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deepsparse new

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

a had the most wins, coming in first place for 38% of the tests.

Based on the geometric mean of all complete results, the fastest (c) was 1.002x the speed of the slowest (a). b was 0.999x the speed of c and a was 1x the speed of b.

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

Neural Magic DeepSparse (Model: CV Segmentation, 90% Pruned YOLACT Pruned - Scenario: Asynchronous Multi-Stream) at 1.077x
Neural Magic DeepSparse (Model: CV Segmentation, 90% Pruned YOLACT Pruned - Scenario: Asynchronous Multi-Stream) at 1.074x
Neural Magic DeepSparse (Model: NLP Text Classification, BERT base uncased SST2 - Scenario: Asynchronous Multi-Stream) at 1.052x
Neural Magic DeepSparse (Model: NLP Text Classification, BERT base uncased SST2 - Scenario: Asynchronous Multi-Stream) at 1.051x
Neural Magic DeepSparse (Model: CV Classification, ResNet-50 ImageNet - Scenario: Synchronous Single-Stream) at

1.032x
Neural Magic DeepSparse (Model: CV Classification, ResNet-50 ImageNet - Scenario: Synchronous Single-Stream) at 1.032x
Neural Magic DeepSparse (Model: NLP Token Classification, BERT base uncased conll2003 - Scenario: Synchronous Single-Stream) at 1.022x
Neural Magic DeepSparse (Model: NLP Token Classification, BERT base uncased conll2003 - Scenario: Synchronous Single-Stream) at 1.022x
Neural Magic DeepSparse (Model: CV Segmentation, 90% Pruned YOLACT Pruned - Scenario: Synchronous Single-Stream) at 1.02x
Neural Magic DeepSparse (Model: CV Segmentation, 90% Pruned YOLACT Pruned - Scenario: Synchronous Single-Stream) at 1.02x.

Test Systems:

a

b

c

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: 5.19.0-28-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
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

	a	b	c
Neural Magic DeepSparse - N.D.C.o.b.u.o.l - A.M.S (items/sec)	**6.1849**	6.1688	**6.1581**
Normalized	100%	99.74%	99.57%
Standard Deviation			0.6%

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Neural Magic DeepSparse - N.D.C.o.b.u.o.I - A.M.S (ms/batch)	**646.7167**	648.4005	**649.4201**
Normalized	100%	99.74%	99.58%
Standard Deviation			0.6%
Neural Magic DeepSparse - N.D.C.o.b.u.o.I - S.S.S (items/sec)	**5.8779**	**5.9081**	5.8876
Normalized	99.49%	100%	99.65%
Standard Deviation			2.5%
Neural Magic DeepSparse - N.D.C.o.b.u.o.I - S.S.S (ms/batch)	**170.1219**	**169.251**	169.9081
Normalized	99.49%	100%	99.61%
Standard Deviation			2.4%
Neural Magic DeepSparse - N.S.A.8.P.Q.B.B.U - A.M.S (items/sec)	71.1662	**71.0519**	**71.3201**
Normalized	99.78%	99.62%	100%
Standard Deviation			0.3%
Neural Magic DeepSparse - N.S.A.8.P.Q.B.B.U - A.M.S (ms/batch)	56.1912	**56.2815**	**56.0700**
Normalized	99.78%	99.62%	100%
Standard Deviation			0.3%
Neural Magic DeepSparse - N.S.A.8.P.Q.B.B.U - S.S.S (items/sec)	**57.3632**	57.659	**57.9803**
Normalized	98.94%	99.45%	100%
Standard Deviation			0.7%
Neural Magic DeepSparse - N.S.A.8.P.Q.B.B.U - S.S.S (ms/batch)	**17.4245**	17.3351	**17.2396**
Normalized	98.94%	99.45%	100%
Standard Deviation			0.7%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - A.M.S (items/sec)	**19.2686**	**19.5795**	19.3064
Normalized	98.41%	100%	98.61%
Standard Deviation			1%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - A.M.S (ms/batch)	**207.5649**	**204.2325**	207.0196
Normalized	98.39%	100%	98.65%
Standard Deviation			1%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - S.S.S (items/sec)	**18.5832**	18.5719	**18.5157**
Normalized	100%	99.94%	99.64%
Standard Deviation			0.2%
Neural Magic DeepSparse - N.Q.A.B.b.u.S.1.P - S.S.S (ms/batch)	**53.8018**	53.8347	**53.9980**
Normalized	100%	99.94%	99.64%
Standard Deviation			0.2%
Neural Magic DeepSparse - C.D.Y.C - A.M.S (items/sec)	**31.8864**	**31.5504**	31.6469
Normalized	100%	98.95%	99.25%
Standard Deviation			0.4%
Neural Magic DeepSparse - C.D.Y.C - A.M.S (ms/batch)	**125.384**	**126.7324**	126.3038
Normalized	100%	98.94%	99.27%
Standard Deviation			0.3%

