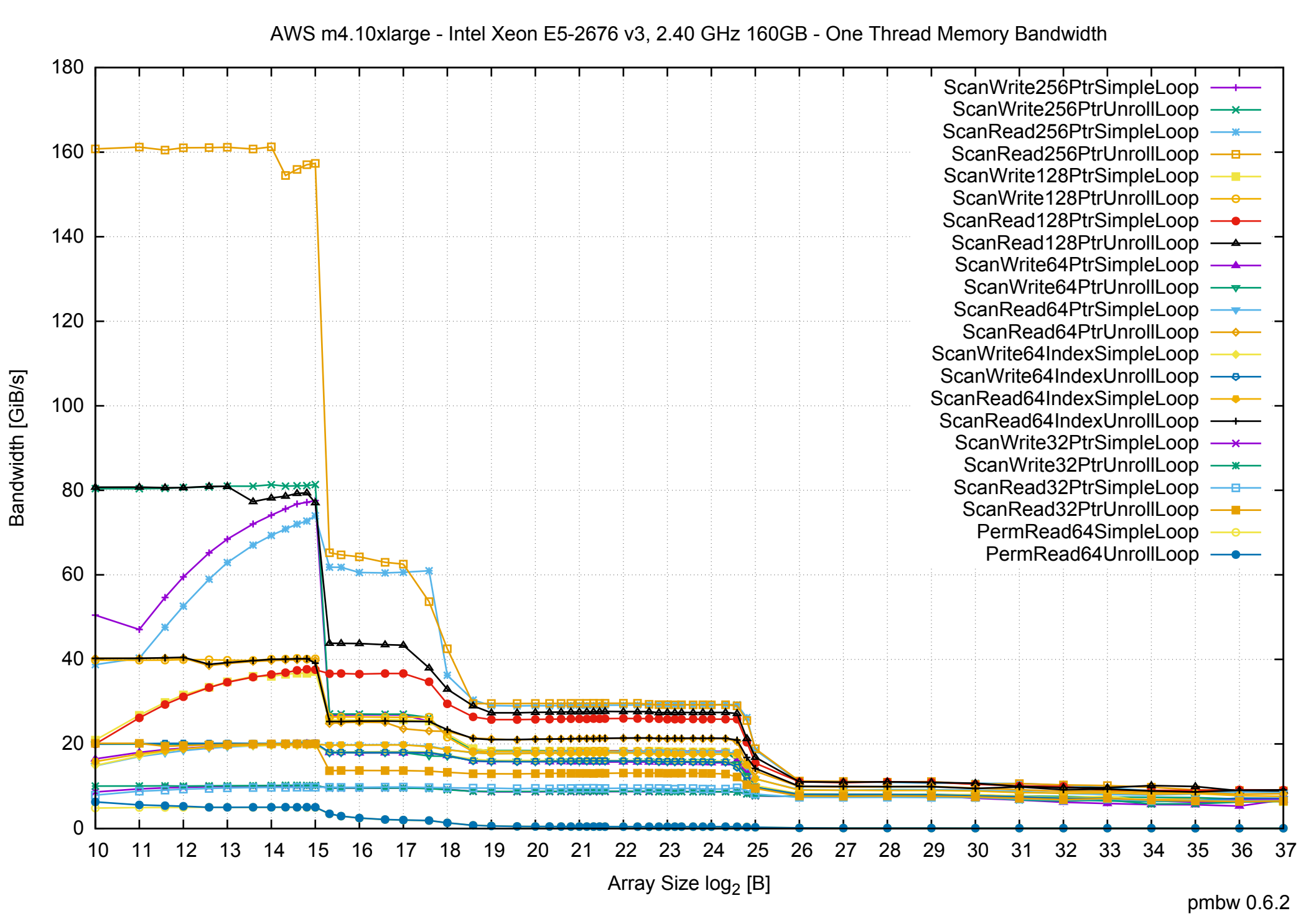
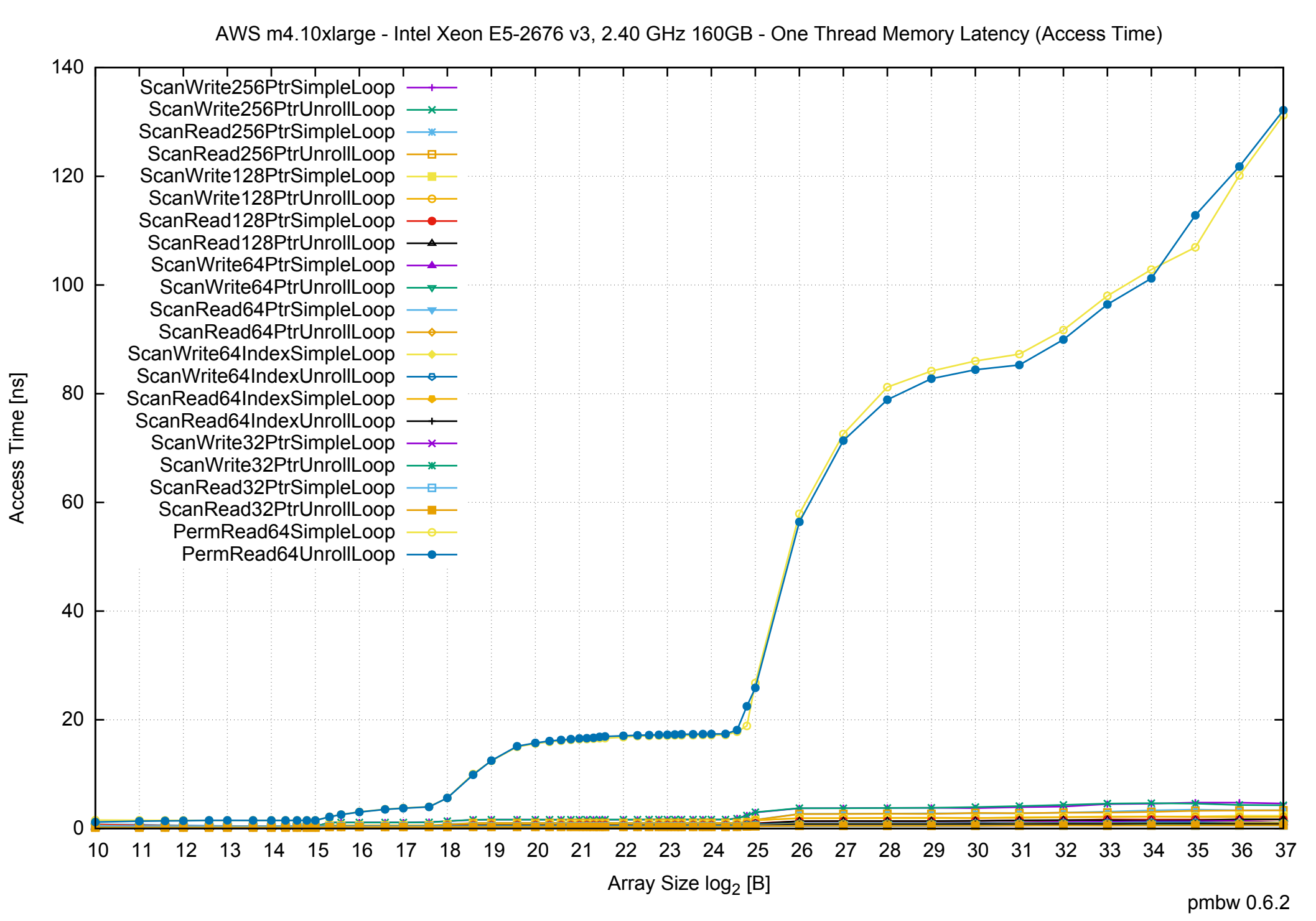
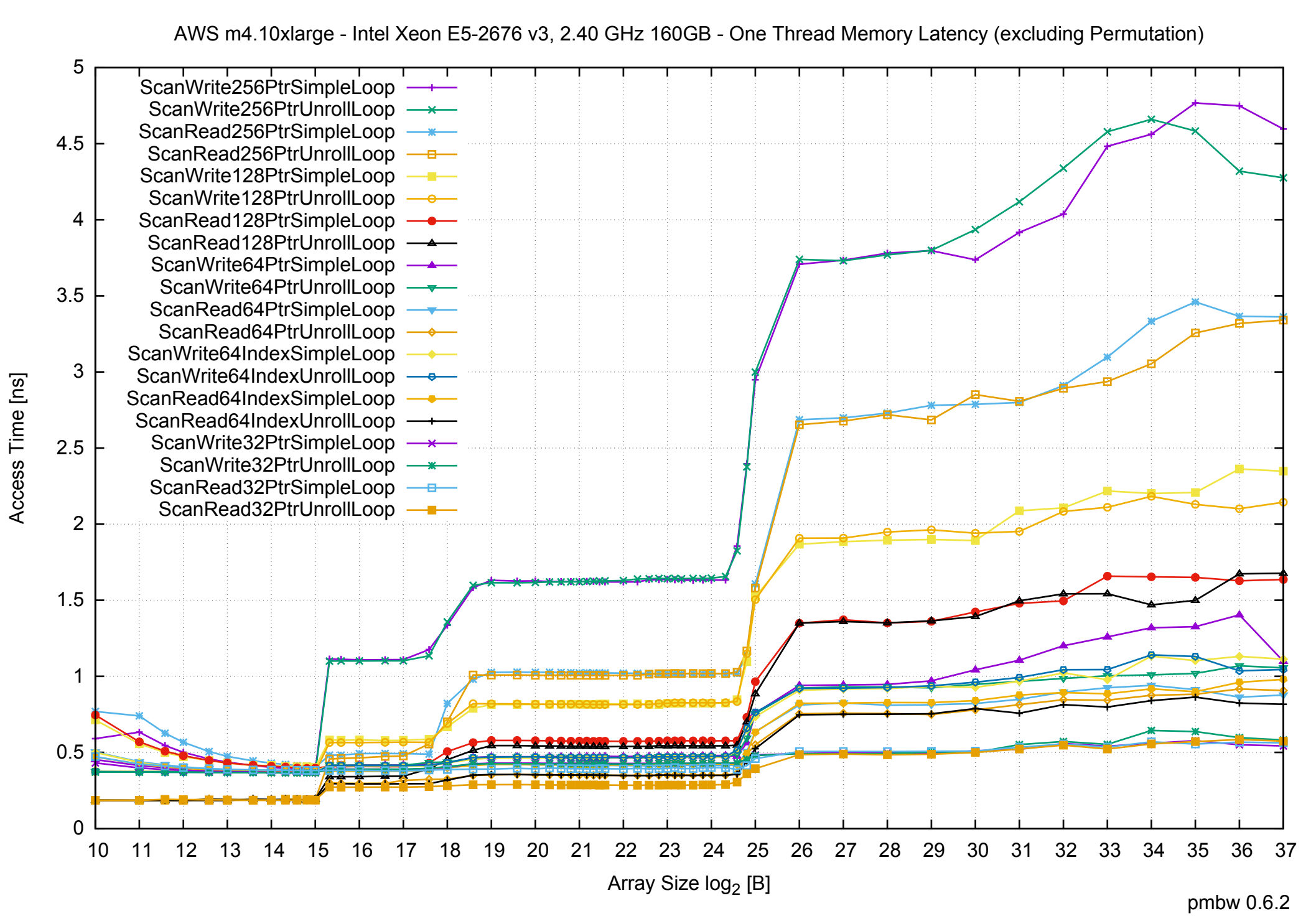
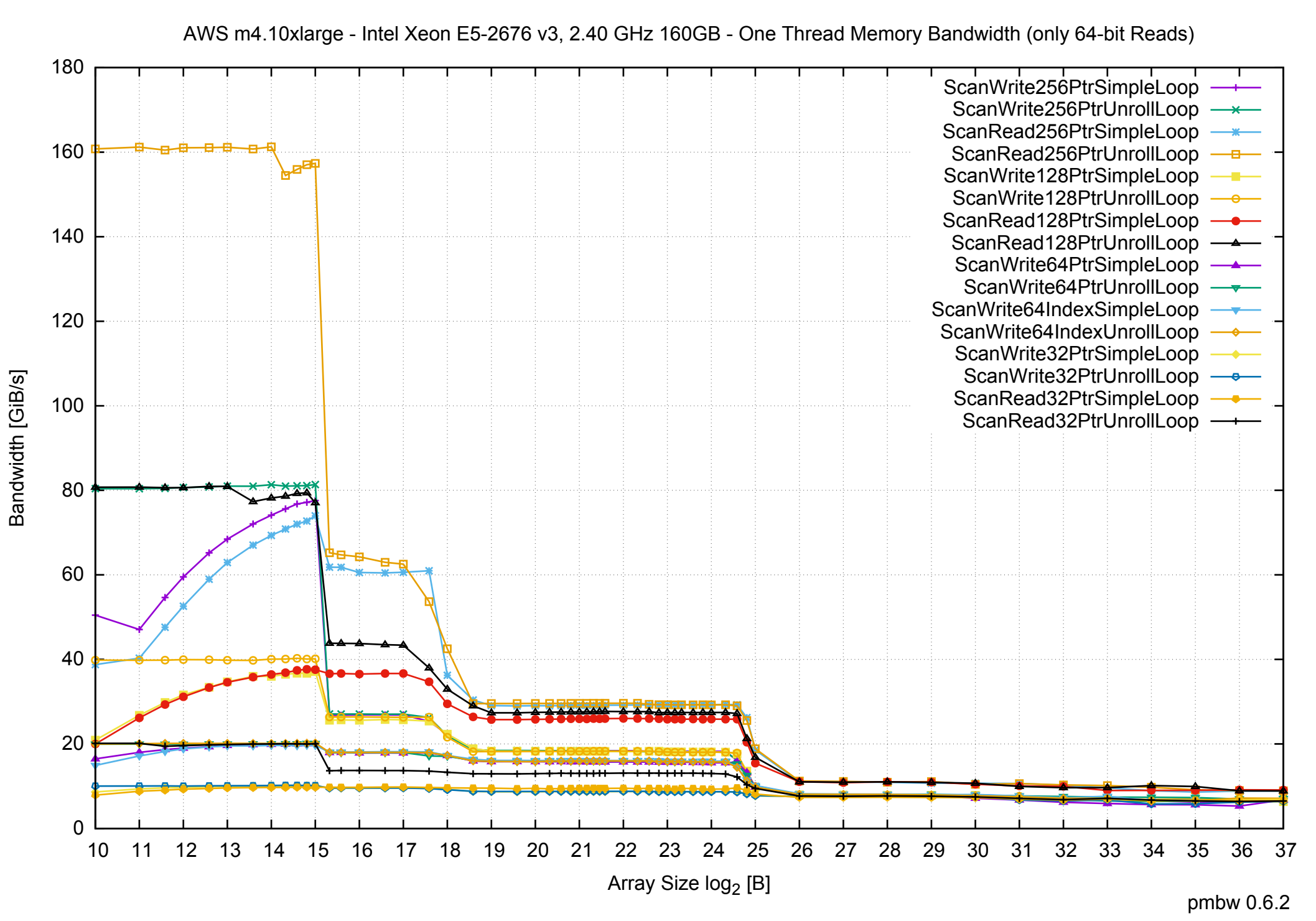
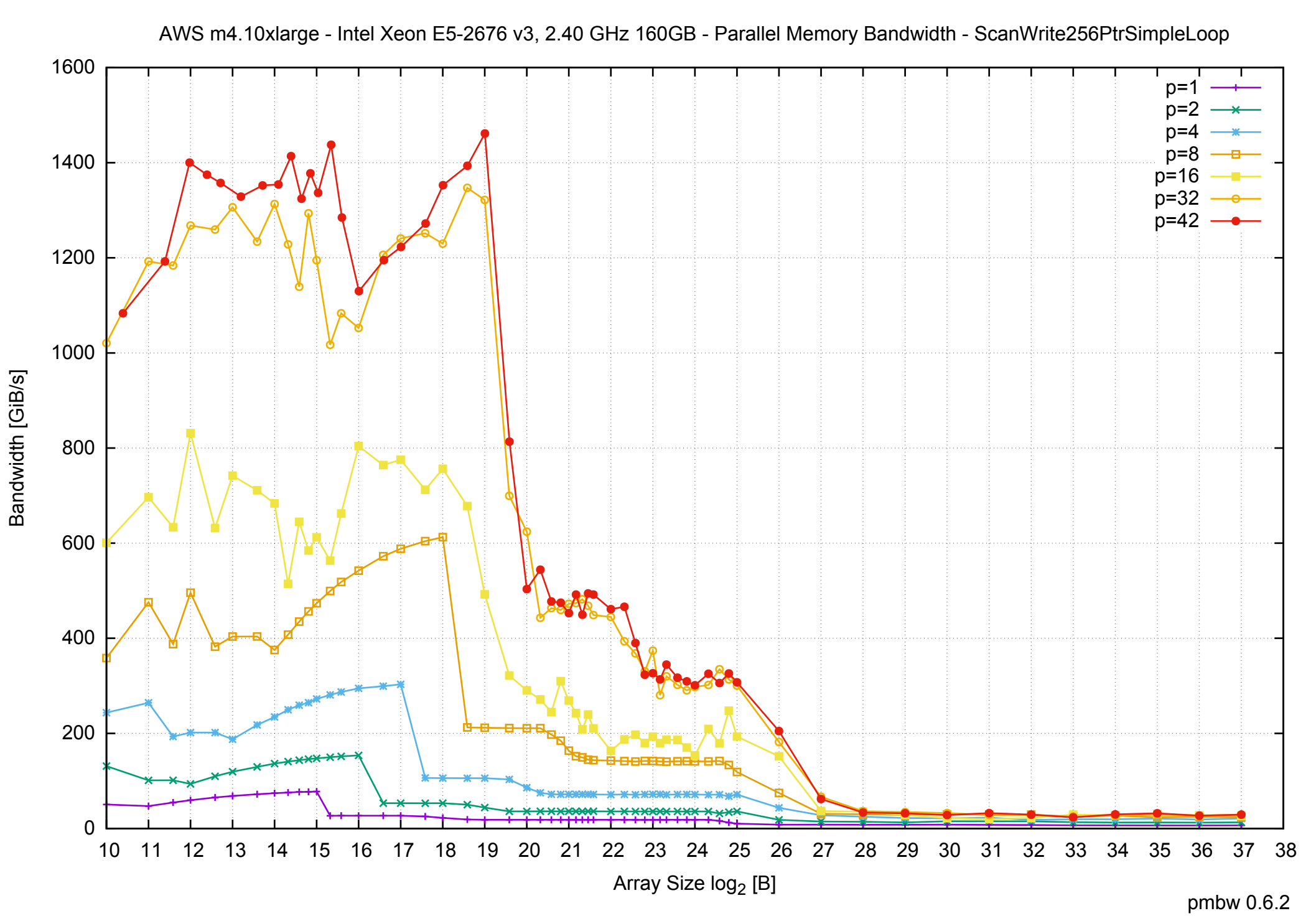
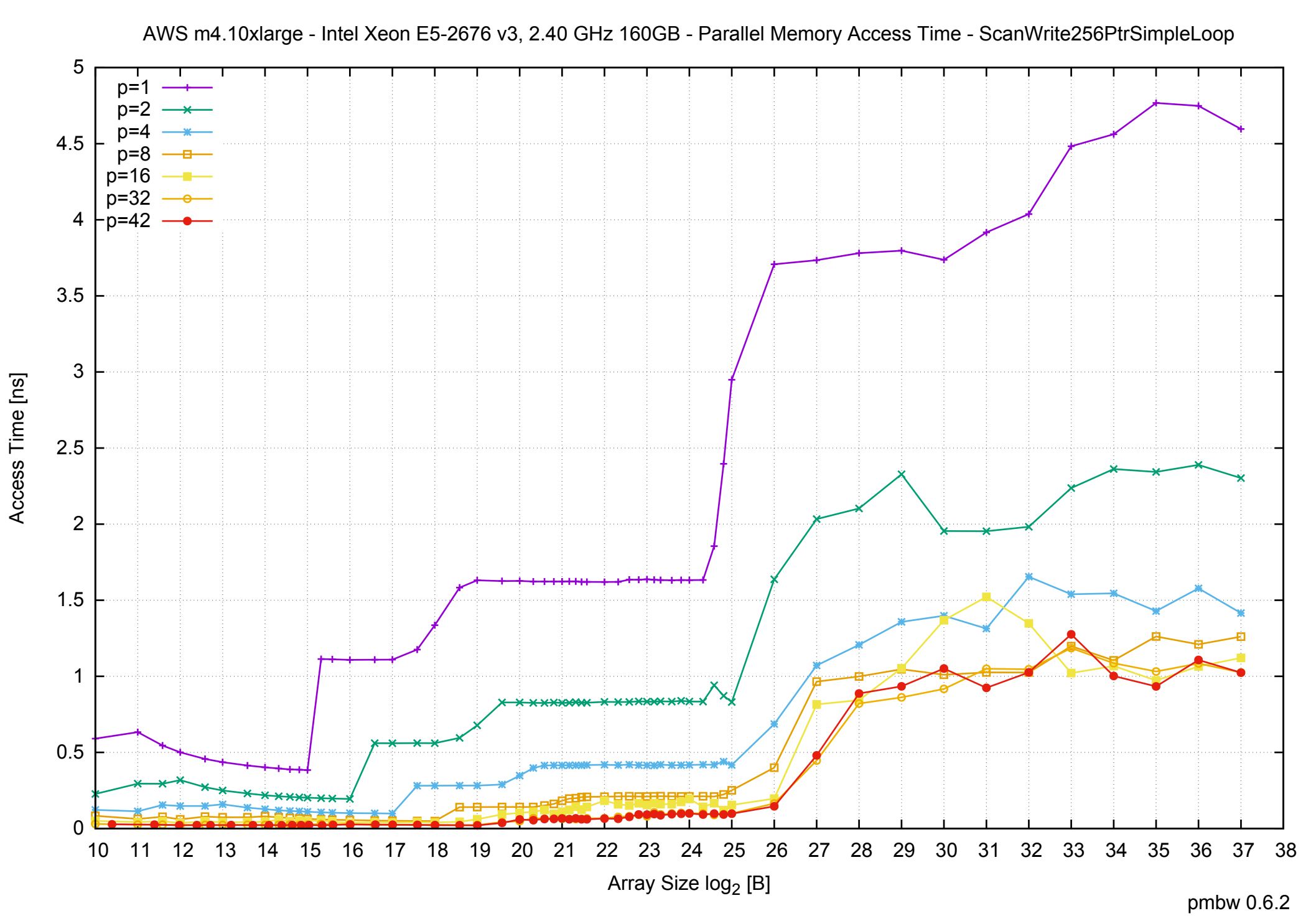

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - One Thread Memory Bandwidth
Bandwidth [GiB/s]
Array Size log2 [B]
ScanWrite256PtrSimpleLoop
ScanWrite256PtrUnrollLoop
ScanRead256PtrSimpleLoop
ScanRead256PtrUnrollLoop
ScanWrite128PtrSimpleLoop
ScanWrite128PtrUnrollLoop
ScanRead128PtrSimpleLoop
ScanRead128PtrUnrollLoop
ScanWrite64PtrSimpleLoop
ScanWrite64PtrUnrollLoop
ScanRead64PtrSimpleLoop
ScanRead64PtrUnrollLoop
ScanWrite64IndexSimpleLoop
ScanWrite64IndexUnrollLoop
ScanRead64IndexSimpleLoop
ScanRead64IndexUnrollLoop
ScanWrite32PtrSimpleLoop
ScanWrite32PtrUnrollLoop
ScanRead32PtrSimpleLoop
ScanRead32PtrUnrollLoop
PermRead64SimpleLoop
PermRead64UnrollLoop
pmbw 0.6.2

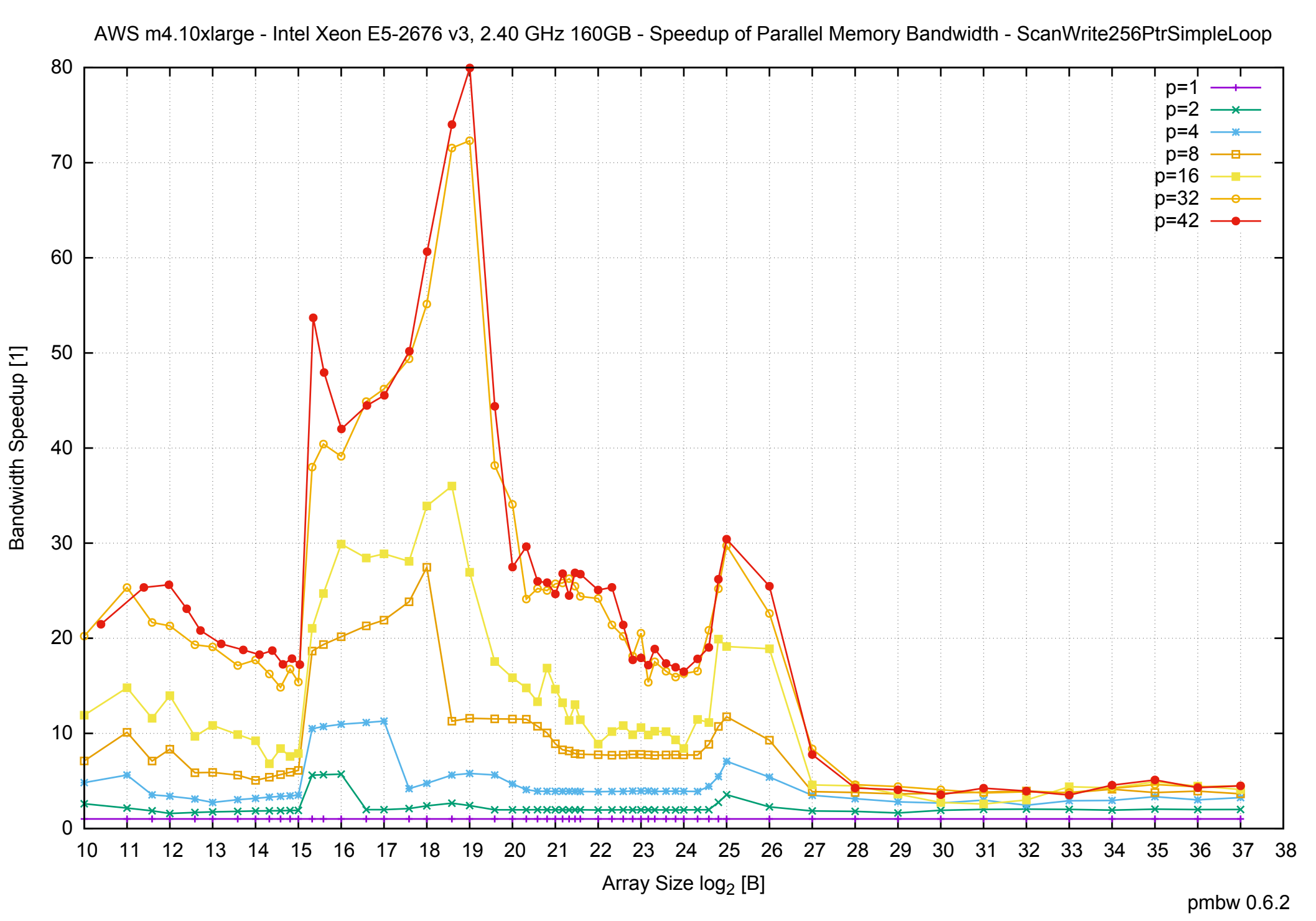

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - One Thread Memory Latency (Access Time)
ScanWrite256PtrSimpleLoop
ScanWrite256PtrUnrollLoop
ScanRead256PtrSimpleLoop
ScanRead256PtrUnrollLoop
ScanWrite128PtrSimpleLoop
ScanWrite128PtrUnrollLoop
ScanRead128PtrSimpleLoop
ScanRead128PtrUnrollLoop
ScanWrite64PtrSimpleLoop
ScanWrite64PtrUnrollLoop
ScanRead64PtrSimpleLoop
ScanRead64PtrUnrollLoop
ScanWrite64IndexSimpleLoop
ScanWrite64IndexUnrollLoop
ScanRead64IndexSimpleLoop
ScanRead64IndexUnrollLoop
ScanWrite32PtrSimpleLoop
ScanWrite32PtrUnrollLoop
ScanRead32PtrSimpleLoop
ScanRead32PtrUnrollLoop
PermRead64SimpleLoop
PermRead64UnrollLoop
Access Time [ns]
0
20
40
60
80
100
120
140
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
Array Size log2 [B]
pmbw 0.6.2

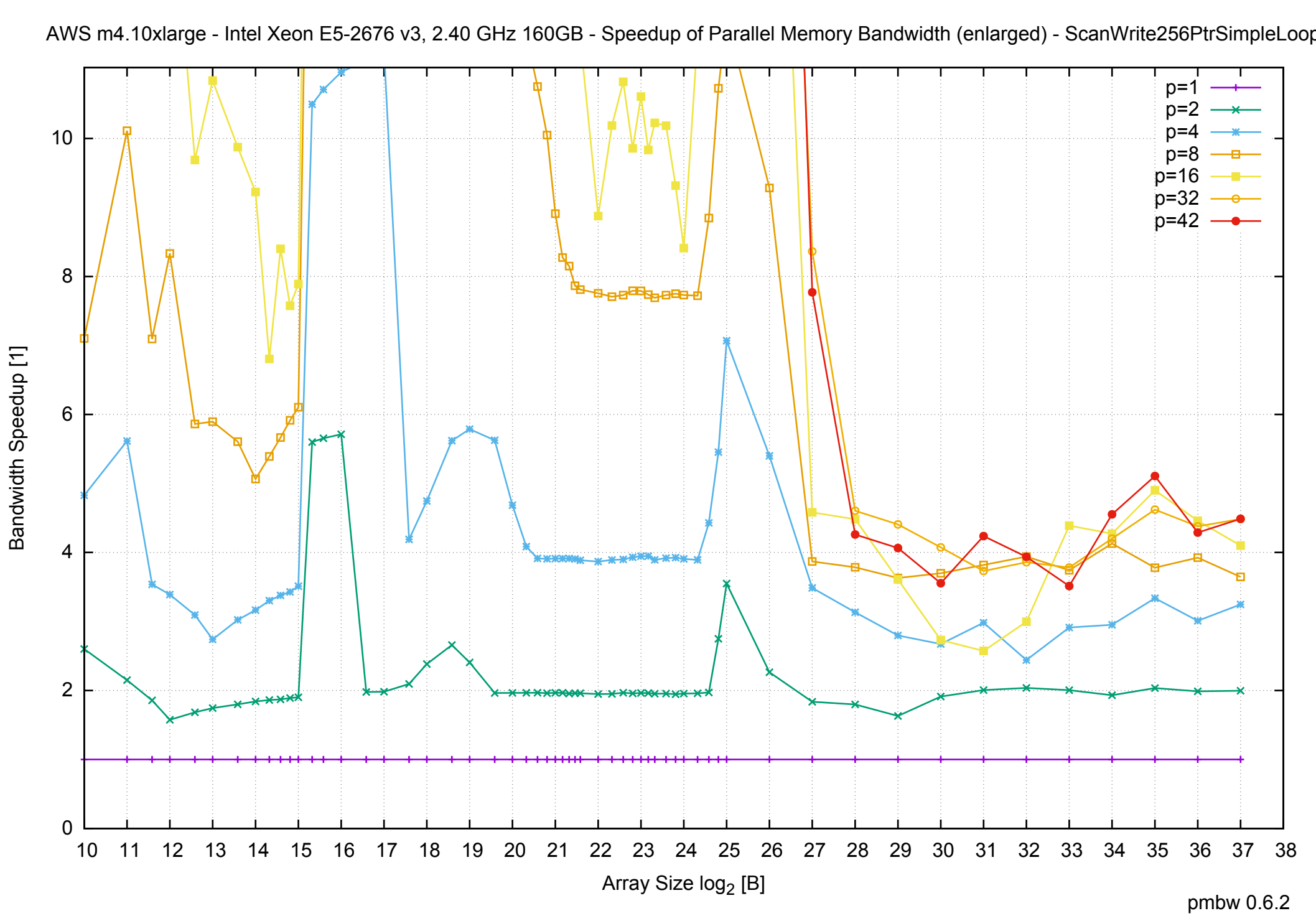

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - One Thread Memory Latency (excluding Permutation)
ScanWrite256PtrSimpleLoop
ScanWrite256PtrUnrollLoop
ScanRead256PtrSimpleLoop
ScanRead256PtrUnrollLoop
ScanWrite128PtrSimpleLoop
ScanWrite128PtrUnrollLoop
ScanRead128PtrSimpleLoop
ScanRead128PtrUnrollLoop
ScanWrite64PtrSimpleLoop
ScanWrite64PtrUnrollLoop
ScanRead64PtrSimpleLoop
ScanRead64PtrUnrollLoop
ScanWrite64IndexSimpleLoop
ScanWrite64IndexUnrollLoop
ScanRead64IndexSimpleLoop
ScanRead64IndexUnrollLoop
ScanWrite32PtrSimpleLoop
ScanWrite32PtrUnrollLoop
ScanRead32PtrSimpleLoop
ScanRead32PtrUnrollLoop
Access Time [ns]
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
Array Size log2 [B]
pmbw 0.6.2

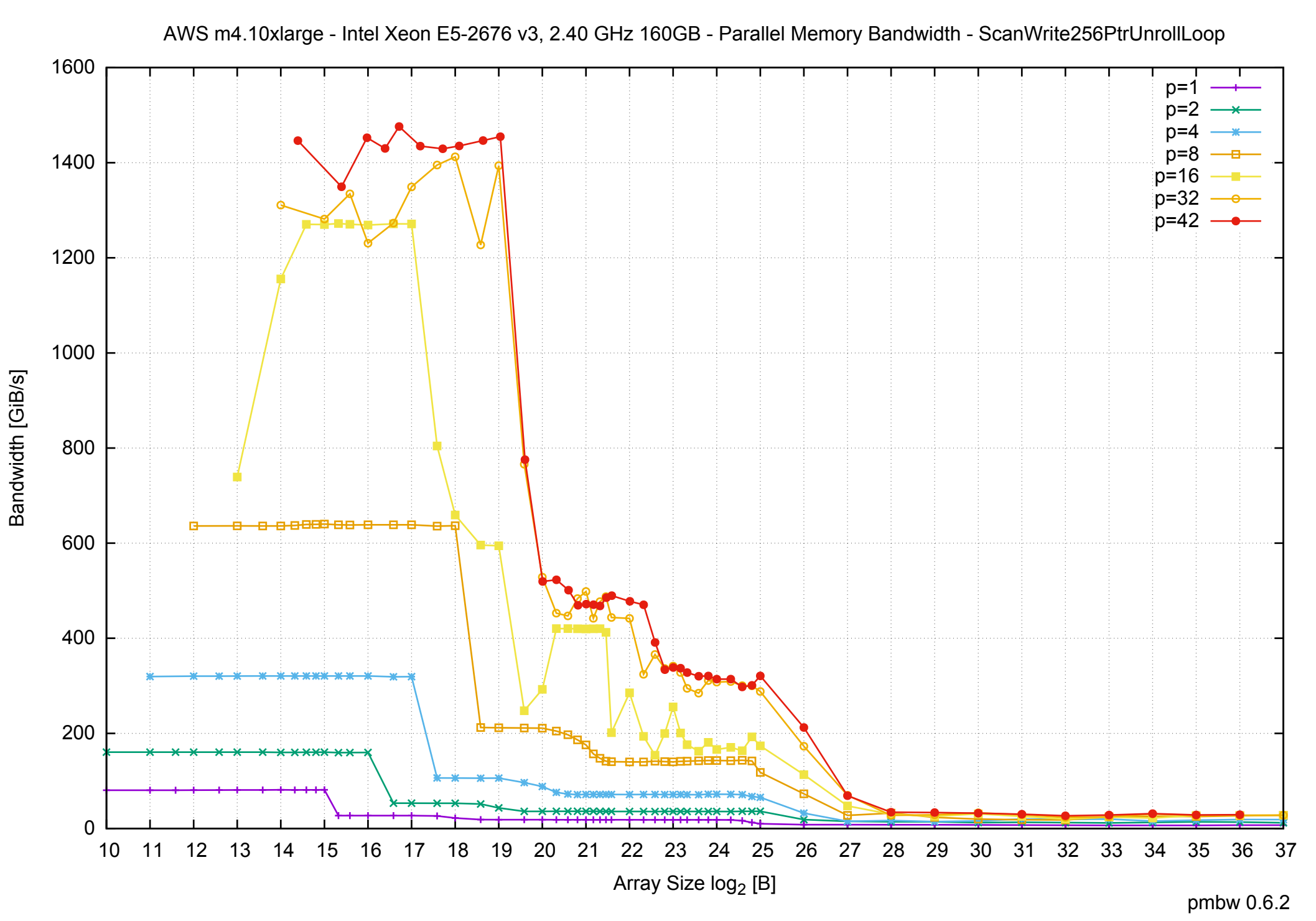

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - One Thread Memory Bandwidth (only 64-bit Reads)
Bandwidth [GiB/s]
Array Size log2 [B]
ScanWrite256PtrSimpleLoop
ScanWrite256PtrUnrollLoop
ScanRead256PtrSimpleLoop
ScanRead256PtrUnrollLoop
ScanWrite128PtrSimpleLoop
ScanWrite128PtrUnrollLoop
ScanRead128PtrSimpleLoop
ScanRead128PtrUnrollLoop
ScanWrite64PtrSimpleLoop
ScanWrite64PtrUnrollLoop
ScanWrite64IndexSimpleLoop
ScanWrite64IndexUnrollLoop
ScanWrite32PtrSimpleLoop
ScanWrite32PtrUnrollLoop
ScanRead32PtrSimpleLoop
ScanRead32PtrUnrollLoop
pmbw 0.6.2

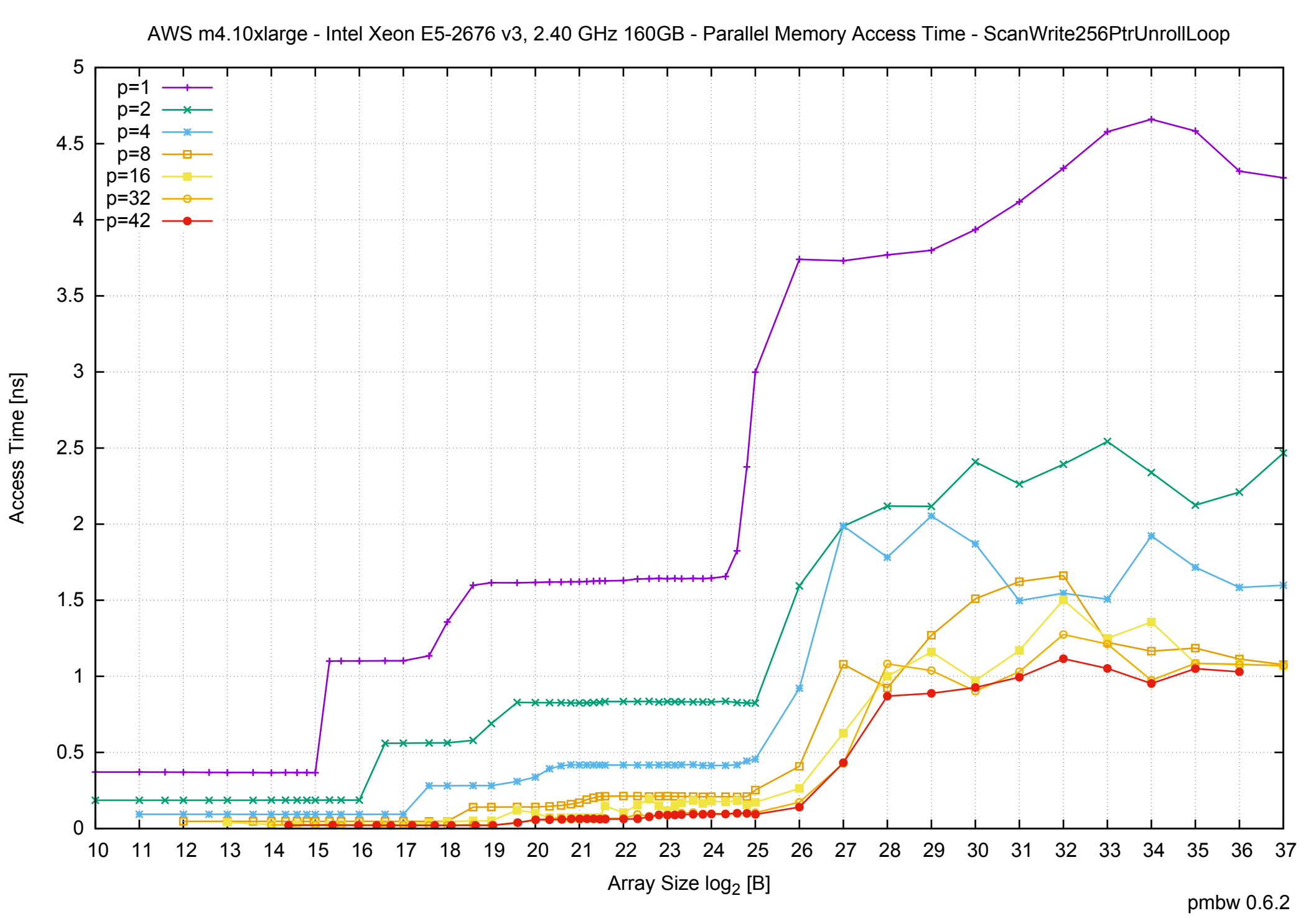

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite256PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
200
400
600
800
1000
1200
1400
1600
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2

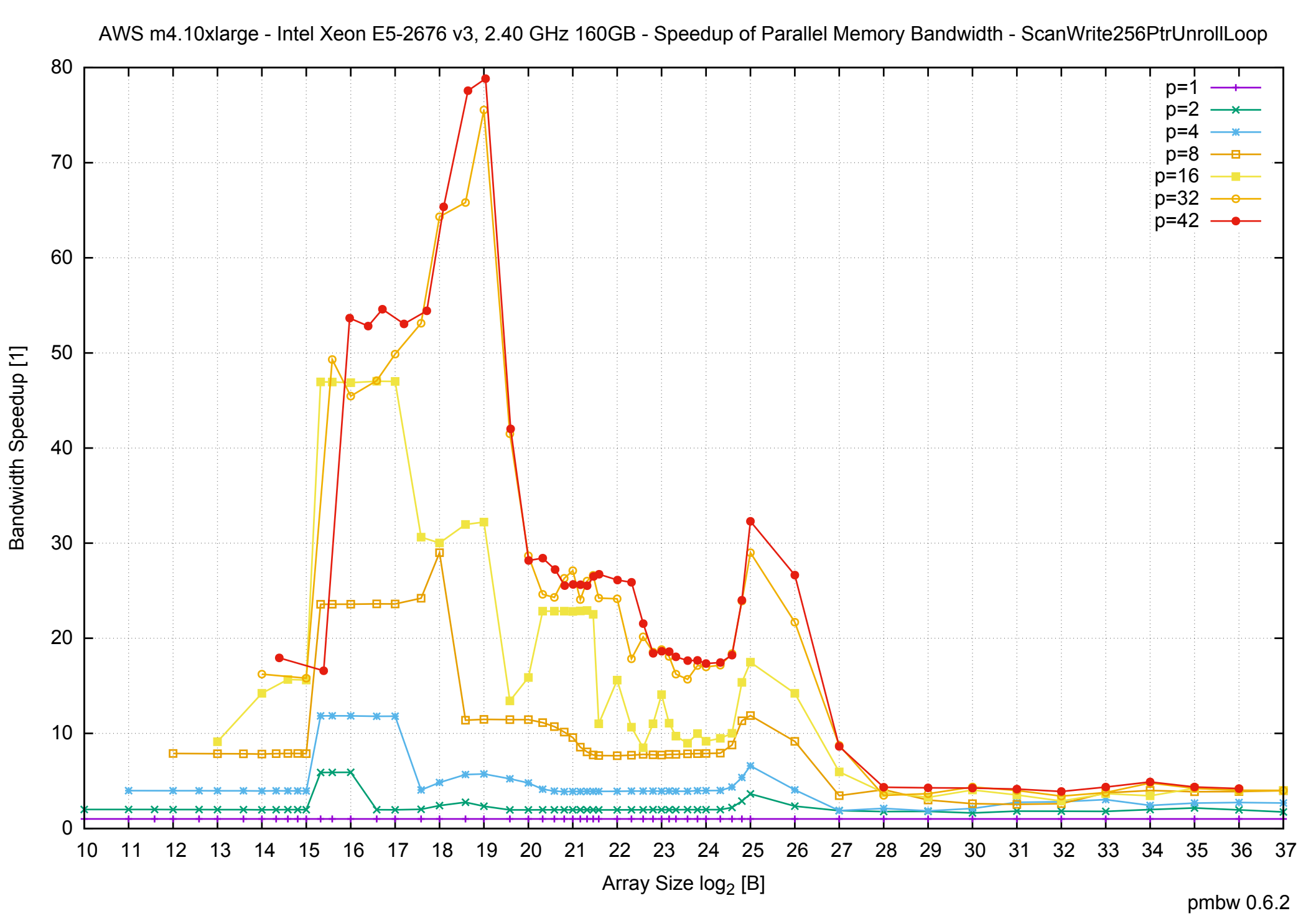

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite256PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2

