SPEC® CFP2006 Result
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Supermicro

SuperServer SYS-2049U-TR4
(X11QPH+, Intel Xeon Platinum 8180)

$SPECfp^®\_rate2006 =$ Not Run

$SPECfp\_rate\_base2006 =$ 3470

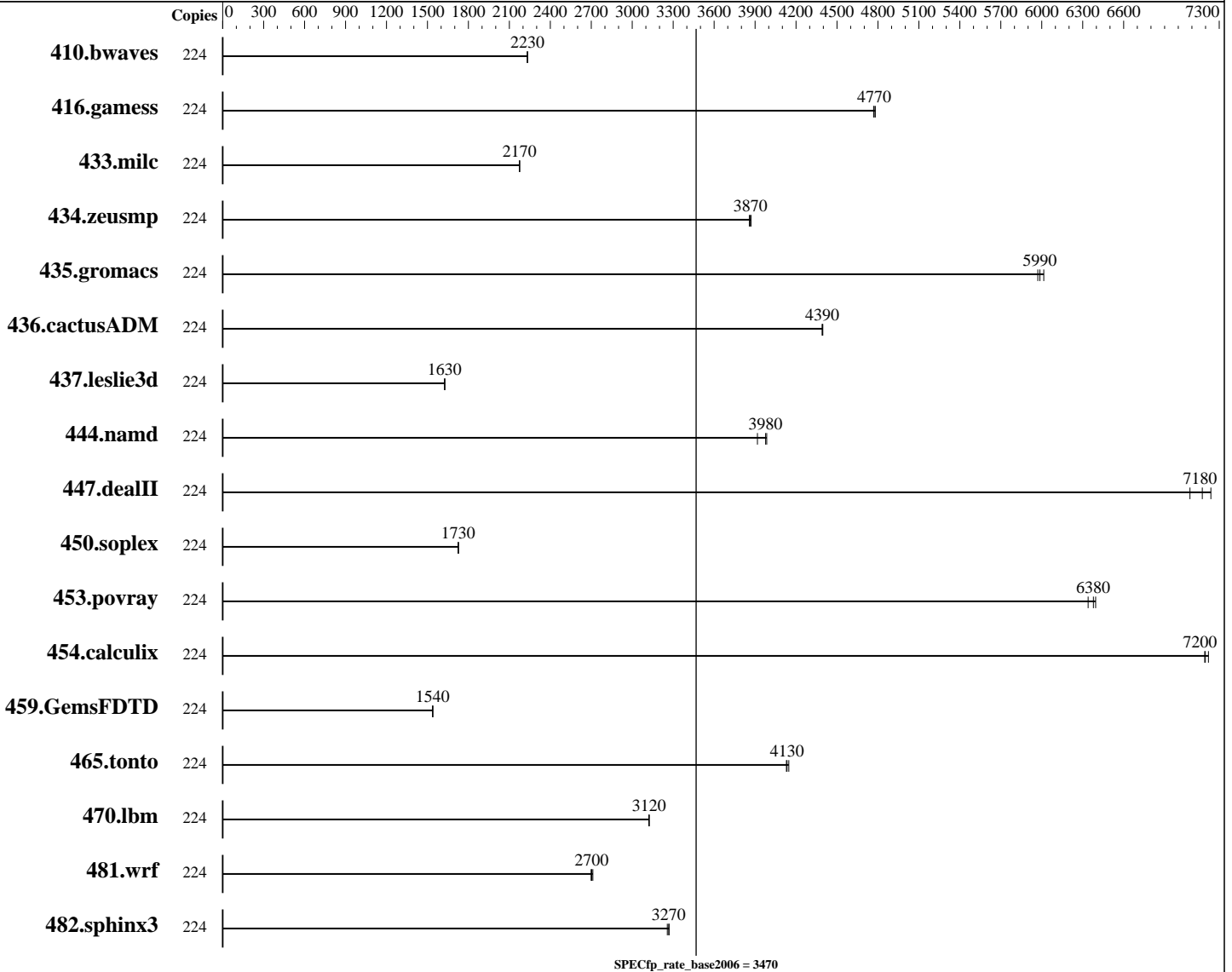| Copies		
410.bwaves	224	2230
416.gamess	224	4770
433.milc	224	2170
434.zeusmp	224	3870
435.gromacs	224	5990
436.cactusADM	224	4390
437.leslie3d	224	1630
444.namd	224	3980
447.dealII	224	7180
450.soplex	224	1730
453.povray	224	6380
454.calculix	224	7200
459.GemsFDTD	224	1540
465.tonto	224	4130
470.lbm	224	3120
481.wrf	224	2700
482.sphinx3	224	3270