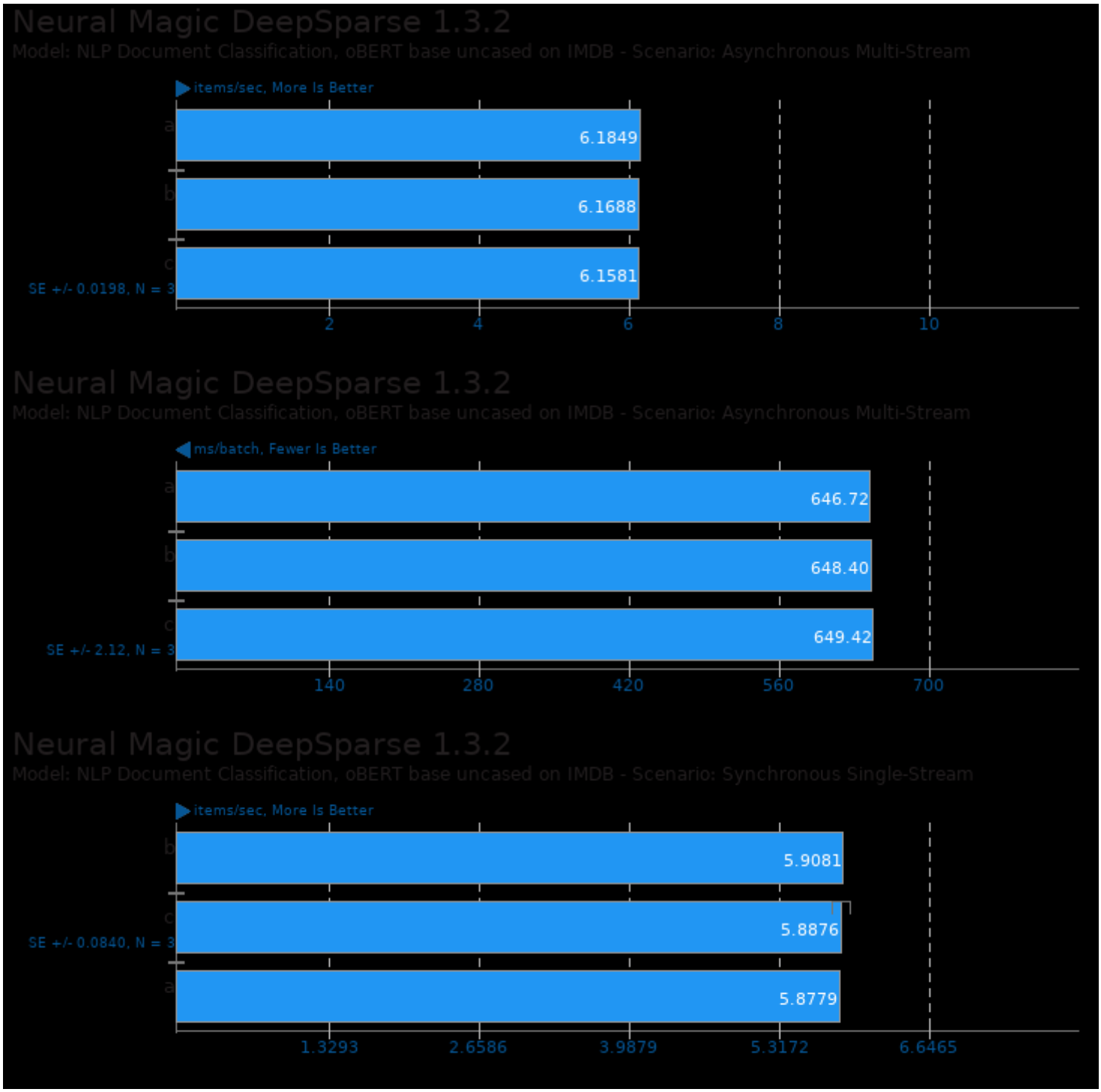
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Neural Magic DeepSparse - C.D.Y.C - S.S.S (items/sec)	**28.8554**	28.9365	**29.0018**
Normalized	99.5%	99.77%	100%
Standard Deviation			0.2%
Neural Magic DeepSparse - C.D.Y.C - S.S.S (ms/batch)	**34.6433**	34.5469	**34.4683**
Normalized	99.49%	99.77%	100%
Standard Deviation			0.2%
Neural Magic DeepSparse - C.C.R.5.I - A.M.S (items/sec)	**76.0952**	76.0289	**75.5245**
Normalized	100%	99.91%	99.25%
Standard Deviation			0.5%
Neural Magic DeepSparse - C.C.R.5.I - A.M.S (ms/batch)	**52.5513**	52.5794	**52.9213**
Normalized	100%	99.95%	99.3%
Standard Deviation			0.5%
Neural Magic DeepSparse - C.C.R.5.I - S.S.S (items/sec)	**71.668**	**69.4477**	70.6570
Normalized	100%	96.9%	98.59%
Standard Deviation			2.4%
Neural Magic DeepSparse - C.C.R.5.I - S.S.S (ms/batch)	**13.9424**	**14.389**	14.1479
Normalized	100%	96.9%	98.55%
Standard Deviation			2.4%
Neural Magic DeepSparse - N.T.C.D.m - A.M.S (items/sec)	**55.5122**	**54.9277**	55.0102
Normalized	100%	98.95%	99.1%
Standard Deviation			0.4%
Neural Magic DeepSparse - N.T.C.D.m - A.M.S (ms/batch)	**72.0407**	**72.8102**	72.6940
Normalized	100%	98.94%	99.1%
Standard Deviation			0.4%
Neural Magic DeepSparse - N.T.C.D.m - S.S.S (items/sec)	**47.0176**	**47.4231**	47.3174
Normalized	99.14%	100%	99.78%
Standard Deviation			0.3%
Neural Magic DeepSparse - N.T.C.D.m - S.S.S (ms/batch)	**21.2615**	**21.0804**	21.1276
Normalized	99.15%	100%	99.78%
Standard Deviation			0.3%
Neural Magic DeepSparse - C.S.9.P.Y.P - A.M.S (items/sec)	**8.5515**	**7.9379**	8.4650
Normalized	100%	92.82%	98.99%
Standard Deviation			0.5%
Neural Magic DeepSparse - C.S.9.P.Y.P - A.M.S (ms/batch)	**467.7261**	**502.3104**	472.5227
Normalized	100%	93.11%	98.98%
Standard Deviation			0.5%
Neural Magic DeepSparse - C.S.9.P.Y.P - S.S.S (items/sec)	**8.1972**	**8.3643**	8.2039
Normalized	98%	100%	98.08%
Standard Deviation			1.5%

