Problem 1: Find the SPECint2000 results for the API UP2000 750 MHz processor, it can be found at the [http://www.spec.org](http://www.spec.org) web site. This processor has a SPECint2000 rating of 456. Find another processor with a slower rating but for which individual benchmarks are faster. (Look for different CPU families.) How many of the benchmarks are faster on the slower processor?

Problem 2: Write a DLX assembly language program to convert a string of characters to lower case. The string is NULL-terminated (the character following the end of the string is a zero). Register r1 contains the address of the start of the string. Any register can be modified. The code for an upper-case A is 65 and the code for a lower-case a is 97. Modify the string, do not create a new one.

Problem 3: Write a DLX assembly language program that loads an element of a two-dimensional array to a register.

Register r1 holds address of the start of the array, register r2 holds the row of the element to retrieve, and register r3 holds the column of the element to retrieve. Put the retrieved element in f0. The array dimensions are 256 rows \times 1024 columns. Each element of the array is a double precision floating point number.

Elements are arranged in memory in the following order:

\[ a_{0,0} a_{0,1} a_{0,2} \cdots a_{1,0} a_{1,1} a_{1,2} \cdots a_{2,0} \cdots \]

where \(a_{i,j}\) is the element at row \(i\), column \(j\).