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# ryzen amd openvino

AMD Ryzen 9 5900HX testing with a ASUS G513QY v1.0 (G513QY.318 BIOS) and ASUS AMD Cezanne 512MB on Ubuntu 22.10 via the Phoronix Test Suite.

**Automated Executive Summary**

*c had the most wins, coming in first place for 50% of the tests.*

*Based on the geometric mean of all complete results, the fastest (bB) was 1.005x the speed of the slowest (a). c was 0.997x the speed of bB and a was 0.998x the speed of c.*

*The results with the greatest spread from best to worst included:*

*OpenVINO (Model: Age Gender Recognition Retail 0013 FP16-INT8 - Device: CPU) at 1.064x*
*OpenVINO (Model: Age Gender Recognition Retail 0013 FP16-INT8 - Device: CPU) at 1.055x*
*OpenVINO (Model: Vehicle Detection FP16-INT8 - Device: CPU) at 1.02x*
*OpenVINO (Model: Vehicle Detection FP16-INT8 - Device: CPU) at 1.02x*
*OpenVINO (Model: Person Detection FP16 - Device: CPU) at 1.016x*
*OpenVINO (Model: Vehicle Detection FP16 - Device: CPU) at 1.015x*
*OpenVINO (Model: Vehicle Detection FP16 - Device: CPU) at 1.014x*
*OpenVINO (Model: Machine Translation EN To DE FP16 - Device: CPU) at 1.013x*
*OpenVINO (Model: Machine Translation EN To DE FP16 - Device: CPU) at 1.013x*

*OpenVINO (Model: Person Detection FP32 - Device: CPU) at 1.008x.*

# Test Systems:

## a

Processor: AMD Ryzen 9 5900HX @ 4.89GHz (8 Cores / 16 Threads), Motherboard: ASUS G513QY v1.0 (G513QY.318 BIOS), Chipset: AMD Renoir/Cezanne, Memory: 16GB, Disk: 512GB SAMSUNG MZVLQ512HBLU-00B00, Graphics: ASUS AMD Cezanne 512MB (2500/1000MHz), Audio: AMD Navi 21/23, Monitor: LQ156M1JW25, Network: Realtek RTL8111/8168/8411 + MEDIATEK MT7921 802.11ax PCI

OS: Ubuntu 22.10, Kernel: 5.19.0-26-generic (x86_64), Desktop: GNOME Shell 43.0, Display Server: X Server 1.21.1.4 + Wayland, OpenGL: 4.6 Mesa 22.2.1 (LLVM 15.0.2 DRM 3.47), Vulkan: 1.3.224, Compiler: GCC 12.2.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,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-defaulted --enable-offload-targets=nvptx-none=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/debian/tmp-gcn/usr --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: amd-pstate schedutil (Boost: Enabled) - Platform Profile: balanced - CPU Microcode: 0xa50000c - ACPI Profile: balanced
Python Notes: Python 3.10.7
Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + retbleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: always-on RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

## bB

Processor: AMD Ryzen 9 5900HX @ 4.89GHz (8 Cores / 16 Threads), Motherboard: ASUS G513QY v1.0 (G513QY.318 BIOS), Chipset: AMD Renoir/Cezanne, Memory: 16GB, Disk: 512GB SAMSUNG MZVLQ512HBLU-00B00, Graphics: ASUS AMD Cezanne 512MB, Audio: AMD Navi 21/23, Monitor: LQ156M1JW25, Network: Realtek RTL8111/8168/8411 + MEDIATEK MT7921 802.11ax PCI

OS: Ubuntu 22.10, Kernel: 5.19.0-26-generic (x86_64), Desktop: GNOME Shell 43.0, Display Server: X Server 1.21.1.4 + Wayland, OpenGL: 4.6 Mesa 22.2.1 (LLVM 15.0.2 DRM 3.47), Vulkan: 1.3.224, Compiler: GCC 12.2.0, File-System: ext4, Screen Resolution: 1920x1080

Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,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-defaulted --enable-offload-targets=nvptx-none=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/debian/tmp-gcn/usr --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: amd-pstate schedutil (Boost: Enabled) - Platform Profile: balanced - CPU Microcode: 0xa50000c - ACPI Profile: balanced
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Security Notes: itlb_multihit: Not affected + l1tf: Not affected + mds: Not affected + meltdown: Not affected + mmio_stale_data: Not affected + retbleed: Not affected + spec_store_bypass: Mitigation of SSB disabled via prctl + spectre_v1: Mitigation of usercopy/swapgs barriers and __user pointer sanitization + spectre_v2: Mitigation of Retpolines IBPB: conditional IBRS_FW STIBP: always-on RSB filling PBRSB-eIBRS: Not affected + srbds: Not affected + tsx_async_abort: Not affected

## c

# ryzen amd openvino

Processor: AMD Ryzen 9 5900HX @ 4.89GHz (8 Cores / 16 Threads), Motherboard: ASUS G513QY v1.0 (G513QY.318 BIOS), Chipset: AMD Renoir/Cezanne, Memory: 16GB, Disk: 512GB SAMSUNG MZVLQ512HBLU-00B00, Graphics: ASUS AMD Cezanne 512MB (2500/1000MHz), Audio: AMD Navi 21/23, Monitor: LQ156M1JW25, Network: Realtek RTL8111/8168/8411 + MEDIATEK MT7921 802.11ax PCI

OS: Ubuntu 22.10, Kernel: 5.19.0-26-generic (x86_64), Desktop: GNOME Shell 43.0, Display Server: X Server 1.21.1.4 + Wayland, OpenGL: 4.6 Mesa 22.2.1 (LLVM 15.0.2 DRM 3.47), Vulkan: 1.3.224, Compiler: GCC 12.2.0, File-System: ext4, Screen Resolution: 1920x1080

