SPEC® CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Acer Incorporated

AW2000 AW370h F3 (Intel Xeon E5-2680 v3)

$SPECfp^{®}\_rate2006 =$ 789

$SPECfp\_rate\_base2006 =$ 767
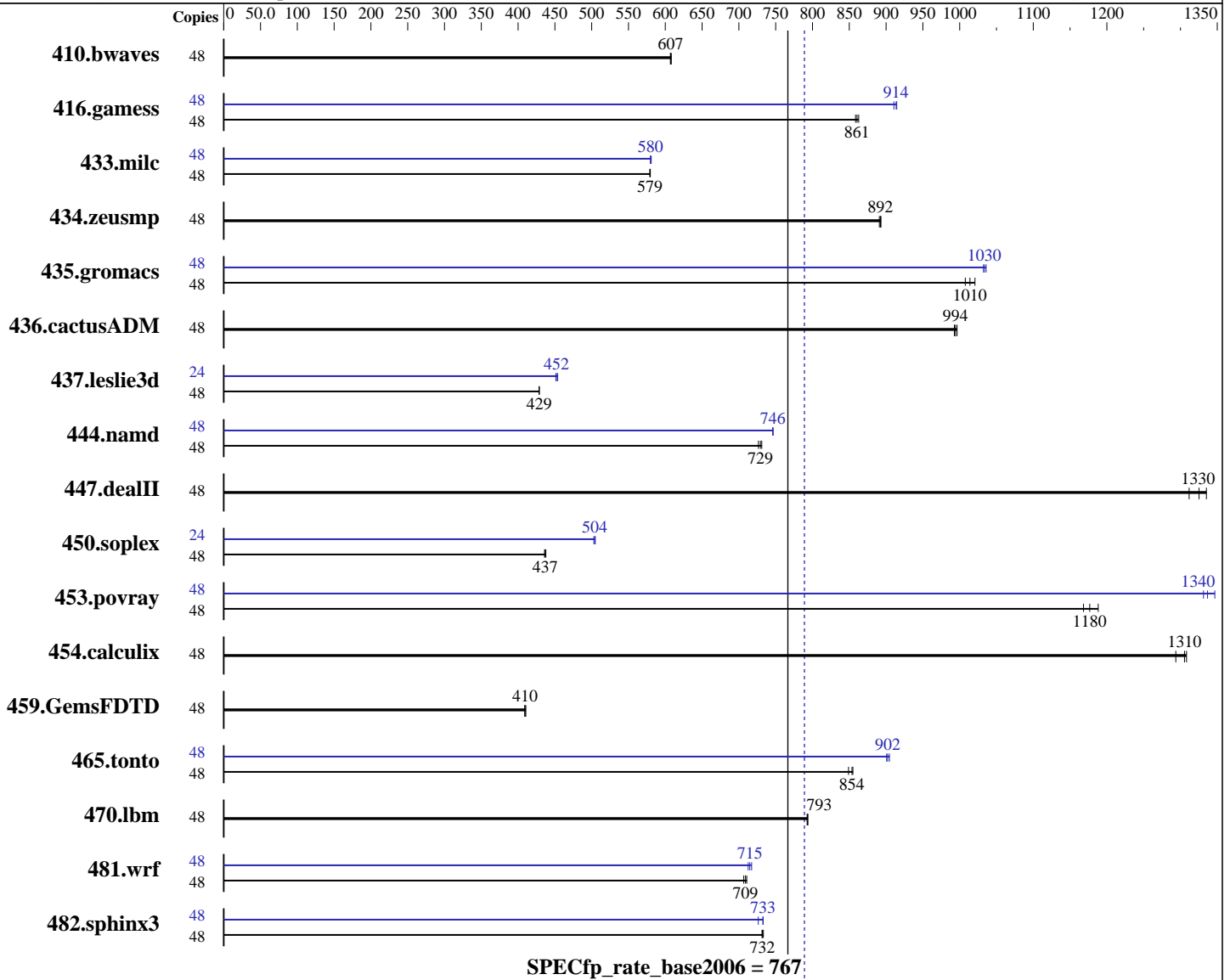
CPU2006 license: 97
Test sponsor: Acer Incorporated
Tested by: Acer Incorporated

Test date: Jul-2015
Hardware Availability: Aug-2015
Software Availability: Jul-2014

Benchmark	Copies	Result
410.bwaves	48	607
416.gamess	48	914
416.gamess	48	861
433.milc	48	580
433.milc	48	579
434.zeusmp	48	892
435.gromacs	48	1030
435.gromacs	48	1010
436.cactusADM	48	994
437.leslie3d	24	452
437.leslie3d	48	429
444.namd	48	746
444.namd	48	729
447.dealII	48	1330
450.soplex	24	504
450.soplex	48	437
453.povray	48	1340
453.povray	48	1180
454.calculix	48	1310
459.GemsFDTD	48	410
465.tonto	48	902
465.tonto	48	854
470.lbm	48	793
481.wrf	48	715
481.wrf	48	709
482.sphinx3	48	733
482.sphinx3	48	732

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Hardware

CPU Name: Intel Xeon E5-2680 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chip
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

