SPEC® CFP2006 Result

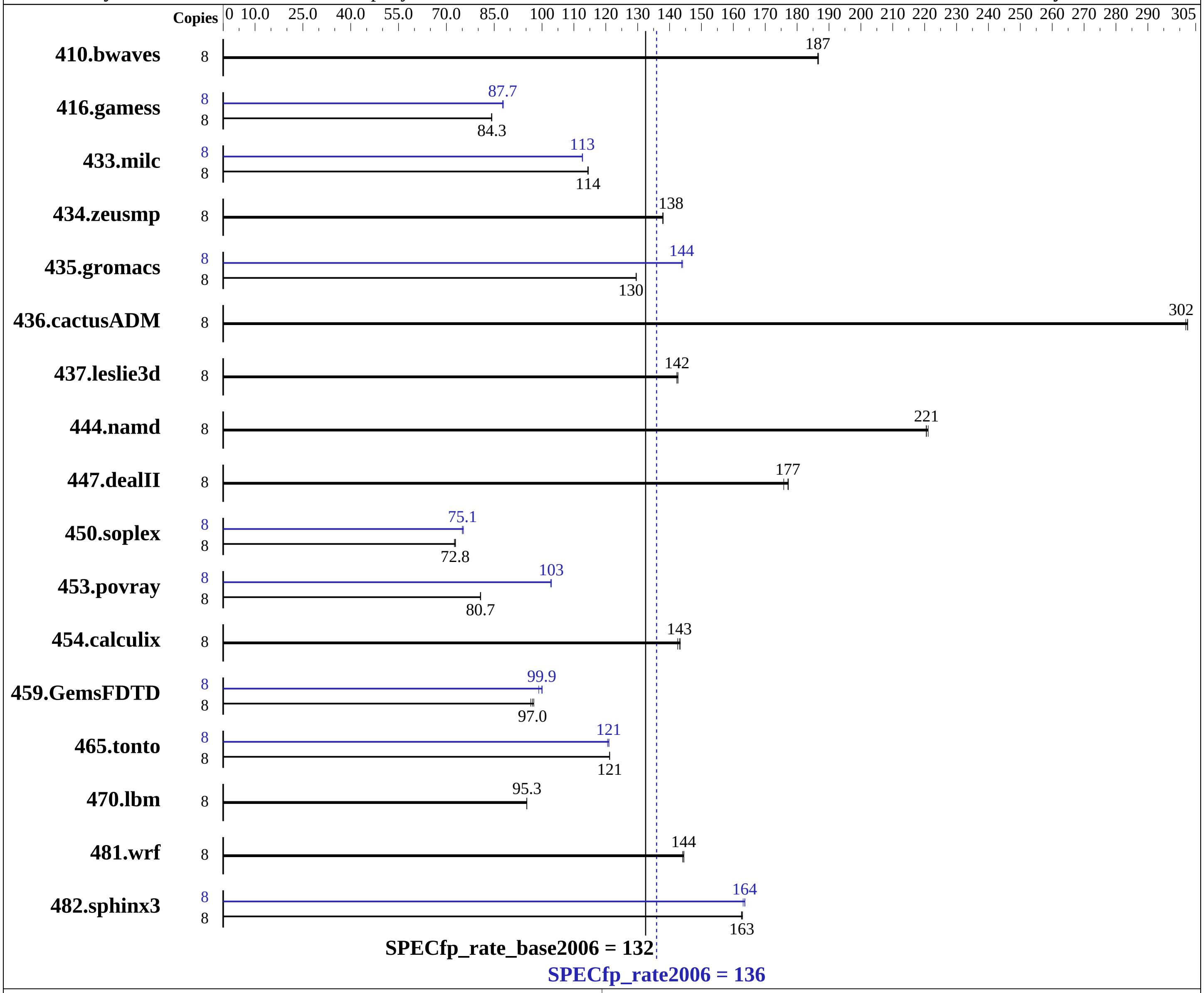
Hewlett-Packard Company

HP Integrity BL860c i2 (1.73 GHz/24MB Quad-Core Intel Itanium 9350)

SPECfp®_rate2006 = 136

SPECfp_rate_base2006 = 132

CPU2006 license: 03		**Test date:**	Jan-2010
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	May-2010
Tested by:	Hewlett-Packard Company	**Software Availability:**	Mar-2010



Hardware

CPU Name:	Intel Itanium 9350
CPU Characteristics:	Intel Turbo Boost Technology up to 1.86 GHz
CPU MHz:	1730
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1-2 chips
Primary Cache:	16 KB I + 16 KB D on chip per core
Secondary Cache:	512 KB I + 256 KB D on chip per core

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Software

Operating System:	HP-UX 11i v3 Data Center Operating Environment B.11.31.1003
Compiler:	HP C/aC++ Developer's Bundle C.11.31.05 HP Fortran 90 Compiler B.11.31.10
Auto Parallel:	No
File System:	vxfs
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32-bit

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L3 Cache: 6 MB I+D on chip per core
Other Cache: None
Memory: 32 GB (16 x 2GB 2Rx8 PC3-10600R)
Disk Subsystem: 1 x 73 GB 15K RPM SAS
Other Hardware: None

