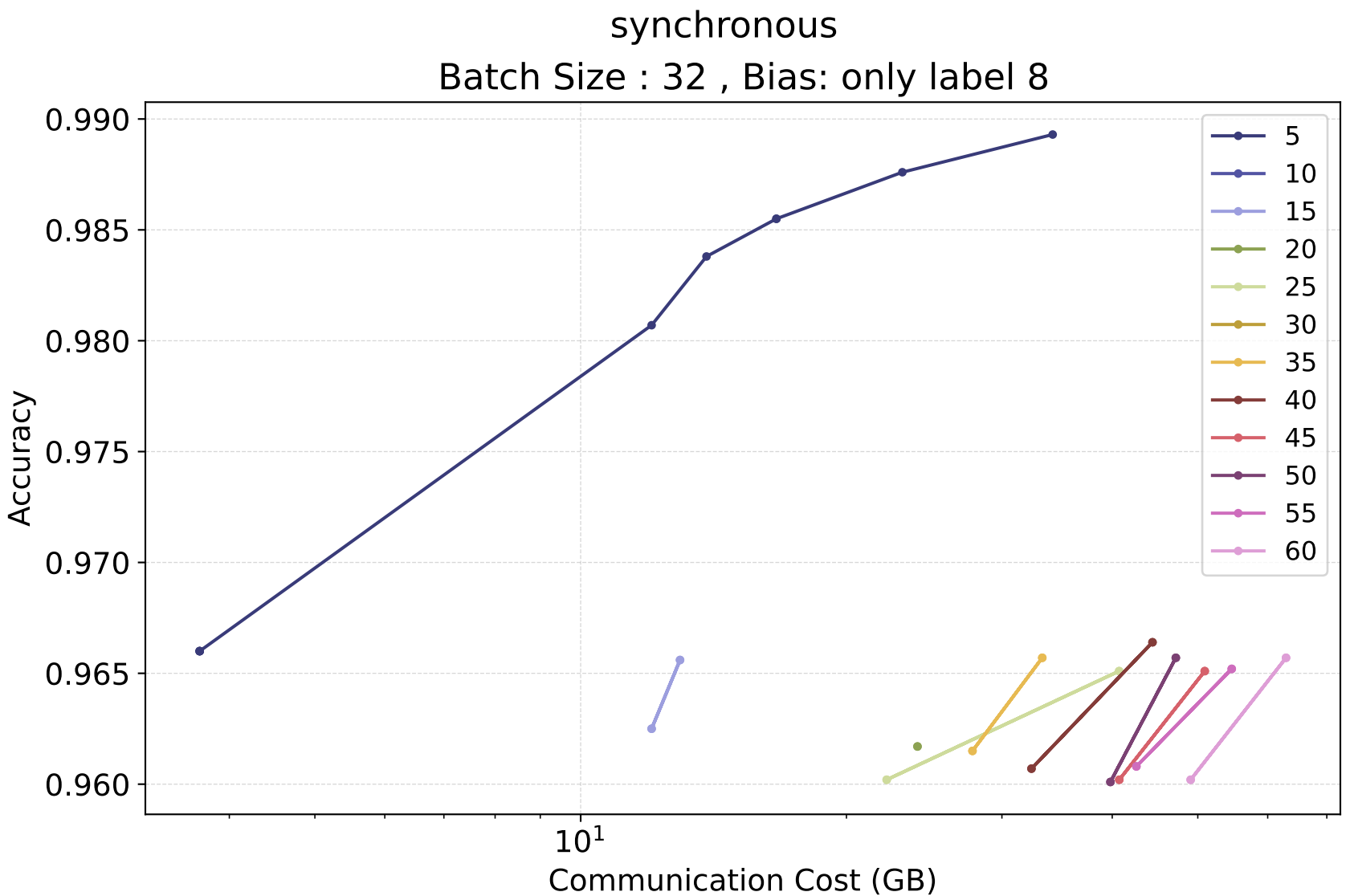
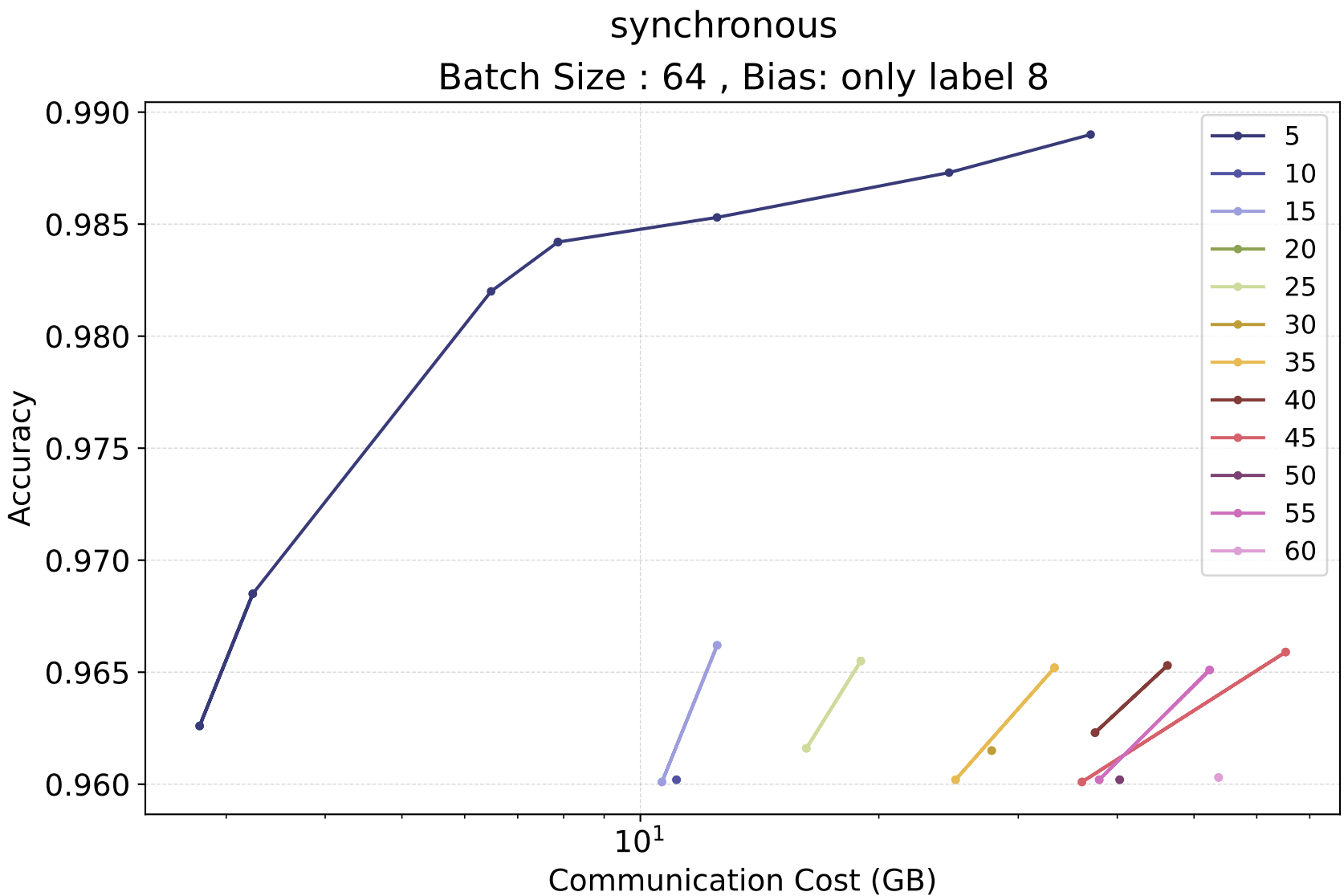
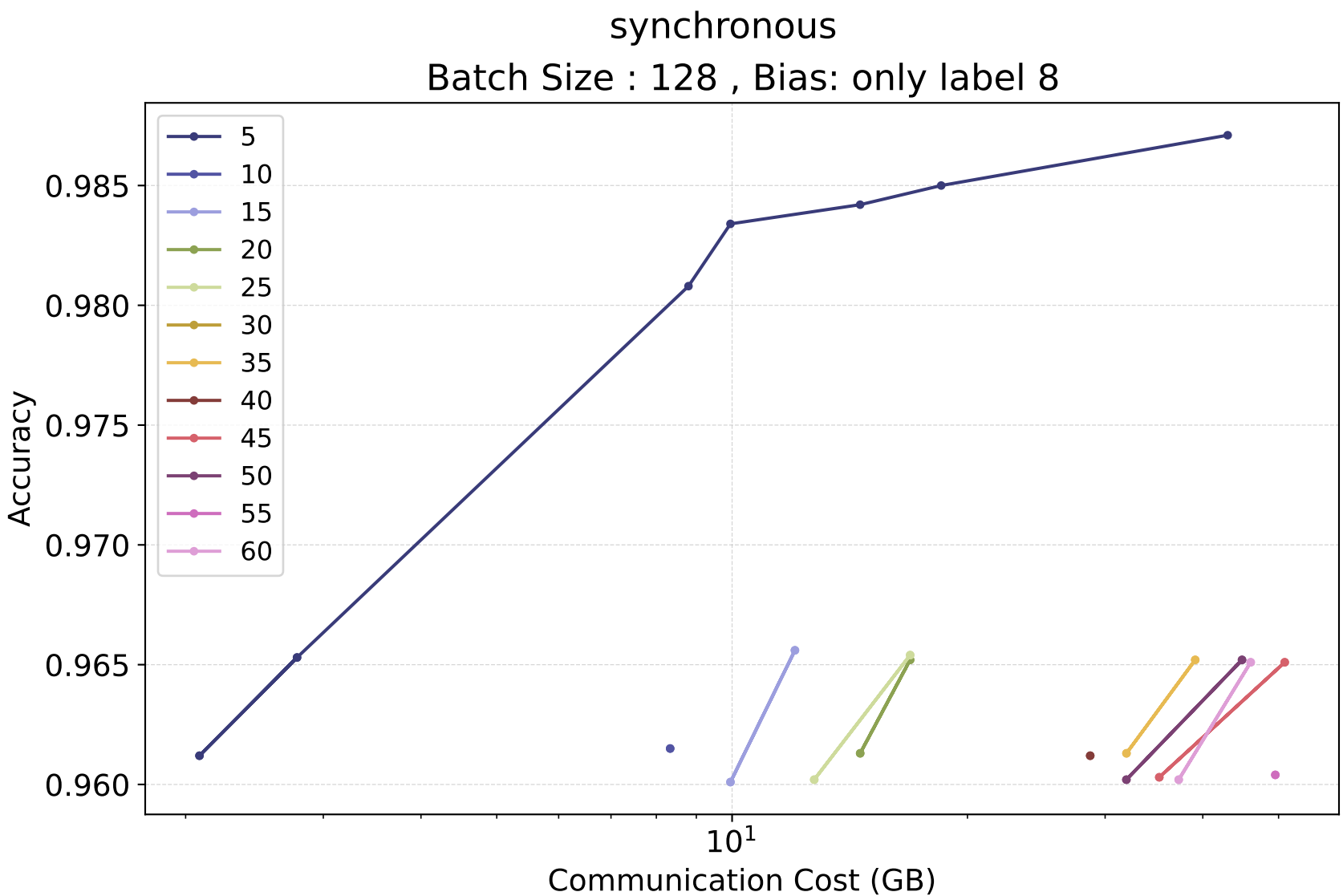
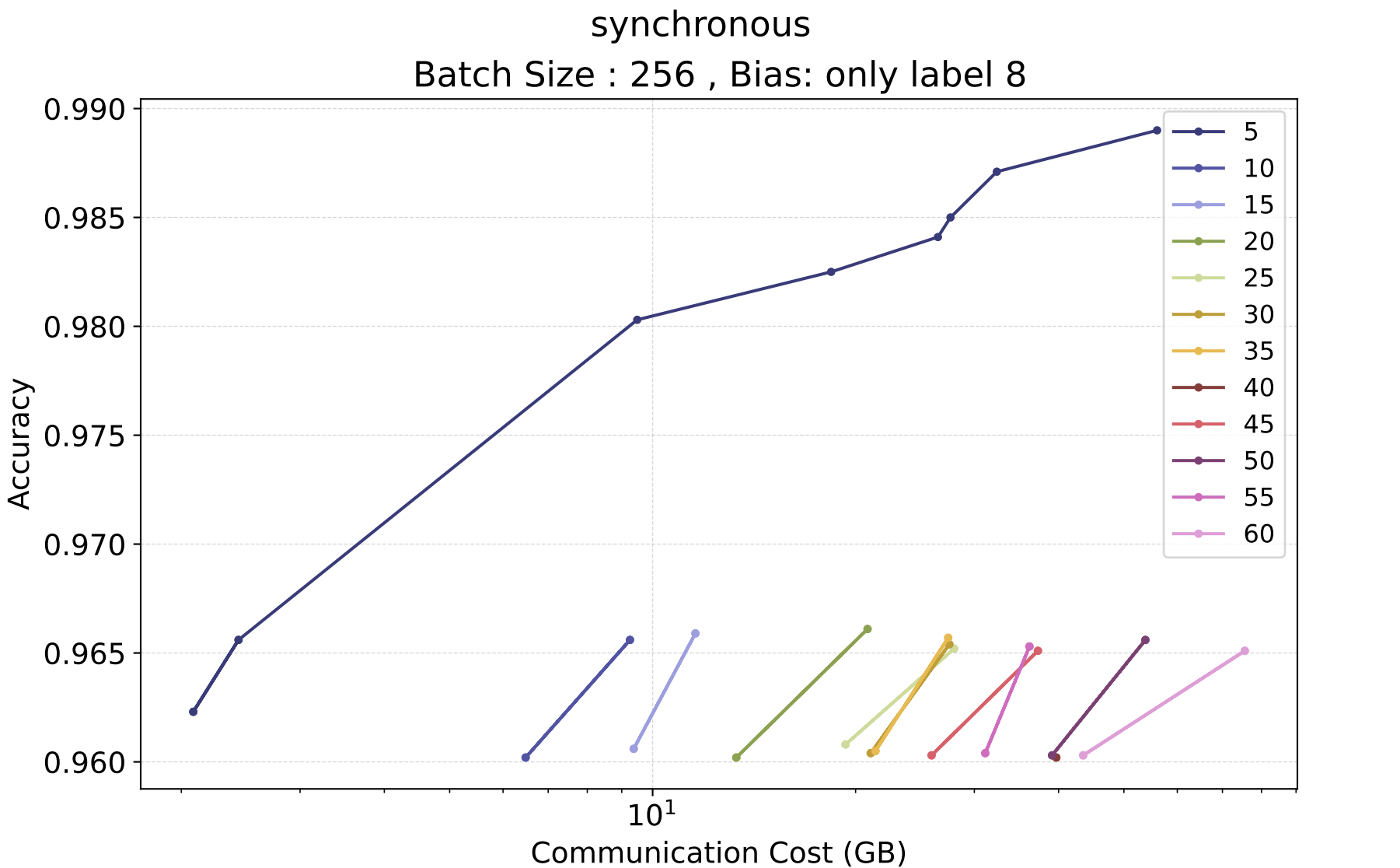
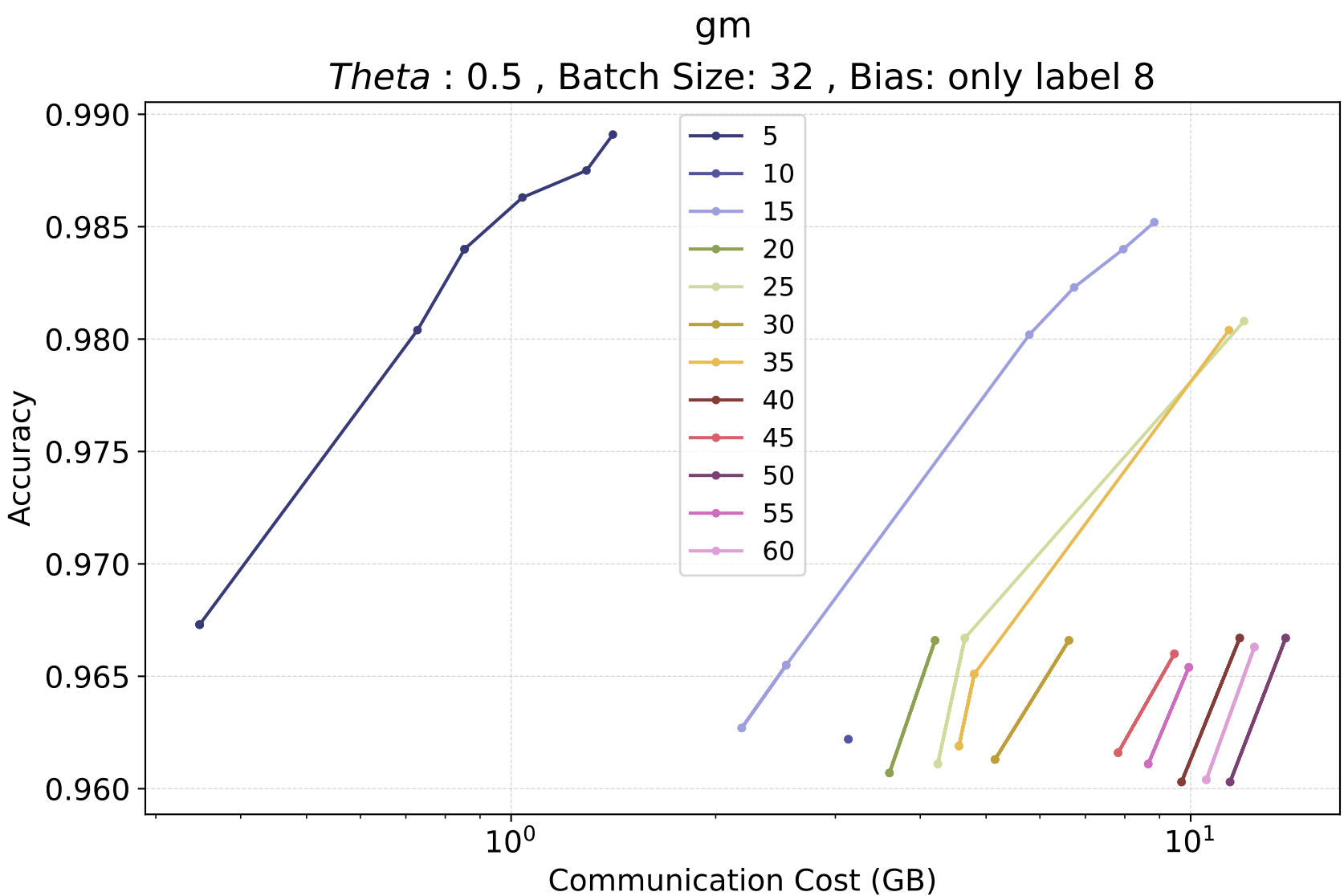
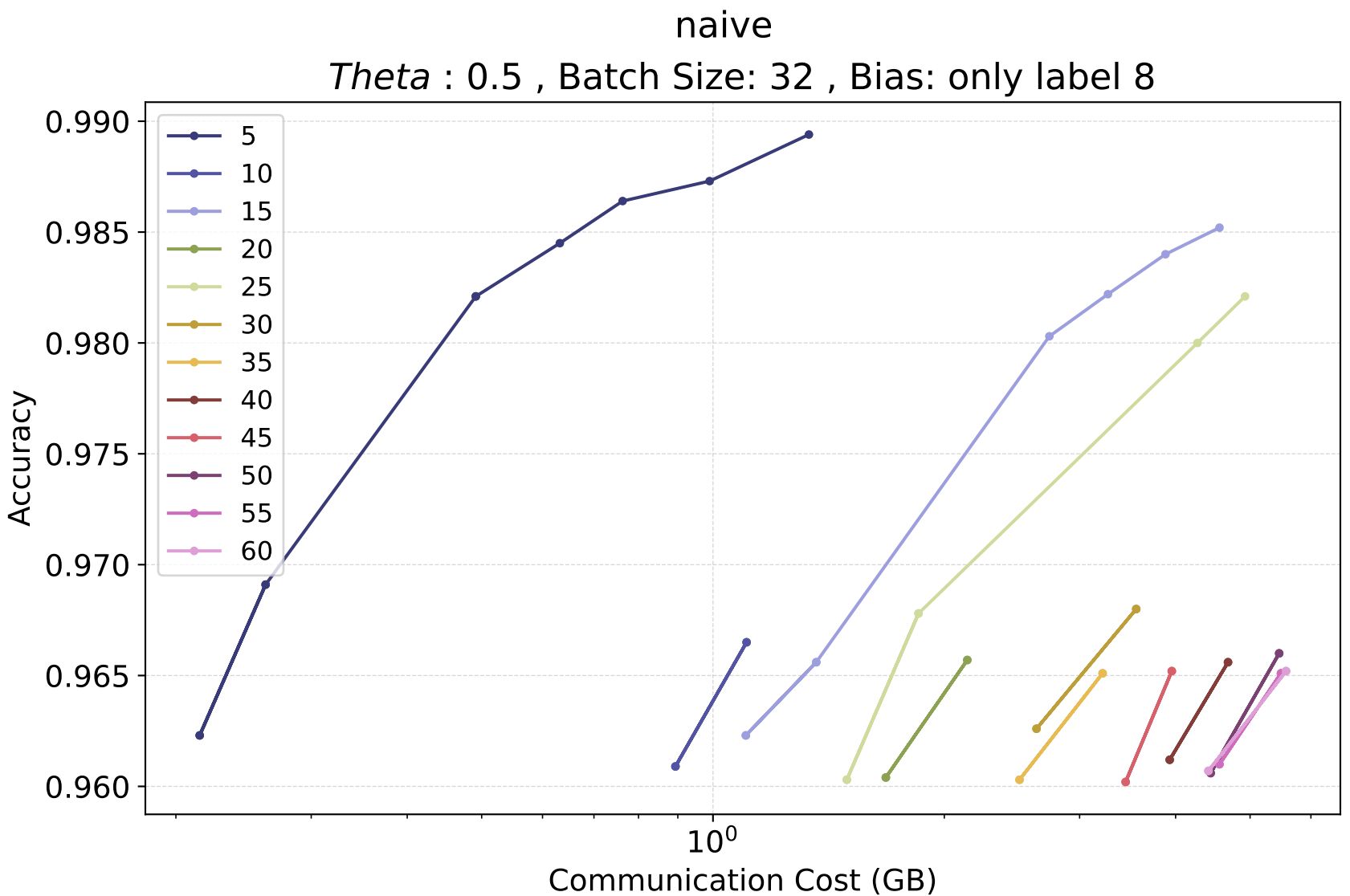

synchronous
Batch Size : 32 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

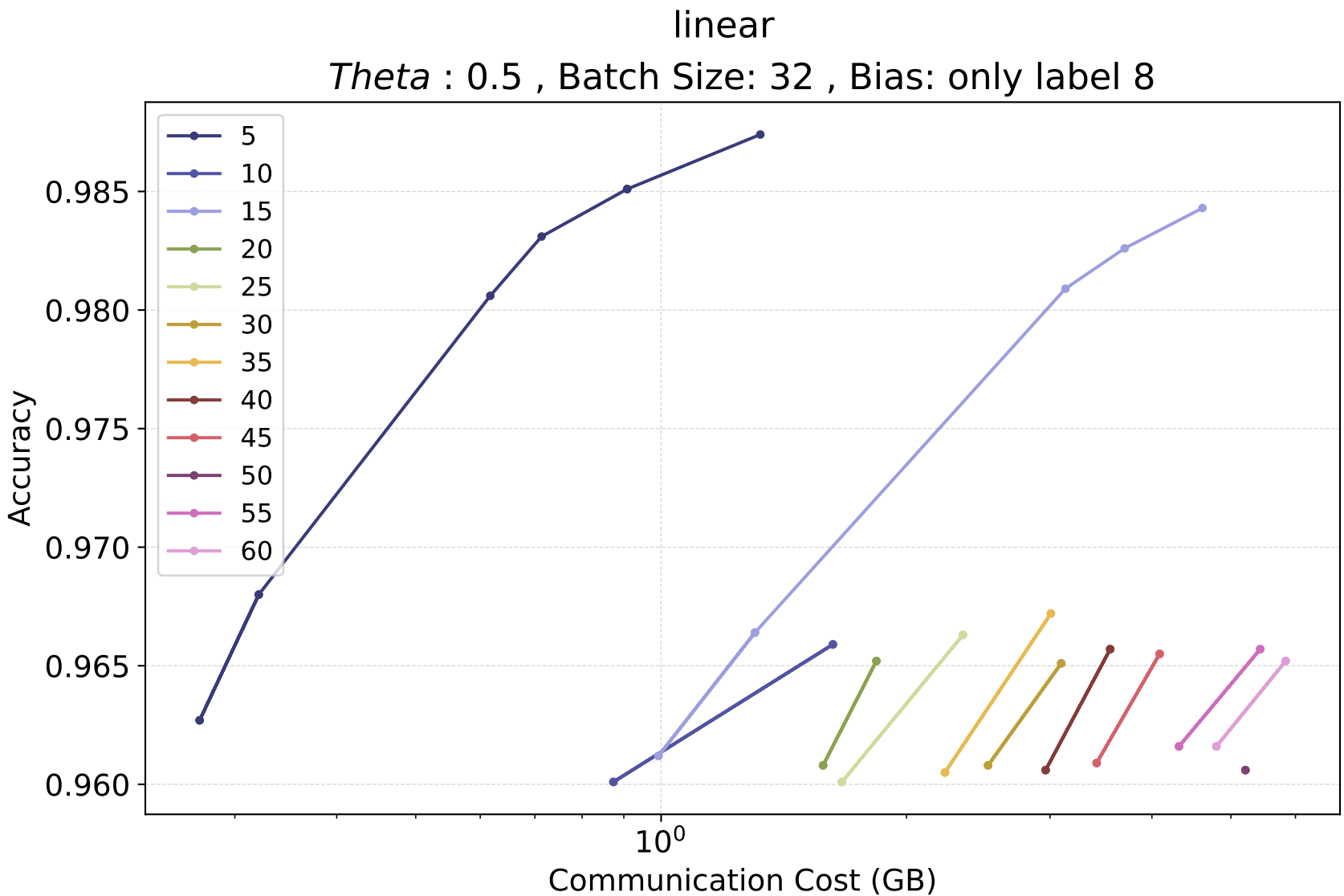

synchronous
Batch Size : 64 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


synchronous
Batch Size : 128 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


synchronous
Batch Size : 256 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

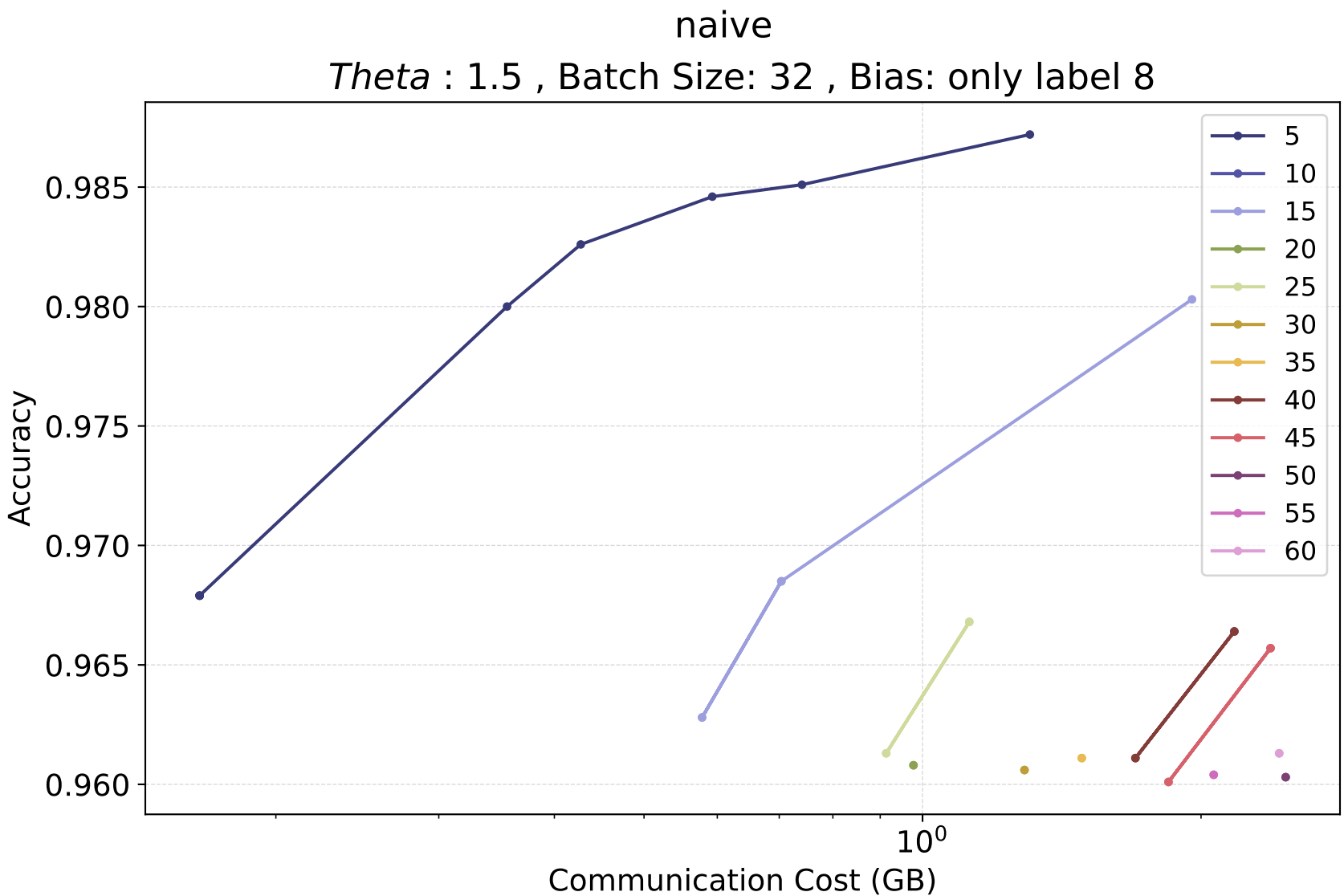

gm
Theta : 0.5 , Batch Size: 32 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

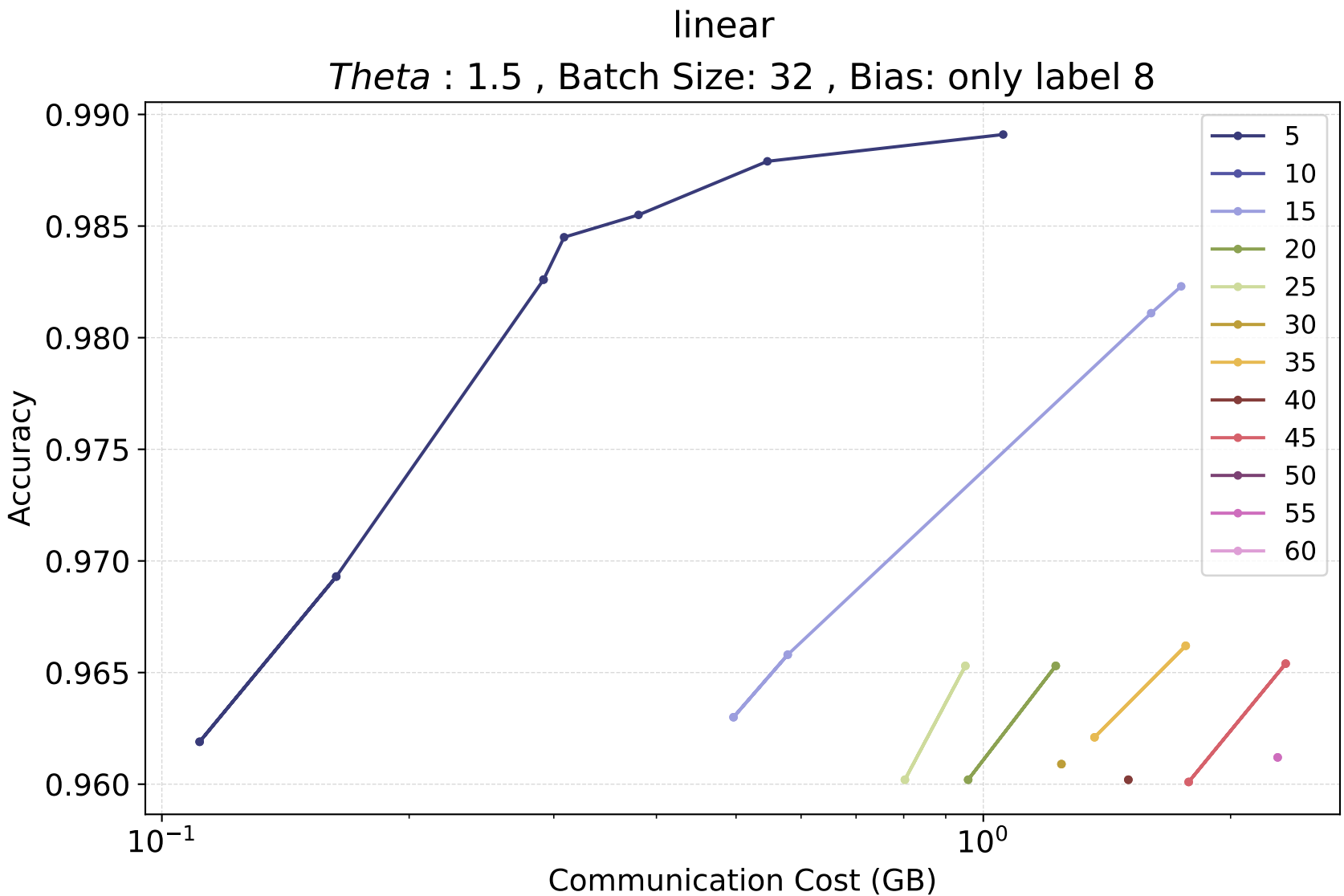

naive
Theta : 0.5 , Batch Size: 32 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

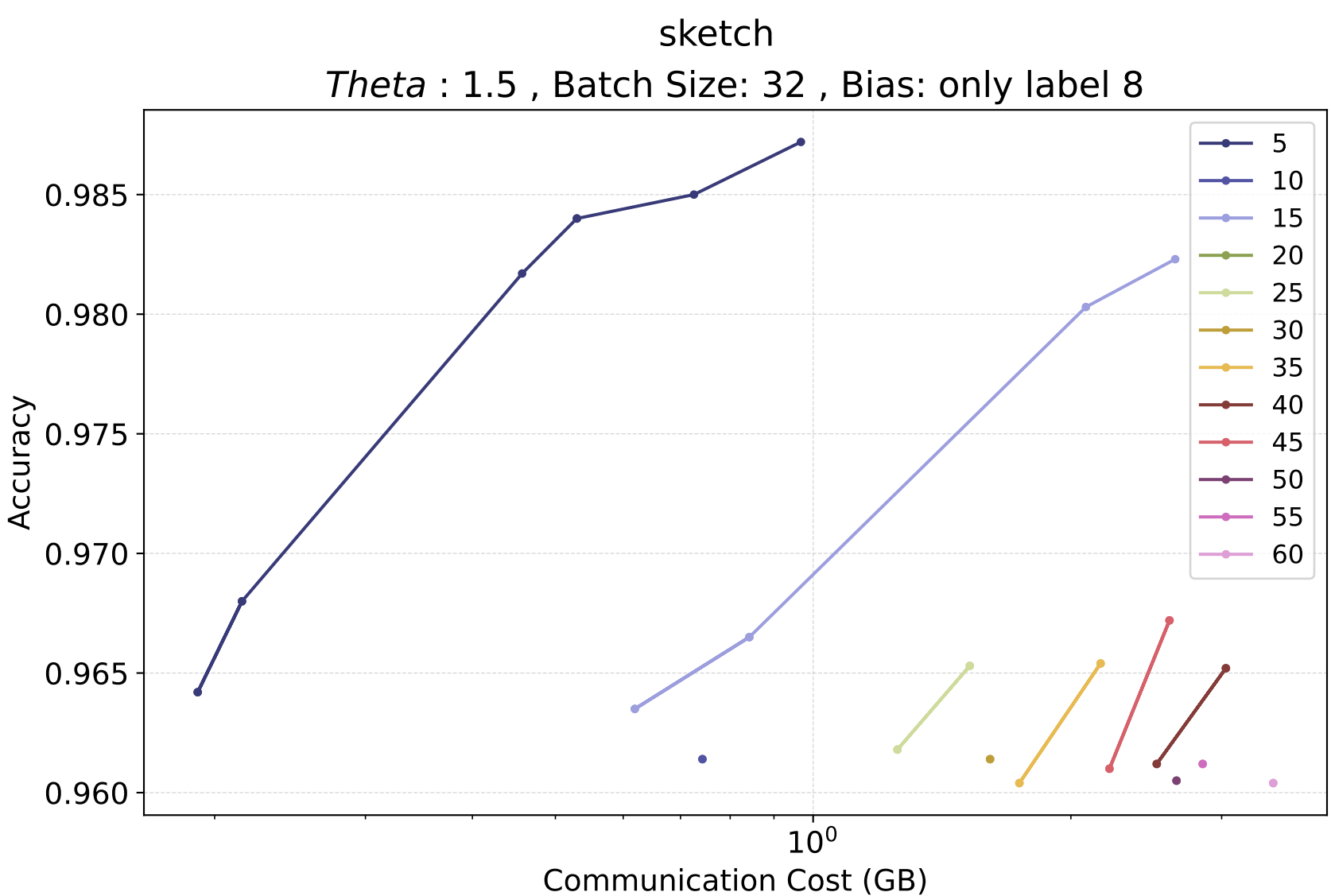

linear
Theta : 0.5 , Batch Size: 32 , Bias: only label 8
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
Communication Cost (GB)

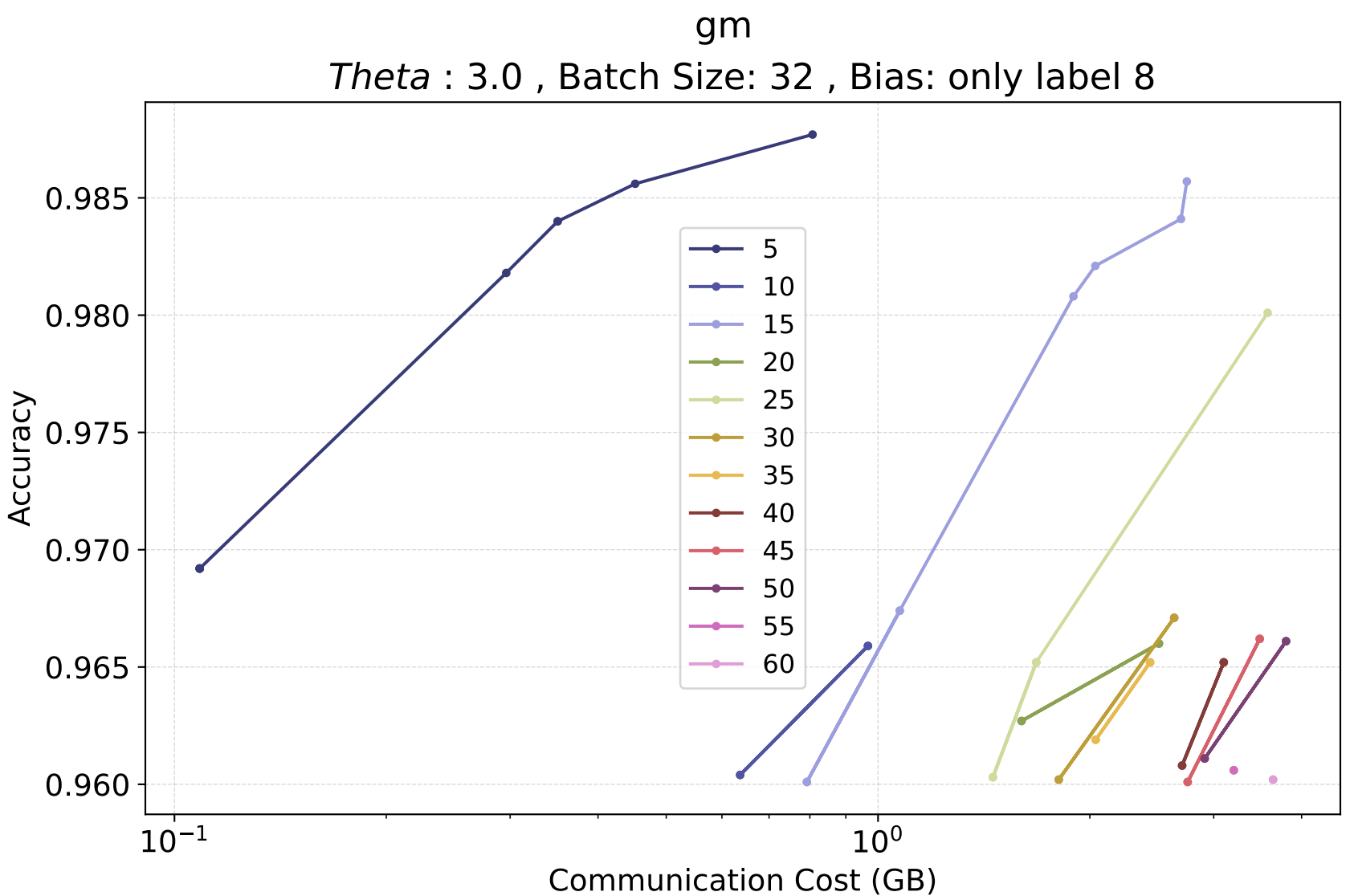

sketch
Theta : 0.5 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

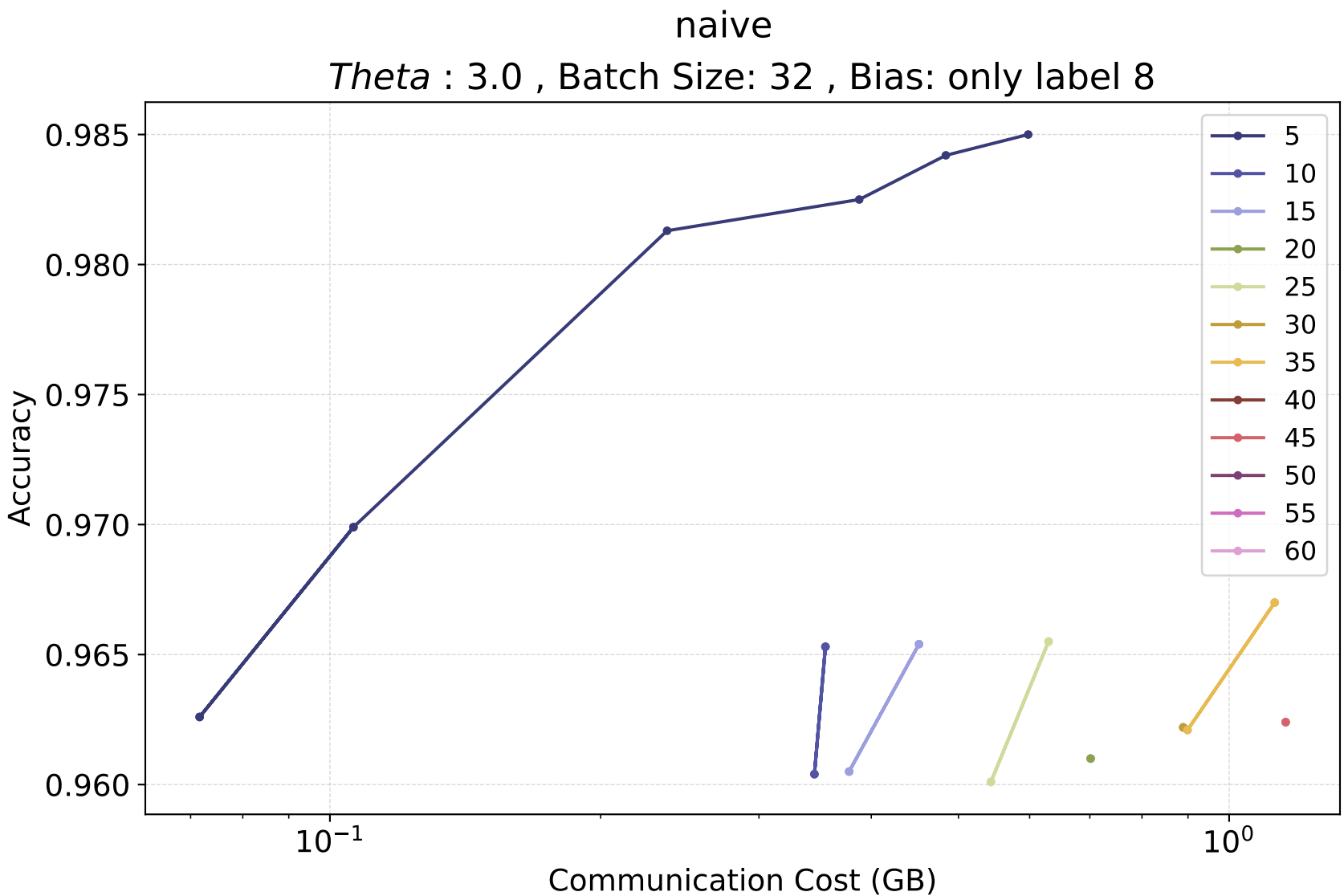

gm
Theta : 1.5 , Batch Size: 32 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^0
Communication Cost (GB)

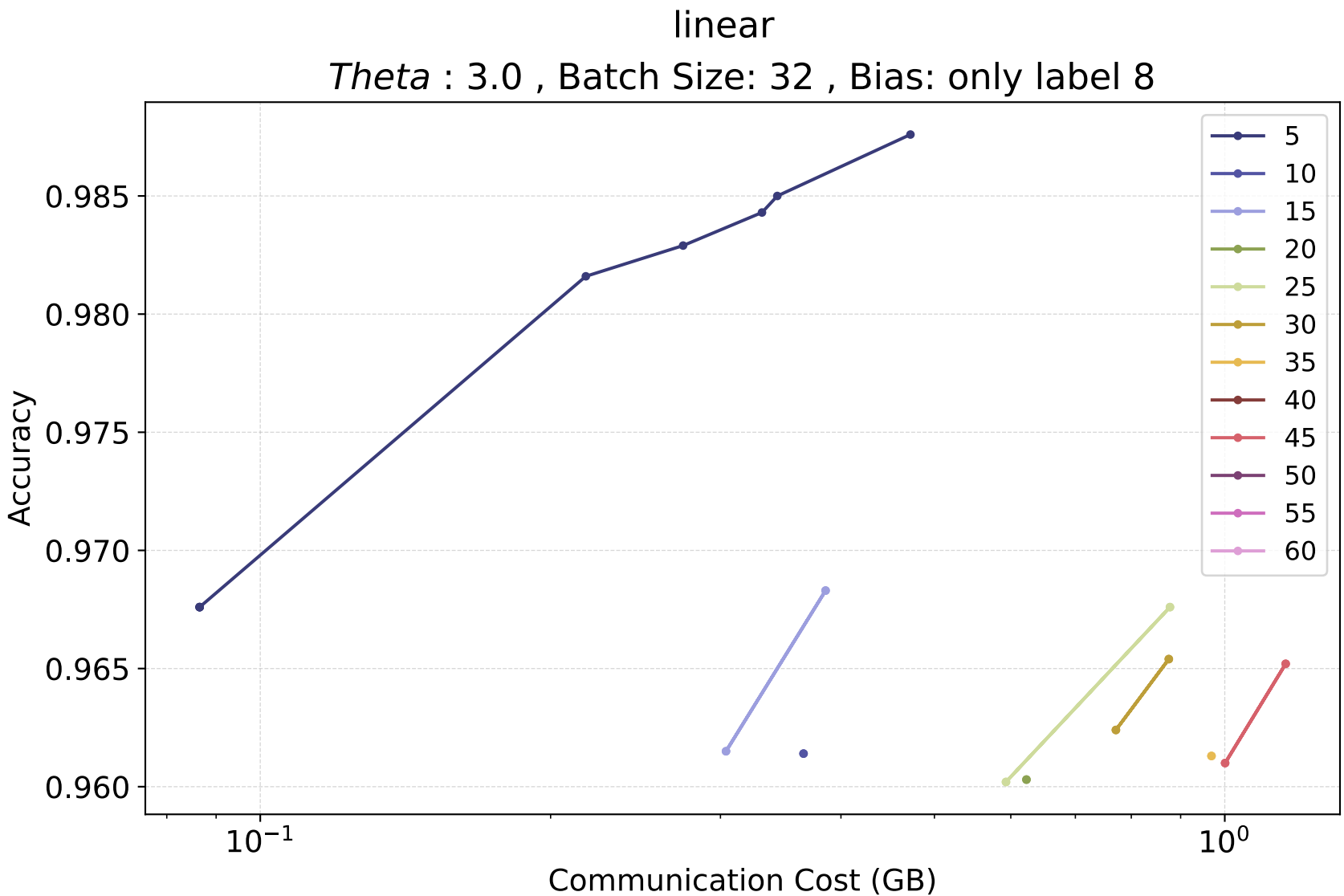

naive
Theta : 1.5 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


linear
Theta : 1.5 , Batch Size: 32 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

