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-93.452392578125
173.8929901123047
235.36639404296875
260.9197998046875
215040
Difference between real key and key guess: 0x4000 0x6000
Test: 32
83.40776824951172
89.45069885253906
95.29865264892578
167.4628448486328
195.1900177001953
207.5970458984375
283.4908447265625
293.82305908203125
311.562255859375
218112
Difference between real key and key guess: 0x4000 0x0
Test: 33
194.44285583496094
194.82080078125
255.40115356445312
290.6279296875
296.43487548828125
224256
Difference between real key and key guess: 0xc000 0x0
Test: 34
-79.64645385742188
73.30657196044922
230400
Difference between real key and key guess: 0x6e08 0x9740
Test: 35
259.36895751953125
262.1308288574219
233472
Difference between real key and key guess: 0x2000 0xaa08
Test: 36
81.4666519165039
296.526611328125
245760
Difference between real key and key guess: 0xc000 0x0
Test: 37
56.50670623779297
157.90492248535156
258048
Difference between real key and key guess: 0x8e00 0xbe80
Test: 38
41.42266082763672
188.01092529296875
220.5421142578125
266.6997985839844
305.5710144042969
264192
Difference between real key and key guess: 0x0 0x0
Test: 39
104.71663665771484
260.28631591796875
268.54248046875
276.01153564453125

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310.126953125
273408
Difference between real key and key guess: 0x8000 0x8200
Test: 40
27.93268394470215
32.93772506713867
45.47937774658203
195.29281616210938
253.73507690429688
290.3275451660156
322560
Difference between real key and key guess: 0x0 0x0
Test: 41
19.291950225830078
140.4879150390625
158.962890625
174.0402069091797
210.67079162597656
213.81903076171875
235.2165069580078
237.62962341308594
328704
Difference between real key and key guess: 0x8000 0xea00
Test: 42
20.99566078186035
44.18345260620117
283.91473388671875
347136
Difference between real key and key guess: 0xc000 0xa802
Test: 43
181.81243896484375
198.19680786132812
258.7698669433594
292.3446960449219
301.3448486328125
362496
Difference between real key and key guess: 0x4000 0x0
Test: 44
-46.753814697265625
-40.65815734863281
206.86703491210938
258.3409118652344
289.253662109375
368640
Difference between real key and key guess: 0x0 0x0
Test: 45
161.6352081298828
174.8470458984375
277.1549987792969
285.3382568359375
287.4771728515625
303.6495361328125
371712
Difference between real key and key guess: 0x0 0x0
Test: 46
278.39056396484375
281.8282470703125
380928
Difference between real key and key guess: 0x0 0x0

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Test: 47
 -95.32749938964844
 -86.40750885009766
 42.533416748046875
 105.20247650146484
 112.8896484375
 150.09628295898438
 210.41748046875
 270.5318298339844
 384000
 Difference between real key and key guess: 0x8000 0x0
 Test: 48
 162.78530883789062
 179.76242065429688
 198.33197021484375
 280.45623779296875
 411648
 Difference between real key and key guess: 0x0 0x0
 Test: 49
 74.1528091430664
 420864
 Difference between real key and key guess: 0xee08 0xe958
 Test: 50
 -80.58472442626953
 181.4404754638672
 423936
 Difference between real key and key guess: 0xa00 0x2e0a
 Test: 51
 -92.86206817626953
 194.3767852783203
 255.64892578125
 279.159423828125
 282.8252258300781
 289.28668212890625
 427008
 Difference between real key and key guess: 0x4000 0x0
 Test: 52
 54.44903564453125
 430080
 Difference between real key and key guess: 0xcc08 0xdfea
 Test: 53
 -44.08442306518555
 -30.483478546142578
 41.0606803894043
 207.90097045898438
 291.51641845703125
 433152
 Difference between real key and key guess: 0x0 0x0
 Test: 54
 56.95176315307617
 58.797760009765625
 180.61688232421875
 226.4010009765625
 230.43511962890625
 305.50579833984375
 439296
 Difference between real key and key guess: 0xc000 0x0
 Test: 55
 -21.06275177001953

82.00289916992188
 219.58236694335938
 259.57708740234375
 297.6261901855469
 448512
 Difference between real key and key guess: 0x4000 0x0
 Test: 56
 -41.13235092163086
 206.06024169921875
 209.28878784179688
 259.09356689453125
 280.60516357421875
 287.65557861328125
 454656
 Difference between real key and key guess: 0x8000 0x0
 Test: 57
 206.91270446777344
 296.6458740234375
 313.3142395019531
 457728
 Difference between real key and key guess: 0x0 0x0
 Test: 58
 -35.97930908203125
 268.416015625
 460800
 Difference between real key and key guess: 0x2000 0x2c00
 Test: 59
 53.4862174987793
 195.43374633789062
 197.00343322753906
 262.19818115234375
 274.21728515625
 278.80059814453125
 463872
 Difference between real key and key guess: 0xc000 0x0
 Test: 60
 187.57411193847656
 200.26083374023438
 204.15000915527344
 252.3983612060547
 263.8005065917969
 283.09918212890625
 466944
 Difference between real key and key guess: 0x8000 0x0
 Test: 61
 199.73968505859375
 276.30438232421875
 291.32916259765625
 470016
 Difference between real key and key guess: 0x4000 0x0
 Test: 62
 67.41940307617188
 476160
 Difference between real key and key guess: 0xca08 0xaf78
 Test: 63
 10.511266708374023
 166.27923583984375
 204.50440979003906
 267.333984375

