

Direct Mapped Caches

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CS 354 - Section 2

UW-Madison

Main Memory

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Main Memory

4 bit addresses

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Main Memory

4 bit addresses

16 addresses in total

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Address



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Direct Mapped Cache
(S,E,B,m) = (4,1,2,4)

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

$$(S, E, B, m) = (4, 1, 2, 4)$$

No. of sets = 4

set index = 2 bits

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

$$(S, E, B, m) = (4, 1, 2, 4)$$

No. of cache lines = 1

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

$(S, E, B, m) = (4, 1, 2, 4)$

Bytes per block = 2

block offset = 1 bit

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

$$(S, E, B, m) = (4, 1, 2, 4)$$

No. of bits in an address = 4

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Tag Set Block offset

0	00	0	0xB2
0	00	1	0xF1
0	01	0	0x2C
0	01	1	0x03
0	10	0	0x64
0	10	1	0x95
0	11	0	0x09
0	11	1	0xD3
1	00	0	0x88
1	00	1	0x83
1	01	0	0xAB
1	01	1	0x3B
1	10	0	0xFE
1	10	1	0x12
1	11	0	0x7D
1	11	1	0x9F

Tag Set Block offset

0 00 0
0 00 1
0 01 0
0 01 1
0 10 0
0 10 1
0 11 0
0 11 1
1 00 0
1 00 1
1 01 0
1 01 1
1 10 0
1 10 1
1 11 0
1 11 1

0xB2
0xF1
0x2C
0x03
0x64
0x95
0x09
0xD3
0x88
0x83
0xAB
0x3B
0xFE
0x12
0x7D
0x9F

Block 0

Block 1

Block 2

Block 3

Block 4

Block 5

Block 6

Block 7

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
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Direct Mapped Cache

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0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Set 0