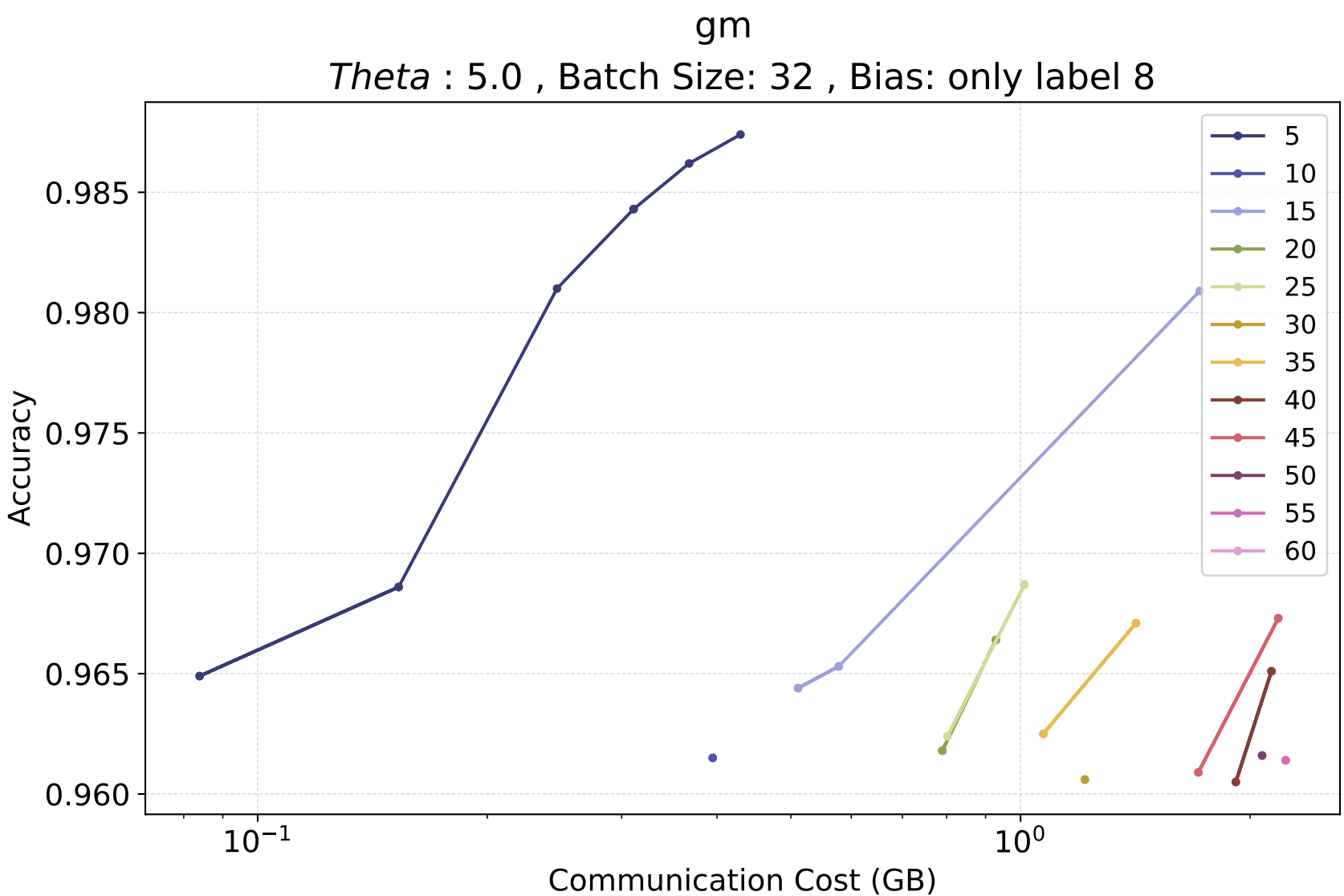

sketch
Theta : 1.5 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

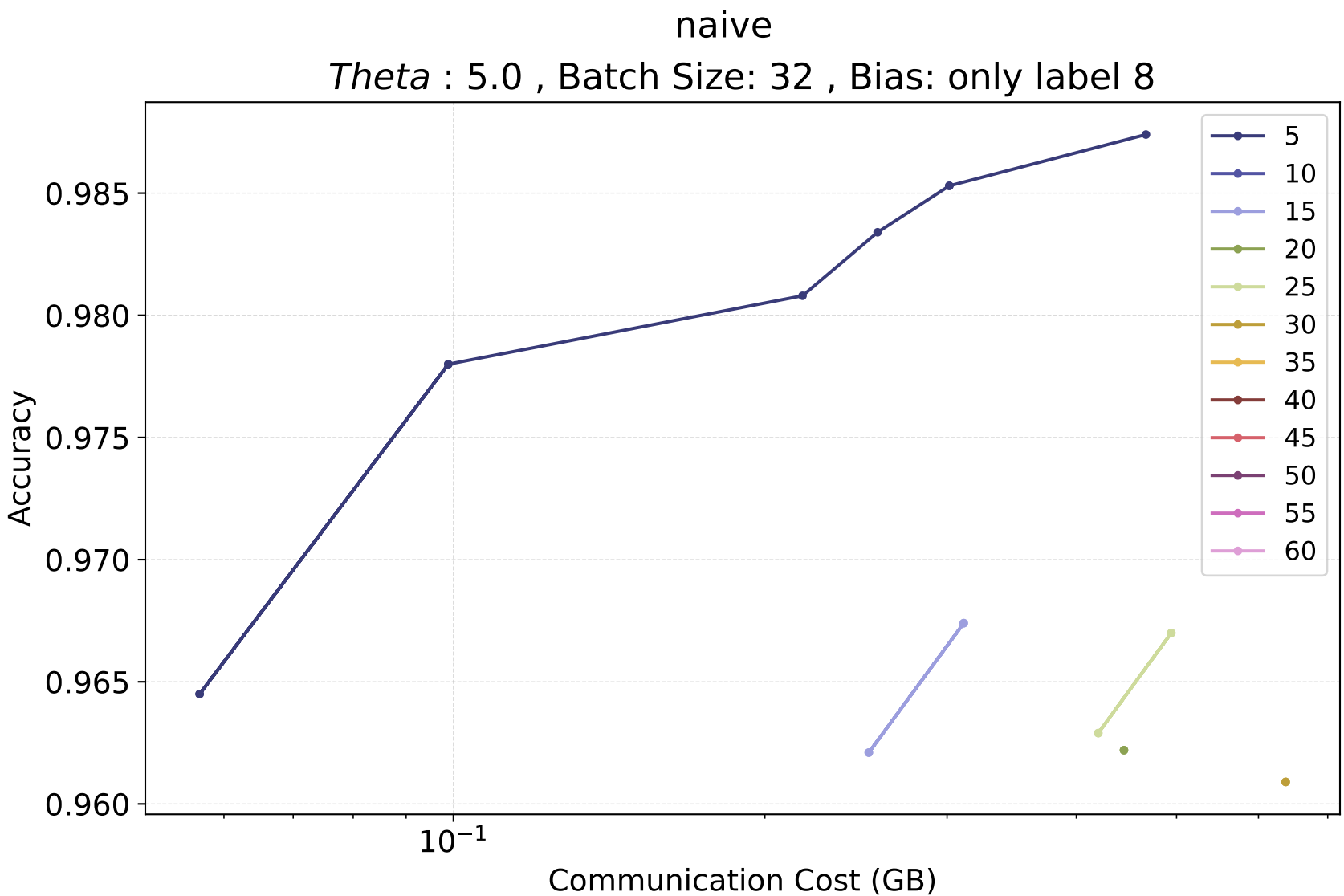

gm
Theta : 3.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

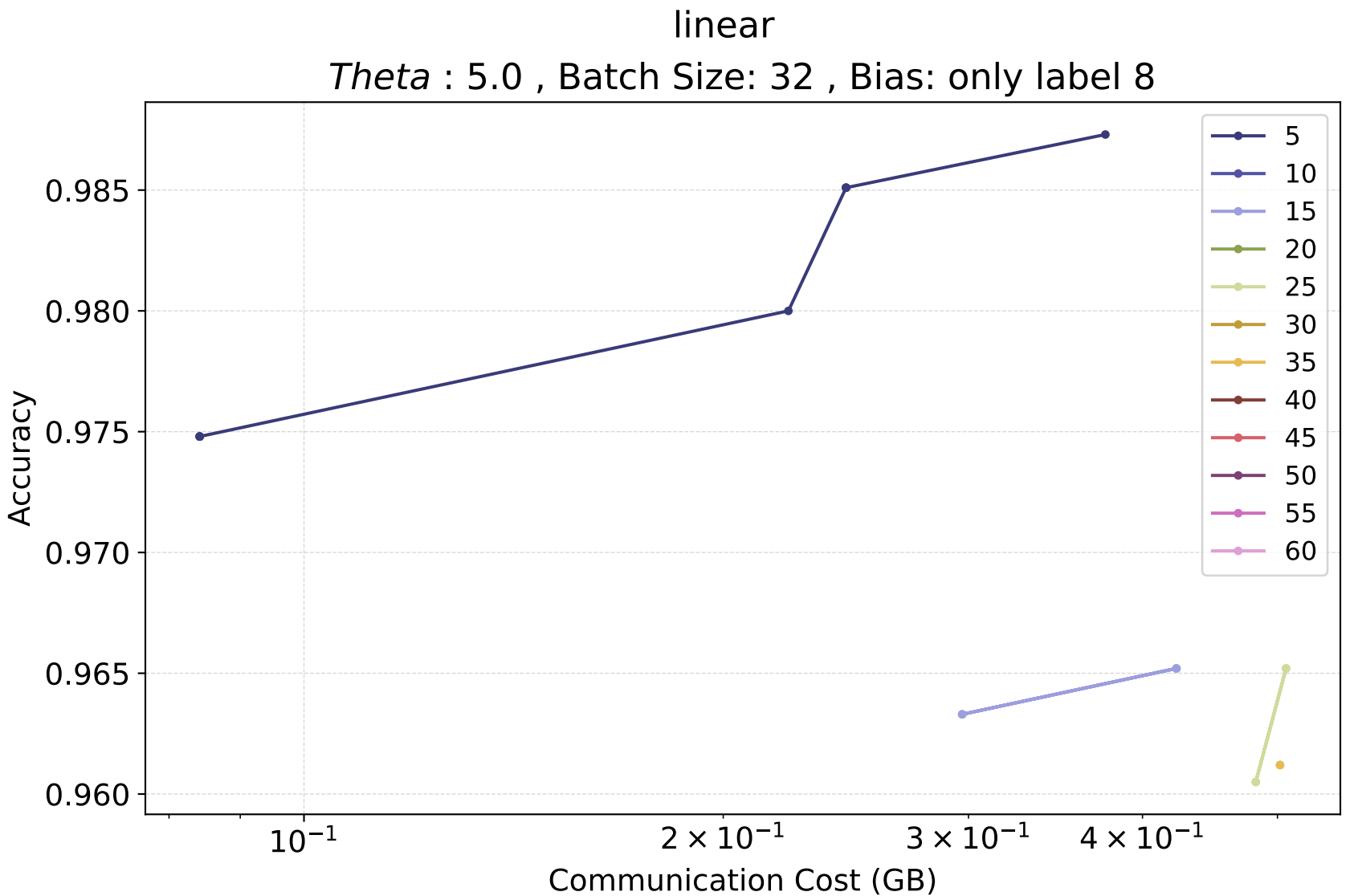

naive
Theta : 3.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


linear
Theta : 3.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

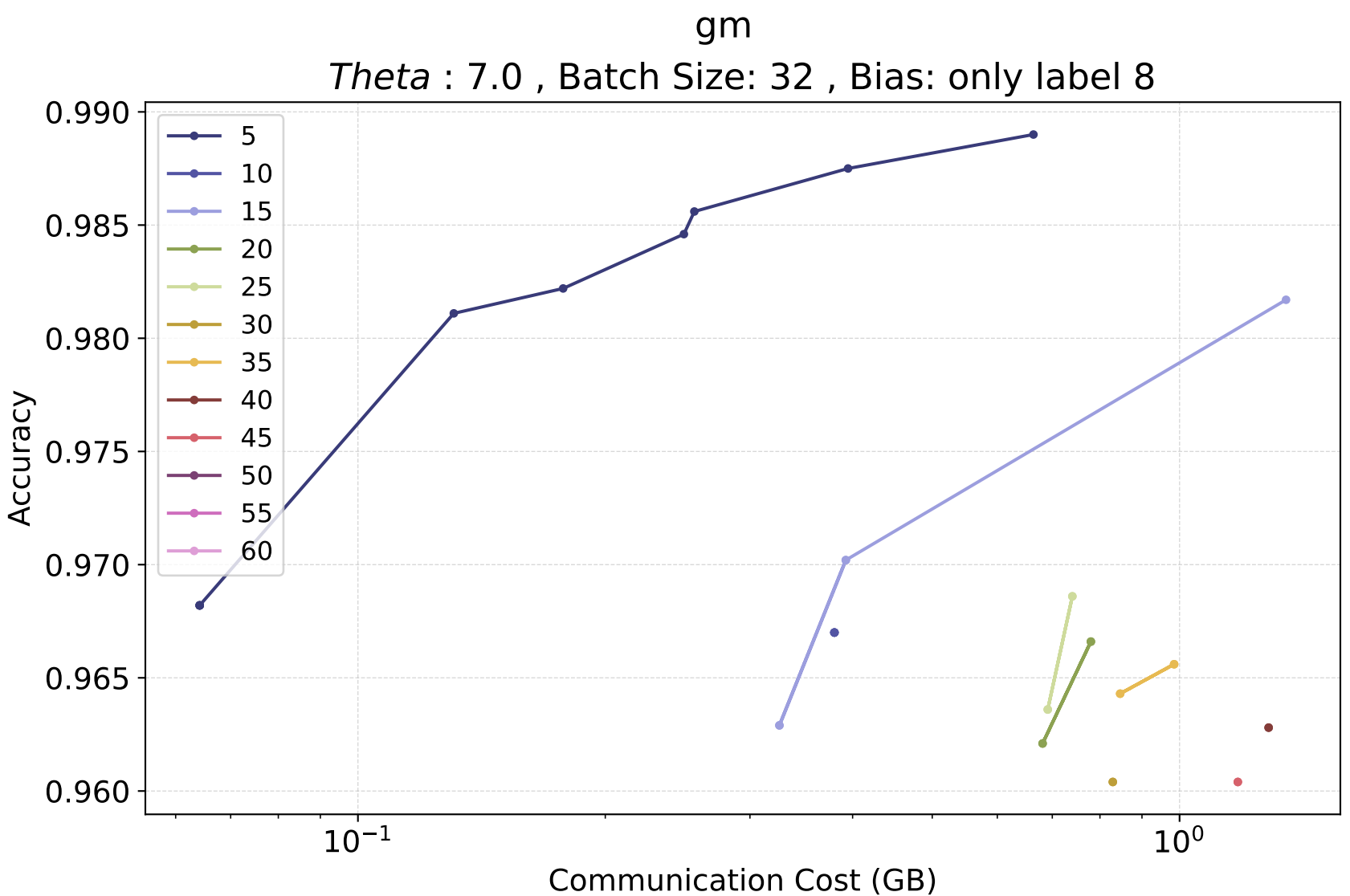

sketch
Theta : 3.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

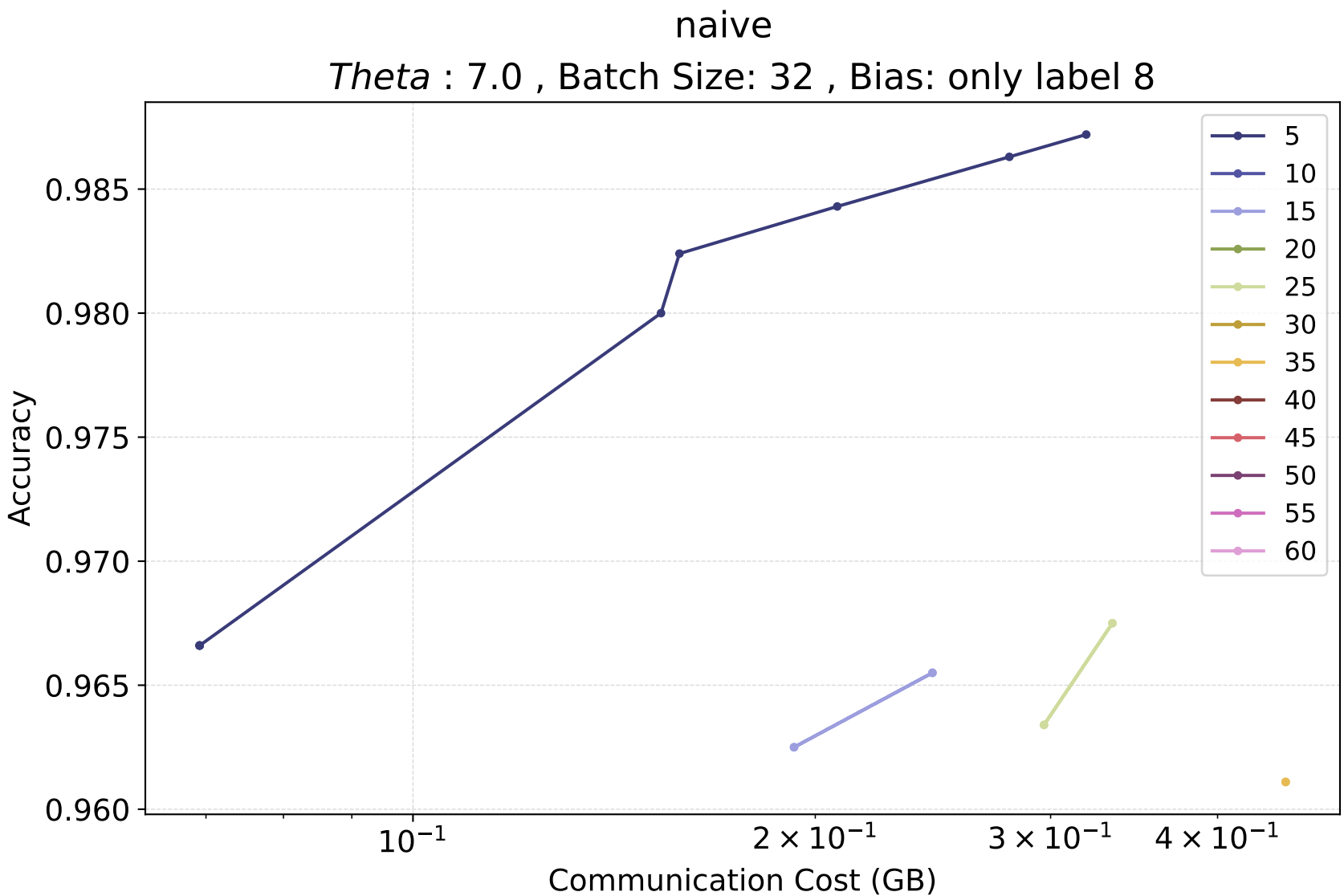

gm
Theta : 5.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

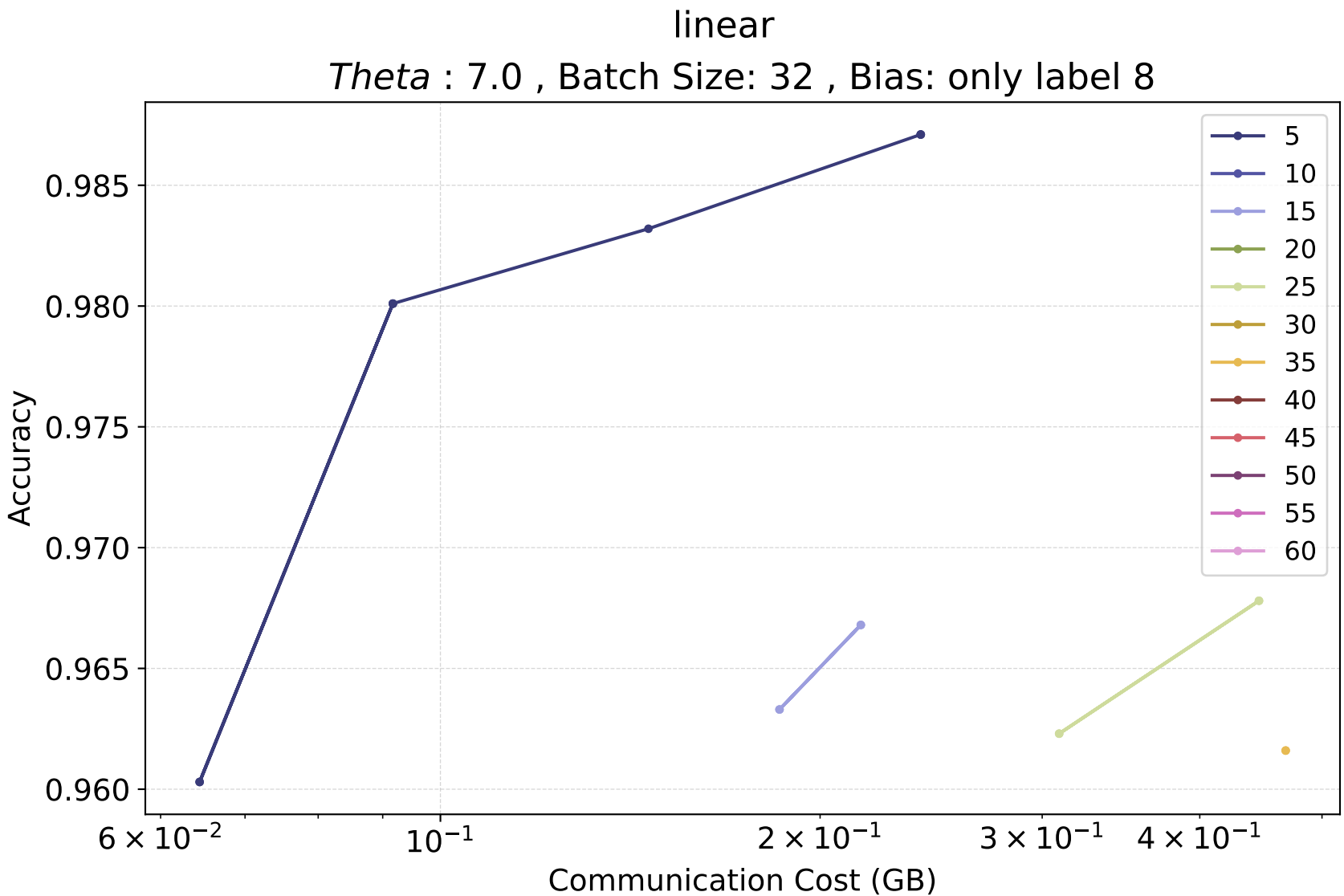

naive
Theta : 5.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

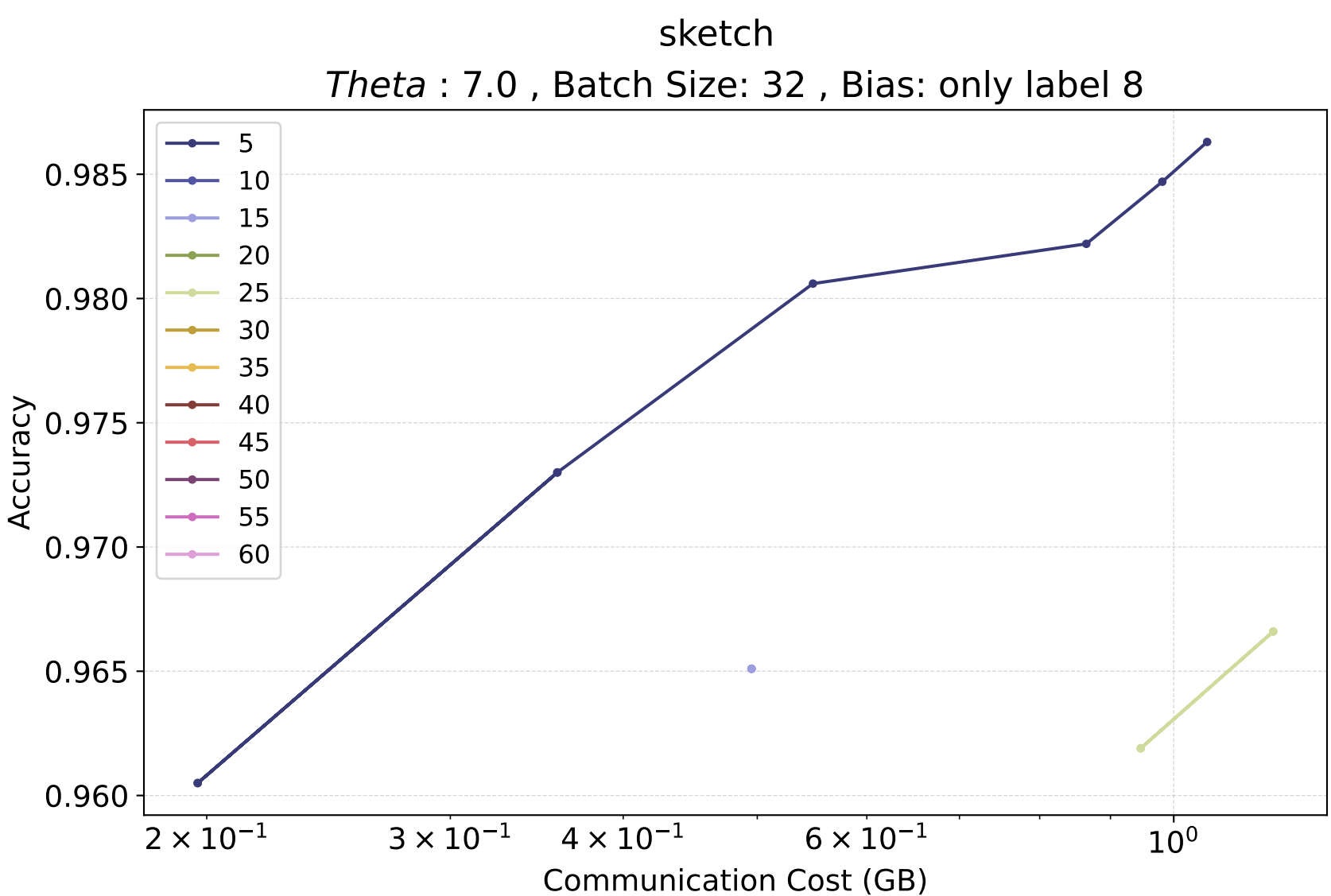

linear
Theta : 5.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
2×10^{-1}
3×10^{-1}
4×10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

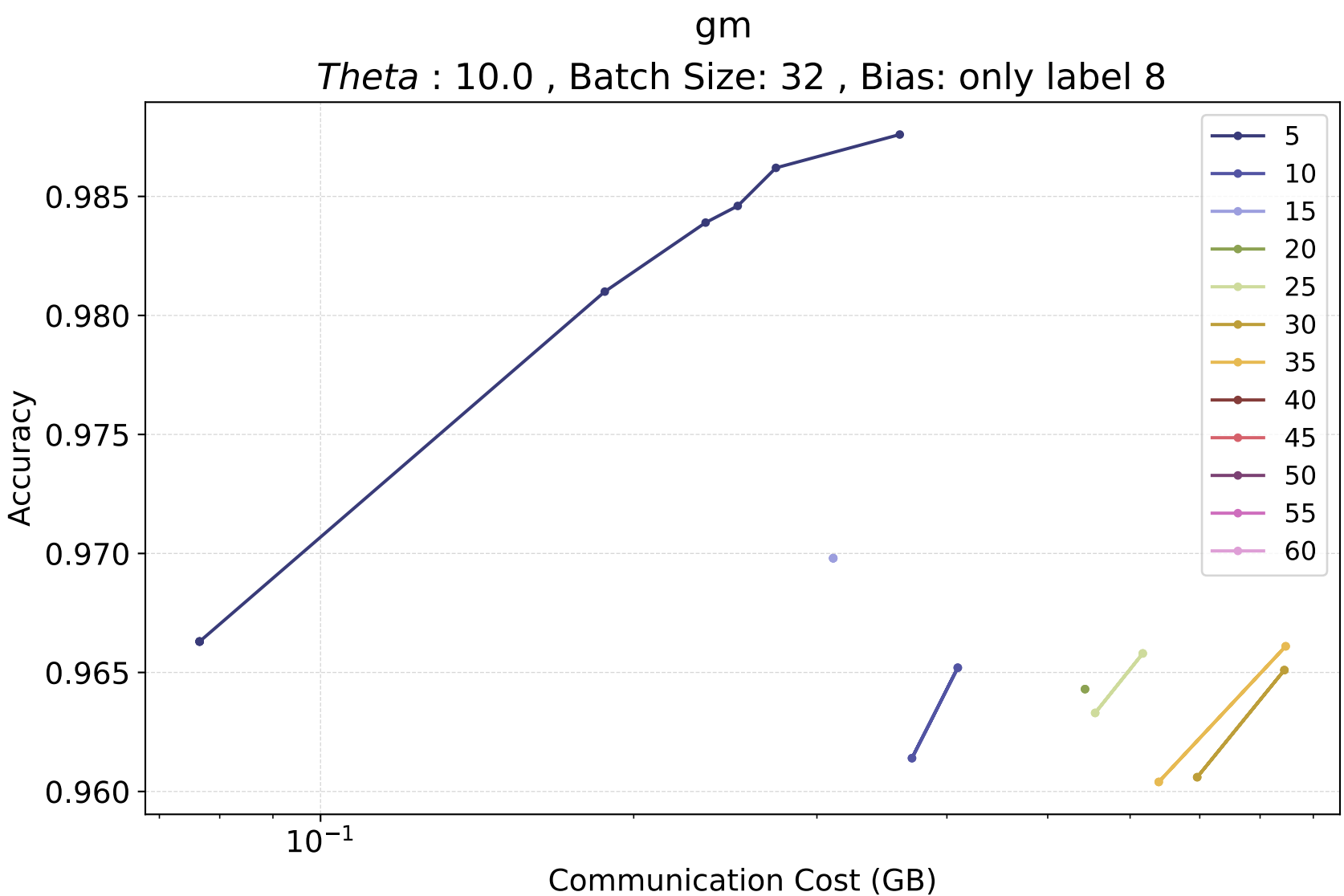

sketch
Theta : 5.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

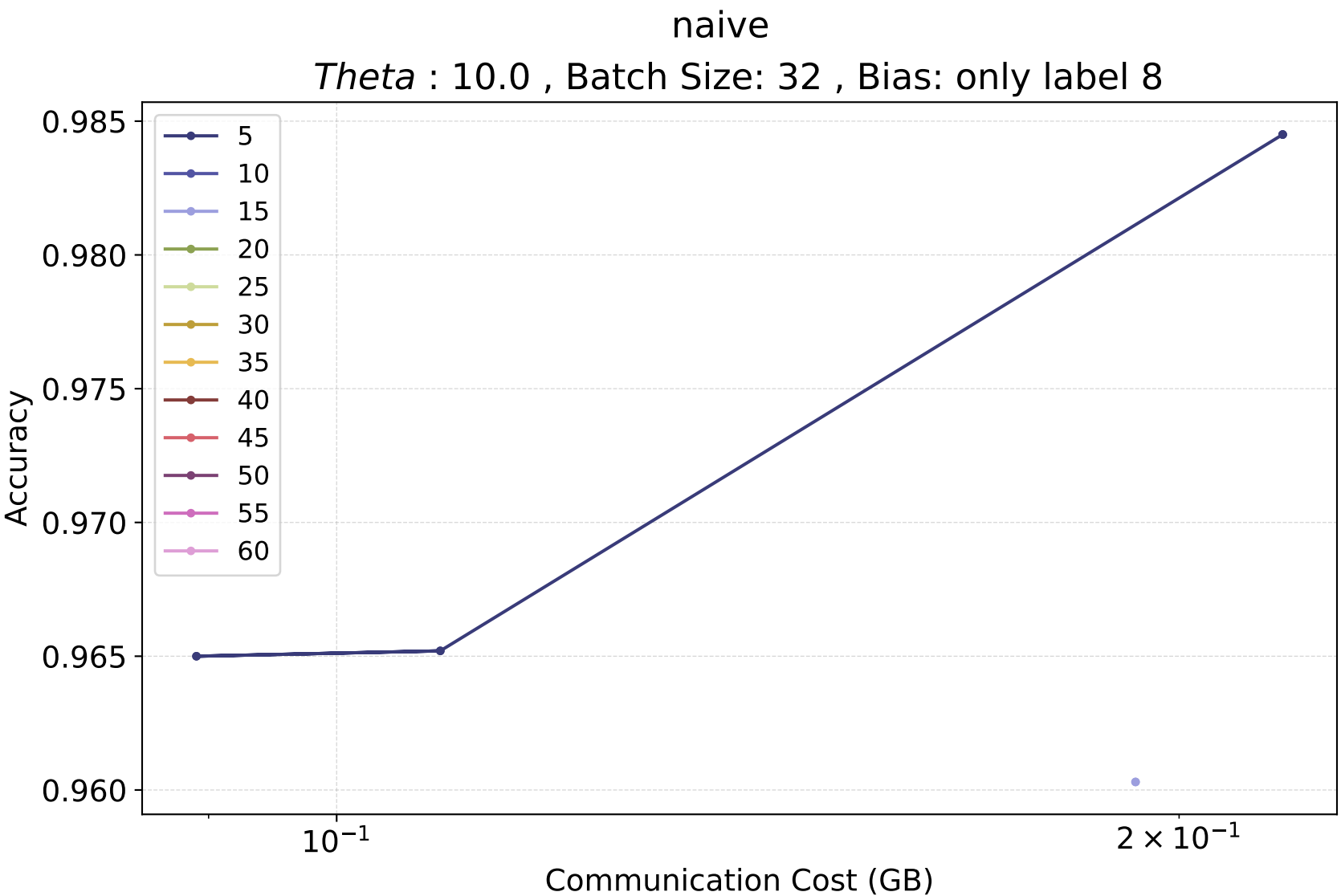

gm
Theta : 7.0 , Batch Size: 32 , Bias: only label 8
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60

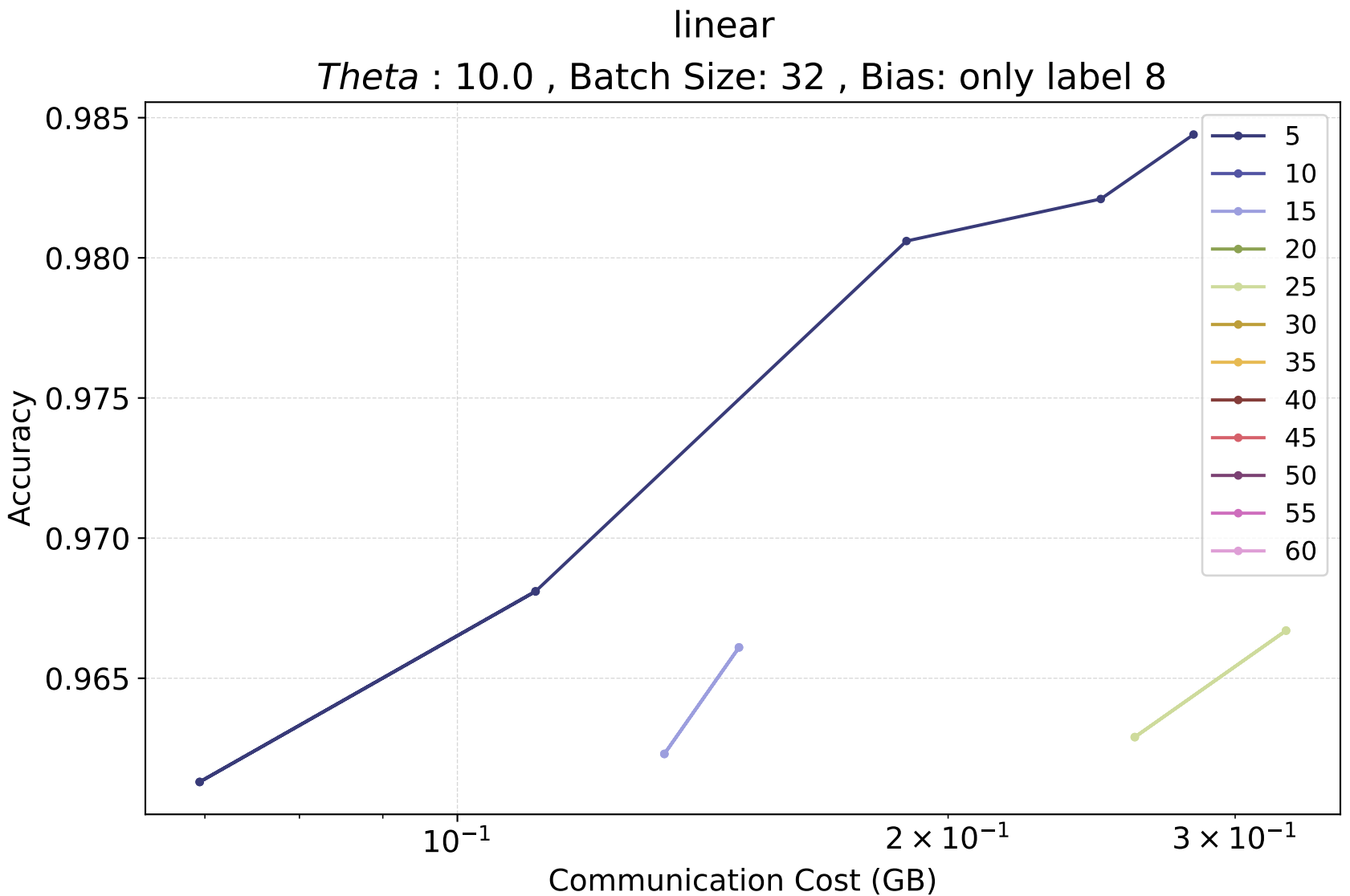

naive
Theta : 7.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
2×10^{-1}
3×10^{-1}
4×10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


linear
Theta : 7.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
6×10^{-2}
10^{-1}
2×10^{-1}
3×10^{-1}
4×10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


sketch
Theta : 7.0 , Batch Size: 32 , Bias: only label 8
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
2×10^{-1}
3×10^{-1}
4×10^{-1}
6×10^{-1}
10^{0}
Communication Cost (GB)

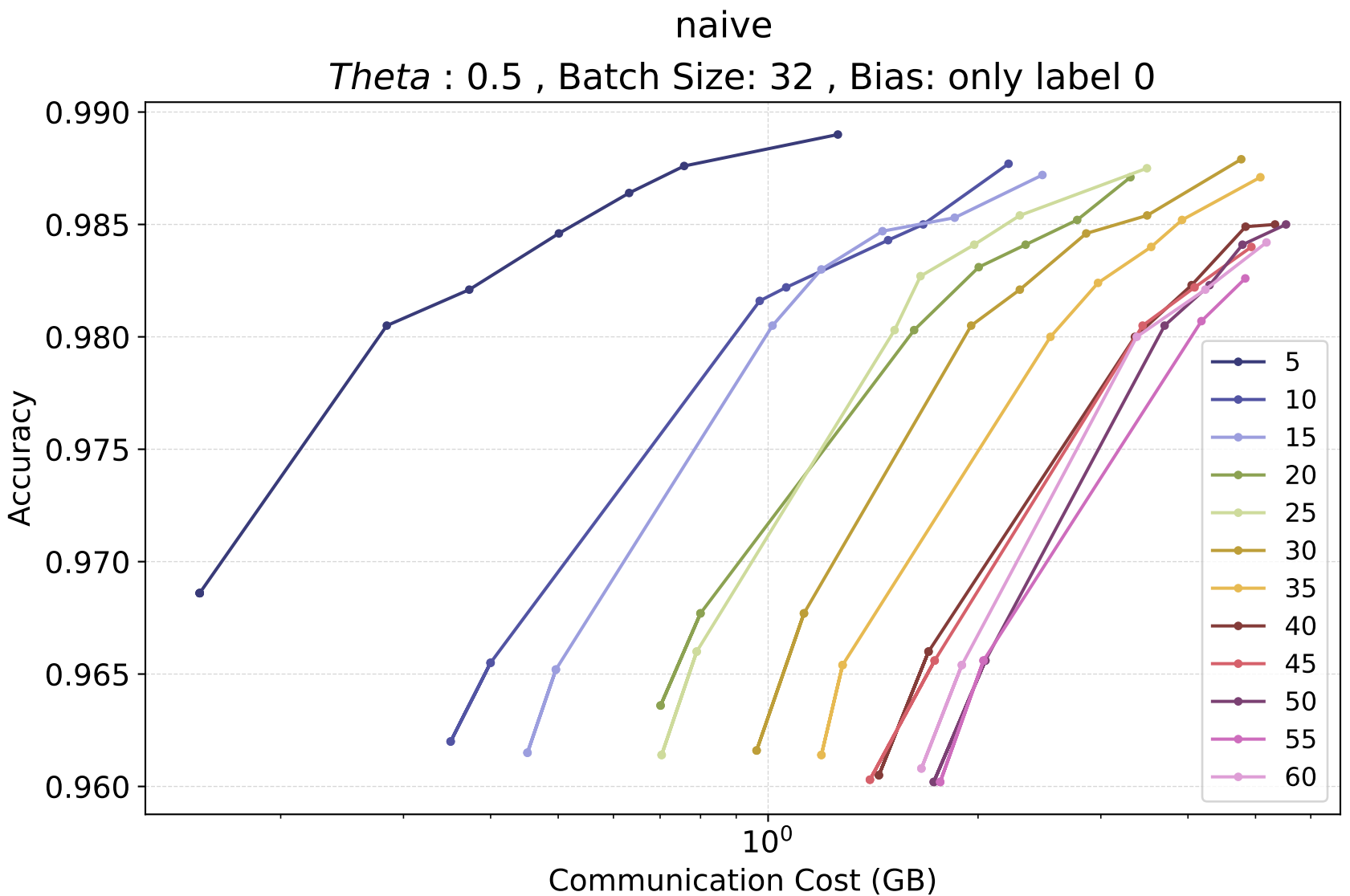

gm
Theta : 10.0 , Batch Size: 32 , Bias: only label 8
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

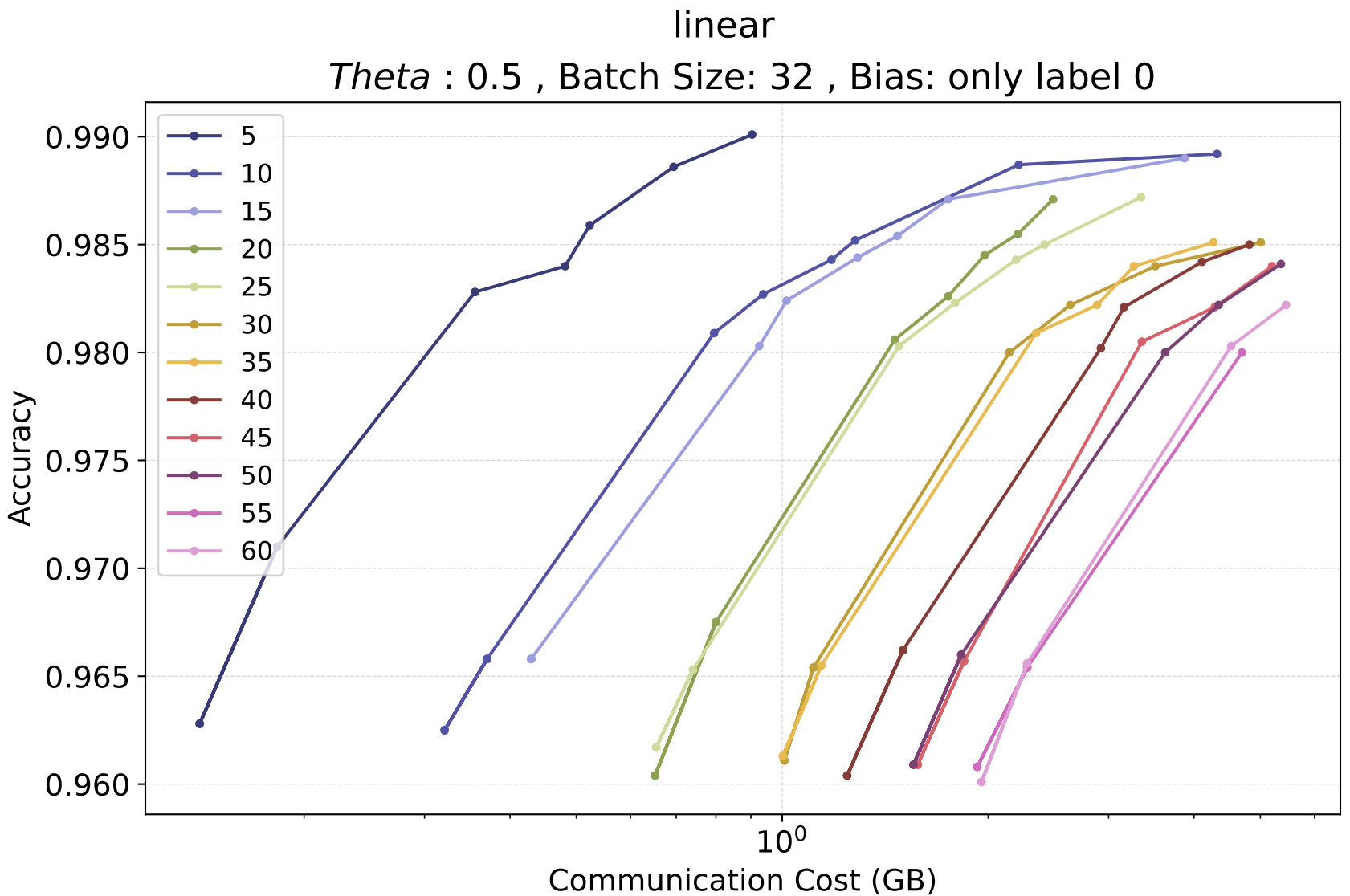

naive
Theta : 10.0 , Batch Size: 32 , Bias: only label 8
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
2×10^{-1}
Communication Cost (GB)

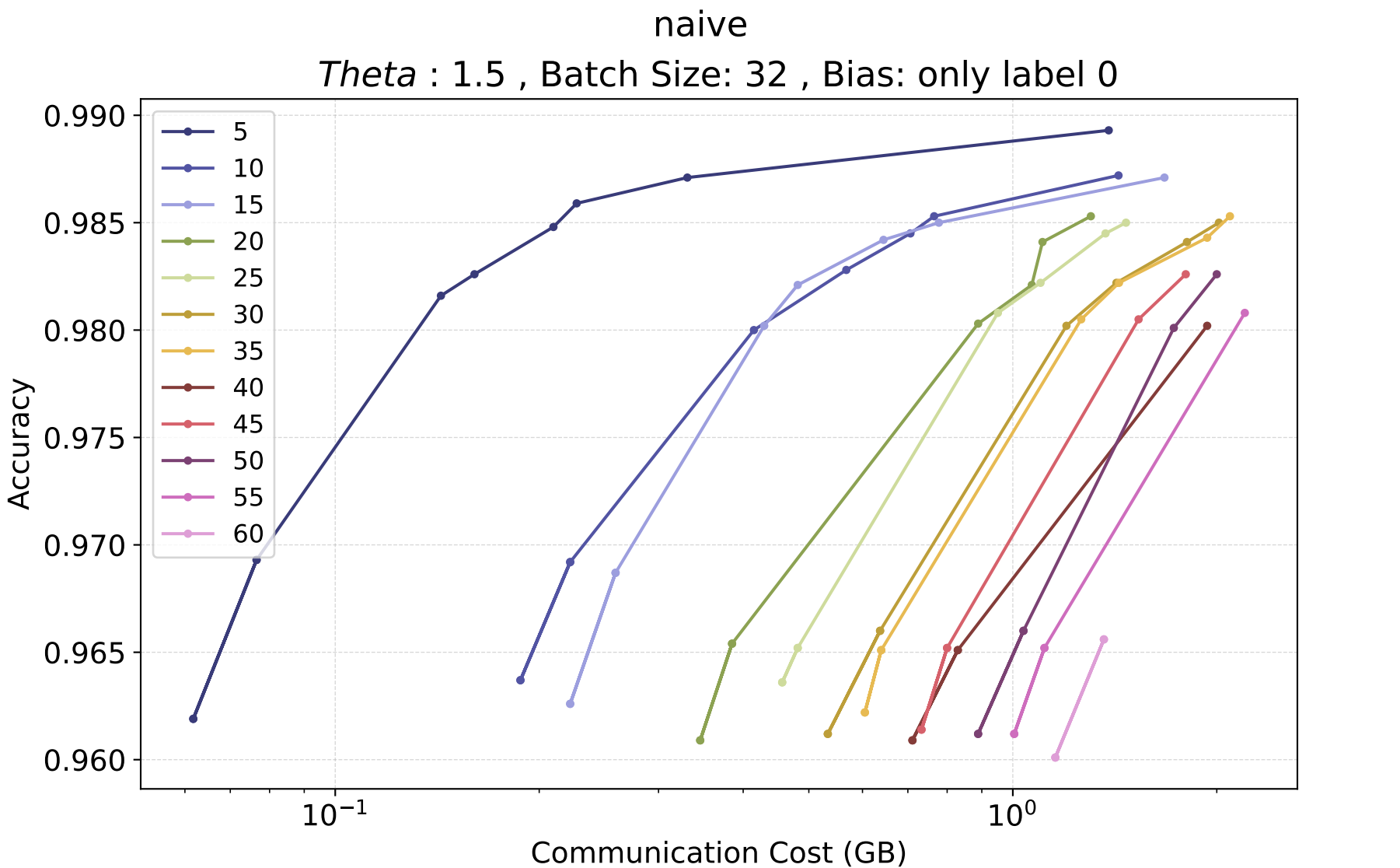

linear
Theta : 10.0 , Batch Size: 32 , Bias: only label 8
0.985
0.980
0.975
0.970
0.965
Accuracy
10^{-1}
2×10^{-1}
3×10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

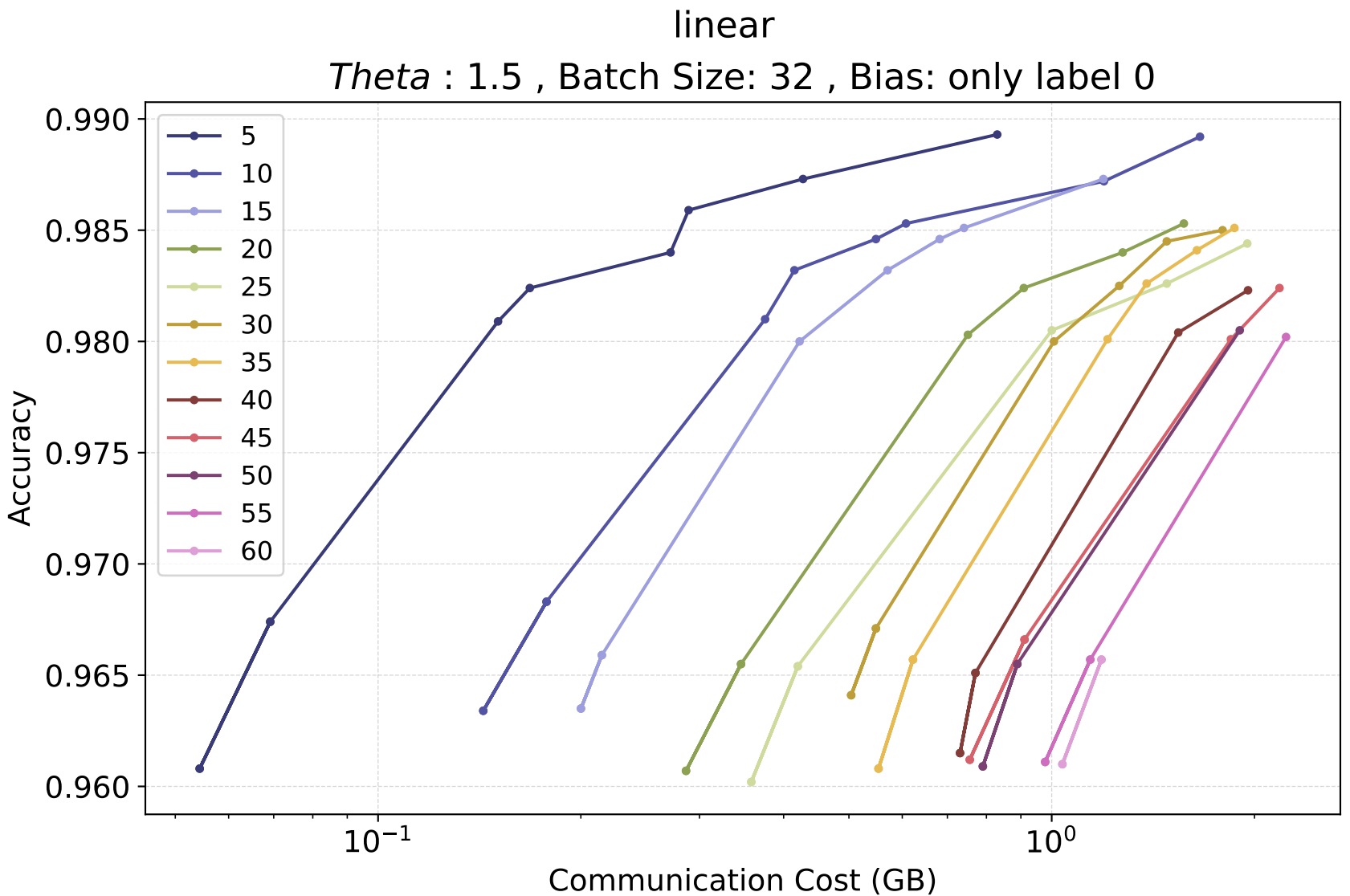

sketch
Theta : 10.0 , Batch Size: 32 , Bias: only label 8
5
10
15
20
25
30
35
40
45
50
55
60
0.980
0.975
0.970
0.965
Accuracy
3×10^{-1}
4×10^{-1}
6×10^{-1}
Communication Cost (GB)

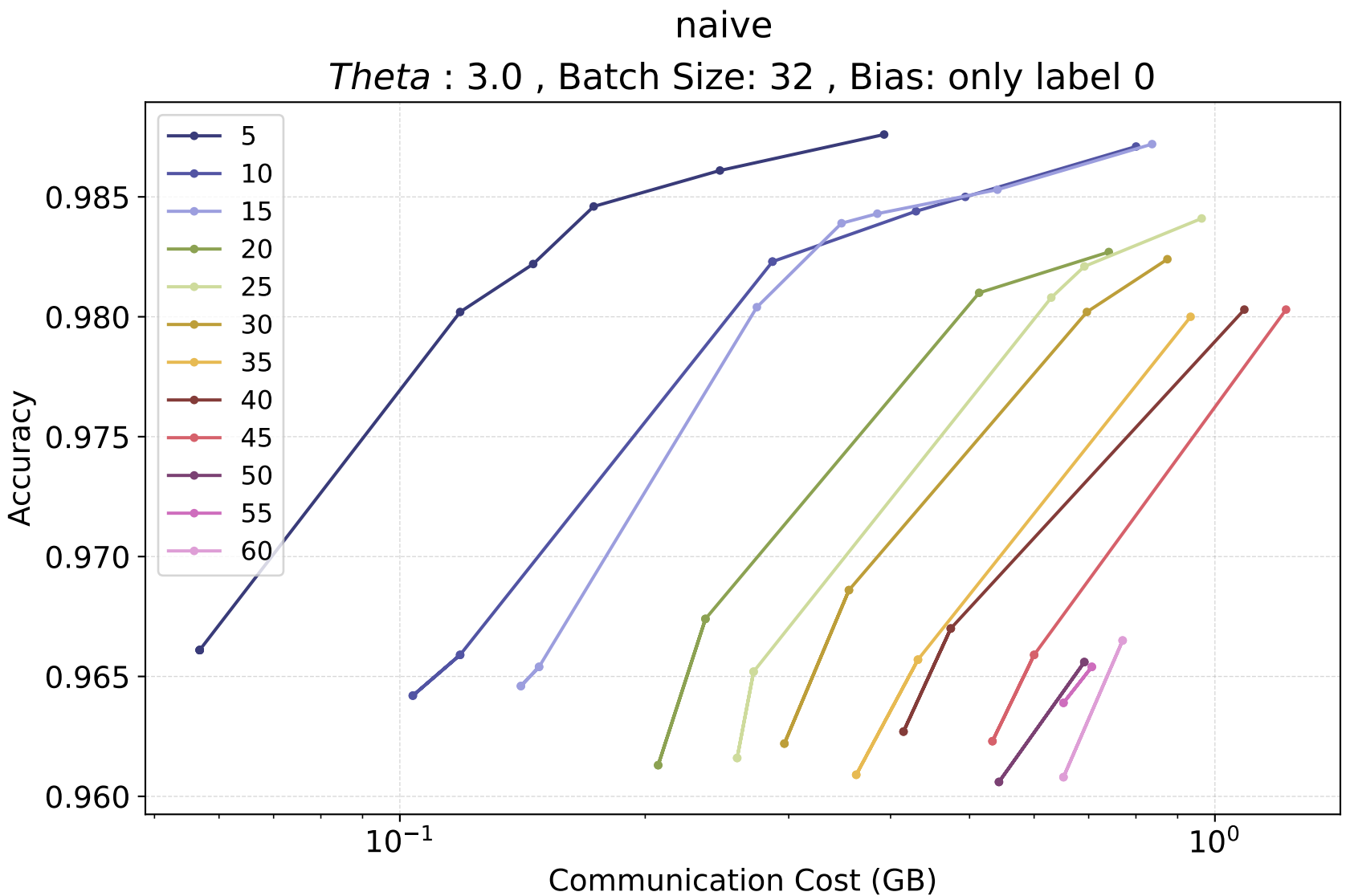

gm
Theta : 0.5 , Batch Size: 32 , Bias: only label 0
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

