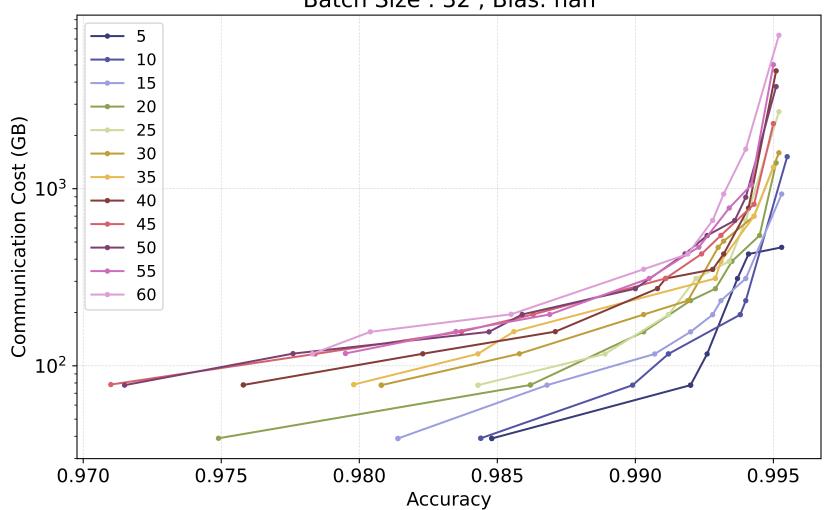
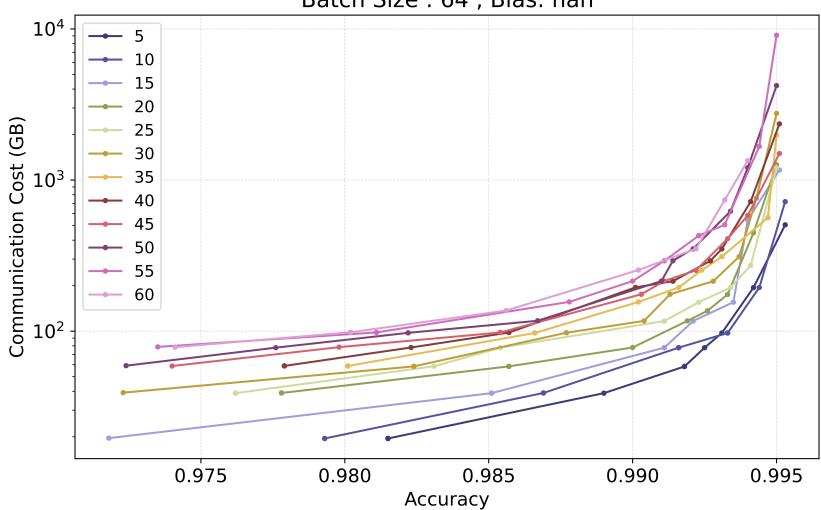
synchronous Batch Size : 32 , Bias: nan

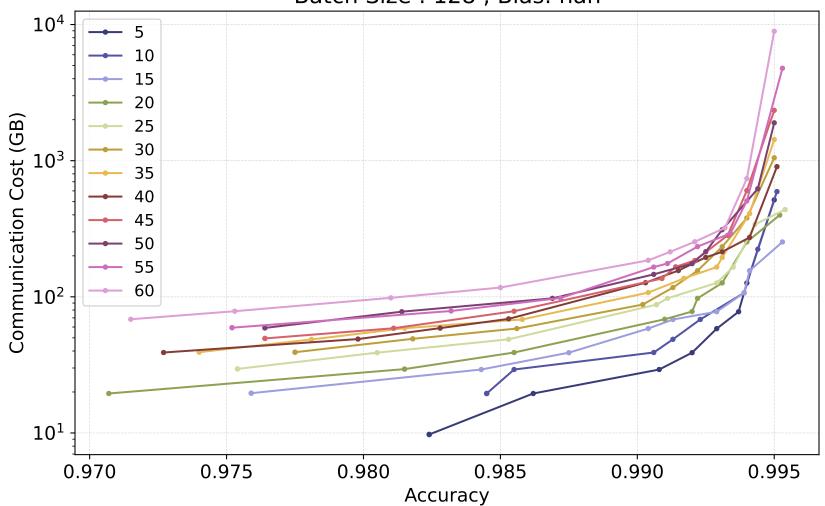


synchronous Batch Size : 64 , Bias: nan

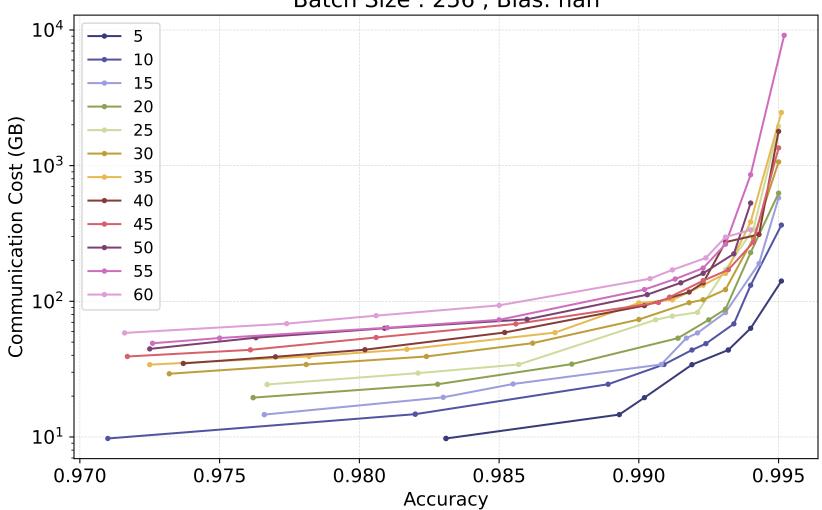


synchronous Batch Sizo : 128 Bi

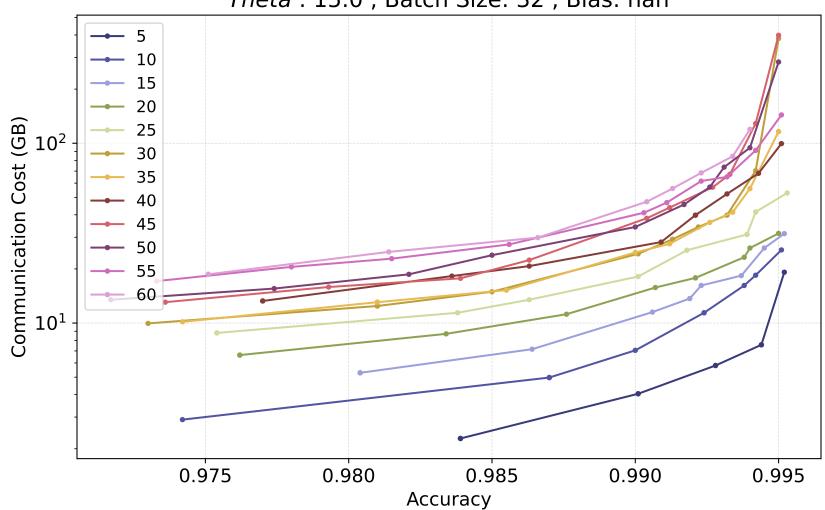
Batch Size: 128, Bias: nan



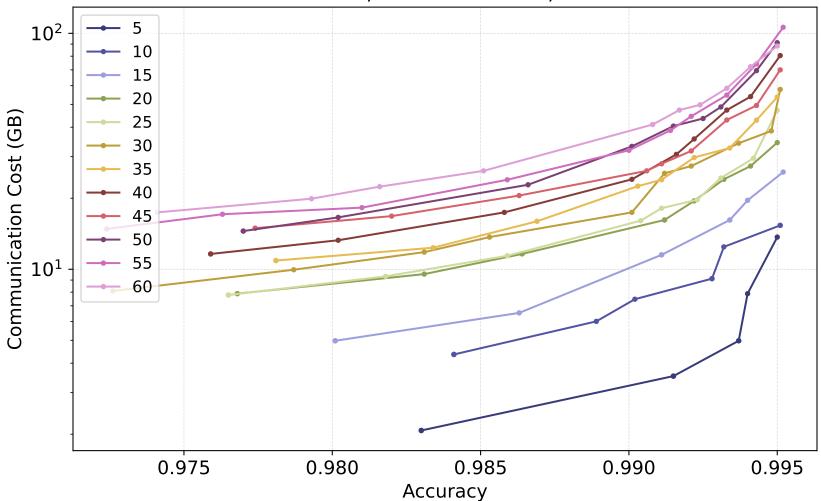
synchronous Batch Size : 256 , Bias: nan



gm *Theta*: 15.0, Batch Size: 32, Bias: nan

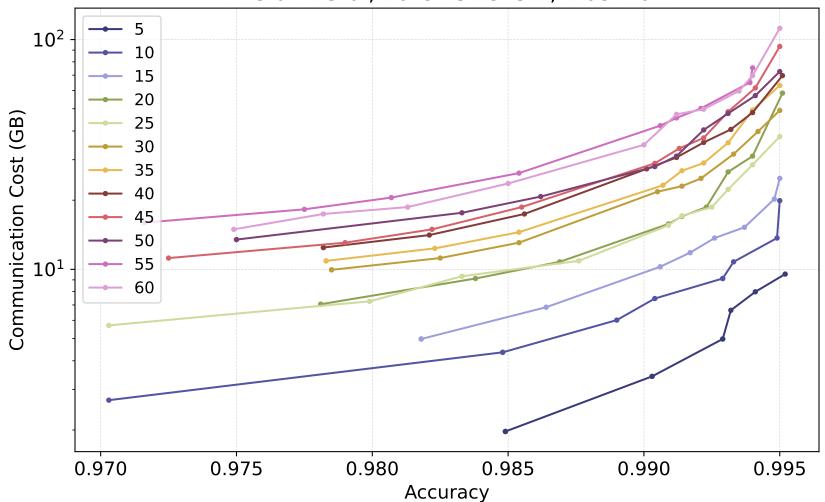


naive Theta: 15.0, Batch Size: 32, Bias: nan

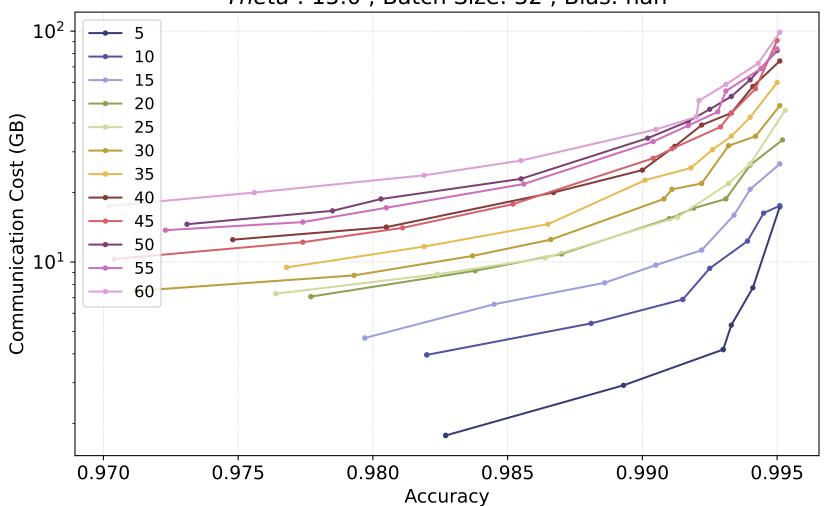


linear

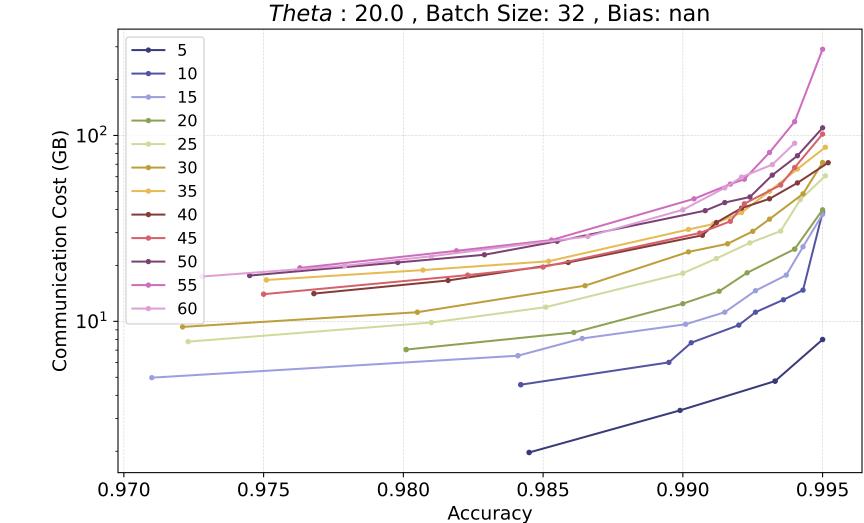
Theta: 15.0, Batch Size: 32, Bias: nan



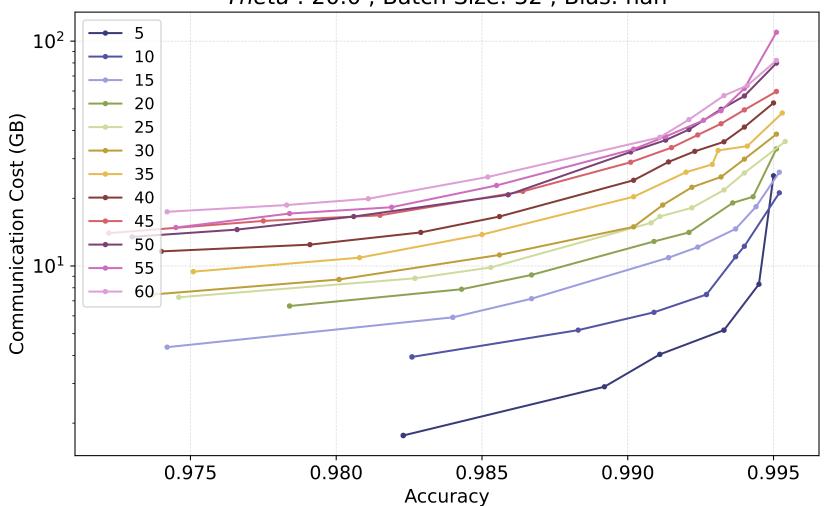
sketch *Theta*: 15.0, Batch Size: 32, Bias: nan



gm *Theta* · 20 0 Batch Size· 32 B

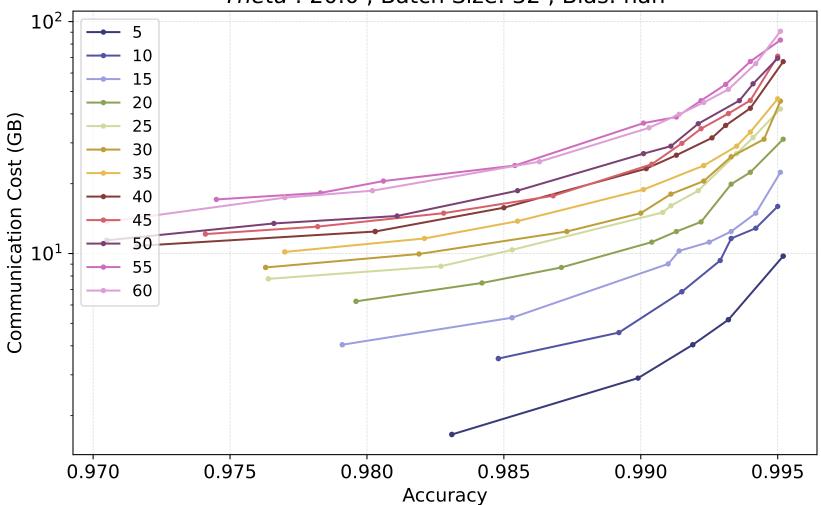


naive Theta: 20.0, Batch Size: 32, Bias: nan



linear

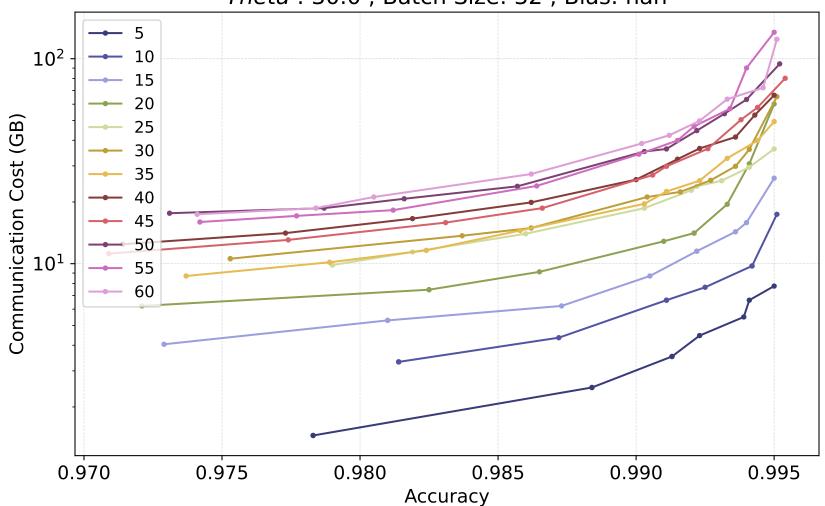
Theta: 20.0, Batch Size: 32, Bias: nan



sketch Theta: 20.0, Batch Size: 32, Bias: nan 10² Communication Cost (GB) 10 15 10¹ 20 25 30 35 40 50 55 60 0.980 0.970 0.975 0.985 0.990 0.995 Accuracy

naive Theta: 25.0, Batch Size: 32, Bias: nan 10² 10 15 20 Communication Cost (GB) 25 30 35 40 45 10^{1} 50 55 60 0.980 0.990 0.995 0.970 0.975 0.985 Accuracy

