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# ASKAP 5900X

AMD Ryzen 9 5900X 12-Core testing with a ASUS ROG CROSSHAIR VIII HERO (3202 BIOS) and Sapphire AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 6GB on Ubuntu 20.10 via the Phoronix Test Suite.

**Automated Executive Summary**

*2 had the most wins, coming in first place for 42% of the tests.*

*Based on the geometric mean of all complete results, the fastest (2) was 1.013x the speed of the slowest (4). 1 was 1x the speed of 2, 3 was 0.998x the speed of 1, 4 was 0.99x the speed of 3.*

## Test Systems:

**1**

**2**

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## 3

## 4

Processor: AMD Ryzen 9 5900X 12-Core @ 3.70GHz (12 Cores / 24 Threads), Motherboard: ASUS ROG CROSSHAIR VIII HERO (3202 BIOS), Chipset: AMD Starship/Matisse, Memory: 16GB, Disk: 1000GB Samsung SSD 980 PRO 1TB, Graphics: Sapphire AMD Radeon RX 5600 OEM/5600 XT / 5700/5700 6GB (1780/875MHz), Audio: AMD Navi 10 HDMI Audio, Monitor: ASUS VP28U, Network: Realtek RTL8125 2.5GbE + Intel I211

OS: Ubuntu 20.10, Kernel: 5.8.0-38-generic (x86_64), Desktop: GNOME Shell 3.38.1, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 20.2.1 (LLVM 11.0.0), Vulkan: 1.2.131, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 3840x2160

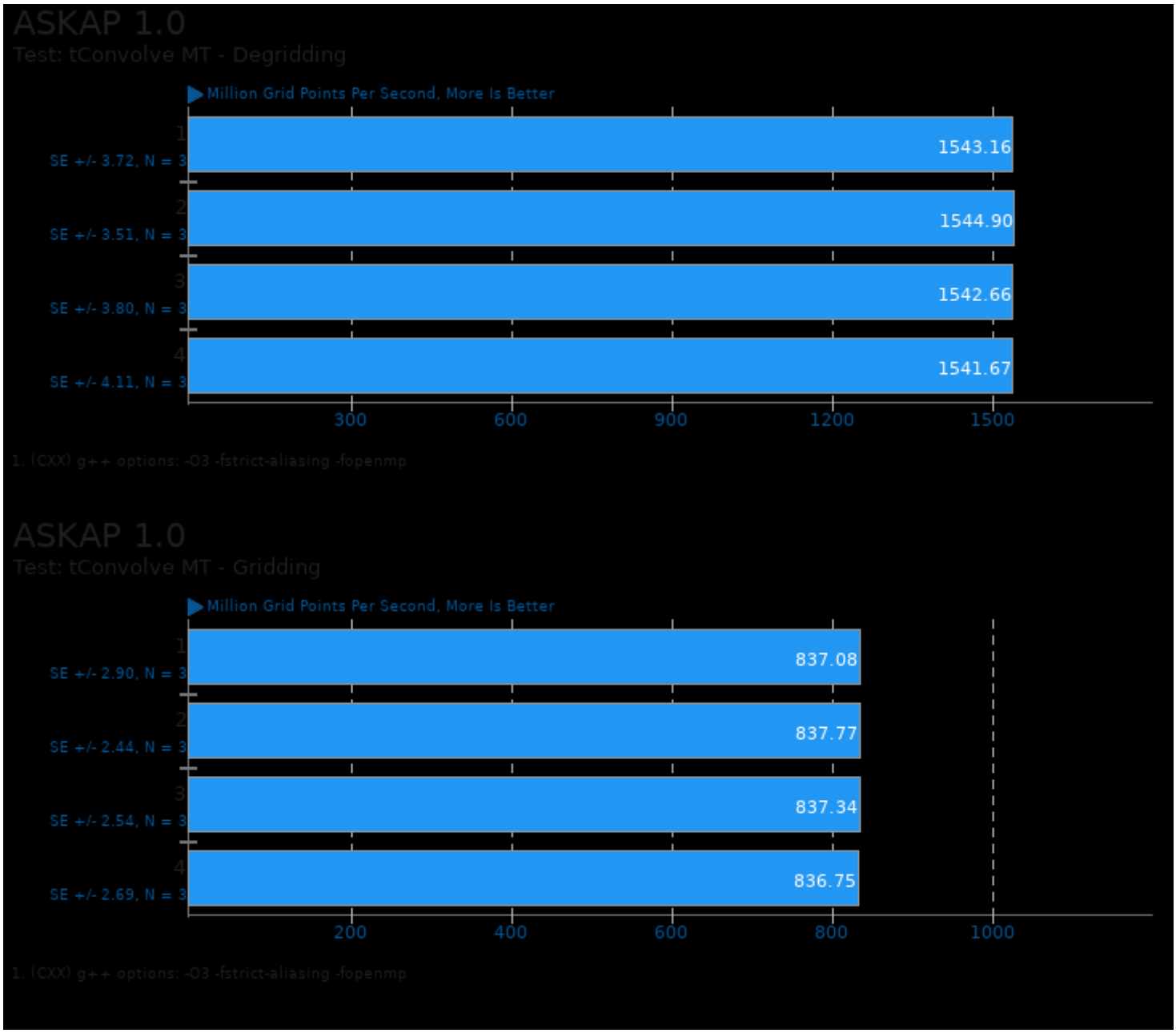
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,brig,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-targets=nvptx-none=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-10-JvwpWM/gcc-10-10.2.0/debian/tmp-gcn/usr,hsa --enable-plugin --enable-shared --enable-threads=posix --host=x86_64-linux-gnu --program-prefix=x86_64-linux-gnu- --target=x86_64-linux-gnu --with-abi=m64 --with-arch-32=i686 --with-default-libstdcxx-abi=new --with-gcc-major-version-only --with-multilib-list=m32,m64,mx32 --with-target-system-zlib=auto --with-tune=generic --without-cuda-driver -v
Processor Notes: Scaling Governor: acpi-cpufreq ondemand (Boost: Enabled) - CPU Microcode: 0xa201009
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl and seccomp + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Full AMD retpoline IBPB: conditional IBRS_FW STIBP: always-on RSB filling + srbds: Not affected + tsx_async_abort: Not affected

