



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp[®]2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

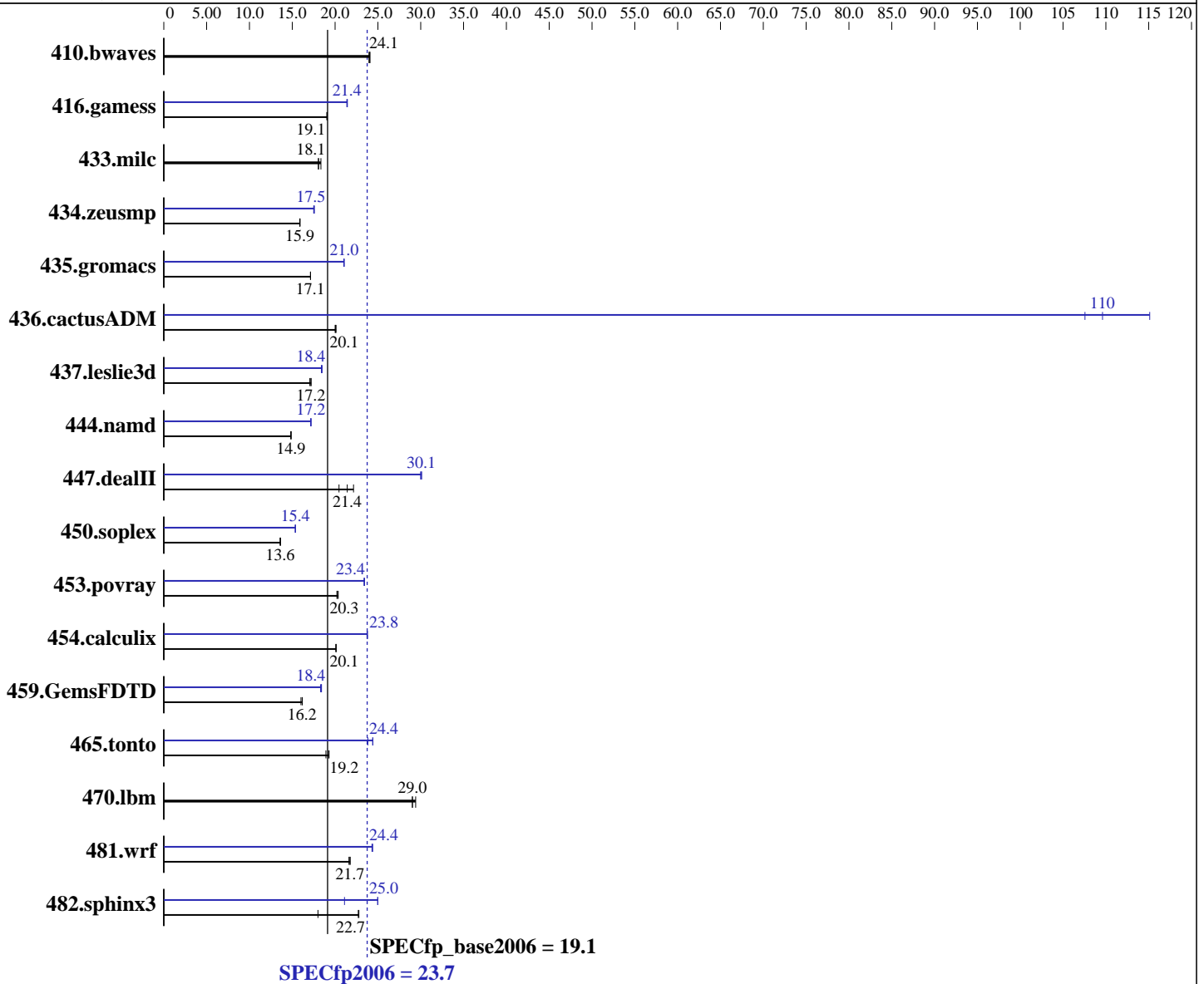
Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008



Hardware

CPU Name: AMD Opteron 8393 SE
 CPU Characteristics:
 CPU MHz: 3100
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
 CPU(s) orderable: 4 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-128.el5
 Compiler: PGI Server Complete Version 7.2
 PathScale Compiler Suite Version 3.2
 Auto Parallel: Yes
 File System: ext3
 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

Dell Inc.