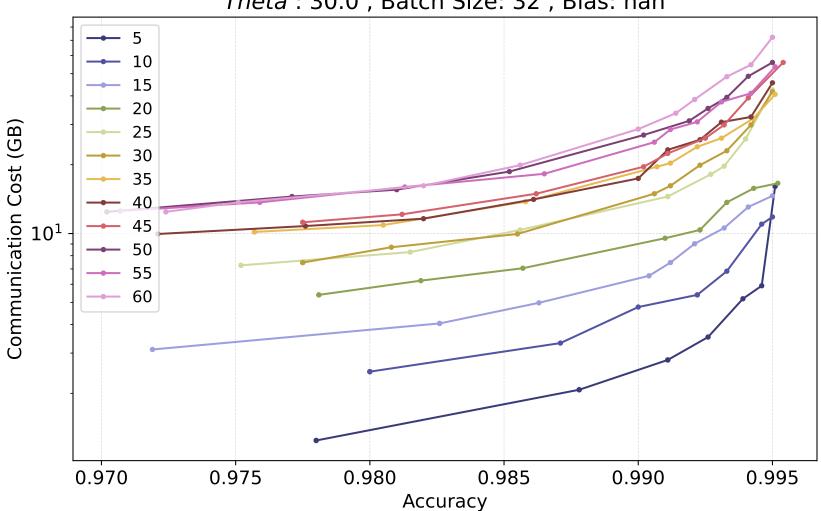
gm *Theta*: 30.0, Batch Size: 32, Bias: nan



naive Theta: 30.0, Batch Size: 32, Bias: nan 10² 10 15 20 Communication Cost (GB) 25 30 35 40 45 50 10^{1} 55 60 0.970 0.995 0.975 0.980 0.985 0.990 Accuracy

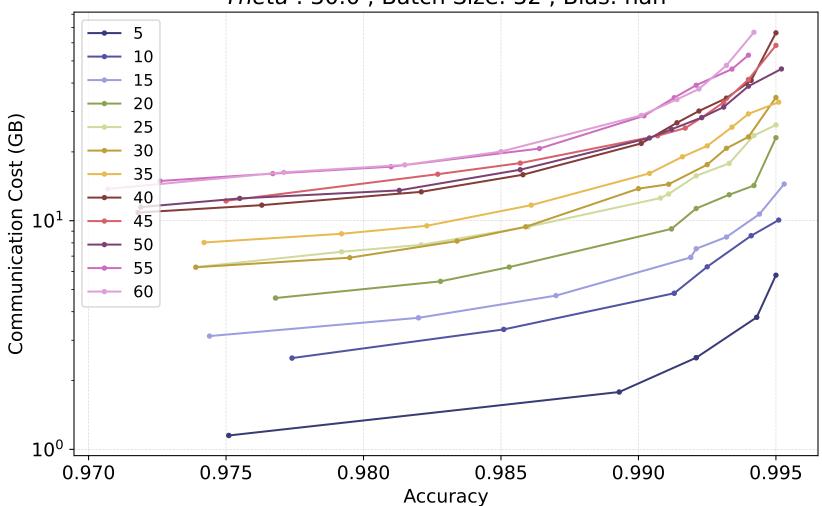
linear

Theta: 30.0, Batch Size: 32, Bias: nan

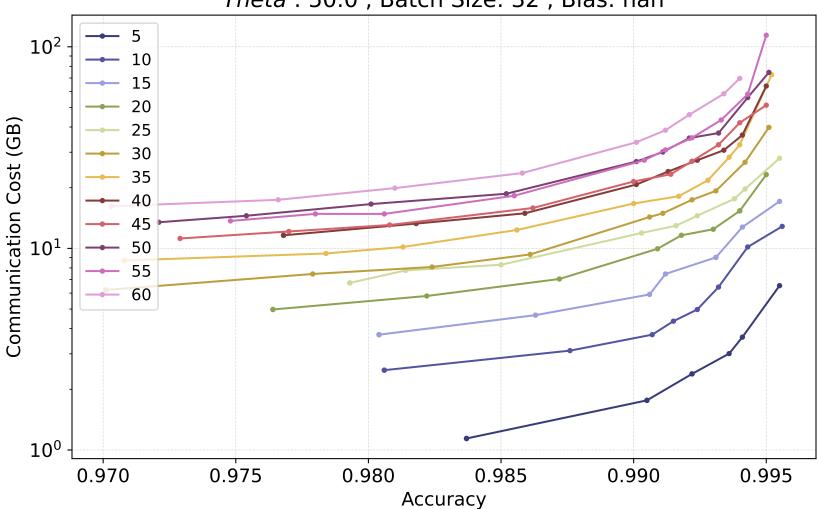


sketch

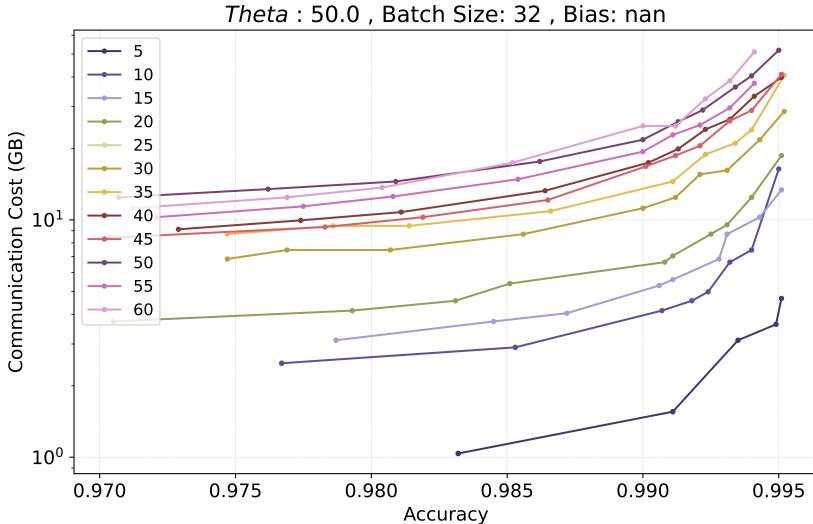
Theta: 30.0, Batch Size: 32, Bias: nan



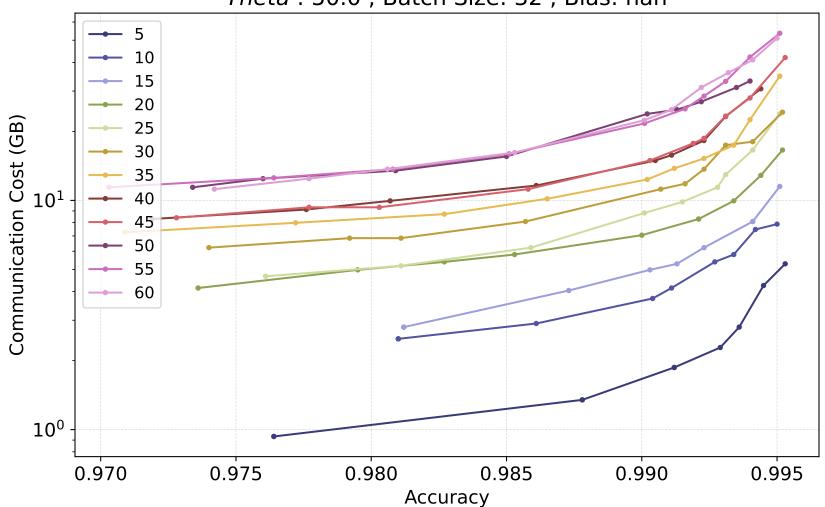
gm *Theta*: 50.0, Batch Size: 32, Bias: nan



naive

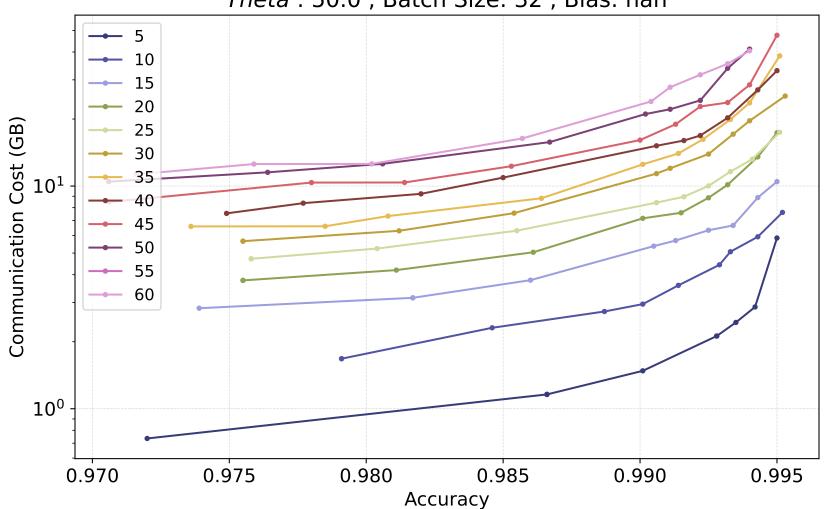


linear
Theta: 50.0, Batch Size: 32, Bias: nan

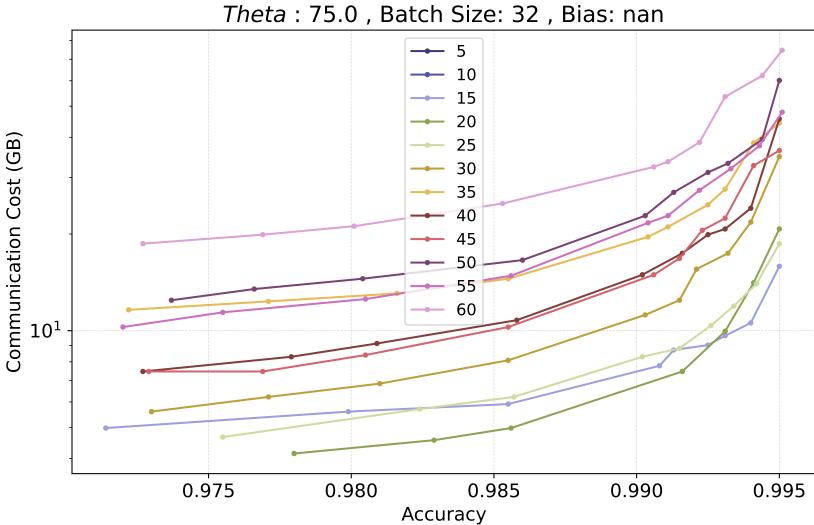


sketch

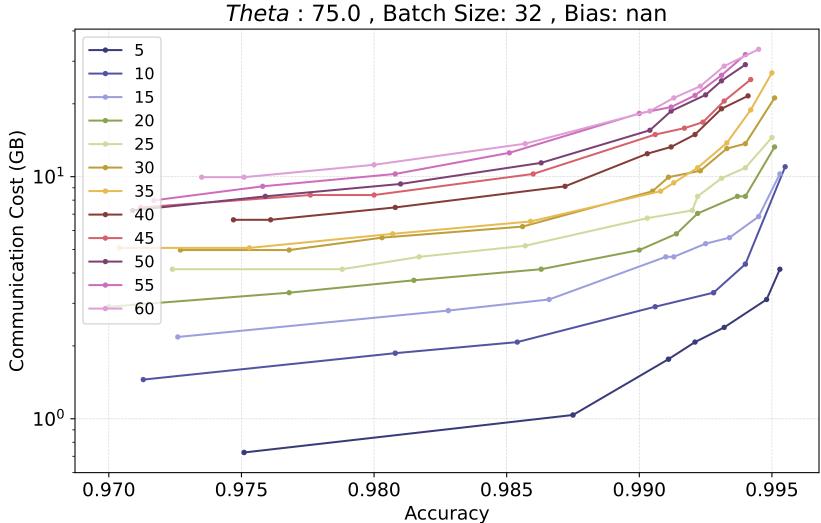
Theta: 50.0, Batch Size: 32, Bias: nan



gm

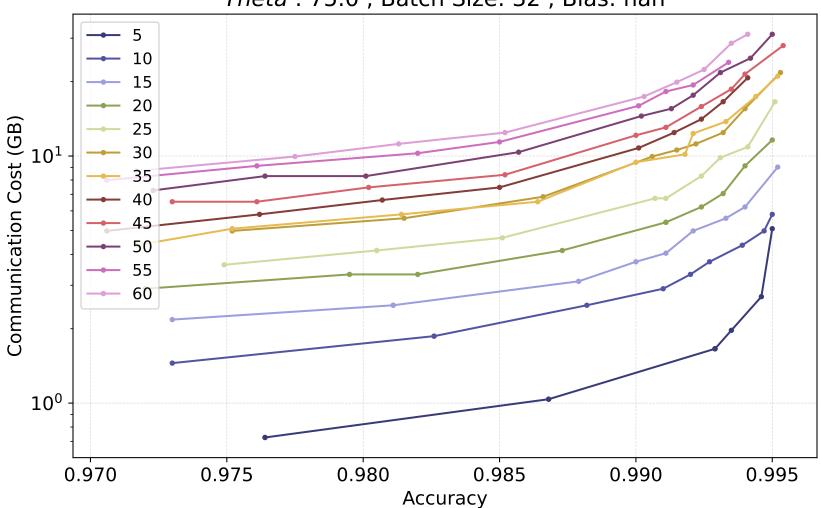


naive

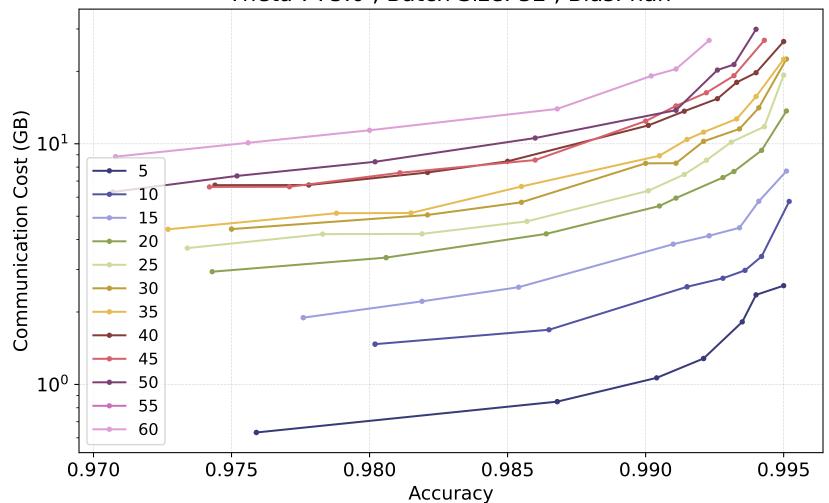


linear

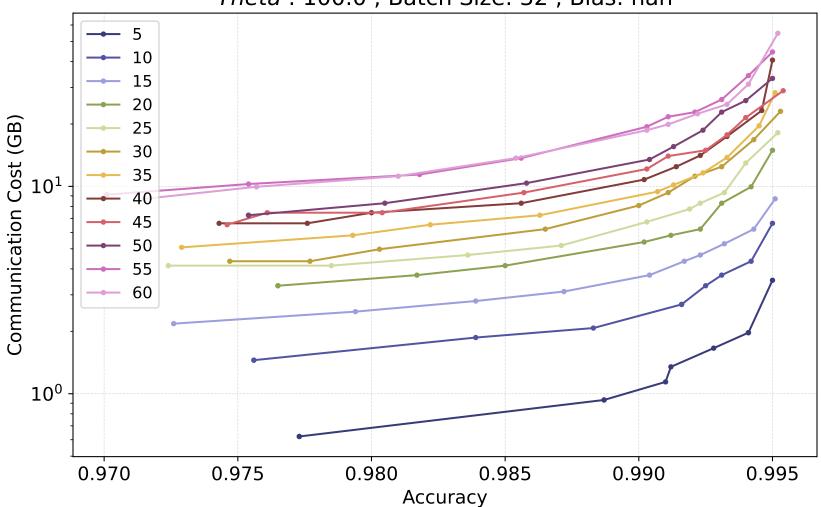
Theta: 75.0, Batch Size: 32, Bias: nan



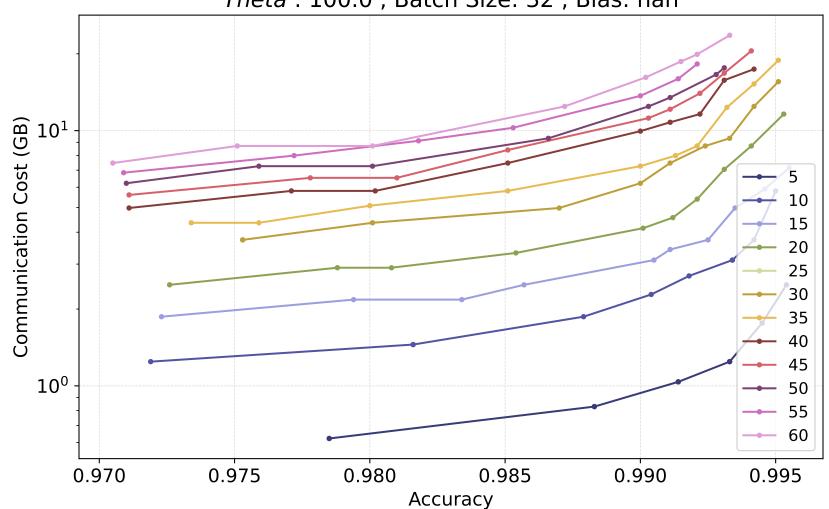
sketch *Theta*: 75.0, Batch Size: 32, Bias: nan