Set 1

Set 2

Set 3

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Set 0

Set 1

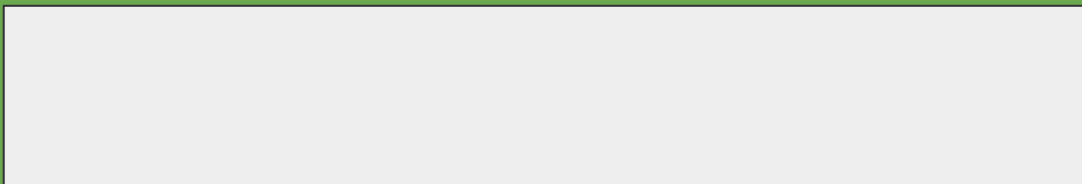
Set 2

Set 3

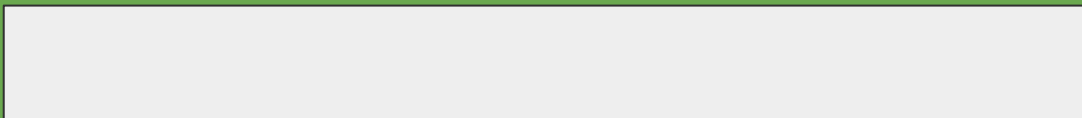
4 sets

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

Set 0

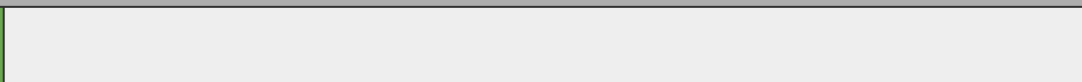


Set 1

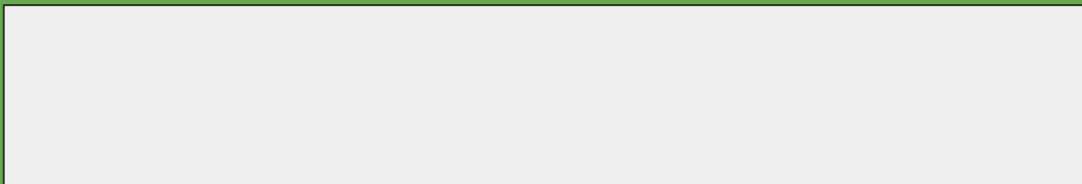


1 cache line per set

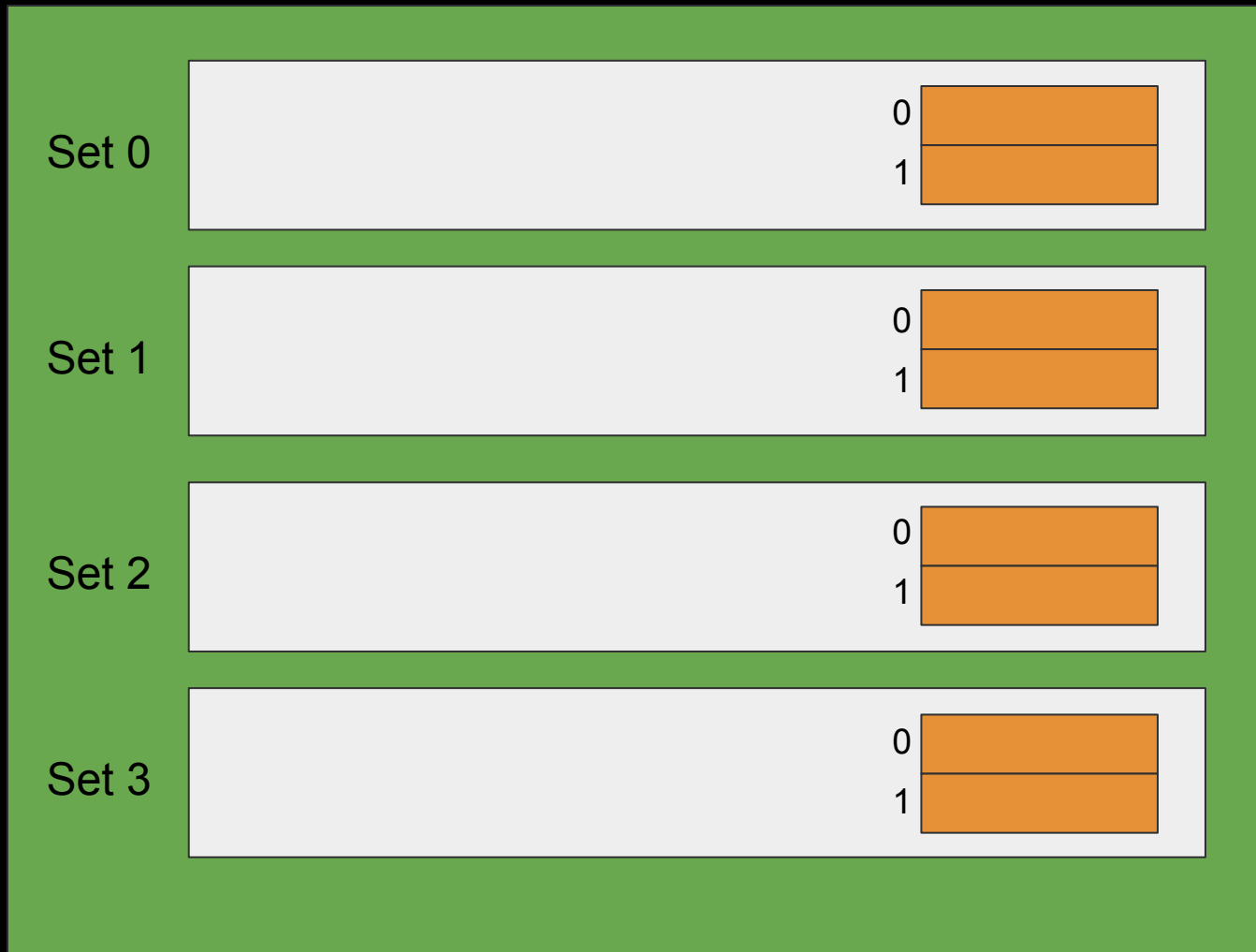
Set 2



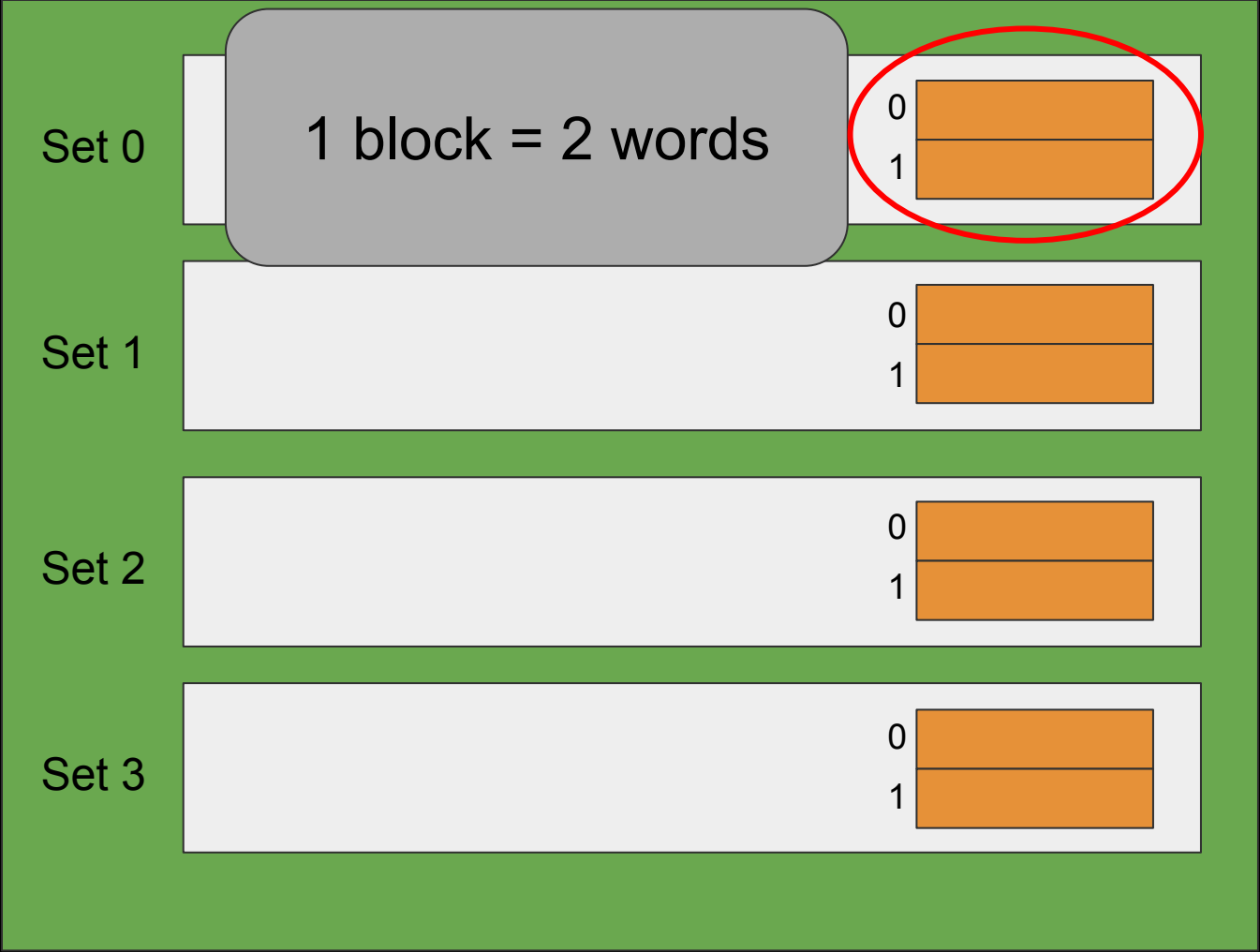
Set 3



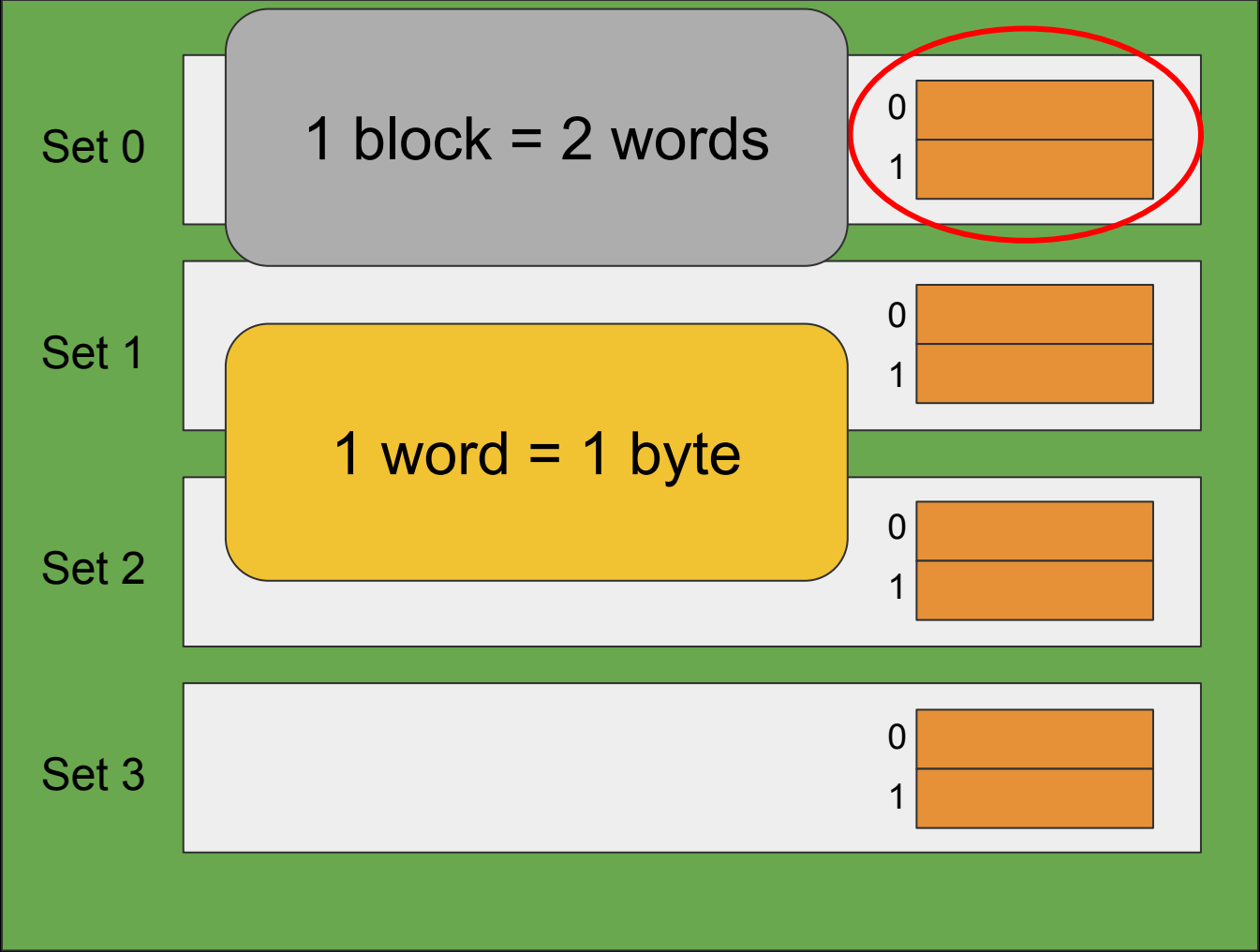
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



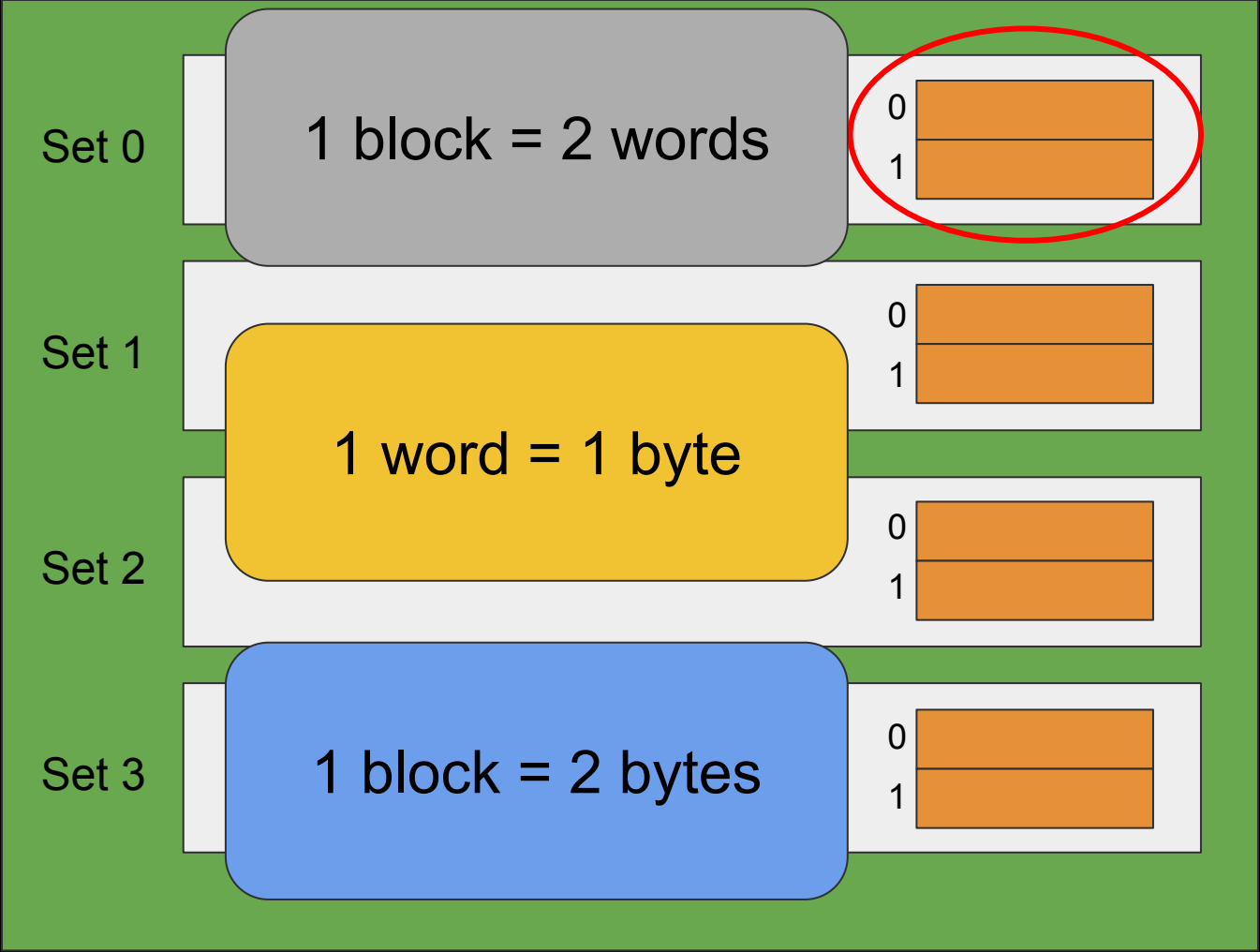
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



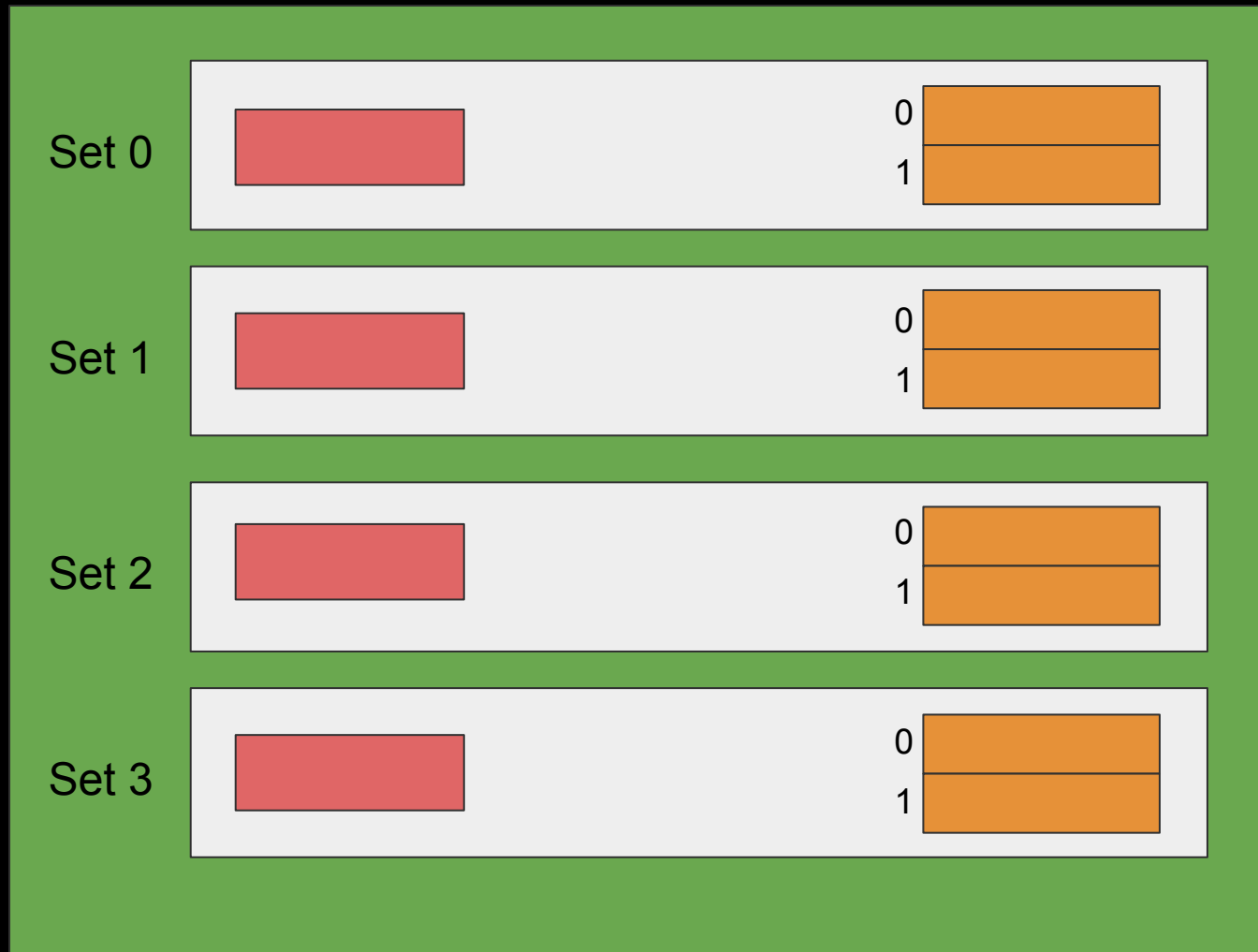
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



