SPEC® CFP2006 Result

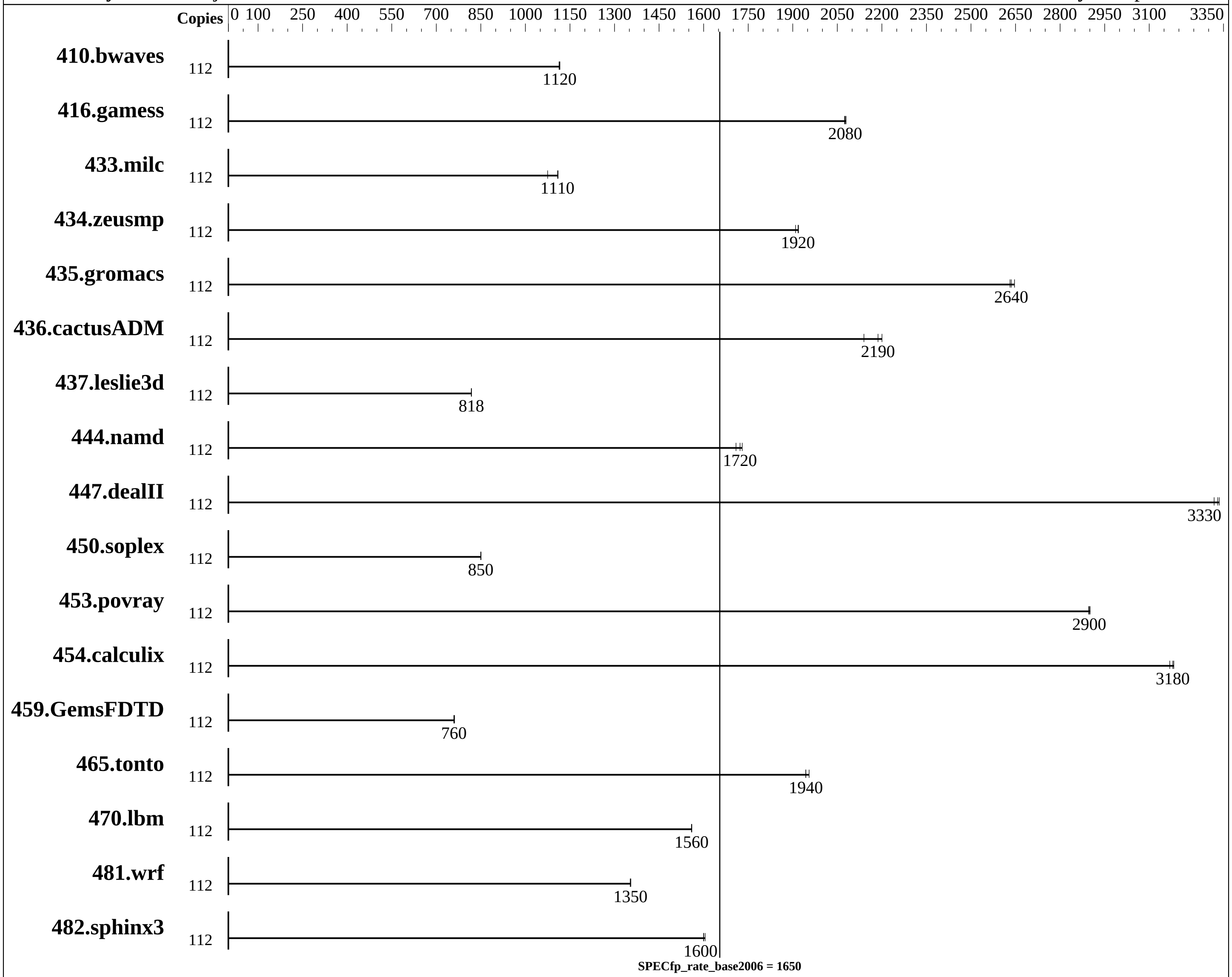
Fujitsu

PRIMERGY CX2550 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1650

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



Hardware

CPU Name:	Intel Xeon Platinum 8176M
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	56 cores, 2 chips, 28 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:	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 17.0.3.191 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
Auto Parallel:	No
File System:	xfs
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: 192 GB (12 x 16 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 1 x SATA M.2 SSD, 128 GB
Other Hardware: None

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

Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	112	1367	1110	**1365**	**1120**	1364	1120							
416.gamess	112	1055	2080	**1056**	**2080**	1057	2070							
433.milc	112	956	1070	**928**	**1110**	926	1110							
434.zeusmp	112	531	1920	534	1910	**531**	**1920**							
435.gromacs	112	302	2650	304	2630	**303**	**2640**							
436.cactusADM	112	626	2140	**612**	**2190**	608	2200							
437.leslie3d	112	1287	818	1286	819	**1287**	**818**							
444.namd	112	519	1730	**521**	**1720**	526	1710							
447.dealII	112	384	3340	**385**	**3330**	386	3320							
450.soplex	112	1098	851	1099	850	**1099**	**850**							
453.povray	112	205	2900	206	2900	**206**	**2900**							
454.calculix	112	290	3180	**291**	**3180**	292	3170							
459.GemsFDTD	112	1561	761	1565	759	**1564**	**760**							
465.tonto	112	567	1940	**567**	**1940**	564	1960							
470.lbm	112	986	1560	987	1560	**987**	**1560**							
481.wrf	112	925	1350	923	1350	**924**	**1350**							
482.sphinx3	112	1360	1610	1364	1600	**1364**	**1600**							

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"
Set Kernel Boot Parameter: nohz_full=1-111
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
Process tuning settings:
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
```

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Operating System Notes (Continued)

```
cpu idle state set with:
cpupower idle-set -d 1
cpupower idle-set -d 2
```

Platform Notes

```
BIOS configuration:
DCU Streamer Prefetcher = Disabled
Intel Virtualization Technology = Disabled
Power Technology = Custom
HWPM Support = Disabled
UPI Link Frequency Select = 10.4GT/s
Sub NUMA Clustering = Enabled
Stale AtoS = Enabled
LLC dead line alloc = Disabled
Sysinfo program /home/Benchmark/speccpu-icc18-20171020/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on CX2550M4 Sat Dec  2 01:03:24 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 8176M CPU @ 2.10GHz
      2 "physical id"s (chips)
      112 "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
   cache size : 39424 KB

From /proc/meminfo
   MemTotal:       196604044 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
```

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Platform Notes (Continued)

```
         # 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 CX2550M4 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 Dec 1 17:50

   SPEC is set to: /home/Benchmark/speccpu-icc18-20171020
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda5      xfs    77G   14G   64G  18% /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 FUJITSU V1.0.0.0 R1.9.6 for D3853-A1x             10/06/2017
     Memory:
      12x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666 MHz
      4x Not Specified Not Specified

   (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/Benchmark/speccpu-icc18-20171020/lib/ia32:/home/Benchmark/speccpu-icc18-20171020/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu-icc18-20171020/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 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-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

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Base Optimization Flags (Continued)

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/Fujitsu-Platform-Settings-V1.2-SKL-RevD.html

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/Fujitsu-Platform-Settings-V1.2-SKL-RevD.xml

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

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