SPEC® CFP2006 Result

Hewlett-Packard Company

$SPECfp®\_rate2006 = 858$

ProLiant DL580 Gen8
(2.00 GHz, Intel Xeon E7-4820 v2)

$SPECfp\_rate\_base2006 = 840$
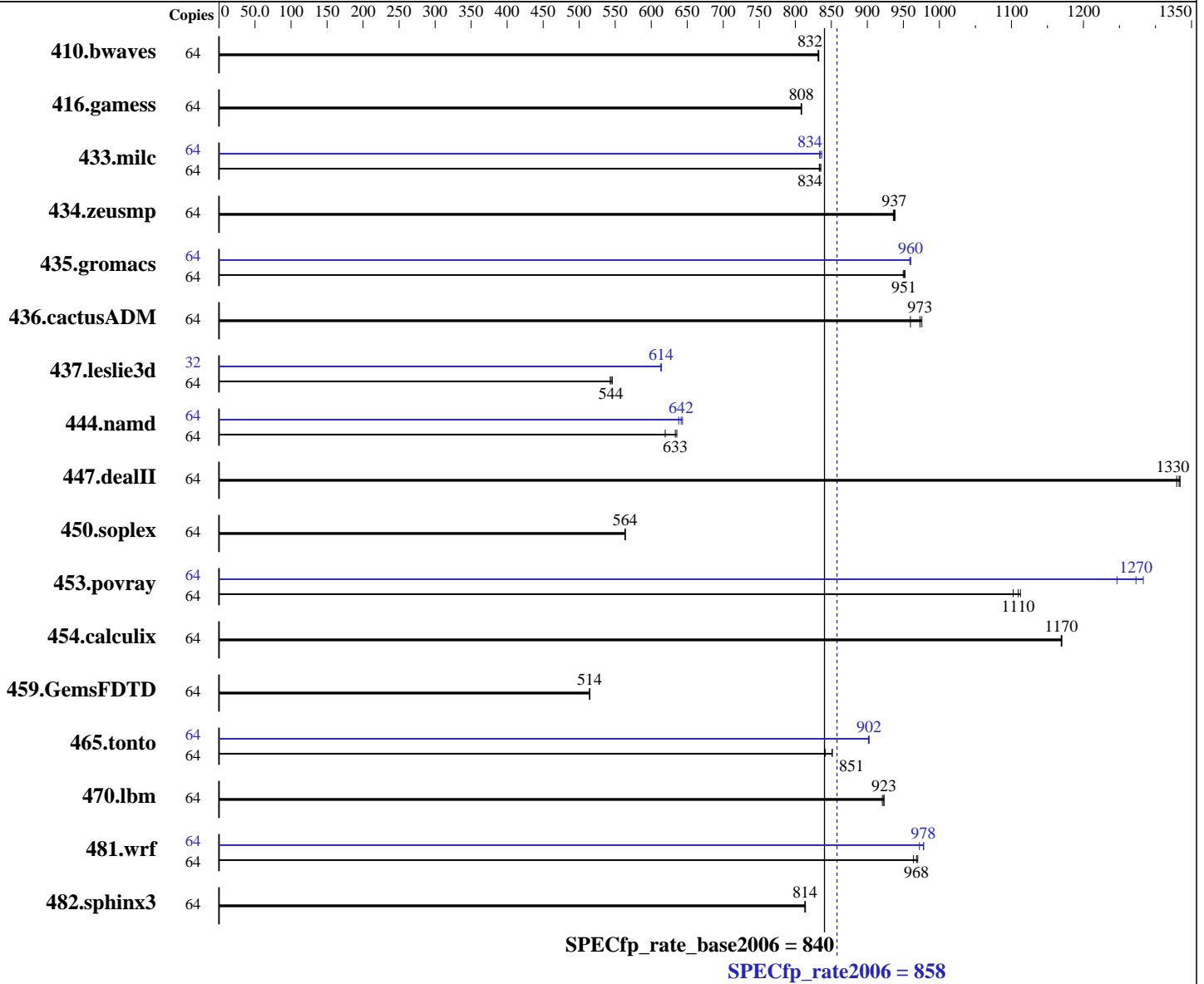
CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Aug-2014
Software Availability: Sep-2014