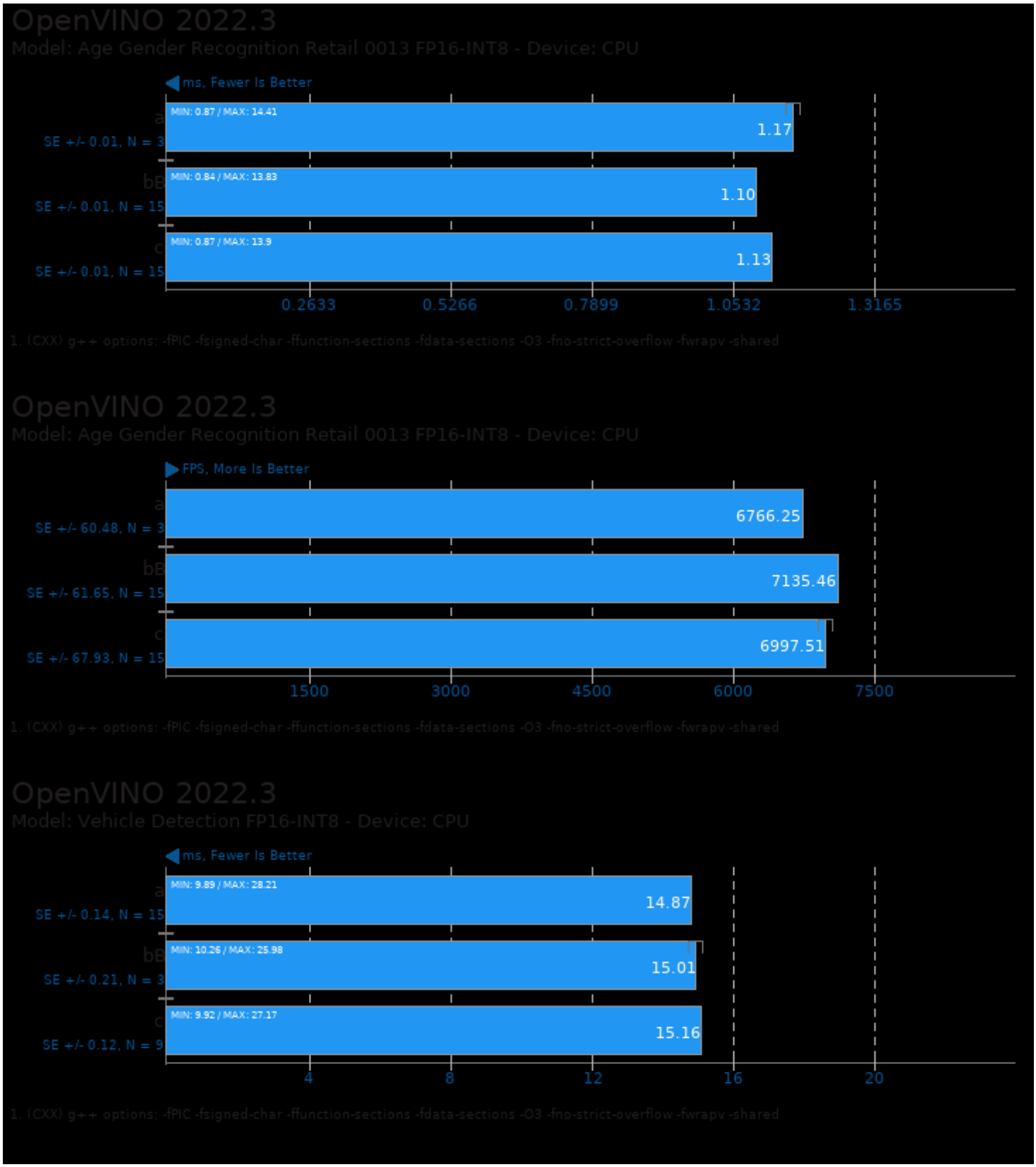
Kernel Notes: Transparent Huge Pages: madvise
Compiler Notes: --build=x86_64-linux-gnu --disable-vtable-verify --disable-werror --enable-cet --enable-checking=release --enable-clocale=gnu --enable-default-pie --enable-gnu-unique-object --enable-languages=c,ada,c++,go,d,fortran,objc,obj-c++,m2 --enable-libphobos-checking=release --enable-libstdcxx-debug --enable-libstdcxx-time=yes --enable-multiarch --enable-multilib --enable-nls --enable-objc-gc=auto --enable-offload-defaulted --enable-offload-targets=nvptx-none=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/debian/tmp-nvptx/usr,amdgcn-amdhsa=/build/gcc-12-U8K4Qv/gcc-12-12.2.0/debian/tmp-gcn/usr --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: amd-pstate schedutil (Boost: Enabled) - Platform Profile: balanced - CPU Microcode: 0xa50000c - ACPI Profile: balanced
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| | a | bB | c |
|---|---|---|---|
| **OpenVINO - A.G.R.R.0.F.I - CPU (ms)** | **1.17** | **1.10** | 1.13 |
| **Normalized** | 94.02% | 100% | 97.35% |
| **Standard Deviation** | 1.8% | 3.5% | 3.8% |
| **OpenVINO - A.G.R.R.0.F.I - CPU (FPS)** | **6766** | **7135** | 6998 |
| **Normalized** | 94.83% | 100% | 98.07% |
| **Standard Deviation** | 1.5% | 3.3% | 3.8% |
| **OpenVINO - V.D.F.I - CPU (ms)** | **14.87** | 15.01 | **15.16** |
| **Normalized** | 100% | 99.07% | 98.09% |
| **Standard Deviation** | 3.7% | 2.4% | 2.3% |
| **OpenVINO - V.D.F.I - CPU (FPS)** | **269.07** | 266.53 | **263.73** |
| **Normalized** | 100% | 99.06% | 98.02% |
| **Standard Deviation** | 3.8% | 2.5% | 2.4% |
| **OpenVINO - V.D.F - CPU (ms)** | **31.84** | 31.39 | **31.38** |
| **Normalized** | 98.56% | 99.97% | 100% |
| **Standard Deviation** | 2.8% | 0.7% | 0.4% |
| **OpenVINO - V.D.F - CPU (FPS)** | **125.56** | 127.27 | **127.30** |
| **Normalized** | 98.63% | 99.98% | 100% |
| **Standard Deviation** | 2.6% | 0.6% | 0.4% |
| **OpenVINO - P.D.F - CPU (ms)** | 3148 | **3135** | **3157** |
| **Normalized** | 99.56% | 100% | 99.28% |
| **Standard Deviation** | 0.4% | 0.4% | 0.5% |
| **OpenVINO - P.D.F - CPU (FPS)** | **1.25** | **1.27** | 1.26 |
| **Normalized** | 98.43% | 100% | 99.21% |
| **Standard Deviation** | 0.5% | 0.5% | 0.8% |
| **OpenVINO - P.D.F - CPU (ms)** | **3143** | 3141 | **3135** |
| **Normalized** | 99.73% | 99.81% | 100% |
| **Standard Deviation** | 0.2% | 0.2% | 0.2% |
| **OpenVINO - P.D.F - CPU (FPS)** | **1.26** | **1.26** | **1.27** |
| **Normalized** | 99.21% | 99.21% | 100% |

