



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

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

SPECfp[®]_rate2006 = 745

SPECfp_rate_base2006 = 716

CPU2006 license: 03

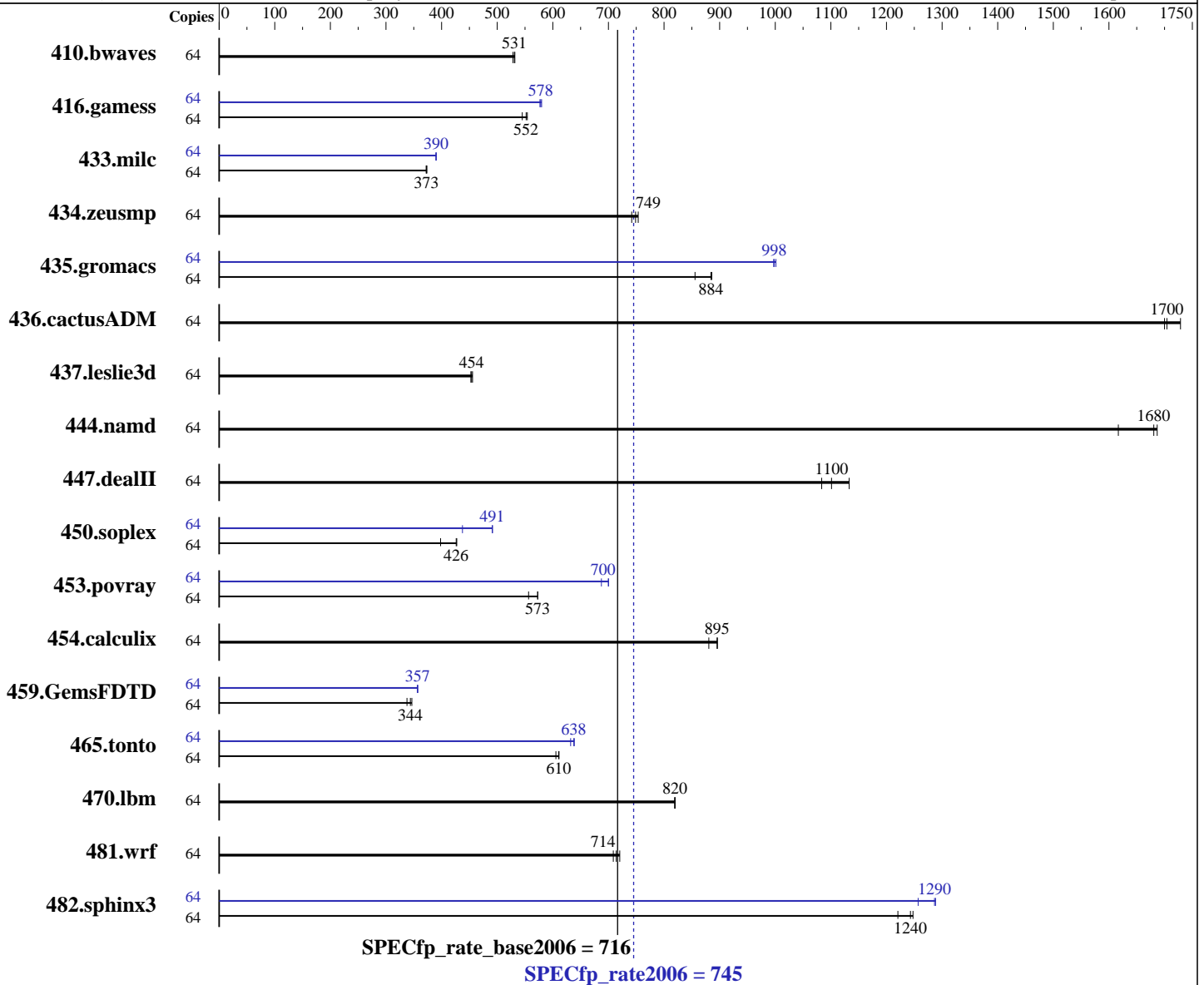
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Sep-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: 64 cores, 32 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 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: 256 GB (256x1GB 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	64	1646	528	1636	532	1638	531	64	1646	528	1636	532	1638	531
416.gamess	64	2299	545	2270	552	2261	554	64	2167	578	2161	580	2172	577
433.milc	64	1578	372	1573	374	1577	373	64	1506	390	1507	390	1505	390
434.zeusmp	64	773	754	778	749	785	742	64	773	754	778	749	785	742
435.gromacs	64	534	856	516	886	517	884	64	458	997	458	998	456	1000
436.cactusADM	64	450	1700	449	1700	442	1730	64	450	1700	449	1700	442	1730
437.leslie3d	64	1320	456	1329	453	1325	454	64	1320	456	1329	453	1325	454
444.namd	64	317	1620	304	1690	305	1680	64	317	1620	304	1690	305	1680
447.dealII	64	665	1100	646	1130	676	1080	64	665	1100	646	1130	676	1080
450.soplex	64	1340	398	1249	427	1252	426	64	1220	438	1087	491	1086	492
453.povray	64	612	556	594	573	594	573	64	495	687	487	700	486	700
454.calculix	64	600	881	589	896	590	895	64	600	881	589	896	590	895
459.GemsFDTD	64	1975	344	2010	338	1960	347	64	1904	357	1902	357	1903	357
465.tonto	64	1040	606	1030	611	1032	610	64	996	632	986	639	987	638
470.lbm	64	1074	819	1073	820	1073	820	64	1074	819	1073	820	1073	820
481.wrf	64	1001	714	992	720	1009	709	64	1001	714	992	720	1009	709
482.sphinx3	64	1022	1220	1003	1240	1000	1250	64	992	1260	968	1290	970	1290

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 8 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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