



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

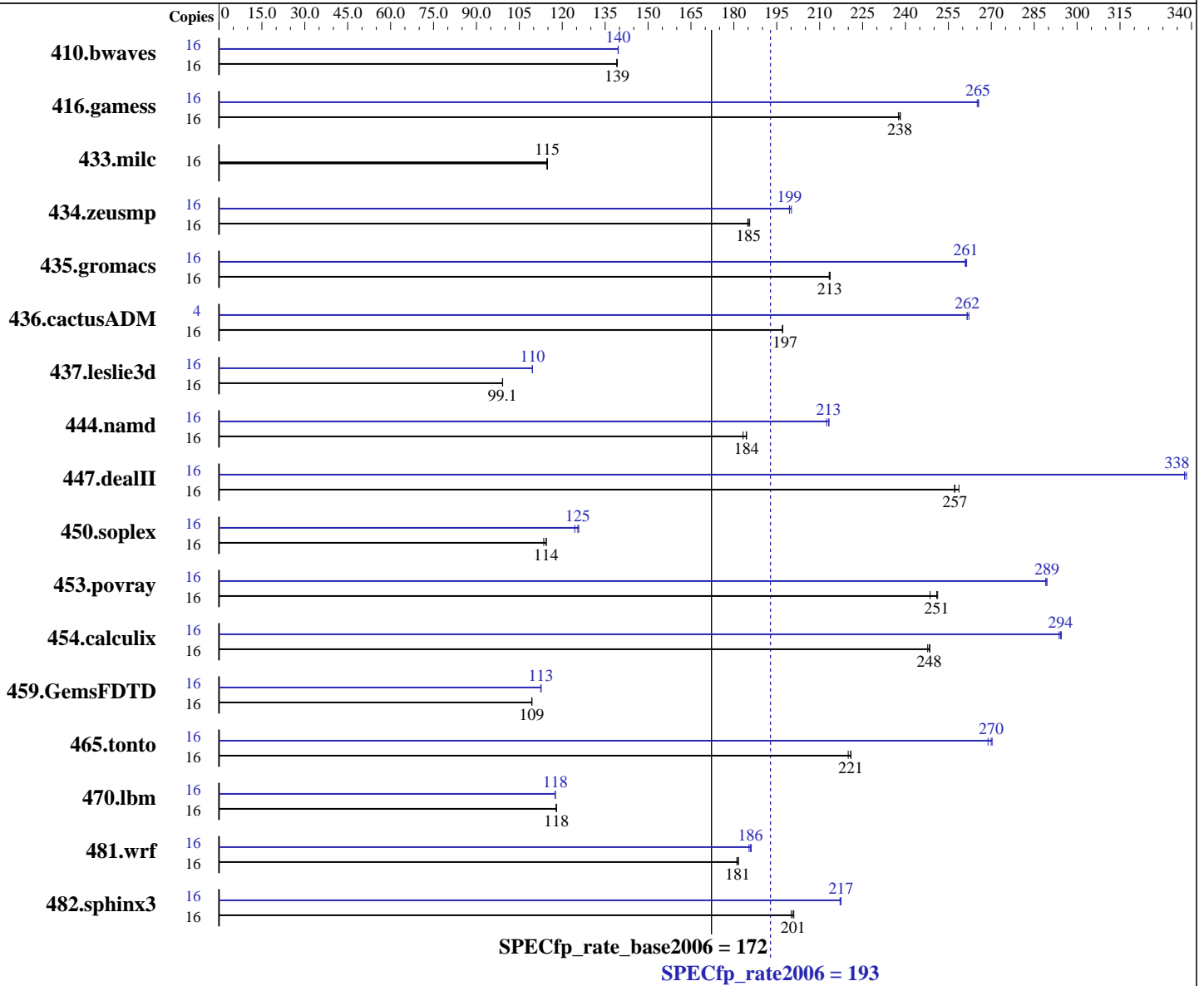
Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

Tested by: Dell Inc.

Software Availability: Oct-2008



Hardware

CPU Name: AMD Opteron 8378
 CPU Characteristics:
 CPU MHz: 2400
 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: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2
 Auto Parallel: Yes
 File System: ReiserFS
 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.

