SPEC® CINT2006 Result
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Supermicro

SuperServer 6018TR-T
(X10DRT-L , Intel Xeon E5-2603 v4)
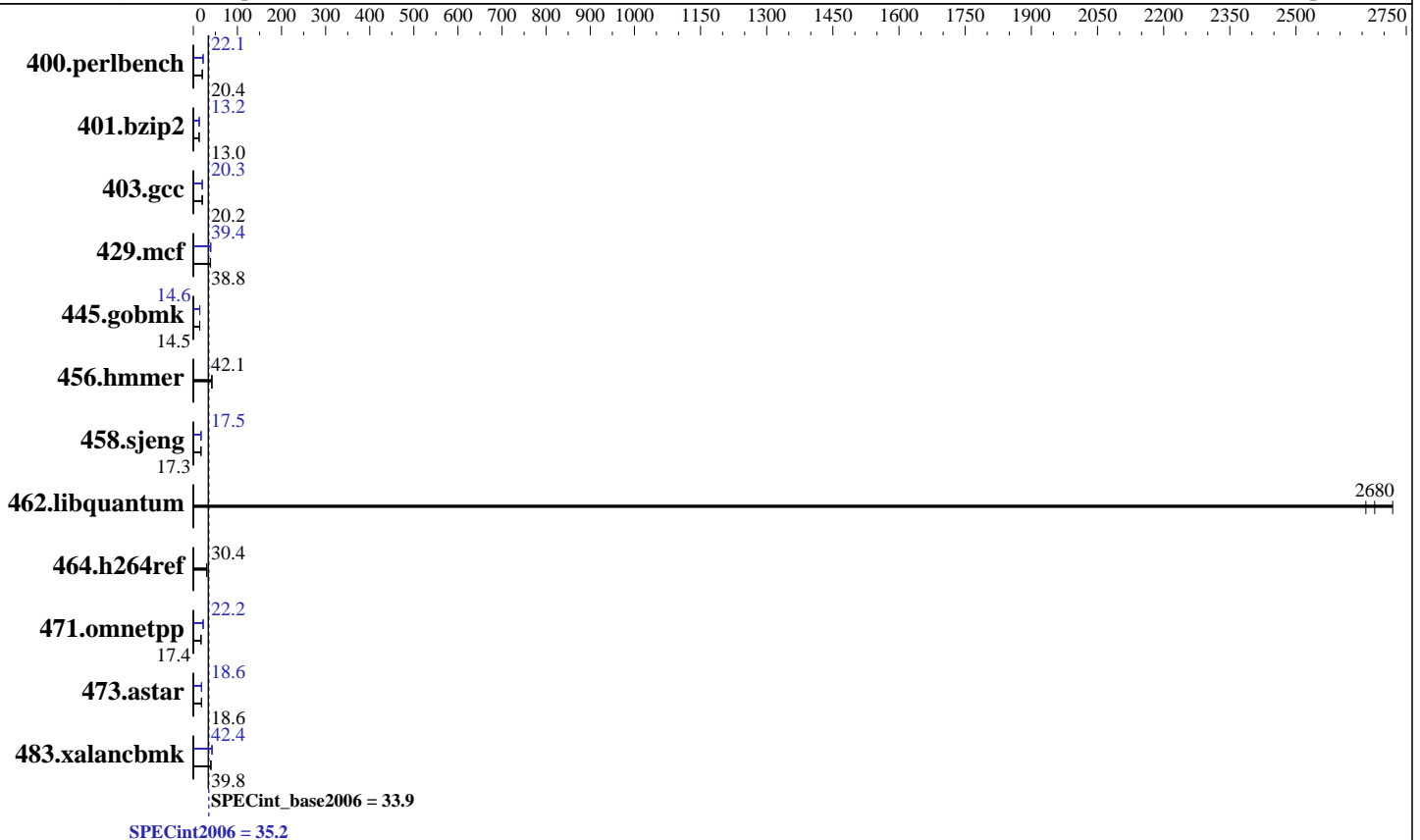
SPECint®2006 = 35.2

SPECint_base2006 = 33.9

Results by benchmark:

- 400.perlbench: 22.1 / 20.4
- 401.bzip2: 13.2 / 13.0
- 403.gcc: 20.3 / 20.2
- 429.mcf: 39.4 / 38.8
- 445.gobmk: 14.6 / 14.5
- 456.hmmer: 42.1
- 458.sjeng: 17.5 / 17.3
- 462.libquantum: 2680
- 464.h264ref: 30.4
- 471.omnetpp: 22.2 / 17.4
- 473.astar: 18.6 / 18.6
- 483.xalancbmk: 42.4 / 39.8

SPECint_base2006 = 33.9

SPECint2006 = 35.2

Hardware

CPU Name: Intel Xeon E5-2603 v4
CPU Characteristics:
CPU MHz: 1700
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
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
L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R, running at 1866 MHz)
Disk Subsystem: 1 x 400 GB SATA III SSD
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2, Kernel 3.10.0-327.el7.x86_x64
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.2

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CPU2006 license: 001176	**Test date:** Apr-2016
Test sponsor: Supermicro	**Hardware Availability:** Mar-2016
Tested by: Supermicro	**Software Availability:** Sep-2015

