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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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c

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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

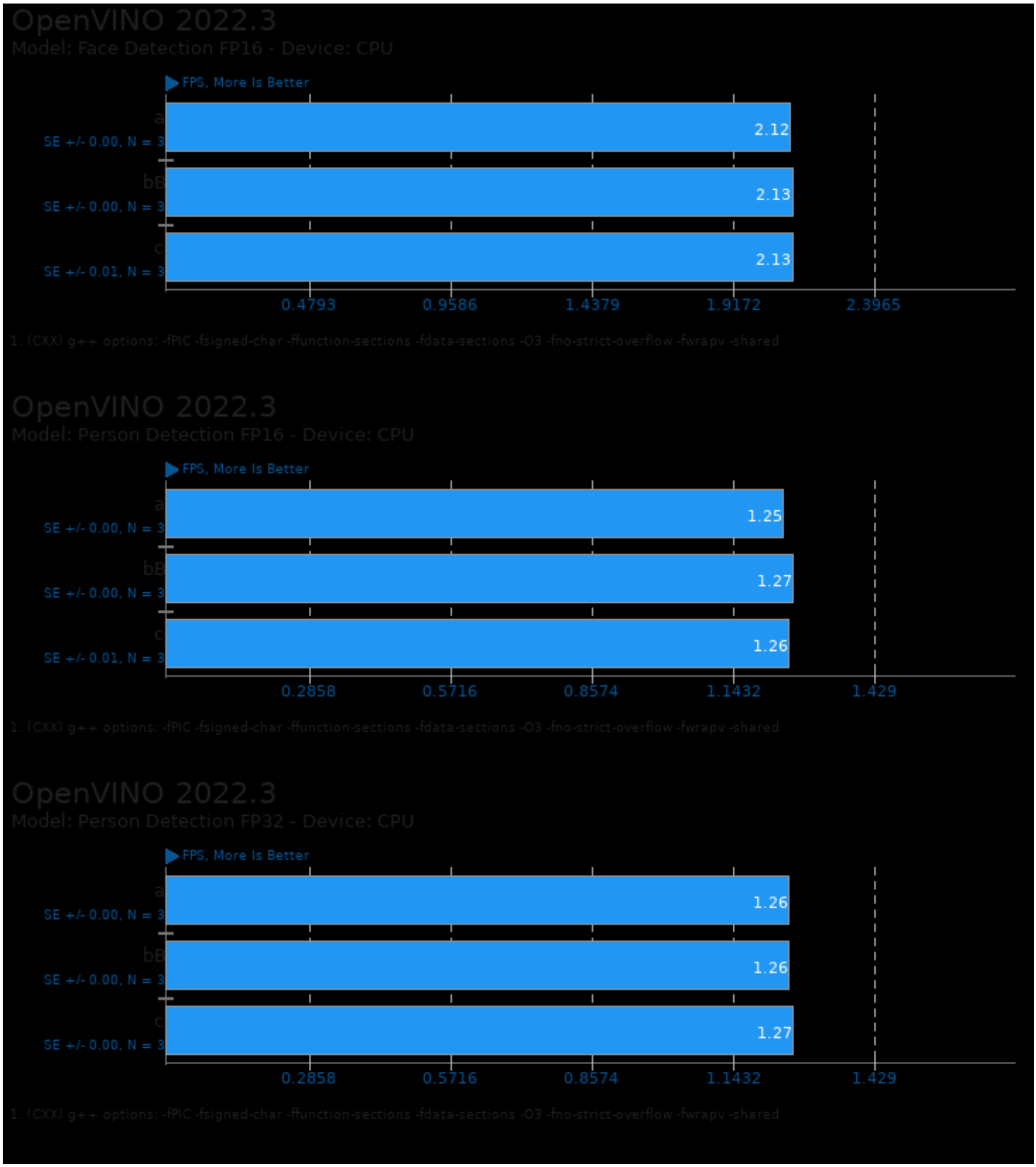
OS: Ubuntu 22.10, Kernel: 5.19.0-26-generic (x86_64), Desktop: GNOME Shell 43.0, Display Server: X Server 1.21.1.4 + Wayland, OpenGL: 4.6 Mesa 22.2.1 (LLVM 15.0.2 DRM 3.47), Vulkan: 1.3.224, Compiler: GCC 12.2.0, File-System: ext4, Screen Resolution: 1920x1080

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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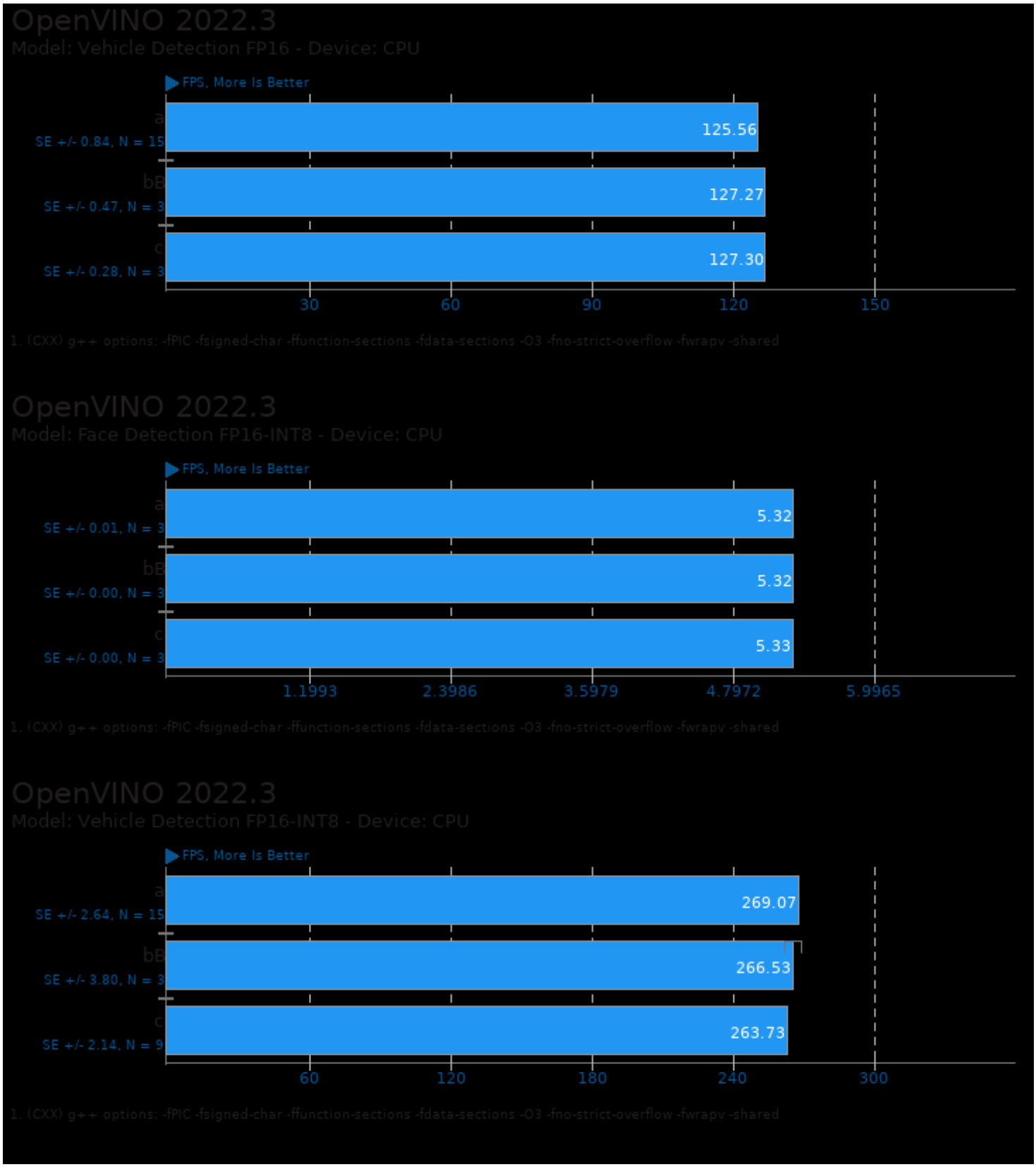
