SPEC® CFP2006 Result
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Huawei

Huawei CH220 V3 (Intel Xeon E5-2667 v3)

$SPECfp®2006 =$ 115
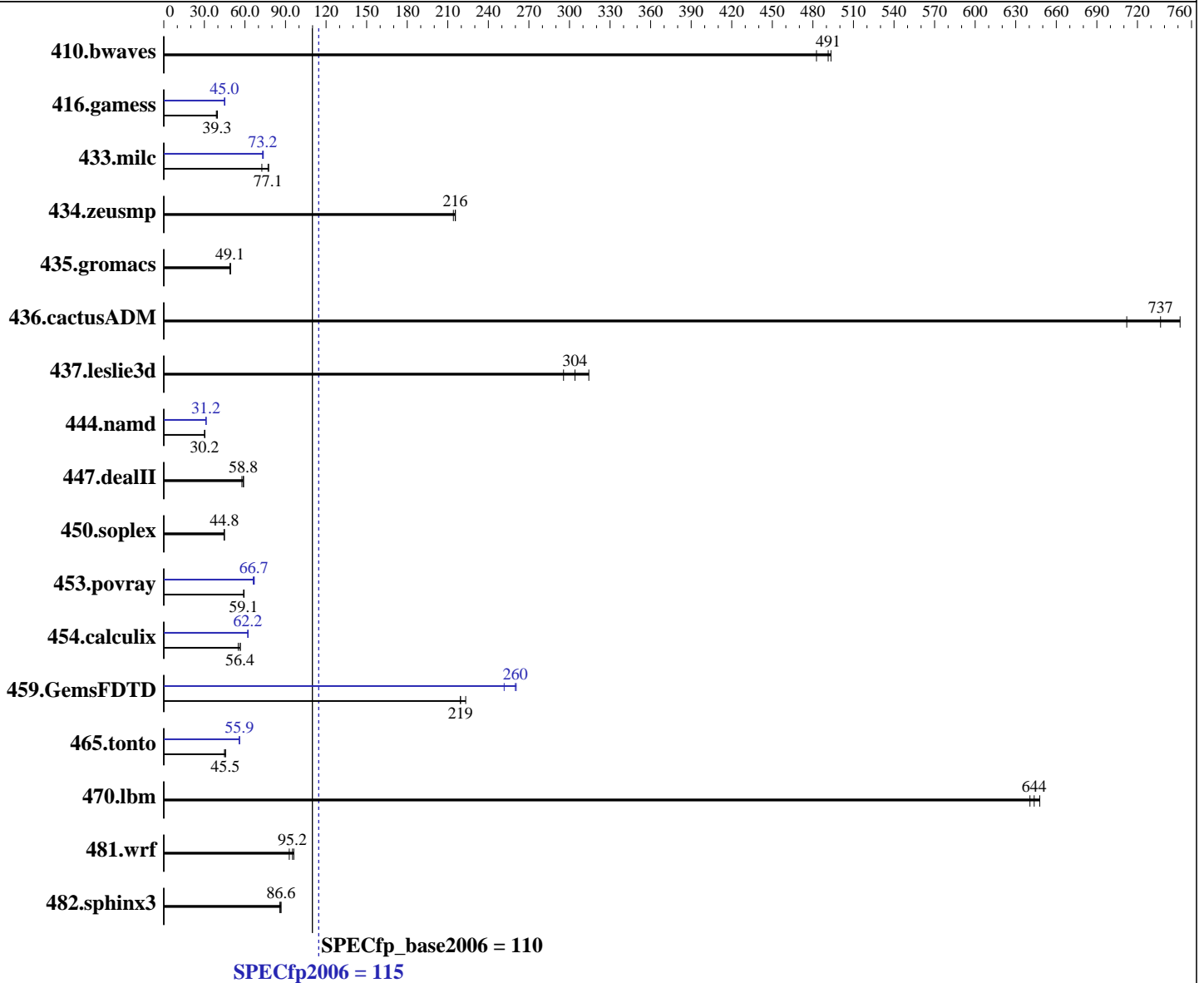
$SPECfp\_base2006 =$ 110

