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Tiger Lake ASKAP

Intel Core i7-1165G7 testing with a Dell 0GG9PT (1.0.3 BIOS) and Intel UHD 3GB on Ubuntu 20.10 via the Phoronix Test Suite.

Automated Executive Summary

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

Based on the geometric mean of all complete results, the fastest (1) was 1.008x the speed of the slowest (2). 3 was 0.997x the speed of 1, 4 was 1x the speed of 3, 2 was 0.995x the speed of 4.

Test Systems:

1

2

3

4

Processor: Intel Core i7-1165G7 @ 4.70GHz (4 Cores / 8 Threads), Motherboard: Dell 0GG9PT (1.0.3 BIOS), Chipset: Intel Tiger Lake-LP, Memory: 16GB, Disk: Kioxia KBG40ZNS256G NVMe 256GB, Graphics: Intel UHD 3GB (1300MHz), Audio: Realtek ALC289, Network: Intel Wi-Fi 6 AX201

OS: Ubuntu 20.10, Kernel: 5.11.0-rc1-phx (x86_64) 20201228, Desktop: GNOME Shell 3.38.2, Display Server: X Server 1.20.9, Display Driver: modesetting 1.20.9, OpenGL: 4.6 Mesa 21.1.0-devel (git-c57ef25 2021-01-21 groovy-oibaf-ppa), Vulkan: 1.2.145, Compiler: GCC 10.2.0, File-System: ext4, Screen Resolution: 1920x1200

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: intel_pstate powersave - CPU Microcode: 0x60 - Thermald 2.3
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 Enhanced IBRS IBPB: conditional RSB filling + srbds: Not affected + tsx_async_abort: Not affected

	1	2	3	4
ASKAP - tConvolve MT - Gridding (Million Grid Points/sec)	**1502**	**1495**	1495	1498
Normalized	100%	99.48%	99.51%	99.74%
Standard Deviation	1.5%	1.3%	1.5%	1.2%
ASKAP - tConvolve MT - Degridding (Million Grid Points/sec)	1508	**1503**	1504	**1513**
Normalized	99.67%	99.33%	99.4%	100%
Standard Deviation	4.2%	6.4%	6.7%	6.9%
ASKAP - tConvolve MPI - Degridding (Mpix/sec)	1416	**1406**	**1421**	**1421**
Normalized	99.62%	98.93%	100%	100%
Standard Deviation	0.6%	1.6%	1.6%	1.6%
ASKAP - tConvolve MPI - Gridding (Mpix/sec)	1822	**1814**	**1823**	1822
Normalized	99.97%	99.52%	100%	99.97%
Standard Deviation	1.4%	1.6%	2.4%	1.4%
ASKAP - tConvolve OpenMP - Gridding (Million Grid Points/sec)	**1458**	**1404**	1424	1427
Normalized	100%	96.32%	97.67%	97.89%
Standard Deviation	1.6%	2.2%	0%	2.5%
ASKAP - tConvolve OpenMP - Degridding (Million Grid Points/sec)	2250	**2256**	**2256**	**2247**
Normalized	99.72%	100%	100%	99.58%
Standard Deviation	0.5%	0%	0%	0.5%
ASKAP - H.C.O (Iterations/sec)	181.573	181.791	**182.410**	**181.201**
Normalized	99.54%	99.66%	100%	99.34%
Standard Deviation	5.4%	7.8%	7.5%	7.7%

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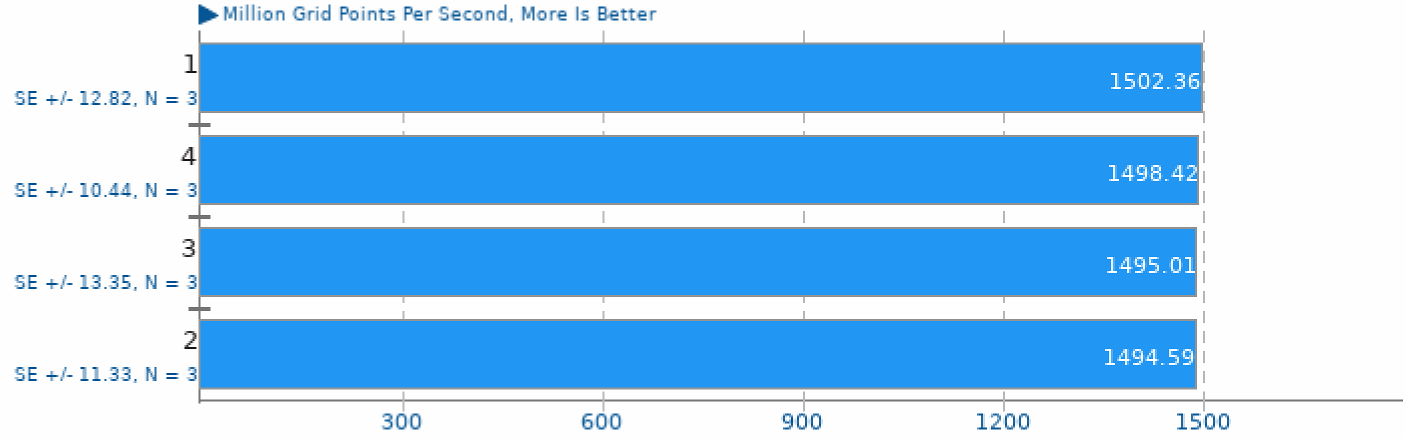
ASKAP 1.0