gm Theta: 100.0, Batch Size: 32, Bias: nan

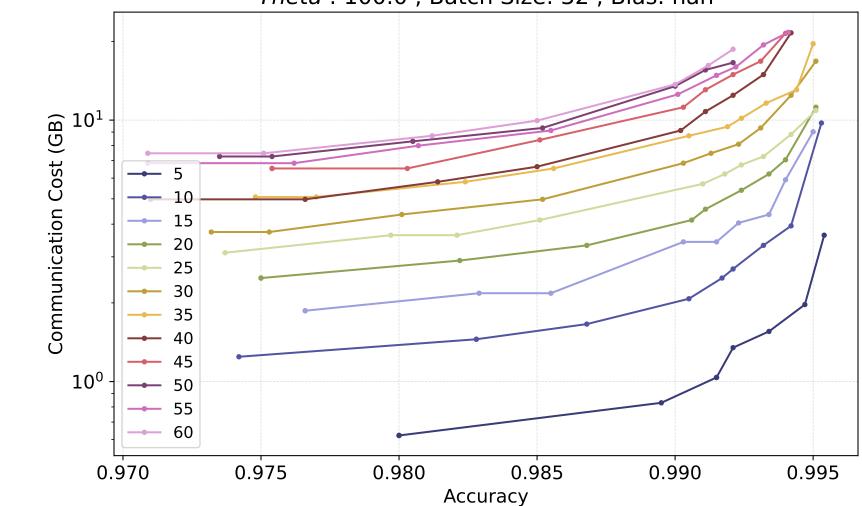


naive Theta: 100.0, Batch Size: 32, Bias: nan



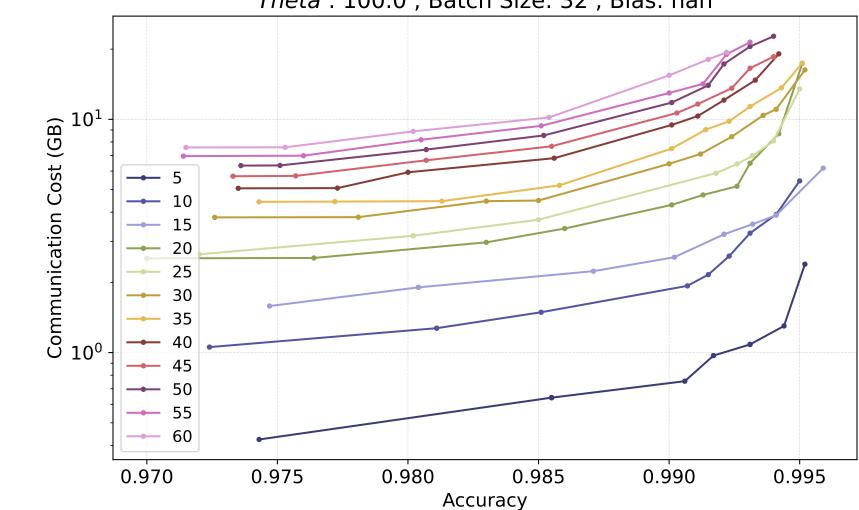
linear

Theta: 100.0, Batch Size: 32, Bias: nan

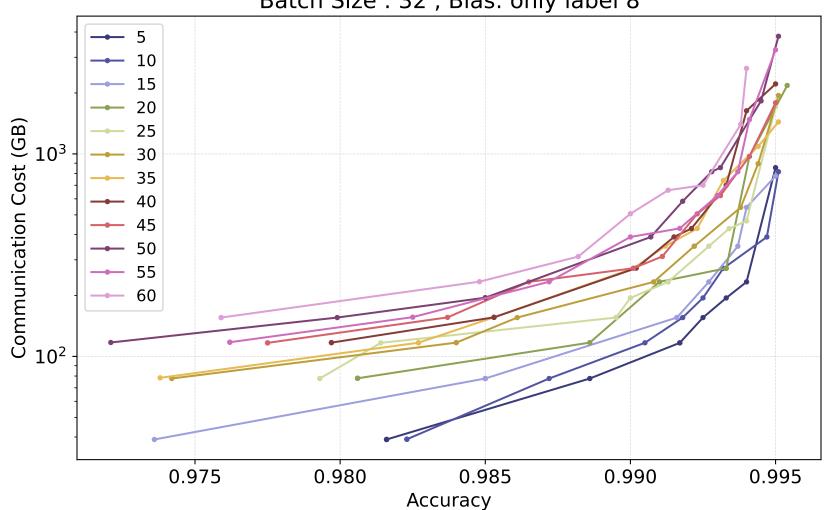


sketch

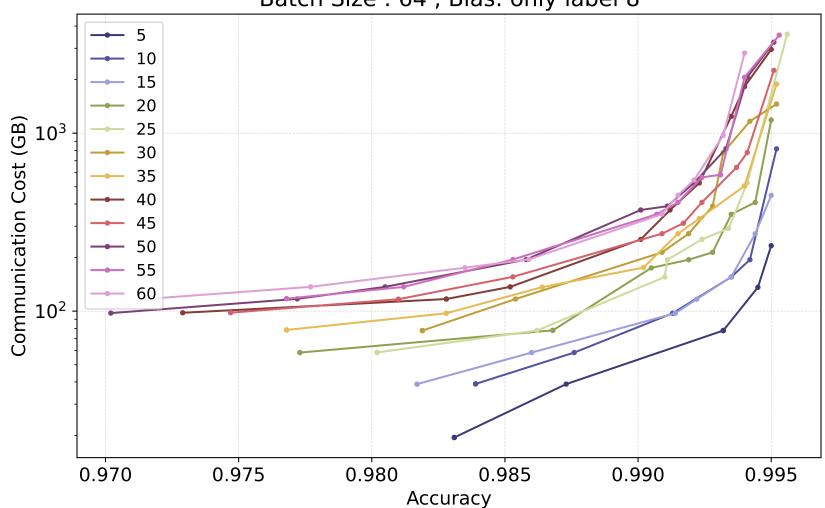
Theta: 100.0, Batch Size: 32, Bias: nan



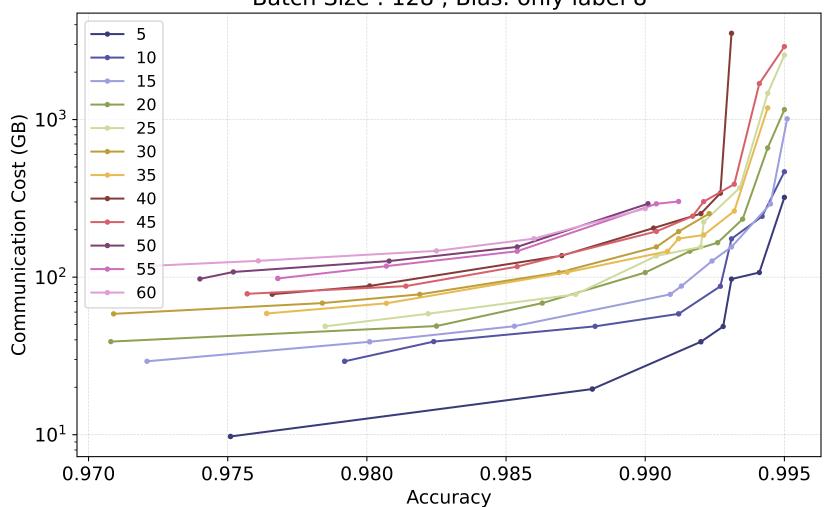
Batch Size: 32, Bias: only label 8



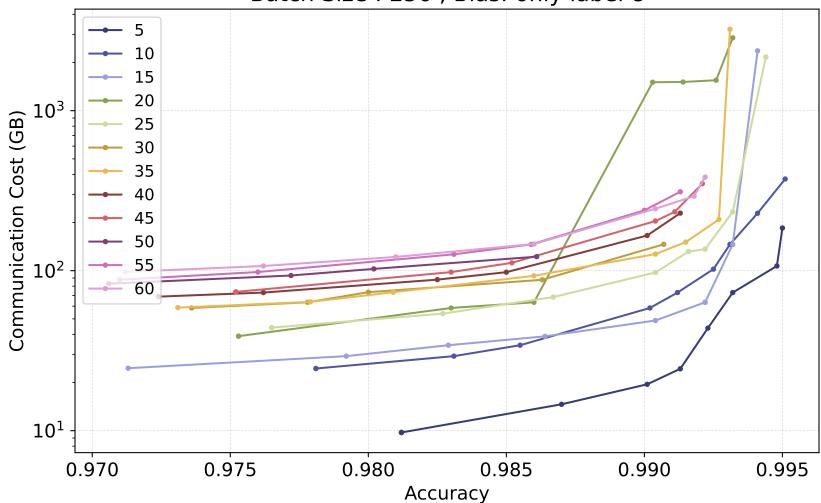
Batch Size: 64, Bias: only label 8



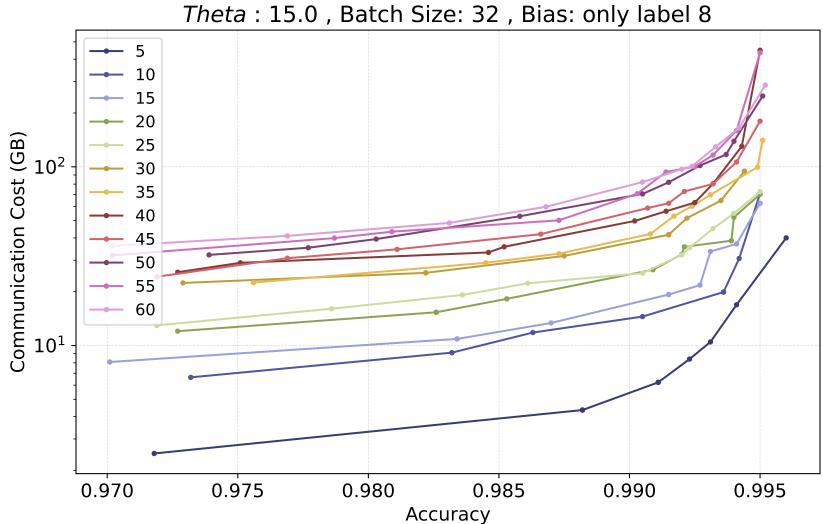
Batch Size: 128, Bias: only label 8



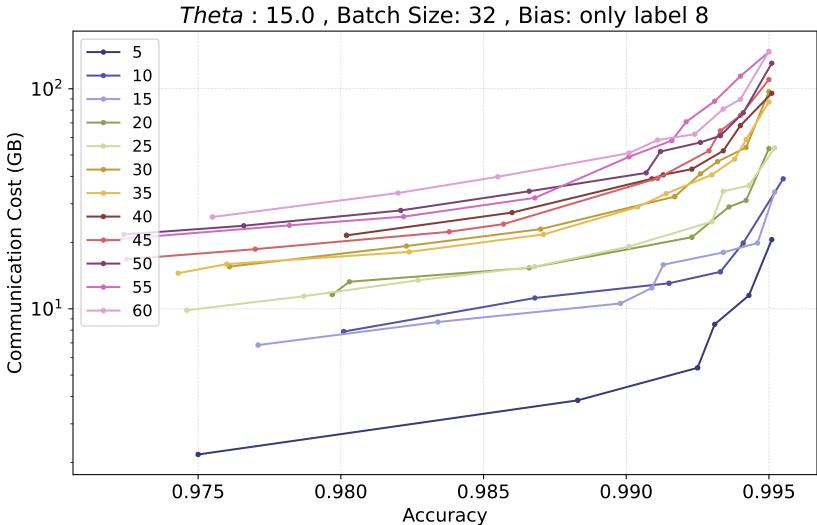
Batch Size: 256, Bias: only label 8



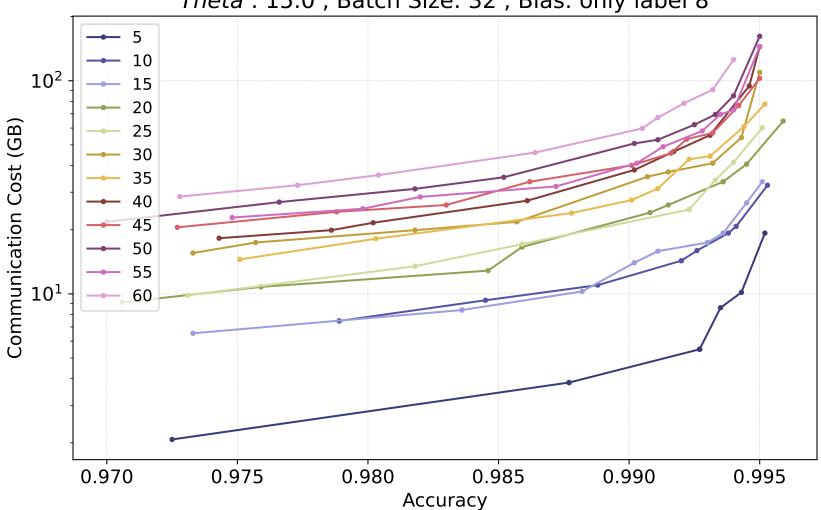
gm



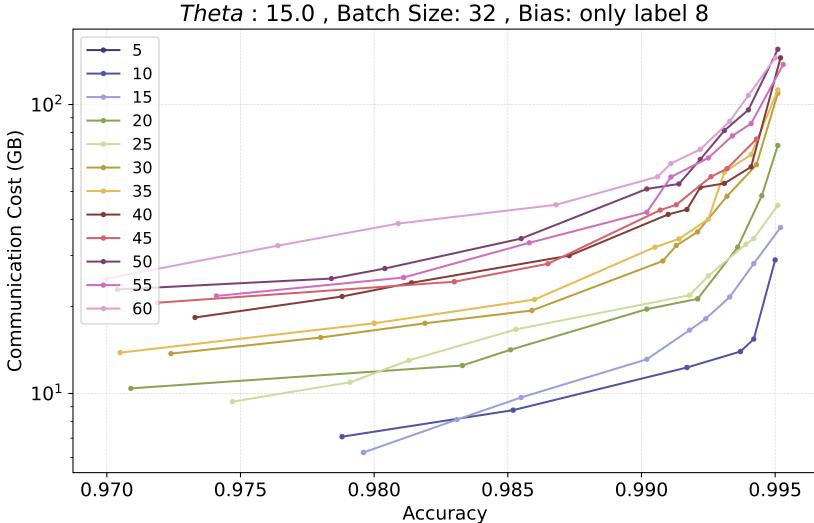
naive



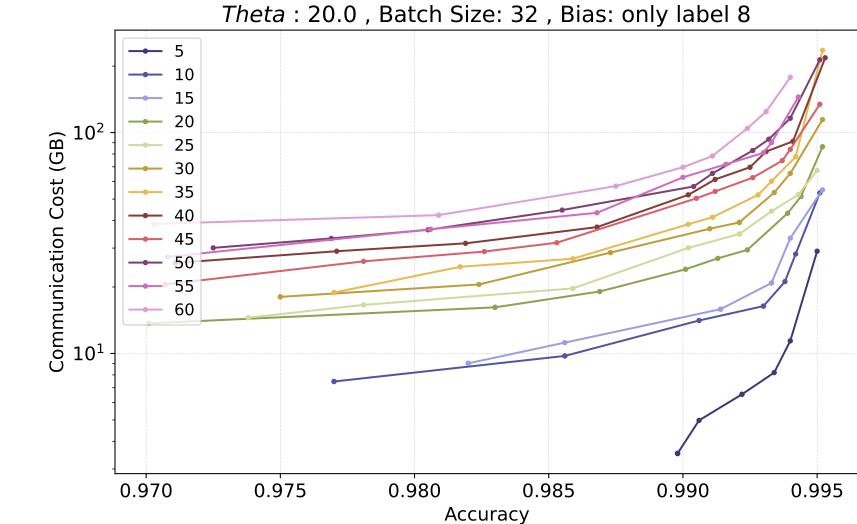
linear
Theta: 15.0, Batch Size: 32, Bias: only label 8



