



SPEC[®] CFP2006 Result

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HITACHI

SPECfp[®]_rate2006 = 129

HA8000-bd (Intel Xeon E3-1240L v3)

SPECfp_rate_base2006 = 125

CPU2006 license: 35

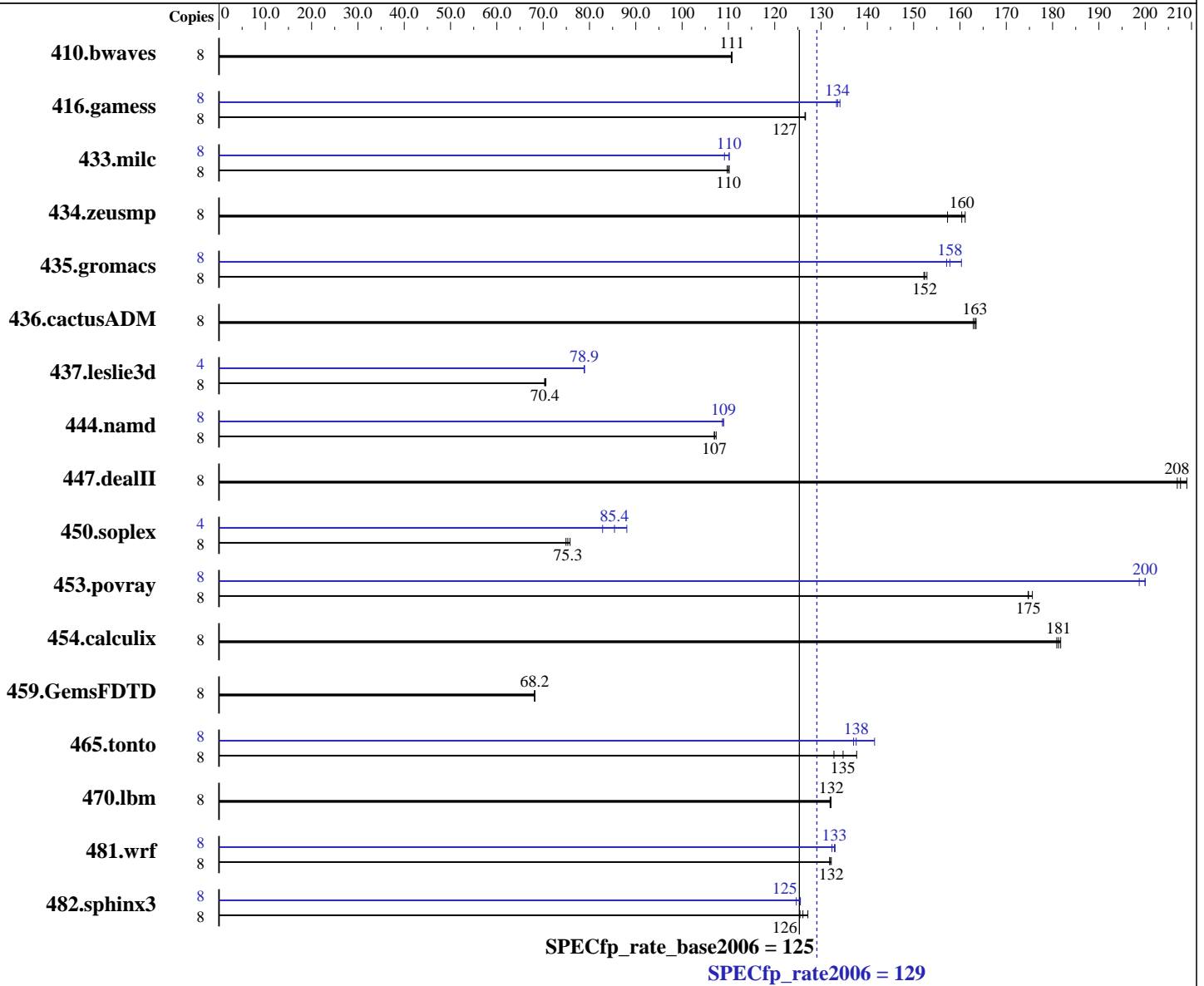
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Sep-2014

Hardware Availability: Oct-2014

Software Availability: Feb-2013



Hardware

CPU Name: Intel Xeon E3-1240L v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 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 6.4 (Santiago)
 2.6.32-358.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

