SPEC® CFP2006 Result

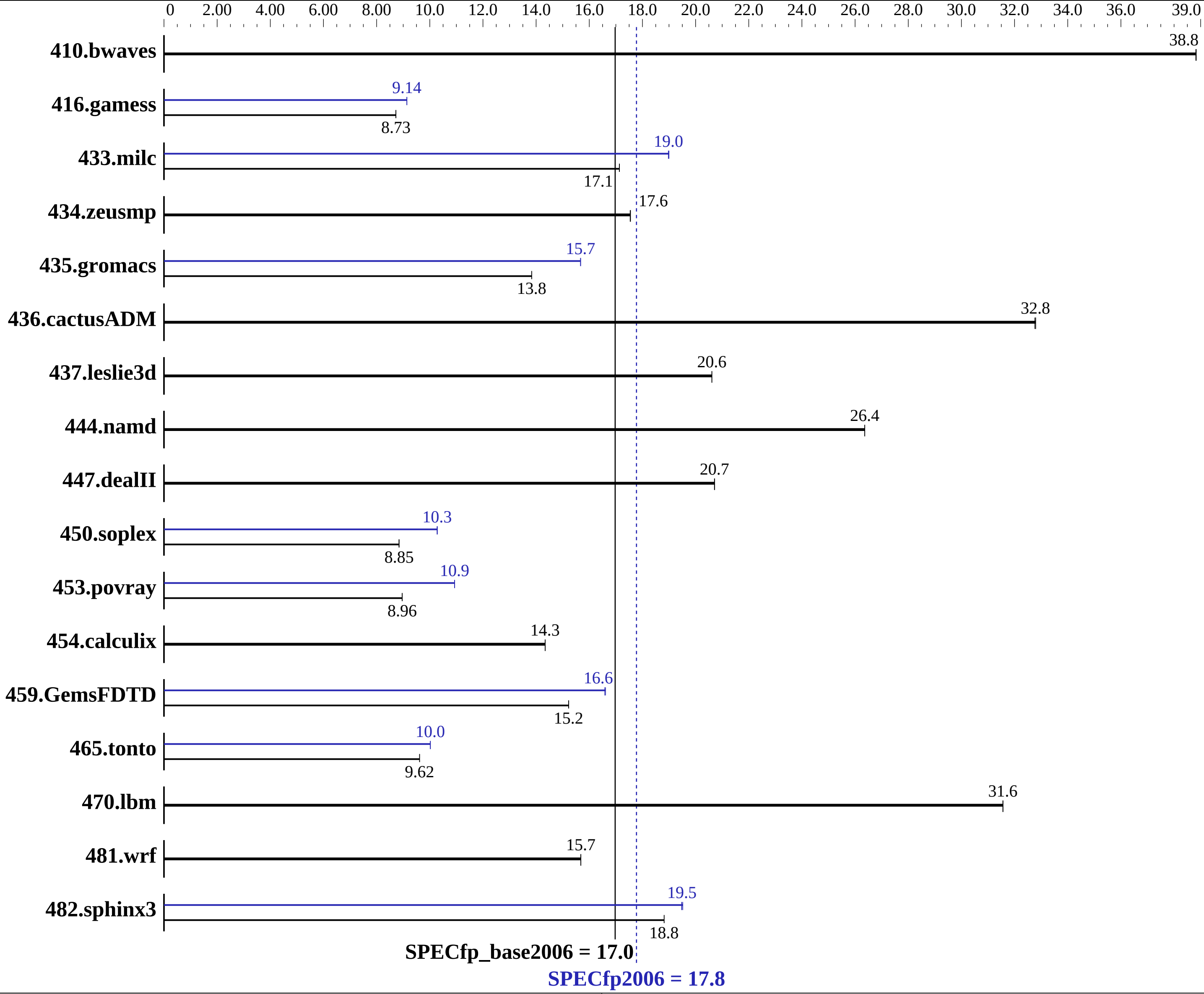
Hewlett-Packard Company

HP Integrity rx2660
(1.6GHz/18MB Dual-Core Intel Itanium 2)

SPECfp®2006 = 17.8

SPECfp_base2006 = 17.0

CPU2006 license: 03		**Test date:**	Dec-2006
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Feb-2007
Tested by:	Hewlett-Packard Company	**Software Availability:**	Feb-2007



Hardware

CPU Name:	Dual-Core Intel Itanium 2 9040
CPU Characteristics:	1.6GHz/18MB, 533MHz FSB
CPU MHz:	1600
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
CPU(s) orderable:	1-2 chips
Primary Cache:	16 KB I + 16 KB D on chip per core
Secondary Cache:	1 MB I + 256 KB D on chip per core