	a	bB	c
OpenVINO - F.D.F - CPU (FPS)	**2.12**	**2.13**	**2.13**
Normalized	99.53%	100%	100%
Standard Deviation	0.3%	0%	0.5%
OpenVINO - P.D.F - CPU (FPS)	**1.25**	**1.27**	1.26
Normalized	98.43%	100%	99.21%
Standard Deviation	0.5%	0.5%	0.8%
OpenVINO - P.D.F - CPU (FPS)	**1.26**	**1.26**	**1.27**
Normalized	99.21%	99.21%	100%
Standard Deviation	0%	0.5%	0%
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 - 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 - 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 - 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 - 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 - 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 - P.V.B.D.F - CPU (FPS)	267.96	**267.26**	**268.06**
Normalized	99.96%	99.7%	100%

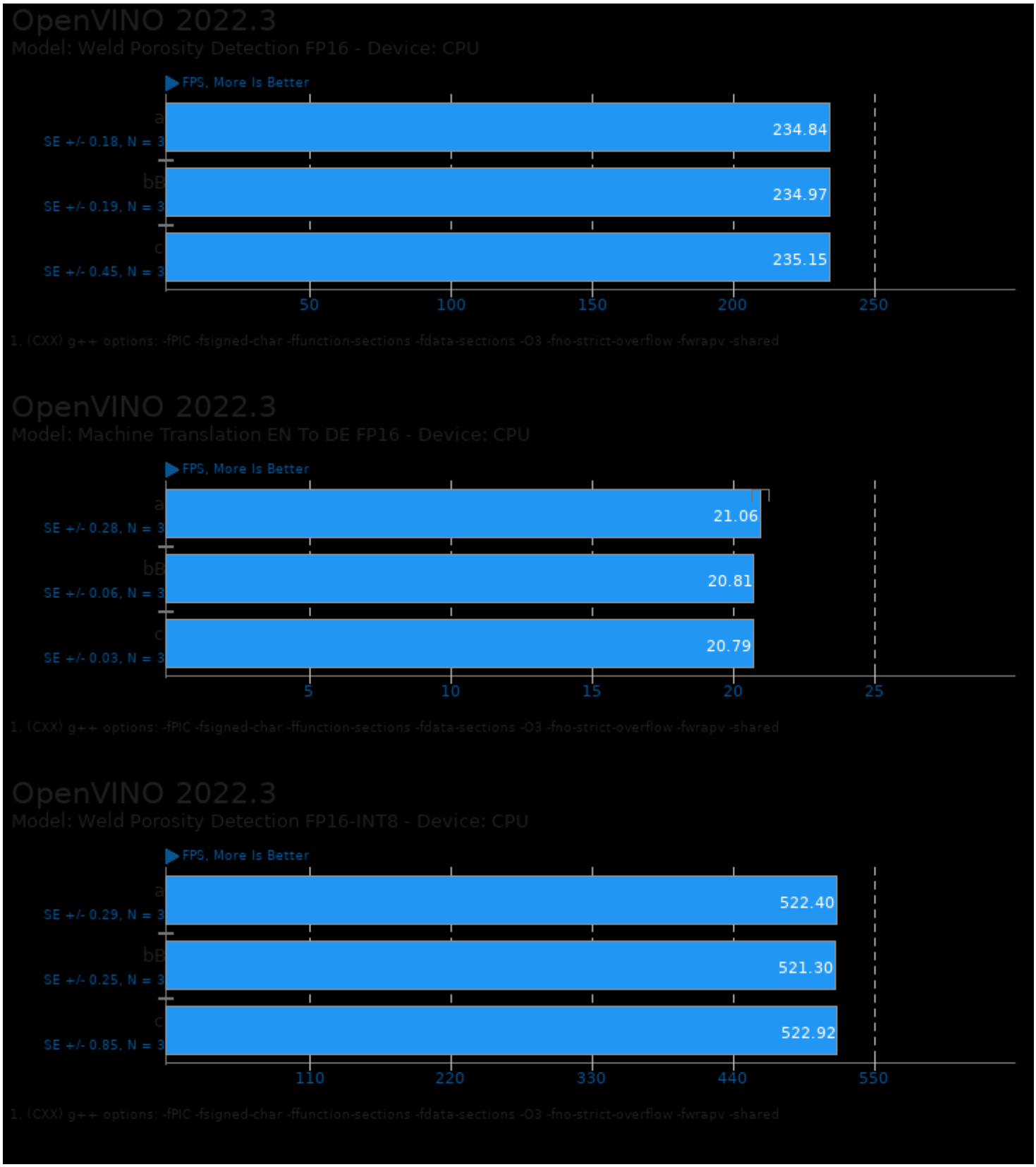
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Standard Deviation	0.1%	0.3%	0.2%
OpenVINO - A.G.R.R.0.F - CPU (FPS)	**5992**	5961	**5960**
Normalized	100%	99.49%	99.46%
Standard Deviation	1.3%	1.4%	2.4%
OpenVINO - A.G.R.R.0.F.I - CPU (FPS)	**6766**	**7135**	6998
Normalized	94.83%	100%	98.07%
Standard Deviation	1.5%	3.3%	3.8%
OpenVINO - F.D.F - CPU (ms)	**1876**	**1869**	1876
Normalized	99.6%	100%	99.63%
Standard Deviation	0.4%	0.2%	0.2%
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 (ms)	**3143**	3141	**3135**
Normalized	99.73%	99.81%	100%
