



SPEC[®] CFP2006 Result

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Acer Incorporated

SPECfp[®]_rate2006 = 303

Altos R380 F3 (Intel Xeon E5-2620 v4)

SPECfp_rate_base2006 = 298

CPU2006 license: 97

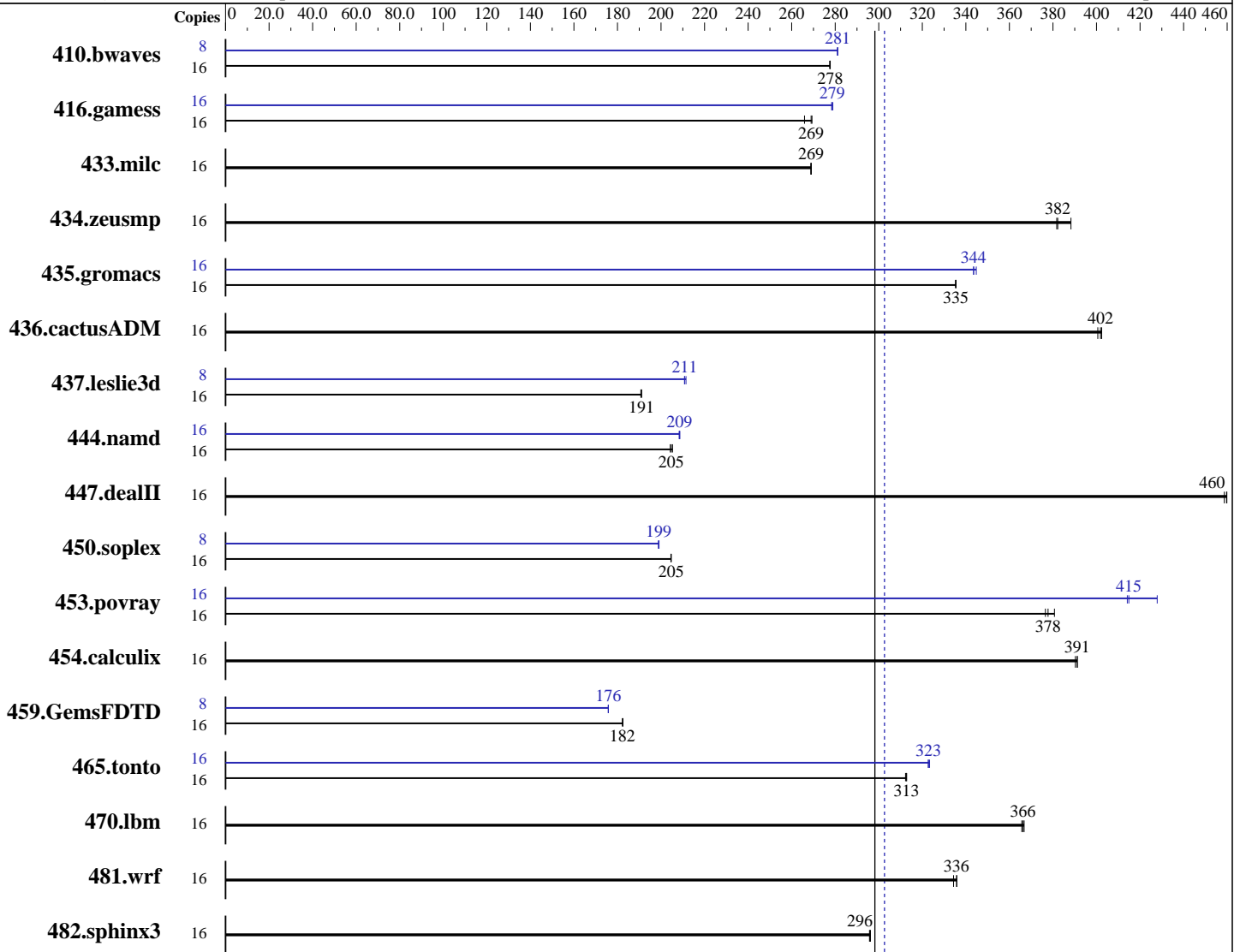
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: Apr-2017

Hardware Availability: Mar-2016

Software Availability: Sep-2016



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Hardware

CPU Name: Intel Xeon E5-2620 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 8 cores, 1 chip, 8 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

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Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
 3.10.0-514.el7.x86_64
 Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux;
 Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
 Auto Parallel: No
 File System: xfs

