



SPEC® CFP2006 Result

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ASUSTeK Computer Inc.

SPECfp®2006 = 110

ASUS RS500-E8(Z10PR-D16) Server System (Intel Xeon E5-2699 v3)

SPECfp_base2006 = 104

CPU2006 license: 9016

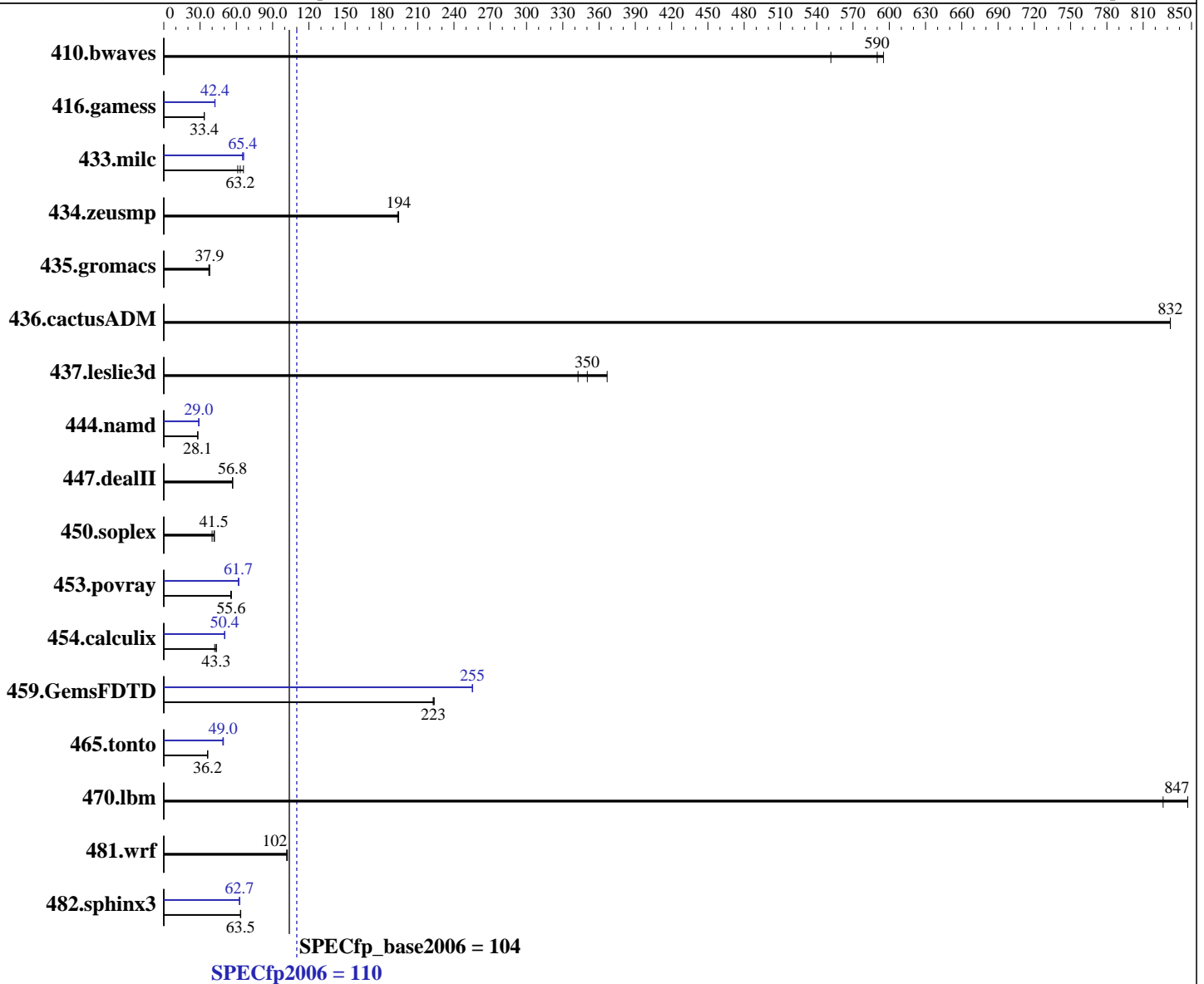
Test date: Sep-2014

Test sponsor: ASUSTeK Computer Inc.

Hardware Availability: Sep-2014

Tested by: ASUSTeK Computer Inc.

