SPEC® CFP2006 Result
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Huawei

$SPECfp®\_rate2006 = 329$

Huawei BH620 V2 (Intel Xeon E5-2440)
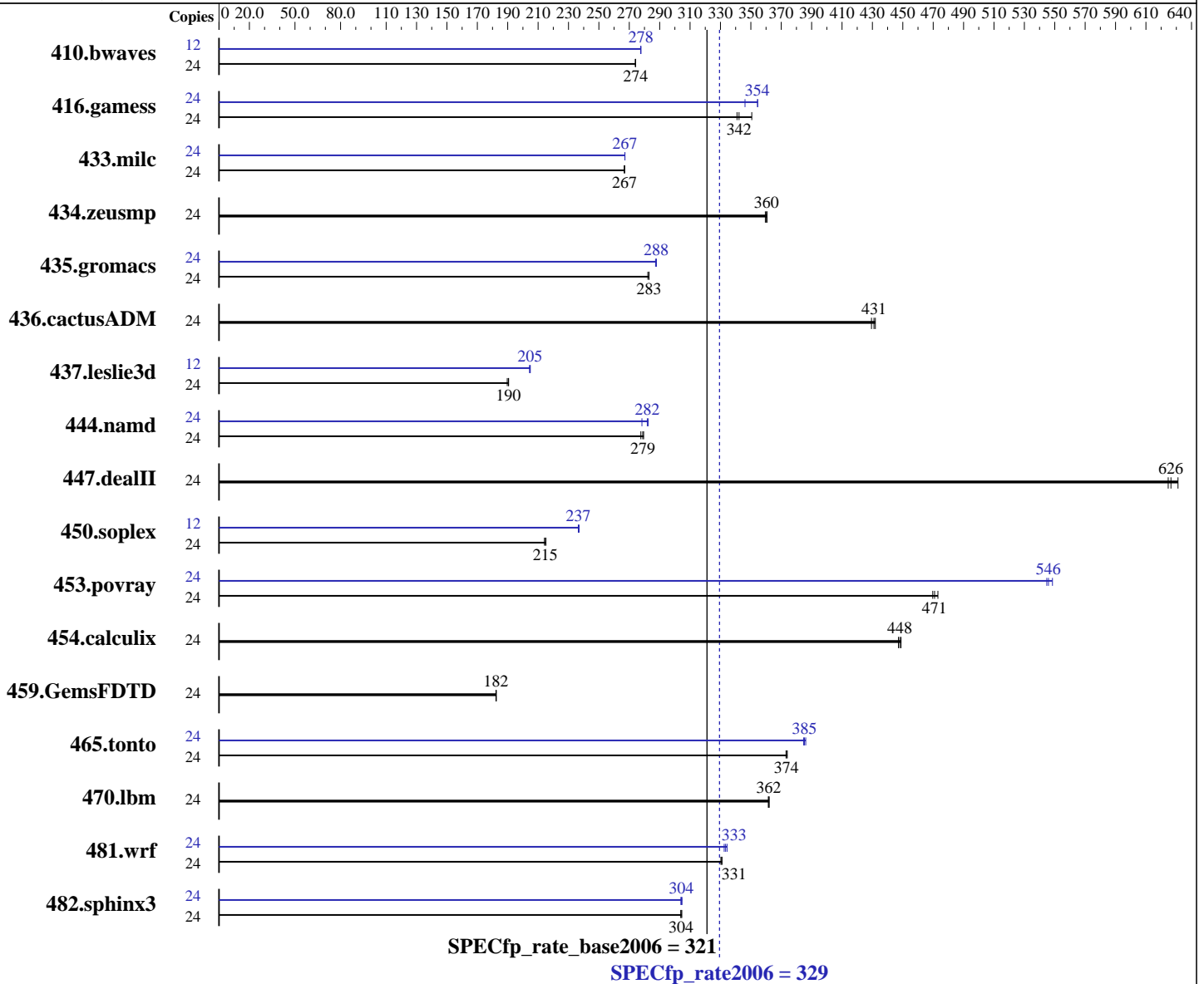
$SPECfp\_rate\_base2006 = 321$

SPECfp_rate_base2006 = 321

SPECfp_rate2006 = 329

Hardware

CPU Name: Intel Xeon E5-2440
CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chips
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

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SPECfp_rate2006 =	329
SPECfp_rate_base2006 =	321

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

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:	96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)	Peak Pointers:	32/64-bit
		Other Software:	None
Disk Subsystem:	1 x 300 GB SAS, 10K RPM		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1190	274	**1190**	**274**	1191	274	12	**587**	**278**	587	278	588	277
416.gamess	24	1340	351	**1373**	**342**	1378	341	24	**1326**	**354**	1326	355	1358	346
433.milc	24	826	267	**826**	**267**	826	267	24	825	267	**825**	**267**	825	267
434.zeusmp	24	606	361	**606**	**360**	607	360	24	606	361	**606**	**360**	607	360
435.gromacs	24	606	283	607	282	**606**	**283**	24	**596**	**288**	595	288	596	287
436.cactusADM	24	**665**	**431**	668	429	664	432	24	**665**	**431**	668	429	664	432
437.leslie3d	24	1189	190	1184	191	**1185**	**190**	12	552	204	**551**	**205**	551	205
444.namd	24	689	279	693	278	**690**	**279**	24	**683**	**282**	692	278	681	282
447.dealII	24	440	625	**438**	**626**	435	631	24	440	625	**438**	**626**	435	631
450.soplex	24	935	214	930	215	**932**	**215**	12	**423**	**237**	423	236	422	237
453.povray	24	270	473	**271**	**471**	272	470	24	233	548	**234**	**546**	234	545
454.calculix	24	443	447	441	449	**442**	**448**	24	443	447	441	449	**442**	**448**
459.GemsFDTD	24	**1396**	**182**	1396	182	1397	182	24	**1396**	**182**	1396	182	1397	182
465.tonto	24	**632**	**374**	631	374	633	373	24	614	385	612	386	**613**	**385**
470.lbm	24	**912**	**362**	911	362	912	362	24	**912**	**362**	911	362	912	362
481.wrf	24	810	331	812	330	**810**	**331**	24	**804**	**333**	802	334	806	332
482.sphinx3	24	1536	305	1539	304	**1538**	**304**	24	1535	305	1539	304	**1537**	**304**

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>

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Operating System Notes (Continued)

Select only test related files when installing the operating system

Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Performance
Adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on RH62-yjp2 Tue May 29 07:52:28 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 E5-2440 0 @ 2.40GHz
      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:        99042080 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 May 28 18:53

SPEC is set to: /spec
   Filesystem     Type     Size  Used Avail Use% Mounted on
   /dev/sda1      ext3     270G   84G  172G  33% /

Additional information from dmidecode:
  Memory:
   12x 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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Huawei

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

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 (except as noted below):

```
icc   -m64
```

```
482.sphinx3: icc -m32
```

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
```

Huawei

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Hardware Availability: May-2012
Software Availability: Dec-2011

Peak Portability Flags (Continued)

481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

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: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -static -unroll2`

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: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static`

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- -static`

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`

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Peak Optimization Flags (Continued)

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

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
         -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-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.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.xml

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

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