Dot Product

SIMD
Not SIMD

GFLOPS

Array Size

Speedup: 11.454397112940903

Dot Product, Double

Legend: SIMD, Not SIMD

GFLOPS vs Array Size
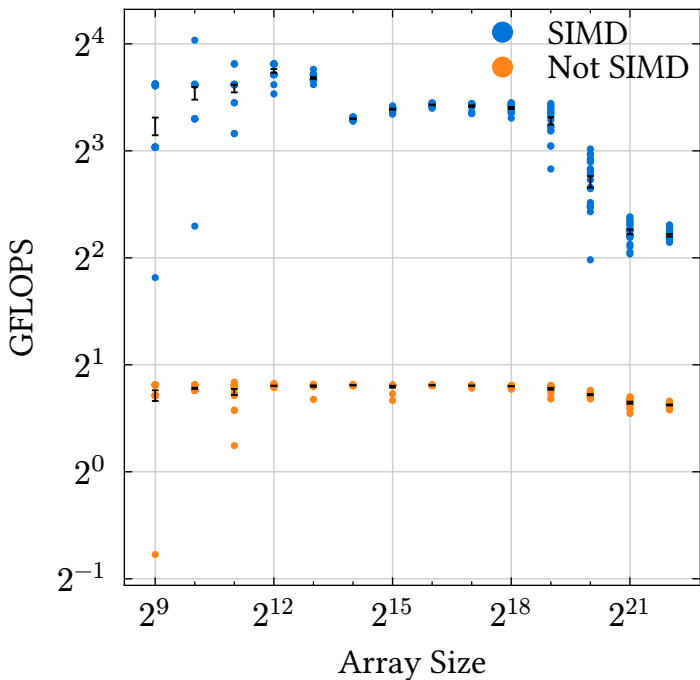
Speedup: 5.775308141015934

Dot Product, Stride=2

GFLOPS vs Array Size

SIMD
Not SIMD
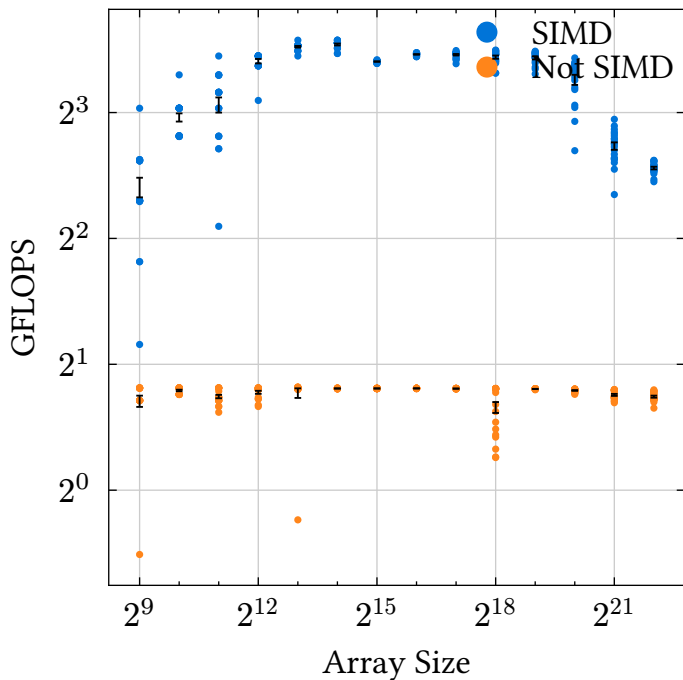
Speedup: 5.478315106608185

Dot Product, Stride=4

SIMD
Not SIMD

GFLOPS

Array Size

2^9 2^{12} 2^{15} 2^{18} 2^{21}
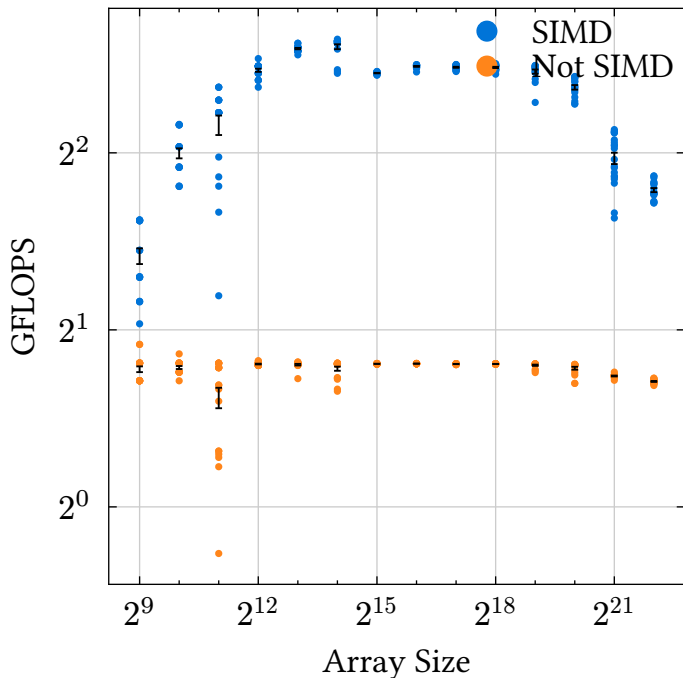
Speedup: 2.876604383953651

Dot Product, Stride=8

SIMD
Not SIMD

GFLOPS

Array Size

Speedup: 2.200958560044639

Elementwise Multiply

Array Size
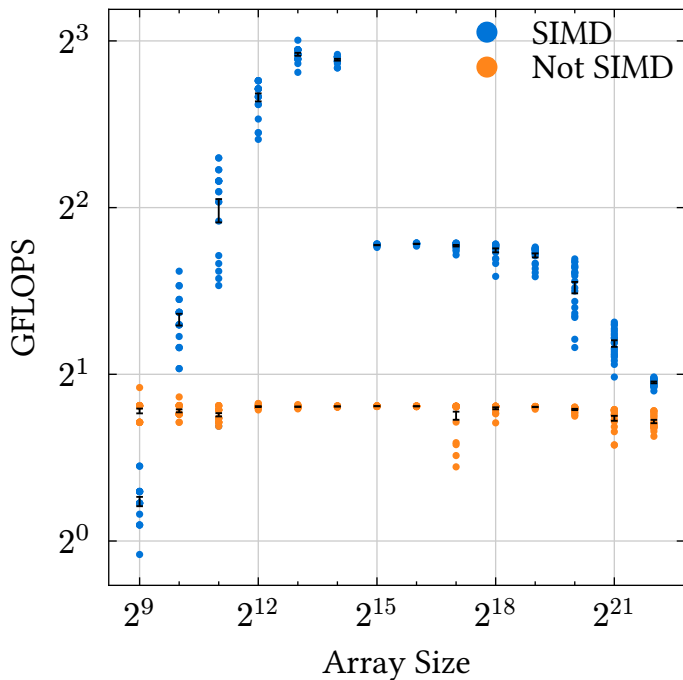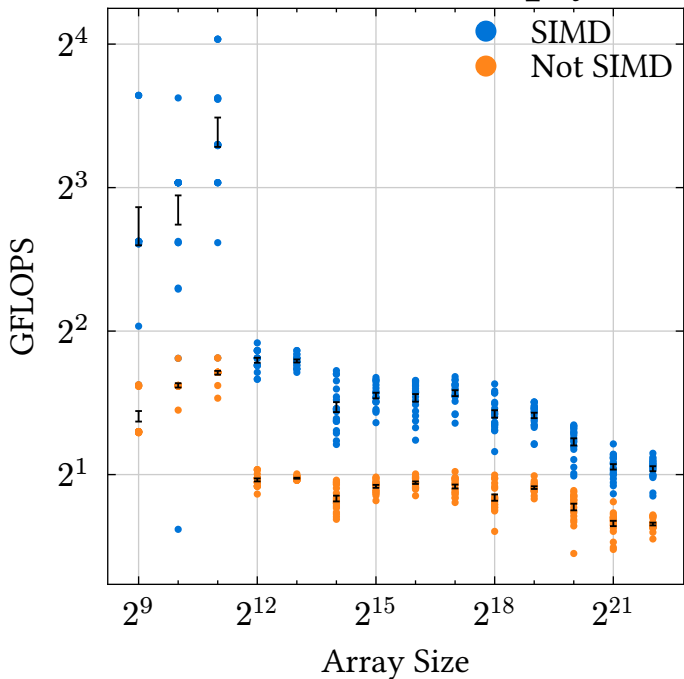
Speedup: 1.9083927683610362