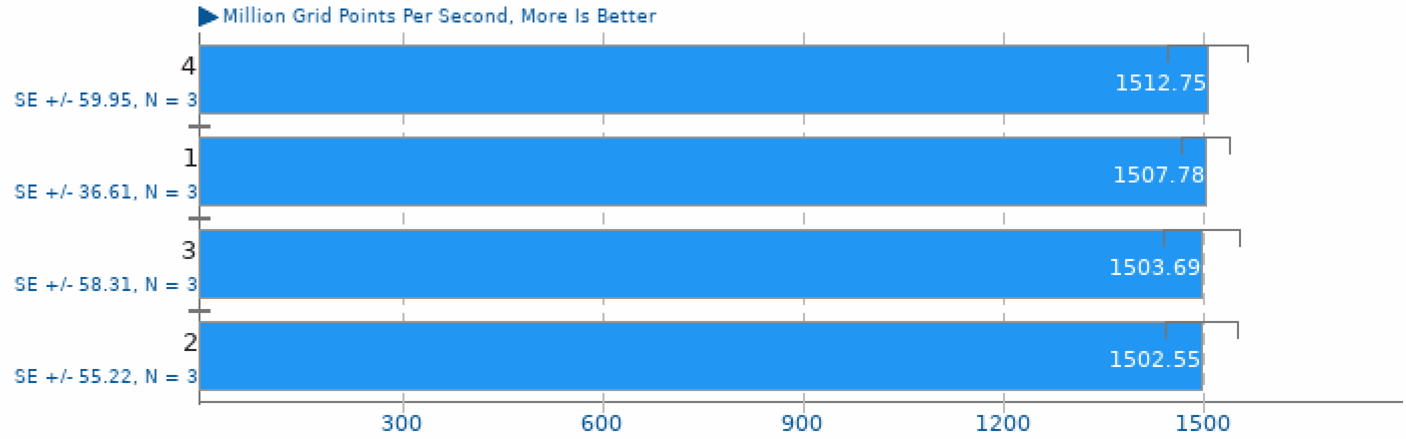
Test: tConvolve MT - Gridding



1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp

ASKAP 1.0

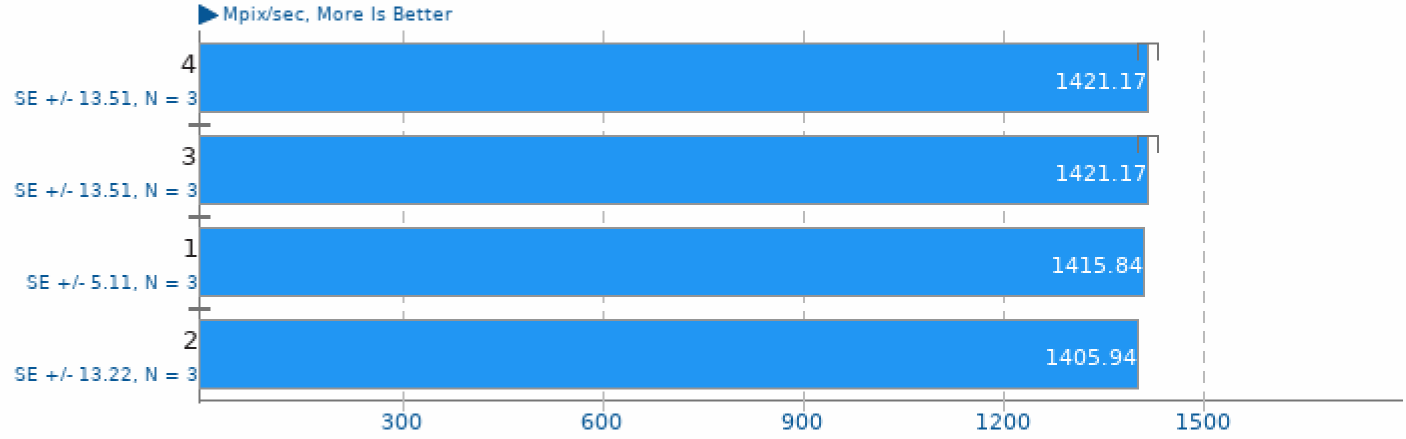
Test: tConvolve MT - Degridding



1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp

ASKAP 1.0

