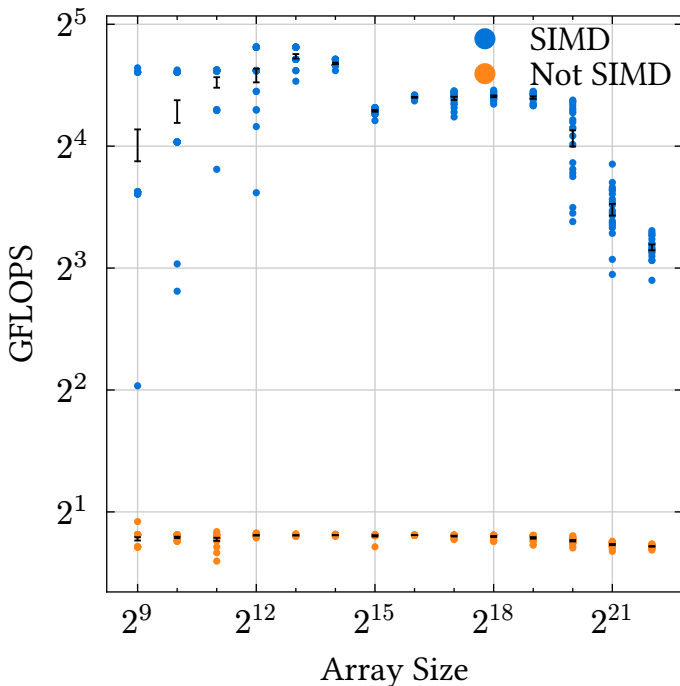


# Dot Product

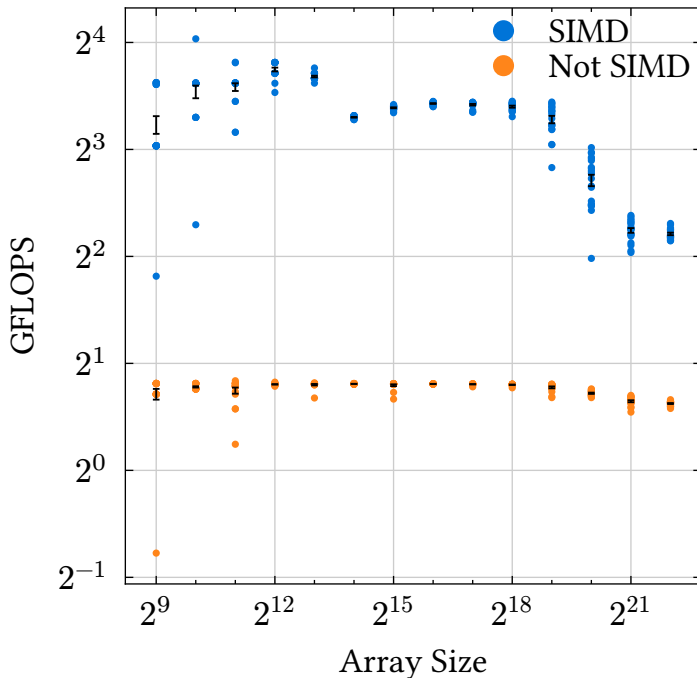


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5168\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-2.5304\text{e-}8)$

Speedup: 0.007195137393613602

# Dot Product, Double

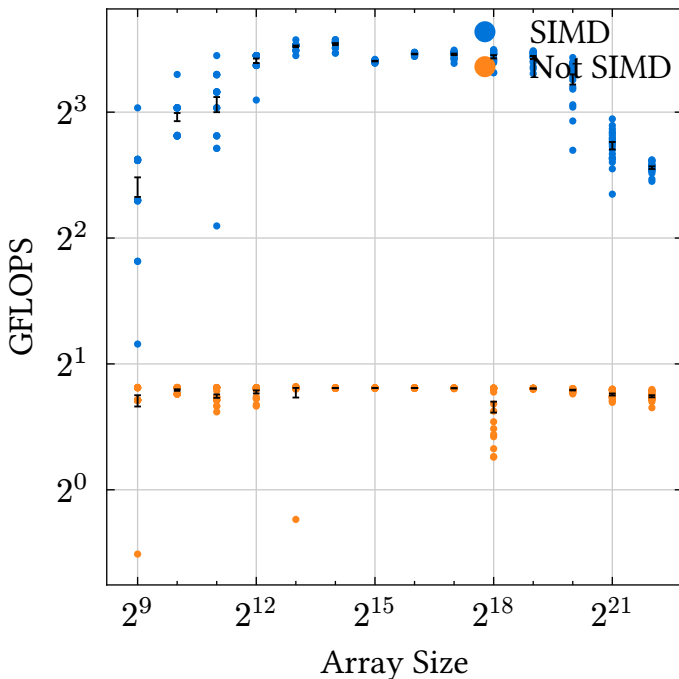


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9446\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-4.8848\text{e-}8)$

Speedup: 0.02512000481659207

# Dot Product, Stride=2

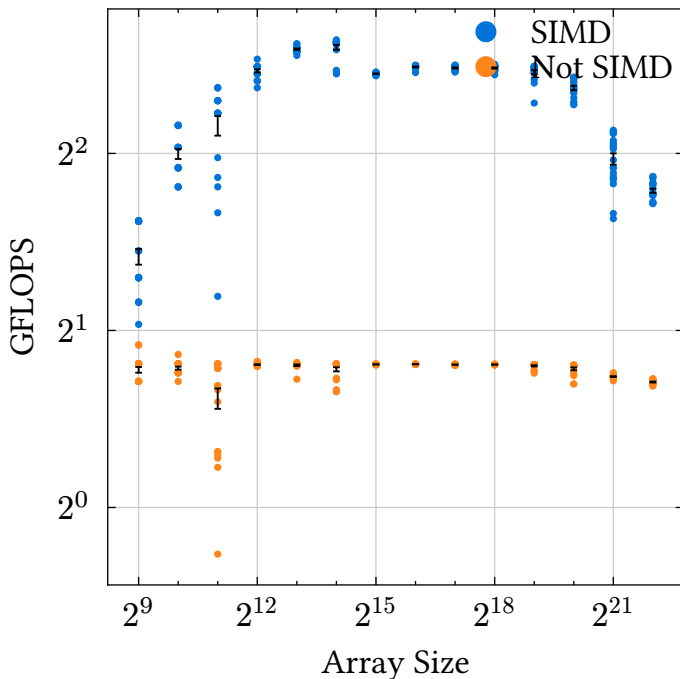


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.0029\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-7.2542\text{e-}9)$

Speedup: 0.007233571889331501

# Dot Product, Stride=4

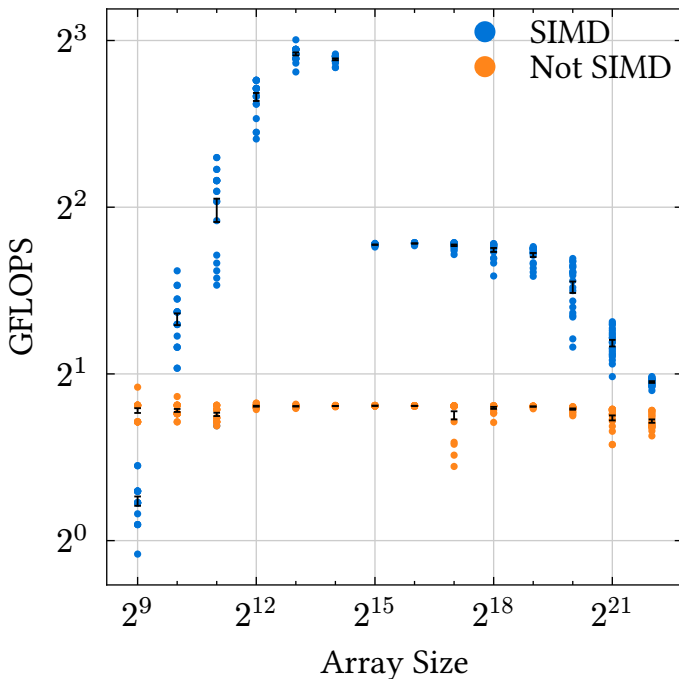


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-4.0462\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.8823\text{e-}8)$

Speedup: 0.046520520577468936

# Dot Product, Stride=8

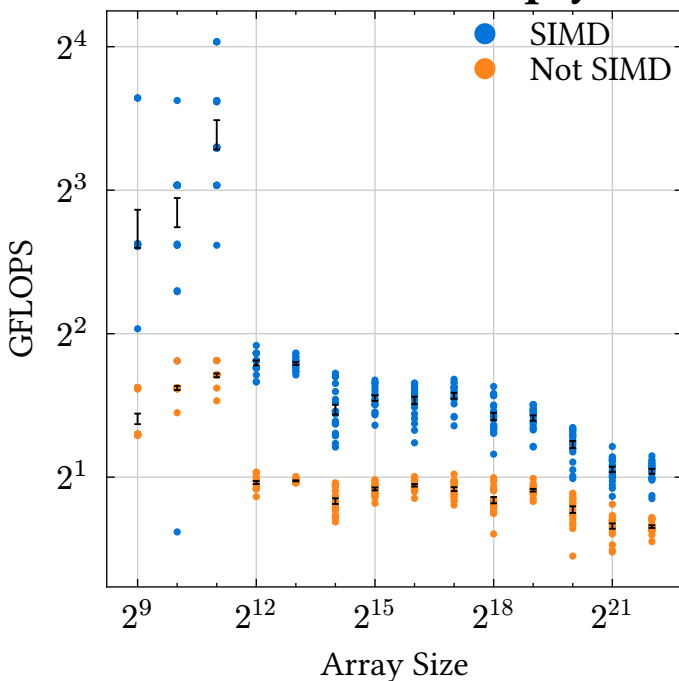


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-6.7145\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-2.2043\text{e-}8)$