Standard Deviation	0.2%	0.2%	0.2%
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 - 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 - 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 - 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 - 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 - 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 - 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 - 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.I - CPU (ms)	**1.17**	**1.10**	1.13
Normalized	94.02%	100%	97.35%
Standard Deviation	1.8%	3.5%	3.8%

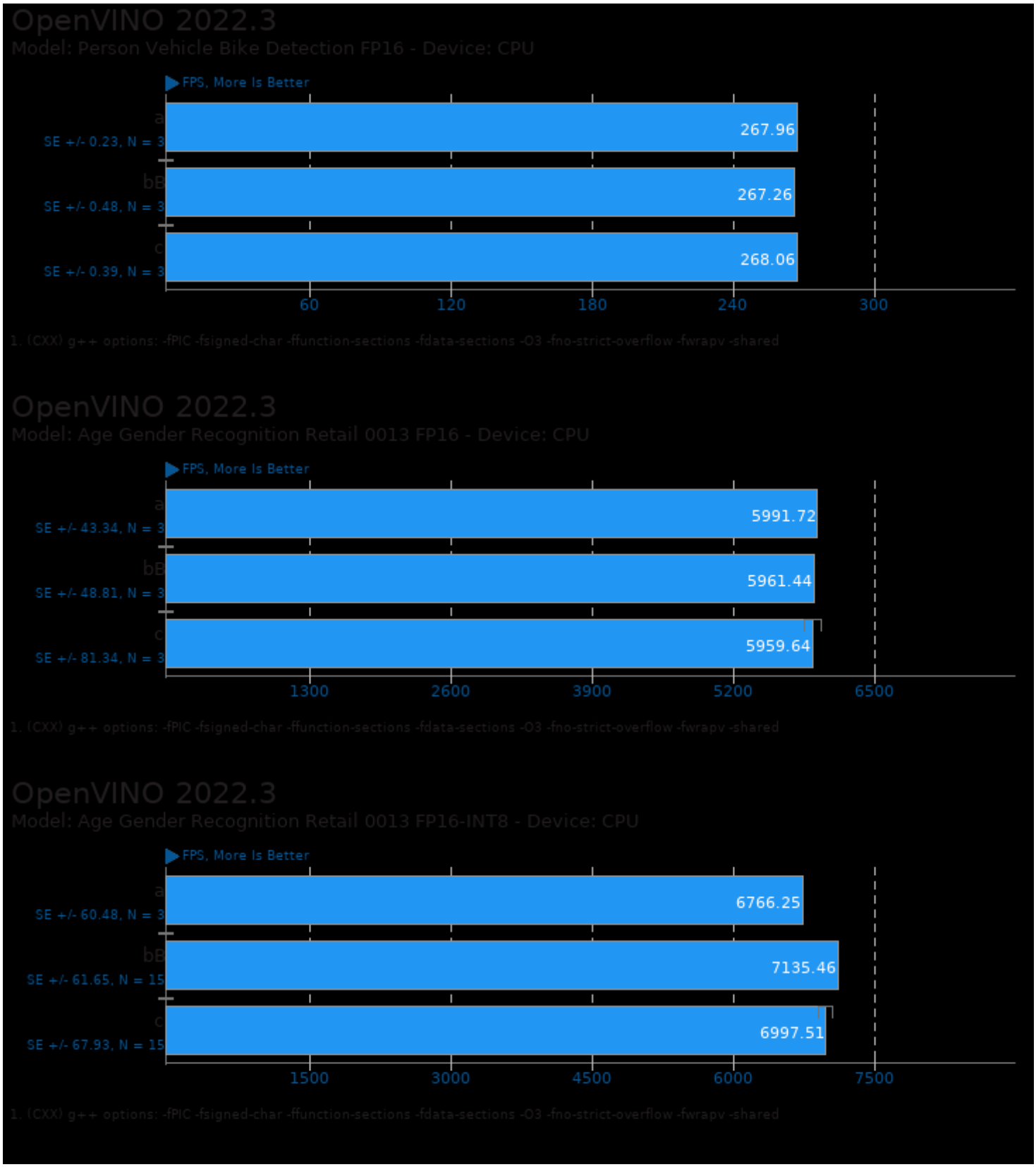

OpenVINO 2022.3
Model: Face Detection FP16 - Device: CPU
FPS, More Is Better
a
