SPEC® CFP2006 Result
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Huawei

Huawei CH220 V3 (Intel Xeon E5-2623 v3)

$SPECfp®\_rate2006 = 388$

$SPECfp\_rate\_base2006 = 379$

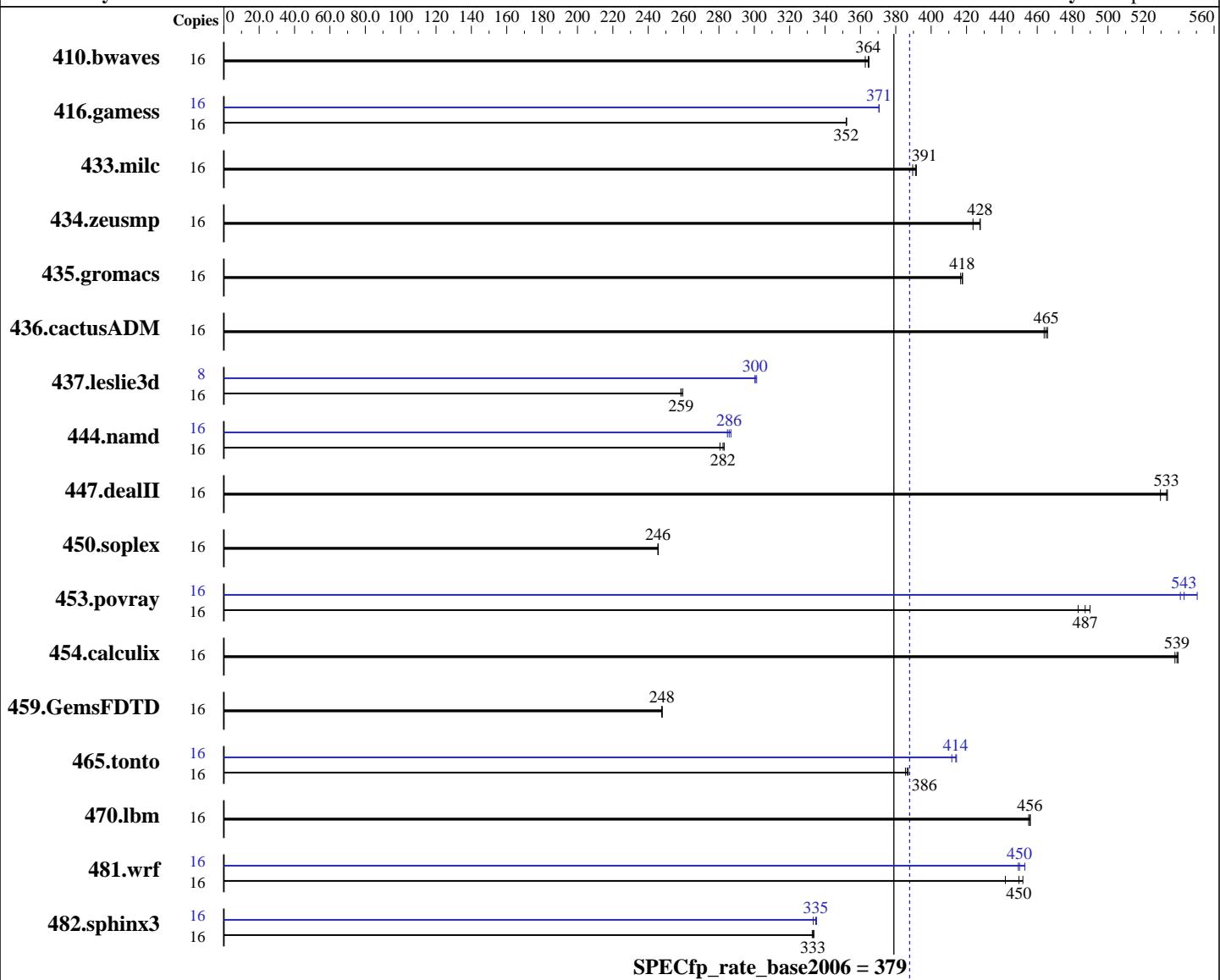|	
CPU2006 license: 3175	**Test date:** Jan-2015
Test sponsor: Huawei	**Hardware Availability:** Sep-2014
Tested by: Huawei	**Software Availability:** Sep-2014