Speedup: 0.03282899246629174

# Elementwise Multiply

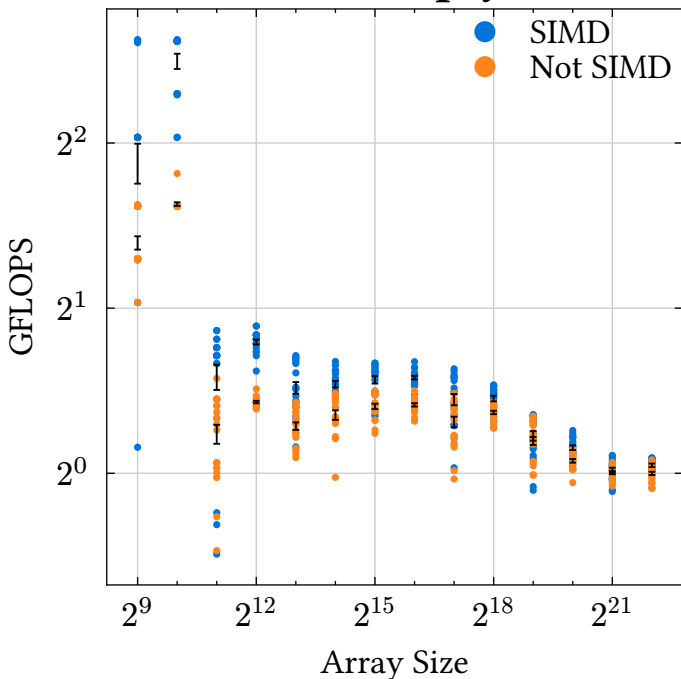


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-8.0610\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9789\text{e-}7)$

Speedup: 0.24549133693134406

# Elementwise Multiply, Double

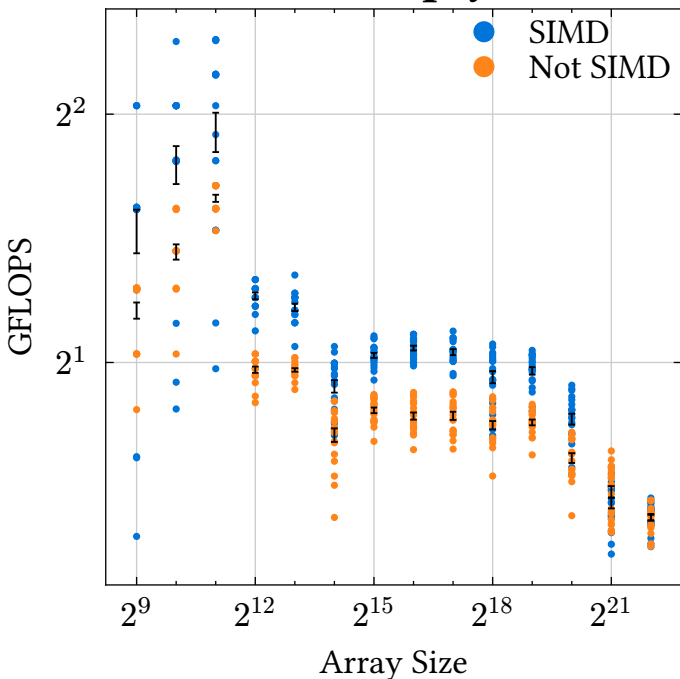


With SIMD: GFLOPS = (arraySize) \* (-3.3997e-7)

Without SIMD: GFLOPS = (arraySize) \* (-1.8053e-7)

Speedup: 0.531028077681208

# Elementwise Multiply, Stride=2



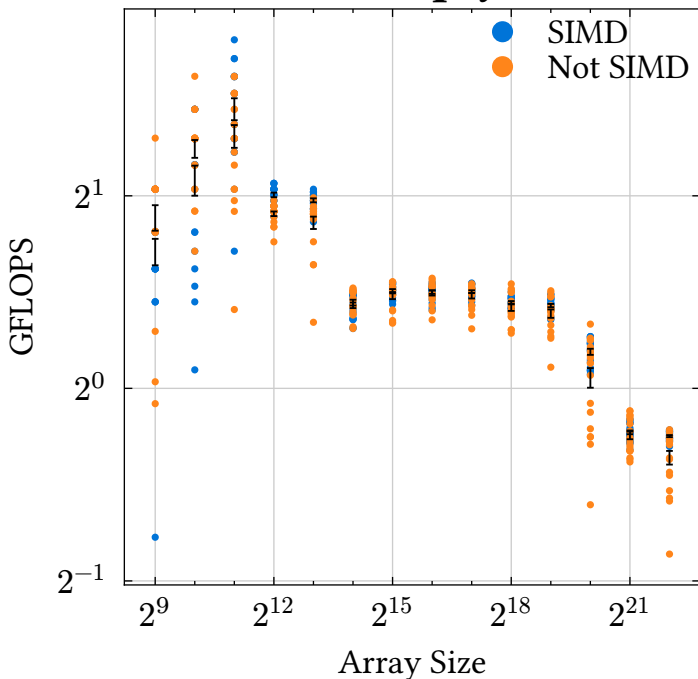
With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.6157\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-2.1926\text{e-}7)$

Speedup: 0.6064255260088997



# Elementwise Multiply, Stride=4

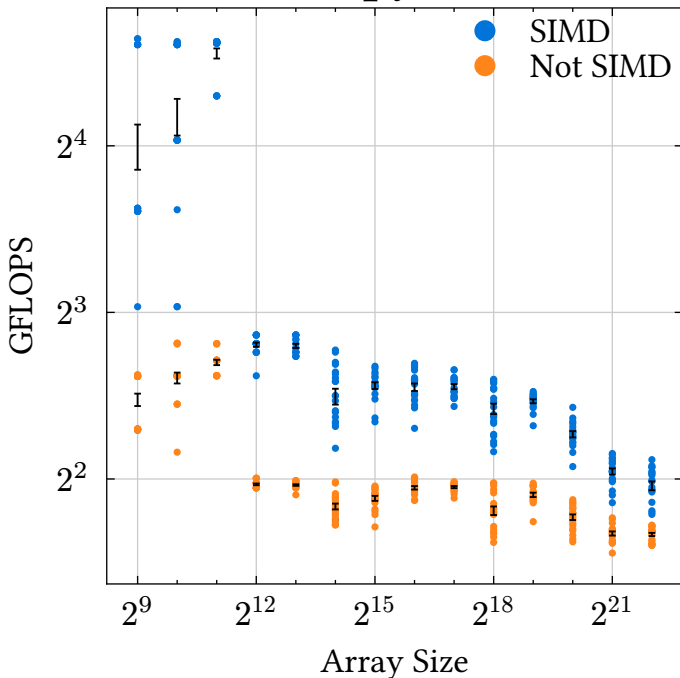


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-2.7003\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-2.8580\text{e-}7)$

Speedup: 1.0584050490901047

# Saxpy

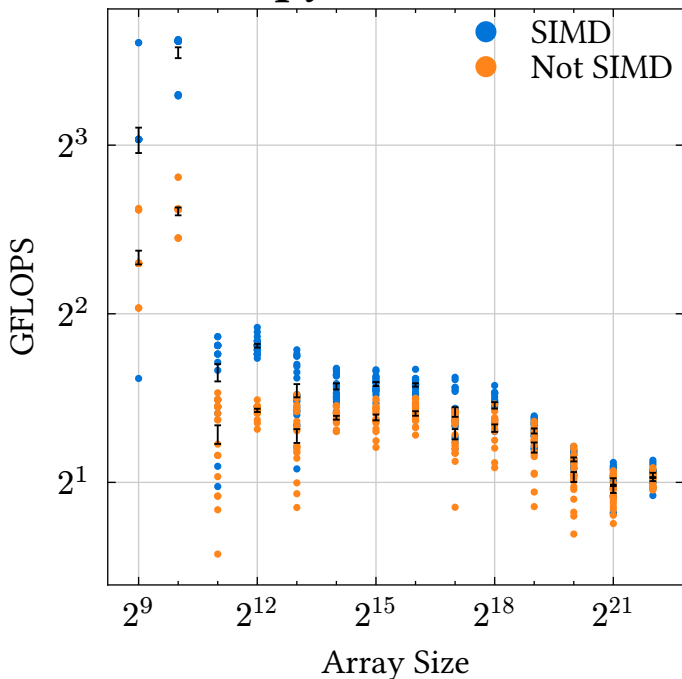


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9215\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.8752\text{e-}7)$

Speedup: 0.20167084981711308

# Saxpy, Double

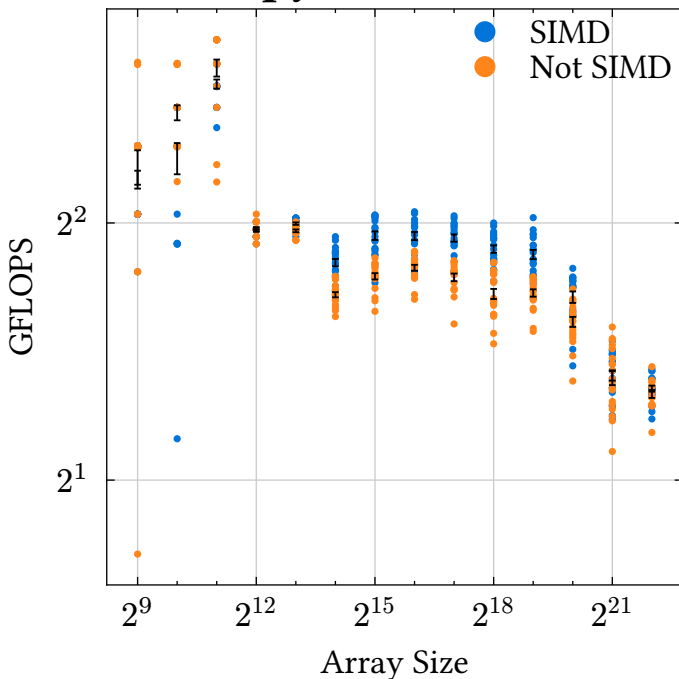


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-7.1482\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5839\text{e-}7)$