SE +/- 0.00, N = 3
2.12
bB
SE +/- 0.00, N = 3
2.13
c
SE +/- 0.01, N = 3
2.13
0.4793
0.9586
1.4379
1.9172
2.3965
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared
OpenVINO 2022.3
Model: Person Detection FP16 - Device: CPU
FPS, More Is Better
a
SE +/- 0.00, N = 3
1.25
bB
SE +/- 0.00, N = 3
1.27
c
SE +/- 0.01, N = 3
1.26
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
FPS, More Is Better
a
SE +/- 0.00, N = 3
1.26
bB
SE +/- 0.00, N = 3
1.26
c
SE +/- 0.00, N = 3
1.27
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

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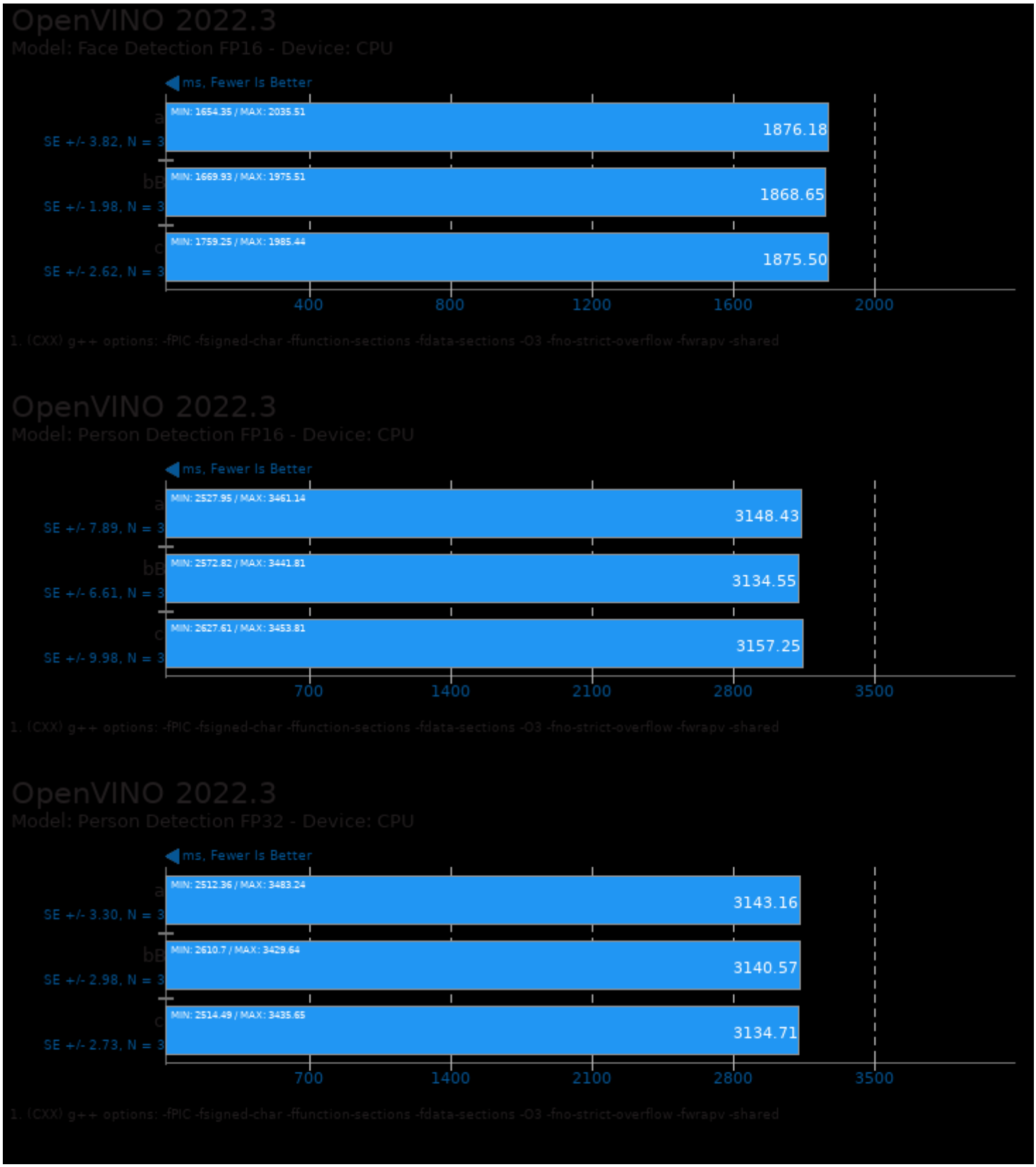


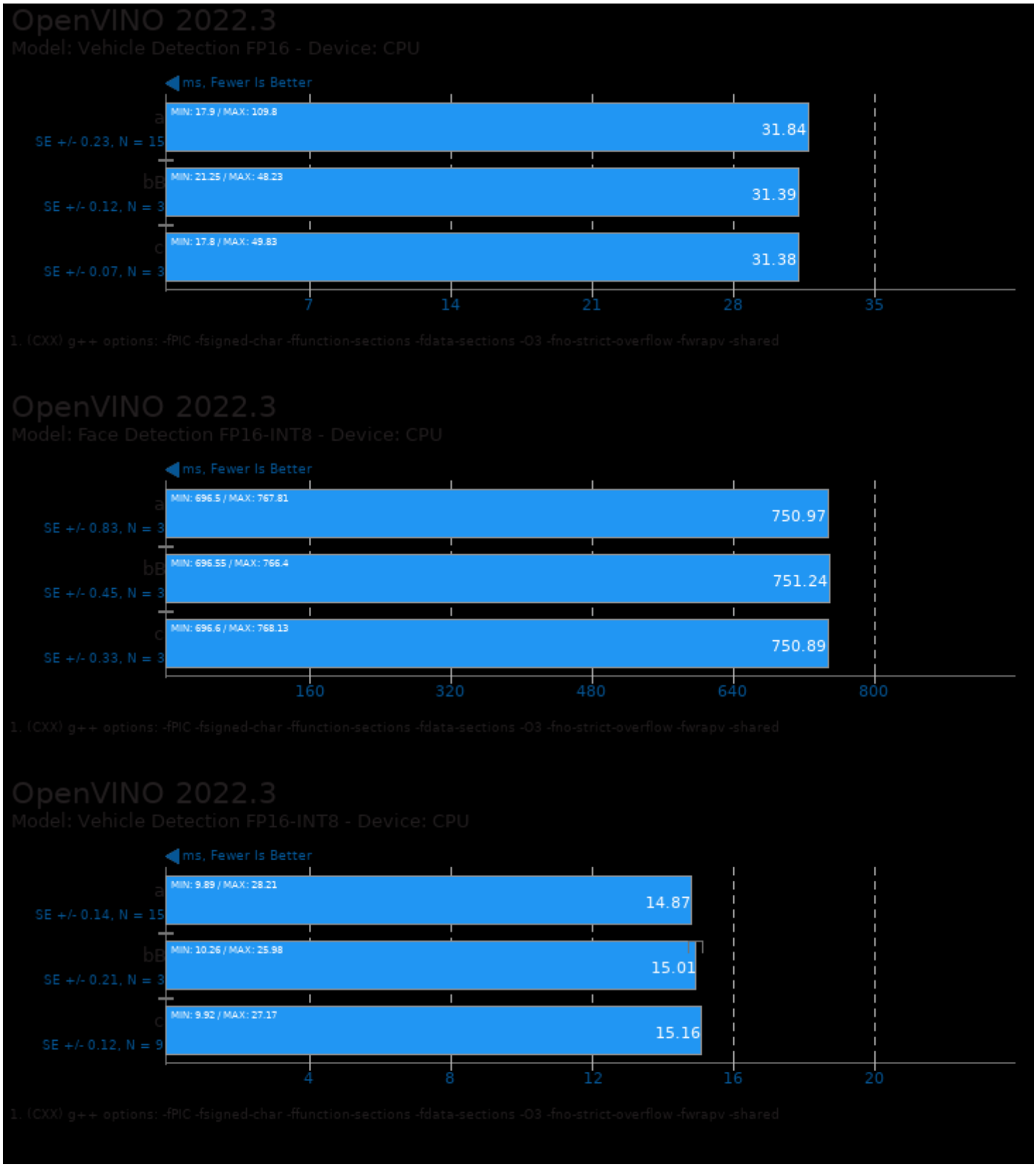

OpenVINO 2022.3