Elementwise Multiply, Double

Legend: SIMD, Not SIMD

GFLOPS vs Array Size
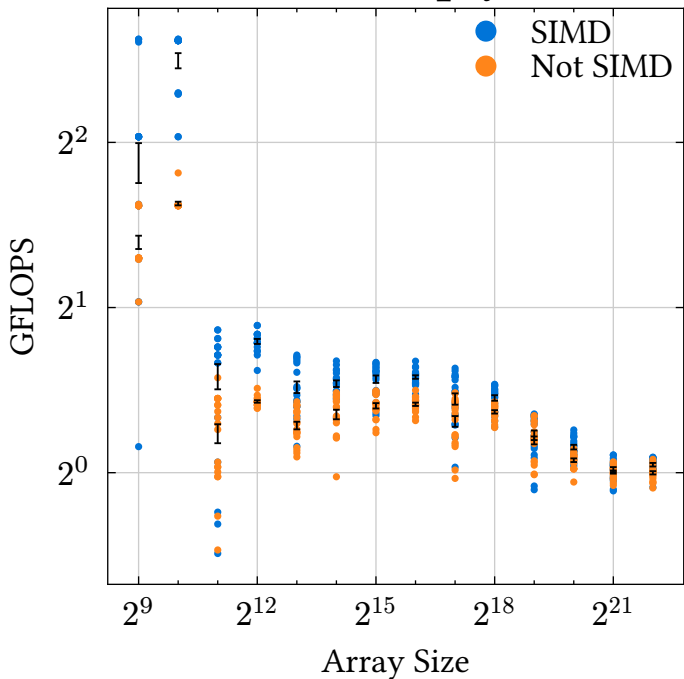
Speedup: 1.2624271266133242

Elementwise Multiply, Stride=2

GFLOPS

Array Size

Speedup: 1.186740427398559

Legend:
- SIMD
- Not SIMD

Elementwise Multiply, Stride=4

SIMD
Not SIMD

GFLOPS

Array Size
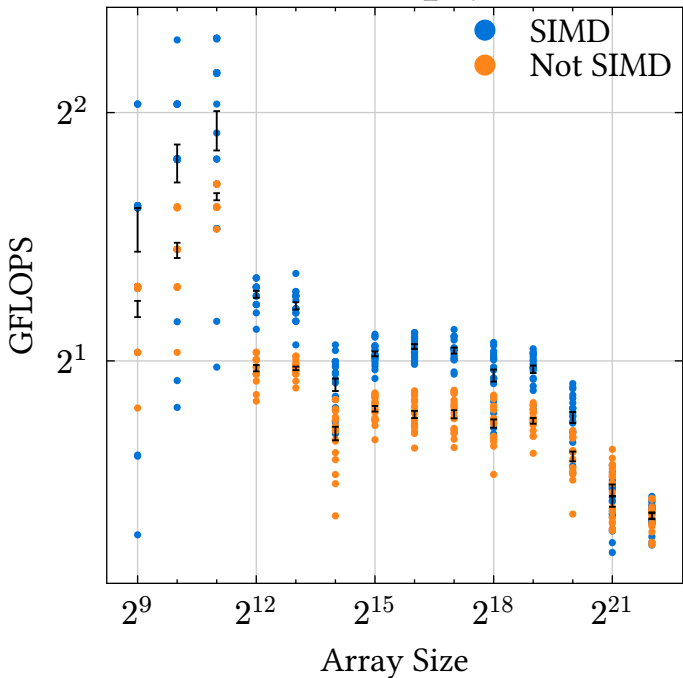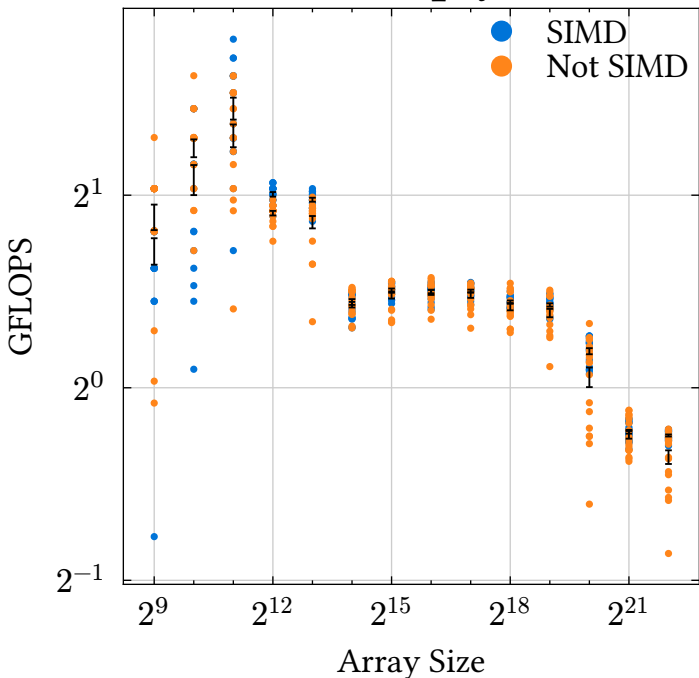
Speedup: 1.0108862801916076

Saxpy

GFLOPS vs Array Size

Legend: SIMD, Not SIMD

Speedup: 2.063606664991188

Saxpy, Double

GFLOPS vs Array Size

Legend: SIMD, Not SIMD
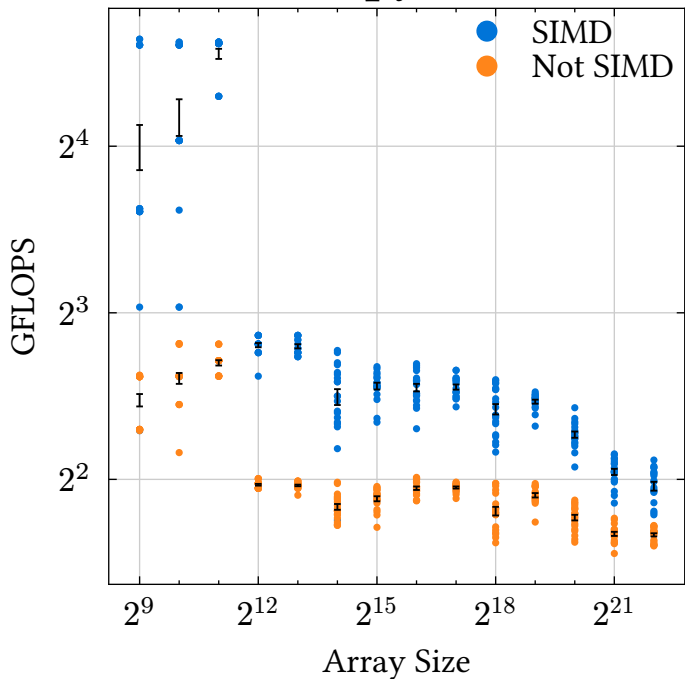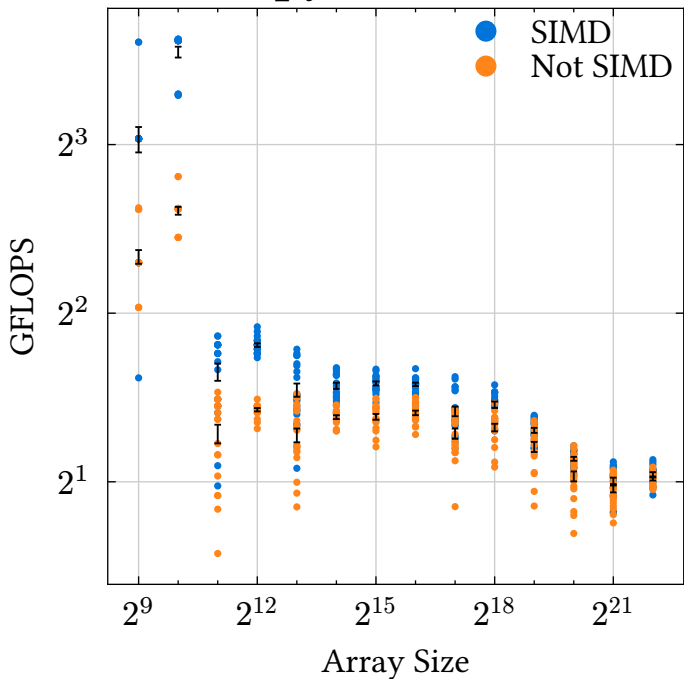
Speedup: 1.3064034294884248

Saxpy, Stride=2

Legend: SIMD, Not SIMD

GFLOPS vs Array Size (2^9 to 2^{21})

Speedup: 1.0210602626354748

Saxpy, Stride=4

GFLOPS vs Array Size
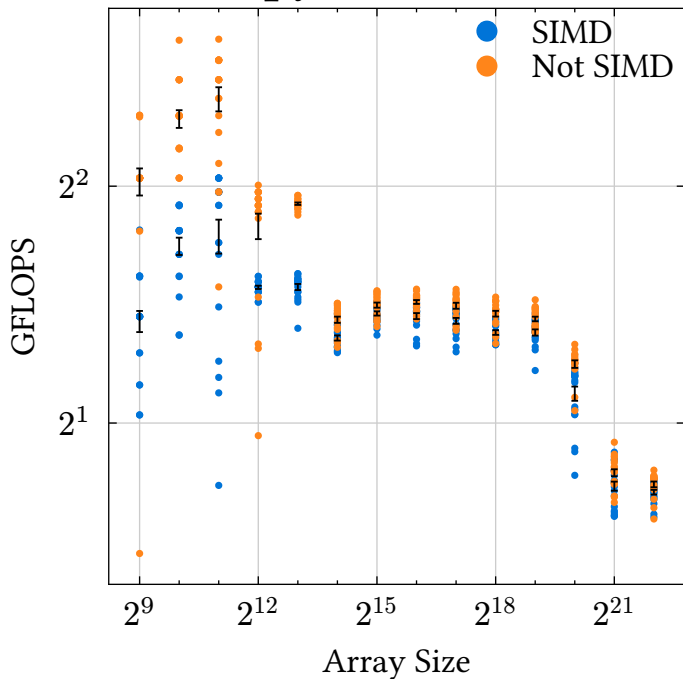
- SIMD
- Not SIMD

Speedup: 0.8362427403652717

Stencil

SIMD
Not SIMD

GFLOPS

Array Size

Speedup: 2.019751276027687

Stencil, Double

Legend: SIMD, Not SIMD

Y-axis: GFLOPS (2^5, 2^4, 2^3, 2^2)

