SPEC® CFP2006 Result
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Huawei

Huawei RH2485 V2 (Intel Xeon E5-4650)

SPECfp®_rate2006 = 883
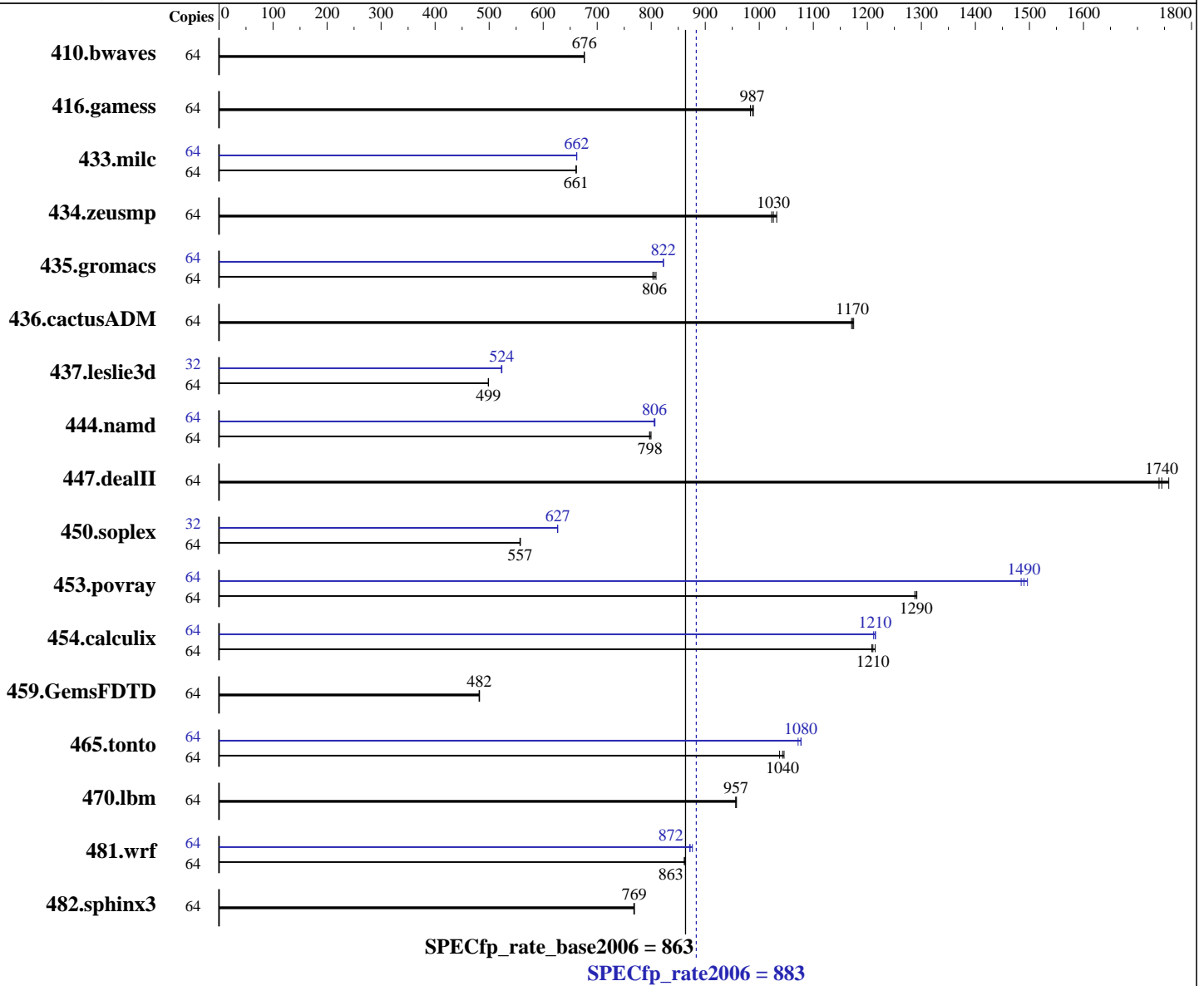
SPECfp_rate_base2006 = 863

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

Test date: Jun-2012
Hardware Availability: May-2012
Software Availability: Dec-2011

Benchmark	Copies	Result
410.bwaves	64	676
416.gamess	64	987
433.milc	64 / 64	662 / 661
434.zeusmp	64	1030
435.gromacs	64 / 64	822 / 806
436.cactusADM	64	1170
437.leslie3d	32 / 64	524 / 499
444.namd	64 / 64	806 / 798
447.dealII	64	1740
450.soplex	32 / 64	627 / 557
453.povray	64 / 64	1490 / 1290
454.calculix	64 / 64	1210 / 1210
459.GemsFDTD	64	482
465.tonto	64 / 64	1080 / 1040
470.lbm	64	957
481.wrf	64 / 64	872 / 863
482.sphinx3	64	769

