SPEC® CFP2006 Result

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Huawei

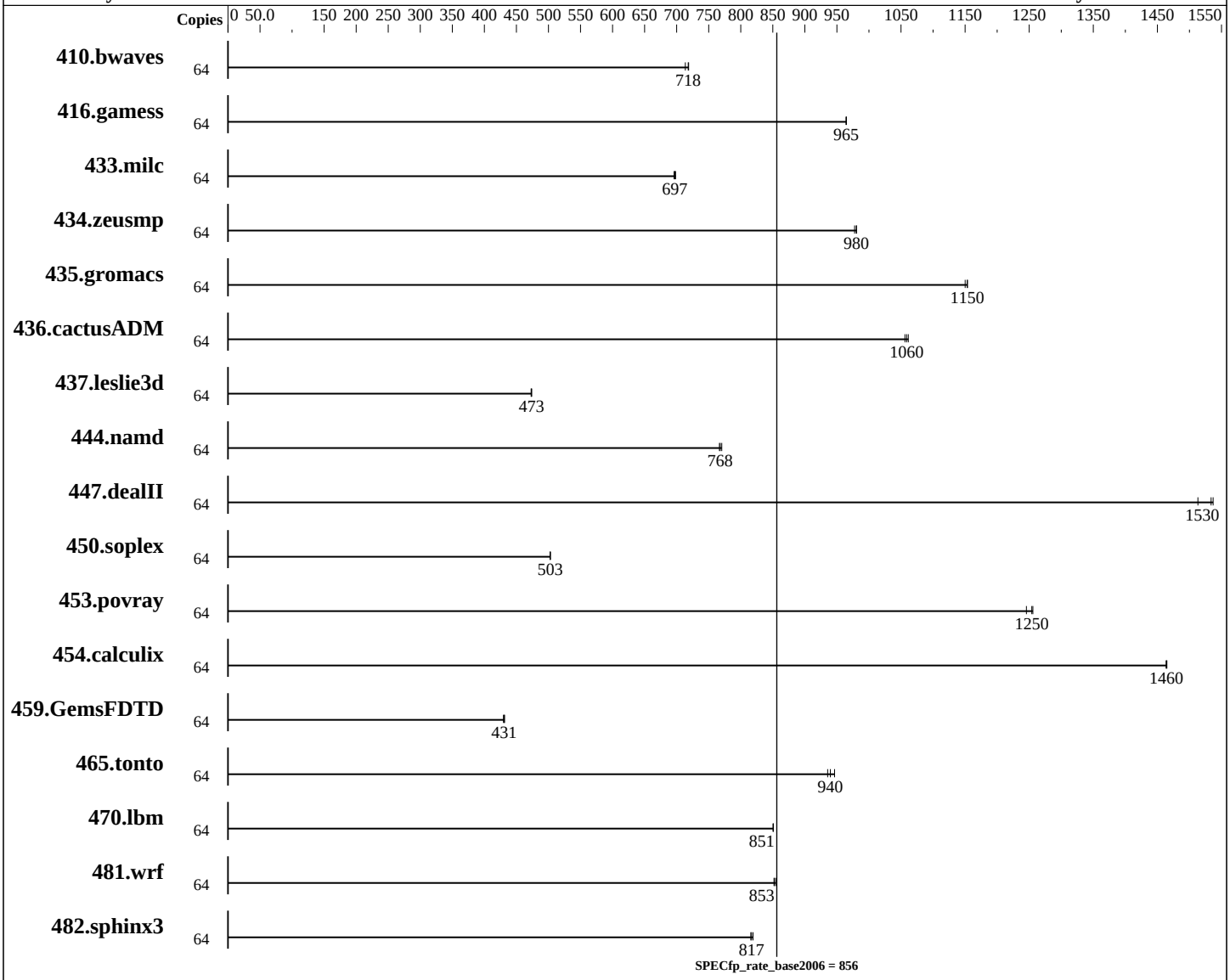
Huawei RH5885 V3 (Intel Xeon E7-4809 v4)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 856

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

Test date: Aug-2016
Hardware Availability: Jun-2016
Software Availability: Oct-2015



Hardware

CPU Name:	Intel Xeon E7-4809 v4
CPU Characteristics:	
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 chips
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 7.2 (Maipo) 3.10.0-327.el7.x86_64
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:	No
File System:	xfs

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)
Disk Subsystem: 2 x 600 GB SAS, 10K RPM
Other Hardware: None

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	1219	713	1210	719	**1211**	**718**							
416.gamess	64	1300	964	**1299**	**965**	1299	965							
433.milc	64	844	696	**843**	**697**	841	698							
434.zeusmp	64	594	981	**594**	**980**	596	978							
435.gromacs	64	396	1150	397	1150	**396**	**1150**							
436.cactusADM	64	**722**	**1060**	721	1060	724	1060							
437.leslie3d	64	1270	474	1272	473	**1271**	**473**							
444.namd	64	669	767	666	770	**668**	**768**							
447.dealII	64	476	1540	484	1510	**477**	**1530**							
450.soplex	64	**1061**	**503**	1062	502	1061	503							
453.povray	64	271	1260	273	1250	**272**	**1250**							
454.calculix	64	**361**	**1460**	361	1460	360	1460							
459.GemsFDTD	64	1580	430	**1576**	**431**	1574	432							
465.tonto	64	673	936	**670**	**940**	665	946							
470.lbm	64	**1034**	**851**	1034	851	1033	851							
481.wrf	64	839	852	837	855	**839**	**853**							
482.sphinx3	64	1529	816	1523	819	**1527**	**817**							

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
Turbo mode set with:
 cpupower -c all frequency-set -g performance
```

Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Performance
Set Lock_step to disabled
Baseboard Management Controller used to adjust the fan speed to 100%
Set C-State to C0/C1
Sysinfo program /home/spec2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on RH5885v3 Mon Aug 15 14:30:11 2016

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 E7-4809 v4 @ 2.10GHz
      4 "physical id"s (chips)
      64 "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
      physical 2: cores 0 1 2 3 4 5 6 7
      physical 3: cores 0 1 2 3 4 5 6 7
   cache size : 20480 KB

From /proc/meminfo
   MemTotal:       263855448 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.2 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.2"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

uname -a:
   Linux RH5885v3 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 15 18:08
```

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Platform Notes (Continued)

```
SPEC is set to: /home/spec2006
   Filesystem            Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   838G   36G  803G   5% /home
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 American Megatrends Inc. BLISV767 07/27/2016
  Memory:
   16x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1333 MHz
   32x NO DIMM NO DIMM

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 256 GB and the dmidecode description should have two lines reading as:
   16x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1333 MHz
   32x NO DIMM NO DIMM
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/spec2006/libs/32:/home/spec2006/libs/64:/home/spec2006/sh"

 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
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 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

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.2-BDW-RevG.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.2-BDW-RevG.xml

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For other inquiries, please contact webmaster@spec.org.

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