HP A28 03/24/2012
Memory:
16x Not Specified Not Specified 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
LD_LIBRARY_PATH = "/cpu2006/amd1104-rate-libs-revC/32:/cpu2006/amd1104-rate-libs-revC/64"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at
<http://developer.amd.com/cpu/open64>

Binaries were compiled on a system with 2x AMD Opteron 6274 chips + 64GB Memory using RHEL 6.1

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3

Test date: Jul-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Dec-2011

Base Portability Flags (Continued)

```

447.deallI: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
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:

```

-march=bdver1 -Ofast -OPT:malloc_alg=1 -HP:bd=2m:heap=2m
-IPA:plimit=8000 -IPA:small_pu=100 -mso

```

C++ benchmarks:

```

-march=bdver1 -Ofast -static -CG:load_exe=0 -OPT:malloc_alg=1
-INLINE:aggressive=on -HP:bd=2m:heap=2m -D__OPEN64_FAST_SET

```

Fortran benchmarks:

```

-march=bdver1 -Ofast -LNO:blocking=off -OPT:rsqrt=2
-OPT:unroll_size=256 -HP:bd=2m:heap=2m -mso

```

Benchmarks using both Fortran and C:

```

-march=bdver1 -Ofast -OPT:malloc_alg=1 -HP:bd=2m:heap=2m
-IPA:plimit=8000 -IPA:small_pu=100 -mso -LNO:blocking=off
-OPT:rsqrt=2 -OPT:unroll_size=256

```

Peak Compiler Invocation

C benchmarks:

openc

C++ benchmarks:

openCC

Fortran benchmarks:

openf95

Benchmarks using both Fortran and C:

openc openf95



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3

Test date: Jul-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Dec-2011

Peak 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
453.povray: -DSPEC_CPU_LP64
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

```

Peak Optimization Flags

C benchmarks:

```

433.milc: -march=bdver1 -Ofast -CG:movnti=1 -CG:locs_best=on
-HP:bdt=2m:heap=2m -IPA:plimit=7000 -IPA:callee_limit=1200
-OPT:struct_array_copy=2 -OPT:alias=field_sensitive -mso

470.lbm: -march=bdver1 -Ofast -CG:cmp_peep=on
-OPT:unroll_times_max=8 -OPT:unroll_size=256
-OPT:unroll_level=2 -OPT:keep_ext=on -HP:bdt=2m:heap=2m
-IPA:plimit=8000 -IPA:small_pu=100 -mso

482.sphinx3: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -IPA:plimit=1000
-OPT:malloc_alg=2 -CG:cmp_peep=on -CG:local_sched_alg=2
-CG:p2align=0 -INLINE:aggressive=on -LNO:prefetch=2
-LNO:prefetch_ahead=4 -mso

```

C++ benchmarks:

```

444.namd: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -IPA:plimit=3000
-LNO:ignore_feedback=off -CG:local_sched_alg=2
-CG:load_exe=0 -OPT:unroll_size=256 -fno-exceptions
-HP:bdt=2m:heap=2m

447.dealIII: -march=bdver1 -Ofast -D__OPEN64_FAST_SET -static
-INLINE:aggressive=on -LNO:opt=0 -LNO:simd=0
-fno-emit-exceptions -m32 -OPT:unroll_times_max=8
-OPT:unroll_size=256 -OPT:unroll_level=2 -HP:bdt=2m:heap=2m
-GRA:unspill=on -CG:cmp_peep=on -CG:movext_icmp=off

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3

Test date: Jul-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Dec-2011

Peak Optimization Flags (Continued)

447.dealIII (continued):

-TENV:frame_pointer=off

450.soplex: -march=bdver1 -fb_create fbdata(pass 1)

-fb_opt fbdata(pass 2) -O3 -LNO:ignore_feedback=off

-INLINE:aggressive=on -OPT:RO=1 -OPT:IEEE_arith=3

-OPT:IEEE_NaN_Inf=off -OPT:fold_unsigned_relops=on

-fno-exceptions -CG:p2align=0 -m32 -HP:bdt=2m:heap=2m

-WOPT:sib=on

453.povray: -march=bdver1 -fb_create fbdata(pass 1)

-fb_opt fbdata(pass 2) -Ofast -CG:pre_local_sched=off

-CG:p2align=0 -CG:p2align_split=on -CG:dsched=on

-INLINE:aggressive=on -HP:bd=2m:heap=2m -OPT:transform=2

-OPT:alias=disjoint -WOPT:aggcm=0

Fortran benchmarks:

410.bwaves: -march=bdver1 -fb_create fbdata(pass 1)

-fb_opt fbdata(pass 2) -Ofast -OPT:Ofast -OPT:treeheight=on

-LNO:blocking=off -LNO:ignore_feedback=off -LNO:fu=4

-LNO:loop_model_simd=on -LNO:simd_rm_unity_remainder=on

-WOPT:aggstr=0 -HP:bdt=2m:heap=2m -CG:cmp_peep=on

416.gamess: -march=bdver1 -fb_create fbdata(pass 1)

-fb_opt fbdata(pass 2) -O3 -LNO:fu=6 -LNO:blocking=0

-LNO:simd=0 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256

-OPT:unroll_times_max=2 -CG:local_sched_alg=1

-HP:bdt=2m:heap=2m -WOPT:sib=on

434.zeusmp: -march=bdver1 -Ofast -LNO:blocking=off -LNO:interchange=off

-IPA:plimit=1500 -HP:bdt=2m:heap=2m

437.leslie3d: -march=bdver1 -Ofast -CG:pre_minreg_level=2 -LNO:simd=0

-LNO:fusion=2 -HP:bdt=2m:heap=2m -mso

459.GemsFDTD: -march=bdver1 -Ofast -IPA:plimit=1500 -OPT:unroll_size=0

-LNO:fission=2 -CG:load_exe=0 -CG:local_sched_alg=2 -HP

465.tonto: -march=bdver1 -Ofast -OPT:alias=no_f90_pointer_alias

-LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525

-HP:bdt=2m:heap=2m

Benchmarks using both Fortran and C:

435.gromacs: -march=bdver1 -fb_create fbdata(pass 1)

-fb_opt fbdata(pass 2) -Ofast -OPT:rsqrt=2

-HP:bdt=2m:heap=2m -CG:local_sched_alg=2 -GRA:unspill=ON

-CG:load_exe=3 -LNO:simd=3

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 7



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 247

ProLiant DL385p Gen8
AMD Opteron 6212

SPECfp_rate_base2006 = 230

CPU2006 license: 3

Test date: Jul-2012

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2012

Tested by: Hewlett-Packard Company

Software Availability: Dec-2011

Peak Optimization Flags (Continued)

436.cactusADM: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:blocking=off
-LNO:prefetch=2 -HP -CG:locs_shallow_depth=1 -CG:load_exe=0
-CG:dsched=on -WOPT:sib=on

454.calculix: -march=bdver1 -Ofast -OPT:unroll_size=256
-GRA:optimize_boundary=on -CG:dsched=on -HP:bdt=2m:heap=2m

481.wrf: -march=bdver1 -Ofast -LNO:blocking=off -LANG:copyinout=off
-IPA:callee_limit=5000 -GRA:prioritize_by_density=on
-CG:load_exe=1 -HP -WOPT:sib=on

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

<http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC.html>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-AMD-V1.2-A.20120814.html>

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

<http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC.xml>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-AMD-V1.2-A.20120814.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 Thu Jul 24 12:05:33 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 14 August 2012.