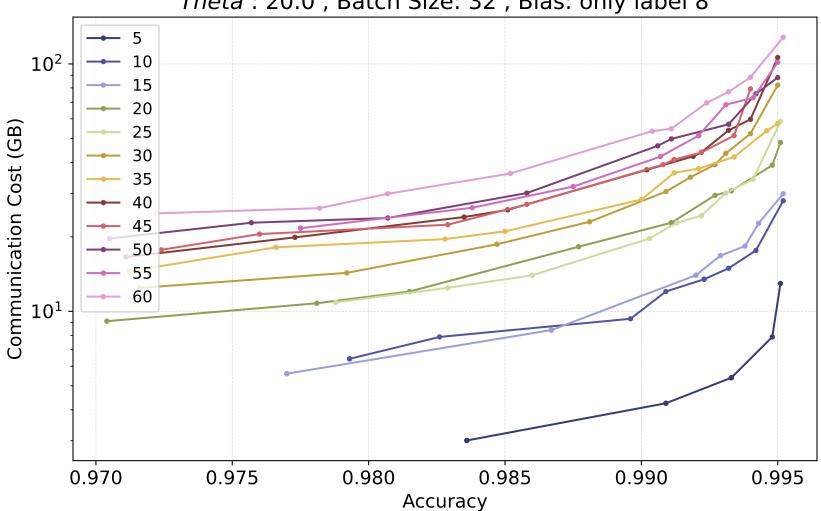
sketch



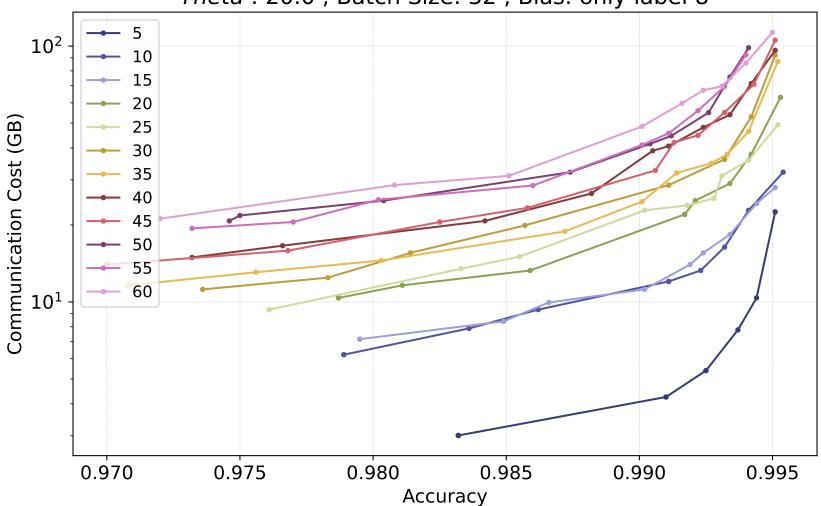
gm



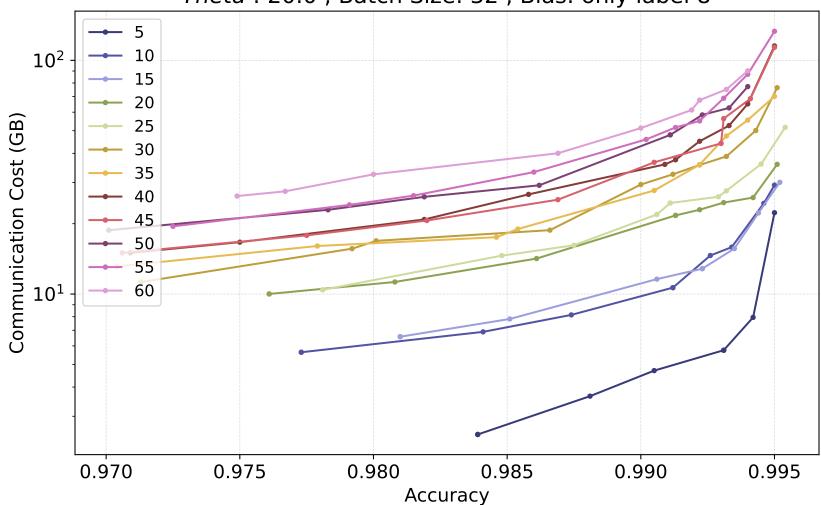
naive Theta: 20.0, Batch Size: 32, Bias: only label 8



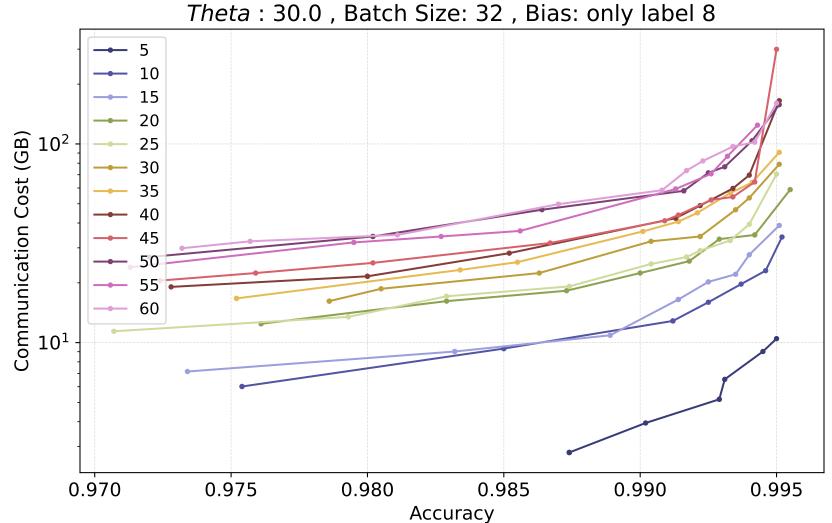
linear
Theta: 20.0, Batch Size: 32, Bias: only label 8



sketch *Theta*: 20.0, Batch Size: 32, Bias: only label 8

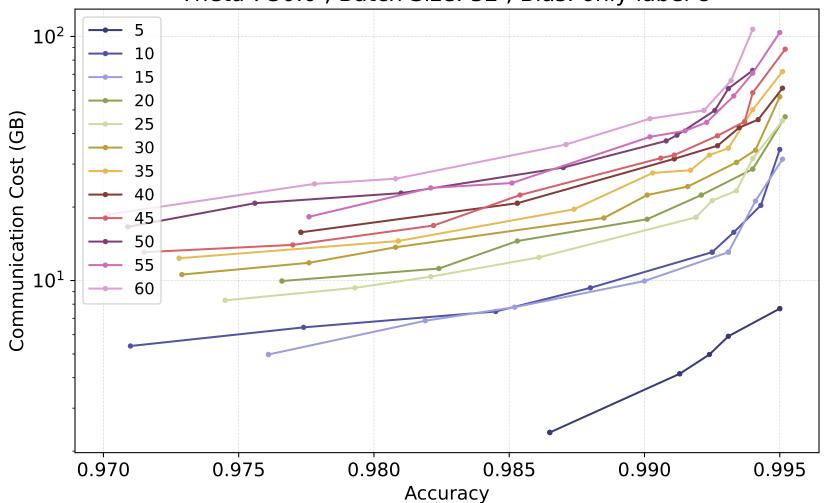


gm



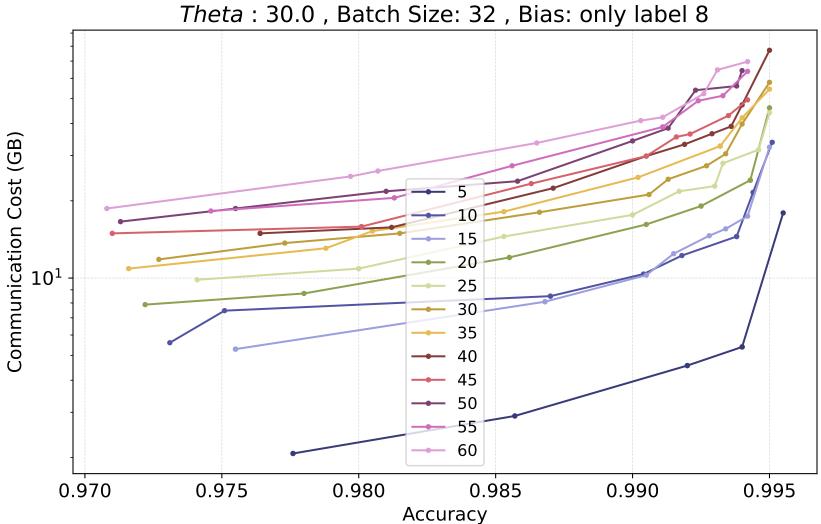
naive

Theta: 30.0, Batch Size: 32, Bias: only label 8

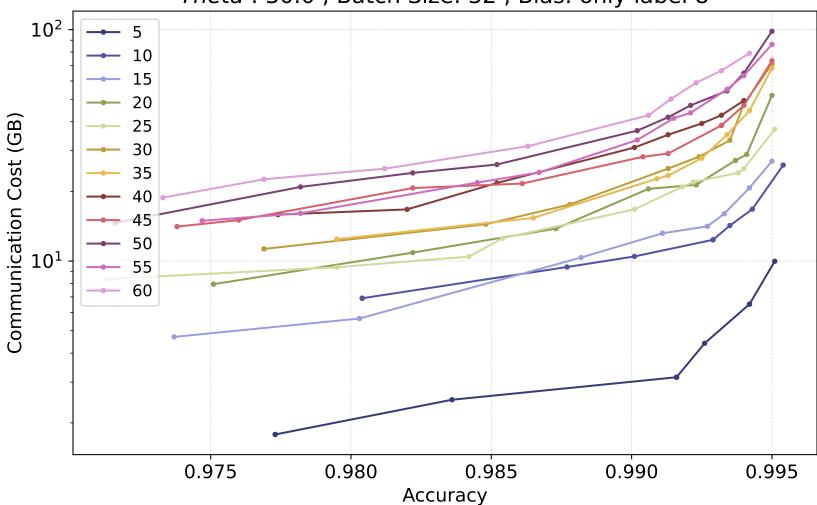


linear

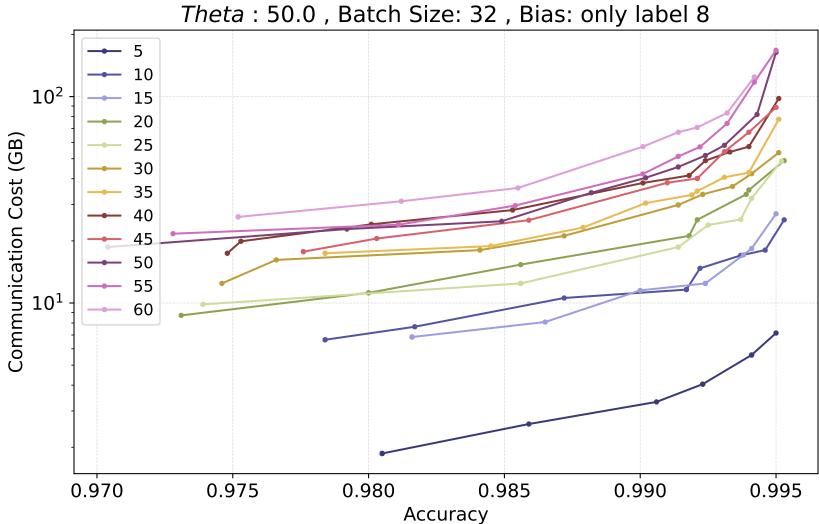
Theta: 30.0 Batch Size: 32 Bias: or



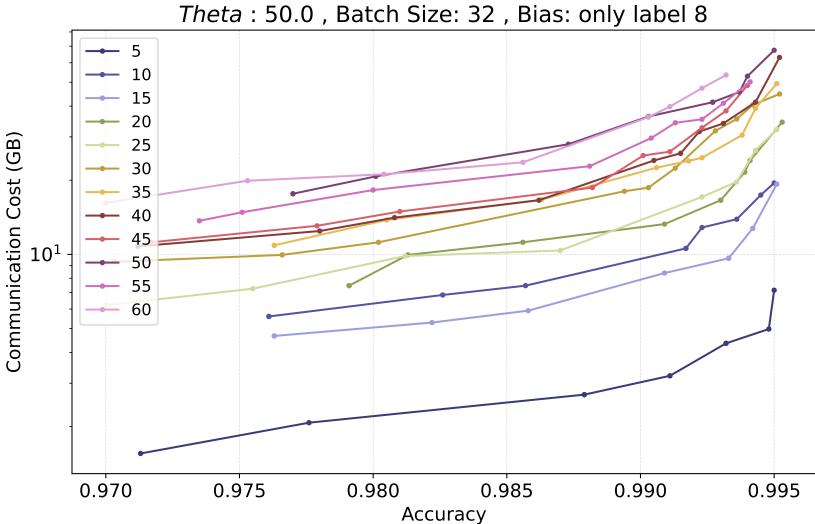
sketch *Theta*: 30.0, Batch Size: 32, Bias: only label 8



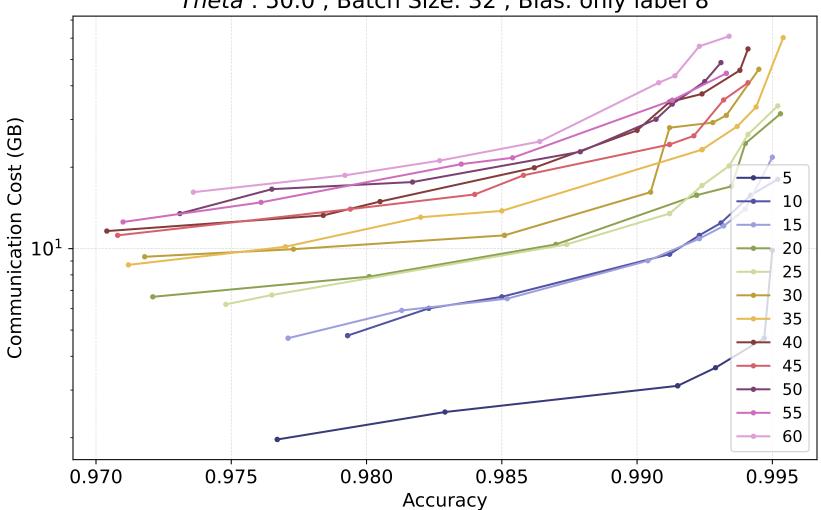
gm



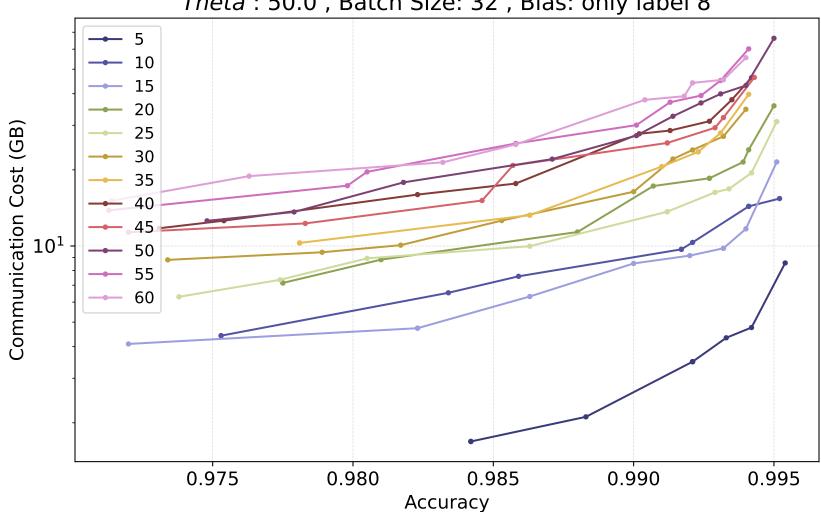
naive



linear
Theta: 50.0, Batch Size: 32, Bias: only label 8

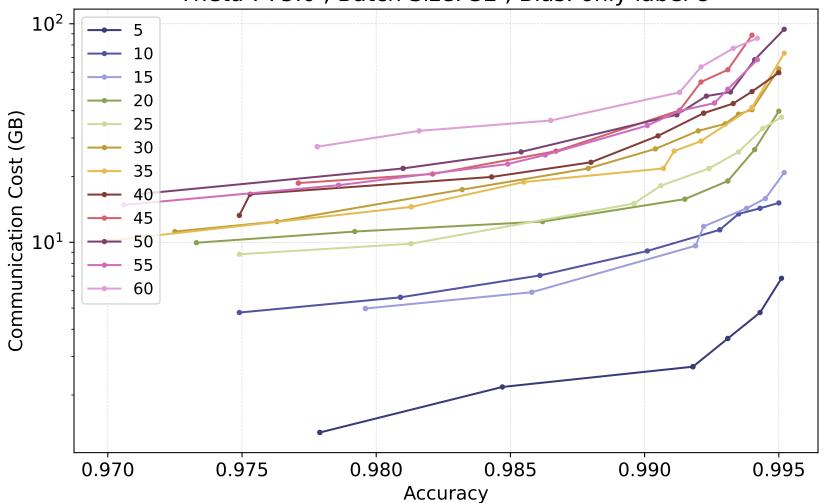


sketch *Theta*: 50.0, Batch Size: 32, Bias: only label 8



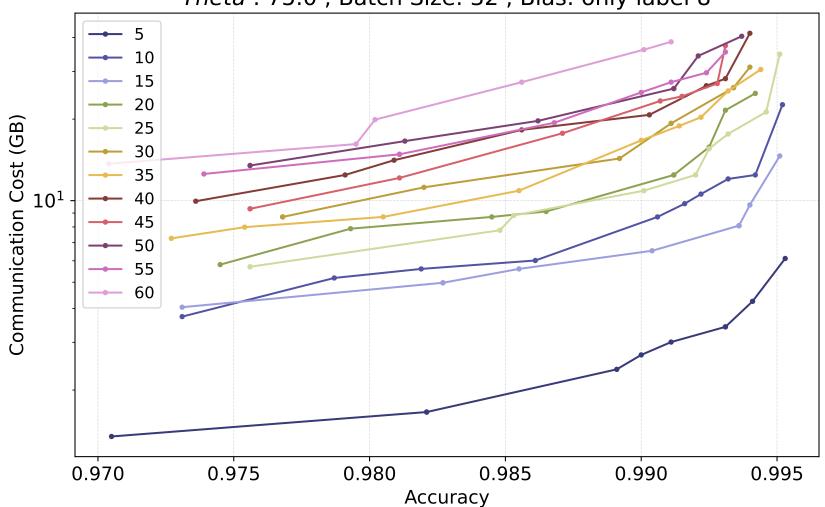
gm



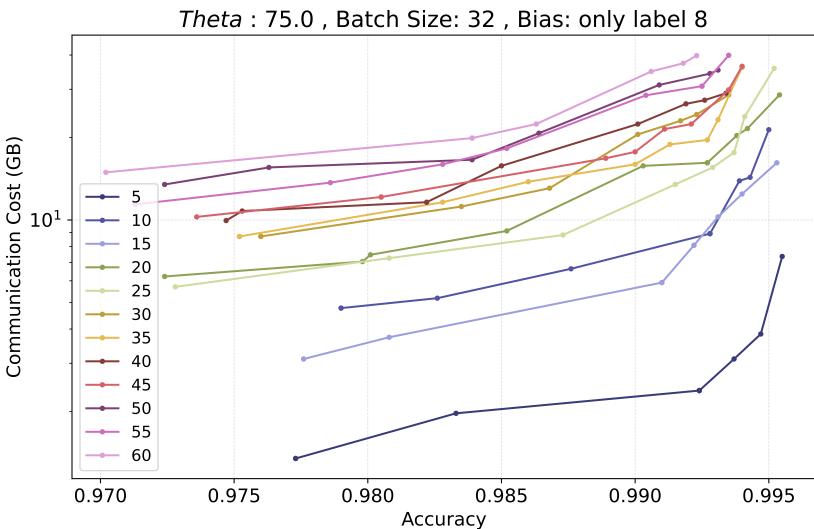


naive

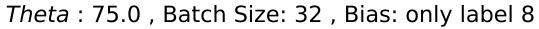
Theta: 75.0, Batch Size: 32, Bias: only label 8

