



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]_rate2006 = 170

ProLiant DL585 G5
(2.5 GHz AMD Opteron 8360 SE)

SPECfp_rate_base2006 = 156

CPU2006 license: 3

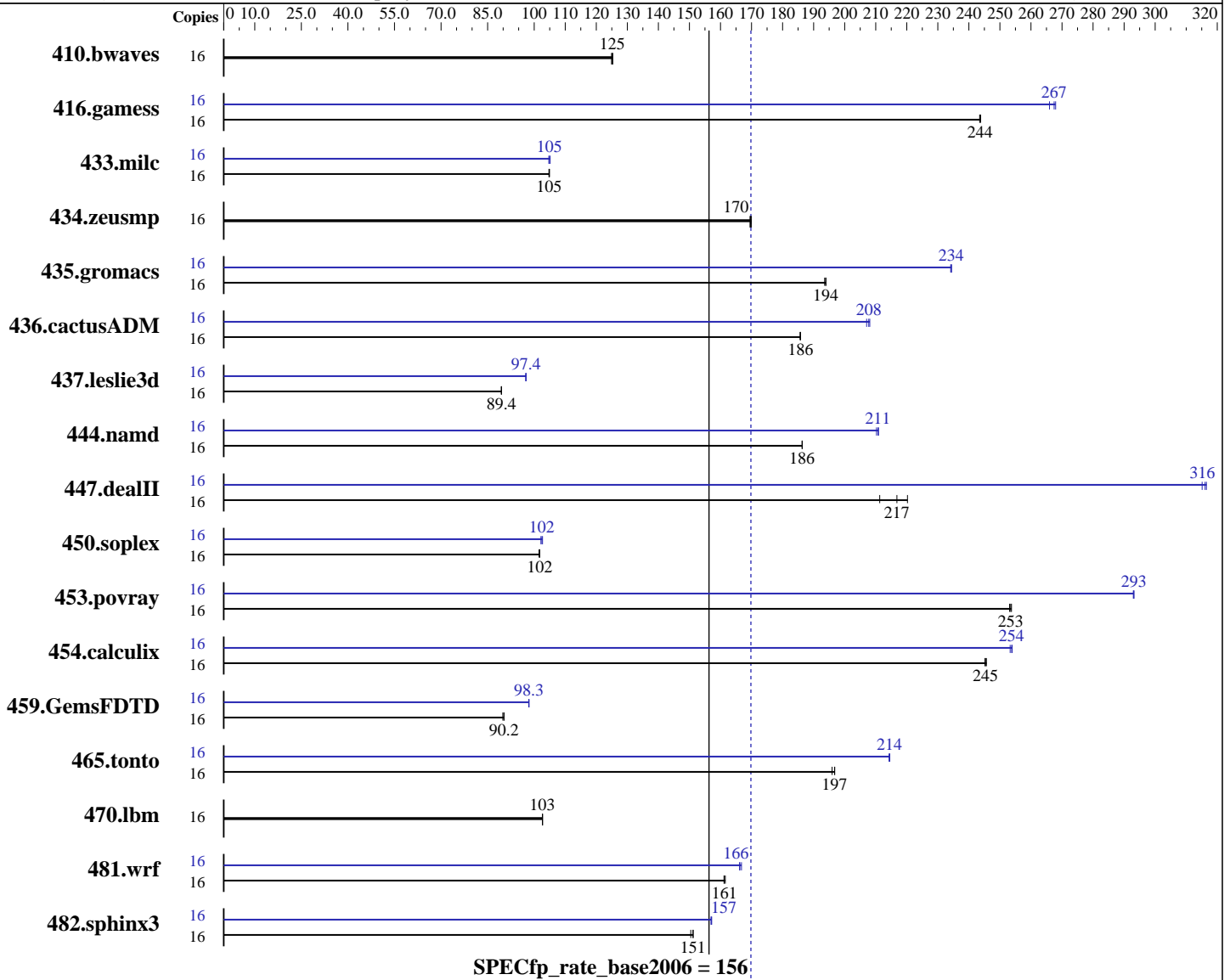
Test date: Jul-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jul-2008

