

ECE 3724 Quiz #5 Fall '05 Reese - Solution

After the execution of ALL of the C code below, fill in the memory location values.
Assume little-endian order for multi-byte values.

C code:

```
signed long *ptra, *ptrb;
signed long a[2];
signed int c;
```

```
a[0] = -5;           // specified in decimal!!
a[1] = 2;            // specified in decimal!!
c = 10;              // specified in decimal!!
ptra = &a[0];
ptrb = ptra + 1;
```

```
;storage for C variables
CBLOCK 0x0120
ptrb:2, ptra:2, a:8, c:2
ENDC
```

Loc. (in HEX)	Contents		
0x0120	0x24	}	ptra
0x0121	0x01		
0x0122	0x28	}	ptrb
0x0123	0x01		
0x0124	0xFB	}	a[0]
0x0125	0xFF		
0x0126	0xFF		
0x0127	0xFF		
0x0128	0x02	}	a[1]
0x0129	0x00		
0x012A	0x00		
0x012B	0x00	}	c
0x012C	0x0A		
0x012D	0x00		

ptrb = ptra + 1
= 0x124 + 1 * sizeof(long)
= 0x124 + 1 * 4
= 0x128

a[0] = -5
= 0 - 5
= 0x00 - 0x05 = 0xFB (8 bits)
= 0xFF FF FF FB (sign extended to four bytes, or 32 bits because of long data type)

a[1] = 2 = +2
= 0x02 (1 byte, 8 bits)
= 0x00 00 00 02 (sign extended to four bytes, or 32 bits because of long data type)

c = 10 = +10
= 0x0A (1 byte, 8 bits)
= 0x00 0A (sign extended to two bytes, or 16 bits because of int data type)