SPEC® CFP2006 Result
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ACTION S.A.

ACTINA SOLAR 222 S6 (Intel Xeon E5-2660 v3, 2.60 GHz)

$SPECfp^{®}\_rate2006 = \quad 734$

$SPECfp\_rate\_base2006 = \quad 715$

Benchmark	Copies	Result
410.bwaves	40	585
416.gamess	40	798
416.gamess	40	781
433.milc	40	565
433.milc	40	565
434.zeusmp	40	852
435.gromacs	40	970
435.gromacs	40	929
436.cactusADM	40	931
437.leslie3d	20	437
437.leslie3d	40	410
444.namd	40	633
444.namd	40	629
447.dealII	40	1230
450.soplex	20	461
450.soplex	40	426
453.povray	40	1180
453.povray	40	1000
454.calculix	40	1140
459.GemsFDTD	40	390
465.tonto	40	823
465.tonto	40	776
470.lbm	40	781
481.wrf	40	697
481.wrf	40	690
482.sphinx3	40	697
482.sphinx3	40	694

SPECfp_rate_base2006 = 715

SPECfp_rate2006 = 734

Hardware

CPU Name:	Intel Xeon E5-2660 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 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:	256 KB I+D on chip per core

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 7.1 (Maipo) 3.10.0-229.11.1.el7.x86_64
Compiler:	C/C++: Version 16.0.0.047 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.047 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

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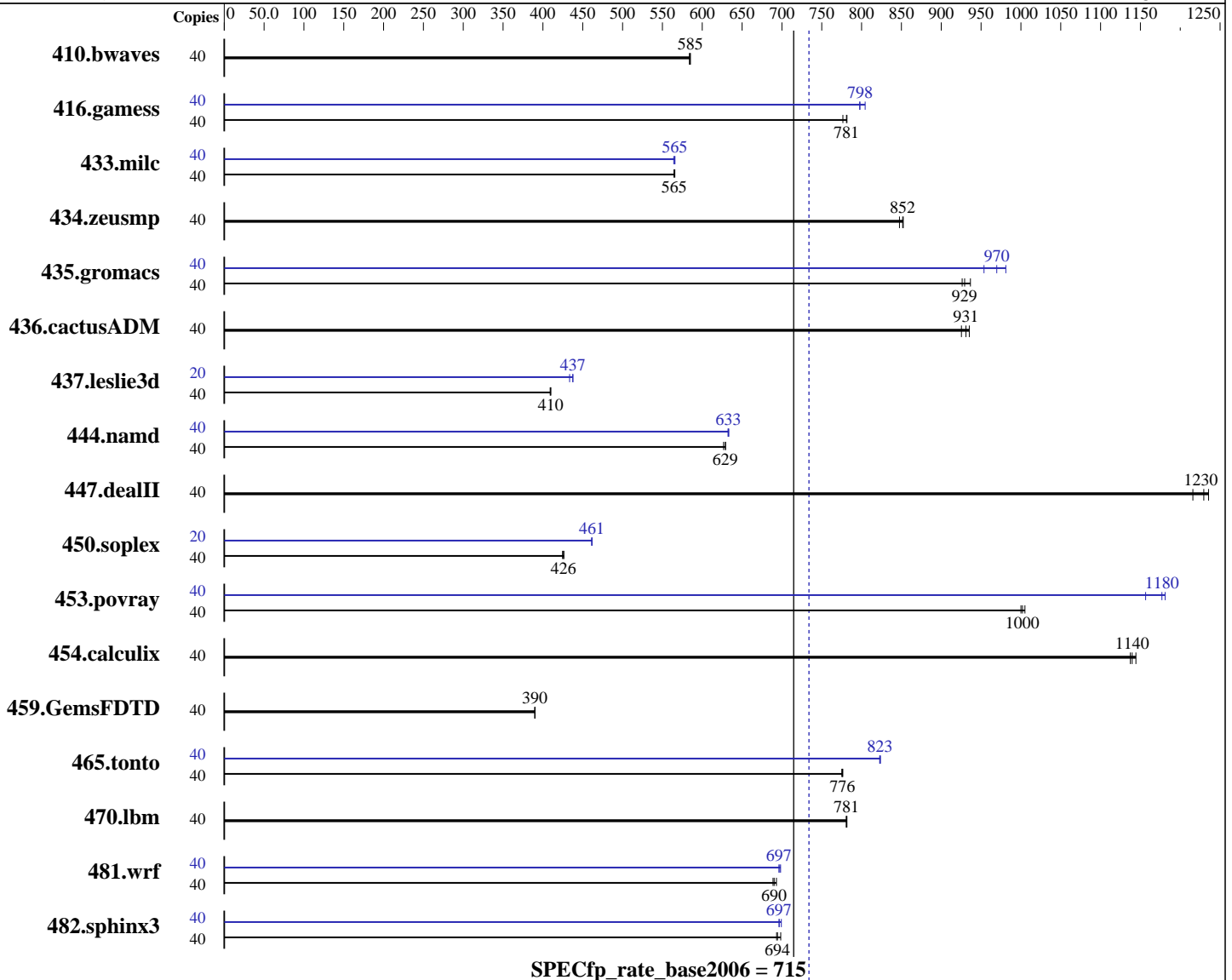| SPECfp_rate2006 =	734
SPECfp_rate_base2006 =	715

CPU2006 license: 9008
Test sponsor: ACTION S.A.
Tested by: ACTION S.A.