Speedup: 0.5013662308487927

# Saxpy, Stride=2

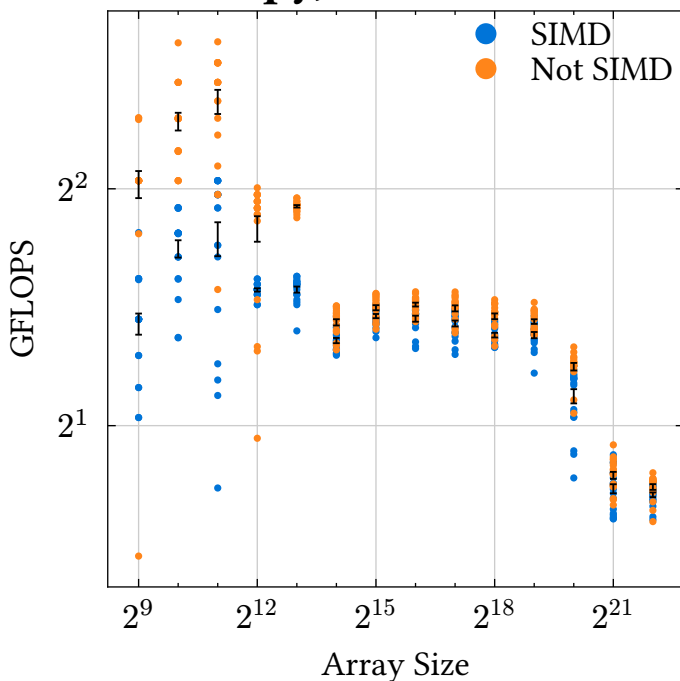


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-4.7805\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-5.0117\text{e-}7)$

Speedup: 1.0483476971237662

# Saxpy, Stride=4

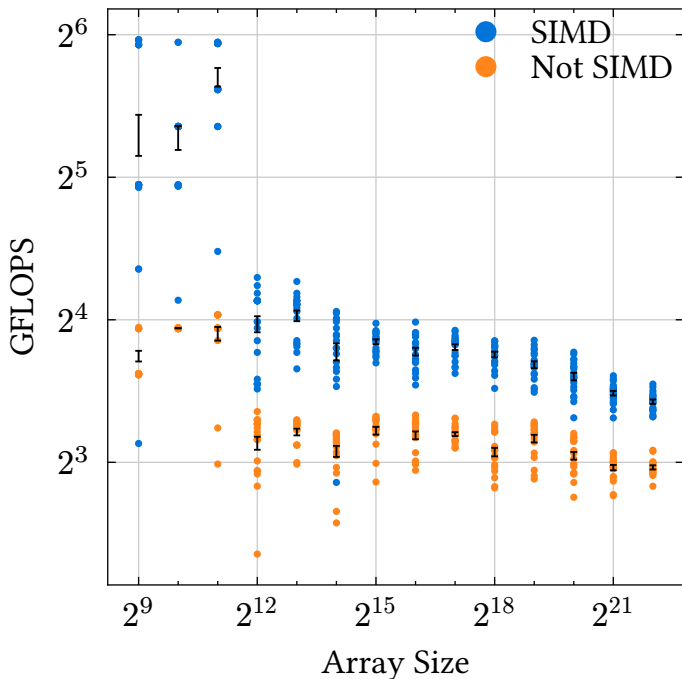


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.6732\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-5.6756\text{e-}7)$

Speedup: 1.5451334185192103

# Stencil

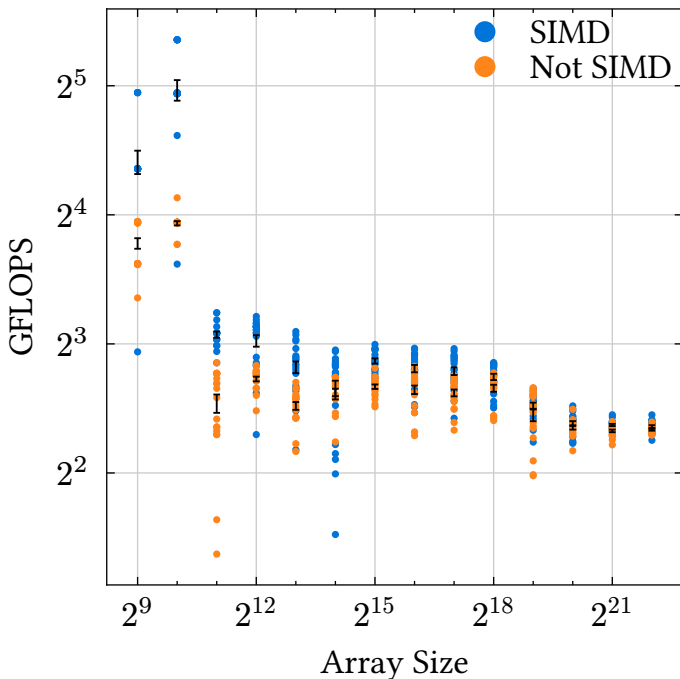


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.9973\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-9.1172\text{e-}7)$

Speedup: 0.22808256529103993

# Stencil, Double

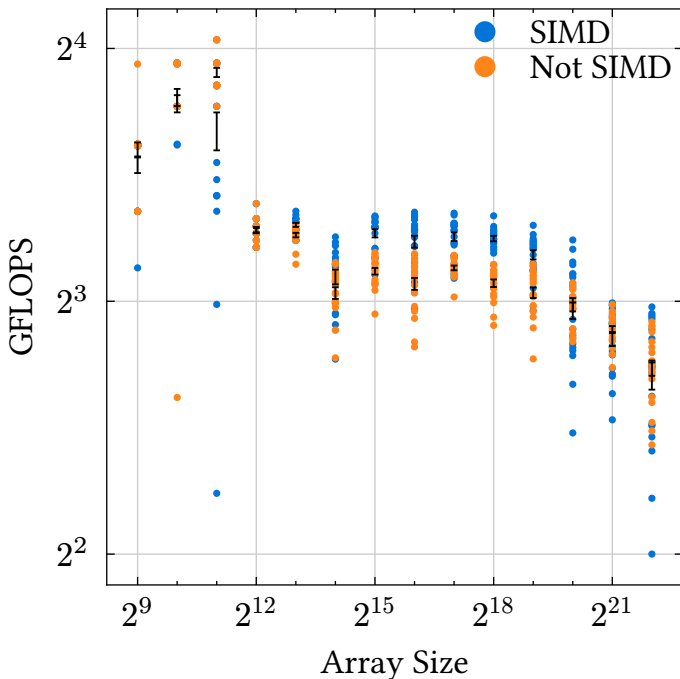


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9146\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-9.0548\text{e-}7)$

Speedup: 0.47294461050462694

# Stencil, Stride=2



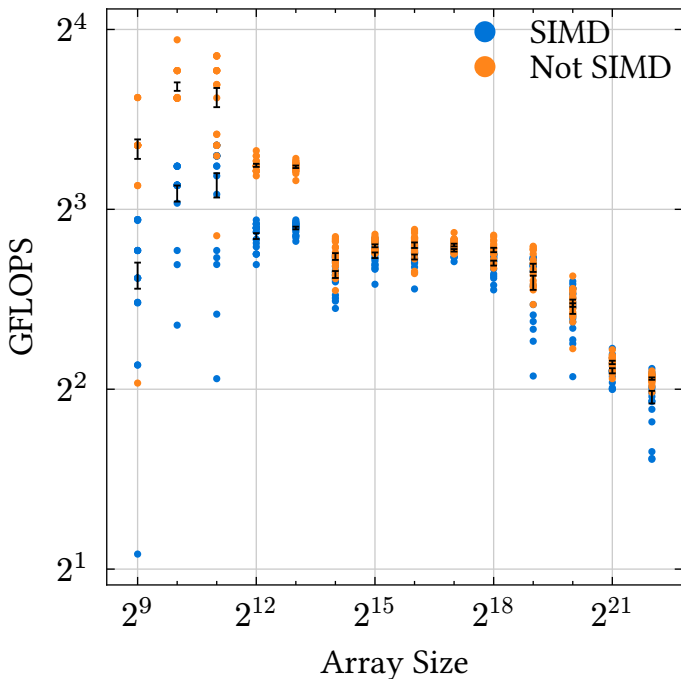
With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.1216\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.0301\text{e-}6)$

Speedup: 0.9183622584886617



# Stencil, Stride=4

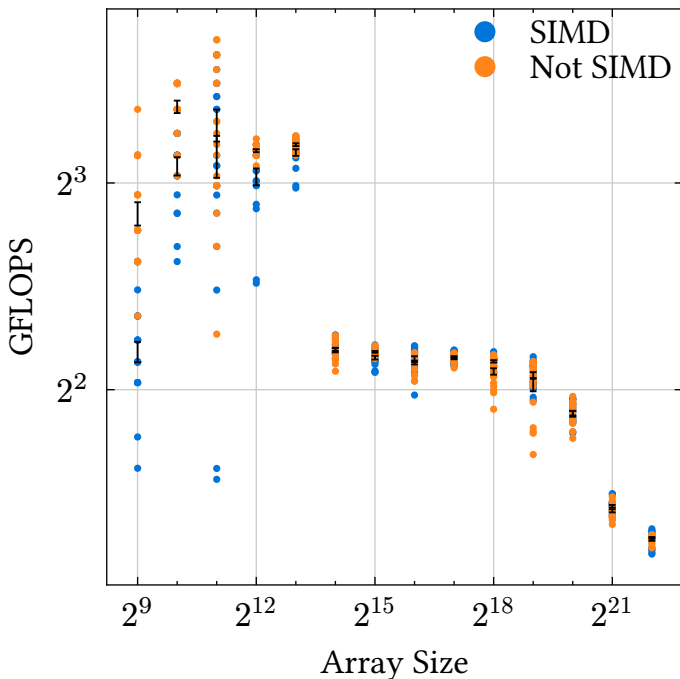


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-9.0776\text{e-}7)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.4020\text{e-}6)$