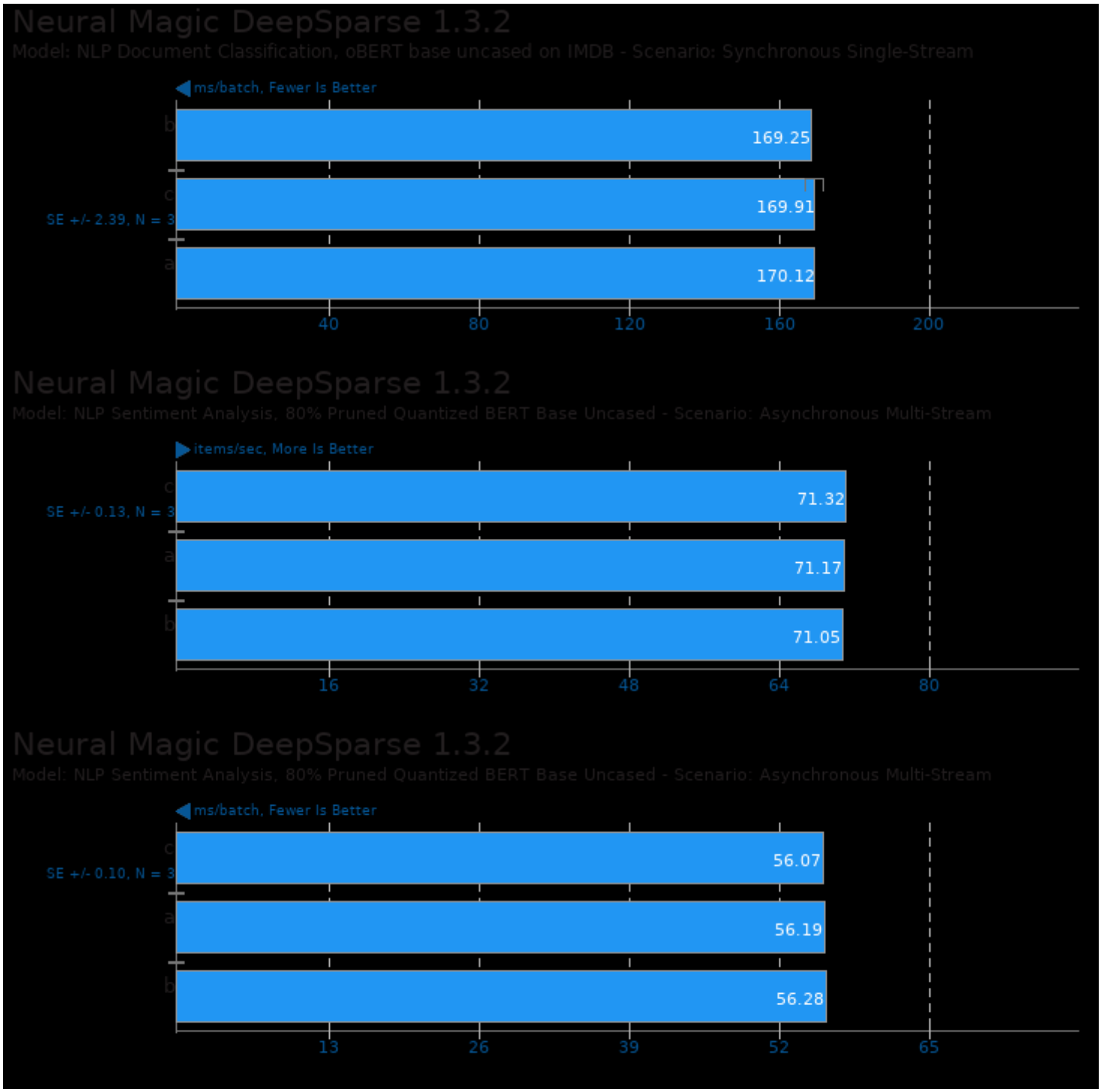
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Neural Magic DeepSparse - C.S.9.P.Y.P - S.S.S (ms/batch)	**121.9787**	**119.5417**	121.8985
Normalized	98%	100%	98.07%
Standard Deviation			1.5%
Neural Magic DeepSparse - N.T.C.B.b.u.S - A.M.S (items/sec)	**26.8409**	**28.2256**	28.1413
Normalized	95.09%	100%	99.7%
Standard Deviation			0%
Neural Magic DeepSparse - N.T.C.B.b.u.S - A.M.S (ms/batch)	**148.9317**	**141.6979**	142.0899
Normalized	95.14%	100%	99.72%
Standard Deviation			0%
Neural Magic DeepSparse - N.T.C.B.b.u.S - S.S.S (items/sec)	23.916	**24.0462**	**23.8628**
Normalized	99.46%	100%	99.24%
Standard Deviation			0.2%
Neural Magic DeepSparse - N.T.C.B.b.u.S - S.S.S (ms/batch)	41.8069	**41.579**	**41.8992**
Normalized	99.45%	100%	99.24%
Standard Deviation			0.2%
Neural Magic DeepSparse - N.T.C.B.b.u.c - A.M.S (items/sec)	6.1594	**6.142**	**6.1952**
Normalized	99.42%	99.14%	100%
Standard Deviation			0.6%
Neural Magic DeepSparse - N.T.C.B.b.u.c - A.M.S (ms/batch)	649.3885	**651.2184**	**645.6068**
Normalized	99.42%	99.14%	100%
Standard Deviation			0.6%
Neural Magic DeepSparse - N.T.C.B.b.u.c - S.S.S (items/sec)	**5.8462**	**5.975**	5.8801
Normalized	97.84%	100%	98.41%
Standard Deviation			2.2%
Neural Magic DeepSparse - N.T.C.B.b.u.c - S.S.S (ms/batch)	**171.042**	**167.3562**	170.1116
Normalized	97.85%	100%	98.38%
Standard Deviation			2.2%

