SPEC® CFP2006 Result

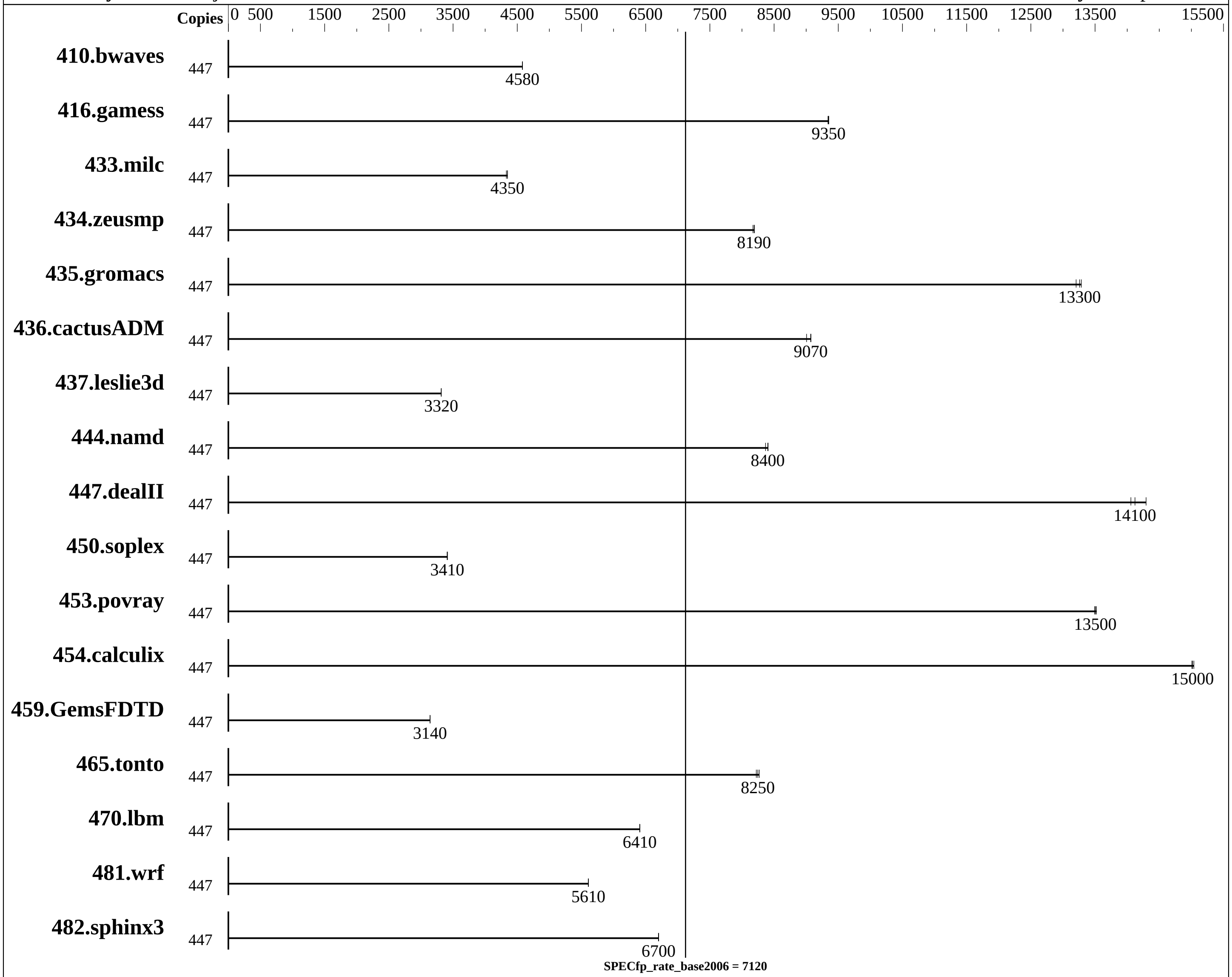
Fujitsu

PRIMEQUEST 3800B, Intel Xeon Platinum 8180, 2.50GHz

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 7120

CPU2006 license:	19	**Test date:**	Sep-2017
Test sponsor:	Fujitsu	**Hardware Availability:**	Jul-2017
Tested by:	Fujitsu	**Software Availability:**	Sep-2017