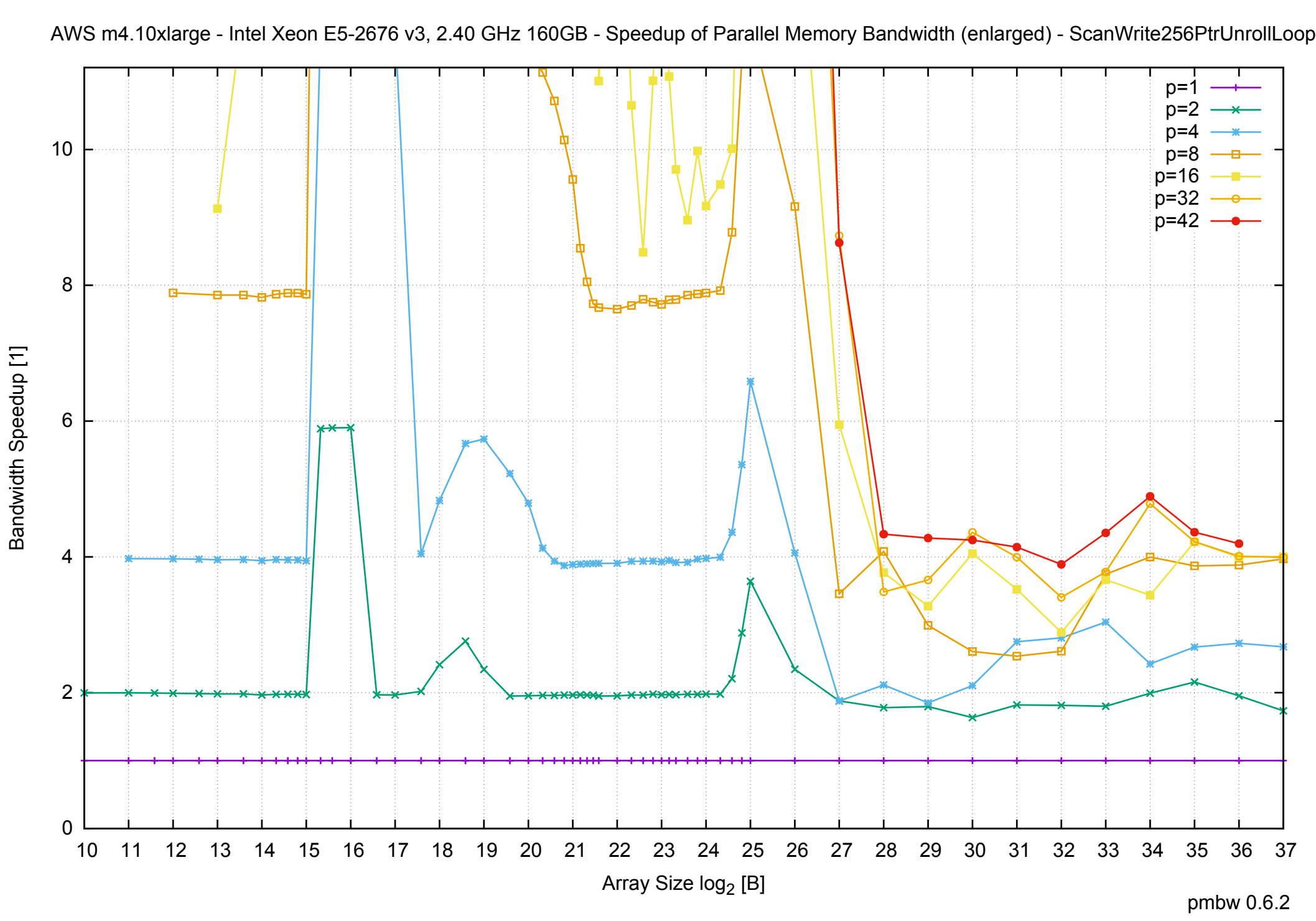

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite256PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
10
20
30
40
50
60
70
80
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2

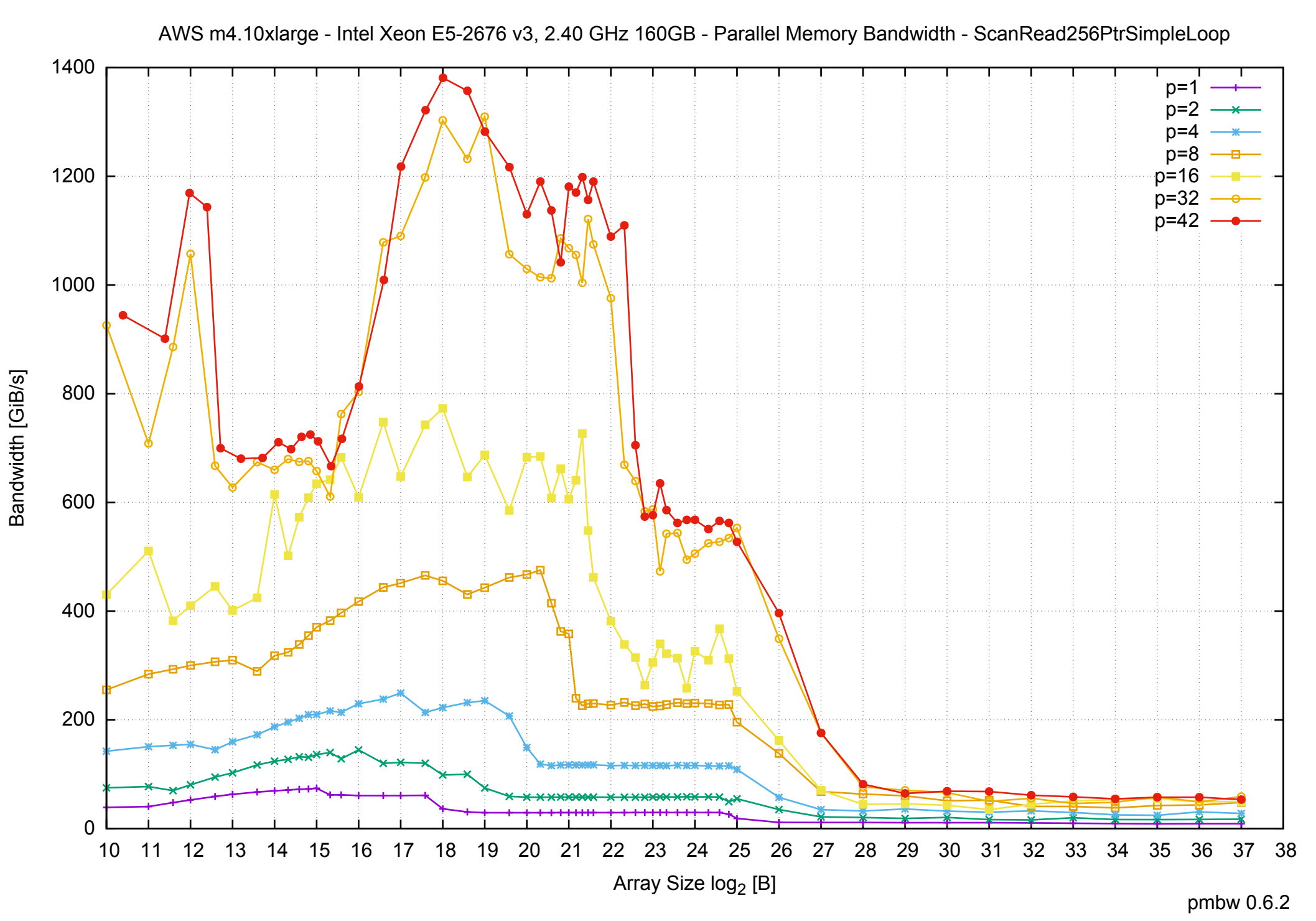

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite256PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
0
2
4
6
8
10
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
Array Size log2 [B]
pmbw 0.6.2

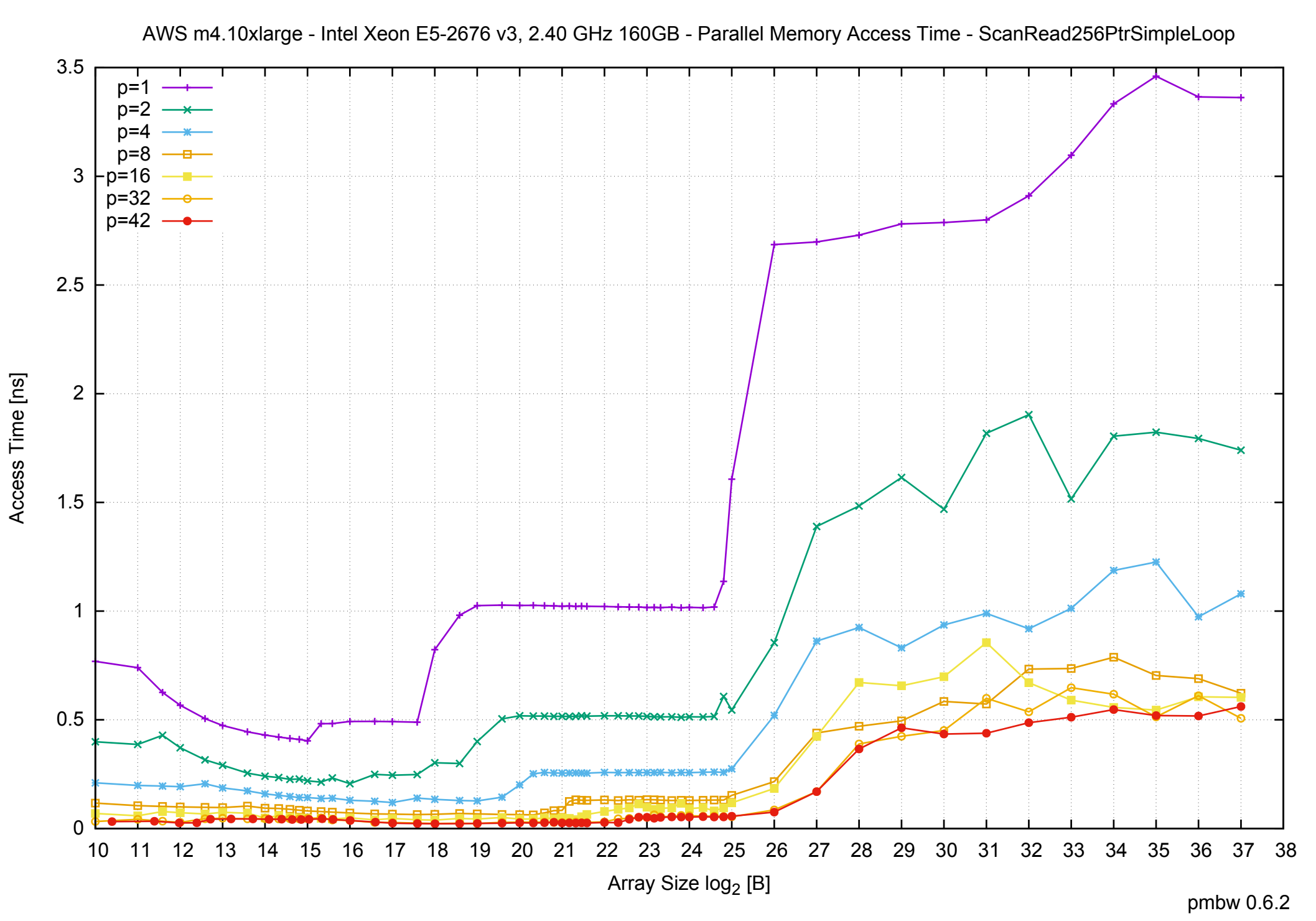

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite256PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
200
400
600
800
1000
1200
1400
1600
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
pmbw 0.6.2

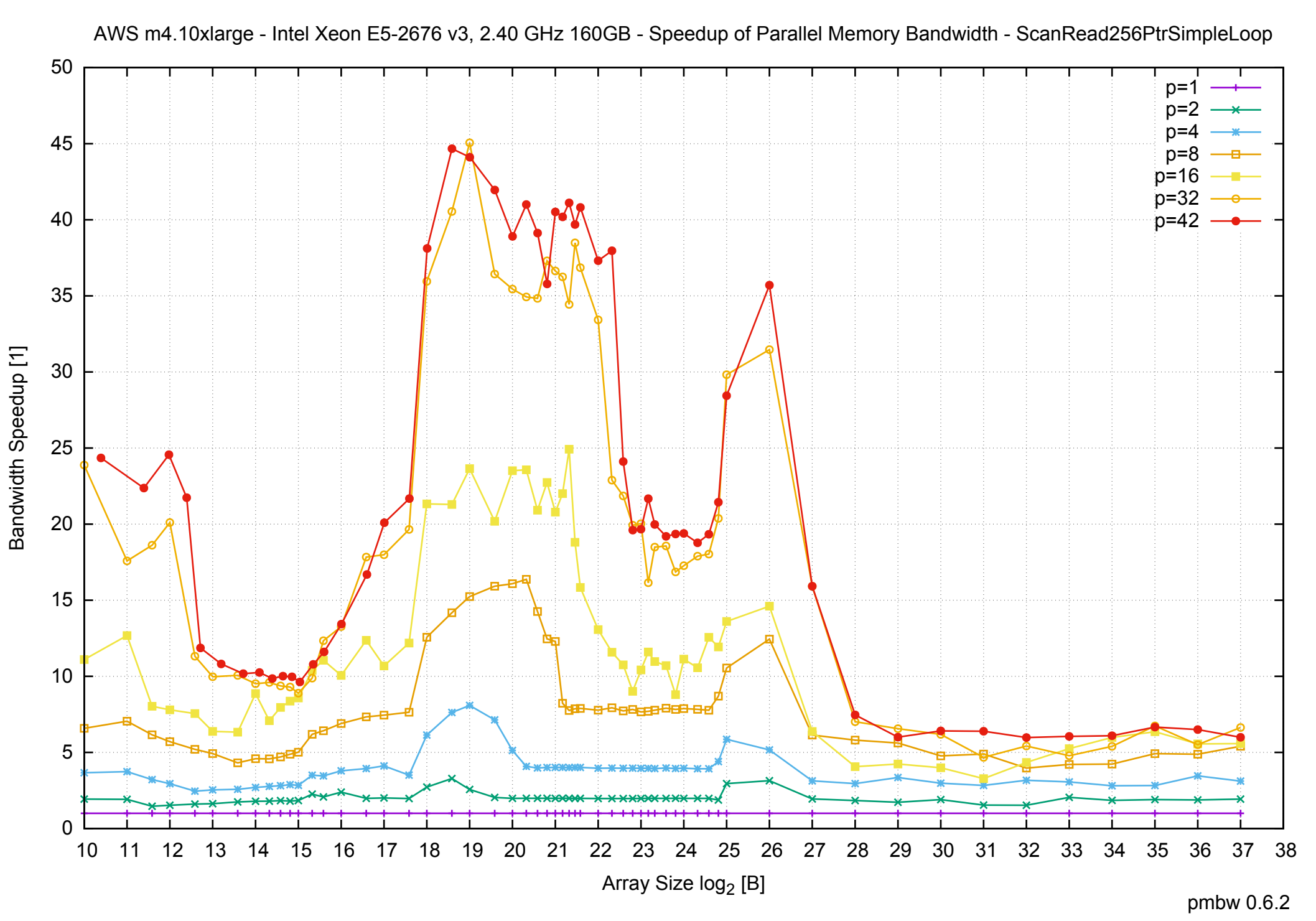

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite256PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2

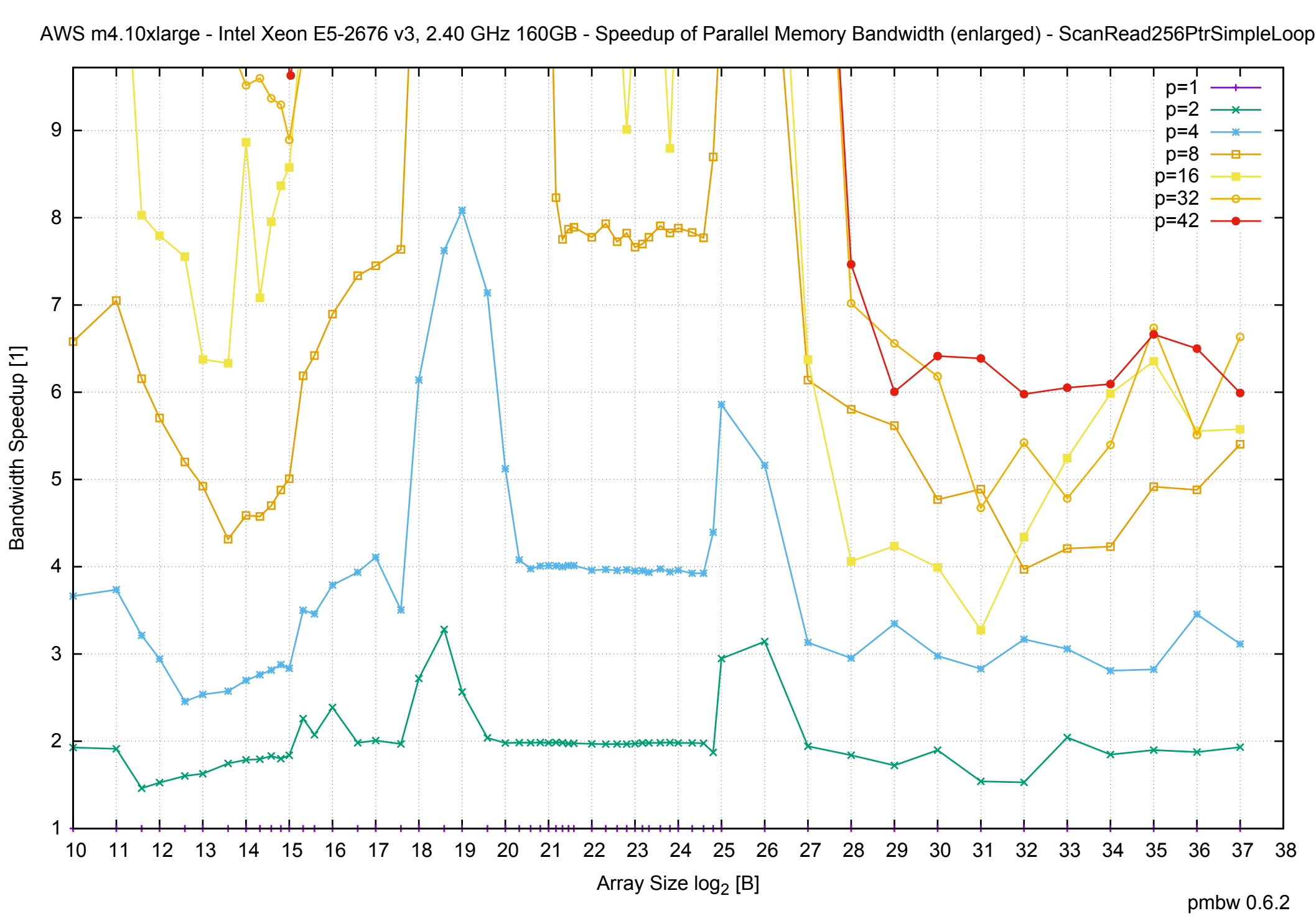

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite256PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
10
20
30
40
50
60
70
80
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
pmbw 0.6.2

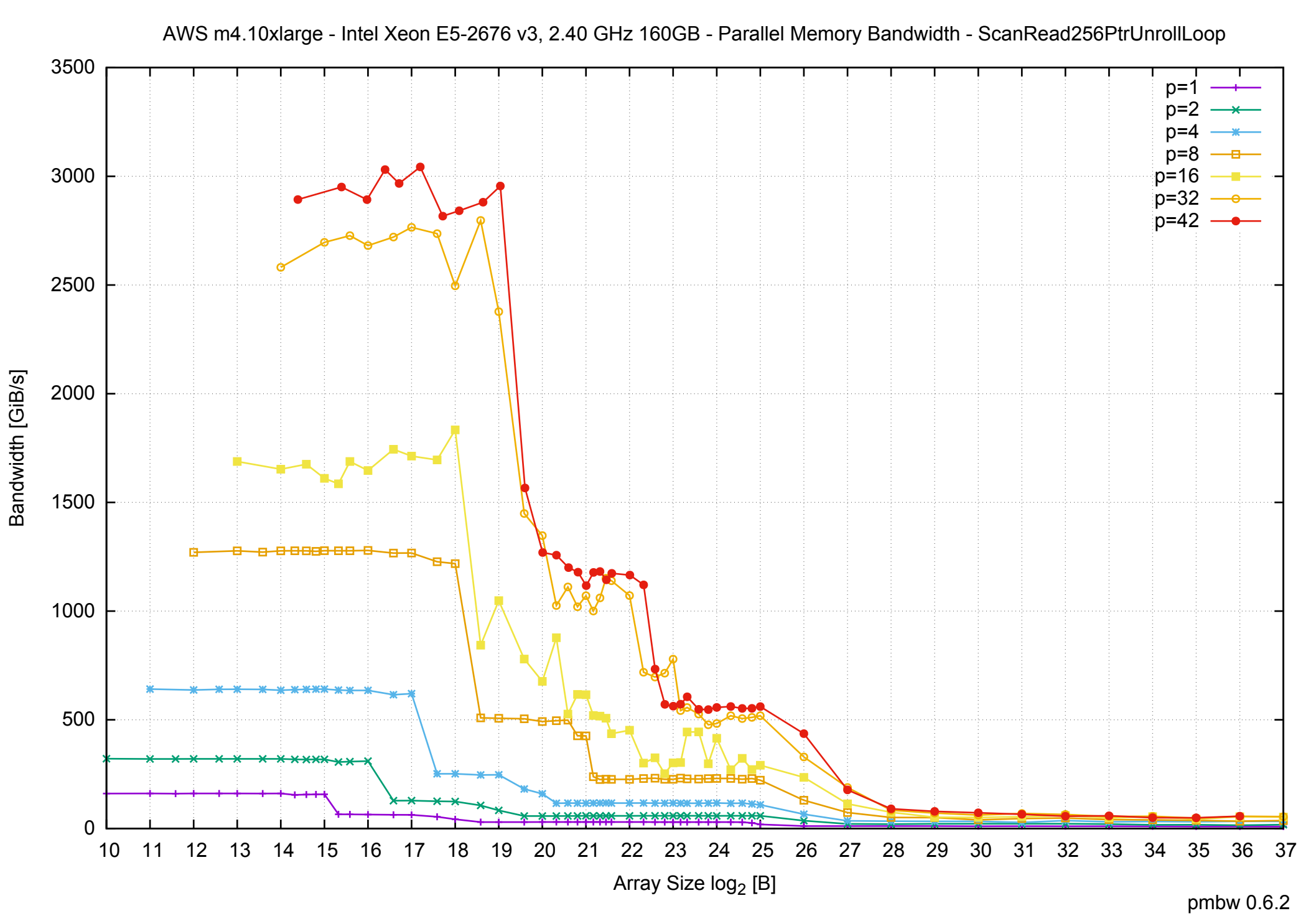

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite256PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
0
2
4
6
8
10
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
Array Size log2 [B]
pmbw 0.6.2

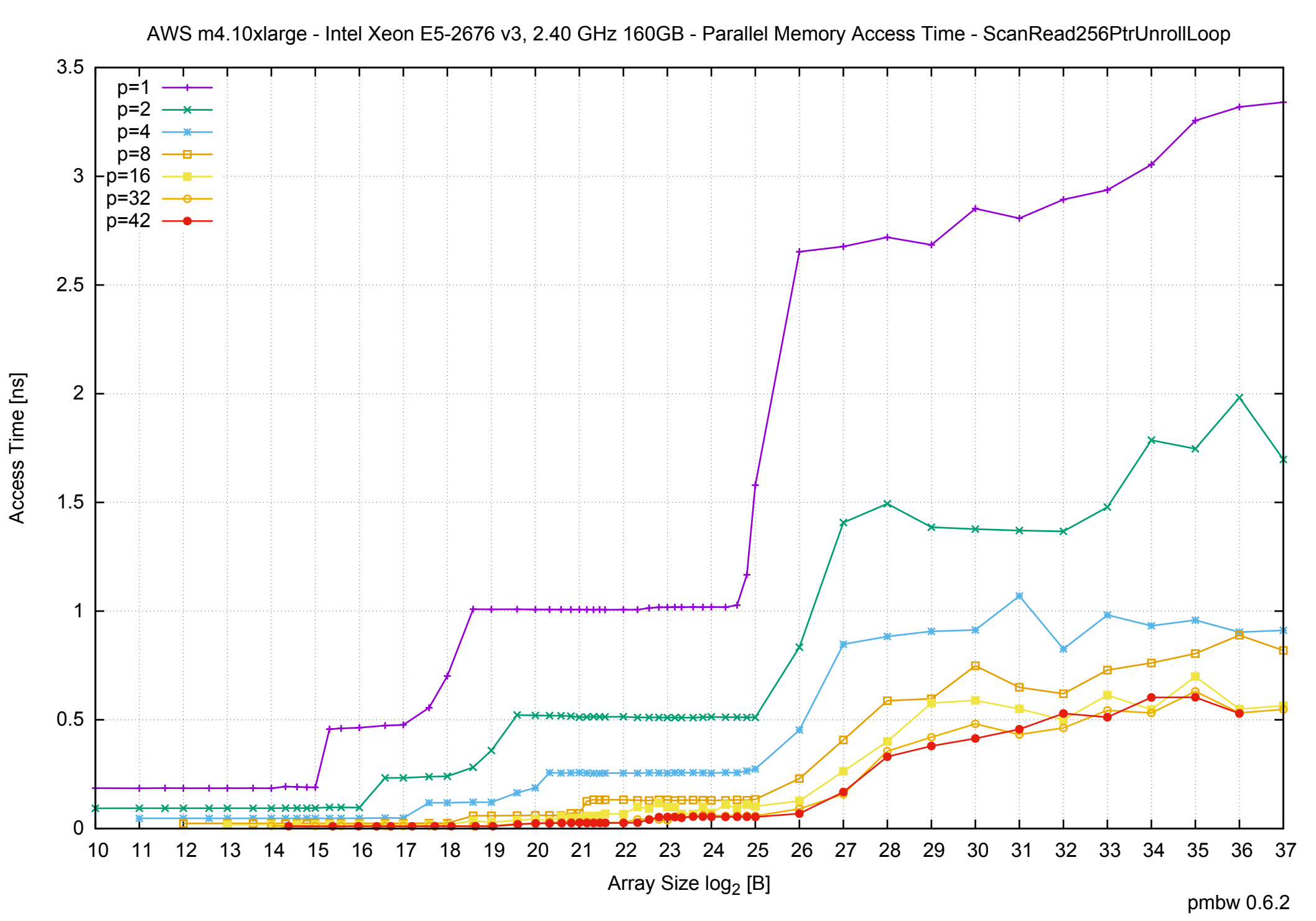

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead256PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
200
400
600
800
1000
1200
1400
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2

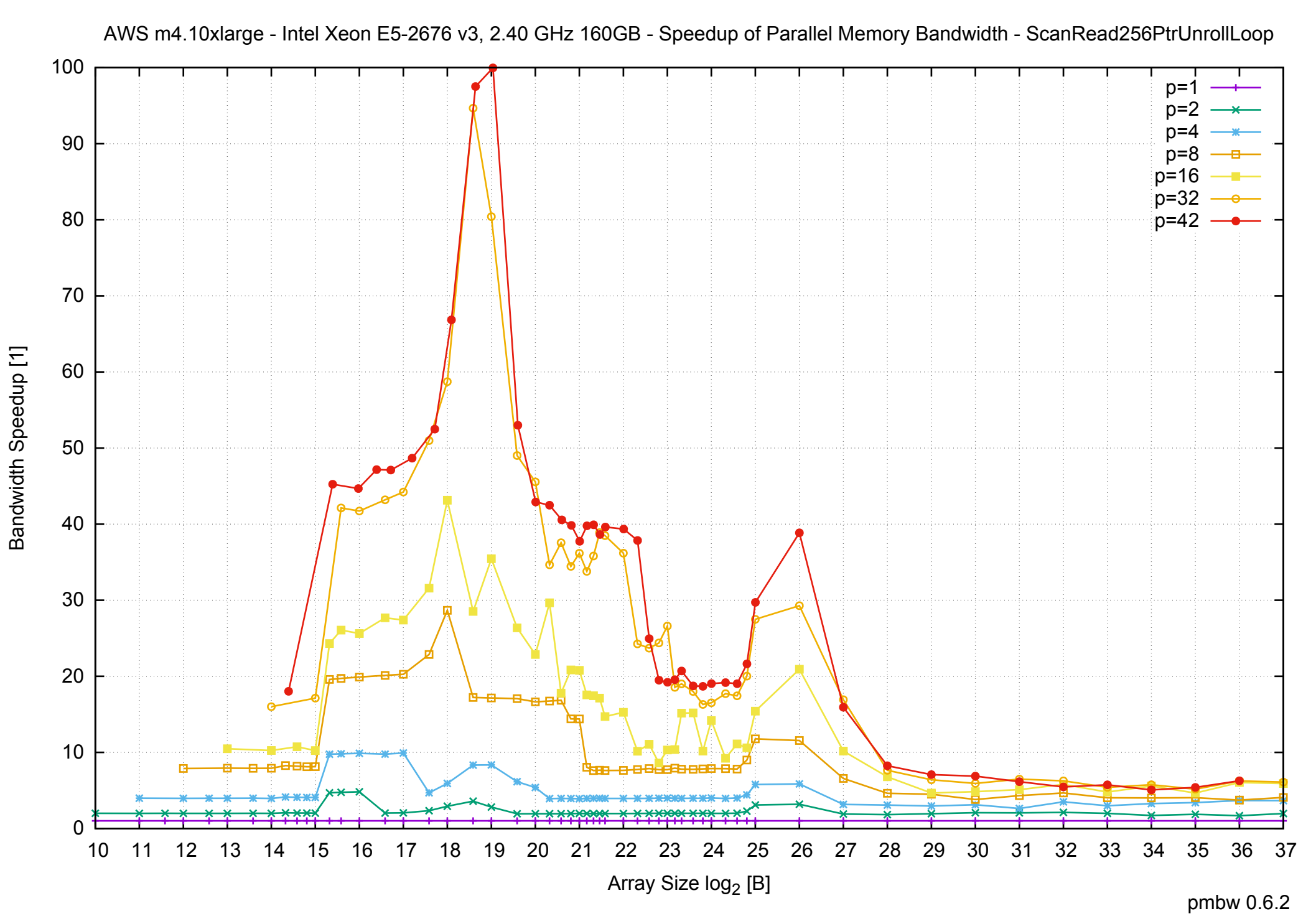

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead256PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2

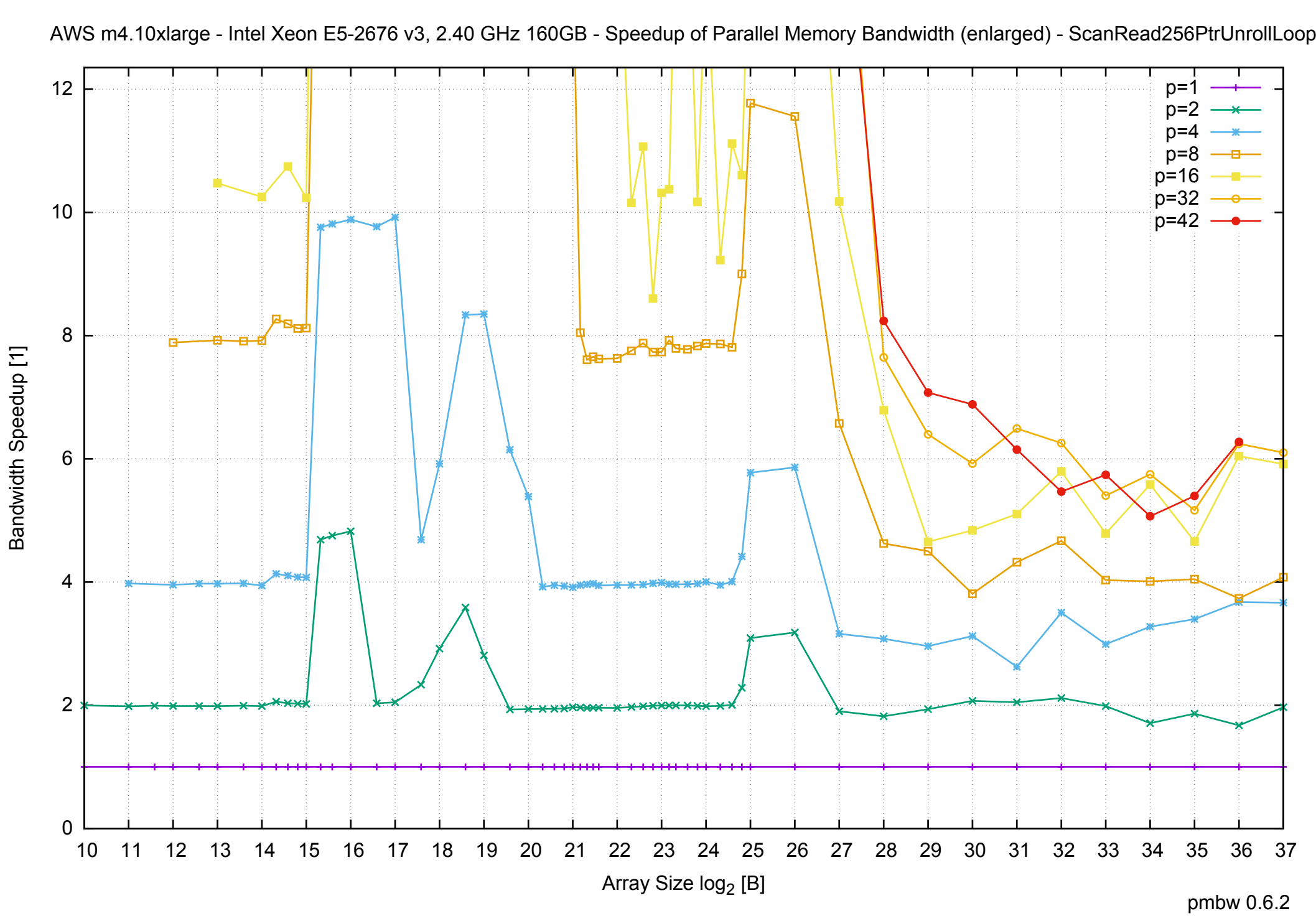

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead256PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
30
35
40
45
50
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2

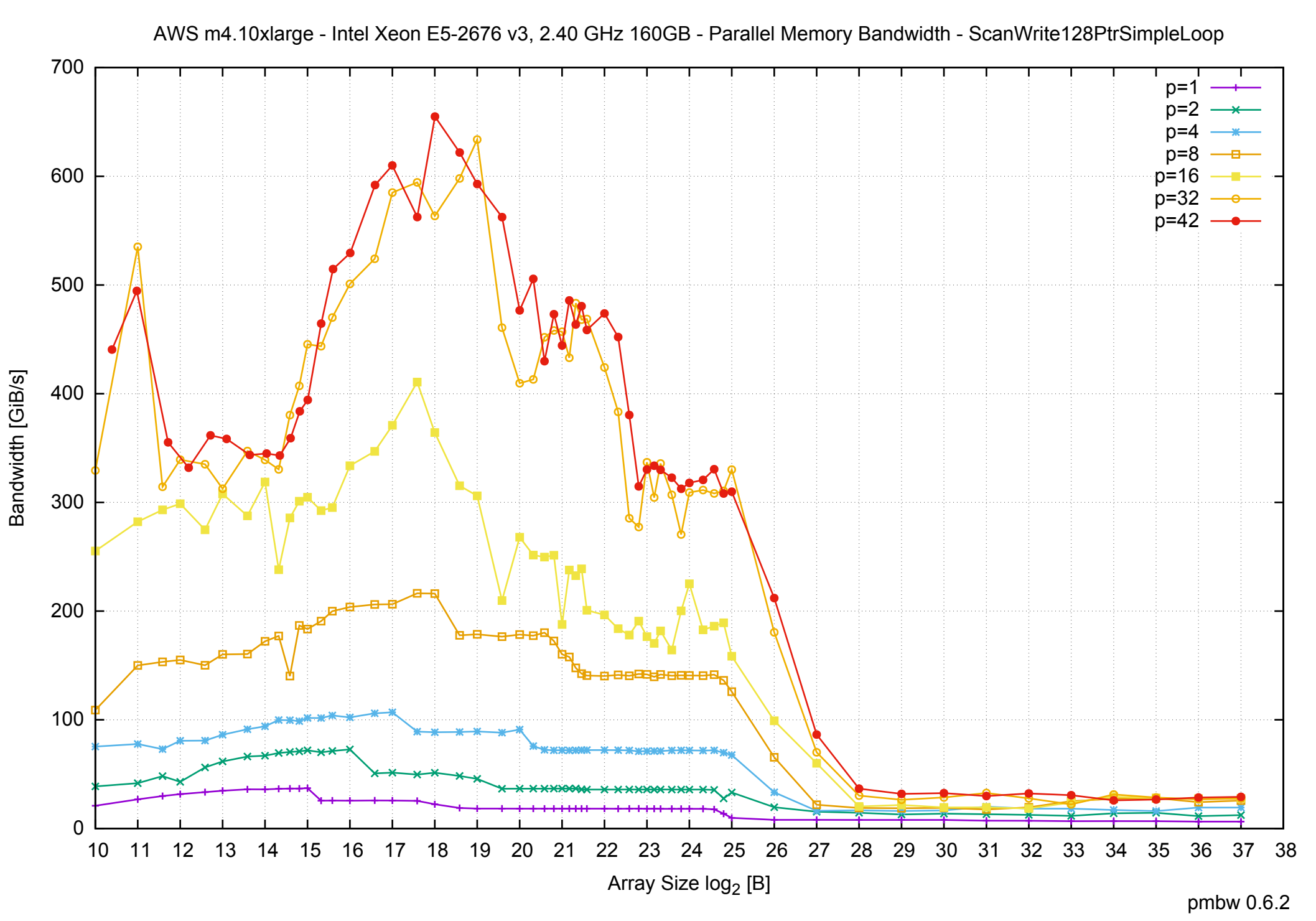

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead256PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2

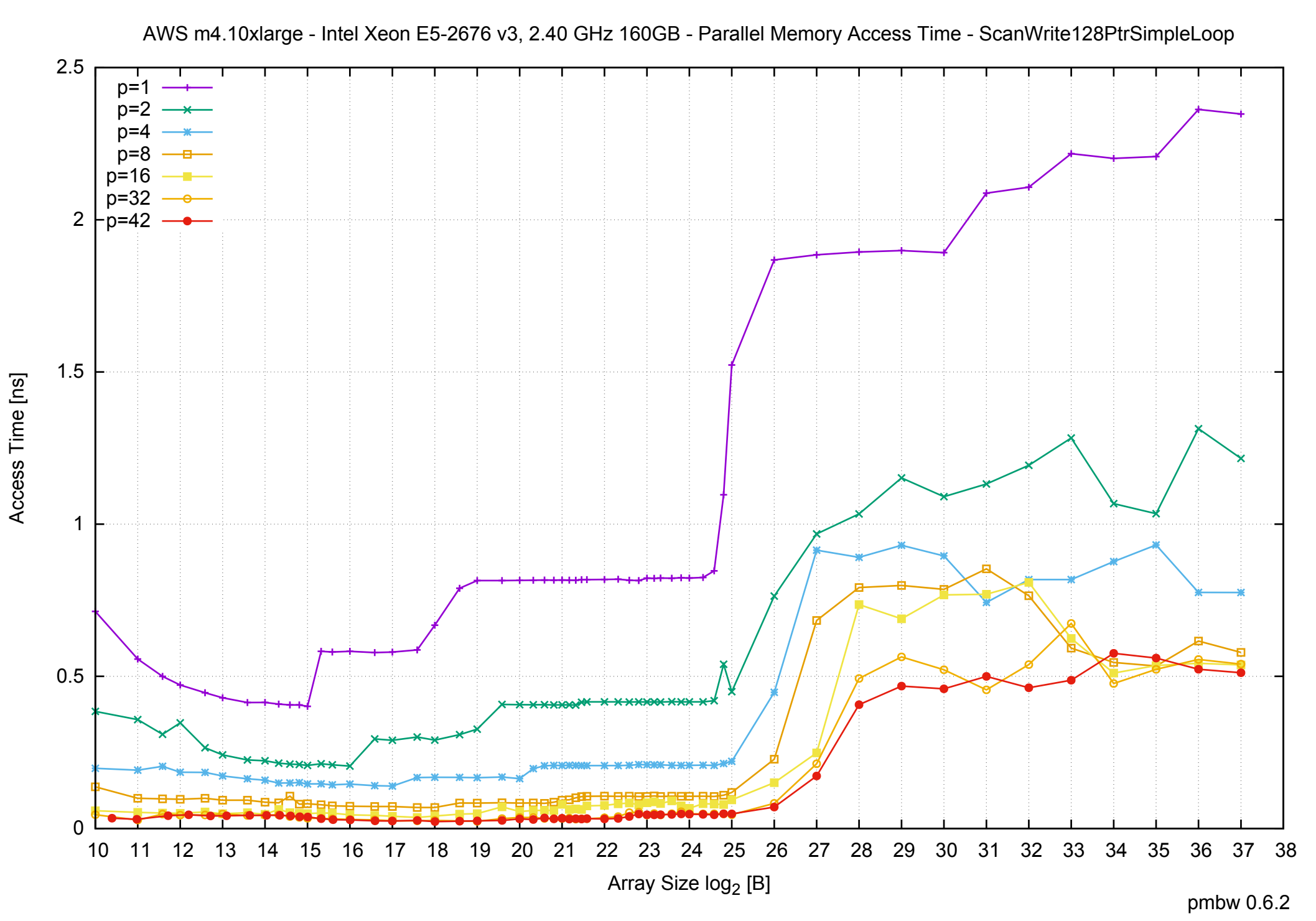

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead256PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
500
1000
1500
2000
2500
3000
3500
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
pmbw 0.6.2