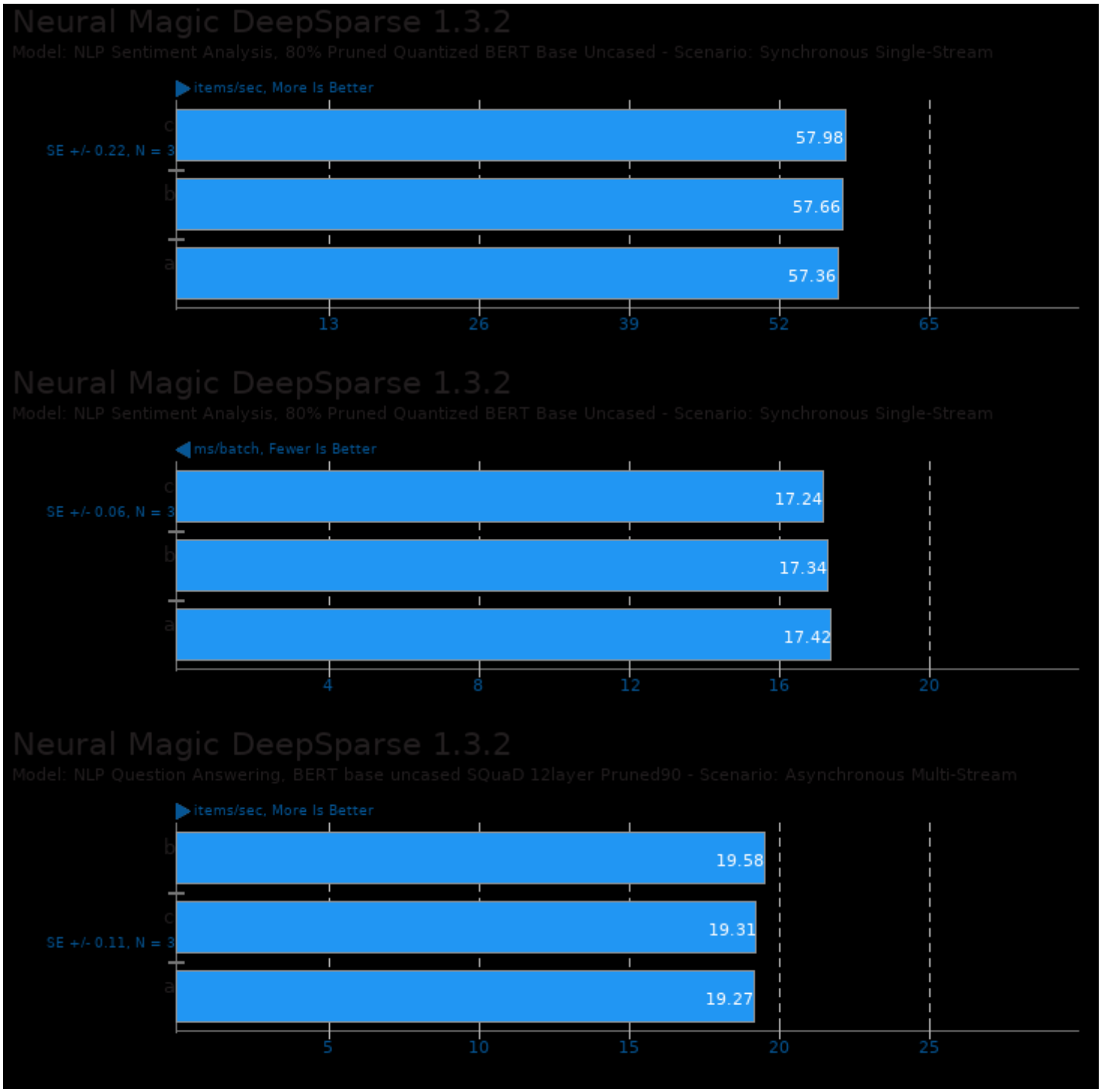
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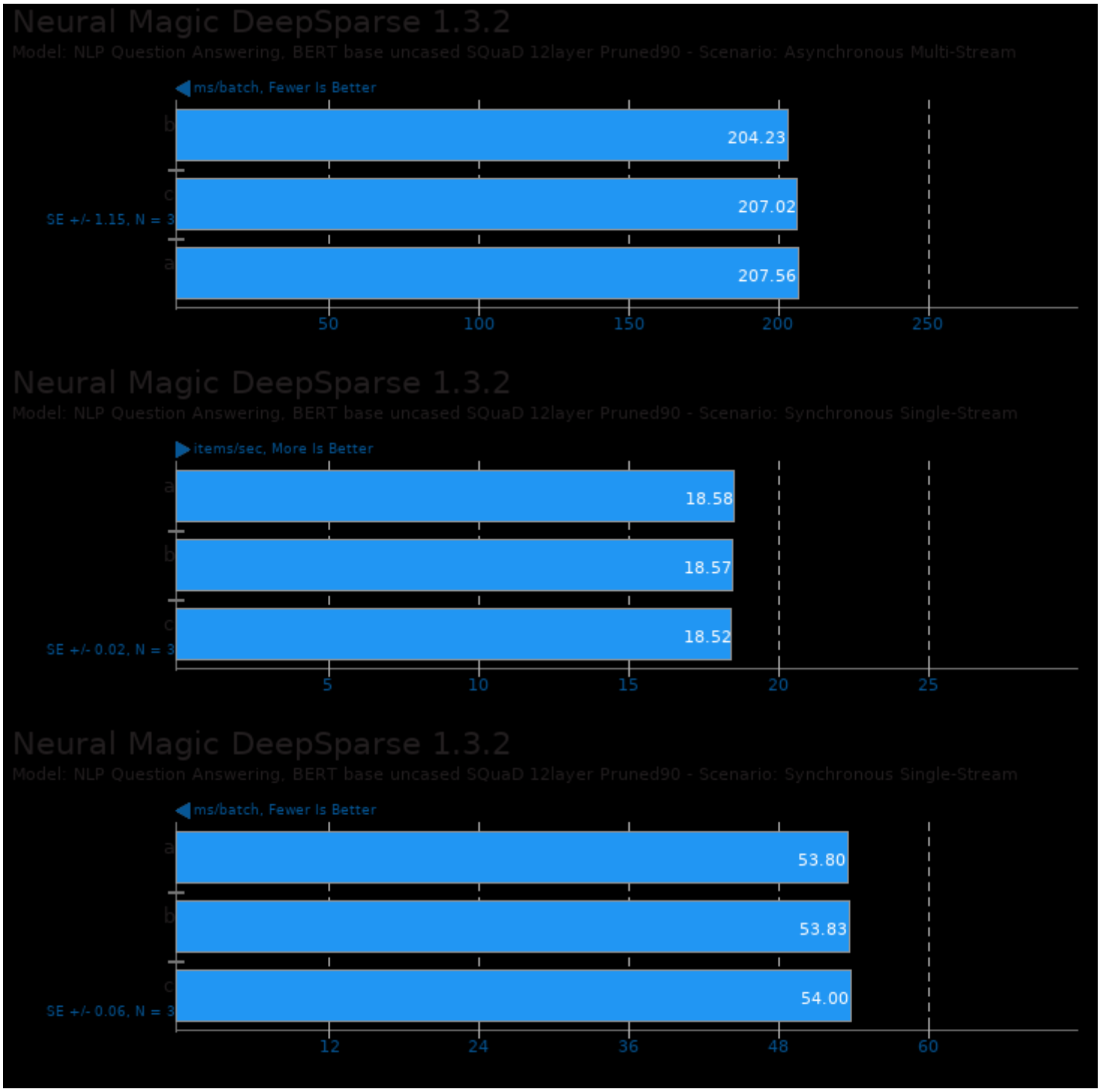
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