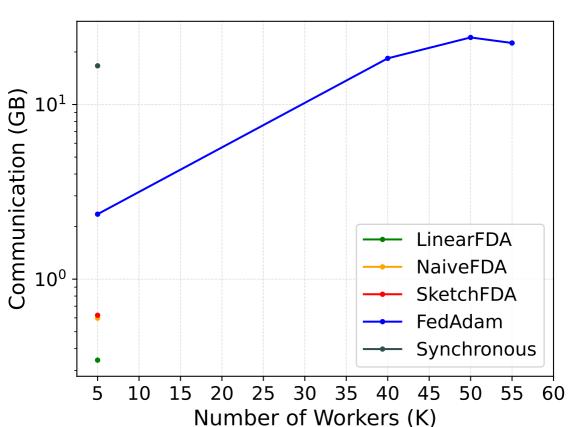
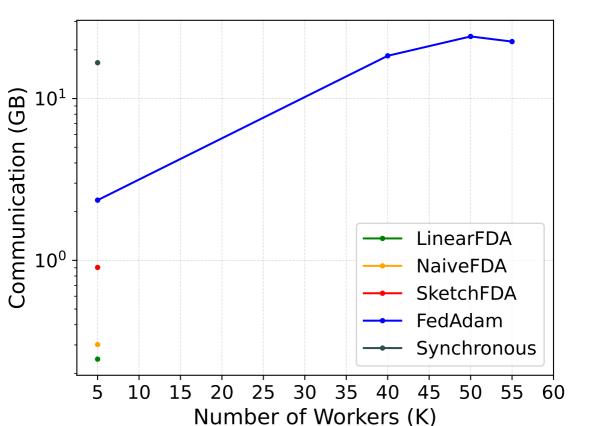
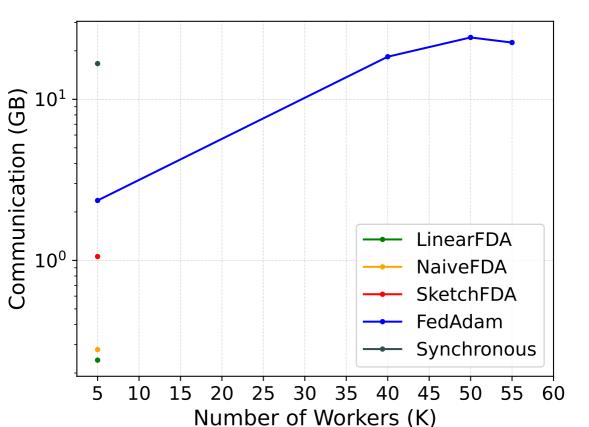
Batch Size: 32, Θ: 3.0, Bias: only label 8



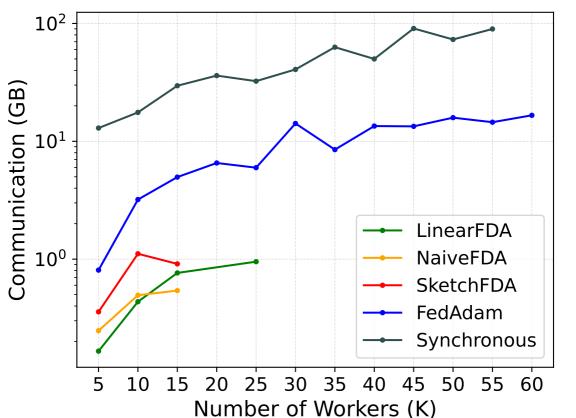
Batch Size : 32 , Θ : 5.0 , Bias: only label 8



Batch Size: 32, Θ: 7.0, Bias: only label 8



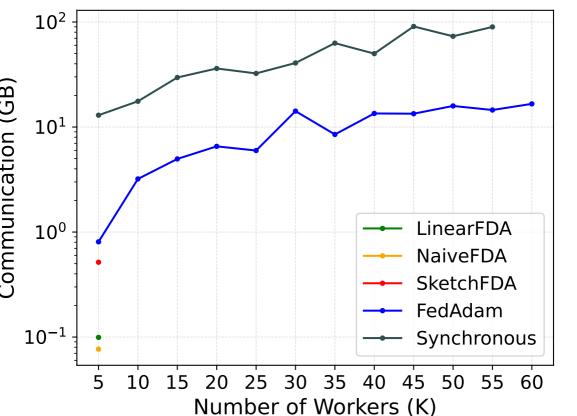
Batch Size: 32, Θ: 3.0, Bias: only label 0



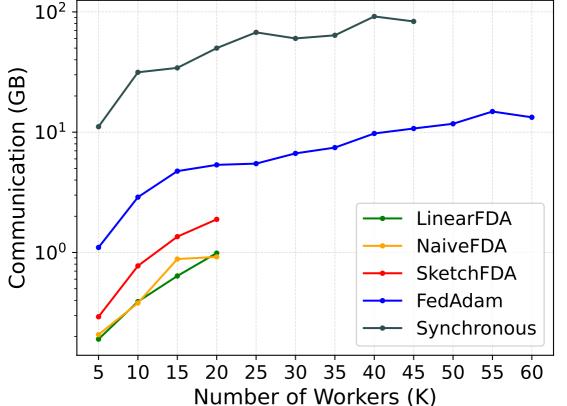
Batch Size: 32, Θ: 5.0, Bias: only label 0 10^{2} Communication (GB 10^{1} LinearFDA 10⁰ NaiveFDA SketchFDA FedAdam **Synchronous** 10^{-1} 25 30 35 40 45 50 Number of Workers (K)

