SPEC® CFP2006 Result

Huawei

$SPECfp^{®}2006 =$ 104

Huawei CH121 V3 (Intel Xeon E5-2618L v3)

$SPECfp\_base2006 =$ 98.1
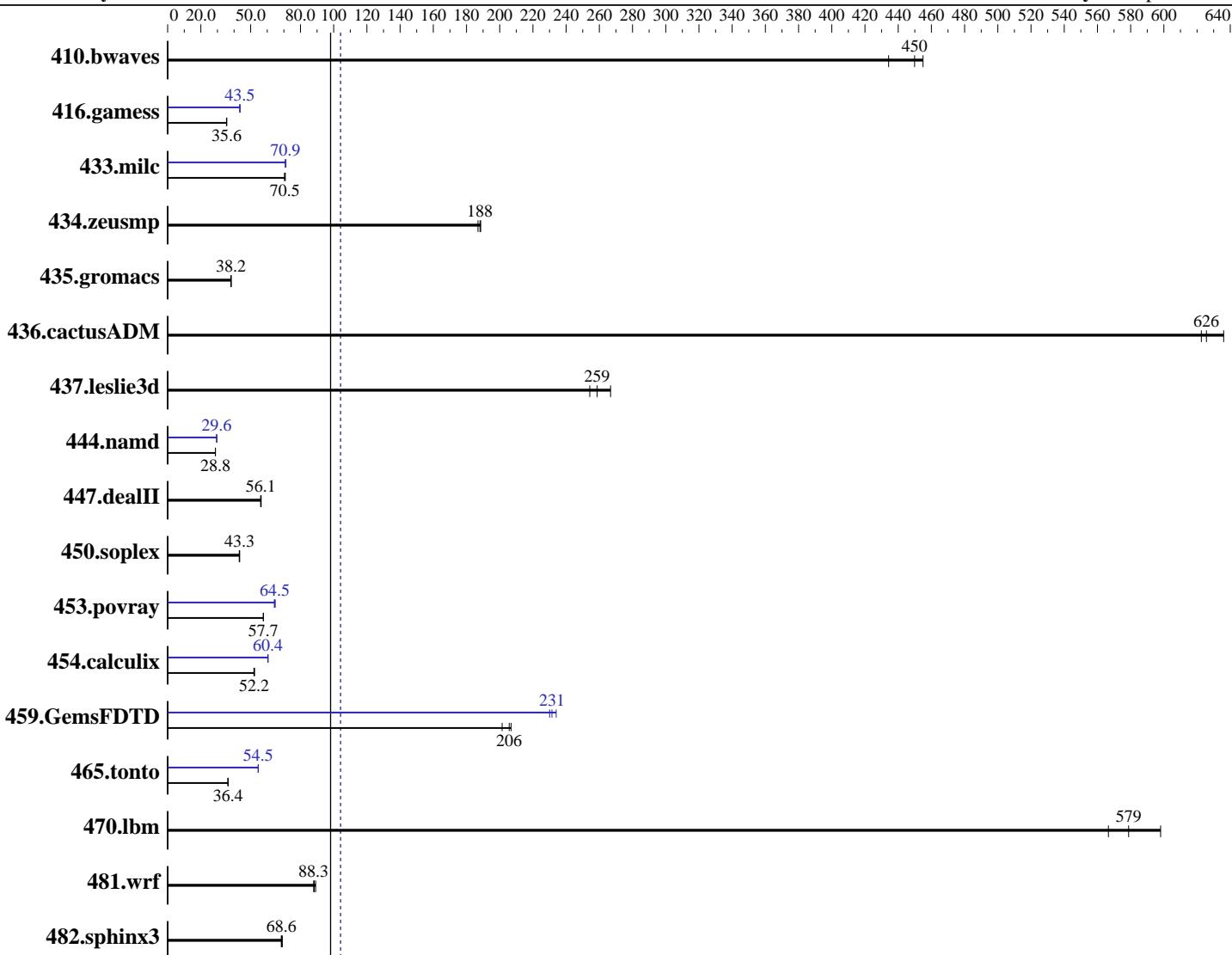
CPU2006 license:	3175	**Test date:**	Jan-2015
Test sponsor:	Huawei	**Hardware Availability:**	Sep-2014
Tested by:	Huawei	**Software Availability:**	Sep-2014

Results per benchmark (0 to 640 scale):

- **410.bwaves** — 450
- **416.gamess** — 43.5 / 35.6
- **433.milc** — 70.9 / 70.5
- **434.zeusmp** — 188
- **435.gromacs** — 38.2
- **436.cactusADM** — 626
- **437.leslie3d** — 259
- **444.namd** — 29.6 / 28.8
- **447.dealII** — 56.1
- **450.soplex** — 43.3
- **453.povray** — 64.5 / 57.7
- **454.calculix** — 60.4 / 52.2
- **459.GemsFDTD** — 231 / 206
- **465.tonto** — 54.5 / 36.4
- **470.lbm** — 579
- **481.wrf** — 88.3
- **482.sphinx3** — 68.6

SPECfp_base2006 = 98.1

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Hardware

CPU Name:	Intel Xeon E5-2618L v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2300
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

Continued on next page

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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, running at 1866 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x 300 GB SAS, 10000 RPM		
Other Hardware:	None		

Results Table

	Base						Peak					
Benchmark	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	29.9	455	**30.2**	**450**	31.3	434	29.9	455	**30.2**	**450**	31.3	434
416.gamess	550	35.6	**551**	**35.6**	553	35.4	**450**	**43.5**	451	43.4	449	43.6
433.milc	130	70.5	**130**	**70.5**	130	70.9	**129**	**70.9**	129	71.3	129	70.9
434.zeusmp	48.3	189	**48.4**	**188**	48.7	187	48.3	189	**48.4**	**188**	48.7	187
435.gromacs	**187**	**38.2**	187	38.1	187	38.2	**187**	**38.2**	187	38.1	187	38.2
436.cactusADM	19.2	623	18.8	636	**19.1**	**626**	19.2	623	18.8	636	**19.1**	**626**
437.leslie3d	37.0	254	35.2	267	**36.3**	**259**	37.0	254	35.2	267	**36.3**	**259**
444.namd	279	28.8	279	28.8	**279**	**28.8**	**271**	**29.6**	271	29.6	271	29.5
447.dealII	204	56.0	**204**	**56.1**	203	56.3	204	56.0	**204**	**56.1**	203	56.3
450.soplex	193	43.1	**193**	**43.3**	192	43.4	193	43.1	**193**	**43.3**	192	43.4
453.povray	92.4	57.6	92.2	57.7	**92.2**	**57.7**	**82.5**	**64.5**	82.8	64.2	82.1	64.8
454.calculix	158	52.3	**158**	**52.2**	159	52.0	136	60.5	137	60.4	**137**	**60.4**
459.GemsFDTD	52.7	201	**51.6**	**206**	51.3	207	45.3	234	**45.8**	**231**	46.1	230
465.tonto	270	36.4	271	36.3	**270**	**36.4**	180	54.5	180	54.6	**180**	**54.5**
470.lbm	23.0	598	**23.7**	**579**	24.2	567	23.0	598	**23.7**	**579**	24.2	567
481.wrf	125	89.1	**126**	**88.3**	127	87.9	125	89.1	**126**	**88.3**	127	87.9
482.sphinx3	285	68.5	282	69.1	**284**	**68.6**	285	68.5	282	69.1	**284**	**68.6**

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
Set Hyper-Threading to Disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Jan 16 09:20:24 2015

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Hardware Availability: Sep-2014
Software Availability: Sep-2014

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 E5-2618L v3 @ 2.30GHz
      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:       263721480 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 16 09:18

SPEC is set to: /spec15
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sdb1      ext4  237G   11G  214G   5% /
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 Insyde Corp. 1.19 10/10/2014
   Memory:
    8x NO DIMM NO DIMM   3 rank
    8x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz
    8x 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:
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>
 The Huawei CH121 V3 and Huawei CH222 V3 models 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
```

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Software Availability: Sep-2014

Base Portability Flags (Continued)

```
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 -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
```

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Test date: Jan-2015
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Software Availability: Sep-2014

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: 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`

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Peak Optimization Flags (Continued)

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 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

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

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