SPEC® CFP2006 Result
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Hypertechnologies Ciara, Inc
Orion HF620-G3

$SPECfp^{®}2006 =$ 120
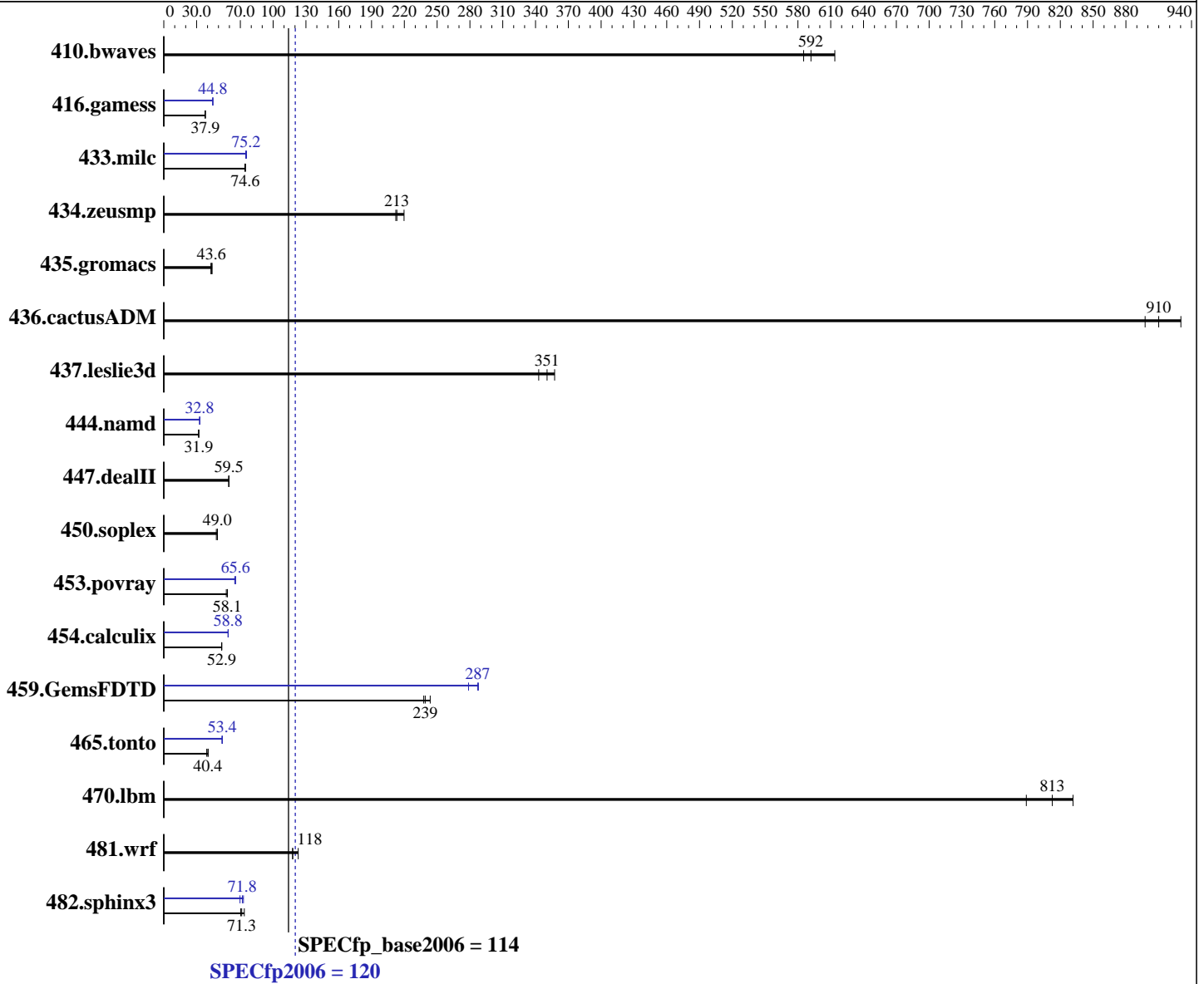
SPECfp_base2006 = 114