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **ASKAP - tConvolve MT - Degridding (Million Grid Points/sec)** | 1543 | **1545** | 1543 | **1542** |
| **Normalized** | 99.89% | 100% | 99.86% | 99.79% |
| **Standard Deviation** | 0.4% | 0.4% | 0.4% | 0.5% |
| **ASKAP - tConvolve MT - Gridding (Million Grid Points/sec)** | 837.084 | **837.773** | 837.335 | **836.752** |
| **Normalized** | 99.92% | 100% | 99.95% | 99.88% |
| **Standard Deviation** | 0.6% | 0.5% | 0.5% | 0.6% |
| **ASKAP - tConvolve MPI - Gridding (Mpix/sec)** | 7875 | **8088** | 7646 | **7287** |
| **Normalized** | 97.36% | 100% | 94.53% | 90.09% |
| **Standard Deviation** | 2.8% | 1.2% | 2.5% | 18% |
| **ASKAP - tConvolve MPI - Degridding (Mpix/sec)** | **7720** | **7476** | 7660 | 7602 |
| **Normalized** | 100% | 96.84% | 99.24% | 98.48% |
| **Standard Deviation** | 2% | 2.2% | 2.2% | 2.5% |
| **ASKAP - H.C.O (Iterations/sec)** | 235.112 | 235.850 | **236.599** | **235.110** |
| **Normalized** | 99.37% | 99.68% | 100% | 99.37% |
| **Standard Deviation** | 0.4% | 0.2% | 0.6% | 0.1% |
| **ASKAP - tConvolve OpenMP - Degridding (Million Grid Points/sec)** | **3698** | 3733 | 3715 | **3750** |
| **Normalized** | 98.61% | 99.54% | 99.07% | 100% |
| **Standard Deviation** | | 0.8% | 0.8% | 0% |

