



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

SPECfp®2006 = 17.7

HP Integrity BL860c  
(1.6GHz/18MB Dual-Core Intel Itanium 2)

SPECfp\_base2006 = 16.9

CPU2006 license: 03

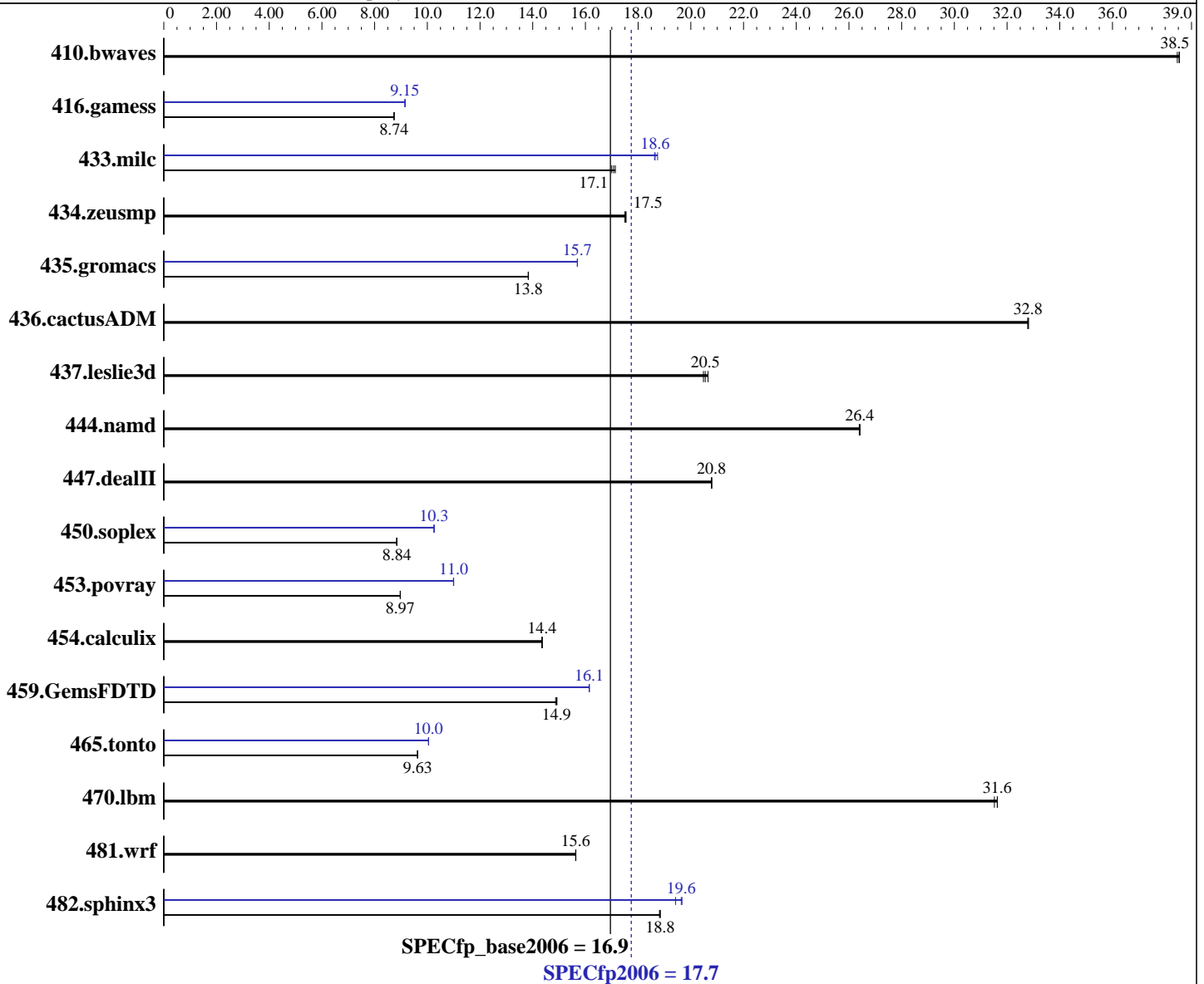
Test date: Jan-2007

Test sponsor: Hewlett-Packard Company

Hardware Availability: Feb-2007

Tested by: Hewlett-Packard Company

Software Availability: Feb-2007



### Hardware

CPU Name: Dual-Core Intel Itanium 2 9040  
 CPU Characteristics: 1.6GHz/18MB, 533MHz FSB  
 CPU MHz: 1600  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1-2 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: 12 GB (12x1GB DIMMs)  
Disk Subsystem: 73GB 10K RPM SAS  
Other Hardware: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	353	38.5	353	38.5	<b>353</b>	<b>38.5</b>	353	38.5	353	38.5	<b>353</b>	<b>38.5</b>
416.gamess	2241	8.74	<b>2241</b>	<b>8.74</b>	2241	8.74	2138	9.16	<b>2139</b>	<b>9.15</b>	2140	9.15
433.milc	536	17.1	540	17.0	<b>538</b>	<b>17.1</b>	490	18.7	<b>492</b>	<b>18.6</b>	493	18.6
434.zeusmp	519	17.5	520	17.5	<b>519</b>	<b>17.5</b>	519	17.5	520	17.5	<b>519</b>	<b>17.5</b>
435.gromacs	516	13.8	<b>516</b>	<b>13.8</b>	516	13.8	<b>455</b>	<b>15.7</b>	455	15.7	455	15.7
436.cactusADM	364	32.8	<b>364</b>	<b>32.8</b>	364	32.8	364	32.8	<b>364</b>	<b>32.8</b>	364	32.8
437.leslie3d	455	20.7	459	20.5	<b>457</b>	<b>20.5</b>	455	20.7	459	20.5	<b>457</b>	<b>20.5</b>
444.namd	304	26.4	304	26.4	<b>304</b>	<b>26.4</b>	304	26.4	304	26.4	<b>304</b>	<b>26.4</b>
447.dealII	550	20.8	550	20.8	<b>550</b>	<b>20.8</b>	550	20.8	550	20.8	<b>550</b>	<b>20.8</b>
450.soplex	942	8.85	944	8.84	<b>943</b>	<b>8.84</b>	813	10.3	<b>813</b>	<b>10.3</b>	813	10.3
