SPEC® CFP2006 Result
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Huawei

Huawei RH2288 v2 (Intel Xeon E5-2618L v2)

$SPECfp®\_rate2006 = 330$

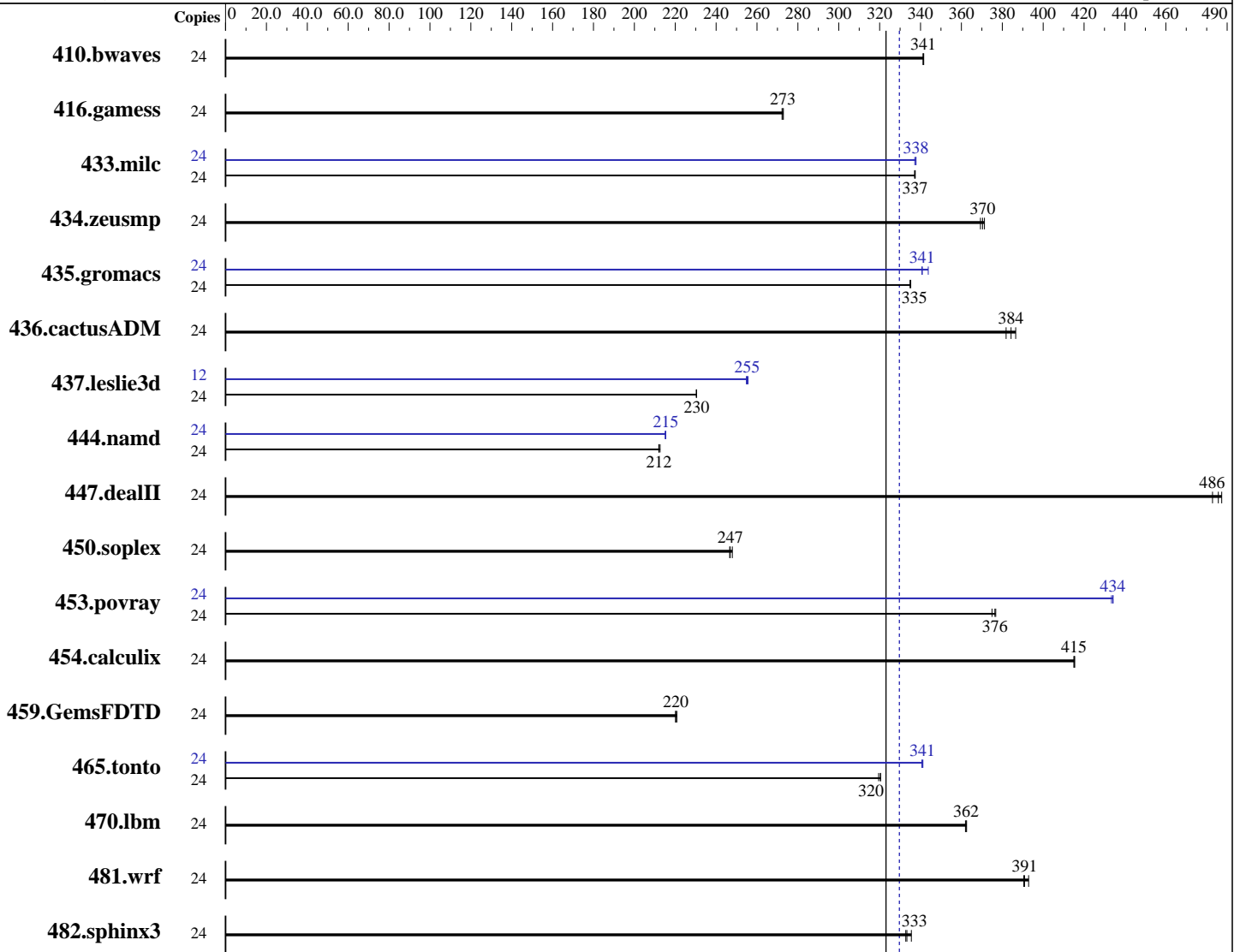$SPECfp\_rate\_base2006 = 323$

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

Test date: Dec-2014
Hardware Availability: Sep-2013
Software Availability: Sep-2014

Benchmark	Copies	Result
410.bwaves	24	341
416.gamess	24	273
433.milc	24 / 24	338 / 337
434.zeusmp	24	370
435.gromacs	24 / 24	341 / 335
436.cactusADM	24	384
437.leslie3d	12 / 24	255 / 230
444.namd	24 / 24	215 / 212
447.dealII	24	486
450.soplex	24	247
453.povray	24 / 24	434 / 376
454.calculix	24	415
459.GemsFDTD	24	220
465.tonto	24 / 24	341 / 320
470.lbm	24	362
481.wrf	24	391
482.sphinx3	24	333

