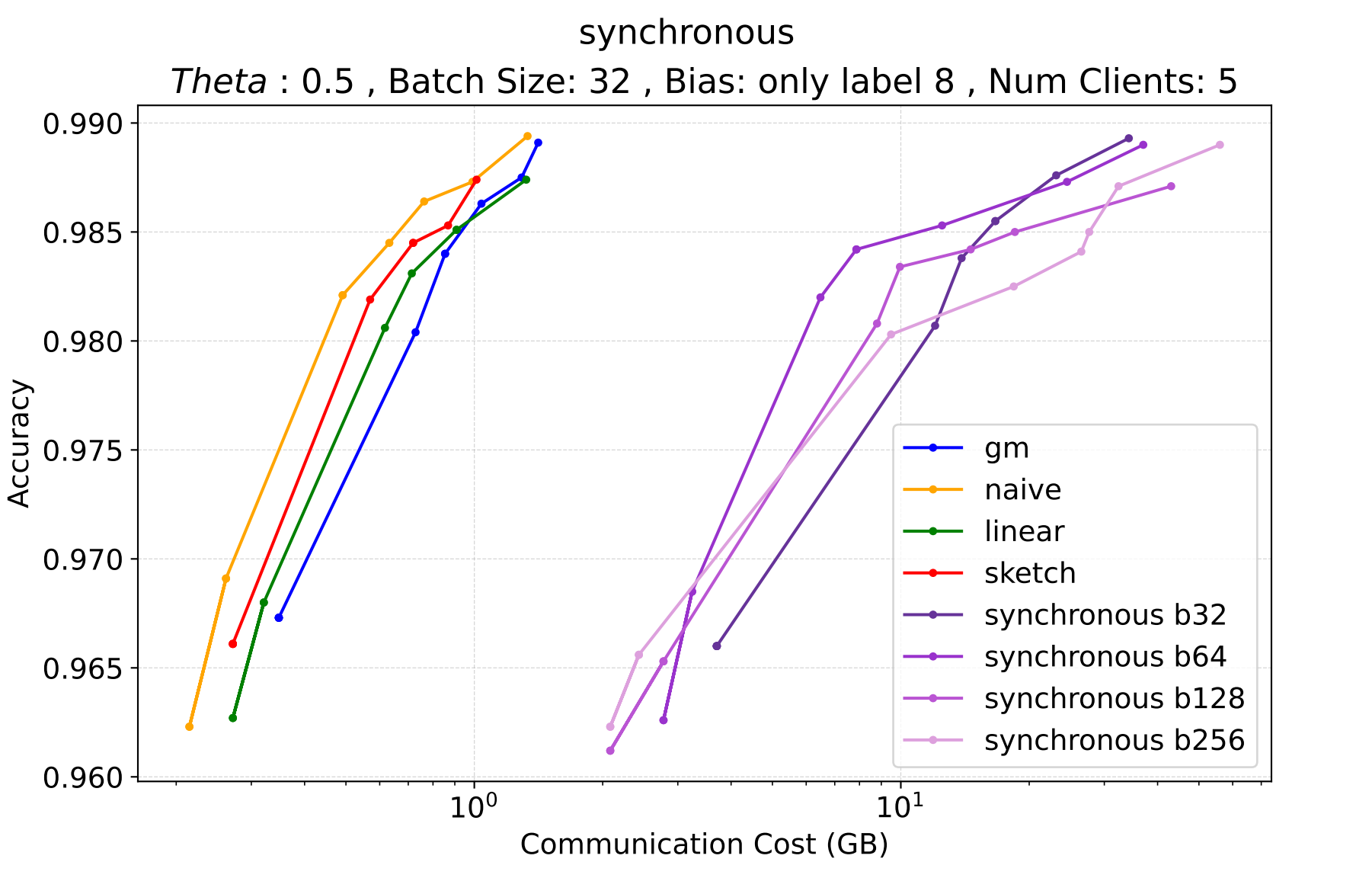
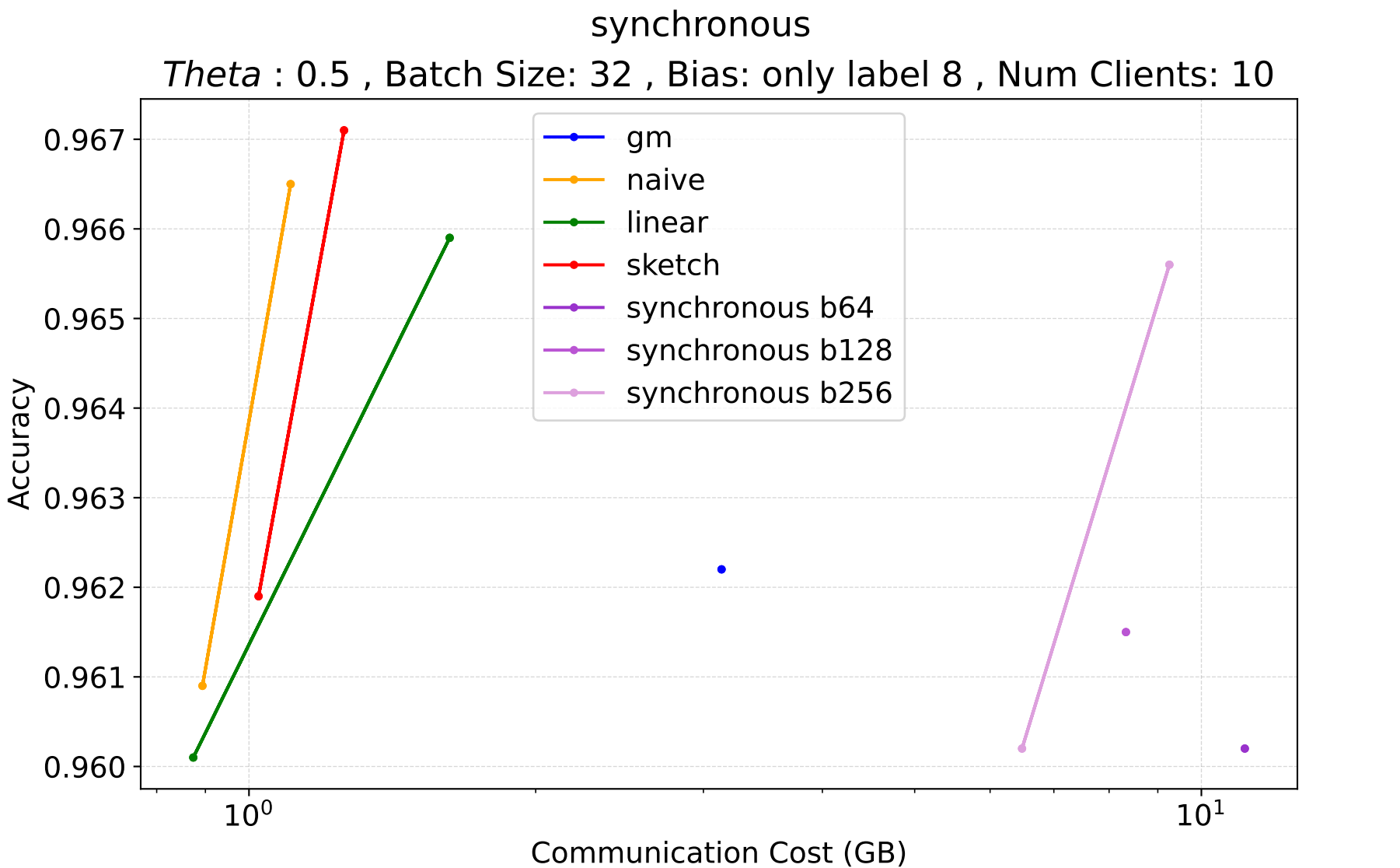
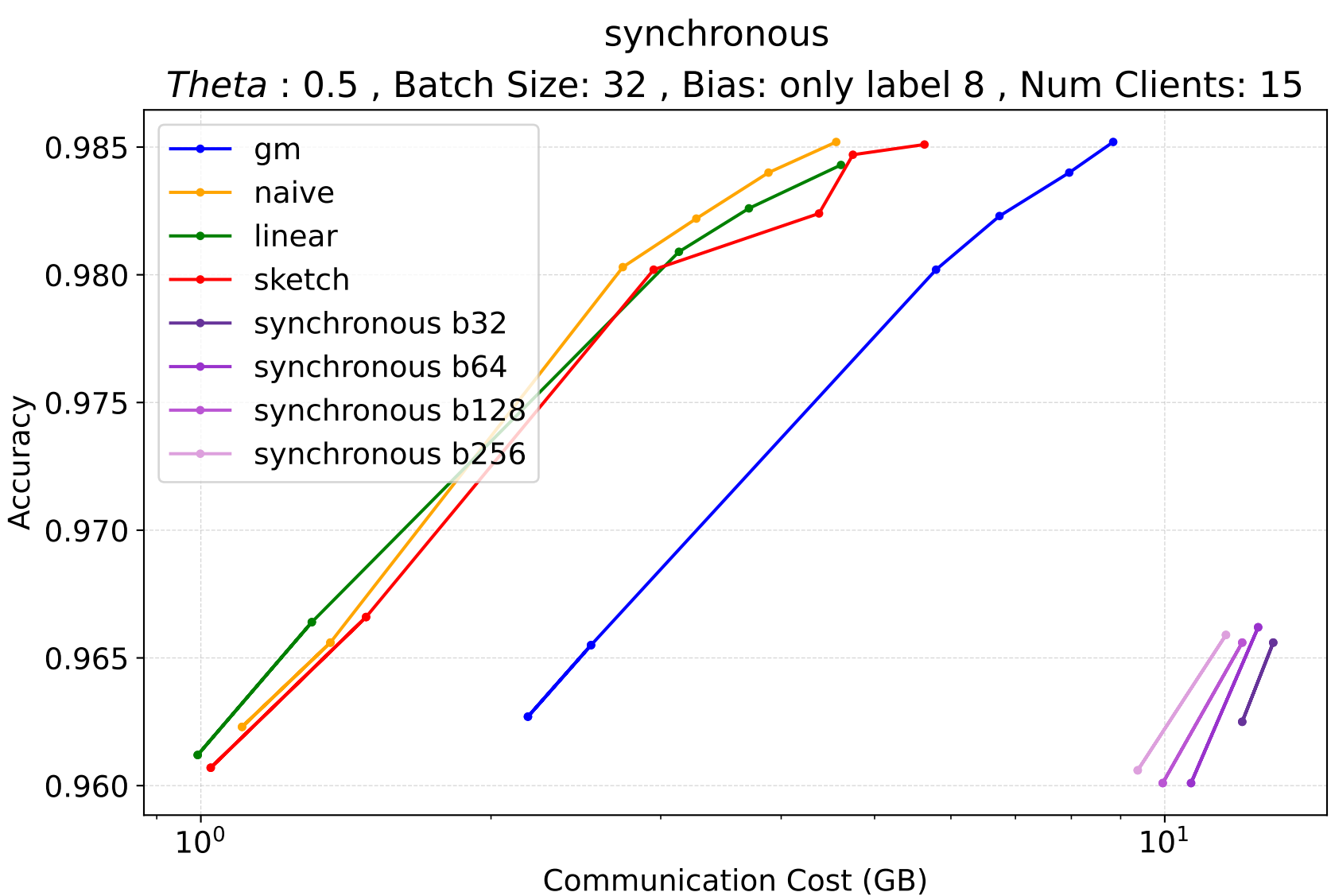
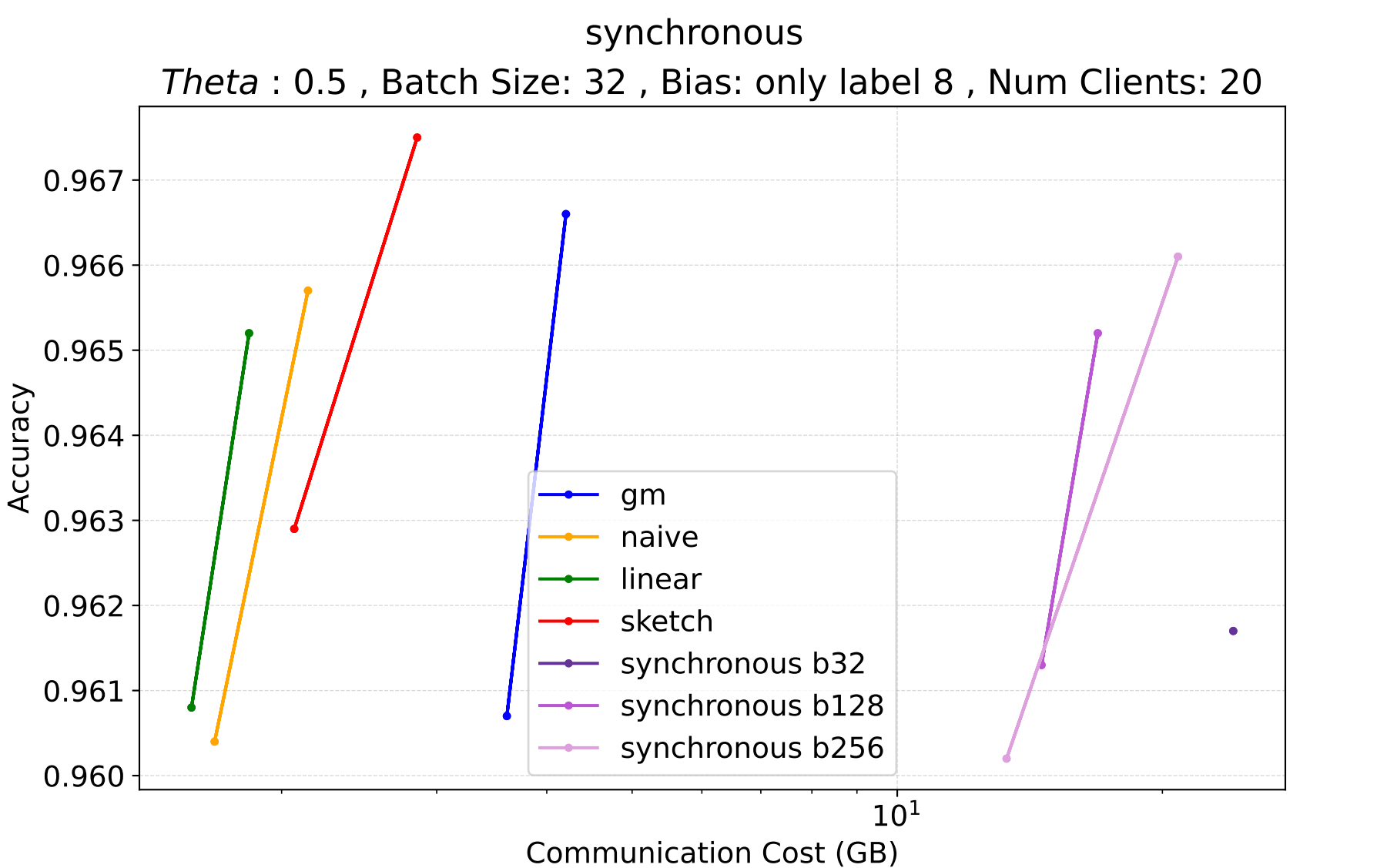
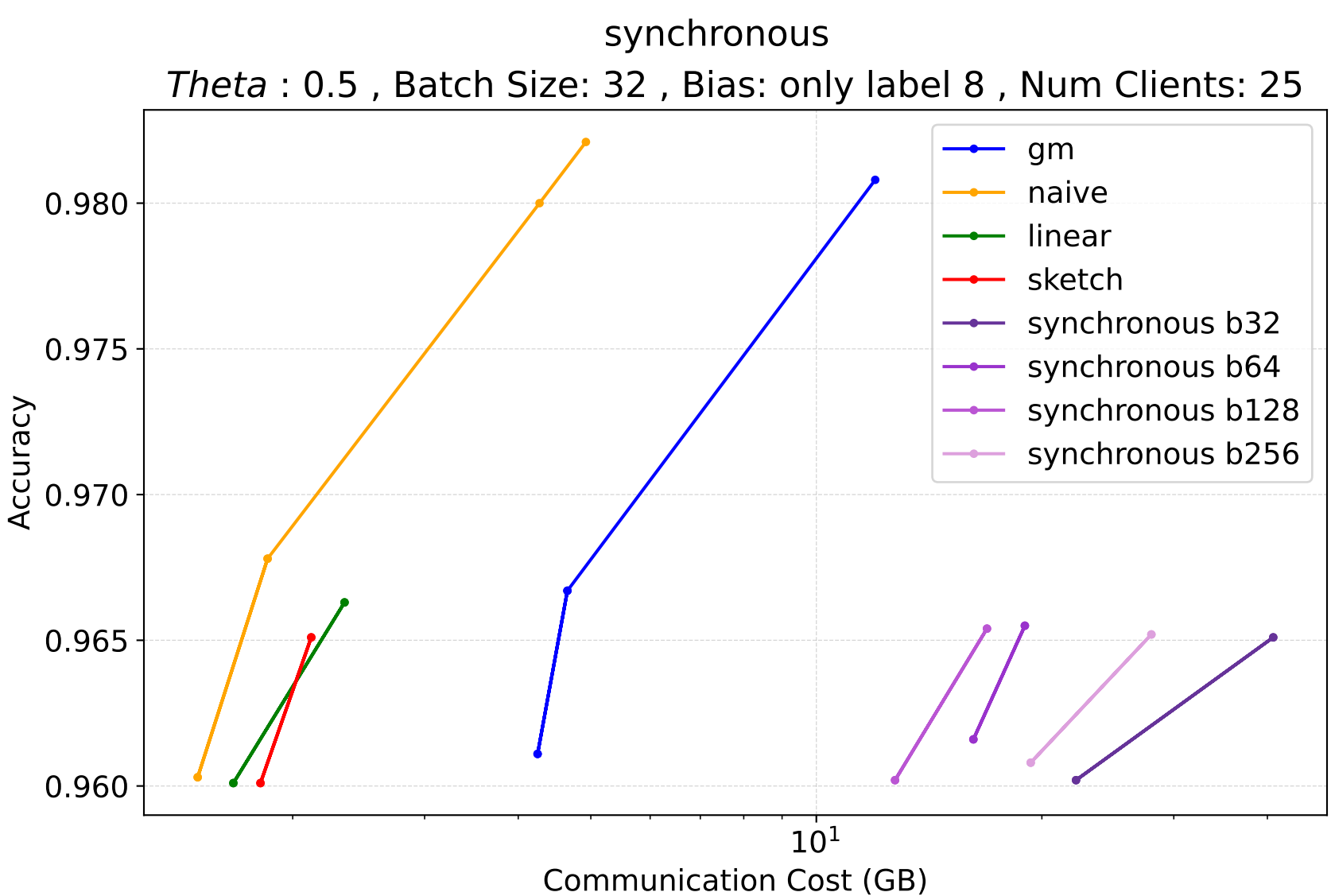
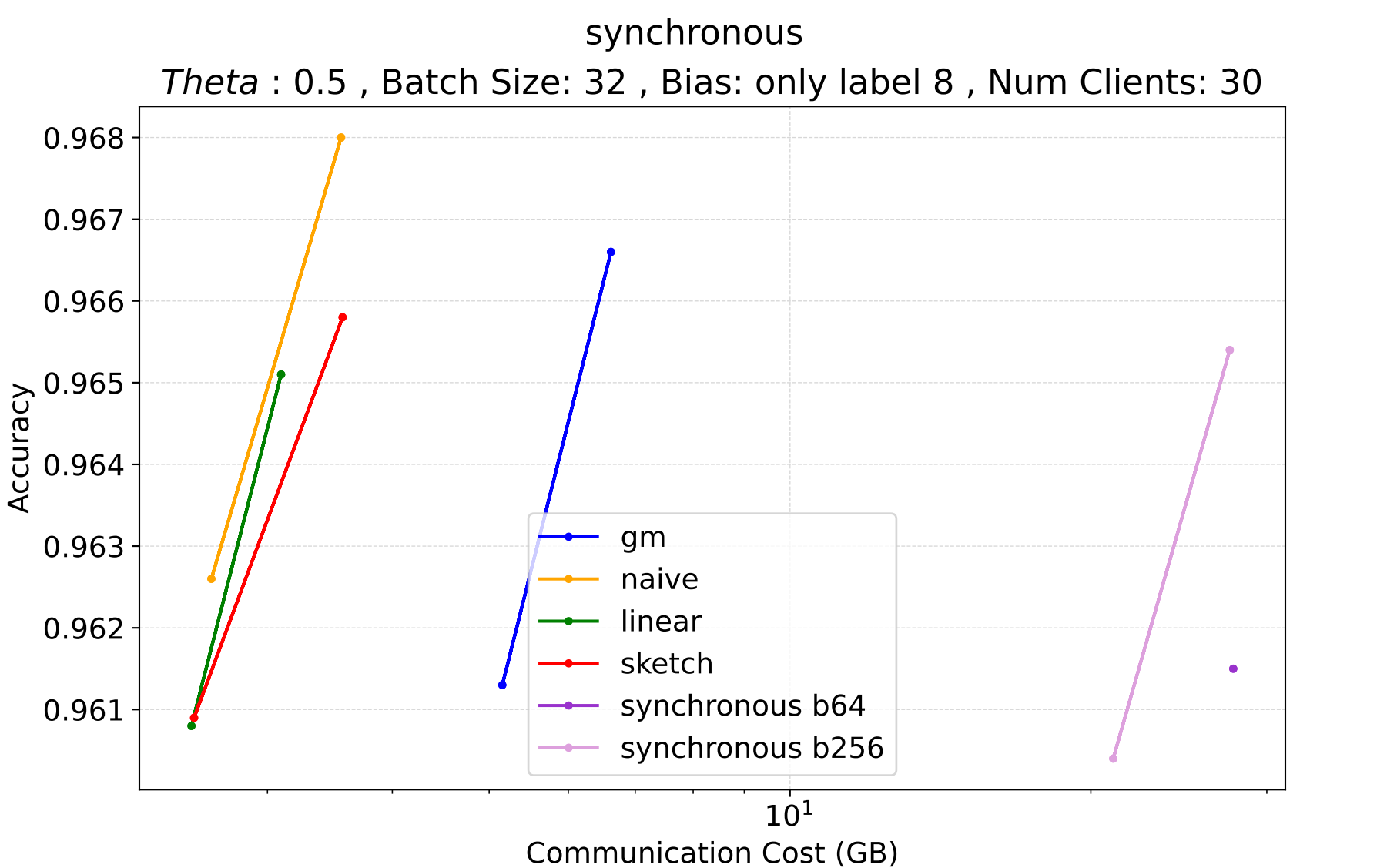

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

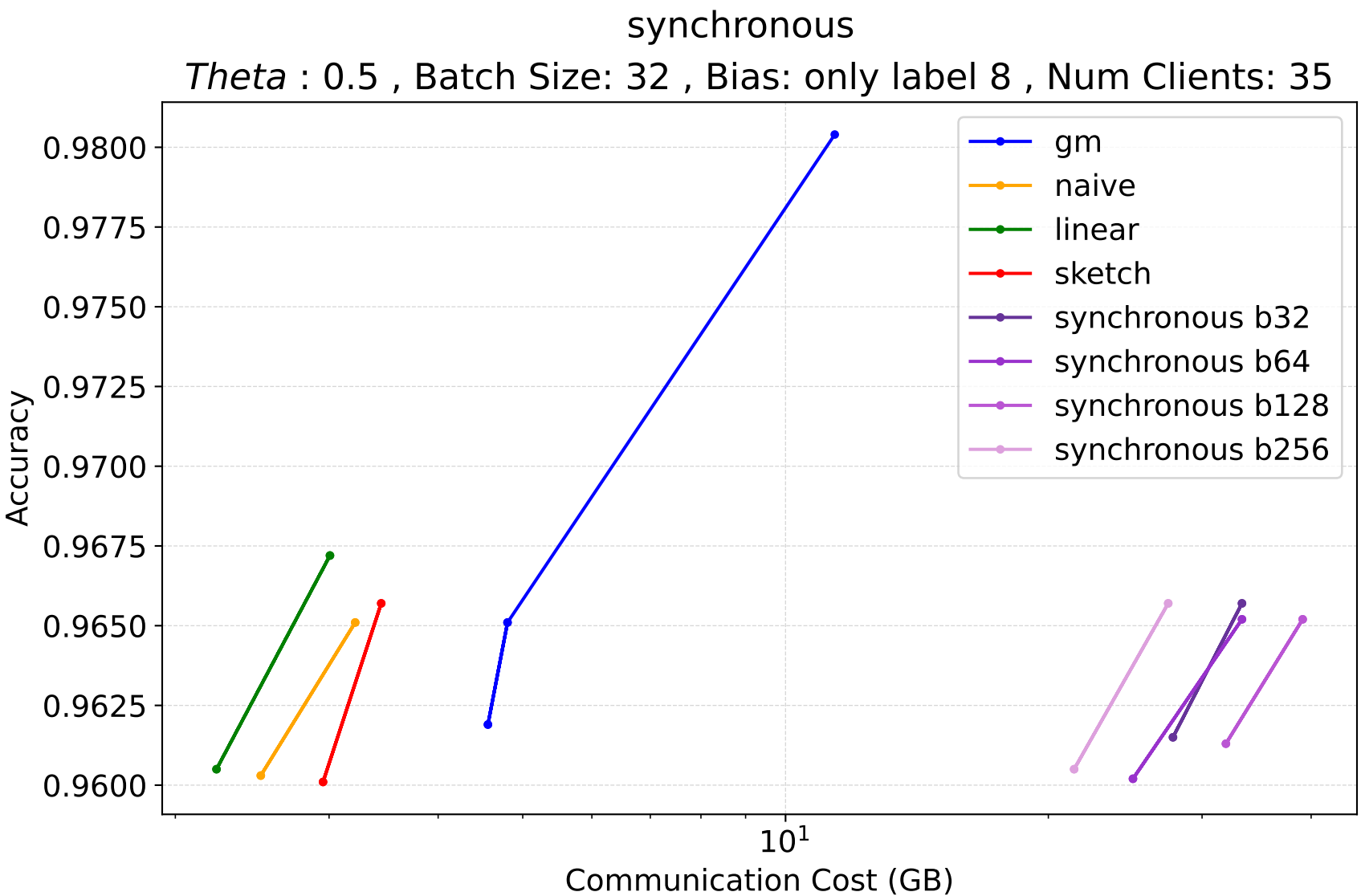

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 10
gm
naive
linear
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)

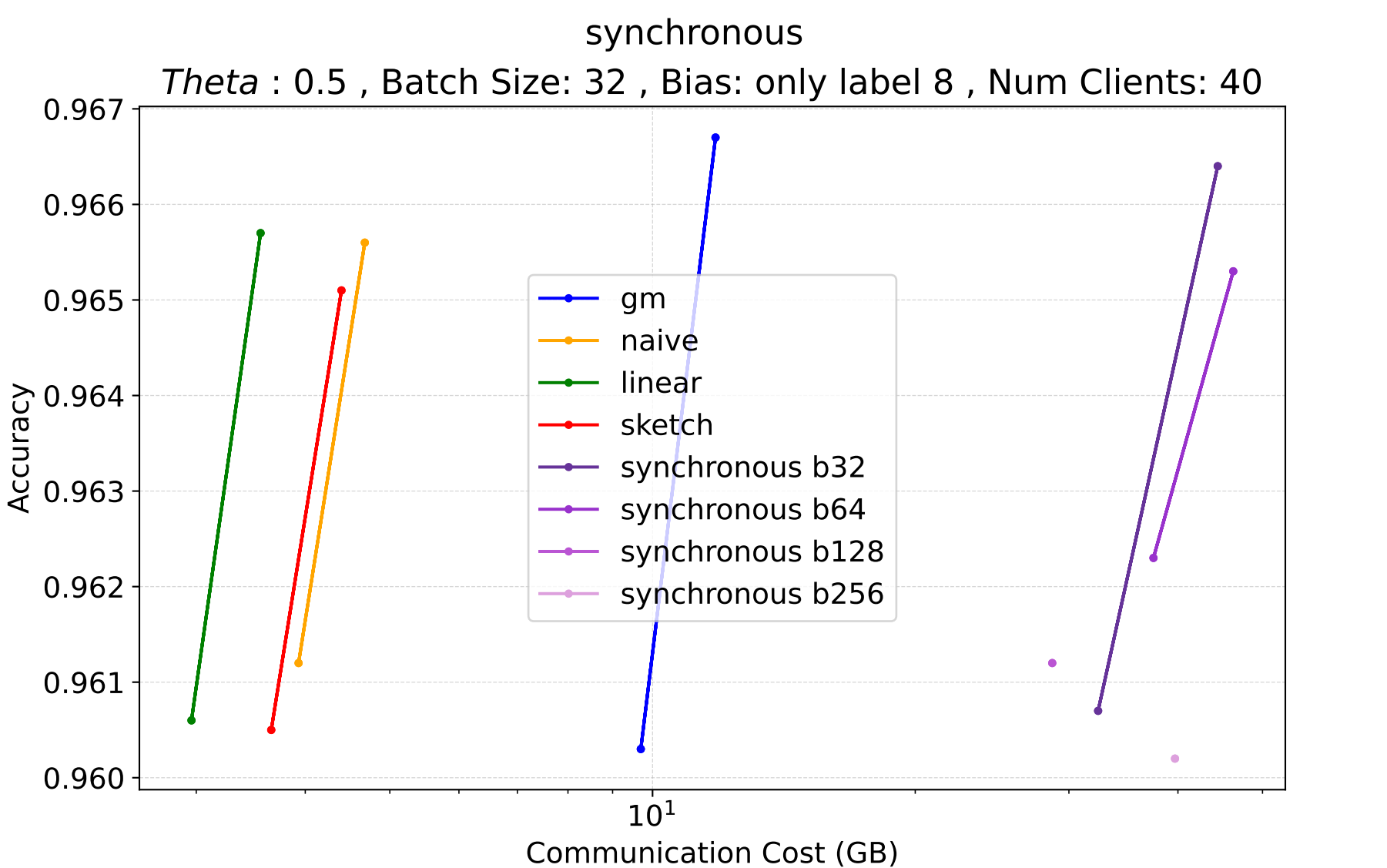

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)

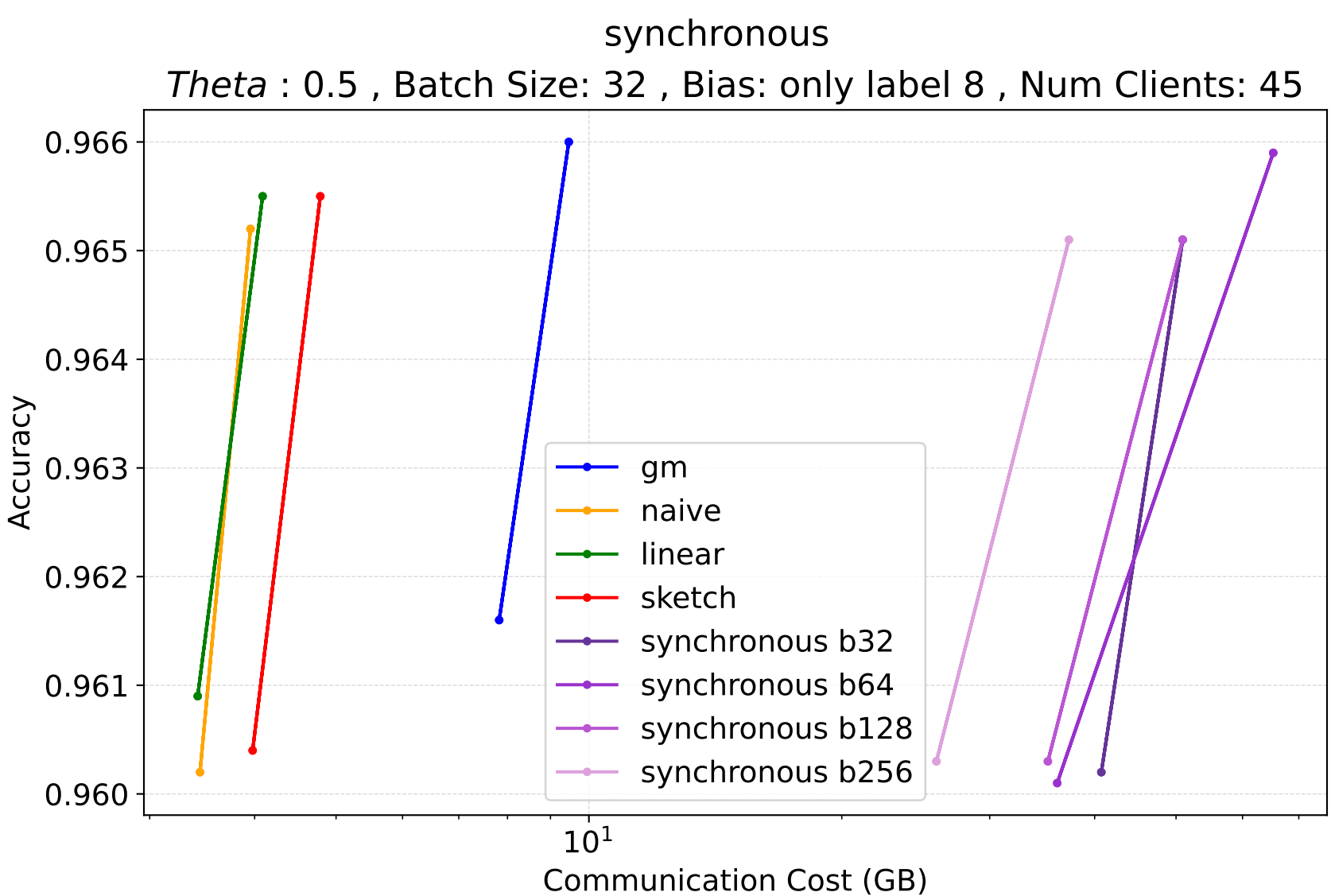

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 20
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b128
synchronous b256

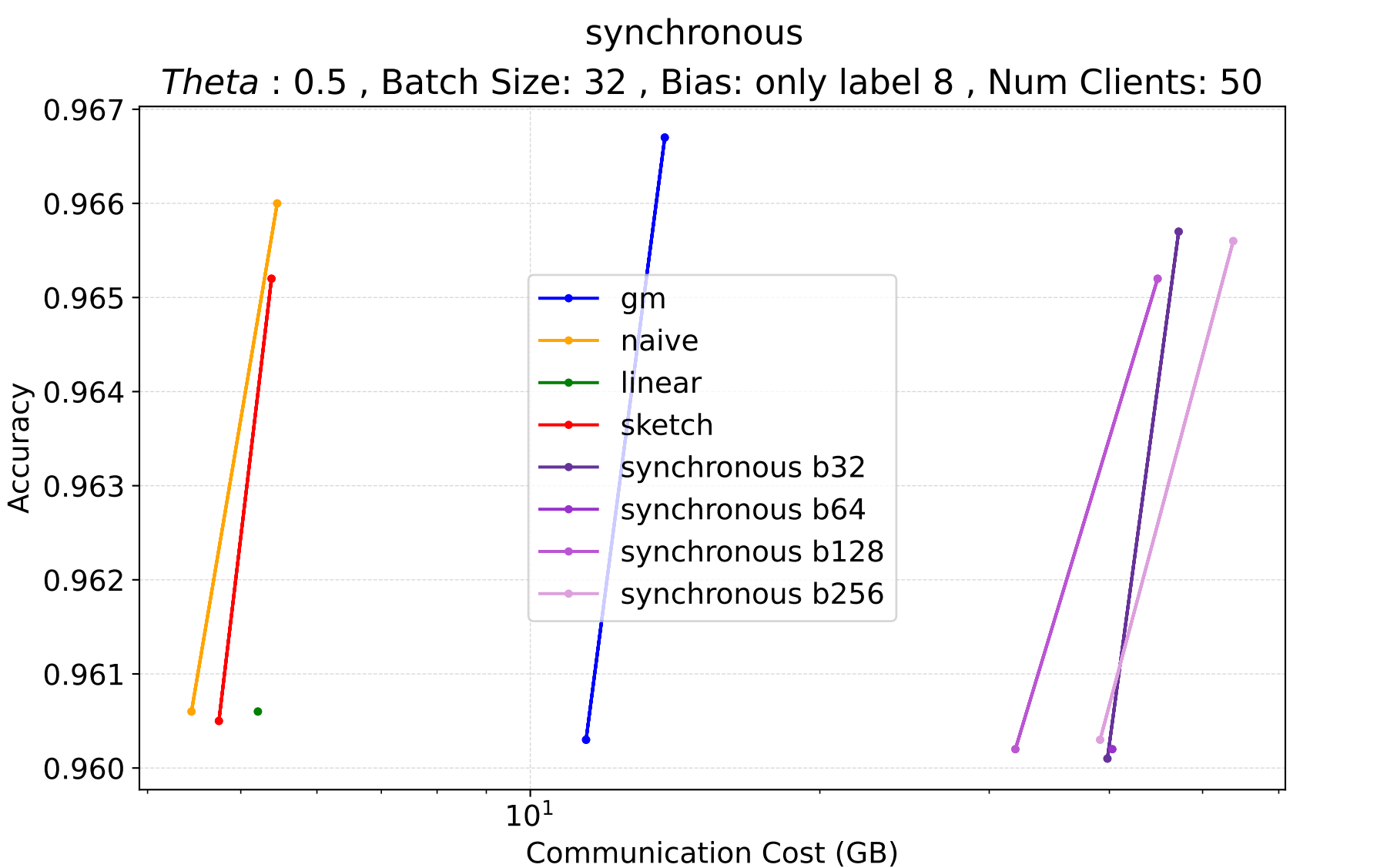

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 25
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)

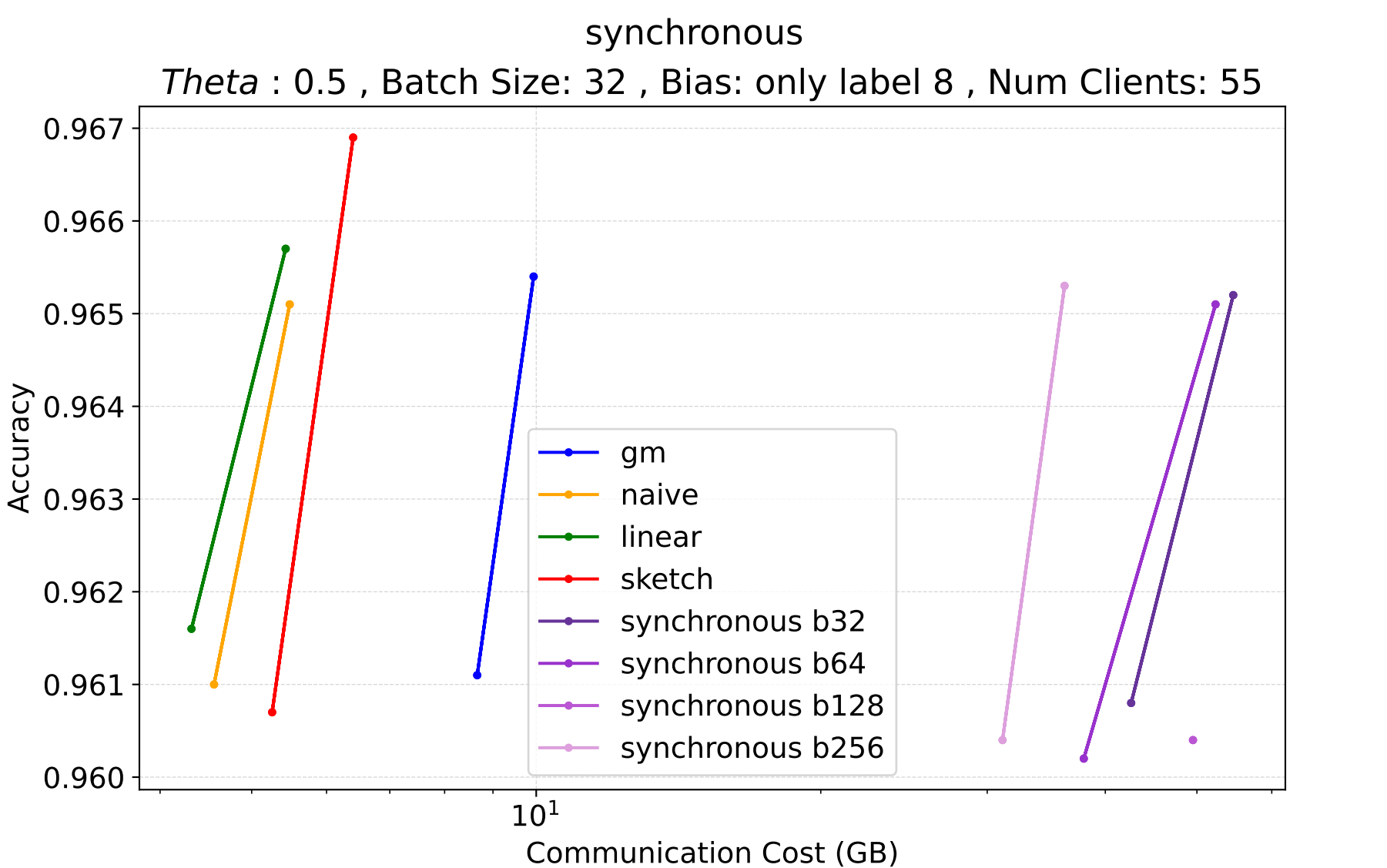

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 30
Accuracy
0.968
0.967
0.966
0.965
0.964
0.963
0.962
0.961
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b64
synchronous b256

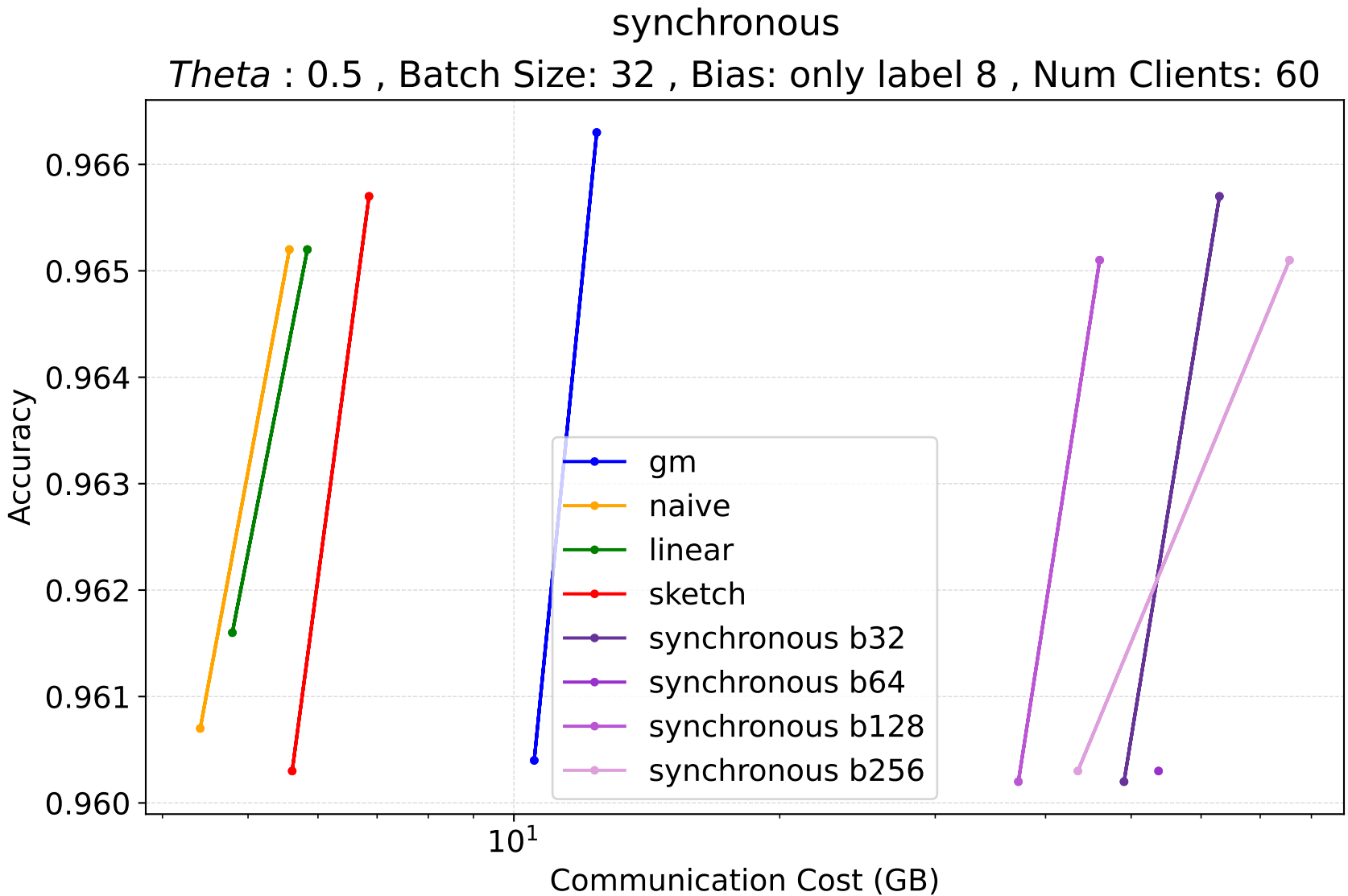

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 35
Accuracy
0.9800
0.9775
0.9750
0.9725
0.9700
0.9675
0.9650
0.9625
0.9600
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

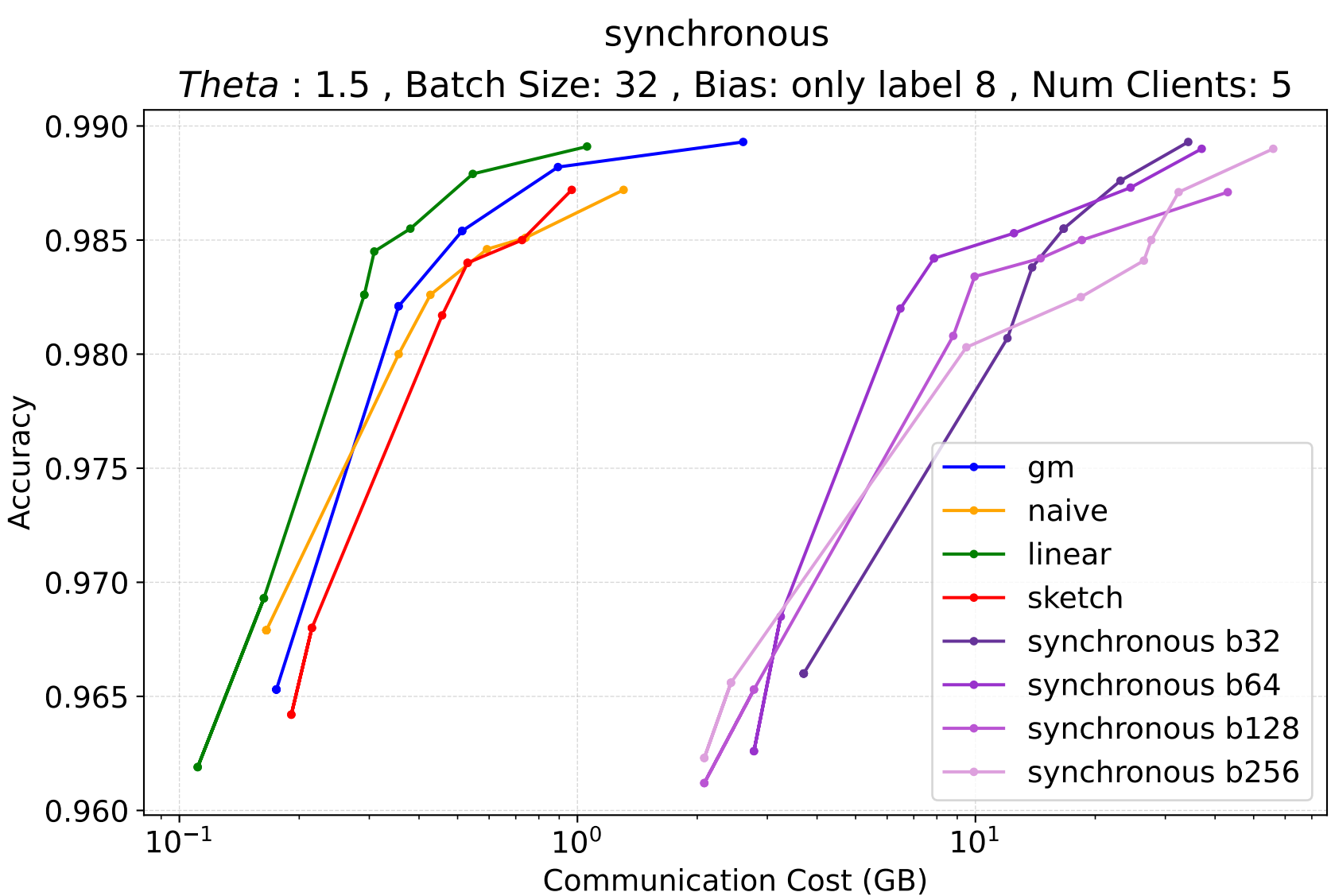

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 40
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
Accuracy
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

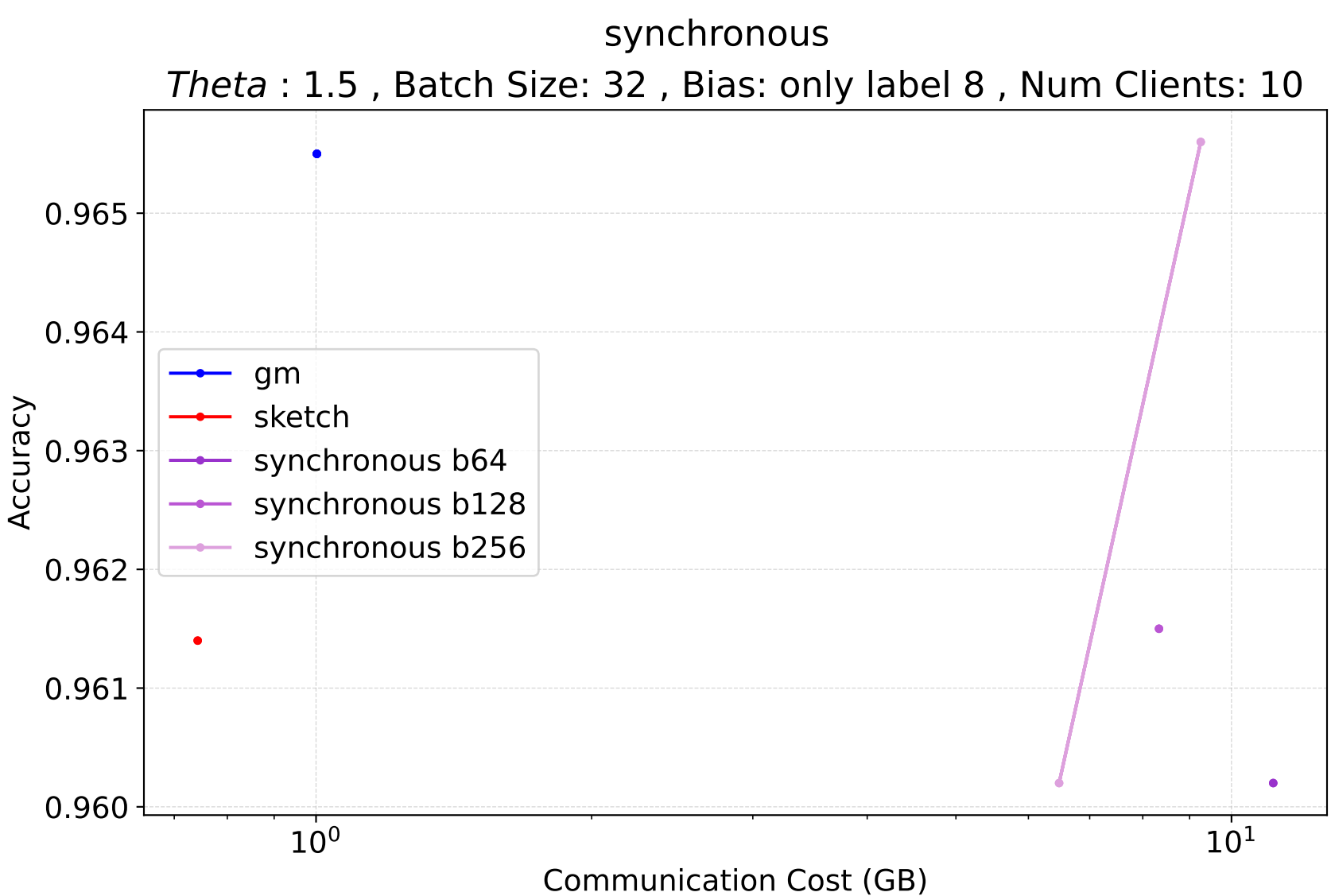

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 45
0.966
0.965
0.964
0.963
0.962
0.961
0.960
Accuracy
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

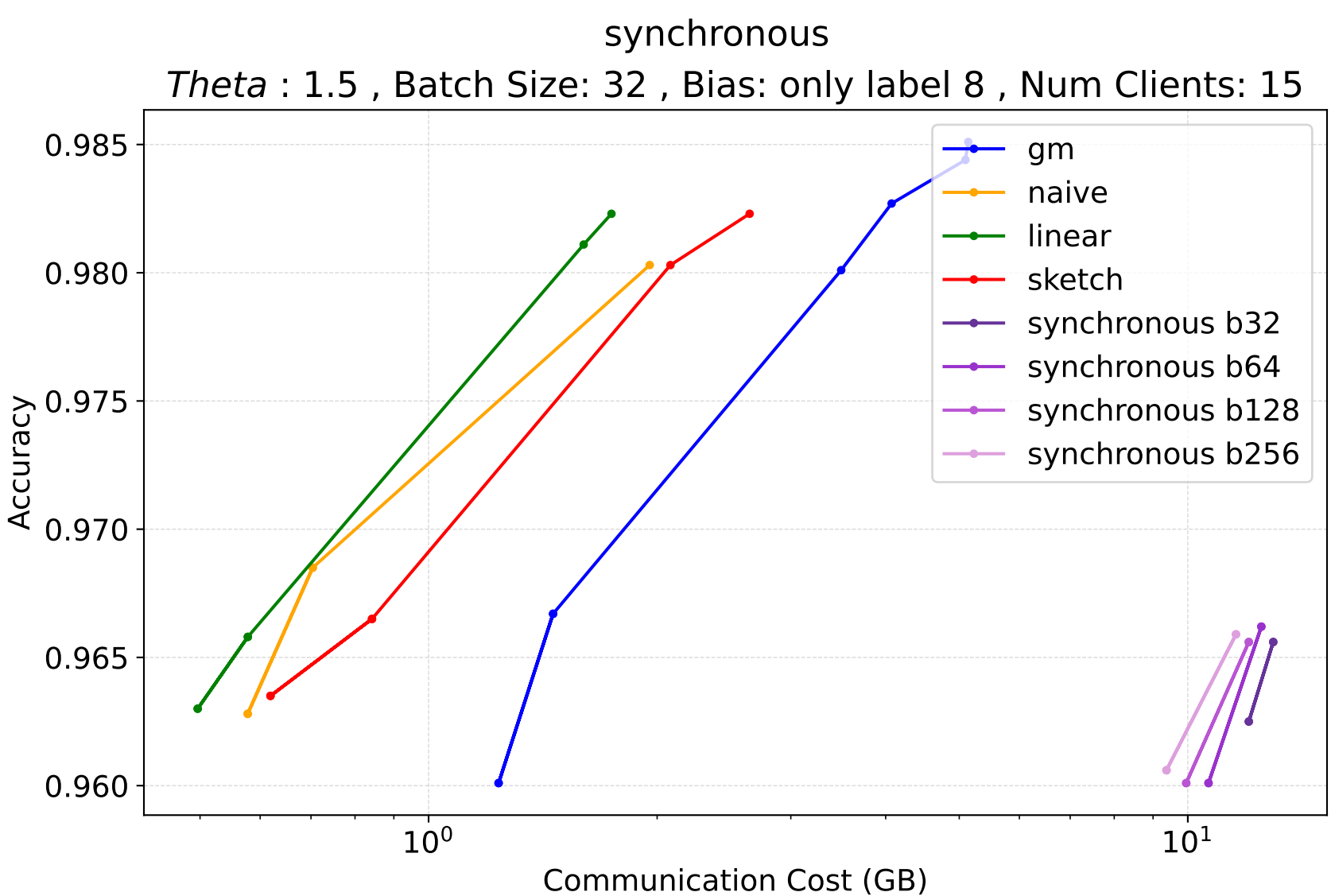

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 50
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
Accuracy
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

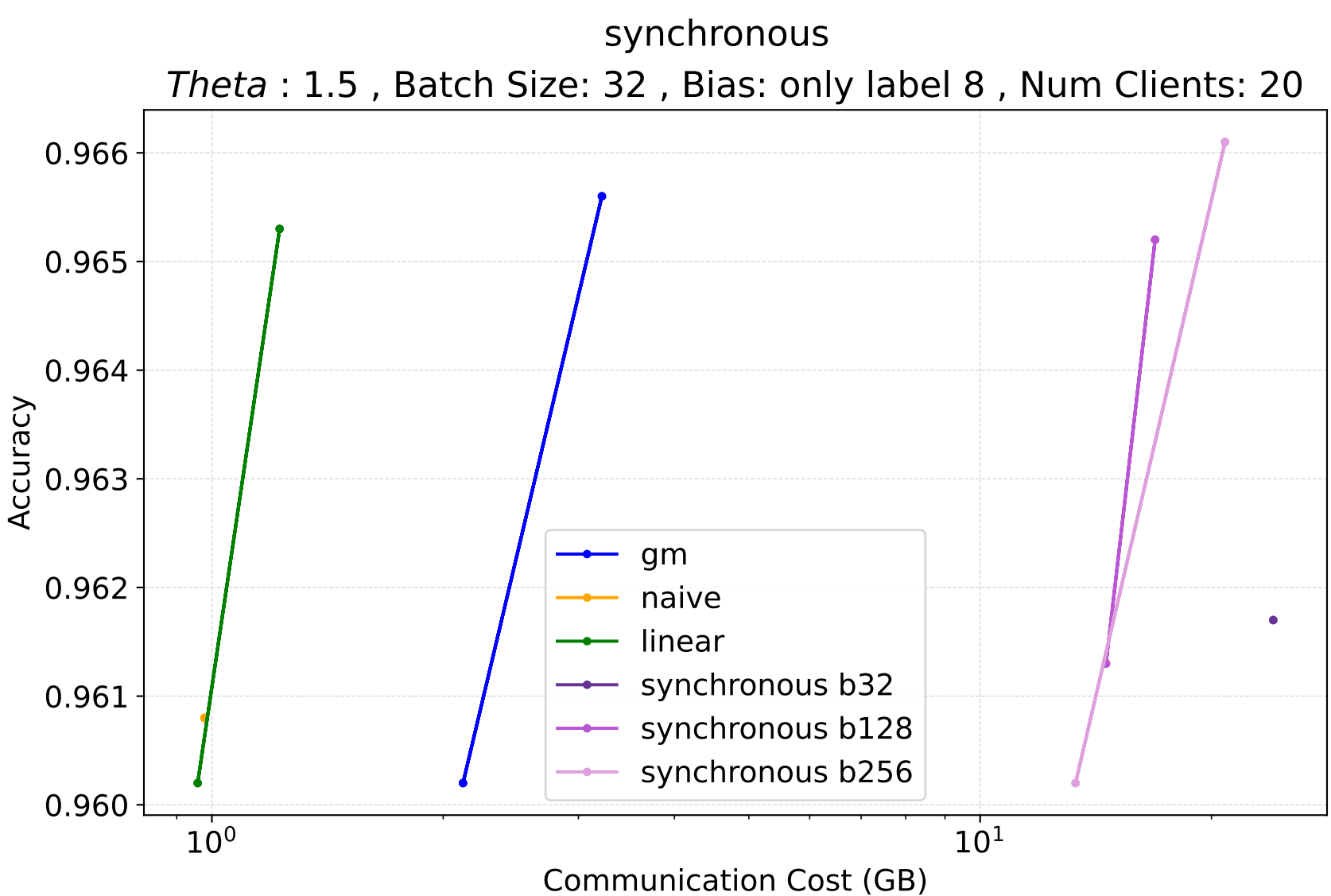

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 55
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

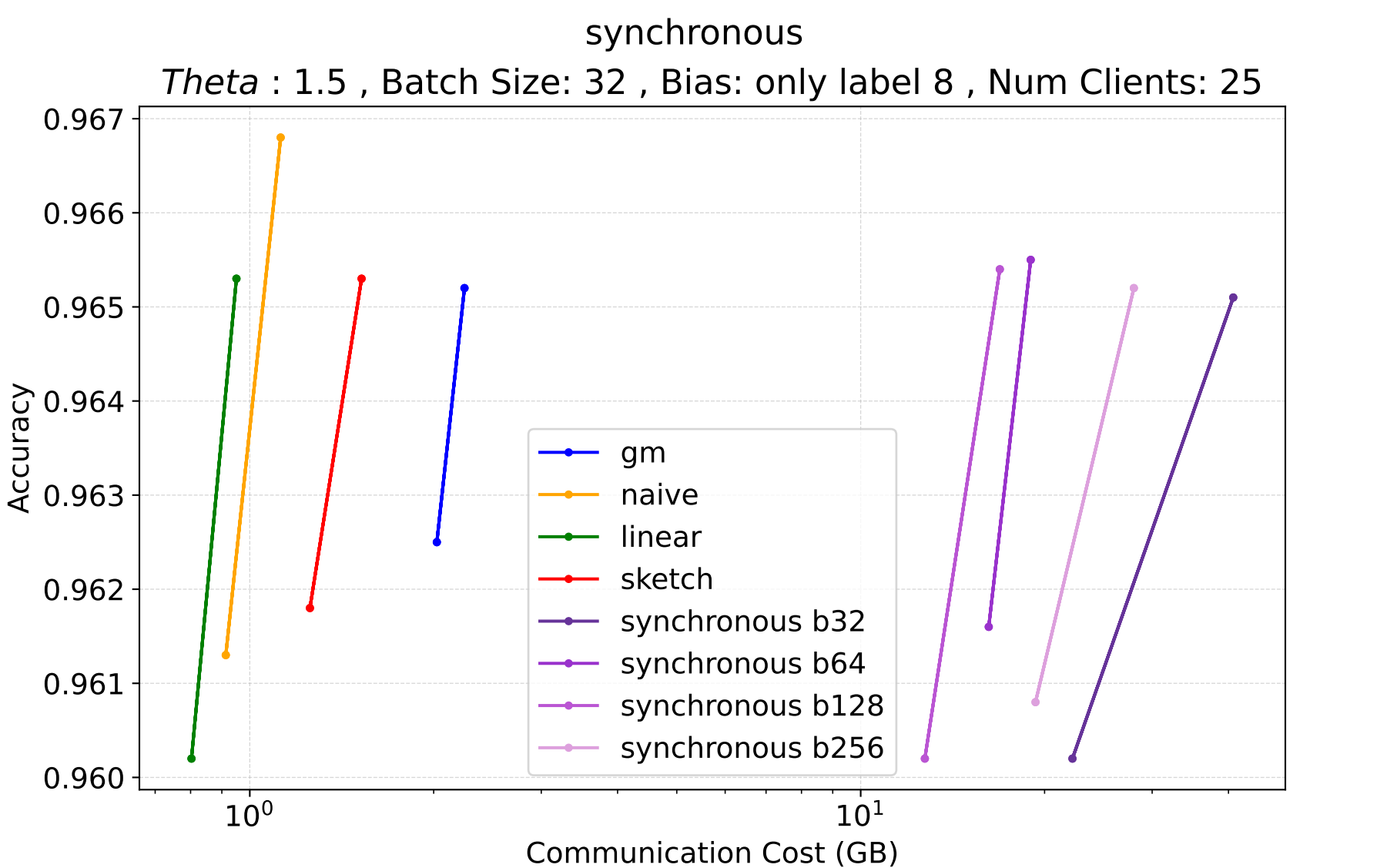

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 60
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

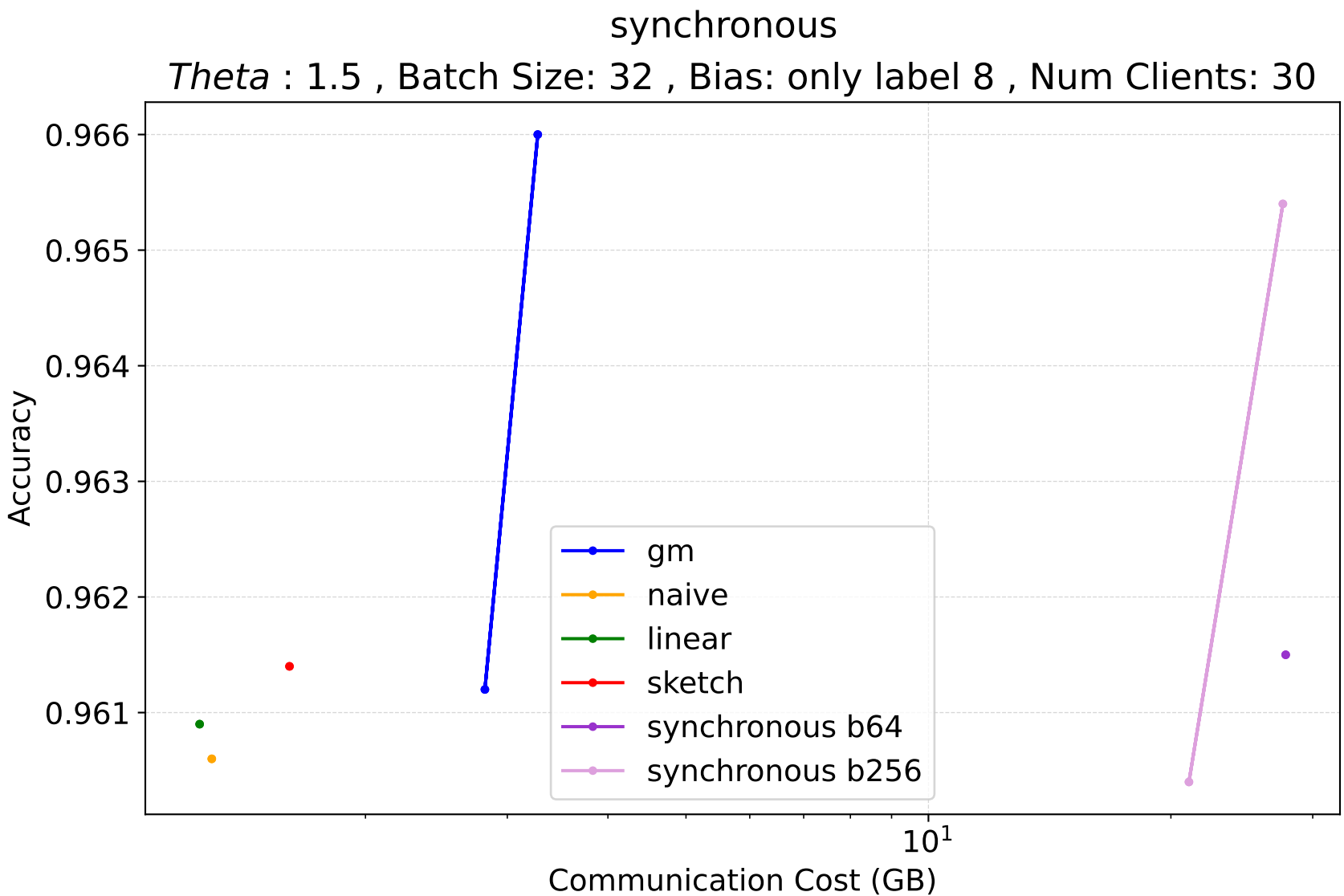

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

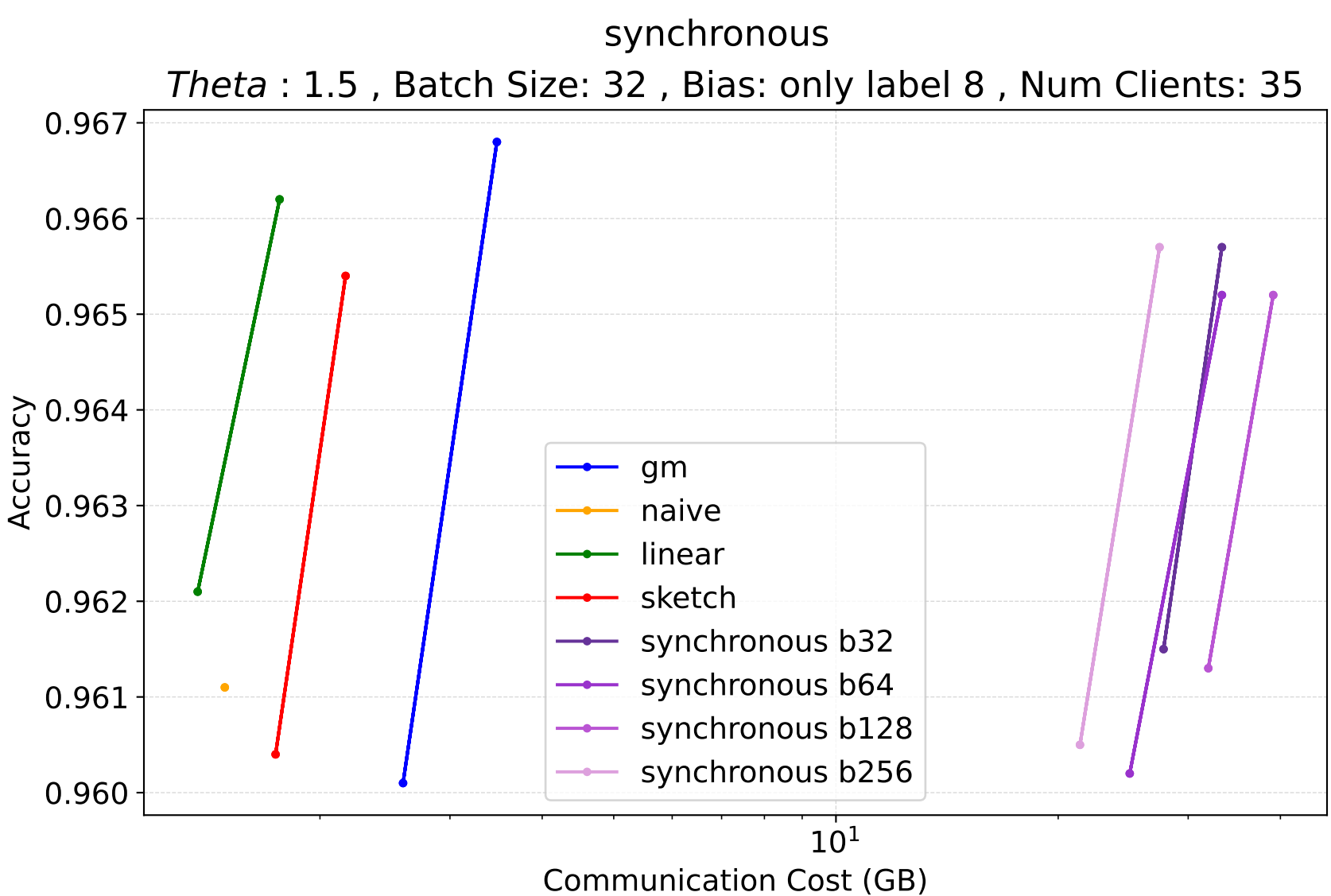

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 10
gm
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)

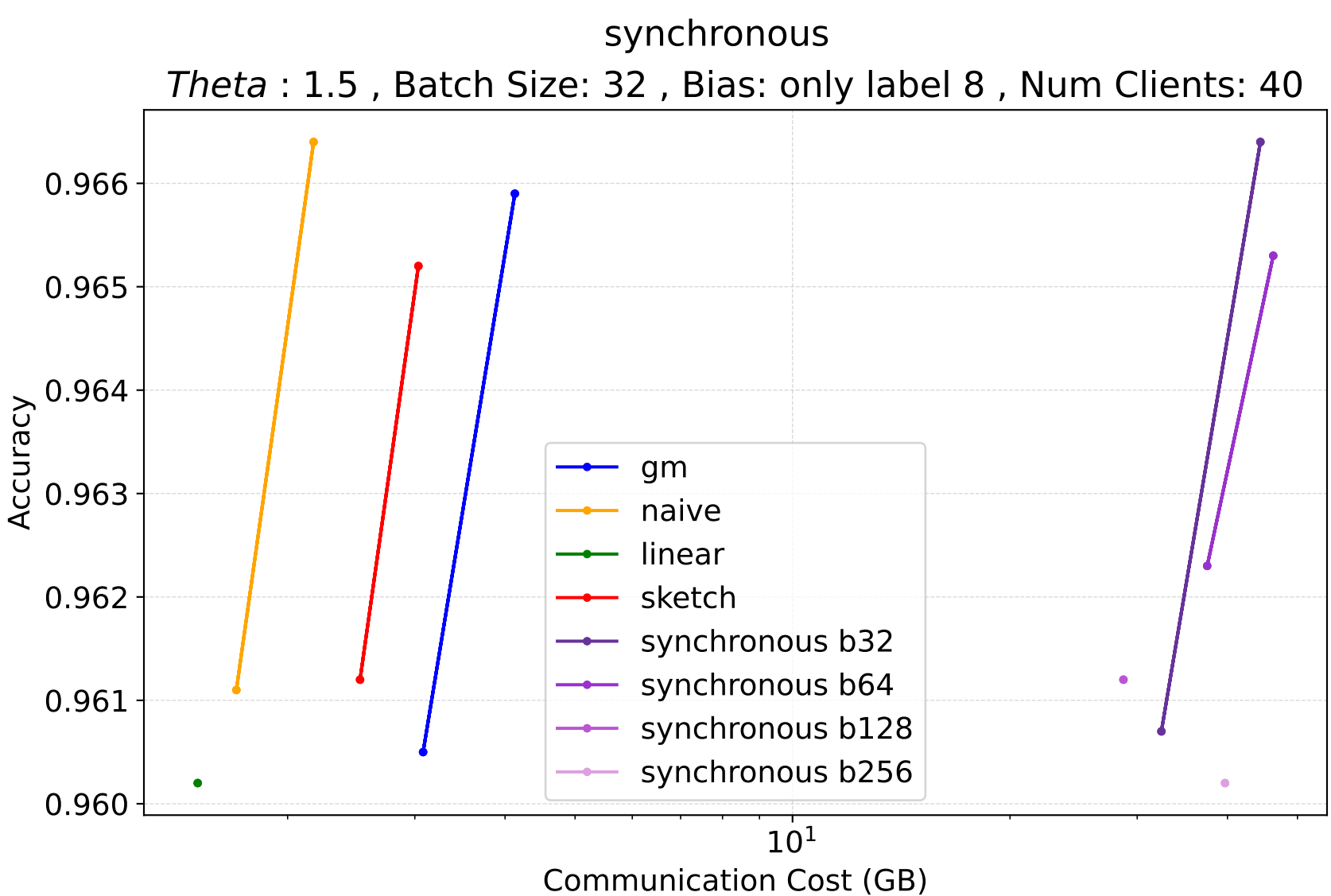

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

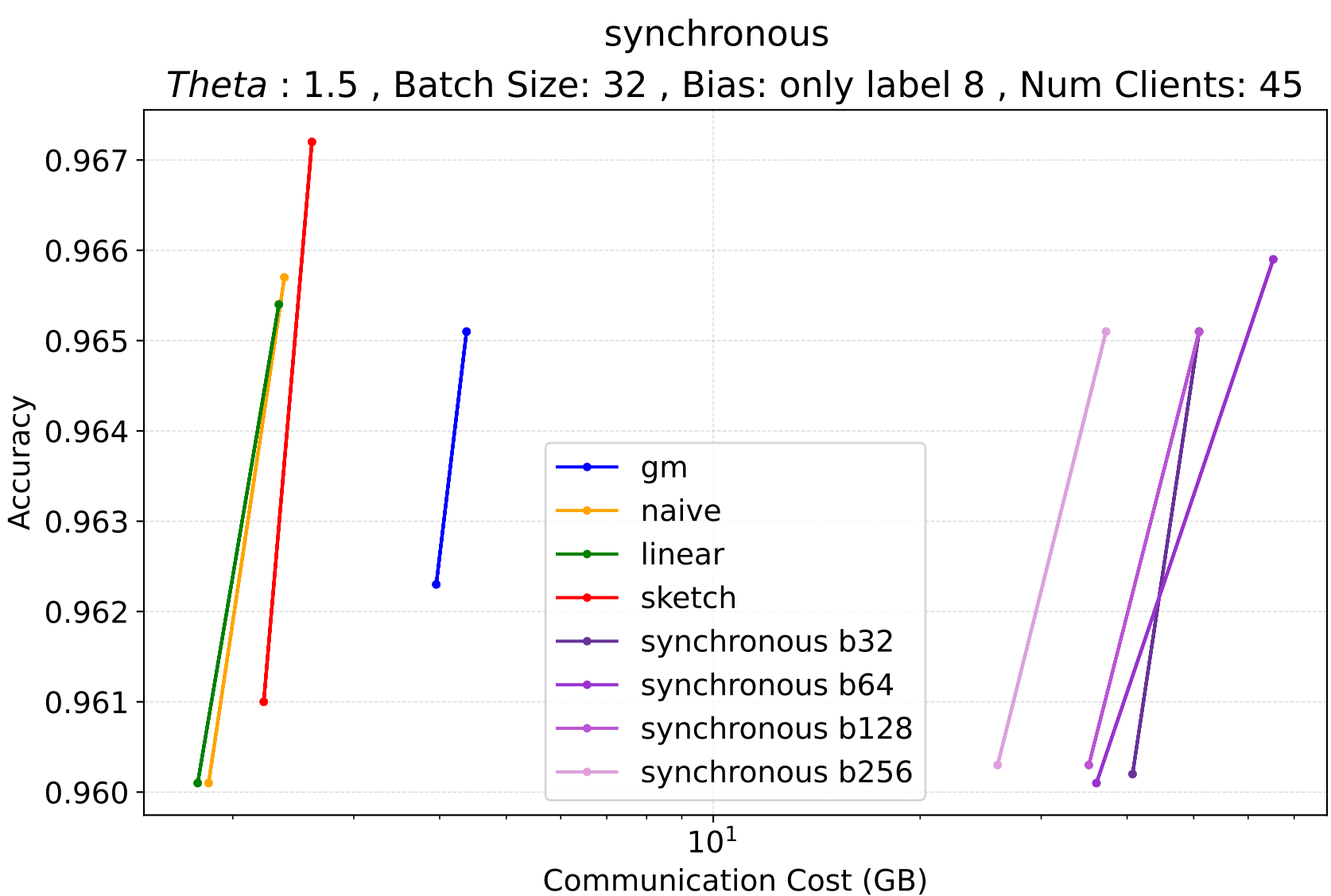

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 20
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
synchronous b32
synchronous b128
synchronous b256

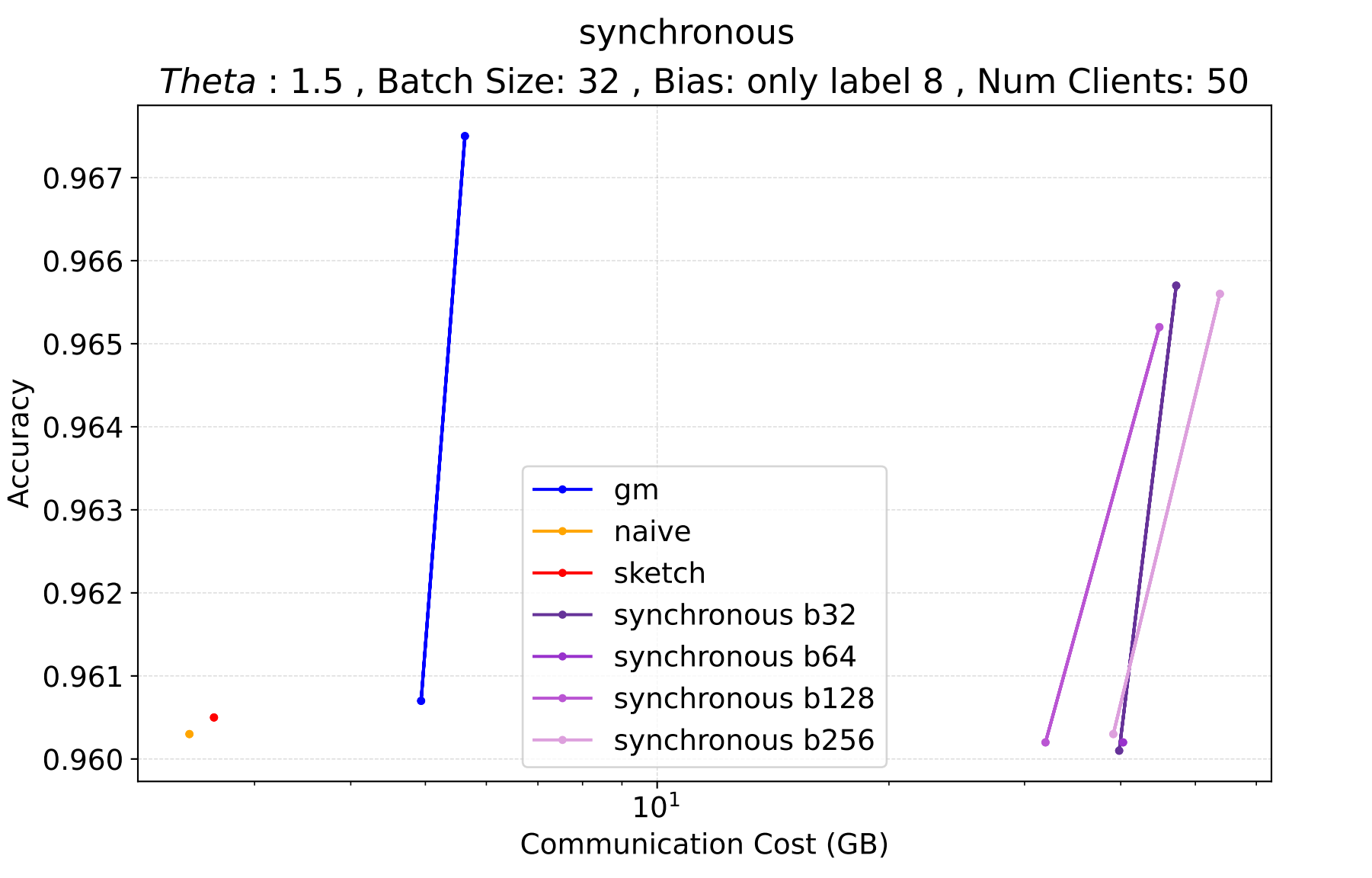

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 25
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

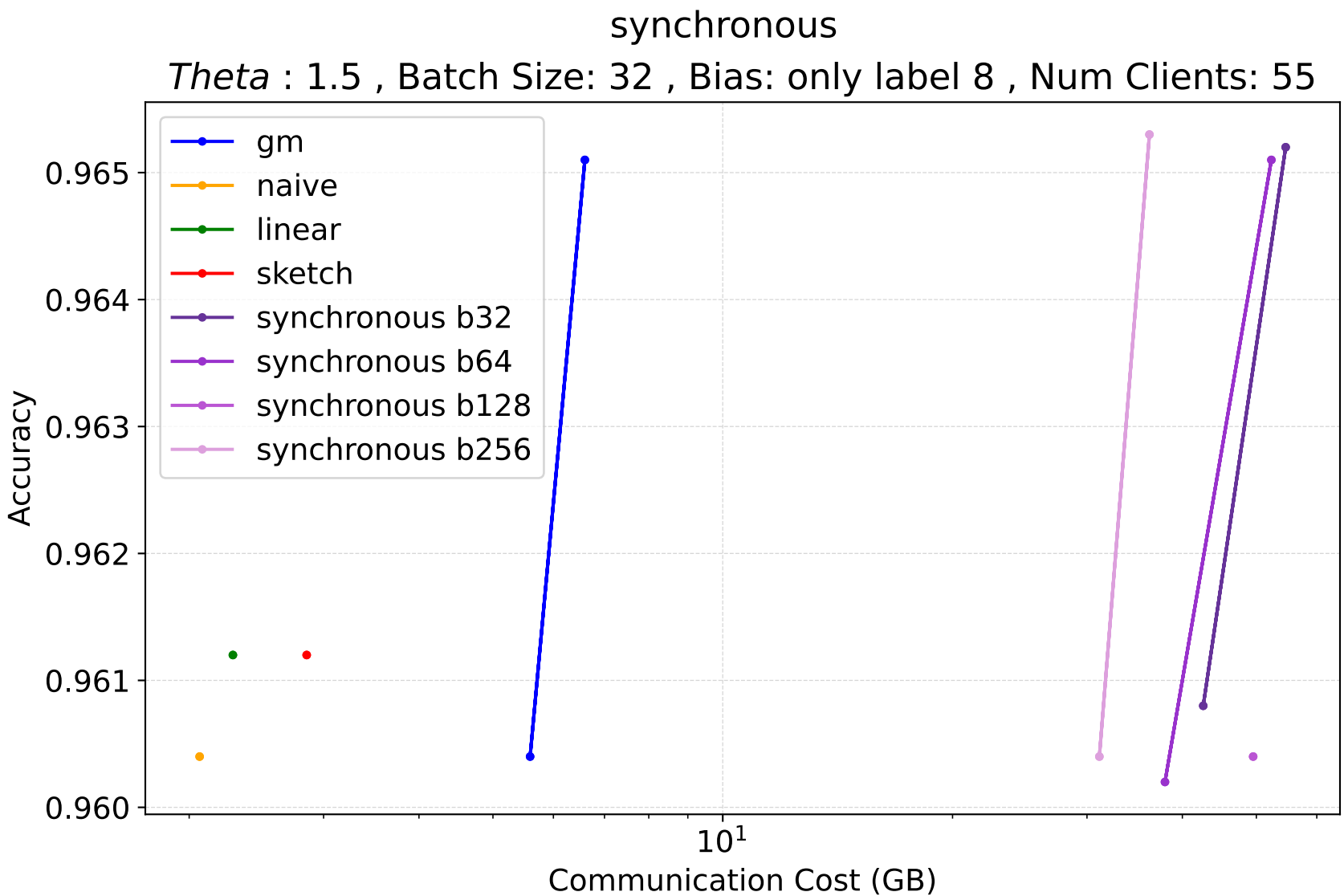

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 30
0.966
0.965
0.964
0.963
0.962
0.961
Accuracy
gm
naive
linear
sketch
synchronous b64
synchronous b256
10^1
Communication Cost (GB)

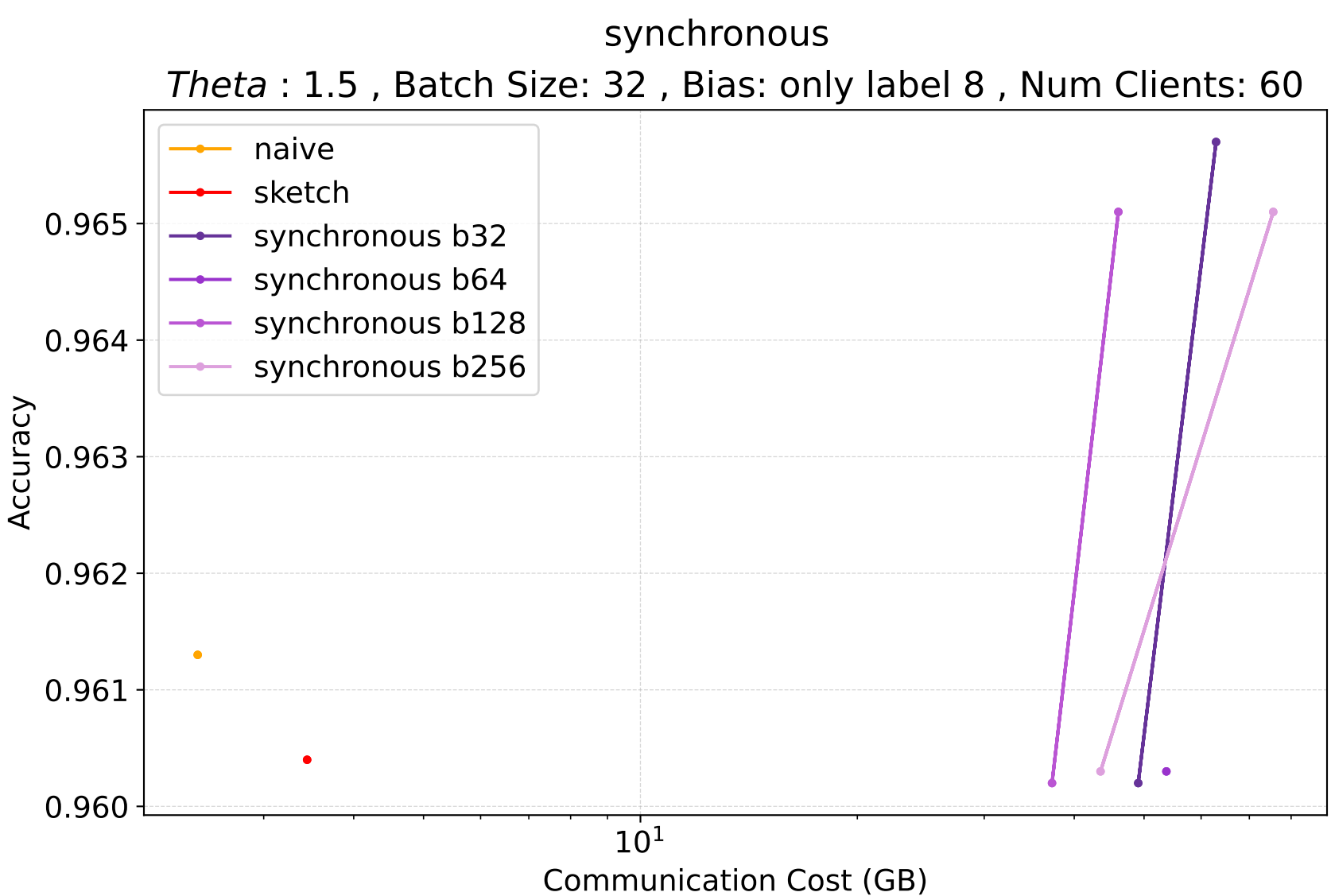

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 35
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

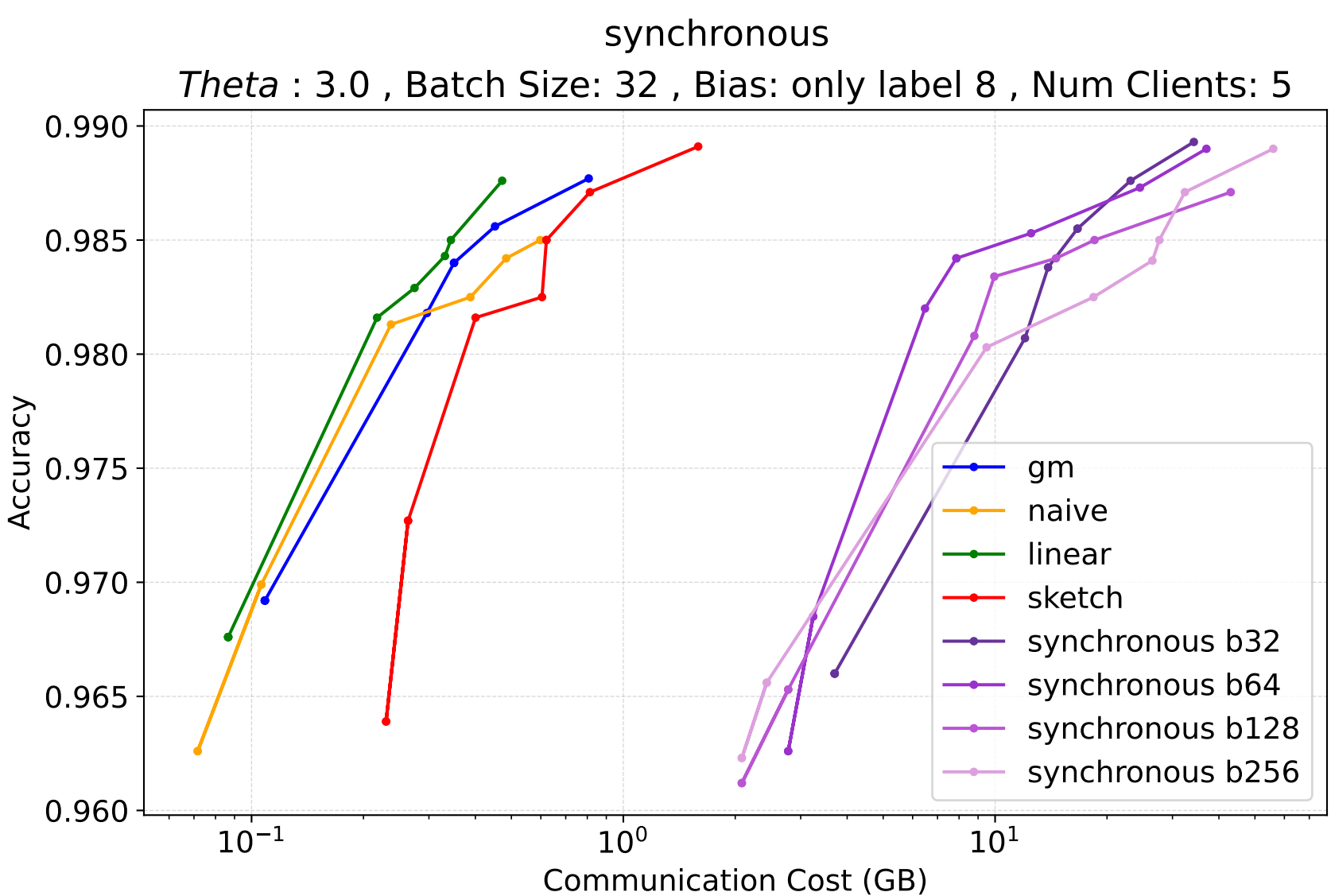

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 40
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

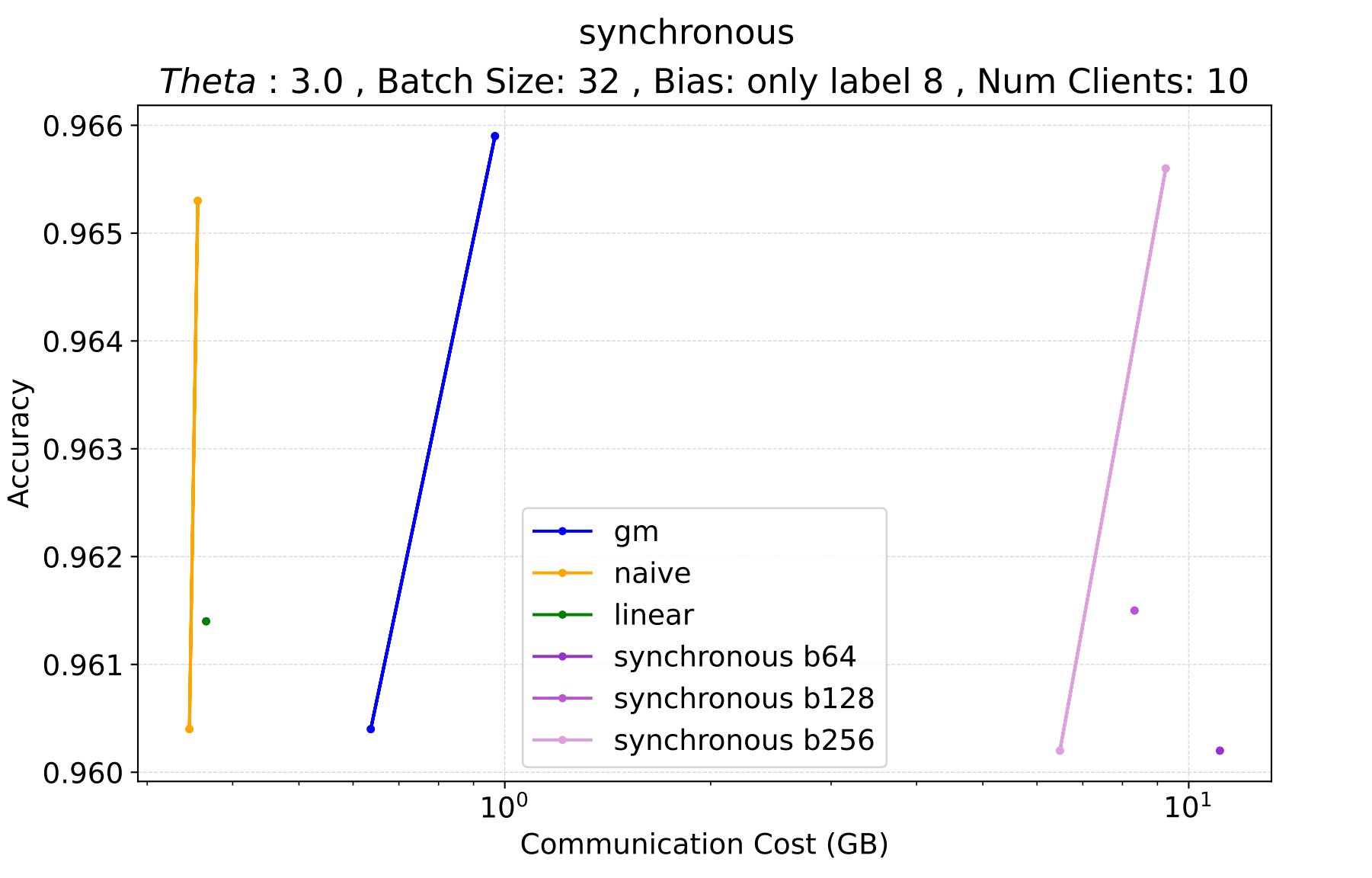

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 45
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

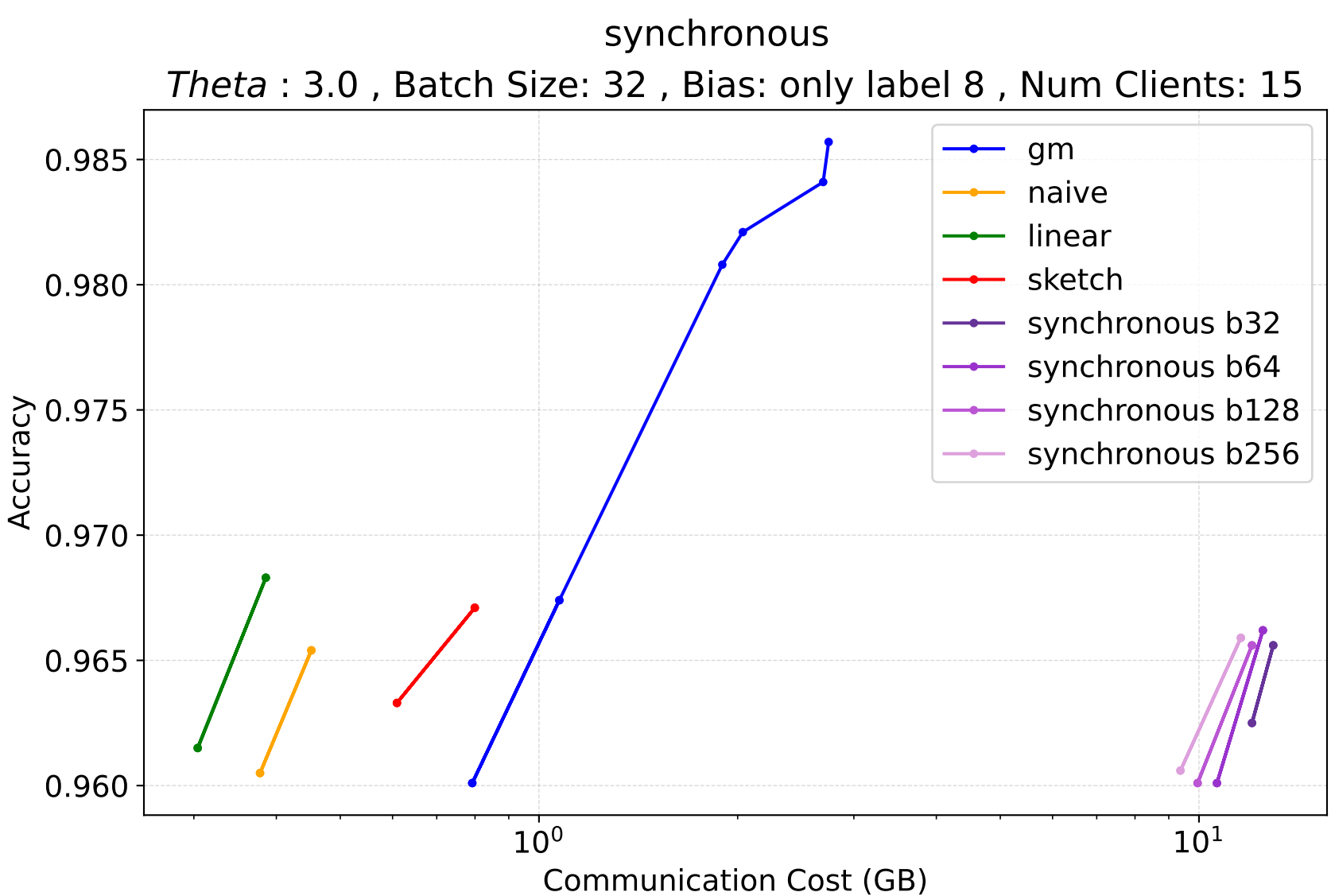

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 50
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
naive
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

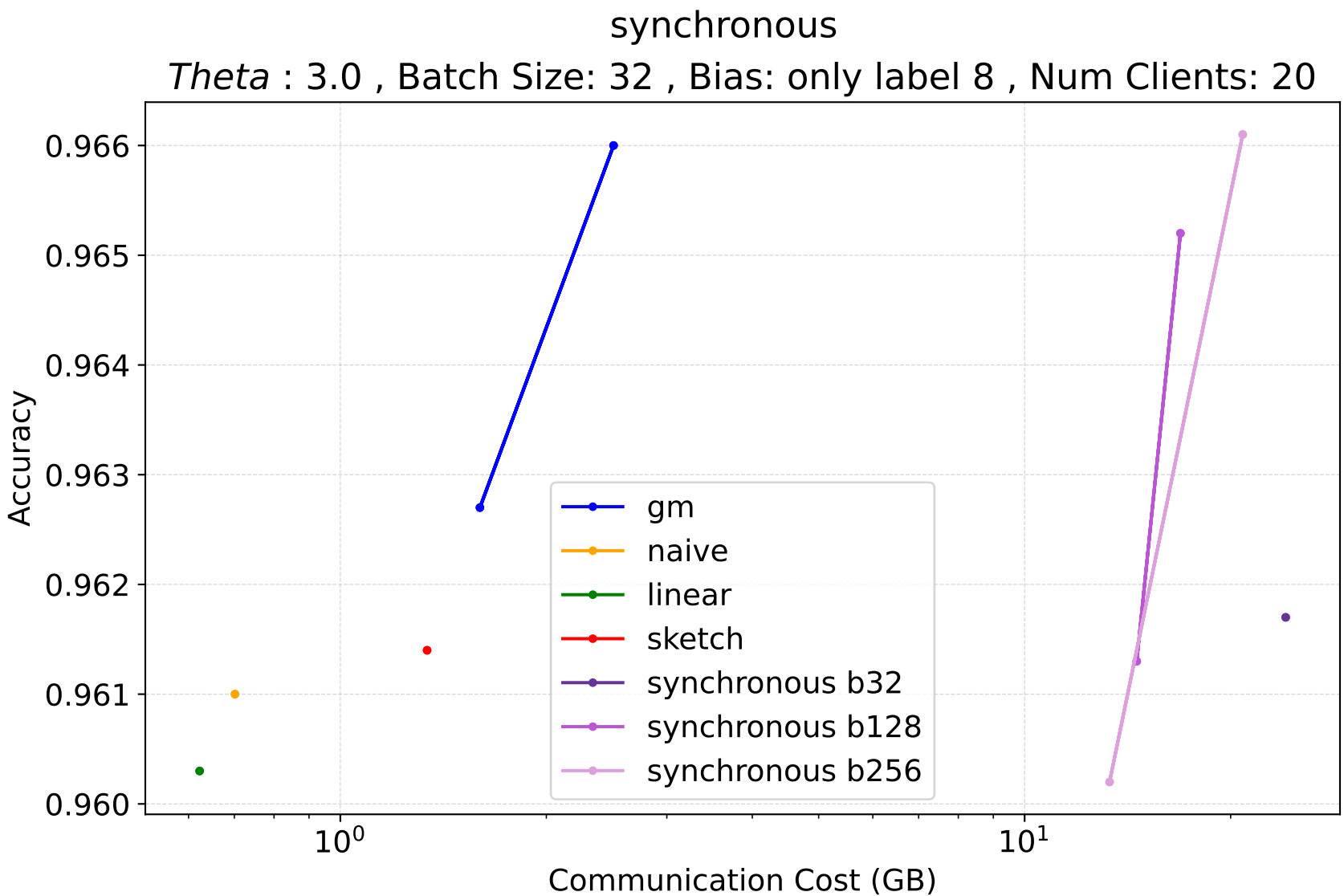

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)

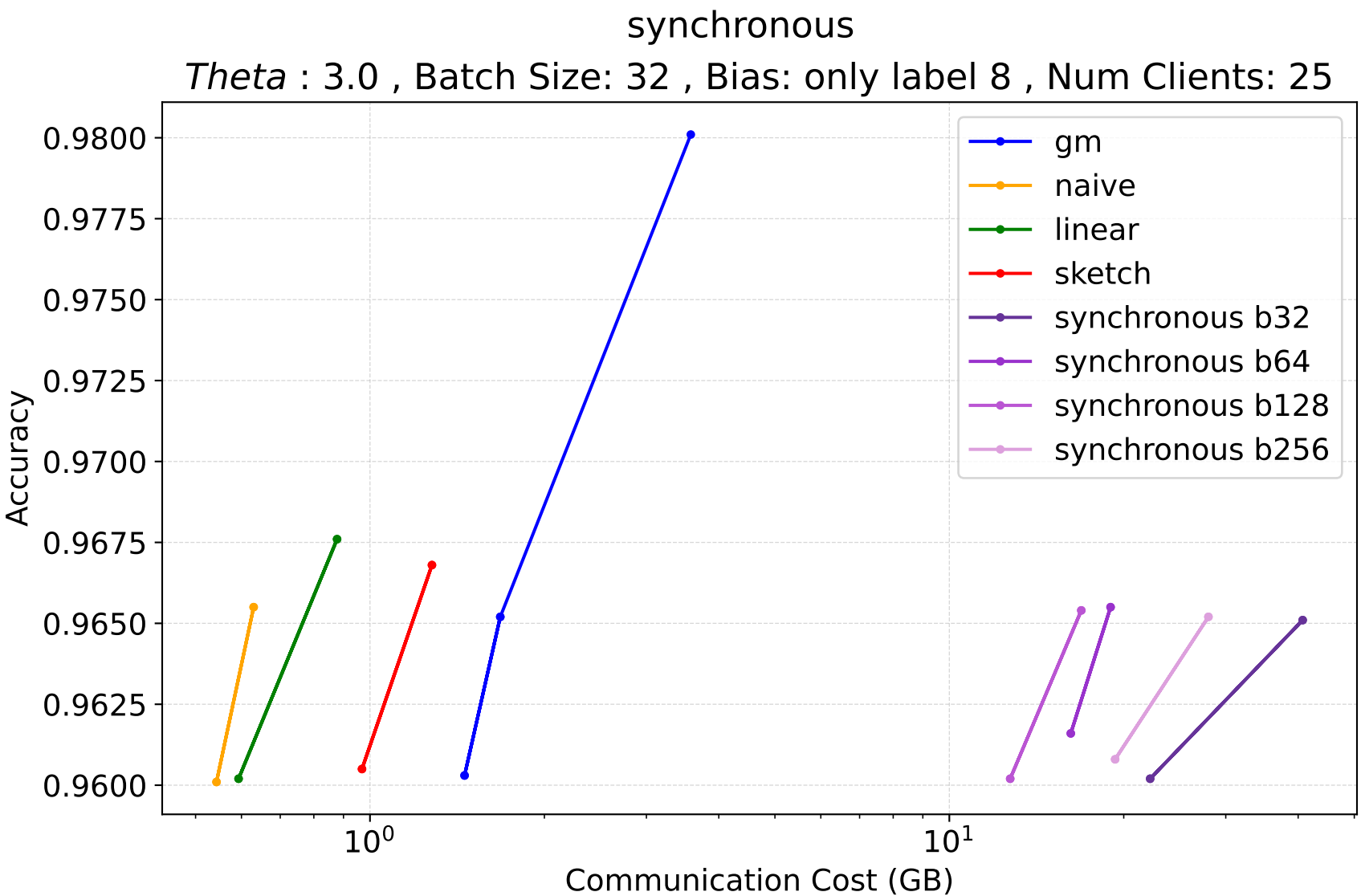

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 8 , Num Clients: 60
naive
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)

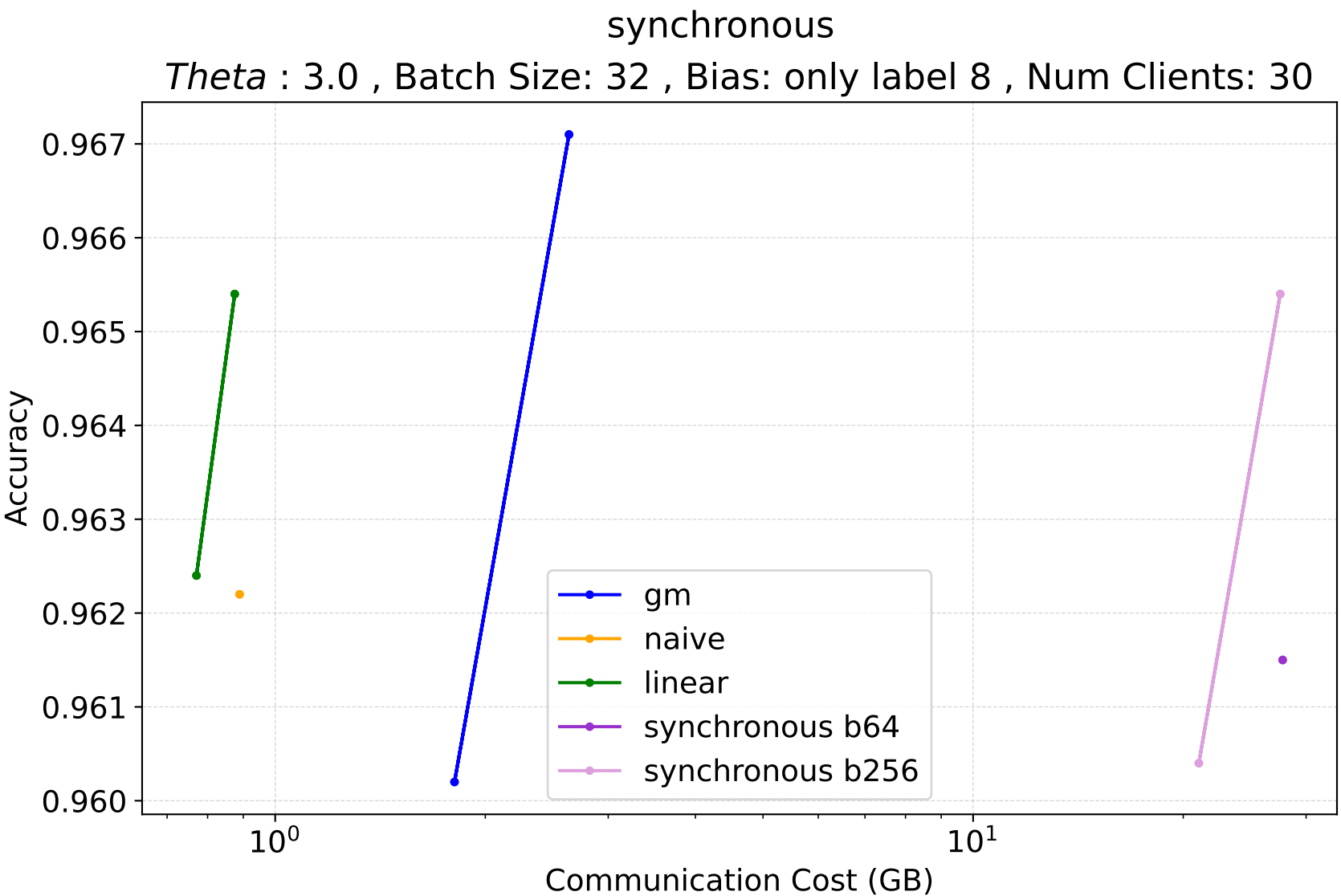

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

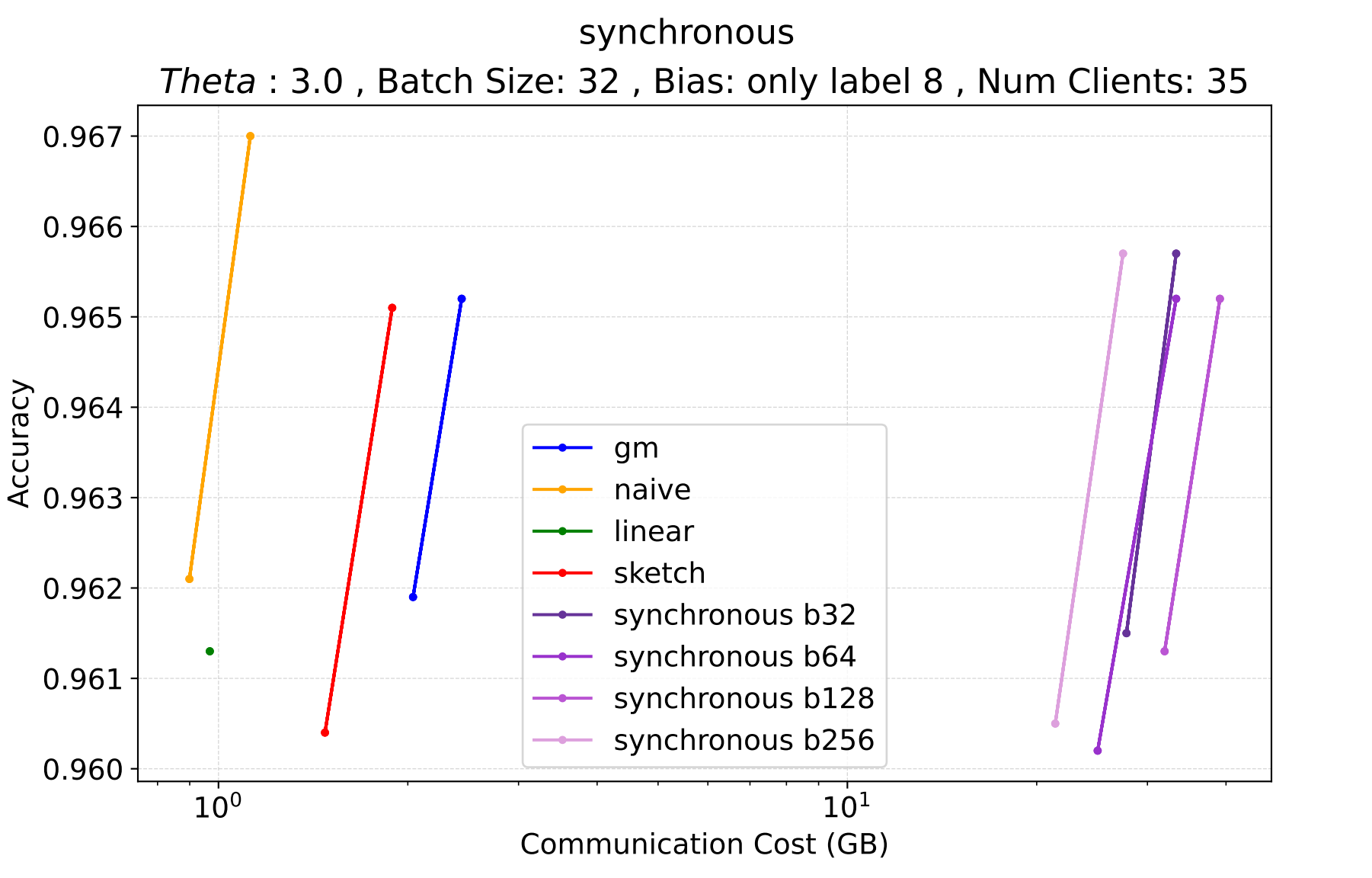

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 10
0.966
0.965
0.964
0.963
0.962
0.961
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
synchronous b64
synchronous b128
synchronous b256

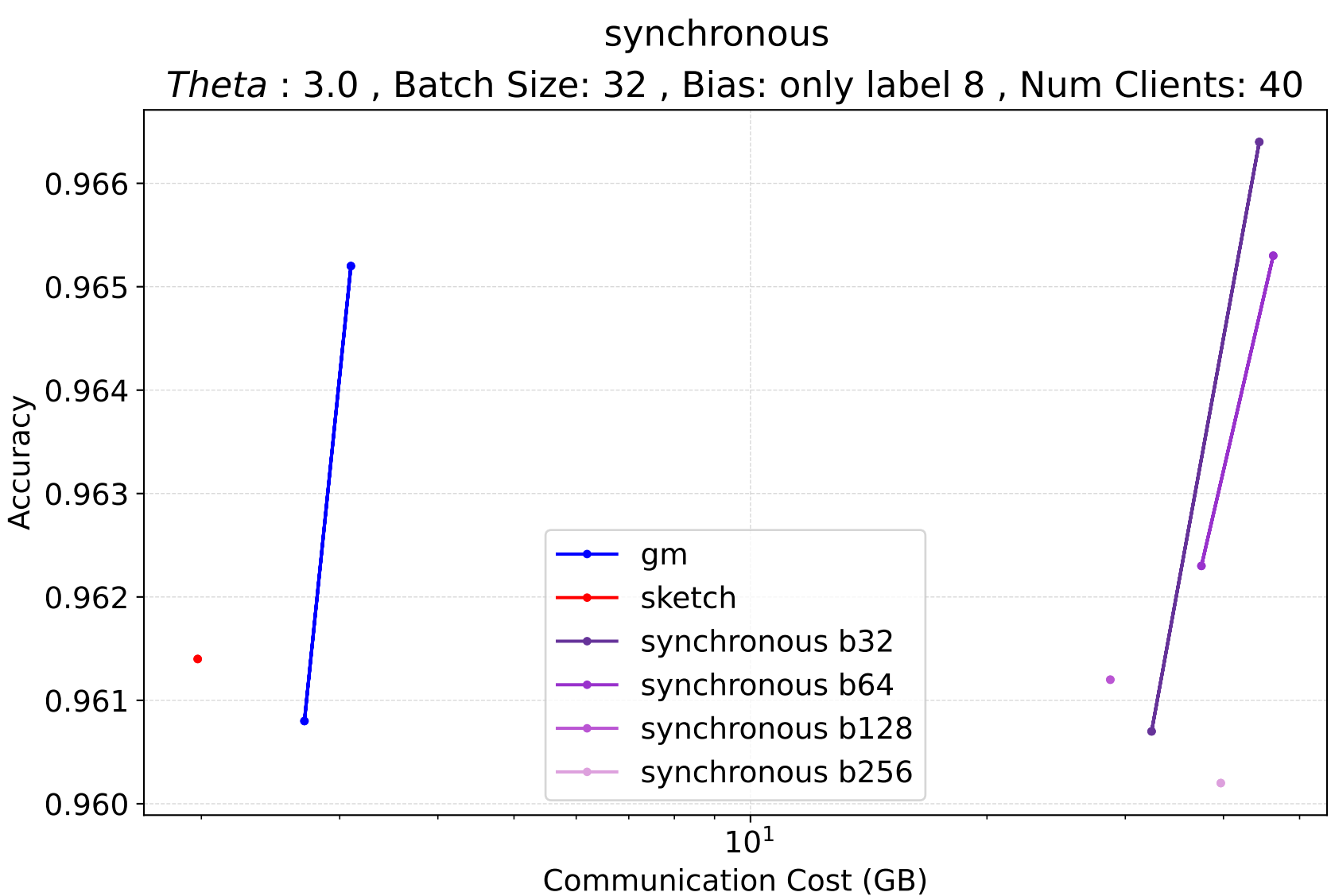

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

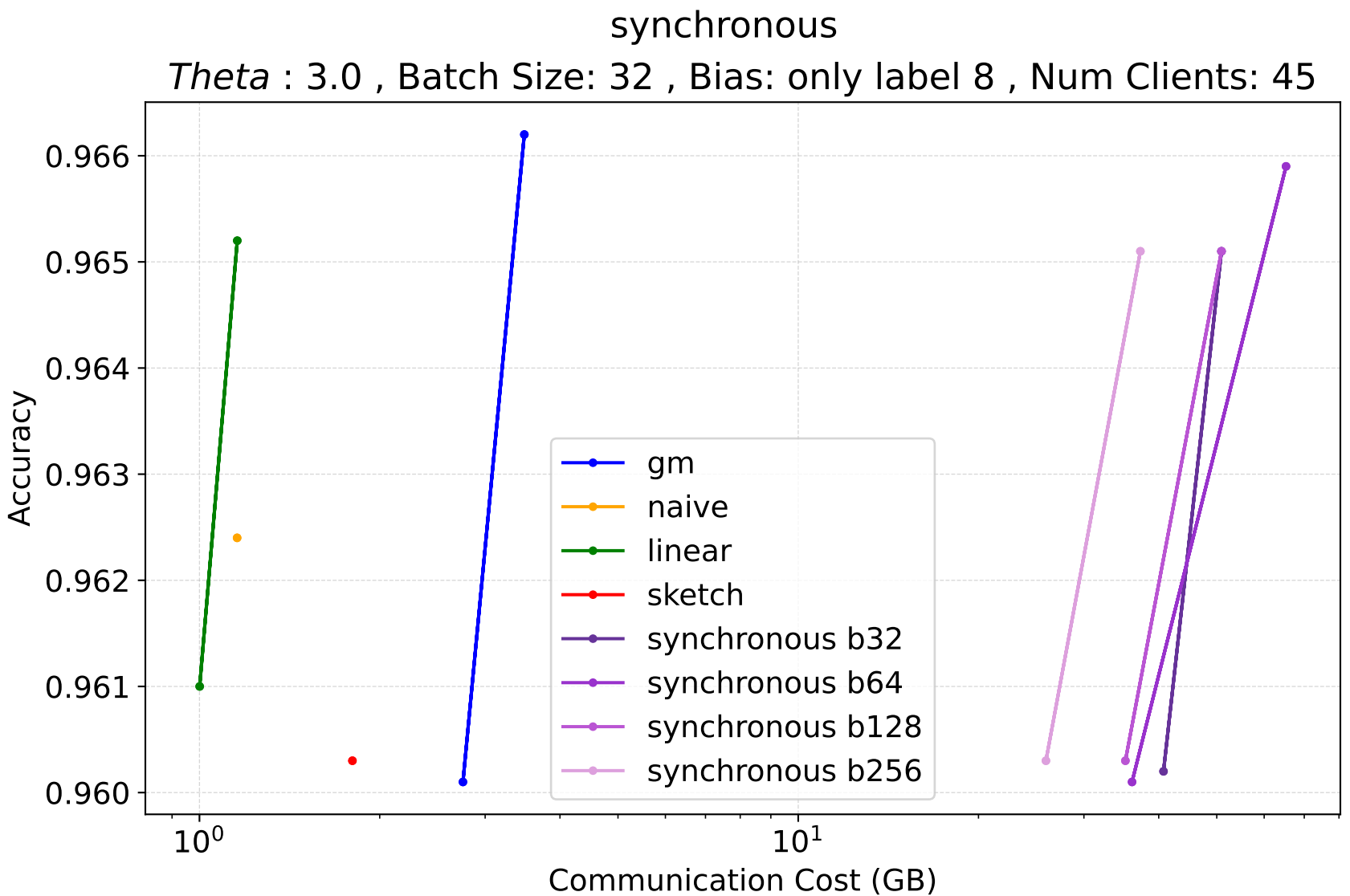

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 20
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b128
synchronous b256

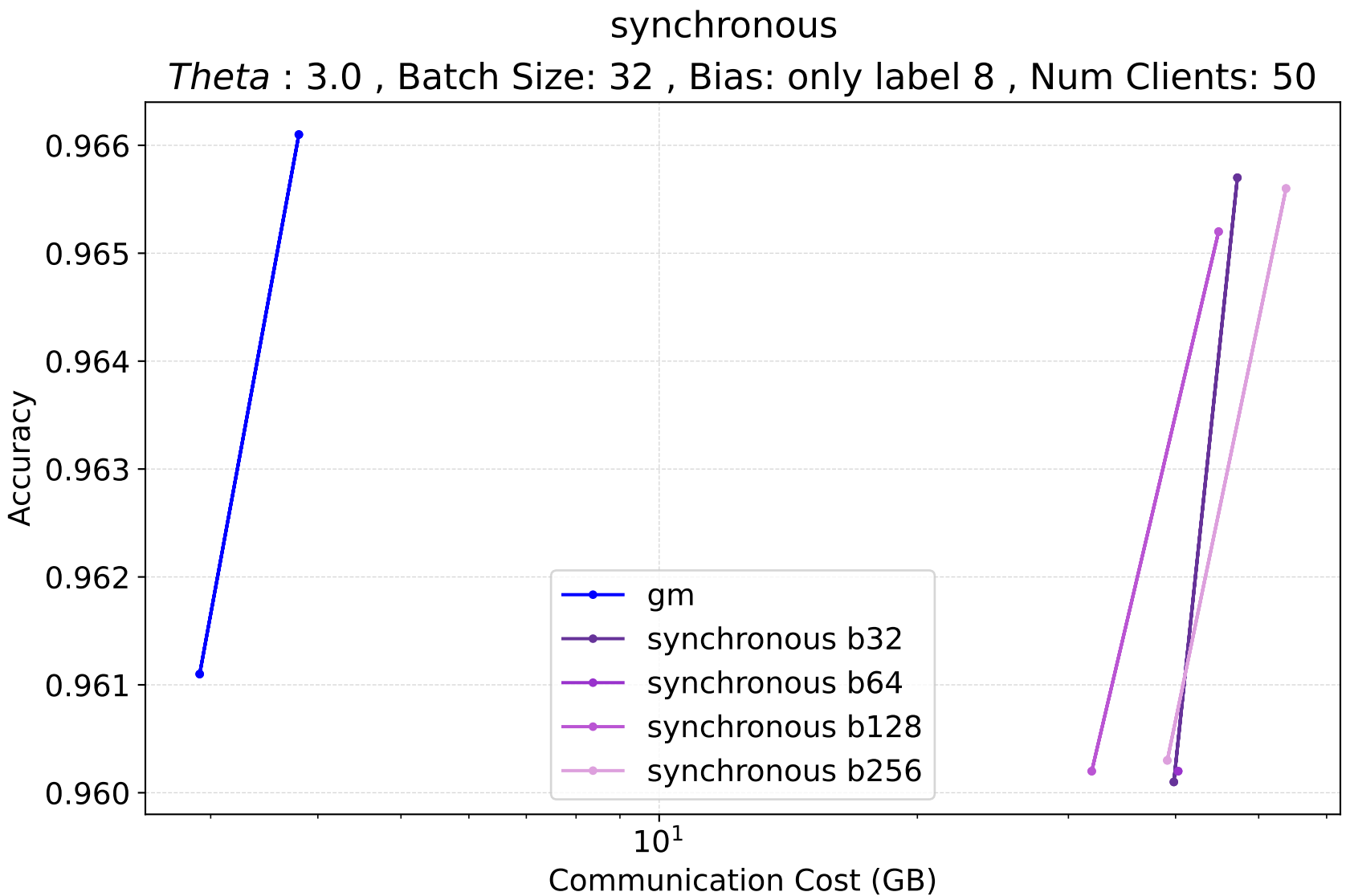

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 25
Accuracy
0.9800
0.9775
0.9750
0.9725
0.9700
0.9675
0.9650
0.9625
0.9600
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

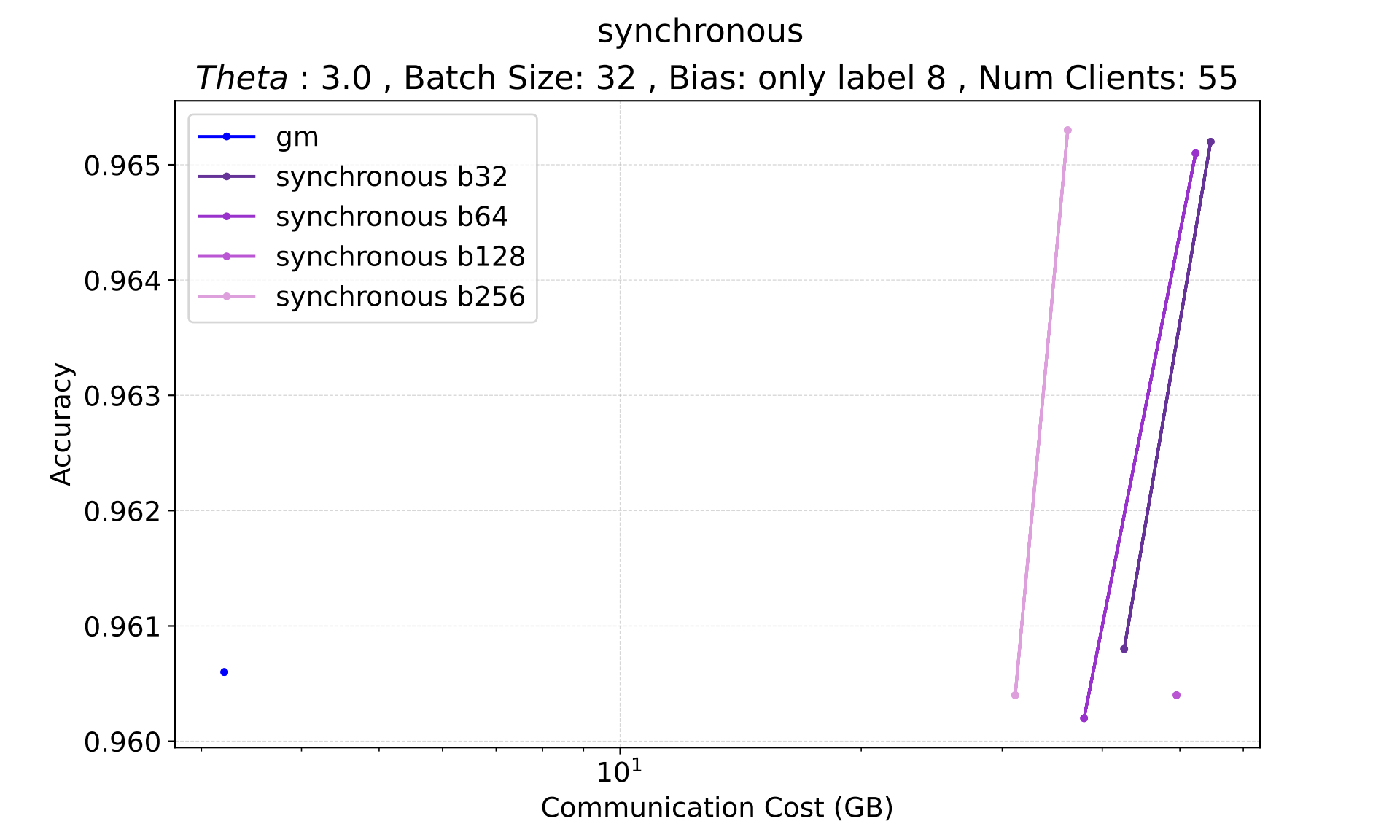

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 30
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
synchronous b64
synchronous b256

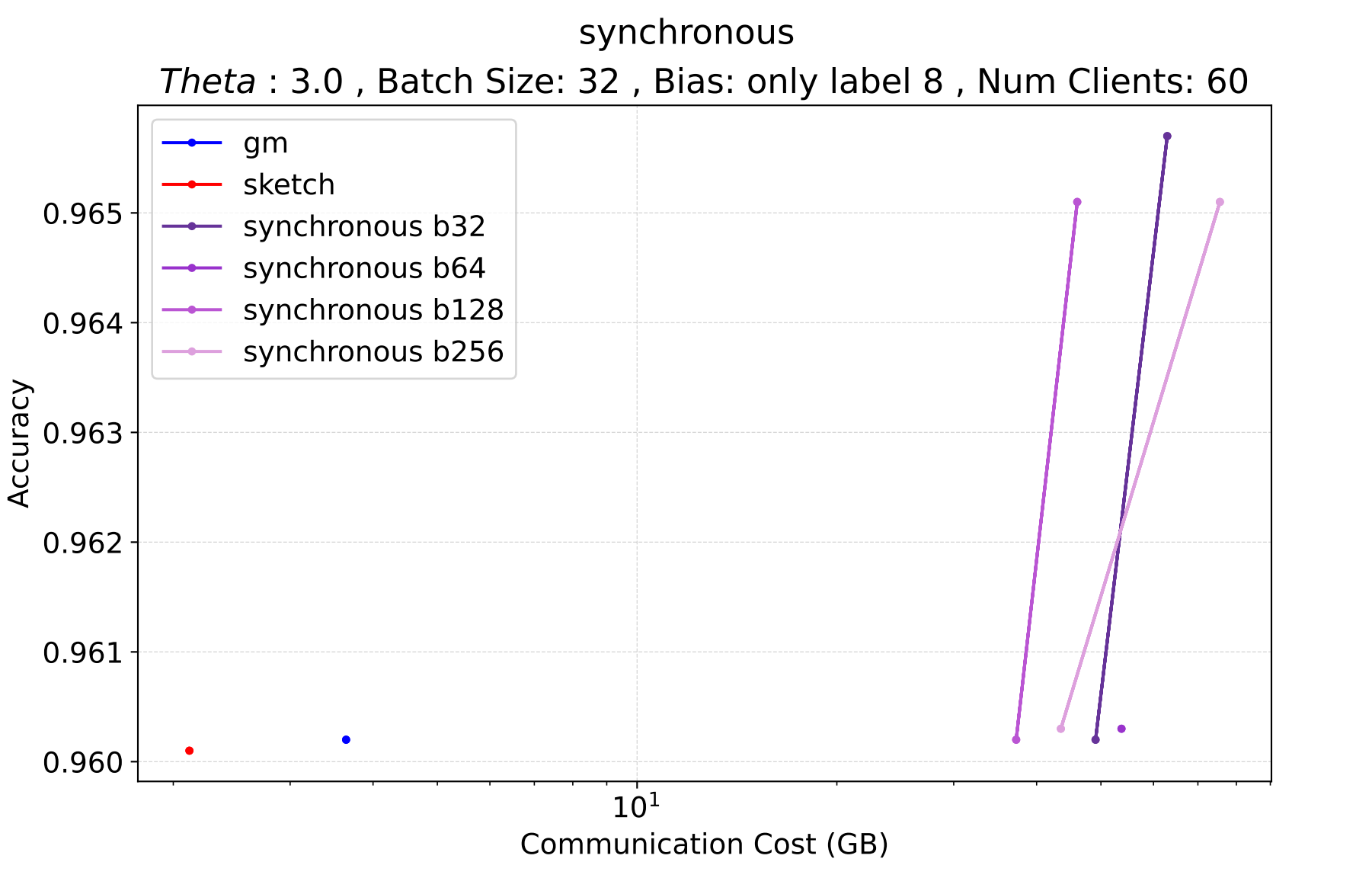

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 35
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

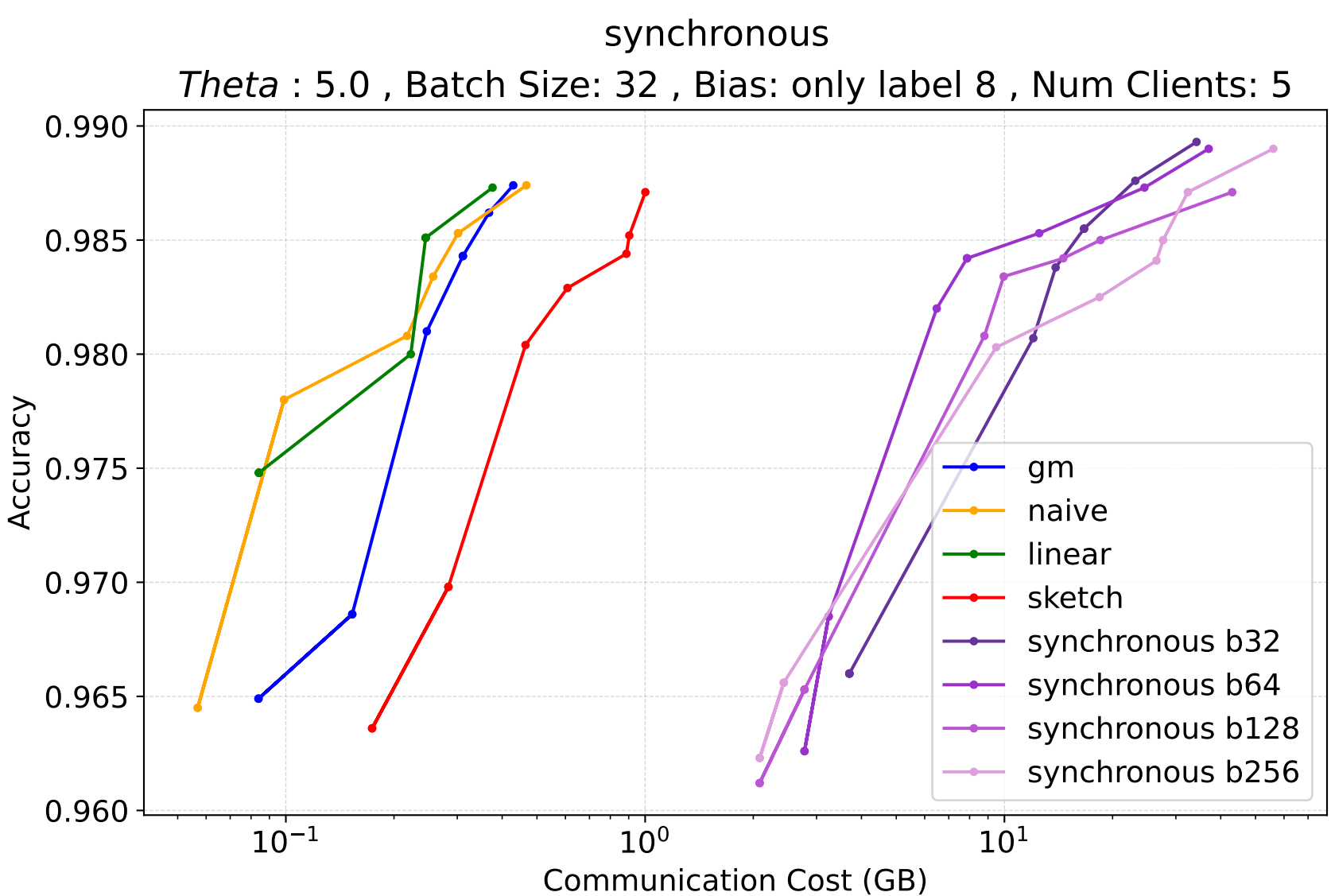

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 40
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

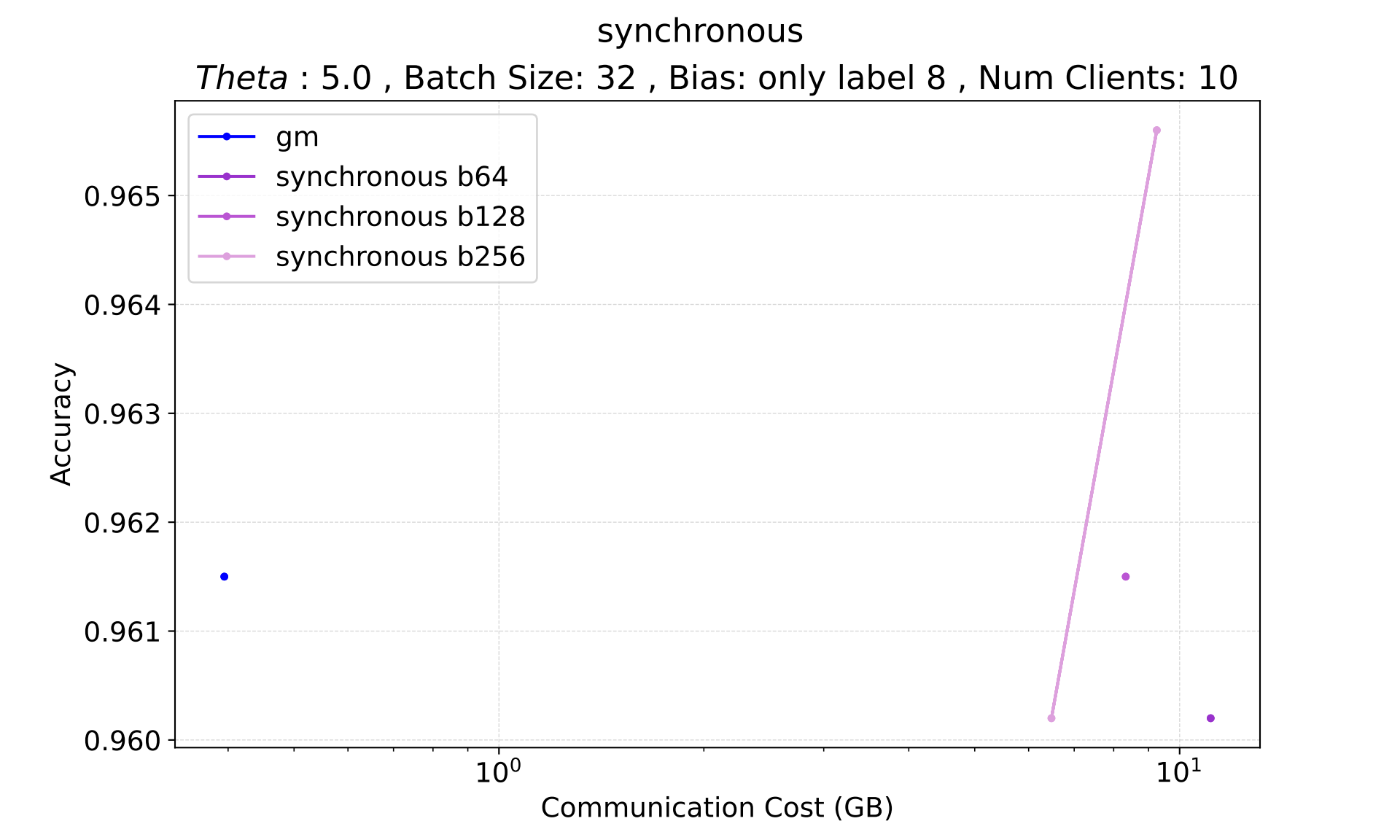

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 45
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

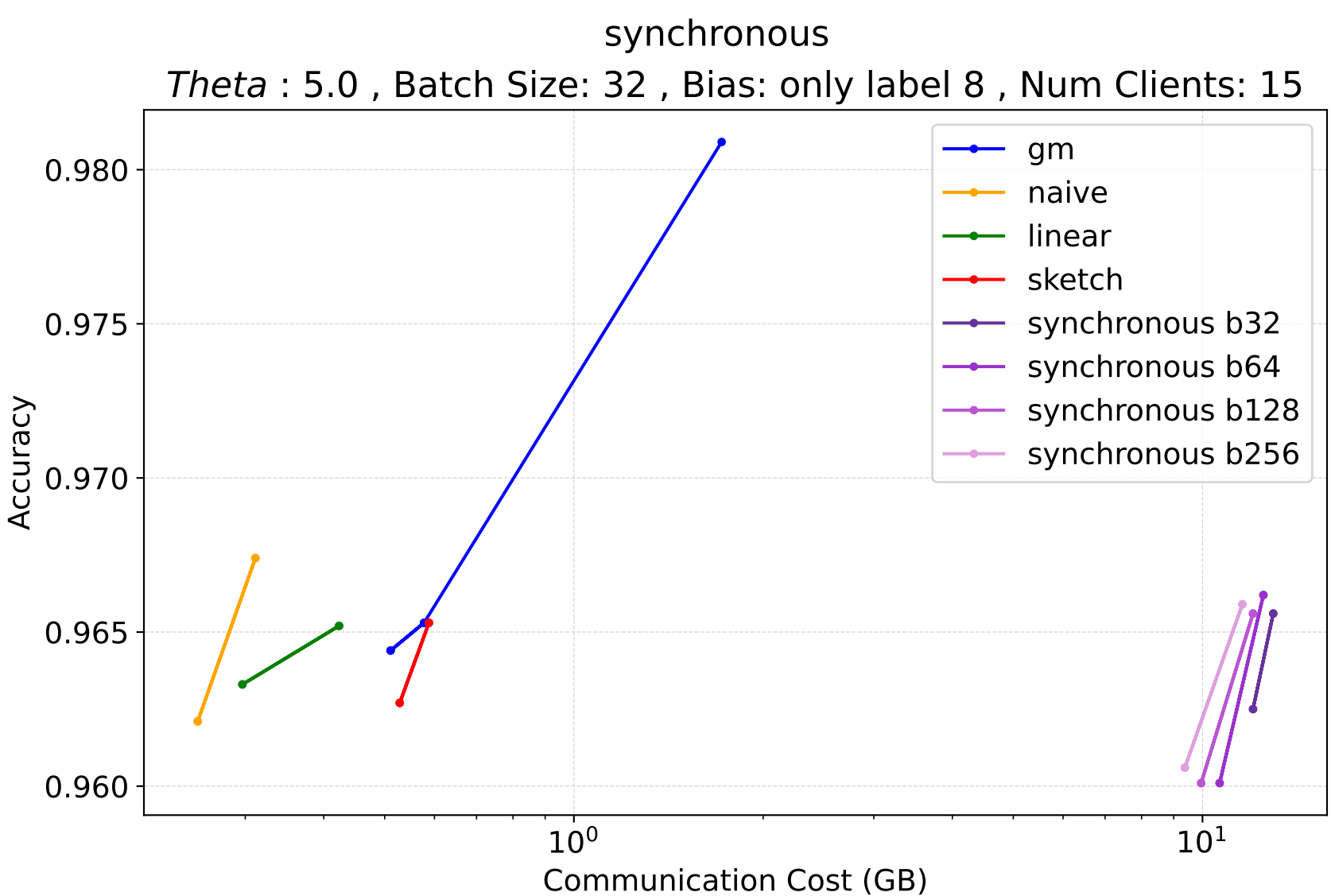

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 50
0.966
0.965
0.964
0.963
0.962
0.961
0.960
Accuracy
10^1
Communication Cost (GB)
gm
synchronous b32
synchronous b64
synchronous b128
synchronous b256

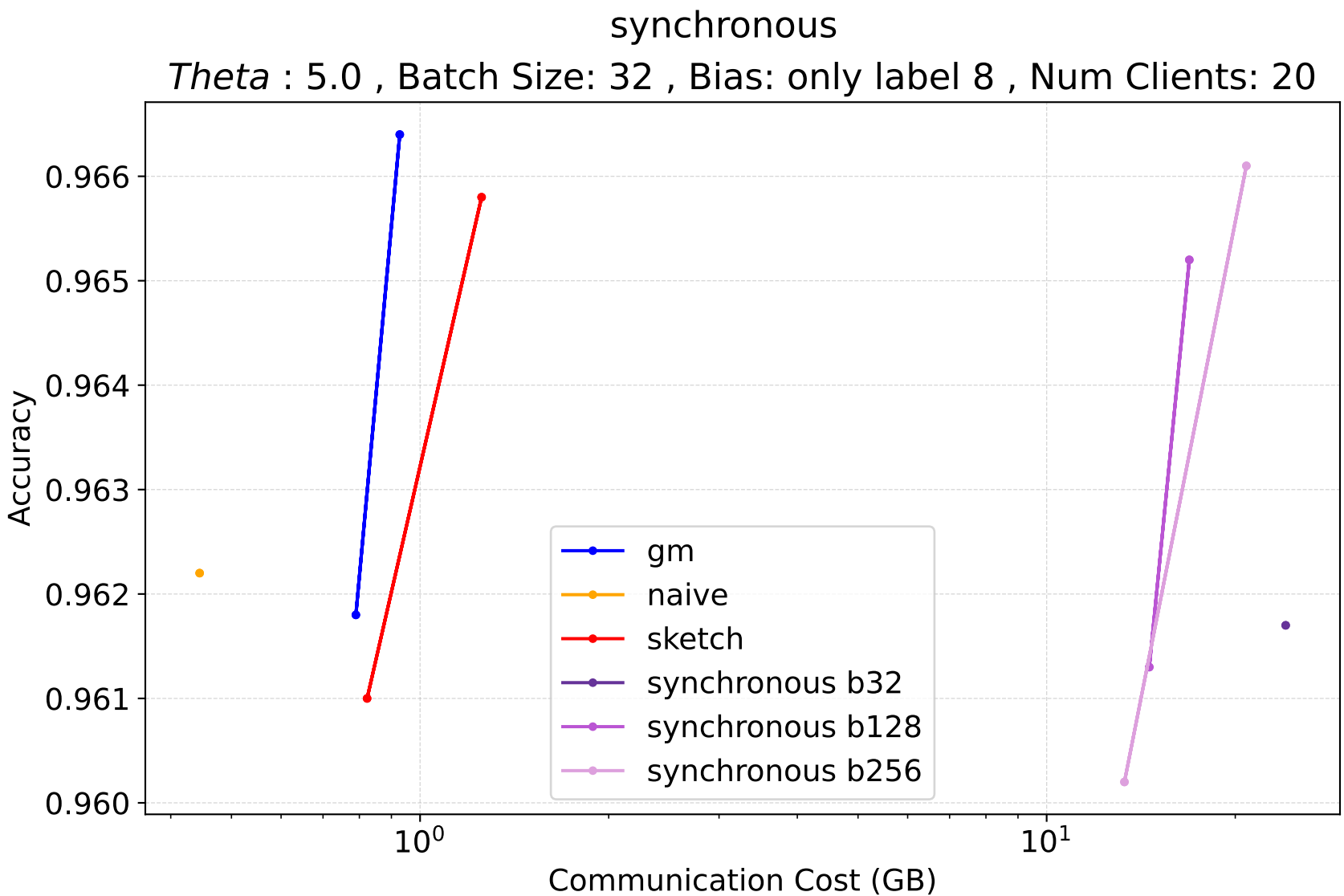

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 55
gm
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)

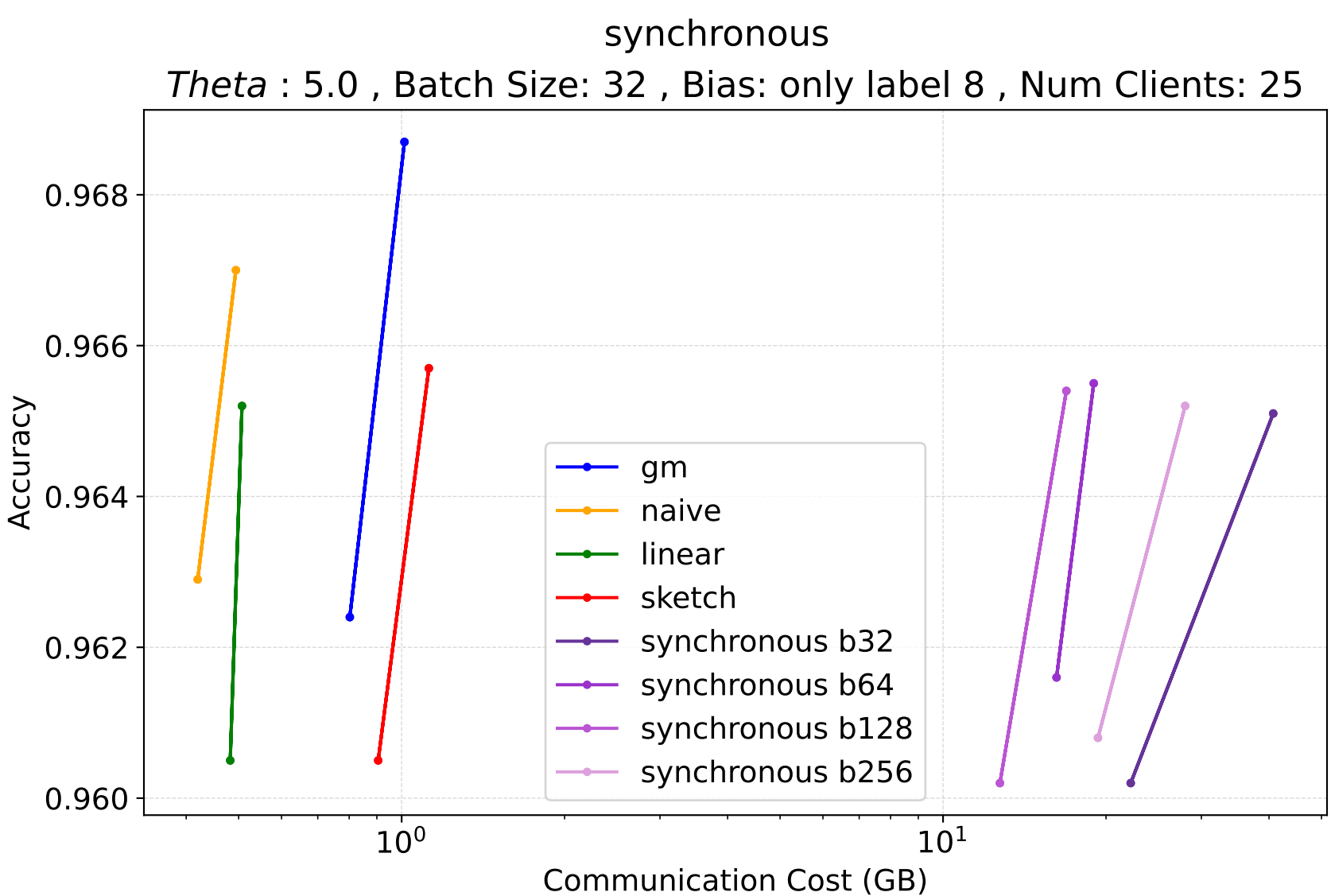

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 60
gm
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)

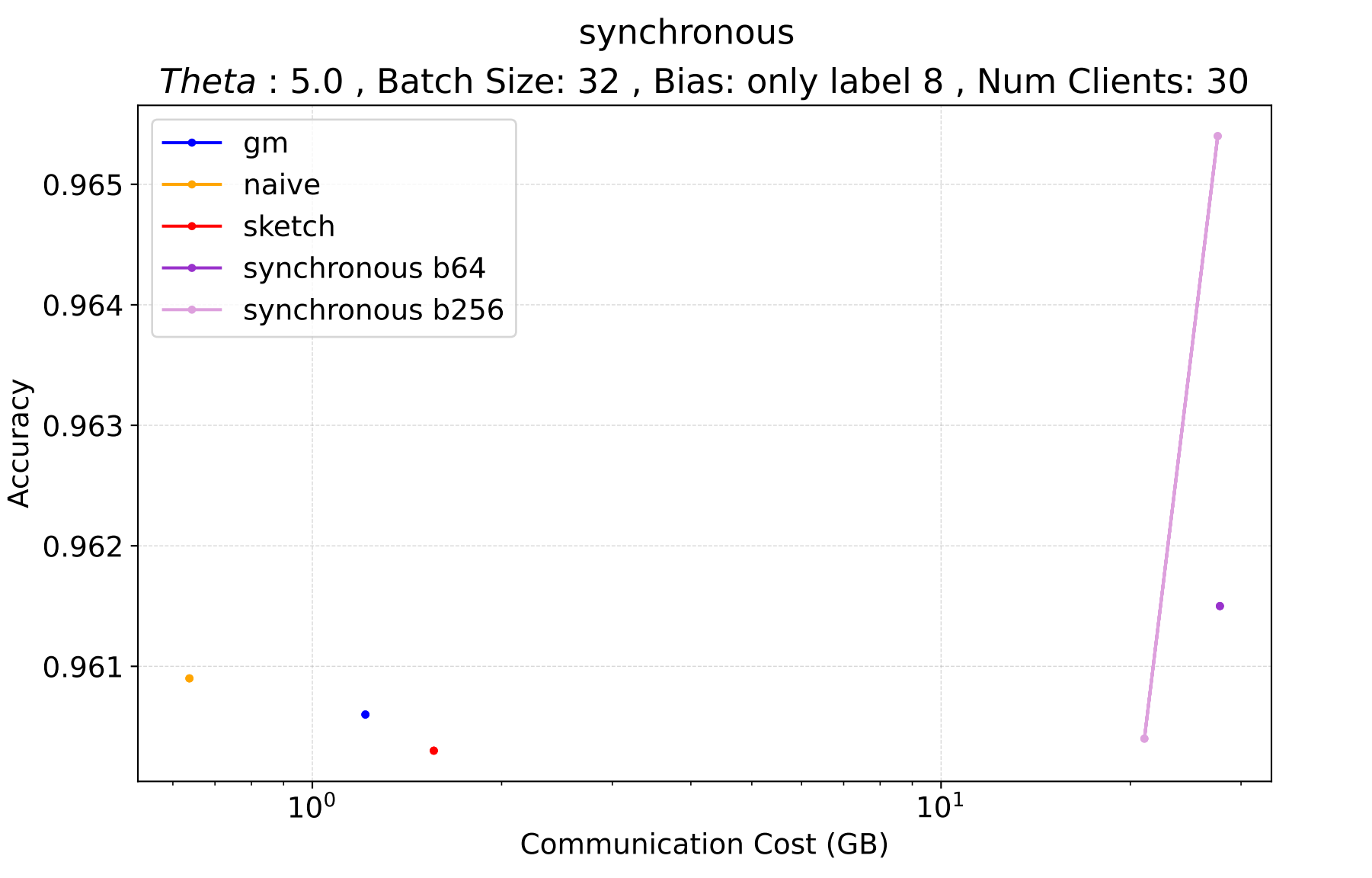

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

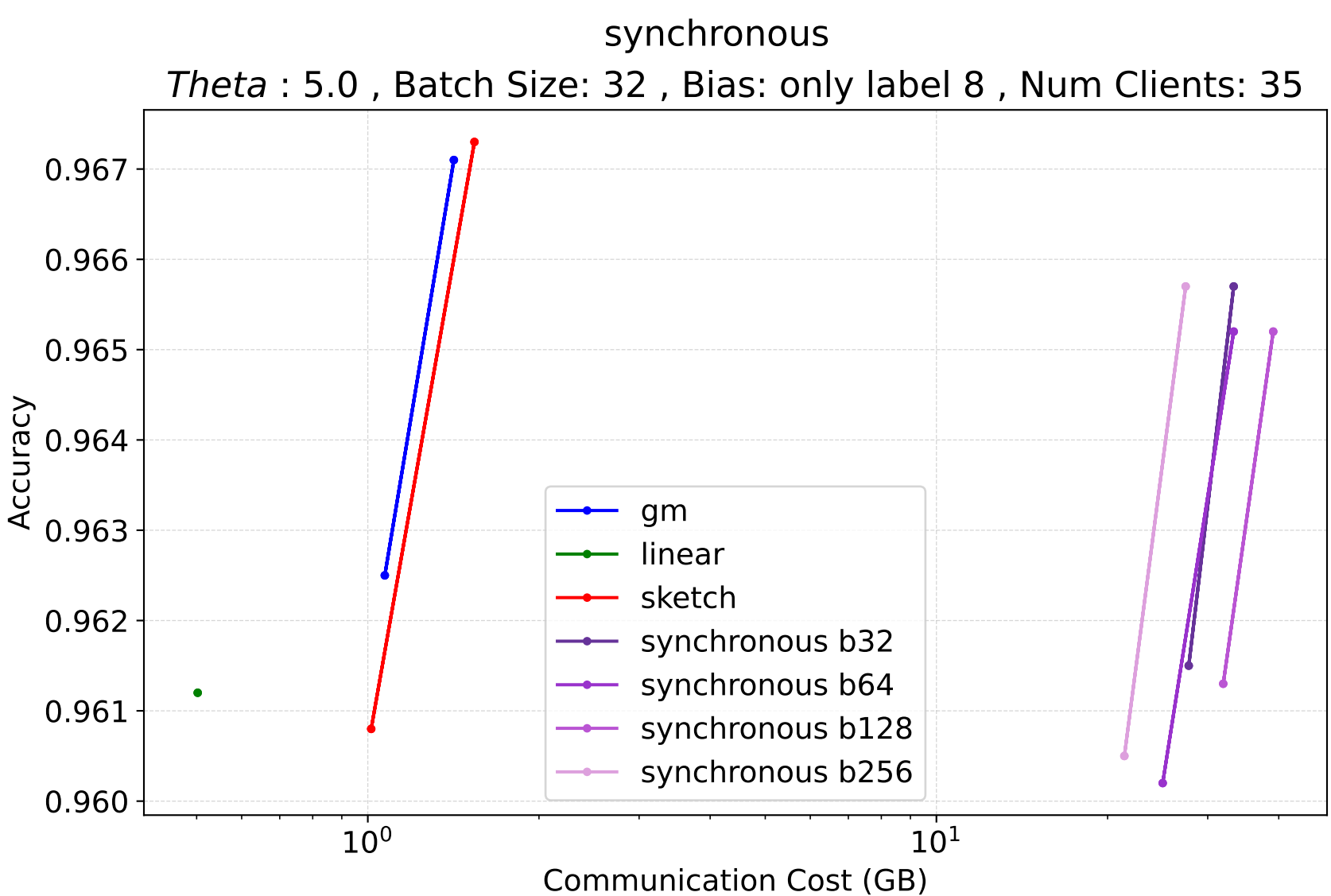

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 10
gm
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)