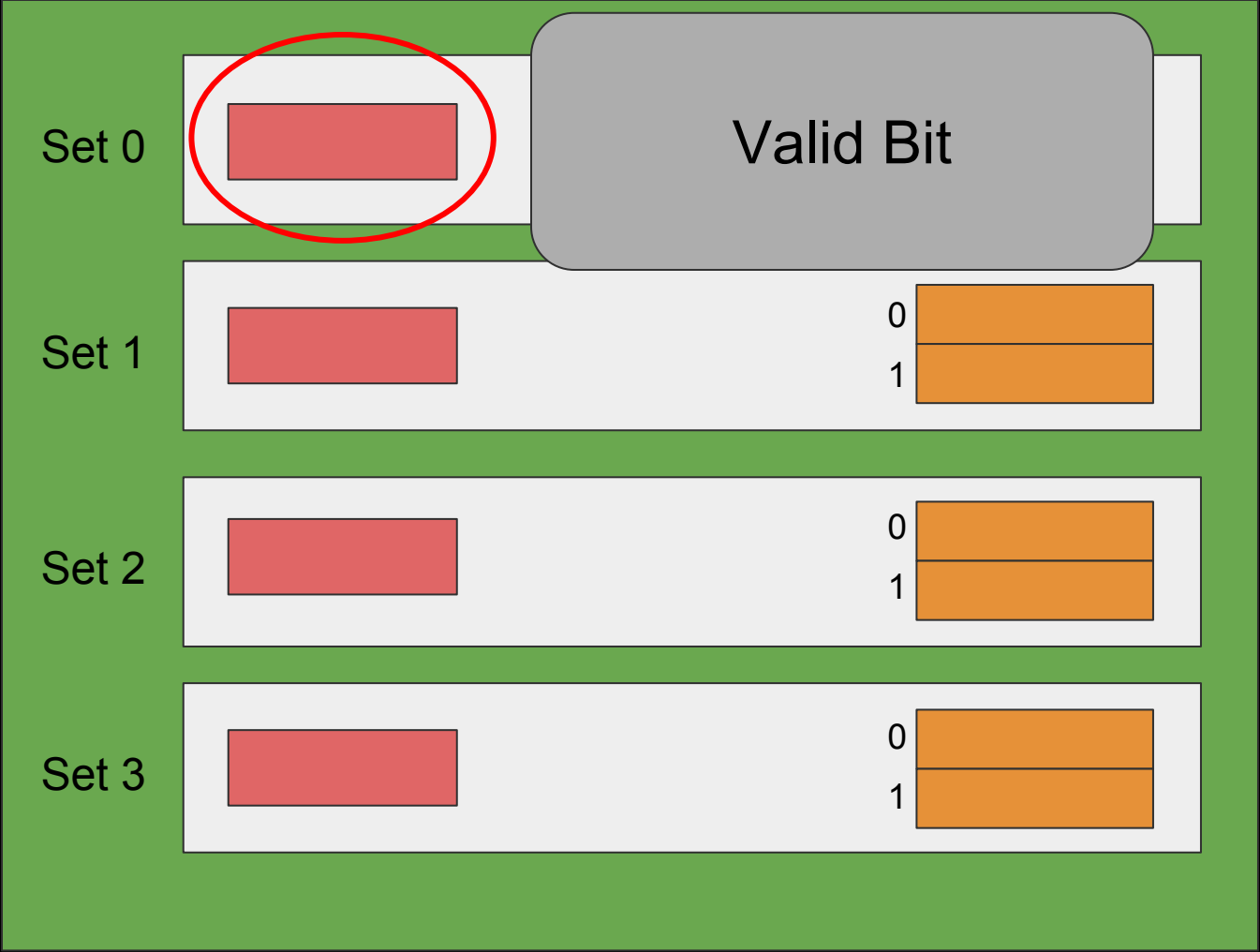
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



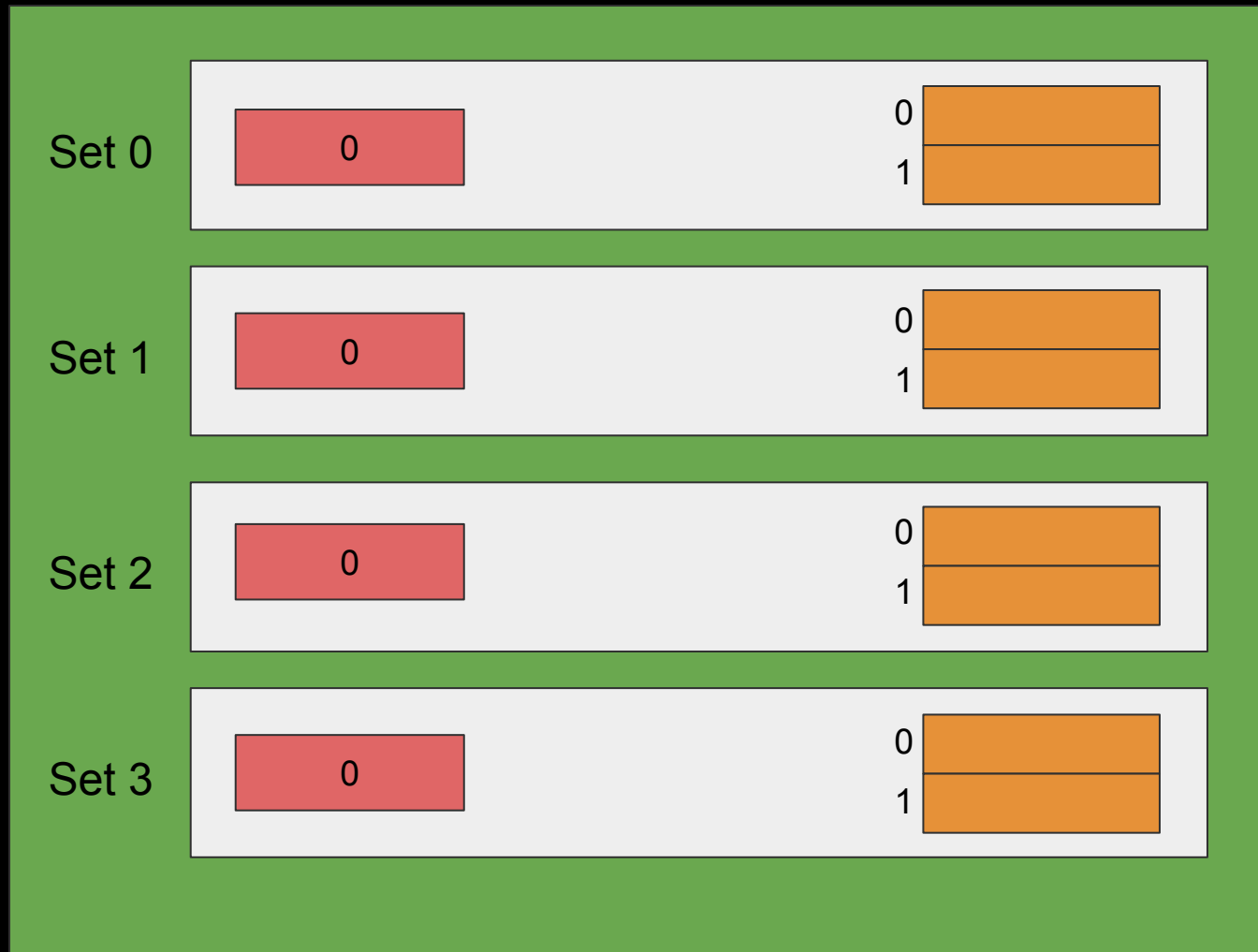
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



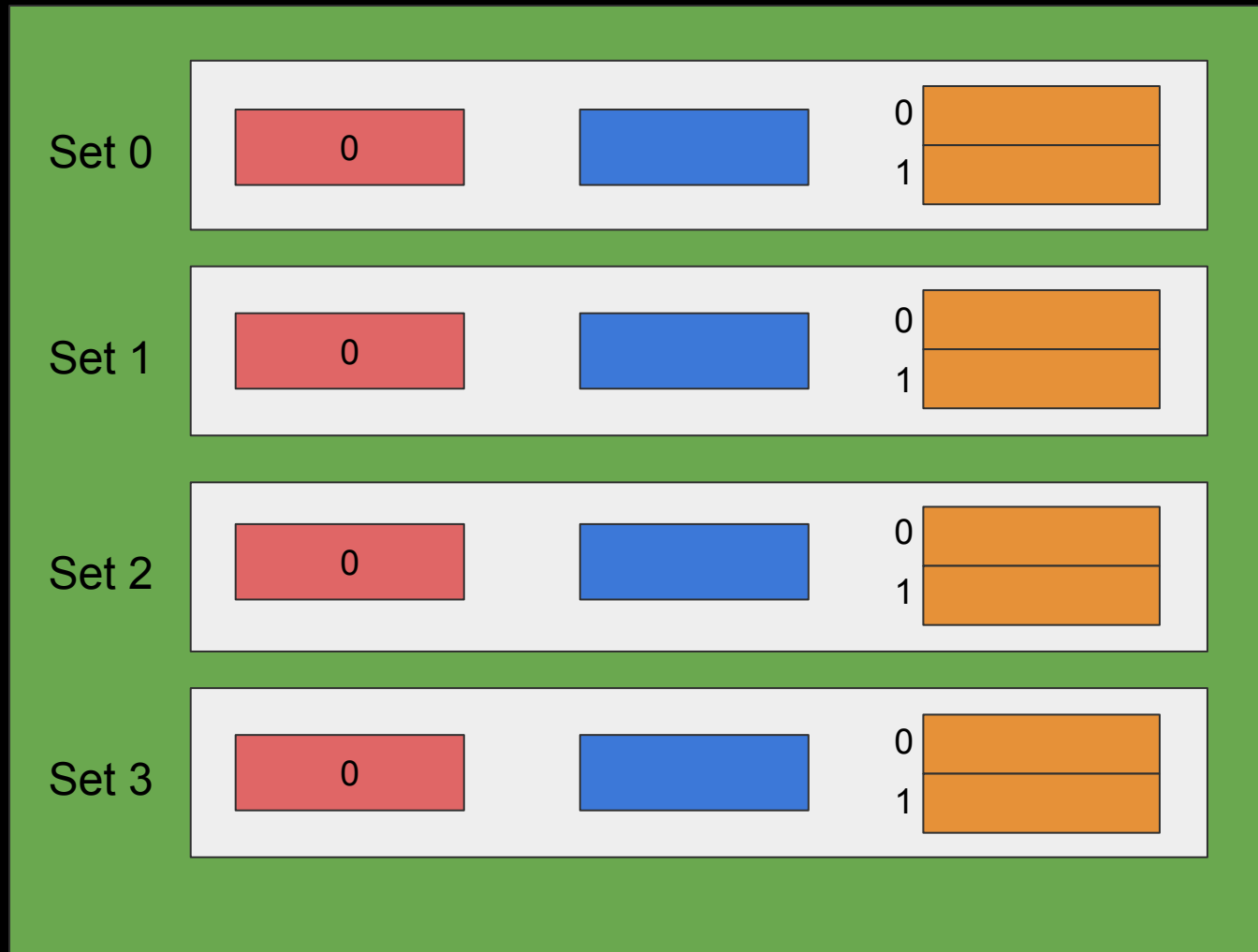
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



