SPEC® CFP2006 Result
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ASUSTeK Computer Inc.

ASUS TS700-E7(Z9PE-D16) Server System
(Intel Xeon E5-2690)

$SPECfp^{®}_rate2006 = $ **507**

$SPECfp_rate_base2006 = $ **491**

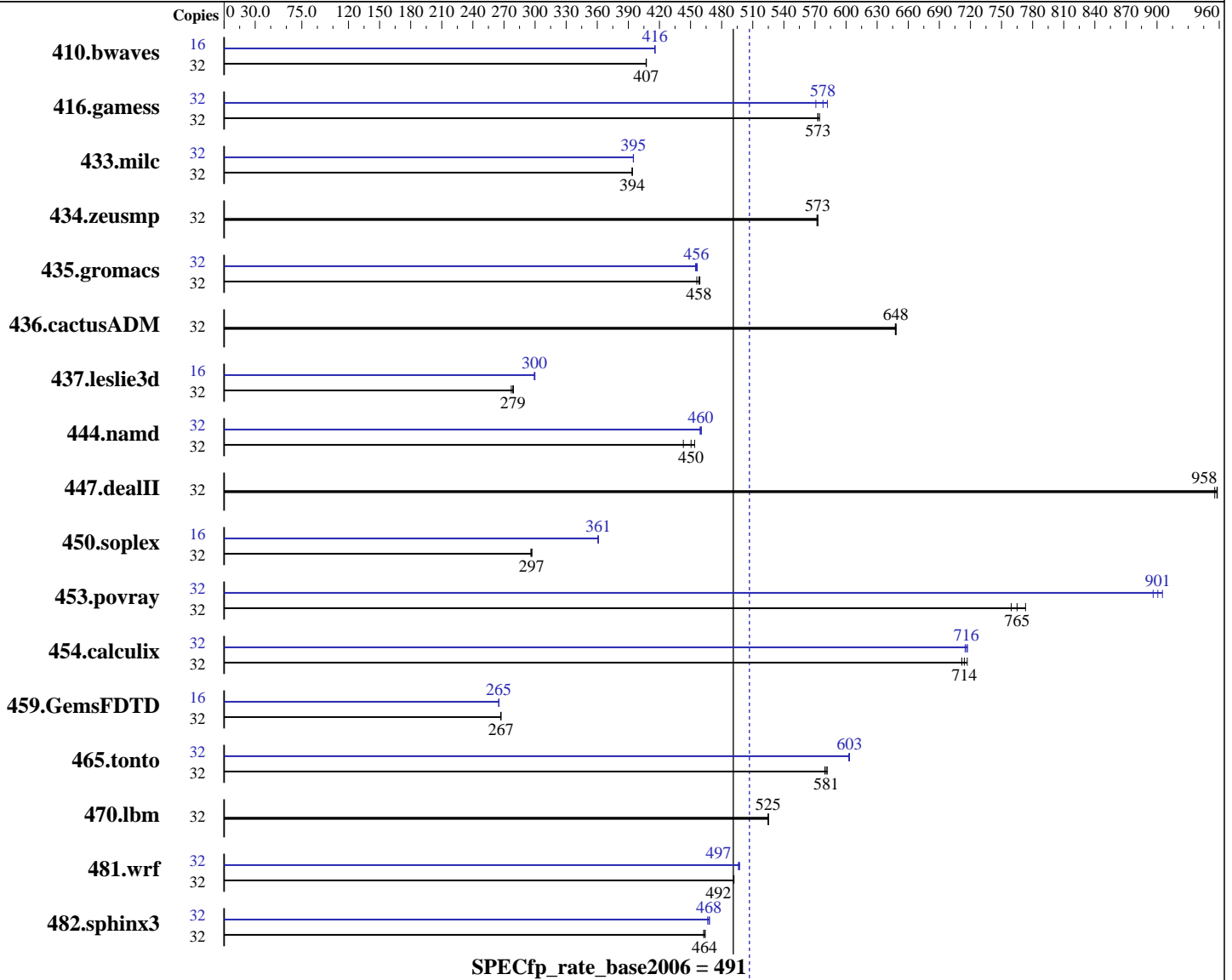|	
CPU2006 license: 9016	**Test date:** Feb-2012
Test sponsor: ASUSTeK Computer Inc.	**Hardware Availability:** Mar-2012
Tested by: ASUSTeK Computer Inc.	**Software Availability:** Dec-2011