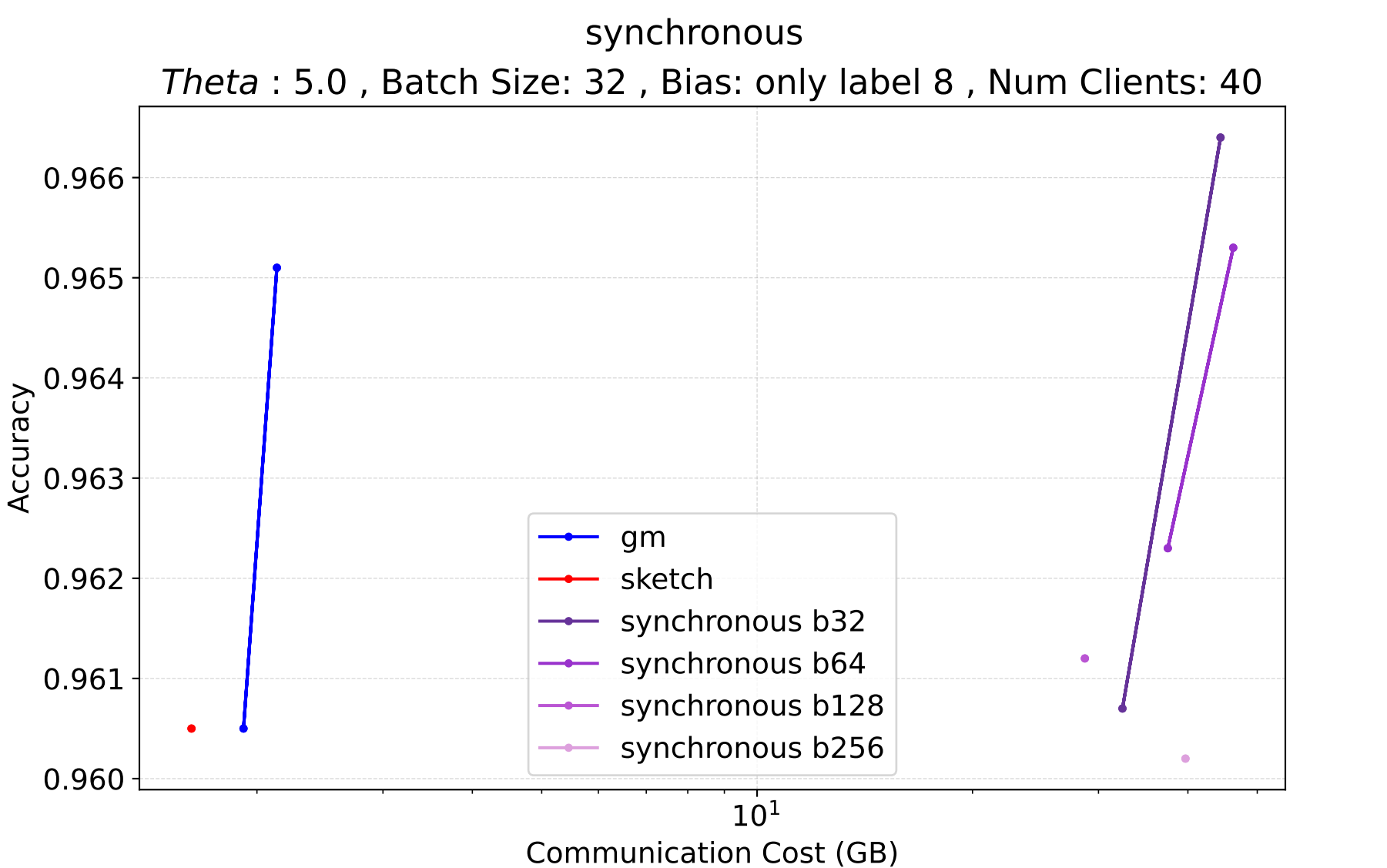

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

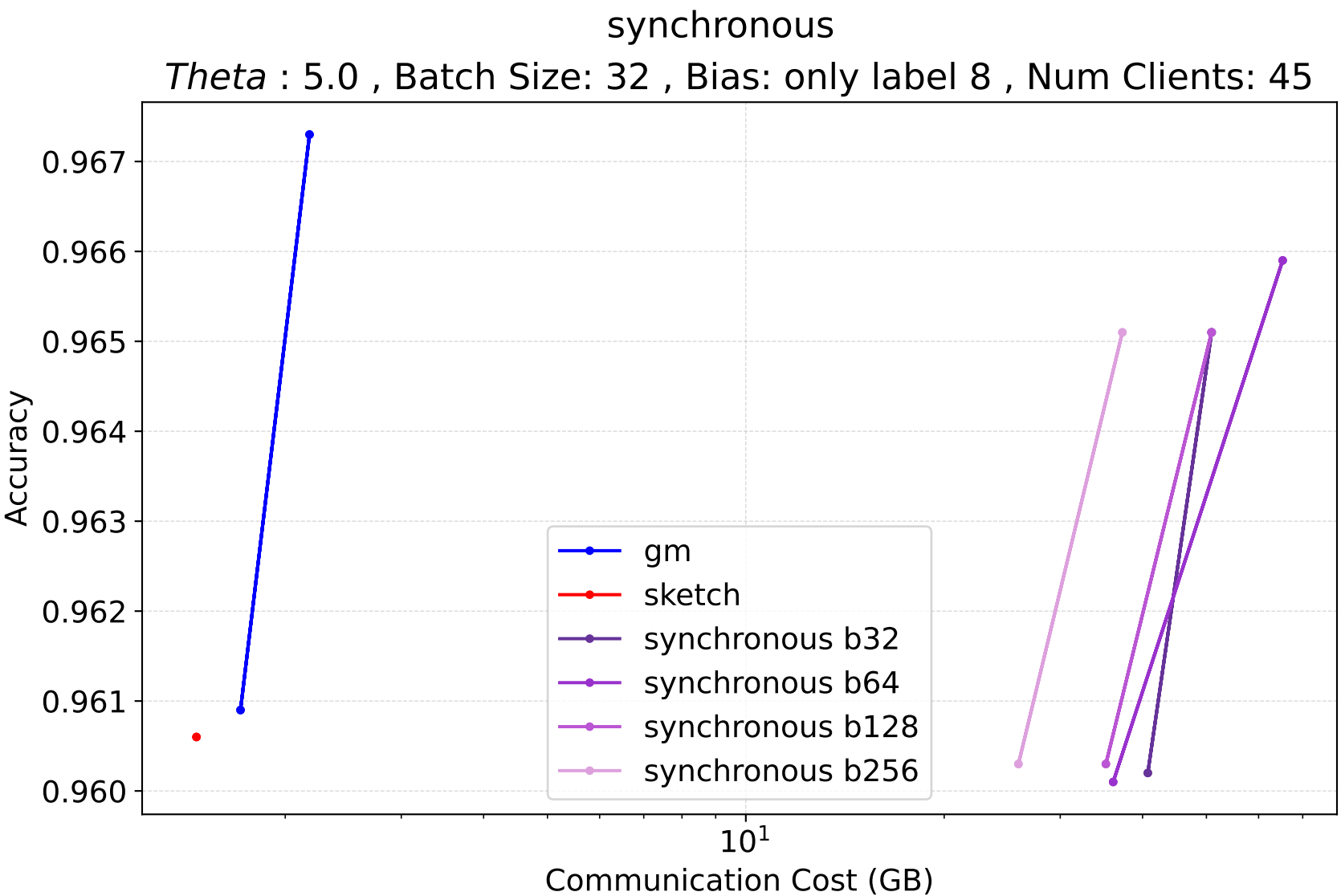

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 20
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
sketch
synchronous b32
synchronous b128
synchronous b256

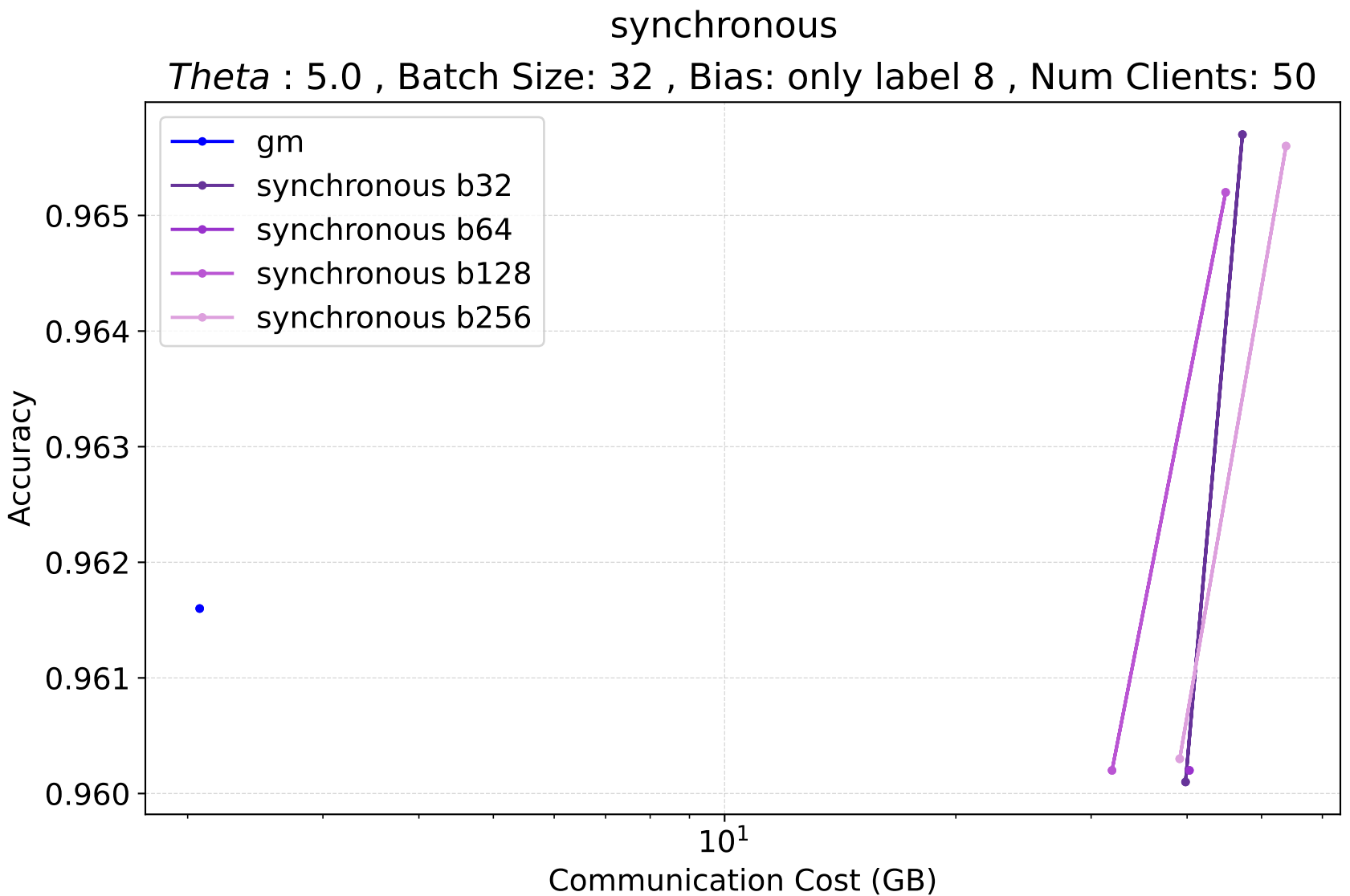

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 25
Accuracy
0.968
0.966
0.964
0.962
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

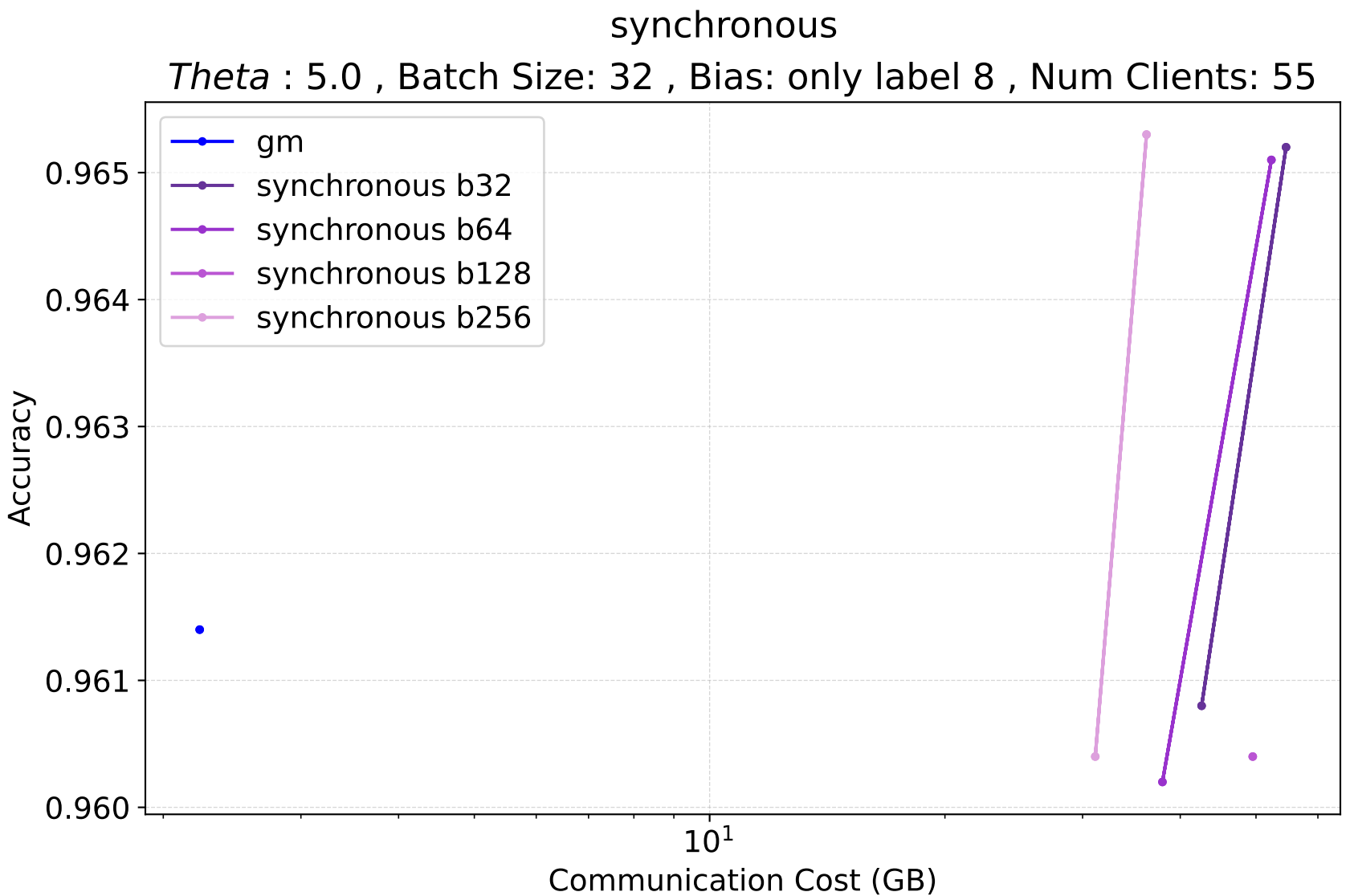

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 30
gm
naive
sketch
synchronous b64
synchronous b256
0.965
0.964
0.963
0.962
0.961
Accuracy
10^0
10^1
Communication Cost (GB)

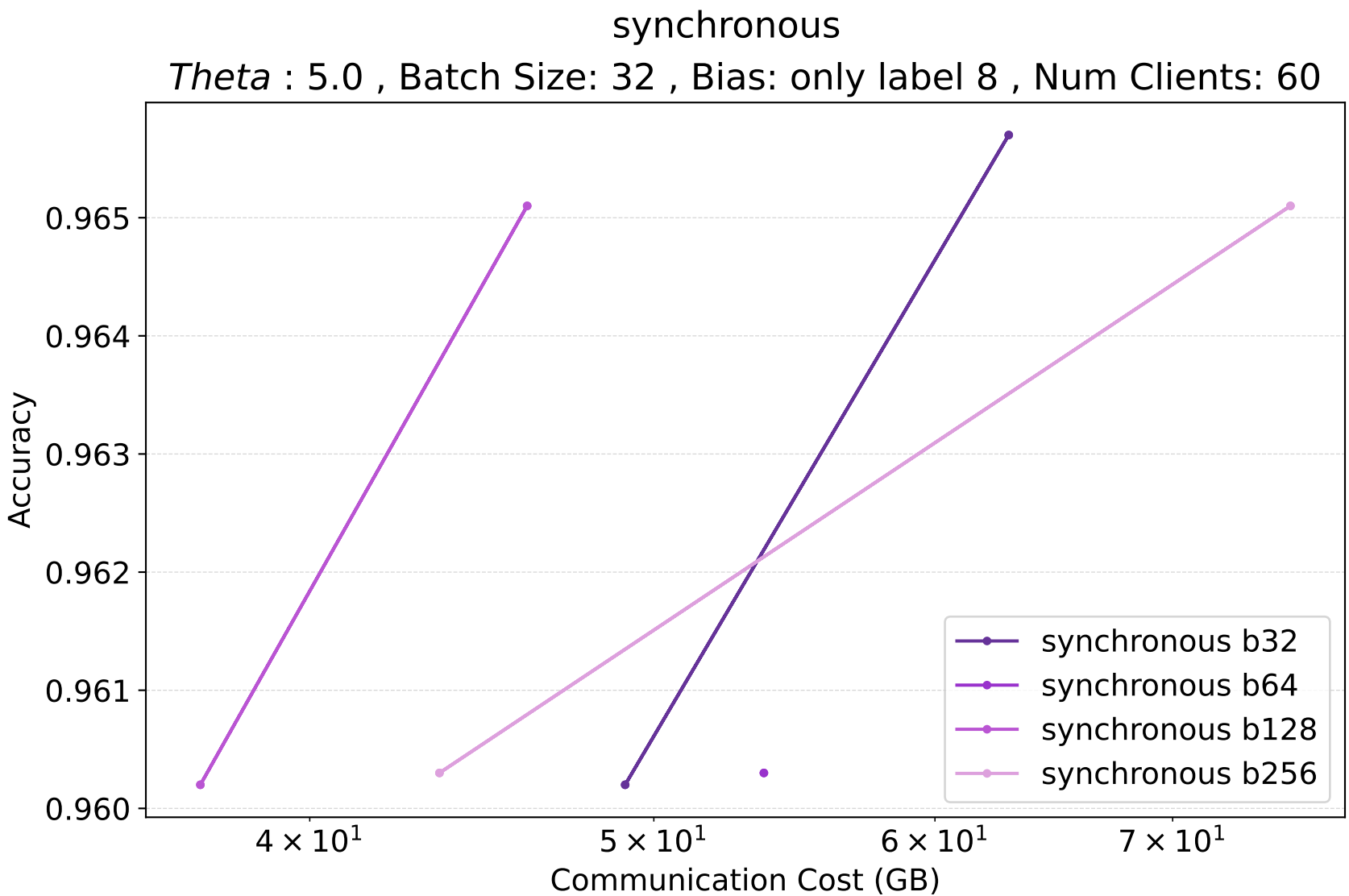

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 35
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

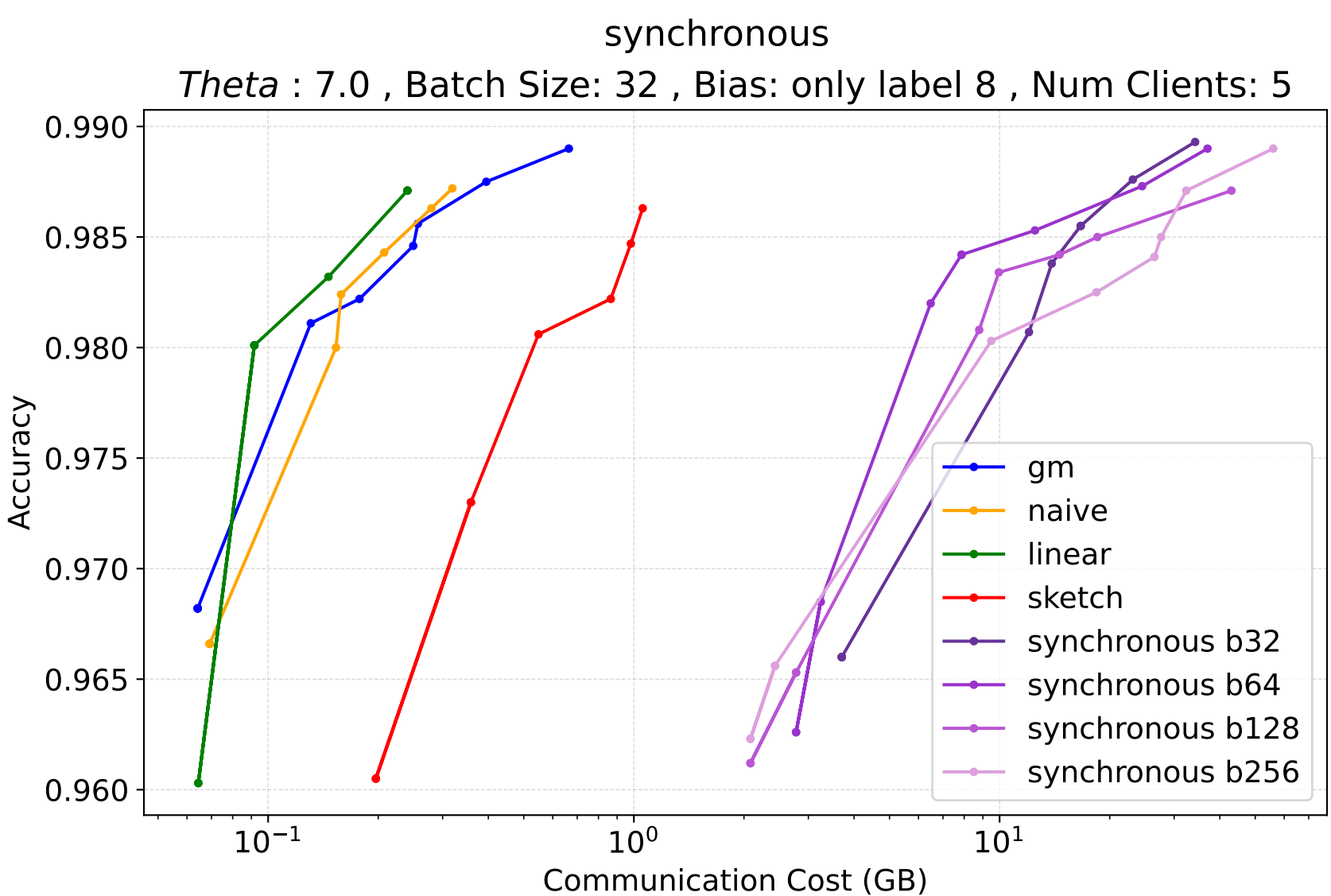

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 40
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

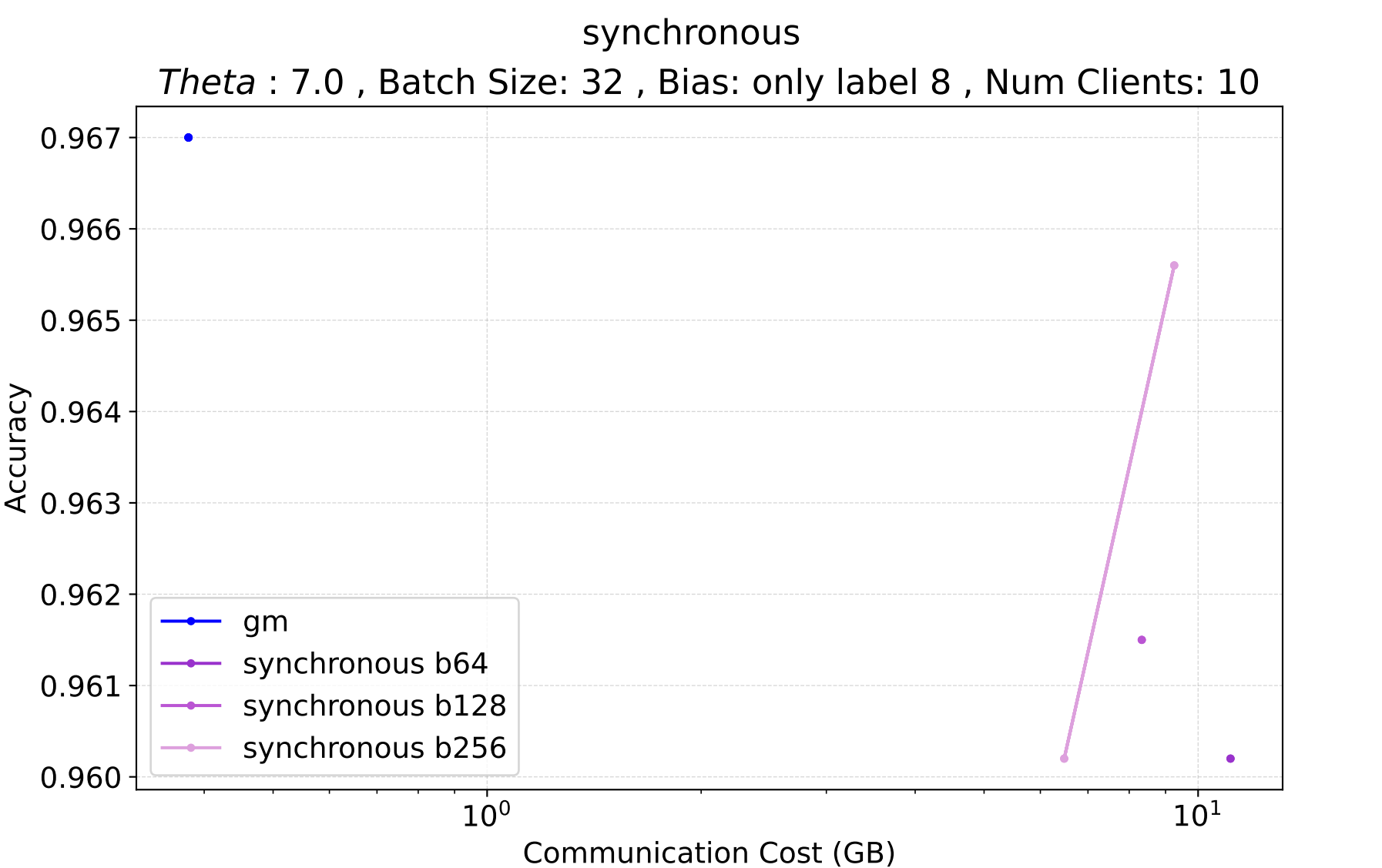

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 45
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)
gm
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

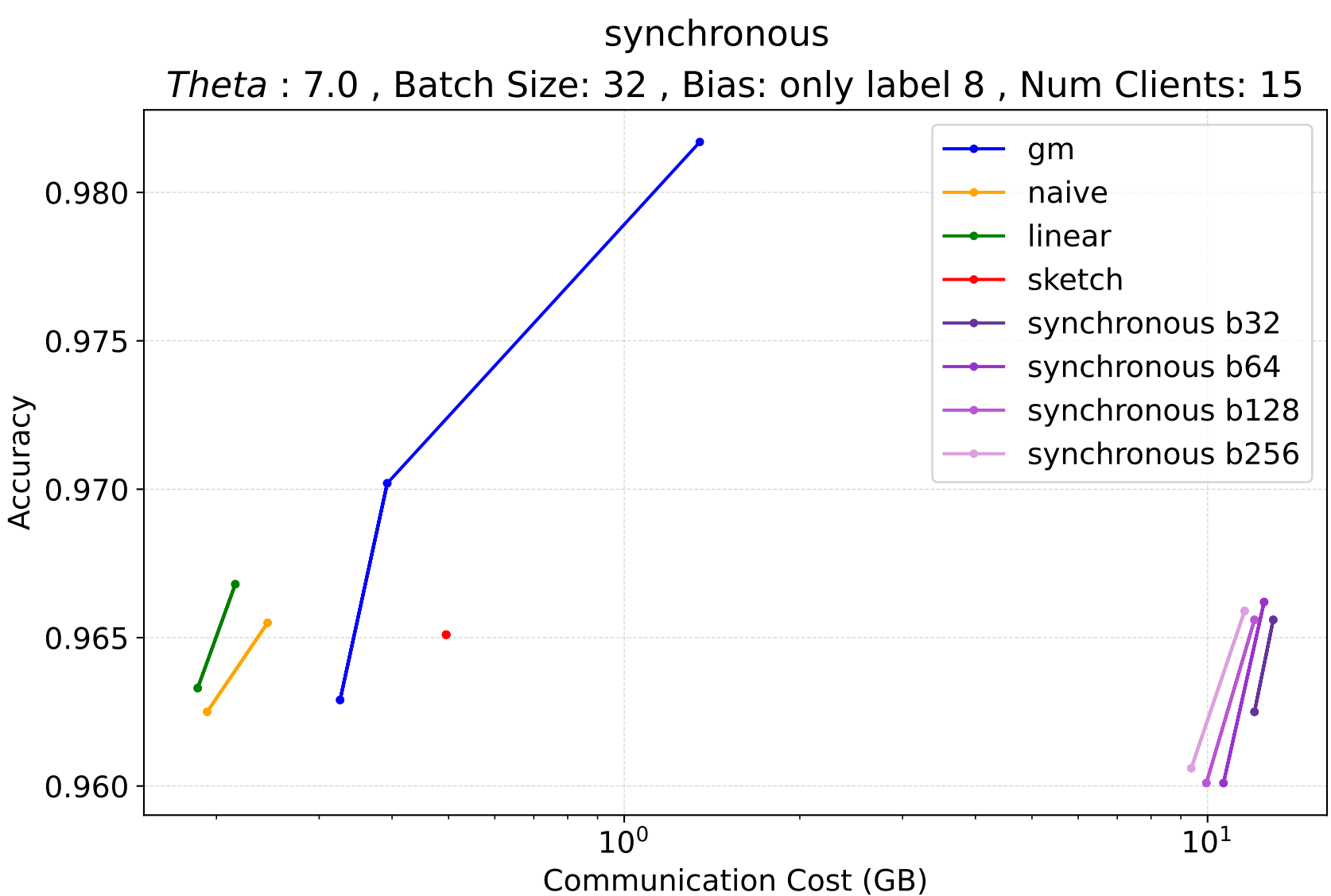

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 50
gm
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)

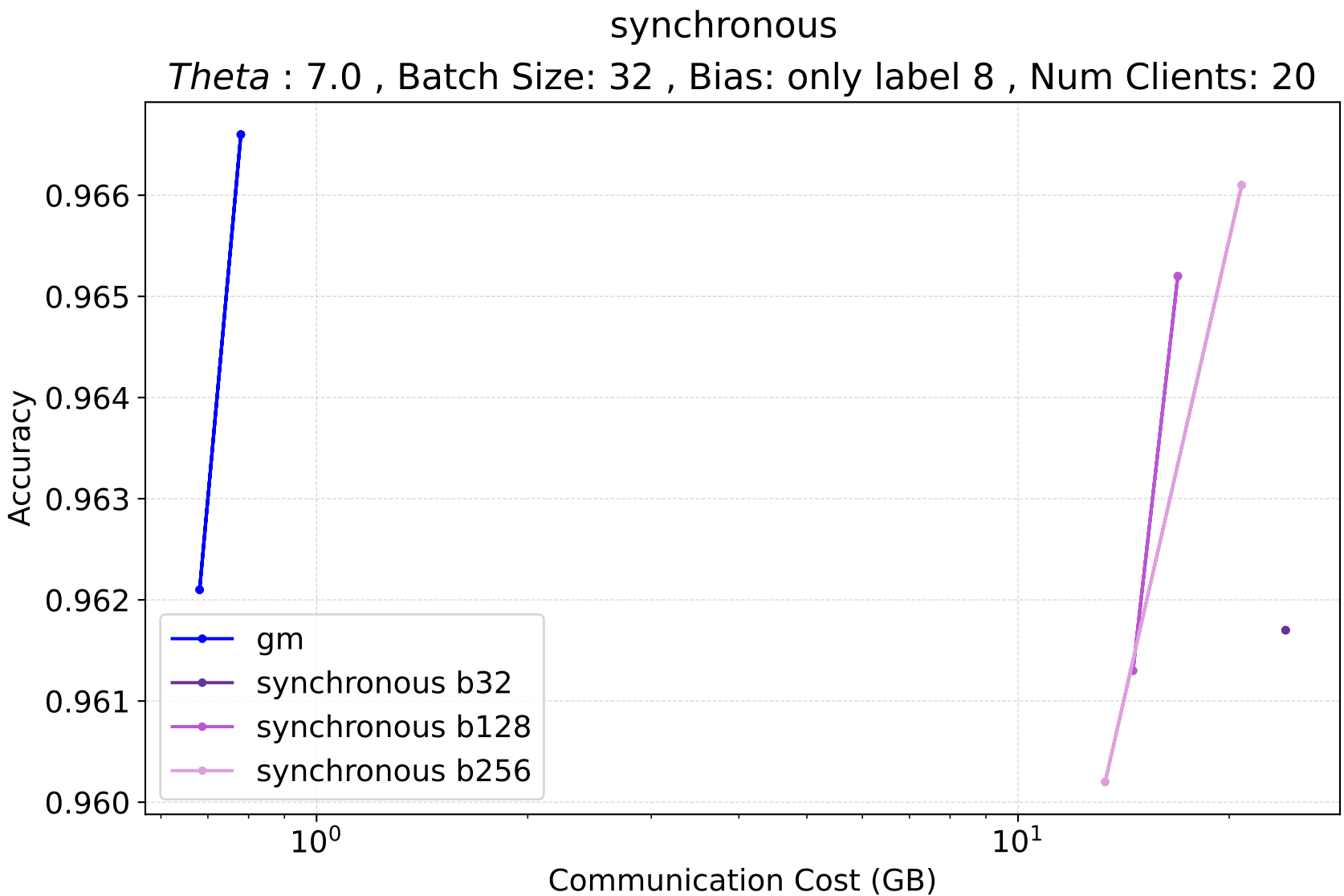

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 55
gm
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)

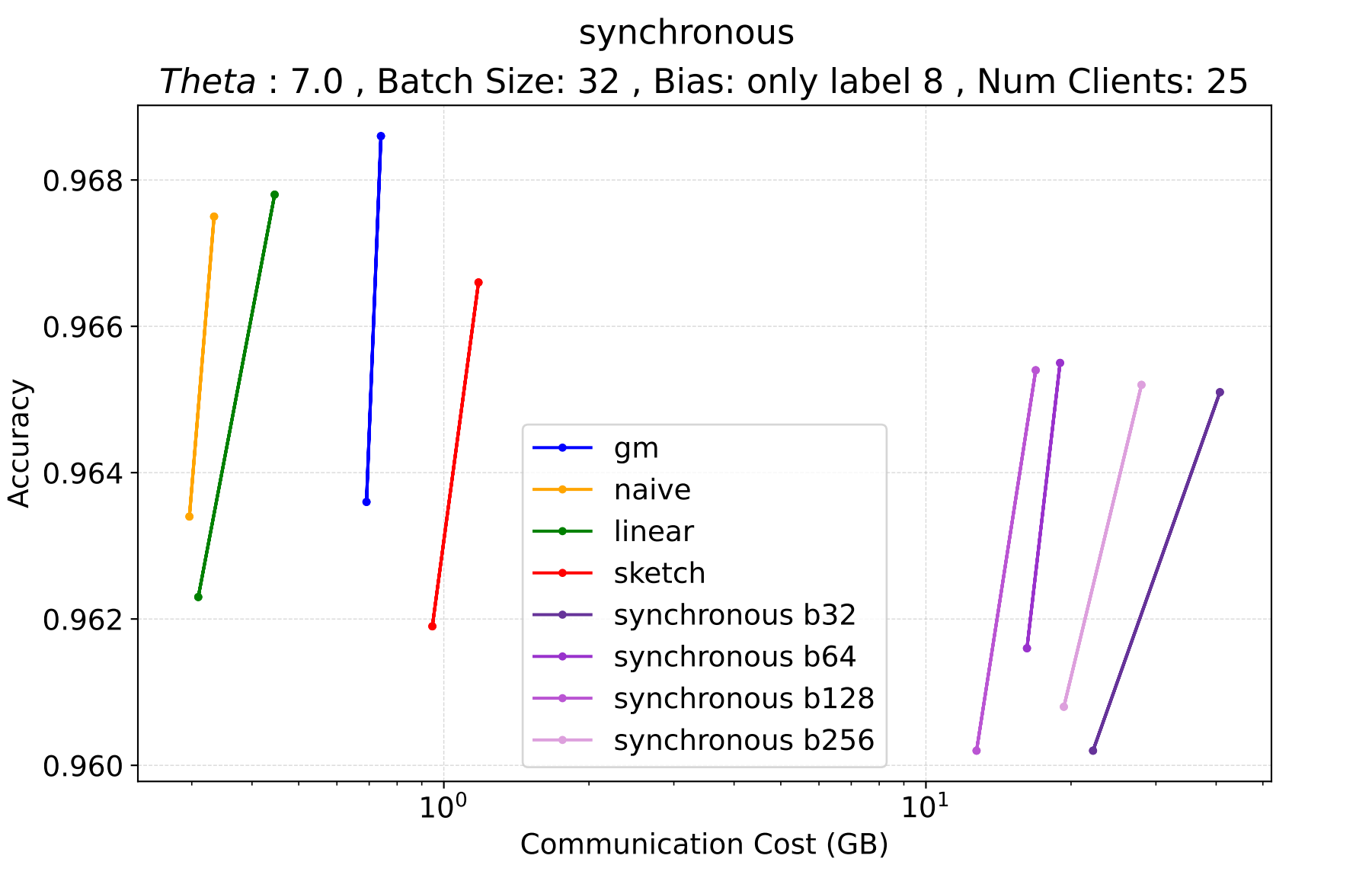

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 60
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
4×10^1
5×10^1
6×10^1
7×10^1
Communication Cost (GB)
synchronous b32
synchronous b64
synchronous b128
synchronous b256

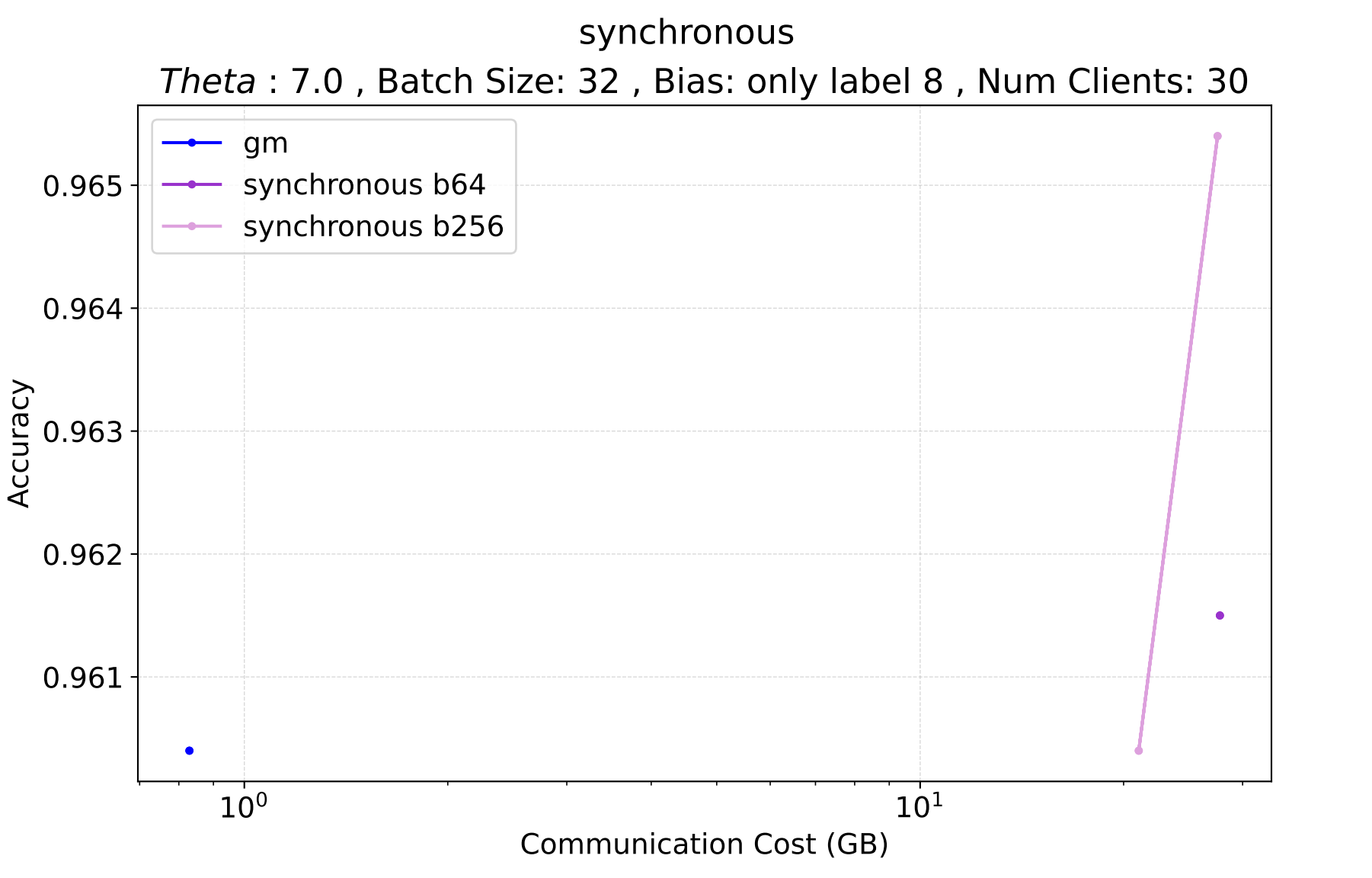

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 5
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

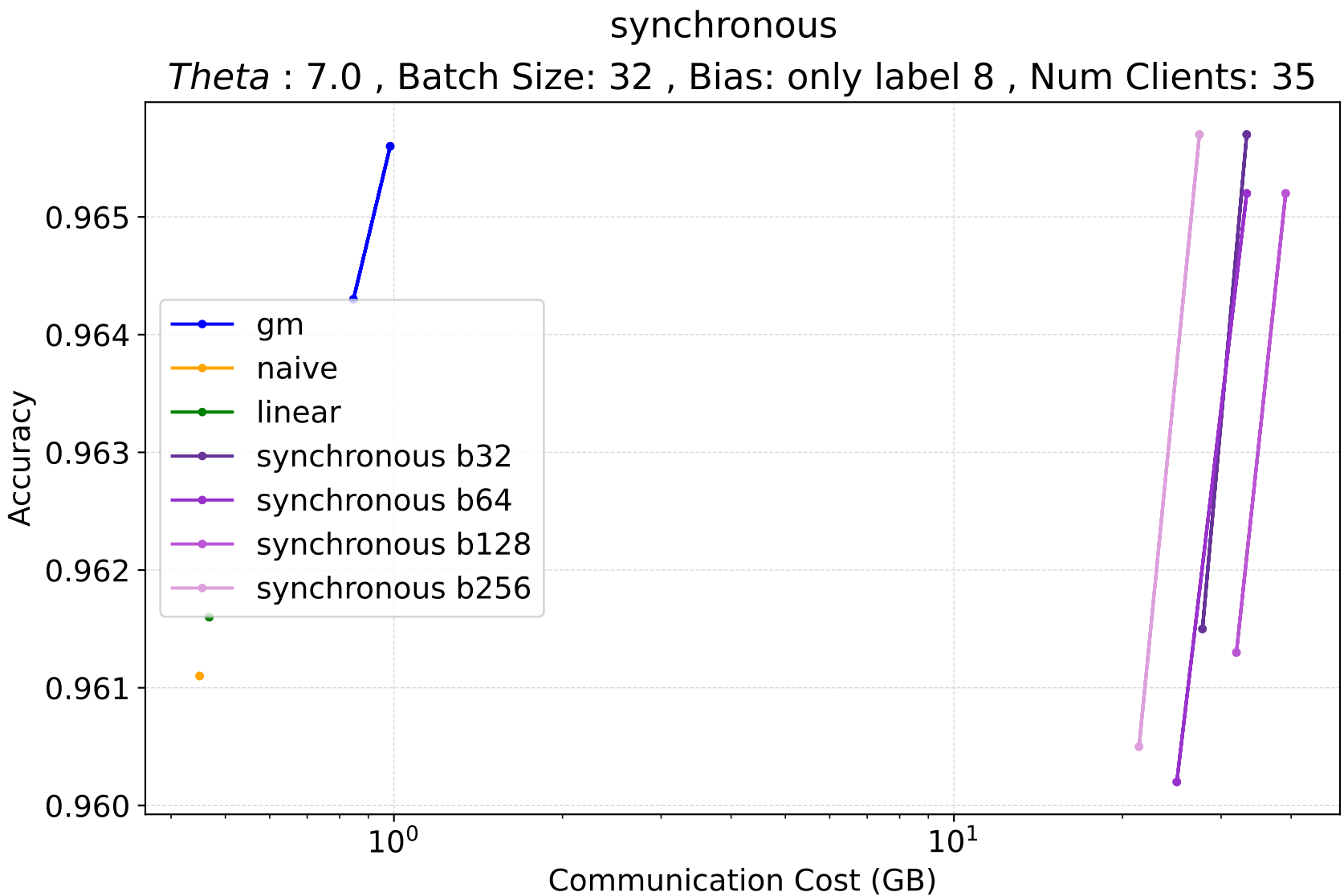

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 10
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
synchronous b64
synchronous b128
synchronous b256

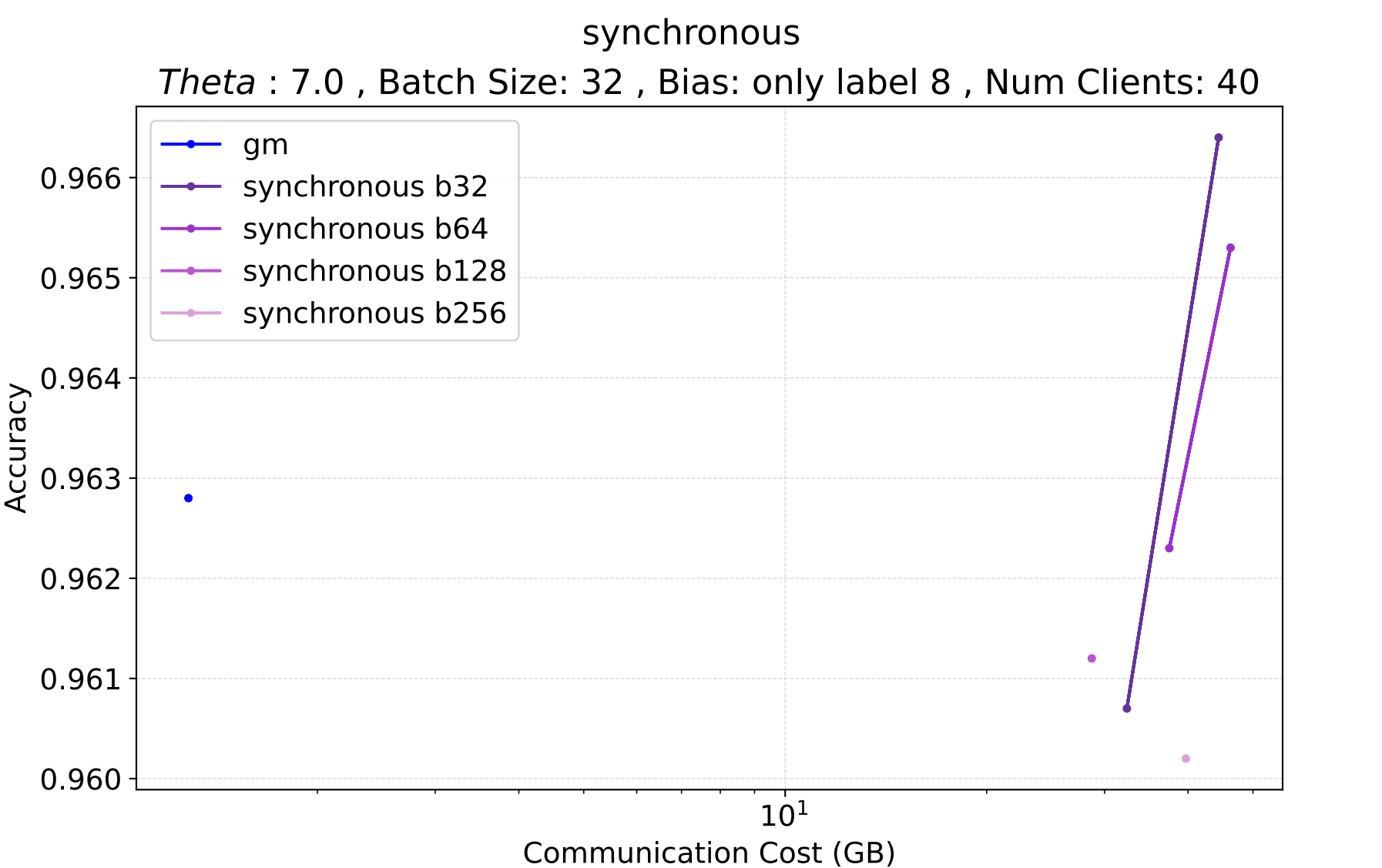

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)

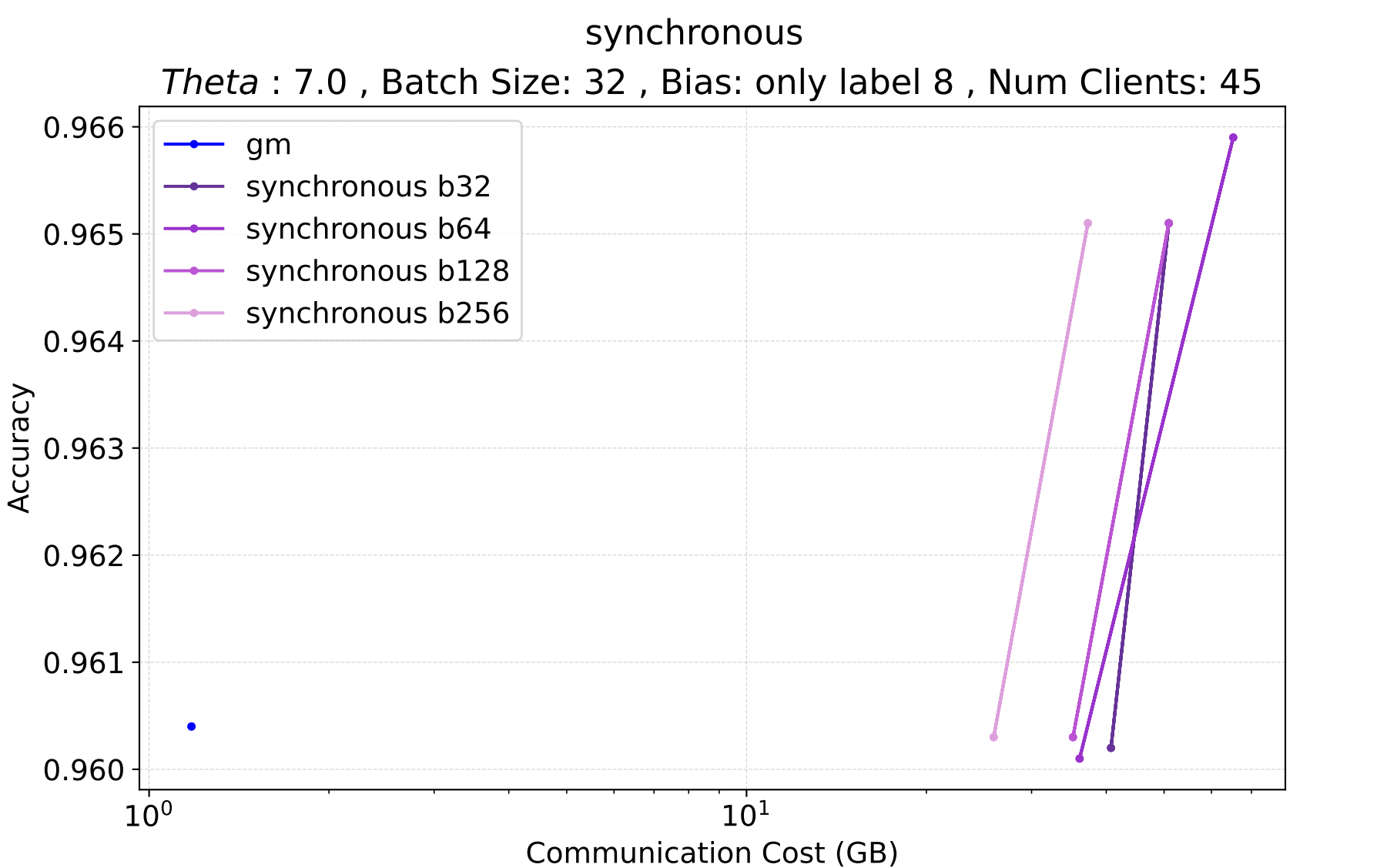

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 20
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
synchronous b32
synchronous b128
synchronous b256

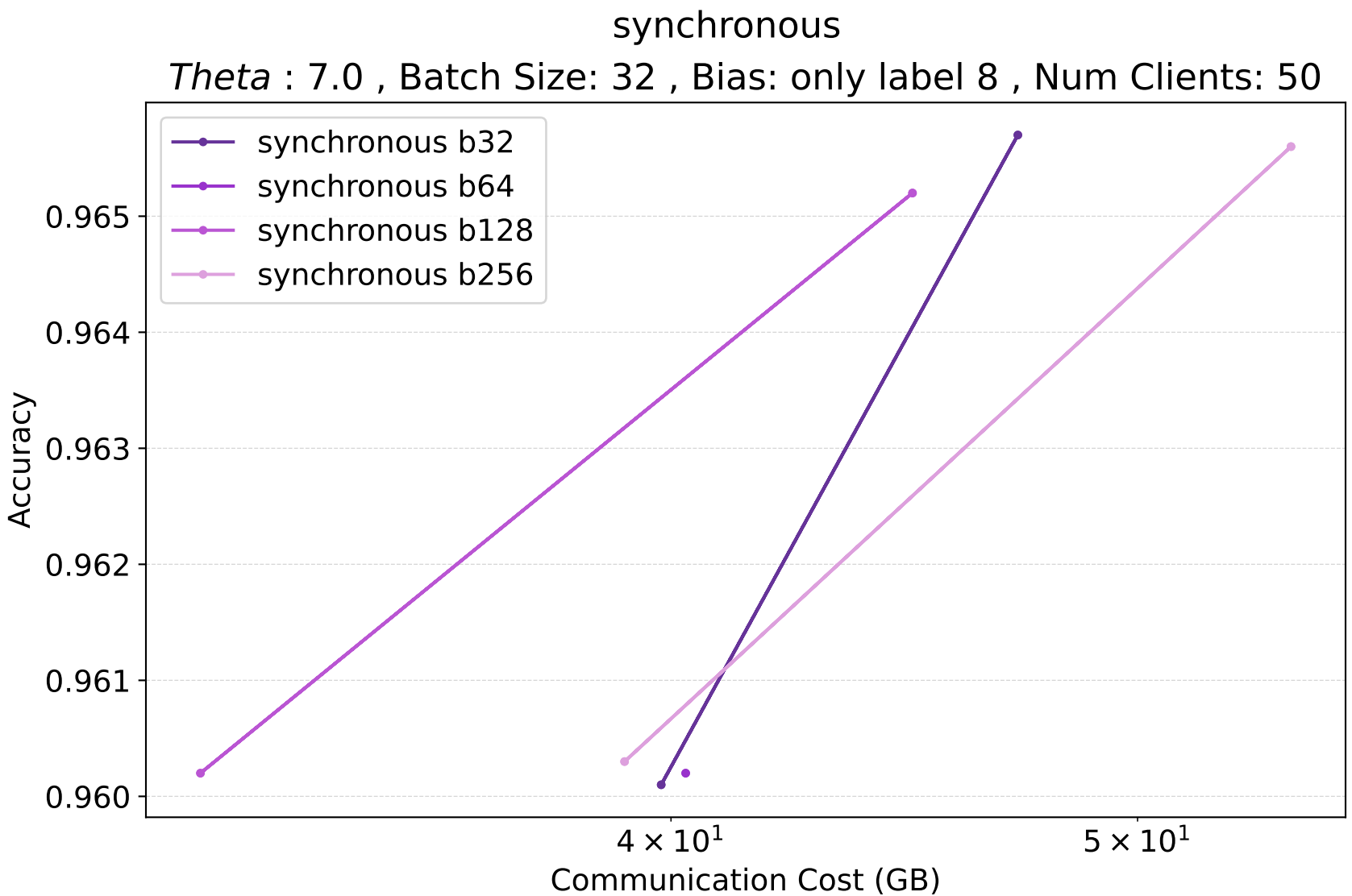

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 25
Accuracy
0.968
0.966
0.964
0.962
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

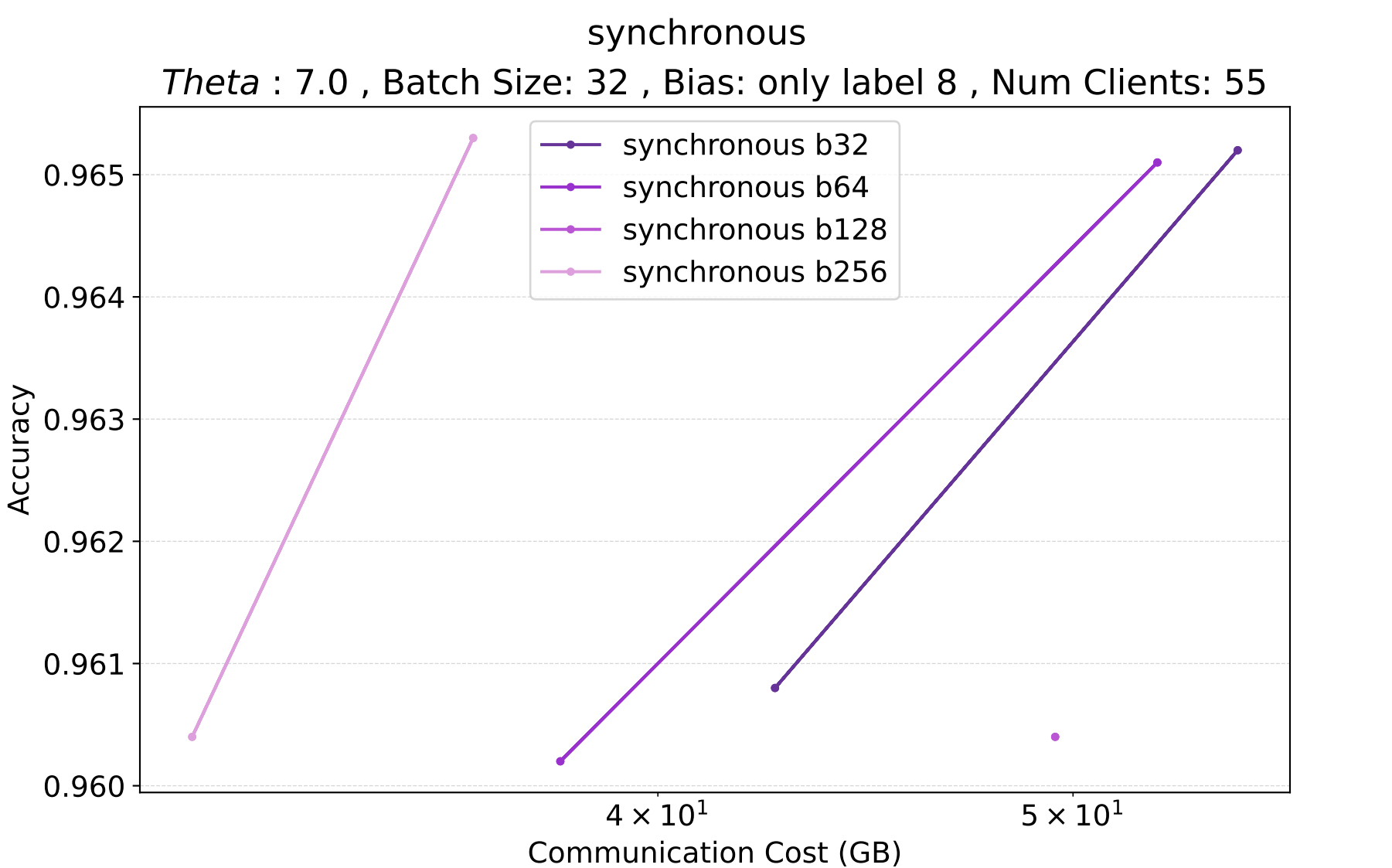

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 30
gm
synchronous b64
synchronous b256
0.965
0.964
0.963
0.962
0.961
Accuracy
10^0
10^1
Communication Cost (GB)

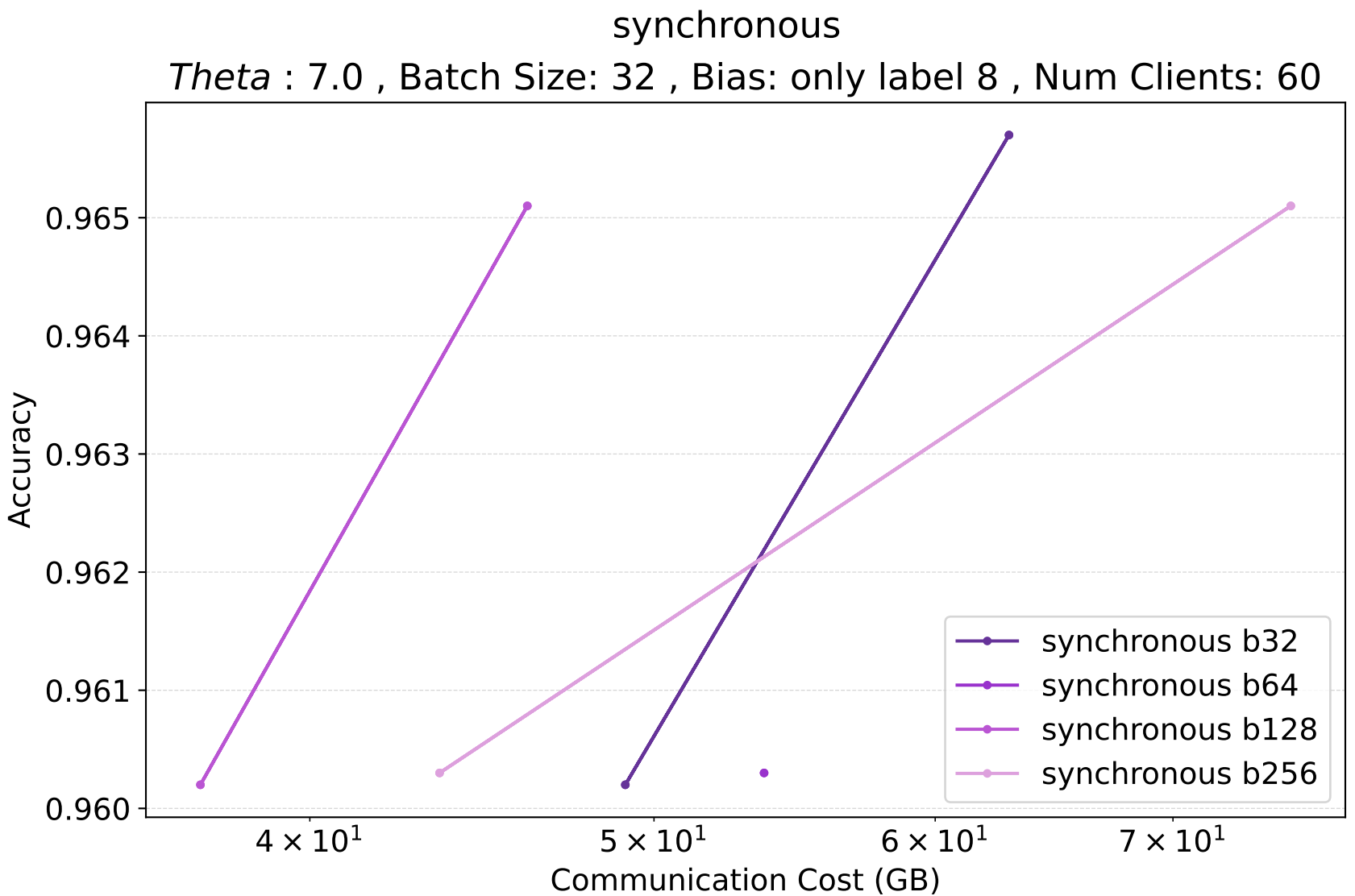

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 35
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
synchronous b32
synchronous b64
synchronous b128
synchronous b256

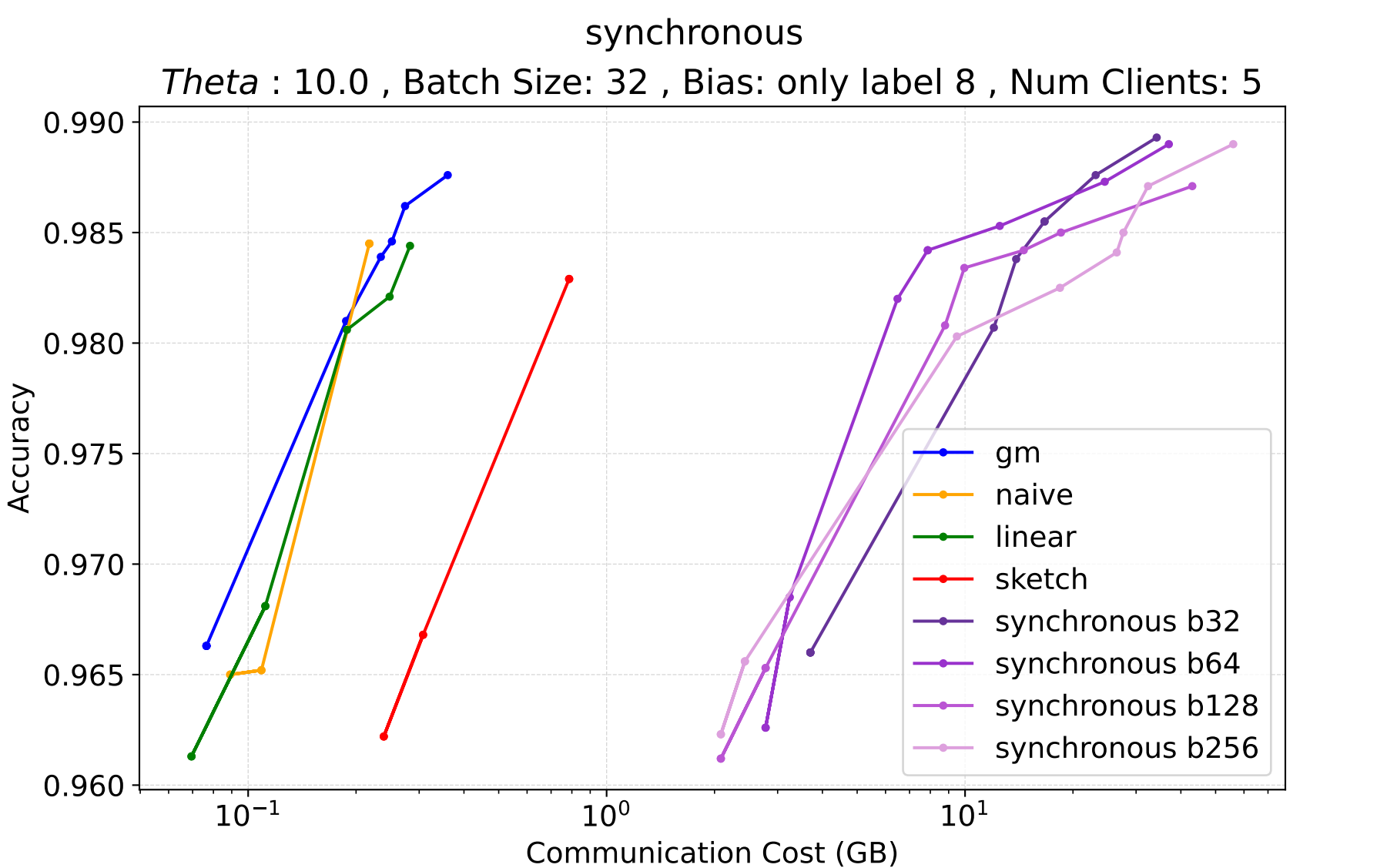

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 40
gm
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^1
Communication Cost (GB)

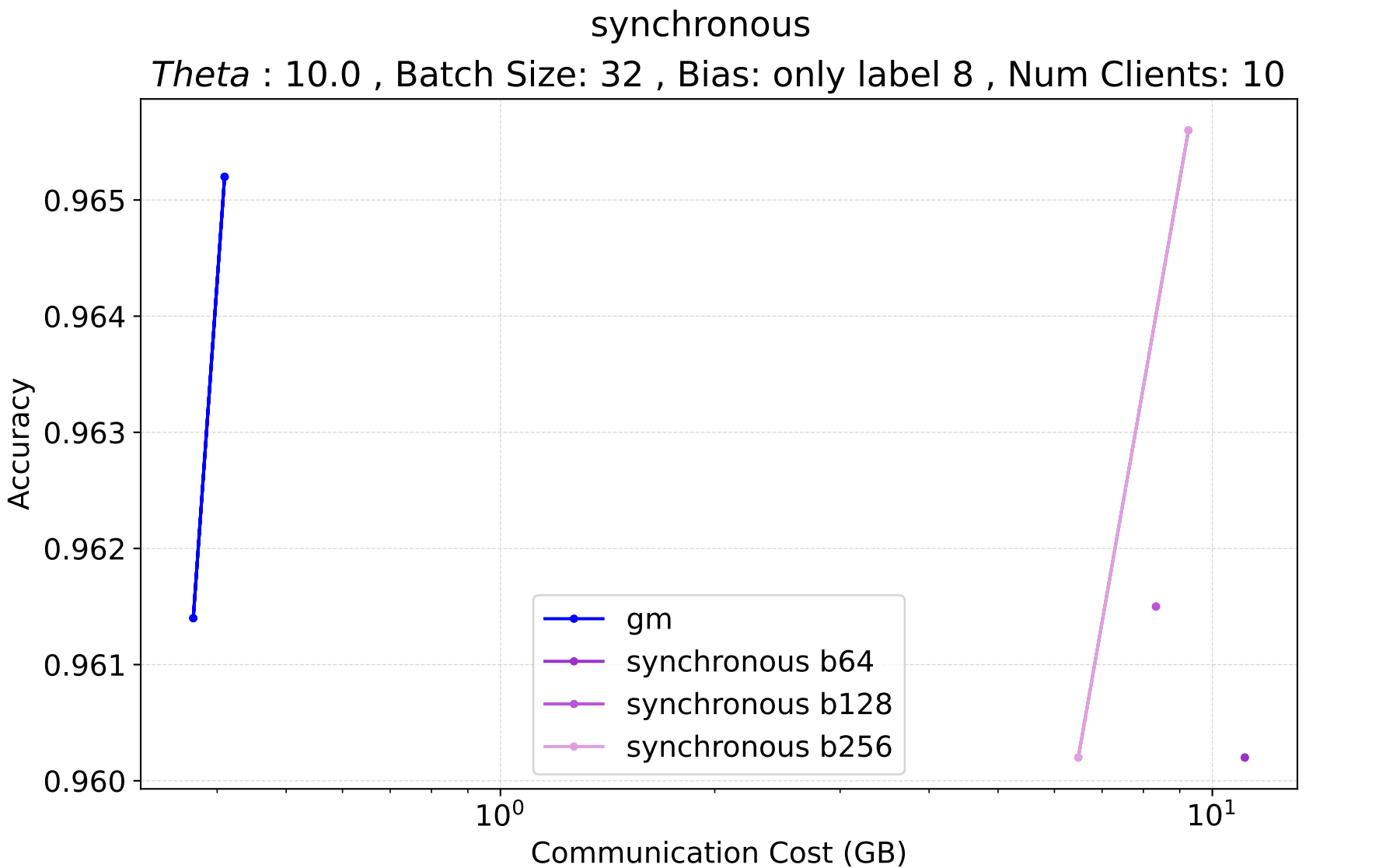

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 45
gm
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)

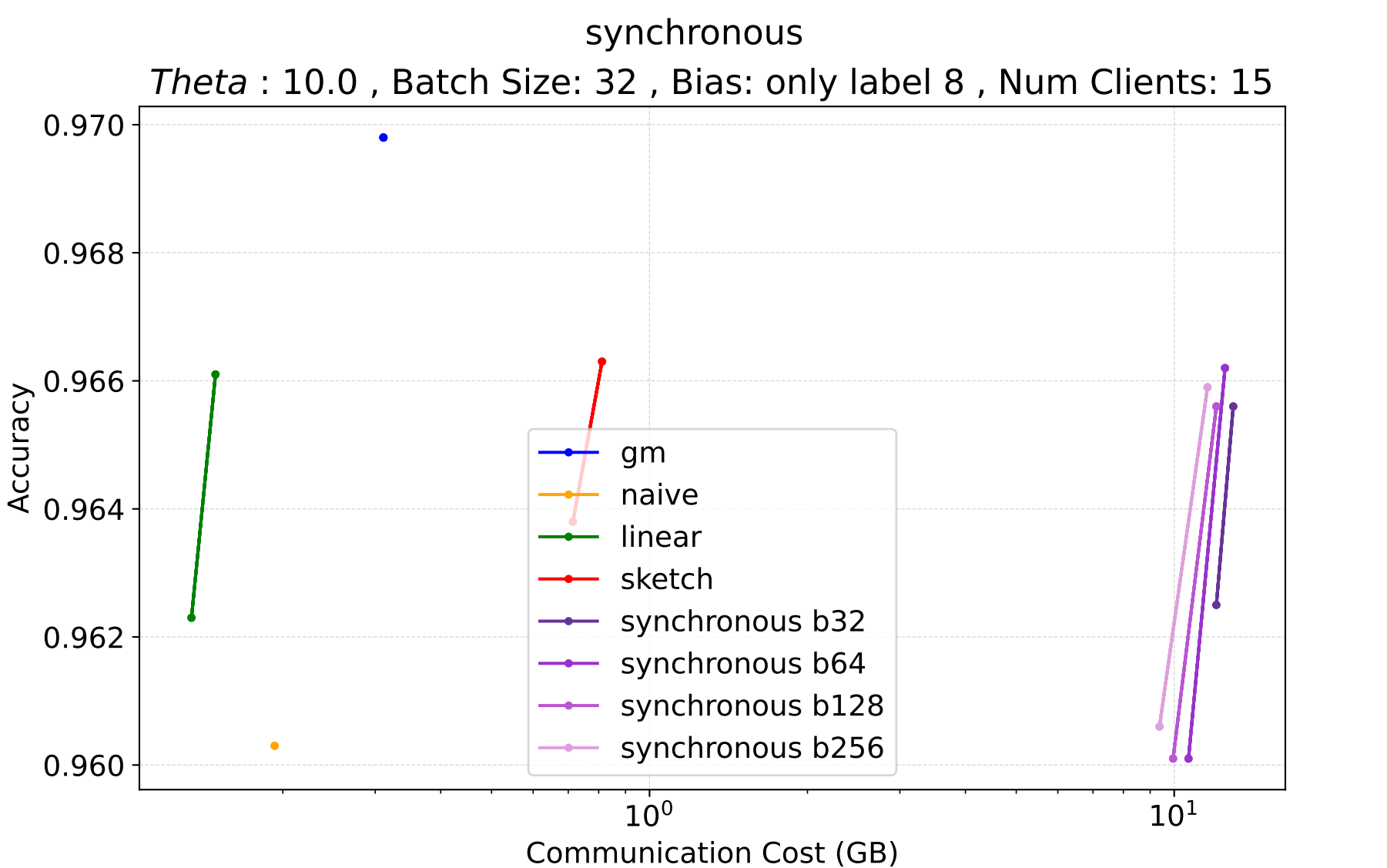

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 50
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
4×10^1
5×10^1
Communication Cost (GB)

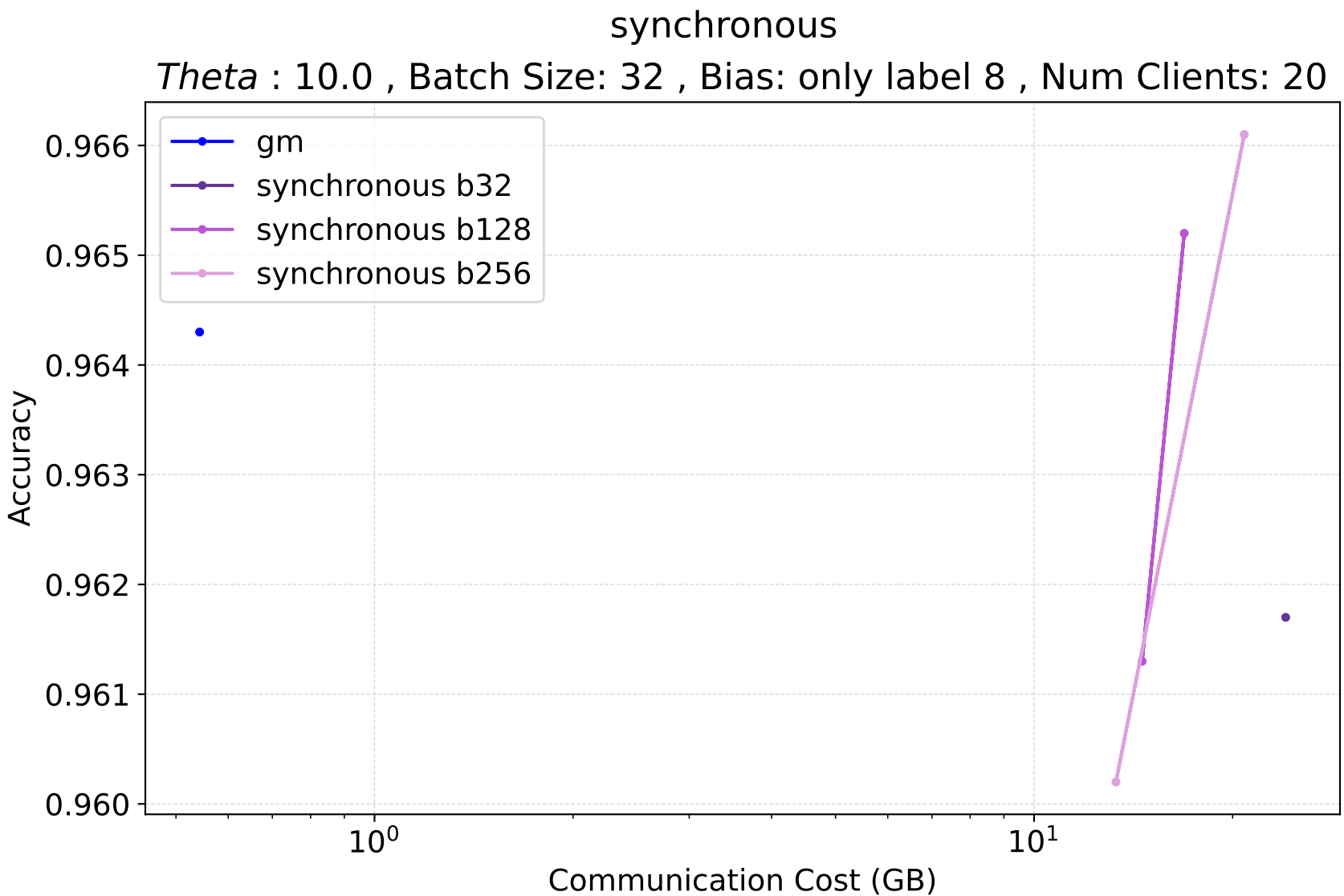

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 55
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
4×10^1
5×10^1
Communication Cost (GB)

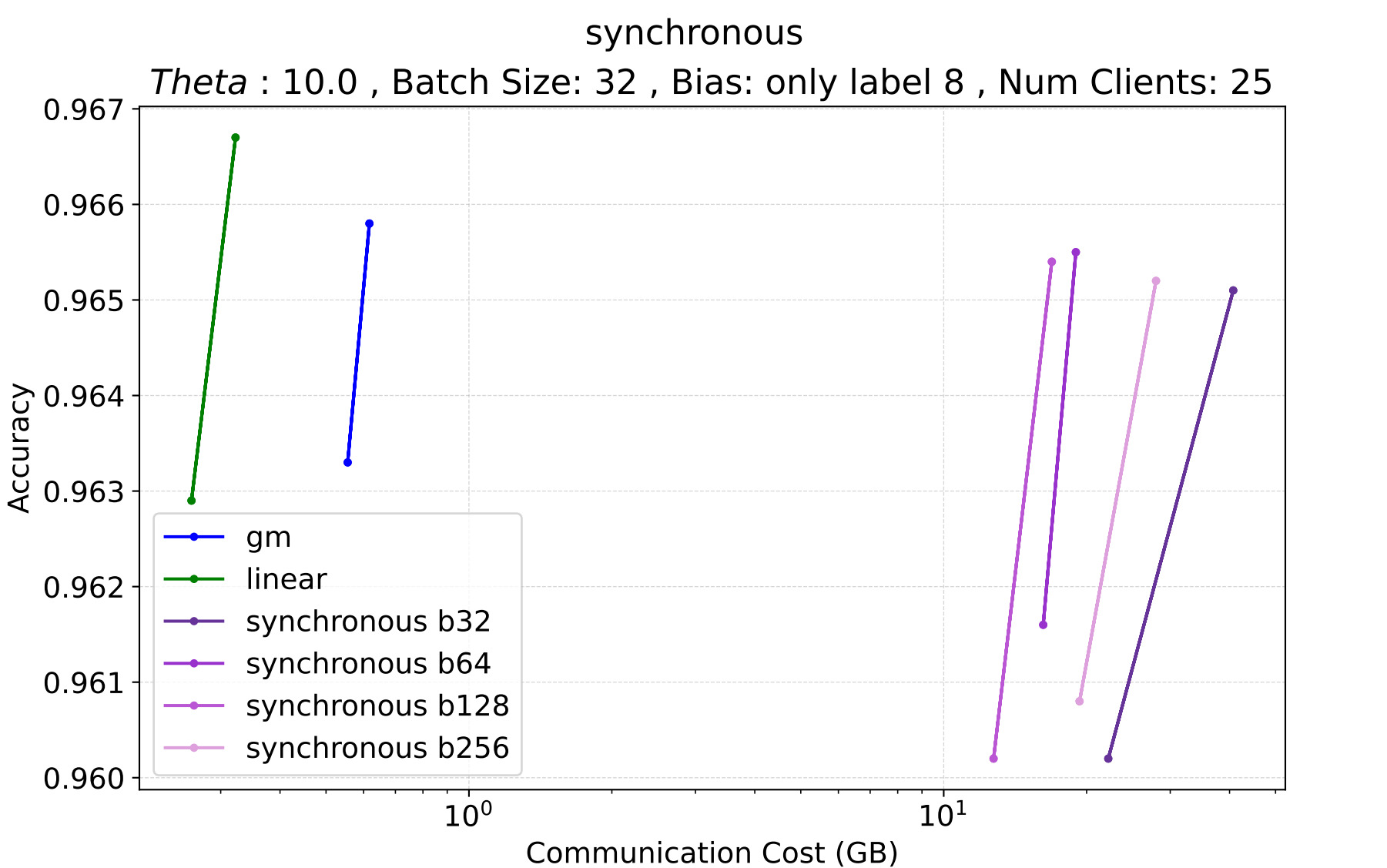

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 60
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
4×10^1
5×10^1
6×10^1
7×10^1
Communication Cost (GB)
synchronous b32
synchronous b64
synchronous b128
synchronous b256

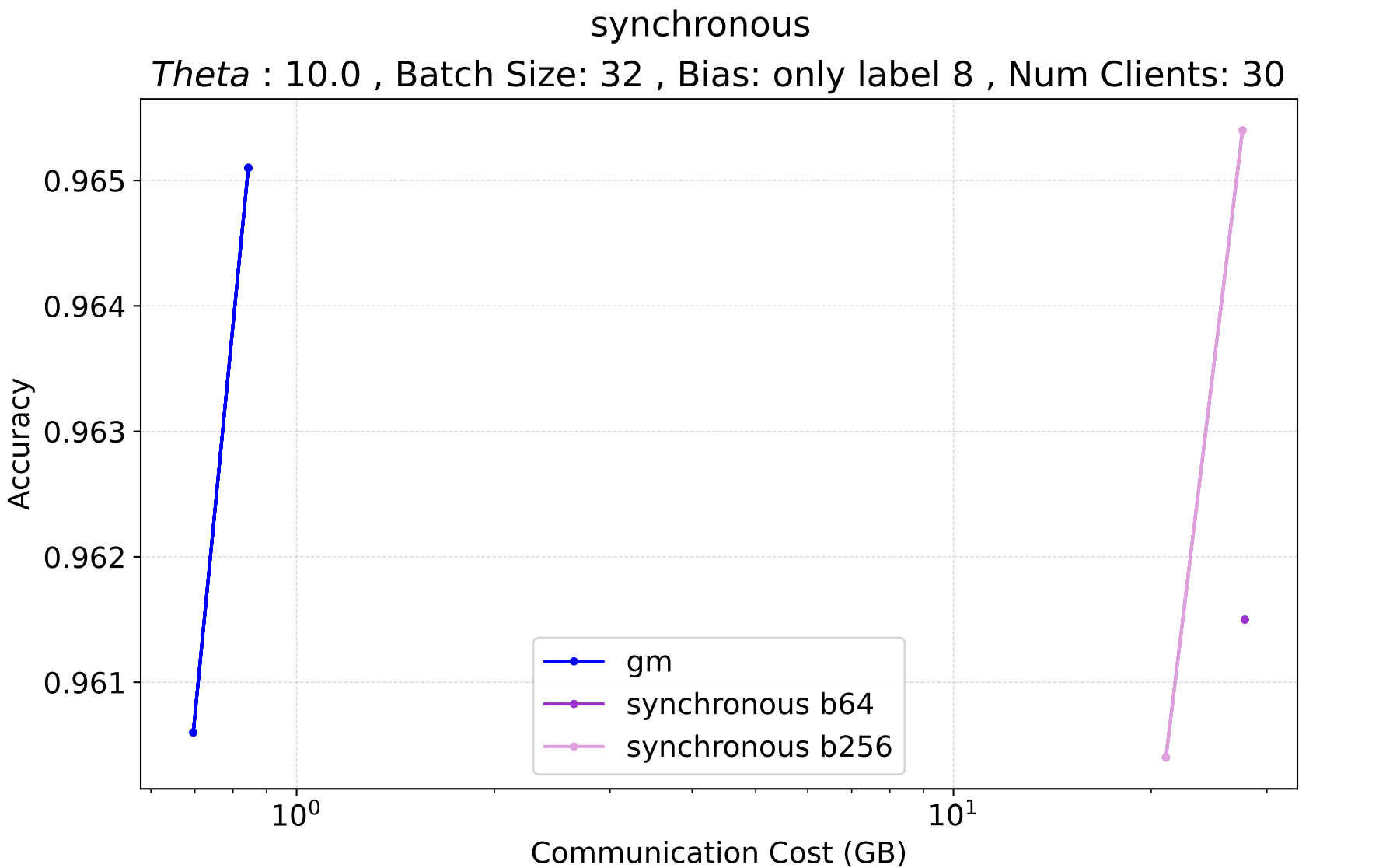

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

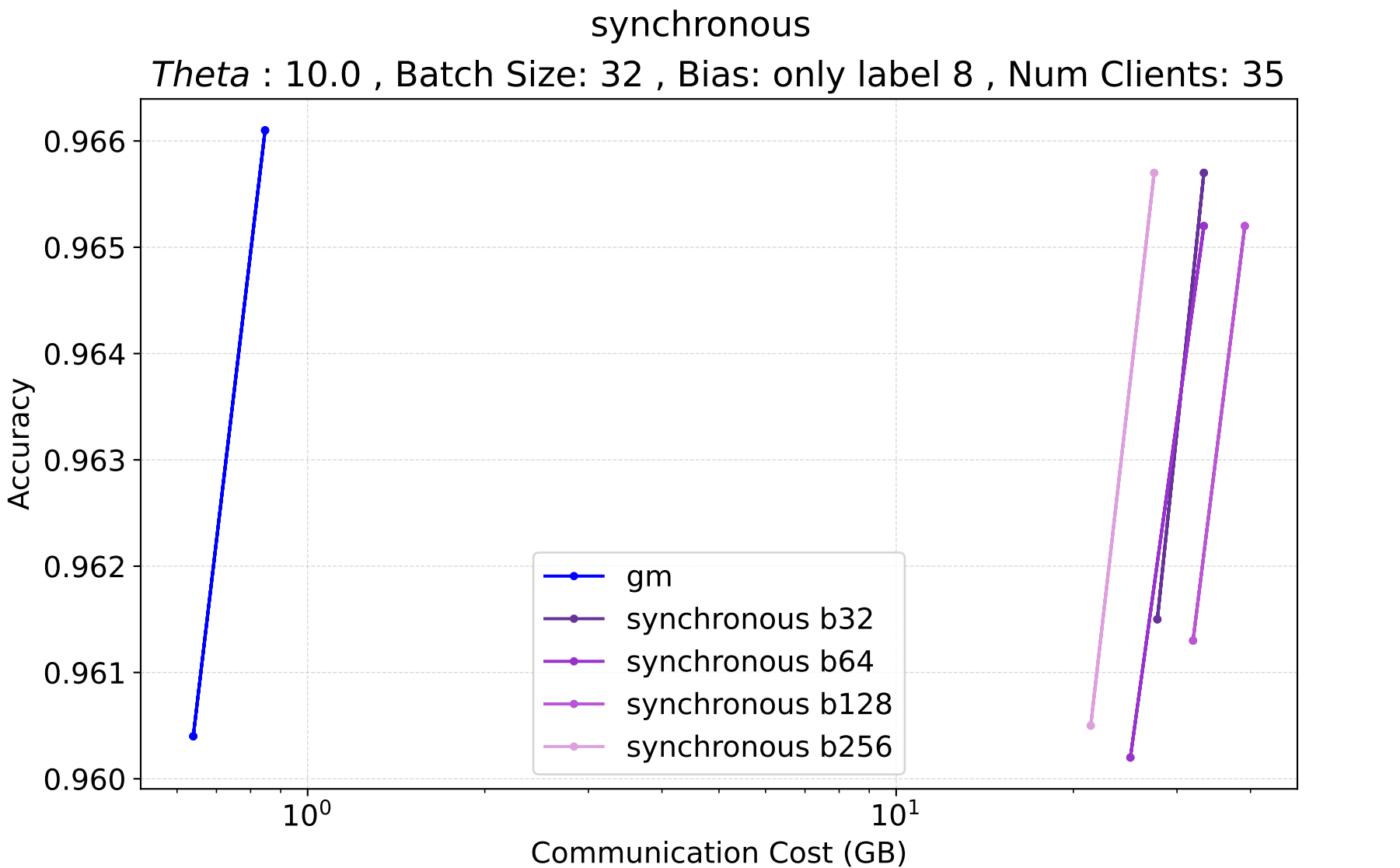

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 10
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
synchronous b64
synchronous b128
synchronous b256

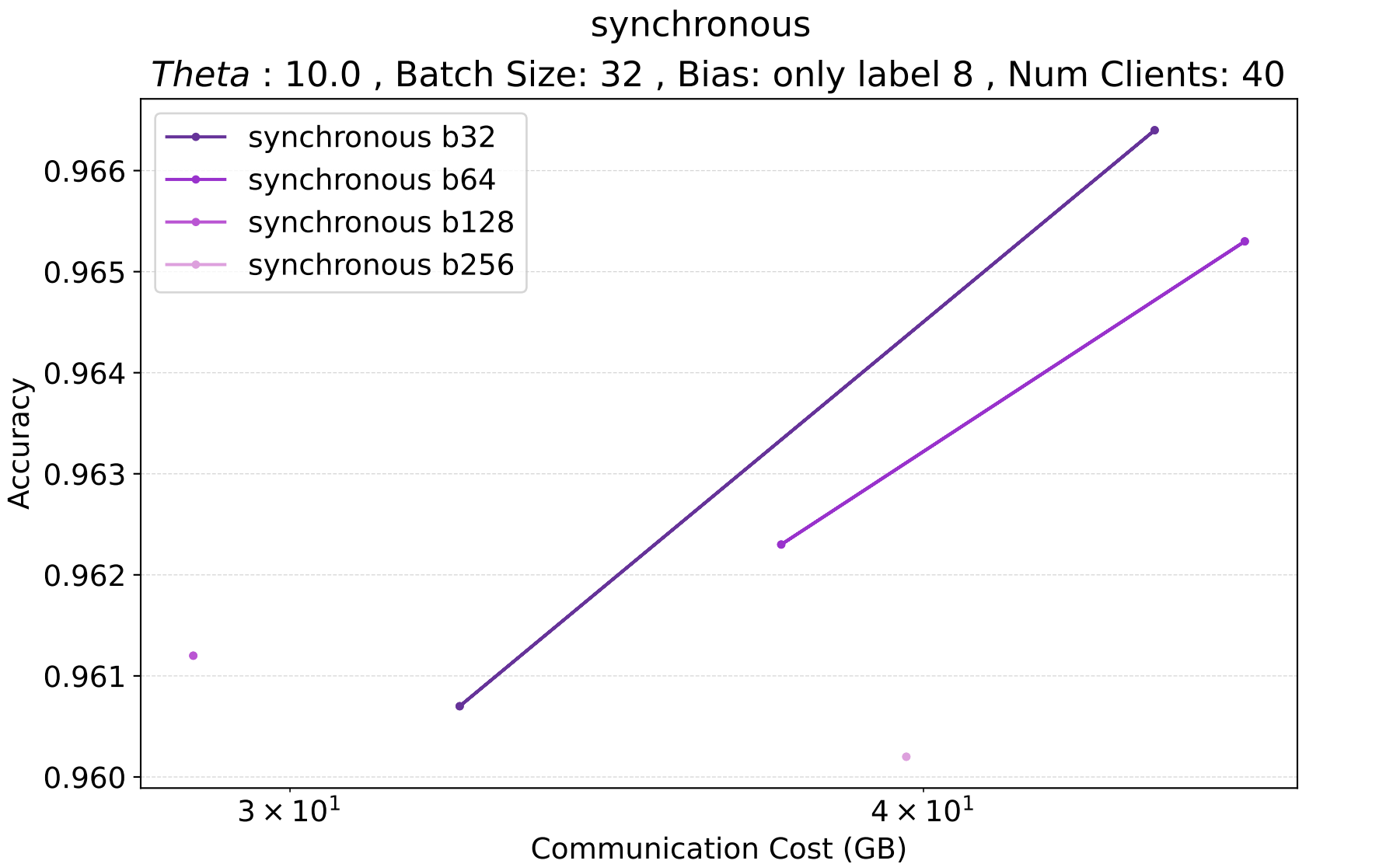

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 15
0.970
0.968
0.966
0.964
0.962
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

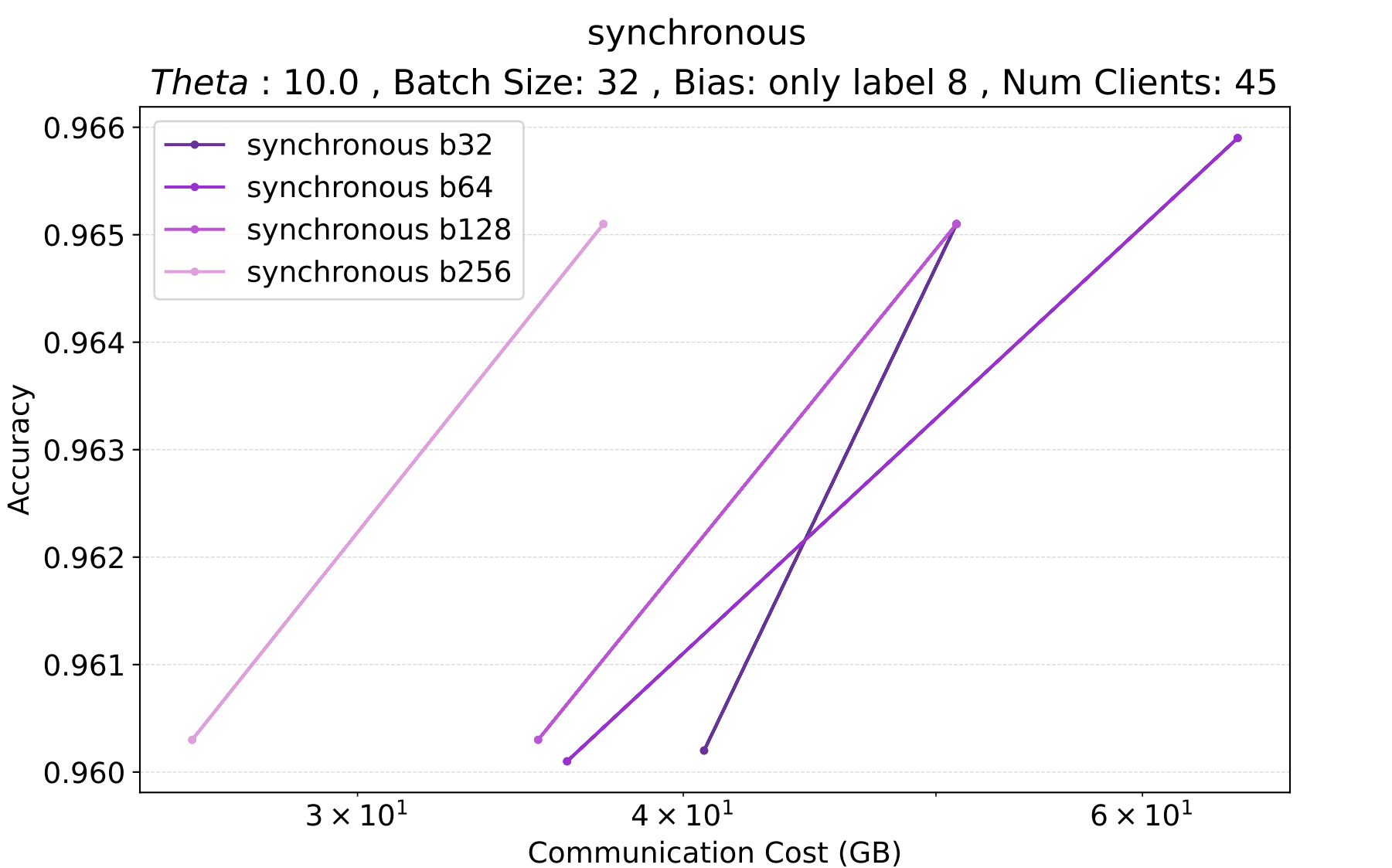

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 20
gm
synchronous b32
synchronous b128
synchronous b256
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)

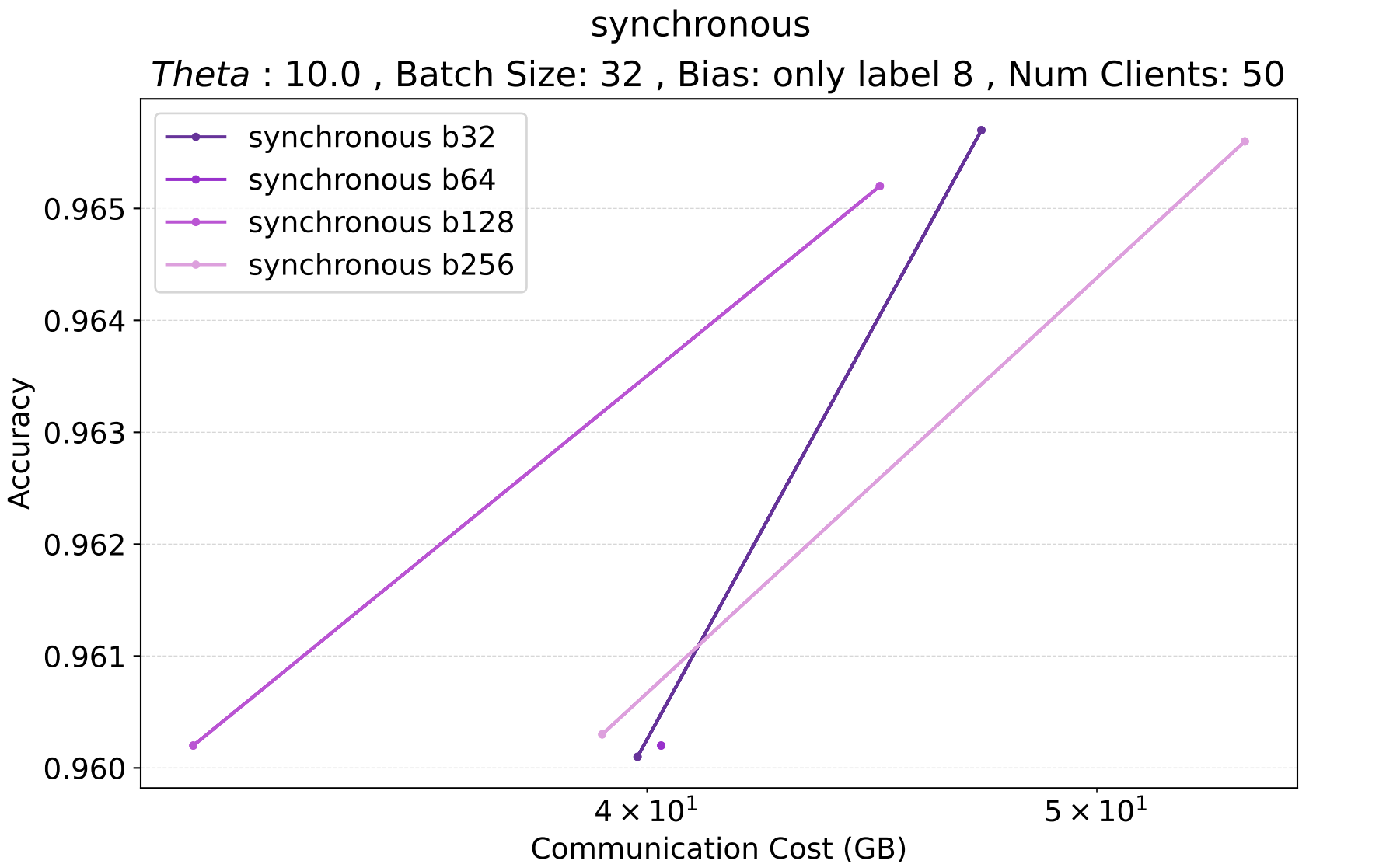

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 25
Accuracy
0.967
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
linear
synchronous b32
synchronous b64
synchronous b128
synchronous b256

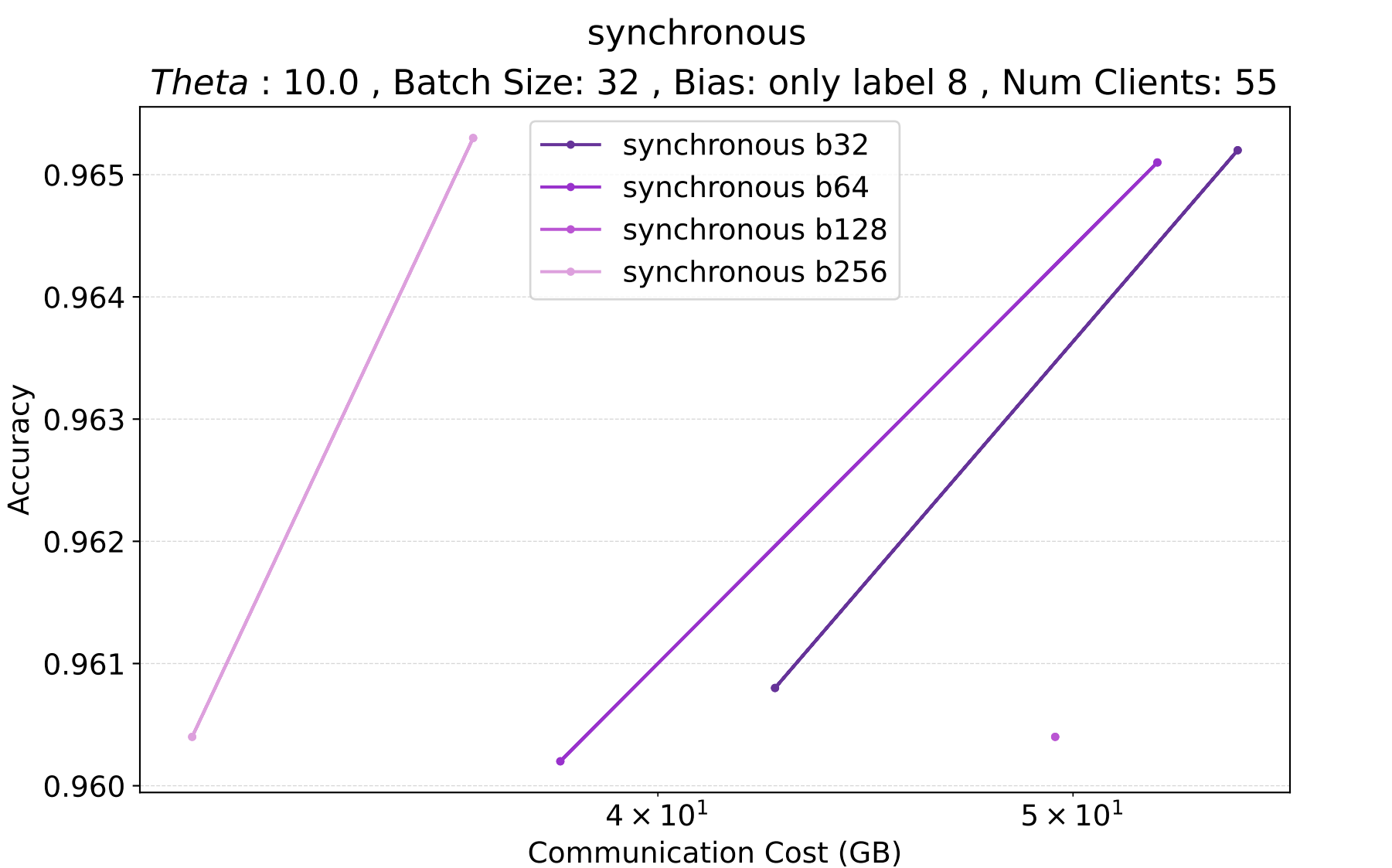

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 30
0.965
0.964
0.963
0.962
0.961
Accuracy
10^0
10^1
Communication Cost (GB)
gm
synchronous b64
synchronous b256

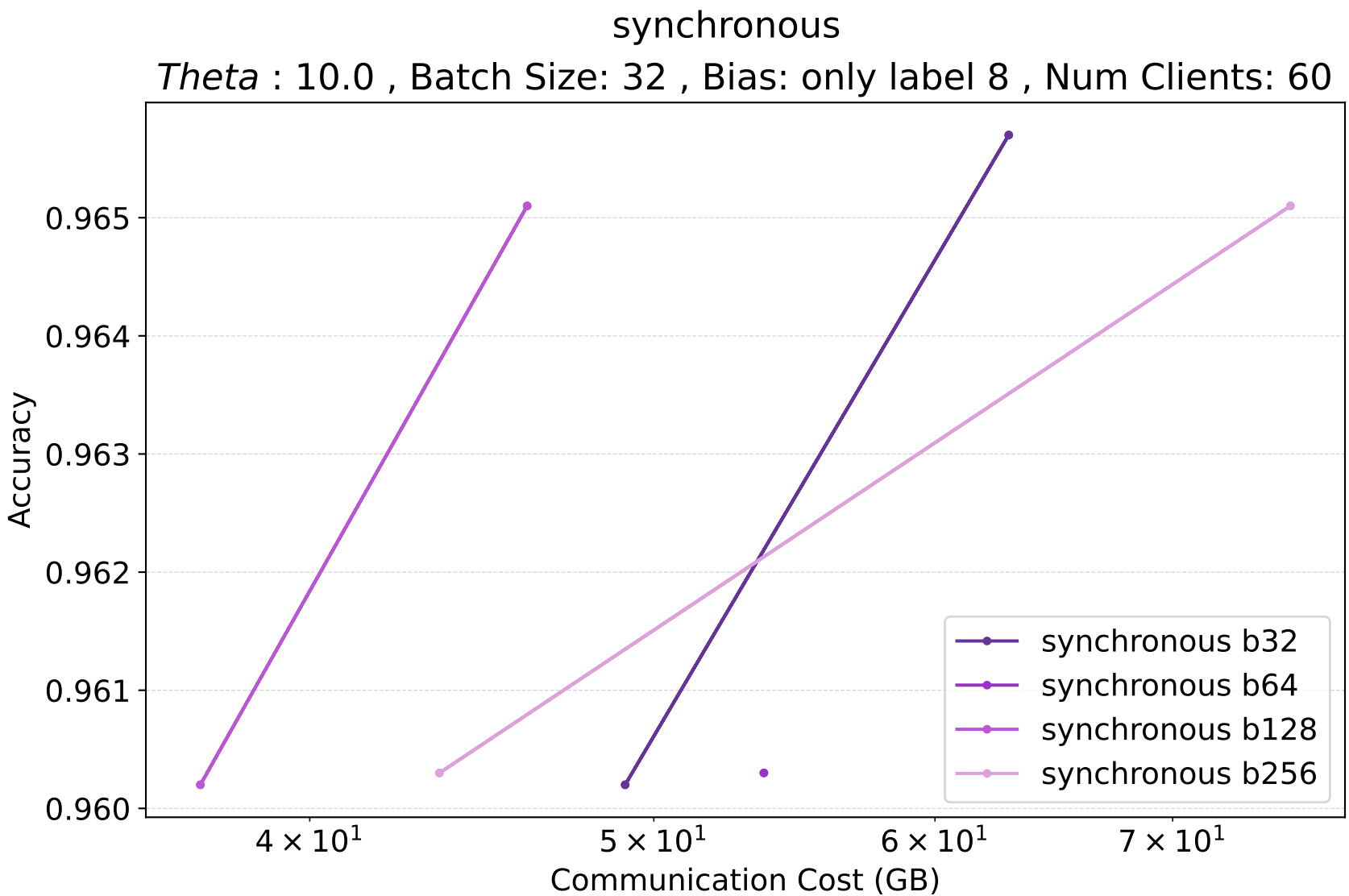

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 35
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
10^0
10^1
Communication Cost (GB)
gm
synchronous b32
synchronous b64
synchronous b128
synchronous b256

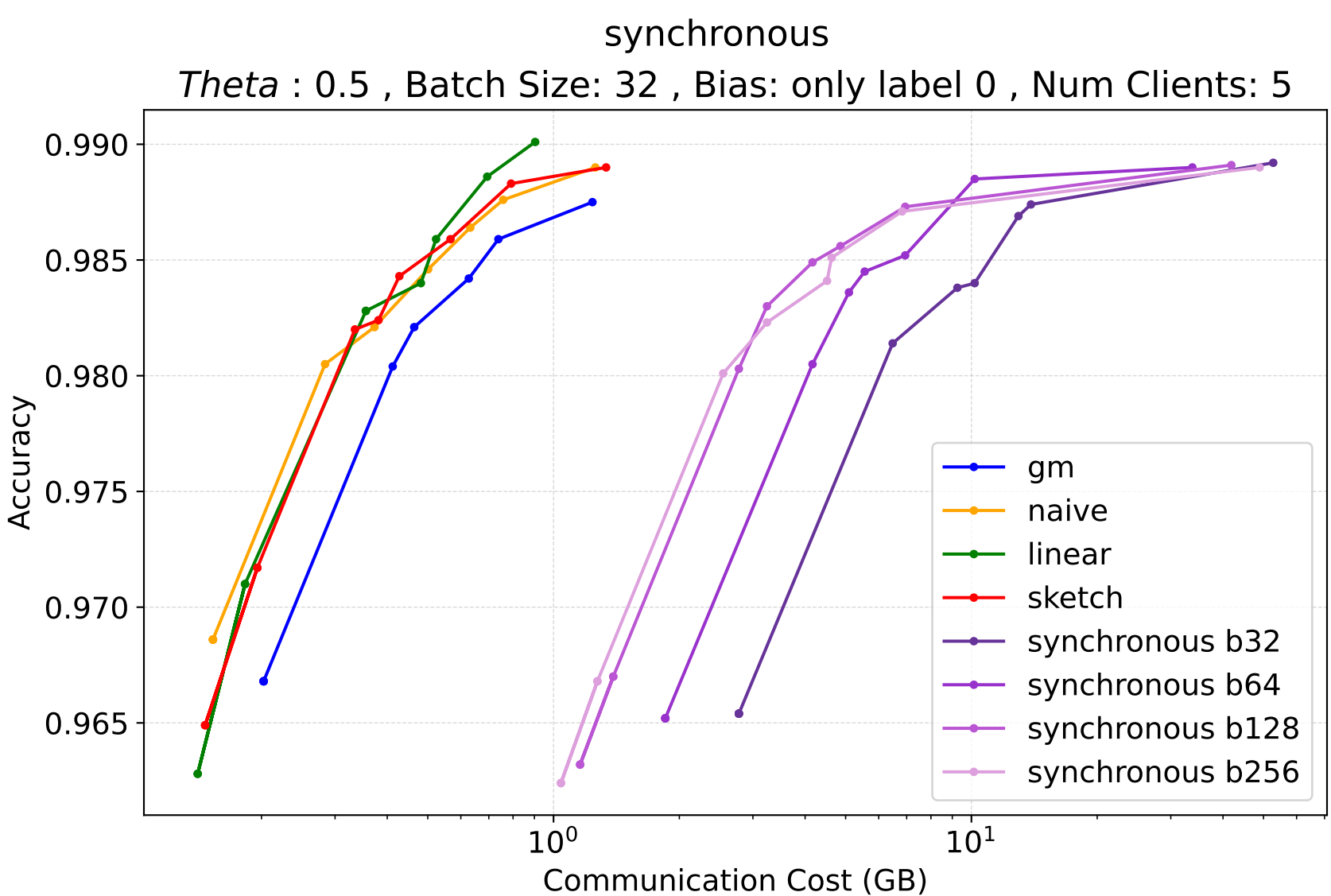

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 40
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
3×10^1
4×10^1
Communication Cost (GB)

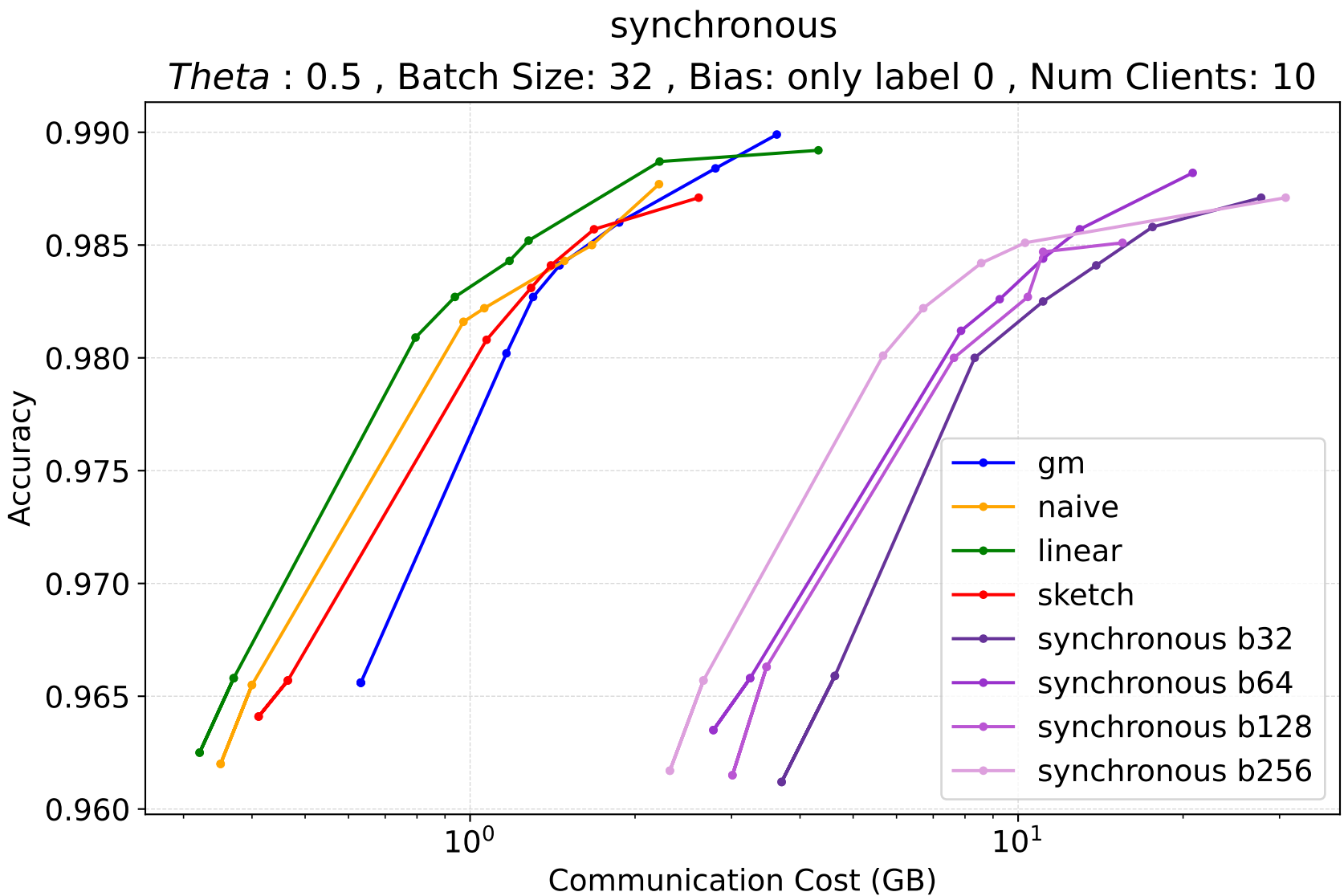

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 45
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.966
0.965
0.964
0.963
0.962
0.961
0.960
3×10^1
4×10^1
6×10^1
Communication Cost (GB)

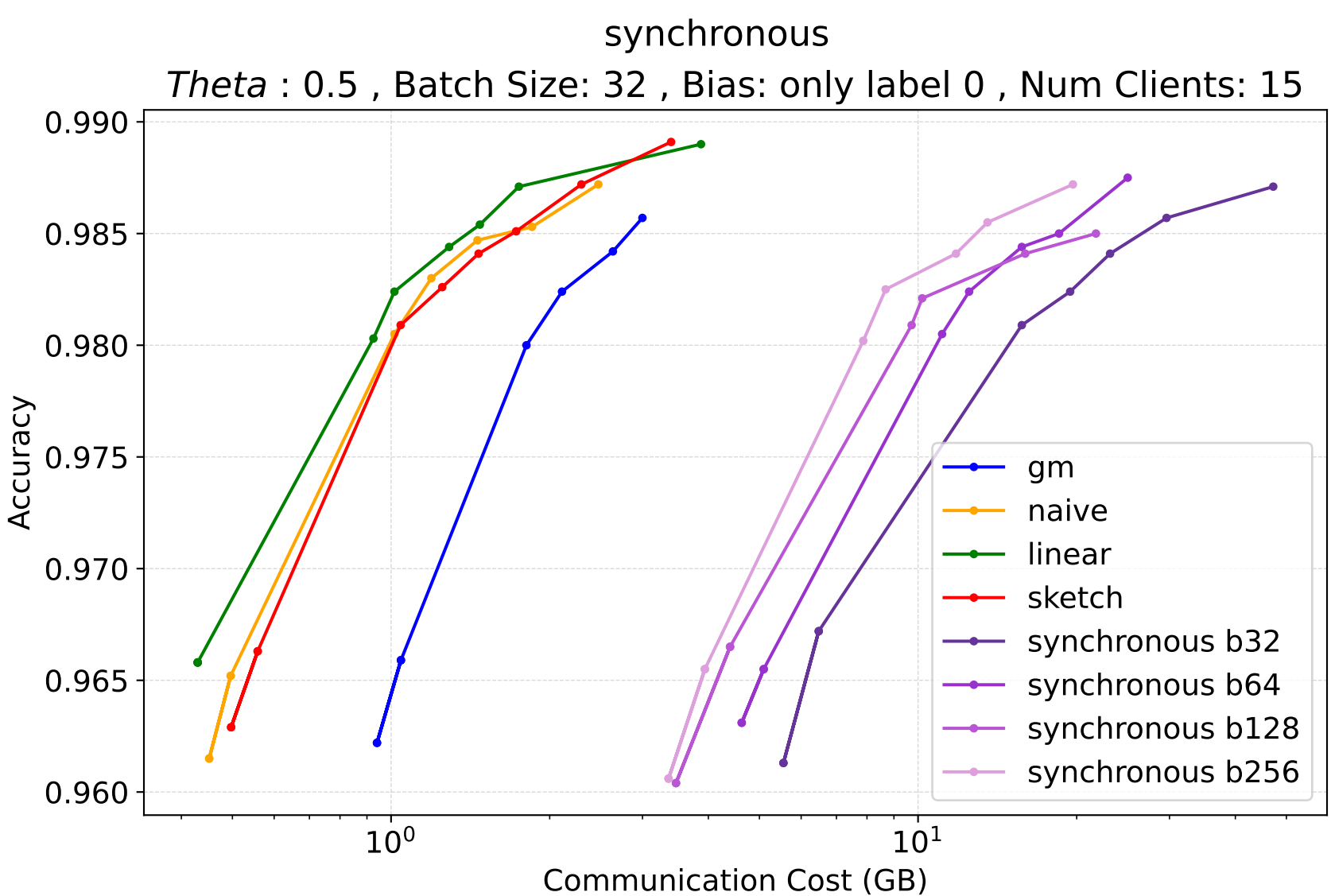

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 50
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
4×10^1
5×10^1
Communication Cost (GB)

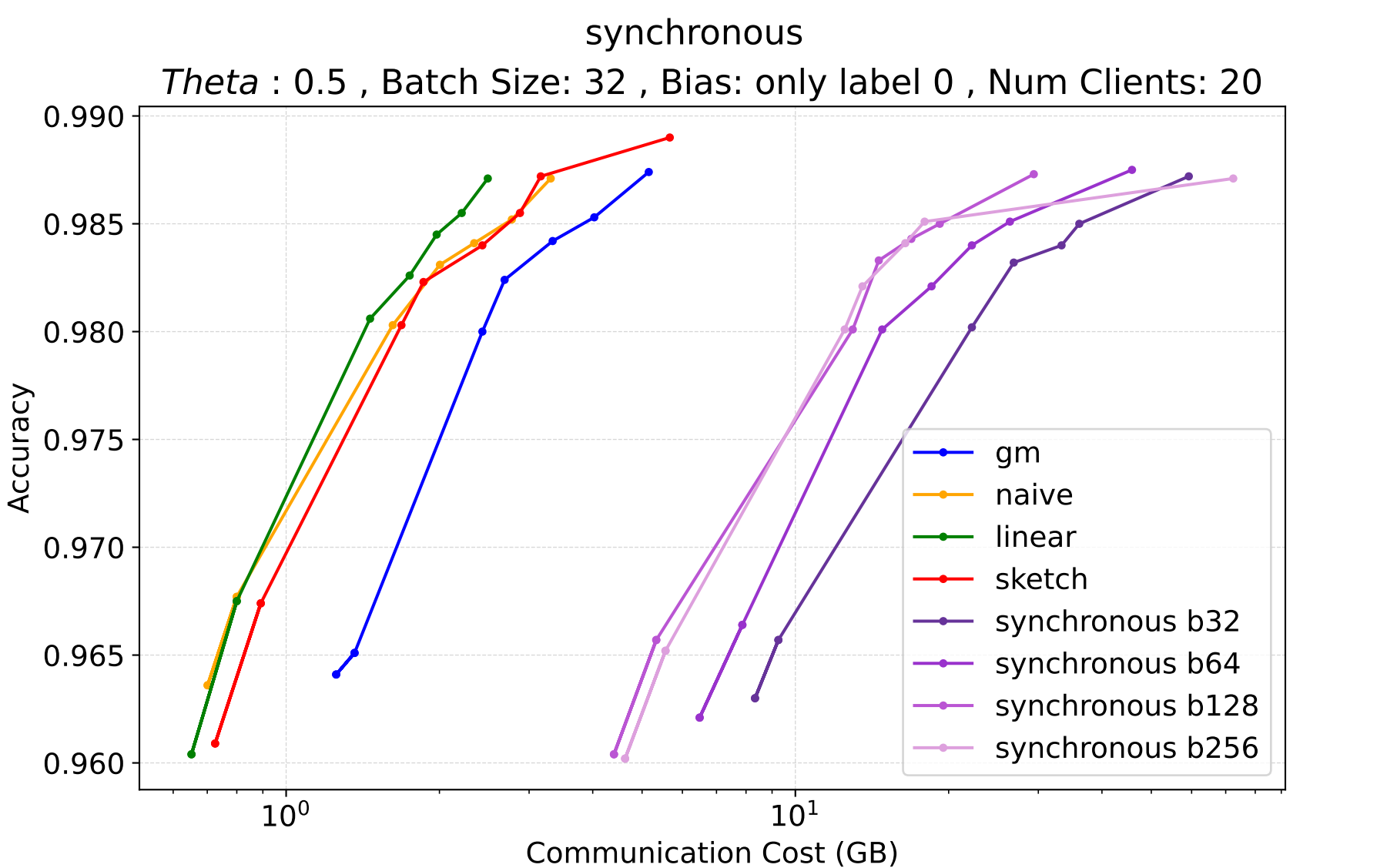

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 55
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
4×10^1
5×10^1
Communication Cost (GB)

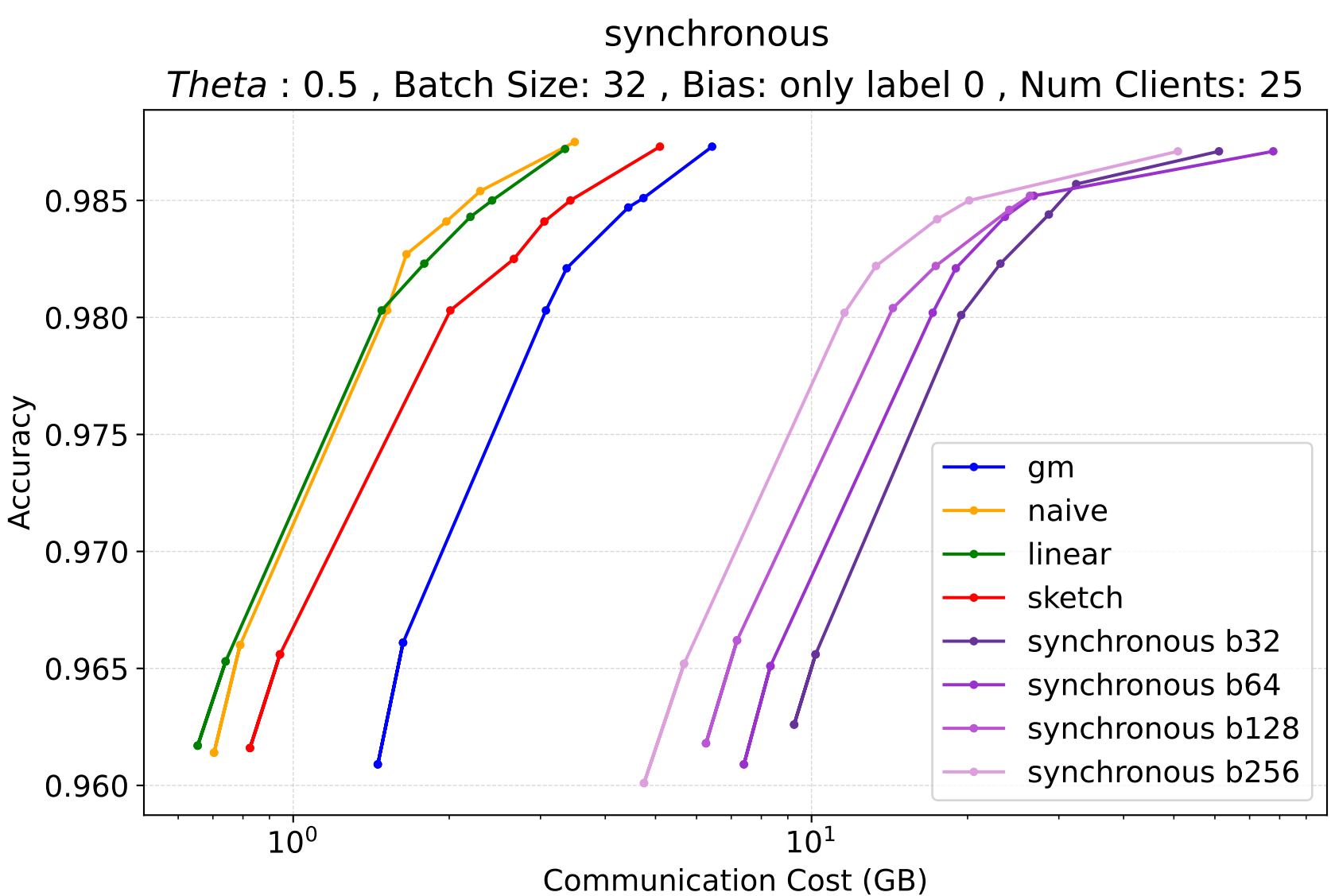

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 8 , Num Clients: 60
Accuracy
0.965
0.964
0.963
0.962
0.961
0.960
4×10^1
5×10^1
6×10^1
7×10^1
Communication Cost (GB)
synchronous b32
synchronous b64
synchronous b128
synchronous b256

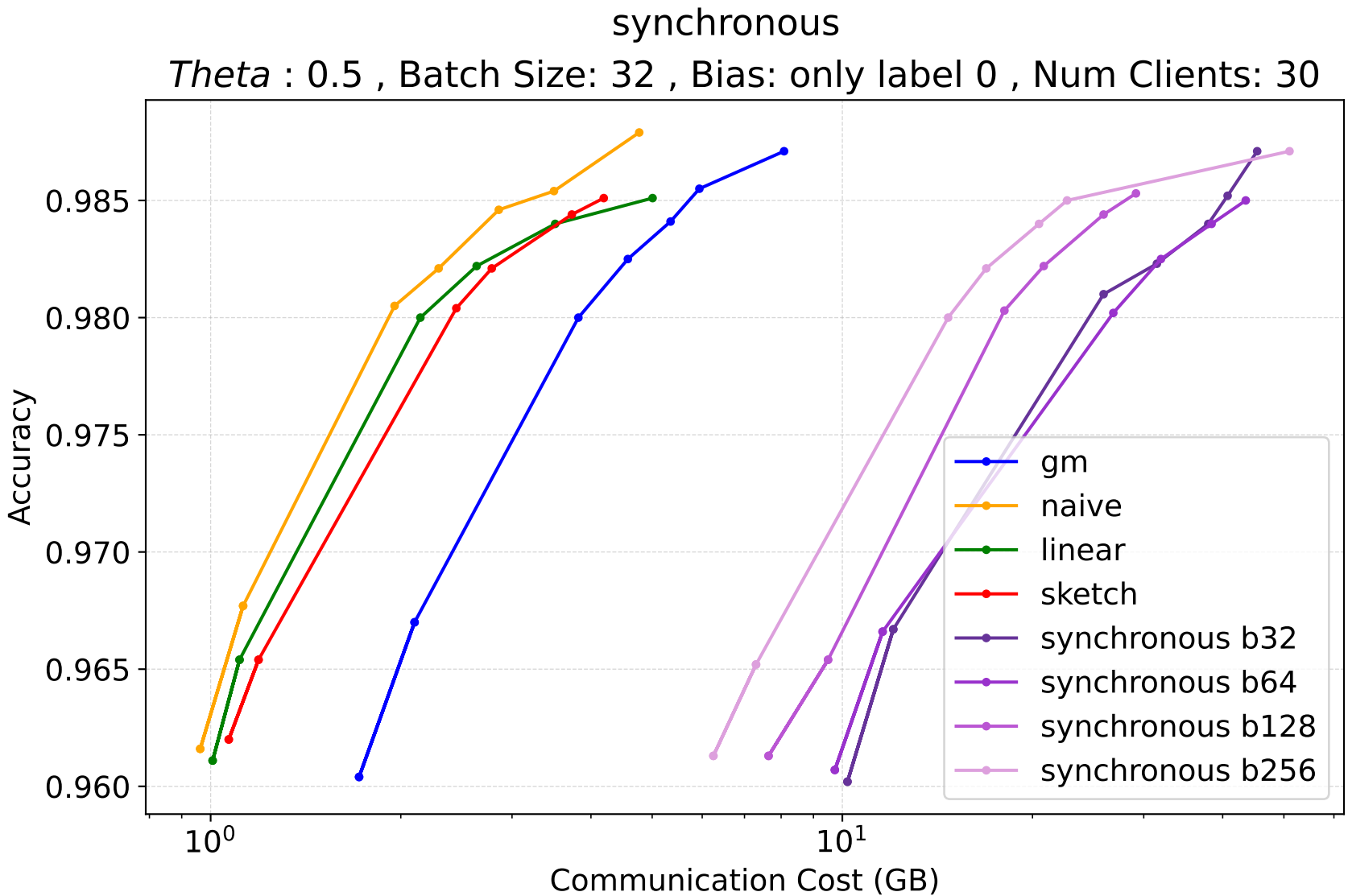

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

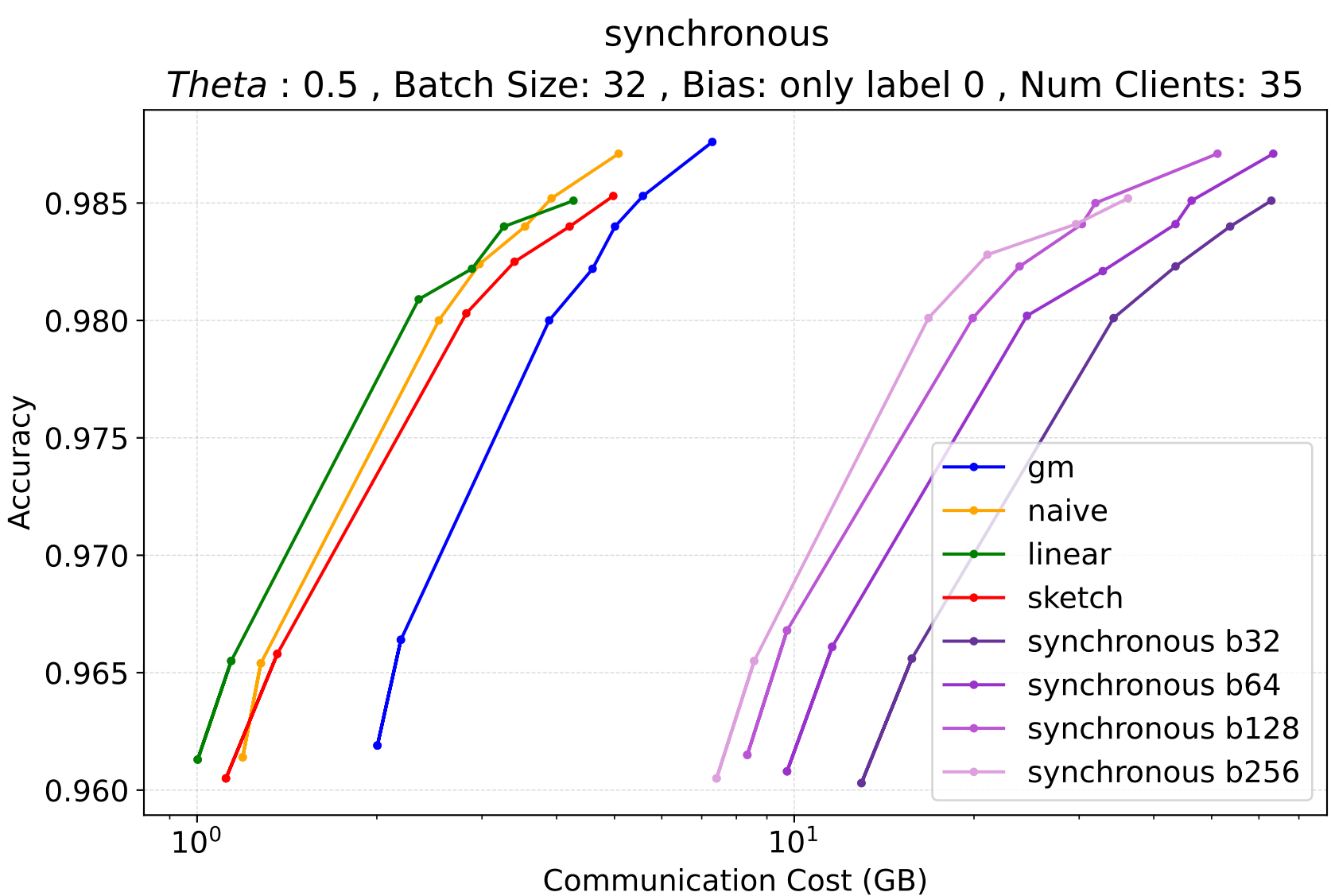

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 10
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

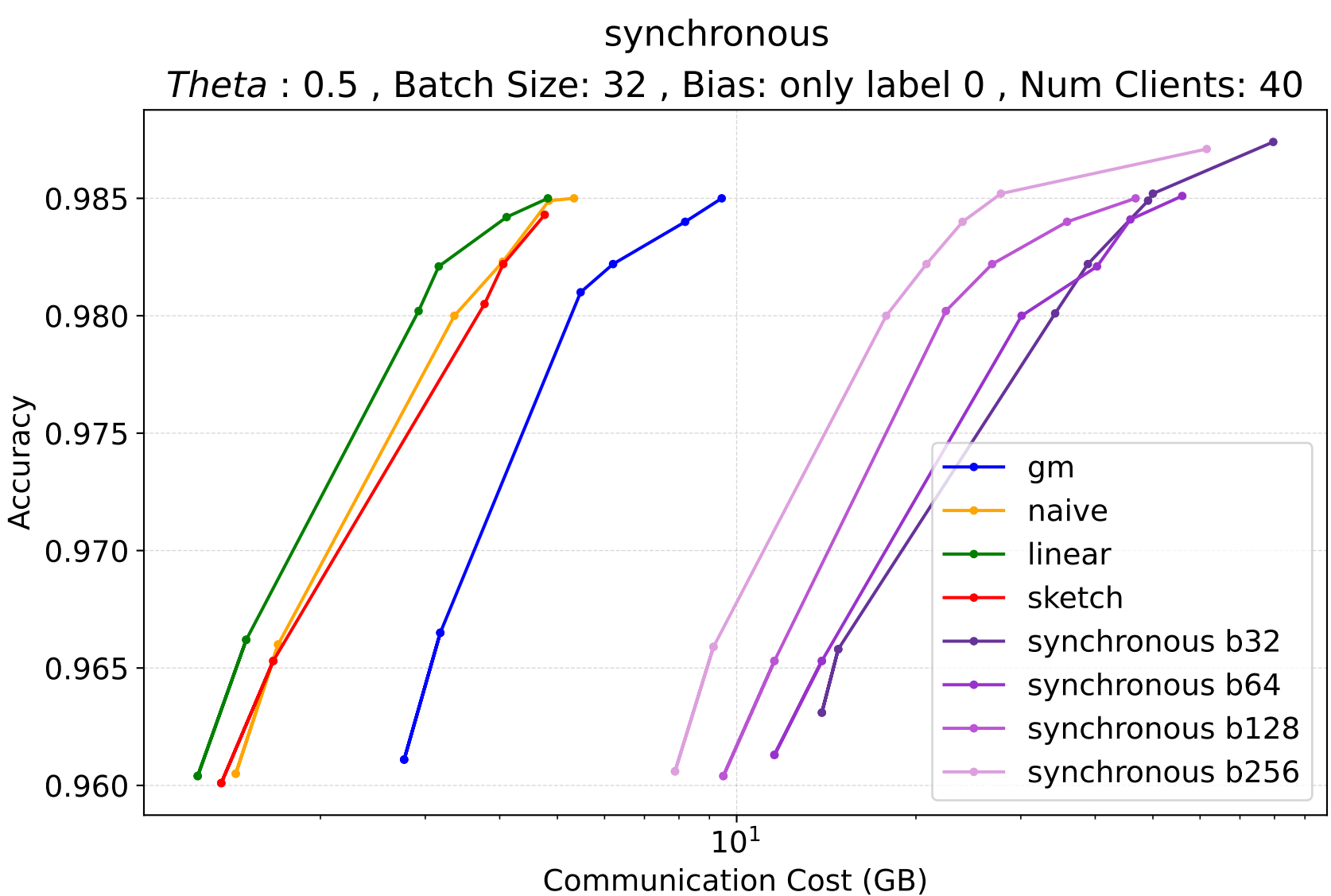

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 15
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

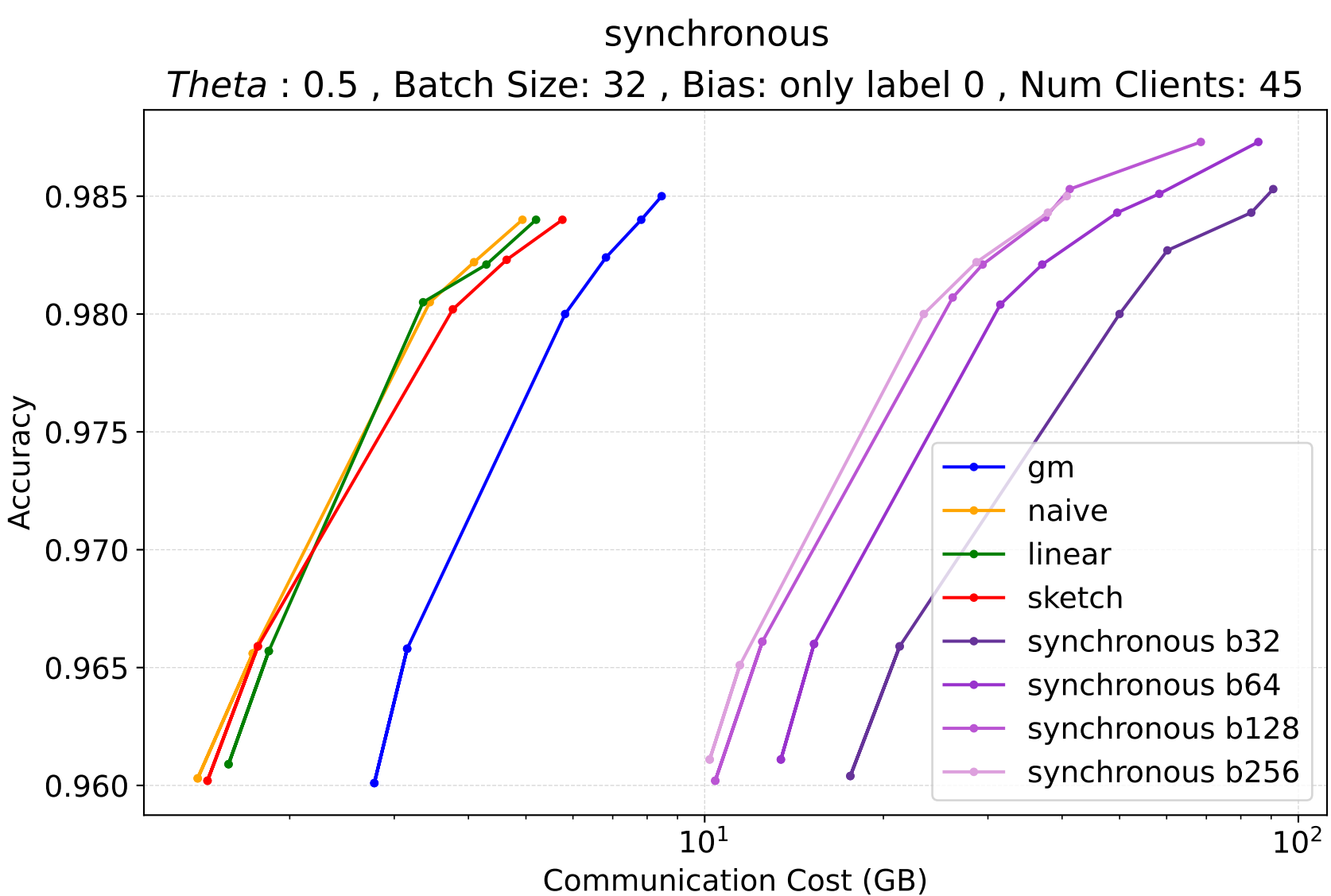

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 20
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

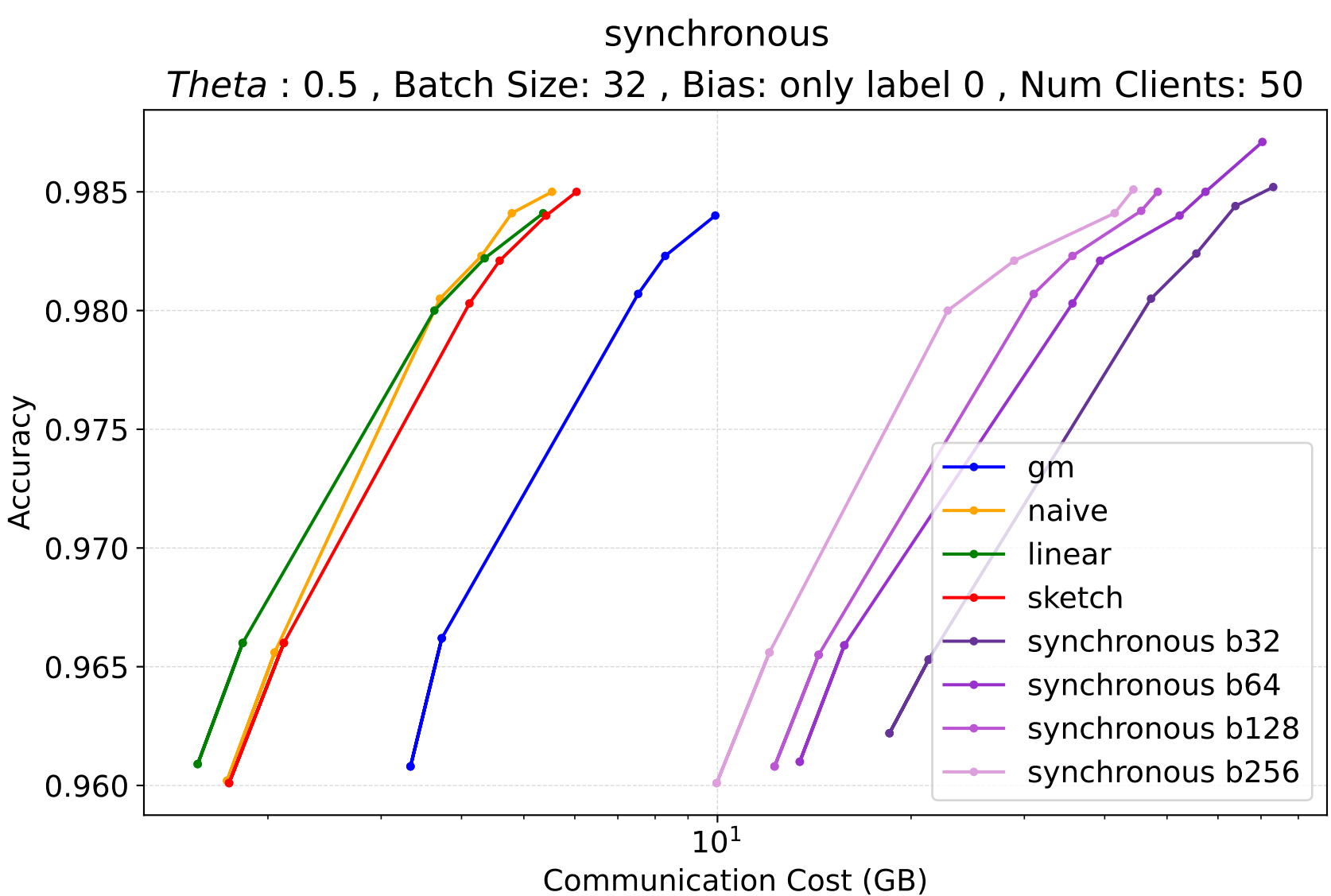

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

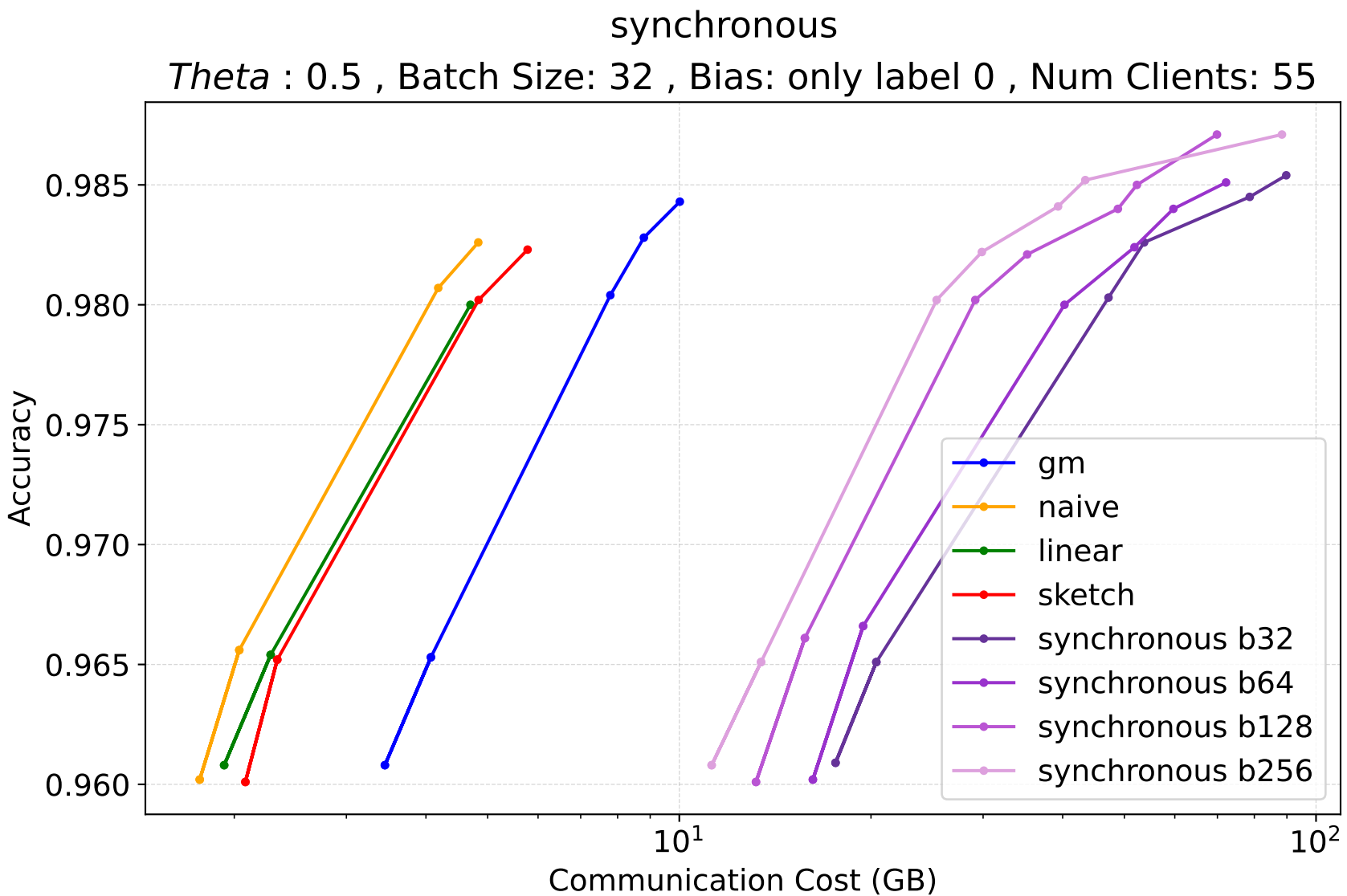

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

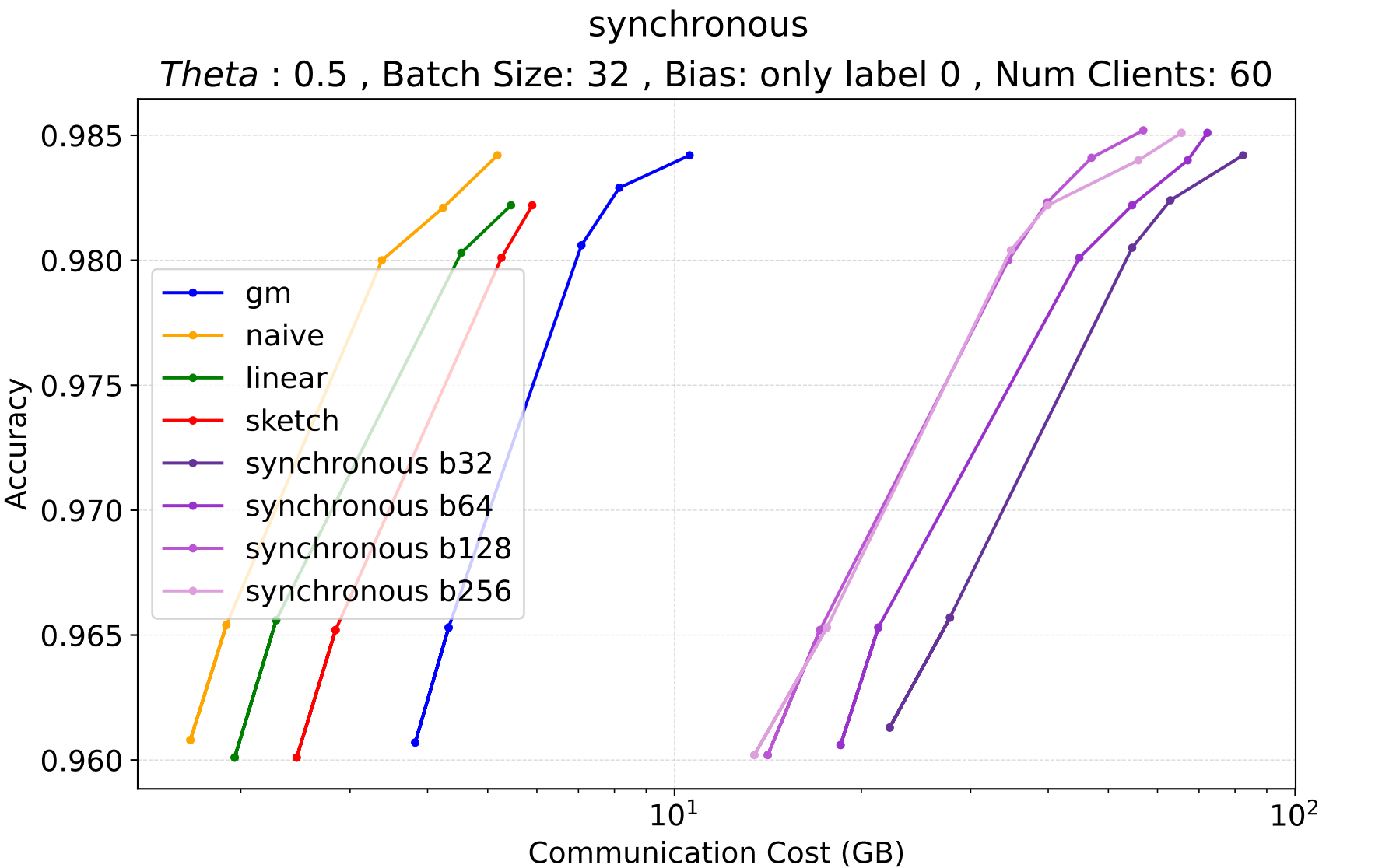

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 35
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

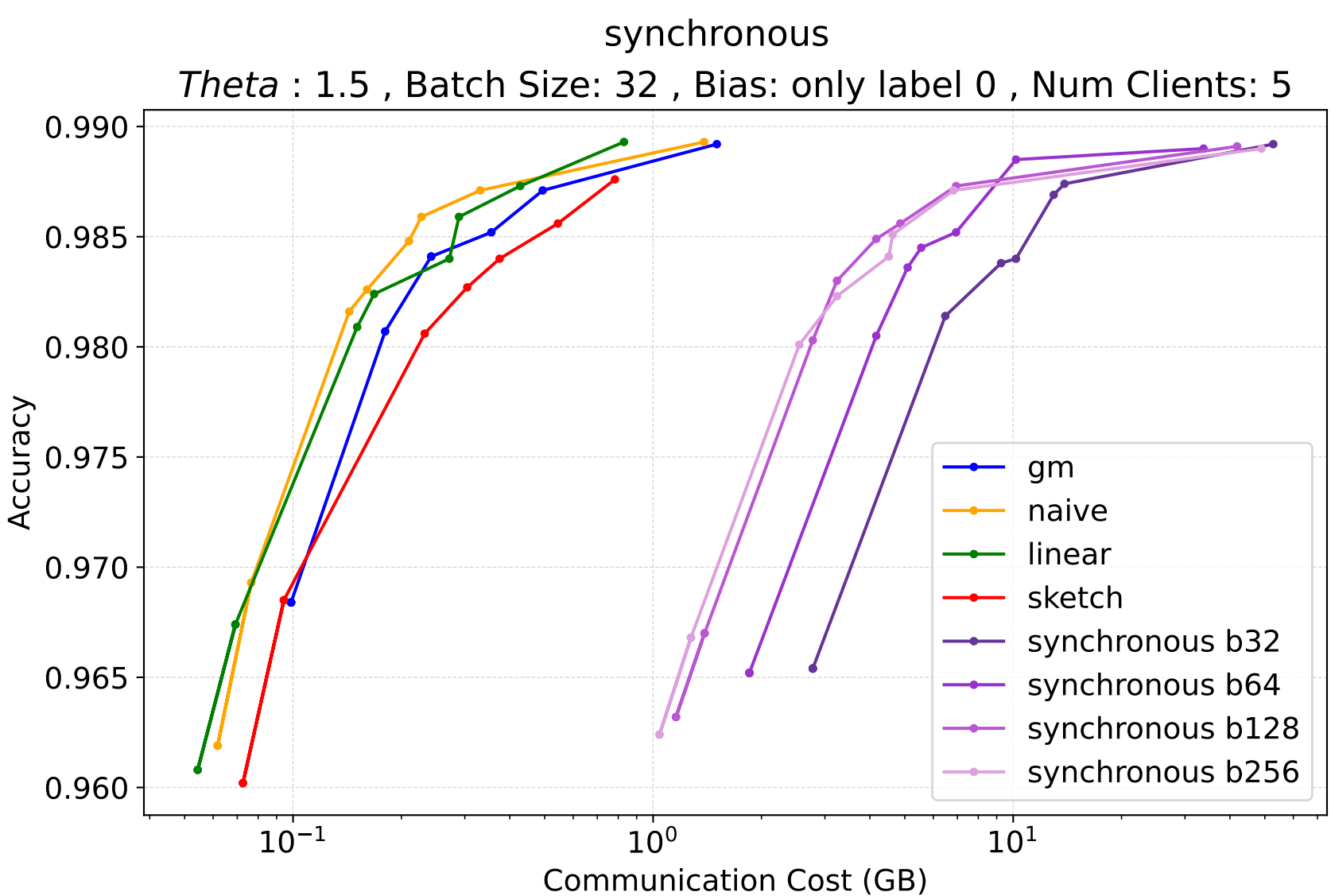

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 40
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

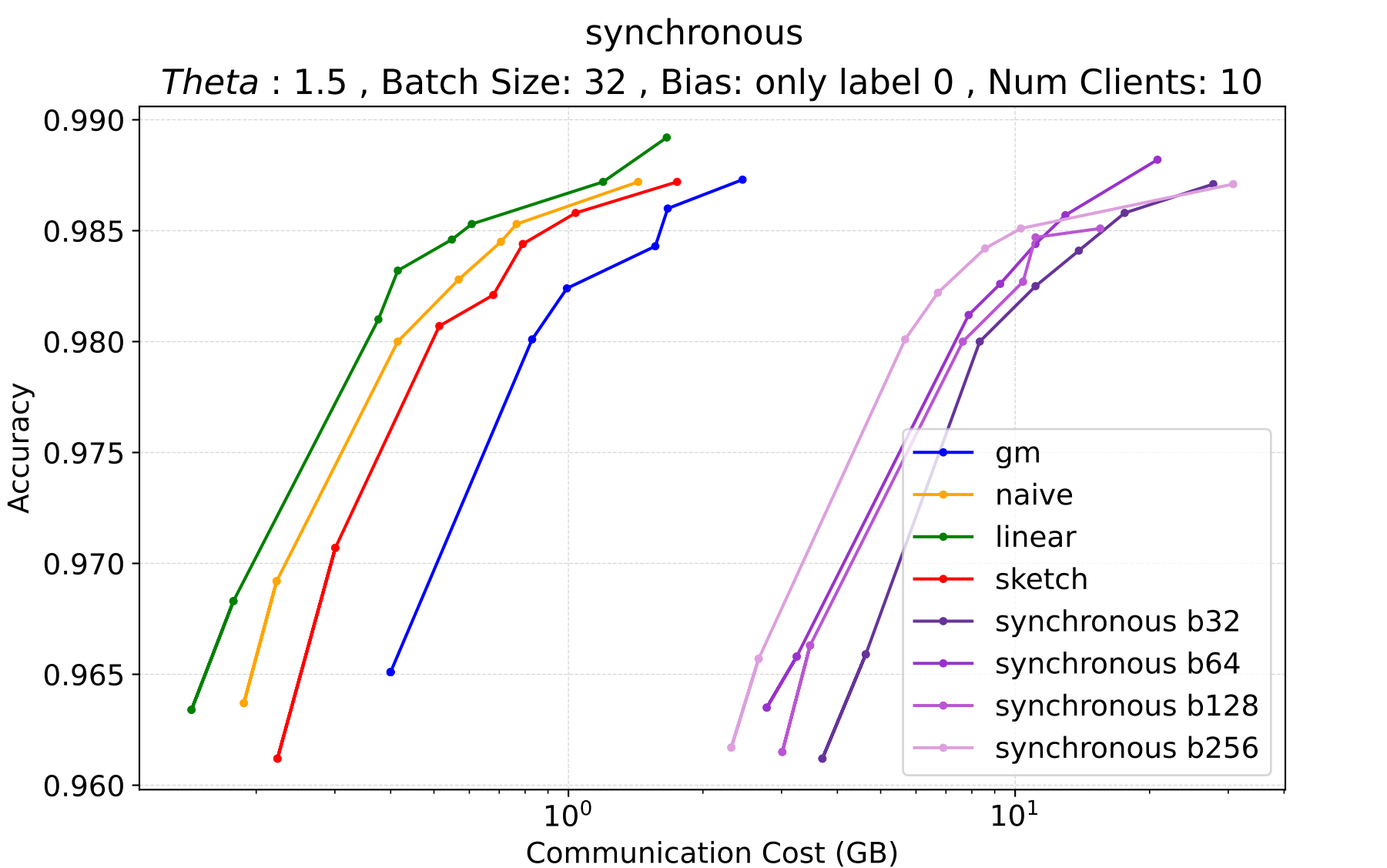

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 45
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