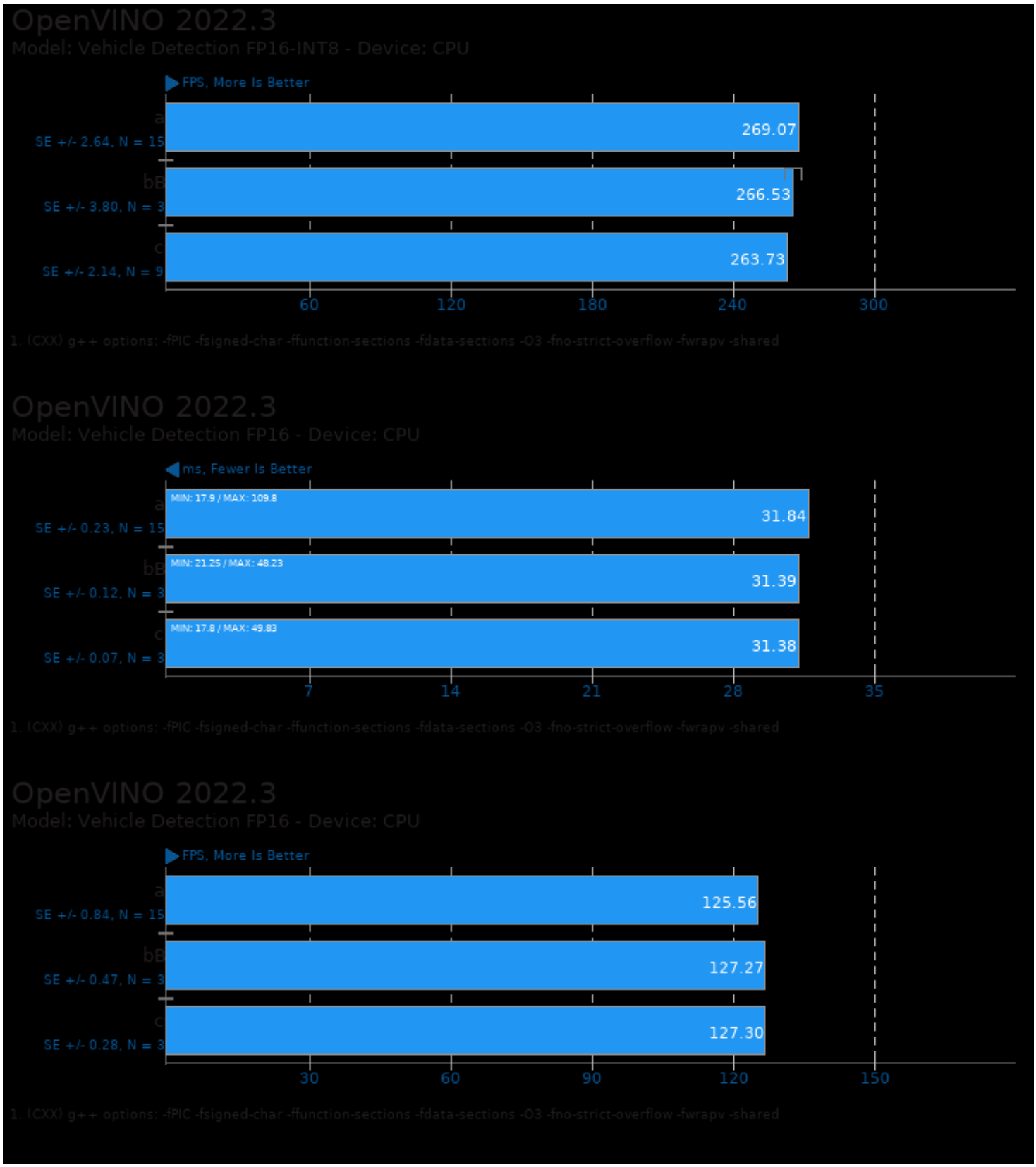
# ryzen amd openvino

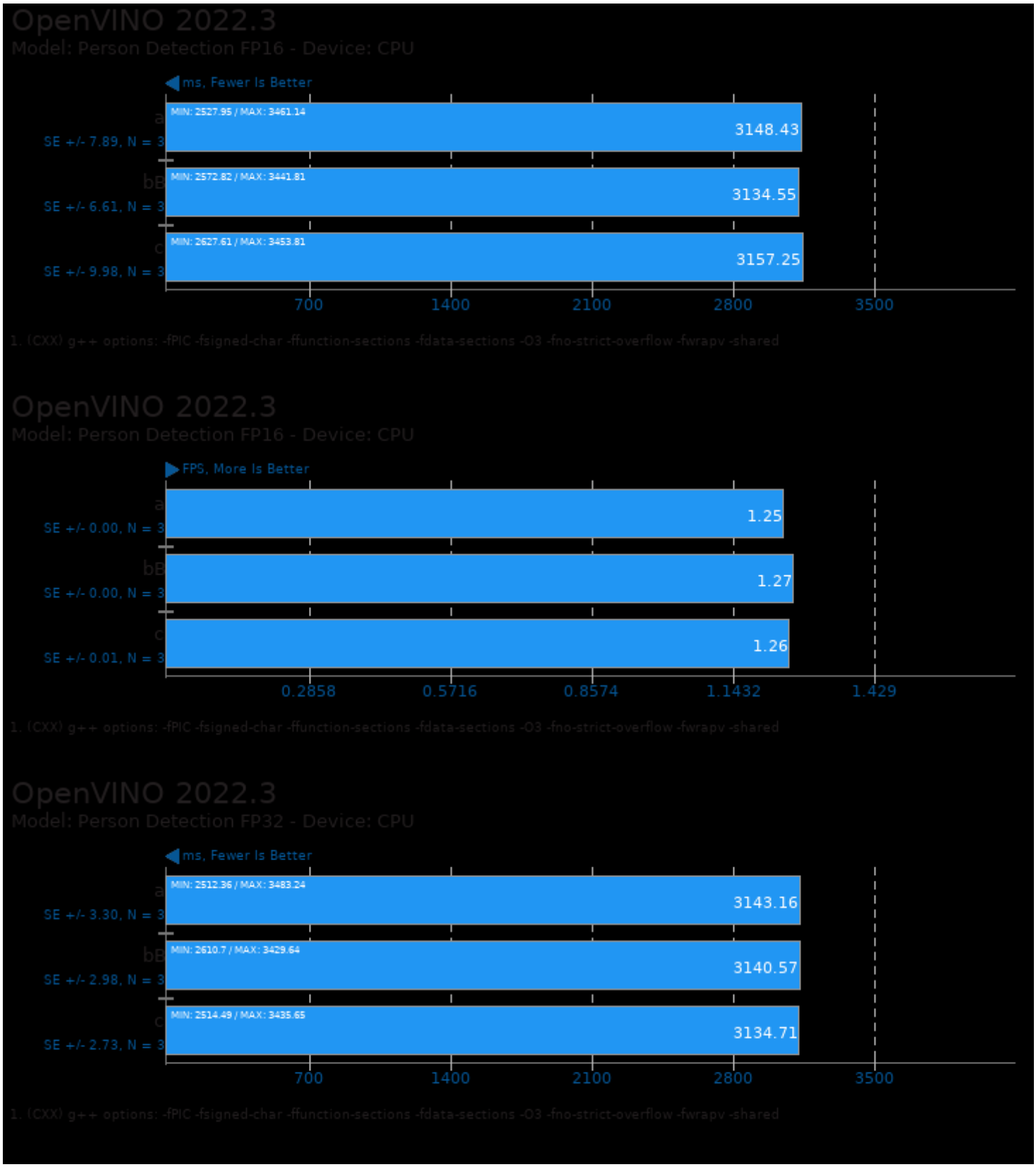
| | | | |
|---|---|---|---|
| **Standard Deviation** | 0% | 0.5% | 0% |
| **OpenVINO - F.D.F - CPU (ms)** | **1876** | **1869** | 1876 |
| **Normalized** | 99.6% | 100% | 99.63% |
| **Standard Deviation** | 0.4% | 0.2% | 0.2% |
| **OpenVINO - F.D.F - CPU (FPS)** | **2.12** | **2.13** | **2.13** |
| **Normalized** | 99.53% | 100% | 100% |
| **Standard Deviation** | 0.3% | 0% | 0.5% |
| **OpenVINO - F.D.F.I - CPU (ms)** | 750.97 | **751.24** | **750.89** |
| **Normalized** | 99.99% | 99.95% | 100% |
| **Standard Deviation** | 0.2% | 0.1% | 0.1% |
| **OpenVINO - F.D.F.I - CPU (FPS)** | **5.32** | **5.32** | **5.33** |
| **Normalized** | 99.81% | 99.81% | 100% |
| **Standard Deviation** | 0.2% | 0.1% | 0.1% |
| **OpenVINO - M.T.E.T.D.F - CPU (ms)** | **189.79** | 192.04 | **192.26** |
| **Normalized** | 100% | 98.83% | 98.72% |
| **Standard Deviation** | 2.3% | 0.5% | 0.2% |
| **OpenVINO - M.T.E.T.D.F - CPU (FPS)** | **21.06** | 20.81 | **20.79** |
| **Normalized** | 100% | 98.81% | 98.72% |
| **Standard Deviation** | 2.3% | 0.5% | 0.2% |
| **OpenVINO - P.V.B.D.F - CPU (ms)** | 14.91 | **14.95** | **14.90** |