453.povray	<b>593</b>	<b>8.97</b>	593	8.97	593	8.97	484	11.0	484	11.0	<b>484</b>	<b>11.0</b>
454.calculix	<b>575</b>	<b>14.4</b>	575	14.3	574	14.4	<b>575</b>	<b>14.4</b>	575	14.3	574	14.4
459.GemsFDTD	711	14.9	714	14.9	<b>712</b>	<b>14.9</b>	<b>657</b>	<b>16.1</b>	657	16.1	657	16.1
465.tonto	1022	9.63	<b>1022</b>	<b>9.63</b>	1022	9.63	980	10.0	979	10.0	<b>979</b>	<b>10.0</b>
470.lbm	<b>434</b>	<b>31.6</b>	434	31.6	436	31.5	<b>434</b>	<b>31.6</b>	434	31.6	436	31.5
481.wrf	715	15.6	<b>715</b>	<b>15.6</b>	714	15.6	715	15.6	<b>715</b>	<b>15.6</b>	714	15.6
482.sphinx3	1035	18.8	<b>1035</b>	<b>18.8</b>	1036	18.8	<b>993</b>	<b>19.6</b>	1003	19.4	991	19.7

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

```

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 "cpuconfig" EFI command was used prior to booting to deconfigure processors.

## 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
```

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## Base Optimization Flags (Continued)

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

C++ benchmarks:

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## Peak Optimization Flags (Continued)

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.20090715.07.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.07.html)

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

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090715.07.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.07.xml)



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.0.  
Report generated on Tue Jul 22 10:24:48 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 20 February 2007.