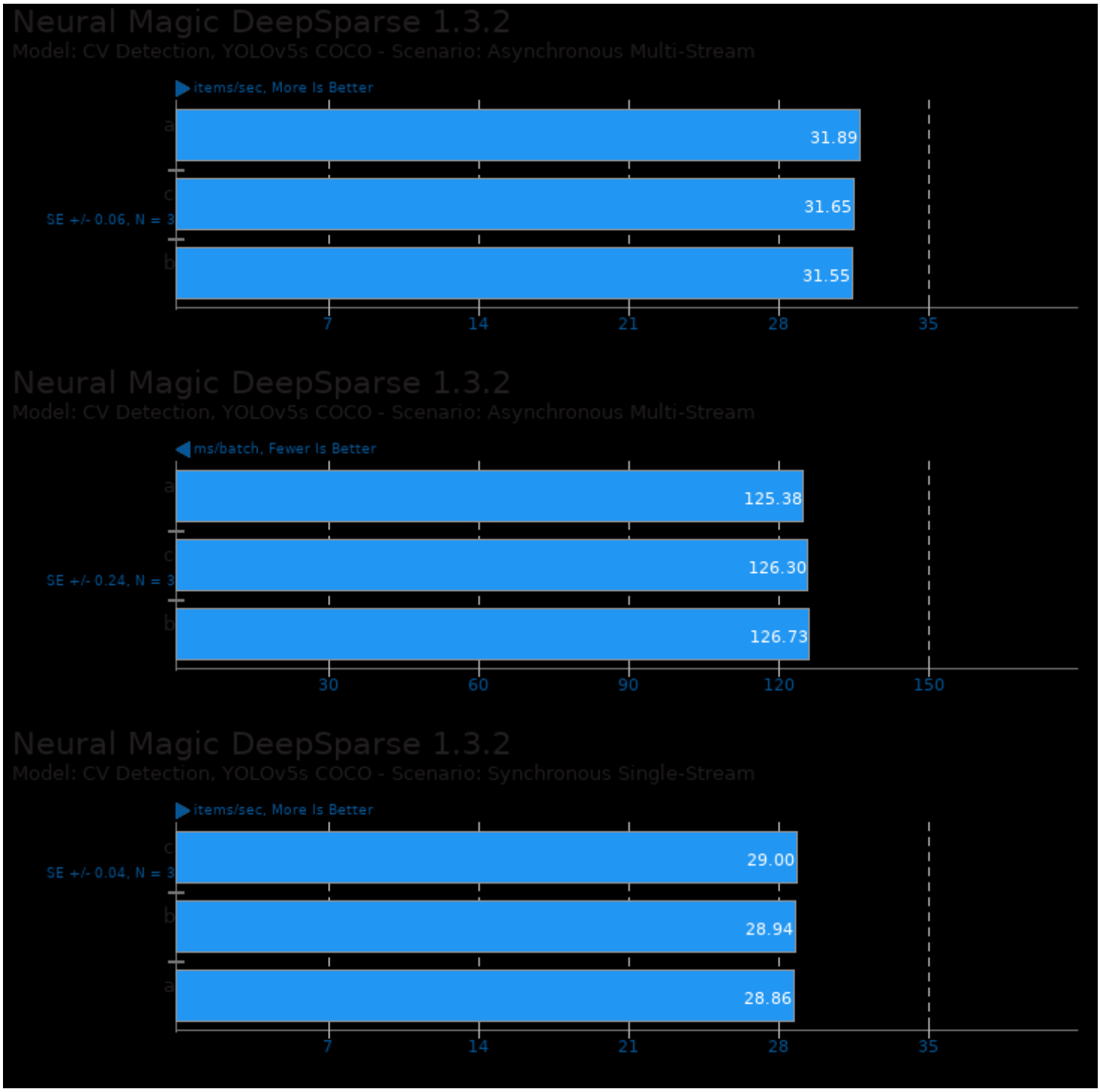
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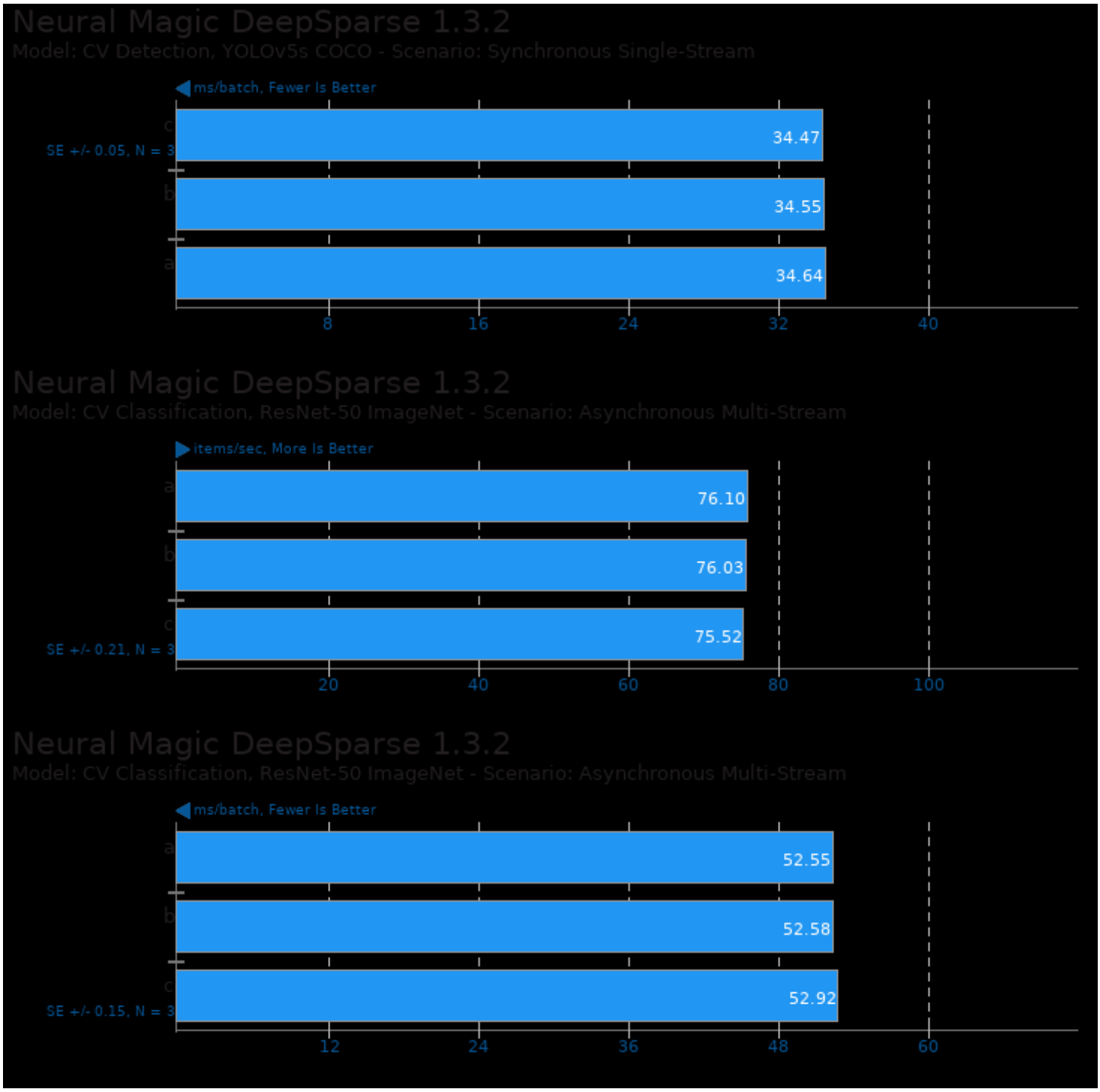
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