SPEC® CFP2006 Result
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Hewlett-Packard Company

$SPECfp^{®}2006 =$　　13.0

ProLiant DL585 (AMD Opteron 854)

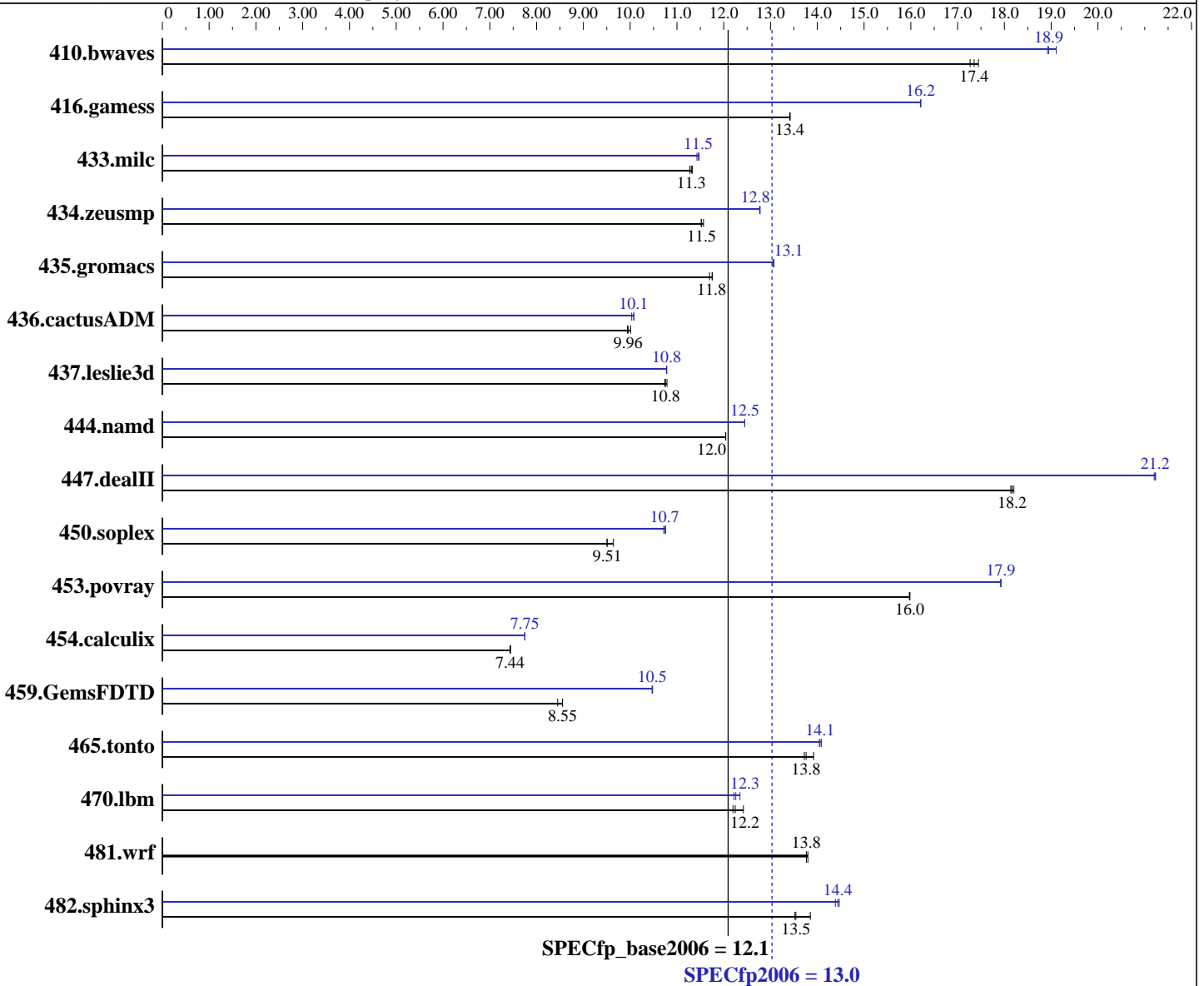SPECfp_base2006 =　　12.1

CPU2006 license: 3　　　　　　　　　　　　　　　　　　　　**Test date:**　　Apr-2006
Test sponsor:　Hewlett-Packard Company　　　　　　　　**Hardware Availability:**　Oct-2005
Tested by:　　Hewlett-Packard Company　　　　　　　　**Software Availability:**　Mar-2006

