SPEC® CFP2006 Result
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Hewlett-Packard Company

HP Integrity rx6600 (1.6GHz/24MB Dual-Core Intel Itanium 2)

$SPECfp®\_rate2006 =$ 71.4

$SPECfp\_rate\_base2006 =$ 69.1

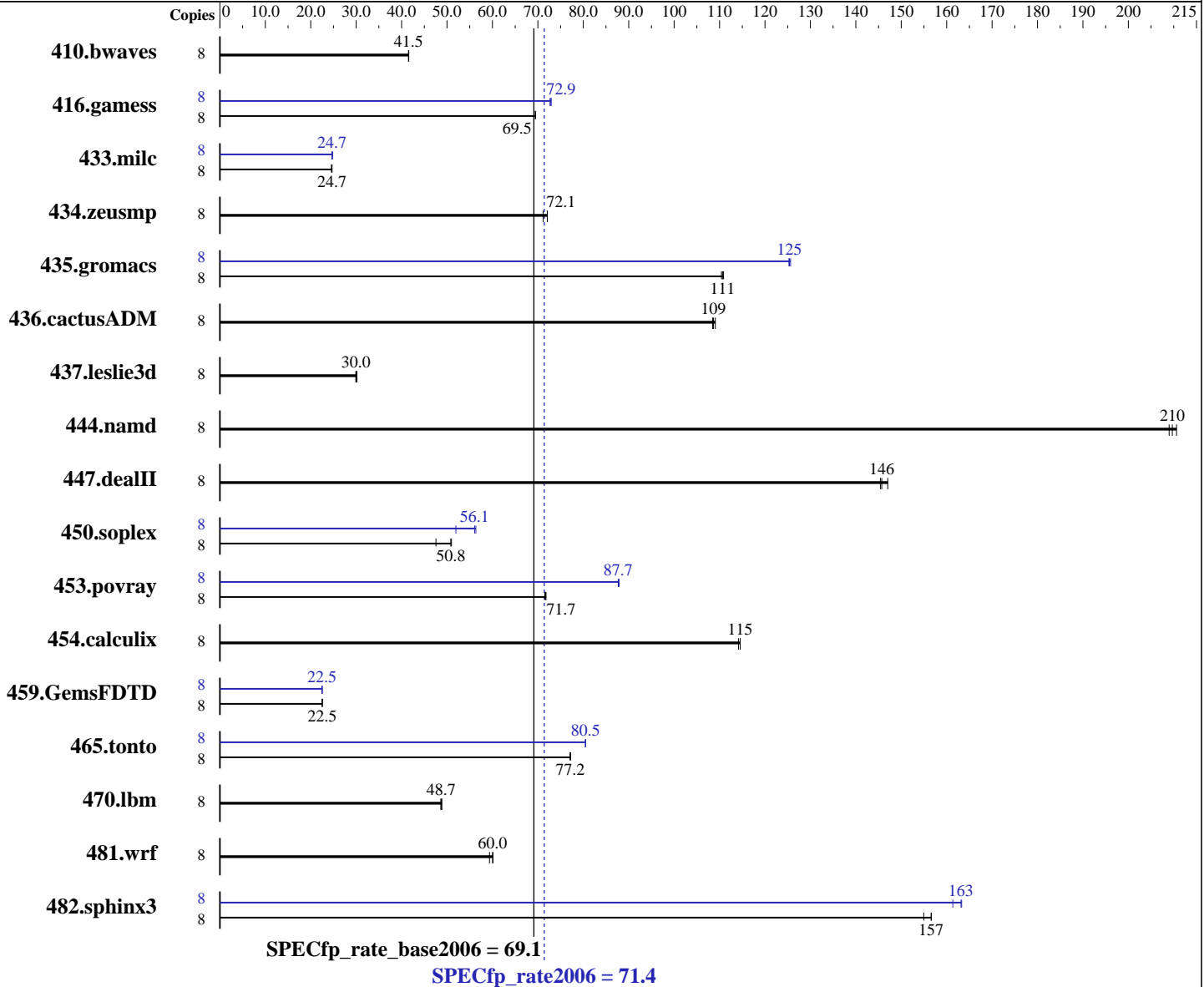|	
CPU2006 license: 03	**Test date:** Aug-2006
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Sep-2006
Tested by: Hewlett-Packard Company	**Software Availability:** Sep-2006