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 1 x 4000 GB SATA , 7200 RPM
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 | | | | | | | Peak | | | | | | |
|---------------|--------|------------|------------|------------|------------|-------------|------------|--------|------------|------------|-------------|------------|-------------|------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 16 | 783 | 278 | 784 | 277 | 783 | 278 | 8 | 387 | 281 | 387 | 281 | 387 | 281 |
| 416.gamess | 16 | 1163 | 269 | 1178 | 266 | 1165 | 269 | 16 | 1123 | 279 | 1125 | 279 | 1126 | 278 |
| 433.milc | 16 | 546 | 269 | 546 | 269 | 546 | 269 | 16 | 546 | 269 | 546 | 269 | 546 | 269 |
| 434.zeusmp | 16 | 381 | 382 | 375 | 388 | 381 | 382 | 16 | 381 | 382 | 375 | 388 | 381 | 382 |
| 435.gromacs | 16 | 341 | 335 | 341 | 335 | 340 | 336 | 16 | 333 | 344 | 333 | 344 | 331 | 345 |
| 436.cactusADM | 16 | 477 | 401 | 476 | 402 | 475 | 402 | 16 | 477 | 401 | 476 | 402 | 475 | 402 |
| 437.leslie3d | 16 | 787 | 191 | 787 | 191 | 789 | 191 | 8 | 356 | 211 | 357 | 211 | 357 | 211 |
| 444.namd | 16 | 627 | 205 | 625 | 205 | 628 | 204 | 16 | 616 | 208 | 615 | 209 | 615 | 209 |
| 447.dealII | 16 | 398 | 460 | 398 | 460 | 399 | 459 | 16 | 398 | 460 | 398 | 460 | 399 | 459 |
| 450.soplex | 16 | 652 | 205 | 652 | 205 | 652 | 205 | 8 | 335 | 199 | 336 | 199 | 335 | 199 |
| 453.povray | 16 | 226 | 377 | 225 | 378 | 224 | 381 | 16 | 206 | 414 | 205 | 415 | 199 | 428 |
| 454.calculix | 16 | 337 | 391 | 338 | 390 | 337 | 391 | 16 | 337 | 391 | 338 | 390 | 337 | 391 |
| 459.GemsFDTD | 16 | 931 | 182 | 930 | 183 | 931 | 182 | 8 | 483 | 176 | 483 | 176 | 483 | 176 |
| 465.tonto | 16 | 503 | 313 | 504 | 313 | 504 | 312 | 16 | 488 | 323 | 487 | 323 | 488 | 323 |
| 470.lbm | 16 | 600 | 366 | 601 | 366 | 599 | 367 | 16 | 600 | 366 | 601 | 366 | 599 | 367 |
| 481.wrf | 16 | 532 | 336 | 535 | 334 | 532 | 336 | 16 | 532 | 336 | 535 | 334 | 532 | 336 |
| 482.sphinx3 | 16 | 1054 | 296 | 1053 | 296 | 1054 | 296 | 16 | 1054 | 296 | 1053 | 296 | 1054 | 296 |

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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

Sysinfo program /usr/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost.localdomain Fri Apr 28 04:23:10 2017
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Platform Notes (Continued)

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 E5-2620 v4 @ 2.10GHz
 1 "physical id"s (chips)
 16 "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      : 8
siblings       : 16
physical 0:    : cores 0 1 2 3 4 5 6 7
cache size    : 20480 KB
```

From /proc/meminfo

```
MemTotal:      131751872 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

From /etc/*release* /etc/*version*

```
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server
```

uname -a:

```
Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Apr 26 11:55

SPEC is set to: /usr/cpu2006

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs  3.7T  42G  3.6T   2% /
```

Additional information from dmidecode:

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.

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Platform Notes (Continued)

BIOS American Megatrends Inc. 2.1 09/13/2016

Memory:

8x NO DIMM NO DIMM

8x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 2133 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/sh10.2"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2

Transparent Huge Pages enabled by default

Altos R360 F3 and Altos R380 F3 are electronically equivalent.

This result was measured on Altos R360 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

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

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Base Portability Flags (Continued)

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:

-xAVX -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
 -qopt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
 -qopt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -qopt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
 -qopt-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_2017/linux/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

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Peak Portability Flags (Continued)

```

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: -prof-gen(pass 1) -prof-use(pass 2) -xAVX(pass 2)
         -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
         -no-prec-div(pass 2) -fno-alias -auto-ilp32
         -qopt-mem-layout-trans=3

```

447.dealII: basepeak = yes

```

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xAVX(pass 2)
          -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -qopt-malloc-options=3
          -qopt-mem-layout-trans=3

```

```

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xAVX(pass 2)
          -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -unroll4 -qopt-mem-layout-trans=3

```

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -qopt-prefetch

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Peak Optimization Flags (Continued)

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

434.zeusmp: basepeak = yes

437.leslie3d: Same as 410.bwaves

459.GemsFDTD: Same as 410.bwaves

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xAVX(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4 -auto -inline-alloc
-qopt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xAVX(pass 2)
-par-num-threads=1(pass 1) -qopt-prefetch -auto-ilp32
-qopt-mem-layout-trans=3

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml>

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