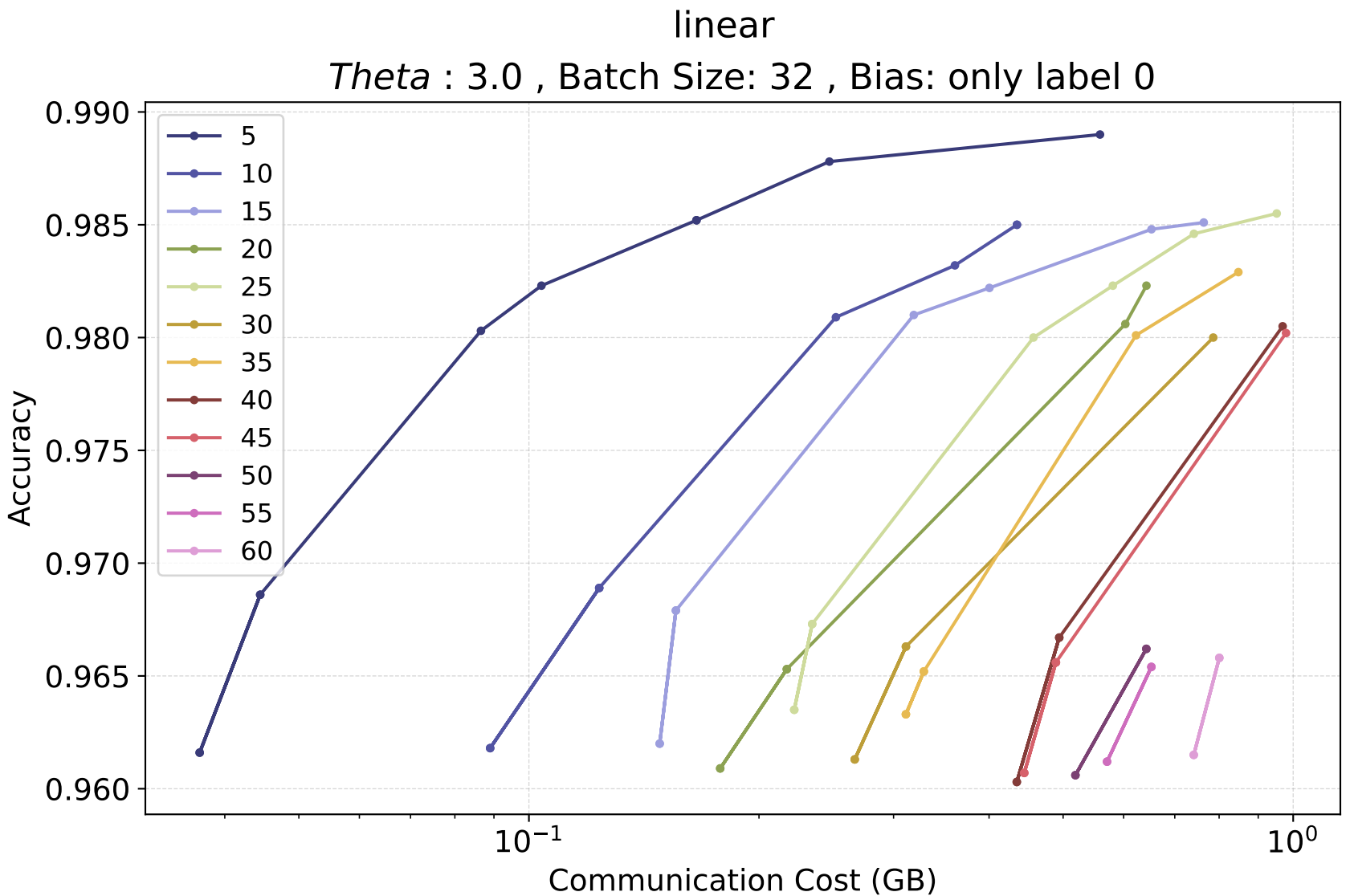

naive
Theta : 0.5 , Batch Size: 32 , Bias: only label 0
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

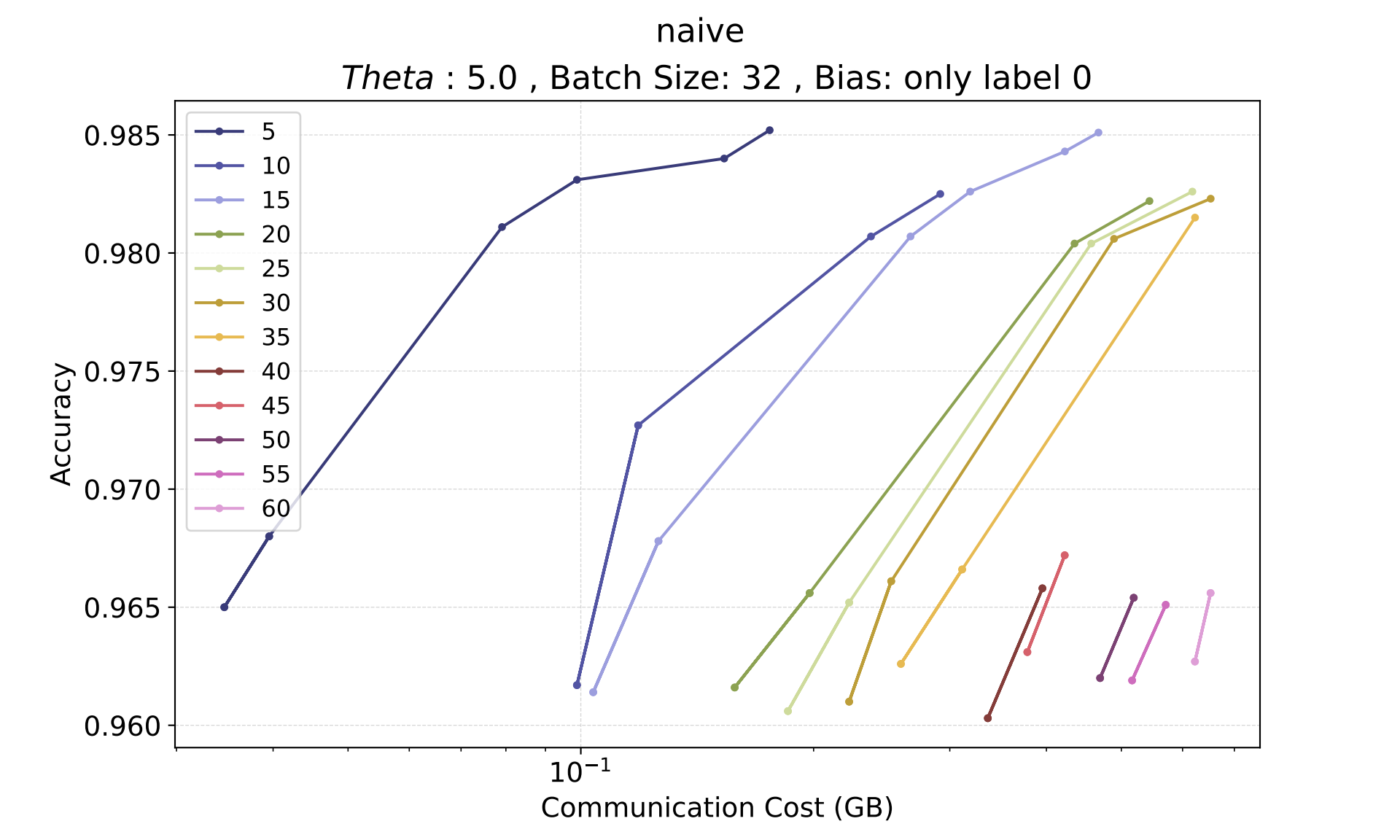

linear
Theta : 0.5 , Batch Size: 32 , Bias: only label 0
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^0
Communication Cost (GB)

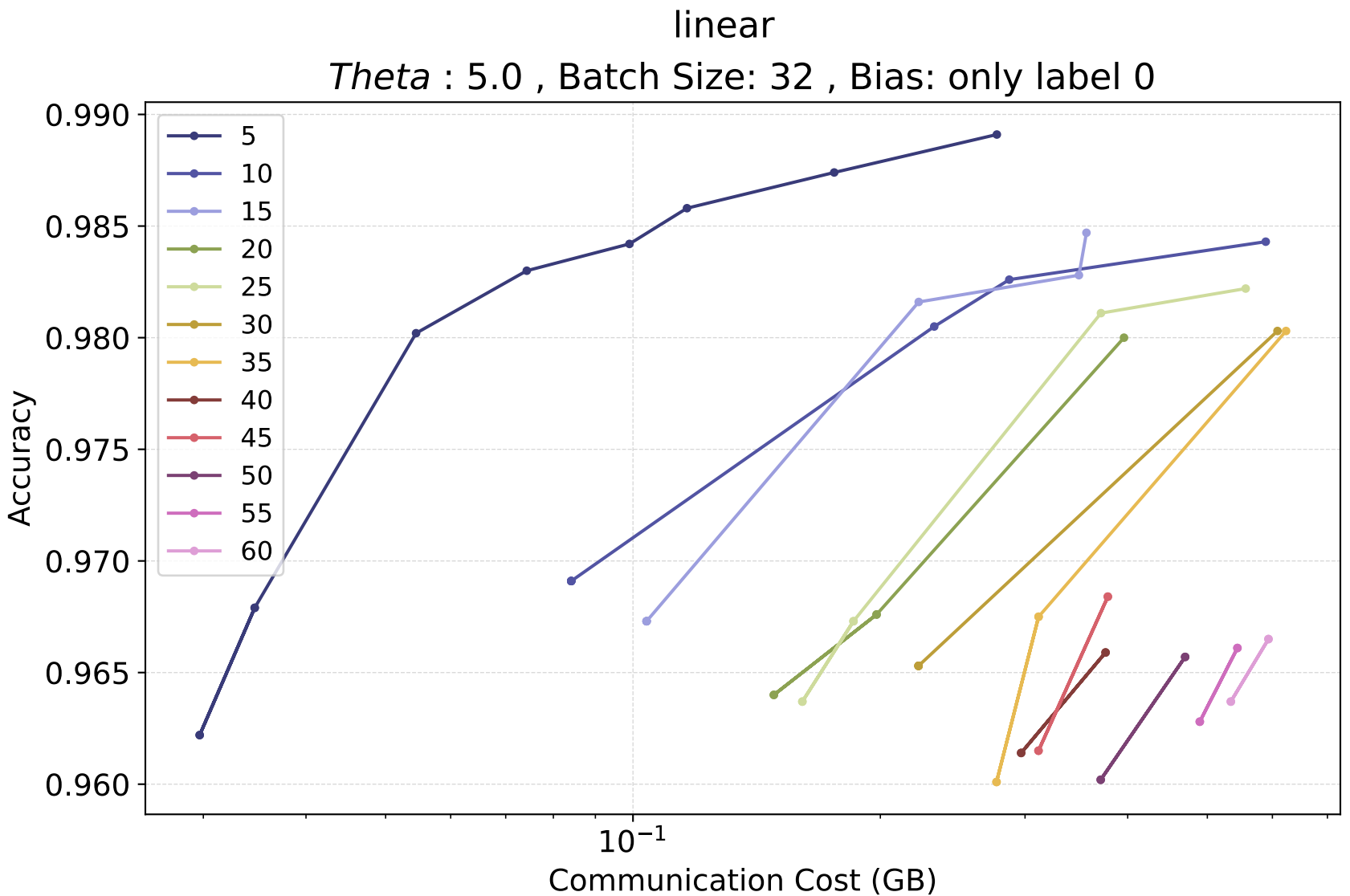

naive
Theta : 1.5 , Batch Size: 32 , Bias: only label 0
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60

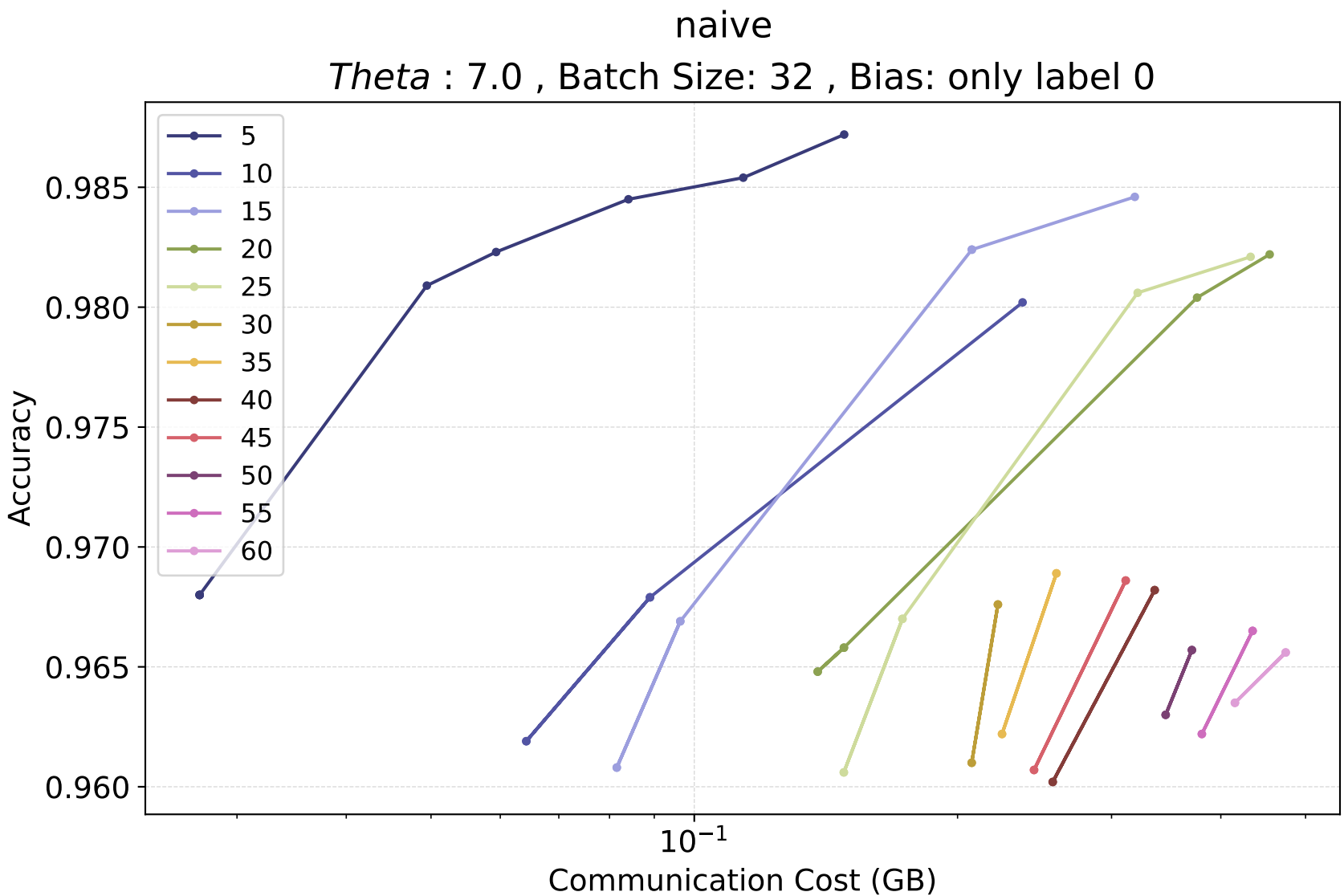

linear
Theta : 1.5 , Batch Size: 32 , Bias: only label 0
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

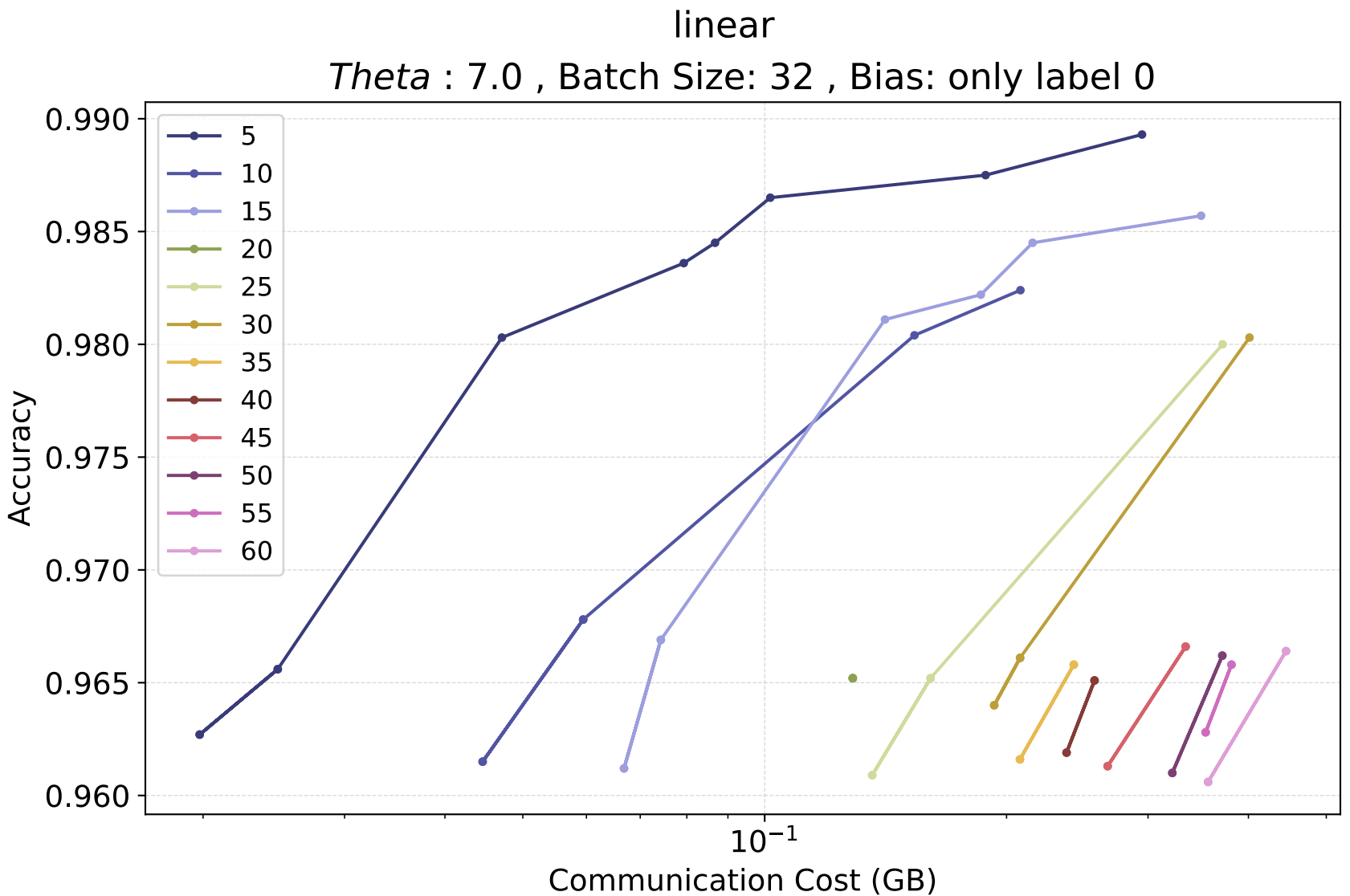

naive
Theta : 3.0 , Batch Size: 32 , Bias: only label 0
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)


linear
Theta : 3.0 , Batch Size: 32 , Bias: only label 0
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

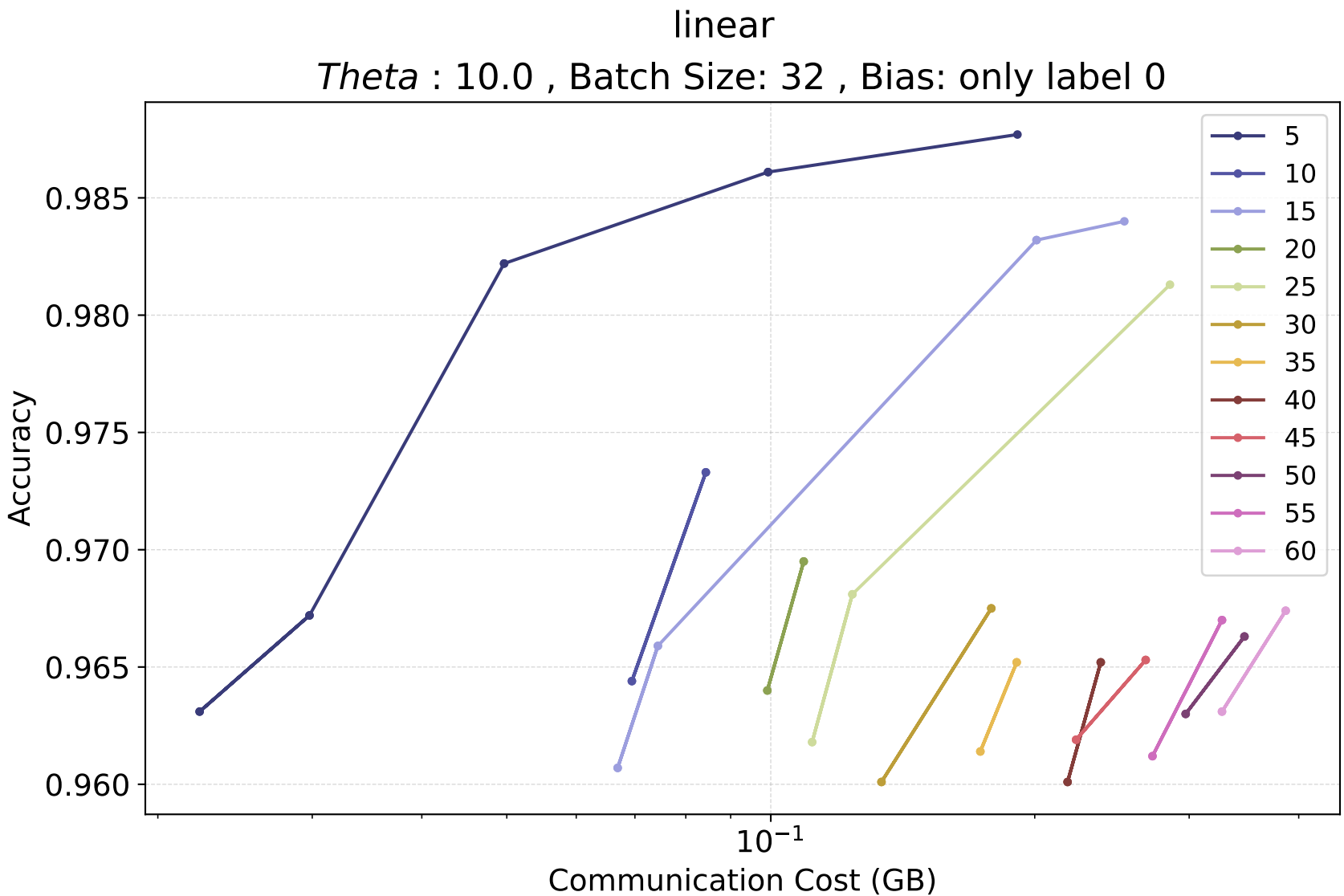

naive
Theta : 5.0 , Batch Size: 32 , Bias: only label 0
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

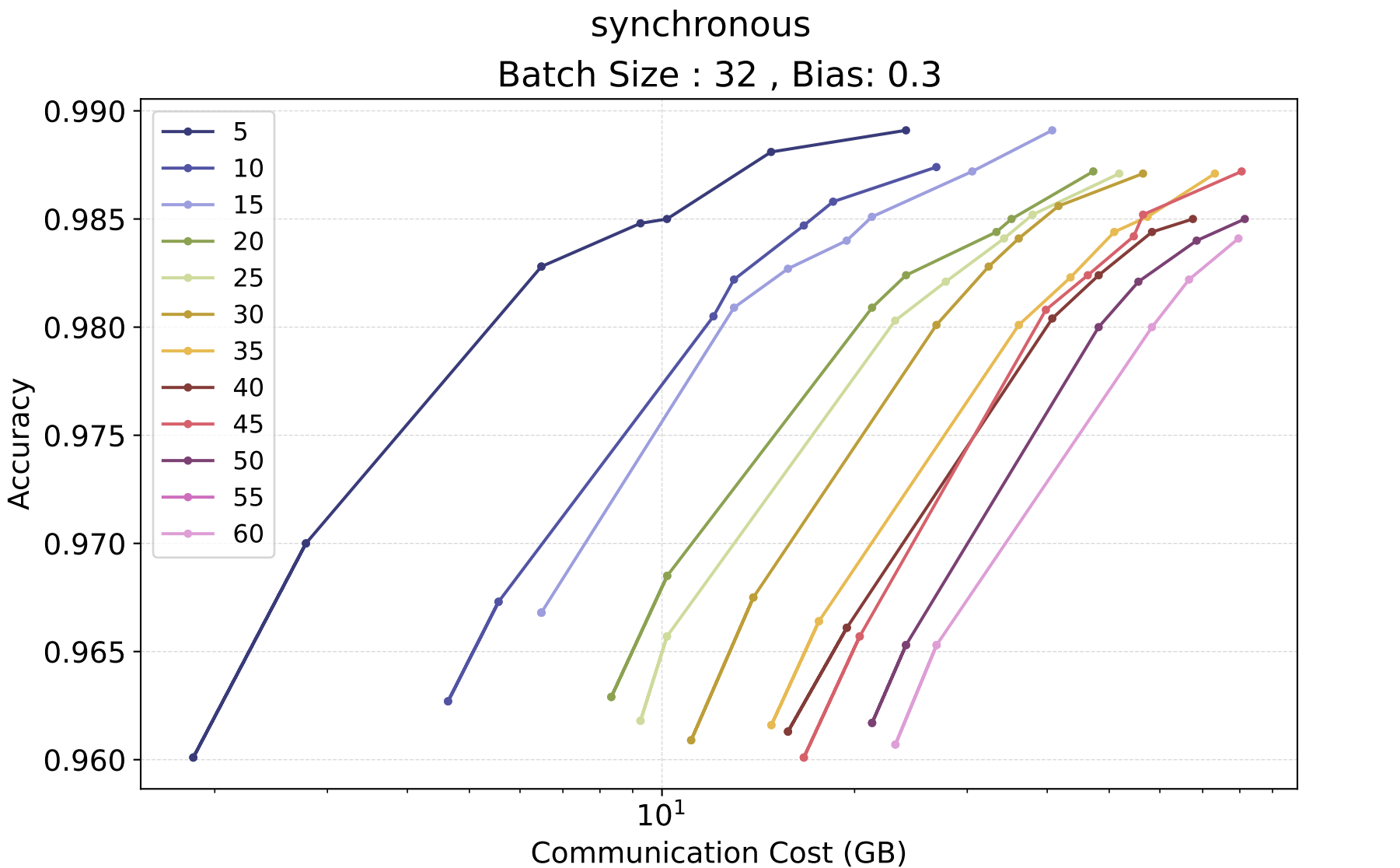

linear
Theta : 5.0 , Batch Size: 32 , Bias: only label 0
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)

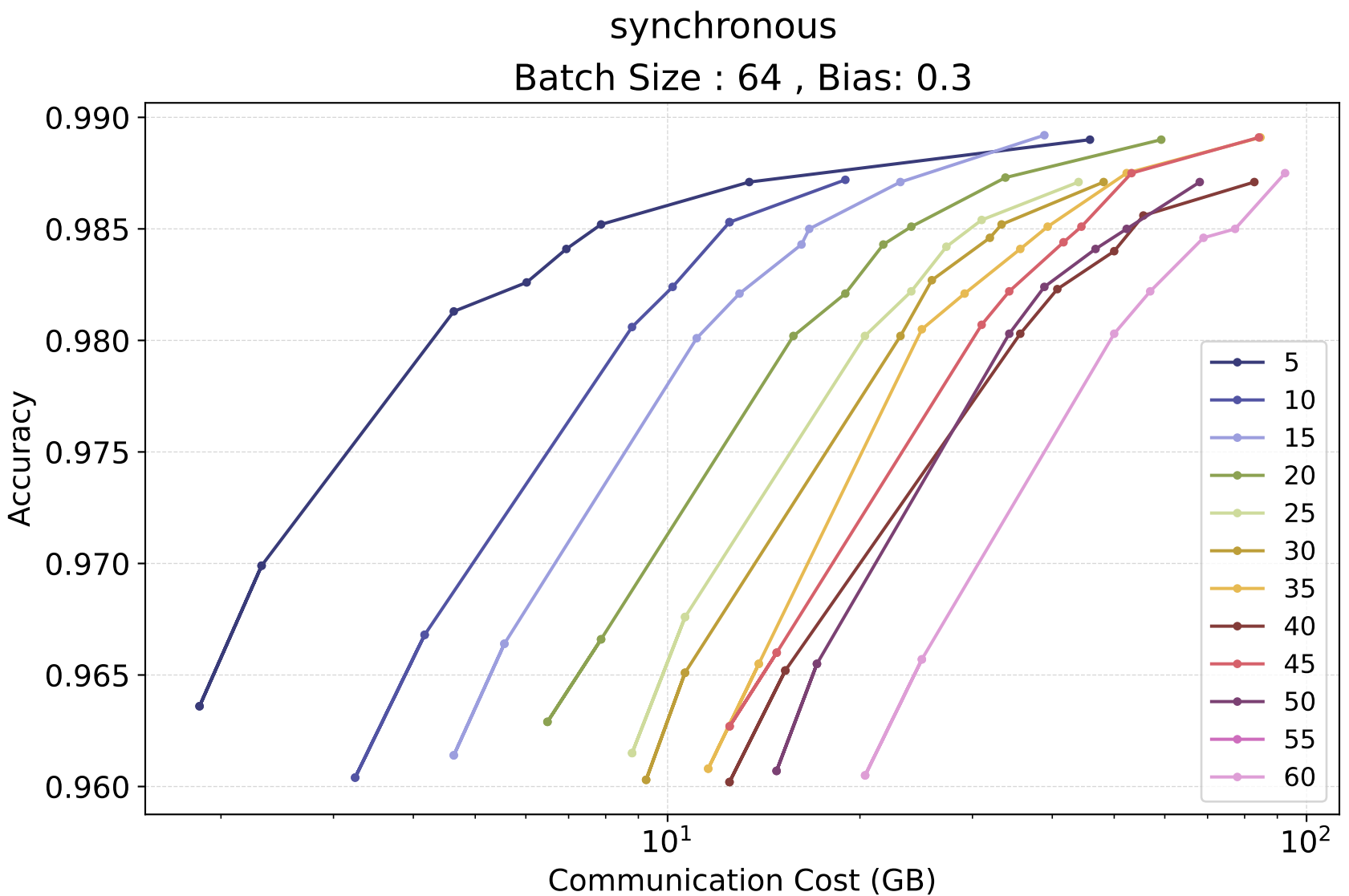

naive
Theta : 7.0 , Batch Size: 32 , Bias: only label 0
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)

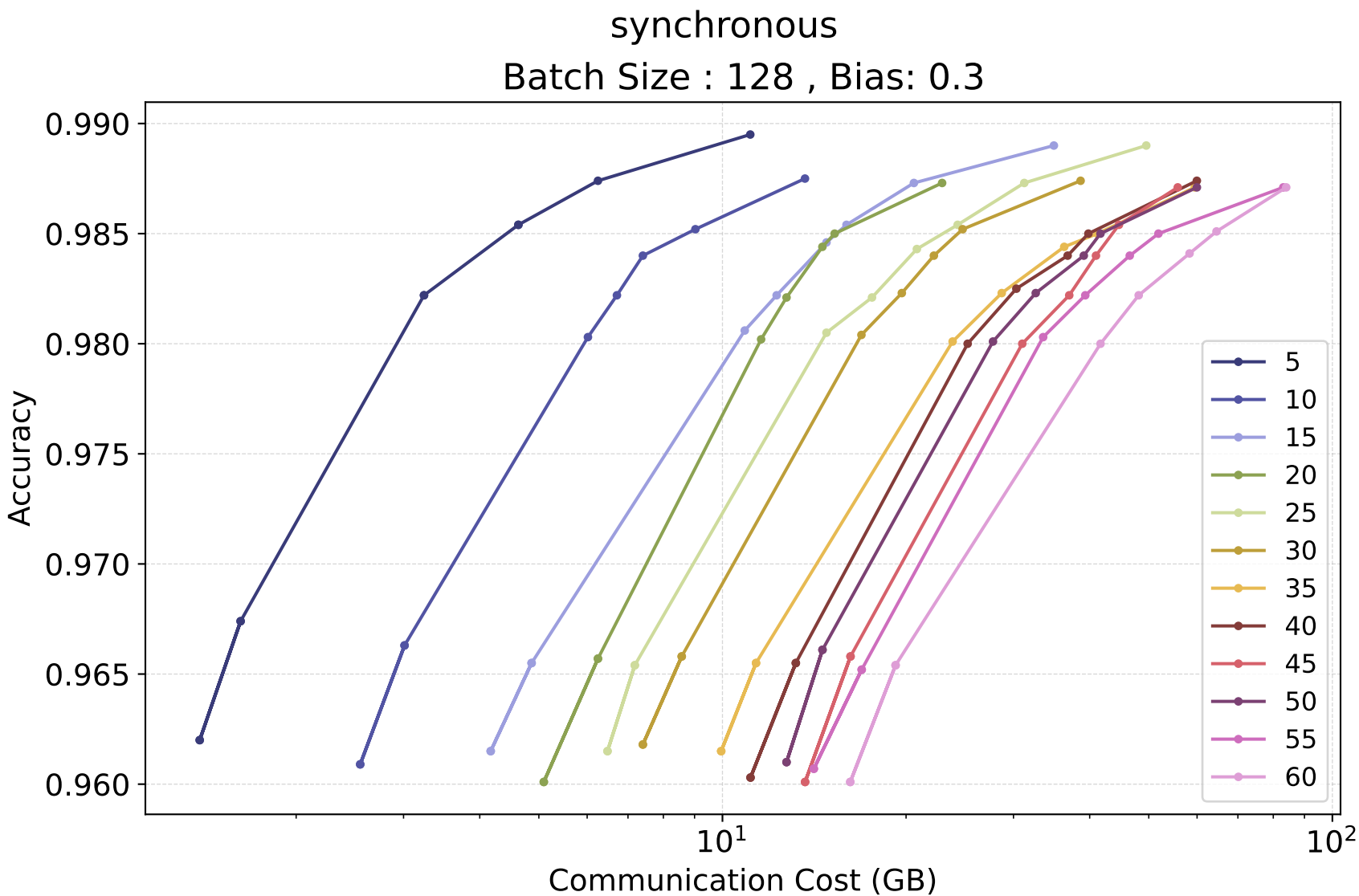

linear
Theta : 7.0 , Batch Size: 32 , Bias: only label 0
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

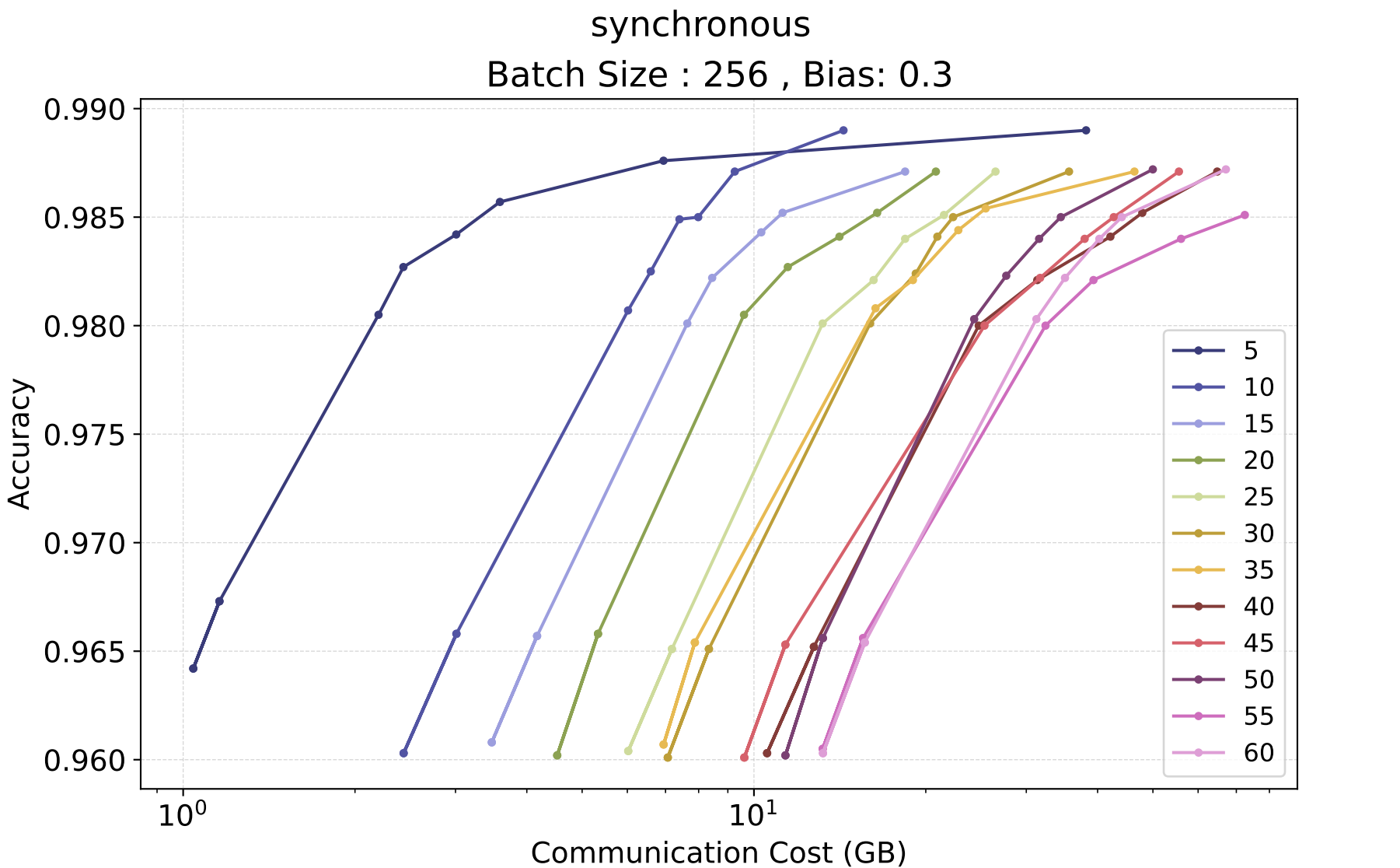

naive
Theta : 10.0 , Batch Size: 32 , Bias: only label 0
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

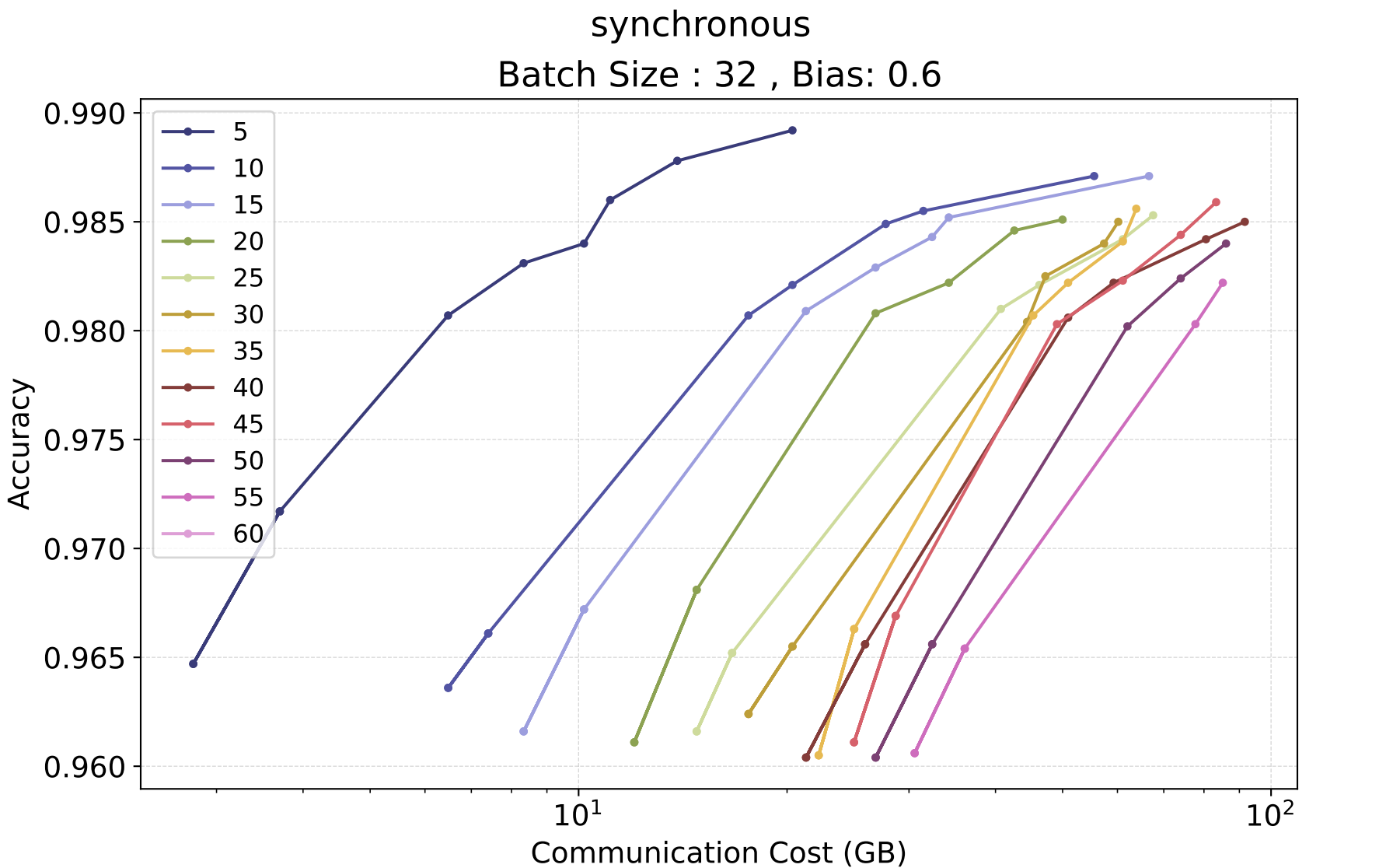

linear
Theta : 10.0 , Batch Size: 32 , Bias: only label 0
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

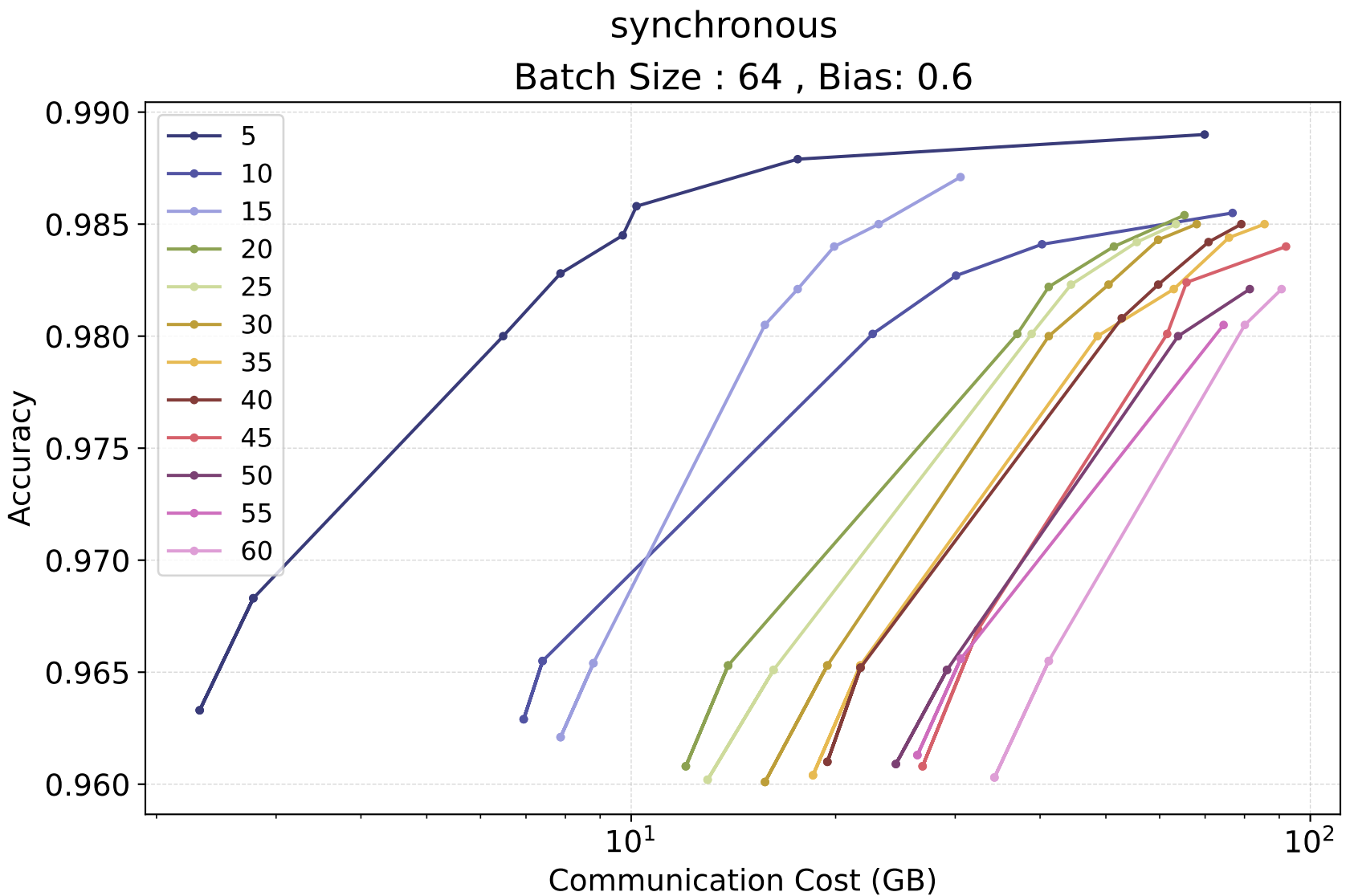

synchronous
Batch Size : 32 , Bias: 0.3
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^1
Communication Cost (GB)

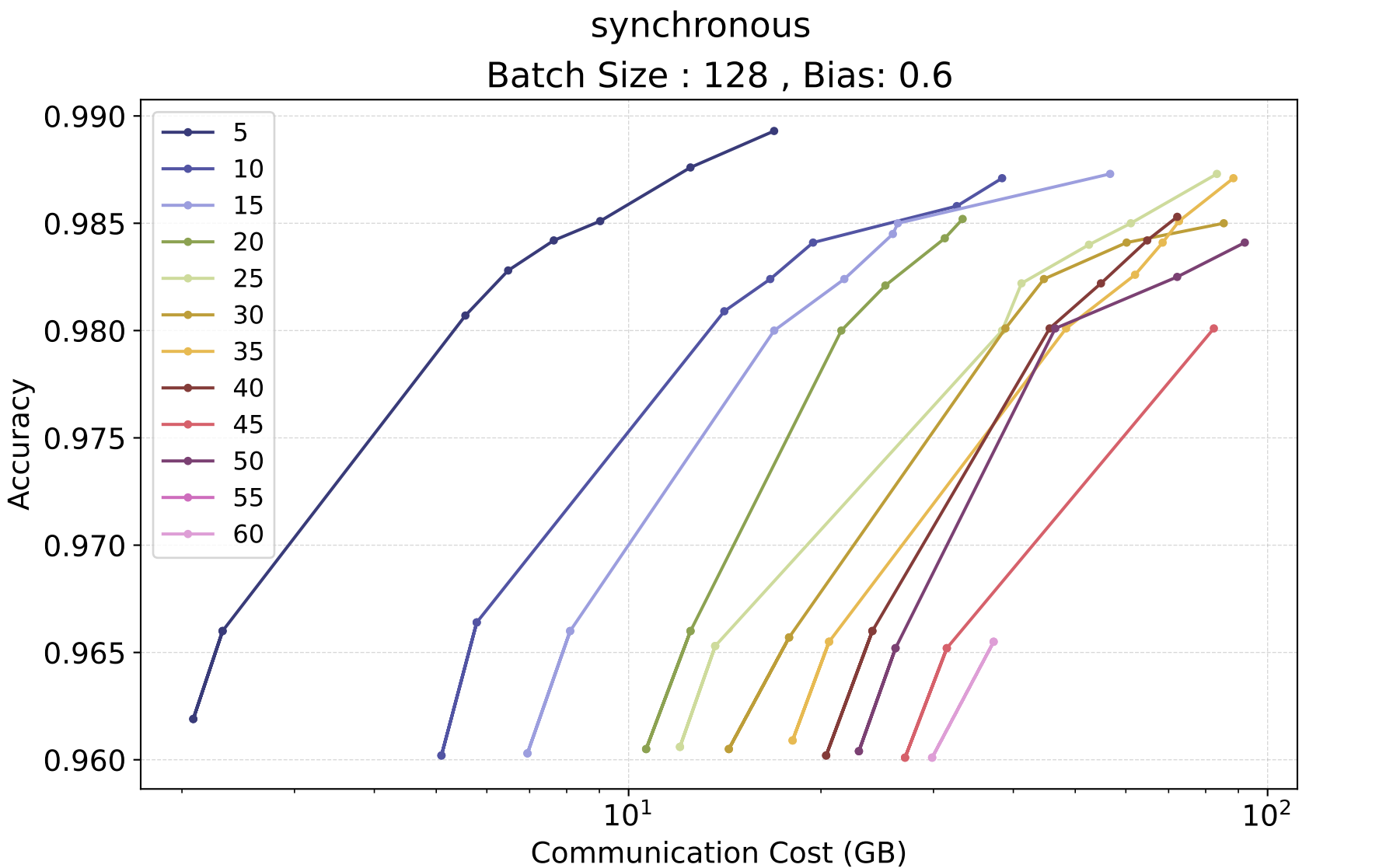

synchronous
Batch Size : 64 , Bias: 0.3
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

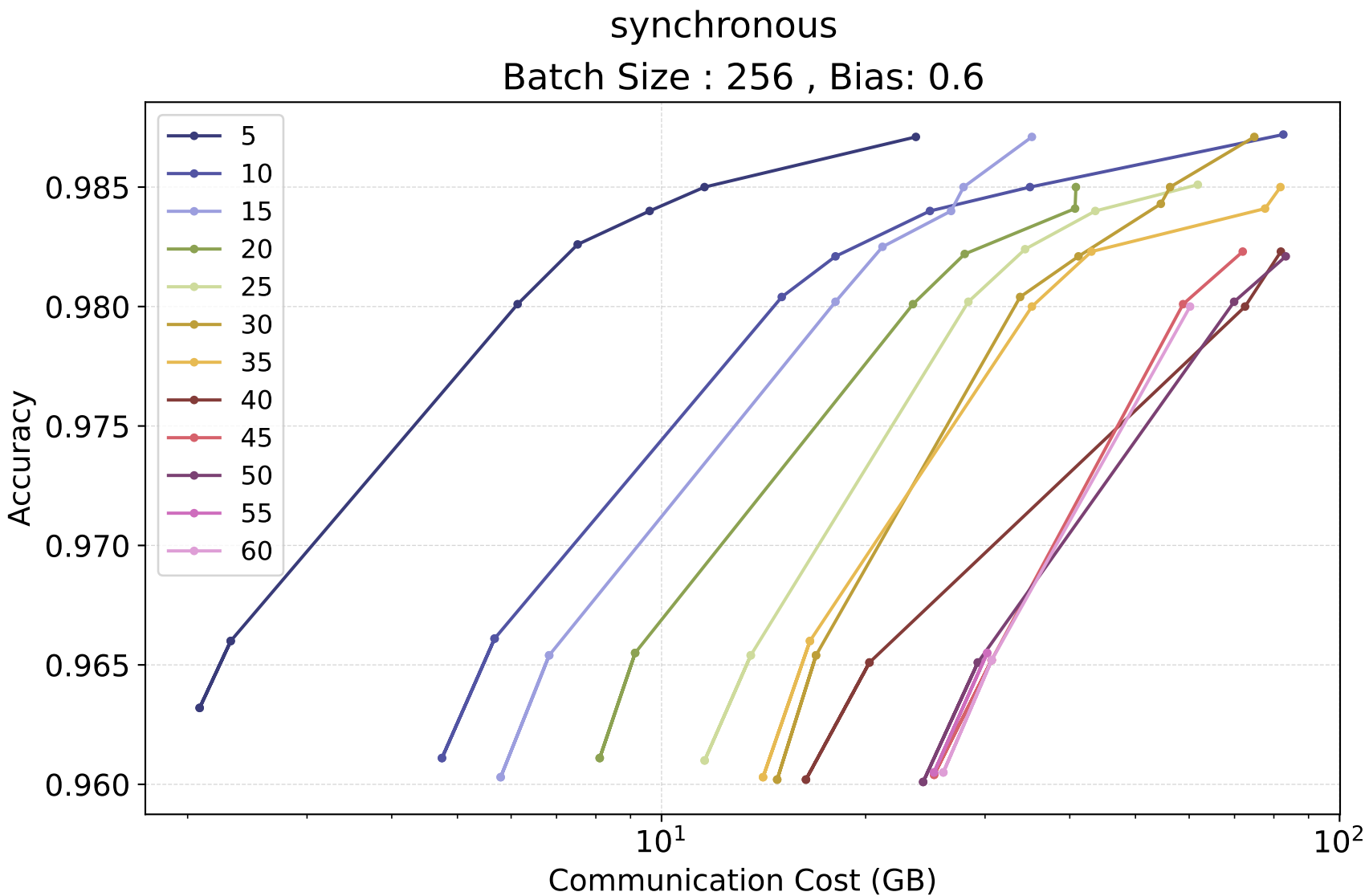

synchronous
Batch Size : 128 , Bias: 0.3
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

