SPEC® CFP2006 Result

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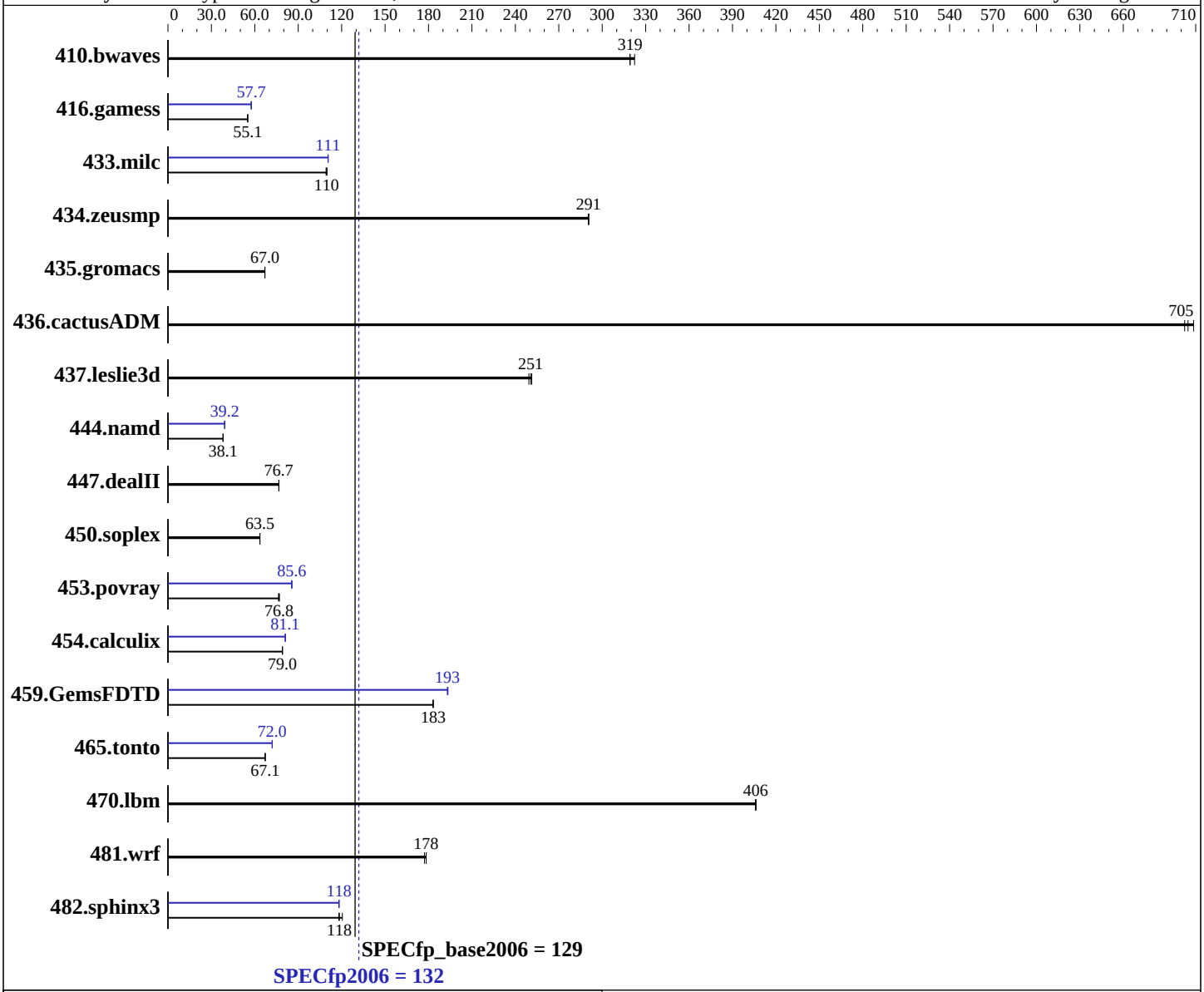
Hypertechnologies Ciara, Inc
Orion HF320-G3