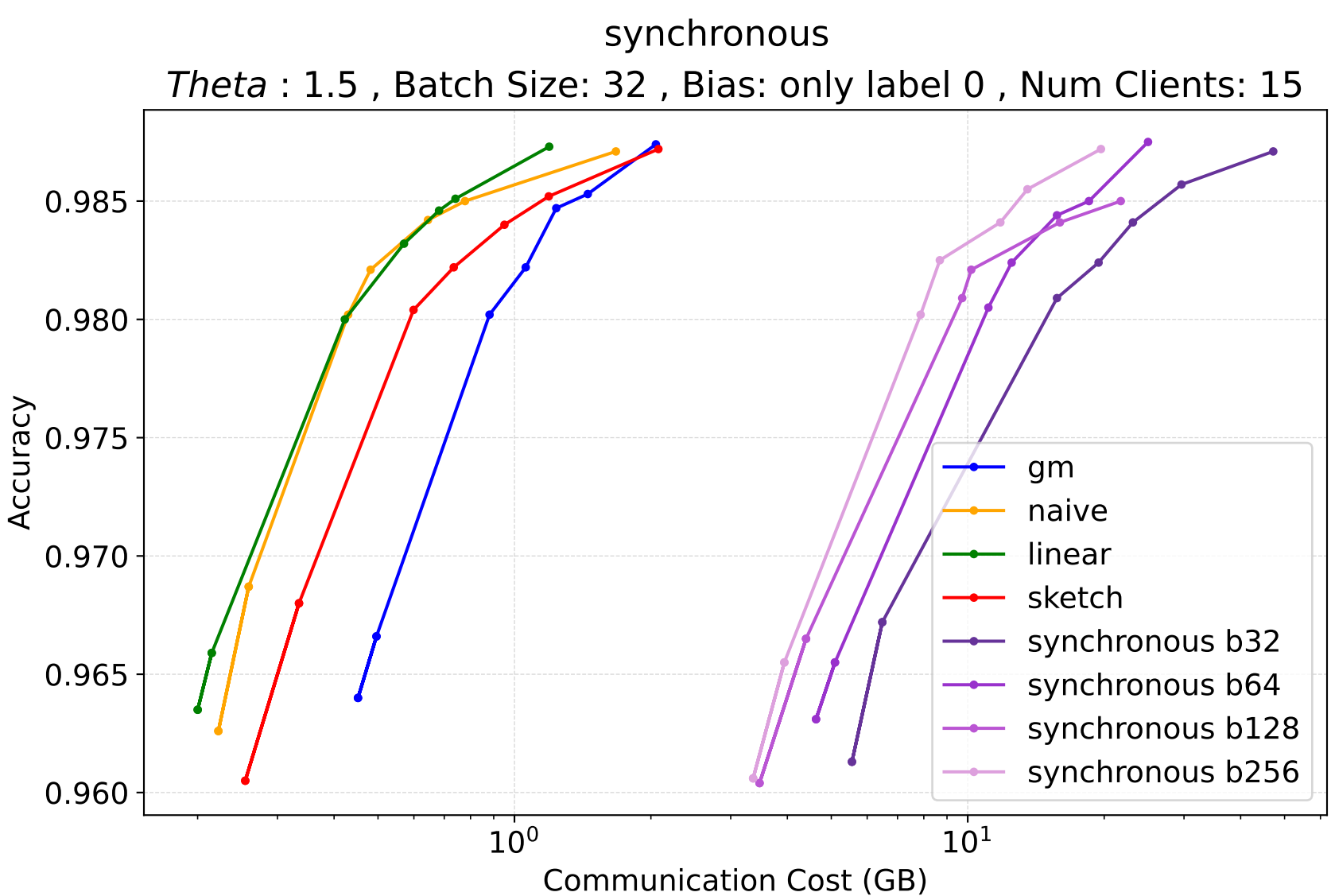

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 50
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

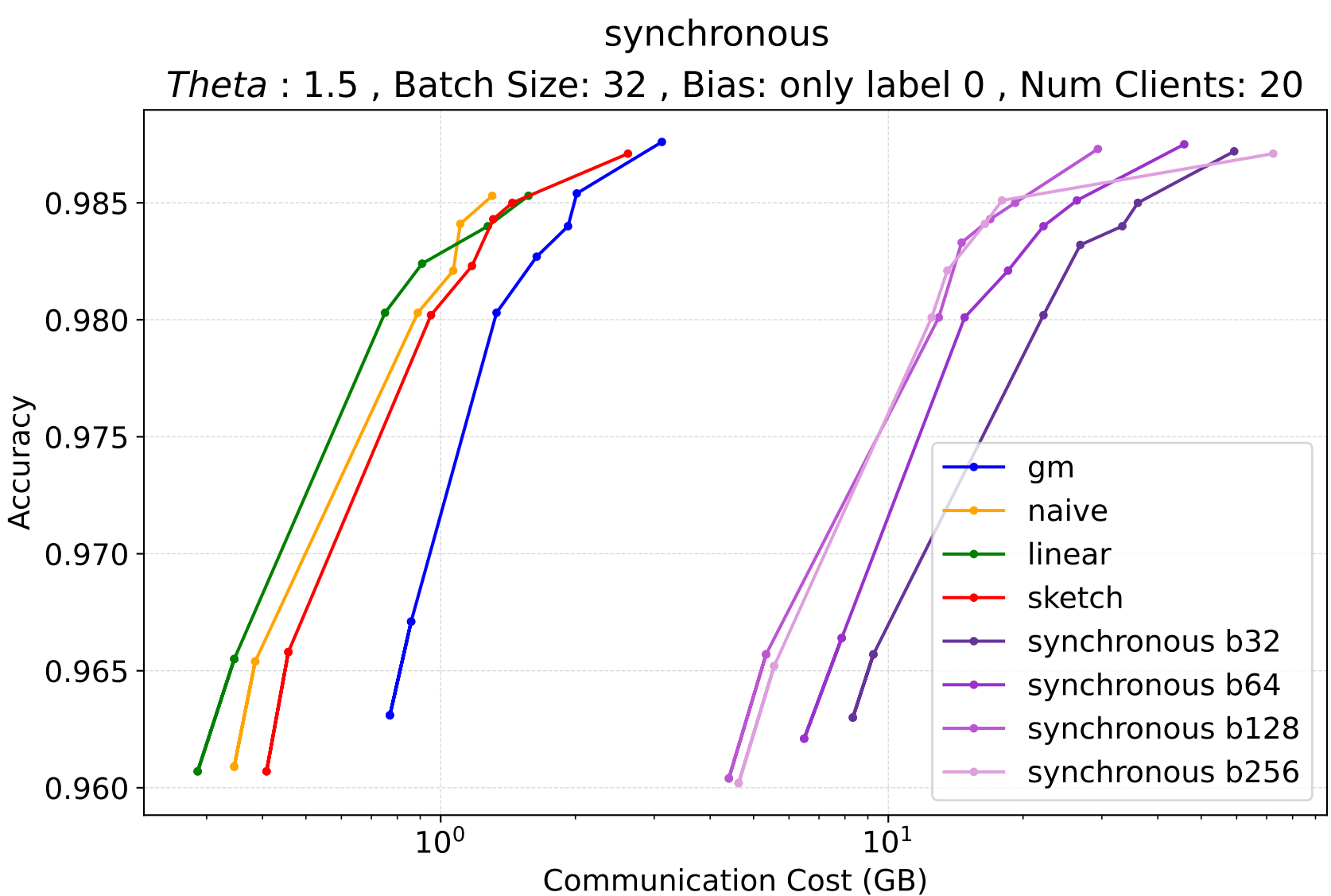

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 55
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

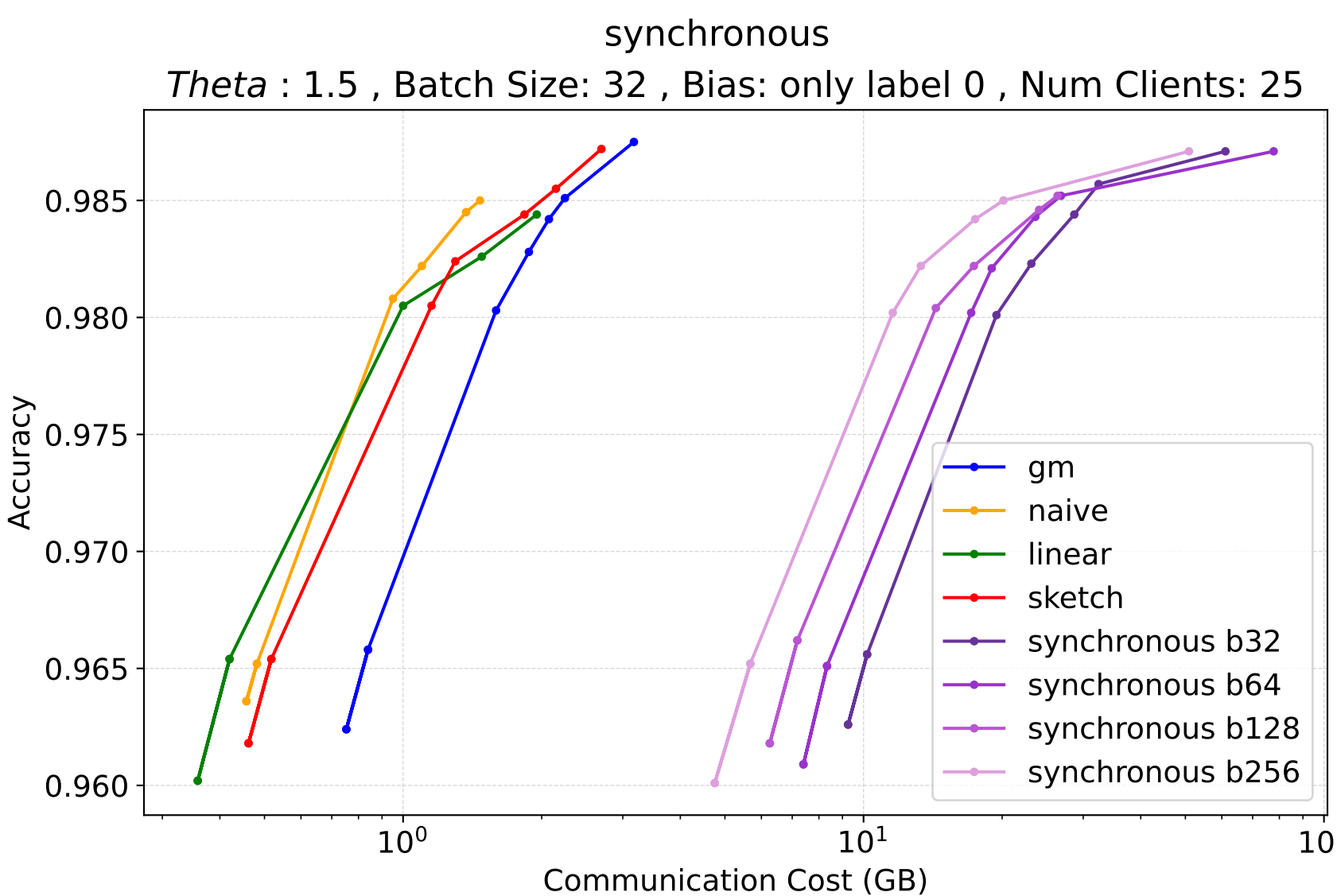

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 60
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
10^1
10^2
Communication Cost (GB)

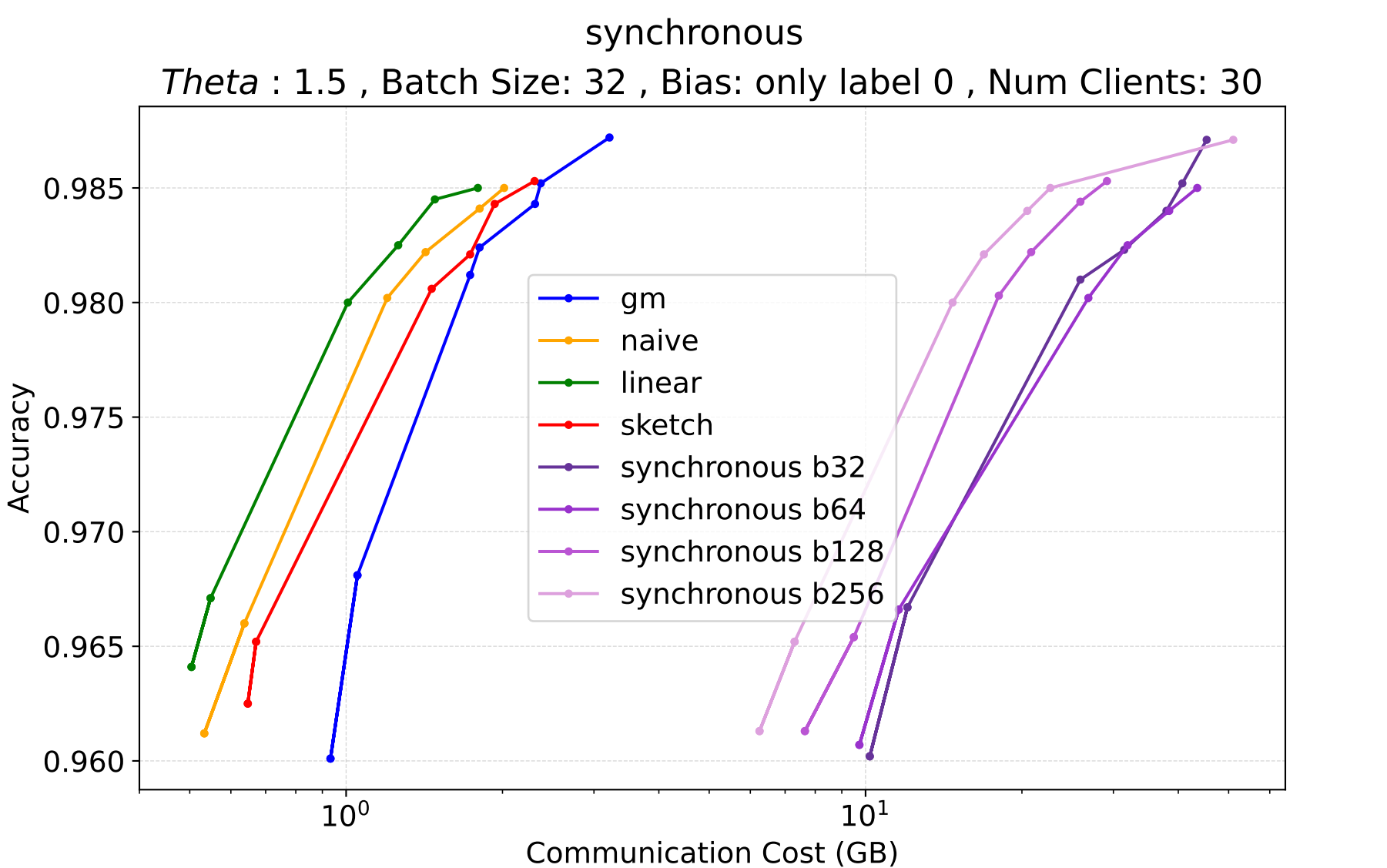

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

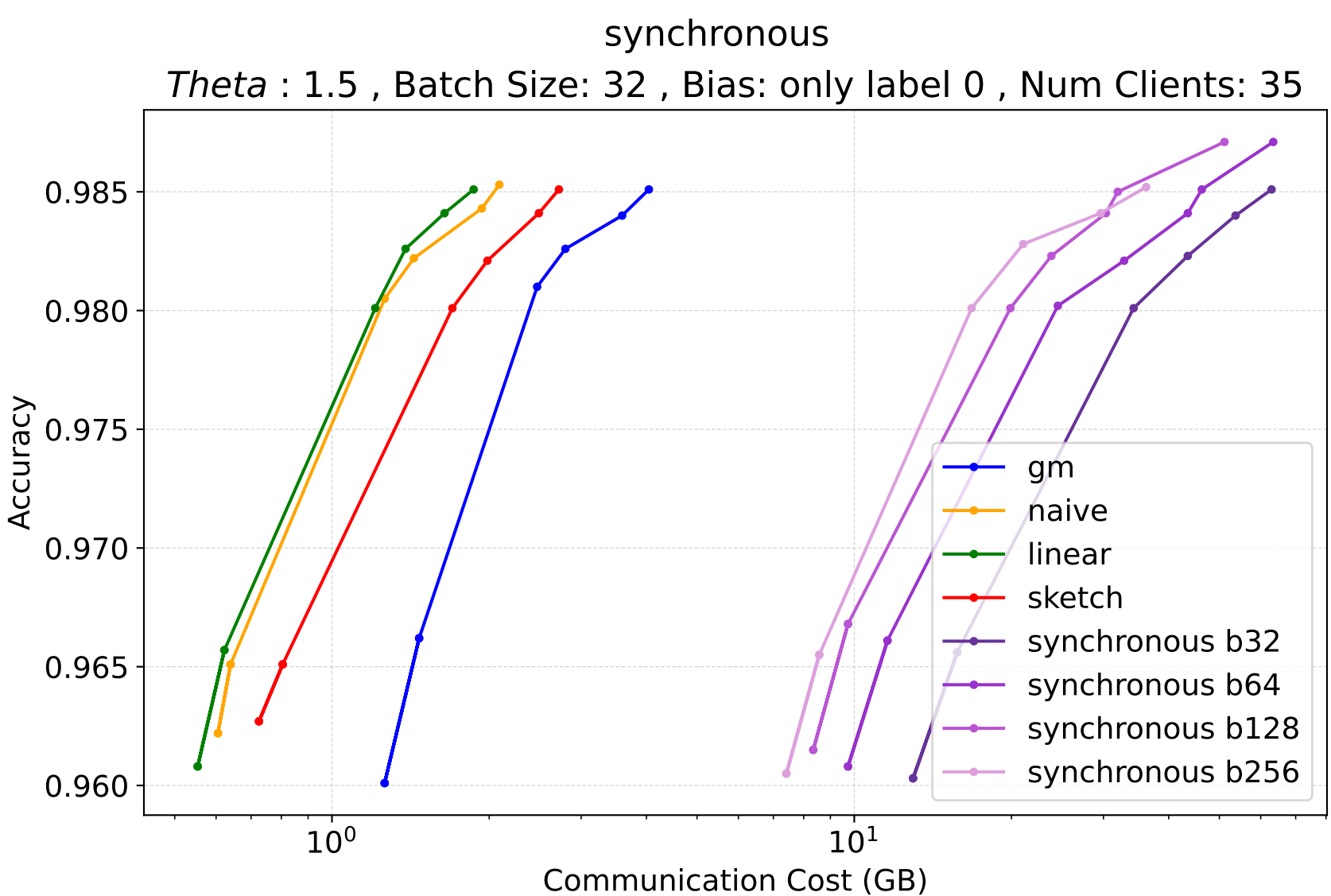

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 10
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

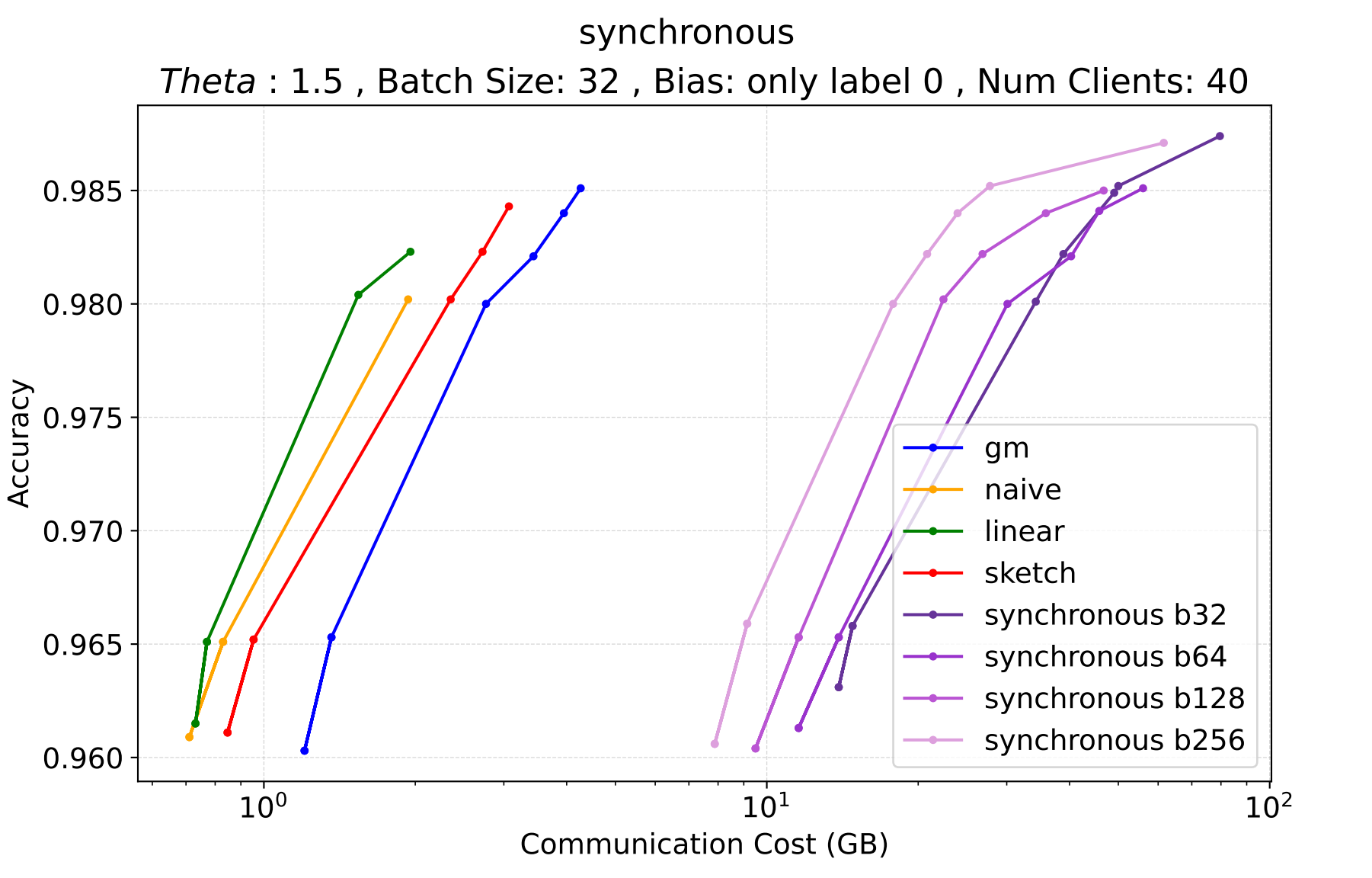

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

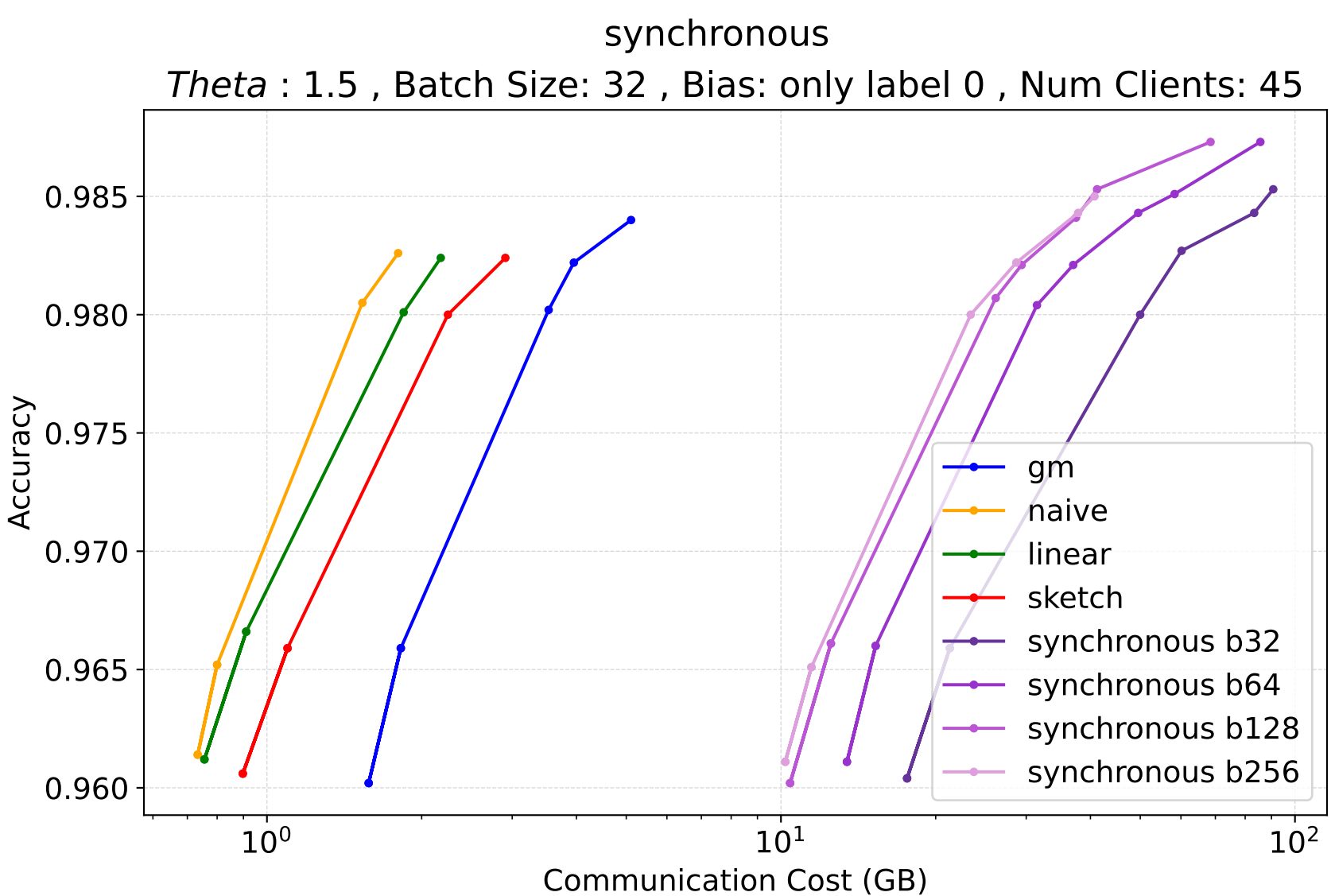

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

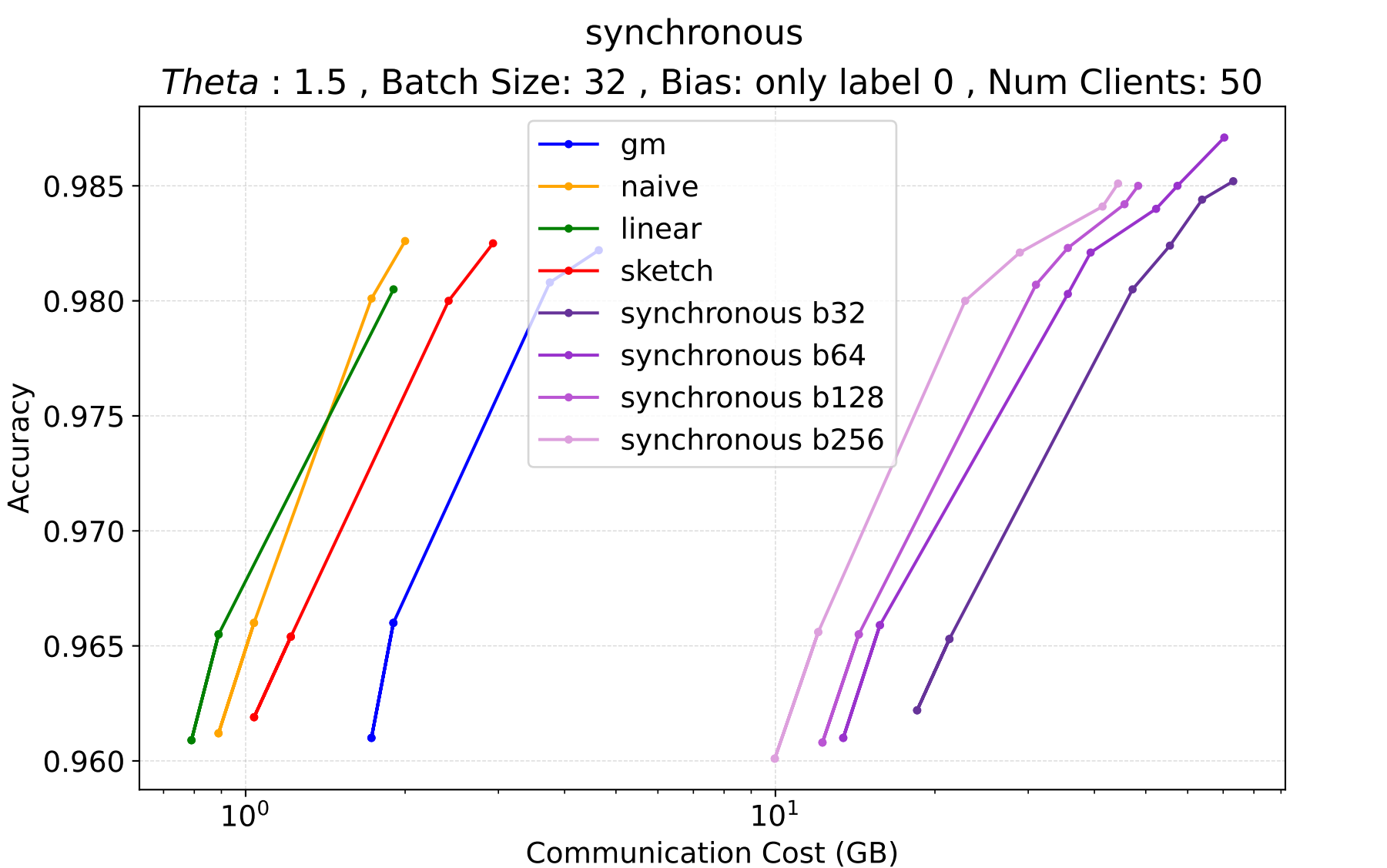

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

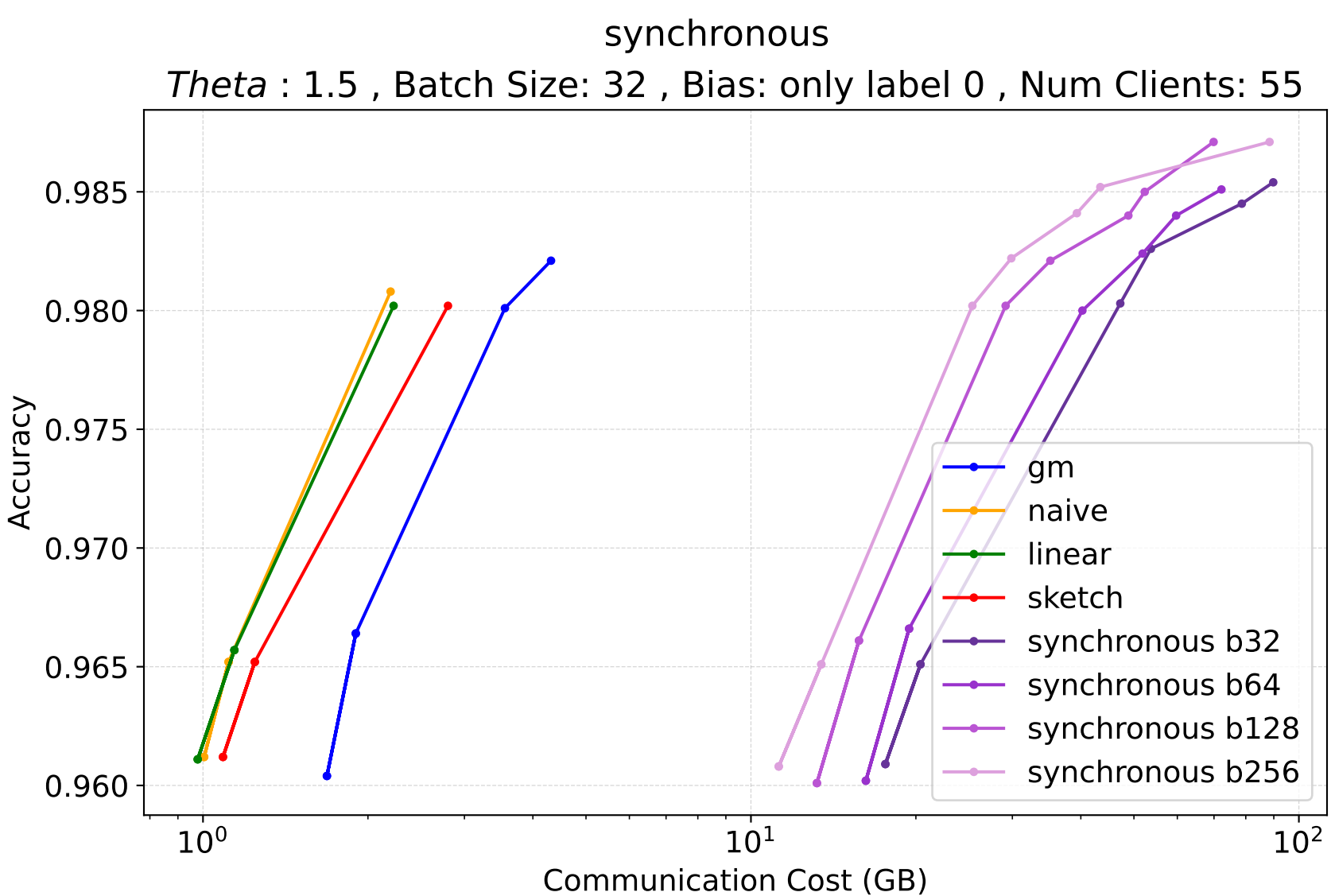

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

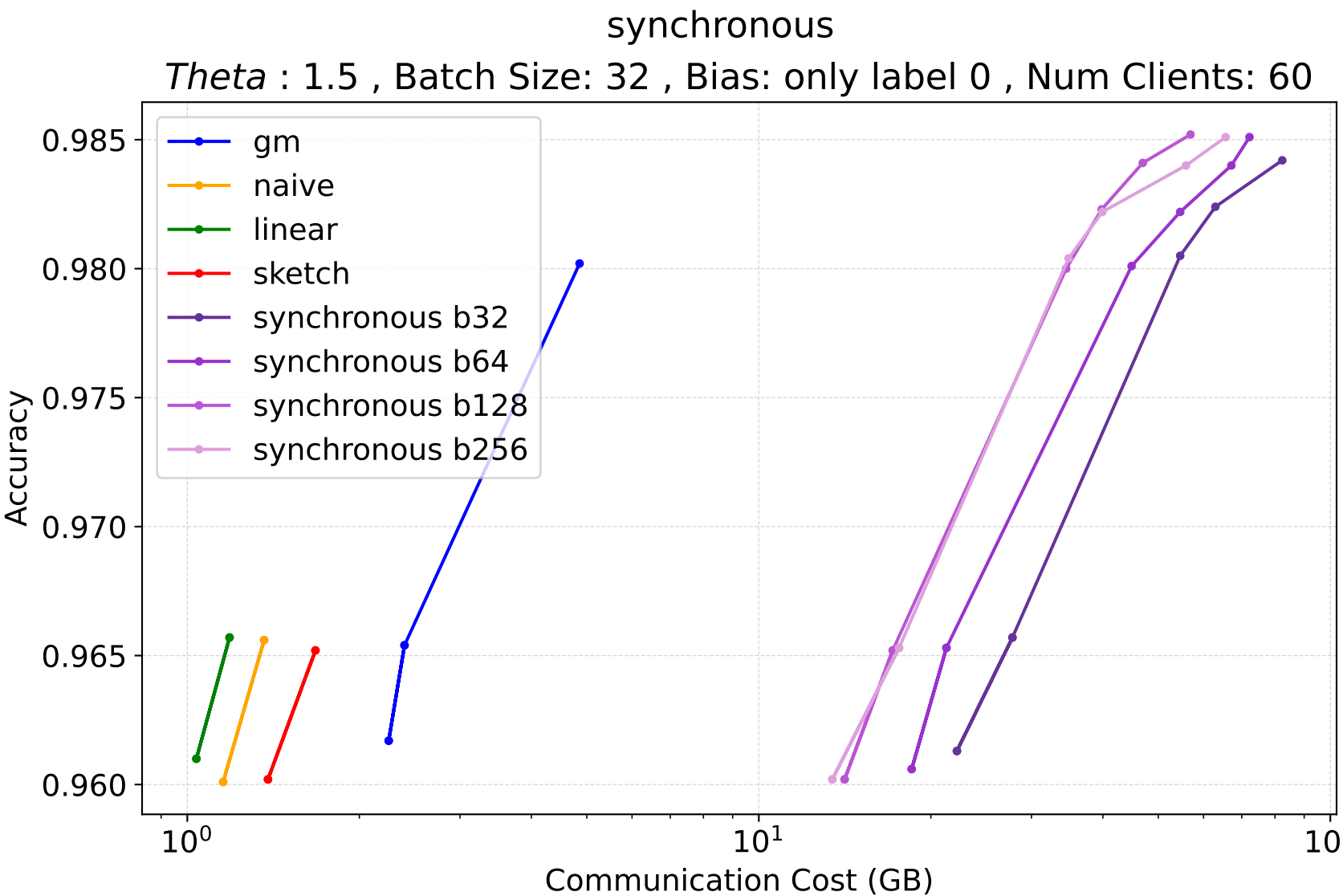

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 35
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

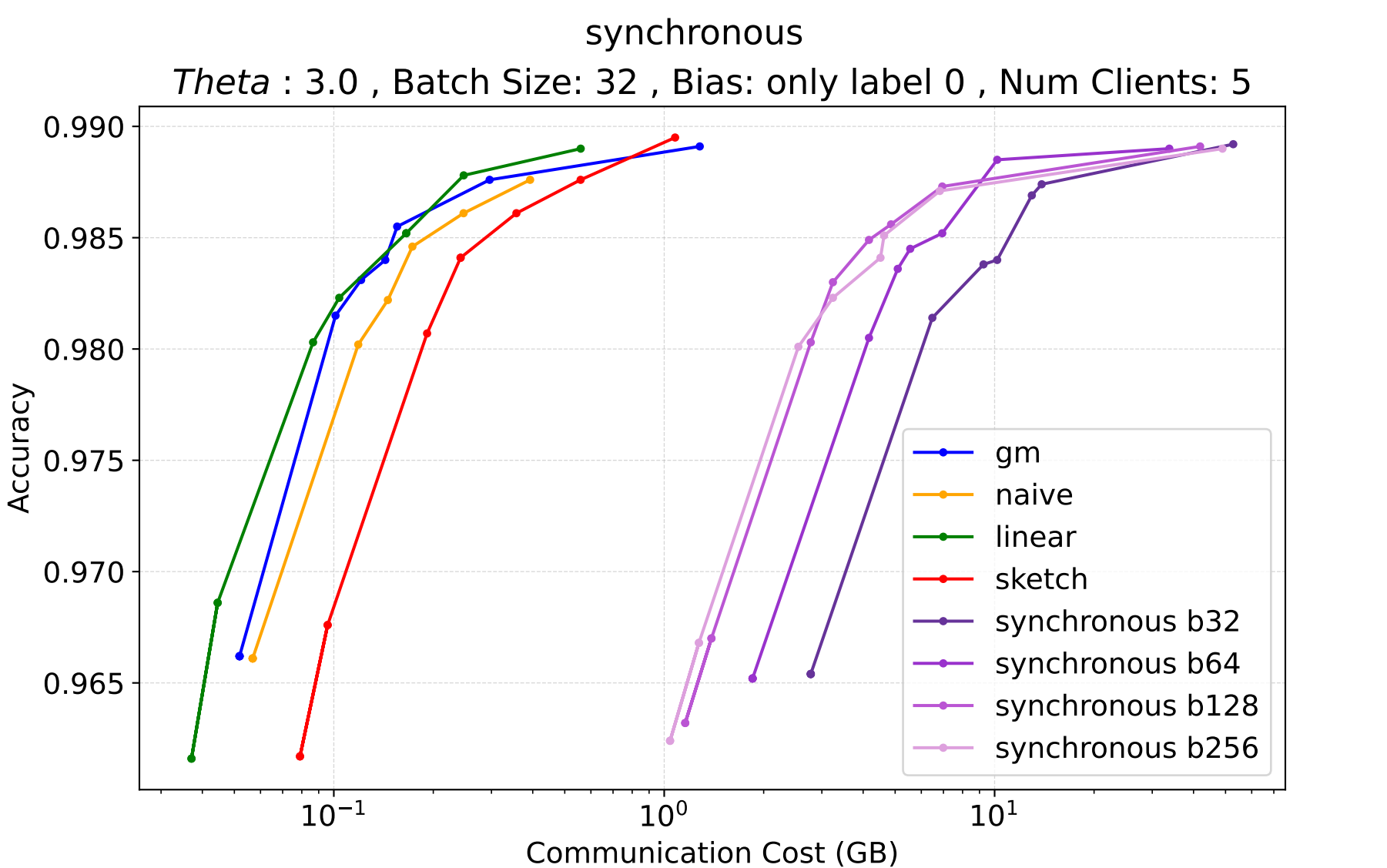

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 40
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

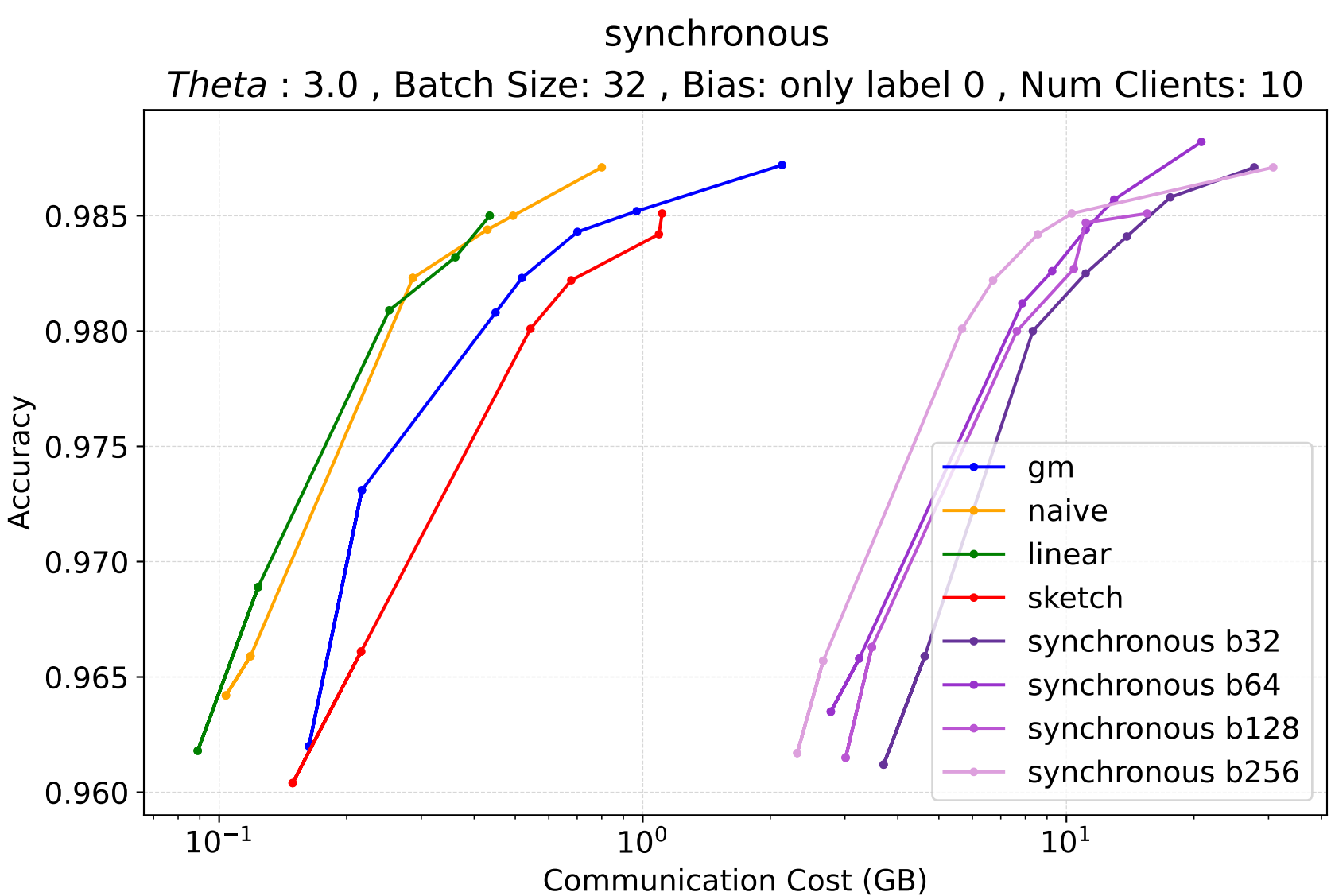

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 45
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

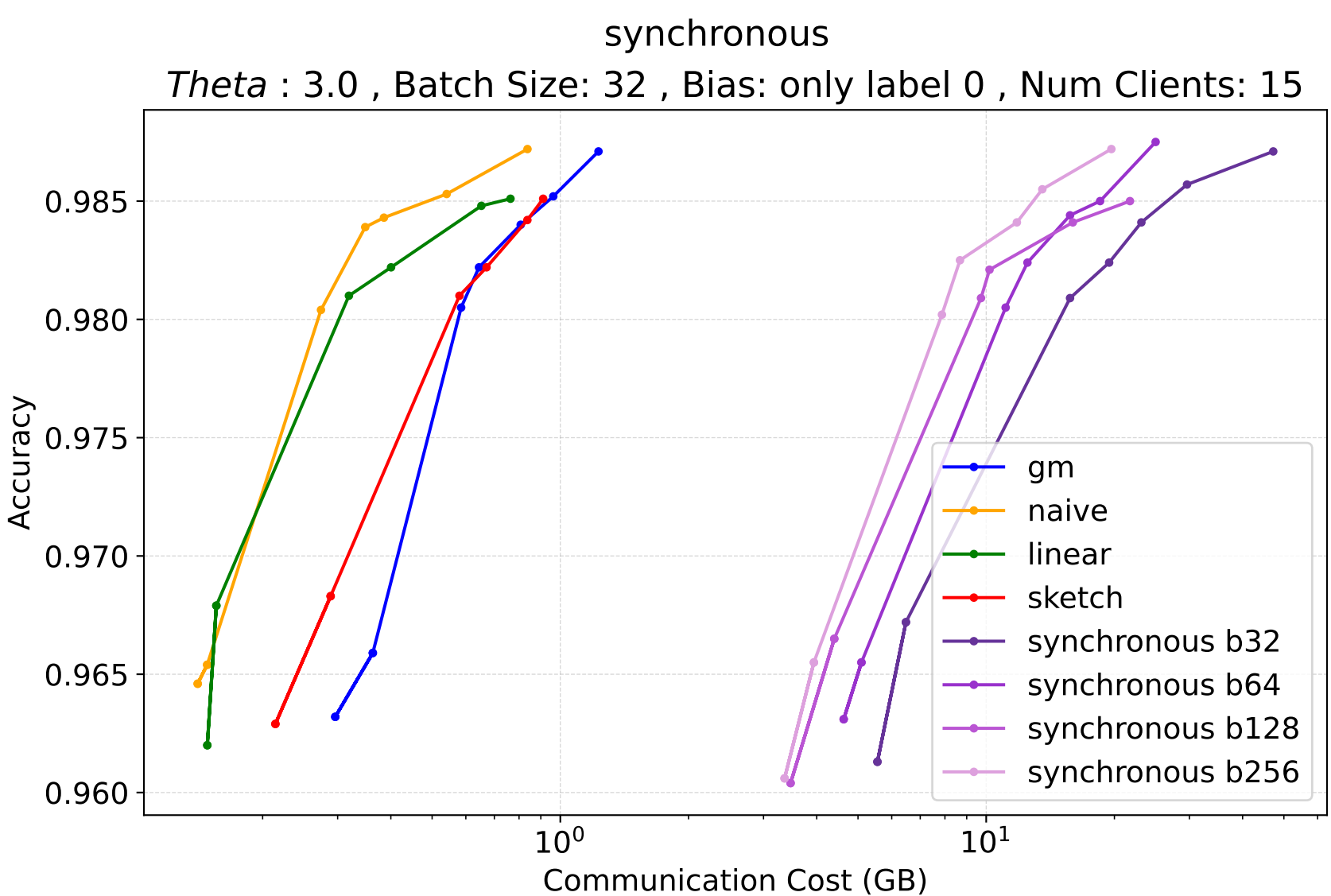

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

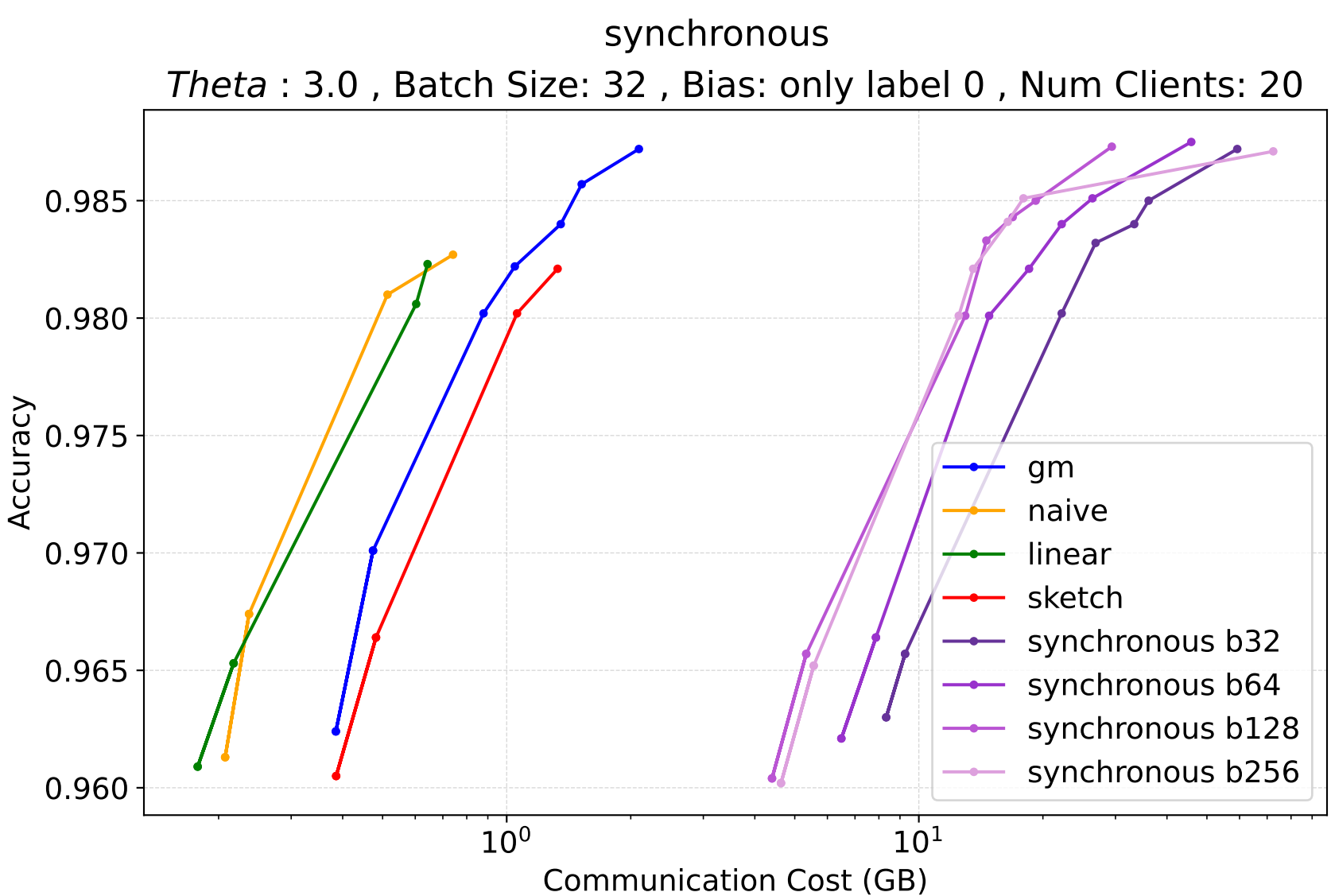

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 55
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

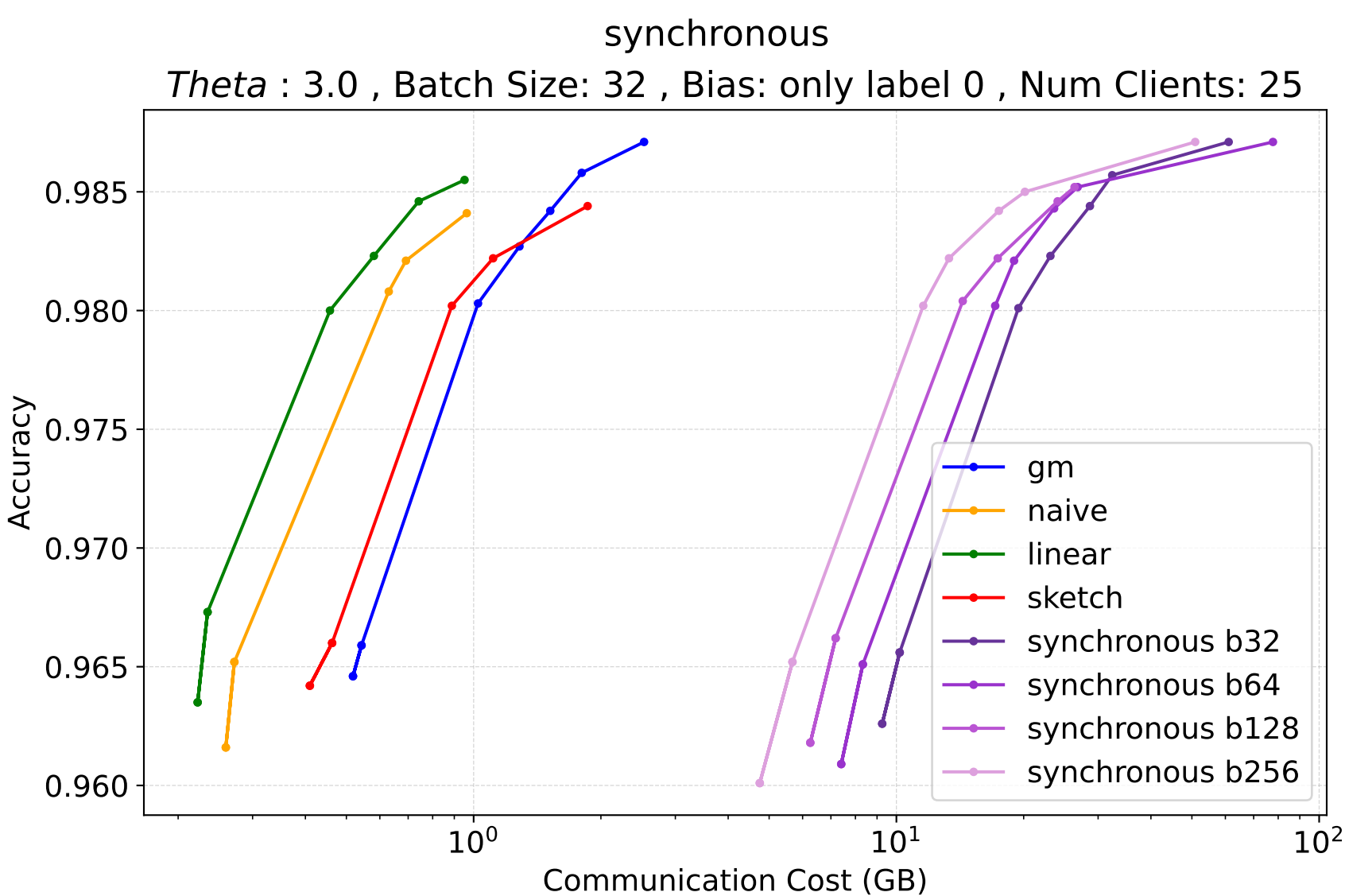

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: only label 0 , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

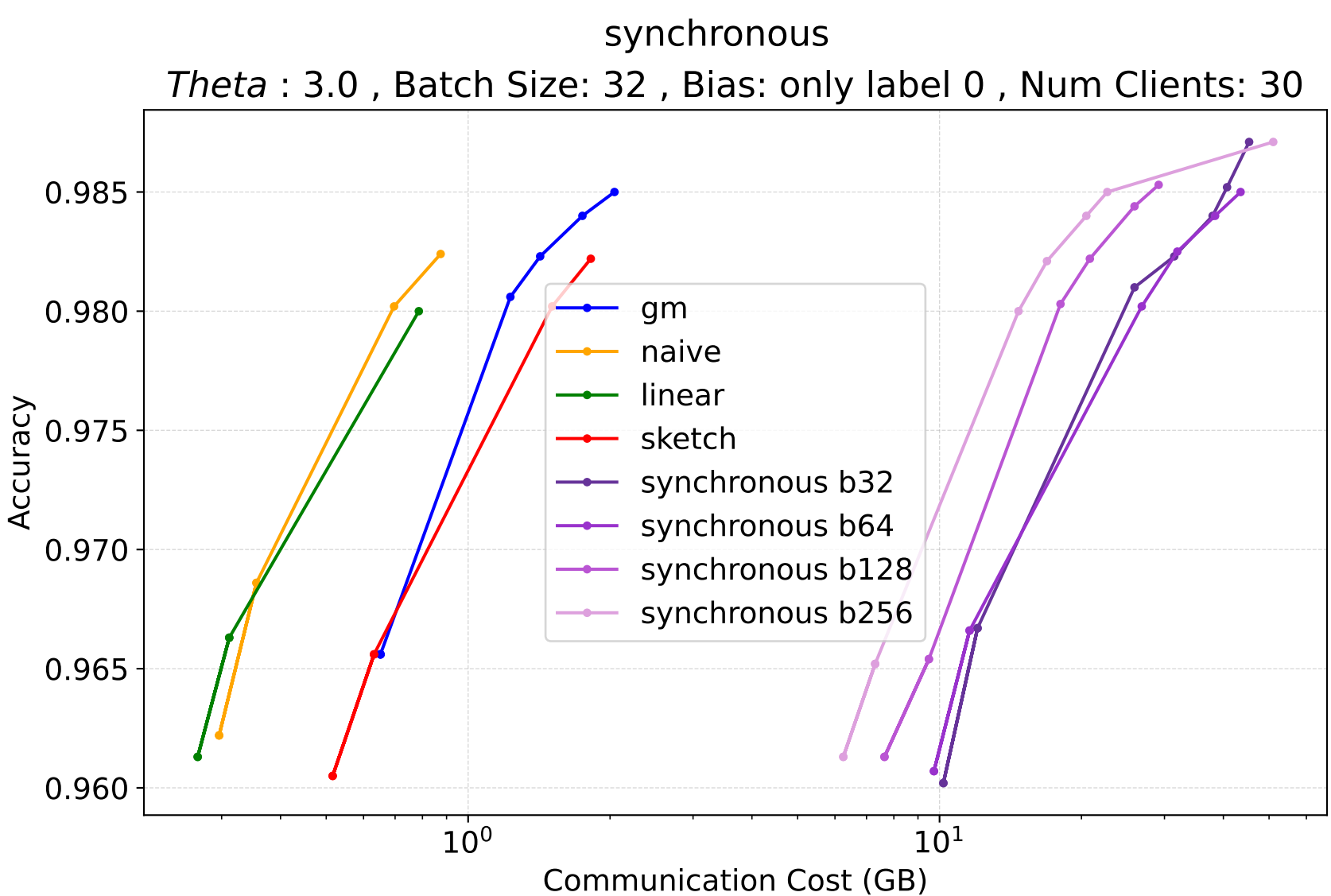

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

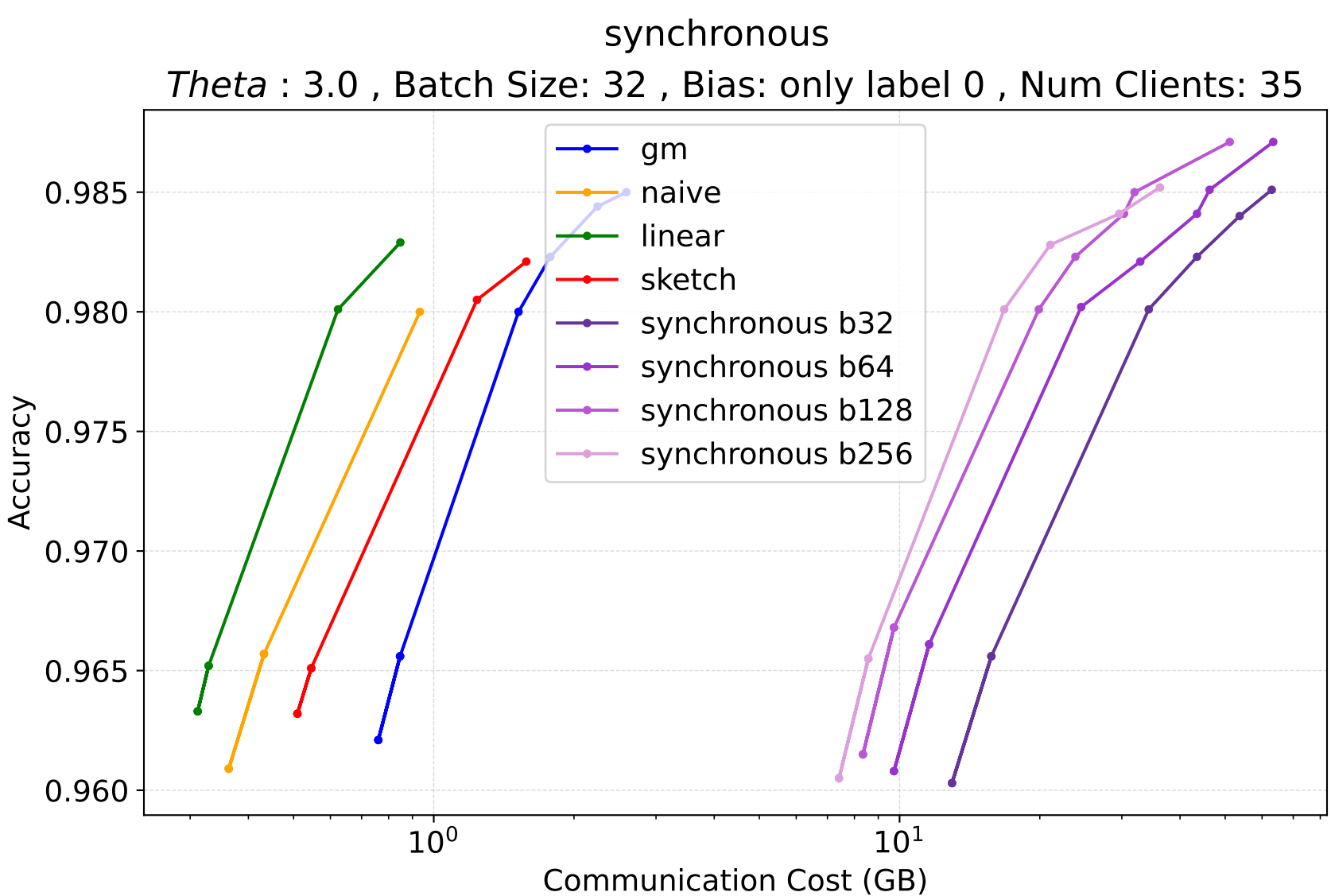

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 10
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

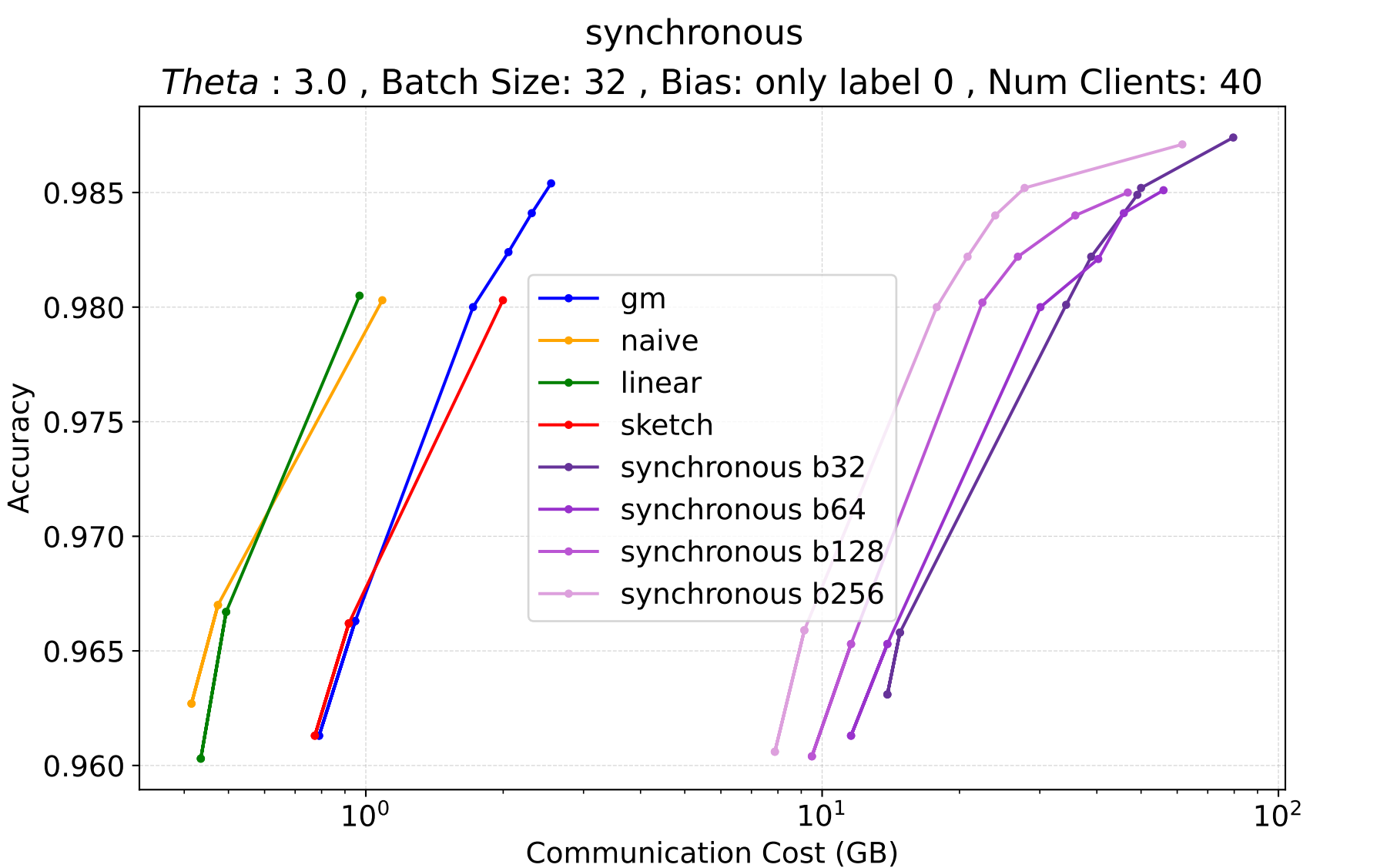

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

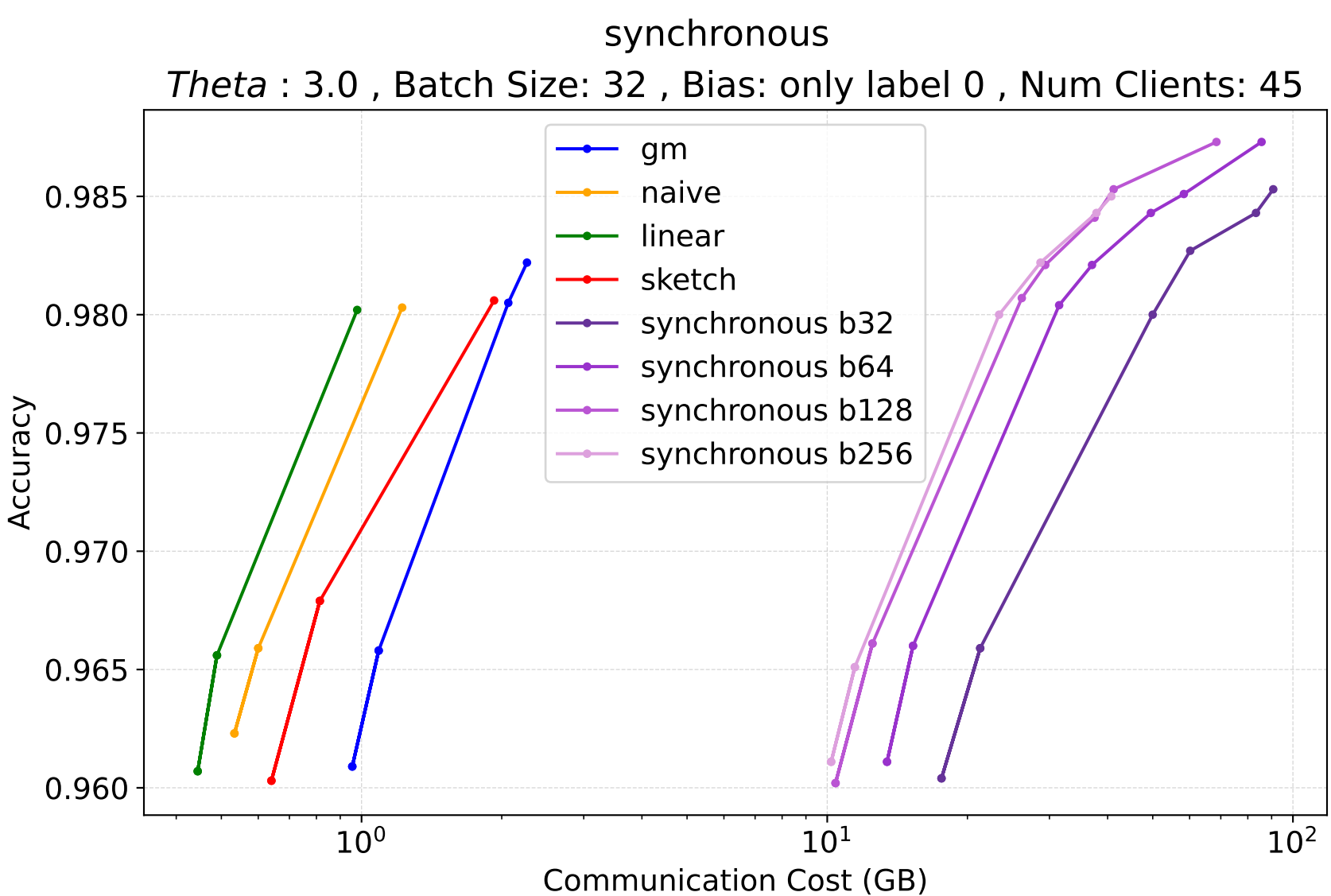

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

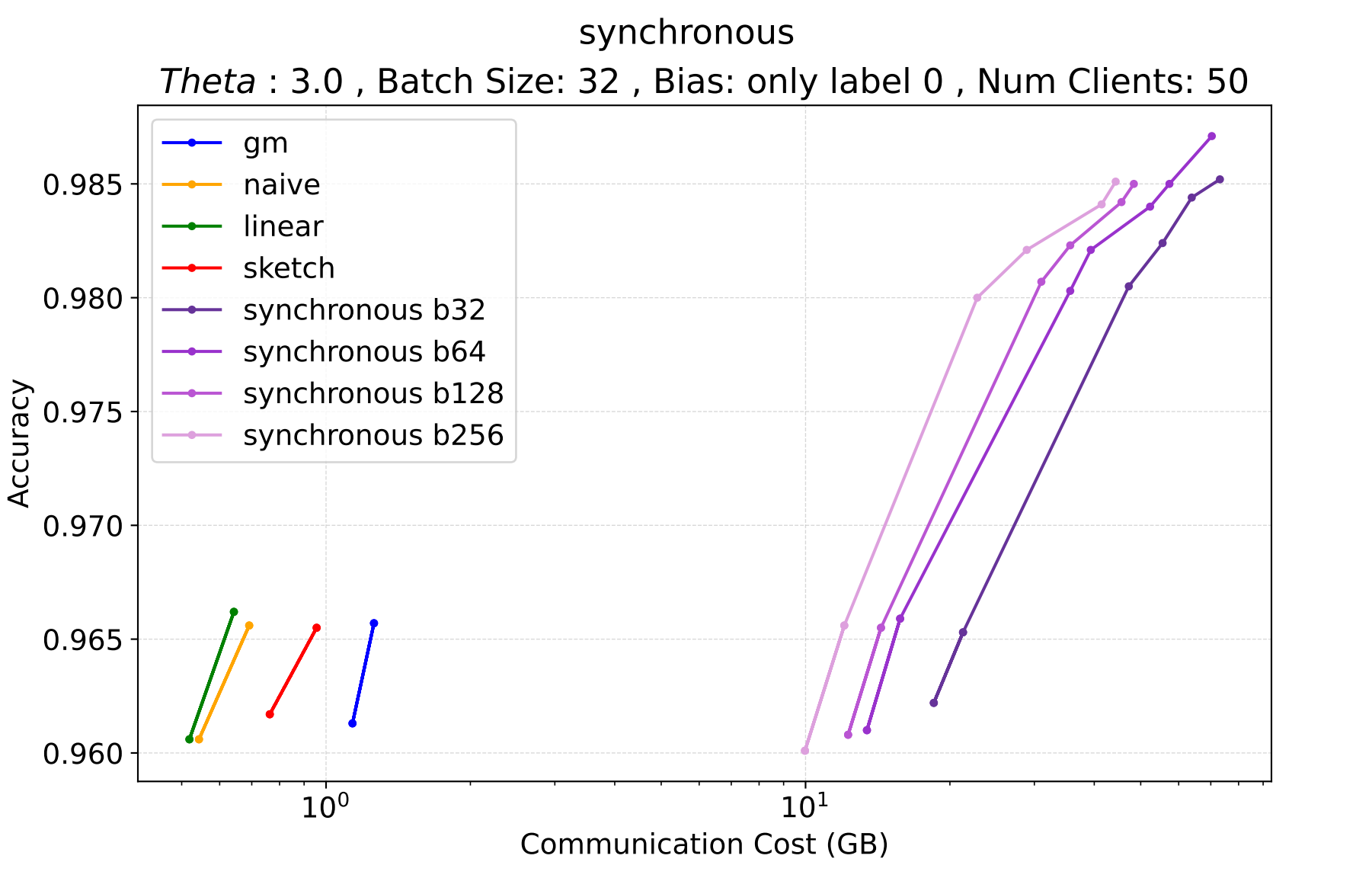

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

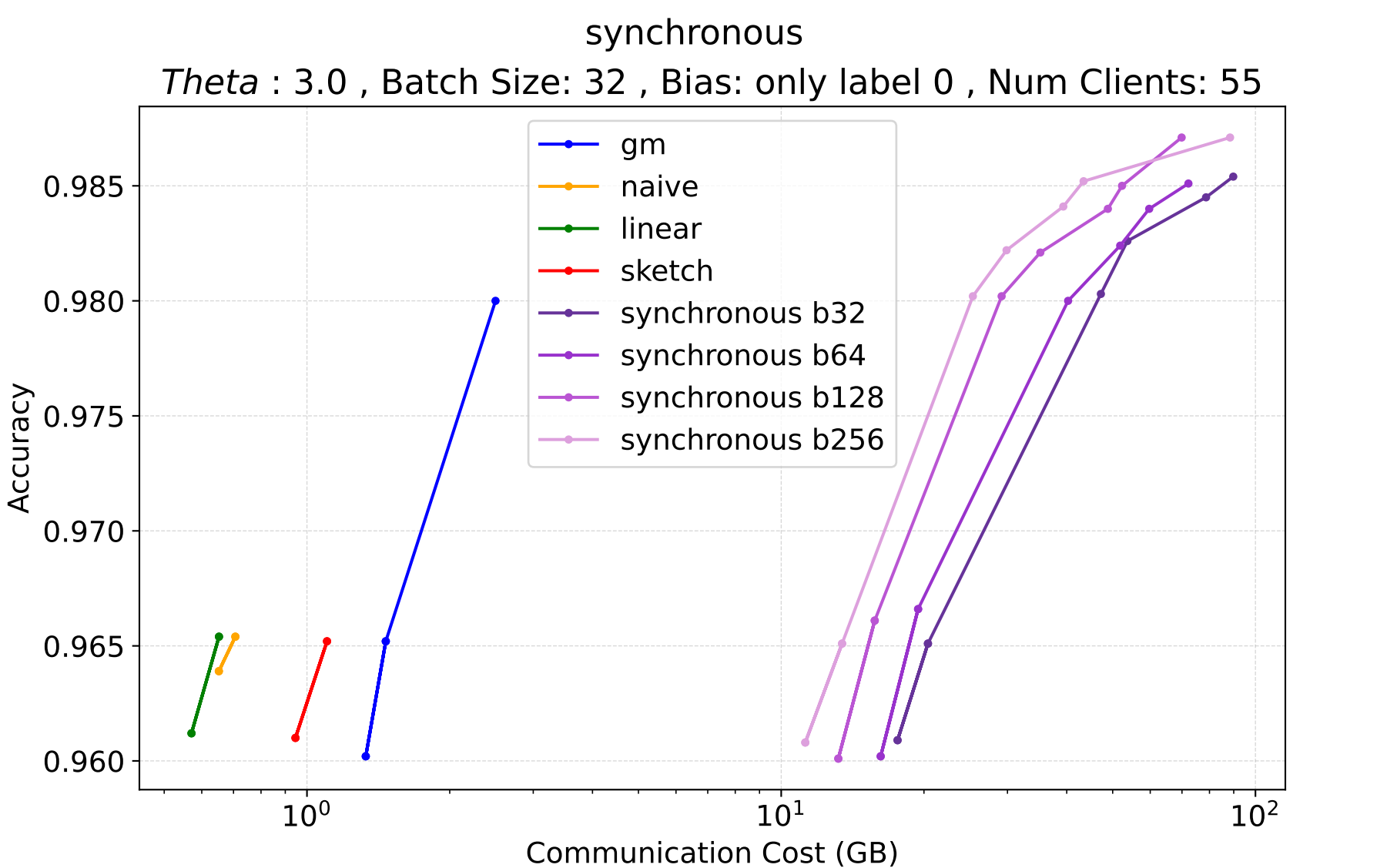

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

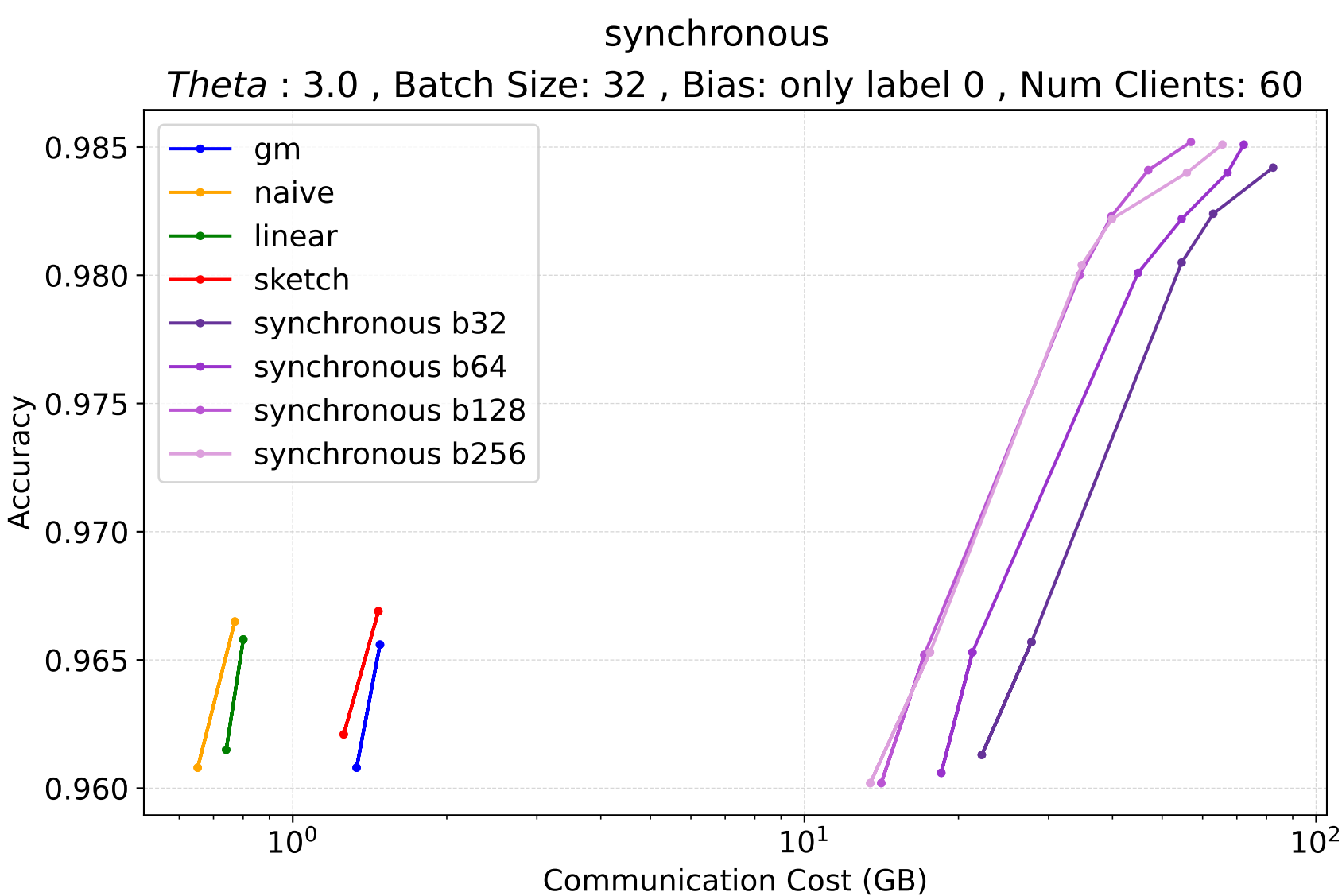

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

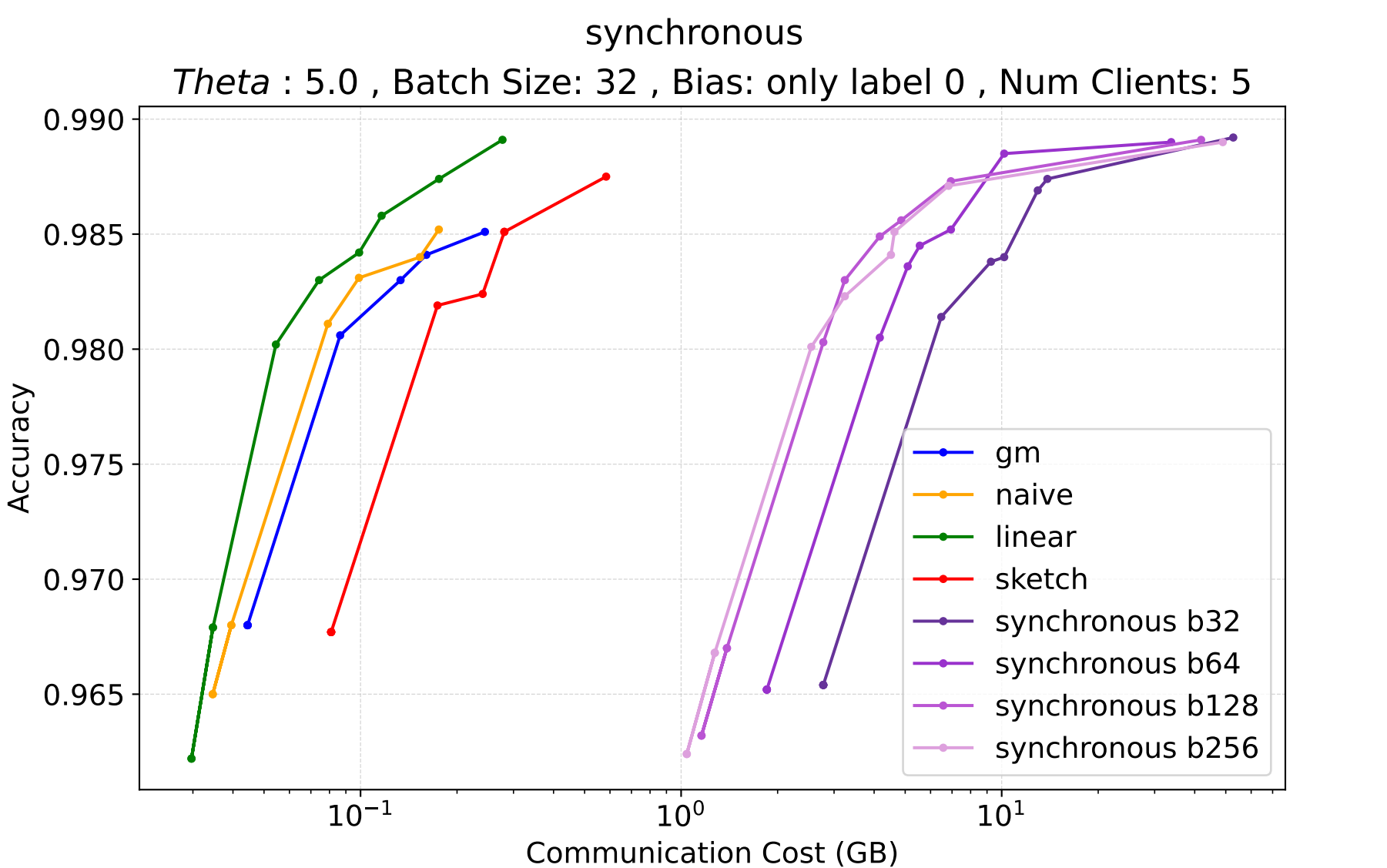

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 40
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

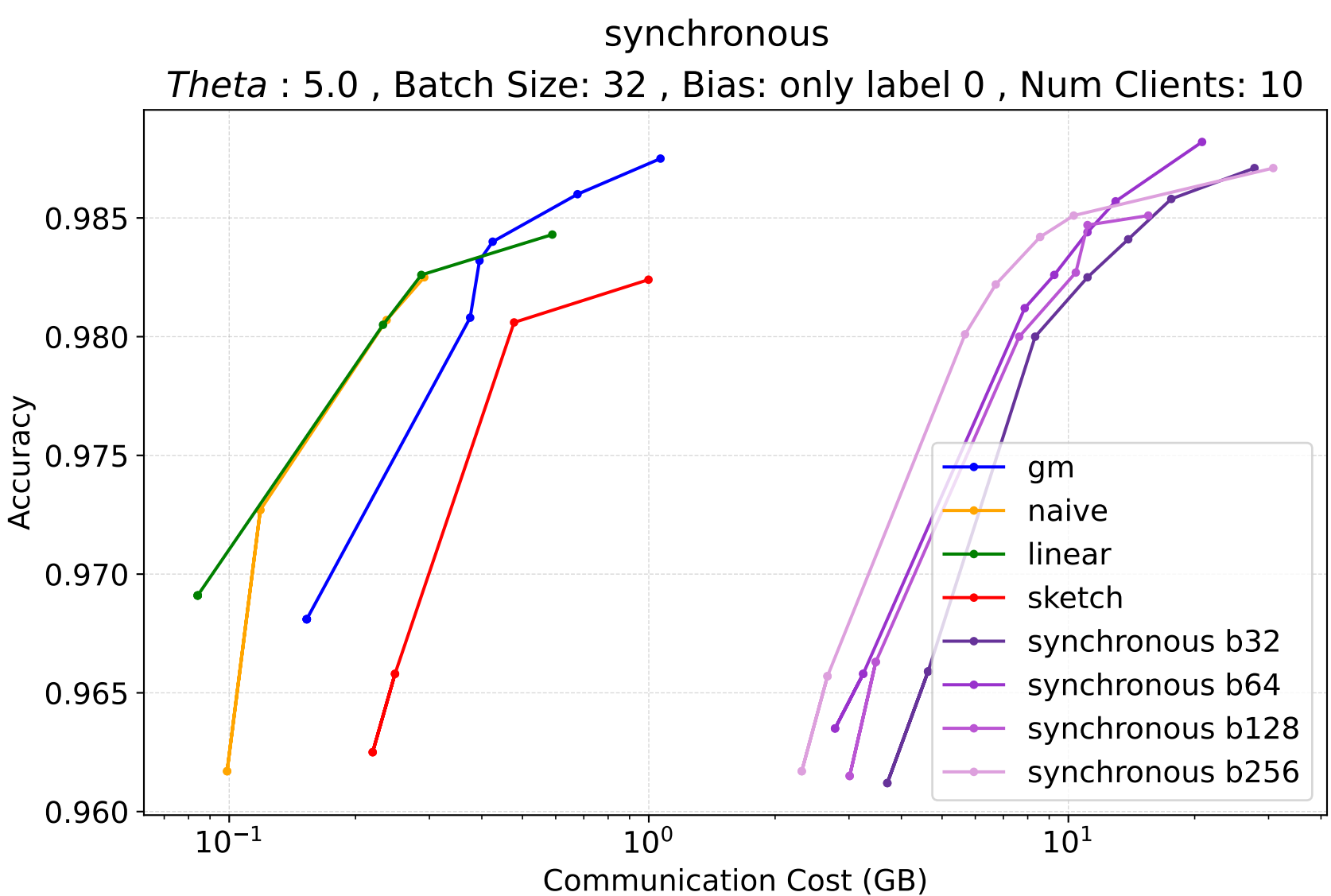

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

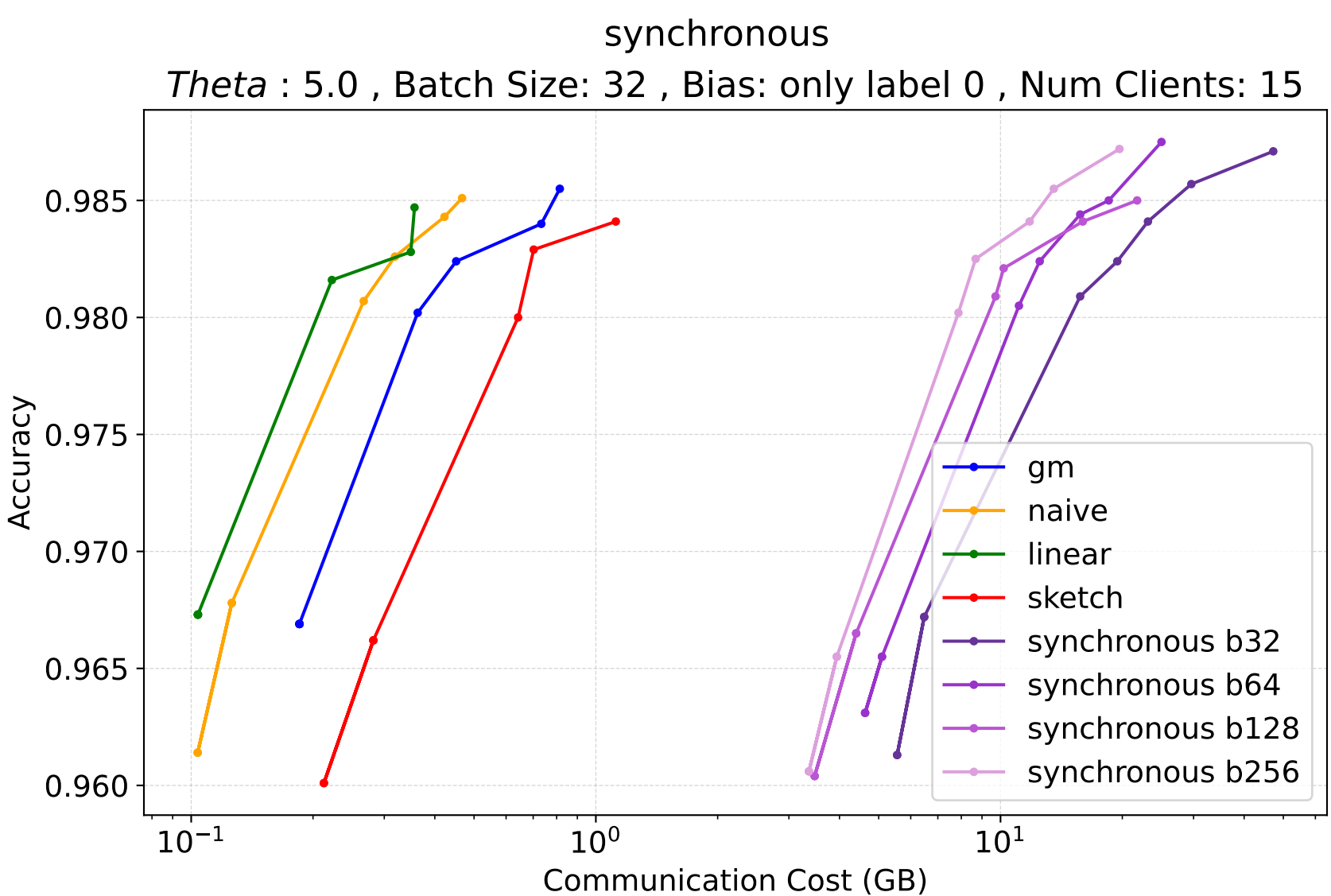

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

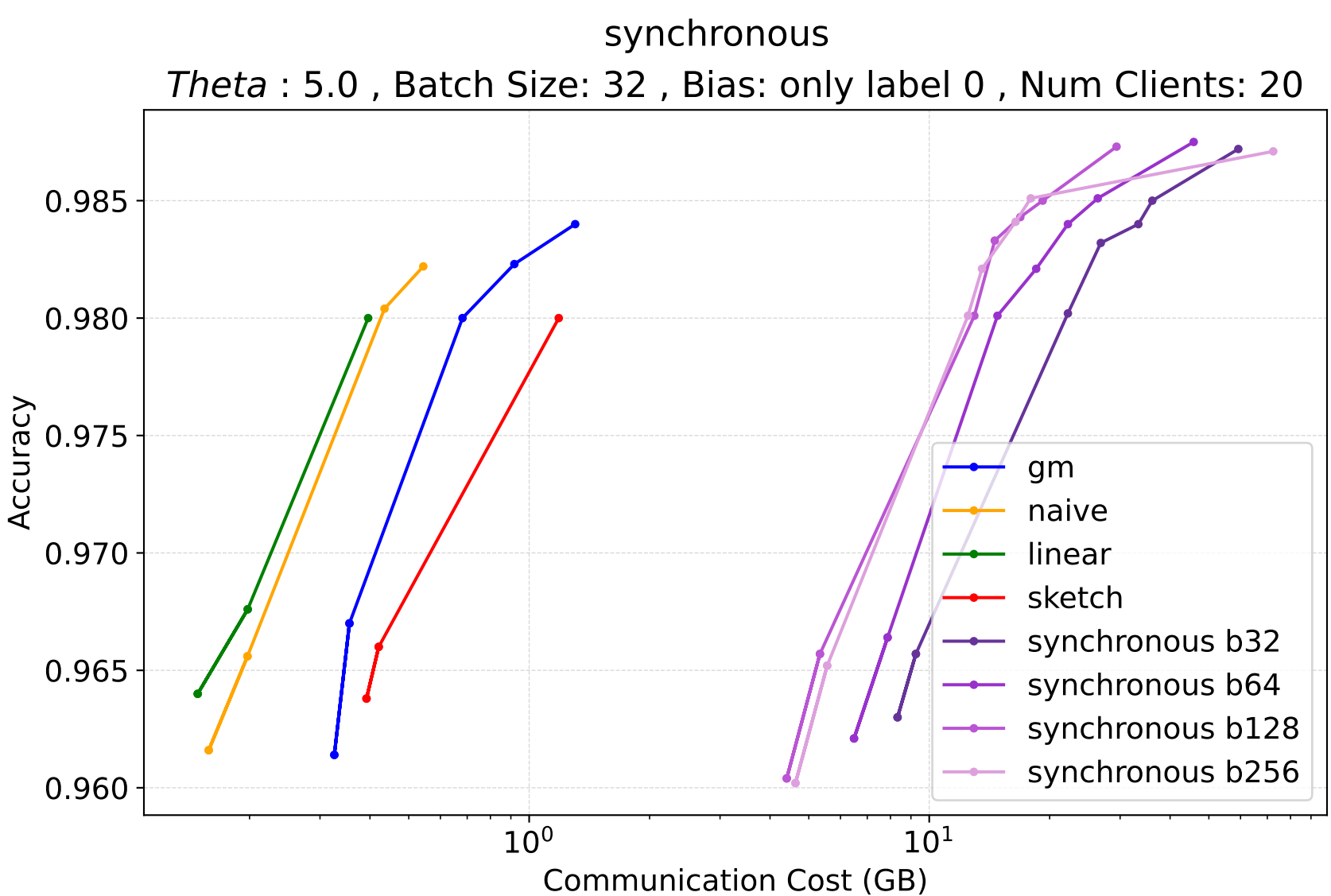

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

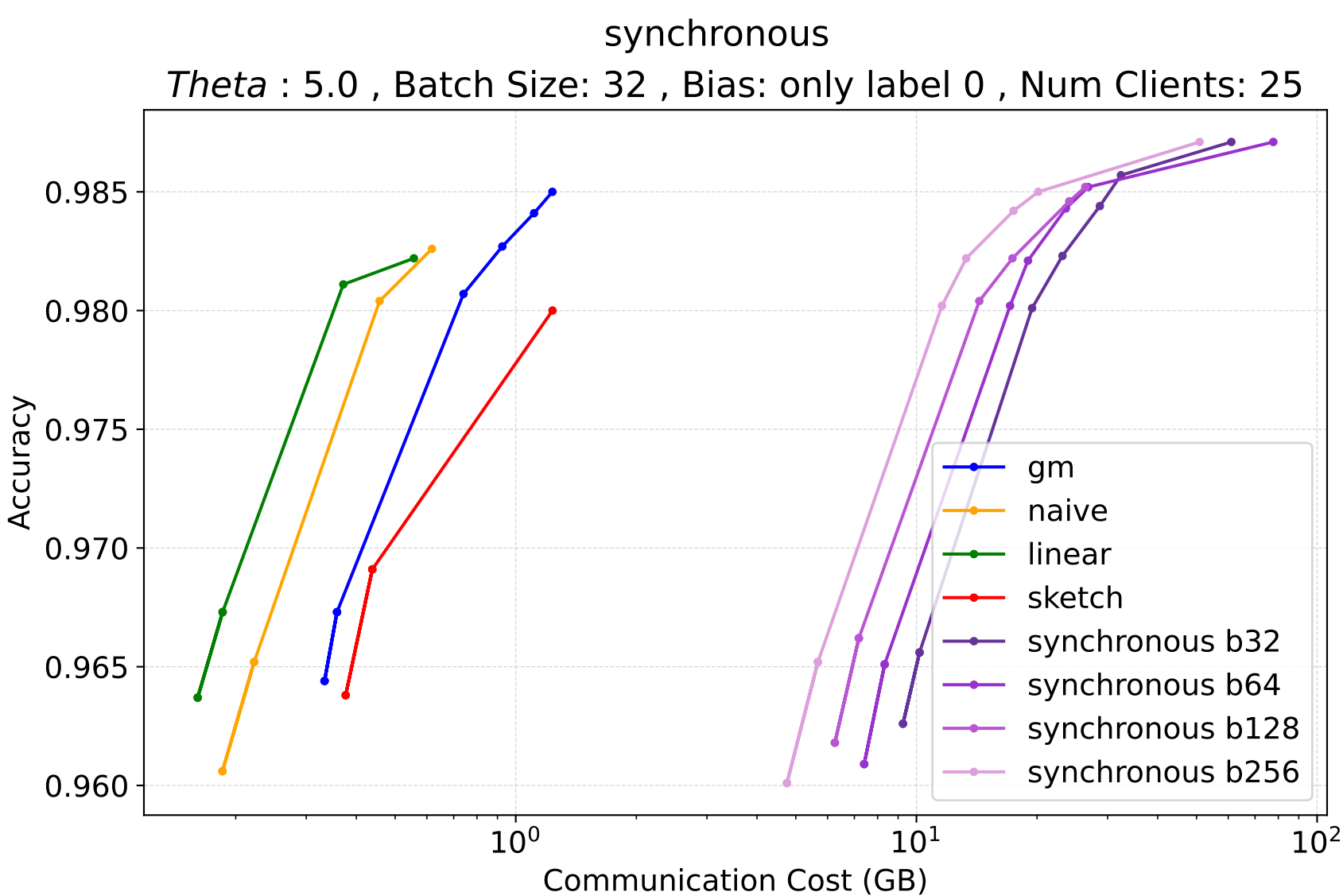

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

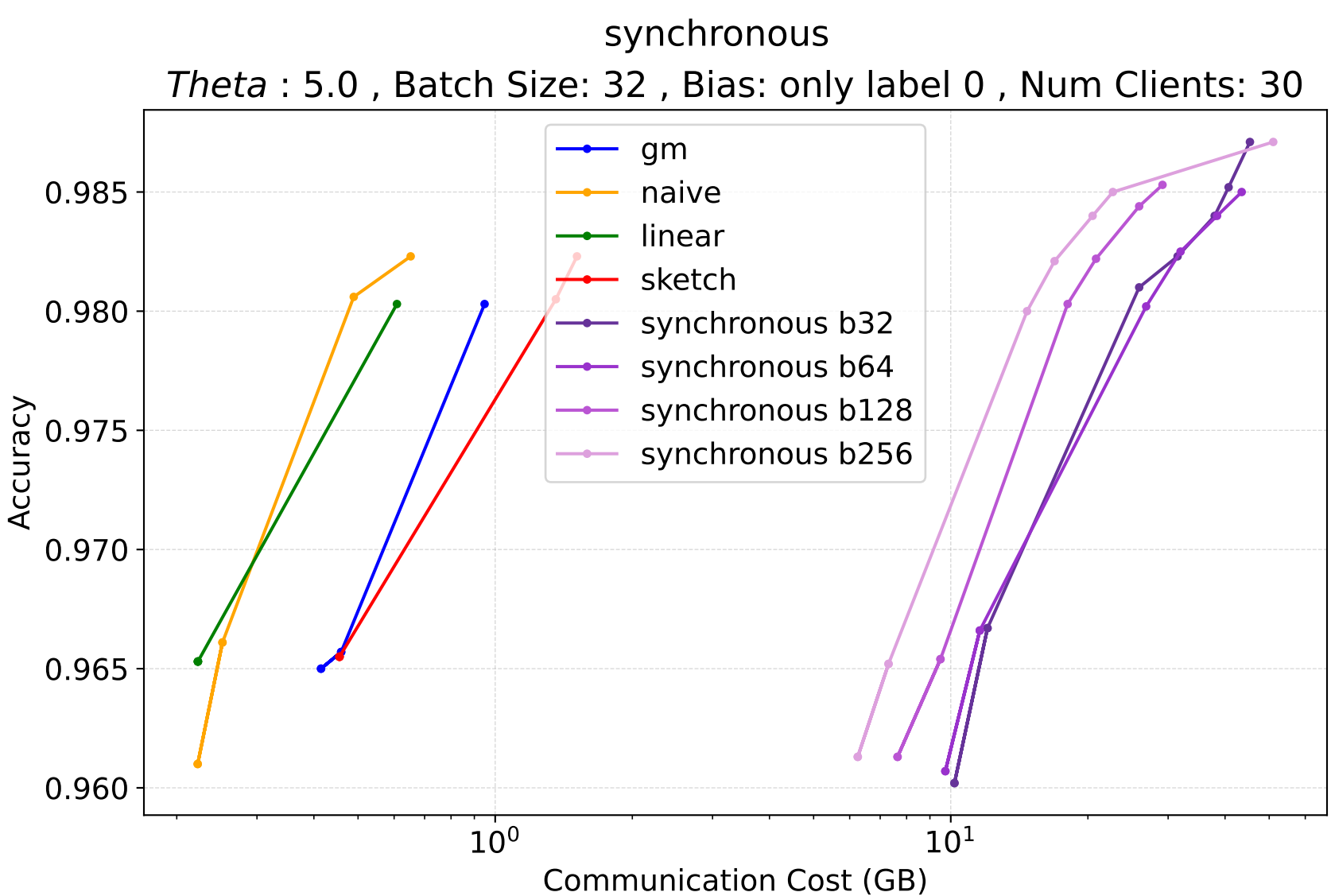

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

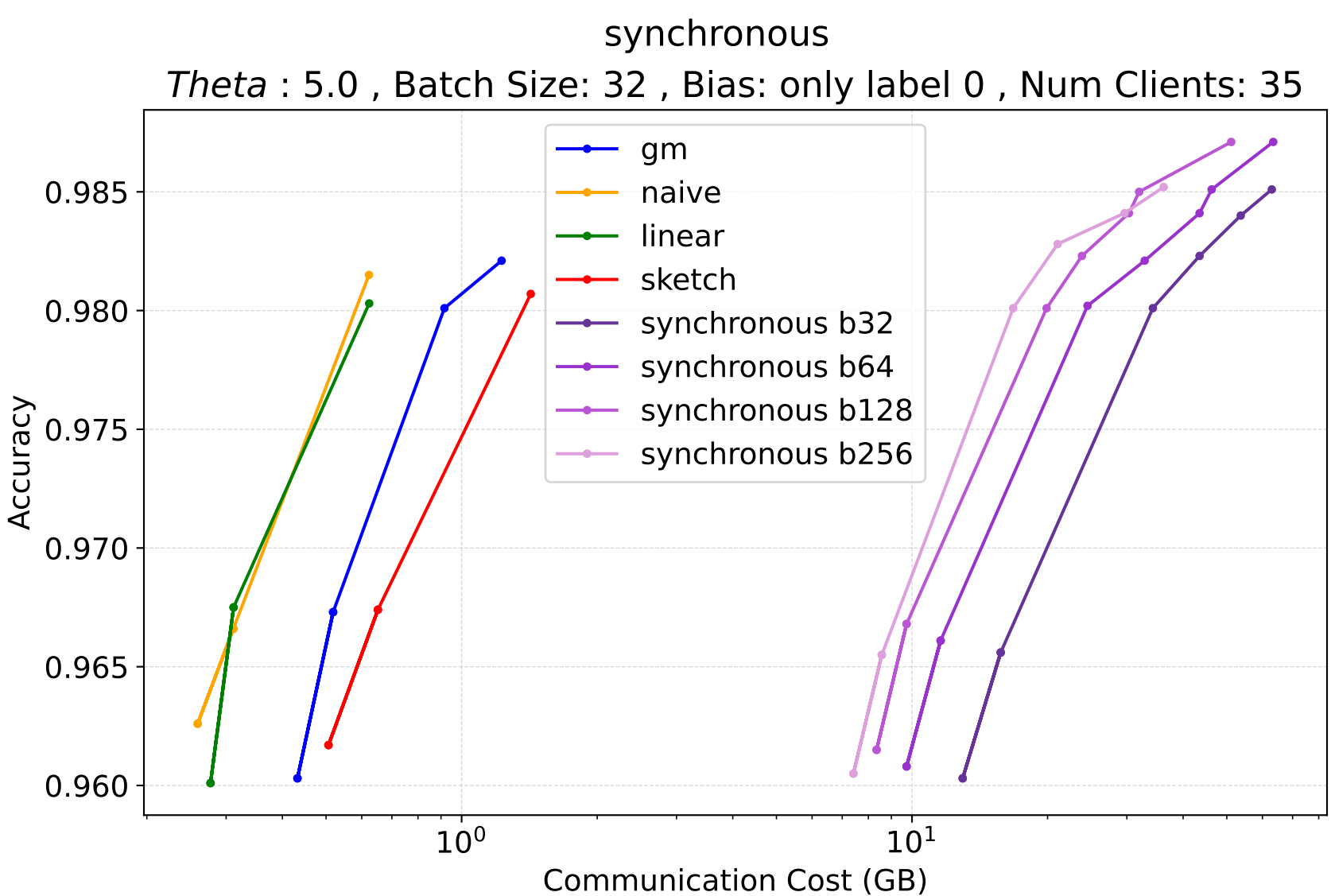

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 10
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

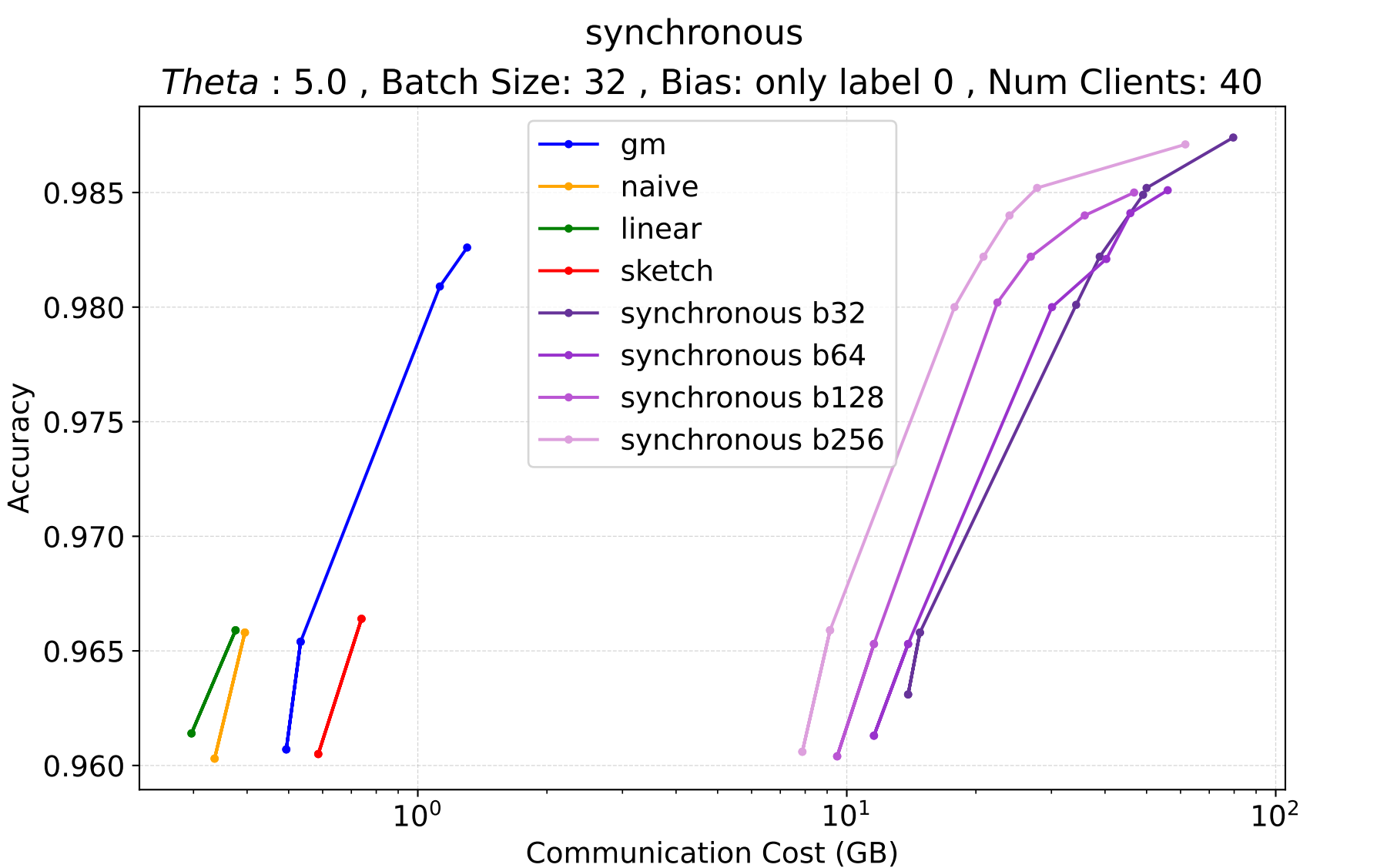

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

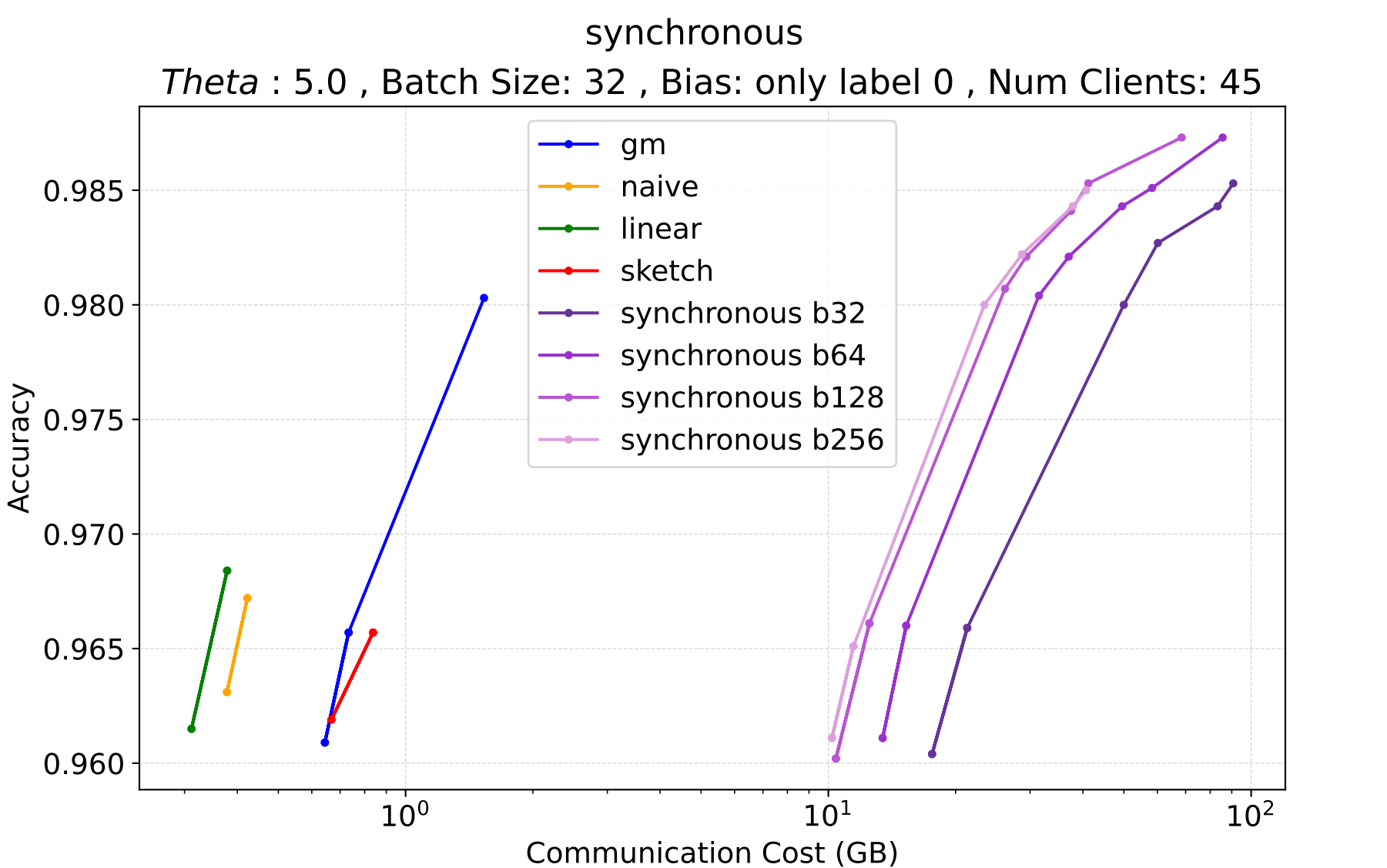

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

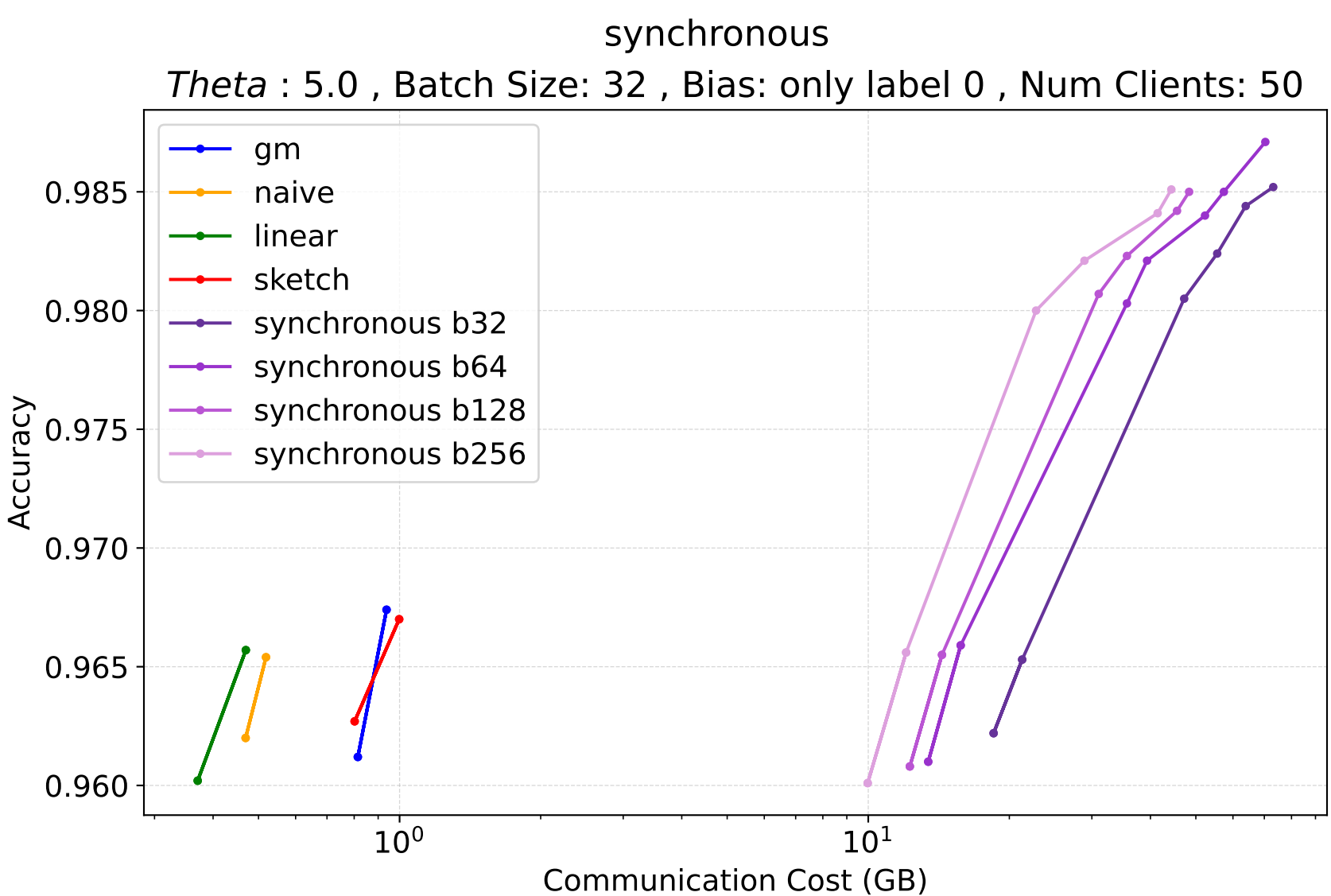

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

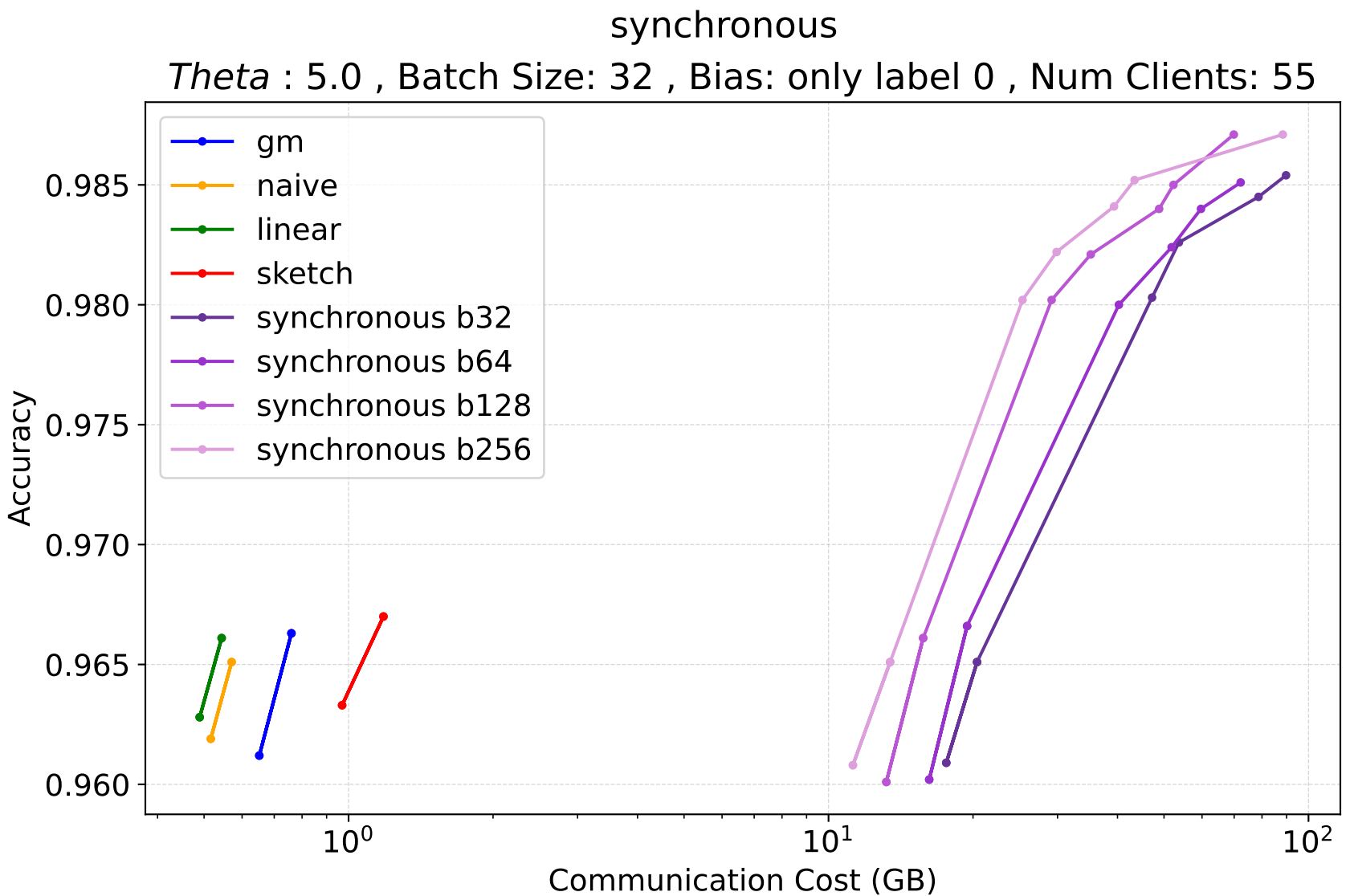

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

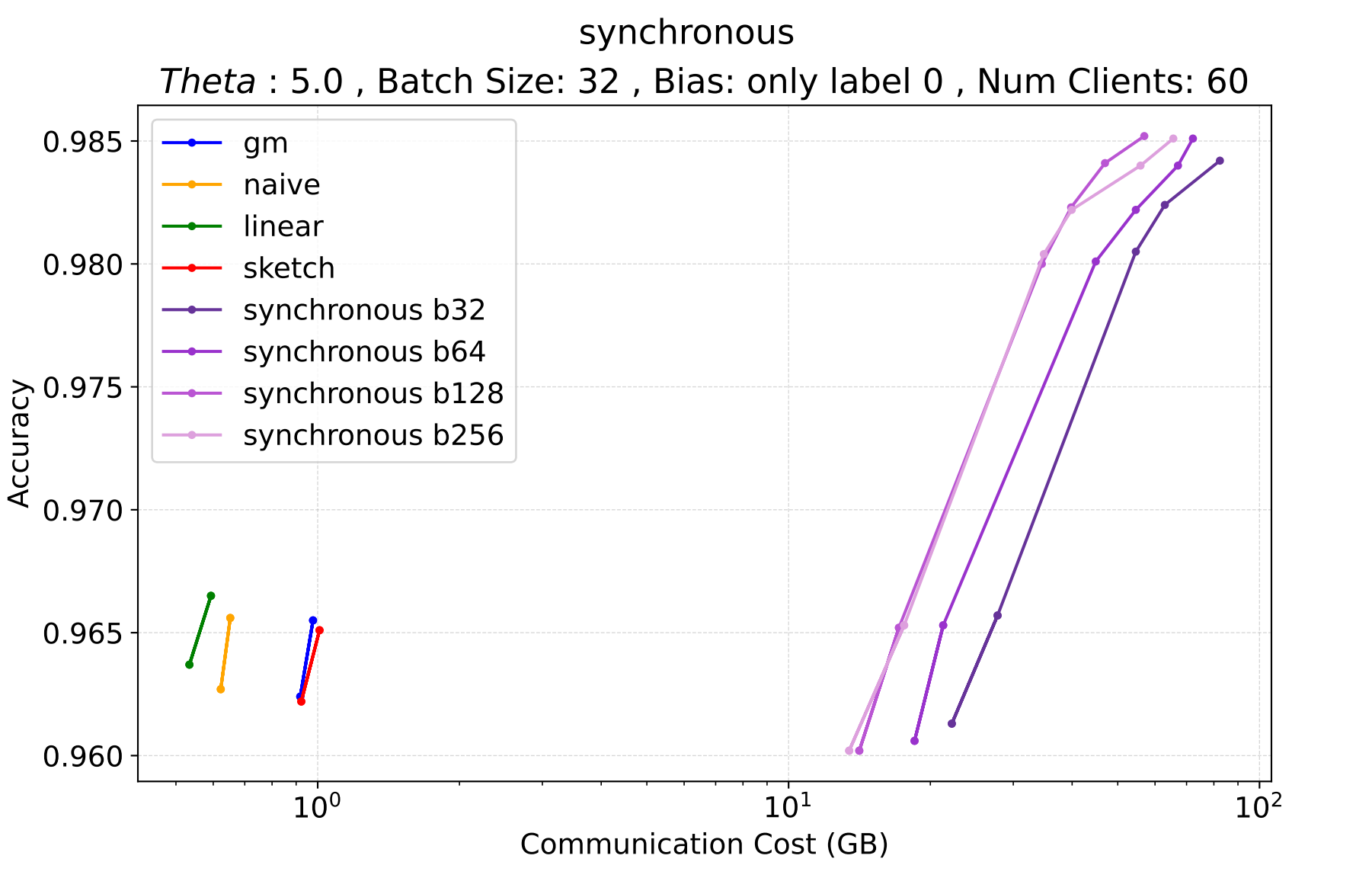

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

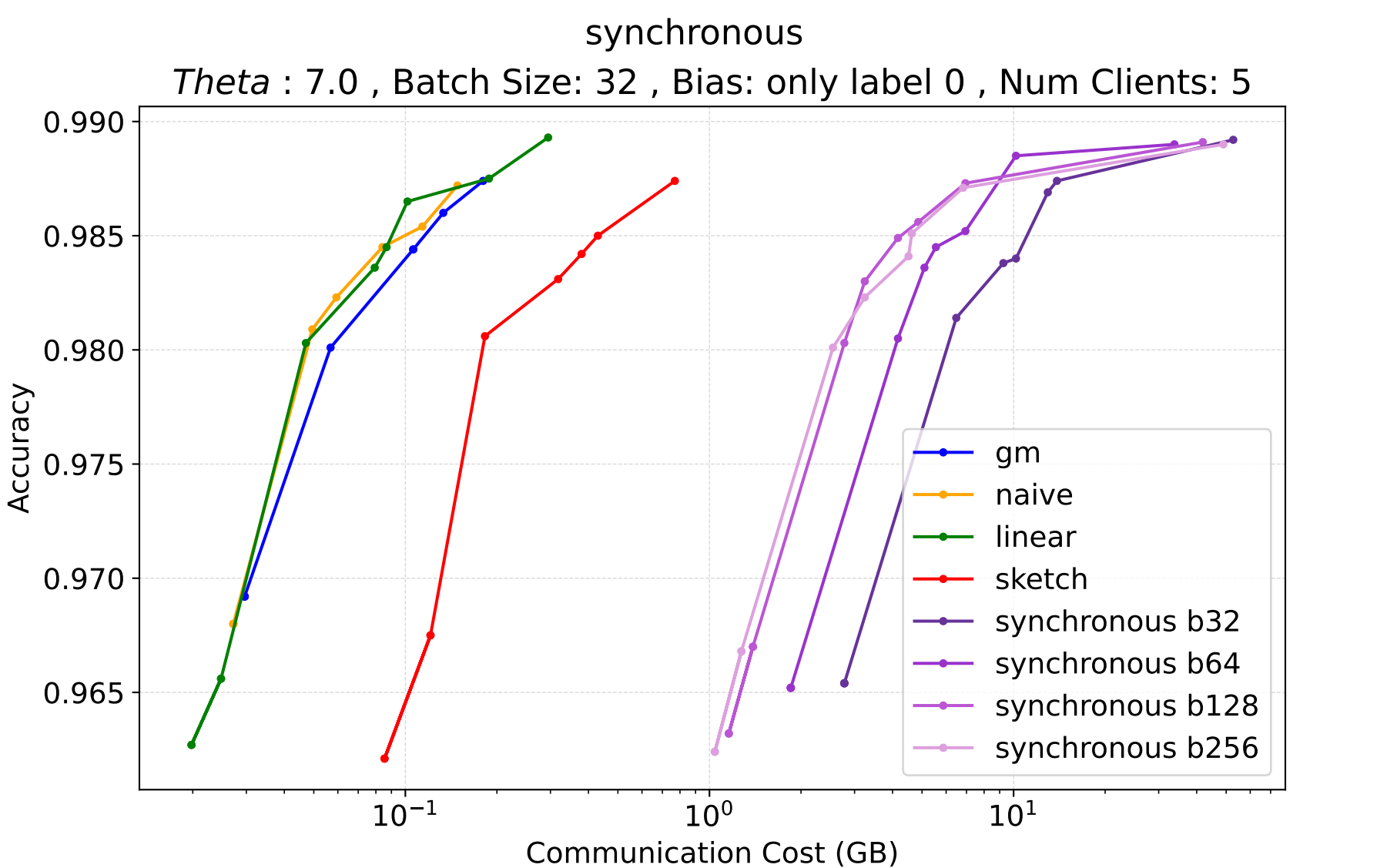

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

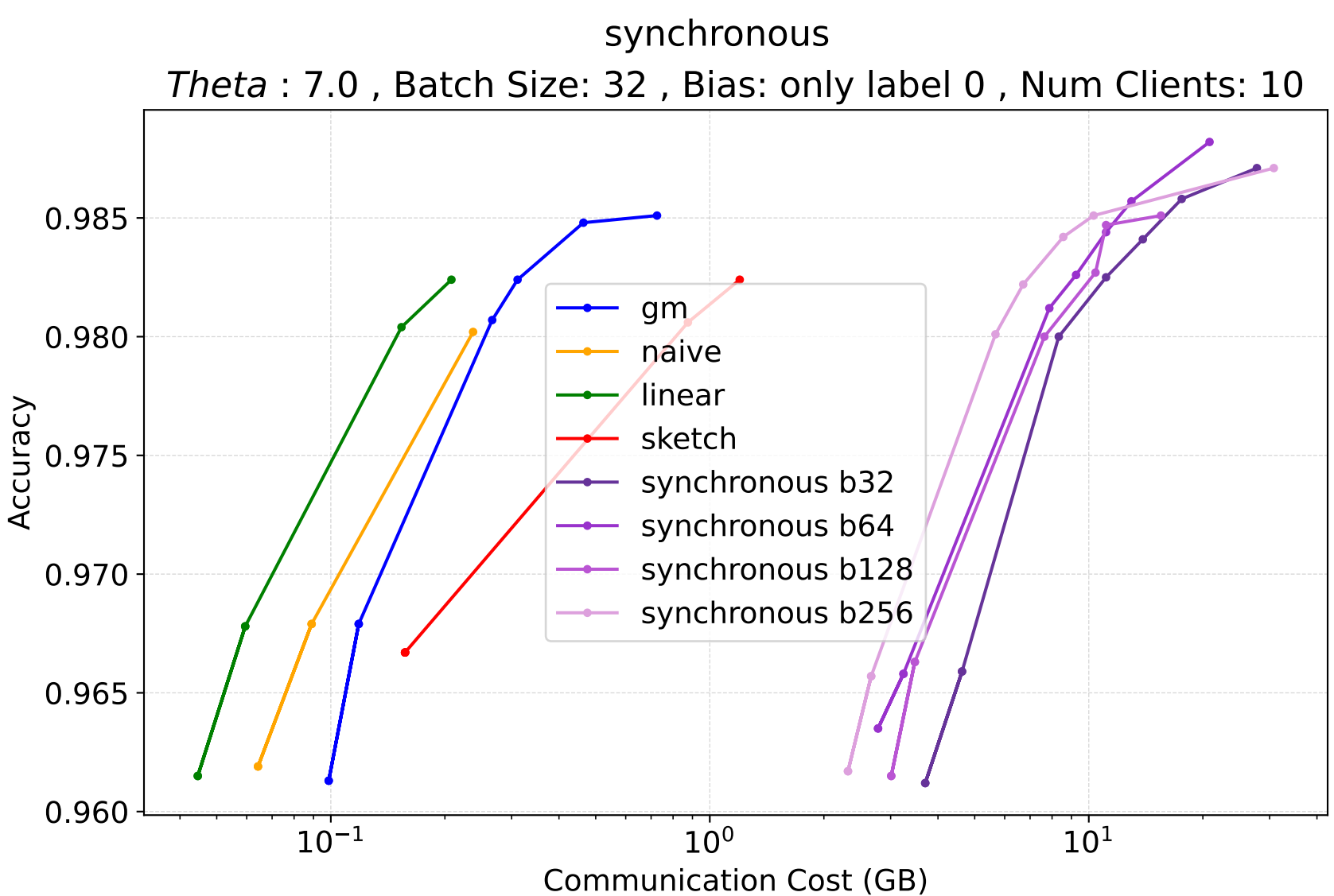

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

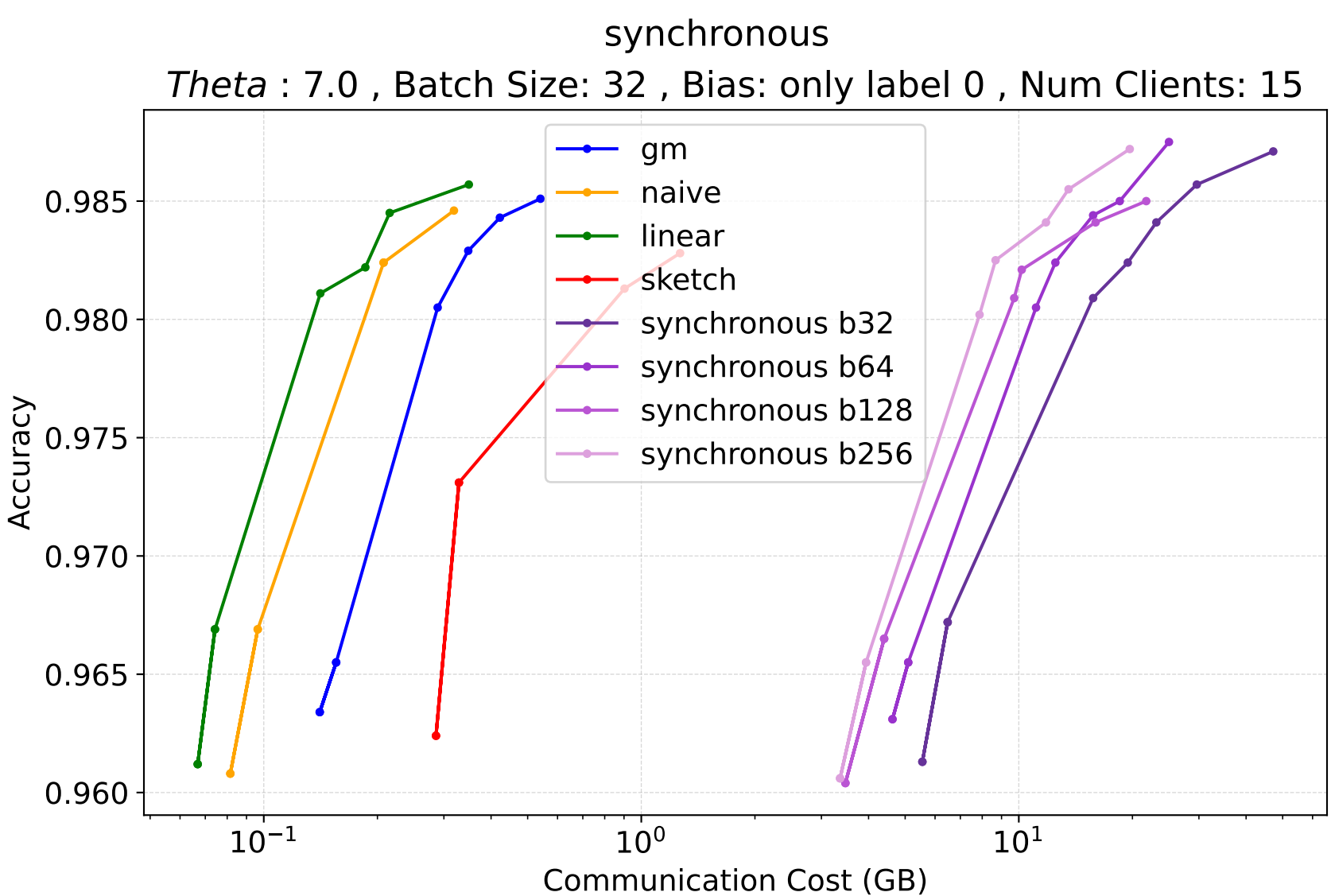

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

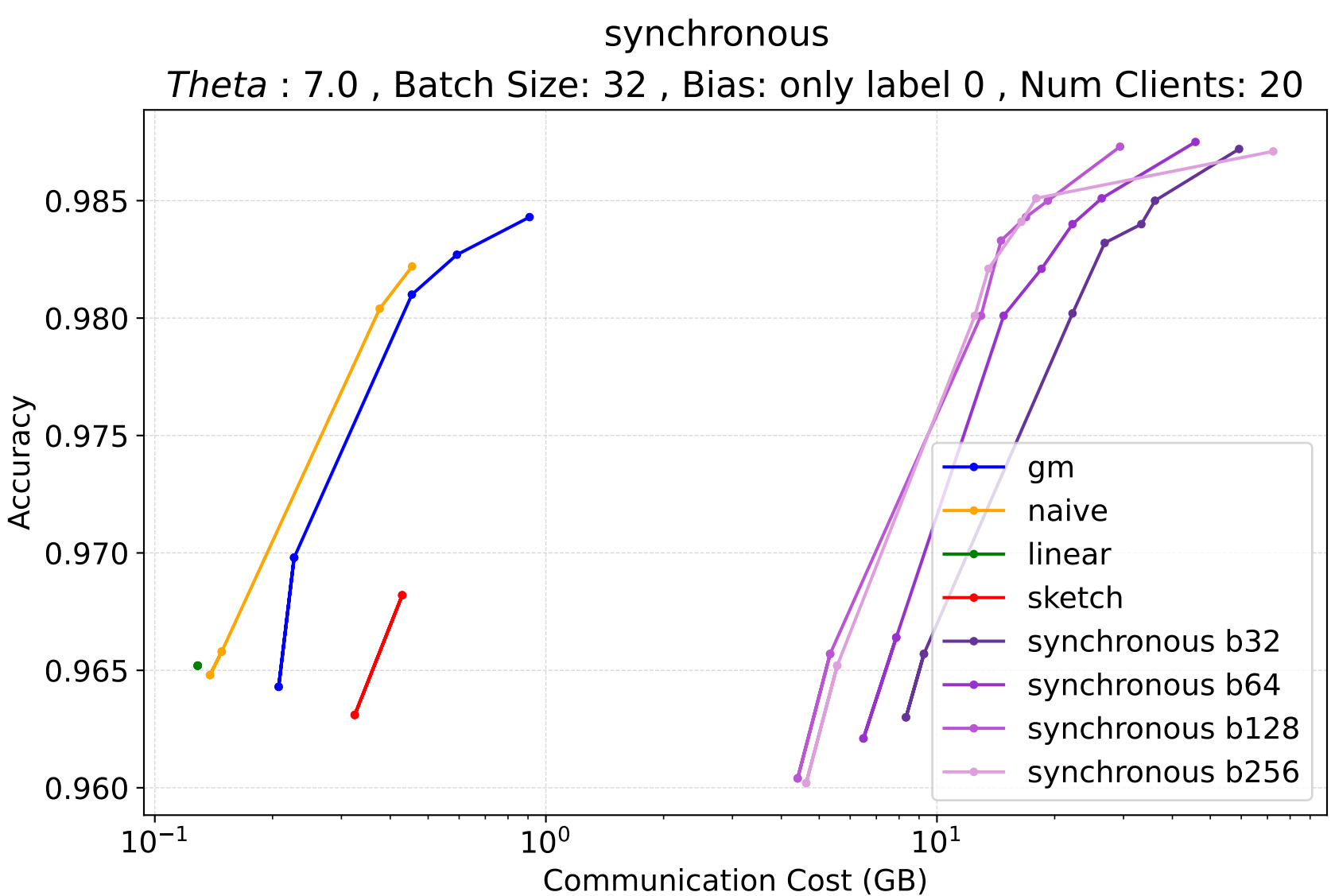

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

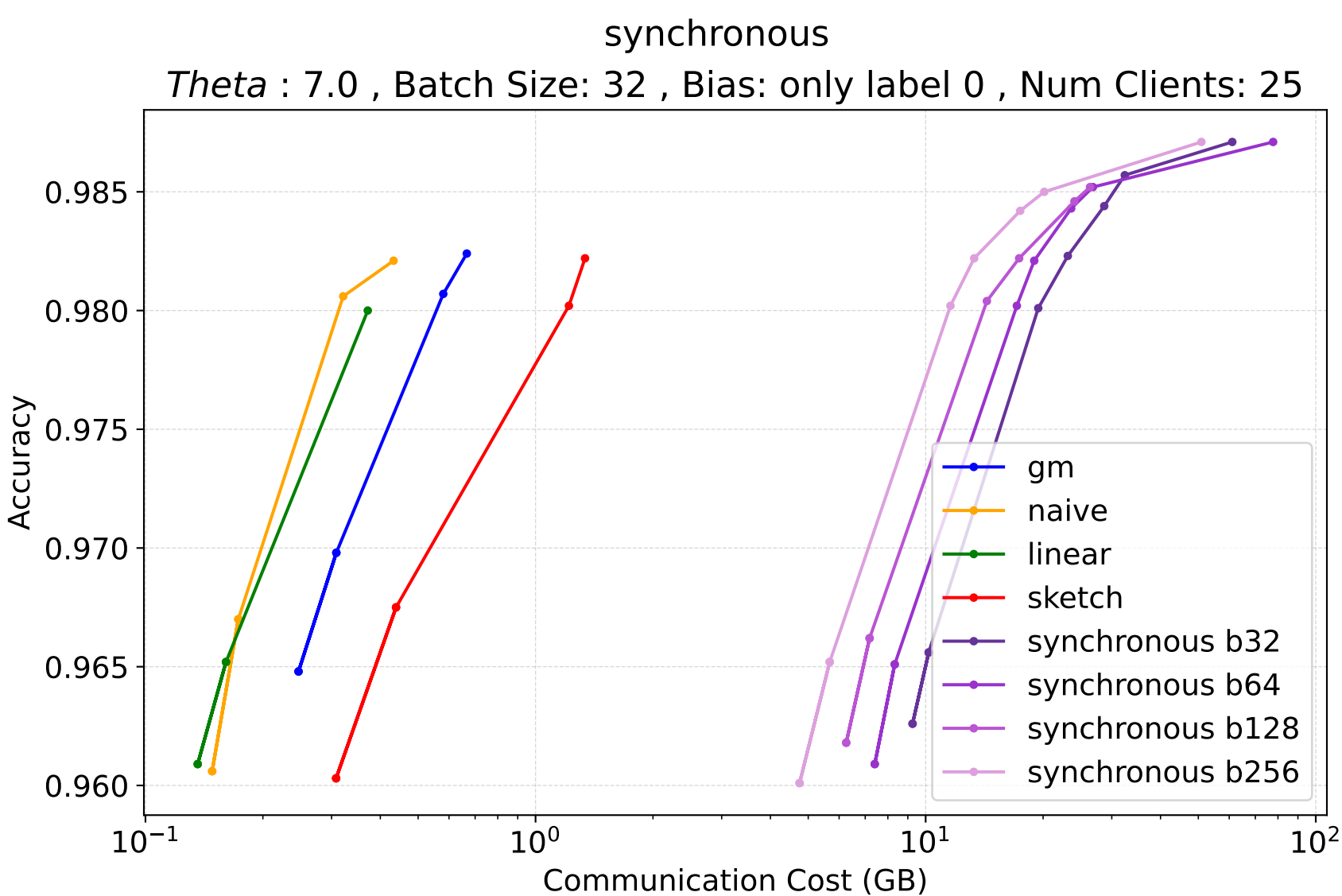

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

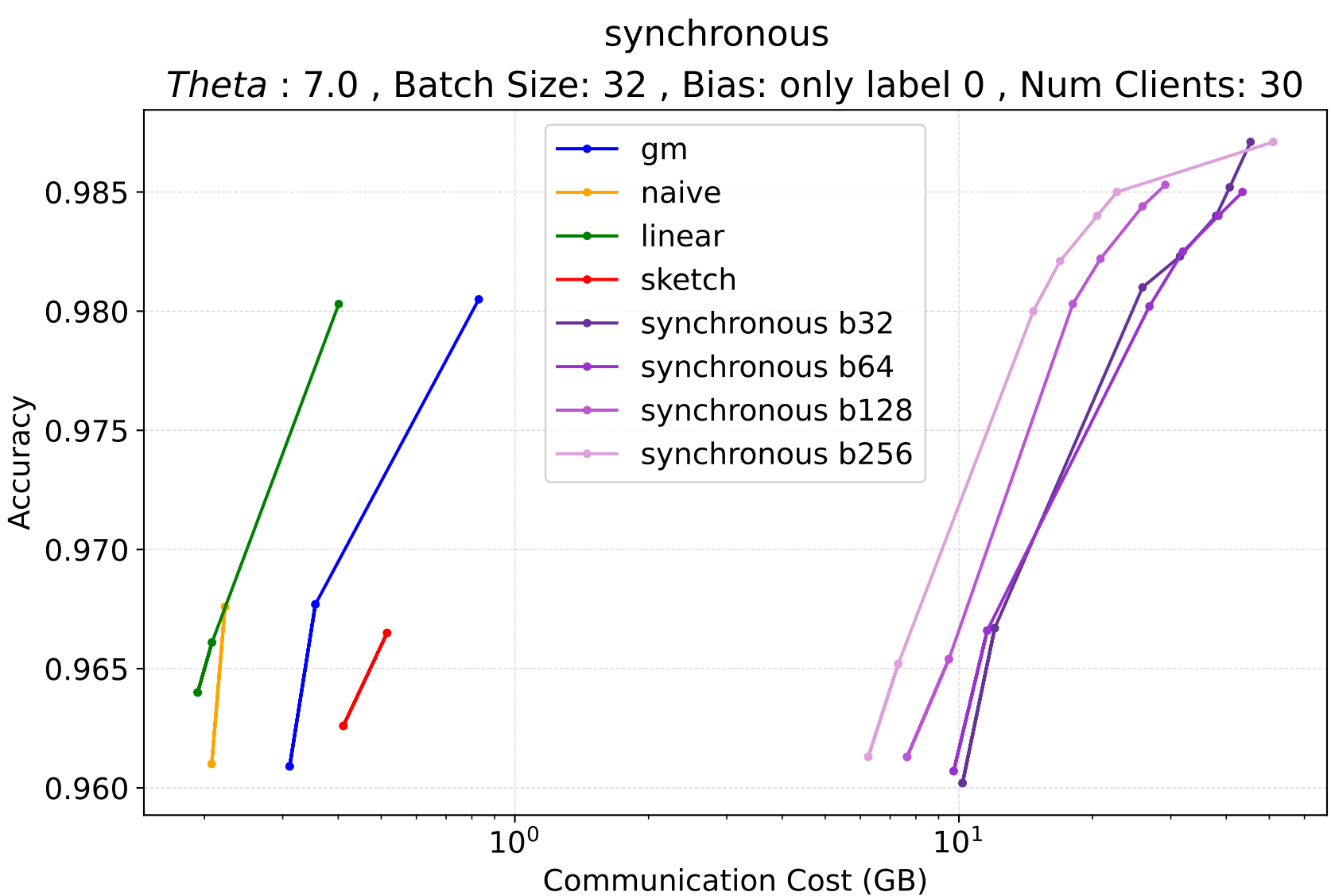

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

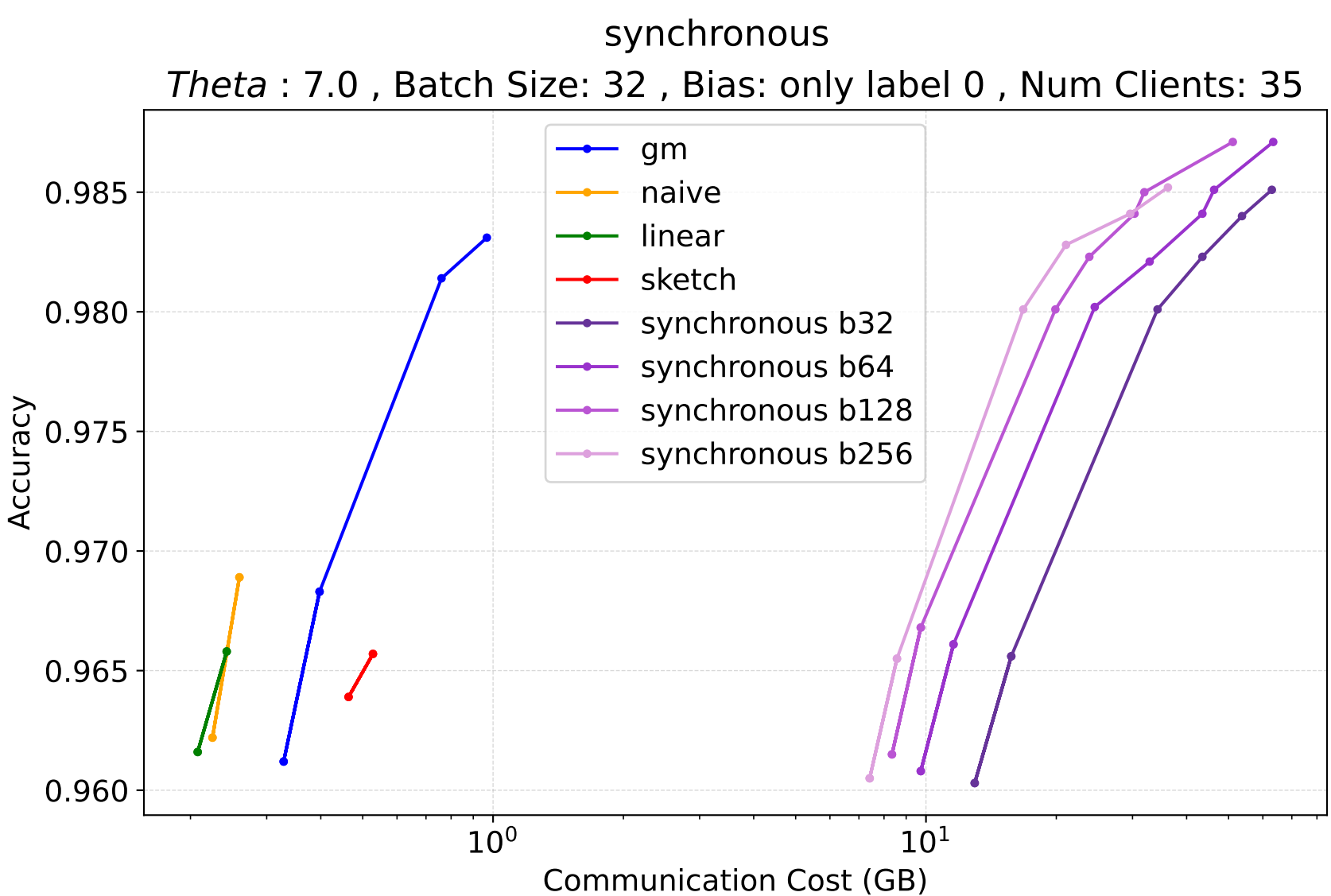

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 10
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

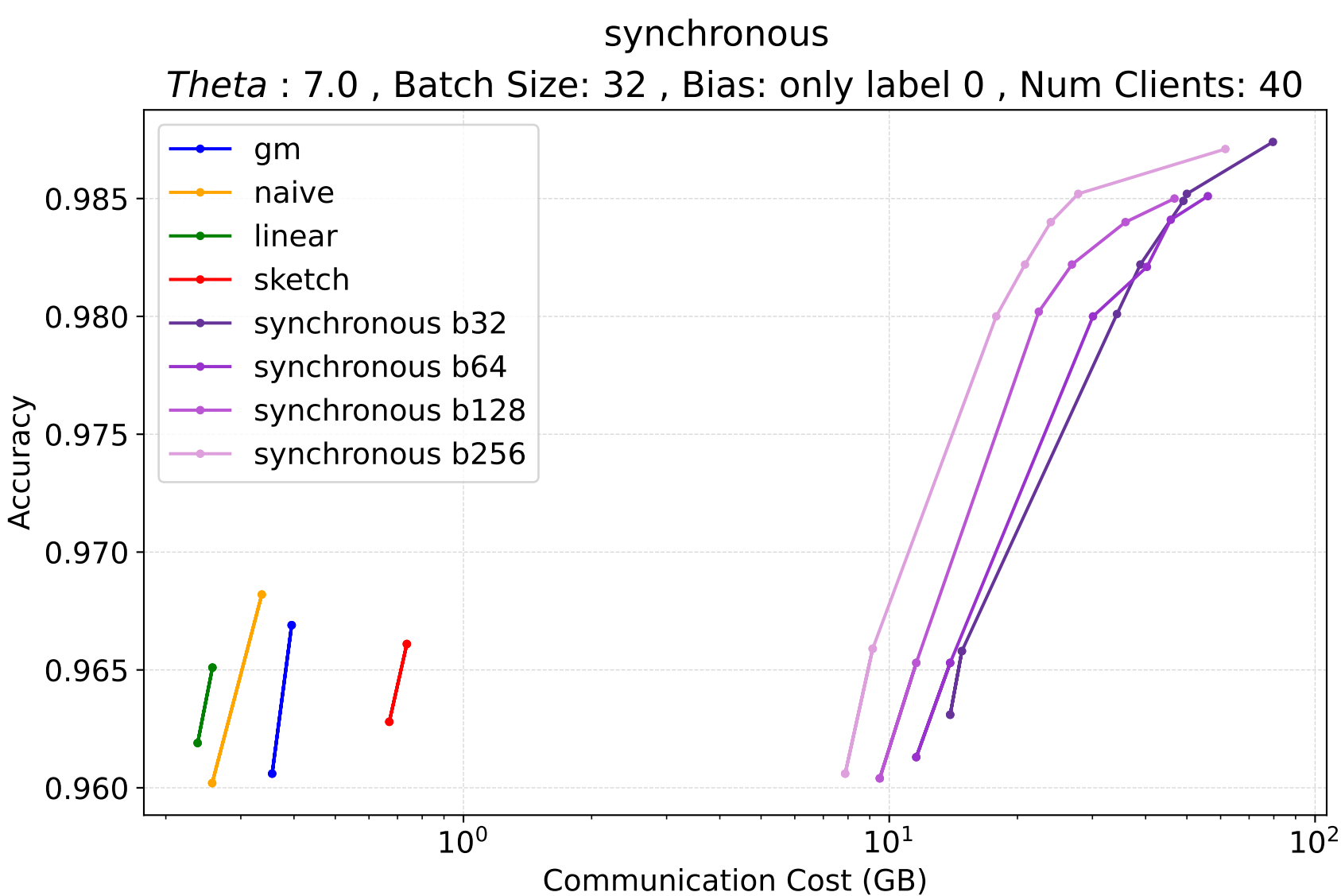

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)