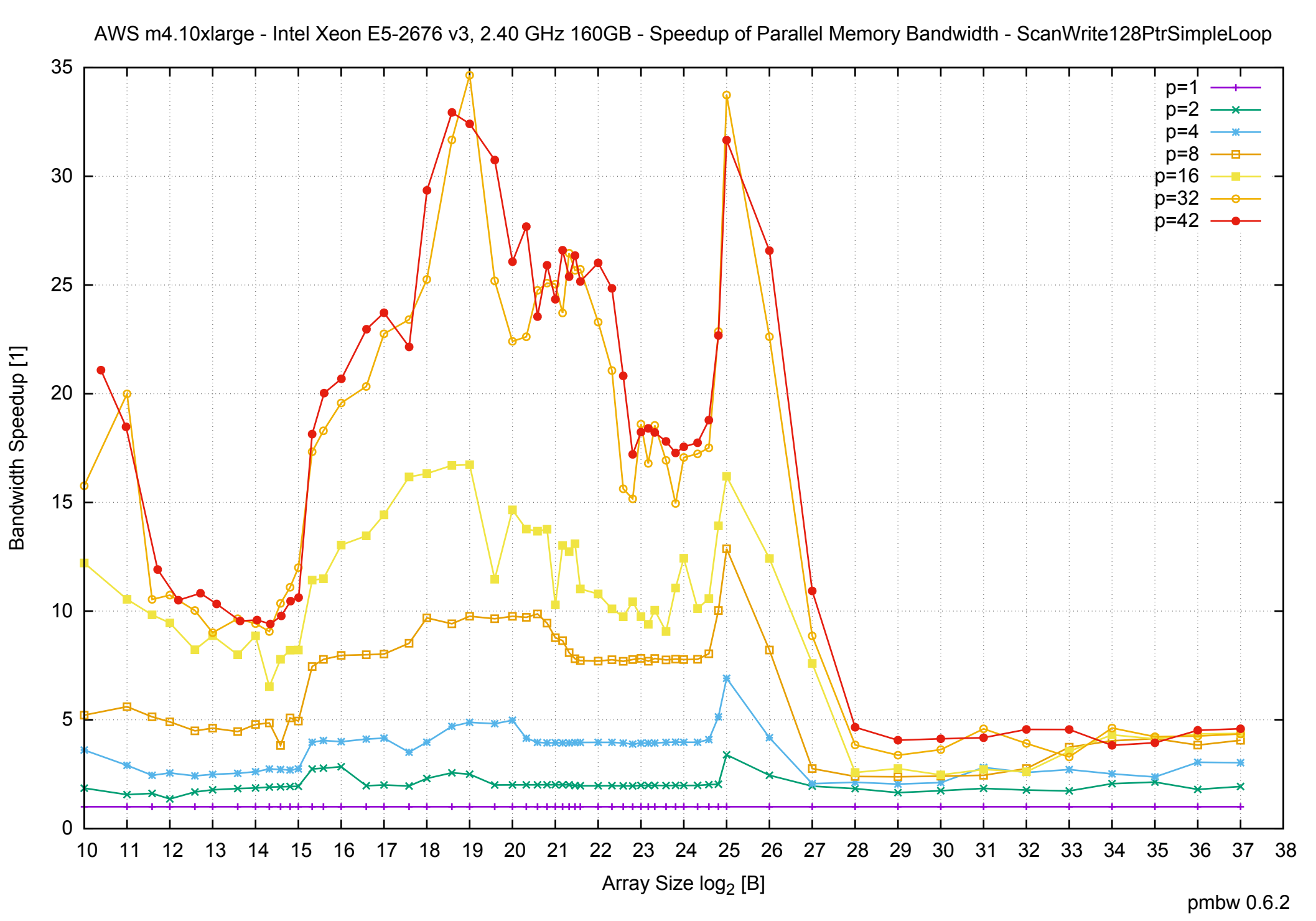

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead256PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2

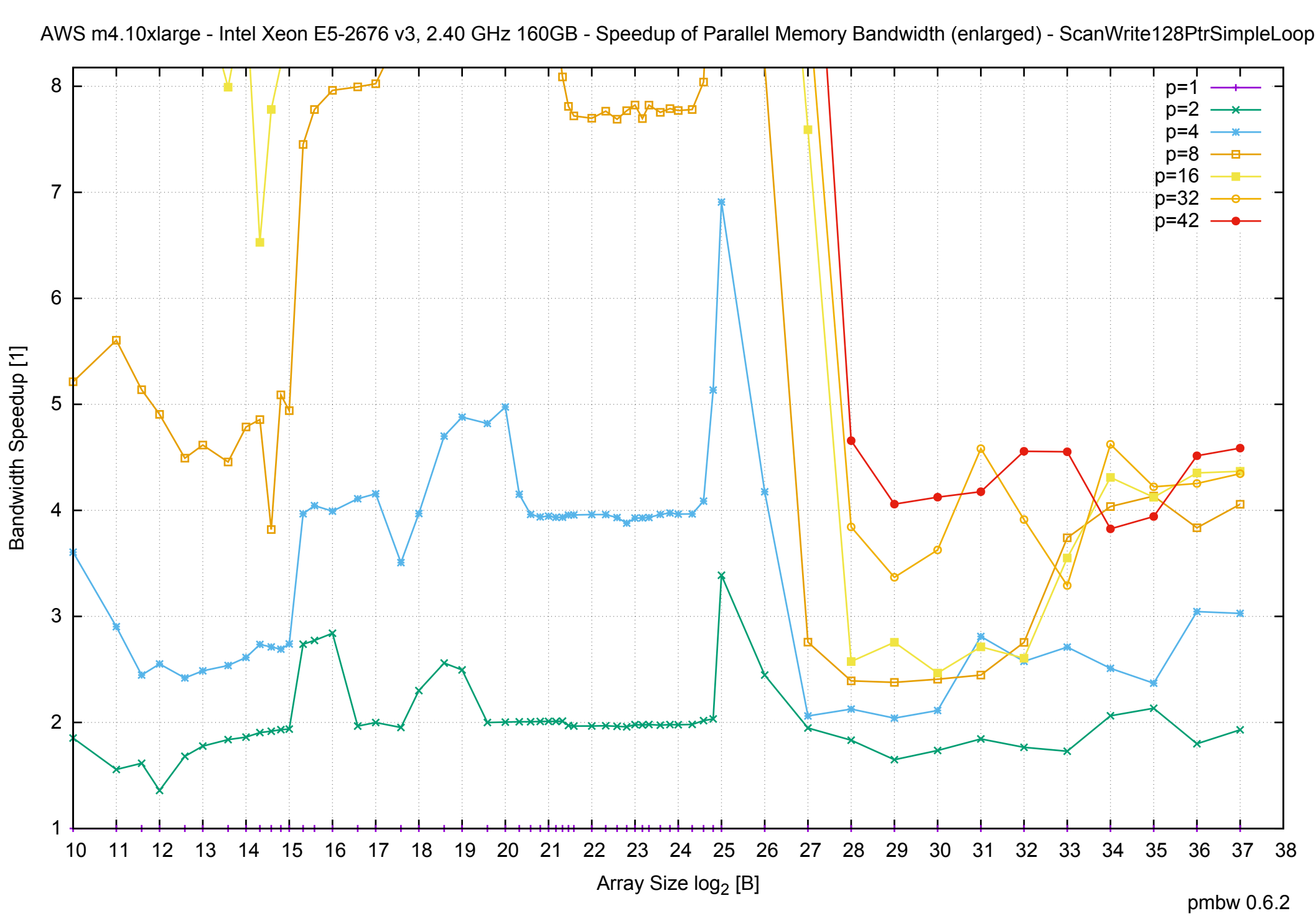

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead256PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2

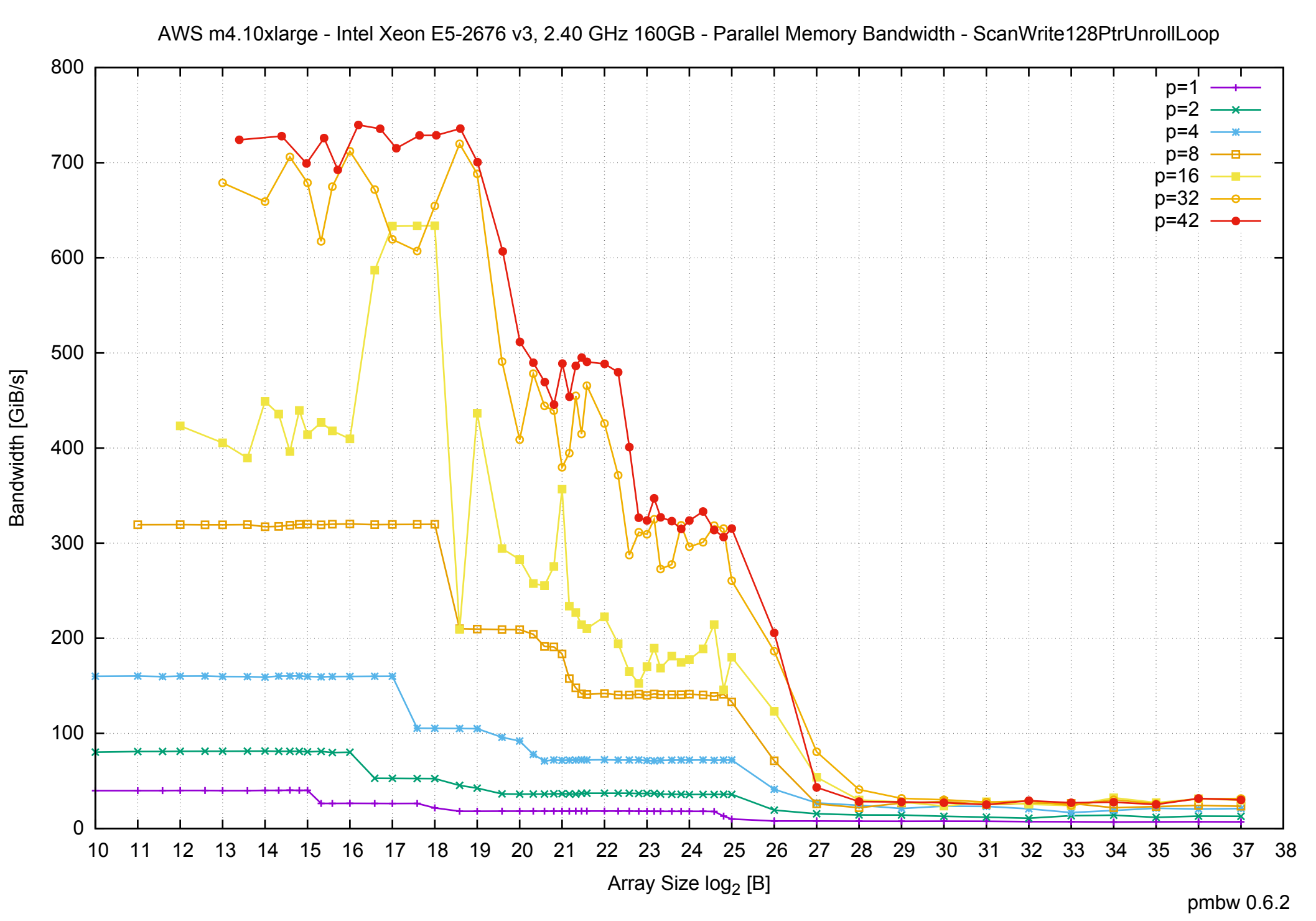

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead256PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
2
4
6
8
10
12
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
pmbw 0.6.2

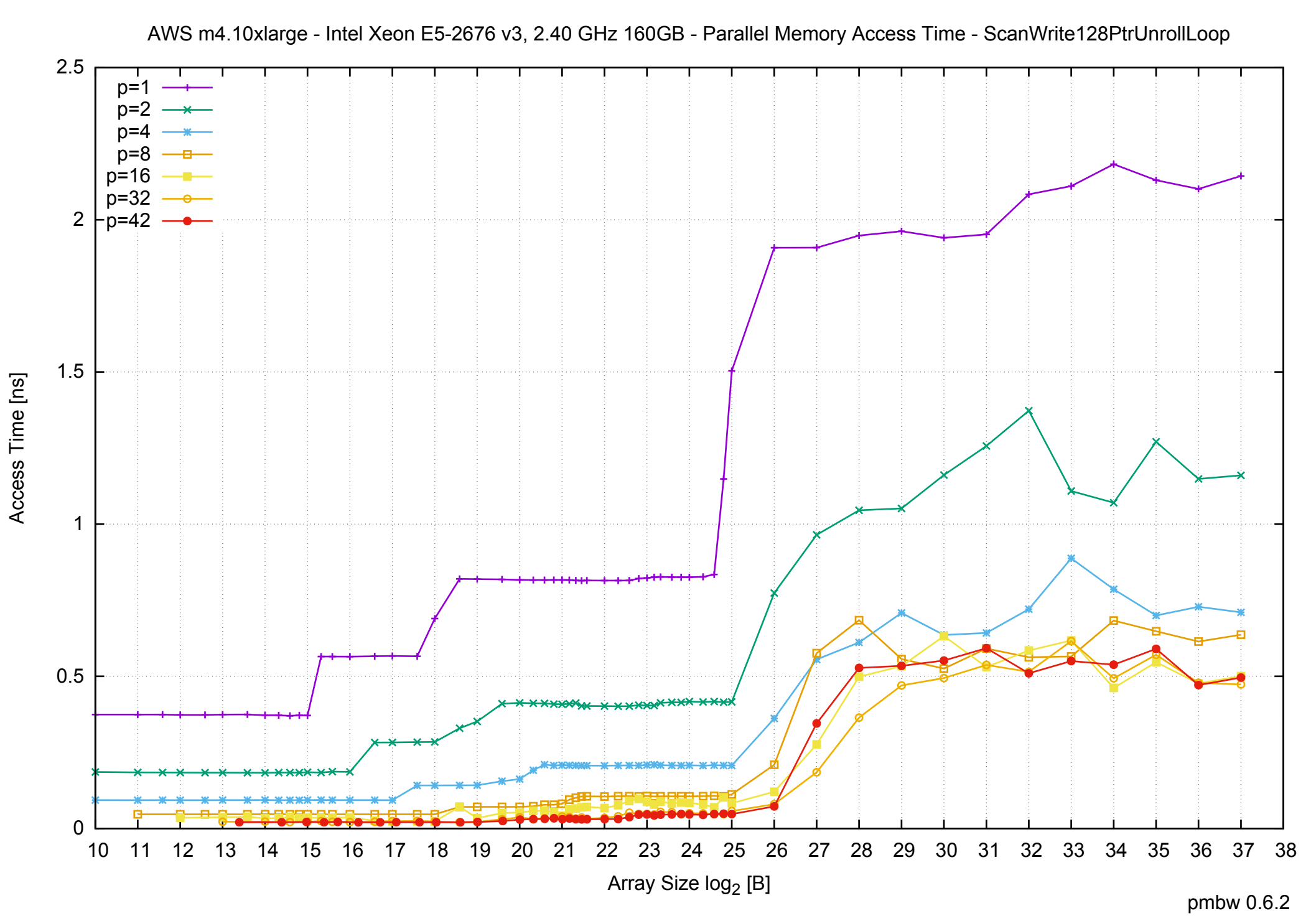

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite128PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
100
200
300
400
500
600
700
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2