Model: Weld Porosity Detection FP16 - Device: CPU
FPS, More Is Better
a
SE +/- 0.18, N = 3
234.84
bB
SE +/- 0.19, N = 3
234.97
c
SE +/- 0.45, N = 3
235.15
50
100
150
200
250
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -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: Weld Porosity Detection FP16-INT8 - Device: CPU
FPS, More Is Better
a
SE +/- 0.29, N = 3
522.40
bB
SE +/- 0.25, N = 3
521.30
c
SE +/- 0.85, N = 3
522.92
110
220
330
440
550
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared

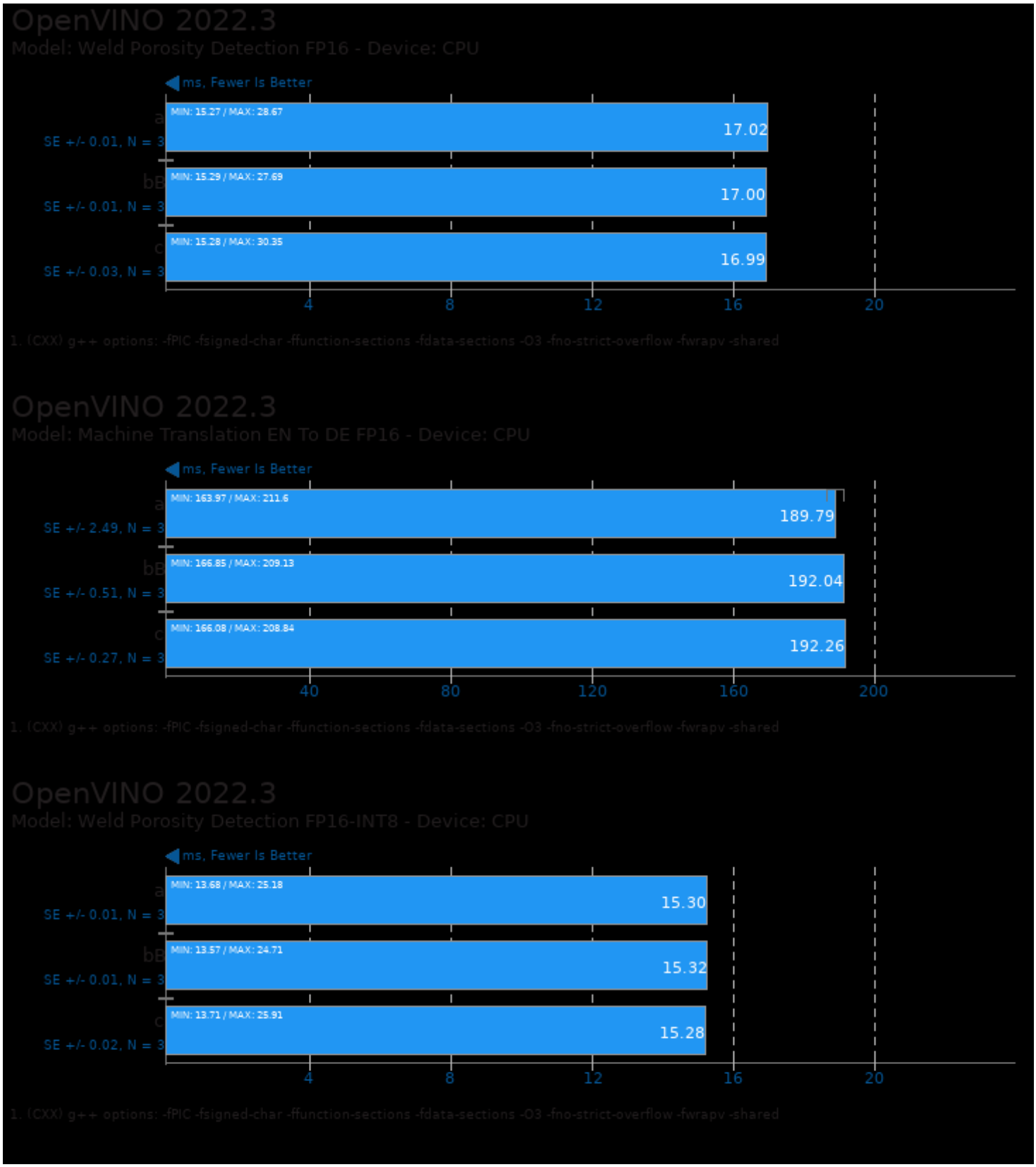
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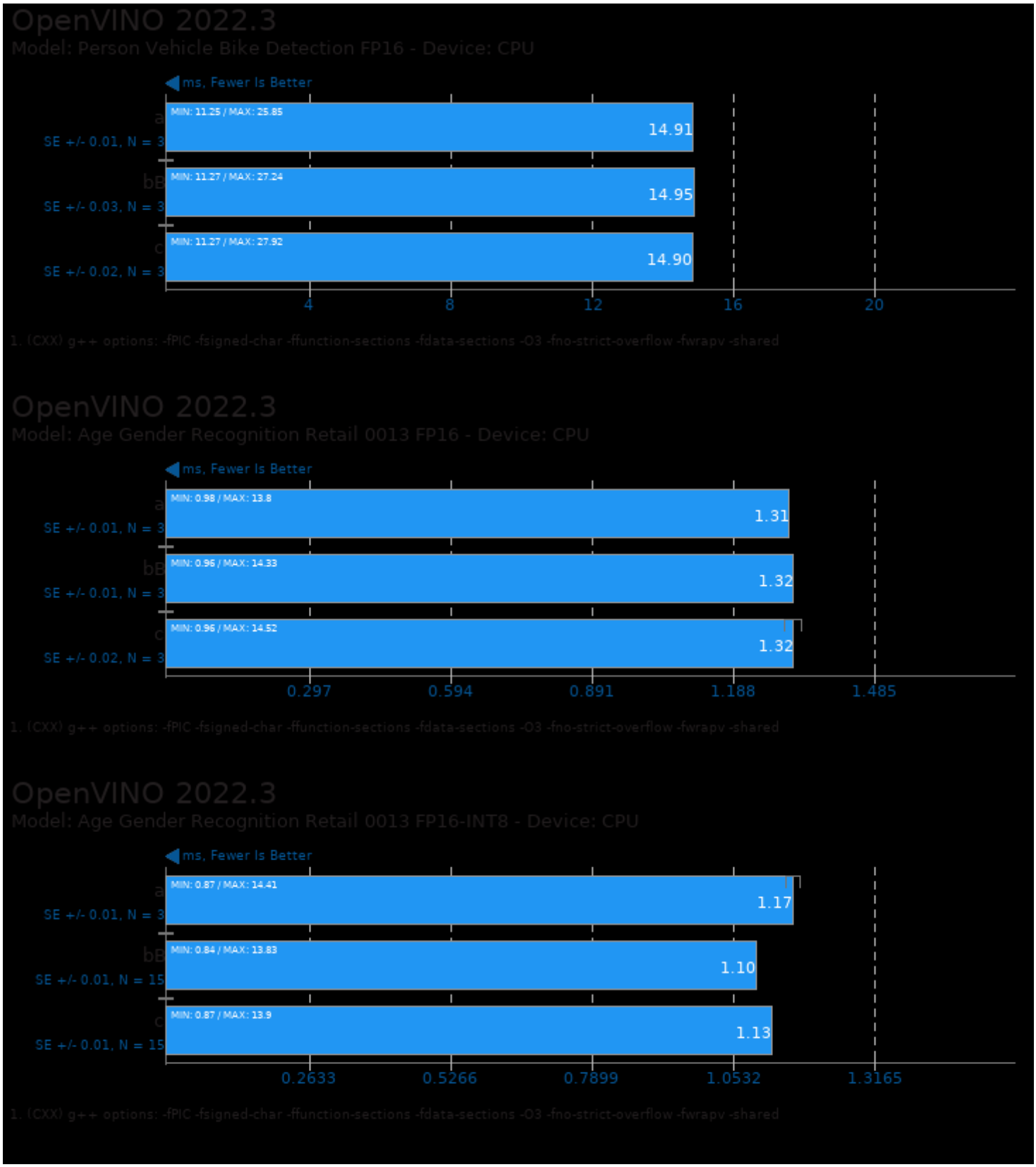


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OpenVINO 2022.3