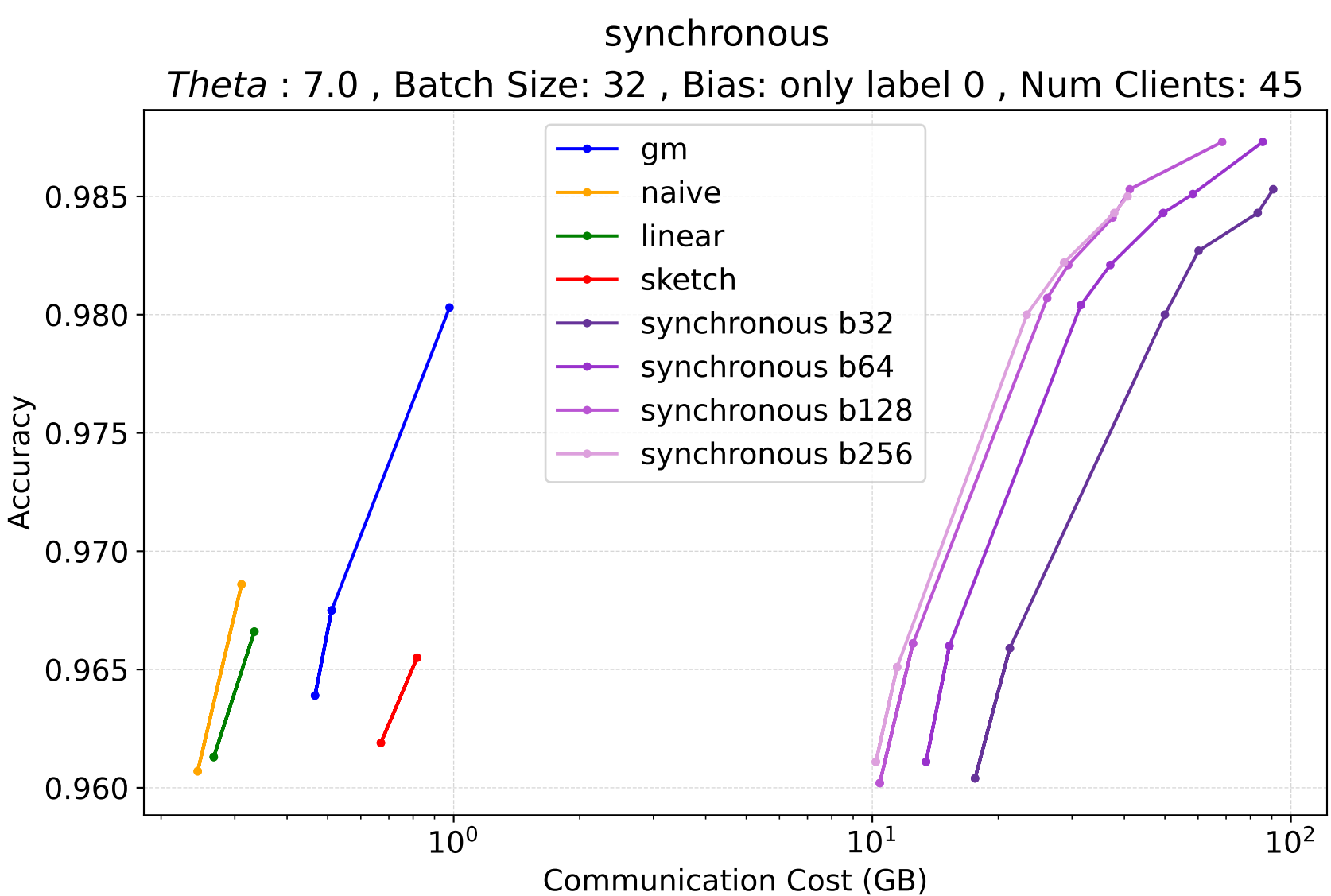

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

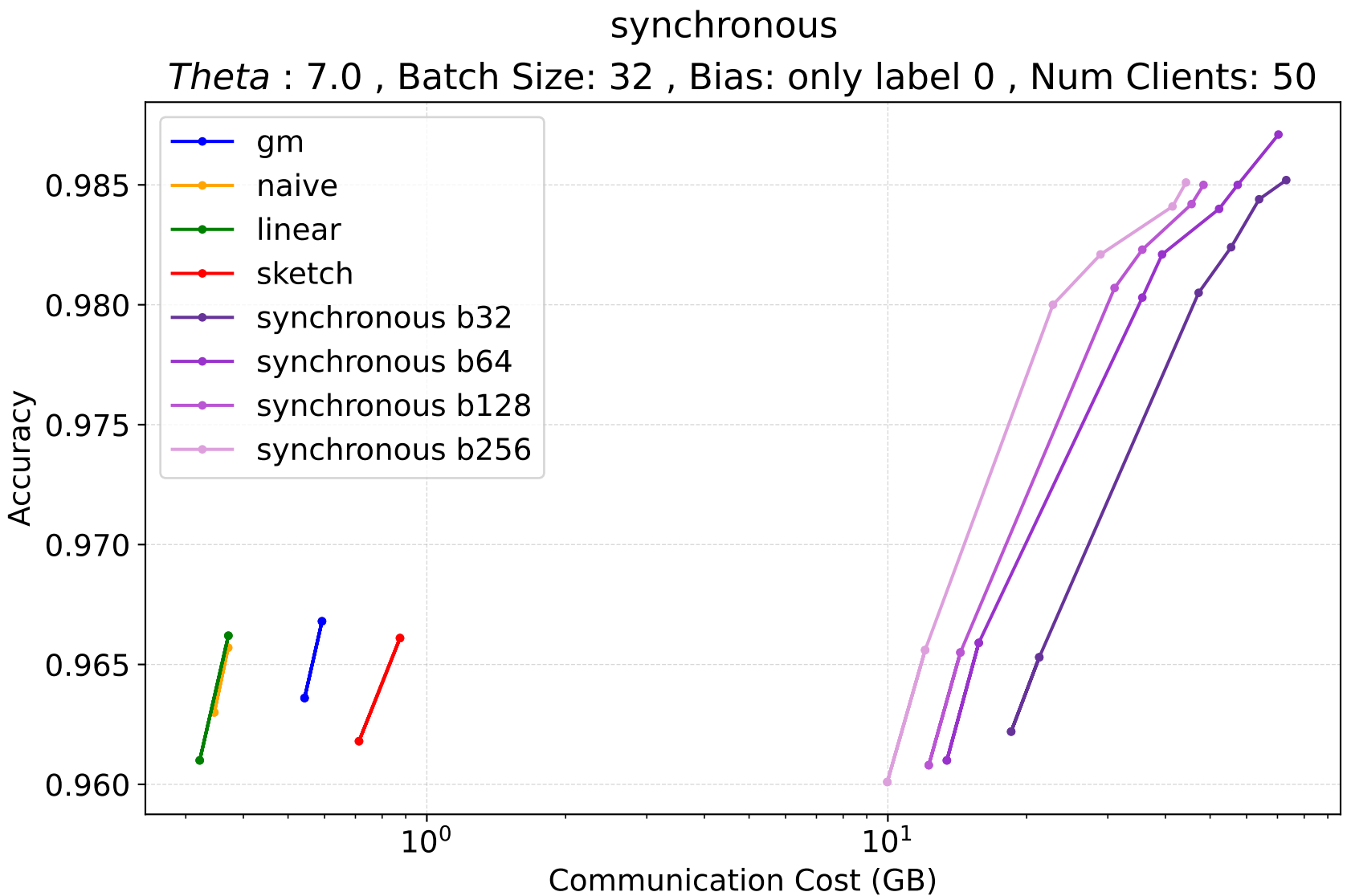

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

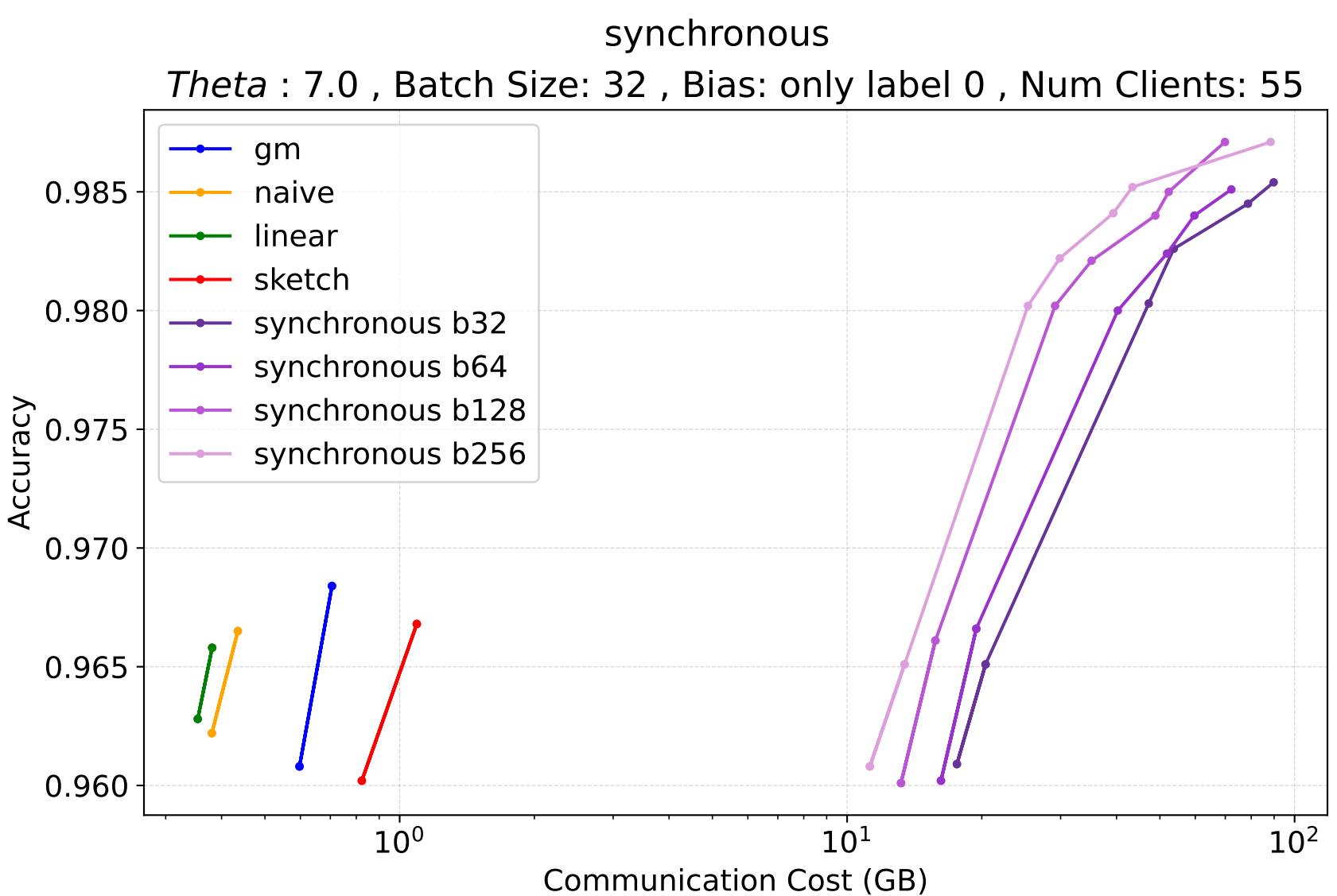

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

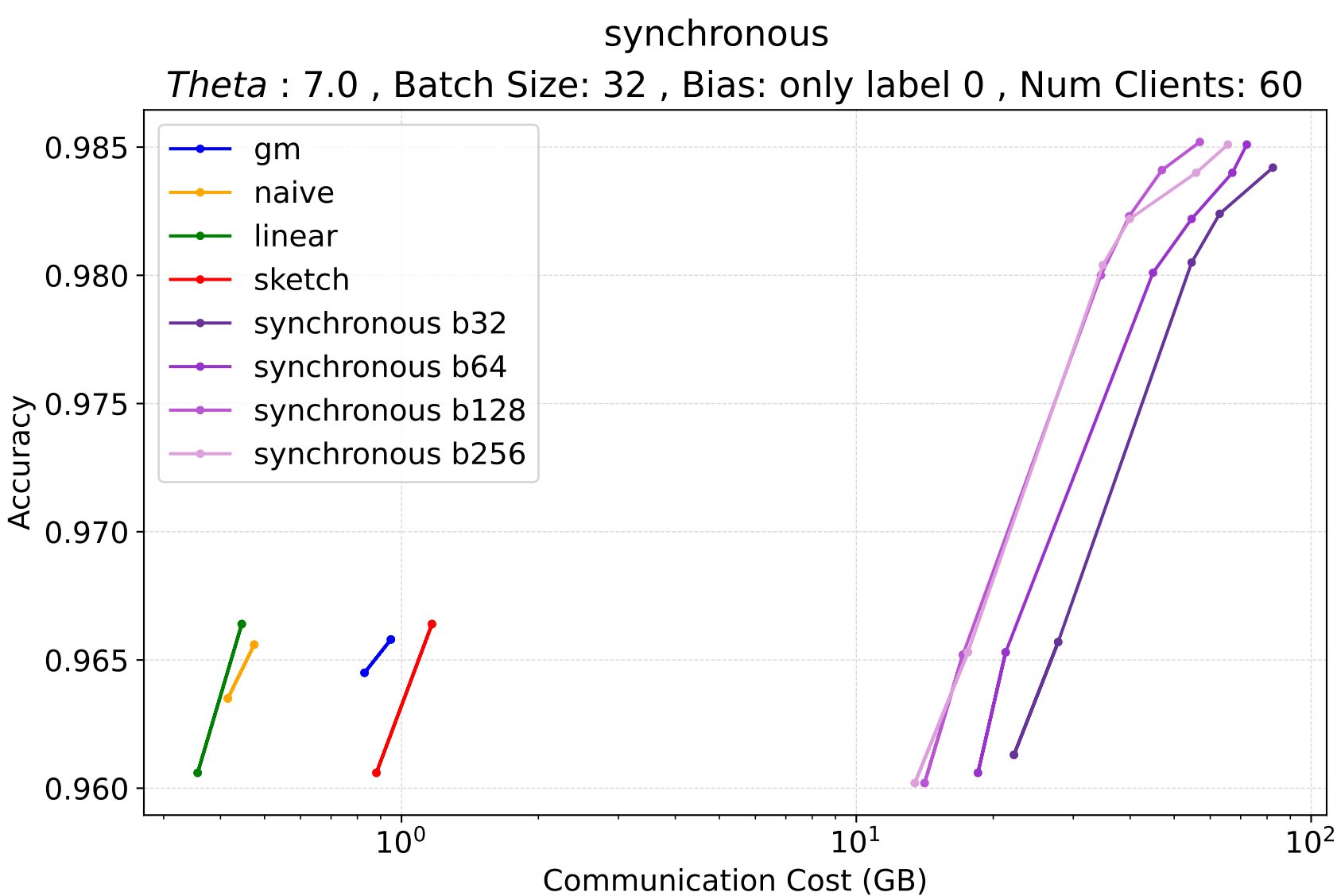

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

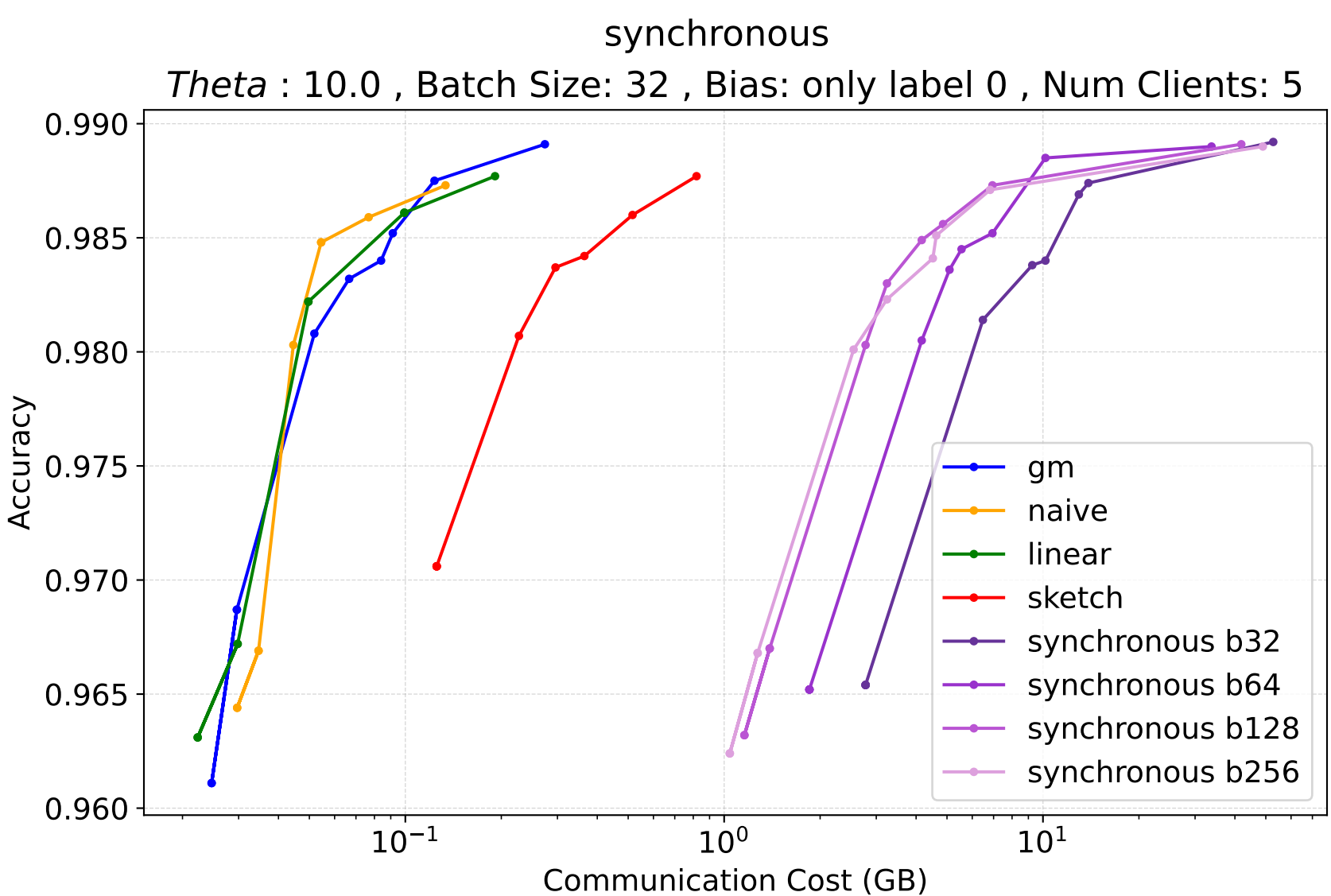

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

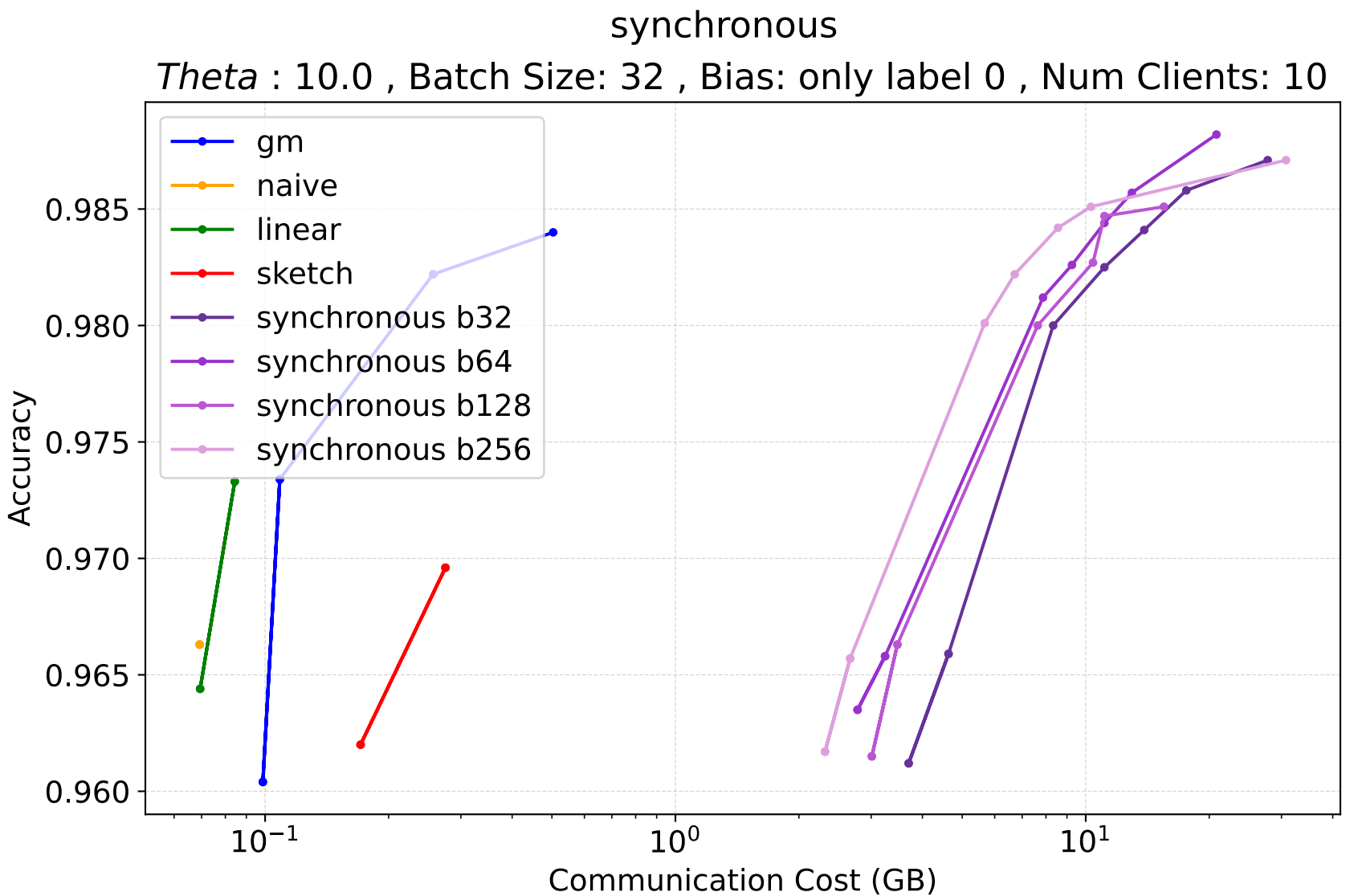

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

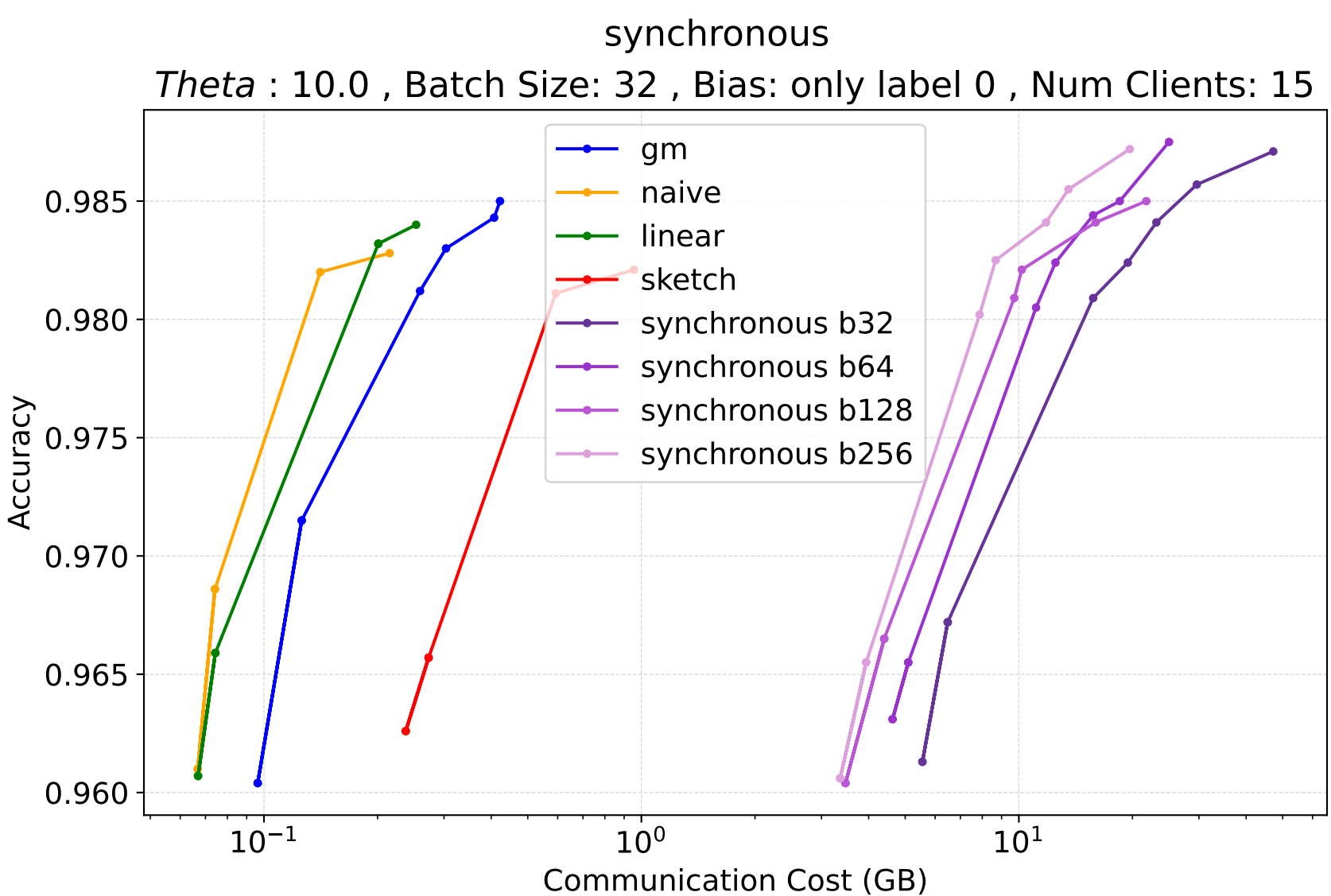

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

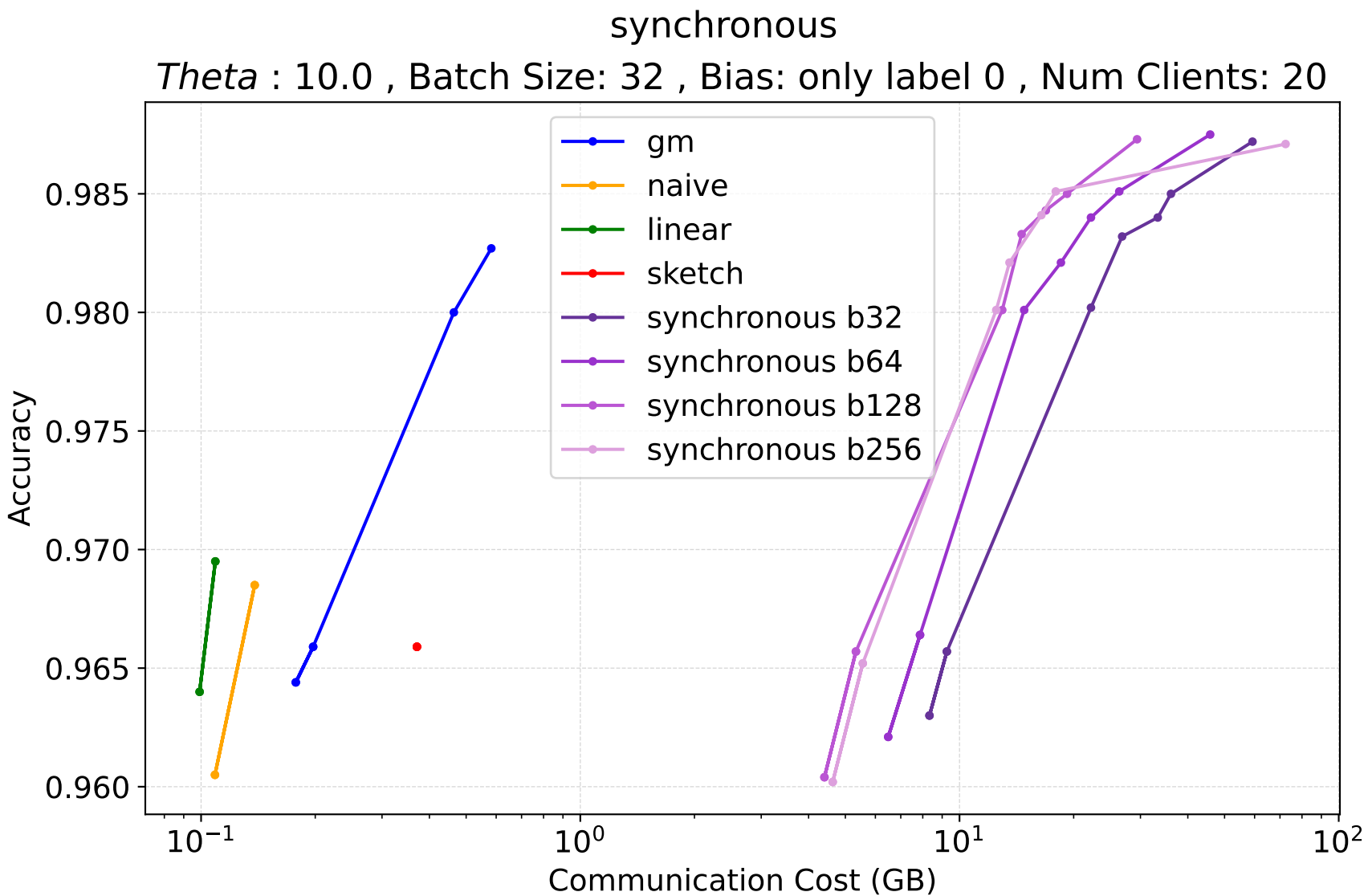

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

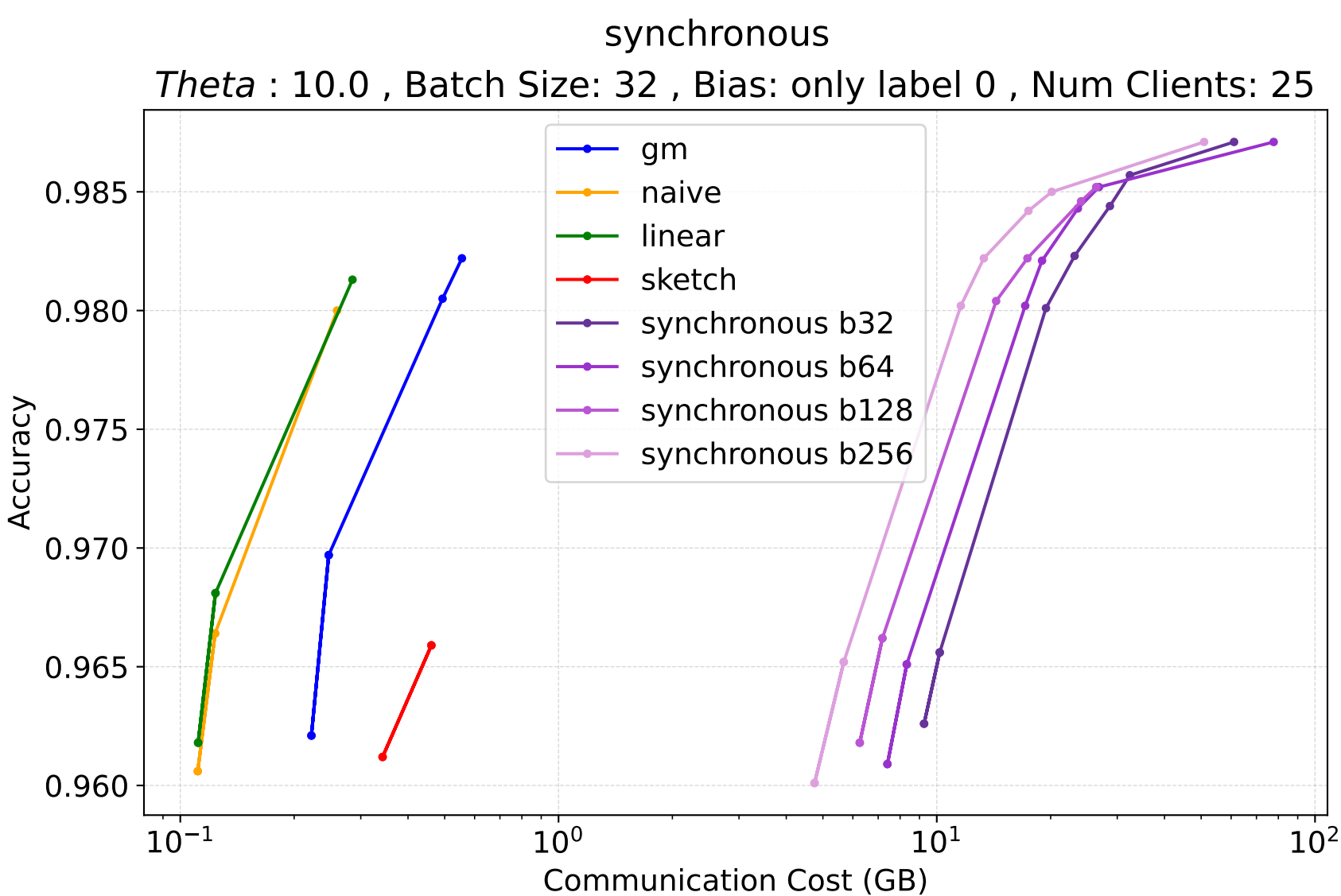

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

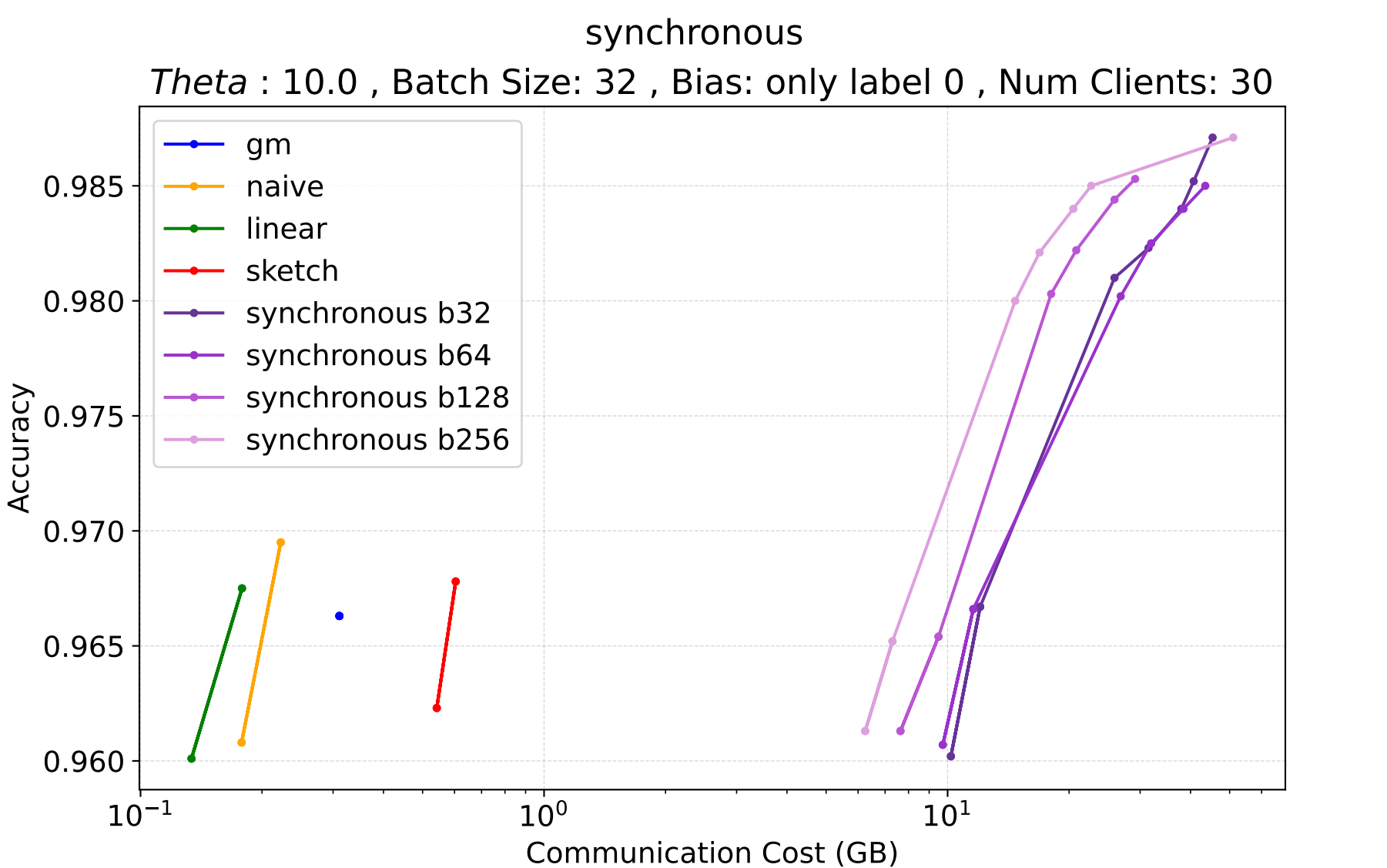

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

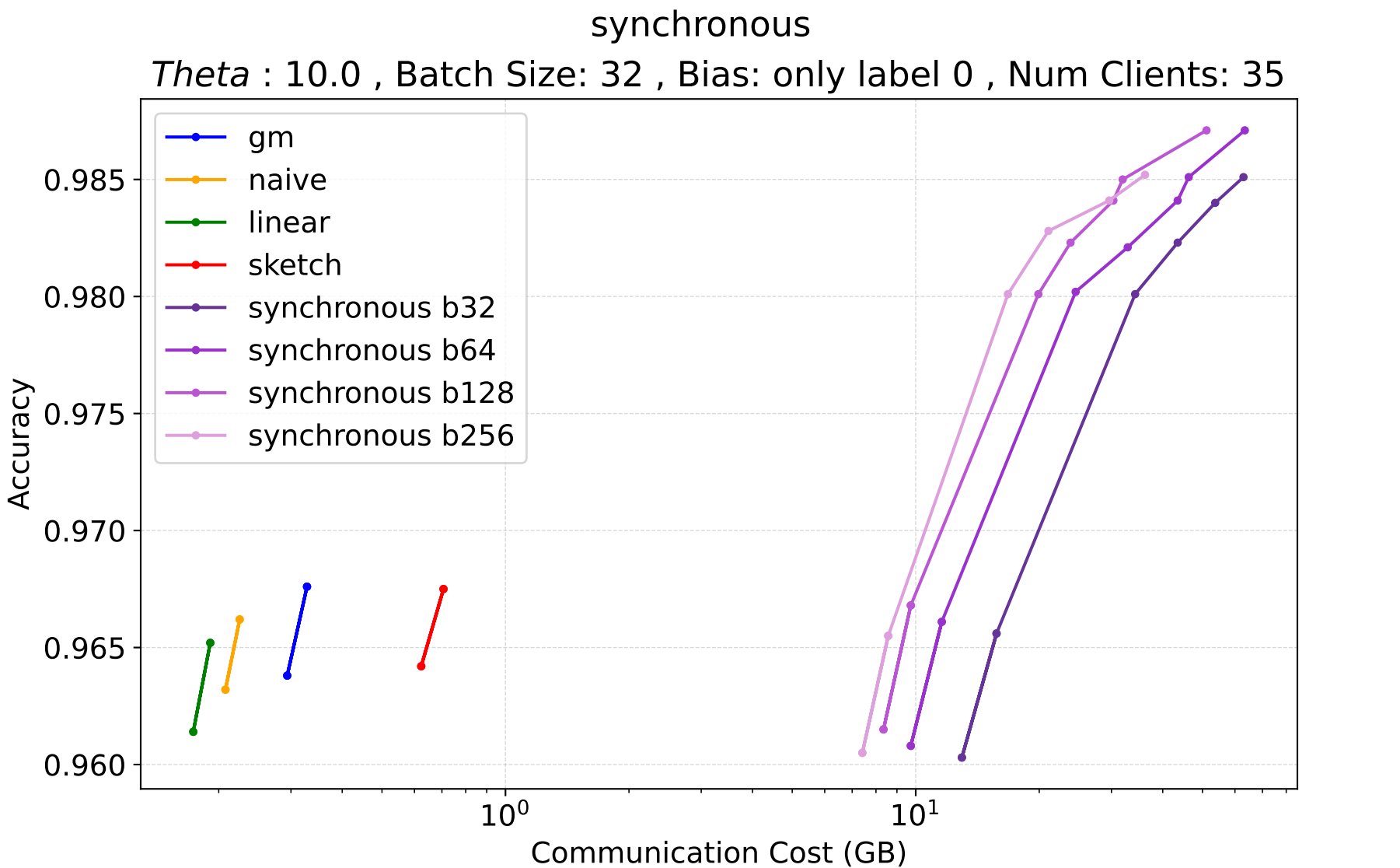

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 10
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)

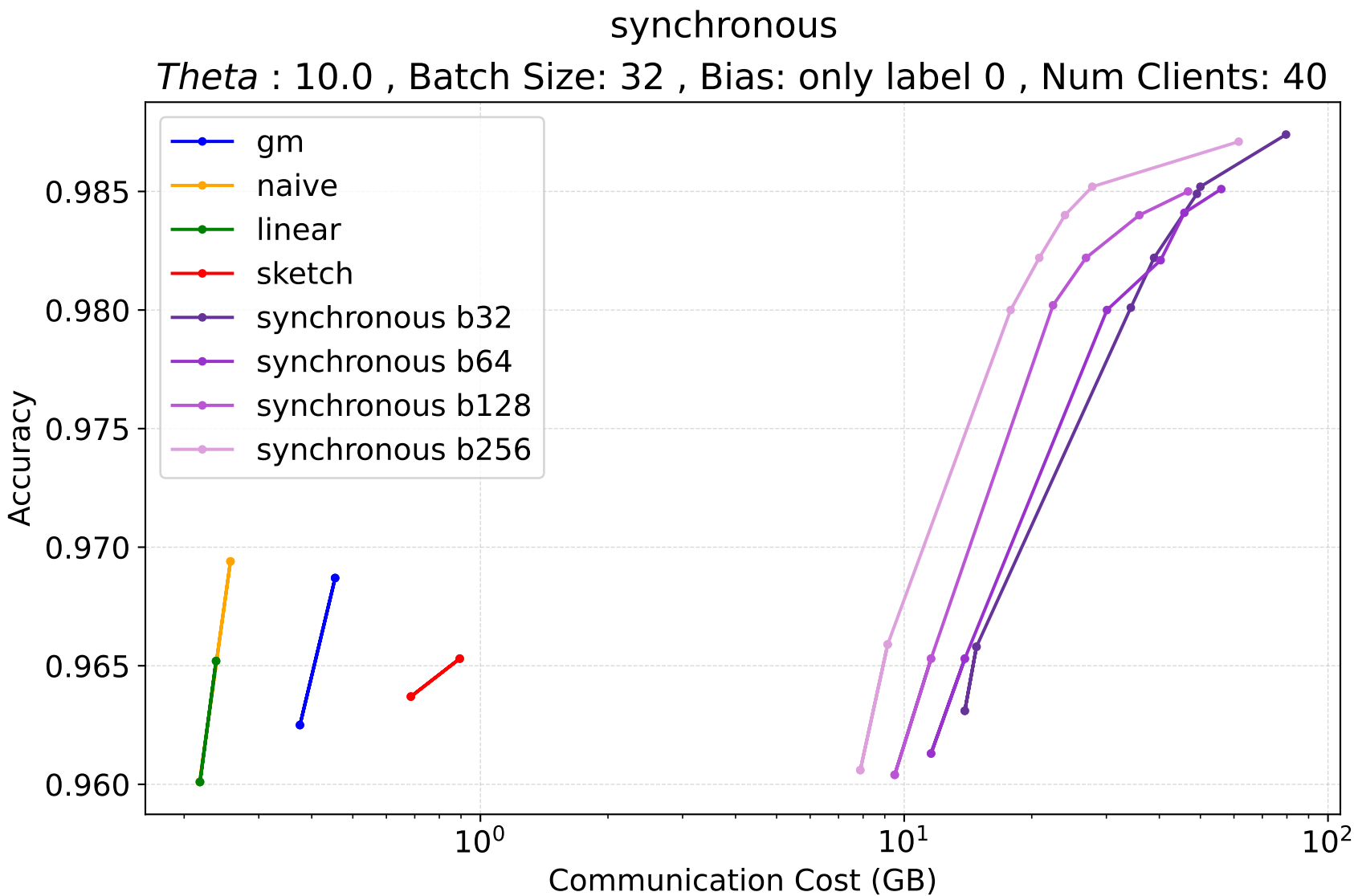

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)

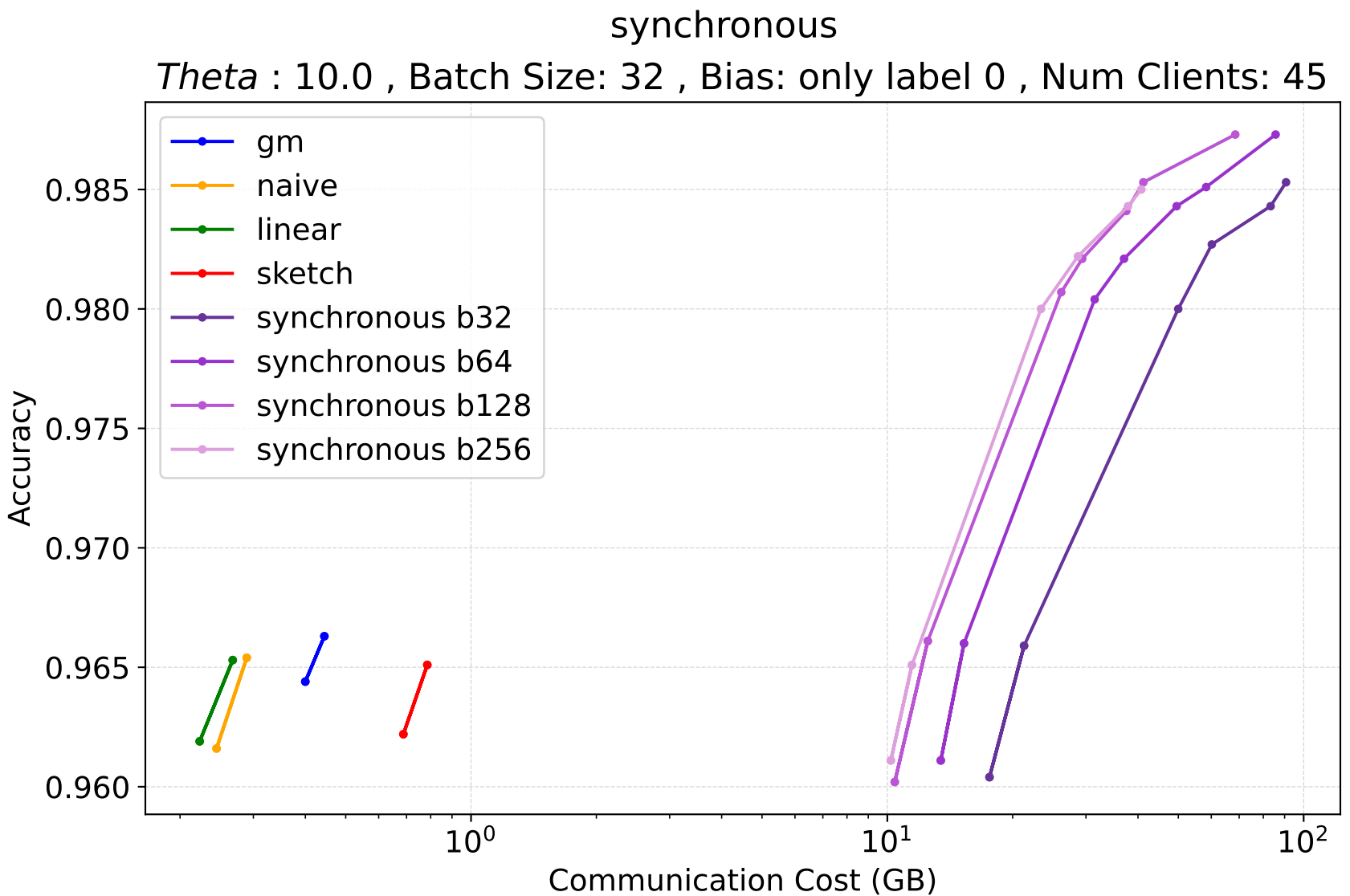

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 20
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)

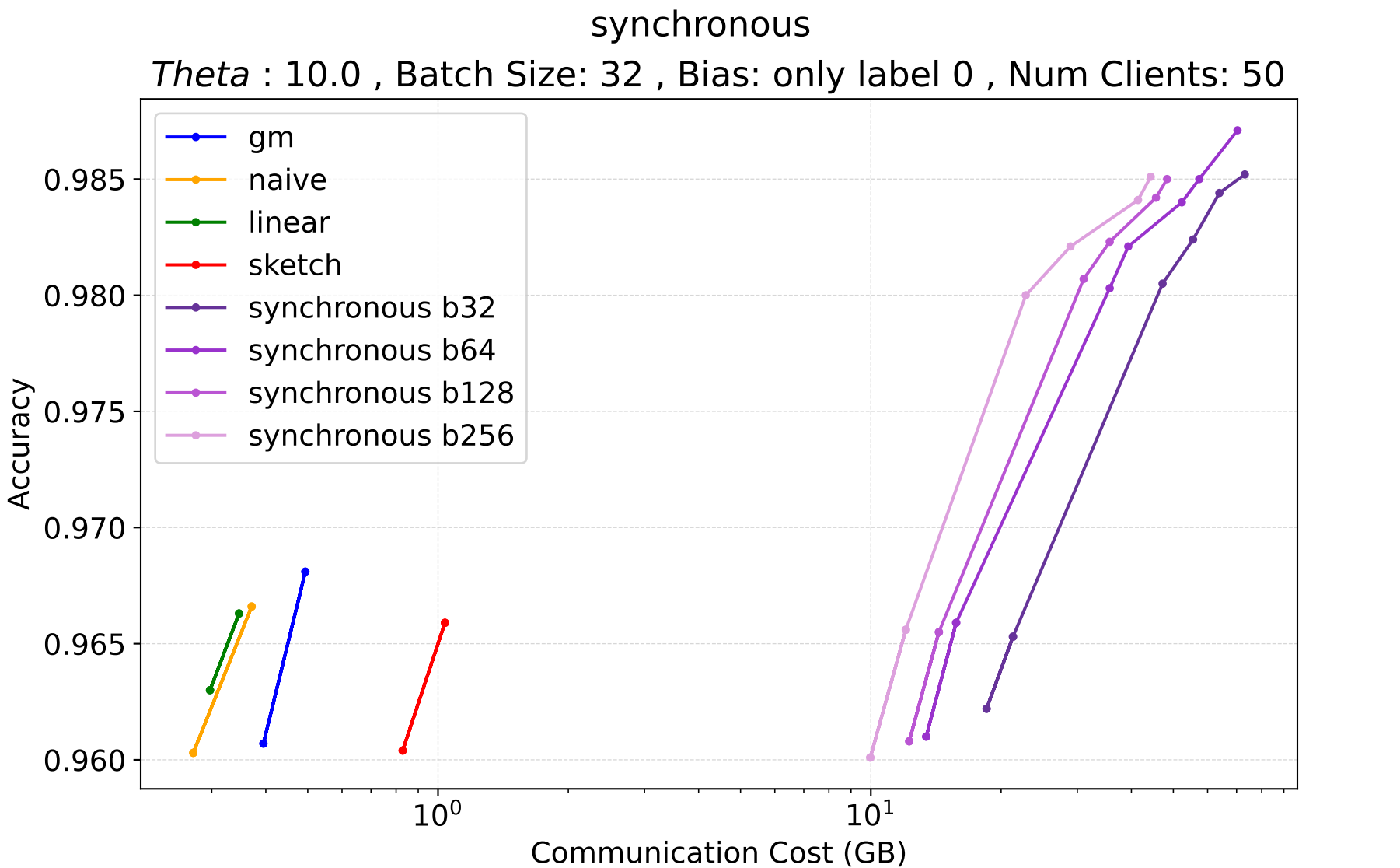

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 25
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)

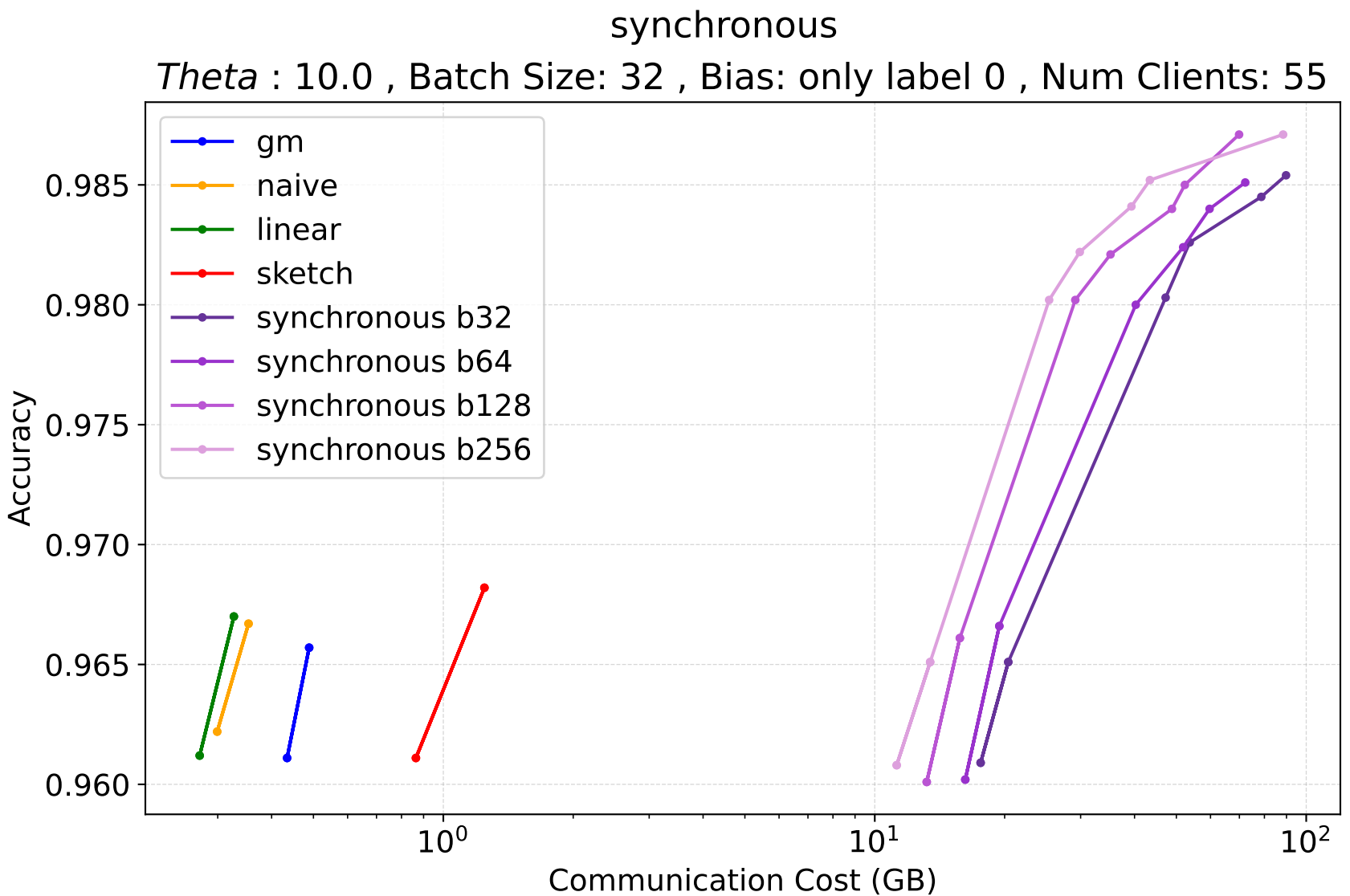

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)

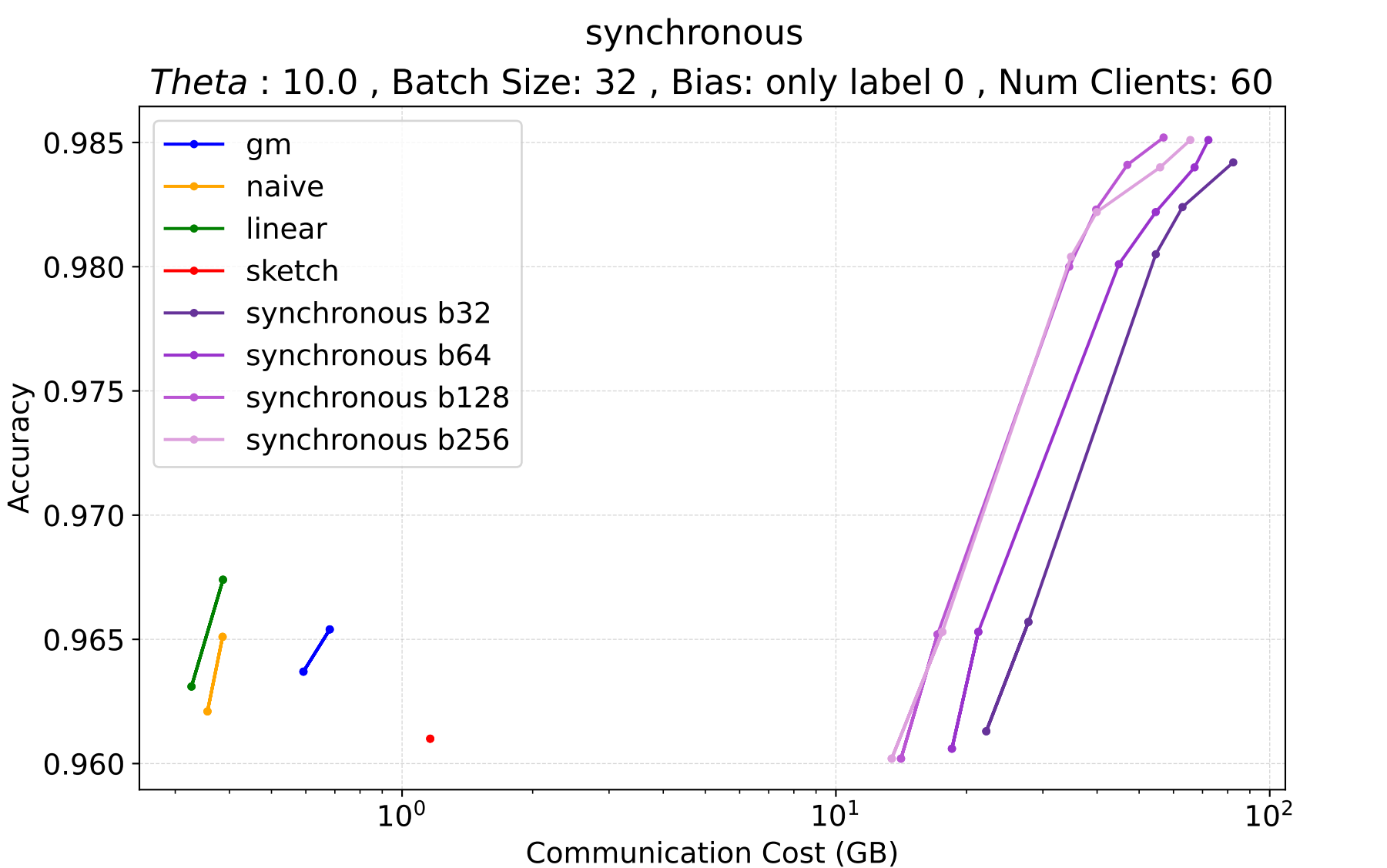

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

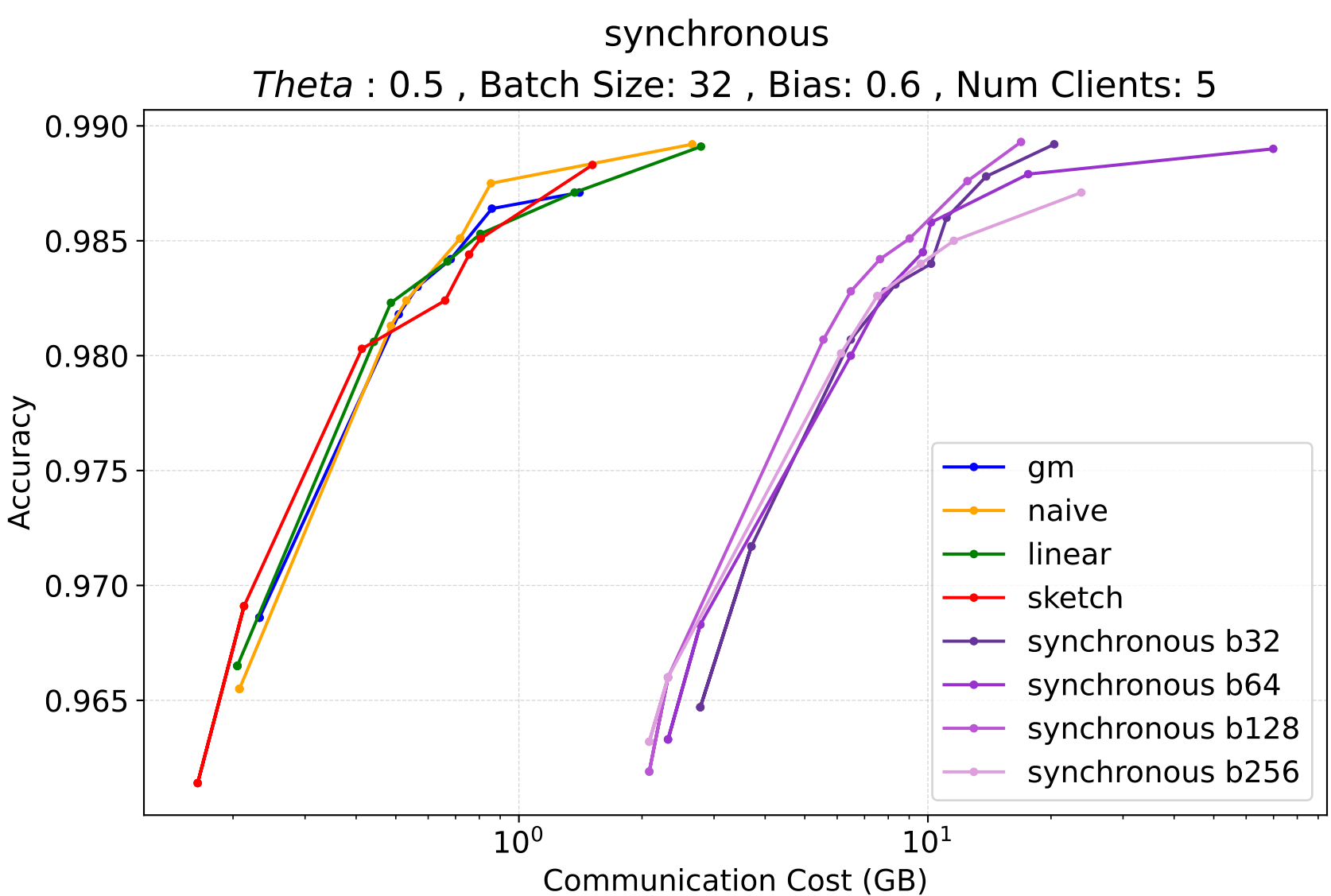

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

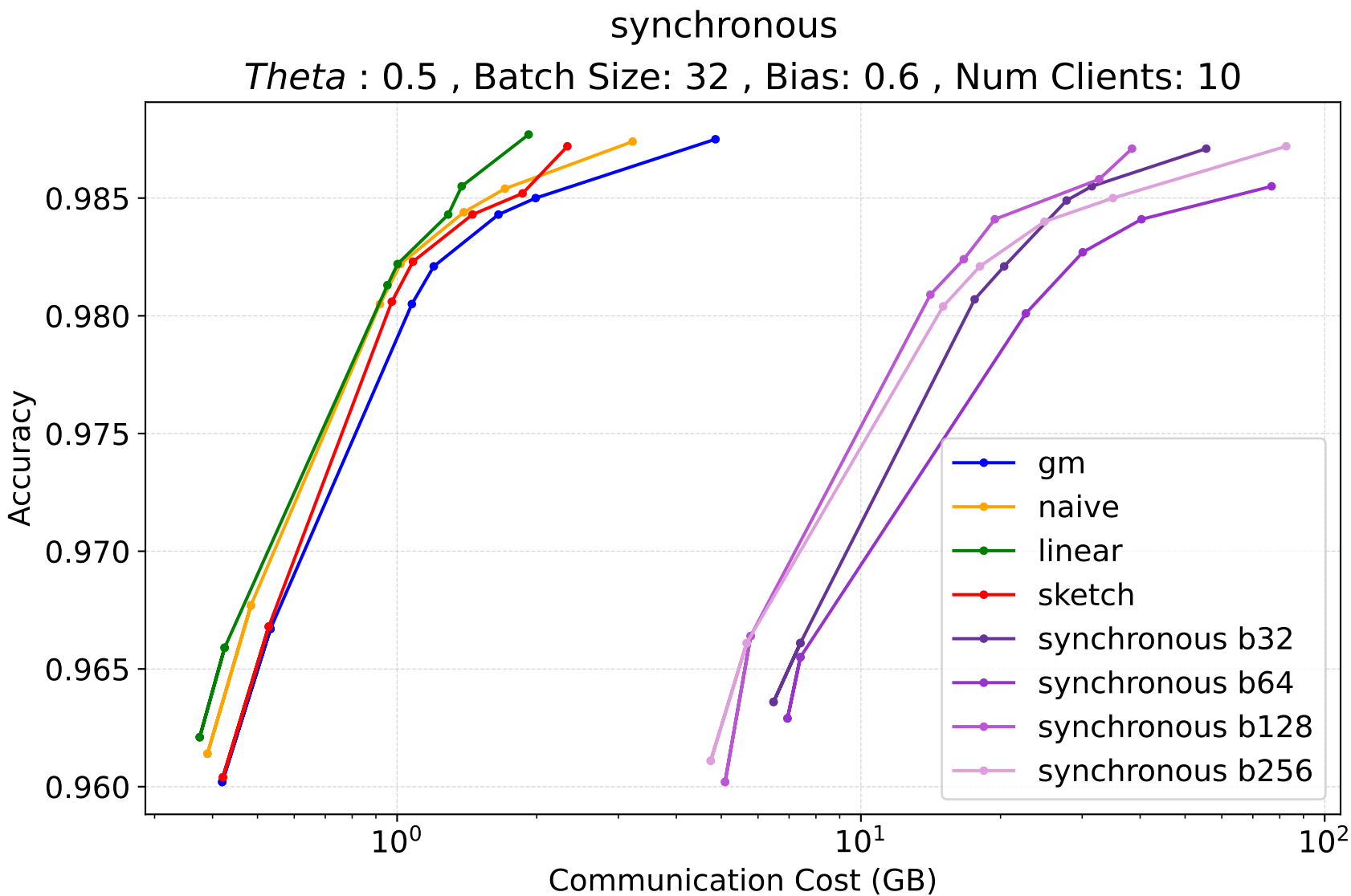

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

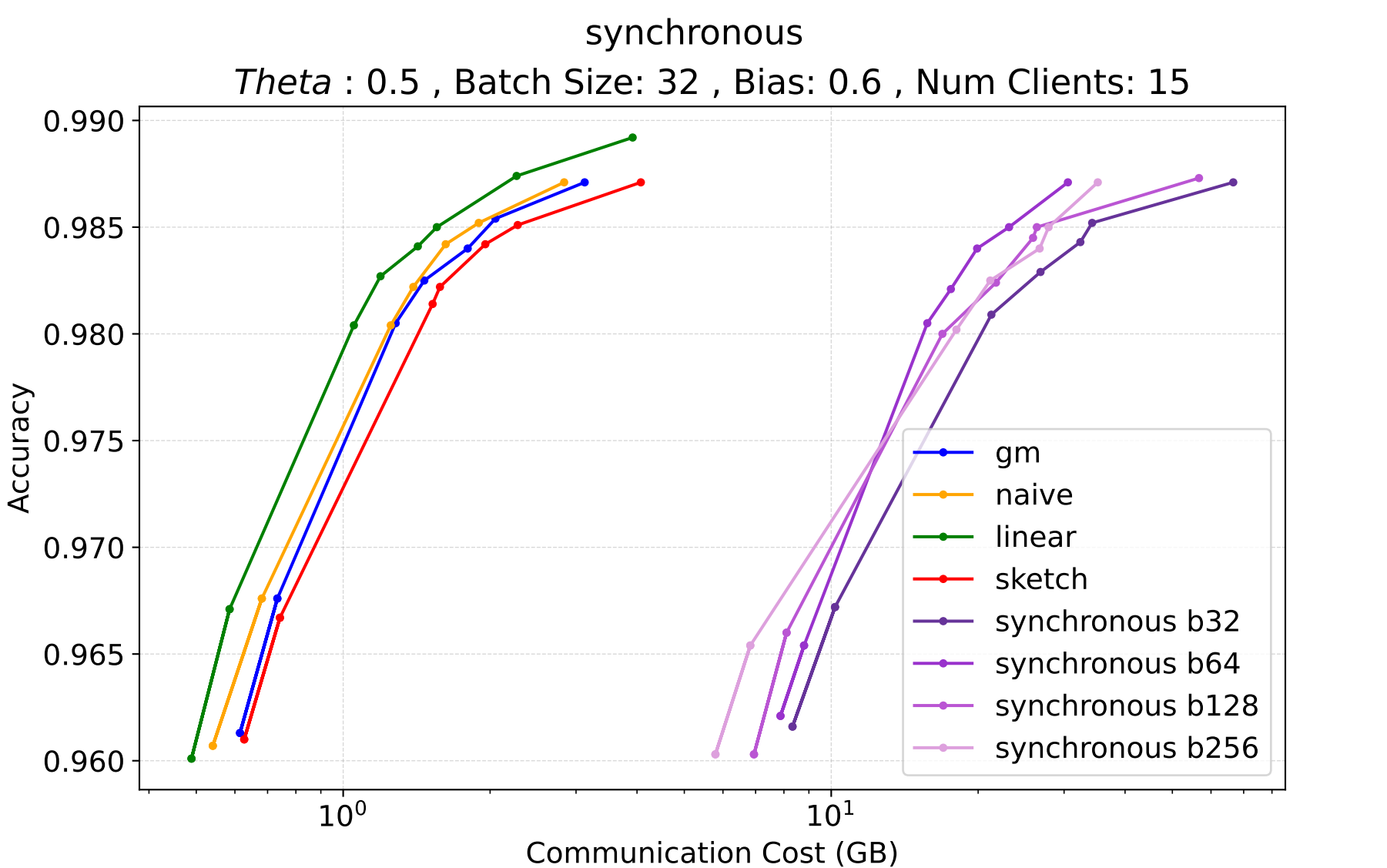

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

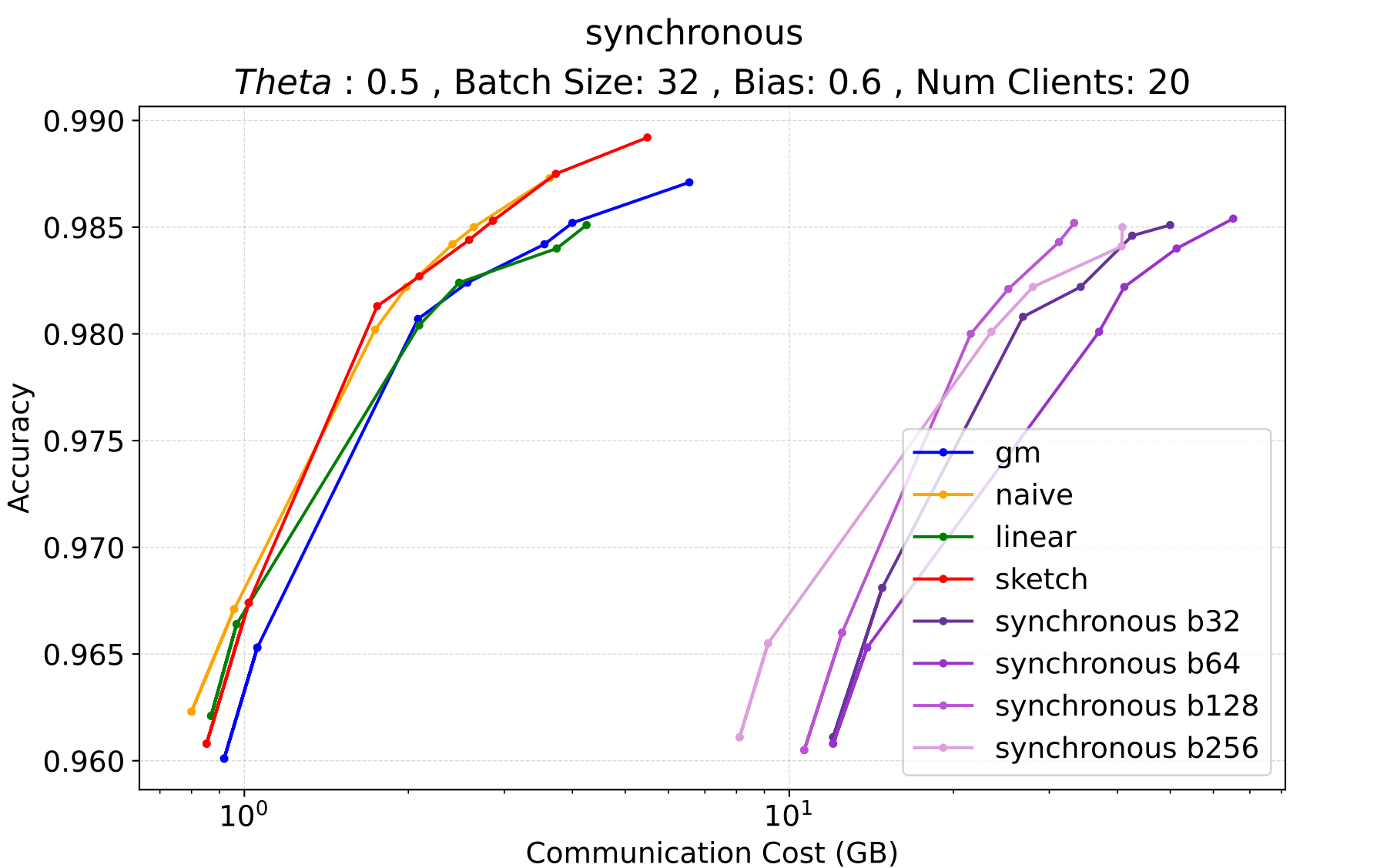

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

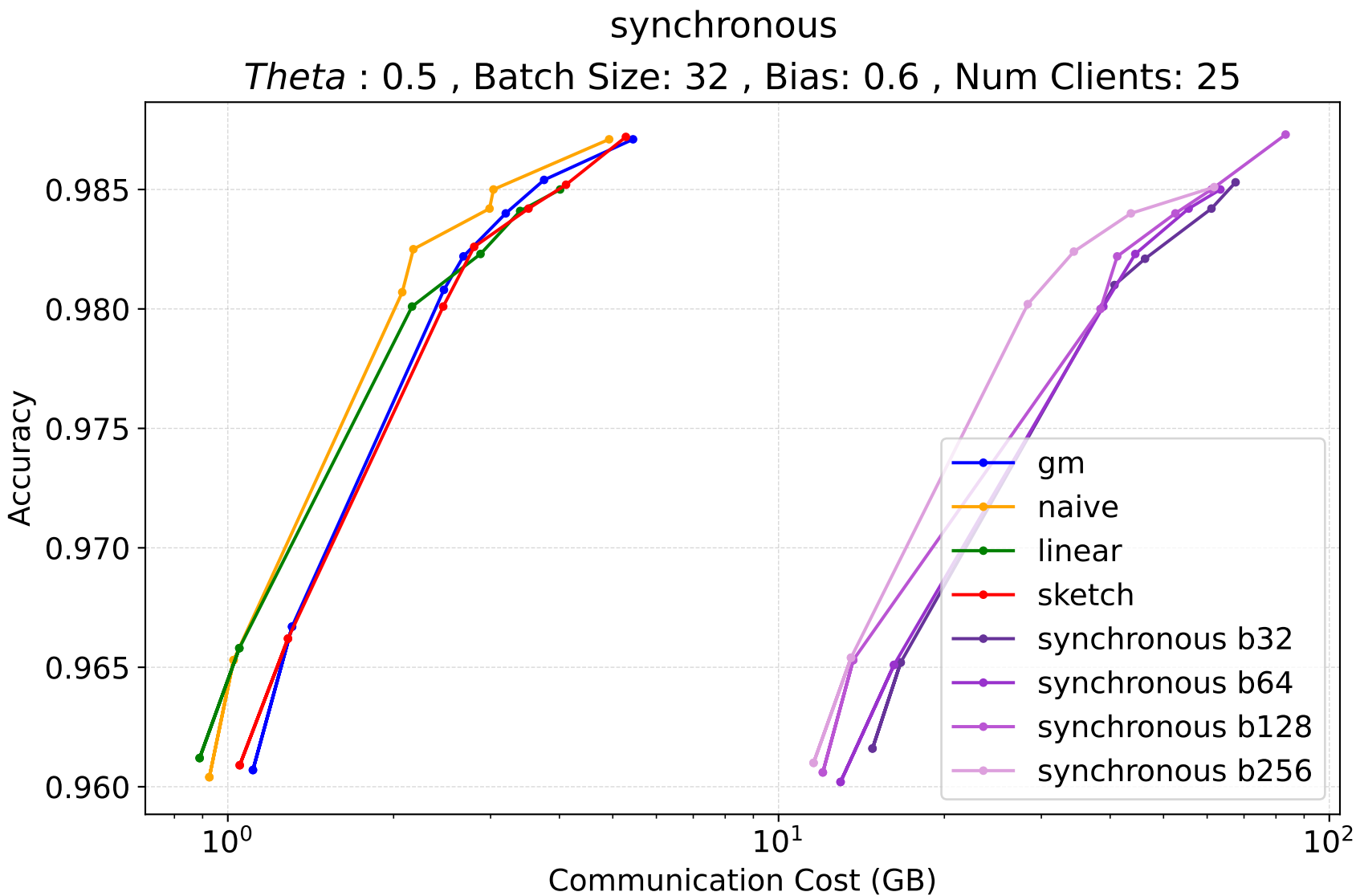

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: only label 0 , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

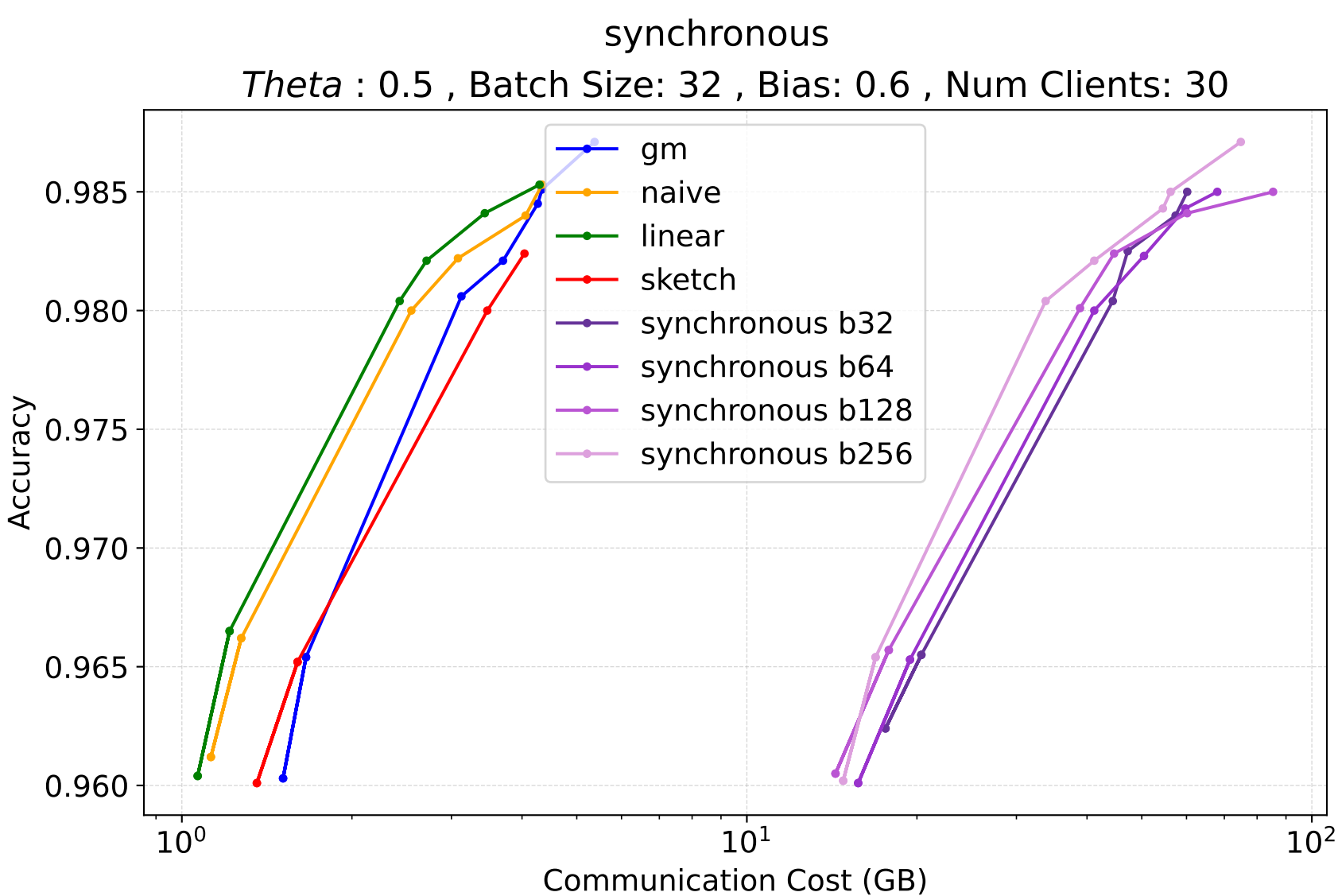

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 5
0.990
0.985
0.980
0.975
0.970
0.965
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

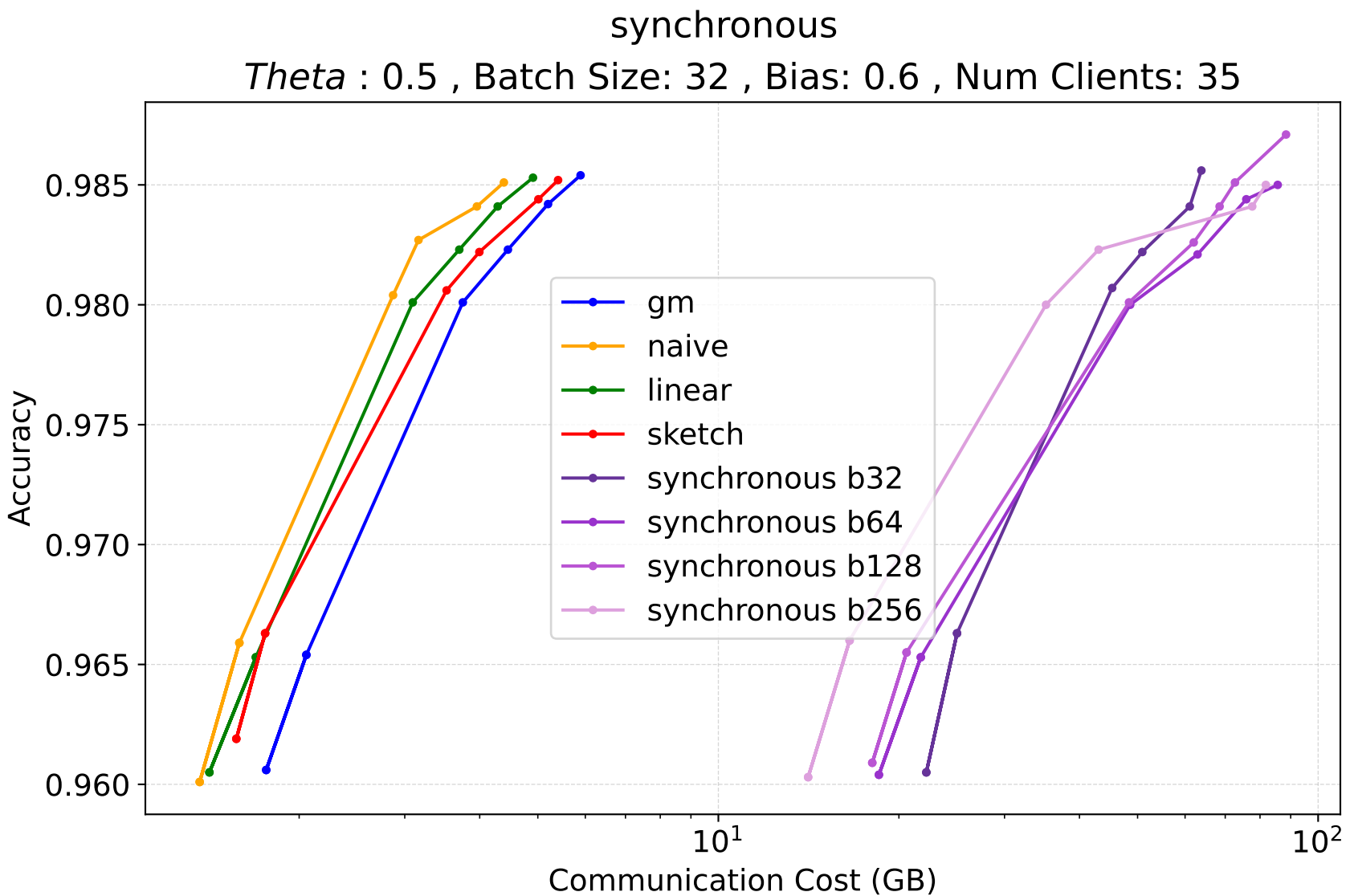

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 10
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

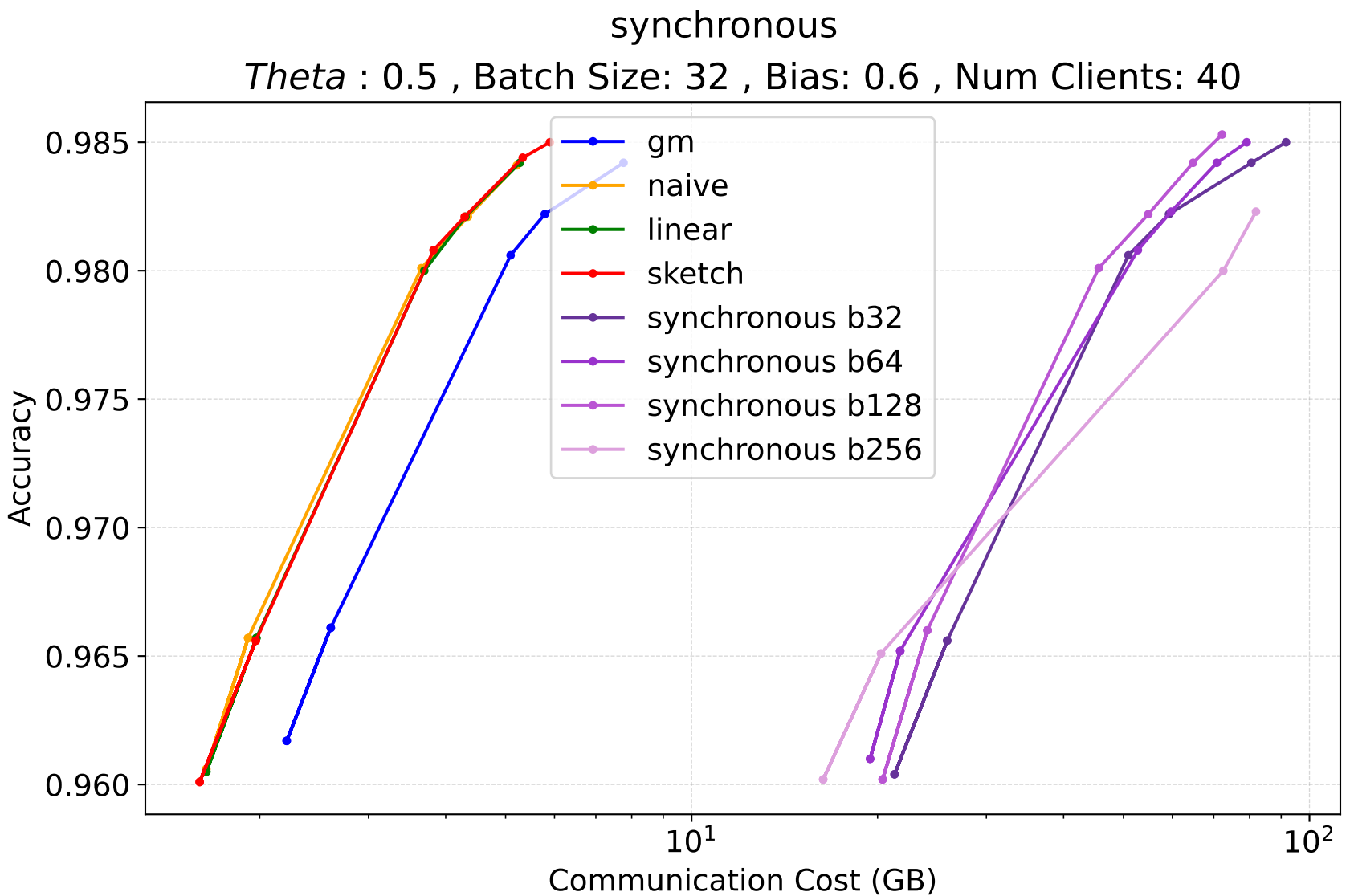

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 15
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

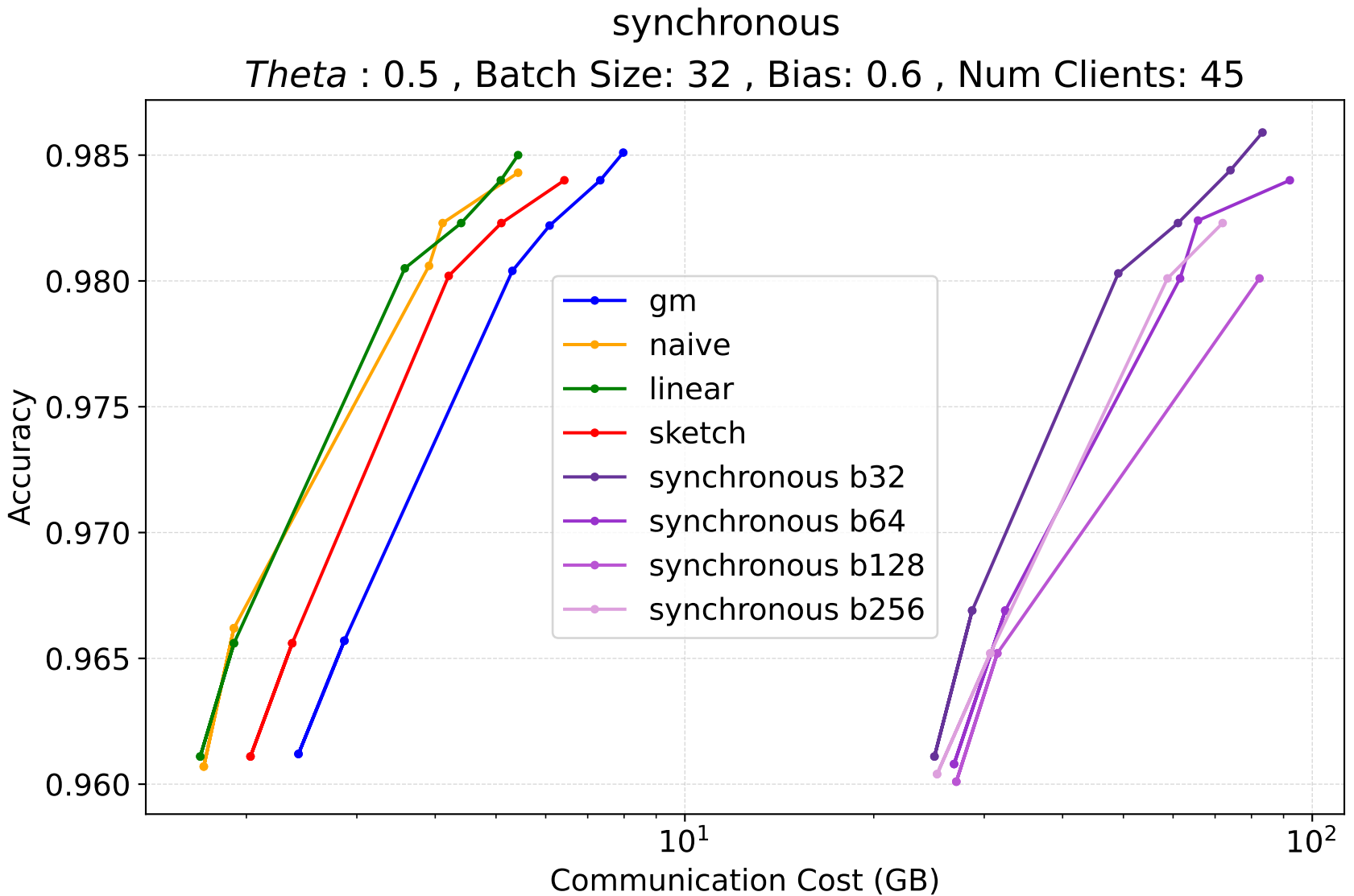

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 20
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

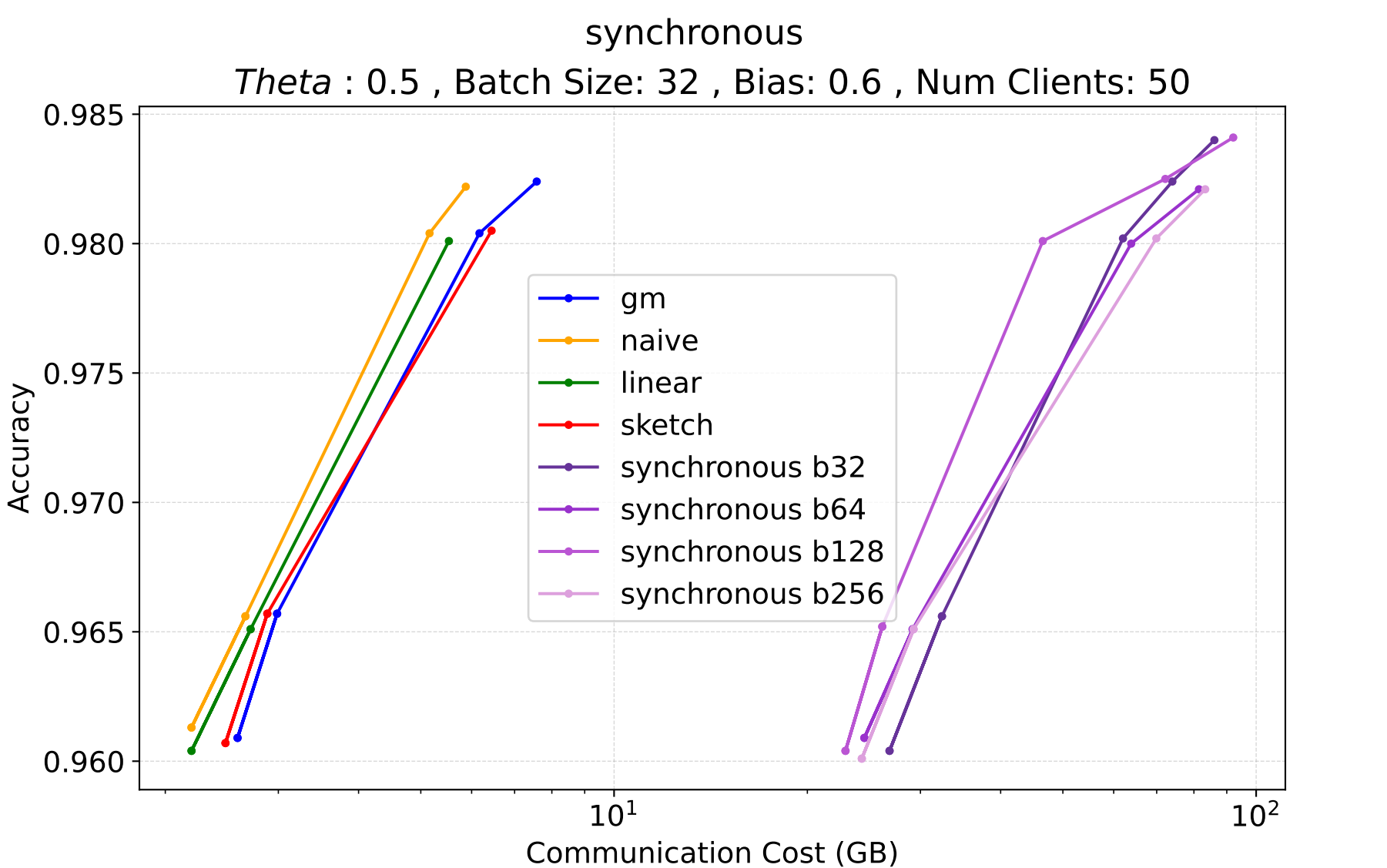

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

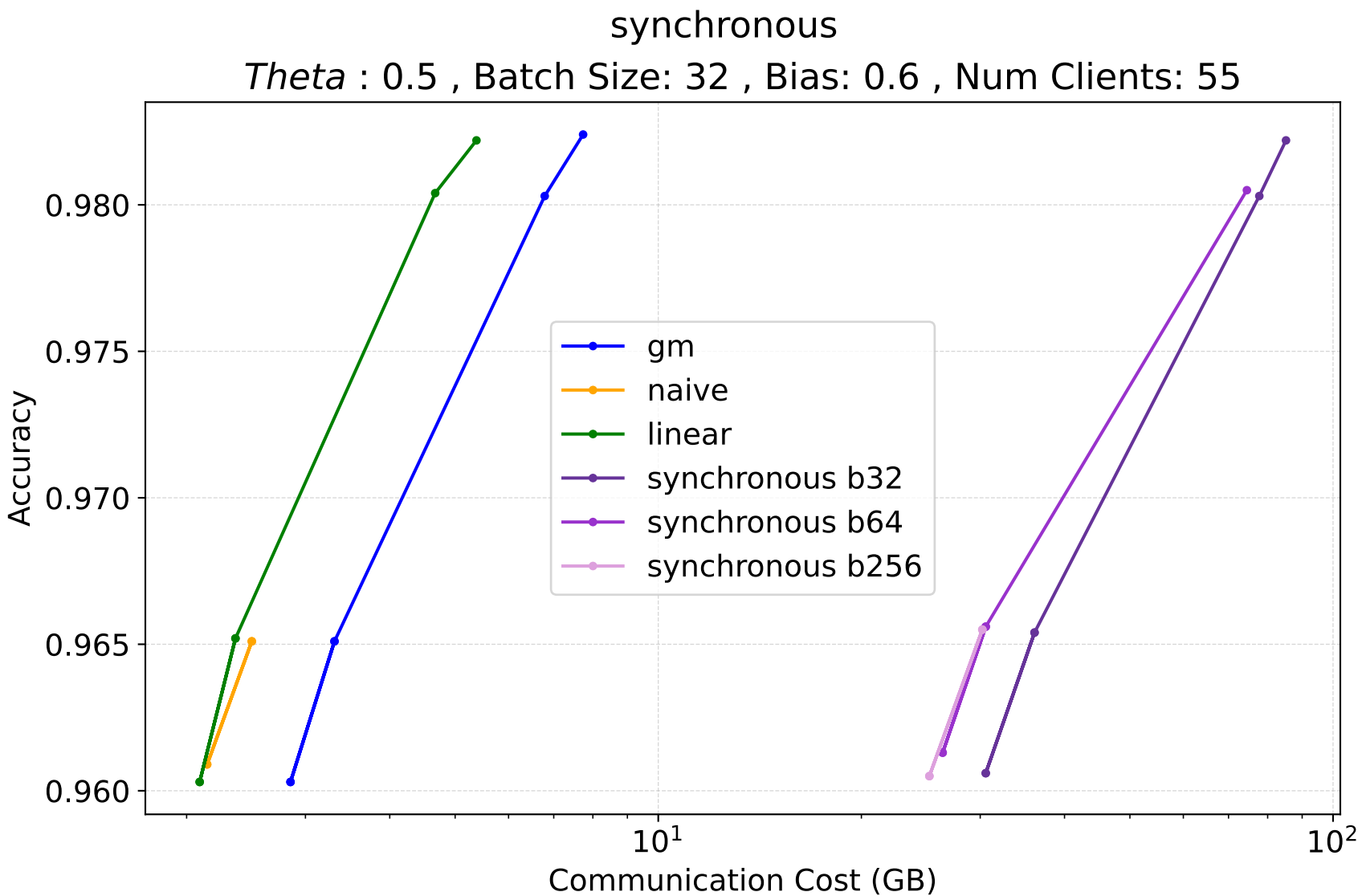

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

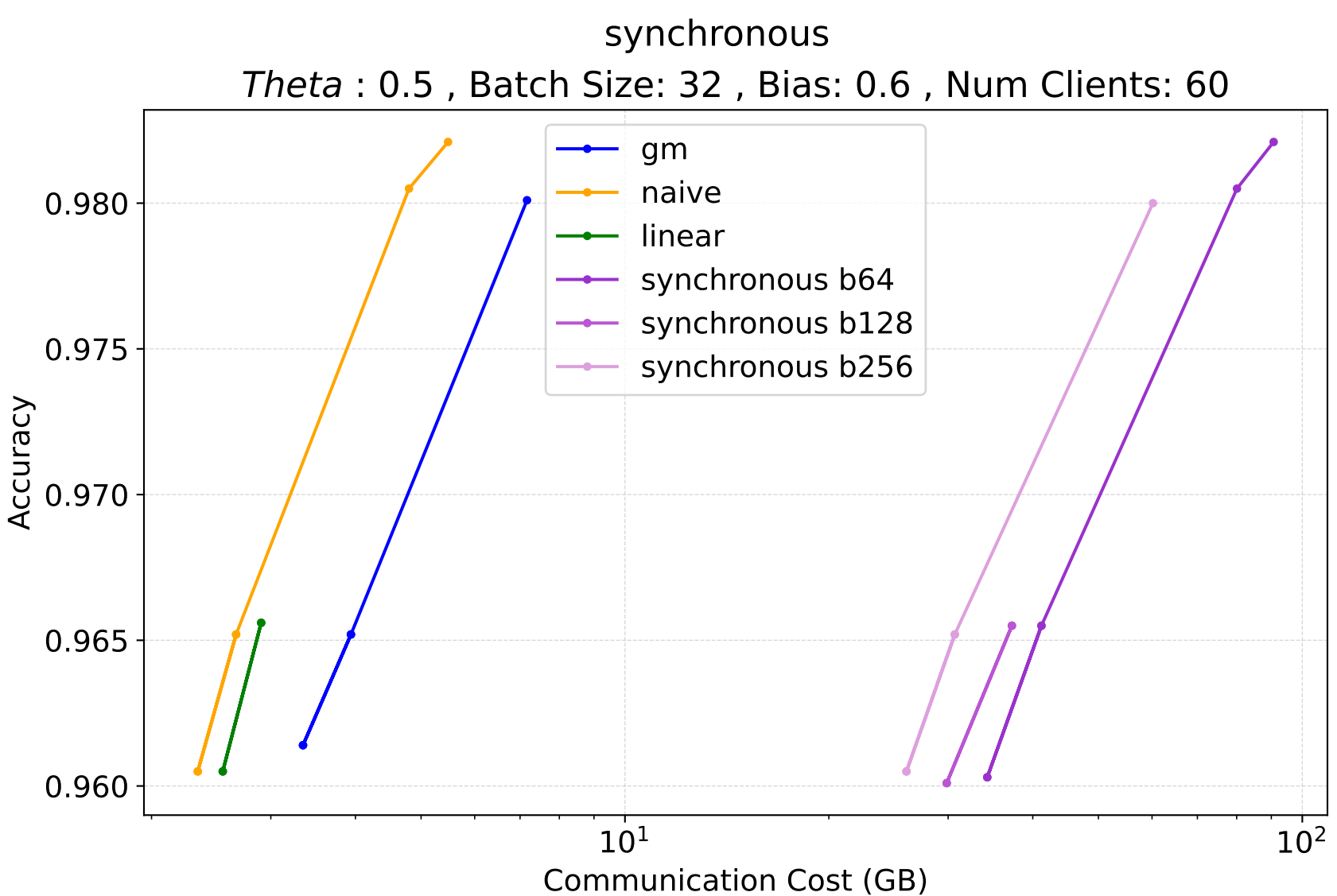

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 35
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

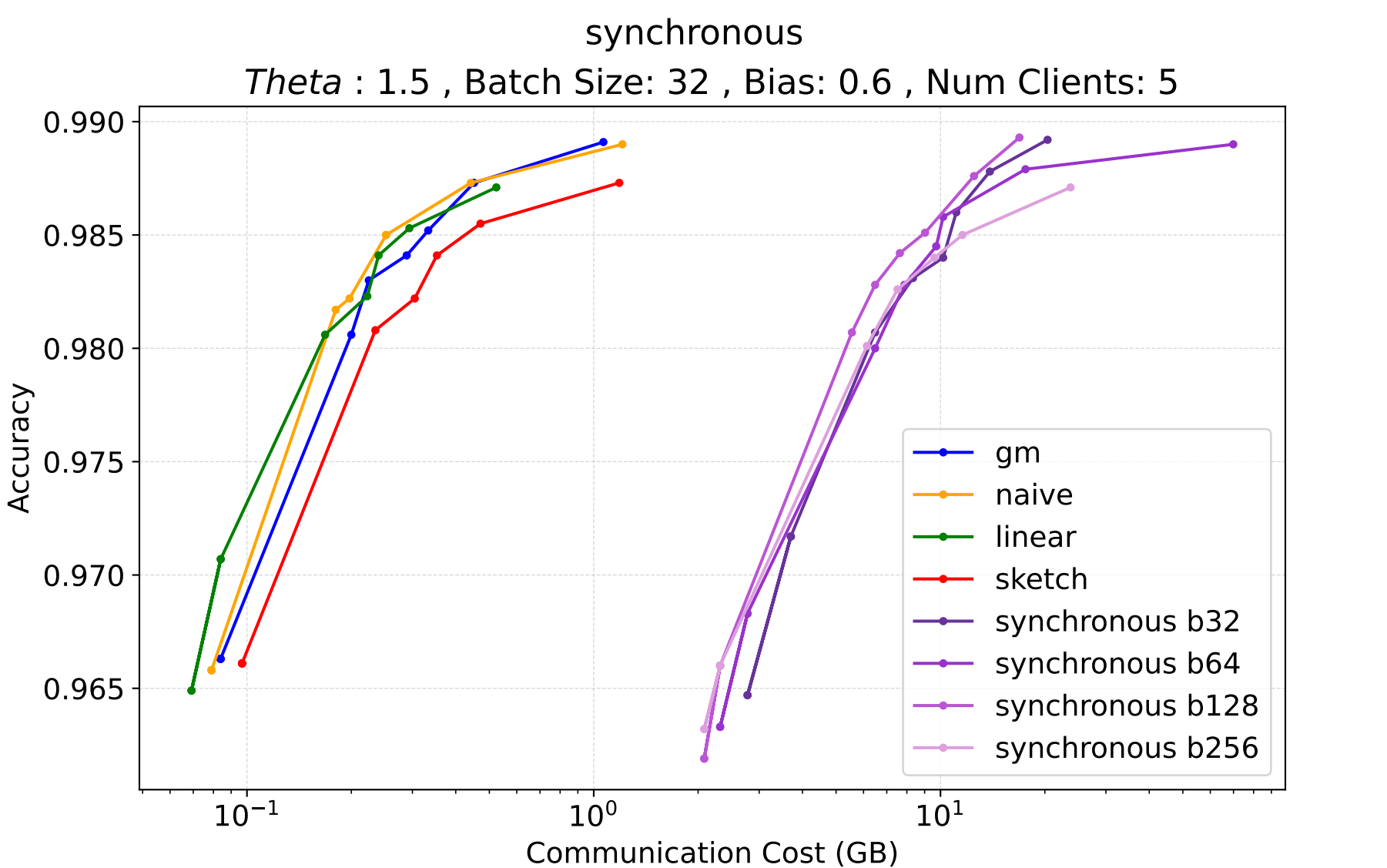

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)

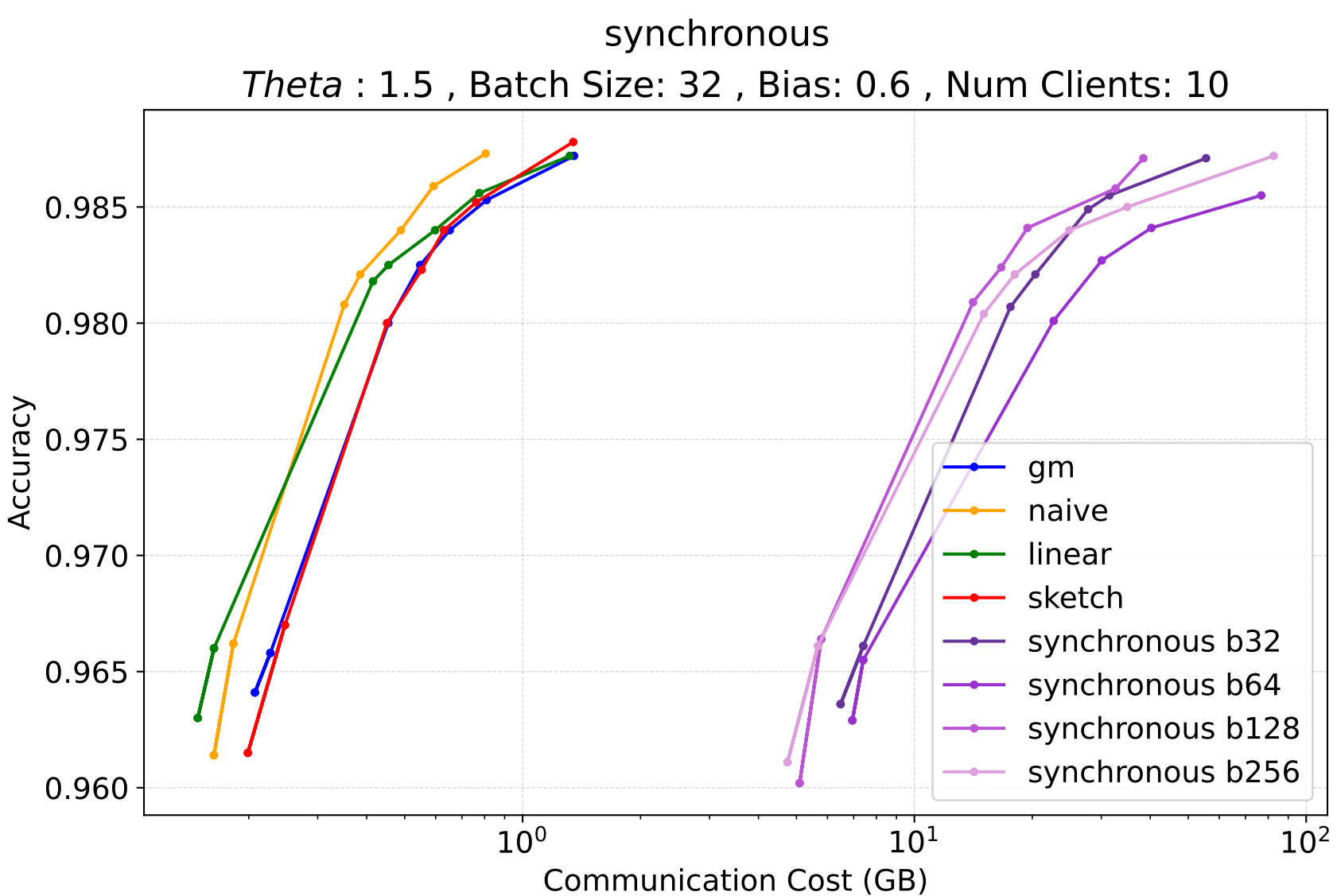

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 45
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

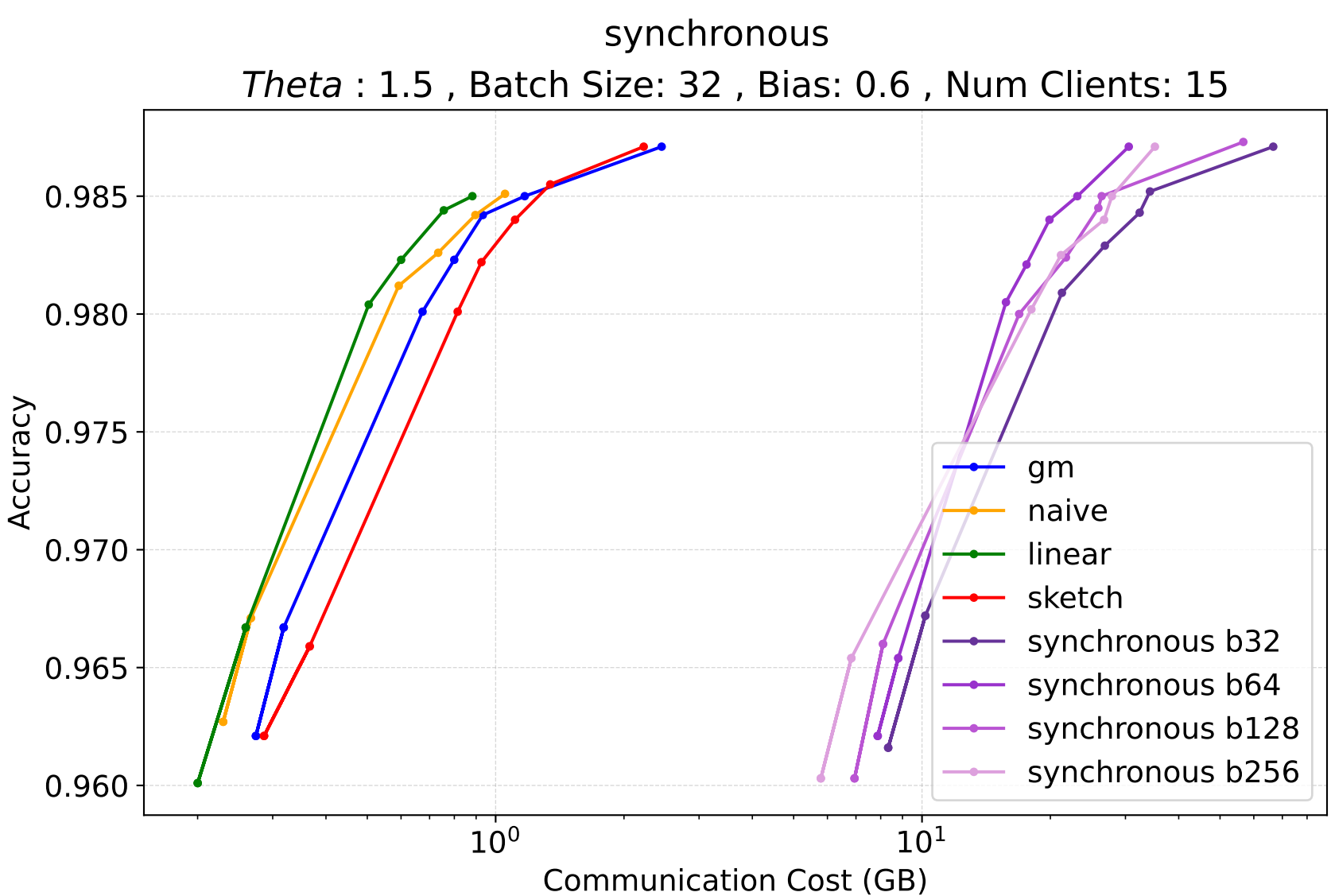

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 50
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

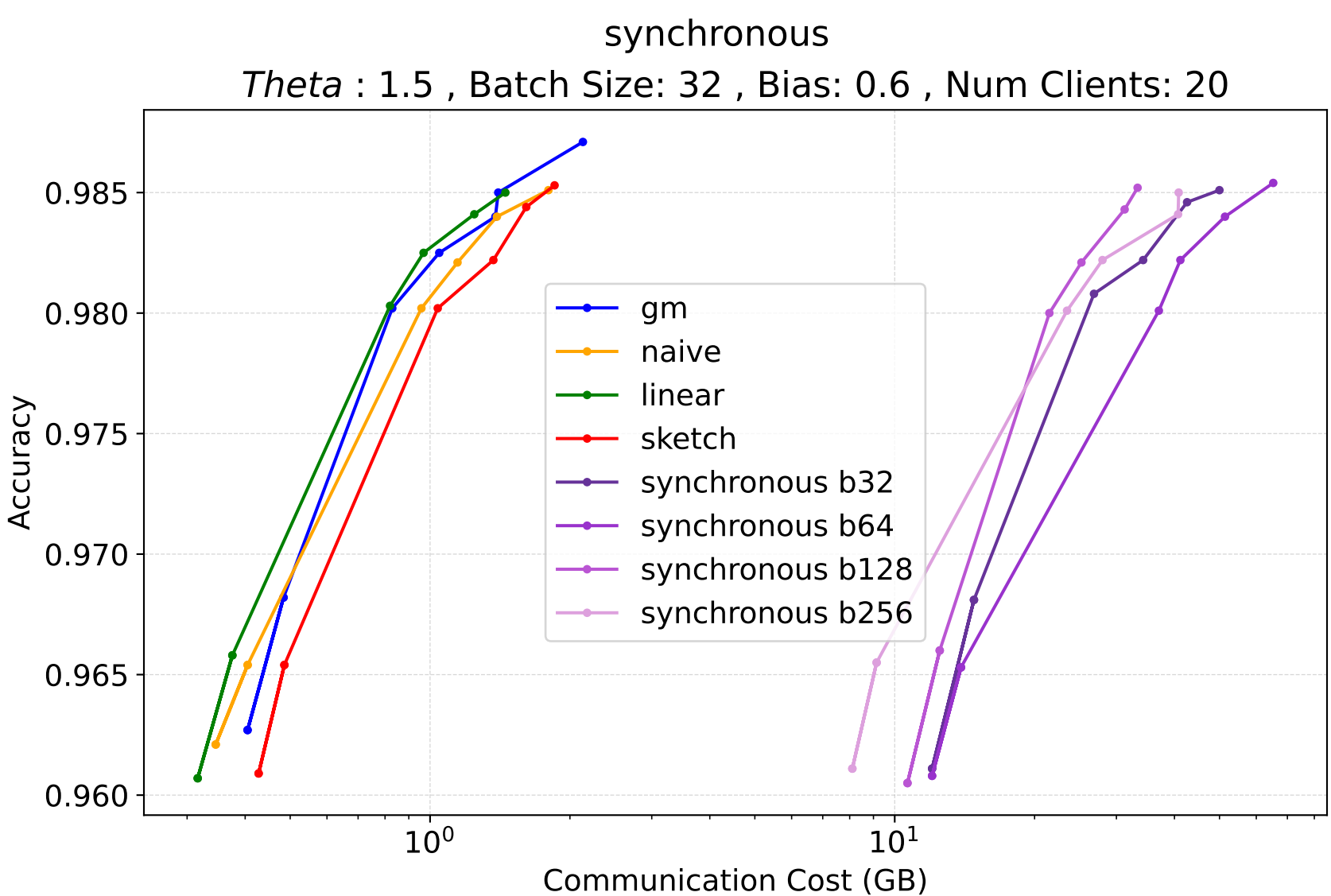

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 55
Accuracy
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
gm
naive
linear
synchronous b32
synchronous b64
synchronous b256

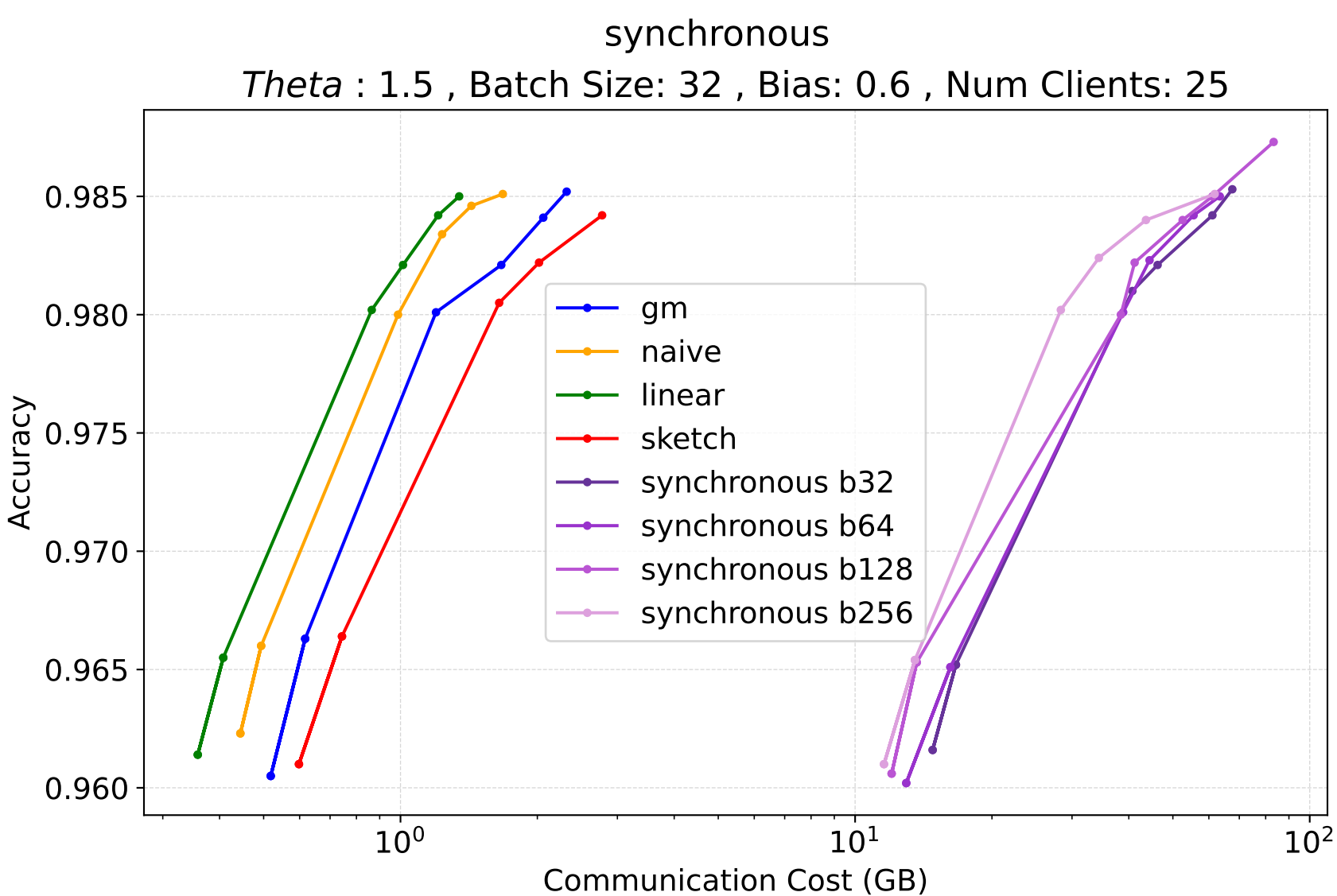

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 60
gm
naive
linear
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)

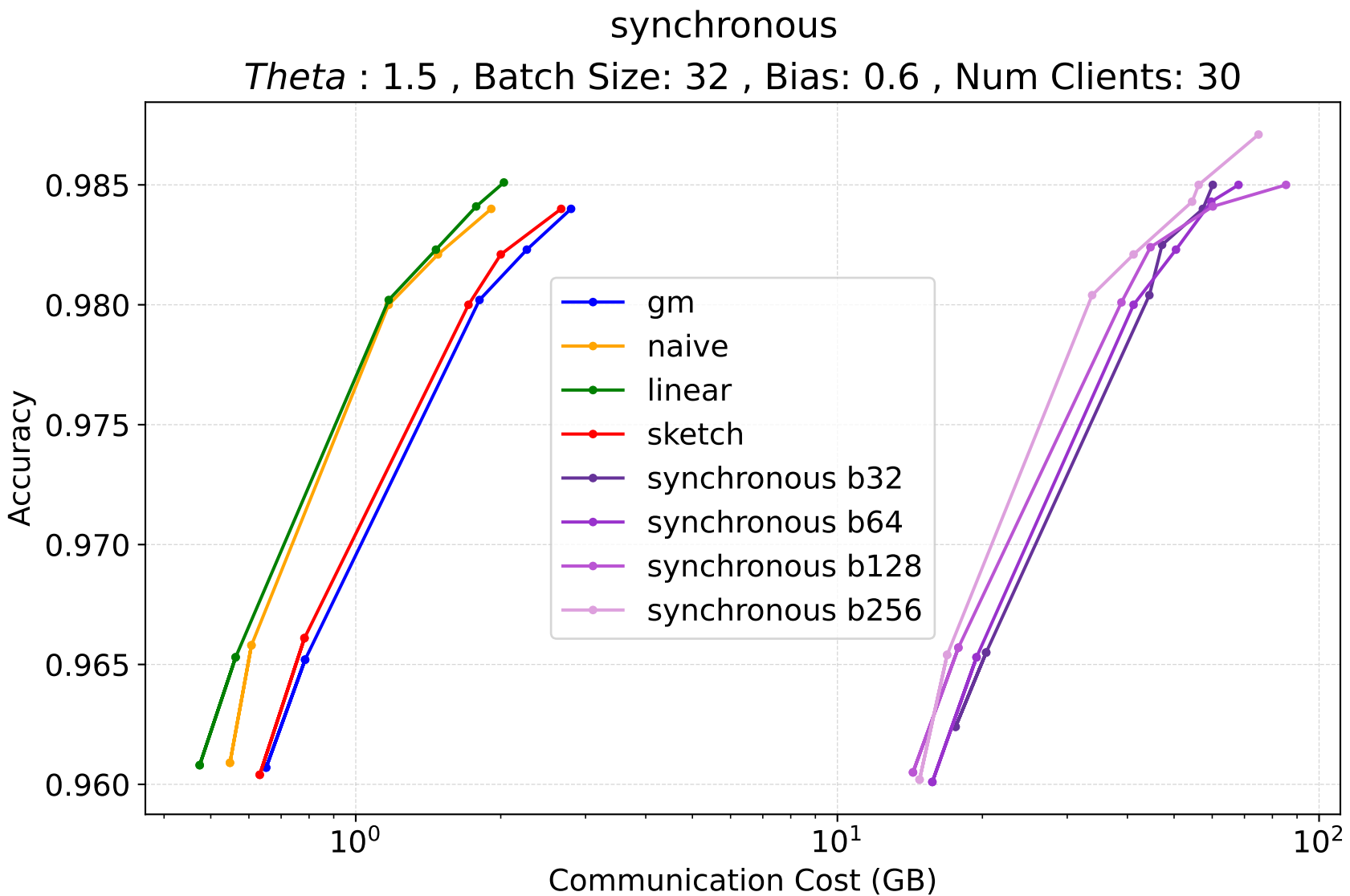

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

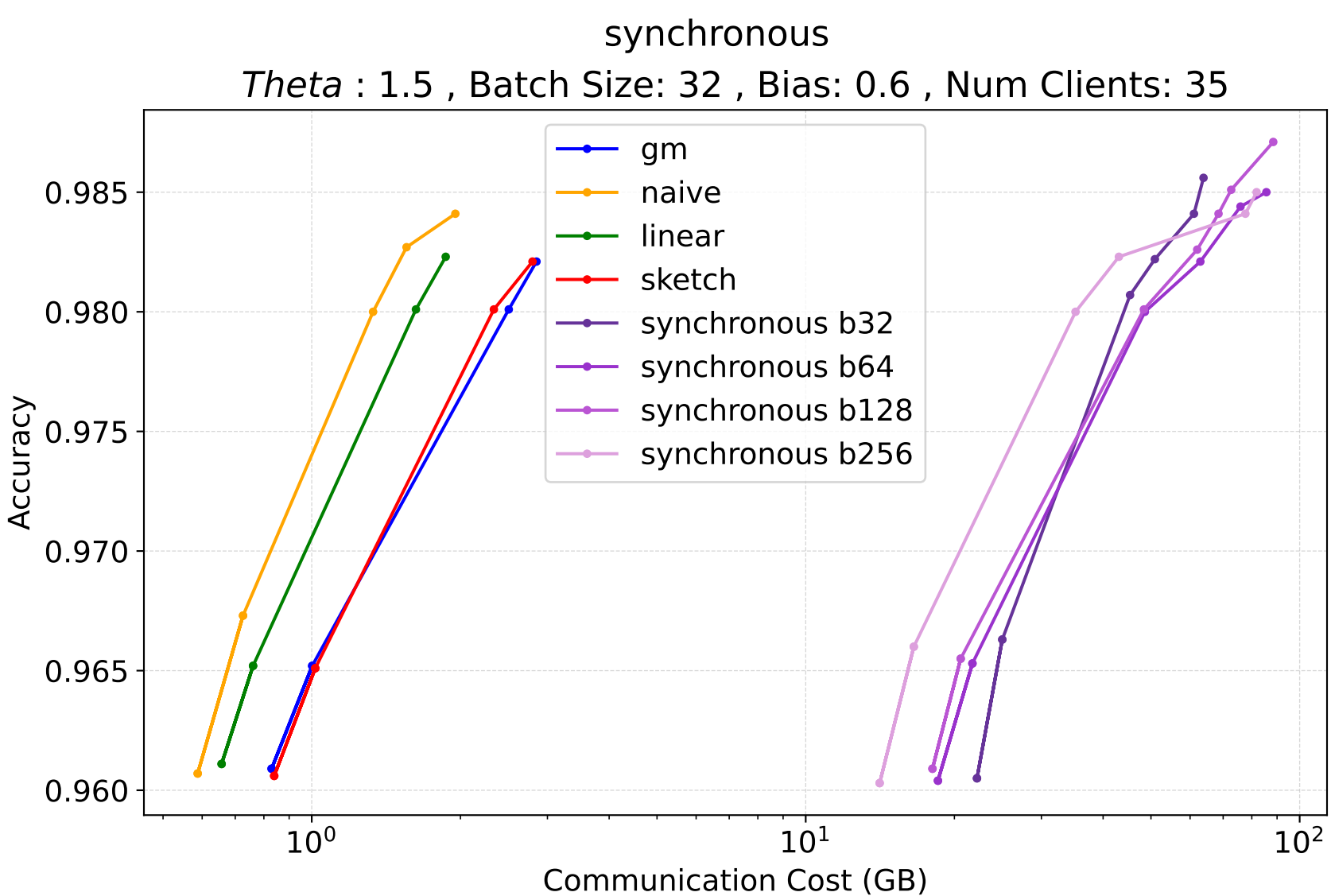

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 10
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

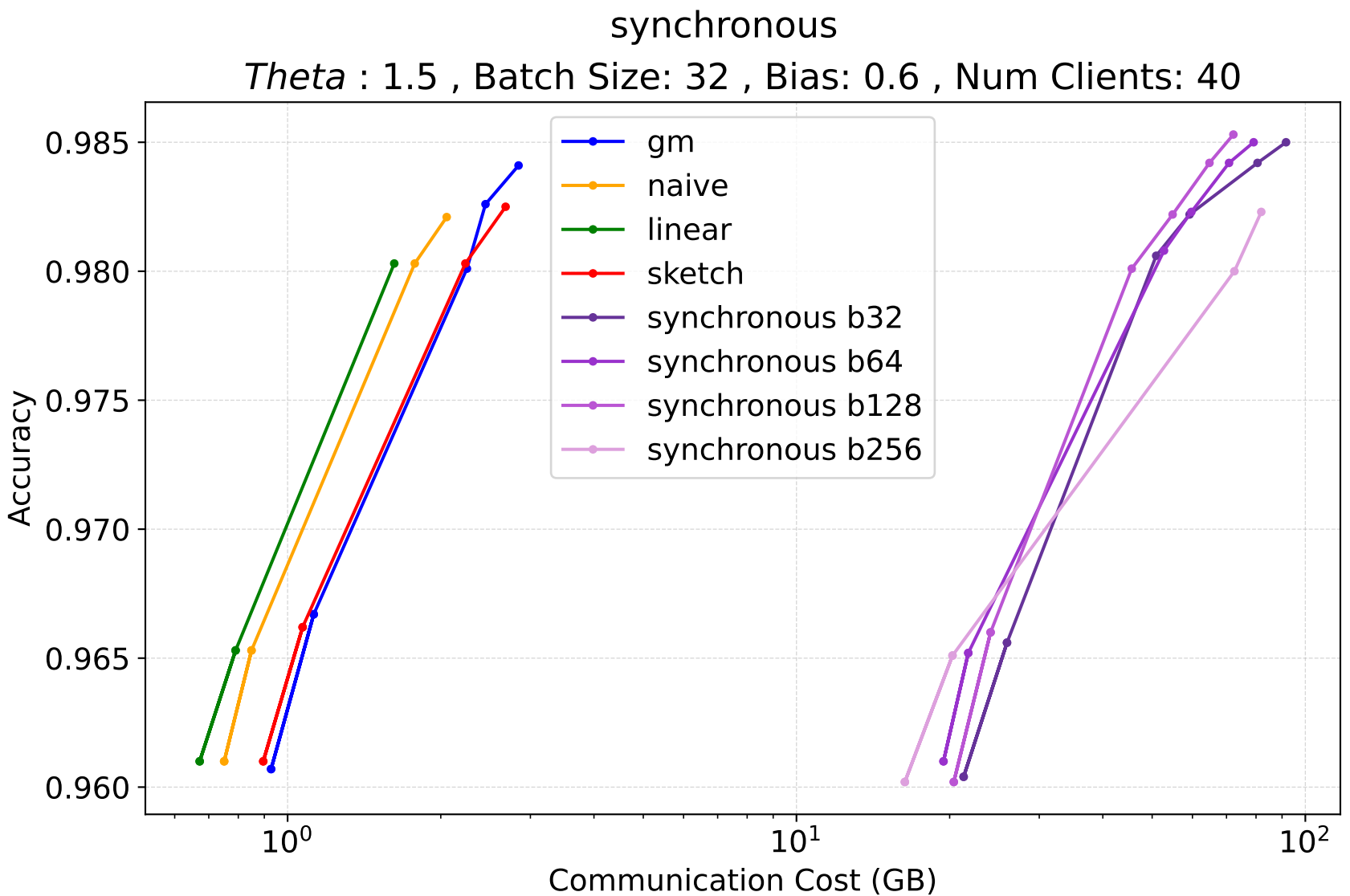

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

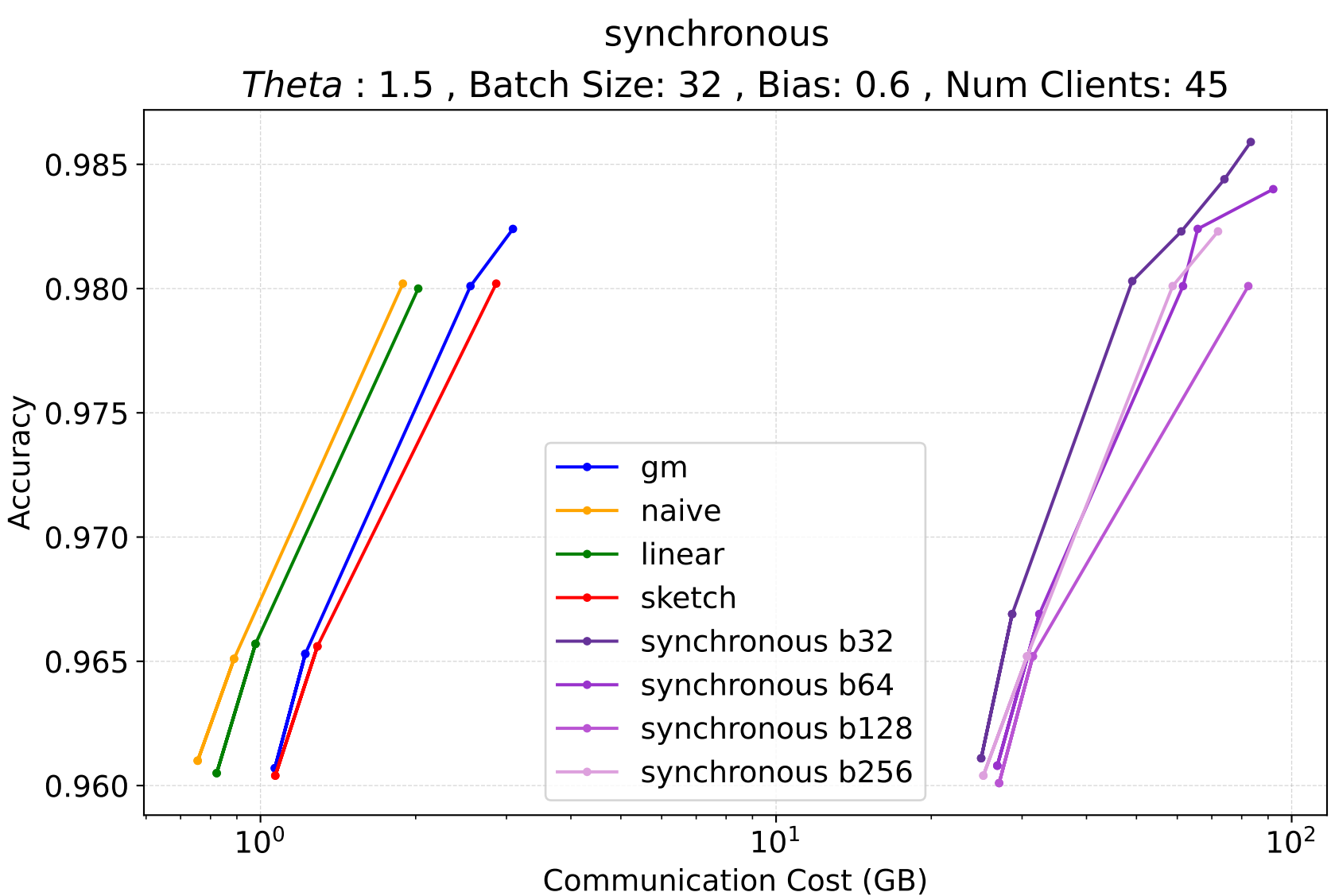

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

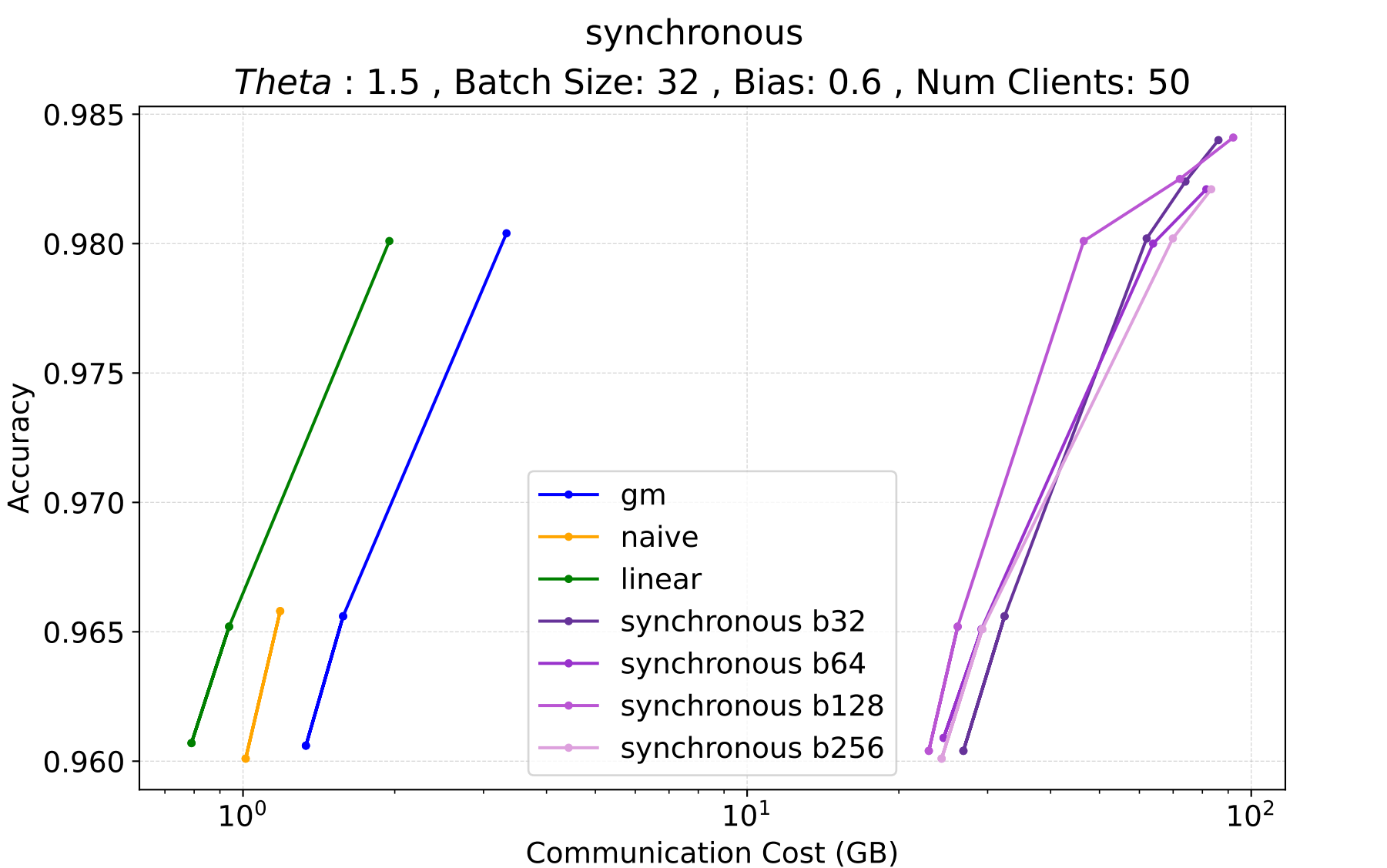

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

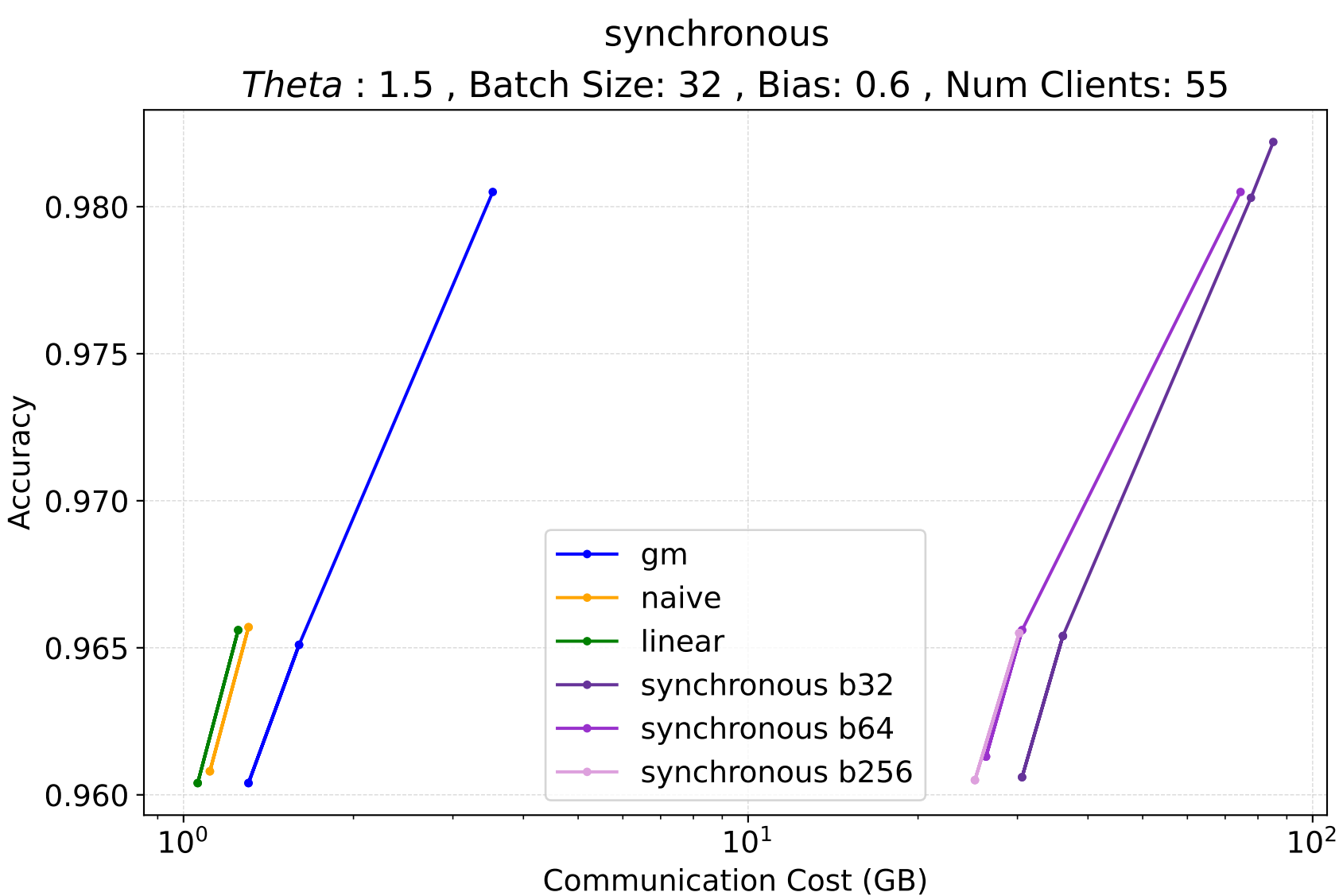

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

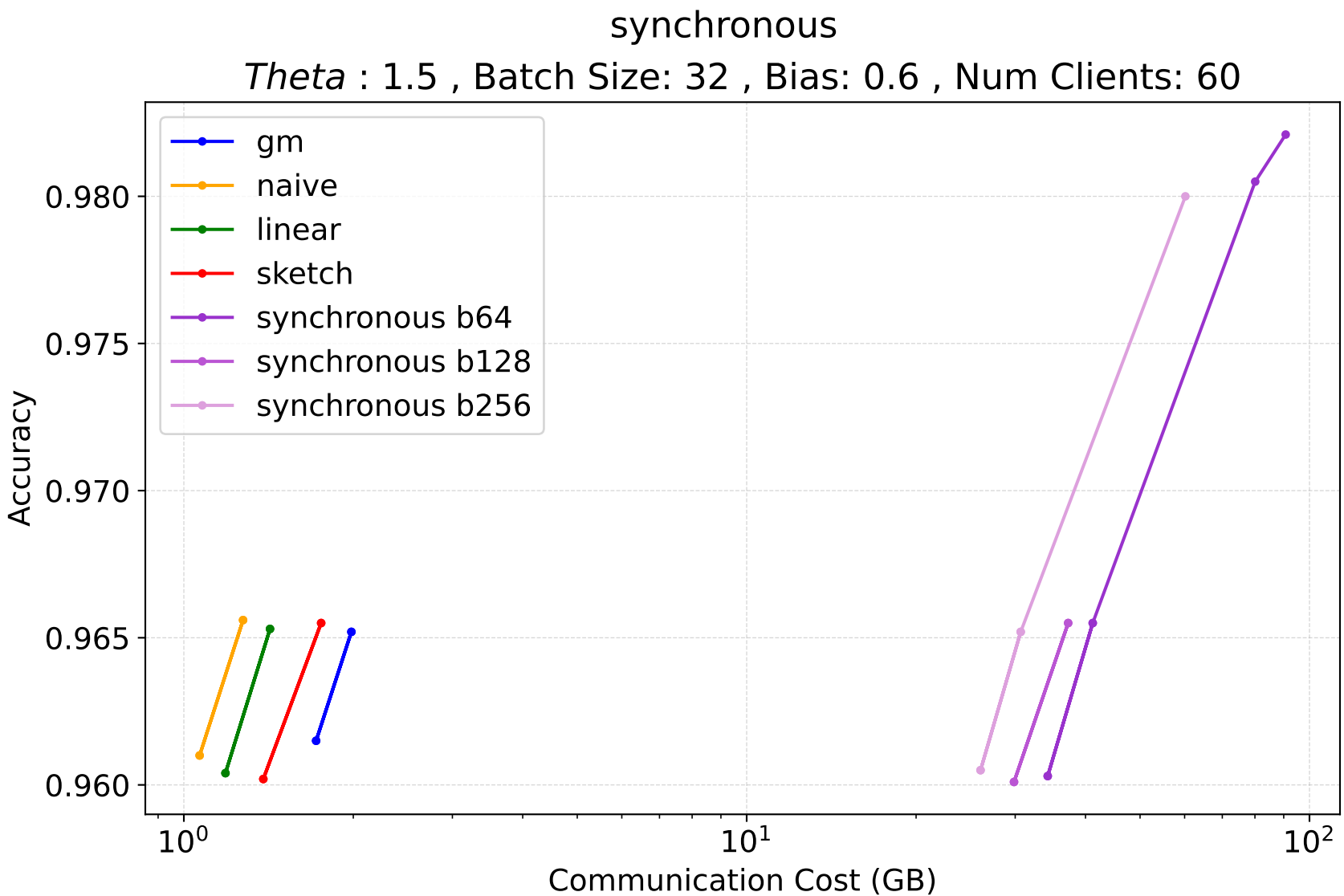

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

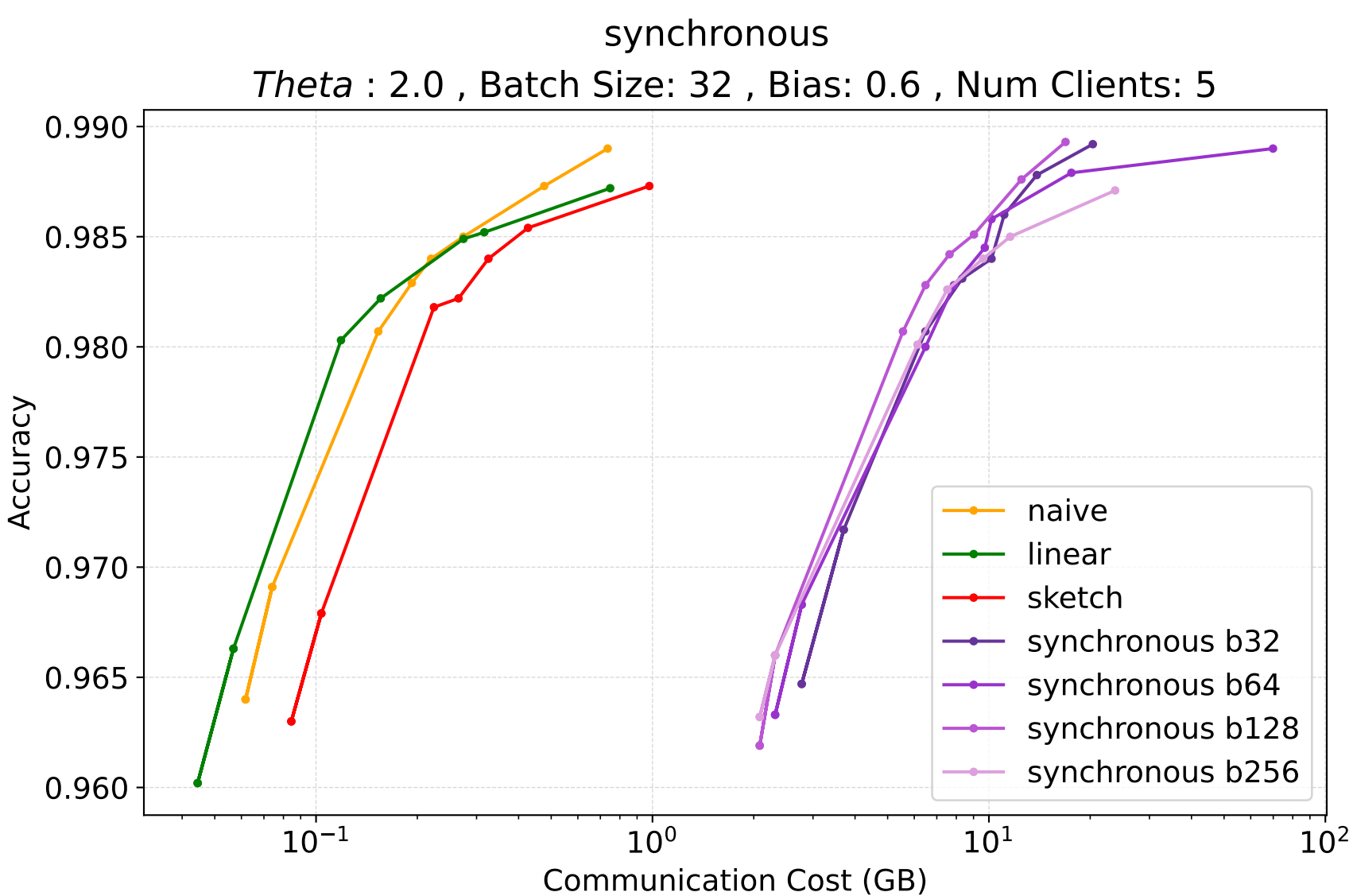

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

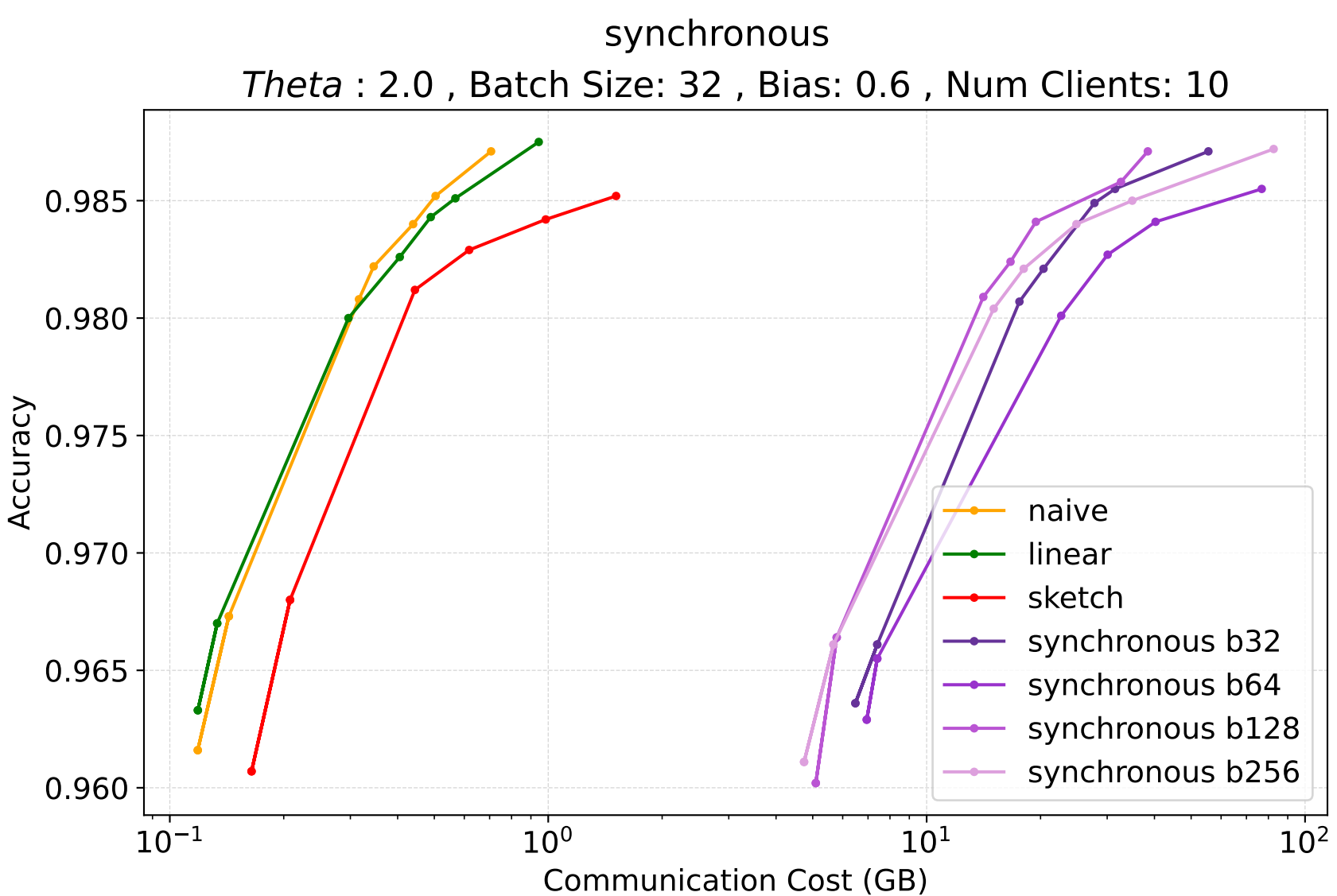

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 45
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

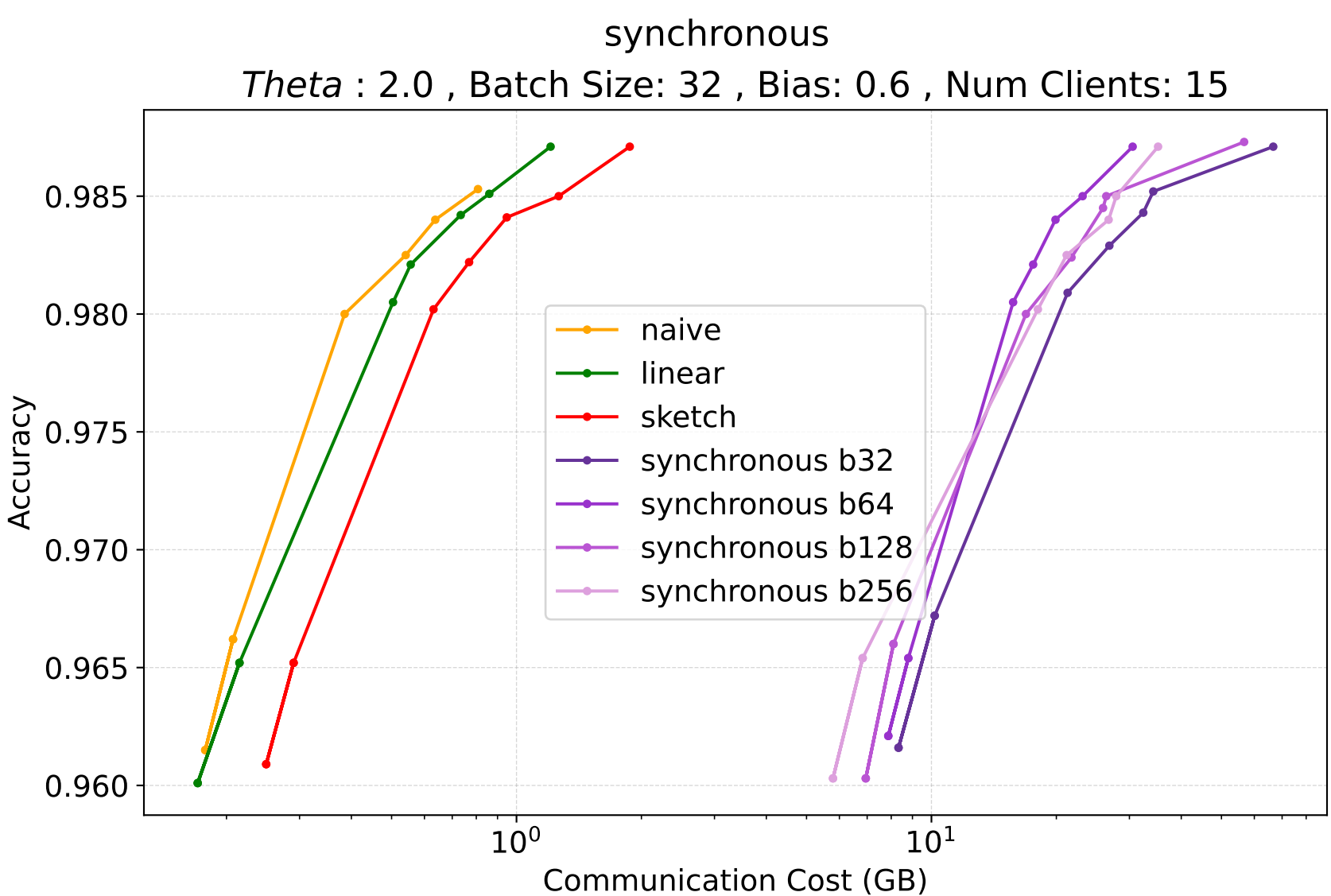

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 50
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
synchronous b32
synchronous b64
synchronous b128
synchronous b256

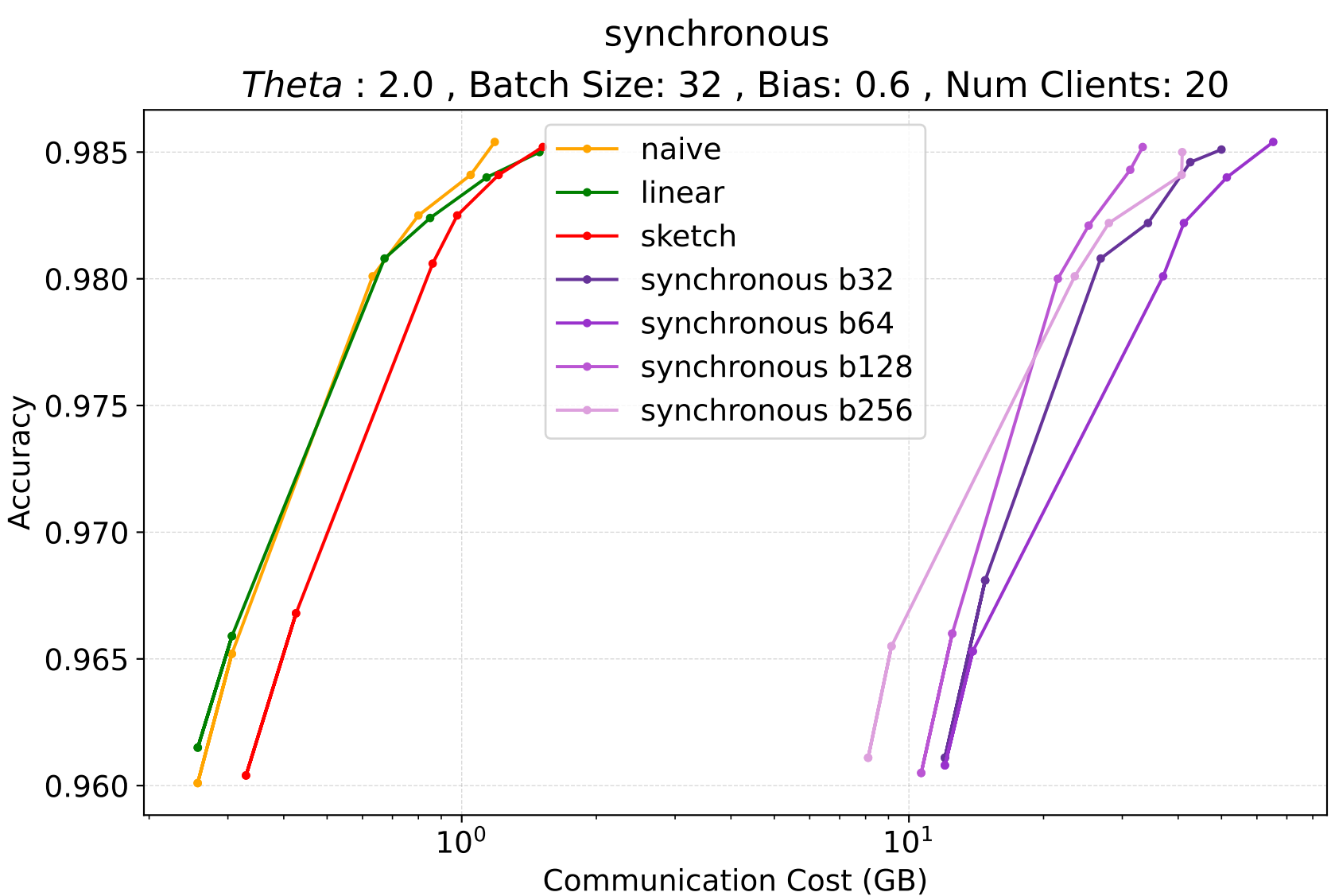

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 55
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
synchronous b32
synchronous b64
synchronous b256

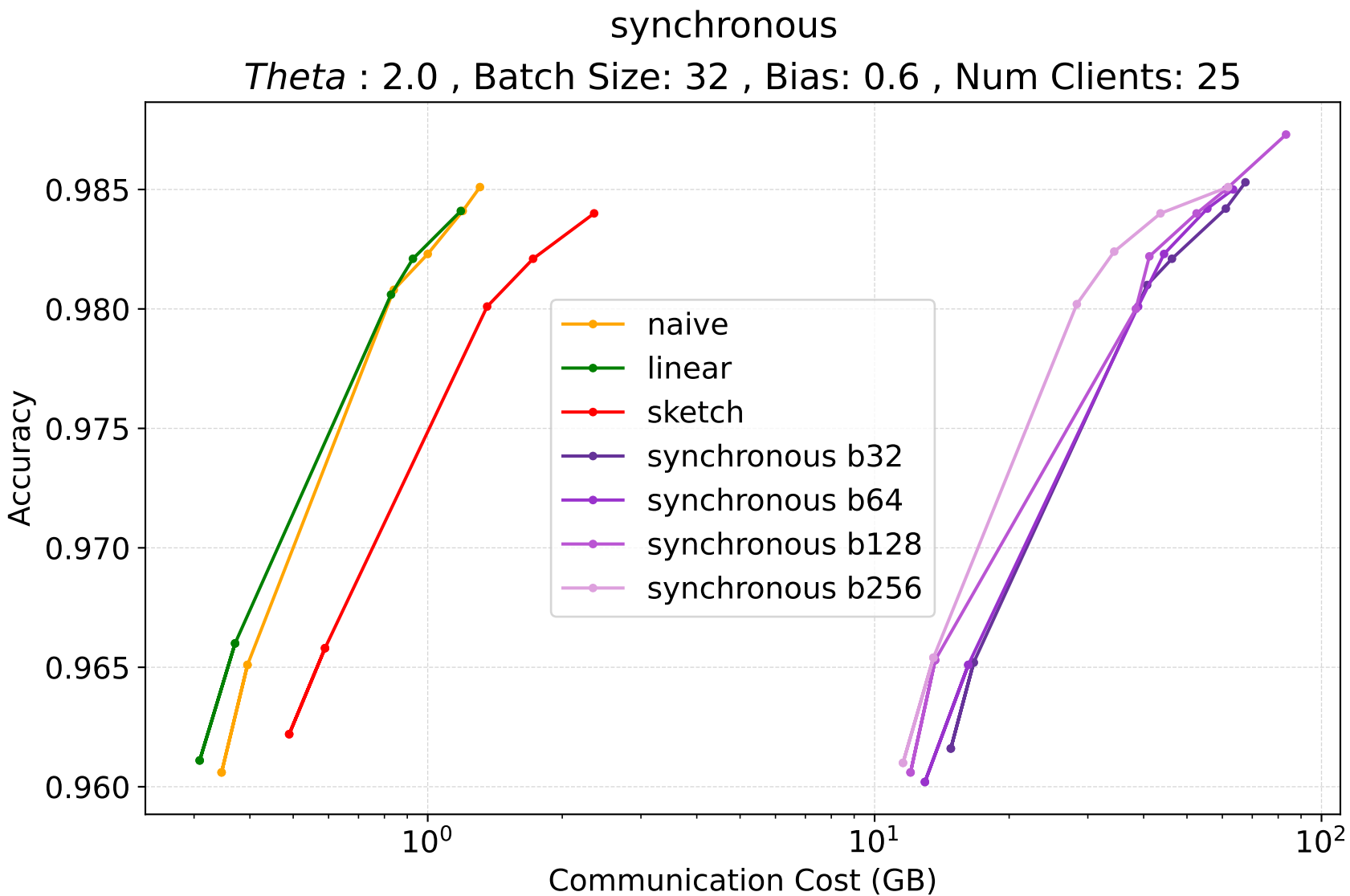

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: 0.6 , Num Clients: 60
gm
naive
linear
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

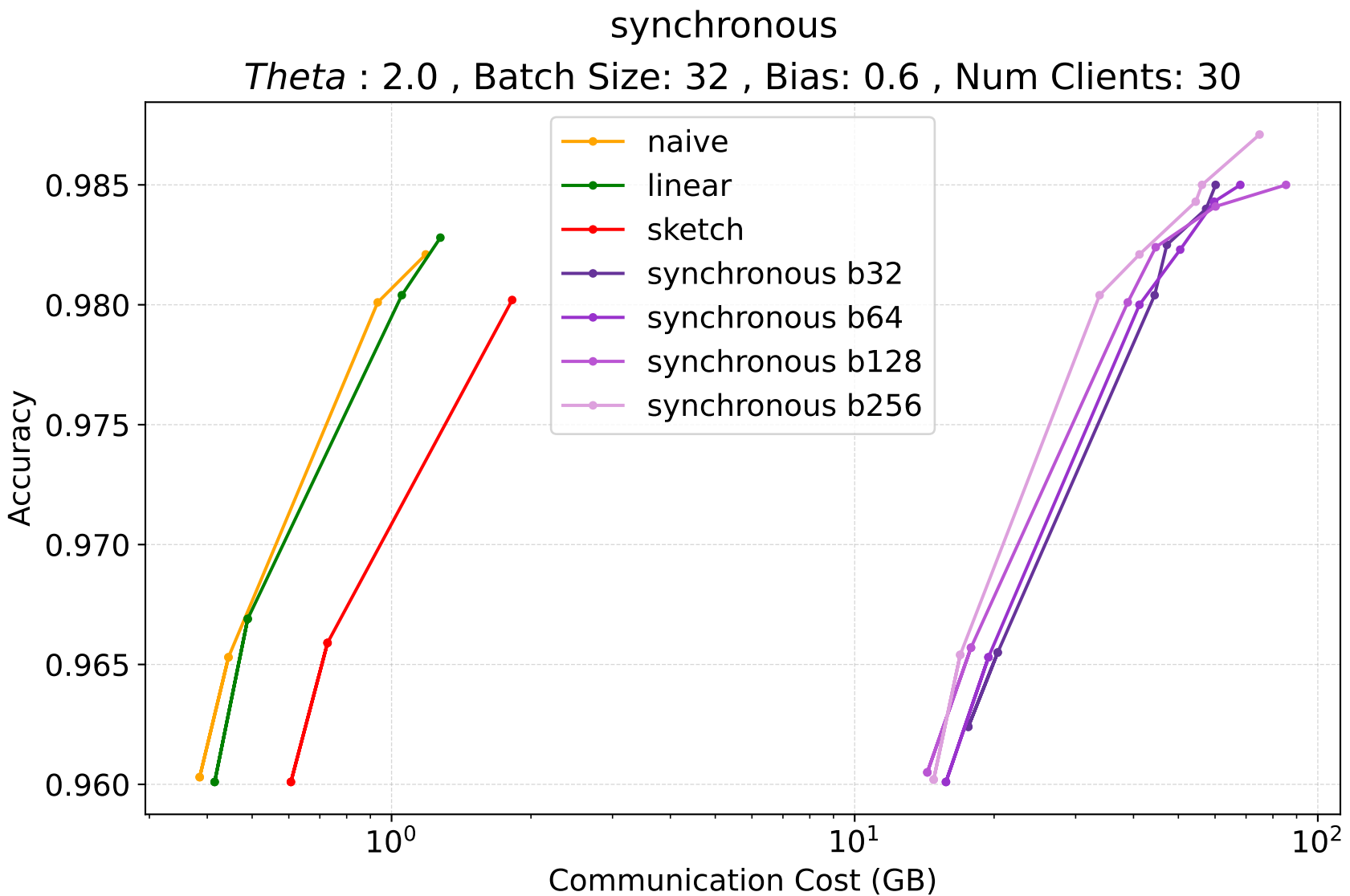

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 5
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