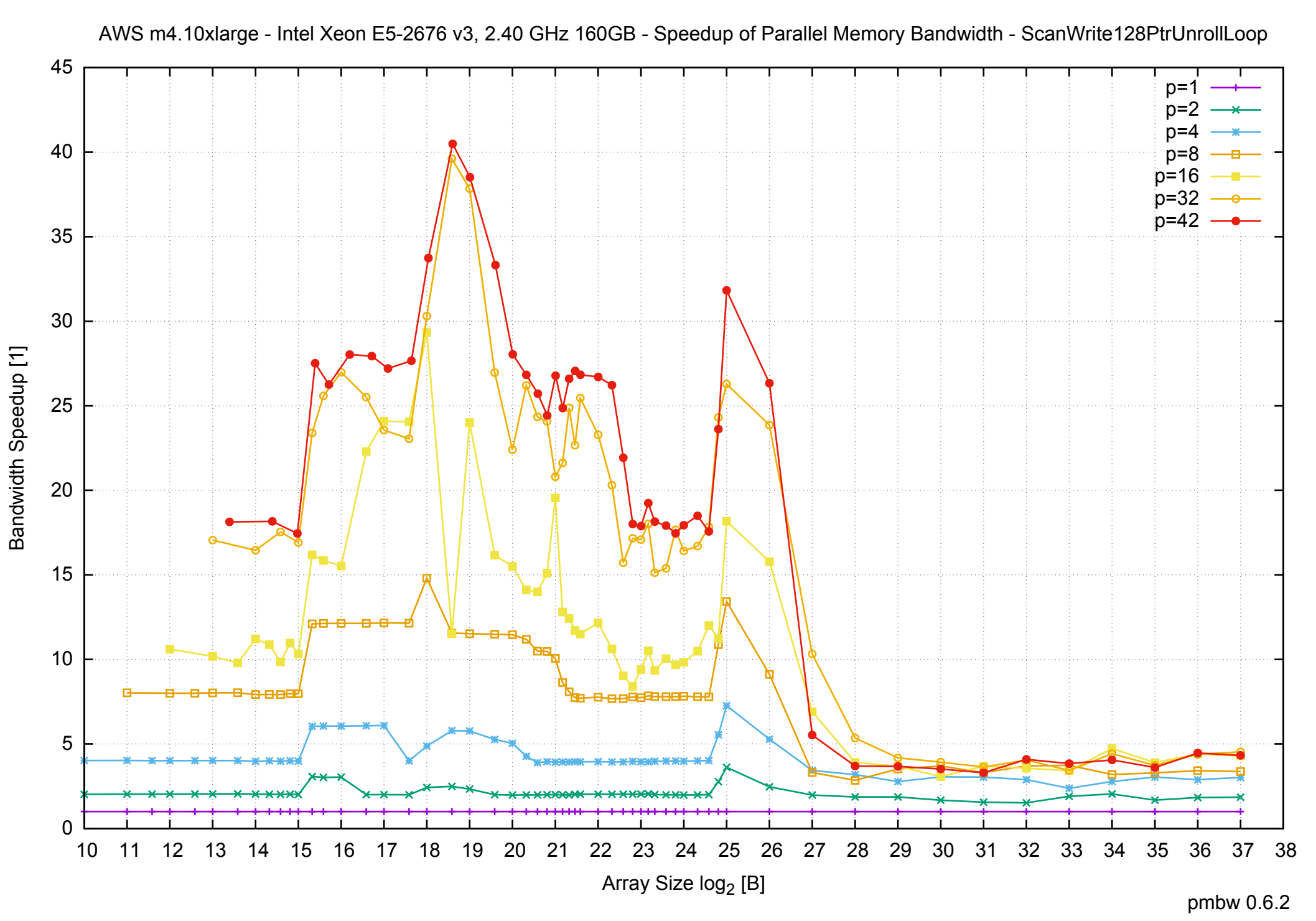

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite128PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite128PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
30
35
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite128PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
1
2
3
4
5
6
7
8
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite128PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite128PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite128PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
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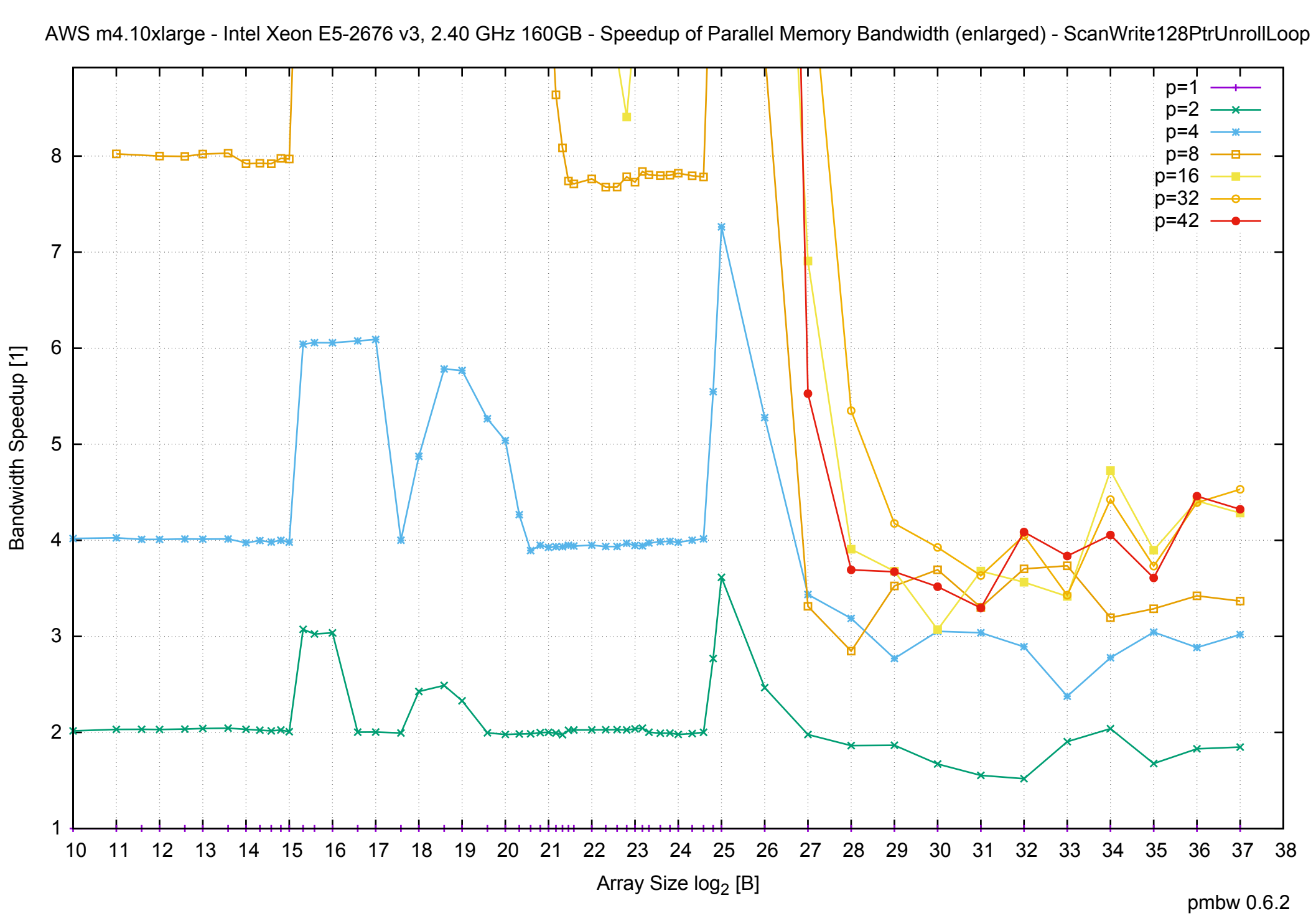
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite128PtrUnrollLoop
p=1
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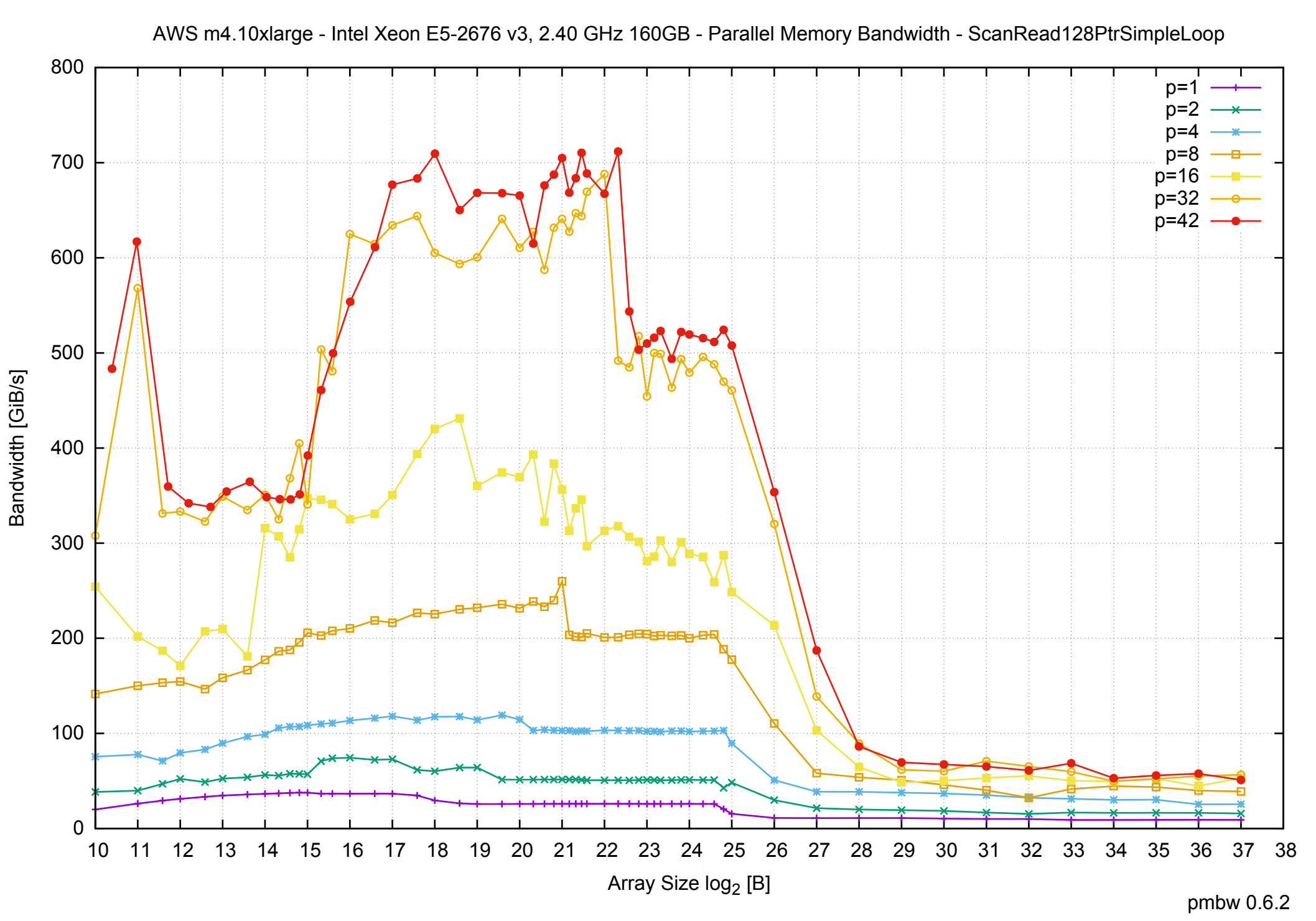
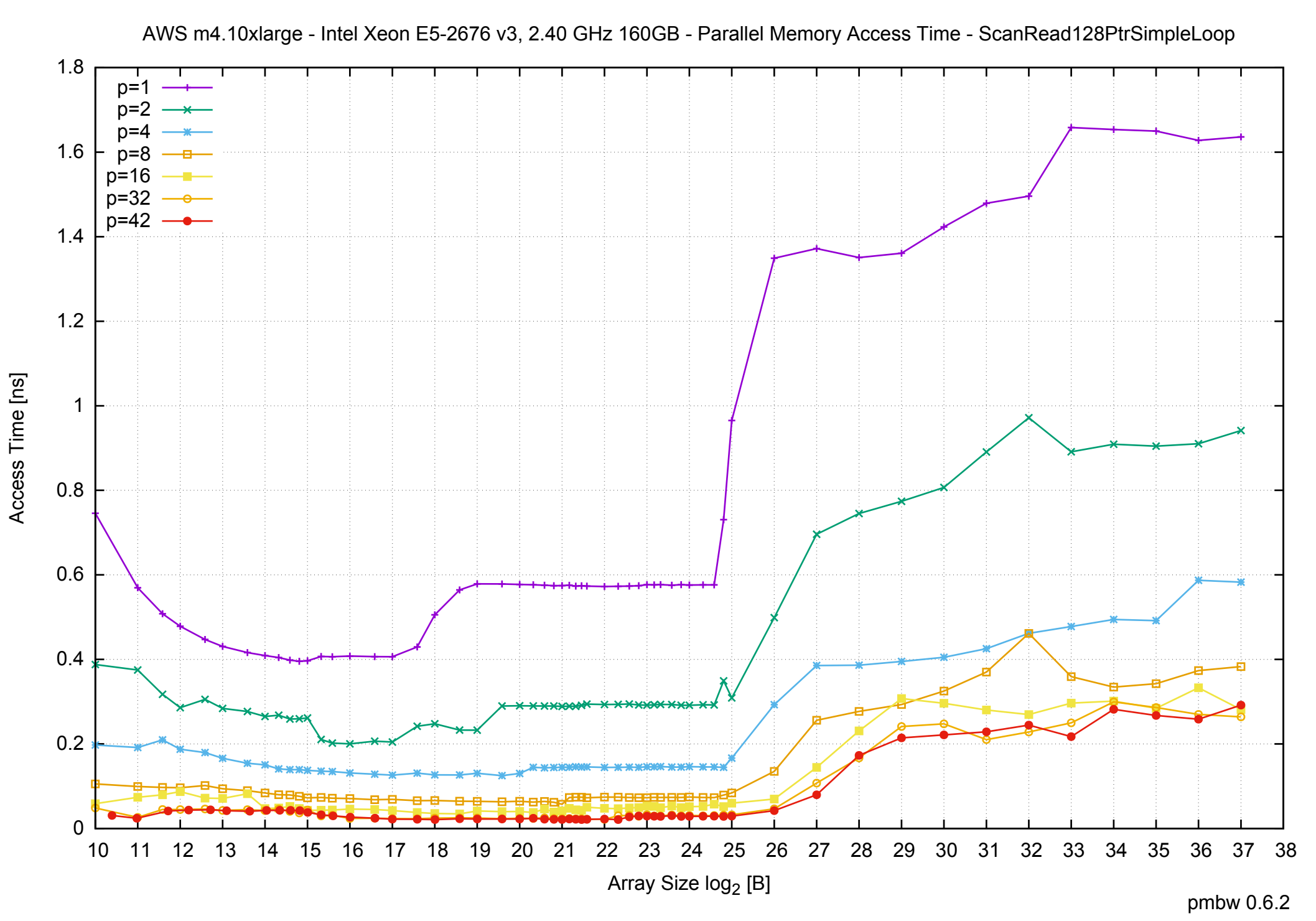
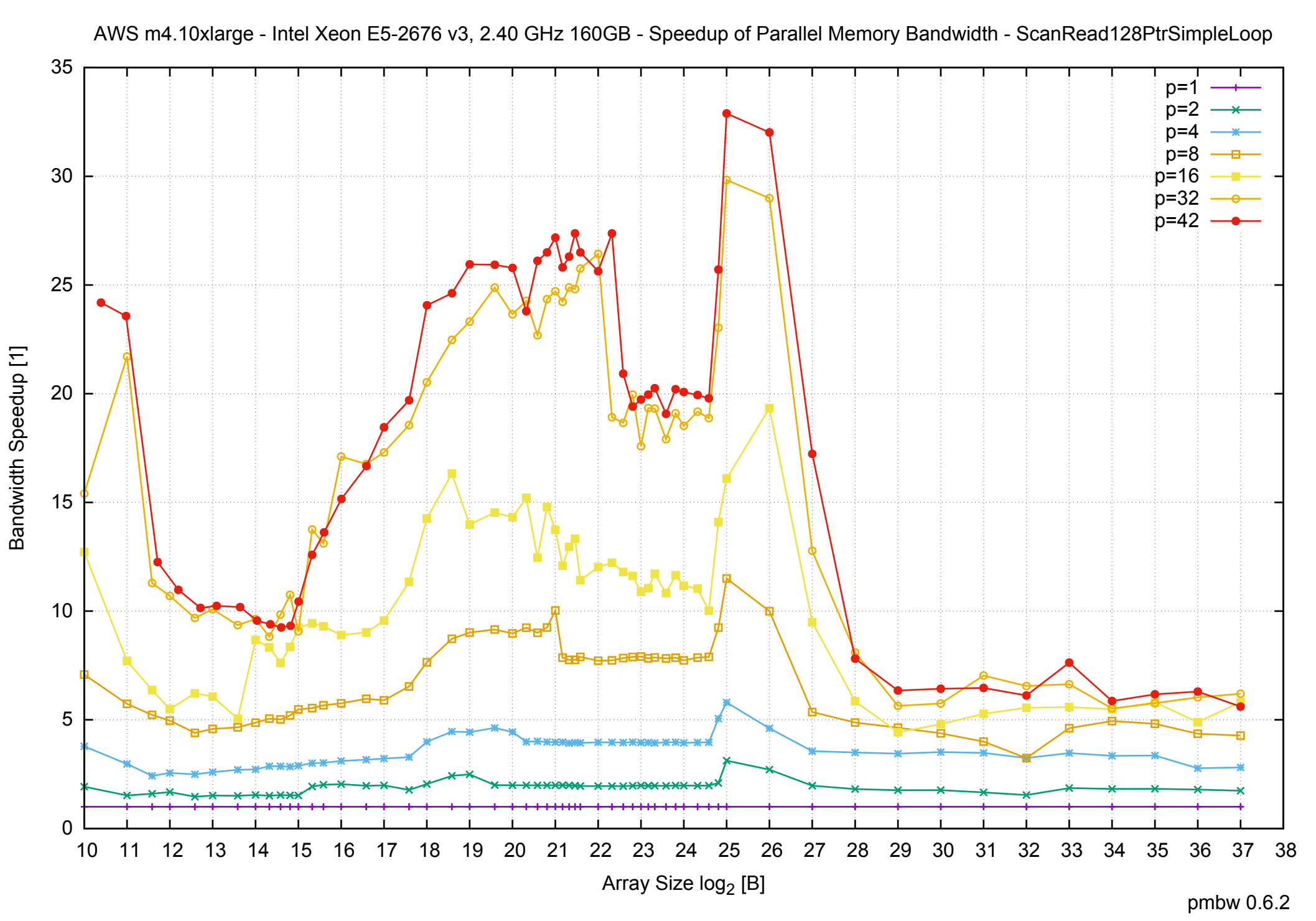
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead128PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead128PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead128PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
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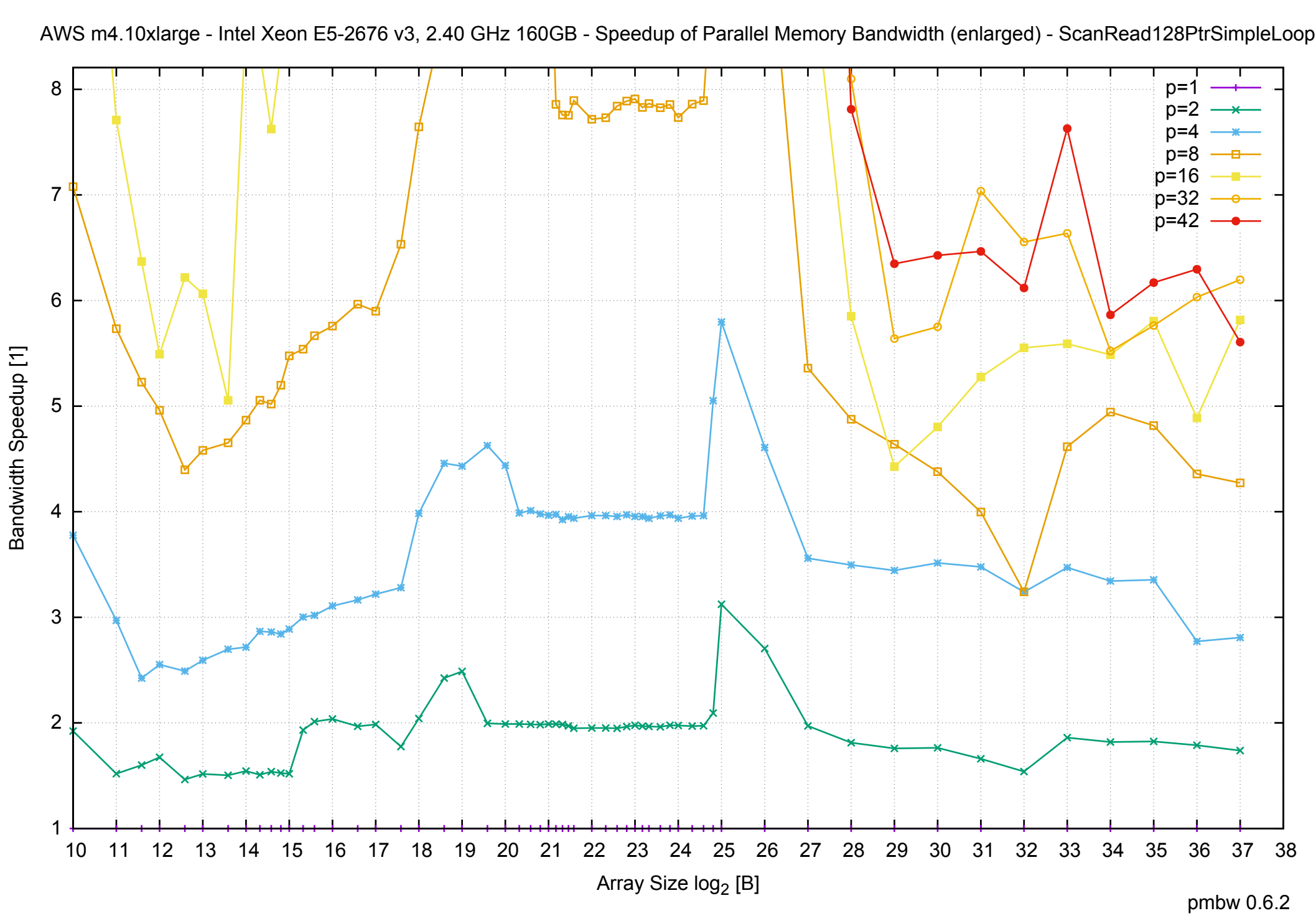
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead128PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
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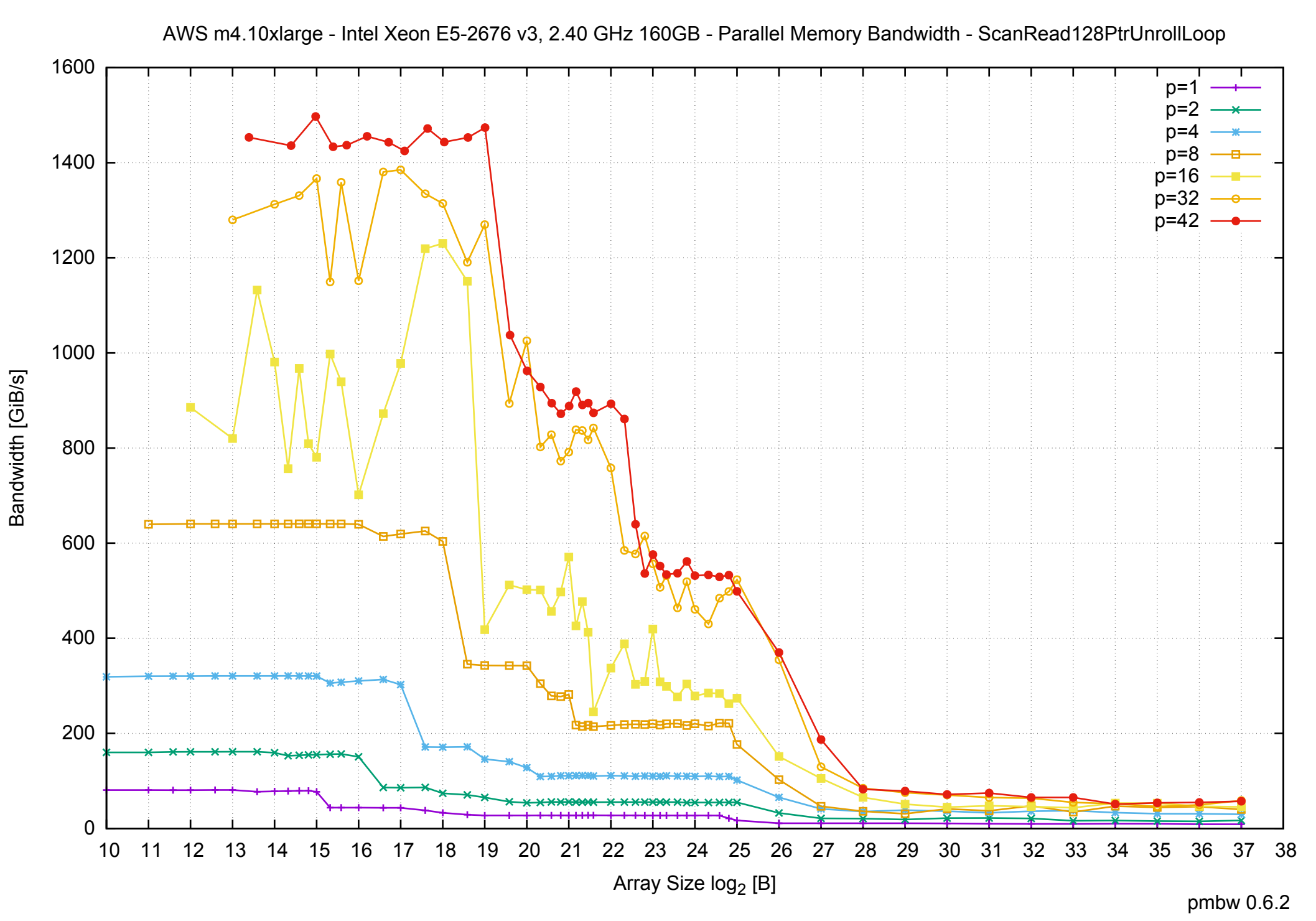
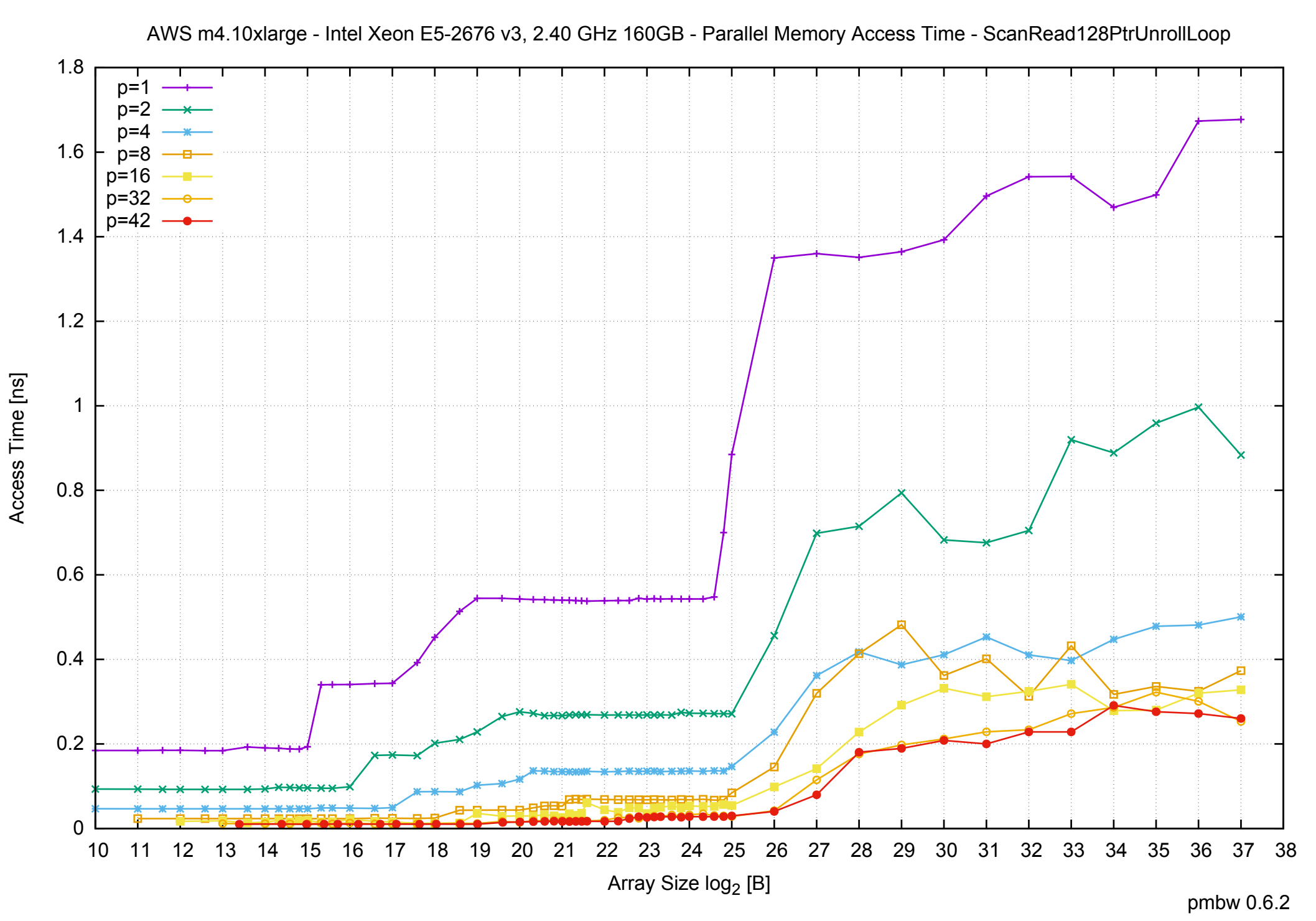
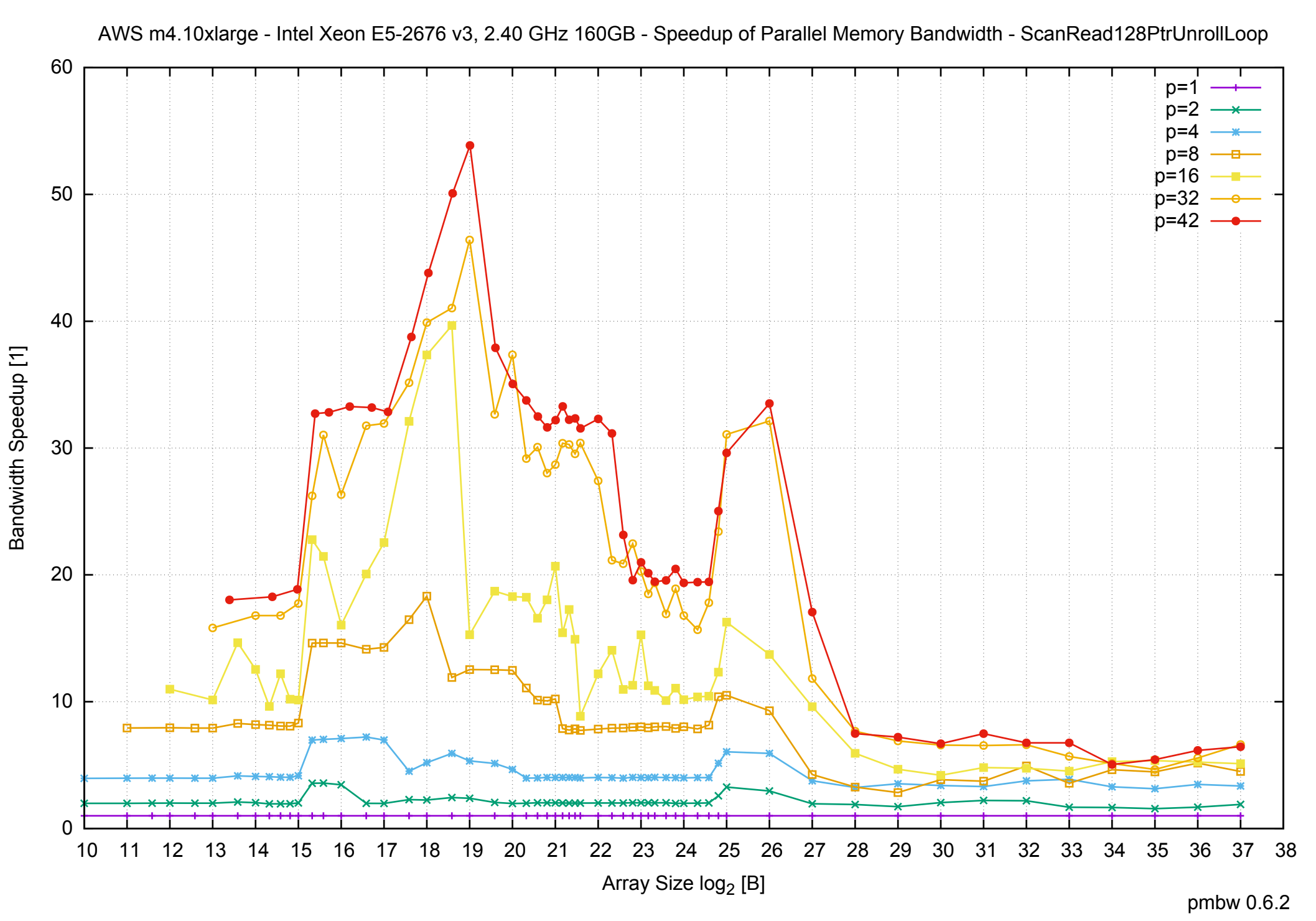
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead128PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead128PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead128PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
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40
50
60
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11
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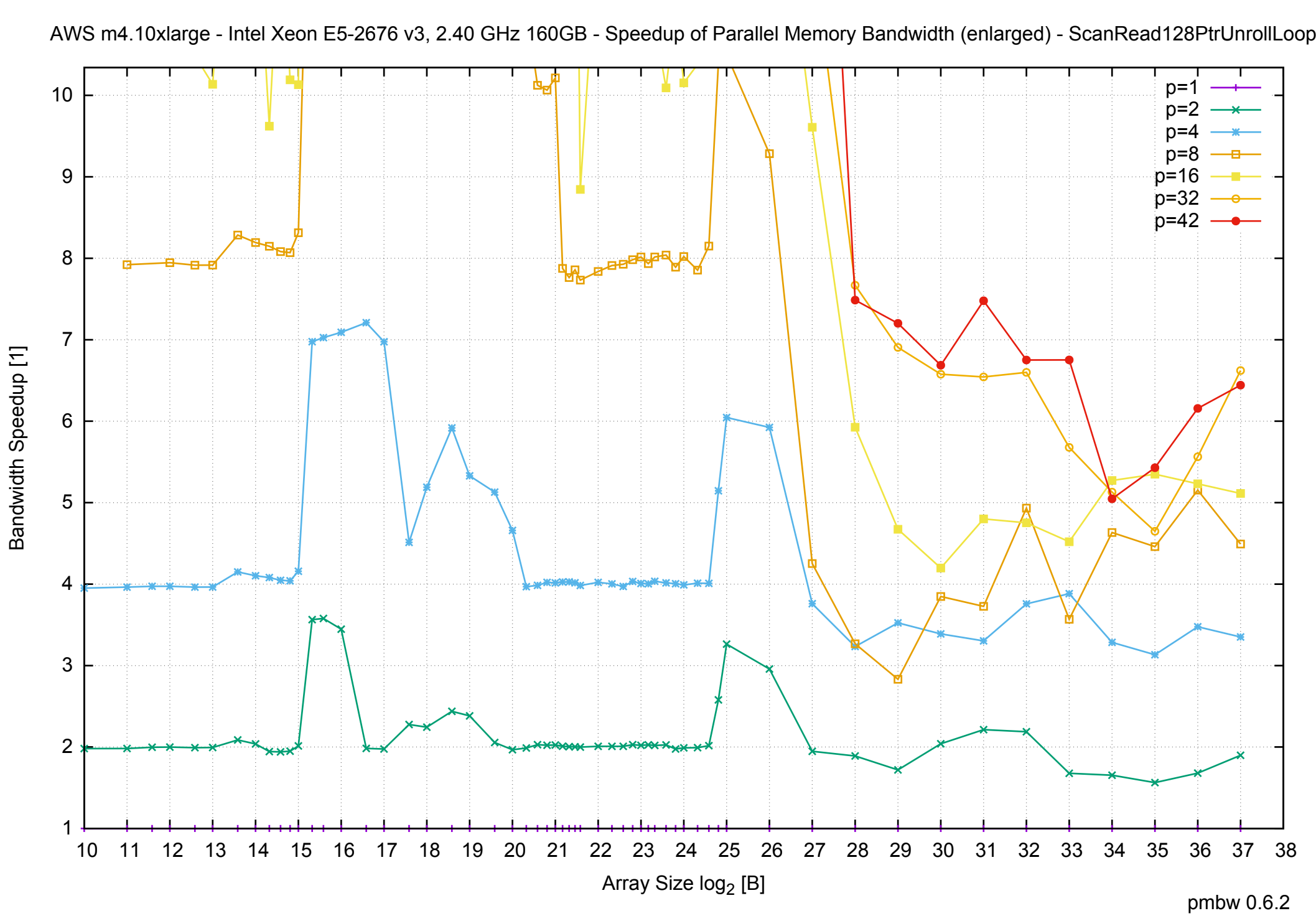
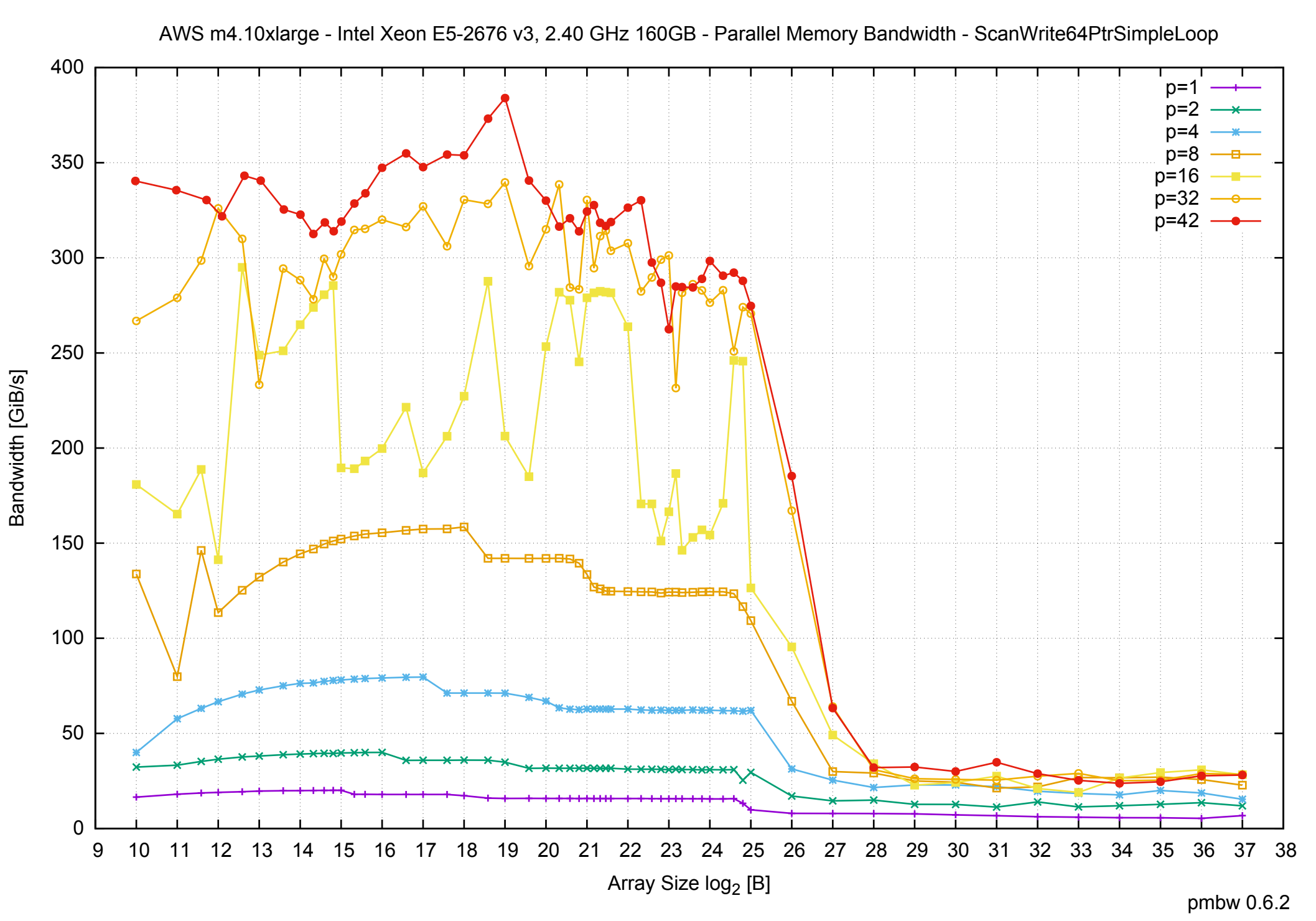
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead128PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite64PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
150
200
250
300
350
400
9
10
11
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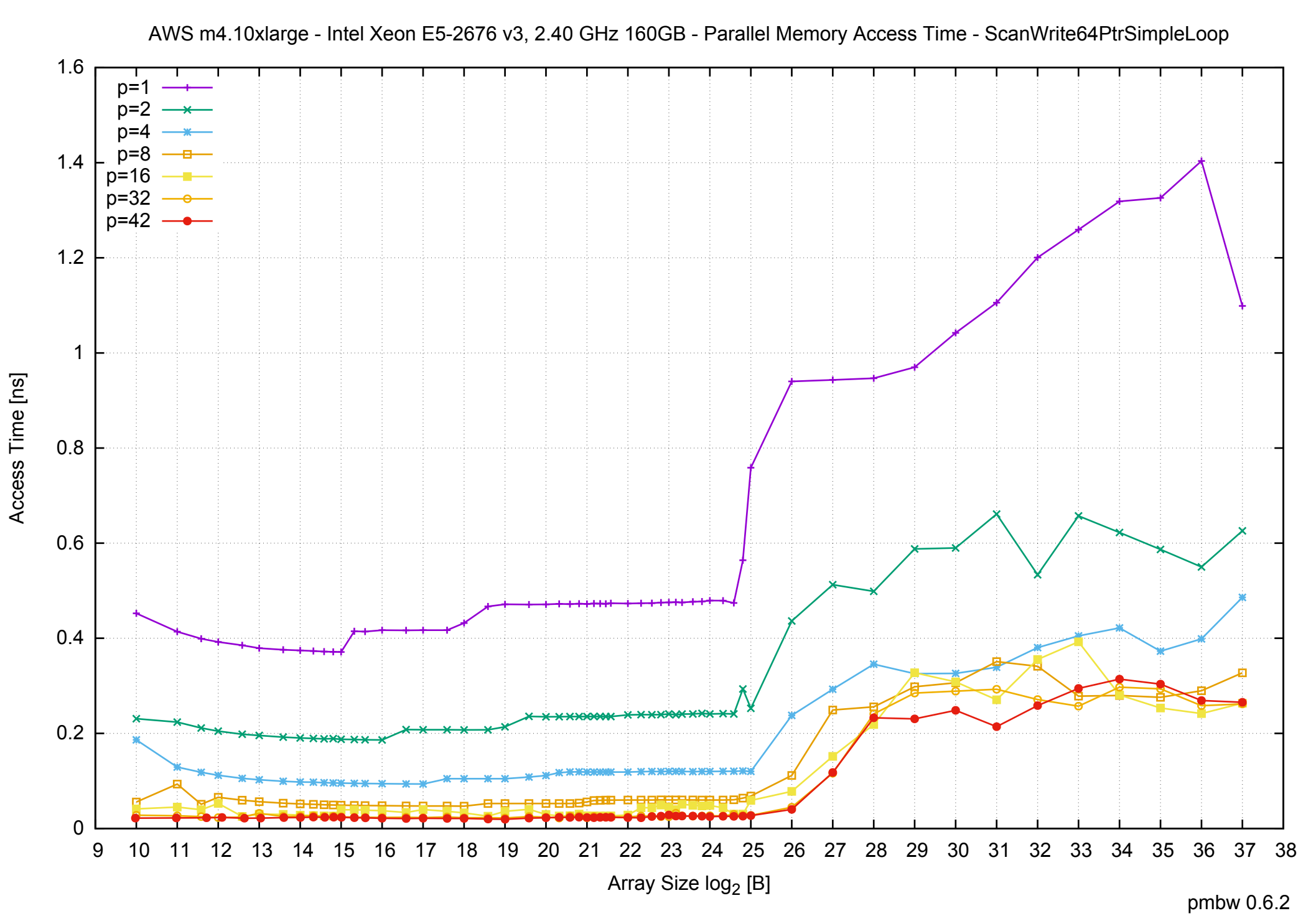
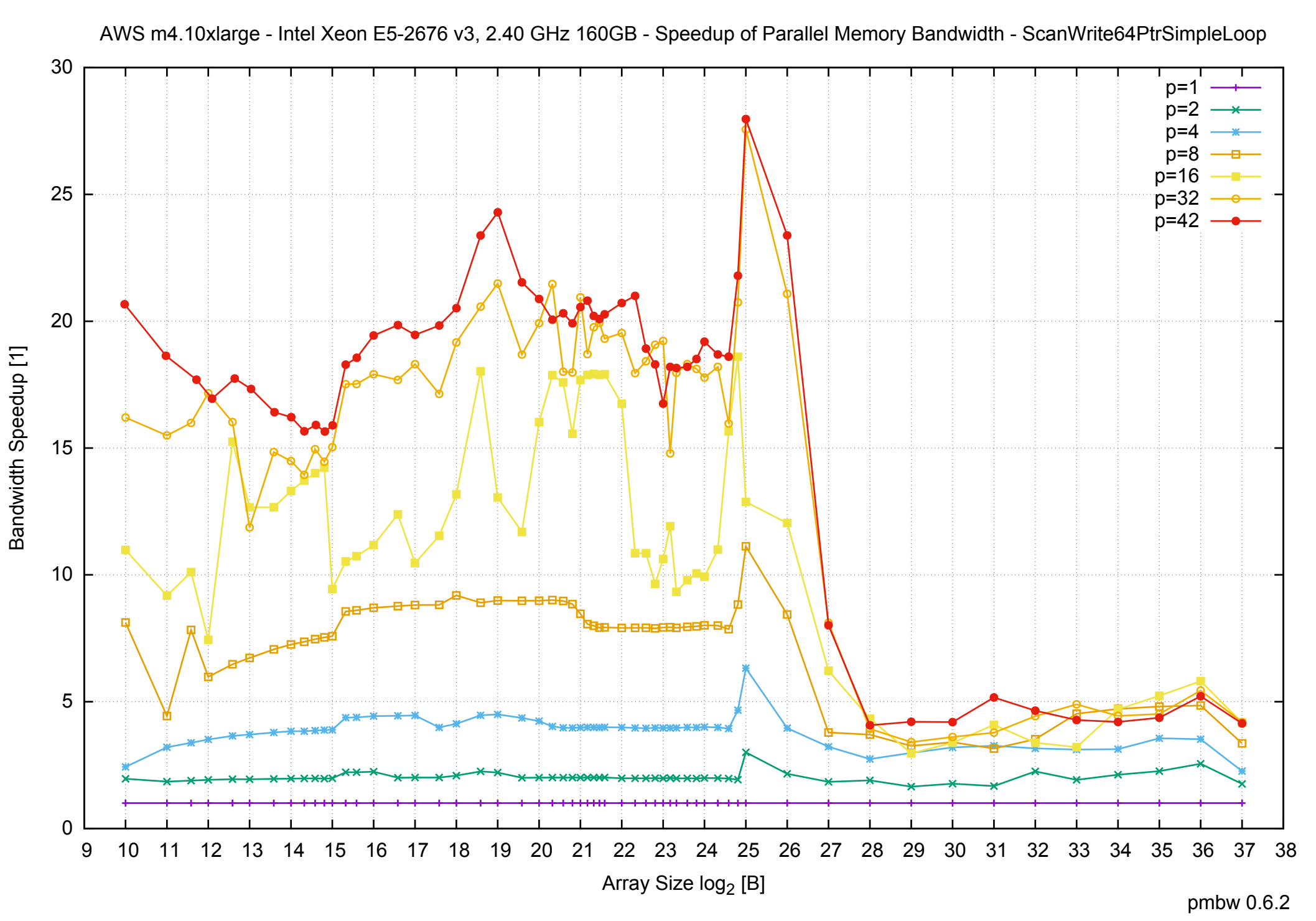
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite64PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite64PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
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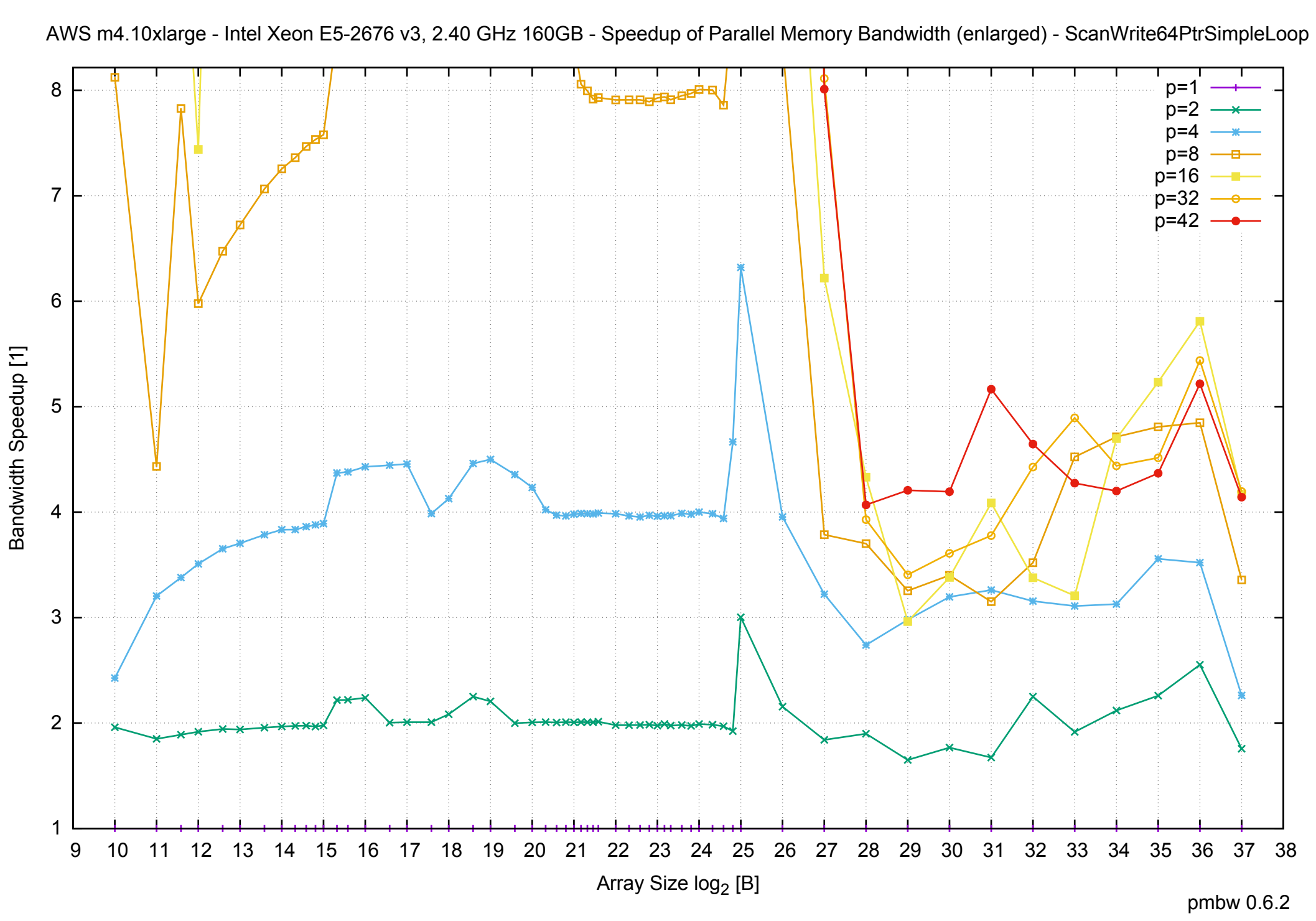
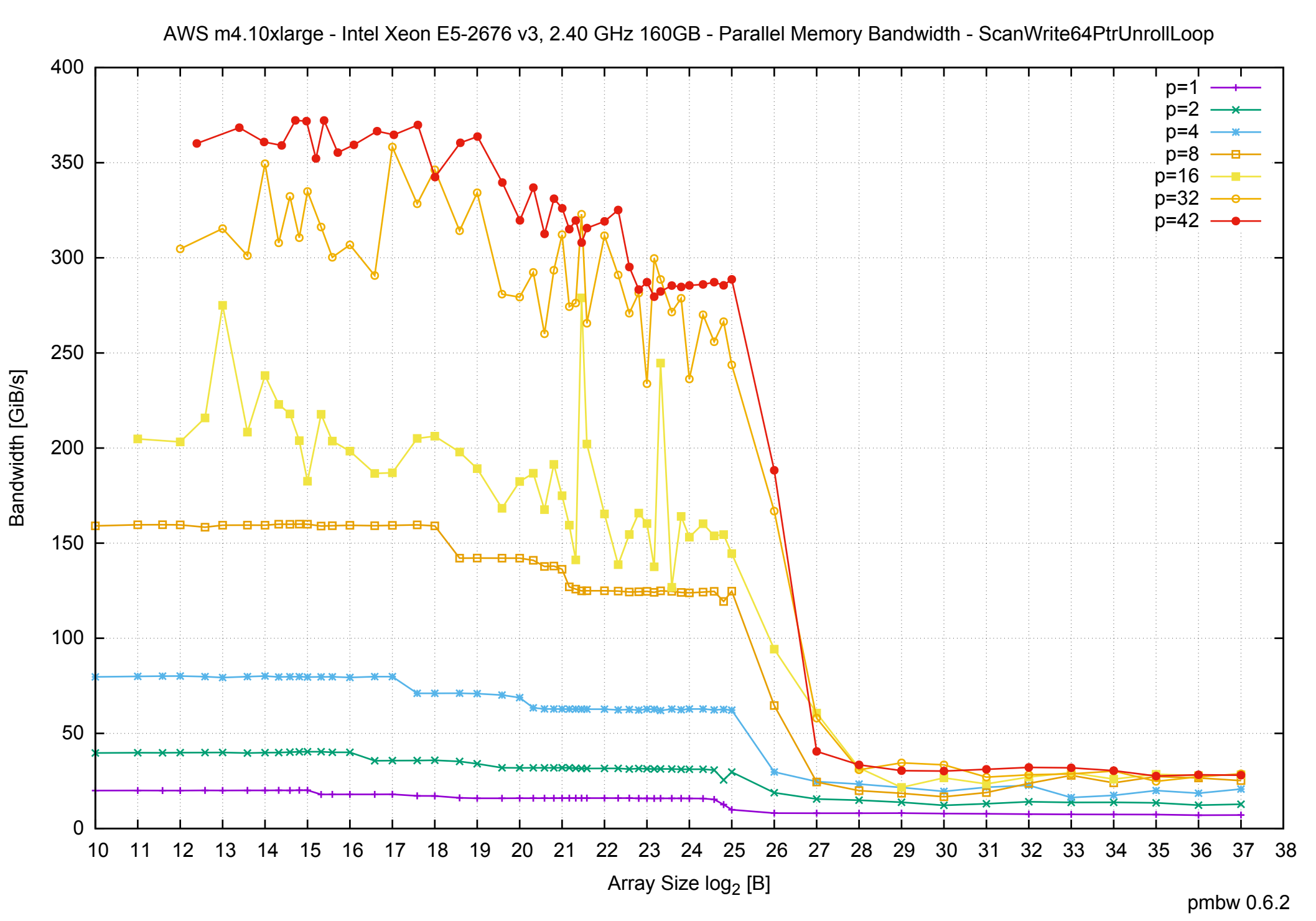
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite64PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite64PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
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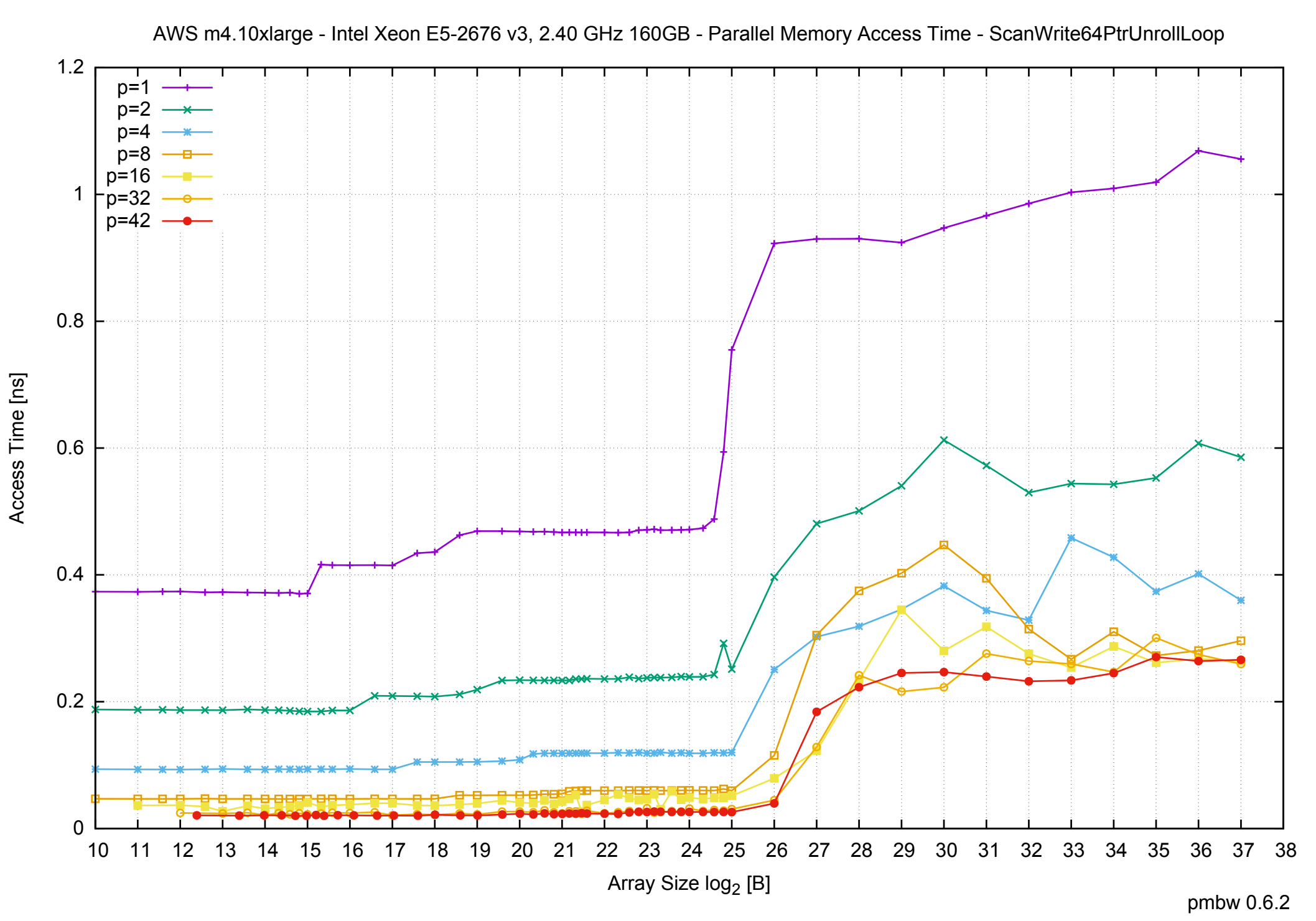
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite64PtrUnrollLoop
p=1
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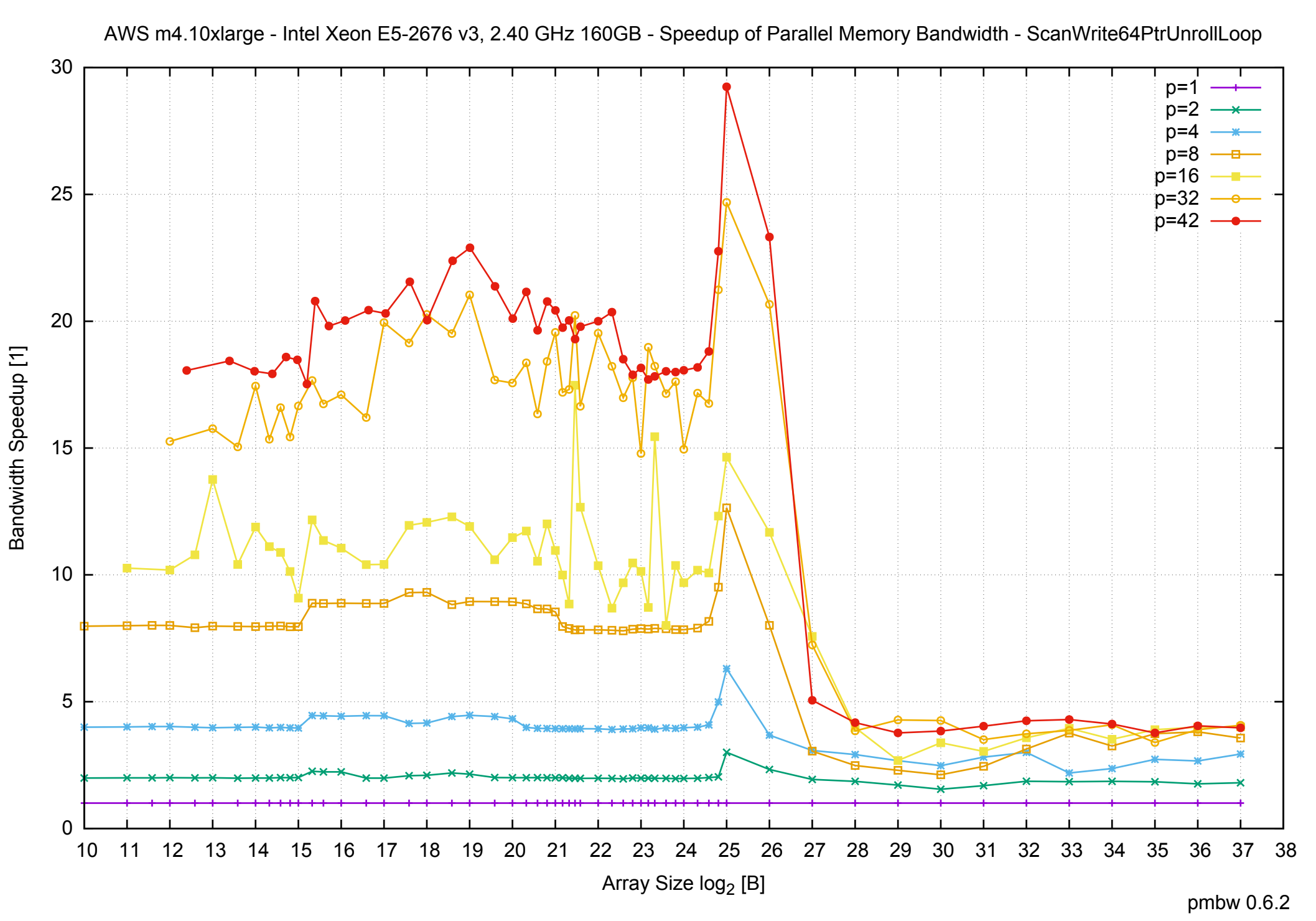
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite64PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
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p=16
p=32
p=42
0
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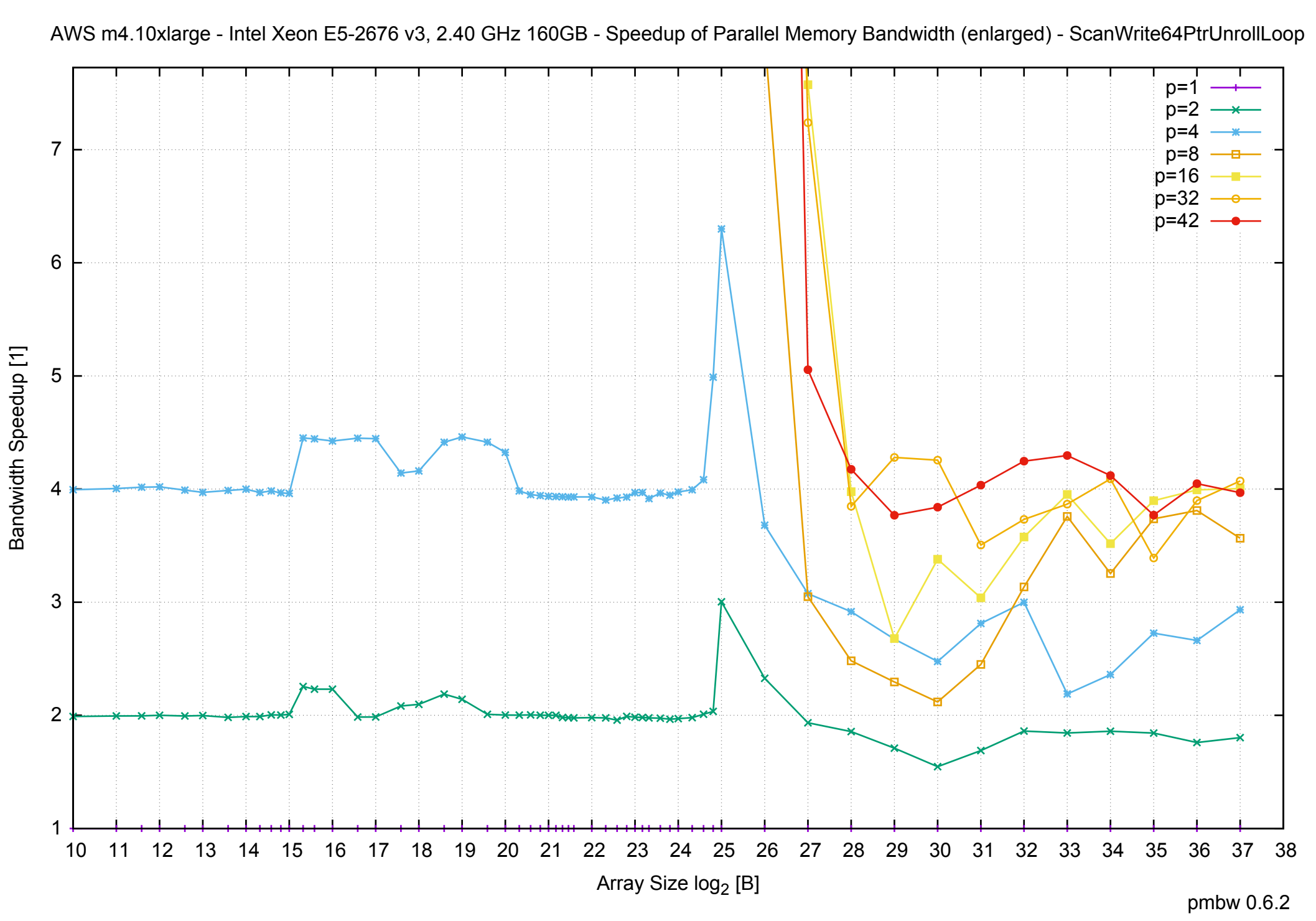
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite64PtrUnrollLoop
p=1
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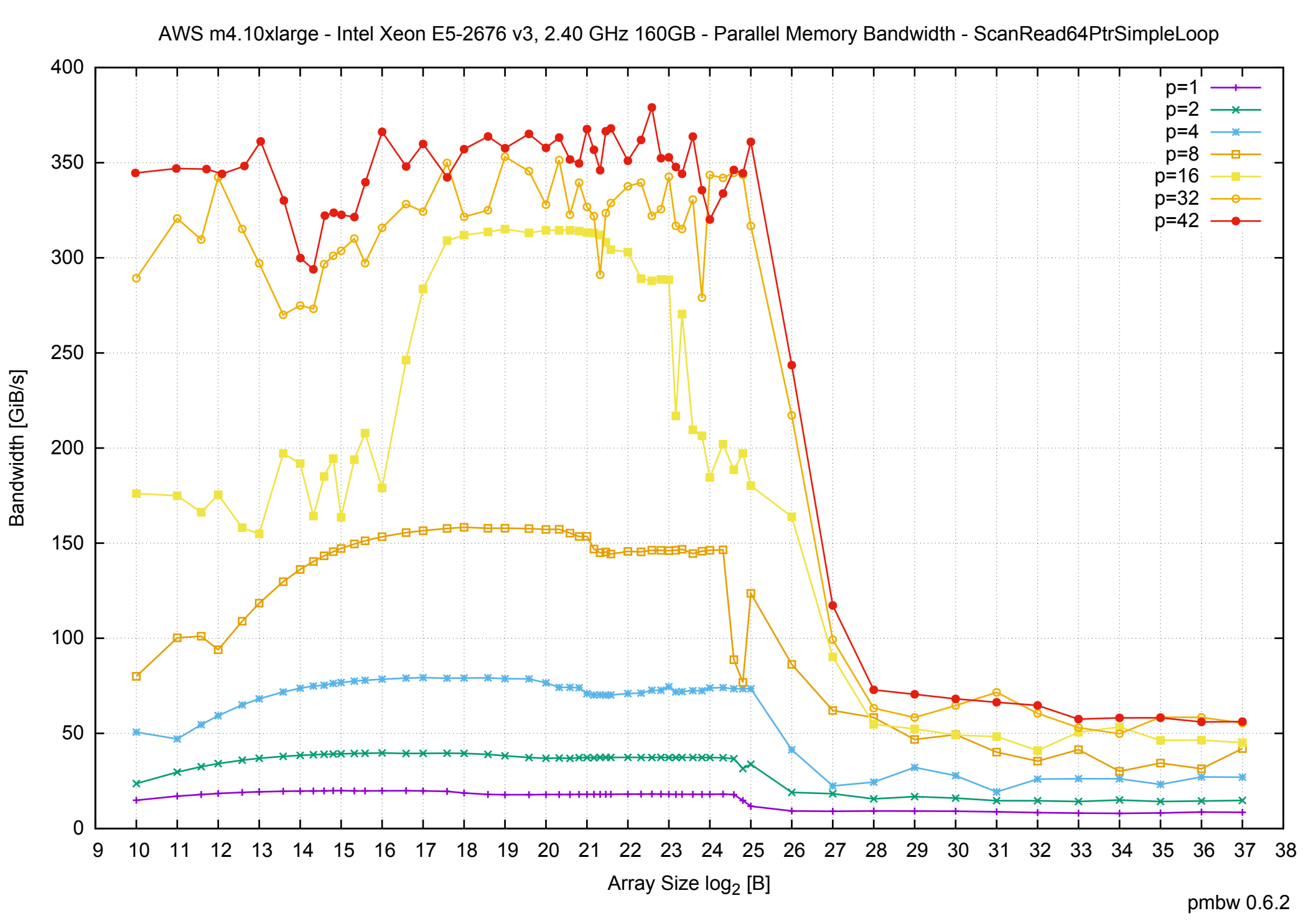
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead64PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
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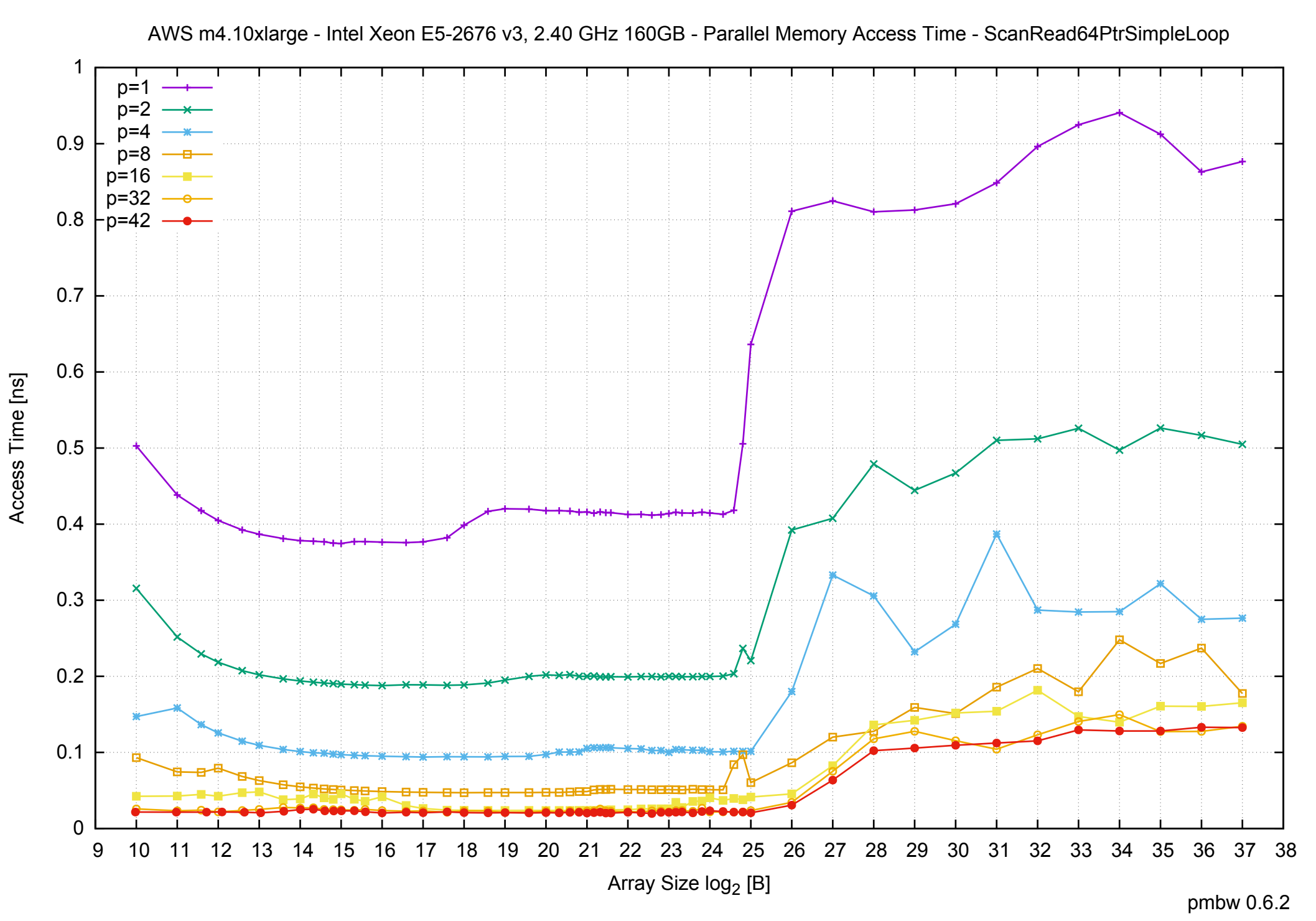
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead64PtrSimpleLoop
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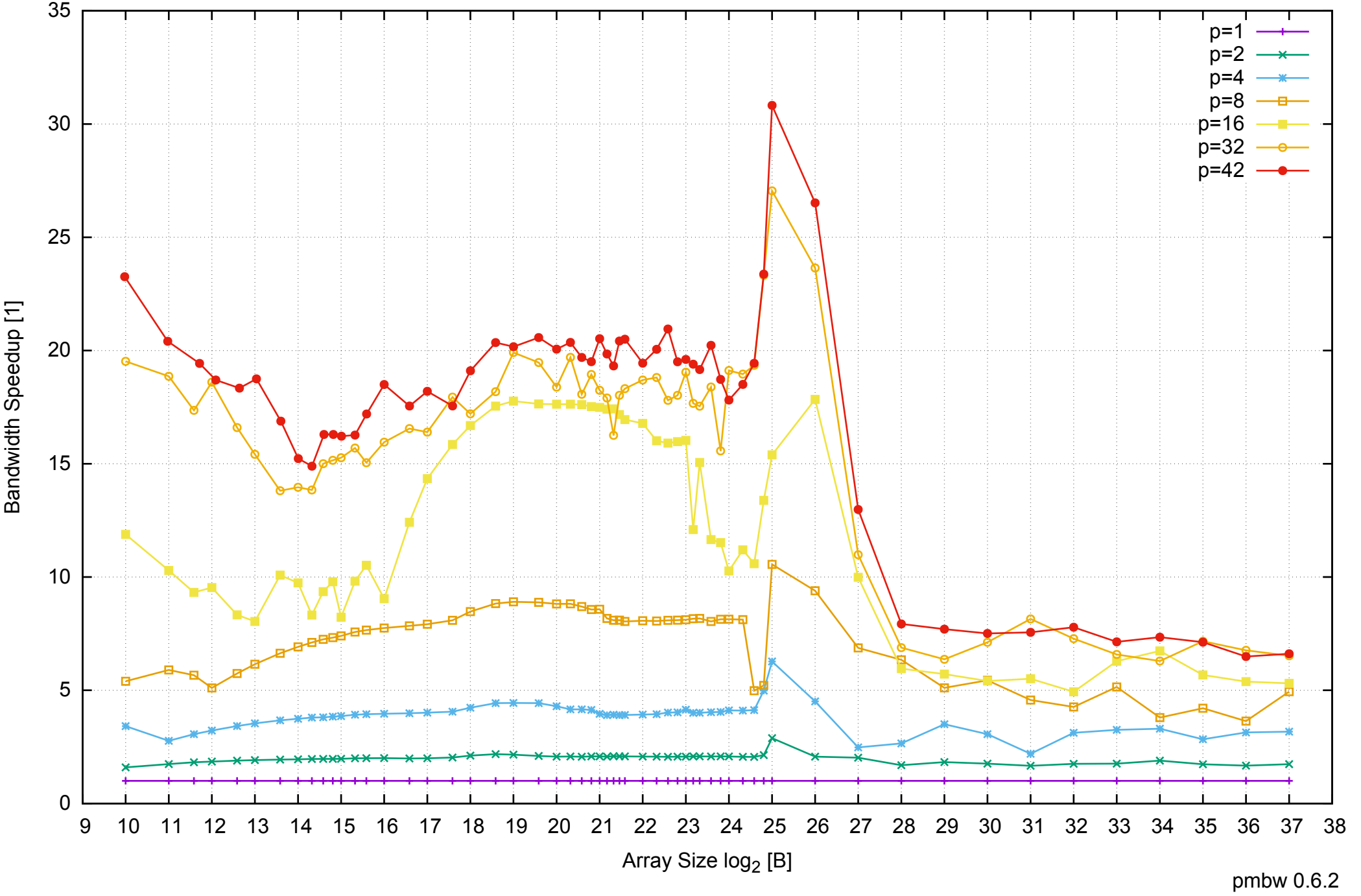