X-axis: Array Size (2^9, 2^{12}, 2^{15}, 2^{18}, 2^{21})

Speedup: 1.333164229954466

Stencil, Stride=2

GFLOPS vs Array Size

- SIMD
- Not SIMD

Speedup: 1.0174122651182194

Stencil, Stride=4

Speedup: 0.8293672818883444

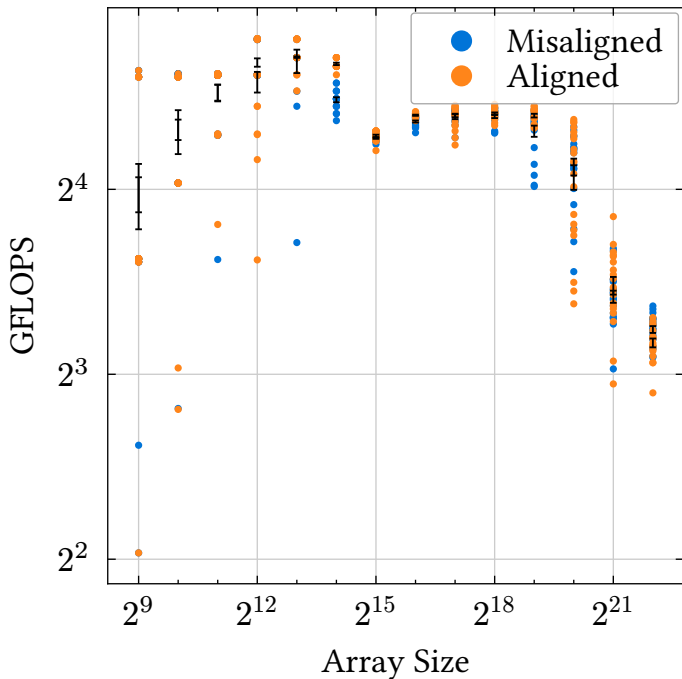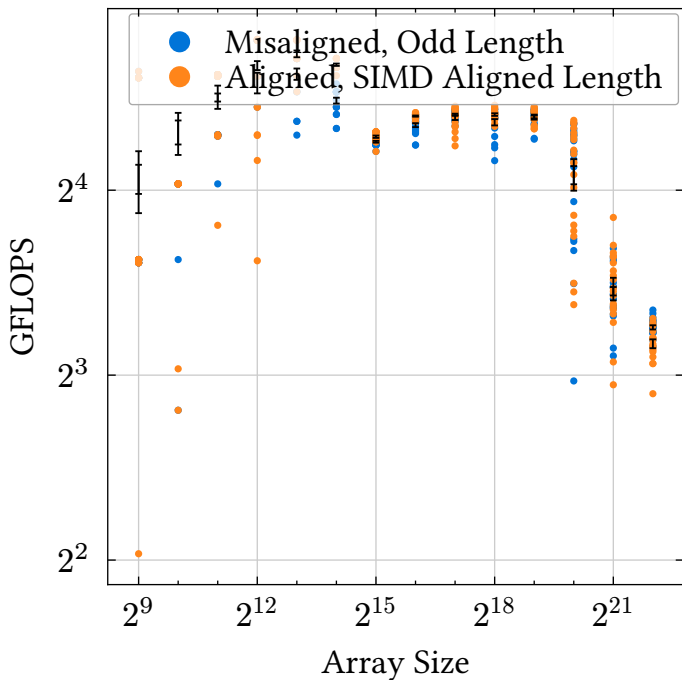**Stencil, Stride=8**

GFLOPS vs Array Size

Legend: SIMD, Not SIMD
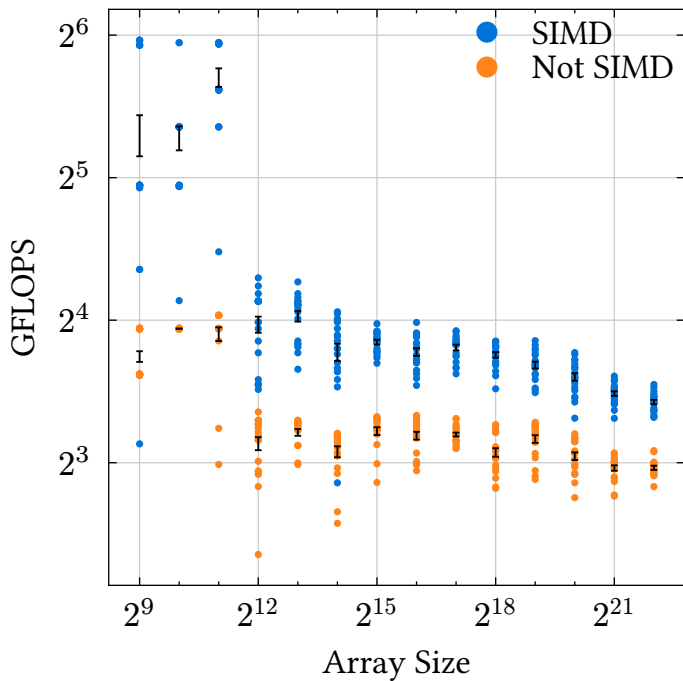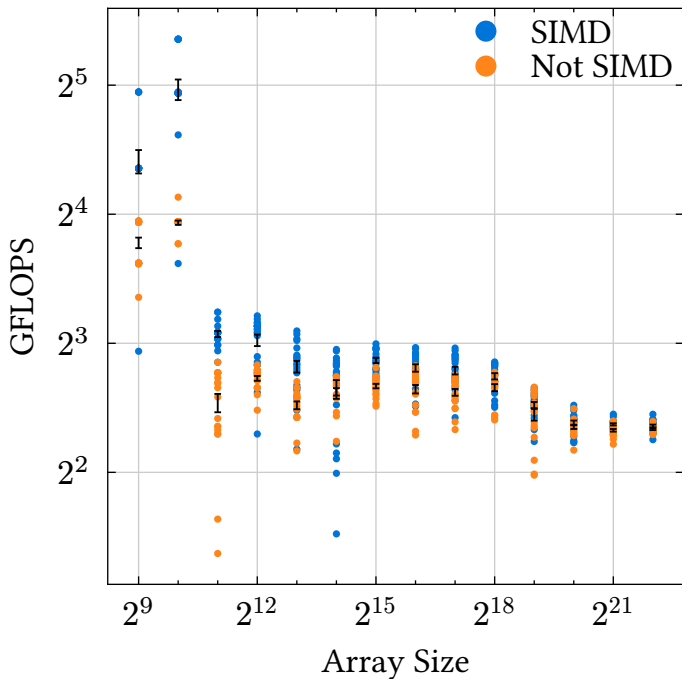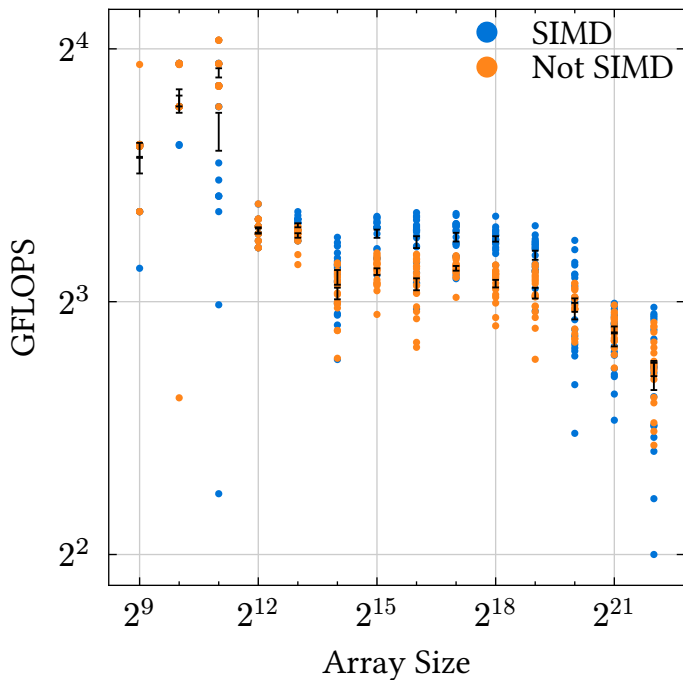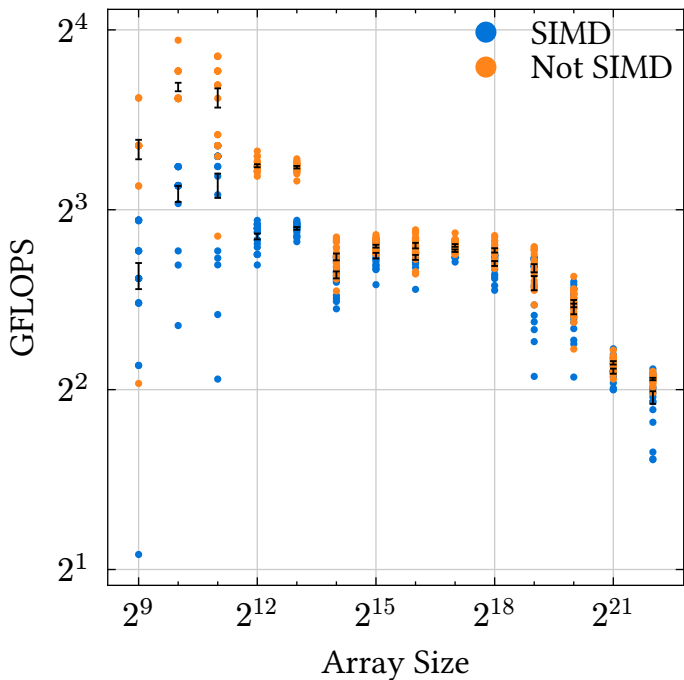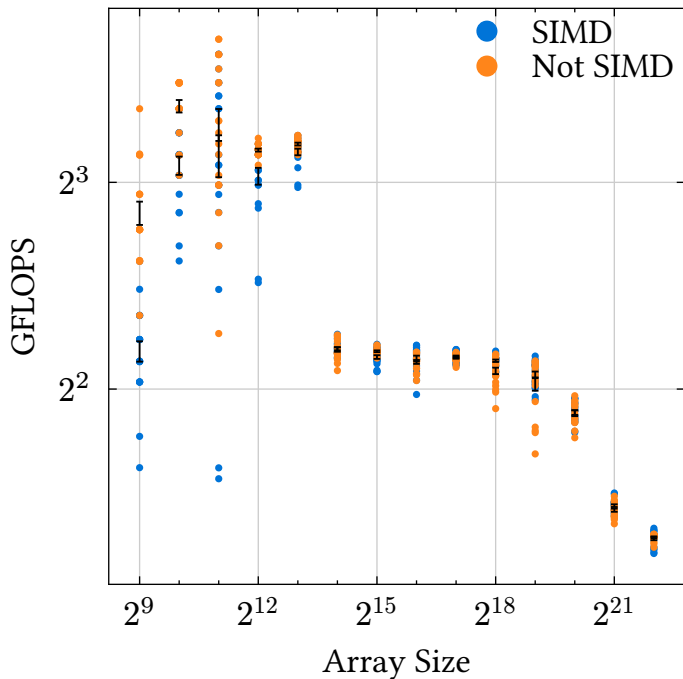
Speedup: 0.9122197663920426