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Hardware

CPU Name: Intel Xeon E5-4650
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2700
FPU: Integrated
CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
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
Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
2.6.32-220.el6.x86_64
Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: ext3
Continued on next page

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SPECfp_rate2006 =   883

SPECfp_rate_base2006 =   863

CPU2006 license: 3175	**Test date:** Jun-2012
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Tested by: Huawei	**Software Availability:** Dec-2011

L3 Cache:	20 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 (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 300 GB SAS, 10K RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	**1286**	**676**	1287	676	1286	676	64	**1286**	**676**	1287	676	1286	676
416.gamess	64	**1269**	**987**	1267	989	1274	984	64	**1269**	**987**	1267	989	1274	984
433.milc	64	888	661	**889**	**661**	889	661	64	**887**	**662**	888	662	887	662
434.zeusmp	64	569	1020	**568**	**1030**	564	1030	64	569	1020	**568**	**1030**	564	1030
435.gromacs	64	565	809	**567**	**806**	569	803	64	555	823	556	822	**556**	**822**
436.cactusADM	64	651	1170	653	1170	**652**	**1170**	64	651	1170	653	1170	**652**	**1170**
437.leslie3d	64	1206	499	1207	498	**1206**	**499**	32	576	523	575	524	**575**	**524**
444.namd	64	644	797	642	800	**643**	**798**	64	**637**	**806**	637	806	636	807
447.dealII	64	**420**	**1740**	416	1760	421	1740	64	**420**	**1740**	416	1760	421	1740
450.soplex	64	957	558	**957**	**557**	958	557	32	**426**	**627**	426	627	426	627
453.povray	64	264	1290	264	1290	**264**	**1290**	64	**229**	**1490**	229	1480	228	1500
454.calculix	64	437	1210	435	1210	**436**	**1210**	64	**435**	**1210**	434	1220	436	1210
459.GemsFDTD	64	**1409**	**482**	1408	482	1411	481	64	**1409**	**482**	1408	482	1411	481
465.tonto	64	602	1050	**604**	**1040**	607	1040	64	**585**	**1080**	585	1080	588	1070
470.lbm	64	919	956	918	958	**919**	**957**	64	919	956	918	958	**919**	**957**
481.wrf	64	830	861	829	863	**829**	**863**	64	816	876	820	872	**820**	**872**
482.sphinx3	64	1623	769	1625	768	**1623**	**769**	64	1623	769	1625	768	**1623**	**769**

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"
   Transparent Huge Pages enabled with:
   echo always > /sys/kernel/mm/redhat_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>
   Select only test related files when installing the operating system

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Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Performance
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on RH62-yjp2 Thu Jun 21 17:01:55 2012

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 E5-4650 0 @ 2.70GHz
      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:       264495772 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux RH62-yjp2 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 21 16:56

SPEC is set to: /spec
   Filesystem      Type     Size   Used Avail Use% Mounted on
   /dev/sda1       ext3     270G    92G  164G  36% /

Additional information from dmidecode:
   Memory:
   32x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank
```

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General Notes

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

 Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory
 using RHEL 6.1
```

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

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Base Optimization Flags (Continued)

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

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

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

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```
```
  450.soplex: icpc -m32
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

Peak 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
    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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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) `-static` `-auto-ilp32`
    `-opt-mem-layout-trans=3`

  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) `-prof-use`(pass 2) `-fno-alias`
    `-auto-ilp32`

  447.dealII: `basepeak = yes`

  450.soplex: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
    `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-opt-malloc-options=3`

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

Fortran benchmarks:

  410.bwaves: `basepeak = yes`

  416.gamess: `basepeak = yes`

  434.zeusmp: `basepeak = yes`

  437.leslie3d: `-xAVX` `-ipo` `-O3` `-no-prec-div` `-static` `-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` `-O3` `-no-prec-div`
    `-prof-use`(pass 2) `-xSSE4.2` `-opt-prefetch` `-static`
    `-auto-ilp32` `-opt-mem-layout-trans=3`

  436.cactusADM: `basepeak = yes`

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Peak Optimization Flags (Continued)

454.calculix: `-xAVX -ipo -O3 -no-prec-div -static -auto-ilp32`
`-opt-mem-layout-trans=3`

481.wrf: `Same as 454.calculix`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20120703.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20120703.xml

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

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