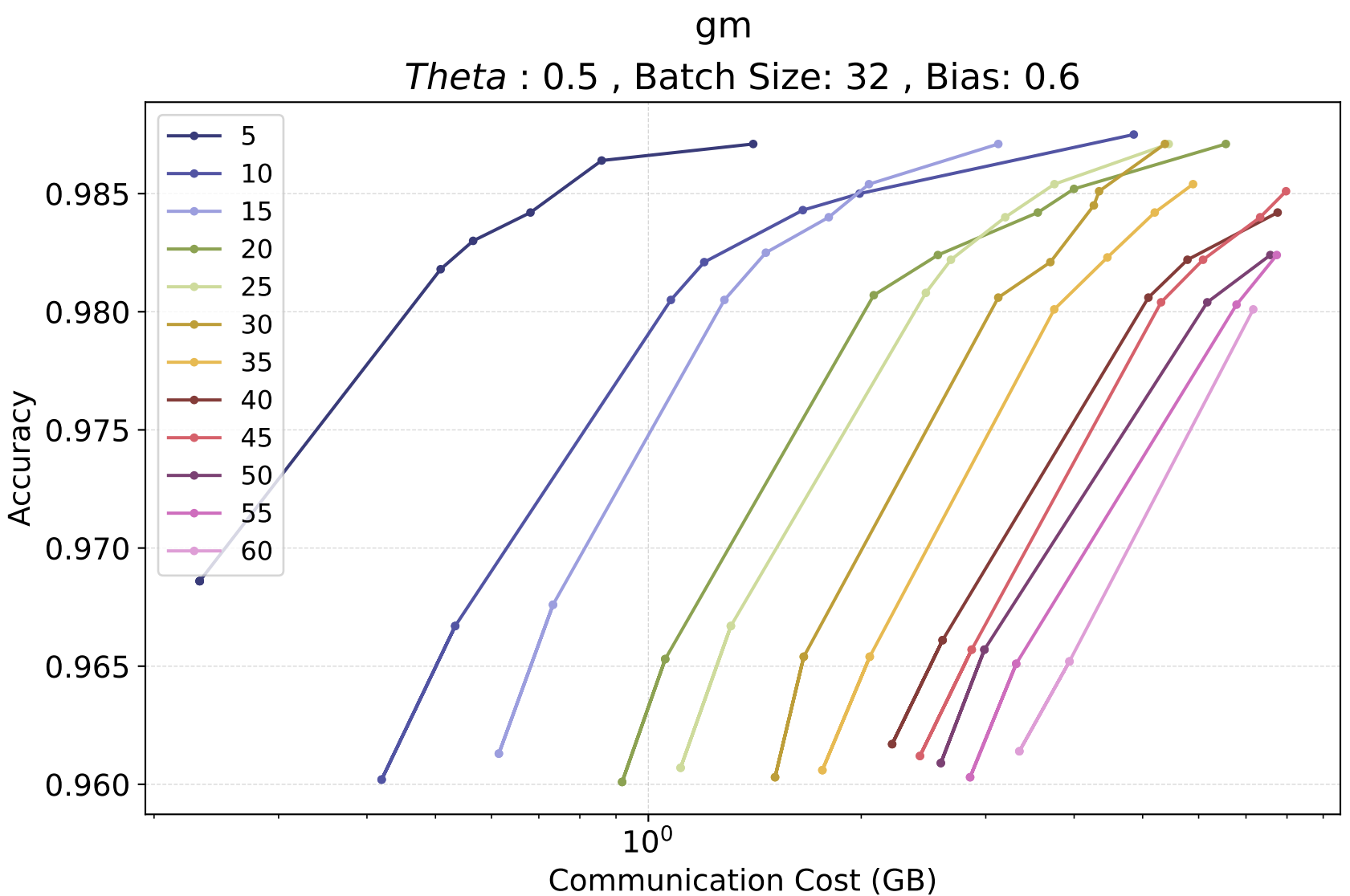

synchronous
Batch Size : 256 , Bias: 0.3
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

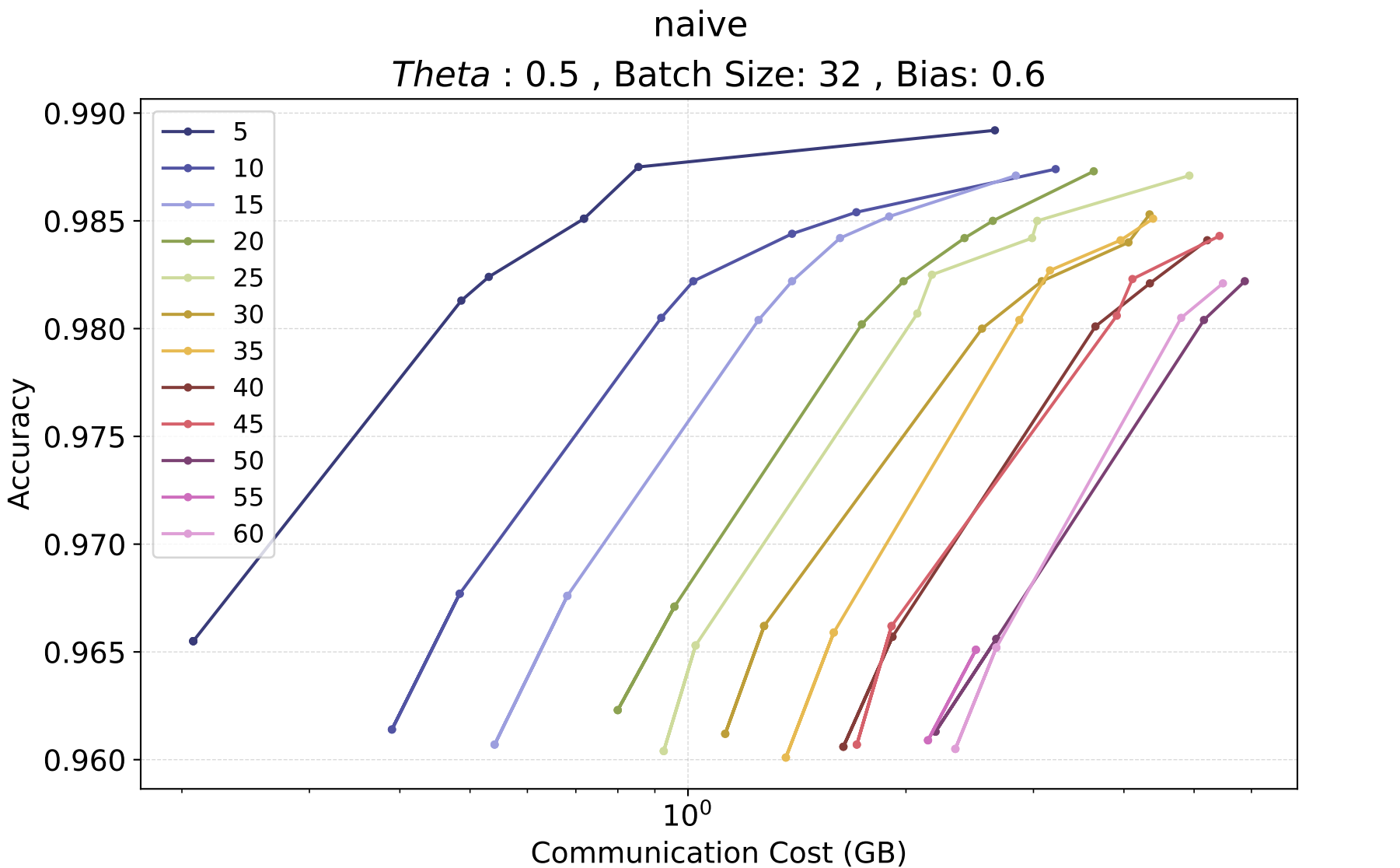

synchronous
Batch Size : 32 , Bias: 0.6
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
5
10
15
20
25
30
35
40
45
50
55
60

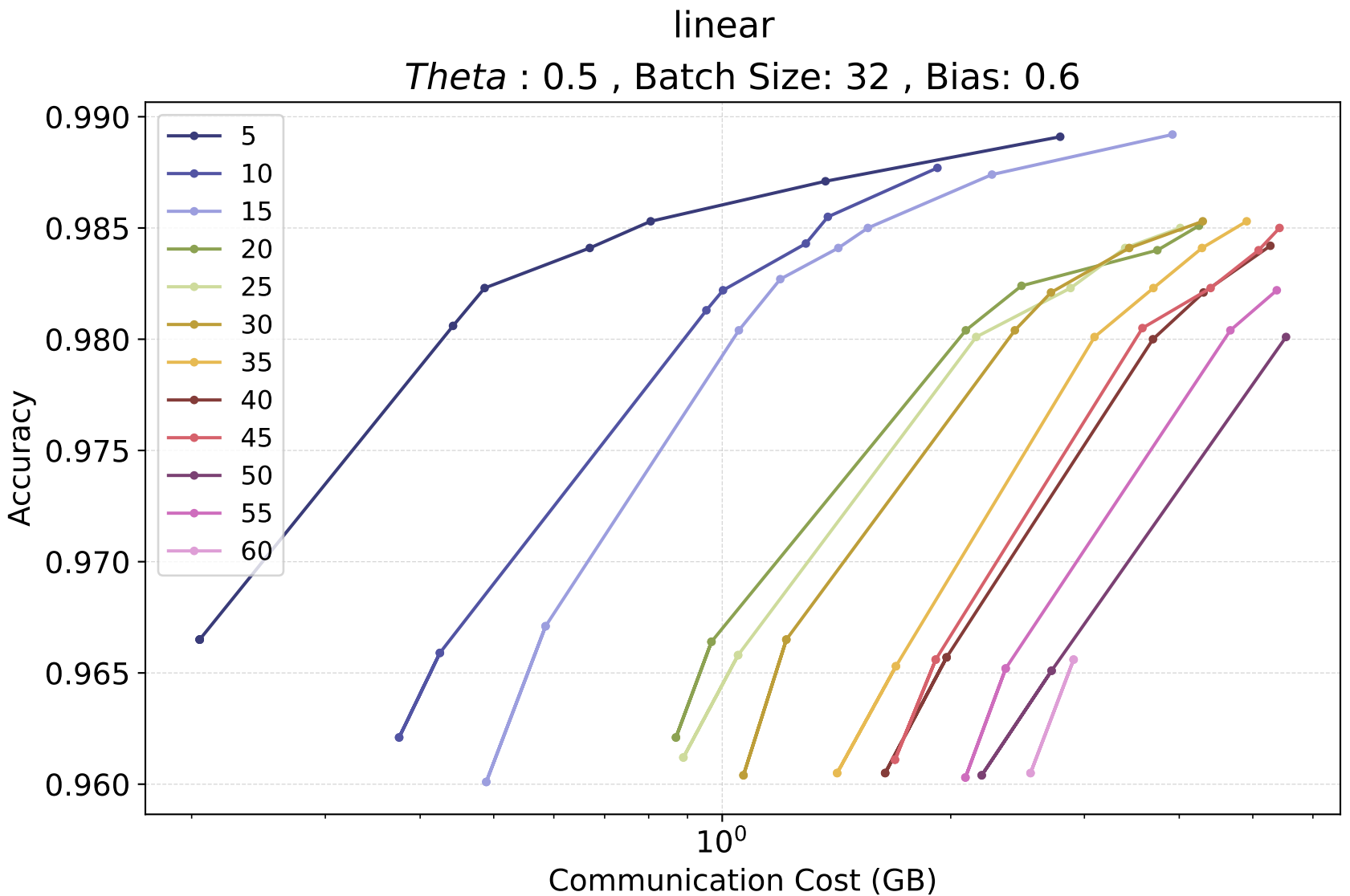

synchronous
Batch Size : 64 , Bias: 0.6
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
5
10
15
20
25
30
35
40
45
50
55
60

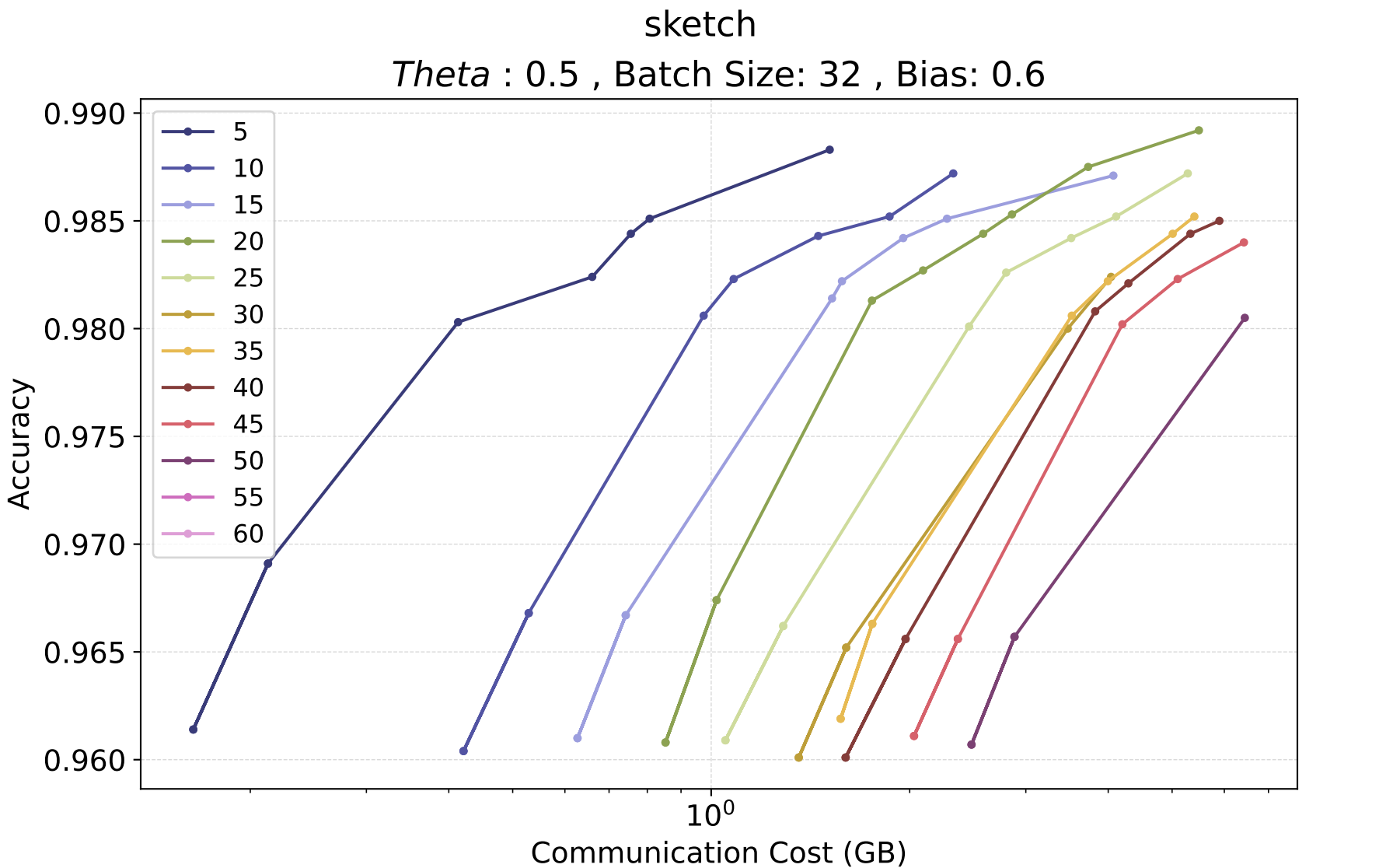

synchronous
Batch Size : 128 , Bias: 0.6
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
5
10
15
20
25
30
35
40
45
50
55
60

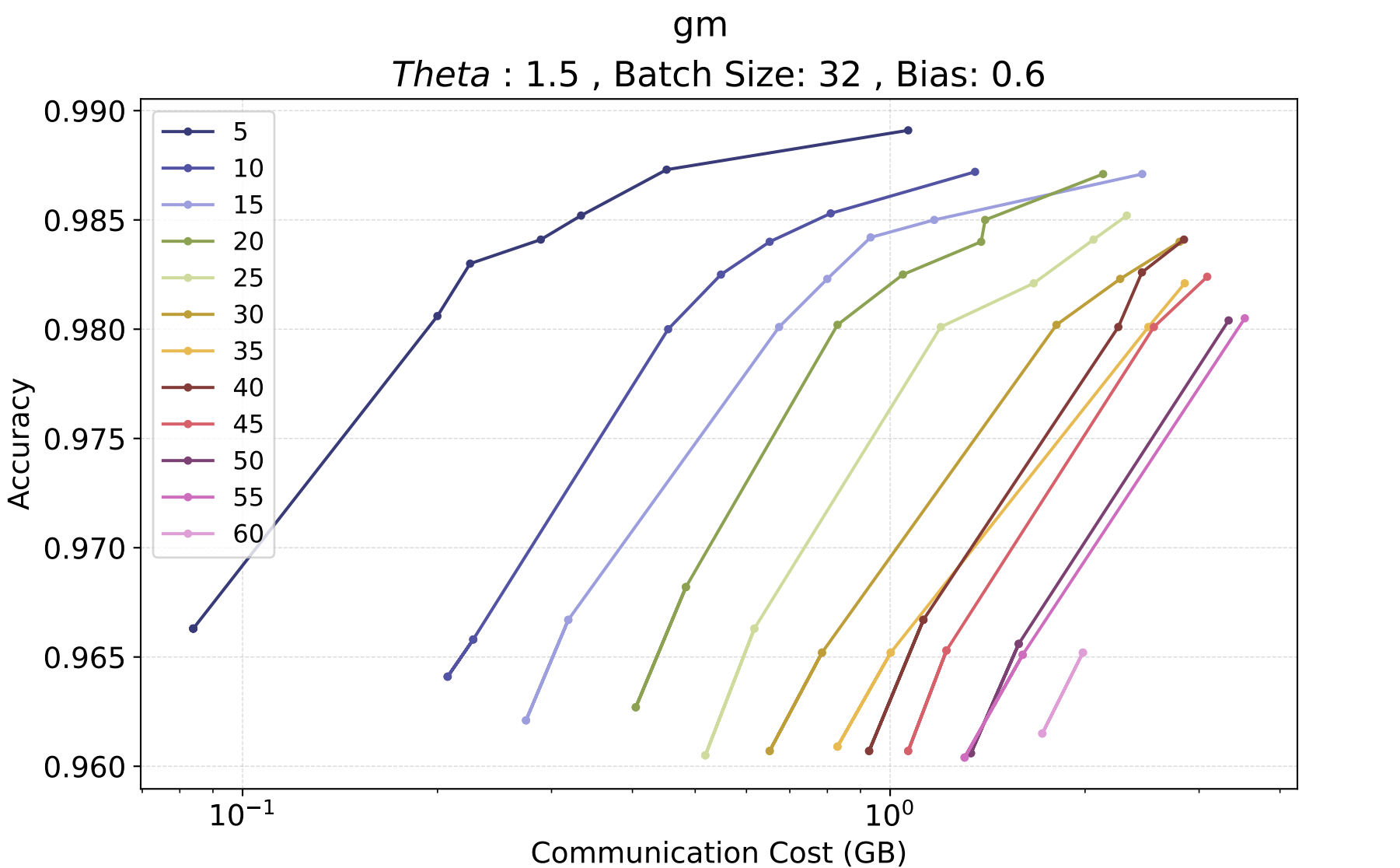

synchronous
Batch Size : 256 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^1
10^2
Communication Cost (GB)

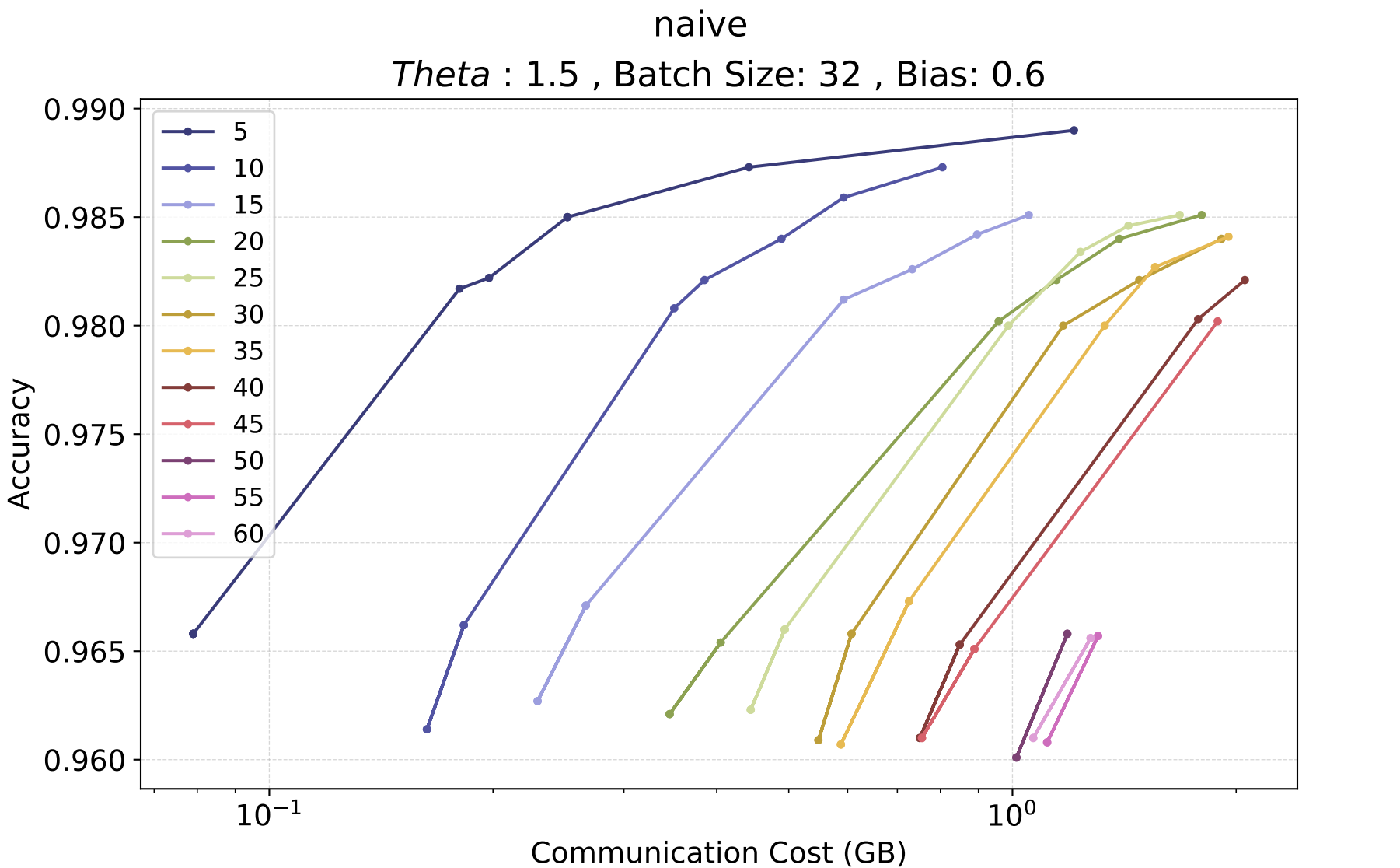

gm
Theta : 0.5 , Batch Size: 32 , Bias: 0.6
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

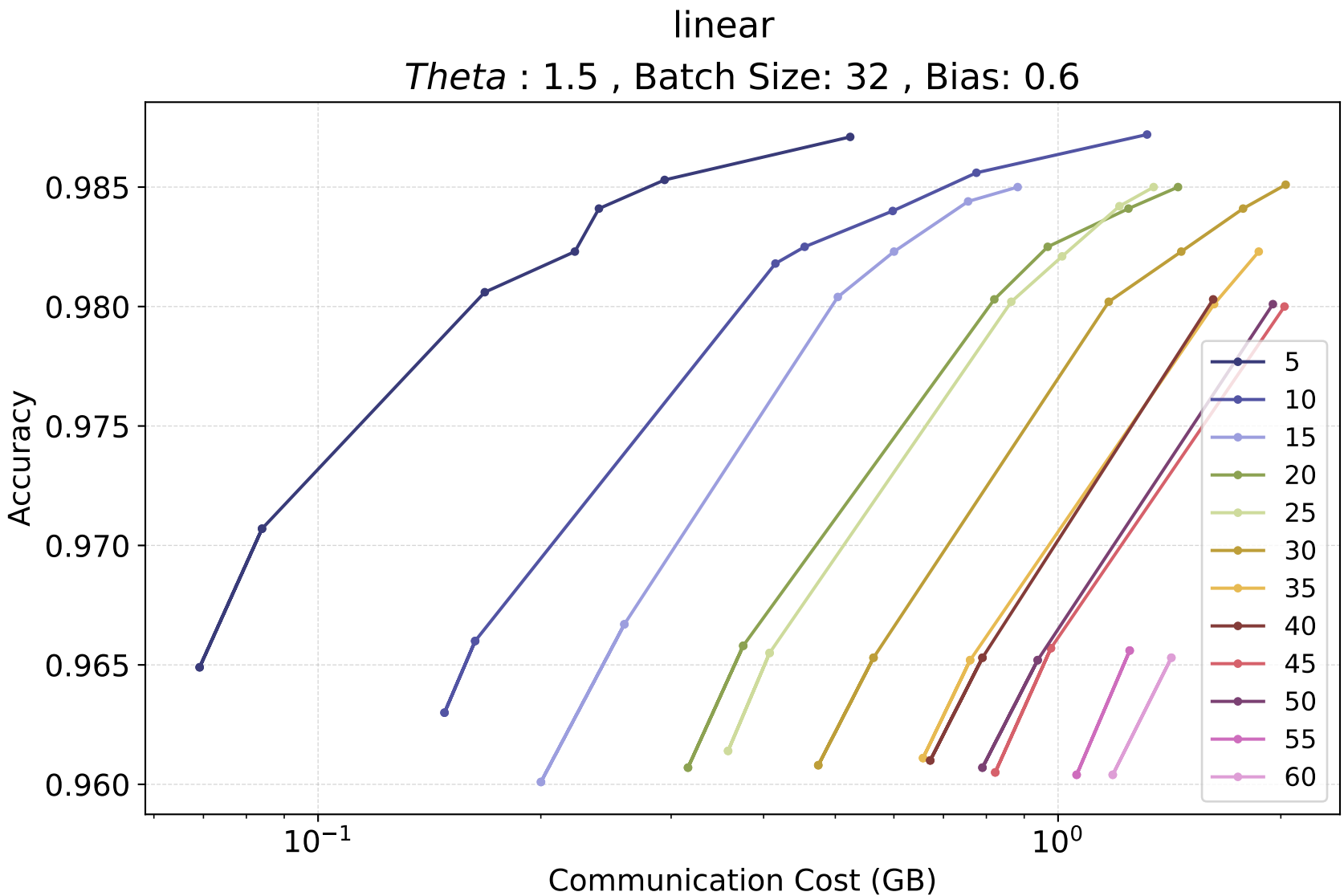

naive
Theta : 0.5 , Batch Size: 32 , Bias: 0.6
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^0
Communication Cost (GB)

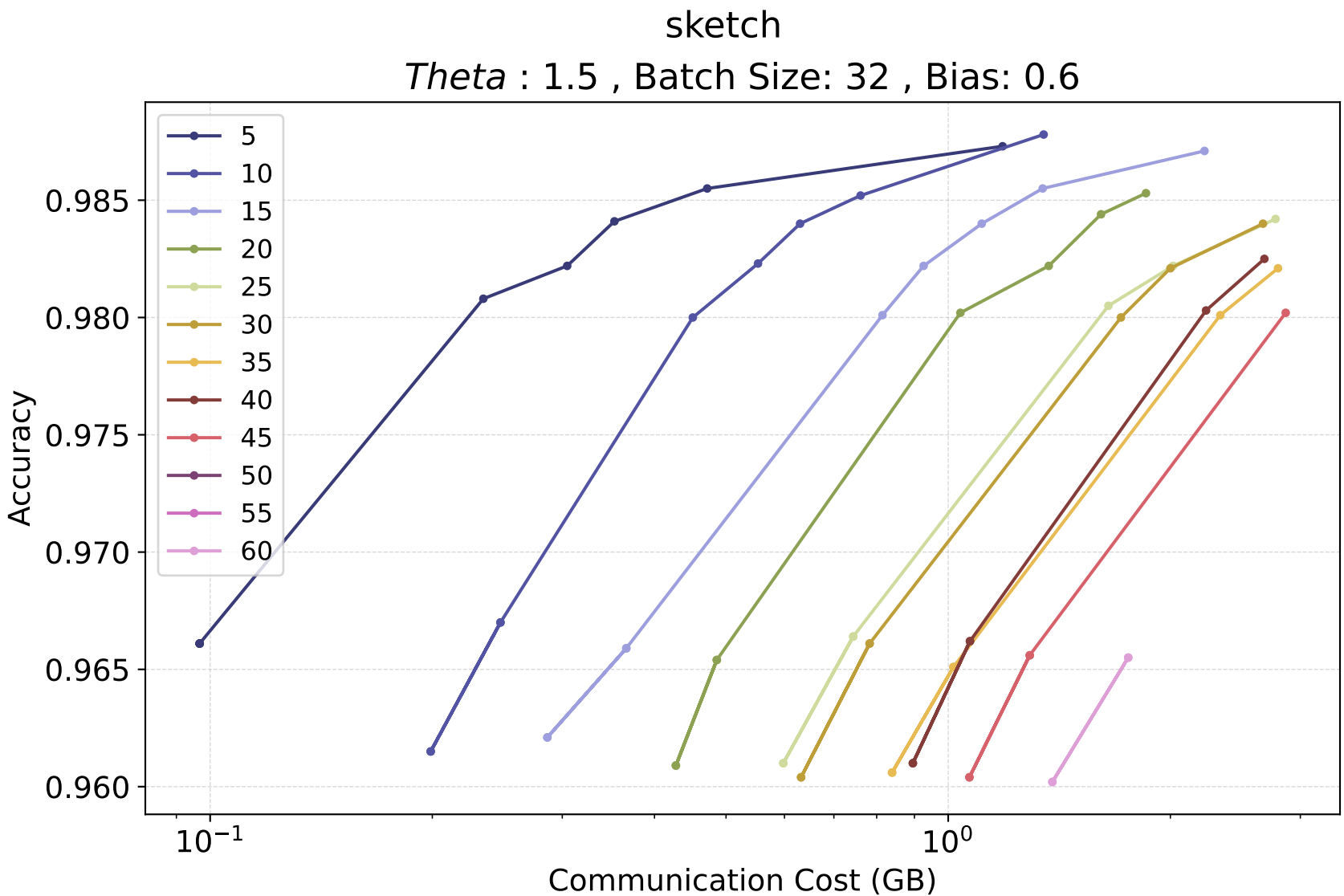

linear
Theta : 0.5 , Batch Size: 32 , Bias: 0.6
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^0
Communication Cost (GB)

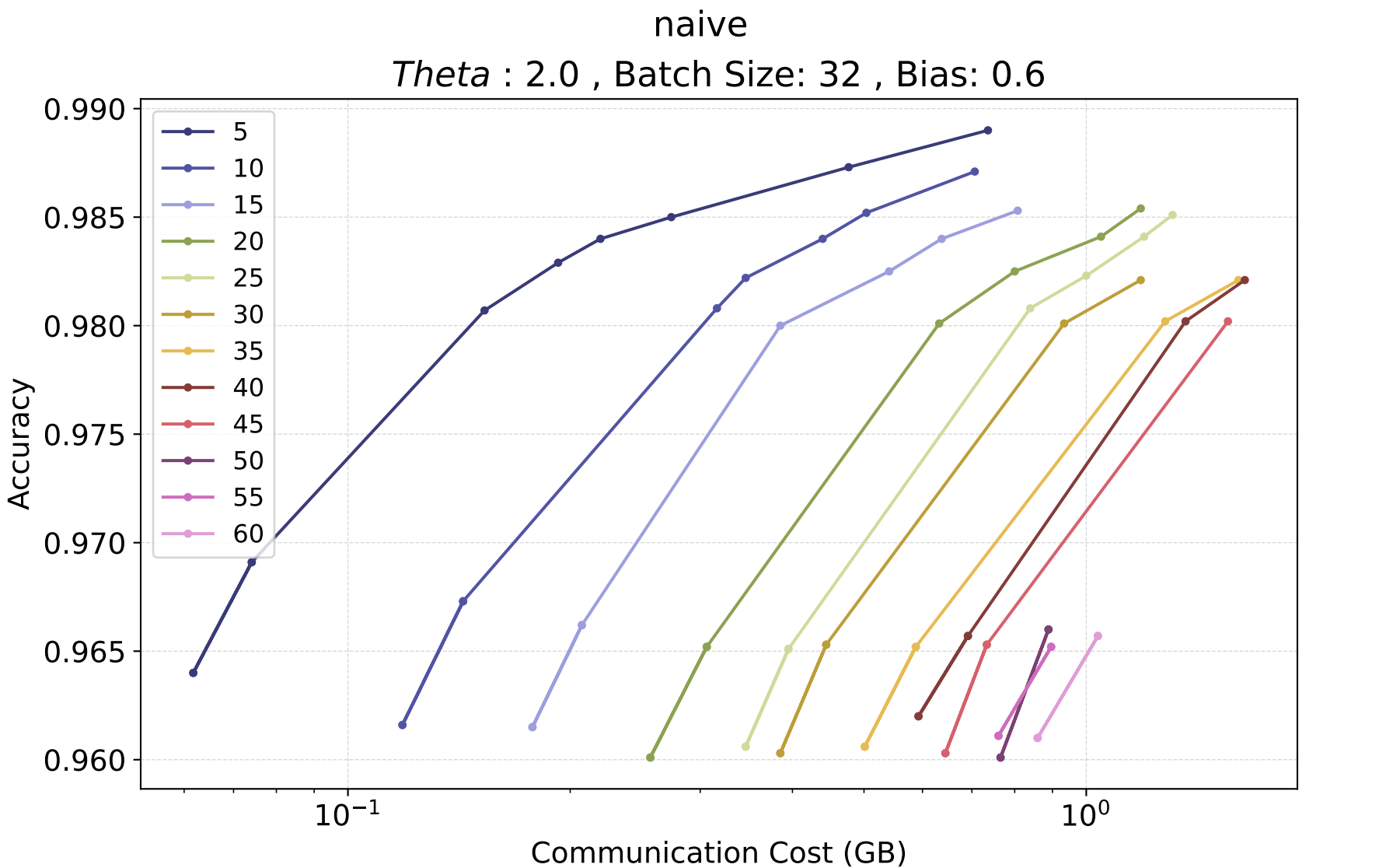

sketch
Theta : 0.5 , Batch Size: 32 , Bias: 0.6
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^0
Communication Cost (GB)

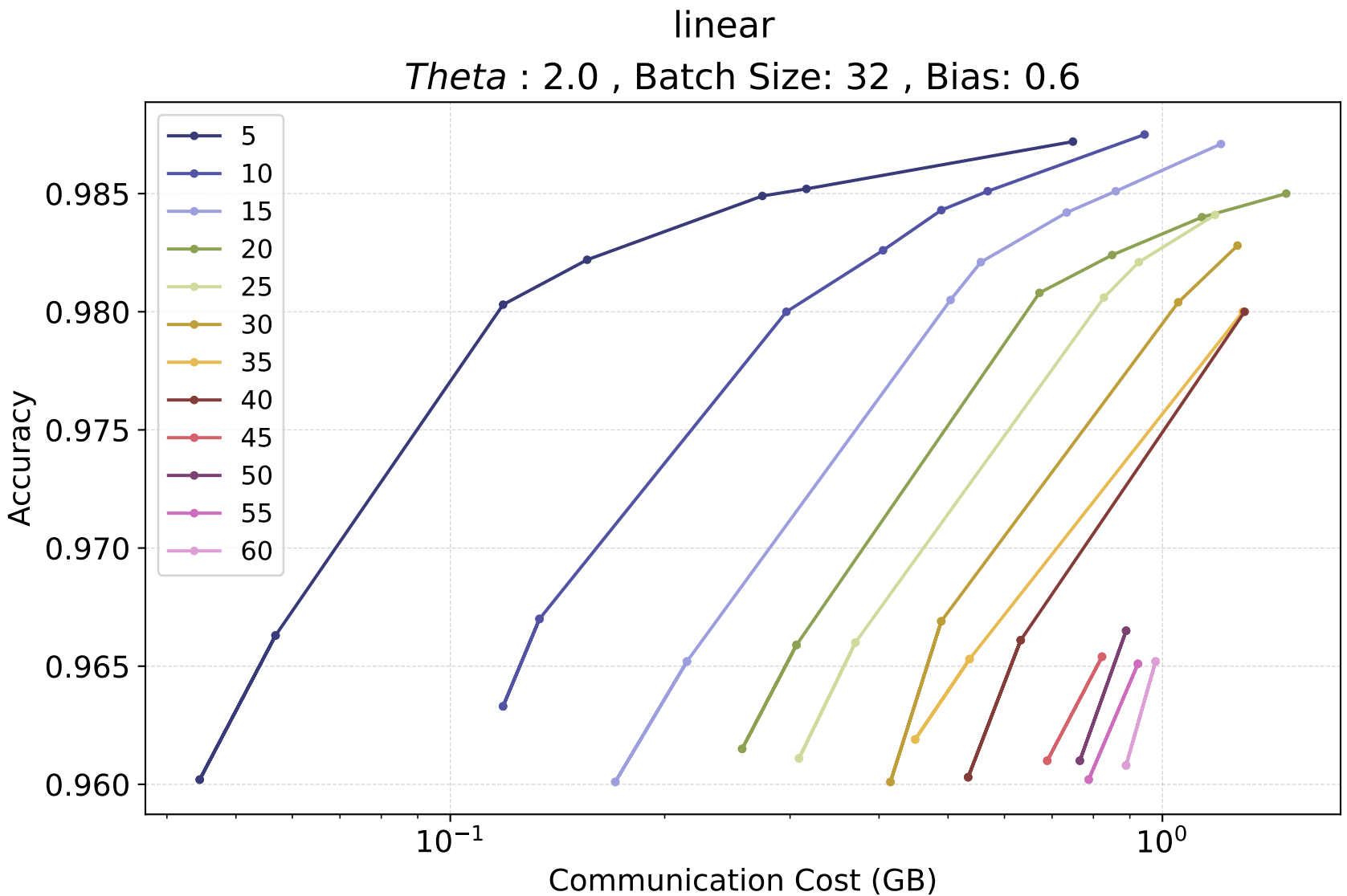

gm
Theta : 1.5 , Batch Size: 32 , Bias: 0.6
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60

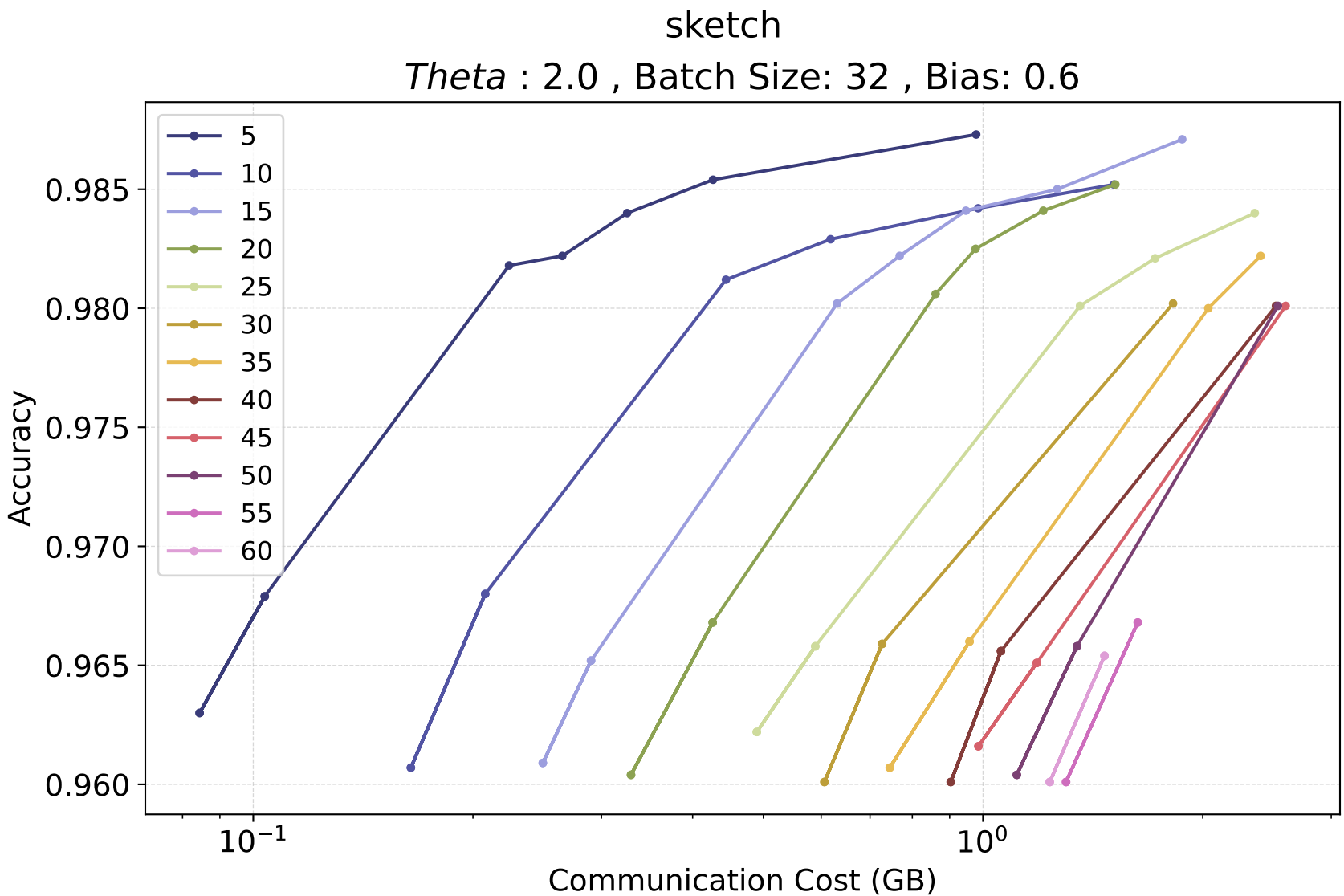

naive
Theta : 1.5 , Batch Size: 32 , Bias: 0.6
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60

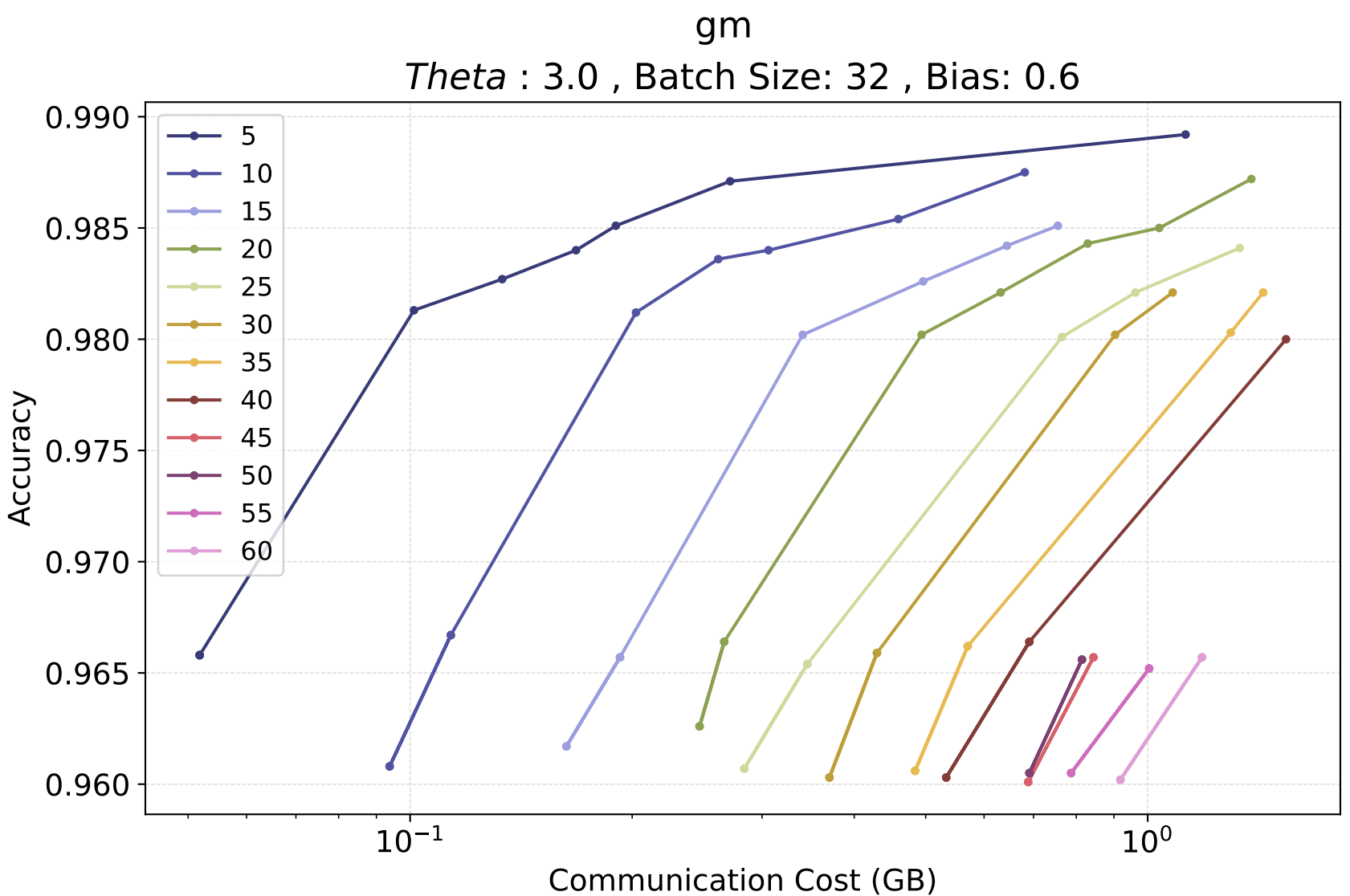

linear
Theta : 1.5 , Batch Size: 32 , Bias: 0.6
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

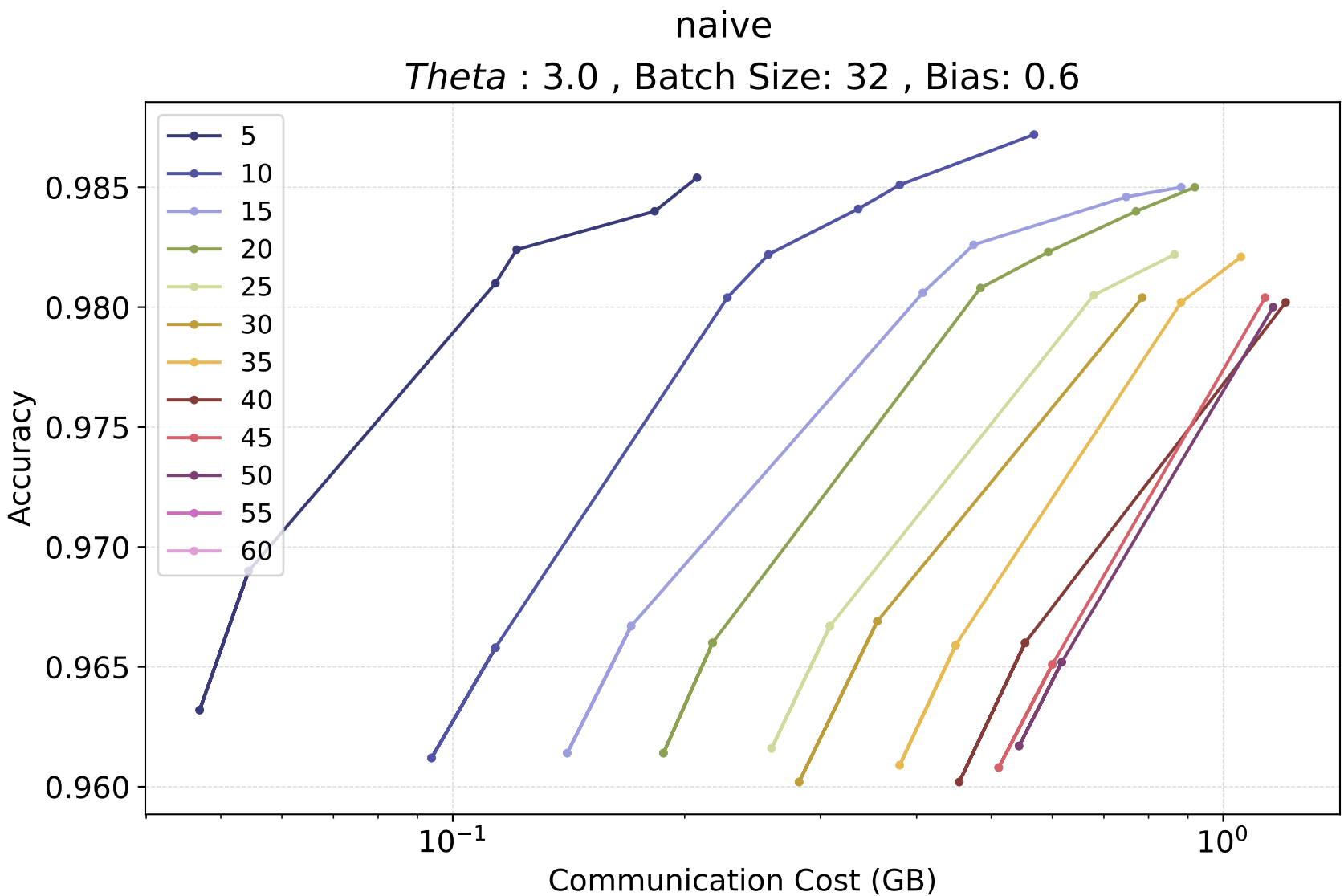

sketch
Theta : 1.5 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)


naive
Theta : 2.0 , Batch Size: 32 , Bias: 0.6
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