Speedup: 1.5444532792860253

# Stencil, Stride=8

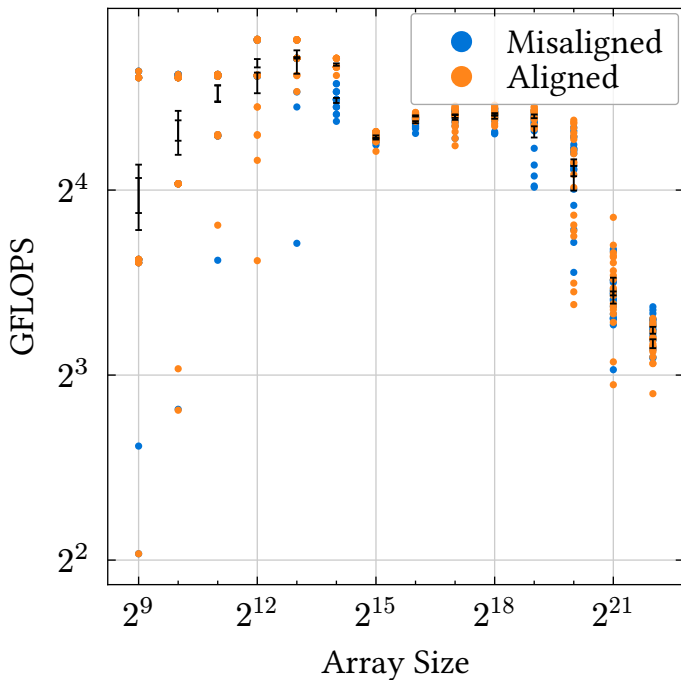


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.0891\text{e-}6)$

Without SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.3434\text{e-}6)$

Speedup: 1.2334627637434057

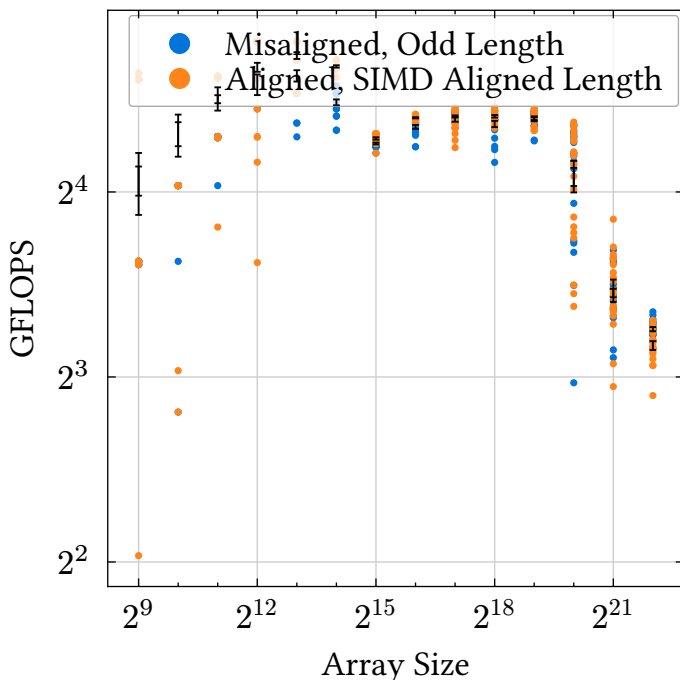
# Dot Product: Misaligned vs Aligned



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.2994\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5168\text{e-}6)$

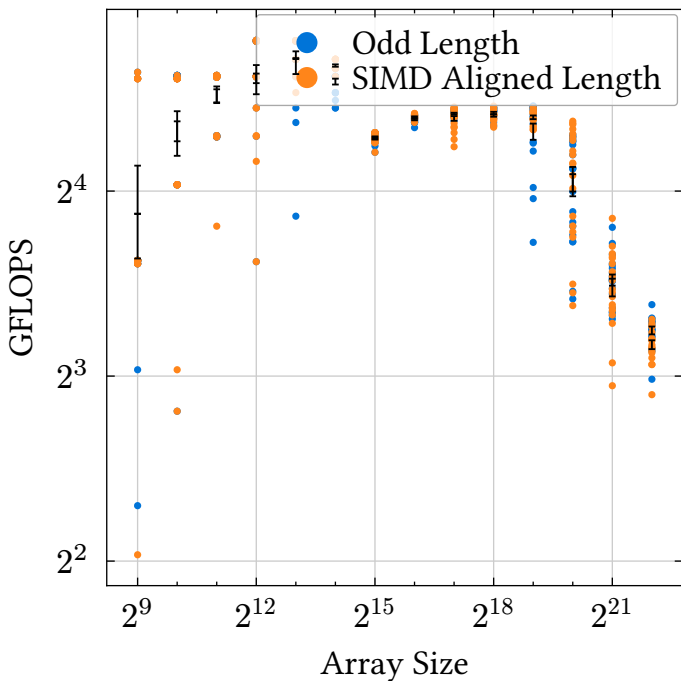
# Dot Product: Misaligned, Odd Length vs Aligned, SIMD Aligned Length



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.2546\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5168\text{e-}6)$

# Dot Product: Odd Length vs SIMD Aligned Length

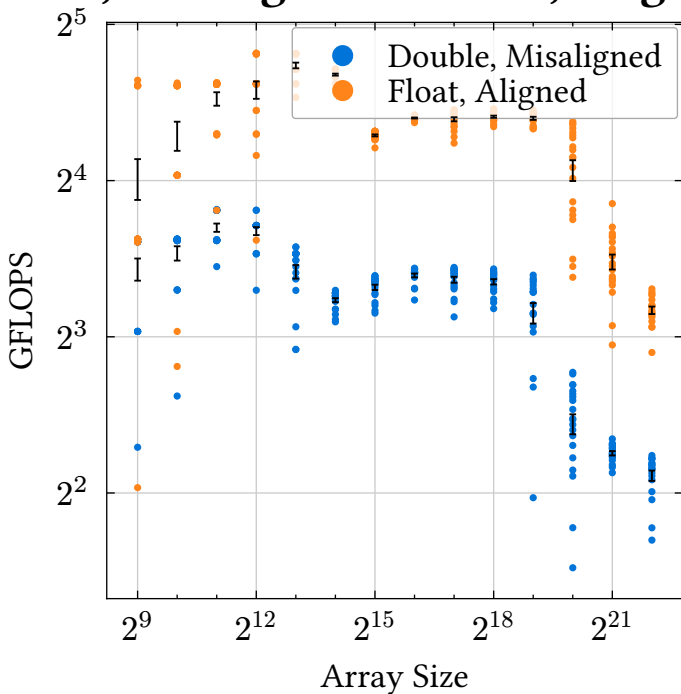


With SIMD: GFLOPS = (arraySize) \* (-3.3087e-6)

With SIMD: GFLOPS = (arraySize) \* (-3.5168e-6)

# Dot Product:

## Double, Misaligned vs Float, Aligned

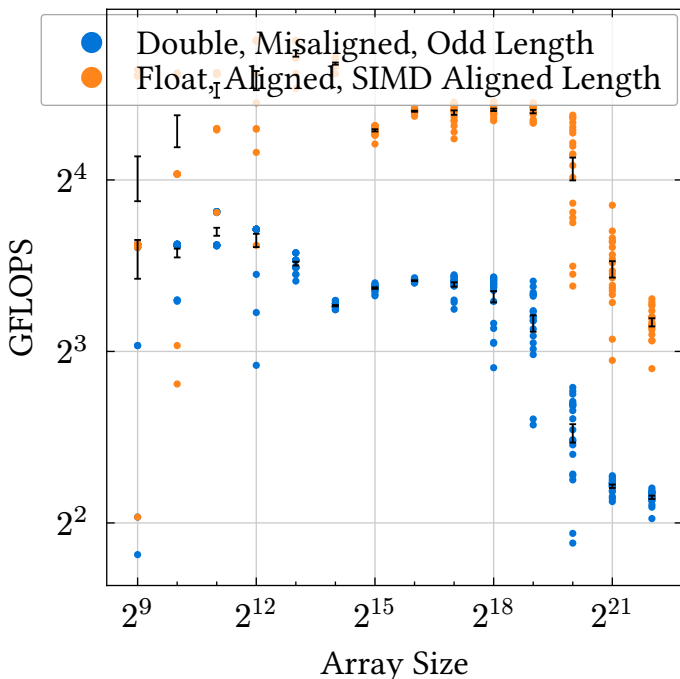


With SIMD: GFLOPS = (arraySize) \* (-1.9334e-6)

With SIMD: GFLOPS = (arraySize) \* (-3.5168e-6)

# Dot Product:

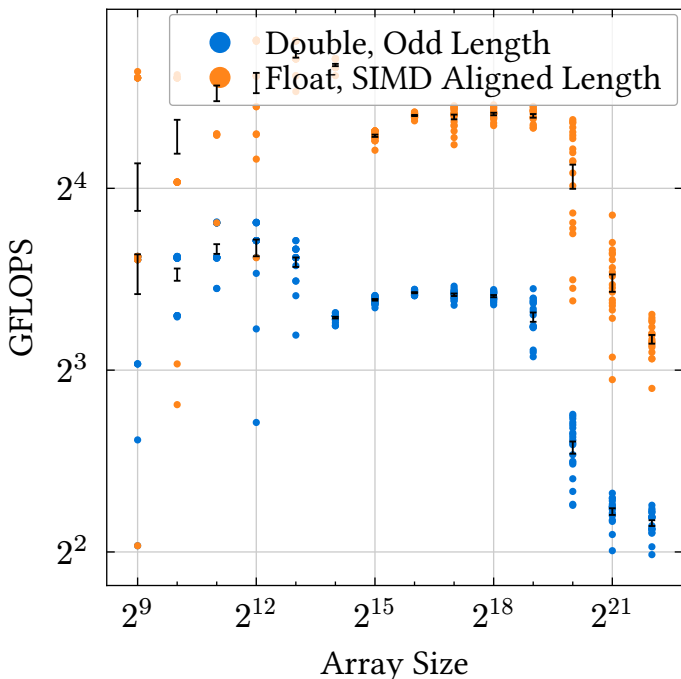
## Double, Misaligned, Odd Length vs Float, Aligned, SIMD Aligned Length



