



SPEC[®] CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

H3C

SPECfp[®]2006 = **110**

H3C UIS R390x G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECfp_base2006 = **104**

CPU2006 license: 9066

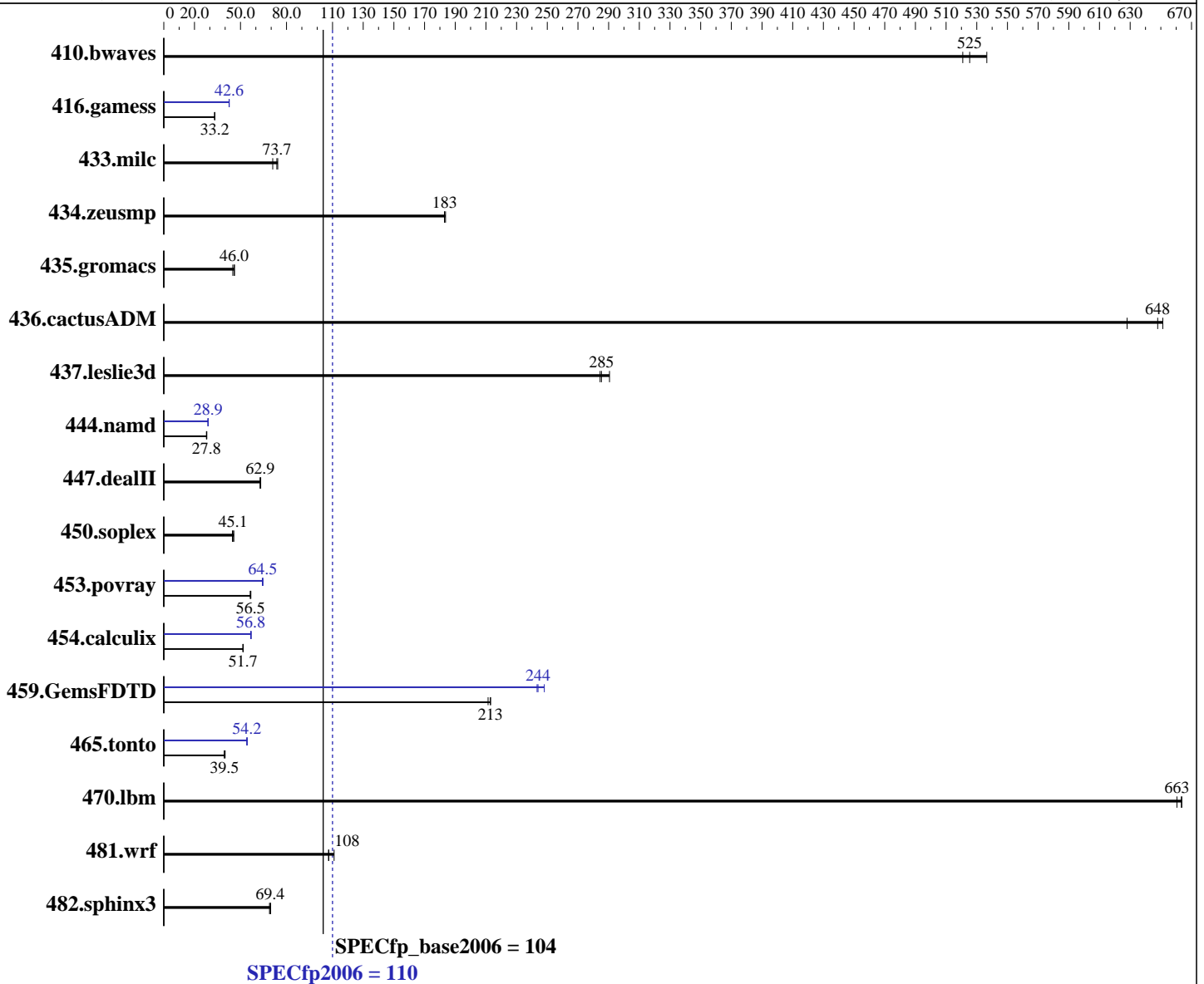
Test date: May-2016

Test sponsor: H3C

Hardware Availability: May-2016

Tested by: H3C

Software Availability: May-2016



Hardware

CPU Name: Intel Xeon E5-2620 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 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: SUSE Linux Enterprise Server 12
 3.12.28-4-default
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4
 System State: Run level 3 (multi-user)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

H3C

SPECfp2006 = **110**

H3C UIS R390x G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECfp_base2006 = **104**

CPU2006 license: 9066
Test sponsor: H3C
Tested by: H3C

Test date: May-2016
Hardware Availability: May-2016
Software Availability: May-2016

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 1 x 600 GB SATA 15KRPM
Other Hardware: None

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	26.1	521	25.9	525	25.3	537	26.1	521	25.9	525	25.3	537
416.gamess	590	33.2	592	33.1	588	33.3	460	42.6	460	42.6	459	42.7
433.milc	125	73.7	124	74.3	129	71.0	125	73.7	124	74.3	129	71.0
434.zeusmp	49.7	183	49.7	183	49.5	184	49.7	183	49.7	183	49.5	184
435.gromacs	159	45.0	155	46.0	155	46.0	159	45.0	155	46.0	155	46.0
436.cactusADM	19.0	628	18.4	648	18.3	651	19.0	628	18.4	648	18.3	651
437.leslie3d	33.0	284	32.4	291	32.9	285	33.0	284	32.4	291	32.9	285
444.namd	286	28.1	288	27.8	288	27.8	279	28.7	277	29.0	278	28.9
447.dealII	181	63.2	182	62.9	182	62.8	181	63.2	182	62.9	182	62.8
450.soplex	185	45.1	187	44.7	183	45.7	185	45.1	187	44.7	183	45.7
453.povray	94.2	56.5	93.7	56.8	94.3	56.4	82.5	64.5	82.8	64.2	82.3	64.6
454.calculix	160	51.5	159	51.8	160	51.7	145	56.8	145	57.0	146	56.6
459.GemsFDTD	49.8	213	50.2	211	49.8	213	43.6	243	43.5	244	42.8	248
465.tonto	249	39.5	249	39.5	246	40.0	181	54.2	181	54.4	182	54.1
470.lbm	20.7	663	20.7	664	20.8	660	20.7	663	20.7	664	20.8	660
481.wrf	104	107	101	111	104	108	104	107	101	111	104	108
482.sphinx3	280	69.7	283	68.9	281	69.4	280	69.7	283	68.9	281	69.4

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 settings:
COD set to Disabled
Early snoop set to Enabled
Sysinfo program /usr/spec2006/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on linux-dc48 Thu May 12 03:07:30 2016

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

H3C

SPECfp2006 = 110

H3C UIS R390x G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECfp_base2006 = 104

CPU2006 license: 9066

Test date: May-2016

Test sponsor: H3C

Hardware Availability: May-2016

Tested by: H3C

Software Availability: May-2016

Platform Notes (Continued)

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

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz

2 "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 : 16

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: 264422704 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb_release -d

SUSE Linux Enterprise Server 12

From /etc/*release* /etc/*version*

SuSE-release:

SUSE Linux Enterprise Server 12 (x86_64)

VERSION = 12

PATCHLEVEL = 0

This file is deprecated and will be removed in a future service pack or release.

Please check /etc/os-release for details about this release.

os-release:

NAME="SLES"

VERSION="12"

VERSION_ID="12"

PRETTY_NAME="SUSE Linux Enterprise Server 12"

ID="sles"

ANSI_COLOR="0;32"

CPE_NAME="cpe:/o:suse:sles:12"

uname -a:

Linux linux-dc48 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014 (9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 11 21:49

SPEC is set to: /usr/spec2006

Filesystem Type Size Used Avail Use% Mounted on

/dev/sda2 ext4 296G 118G 177G 40% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

H3C

SPECfp2006 = 110

H3C UIS R390x G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECfp_base2006 = 104

CPU2006 license: 9066

Test date: May-2016

Test sponsor: H3C

Hardware Availability: May-2016

Tested by: H3C

Software Availability: May-2016

Platform Notes (Continued)

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 American Megatrends Inc. 1.00.09 05/10/2016

Memory:

16x Hynix Semiconductor HMA42GR7AFR4N-UH 16 GB 2 rank 2400 MHz, configured at 2133 MHz

8x NO DIMM NO DIMM

(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 = "/usr/spec2006/libs/32:/usr/spec2006/libs/64:/usr/spec2006/sh"

OMP_NUM_THREADS = "16"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent_hugepage/enabled

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

H3C

SPECfp2006 = 110

H3C UIS R390x G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECfp_base2006 = 104

CPU2006 license: 9066

Test date: May-2016

Test sponsor: H3C

Hardware Availability: May-2016

Tested by: H3C

Software Availability: May-2016

Base Portability Flags (Continued)

```

437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.deall: -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

```



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

H3C

SPECfp2006 = 110

H3C UIS R390x G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECfp_base2006 = 104

CPU2006 license: 9066

Test sponsor: H3C

Tested by: H3C

Test date: May-2016

Hardware Availability: May-2016

Software Availability: May-2016

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

H3C

SPECfp2006 = 110

H3C UIS R390x G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECfp_base2006 = 104

CPU2006 license: 9066

Test date: May-2016

Test sponsor: H3C

Hardware Availability: May-2016

Tested by: H3C

Software Availability: May-2016

Peak Optimization Flags (Continued)

465.tonto (continued):

`-opt-malloc-options=3 -auto -unroll4`

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/H3C-Platform-Settings-V1.2-BDW-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/H3C-Platform-Settings-V1.2-BDW-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.

Report generated on Wed Jun 1 19:09:30 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 1 June 2016.

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 7