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead64PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
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p=4
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p=16
p=32
p=42
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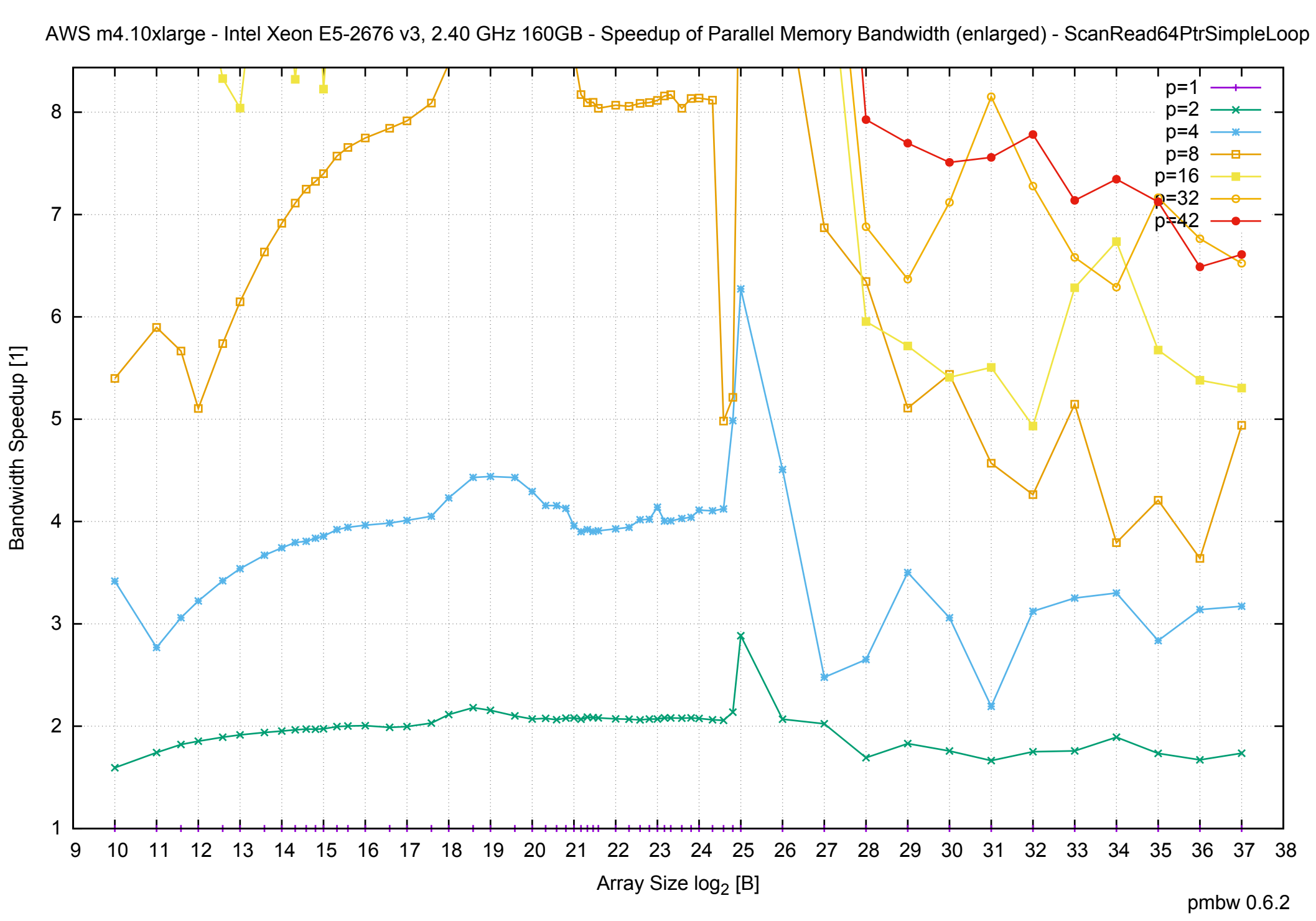
AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead64PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
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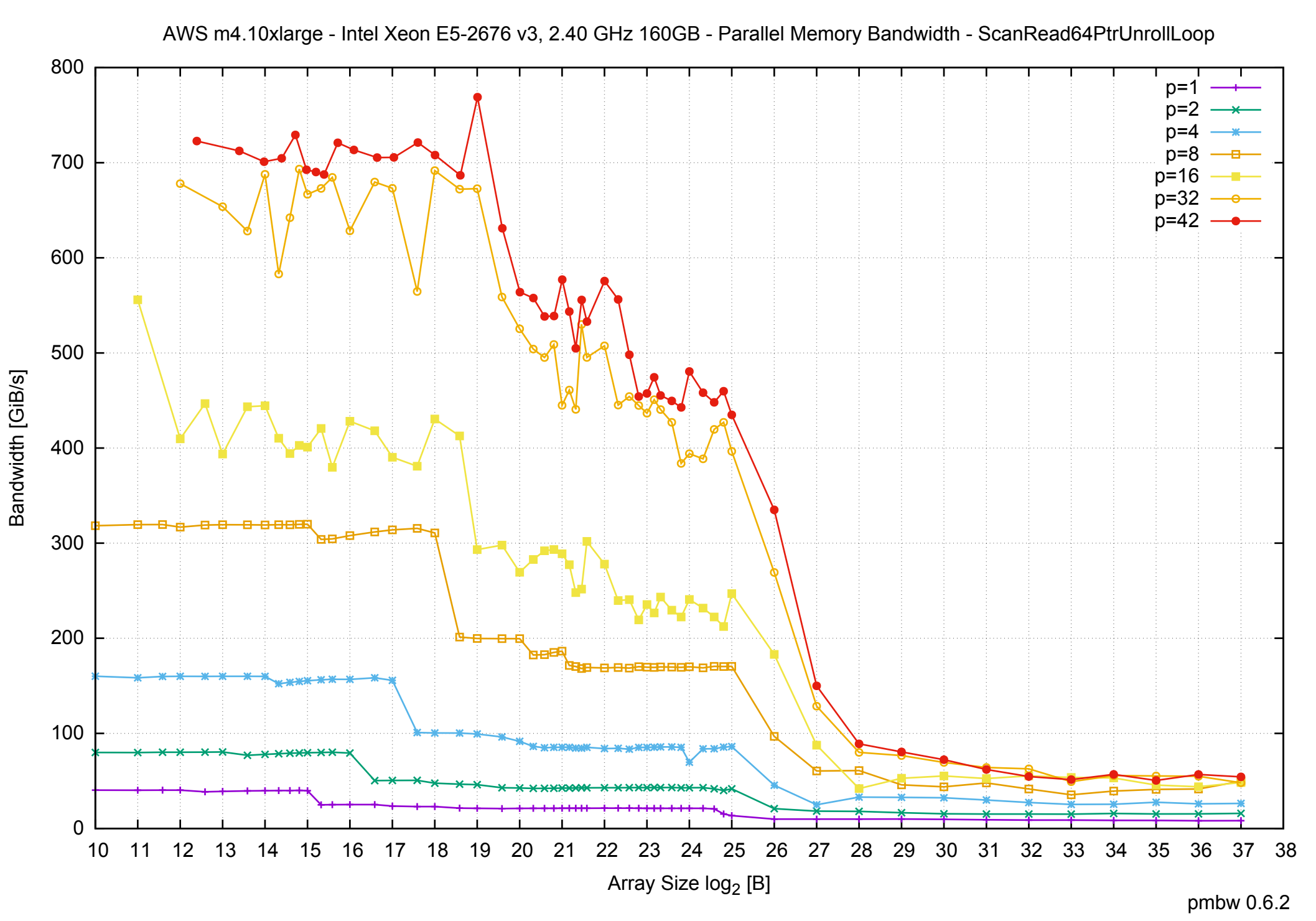
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead64PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
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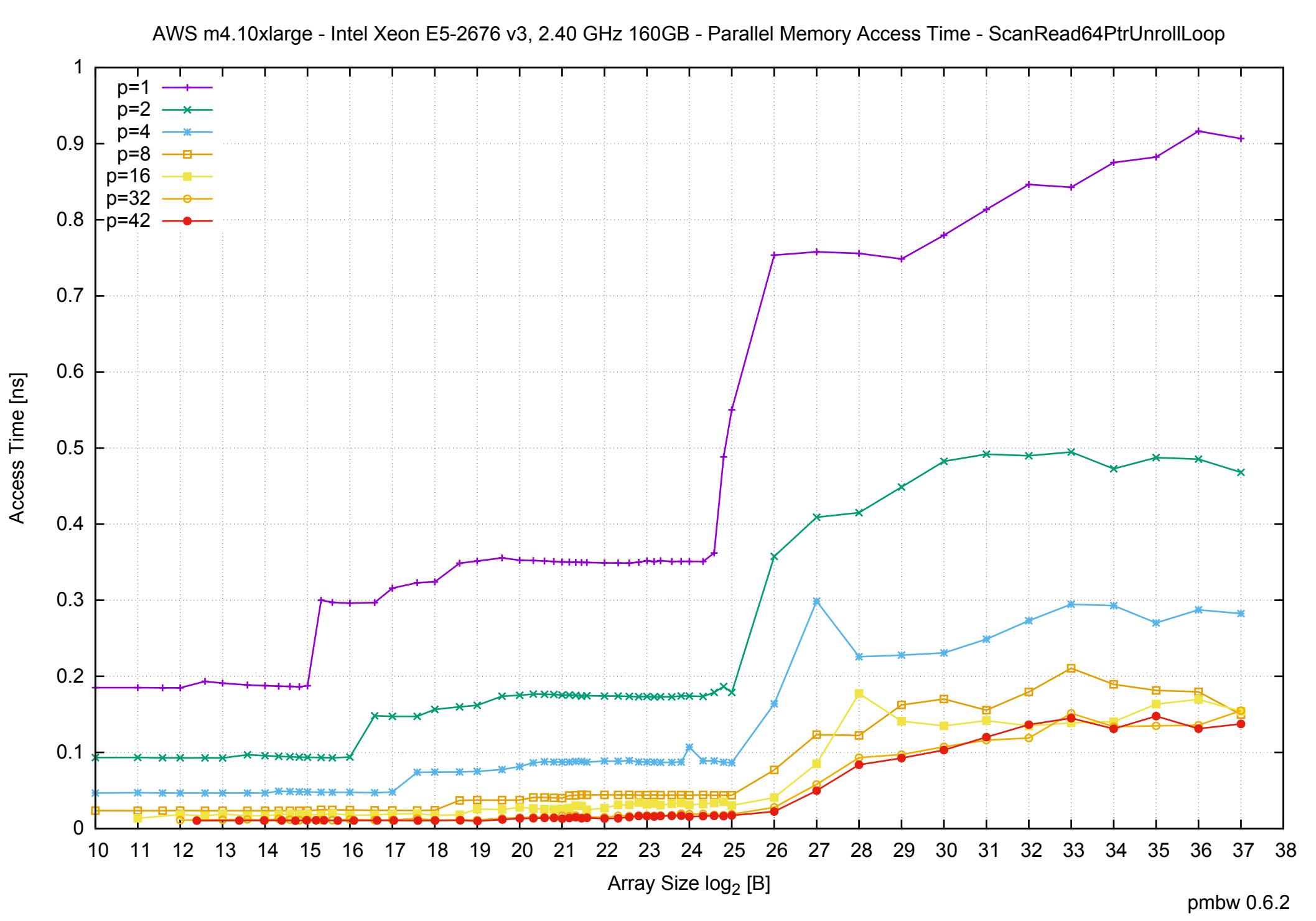
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead64PtrUnrollLoop
p=1
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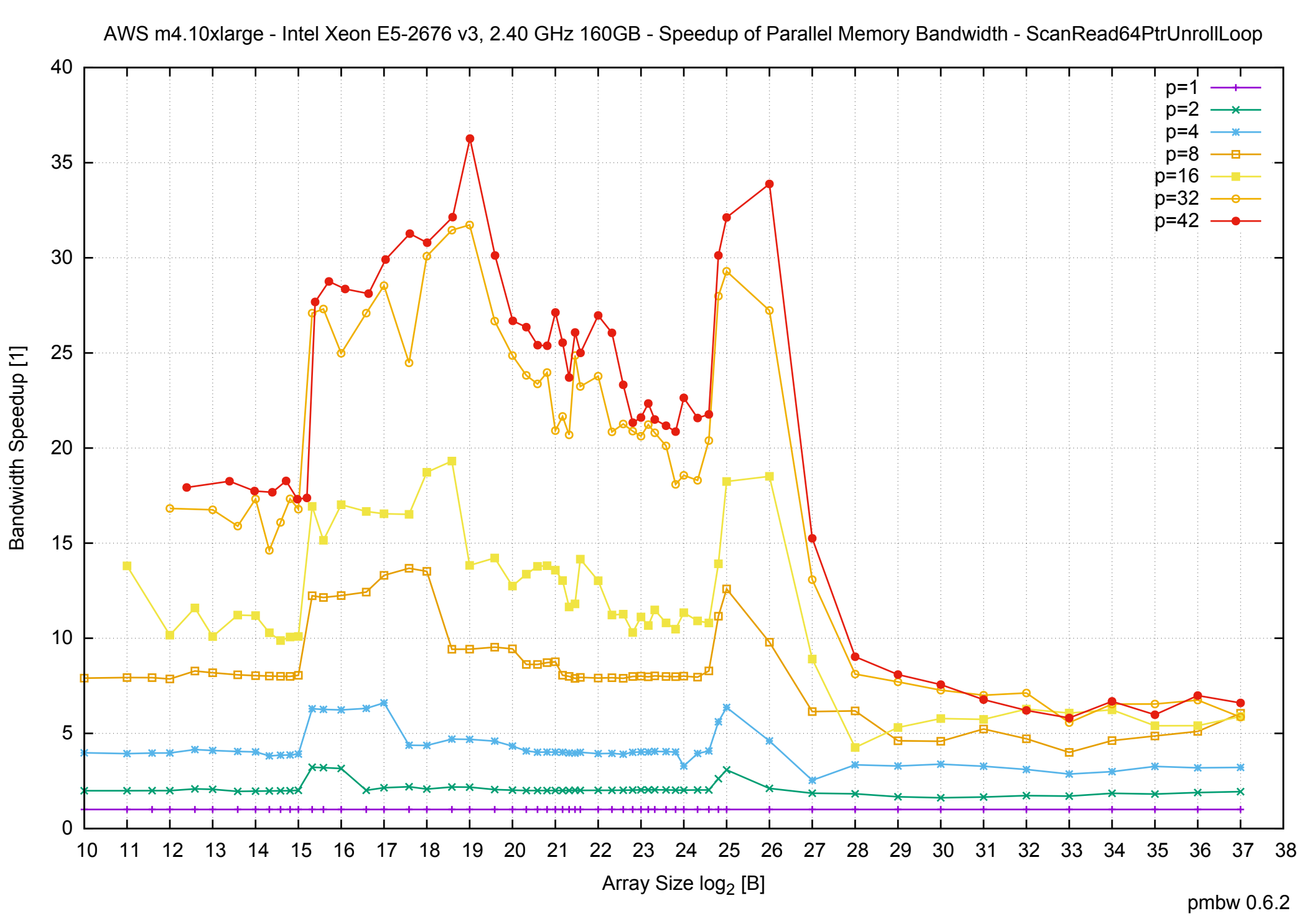
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead64PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
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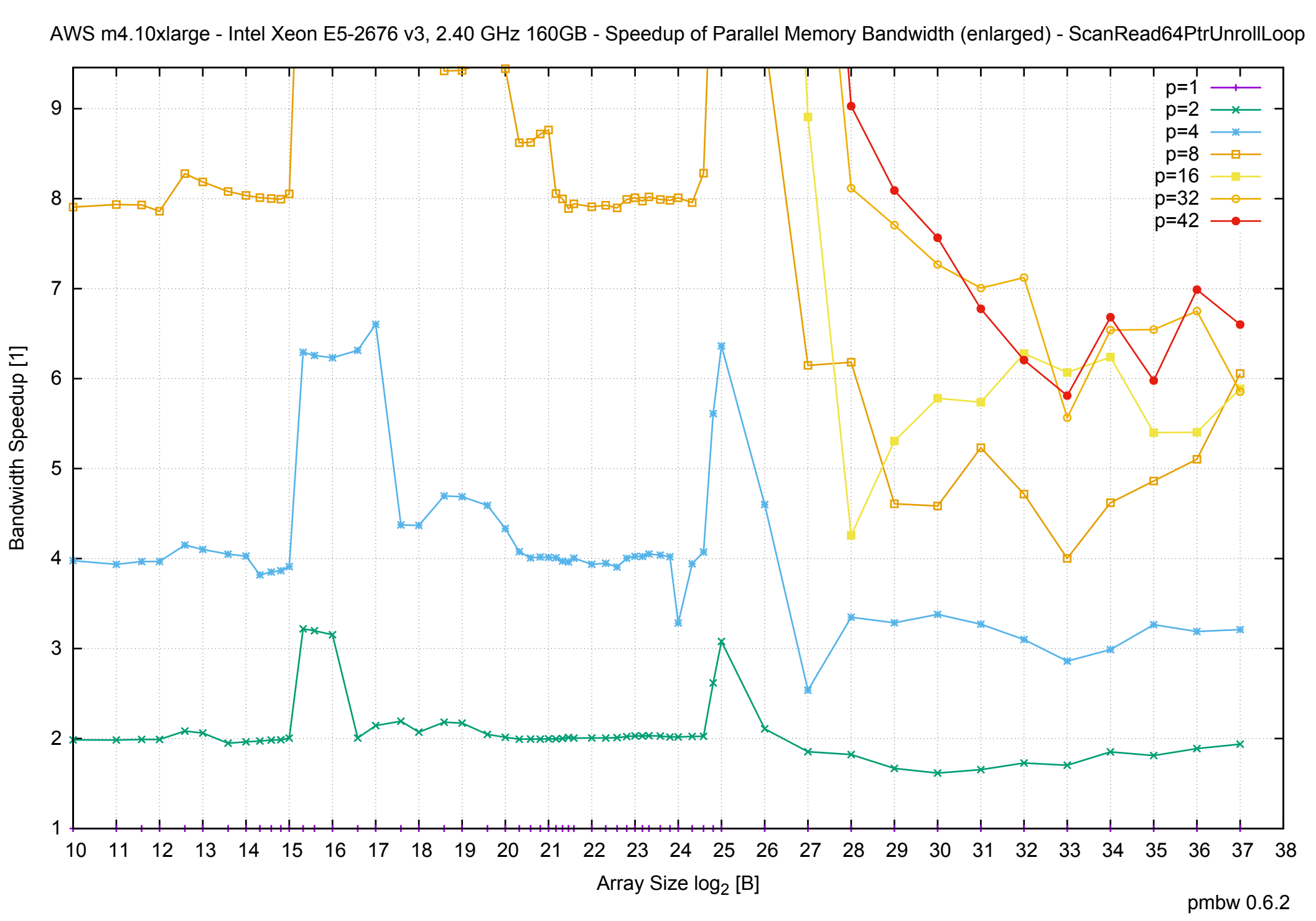
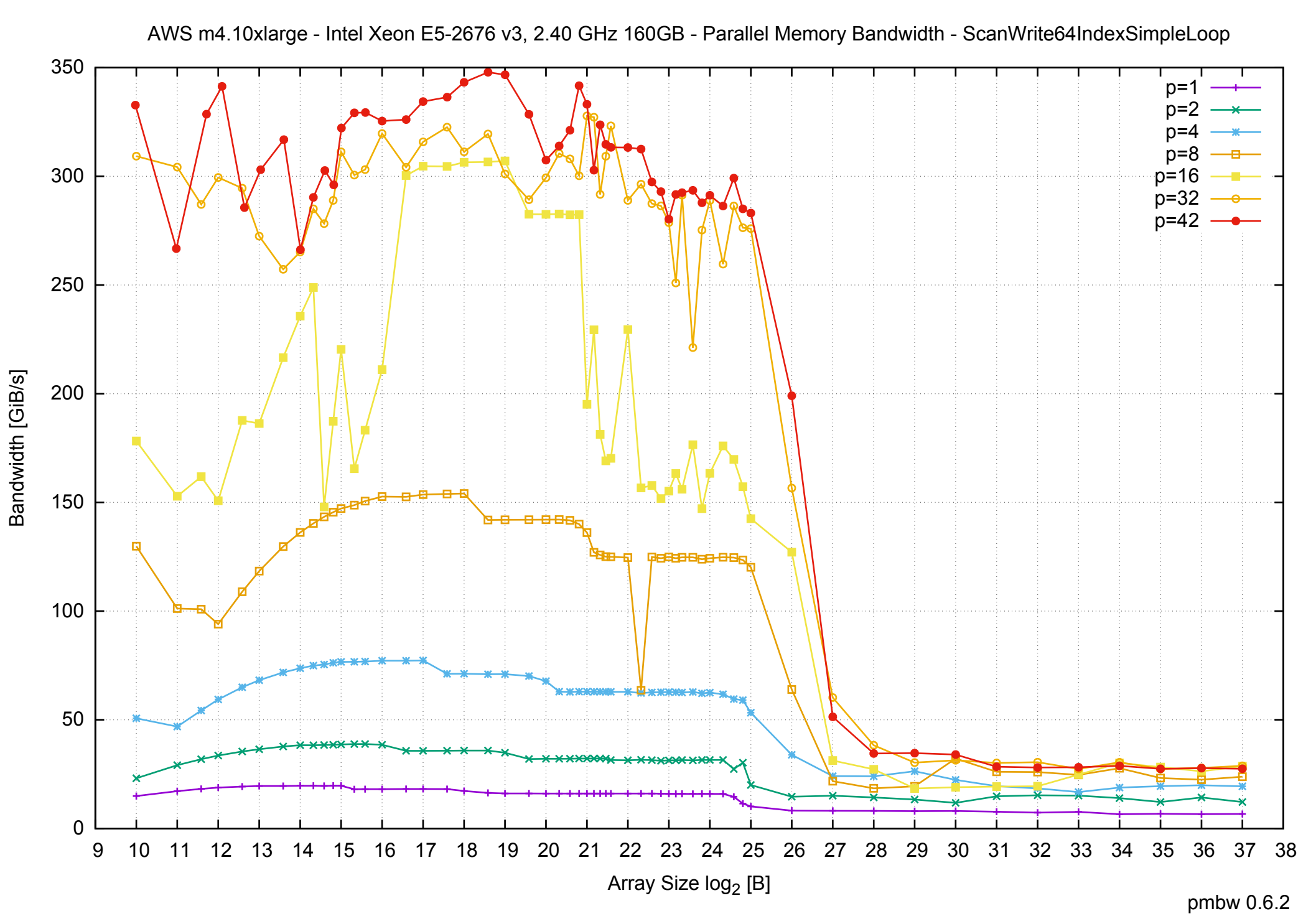
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead64PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite64IndexSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
150
200
250
300
350
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
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26
27
28
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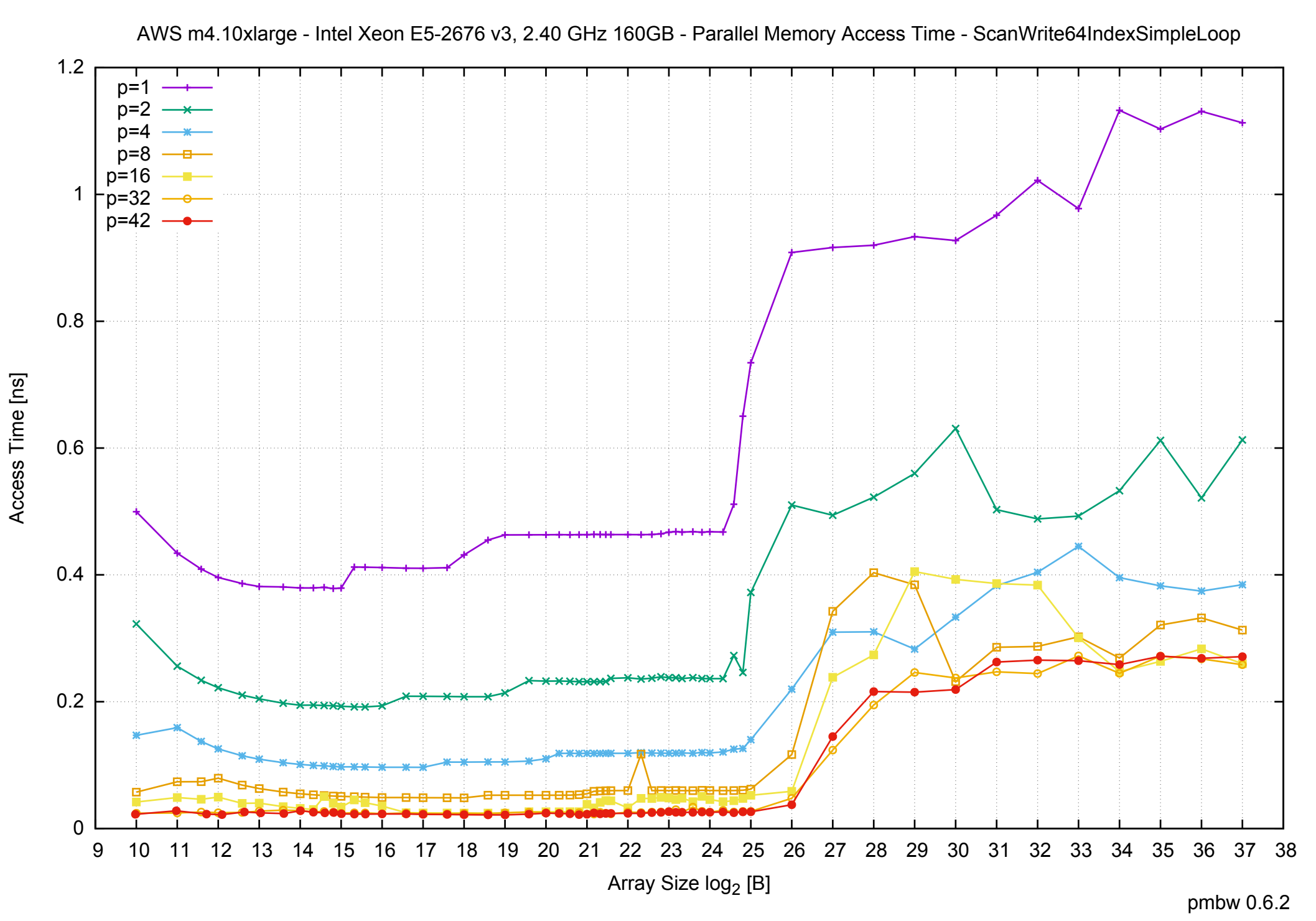
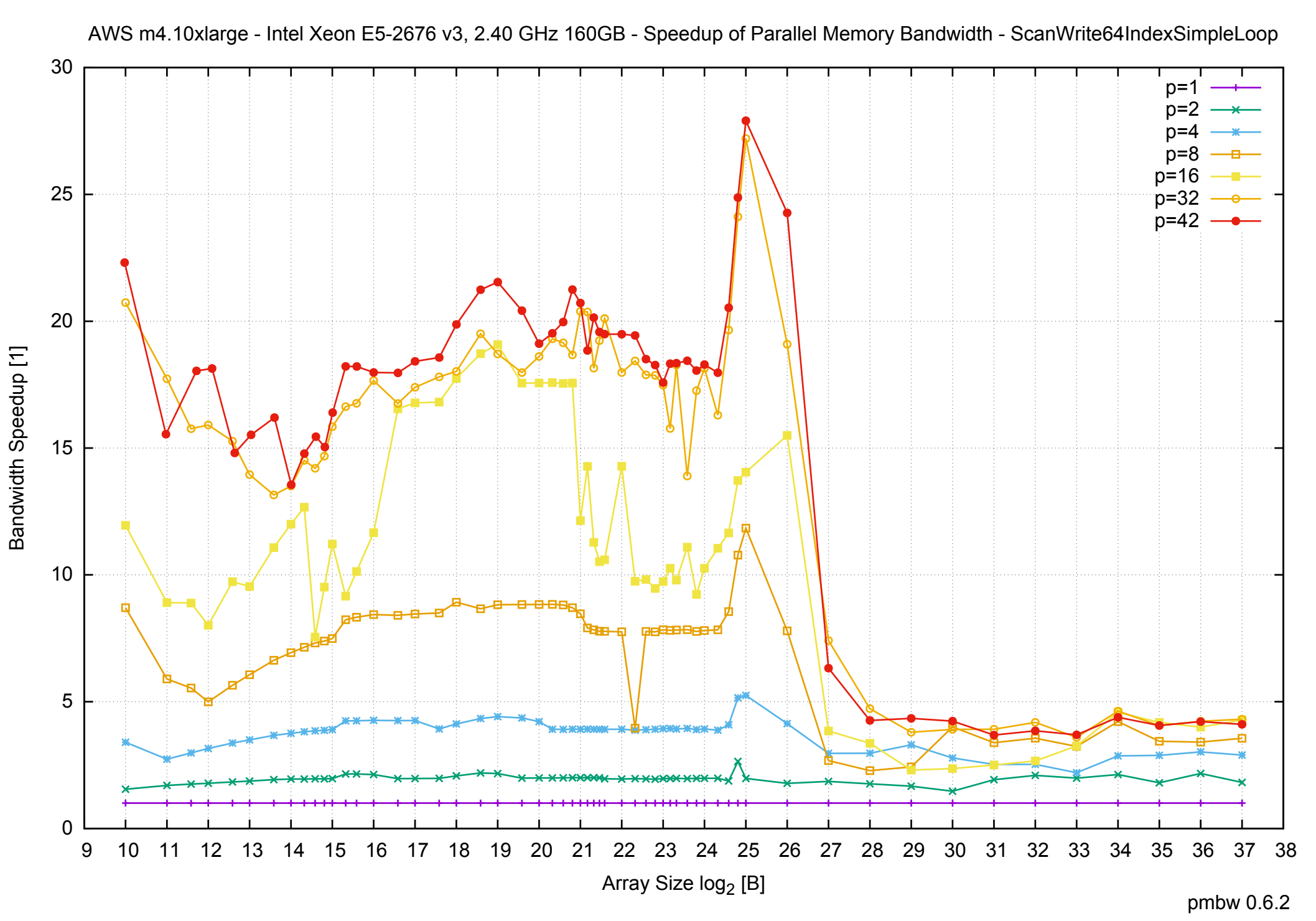
30
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite64IndexSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite64IndexSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
30
9
10
11
12
13
14
15
16
17
18
19
20
21
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30
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34
35
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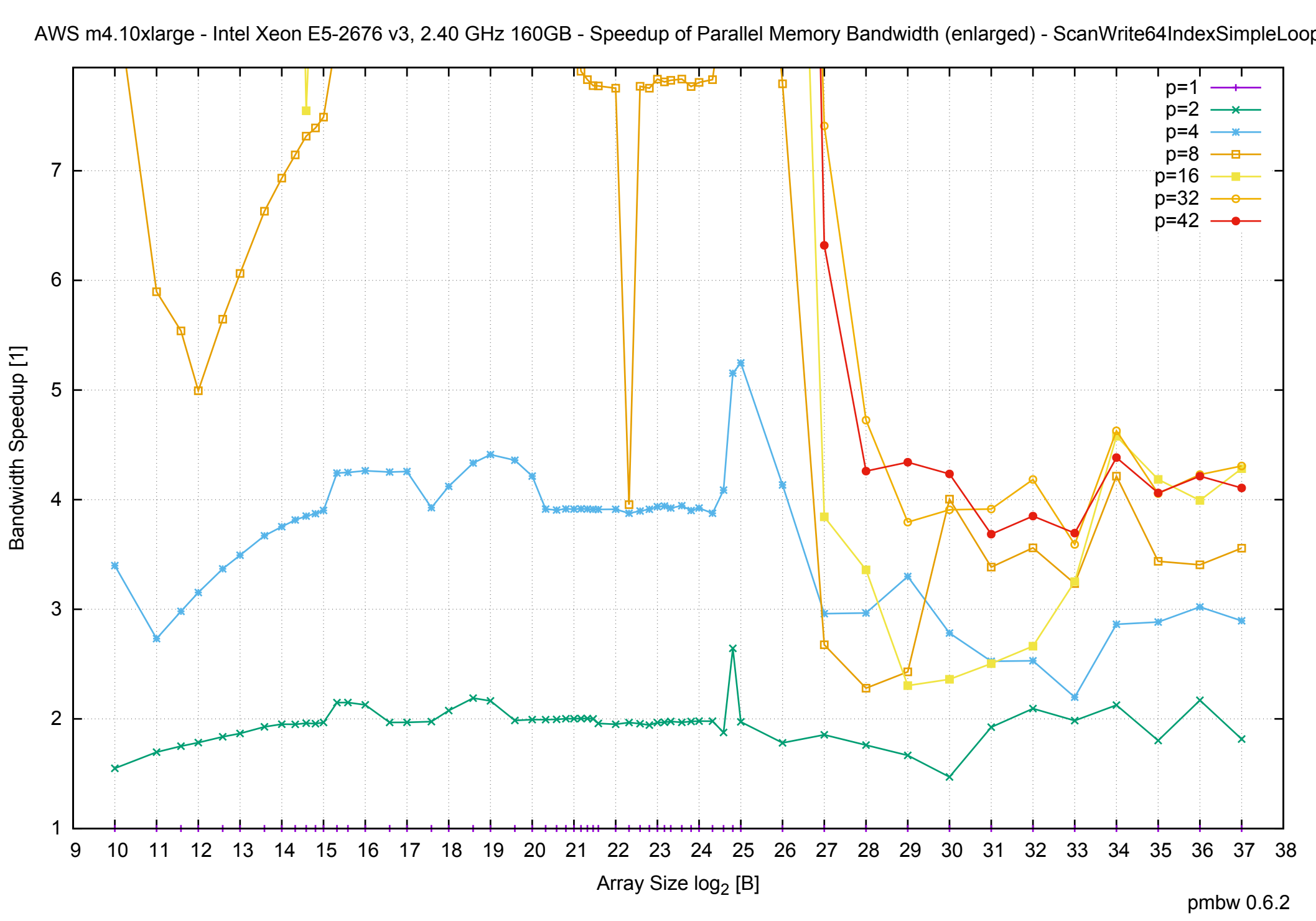
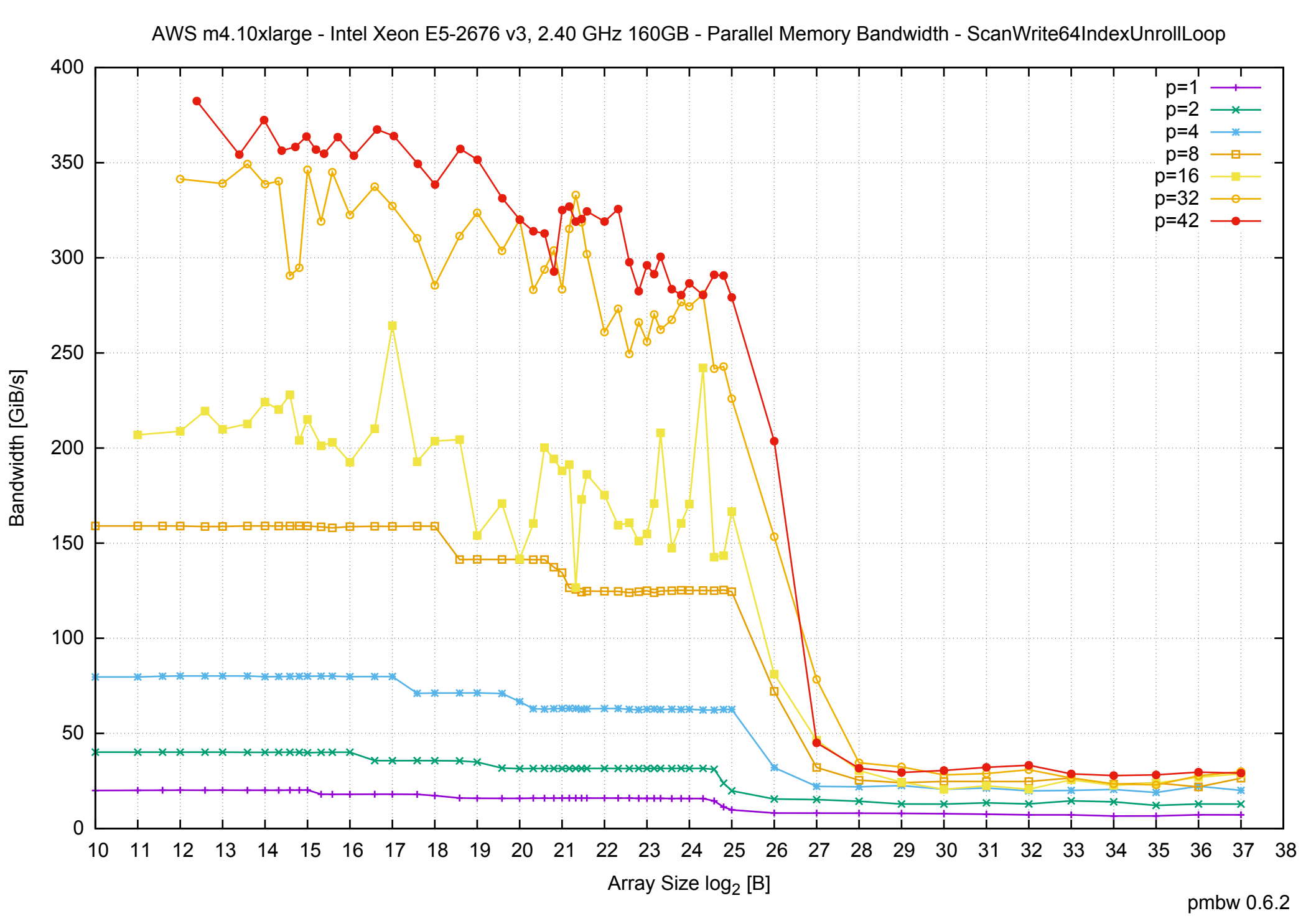
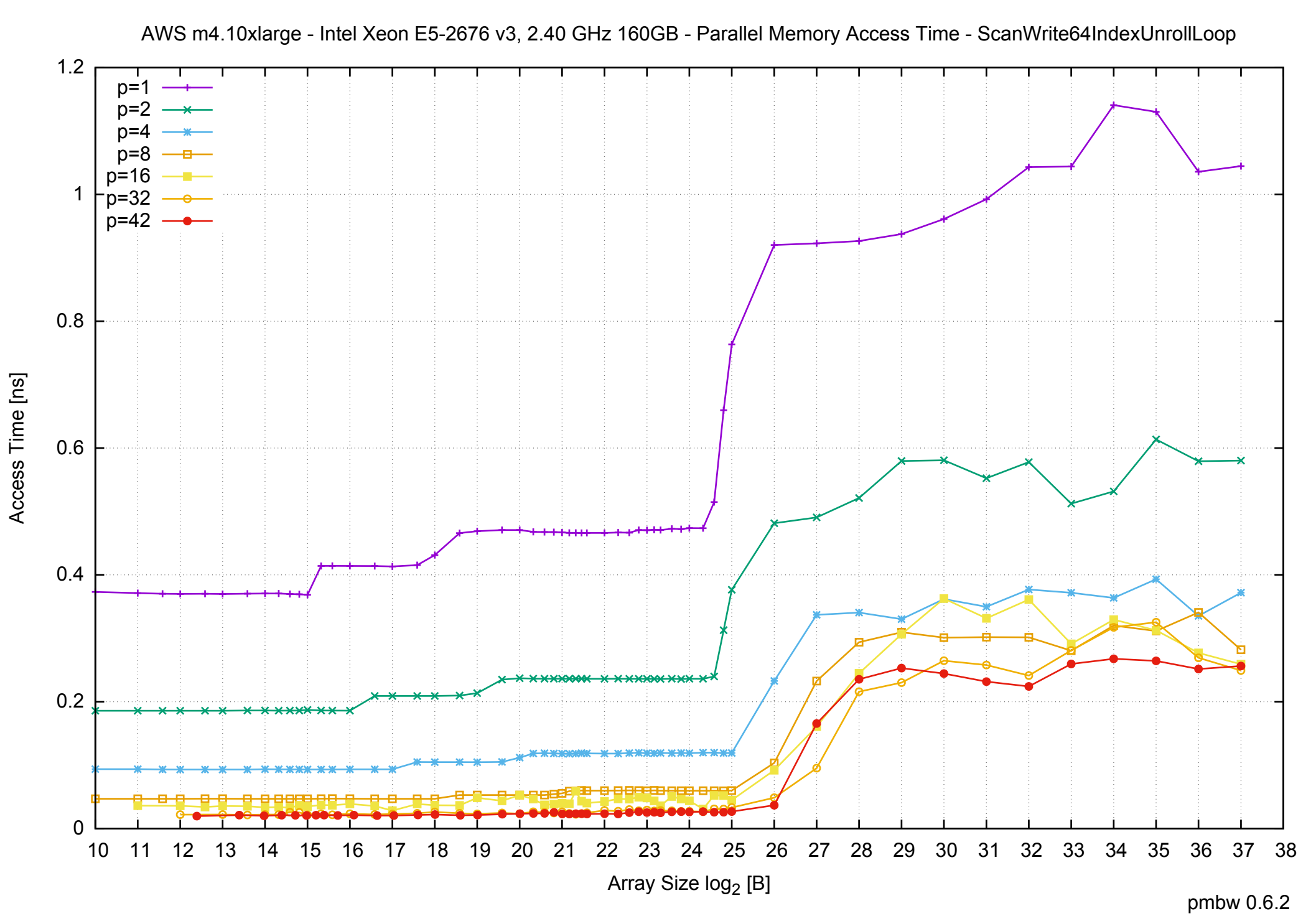
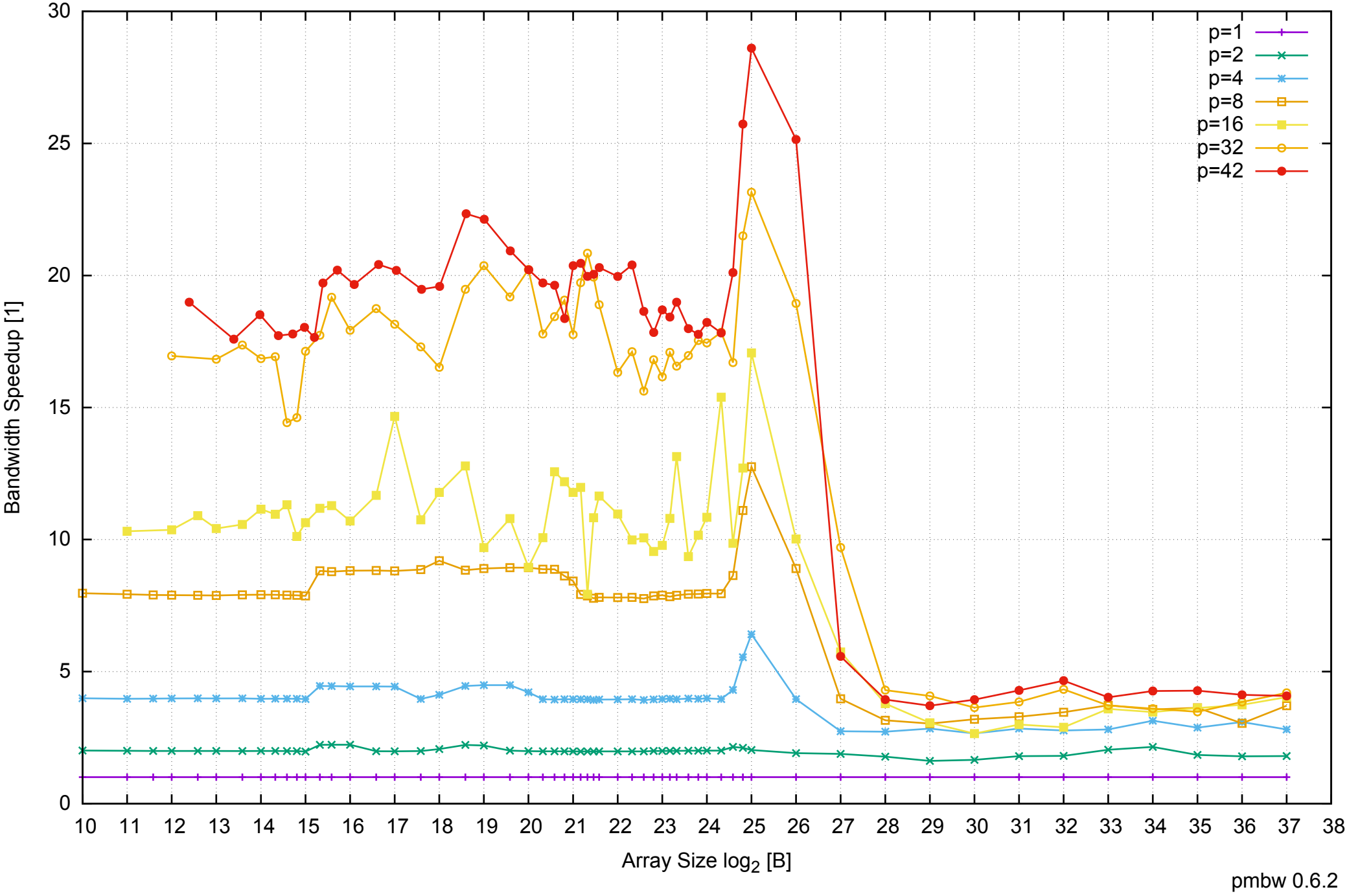
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite64IndexSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite64IndexUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
150
200
250
300
350
400
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite64IndexUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite64IndexUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
30
10
11
12
13
14
15
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17
18
19
20
21
22
23
24
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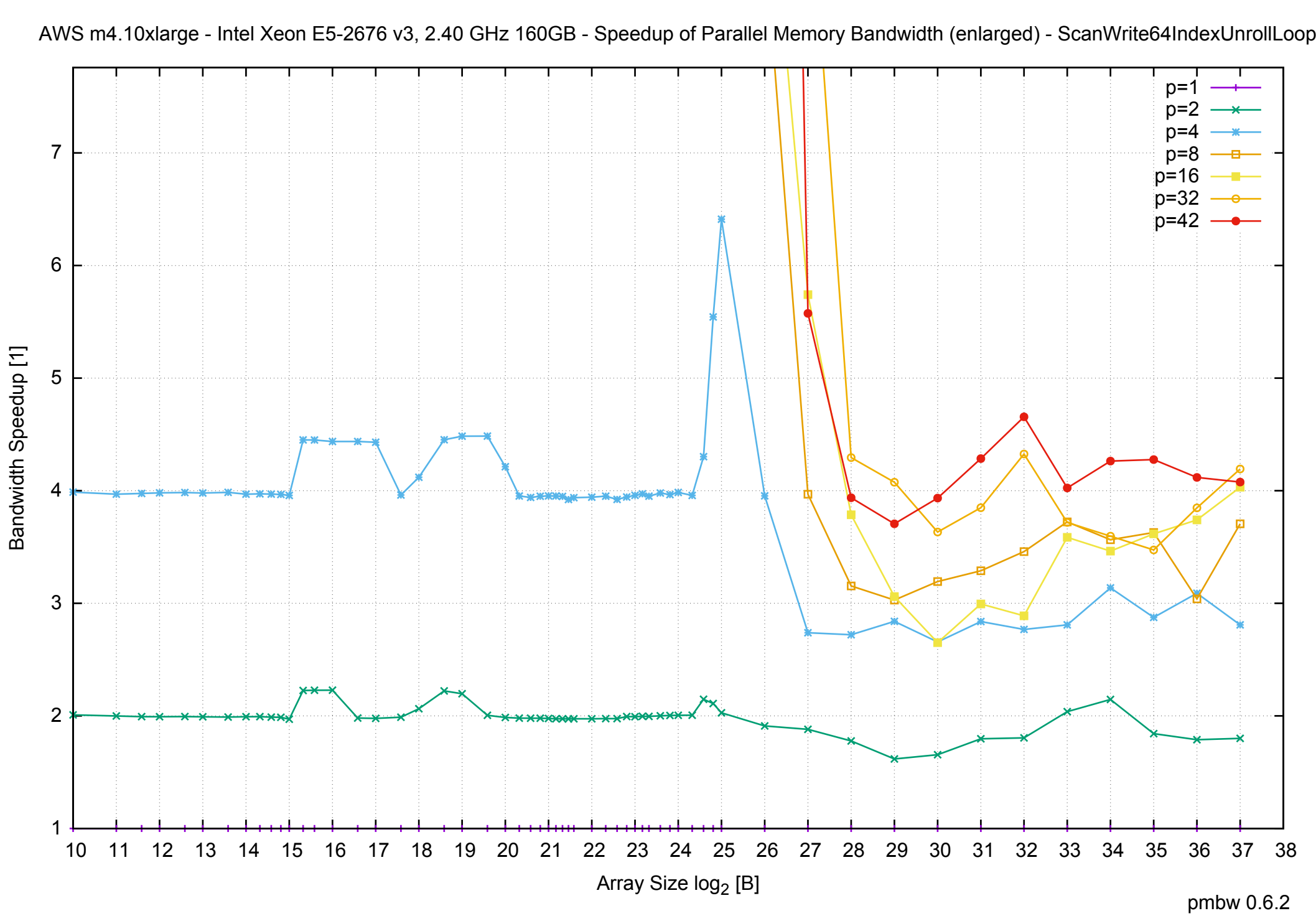
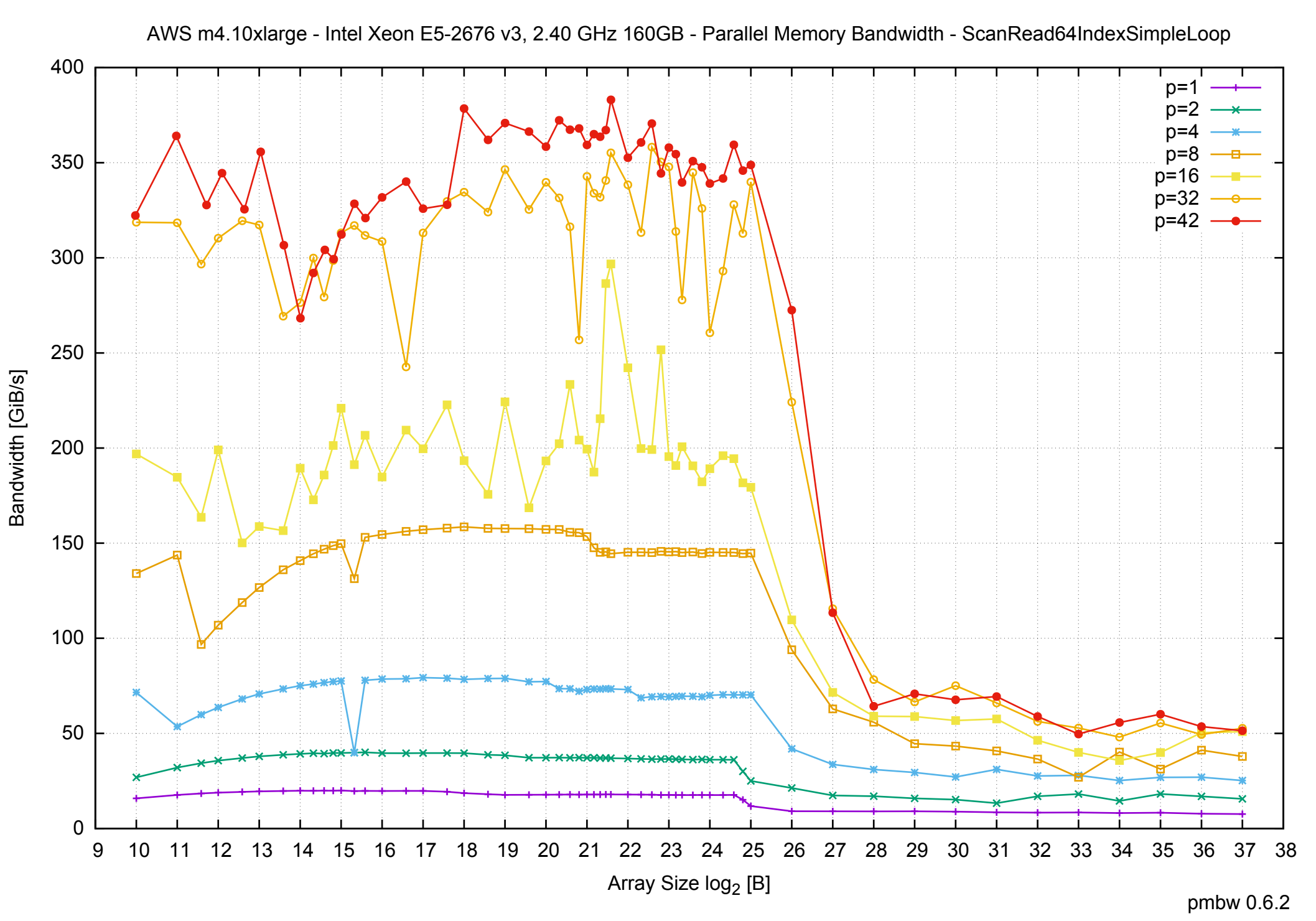
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite64IndexUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead64IndexSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
150
200
250
300
350
400
9
10
11
12
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14
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16
17
18
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20
21
22
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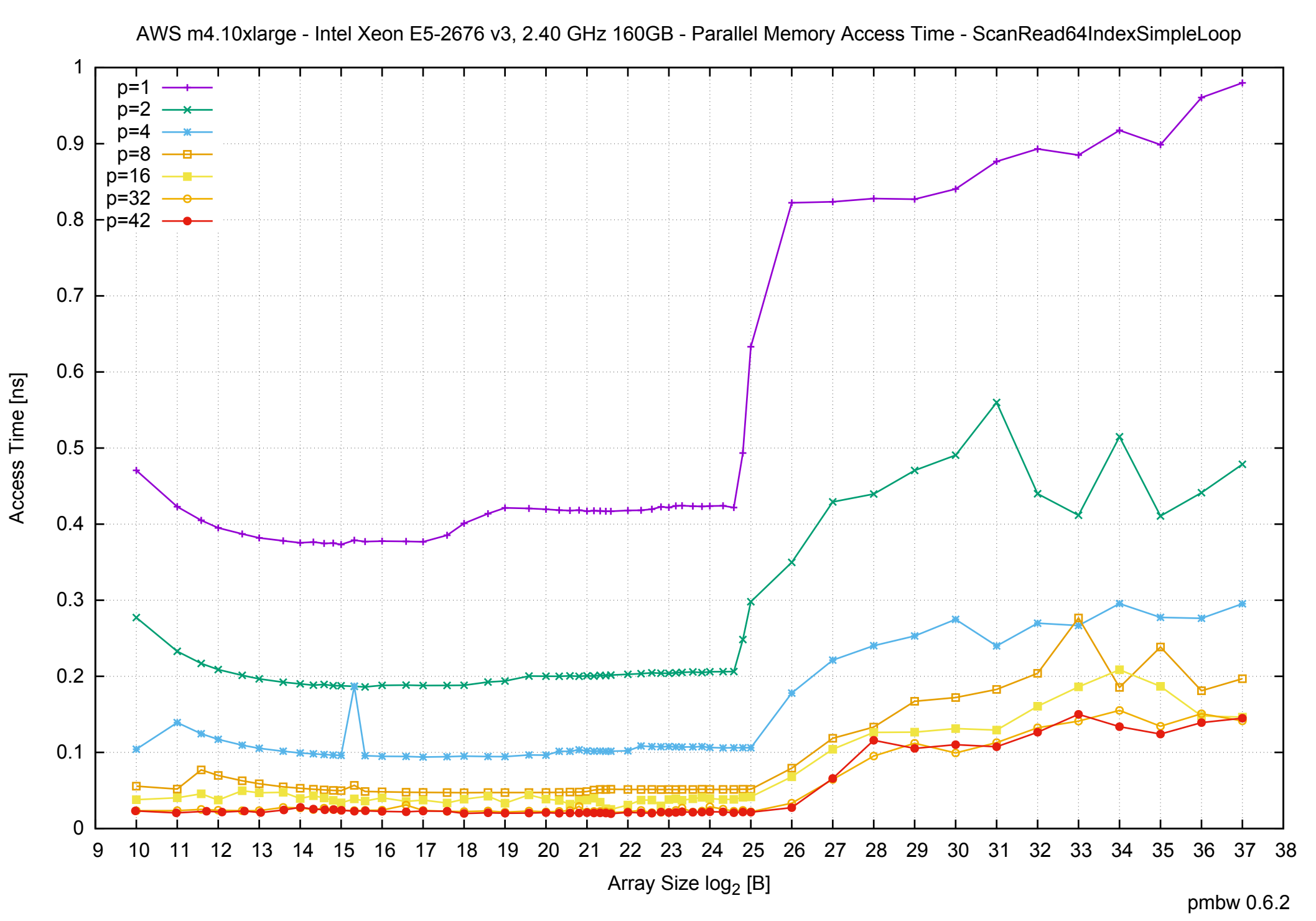
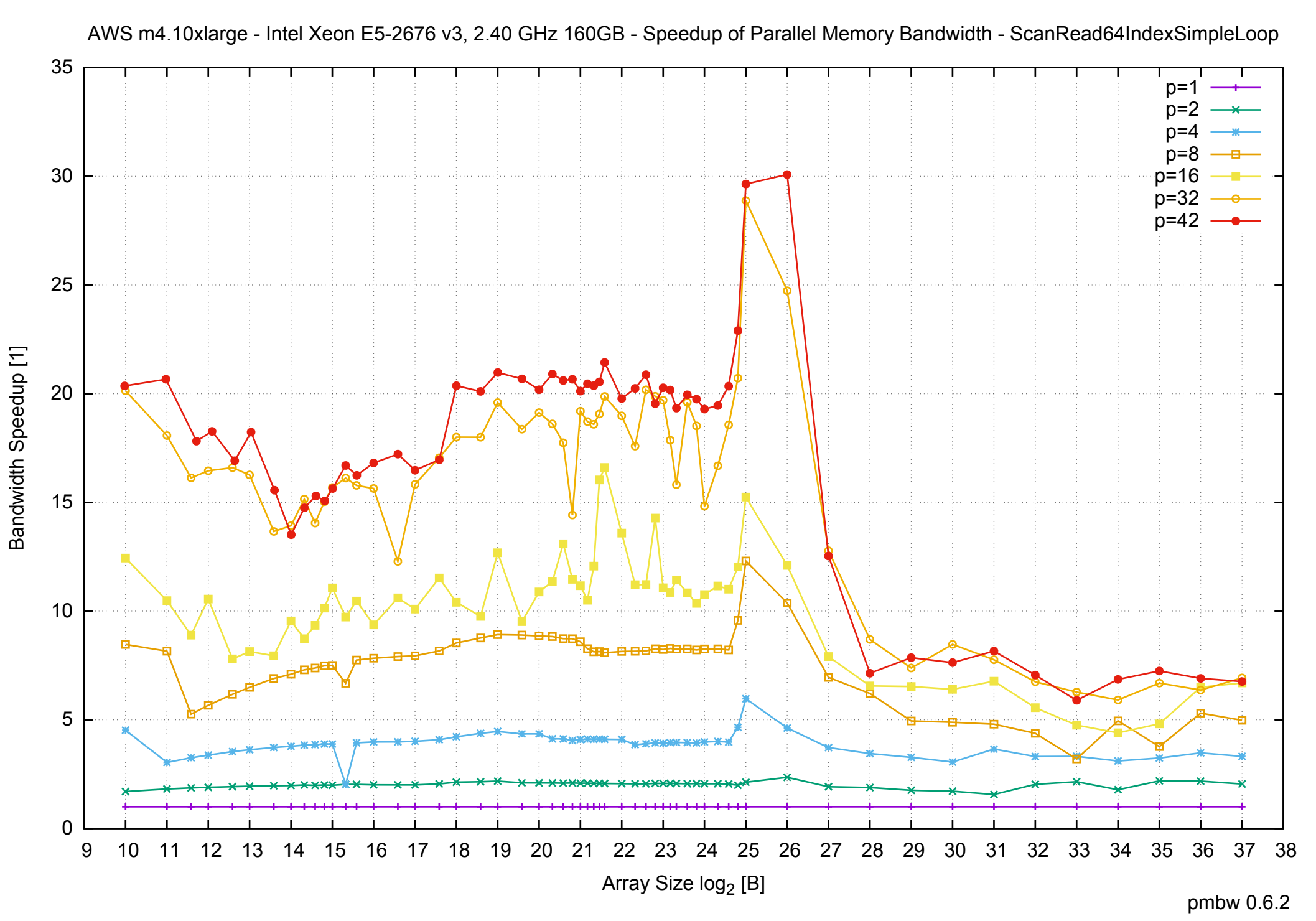
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead64IndexSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead64IndexSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
30
35
9
10
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20
21
22
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26
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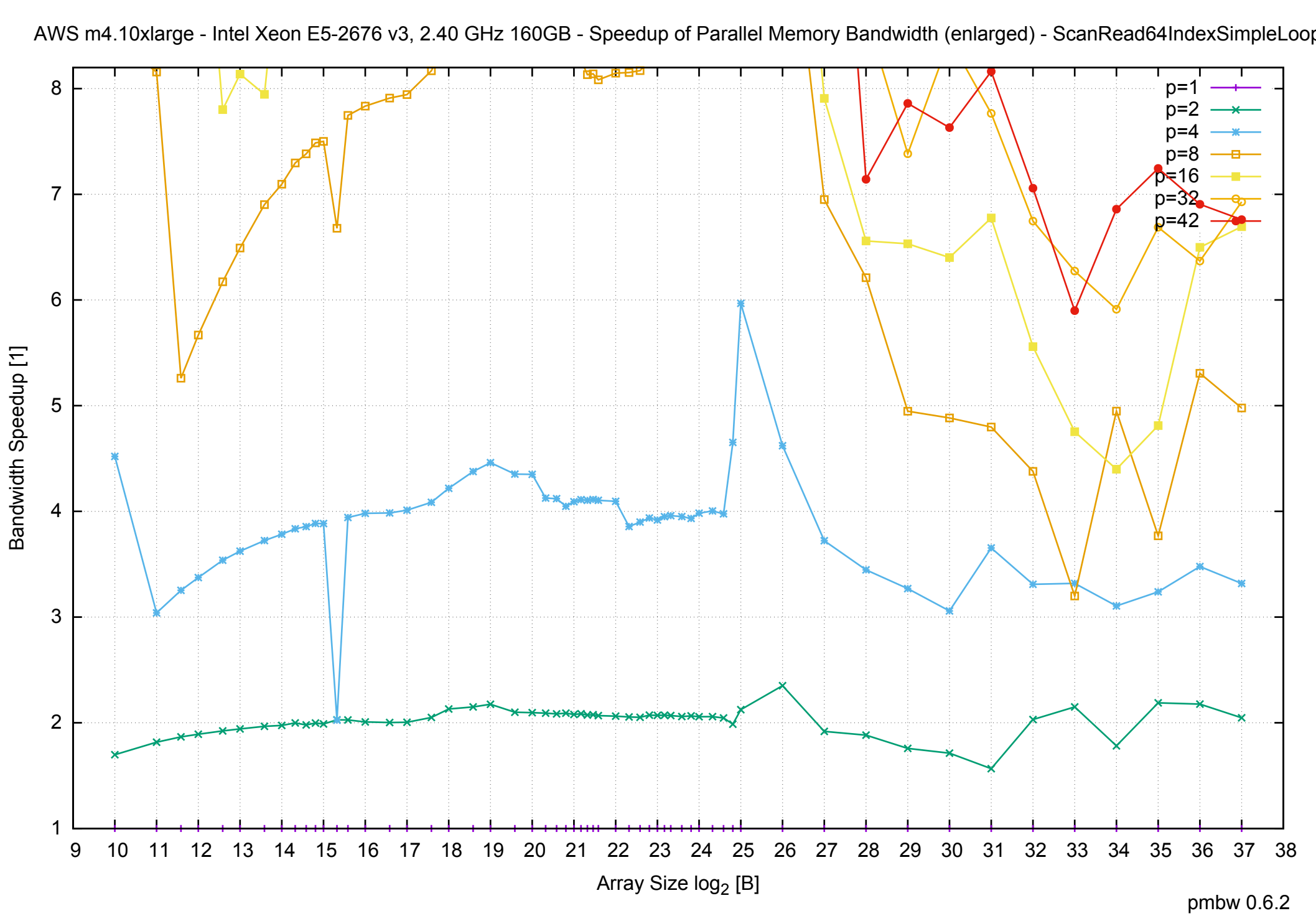
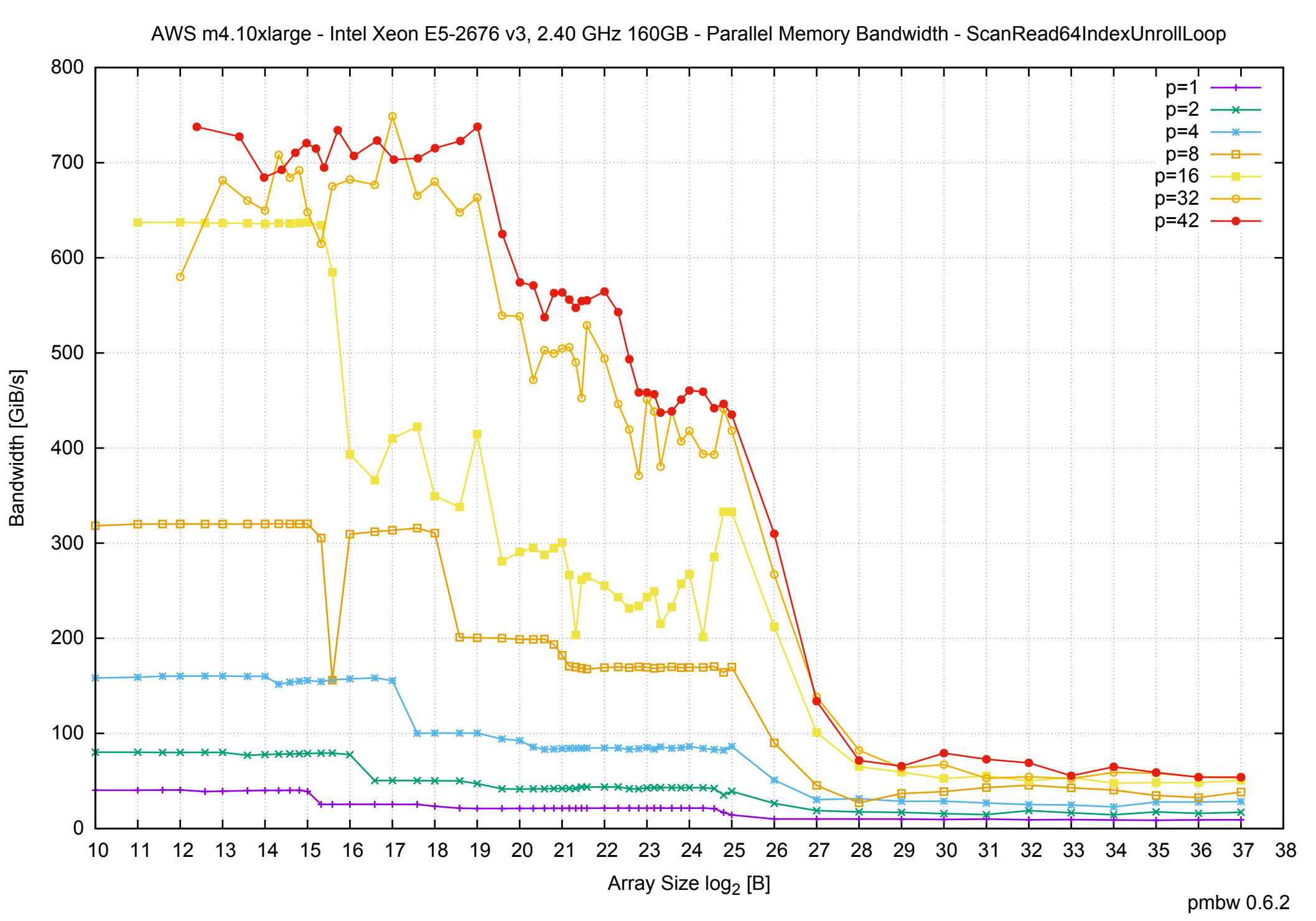
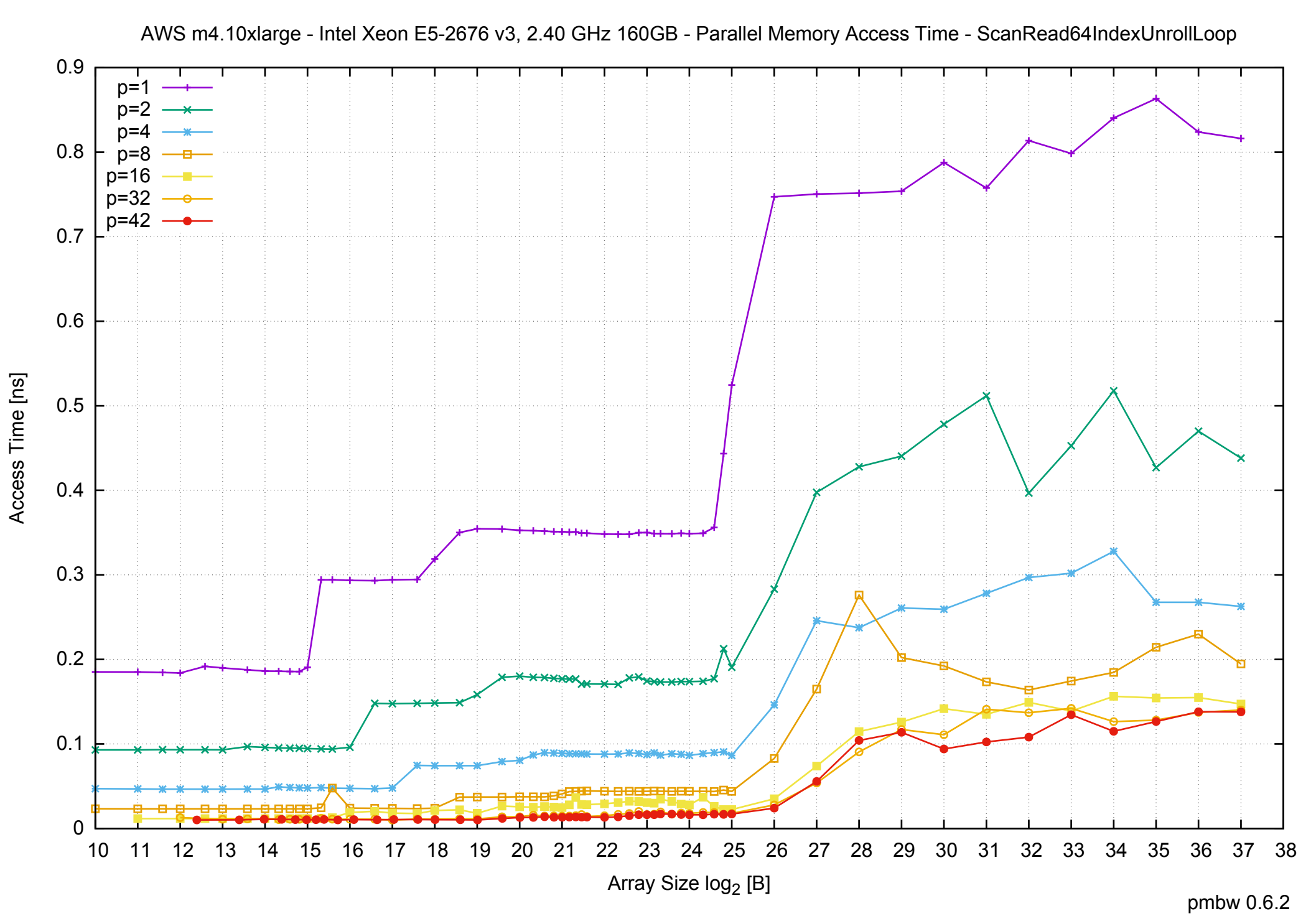
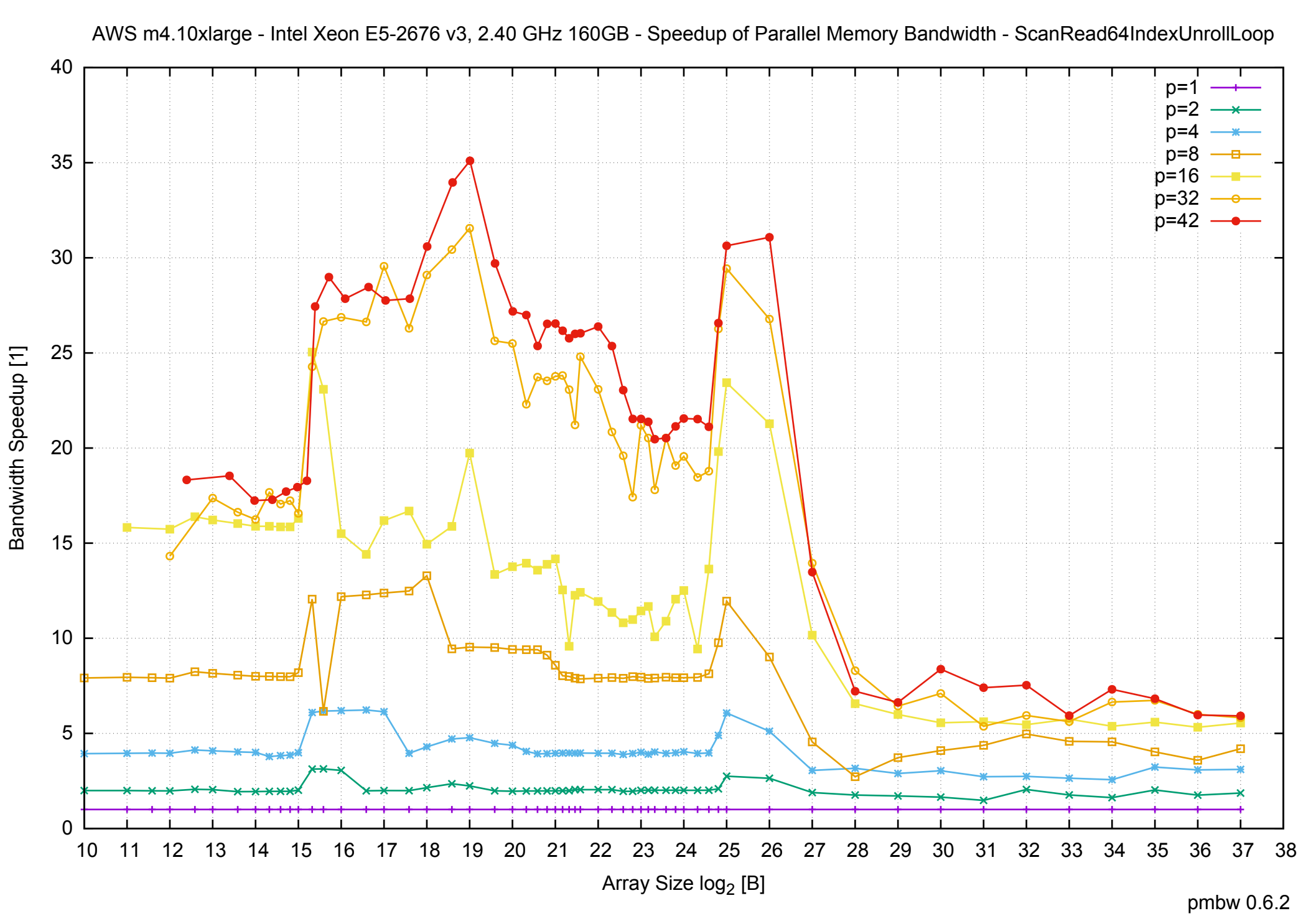
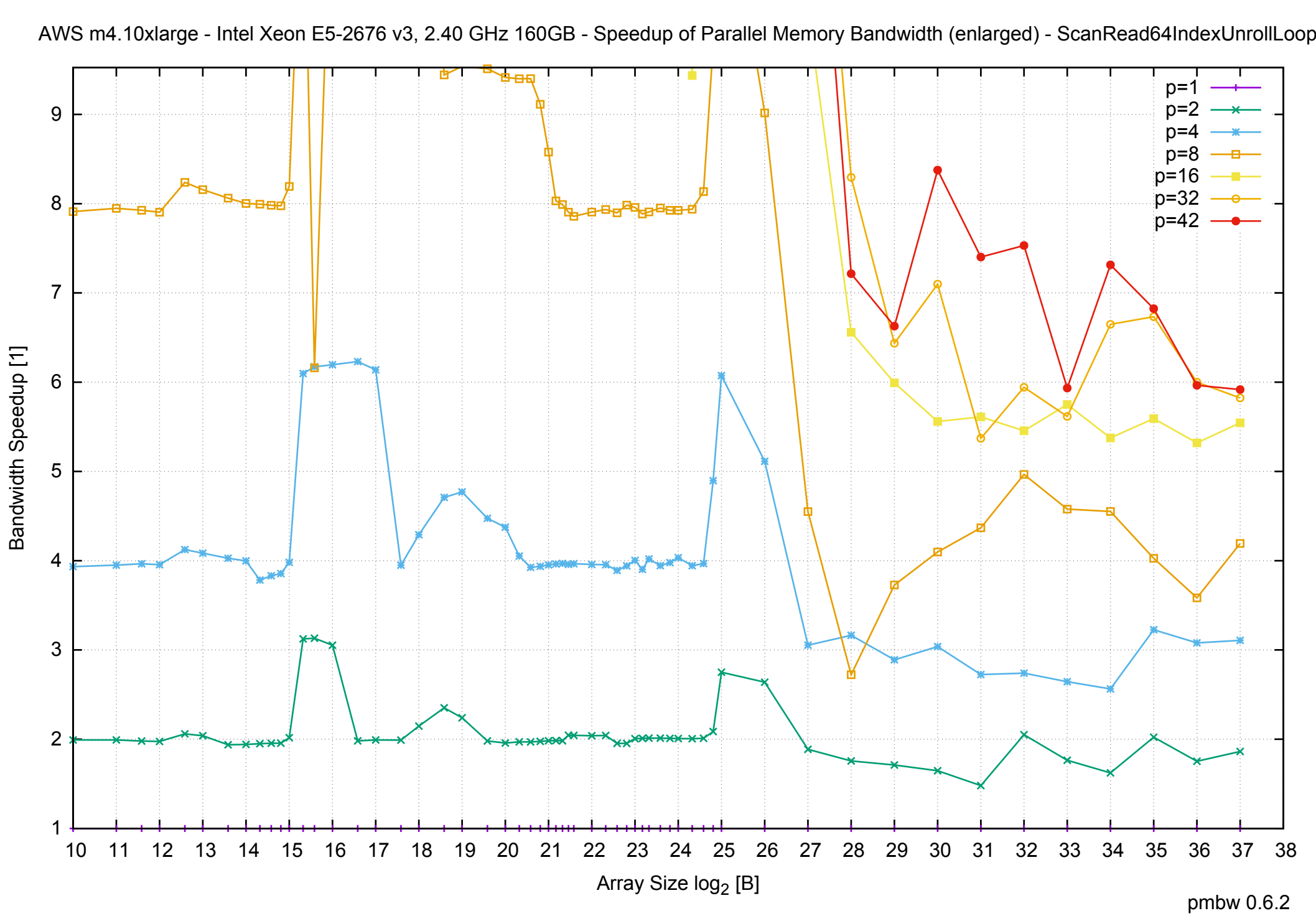
30
31
32
33
34
35
36
37
38
pmbw 0.6.2