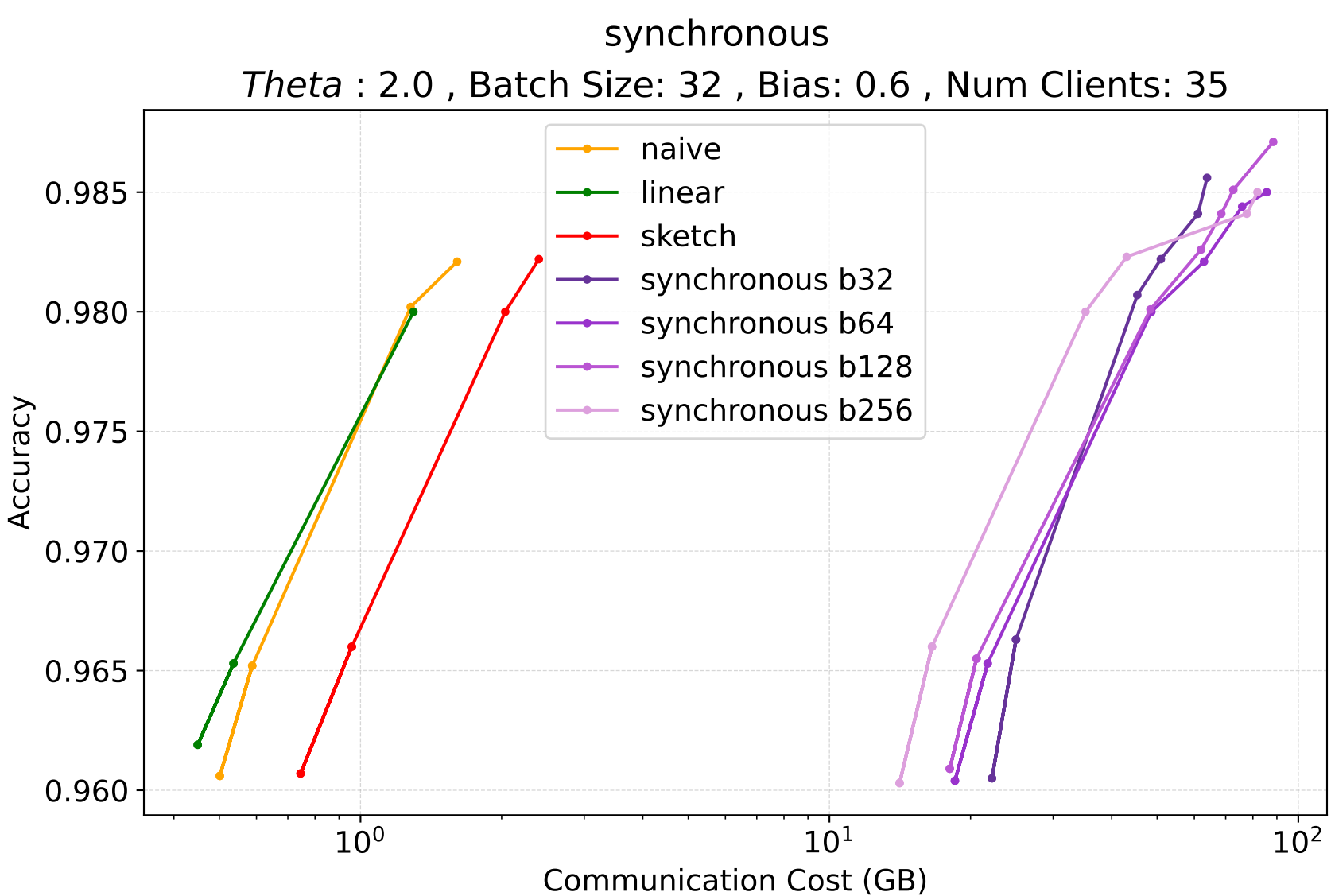

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 10
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

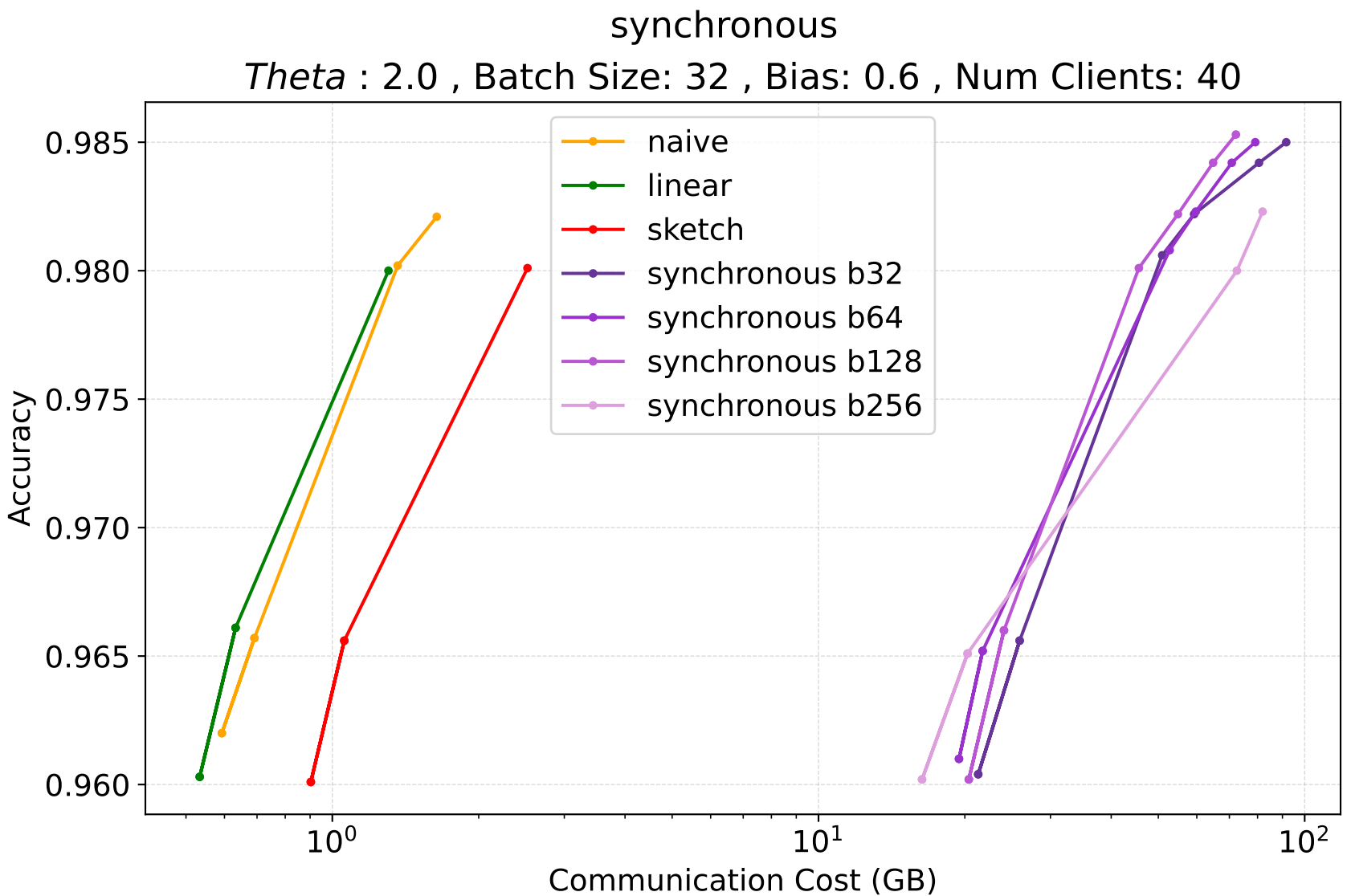

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

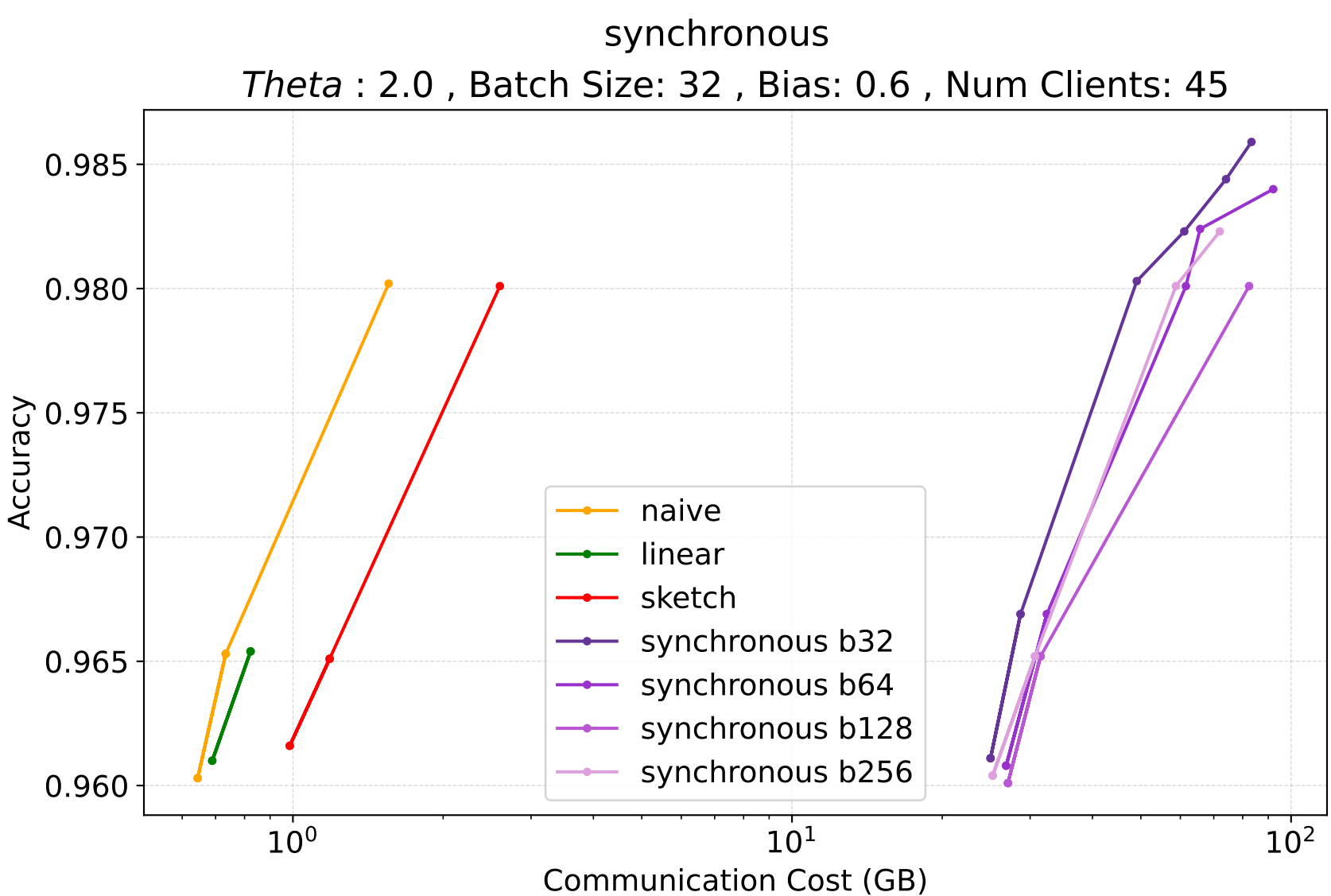

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 20
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

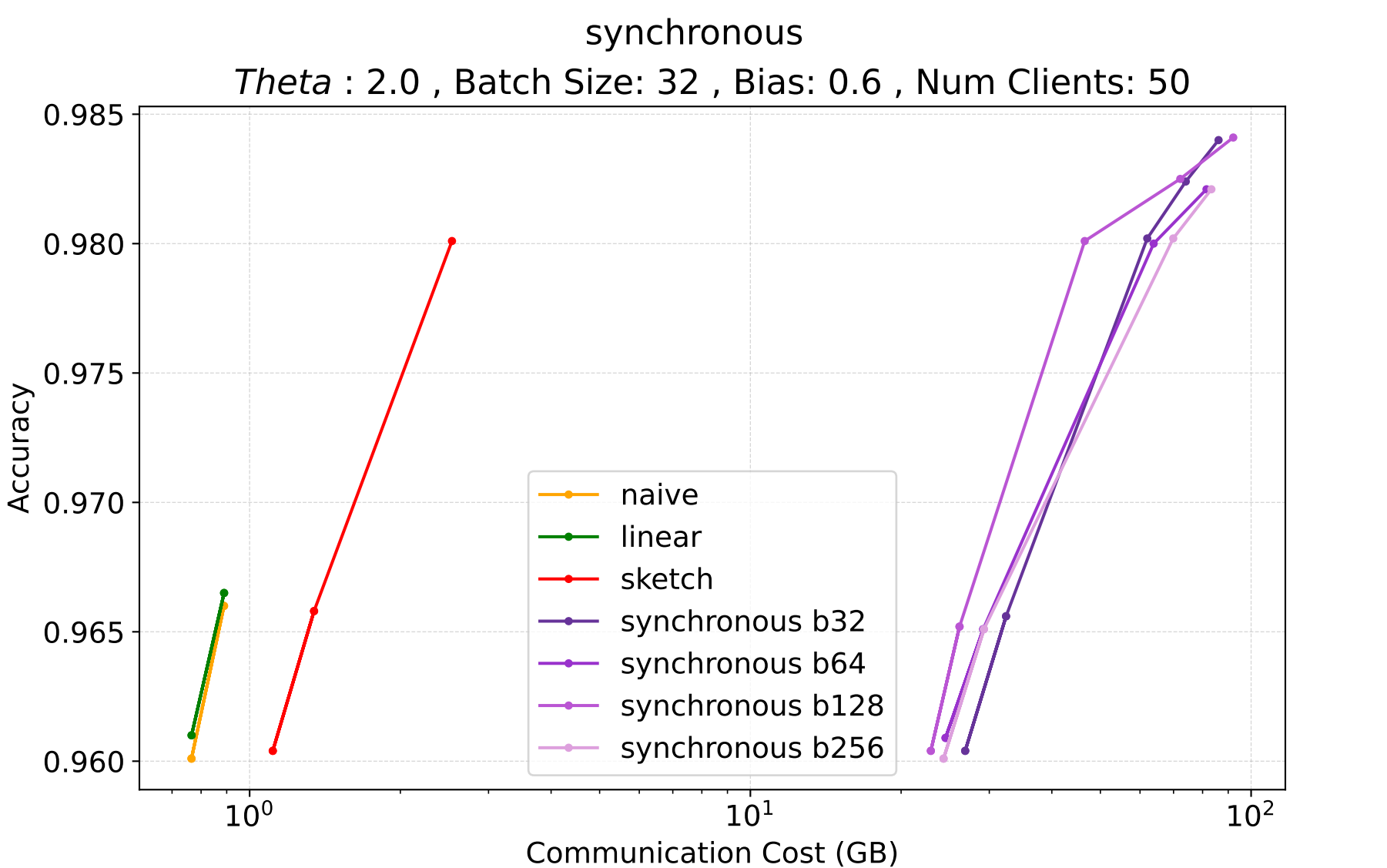

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

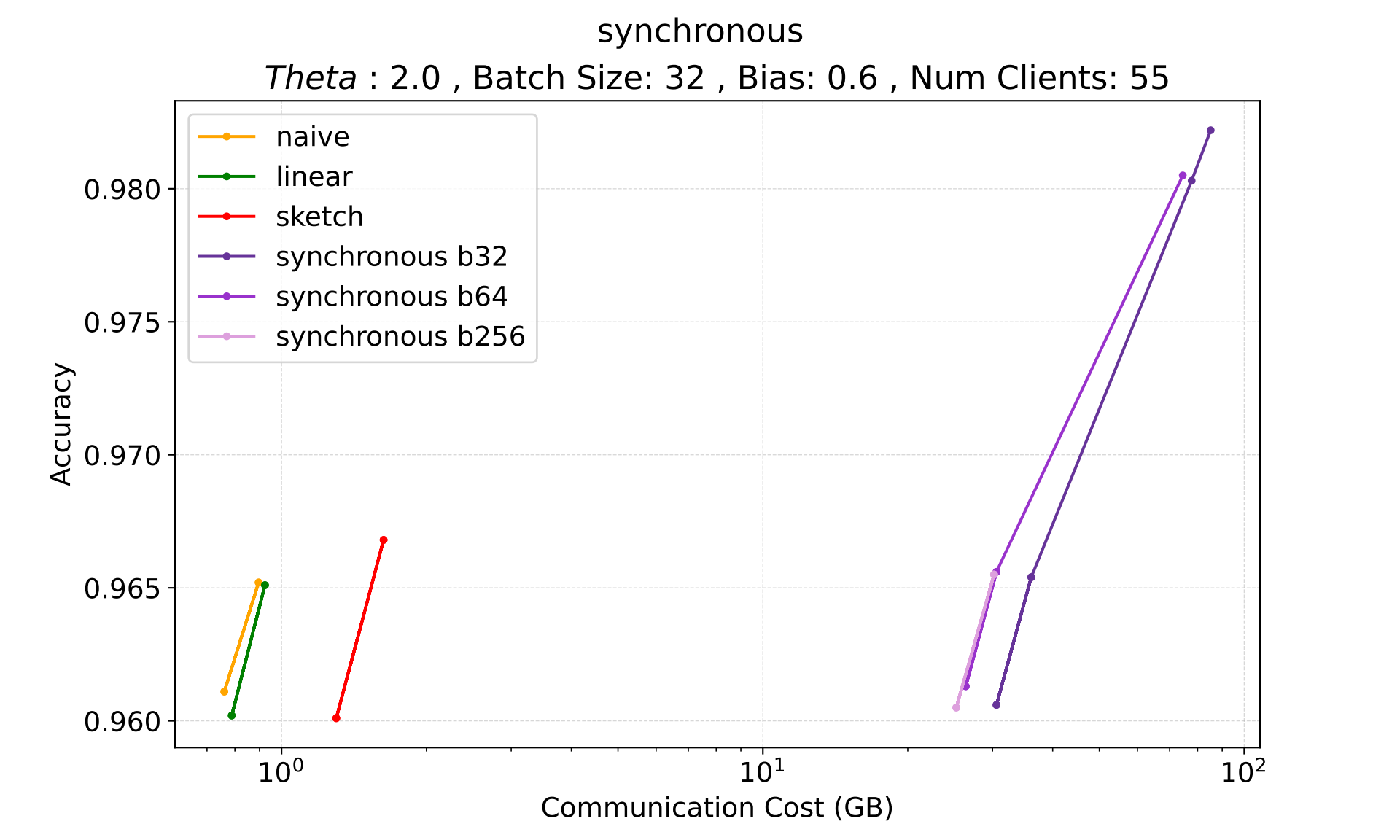

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 30
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

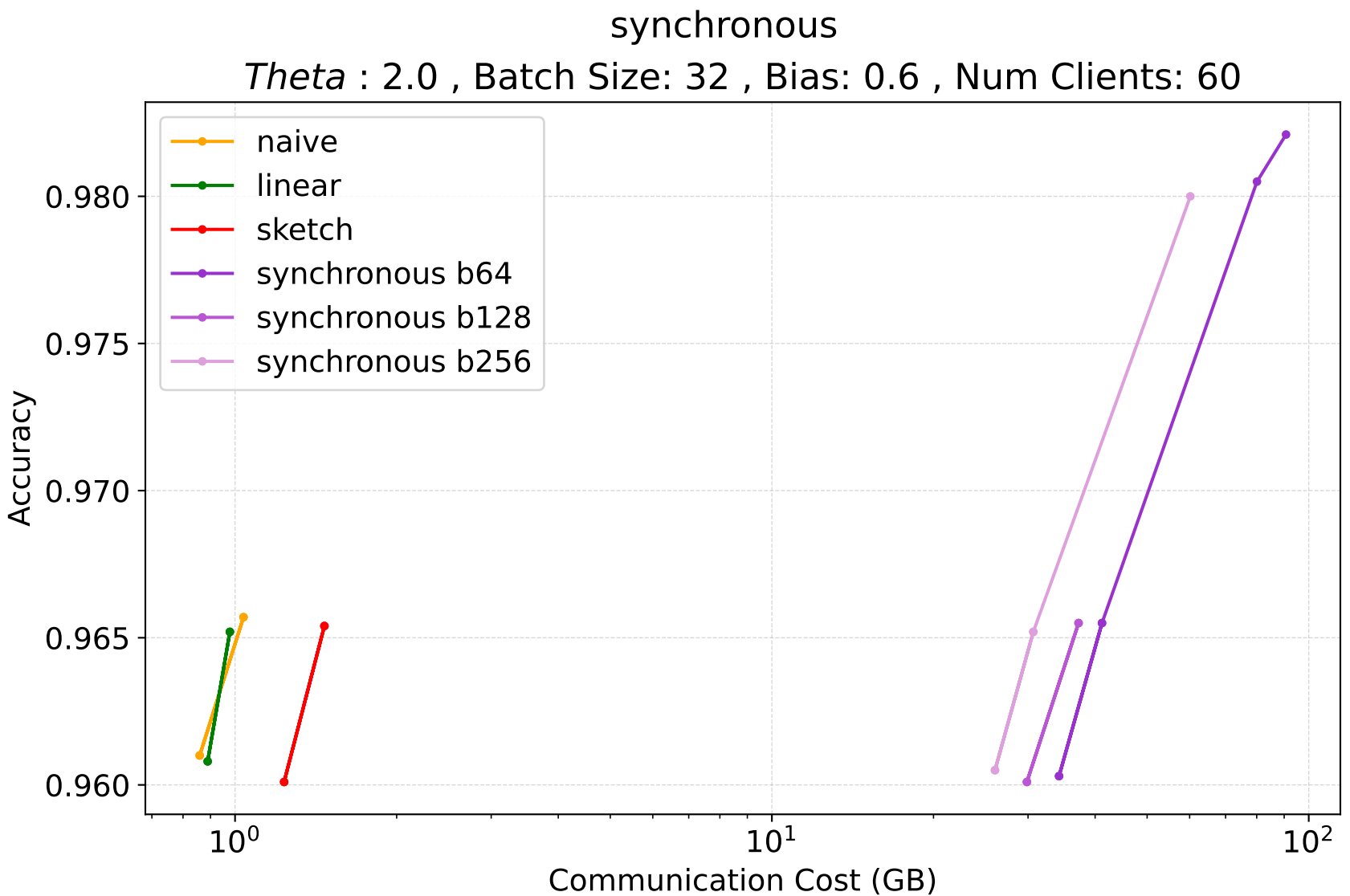

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 35
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

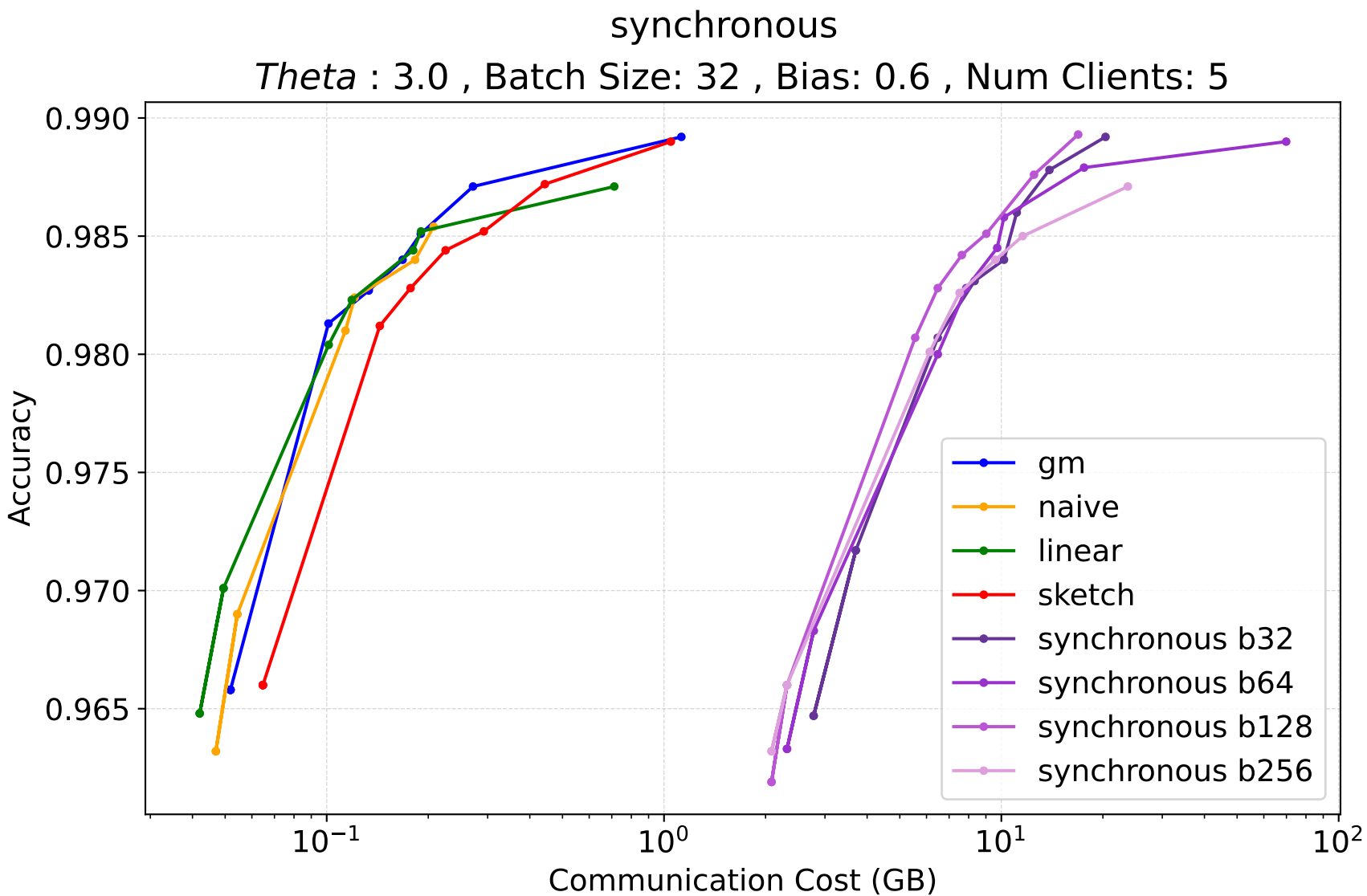

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 40
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

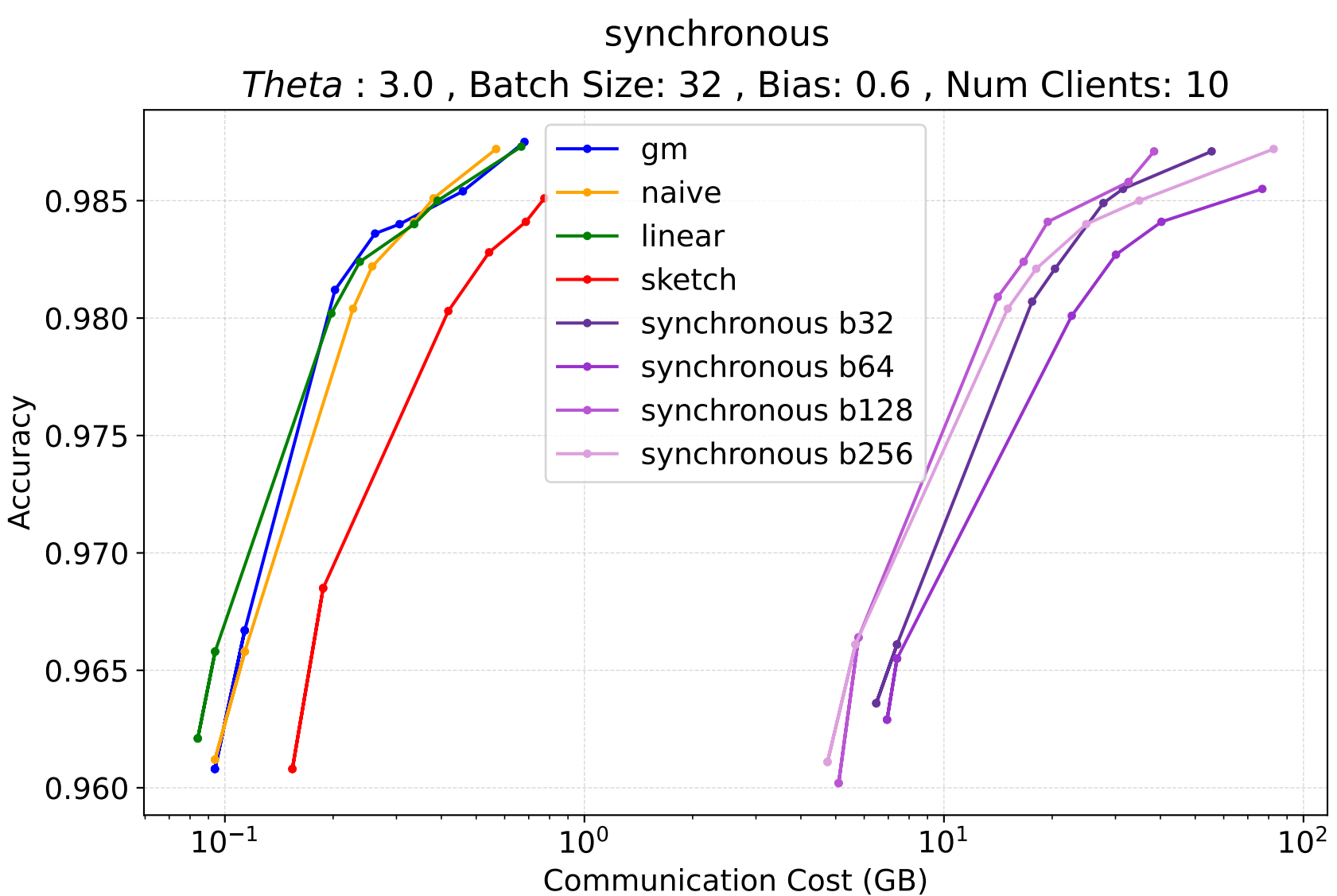

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 45
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

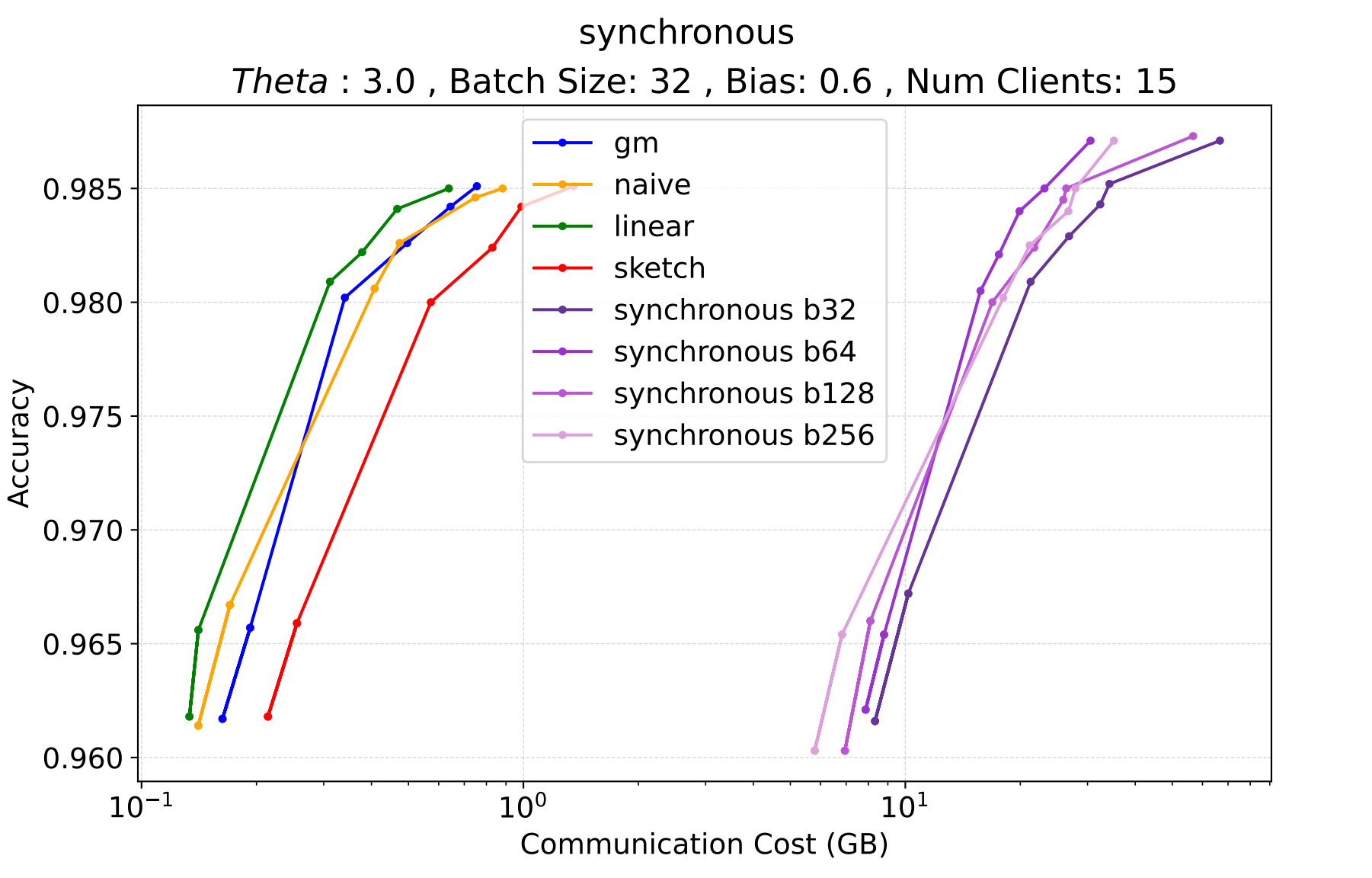

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 50
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
10^2
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

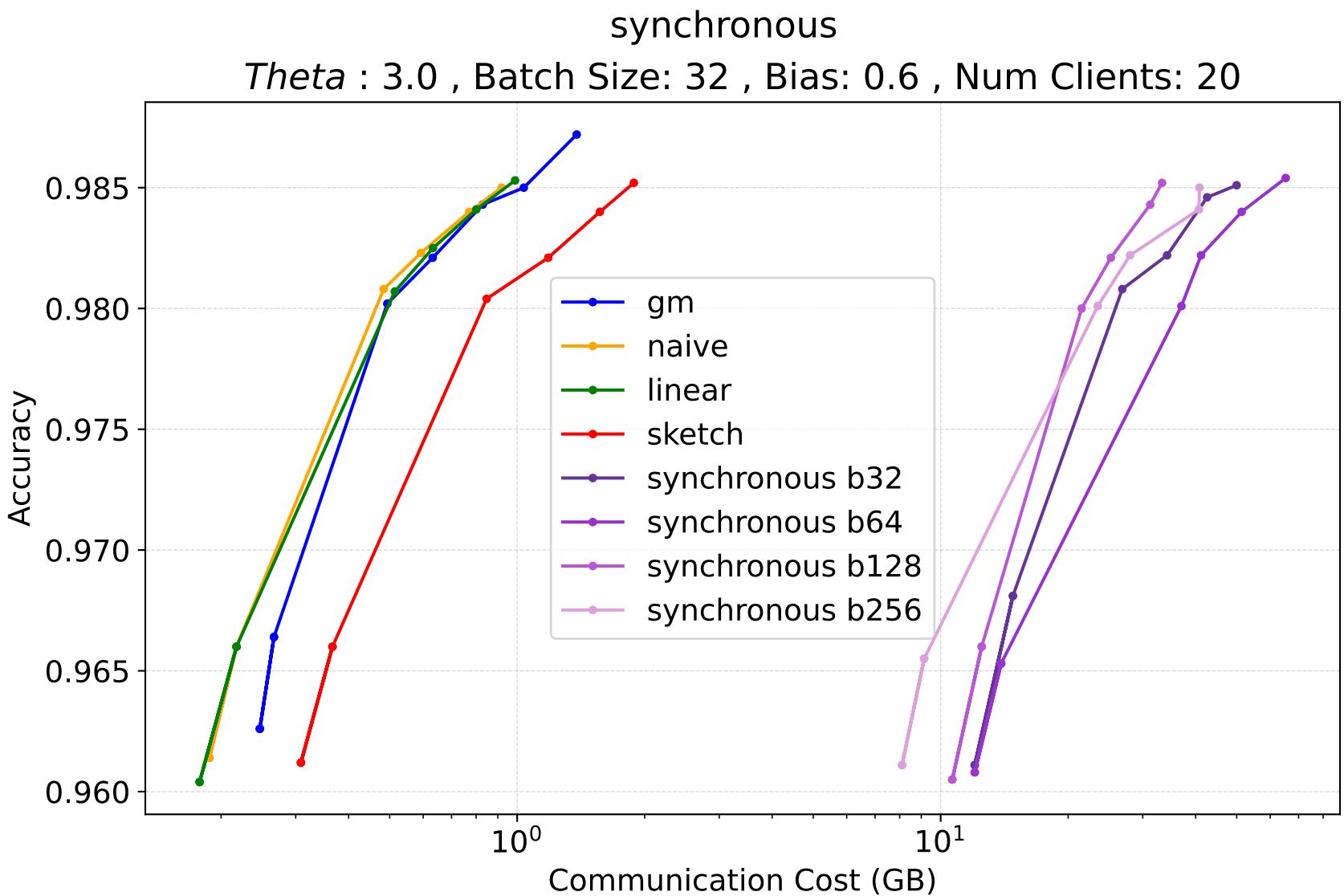

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 55
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

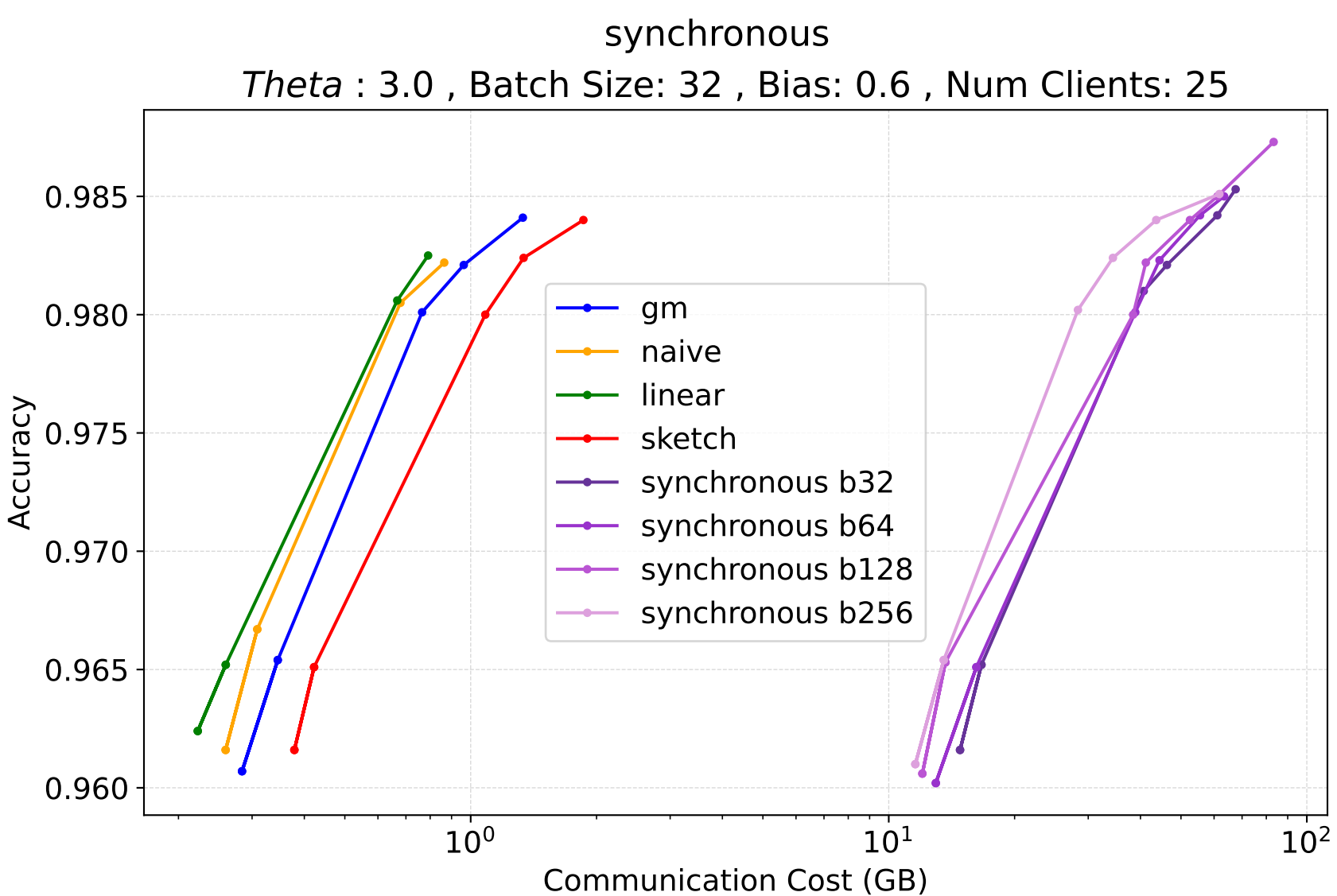

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 60
naive
linear
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

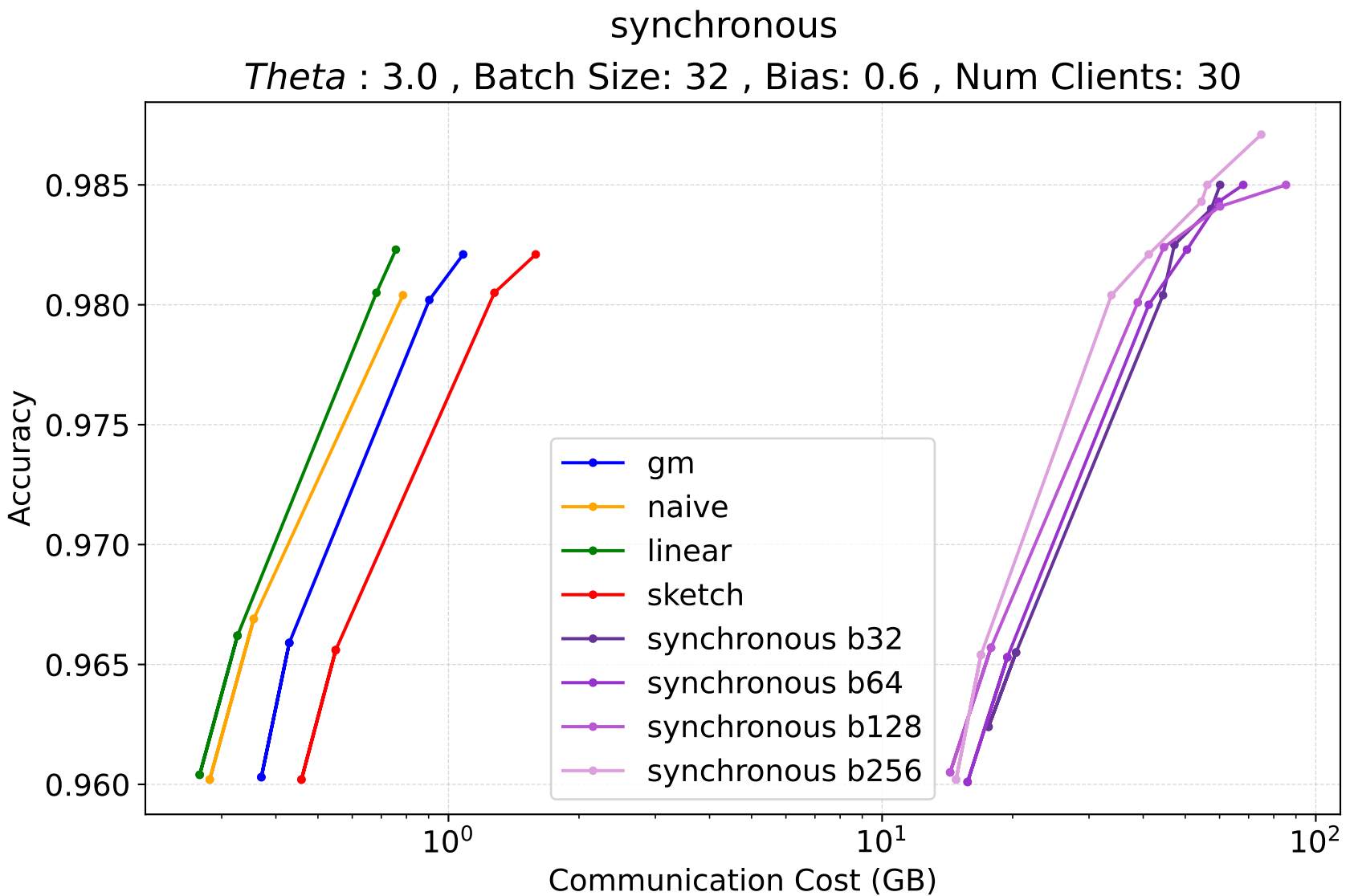

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

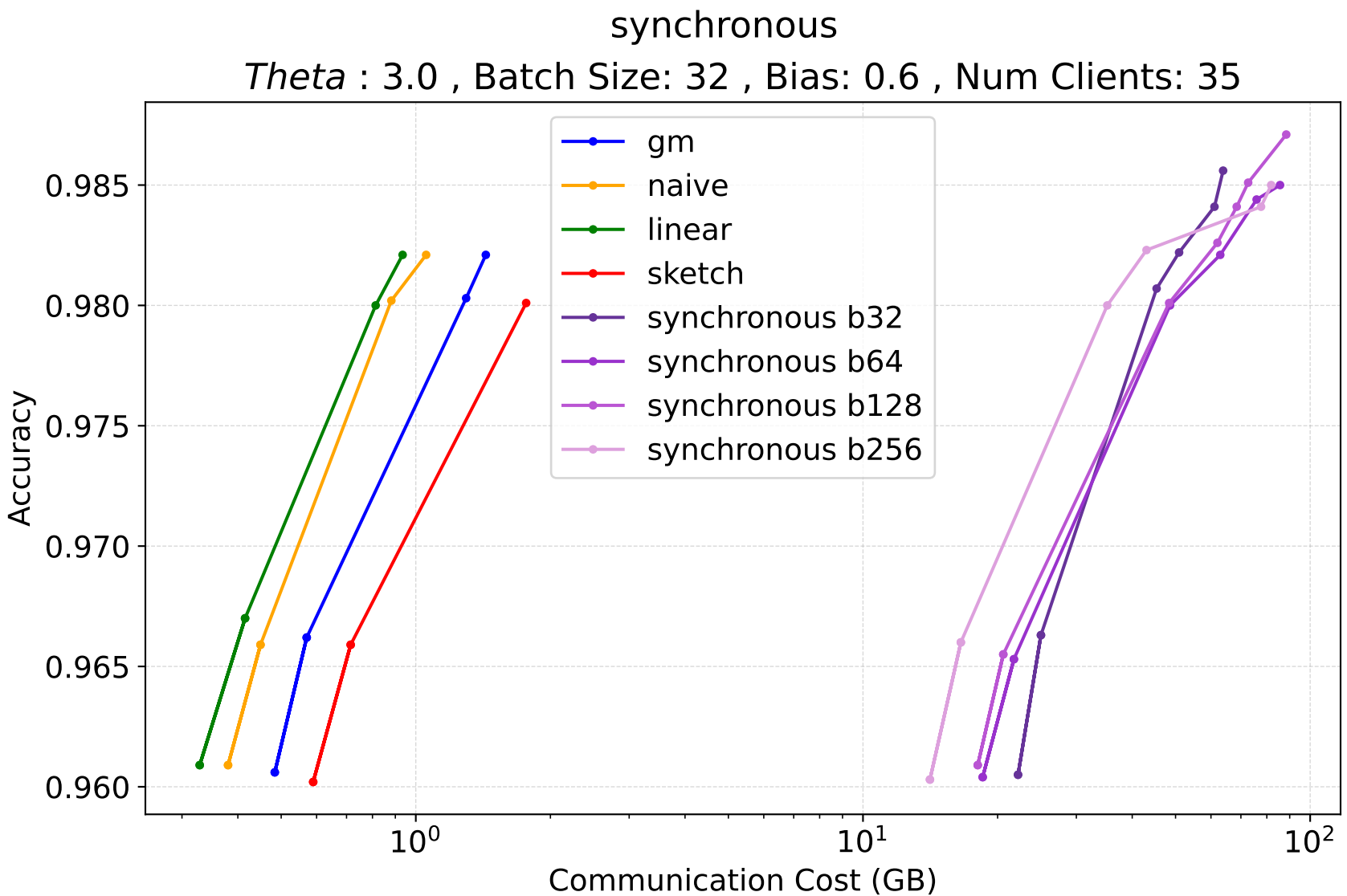

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 10
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)

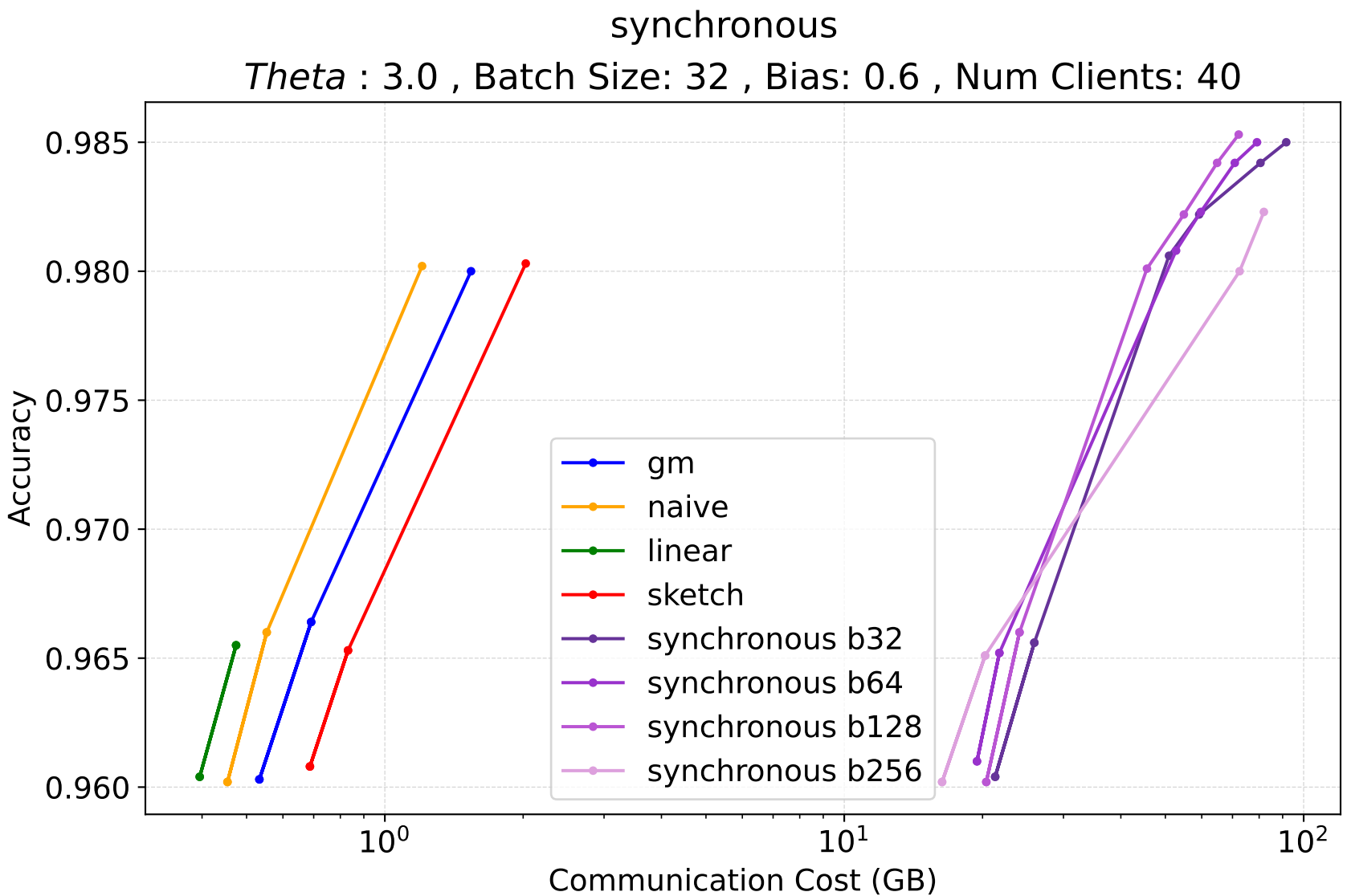

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 15
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)

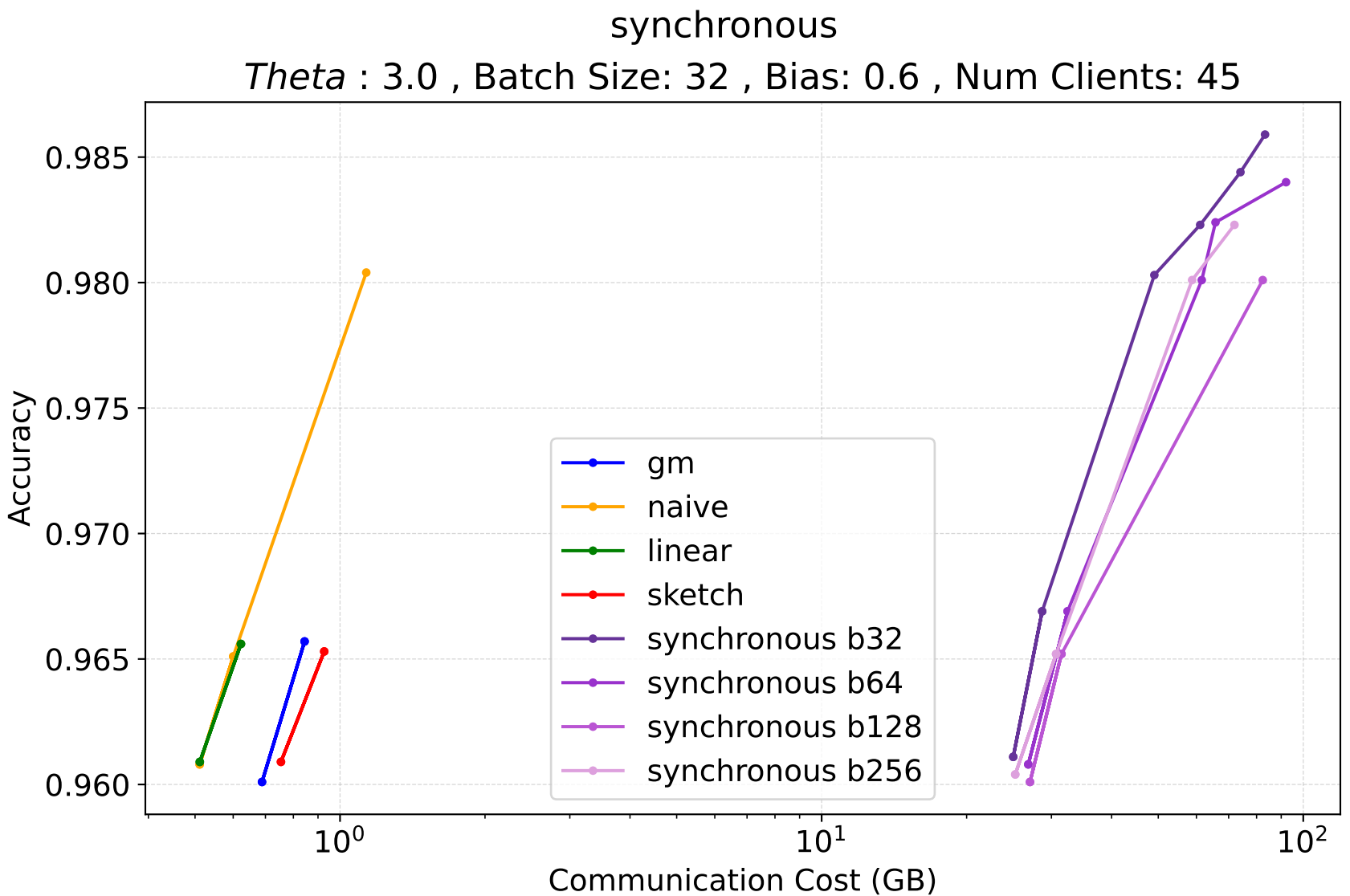

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

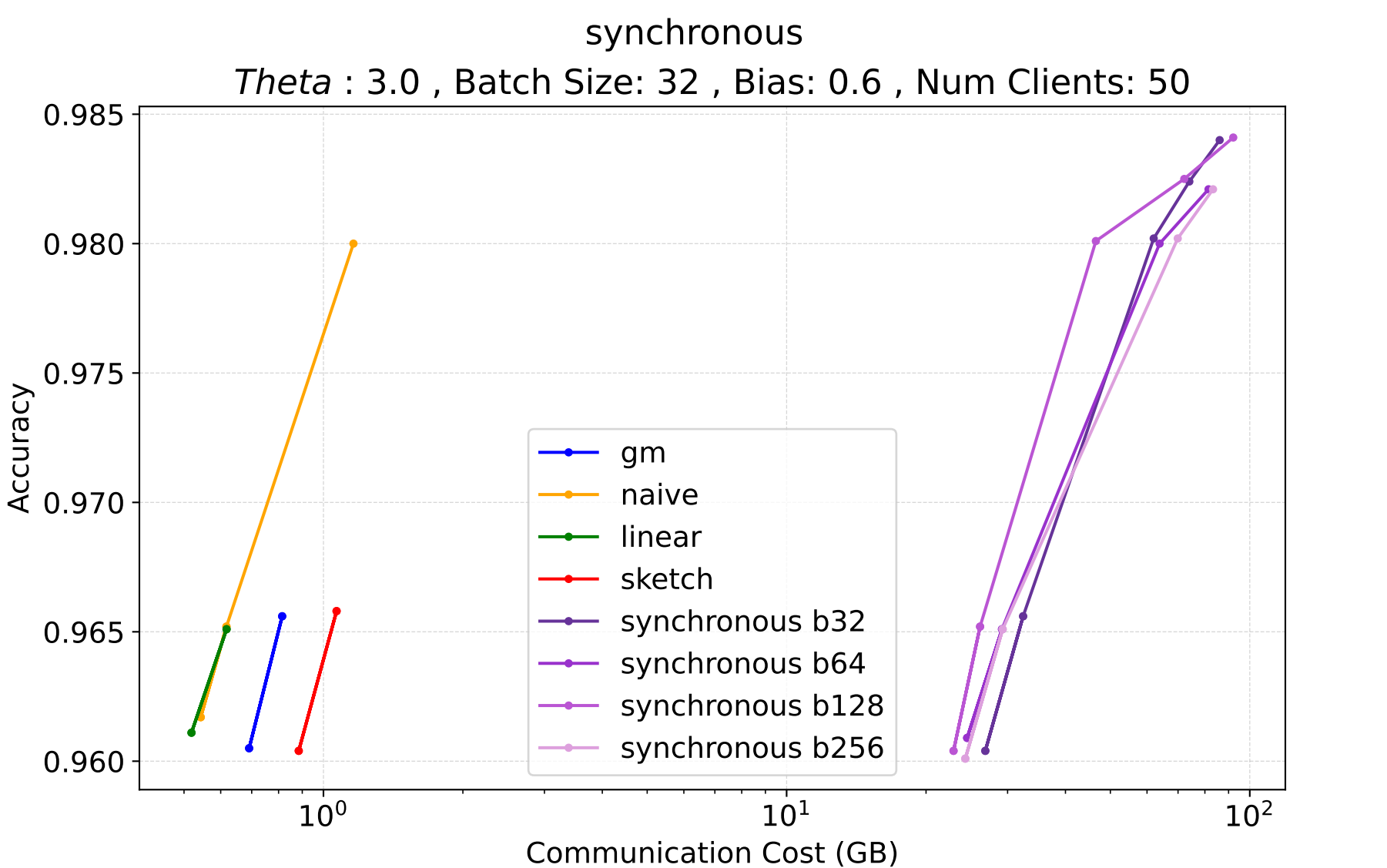

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

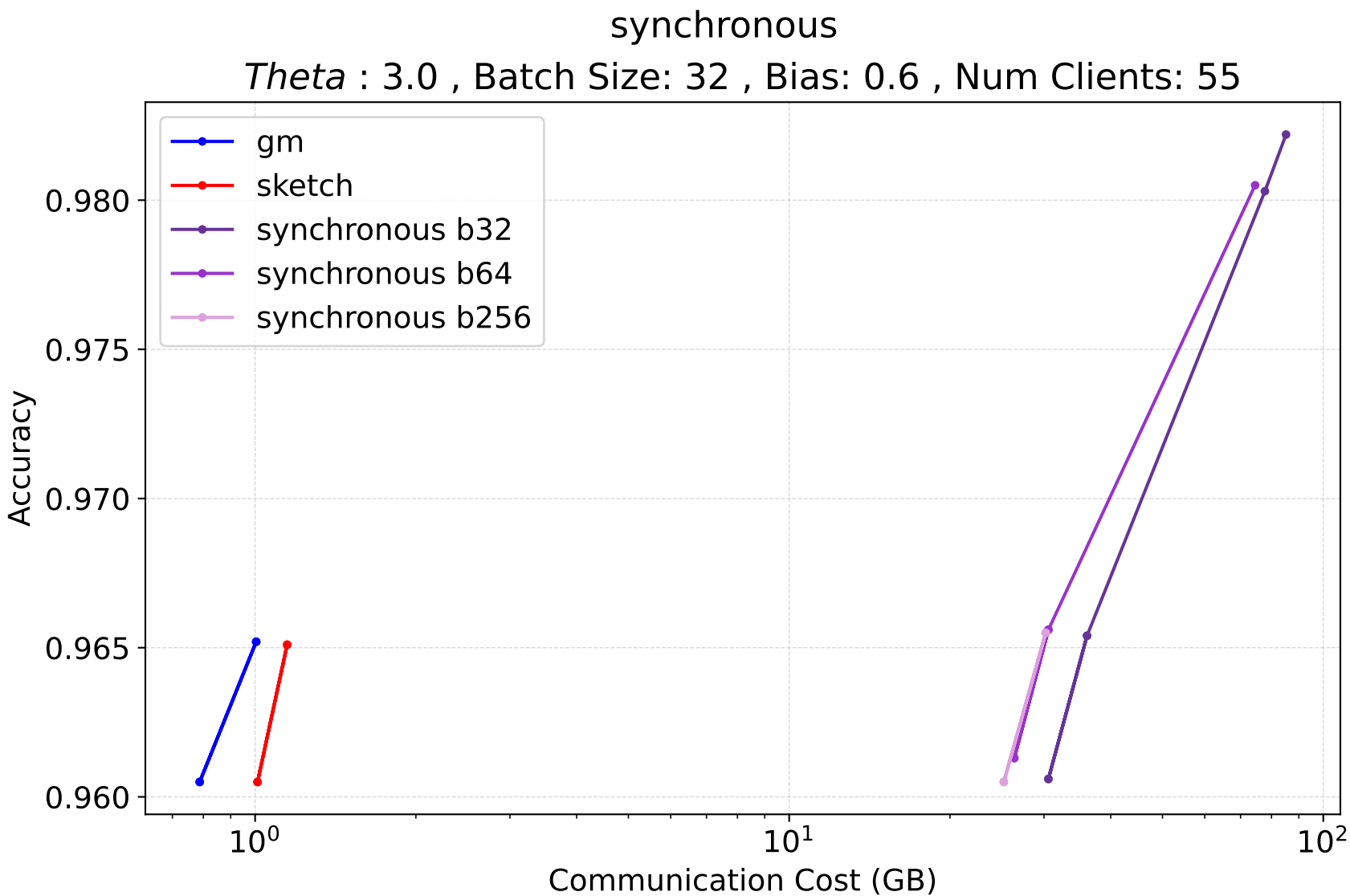

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

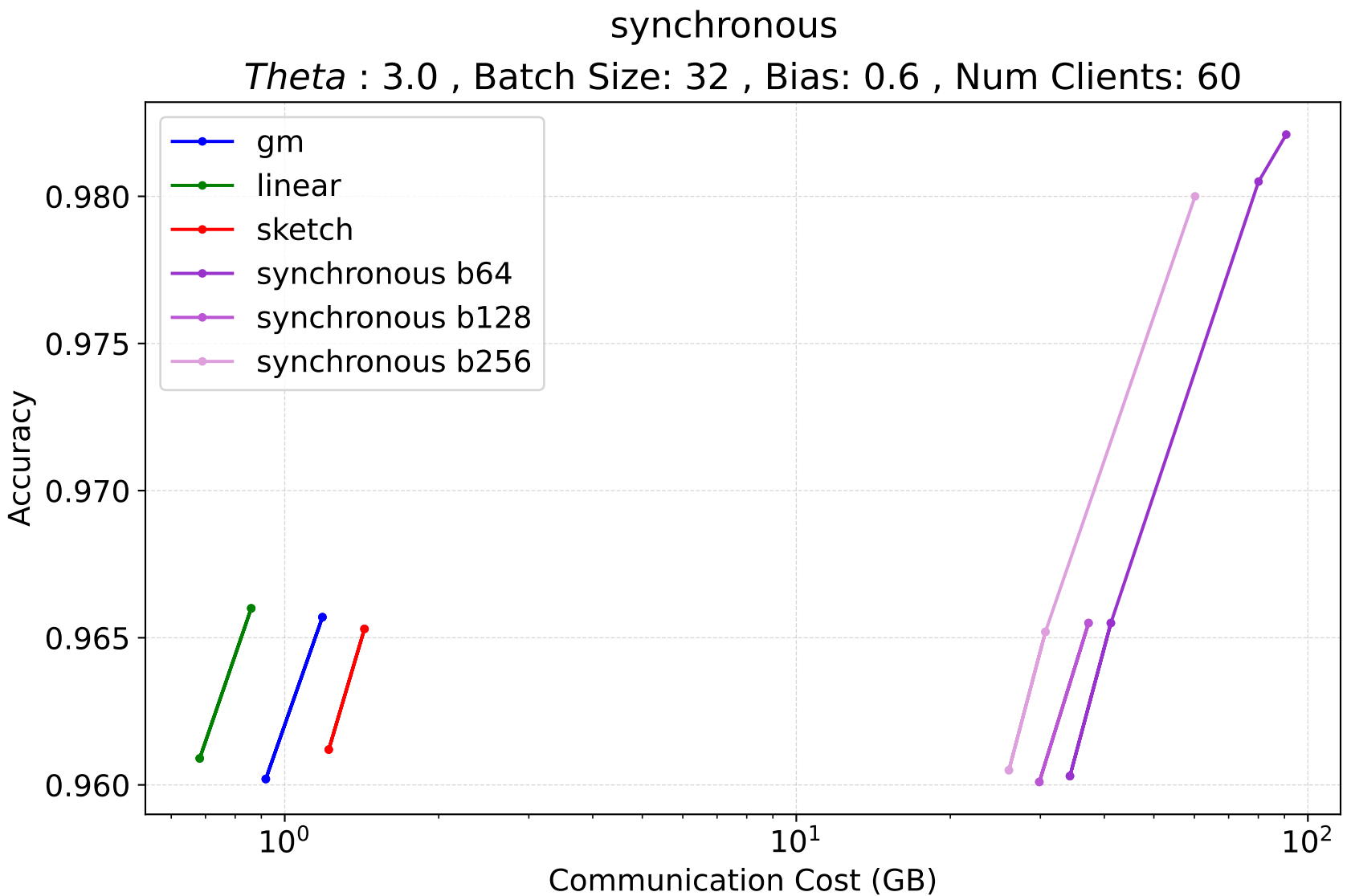

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

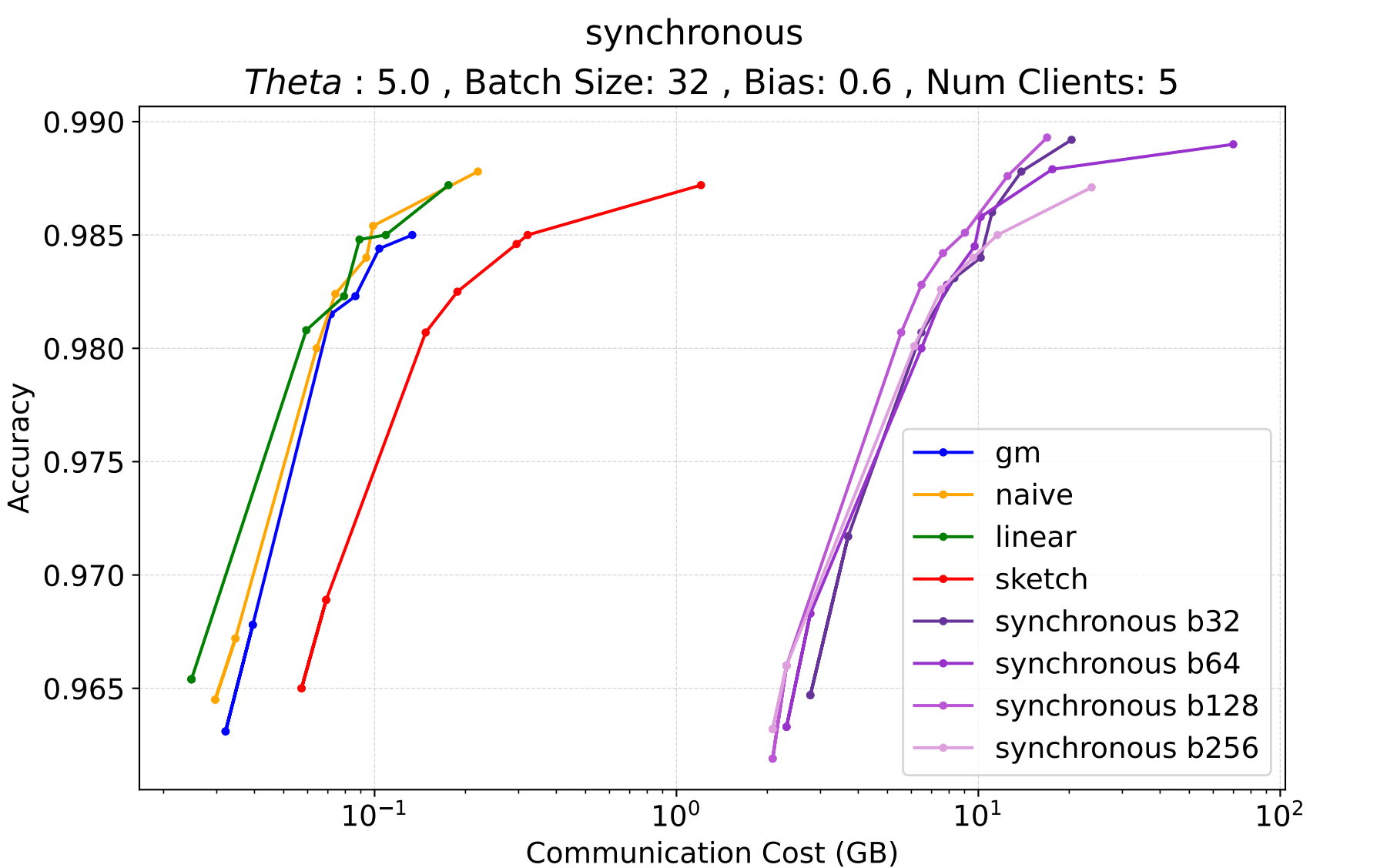

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 40
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

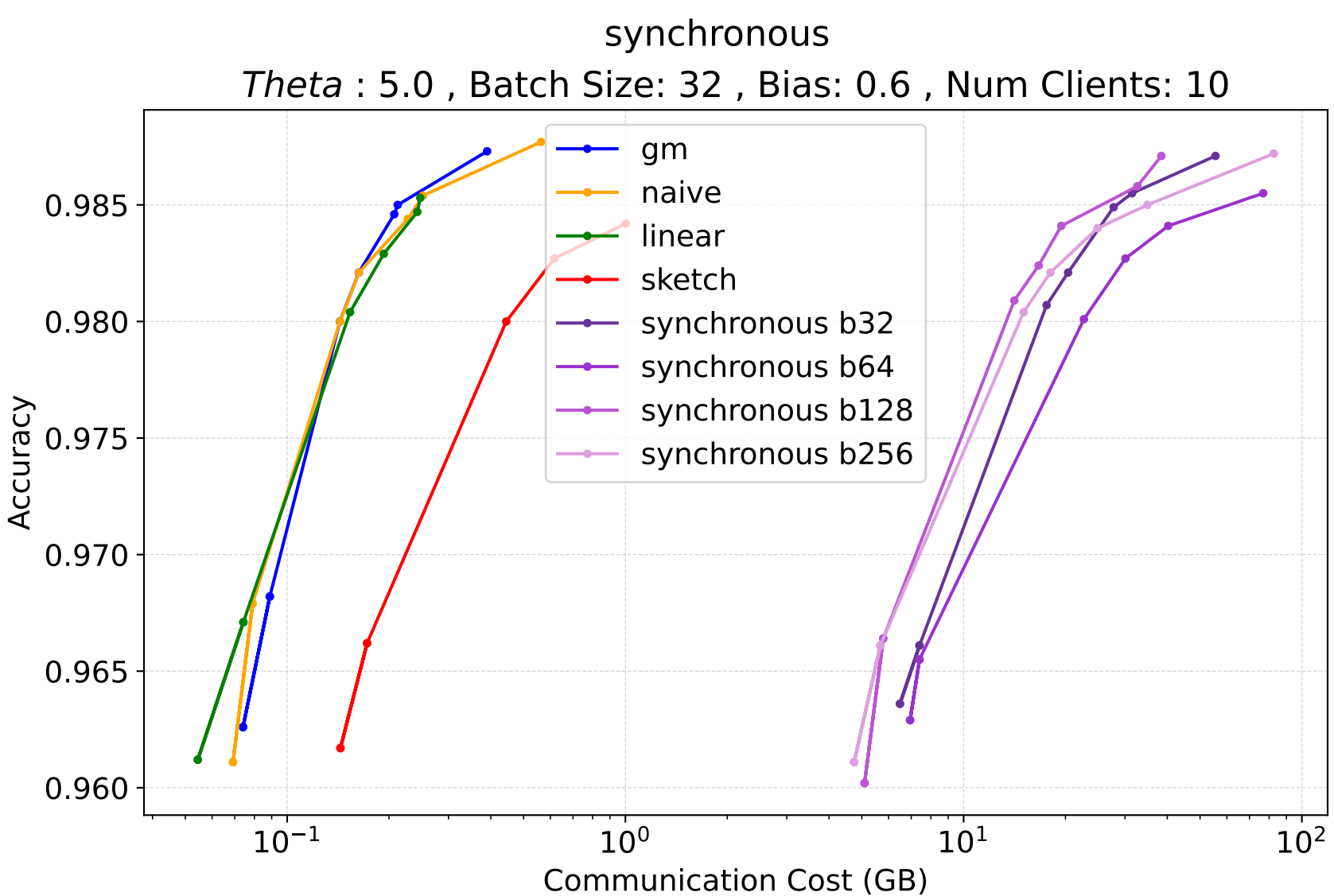

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 45
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

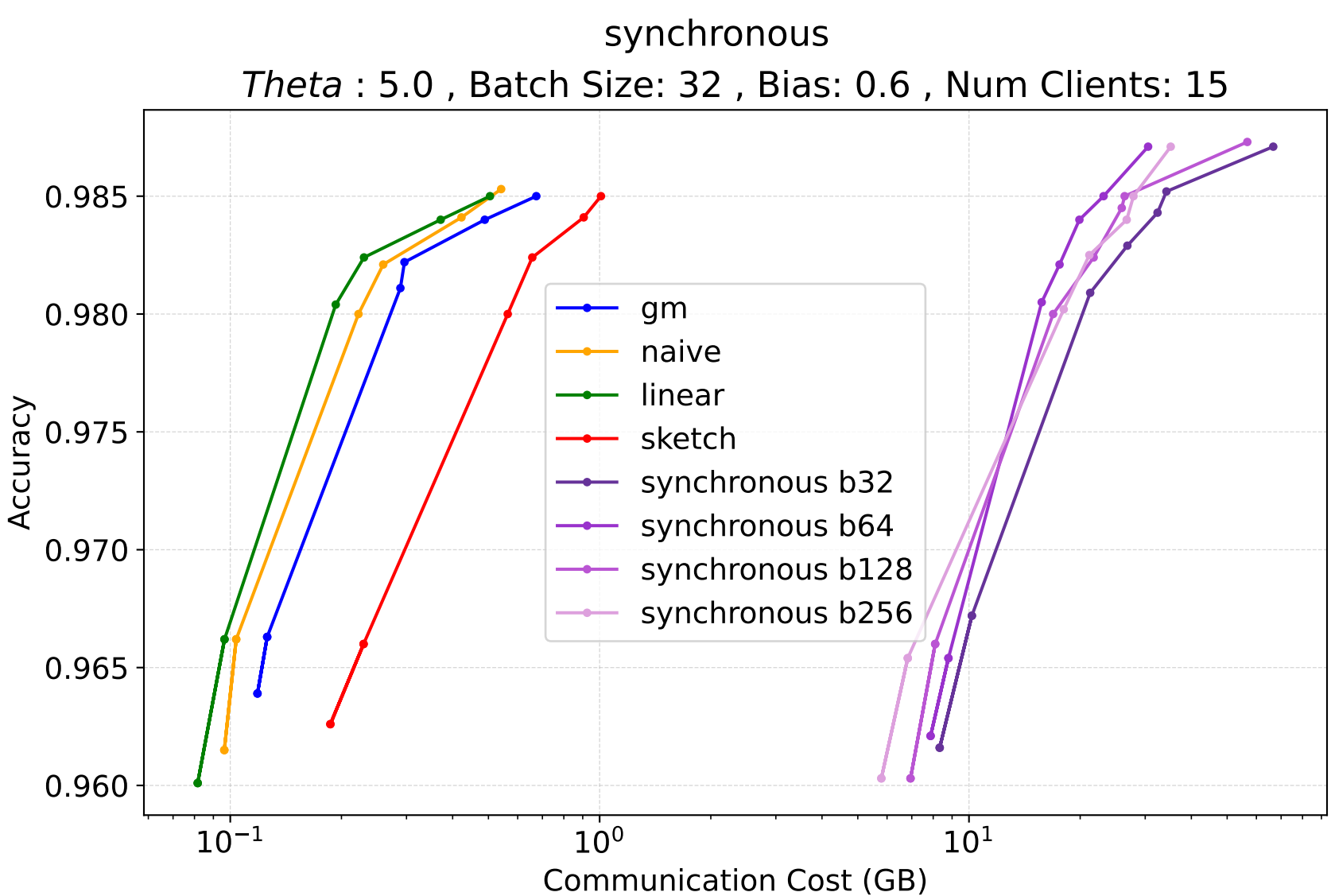

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 50
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

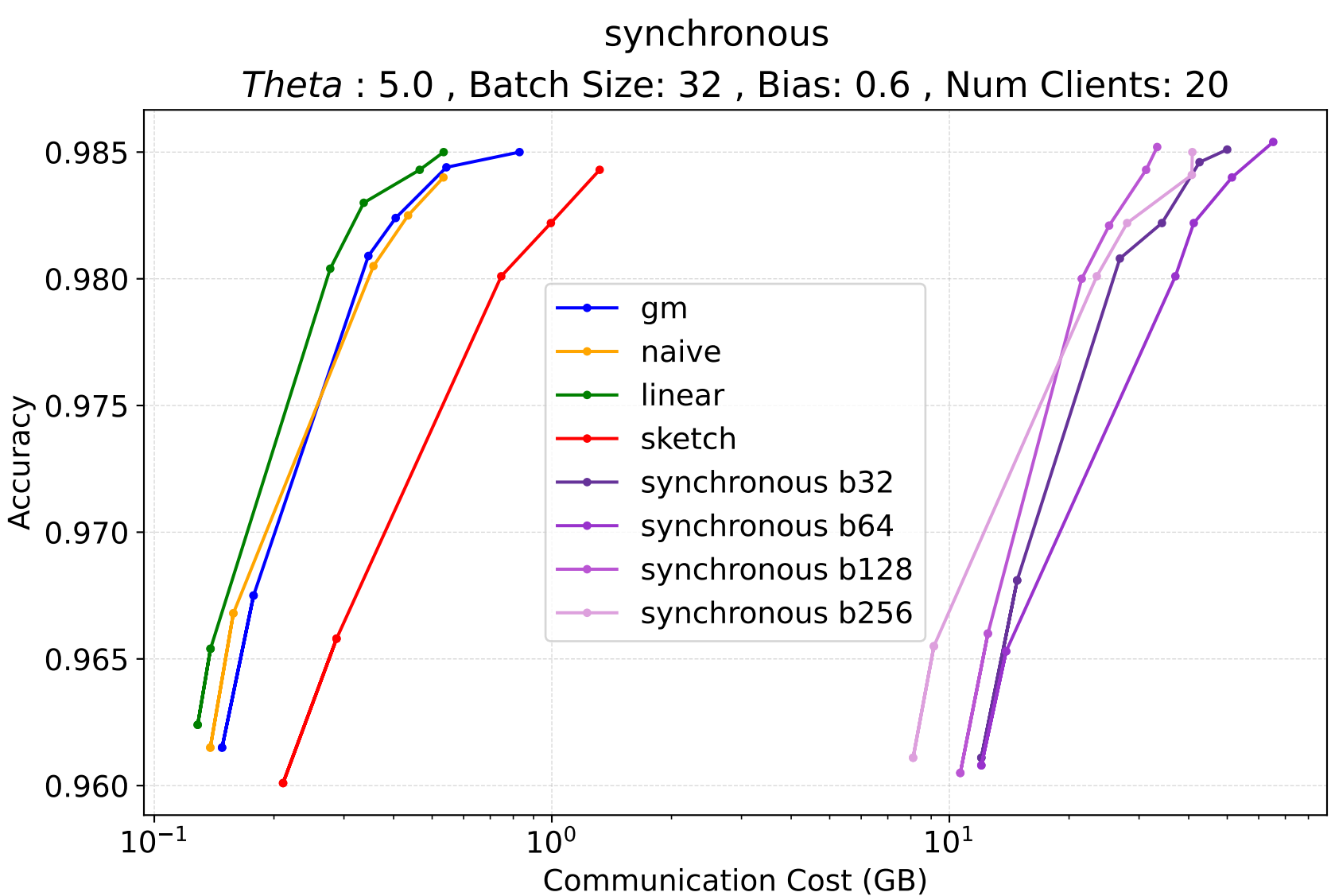

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 55
gm
sketch
synchronous b32
synchronous b64
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

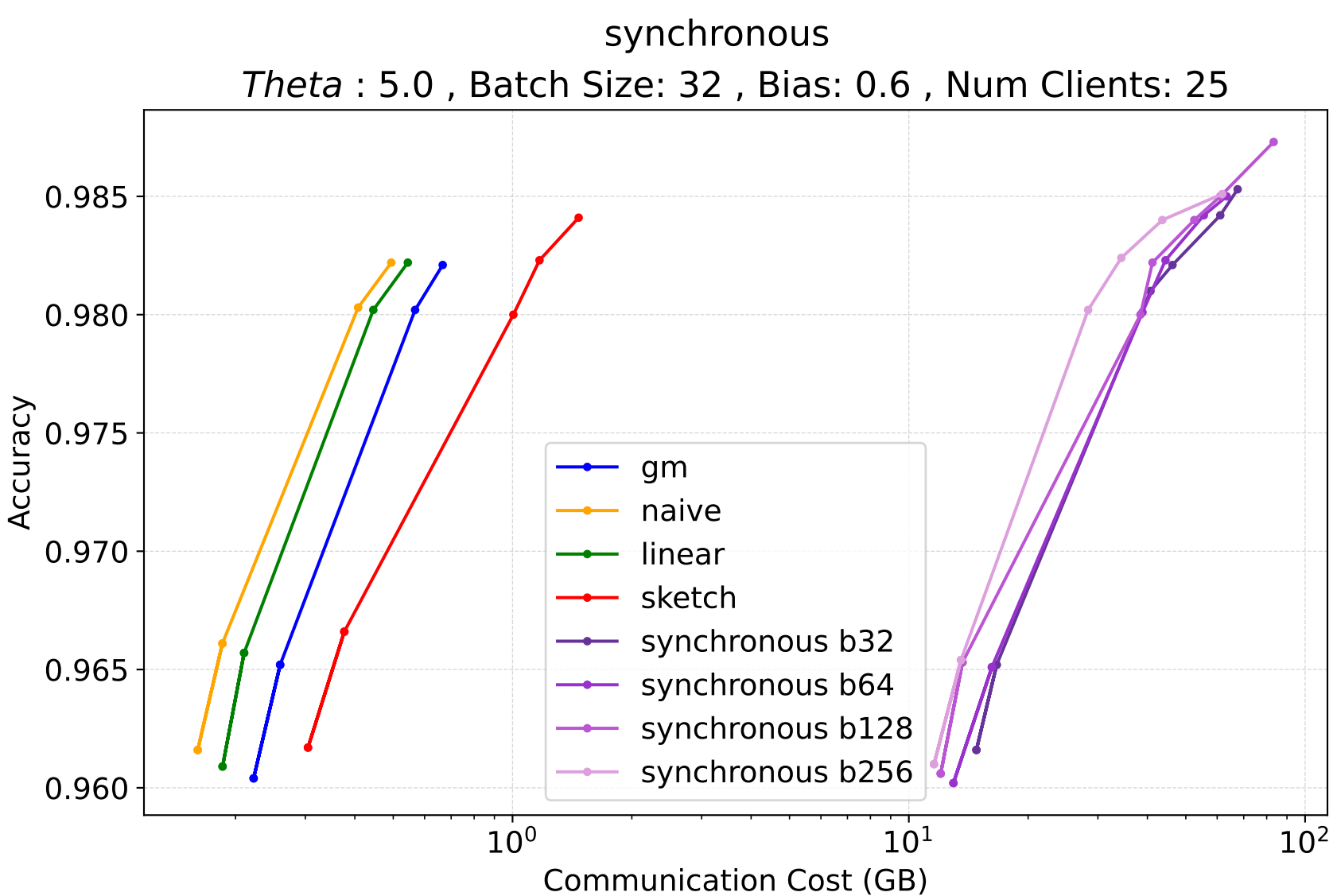

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 60
gm
linear
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

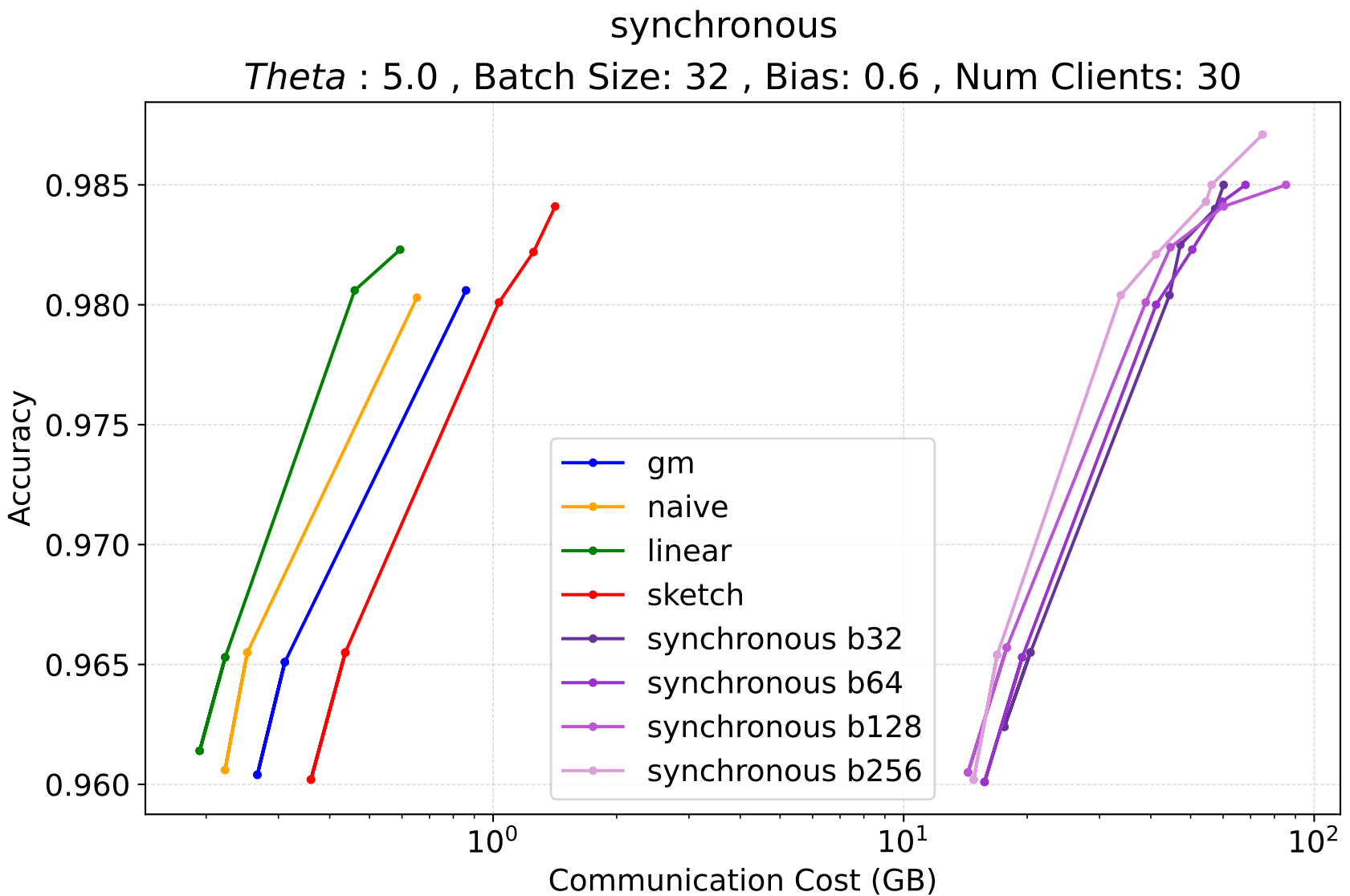

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

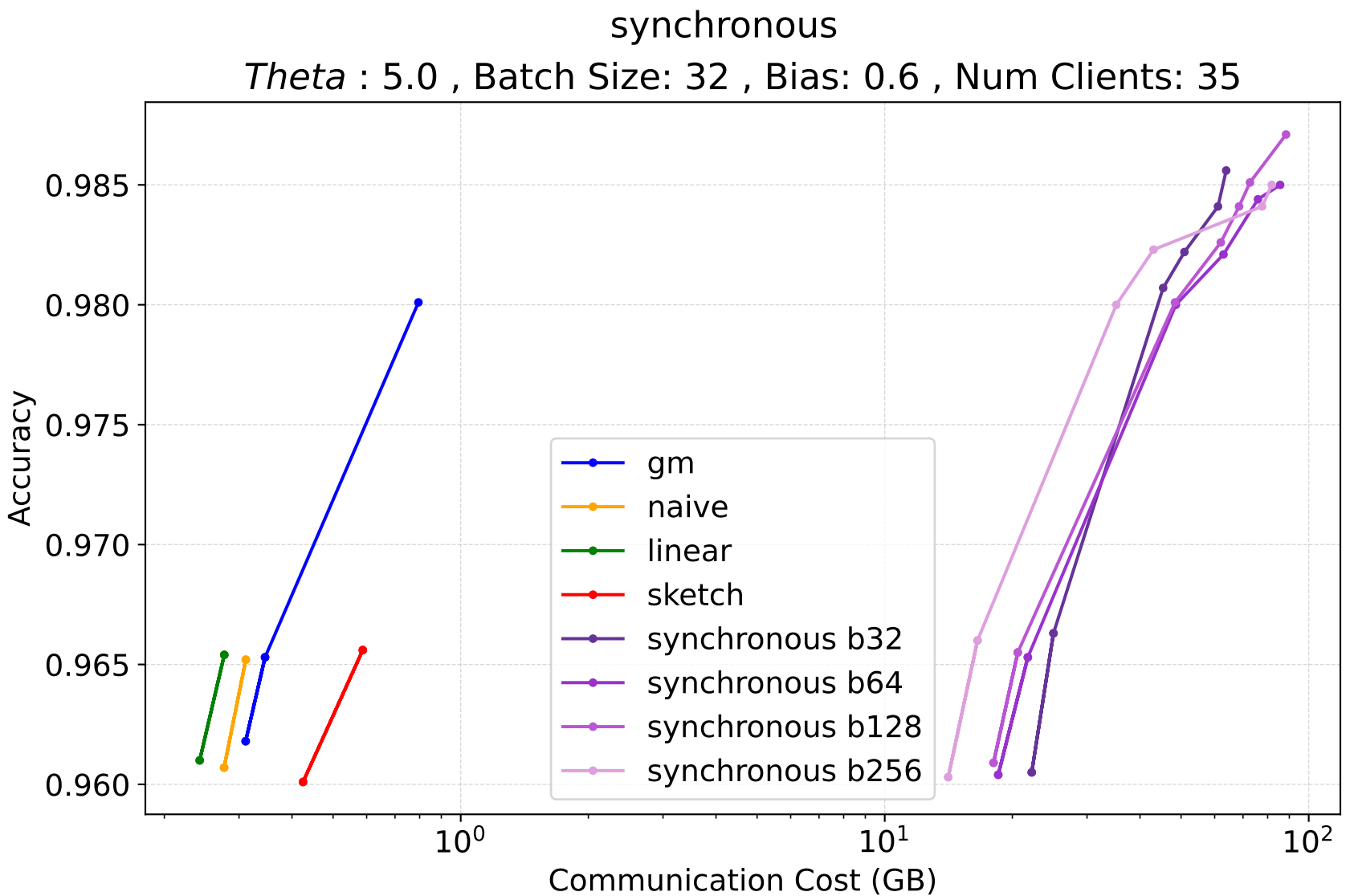

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 10
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)

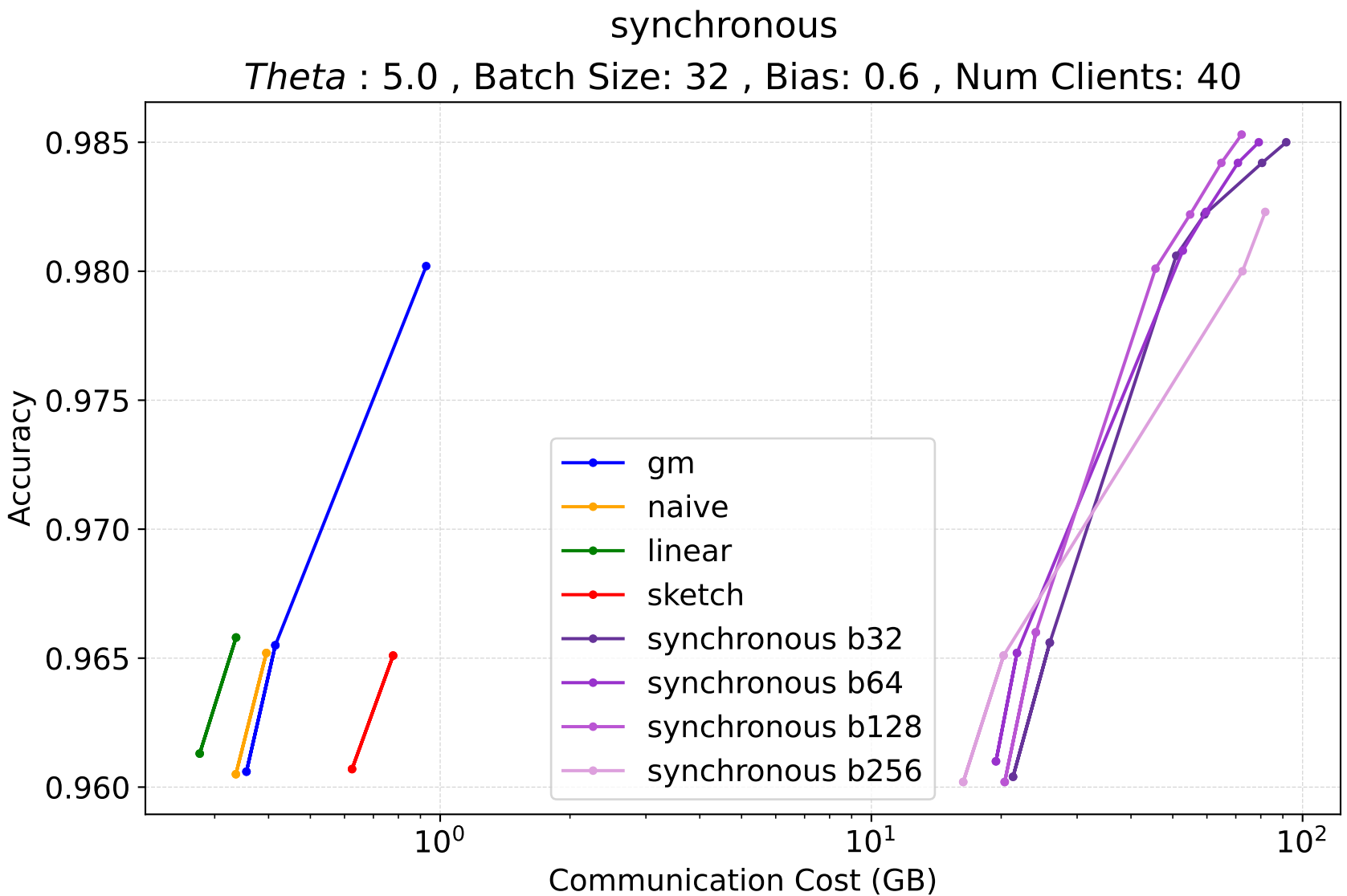

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

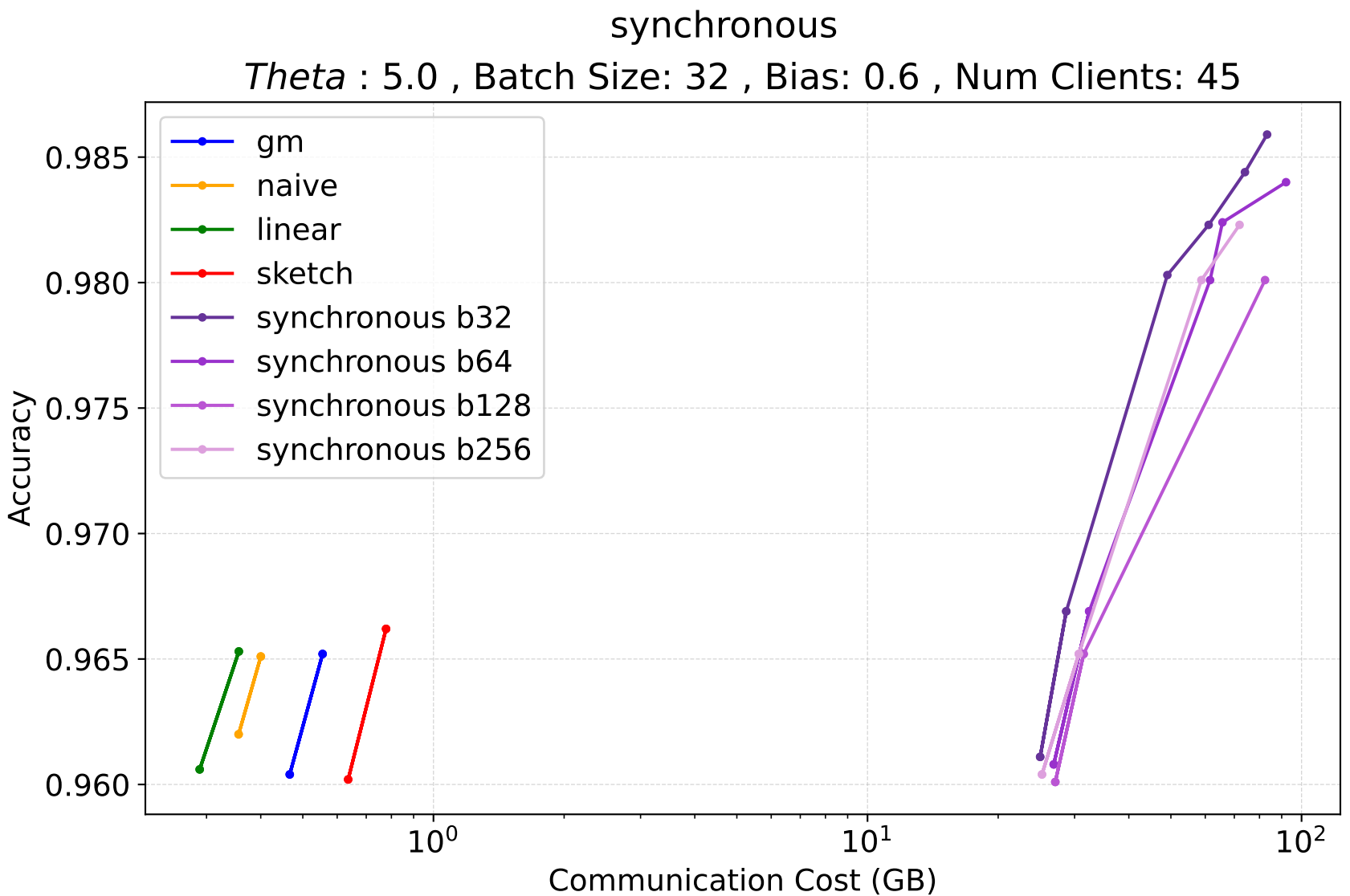

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

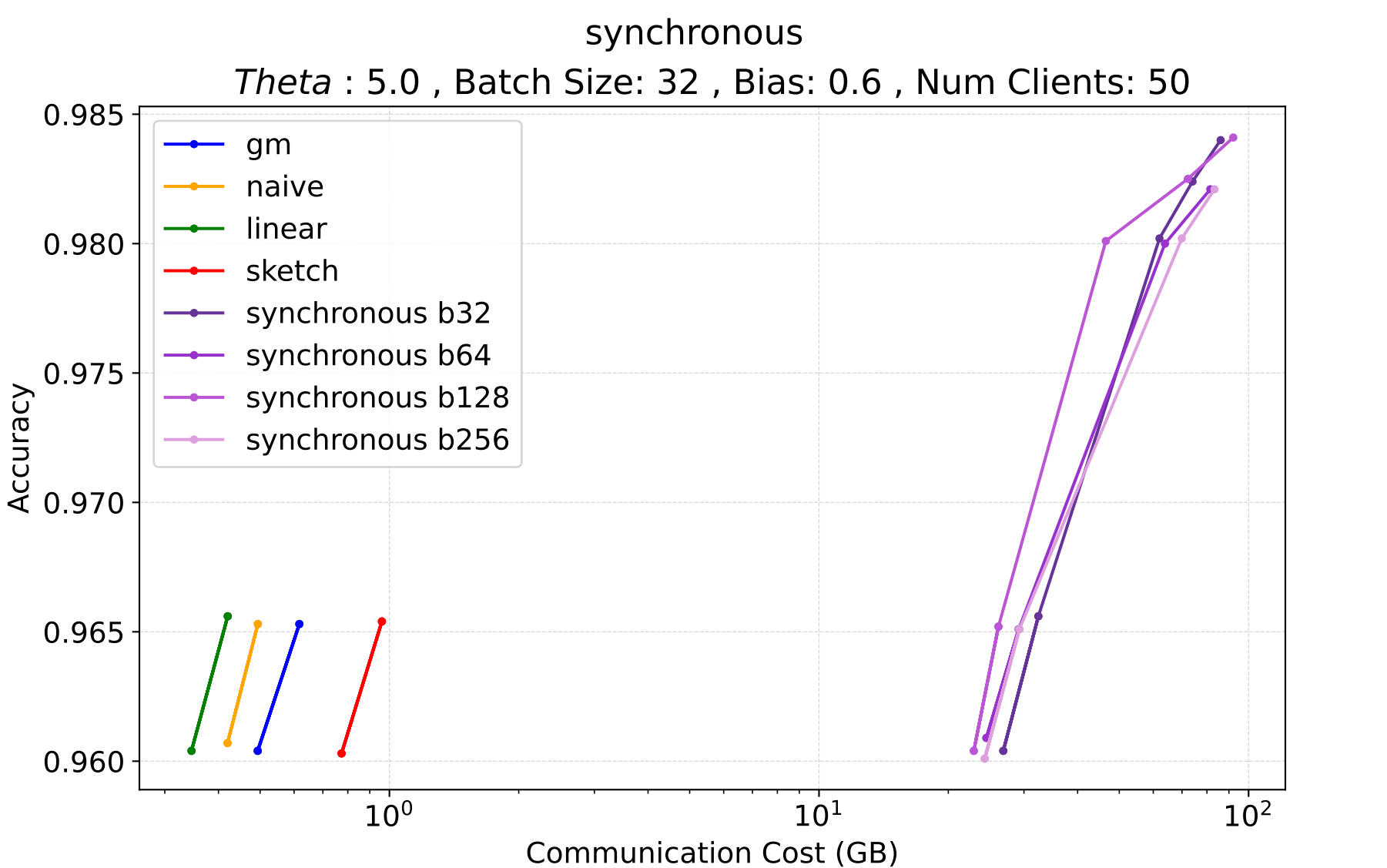

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

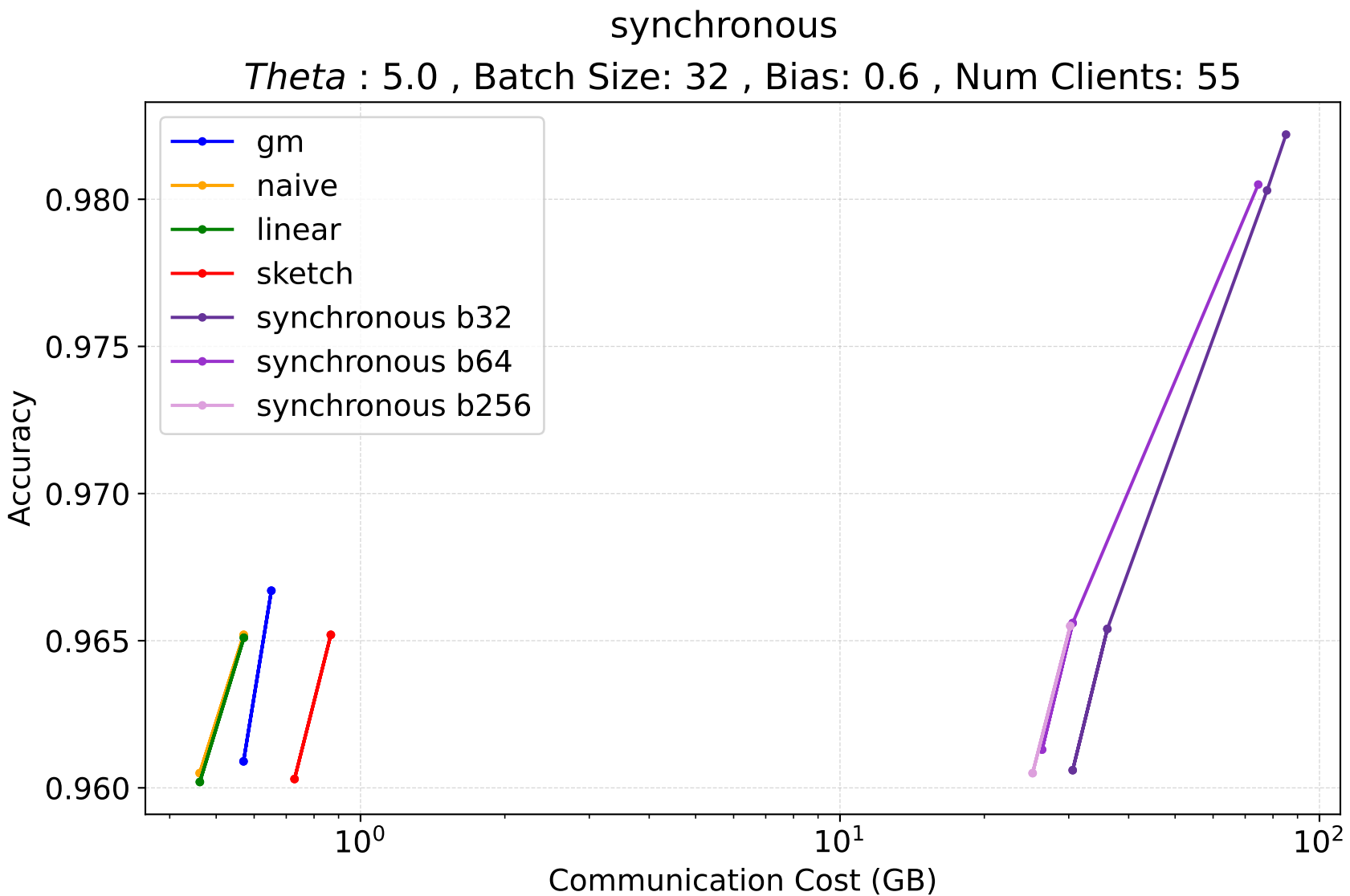

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

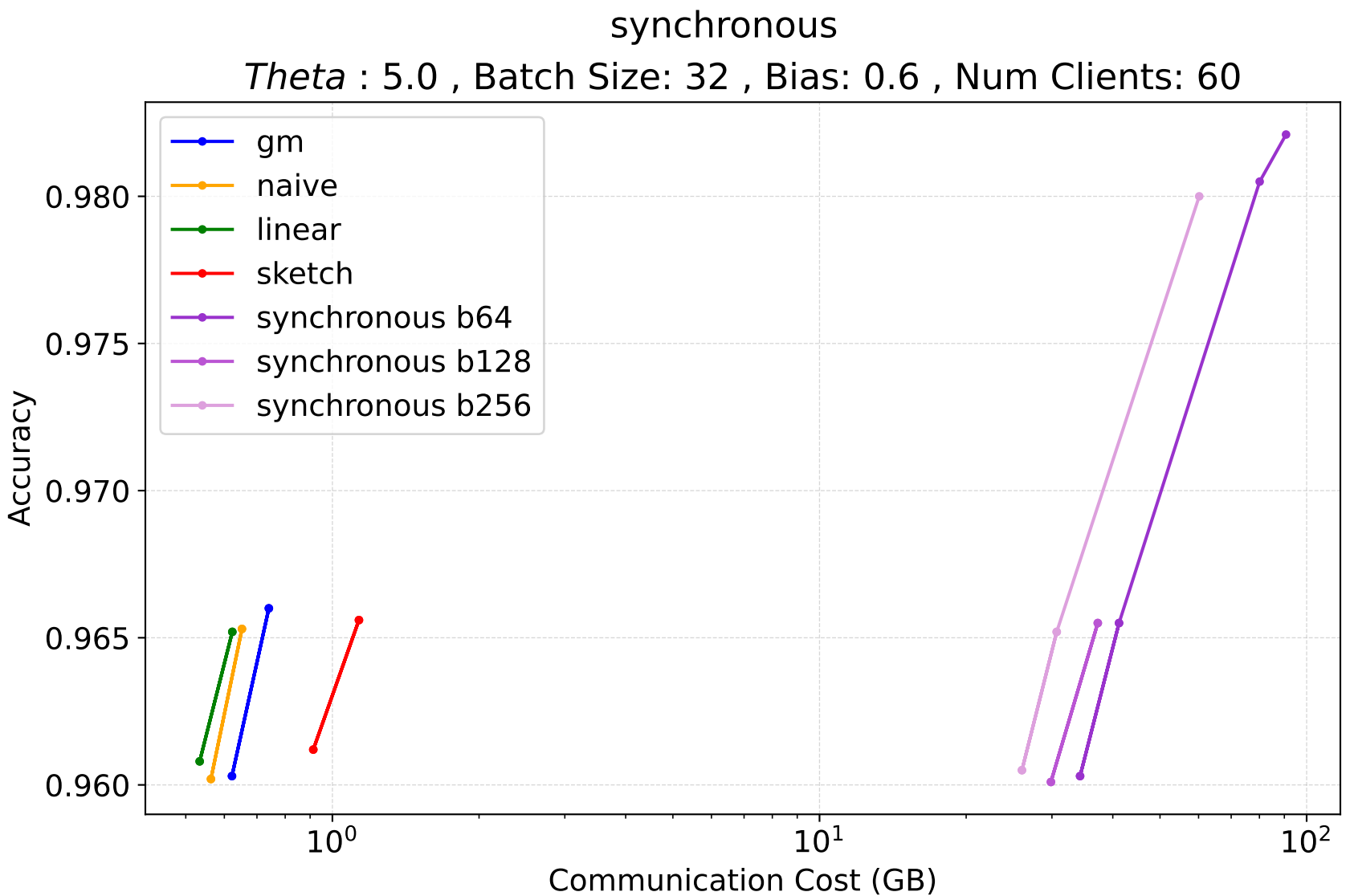

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 35
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

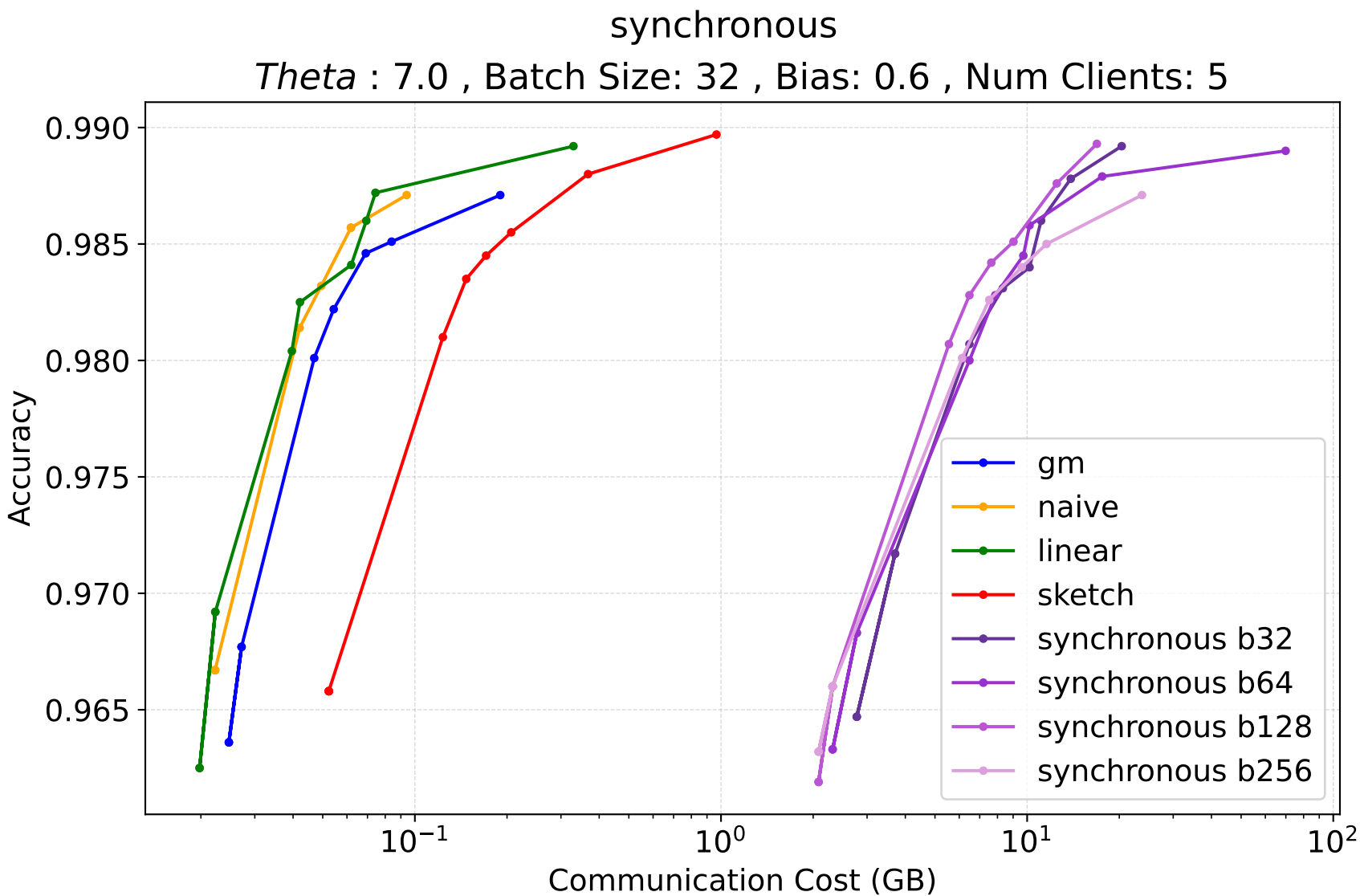

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 40
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

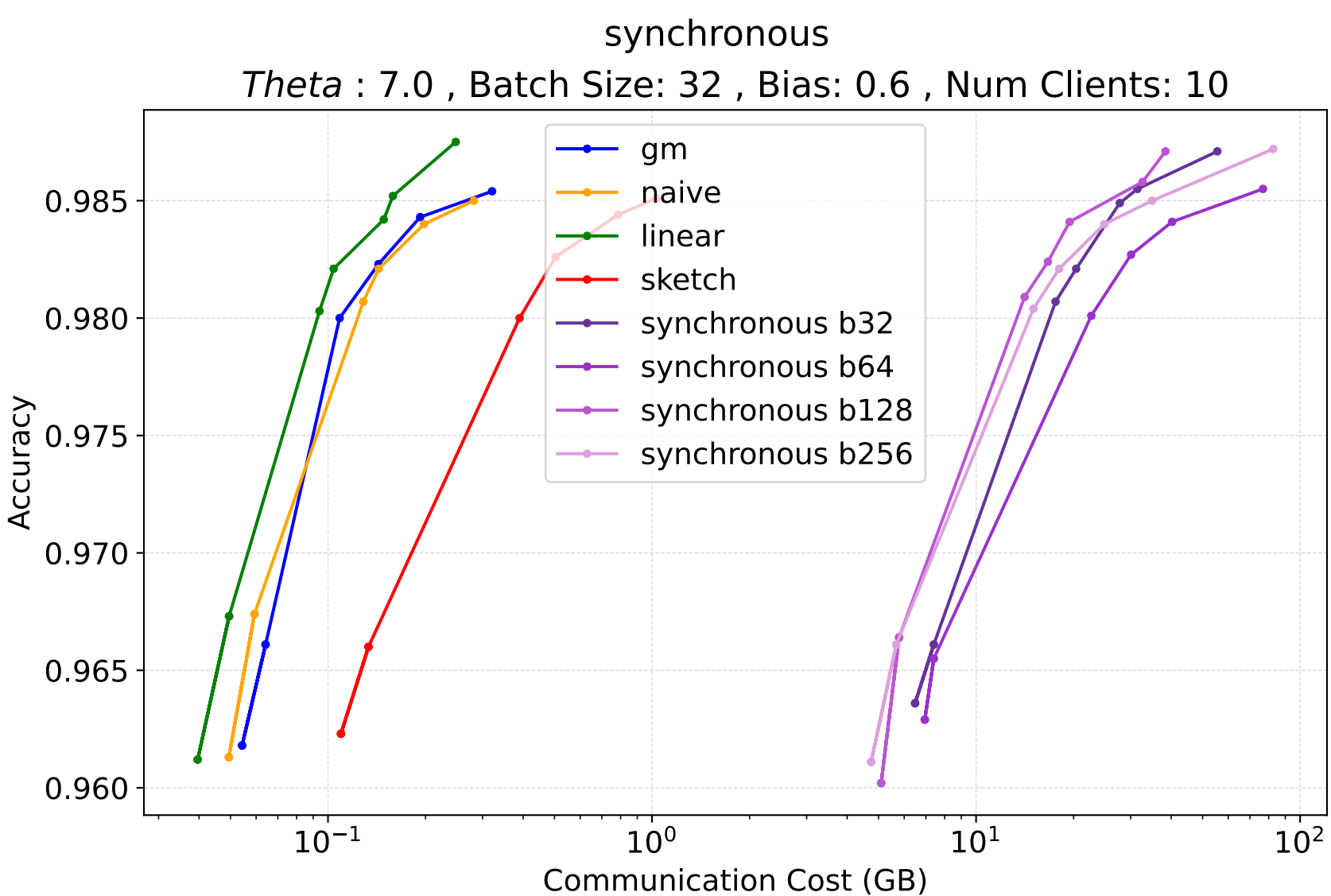

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

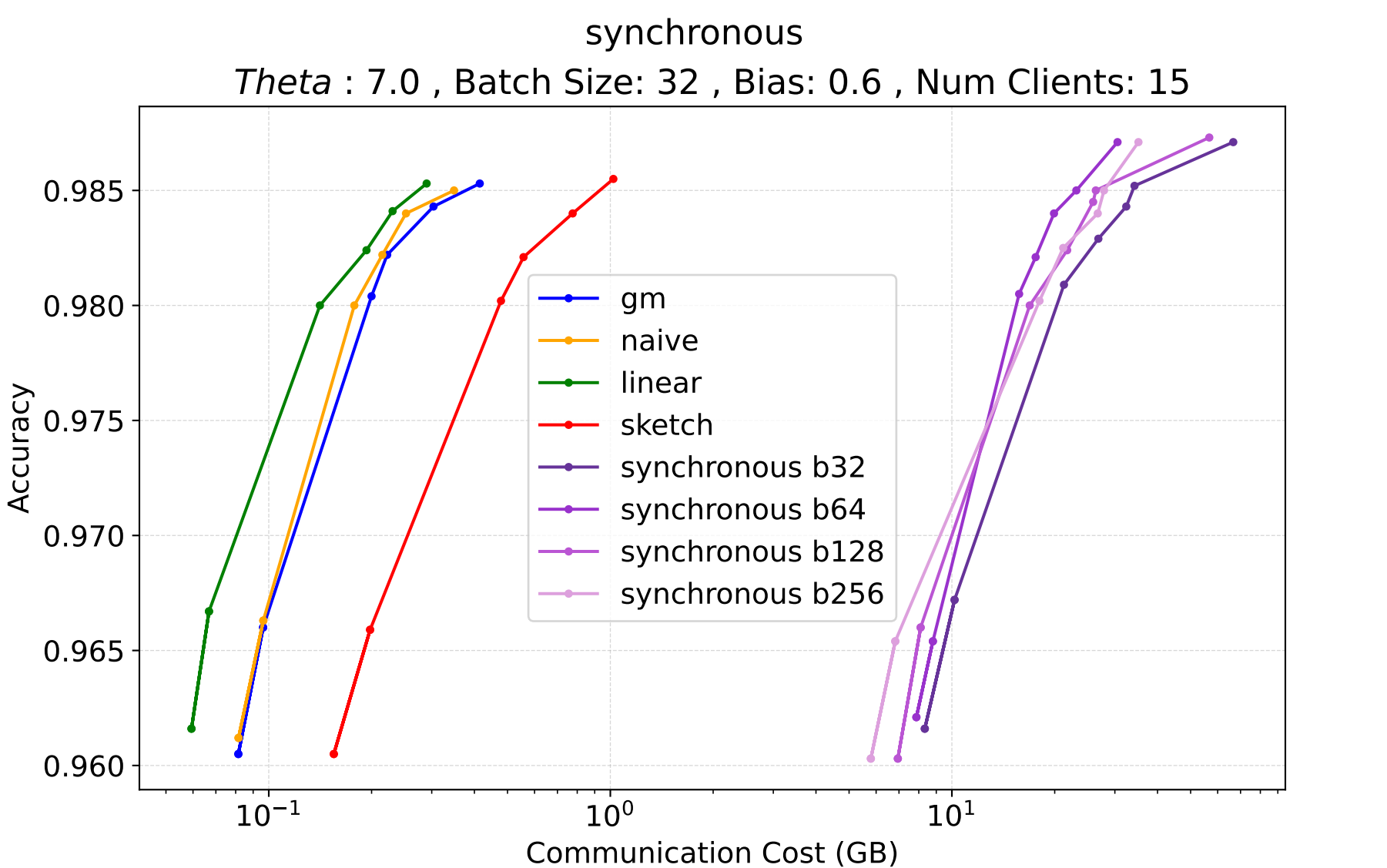

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

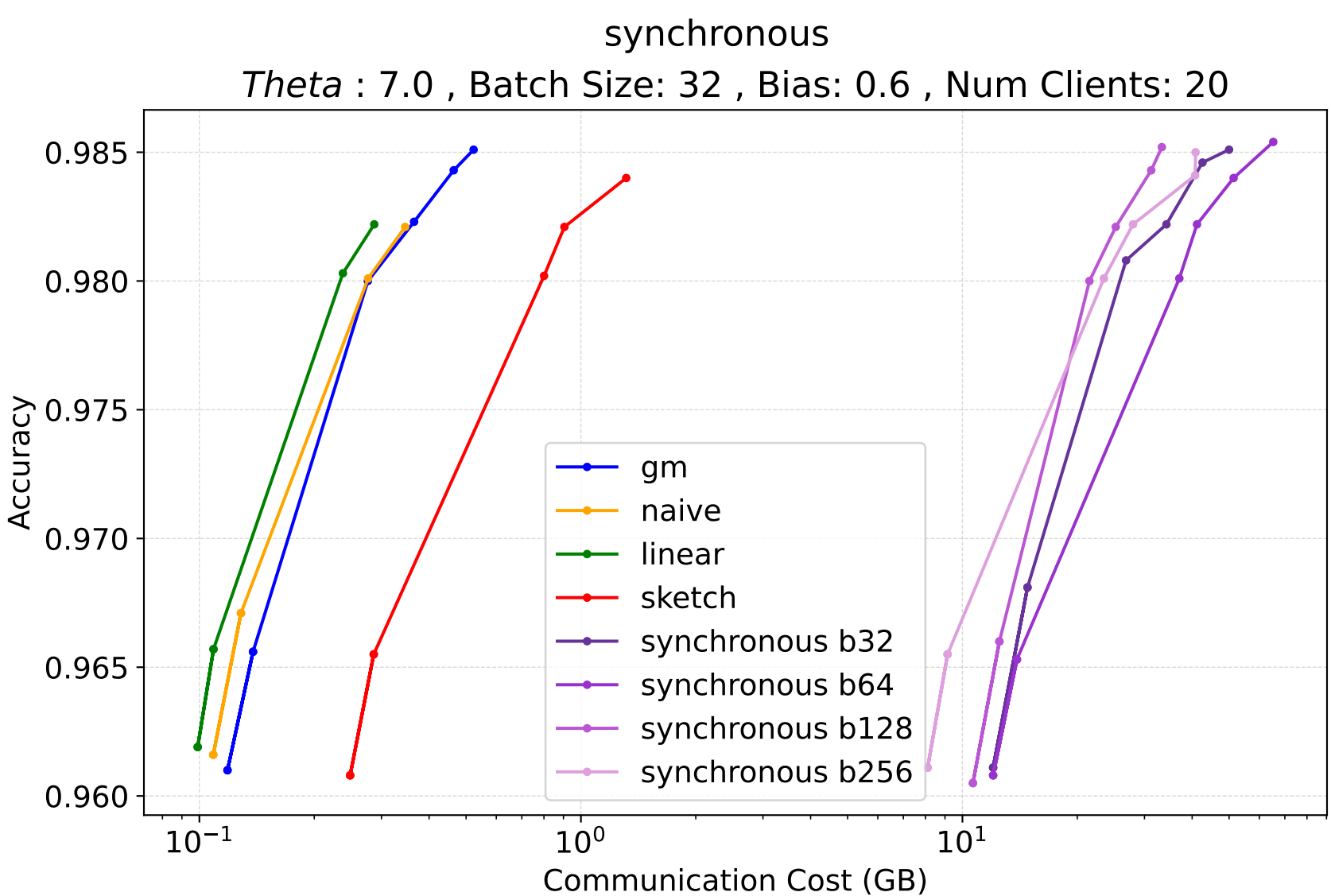

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

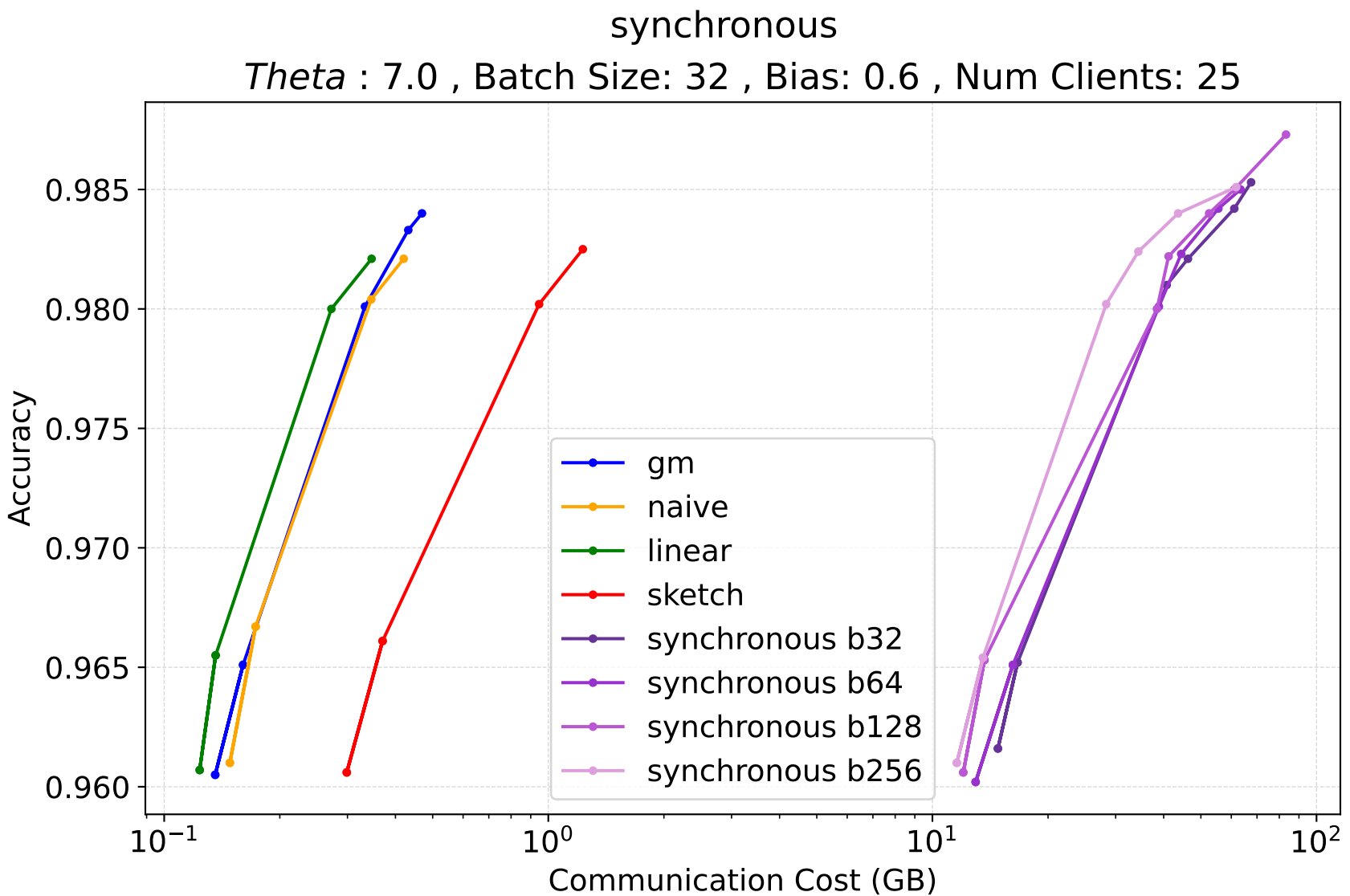

synchronous
Theta : 5.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 60
gm
naive
linear
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

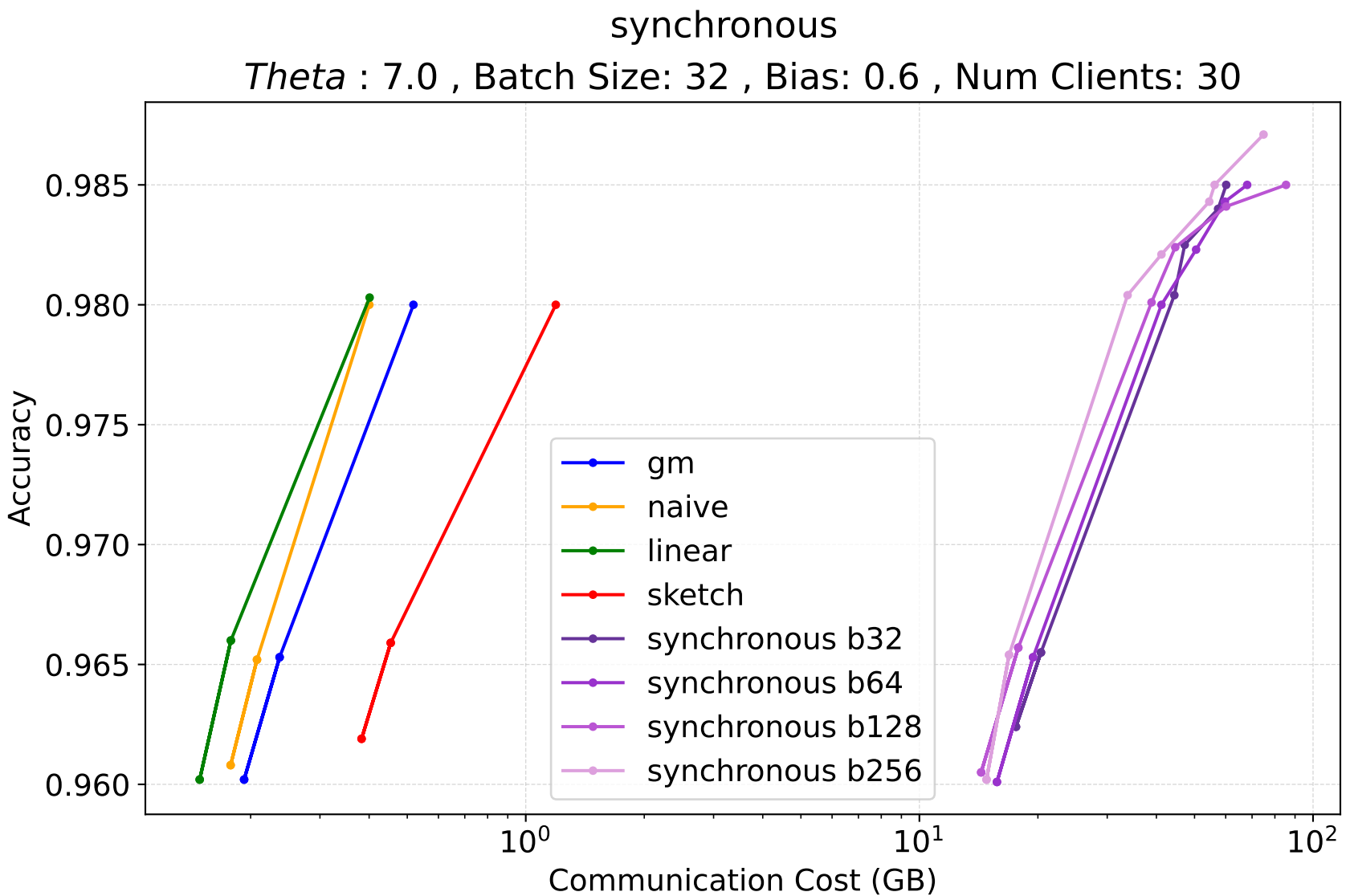

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

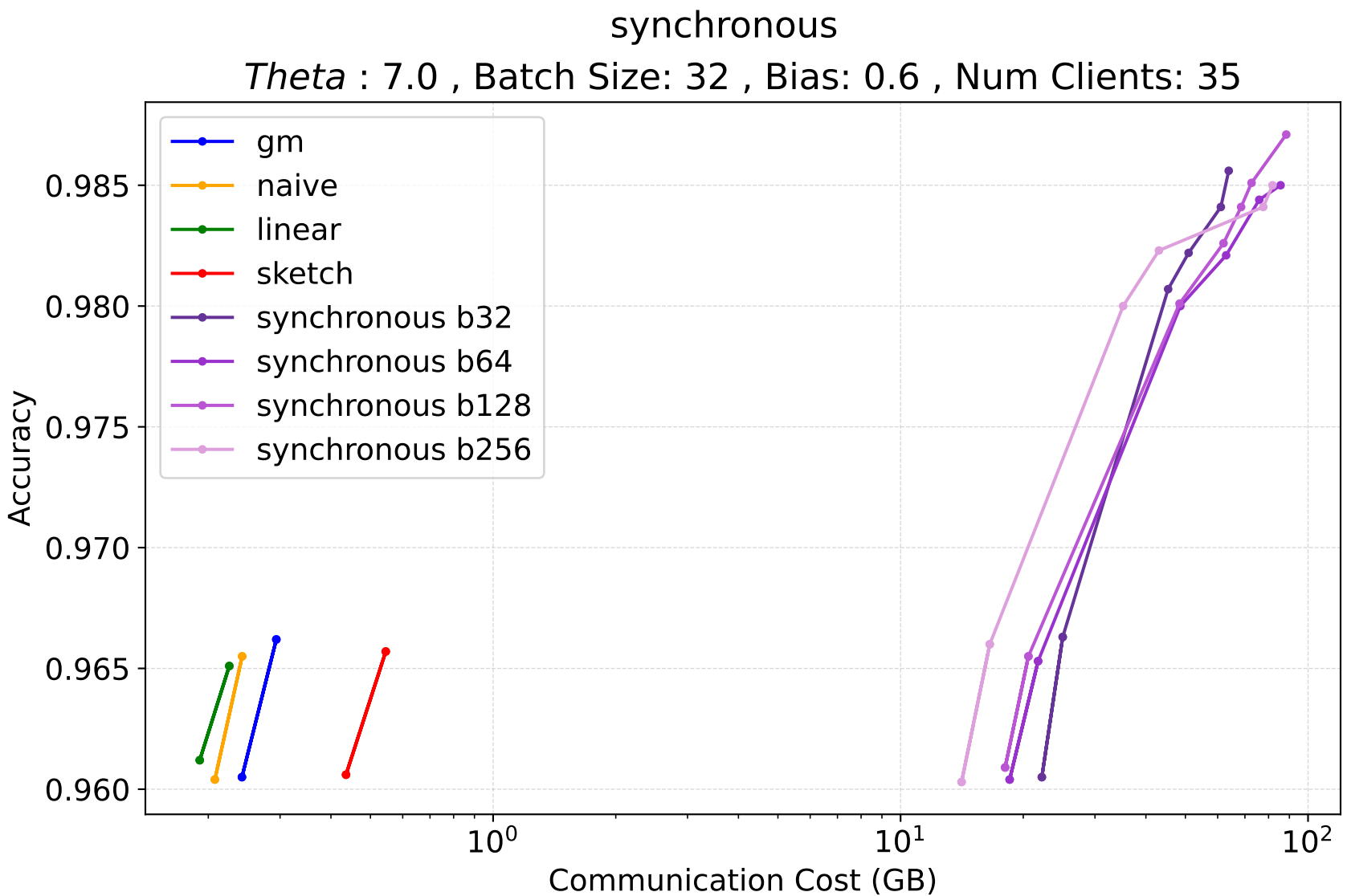

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 10
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)

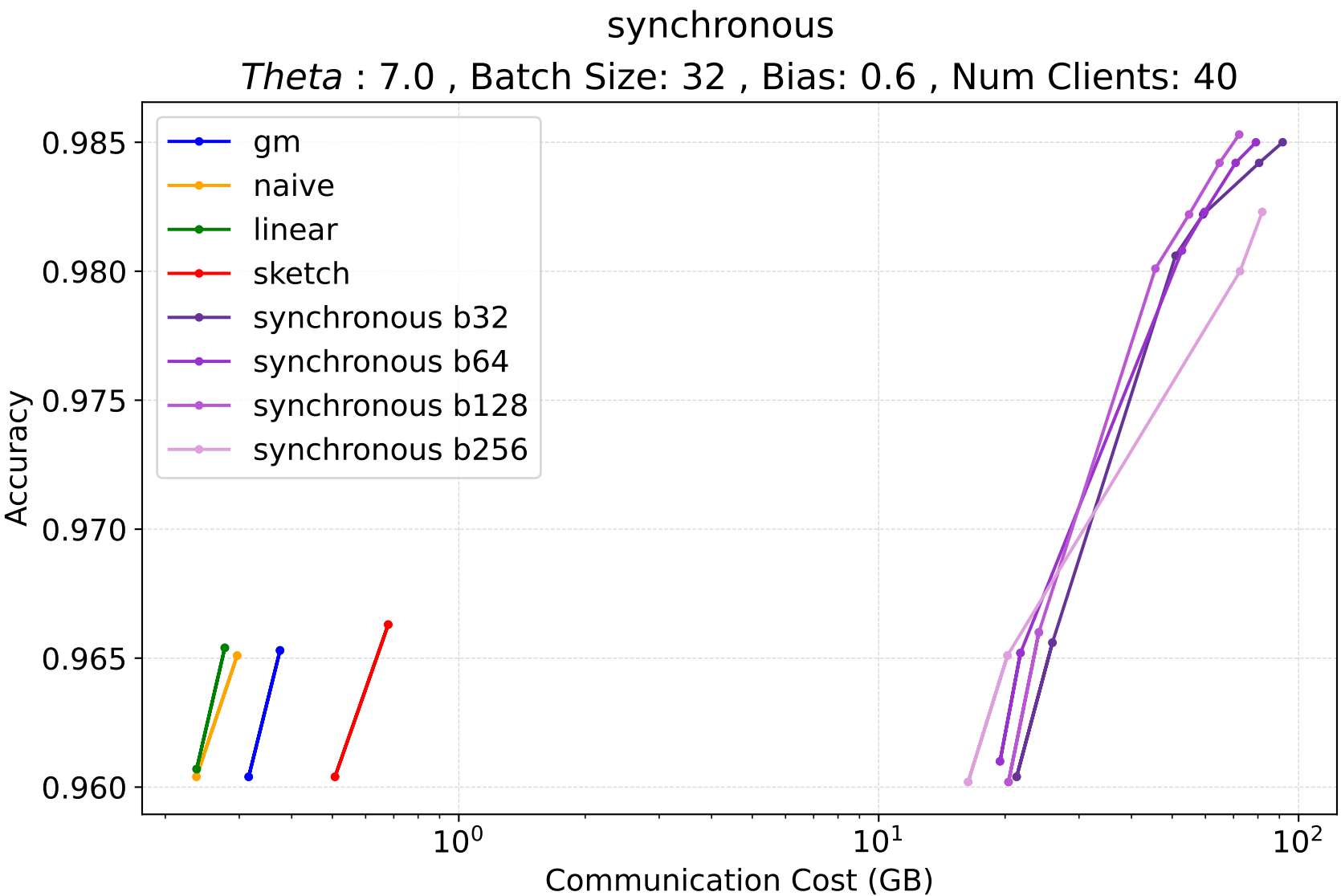

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

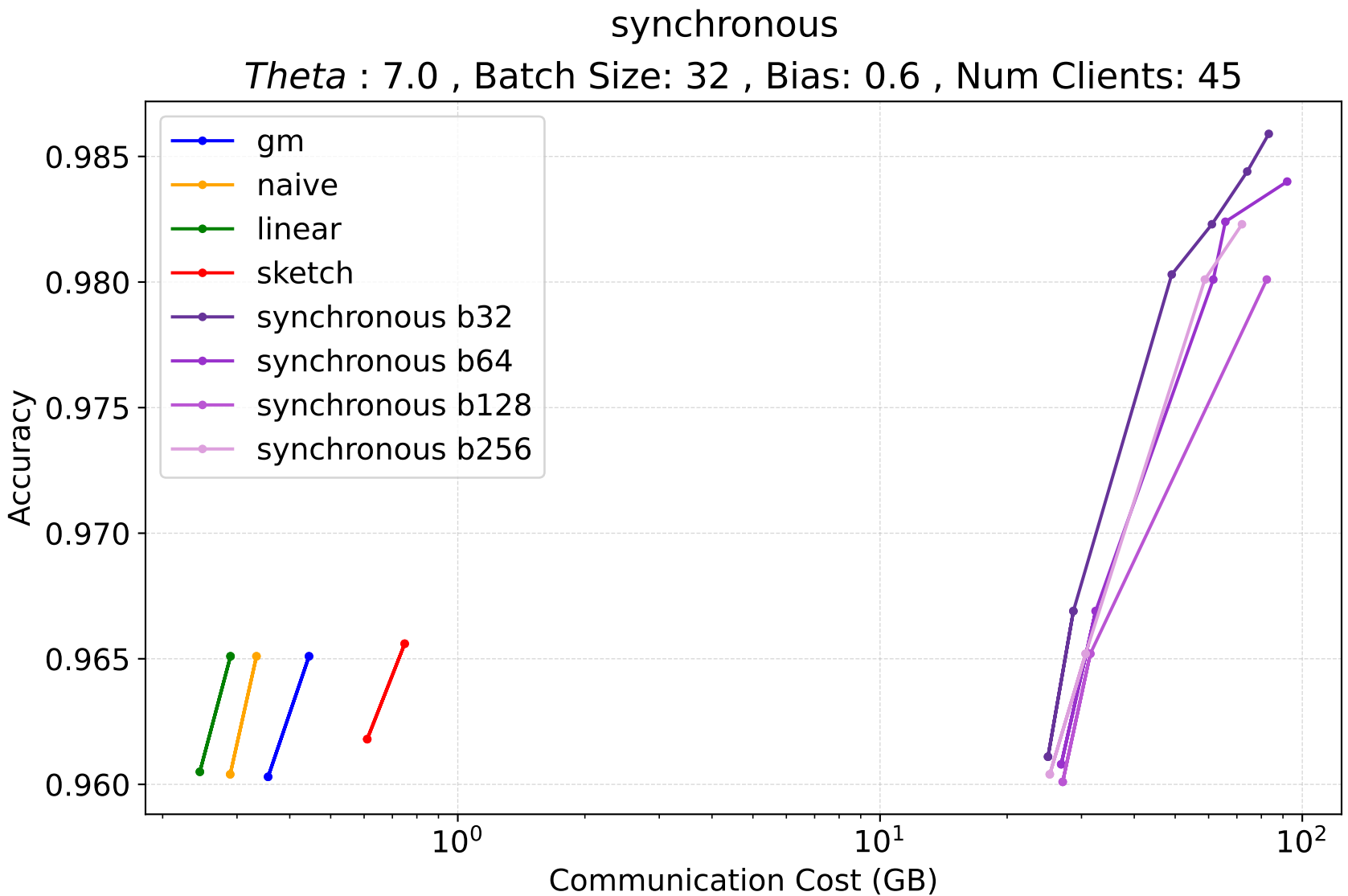

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

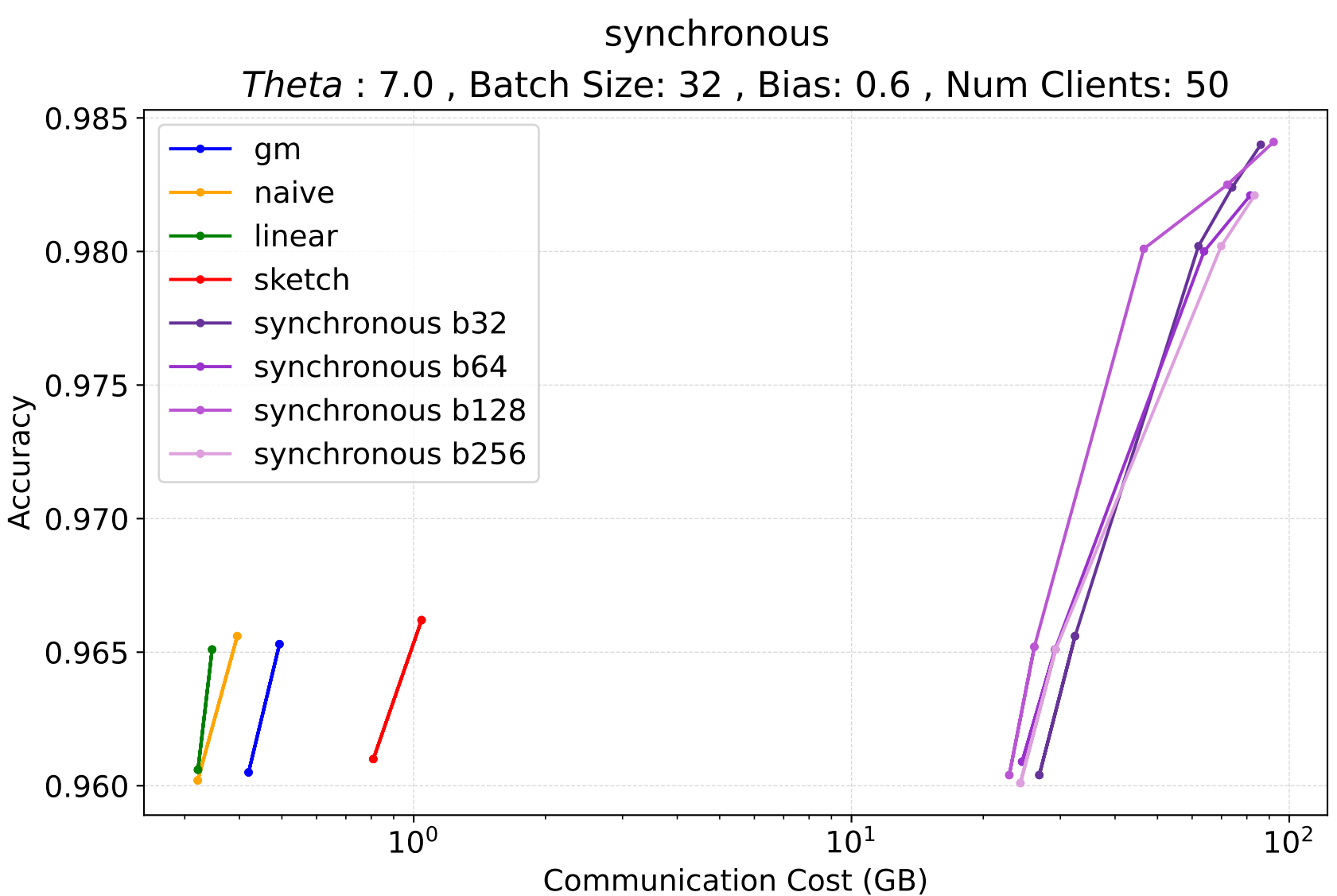

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

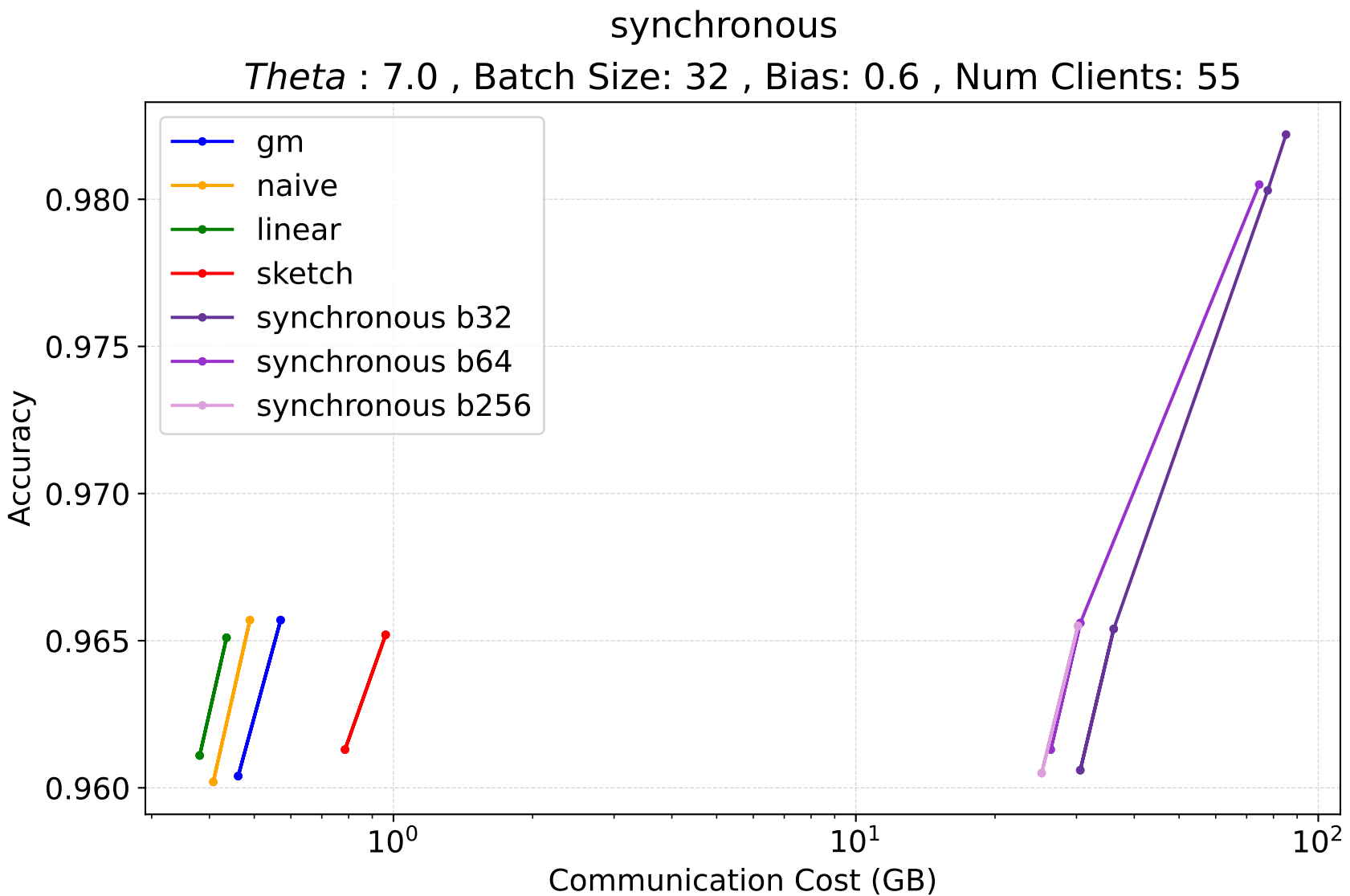

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

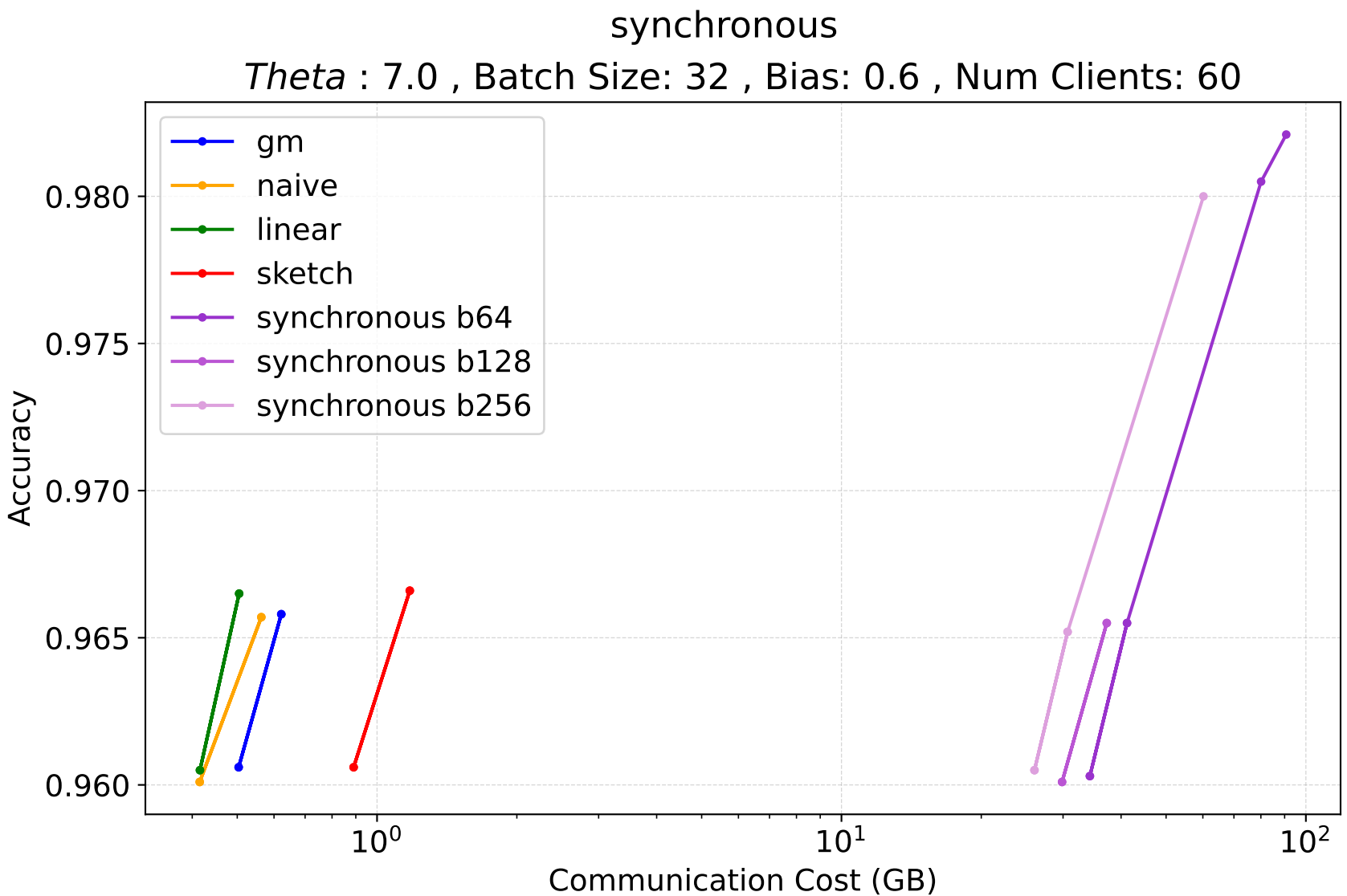

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

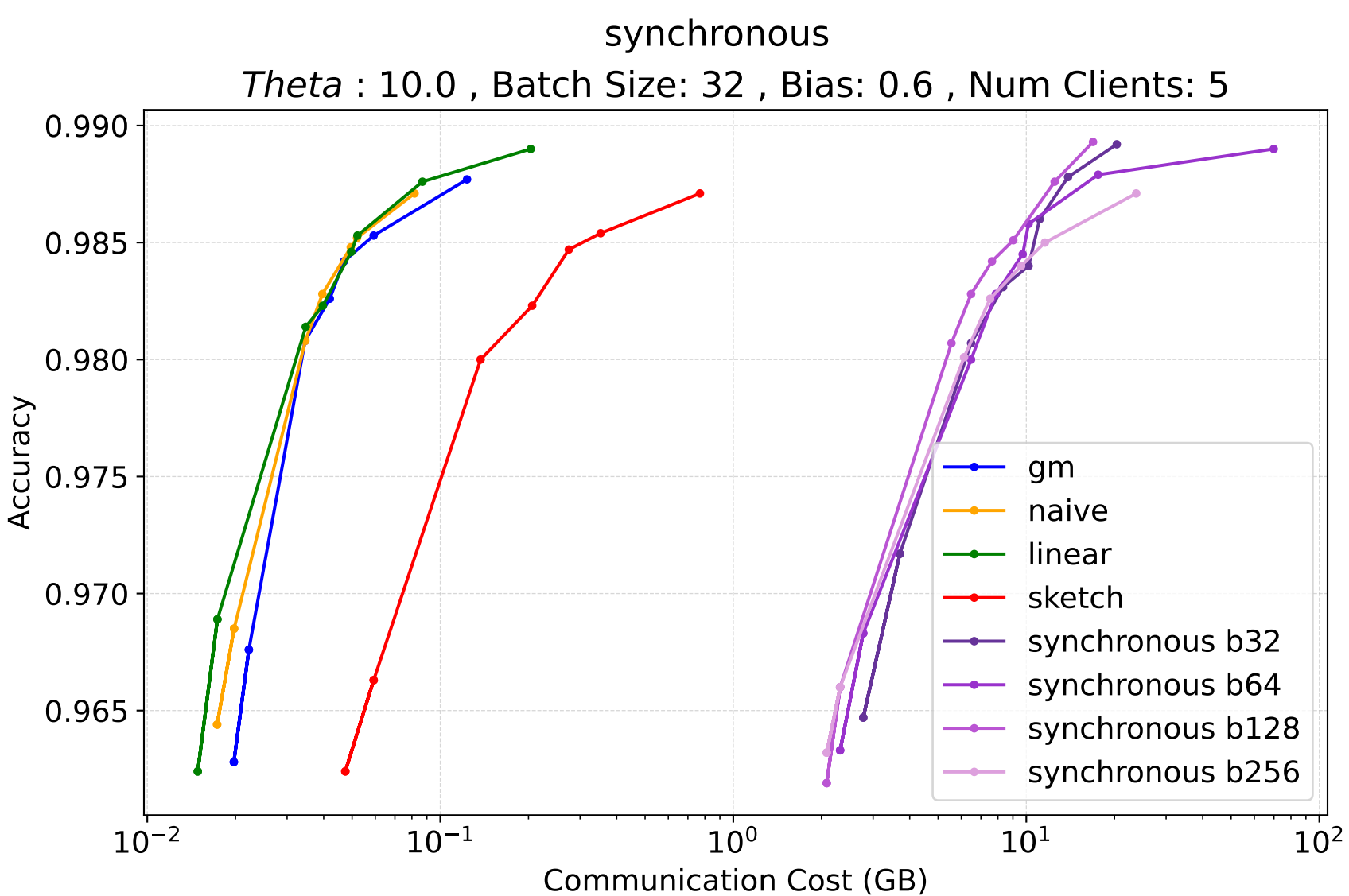

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

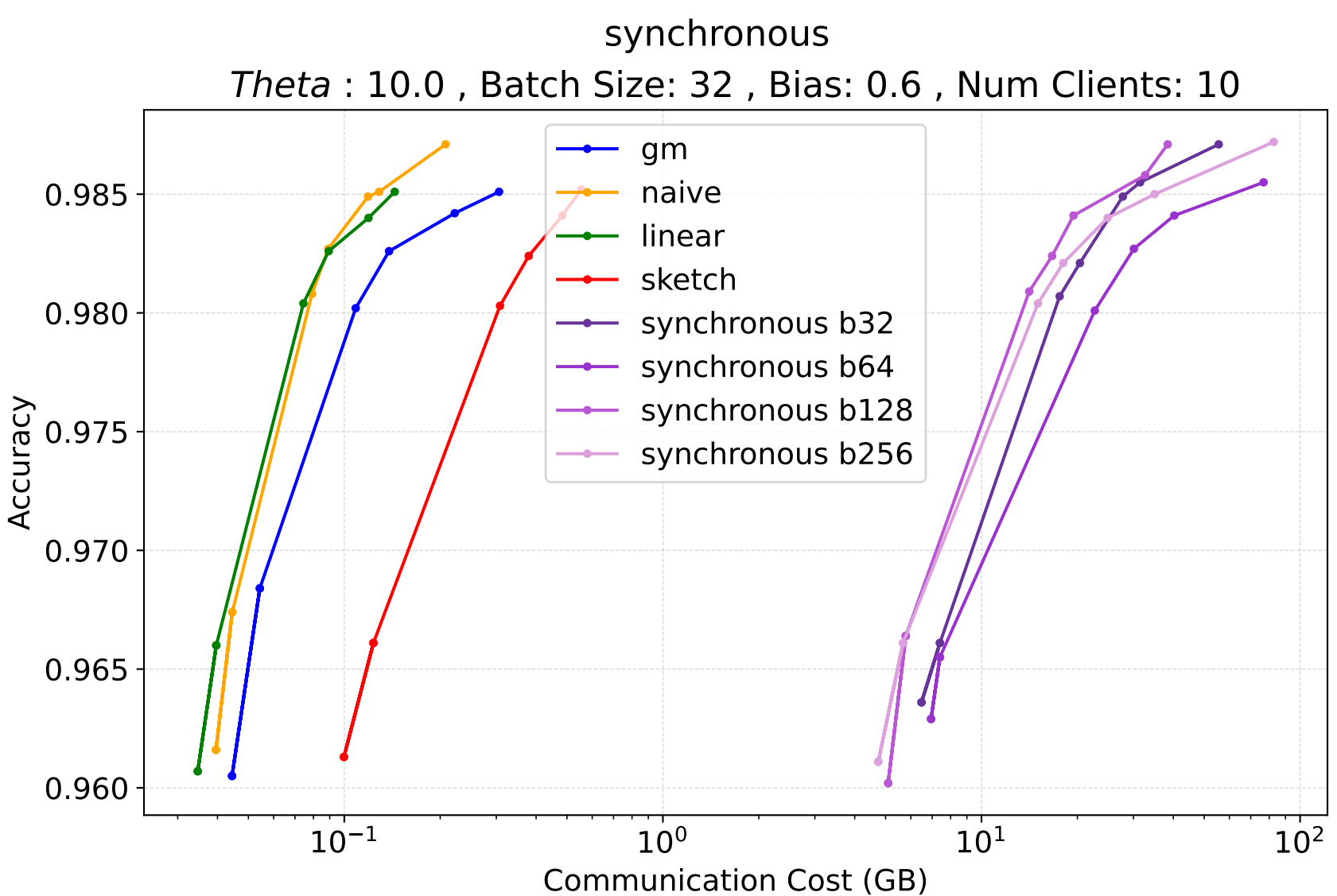

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

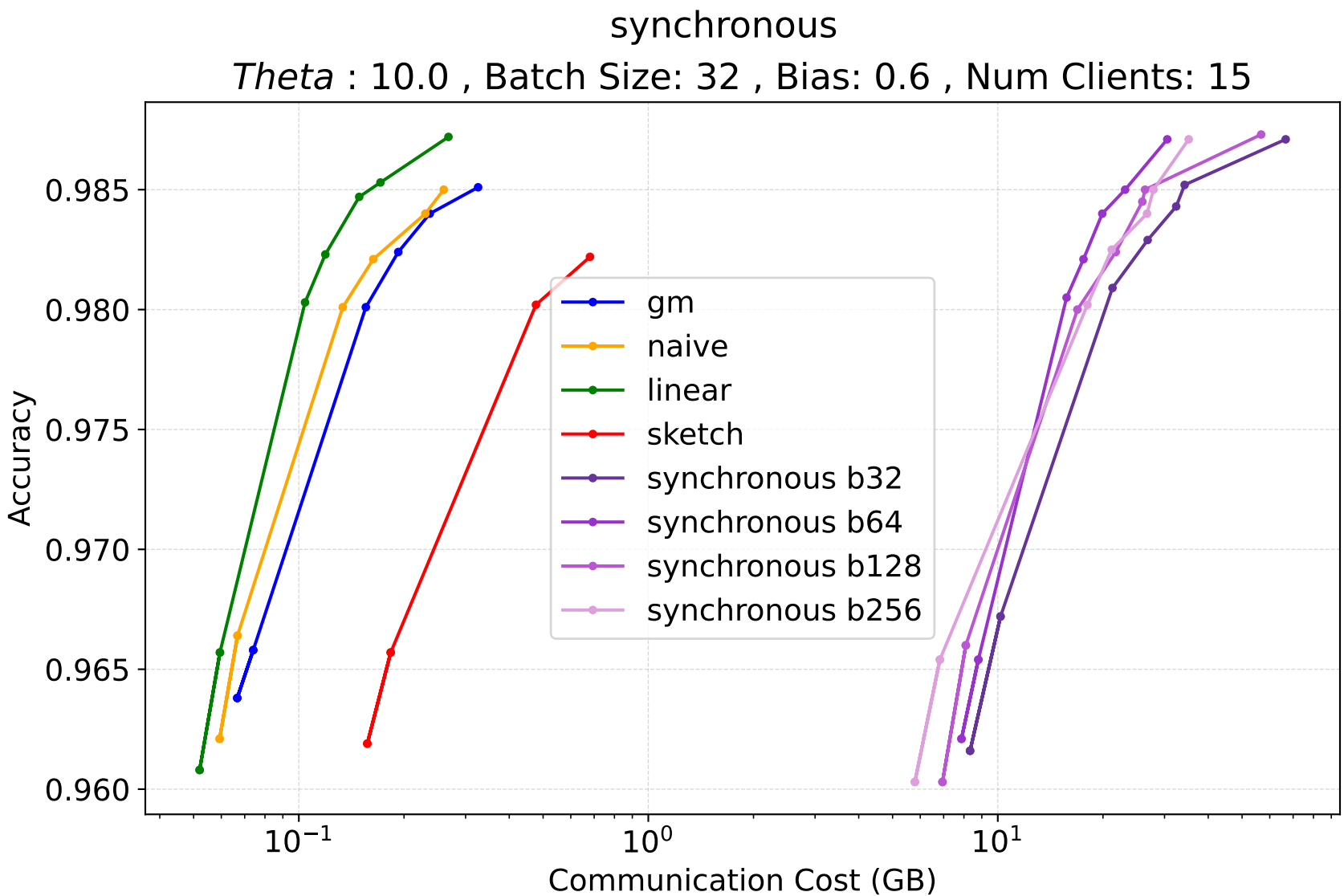

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

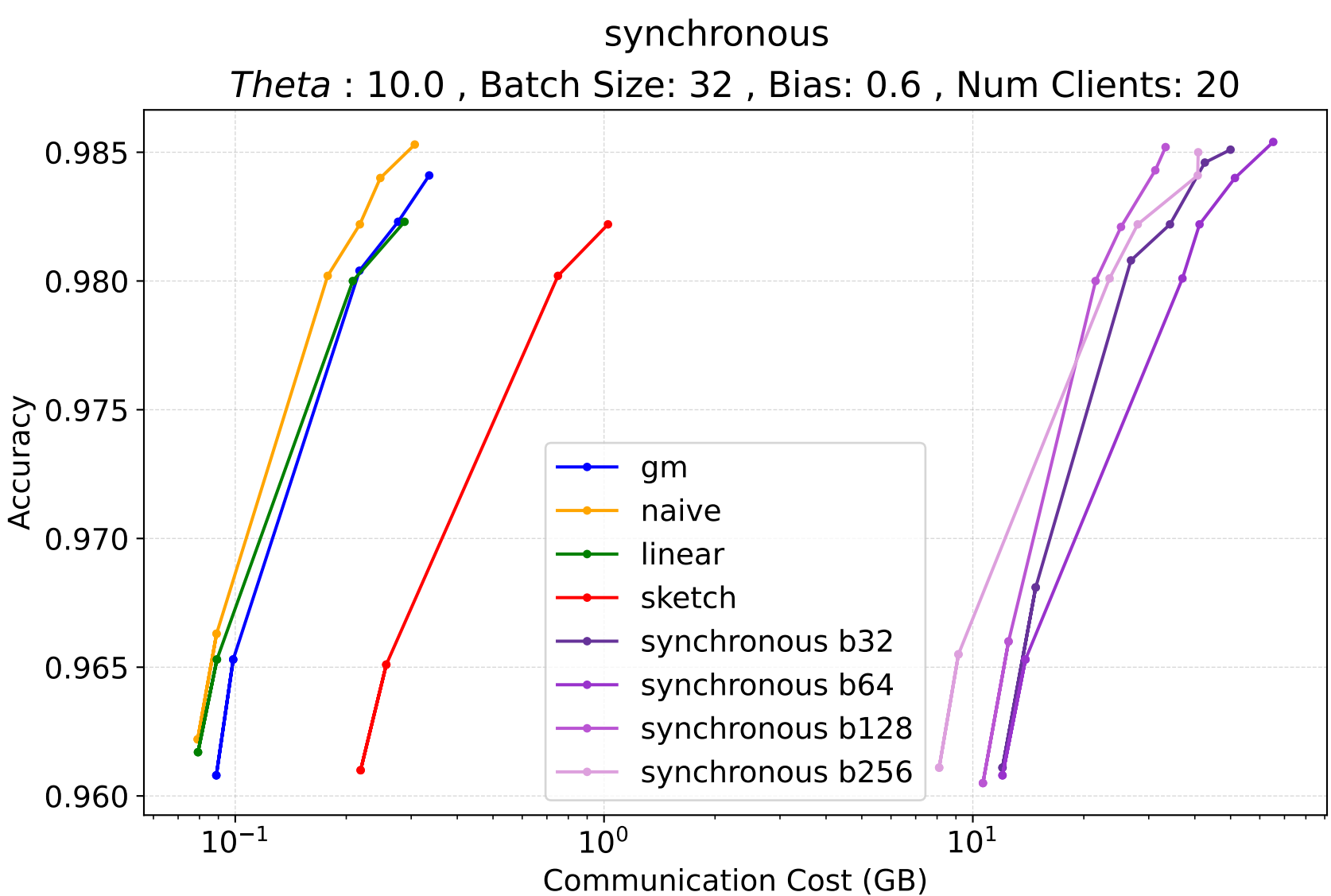

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

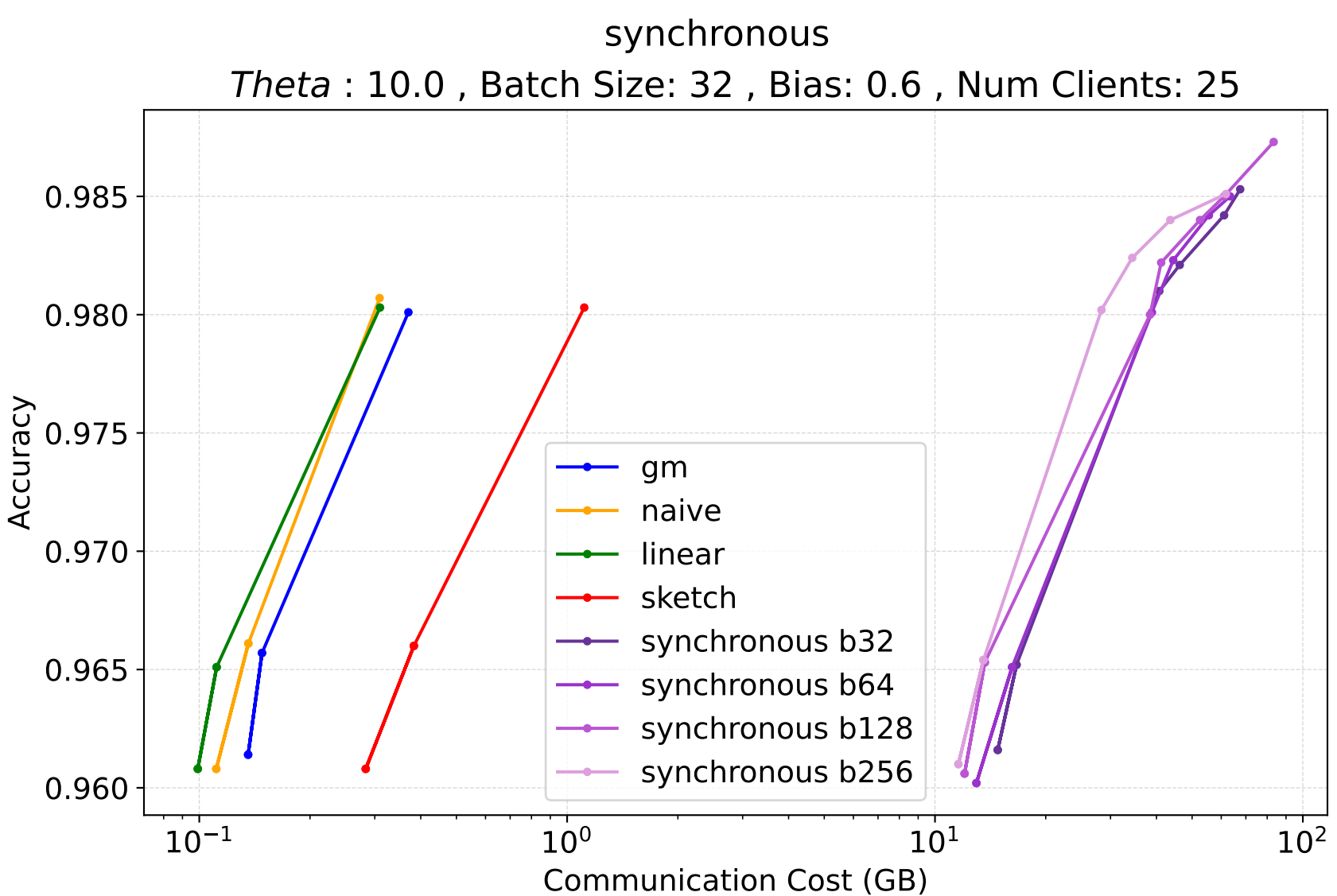

synchronous
Theta : 7.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 60
gm
naive
linear
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