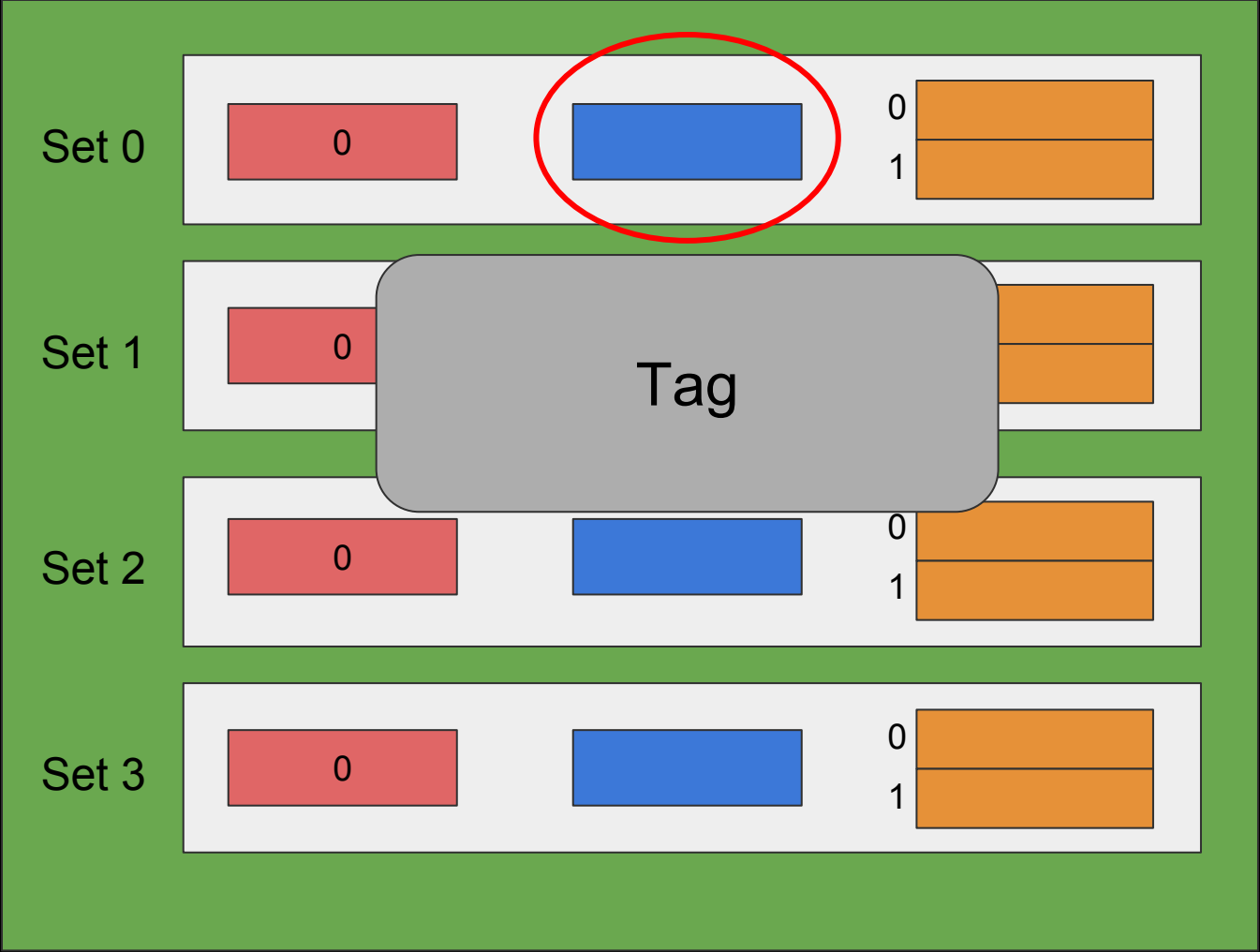
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



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0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



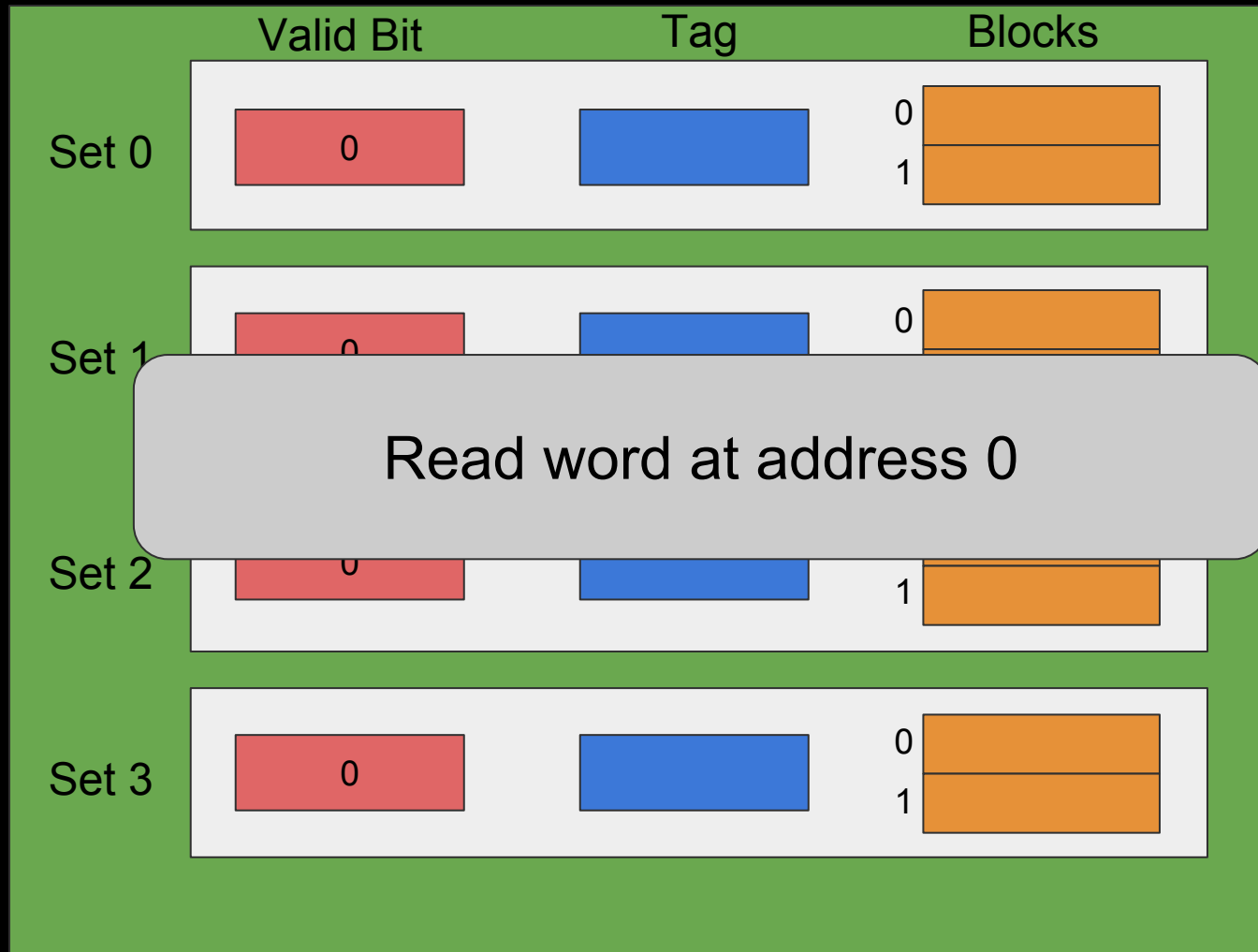
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
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0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
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1110	0x7D
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0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset



Tag	Set	Block offset
0	00	0
0	00	1
0	01	0
0	01	1
0	10	0
0	10	1
0	11	0
0	11	1
1	00	0
1	00	1
1	01	0
1	01	1
1	10	0
1	10	1
1	11	0
1	11	1

0xB2
0xF1
0x2C
0x03
0x64
0x95
0x09
0xD3
0x88
0x83
0xAB
0x3B
0xFE
0x12
0x7D
0x9F

Block 0
Block 1
Block 2
Block 3
Block 4
Block 5
Block 6
Block 7

Tag	Set	Block offset		
0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

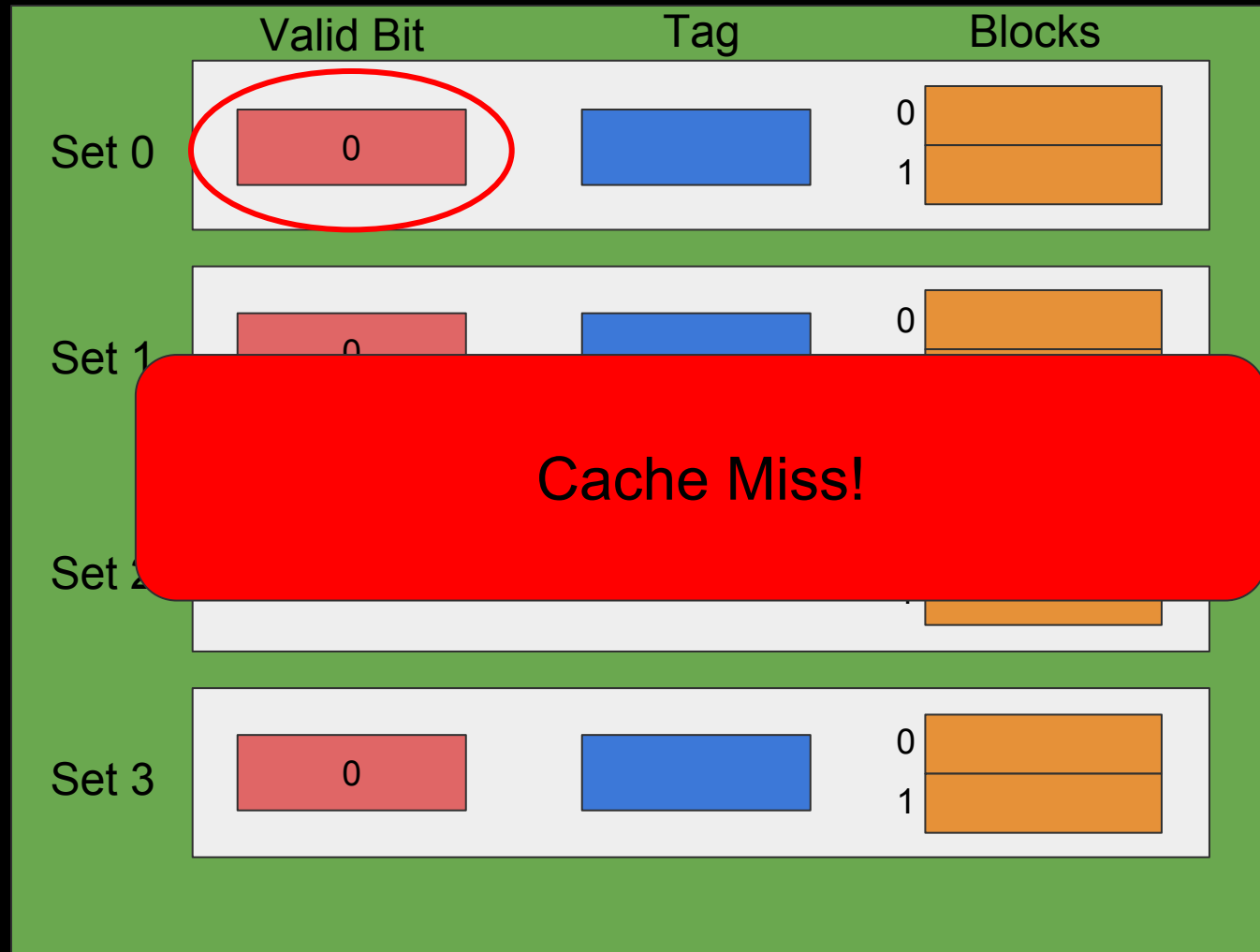
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



