Accessing IO Registers (1A)

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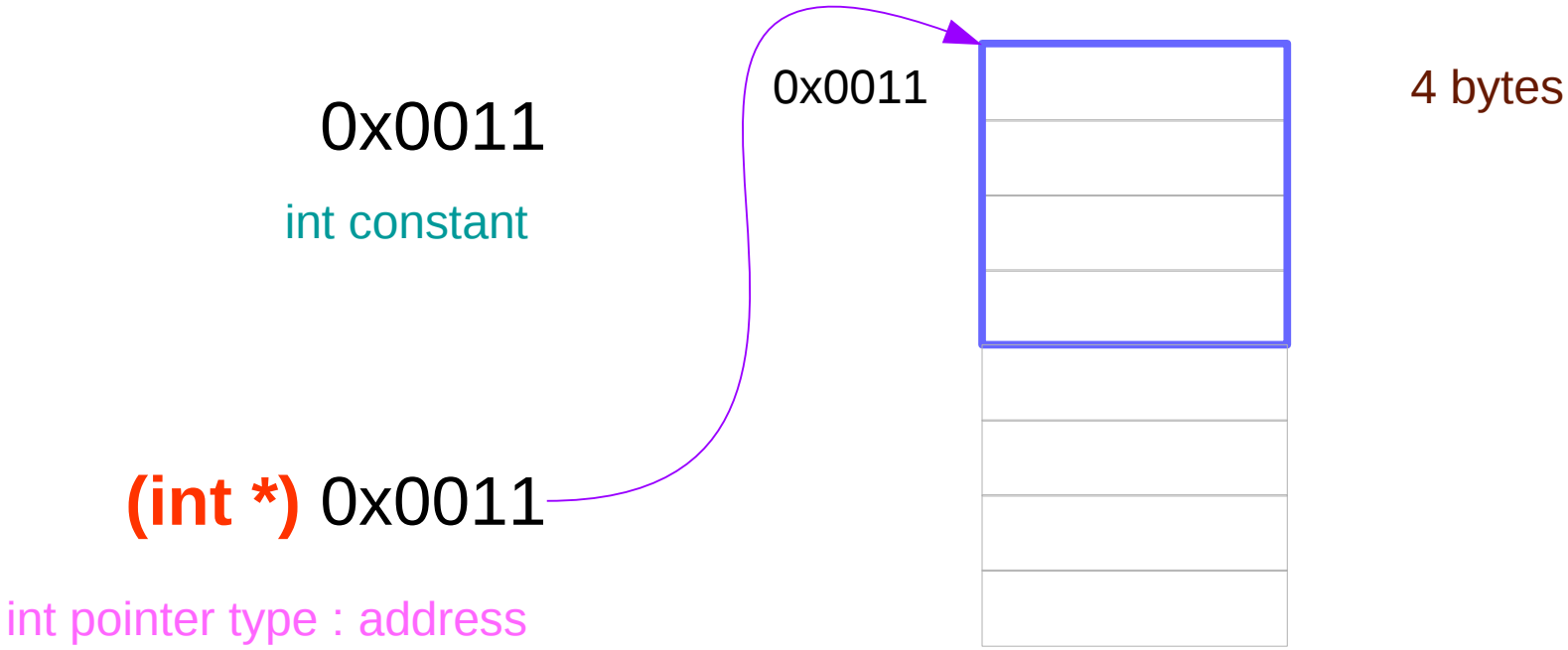
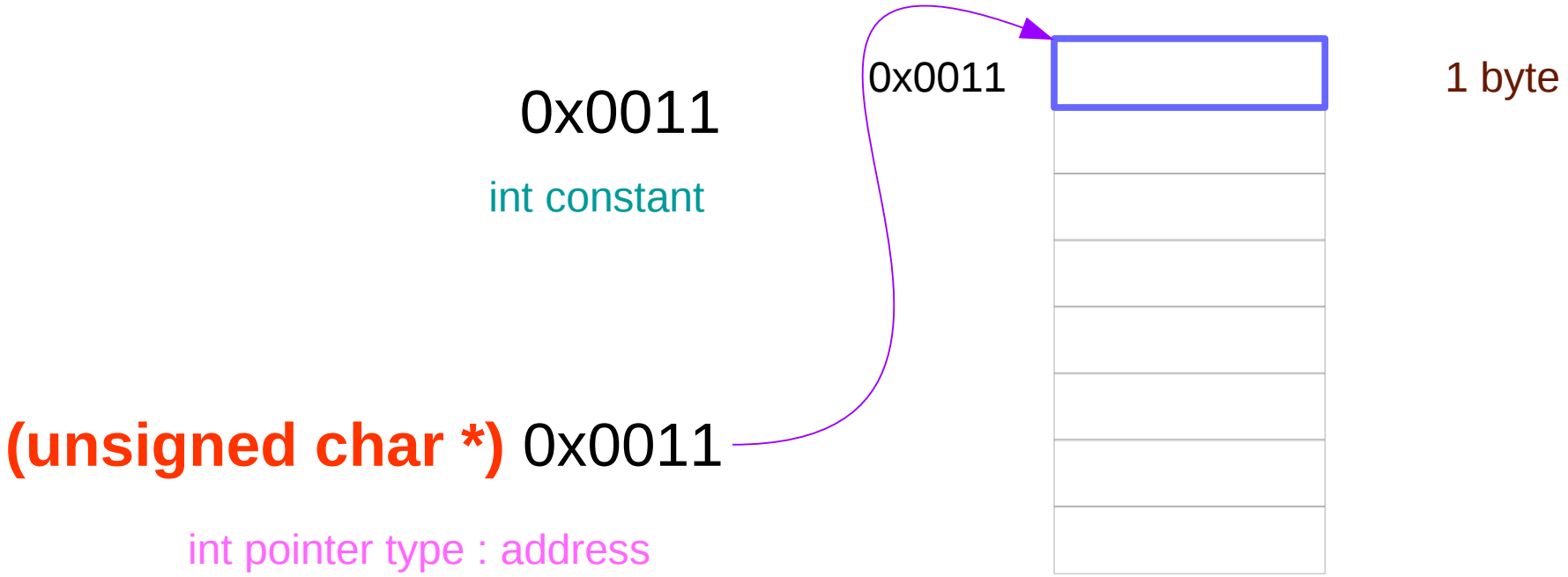
12/15/14