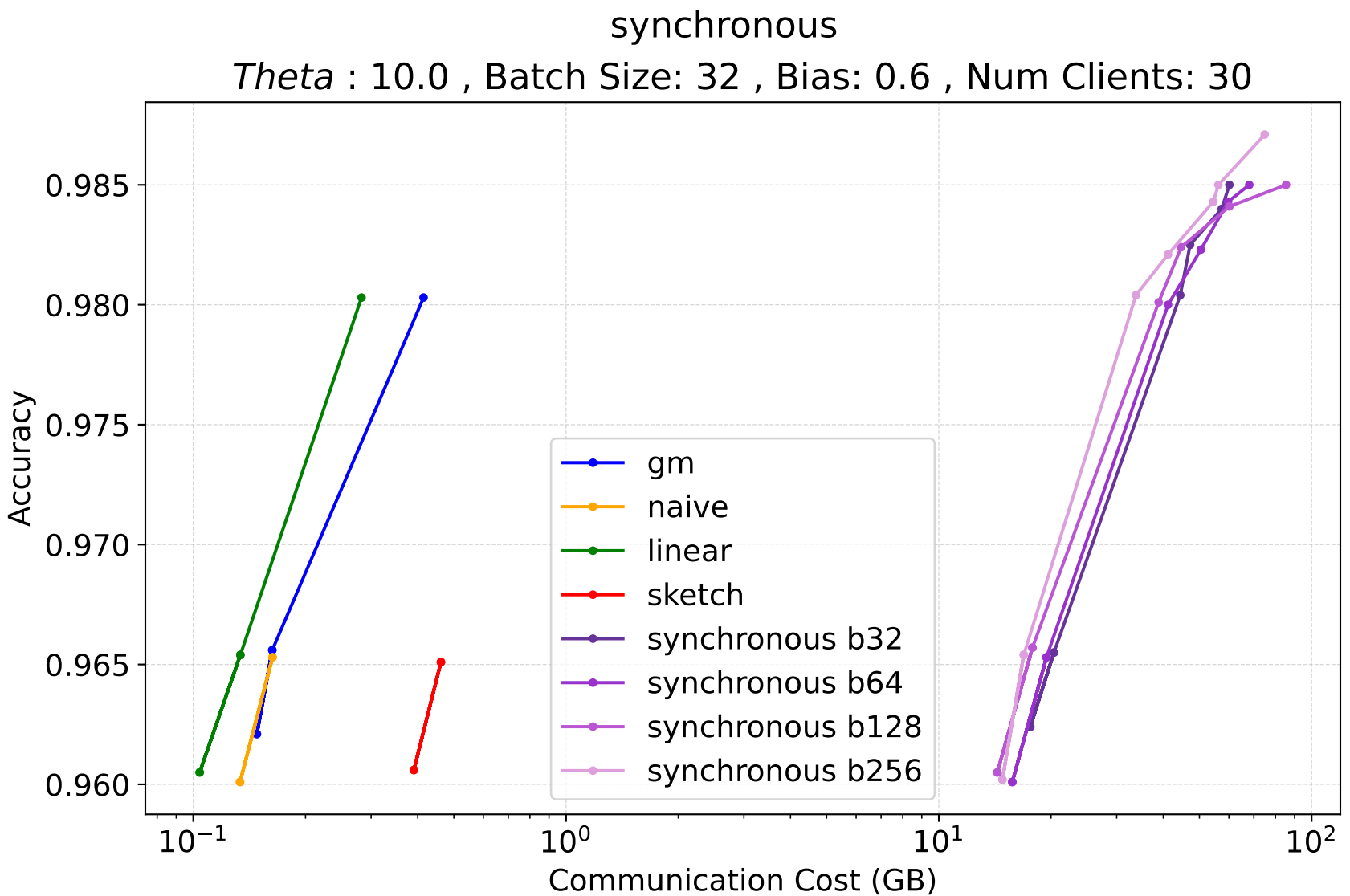

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
10^{-2}
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

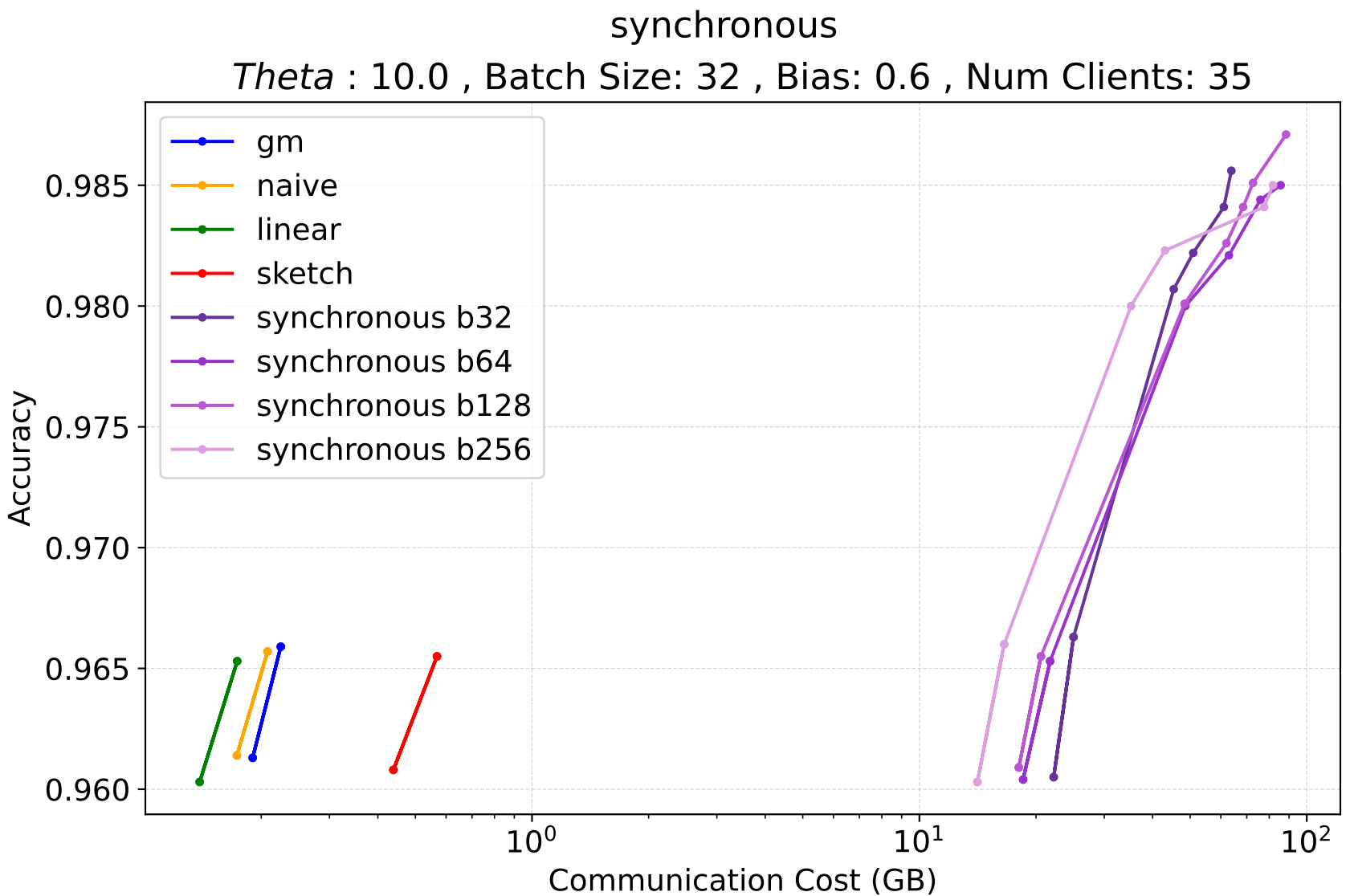

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 10
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)

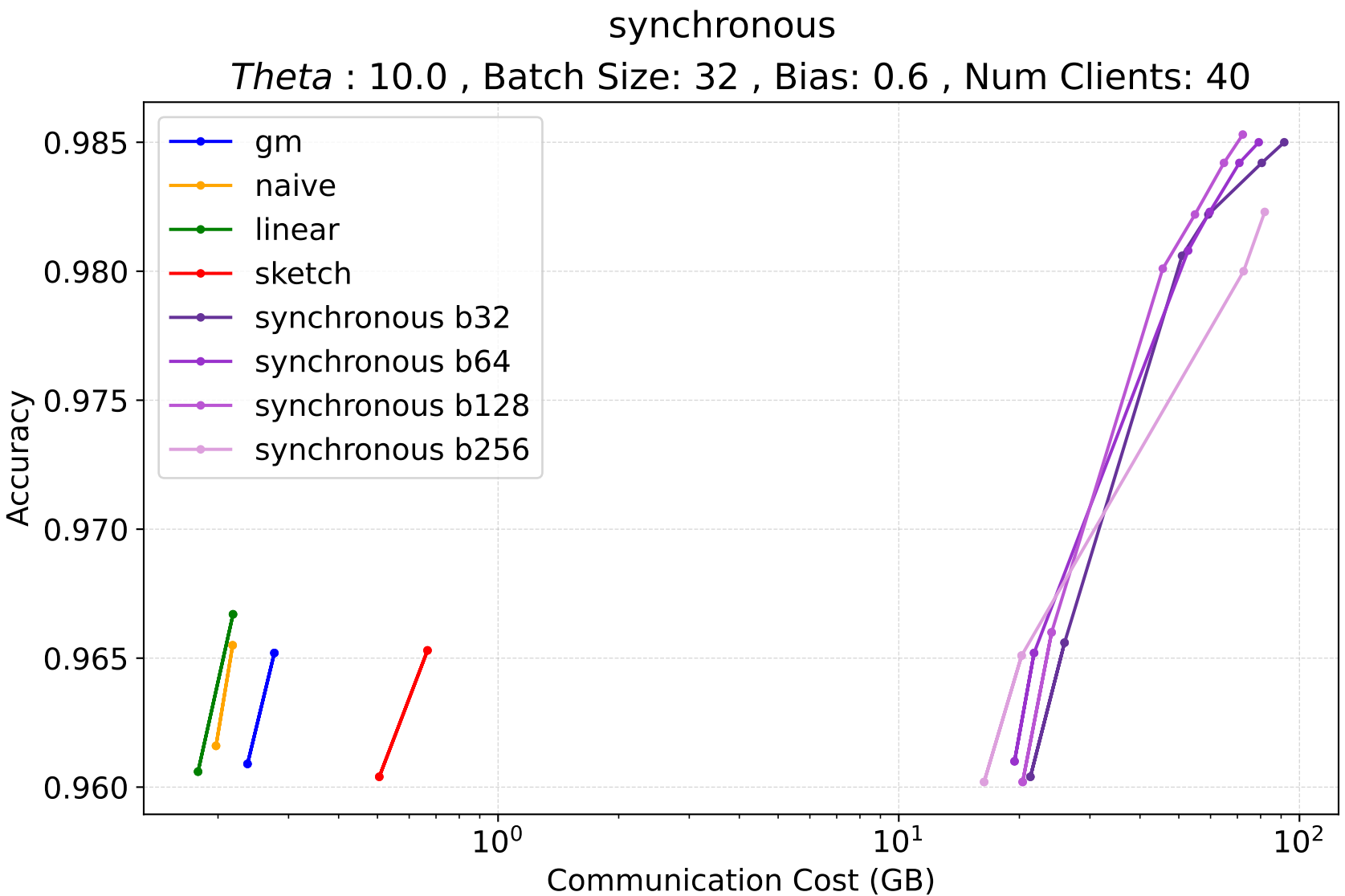

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 15
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

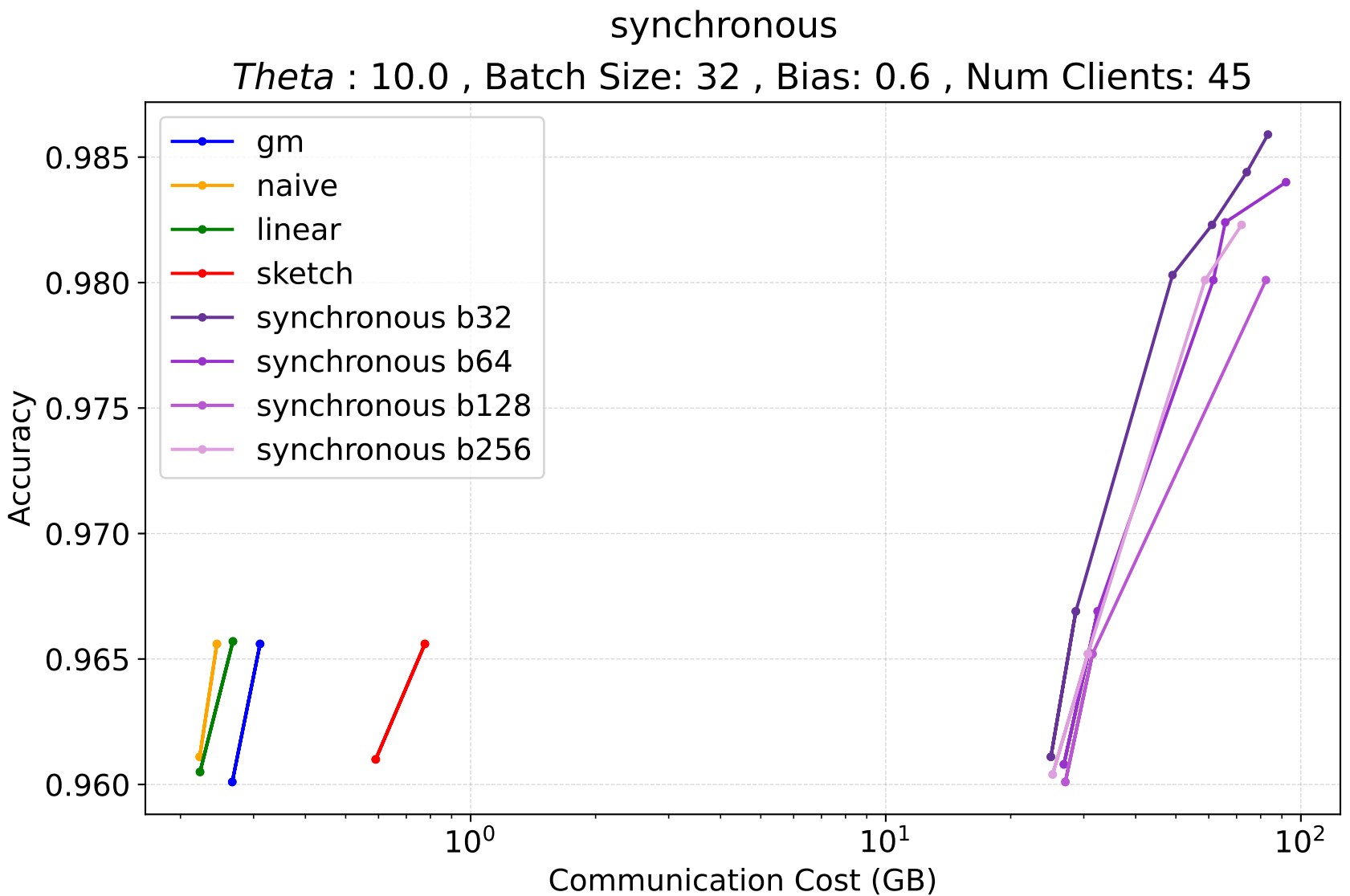

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 20
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

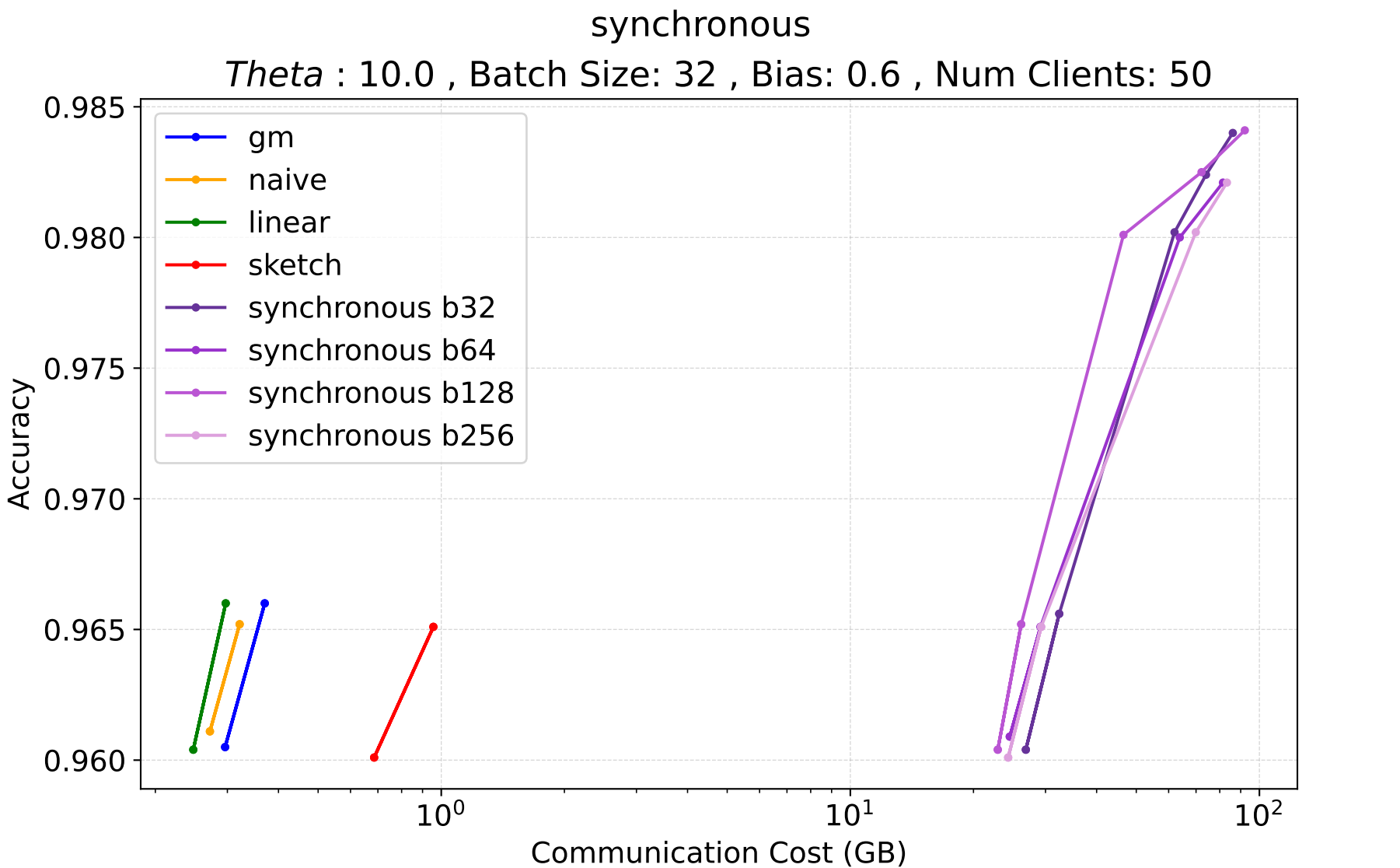

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

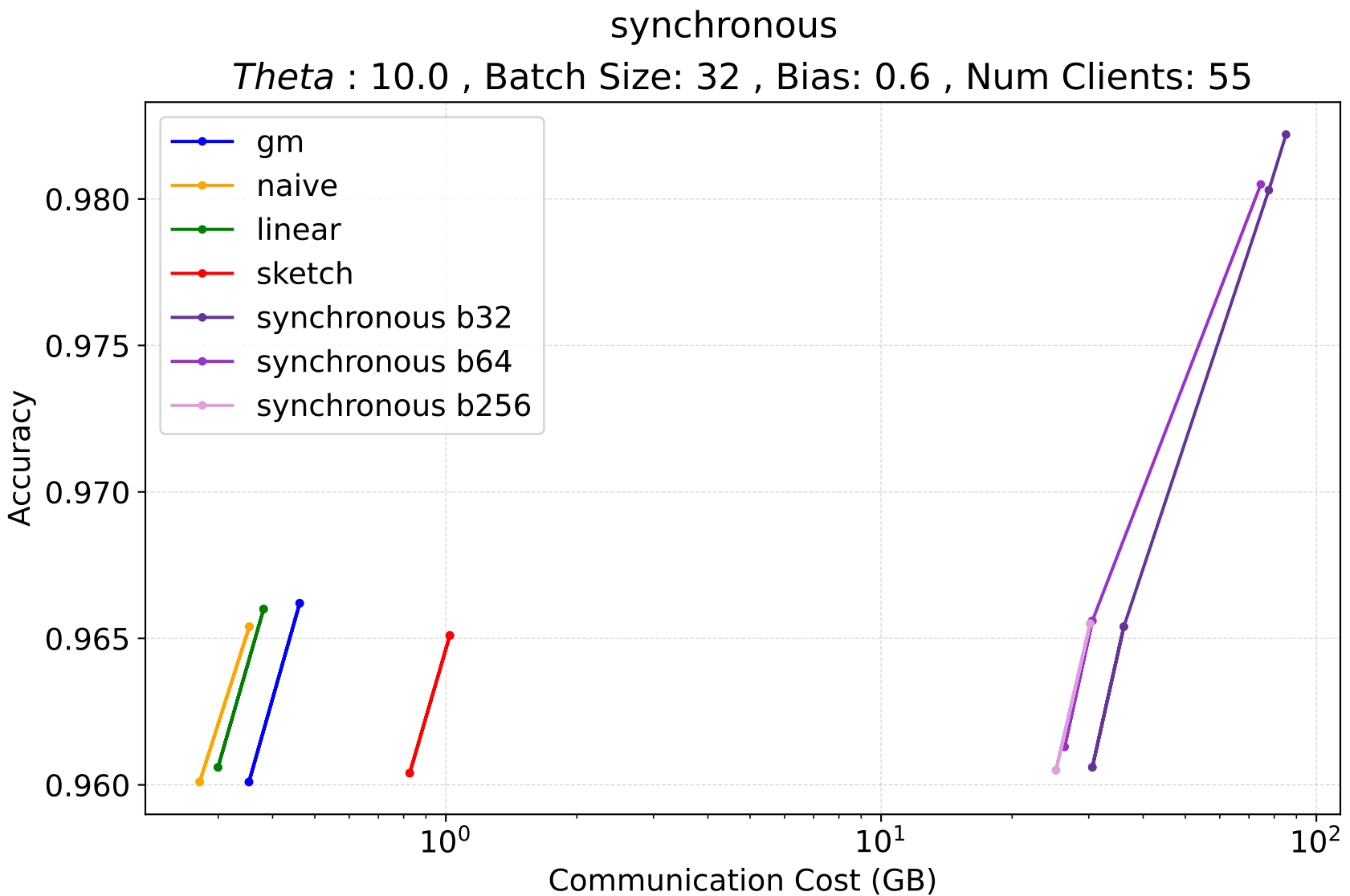

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 30
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

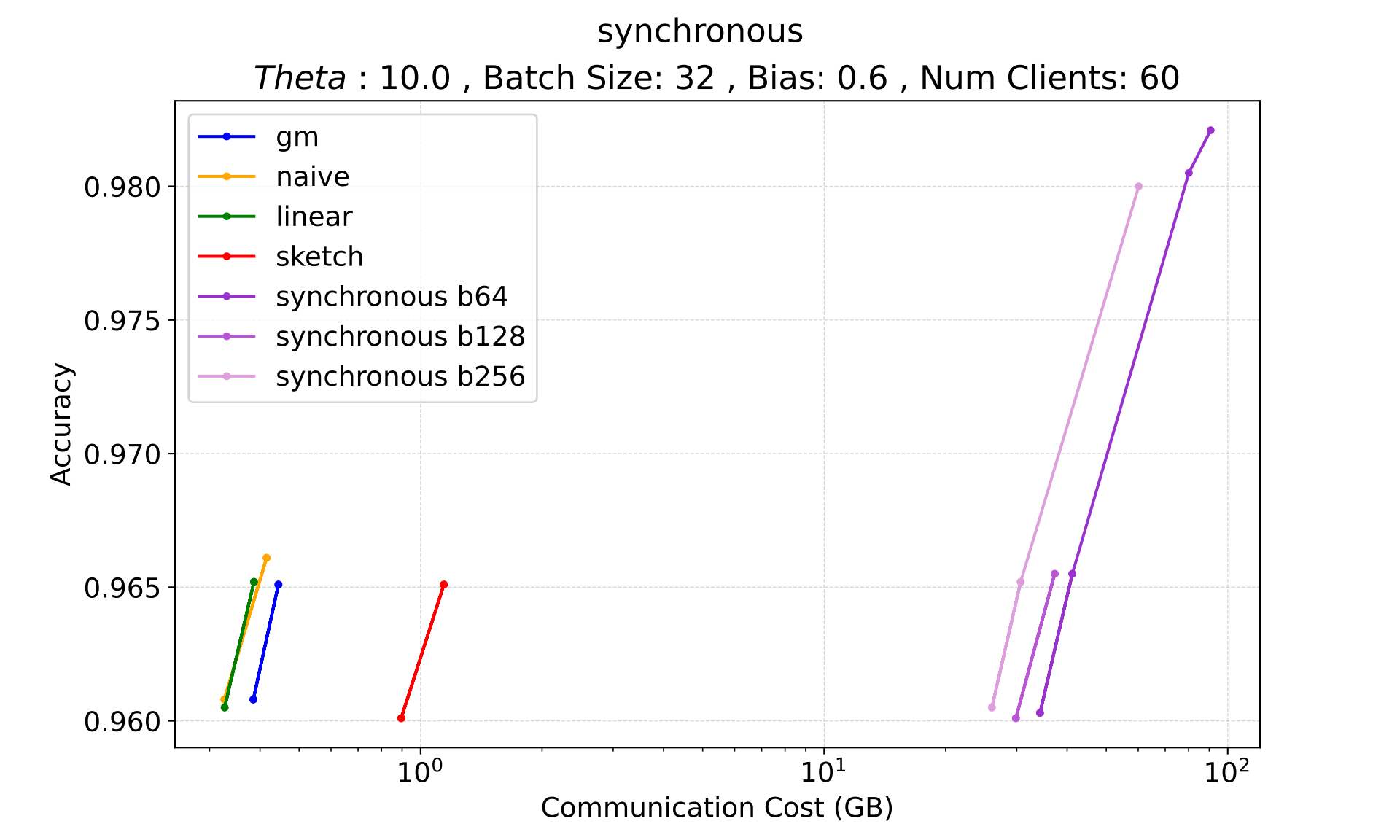

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

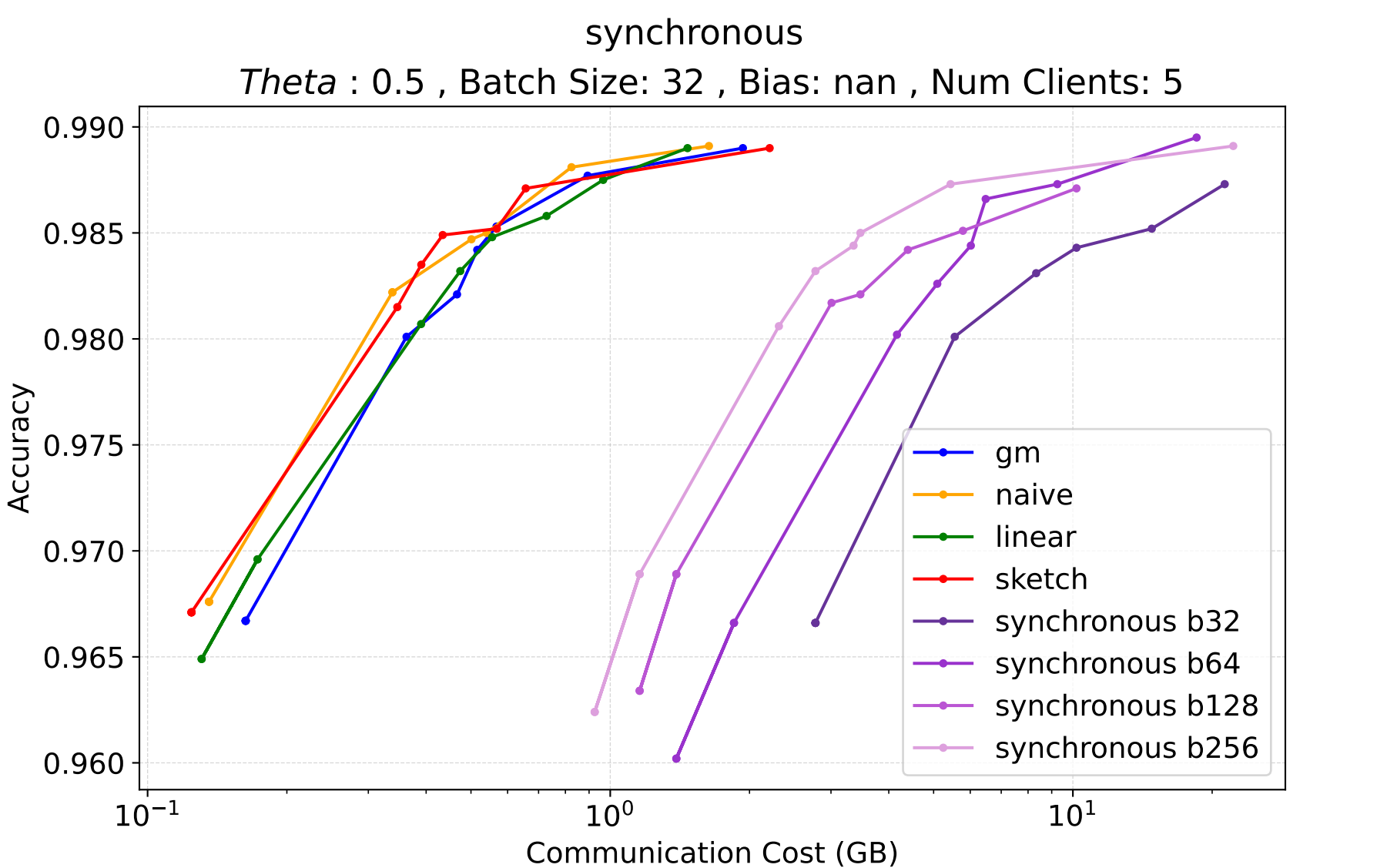

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

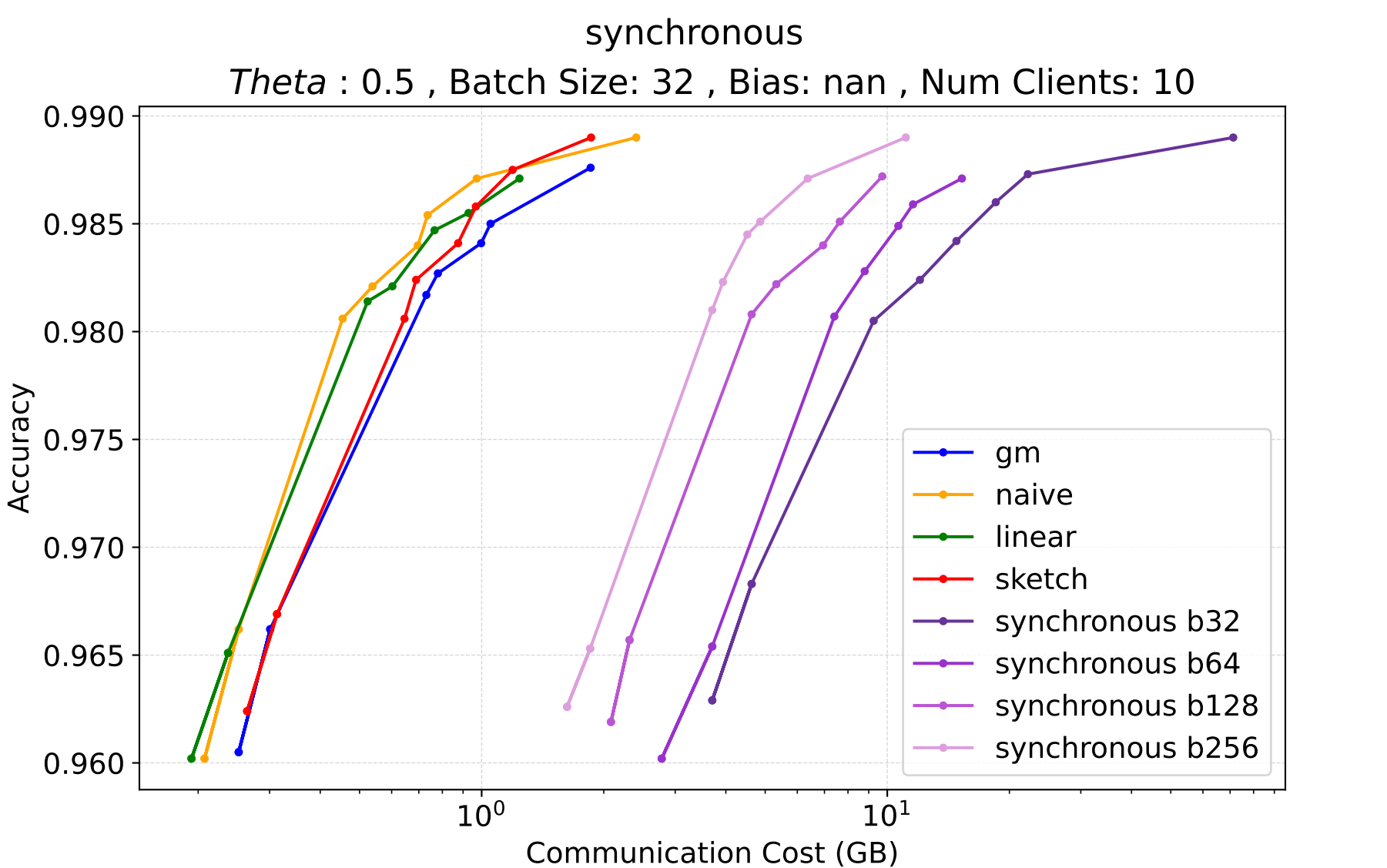

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

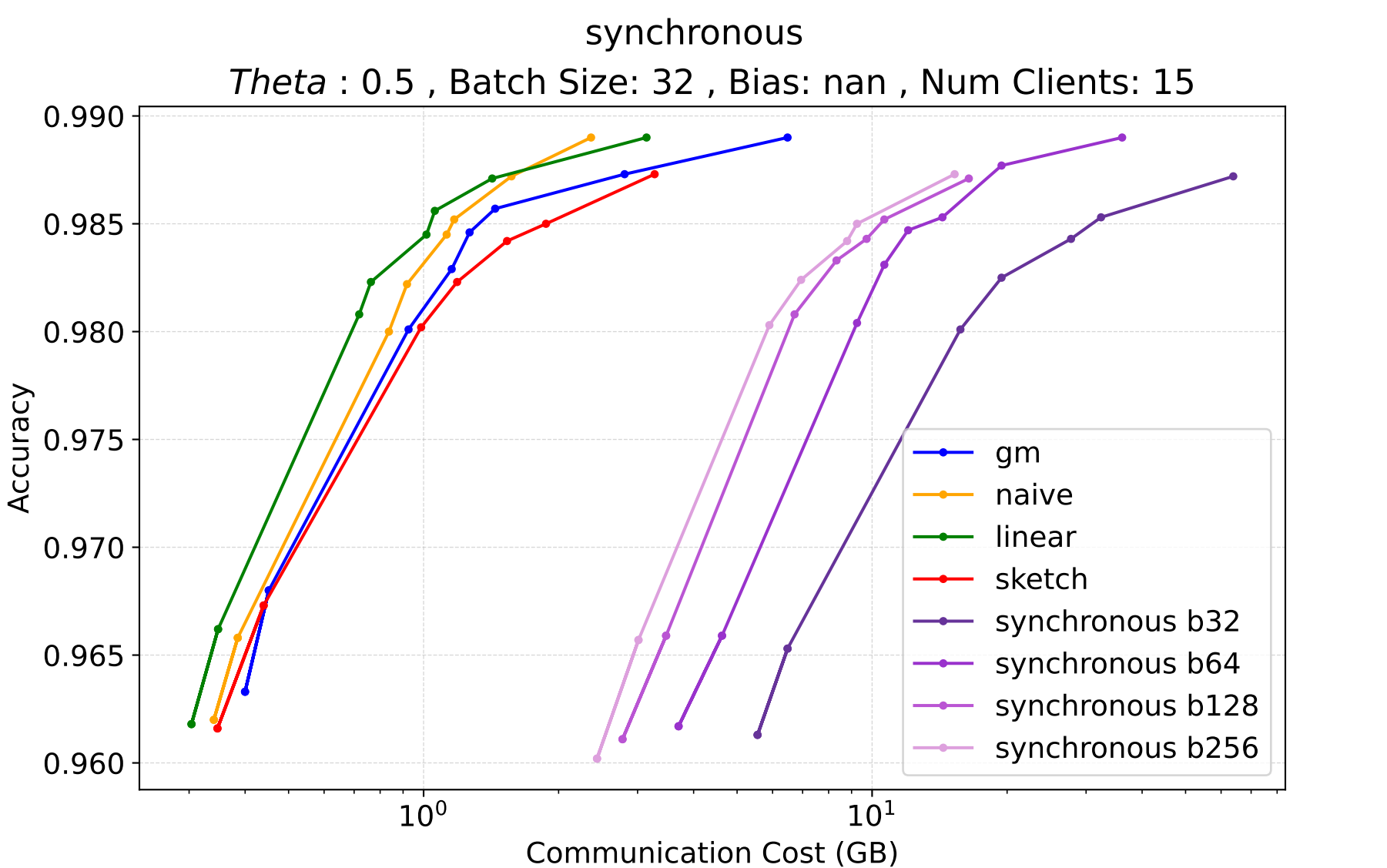

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

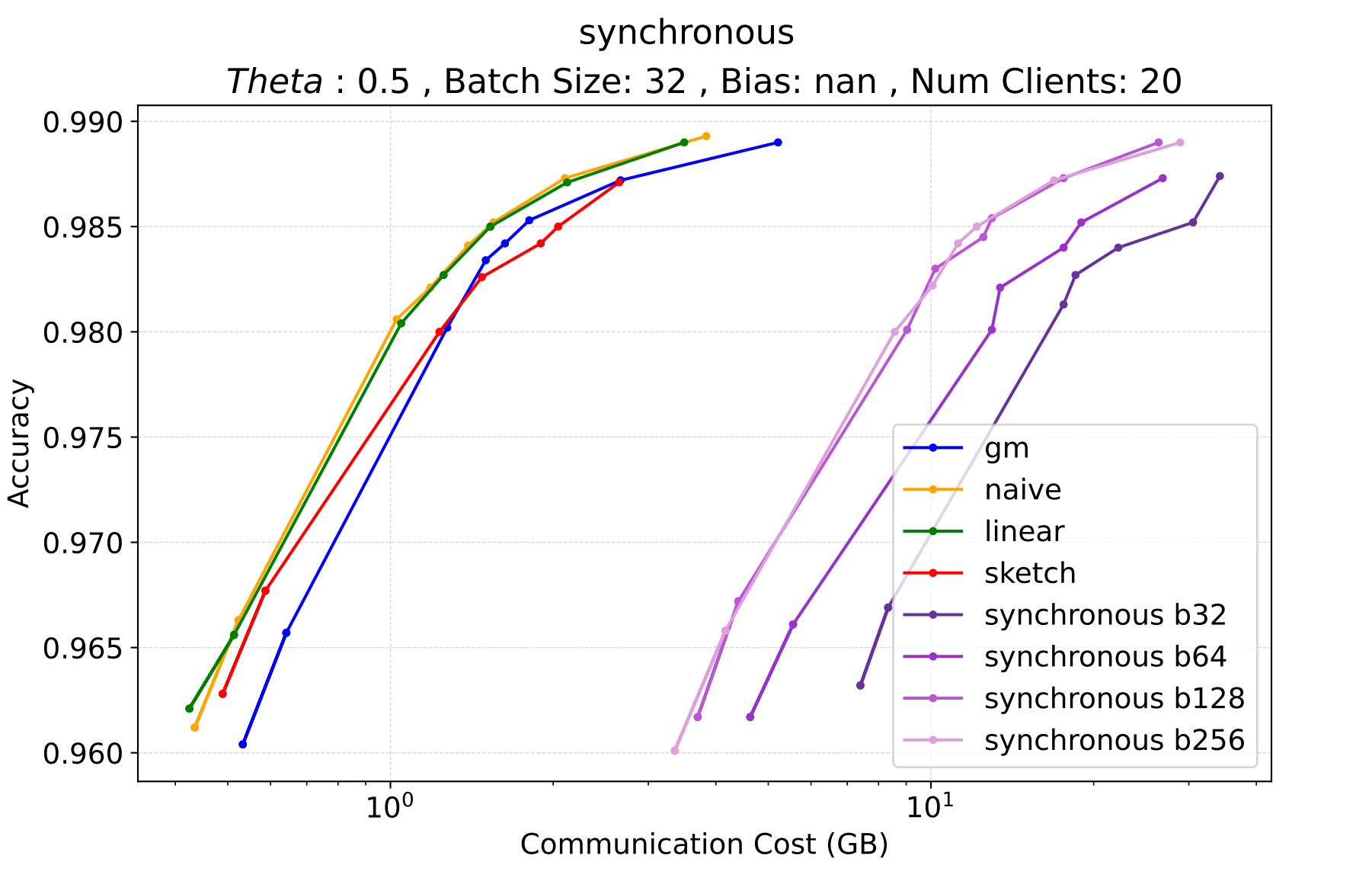

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

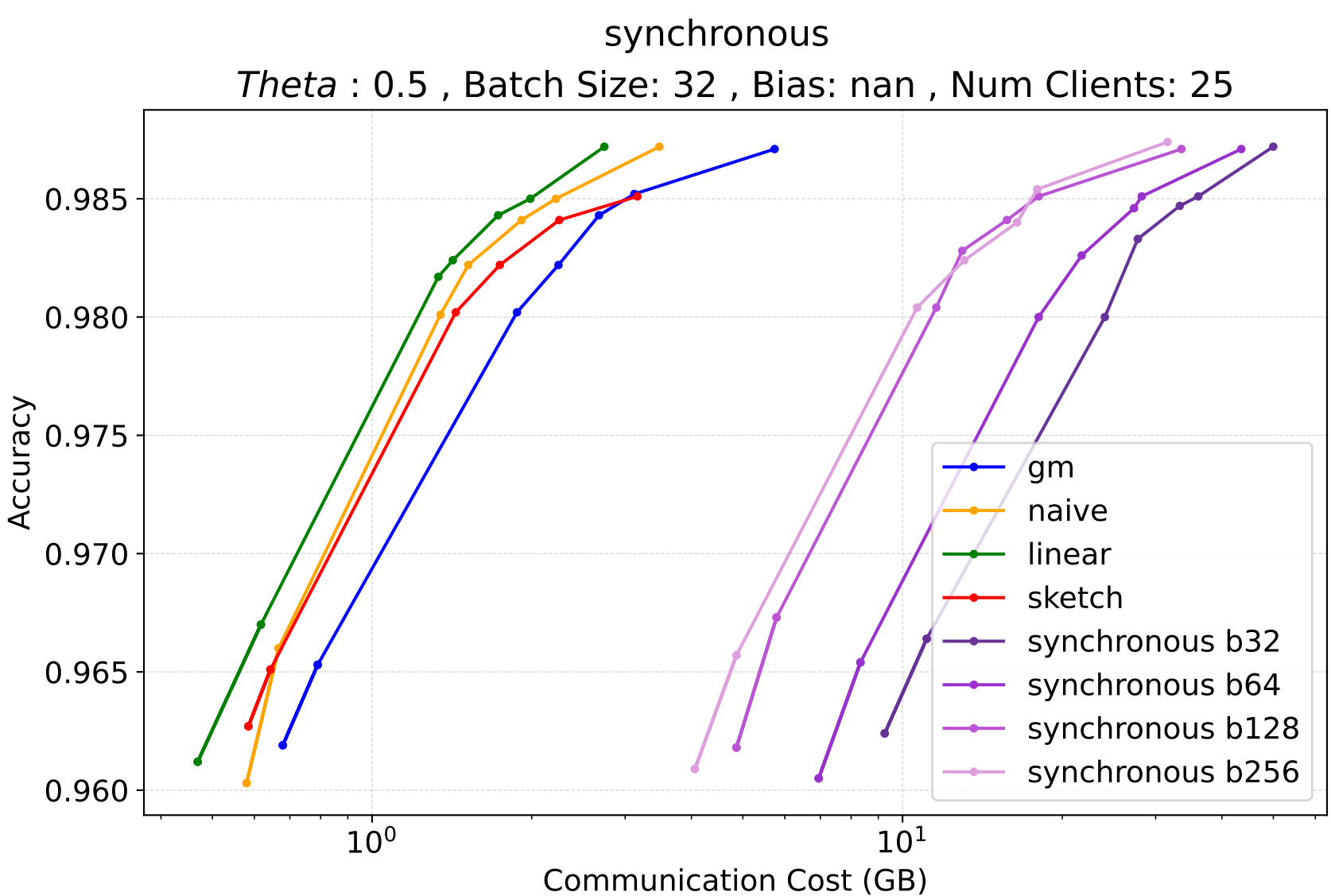

synchronous
Theta : 10.0 , Batch Size: 32 , Bias: 0.6 , Num Clients: 60
gm
naive
linear
sketch
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

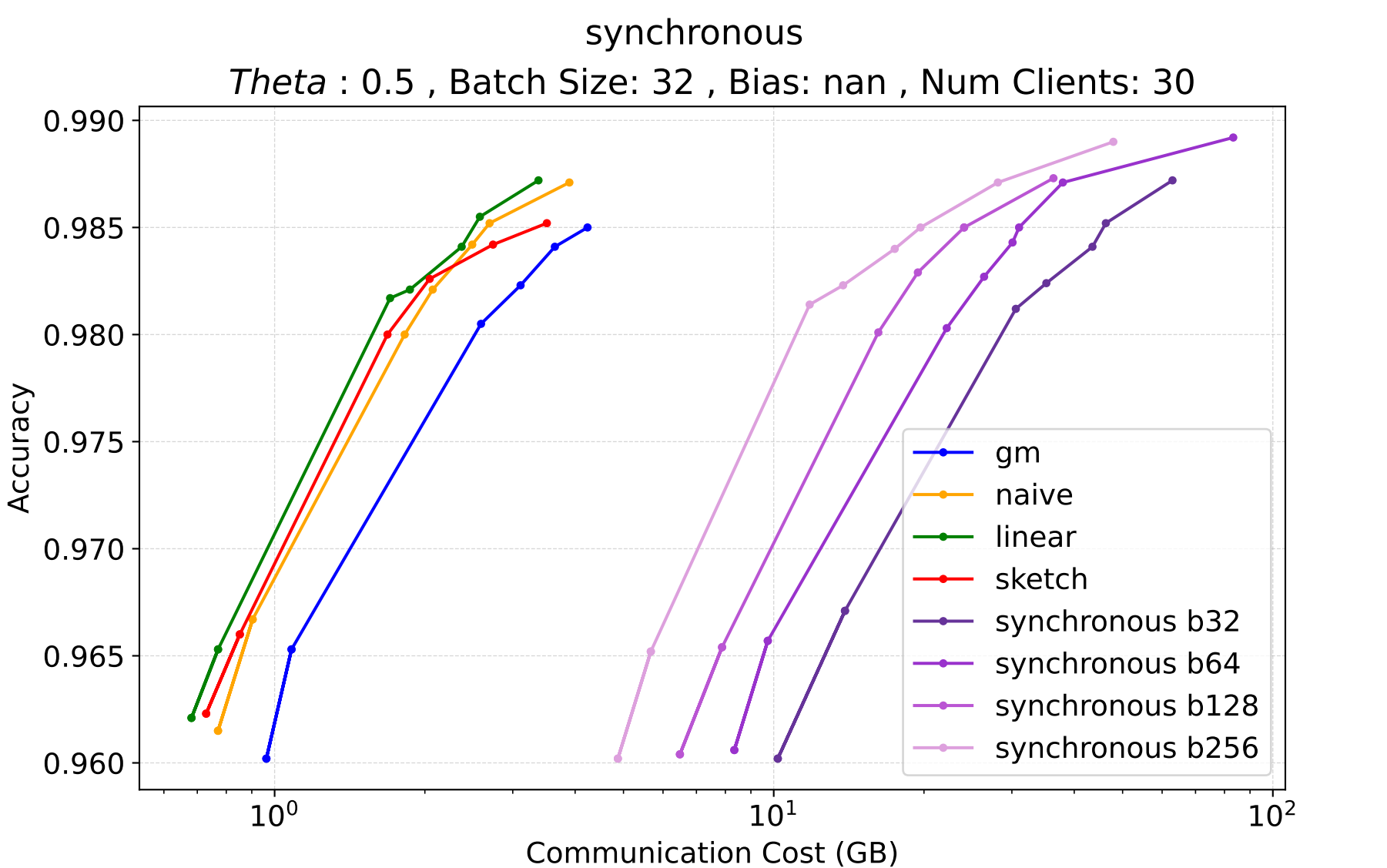

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

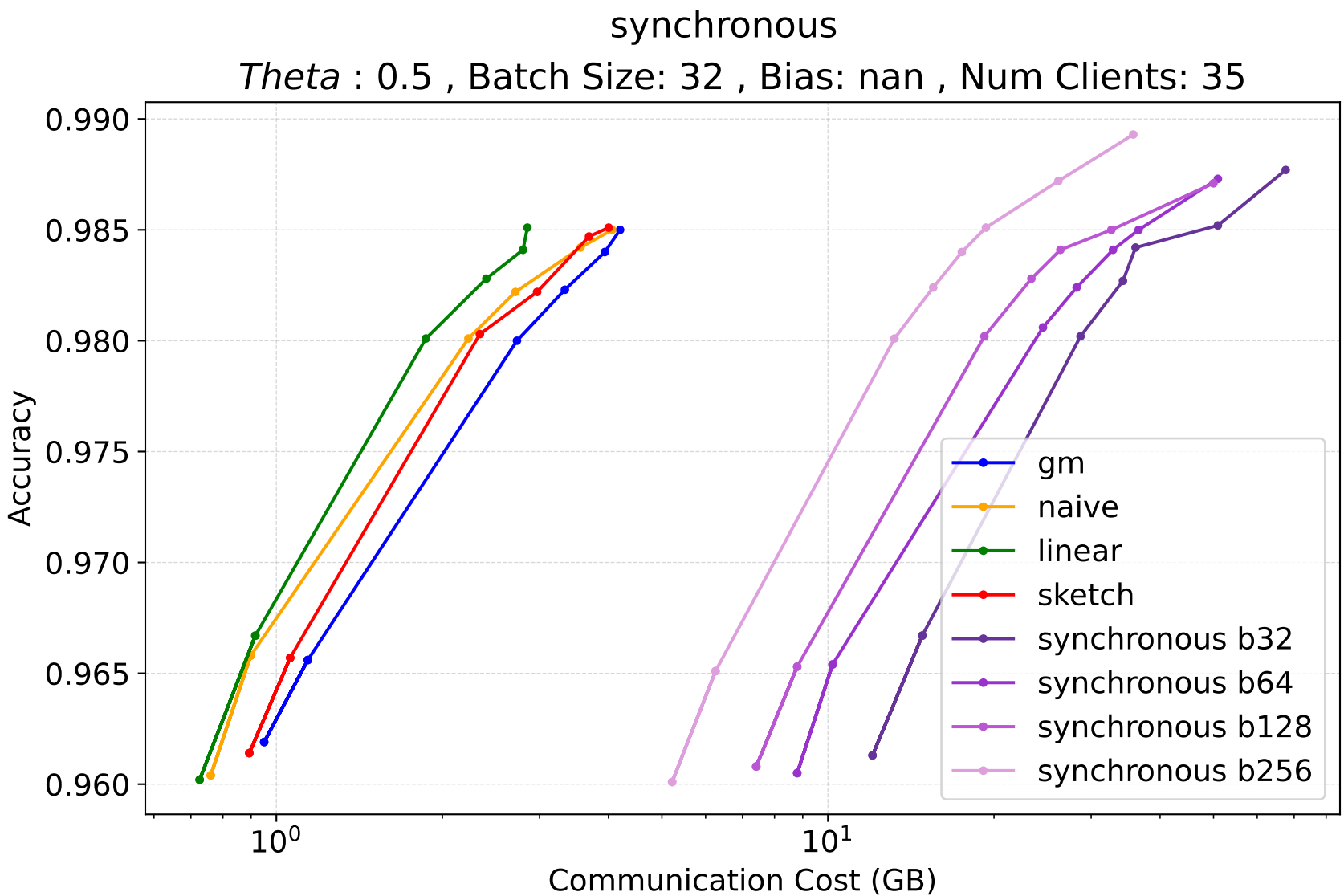

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 10
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

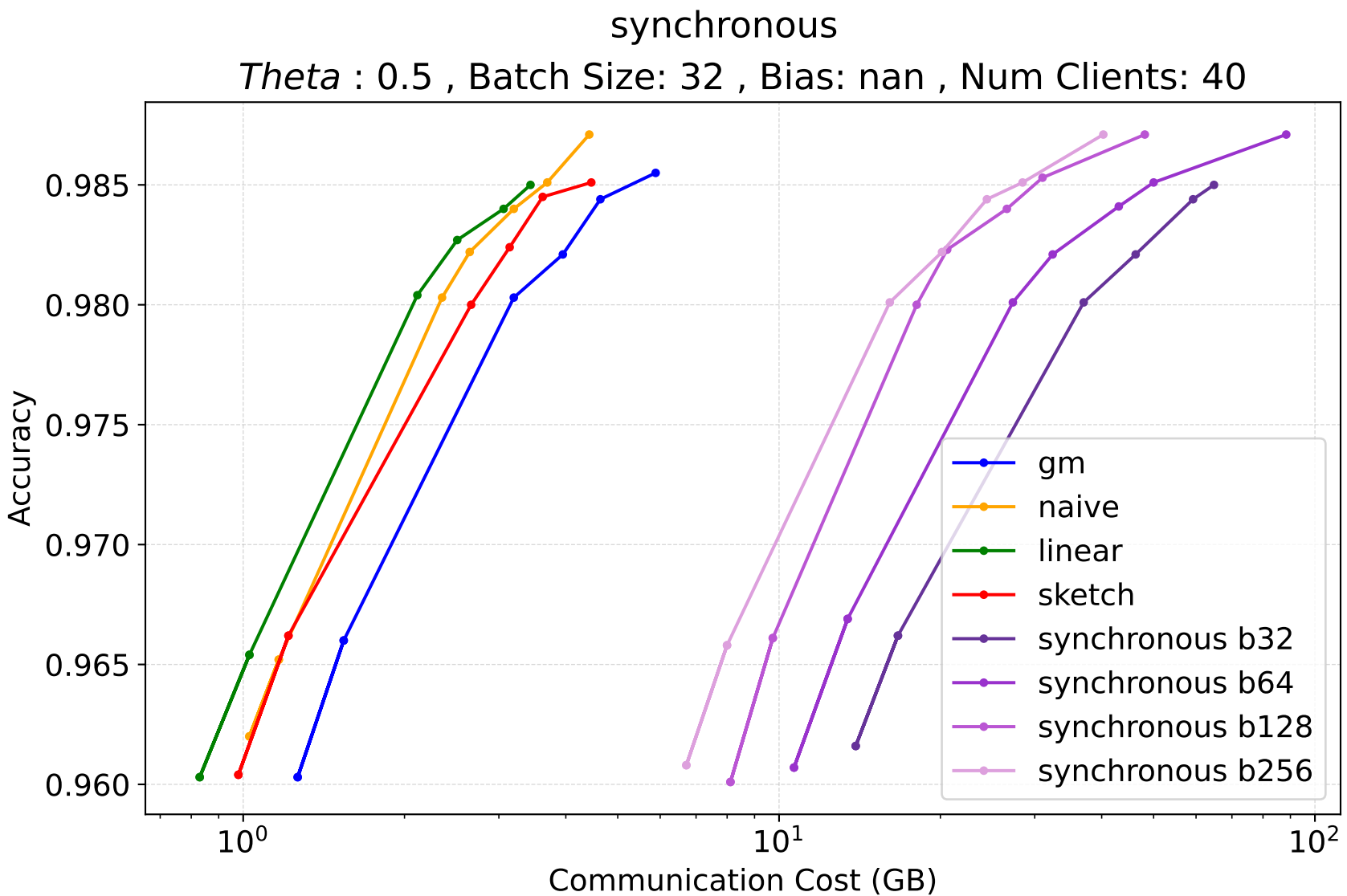

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

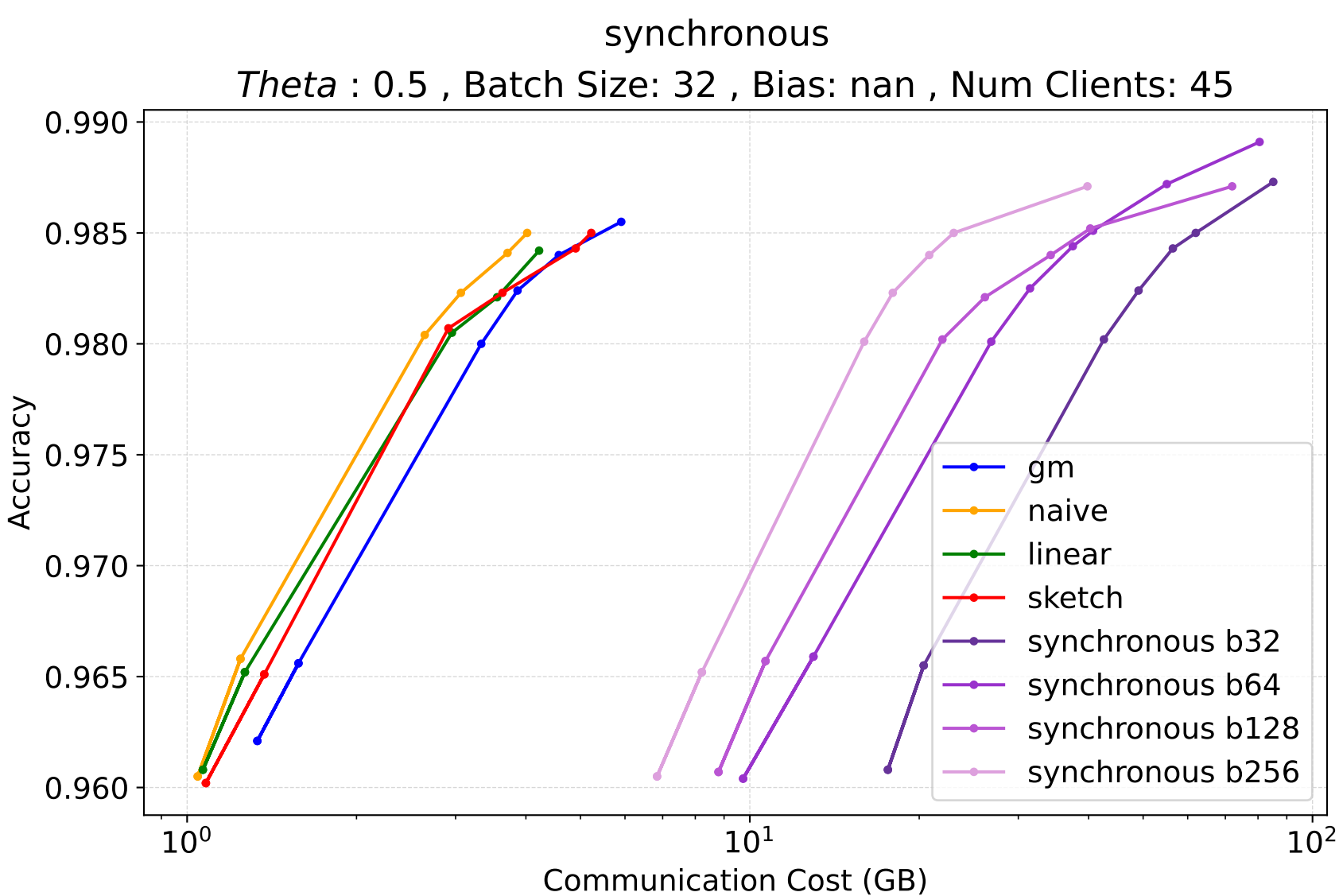

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 20
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

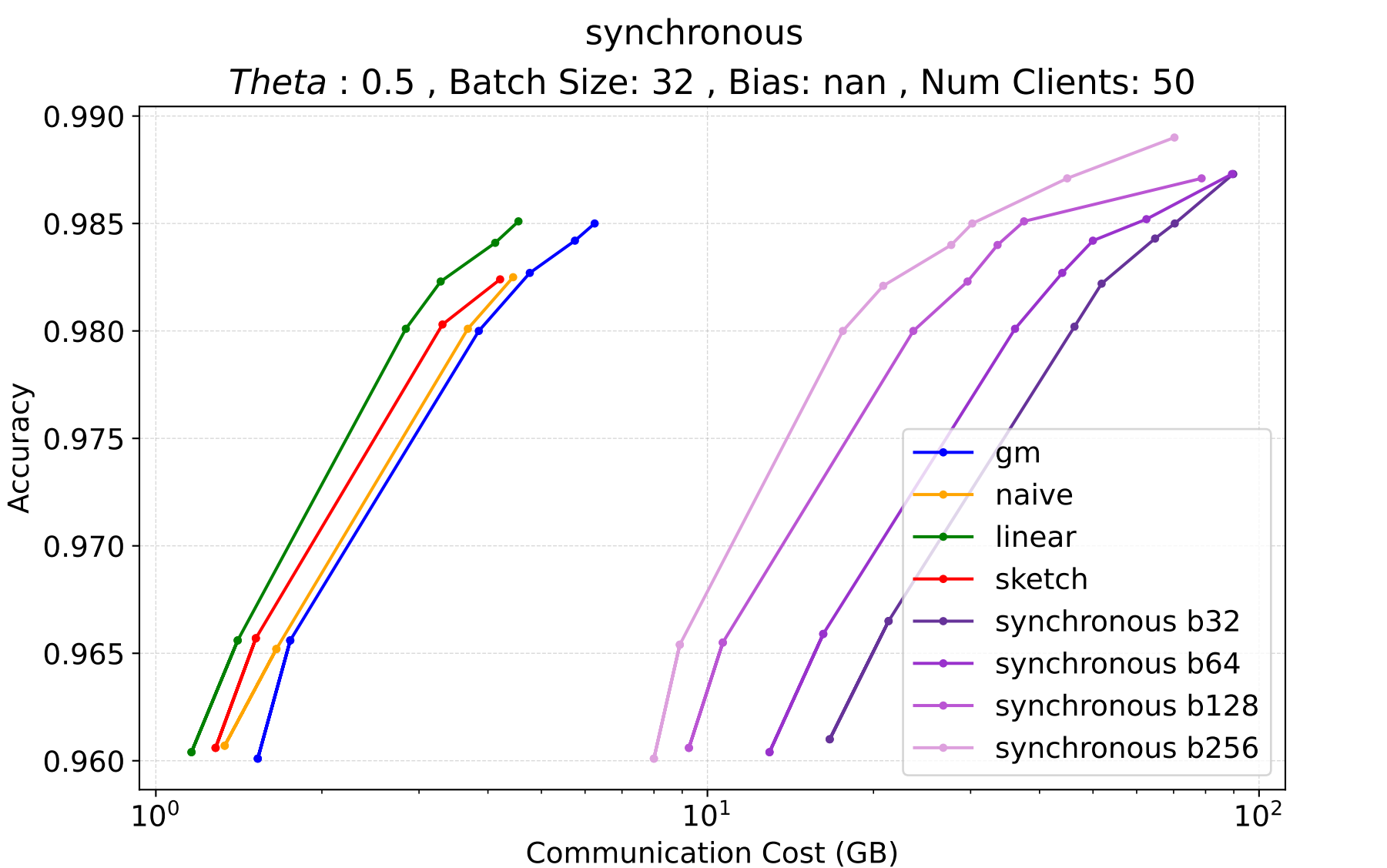

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

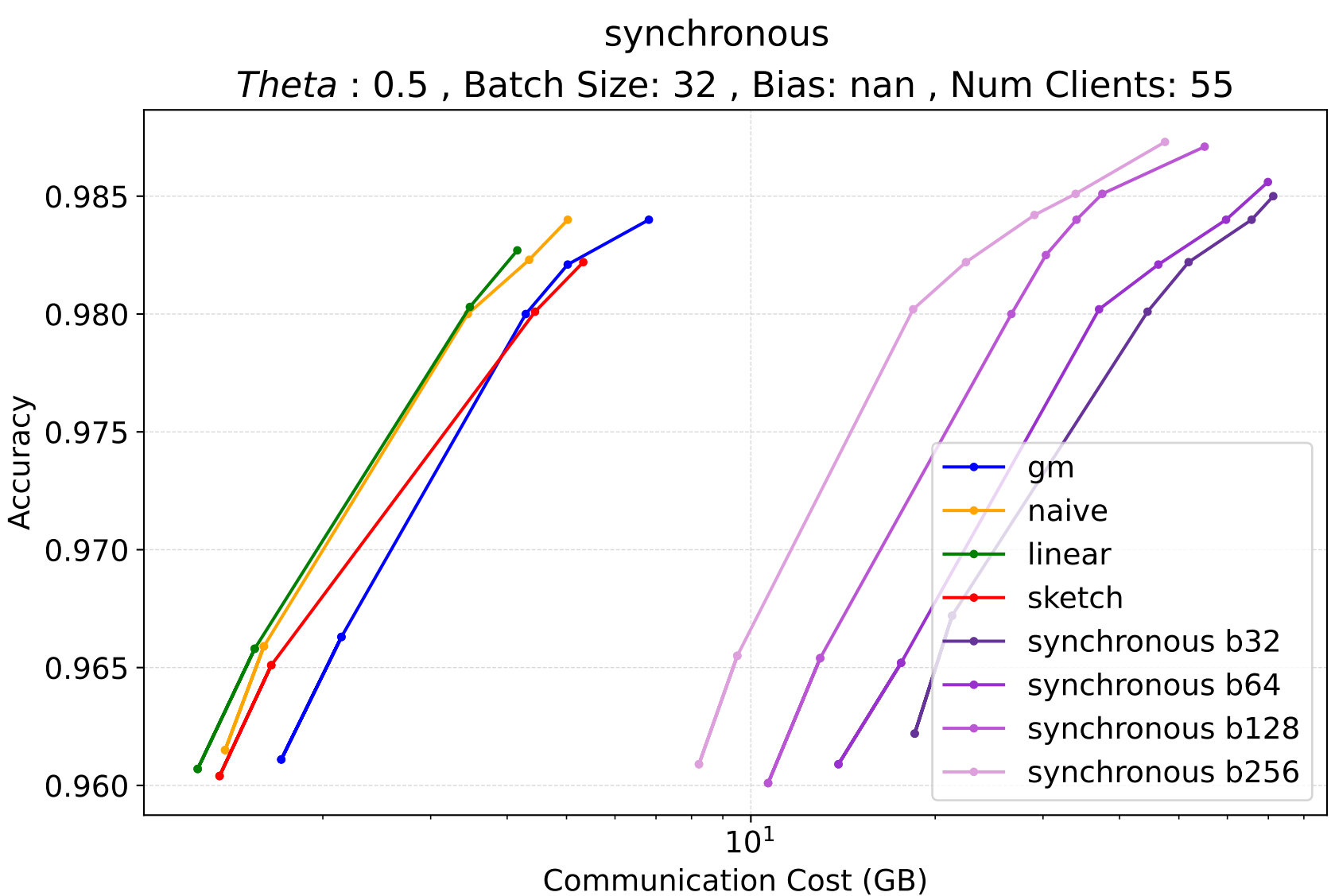

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 30
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

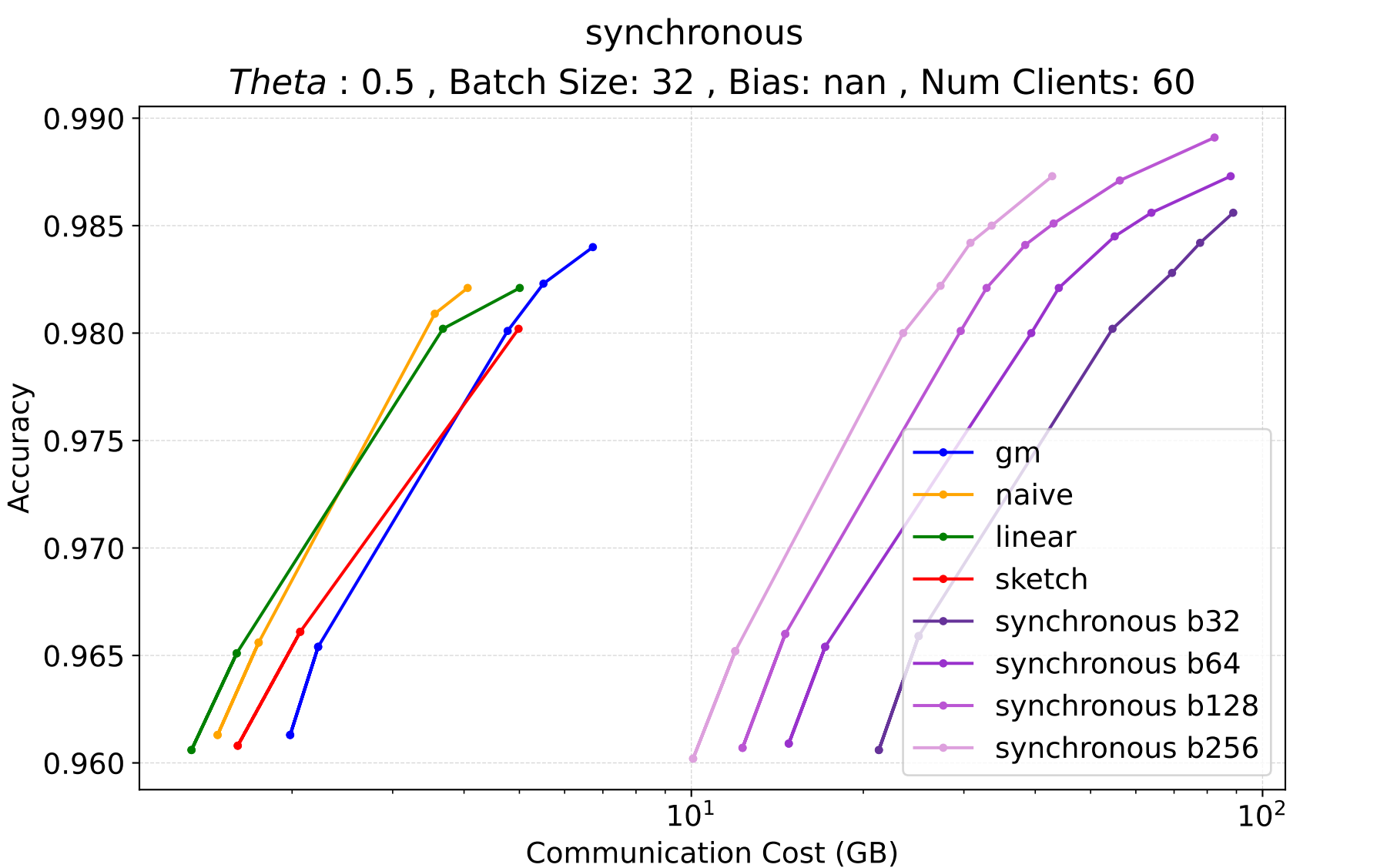

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 35
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

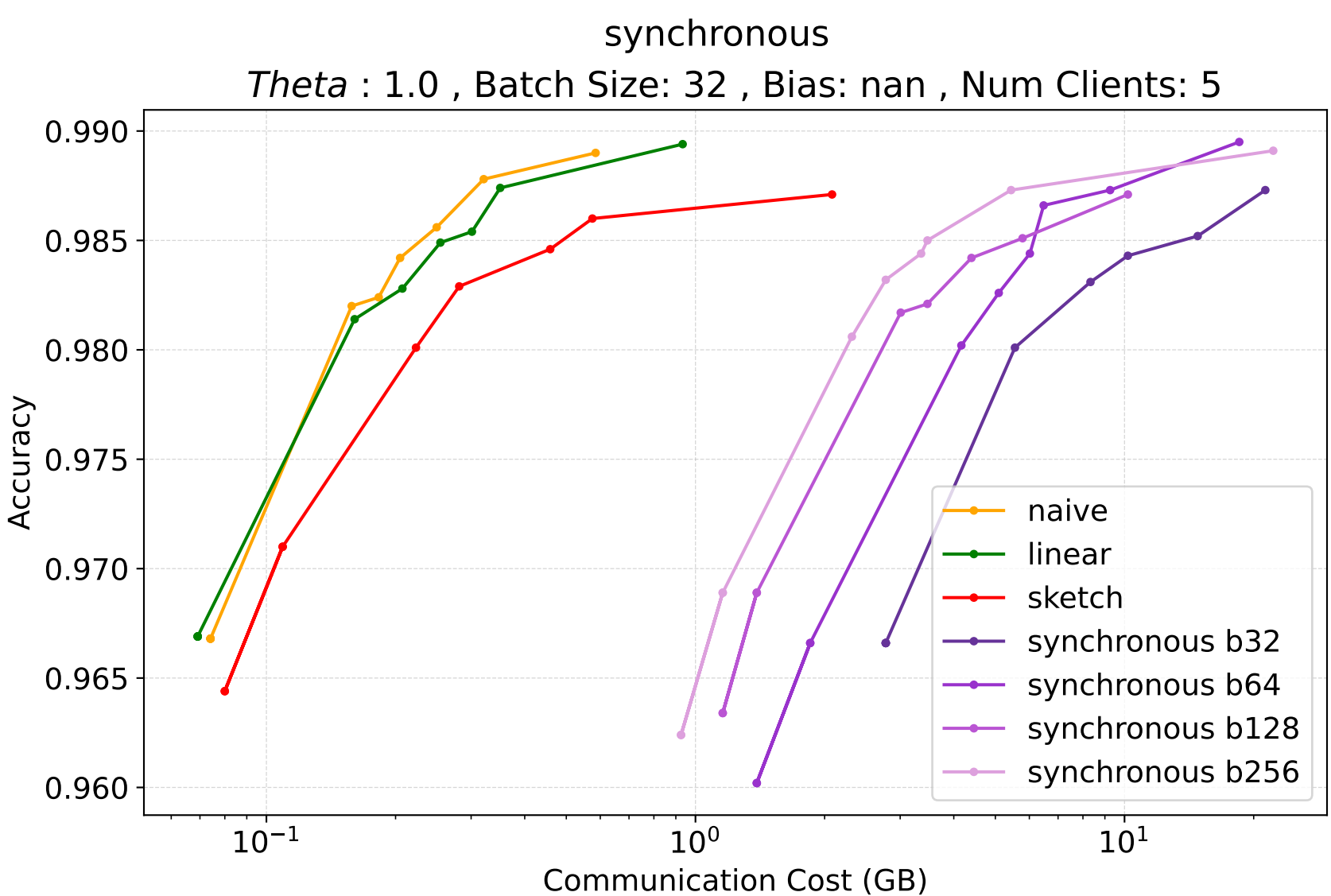

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 40
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

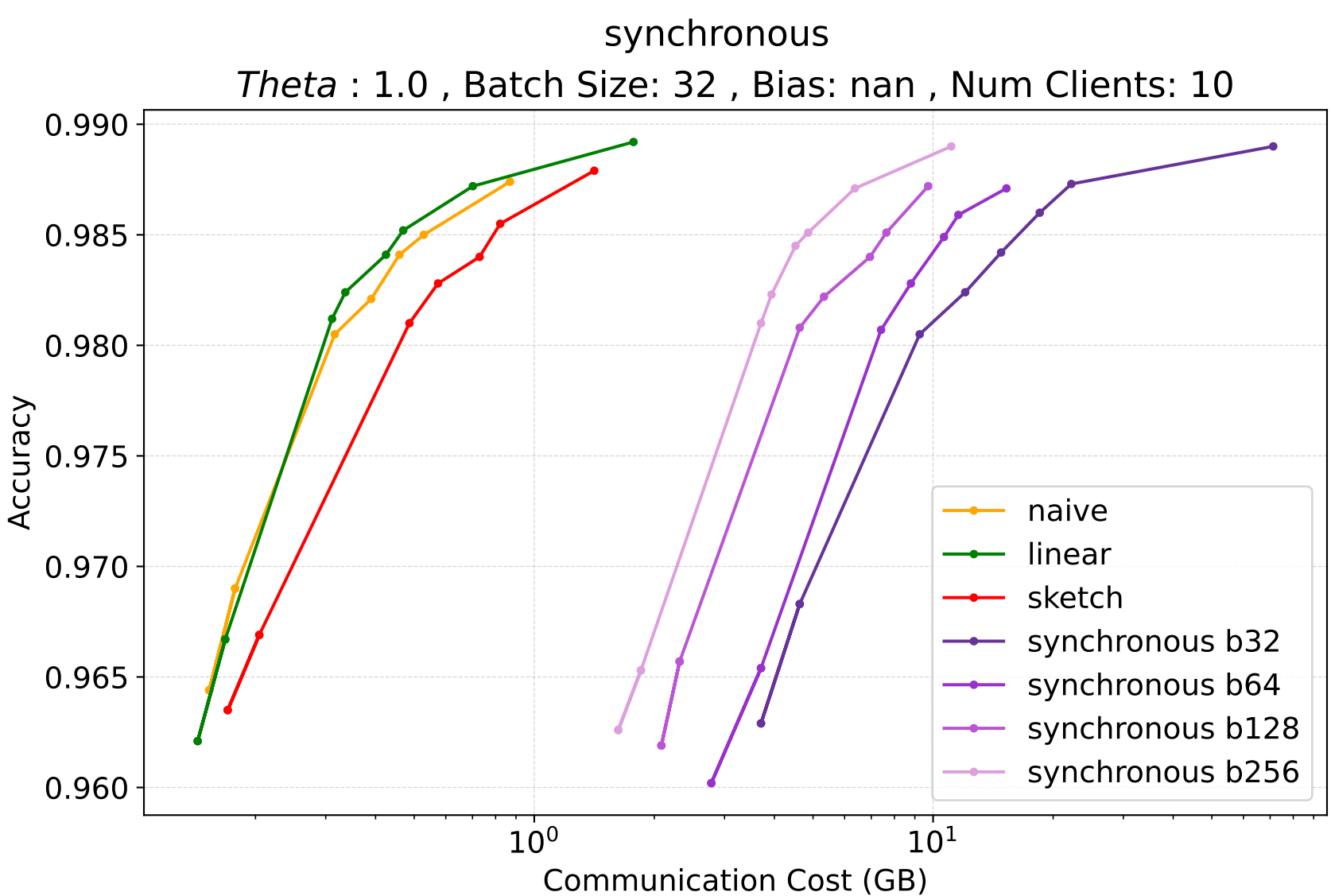

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 45
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

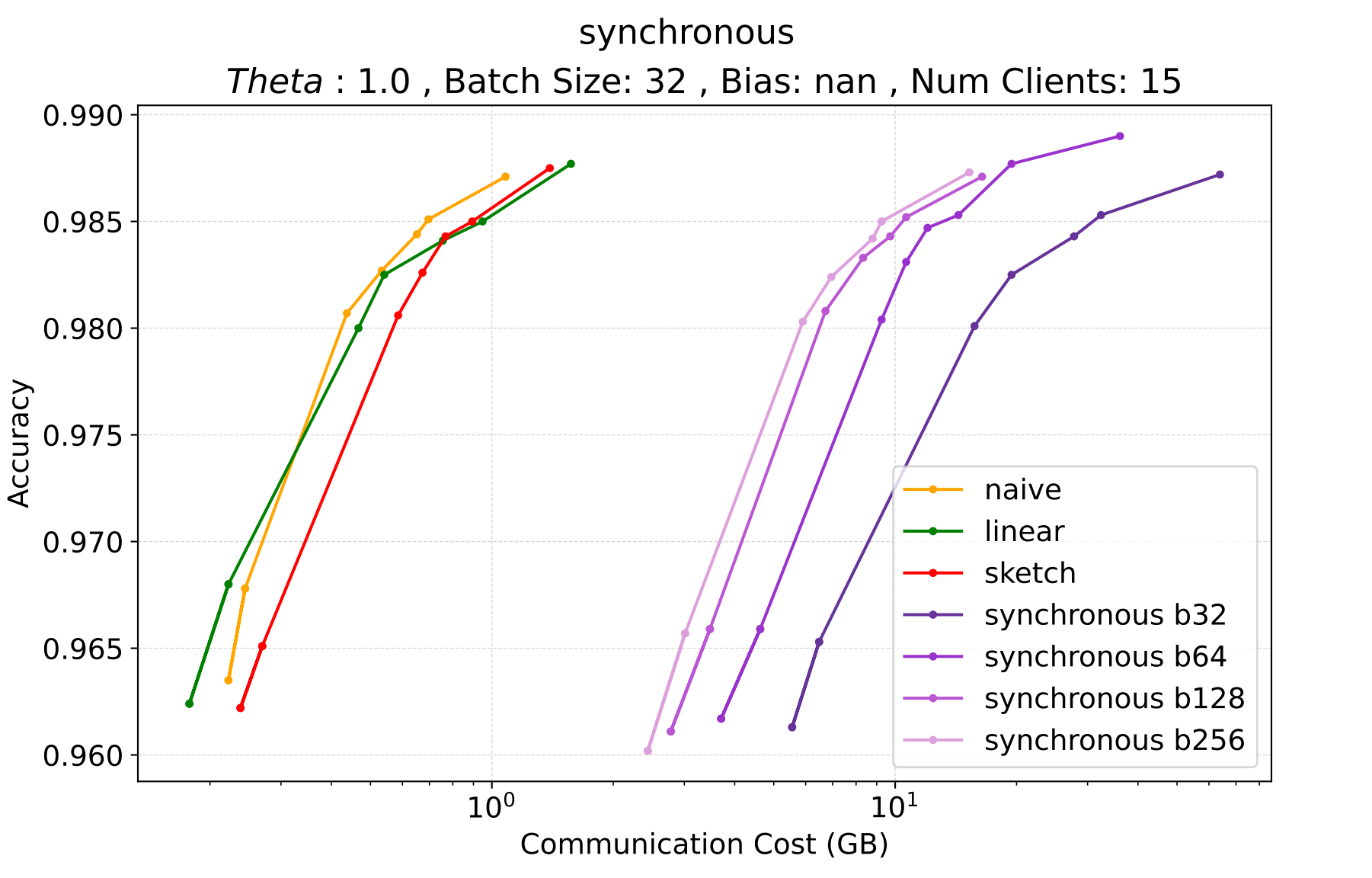

synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 50
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 55
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 0.5 , Batch Size: 32 , Bias: nan , Num Clients: 60
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
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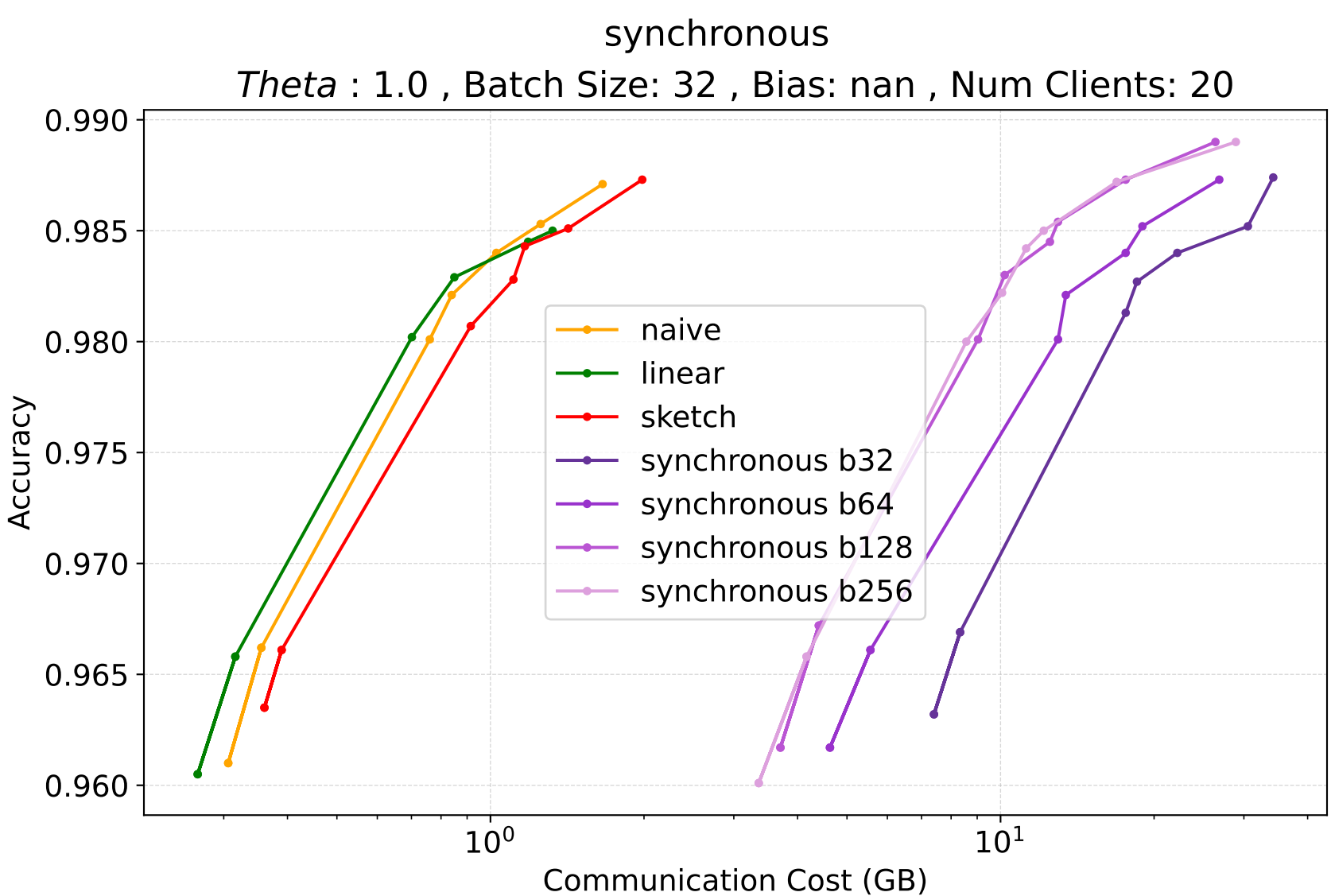
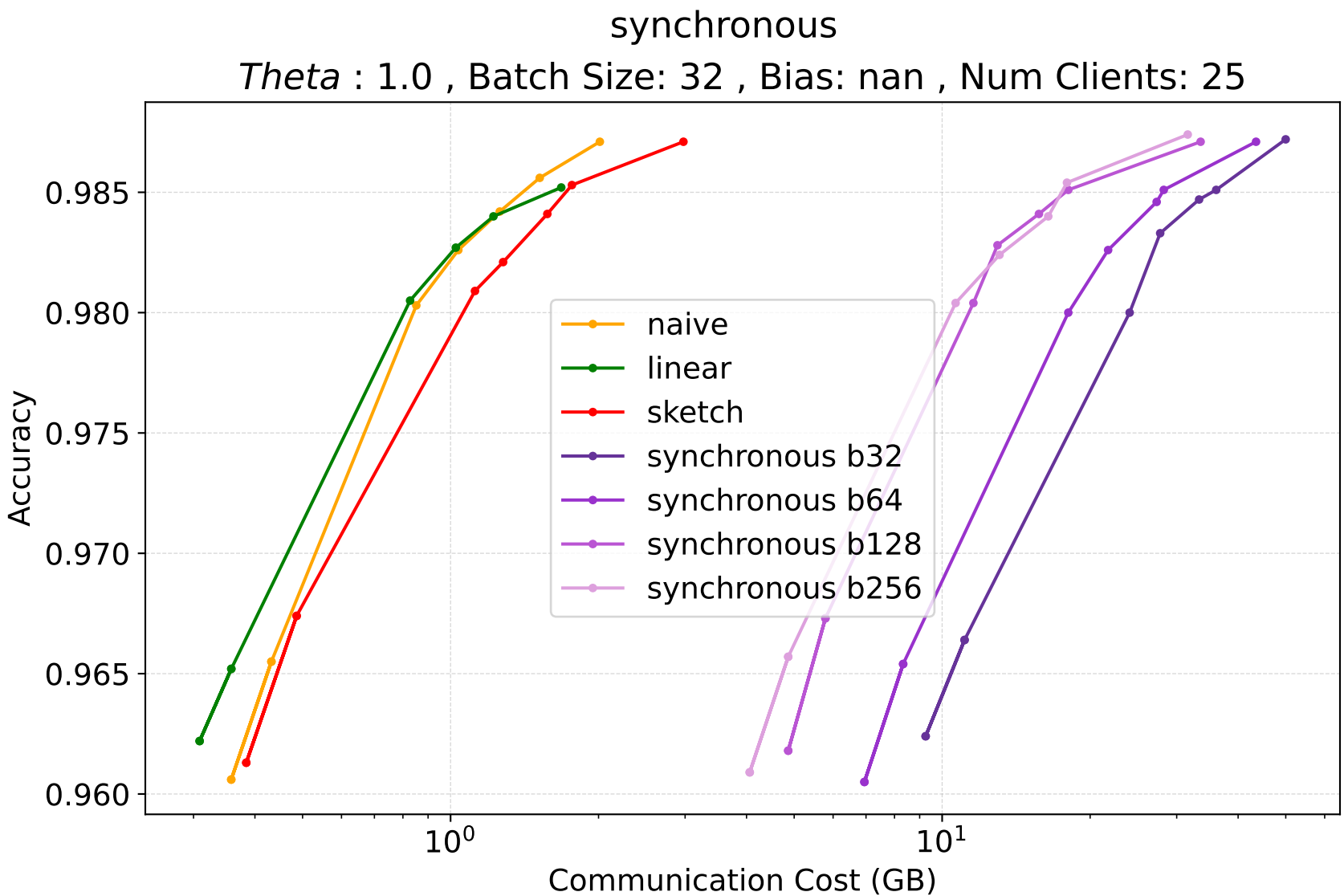
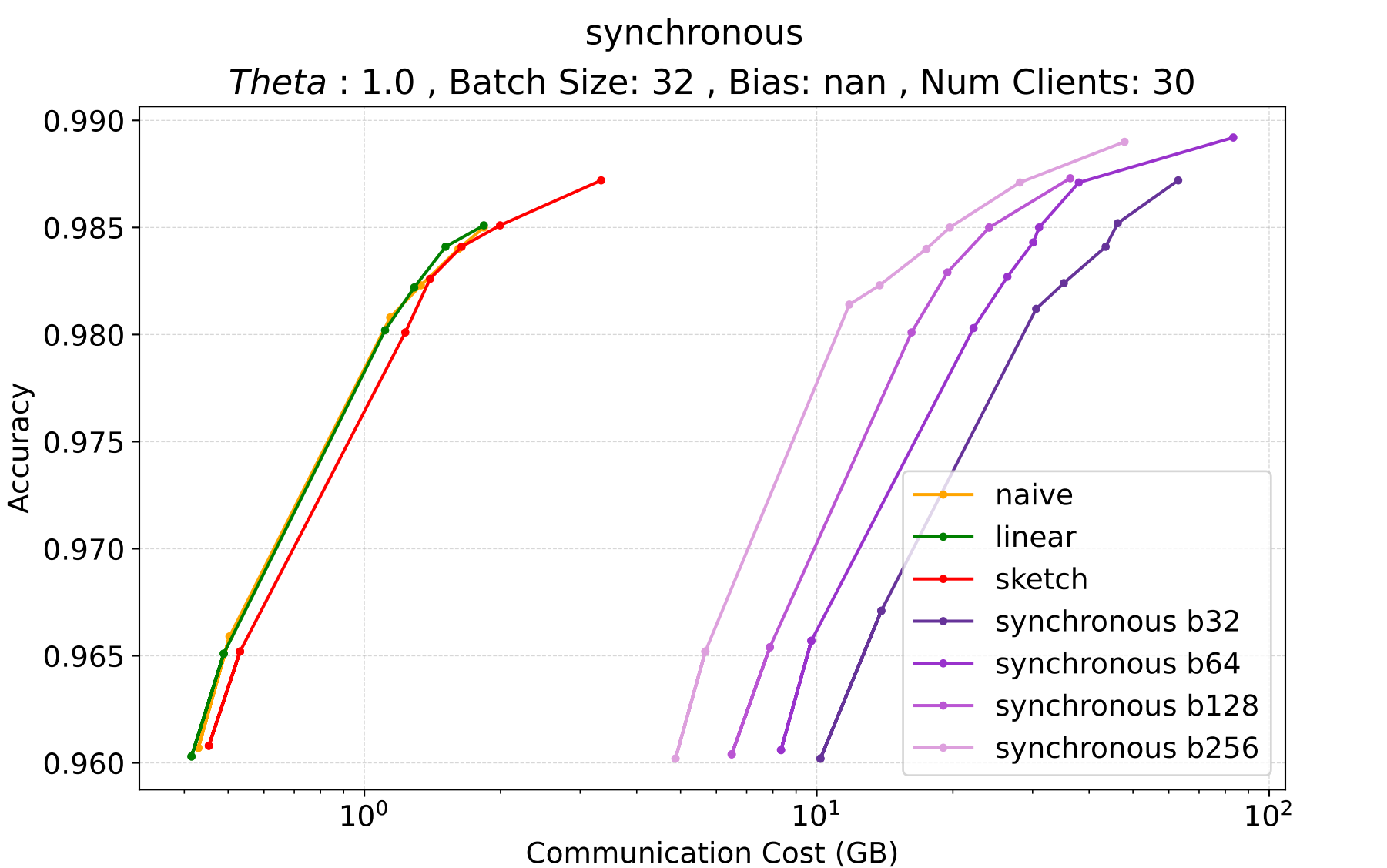
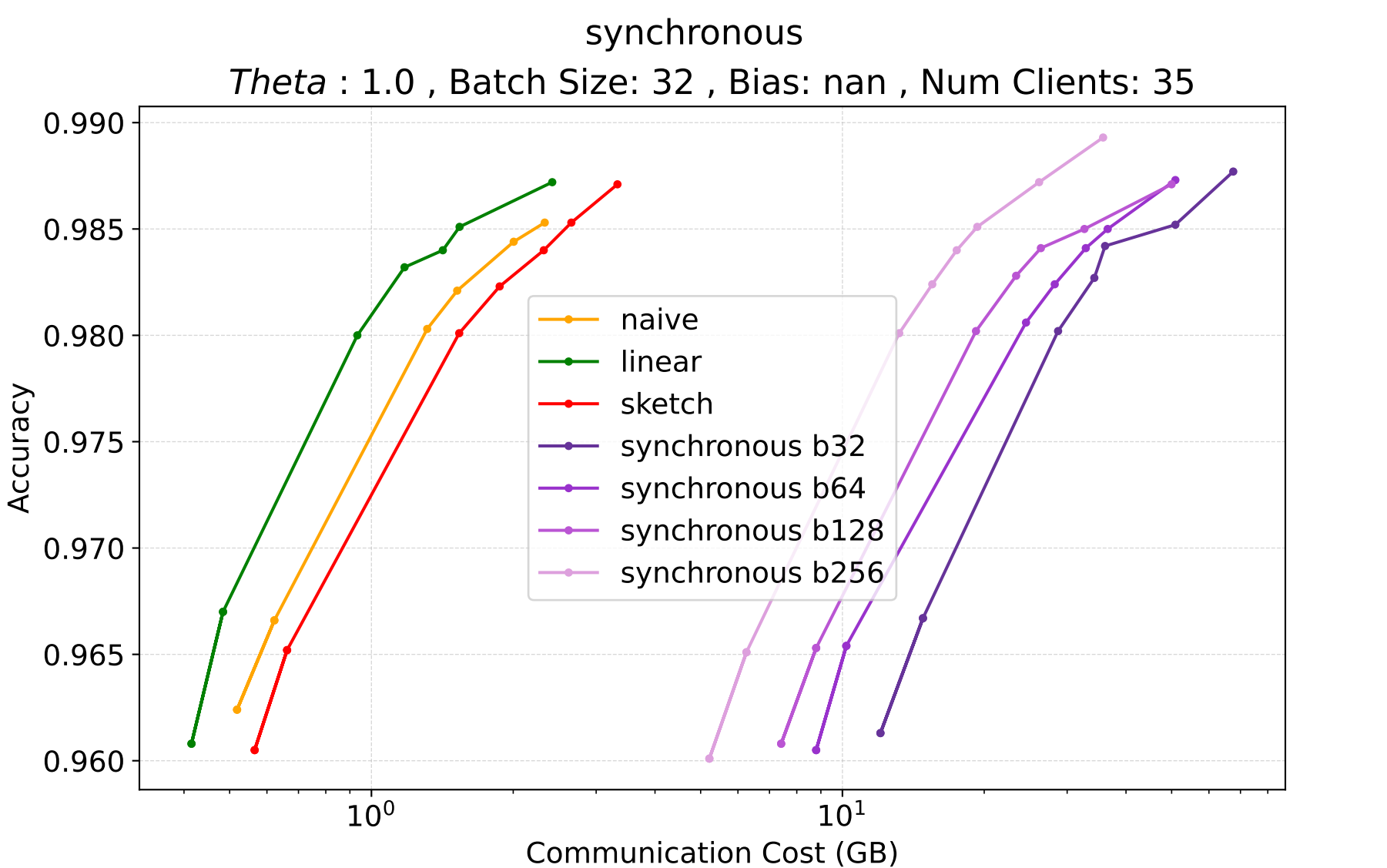
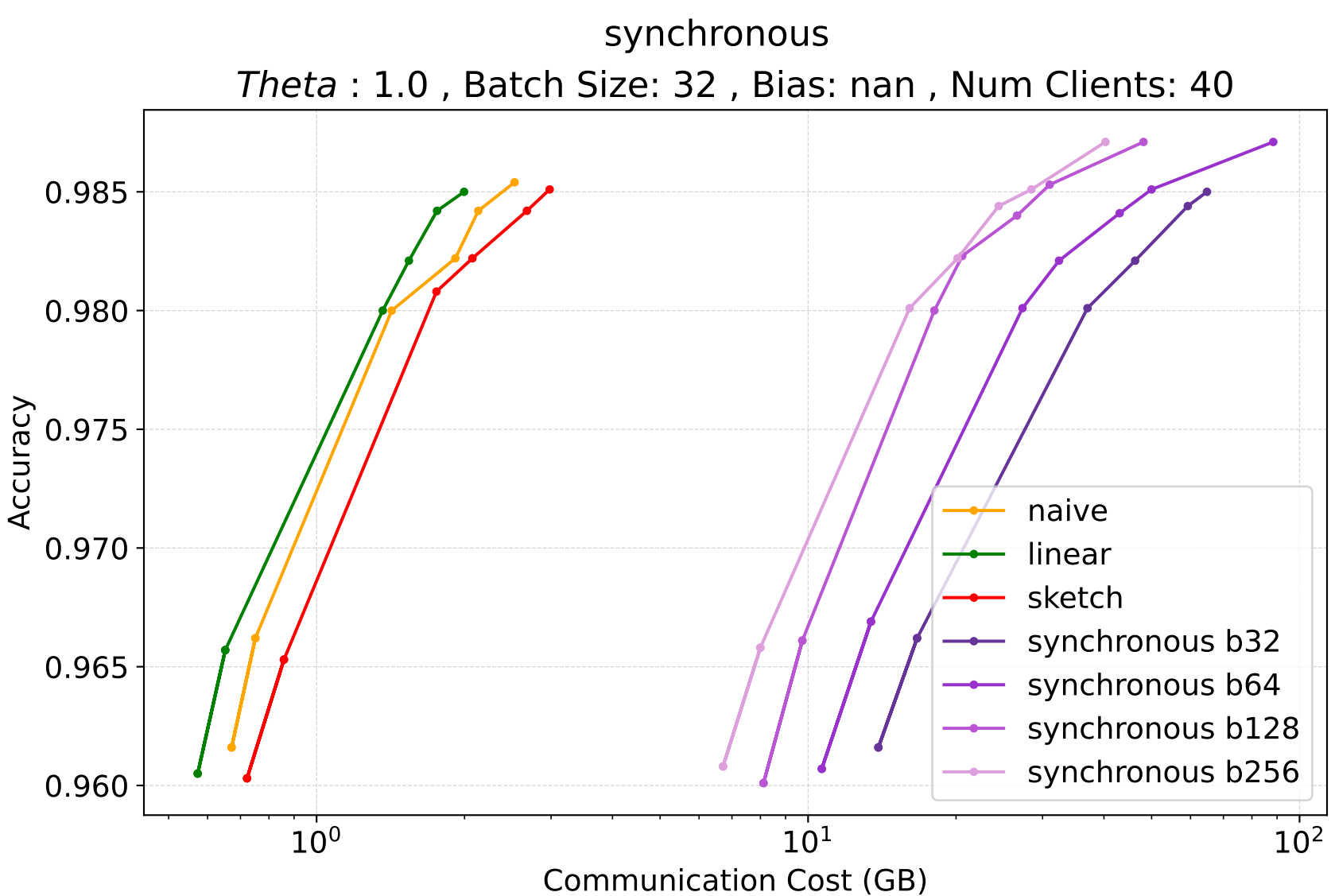
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 20
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
10^2
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 35
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 40
Accuracy
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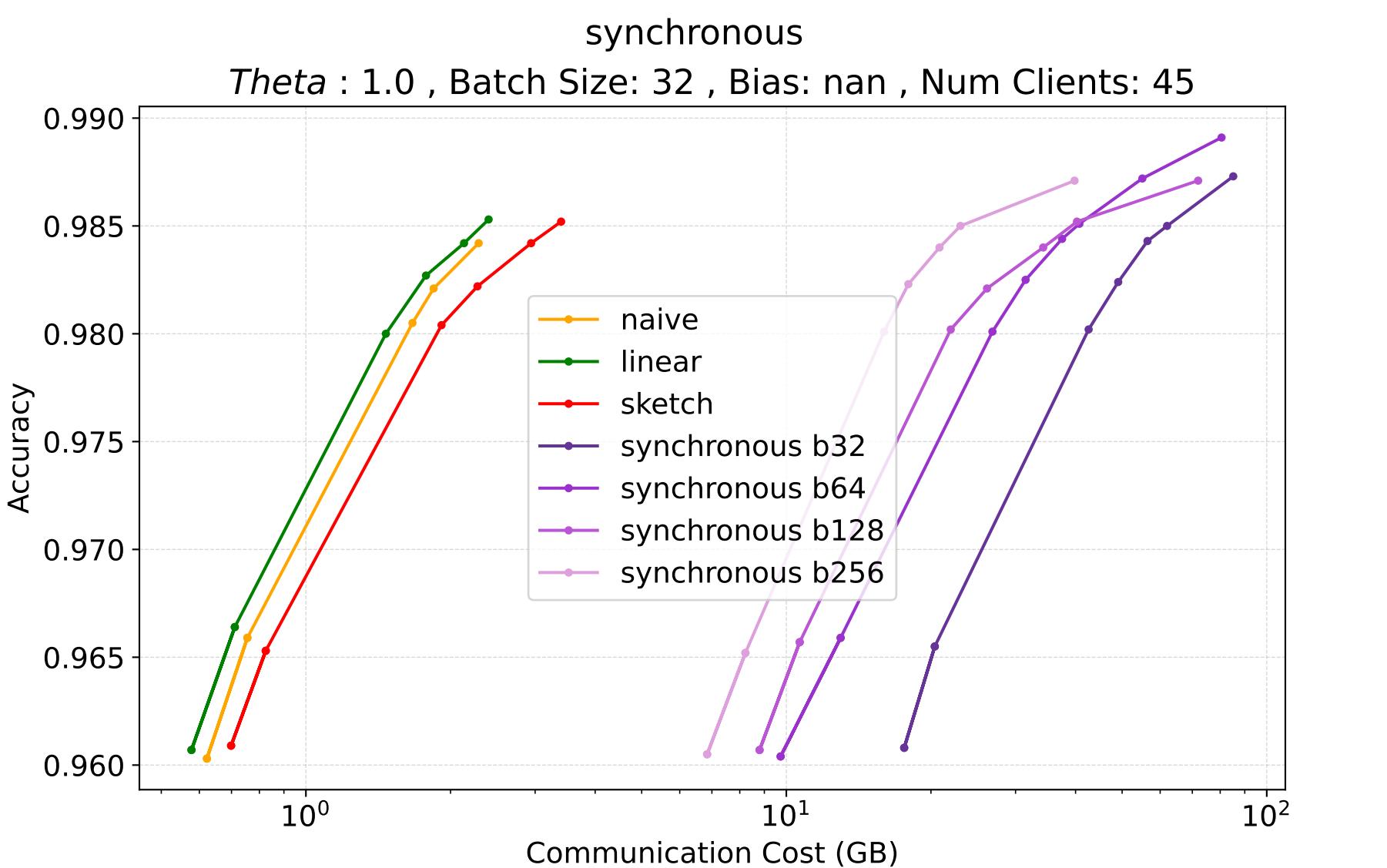
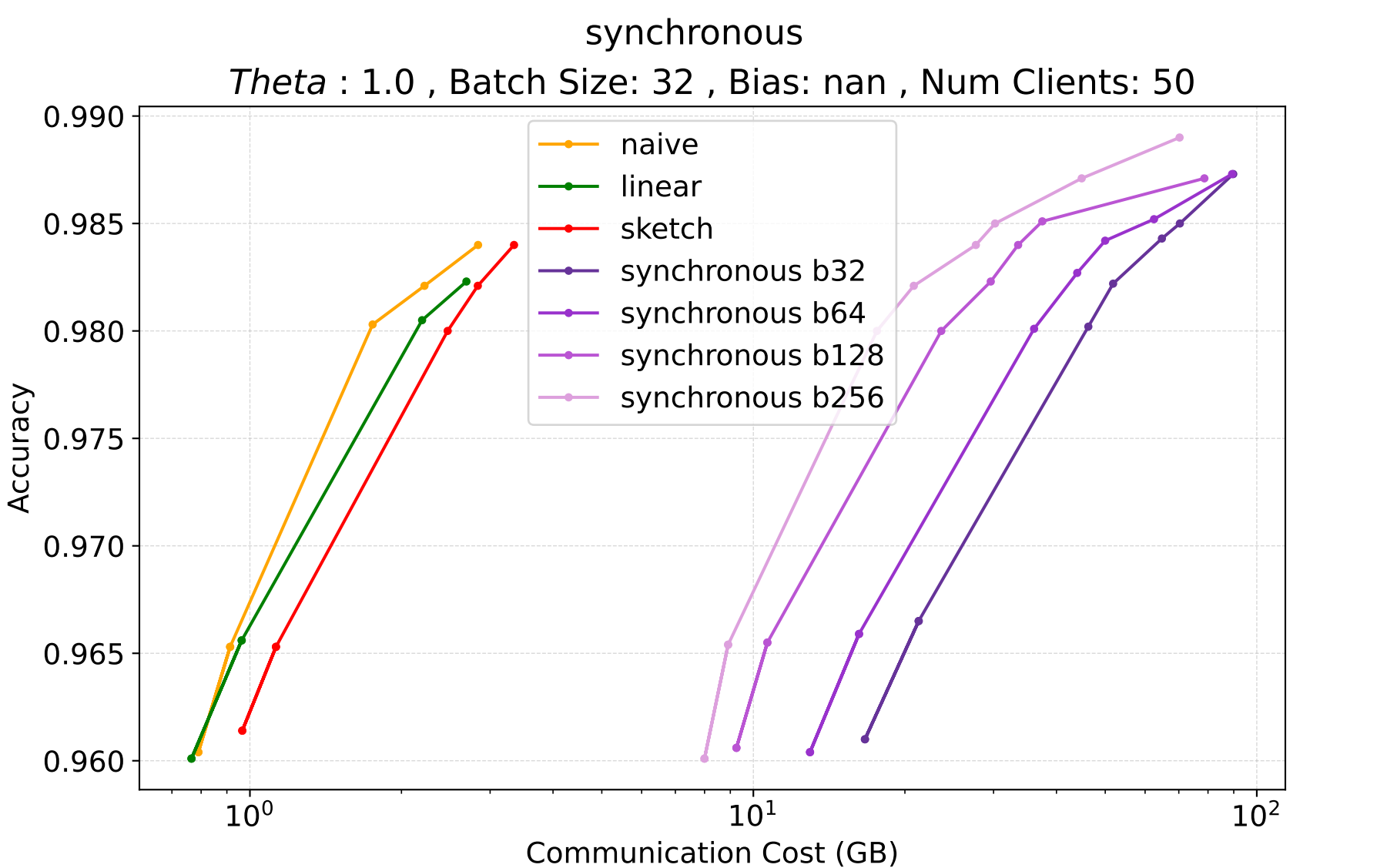
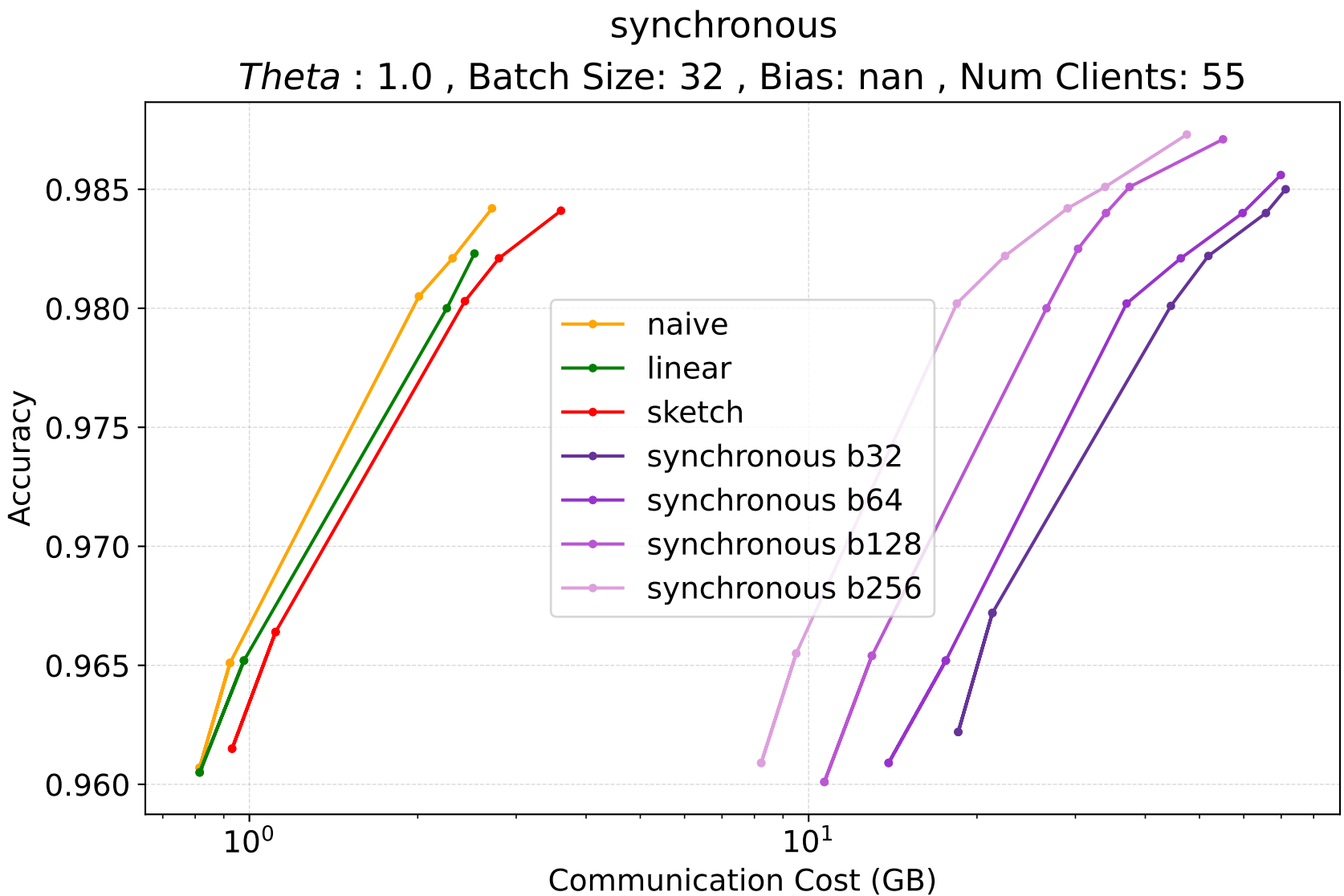
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 45
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
10^2
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
Accuracy
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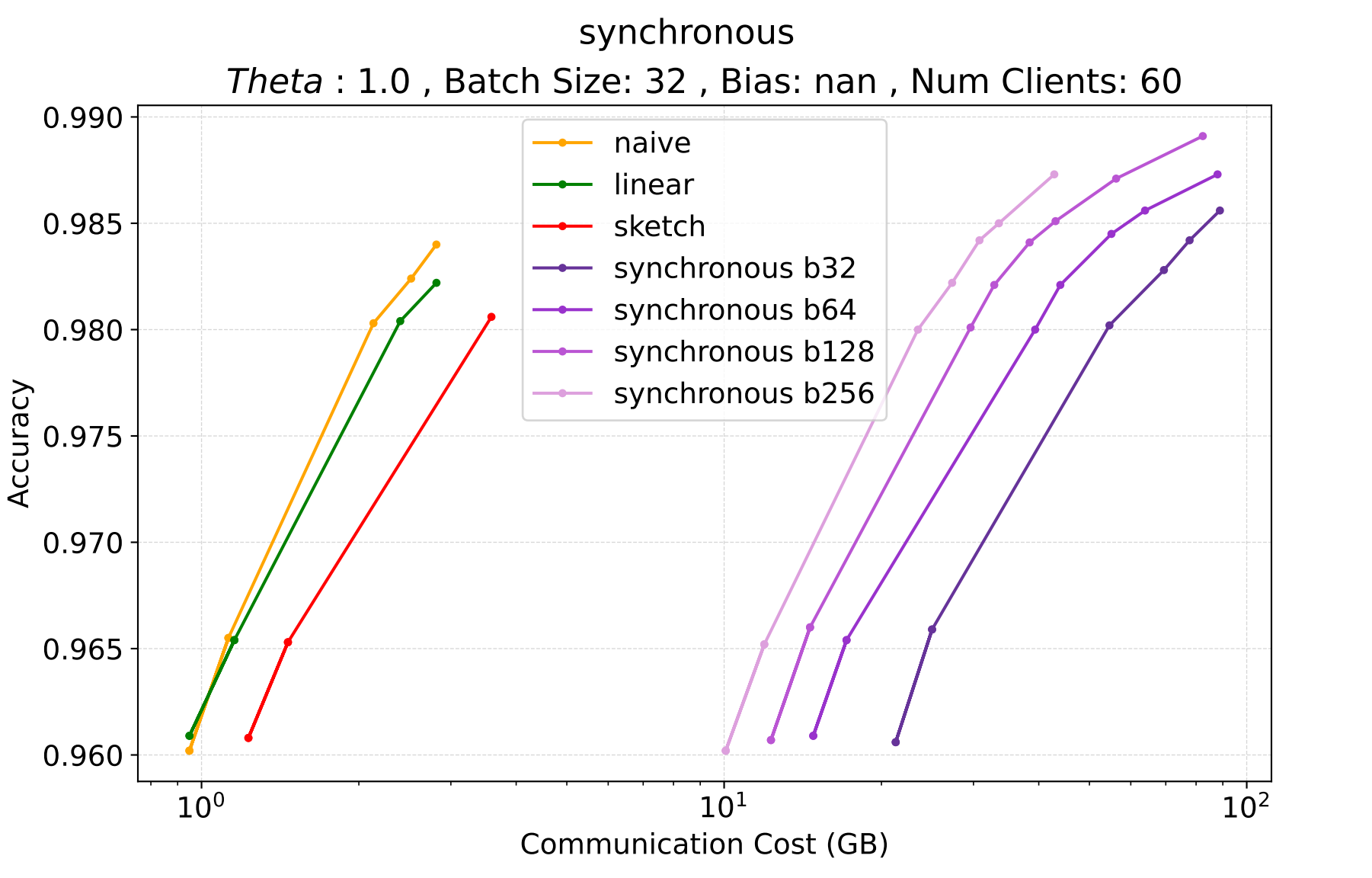
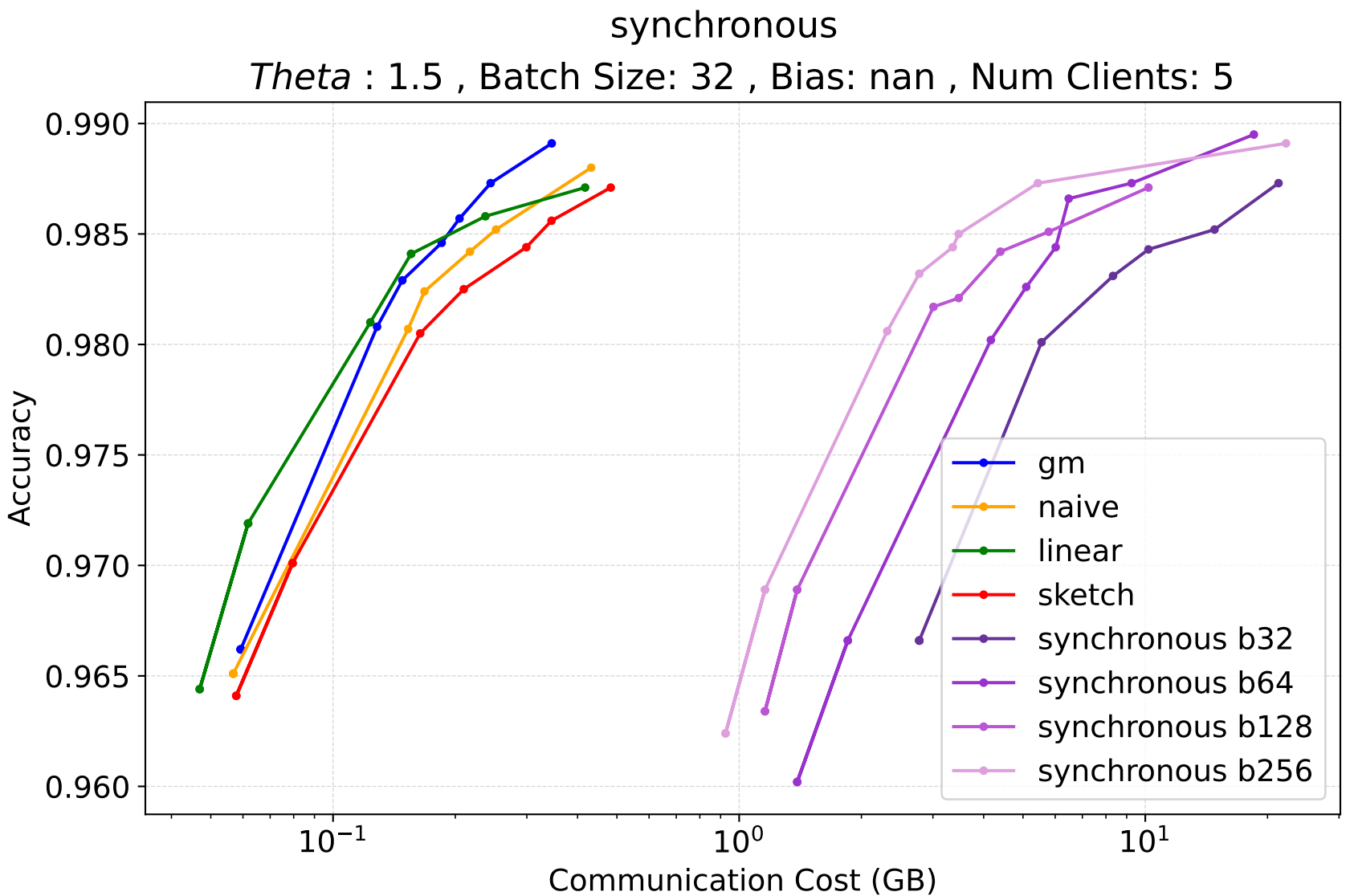
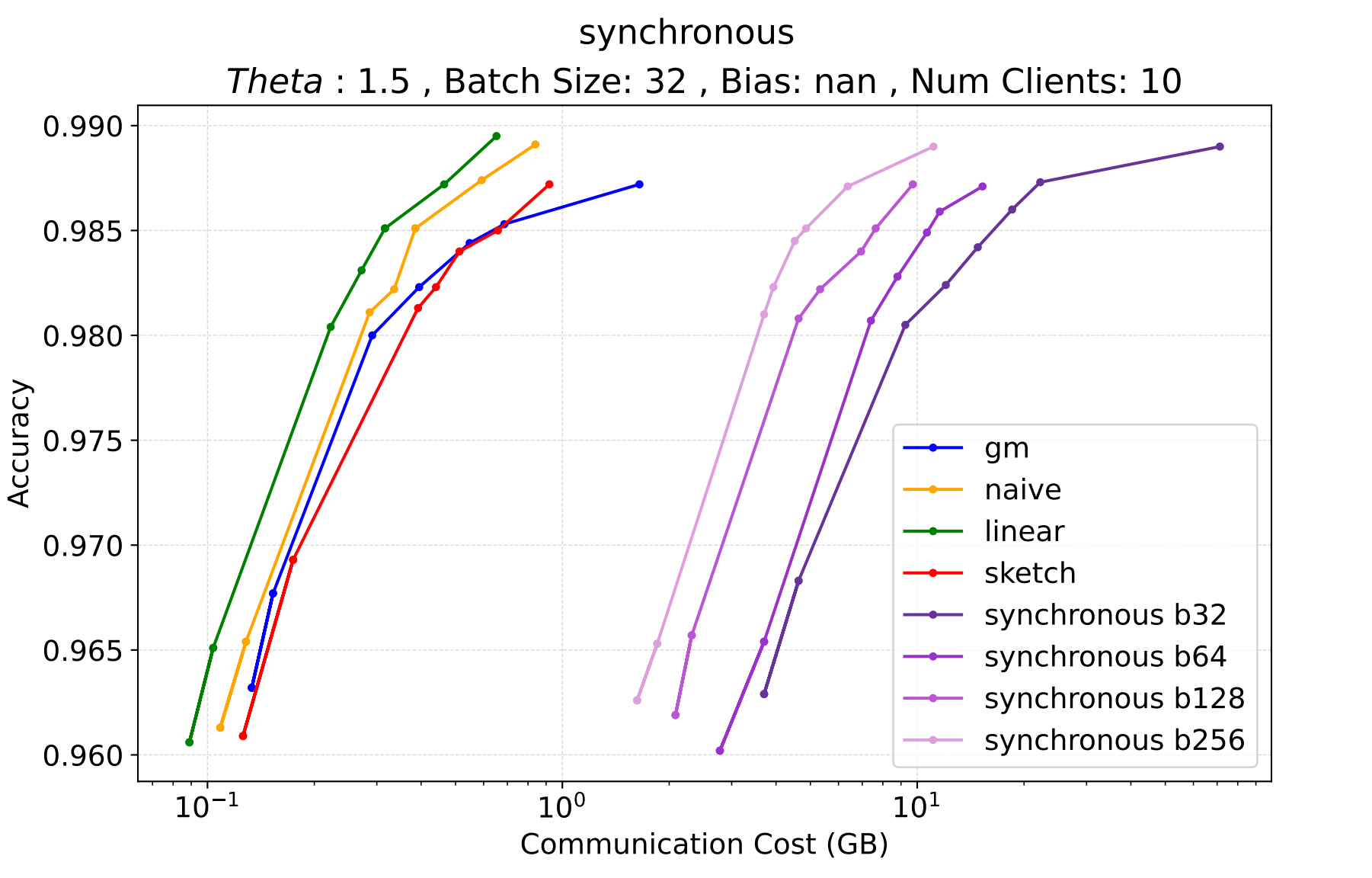
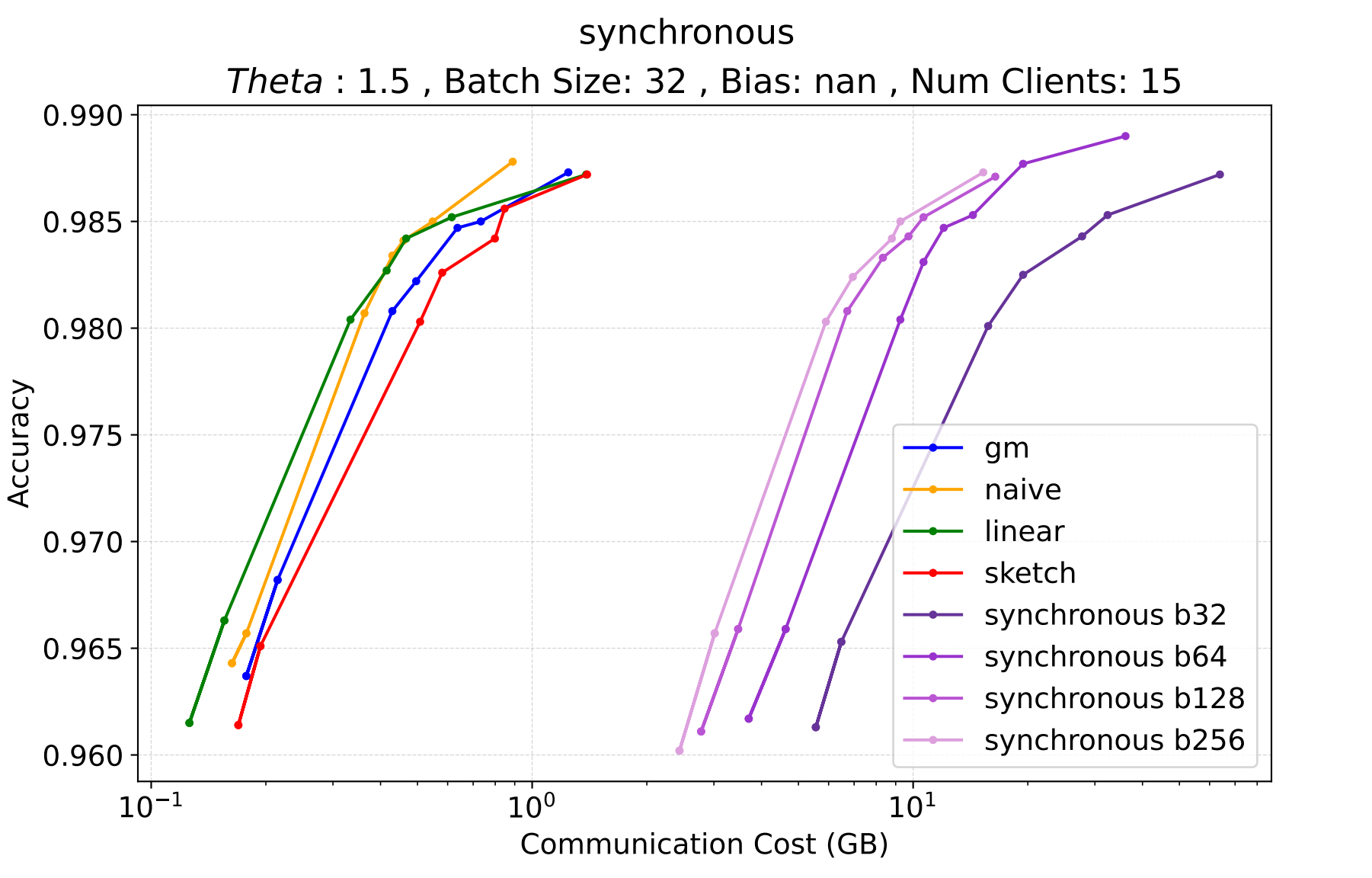
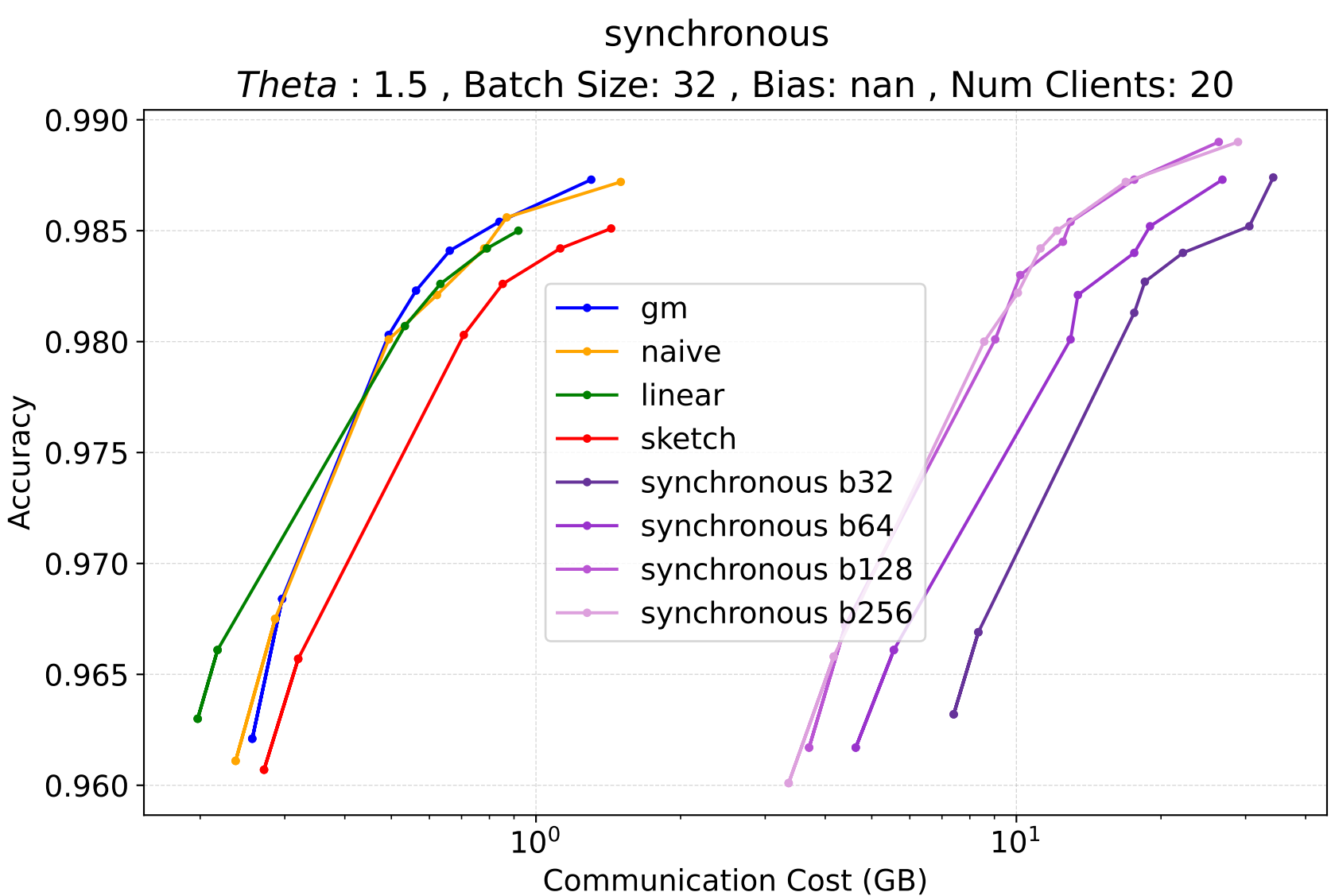
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

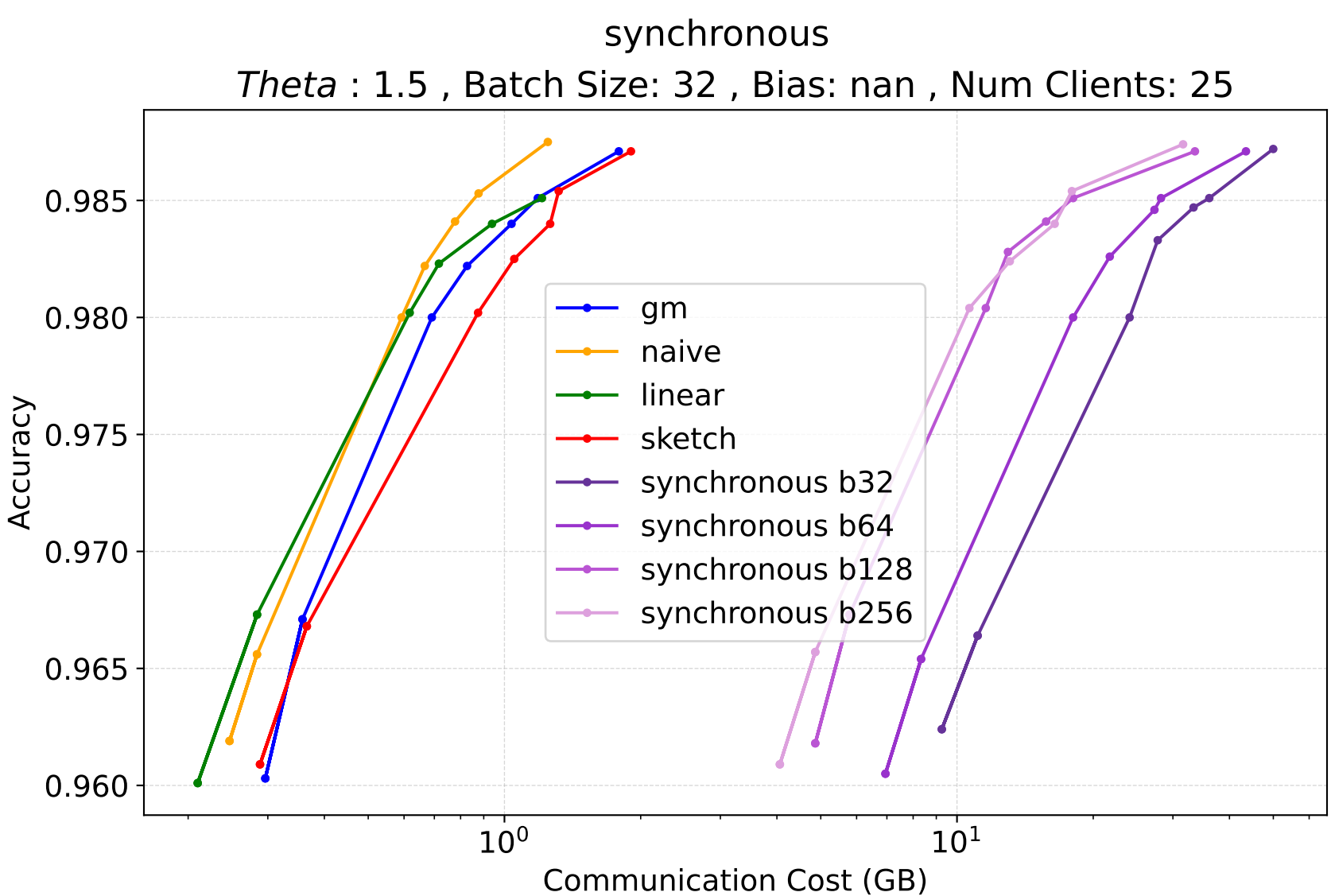

synchronous
Theta : 1.0 , Batch Size: 32 , Bias: nan , Num Clients: 60
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

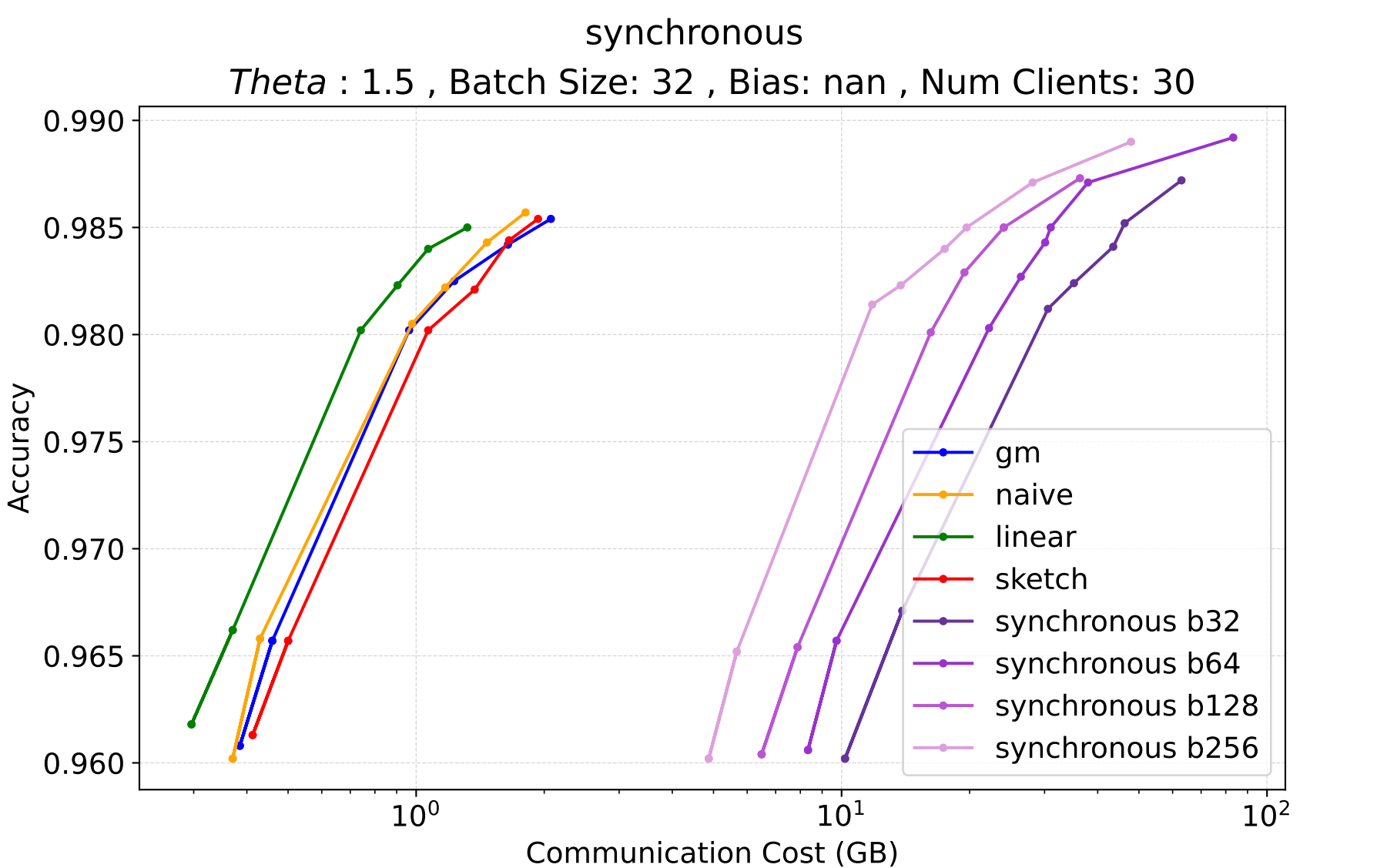

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 5
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

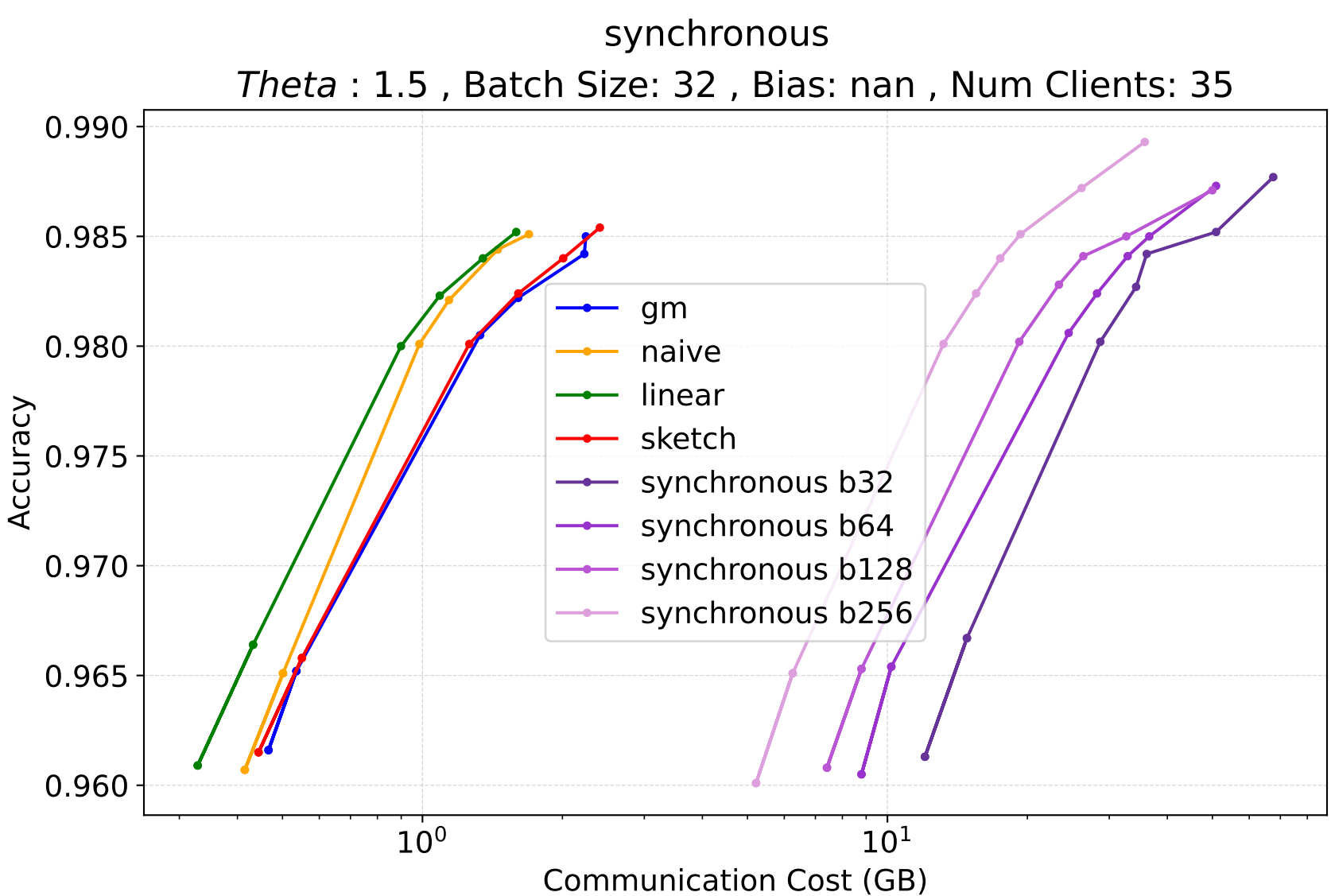

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 10
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