Performance chart:

Benchmark	Peak	Base
410.bwaves	18.9	17.4
416.gamess	16.2	13.4
433.milc	11.5	11.3
434.zeusmp	12.8	11.5
435.gromacs	13.1	11.8
436.cactusADM	10.1	9.96
437.leslie3d	10.8	10.8
444.namd	12.5	12.0
447.dealII	21.2	18.2
450.soplex	10.7	9.51
453.povray	17.9	16.0
454.calculix	7.75	7.44
459.GemsFDTD	10.5	8.55
465.tonto	14.1	13.8
470.lbm	12.3	12.2
481.wrf		13.8
482.sphinx3	14.4	13.5

SPECfp_base2006 = 12.1

SPECfp2006 = 13.0

Hardware

CPU Name:　　　　　　AMD Opteron 854
CPU Characteristics:　2.8GHz, 1MB L2 cache
CPU MHz:　　　　　　2800
FPU:　　　　　　　　Integrated
CPU(s) enabled:　　　2 cores, 2 chips, 1 core/chip
CPU(s) orderable:　　2,4 chips
Primary Cache:　　　64 KB I + 64 KB D on chip per chip
Secondary Cache:　　1 MB I+D on chip per chip

Software

Operating System:　SuSE Linux Enterprise Server 9 (x86_64) SP 3
　　　　　　　　　SuSE kernel 2.6.5-7.244-smp
Compiler:　　　　　PathScale EKO Compiler Suite, Release 2.4
　　　　　　　　　PGI C Compiler 6.1-3 for Linux (64-bit)
　　　　　　　　　PGI Fortran Compiler 6.1-3 for Linux (64-bit)
Auto Parallel:　　　No
File System:　　　　ext2
System State:　　　Multi-user run level 3
Base Pointers:　　　64-bit

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L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8x2048 MB PC3200 CL3.0)
Disk Subsystem:	1x146GB 10K Ultra320 SCSI
Other Hardware:	None

Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	779	17.4	**783**	**17.4**	787	17.3	718	18.9	711	19.1	**717**	**18.9**
416.gamess	1460	13.4	1459	13.4	**1459**	**13.4**	1208	16.2	**1208**	**16.2**	1208	16.2
433.milc	814	11.3	810	11.3	**812**	**11.3**	803	11.4	800	11.5	**801**	**11.5**
434.zeusmp	787	11.6	**789**	**11.5**	790	11.5	712	12.8	**712**	**12.8**	713	12.8
435.gromacs	610	11.7	**608**	**11.8**	607	11.8	**546**	**13.1**	546	13.1	547	13.1
436.cactusADM	1194	10.0	**1200**	**9.96**	1202	9.94	**1186**	**10.1**	1191	10.0	1185	10.1
437.leslie3d	871	10.8	**874**	**10.8**	875	10.7	**872**	**10.8**	872	10.8	872	10.8
444.namd	**666**	**12.0**	666	12.0	666	12.0	**644**	**12.5**	644	12.5	644	12.4
447.dealII	628	18.2	**630**	**18.2**	631	18.1	540	21.2	**539**	**21.2**	539	21.2
450.soplex	865	9.64	877	9.51	**877**	**9.51**	775	10.8	778	10.7	**777**	**10.7**
453.povray	333	16.0	333	16.0	**333**	**16.0**	297	17.9	**297**	**17.9**	297	17.9
454.calculix	1109	7.44	1110	7.43	**1109**	**7.44**	1064	7.75	**1064**	**7.75**	1065	7.74
459.GemsFDTD	1255	8.45	**1241**	**8.55**	1240	8.56	1012	10.5	1013	10.5	**1013**	**10.5**
465.tonto	707	13.9	**715**	**13.8**	717	13.7	**700**	**14.1**	701	14.0	698	14.1
470.lbm	1106	12.4	**1122**	**12.2**	1126	12.2	1113	12.3	1124	12.2	**1121**	**12.3**
481.wrf	809	13.8	811	13.8	**811**	**13.8**	809	13.8	811	13.8	**811**	**13.8**
482.sphinx3	1407	13.9	1441	13.5	**1439**	**13.5**	**1350**	**14.4**	1355	14.4	1347	14.5