Tested by: Hewlett-Packard Company

Software Availability: Jun-2008



Hardware

CPU Name: AMD Opteron 8360 SE
 CPU Characteristics:
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
 CPU(s) orderable: 2,4 chips
 Primary Cache: 64 KB I + 64 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 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Release 3.2
 Auto Parallel: No
 File System: ext2
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16x4 GB, PC2-5300P CL5)
Disk Subsystem: 1x146 GB 15 K SAS
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	1735	125	1741	125	<u>1738</u>	<u>125</u>	16	1735	125	1741	125	<u>1738</u>	<u>125</u>
416.gamess	16	<u>1286</u>	<u>244</u>	1287	243	1285	244	16	1178	266	<u>1171</u>	<u>267</u>	1169	268
433.milc	16	1400	105	1402	105	<u>1401</u>	<u>105</u>	16	<u>1400</u>	<u>105</u>	1403	105	1397	105
434.zeusmp	16	<u>858</u>	<u>170</u>	859	170	857	170	16	<u>858</u>	<u>170</u>	859	170	857	170
435.gromacs	16	<u>589</u>	<u>194</u>	589	194	590	194	16	488	234	<u>488</u>	<u>234</u>	487	234
436.cactusADM	16	1030	186	1029	186	<u>1029</u>	<u>186</u>	16	923	207	919	208	<u>920</u>	<u>208</u>
437.leslie3d	16	1681	89.5	1682	89.4	<u>1681</u>	<u>89.4</u>	16	1544	97.4	1546	97.3	<u>1545</u>	<u>97.4</u>
444.namd	16	689	186	<u>689</u>	<u>186</u>	689	186	16	610	210	<u>609</u>	<u>211</u>	608	211
447.dealII	16	831	220	<u>844</u>	<u>217</u>	866	211	16	578	317	581	315	<u>579</u>	<u>316</u>
450.soplex	16	<u>1311</u>	<u>102</u>	1314	102	1311	102	16	1306	102	<u>1302</u>	<u>102</u>	1300	103
453.povray	16	336	253	335	254	<u>336</u>	<u>253</u>	16	290	293	291	293	<u>290</u>	<u>293</u>
454.calculix	16	538	245	537	246	<u>538</u>	<u>245</u>	16	520	254	521	253	<u>520</u>	<u>254</u>
459.GemsFDTD	16	1880	90.3	<u>1881</u>	<u>90.2</u>	1888	89.9	16	1728	98.2	<u>1727</u>	<u>98.3</u>	1726	98.3
465.tonto	16	800	197	804	196	<u>800</u>	<u>197</u>	16	735	214	<u>734</u>	<u>214</u>	734	215
470.lbm	16	<u>2142</u>	<u>103</u>	2142	103	2140	103	16	<u>2142</u>	<u>103</u>	2142	103	2140	103
481.wrf	16	<u>1108</u>	<u>161</u>	1109	161	1106	162	16	1076	166	1072	167	<u>1075</u>	<u>166</u>
482.sphinx3	16	<u>2063</u>	<u>151</u>	2062	151	2073	150	16	1987	157	1984	157	<u>1986</u>	<u>157</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 used to bind processes to CPUs

Operating System Notes

Environment stack size set to 'unlimited'
Max locked memory set to 2097152
PGI_HUGE_PAGES set to 896.
Total number of huge pages available is 14336.
NCPUS set to number of cores



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Platform Notes

BIOS configuration:
Power Regulator set to Static High Performance Mode

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.dealII: -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:
-fastsse -Msmartalloc=huge:896 -Mfprelaxed -Mipa=jobs:4 -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:
-fastsse -Msmartalloc=huge:896 -Mfprelaxed --zc_eh -Mipa=jobs:4
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

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Base Optimization Flags (Continued)

Fortran benchmarks:

-fastsse -Mfprelaxed -Msmartalloc=huge:896 -Mipa=jobs:4 -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-fastsse -Msmartalloc=huge:896 -Mfprelaxed -Mipa=jobs:4 -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgc/cpp

Fortran benchmarks (except as noted below):

pgf95

416.gamess: pathf95

459.GemsFDTD: pathf95

465.tonto: pathf95

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

pgcc pgf95

436.cactusADM: 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 -Mnomain
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 -Mnomain
459.GemsFDTD: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

433.milc: -fastsse -Msmartalloc=huge:896 -Msafeptr -Mfprelaxed
-Mipa=jobs:4 -Mipa=inline -Mipa=arg -Mipa=const -Mipa=ptr
-Mipa=shape -tp barcelona-64 -Bstatic_pgi
470.lbm: basepeak = yes
482.sphinx3: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=jobs:4(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-fastsse -Mfprelaxed -Msmartalloc -tp barcelona-64
-Bstatic_pgi

C++ benchmarks:

444.namd: -Mphi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)
-Mipa=inline(pass 2) -Mpfo(pass 2) -fastsse -Munroll=n:4
-Munroll=m:8 -Msmartalloc=huge:896 -Mnodepchk -Mfprelaxed
--zc_eh -tp barcelona-64 -Bstatic_pgi
447.deallI: -march=barcelona -Ofast -static -INLINE:aggressive=on
-fno-exceptions -m32
450.soplex: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -m32 -O3 -TENV:frame_pointer=off
-LNO:prefetch=1 -OPT:malloc_alg=1 -CG:load_exe=0
453.povray: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O2 -OPT:Ofast -OPT:ro=3
-OPT:unroll_size=256
434.zeusmp: basepeak = yes

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Peak Optimization Flags (Continued)

437.leslie3d: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=jobs:4(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-fastsse -Mvect=fuse -Msmartalloc=huge:896
-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

465.tonto: -march=barcelona -Ofast -OPT:alias=no_f90_pointer_alias
-LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525

Benchmarks using both Fortran and C:

435.gromacs: -fastsse -Msmartalloc=huge:896 -Mfprelaxed -Mfpapprox=rsqrt
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64
-Bstatic_pgi

436.cactusADM: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:blocking=off

454.calculix: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=jobs:4(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-fastsse -Msmartalloc=huge:896 -Mprefetch=t0 -Mfprelaxed
-tp barcelona-64 -Bstatic_pgi

481.wrf: -fastsse -Mvect=noaltcode -Msmartalloc
-Mprefetch=distance:8 -Mfprelaxed -tp barcelona-64
-Bstatic_pgi

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.20090713.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.20090713.xml>

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For other inquiries, please contact webmaster@spec.org.

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