SPEC® CFP2006 Result

Hypertechnologies Ciara, Inc
Orion HF320-G3

SPECfp®_rate2006 = 412

SPECfp_rate_base2006 = 400
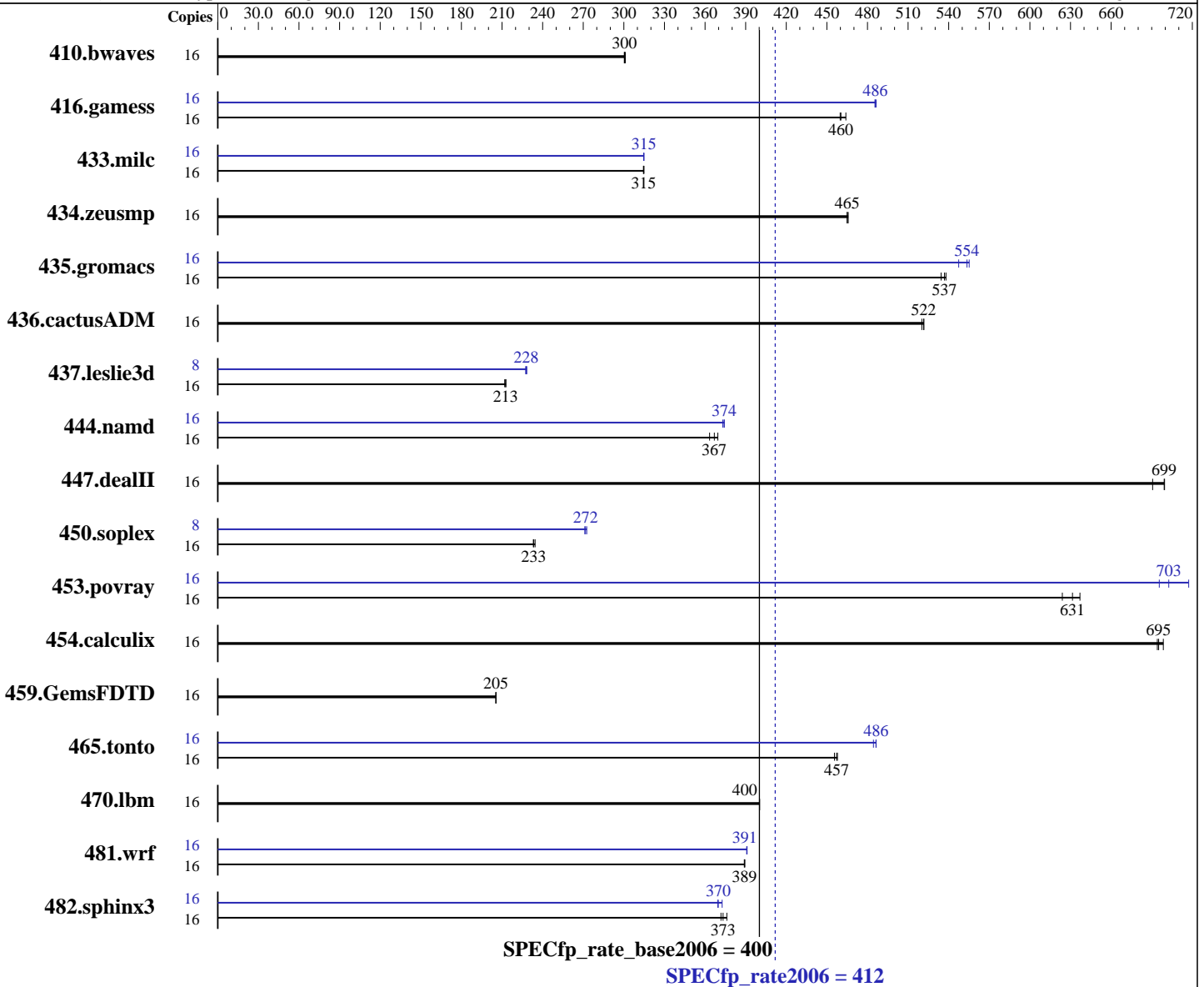
CPU2006 license: 4531
Test sponsor: Hypertechnologies Ciara, Inc
Tested by: Hypertechnologies Ciara, Inc

Test date: Apr-2015
Hardware Availability: Feb-2015
Software Availability: Aug-2015