SPECfp_rate_base2006 = 323
SPECfp_rate2006 = 330

Hardware

CPU Name: Intel Xeon E5-2618L v2
CPU Characteristics:
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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: 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: No
File System: ext4
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SPECfp_rate_base2006 = 323

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L3 Cache:	15 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 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	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	24	956	341	**956**	**341**	955	342	24	956	341	**956**	**341**	955	342
416.gamess	24	**1724**	**273**	1722	273	1726	272	24	**1724**	**273**	1722	273	1726	272
433.milc	24	**653**	**337**	654	337	653	337	24	653	337	652	338	**652**	**338**
434.zeusmp	24	591	369	**590**	**370**	588	371	24	591	369	**590**	**370**	588	371
435.gromacs	24	**512**	**335**	511	335	512	335	24	503	341	**503**	**341**	498	344
436.cactusADM	24	742	387	751	382	**746**	**384**	24	742	387	751	382	**746**	**384**
437.leslie3d	24	980	230	**979**	**230**	979	230	12	441	256	**442**	**255**	443	255
444.namd	24	908	212	905	213	**908**	**212**	24	894	215	**894**	**215**	895	215
447.dealII	24	**565**	**486**	563	487	569	483	24	**565**	**486**	563	487	569	483
450.soplex	24	807	248	**811**	**247**	812	247	24	807	248	**811**	**247**	812	247
453.povray	24	339	377	341	375	**339**	**376**	24	295	433	**294**	**434**	294	434
454.calculix	24	477	415	477	415	**477**	**415**	24	477	415	477	415	**477**	**415**
459.GemsFDTD	24	1153	221	1157	220	**1156**	**220**	24	1153	221	1157	220	**1156**	**220**
465.tonto	24	737	320	739	319	**737**	**320**	24	693	341	692	341	**693**	**341**
470.lbm	24	910	363	911	362	**910**	**362**	24	910	363	911	362	**910**	**362**
481.wrf	24	**686**	**391**	686	391	682	393	24	**686**	**391**	686	391	682	393
482.sphinx3	24	1406	333	1394	336	**1403**	**333**	24	1406	333	1394	336	**1403**	**333**

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"

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Platform Notes

```
    BIOS configuration:
    Set Power Efficiency Mode to Custom
    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 Sun Dec  7 18:19:20 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

    From /proc/cpuinfo
       model name : Intel(R) Xeon(R) CPU E5-2618L v2 @ 2.00GHz
          2 "physical id"s (chips)
          24 "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 : 6
          siblings  : 12
          physical 0: cores 0 1 2 3 4 5
          physical 1: cores 0 1 2 3 4 5
       cache size : 15360 KB

    From /proc/meminfo
       MemTotal:       263924204 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 Dec 5 11:40

    SPEC is set to: /spec15
       Filesystem          Type  Size  Used Avail Use% Mounted on
       /dev/mapper/rhel-root ext4  256G   50G  194G  21% /
```
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Platform Notes (Continued)

```
  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 Insyde Corp. RMIBV629 05/12/2014
    Memory:
    16x Hynix HMT42GR7BFR4C-RD 16 GB 2 rank 1867 MHz, configured at 1333 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:
LD_LIBRARY_PATH = "/spec15/libs/32:/spec15/libs/64:/spec15/sh"

  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
  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
```

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Base Portability Flags (Continued)

```
        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:
```
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
    -opt-mem-layout-trans=3
```

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

Fortran benchmarks:
```
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch
```

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

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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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) -opt-mem-layout-trans=3(pass 2)
           -prof-use(pass 2) -auto-ilp32

      470.lbm: basepeak = yes

    482.sphinx3: basepeak = yes

C++ benchmarks:

      444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
           -prof-use(pass 2) -fno-alias -auto-ilp32

    447.dealII: 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) -opt-mem-layout-trans=3(pass 2)
           -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

    410.bwaves: basepeak = yes

    416.gamess: basepeak = yes

    434.zeusmp: basepeak = yes

    437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

  459.GemsFDTD: basepeak = yes

    465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
          -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

    435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
           -prof-use(pass 2) -opt-prefetch -auto-ilp32

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-V1.1.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-V1.1.xml

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

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