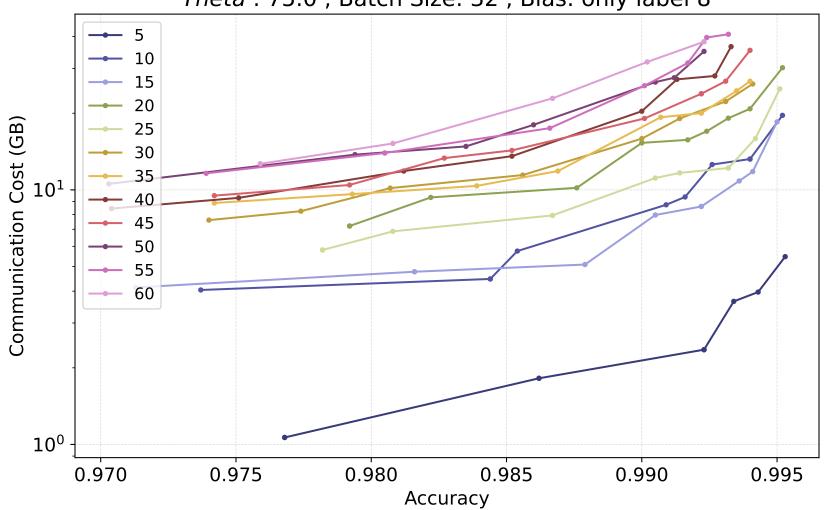


linear

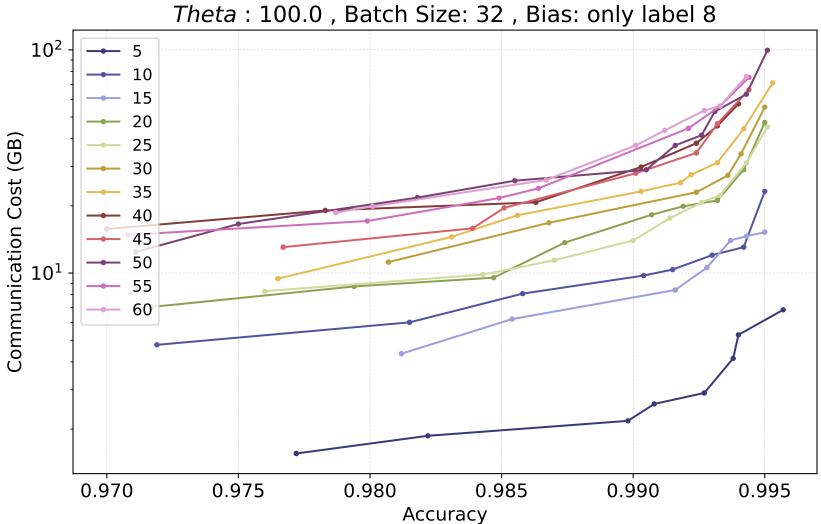


sketch





gm

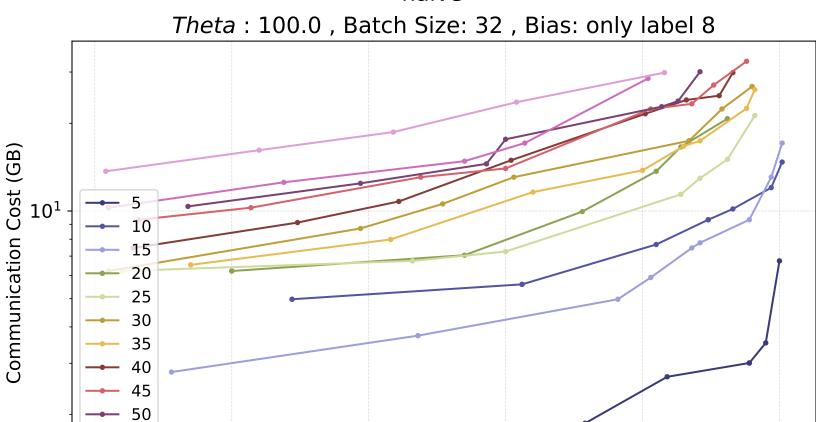


naive

55 60

0.975

0.970



0.980

0.985

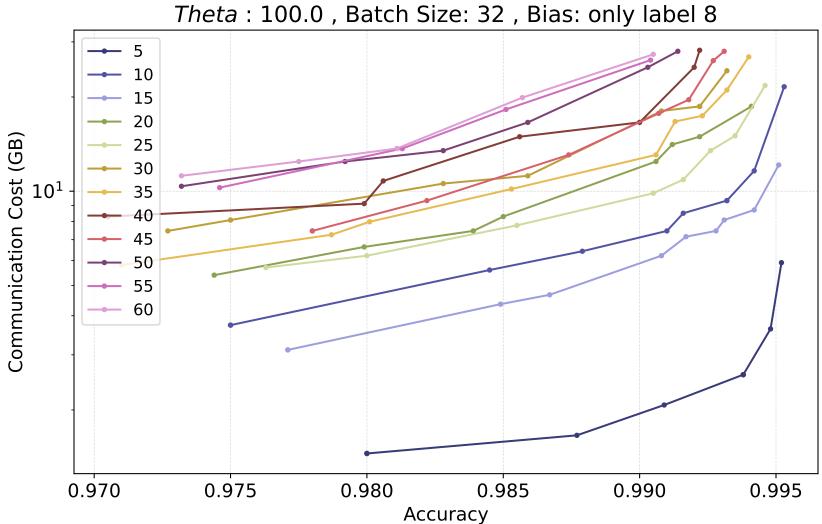
Accuracy

0.990

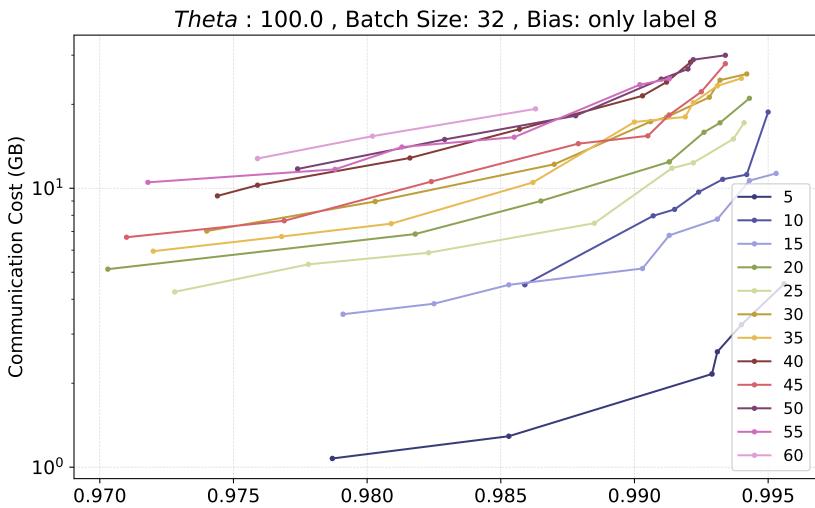
0.995

linear

Theta: 100 0 Ratch Size: 32 Rias: or



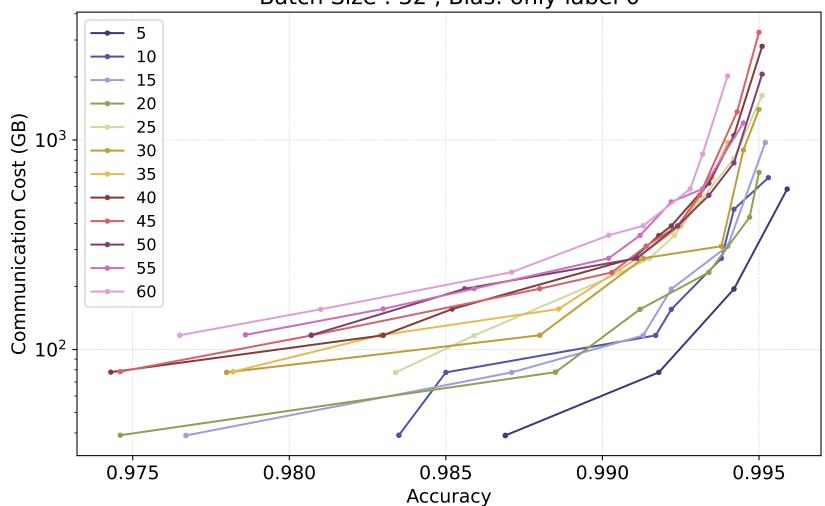
sketch



Accuracy

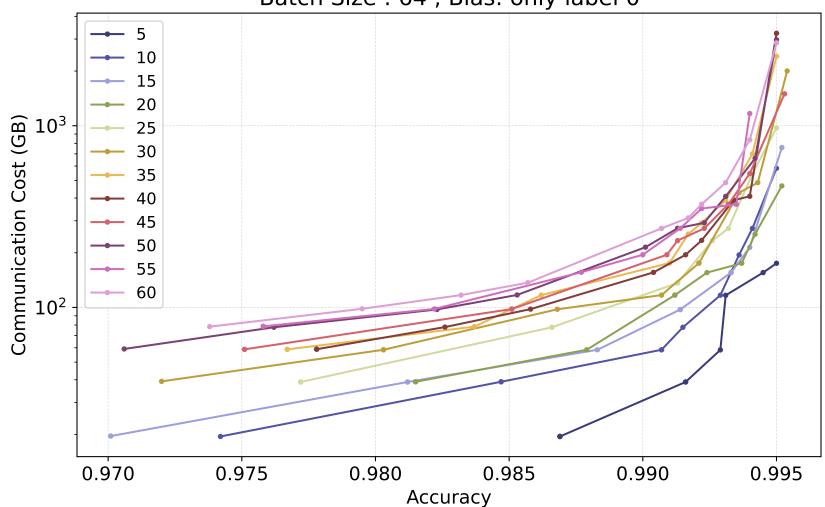
synchronous

Batch Size: 32, Bias: only label 0



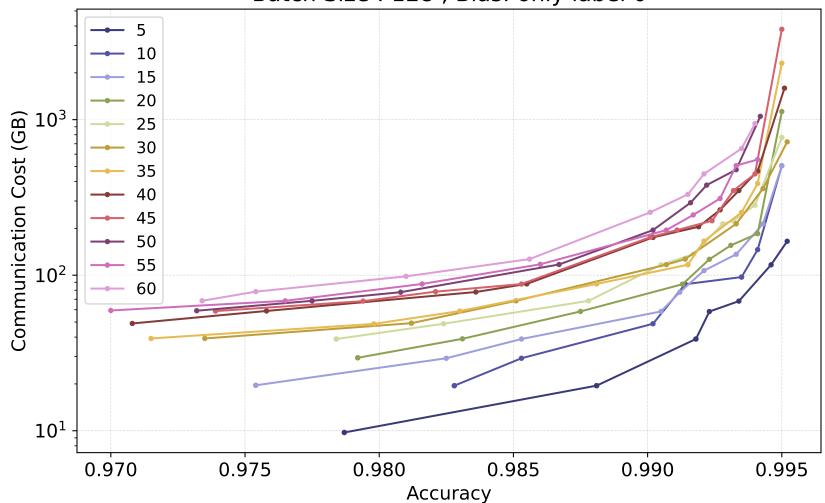
synchronous

Batch Size: 64, Bias: only label 0



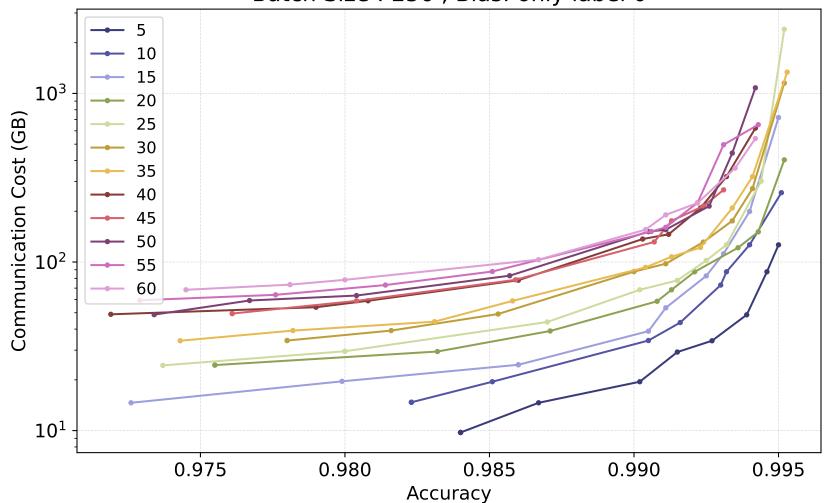
synchronous

Batch Size: 128, Bias: only label 0

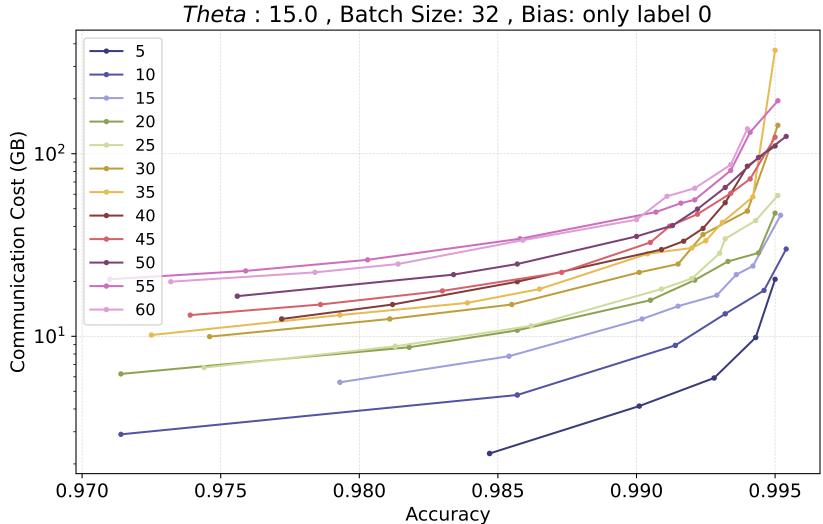


synchronous

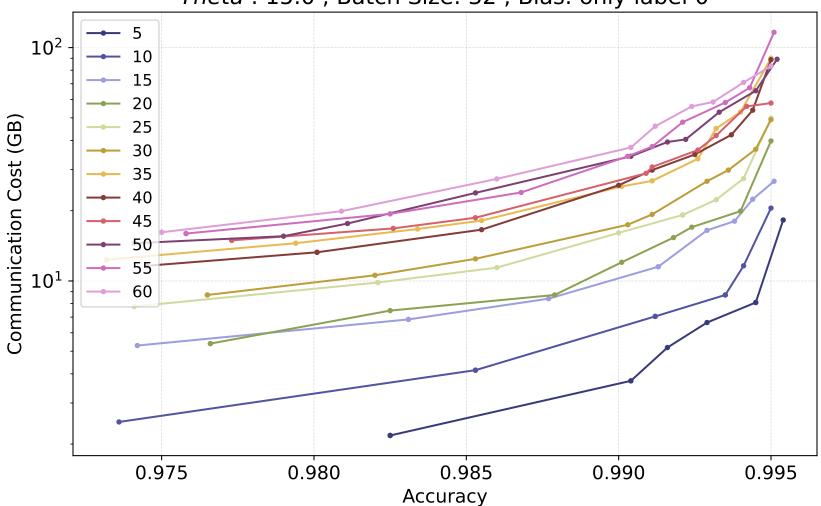
Batch Size: 256, Bias: only label 0



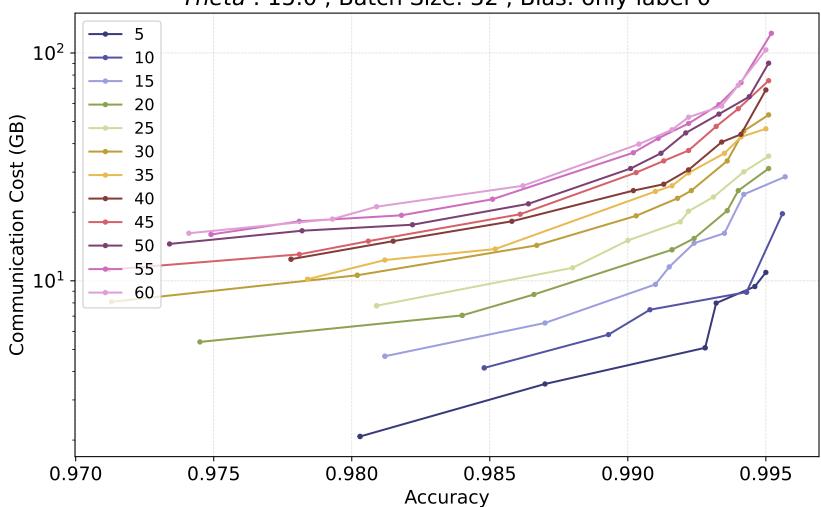
gm



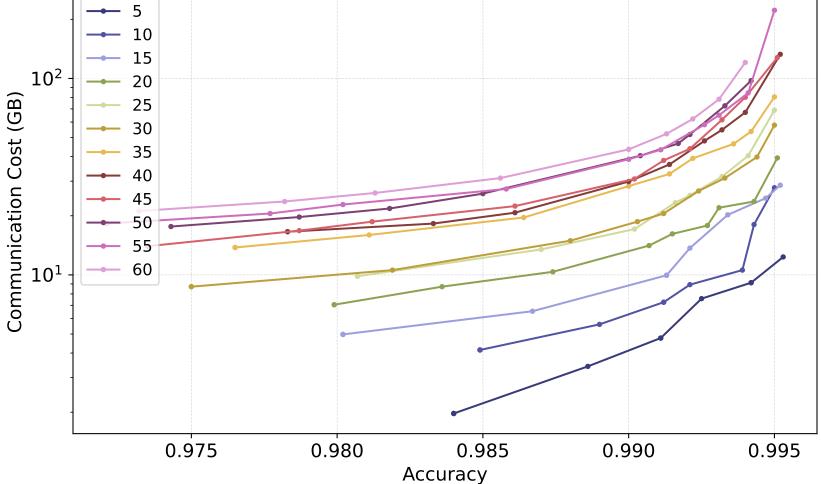
