SPEC® CFP2006 Result

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Hewlett-Packard Company

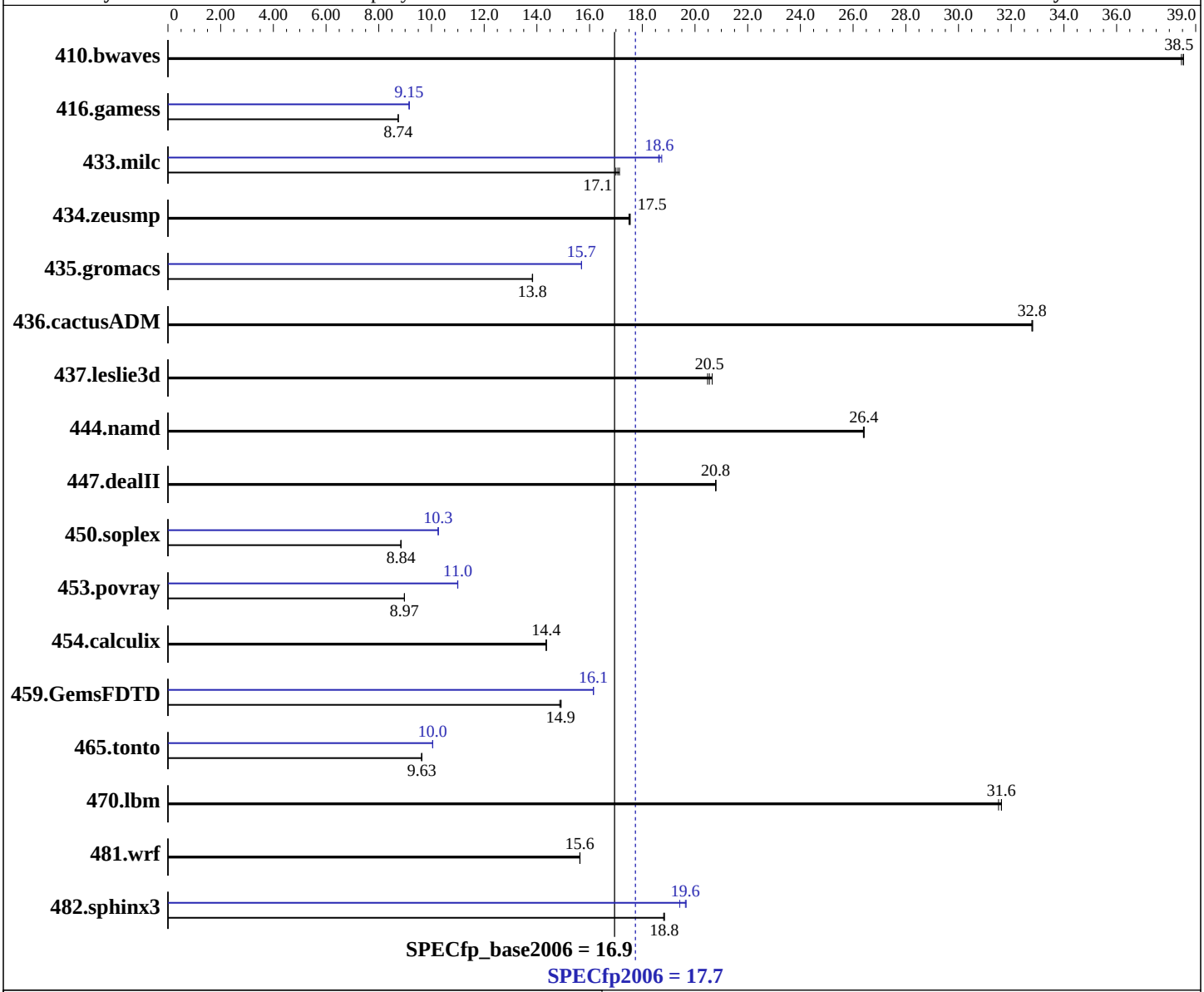
HP Integrity BL860c
(1.6GHz/18MB Dual-Core Intel Itanium 2)

SPECfp®2006 = 17.7

SPECfp_base2006 = 16.9

CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Jan-2007
Hardware Availability: Feb-2007
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

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L3 Cache: 9 MB I+D on chip per core
Other Cache: None
Memory: 12 GB (12x1GB DIMMs)
Disk Subsystem: 73GB 10K RPM SAS
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	353	38.5	353	38.5	**353**	**38.5**	353	38.5	353	38.5	**353**	**38.5**
416.gamess	2241	8.74	**2241**	**8.74**	2241	8.74	2138	9.16	**2139**	**9.15**	2140	9.15
433.milc	536	17.1	540	17.0	**538**	**17.1**	490	18.7	**492**	**18.6**	493	18.6
434.zeusmp	519	17.5	520	17.5	**519**	**17.5**	519	17.5	520	17.5	**519**	**17.5**
435.gromacs	516	13.8	**516**	**13.8**	516	13.8	**455**	**15.7**	455	15.7	455	15.7
436.cactusADM	364	32.8	**364**	**32.8**	364	32.8	364	32.8	**364**	**32.8**	364	32.8
437.leslie3d	455	20.7	459	20.5	**457**	**20.5**	455	20.7	459	20.5	**457**	**20.5**
444.namd	304	26.4	304	26.4	**304**	**26.4**	304	26.4	304	26.4	**304**	**26.4**
447.dealII	550	20.8	550	20.8	**550**	**20.8**	550	20.8	550	20.8	**550**	**20.8**
450.soplex	942	8.85	944	8.84	**943**	**8.84**	813	10.3	**813**	**10.3**	813	10.3
453.povray	**593**	**8.97**	593	8.97	593	8.97	484	11.0	484	11.0	**484**	**11.0**
454.calculix	**575**	**14.4**	575	14.3	574	14.4	**575**	**14.4**	575	14.3	574	14.4
459.GemsFDTD	711	14.9	714	14.9	**712**	**14.9**	**657**	**16.1**	657	16.1	657	16.1
465.tonto	1022	9.63	**1022**	**9.63**	1022	9.63	980	10.0	979	10.0	**979**	**10.0**
470.lbm	**434**	**31.6**	434	31.6	436	31.5	**434**	**31.6**	434	31.6	436	31.5
481.wrf	715	15.6	**715**	**15.6**	714	15.6	715	15.6	**715**	**15.6**	714	15.6
482.sphinx3	1035	18.8	**1035**	**18.8**	1036	18.8	**993**	**19.6**	1003	19.4	991	19.7

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.
```

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

C++ benchmarks:

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Peak Optimization Flags (Continued)

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

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

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