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9934\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5168\text{e-}6)$

# Dot Product: Double, Odd Length vs Float, SIMD Aligned Length

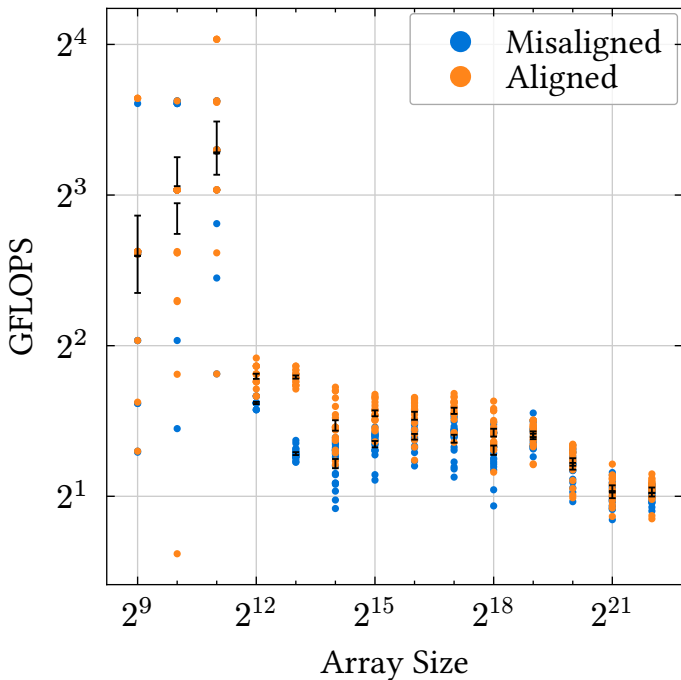


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9998\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5168\text{e-}6)$



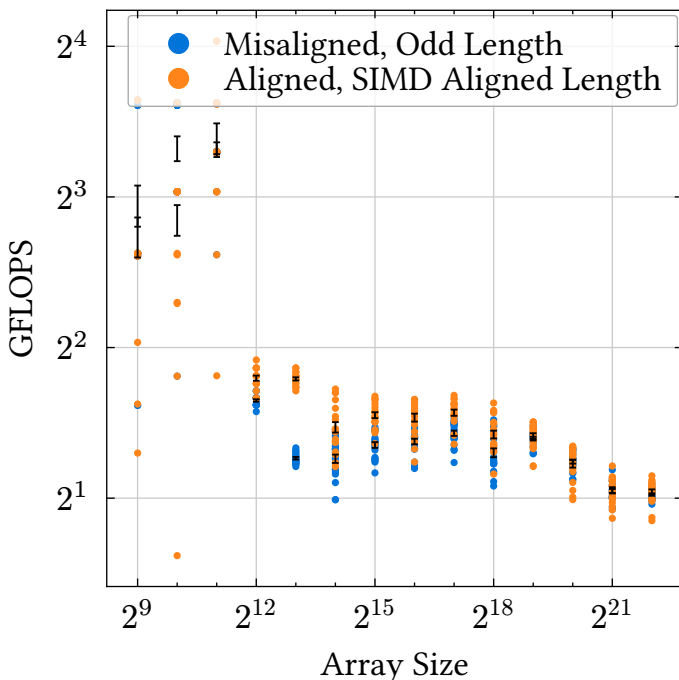
# Elementwise Multiply: Misaligned vs Aligned



With SIMD: GFLOPS = (arraySize) \* (-7.0819e-7)

With SIMD: GFLOPS = (arraySize) \* (-8.0610e-7)

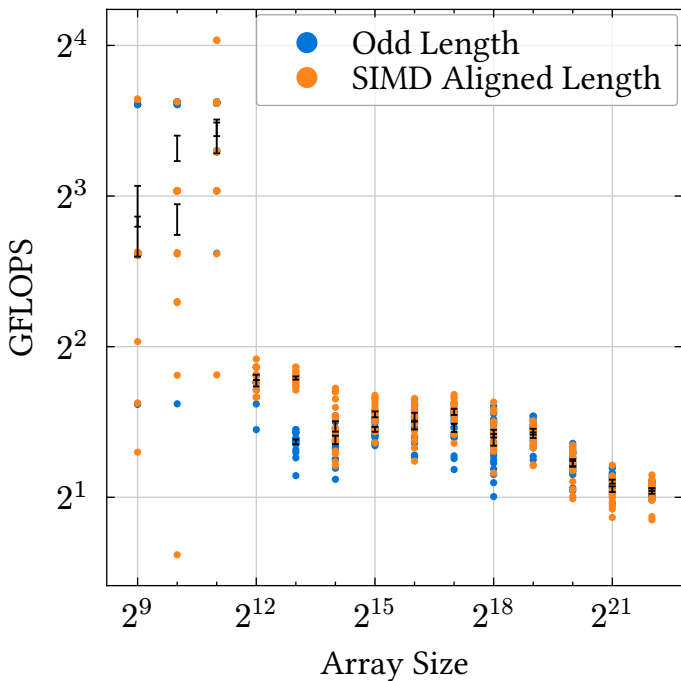
# Elementwise Multiply: Misaligned, Odd Length vs Aligned, SIMD Aligned Length



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-8.0945\text{e-}7)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-8.0610\text{e-}7)$

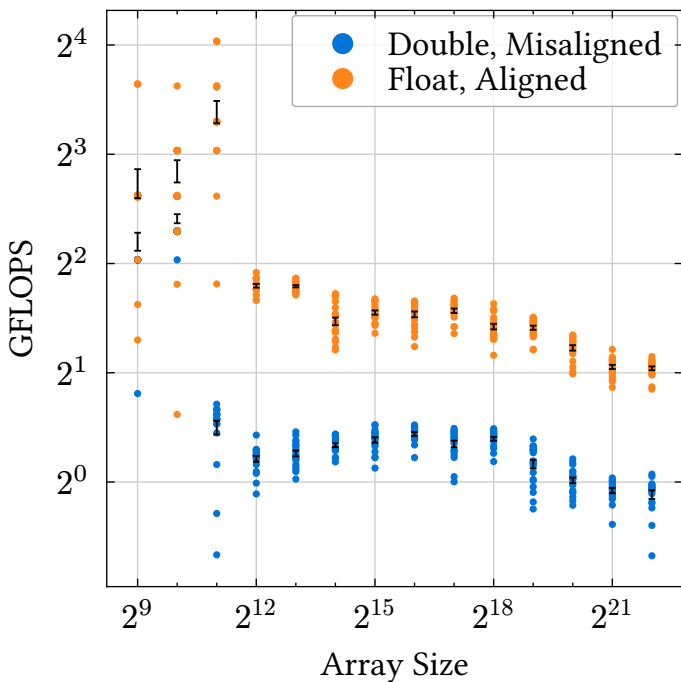
# Elementwise Multiply: Odd Length vs SIMD Aligned Length



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-8.8647\text{e-}7)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-8.0610\text{e-}7)$

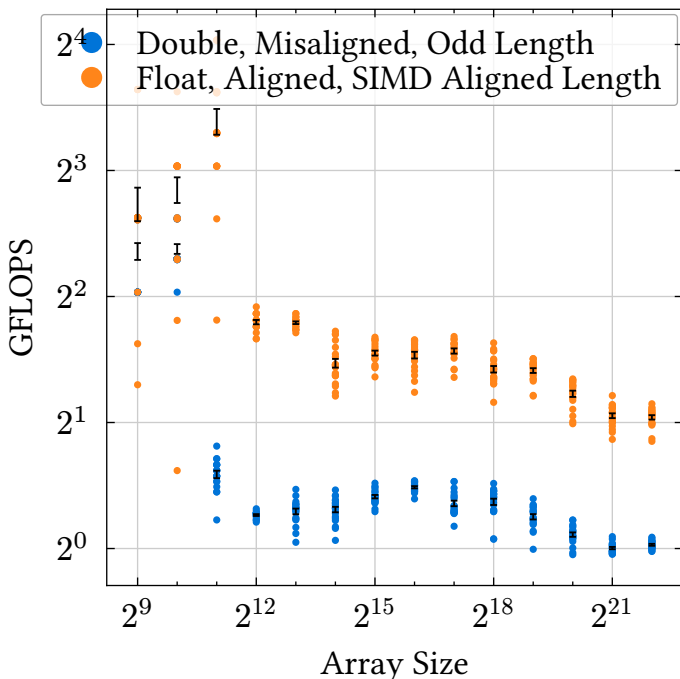
# Elementwise Multiply: Double, Misaligned vs Float, Aligned



With SIMD: GFLOPS = (arraySize) \* (-3.5793e-7)

With SIMD: GFLOPS = (arraySize) \* (-8.0610e-7)

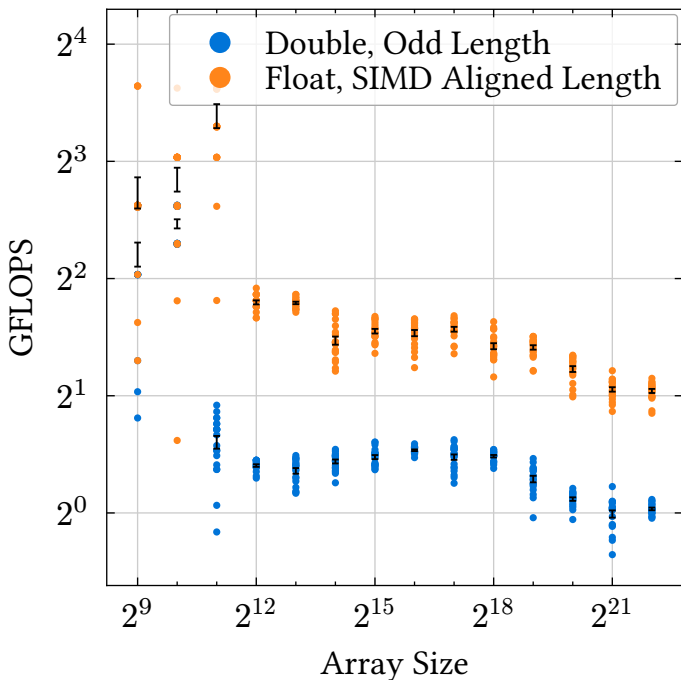
# Elementwise Multiply: Double, Misaligned, Odd Length vs Float, Aligned, SIMD Aligned Length