306.72564697265625
 479232
 Difference between real key and key guess: 0x4000 0x8000
 Test: 64
 -63.88304901123047
 141.47879028320312
 222.18605041503906
 252.0723114013672
 482304
 Difference between real key and key guess: 0x8000 0x2000
 Test: 65
 202.47775268554688
 491520
 Difference between real key and key guess: 0x6c00 0xaa10
 Test: 66
 202.24285888671875
 305.44488525390625
 497664
 Difference between real key and key guess: 0x4000 0x0
 Test: 67
 69.24093627929688
 73.73249816894531
 178.05789184570312
 180.6090850830078
 189.28807067871094
 190.46624755859375
 291.7767333984375
 306.42901611328125
 500736
 Difference between real key and key guess: 0x4000 0x0
 Test: 68
 -41.23464584350586
 40.78206253051758
 150.2635040283203
 162.18191528320312
 169.78855895996094
 267.1424255371094
 513024
 Difference between real key and key guess: 0x4000 0x0
 Test: 69
 -56.35475158691406
 192.23797607421875
 212.12100219726562
 315.8682861328125
 516096
 Difference between real key and key guess: 0x4000 0x0
 Test: 70
 92.81124114990234
 95.03467559814453
 170.58282470703125
 201.3204345703125
 252.41685485839844
 291.8403625488281
 519168
 Difference between real key and key guess: 0xc000 0x0
 Test: 71
 245.1947479248047
 263.471435546875
 285.0388488769531

320.89886474609375
540672
Difference between real key and key guess: 0xc000 0x0
Test: 72
157.28082275390625
546816
Difference between real key and key guess: 0x6600 0x6a22
Test: 73
278.67083740234375
307.4112548828125
549888
Difference between real key and key guess: 0x8000 0x0
Test: 74
203.06338500976562
216.610107421875
286.1209716796875
559104
Difference between real key and key guess: 0xc000 0x0
Test: 75
167.46636962890625
169.62660217285156
202.9068603515625
206.2888946533203
568320
Difference between real key and key guess: 0x4800 0xaa0
Test: 76
-46.11317825317383
203.95181274414062
204.67660522460938
574464
Difference between real key and key guess: 0xc200 0xae20
Test: 77
187.0614776611328
218.6622772216797
277.5789794921875
286.8296813964844
303.4117431640625
583680
Difference between real key and key guess: 0x4000 0x0
Test: 78
40.9200439453125
161.48281860351562
164.3436279296875
195.0318603515625
297.82025146484375
592896
Difference between real key and key guess: 0x8000 0x0
Test: 79
191.7208709716797
238.5034942626953
285.5065612792969
602112
Difference between real key and key guess: 0x4000 0x0
Test: 80
-68.64697265625
182.955810546875
195.06790161132812
260.55035400390625
304.177490234375

608256
 Difference between real key and key guess: 0xc000 0x0
 Test: 81
 -60.46877670288086
 -56.198787689208984
 171.00448608398438
 207.30795288085938
 281.73382568359375
 611328
 Difference between real key and key guess: 0x8000 0x0
 Test: 82
 210.9610595703125
 617472
 Difference between real key and key guess: 0x4200 0x200a
 Test: 83
 183.36056518554688
 626688
 Difference between real key and key guess: 0x6800 0xf020
 Test: 84
 59.566932678222656
 629760
 Difference between real key and key guess: 0x208 0xb968
 Test: 85
 -46.7113151550293
 -41.98889923095703
 35.49412536621094
 53.316986083984375
 155.1363525390625
 642048
 Difference between real key and key guess: 0x2e00 0xae02
 Test: 86
 -2.2772397994995117
 214.052978515625
 263.6783447265625
 288.2316589355469
 651264
 Difference between real key and key guess: 0xc000 0x0
 Test: 87
 151.8623809814453
 156.27792358398438
 159.2196044921875
 162.13612365722656
 163.649169921875
 178.0777587890625
 249.2227325439453
 252.20065307617188
 654336
 Difference between real key and key guess: 0xc000 0x4800
 Test: 88
 -76.9297103881836
 -60.19951629638672
 34.059810638427734
 48.94990921020508
 165.9091339111328
 166.40869140625
 248.1431427001953
 280.75018310546875
 657408
 Difference between real key and key guess: 0x4000 0x0