Address Type Casting (1)

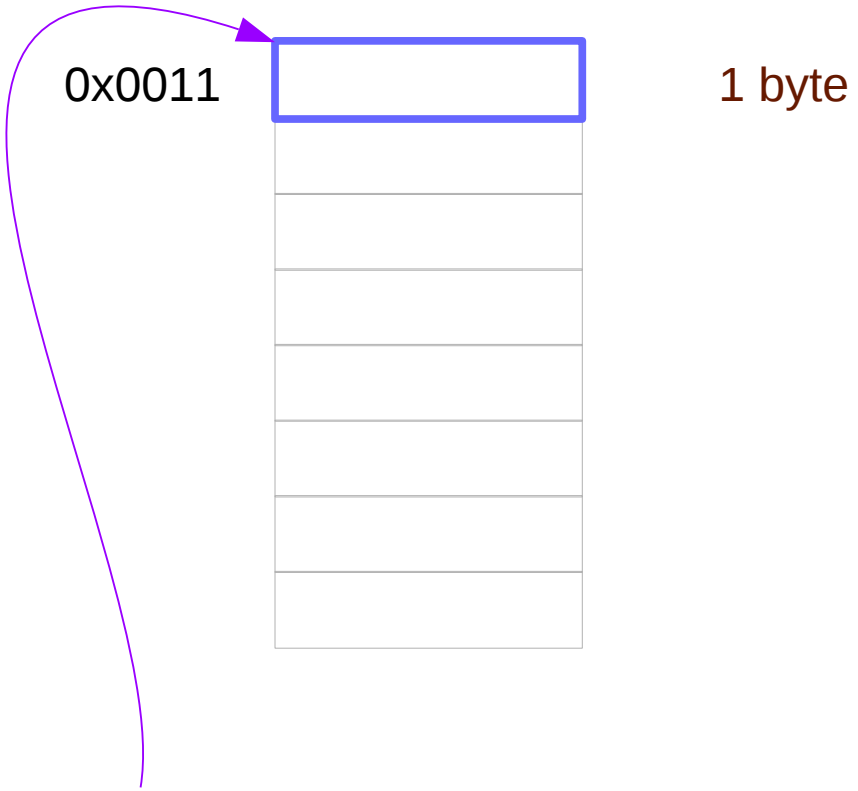


Address Type Casting (2)



