



SPEC® CFP2006 Result

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Acer Incorporated

SPECfp®_rate2006 = 332

Altos R380 F3 (Intel Xeon E5-2609 v3)

SPECfp_rate_base2006 = 326

CPU2006 license: 97

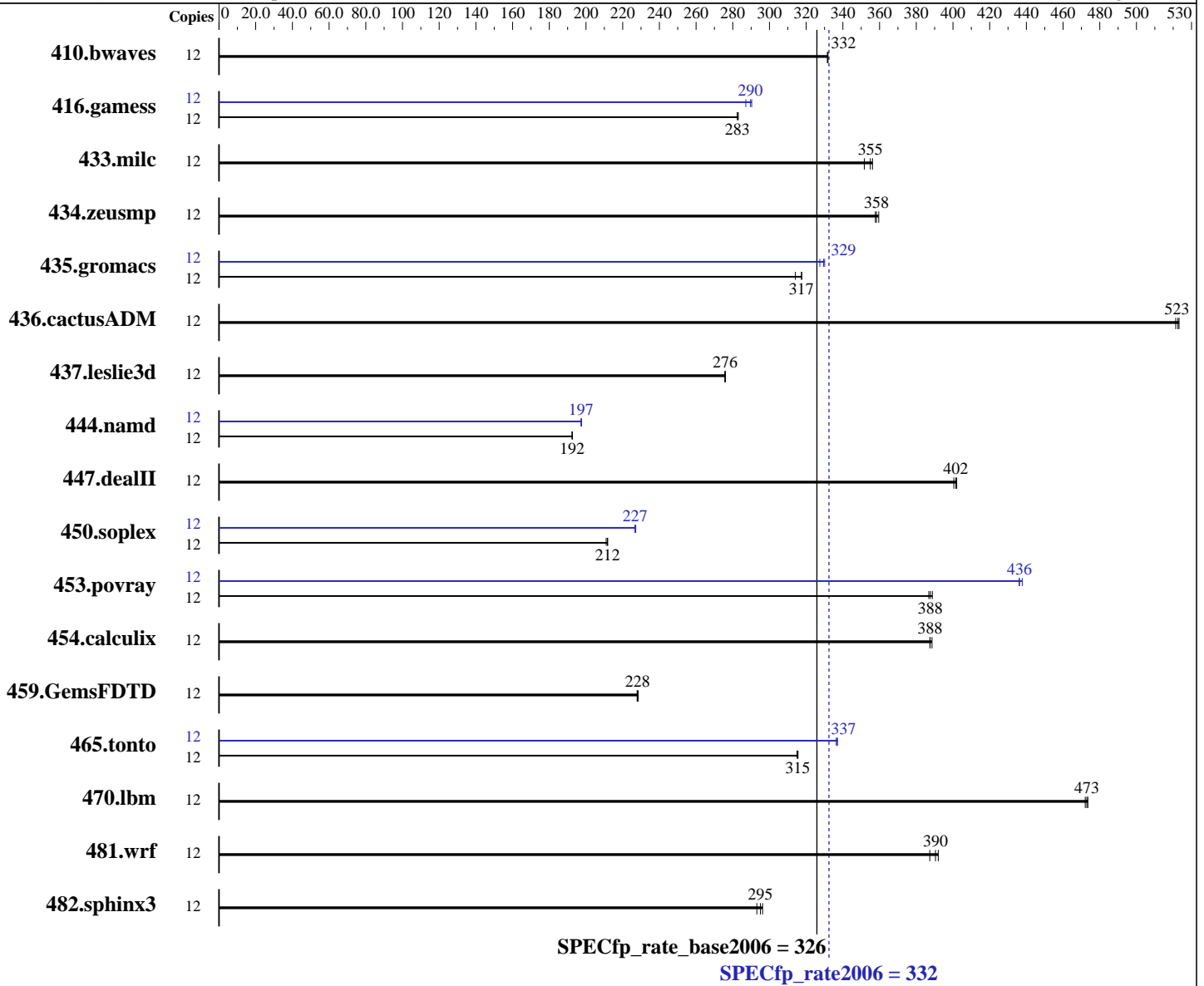
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: Feb-2016

Hardware Availability: May-2015

Software Availability: Aug-2015



Hardware

CPU Name: Intel Xeon E5-2609 v3
 CPU Characteristics:
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
 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 7.0 (Maipo)
 3.10.0-123.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

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L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
 Disk Subsystem: 1 x 4000 GB SATA III, 7200 RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.2