Dot Product: Misaligned vs Aligned

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

- Misaligned, Odd Length
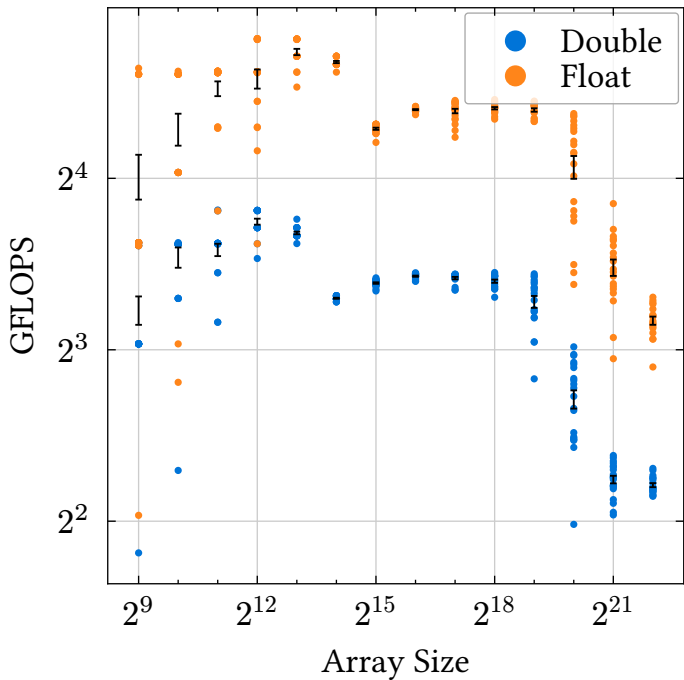- Aligned, SIMD Aligned Length

GFLOPS vs Array Size

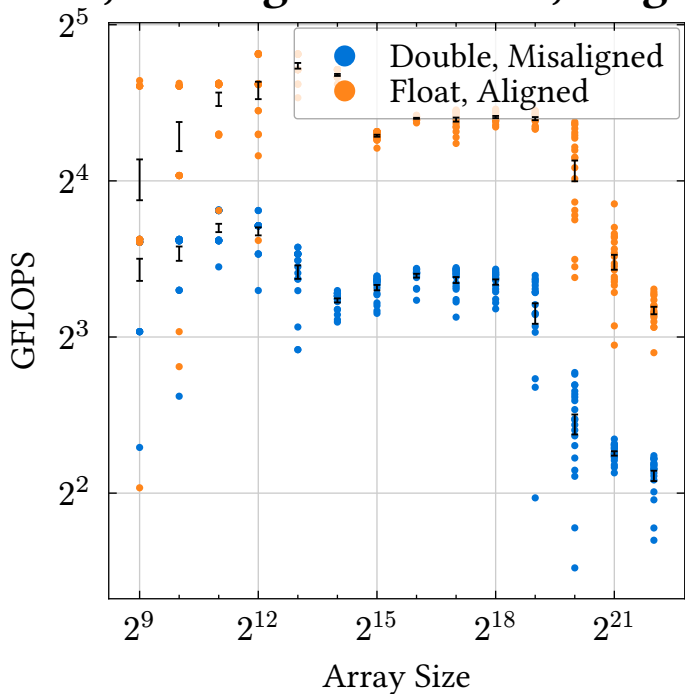**Dot Product: Odd Length vs SIMD Aligned Length**
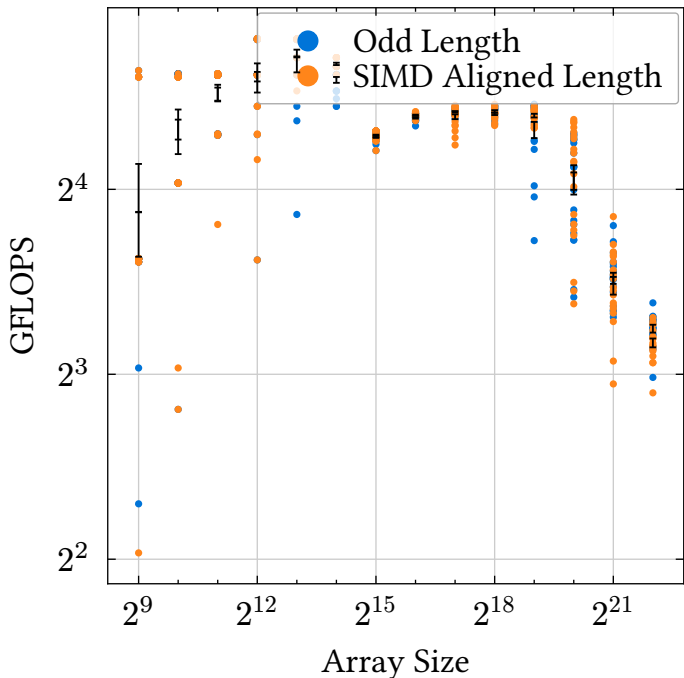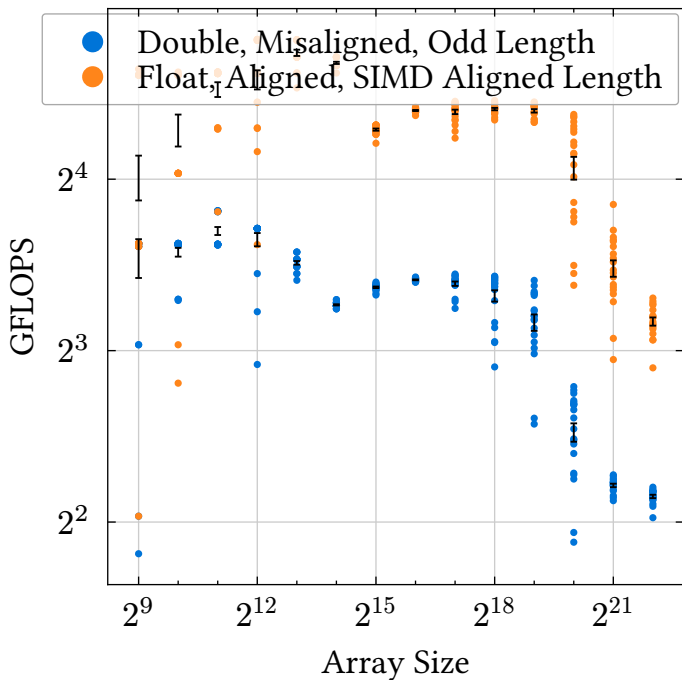
Dot Product: Double vs Float