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2699 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 36 cores, 2 chips, 18 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 6.5 (Santiago)
 2.6.32-431.5.1.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: Yes
 File System: ext4

Continued on next page



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L3 Cache: 45 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: HITACHI HDP725050GLA380 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24.6	552	22.8	595	<u>23.0</u>	<u>590</u>	24.6	552	22.8	595	<u>23.0</u>	<u>590</u>
416.gamess	586	33.4	584	33.5	<u>586</u>	<u>33.4</u>	<u>462</u>	<u>42.4</u>	464	42.2	462	42.4
433.milc	<u>145</u>	<u>63.2</u>	139	65.9	150	61.1	<u>140</u>	<u>65.4</u>	141	65.2	139	66.1
434.zeusmp	<u>46.8</u>	<u>194</u>	46.8	194	47.0	193	<u>46.8</u>	<u>194</u>	46.8	194	47.0	193
435.gromacs	192	37.2	<u>189</u>	<u>37.9</u>	189	37.9	192	37.2	<u>189</u>	<u>37.9</u>	189	37.9
436.cactusADM	<u>14.4</u>	<u>832</u>	14.4	832	14.4	833	<u>14.4</u>	<u>832</u>	14.4	832	14.4	833
437.leslie3d	25.6	367	27.4	343	<u>26.8</u>	<u>350</u>	25.6	367	27.4	343	<u>26.8</u>	<u>350</u>
444.namd	<u>286</u>	<u>28.1</u>	286	28.1	286	28.1	277	29.0	<u>277</u>	<u>29.0</u>	277	29.0
447.dealII	<u>201</u>	<u>56.8</u>	202	56.8	201	57.0	<u>201</u>	<u>56.8</u>	202	56.8	201	57.0
450.soplex	199	41.9	209	39.9	<u>201</u>	<u>41.5</u>	199	41.9	209	39.9	<u>201</u>	<u>41.5</u>
453.povray	96.1	55.4	95.1	55.9	<u>95.7</u>	<u>55.6</u>	85.7	62.1	<u>86.2</u>	<u>61.7</u>	86.3	61.7
454.calculix	196	42.1	<u>190</u>	<u>43.3</u>	190	43.5	<u>164</u>	<u>50.4</u>	164	50.4	164	50.4
459.GemsFDTD	<u>47.6</u>	<u>223</u>	47.6	223	47.4	224	41.6	255	41.6	255	<u>41.6</u>	<u>255</u>
465.tonto	273	36.1	270	36.4	<u>272</u>	<u>36.2</u>	<u>201</u>	<u>49.0</u>	201	48.9	199	49.3
470.lbm	16.6	827	<u>16.2</u>	<u>847</u>	16.2	847	16.6	827	<u>16.2</u>	<u>847</u>	16.2	847
481.wrf	<u>110</u>	<u>102</u>	109	102	110	102	<u>110</u>	<u>102</u>	109	102	110	102
482.sphinx3	306	63.7	307	63.5	<u>307</u>	<u>63.5</u>	311	62.7	311	62.6	<u>311</u>	<u>62.7</u>

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

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS configuration:
Enforce POR = Disabled
Memory Frequency = 2133
Cluster on Die Enable = Disabled
Early Snoop Mode = Disabled
Power Boost = Extreme
Sysinfo program /cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Thu Sep 11 22:50:10 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 E5-2699 v3 @ 2.30GHz
2 "physical id"s (chips)
72 "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 : 18
siblings  : 36
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size : 46080 KB
```

```
From /proc/meminfo
MemTotal:      264464344 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux localhost.localdomain 2.6.32-431.5.1.el6.x86_64 #1 SMP Fri Jan 10
14:46:43 EST 2014 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Sep 11 17:25
```

```
SPEC is set to: /cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext4  459G  305G  131G  71% /
```

```
Additional information from dmidecode:
BIOS American Megatrends Inc. 08 08/29/2014
Memory:
16x 16 GB
16x Micron 36ASF2G72PZ-2G1A2 16 GB 2133 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 = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "36"

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
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
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



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Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

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

Peak Portability Flags

Same as Base Portability Flags

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) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

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Peak Optimization Flags (Continued)

C++ benchmarks:

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

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(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: 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

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/ASUSTek-Platform-Settings-V1.2-HSW-revA.html>



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You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/ASUSTek-Platform-Settings-V1.2-HSW-revA.xml>

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Oct 14 10:51:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 October 2014.