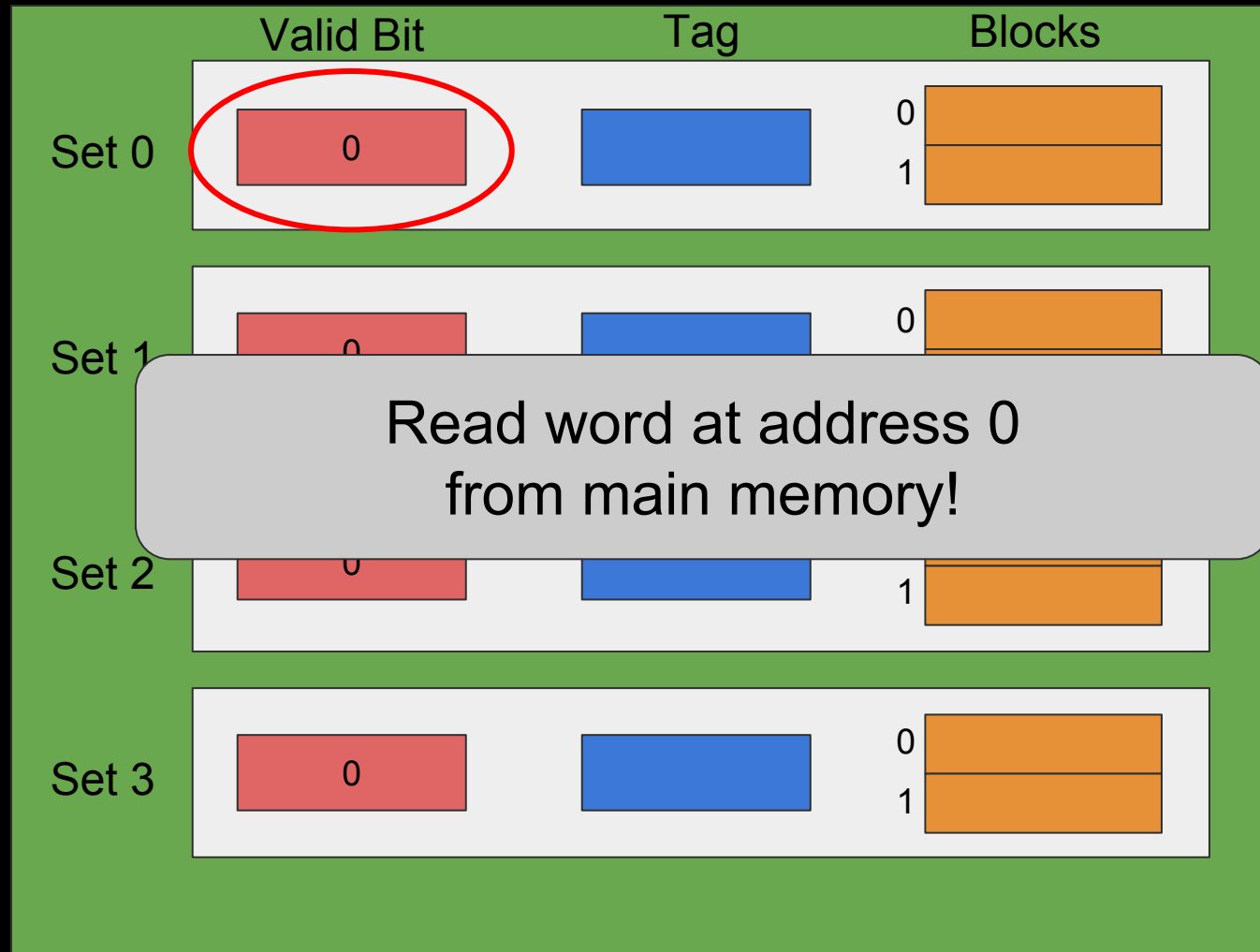
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



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0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
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Tag Set Block offset



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
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0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
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0001	0xF1
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0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
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1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0
0	00	1
0	01	0
0	01	1
0	10	0
0	10	1
0	11	0
0	11	1
1	00	0
1	00	1
1	01	0
1	01	1
1	10	0
1	10	1
1	11	0
1	11	1

0xB2
0xF1
0x2C
0x03
0x64
0x95
0x09
0xD3
0x88
0x83
0xAB
0x3B
0xFE
0x12
0x7D
0x9F

Block 0
Block 1
Block 2
Block 3
Block 4
Block 5
Block 6
Block 7

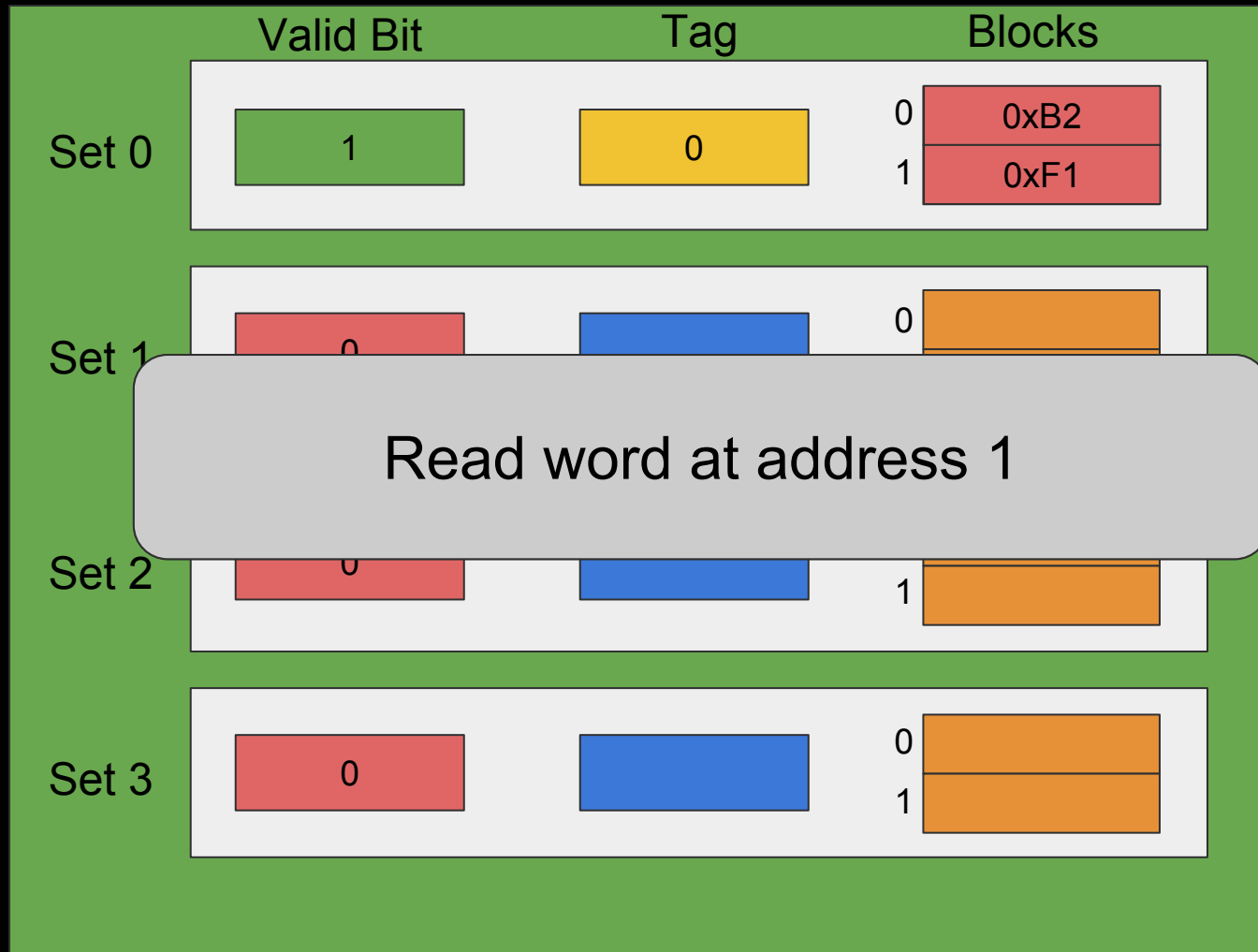
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
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1010	0xAB
1011	0x3B
1100	0xFE
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1110	0x7D
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1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
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0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
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0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



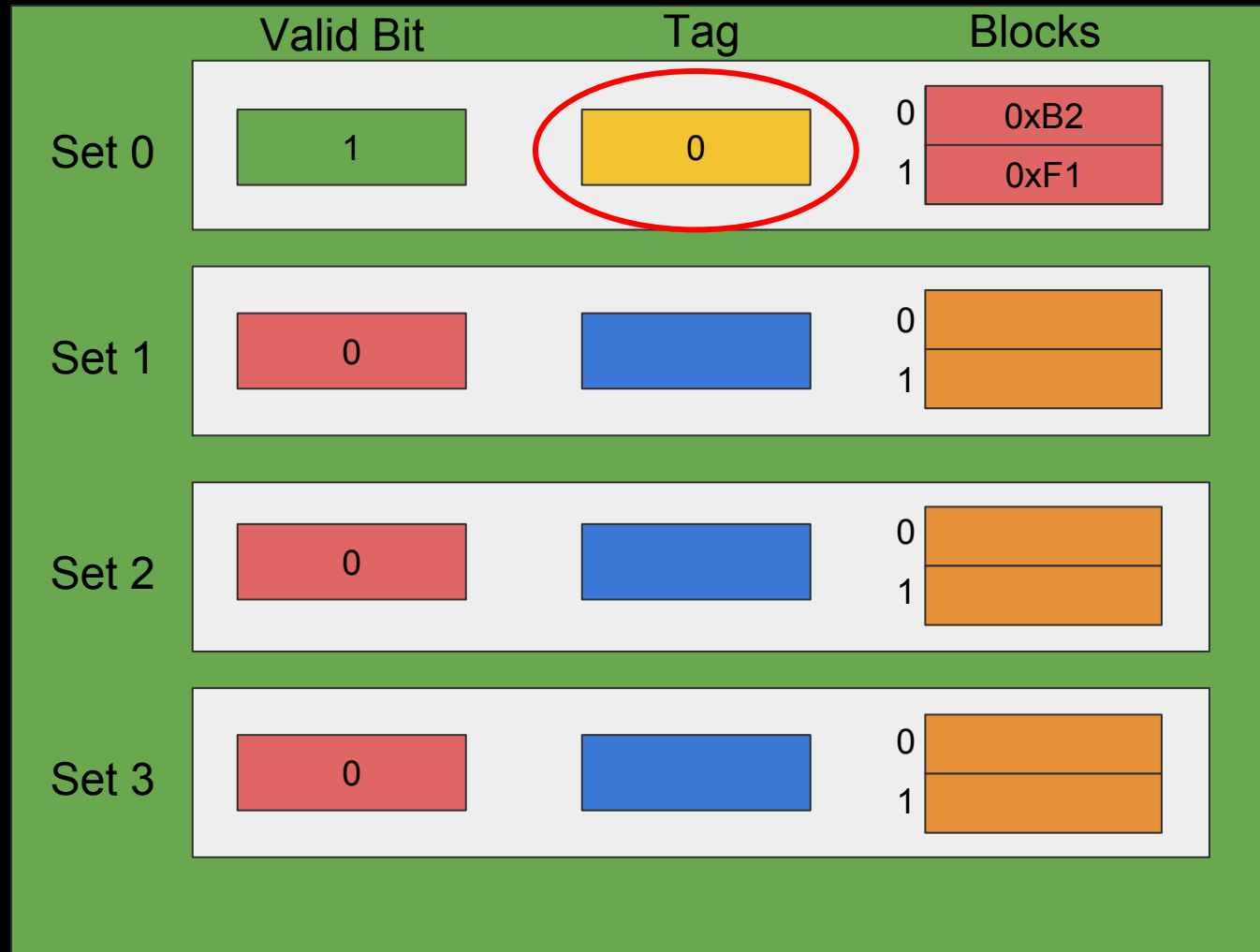
Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