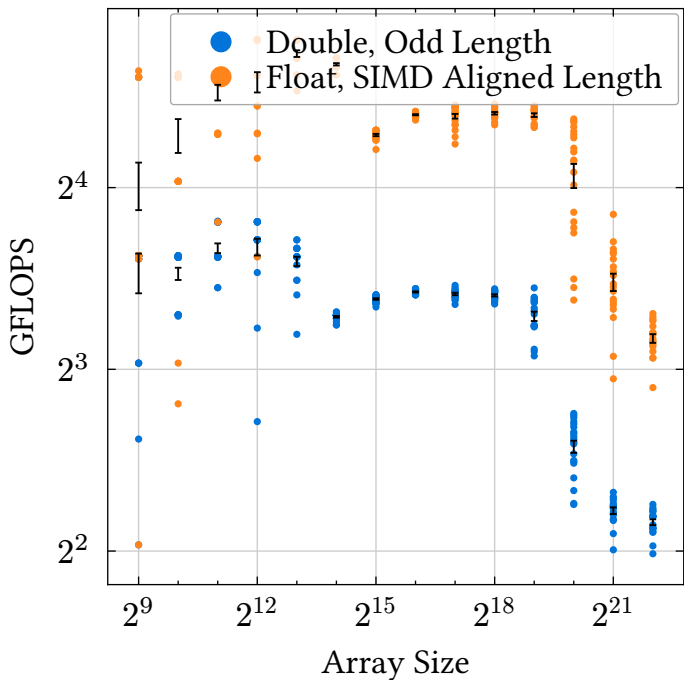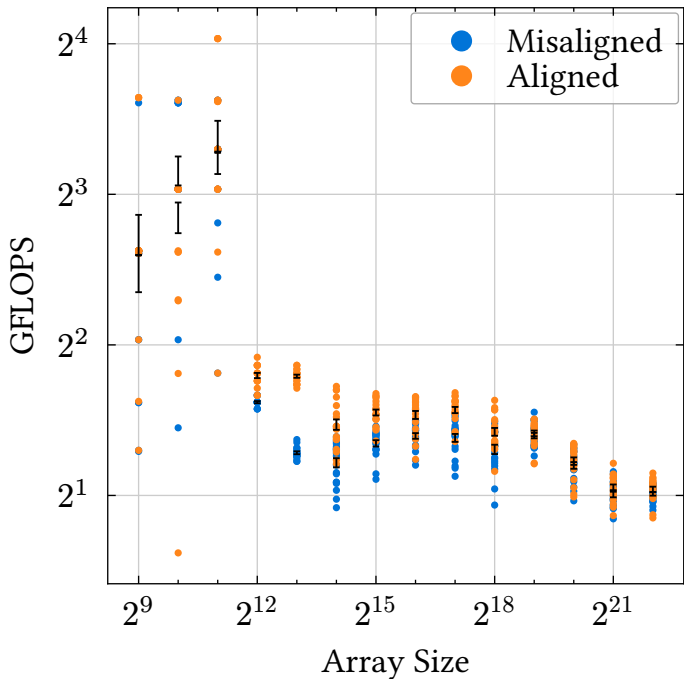**Dot Product: Double, Misaligned vs Float, Aligned**

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

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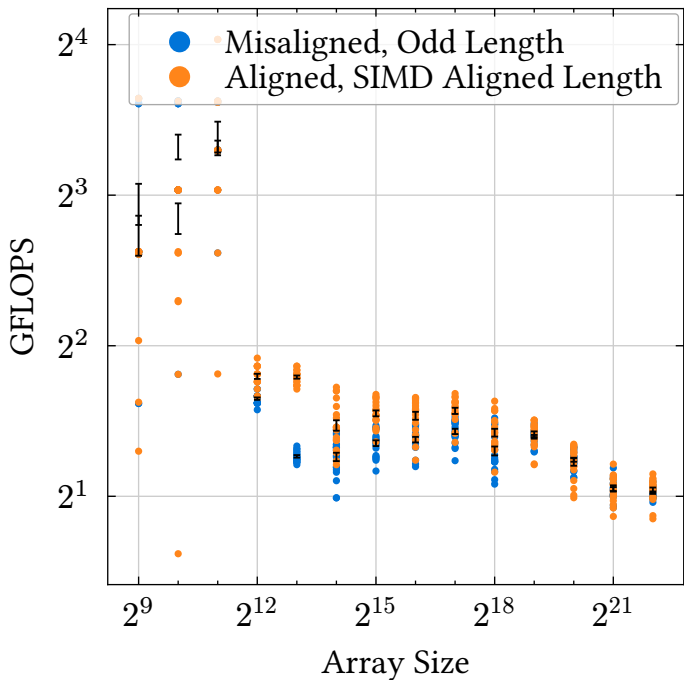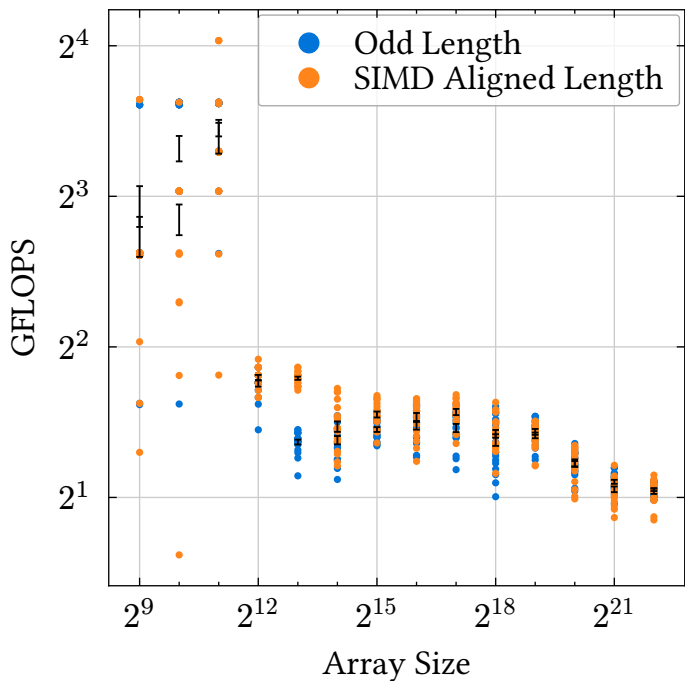# Double, Odd Length vs Float, SIMD Aligned Length
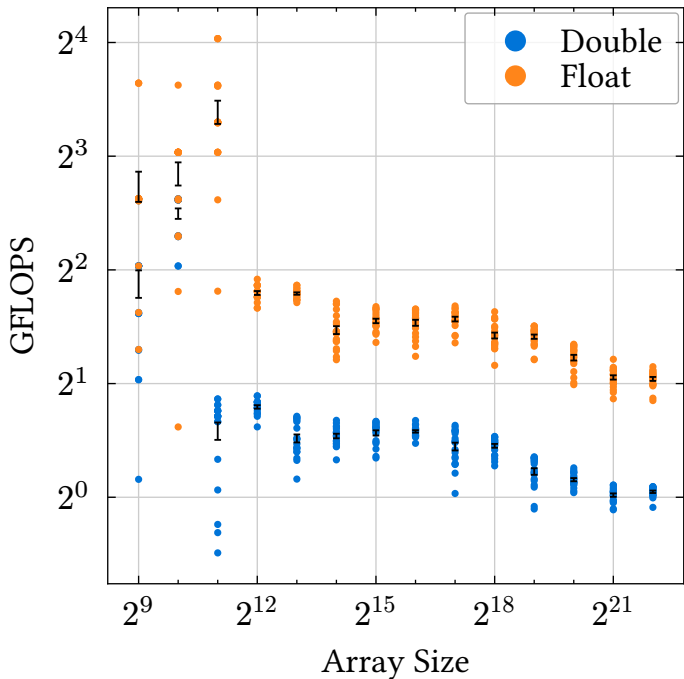
Elementwise Multiply: Misaligned vs Aligned

Legend:
- Misaligned
- Aligned

GFLOPS vs Array Size

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

Elementwise Multiply: Odd Length vs SIMD Aligned Length

Legend:
- Odd Length
- SIMD Aligned Length

X-axis: Array Size (2^9, 2^{12}, 2^{15}, 2^{18}, 2^{21})

Y-axis: GFLOPS (2^1, 2^2, 2^3, 2^4)

Elementwise Multiply: Double vs Float

Elementwise Multiply: Double, Misaligned vs Float, Aligned

GFLOPS vs Array Size

Legend: Double, Misaligned; Float, Aligned

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

- Double, Misaligned, Odd Length
- Float, Aligned, SIMD Aligned Length

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

Saxpy:
Misaligned vs Aligned

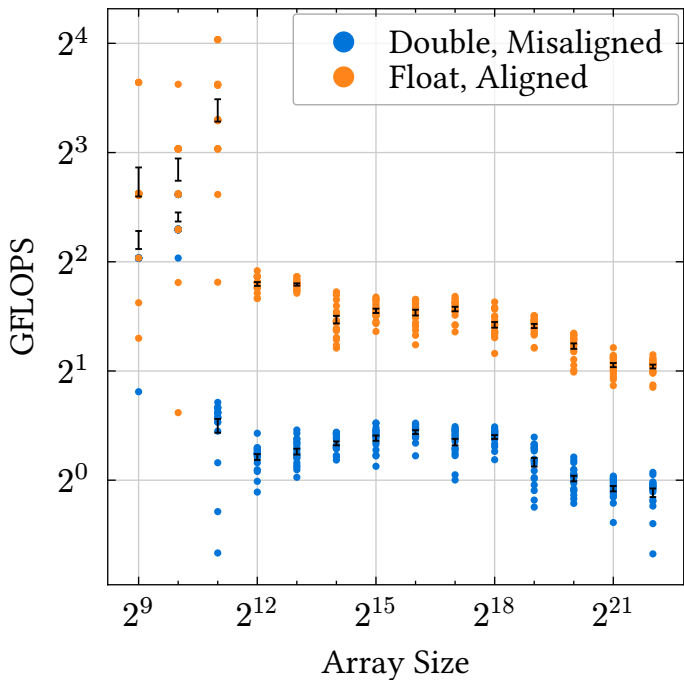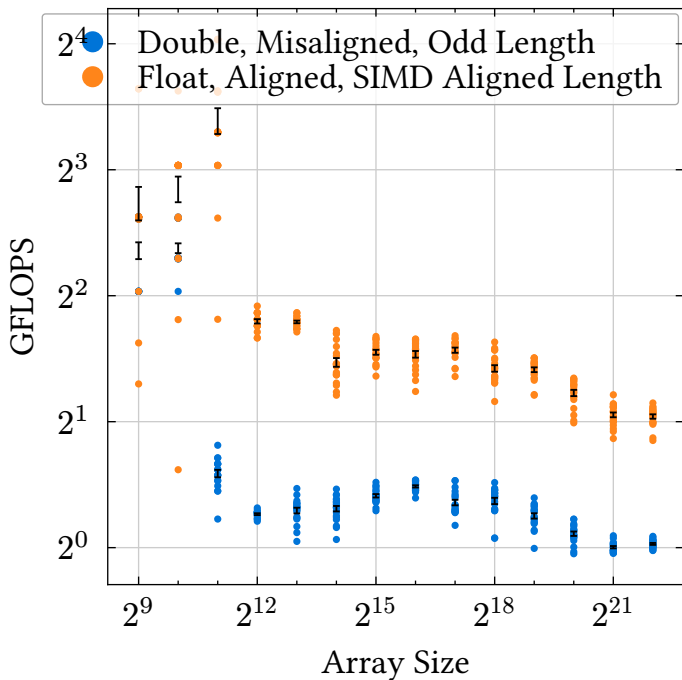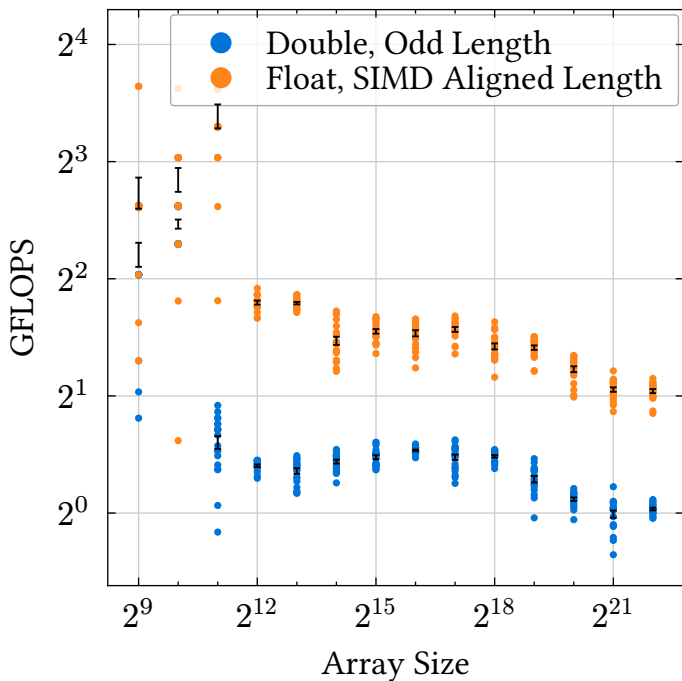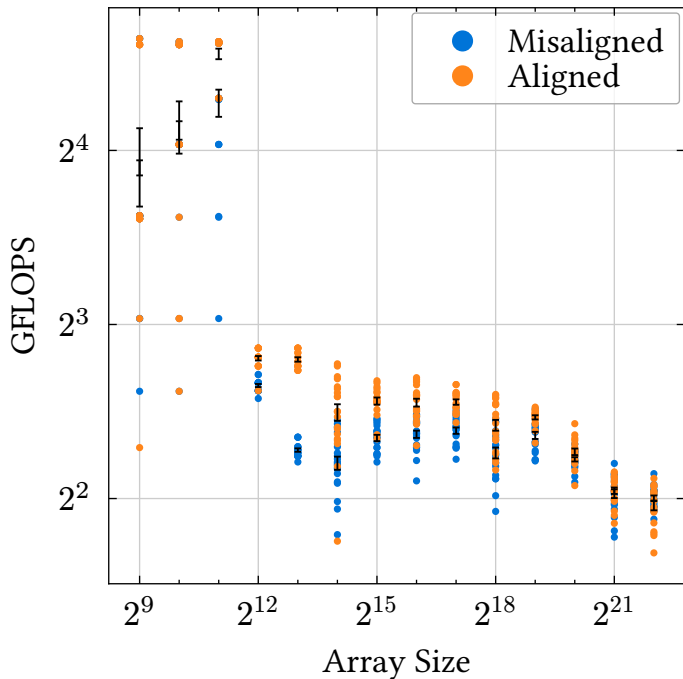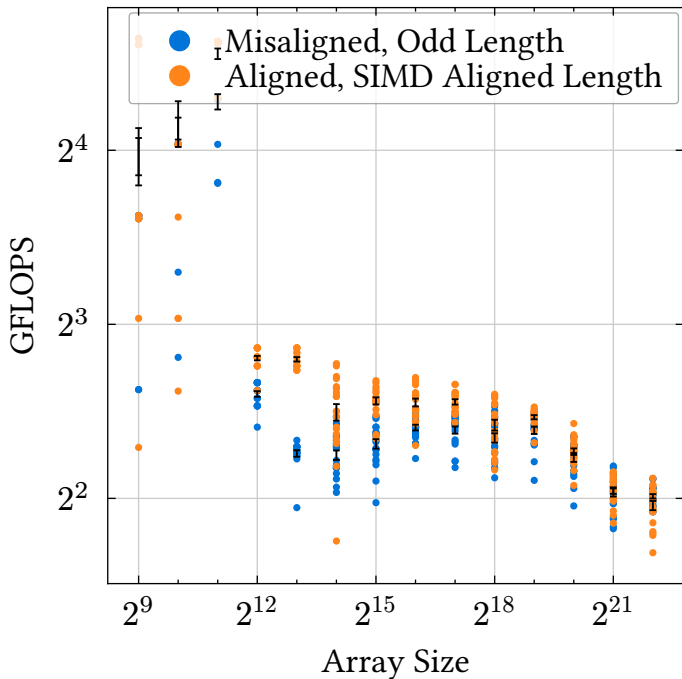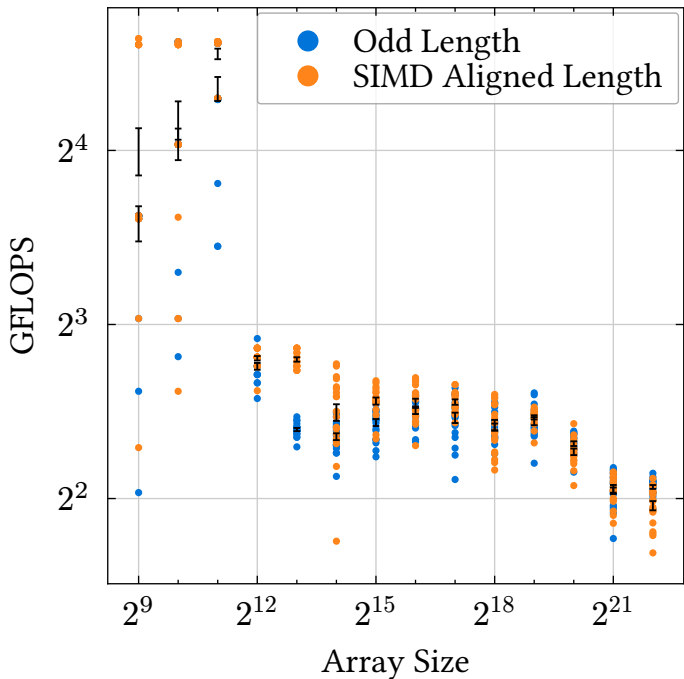**Saxpy:
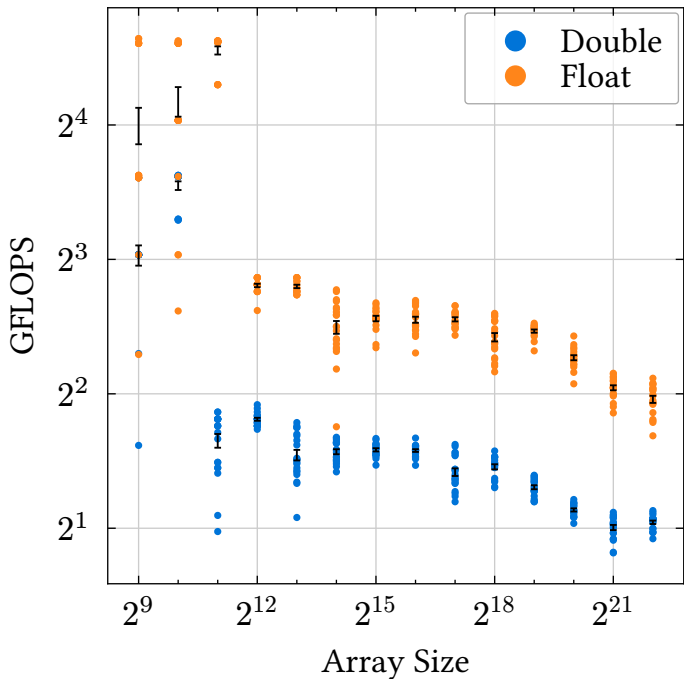Misaligned, Odd Length vs Aligned,
SIMD Aligned Length**

