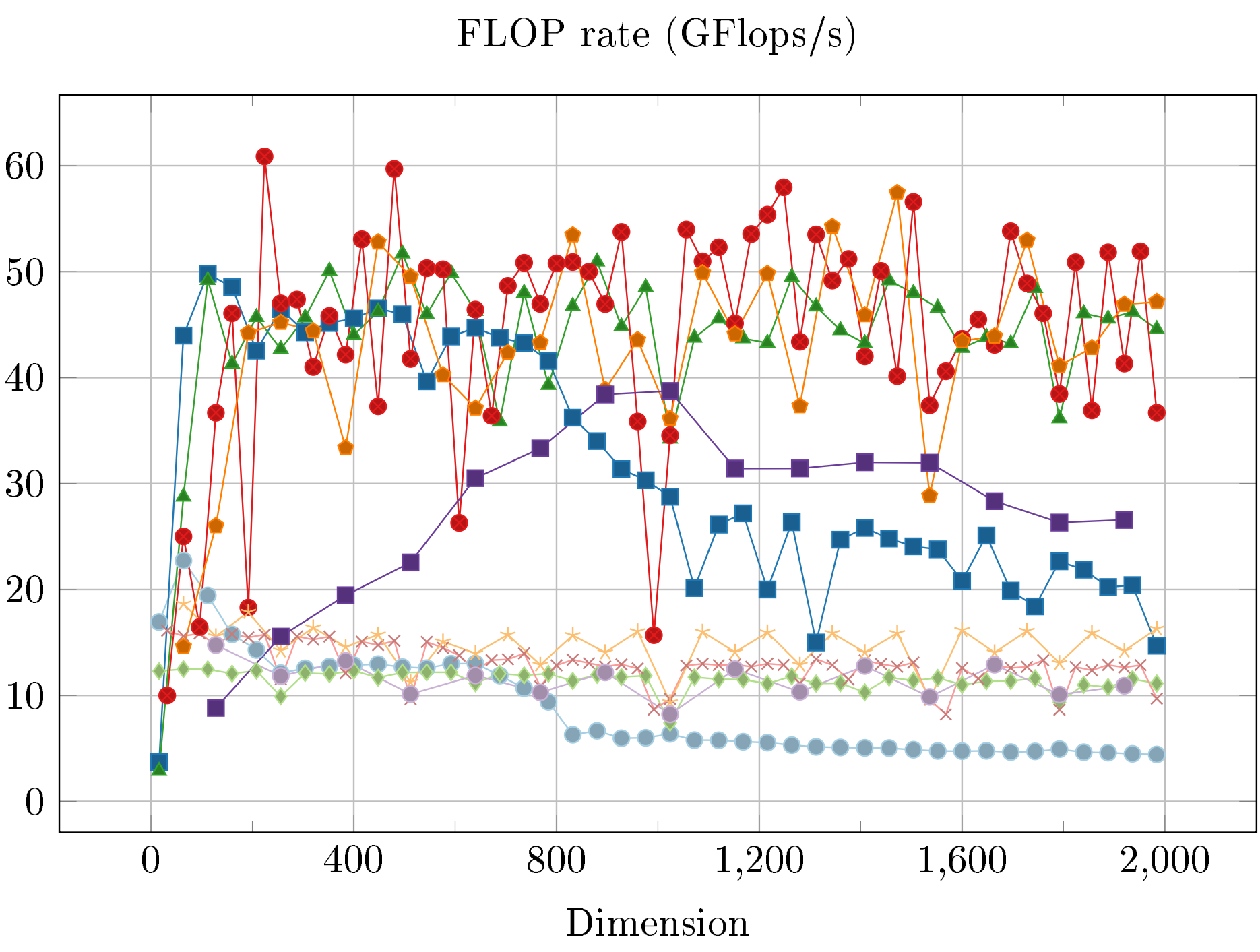
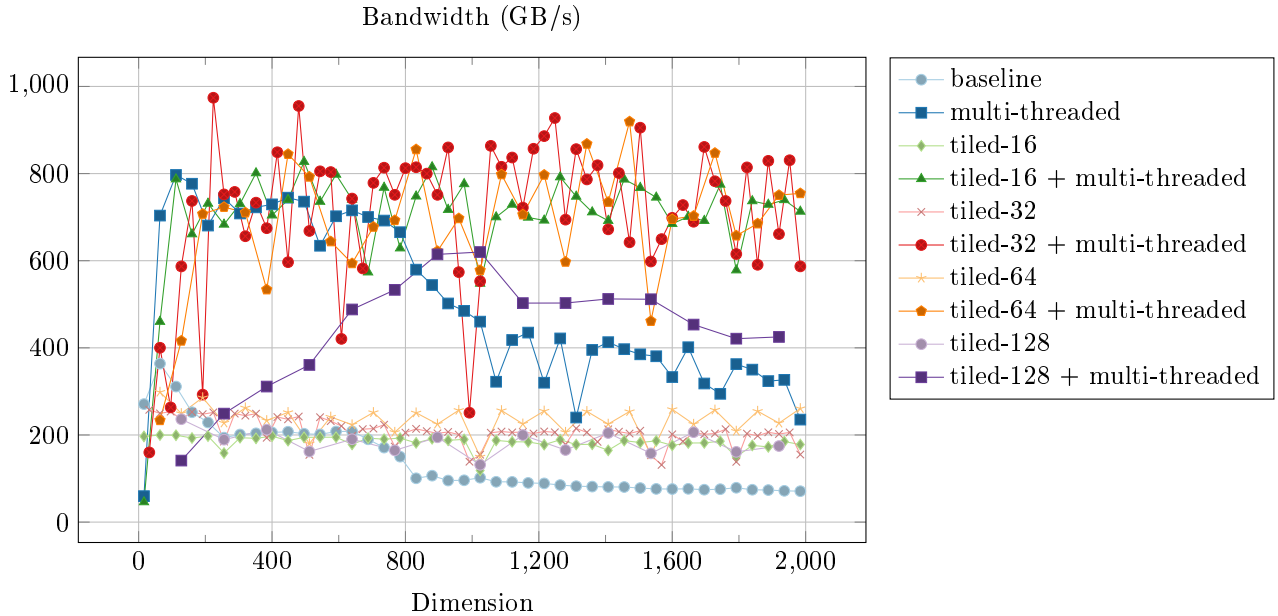
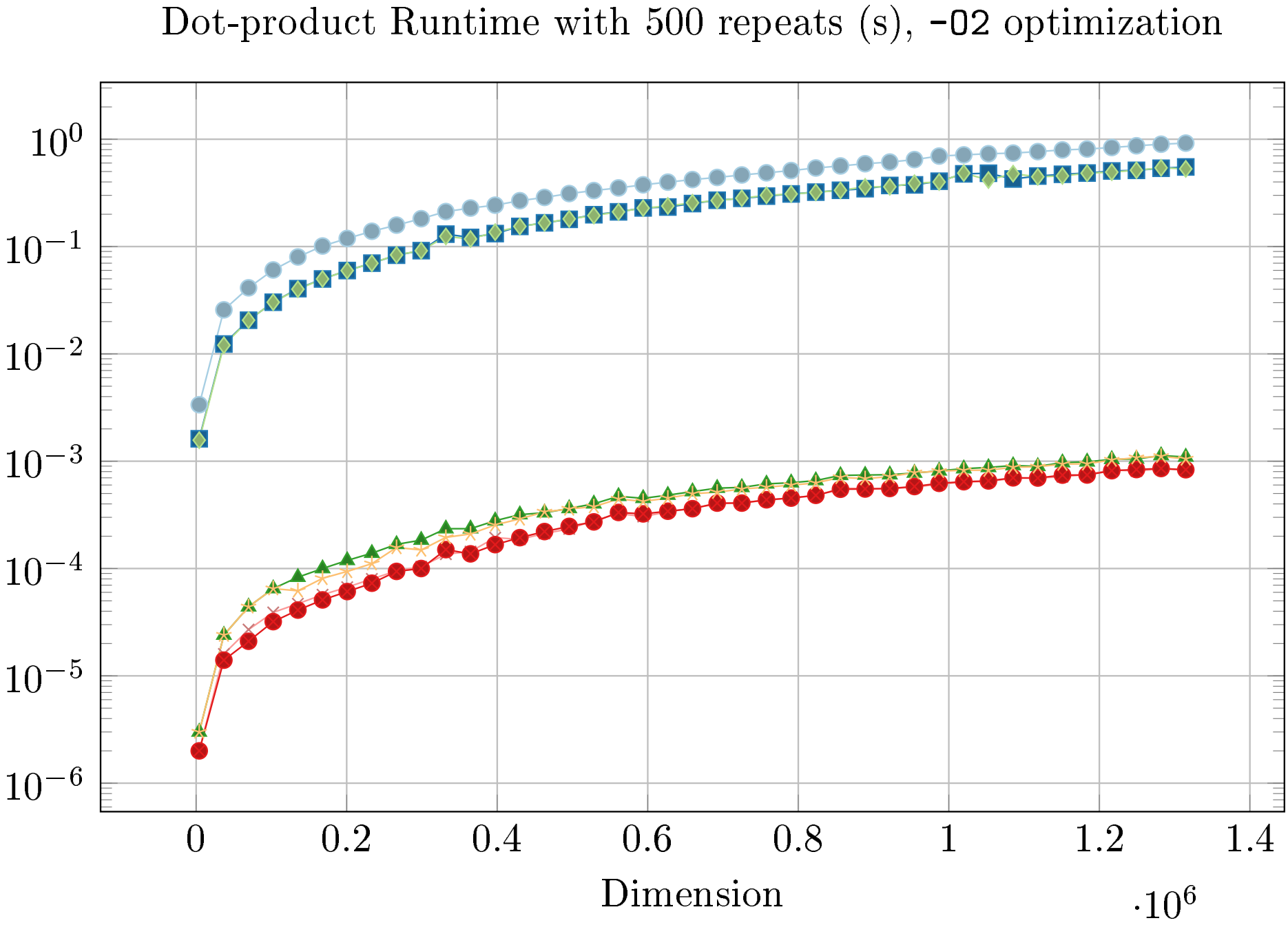
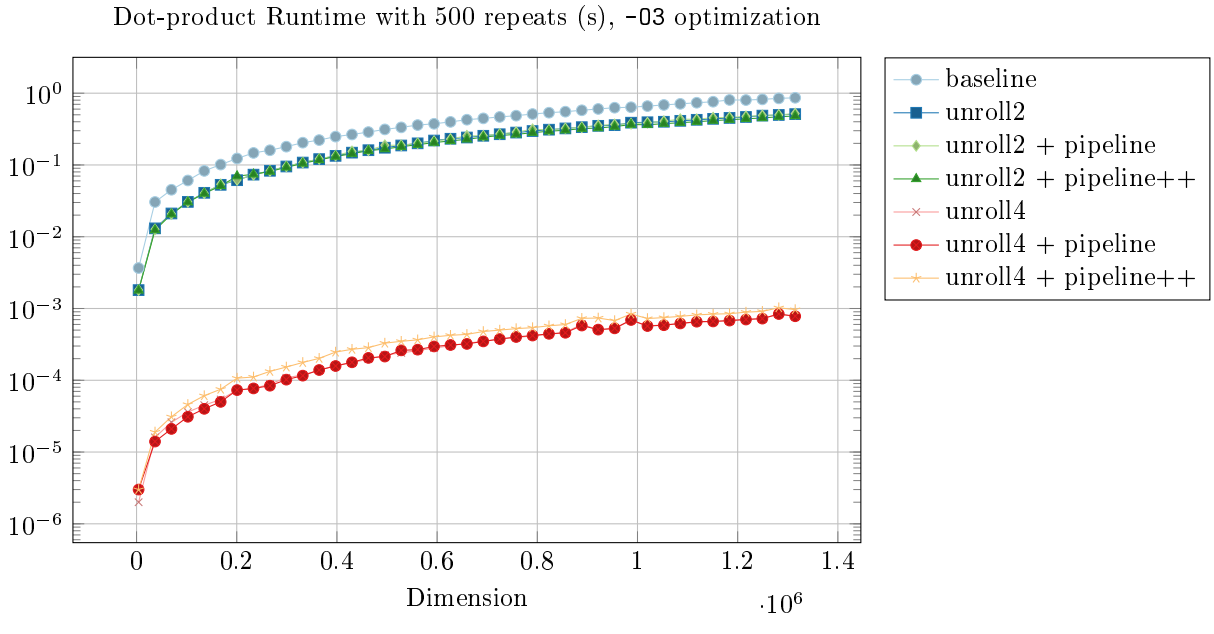

FLOP rate (GFlops/s)
60
50
40
30
20
10
0
0
400
800
1,200
1,600
2,000
Dimension


Bandwidth (GB/s)
1,000
800
600
400
200
0
0
400
800
1,200
1,600
2,000
Dimension
baseline
multi-threaded
tiled-16
tiled-16 + multi-threaded
tiled-32
tiled-32 + multi-threaded
tiled-64
tiled-64 + multi-threaded
tiled-128
tiled-128 + multi-threaded


Dot-product Runtime with 500 repeats (s), -O2 optimization
$10^{0}$
$10^{-1}$
$10^{-2}$
$10^{-3}$
$10^{-4}$
$10^{-5}$
$10^{-6}$
0
0.2
0.4
0.6
0.8
1
1.2
1.4
Dimension
$\cdot 10^{6}$


Dot-product Runtime with 500 repeats (s), -O3 optimization
$10^{0}$
$10^{-1}$
$10^{-2}$
$10^{-3}$
$10^{-4}$
$10^{-5}$
$10^{-6}$
0
0.2
0.4
0.6
0.8
1
1.2
1.4
Dimension
$\cdot 10^{6}$
baseline
unroll2
unroll2 + pipeline
unroll2 + pipeline++
unroll4
unroll4 + pipeline
unroll4 + pipeline++