Benchmark	Copies	Result
410.bwaves	16	364
416.gamess	16	371
416.gamess	16	352
433.milc	16	391
434.zeusmp	16	428
435.gromacs	16	418
436.cactusADM	16	465
437.leslie3d	8	300
437.leslie3d	16	259
444.namd	16	286
444.namd	16	282
447.dealII	16	533
450.soplex	16	246
453.povray	16	543
453.povray	16	487
454.calculix	16	539
459.GemsFDTD	16	248
465.tonto	16	414
465.tonto	16	386
470.lbm	16	456
481.wrf	16	450
481.wrf	16	450
482.sphinx3	16	335
482.sphinx3	16	333

SPECfp_rate_base2006 = 379

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Hardware

CPU Name:	Intel Xeon E5-2623 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	10 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark		Base							Peak					
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	599	363	**597**	**364**	596	365	16	599	363	**597**	**364**	596	365
416.gamess	16	**890**	**352**	890	352	889	352	16	845	371	**845**	**371**	845	371
433.milc	16	377	390	375	392	**376**	**391**	16	377	390	375	392	**376**	**391**
434.zeusmp	16	344	424	340	428	**340**	**428**	16	344	424	340	428	**340**	**428**
435.gromacs	16	273	418	**274**	**418**	274	417	16	273	418	**274**	**418**	274	417
436.cactusADM	16	410	466	**411**	**465**	412	464	16	410	466	**411**	**465**	412	464
437.leslie3d	16	579	260	582	258	**581**	**259**	8	**250**	**300**	250	300	250	301
444.namd	16	453	283	**455**	**282**	457	281	16	**449**	**286**	451	285	447	287
447.dealII	16	343	534	346	530	**343**	**533**	16	343	534	346	530	**343**	**533**
450.soplex	16	543	246	544	245	**543**	**246**	16	543	246	544	245	**543**	**246**
453.povray	16	176	483	174	490	**175**	**487**	16	157	541	**157**	**543**	155	550
454.calculix	16	245	540	**245**	**539**	245	538	16	245	540	**245**	**539**	245	538
459.GemsFDTD	16	**685**	**248**	685	248	685	248	16	**685**	**248**	685	248	685	248
465.tonto	16	407	387	408	385	**407**	**386**	16	**380**	**414**	380	414	382	412
470.lbm	16	483	455	**482**	**456**	482	456	16	483	455	**482**	**456**	482	456
481.wrf	16	**397**	**450**	404	442	396	452	16	**397**	**450**	398	449	395	453
482.sphinx3	16	934	334	937	333	**936**	**333**	16	936	333	930	335	**932**	**335**

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

BIOS configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to ES

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Platform Notes (Continued)

```
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Jan 20 12:53:33 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) Xeon(R) CPU E5-2623 v3 @ 3.00GHz
      2 "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 : 4
      siblings  : 8
      physical 0: cores 0 1 2 3
      physical 1: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       263579376 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 Jan 18 05:43

SPEC is set to: /spec
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       xfs   445G  126G  319G  29% /
Additional information from dmidecode:
```

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Platform Notes (Continued)

```
    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 Insyde Corp. 1.23 11/19/2014
    Memory:
    4x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1867 MHz
    4x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1867 MHz
    4x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz
    4x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 MHz

  (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/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

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Software Availability: Sep-2014

Base Portability Flags (Continued)

```
  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:
```
icpc  -m64
```

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

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Software Availability: Sep-2014

Peak Compiler Invocation (Continued)

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: basepeak = yes

    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: basepeak = yes

    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

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

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Peak Optimization Flags (Continued)

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: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml

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

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