# SPEC® CFP2006 Result

## Hypertechologies Ciara, Inc

### Orion HF620-G3

<table>
<thead>
<tr>
<th>SPECfp&lt;sup&gt;®&lt;/sup&gt;2006</th>
<th>122</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>116</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>4531</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Hypertechologies Ciara, Inc</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Hypertechologies Ciara, Inc</td>
</tr>
<tr>
<td>Test date:</td>
<td>Apr-2015</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Feb-2015</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Aug-2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>45.9</td>
</tr>
<tr>
<td>416.gamess</td>
<td>40.9</td>
</tr>
<tr>
<td>433.milc</td>
<td>72.4</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>216</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>47.7</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>392</td>
</tr>
<tr>
<td>444.namd</td>
<td>31.6</td>
</tr>
<tr>
<td>447.dealII</td>
<td>59.3</td>
</tr>
<tr>
<td>450.soplex</td>
<td>46.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>68.9</td>
</tr>
<tr>
<td>454.calculix</td>
<td>61.7</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>55.6</td>
</tr>
<tr>
<td>465.tonto</td>
<td>56.6</td>
</tr>
<tr>
<td>470.lbm</td>
<td>43.3</td>
</tr>
<tr>
<td>481.wrf</td>
<td>126</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>80.6</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon E5-2687W v3
- **CPU Characteristics:** Intel Turbo Boost Technology disabled
- **CPU MHz:** 3324
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 cores/chip, 2 threads/core
- **CPU(s) orderable:** 1,2 chip
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core

### Software

- **Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
- **Compiler:** C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** xfs

Continued on next page
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</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>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>23.6</td>
<td>576</td>
<td>23.3</td>
<td>584</td>
<td>24.3</td>
<td>558</td>
<td>23.6</td>
<td>576</td>
<td>23.3</td>
<td>584</td>
<td>24.3</td>
<td>558</td>
</tr>
<tr>
<td>416.gamess</td>
<td>478</td>
<td>41.0</td>
<td>479</td>
<td>40.9</td>
<td>482</td>
<td>40.7</td>
<td>426</td>
<td>45.9</td>
<td>427</td>
<td>45.8</td>
<td>426</td>
<td>46.0</td>
</tr>
<tr>
<td>433.milc</td>
<td>125</td>
<td>73.2</td>
<td>127</td>
<td>72.4</td>
<td>124</td>
<td>73.8</td>
<td>127</td>
<td>72.4</td>
<td>123</td>
<td>74.4</td>
<td>127</td>
<td>72.1</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>41.2</td>
<td>221</td>
<td>42.4</td>
<td>215</td>
<td>42.1</td>
<td>216</td>
<td>41.2</td>
<td>221</td>
<td>42.4</td>
<td>215</td>
<td>42.1</td>
<td>216</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>151</td>
<td>47.2</td>
<td>150</td>
<td>47.7</td>
<td>144</td>
<td>49.7</td>
<td>151</td>
<td>47.2</td>
<td>150</td>
<td>47.7</td>
<td>144</td>
<td>49.7</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>14.2</td>
<td>840</td>
<td>13.4</td>
<td>889</td>
<td>13.6</td>
<td>876</td>
<td>14.2</td>
<td>840</td>
<td>13.4</td>
<td>889</td>
<td>13.6</td>
<td>876</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>24.3</td>
<td>388</td>
<td>24.0</td>
<td>392</td>
<td>23.0</td>
<td>409</td>
<td>24.3</td>
<td>388</td>
<td>24.0</td>
<td>392</td>
<td>23.0</td>
<td>409</td>
</tr>
<tr>
<td>444.namd</td>
<td>261</td>
<td>30.7</td>
<td>262</td>
<td>30.7</td>
<td>261</td>
<td>30.7</td>
<td>253</td>
<td>31.7</td>
<td>254</td>
<td>31.6</td>
<td>254</td>
<td>31.5</td>
</tr>
<tr>
<td>447.dealII</td>
<td>193</td>
<td>59.3</td>
<td>194</td>
<td>59.0</td>
<td>193</td>
<td>59.4</td>
<td>193</td>
<td>59.3</td>
<td>194</td>
<td>59.0</td>
<td>193</td>
<td>59.4</td>
</tr>
<tr>
<td>450.soplex</td>
<td>180</td>
<td>46.3</td>
<td>176</td>
<td>47.5</td>
<td>181</td>
<td>46.1</td>
<td>180</td>
<td>46.3</td>
<td>176</td>
<td>47.5</td>
<td>181</td>
<td>46.1</td>
</tr>
<tr>
<td>453.povray</td>
<td>85.8</td>
<td>62.0</td>
<td>86.5</td>
<td>61.5</td>
<td>86.2</td>
<td>61.7</td>
<td>75.8</td>
<td>70.2</td>
<td>77.3</td>
<td>68.9</td>
<td>77.6</td>
<td>68.5</td>
</tr>
<tr>
<td>454.calculix</td>
<td>148</td>
<td>55.6</td>
<td>150</td>
<td>54.8</td>
<td>148</td>
<td>55.7</td>
<td>135</td>
<td>60.9</td>
<td>136</td>
<td>60.4</td>
<td>134</td>
<td>61.6</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>43.5</td>
<td>244</td>
<td>46.2</td>
<td>229</td>
<td>46.7</td>
<td>227</td>
<td>37.4</td>
<td>284</td>
<td>36.4</td>
<td>292</td>
<td>37.0</td>
<td>287</td>
</tr>
<tr>
<td>465.tonto</td>
<td>235</td>
<td>41.9</td>
<td>227</td>
<td>43.3</td>
<td>223</td>
<td>44.2</td>
<td>174</td>
<td>56.4</td>
<td>174</td>
<td>56.6</td>
<td>174</td>
<td>56.7</td>
</tr>
<tr>
<td>470.lbm</td>
<td>18.2</td>
<td>755</td>
<td>18.2</td>
<td>757</td>
<td>18.7</td>
<td>733</td>
<td>18.2</td>
<td>755</td>
<td>18.2</td>
<td>757</td>
<td>18.7</td>
<td>733</td>
</tr>
<tr>
<td>481.wrf</td>
<td>88.7</td>
<td>126</td>
<td>88.9</td>
<td>126</td>
<td>89.3</td>
<td>125</td>
<td>88.7</td>
<td>126</td>
<td>88.9</td>
<td>126</td>
<td>89.3</td>
<td>125</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>236</td>
<td>82.7</td>
<td>248</td>
<td>78.4</td>
<td>252</td>
<td>77.3</td>
<td>242</td>
<td>80.6</td>
<td>254</td>
<td>76.7</td>
<td>242</td>
<td>80.7</td>
</tr>
</tbody>
</table>