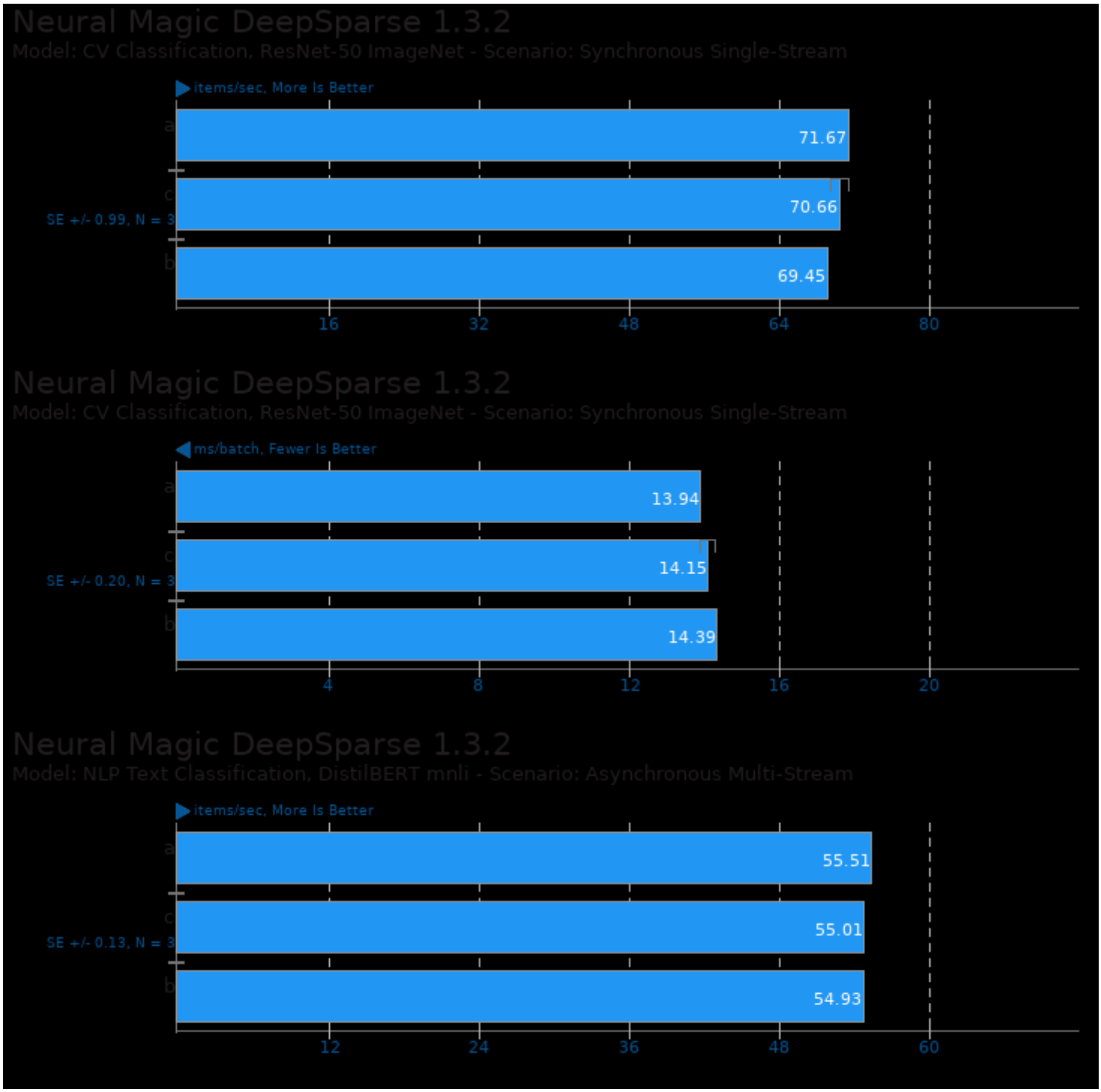
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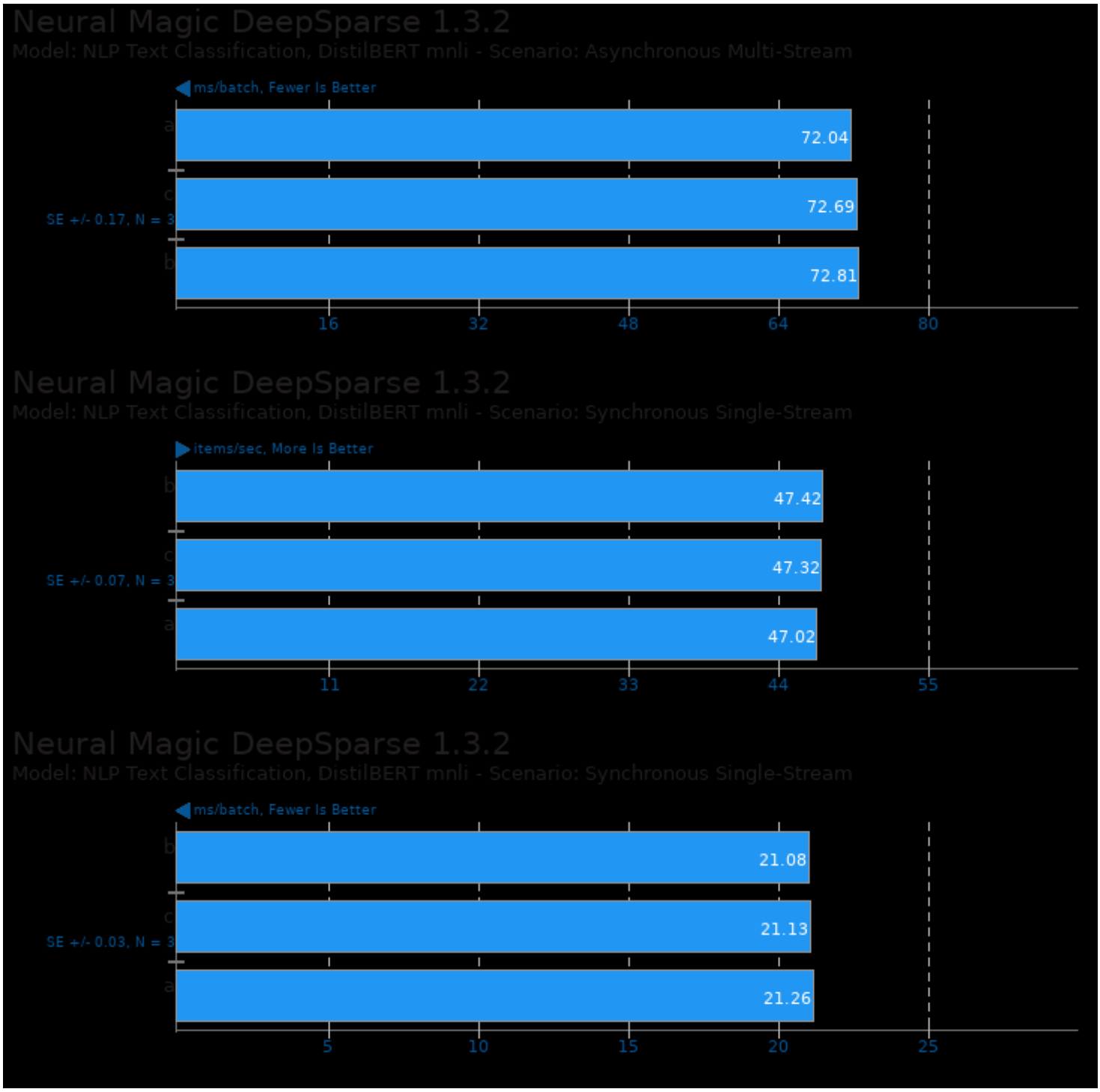
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