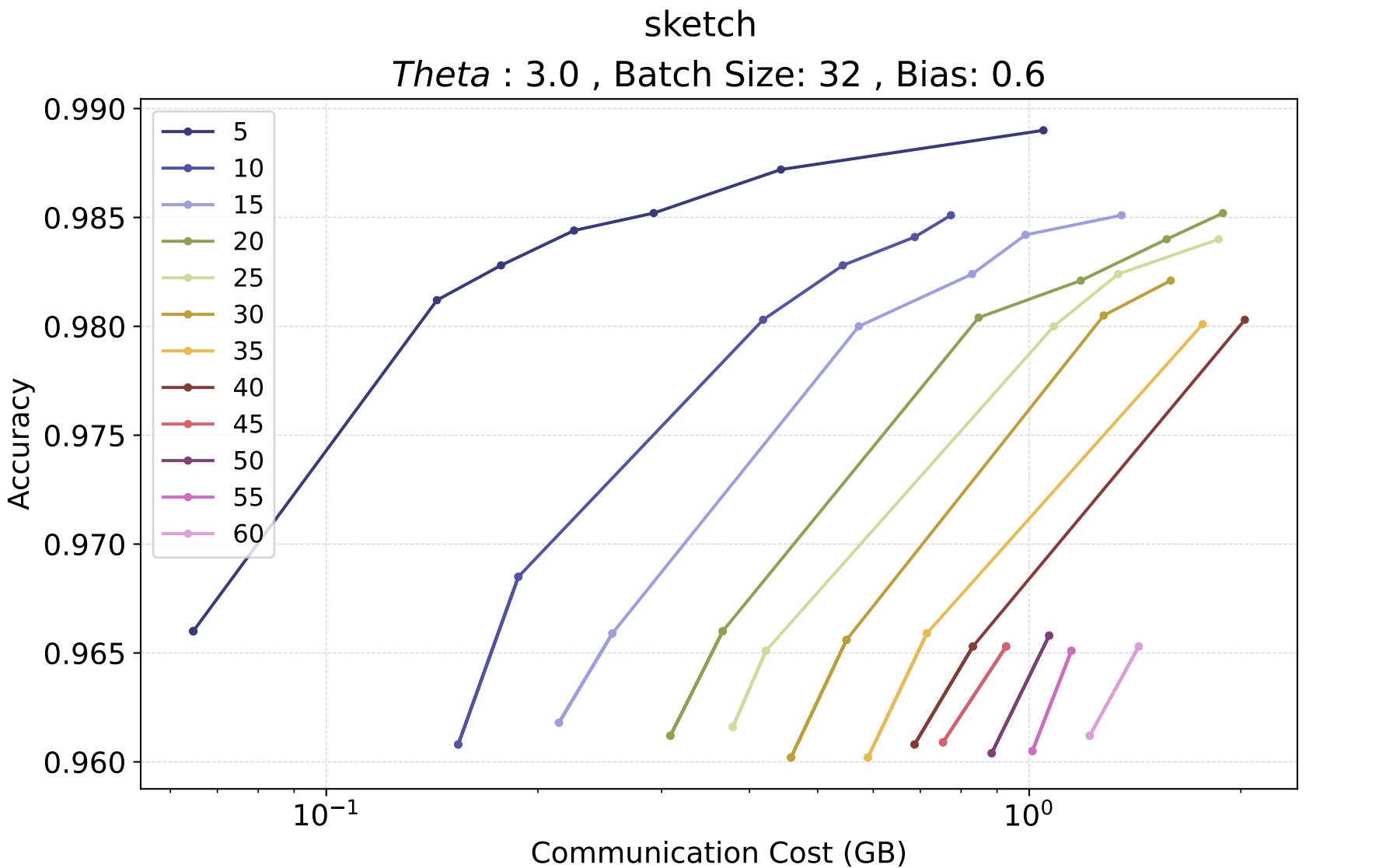

linear
Theta : 2.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)

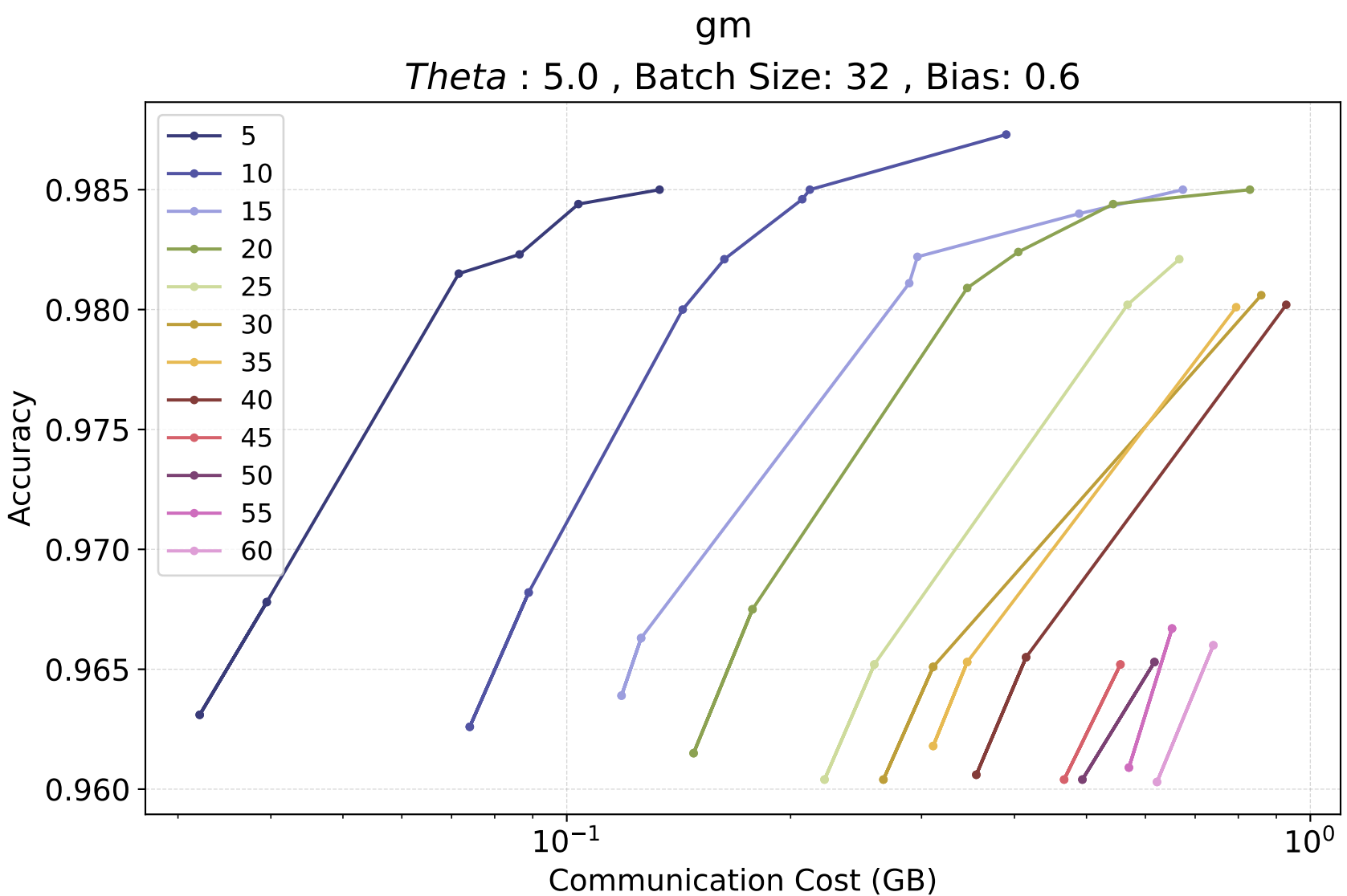

sketch
Theta : 2.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)

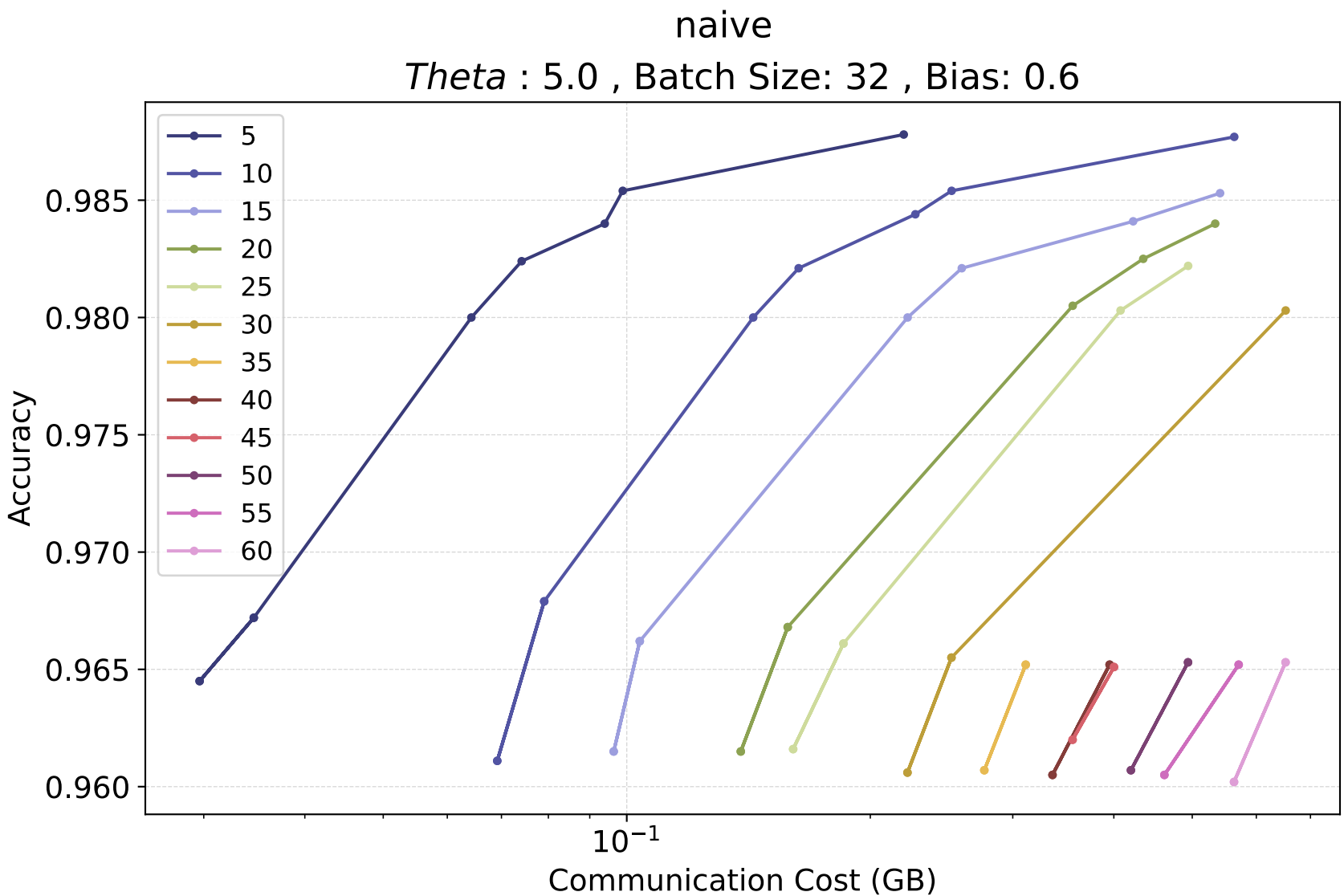

gm
Theta : 3.0 , Batch Size: 32 , Bias: 0.6
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60

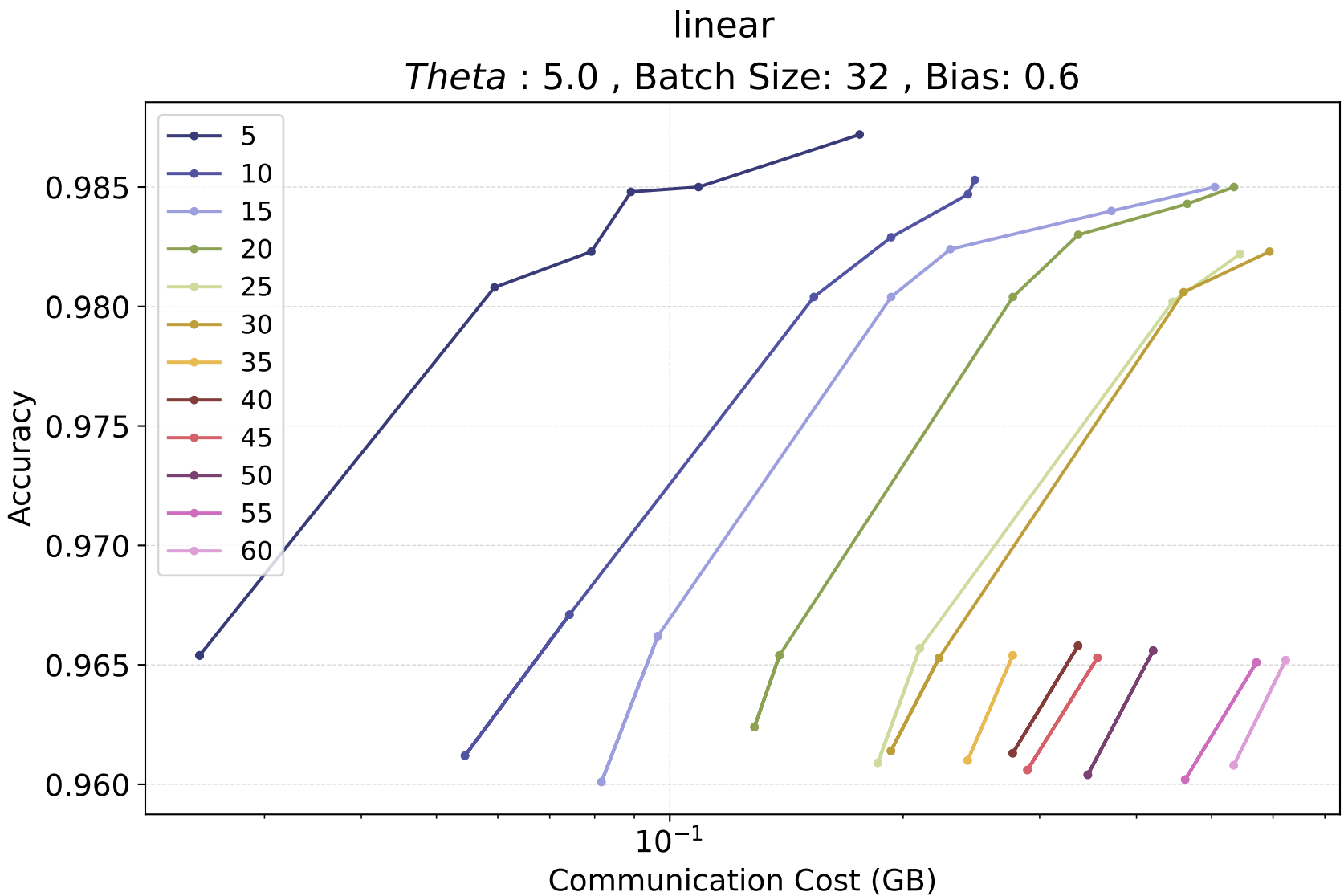

naive
Theta : 3.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)

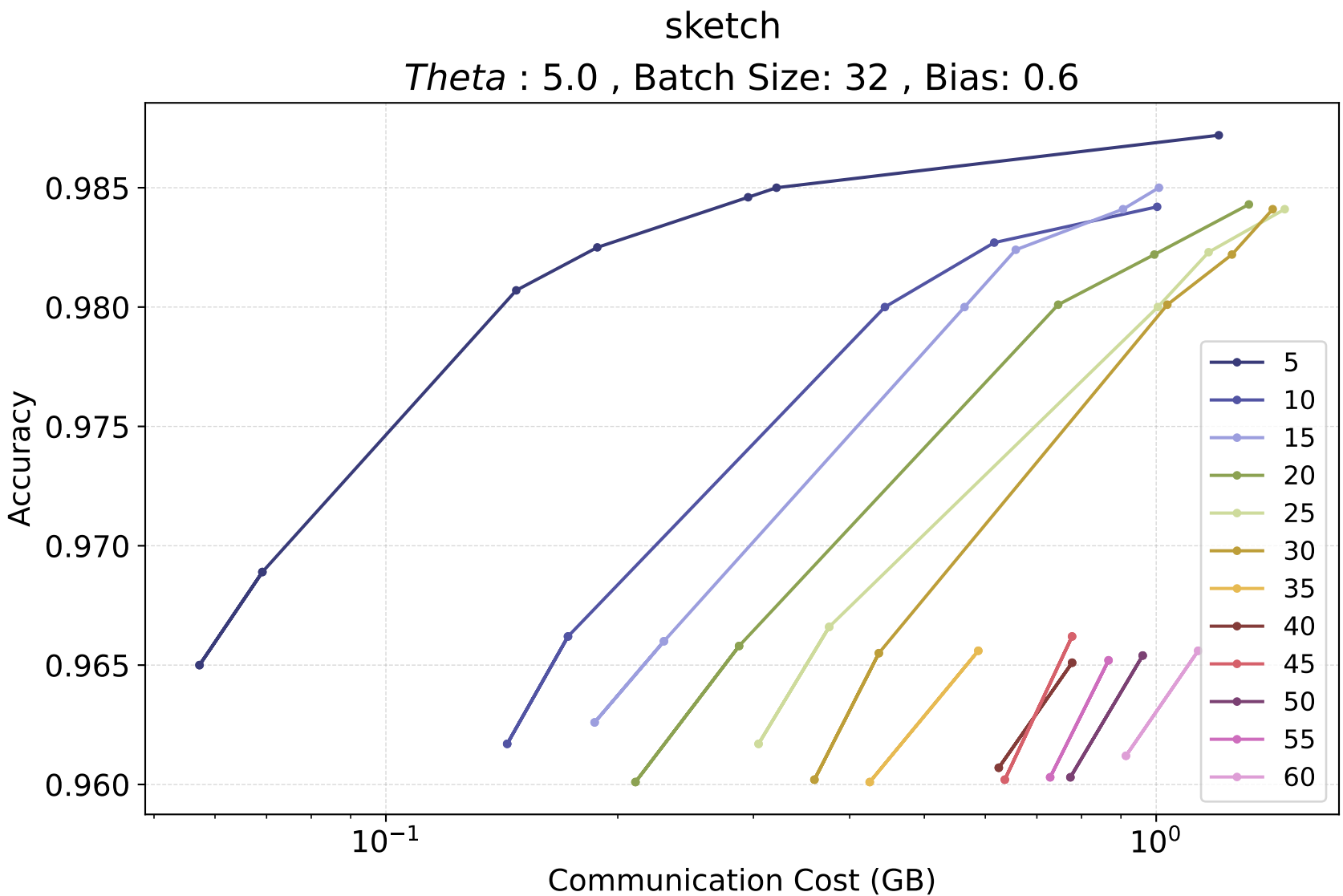

linear
Theta : 3.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)


sketch
Theta : 3.0 , Batch Size: 32 , Bias: 0.6
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60


gm
Theta : 5.0 , Batch Size: 32 , Bias: 0.6
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


naive
Theta : 5.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)

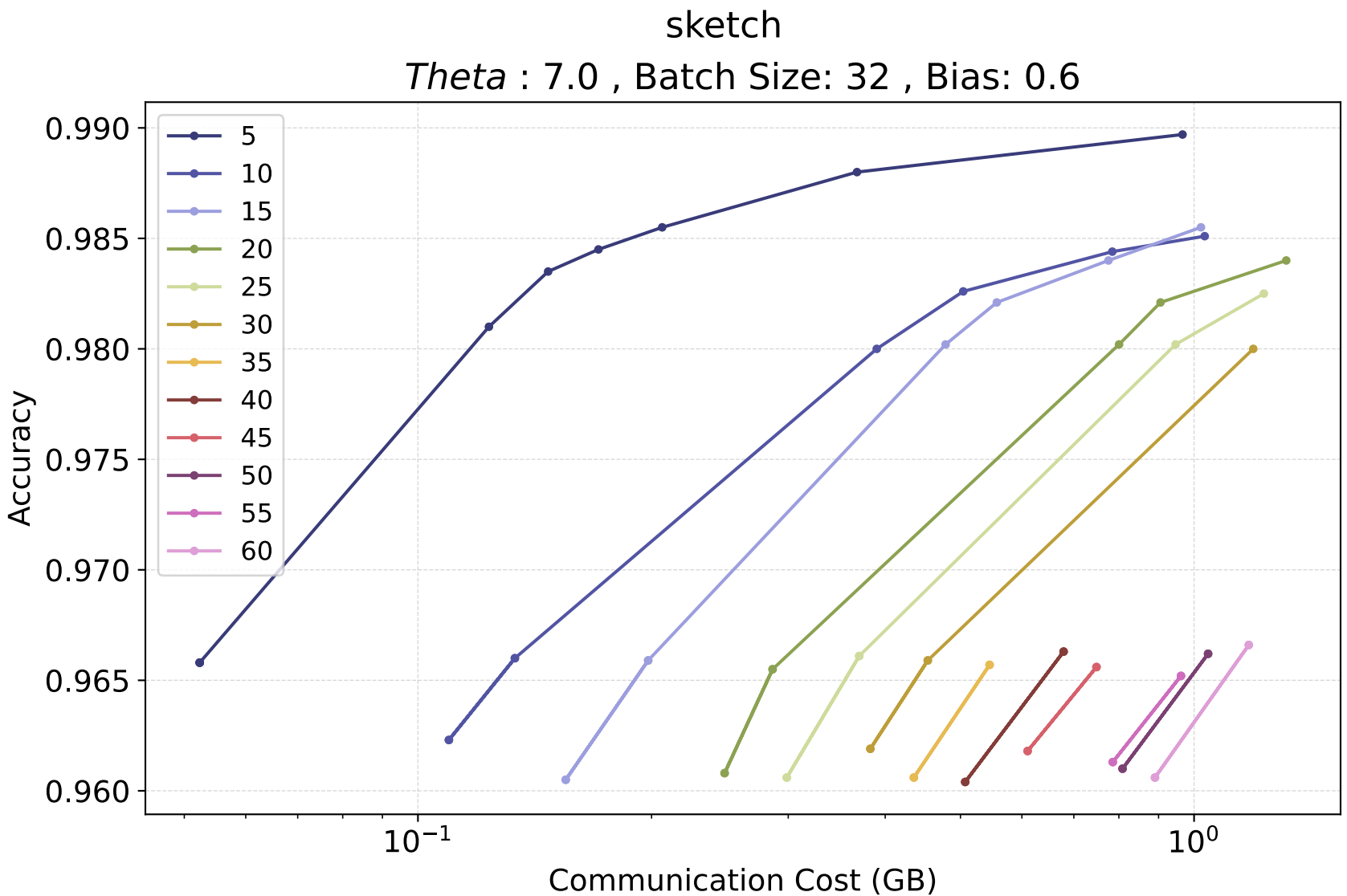

linear
Theta : 5.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)

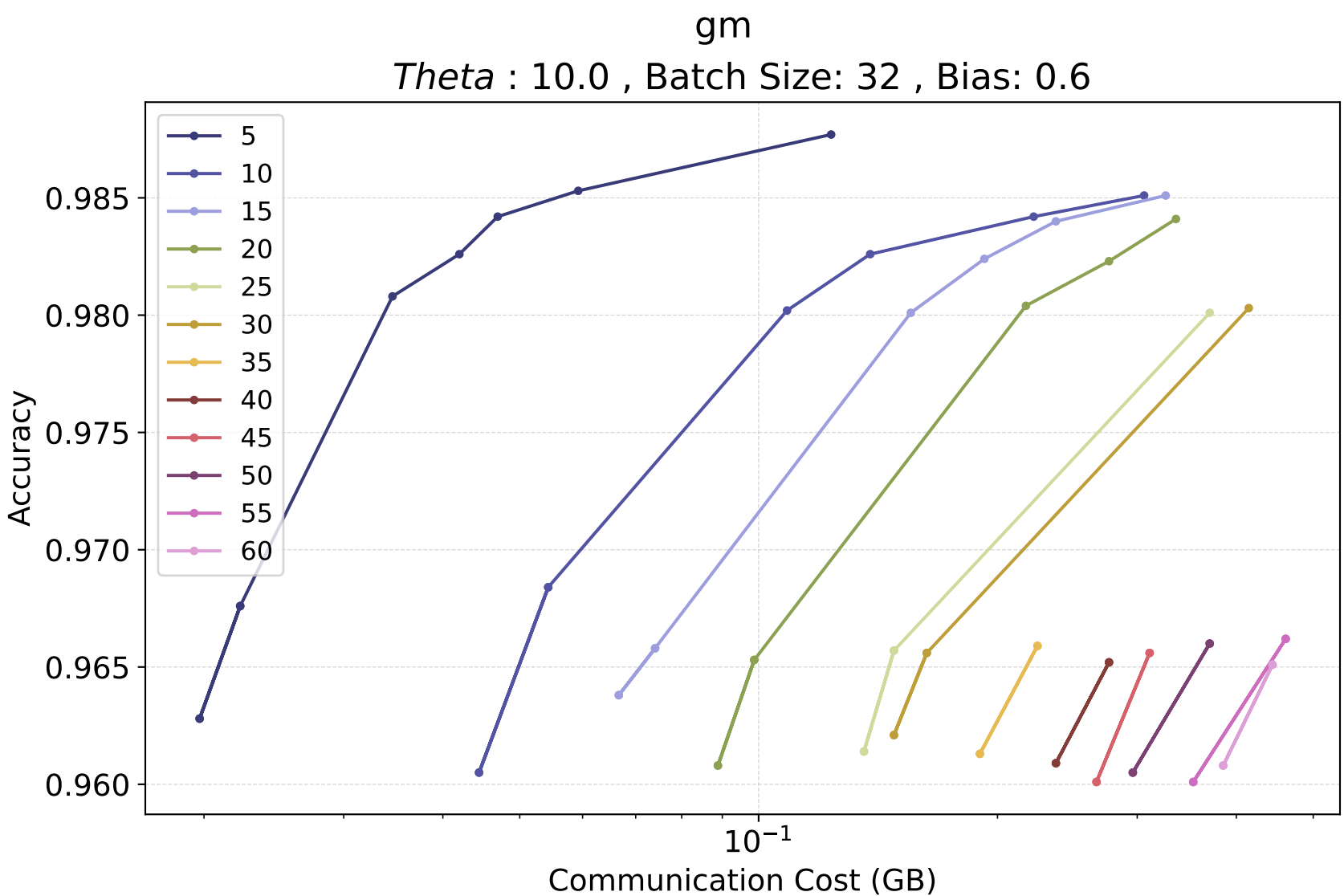

sketch
Theta : 5.0 , Batch Size: 32 , Bias: 0.6
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

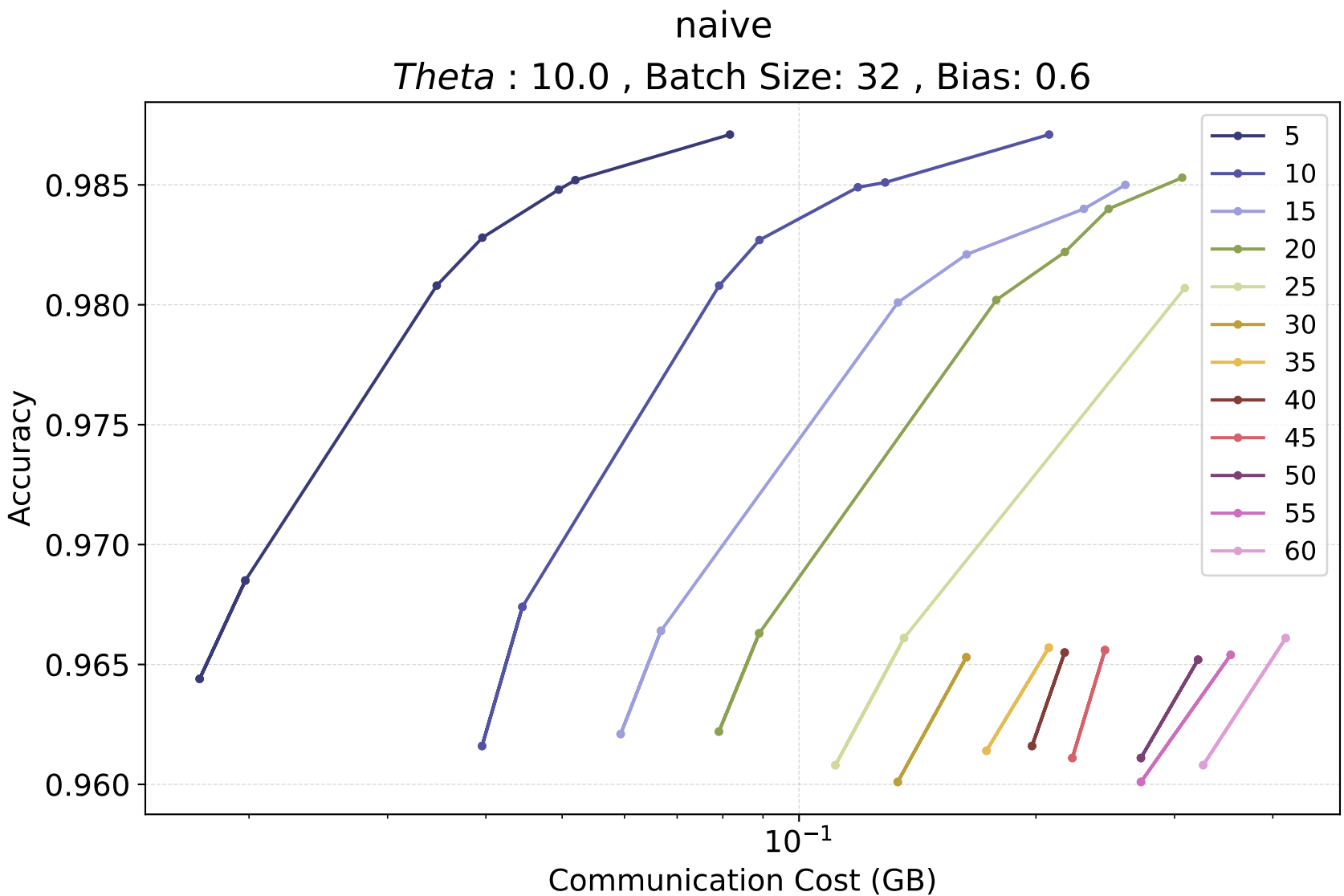

gm
Theta : 7.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)

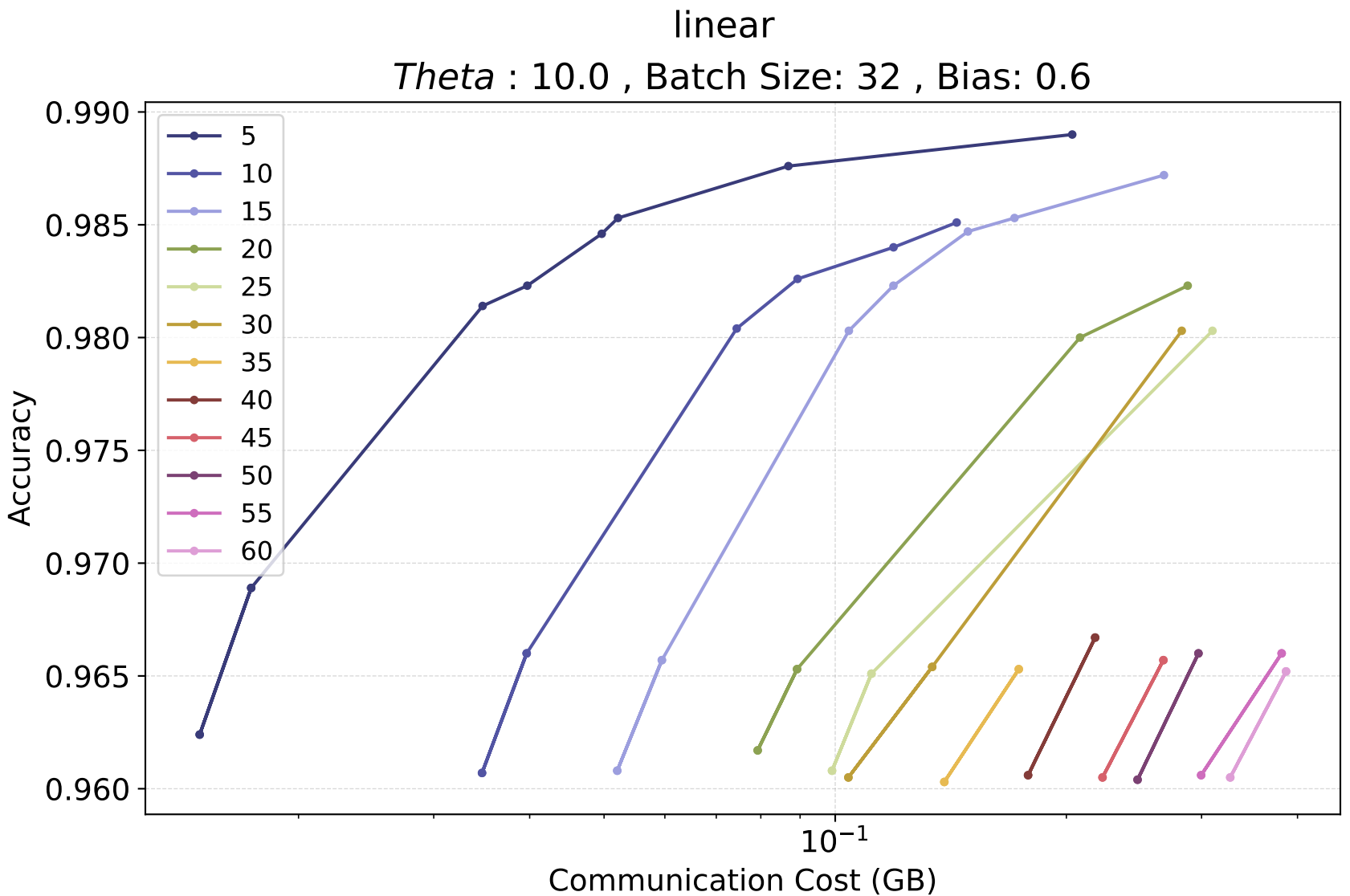

naive
Theta : 7.0 , Batch Size: 32 , Bias: 0.6
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

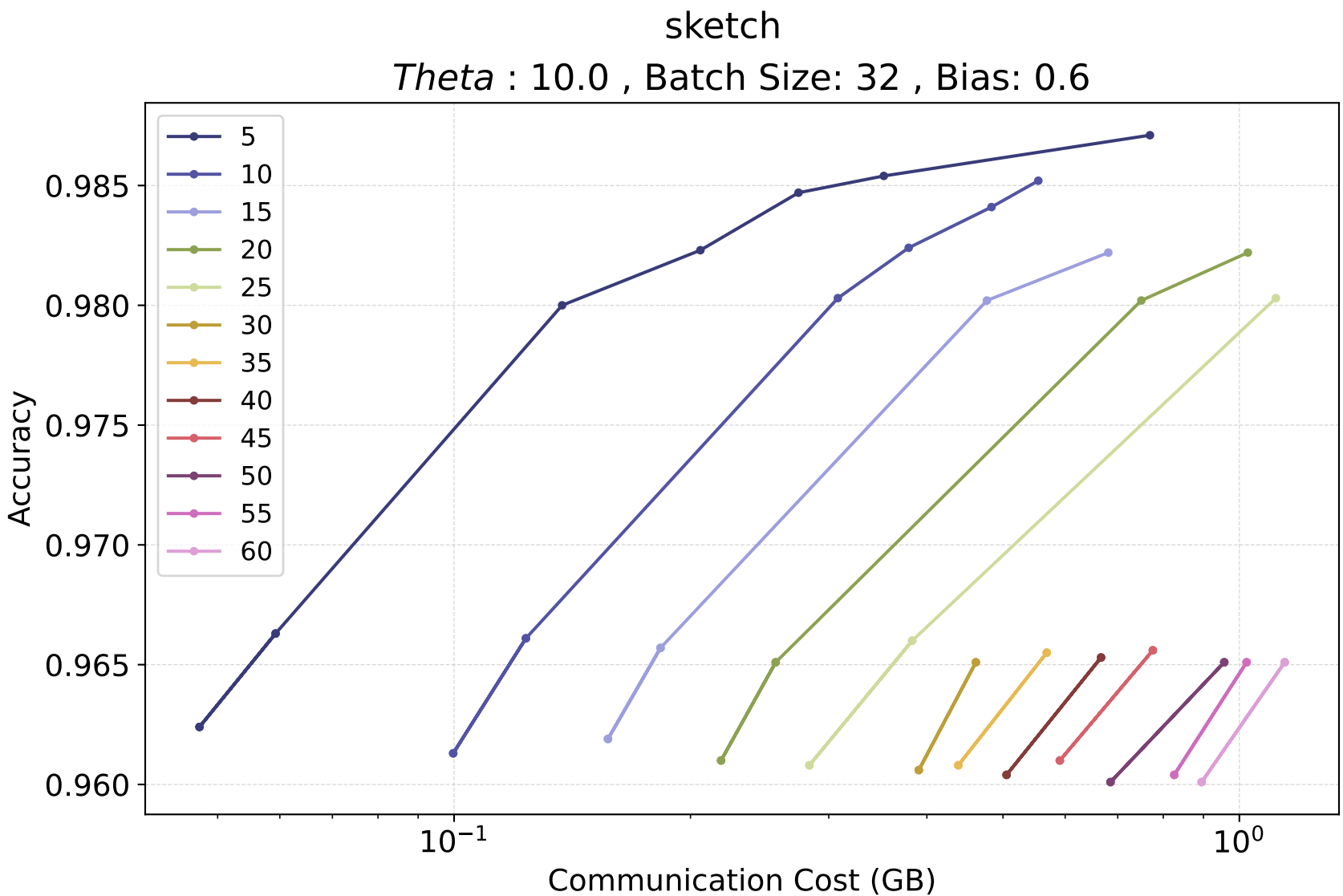

linear
Theta : 7.0 , Batch Size: 32 , Bias: 0.6
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)

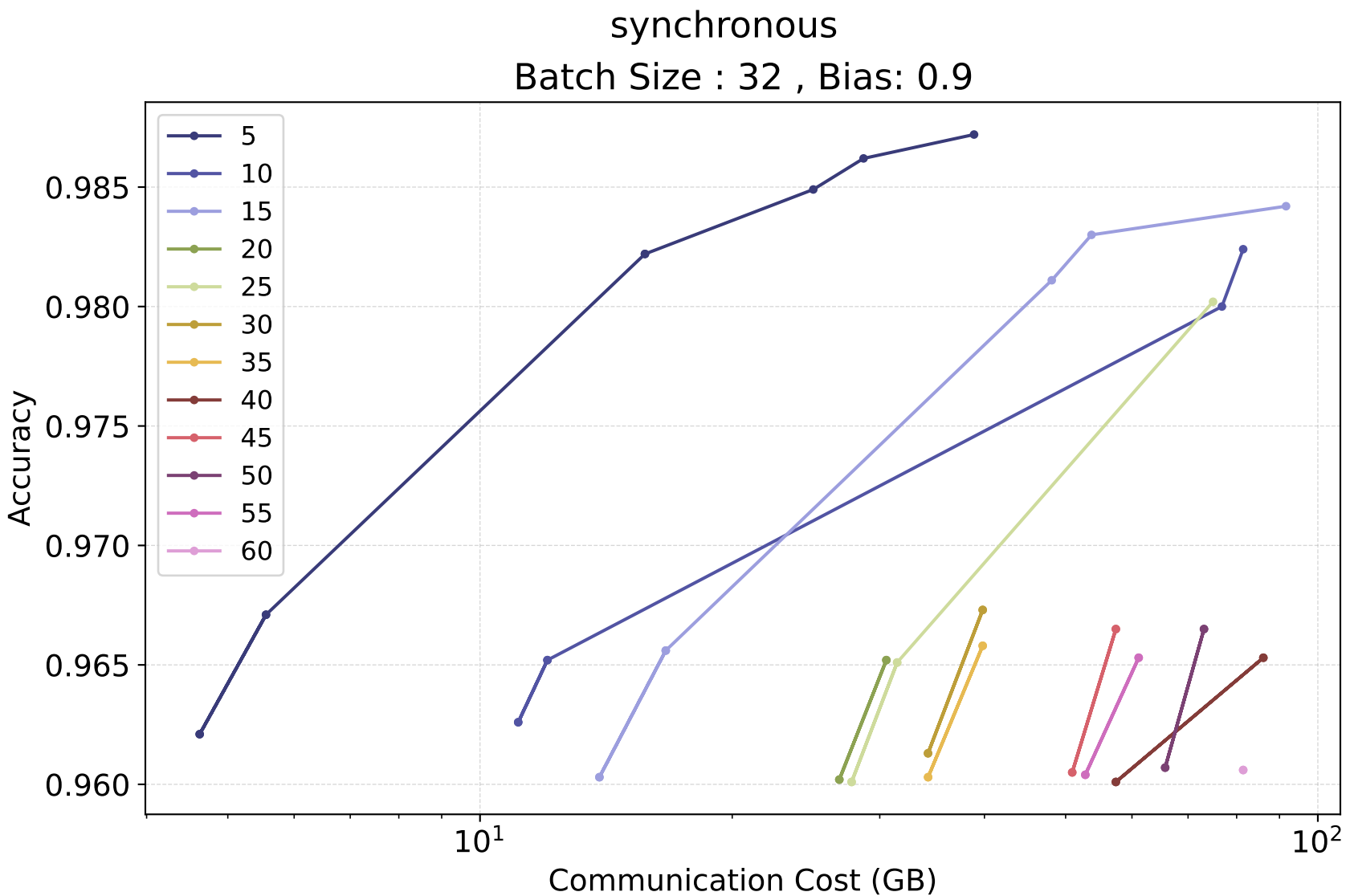

sketch
Theta : 7.0 , Batch Size: 32 , Bias: 0.6
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

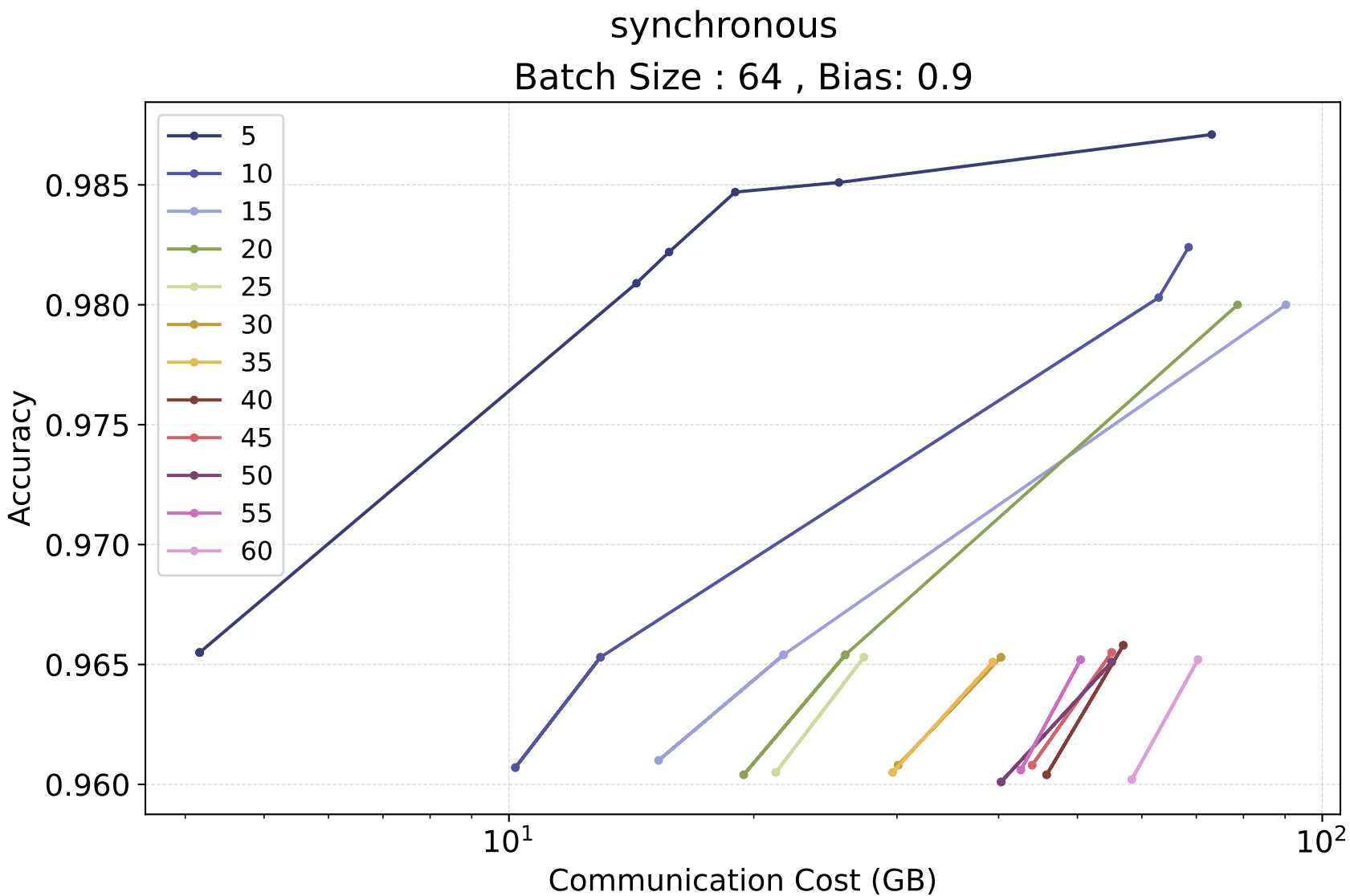

gm
Theta : 10.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)

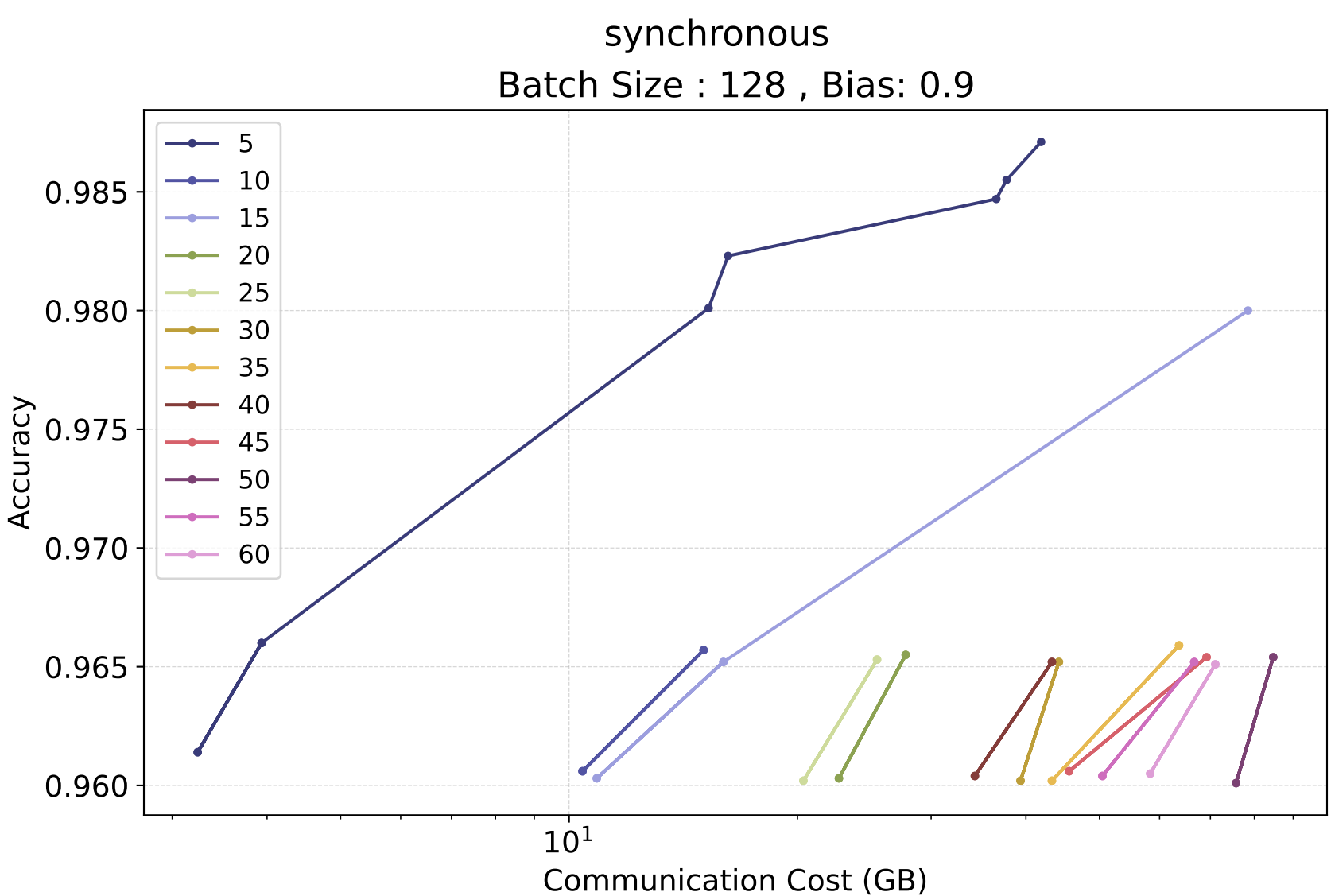

naive
Theta : 10.0 , Batch Size: 32 , Bias: 0.6
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

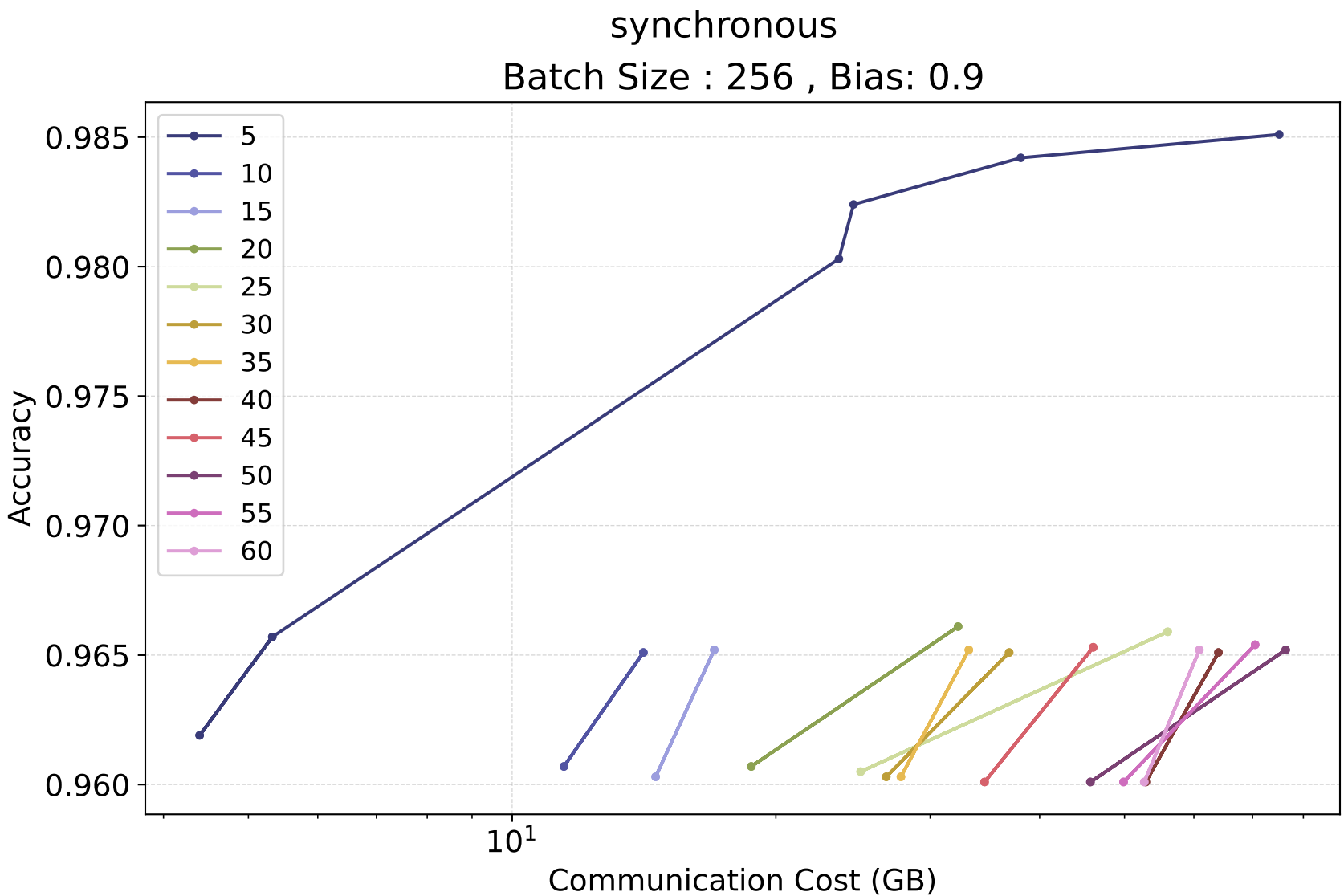

linear
Theta : 10.0 , Batch Size: 32 , Bias: 0.6
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)