| **Normalized** | 99.93% | 99.67% | 100% |
| **Standard Deviation** | 0.2% | 0.3% | 0.3% |
| **OpenVINO - P.V.B.D.F - CPU (FPS)** | 267.96 | **267.26** | **268.06** |
| **Normalized** | 99.96% | 99.7% | 100% |
| **Standard Deviation** | 0.1% | 0.3% | 0.2% |
| **OpenVINO - W.P.D.F - CPU (ms)** | **17.02** | 17.00 | **16.99** |
| **Normalized** | 99.82% | 99.94% | 100% |
| **Standard Deviation** | 0.1% | 0.1% | 0.3% |
| **OpenVINO - W.P.D.F - CPU (FPS)** | **234.84** | 234.97 | **235.15** |
| **Normalized** | 99.87% | 99.92% | 100% |
| **Standard Deviation** | 0.1% | 0.1% | 0.3% |
| **OpenVINO - W.P.D.F.I - CPU (ms)** | 15.30 | **15.32** | **15.28** |
| **Normalized** | 99.87% | 99.74% | 100% |
| **Standard Deviation** | 0.1% | 0.1% | 0.3% |
| **OpenVINO - W.P.D.F.I - CPU (FPS)** | 522.40 | **521.30** | **522.92** |
| **Normalized** | 99.9% | 99.69% | 100% |
| **Standard Deviation** | 0.1% | 0.1% | 0.3% |
| **OpenVINO - A.G.R.R.0.F - CPU (ms)** | **1.31** | **1.32** | **1.32** |
| **Normalized** | 100% | 99.24% | 99.24% |
| **Standard Deviation** | 1.3% | 1.2% | 2.3% |
| **OpenVINO - A.G.R.R.0.F - CPU (FPS)** | **5992** | 5961 | **5960** |
| **Normalized** | 100% | 99.49% | 99.46% |
| **Standard Deviation** | 1.3% | 1.4% | 2.4% |

