SPEC® CFP2006 Result

Hewlett-Packard Company

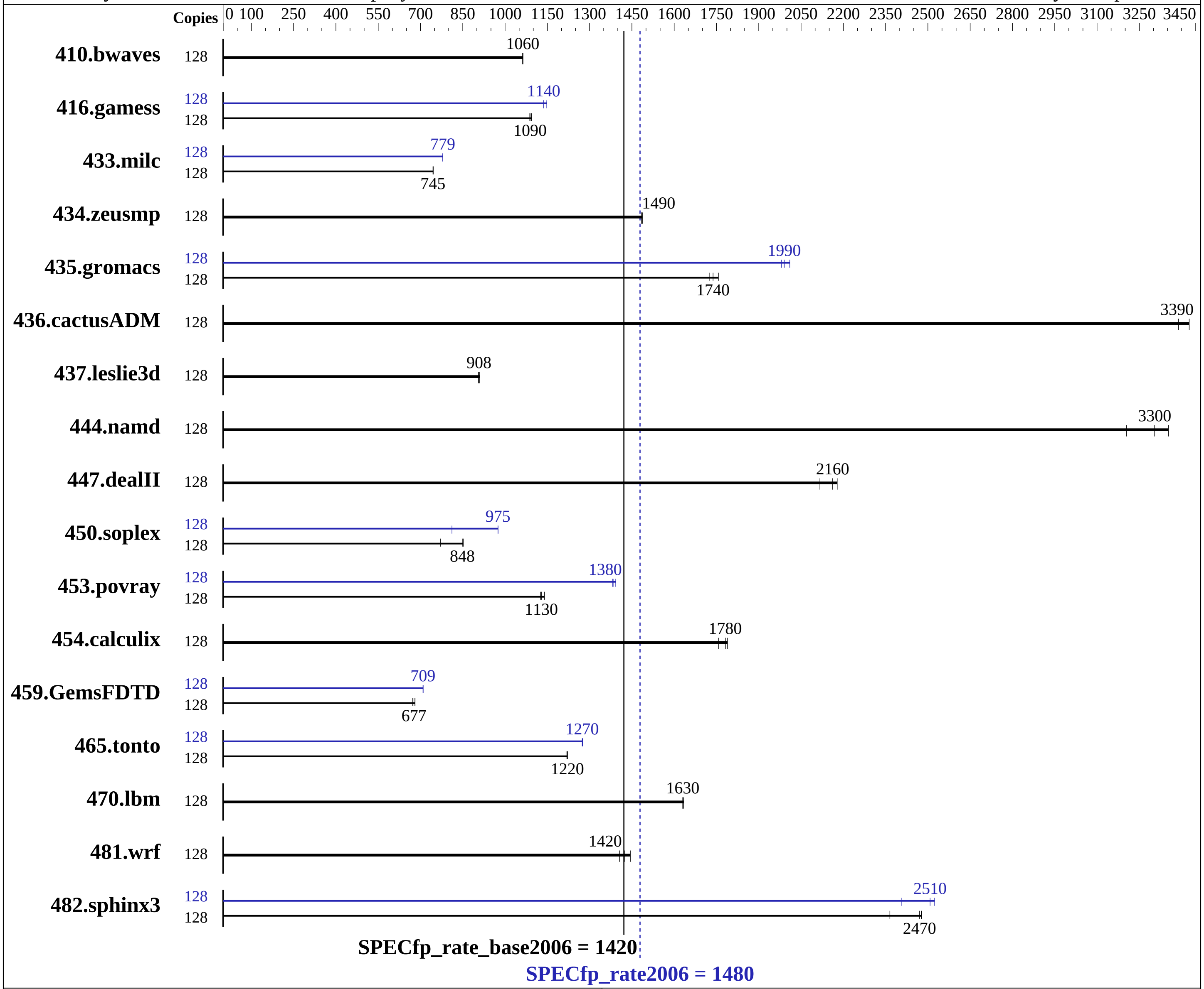
HP Integrity Superdome (1.6GHz/24MB Dual-Core Intel Itanium 2)

SPECfp®_rate2006 = 1480

SPECfp_rate_base2006 = 1420

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

Test date: Aug-2006
Hardware Availability: Sep-2006
Software Availability: Sep-2006



Hardware

CPU Name:	Dual-Core Intel Itanium 2 9050
CPU Characteristics:	1.6GHz/24MB, 533MHz FSB
CPU MHz:	1600
FPU:	Integrated
CPU(s) enabled:	128 cores, 64 chips, 2 cores/chip
CPU(s) orderable:	1-64 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:	12 MB I+D on chip per core
Other Cache:	None
Memory:	512 GB (512x1GB DIMMs)
Disk Subsystem:	3x73GB 15K RPM SCSI (striped)
Other Hardware:	None

Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	128	1640	1060	**1636**	**1060**	1635	1060	128	1640	1060	**1636**	**1060**	1635	1060
416.gamess	128	2304	1090	**2302**	**1090**	2291	1090	128	2204	1140	2183	1150	**2204**	**1140**
433.milc	128	1579	744	**1578**	**745**	1577	745	128	1508	779	1507	780	**1508**	**779**
434.zeusmp	128	785	1480	783	1490	**784**	**1490**	128	785	1480	783	1490	**784**	**1490**
435.gromacs	128	530	1720	**526**	**1740**	520	1760	128	461	1980	**459**	**1990**	455	2010
436.cactusADM	128	**451**	**3390**	451	3390	446	3430	128	**451**	**3390**	451	3390	446	3430
437.leslie3d	128	**1325**	**908**	1322	910	1329	905	128	**1325**	**908**	1322	910	1329	905
444.namd	128	320	3200	**311**	**3300**	306	3350	128	320	3200	**311**	**3300**	306	3350
447.dealII	128	672	2180	692	2120	**677**	**2160**	128	672	2180	692	2120	**677**	**2160**
450.soplex	128	1385	771	**1258**	**848**	1253	852	128	1315	812	1095	975	**1095**	**975**
453.povray	128	605	1130	**603**	**1130**	597	1140	128	493	1380	**492**	**1380**	489	1390
454.calculix	128	601	1760	**593**	**1780**	590	1790	128	601	1760	**593**	**1780**	590	1790
459.GemsFDTD	128	**2006**	**677**	1995	681	2024	671	128	1916	709	**1915**	**709**	1914	709
465.tonto	128	**1031**	**1220**	1035	1220	1031	1220	128	989	1270	**989**	**1270**	988	1280
470.lbm	128	1079	1630	**1079**	**1630**	1077	1630	128	1079	1630	**1079**	**1630**	1077	1630
481.wrf	128	1017	1410	990	1440	**1004**	**1420**	128	1017	1410	990	1440	**1004**	**1420**
482.sphinx3	128	1055	2370	**1010**	**2470**	1007	2480	128	1037	2410	988	2520	**995**	**2510**

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 system was configured as a single partition with 16 cells and
4 processors (8 cores) per cell.  Memory was configured as 50% local
and 50% interleaved.

The following config file entry was used to bind
processes to cells using the HP-UX "mpsched" utility:
submit = let "MYNUM=$SPECCOPYNUM" ; let "LDOM=\$MYNUM/8" ; mpsched -l \$LDOM $command
```

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`

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Base Optimization Flags (Continued)

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

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

Benchmarks using both Fortran and C:
`+Ofaster`(-hp_cc) `+Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Ofaster`(-hp_f90) `-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(-hp_cc) +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap +Ofaster(-hp_f90)

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.20090715.06.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.06.xml

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

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