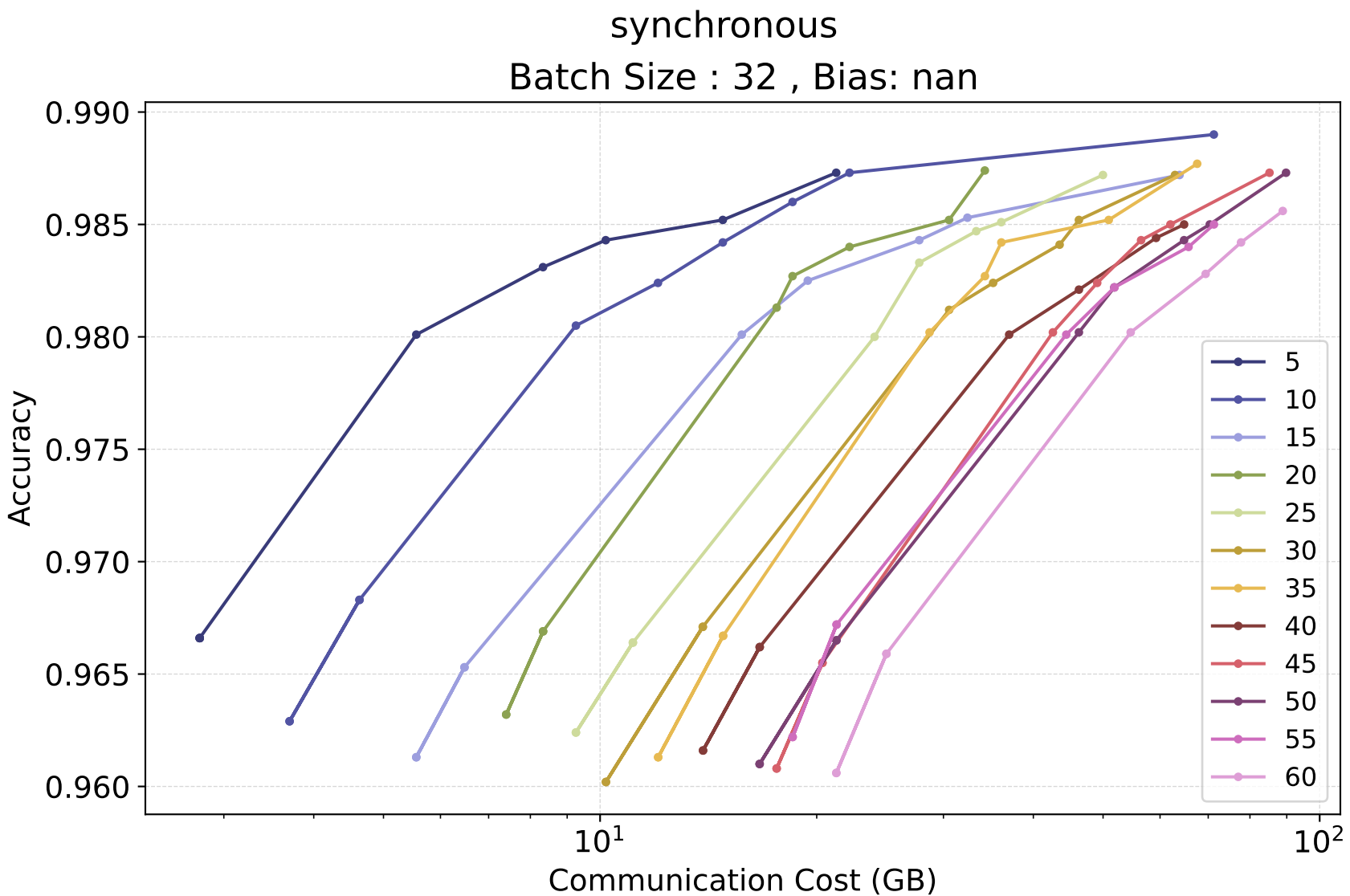

sketch
Theta : 10.0 , Batch Size: 32 , Bias: 0.6
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)

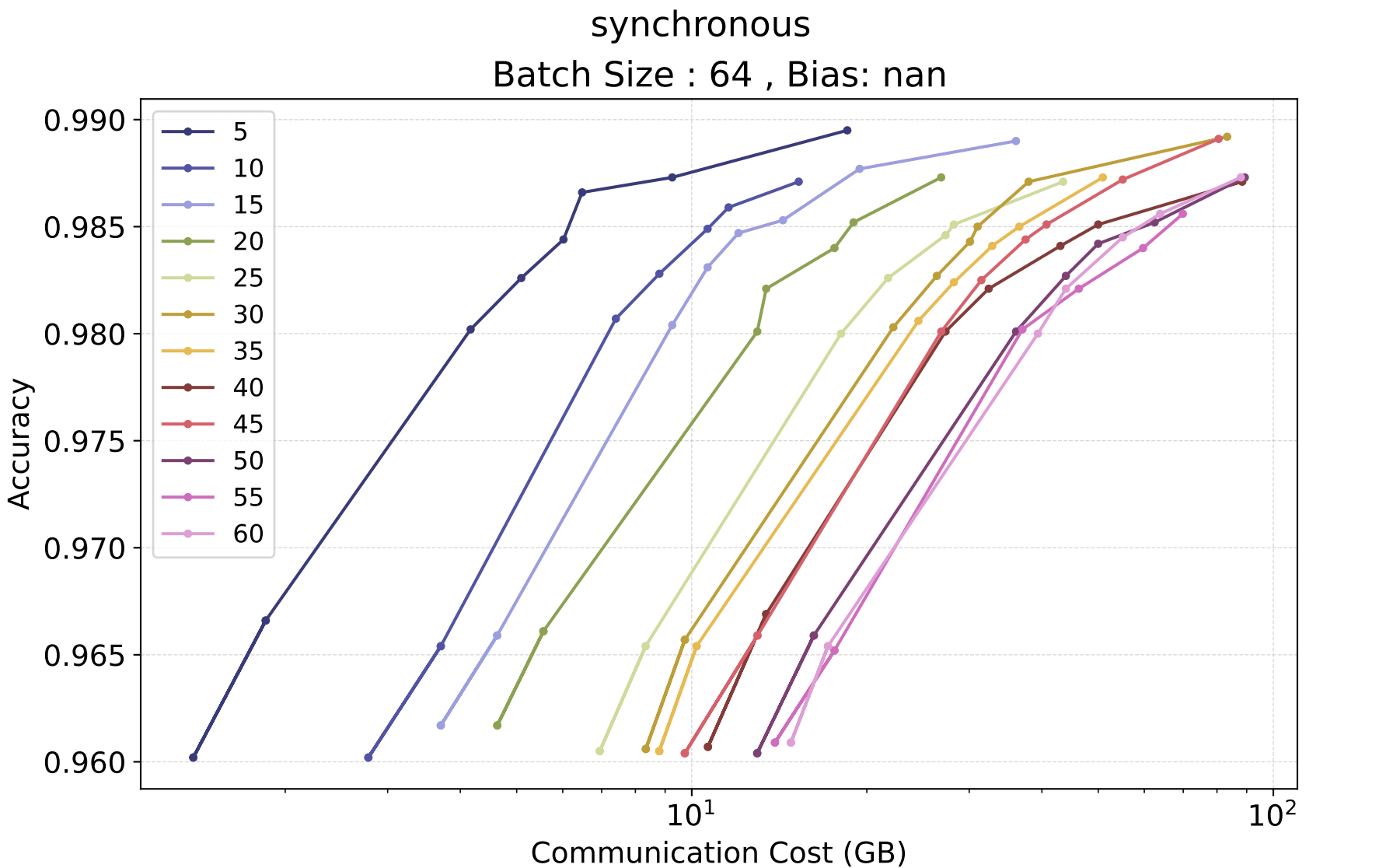

synchronous
Batch Size : 32 , Bias: 0.9
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^1
10^2
Communication Cost (GB)

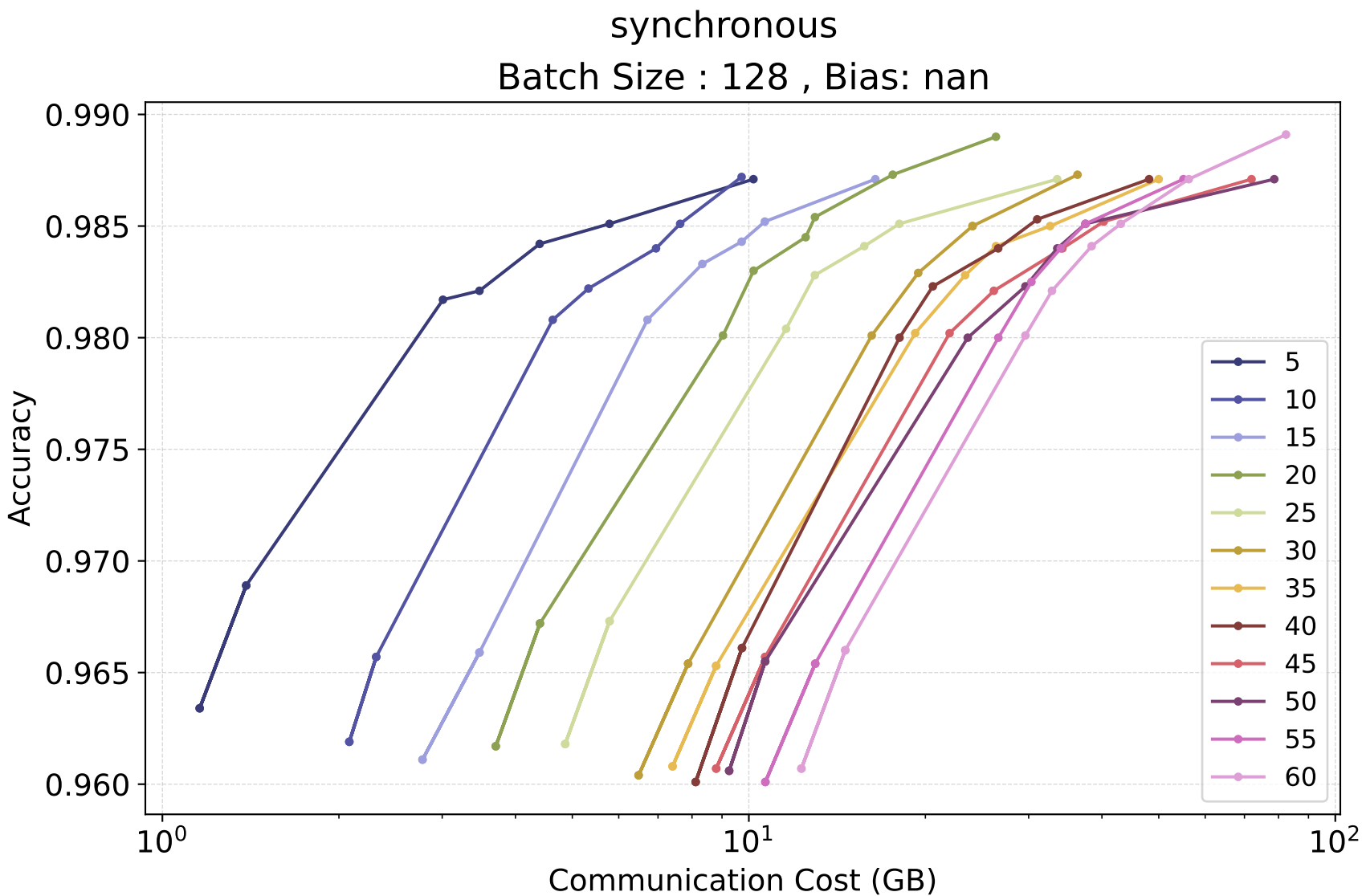

synchronous
Batch Size : 64 , Bias: 0.9
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

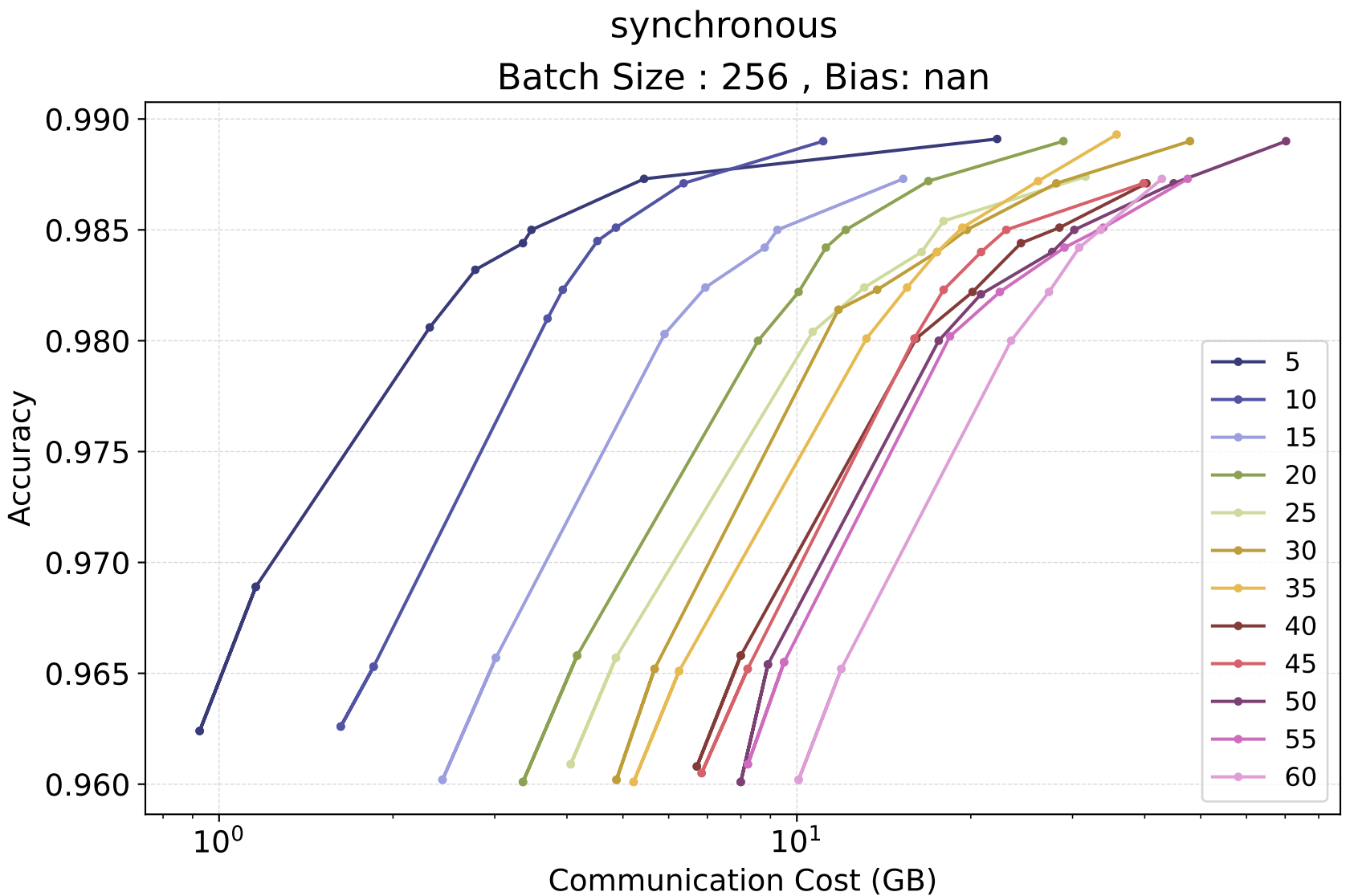

synchronous
Batch Size : 128 , Bias: 0.9
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^1
Communication Cost (GB)

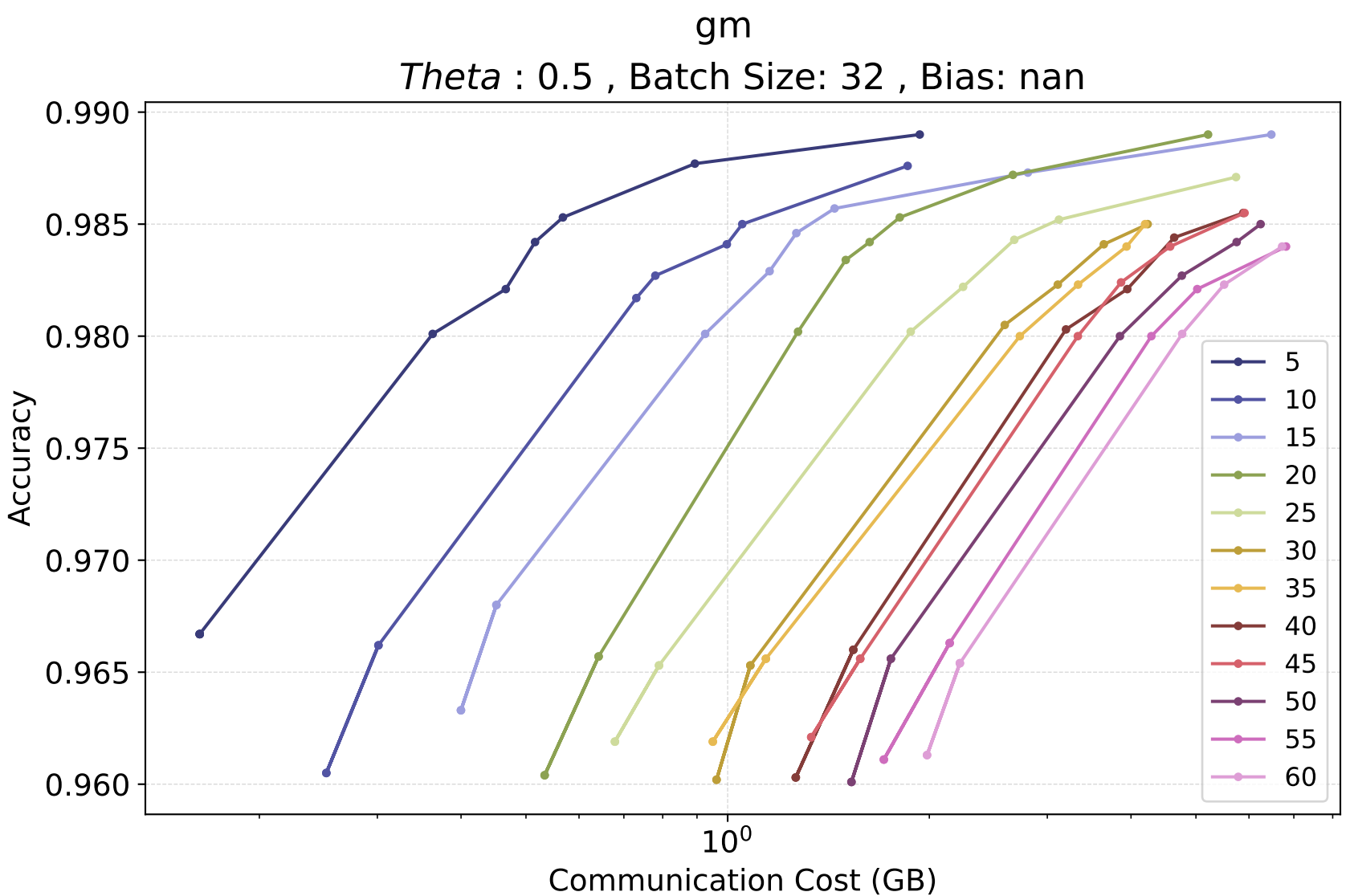

synchronous
Batch Size : 256 , Bias: 0.9
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

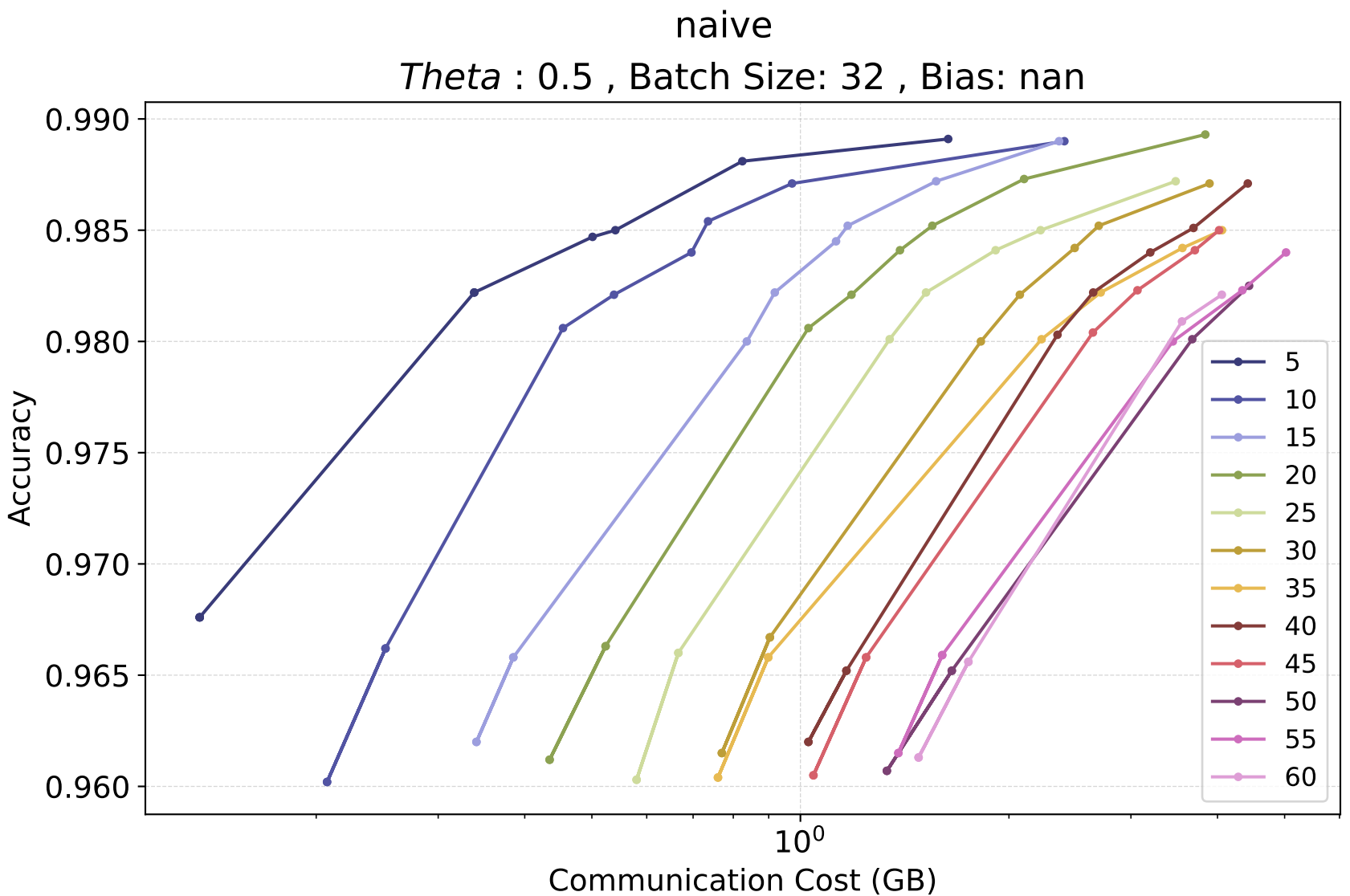

synchronous
Batch Size : 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

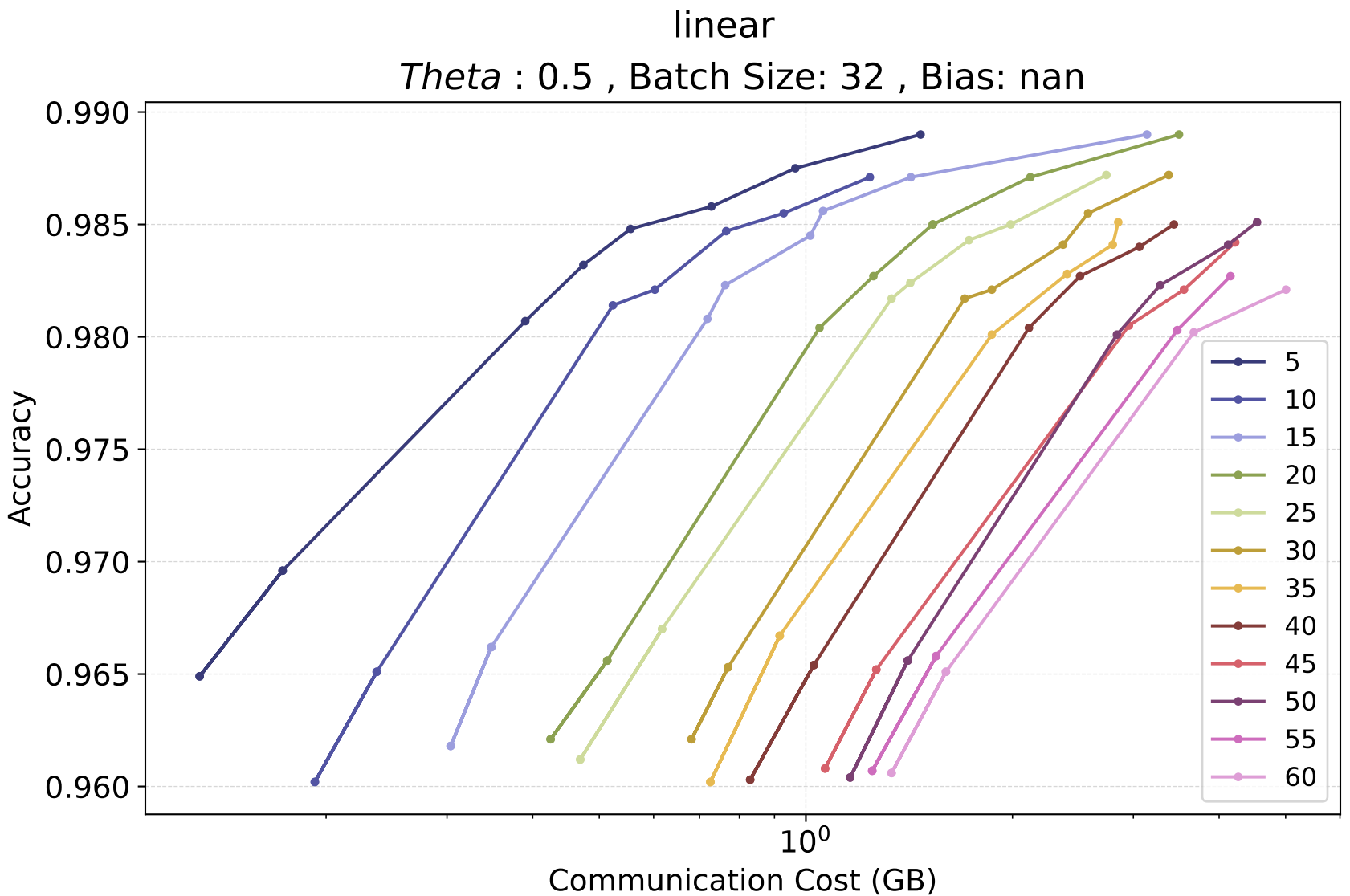

synchronous
Batch Size : 64 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^1
10^2
Communication Cost (GB)

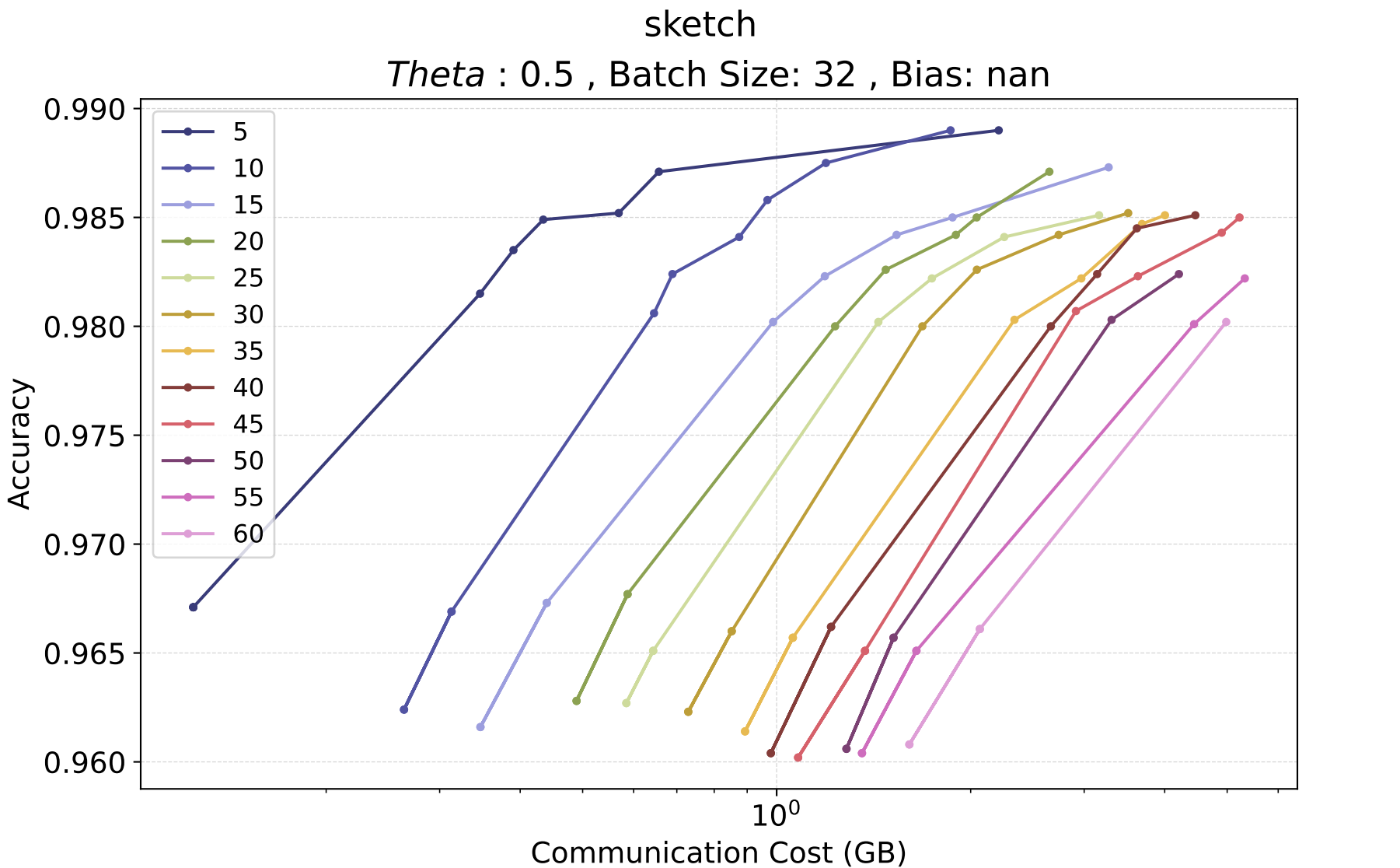

synchronous
Batch Size : 128 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

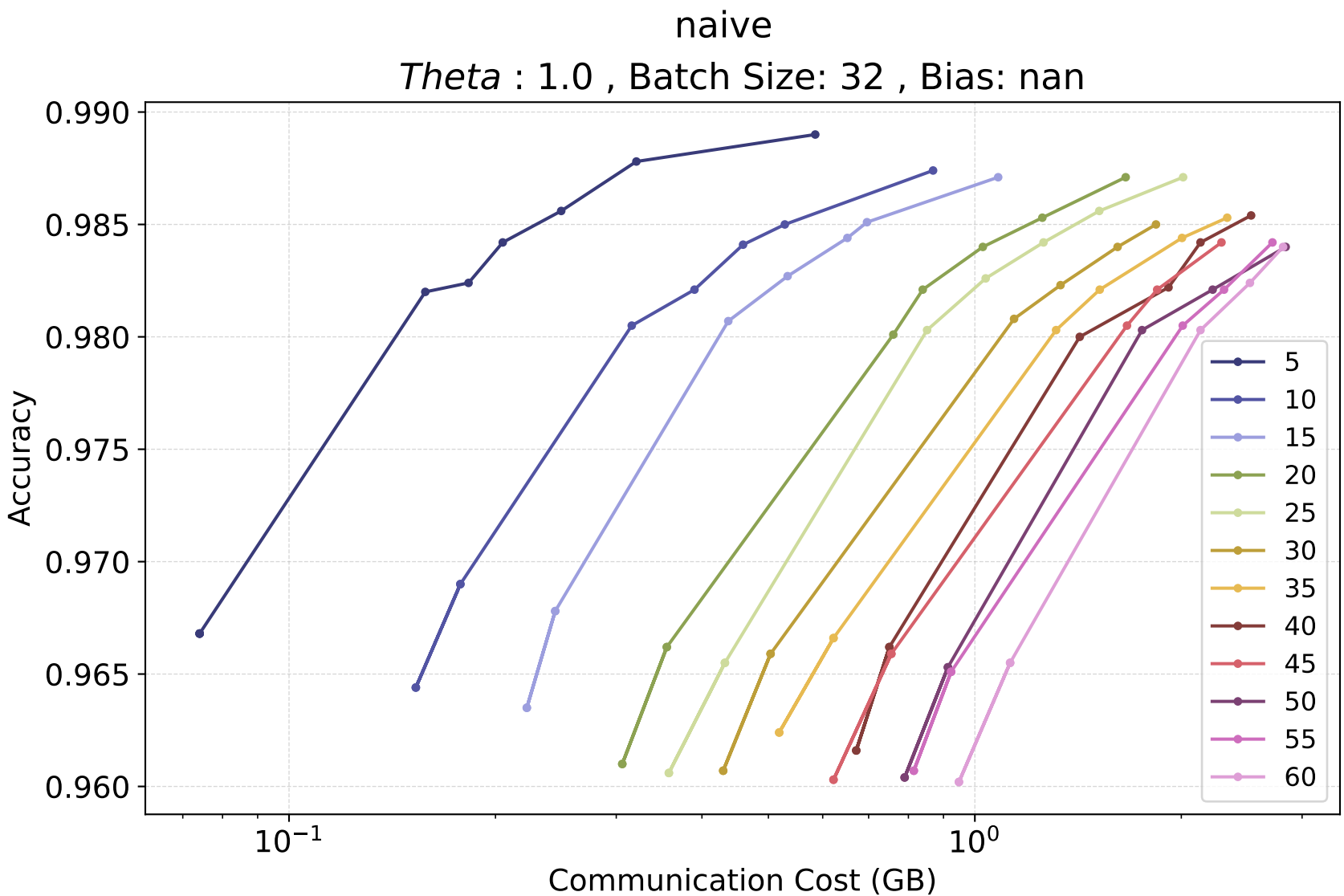

synchronous
Batch Size : 256 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

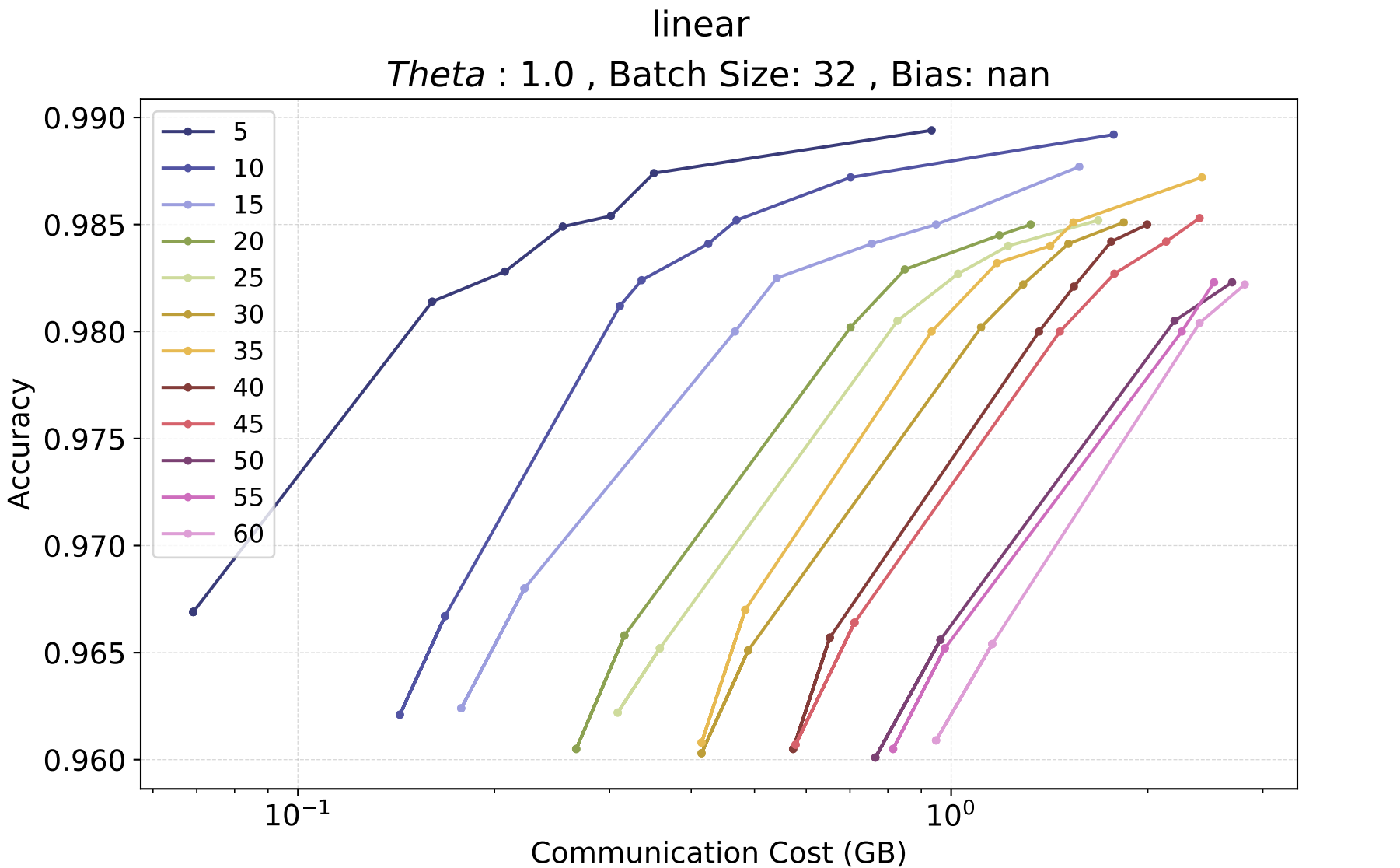

gm
Theta : 0.5 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

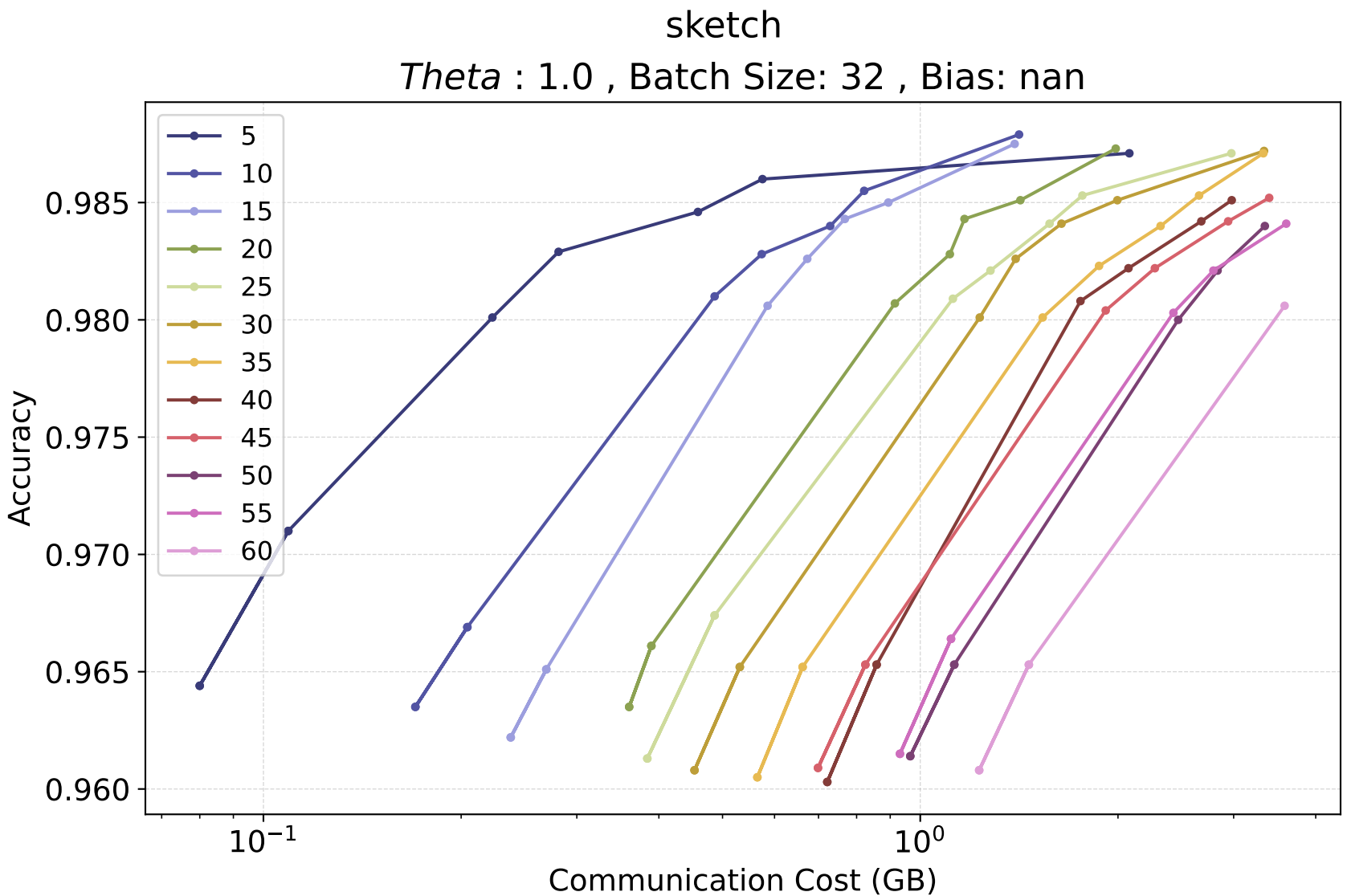

naive
Theta : 0.5 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

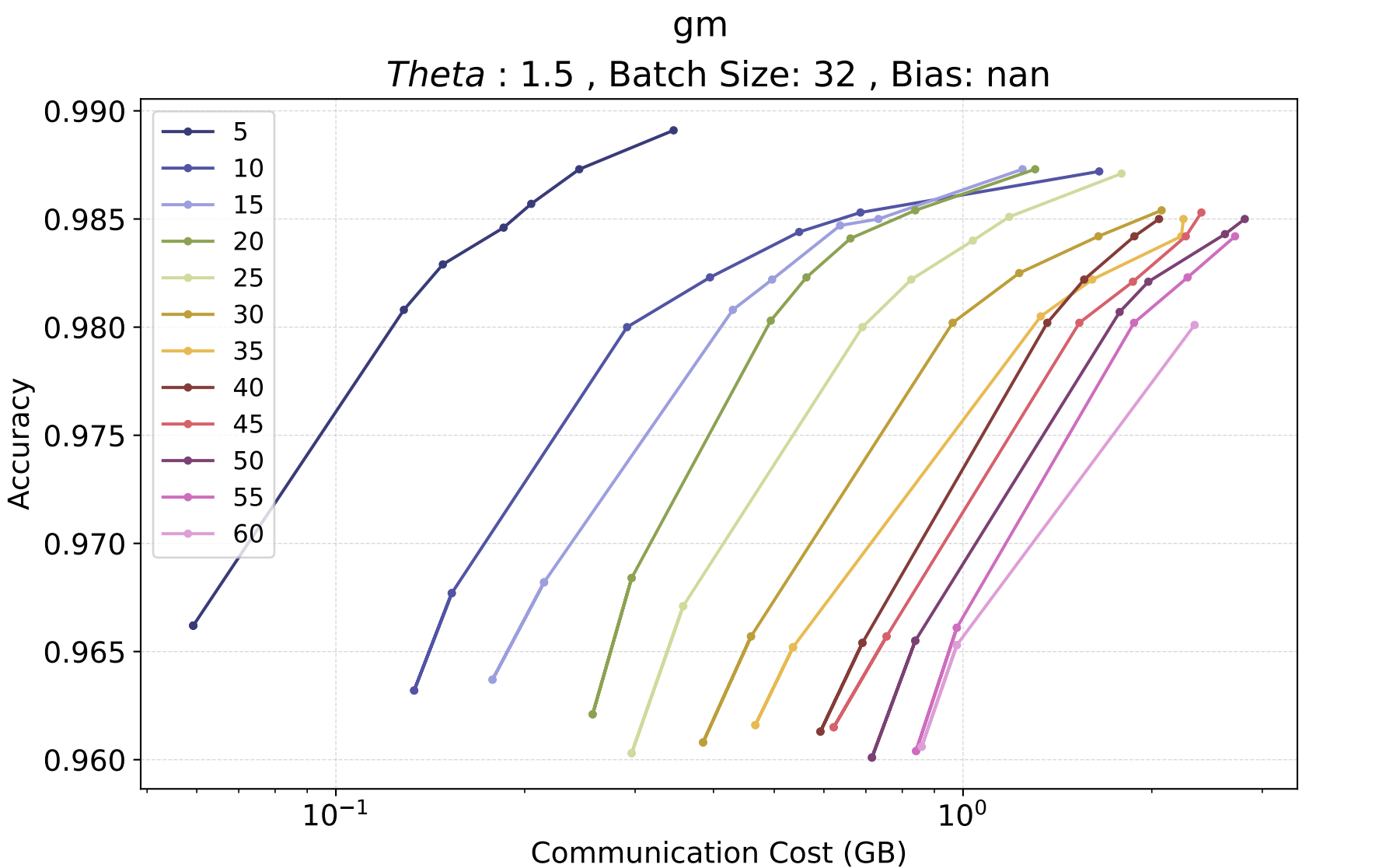

linear
Theta : 0.5 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

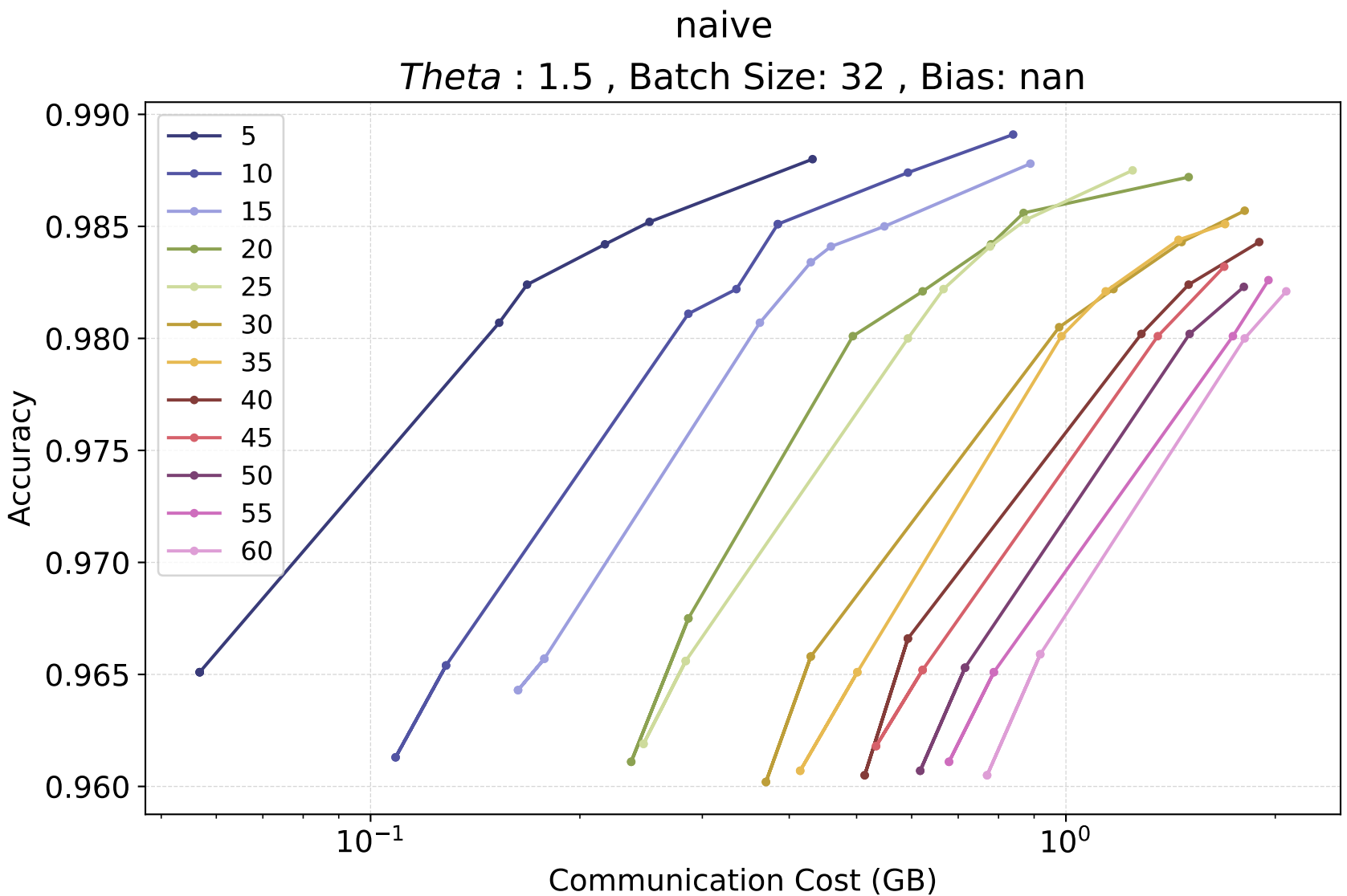

sketch
Theta : 0.5 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^0
Communication Cost (GB)