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.4757\text{e-}7)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-8.0610\text{e-}7)$

# Elementwise Multiply: Double, Odd Length vs Float, SIMD Aligned Length

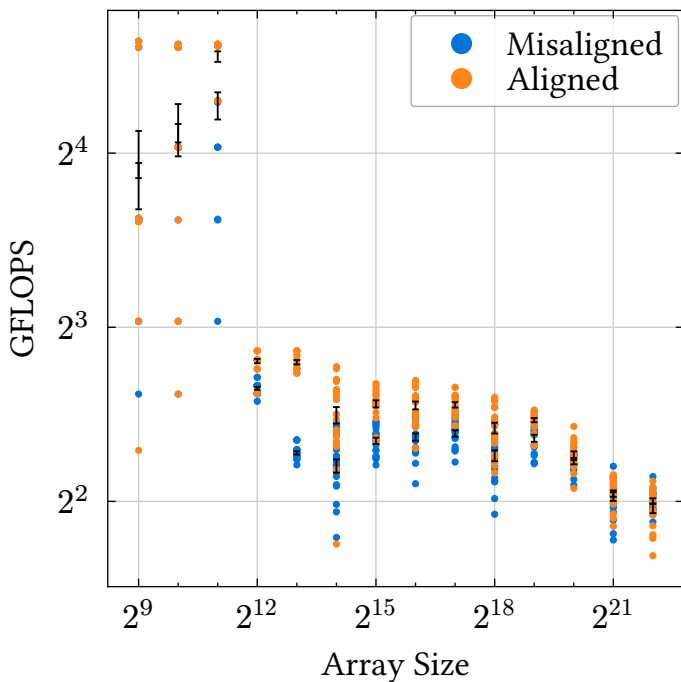


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5462\text{e-}7)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-8.0610\text{e-}7)$

# Saxpy:

## Misaligned vs Aligned



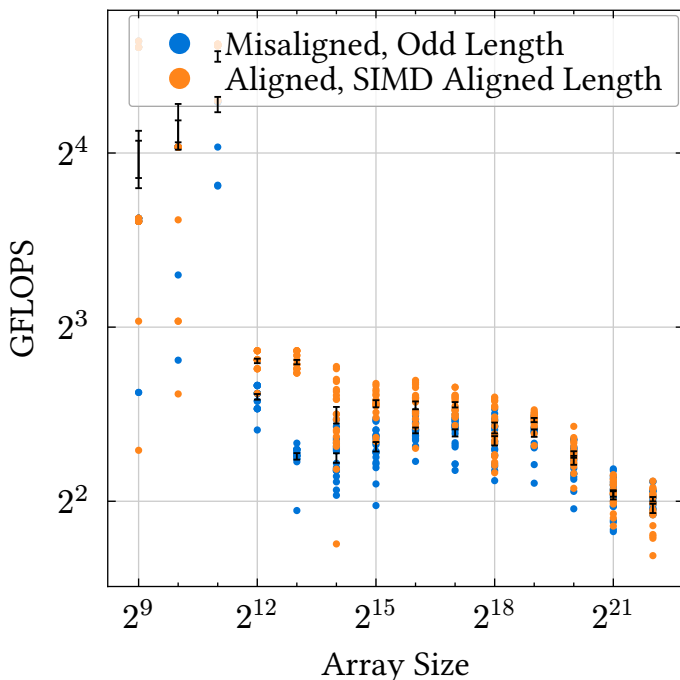
With SIMD: GFLOPS = (arraySize) \* (-1.4897e-6)

With SIMD: GFLOPS = (arraySize) \* (-1.9215e-6)

# Saxpy:

## Misaligned, Odd Length vs Aligned, SIMD

### Aligned Length



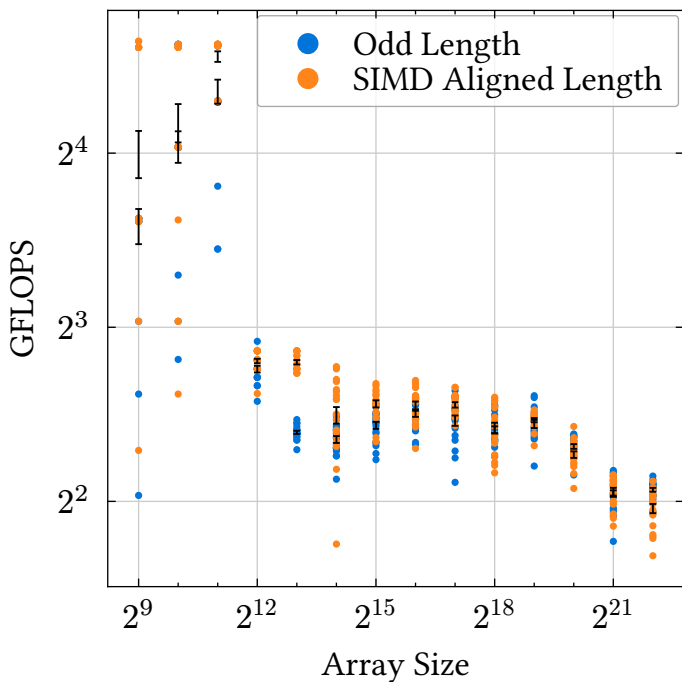
With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.5220\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9215\text{e-}6)$



# Saxpy:

## Odd Length vs SIMD Aligned Length

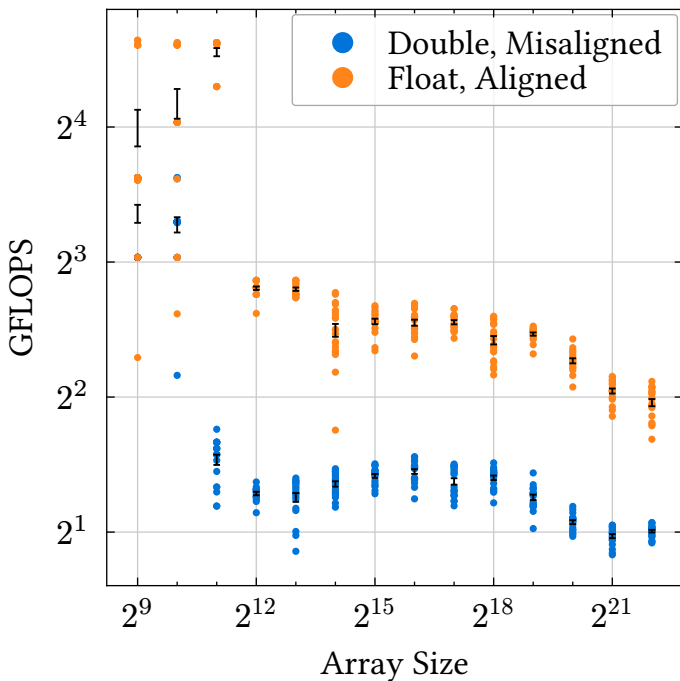


With SIMD: GFLOPS = (arraySize) \* (-1.4905e-6)

With SIMD: GFLOPS = (arraySize) \* (-1.9215e-6)

# Saxpy:

## Double, Misaligned vs Float, Aligned

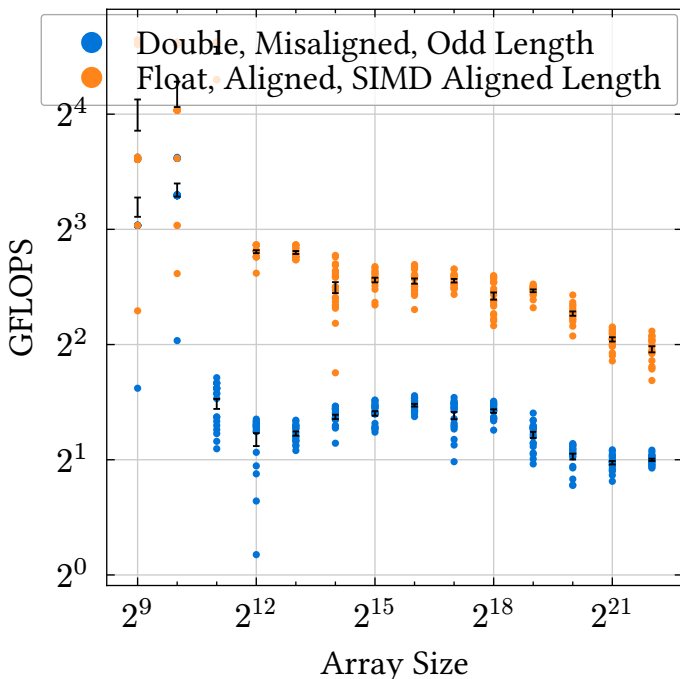


With SIMD: GFLOPS = (arraySize) \* (-6.7712e-7)

With SIMD: GFLOPS = (arraySize) \* (-1.9215e-6)