Legend:
- Misaligned, Odd Length
- Aligned, SIMD Aligned Length

Y-axis: GFLOPS (2^2, 2^3, 2^4)

X-axis: Array Size (2^9, 2^{12}, 2^{15}, 2^{18}, 2^{21})

**Saxpy:
Odd Length vs SIMD Aligned Length**

Legend:
- Odd Length
- SIMD Aligned Length

y-axis: GFLOPS
x-axis: Array Size

**Saxpy:
Double vs Float**

GFLOPS vs Array Size

- Double (blue)
- Float (orange)

**Saxpy:
Double, Misaligned vs Float, Aligned**

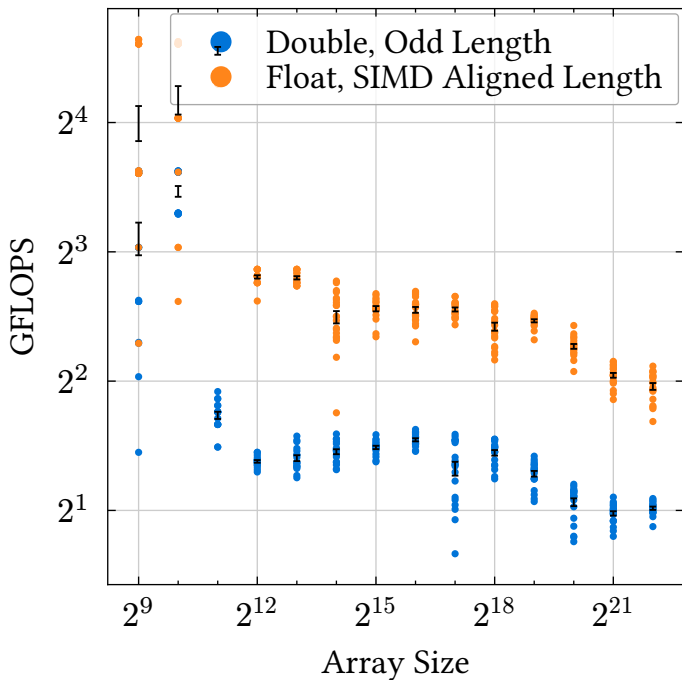- Double, Misaligned
- Float, Aligned

GFLOPS

Array Size
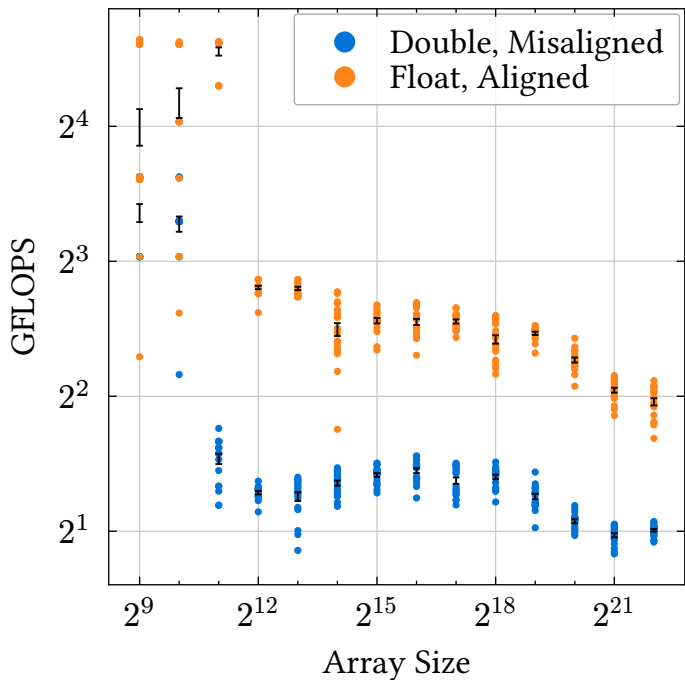
Saxpy:
Double, Misaligned, Odd Length vs Float, Aligned, SIMD Aligned Length
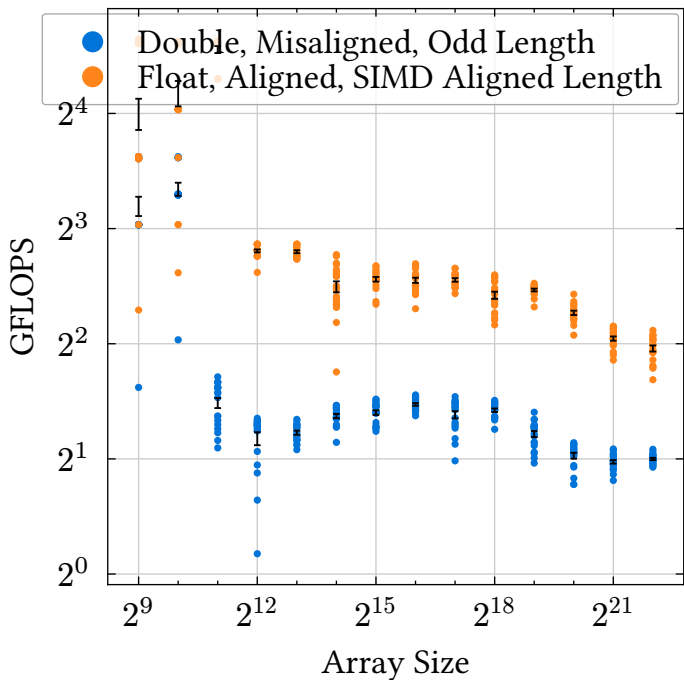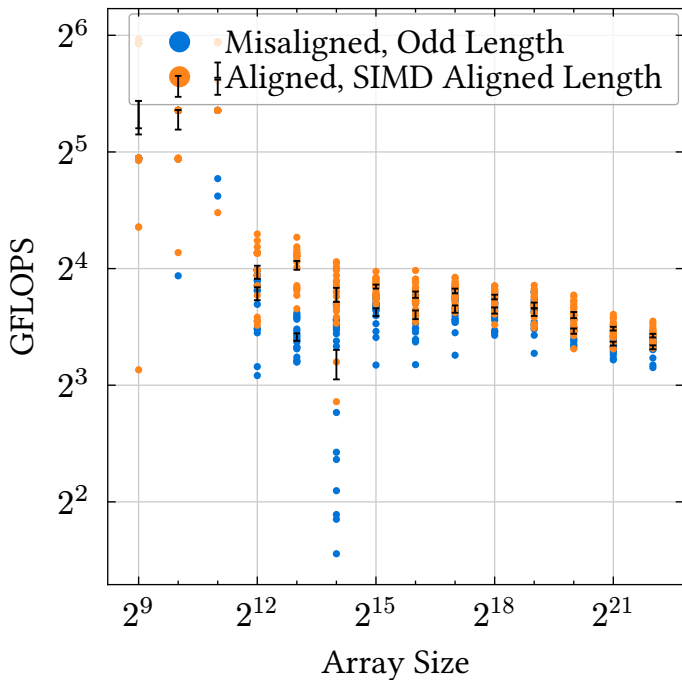
**Saxpy:
Double, Odd Length vs Float, SIMD
Aligned Length**

