SPEC® CFP2006 Result
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HITACHI

BladeSymphony BS320 (Intel Xeon E5-2430L)

$SPECfp^®\_rate2006 = \quad 297$

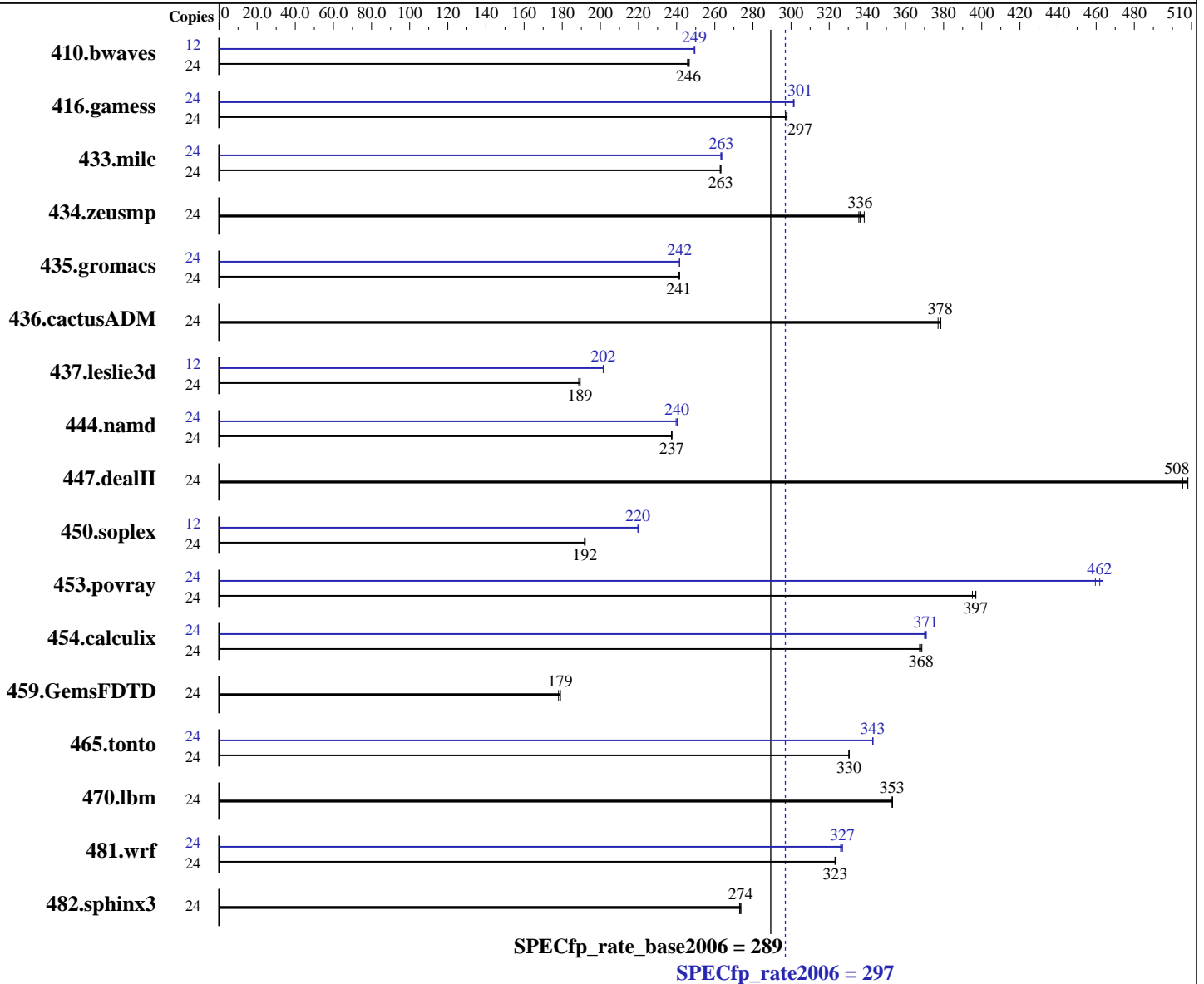$SPECfp\_rate\_base2006 = \quad 289$

CPU2006 license: 35

Test sponsor: HITACHI

Tested by: HITACHI

Test date: Aug-2012

Hardware Availability: Jun-2012

Software Availability: Feb-2012

Benchmark	Copies	Result
410.bwaves	12	249
410.bwaves	24	246
416.gamess	24	301
416.gamess	24	297
433.milc	24	263
433.milc	24	263
434.zeusmp	24	336
435.gromacs	24	242
435.gromacs	24	241
436.cactusADM	24	378
437.leslie3d	12	202
437.leslie3d	24	189
444.namd	24	240
444.namd	24	237
447.dealII	24	508
450.soplex	12	220
450.soplex	24	192
453.povray	24	462
453.povray	24	397
454.calculix	24	371
454.calculix	24	368
459.GemsFDTD	24	179
465.tonto	24	343
465.tonto	24	330
470.lbm	24	353
481.wrf	24	327
481.wrf	24	323
482.sphinx3	24	274

SPECfp_rate_base2006 = 289

SPECfp_rate2006 = 297

Hardware

CPU Name: Intel Xeon E5-2430L

CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz

CPU MHz: 2000

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, Kernel 2.6.32-220.4.2.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: ext4

System State: Run level 3 (multi-user)

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L3 Cache:	15 MB I+D on chip per chip
Other Cache:	None
Memory:	96 GB (12 x 8 GB 2Rx4 PC3L-10600R-9, ECC)
Disk Subsystem:	2 x 147 GB SAS, 15000 RPM RAID1 configuration
Other Hardware:	None

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	24	1328	246	**1324**	**246**	1323	247	12	**654**	**249**	654	249	653	250
416.gamess	24	**1581**	**297**	1577	298	1582	297	24	1558	302	**1559**	**301**	1560	301
433.milc	24	837	263	838	263	**837**	**263**	24	837	263	**836**	**263**	835	264
434.zeusmp	24	651	336	645	338	**650**	**336**	24	651	336	645	338	**650**	**336**
435.gromacs	24	709	242	712	241	**710**	**241**	24	710	241	709	242	**709**	**242**
436.cactusADM	24	**758**	**378**	758	379	761	377	24	**758**	**378**	758	379	761	377
437.leslie3d	24	1191	189	**1192**	**189**	1196	189	12	559	202	560	201	**560**	**202**
444.namd	24	811	237	810	238	**811**	**237**	24	**801**	**240**	801	240	803	240