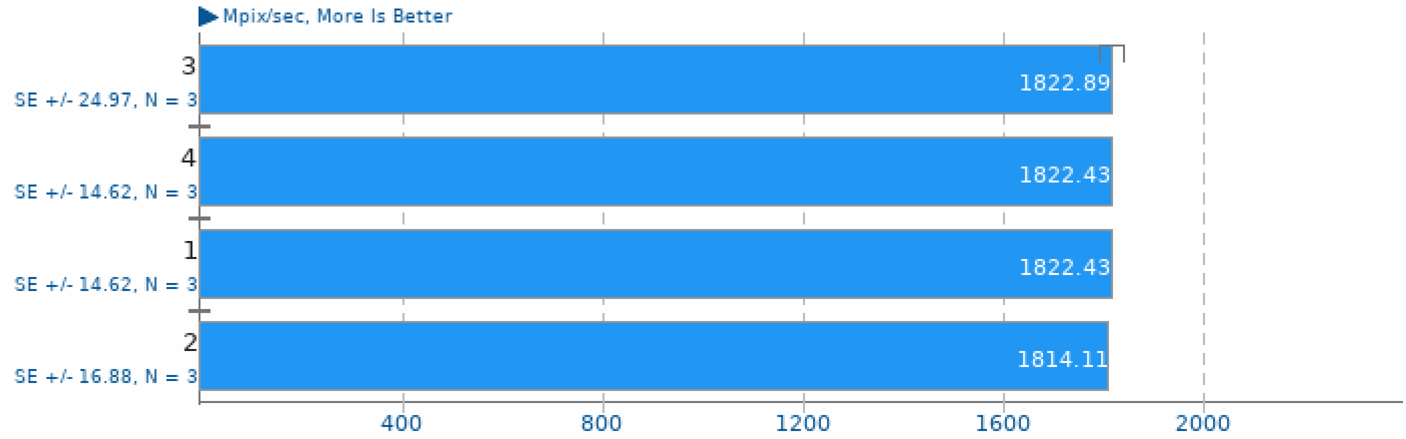
Test: tConvolve MPI - Degridding



1. (CXX) g++ options: -O3 -fstrict-aliasing -fopenmp

ASKAP 1.0

Test: tConvolve MPI - Gridding



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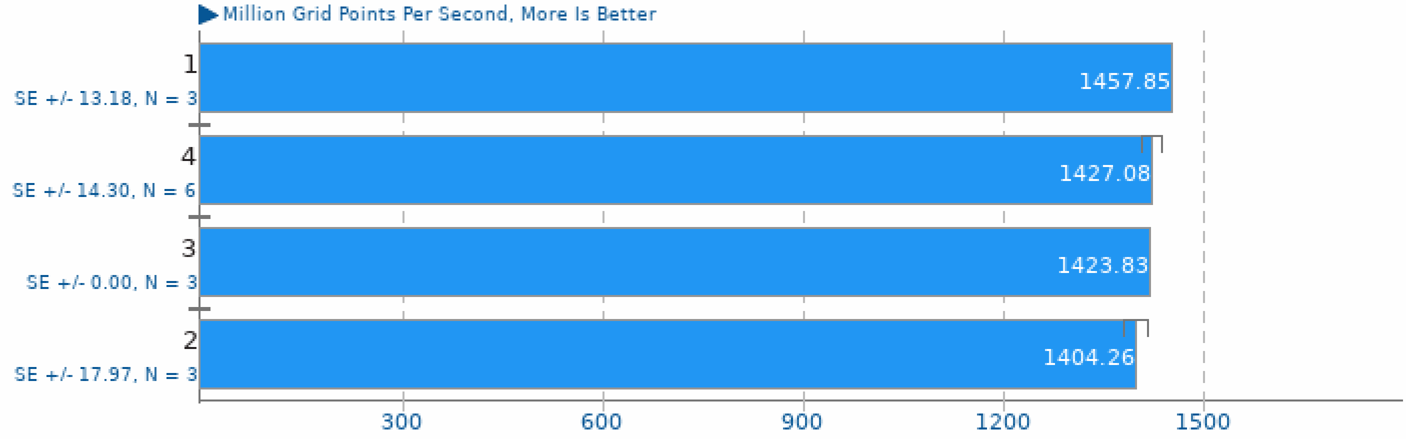
ASKAP 1.0