Legend:
- Double, Odd Length
- Float, SIMD Aligned Length

GFLOPS (y-axis) vs Array Size (x-axis)

Stencil: Misaligned vs Aligned

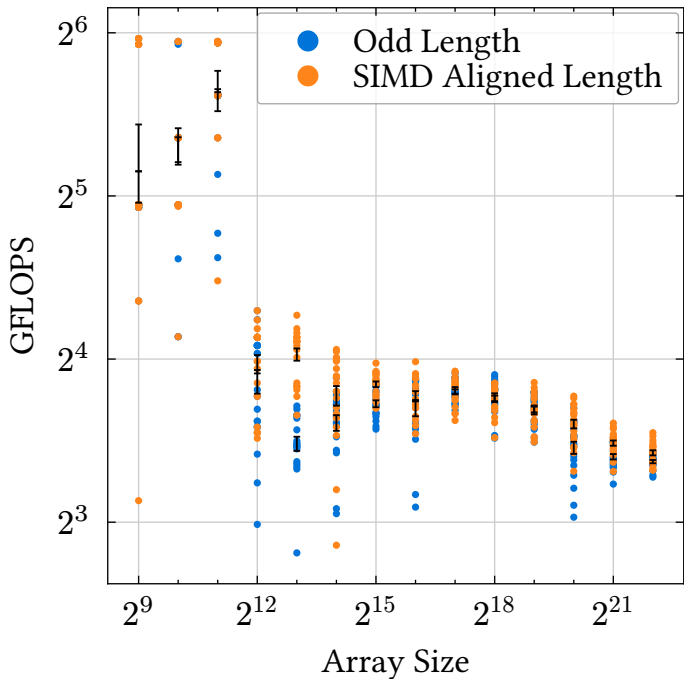GFLOPS vs Array Size
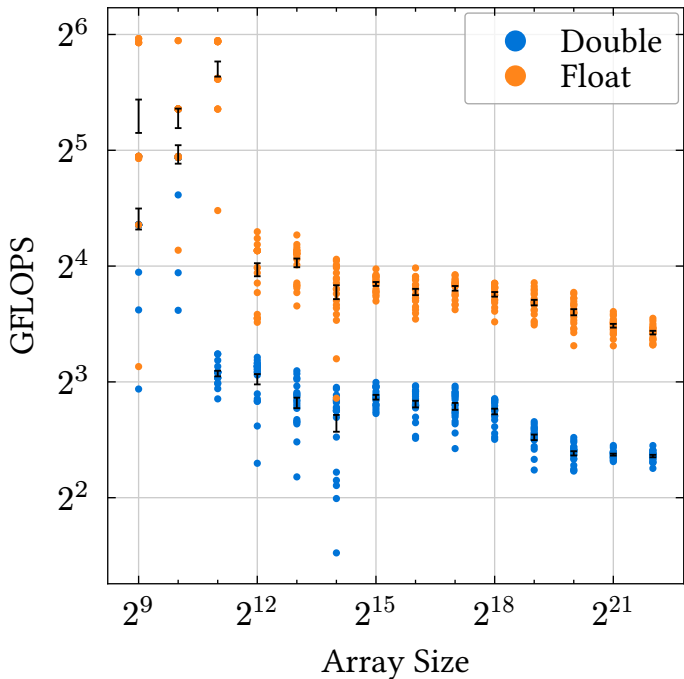
Legend:
- Misaligned
- Aligned
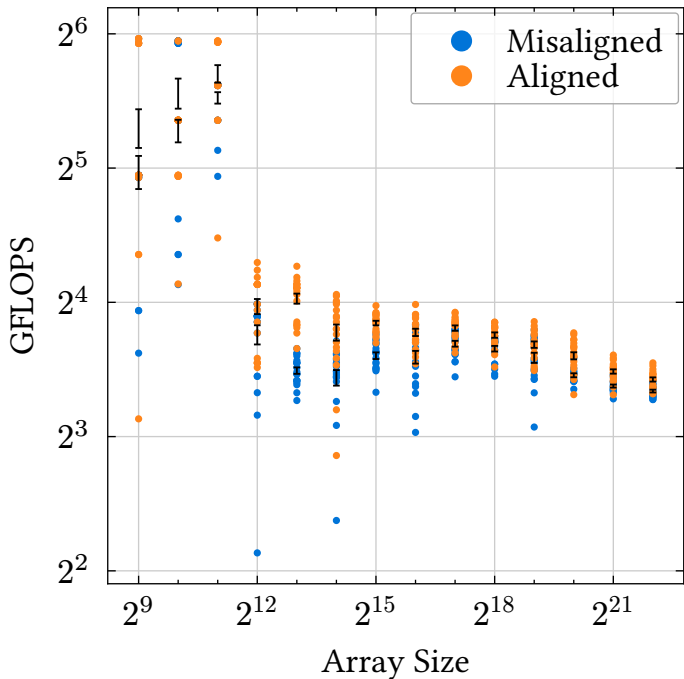
Stencil:
Misaligned, Odd Length vs Aligned,
SIMD Aligned Length

Stencil:
Odd Length vs SIMD Aligned Length

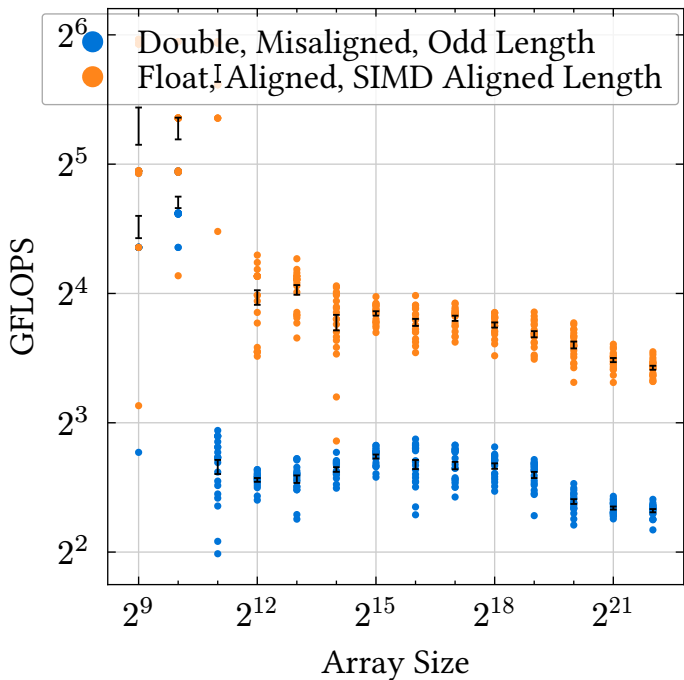**Stencil: Double vs Float**
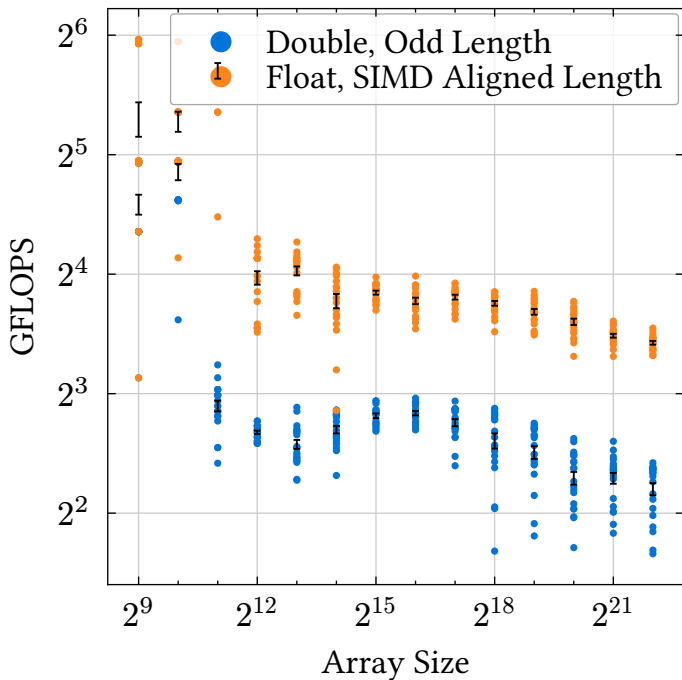
- Double
- Float

GFLOPS vs Array Size

Stencil: Double, Misaligned vs Float, Aligned

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

- Double, Misaligned, Odd Length
- Float, Aligned, SIMD Aligned Length

GFLOPS

Array Size

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

Dot Product: Strides:1,2,4,8

Elementwise Multiply: Strides:1,2,4,8

Legend:
- Stride=1
- Stride=2
- Stride=4
- Stride=8 (NOT SIMD)

X-axis: Array Size
Y-axis: GFLOPS

Saxpy:
Strides:1,2,4,8

- Stride=1
- Stride=2
- Stride=4
- Stride=8 (NOT SIMD)

GFLOPS

Array Size

Stencil:
Strides:1,2,4,8