SPEC® CFP2006 Result

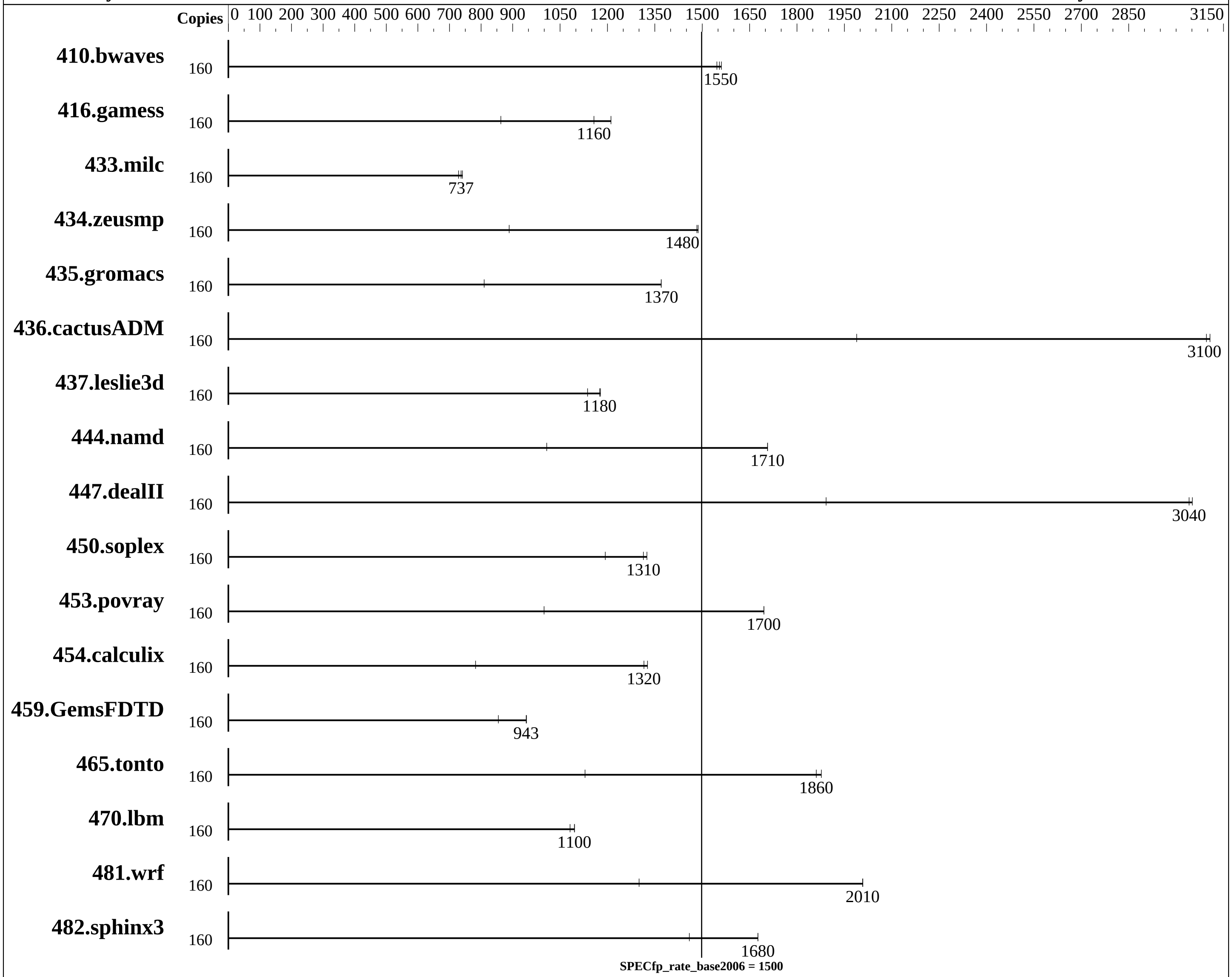
Yadro

Yadro Vesnin (2.92 GHz, 40 cores, RHEL 7.4)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1500

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 3.49 GHz
CPU MHz:	2926
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 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 7.4 (Maipo) 3.10.0-693.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: 4 TB (128 x 32 GB 2Rx4 PC4 - 2400T, running at 1600)
Disk Subsystem: 1 x 7.3 TB 7200 RPM SATA
Other Hardware: None

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	160	1406	1550	**1399**	**1550**	1393	1560							
416.gamess	160	**2707**	**1160**	2586	1210	3632	863							
433.milc	160	**1994**	**737**	1982	741	2016	729							
434.zeusmp	160	979	1490	**982**	**1480**	1638	889							
435.gromacs	160	**834**	**1370**	834	1370	1411	810							
436.cactusADM	160	615	3110	**618**	**3100**	961	1990							
437.leslie3d	160	1277	1180	**1280**	**1180**	1323	1140							
444.namd	160	**752**	**1710**	752	1710	1273	1010							
447.dealII	160	**602**	**3040**	600	3050	967	1890							
450.soplex	160	**1016**	**1310**	1007	1320	1118	1190							
453.povray	160	**502**	**1700**	502	1700	852	999							
454.calculix	160	**1003**	**1320**	995	1330	1687	782							
459.GemsFDTD	160	**1801**	**943**	1799	944	1986	855							
465.tonto	160	**846**	**1860**	839	1880	1394	1130							
470.lbm	160	**2007**	**1100**	2006	1100	2032	1080							
481.wrf	160	**890**	**2010**	890	2010	1375	1300							
482.sphinx3	160	**1860**	**1680**	1860	1680	2137	1460							

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 /mnt/spec2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on localhost.localdomain Wed Dec 20 16:49:03 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 : 3491.000000MHz
   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.
*
      160 "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:       4282726848 kB
   HugePages_Total:   16000
   Hugepagesize:      16384 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.4 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VARIANT="Server"
      VARIANT_ID="server"
      VERSION_ID="7.4"
      PRETTY_NAME="Red Hat Enterprise Linux"
   redhat-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.4:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-693.el7.ppc64le #1 SMP Thu Jul 6 19:59:44
   EDT 2017 ppc64le ppc64le ppc64le GNU/Linux

run-level 3 Dec 20 16:44

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

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Platform Notes (Continued)

```
    /dev/mapper/rhel00-home xfs   7.3T  300G  7.0T   5% /mnt

 (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 -qlanglvl=extc99`

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

Fortran benchmarks:
`/opt/ibm/xlf/15.1.5/bin/xlf95`

Benchmarks using both Fortran and C:
`/opt/ibm/xlC/13.1.5/bin/xlc -qlanglvl=extc99`
`/opt/ibm/xlf/15.1.5/bin/xlf95`

Base Portability Flags

410.bwaves: `-qfixed`

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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 -qinline=40 -q64 -O5 -qsimd=noauto

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

Fortran benchmarks:
-qipa=threads -qinline=40 -q64 -O5 -qalias=nostd

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

Base Other Flags

C benchmarks:
-qipa=noobject

C++ benchmarks:
-qipa=noobject

Fortran benchmarks:
-qipa=noobject

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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-V1.2.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-V1.2.xml

Tested with SPEC CPU2006 v1.2.
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