SPEC® CFP2006 Result
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ACTION S.A.

ACTINA SOLAR E 110 S6 (Intel Xeon E3-1231 v3, 3.40 GHz)

$SPECfp^{®}\_rate2006 = 152$
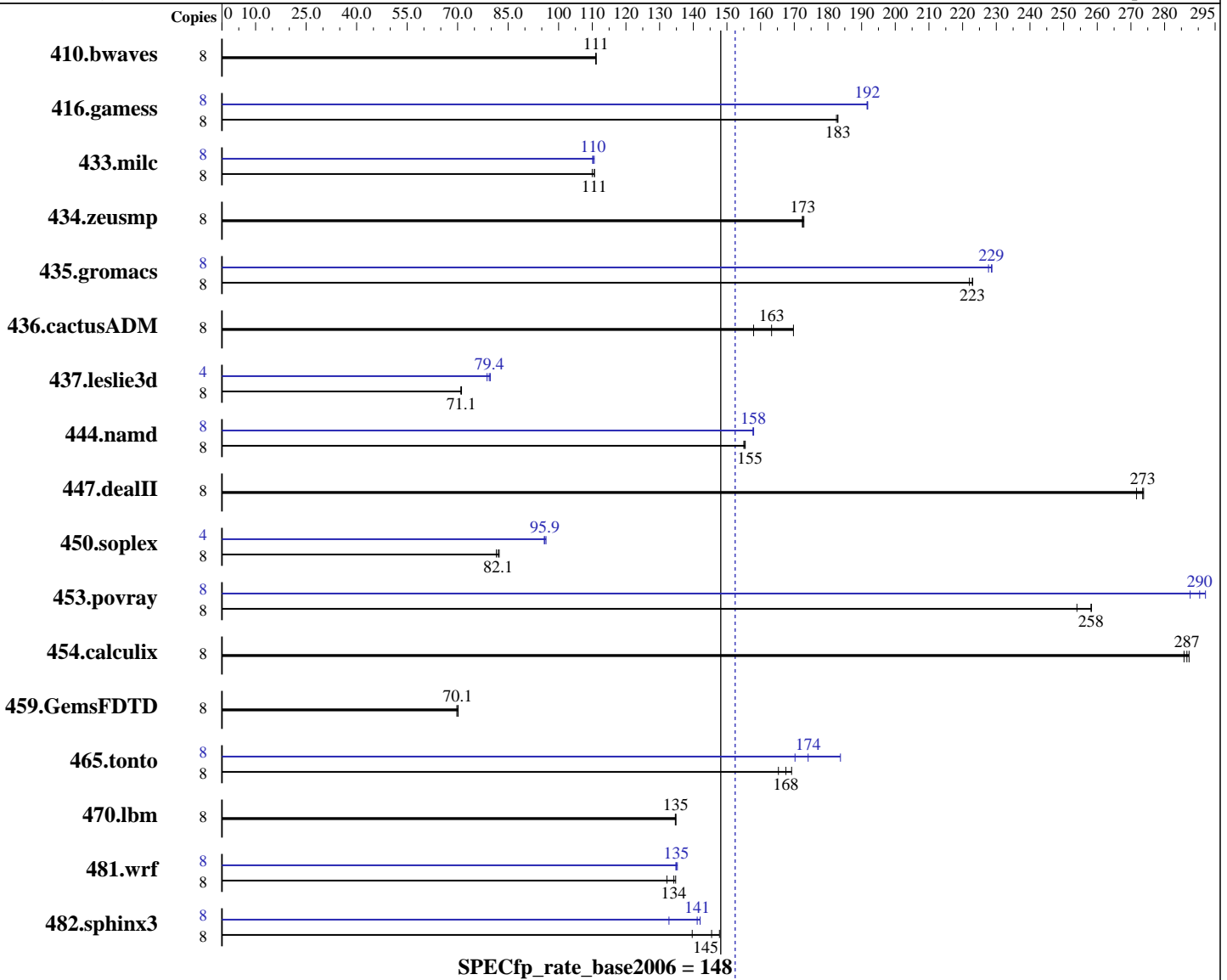
$SPECfp\_rate\_base2006 = 148$

Copies

Benchmark	Copies	Value
410.bwaves	8	111
416.gamess	8 / 8	192 / 183
433.milc	8 / 8	110 / 111
434.zeusmp	8	173
435.gromacs	8 / 8	229 / 223
436.cactusADM	8	163
437.leslie3d	4 / 8	79.4 / 71.1
444.namd	8 / 8	158 / 155
447.dealII	8	273
450.soplex	4 / 8	95.9 / 82.1
453.povray	8 / 8	290 / 258
454.calculix	8	287
459.GemsFDTD	8	70.1
465.tonto	8 / 8	174 / 168
470.lbm	8	135
481.wrf	8 / 8	135 / 134
482.sphinx3	8 / 8	141 / 145