Benchmark	Copies	Result
410.bwaves	64	832
416.gamess	64	808
433.milc	64	834
433.milc	64	834
434.zeusmp	64	937
435.gromacs	64	960
435.gromacs	64	951
436.cactusADM	64	973
437.leslie3d	32	614
437.leslie3d	64	544
444.namd	64	642
444.namd	64	633
447.dealII	64	1330
450.soplex	64	564
453.povray	64	1270
453.povray	64	1110
454.calculix	64	1170
459.GemsFDTD	64	514
465.tonto	64	902
465.tonto	64	851
470.lbm	64	923
481.wrf	64	978
481.wrf	64	968
482.sphinx3	64	814

SPECfp_rate_base2006 = 840

SPECfp_rate2006 = 858

Hardware

CPU Name: Intel Xeon E7-4820 v2
CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 2,3,4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo),
Kernel 3.10.0-123.el7.x86_64
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;
Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: xfs

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 Gen8
(2.00 GHz, Intel Xeon E7-4820 v2)

$SPECfp_rate2006 = $ 858

$SPECfp_rate_base2006 = $ 840

CPU2006 license: 3	**Test date:** Nov-2014
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Aug-2014
Tested by: Hewlett-Packard Company	**Software Availability:** Sep-2014

L3 Cache:	16 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1067 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	2 x 300 GB 10 K SAS, RAID1		
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	1045	833	**1045**	**832**	1046	832	64	1045	833	**1045**	**832**	1046	832
416.gamess	64	1549	809	**1550**	**808**	1551	808	64	1549	809	**1550**	**808**	1551	808
433.milc	64	703	835	**704**	**834**	705	833	64	702	837	705	834	**704**	**834**
434.zeusmp	64	621	938	622	936	**621**	**937**	64	621	938	622	936	**621**	**937**
435.gromacs	64	481	950	**480**	**951**	480	952	64	**476**	**960**	477	959	476	960
436.cactusADM	64	784	976	**786**	**973**	797	960	64	784	976	**786**	**973**	797	960
437.leslie3d	64	1102	546	**1105**	**544**	1108	543	32	490	614	**490**	**614**	490	613
444.namd	64	808	636	829	619	**810**	**633**	64	**800**	**642**	798	643	804	638
447.dealII	64	**549**	**1330**	551	1330	549	1330	64	**549**	**1330**	551	1330	549	1330
450.soplex	64	946	564	947	564	**946**	**564**	64	946	564	947	564	**946**	**564**
453.povray	64	**307**	**1110**	309	1100	306	1110	64	265	1280	**267**	**1270**	273	1250
454.calculix	64	**451**	**1170**	451	1170	452	1170	64	**451**	**1170**	451	1170	452	1170
459.GemsFDTD	64	**1320**	**514**	1320	514	1319	515	64	**1320**	**514**	1320	514	1319	515
465.tonto	64	748	842	**740**	**851**	740	851	64	**698**	**902**	698	902	699	901
470.lbm	64	955	921	**953**	**923**	953	923	64	955	921	**953**	**923**	953	923
481.wrf	64	741	964	**738**	**968**	737	970	64	735	972	**731**	**978**	731	978
482.sphinx3	64	1534	813	**1533**	**814**	1532	814	64	1534	813	**1533**	**814**	1532	814

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

    The numactl mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate numactl commands to bind each copy to a specific processor.
    For details, please see the config file.

Operating System Notes

    Stack size set to unlimited using "ulimit -s unlimited"
    Transparent Huge Pages enabled with:
     echo always > /sys/kernel/mm/transparent_hugepage/enabled
    Filesystem page cache cleared with:
     echo 1>   /proc/sys/vm/drop_caches
    runspec command invoked through numactl i.e.:
     numactl --interleave=all runspec <etc>

SPEC CFP2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 Gen8
(2.00 GHz, Intel Xeon E7-4820 v2)

SPECfp_rate2006 = 858

SPECfp_rate_base2006 = 840

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Aug-2014
Software Availability: Sep-2014

