## **Lab 05 - Introduction to the Raspberry Pi 3 Model B & 16GB NOOBS – ASSIGNMENT**

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**Endian-ness Map**

|  |  |  |
| --- | --- | --- |
| Host Name | Architecture (x86, ARM, SPARC) | Endian-ness |
| RPI | ARM | Little |
| lore.cs.purdue.edu | SPARC | Big |
| data.cs.purdue.edu | X86 | Little |

**Memory Map**

|  |  |  |
| --- | --- | --- |
| Memory Section Name | Description | Allowed Access Modes |
| text (or code segment) | main, foo, str  Main: 0x10484  Foo: 0x10450  Str: 0x7ee | Read, Execute |
| data | a, e  A: 0x21120  E: 0x21124 | Read, Write |
| bss | buffer, c  Buffer: 0x21130  C: 0x2112c | Read, Write |
| stack | D, b  D: 0x7e94761c  B: 0x7e947634 | Read, Write |
| heap | This memory region is reserved for dynamically allocating memory for variables at run time. Dynamic memory allocation is done by using the malloc() or calloc() functions. | Read, Write |
| shared libraries | stdio(printf)  stdio: 0x102ec | Read, Execute |

**Memory Dump**

**Output**

&x=0x7ede1608

&y=0x7ede1618

0x7ede1608: 41 00 00 00 09 00 00 00 30 00 00 00 0c 36 9c A.......0....6.~

0x7ede1618: 00 00 00 00 00 00 28 40 48 65 6c 6c 6f 20 77 6f ......(@........

0x7ede1628: 72 6c 64 0a 00 07 01 00 a0 fb f1 76 8c 07 01 00 Hello world.....

0x7ede1638: fb ff ff ff 05 00 00 00 00 00 00 00 00 00 00 00 ................

head=0x6d6008

0x6d6008: 18 60 6d 00 28 60 6d 00 00 00 00 00 11 00 00 00 .`m.(`m.........

0x6d6018: 57 65 6c 63 6f 6d 65 20 00 00 00 00 11 00 00 00 Welcome ........

0x6d6028: 38 60 6d 00 48 60 6d 00 00 00 00 00 11 00 00 00 8`m.H`m.........

0x6d6038: 74 6f 20 00 00 00 00 00 00 00 00 00 11 00 00 00 to .............

0x6d6048: 58 60 6d 00 00 00 00 00 00 00 00 00 11 00 00 00 X`m.............

0x6d6058: 63 73 32 35 30 00 00 00 00 00 00 00 a1 0f 02 00 cs250...........

0x6d6068: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................

0x6d6078: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ................

**Indicated Output**

0x7ede1608: A.......0....6.~ //x.a (0x7ede1608), x.i (0x7ede160c), x.b (0x7ede1610), x.p (0x7ede1614)

0x7ede1618: ......(@........ //y (0x7ede1618), b (0x7ede1620), a (0x7ede1624)

0x7ede1628: Hello world..... //str (0x7ede1628)

0x7ede1638: ................

0x6d6008: .`m.(`m......... //head (0x6d6008)

0x6d6018: Welcome ........ //head->str, (0x6d6018)

0x6d6028: 8`m.H`m......... //head->next (0x6d6028)

0x6d6038: to ............. //head->next->str (0x6d6038)

0x6d6048: X`m............. //head->next->next (0x6d6048)

0x6d6058: cs250........... //head->next->next->str (0x6d6058)

0x6d6068: ................

0x6d6078: ................

//head->next->next->next is not assigned or 0x0

**-5**

-5f in hex is 0xC0A00000

0x7e882644: 00 00 a0 c0 00 00 00 00 94 42 e0 76 00 90 f2 76 .........B.v...v

Sign: 1

Mantissa: 1000000000000000000000

Exponent: 10000001