Test: 89
 169.0003662109375
 181.68704223632812
 260.8471374511719
 282.70892333984375
 292.99224853515625
 666624
 Difference between real key and key guess: 0xc000 0x0
 Test: 90
 -55.214534759521484
 167.354736328125
 181.82489013671875
 286.6263427734375
 669696
 Difference between real key and key guess: 0x8000 0x0
 Test: 91
 153.12979125976562
 179.03097534179688
 193.30479431152344
 282.9242248535156
 283.41986083984375
 672768
 Difference between real key and key guess: 0x4000 0x0
 Test: 92
 45.03461456298828
 51.67620086669922
 211.13087463378906
 227.37890625
 227.6181640625
 297.8782043457031
 678912
 Difference between real key and key guess: 0x8000 0x8800
 Test: 93
 158.7012939453125
 241.0751190185547
 275.2806701660156
 681984
 Difference between real key and key guess: 0x0 0x800
 Test: 94
 -95.7020263671875
 147.09332275390625
 179.5576171875
 182.4817352294922
 291.0209045410156
 685056
 Difference between real key and key guess: 0x4000 0x0
 Test: 95
 175.61270141601562
 688128
 Difference between real key and key guess: 0x6200 0x2620
 Test: 96
 64.52291107177734
 71.86212158203125
 700416
 Difference between real key and key guess: 0x808 0x6950
 Test: 97
 13.777295112609863
 179.4544219970703
 185.9893035888672


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203.814453125
292.6446533203125
718848
Difference between real key and key guess: 0xc000 0x0
Test: 98
96.85386657714844
140.85177612304688
158.381591796875
175.8689422607422
237.46331787109375
284.9952392578125
289.08746337890625
724992
Difference between real key and key guess: 0x4000 0x0
Test: 99
117.3180923461914
155.4439697265625
227.42156982421875
728064
Difference between real key and key guess: 0xa000 0xee02
Done.
Differences between guessed and last key: ['0x0', '0x4000', '0x8c00', '0xc000',
'0xc000', '0x8000', '0x4000', '0x4000', '0x8608', '0x0', '0x0', '0x8000', '0xc000',
'0x4808', '0xc000', '0x400', '0x0', '0x4000', '0xac08', '0x4000', '0xc000', '0x4000',
'0x8000', '0x0', '0x8000', '0x4000', '0x0', '0x8000', '0x0', '0x4000', '0x4000',
'0x4000', '0x4000', '0xc000', '0x6e08', '0x2000', '0xc000', '0x8e00', '0x0', '0x8000',
'0x0', '0x8000', '0xc000', '0x4000', '0x0', '0x0', '0x0', '0x8000', '0x0', '0xee08',
'0xa00', '0x4000', '0xcc08', '0x0', '0xc000', '0x4000', '0x8000', '0x0', '0x2000',
'0xc000', '0x8000', '0x4000', '0xca08', '0x4000', '0x8000', '0x6c00', '0x4000',
'0x4000', '0x4000', '0x4000', '0xc000', '0xc000', '0x6600', '0x8000', '0xc000',
'0x4800', '0xc200', '0x4000', '0x8000', '0x4000', '0xc000', '0x8000', '0x4200',
'0x6800', '0x208', '0x2e00', '0xc000', '0xc000', '0x4000', '0xc000', '0x8000',
'0x4000', '0x8000', '0x0', '0x4000', '0x6200', '0x808', '0xc000', '0x4000', '0xa000']
Differences between guessed and second-to-last key: ['0x0', '0x0', '0x8a20', '0x0',
'0x0', '0x0', '0x0', '0x0', '0xad40', '0x8000', '0x0', '0x8000', '0x8800', '0x37f8',
'0x0', '0xbaa0', '0x800', '0x0', '0x3b58', '0x0', '0x0', '0x0', '0x80', '0x0', '0x0',
'0x0', '0xe000', '0x0', '0x0', '0x0', '0x0', '0x6000', '0x0', '0x0', '0x9740',
'0xaa08', '0x0', '0xbe80', '0x0', '0x8200', '0x0', '0xea00', '0xa802', '0x0', '0x0',
'0x0', '0x0', '0x0', '0x0', '0xe958', '0x2e0a', '0x0', '0xdfea', '0x0', '0x0', '0x0',
'0x0', '0x0', '0x2c00', '0x0', '0x0', '0x0', '0xaf78', '0x8000', '0x2000', '0xaa10',
'0x0', '0x0', '0x0', '0x0', '0x0', '0x0', '0x6a22', '0x0', '0x0', '0xaa0', '0xae20',
'0x0', '0x0', '0x0', '0x0', '0x0', '0x200a', '0xf020', '0xb968', '0xae02', '0x0',
'0x4800', '0x0', '0x0', '0x0', '0x0', '0x8800', '0x800', '0x0', '0x2620', '0x6950',
'0x0', '0x0', '0xee02']
Wall time per attack (average in seconds): 338.65694631576537
Data blocks used (average, log2): 12.829849559844693
c1=5, c2=50

```

In [2]: