SPEC® CFP2006 Result
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Hewlett-Packard Company

ProLiant DL360 G5
(3.0 GHz, Intel Xeon processor X5365)

$SPECfp®2006 =$ 21.2

$SPECfp\_base2006 =$ 18.2

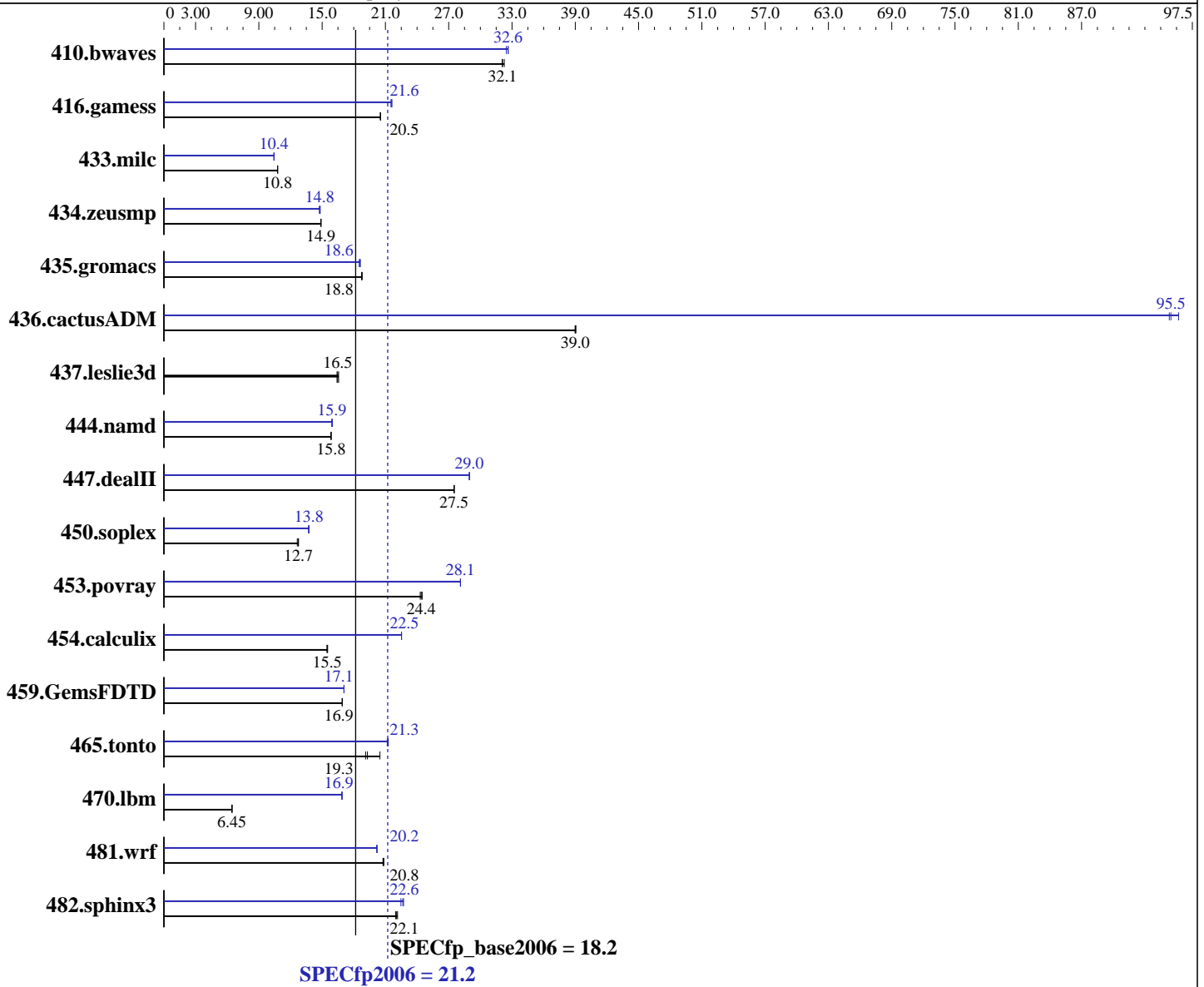|	
CPU2006 license: 3	**Test date:** Aug-2007
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Sep-2007
Tested by: Hewlett-Packard Company	**Software Availability:** Nov-2007

Benchmark results:

- **410.bwaves** — 32.6 / 32.1
- **416.gamess** — 21.6 / 20.5
- **433.milc** — 10.4 / 10.8
- **434.zeusmp** — 14.8 / 14.9
- **435.gromacs** — 18.6 / 18.8
- **436.cactusADM** — 95.5 / 39.0
- **437.leslie3d** — 16.5
- **444.namd** — 15.9 / 15.8
- **447.dealII** — 29.0 / 27.5
- **450.soplex** — 13.8 / 12.7
- **453.povray** — 28.1 / 24.4
- **454.calculix** — 22.5 / 15.5
- **459.GemsFDTD** — 17.1 / 16.9
- **465.tonto** — 21.3 / 19.3
- **470.lbm** — 16.9 / 6.45
- **481.wrf** — 20.2
- **482.sphinx3** — 20.8 / 22.6 / 22.1

SPECfp_base2006 = 18.2

SPECfp2006 = 21.2

Hardware

CPU Name:	Intel Xeon X5365
CPU Characteristics:	3.0 GHz, 2x4 MB L2 shared, 1333 MHz system bus
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	8 MB I+D on chip per chip, 4 MB shared / 2 cores

Continued on next page

Software

Operating System:	SuSE Linux Enterprise Server 10 (x86_64) SP1 kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070725
Auto Parallel:	Yes
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 (8x2 GB PC2-5300F CL5)
Disk Subsystem: 1x72 GB 15 K SAS
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: binutils-2.17.50

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	424	32.1	421	32.3	**423**	**32.1**	**417**	**32.6**	419	32.5	416	32.6
416.gamess	**954**	**20.5**	953	20.5	954	20.5	906	21.6	**906**	**21.6**	910	21.5
433.milc	**853**	**10.8**	850	10.8	853	10.8	880	10.4	880	10.4	**880**	**10.4**
434.zeusmp	**611**	**14.9**	611	14.9	611	14.9	**615**	**14.8**	618	14.7	614	14.8
435.gromacs	381	18.7	380	18.8	**381**	**18.8**	**384**	**18.6**	386	18.5	384	18.6
436.cactusADM	307	39.0	**306**	**39.0**	306	39.1	**125**	**95.5**	125	95.3	124	96.2
437.leslie3d	568	16.6	**570**	**16.5**	573	16.4	568	16.6	**570**	**16.5**	573	16.4
444.namd	506	15.9	**506**	**15.8**	506	15.8	502	16.0	**504**	**15.9**	504	15.9
447.dealII	416	27.5	416	27.5	**416**	**27.5**	**395**	**29.0**	395	29.0	395	29.0
450.soplex	**654**	**12.7**	660	12.6	654	12.8	609	13.7	**606**	**13.8**	606	13.8
453.povray	**218**	**24.4**	217	24.5	219	24.3	189	28.1	189	28.1	**189**	**28.1**
454.calculix	531	15.5	**533**	**15.5**	534	15.5	366	22.5	**366**	**22.5**	366	22.5
459.GemsFDTD	628	16.9	627	16.9	**628**	**16.9**	**621**	**17.1**	621	17.1	622	17.1
465.tonto	481	20.5	515	19.1	**510**	**19.3**	**463**	**21.3**	465	21.2	463	21.3
470.lbm	2124	6.47	2134	6.44	**2130**	**6.45**	814	16.9	813	16.9	**814**	**16.9**
481.wrf	538	20.8	**537**	**20.8**	536	20.9	**553**	**20.2**	553	20.2	553	20.2
482.sphinx3	887	22.0	880	22.2	**883**	**22.1**	867	22.5	**861**	**22.6**	858	22.7

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 200M
```

Platform Notes

```
BIOS configuration:
  Power Regulator set to Static High Performance Mode
```

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Base Compiler Invocation

C benchmarks:
    icc

C++ benchmarks:
    icpc

Fortran benchmarks:
    ifort

Benchmarks using both Fortran and C:
    icc ifort

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  -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64  -nofor_main
   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  -nofor_main
  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:
    -fast -parallel

C++ benchmarks:
    -fast -parallel

Fortran benchmarks:
    -fast -parallel

Benchmarks using both Fortran and C:
    -fast -parallel

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

     433.milc: `icc`

C++ benchmarks (except as noted below):
```
icpc
```

   450.soplex: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icpc`
```
            -L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
            -I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icc ifort
```

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 -nofor_main`
  436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
    437.leslie3d: `-DSPEC_CPU_LP64`
      444.namd: `-DSPEC_CPU_LP64`
     447.dealII: `-DSPEC_CPU_LP64`
    453.povray: `-DSPEC_CPU_LP64`
   454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
  459.GemsFDTD: `-DSPEC_CPU_LP64`
      465.tonto: `-DSPEC_CPU_LP64`
        481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

      433.milc: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias`
           `-auto-ilp32`

      470.lbm: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2`
           `-scalar-rep- -prefetch -opt-malloc-options=3`

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Peak Optimization Flags (Continued)

482.sphinx3: `-fast -unroll2`

C++ benchmarks:

444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32`

447.dealII: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-`

450.soplex: `-prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3`

453.povray: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias`

Fortran benchmarks:

410.bwaves: `-fast -prefetch -parallel`

416.gamess: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-`

434.zeusmp: `-prof-gen(pass 1) -prof-use(pass 2) -fast`

437.leslie3d: basepeak = yes

459.GemsFDTD: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch -parallel`

465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32`

436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32`

454.calculix: `-fast -unroll-aggressive -auto-ilp32`

481.wrf: `-fast -parallel -prefetch -auto-ilp32`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-flags.20090714.01.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-flags.20090714.01.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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