# Saxpy:

## Double, Misaligned, Odd Length vs Float, Aligned, SIMD Aligned Length



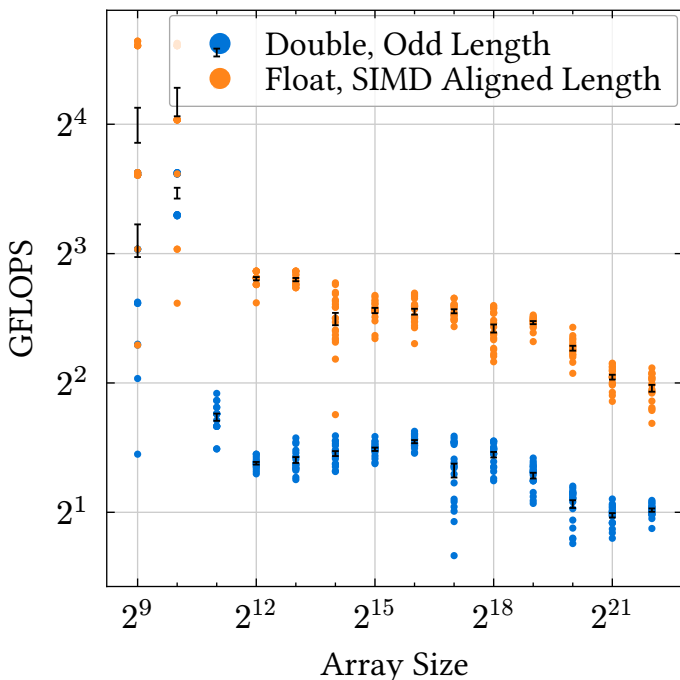
With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-6.5812\text{e-}7)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9215\text{e-}6)$

# Saxpy:

## Double, Odd Length vs Float, SIMD

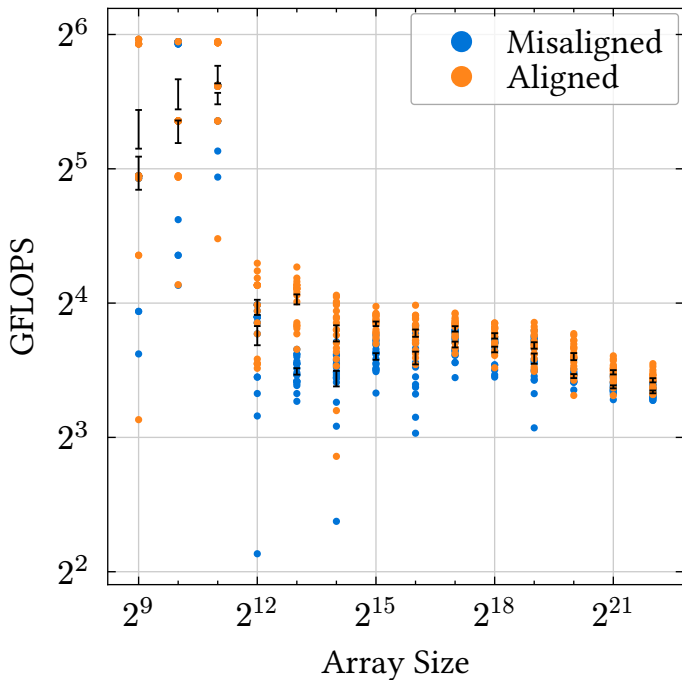
### Aligned Length



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-7.0216\text{e-}7)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9215\text{e-}6)$

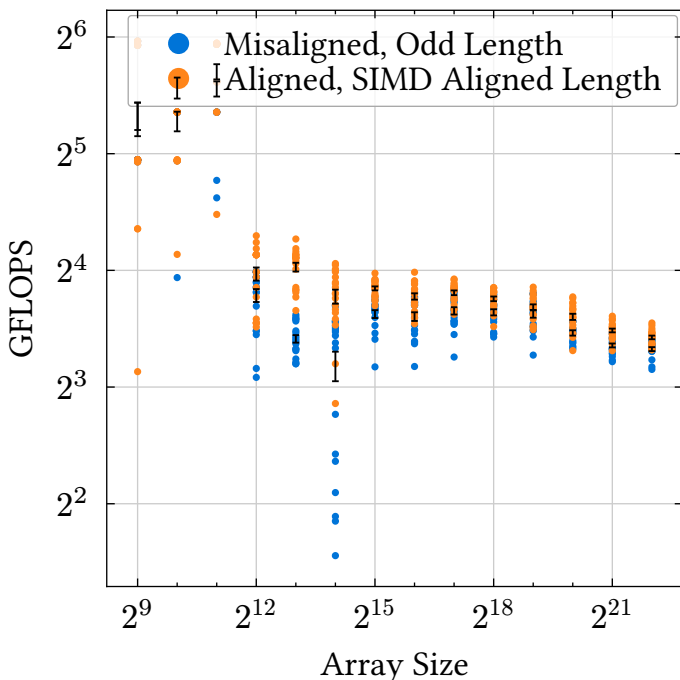
# Stencil: Misaligned vs Aligned



With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.4005\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.9973\text{e-}6)$

## Stencil:

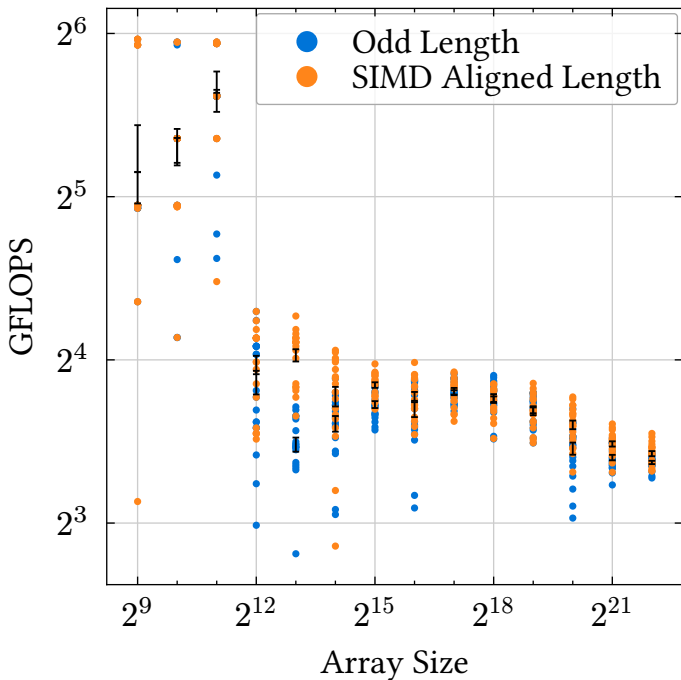


With SIMD: GFLOPS = (arraySize) \* (-3.8405e-6)

With SIMD: GFLOPS = (arraySize) \* (-3.9973e-6)

# Stencil:

## Odd Length vs SIMD Aligned Length

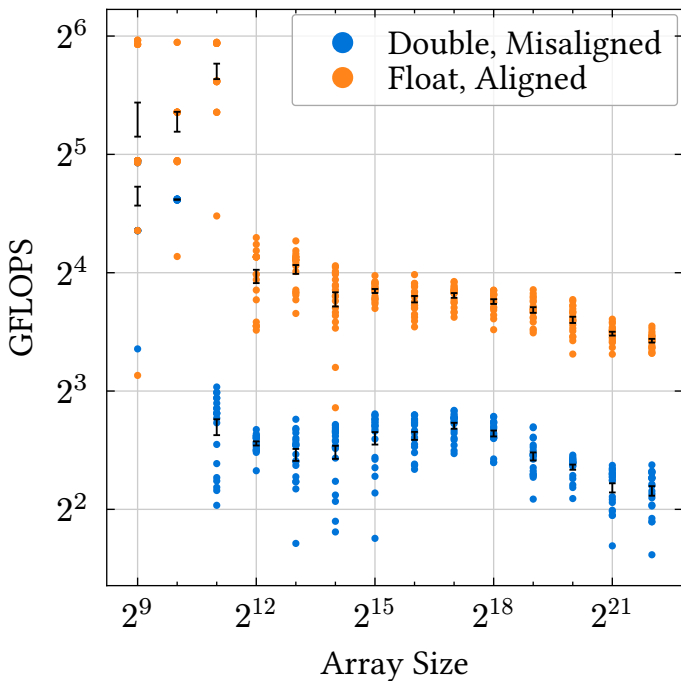


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5926\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.9973\text{e-}6)$

# Stencil:

## Double, Misaligned vs Float, Aligned

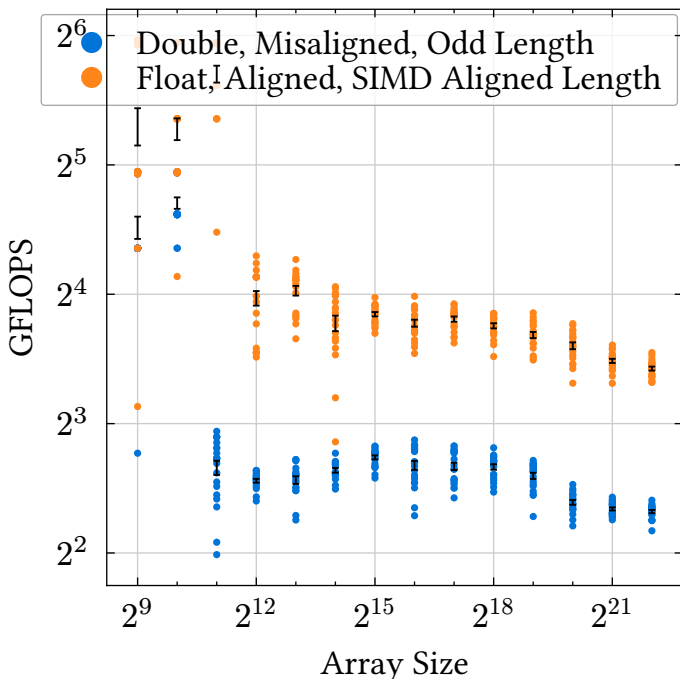


With SIMD: GFLOPS = (arraySize) \* (-1.5020e-6)

With SIMD: GFLOPS = (arraySize) \* (-3.9973e-6)