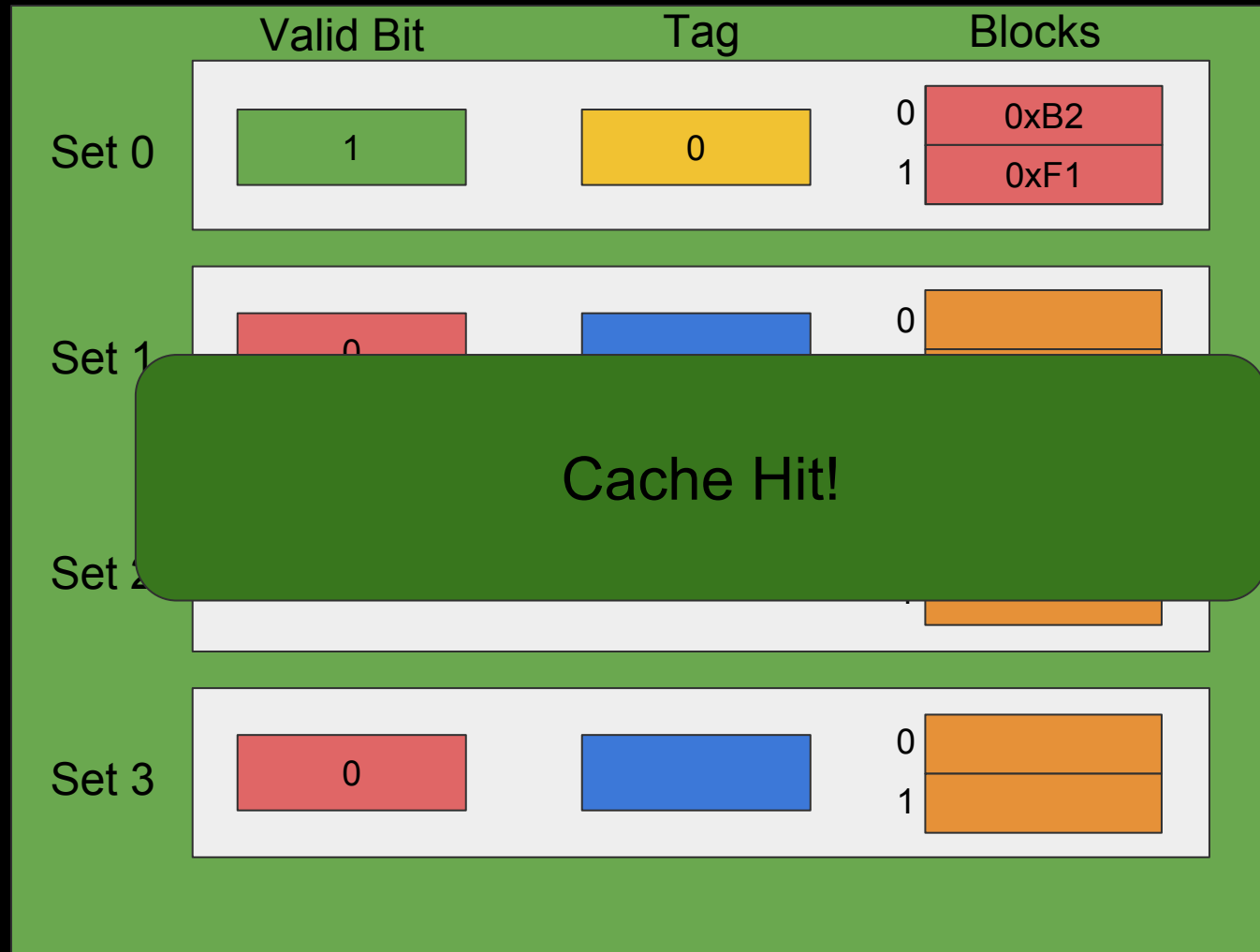
Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

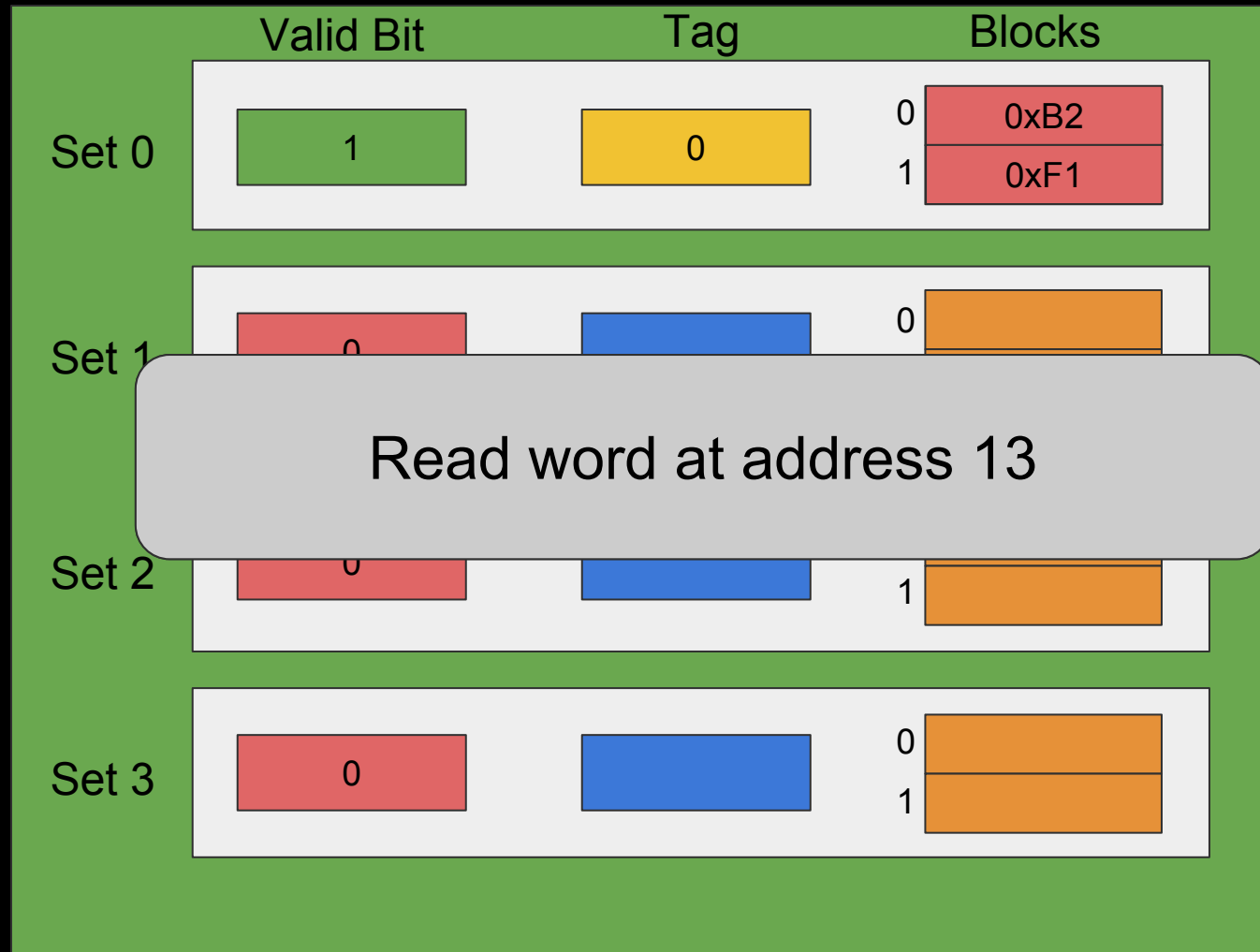
Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

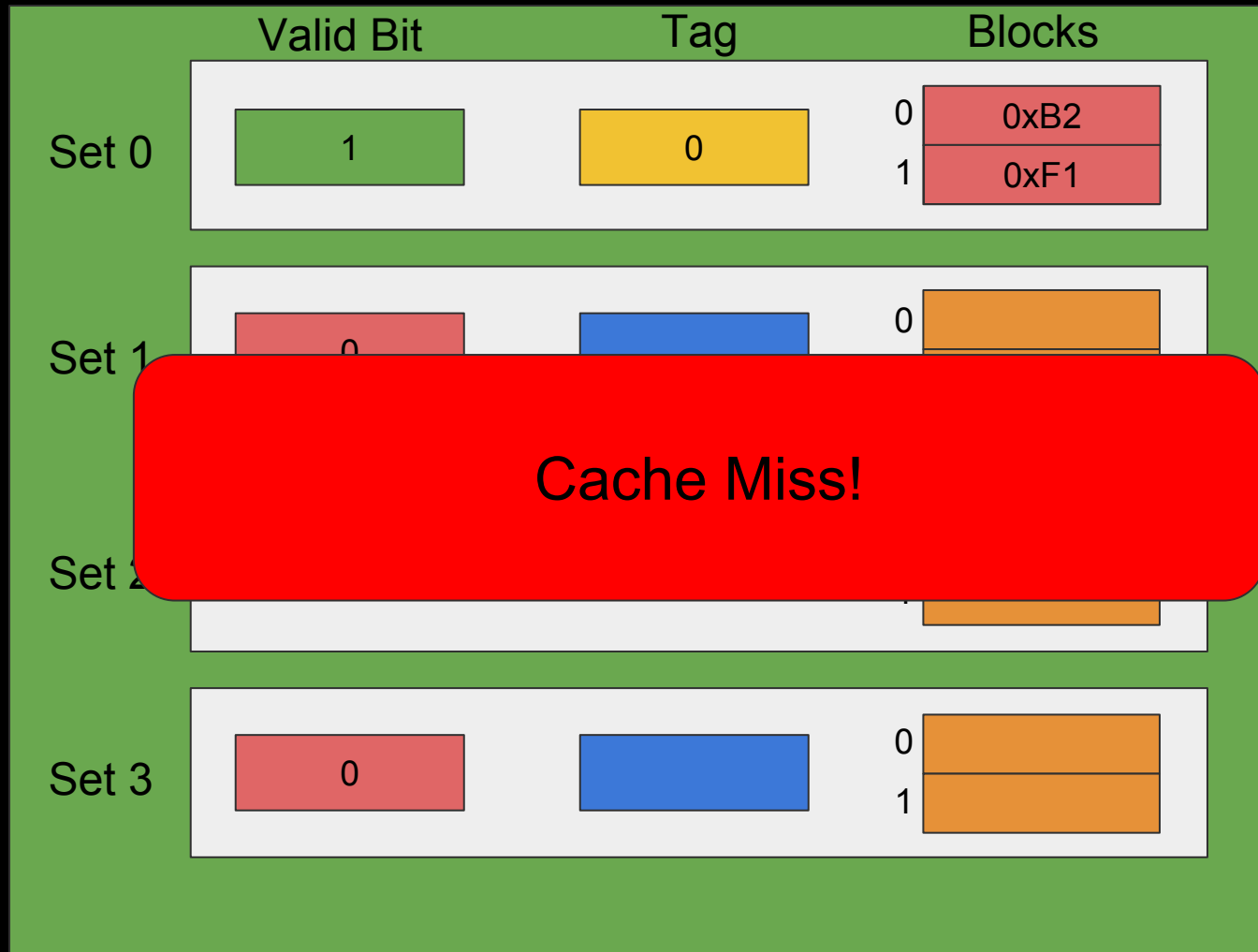
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

