SPEC® CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

$SPECfp®\_rate2006 =$ 1060
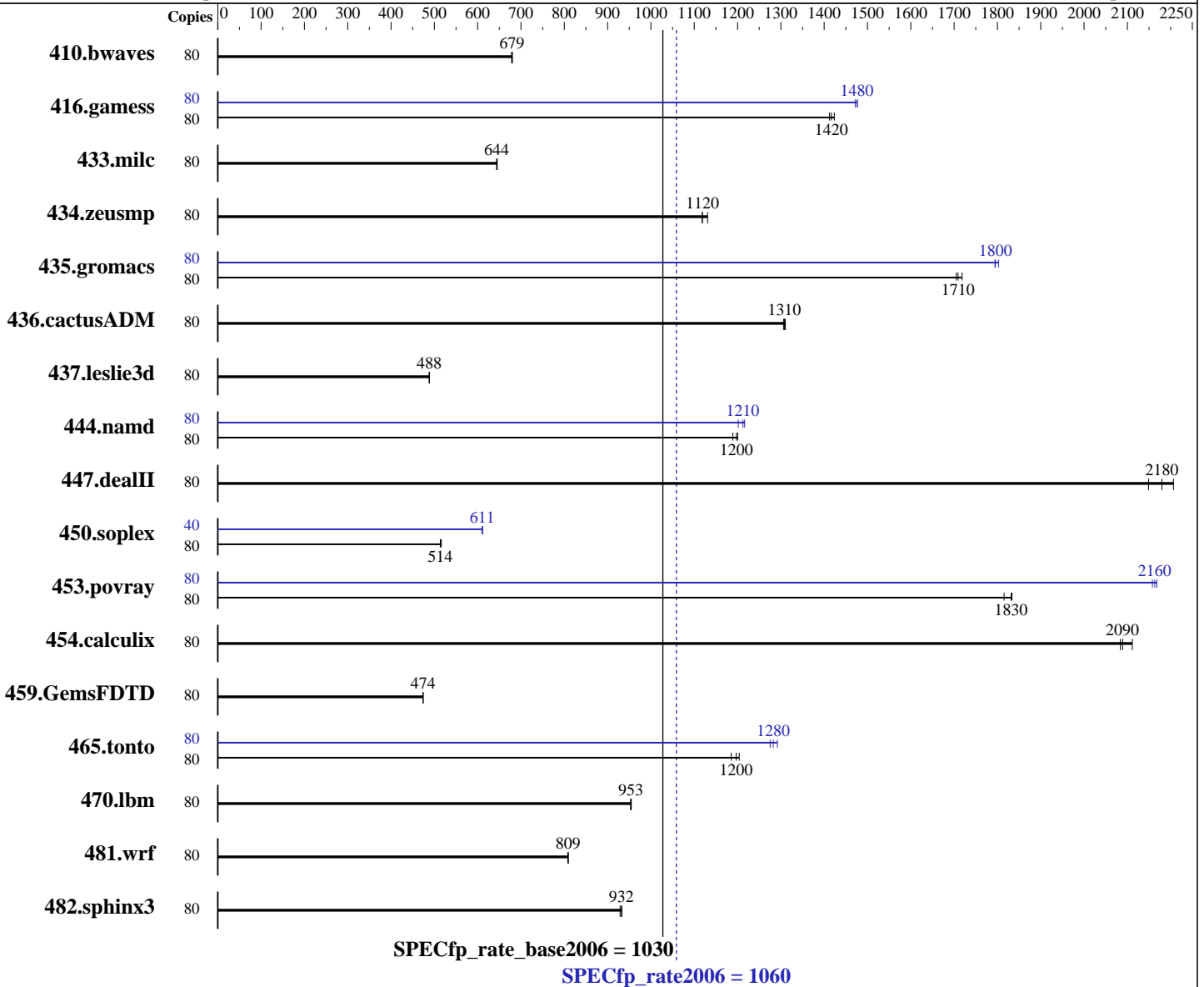
$SPECfp\_rate\_base2006 =$ 1030

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: May-2016
Hardware Availability: Mar-2016
Software Availability: Sep-2015

Benchmark	Copies	Result
410.bwaves	80	679
416.gamess	80 / 80	1480 / 1420
433.milc	80	644
434.zeusmp	80	1120
435.gromacs	80 / 80	1800 / 1710
436.cactusADM	80	1310
437.leslie3d	80	488
444.namd	80 / 80	1210 / 1200
447.dealII	80	2180
450.soplex	40 / 80	611 / 514
453.povray	80 / 80	2160 / 1830
454.calculix	80	2090
459.GemsFDTD	80	474
465.tonto	80 / 80	1280 / 1200
470.lbm	80	953
481.wrf	80	809
482.sphinx3	80	932

SPECfp_rate_base2006 = 1030
SPECfp_rate2006 = 1060

Hardware

CPU Name: Intel Xeon E5-2698 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 40 cores, 2 chips, 20 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 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 7.2, Kernel 3.10.0-327.el7.x86_64
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: xfs
System State: Run level 3 (multi-user)
Continued on next page

SPEC CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

$SPECfp_rate2006 = $ 1060

$SPECfp_rate_base2006 = $ 1030

CPU2006 license: 001176	**Test date:** May-2016
Test sponsor: Supermicro	**Hardware Availability:** Mar-2016
Tested by: Supermicro	**Software Availability:** Sep-2015

