



c 30 æL~E¥ ,.J0¬ v
2025 aN°1Í



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6 = c 30 æL~E¥ ,.J0¬ v 0 b û ë

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Â = ^a < fNº1Í

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? = ¬ ÁN[−]B* D

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Lz>ž Æ c 30 œL~E¥ ,.J0¬ vN[−]-\$N°1Í5 ~-\$ =>ž

6 = c 30 æL~E¥ ,J0¬ v 0 b û ë

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Â = 2025^a < f N°1Í

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	40, 074. 73		
	50, 759. 97		120, 775. 59
	60. 00		
	2, 582. 00		2, 839. 46
			0. 01
			2, 766. 13
	93, 476. 70		126, 381. 19
	2, 060. 00		18, 844. 98
	49, 689. 47		
	145, 226. 17		145, 226. 17

© Aleqž ,°B* D

2025

145,226.17

l > q > ž

2

© Ä l > q > ž, ° B * D

2025		145,226.17
	40,074.73	27.59%
49,689.47	34.22%	50,759.97
34.95%	60.00	0.04%
2,582.00	1.78%	
2,060.00	1.42%	

e 0 q>ž

3

206		120, 775. 59	19, 383. 96	101, 331. 63		60. 00	
20602		41, 635. 00	225. 00	41, 410. 00			
2060201		225. 00	225. 00				
2060203		1, 323. 56		1323. 56			
2060204		132. 38		132. 38			
2060206		5, 706. 42		5, 706. 42			
2060299		34, 247. 64		34, 247. 64			
20603		70, 423. 11	19, 158. 96	51, 204. 15		60. 00	
20605		773. 3		773. 3			
2060503		773. 3		773. 3			
20608		257. 93		257. 93			
2060801		257. 93		257. 93			
208		2, 839. 46	2, 839. 46				
20805		2, 839. 46	2, 839. 46				
2080505		1, 887. 2	1, 887. 2				
2080506		952. 26	952. 26				
211		0. 01		0. 01			
21110		0. 01		0. 01			
2111001		0. 01		0. 01			
221		2, 766. 13	2, 766. 13				
22102		2, 766. 13	2, 766. 13				
2210201		1, 982. 98	1, 982. 98				
2210202		92. 72	92. 72				
2210203		690. 43	690. 43				
		126, 381. 19	24, 989. 55	101, 331. 64		60. 00	

© Ä e 0 q>ž,°B* D

2025		126,381.19
24,989.55	19.77%	101,331.64
80.18%	60.00	0.05%

CX u !t l e q > ž

4

	40, 074. 73		46, 309. 22
()	40, 074. 73	()	
()		()	
()		()	
		()	42, 561. 48
	6, 234. 49	()	
()	6, 234. 49	()	2, 270. 93
()		()	0. 01
()		()	
		()	1, 476. 80
		()	
	46, 309. 22		46, 309. 22

© ÄCX u !t l e q>ž,°B* D

2025

40,074.73

6,234.49

2025

42,561.48

2,270.93

0.01

1,476.80

68b ¢ §N°1Í e 0>ž

5

206		36,327.00	9,878.88	26,448.12
20602		7,980.28	225.00	7,755.28
2060201		225.00	225.00	

© Ä 68b ¢ §N°1Í e 0>ž,°B* D

2025

2025

40,074.73

13,626.61

34.00%

26,448.12

66.00%

68b ¢ §N°1Í 0 b e 0>ž

6

301		11,062.38	302		2,091.55	310		166.57
30101		2,852.55	30201		5.58	31002		31.49
30102		1,668.60	30202		7.98	31003		134.38
30103			30203			31005		
30106			30204			31006		
30107		525.26	30205		80.96	31007		
30108		1,443.49	30206		60.25	31013		
30109		827.44	30207		2.80	31019		
30110		1,590.68	30208			31022		0.70
30112		339.77	30209		687.79	31099		
30113		883.87	30211		51.67			
30114			30212					

30199		930.72	30213	()	49.83			
303		306.11	30214		171.00			
30301		10.00	30215		2.20			
30302		41.98	30216		1.34			
30303			30217		4.32			
30304		93.22	30218					
30305		152.34	30225					
30306			30226		149.72			
30307			30227		271.59			
30308			30228		482.01			
30309		8.57	30229					
30399			30231		8.07			
			30239		0.44			
			30240					
			30299		54.00			
		11,368.49						2,258.12

