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 sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Apr-2010
Hardware Availability: Jul-2010
Software Availability: Mar-2010

Benchmark	Copies	Result
410.bwaves	16	366
416.gamess	16 / 16	174 / 169
433.milc	16 / 16	221 / 224
434.zeusmp	16	272
435.gromacs	16 / 16	289 / 260
436.cactusADM	16	601
437.leslie3d	16	279
444.namd	16	443
447.dealII	16	350
450.soplex	16 / 16	149 / 144
453.povray	16 / 16	208 / 164
454.calculix	16	284
459.GemsFDTD	16 / 16	194 / 190
465.tonto	16 / 16	243 / 244
470.lbm	16	187
481.wrf	16	286
482.sphinx3	16 / 16	327 / 325

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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

Continued on next page

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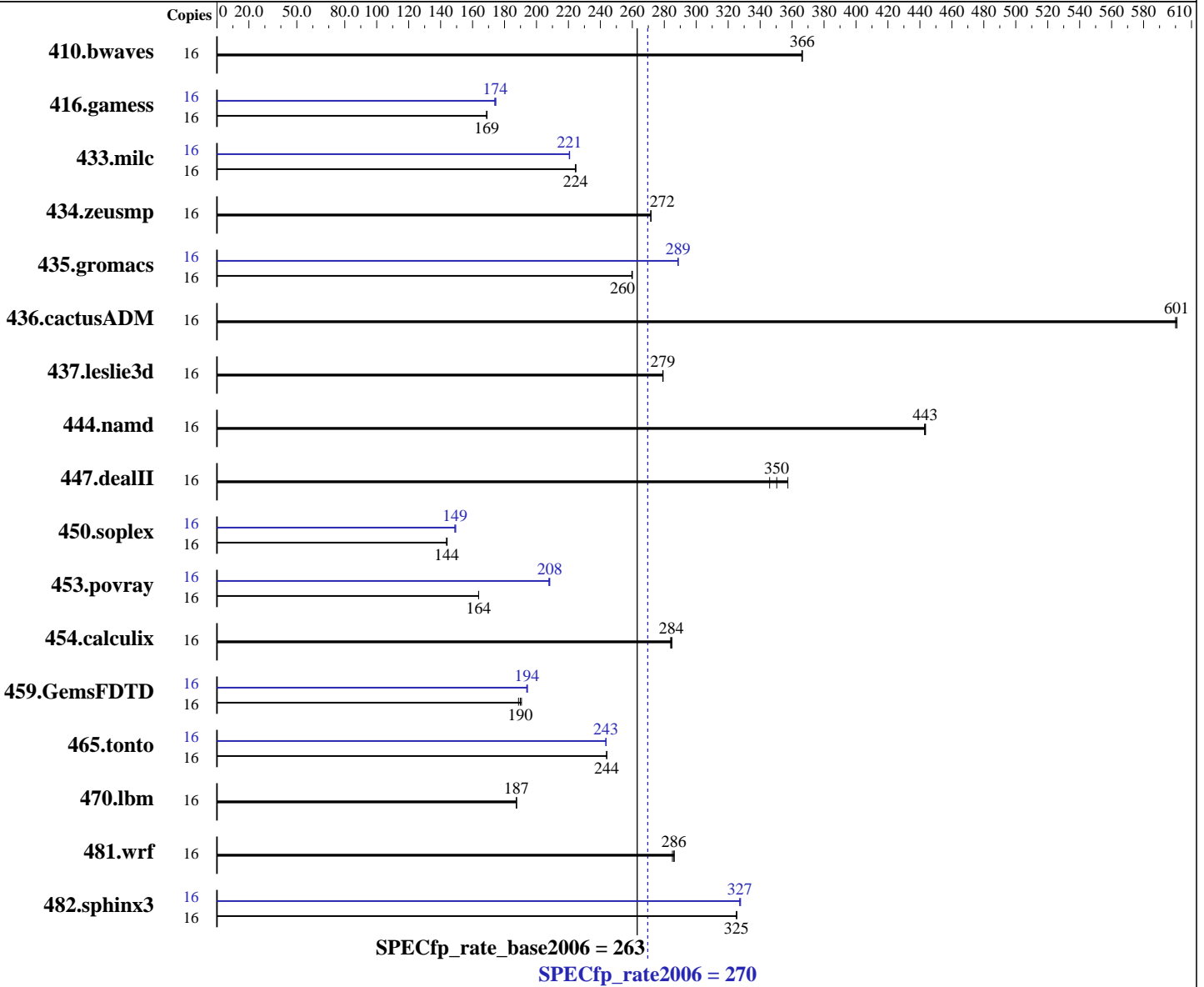
CPU2006 license: 03	**Test date:** Apr-2010
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L3 Cache:	6 MB I+D on chip per core	Other Software:	MallocNextGen B.11.31.0903.02
Other Cache:	None		
Memory:	256 GB (32 x 8GB 2Rx4 PC3-10600R)		
Disk Subsystem:	4 x 73 GB 15K RPM SAS (1 OS, 3 SPEC)		
Other Hardware:	None		

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

Continued on next page

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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
```

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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

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

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