Other Software: MallocNextGen B.11.31.0903.02

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	582	187	**583**	**187**	583	186	8	582	187	**583**	**187**	583	186
416.gamess	8	1858	84.3	**1859**	**84.3**	1862	84.1	8	1782	87.9	1787	87.6	**1787**	**87.7**
433.milc	8	**642**	**114**	642	114	641	115	8	651	113	**652**	**113**	652	113
434.zeusmp	8	528	138	528	138	**528**	**138**	8	528	138	528	138	**528**	**138**
435.gromacs	8	**441**	**130**	441	130	441	129	8	396	144	**397**	**144**	397	144
436.cactusADM	8	**316**	**302**	316	303	317	302	8	**316**	**302**	316	303	317	302
437.leslie3d	8	**528**	**142**	527	143	528	142	8	**528**	**142**	527	143	528	142
444.namd	8	**291**	**221**	290	221	291	220	8	**291**	**221**	290	221	291	220
447.dealII	8	521	176	**517**	**177**	516	177	8	521	176	**517**	**177**	516	177
450.soplex	8	920	72.5	**917**	**72.8**	915	72.9	8	889	75.0	**889**	**75.1**	885	75.4
453.povray	8	**527**	**80.7**	527	80.8	528	80.6	8	414	103	413	103	**414**	**103**
454.calculix	8	463	143	**461**	**143**	460	143	8	463	143	**461**	**143**	460	143
459.GemsFDTD	8	**875**	**97.0**	880	96.5	871	97.4	8	848	100	858	99.0	**850**	**99.9**
465.tonto	8	**649**	**121**	650	121	649	121	8	**651**	**121**	653	121	651	121
470.lbm	8	1154	95.2	**1154**	**95.3**	1154	95.3	8	1154	95.2	**1154**	**95.3**	1154	95.3
481.wrf	8	620	144	618	144	**619**	**144**	8	620	144	618	144	**619**	**144**
482.sphinx3	8	959	163	957	163	**958**	**163**	8	956	163	953	164	**953**	**164**

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.
```

Operating System Notes

```
The following kernel tunables were set, in addition to the
defaults set by the Base Operating Environment.

filecache_max=25%
filecache_min=25%
maxdsiz=3221225472
fcache_fb_policy=1
base_pagesize=64
pagezero_daemon_enabled=0
```

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Operating System Notes (Continued)

```
vxfs_ifree_timelag=-1
maxssiz=0x17f00000
lcpu_attr=0
```

Platform Notes

```
Use of Hardware Threading by the OS was disabled via kctune
The following config file entry was used to bind
processes to cores using the HP-UX "mpsched" utility:
submit = let "MYCPU=\$SPECCOPYNUM*2" ;mpsched -c \$MYCPU $command
```

Base Compiler Invocation

C benchmarks:
`/opt/ansic/bin/cc -AC99`

C++ benchmarks:
`/opt/aCC/bin/aCC -Aa`

Fortran benchmarks:
`/opt/fortran90/bin/f90`

Benchmarks using both Fortran and C:
`/opt/ansic/bin/cc -AC99 /opt/fortran90/bin/f90`

Base Portability Flags

453.povray: `-DSPEC_CPU_NEED_INVHYP`
481.wrf: `-DNOUNDERSCORE +noppu`

Base Optimization Flags

C benchmarks:
```
+Ofaster +Otype_safety=ansi -Wl,-aarchive_shared -Wl,+pd,64M
-Wl,+pi,64K -Wl,-N
```

C++ benchmarks:
```
+Ofaster +Otype_safety=ansi -Wl,-aarchive_shared -Wl,+pd,64M
-Wl,+pi,64K -Wl,-N -lmallocng
```

Fortran benchmarks:
```
+Ofaster -Wl,-aarchive_shared -Wl,+pd,64M -Wl,+pi,64K -Wl,-N
```

Benchmarks using both Fortran and C:
```
+Ofaster +Otype_safety=ansi -Wl,-aarchive_shared -Wl,+pd,64M
-Wl,+pi,64K -Wl,-N
```

Peak Compiler Invocation

C benchmarks:
`/opt/ansic/bin/cc -AC99`

C++ benchmarks:
`/opt/aCC/bin/aCC -Aa`

Fortran benchmarks:
`/opt/fortran90/bin/f90`

Benchmarks using both Fortran and C:
`/opt/ansic/bin/cc -AC99 /opt/fortran90/bin/f90`

Peak Portability Flags

453.povray: `-DSPEC_CPU_NEED_INVHYP`
481.wrf: `-DNOUNDERSCORE +noppu`

Peak Optimization Flags

C benchmarks:

433.milc: `+Oprofile=collect:all`(pass 1) `+Oprofile=use`(pass 2) `+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap -Wl,-N`

470.lbm: `basepeak = yes`

482.sphinx3: `Same as 433.milc`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealII: `basepeak = yes`

450.soplex: `+Oprofile=collect:all`(pass 1) `+Oprofile=use`(pass 2) `+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap -Wl,-N -lmallocng`

453.povray: `+Oprofile=collect:all`(pass 1) `+Oprofile=use`(pass 2) `+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M -Wl,-N -lmallocng`

Fortran benchmarks:

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Peak Optimization Flags (Continued)

410.bwaves: `basepeak = yes`

416.gamess: `+Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct -Wl,-N`

434.zeusmp: `basepeak = yes`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `+Oprofile=collect:all`(pass 1) `+Oprofile=use`(pass 2) `+Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct -Wl,-N`

465.tonto: `Same as 459.GemsFDTD`

Benchmarks using both Fortran and C:

435.gromacs: `+Oprofile=collect:all`(pass 1) `+Oprofile=use`(pass 2) `+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap -Wl,-N`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Itanium-HPUX-1003-flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Itanium-HPUX-1003-flags.xml

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

Tested with SPEC CPU2006 v1.1.
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