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L3 Cache:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1 x 1000 GB SATA
Other Hardware:	None
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	**_1074_**	**_607_**	1073	608	1075	607	48	**_1074_**	**_607_**	1073	608	1075	607
416.gamess	48	**_1092_**	**_861_**	1095	858	1089	863	48	**_1029_**	**_914_**	1028	915	1032	911
433.milc	48	761	579	**_761_**	**_579_**	760	580	48	758	581	760	580	**_760_**	**_580_**
434.zeusmp	48	**_490_**	**_892_**	490	891	489	893	48	**_490_**	**_892_**	490	891	489	893
435.gromacs	48	336	1020	340	1010	**_338_**	**_1010_**	48	331	1040	**_332_**	**_1030_**	332	1030
436.cactusADM	48	578	993	576	996	**_577_**	**_994_**	48	578	993	576	996	**_577_**	**_994_**
437.leslie3d	48	**_1053_**	**_429_**	1052	429	1053	429	24	500	451	497	454	**_499_**	**_452_**
444.namd	48	**_528_**	**_729_**	530	727	527	731	48	516	746	516	746	**_516_**	**_746_**
447.dealII	48	**_414_**	**_1330_**	419	1310	411	1340	48	**_414_**	**_1330_**	419	1310	411	1340
450.soplex	48	915	438	918	436	**_917_**	**_437_**	24	396	505	398	503	**_397_**	**_504_**
453.povray	48	**_217_**	**_1180_**	215	1190	219	1170	48	190	1350	192	1330	**_191_**	**_1340_**
454.calculix	48	303	1310	**_303_**	**_1310_**	306	1290	48	303	1310	**_303_**	**_1310_**	306	1290
459.GemsFDTD	48	1245	409	**_1244_**	**_410_**	1241	410	48	1245	409	**_1244_**	**_410_**	1241	410
465.tonto	48	556	849	**_553_**	**_854_**	552	855	48	522	905	524	901	**_524_**	**_902_**
470.lbm	48	831	794	**_831_**	**_793_**	832	793	48	831	794	**_831_**	**_793_**	832	793
481.wrf	48	759	707	754	711	**_756_**	**_709_**	48	747	717	**_750_**	**_715_**	752	713
482.sphinx3	48	1276	733	1279	731	**_1278_**	**_732_**	48	**_1277_**	**_733_**	1288	726	1276	733

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"

Platform Notes

BIOS Configuration:
 CPU Power and Performance Policy set to Performance
 Cluster On Die set to Enabled

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Platform Notes (Continued)

```
  C1E Autopromote set to Disabled
  Set Fan Profile set to Performance
 Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
 $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
 running on localhost.localdomain Mon Jul  6 13:15:09 2015

 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 E5-2680 v3 @ 2.50GHz
       2 "physical id"s (chips)
       48 "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 : 6
       siblings  : 12
       physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
       physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
    cache size : 15360 KB

 From /proc/meminfo
    MemTotal:        131754040 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 localhost.localdomain 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

 run-level 3 Jul 6 19:46

 SPEC is set to: /usr/cpu2006
    Filesystem              Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rhel00-root xfs   489G  7.0G  482G   2% /
 Additional information from dmidecode:
```

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Platform Notes (Continued)

```
   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 Intel Corporation SE5C610.86B.01.01.1008.031920151331 03/19/2015
  Memory:
   8x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 2134 MHz
   16x NO DIMM NO DIMM

 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"

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

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

Base Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -DSPEC_CPU_LP64
      433.milc: -DSPEC_CPU_LP64
```

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Base Portability Flags (Continued)

```
    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:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Peak Compiler Invocation

C benchmarks:

```
icc    -m64
```

C++ benchmarks (except as noted below):

```
icpc  -m64

  450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

Fortran benchmarks:

```
ifort -m64
```

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Peak Compiler Invocation (Continued)

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

Peak 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
      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
```

Peak Optimization Flags

C benchmarks:

```
        433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                  -O3(pass 2) -no-prec-div(pass 2)
                  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
                  -auto-ilp32

         470.lbm: basepeak = yes

     482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
                  -unroll2
```

C++ benchmarks:

```
        444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                  -O3(pass 2) -no-prec-div(pass 2)
                  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
                  -auto-ilp32

       447.dealII: basepeak = yes
```

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Peak Optimization Flags (Continued)

```
   450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2)
               -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
               -opt-malloc-options=3

   453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2)
               -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4
               -ansi-alias
```

Fortran benchmarks:

```
   410.bwaves: basepeak = yes

   416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
               -inline-level=0 -scalar-rep-

   434.zeusmp: basepeak = yes

   437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

  459.GemsFDTD: basepeak = yes

     465.tonto: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2)
               -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
               -opt-prefetch -auto-ilp32

 436.cactusADM: basepeak = yes

   454.calculix: basepeak = yes

      481.wrf: -xCORE-AVX2 -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/Acer-Platform-Settings-V1.2-revA.20130423.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/Acer-Platform-Settings-V1.2-revA.20130423.xml

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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 Wed Jul 29 12:08:14 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 July 2015.