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:	224 cores, 8 chips, 28 cores/chip, 2 threads/core
CPU(s) orderable:	2,4,6,8 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

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Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
Compiler:	C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (multi-user)

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L3 Cache:	38.5 MB I+D on chip per chip
Other Cache:	None
Memory:	1536 GB (96 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem:	3020 GB tmpfs
Other Hardware:	1 x SAS HDD, 600 GB, 10.5K RPM, used for swap

Base Pointers:	32/64-bit
Peak Pointers:	Not Applicable
Other Software:	None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	447	1326	4580	**1326**	**4580**	1326	4580							
416.gamess	447	936	9350	937	9340	**936**	**9350**							
433.milc	447	948	4330	944	4350	**944**	**4350**							
434.zeusmp	447	498	8170	**497**	**8190**	496	8190							
435.gromacs	447	240	13300	242	13200	**241**	**13300**							
436.cactusADM	447	593	9010	**589**	**9070**	589	9070							
437.leslie3d	447	**1267**	**3320**	1267	3320	1267	3320							
444.namd	447	428	8370	426	8410	**427**	**8400**							
447.dealII	447	358	14300	364	14100	**362**	**14100**							
450.soplex	447	1094	3410	**1093**	**3410**	1092	3410							
453.povray	447	176	13500	**176**	**13500**	176	13500							
454.calculix	447	**246**	**15000**	246	15000	245	15000							
459.GemsFDTD	447	1510	3140	1510	3140	**1510**	**3140**							
465.tonto	447	535	8220	532	8270	**533**	**8250**							
470.lbm	447	**959**	**6410**	958	6410	959	6410							
481.wrf	447	890	5610	890	5610	**890**	**5610**							
482.sphinx3	447	1301	6700	1300	6700	**1300**	**6700**							

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"
Kernel Boot Parameter set with : nohz_full=1-447 isolcpus=1-447
Turbo mode set with:
cpupower -c all frequency-set -g performance
Tmpfs filesystem can be set with:
mkdir /home/memory
mount -t tmpfs -o size=3020g,rw tmpfs /home/memory
Process tunning setting:
```

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Operating System Notes (Continued)

```
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 15000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
echo 0 > /proc/sys/kernel/numa_balancing
echo always > /sys/kernel/mm/transparent_hugepage/enabled
cpu idle state set with:
cpupower idle-set -d 2
cpupower idle-set -d 3
set affinity of rcu threads to the cpu0:
for i in ‘pgrep rcu‘ ; do taskset -pc 0 $i ; done
```

Platform Notes

```
BIOS configuration:
Intel Virtualization Technology = Disabled
HWPM Support = Disabled
Override OS Energy Performance = Enabled
Utilization Profile = Unbalanced
Stale AtoS = Enabled
LLC dead line alloc = Disabled
Sub NUMA Clustering = Enabled
Fan Control = Full
Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-k55j Sun Sep 17 23:16:59 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
      8 "physical id"s (chips)
      448 "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
      physical 4: 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 5: 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 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
```

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Platform Notes (Continued)

```
        25 26 27 28 29 30
        physical 7: 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:       1583801256 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

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

  uname -a:
     Linux linux-k55j 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 Sep 17 22:25

  SPEC is set to: /home/memory/speccpu
     Filesystem     Type   Size  Used Avail Use% Mounted on
     tmpfs          tmpfs  3.0T  9.7G  3.0T   1% /home/memory
  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 FUJITSU V1.0.0.0 R1.21.0 for D3858-A1x            09/15/2017
    Memory:
     48x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz
     48x Samsung M393A2G40EB2-CTD 16 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/memory/speccpu/icc2018lib/ia32:/home/memory/speccpu/icc2018lib/intel64:/home/memory/speccpu/sh10.2"
 Binaries compiled on a system with 2x Intel Xeon Platinum 8180 CPU + 384GB RAM
 memory using SUSE Linux Enterprise Server 12 SP2
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
 Filesystem page cache cleared with:
 shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
 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
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-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX512 -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/Fujitsu-Platform-Settings-V1.2-SKL-RevB.html
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html

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

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

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