Copies — chart scale: 0 30.0 75.0 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720 750 780 810 840 870 900 960

Benchmark	Copies	Result
410.bwaves	16	416
	32	407
416.gamess	32	578
	32	573
433.milc	32	395
	32	394
434.zeusmp	32	573
435.gromacs	32	456
	32	458
436.cactusADM	32	648
437.leslie3d	16	300
	32	279
444.namd	32	460
	32	450
447.dealII	32	958
450.soplex	16	361
	32	297
453.povray	32	901
	32	765
454.calculix	32	716
	32	714
459.GemsFDTD	16	265
	32	267
465.tonto	32	603
	32	581
470.lbm	32	525
481.wrf	32	497
	32	492
482.sphinx3	32	468
	32	464

SPECfp_rate_base2006 = 491

SPECfp_rate2006 = 507

Hardware

CPU Name:	Intel Xeon E5-2690
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2900
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	ext4

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L3 Cache:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	Seagate ST3500320AS 1 x 500 GB SATA, 7200 RPM
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	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	1068	407	1068	407	**1068**	**407**	16	523	415	**523**	**416**	523	416
416.gamess	32	1094	573	**1094**	**573**	1091	575	32	**1084**	**578**	1077	582	1098	571
433.milc	32	746	394	746	394	**746**	**394**	32	744	395	744	395	**744**	**395**
434.zeusmp	32	508	573	509	572	**509**	**573**	32	508	573	509	572	**509**	**573**
435.gromacs	32	**499**	**458**	501	456	498	459	32	**501**	**456**	501	457	502	455
436.cactusADM	32	591	647	**590**	**648**	590	648	32	591	647	**590**	**648**	590	648
437.leslie3d	32	**1080**	**279**	1077	279	1086	277	16	502	300	**502**	**300**	503	299
444.namd	32	**570**	**450**	565	454	579	443	32	**558**	**460**	559	459	557	460
447.dealII	32	383	956	382	958	**382**	**958**	32	383	956	382	958	**382**	**958**
450.soplex	32	902	296	899	297	**900**	**297**	16	370	361	**370**	**361**	370	361
453.povray	32	224	759	220	773	**223**	**765**	32	190	896	**189**	**901**	188	905
454.calculix	32	371	712	**370**	**714**	368	717	32	368	717	**369**	**716**	369	715
459.GemsFDTD	32	1272	267	1271	267	**1271**	**267**	16	**641**	**265**	641	265	640	265
465.tonto	32	543	580	**542**	**581**	541	582	32	523	603	522	603	**522**	**603**
470.lbm	32	838	525	**838**	**525**	837	525	32	838	525	**838**	**525**	837	525
481.wrf	32	727	492	727	492	**727**	**492**	32	**720**	**497**	720	496	719	497
482.sphinx3	32	**1346**	**464**	1348	463	1344	464	32	1337	467	**1333**	**468**	1332	468

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 /cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost Wed Feb 22 03:26:14 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 E5-2690 @ 2.90GHz
2 "physical id"s (chips)
32 "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
cache size : 20480 KB

From /proc/meminfo
MemTotal:       132284976 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 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 Feb 20 19:17

SPEC is set to: /cpu2006
Filesystem      Type     Size  Used Avail Use% Mounted on
/dev/sda1       ext4     459G   71G  366G  17% /

Additional information from dmidecode:

(End of data from sysinfo program)
```

General Notes

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

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
```

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General Notes (Continued)

```
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.:
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

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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 (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
465.tonto: -DSPEC_CPU_LP64
```

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Peak Portability Flags (Continued)

```
   470.lbm: -DSPEC_CPU_LP64
   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: -xAVX -ipo -O3 -no-prec-div -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) -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: -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

   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(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch`
`-static -auto-ilp32 -opt-mem-layout-trans=3`

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/ASUSTekPlatform.20120313.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/ASUSTekPlatform.20120313.xml

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

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