

throughput (K elements/s)

240.1

180.0

120.0

60.0

0.0

$10^0$

$10^1$

$10^2$

batch size (#rows)

● CRS ■ MM ▼ SMP-PCA

The graph plots throughput in K elements/s against batch size in #rows on a logarithmic scale. The CRS method (red circles) starts at ~210 K/s for batch size 1, drops to ~120 K/s at batch size 10, and then rises to ~190 K/s for larger batch sizes. The MM method (blue squares) starts at ~15 K/s for batch size 1 and increases steadily to ~190 K/s for batch sizes 50 and above. The SMP-PCA method (green inverted triangles) starts at ~5 K/s for batch size 1 and increases to ~175 K/s for batch sizes 20 and above. All methods show a plateau in throughput for batch sizes of 50 or more.

batch size (#rows)	CRS (K elements/s)	MM (K elements/s)	SMP-PCA (K elements/s)
1	210.0	15.0	5.0
10	120.0	60.0	20.0
20	190.0	120.0	40.0
50	185.0	185.0	60.0
100	190.0	190.0	120.0
200	190.0	190.0	175.0
400	190.0	190.0	175.0