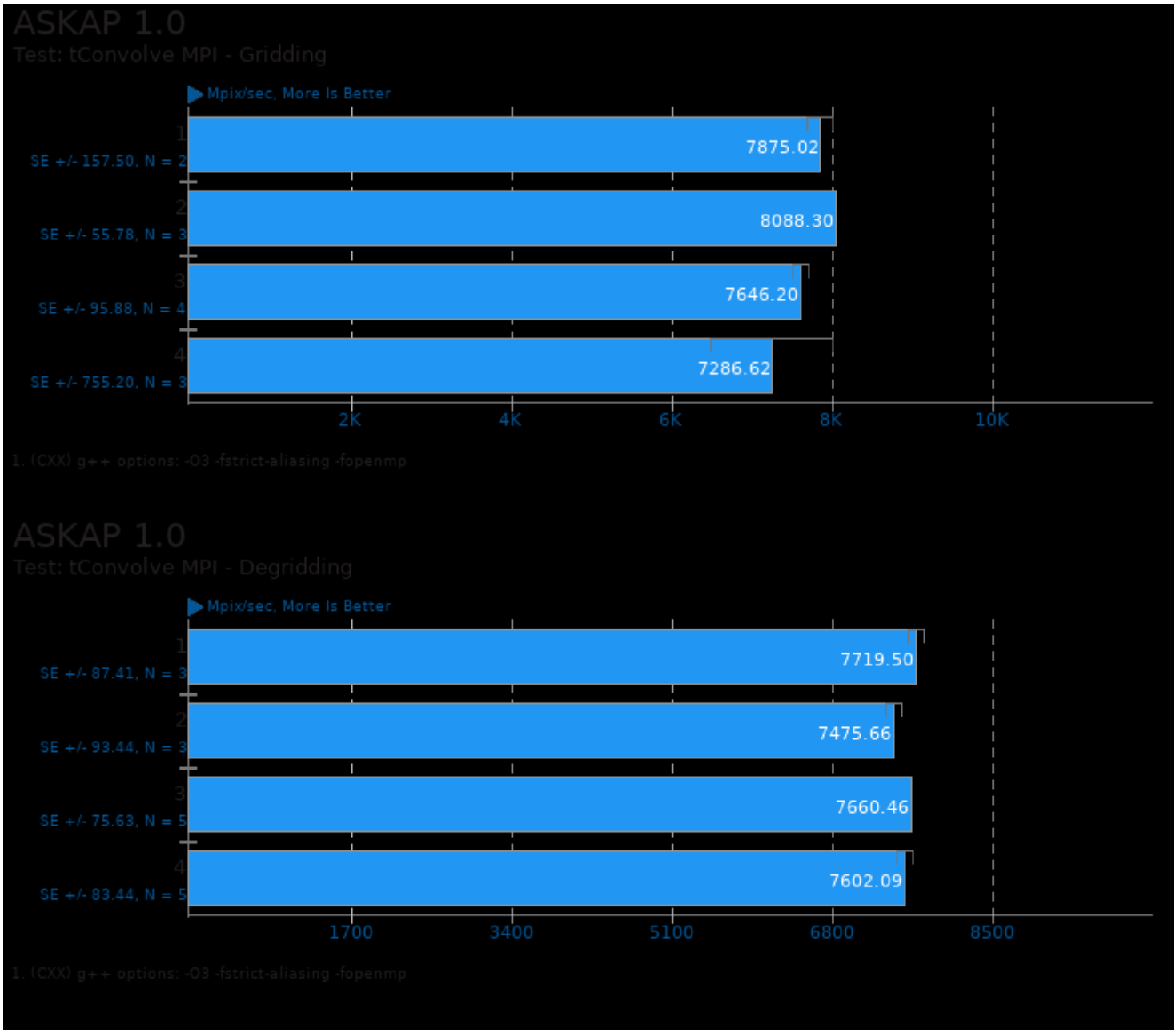
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|---|---|---|---|---|
| **ASKAP - tConvolve OpenMP - Gridding (Million Grid Points/sec)** | 2926 | 2905 | 2959 | 2905 |
| **Normalized** | 98.88% | 98.15% | 100% | 98.15% |
| **Standard Deviation** | 1.1% | 0.6% | 2.2% | 0.6% |