Platform Notes

```
BIOS Configuration:
   HP Power Profile set to Maximum Performance
   Collaborative Power Control set to Disabled
   Thermal Configuration set so Maximum Cooling
   Processor Power and Utilization Monitoring set to Disabled
   Memory Refresh Rate set to 1x Refresh

 Sysinfo program /home/cpu/config/sysinfo.rev6914
 $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
 running on pl23.epc.external.hp.com Wed Nov 26 09:57:08 2014

 This section contains SUT (System Under Test) info as seen by
 some common utilities.  To remove or add to this section, see:
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo

 From /proc/cpuinfo
    model name : Intel(R) Xeon(R) CPU E7-4820 v2 @ 2.00GHz
       4 "physical id"s (chips)
       64 "processors"
    cores, siblings (Caution: counting these is hw and system dependent.  The
    following excerpts from /proc/cpuinfo might not be reliable.  Use with
    caution.)
       cpu cores : 8
       siblings  : 16
       physical 0: cores 0 1 2 3 4 5 6 7
       physical 1: cores 0 1 2 3 4 5 6 7
       physical 2: cores 0 1 2 3 4 5 6 7
       physical 3: cores 0 1 2 3 4 5 6 7
    cache size : 16384 KB

 From /proc/meminfo
    MemTotal:      1056526660 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 From /etc/*release* /etc/*version*
    os-release:
       NAME="Red Hat Enterprise Linux Server"
       VERSION="7.0 (Maipo)"
       ID="rhel"
       ID_LIKE="fedora"
       VERSION_ID="7.0"
       PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
       ANSI_COLOR="0;31"
       CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
    redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
    system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

 uname -a:
    Linux pl23.epc.external.hp.com 3.10.0-123.el7.x86_64 #1 SMP Mon May 5
    11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux
```

SPEC CFP2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 Gen8
(2.00 GHz, Intel Xeon E7-4820 v2)

SPECfp_rate2006 =   858

SPECfp_rate_base2006 =   840

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Aug-2014
Software Availability: Sep-2014

Platform Notes (Continued)

```
  run-level 3 Nov 24 11:39

  SPEC is set to: /home/cpu
     Filesystem              Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rootvg01-lv01 xfs   279G   12G  267G   5% /
  Additional information from dmidecode:

     Warning: Use caution when you interpret this section. The 'dmidecode' program
     reads system data which is "intended to allow hardware to be accurately
     determined", but the intent may not be met, as there are frequent changes to
     hardware, firmware, and the "DMTF SMBIOS" standard.

   BIOS HP P79 08/01/2014
   Memory:
    64x HP 713756-081 16 GB 2 rank 1600 MHz, configured at 1067 MHz
    32x UNKNOWN NOT AVAILABLE

  (End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 1 TB and the dmidecode description should have one line reading as:
 64x HP 713756-081 16 GB 2 rank 1600 MHz, configured at 1067 MHz
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu/libs/32:/home/cpu/libs/64:/home/cpu/sh"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
memory using RedHat EL 7.0
```

Base Compiler Invocation

C benchmarks:
     icc   -m64

C++ benchmarks:
     icpc -m64

Fortran benchmarks:
     ifort -m64

Benchmarks using both Fortran and C:
     icc   -m64 ifort -m64

Hewlett-Packard Company

ProLiant DL580 Gen8
(2.00 GHz, Intel Xeon E7-4820 v2)

$\text{SPECfp\_rate2006} = 858$

$\text{SPECfp\_rate\_base2006} = 840$

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Aug-2014
Software Availability: Sep-2014

Base Portability Flags

```
  410.bwaves: -DSPEC_CPU_LP64
  416.gamess: -DSPEC_CPU_LP64
    433.milc: -DSPEC_CPU_LP64
  434.zeusmp: -DSPEC_CPU_LP64
 435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
 437.leslie3d: -DSPEC_CPU_LP64
    444.namd: -DSPEC_CPU_LP64
   447.dealII: -DSPEC_CPU_LP64
   450.soplex: -DSPEC_CPU_LP64
   453.povray: -DSPEC_CPU_LP64
 454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
   465.tonto: -DSPEC_CPU_LP64
    470.lbm: -DSPEC_CPU_LP64
     481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
  482.sphinx3: -DSPEC_CPU_LP64
```

Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
```

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

C++ benchmarks:
```
icpc   -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

SPEC CFP2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 858

ProLiant DL580 Gen8
(2.00 GHz, Intel Xeon E7-4820 v2)

SPECfp_rate_base2006 = 840

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Aug-2014
Software Availability: Sep-2014

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

> 433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32

> 470.lbm: basepeak = yes

> 482.sphinx3: basepeak = yes

C++ benchmarks:

> 444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
> -auto-ilp32

> 447.dealII: basepeak = yes

> 450.soplex: basepeak = yes

> 453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

> 410.bwaves: basepeak = yes

> 416.gamess: basepeak = yes

> 434.zeusmp: basepeak = yes

> 437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

> 459.GemsFDTD: basepeak = yes

> 465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
> -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

> 435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
> -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
> -auto-ilp32

SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 Gen8
(2.00 GHz, Intel Xeon E7-4820 v2)

$SPECfp_rate2006 = $ 858

$SPECfp_rate_base2006 = $ 840

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Nov-2014

Hardware Availability: Aug-2014

Software Availability: Sep-2014

Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Mon Jan 12 11:06:37 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 January 2015.