naive Theta: 15.0, Batch Size: 32, Bias: only label 0



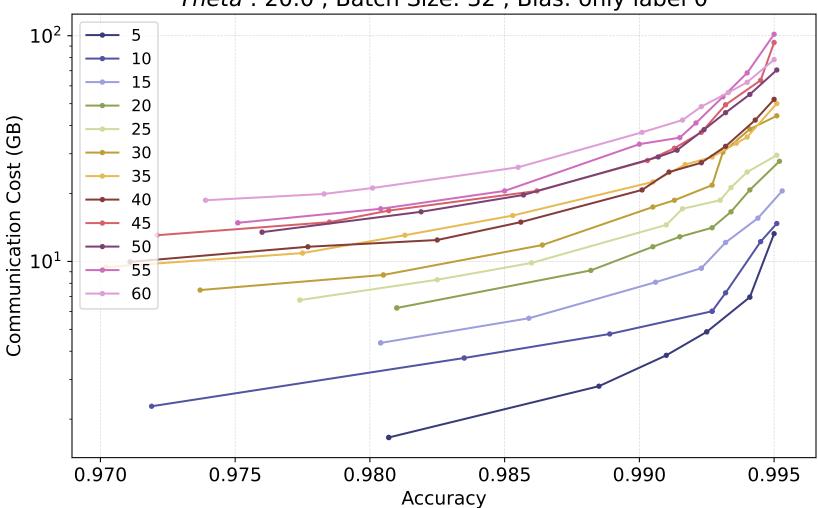
linear
Theta: 15.0, Batch Size: 32, Bias: only label 0



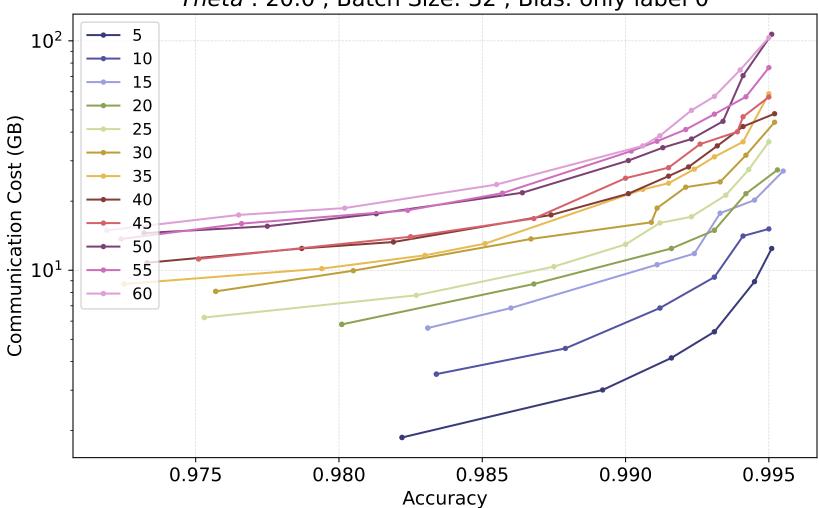
gm Theta: 20.0, Batch Size: 32, Bias: only label 0 10 15 25



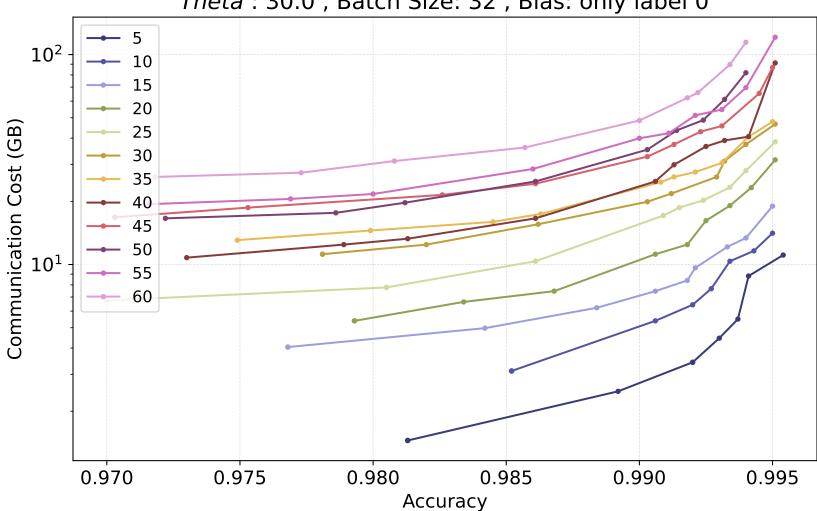
naive Theta: 20.0, Batch Size: 32, Bias: only label 0



linear
Theta: 20.0, Batch Size: 32, Bias: only label 0

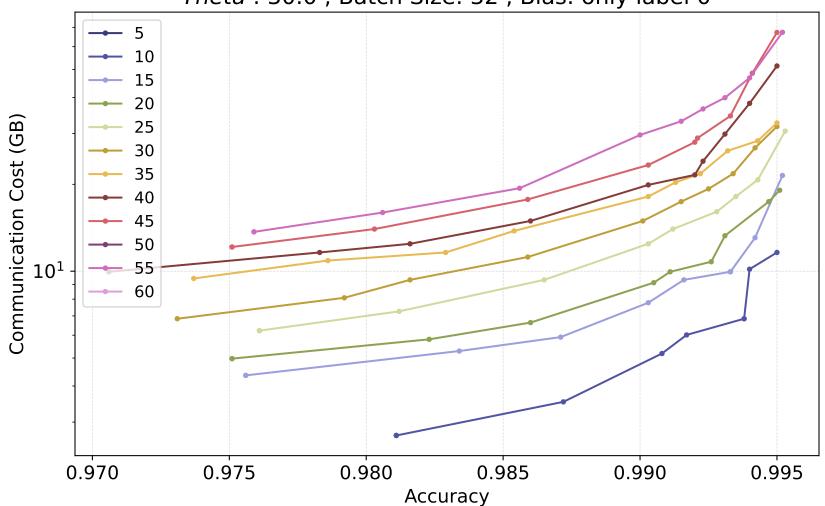


gm *Theta*: 30.0, Batch Size: 32, Bias: only label 0

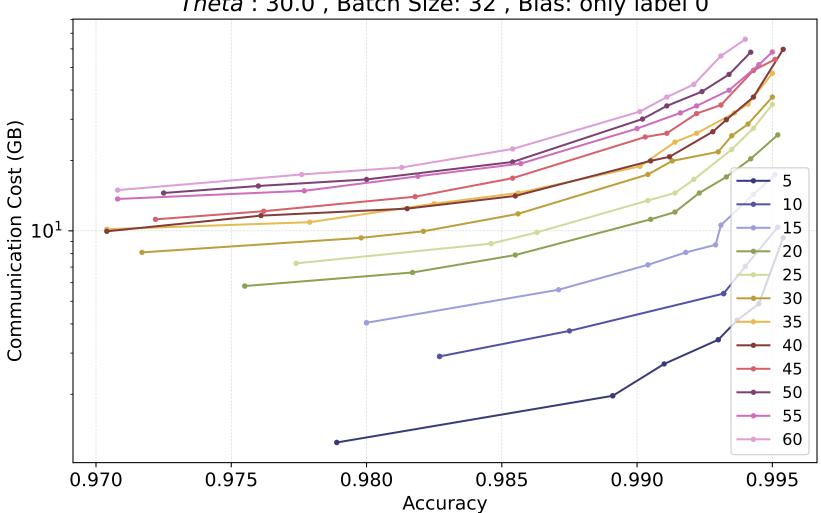


naive

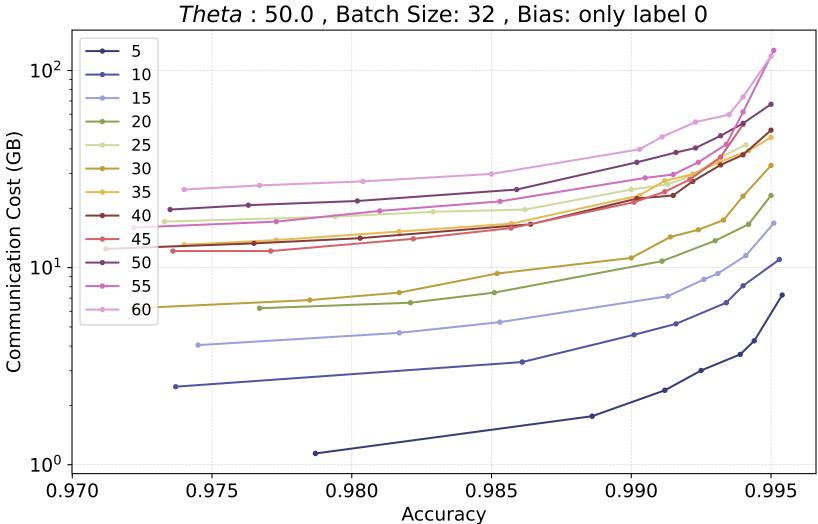




linear
Theta: 30.0, Batch Size: 32, Bias: only label 0



gm *Theta* : 50 0 Batch Size

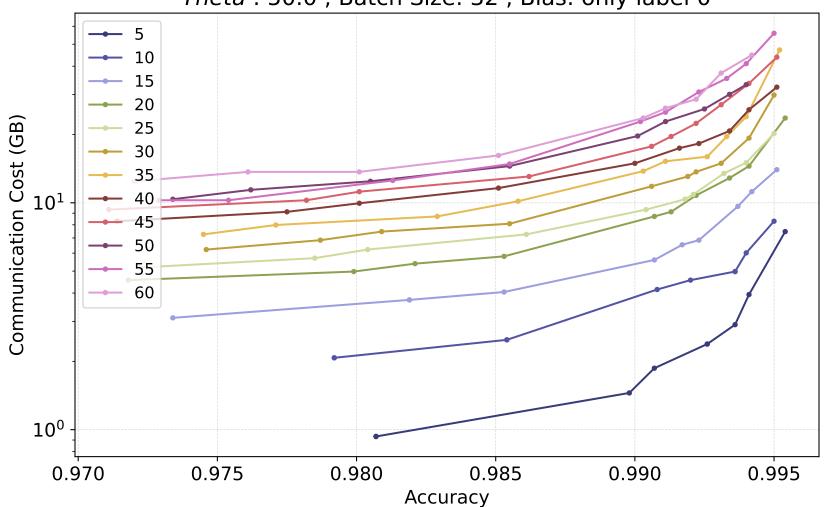


naive Theta: 50.0, Batch Size: 32, Bias: only label 0 10 15 20 Communication Cost (GB) 25 30 35 10¹ 40 45 50 55 60 10⁰ 0.980 0.975 0.995 0.985 0.990