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Software

Operating System:	HPUX11i-TCOE B.11.23.0609
Compiler:	HP C/aC++ Developer's Bundle C.11.23.12 HP Fortran90 Compiler B.11.23.32
Auto Parallel:	No
File System:	vxfs
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

L3 Cache: 9 MB I+D on chip per core
Other Cache: None
Memory: 8 GB (4x2GB DIMMs)
Disk Subsystem: 73GB 10K RPM SAS
Other Hardware: None

Results Table

	Base						Peak					
Benchmark	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	350	38.8	**350**	**38.8**	350	38.8	350	38.8	**350**	**38.8**	350	38.8
416.gamess	2244	8.73	2245	8.72	**2244**	**8.73**	**2143**	**9.14**	2142	9.14	2143	9.14
433.milc	**536**	**17.1**	536	17.1	536	17.1	484	19.0	483	19.0	**484**	**19.0**
434.zeusmp	518	17.6	519	17.5	**519**	**17.6**	518	17.6	519	17.5	**519**	**17.6**
435.gromacs	**516**	**13.8**	516	13.8	516	13.8	455	15.7	**456**	**15.7**	456	15.7
436.cactusADM	365	32.8	**364**	**32.8**	364	32.8	365	32.8	**364**	**32.8**	364	32.8
437.leslie3d	456	20.6	456	20.6	**456**	**20.6**	456	20.6	456	20.6	**456**	**20.6**
444.namd	304	26.4	304	26.4	**304**	**26.4**	304	26.4	304	26.4	**304**	**26.4**
447.dealII	552	20.7	552	20.7	**552**	**20.7**	552	20.7	552	20.7	**552**	**20.7**
450.soplex	944	8.84	**943**	**8.85**	943	8.85	**811**	**10.3**	812	10.3	811	10.3
453.povray	593	8.97	594	8.96	**594**	**8.96**	487	10.9	486	10.9	**487**	**10.9**
454.calculix	575	14.3	575	14.3	**575**	**14.3**	575	14.3	575	14.3	**575**	**14.3**
459.GemsFDTD	697	15.2	697	15.2	**697**	**15.2**	**640**	**16.6**	640	16.6	639	16.6
465.tonto	**1023**	**9.62**	1023	9.61	1023	9.62	982	10.0	981	10.0	**982**	**10.0**
470.lbm	435	31.6	435	31.6	**435**	**31.6**	435	31.6	435	31.6	**435**	**31.6**
481.wrf	712	15.7	712	15.7	**712**	**15.7**	712	15.7	712	15.7	**712**	**15.7**
482.sphinx3	**1036**	**18.8**	1036	18.8	1036	18.8	998	19.5	1001	19.5	**1000**	**19.5**

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

Operating System Notes

```
The system had the September 2006 HP-UX 11i v2 Technical Computing
Operating Environment (TCOE) and compilers installed, along with
the following patches:

PHSS_34858  linker + fdp cumulative patch
PHSS_34853  Math Library Cumulative Patch
PHSS_34854  Integrity Unwind Library
PHSS_34855  HP C Compiler (A.06.12)
PHSS_34856  aC++ Compiler (A.06.12)
PHSS_34857  u2comp/be/plugin library patch
PHSS_34395  FORTRAN I/O Library [libIO77]
PHSS_34397  FORTRAN Intrinsics [libF90 B.11.23.17]
PHSS_34399  Fortran Product Patch, v3.1 to v3.1.1
PHKL_34020  Perfmon enhancements and Itanium Dual-Core
```

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Operating System Notes (Continued)

```
The following kernel tunables were set, in addition to the defaults
set by the Technical Computing OE:

dbc_max_pct=20
dbc_min_pct=20
maxdsiz=3221225472
maxssiz=401604608
```

Platform Notes

```
The "cpuconfig" EFI command was used prior to booting
  to deconfigure processors.

Although two cores were enabled during testing,
  the SPEC CPU2006 benchmarks used only one core.
```

Base Compiler Invocation

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

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

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

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

Base Portability Flags

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

Base Optimization Flags

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

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

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Base Optimization Flags (Continued)

Fortran benchmarks:
`+Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M -Wl,-N`

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

Peak Compiler Invocation

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

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

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

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

Peak Portability Flags

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

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Peak Optimization Flags (Continued)

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

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

Fortran benchmarks:

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

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

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/CPU2006_flags.20090715.07.html

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You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.07.xml

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

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 10:20:37 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 February 2007.