SPECfp2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

L3 Cache: 6 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16 x 4 GB DDR2-800)
Disk Subsystem: 1 x 73 GB 15000 RPM SAS
Other Hardware: None

Other Software: binutils 2.18
32-bit and 64-bit libhugetlbfs libraries

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	567	24.0	565	24.1	565	24.1	567	24.0	565	24.1	565	24.1
416.gamess	1028	19.1	1027	19.1	1027	19.1	913	21.4	916	21.4	915	21.4
433.milc	509	18.0	500	18.3	508	18.1	509	18.0	500	18.3	508	18.1
434.zeusmp	572	15.9	573	15.9	573	15.9	519	17.5	518	17.6	520	17.5
435.gromacs	417	17.1	417	17.1	417	17.1	339	21.1	340	21.0	339	21.0
436.cactusADM	594	20.1	597	20.0	596	20.1	109	110	111	108	104	115
437.leslie3d	547	17.2	547	17.2	551	17.1	510	18.4	511	18.4	509	18.5
444.namd	541	14.8	540	14.9	540	14.9	468	17.2	466	17.2	467	17.2
447.dealII	534	21.4	516	22.2	559	20.5	382	30.0	380	30.1	380	30.1
450.soplex	614	13.6	614	13.6	612	13.6	543	15.4	543	15.4	543	15.4
453.povray	262	20.3	263	20.2	261	20.4	227	23.4	227	23.4	227	23.4
454.calculix	410	20.1	410	20.1	411	20.1	347	23.8	348	23.7	347	23.8
459.GemsFDTD	656	16.2	657	16.2	663	16.0	576	18.4	580	18.3	577	18.4
465.tonto	520	18.9	510	19.3	511	19.2	403	24.4	403	24.4	413	23.8
470.lbm	467	29.4	473	29.0	473	29.0	467	29.4	473	29.0	473	29.0
481.wrf	517	21.6	514	21.7	513	21.8	458	24.4	458	24.4	460	24.3
482.sphinx3	1083	18.0	856	22.8	858	22.7	780	25.0	780	25.0	924	21.1

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

Operating System Notes

The libhugetlbfs libraries were installed using the installation RPMs that came with the distribution.

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm/nr_hugepages=14336 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

General Notes

Environment variables set by runspec before the start of the run:

HUGETLB_MORECORE = "yes"

LD_LIBRARY_PATH = "/root/cpu2006-1.1/amd909gh-libs/64:/root/cpu2006-1.1/amd909gh-libs/32"

NCPUS = "8"

Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

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 -Mnomain
 436.cactusADM: -DSPEC_CPU_LP64 -Mnomain
 437.leslie3d: -DSPEC_CPU_LP64
 444.namd: -DSPEC_CPU_LP64
 447.deall: -DSPEC_CPU_LP64
 450.soplex: -DSPEC_CPU_LP64
 453.povray: -DSPEC_CPU_LP64
 454.calculix: -DSPEC_CPU_LP64 -Mnomain
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
 482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

Base Optimization Flags (Continued)

C++ benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
--zc_eh -Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:

-Mvect=cachesize:6291456 -fastsse -Mfprelaxed -Msmartalloc=huge
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

Fortran benchmarks:

-Mipa=jobs:4

Benchmarks using both Fortran and C:

-Mipa=jobs:4

Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgcpp

Fortran benchmarks (except as noted below):

pgf95

416.gamess: pathf95

459.GemsFDTD: pathf95

465.tonto: pathf95

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C (except as noted below):

pathcc pathf95

436.cactusADM: pgcc pgf95

454.calculix: pgcc pgf95

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 -Mnomain
 437.leslie3d: -DSPEC_CPU_LP64
 444.namd: -DSPEC_CPU_LP64
 453.povray: -DSPEC_CPU_LP64
 454.calculix: -DSPEC_CPU_LP64 -Mnomain
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore
 482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
 -Mipa=fast(pass 2) -Mipa=inline(pass 2)
 -Mvect=cachesize:6291456 -fastsse -Mfprelaxed -Msmartalloc
 -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

