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

$SPECfp®_rate2006 = $ **919**

$SPECfp_rate_base2006 = $ **897**

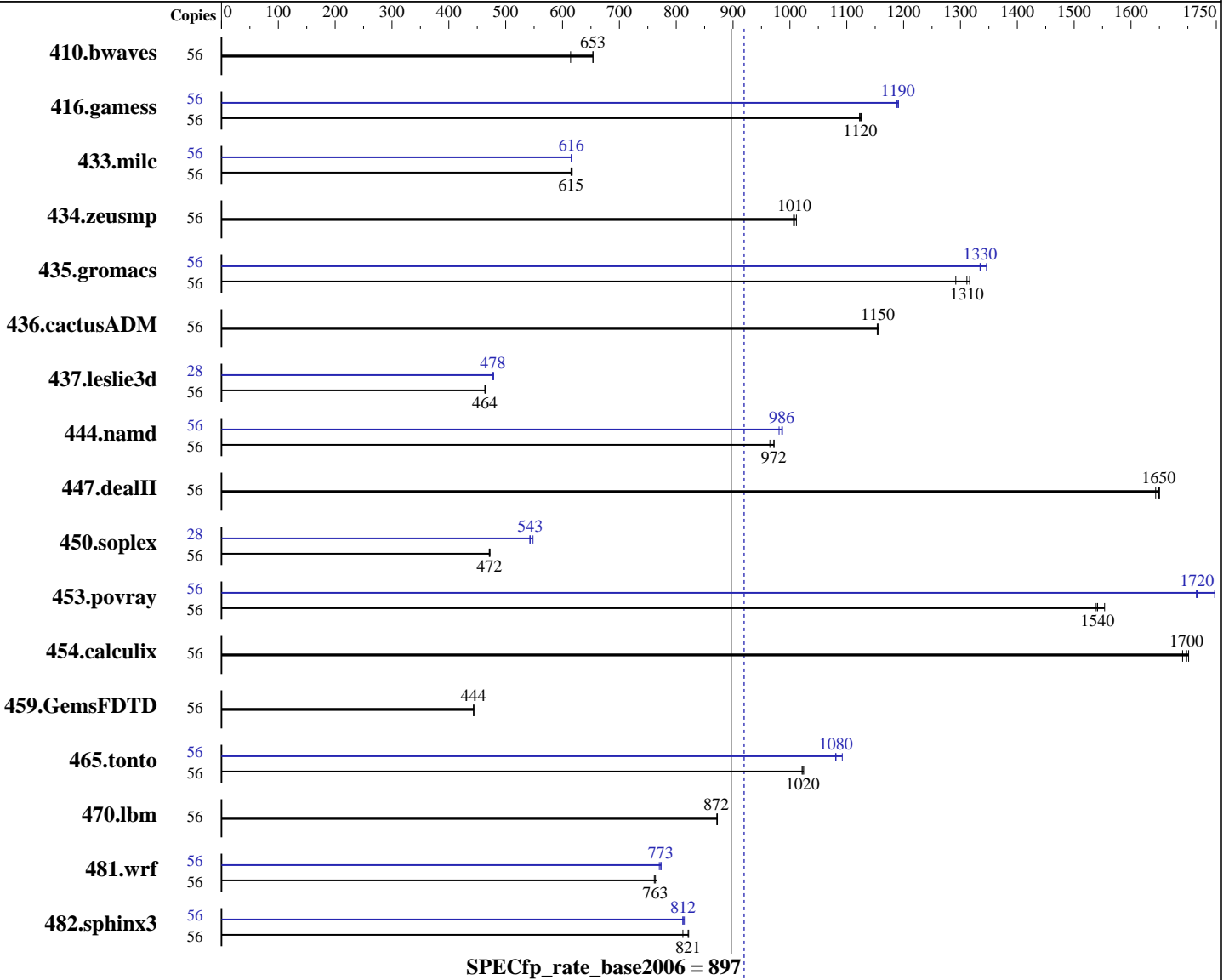**CPU2006 license:** 4531
Test sponsor: Hypertechnologies Ciara, Inc
Tested by: Hypertechnologies Ciara, Inc

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

Benchmark	Copies	Result
410.bwaves	56	653
416.gamess	56	1190
416.gamess	56	1120
433.milc	56	616
433.milc	56	615
434.zeusmp	56	1010
435.gromacs	56	1330
435.gromacs	56	1310
436.cactusADM	56	1150
437.leslie3d	28	478
437.leslie3d	56	464
444.namd	56	986
444.namd	56	972
447.dealII	56	1650
450.soplex	28	543
450.soplex	56	472
453.povray	56	1720
453.povray	56	1540
454.calculix	56	1700
459.GemsFDTD	56	444
465.tonto	56	1080
465.tonto	56	1020
470.lbm	56	872
481.wrf	56	773
481.wrf	56	763
482.sphinx3	56	812
482.sphinx3	56	821

SPECfp_rate_base2006 = 897

SPECfp_rate2006 = 919

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: No
File System: xfs

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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:	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	56	**1165**	**653**	1164	654	1239	614	56	**1165**	**653**	1164	654	1239	614
416.gamess	56	977	1120	**976**	**1120**	974	1130	56	921	1190	**921**	**1190**	923	1190
433.milc	56	836	615	**836**	**615**	833	617	56	835	616	835	616	**835**	**616**
434.zeusmp	56	506	1010	504	1010	**506**	**1010**	56	506	1010	504	1010	**506**	**1010**
435.gromacs	56	304	1320	**305**	**1310**	310	1290	56	300	1330	297	1350	**300**	**1330**
436.cactusADM	56	580	1150	579	1160	**579**	**1150**	56	580	1150	579	1160	**579**	**1150**
437.leslie3d	56	**1135**	**464**	1135	464	1136	464	28	**551**	**478**	550	479	552	477
444.namd	56	466	965	**462**	**972**	462	972	56	455	987	458	981	**456**	**986**
447.dealII	56	390	1640	**388**	**1650**	388	1650	56	390	1640	**388**	**1650**	388	1650
450.soplex	56	988	473	992	471	**990**	**472**	28	430	543	**430**	**543**	426	548
453.povray	56	**193**	**1540**	194	1540	192	1550	56	171	1750	**174**	**1720**	174	1720
454.calculix	56	273	1690	**272**	**1700**	272	1700	56	273	1690	**272**	**1700**	272	1700
459.GemsFDTD	56	1339	444	**1339**	**444**	1338	444	56	1339	444	**1339**	**444**	1338	444
465.tonto	56	538	1020	**539**	**1020**	539	1020	56	**510**	**1080**	510	1080	505	1090
470.lbm	56	883	872	**883**	**872**	882	873	56	883	872	**883**	**872**	882	873
481.wrf	56	822	761	**820**	**763**	817	766	56	**809**	**773**	812	770	809	773
482.sphinx3	56	1328	822	1344	812	**1330**	**821**	56	1345	812	**1344**	**812**	1340	814

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"

Platform Notes

    Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on localhost.localdomain Thu Nov 20 16:41:47 2014

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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 E5-2697 v3 @ 2.60GHz
      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 : 7
      siblings  : 14
      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 : 17920 KB

From /proc/meminfo
   MemTotal:       131888772 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 20 16:41 last=5

SPEC is set to: /usr/cpu2006
   Filesystem     Type   Size   Used Avail Use% Mounted on
   /dev/sda3      xfs    234G   125G  109G  54% /
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. 0402 09/09/2014
  Memory:
   8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 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/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
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

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
```

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Base Portability Flags (Continued)

```
    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/composer_xe_2015/lib/ia32
```

Fortran benchmarks:
```
    ifort -m64
```

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

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CPU2006 license: 4531　　　　　　　　　　　　　　　　　　　　**Test date:** Nov-2014
Test sponsor: Hypertechnologies Ciara, Inc　　　　　　　**Hardware Availability:** Dec-2014
Tested by: Hypertechnologies Ciara, Inc　　　　　　　　**Software Availability:** Aug-2015

Peek 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
  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)
           -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
           -auto-ilp32

  470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
           -unroll2
```

C++ benchmarks:

```
 444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
           -O3(pass 2) -no-prec-div(pass 2)
           -opt-mem-layout-trans=3(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)
           -opt-mem-layout-trans=3(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)
           -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4
           -ansi-alias
```

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Peak Optimization Flags (Continued)

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: `-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)`
                  `-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: `-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

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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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