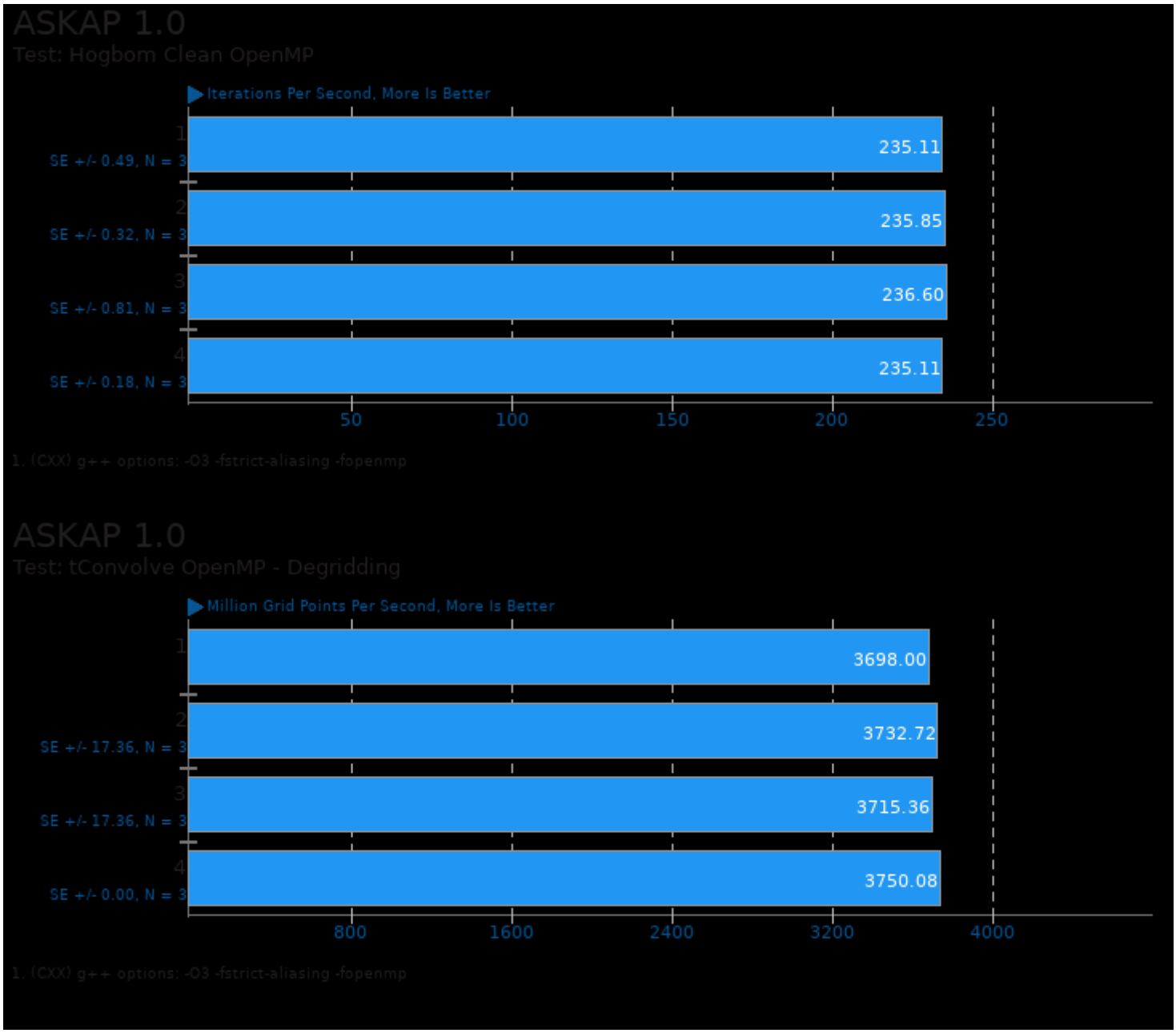
# ASKAP 5900X


ASKAP 1.0
Test: tConvolve MT - Degridding
Million Grid Points Per Second, More Is Better
1
SE +/- 3.72, N = 3
1543.16
2
SE +/- 3.51, N = 3
1544.90
3
SE +/- 3.80, N = 3
1542.66
4
SE +/- 4.11, N = 3
1541.67
300
600
900
1200
1500
1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp
ASKAP 1.0
Test: tConvolve MT - Gridding
Million Grid Points Per Second, More Is Better
1
SE +/- 2.90, N = 3
837.08
2
SE +/- 2.44, N = 3
837.77
3
SE +/- 2.54, N = 3
837.34
4
SE +/- 2.69, N = 3
836.75
200
400
600
800
1000
1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp

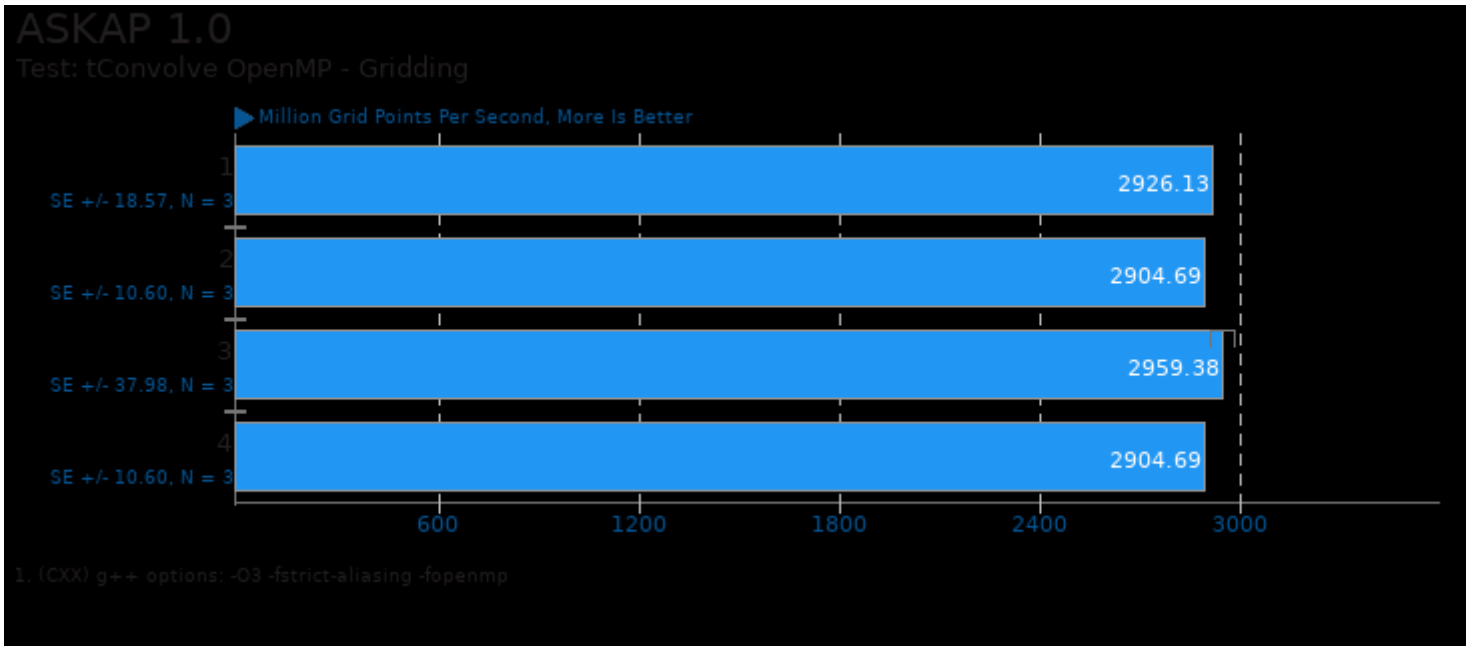
# ASKAP 5900X


ASKAP 1.0
Test: tConvolve MPI - Gridding
Mpix/sec, More Is Better
1
SE +/- 157.50, N = 2
7875.02
2
SE +/- 55.78, N = 3
8088.30
3
SE +/- 95.88, N = 4
7646.20
4
SE +/- 755.20, N = 3
7286.62
2K
4K
6K
8K
10K
1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp
ASKAP 1.0
Test: tConvolve MPI - Degridding
Mpix/sec, More Is Better
1
SE +/- 87.41, N = 3
7719.50
2
SE +/- 93.44, N = 3
7475.66
3
SE +/- 75.63, N = 5
7660.46
4
SE +/- 83.44, N = 5
7602.09
1700
3400
5100
6800
8500
1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp

# ASKAP 5900X


ASKAP 1.0
Test: Hogbom Clean OpenMP
Iterations Per Second, More Is Better
1
SE +/- 0.49, N = 3
235.11
2
SE +/- 0.32, N = 3
235.85
3
SE +/- 0.81, N = 3
236.60
4
SE +/- 0.18, N = 3
235.11
50
100
150
200
250
1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp
ASKAP 1.0
Test: tConvolve OpenMP - Degridding
Million Grid Points Per Second, More Is Better
1
3698.00
2
SE +/- 17.36, N = 3
3732.72
3
SE +/- 17.36, N = 3
3715.36
4
SE +/- 0.00, N = 3
3750.08
800
1600
2400
3200
4000
1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp

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*This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 05:04.*