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	478	20.4	480	20.4	**479**	**20.4**	442	22.1	442	22.1	**442**	**22.1**
401.bzip2	740	13.0	**740**	**13.0**	742	13.0	**728**	**13.2**	729	13.2	728	13.3
403.gcc	398	20.2	**399**	**20.2**	399	20.2	**397**	**20.3**	397	20.3	398	20.2
429.mcf	233	39.1	**235**	**38.8**	236	38.6	233	39.1	**231**	**39.4**	230	39.6
445.gobmk	722	14.5	**723**	**14.5**	723	14.5	716	14.7	**716**	**14.6**	716	14.6
456.hmmer	222	42.0	222	42.1	**222**	**42.1**	222	42.0	222	42.1	**222**	**42.1**
458.sjeng	701	17.3	701	17.3	**701**	**17.3**	**693**	**17.5**	693	17.5	692	17.5
462.libquantum	7.79	2660	**7.74**	**2680**	7.62	2720	7.79	2660	**7.74**	**2680**	7.62	2720
464.h264ref	729	30.4	726	30.5	**729**	**30.4**	729	30.4	726	30.5	**729**	**30.4**
471.omnetpp	360	17.4	**360**	**17.4**	361	17.3	**282**	**22.2**	281	22.3	282	22.2
473.astar	377	18.6	377	18.6	**377**	**18.6**	**378**	**18.6**	380	18.5	377	18.6
483.xalancbmk	**173**	**39.8**	173	39.8	174	39.7	163	42.2	**163**	**42.4**	162	42.5

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

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

Platform Notes

```
Sysinfo program /home/cpu2006_ic16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Thu Apr 21 13:23:20 2016

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 E5-2603 v4@ 1.70GHz
      2 "physical id"s (chips)
      12 "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  : 6
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
```

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Platform Notes (Continued)

```
        cache size : 15360 KB

  From /proc/meminfo
     MemTotal:       263862276 kB
     HugePages_Total:        0
     Hugepagesize:        2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.2 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.2"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
     redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
     system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

  uname -a:
     Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
     EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Apr 21 13:20

  SPEC is set to: /home/cpu2006_ic16
     Filesystem            Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rhel-home xfs   216G  133G   84G  62% /home
  Additional information from dmidecode:

     Warning: Use caution when you interpret this section. The 'dmidecode' program
     reads system data which is "intended to allow hardware to be accurately
     determined", but the intent may not be met, as there are frequent changes to
     hardware, firmware, and the "DMTF SMBIOS" standard.

     BIOS American Megatrends Inc. 2.0 12/17/2015
     Memory:
      8x Micron 36ASF4G72PZ-2G3A1 32 GB 2 rank 2400 MHz, configured at 1866 MHz

  (End of data from sysinfo program)
```

General Notes

```
  Environment variables set by runspec before the start of the run:
  KMP_AFFINITY = "granularity=fine,scatter"
  LD_LIBRARY_PATH = "/home/cpu2006_ic16/libs/32:/home/cpu2006_ic16/libs/64:/home/cpu2006_ic16/sh"
  OMP_NUM_THREADS = "12"

   Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
```

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General Notes (Continued)

```
memory using RedHat EL 7.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

Base Compiler Invocation

C benchmarks:
```
icc -m64
```

C++ benchmarks:
```
icpc -m64
```

Base Portability Flags

```
  400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
      401.bzip2: -DSPEC_CPU_LP64
        403.gcc: -DSPEC_CPU_LP64
        429.mcf: -DSPEC_CPU_LP64
      445.gobmk: -DSPEC_CPU_LP64
      456.hmmer: -DSPEC_CPU_LP64
      458.sjeng: -DSPEC_CPU_LP64
   462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
     464.h264ref: -DSPEC_CPU_LP64
     471.omnetpp: -DSPEC_CPU_LP64
       473.astar: -DSPEC_CPU_LP64
   483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64
```

Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc -m64
```

400.perlbench: `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

445.gobmk: `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

C++ benchmarks (except as noted below):
```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

473.astar: `icpc -m64`

Peak Portability Flags

```
       400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
          401.bzip2: -DSPEC_CPU_LP64
            403.gcc: -DSPEC_CPU_LP64
            429.mcf: -DSPEC_CPU_LP64
          445.gobmk: -D_FILE_OFFSET_BITS=64
          456.hmmer: -DSPEC_CPU_LP64
          458.sjeng: -DSPEC_CPU_LP64
      462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
         464.h264ref: -DSPEC_CPU_LP64
         471.omnetpp: -D_FILE_OFFSET_BITS=64
           473.astar: -DSPEC_CPU_LP64
       483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
       400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
                -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
                -par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch
                -ansi-alias

          401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
                -ipo(pass 2) -O3(pass 2) -no-prec-div
                -par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32
                -opt-prefetch -ansi-alias

            403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
                -opt-malloc-options=3 -auto-ilp32

            429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
                -opt-prefetch -auto-p32
```

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Peak Optimization Flags (Continued)

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2)
-opt-ra-region-strategy=block   -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.xml

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

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