Copies

Benchmark	Copies	Result
410.bwaves	8	41.5
416.gamess	8	72.9
416.gamess	8	69.5
433.milc	8	24.7
433.milc	8	24.7
434.zeusmp	8	72.1
435.gromacs	8	125
435.gromacs	8	111
436.cactusADM	8	109
437.leslie3d	8	30.0
444.namd	8	210
447.dealII	8	146
450.soplex	8	56.1
450.soplex	8	50.8
453.povray	8	87.7
453.povray	8	71.7
454.calculix	8	115
459.GemsFDTD	8	22.5
459.GemsFDTD	8	22.5
465.tonto	8	80.5
465.tonto	8	77.2
470.lbm	8	48.7
481.wrf	8	60.0
482.sphinx3	8	163
482.sphinx3	8	157

SPECfp_rate_base2006 = 69.1

SPECfp_rate2006 = 71.4

Hardware

CPU Name:	Dual-Core Intel Itanium 2 9050
CPU Characteristics:	1.6GHz/24MB, 533MHz FSB
CPU MHz:	1600
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip
CPU(s) orderable:	1-4 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:	12 MB I+D on chip per core
Other Cache:	None
Memory:	24 GB (24x1GB DIMMs)
Disk Subsystem:	73GB 10K RPM SAS
Other Hardware:	None

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	8	2615	41.6	2618	41.5	**2617**	**41.5**	8	2615	41.6	2618	41.5	**2617**	**41.5**
416.gamess	8	2254	69.5	2255	69.5	**2255**	**69.5**	8	2155	72.7	2148	72.9	**2149**	**72.9**
433.milc	8	**2977**	**24.7**	2975	24.7	2991	24.6	8	2960	24.8	**2977**	**24.7**	2979	24.7
434.zeusmp	8	1010	72.1	1023	71.2	**1010**	**72.1**	8	1010	72.1	1023	71.2	**1010**	**72.1**
435.gromacs	8	517	110	**516**	**111**	515	111	8	**456**	**125**	456	125	455	126
436.cactusADM	8	**880**	**109**	877	109	881	108	8	**880**	**109**	877	109	881	108
437.leslie3d	8	2492	30.2	2512	29.9	**2509**	**30.0**	8	2492	30.2	2512	29.9	**2509**	**30.0**
444.namd	8	307	209	**306**	**210**	305	211	8	307	209	**306**	**210**	305	211
447.dealII	8	**628**	**146**	622	147	629	145	8	**628**	**146**	622	147	629	145
450.soplex	8	1403	47.6	1309	51.0	**1313**	**50.8**	8	1284	52.0	1184	56.3	**1190**	**56.1**
453.povray	8	595	71.5	593	71.8	**593**	**71.7**	8	485	87.7	**485**	**87.7**	484	87.9
454.calculix	8	576	115	**576**	**115**	578	114	8	576	115	**576**	**115**	578	114
459.GemsFDTD	8	3770	22.5	3765	22.5	**3768**	**22.5**	8	3783	22.4	3765	22.5	**3772**	**22.5**
465.tonto	8	**1020**	**77.2**	1021	77.1	1020	77.2	8	978	80.5	**978**	**80.5**	978	80.5
470.lbm	8	2249	48.9	**2258**	**48.7**	2258	48.7	8	2249	48.9	**2258**	**48.7**	2258	48.7
481.wrf	8	1505	59.4	1486	60.1	**1489**	**60.0**	8	1505	59.4	1486	60.1	**1489**	**60.0**
482.sphinx3	8	1006	155	996	157	**996**	**157**	8	955	163	**956**	**163**	966	161

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
```

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`

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`

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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:

        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

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Peak Optimization Flags (Continued)

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.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 10:07:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 October 2006.