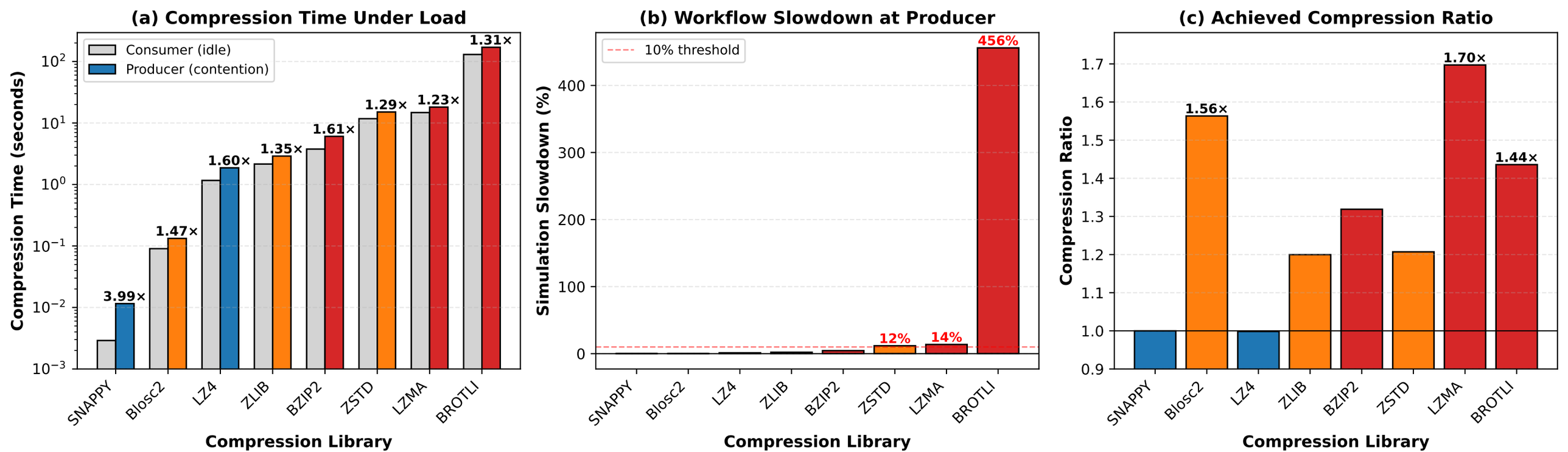
(a) Compression Time Under Load
Consumer (idle)
Producer (contention)
Compression Time (seconds)
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
3.99×
1.47×
1.60×
1.35×
1.61×
1.29×
1.23×
1.31×
SNAPPY
Blosc2
LZ4
ZLIB
BZIP2
ZSTD
LZMA
BROTLI
Compression Library
(b) Workflow Slowdown at Producer
10% threshold
Simulation Slowdown (%)
400
300
200
100
0
12%
14%
456%
SNAPPY
Blosc2
LZ4
ZLIB
BZIP2
ZSTD
LZMA
BROTLI
Compression Library
(c) Achieved Compression Ratio
Compression Ratio
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
1.56×
1.70×
1.44×
SNAPPY
Blosc2
LZ4
ZLIB
BZIP2
ZSTD
LZMA
BROTLI
Compression Library