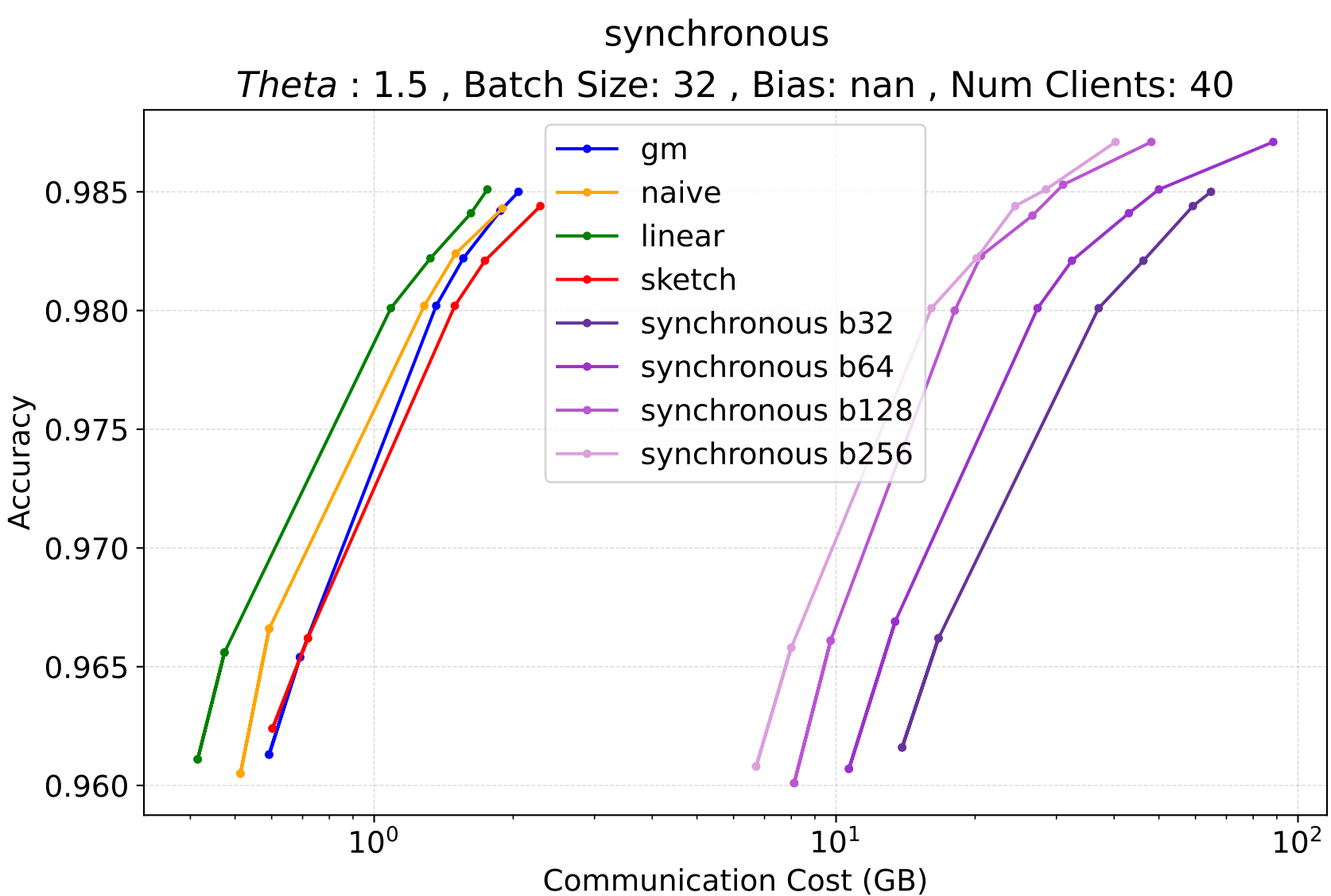

synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 20
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 30
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 35
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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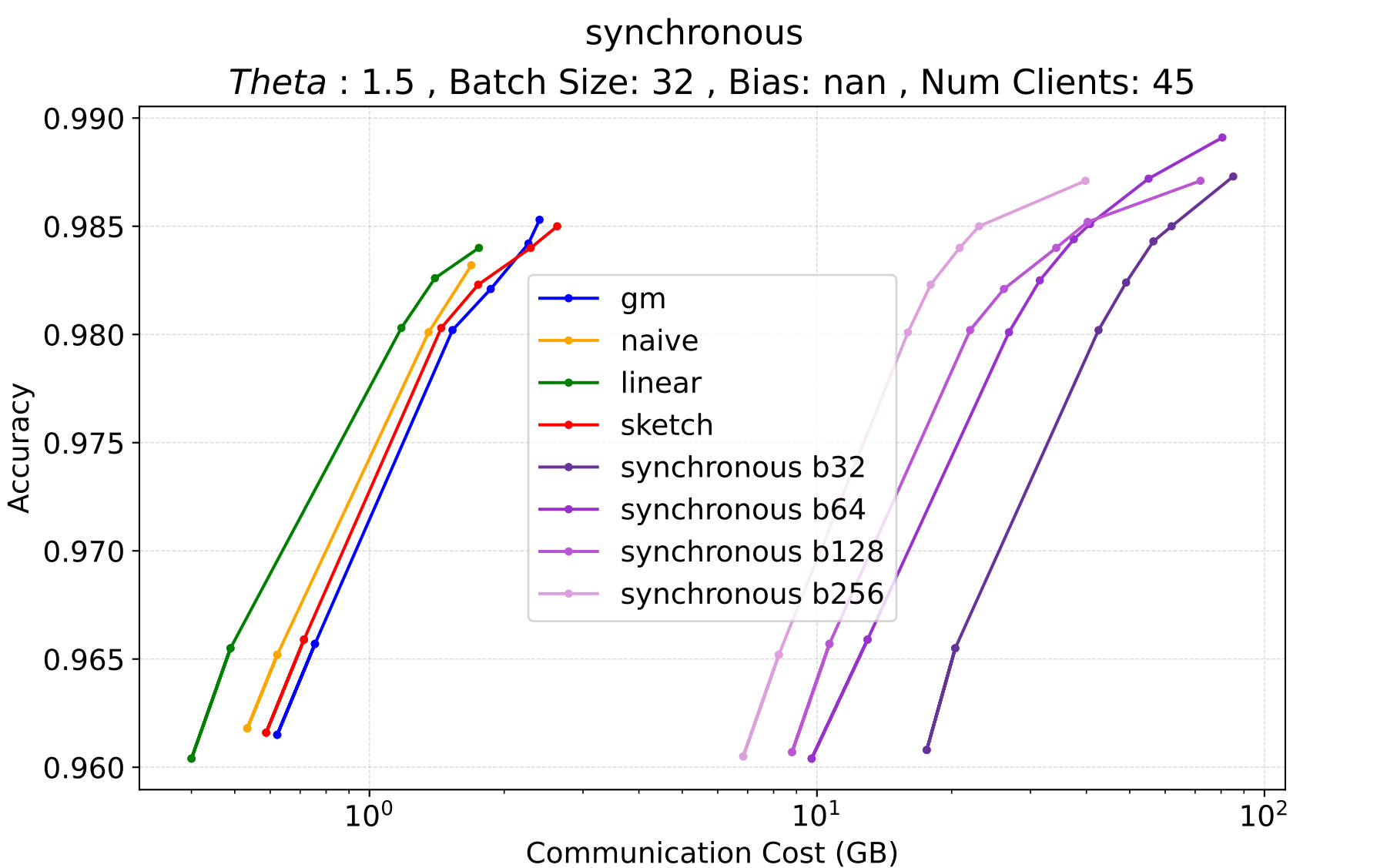
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 45
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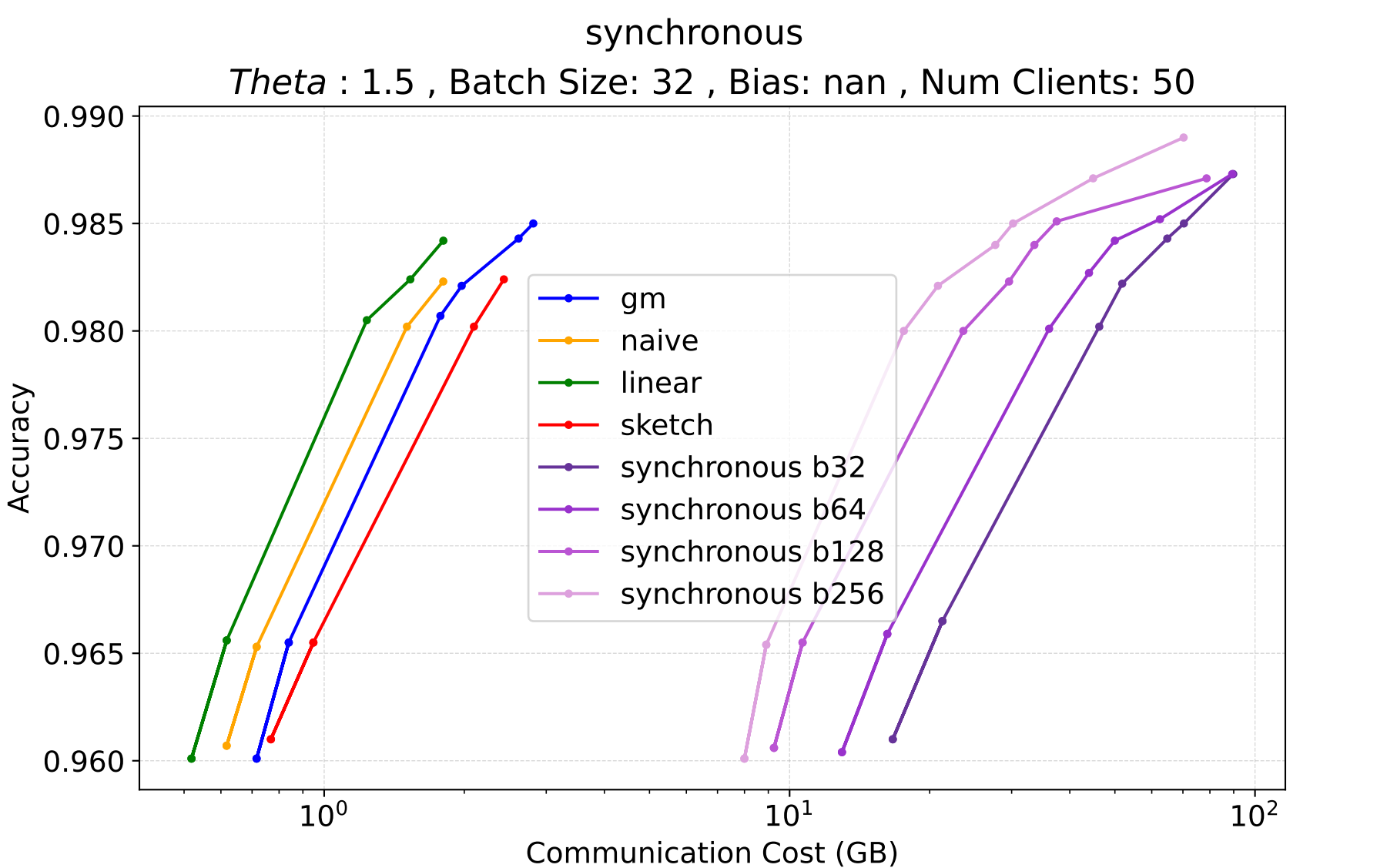
0.980
0.975
0.970
0.965
0.960
Accuracy
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 50
Accuracy
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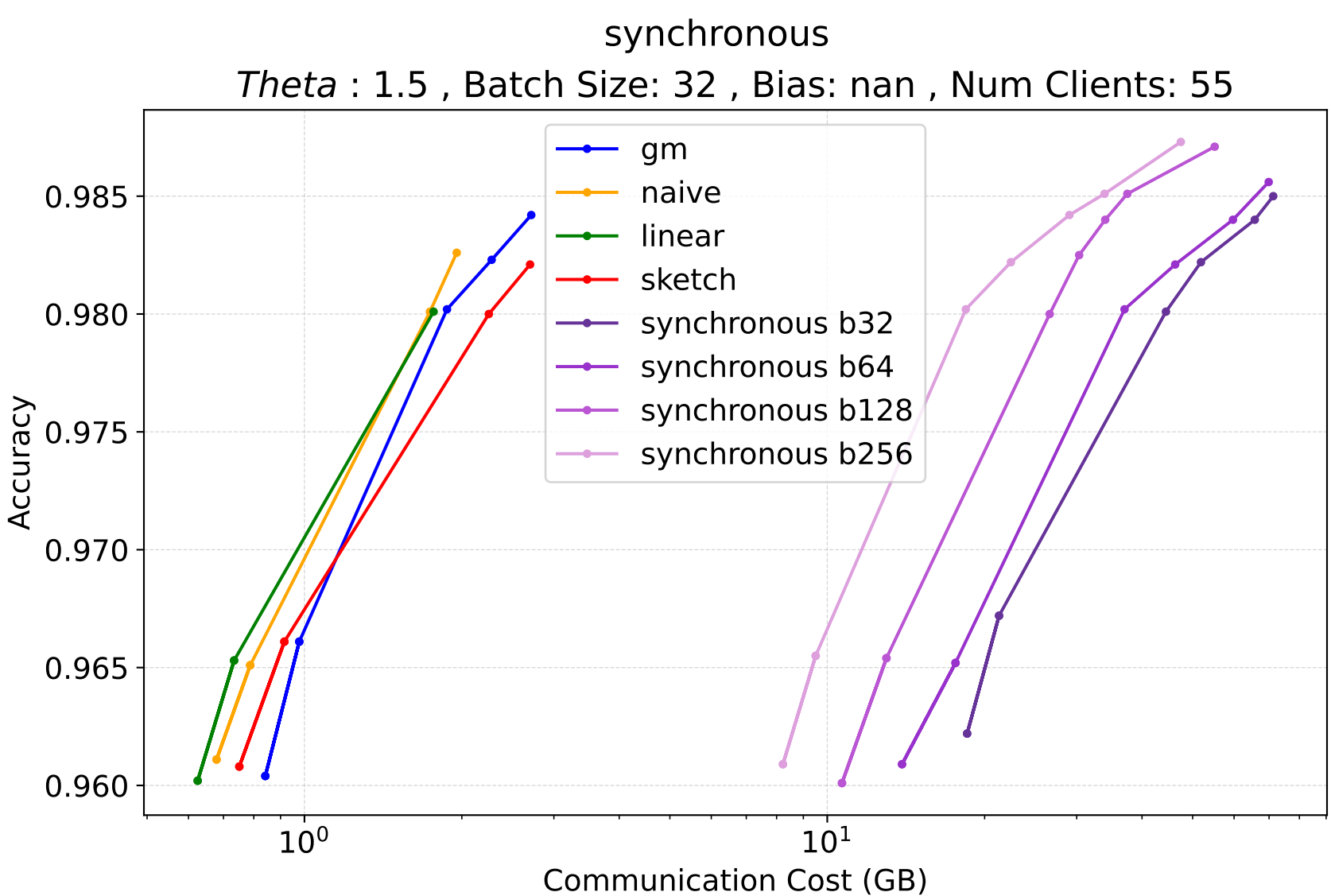
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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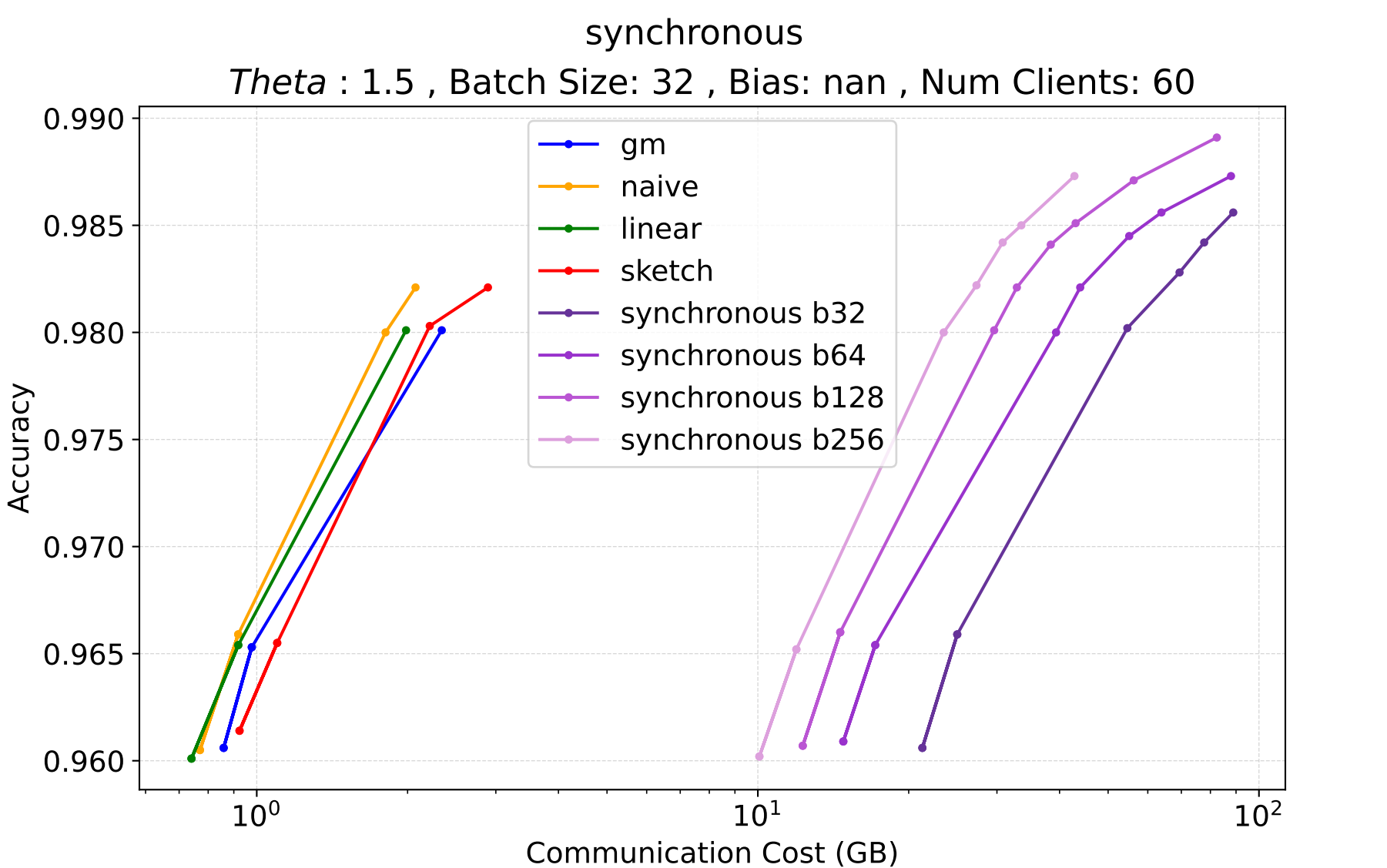
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)


synchronous
Theta : 1.5 , Batch Size: 32 , Bias: nan , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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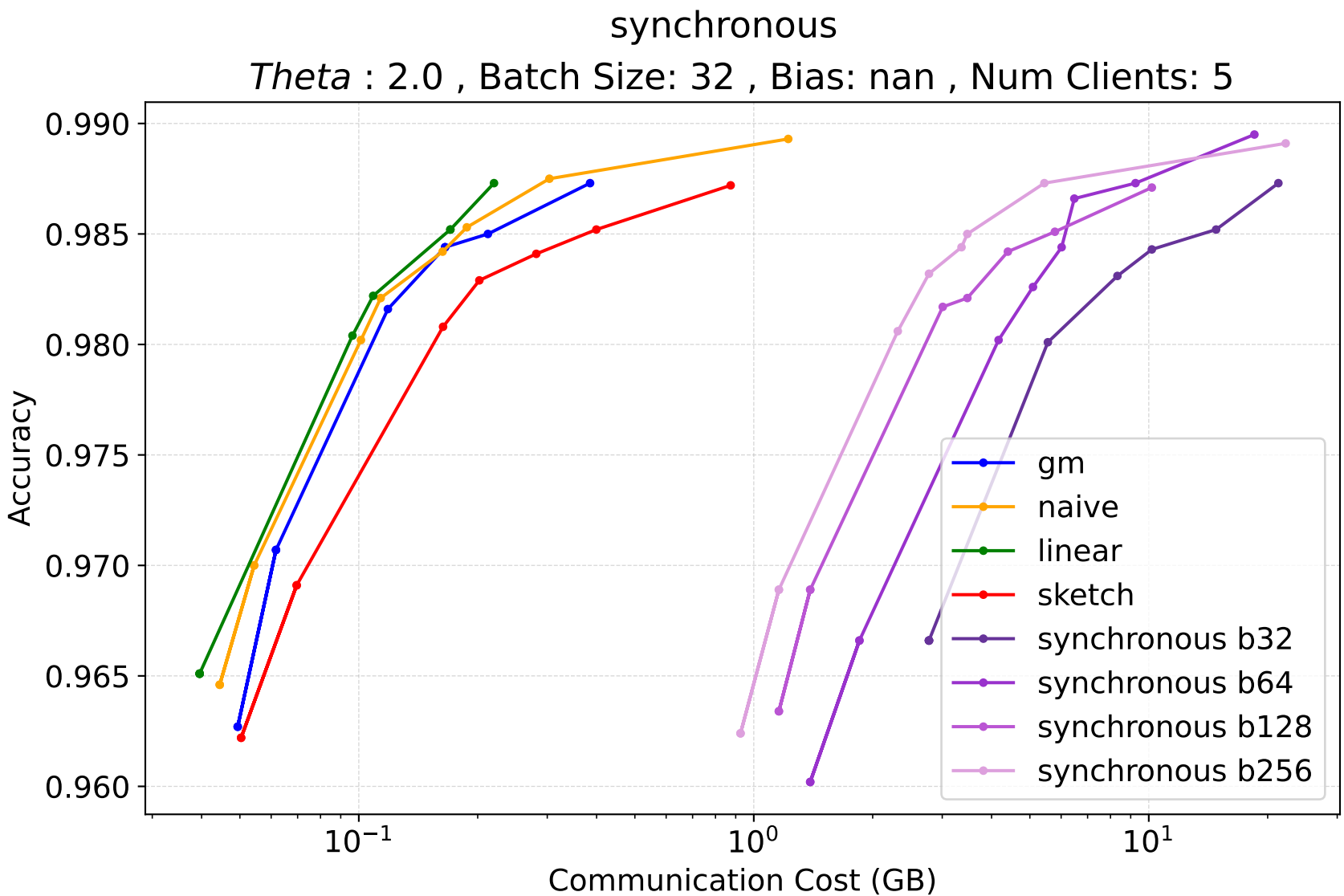
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
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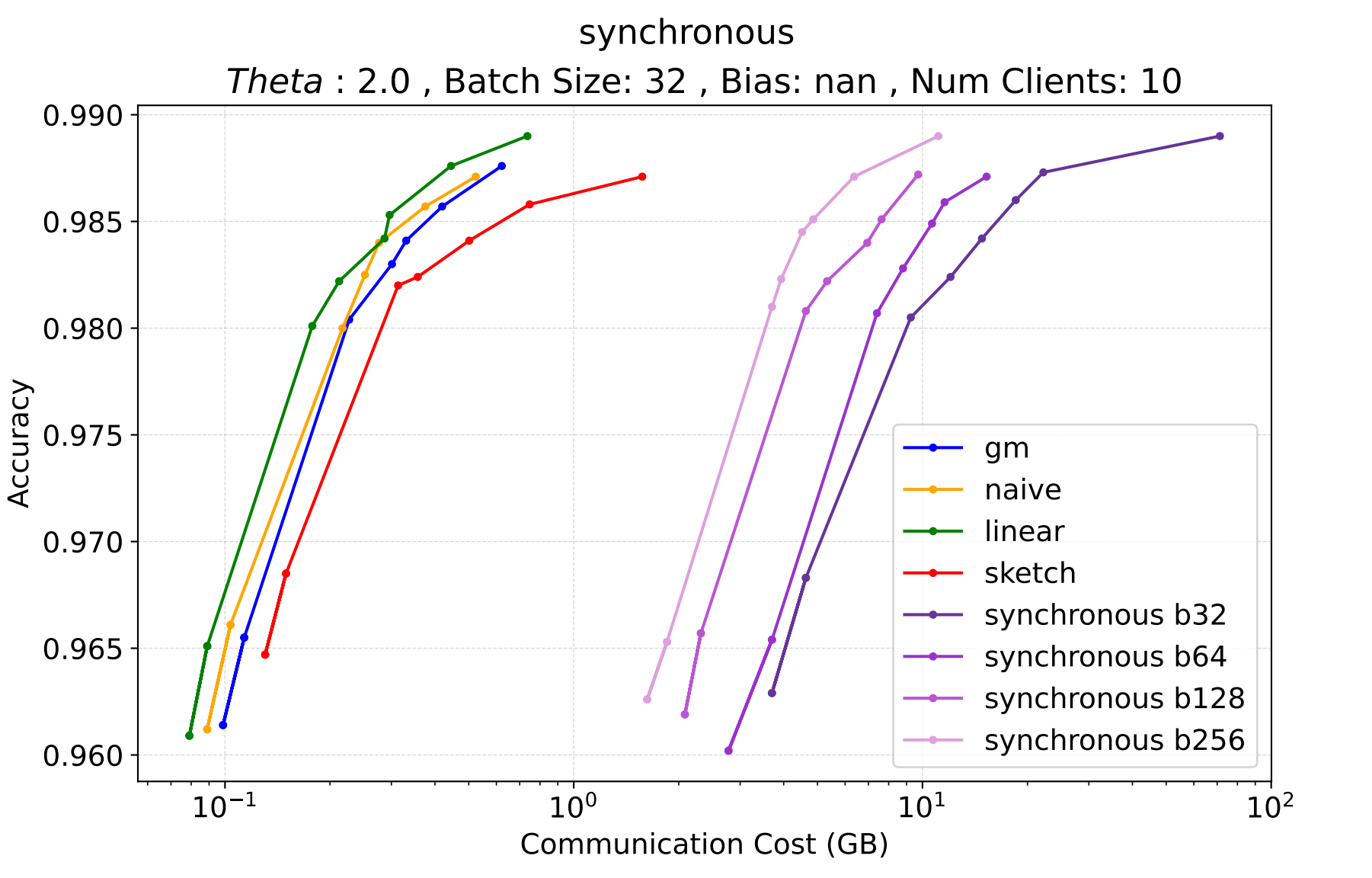
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
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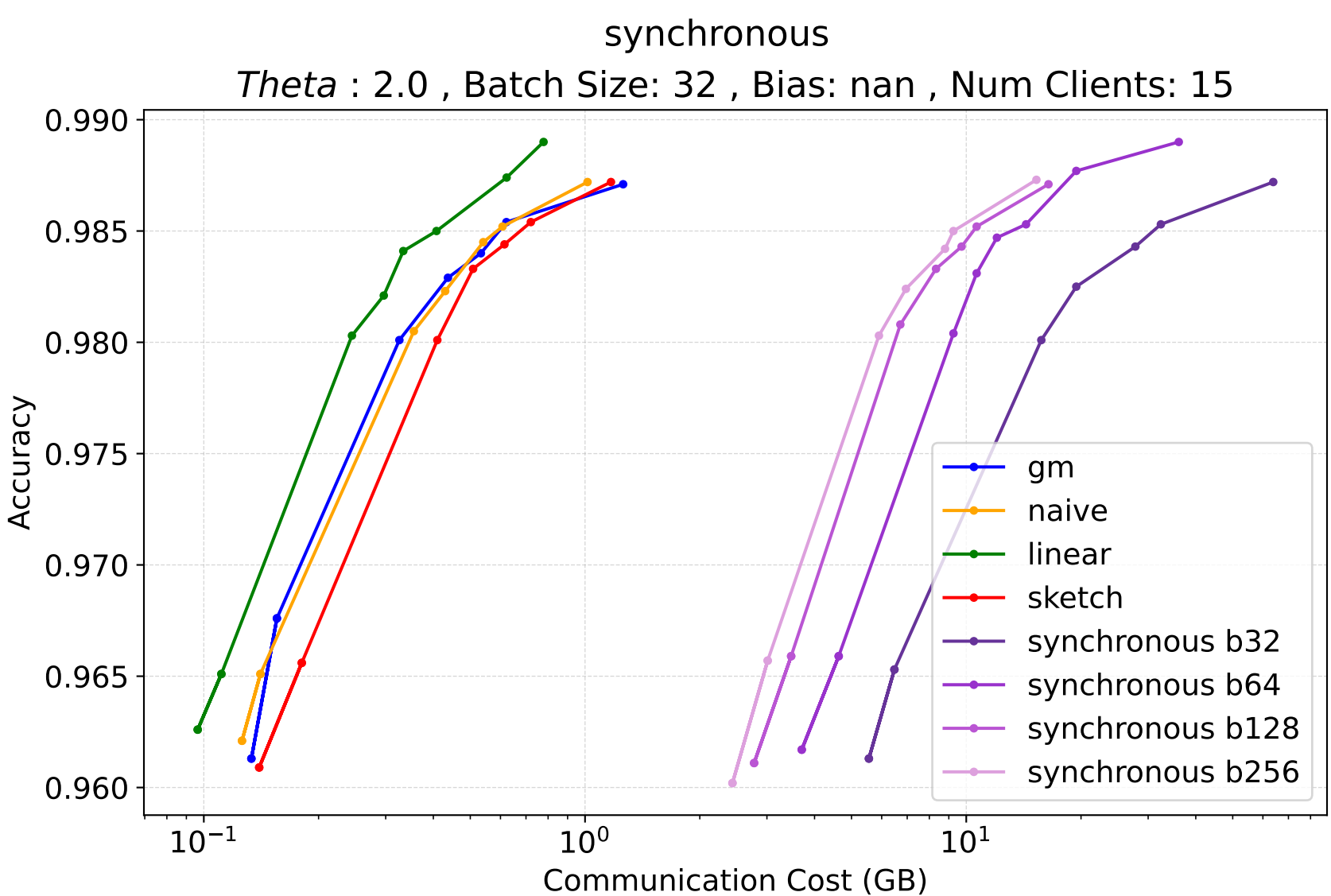
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
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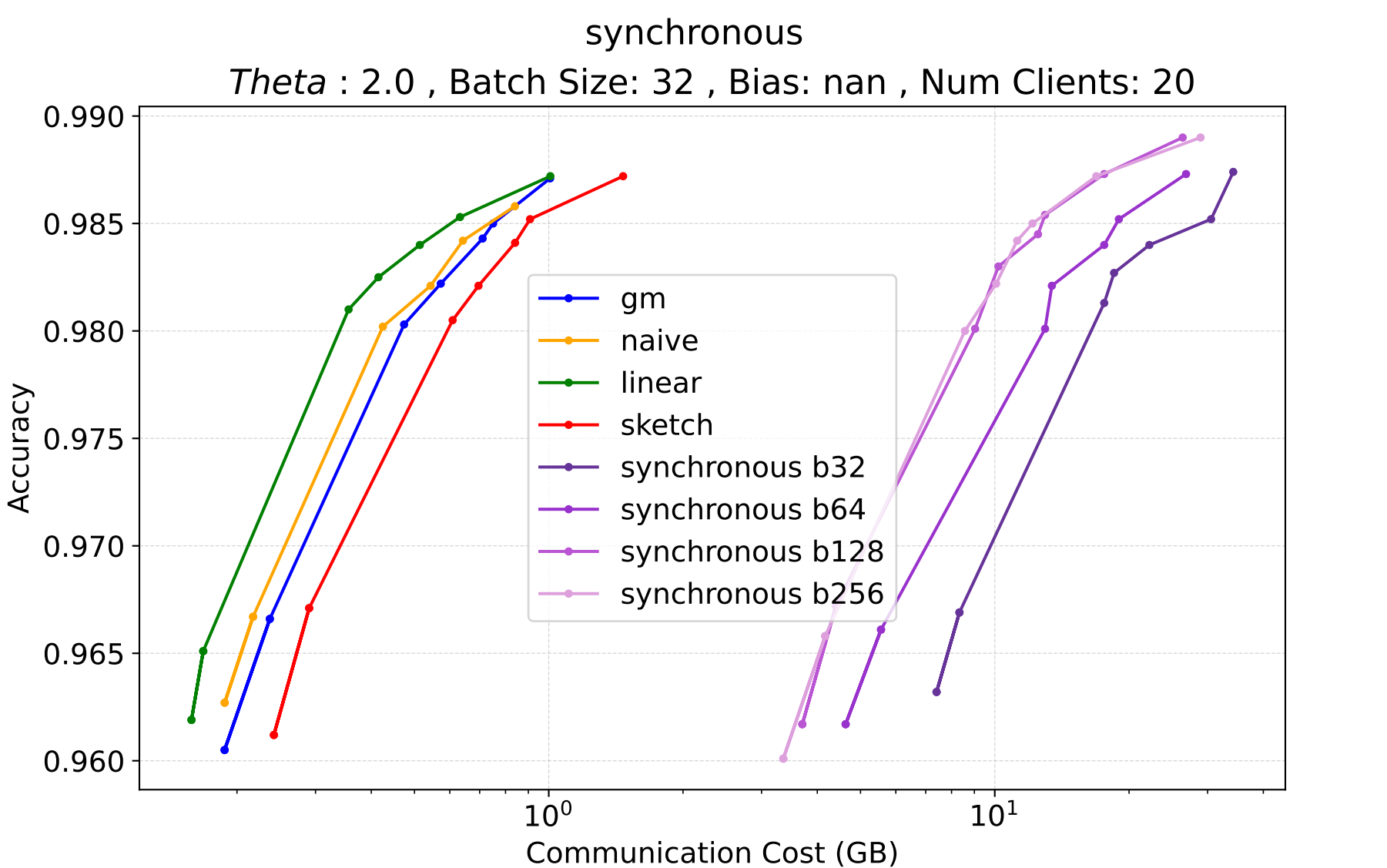
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 20
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0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
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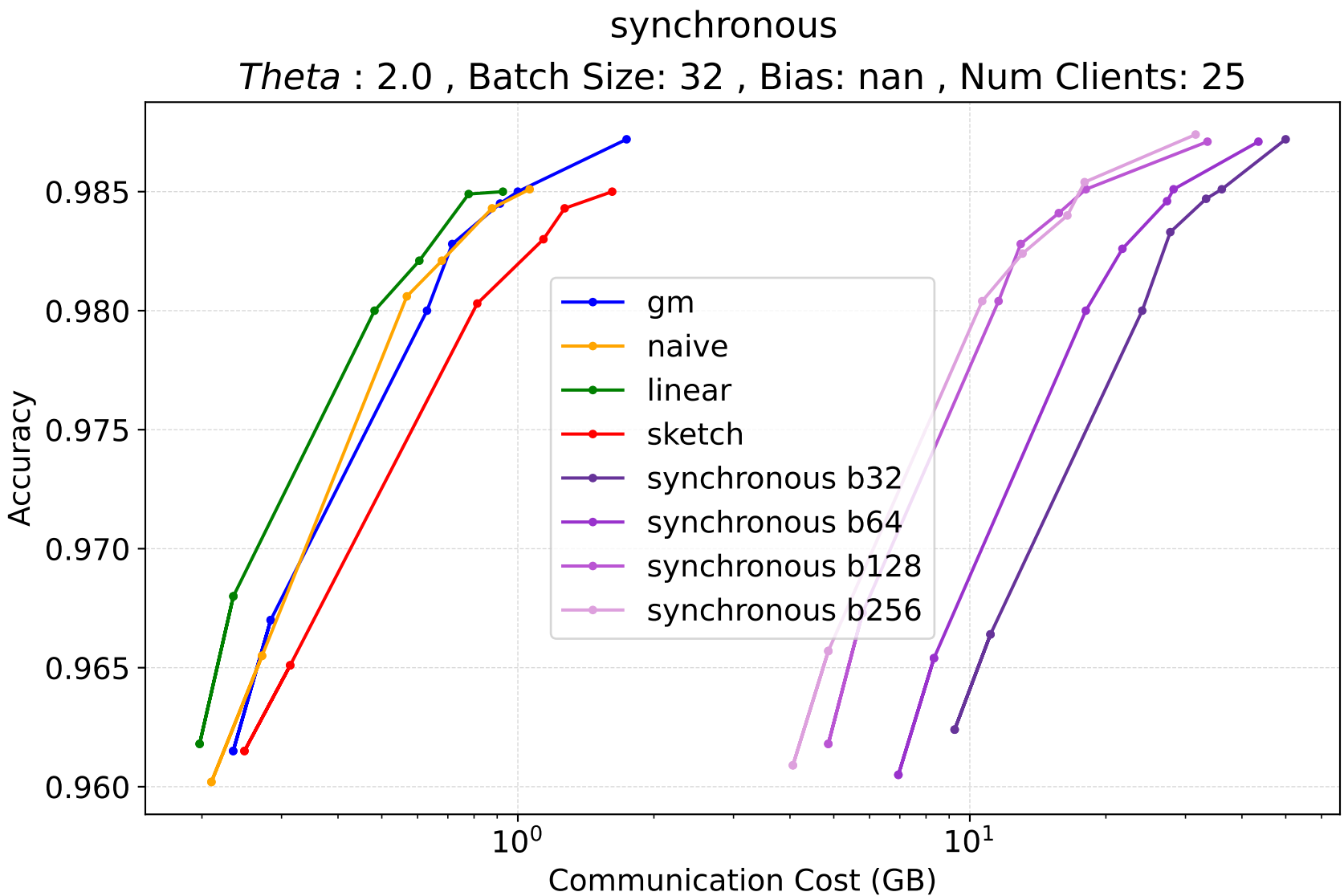
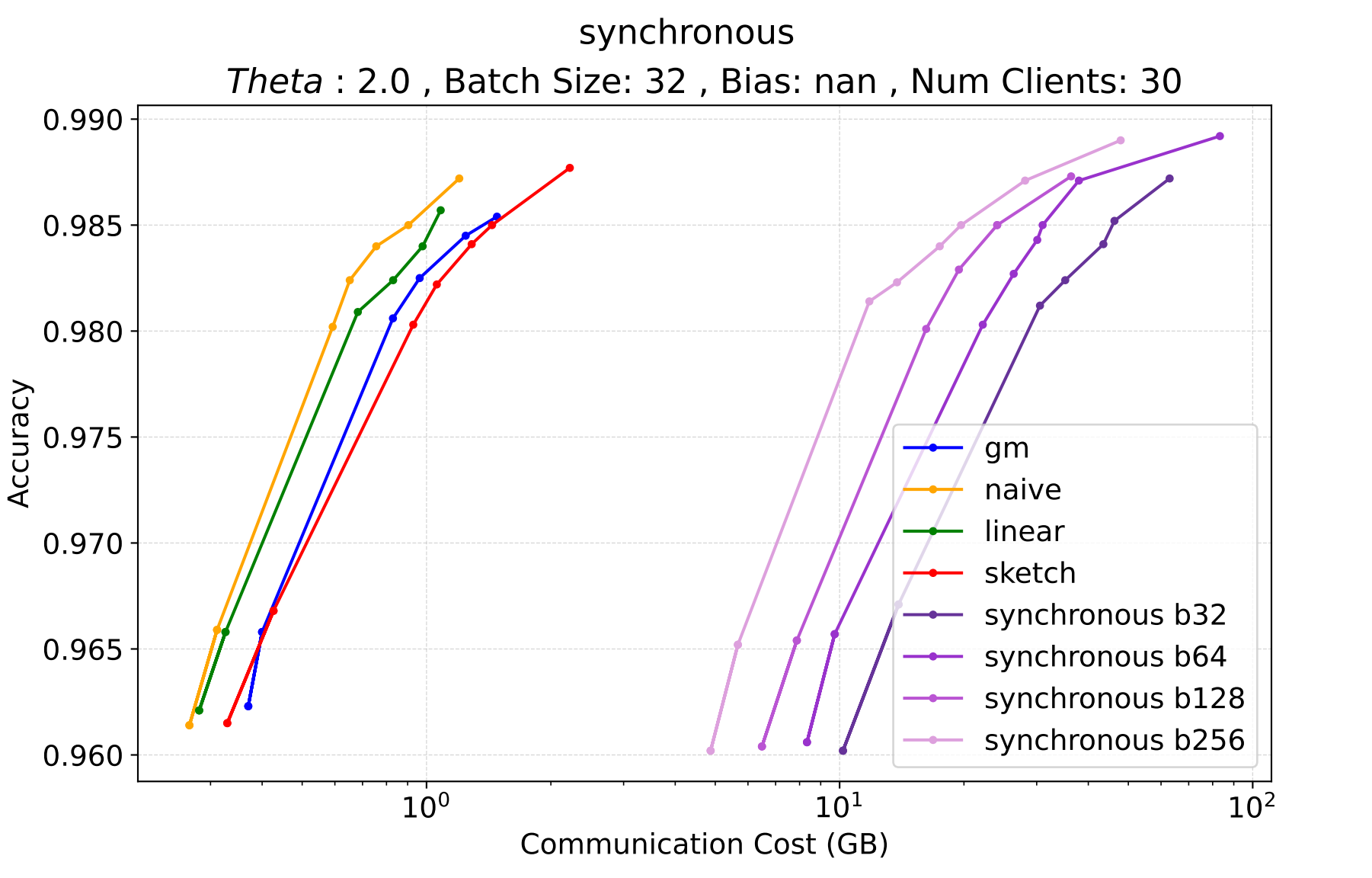
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
Accuracy
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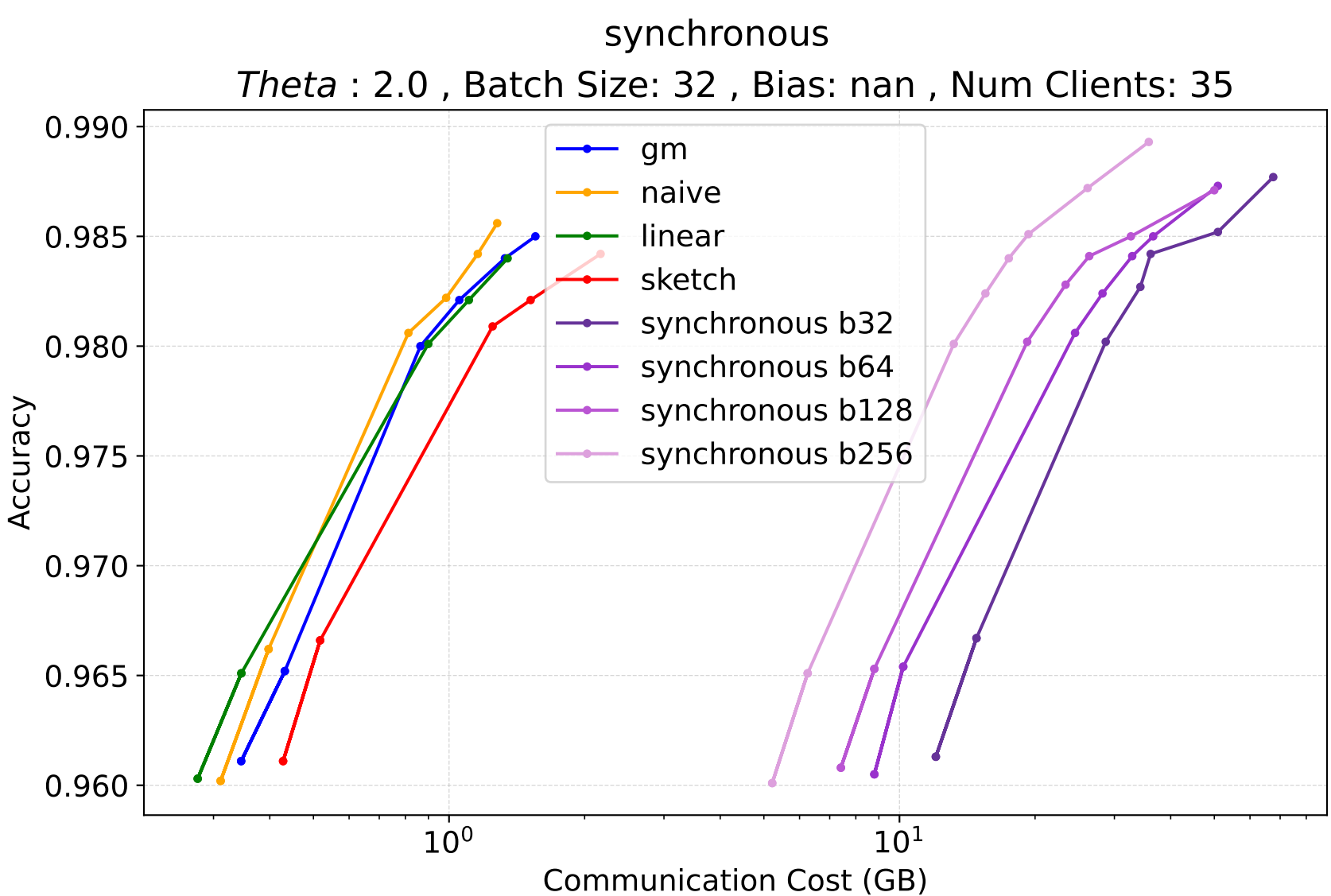
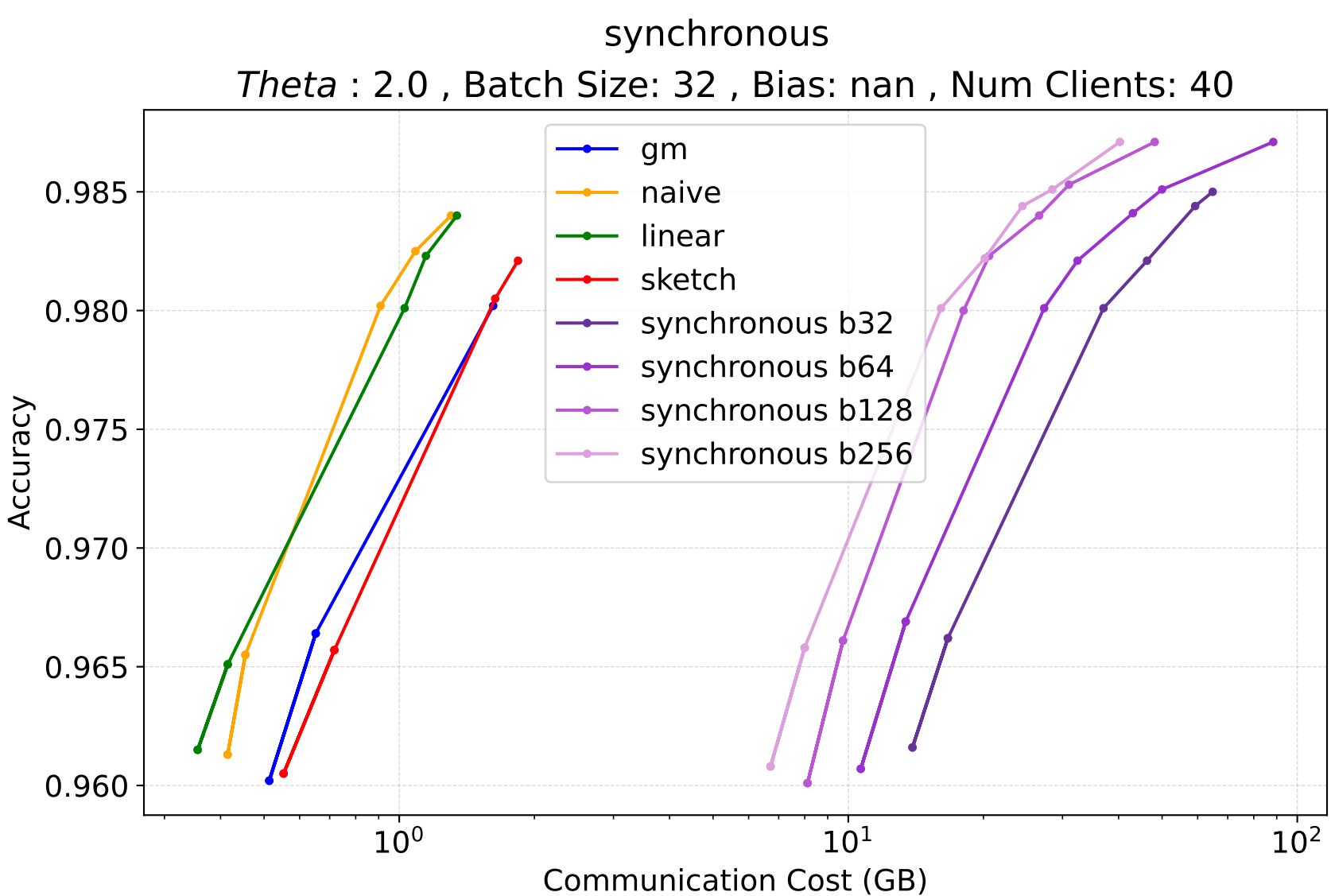
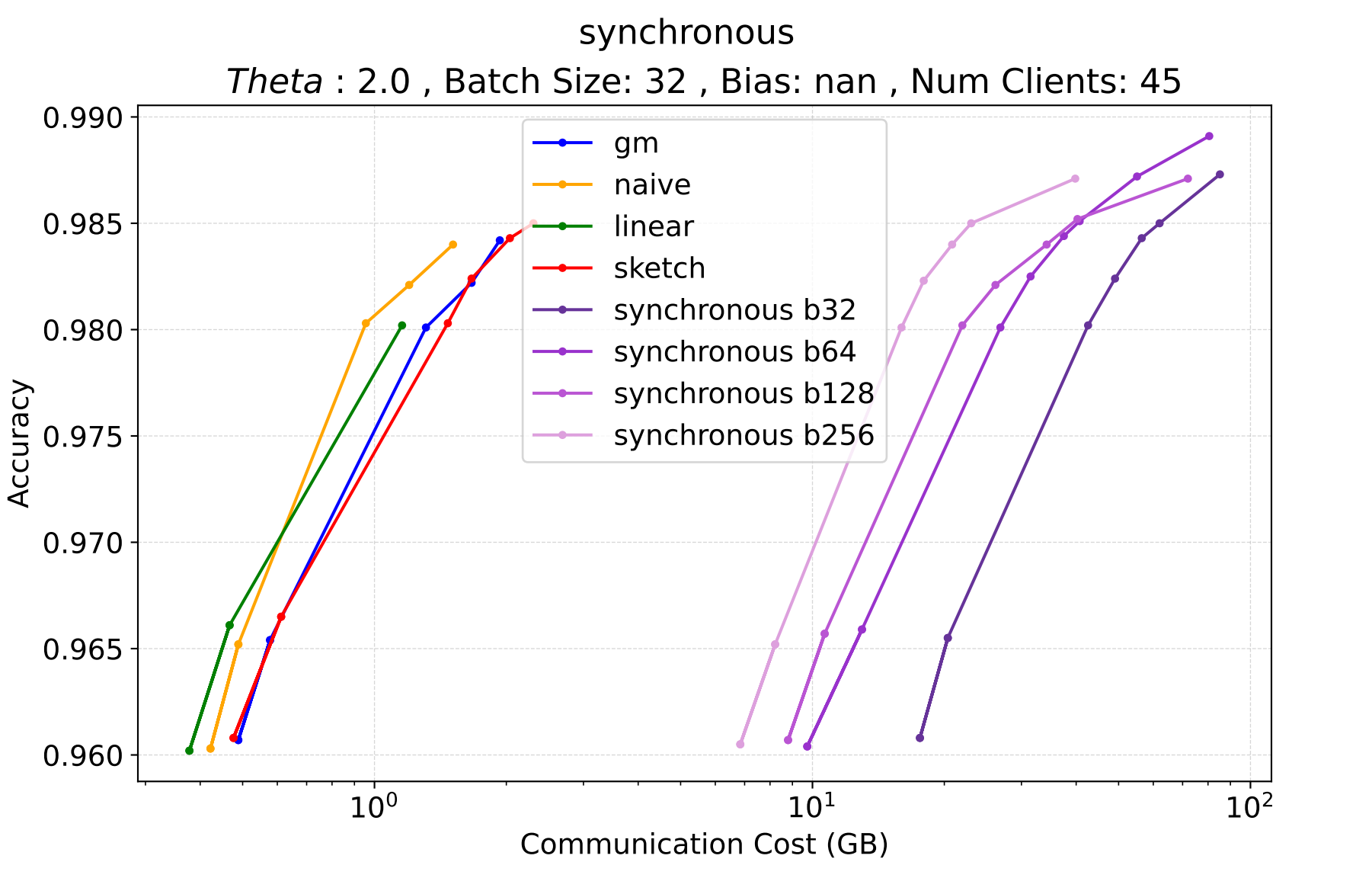
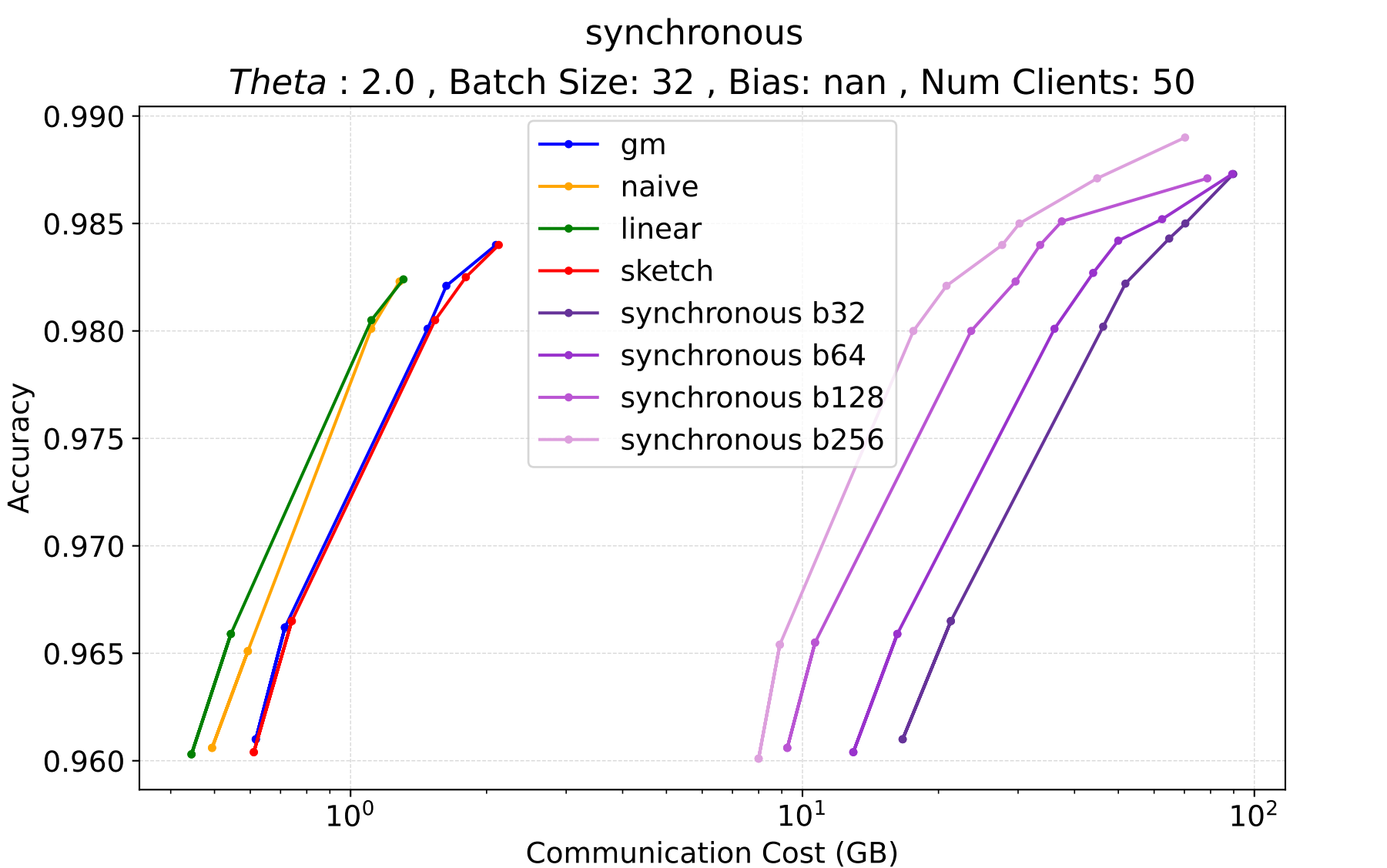
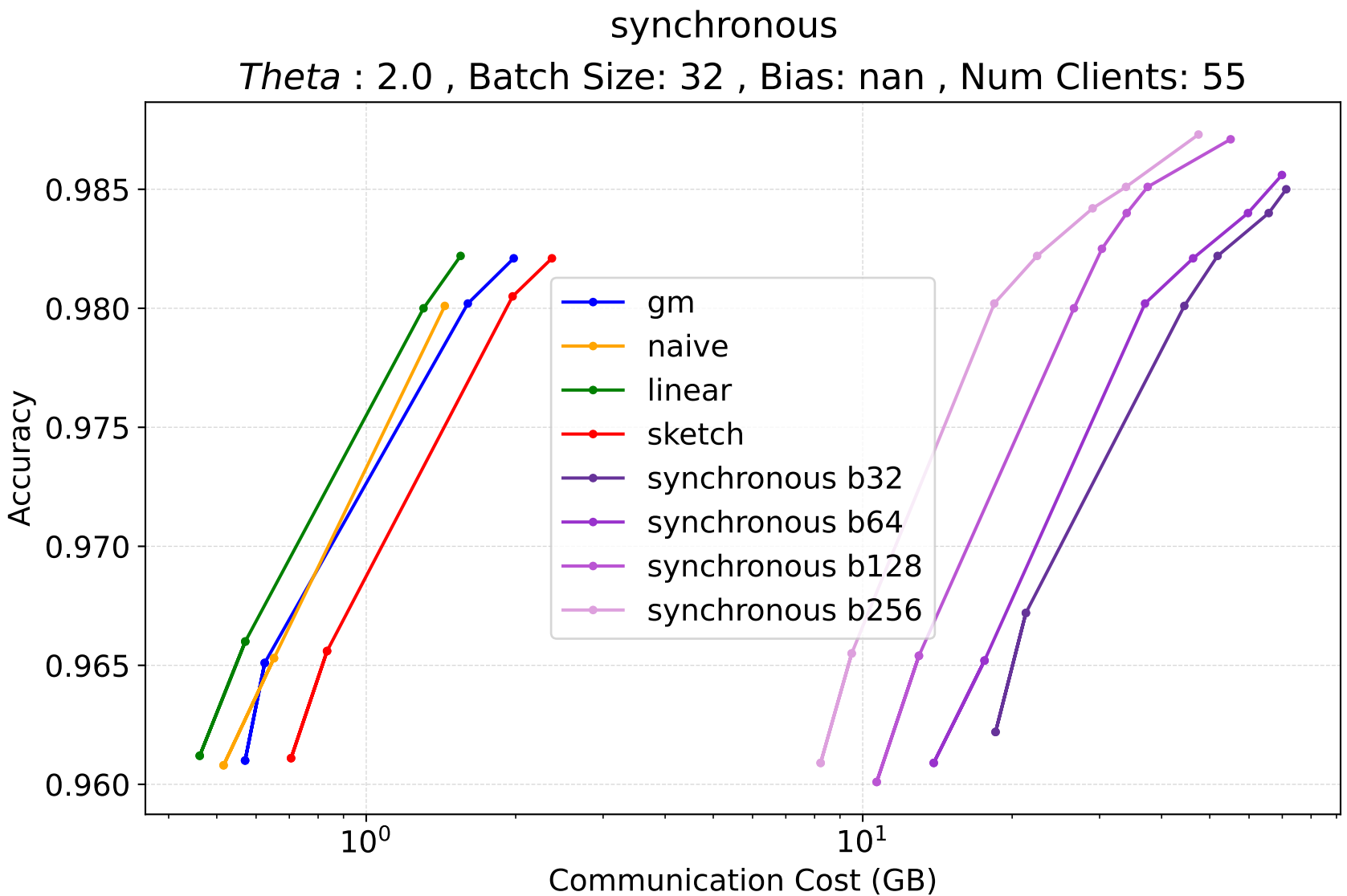
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

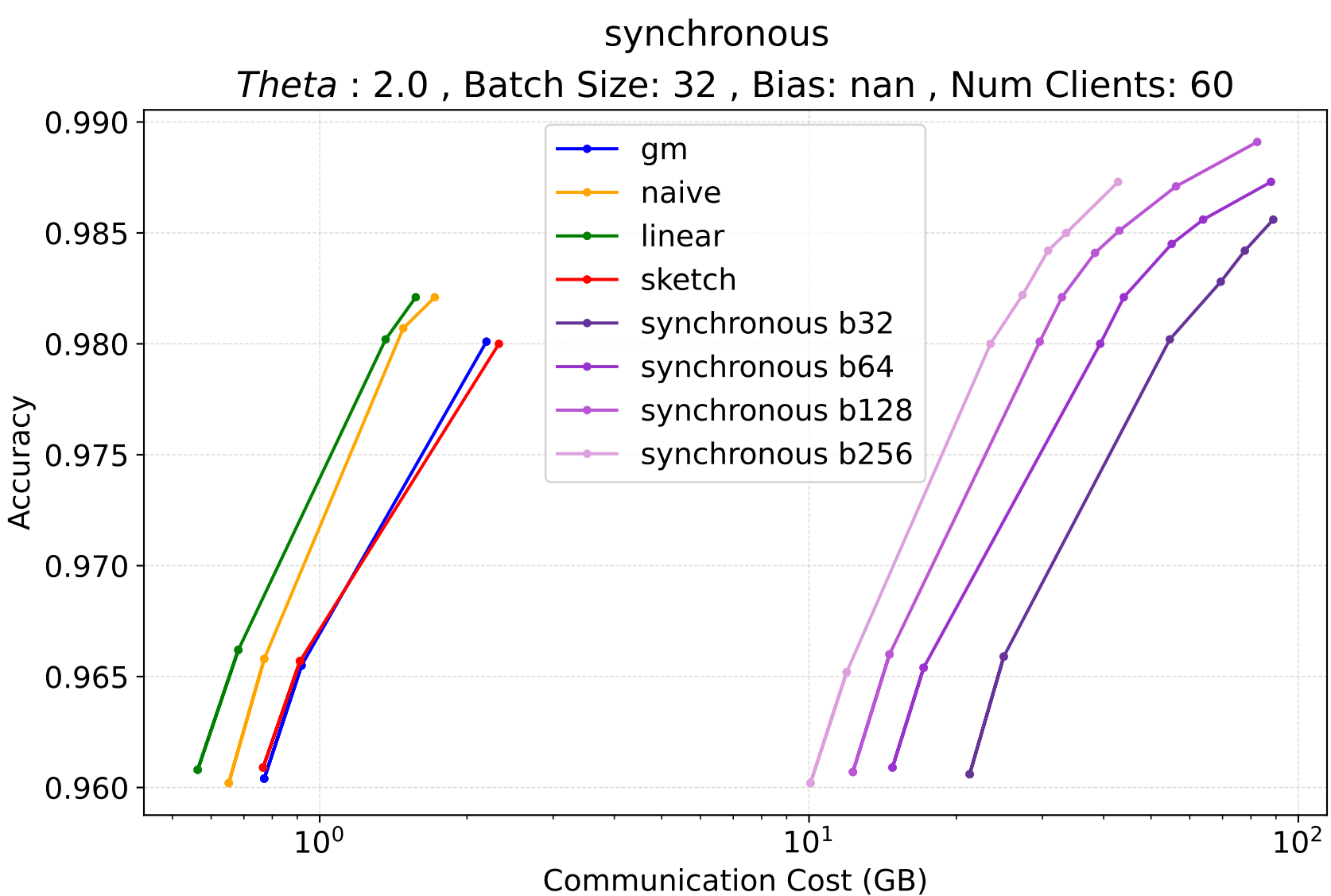

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

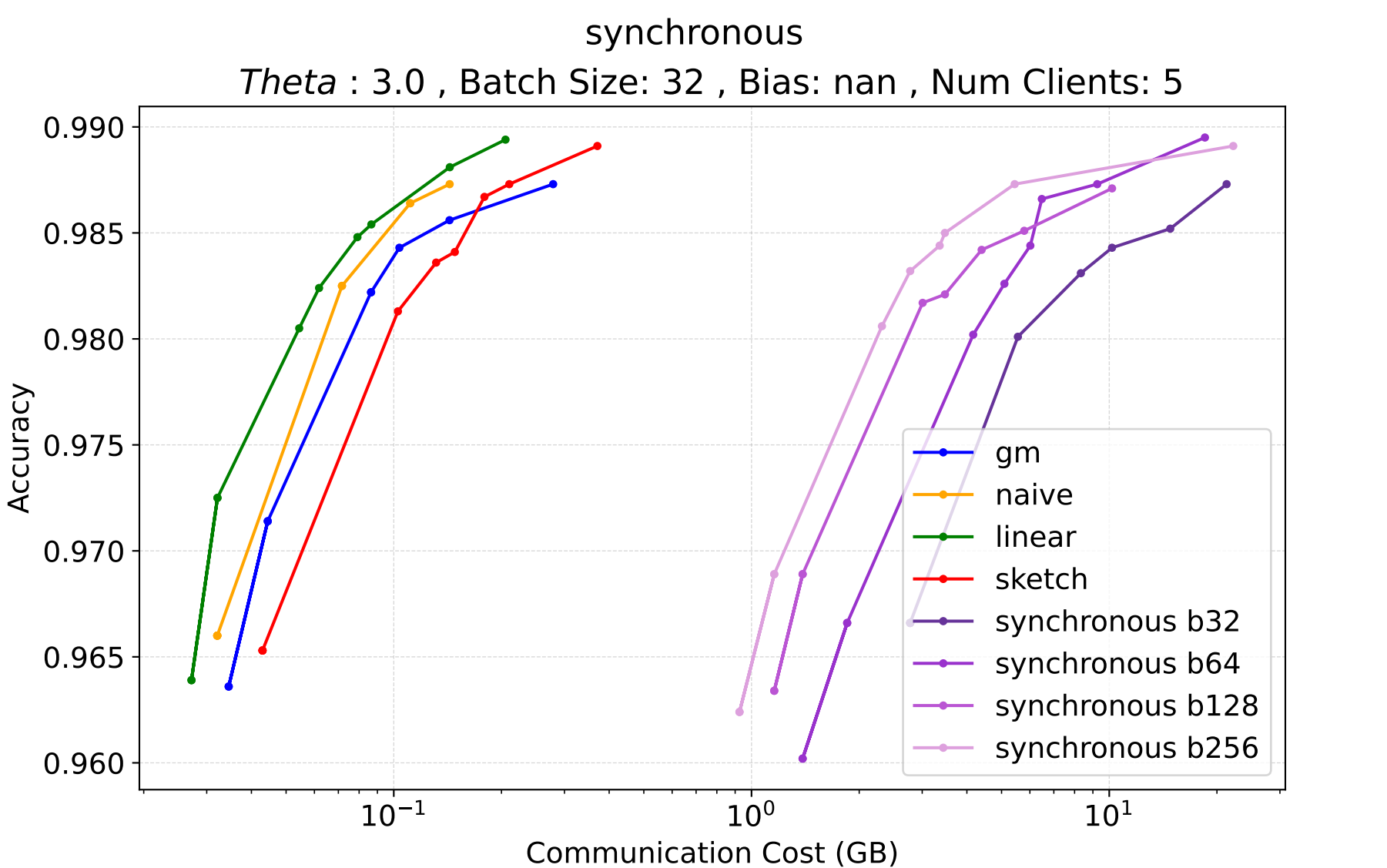

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

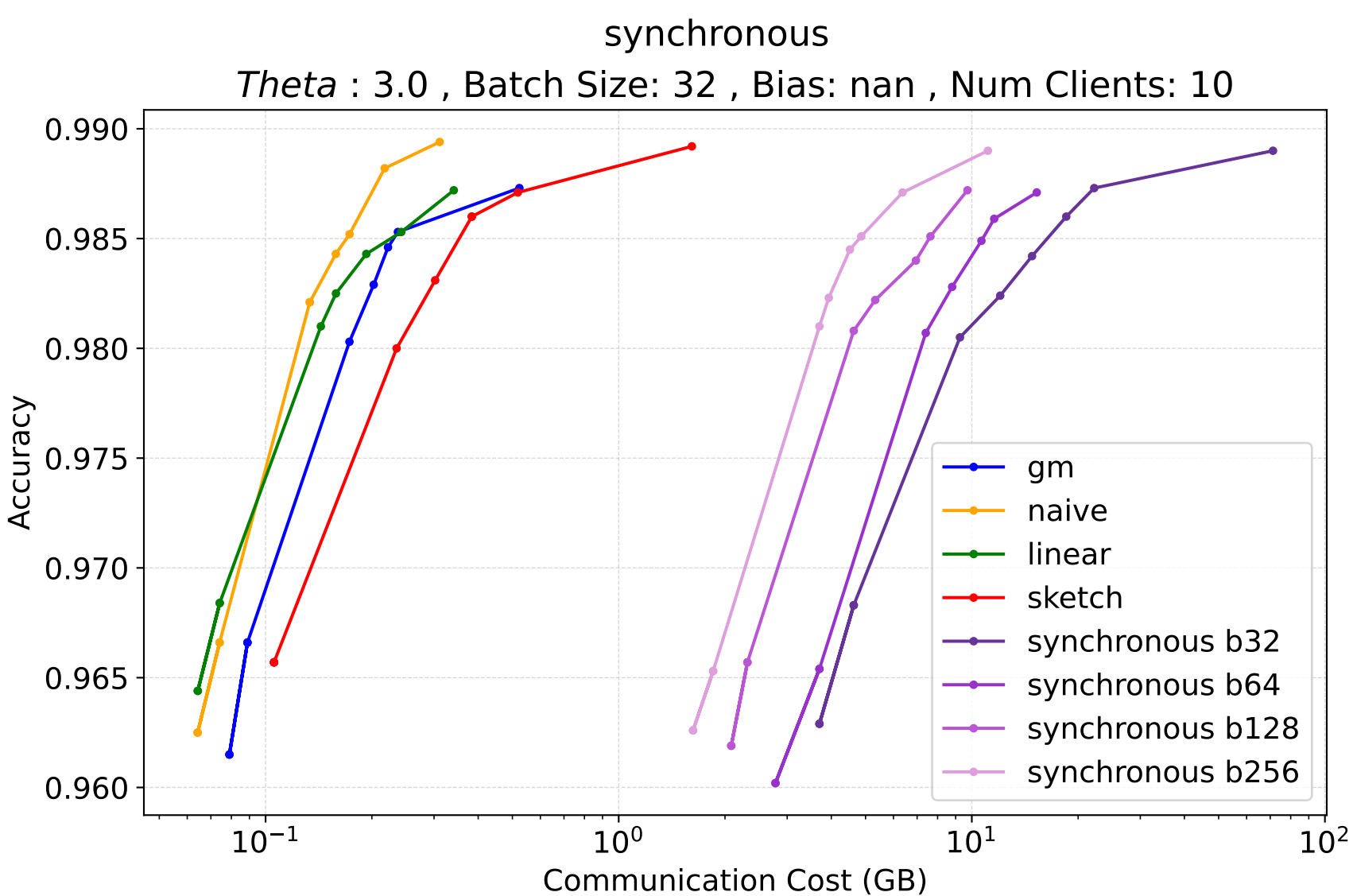

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

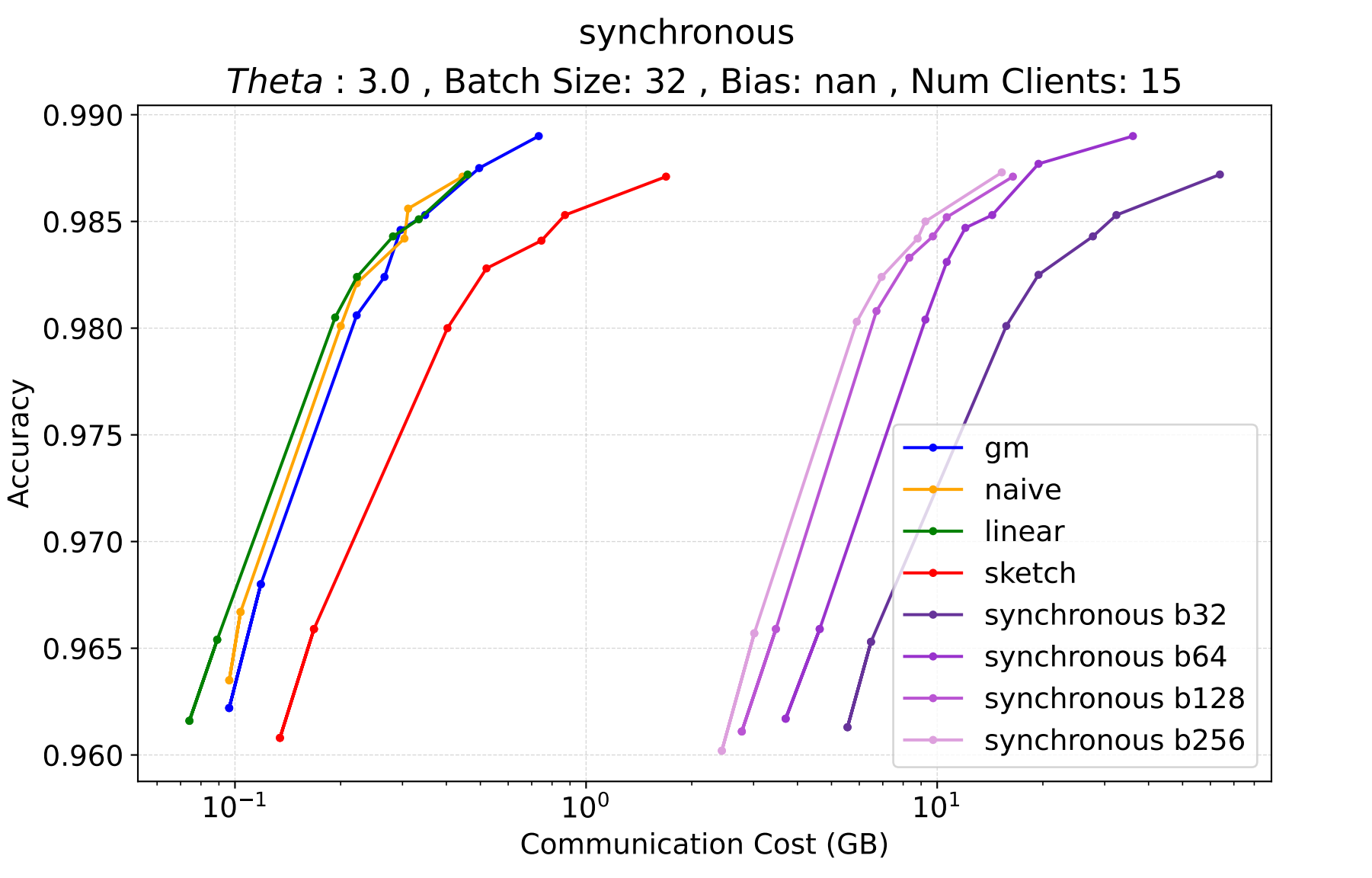

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

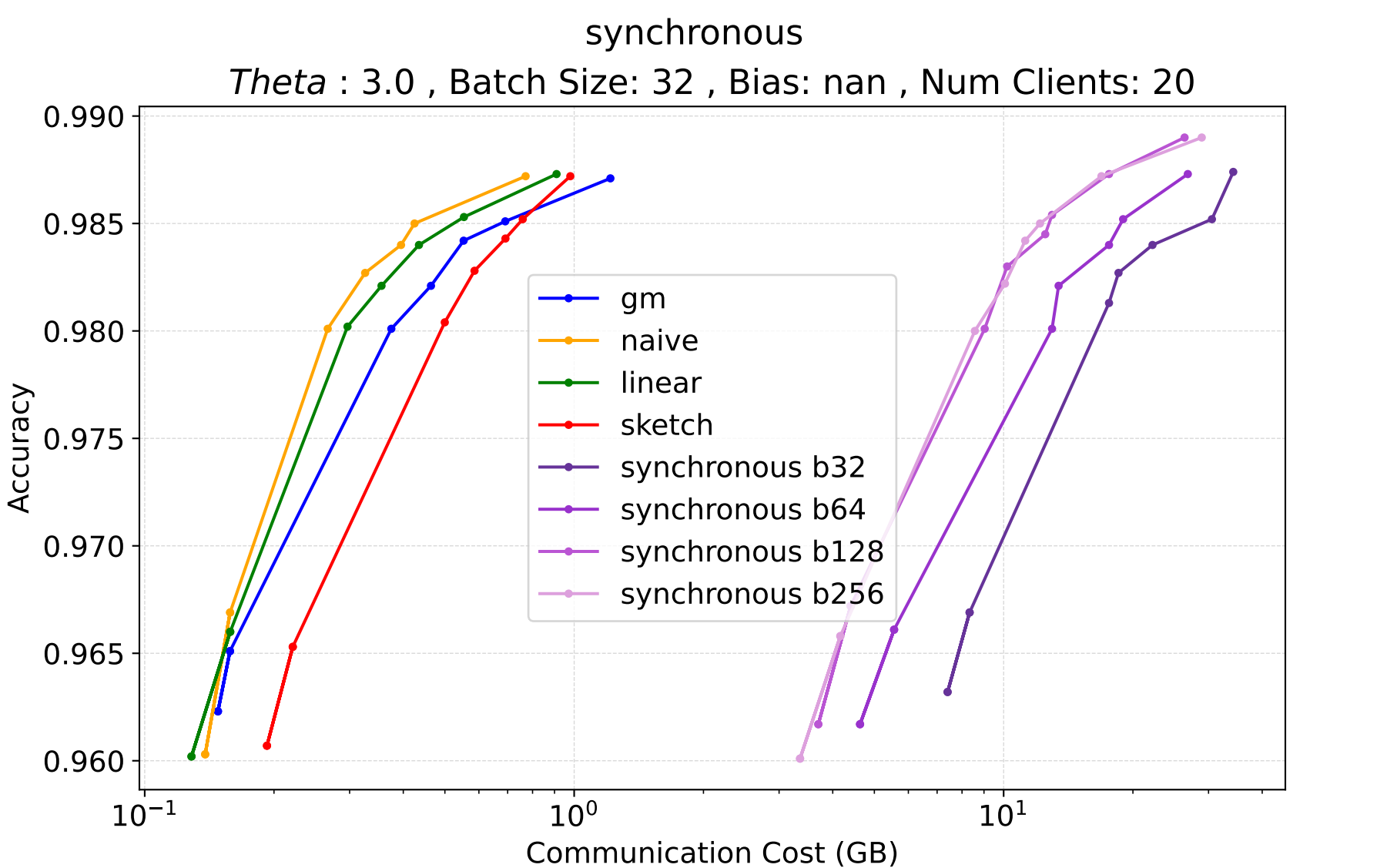

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

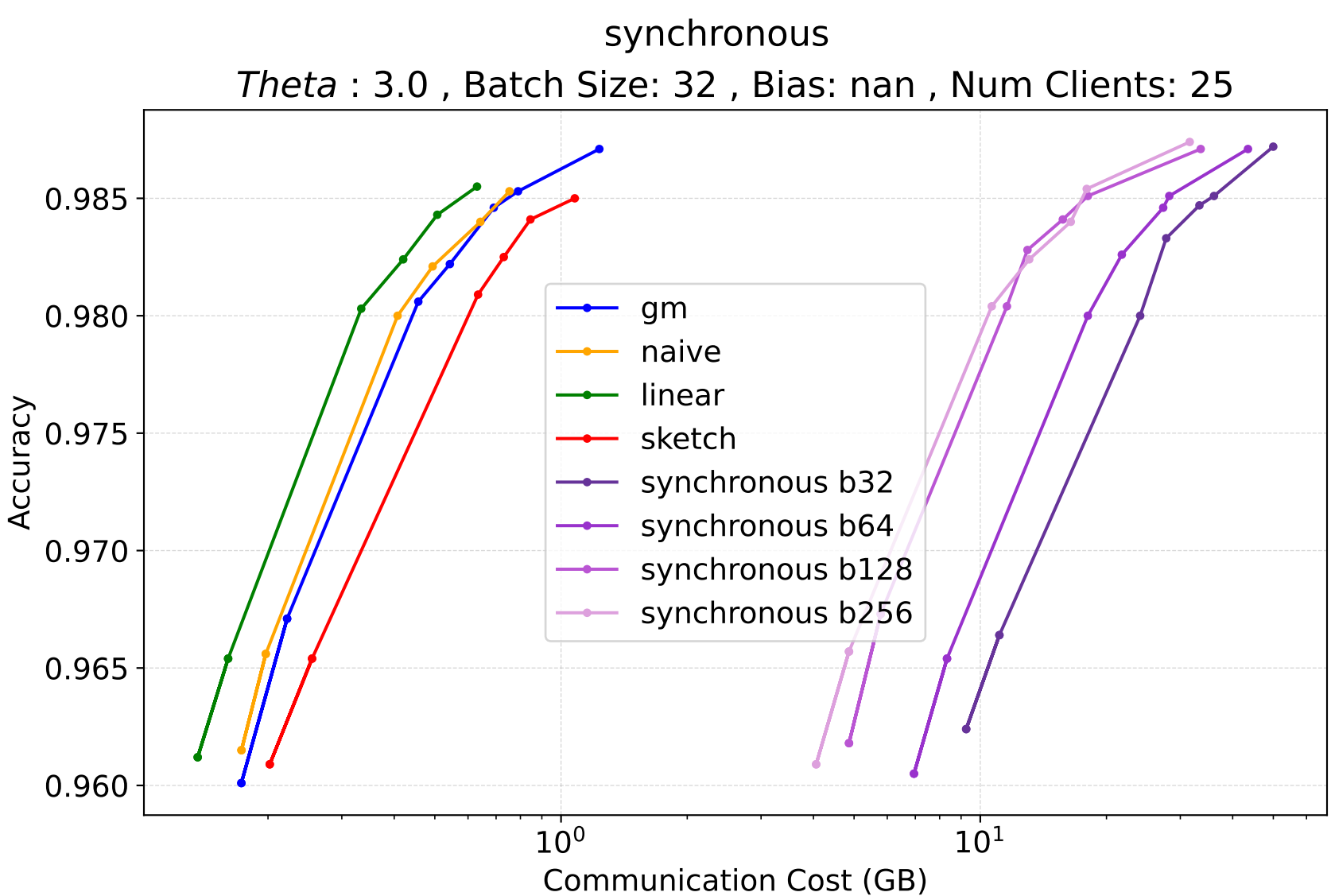

synchronous
Theta : 2.0 , Batch Size: 32 , Bias: nan , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

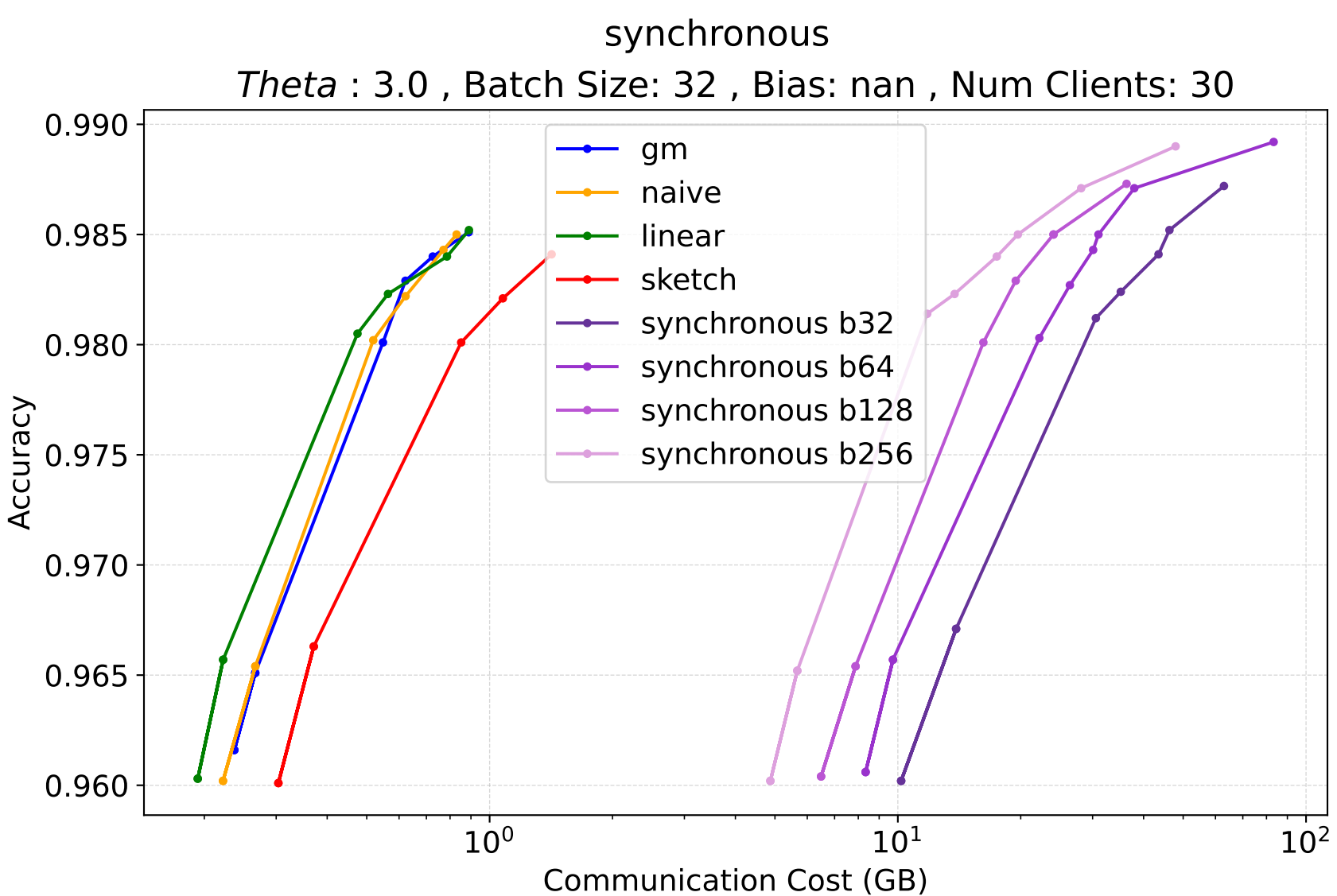

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

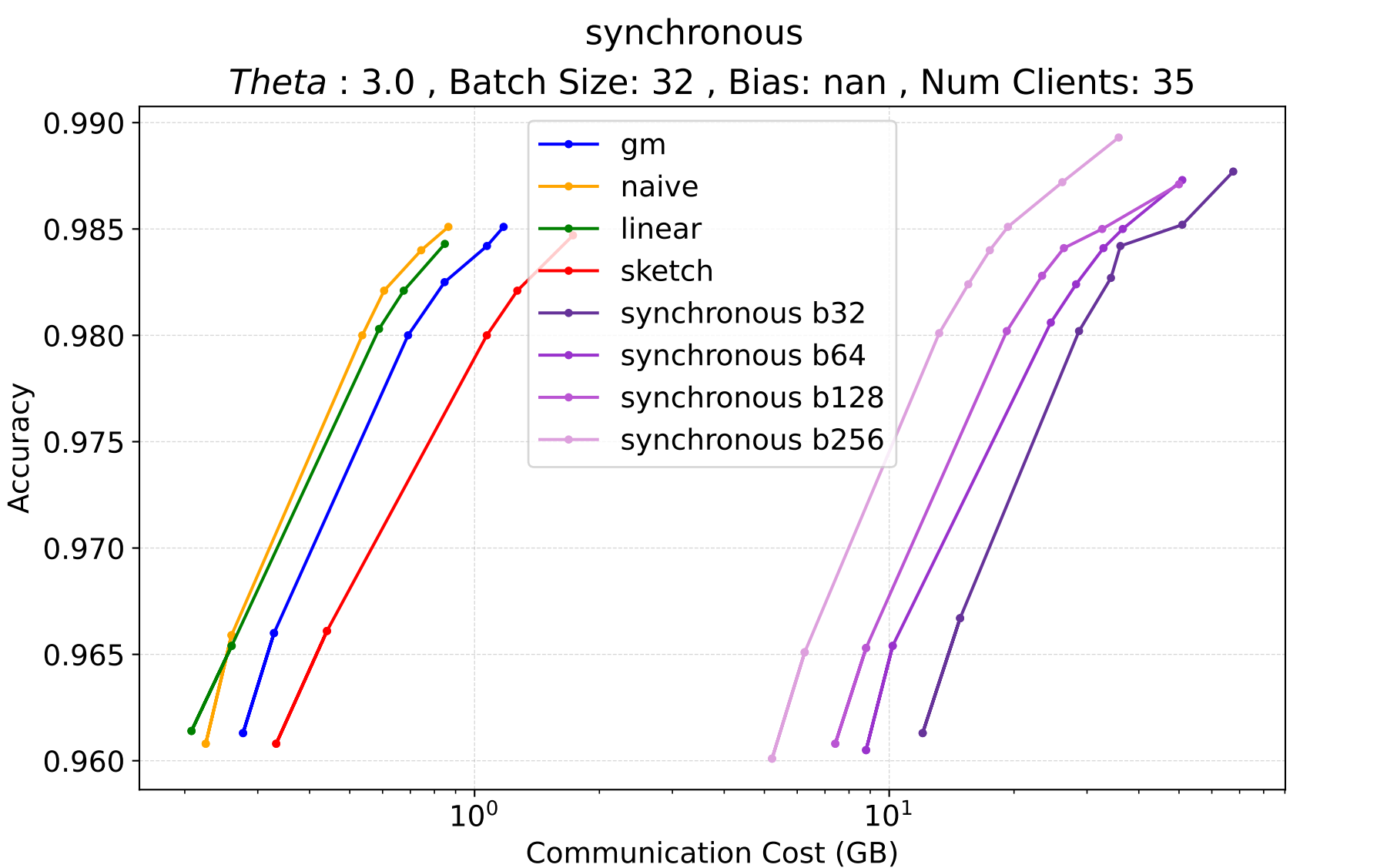

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

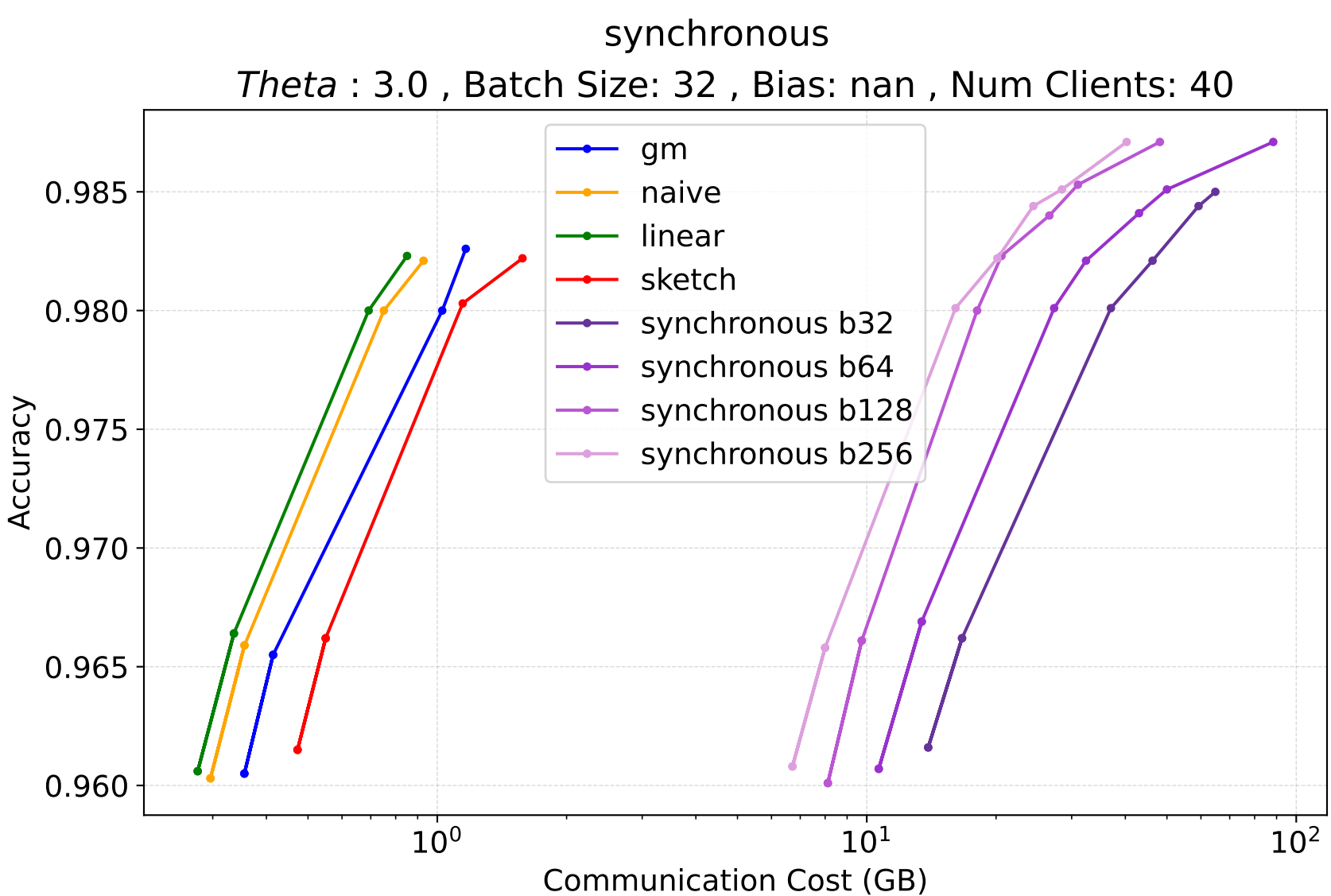

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

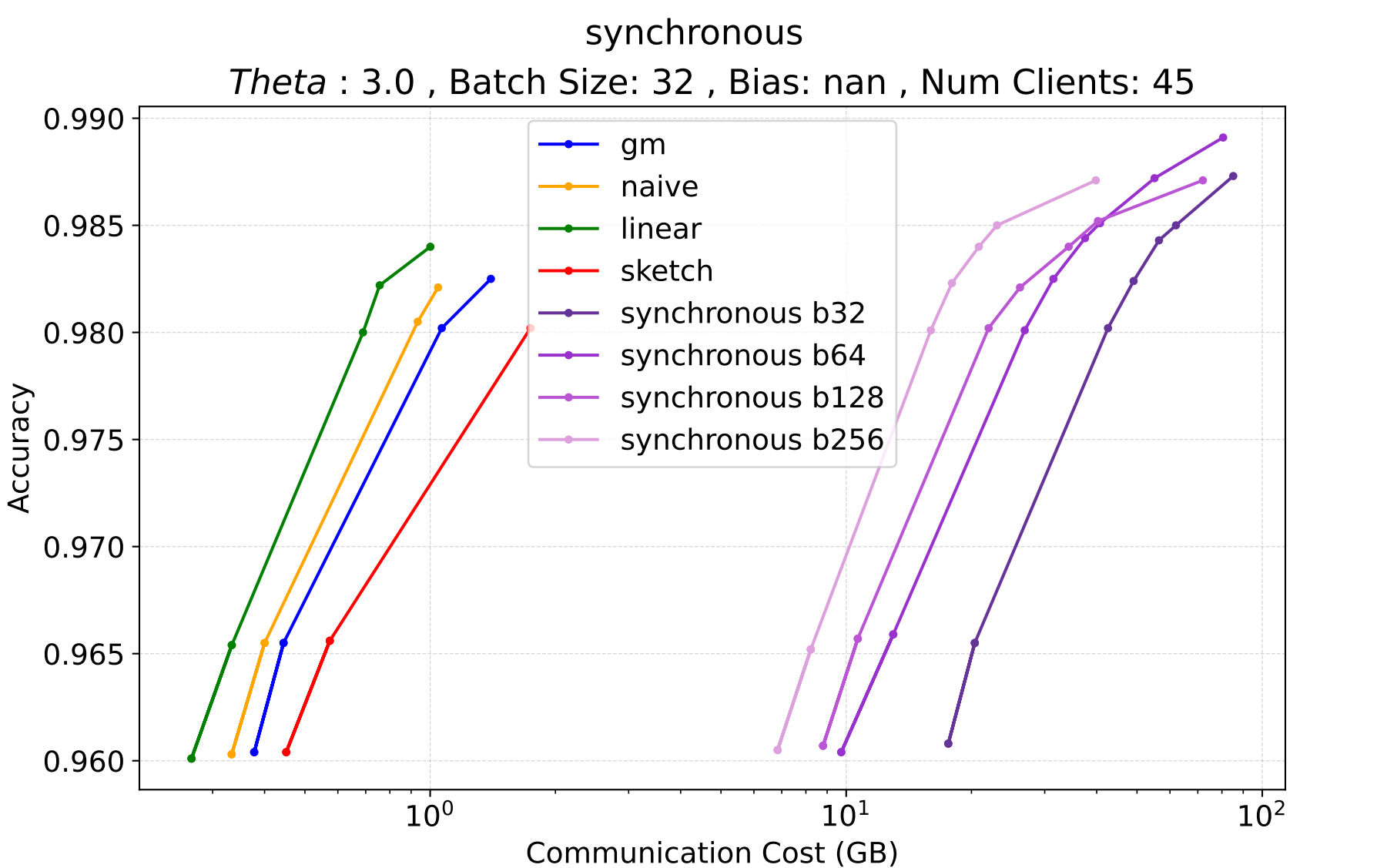

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 20
0.990
0.985
0.980
0.975
0.970
0.965
0.960
Accuracy
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256

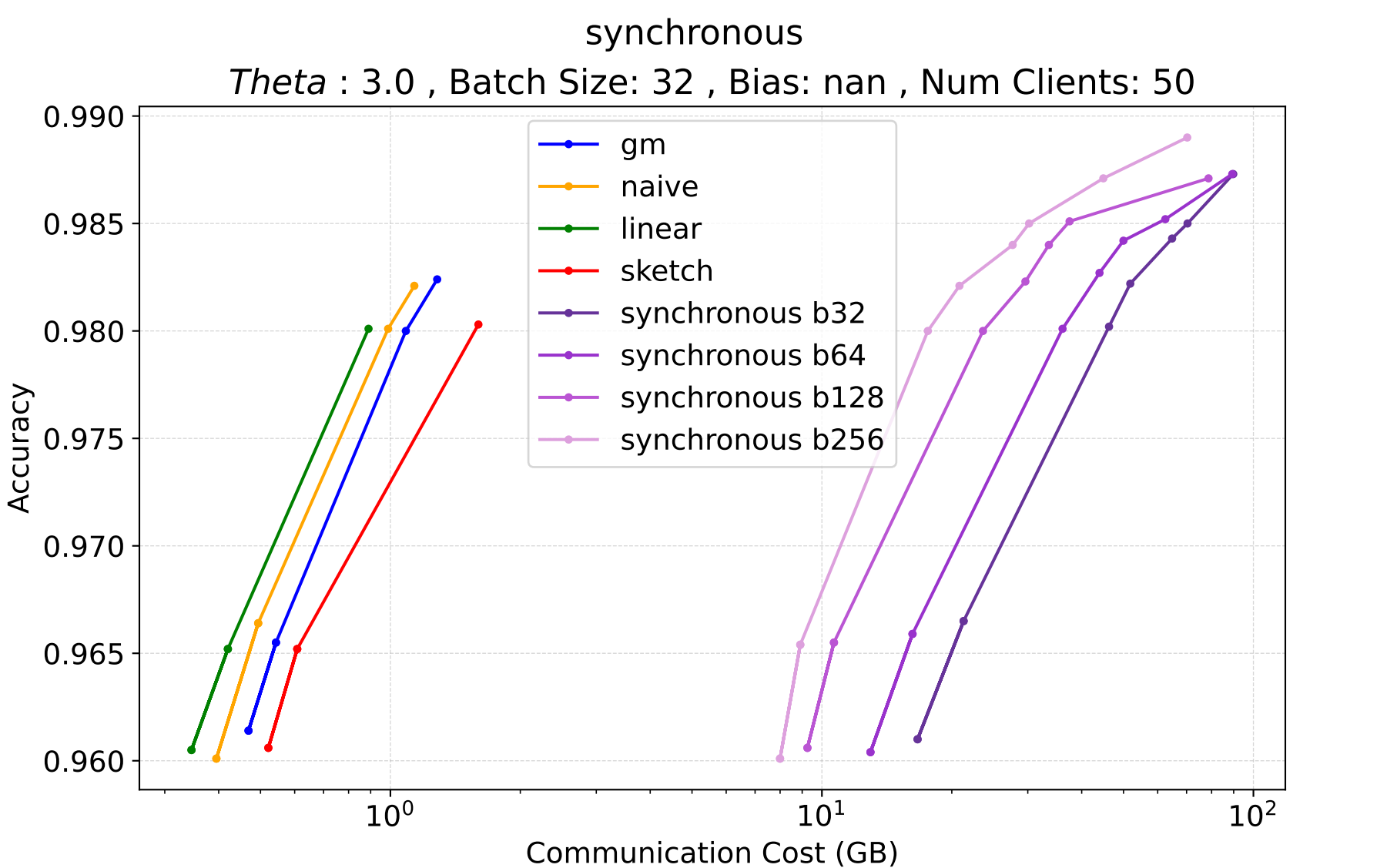

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)


synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)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Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
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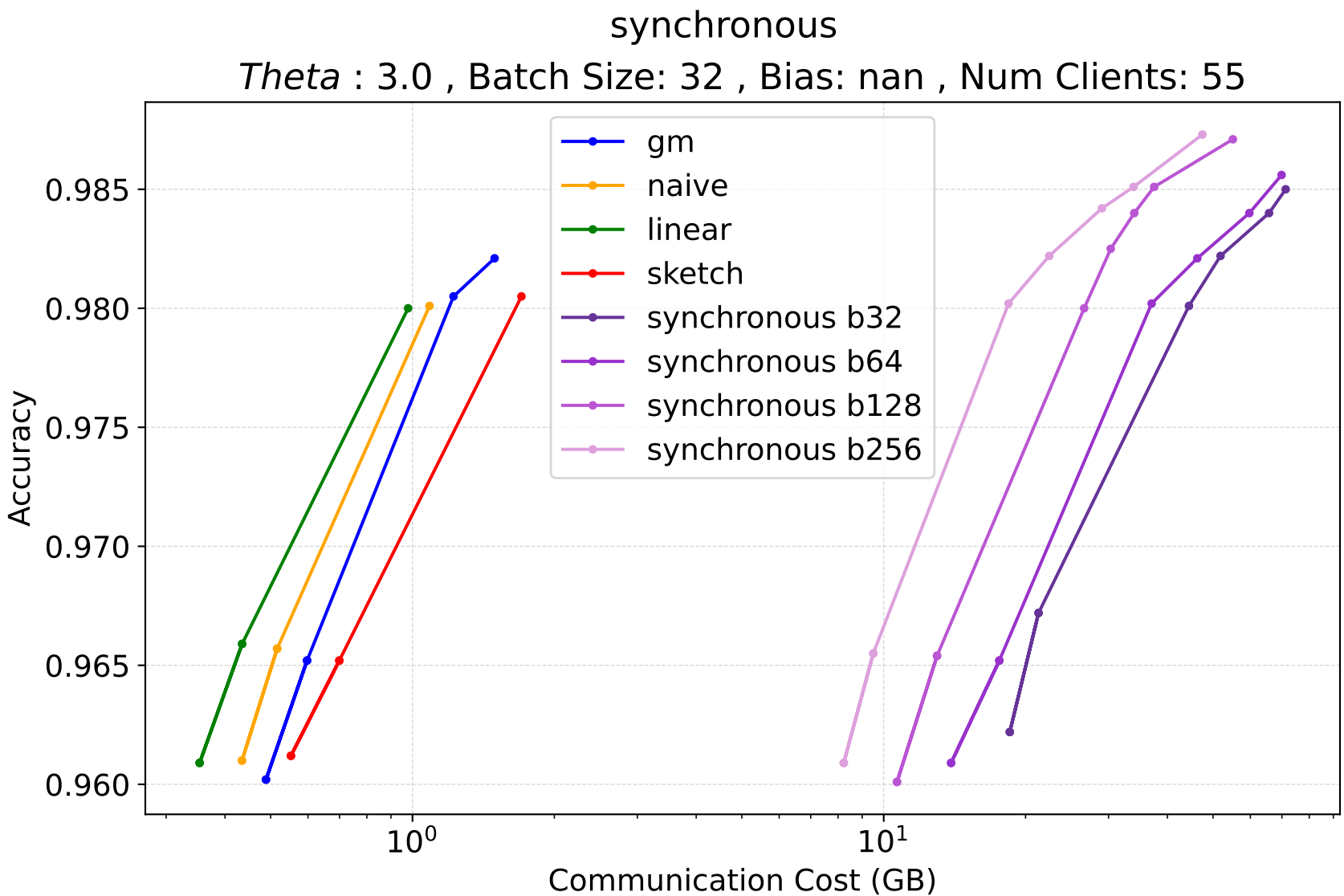
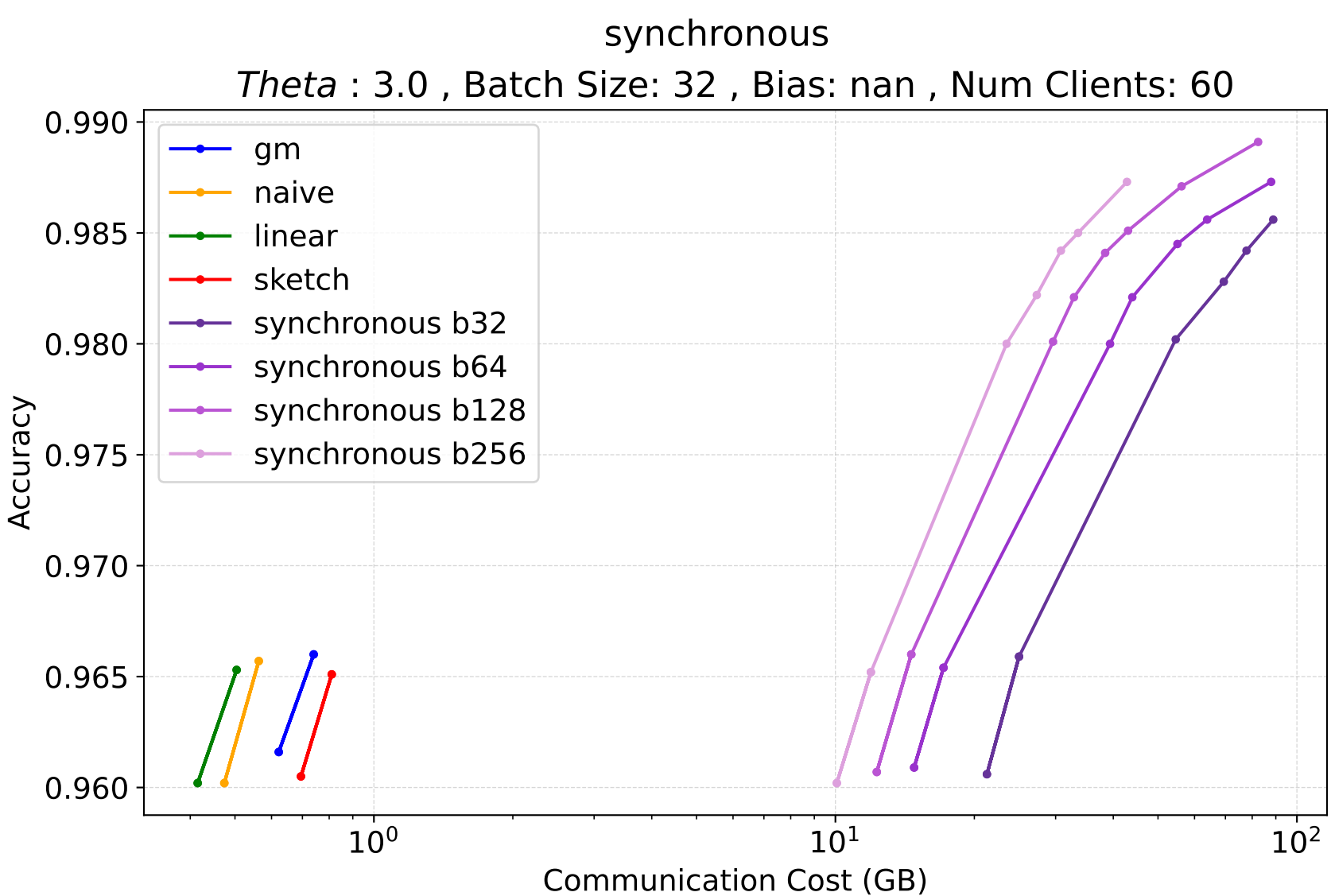
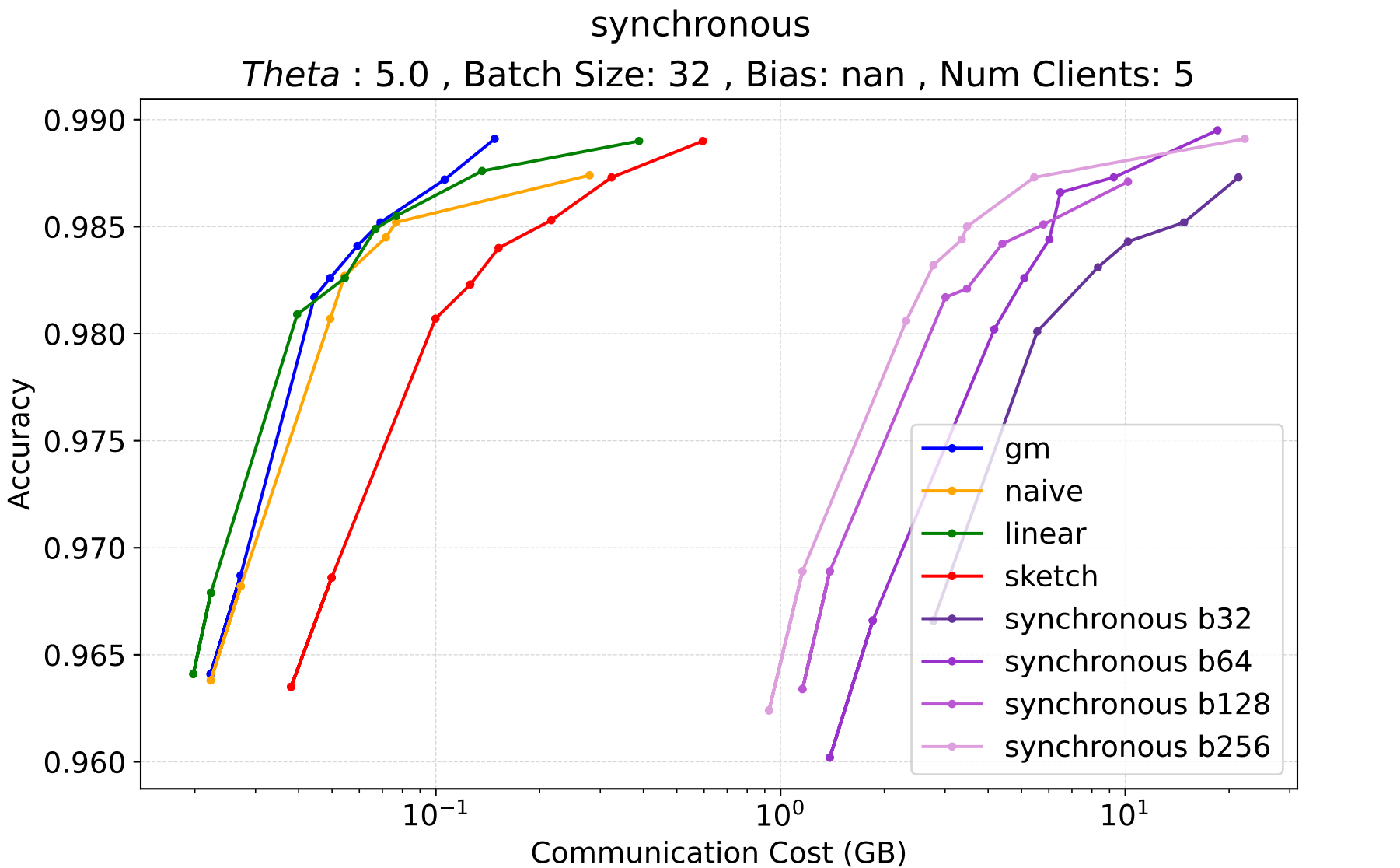
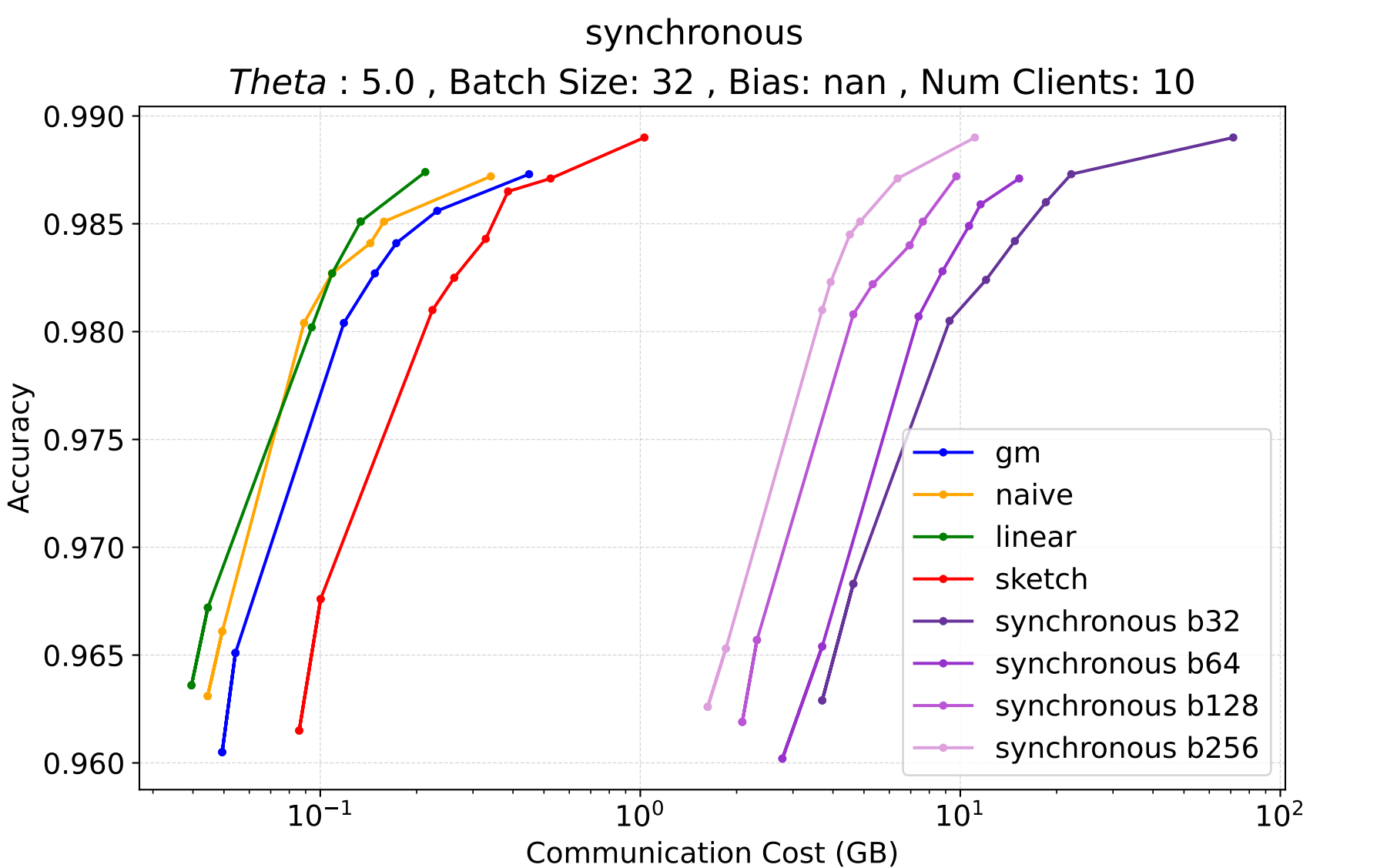
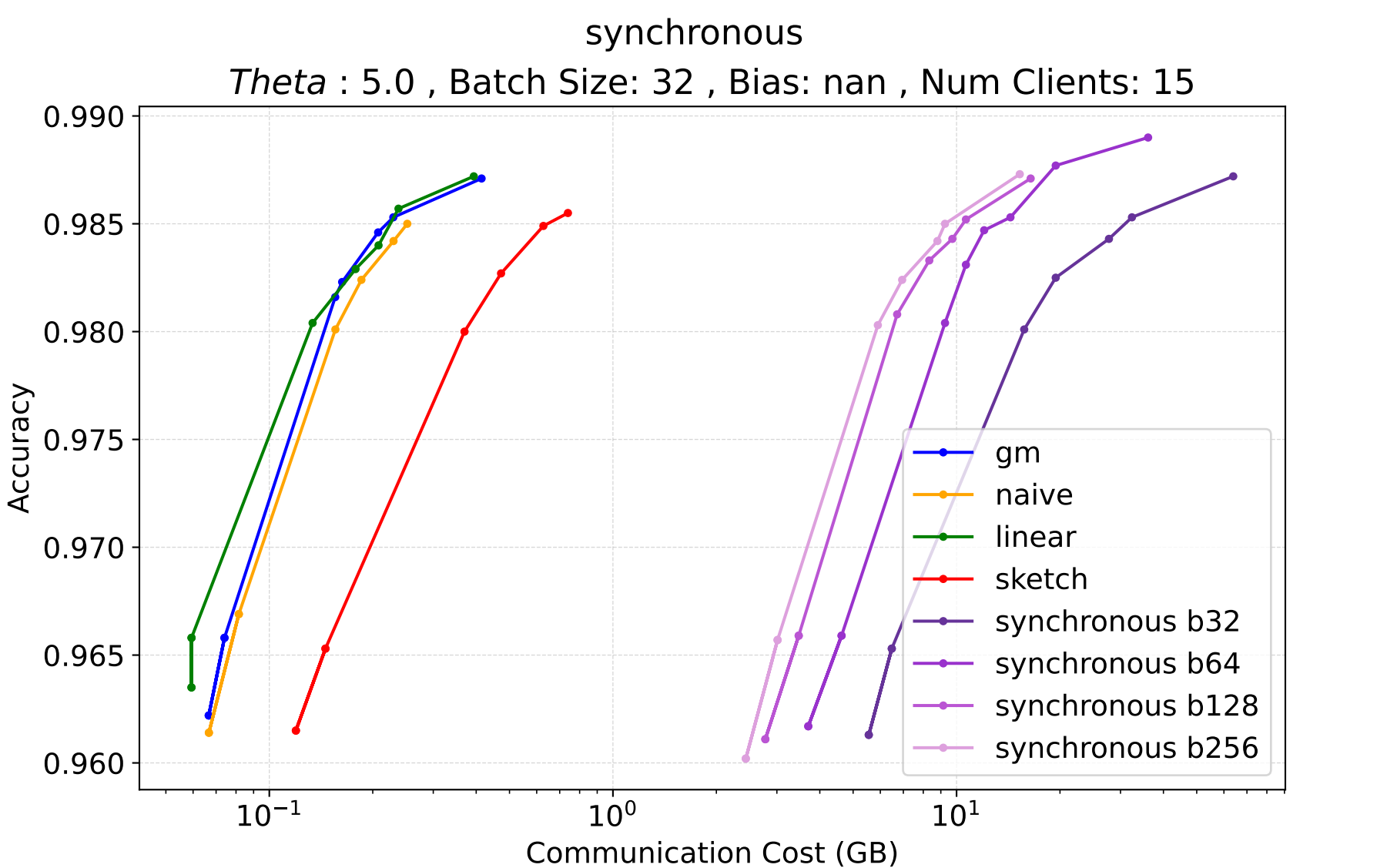
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

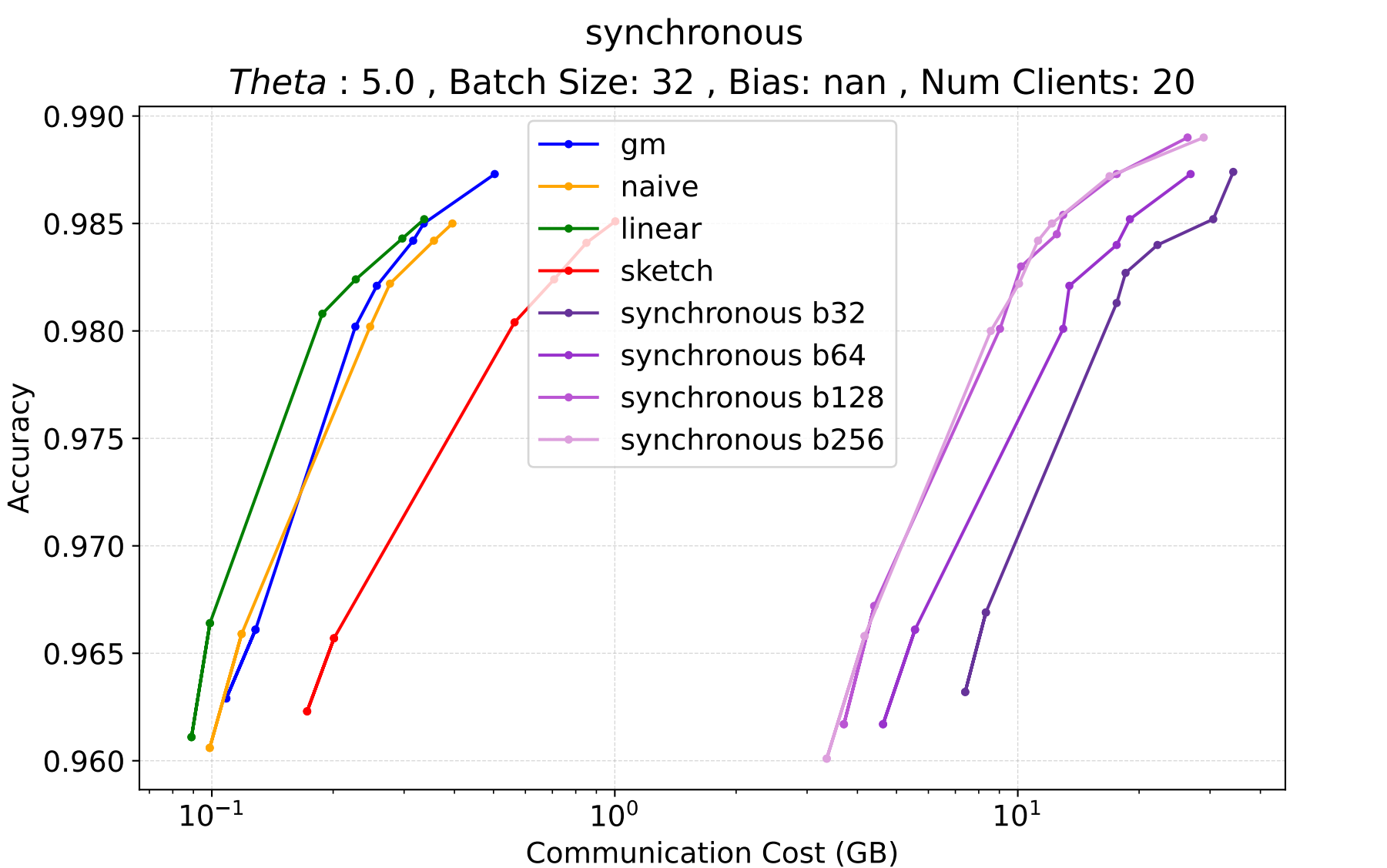

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)

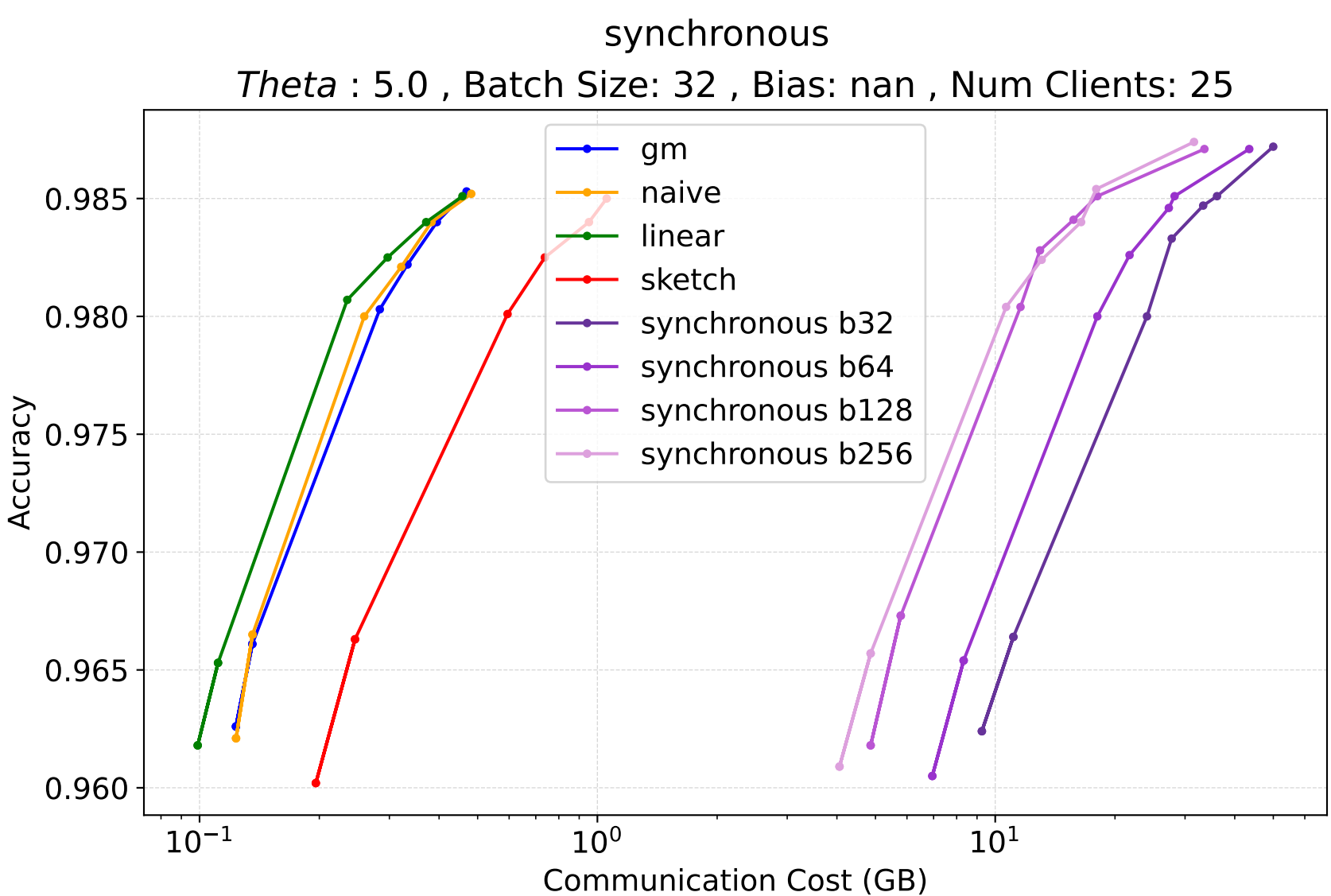

synchronous
Theta : 3.0 , Batch Size: 32 , Bias: nan , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 20
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)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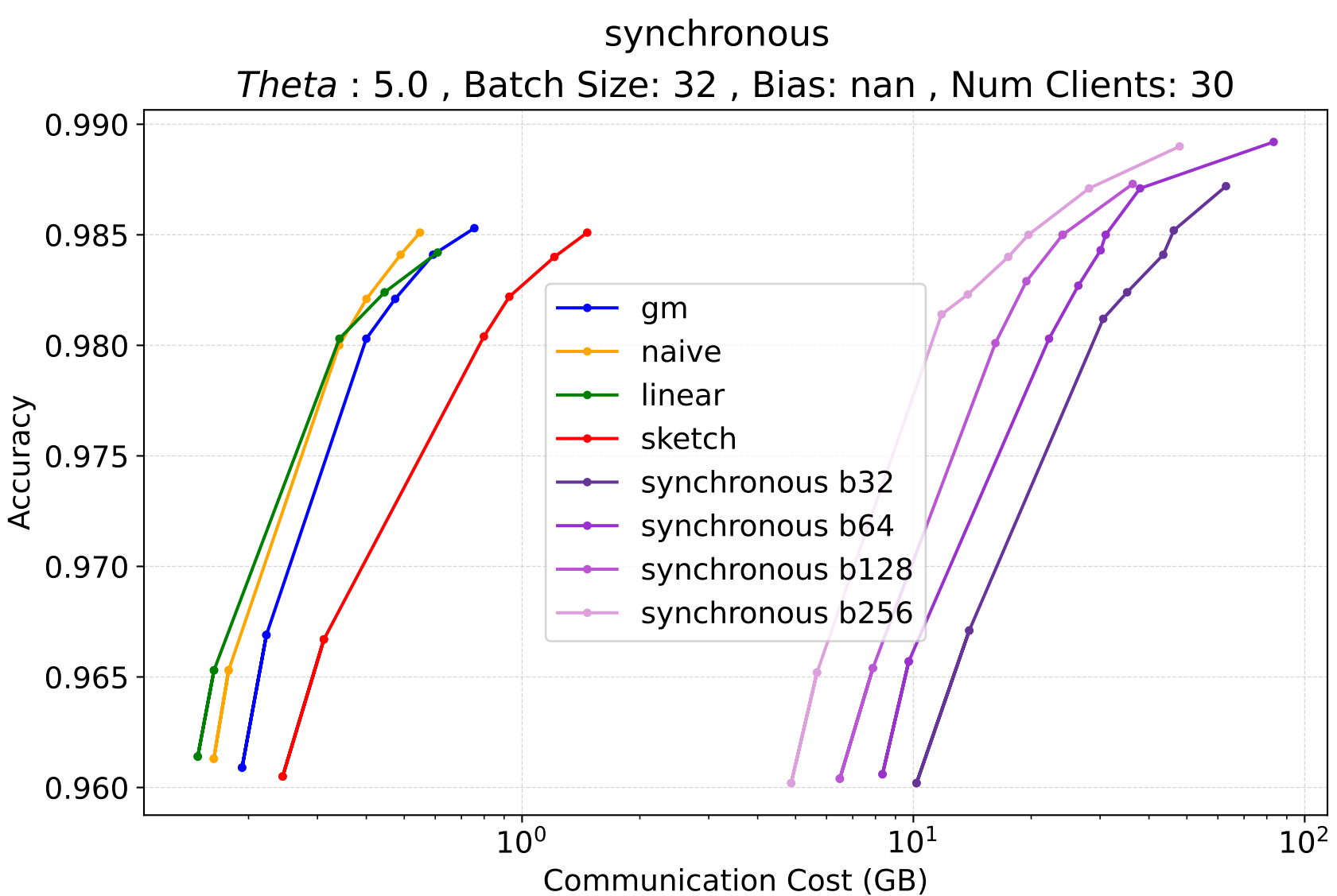
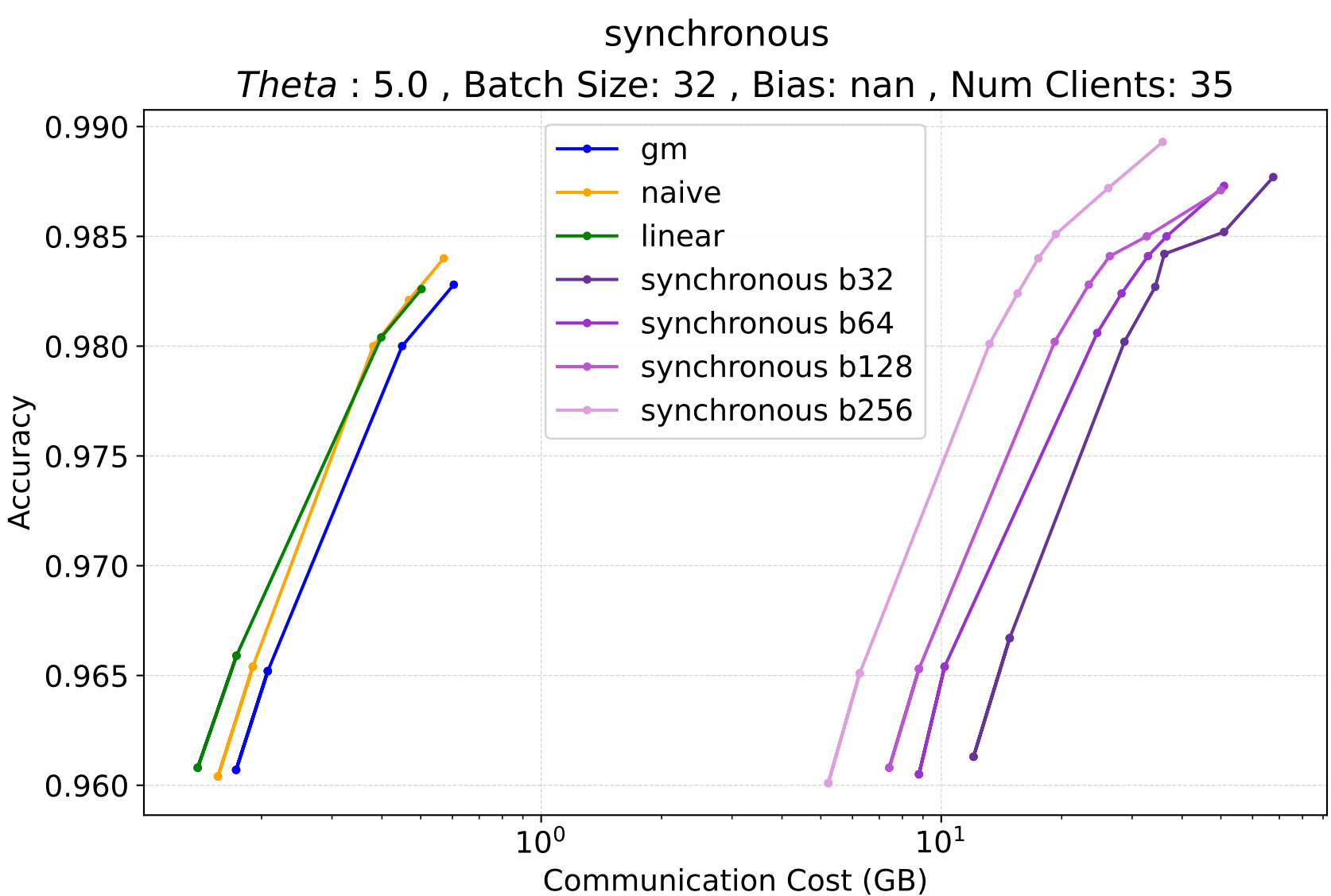
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)