SPECfp®2006 = 132

SPECfp_base2006 = 129

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



Hardware

CPU Name:	Intel Core i7-5960X
CPU Characteristics:	Intel Turbo Boost Technology disabled
CPU MHz:	4500
FPU:	Integrated
CPU(s) enabled:	8 cores, 1 chip, 8 cores/chip
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

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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:	Yes
File System:	xfs

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L3 Cache:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	64 GB (8 x 8 GB 2Rx8 PC4-2666P-U)
Disk Subsystem:	2x 240 GB SATA SSD, RAID 0
Other Hardware:	None

System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	42.2	322	42.6	319	**42.6**	**319**	42.2	322	42.6	319	**42.6**	**319**
416.gamess	**356**	**55.1**	357	54.9	355	55.2	341	57.3	**339**	**57.7**	339	57.7
433.milc	83.5	110	84.1	109	**83.7**	**110**	**83.0**	**111**	82.9	111	83.0	111
434.zeusmp	**31.3**	**291**	31.3	291	31.3	291	**31.3**	**291**	31.3	291	31.3	291
435.gromacs	107	67.0	**107**	**67.0**	107	66.9	107	67.0	**107**	**67.0**	107	66.9
436.cactusADM	16.9	709	17.0	702	**17.0**	**705**	16.9	709	17.0	702	**17.0**	**705**
437.leslie3d	**37.5**	**251**	37.7	249	37.4	251	**37.5**	**251**	37.7	249	37.4	251
444.namd	211	38.1	**211**	**38.1**	210	38.1	205	39.2	205	39.2	**205**	**39.2**
447.dealII	**149**	**76.7**	149	76.6	149	76.7	**149**	**76.7**	149	76.6	149	76.7
450.soplex	131	63.5	**131**	**63.5**	131	63.6	131	63.5	**131**	**63.5**	131	63.6
453.povray	**69.2**	**76.8**	69.1	76.9	69.7	76.3	**62.2**	**85.6**	62.1	85.7	62.3	85.4
454.calculix	104	79.0	104	79.2	**104**	**79.0**	**102**	**81.1**	102	81.1	102	81.0
459.GemsFDTD	**57.9**	**183**	58.0	183	57.9	183	54.8	193	**54.9**	**193**	55.0	193
465.tonto	146	67.3	**147**	**67.1**	147	67.1	137	72.0	136	72.1	**137**	**72.0**
470.lbm	33.8	406	33.9	406	**33.8**	**406**	33.8	406	33.9	406	**33.8**	**406**
481.wrf	63.0	177	62.6	178	**62.6**	**178**	63.0	177	62.6	178	**62.6**	**178**
482.sphinx3	162	120	165	118	**165**	**118**	**165**	**118**	165	118	165	118

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

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 14 13:08:54 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) Core(TM) i7-5960X CPU @ 3.00GHz
```

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Platform Notes (Continued)

```
      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 : 8
      siblings  : 8
      physical 0: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       65711324 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 14 09:14 last=5

SPEC is set to: /usr/cpu2006
   Filesystem            Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-root xfs   434G  144G  291G  34% /
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 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

```
Environment variables set by runspec before the start of the run:
Processor accelerated to 4.50 GHz with HyperThreading Disabled
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
OMP_NUM_THREADS = "8"
 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
       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 -parallel -opt-prefetch -ansi-alias`

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

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

Peak Compiler Invocation

C benchmarks:
`icc -m64`

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

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

Peak Portability Flags

Same as Base Portability Flags

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 -ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

Continued on next page

Peak Optimization Flags (Continued)

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: basepeak = yes

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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-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

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Tested with SPEC CPU2006 v1.2.
Report generated on Wed Jun 17 10:47:55 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 16 June 2015.