Volatile Type Qualifiers

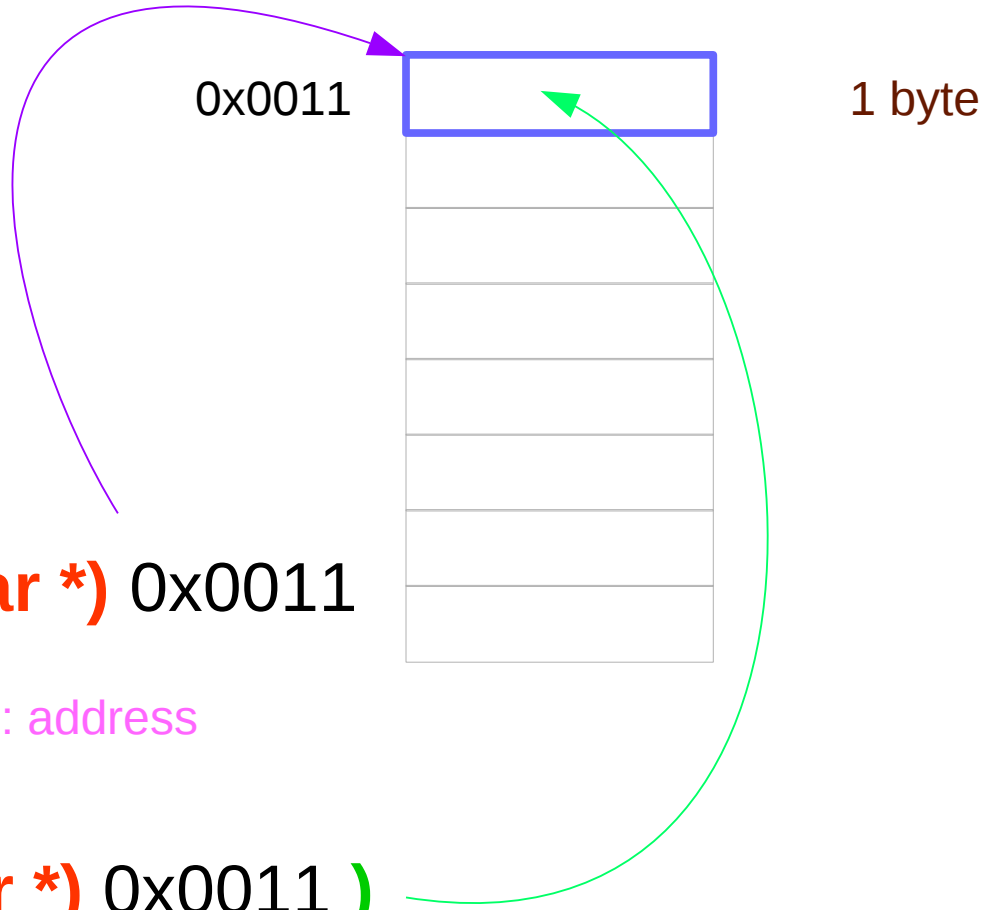
- do not optimize
- provide a reliable access
  to special memory location used
  by computer hardware or
  by asynchronous process
  such as interrupt handlers



(volatile unsigned char *) 0x0011

unsigned char pointer type : address

Dereferencing Operator *



(volatile unsigned char *) 0x0011

unsigned char pointer type : address

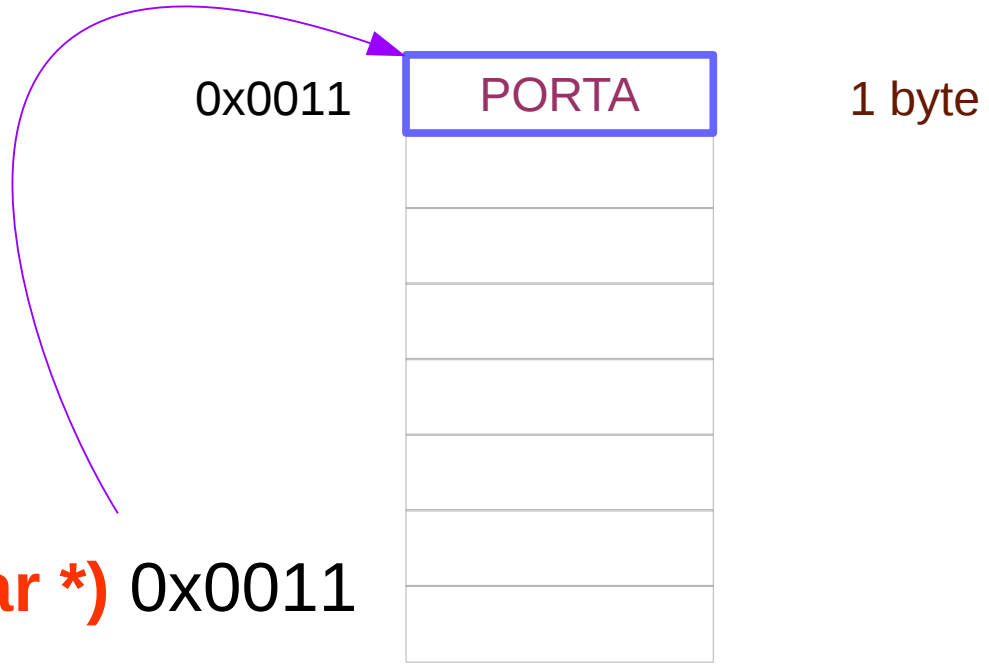
***((volatile unsigned char *)** 0x0011 **)**