Batch Size : 32 , Θ : 7.0 , Bias: only label 0 10^{2} Communication (GB 10¹ LinearFDA 10⁰ NaiveFDA SketchFDA FedAdam **Synchronous** 10^{-1} 25 30 35 40 45 50 20 Number of Workers (K)

Batch Size: 32, Θ: 10.0, Bias: only label 0



Batch Size : 32 , Θ : 3.0 , Bias: 0.6

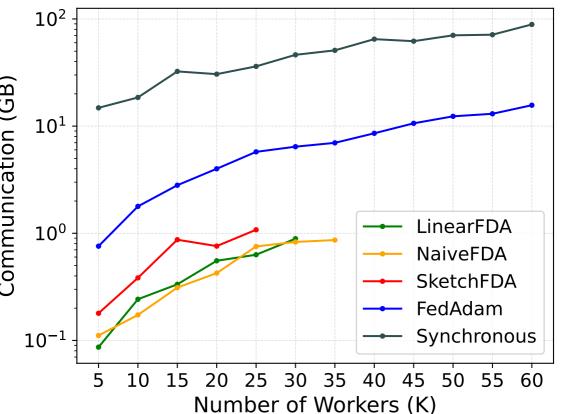


Batch Size : 32 , Θ : 5.0 , Bias: 0.6 10^{2} Communication (GB 10¹ LinearFDA 10⁰ NaiveFDA SketchFDA FedAdam **Synchronous** 10^{-1} 20 25 30 35 40 45 50 Number of Workers (K)

Batch Size : 32 , Θ : 7.0 , Bias: 0.6 10^2 Communication (GB 10¹ 10⁰ LinearFDA NaiveFDA SketchFDA FedAdam 10^{-1} **Synchronous** 20 25 30 35 40 45 50 55 10 Number of Workers (K)

Batch Size : 32 , Θ : 10.0 , Bias: 0.6 10^{2} Communication (GB 10^{1} 10⁰ LinearFDA NaiveFDA SketchFDA FedAdam 10^{-1} **Synchronous** 15 20 25 30 35 40 45 50 55 10 Number of Workers (K)

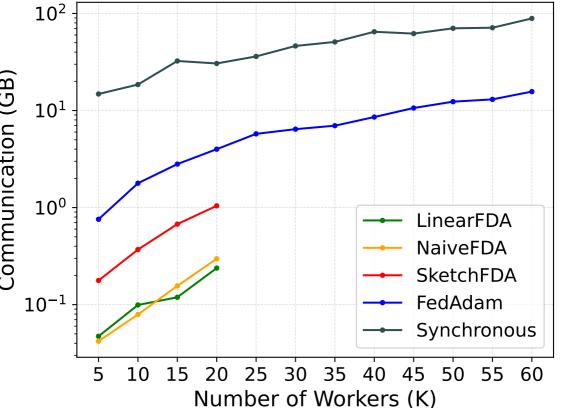
Batch Size : 32 , Θ : 3.0 , Bias: nan



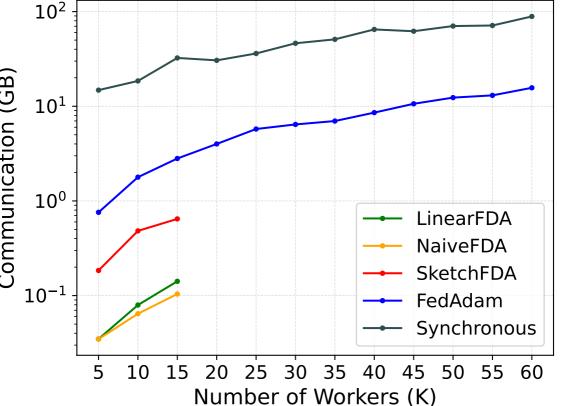
Batch Size : 32 , Θ : 5.0 , Bias: nan 10^{2} Communication (GB 10¹ LinearFDA 10⁰ NaiveFDA SketchFDA FedAdam 10^{-1} **Synchronous** 15 20 25 30 35 40 45 50 55 Number of Workers (K)

Batch Size : 32 , Θ : 7.0 , Bias: nan 10² Communication (GB 10^{1} 10⁰ LinearFDA NaiveFDA SketchFDA FedAdam 10^{-1} **Synchronous** 15 20 25 30 35 40 45 50 55 Number of Workers (K)

Batch Size : 32 , Θ : 10.0 , Bias: nan



Batch Size : 32 , Θ : 12.0 , Bias: nan



Batch Size : 32 , Θ : 15.0 , Bias: nan LinearFDA NaiveFDA SketchFDA FedAdam **Synchronous** 15 20 25 30 35 40 45 50 55

Number of Workers (K)

 10^{2}

 10^{1}

10⁰

 10^{-1}

Communication (GB