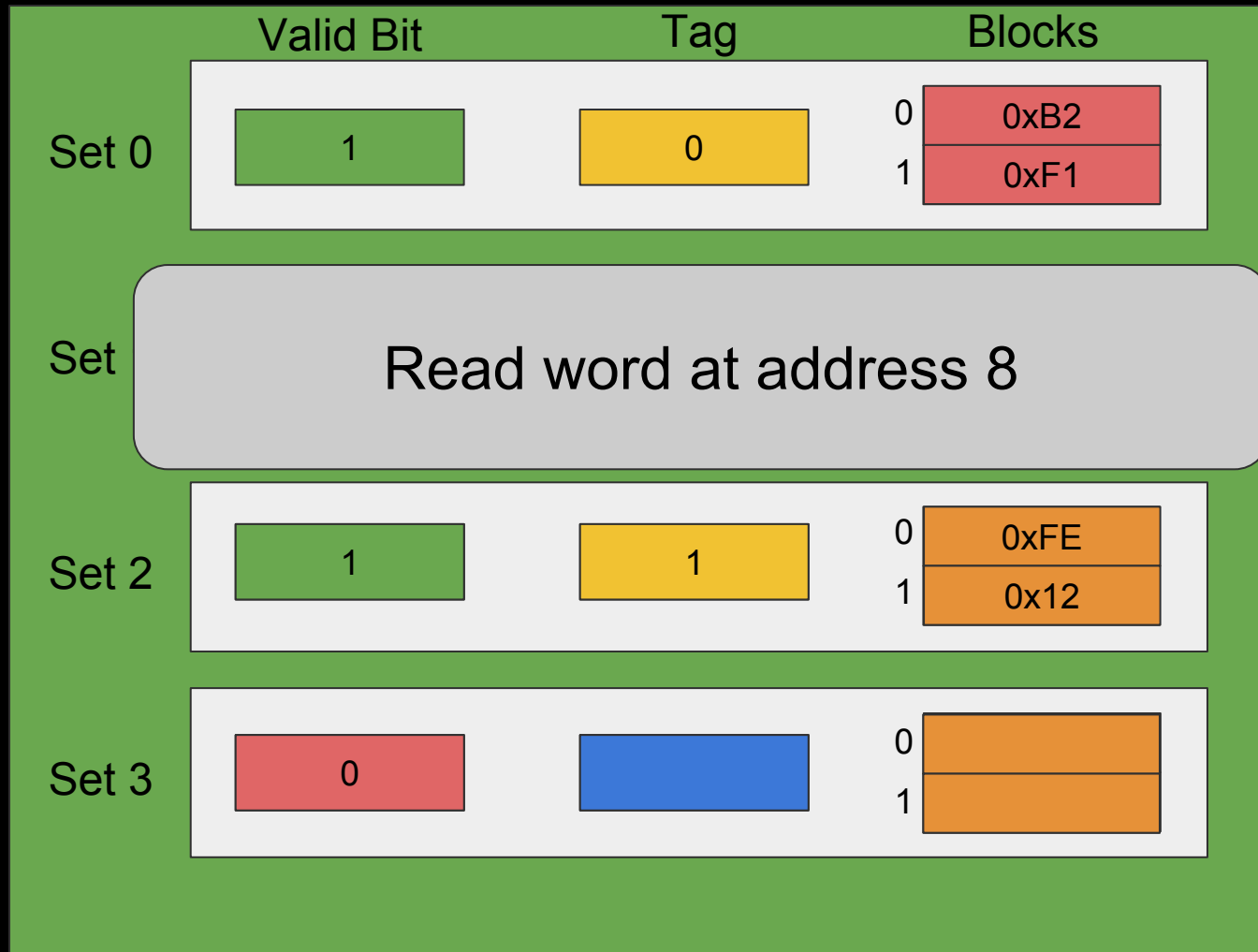
Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

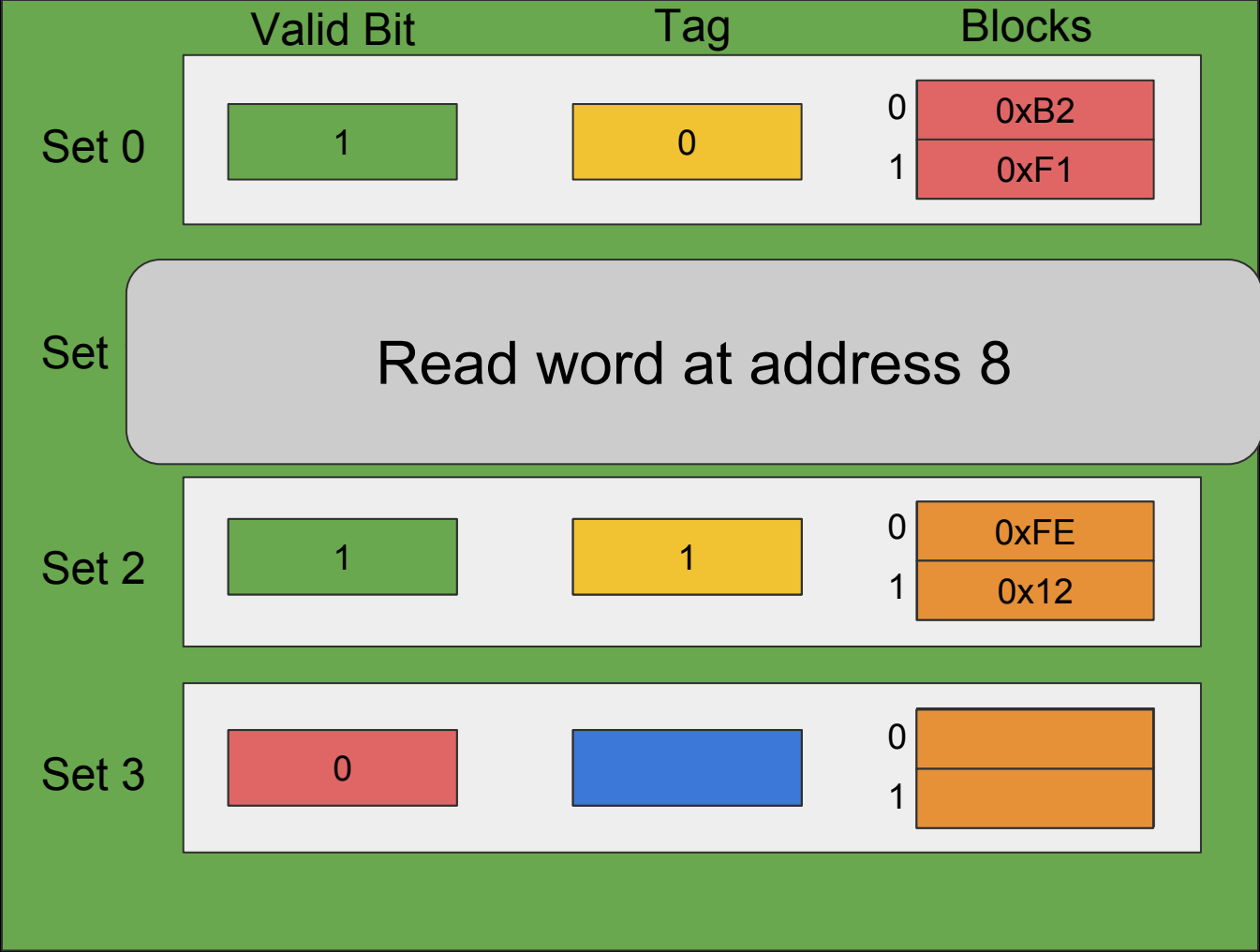
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



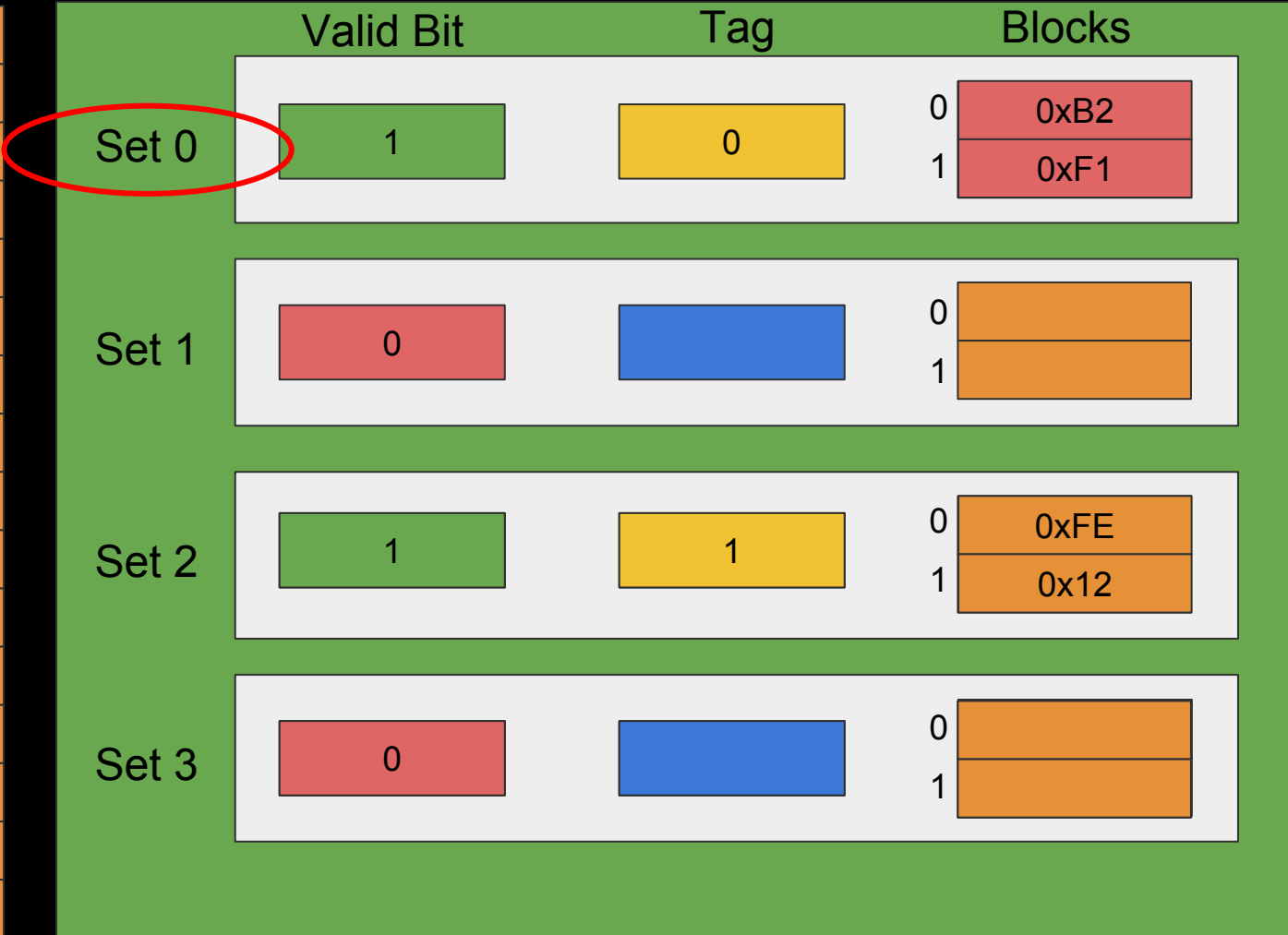
Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
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0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