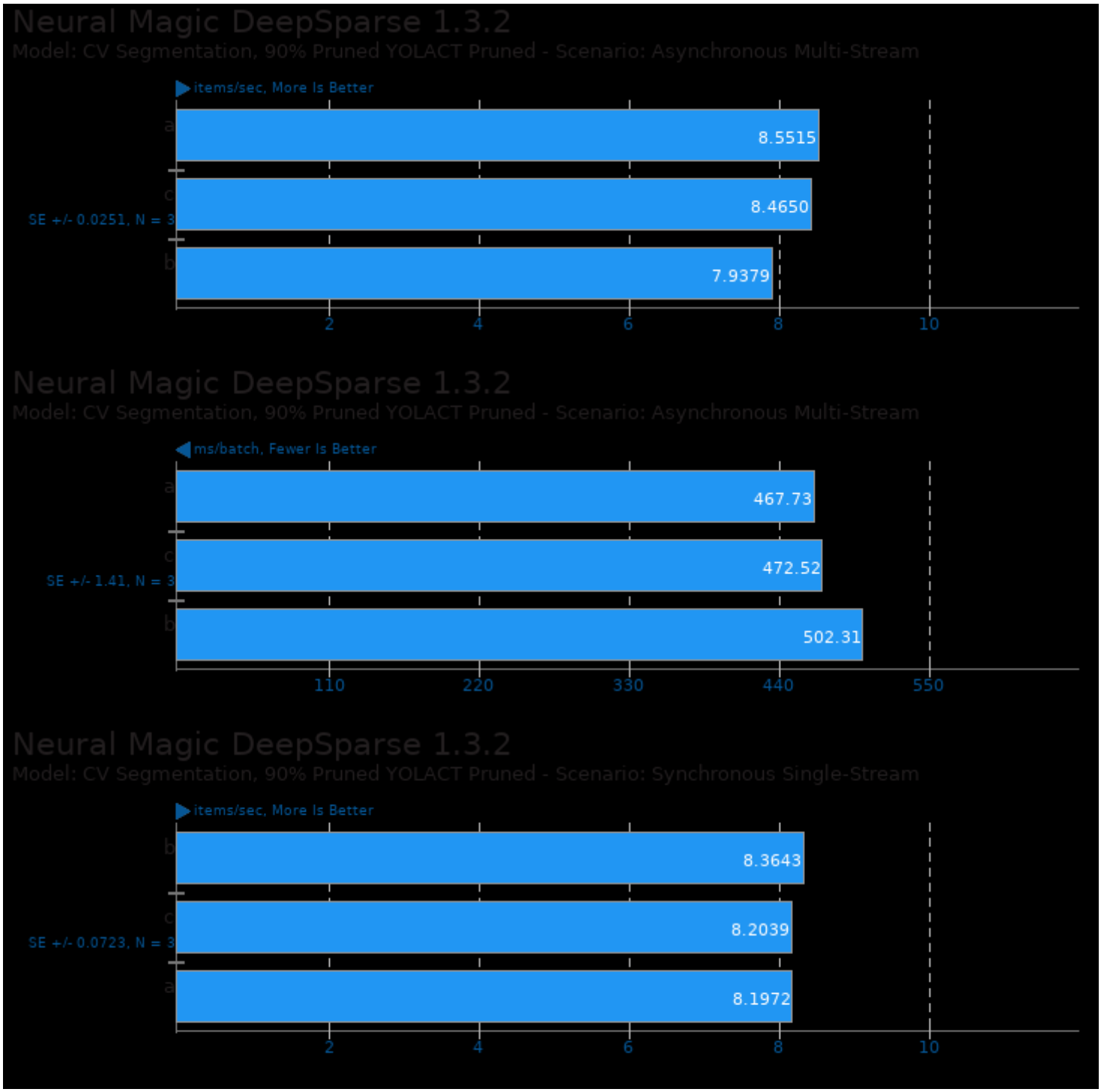
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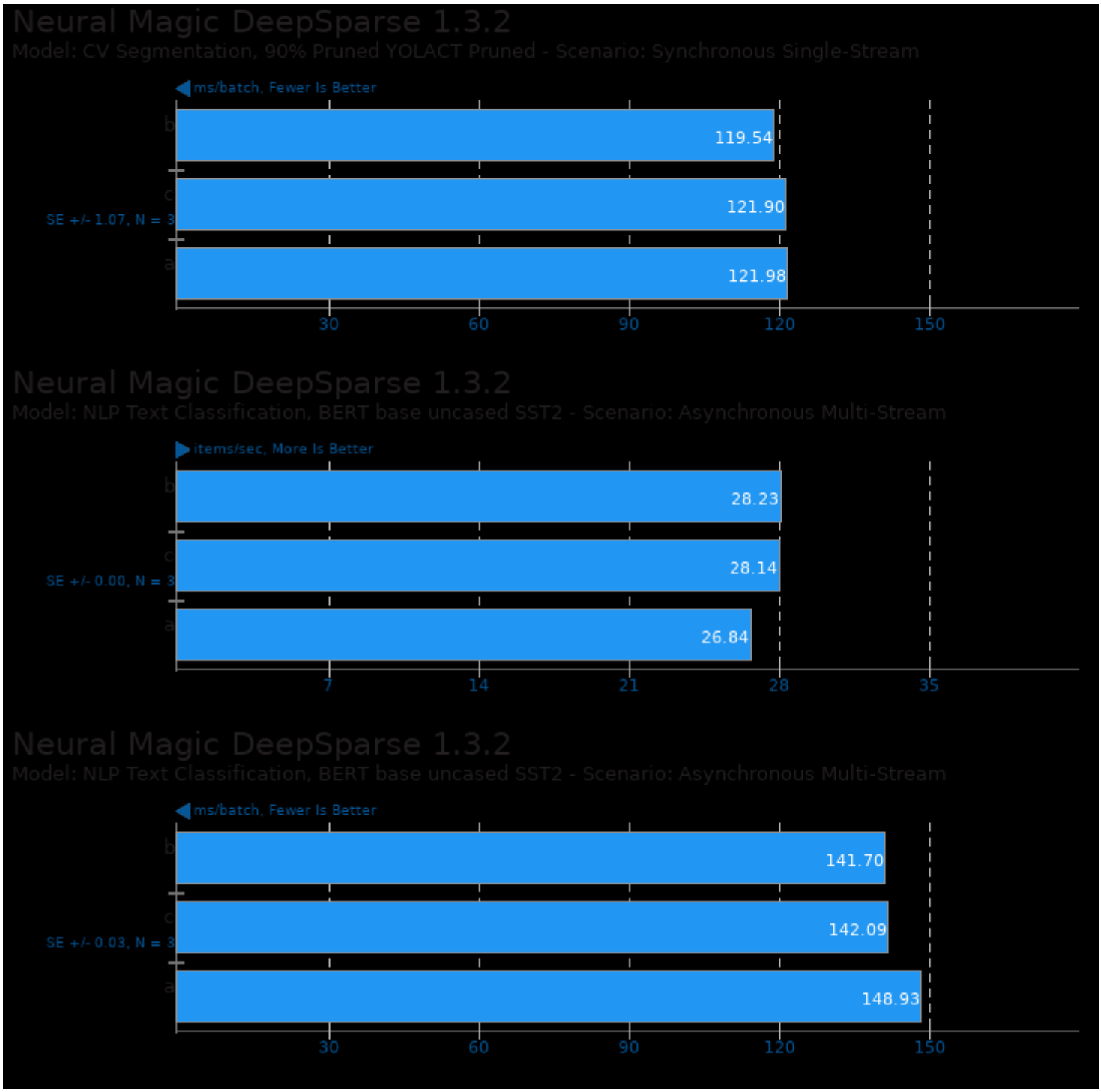
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