Model: Vehicle Detection FP16 - Device: CPU
ms, Fewer Is Better
MIN: 17.9 / MAX: 109.8
31.84
SE +/- 0.23, N = 15
MIN: 21.25 / MAX: 48.23
31.39
SE +/- 0.12, N = 3
MIN: 17.8 / MAX: 49.83
31.38
SE +/- 0.07, N = 3
7
14
21
28
35
1. (CXX) 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
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: Vehicle Detection FP16-INT8 - Device: CPU
ms, Fewer Is Better
MIN: 9.89 / MAX: 28.21
14.87
SE +/- 0.14, N = 15
MIN: 10.26 / MAX: 25.98
15.01
SE +/- 0.21, N = 3
MIN: 9.92 / MAX: 27.17
15.16
SE +/- 0.12, N = 9
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: Weld Porosity Detection FP16 - Device: CPU
ms, Fewer Is Better
MIN: 15.27 / MAX: 28.67
17.02
SE +/- 0.01, N = 3
MIN: 15.29 / MAX: 27.69
17.00
SE +/- 0.01, N = 3
MIN: 15.28 / MAX: 30.35
16.99
SE +/- 0.03, N = 3
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: 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: Weld Porosity Detection FP16-INT8 - Device: CPU
ms, Fewer Is Better
MIN: 13.68 / MAX: 25.18
15.30
SE +/- 0.01, N = 3
MIN: 13.57 / MAX: 24.71
15.32
SE +/- 0.01, N = 3
MIN: 13.71 / MAX: 25.91
15.28
SE +/- 0.02, N = 3
4
8
12
16
20
1. (CXX) g++ options: -fPIC -fsigned-char -ffunction-sections -fdata-sections -O3 -fno-strict-overflow -fwrapv -shared



This file was automatically generated via the Phoronix Test Suite benchmarking software on Thursday, 28 March 2024 20:34.