SPEC® CFP2006 Result

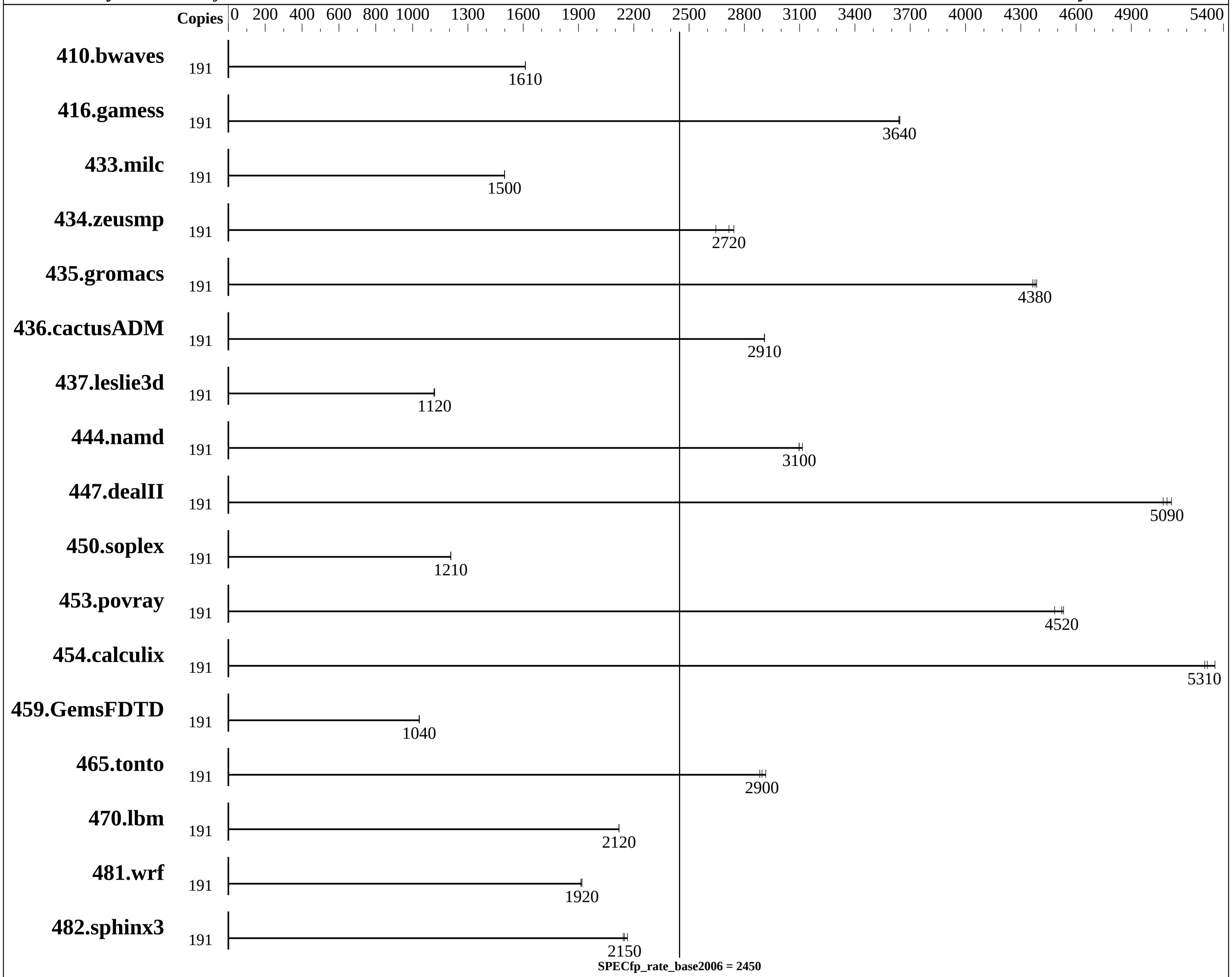
Fujitsu

PRIMERGY RX4770 M3, Intel Xeon E7-8894 v4, 2.40GHz

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 2450

CPU2006 license:	19	**Test date:**	Jan-2017
Test sponsor:	Fujitsu	**Hardware Availability:**	Feb-2017
Tested by:	Fujitsu	**Software Availability:**	Nov-2016



Hardware

CPU Name:	Intel Xeon E7-8894 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	96 cores, 4 chips, 24 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	SUSE Linux Enterprise Server 12 SP2 4.4.21-68-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:	tmpfs
System State:	Run level 3 (multi-user)

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L3 Cache: 60 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2400T-R, running at 1600 MHz)
Disk Subsystem: 1006 GB tmpfs
Other Hardware: None

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	191	1611	1610	**1611**	**1610**	1610	1610							
416.gamess	191	1028	3640	**1027**	**3640**	1026	3640							
433.milc	191	1170	1500	1170	1500	**1170**	**1500**							
434.zeusmp	191	634	2740	**640**	**2720**	657	2650							
435.gromacs	191	311	4390	312	4370	**312**	**4380**							
436.cactusADM	191	785	2910	**784**	**2910**	784	2910							
437.leslie3d	191	1604	1120	1609	1120	**1605**	**1120**							
444.namd	191	**494**	**3100**	492	3120	495	3100							
447.dealII	191	427	5120	**429**	**5090**	431	5070							
450.soplex	191	**1320**	**1210**	1319	1210	1321	1210							
453.povray	191	224	4530	227	4480	**225**	**4520**							
454.calculix	191	297	5300	**297**	**5310**	294	5350							
459.GemsFDTD	191	1954	1040	1957	1040	**1956**	**1040**							
465.tonto	191	**649**	**2900**	652	2880	644	2920							
470.lbm	191	**1238**	**2120**	1238	2120	1238	2120							
481.wrf	191	1112	1920	**1112**	**1920**	1115	1910							
482.sphinx3	191	1737	2140	**1732**	**2150**	1719	2170							

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=1-191 isolcpus=1-191
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=1006g,rw tmpfs /home/memory
```

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Operating System Notes (Continued)

```
Process tunning setting:
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
cpu idle state set with:
cpupower idle-set -d 2
cpupower idle-set -d 3
cpupower idle-set -d 4
```

Platform Notes

```
BIOS configuration:
Energy Performance = Performance
QPI snoop mode: Cluster on Die
Intel Virtualization Technology = Disabled
VT-d = Disabled
QPI Link Frequency Select = 9.6 GT/s
Patrol Scrub = Disabled
Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-53n1 Thu Jan 19 07:40:15 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) CPU E7-8894 v4 @ 2.40GHz
      4 "physical id"s (chips)
      192 "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 : 24
      siblings  : 48
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
   cache size : 30720 KB

From /proc/meminfo
   MemTotal:       527983716 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
```

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Platform Notes (Continued)

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

   uname -a:
      Linux linux-53n1 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016
      (63cf368) x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Jan 18 23:41

   SPEC is set to: /home/memory/speccpu
      Filesystem     Type   Size  Used Avail Use% Mounted on
      tmpfs          tmpfs 1006G   85G  922G   9% /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 // American Megatrends Inc. V5.0.0.11 R1.8.94 for D3749-A1x
     11/11/2016
     Memory:
      32x Micron 36ASF2G72PZ-2G3A3 16 GB 2 rank 2400 MHz, configured at 1600 MHz
      64x 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 = "/home/memory/speccpu/libs/32:/home/memory/speccpu/libs/64:/home/memory/speccpu/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:
```

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General Notes (Continued)

```
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
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
```

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Base Optimization Flags (Continued)

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.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevC.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.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevC.xml

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

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