

So, remembering that HL and DE are used to hold real numbers, then we would have to load the registers in the following way to represent each of the above numbers:

2	≡	LD	HL, £4000
		LD	DE, £0100
1	≡	LD	HL, £4000
		LD	DE, £0000
-12.5	≡	LD	HL, £E400
		LD	DE, £0300
0.1	≡	LD	HL, £6666
		LD	DE, £FC66

The last example shows why calculations involving binary fractions can be inaccurate: 0.1 cannot be accurately represented as a binary fraction, to a finite number of decimal places.

N.B. Reals are stored in memory in the order ED LH.

A 3.1.4 Records and Arrays.

Records use the same amount of storage as the total of their components.

Arrays: if n =number of elements in the array and
 s =size of each element then

the number of bytes occupied by the array is $n*s$.

e.g. an ARRAY[1..10] OF INTEGER requires $10*2 = 20$ bytes

an ARRAY[2..12, 1..10] OF CHAR has $11*10=110$ elements and so requires 110 bytes.

A 3.1.5 Sets.

Sets are stored as bit strings and so if the base type has n elements then the number of bytes used is: $(n-1) \text{ DIV } 8 + 1$. Examples:

a SET OF CHAR requires $(256-1) \text{ DIV } 8 + 1 = 32$ bytes.
a SET OF (blue, green, yellow) requires $(3-1) \text{ DIV } 8 + 1 = 1$ byte.

A 3.1.6 Pointers.

Pointers occupy 2 bytes which contain the address (in Intel format i.e. low byte first) of the variable to which they point.