SPECfp_rate_base2006 = 3470

Hardware

CPU Name:	Intel Xeon Platinum 8180
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	112 cores, 4 chips, 28 cores/chip, 2 threads/core
CPU(s) orderable:	1,2,4 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
Compiler:	C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (multi-user)

Continued on next page

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CPU2006 license: 001176	**Test date:** Jul-2017
Test sponsor: Supermicro	**Hardware Availability:** Jul-2017
Tested by: Supermicro	**Software Availability:** Apr-2017

L3 Cache:	38.5 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)	Other Software:	No
Disk Subsystem:	1 x 3.2 TB SAS3 (RAID0, 2 x 1.8TB SAS3, 10K RPM)		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	224	1364	2230	**1364**	**2230**	1364	2230							
416.gamess	224	**919**	**4770**	917	4780	920	4770							
433.milc	224	**946**	**2170**	946	2170	945	2180							
434.zeusmp	224	528	3860	**527**	**3870**	527	3870							
435.gromacs	224	266	6010	**267**	**5990**	268	5970							
436.cactusADM	224	609	4390	609	4400	**609**	**4390**							
437.leslie3d	224	1294	1630	**1295**	**1630**	1295	1630							
444.namd	224	459	3920	**452**	**3980**	451	3990							
447.dealII	224	354	7240	362	7090	**357**	**7180**							
450.soplex	224	1083	1730	**1082**	**1730**	1082	1730							
453.povray	224	**187**	**6380**	186	6390	188	6340							
454.calculix	224	256	7220	**257**	**7200**	257	7190							
459.GemsFDTD	224	**1545**	**1540**	1544	1540	1545	1540							
465.tonto	224	**533**	**4130**	534	4130	531	4150							
470.lbm	224	986	3120	**985**	**3120**	985	3120							
481.wrf	224	923	2710	**926**	**2700**	927	2700							
482.sphinx3	224	**1336**	**3270**	1340	3260	1335	3270							

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:
Hardware P-states = Disable
Intel Virtualization Technology = Disable

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Platform Notes (Continued)

```
  SNC = Enable
  IMC Interleaving = 1Way Interleave
  LLC dead line alloc = Disable
  Stale AtoS = Enable
   Sysinfo program /home/cpu2006/config/sysinfo.rev6993
   Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
   running on linux-kepk Sun Jul  9 18:17:12 2017

   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) Platinum 8180 CPU @ 2.50GHz
         4 "physical id"s (chips)
         224 "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 : 28
         siblings  : 56
         physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
      cache size : 39424 KB

   From /proc/meminfo
      MemTotal:       1583923692 kB
      HugePages_Total:        0
      Hugepagesize:        2048 kB

   /usr/bin/lsb_release -d
      SUSE Linux Enterprise Server 12 SP2

   From /etc/*release* /etc/*version*
      SuSE-release:
         SUSE Linux Enterprise Server 12 (x86_64)
         VERSION = 12
         PATCHLEVEL = 2
         # This file is deprecated and will be removed in a future service pack or
         release.
         # Please check /etc/os-release for details about this release.
      os-release:
         NAME="SLES"
         VERSION="12-SP2"
         VERSION_ID="12.2"
         PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
```

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Tested by:	Supermicro	**Software Availability:**	Apr-2017

Platform Notes (Continued)

```
        ID="sles"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:12:sp2"

  uname -a:
     Linux linux-kepk 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
     (9464f67) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Jul 8 18:57

  SPEC is set to: /home/cpu2006
     Filesystem      Type  Size  Used Avail Use% Mounted on
     /dev/sda4       ext4  3.2T  428G  2.8T  14% /home
  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 American Megatrends Inc. 0.9 06/22/2017
   Memory:
    48x Hynix HMA84GR7AFR4N-VK 32 GB 2 rank 2666 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/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh10.2"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled by default
 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

Continued on next page

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Base Compiler Invocation (Continued)

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
  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 -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-SKL-revA.html

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-SKL-revA.xml

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

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