**SPEC® CINT2006 Result**

**Fujitsu**

PRIMERGY RX4770 M3, Intel Xeon E7-8894 v4, 2.40GHz

**SPECint®_rate2006 = Not Run**

**SPECint_rate_base2006 = 3770**

---

**Hardware**

- **CPU Name**: Intel Xeon E7-8894 v4
- **CPU Characteristics**: Intel Turbo Boost Technology up to 3.40 GHz
- **CPU MHz**: 2400
- **FPU**: Integrated
- **CPU(s) enabled**: 96 cores, 4 chips, 24 cores/chip, 2 threads/core
- **CPU(s) orderable**: 2,4 chip
- **Primary Cache**: 32 KB I + 32 KB D on chip per core
- **Secondary Cache**: 256 KB I+D on chip per core
- **L3 Cache**: 60 MB I+D on chip per chip
- **Other Cache**: None
- **Memory**: 512 GB (32 x 16 GB 2Rx4 PC4-2400T-R, running at 1600 MHz)
- **Disk Subsystem**: 1006 GB tmpfs
- **Other Hardware**: None

---

**Software**

- **Operating System**: SUSE Linux Enterprise Server 12 SP2 4.4.21-68-default
- **Compiler**: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux
- **Auto Parallel**: No
- **File System**: tmpfs
- **System State**: Run level 3 (multi-user)
- **Base Pointers**: 32-bit
- **Peak Pointers**: Not Applicable
- **Other Software**: Microquill SmartHeap V10.2
Fujitsu

PRIMERGY RX4770 M3, Intel Xeon E7-8894 v4, 2.40GHz

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 3770

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>191</td>
<td>590</td>
<td>3160</td>
<td>587</td>
<td>3180</td>
<td>587</td>
<td>3180</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>191</td>
<td>973</td>
<td>1890</td>
<td>971</td>
<td>1900</td>
<td>972</td>
<td>1900</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>403.gcc</td>
<td>191</td>
<td>567</td>
<td>2710</td>
<td>567</td>
<td>2710</td>
<td>569</td>
<td>2700</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>191</td>
<td>388</td>
<td>4490</td>
<td>386</td>
<td>4510</td>
<td>390</td>
<td>4470</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>191</td>
<td>715</td>
<td>2800</td>
<td>716</td>
<td>2800</td>
<td>716</td>
<td>2800</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>456.hmmer</td>
<td>191</td>
<td>327</td>
<td>5450</td>
<td>327</td>
<td>5460</td>
<td>325</td>
<td>5480</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>458.sjeng</td>
<td>191</td>
<td>763</td>
<td>3030</td>
<td>763</td>
<td>3020</td>
<td>763</td>
<td>3030</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>191</td>
<td>93.5</td>
<td>42300</td>
<td>93.4</td>
<td>42400</td>
<td>93.6</td>
<td>42300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>191</td>
<td>865</td>
<td>4890</td>
<td>859</td>
<td>4920</td>
<td>863</td>
<td>4900</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>191</td>
<td>778</td>
<td>1530</td>
<td>778</td>
<td>1530</td>
<td>779</td>
<td>1530</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>191</td>
<td>647</td>
<td>2070</td>
<td>648</td>
<td>2070</td>
<td>648</td>
<td>2070</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>191</td>
<td>354</td>
<td>3720</td>
<td>355</td>
<td>3710</td>
<td>357</td>
<td>3690</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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"
Kernel Boot Parameter set with : nohz_full=1-191 isolcpus=1-191
Turbo mode set with : cpupower -c all frequency-set -g performance
Tmpfs filesystem can be set with:
mkdir /home/memory
mount -t tmpfs -o size=1006g,rw tmpfs /home/memory
Process tunning setting:
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 15000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
echo 0 > /proc/sys/kernel/numa_balancing
cpu idle state set with:
cpupower idle-set -d 2
cpupower idle-set -d 3
cpupower idle-set -d 4

Platform Notes

BIOS configuration:
Energy Performance = Performance
QPI snoop mode: Cluster on Die

Continued on next page
Platform Notes (Continued)

Intel Virtualization Technology = Disabled
VT-d = Disabled
QPI Link Frequency Select = 9.6 GT/s
Patrol Scrub = Disabled
Sysinfo program /home/memory/speccpu/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-53n1 Thu Jan 19 00:01:43 2017

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 E7-8894 v4 @ 2.40GHz
  4 "physical id"s (chips)
  192 "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 : 24
  siblings : 48
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
             27 28 29
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
             27 28 29
  physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
             27 28 29
  physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
             27 28 29
  cache size : 30720 KB

From /proc/meminfo
MemTotal:       527983716 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 2
# This file is deprecated and will be removed in a future service pack or
release.
# Please check /etc/os-release for details about this release.
os-release:
  NAME="SLES"
  VERSION="12-SP2"
  VERSION_ID="12.2"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"

Continued on next page
Fujitsu

PRIMERGY RX4770 M3, Intel Xeon E7-8894 v4, 2.40GHz

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 3770

Platform Notes (Continued)

ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
    Linux linux-53n1 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016
    (63cf368) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 18 23:41

SPEC is set to: /home/memory/speccpu
Filesystem    Type     Size  Used Avail Use% Mounted on
 tmpfs         tmpfs   1006G   3.7G 1003G   1% /home/memory

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 FUJITSU // American Megatrends Inc. V5.0.0.11 R1.8.94 for D3749-A1x
11/11/2016
Memory:
    32x Micron 36ASF2G72PZ-2G3A3 16 GB 2 rank 2400 MHz, configured at 1600 MHz
    64x NO DIMM NO DIMM

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/memory/speccpu/libs/32:/home/memory/speccpu/libs/64:/home/memory/speccpu/sh10.2"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/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 -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
# SPEC CINT2006 Result

**Fujitsu**

PRIMERGY RX4770 M3, Intel Xeon E7-8894 v4, 2.40GHz

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>3770</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 19  
**Test sponsor:** Fujitsu  
**Tested by:** Fujitsu

## Base Portability Flags

<table>
<thead>
<tr>
<th>benchmark</th>
<th>Base Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>403.gcc</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>429.mcf</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>473.astar</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

## Base Optimization Flags

- **C benchmarks:**
  -xCORE-AVX2  -ipo  -O3  -no-prec-div  -qopt-prefetch  
  -qopt-mem-layout-trans=3

- **C++ benchmarks:**
  -xCORE-AVX2  -ipo  -O3  -no-prec-div  -qopt-prefetch  
  -qopt-mem-layout-trans=3  -Wl,-z,muldefs -L/sh10.2 -lsmartheap

## Base 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-ic17.0-official-linux64.html](http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.html)


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

[http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml](http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml)

Fujitsu
PRIMERGY RX4770 M3, Intel Xeon E7-8894 v4, 2.40GHz

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>3770</td>
</tr>
</tbody>
</table>

| CPU2006 license | 19 |
| Test date       | Jan-2017 |
| Test sponsor    | Fujitsu |
| Tested by       | Fujitsu |
| Hardware Availability | Feb-2017 |
| Software Availability | Nov-2016 |

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Originally published on 7 February 2017.