L3 Cache:	50 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)	Other Software:	None
Disk Subsystem:	1 x 400 GB SATA III SSD		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	80	1603	678	**1600**	**679**	1599	680	80	1603	678	**1600**	**679**	1599	680
416.gamess	80	**1106**	**1420**	1109	1410	1100	1420	80	1064	1470	**1061**	**1480**	1061	1480
433.milc	80	1140	644	**1140**	**644**	1138	645	80	1140	644	**1140**	**644**	1138	645
434.zeusmp	80	651	1120	**651**	**1120**	644	1130	80	651	1120	**651**	**1120**	644	1130
435.gromacs	80	332	1720	335	1700	**334**	**1710**	80	317	1800	**318**	**1800**	318	1790
436.cactusADM	80	732	1310	729	1310	**731**	**1310**	80	732	1310	729	1310	**731**	**1310**
437.leslie3d	80	1540	488	**1540**	**488**	1539	489	80	1540	488	**1540**	**488**	1539	489
444.namd	80	**536**	**1200**	540	1190	534	1200	80	527	1220	**529**	**1210**	534	1200
447.dealII	80	426	2150	415	2210	**420**	**2180**	80	426	2150	415	2210	**420**	**2180**
450.soplex	80	1293	516	**1298**	**514**	1299	514	40	**546**	**611**	546	610	546	611
453.povray	80	232	1830	234	1820	**232**	**1830**	80	197	2160	196	2170	**197**	**2160**
454.calculix	80	317	2080	**316**	**2090**	313	2110	80	317	2080	**316**	**2090**	313	2110
459.GemsFDTD	80	1792	474	**1791**	**474**	1791	474	80	1792	474	**1791**	**474**	1791	474
465.tonto	80	654	1200	664	1190	**658**	**1200**	80	**614**	**1280**	609	1290	617	1280
470.lbm	80	**1153**	**953**	1153	953	1151	955	80	**1153**	**953**	1153	953	1151	955
481.wrf	80	1104	809	1106	808	**1105**	**809**	80	1104	809	1106	808	**1105**	**809**
482.sphinx3	80	**1673**	**932**	1679	929	1672	933	80	**1673**	**932**	1679	929	1672	933

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 Settings:
Early Snoop = Disable
COD Enable = Enable

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

SPECfp_rate2006 =   1060

SPECfp_rate_base2006 =   1030

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: May-2016
Hardware Availability: Mar-2016
Software Availability: Sep-2015

Platform Notes (Continued)

```
Sysinfo program /home/cpu2006_ic16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue May  3 23:53:49 2016

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 E5-2698 v4 @ 2.20GHz
      2 "physical id"s (chips)
      80 "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 : 20
      siblings  : 40
      physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
      physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
   cache size : 25600 KB

From /proc/meminfo
   MemTotal:       263854612 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.2 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.2"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
   EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 3 11:47

SPEC is set to: /home/cpu2006_ic16
   Filesystem          Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   216G   73G  144G  34% /home
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
```

SPEC CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

$SPECfp\_rate2006 =$ 1060

$SPECfp\_rate\_base2006 =$ 1030

CPU2006 license: 001176	**Test date:** May-2016
Test sponsor: Supermicro	**Hardware Availability:** Mar-2016
Tested by: Supermicro	**Software Availability:** Sep-2015

Platform Notes (Continued)

```
    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 American Megatrends Inc. 2.0 02/26/2016
  Memory:
    8x Micron 36ASF4G72PZ-2G3A1 32 GB 2 rank 2400 MHz

 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006_ic16/libs/32:/home/cpu2006_ic16/libs/64:/home/cpu2006_ic16/sh"

 Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
 memory using RedHat EL 7.1
 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
    434.zeusmp: -DSPEC_CPU_LP64
   435.gromacs: -DSPEC_CPU_LP64 -nofor_main
 436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
```

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

$SPECfp\_rate2006 =$ 1060

$SPECfp\_rate\_base2006 =$ 1030

CPU2006 license: 001176	**Test date:** May-2016
Test sponsor: Supermicro	**Hardware Availability:** Mar-2016
Tested by: Supermicro	**Software Availability:** Sep-2015

Base Portability Flags (Continued)

```
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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

Fortran benchmarks:

```
ifort -m64
```

Benchmarks using both Fortran and C:

```
icc   -m64 ifort -m64
```

SPEC CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

$SPECfp_rate2006 = $ 1060

$SPECfp_rate_base2006 = $ 1030

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: May-2016
Hardware Availability: Mar-2016
Software Availability: Sep-2015

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
450.soplex: -D_FILE_OFFSET_BITS=64
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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes
```

C++ benchmarks:

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

447.dealII: basepeak = yes

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

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

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

$SPECfp_rate2006 = $ 1060

$SPECfp_rate_base2006 = $ 1030

CPU2006 license: 001176	**Test date:**	May-2016
Test sponsor: Supermicro	**Hardware Availability:**	Mar-2016
Tested by: Supermicro	**Software Availability:**	Sep-2015

Peak Optimization Flags (Continued)

Fortran benchmarks:

>   410.bwaves: basepeak = yes

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

>   434.zeusmp: basepeak = yes

>   437.leslie3d: basepeak = yes

> 459.GemsFDTD: basepeak = yes

>   465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
>   -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
>   -par-num-threads=1(pass 1) -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:threadsafe(pass 1)
>   -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
>   -par-num-threads=1(pass 1) -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: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.xml

SPEC CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2698 v4)

$SPECfp\_rate2006 = \quad 1060$

$SPECfp\_rate\_base2006 = \quad 1030$

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: May-2016
Hardware Availability: Mar-2016
Software Availability: Sep-2015

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 Jun 1 19:10:22 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 1 June 2016.