SPEC® CFP2006 Result

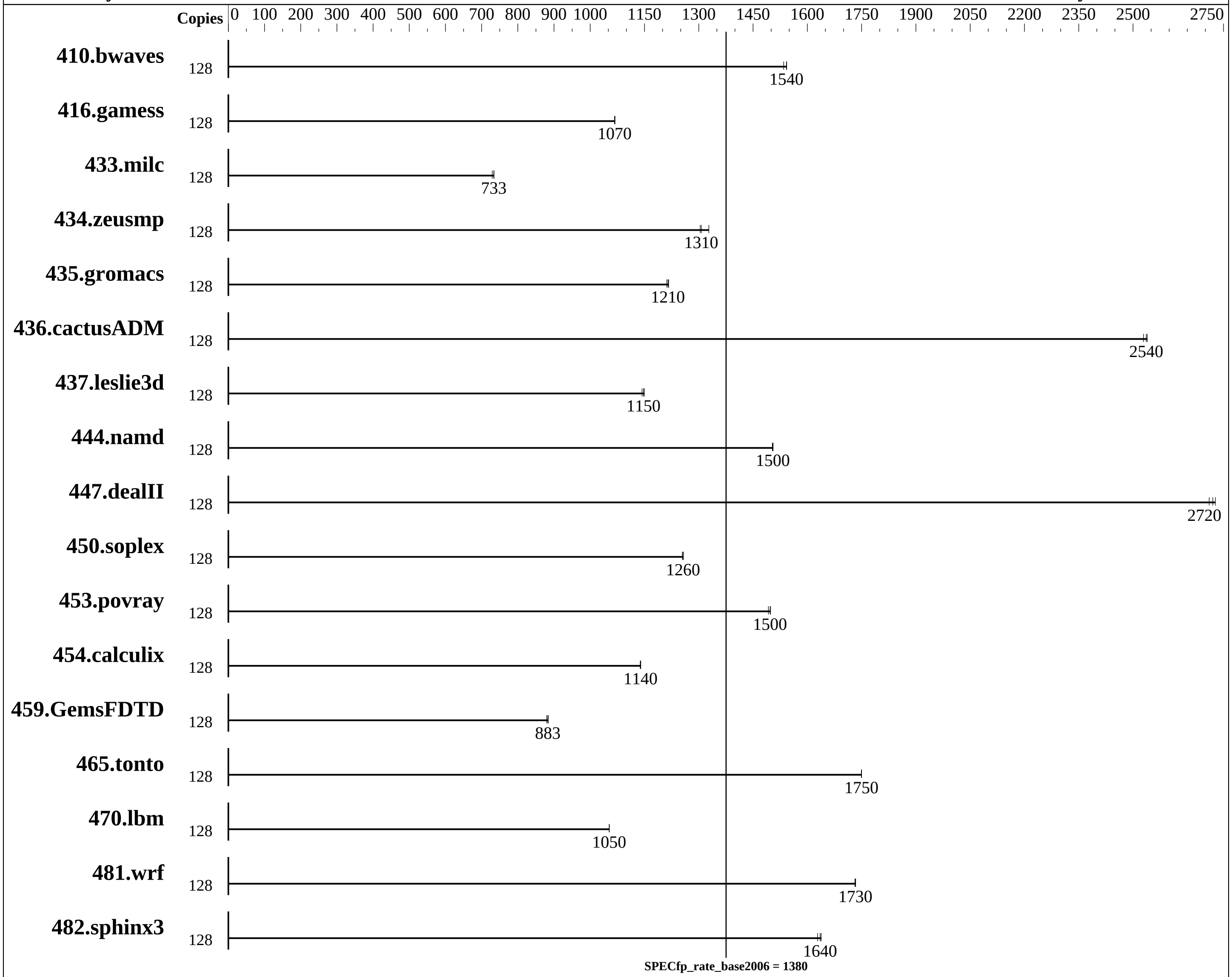
Yadro

Yadro Vesnin (3.32 GHz, 32 cores, RHEL 7.2)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1380

CPU2006 license:	4813	**Test date:**	Dec-2017
Test sponsor:	Yadro	**Hardware Availability:**	Dec-2017
Tested by:	Yadro	**Software Availability:**	Dec-2016



Hardware

CPU Name:	IBM POWER8
CPU Characteristics:	Intelligent Energy Optimization enabled, up to 3.86 GHz
CPU MHz:	3325
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 4 threads/core
CPU(s) orderable:	1-4 chips
Primary Cache:	32 KB I + 64 KB D on chip per core

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Software

Operating System:	Red Hat Enterprise Linux Server release 7.2 (Maipo) 3.10.0-327.el7.ppc64le
Compiler:	C/C++: Version 13.1.5 of IBM XL C/C++ for Linux Fortran: Version 15.1.5 of IBM XL Fortran
Auto Parallel:	No
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	8 MB I+D on chip per core
Other Cache:	16 MB I+D off chip per 8 DIMMs
Memory:	8 TB (128 x 64 GB 4Rx4 PC4 - 2400T, running at 1600)
Disk Subsystem:	2 x 2.9 TB NVMe SSD
Other Hardware:	None

