

ECE2049: LECTURE 5

TODAY

- MORE MSP430 ARCHITECTURE
- START OF DIGITAL I/O

ADMINISTRIVA

- NW2: DUE TODAY.
- LAB 1: DUE NEXT TUESDAY (SIGNOFF)
- Exam / COMING UP (DETAILS SOON)

OFFICE HOURS

- TODAY: 4-6 PM
- TUESDAY: 4-6 PM

REVIEWING HW2, PROBLEM 2

(SOLUTIONS ALSO ON COURSE WEBSITE)

```

4 2 7 1
2+2+1 4
unsigned long ser_num = 0xDEADCAFE; // An unsigned 32-bit integer
int ii = 65; // Two's complement 16-bit integer
char class[7] = "SUMMER"; // Null-terminated string containing ASCII text
int arr[2] = {255, -1}; // 2-element array of int
unsigned long count = 16486;
    
```

2) BYTES First, determine the representation of each variable listed above in hex.

TOTAL
 (4 BYTES) + (2 BYTES) + (2 BYTES + 7) + (2 + 2 BYTES) + (4 BYTES)
 ser_num ii string arr count

1. GET EVERYTHING IN HEX

ser_num ✓

ii = 65 = $2^6 + 2^0 = [0041h]$

CHAR[7] = ARRAY OF 7 BYTES

"SUMMER" ⇒

0	1	2	3	4	5	6
0x53	0x55	0x4D	0x4D	0x45	0x52	0x00
'S'	'U'	'M'	'M'	'E'	'R'	'\0'

INT ARR = {255, -1}
 ↳ EACH IS 2 BYTES

ARR[0] = 255 - 1 = 0000 0000 1111 1111

[00FFh]

ARR[1] = -1 = [FFFFh]

COUNT = 16486 = [00 00 40 66h]

2. ARRANGE IN MEMORY

	ADDRESS	LE	BE	
	4214	00	66	
	:	00	40	
	.	40	00	COUNT
	4211	66	00	
	:	FF	FF	ARR[17]
	.	FF	FF	
	'	00	FF	ARR[27]
	420D	FF	00	
ARRAYS ALWAYS HAVE SAME ORDER	420C	00	00	
	420B	52	52	
	420A	45	45	
	4209	4D	4D	CLASS:
	4208	4D	4D	[2]
	4207	55	55	[1]
	4206	53	53	CLASS[0]
LE: LSB FIRST (LOWEST ADDR)	4205	00	41	ii
	4204	41	00	
BE: MSB FIRST	4203	DE	FE	.
	0+4202	AD	CA	.
	0+4201	CA	AD	.
	0+4200	FE h	DE h	SEN_NUM

TODAY'S CLASS CONTINUED

THE NOTES FROM LECTURE 4

(PAGES 7-13)

PLEASE SEE THE NOTES
FOR THIS LECTURE FOR MORE
INFO!