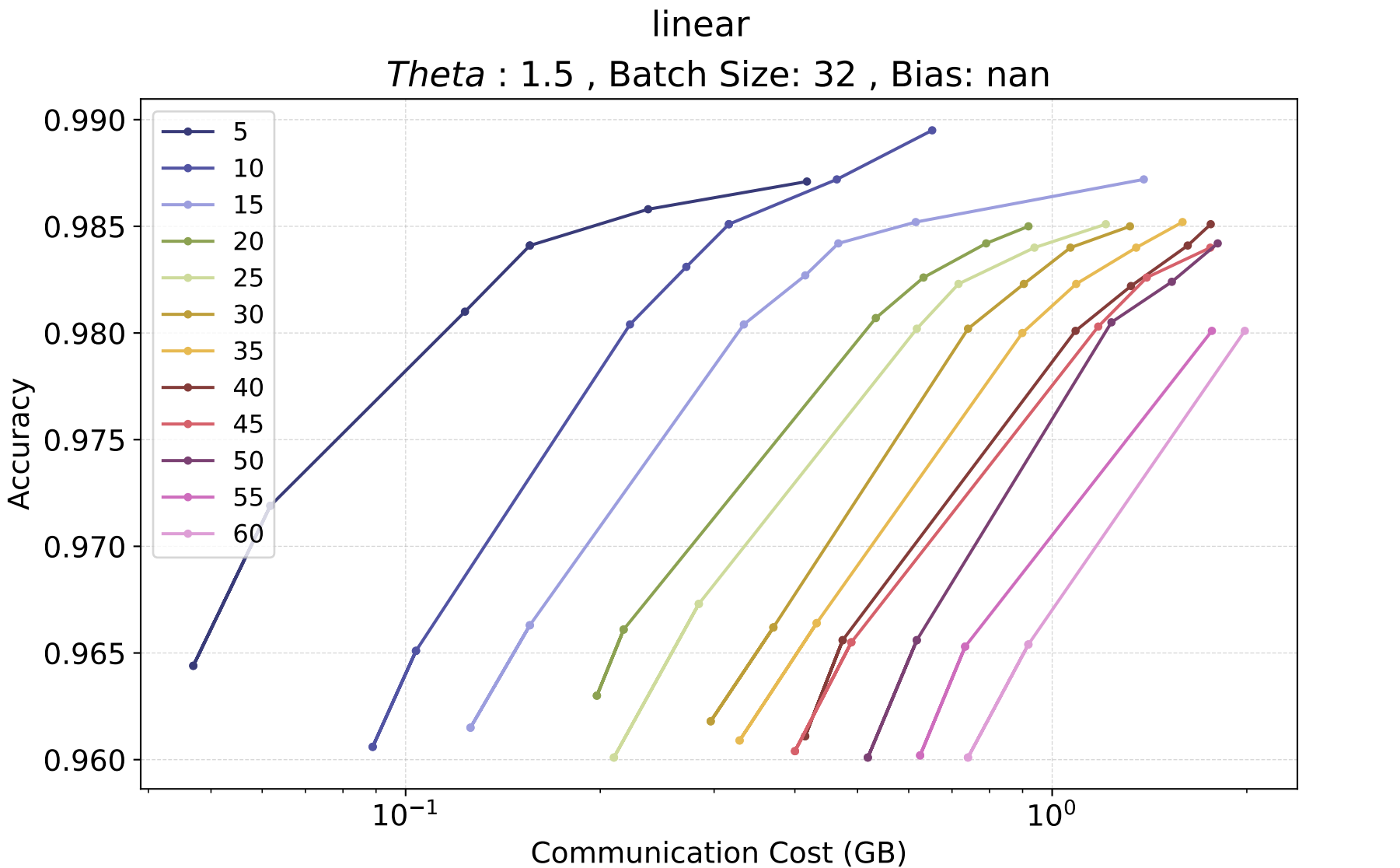

naive
Theta : 1.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

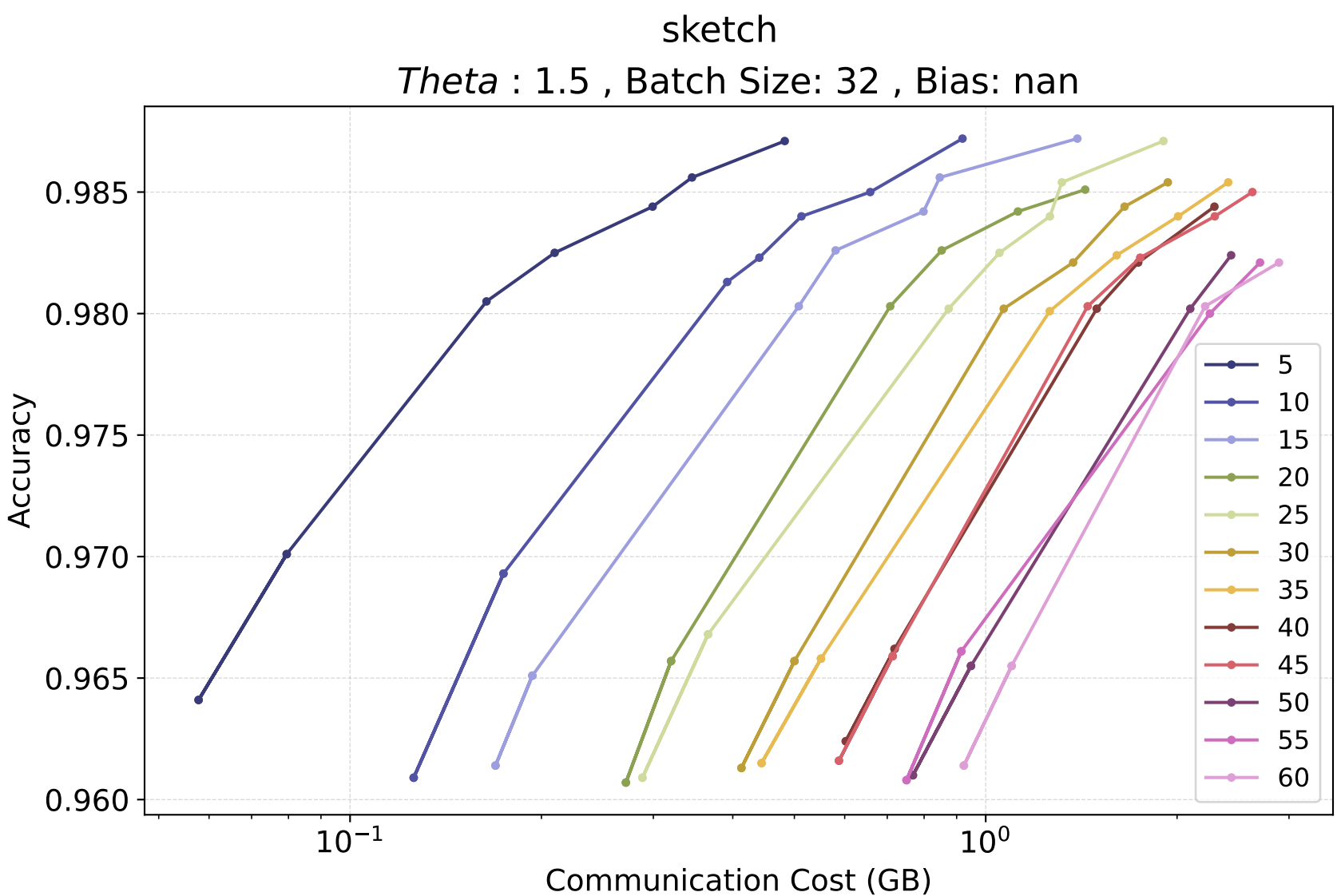

linear
Theta : 1.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

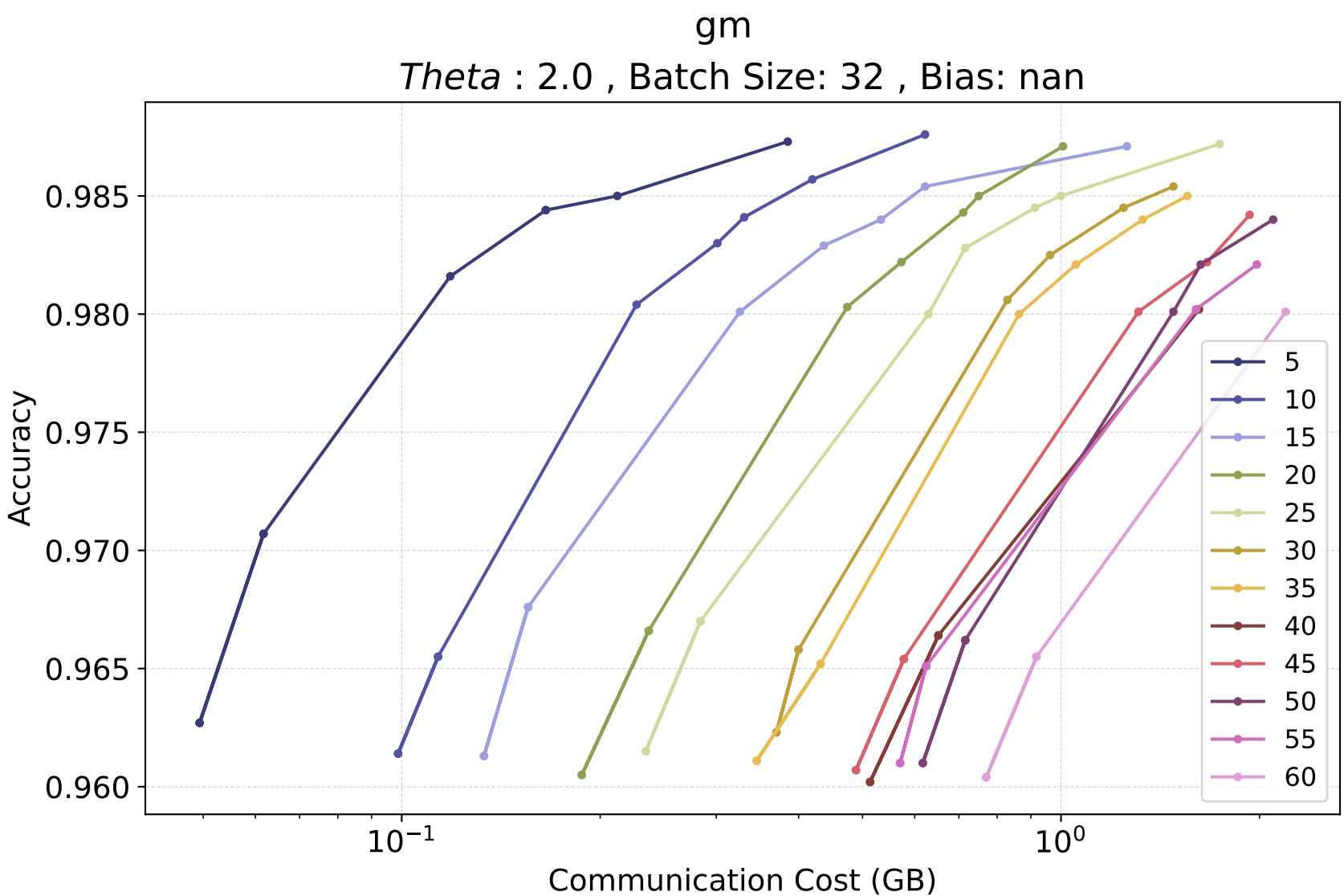

sketch
Theta : 1.0 , Batch Size: 32 , Bias: nan
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)

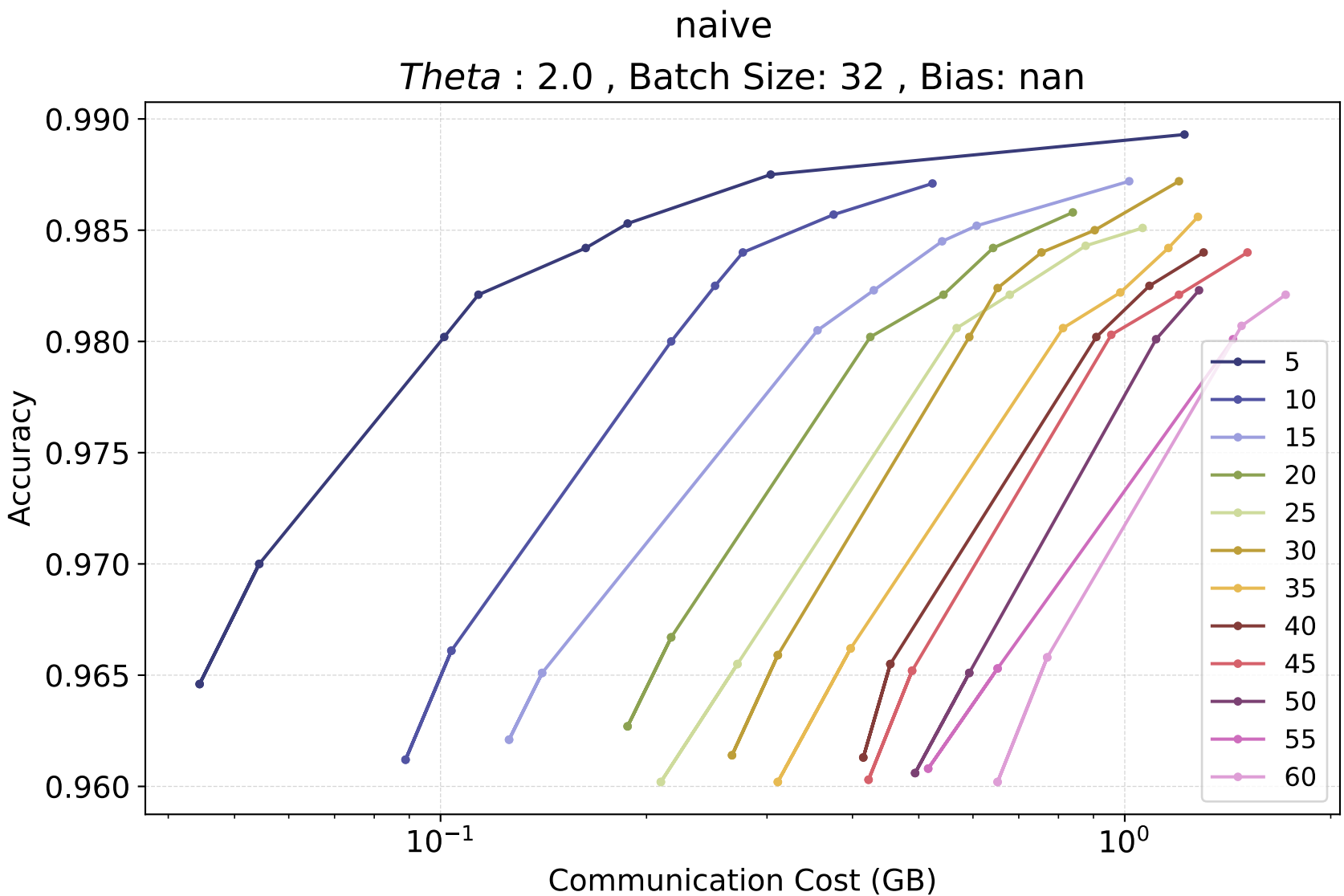

gm
Theta : 1.5 , Batch Size: 32 , Bias: nan
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60

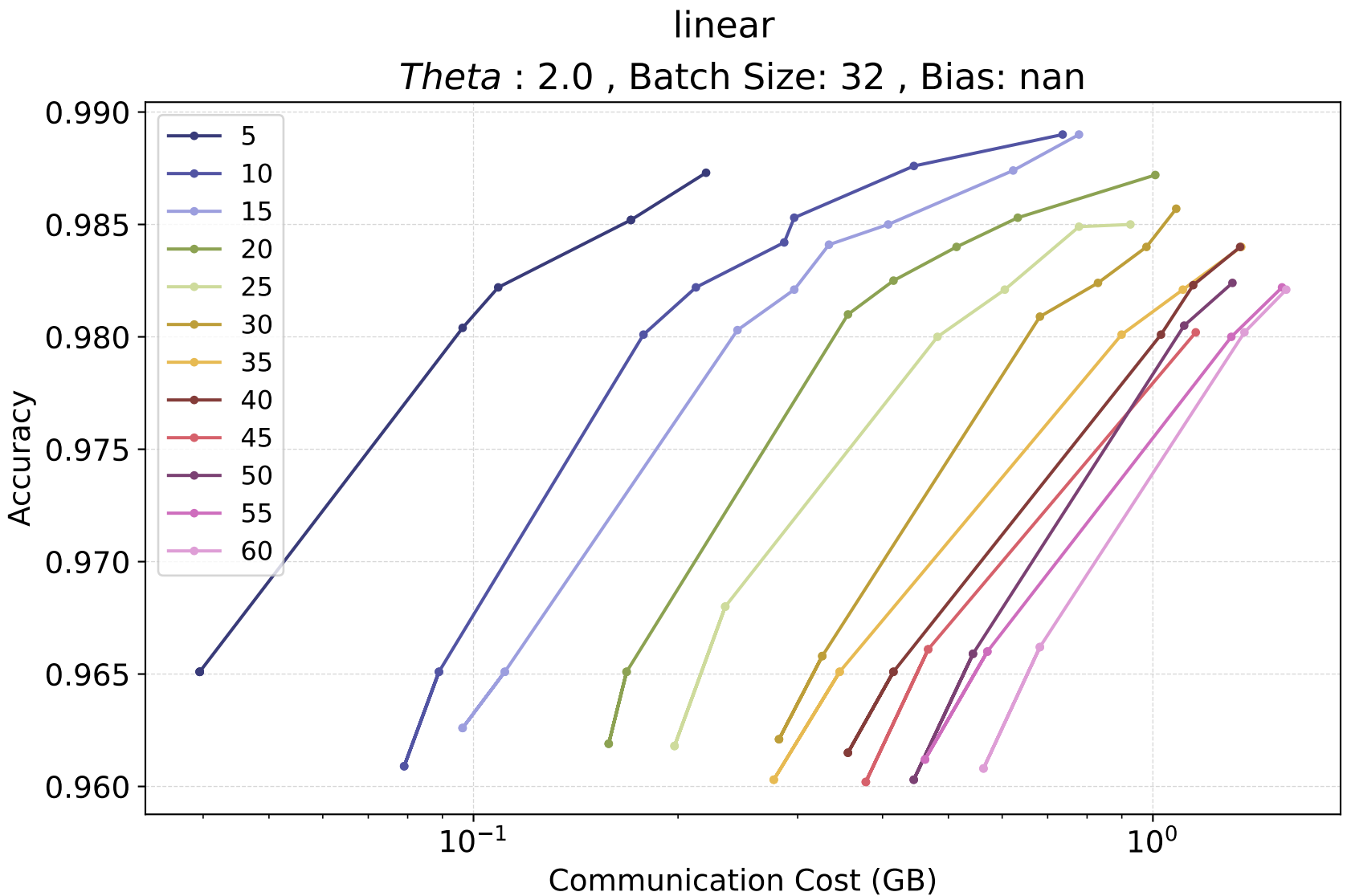

naive
Theta : 1.5 , Batch Size: 32 , Bias: nan
Accuracy
Communication Cost (GB)
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
5
10
15
20
25
30
35
40
45
50
55
60

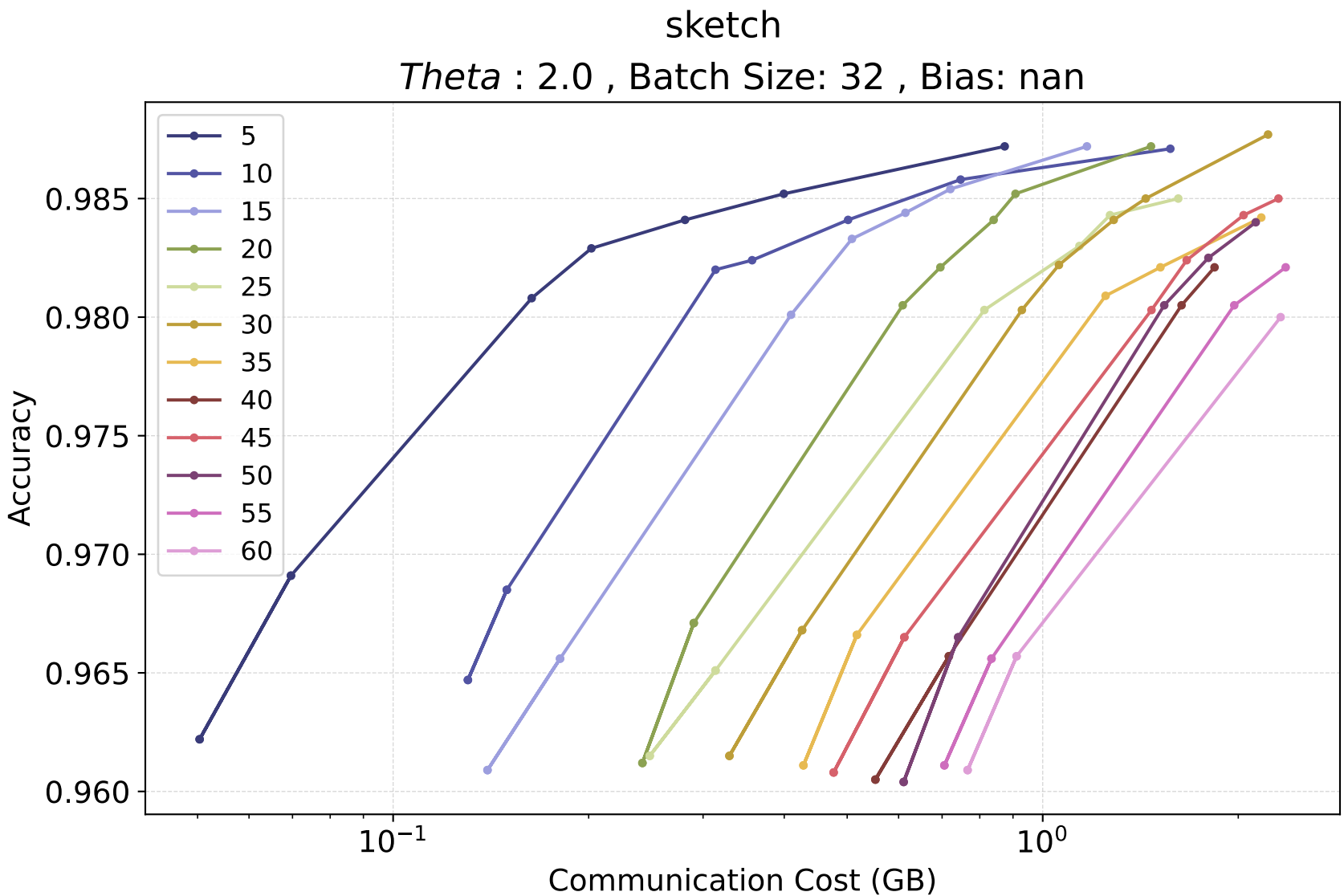

linear
Theta : 1.5 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

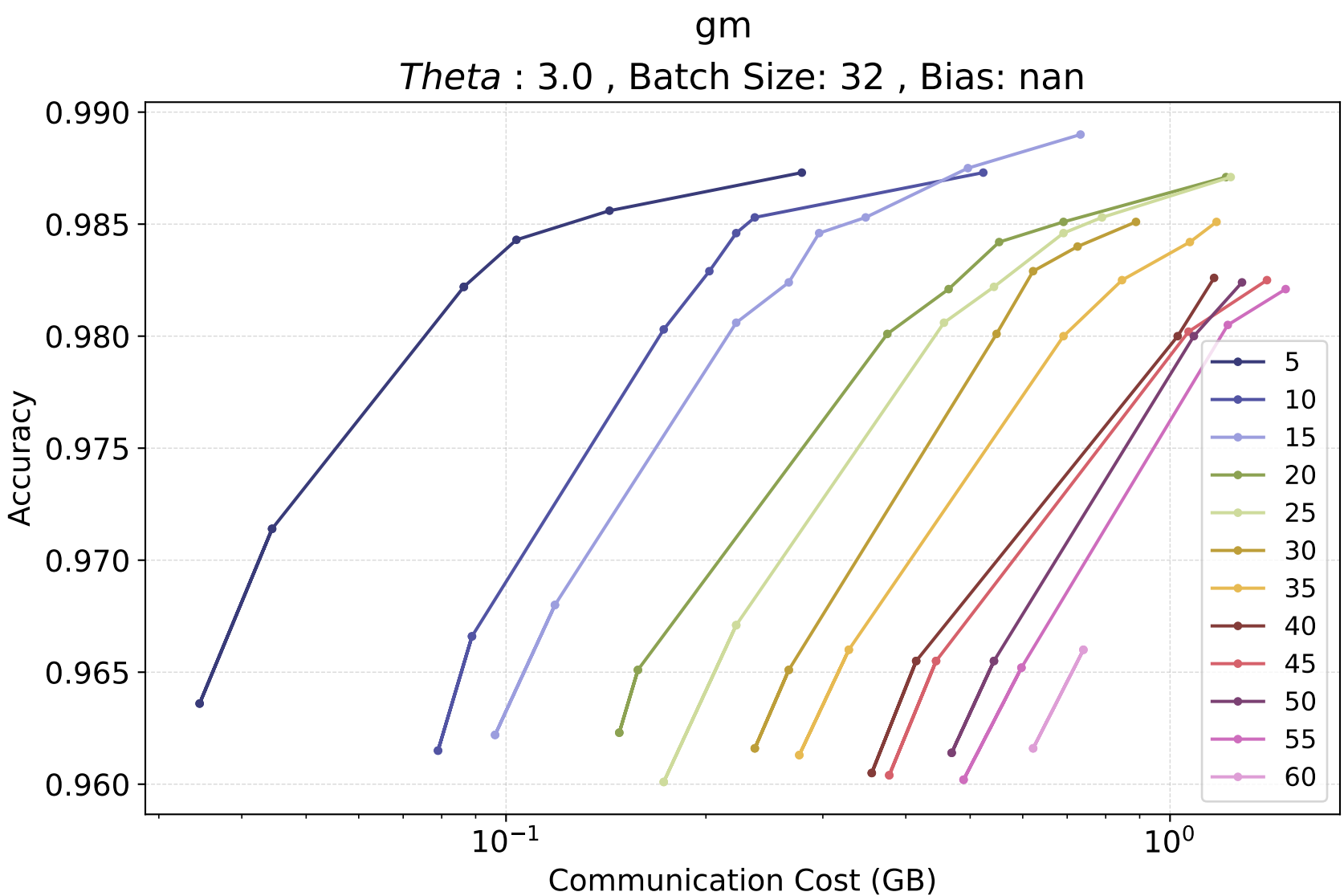

sketch
Theta : 1.5 , Batch Size: 32 , Bias: nan
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

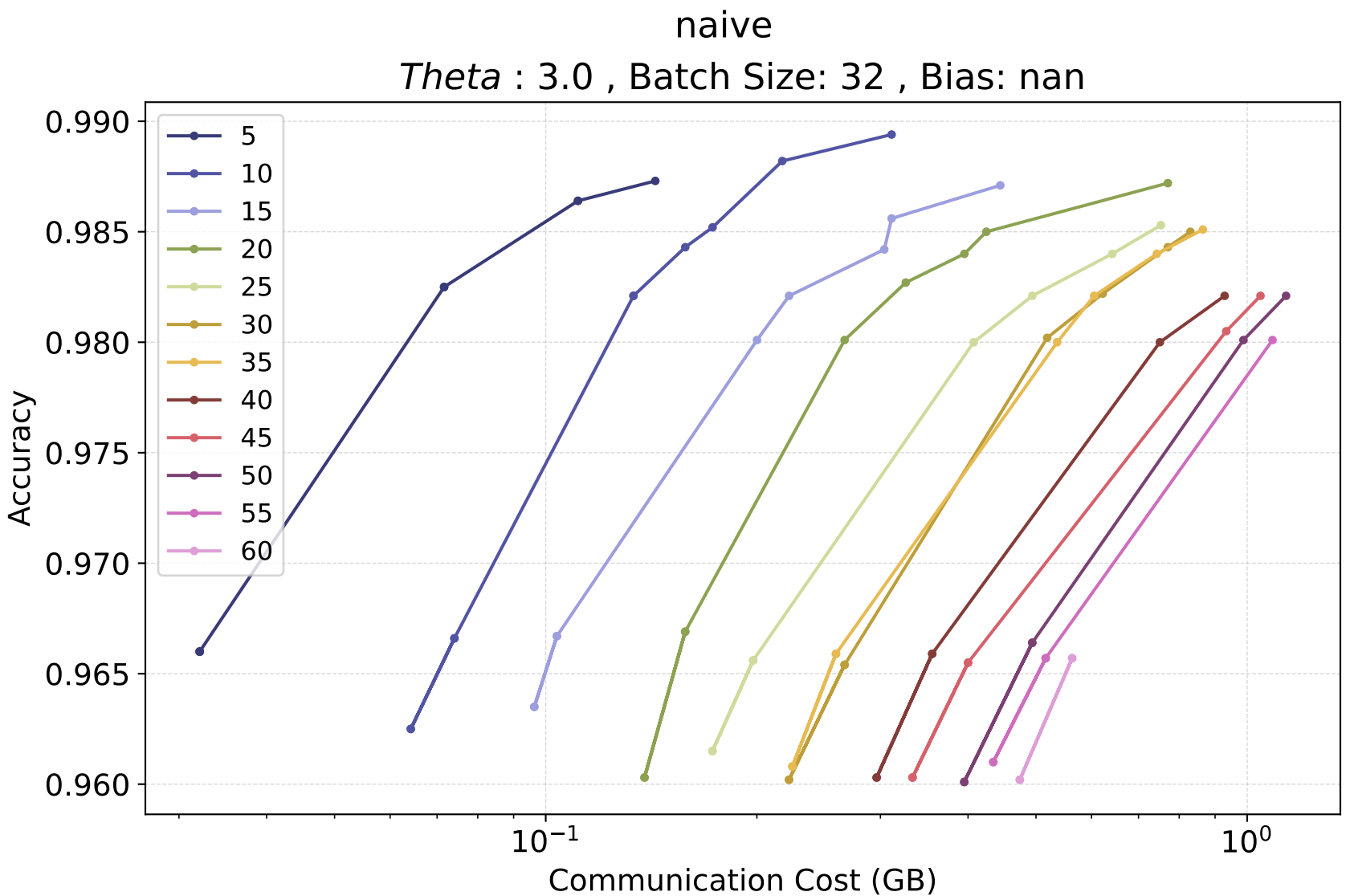

gm
Theta : 2.0 , Batch Size: 32 , Bias: nan
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

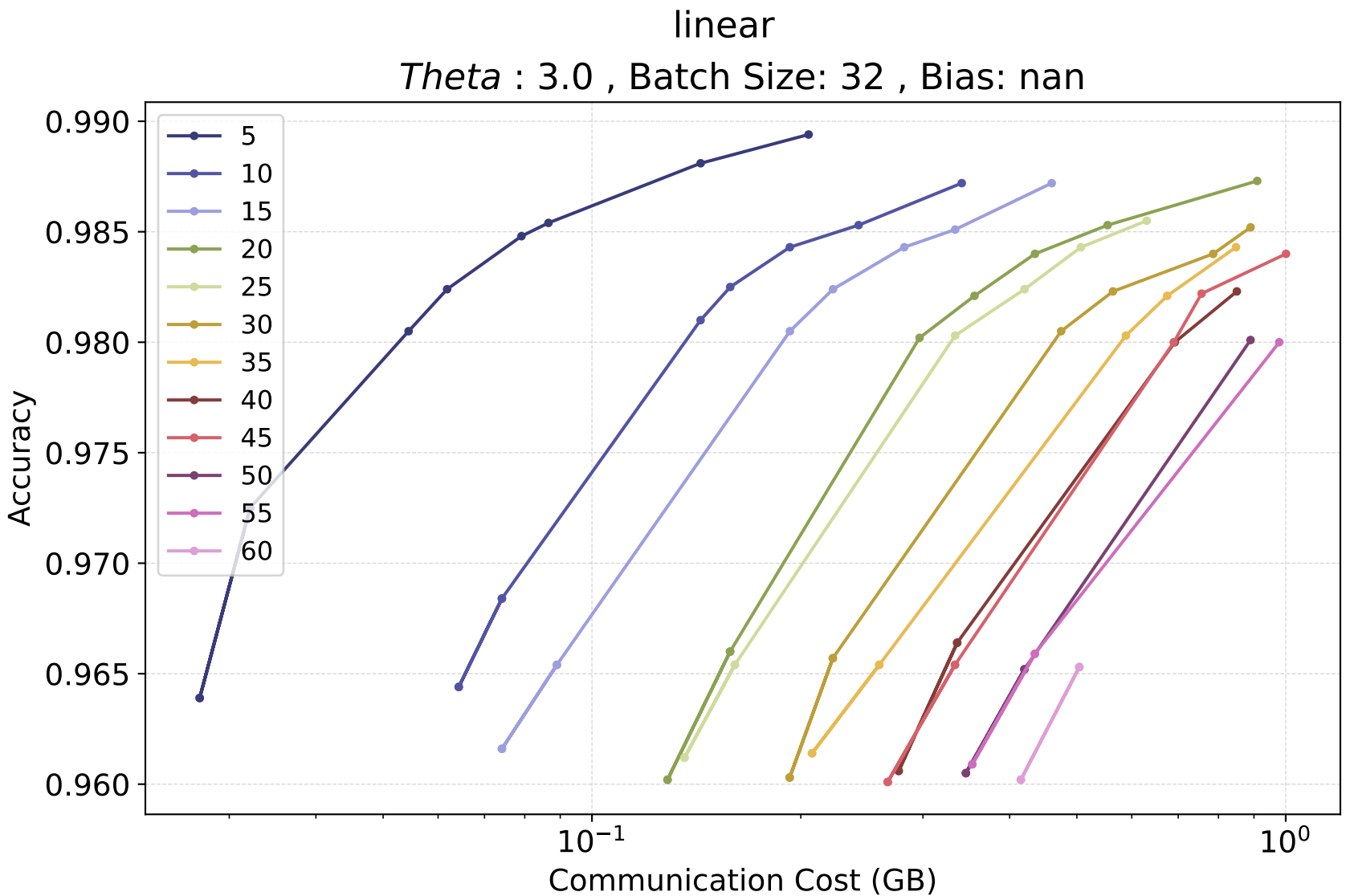

naive
Theta : 2.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

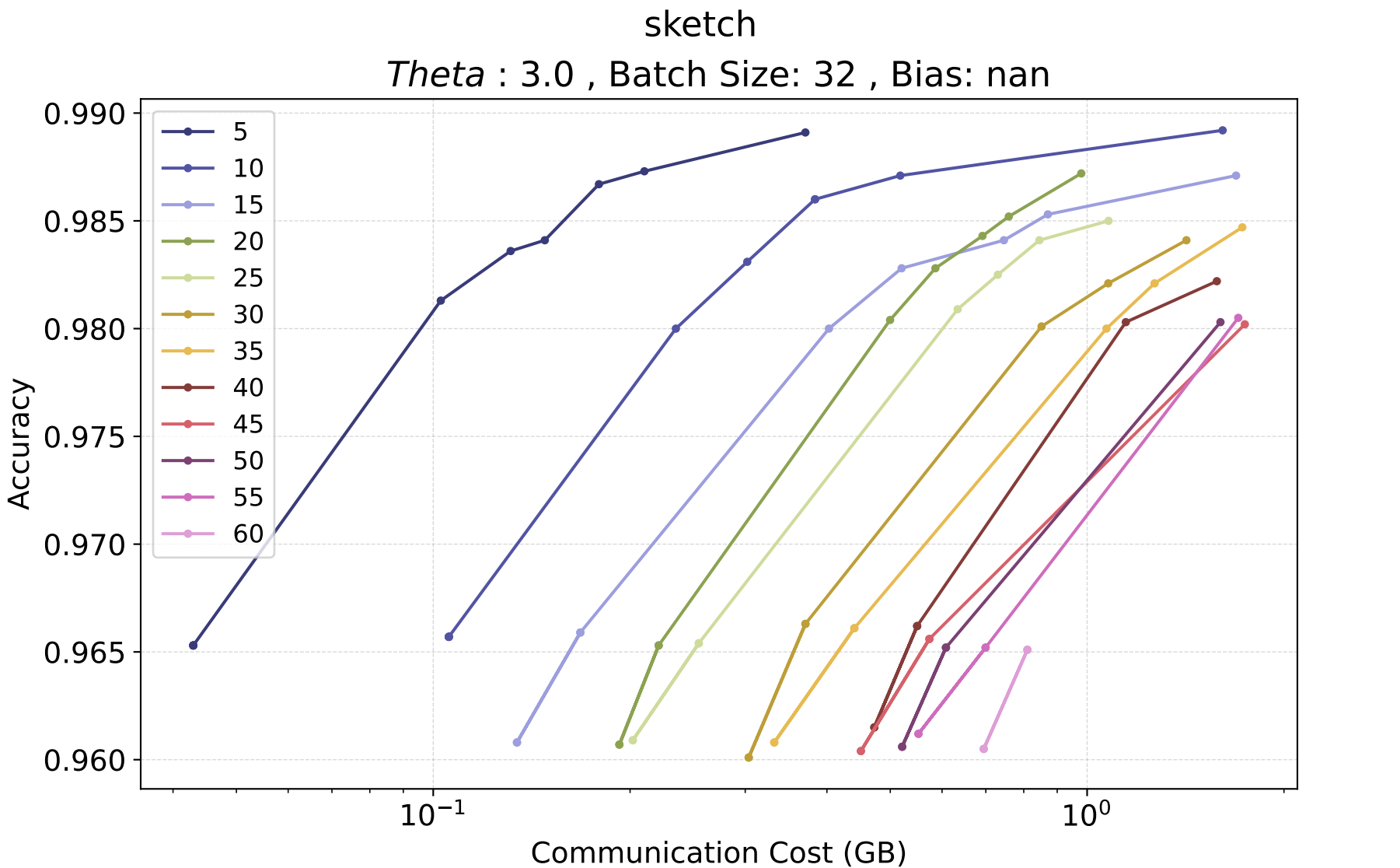

linear
Theta : 2.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

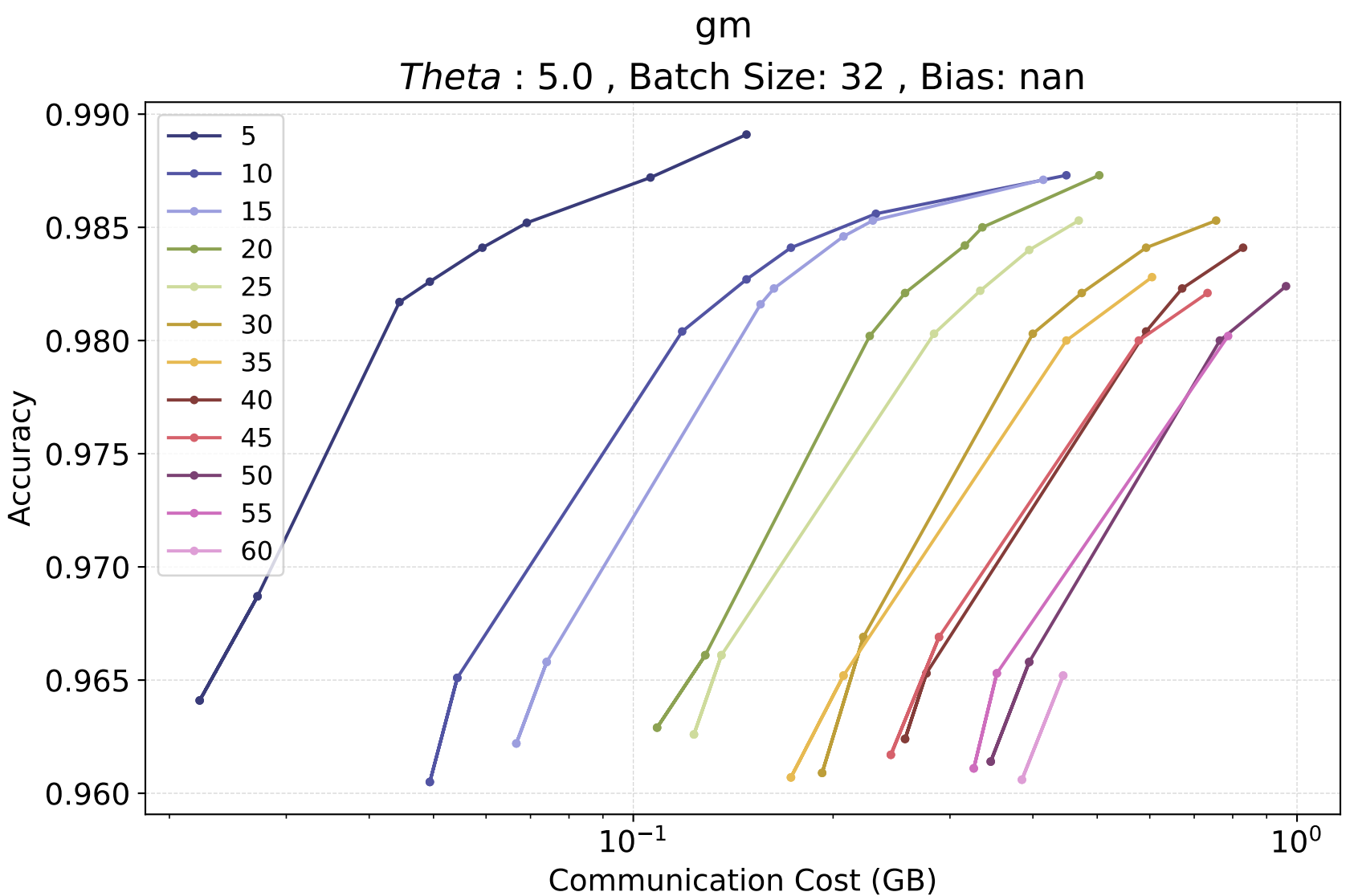

sketch
Theta : 2.0 , Batch Size: 32 , Bias: nan
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

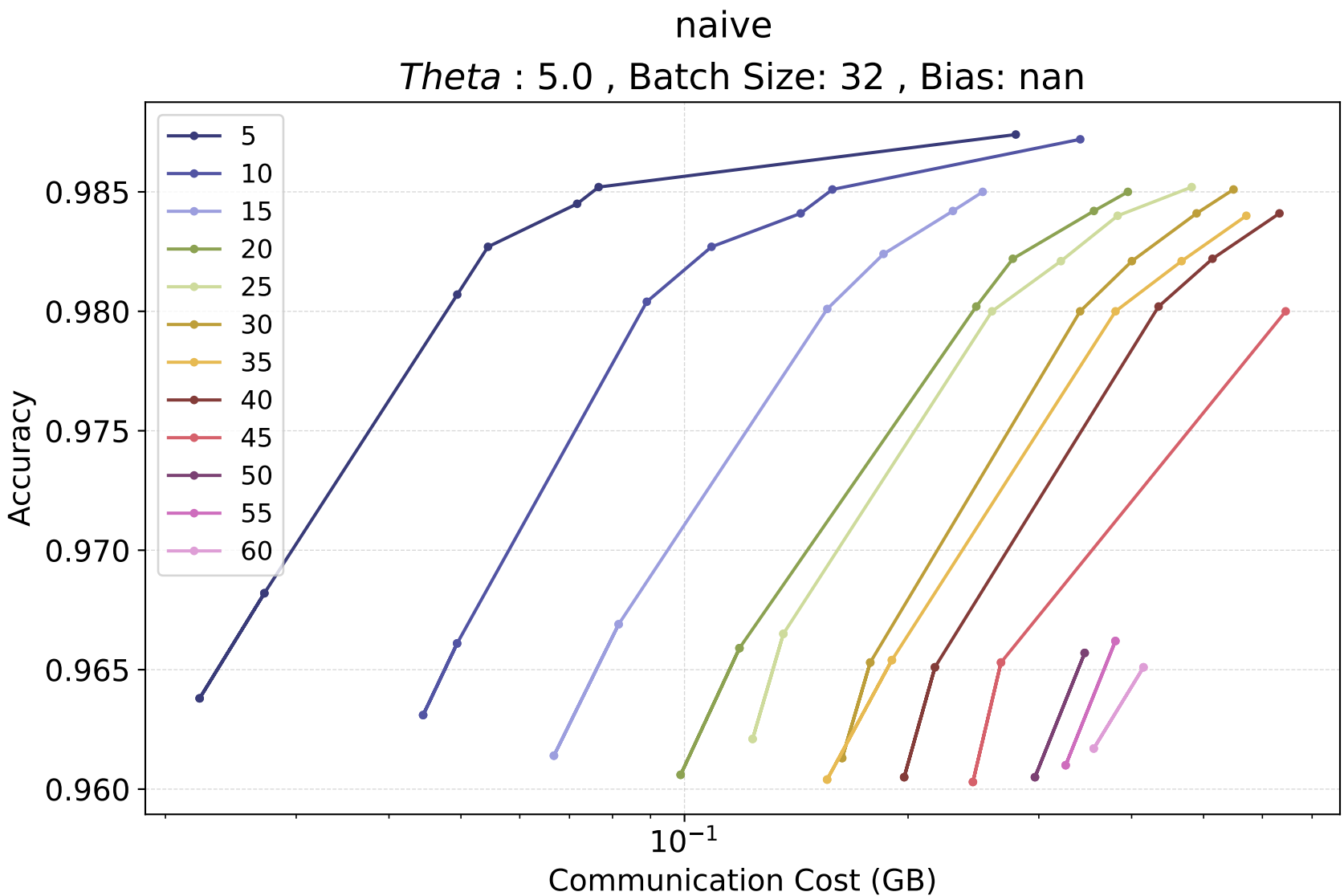

gm
Theta : 3.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

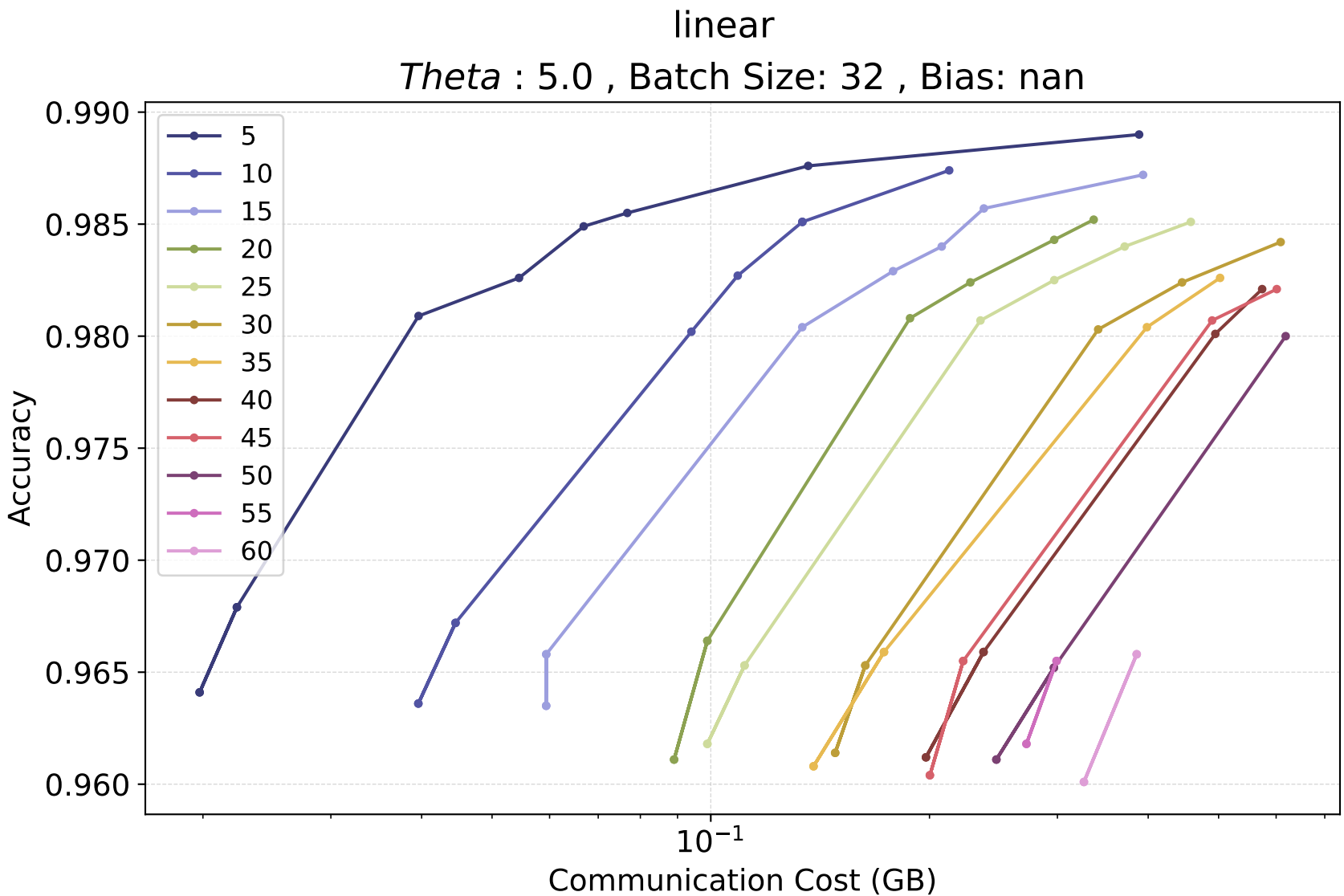

naive
Theta : 3.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

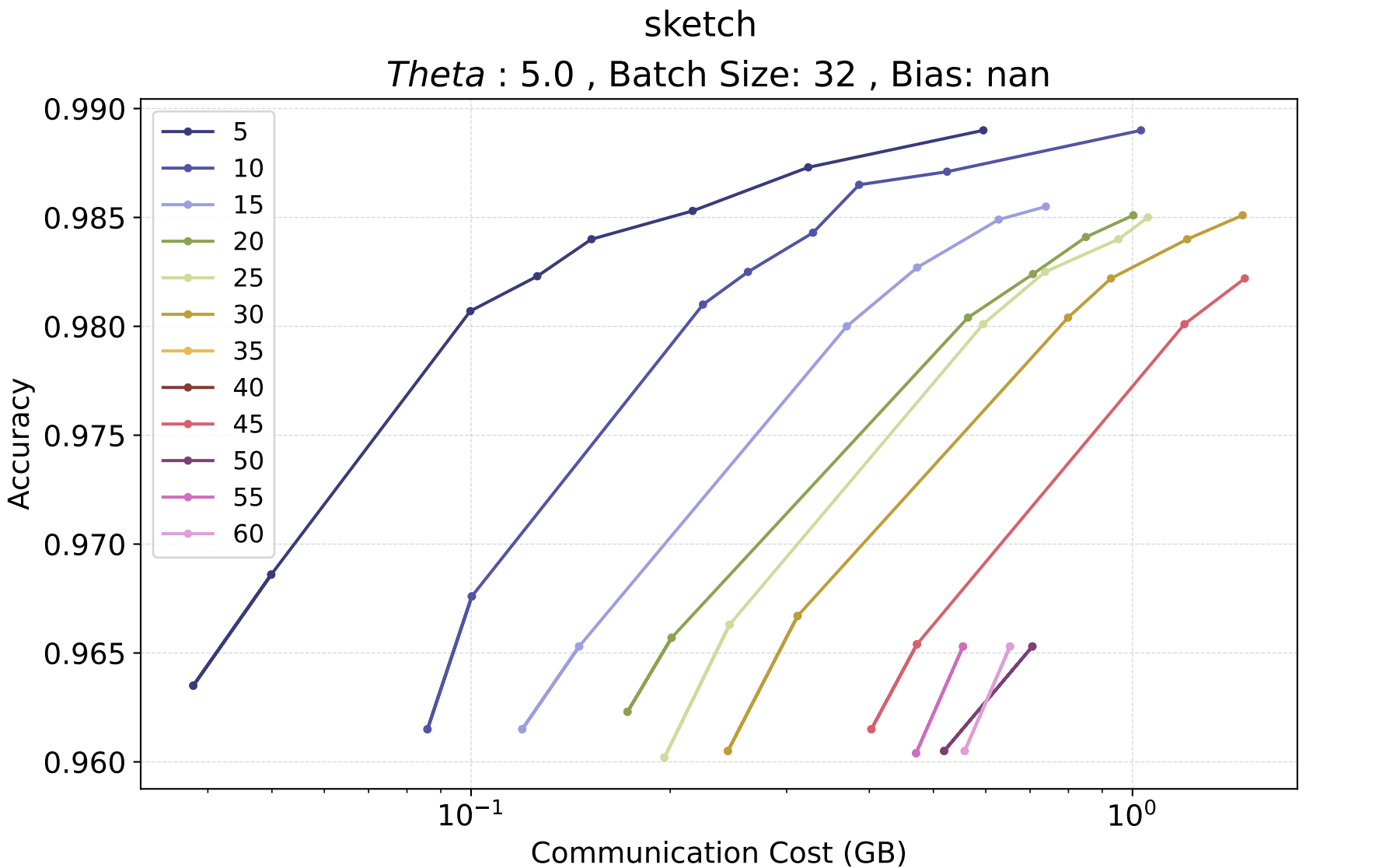

linear
Theta : 3.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

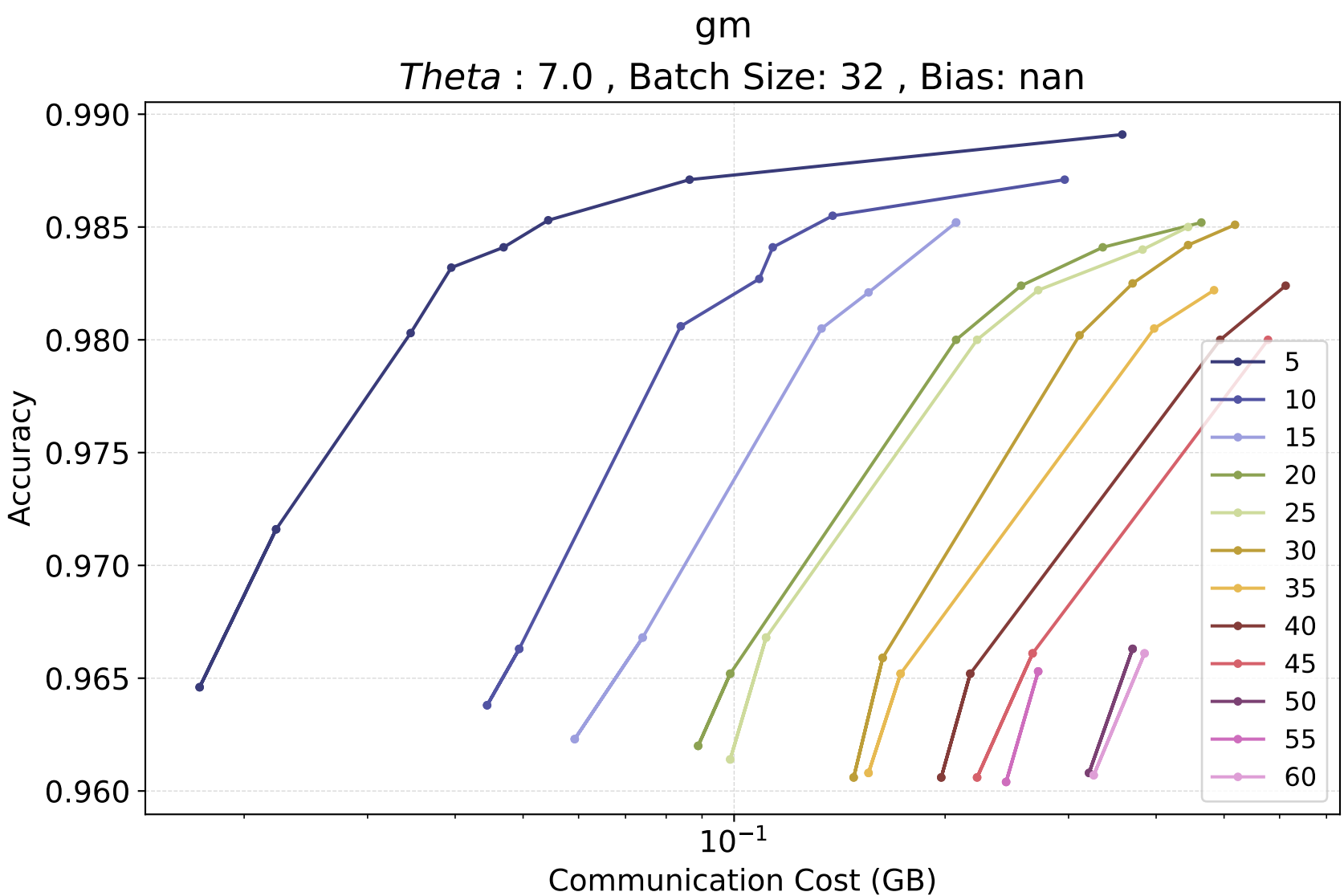

sketch
Theta : 3.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

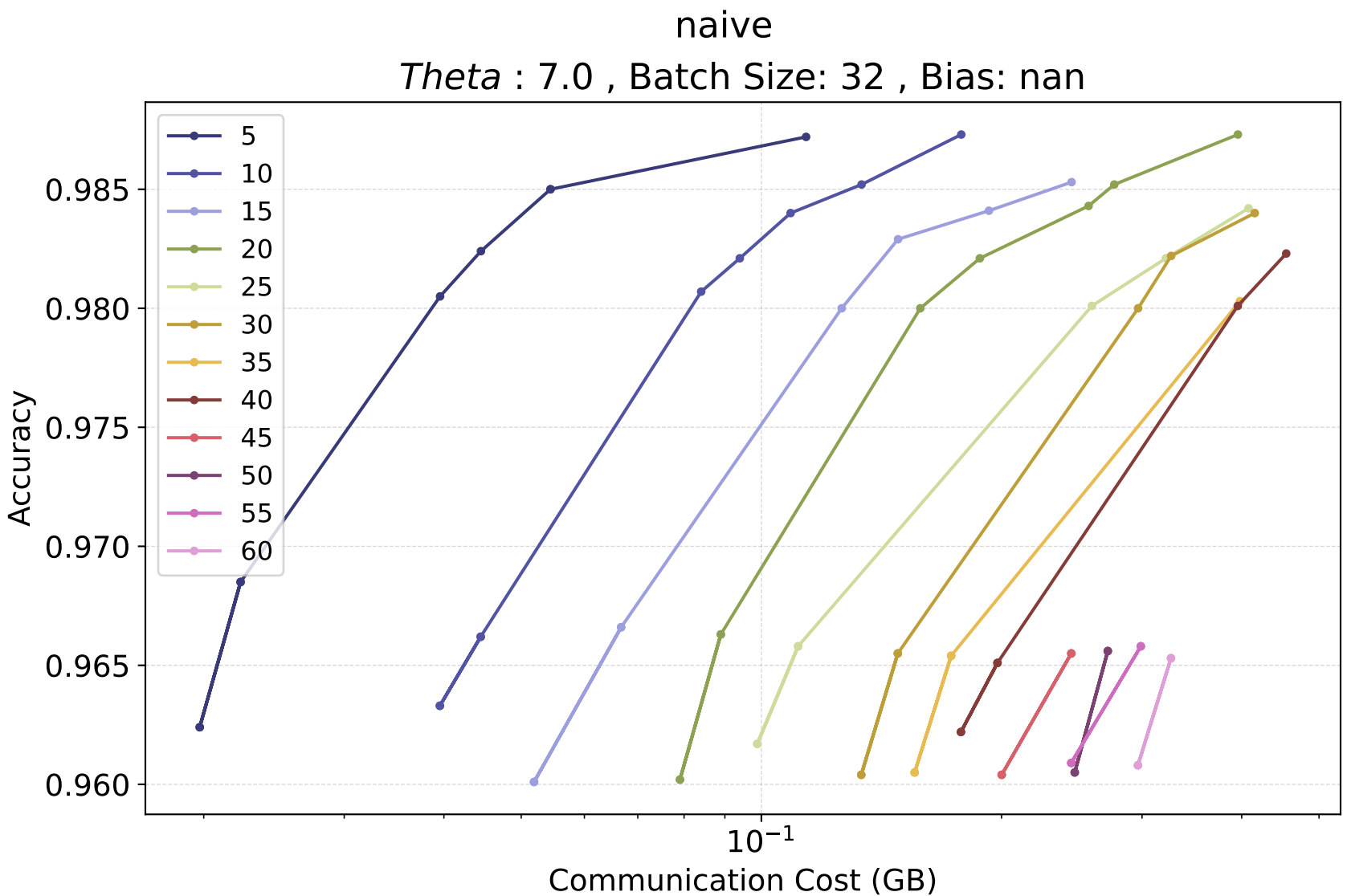

gm
Theta : 5.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
10^{0}
Communication Cost (GB)

