



SPEC® CFP2006 Result

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Huawei

SPECfp®2006 = 64.6

Huawei CH242 v3 (Intel Xeon E7-4820 v2)

SPECfp_base2006 = 60.1

CPU2006 license: 3175

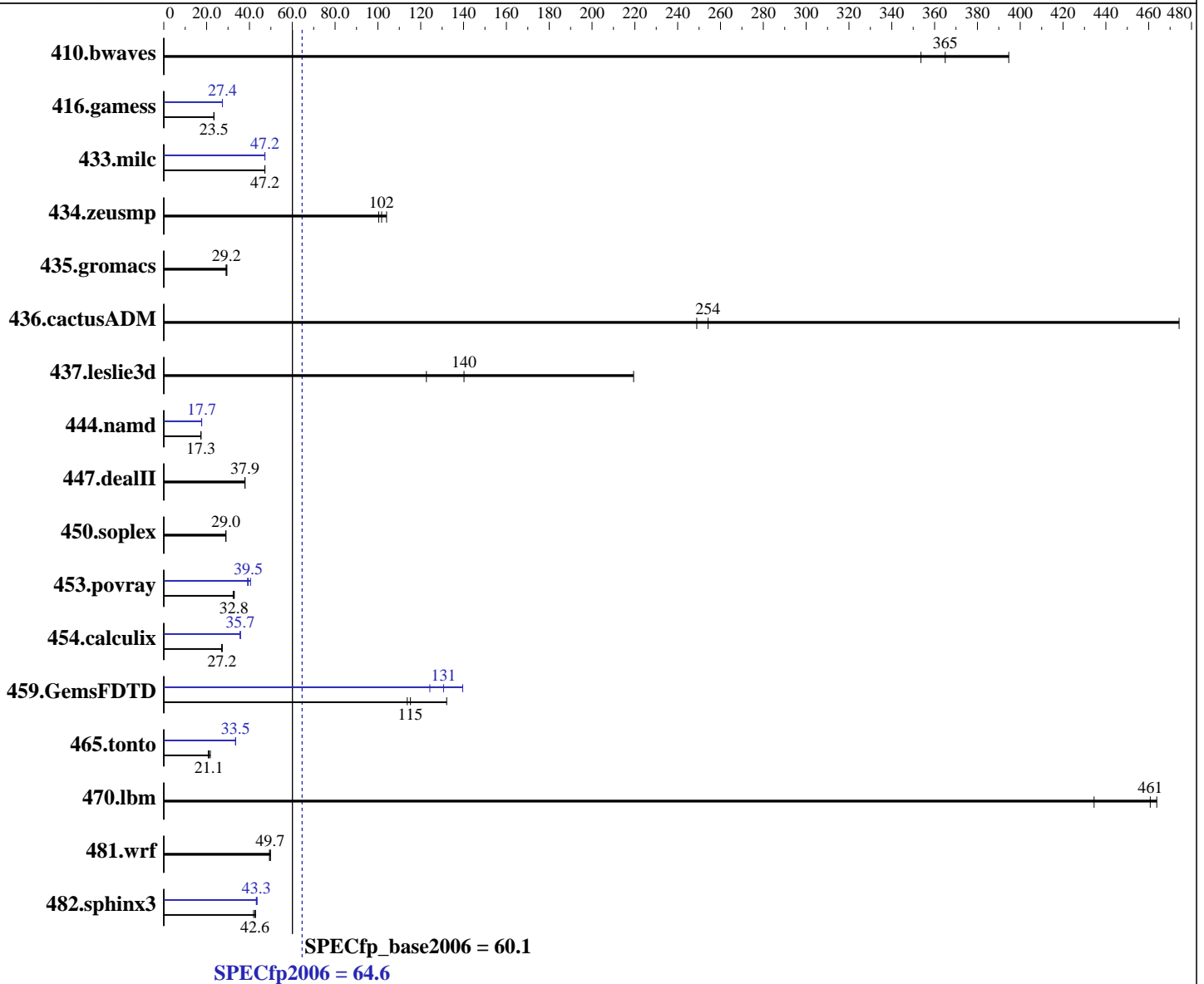
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2014

Hardware Availability: Feb-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E7-4820 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip
 CPU(s) orderable: 2,4 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
 2.6.32-431.el6.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: 16 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz)
 Disk Subsystem: 1 X 300 GB SAS 10000 RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>37.2</u>	<u>365</u>	38.4	354	34.4	395	<u>37.2</u>	<u>365</u>	38.4	354	34.4	395
416.gamess	<u>835</u>	<u>23.5</u>	837	23.4	834	23.5	715	27.4	715	27.4	<u>715</u>	<u>27.4</u>
433.milc	<u>194</u>	<u>47.2</u>	194	47.2	195	47.2	194	47.2	<u>194</u>	<u>47.2</u>	194	47.2
434.zeusmp	87.5	104	<u>89.4</u>	<u>102</u>	90.6	100	87.5	104	<u>89.4</u>	<u>102</u>	90.6	100
435.gromacs	245	29.1	242	29.5	<u>244</u>	<u>29.2</u>	245	29.1	242	29.5	<u>244</u>	<u>29.2</u>
436.cactusADM	25.2	474	48.0	249	<u>47.0</u>	<u>254</u>	25.2	474	48.0	249	<u>47.0</u>	<u>254</u>
437.leslie3d	42.8	219	<u>67.0</u>	<u>140</u>	76.6	123	42.8	219	<u>67.0</u>	<u>140</u>	76.6	123
444.namd	463	17.3	462	17.3	<u>462</u>	<u>17.3</u>	453	17.7	<u>453</u>	<u>17.7</u>	453	17.7
447.dealII	302	37.9	302	37.9	<u>302</u>	<u>37.9</u>	302	37.9	302	37.9	<u>302</u>	<u>37.9</u>
450.soplex	<u>288</u>	<u>29.0</u>	288	29.0	287	29.0	<u>288</u>	<u>29.0</u>	288	29.0	287	29.0
453.povray	<u>162</u>	<u>32.8</u>	162	32.9	164	32.4	136	39.1	131	40.5	<u>135</u>	<u>39.5</u>
454.calculix	302	27.3	305	27.0	<u>303</u>	<u>27.2</u>	<u>231</u>	<u>35.7</u>	231	35.7	231	35.7
459.GemsFDTD	80.3	132	93.3	114	<u>92.1</u>	<u>115</u>	<u>81.2</u>	<u>131</u>	85.4	124	76.0	140
465.tonto	<u>466</u>	<u>21.1</u>	474	20.7	452	21.8	<u>293</u>	<u>33.5</u>	293	33.6	293	33.5
470.lbm	29.6	464	31.6	434	<u>29.8</u>	<u>461</u>	29.6	464	31.6	434	<u>29.8</u>	<u>461</u>
481.wrf	226	49.3	224	49.8	<u>225</u>	<u>49.7</u>	226	49.3	224	49.8	<u>225</u>	<u>49.7</u>
482.sphinx3	<u>458</u>	<u>42.6</u>	465	41.9	455	42.9	<u>451</u>	<u>43.3</u>	451	43.2	447	43.6

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 VMSE LockStep mode disable
 Sysinfo program /spec14/config/sysinfo.rev6818
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
 running on localhost.localdomain Sat Oct 25 19:59:29 2014

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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E7-4820 v2 @ 2.00GHz
 4 "physical id"s (chips)
32 "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
  physical 2: cores 0 1 2 3 4 5 6 7
  physical 3: cores 0 1 2 3 4 5 6 7
cache size : 16384 KB

```

```

From /proc/meminfo
MemTotal:      264359016 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54
EST 2013 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Oct 25 11:54

```

SPEC is set to: /spec14
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  255G  137G  106G   57% /

```

```

Additional information from dmidecode:
BIOS American Megatrends Inc. BLISV302 09/03/2014
Memory:
 32x      8 GB
 32x Micron 36KSF1G72PZ-1G6K1 8 GB 1066 MHz 2 rank

```

(End of data from sysinfo program)
The system use 256 GB memory



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General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/spec14/libs/32:/spec14/libs/64:/spec14/sh"

OMP_NUM_THREADS = "32"

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>

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
 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



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Base Optimization Flags

C benchmarks:

`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

C++ benchmarks:

`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -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

Peak Optimization Flags

C benchmarks:

433.milc: `-xAVX(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: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(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.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX(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

454.calculix: -xAVX -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 Tue Nov 18 16:33:36 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 18 November 2014.