Results Table

| Benchmark | Base | | | | | | | | Peak | | | | | | | |
|---------------|--------|------------|------------|------------|------------|------------|------------|--------|------------|------------|------------|------------|------------|------------|--|--|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | | |
| 410.bwaves | 12 | 491 | 332 | 492 | 332 | <u>492</u> | <u>332</u> | 12 | 491 | 332 | 492 | 332 | <u>492</u> | <u>332</u> | | |
| 416.gamess | 12 | 832 | 283 | 830 | 283 | <u>832</u> | <u>283</u> | 12 | 809 | 290 | 818 | 287 | <u>811</u> | <u>290</u> | | |
| 433.milc | 12 | <u>310</u> | <u>355</u> | 313 | 352 | 309 | 356 | 12 | <u>310</u> | <u>355</u> | 313 | 352 | 309 | 356 | | |
| 434.zeusmp | 12 | 305 | 358 | <u>305</u> | <u>358</u> | 304 | 360 | 12 | 305 | 358 | <u>305</u> | <u>358</u> | 304 | 360 | | |
| 435.gromacs | 12 | <u>270</u> | <u>317</u> | 270 | 318 | 273 | 314 | 12 | <u>260</u> | <u>329</u> | 260 | 330 | 262 | 327 | | |
| 436.cactusADM | 12 | 275 | 521 | <u>274</u> | <u>523</u> | 274 | 523 | 12 | 275 | 521 | <u>274</u> | <u>523</u> | 274 | 523 | | |
| 437.leslie3d | 12 | <u>409</u> | <u>276</u> | 409 | 276 | 409 | 276 | 12 | <u>409</u> | <u>276</u> | 409 | 276 | 409 | 276 | | |
| 444.namd | 12 | 500 | 193 | <u>500</u> | <u>192</u> | 500 | 192 | 12 | <u>488</u> | <u>197</u> | 488 | 197 | 487 | 198 | | |
| 447.dealII | 12 | 341 | 402 | 343 | 400 | <u>342</u> | <u>402</u> | 12 | 341 | 402 | 343 | 400 | <u>342</u> | <u>402</u> | | |
| 450.soplex | 12 | <u>473</u> | <u>212</u> | 473 | 212 | 474 | 211 | 12 | <u>441</u> | <u>227</u> | 441 | 227 | 441 | 227 | | |
| 453.povray | 12 | 164 | 389 | 165 | 387 | <u>165</u> | <u>388</u> | 12 | 146 | 436 | <u>146</u> | <u>436</u> | 146 | 438 | | |
| 454.calculix | 12 | 256 | 387 | <u>255</u> | <u>388</u> | 255 | 389 | 12 | 256 | 387 | <u>255</u> | <u>388</u> | 255 | 389 | | |
| 459.GemsFDTD | 12 | 557 | 228 | <u>558</u> | <u>228</u> | 559 | 228 | 12 | 557 | 228 | <u>558</u> | <u>228</u> | 559 | 228 | | |
| 465.tonto | 12 | 375 | 315 | 374 | 316 | <u>374</u> | <u>315</u> | 12 | 351 | 336 | 350 | 337 | <u>350</u> | <u>337</u> | | |
| 470.lbm | 12 | 349 | 472 | 348 | 474 | <u>349</u> | <u>473</u> | 12 | 349 | 472 | 348 | 474 | <u>349</u> | <u>473</u> | | |
| 481.wrf | 12 | 342 | 392 | <u>343</u> | <u>390</u> | 346 | 387 | 12 | 342 | 392 | <u>343</u> | <u>390</u> | 346 | 387 | | |
| 482.sphinx3 | 12 | 789 | 296 | <u>793</u> | <u>295</u> | 798 | 293 | 12 | 789 | 296 | <u>793</u> | <u>295</u> | 798 | 293 | | |

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"



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Software Availability: Aug-2015

Platform Notes

BIOS Configuration:

CPU Power and Performance Policy set to Performance

C1E Autopromote set to Disabled

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 Feb 6 00:33:00 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 E5-2609 v3 @ 1.90GHz

2 "physical id"s (chips)

12 "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 : 6

siblings : 6

physical 0: cores 0 1 2 3 4 5

physical 1: cores 0 1 2 3 4 5

cache size : 15360 KB

From /proc/meminfo

MemTotal: 131754712 kB

HugePages_Total: 0

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 Server 7.0 (Maipo)"

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.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 5 15:05

SPEC is set to: /usr/cpu2006

Filesystem Type Size Used Avail Use% Mounted on
Continued on next page

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info@spec.org

<http://www.spec.org/>

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Platform Notes (Continued)

```
/dev/mapper/rhel-root xfs 3.6T 77G 3.6T 3% /  
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.

BIOS Intel Corporation SE5C610.86B.01.01.0011.081020151200 08/10/2015

Memory:

8x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz
16x NO DIMM NO DIMM

(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>
```

The Altos R380 F3 and Altos R360 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
```



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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

```

C++ benchmarks (except as noted below):

```

icpc -m64

```

```

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

```

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Peak Compiler Invocation (Continued)

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
 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

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Peak Optimization Flags (Continued)

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

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-revB.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-revB.xml>



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