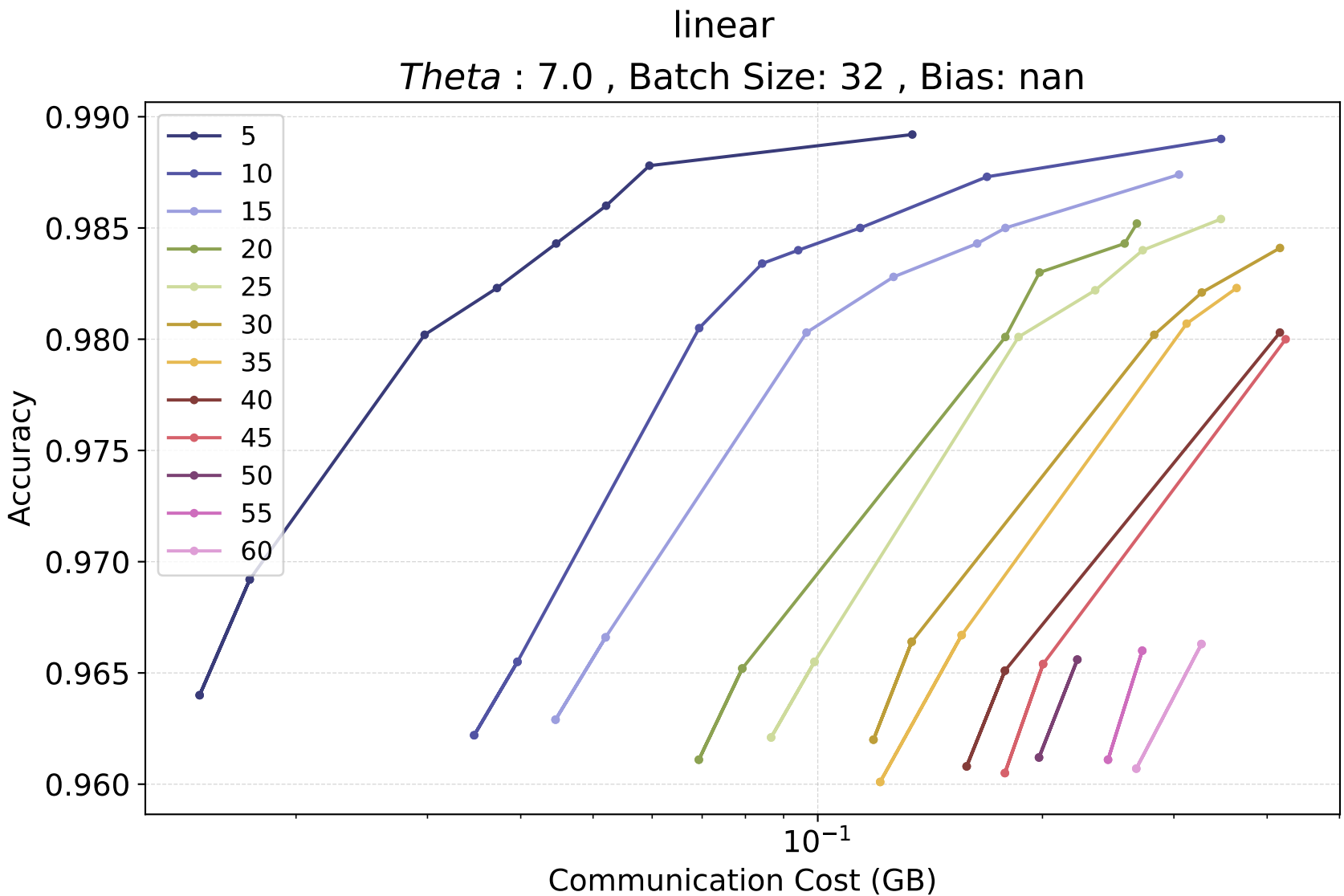

naive
Theta : 5.0 , Batch Size: 32 , Bias: nan
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)

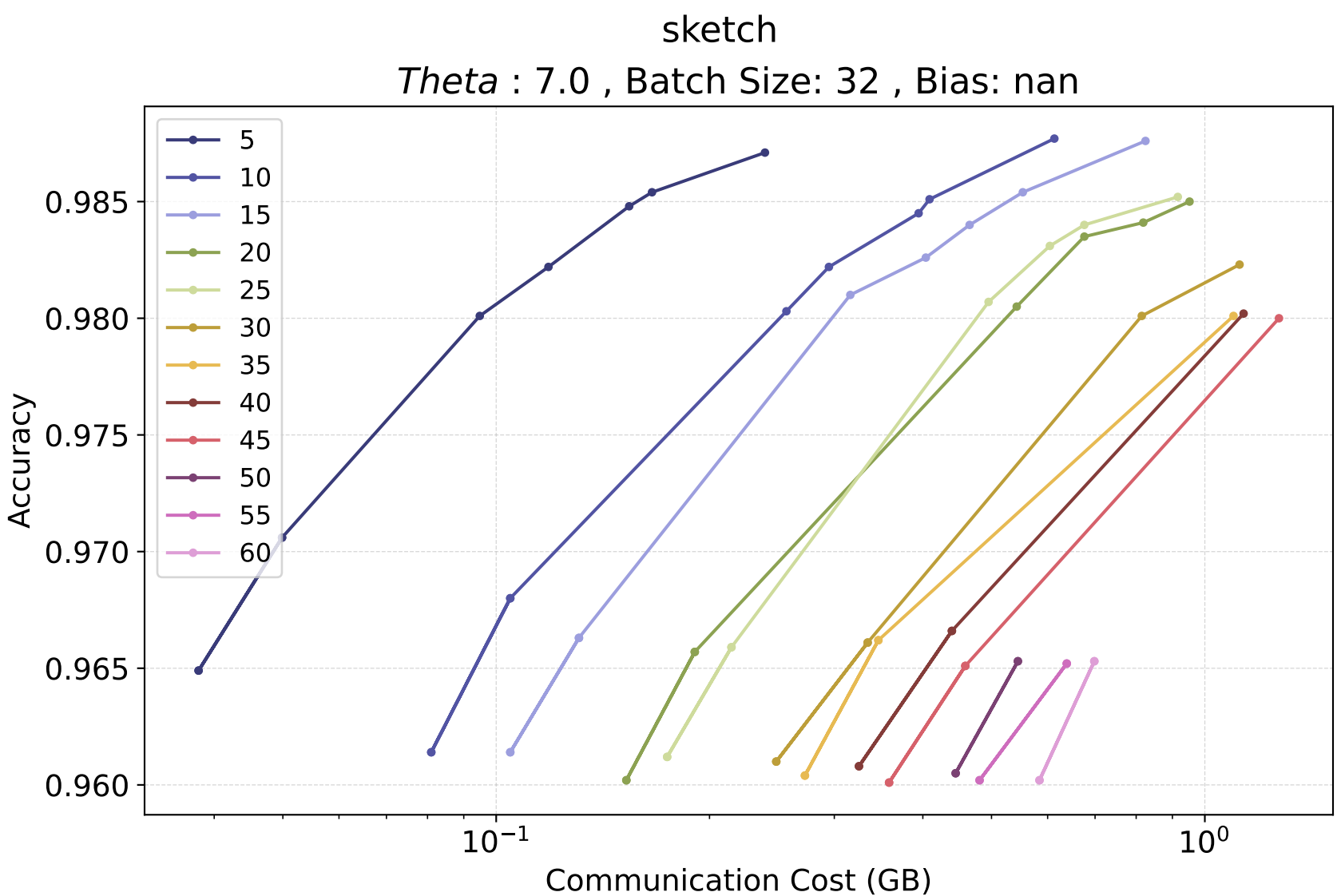

linear
Theta : 5.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)

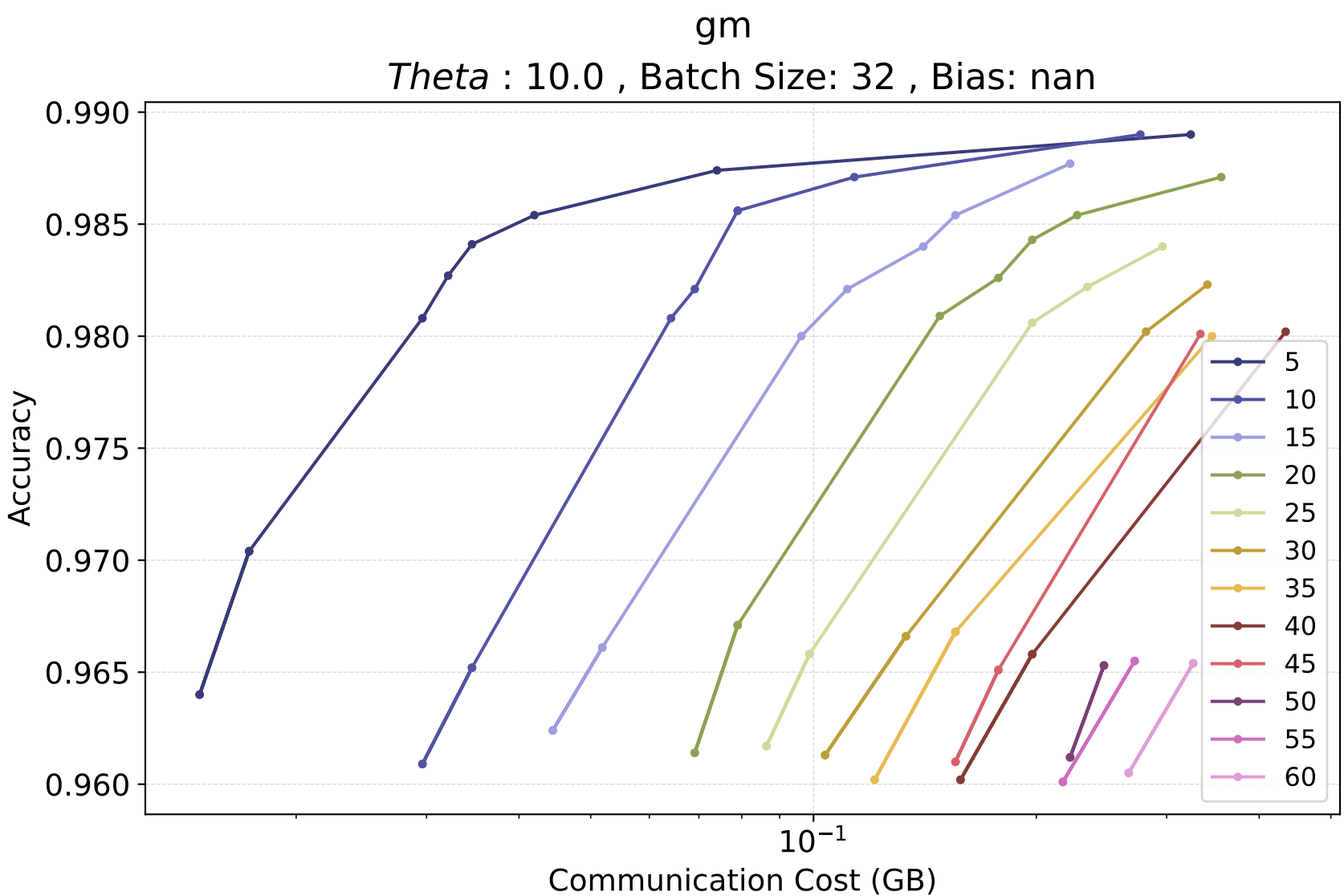

sketch
Theta : 5.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

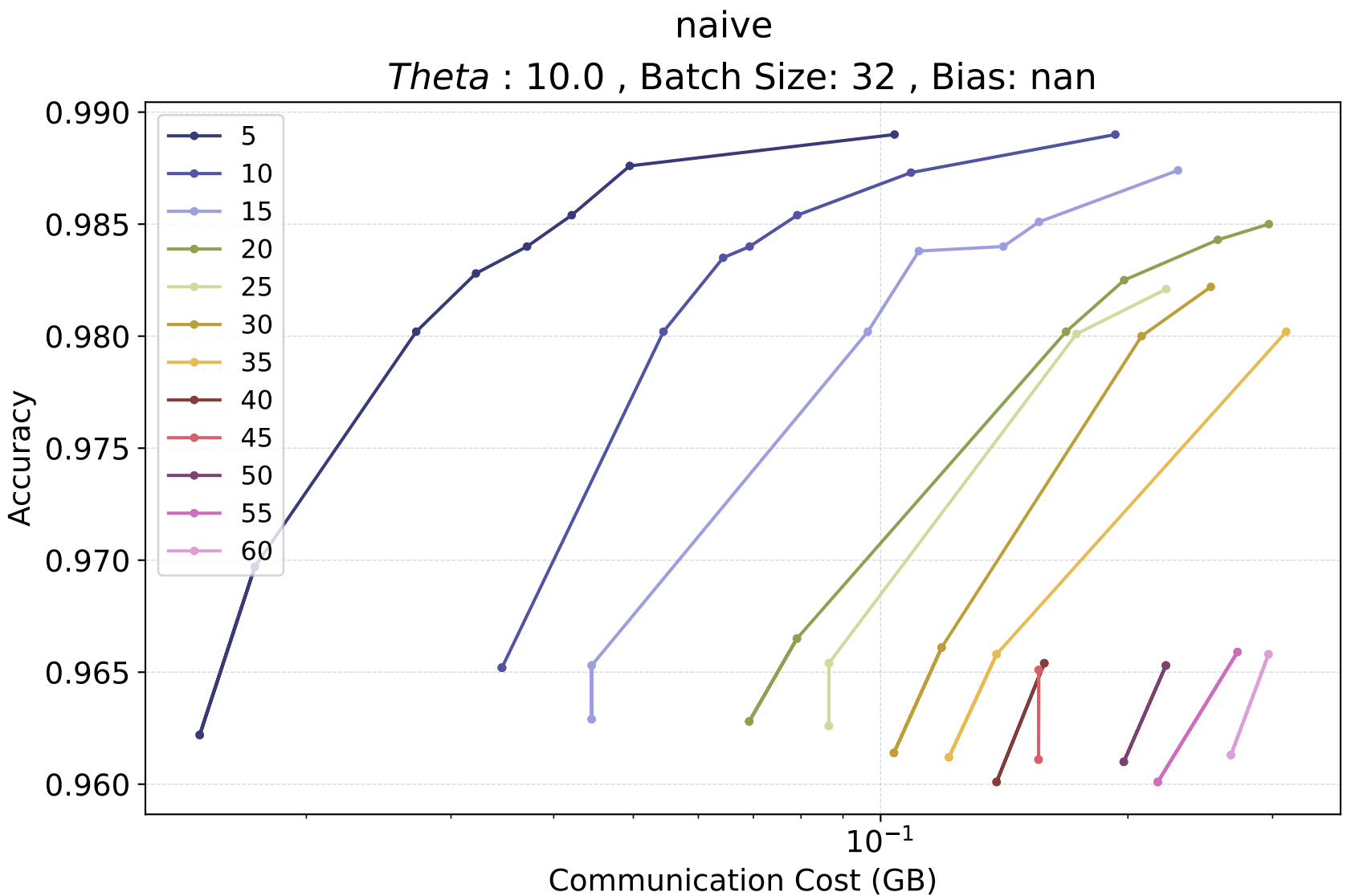

gm
Theta : 7.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

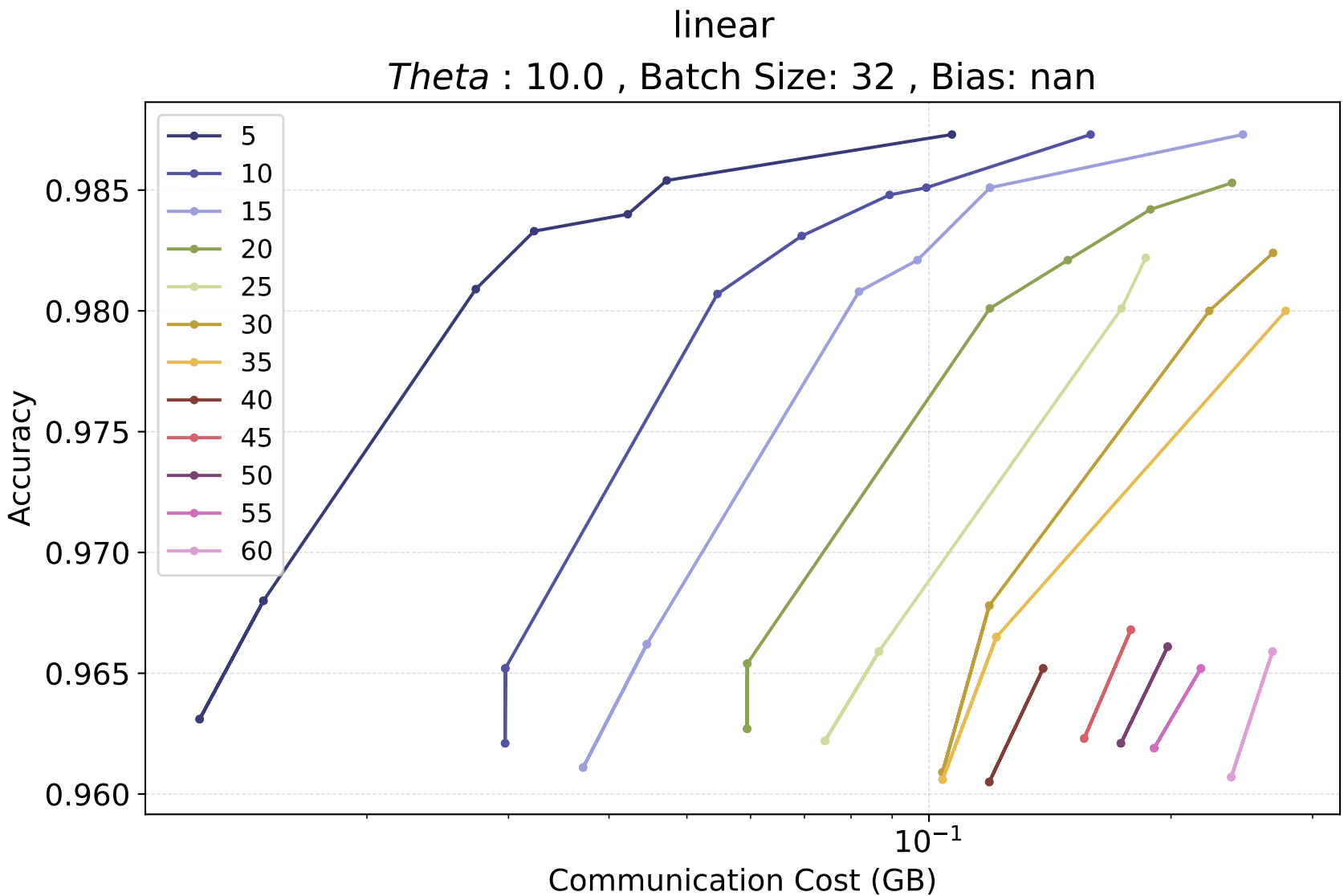

naive
Theta : 7.0 , Batch Size: 32 , Bias: nan
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)

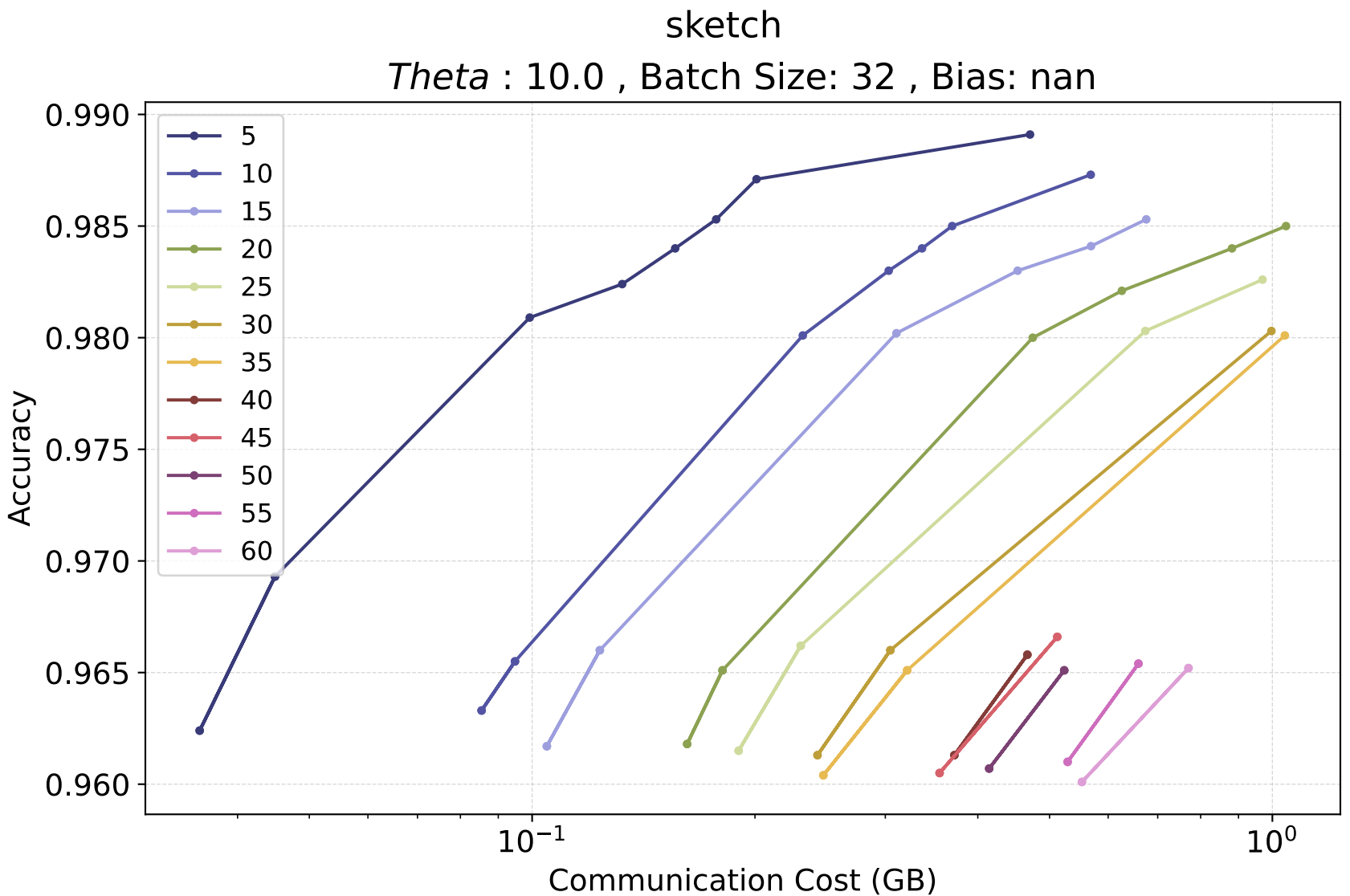

linear
Theta : 7.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)

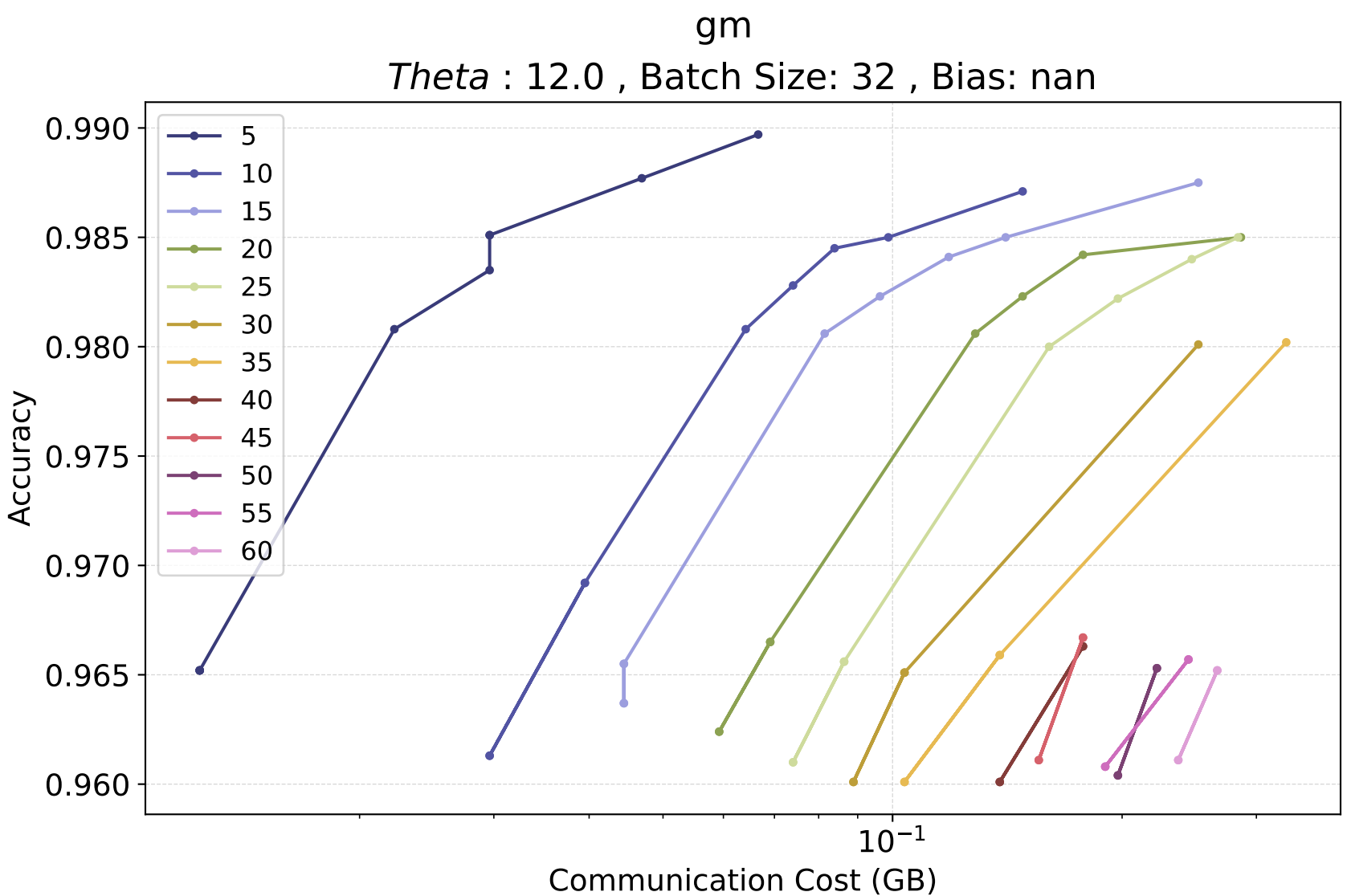

sketch
Theta : 7.0 , Batch Size: 32 , Bias: nan
5
10
15
20
25
30
35
40
45
50
55
60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
Communication Cost (GB)

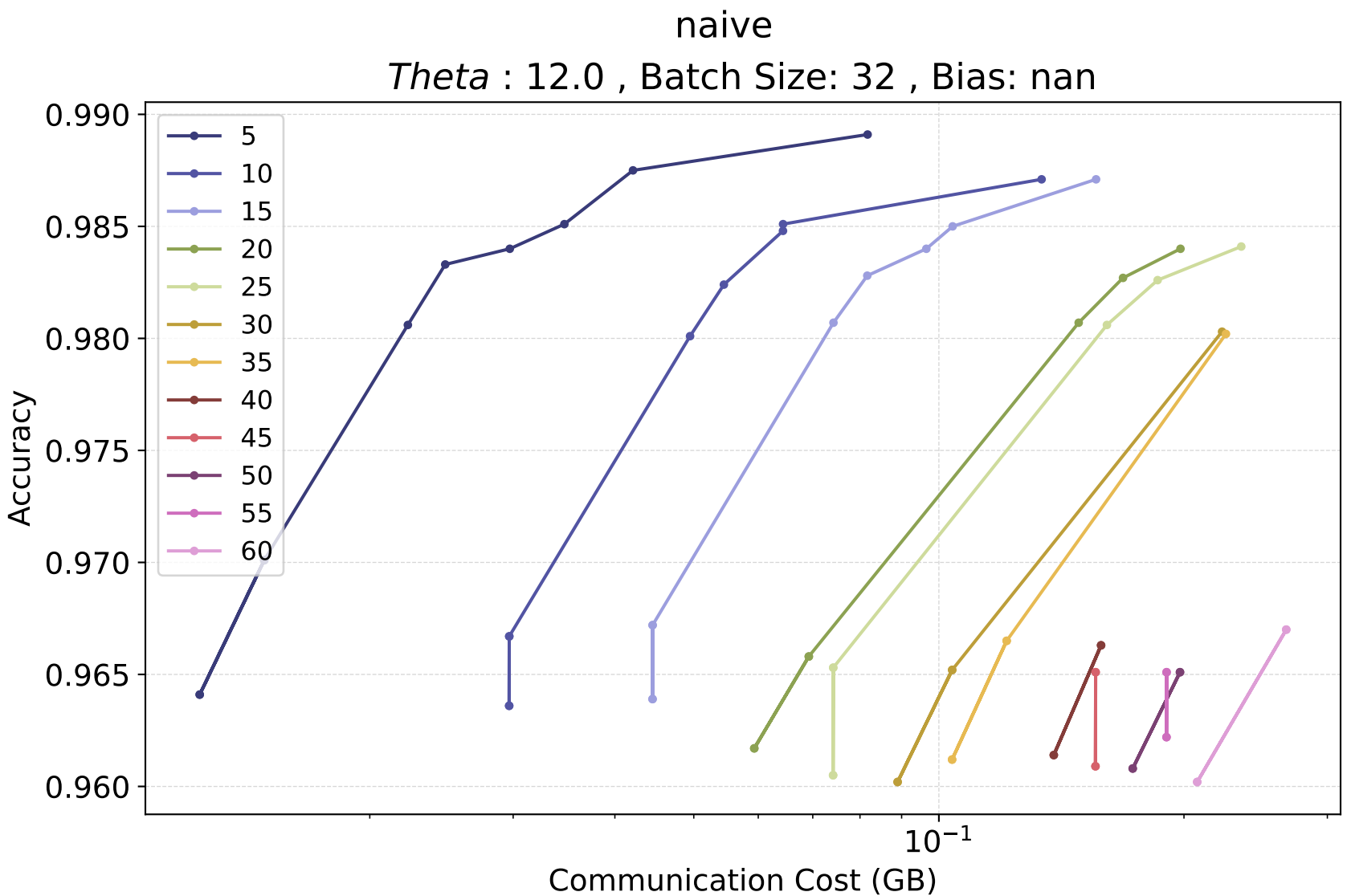

gm
Theta : 10.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

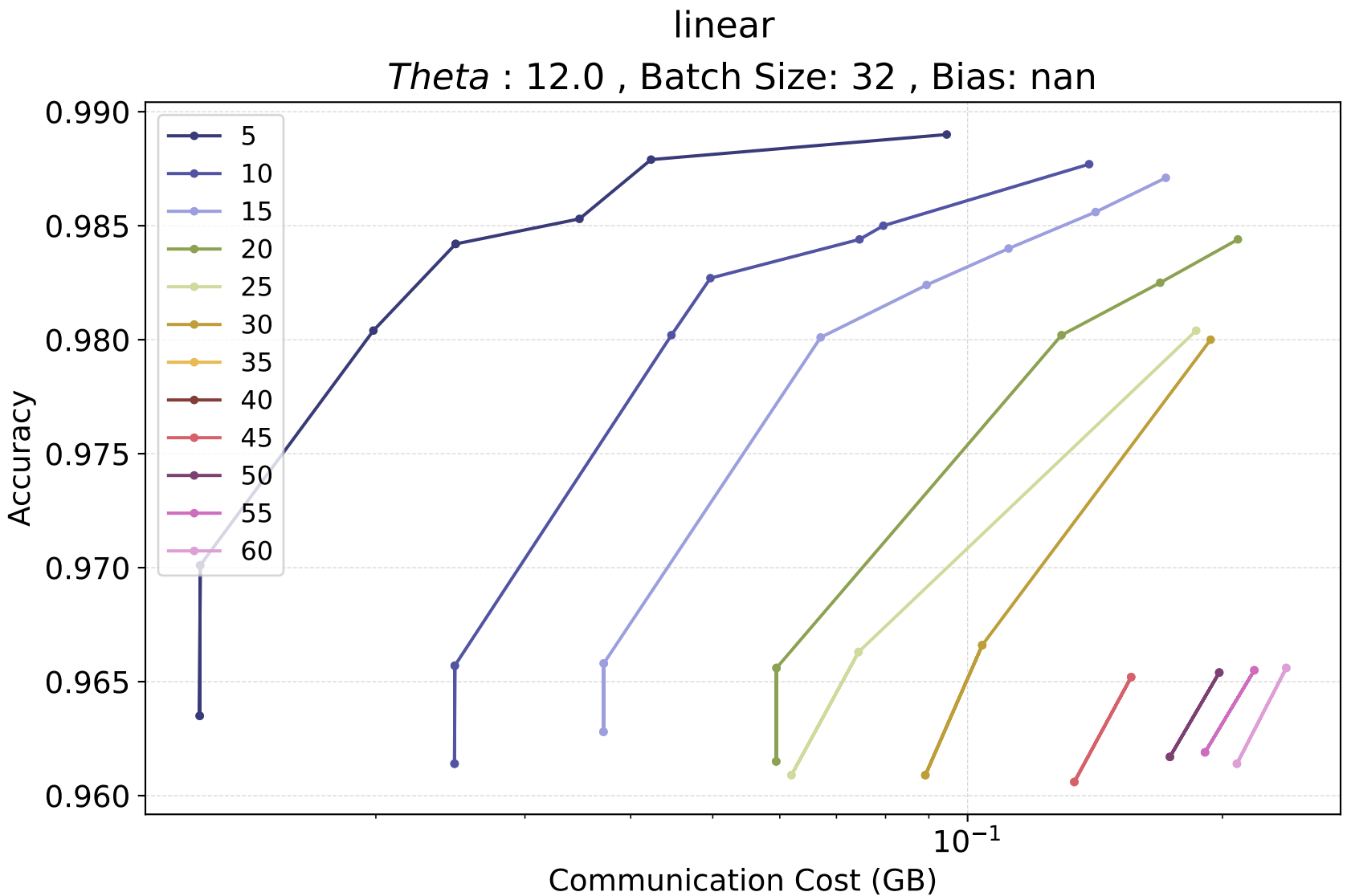

naive
Theta : 10.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)

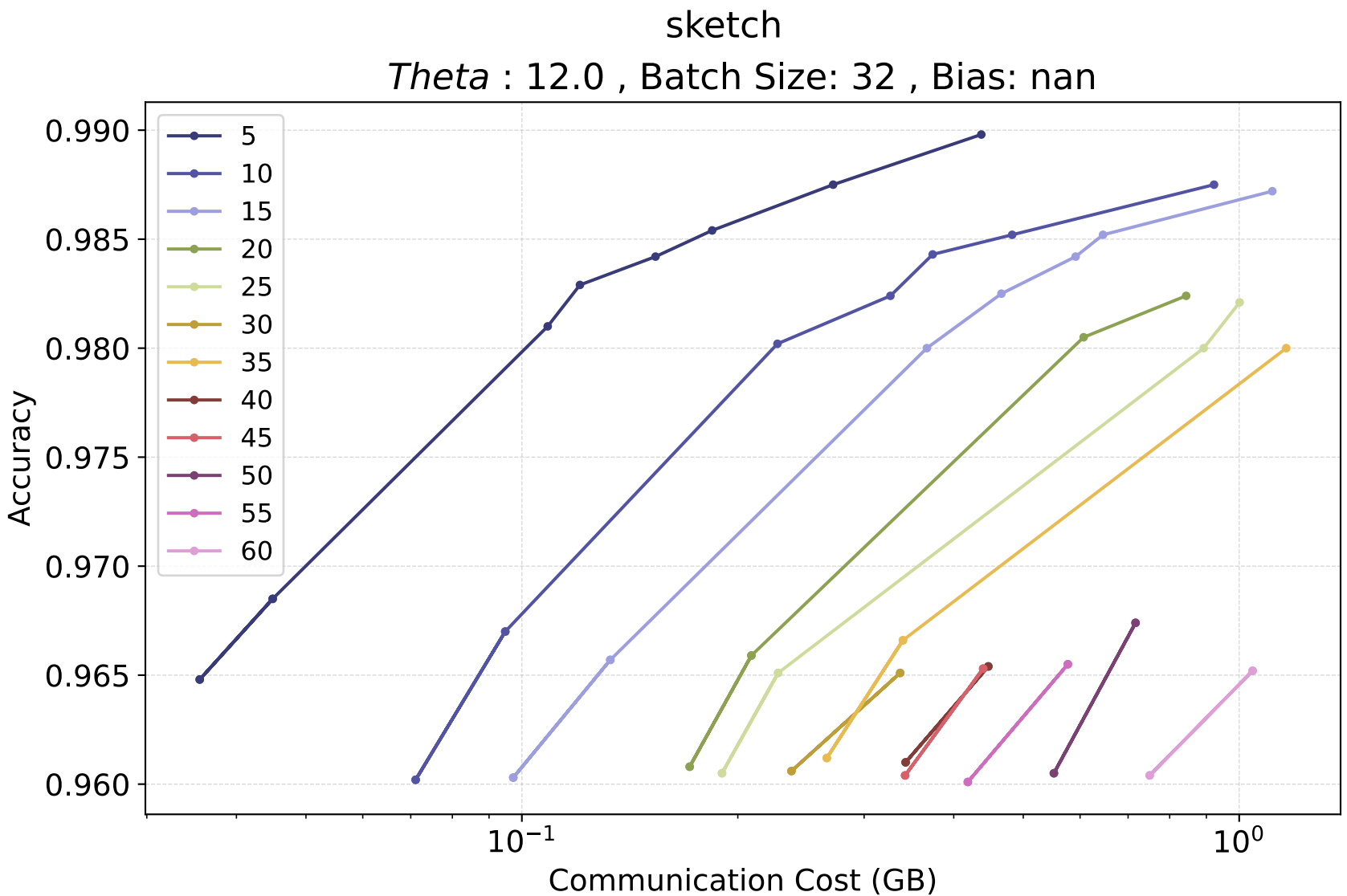

linear
Theta : 10.0 , Batch Size: 32 , Bias: nan
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

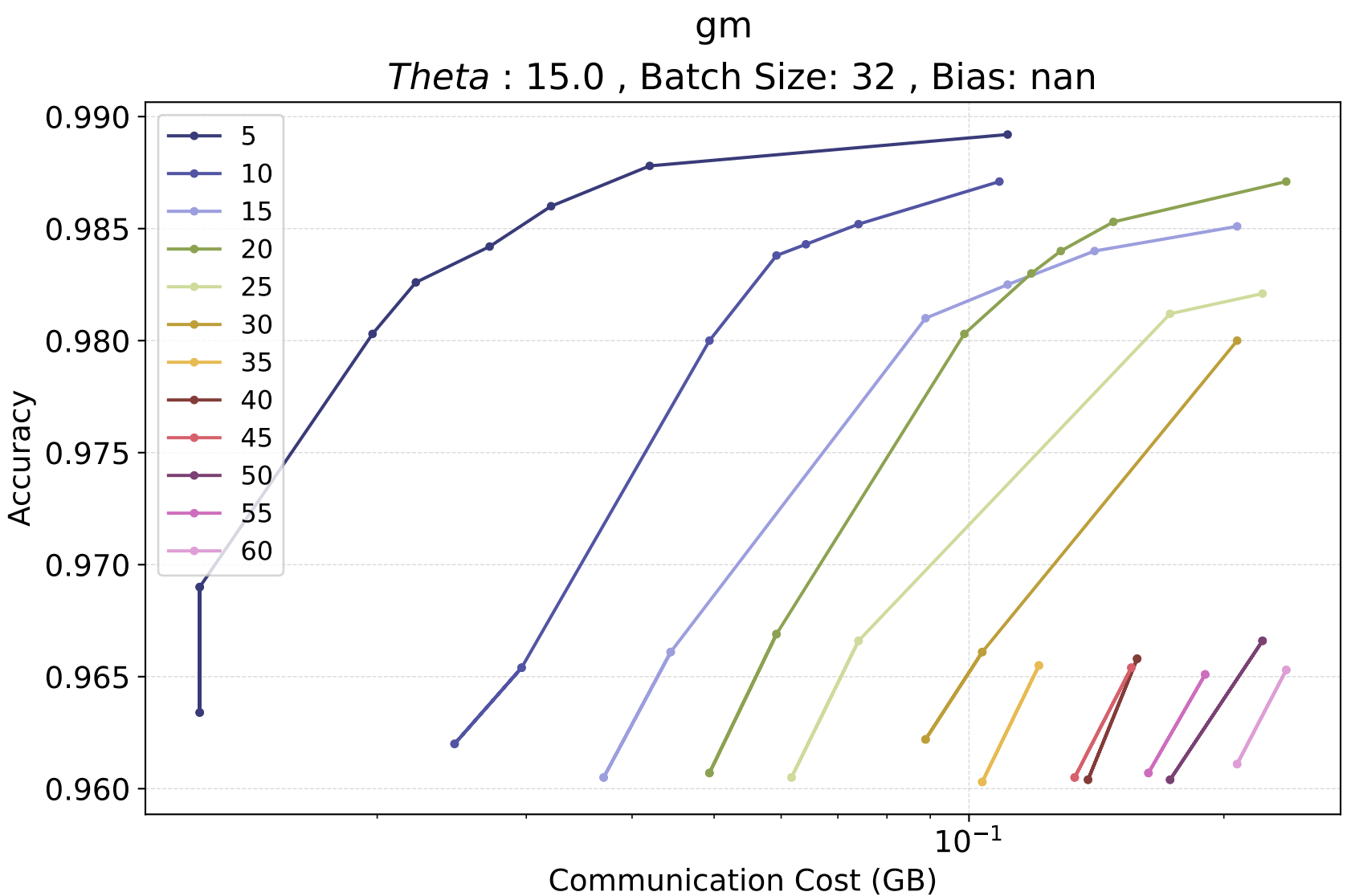

sketch
Theta : 10.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60

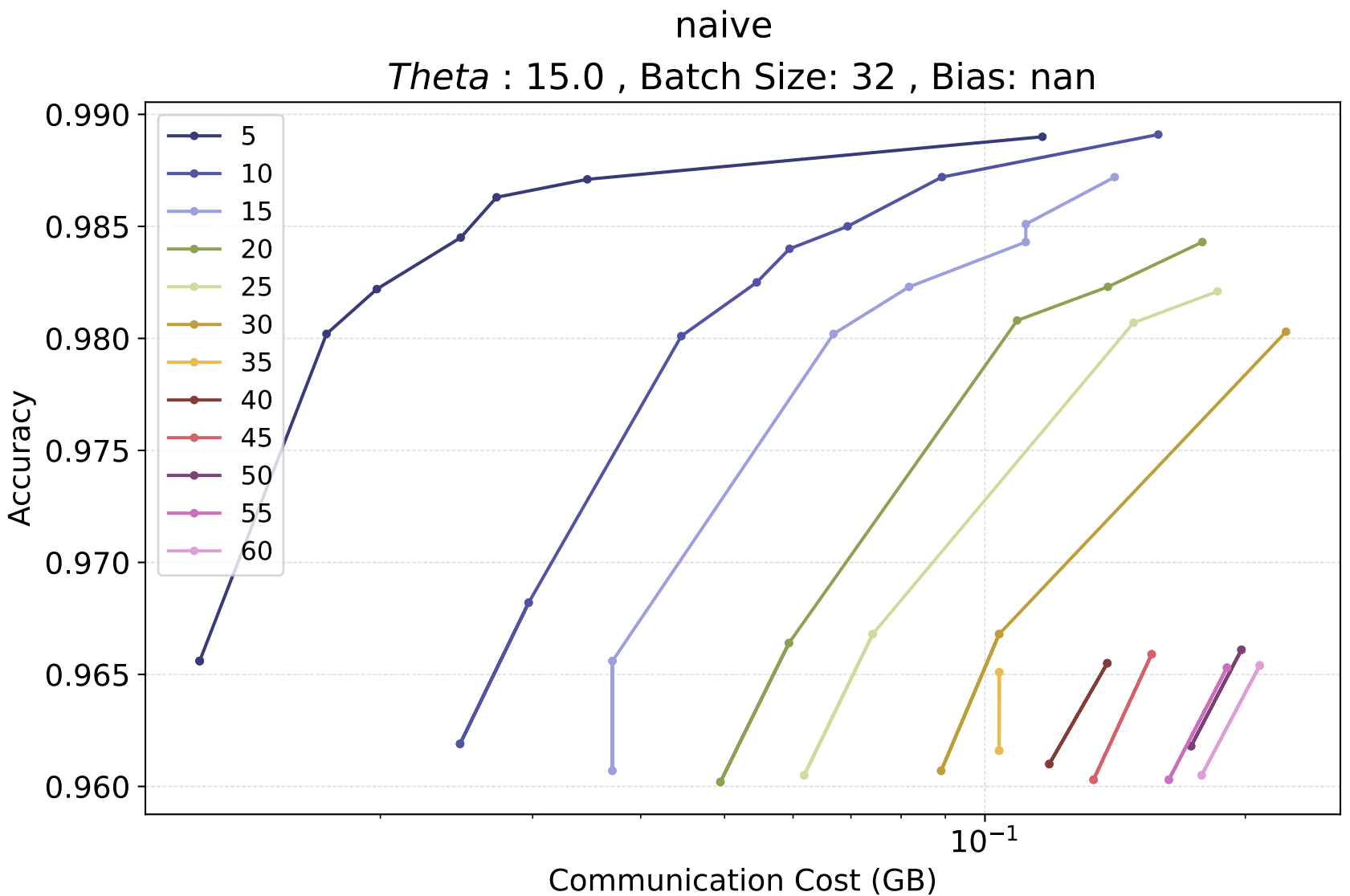

gm
Theta : 12.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)

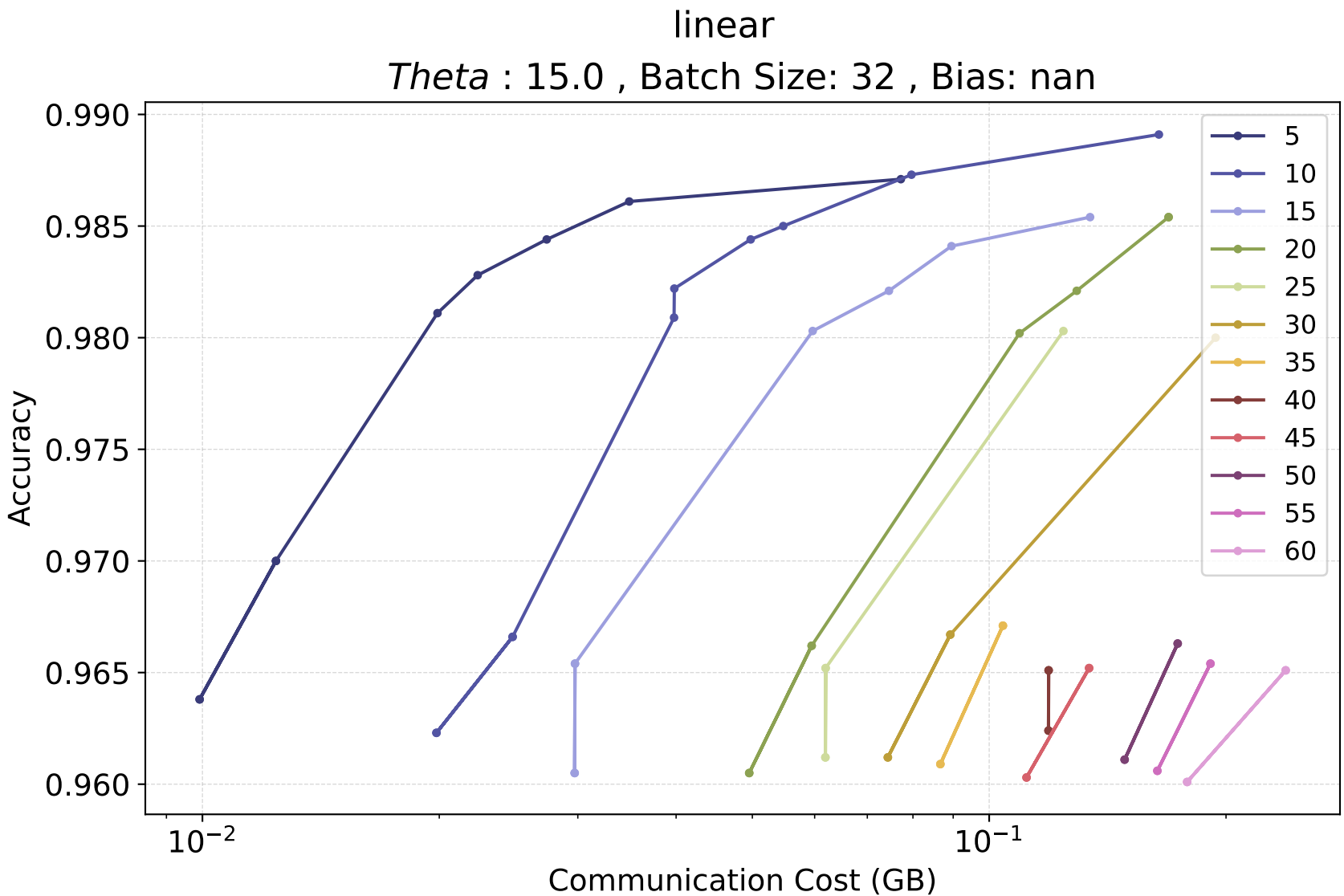

naive
Theta : 12.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)


linear
Theta : 12.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)


sketch
Theta : 12.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


gm
Theta : 15.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)


naive
Theta : 15.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
5
10
15
20
25
30
35
40
45
50
55
60
10^{-1}
Communication Cost (GB)


linear
Theta : 15.0 , Batch Size: 32 , Bias: nan
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-2}
10^{-1}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60


sketch
Theta : 15.0 , Batch Size: 32 , Bias: nan
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
Communication Cost (GB)
5
10
15
20
25
30
35
40
45
50
55
60