

```
In [1]: using Revise
using Pkg
using BenchmarkTools
```

```
In [2]: n = 16
raw = rand(Complex{Float64}, n, n)
sizeof(raw)
```

Out[2]: 4096

```
In [3]: struct Fast{T::Complex}
        data::Matrix{T}
end

fast = Fast(raw)

# Warm up compiler
fast.data*fast.data

@benchmark fast.data*fast.data
```

Out[3]: BenchmarkTools.Trial: 10000 samples with 5 evaluations.
Range (min ... max): 6.197 μs ... 552.302 μs | GC (min ... max): 0.00% ... 96.52%
Time (median): 6.731 μs | GC (median): 0.00%
Time (mean ± σ): 7.124 μs ± 8.317 μs | GC (mean ± σ): 1.95% ± 1.67%



Memory estimate: 4.16 KiB, allocs estimate: 3.

```
In [4]: struct Slow
        data::Matrix{Complex}
end

slow = Slow(convert(Matrix{Complex}, raw))

# Warm up compiler
slow.data * slow.data

@benchmark slow.data * slow.data
```

Out[4]: BenchmarkTools.Trial: 10000 samples with 1 evaluation.
Range (min ... max): 351.657 μs ... 2.812 ms | GC (min ... max): 0.00% ... 84.40%
Time (median): 378.589 μs | GC (median): 0.00%
Time (mean ± σ): 393.805 μs ± 187.532 μs | GC (mean ± σ): 3.77% ± 6.81%



Memory estimate: 282.16 KiB, allocs estimate: 8963.

In []: