SPEC® CFP2006 Result
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Acer Incorporated

Altos R360 F3 (Intel Xeon E5-2690 v4)

$SPECfp®\_rate2006 = 942$

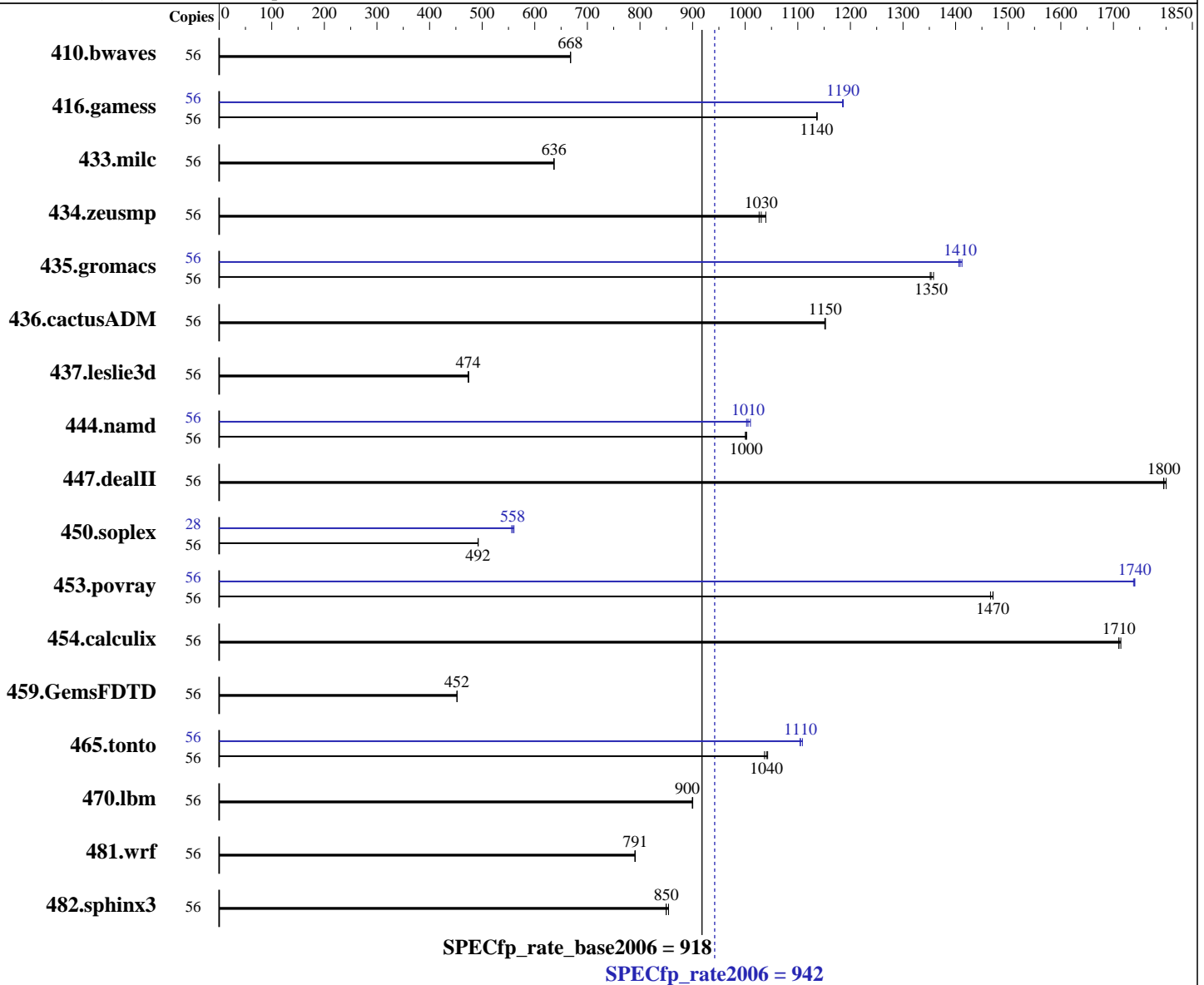$SPECfp\_rate\_base2006 = 918$

CPU2006 license: 97
Test sponsor: Acer Incorporated
Tested by: Acer Incorporated

Test date: Jul-2016
Hardware Availability: Mar-2016
Software Availability: Nov-2015

Benchmark	Copies	Result
410.bwaves	56	668
416.gamess	56	1190
416.gamess	56	1140
433.milc	56	636
434.zeusmp	56	1030
435.gromacs	56	1410
435.gromacs	56	1350
436.cactusADM	56	1150
437.leslie3d	56	474
444.namd	56	1010
444.namd	56	1000
447.dealII	56	1800
450.soplex	28	558
450.soplex	56	492
453.povray	56	1740
453.povray	56	1470
454.calculix	56	1710
459.GemsFDTD	56	452
465.tonto	56	1110
465.tonto	56	1040
470.lbm	56	900
481.wrf	56	791
482.sphinx3	56	850

SPECfp_rate_base2006 = 918

SPECfp_rate2006 = 942

Hardware

CPU Name: Intel Xeon E5-2690 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz: 2600
FPU: Integrated
CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 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 7.2 (Maipo)
3.10.0-327.el7.x86_64
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: xfs
Continued on next page

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L3 Cache:	35 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	256 GB (8 x 32 GB 2Rx4 PC4-2400T-R, running at 2400 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x 1000 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	56	**1139**	**668**	1139	668	1140	668	56	**1139**	**668**	1139	668	1140	668
416.gamess	56	**965**	**1140**	964	1140	965	1140	56	925	1190	924	1190	**925**	**1190**
433.milc	56	**808**	**636**	807	637	808	636	56	**808**	**636**	807	637	808	636
434.zeusmp	56	496	1030	490	1040	**495**	**1030**	56	496	1030	490	1040	**495**	**1030**
435.gromacs	56	**295**	**1350**	296	1350	294	1360	56	284	1410	283	1410	**284**	**1410**
436.cactusADM	56	581	1150	581	1150	**581**	**1150**	56	581	1150	581	1150	**581**	**1150**
437.leslie3d	56	1110	474	**1111**	**474**	1112	474	56	1110	474	**1111**	**474**	1112	474
444.namd	56	448	1000	**448**	**1000**	449	1000	56	445	1010	**447**	**1010**	448	1000
447.dealII	56	356	1800	357	1800	**357**	**1800**	56	356	1800	357	1800	**357**	**1800**
450.soplex	56	948	492	949	492	**949**	**492**	28	417	561	**418**	**558**	420	556
453.povray	56	202	1470	203	1470	**203**	**1470**	56	171	1740	**171**	**1740**	171	1740
454.calculix	56	270	1710	270	1710	**270**	**1710**	56	270	1710	270	1710	**270**	**1710**
459.GemsFDTD	56	**1314**	**452**	1314	452	1313	453	56	**1314**	**452**	1314	452	1313	453
465.tonto	56	528	1040	**530**	**1040**	532	1040	56	**499**	**1110**	499	1100	497	1110
470.lbm	56	855	900	**855**	**900**	855	900	56	855	900	**855**	**900**	855	900
481.wrf	56	792	790	**791**	**791**	791	791	56	792	790	**791**	**791**	791	791
482.sphinx3	56	**1284**	**850**	1278	854	1284	850	56	**1284**	**850**	1278	854	1284	850

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 Configuration:
CPU Power and Performance Policy set to Performance
C1E Autopromote set to Disabled

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Platform Notes (Continued)

```
Set Fan Profile set to Performance
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Sat Jul 30 00:06:59 2016

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 E5-2690 v4@ 2.60GHz
      2 "physical id"s (chips)
      56 "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 : 14
      siblings  : 28
      physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
   cache size : 17920 KB

From /proc/meminfo
   MemTotal:       263858476 kB
   HugePages_Total:        0
   Hugepagesize:        2048 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 Server 7.2 (Maipo)"
      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.x86_64 #1 SMP Thu Oct 29 17:29:29
   EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 29 16:23

SPEC is set to: /usr/cpu2006
   Filesystem              Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-root xfs   373G  181G  193G  49% /
Additional information from dmidecode:
```

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Platform Notes (Continued)

    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 Intel Corporation SE5C610.86B.01.01.0016.033120161139 03/31/2016
    Memory:
    8x Samsung M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz

    (End of data from sysinfo program)

General Notes

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

    Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
    memory using RedHat EL 7.1
    Transparent Huge Pages enabled with:
    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>
    Altos R360 F3 and Altos R380 F3 are electronically equivalent.
    This result was measured on Altos R380 F3.

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

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Base Portability Flags (Continued)

```
  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
```

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

```
450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

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

Continued on next page

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Peak Compiler Invocation (Continued)

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
    450.soplex: -D_FILE_OFFSET_BITS=64
    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: basepeak = yes

     470.lbm: basepeak = yes

  482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
    444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -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:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
              -prof-use(pass 2) -opt-malloc-options=3
```

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Peak Optimization Flags (Continued)

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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: basepeak = yes

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/Acer-Platform-Settings-V1.3-revA.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/Acer-Platform-Settings-V1.3-revA.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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