Benchmark	Copies	Result
410.bwaves	16	300
416.gamess	16	486
	16	460
433.milc	16	315
	16	315
434.zeusmp	16	465
435.gromacs	16	554
	16	537
436.cactusADM	16	522
437.leslie3d	8	228
	16	213
444.namd	16	374
	16	367
447.dealII	16	699
450.soplex	8	272
	16	233
453.povray	16	703
	16	631
454.calculix	16	695
459.GemsFDTD	16	205
465.tonto	16	486
	16	457
470.lbm	16	400
481.wrf	16	391
	16	389
482.sphinx3	16	370
	16	373

SPECfp_rate_base2006 = 400

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Hardware

CPU Name:	Intel Core i7-5960X
CPU Characteristics:	Intel Turbo Boost Technology disabled
CPU MHz:	4300
FPU:	Integrated
CPU(s) enabled:	8 cores, 1 chip, 8 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.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:	xfs

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L3 Cache:	20 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	64 GB (8 x 8 GB 2Rx8 PC4-2666P-U)	Peak Pointers:	32/64-bit
Disk Subsystem:	2x 240 GB SATA SSD, RAID 0	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	16	722	301	724	300	**724**	**300**	16	722	301	724	300	**724**	**300**
416.gamess	16	675	464	**680**	**460**	681	460	16	644	486	**645**	**486**	645	486
433.milc	16	466	315	**467**	**315**	467	315	16	**467**	**315**	467	315	467	315
434.zeusmp	16	313	466	**313**	**465**	313	465	16	313	466	**313**	**465**	313	465
435.gromacs	16	**213**	**537**	214	534	212	538	16	**206**	**554**	209	547	206	555
436.cactusADM	16	**367**	**522**	367	522	368	520	16	**367**	**522**	367	522	368	520
437.leslie3d	16	**707**	**213**	706	213	710	212	8	329	228	**330**	**228**	331	227
444.namd	16	353	363	347	369	**350**	**367**	16	**343**	**374**	343	374	344	373
447.dealII	16	265	691	**262**	**699**	262	699	16	265	691	**262**	**699**	262	699
450.soplex	16	569	234	**572**	**233**	572	233	8	245	273	246	271	**246**	**272**
453.povray	16	**135**	**631**	134	637	136	624	16	122	696	119	717	**121**	**703**
454.calculix	16	**190**	**695**	190	694	189	699	16	**190**	**695**	190	694	189	699
459.GemsFDTD	16	**826**	**205**	826	205	826	206	16	**826**	**205**	826	205	826	206
465.tonto	16	344	458	346	456	**344**	**457**	16	324	486	325	484	**324**	**486**
470.lbm	16	549	400	549	400	**549**	**400**	16	549	400	549	400	**549**	**400**
481.wrf	16	**459**	**389**	459	389	459	389	16	457	391	**457**	**391**	457	391
482.sphinx3	16	**835**	**373**	829	376	839	372	16	837	373	**843**	**370**	844	369

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.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Apr 7 08:34:59 2015

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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) Core(TM) i7-5960X CPU @ 3.00GHz
      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:       65710396 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 Apr 7 08:34 last=5

SPEC is set to: /usr/cpu2006
   Filesystem            Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-root xfs   434G  141G  294G  33% /
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. 8804 01/27/2015
    Memory:
     8x Undefined CMD32GX4M4A2666C15 8 GB 2 rank 2133 MHz, configured at 2666 MHz

   (End of data from sysinfo program)
```

General Notes

```
Processor accelerated to 4.30 GHz
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 Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

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
  459.GemsFDTD: -DSPEC_CPU_LP64
      465.tonto: -DSPEC_CPU_LP64
```

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Base Portability Flags (Continued)

```
    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
```

C++ benchmarks:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -ansi-alias
```

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
```

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
```

Peak Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -DSPEC_CPU_LP64
      433.milc: -DSPEC_CPU_LP64
    434.zeusmp: -DSPEC_CPU_LP64
```

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Hardware Availability: Feb-2015
Software Availability: Aug-2015

Peak 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
     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) -prof-use(pass 2)
                -auto-ilp32

       470.lbm: basepeak = yes

   482.sphinx3: -xCORE-AVX2 -prof-gen(pass 1) -ipo -O3 -no-prec-div
                -prof-use(pass 2) -unroll2
```

C++ benchmarks:

```
      444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                -O3(pass 2) -no-prec-div(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) -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) -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-
```

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Peak Optimization Flags (Continued)

```
     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) -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 file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml

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

Tested with SPEC CPU2006 v1.2.
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