SPECfp_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

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 10000 RPM SAS
Other Hardware: None

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	<u>1563</u>	<u>139</u>	1562	139	1563	139	16	<u>1558</u>	<u>140</u>	1558	140	1558	140
416.gamess	16	1315	238	<u>1316</u>	<u>238</u>	1319	238	16	1182	265	1180	266	<u>1181</u>	<u>265</u>
433.milc	16	1279	115	1281	115	<u>1280</u>	<u>115</u>	16	1279	115	1281	115	<u>1280</u>	<u>115</u>
434.zeusmp	16	788	185	<u>787</u>	<u>185</u>	785	186	16	727	200	<u>730</u>	<u>199</u>	730	199
435.gromacs	16	536	213	<u>535</u>	<u>213</u>	535	214	16	438	261	<u>438</u>	<u>261</u>	437	261
436.cactusADM	16	970	197	971	197	<u>970</u>	<u>197</u>	4	182	262	183	262	<u>183</u>	<u>262</u>
437.leslie3d	16	1516	99.2	1517	99.1	<u>1517</u>	<u>99.1</u>	16	1372	110	<u>1372</u>	<u>110</u>	1373	110
444.namd	16	700	183	696	184	<u>696</u>	<u>184</u>	16	604	212	602	213	<u>602</u>	<u>213</u>
447.dealII	16	<u>711</u>	<u>257</u>	712	257	708	259	16	542	338	<u>542</u>	<u>338</u>	541	338
450.soplex	16	1175	114	<u>1167</u>	<u>114</u>	1166	114	16	1073	124	<u>1064</u>	<u>125</u>	1061	126
453.povray	16	339	251	342	249	<u>339</u>	<u>251</u>	16	295	289	294	289	<u>294</u>	<u>289</u>
454.calculix	16	533	248	531	249	<u>532</u>	<u>248</u>	16	<u>449</u>	<u>294</u>	448	295	449	294
459.GemsFDTD	16	1552	109	1552	109	<u>1552</u>	<u>109</u>	16	1509	112	<u>1508</u>	<u>113</u>	1507	113
465.tonto	16	713	221	<u>713</u>	<u>221</u>	716	220	16	<u>583</u>	<u>270</u>	586	269	582	270
470.lbm	16	1863	118	1864	118	<u>1864</u>	<u>118</u>	16	1871	118	1870	118	<u>1870</u>	<u>118</u>
481.wrf	16	984	182	987	181	<u>985</u>	<u>181</u>	16	964	185	<u>962</u>	<u>186</u>	960	186
482.sphinx3	16	<u>1554</u>	<u>201</u>	1552	201	1559	200	16	1434	217	<u>1434</u>	<u>217</u>	1436	217

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.

SPECfp_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

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 = "4"

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.deallI: -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.

SPECfp_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

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):

pathf95

410.bwaves: pgf95

434.zeusmp: pgf95

437.leslie3d: pgf95

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

Tested by: Dell Inc.

Software Availability: Oct-2008

Peak Compiler Invocation (Continued)

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

pgcc pgf95

435.gromacs: pathcc pathf95

481.wrf: pathcc pathf95

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: -Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge
-Mprefetch=t0 -Mloop32 -Mfprelaxed -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

482.sphinx3: -Mpfi=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: -Mpfi(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.

SPECfp_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

Tested by: Dell Inc.

Software Availability: Oct-2008

Peak Optimization Flags (Continued)

447.dealll: -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: -Mvect=cachesize:6291456 -fastsse -Msmartalloc
-Mprefetch=nta -Mfpelaxed -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

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 -Mfpelaxed
-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
-Mfpelaxed -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:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

Tested by: Dell Inc.

Software Availability: Oct-2008

Peak Optimization Flags (Continued)

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

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

454.calculix: -Mpfi=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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 193

PowerEdge M905 (AMD Opteron 8378, 2.40 GHz)

SPECfp_rate_base2006 = 172

CPU2006 license: 55

Test date: Nov-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2008

Tested by: Dell Inc.

Software Availability: Oct-2008

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

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090713.html
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.html
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.html>

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

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.20090713.xml
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.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 Tue Jul 22 21:25:46 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 December 2008.