Test: tConvolve OpenMP - Gridding



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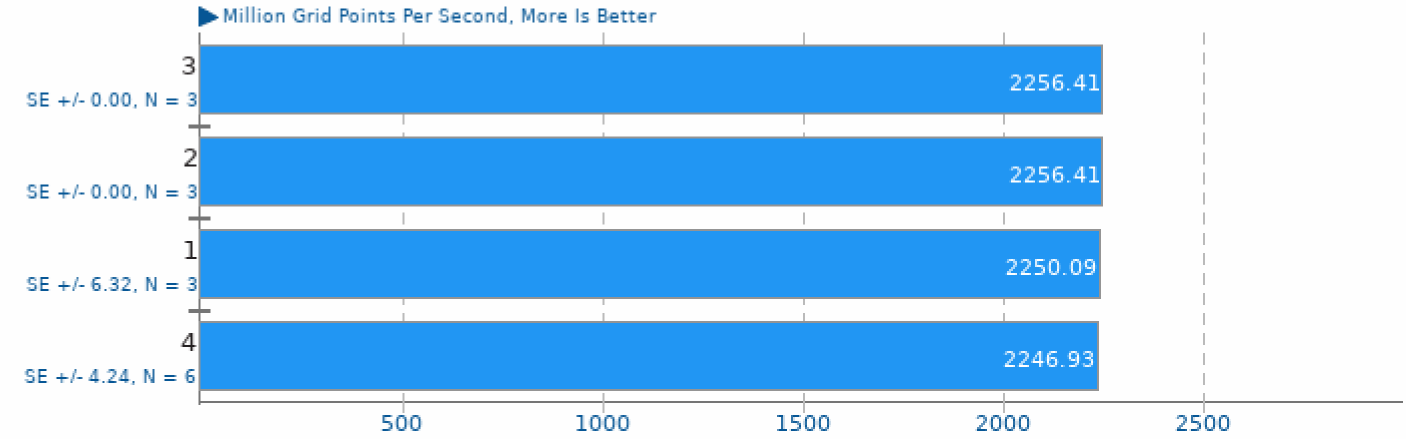
ASKAP 1.0

Test: tConvolve OpenMP - Degridding



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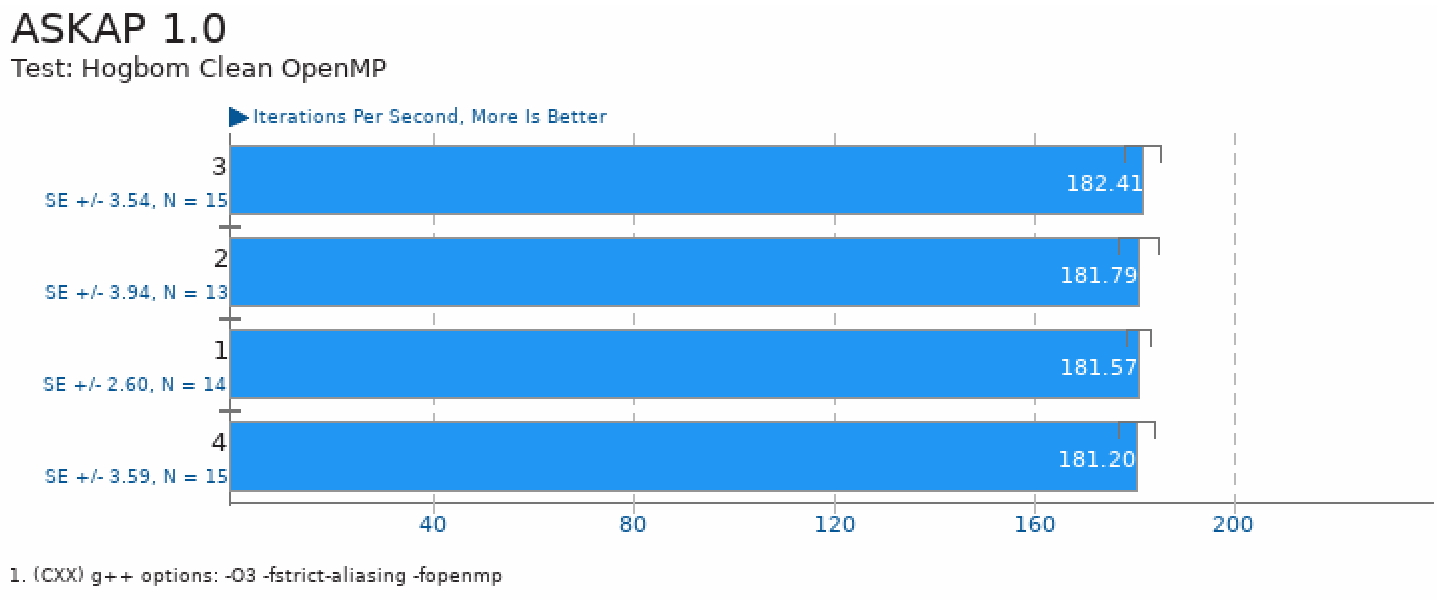

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