SPEC® CFP2006 Result
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Huawei

Huawei CH121 V3 (Intel Xeon E5-2667 v3)

$SPECfp^{®}2006 =$ 111
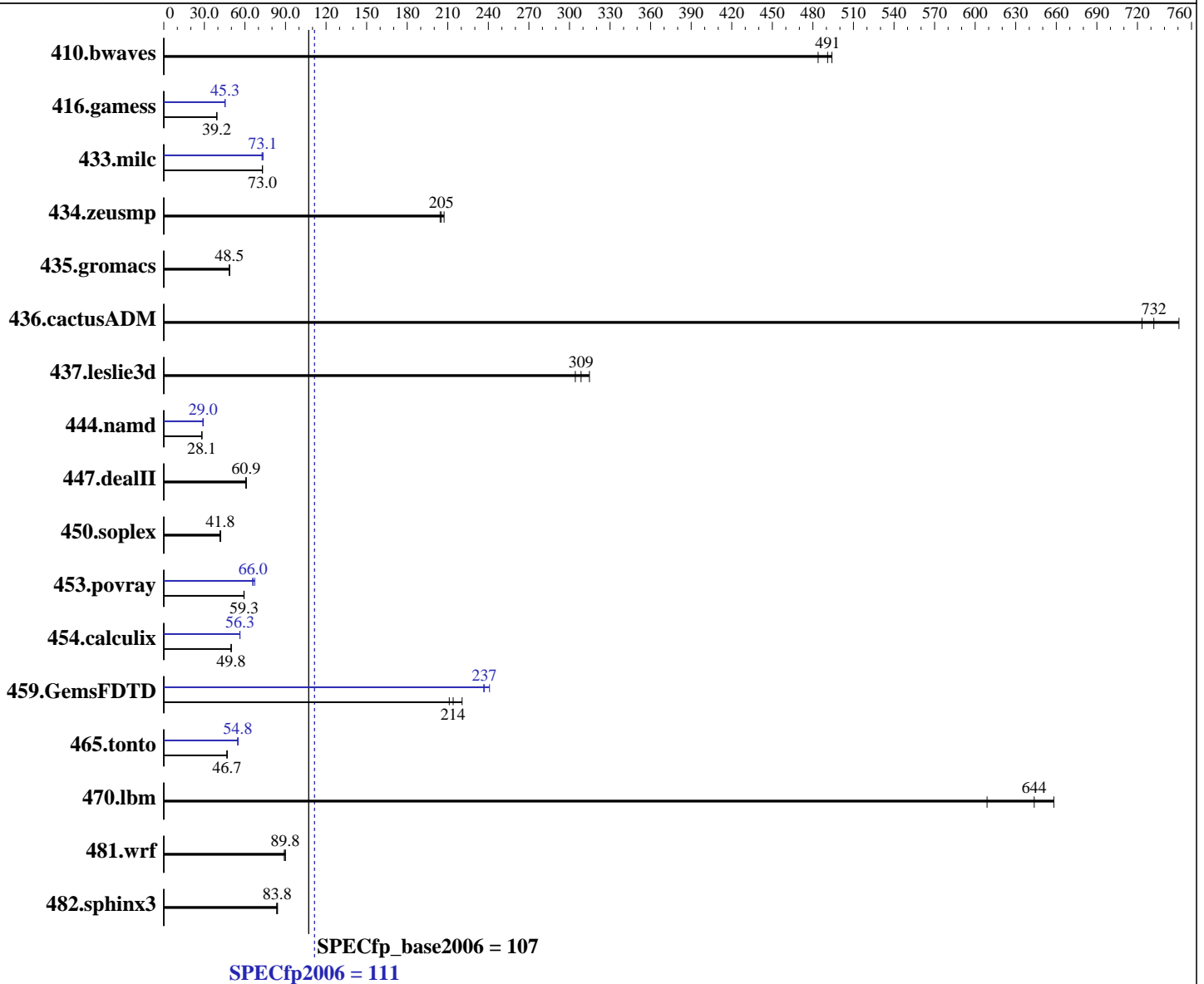
$SPECfp\_base2006 =$ 107

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

Test date: May-2015
Hardware Availability: Sep-2014
Software Availability: Jun-2014