unsigned char : value

Macro Definition

PORTA = 0x55;

val = PORTA



(volatile unsigned char *) 0x0011

unsigned char pointer type : address

#define PORTA *((volatile unsigned char *) 0x0011 **)**

unsigned char : value

Macro Definition vs. Pointer Variable

```
#define PORTA *( (volatile unsigned char *) 0x0011 )
```

unsigned char : value

```
volatile unsigned char * PORTA = (volatile unsigned char *) 0x0011;
```

unsigned char pointer : address

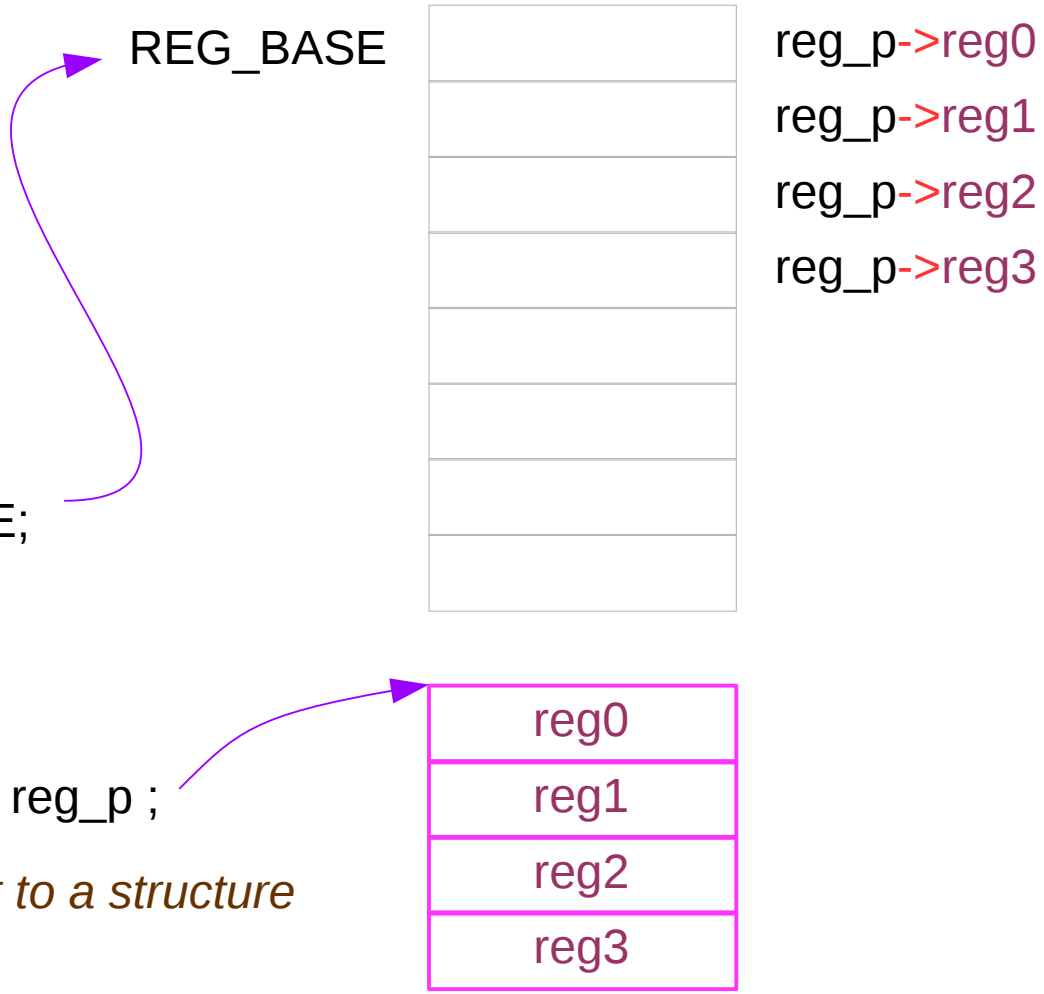
Accessing Multiple Registers

```
typedef unsigned int  uint32_t;

typedef struct {
      volatile uint32_t reg0;
      volatile uint32_t reg1;
      volatile uint32_t reg2;
      volatile uint32_t reg3;
} reg_t;

reg_t * reg_p = (reg_t *) REG_BASE;
```

pointer variable declaration with initialization



References

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