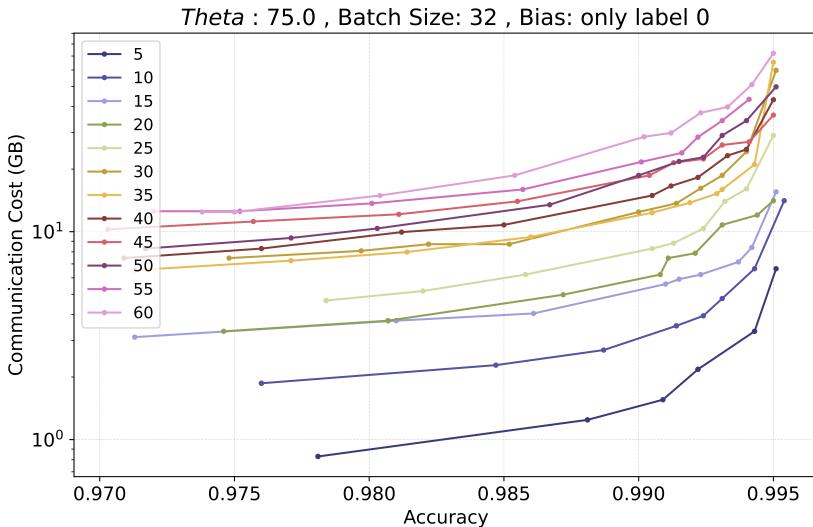
Accuracy

linear

Theta: 50.0, Batch Size: 32, Bias: only label 0

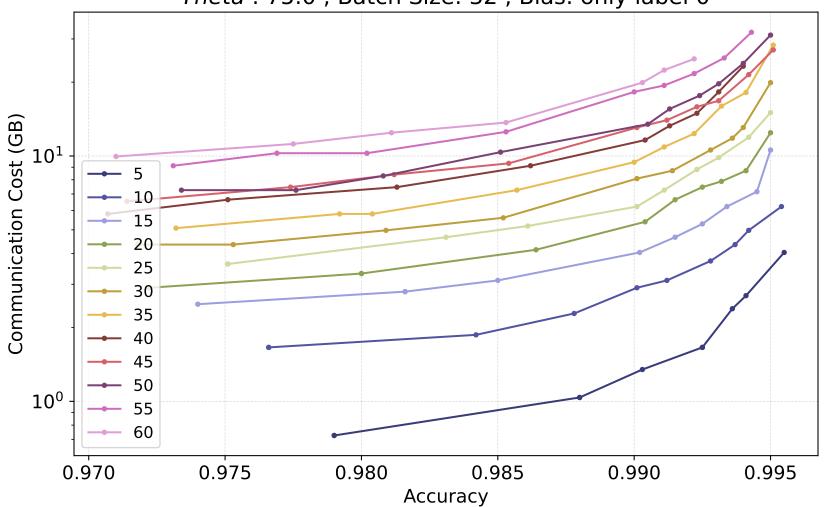


gm

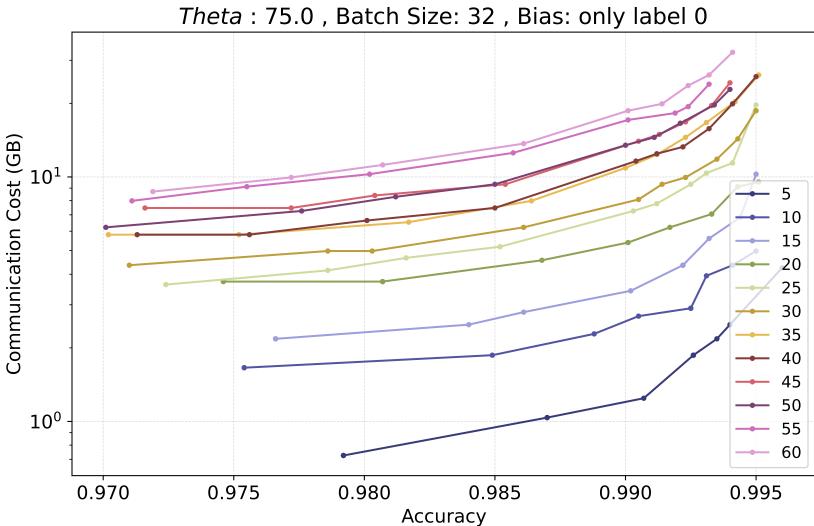


naive

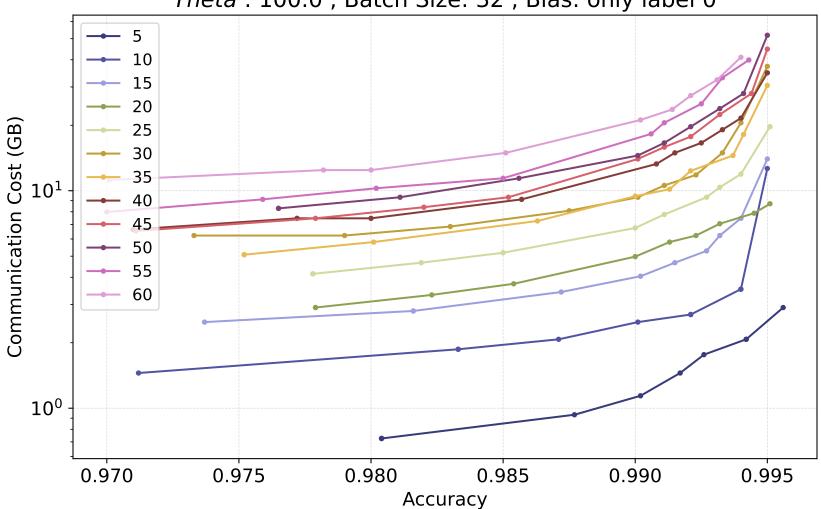




linear

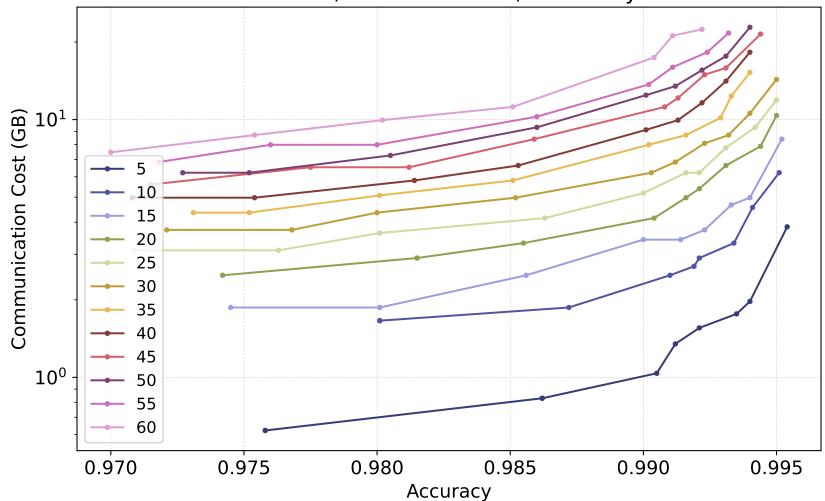


gm *Theta*: 100.0, Batch Size: 32, Bias: only label 0

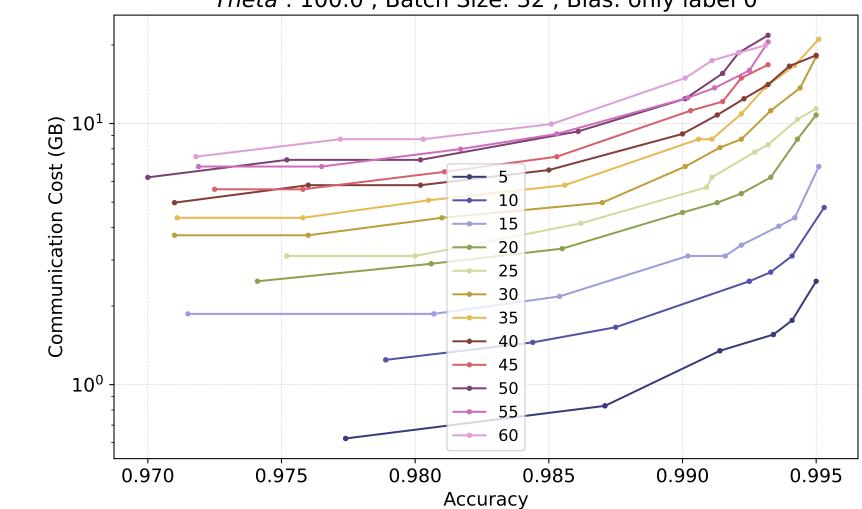


naive

Theta: 100.0, Batch Size: 32, Bias: only label 0

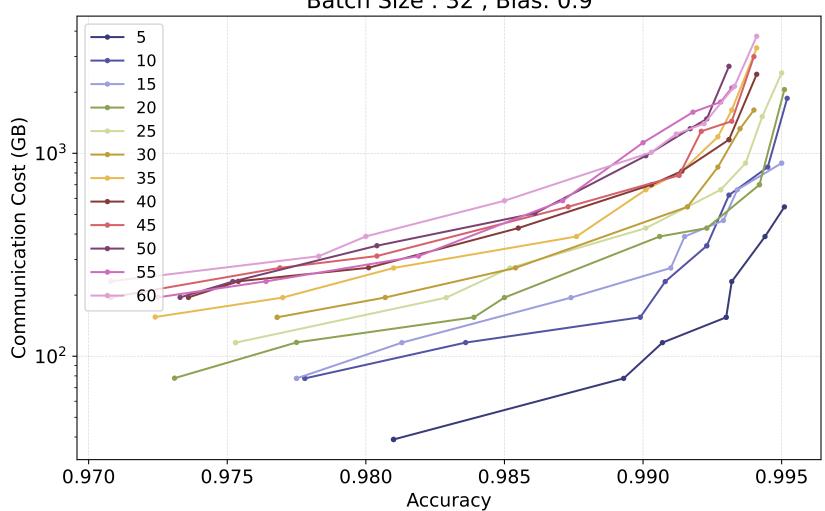


linear
Theta: 100.0, Batch Size: 32, Bias: only label 0



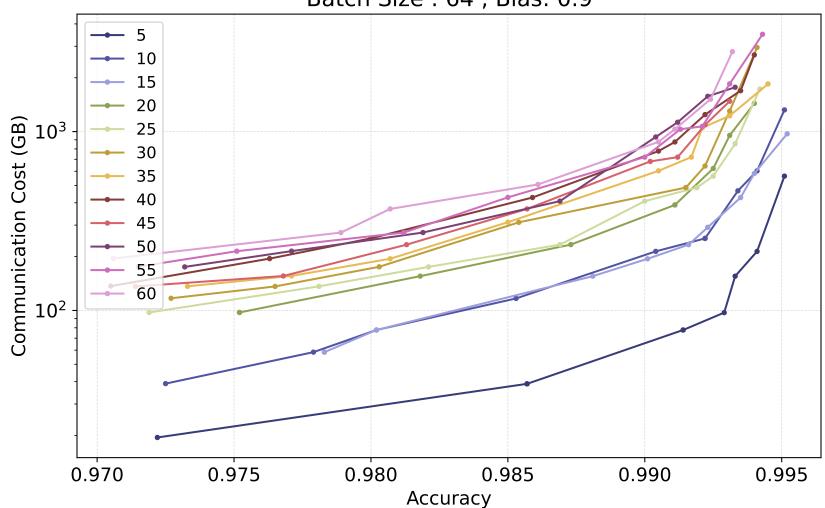
synchronous

Batch Size: 32, Bias: 0.9



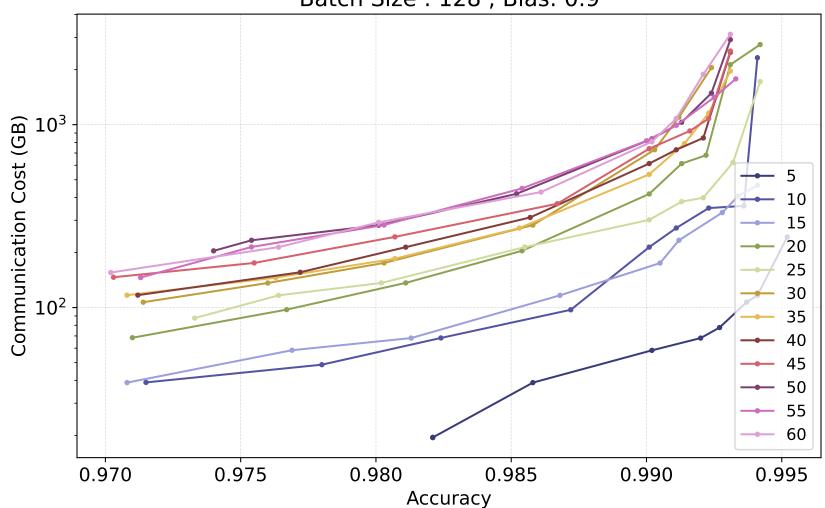
synchronous

Batch Size: 64, Bias: 0.9



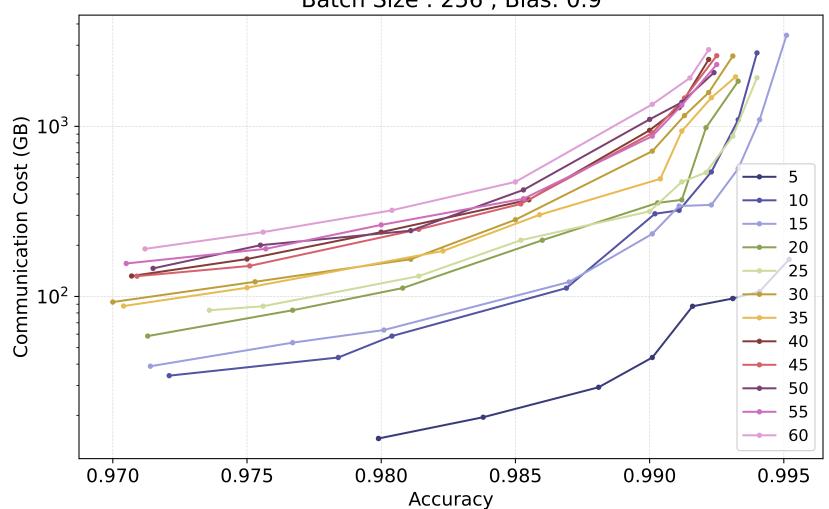
synchronous

Batch Size: 128, Bias: 0.9



synchronous

Batch Size: 256, Bias: 0.9



gm Theta: 15.0, Batch Size: 32, Bias: 0.9 Communication Cost (GB) 10² 15 20 25 30 35 10^{1} 50 55 60

0.985

Accuracy

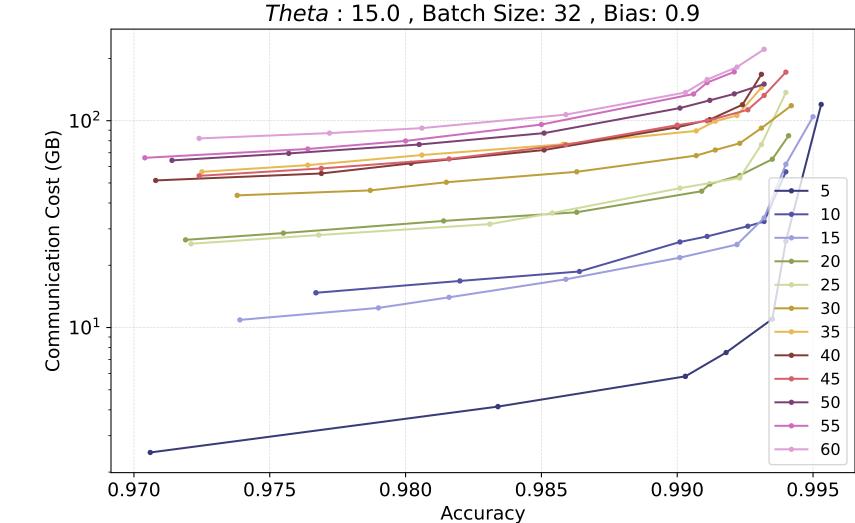
0.975

0.970

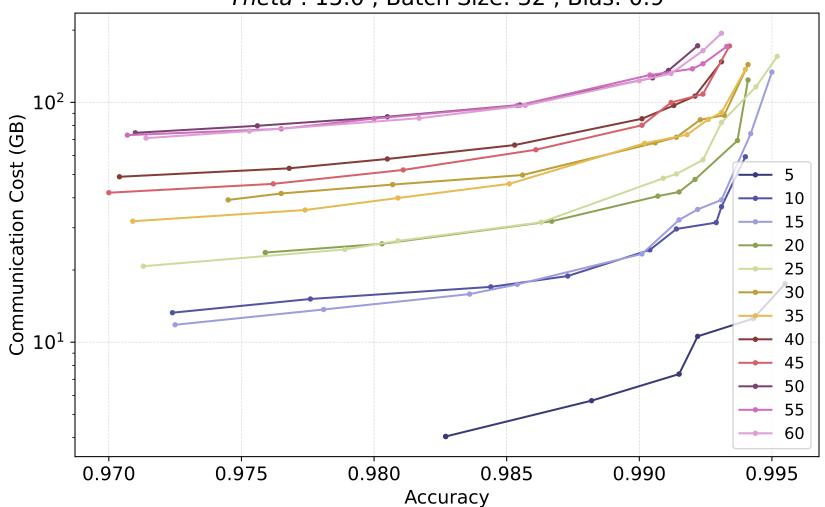
0.995

0.990

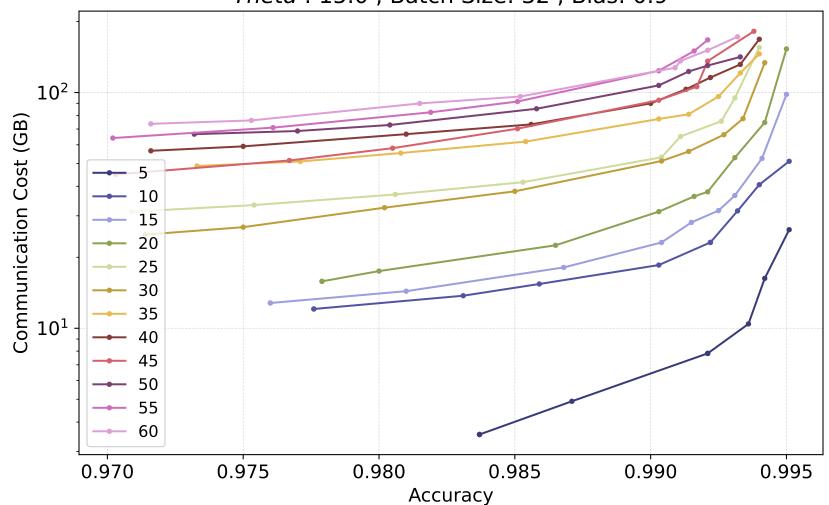
naive



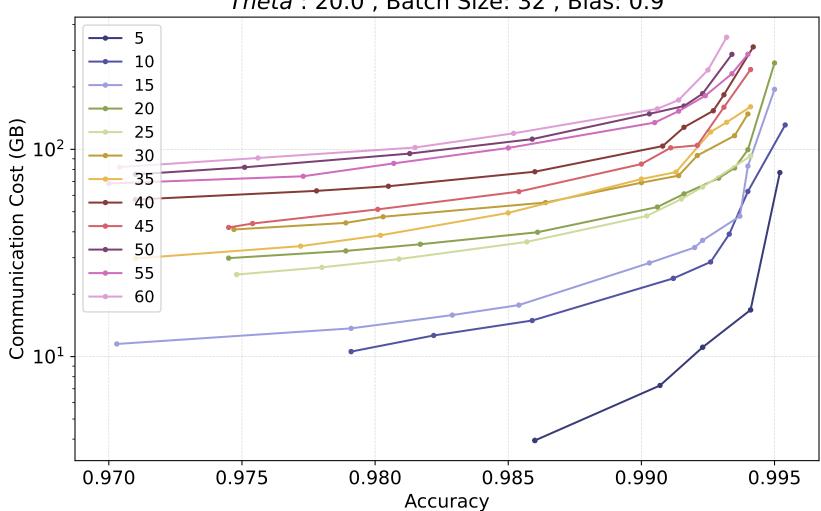
linear
Theta: 15.0, Batch Size: 32, Bias: 0.9



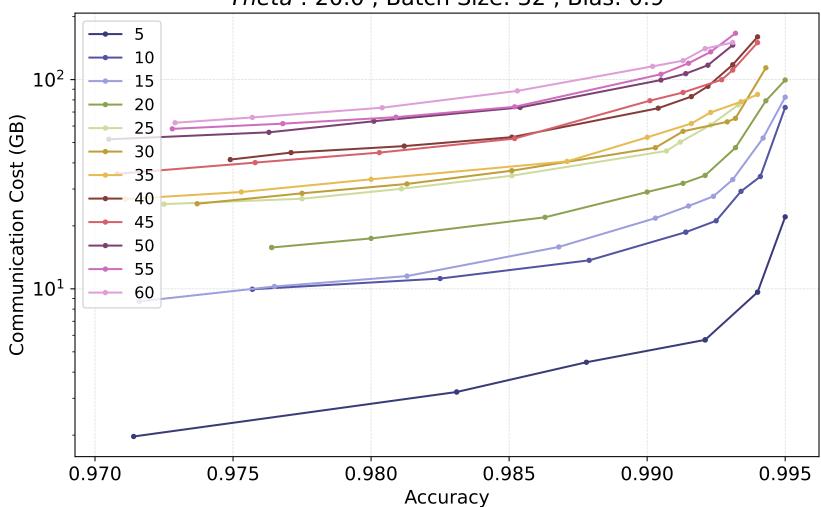
sketch Theta: 15.0, Batch Size: 32, Bias: 0.9