synchronous
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 35
gm
naive
linear
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
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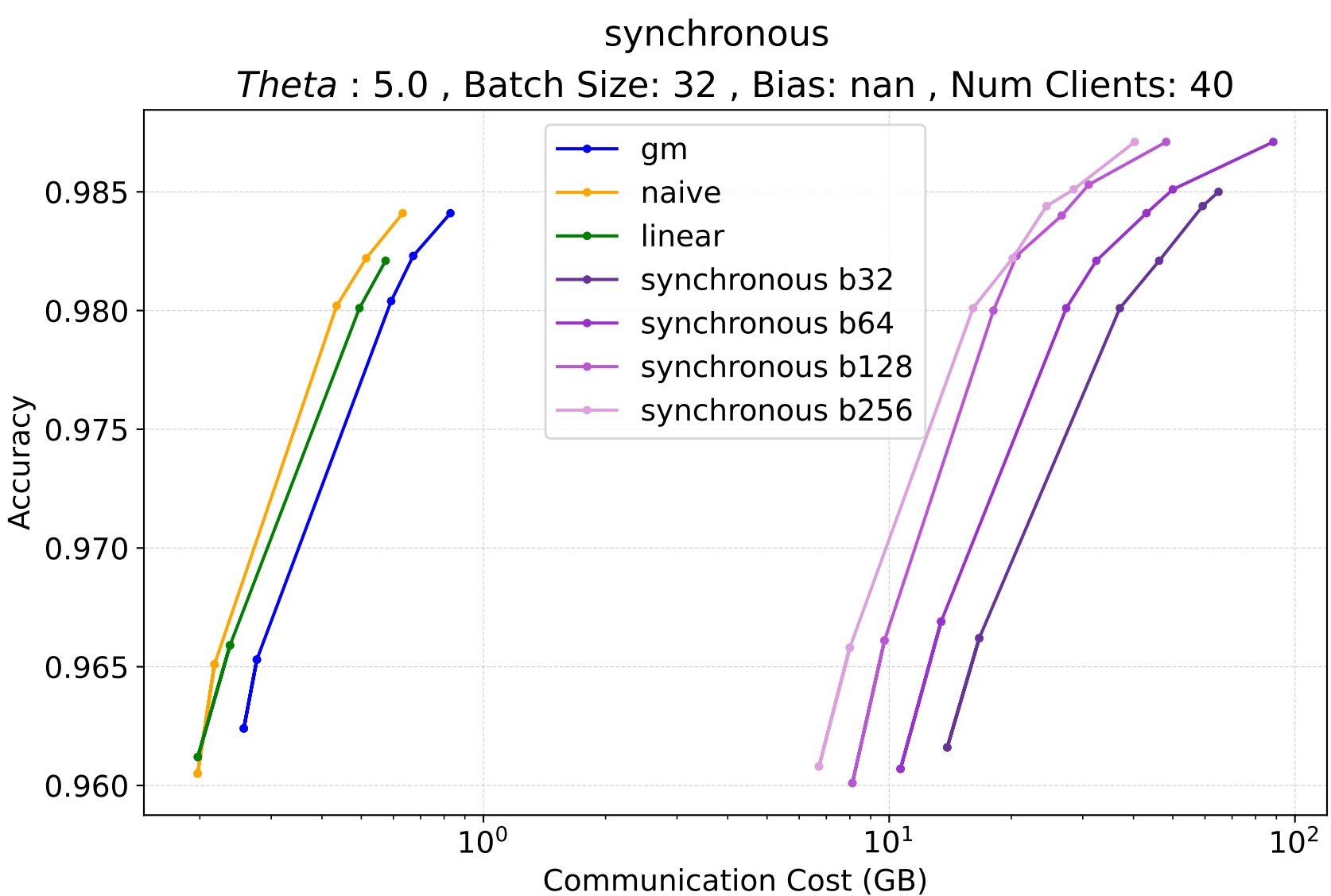
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)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naive
linear
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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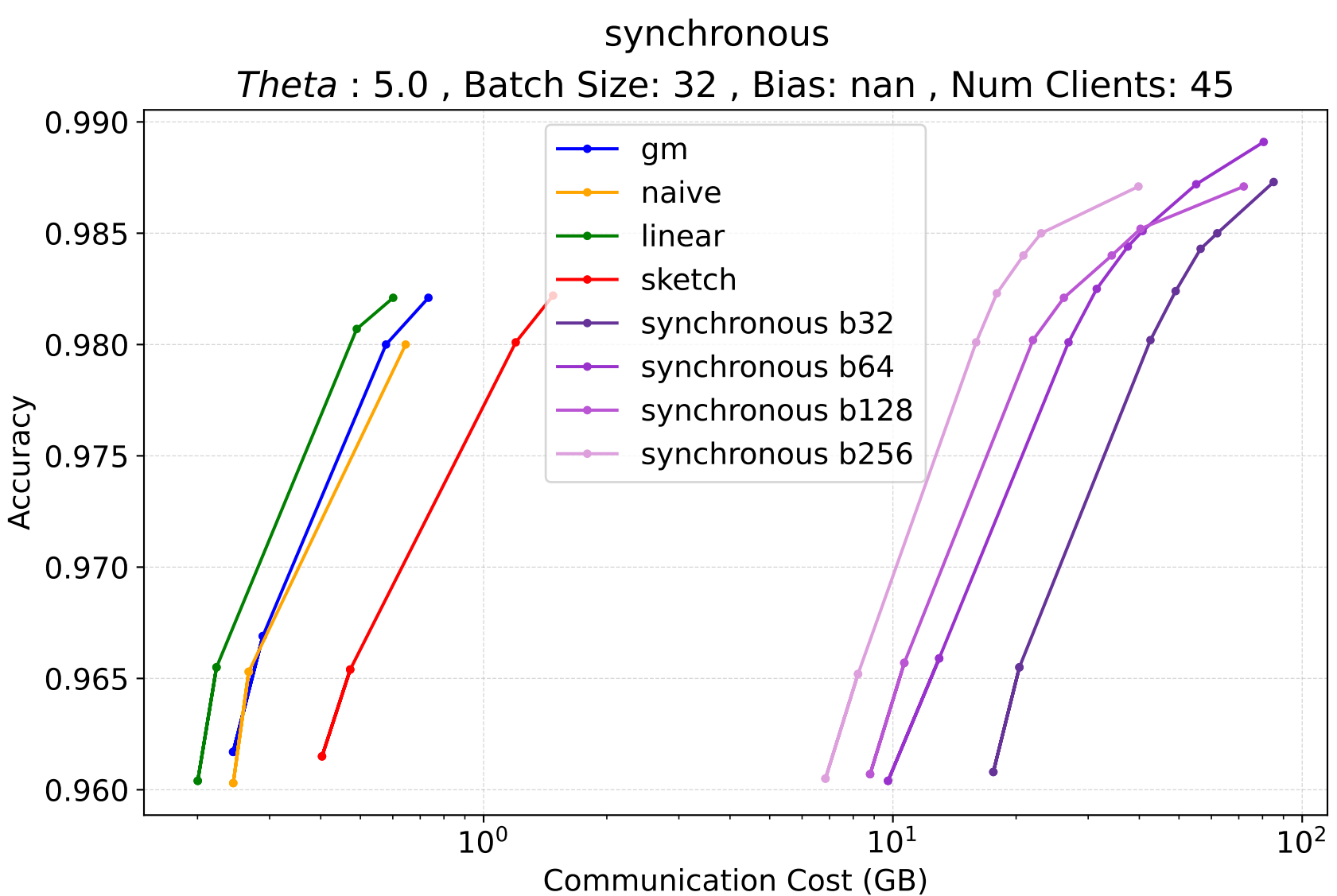
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 45
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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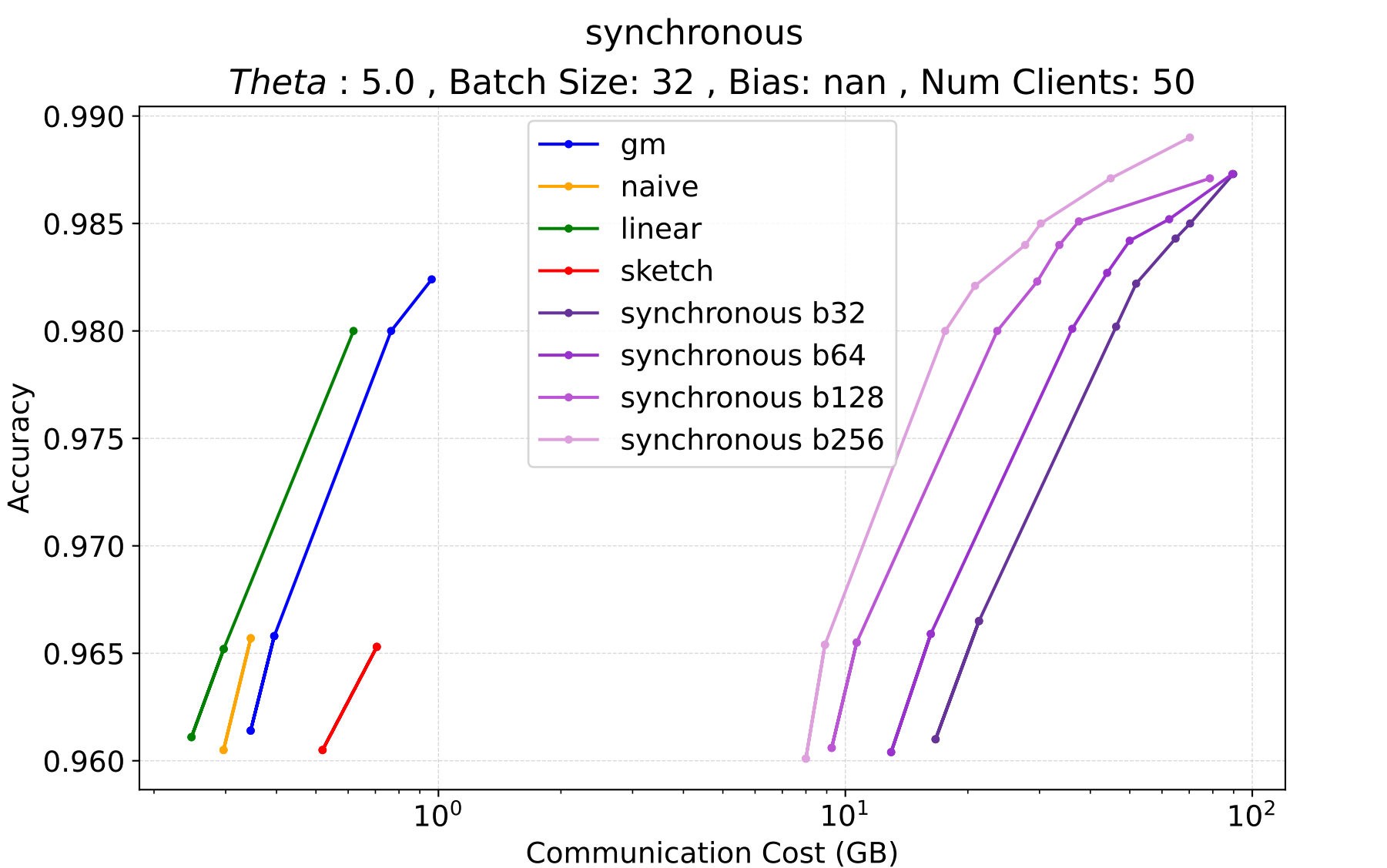
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)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Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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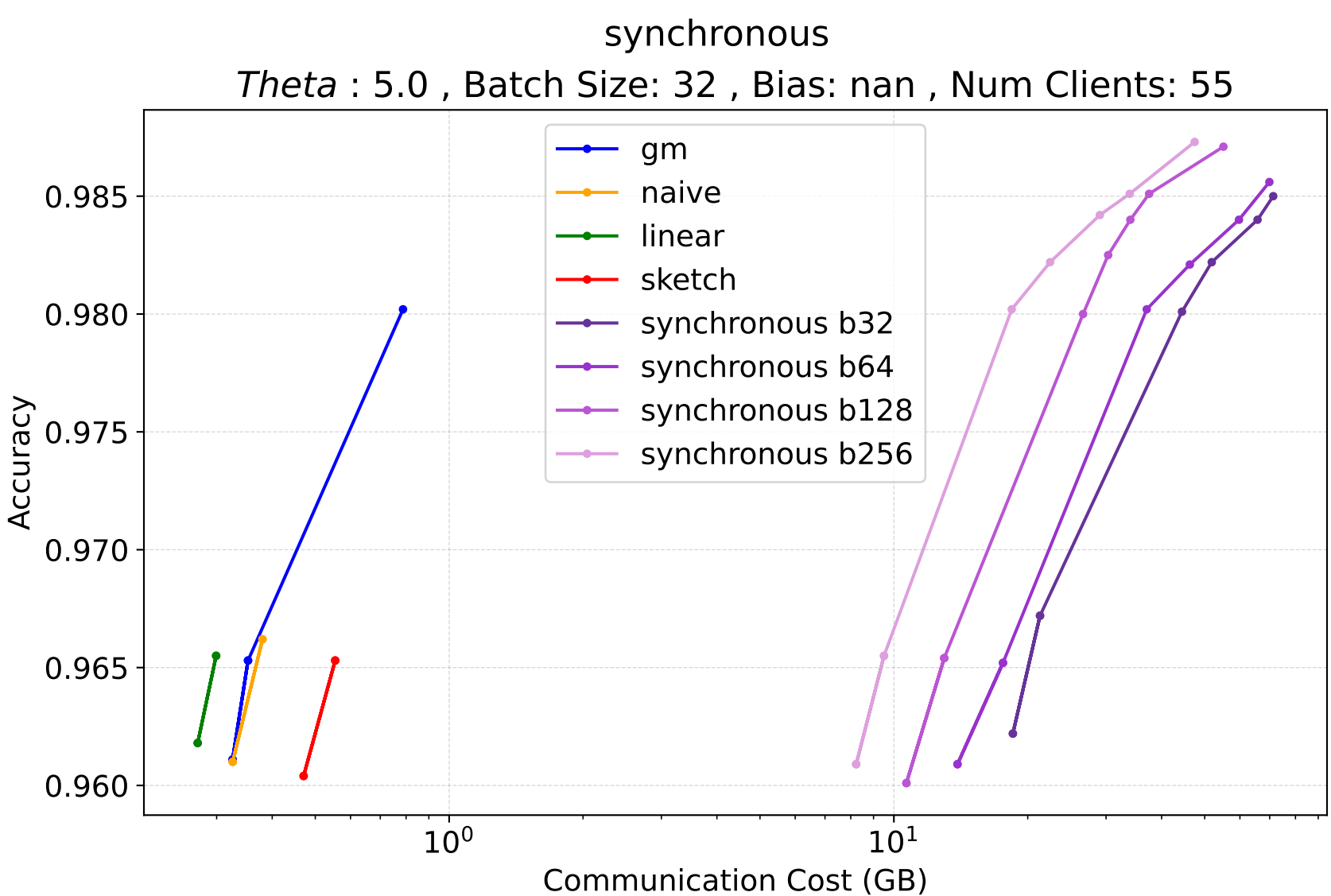
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)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Theta : 5.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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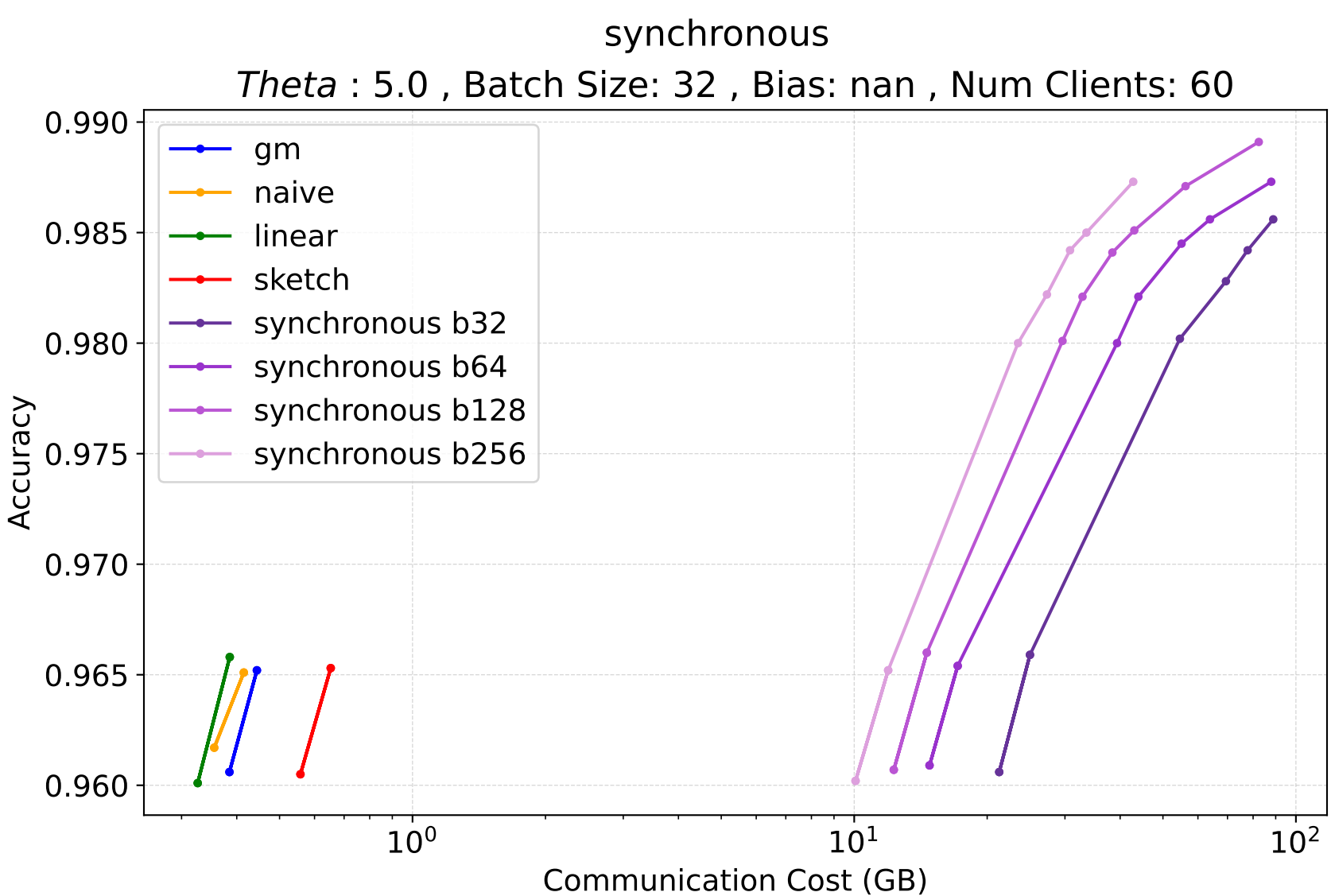
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)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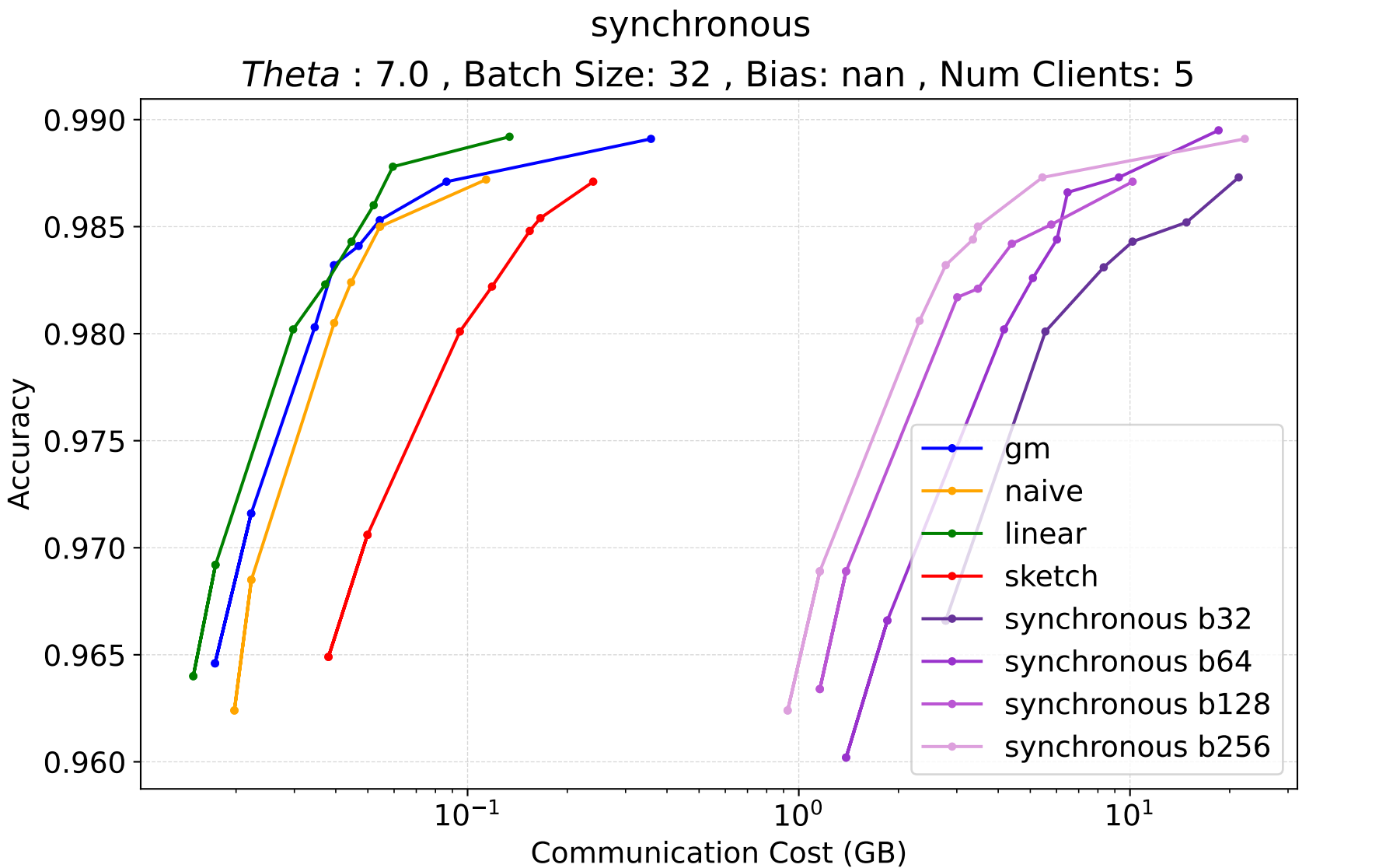
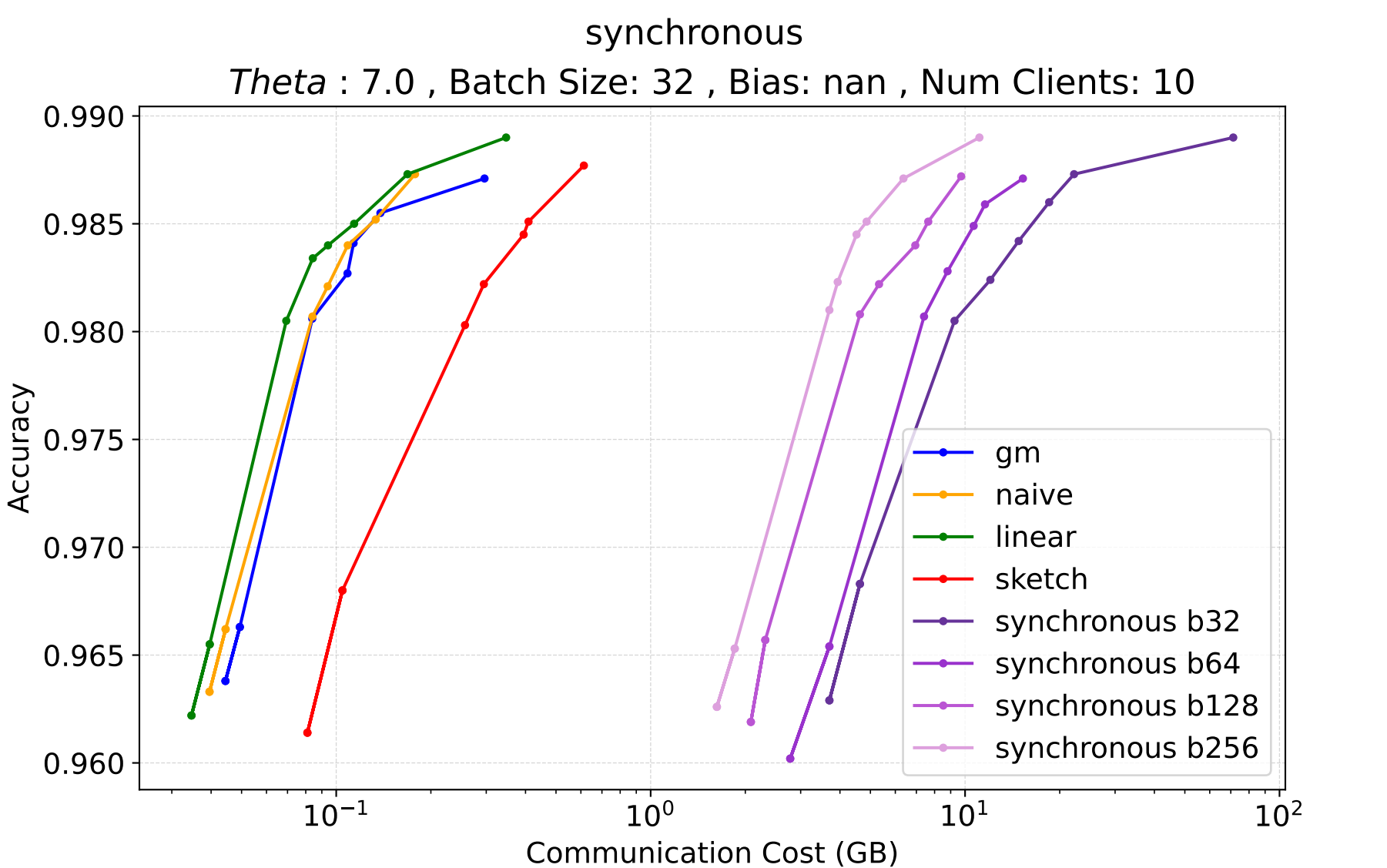
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
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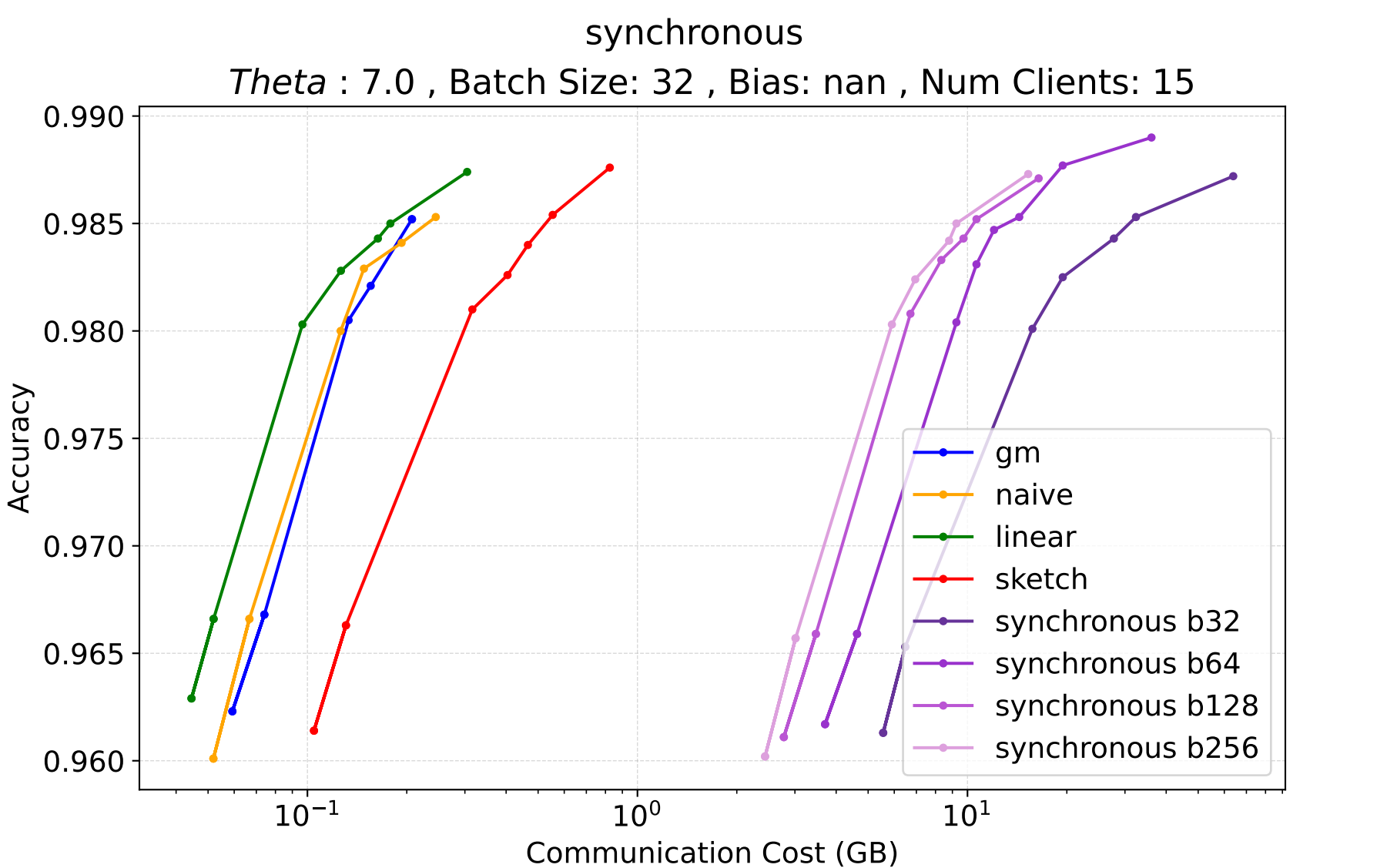
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
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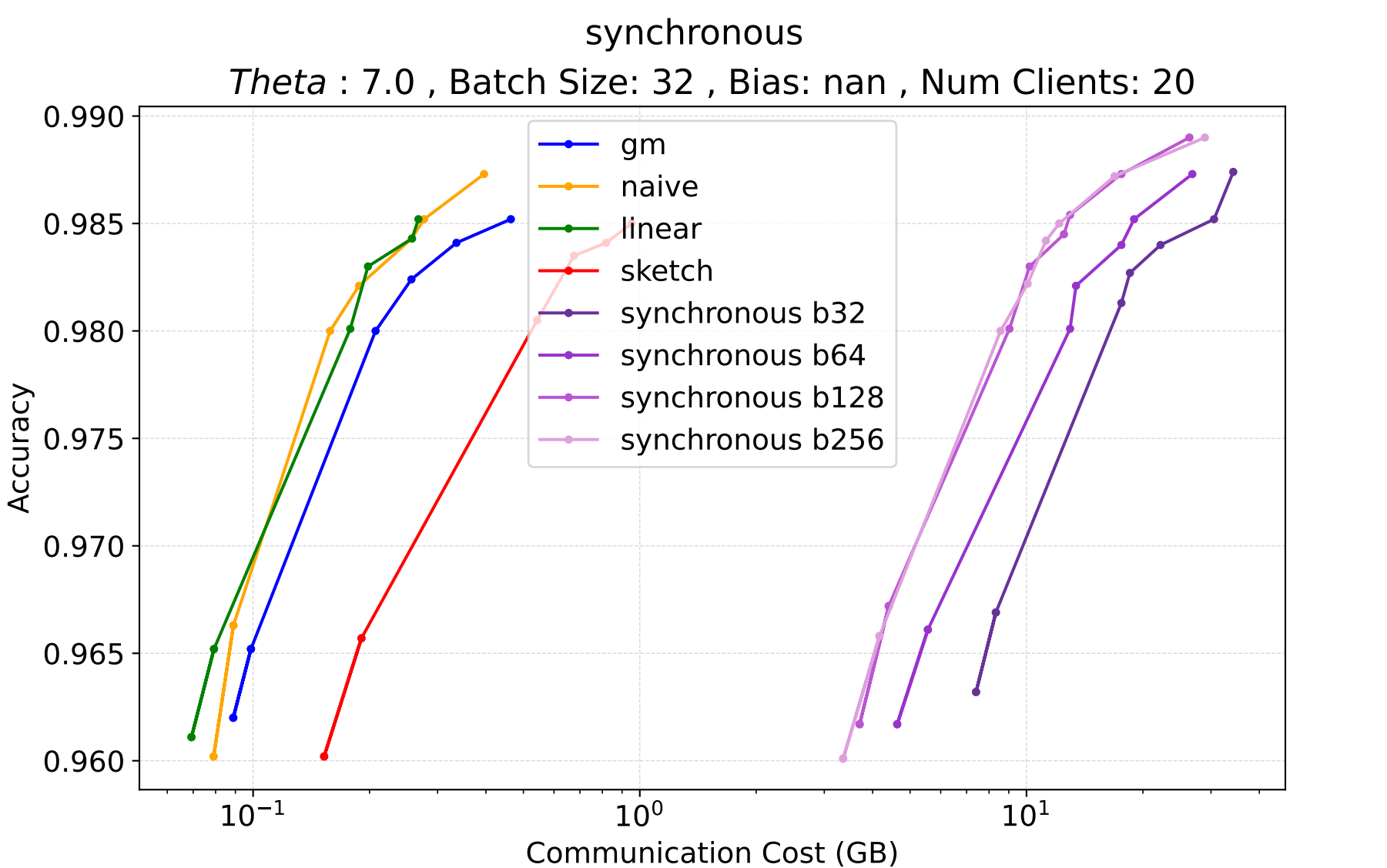
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256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Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 20
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
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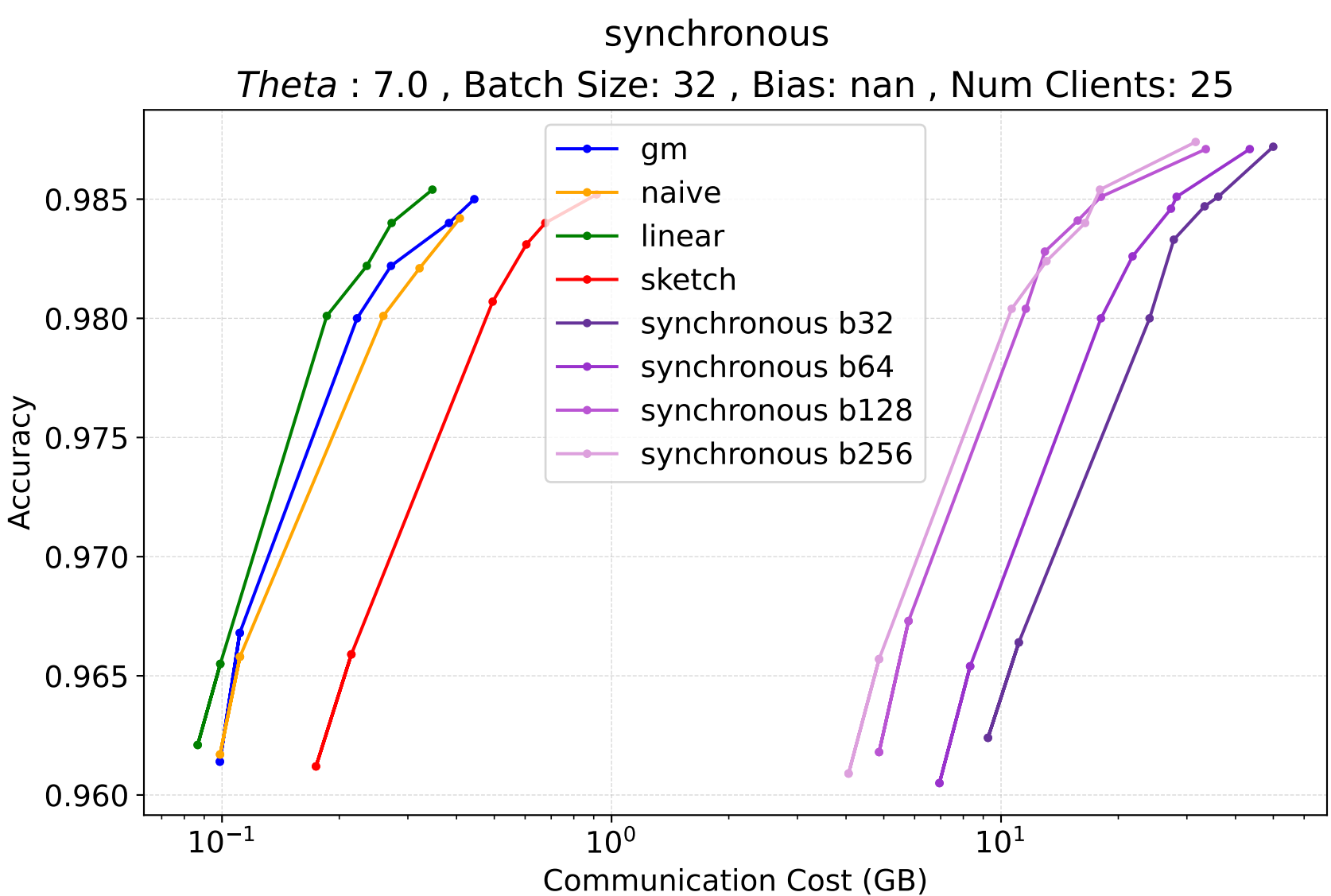
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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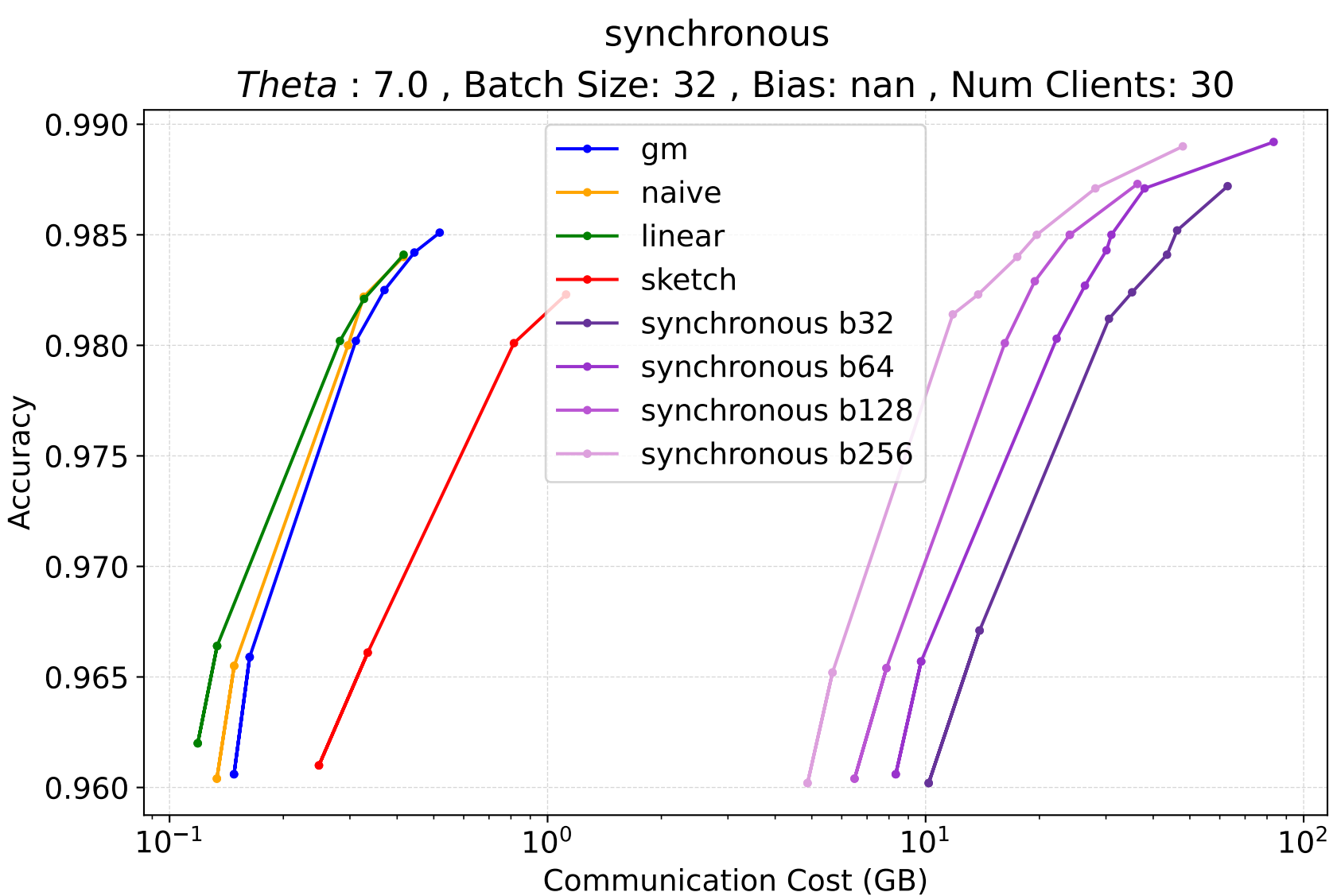
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
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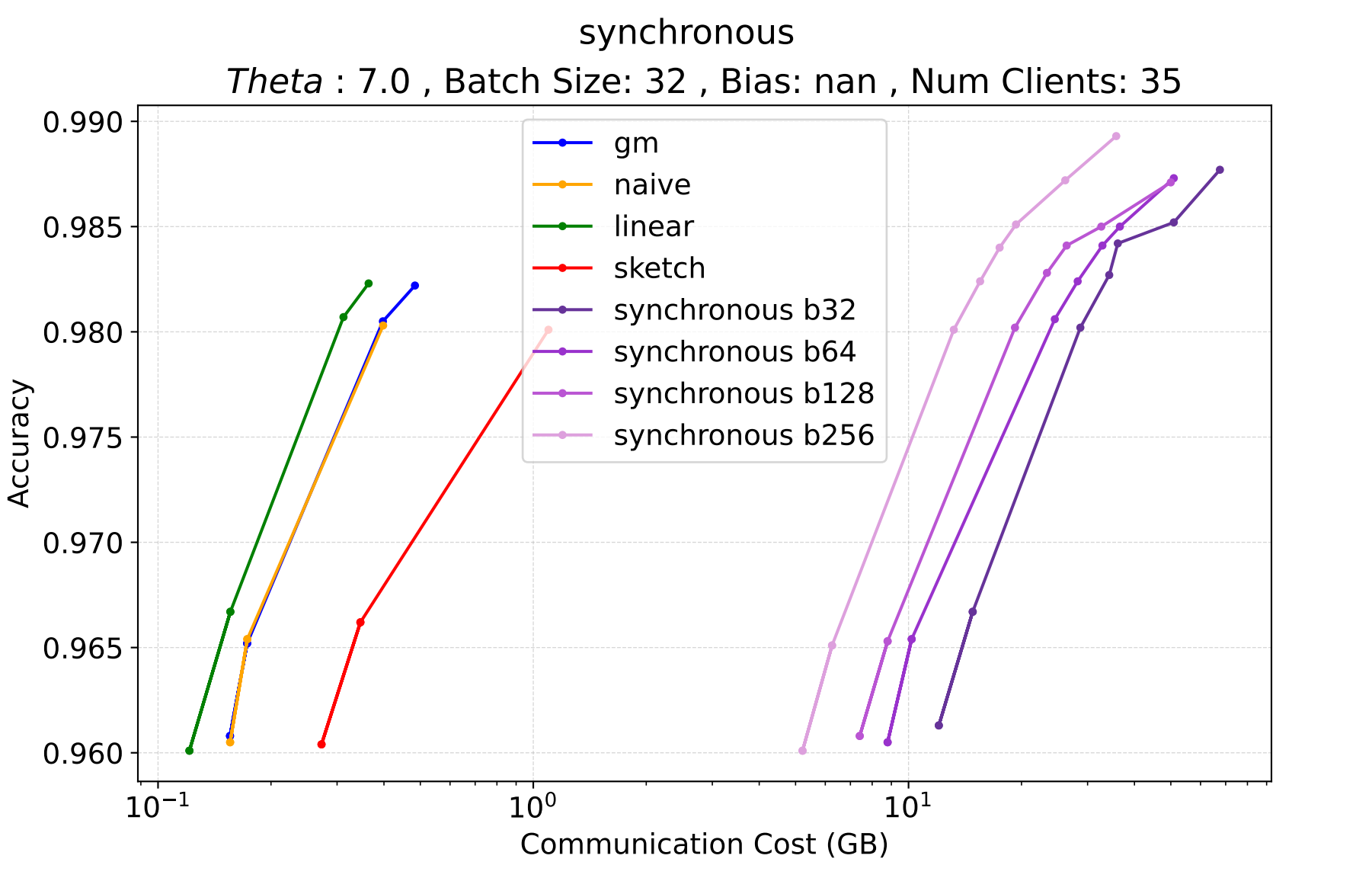
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)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Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 35
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
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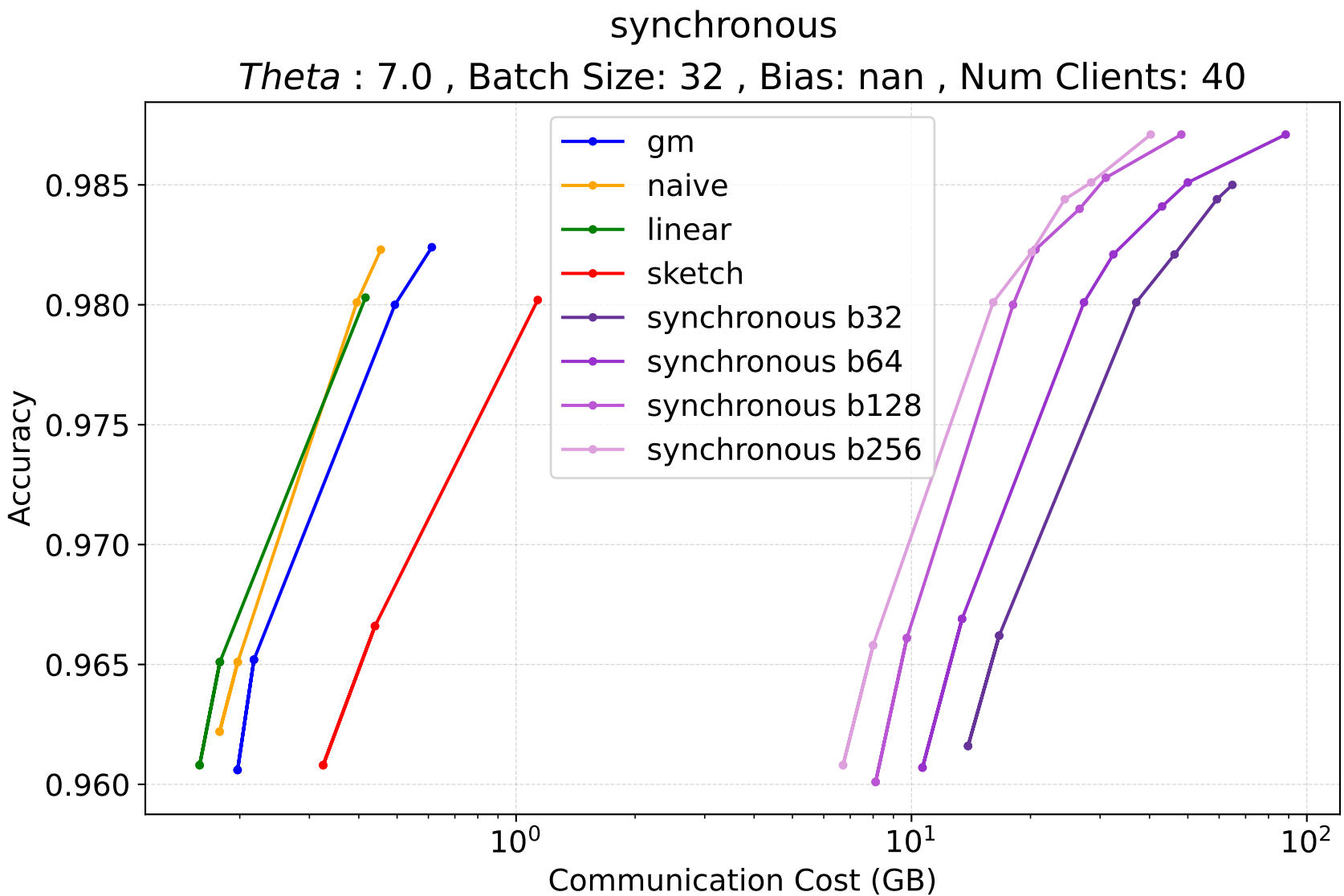
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)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Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 40
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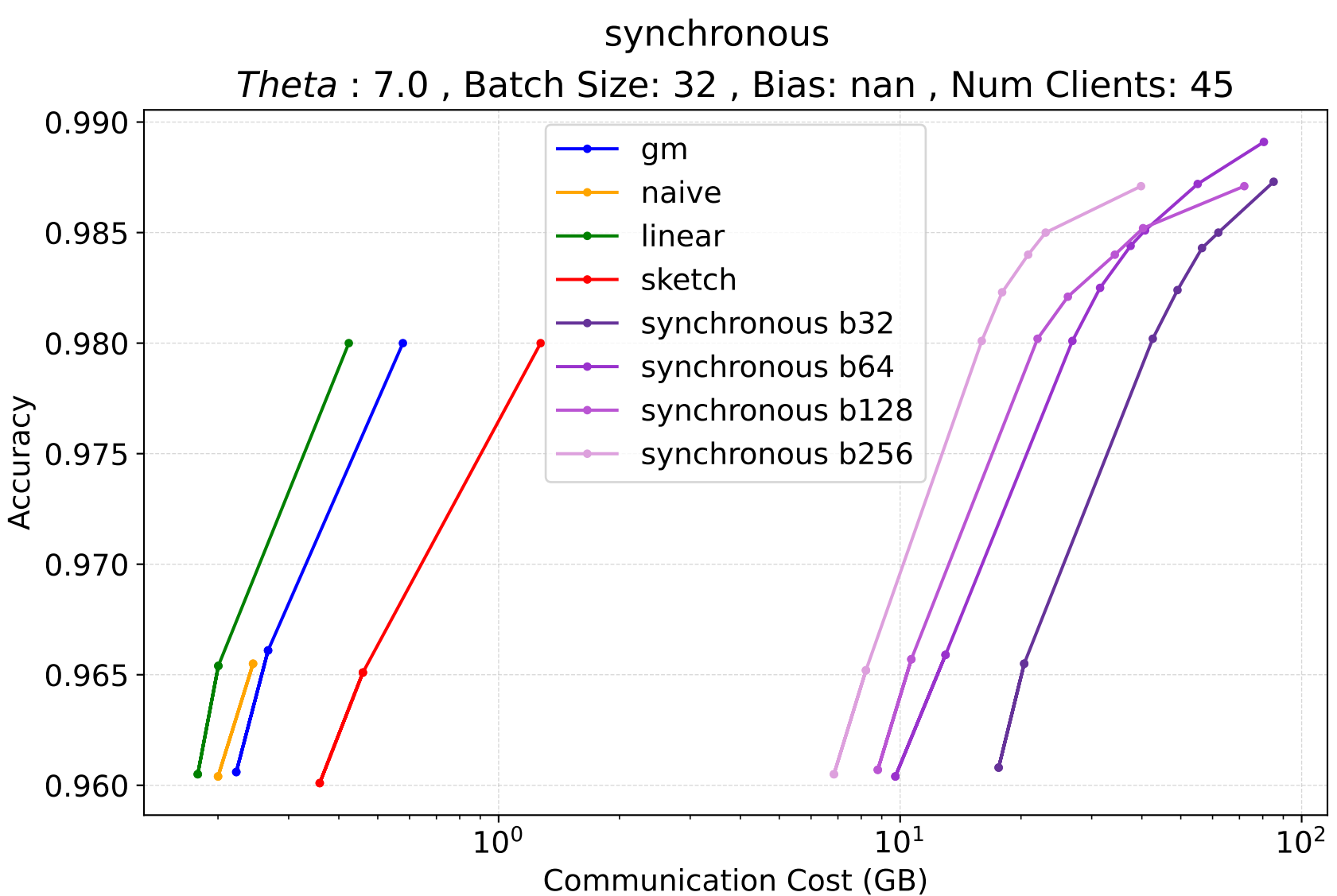
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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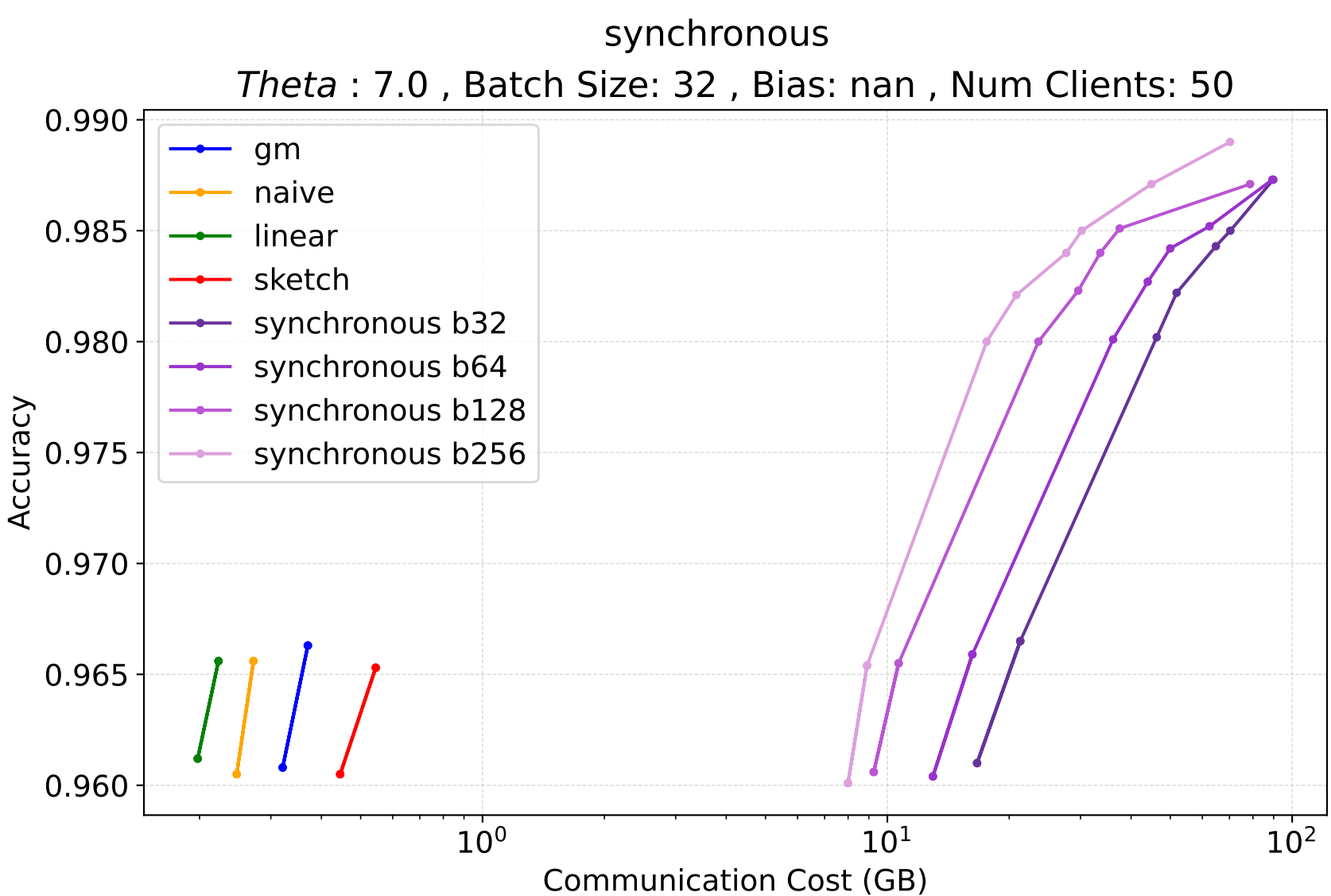
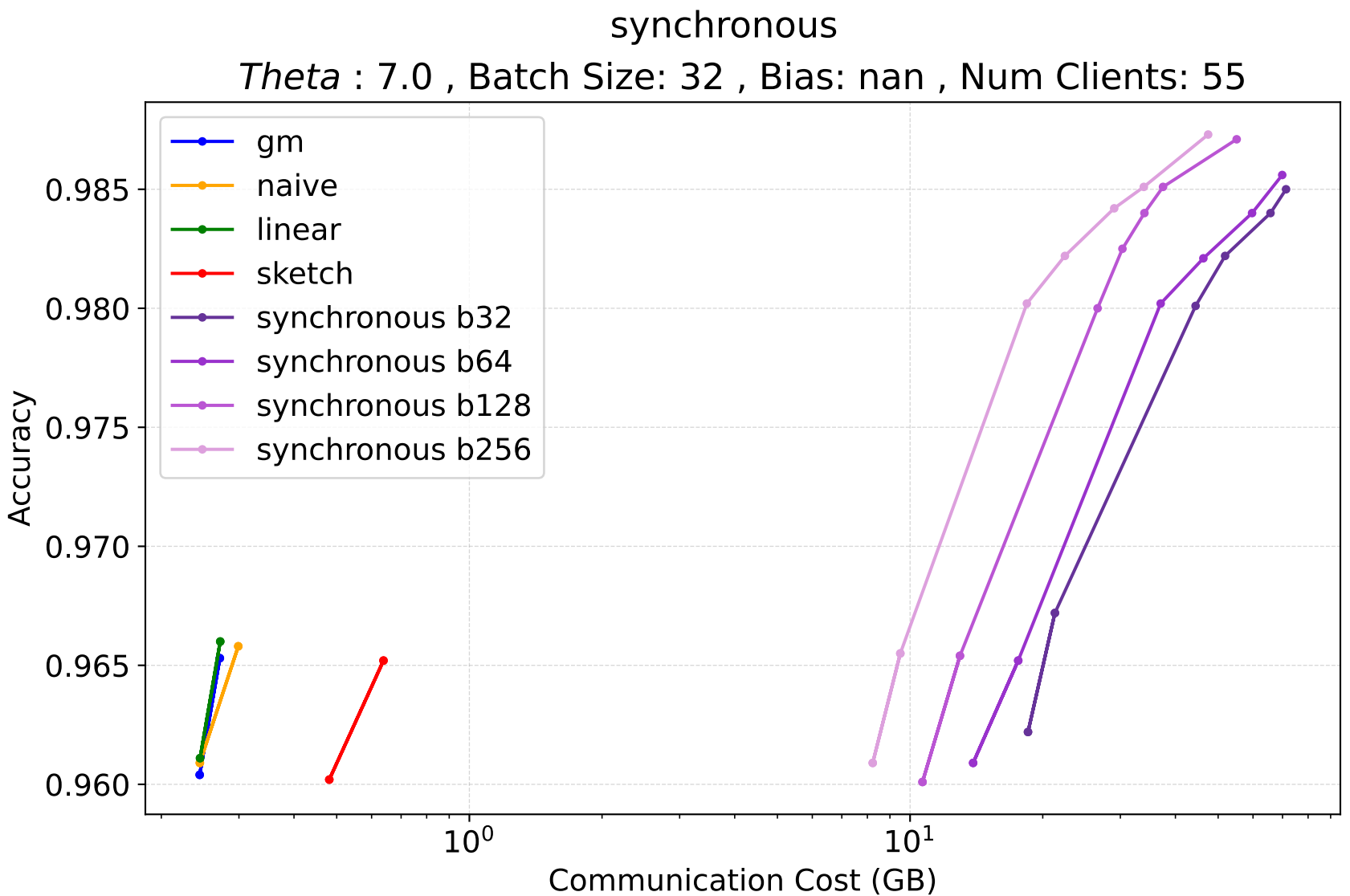
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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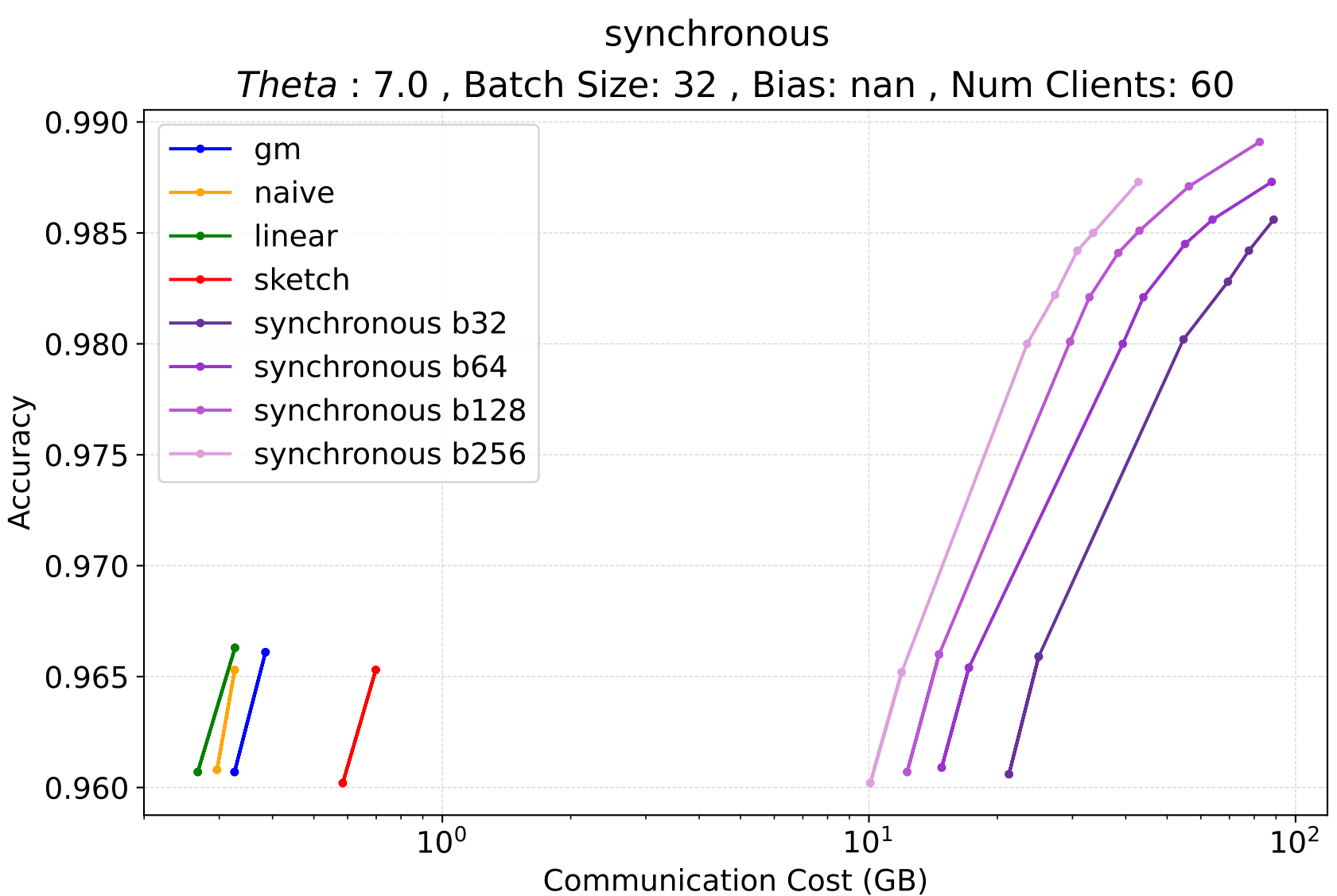
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)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Theta : 7.0 , Batch Size: 32 , Bias: nan , Num Clients: 60
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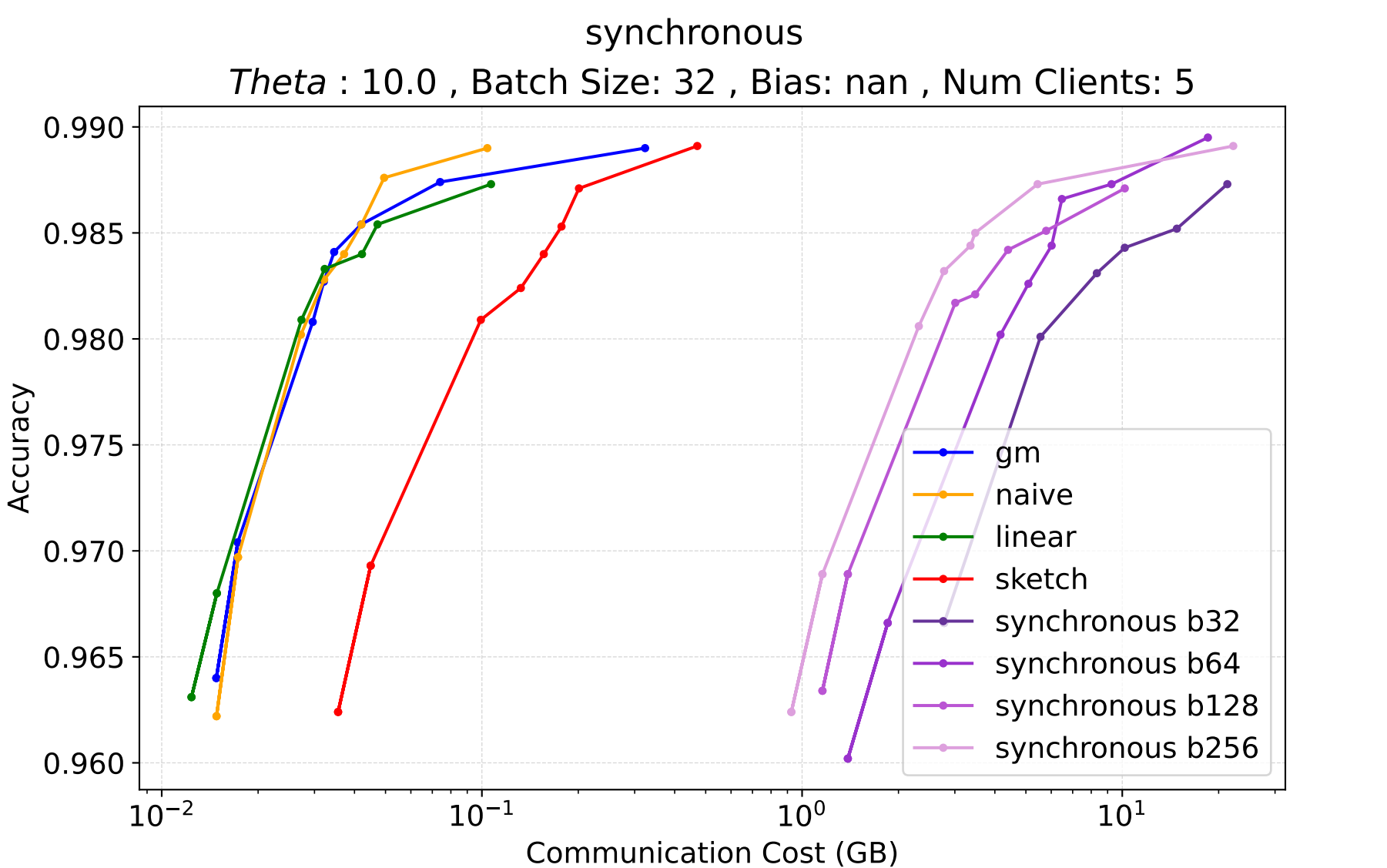
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 10.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
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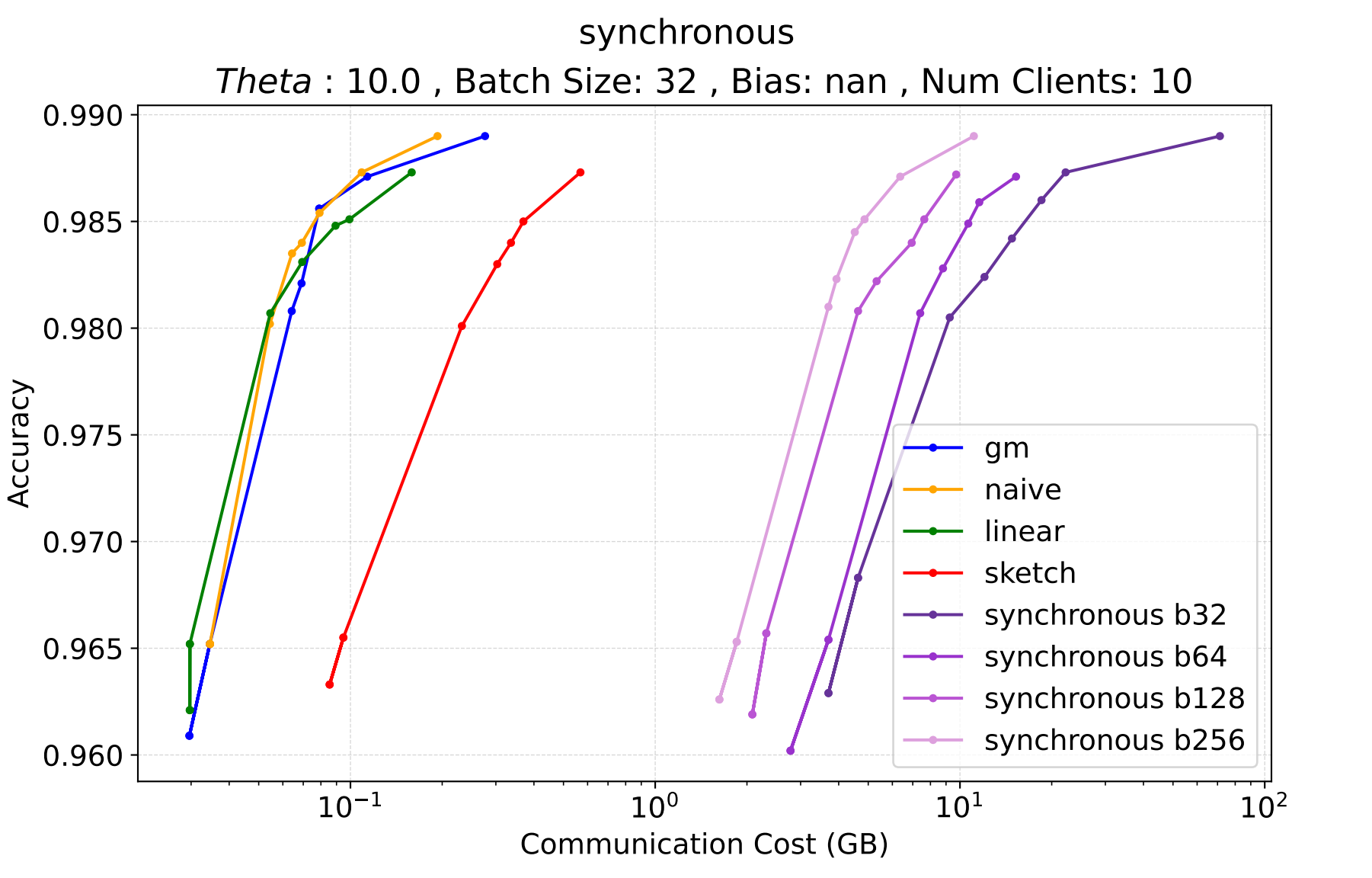
0.985
0.980
0.975
0.970
0.965
0.960
10^{-2}
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256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Theta : 10.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
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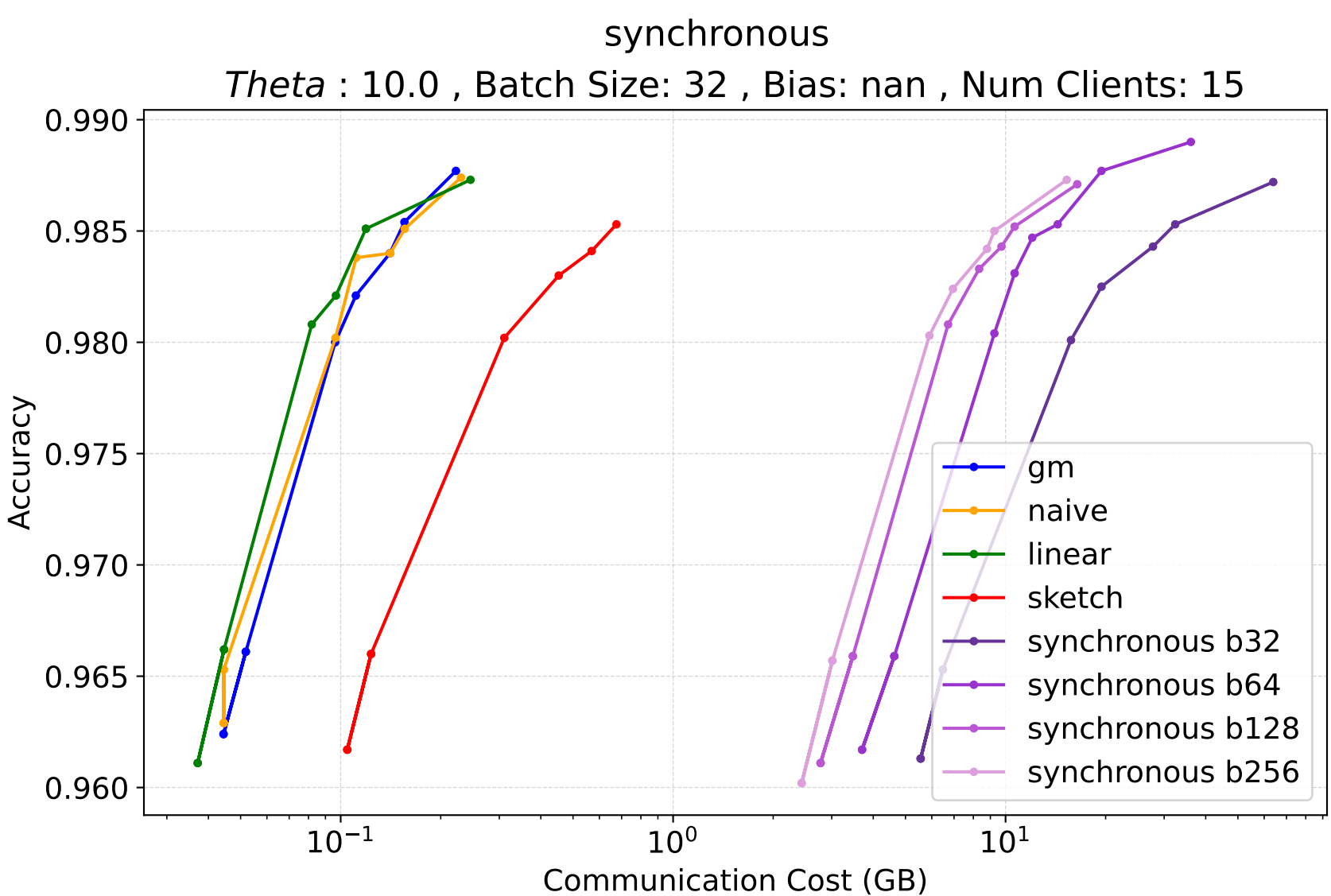
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256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Theta : 10.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
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0.980
0.975
0.970
0.965
0.960
10^{-1}
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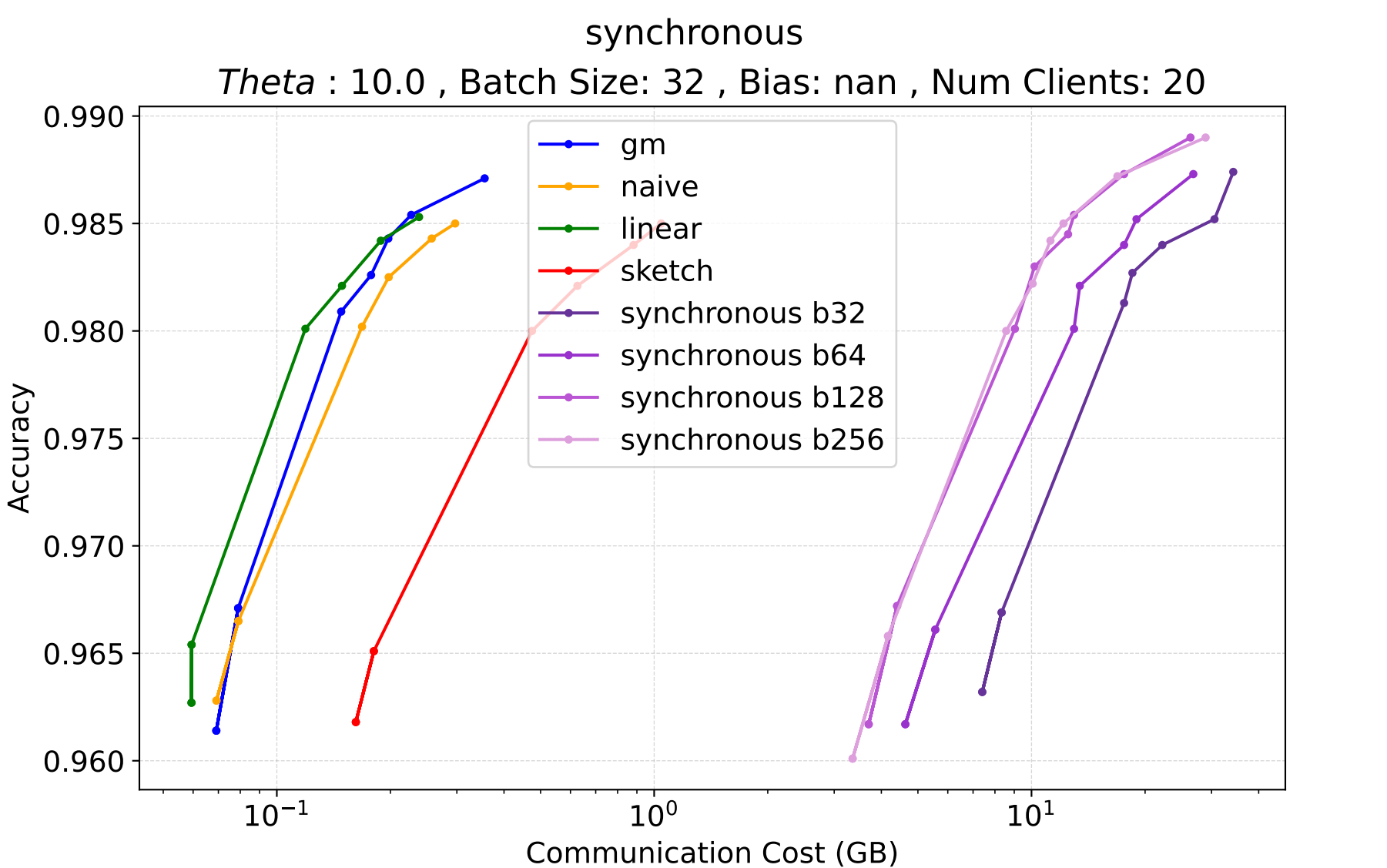
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
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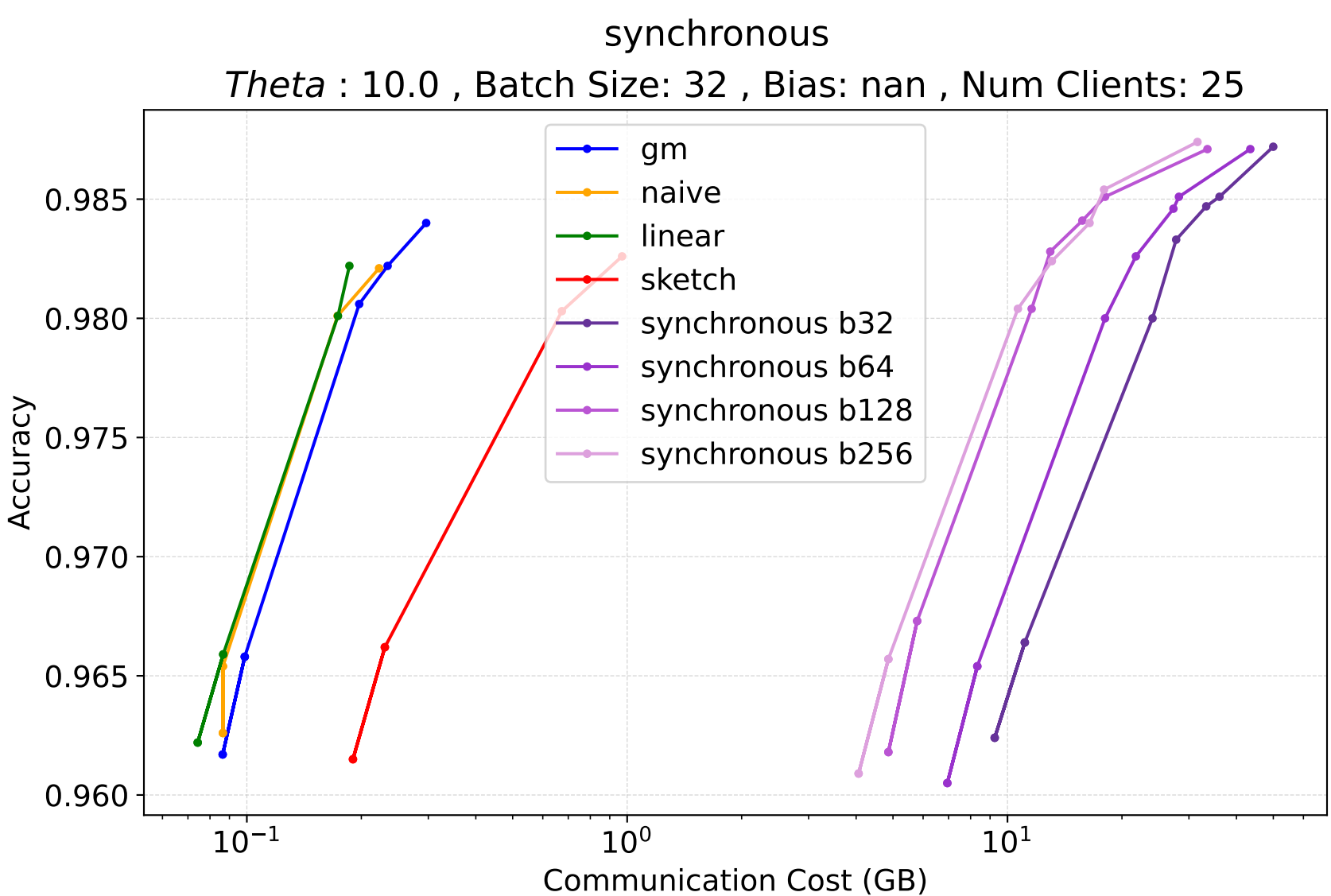
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)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Theta : 10.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
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linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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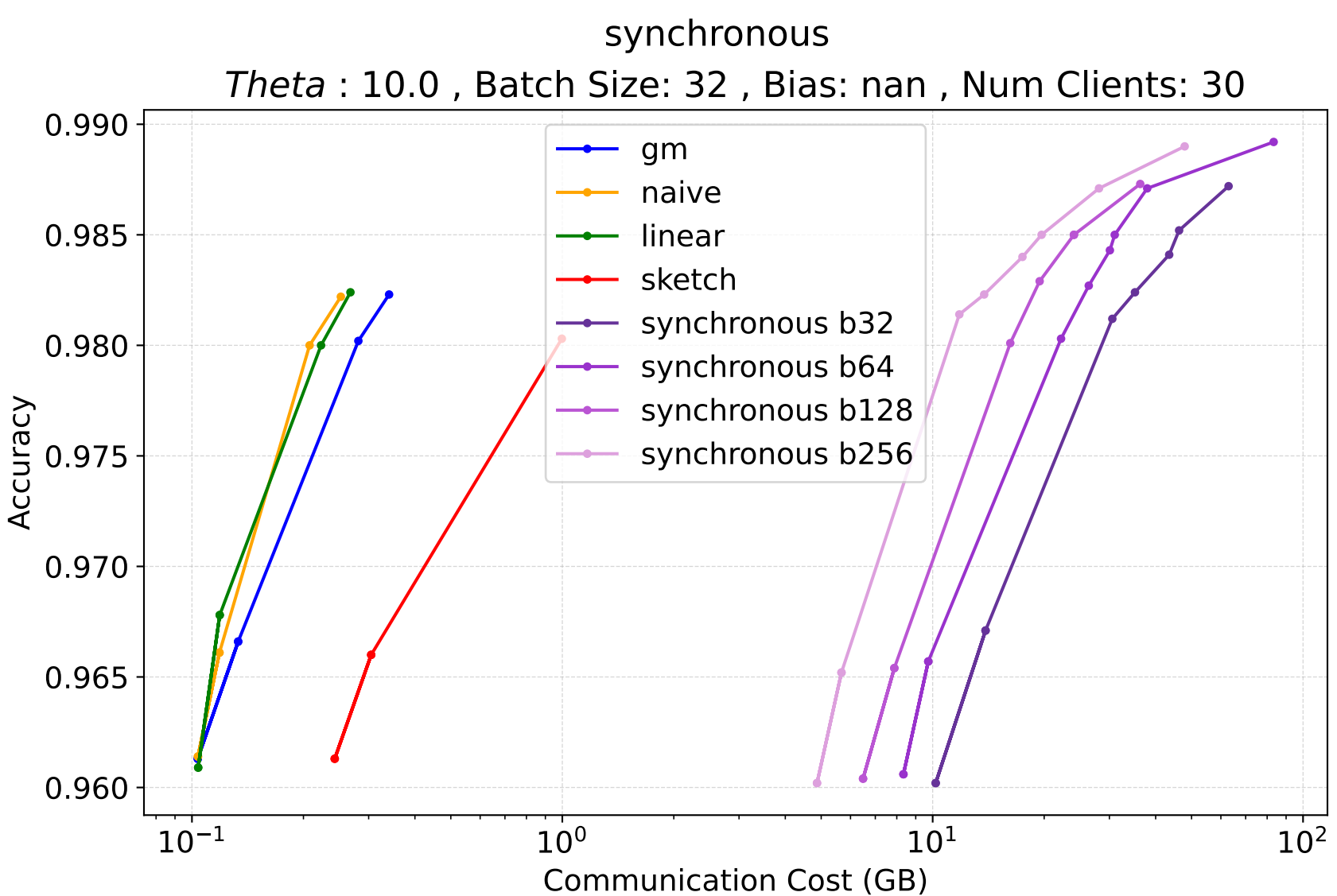
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)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Theta : 10.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
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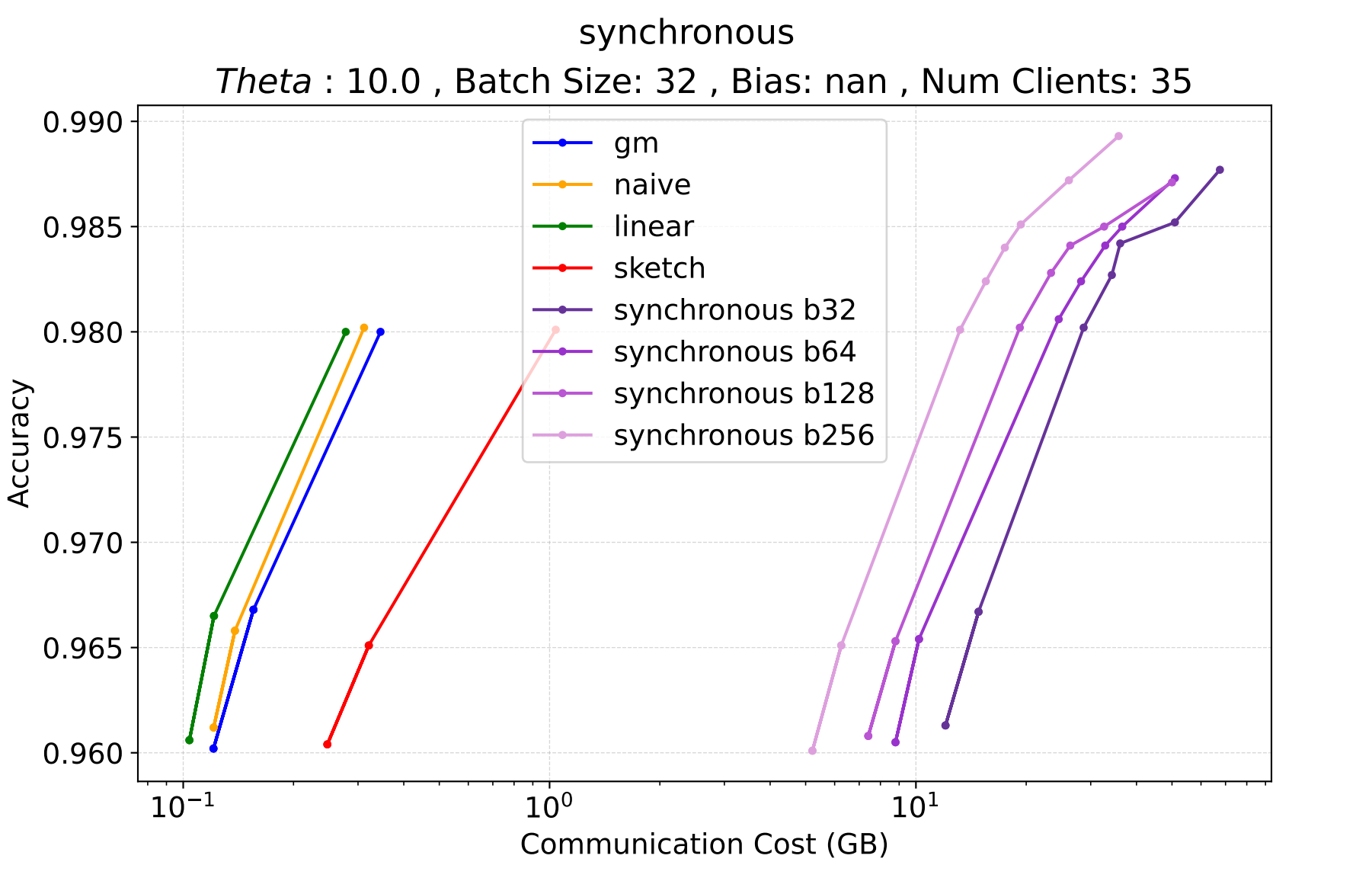
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)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linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
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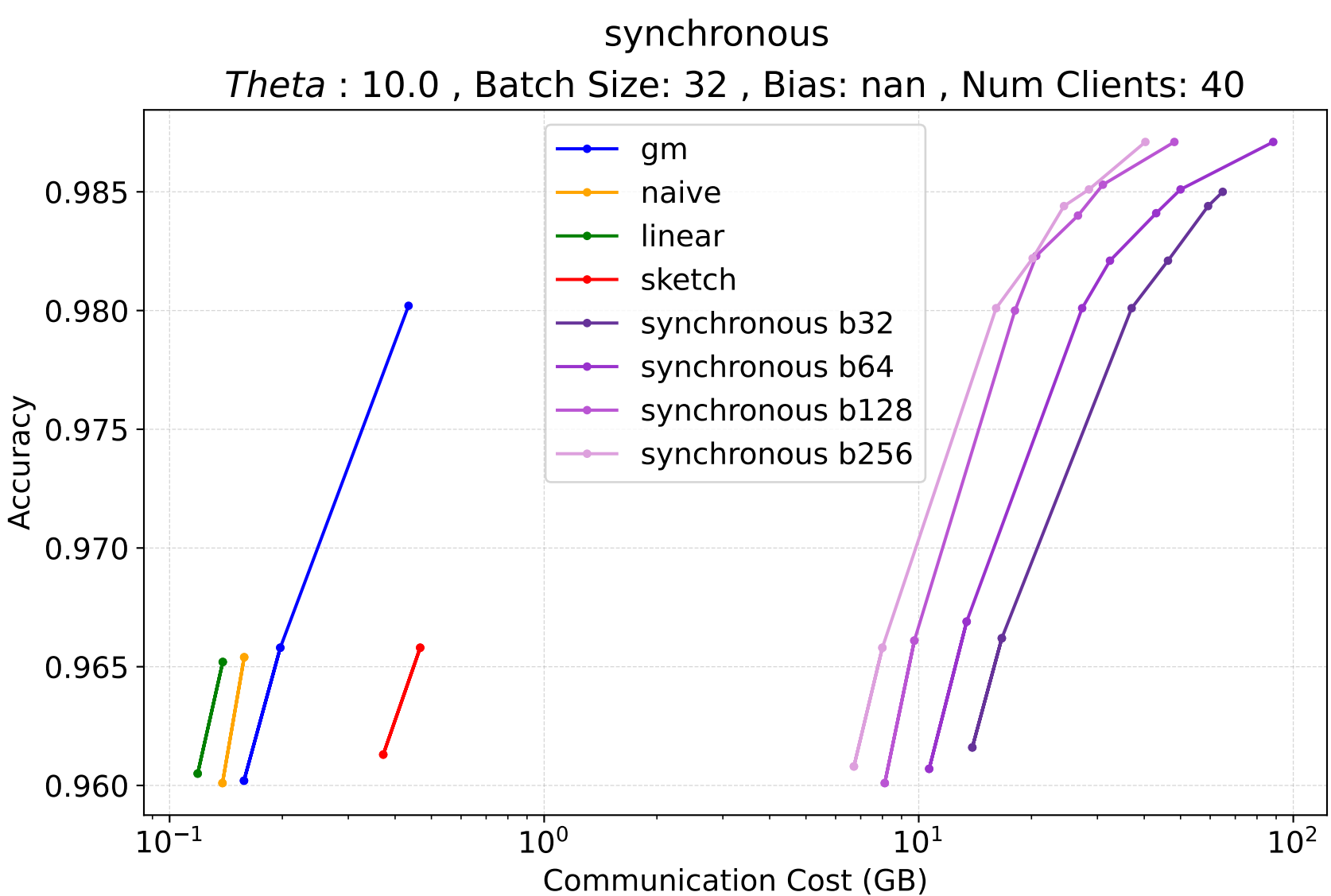
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)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sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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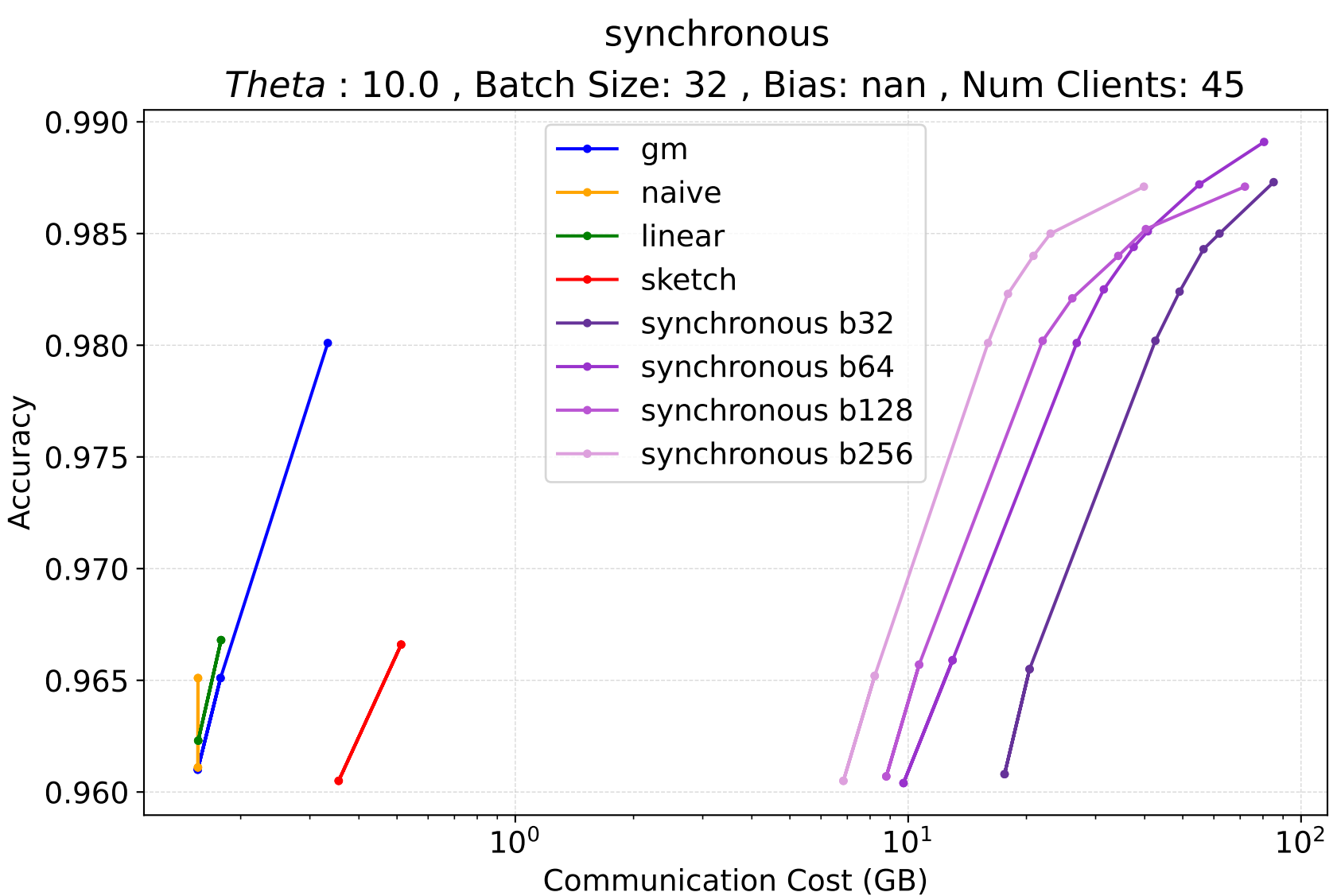
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)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linear
sketch
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synchronous b64
synchronous b128
synchronous b256
Accuracy
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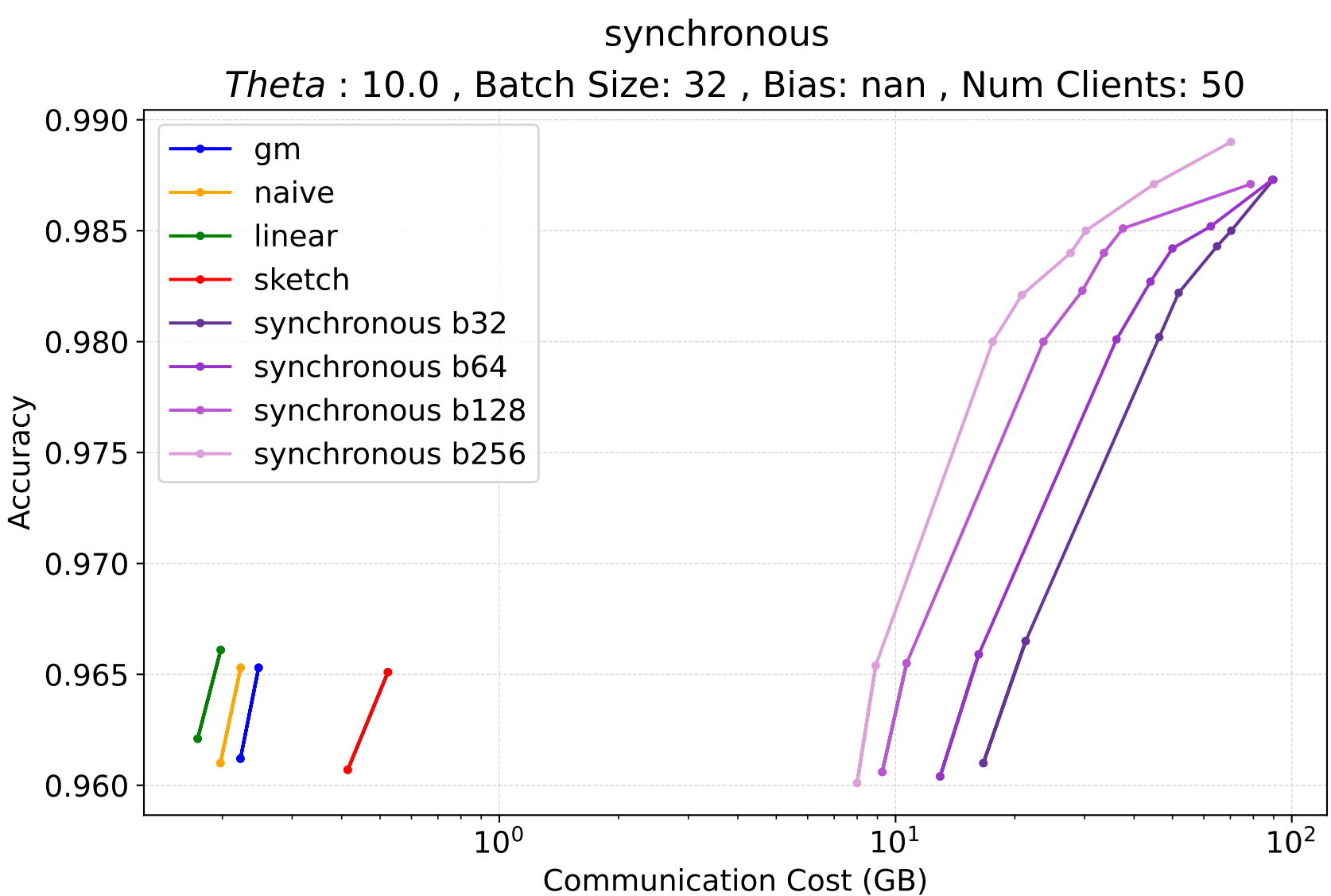
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)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Theta : 10.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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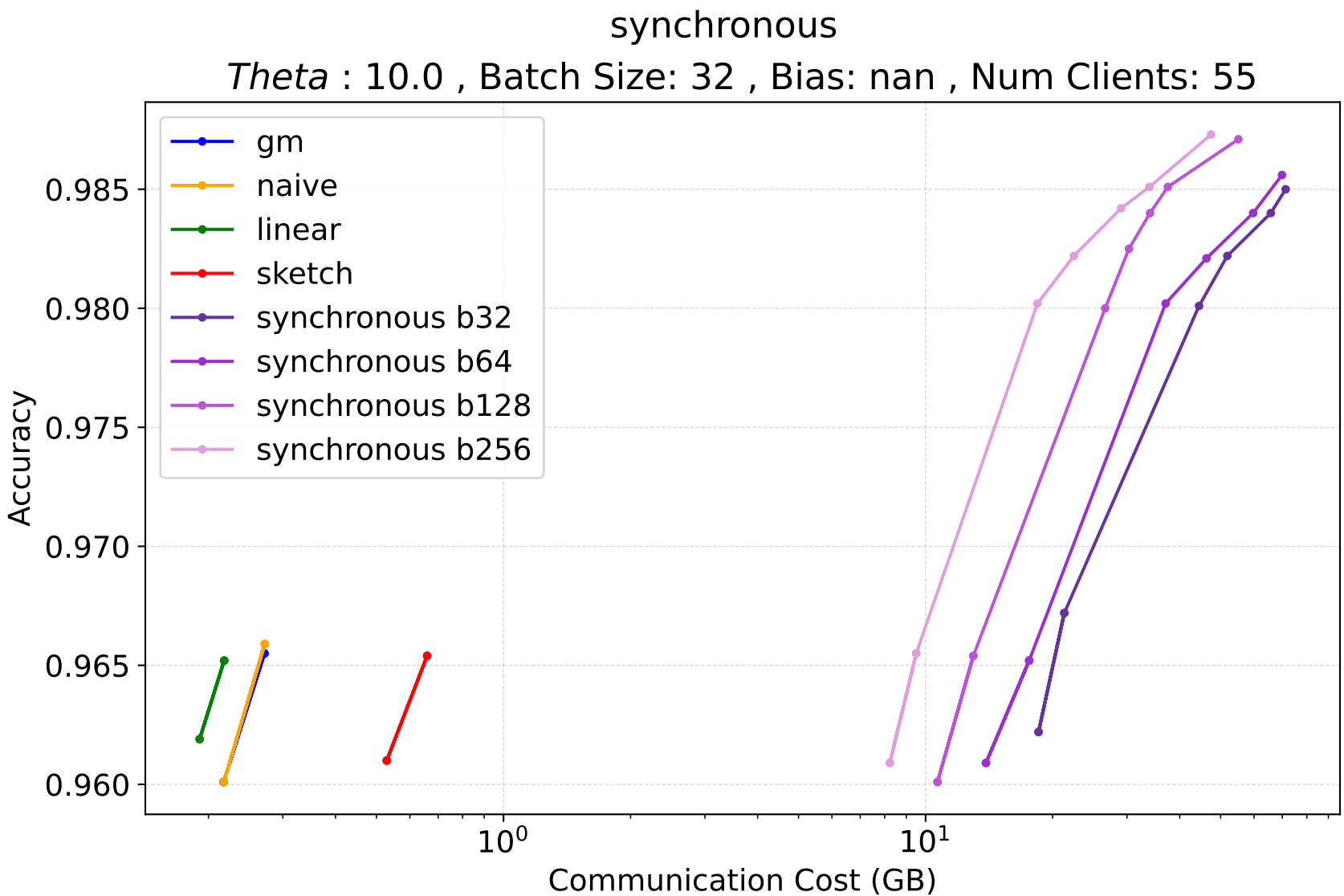
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)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Theta : 10.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
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linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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0.980
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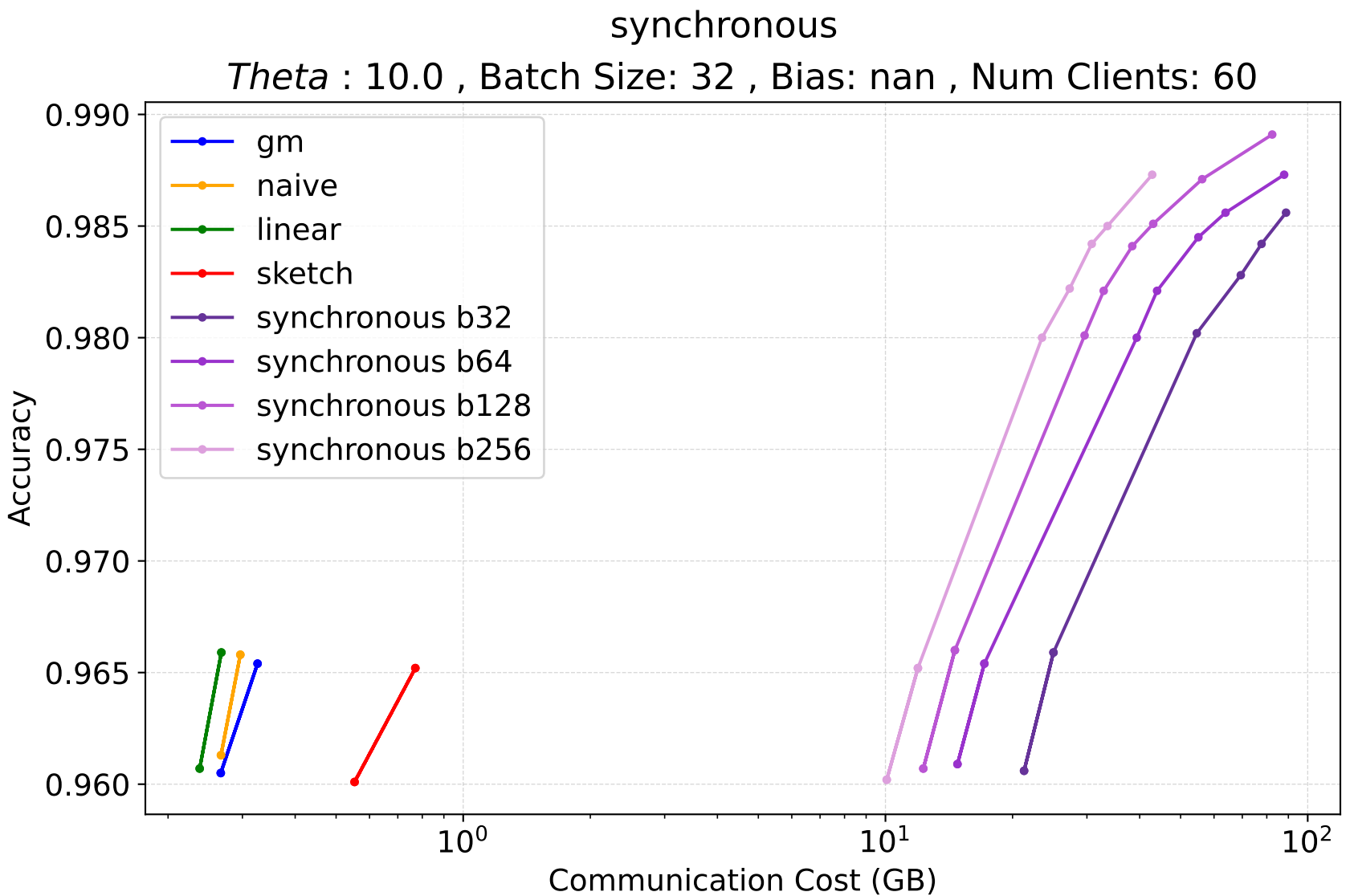
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)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linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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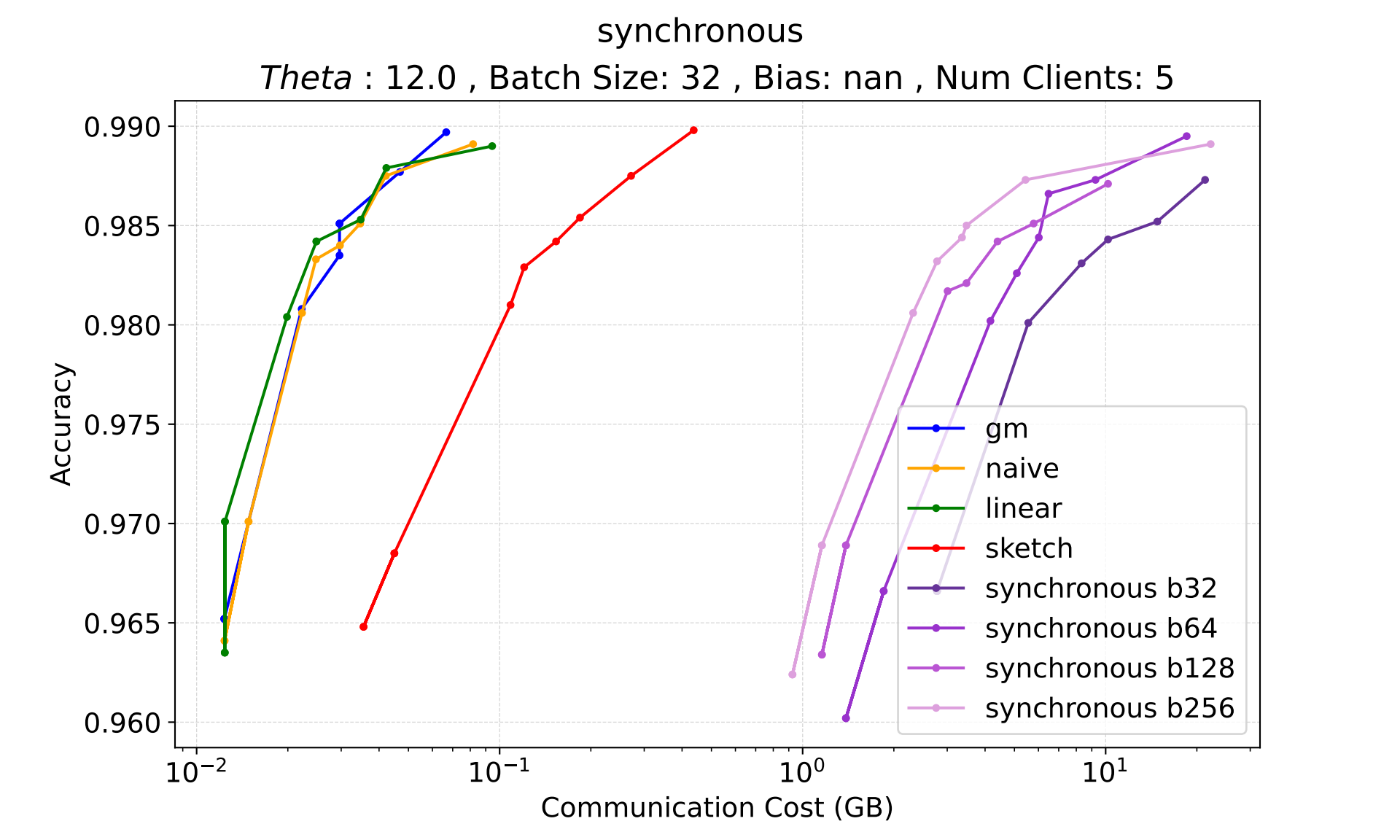
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
Accuracy
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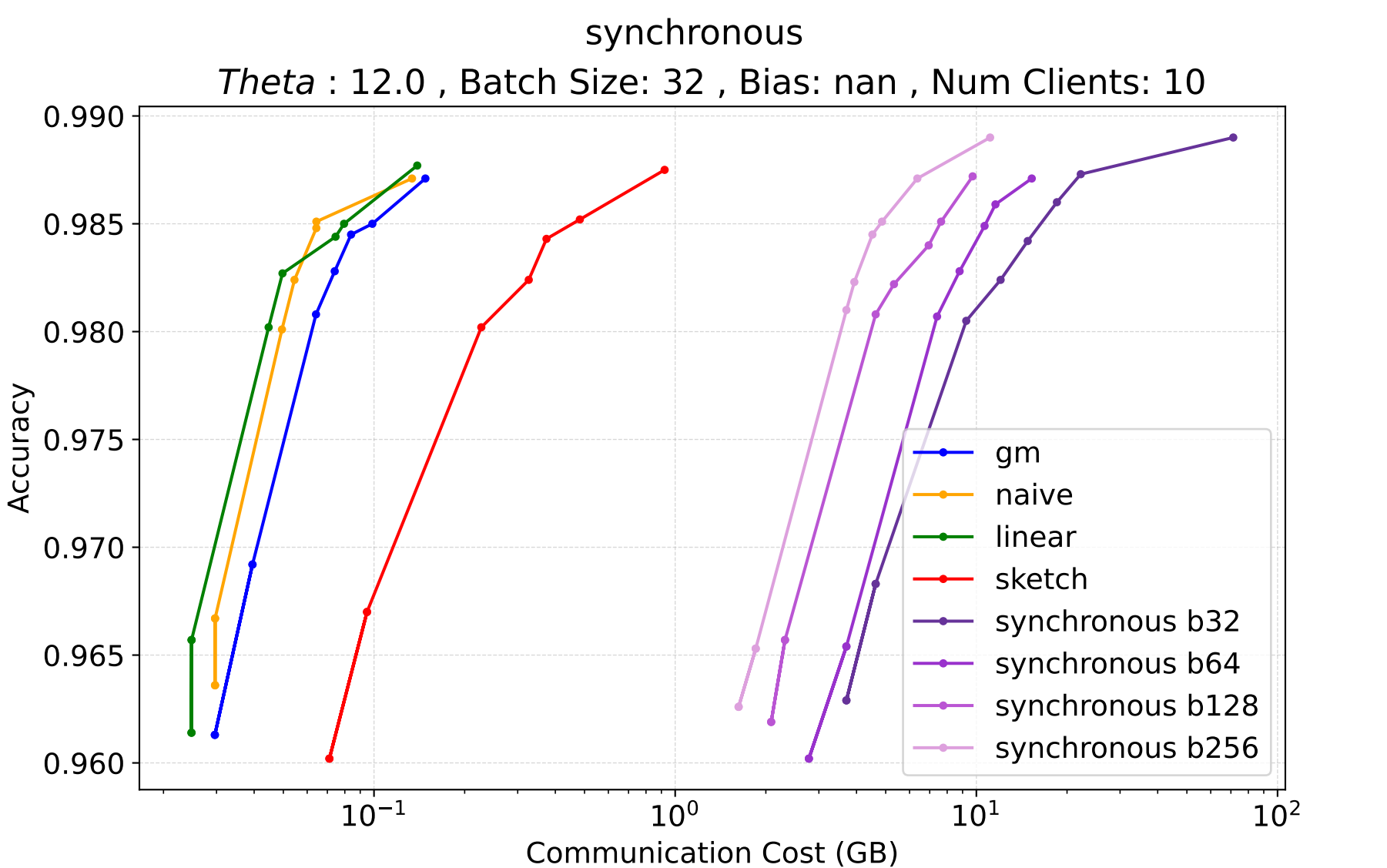
0.985
0.980
0.975
0.970
0.965
0.960
10^{-2}
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256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Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
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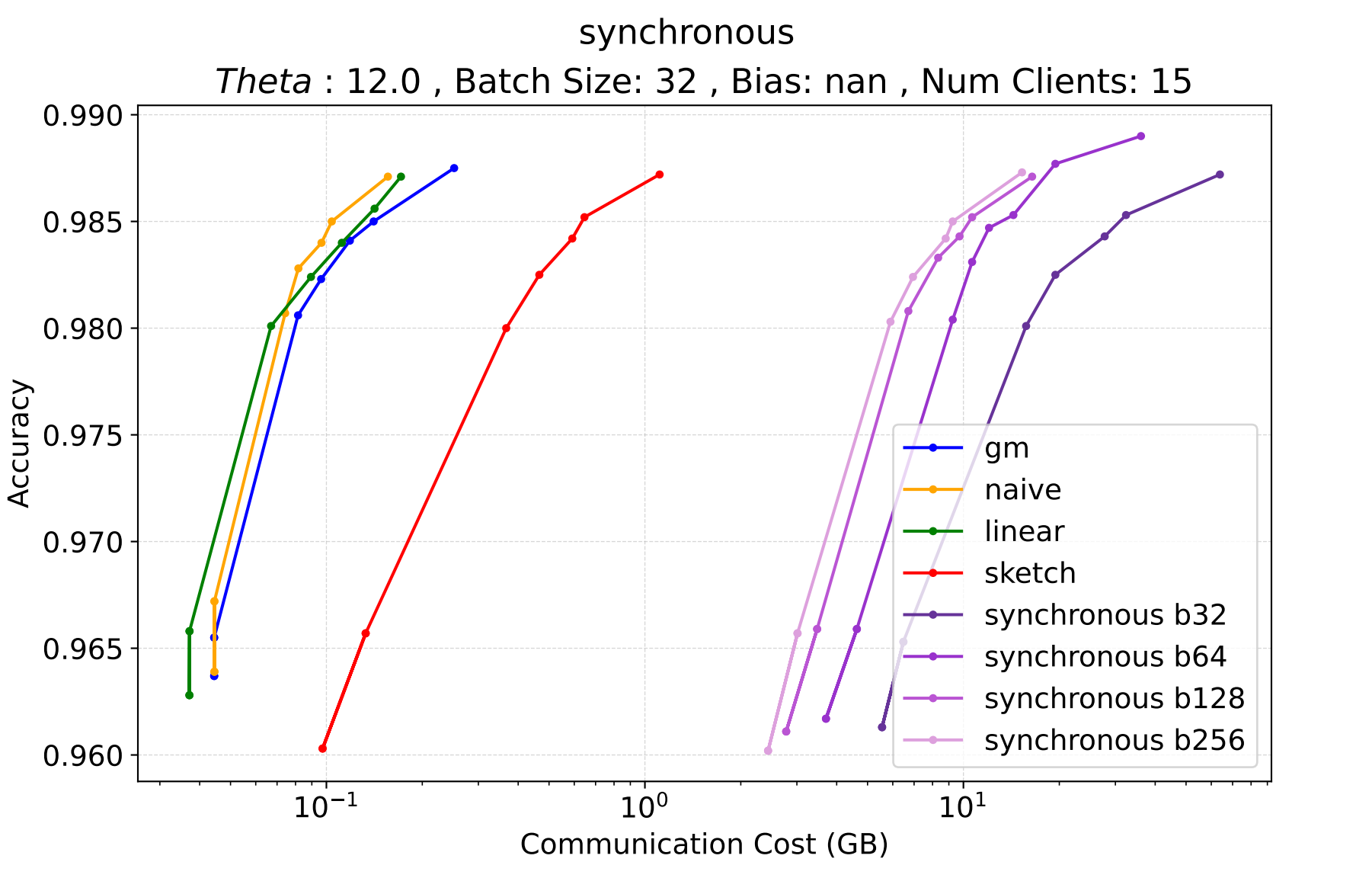
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256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Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
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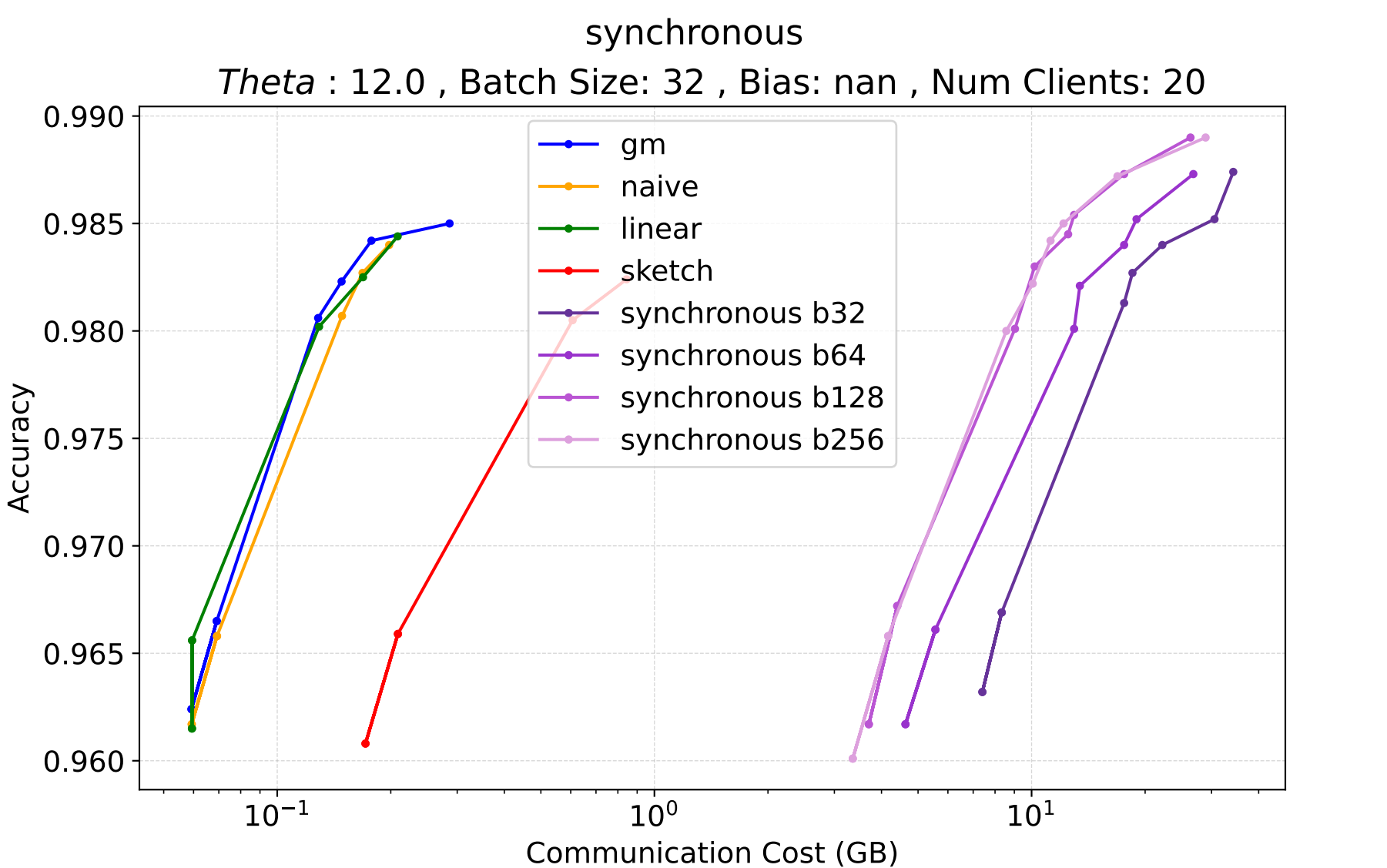
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256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Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 20
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naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
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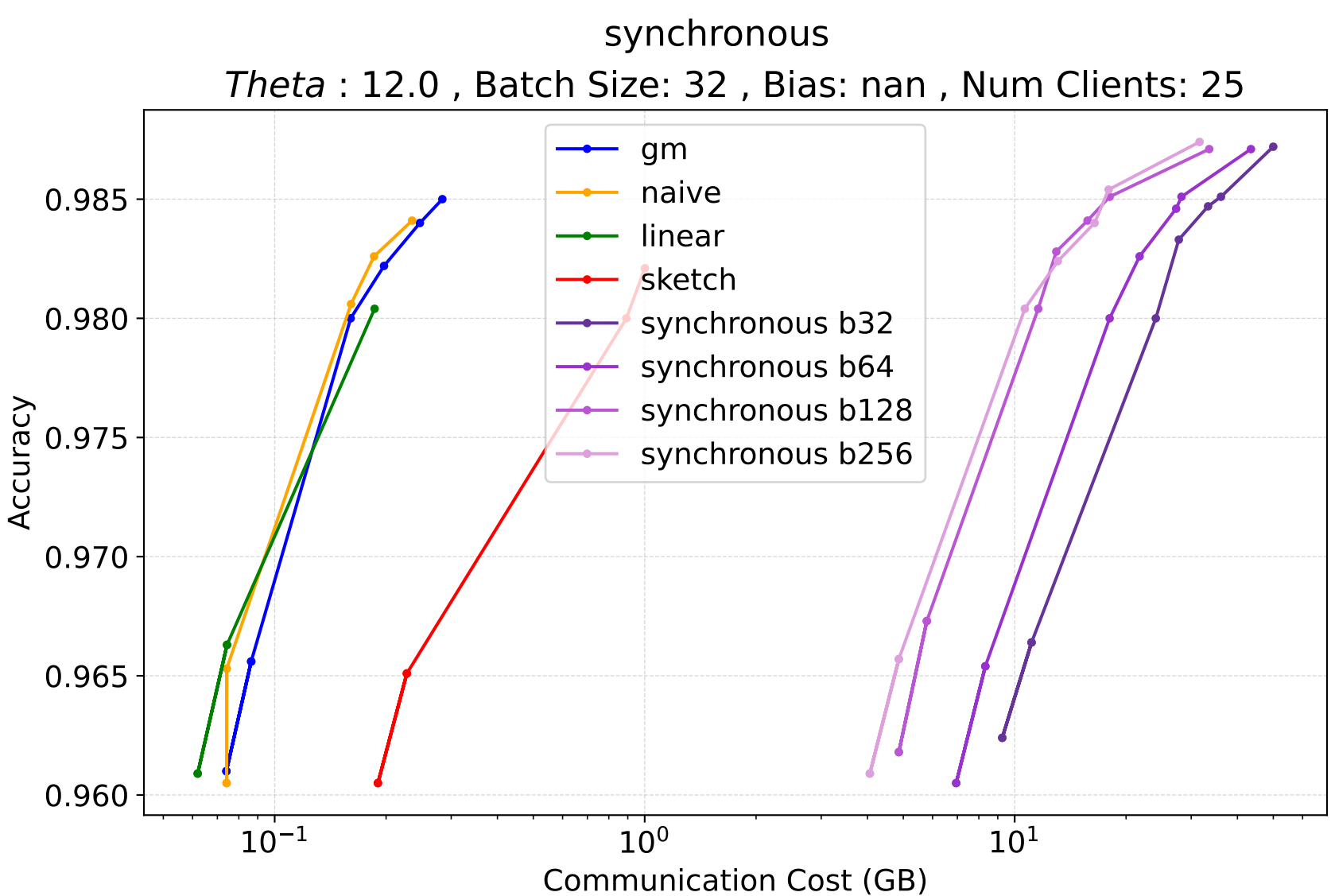
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)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Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
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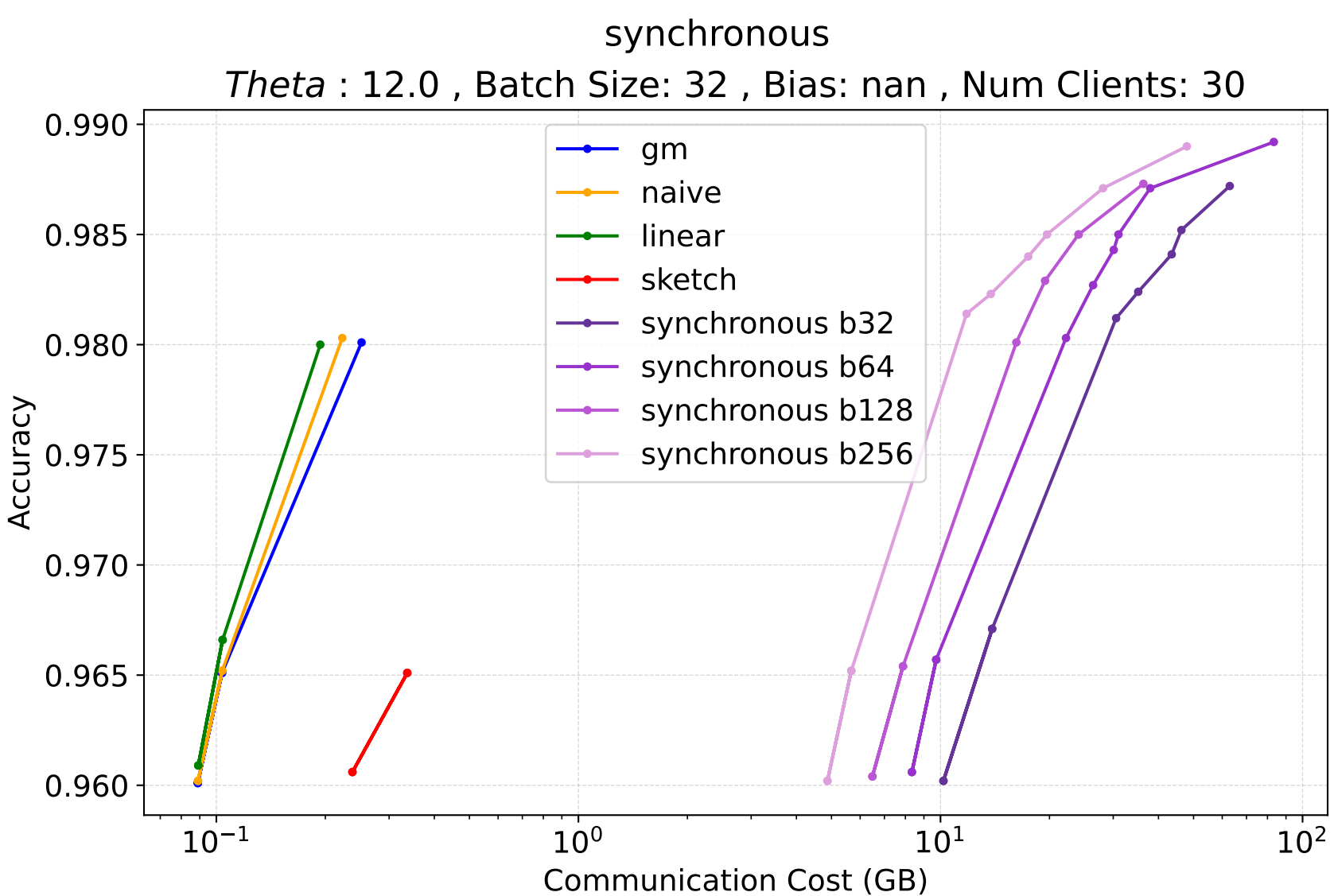
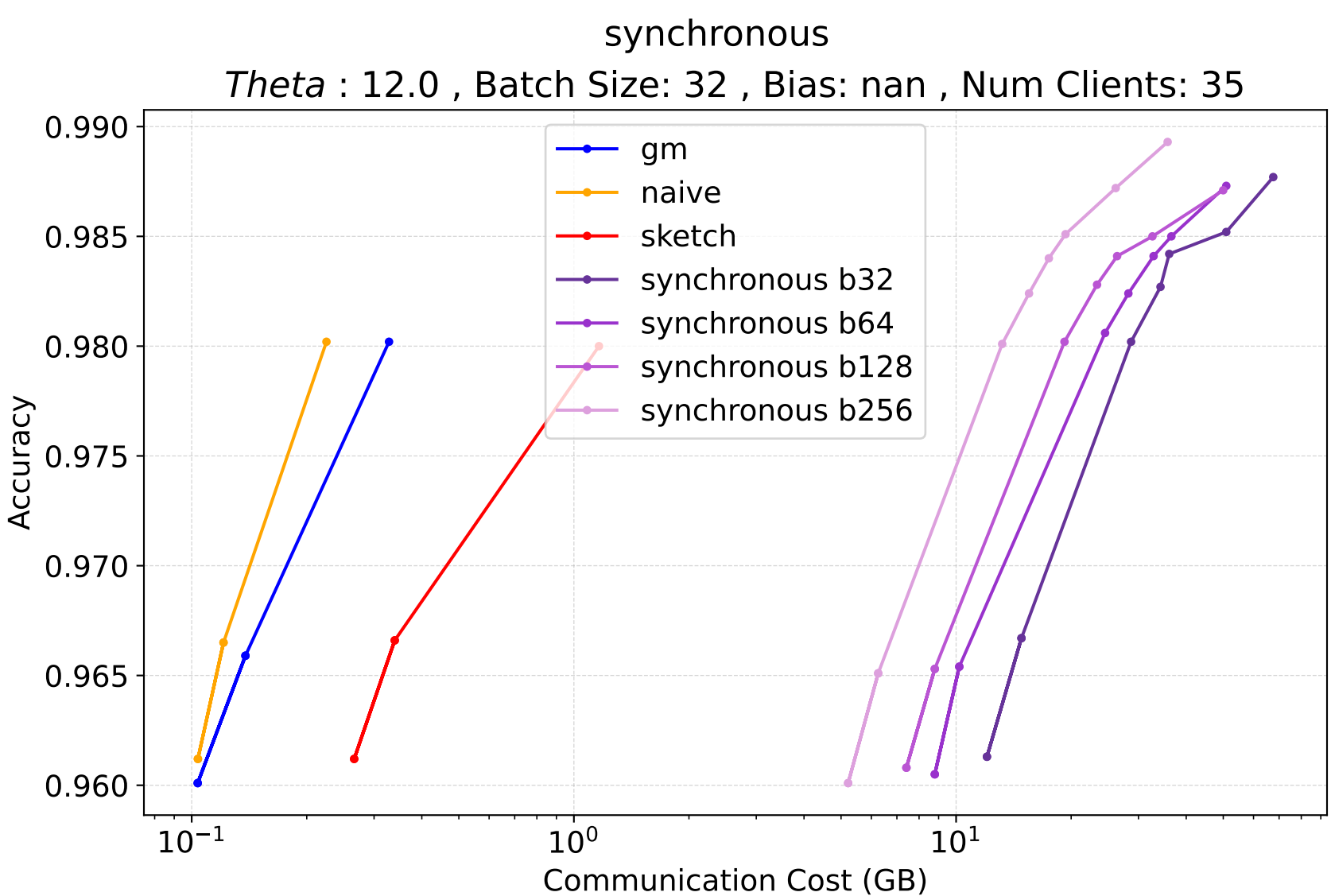
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)


synchronous
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)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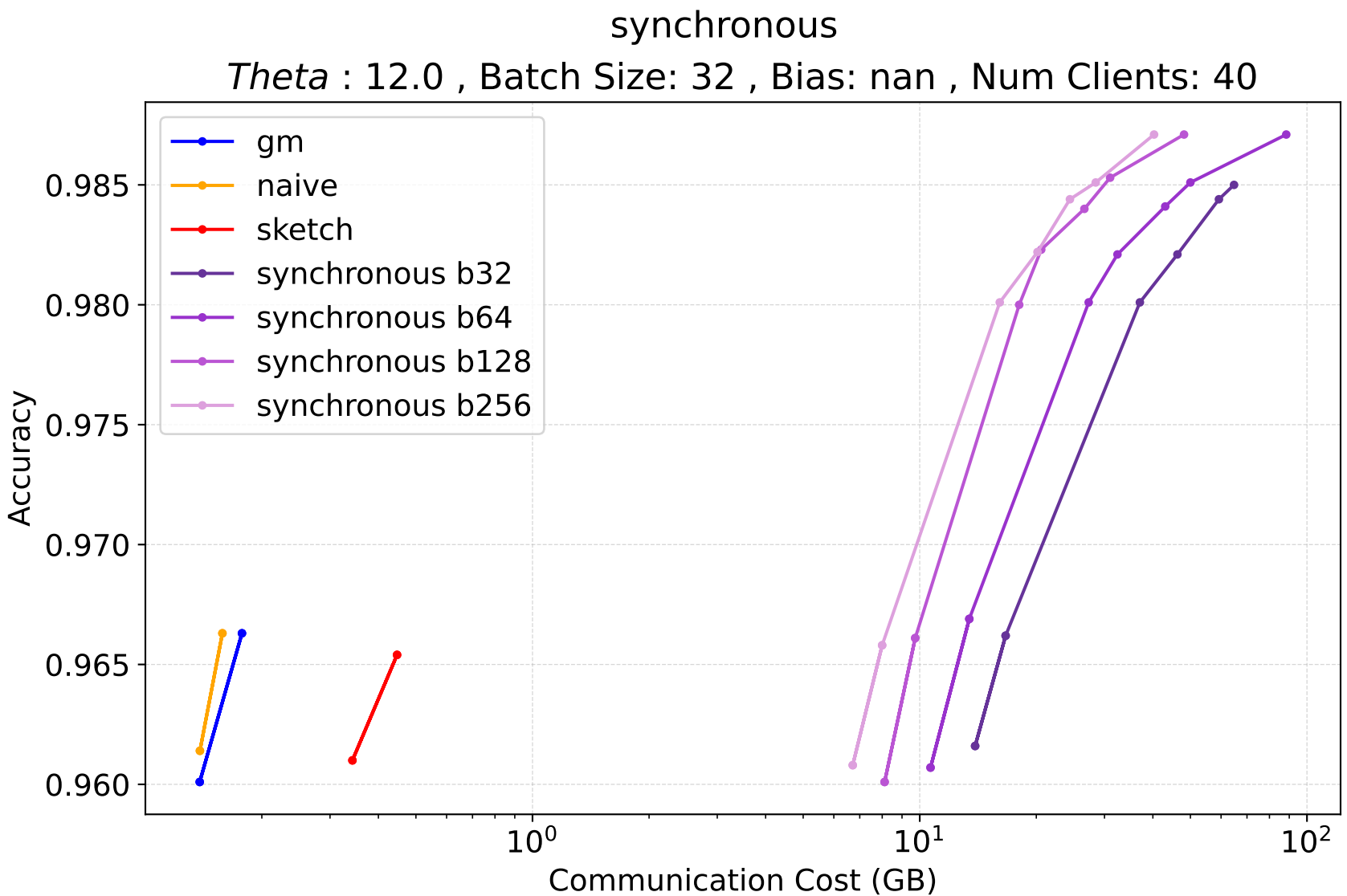
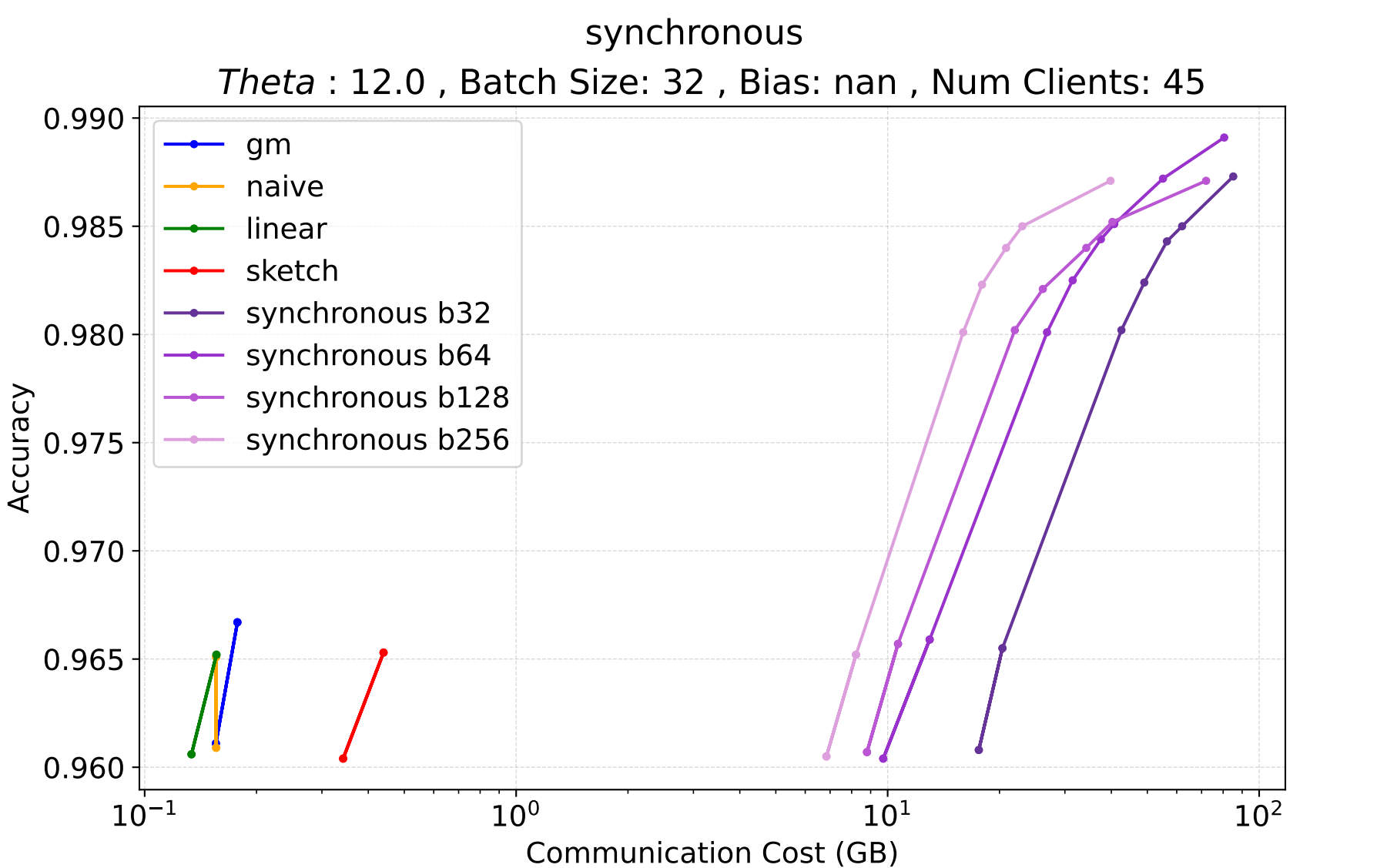
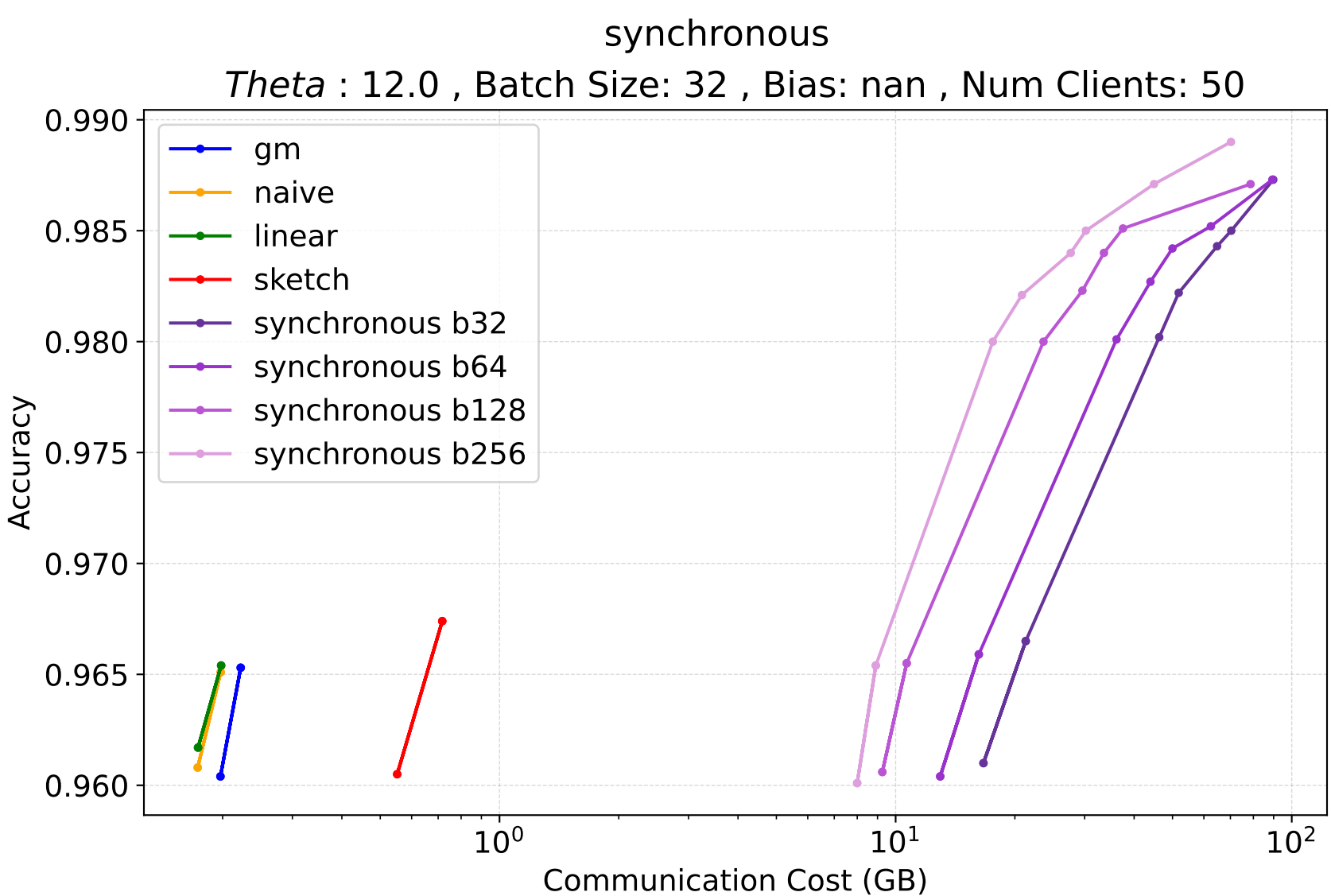
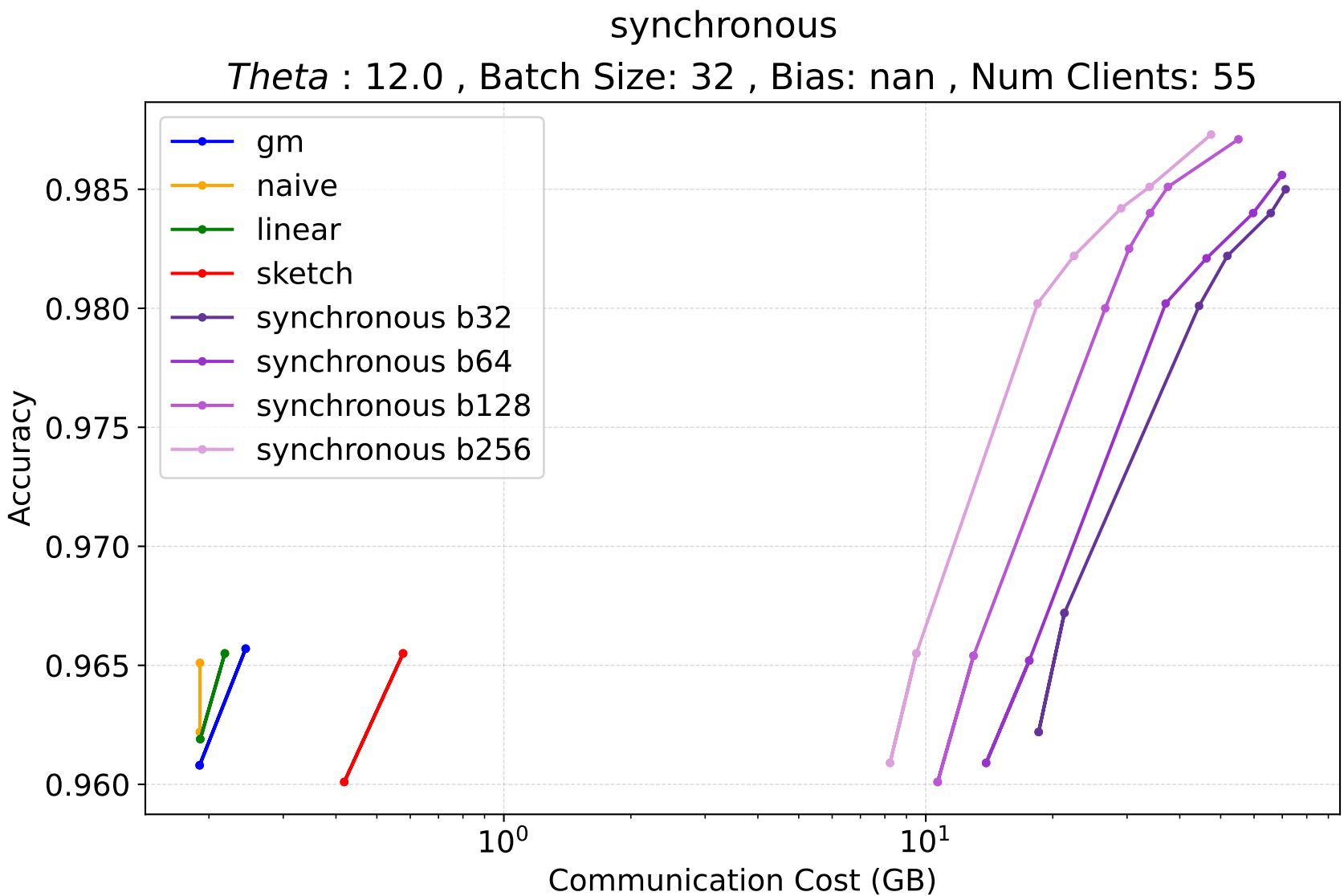
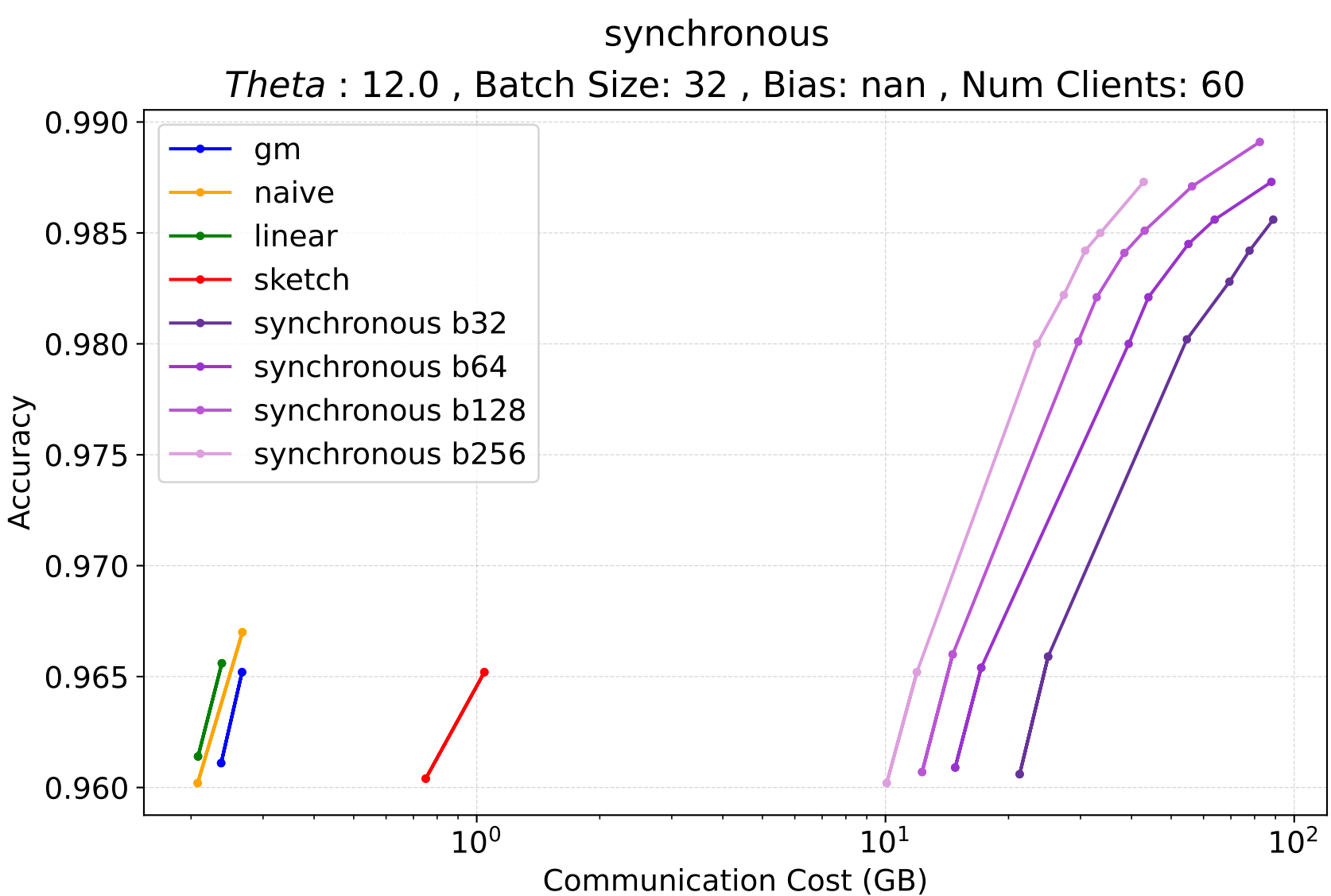
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 35
gm
naive
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)

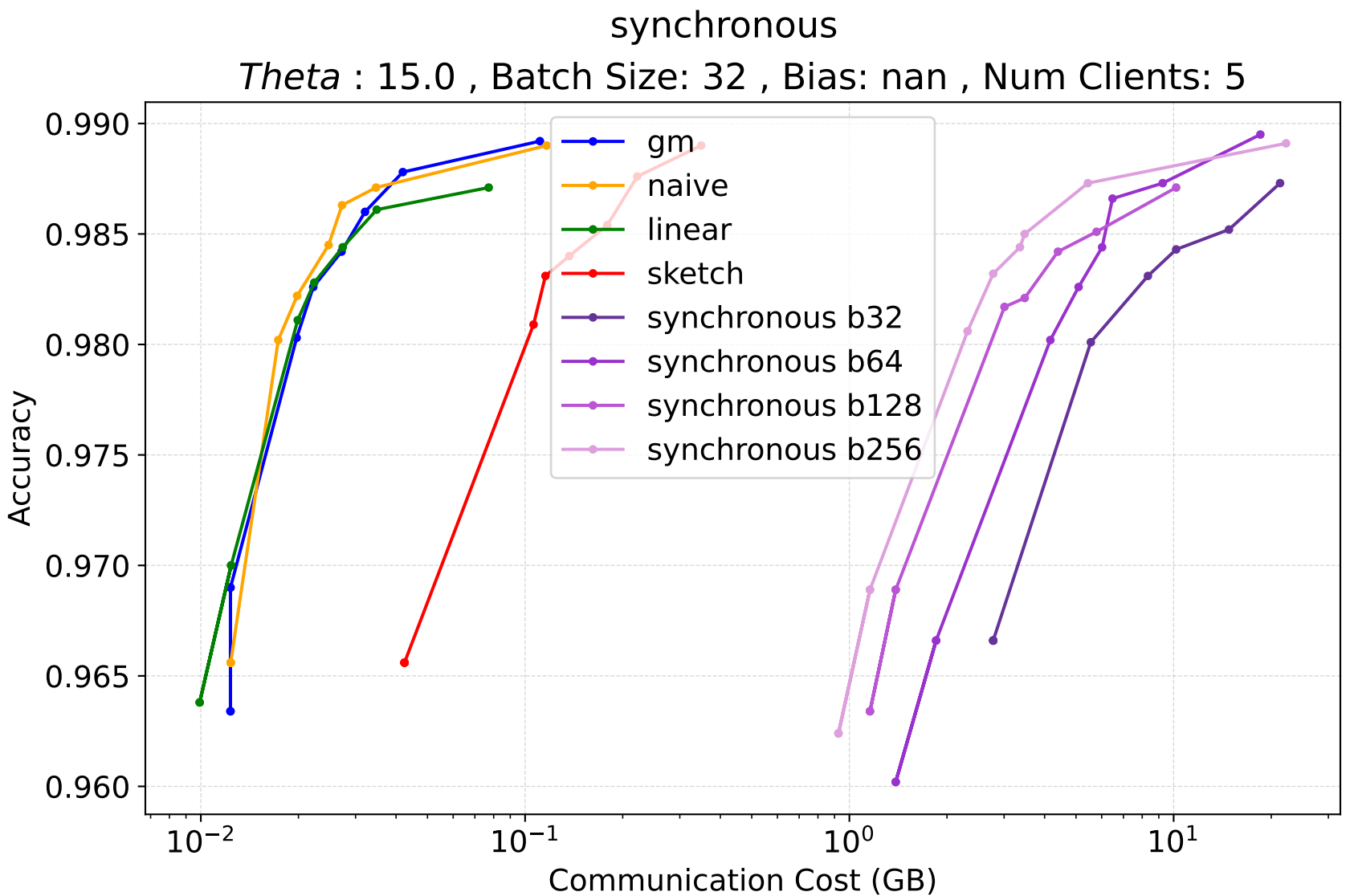

synchronous
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 40
gm
naive
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)

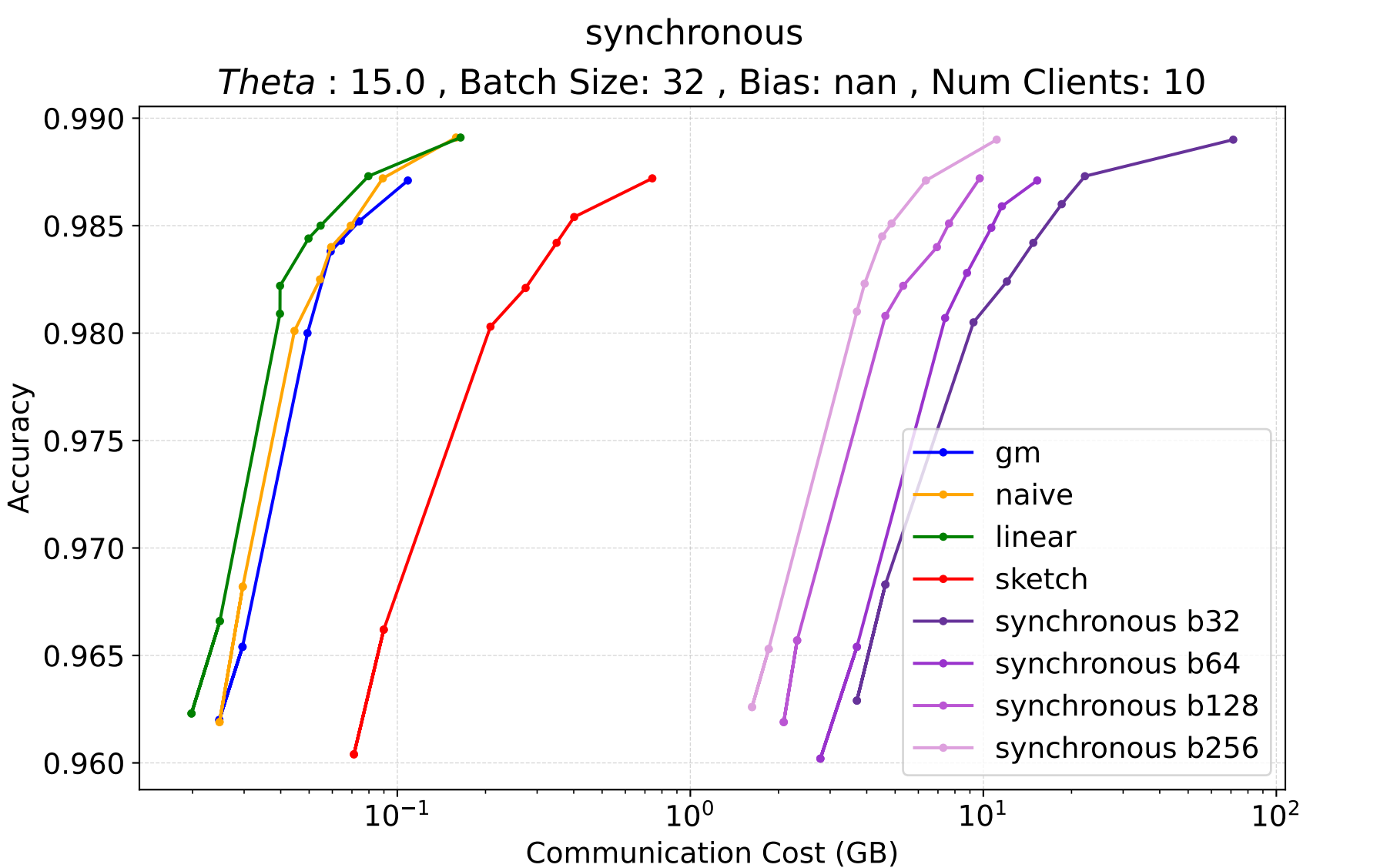

synchronous
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 45
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)

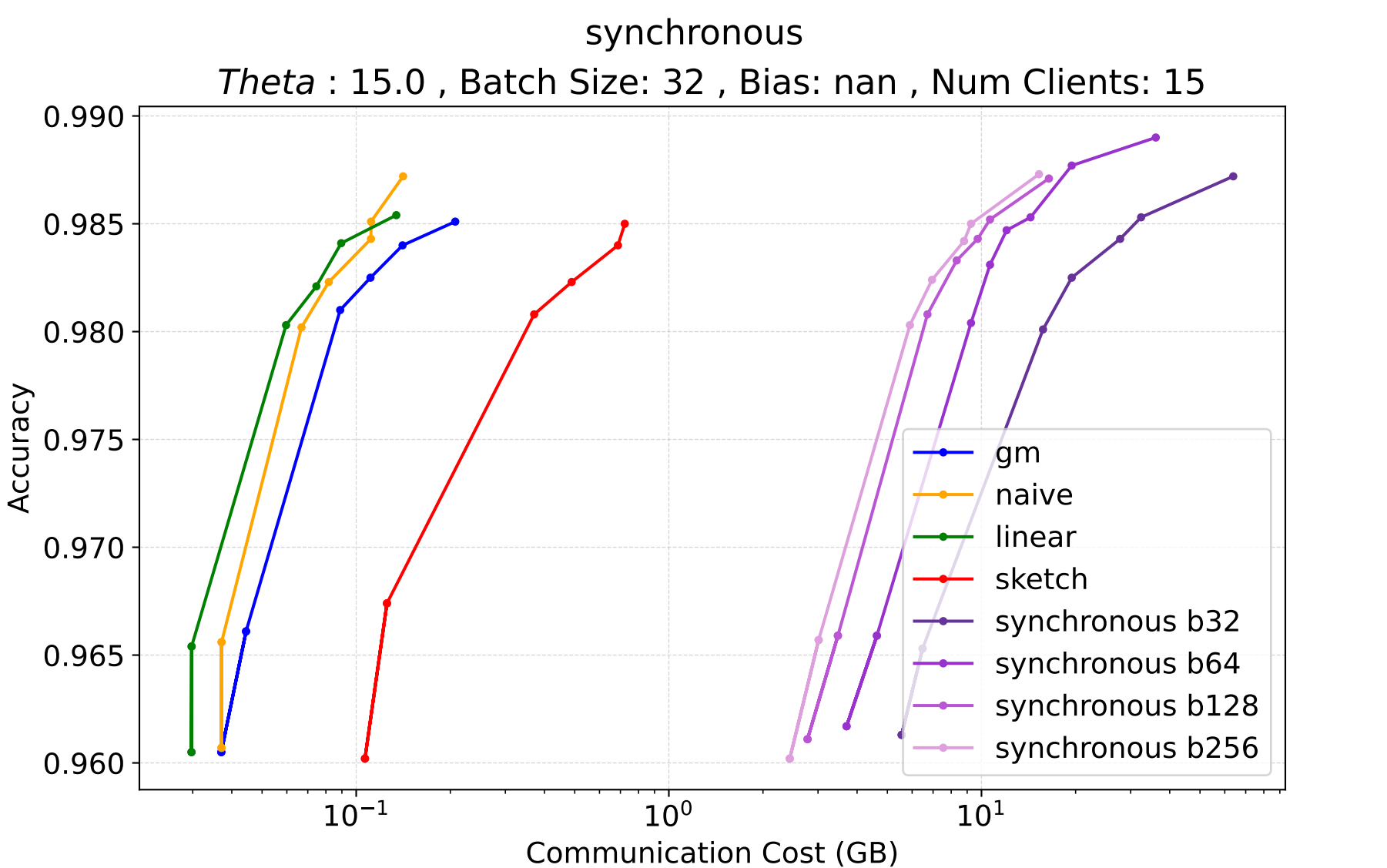

synchronous
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)


synchronous
Theta : 12.0 , Batch Size: 32 , Bias: nan , Num Clients: 60
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 5
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-2}
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 10
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 15
Accuracy
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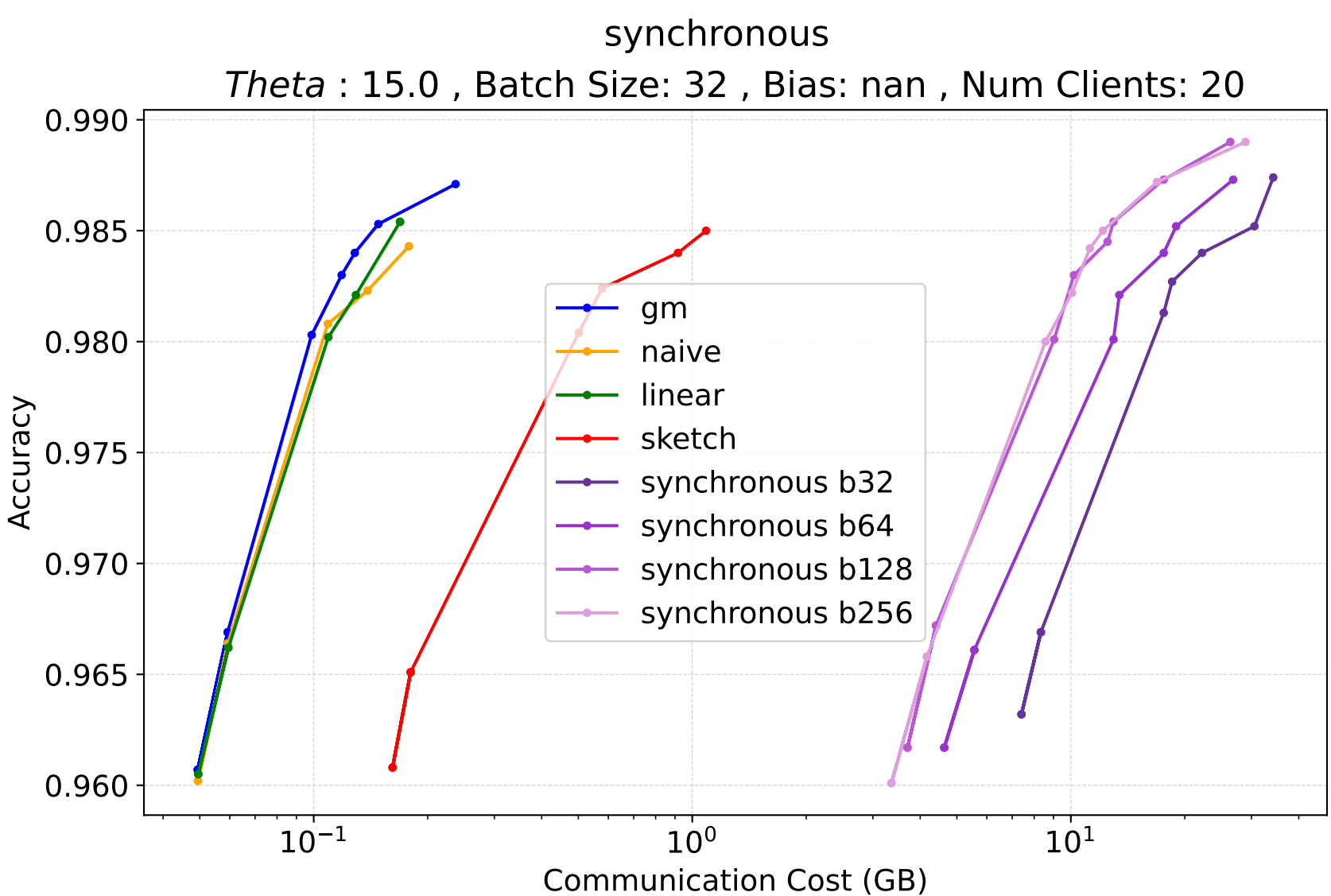
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 20
Accuracy
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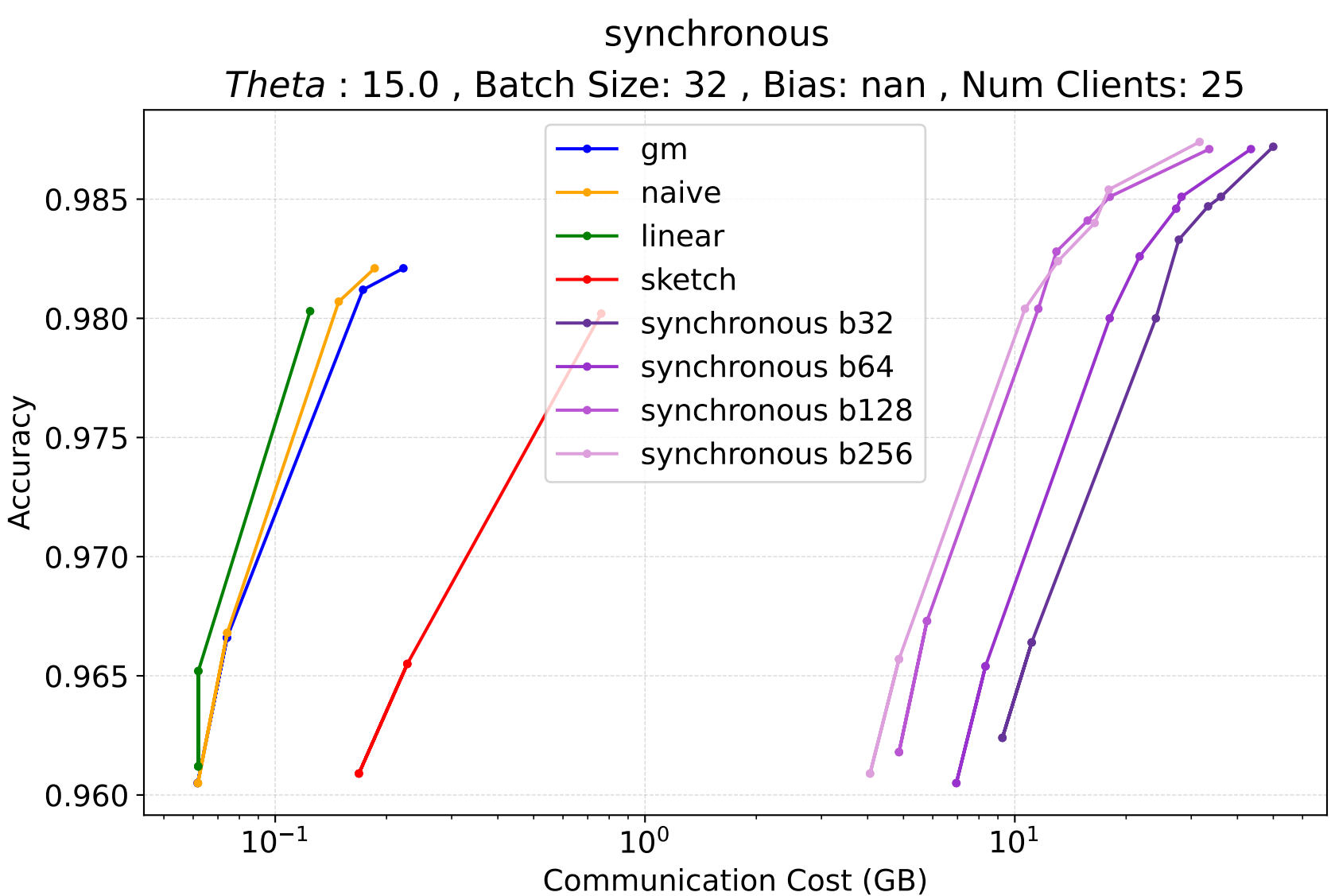
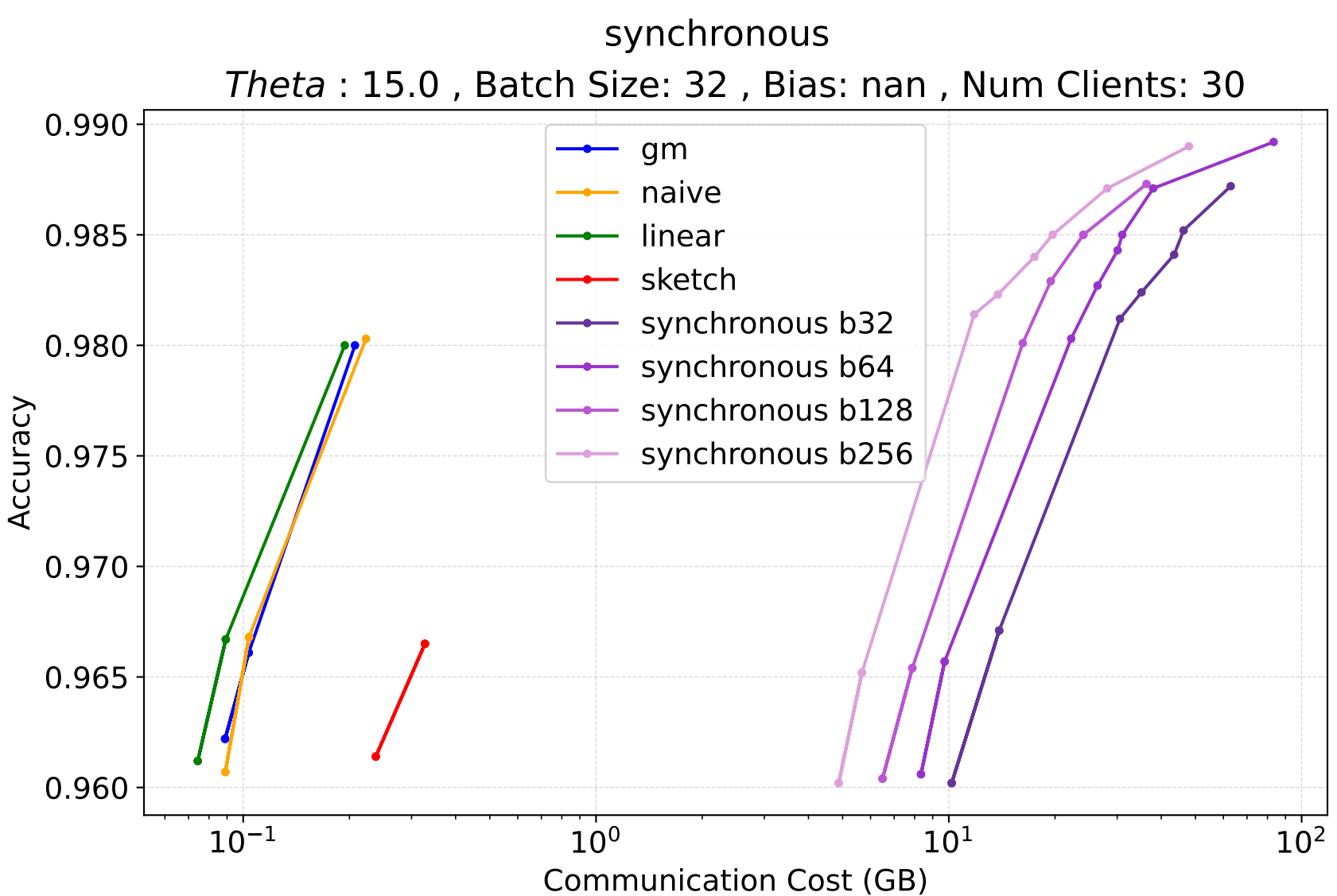
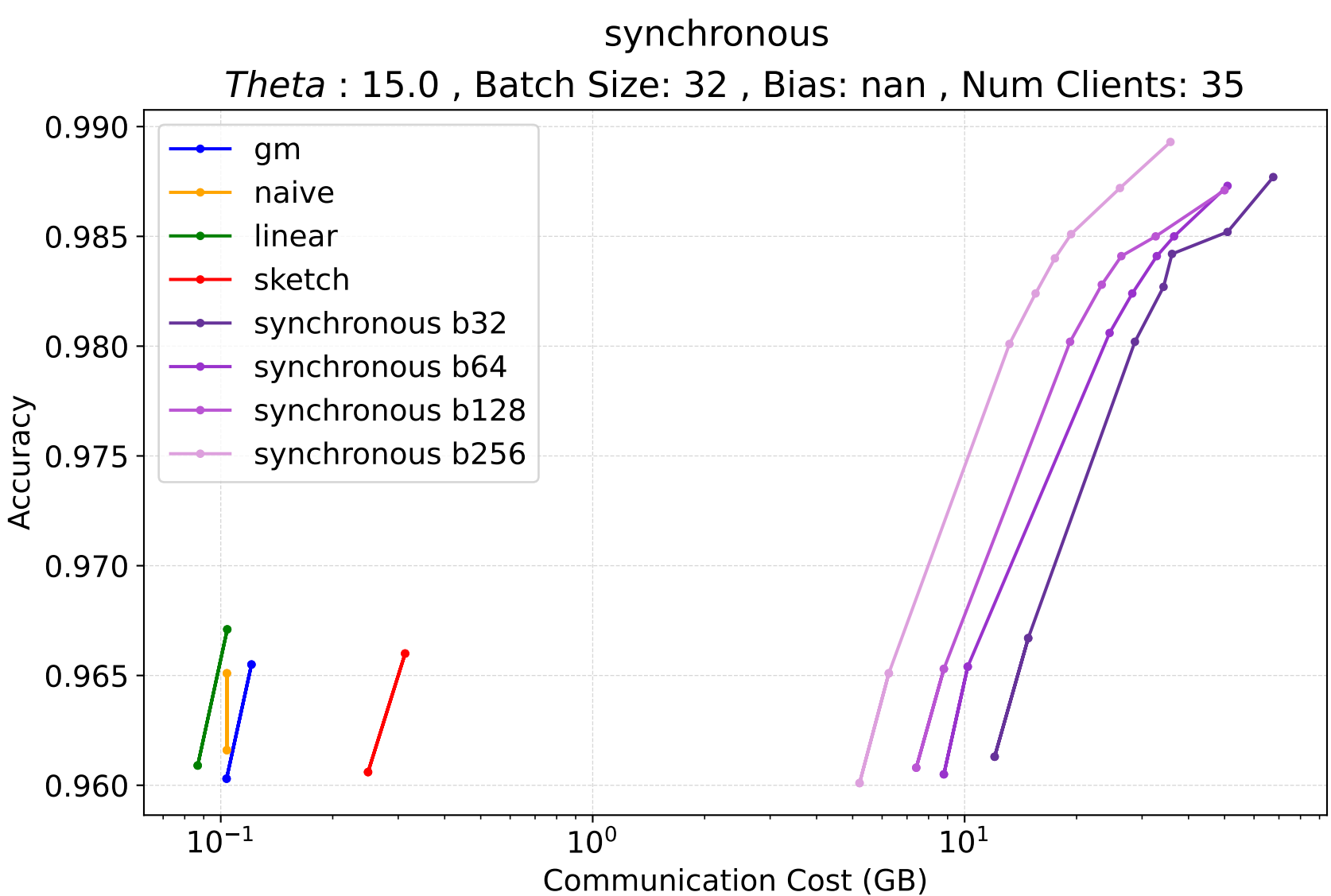
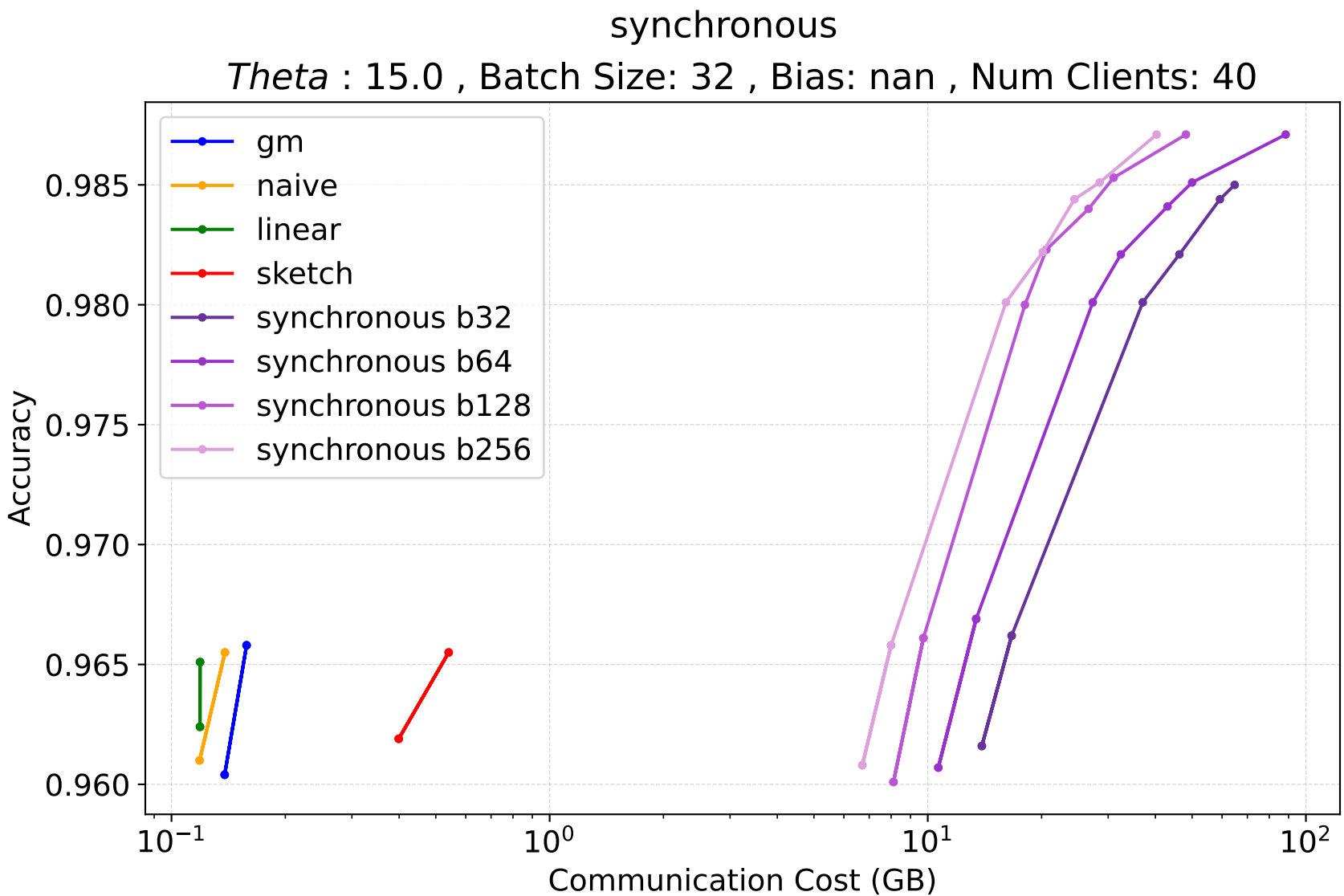
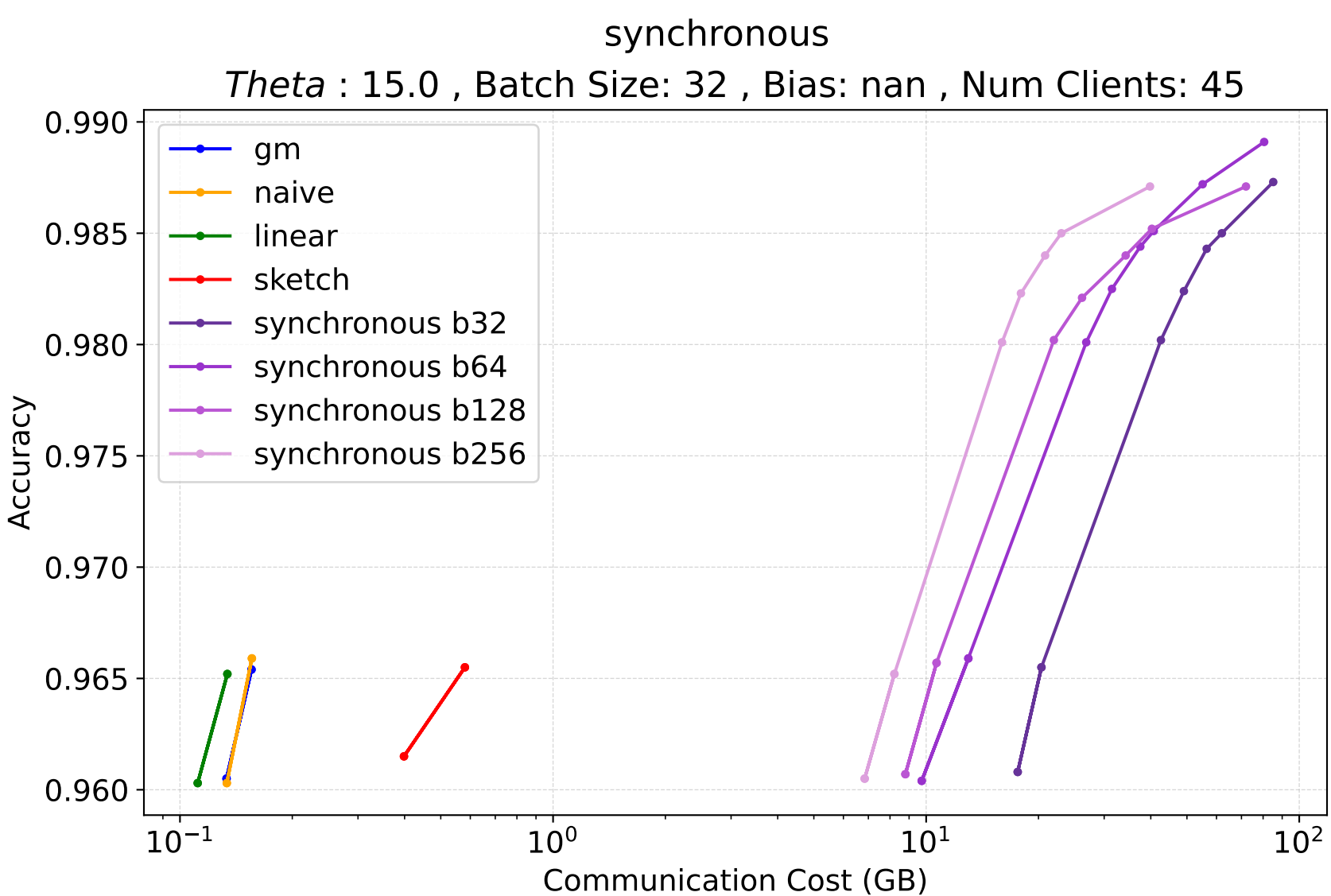
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 25
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 30
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 35
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
Communication Cost (GB)


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 40
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)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Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 45
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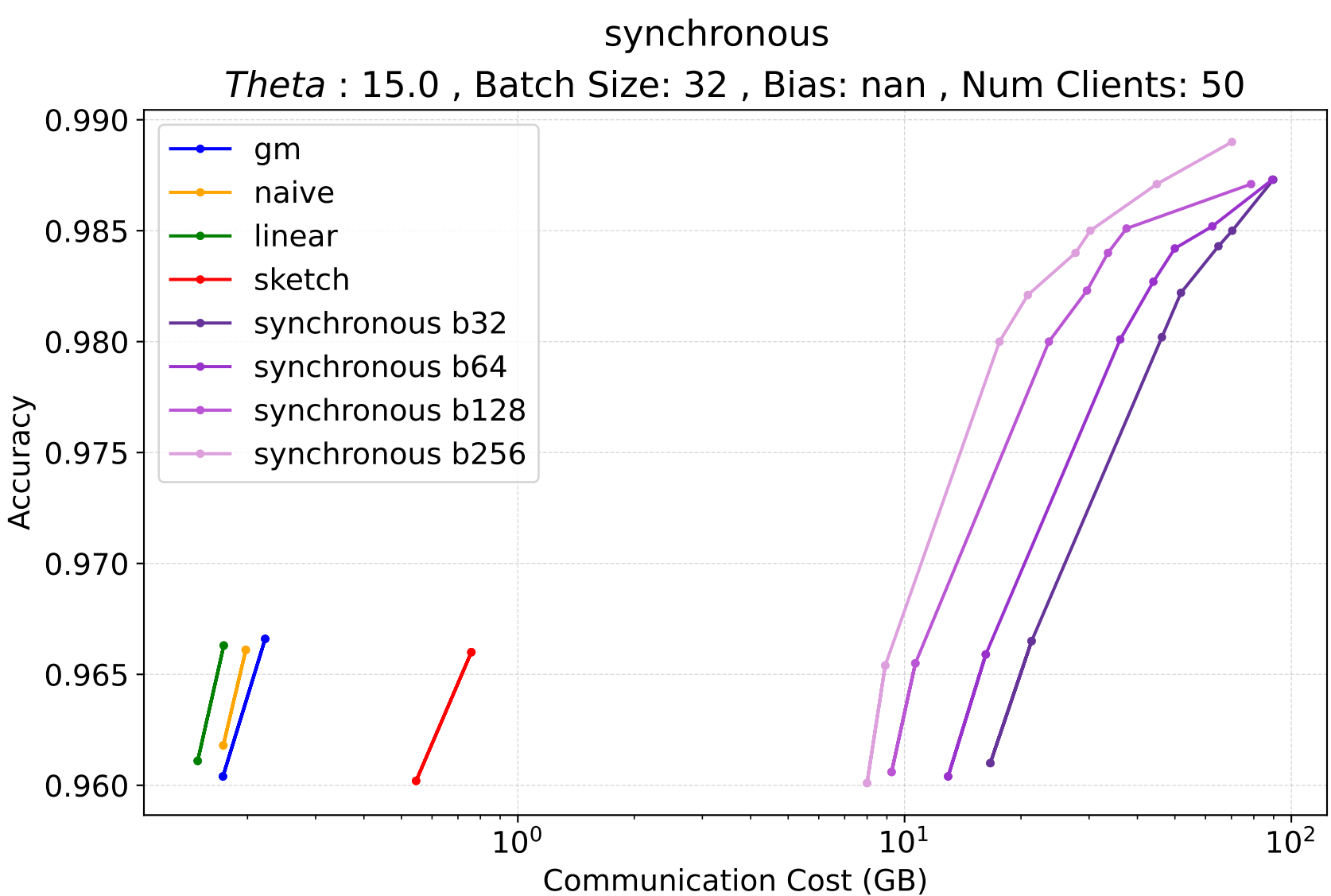
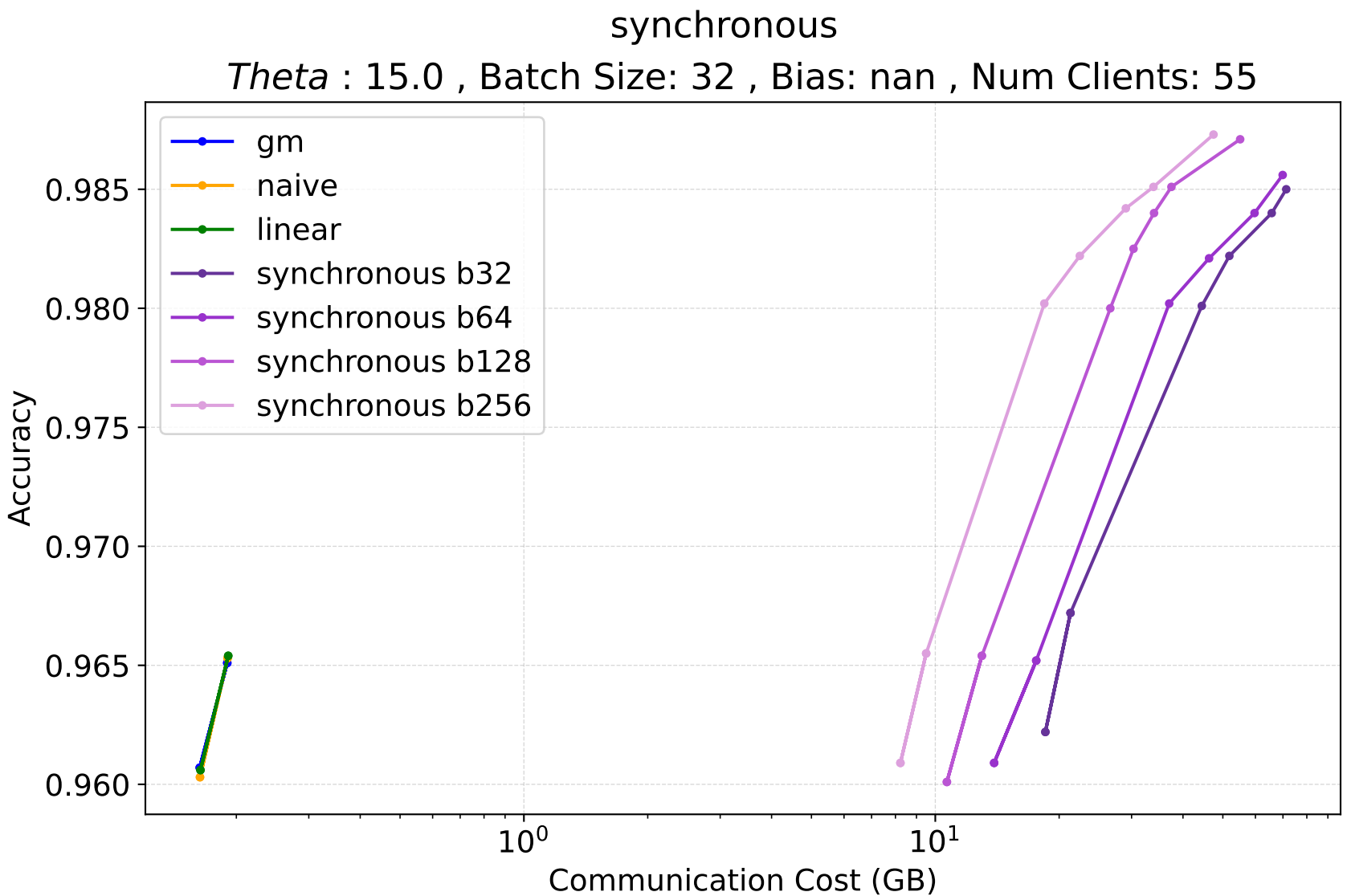
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^{-1}
10^{0}
10^{1}
10^{2}
Communication Cost (GB)


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 50
gm
naive
linear
sketch
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)


synchronous
Theta : 15.0 , Batch Size: 32 , Bias: nan , Num Clients: 55
gm
naive
linear
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
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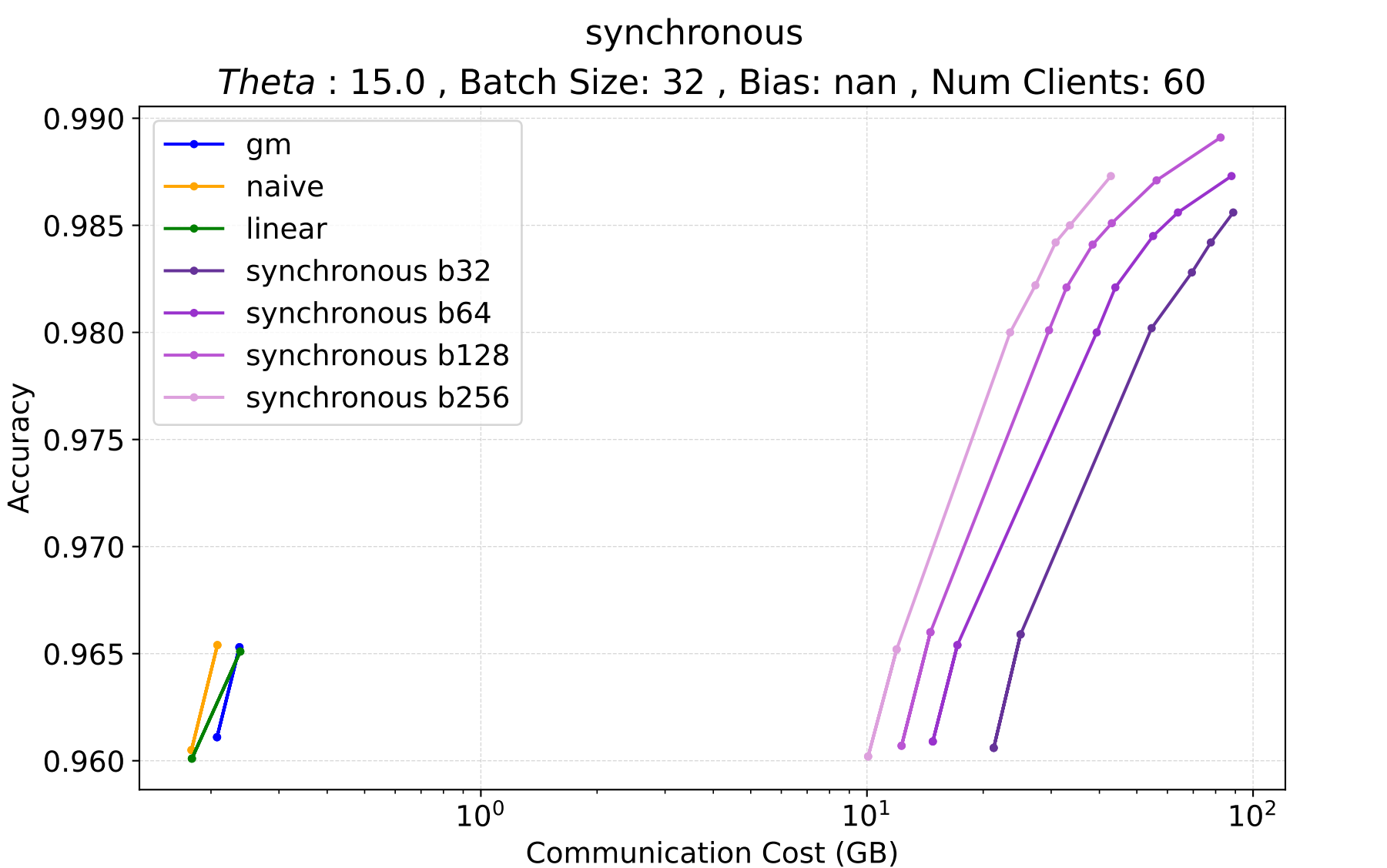
0.980
0.975
0.970
0.965
0.960
10^0
10^1
Communication Cost (GB)


synchronous
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gm
naive
linear
synchronous b32
synchronous b64
synchronous b128
synchronous b256
Accuracy
0.990
0.985
0.980
0.975
0.970
0.965
0.960
10^0
10^1
10^2
Communication Cost (GB)