SPEC® CFP2006 Result

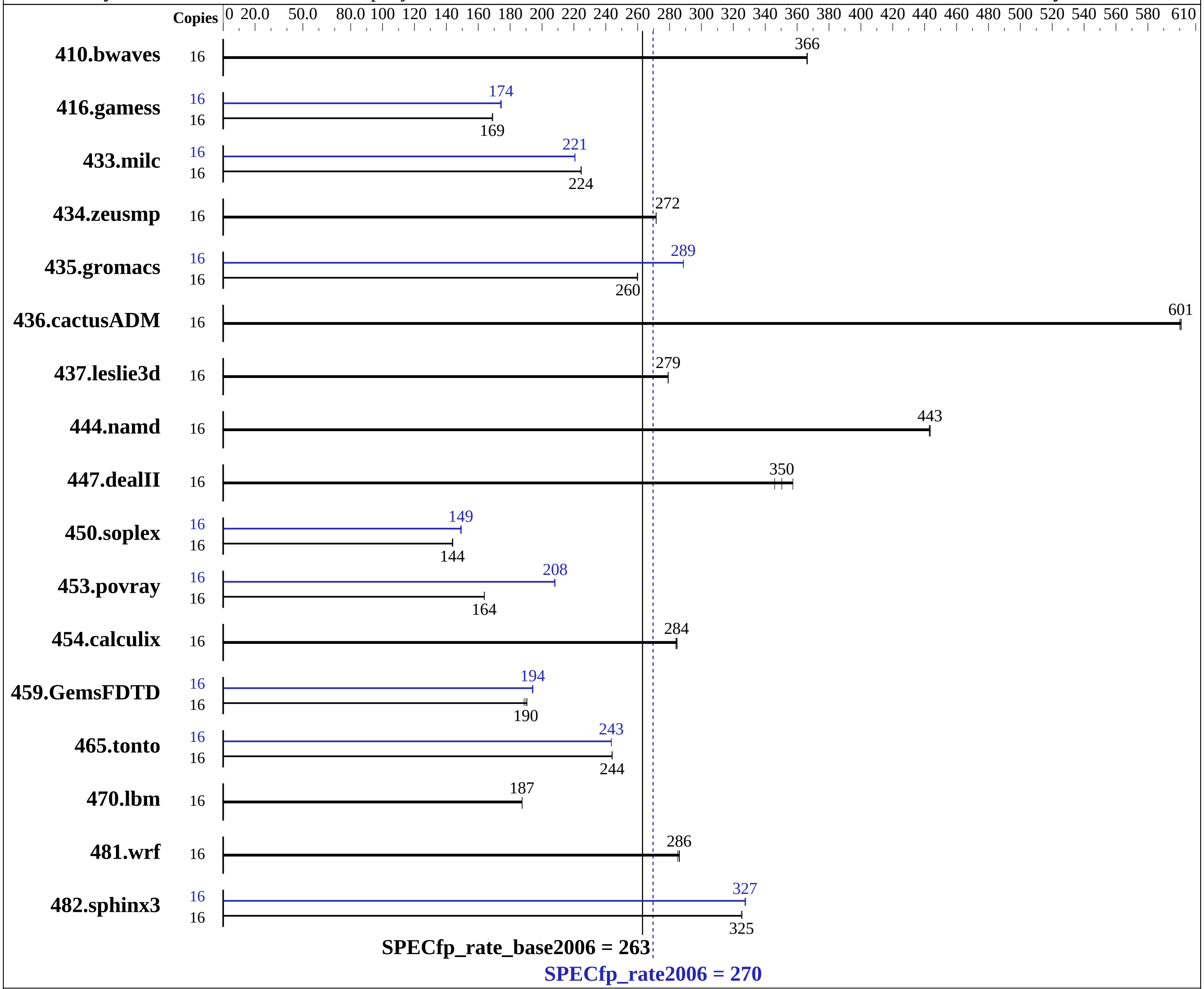
Hewlett-Packard Company

HP Integrity BL870c i2
(1.73 GHz/24MB Quad-Core Intel Itanium 9350)

SPECfp®_rate2006 = 270

SPECfp_rate_base2006 = 263

CPU2006 license:	03	**Test date:**	Apr-2010
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Jul-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:	16 cores, 4 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	2-4 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.11.31.11
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: 256 GB (32 x 8GB 2Rx4 PC3-10600R)
Disk Subsystem: 4 x 73 GB 15K RPM SAS (1 OS, 3 SPEC)
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	16	**593**	**366**	594	366	593	366	16	**593**	**366**	594	366	593	366
416.gamess	16	1856	169	**1855**	**169**	1853	169	16	1802	174	**1797**	**174**	1795	175
433.milc	16	654	225	**654**	**224**	655	224	16	666	221	**666**	**221**	665	221
434.zeusmp	16	536	272	**536**	**272**	536	272	16	536	272	**536**	**272**	536	272
435.gromacs	16	**440**	**260**	439	260	440	260	16	396	289	396	289	**396**	**289**
436.cactusADM	16	**318**	**601**	319	600	318	601	16	**318**	**601**	319	600	318	601
437.leslie3d	16	539	279	**539**	**279**	539	279	16	539	279	**539**	**279**	539	279
444.namd	16	289	444	290	443	**289**	**443**	16	289	444	290	443	**289**	**443**
447.dealII	16	512	357	529	346	**522**	**350**	16	512	357	529	346	**522**	**350**
450.soplex	16	926	144	928	144	**928**	**144**	16	**895**	**149**	893	149	896	149
453.povray	16	**520**	**164**	520	164	520	164	16	410	208	409	208	**409**	**208**
454.calculix	16	465	284	464	285	**464**	**284**	16	465	284	464	285	**464**	**284**
459.GemsFDTD	16	**894**	**190**	891	191	899	189	16	**874**	**194**	873	194	875	194
465.tonto	16	645	244	646	244	**645**	**244**	16	647	243	**647**	**243**	646	244
470.lbm	16	1173	187	1173	187	**1173**	**187**	16	1173	187	1173	187	**1173**	**187**
481.wrf	16	627	285	624	286	**625**	**286**	16	627	285	624	286	**625**	**286**
482.sphinx3	16	**959**	**325**	959	325	958	325	16	**953**	**327**	953	327	951	328

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.
 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
```

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
```

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Operating System Notes (Continued)

```
base_pagesize=64
pagezero_daemon_enabled=0
vxfs_ifree_timelag=-1
maxssiz=0x17f00000
lcpu_attr=0
numa_policy=4
```

Platform Notes

```
Use of Hardware Threading by the OS was disabled via kctune
```

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.20100511.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Itanium-HPUX-1003-flags.20100511.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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