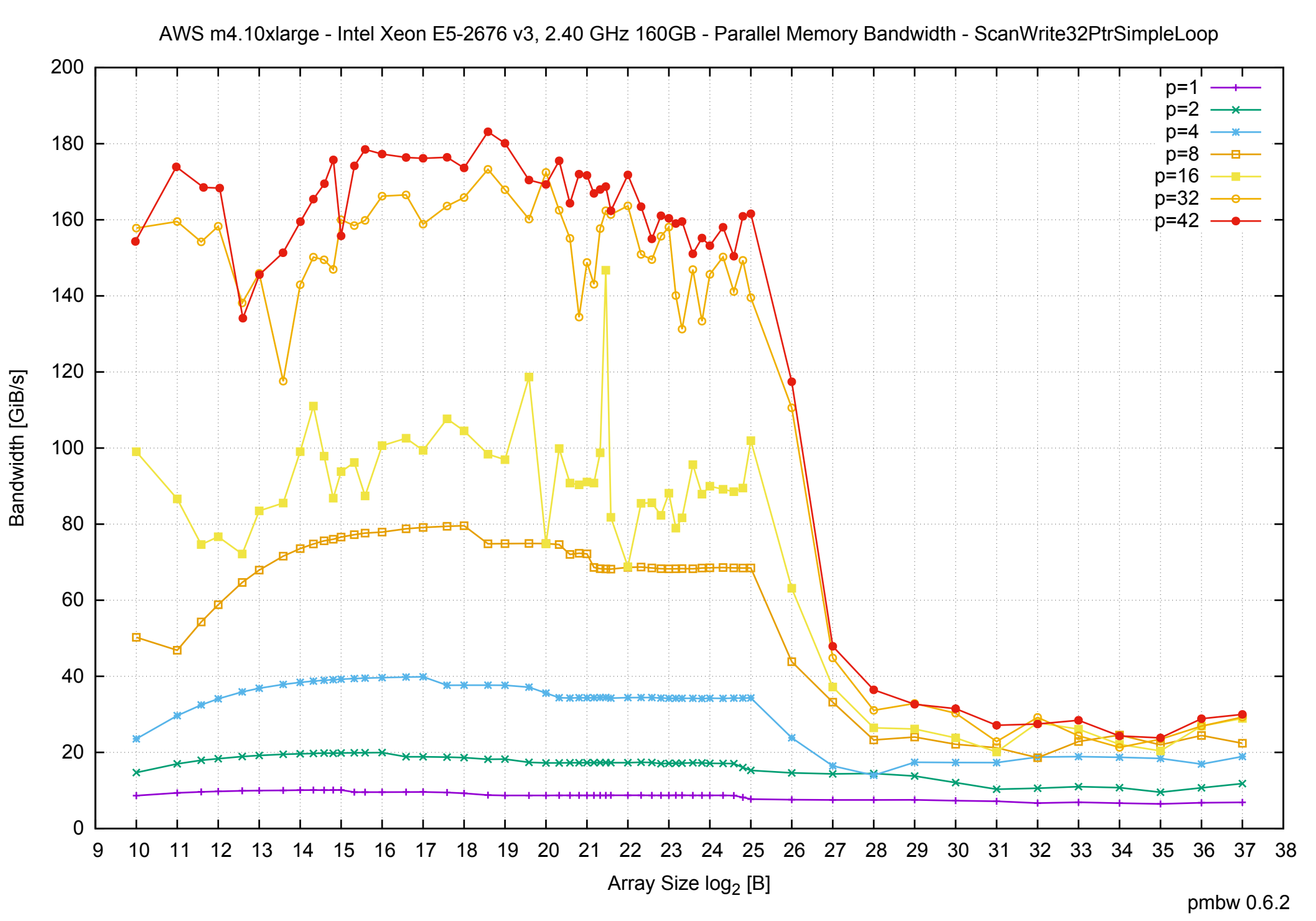

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead64IndexSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2