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

Test date: Nov-2014
Hardware Availability: Dec-2014
Software Availability: Aug-2015

Benchmark	Result
410.bwaves	592
416.gamess	44.8 / 37.9
433.milc	75.2 / 74.6
434.zeusmp	213
435.gromacs	43.6
436.cactusADM	910
437.leslie3d	351
444.namd	32.8 / 31.9
447.dealII	59.5
450.soplex	49.0
453.povray	65.6 / 58.1
454.calculix	58.8 / 52.9
459.GemsFDTD	287 / 239
465.tonto	53.4 / 40.4
470.lbm	813
481.wrf	118
482.sphinx3	71.8 / 71.3

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Hardware

CPU Name: Intel Xeon E5-2697 v3
CPU Characteristics: Intel Turbo Boost Technology disabled
CPU MHz: 3224
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 7.0 (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
Continued on next page

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L3 Cache:	35 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1x 240 GB SATA SSD
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 Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	**23.0**	**592**	22.1	614	23.2	585	**23.0**	**592**	22.1	614	23.2	585
416.gamess	518	37.8	**516**	**37.9**	515	38.0	436	44.9	**437**	**44.8**	438	44.7
433.milc	**123**	**74.6**	123	74.7	124	74.1	123	74.9	**122**	**75.2**	121	75.7
434.zeusmp	41.4	220	**42.7**	**213**	42.9	212	41.4	220	**42.7**	**213**	42.9	212
435.gromacs	**164**	**43.6**	162	44.2	166	43.1	**164**	**43.6**	162	44.2	166	43.1
436.cactusADM	13.3	898	**13.1**	**910**	12.8	930	13.3	898	**13.1**	**910**	12.8	930
437.leslie3d	**26.8**	**351**	26.3	357	27.4	343	**26.8**	**351**	26.3	357	27.4	343
444.namd	251	31.9	**251**	**31.9**	251	31.9	244	32.9	**244**	**32.8**	244	32.8
447.dealII	**192**	**59.5**	192	59.6	192	59.4	**192**	**59.5**	192	59.6	192	59.4
450.soplex	174	48.0	**170**	**49.0**	170	49.0	174	48.0	**170**	**49.0**	170	49.0
453.povray	93.1	57.1	91.4	58.2	**91.6**	**58.1**	**81.1**	**65.6**	81.0	65.6	82.0	64.9
454.calculix	156	52.9	**156**	**52.9**	155	53.1	**140**	**58.8**	140	58.9	140	58.8
459.GemsFDTD	43.5	244	**44.4**	**239**	44.6	238	38.1	279	**37.0**	**287**	36.9	288
465.tonto	243	40.5	251	39.2	**244**	**40.4**	184	53.6	185	53.2	**184**	**53.4**
470.lbm	17.4	789	**16.9**	**813**	16.5	832	17.4	789	**16.9**	**813**	16.5	832
481.wrf	90.8	123	**94.7**	**118**	94.9	118	90.8	123	**94.7**	**118**	94.9	118
482.sphinx3	265	73.6	277	70.4	**273**	**71.3**	267	72.9	**271**	**71.8**	280	69.7

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 Fri Nov 28 14:47:00 2014

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 E5-2697 v3 @ 2.60GHz
```

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Platform Notes (Continued)

```
        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 : 35840 KB

 From /proc/meminfo
    MemTotal:       131889276 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 Nov 28 09:51 last=5

 SPEC is set to: /usr/cpu2006
    Filesystem      Type   Size   Used Avail Use% Mounted on
    /dev/sda3       xfs    234G   173G   62G  74% /
 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. 0402 09/09/2014
  Memory:
    8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz

 (End of data from sysinfo program)
```

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General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
OMP_NUM_THREADS = "28"

 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
```

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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
```

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

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