



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]_rate2006 = 1440

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

SPECfp_rate_base2006 = 1380

CPU2006 license: 03

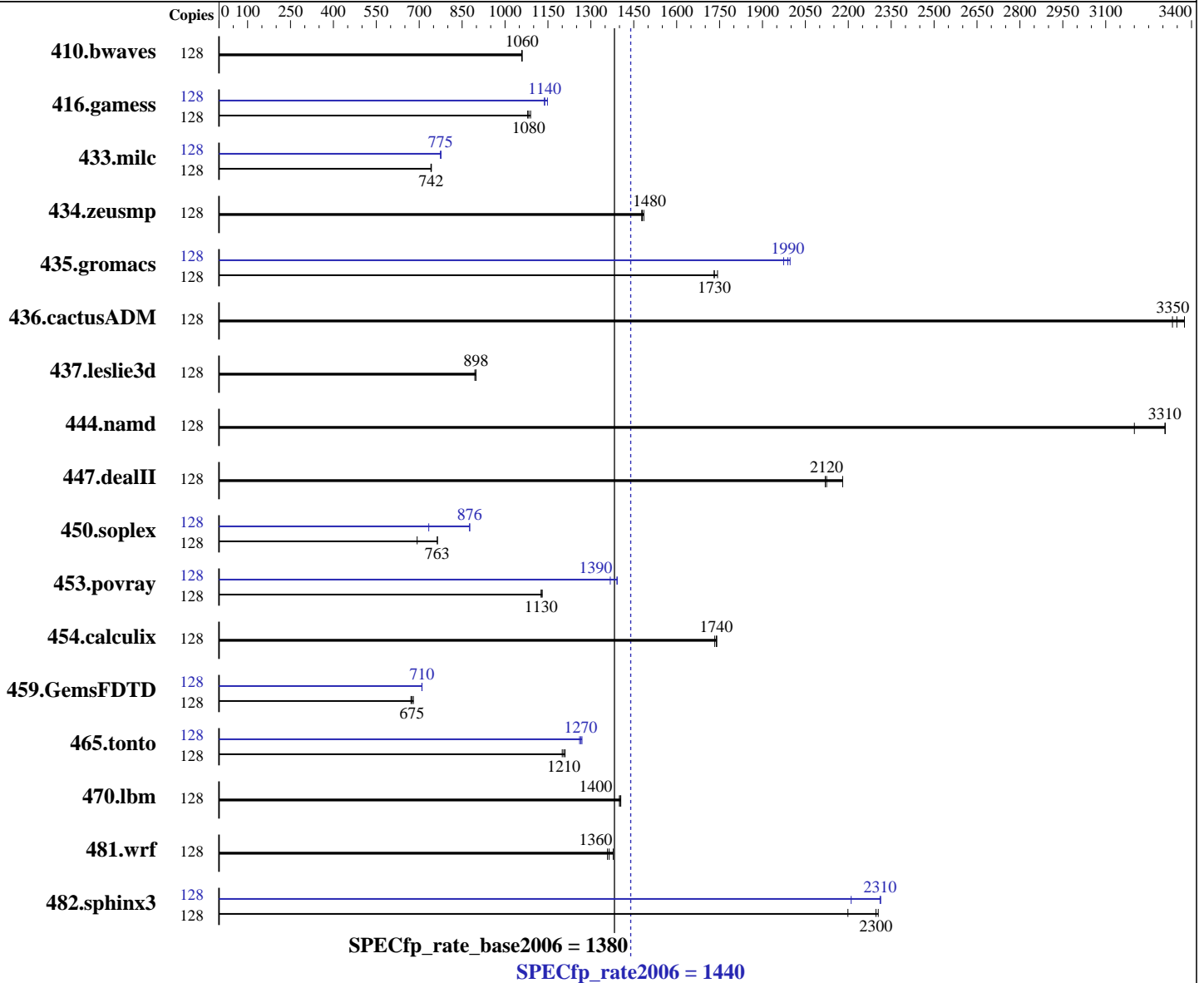
Test date: Oct-2006

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2006

Tested by: Hewlett-Packard Company

Software Availability: Sep-2006



Hardware

CPU Name: Dual-Core Intel Itanium 2 9040
 CPU Characteristics: 1.6GHz/18MB, 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

Continued on next page



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L3 Cache: 9 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	1643	1060	1641	1060	<u>1642</u>	<u>1060</u>	128	1643	1060	1641	1060	<u>1642</u>	<u>1060</u>
416.gamess	128	<u>2314</u>	<u>1080</u>	2322	1080	2301	1090	128	2204	1140	<u>2201</u>	<u>1140</u>	2182	1150
433.milc	128	1586	741	1582	743	<u>1585</u>	<u>742</u>	128	1514	776	1517	775	<u>1517</u>	<u>775</u>
434.zeusmp	128	784	1490	<u>787</u>	<u>1480</u>	788	1480	128	784	1490	<u>787</u>	<u>1480</u>	788	1480
435.gromacs	128	<u>528</u>	<u>1730</u>	528	1730	524	1740	128	463	1970	<u>460</u>	<u>1990</u>	458	2000
436.cactusADM	128	453	3380	459	3330	<u>457</u>	<u>3350</u>	128	453	3380	459	3330	<u>457</u>	<u>3350</u>
437.leslie3d	128	1345	894	<u>1339</u>	<u>898</u>	1339	898	128	1345	894	<u>1339</u>	<u>898</u>	1339	898
444.namd	128	321	3200	310	3310	<u>310</u>	<u>3310</u>	128	321	3200	310	3310	<u>310</u>	<u>3310</u>
447.dealII	128	691	2120	<u>689</u>	<u>2120</u>	672	2180	128	691	2120	<u>689</u>	<u>2120</u>	672	2180
450.soplex	128	1541	693	1398	764	<u>1399</u>	<u>763</u>	128	1456	733	<u>1219</u>	<u>876</u>	1218	877
453.povray	128	605	1130	<u>604</u>	<u>1130</u>	603	1130	128	498	1370	<u>489</u>	<u>1390</u>	489	1390
454.calculix	128	609	1730	607	1740	<u>607</u>	<u>1740</u>	128	609	1730	607	1740	<u>607</u>	<u>1740</u>
459.GemsFDTD	128	<u>2012</u>	<u>675</u>	1998	680	2024	671	128	<u>1914</u>	<u>710</u>	1913	710	1915	709
465.tonto	128	1050	1200	<u>1045</u>	<u>1210</u>	1041	1210	128	999	1260	992	1270	<u>996</u>	<u>1270</u>
470.lbm	128	<u>1254</u>	<u>1400</u>	1256	1400	1252	1400	128	<u>1254</u>	<u>1400</u>	1256	1400	1252	1400
481.wrf	128	1053	1360	1038	1380	<u>1048</u>	<u>1360</u>	128	1053	1360	1038	1380	<u>1048</u>	<u>1360</u>
482.sphinx3	128	1135	2200	<u>1086</u>	<u>2300</u>	1082	2300	128	1129	2210	<u>1079</u>	<u>2310</u>	1078	2310

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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Continued on next page



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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

Continued on next page



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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 +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

Continued on next page



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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.20090715.11.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.20090715.11.xml

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