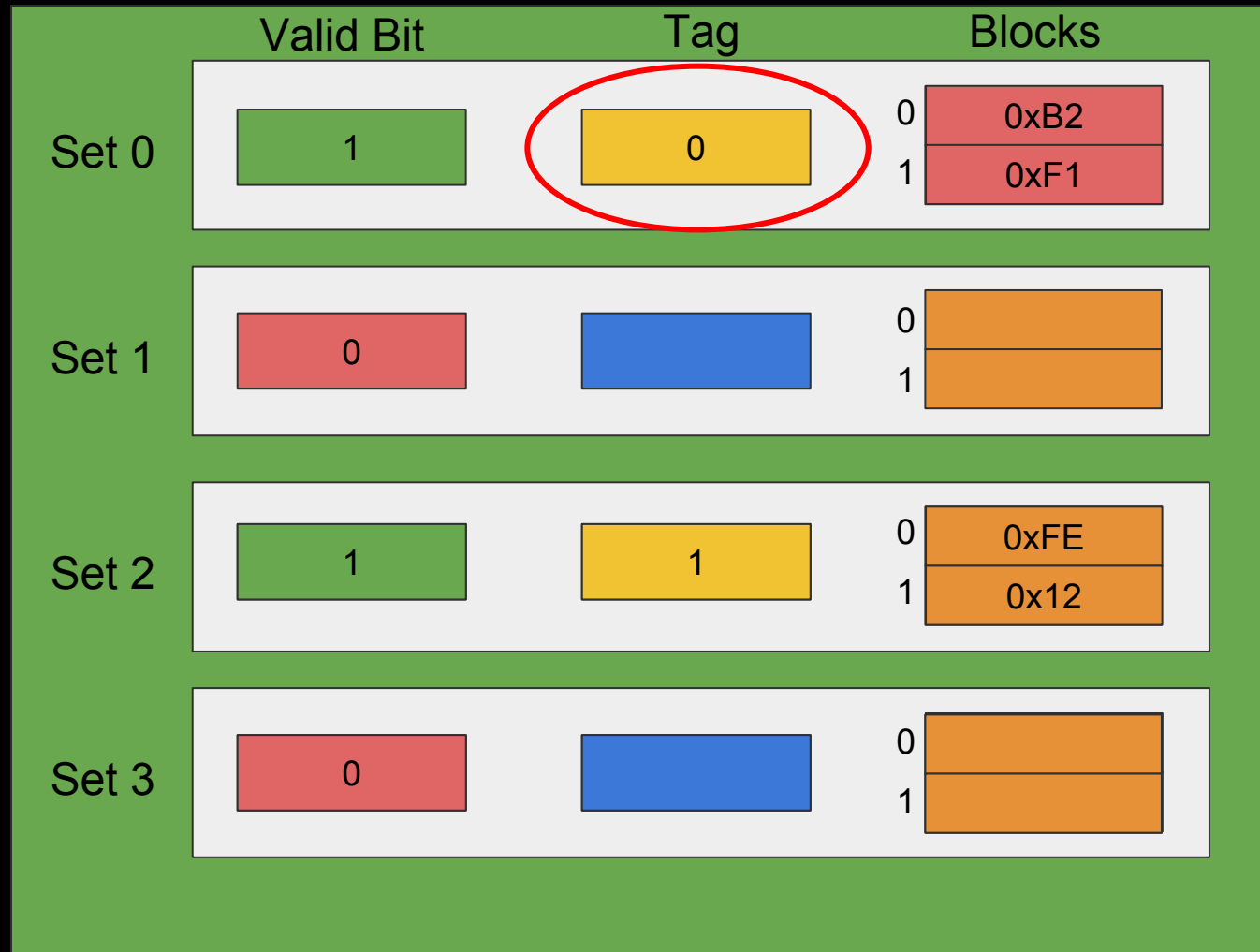
Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

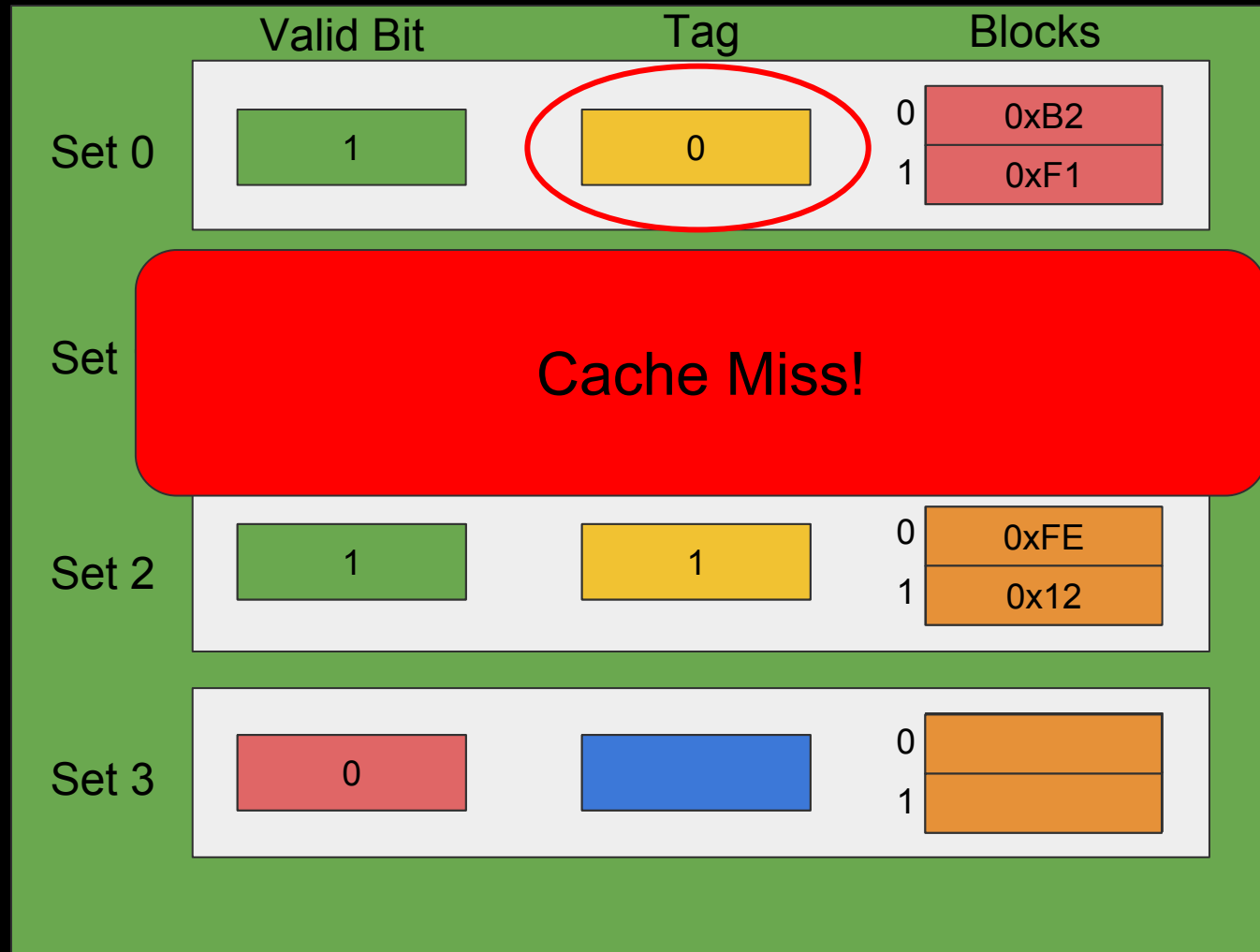
Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

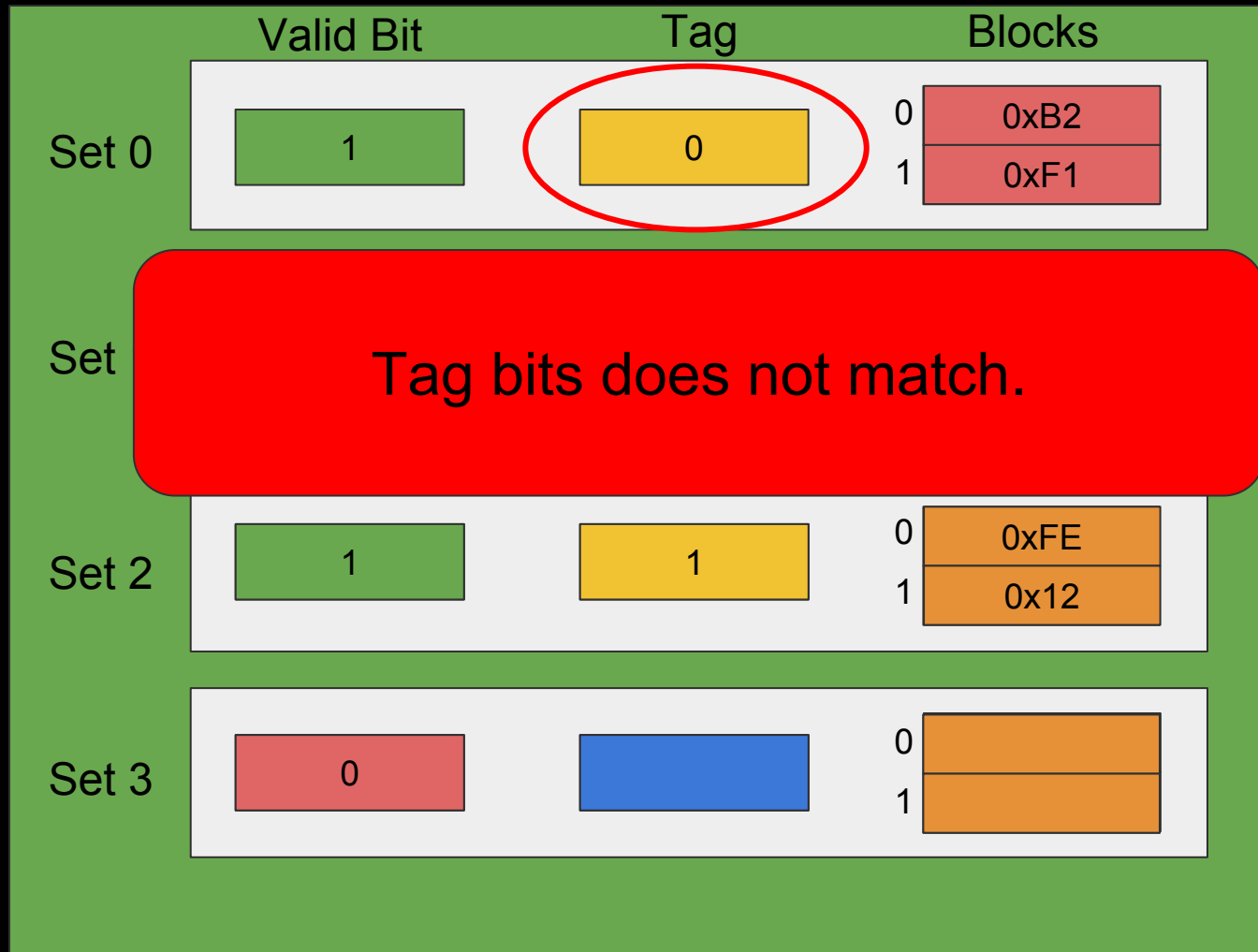
0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
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1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



Tag Set Block offset

0	00	0	0xB2	Block 0
0	00	1	0xF1	
0	01	0	0x2C	Block 1
0	01	1	0x03	
0	10	0	0x64	Block 2
0	10	1	0x95	
0	11	0	0x09	Block 3
0	11	1	0xD3	
1	00	0	0x88	Block 4
1	00	1	0x83	
1	01	0	0xAB	Block 5
1	01	1	0x3B	
1	10	0	0xFE	Block 6
1	10	1	0x12	
1	11	0	0x7D	Block 7
1	11	1	0x9F	

0000	0xB2
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0100	0x64
0101	0x95
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1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
0100	0x64
0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F



0000	0xB2
0001	0xF1
0010	0x2C
0011	0x03
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0101	0x95
0110	0x09
0111	0xD3
1000	0x88
1001	0x83
1010	0xAB
1011	0x3B
1100	0xFE
1101	0x12
1110	0x7D
1111	0x9F