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

General Notes

```
   BIOS Configuration Notes
      Node Interleaving is Disabled
   Other Configuration Notes
      Taskset utility used to bind process to CPU(s)
```

Base Compiler Invocation

C benchmarks:
```
     pathcc
```

C++ benchmarks:
```
     pathCC
```

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Base Compiler Invocation (Continued)

Fortran benchmarks:
```
pathf95
```

Benchmarks using both Fortran and C:
```
pathcc pathf95
```

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  -DSPEC_CPU_TABLE_WORKAROUND
     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_LP64  -DSPEC_CPU_LINUX -fno-second-underscore
    482.sphinx3: -DSPEC_CPU_LP64
```

Base Optimization Flags

C benchmarks:
```
-Ofast
```

C++ benchmarks:
```
-Ofast
```

Fortran benchmarks:
```
-Ofast
```

Benchmarks using both Fortran and C:
```
-Ofast
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
pgcc
```

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Peak Compiler Invocation (Continued)

470.lbm: `pathcc`

C++ benchmarks:
`pathCC`

Fortran benchmarks (except as noted below):
`pathf95`

434.zeusmp: `pgf90`

459.GemsFDTD: `pgf90`

Benchmarks using both Fortran and C (except as noted below):
`pathcc pathf95`

454.calculix: `pgcc pgf90`

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`
447.dealII: `-DSPEC_CPU_LP64 -DSPEC_CPU_TABLE_WORKAROUND`
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_LINUX -fno-second-underscore`
482.sphinx3: `-DSPEC_CPU_LP64`

Peak Optimization Flags

C benchmarks:

433.milc: `-c9x -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)`
`-Mipa=nolocalarg(pass 2) -Mipa=vestigial(pass 2)`
`-Mpfo(pass 2) -tp k8-64 -fastsse`

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Peak Optimization Flags (Continued)

470.lbm: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast`

482.sphinx3: `-c9x -tp k8-64 -fastsse -Mfprelaxed -Mipa=fast`
`-Mipa=inline -Msignextend`

C++ benchmarks:

444.namd: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast`

447.dealII: `-Ofast -m32 -fno-exceptions`

450.soplex: `-m32 -O3 -OPT:IEEE_arith=3 -CG:load_exe=0 -CG:movnti=1`
`-LNO:minvariant=off -fno-exceptions`

453.povray: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast`
`-fno-fast-math`

Fortran benchmarks:

410.bwaves: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3`
`-OPT:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off`
`-LNO:ignore_feedback=off`

416.gamess: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O2`
`-OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256`

434.zeusmp: `-Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)`
`-Mpfo(pass 2) -tp k8-64 -fastsse -Mfprelaxed -Mvect=fuse`

437.leslie3d: `-O3 -OPT:Ofast`

459.GemsFDTD: `-tp k8-64 -fastsse -Munroll=n:4`

465.tonto: `-Ofast -CG:local_fwd_sched=on -IPA:plimit=525`

Benchmarks using both Fortran and C:

435.gromacs: `-O3 -OPT:rsqrt=2 -OPT:ro=3`

436.cactusADM: `-fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3`
`-LNO:prefetch_ahead=5 -LNO:ou_prod_max=10 -LNO:full_unroll=5`
`-ipa`

454.calculix: `-c9x -tp k8-64 -fastsse -Mnolre -Mipa=fast -Mipa=inline`

481.wrf: `basepeak = yes`

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Peak Other Flags

C benchmarks (except as noted below):
    -w

      470.lbm: No flags used

Fortran benchmarks:

    434.zeusmp: -w

  459.GemsFDTD: -w

Benchmarks using both Fortran and C:

    454.calculix: -w

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.04.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.04.xml

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