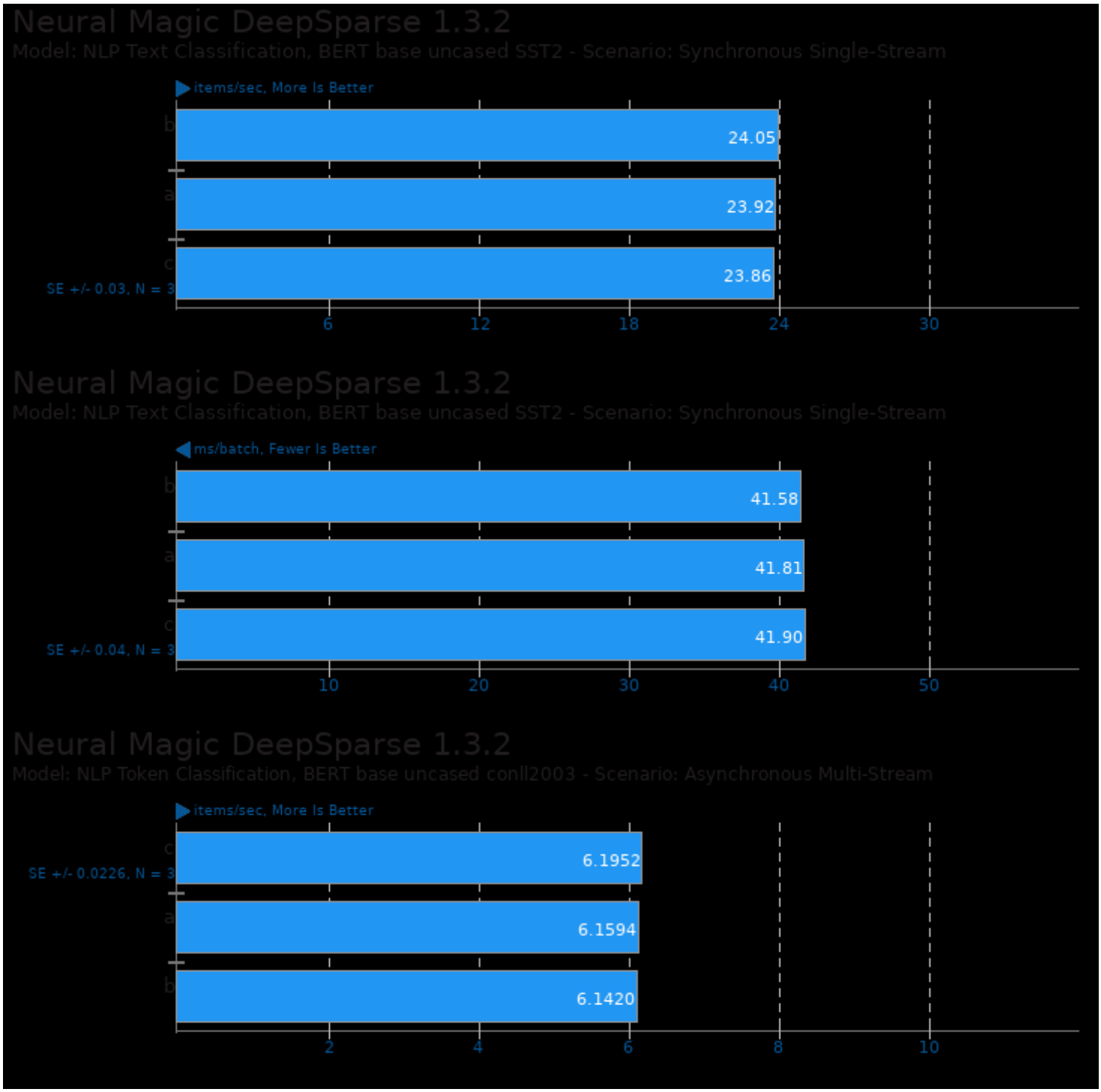
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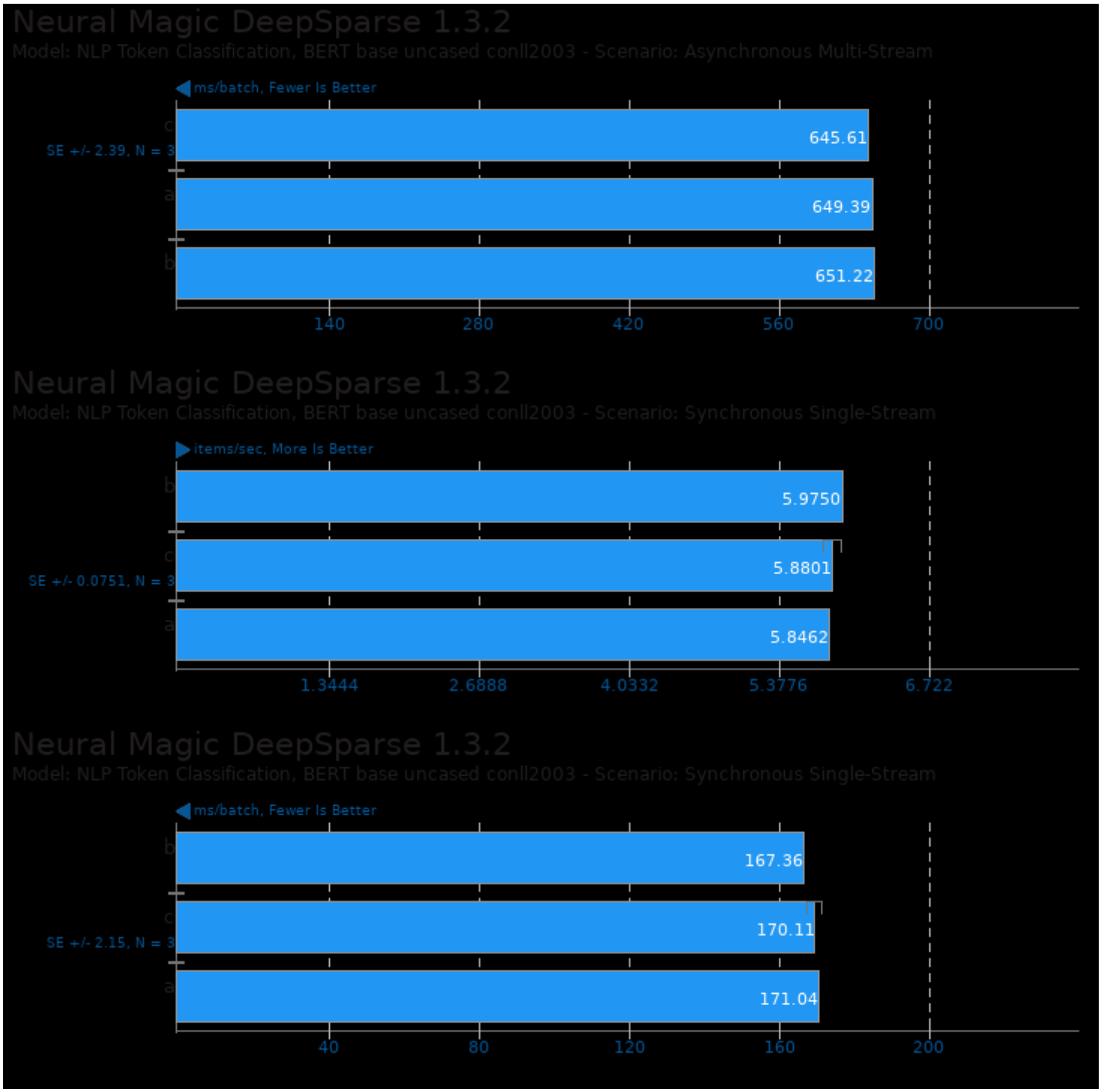
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