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	128	**1128**	**1540**	1134	1530	1127	1540							
416.gamess	128	2348	1070	2345	1070	**2348**	**1070**							
433.milc	128	**1602**	**733**	1611	729	1601	734							
434.zeusmp	128	893	1300	877	1330	**891**	**1310**							
435.gromacs	128	751	1220	754	1210	**752**	**1210**							
436.cactusADM	128	605	2530	602	2540	**603**	**2540**							
437.leslie3d	128	**1049**	**1150**	1052	1140	1047	1150							
444.namd	128	682	1510	683	1500	**682**	**1500**							
447.dealII	128	540	2710	537	2730	**538**	**2720**							
450.soplex	128	849	1260	851	1250	**849**	**1260**							
453.povray	128	456	1490	455	1500	**455**	**1500**							
454.calculix	128	**927**	**1140**	927	1140	928	1140							
459.GemsFDTD	128	1536	884	1544	880	**1538**	**883**							
465.tonto	128	**720**	**1750**	720	1750	720	1750							
470.lbm	128	**1670**	**1050**	1670	1050	1671	1050							
481.wrf	128	825	1730	826	1730	**825**	**1730**							
482.sphinx3	128	1523	1640	1532	1630	**1525**	**1640**							

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The config file option 'submit' was used
to assign benchmark copy to specific kernel thread using
the "taskset" command (see flags file for details).
```

Operating System Notes

```
"ulimit -s" used to remove stack size limit.
"ppc64_cpu --smt=4" used to set SMT4 mode (see flags file for details).
```

Platform Notes

```
Sysinfo program /home/build/spec2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on localhost.localdomain Fri Dec 15 10:10:50 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
   clock : 3857.000000MHz
   machine : PowerNV 0000000000000000
   model : 0000000000000000
   platform : PowerNV
   revision : 2.0 (pvr 004d 0200)
   cpu : POWER8 (raw), altivec supported
*
* 0 "physical id" tags found.  Perhaps this is an older system,
* or a virtualized system.  Not attempting to guess how to
* count chips/cores for this system.
*
      128 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)

From /proc/meminfo
   MemTotal:       8569843072 kB
   HugePages_Total:   16000
   Hugepagesize:      16384 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"
      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.ppc64le #1 SMP Thu Oct 29 17:31:13
   EDT 2015 ppc64le ppc64le ppc64le GNU/Linux

run-level 3 Jan 1 03:13

SPEC is set to: /home/build/spec2006
   Filesystem            Type  Size  Used Avail Use% Mounted on
```

Continued on next page

Platform Notes (Continued)

```
    /dev/mapper/rhel-home xfs   2.9T  528G  2.4T  19% /home

 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
XLFRTEOPTS = "intrinthds=1"
Binaries were compiled on a system with 4x POWER8 chips + 4 TB Memory using rhel 7.2

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.

This benchmark result is intended to provide perspective on past performance using
the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available.  At the time of
this publication, it may not be shipping, and/or may not be supported, and/or may fail
to meet other tests of General Availability described in the SPEC OSG Policy document,
http://www.spec.org/osg/policy.html

This measured result may not be representative of the result that would be measured were this
benchmark run with hardware and software available as of the publication date.
```

Base Compiler Invocation

C benchmarks:
`/opt/ibm/xlC/13.1.5/bin/xlc_r -qlanglvl=extc99`

C++ benchmarks:
`/opt/ibm/xlC/13.1.5/bin/xlC_r`

Fortran benchmarks:
`/opt/ibm/xlf/15.1.5/bin/xlf95_r`

Benchmarks using both Fortran and C:
`/opt/ibm/xlC/13.1.5/bin/xlc_r -qlanglvl=extc99`
`/opt/ibm/xlf/15.1.5/bin/xlf95_r`

Base Portability Flags

410.bwaves: `-qfixed`

Continued on next page

Base Portability Flags (Continued)

416.gamess: -qfixed -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -qfixed -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -qfixed -qextname
436.cactusADM: -DSPEC_CPU_LP64 -qfixed -qextname
437.leslie3d: -qfixed
444.namd: -qnoxlcompatmacros(*) -DSPEC_CPU_LP64
447.dealII: -qnoxlcompatmacros(*) -DSPEC_CPU_LP64
450.soplex: -qnoxlcompatmacros(*) -DSPEC_CPU_LP64
453.povray: -qnoxlcompatmacros(*) -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -qfixed -qextname
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DNOUNDERSCORE -DSPEC_CPU_LINUX -DSPEC_CPU_WORDS_LITTLEENDIAN -DSPEC_CPU_LP64
482.sphinx3: -qchars=signed -DSPEC_CPU_LP64

(*) Indicates a portability flag that was found in a non-portability variable.

Base Optimization Flags

C benchmarks:
-qipa=threads -q64 -O5 -qinline=40 -qsimd=noauto

C++ benchmarks:
-qipa=threads -q64 -O5 -qsimd -qrtti=all -qinline=40 -qrtti -D__extern_always_inline=inline

Fortran benchmarks:
-qipa=threads -q64 -O5 -qalias=nostd

Benchmarks using both Fortran and C:
-qipa=threads -q64 -O5 -qinline=40 -qsimd=noauto -qalias=nostd

Base Other Flags

C benchmarks:
-qipa=noobject

C++ benchmarks:
-qipa=noobject

Fortran benchmarks:
-qipa=noobject

Continued on next page

Base Other Flags (Continued)

Benchmarks using both Fortran and C:
-qipa=noobject

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/vesnin_xl-V1.1.html
http://www.spec.org/cpu2006/flags/vesnin_platform-V1.1.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/vesnin_xl-V1.1.xml
http://www.spec.org/cpu2006/flags/vesnin_platform-V1.1.xml