Test date: Oct-2015
Hardware Availability: Sep-2014
Software Availability: Aug-2015

L3 Cache:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2400P-R, running at 2133 MHz)
Disk Subsystem:	1 x 240 GB SATA II SSD
Other Hardware:	None

System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	40	929	585	931	584	**929**	**585**	40	929	585	931	584	**929**	**585**
416.gamess	40	1002	782	1009	777	**1003**	**781**	40	**982**	**798**	982	798	974	804
433.milc	40	649	566	**650**	**565**	650	565	40	651	564	**650**	**565**	649	566
434.zeusmp	40	**427**	**852**	429	848	427	852	40	**427**	**852**	429	848	427	852
435.gromacs	40	**307**	**929**	305	937	308	926	40	299	954	**295**	**970**	291	981
436.cactusADM	40	511	935	517	925	**513**	**931**	40	511	935	517	925	**513**	**931**
437.leslie3d	40	919	409	917	410	**918**	**410**	20	430	438	**430**	**437**	434	433
444.namd	40	**510**	**629**	510	629	512	627	40	507	632	506	633	**507**	**633**
447.dealII	40	370	1240	**372**	**1230**	376	1220	40	370	1240	**372**	**1230**	376	1220
450.soplex	40	782	426	786	425	**784**	**426**	20	362	461	**361**	**461**	361	462
453.povray	40	**212**	**1000**	212	1010	213	1000	40	184	1160	180	1180	**181**	**1180**
454.calculix	40	290	1140	**290**	**1140**	288	1140	40	290	1140	**290**	**1140**	288	1140
459.GemsFDTD	40	1089	390	**1088**	**390**	1088	390	40	1089	390	**1088**	**390**	1088	390
465.tonto	40	508	775	**507**	**776**	507	776	40	478	823	478	824	**478**	**823**
470.lbm	40	704	781	703	782	**704**	**781**	40	704	781	703	782	**704**	**781**
481.wrf	40	645	693	649	689	**647**	**690**	40	642	696	640	698	**641**	**697**
482.sphinx3	40	**1123**	**694**	1116	699	1124	693	40	1115	699	**1119**	**697**	1119	696

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"

Platform Notes

Bios Settings
Hyper-Threading (All) = Enable

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Platform Notes (Continued)

```
Power Technology = Energy Efficient
Enforce POR = Disabled
Memory Frequency = 2133
COD Enable = Enable

BMC Setting
Fan Mode = Full Speed

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on SUT Fri Oct 23 00:11:35 2015

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 E5-2660 v3 @ 2.60GHz
      2 "physical id"s (chips)
      40 "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 : 10
      siblings  : 20
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 12800 KB

From /proc/meminfo
   MemTotal:      263865580 kB
   HugePages_Total:       1
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.0 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.0"
      PRETTY_NAME="Red Hat Enterprise Linux"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
   os-release.rpmnew:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.1 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.1"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
      ANSI_COLOR="0;31"
```

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Platform Notes (Continued)

```
    CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
  redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
  system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

uname -a:
  Linux SUT 3.10.0-229.11.1.el7.x86_64 #5 SMP Mon Sep 14 17:11:19 CEST 2015
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 22 13:38

SPEC is set to: /cpu2006.1.2
  Filesystem      Type  Size  Used Avail Use% Mounted on
  /dev/sda1       ext4  212G   37G  165G  19% /

Additional information from dmidecode:
  BIOS American Megatrends Inc. 1.0c 01/07/2015
  Memory:
  16x    16 GB
  16x Hynix Semiconductor (date:15/28) HMA42GR7AFR4N-UH 16 GB 2133 MHz 2 rank

(End of data from sysinfo program)
dmidecode does not properly detect memory modules
16 modules of 16 GB were used to run the test (256 GB total)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64:/cpu2006.1.2/sh"

 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_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>
 Binaries compiled on a system with 2x Xeon E5-2650 v3 chips + 256 GB memory
 using RedHat EL 7.1
```

Base Compiler Invocation

C benchmarks:
     icc   -m64

C++ benchmarks:
     icpc   -m64

Fortran benchmarks:
     ifort -m64

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CPU2006 license: 9008		**Test date:**	Oct-2015
Test sponsor: ACTION S.A.		**Hardware Availability:**	Sep-2014
Tested by: ACTION S.A.		**Software Availability:**	Aug-2015

Base Compiler Invocation (Continued)

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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Peak Compiler Invocation

C benchmarks:
```
icc   -m64
```

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Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):
```
icpc  -m64
```

   450.soplex: `icpc -m32 -L/opt/intel/lib/ia32`

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

Peak 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`
     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`

Peak Optimization Flags

C benchmarks:

    433.milc: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
         `-O3(pass 2) -no-prec-div(pass 2)`
         `-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)`
         `-auto-ilp32`

   470.lbm: `basepeak = yes`

  482.sphinx3: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3`
         `-unroll2`

C++ benchmarks:

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Peak Optimization Flags (Continued)

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-malloc-options=3

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4
-auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

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The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevD-aug-2015-For-Supermicro-Platform.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevD-aug-2015-For-Supermicro-Platform.xml

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

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