# ryzen amd openvino

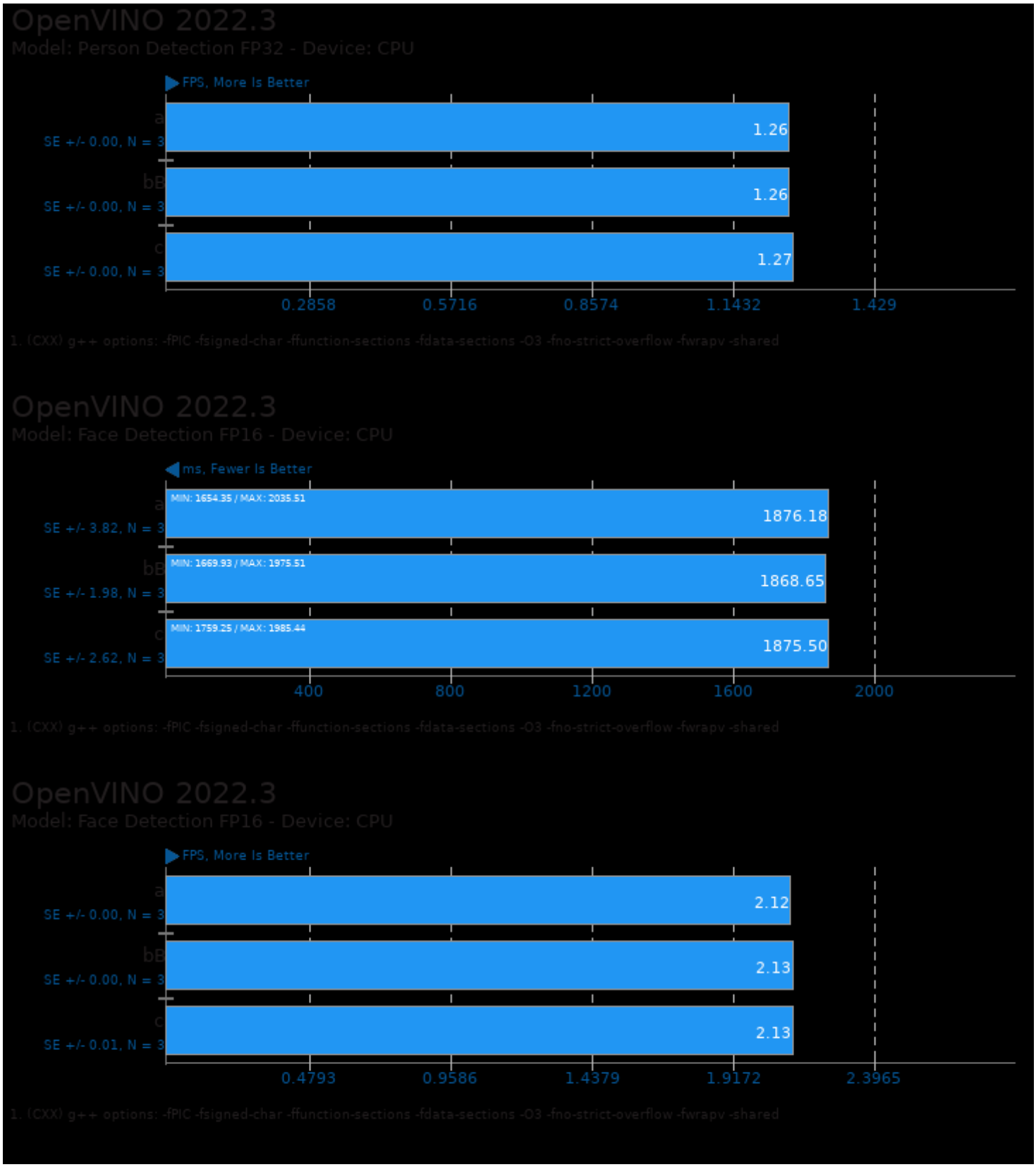


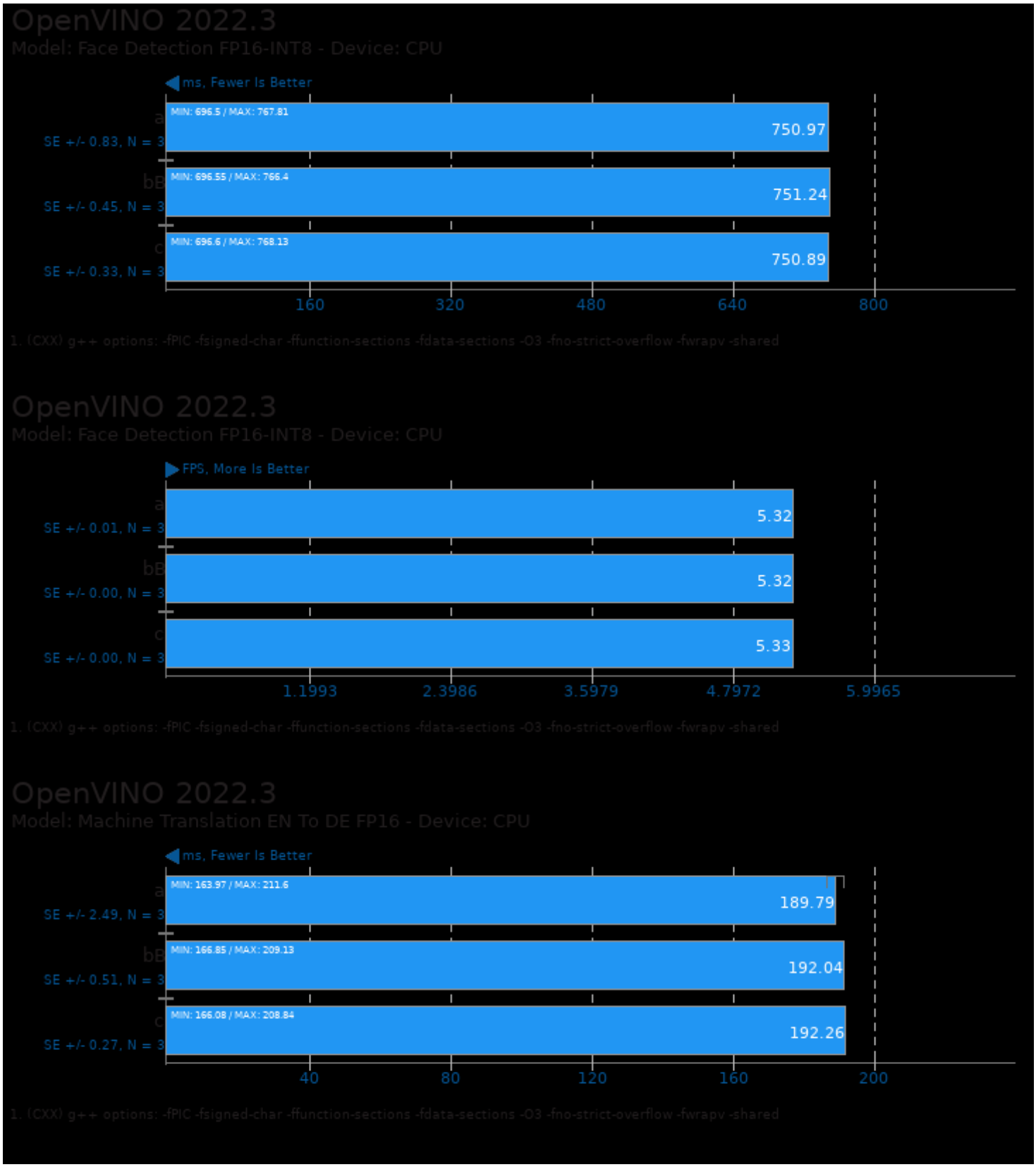
# ryzen amd openvino

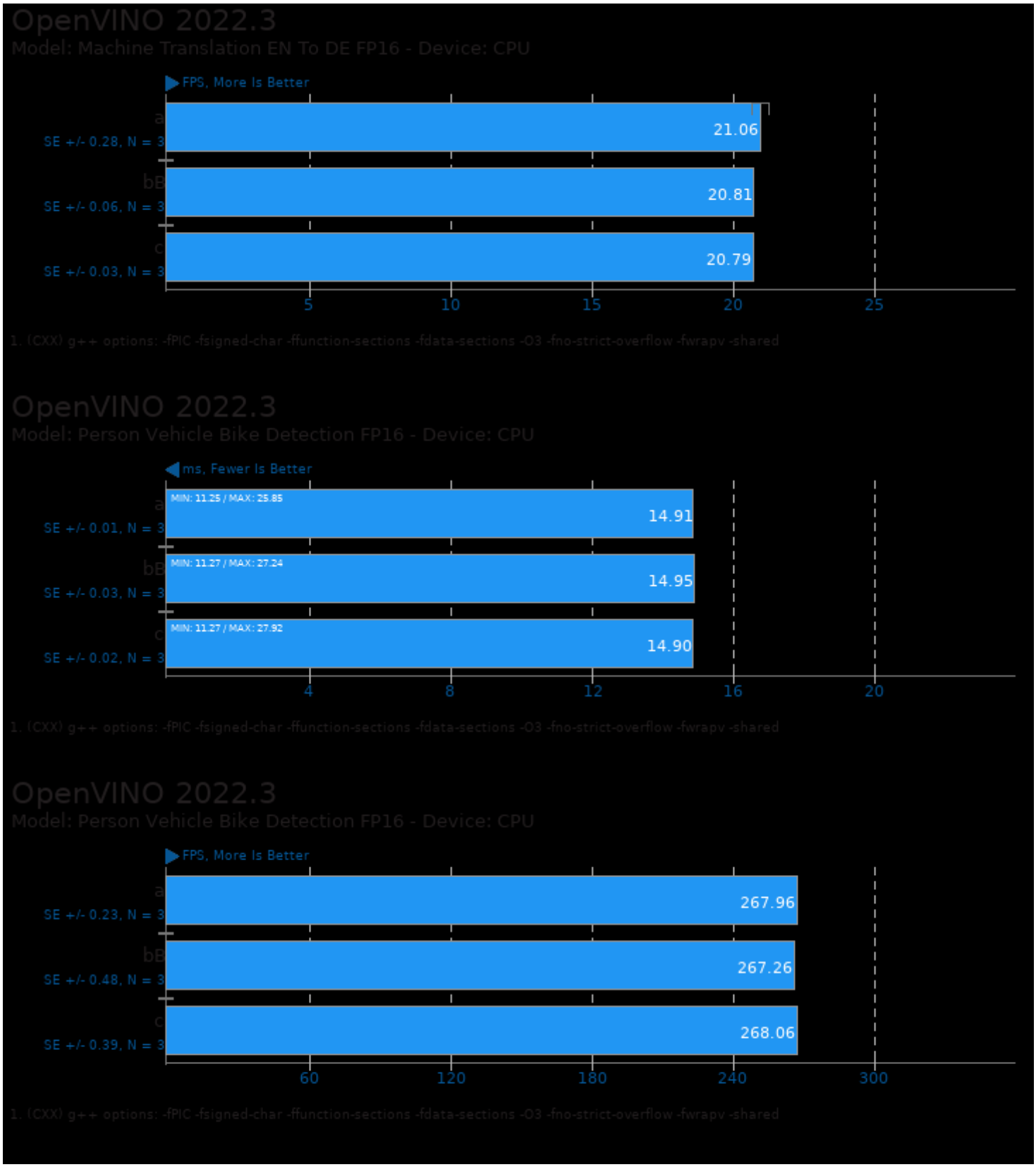



OpenVINO 2022.3
Model: Person Detection FP16 - Device: CPU
ms, Fewer Is Better
MIN: 2527.95 / MAX: 3461.14
3148.43
SE +/- 7.89, N = 3
MIN: 2572.82 / MAX: 3441.81
3134.55
SE +/- 6.61, N = 3
MIN: 2627.61 / MAX: 3453.81
3157.25
SE +/- 9.98, N = 3
700
1400
2100
2800
3500
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared
OpenVINO 2022.3
Model: Person Detection FP16 - Device: CPU
FPS, More Is Better
1.25
SE +/- 0.00, N = 3
1.27
SE +/- 0.00, N = 3
1.26
SE +/- 0.01, N = 3
0.2858
0.5716
0.8574
1.1432
1.429
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared
OpenVINO 2022.3
Model: Person Detection FP32 - Device: CPU
ms, Fewer Is Better
MIN: 2512.36 / MAX: 3483.24
3143.16
SE +/- 3.30, N = 3
MIN: 2610.7 / MAX: 3429.64
3140.57
SE +/- 2.98, N = 3
MIN: 2514.49 / MAX: 3435.65
3134.71
SE +/- 2.73, N = 3
700
1400
2100
2800
3500
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared

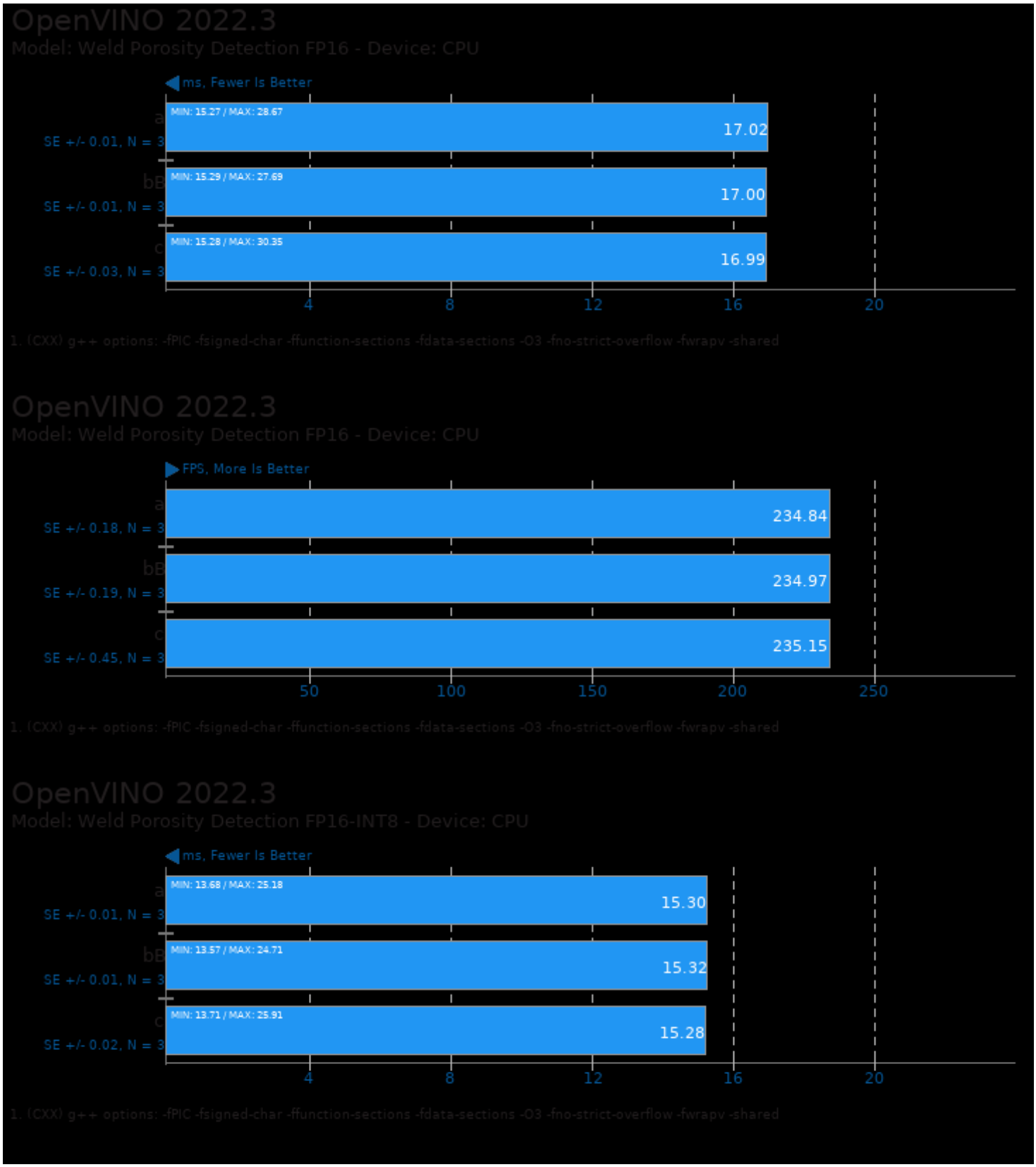
# ryzen amd openvino

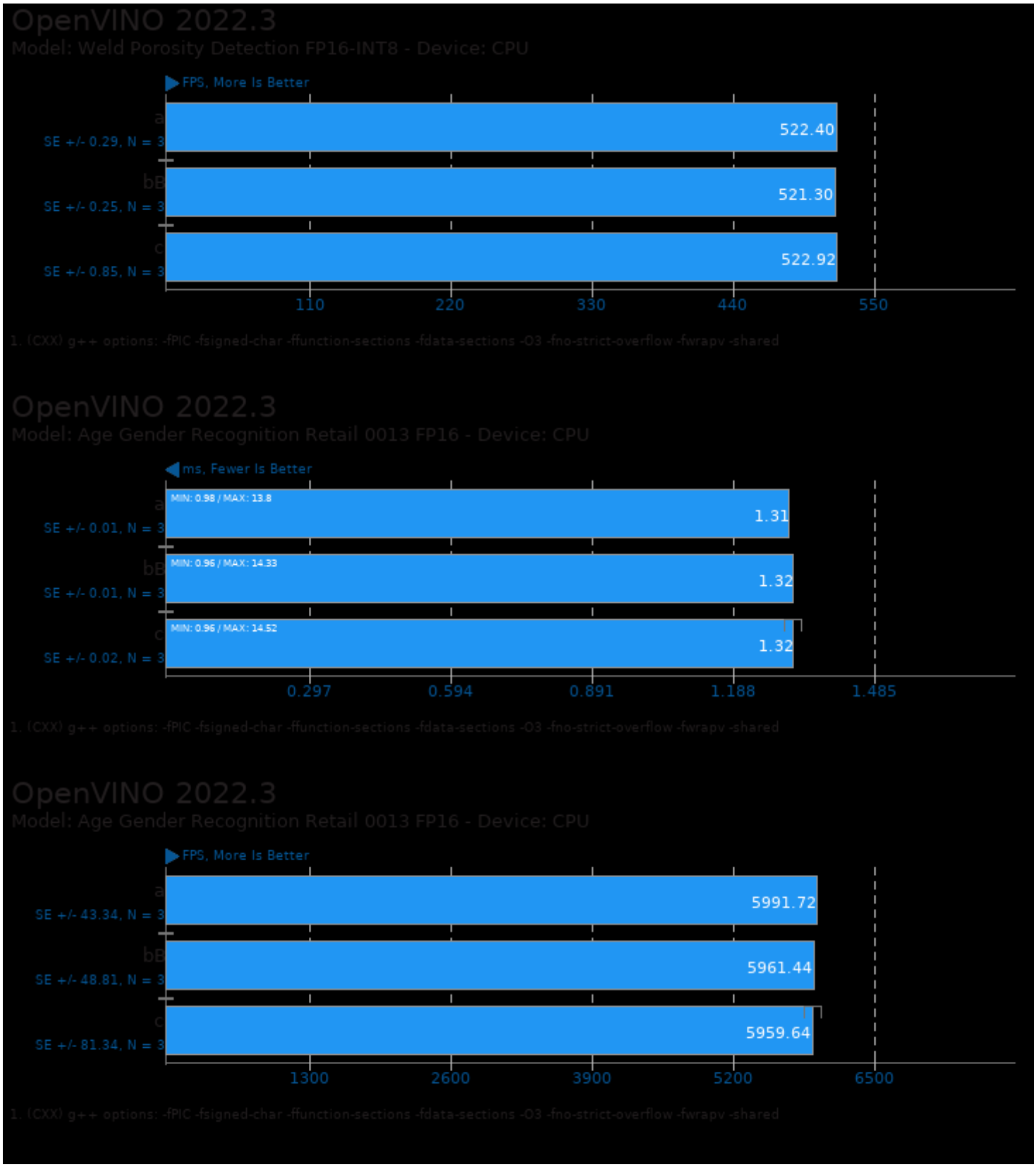



OpenVINO 2022.3
Model: Face Detection FP16-INT8 - Device: CPU
ms, Fewer Is Better
MIN: 696.5 / MAX: 767.81
750.97
SE +/- 0.83, N = 3
MIN: 696.55 / MAX: 766.4
751.24
SE +/- 0.45, N = 3
MIN: 696.6 / MAX: 768.13
750.89
SE +/- 0.33, N = 3
160
320
480
640
800
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared
OpenVINO 2022.3
Model: Face Detection FP16-INT8 - Device: CPU
FPS, More Is Better
5.32
SE +/- 0.01, N = 3
5.32
SE +/- 0.00, N = 3
5.33
SE +/- 0.00, N = 3
1.1993
2.3986
3.5979
4.7972
5.9965
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared
OpenVINO 2022.3
Model: Machine Translation EN To DE FP16 - Device: CPU
ms, Fewer Is Better
MIN: 163.97 / MAX: 211.6
189.79
SE +/- 2.49, N = 3
MIN: 166.85 / MAX: 209.13
192.04
SE +/- 0.51, N = 3
MIN: 166.08 / MAX: 208.84
192.26
SE +/- 0.27, N = 3
40
80
120
160
200
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared


OpenVINO 2022.3
Model: Machine Translation EN To DE FP16 - Device: CPU
FPS, More Is Better
a
SE +/- 0.28, N = 3
21.06
bB
SE +/- 0.06, N = 3
20.81
c
SE +/- 0.03, N = 3
20.79
5
10
15
20
25
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared
OpenVINO 2022.3
Model: Person Vehicle Bike Detection FP16 - Device: CPU
ms, Fewer Is Better
a
SE +/- 0.01, N = 3
MIN: 11.25 / MAX: 25.85
14.91
bB
SE +/- 0.03, N = 3
MIN: 11.27 / MAX: 27.24
14.95
c
SE +/- 0.02, N = 3
MIN: 11.27 / MAX: 27.92
14.90
4
8
12
16
20
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared
OpenVINO 2022.3
Model: Person Vehicle Bike Detection FP16 - Device: CPU
FPS, More Is Better
a
SE +/- 0.23, N = 3
267.96
bB
SE +/- 0.48, N = 3
267.26
c
SE +/- 0.39, N = 3
268.06
60
120
180
240
300
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared

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*This file was automatically generated via the Phoronix Test Suite benchmarking software on Friday, 29 March 2024 11:06.*