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Benchmark	base	peak
410.bwaves	491	
416.gamess	39.3	45.0
433.milc	77.1	73.2
434.zeusmp	216	
435.gromacs	49.1	
436.cactusADM	737	
437.leslie3d	304	
444.namd	30.2	31.2
447.dealII	58.8	
450.soplex	44.8	
453.povray	59.1	66.7
454.calculix	56.4	62.2
459.GemsFDTD	219	260
465.tonto	45.5	55.9
470.lbm	644	
481.wrf	95.2	
482.sphinx3	86.6	

SPECfp_base2006 = 110
SPECfp2006 = 115

Hardware

CPU Name:	Intel Xeon E5-2667 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip
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:	ext4

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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:	64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	27.5	493	**27.7**	**491**	28.2	483	27.5	493	**27.7**	**491**	28.2	483
416.gamess	504	38.9	**498**	**39.3**	494	39.7	435	45.0	**435**	**45.0**	435	45.0
433.milc	118	77.6	**119**	**77.1**	127	72.5	126	73.1	**125**	**73.2**	125	73.6
434.zeusmp	42.5	214	42.2	216	**42.2**	**216**	42.5	214	42.2	216	**42.2**	**216**
435.gromacs	**146**	**49.1**	146	49.0	145	49.4	**146**	**49.1**	146	49.0	145	49.4
436.cactusADM	**16.2**	**737**	16.8	712	15.9	752	**16.2**	**737**	16.8	712	15.9	752
437.leslie3d	31.8	296	**30.9**	**304**	29.9	314	31.8	296	**30.9**	**304**	29.9	314
444.namd	266	30.2	**266**	**30.2**	264	30.4	257	31.2	**257**	**31.2**	257	31.2
447.dealII	194	59.0	**195**	**58.8**	198	57.8	194	59.0	**195**	**58.8**	198	57.8
450.soplex	187	44.5	**186**	**44.8**	186	44.8	187	44.5	**186**	**44.8**	186	44.8
453.povray	90.1	59.1	**90.0**	**59.1**	89.6	59.4	79.5	66.9	**79.8**	**66.7**	80.5	66.1
454.calculix	150	55.0	**146**	**56.4**	146	56.6	133	62.2	133	62.2	**133**	**62.2**
459.GemsFDTD	48.4	219	47.5	223	**48.4**	**219**	**40.8**	**260**	40.7	261	42.2	252
465.tonto	219	44.9	216	45.7	**216**	**45.5**	176	55.8	**176**	**55.9**	176	56.0
470.lbm	21.2	648	21.5	641	**21.3**	**644**	21.2	648	21.5	641	**21.3**	**644**
481.wrf	120	92.8	116	96.1	**117**	**95.2**	120	92.8	116	96.1	**117**	**95.2**
482.sphinx3	227	85.7	225	86.7	**225**	**86.6**	227	85.7	225	86.7	**225**	**86.6**

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

```
BIOS configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to HS mode
Set Intel Hyper-threading Technology to Disable
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Wed Mar 18 12:24:02 2015

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

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Platform Notes (Continued)

```
       http://www.spec.org/cpu2006/Docs/config.html#sysinfo

   From /proc/cpuinfo
      model name : Intel(R) Xeon(R) CPU E5-2667 v3 @ 3.20GHz
         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 : 8
         siblings  : 8
         physical 0: cores 0 1 2 3 4 5 6 7
         physical 1: cores 0 1 2 3 4 5 6 7
      cache size : 20480 KB

   From /proc/meminfo
      MemTotal:       263721488 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 Mar 18 07:51

   SPEC is set to: /spec15
      Filesystem      Type  Size  Used Avail Use% Mounted on
      /dev/sda1       ext4  458G   38G  397G   9% /
   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 Insyde Corp. 1.17 09/03/2014
      Memory:
```

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Platform Notes (Continued)

```
    8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz
    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:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"
OMP_NUM_THREADS = "16"

 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
 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
     450.soplex: -DSPEC_CPU_LP64
     453.povray: -DSPEC_CPU_LP64
```

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Base Portability Flags (Continued)

```
    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
```

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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: basepeak = yes

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

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Peak Optimization Flags (Continued)

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

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.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-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml

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