444.namd: -Mphi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
 -Mipa=inline(pass 2) -Mvect=cachesize:6291456 -fastsse
 -Munroll=n:4 -Munroll=m:8 -Msmartalloc=huge -Mnodepchk
 -Mfprelaxed --zc_eh -tp barcelona-64 -Bstatic_pgi

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

Peak Optimization Flags (Continued)

447.dealIII: -march=barcelona -Ofast -static -INLINE:aggressive=on
-fno-exceptions -m32

450.soplex: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -L/usr/lib -lhugetlbfs(pass 2) -O3
-INLINE:aggressive=on -OPT:IEEE_arith=3
-OPT:IEEE_NaN_Inf=off -OPT:fold_unsigned_relops=on
-OPT:malloc_alg=1 -CG:load_exe=0 -fno-exceptions -m32

453.povray: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -INLINE:aggressive=on

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2)
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
-L/usr/lib64 -lhugetlbfs(pass 2) -O2 -OPT:Ofast -OPT:ro=3
-OPT:unroll_size=256

434.zeusmp: -Mvect=cachesize:6291456 -fastsse -Mfprelaxed
-Mprefetch=distance:8 -Mprefetch=t0 -Msmartalloc=huge
-Msmartalloc=hugebss -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

437.leslie3d: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mvect=cachesize:6291456 -fastsse -Mvect=fuse
-Msmartalloc=huge -Mprefetch=distance:8 -Mprefetch=t0
-Mfprelaxed -tp barcelona-64 -Bstatic_pgi

459.GemsFDTD: -march=barcelona -Ofast -LNO:fission=2 -LNO:simd=2
-LNO:prefetch_ahead=1 -CG:load_exe=0 -CG:prefer_lru_reg=off
-OPT:malloc_alg=1
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
-L/usr/lib64 -lhugetlbfs

465.tonto: -march=barcelona -Ofast -OPT:alias=no_f90_pointer_alias
-LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525
-OPT:malloc_alg=1
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
-L/usr/lib64 -lhugetlbfs

Benchmarks using both Fortran and C:

435.gromacs: -march=barcelona -Ofast -OPT:rsqrt=2 -OPT:malloc_alg=1
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
-L/usr/lib64 -lhugetlbfs

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

Peak Optimization Flags (Continued)

436.cactusADM: -Mvect=cachesize:6291456 -fastsse -Mconcur
-Msmartalloc=huge -Mfprelaxed -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

454.calculix: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge
-Mprefetch=t0 -Mpre -Mfprelaxed -tp barcelona-64
-Bstatic_pgi

481.wrf: -march=barcelona -Ofast -LNO:blocking=off
-LNO:prefetch_ahead=10 -LANG:copyinout=off
-IPA:callee_limit=5000 -GRA:prioritize_by_density=on
-OPT:malloc_alg=1 -m3dnow
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
-L/usr/lib64 -lhugetlbfs

Peak Other Flags

C benchmarks:

-Mipa=jobs:4(pass 2)

C++ benchmarks:

444.namd: -Mipa=jobs:4(pass 2)

Fortran benchmarks (except as noted below):

-Mipa=jobs:4(pass 2)

416.gamess: No flags used

459.GemsFDTD: No flags used

465.tonto: No flags used

Benchmarks using both Fortran and C (except as noted below):

-Mipa=jobs:4(pass 2)

435.gromacs: No flags used

481.wrf: No flags used

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

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090710.html

<http://www.spec.org/cpu2006/flags/pathscale32-flags.html>

<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.html>



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 23.7

PowerEdge M905 (AMD Opteron 8393 SE, 3.10 GHz)

SPECfp_base2006 = 19.1

CPU2006 license: 55

Test date: May-2009

Test sponsor: Dell Inc.

Hardware Availability: May-2009

Tested by: Dell Inc.

Software Availability: Oct-2008

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

- http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090710.xml
- <http://www.spec.org/cpu2006/flags/pathscale32-flags.xml>
- <http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.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 v1.1.
Report generated on Wed Jul 23 00:27:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 May 2009.