Continued on next page



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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (4 x 8 GB 2Rx8 PC3-12800E-11, ECC)
Disk Subsystem: 1 x 1000 GB SATA, 7200RPM
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	8	<u>981</u>	<u>111</u>	981	111	983	111	8	<u>981</u>	<u>111</u>	981	111	983	111
416.gamess	8	1237	127	1238	127	<u>1237</u>	<u>127</u>	8	1168	134	1175	133	<u>1173</u>	<u>134</u>
433.milc	8	667	110	<u>668</u>	<u>110</u>	669	110	8	667	110	<u>667</u>	<u>110</u>	673	109
434.zeusmp	8	452	161	<u>454</u>	<u>160</u>	463	157	8	452	161	<u>454</u>	<u>160</u>	463	157
435.gromacs	8	375	152	<u>375</u>	<u>152</u>	374	153	8	356	160	364	157	<u>362</u>	<u>158</u>
436.cactusADM	8	585	163	<u>586</u>	<u>163</u>	587	163	8	585	163	<u>586</u>	<u>163</u>	587	163
437.leslie3d	8	<u>1068</u>	<u>70.4</u>	1065	70.6	1069	70.3	4	477	78.9	<u>477</u>	<u>78.9</u>	476	78.9
444.namd	8	<u>600</u>	<u>107</u>	598	107	600	107	8	589	109	<u>589</u>	<u>109</u>	590	109
447.dealII	8	438	209	<u>441</u>	<u>208</u>	442	207	8	438	209	<u>441</u>	<u>208</u>	442	207
450.soplex	8	890	74.9	880	75.8	<u>886</u>	<u>75.3</u>	4	<u>391</u>	<u>85.4</u>	403	82.8	379	88.1
453.povray	8	242	176	244	175	<u>243</u>	<u>175</u>	8	213	200	214	199	<u>213</u>	<u>200</u>
454.calculix	8	<u>364</u>	<u>181</u>	365	181	363	182	8	<u>364</u>	<u>181</u>	365	181	363	182
459.GemsFDTD	8	1246	68.1	<u>1245</u>	<u>68.2</u>	1245	68.2	8	1246	68.1	<u>1245</u>	<u>68.2</u>	1245	68.2
465.tonto	8	<u>584</u>	<u>135</u>	593	133	572	138	8	<u>572</u>	<u>138</u>	574	137	556	142
470.lbm	8	833	132	<u>833</u>	<u>132</u>	832	132	8	833	132	<u>833</u>	<u>132</u>	832	132
481.wrf	8	676	132	<u>677</u>	<u>132</u>	678	132	8	672	133	675	132	<u>672</u>	<u>133</u>
482.sphinx3	8	1226	127	1243	125	<u>1237</u>	<u>126</u>	8	1251	125	<u>1242</u>	<u>125</u>	1242	126

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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/cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Tue Sep 9 07:25:52 2014

Continued on next page



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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 E3-1240L v3 @ 2.00GHz
 1 "physical id"s (chips)
 8 "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 : 4
siblings   : 8
physical 0: cores 0 1 2 3
cache size : 8192 KB
```

From /proc/meminfo

```
MemTotal:      32958232 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

/usr/bin/lsb_release -d

```
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

From /etc/*release* /etc/*version*

```
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux localhost.localdomain 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41
EST 2013 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Sep 8 20:01

SPEC is set to: /home/cpu2006/cpu2006

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/VolGroup-lv_home
ext4 172G 13G 151G 8% /home
```

Additional information from dmidecode:

```
BIOS American Megatrends Inc. P2_03 09/04/2014
```

Memory:

```
4x 8 GB
4x 1323 SMD3L-N8G28HA-16K 8 GB 1600 MHz 2 rank
```

(End of data from sysinfo program)



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General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/home/cpu2006/cpu2006/libs/32:/home/cpu2006/cpu2006/libs/64:/home/cpu2006/cpu2006/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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

Continued on next page



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Base Optimization Flags (Continued)

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

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

Continued on next page



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Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-unroll2

C++ benchmarks:

444.namd: -xCORE-AVX2(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.dealIII: basepeak = yes

450.soplex: -xCORE-AVX2(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-malloc-options=3

453.povray: -xCORE-AVX2(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: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

Continued on next page



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Peak Optimization Flags (Continued)

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2(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

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.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-ic14.0-official-linux64-revC.xml>
<http://www.spec.org/cpu2006/flags/PlatformHitachi-V1.2.xml>

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