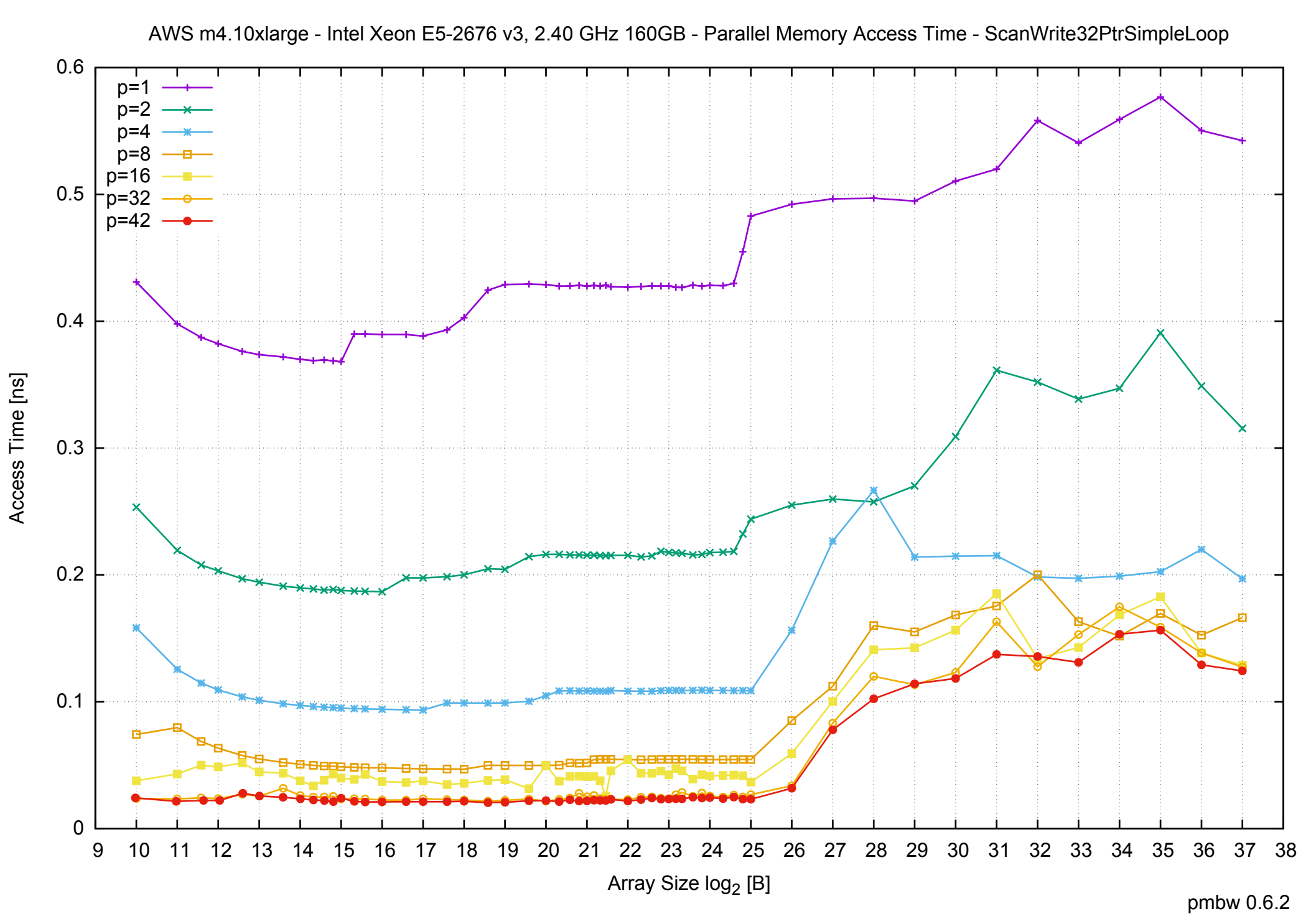

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead64IndexUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2

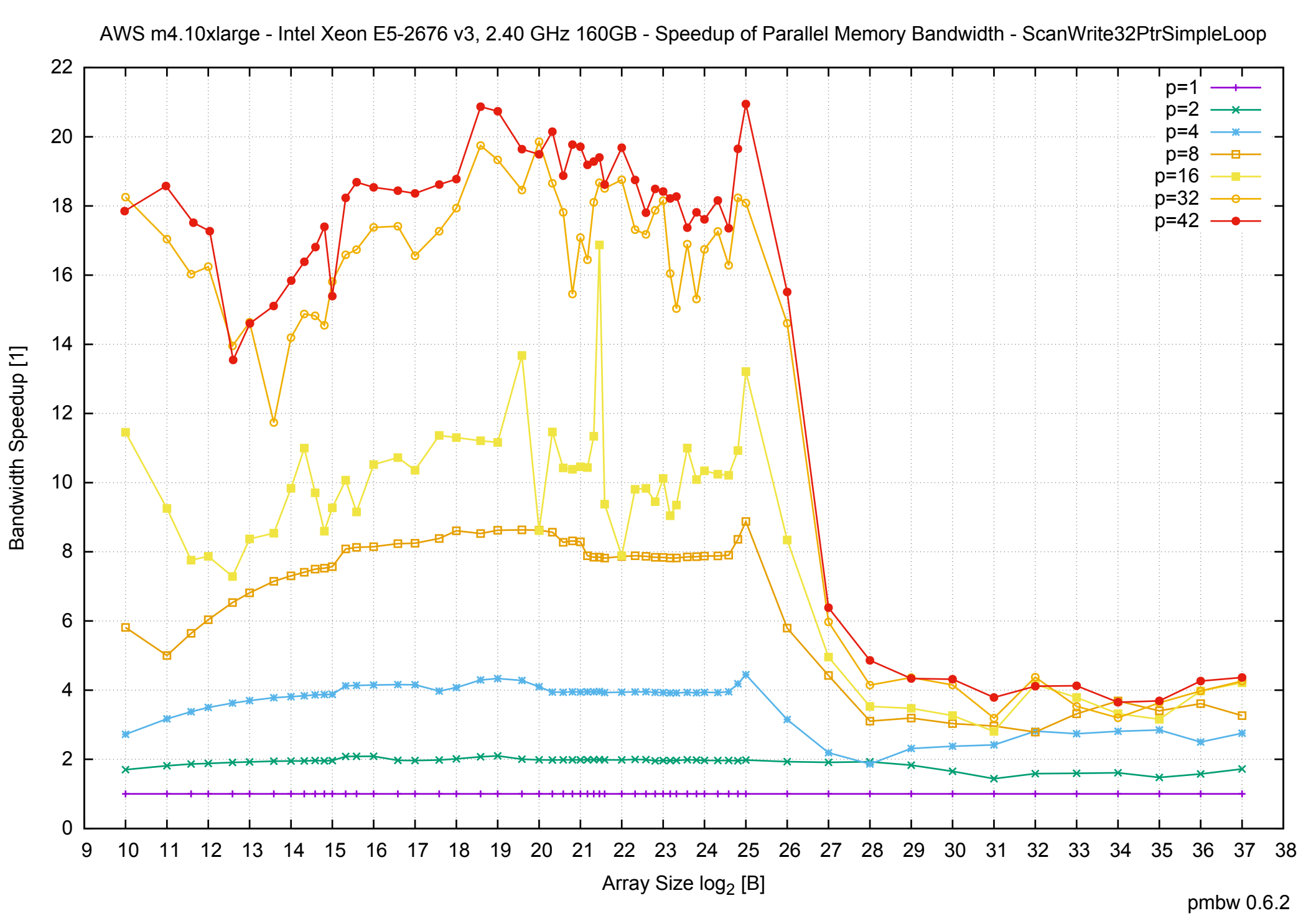

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead64IndexUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
Array Size log2 [B]
pmbw 0.6.2

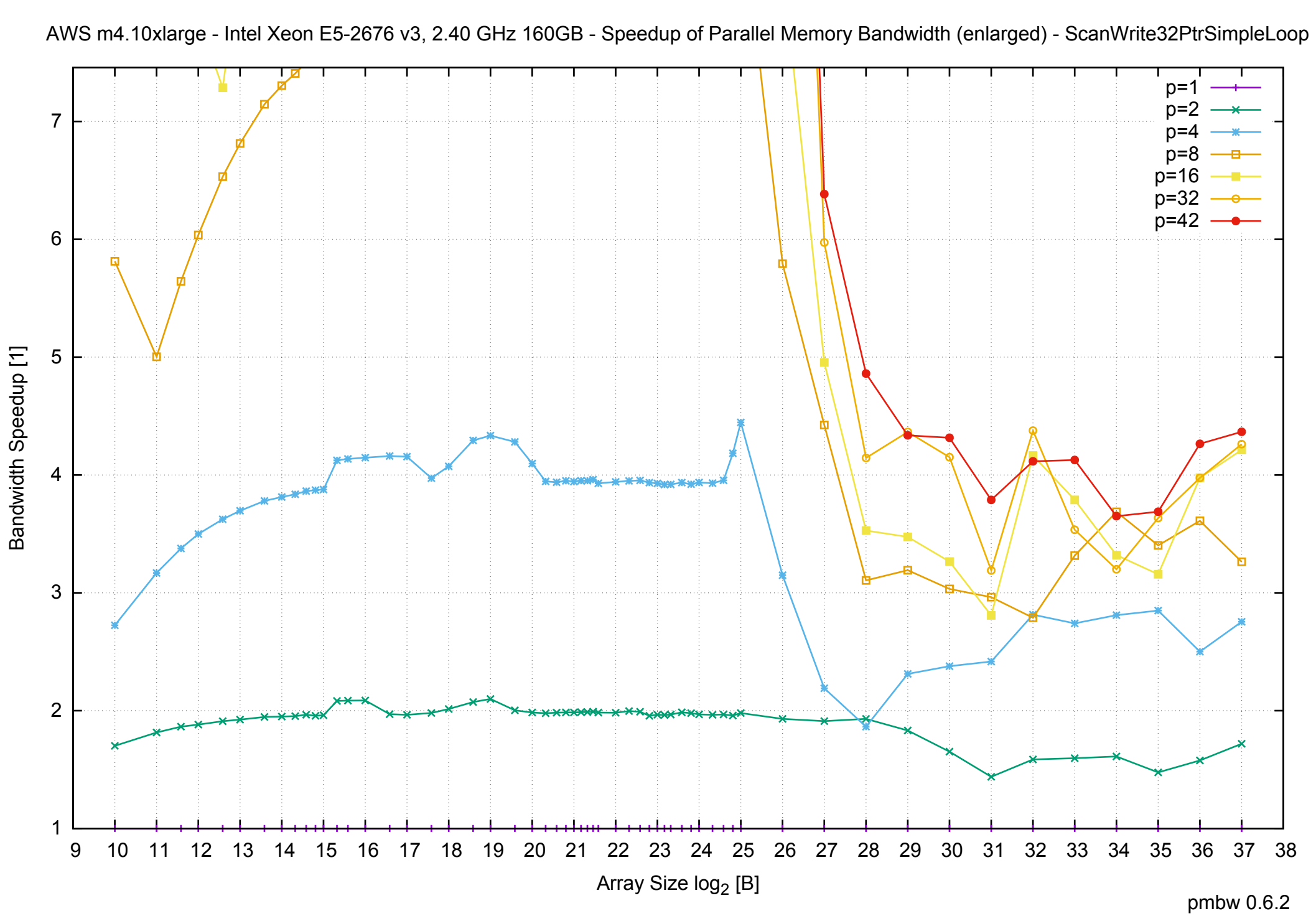

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead64IndexUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
30
35
40
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2

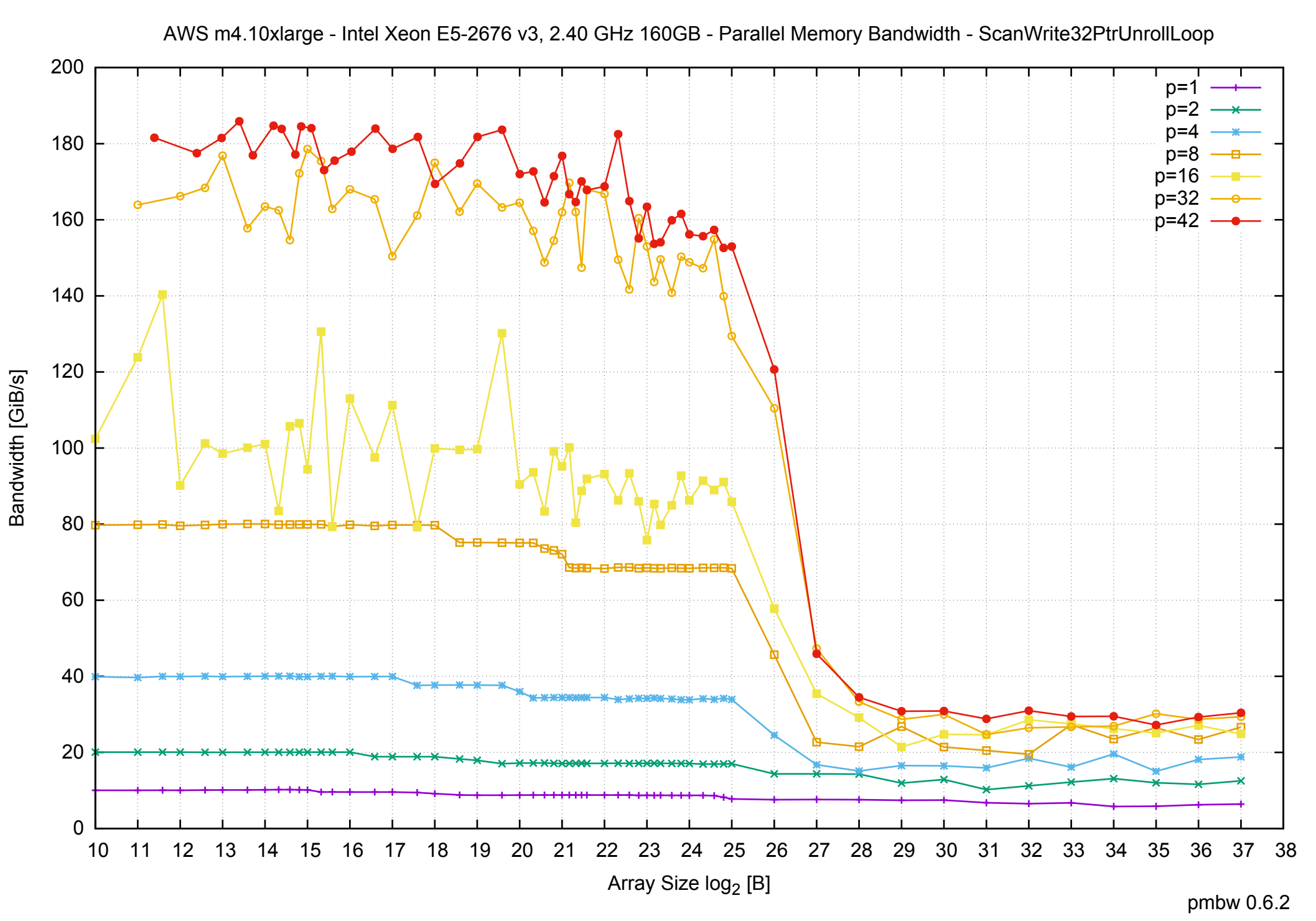

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead64IndexUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2

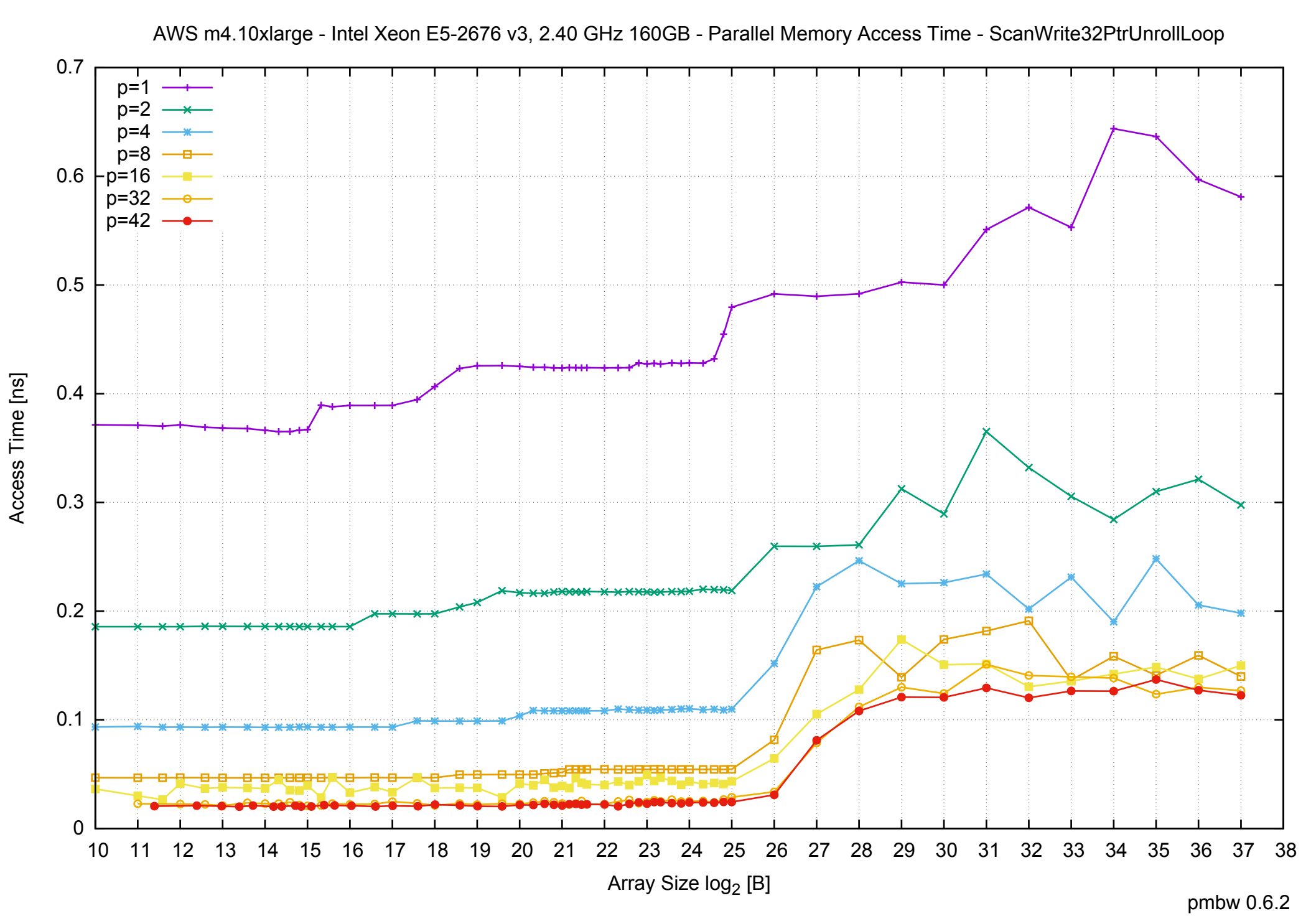

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite32PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2

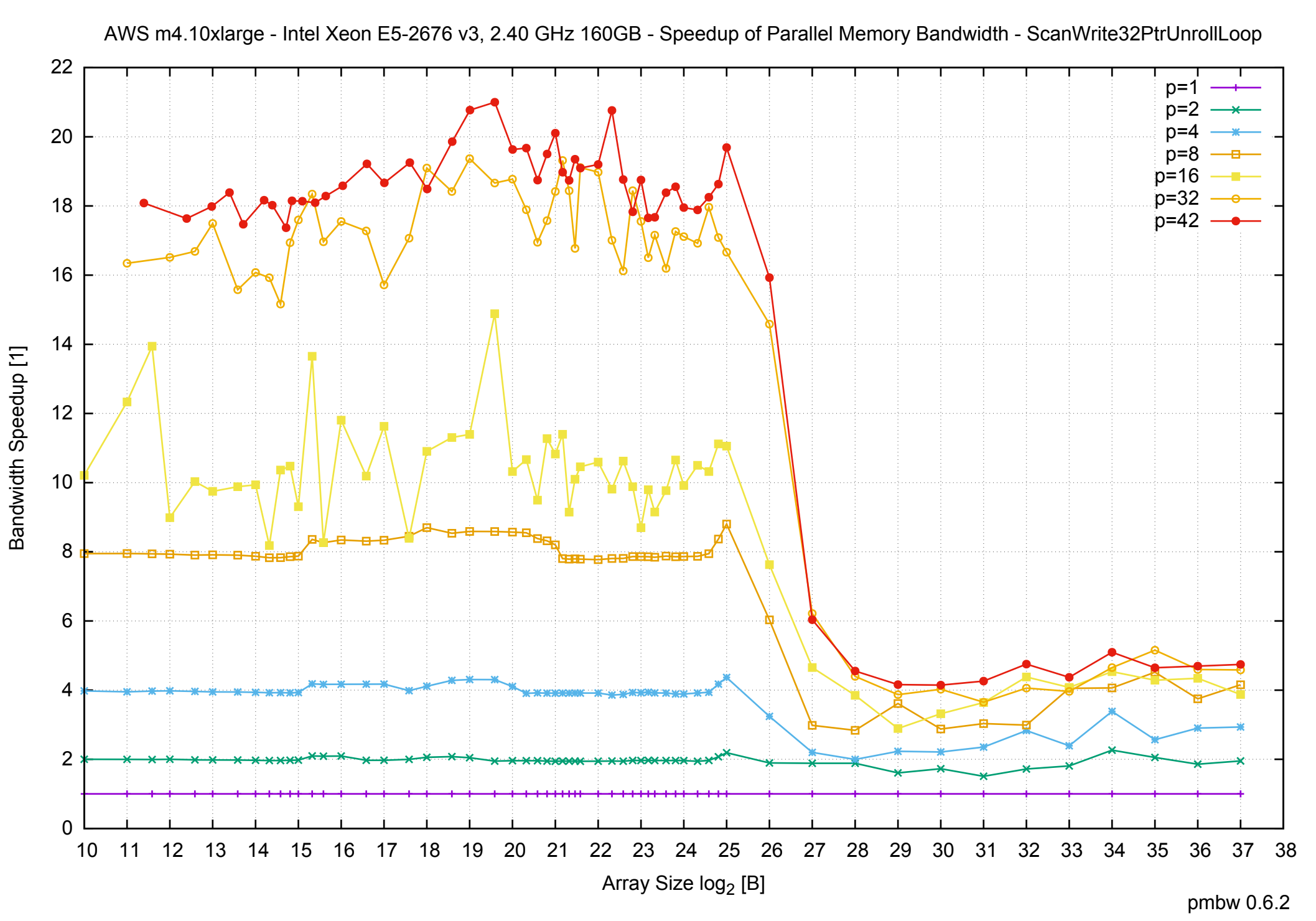

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite32PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
0
0.1
0.2
0.3
0.4
0.5
0.6
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
Array Size log2 [B]
pmbw 0.6.2

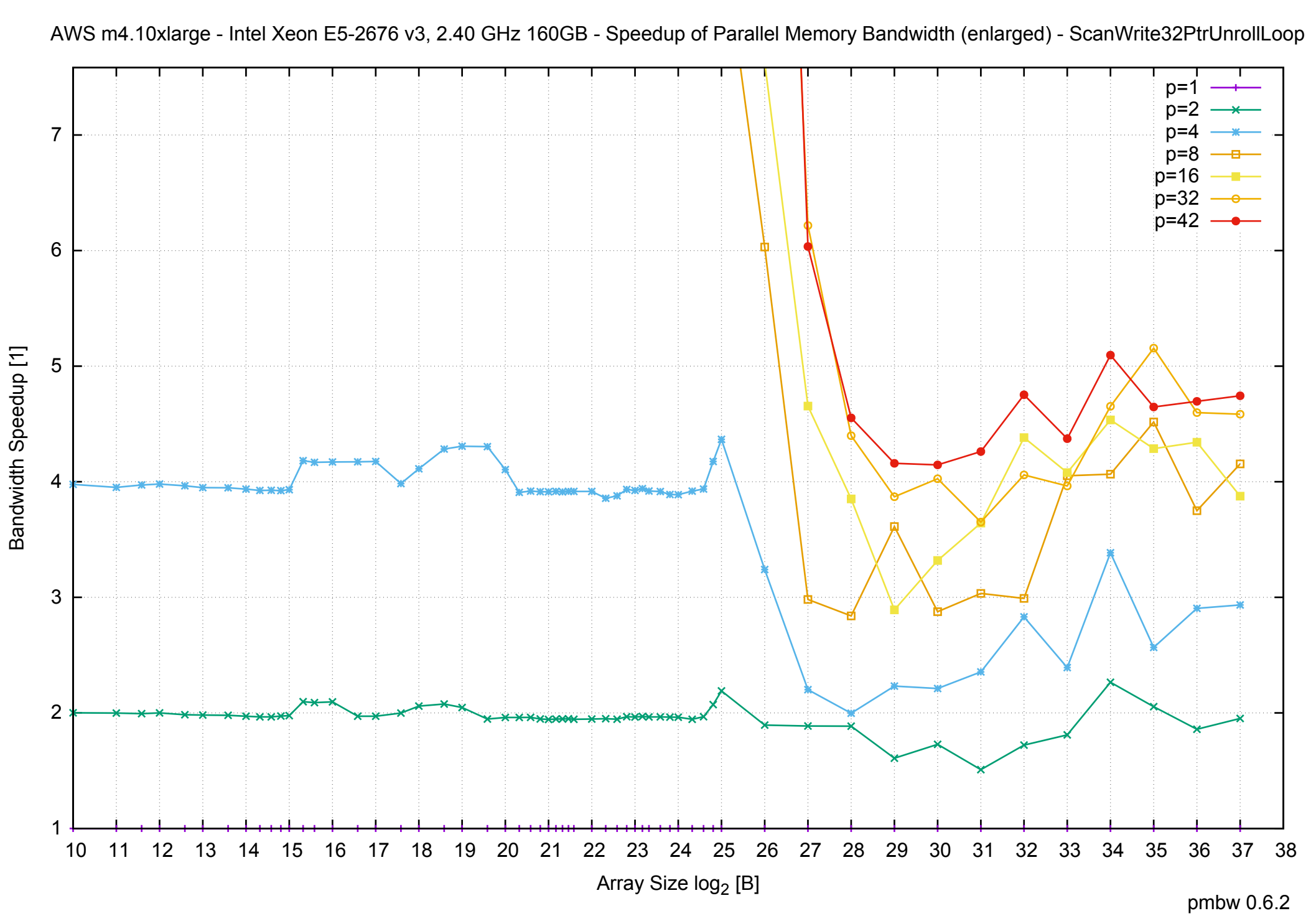

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite32PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2

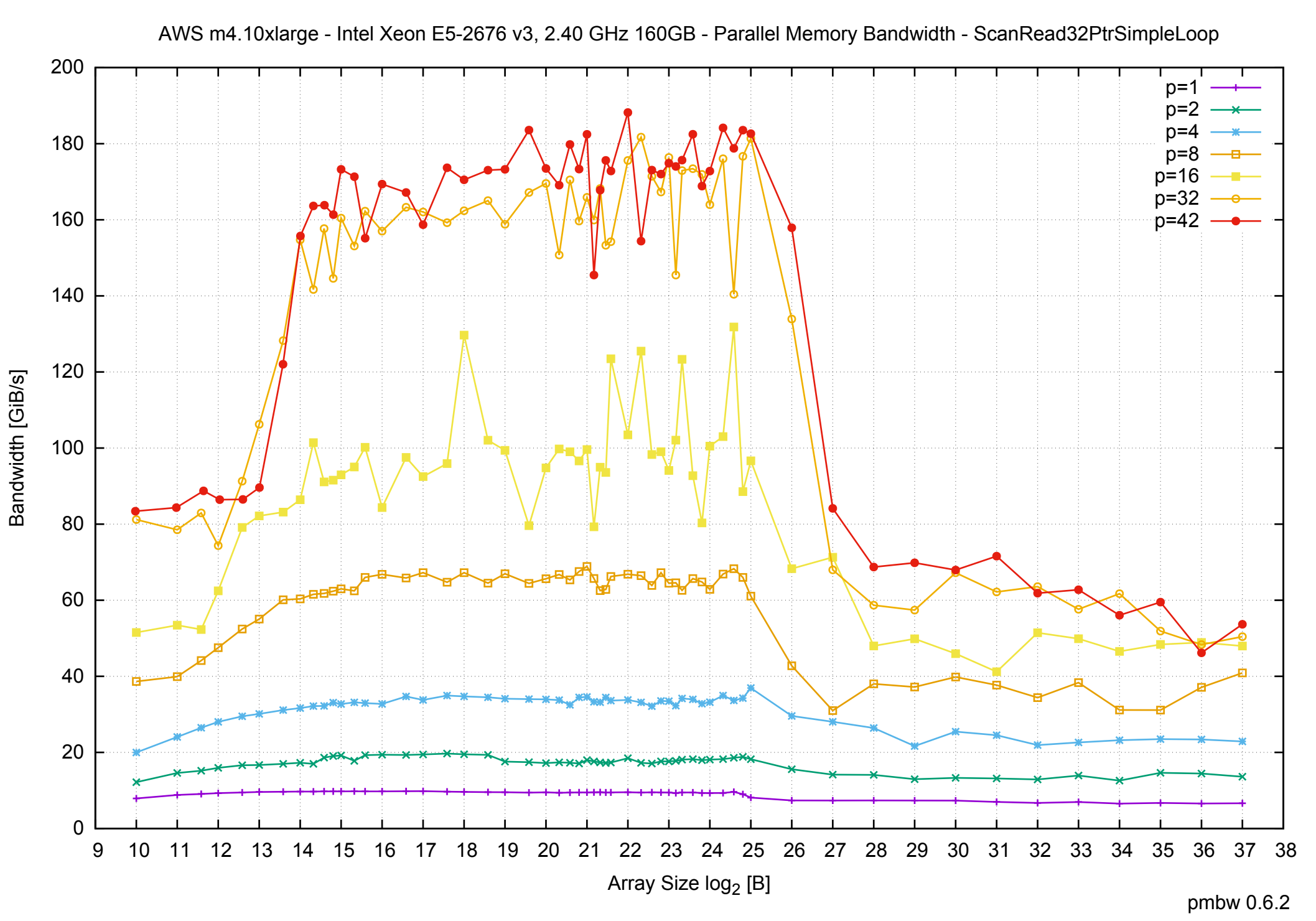

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite32PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2

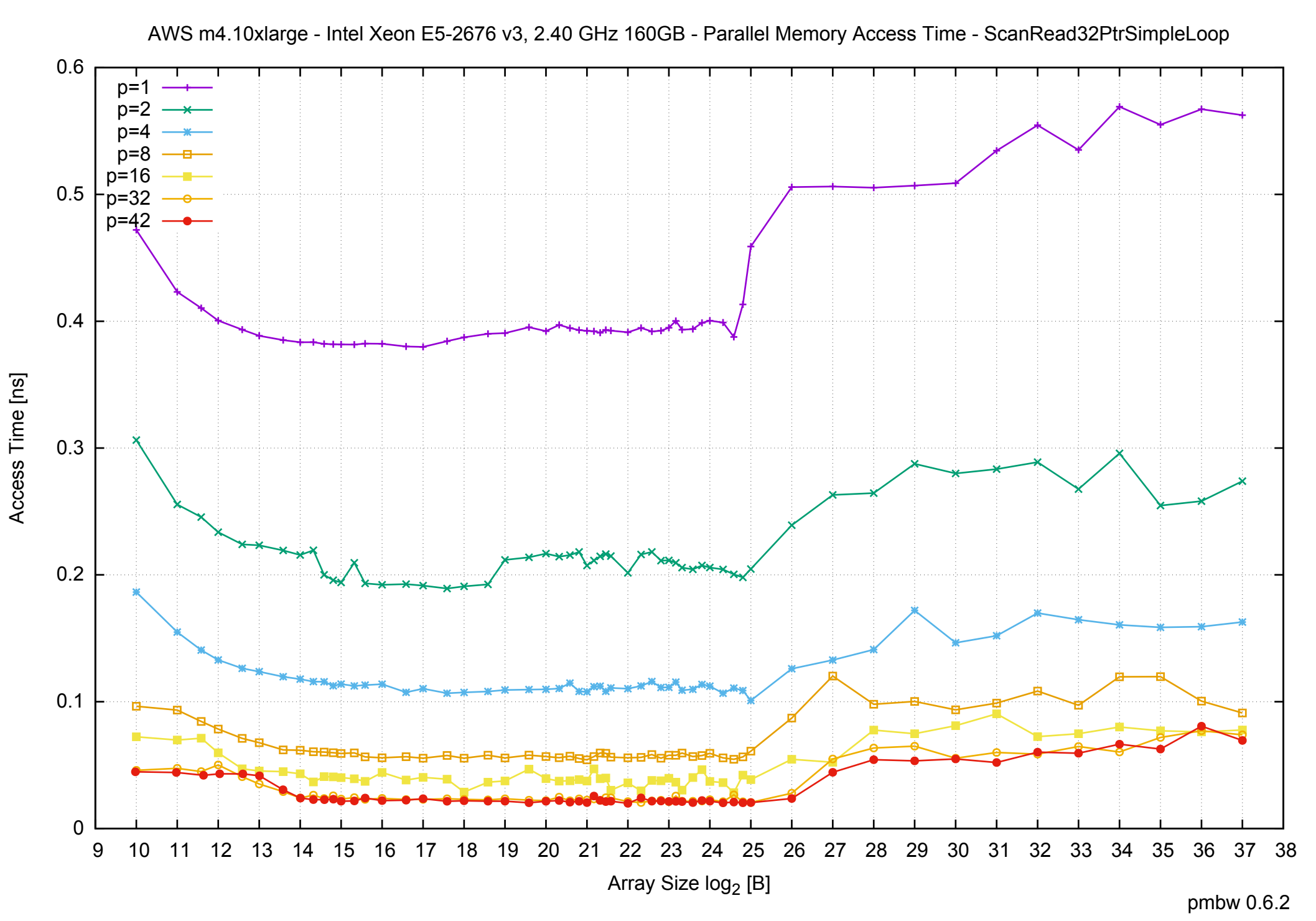

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanWrite32PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2

