



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

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

SPECfp[®]_rate2006 = 1480

SPECfp_rate_base2006 = 1420

CPU2006 license: 03

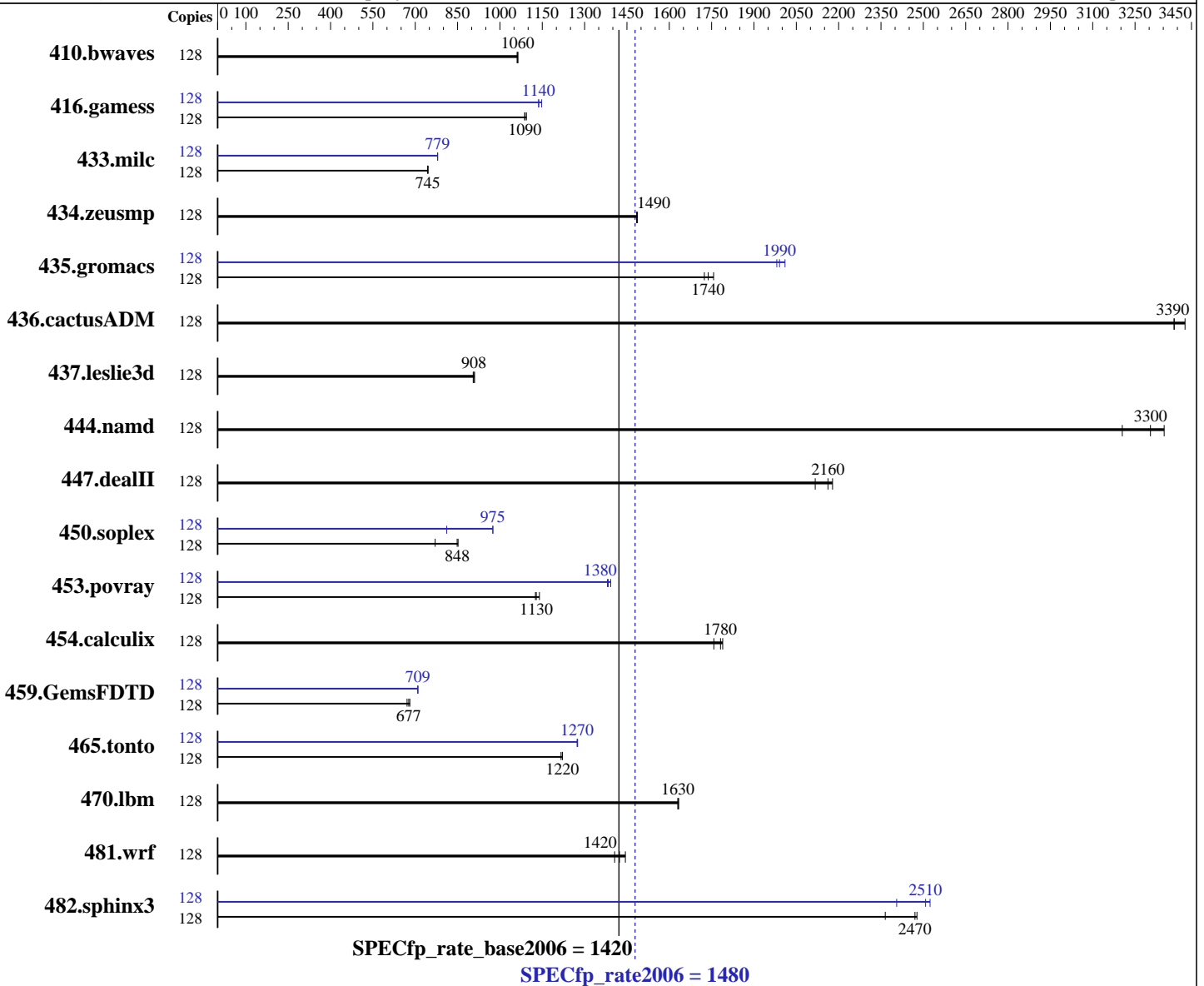
Test sponsor: Hewlett-Packard Company

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

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

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

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



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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.20090715.06.xml

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 09:56:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 September 2006.