# Stencil: Double, Misaligned, Odd Length vs Float, Aligned, SIMD Aligned Length



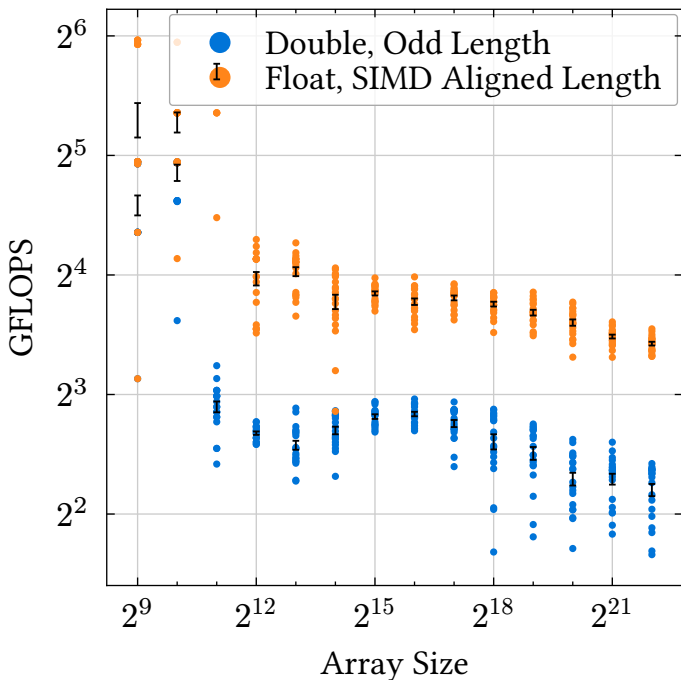
With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.5824\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.9973\text{e-}6)$

# Stencil:

## Double, Odd Length vs Float, SIMD

### Aligned Length

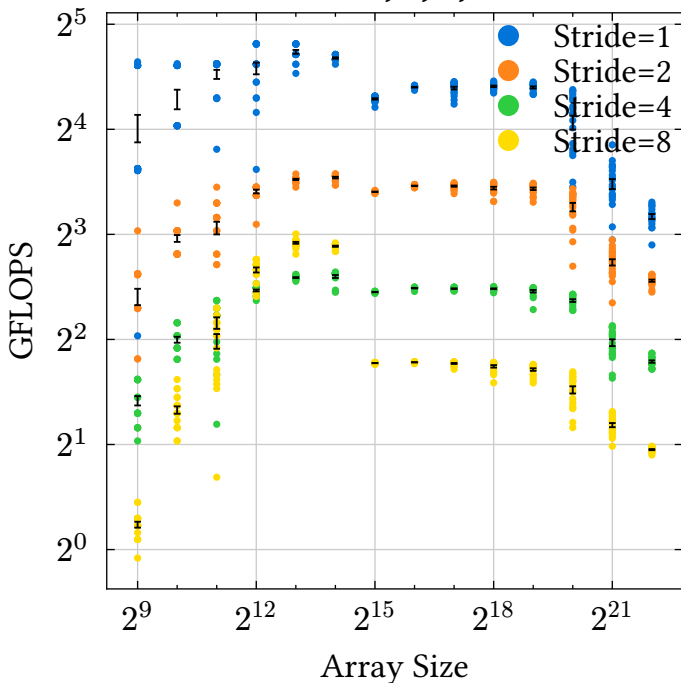


With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9242\text{e-}6)$

With SIMD:  $\text{GFLOPS} = (\text{arraySize}) * (-3.9973\text{e-}6)$

# Dot Product:

## Strides:1,2,4,8



Stride=1:  $\text{GFLOPS} = (\text{arraySize}) * (-3.5168\text{e-}6)$

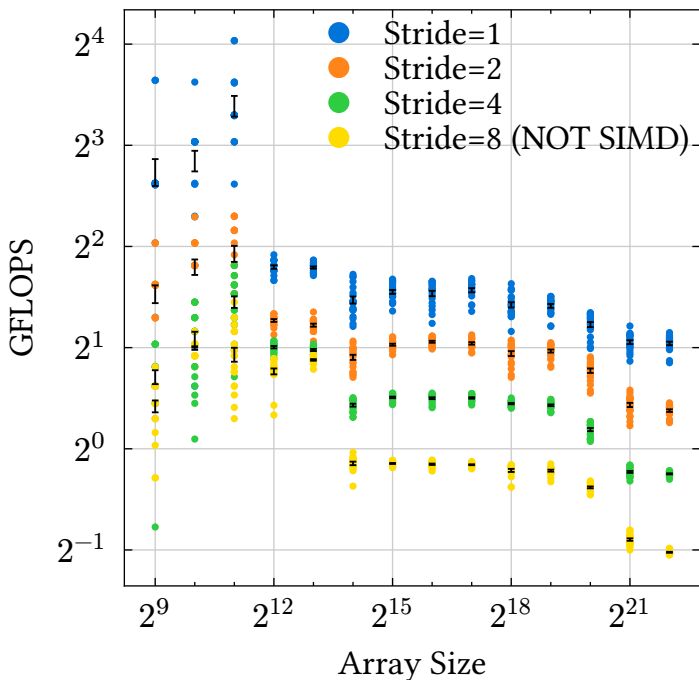
Stride=2:  $\text{GFLOPS} = (\text{arraySize}) * (-1.0029\text{e-}6)$

Stride=4:  $\text{GFLOPS} = (\text{arraySize}) * (-4.0462\text{e-}7)$

Stride=8:  $\text{GFLOPS} = (\text{arraySize}) * (-6.7145\text{e-}7)$

# Elementwise Multiply:

## Strides:1,2,4,8



Stride=1:  $\text{GFLOPS} = (\text{arraySize}) * (-8.0610\text{e-}7)$

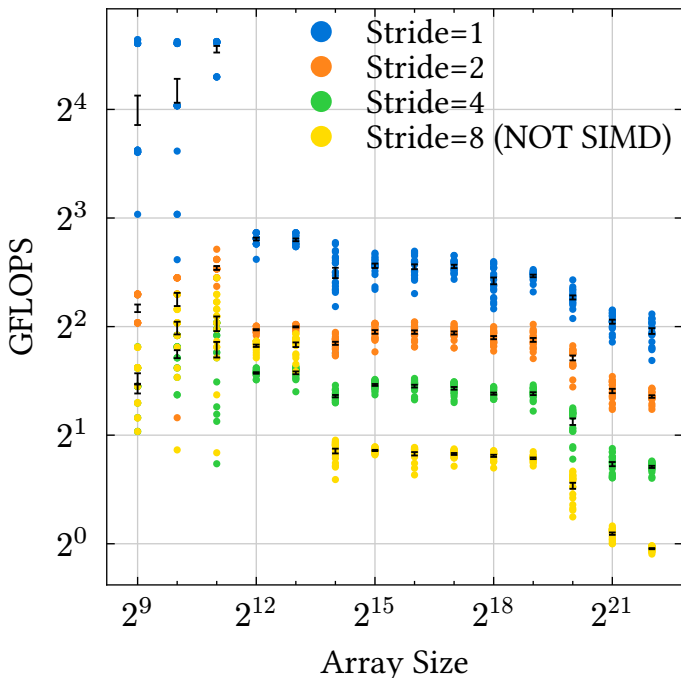
Stride=2:  $\text{GFLOPS} = (\text{arraySize}) * (-3.6157\text{e-}7)$

Stride=4:  $\text{GFLOPS} = (\text{arraySize}) * (-2.7003\text{e-}7)$

Stride=8:  $\text{GFLOPS} = (\text{arraySize}) * (-2.5507\text{e-}7)$

# Saxpy:

## Strides:1,2,4,8



Stride=1:  $\text{GFLOPS} = (\text{arraySize}) * (-1.9215\text{e-}6)$

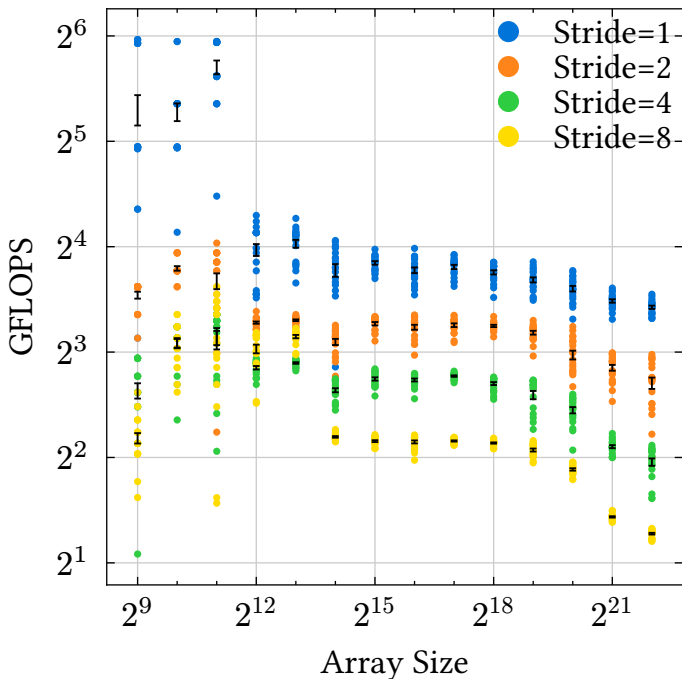
Stride=2:  $\text{GFLOPS} = (\text{arraySize}) * (-4.7805\text{e-}7)$

Stride=4:  $\text{GFLOPS} = (\text{arraySize}) * (-3.6732\text{e-}7)$

Stride=8:  $\text{GFLOPS} = (\text{arraySize}) * (-5.3622\text{e-}7)$

# Stencil:

## Strides:1,2,4,8



Stride=1:  $\text{GFLOPS} = (\text{arraySize}) * (-3.9973\text{e-}6)$

Stride=2:  $\text{GFLOPS} = (\text{arraySize}) * (-1.1216\text{e-}6)$

Stride=4:  $\text{GFLOPS} = (\text{arraySize}) * (-9.0776\text{e-}7)$

Stride=8:  $\text{GFLOPS} = (\text{arraySize}) * (-1.0891\text{e-}6)$