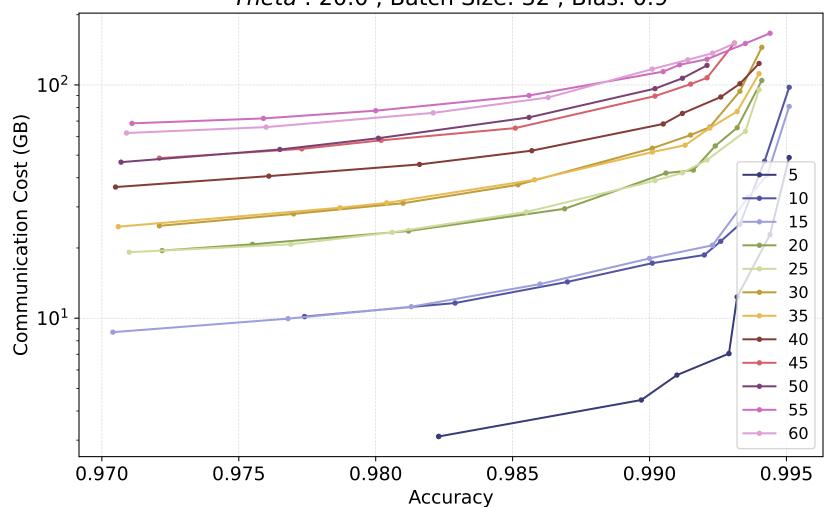
gm *Theta*: 20.0, Batch Size: 32, Bias: 0.9



naive Theta: 20.0, Batch Size: 32, Bias: 0.9



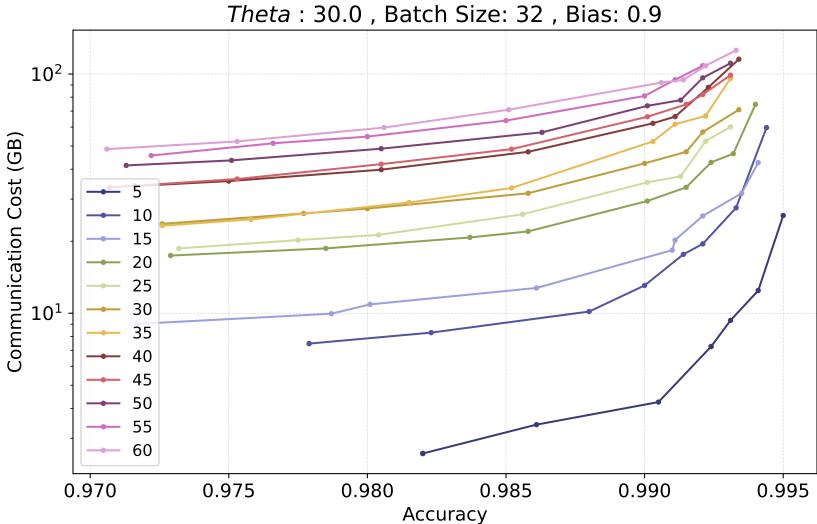
linear
Theta: 20.0, Batch Size: 32, Bias: 0.9



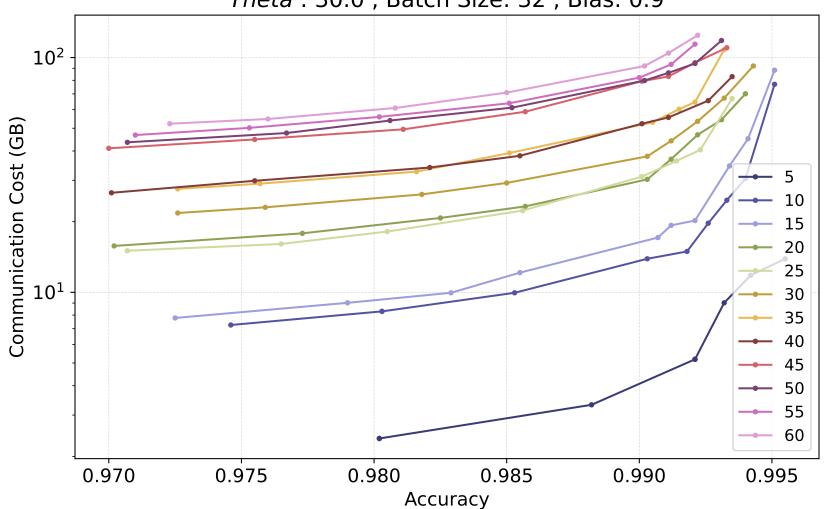
gm Theta: 30.0, Batch Size: 32, Bias: 0.9 Communication Cost (GB) 10 15 20 25 30 35 40 45 50 55 60 0.980 0.970 0.975 0.990 0.995

Accuracy

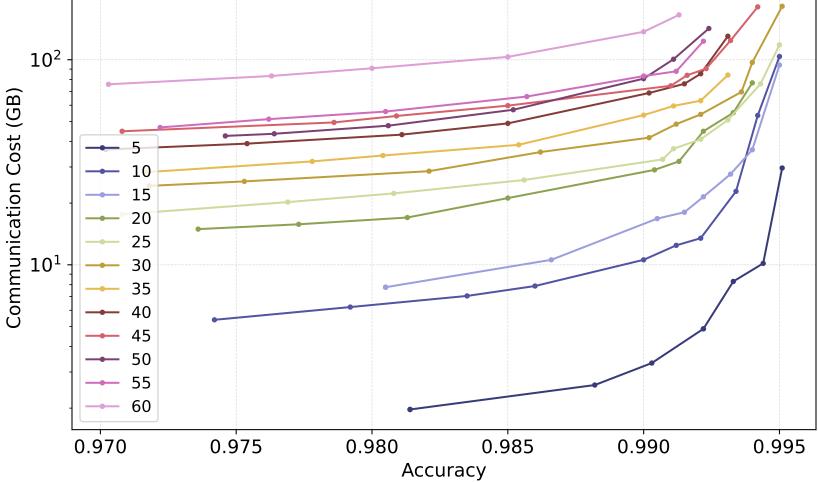
naive



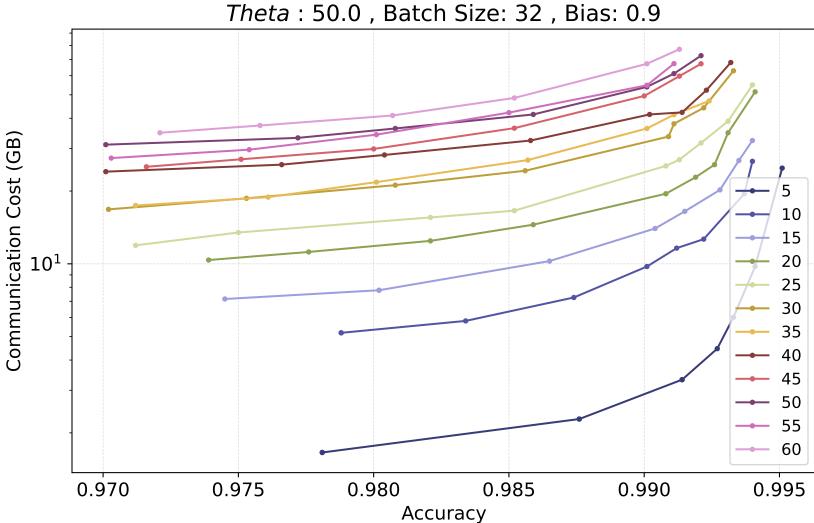
linear
Theta: 30.0, Batch Size: 32, Bias: 0.9



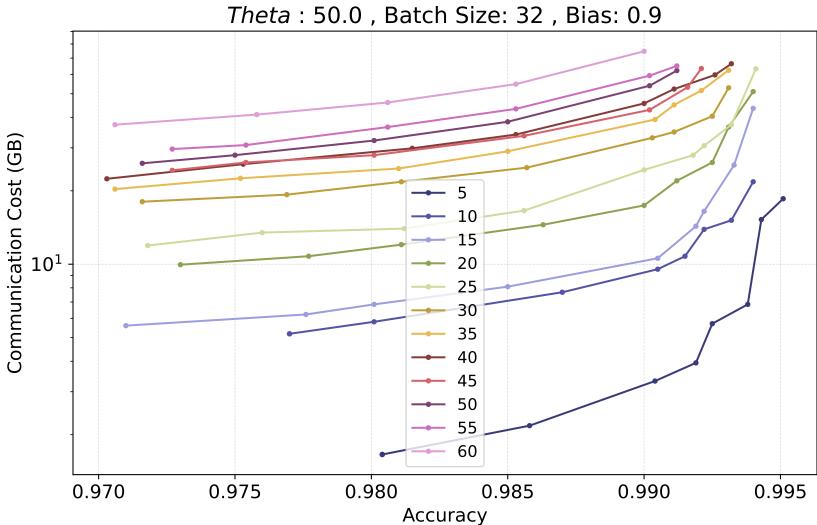
gm Theta: 50.0, Batch Size: 32, Bias: 0.9 10² 10



naive



linear
Theta: 50 0 Batch Size: 32 Bias



gm Theta: 75.0, Batch Size: 32, Bias: 0.9 10² Communication Cost (GB) 10 15 20 10¹ 25 30 35 40 45 50 55 60

0.985

Accuracy

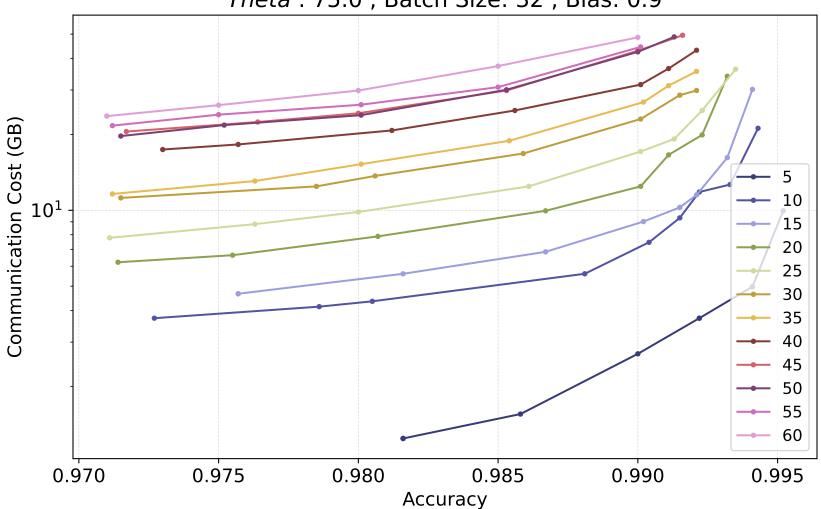
0.990

0.995

0.970

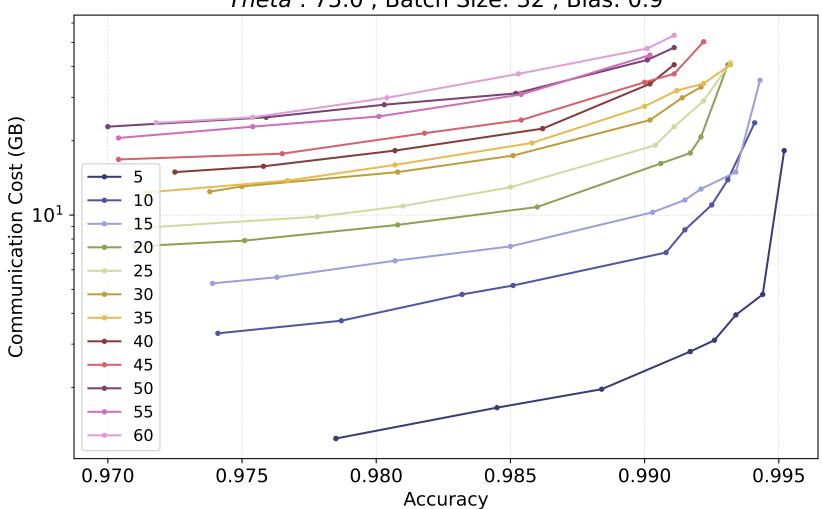
0.975

naive Theta: 75.0, Batch Size: 32, Bias: 0.9

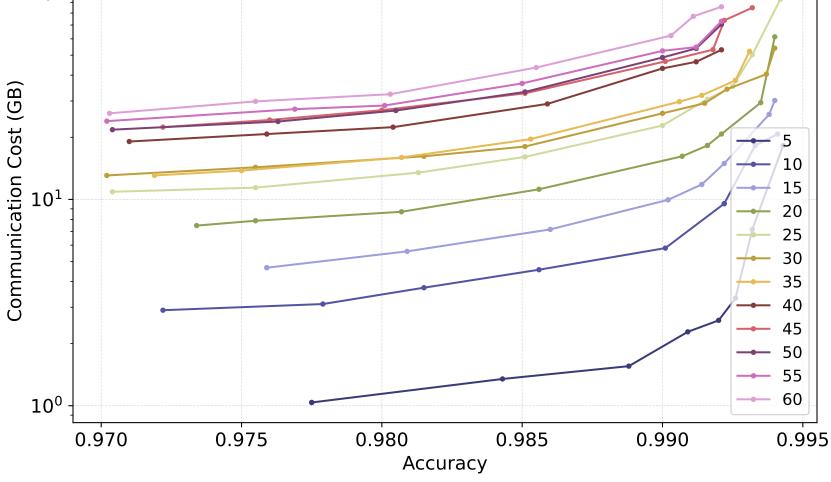


linear

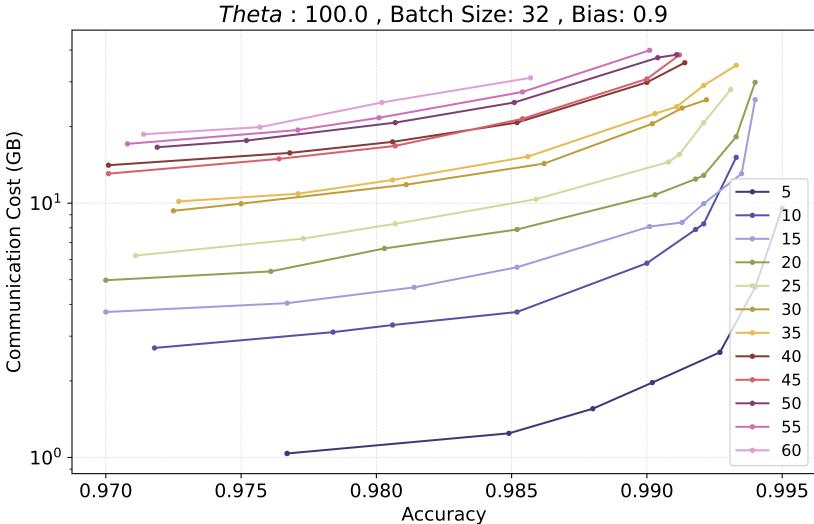
Theta: 75.0, Batch Size: 32, Bias: 0.9



gm Theta: 100.0, Batch Size: 32, Bias: 0.9 10² 10¹

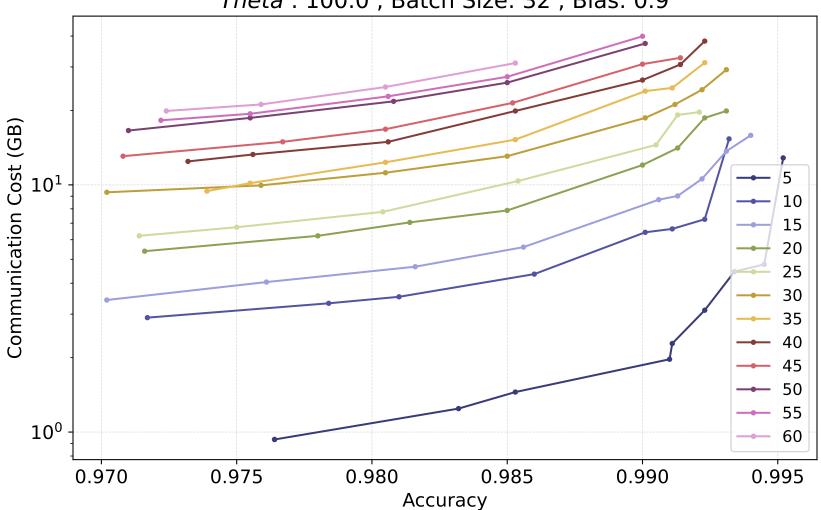


naive



linear

Theta: 100.0, Batch Size: 32, Bias: 0.9



sketch Theta: 100.0, Batch Size: 32, Bias: 0.9 Communication Cost (GB) 10 15 20 25 30 35 40 45 50 10⁰ 55 **–** 60

0.985

Accuracy

0.970

0.975

0.995

0.990