© Ä 68b ¢ §Nº 1Í 0 b e 0>ž,ºB* D

2025

13,626.61

11,368.49

2,258.12

		2025		

2025

3 ?Cz b5 :[N°1Í e 0>ž

8

		2025		

2025

68b ¢ §Nº1Í “ ? ¢ ” 5 Co e 0>ž

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2025					
12.39	0.00	8.07	0.00	8.07	4.32

> “ ” 2016 17 2017 <

© Ä 68b ¢ §N°1Í “ ? ¢ ” 5 Co e 0>ž,°B* D

“ ”

2025 “ ” 12.39 2024
40.00 76.35%

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> 2016 17 2017

“ ”

2025 8.07
0 2024

40.00 8.07 2024
0 2025 4.32 <

? = ¬ ÁÑ¯B* D

2025	10,111.63
3,452.45	
290.42	6,368.76

2024	7	31	5
	0		0
0		0	5

100	20
2025	1
0	1
100	4

2025	
26,448.12	
26,448.12	0

= CB @ H

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Lz>ž Æc 30 œL~E¥ ,.JO¬ v N¯-\$N°1Í5 ~-\$ =>ž

N¯-\$5 ~-\$ =>ž

2025

	[173]				
				257.93	10
				199.00	
				58.93	
				0	
	Joost Pieter Katoen				
	“ ” “ ”				
					90
				≥ 3	10
			2	≥ 2	10

H

			3	≥ 3	10
				≥ 20	10
				≥ 5	10
				≥ 20	20

N⁻-\$5 ~-\$ =>ž

2025

	[173]				
			3, 972. 75		10
			2, 650. 42		
			1, 322. 33		
			0		
	E E E (HPC+AI) E E (CAX) “ ” AI Agent AI				
					90
				≥ 15	2
				≥ 10	2

			≥ 15	2
			≥ 15	2
			≥ 2	3
			≥ 3	3
			≥ 5	3
			≥ 3	3
			≥ 100	3
			≥ 10 /	3
			≥ 20 ≥ 30 ≥ 20	3
			≥ 5	3
				3
			≥ 2	3
			≥ 3 ≥ 3	3
			$\leq 200\text{ms}$	3

≥ 6
 ≥ 2

			3 AI Agent	3
			≥ 10000	3
			≥ 1000	2
			Java, Python, C++ web	2
			=1	1
		E HPL	=1	1
		E	=1	1

$N^{-} - \$5 \sim -\$ \Rightarrow \checkmark$

2025

	[173]				
			96.22		10
			96.00		
			0.22		
			0		
	222				
					90
				≥ 2	50
				≥ 2	40

N⁻-\$5 ~-\$ =>ž

2025

	[173]				
			2, 139. 79		10
			2, 067. 00		
			72. 79		
			0		
					90
				≥ 3	5
				≥ 100	5
				≥ 30	5
				≥ 40	5
				≥ 5	4
			/	≥ 10	4
				≥ 20	4
				≥ 12	4
				≥ 90%	4

				=100%	4
				≥ 95%	3
					3
				≥ 90	30
				≤ 10%	5
				≥ 90%	5

N⁻-\$5 ~-\$ =>ž

2025

	[173]				
			418.42		10
			400.00		
			18.42		
			0		
	1. FNN CNN RNN ResNet YOLO TensorFlow PyTorch 2. 2 3. 15 CC EAL5+				
					90
				≥ 2	15
				≥ 15	10
				1. 2. Marabou 200% PyTorch Tensorflow FNN CNN 3.	15
				≥ 3	10
				≥ 5	40

$N^{-}\$5 \sim \$ \Rightarrow \check{z}$

2025

	7
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$N^{-} - \$5 \sim -\$ \Rightarrow \checkmark$

2025

	—				
	[173]				
			140. 16		10
			140. 16		
			0		
			0		
					90
				≥ 0. 84	25
				≥ 0. 84	25
					20
					20

N⁻-\$5 ~-\$ =>ž

2025

	—			
	[173]			
		104. 22		10
		0		
		104. 22		
		0		
	“ ” “ ” “ ” “ ” “ ” RISC-V AIoT AIoT			
				90
			≤ 520	20
			=100%	15
			≥ 5	15
			=100%	10
			≥ 90%	5
			≥ 50%	5
			≥ 50%	5

				≥ 10	5
				$\geq 90\%$	10

N⁻-\$5 ~-\$ =>ž

2025

	—				
	[173]				
			178.66		10
			0		
			178.66		
			0		
	“ ” “ ” “ ” “ ” RISC-V AIoT AIoT				
					90
					20
				≥ 10	15
				≥ 100%	15
					10
					10
				≥ 50%	10
				≥ 90%	5

				$\geq 90\%$	5
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