SPECfp_rate_base2006 = 148

SPECfp_rate2006 = 152

Hardware

CPU Name: Intel Xeon E3-1231 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz: 3400
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
CPU(s) orderable: 1 chip
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 7.0 (Maipo)
3.10.0-123.20.1.el7.x86_64
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;
Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: ext4
Continued on next page

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SPECfp_rate2006 =	152
SPECfp_rate_base2006 =	148

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

L3 Cache:	8 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	32 GB (4 x 8 GB 2Rx8 PC3-12800U-13)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 240 GB SATA II SSD	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	979	111	978	111	**978**	**111**	8	979	111	978	111	**978**	**111**
416.gamess	8	858	183	**856**	**183**	856	183	8	817	192	817	192	**817**	**192**
433.milc	8	664	111	**664**	**111**	668	110	8	667	110	**666**	**110**	664	111
434.zeusmp	8	**422**	**173**	422	172	421	173	8	**422**	**173**	422	172	421	173
435.gromacs	8	**256**	**223**	256	223	257	222	8	250	229	**250**	**229**	251	228
436.cactusADM	8	563	170	**586**	**163**	605	158	8	563	170	**586**	**163**	605	158
437.leslie3d	8	**1058**	**71.1**	1057	71.2	1060	71.0	4	477	78.8	472	79.7	**474**	**79.4**
444.namd	8	414	155	413	155	**413**	**155**	8	406	158	**407**	**158**	407	158
447.dealII	8	334	274	**335**	**273**	337	272	8	334	274	**335**	**273**	337	272
450.soplex	8	**813**	**82.1**	819	81.5	810	82.4	4	347	96.3	**348**	**95.9**	348	95.7
453.povray	8	168	254	165	258	**165**	**258**	8	146	292	**147**	**290**	148	288
454.calculix	8	230	287	**230**	**287**	231	286	8	230	287	**230**	**287**	231	286
459.GemsFDTD	8	1217	69.8	**1211**	**70.1**	1210	70.2	8	1217	69.8	**1211**	**70.1**	1210	70.2
465.tonto	8	**470**	**168**	476	165	465	169	8	428	184	462	170	**452**	**174**
470.lbm	8	815	135	**816**	**135**	816	135	8	815	135	**816**	**135**	816	135
481.wrf	8	663	135	676	132	**666**	**134**	8	663	135	**662**	**135**	661	135
482.sphinx3	8	1116	140	1055	148	**1072**	**145**	8	1174	133	1098	142	**1104**	**141**

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
Power Technology = Energy Efficient

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Test sponsor: ACTION S.A.
Tested by: ACTION S.A.

Test date: Feb-2015
Hardware Availability: Jul-2014
Software Availability: Sep-2014

Platform Notes (Continued)

```
BMC Setting
Fan Mode = Full Speed

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Fri Feb 27 19:06:12 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 E3-1231 v3 @ 3.40GHz
      1 "physical id"s (chips)
      8 "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 : 4
      siblings  : 8
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       32742904 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 7.0 (Maipo)

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"
   redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-123.20.1.el7.x86_64 #3 SMP Wed Feb 4
   14:55:18 CET 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 27 10:12
```

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CPU2006 license: 9008

Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: Feb-2015

Hardware Availability: Jul-2014

Software Availability: Sep-2014

Platform Notes (Continued)

```
 SPEC is set to: /cpu2006.1.2
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda1       ext4  212G   25G  176G  13% /

 Additional information from dmidecode:
   BIOS American Megatrends Inc. 2.0 04/24/2014
   Memory:
    4x    8 GB
    4x 0793 W-MEM1600E38G 8 GB 1600 MHz 2 rank

 (End of data from sysinfo program)
```

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 7.0
```

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
```

Continued on next page

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Software Availability: Sep-2014

Base Portability Flags (Continued)

```
   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
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```
```
  450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

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

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

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CPU2006 license: 9008

Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: Feb-2015

Hardware Availability: Jul-2014

Software Availability: Sep-2014

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:

```
      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
```

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ACTINA SOLAR E 110 S6 (Intel Xeon E3-1231 v3, 3.40 GHz)

$SPECfp_rate2006 = $ 152

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Peak Optimization Flags (Continued)

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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevC-jan-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-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevC-jan-2015-For-Supermicro-Platform.xml

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

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