Benchmark	Result
410.bwaves	491
416.gamess	45.3 / 39.2
433.milc	73.1 / 73.0
434.zeusmp	205
435.gromacs	48.5
436.cactusADM	732
437.leslie3d	309
444.namd	29.0 / 28.1
447.dealII	60.9
450.soplex	41.8
453.povray	66.0 / 59.3
454.calculix	56.3 / 49.8
459.GemsFDTD	237 / 214
465.tonto	54.8 / 46.7
470.lbm	644
481.wrf	89.8
482.sphinx3	83.8

SPECfp_base2006 = 107
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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

Software
Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
3.10.0-123.el7.x86_64
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
Fortran: Version 14.0.0.080 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 300 GB SAS, 10K RPM	Other Software:	None
Other Hardware:	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	28.1	484	27.5	494	**27.7**	**491**	28.1	484	27.5	494	**27.7**	**491**
416.gamess	499	39.3	501	39.1	**499**	**39.2**	**432**	**45.3**	432	45.4	434	45.2
433.milc	**126**	**73.0**	126	73.0	126	72.9	**126**	**73.1**	125	73.4	126	72.6
434.zeusmp	**44.3**	**205**	44.5	204	43.9	207	**44.3**	**205**	44.5	204	43.9	207
435.gromacs	**147**	**48.5**	147	48.4	147	48.7	**147**	**48.5**	147	48.4	147	48.7
436.cactusADM	**16.3**	**732**	15.9	751	16.5	723	**16.3**	**732**	15.9	751	16.5	723
437.leslie3d	30.9	304	**30.5**	**309**	29.9	315	30.9	304	**30.5**	**309**	29.9	315
444.namd	285	28.2	285	28.1	**285**	**28.1**	276	29.0	276	29.1	**276**	**29.0**
447.dealII	189	60.6	188	61.0	**188**	**60.9**	189	60.6	188	61.0	**188**	**60.9**
450.soplex	**200**	**41.8**	198	42.1	201	41.5	**200**	**41.8**	198	42.1	201	41.5
453.povray	**89.7**	**59.3**	89.5	59.4	89.8	59.2	79.1	67.3	**80.6**	**66.0**	80.9	65.8
454.calculix	166	49.8	**166**	**49.8**	165	49.9	146	56.3	147	56.3	**147**	**56.3**
459.GemsFDTD	50.3	211	**49.6**	**214**	48.1	221	44.0	241	**44.8**	**237**	44.8	237
465.tonto	**211**	**46.7**	211	46.7	210	47.0	179	54.8	180	54.7	**180**	**54.8**
470.lbm	20.9	658	**21.3**	**644**	22.6	609	20.9	658	**21.3**	**644**	22.6	609
481.wrf	125	89.1	124	89.9	**124**	**89.8**	125	89.1	124	89.9	**124**	**89.8**
482.sphinx3	233	83.5	**232**	**83.8**	232	84.1	233	83.5	**232**	**83.8**	232	84.1

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
Set Hyper-Threading to Disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Sun May 10 13:15:37 2015

This section contains SUT (System Under Test) info as seen by
```

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Platform Notes (Continued)

```
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 E5-2667 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 May 10 02:59

SPEC is set to: /spec
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext4  259G  135G  111G  55% /

Additional information from dmidecode:
  BIOS Insyde Corp. 1.16 09/02/2014
  Memory:
   8x NO DIMM NO DIMM      3 rank
   8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 1 rank
   8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank
```

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Platform Notes (Continued)

```
    (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 = "/spec/libs/32:/spec/libs/64:/spec/sh"
    OMP_NUM_THREADS = "16"

     Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
     memory using RedHat EL 6.4
     Transparent Huge Pages enabled with:
     echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
     runspec command invoked through numactl i.e.:
     numactl --interleave=all runspec <etc>
     The Huawei CH121 V3 and Huawei CH222 V3
     are electronically equivalent.
     The results have been measured on a Huawei CH121 V3 model
```

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

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
```

Huawei

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$SPECfp\_base2006 =$ 107

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

Test date: May-2015
Hardware Availability: Sep-2014
Software Availability: Jun-2014

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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$SPECfp\_base2006 =$ 107

CPU2006 license: 3175	**Test date:** May-2015
Test sponsor: Huawei	**Hardware Availability:** Sep-2014
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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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.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-V1.0-IVB-RevG.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Wed Oct 22 12:21:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 October 2014.