447.dealII	24	**541**	**508**	540	508	543	505	24	**541**	**508**	540	508	543	505
450.soplex	24	**1043**	**192**	1045	192	1042	192	12	456	220	455	220	**455**	**220**
453.povray	24	323	395	**322**	**397**	322	397	24	275	464	278	460	**276**	**462**
454.calculix	24	537	369	539	367	**538**	**368**	24	534	371	**534**	**371**	535	370
459.GemsFDTD	24	1430	178	1422	179	**1423**	**179**	24	1430	178	1422	179	**1423**	**179**
465.tonto	24	715	330	715	330	**715**	**330**	24	689	343	688	343	**689**	**343**
470.lbm	24	**934**	**353**	936	352	934	353	24	**934**	**353**	936	352	934	353
481.wrf	24	828	324	830	323	**830**	**323**	24	822	326	820	327	**820**	**327**
482.sphinx3	24	1713	273	**1710**	**274**	1709	274	24	1713	273	**1710**	**274**	1709	274

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"

Platform Notes

Sysinfo program /home/cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Fri Aug 3 11:32:59 2012

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Platform Notes (Continued)

```
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 E5-2430L 0 @ 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:       99009112 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.2 (Santiago)

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 localhost.localdomain 2.6.32-220.4.2.el6.x86_64 #1 SMP Mon Feb 6
   16:39:28 EST 2012 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 3 11:28

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
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.:
```

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General Notes (Continued)

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

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)

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) -unroll4 -ansi-alias

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

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

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

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-linux64.20111122.html
http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.xml

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