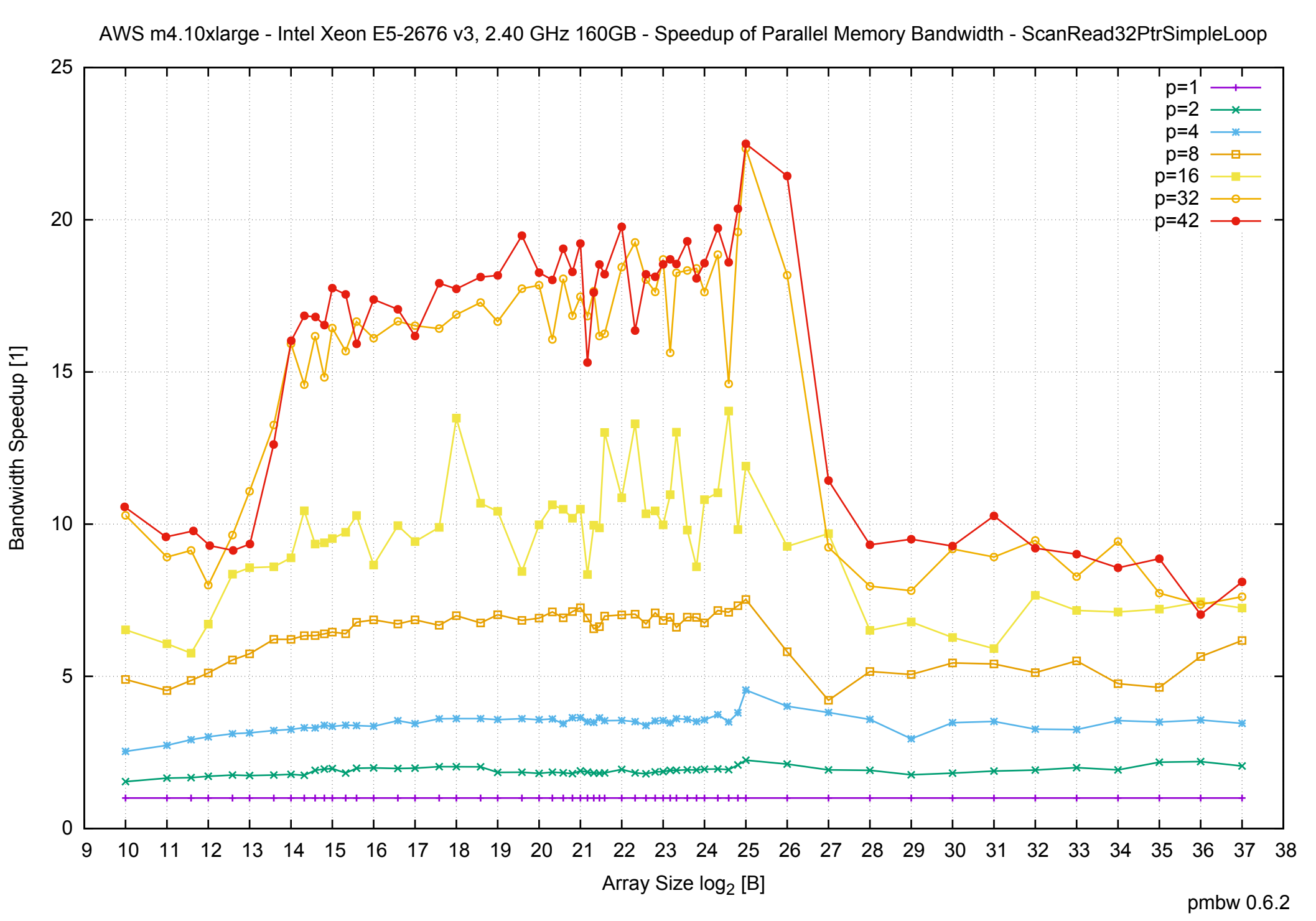

AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanWrite32PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanWrite32PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanWrite32PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Bandwidth Speedup [1]
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead32PtrSimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead32PtrSimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
0
0.1
0.2
0.3
0.4
0.5
0.6
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead32PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
9
10
11
12
13
14
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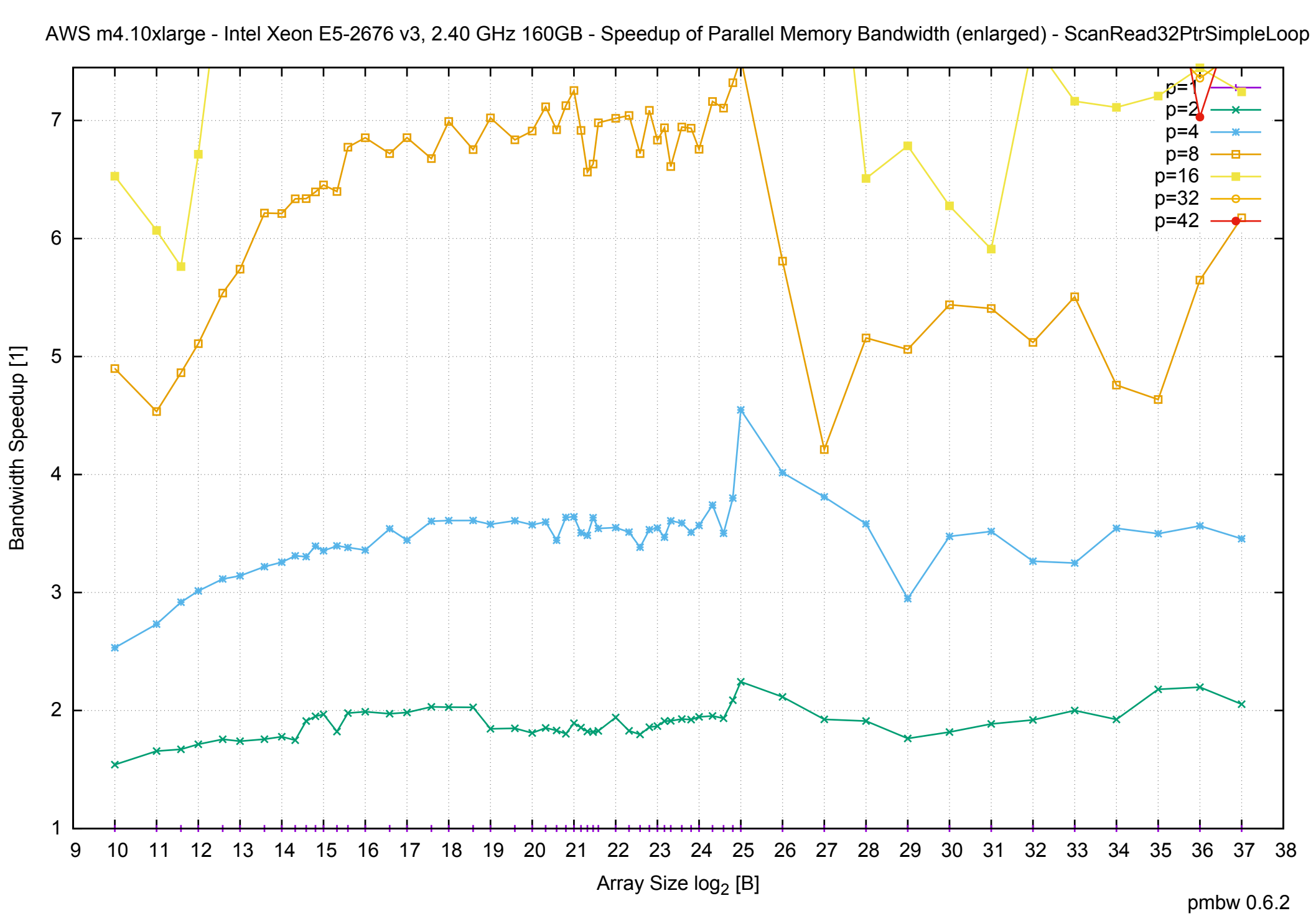
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead32PtrSimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
1
2
3
4
5
6
7
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
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26
27
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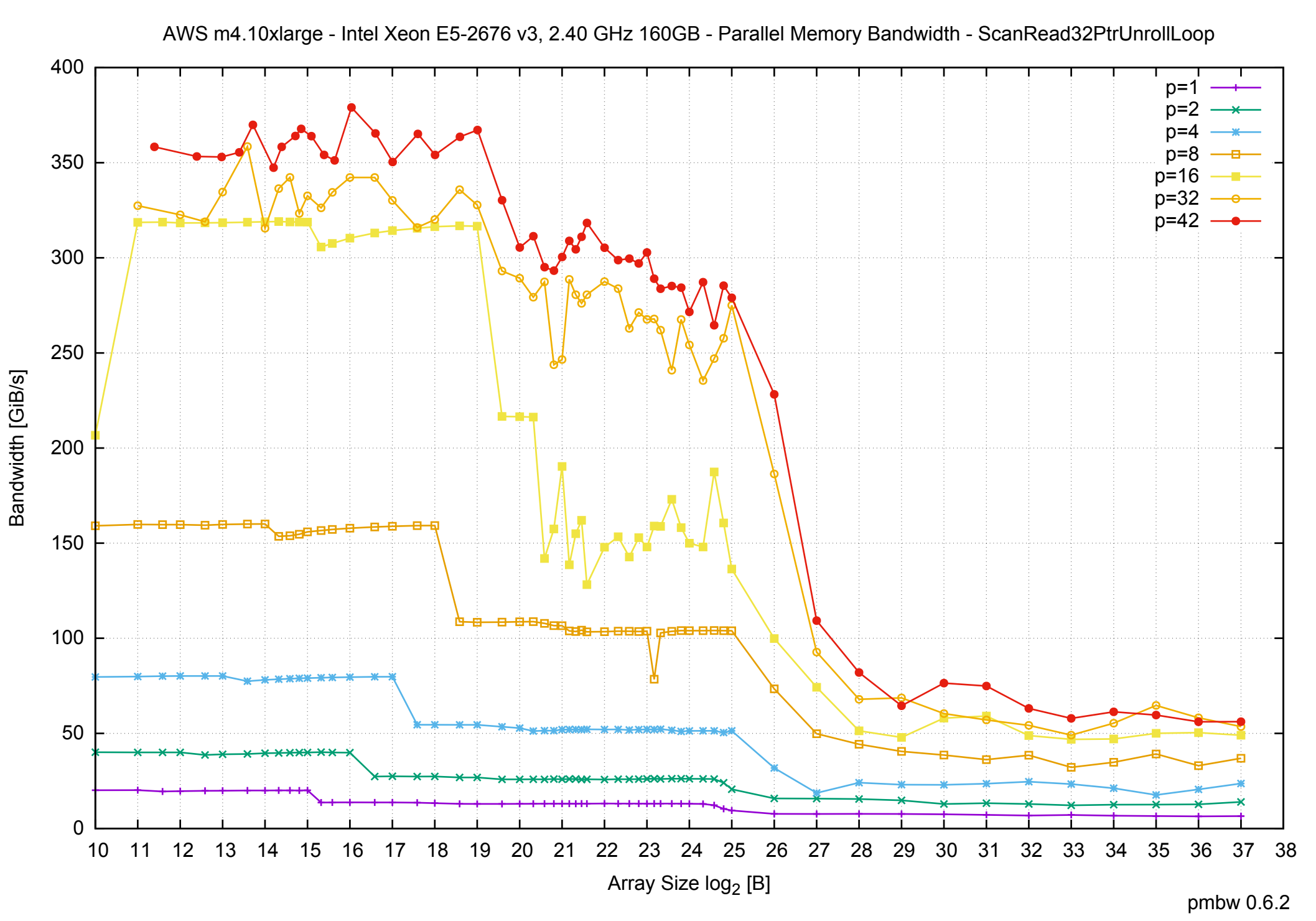
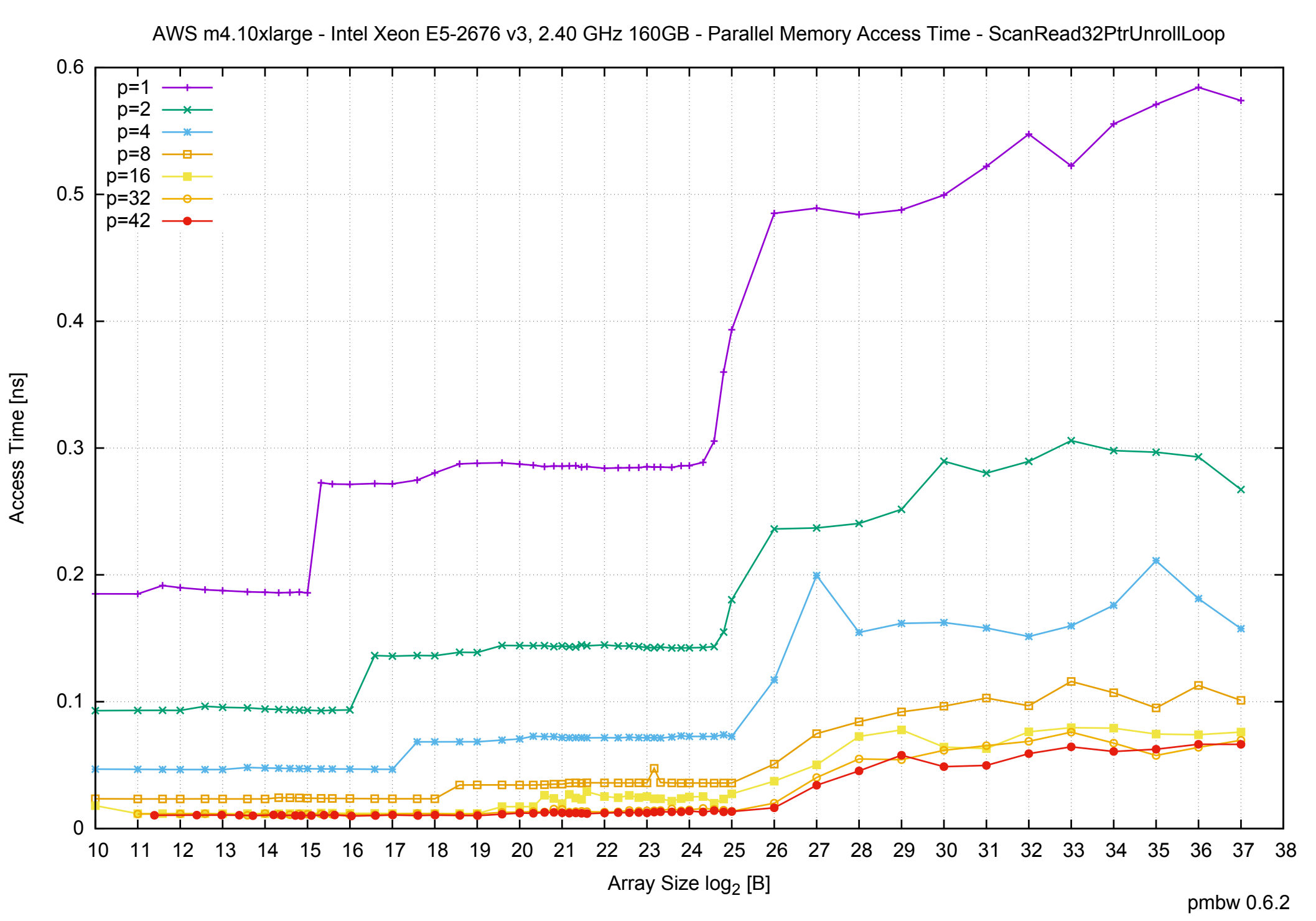
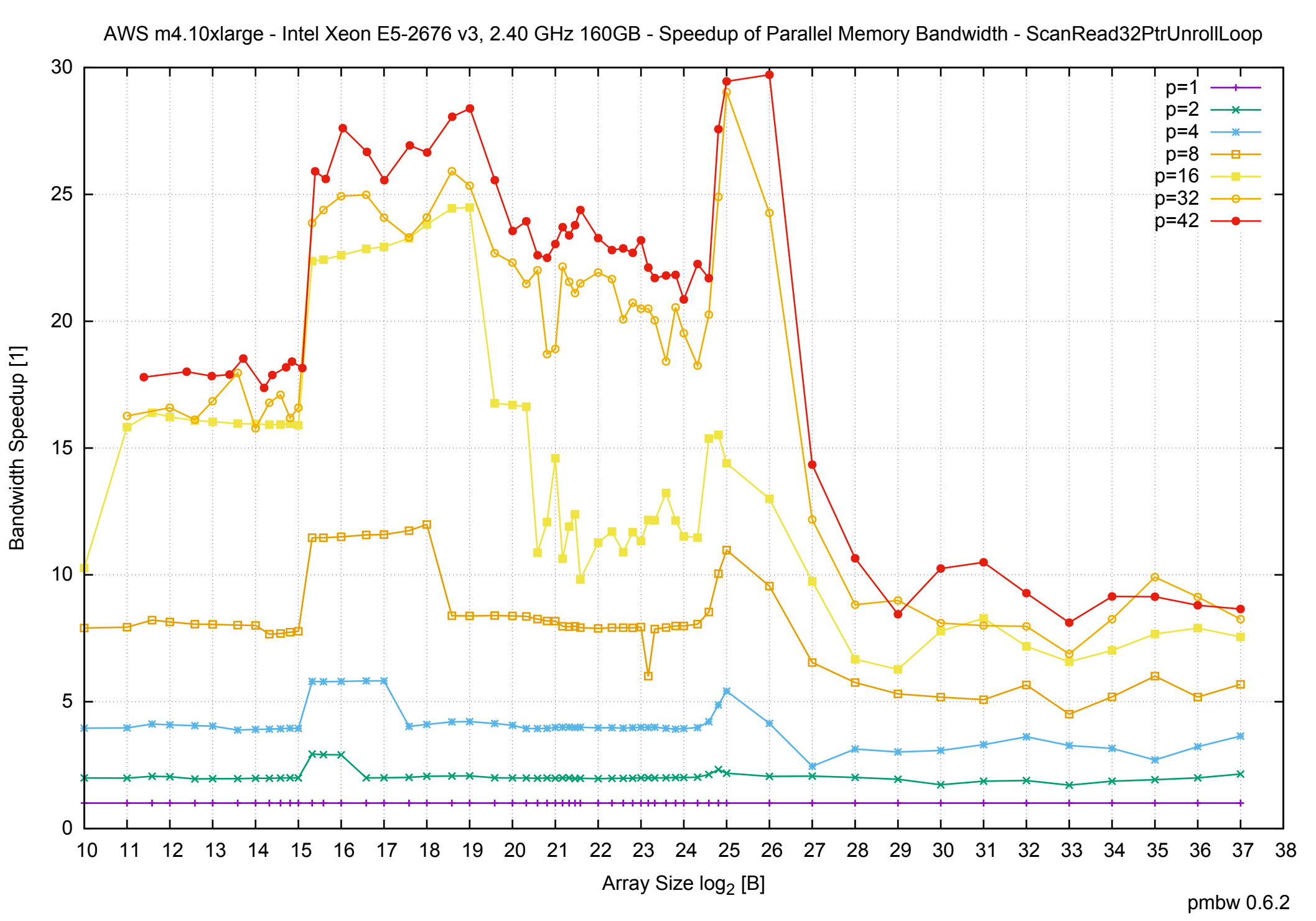
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - ScanRead32PtrUnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
150
200
250
300
350
400
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - ScanRead32PtrUnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
0
0.1
0.2
0.3
0.4
0.5
0.6
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - ScanRead32PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
25
30
10
11
12
13
14
15
16
17
18
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20
21
22
23
24
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27
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31
32
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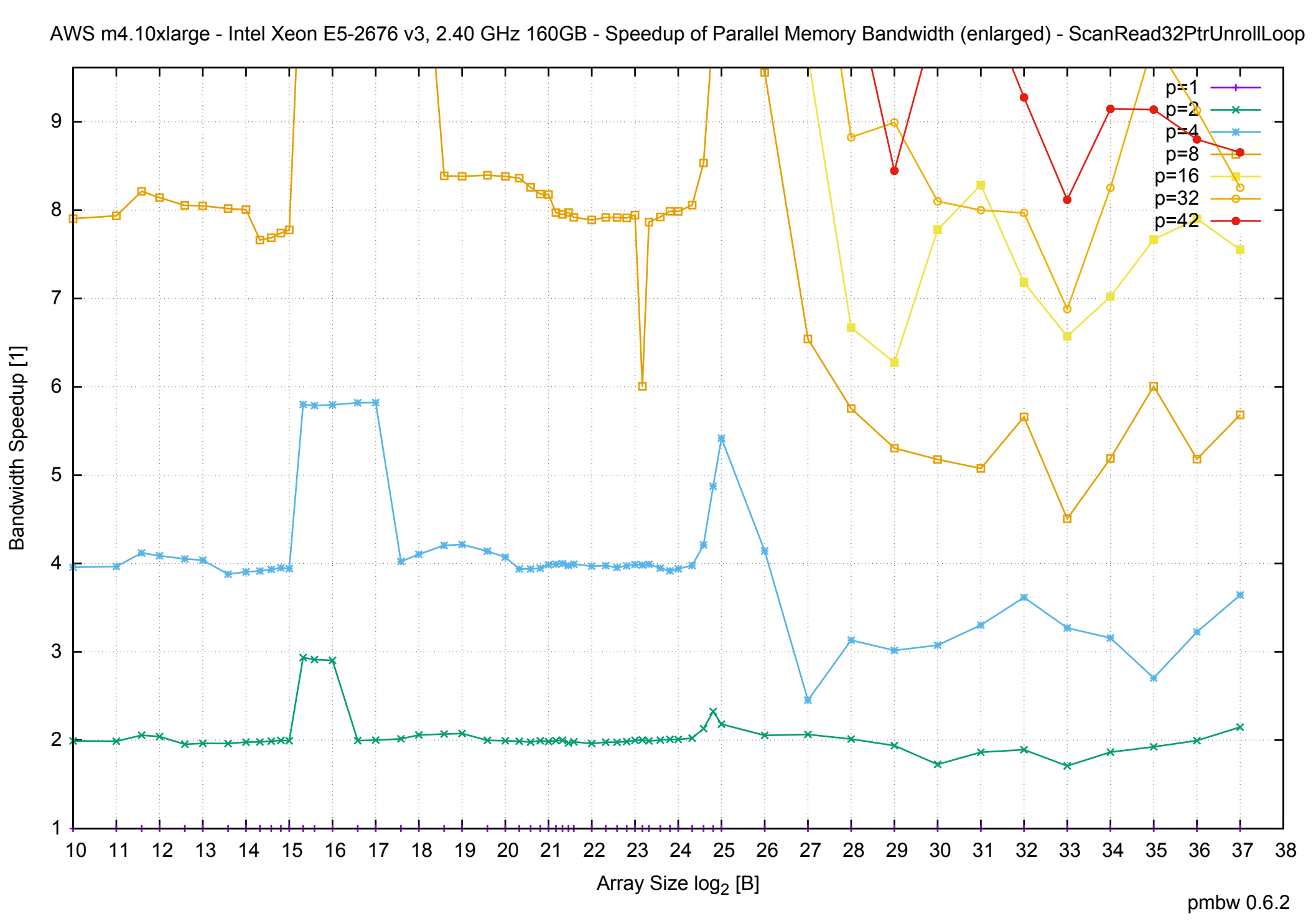
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - ScanRead32PtrUnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
1
2
3
4
5
6
7
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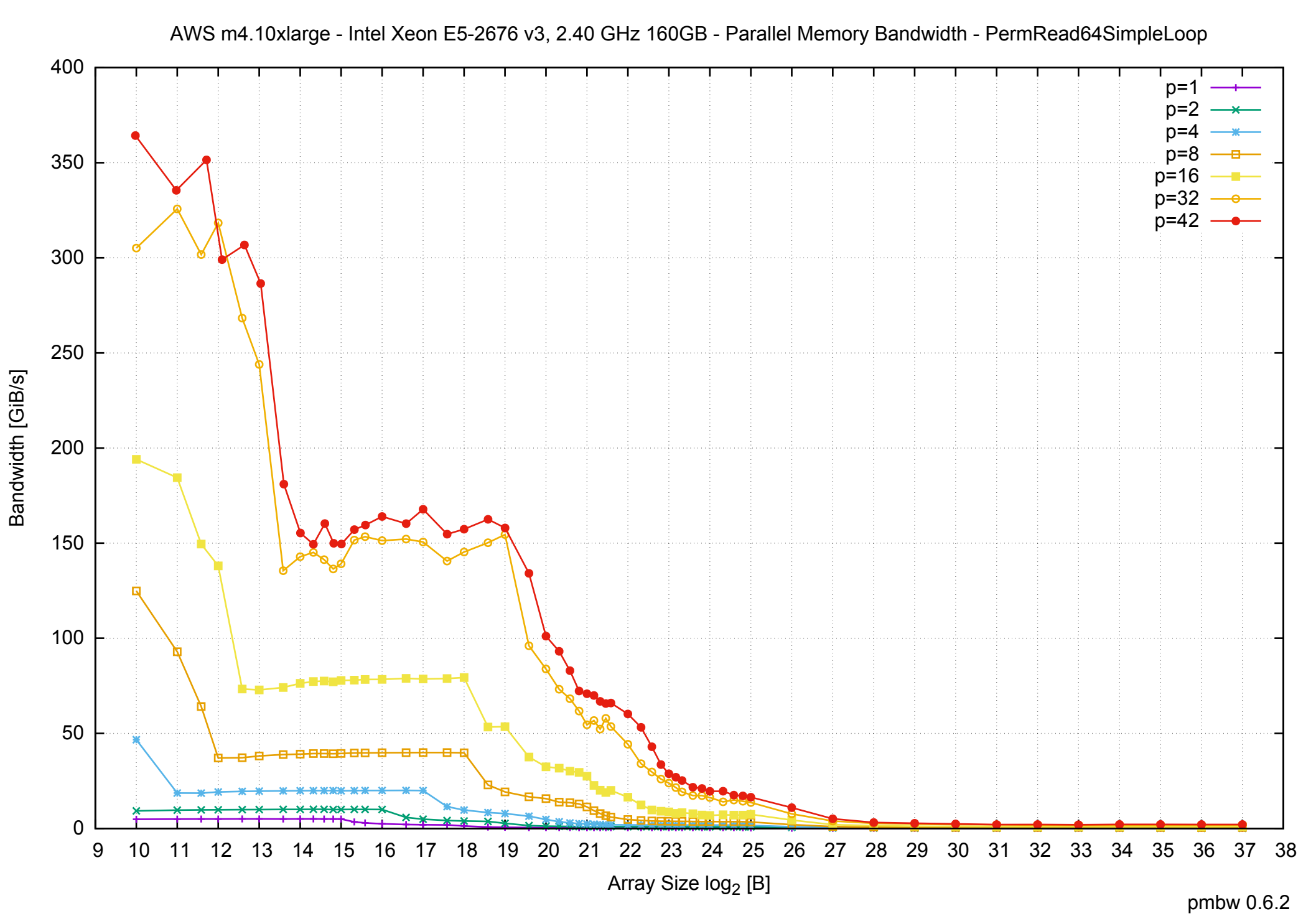
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - PermRead64SimpleLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
150
200
250
300
350
400
9
10
11
12
13
14
15
16
17
18
19
20
21
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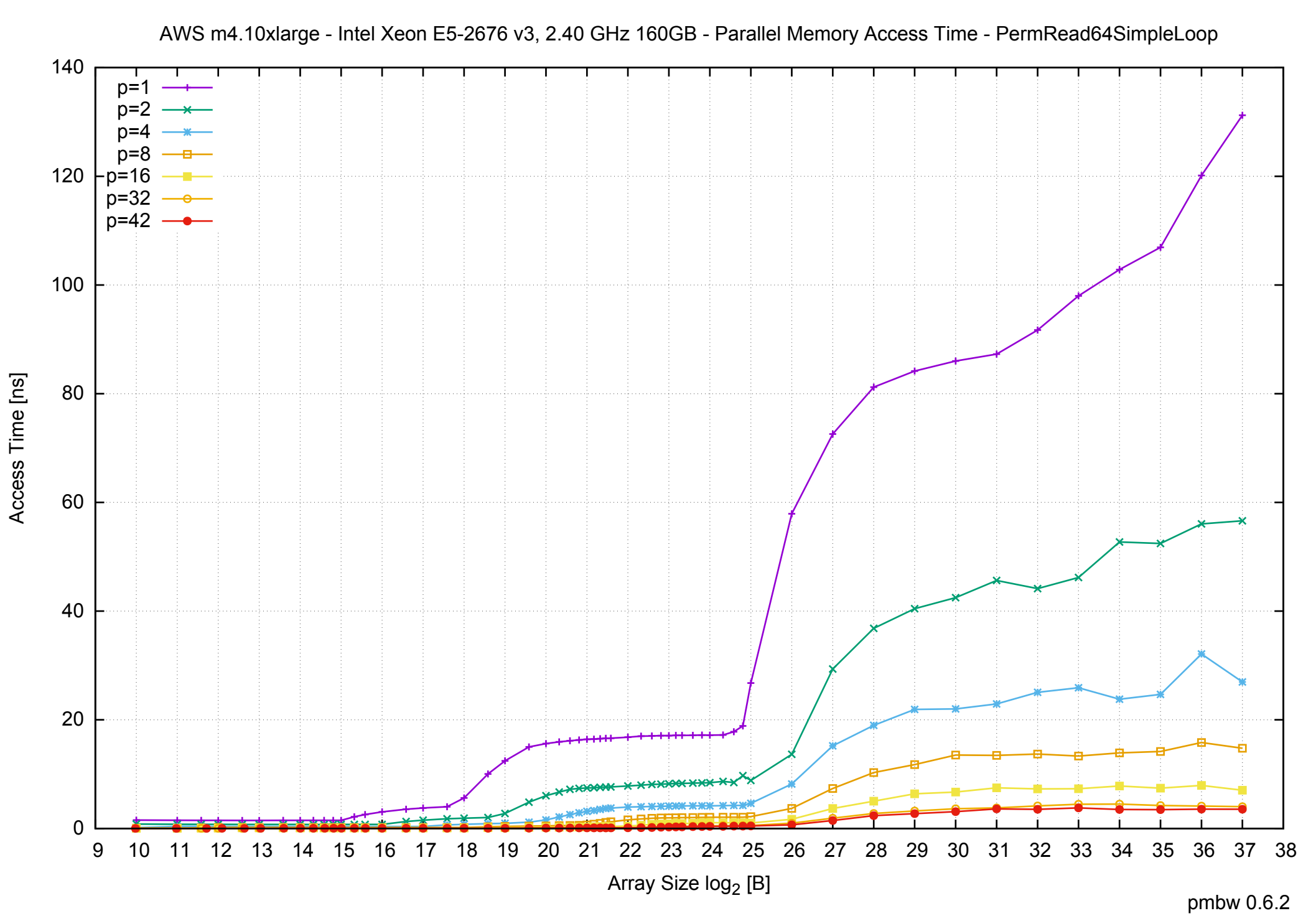
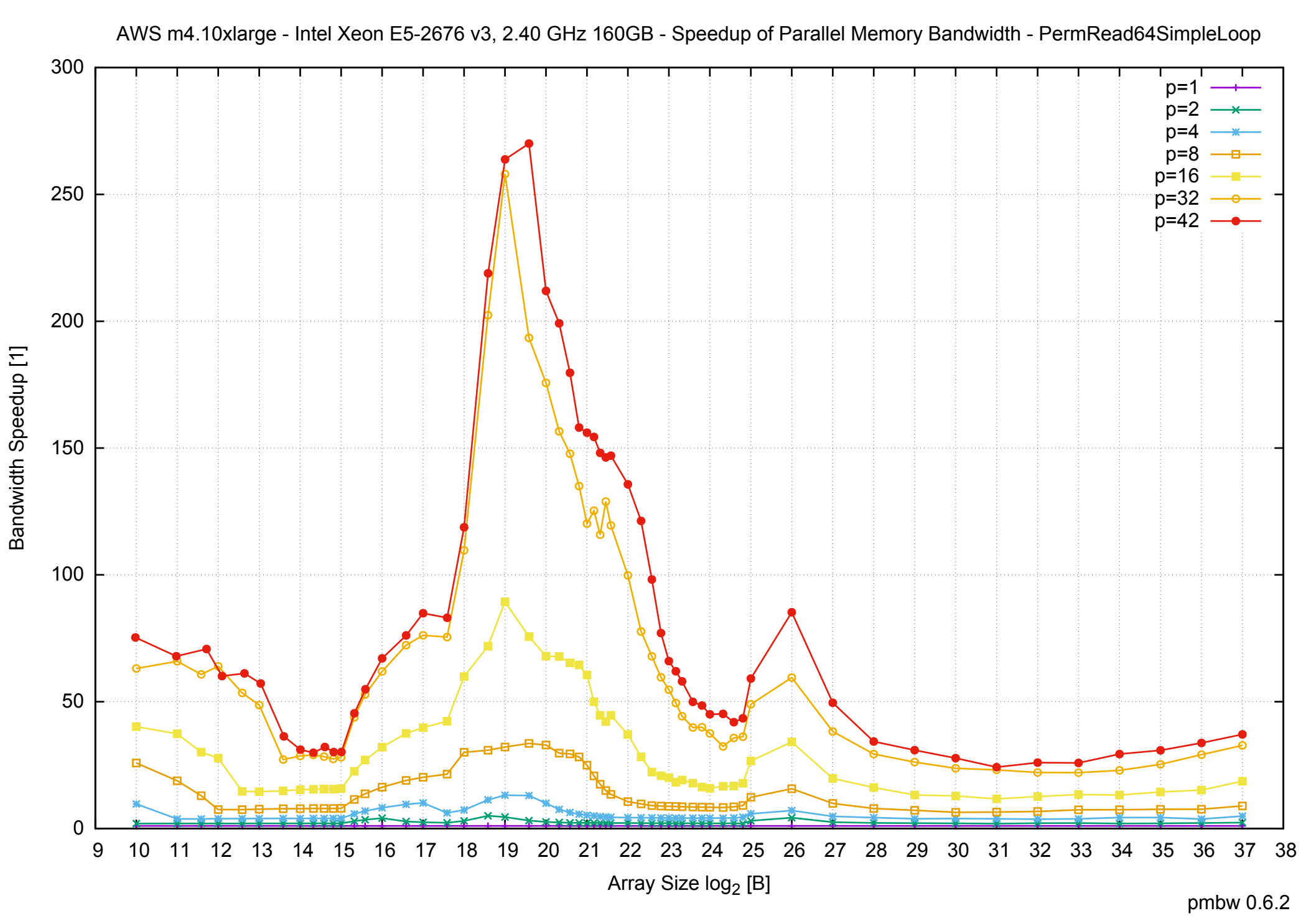
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - PermRead64SimpleLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
0
20
40
60
80
100
120
140
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
Array Size log2 [B]
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - PermRead64SimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
150
200
250
300
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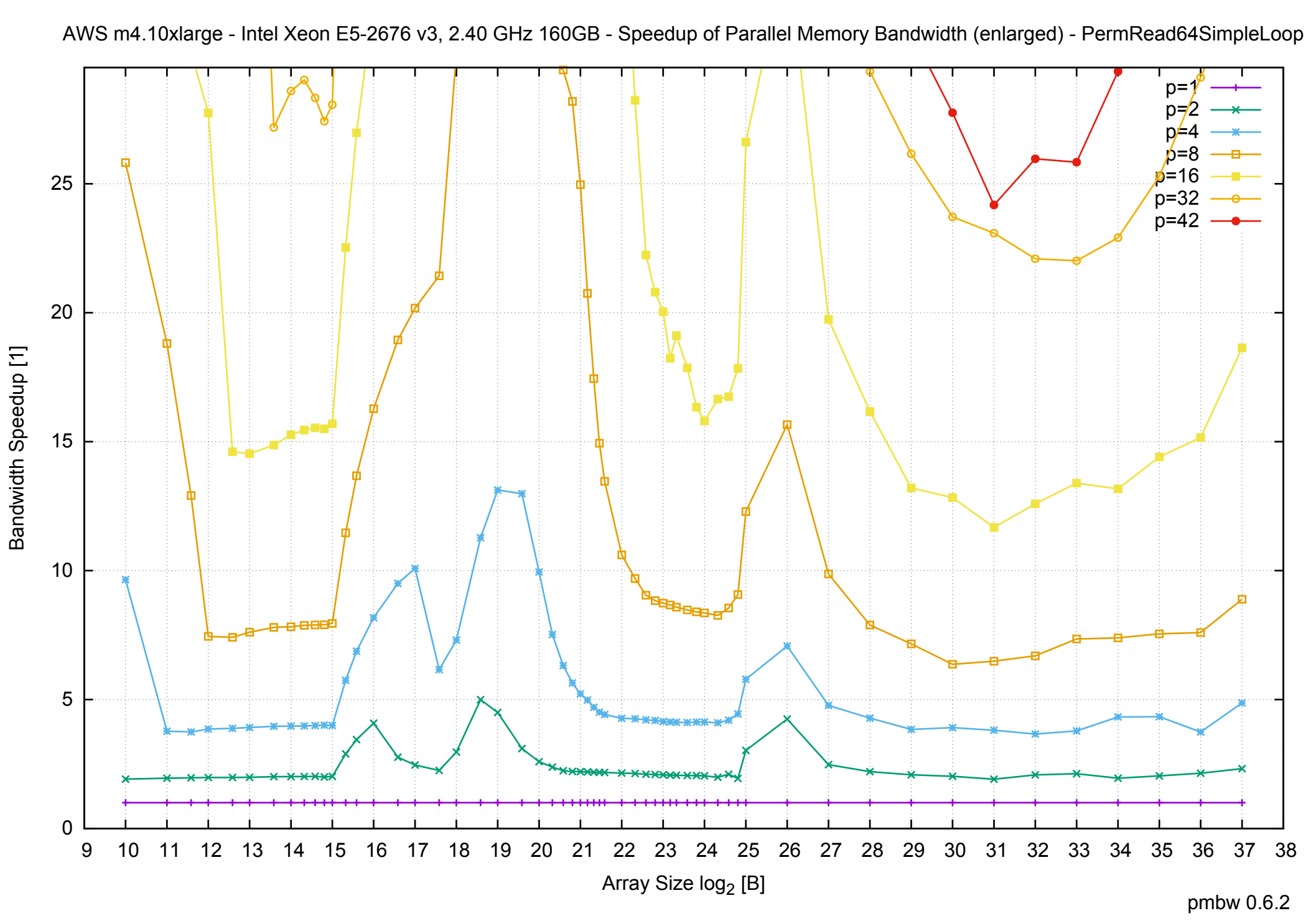
34
35
36
37
38
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - PermRead64SimpleLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
5
10
15
20
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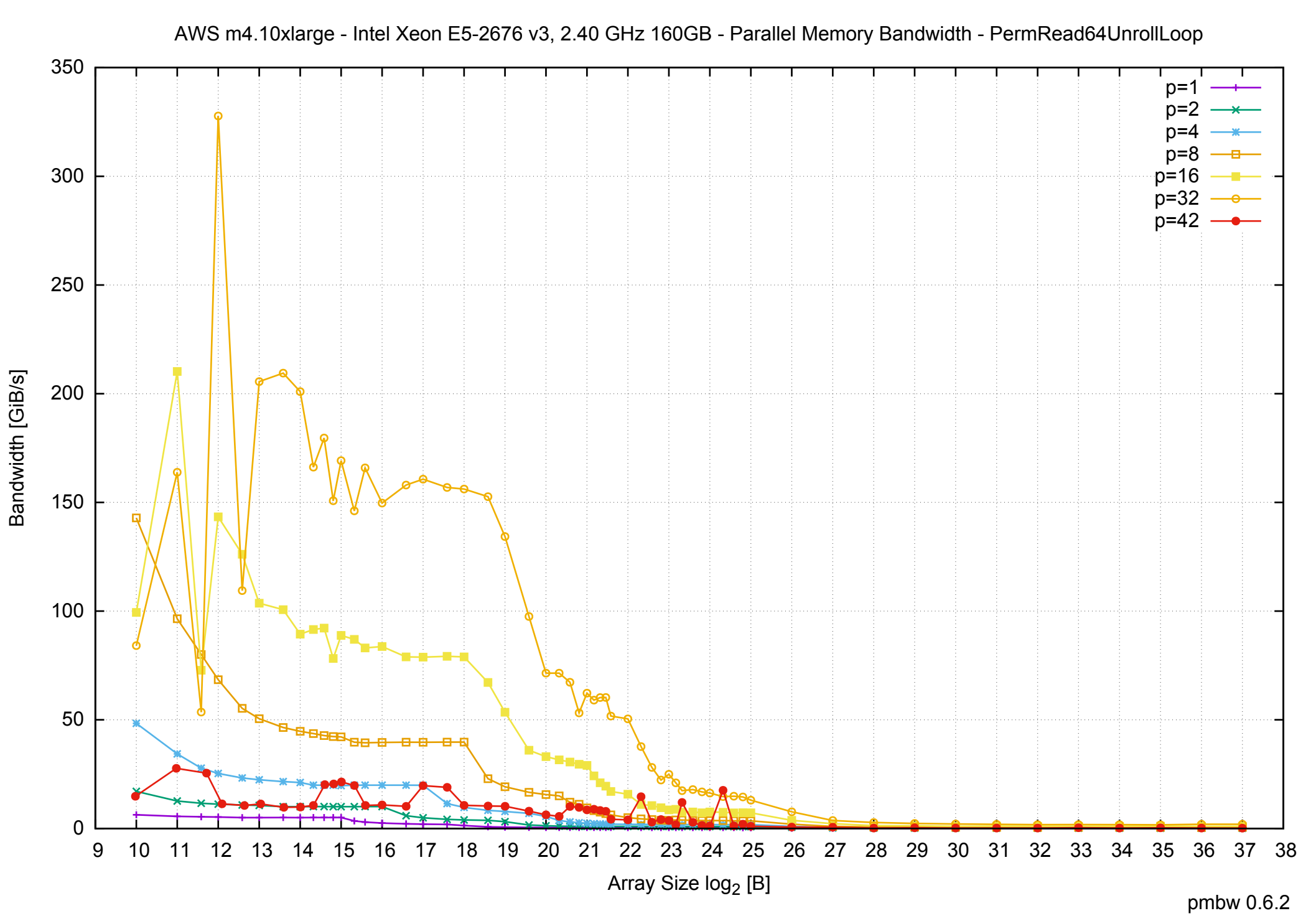
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Bandwidth - PermRead64UnrollLoop
Bandwidth [GiB/s]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
50
100
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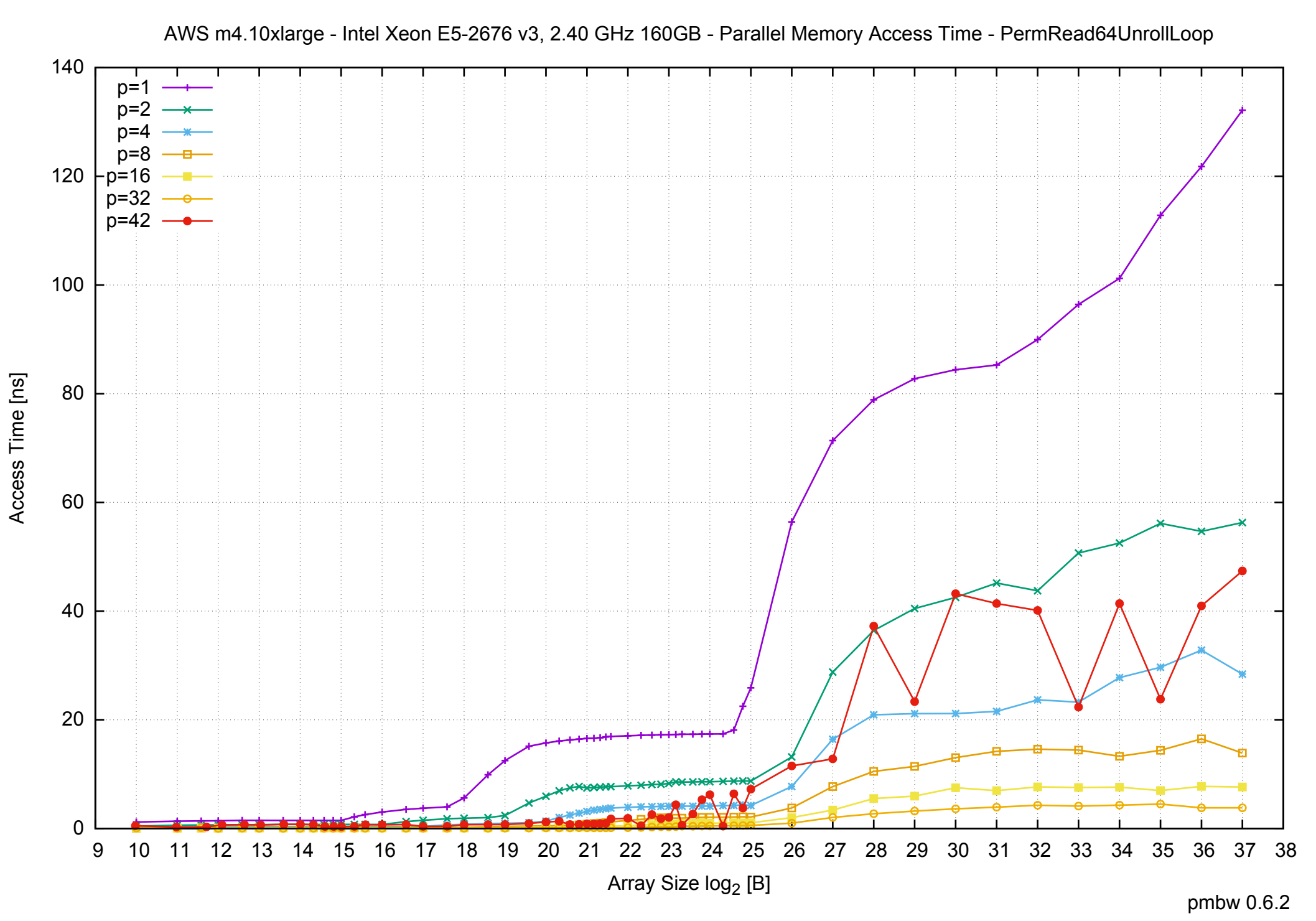
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Parallel Memory Access Time - PermRead64UnrollLoop
p=1
p=2
p=4
p=8
p=16
p=32
p=42
Access Time [ns]
Array Size log2 [B]
0
20
40
60
80
100
120
140
9
10
11
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14
15
16
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18
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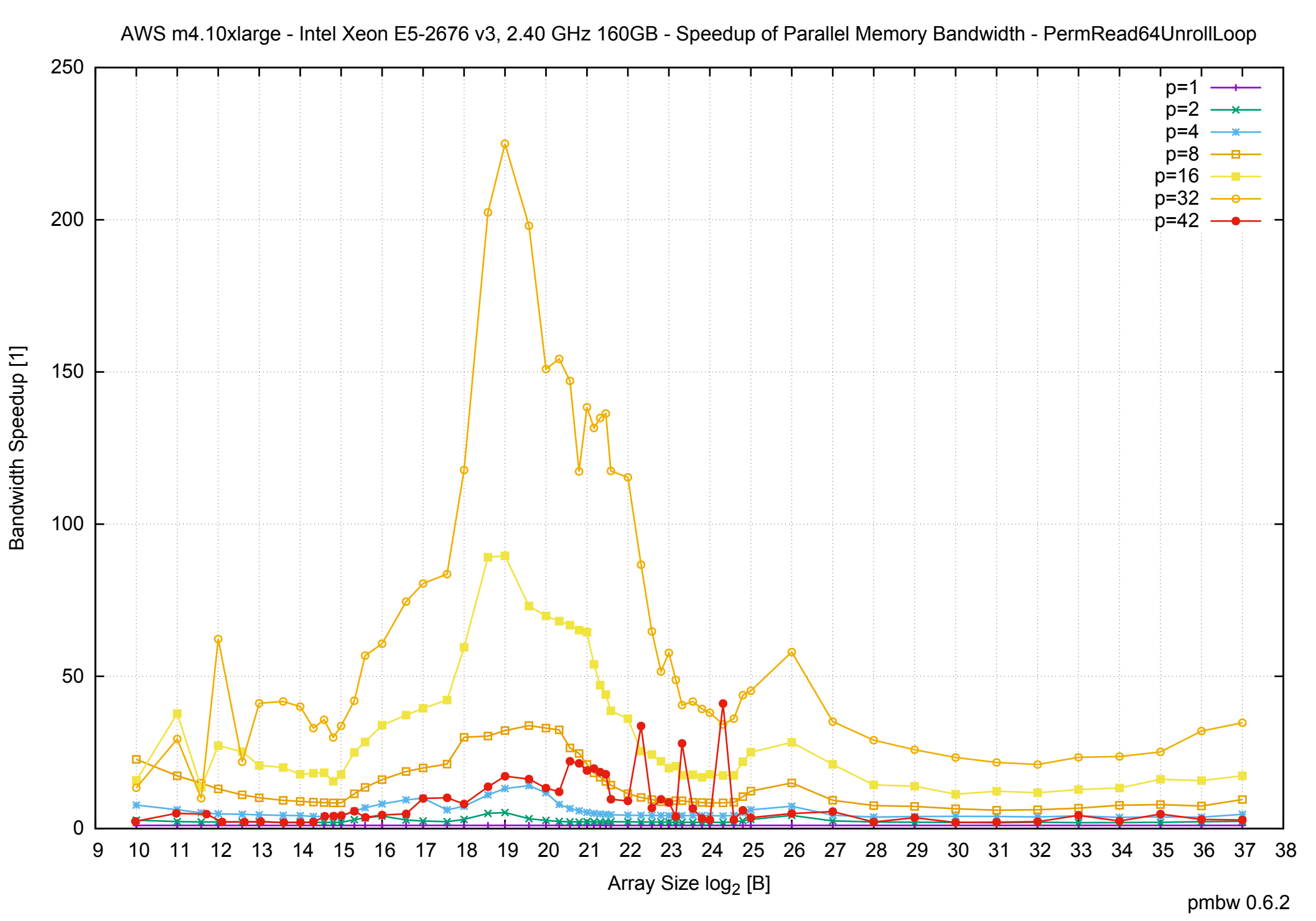
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth - PermRead64UnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
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200
250
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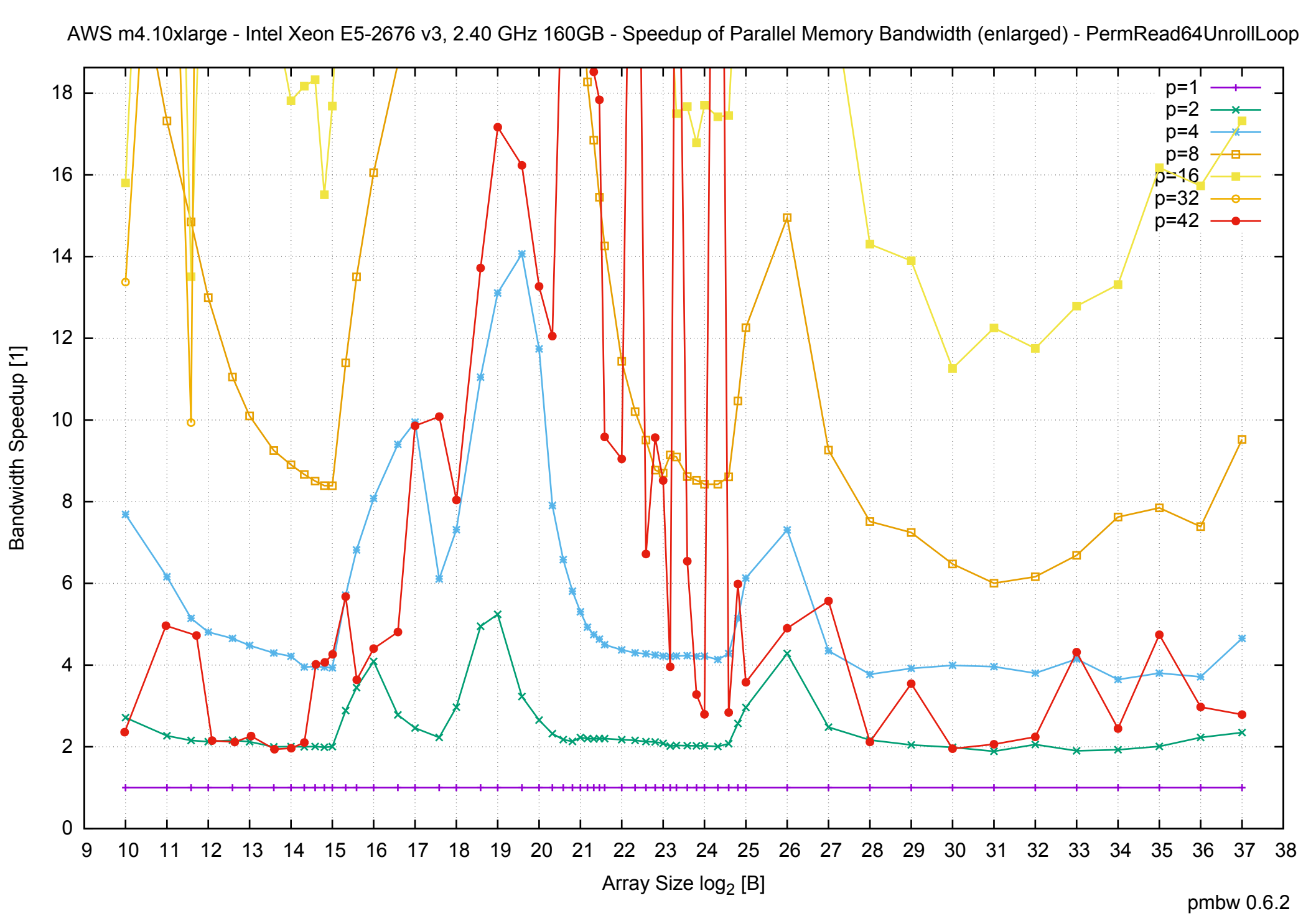
pmbw 0.6.2


AWS m4.10xlarge - Intel Xeon E5-2676 v3, 2.40 GHz 160GB - Speedup of Parallel Memory Bandwidth (enlarged) - PermRead64UnrollLoop
Bandwidth Speedup [1]
Array Size log2 [B]
p=1
p=2
p=4
p=8
p=16
p=32
p=42
0
2
4
6
8
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pmbw 0.6.2