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

Sysinfo program /usr/cpu2006/config/sysinfo.rev6914  
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Tue Apr 14 15:03:41 2015

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 E5-2687W v3 @ 3.10GHz  
Continued on next page
Hypertechologies Ciara, Inc
Orion HF620-G3

SPECfp2006 = 122
SPECfp_base2006 = 116

CPU2006 license: 4531
Test sponsor: Hypertechologies Ciara, Inc
Tested by: Hypertechologies Ciara, Inc
Test date: Apr-2015
Hardware Availability: Feb-2015
Software Availability: Aug-2015

Platform Notes (Continued)

2 "physical id"s (chips)
40 "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 : 10
siblings : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB

From /proc/meminfo
MemTotal: 263864748 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
    os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.0 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.0"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
    redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
    system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
    Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
    EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 14 10:00 last=5

SPEC is set to: /usr/cpu2006

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 368G 121G 247G 33% /

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. 0902 01/28/2015
Memory:
16x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
SPEC CFP2006 Result

Hypertechnologies Ciara, Inc
Orion HF620-G3

SPECfp2006 = 122
SPECfp_base2006 = 116

CPU2006 license: 4531
Test sponsor: Hypertechnologies Ciara, Inc
Tested by: Hypertechnologies Ciara, Inc
Test date: Apr-2015
Hardware Availability: Feb-2015
Software Availability: Aug-2015

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
OMP_NUM_THREADS = "20"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/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
SPEC CFP2006 Result

Hypertechologies Ciara, Inc
Orion HF620-G3

SPECfp2006 = 122
SPECfp_base2006 = 116

CPU2006 license: 4531
Test sponsor: Hypertechologies Ciara, Inc
Test date: Apr-2015
Tested by: Hypertechologies Ciara, Inc
Hardware Availability: Feb-2015
Software Availability: Aug-2015

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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -03 -no-prec-div -unroll2 -ansi-alias
-parallel

Continued on next page
Hypertechnologies Ciara, Inc
Orion HF620-G3

**SPEC CFP2006 Result**

**SPECfp2006 = 122**
**SPECfp_base2006 = 116**

**CPU2006 license:** 4531
**Test date:** Apr-2015

**Test sponsor:** Hypertechnologies Ciara, Inc
**Hardware Availability:** Feb-2015

**Tested by:** Hypertechnologies Ciara, Inc
**Software Availability:** Aug-2015

---

**Peak Optimization Flags (Continued)**

C++ benchmarks:

```plaintext
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.dealII: 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:

```plaintext
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:

```plaintext
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 file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
<table>
<thead>
<tr>
<th>Hypertechonologies Ciara, Inc</th>
<th>SPECfp2006 = 122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orion HF620-G3</td>
<td>SPECfp_base2006 = 116</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2006 license</td>
<td>4531</td>
</tr>
<tr>
<td>Test sponsor</td>
<td>Hypertechonologies Ciara, Inc</td>
</tr>
<tr>
<td>Tested by</td>
<td>Hypertechonologies Ciara, Inc</td>
</tr>
<tr>
<td>Test date</td>
<td>Apr-2015</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Feb-2015</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Aug-2015</td>
</tr>
</tbody>
</table>

SPEC and SPECfp 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 16 June 2015.