main : ODR |= BV(12) >> ODR = ODR | BV(12)
ISR : ODR |= BV(10) >> ODR = ODR | BV(12)

read - modify - write

1. Find address of ODR Register
2. Read value from the address (ODR)
3. modify value in general purpose register
4. write modified value agian on addr of ODR

main:

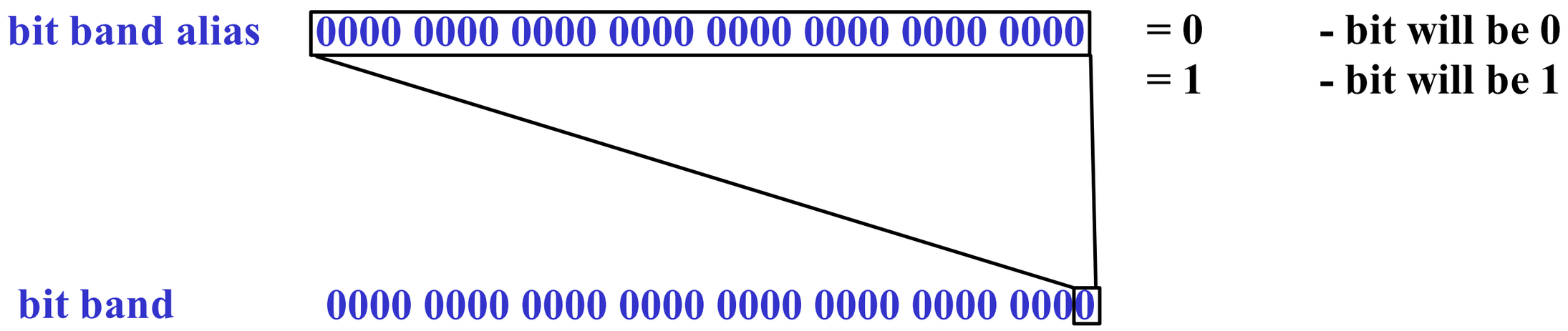
ODR	=	0000 0000 0000 0000 0000 0000 0000 0000
R6	=	0000 0000 0000 0000 0000 0000 0000 0000
| BV(12)	=	0000 0000 0000 0000 0001 0000 0000 0000
R6	=	0000 0000 0000 0000 0001 0000 0000 0000
ODR	=	0000 0000 0000 0000 0001 0000 0000 0000

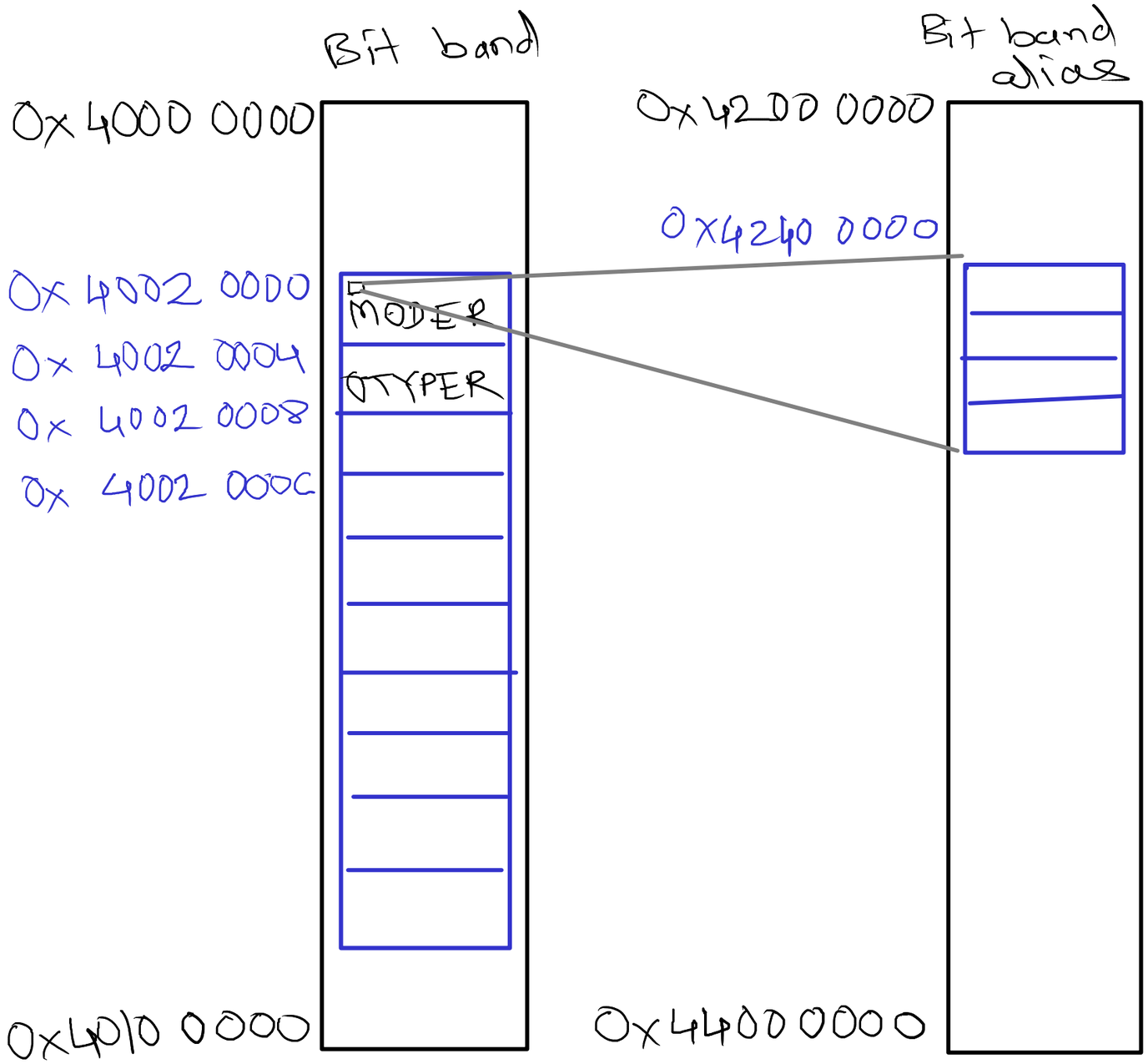
ISR:

ODR	=	0000 0000 0000 0000 0000 0000 0000 0000
R7	=	0000 0000 0000 0000 0000 0000 0000 0000
| BV(10)	=	0000 0000 0000 0000 0000 0100 0000 0000
R7	=	0000 0000 0000 0000 0000 0100 0000 0000
ODR	=	0000 0000 0000 0000 0000 0100 0000 0000

Bit Banding

- There are two bit band regions of size 1 Mb each
    1. SRAM
    2. IO Peripheral
- Every bit of bit band region is mapped with 32 bits(4 bytes) of bit band alias region.
- There are two base band alias regions of size 32 Mb each





bit_word_addr =
bit_band_base +
(byte_offset x 32) +
(bit_number × 4)

bit_band_base = starting addr of alias
= 0x4200 0000

byte_offset = base addr of MODER -
staring addr of bit band
= 0x4002 0000 - 0x4000 0000
= 0x0002 0000

byte_offset * 32 == byte_offset << 5
= 0x0002 0000 << 5
= 0x0040 0000

bit_number = 0

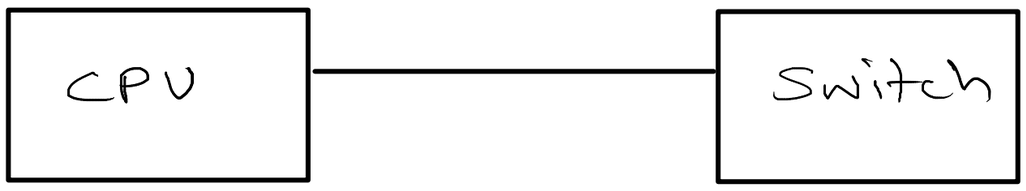
bit_number * 4 = 0 * 4 = 0

bit_word_addr = 0x4200 0000 + 0x0040 0000 + 0
= 0x4240 0000

IO Techniques

Synchronous IO

Hardware Technique = Polling



Asynchronous IO

Hardware Technique = Interrupt