; ECE2031, Simple Computer configuration file

; 2014

;;; Assembler Directives

#EXTENSION MIF ;Extension to give assembled files

#ADDRBITS 11 ;Number of bits in the program address

#WORDBITS 16 ;Number of bits in the program word

;;; Program / Data file layout

;HEAD defines the heading to include at the top of the assembled file

#HEAD -- Altera Memory Initialization File (MIF)

#HEAD

#HEAD DEPTH = 2048;

#HEAD WIDTH = 16;

#HEAD

#HEAD ADDRESS\_RADIX = HEX;

#HEAD DATA\_RADIX = HEX;

#HEAD

#HEAD CONTENT

#HEAD BEGIN

#HEAD [000..7FF] : 0000; -- Default to NOP

#HEAD

;LINE dictates how the assembled data should appear in the resulting file

; %ADDR is the location of the address

; %WORD is the location of the data / instruction word

; %SOURCE is the location of the original line of code

#LINE %ADDR : %WORD; -- %SOURCE

;TAIL defines the trailer appended to the end of the assembled file

#TAIL END;

;;; Mnemonics Definitions

;Mnemonic %field1, %field2, %field3, ...

;

; %# Defines the number of bits, #, in a given field.

; A number before the % indicates a constant field, such as an opcode.

; The letter 's' immediately following the % indicates sign magnitude

; representation instead of two's complement.

;

; Example:

; LFSR &H08%8, %6, %2

;

; The LFSR mnemonic has one 8-bit constant field of value 0x08 and

; 2 user fields of bit lengths 6 and 2.

DW %16 ;Allows manual word definition, useful for initializing RAM

NOP &H00%16

LOAD &H01%5, %11

STORE &H02%5, %11

ADD &H03%5, %11

SUB &H04%5, %11

JUMP &H05%5, %11

JNEG &H06%5, %11

JPOS &H07%5, %11

JZERO &H08%5, %11

AND &H09%5, %11

OR &H0A%5, %11

XOR &H0B%5, %11

SHIFT &H0C%5, 0%6, %s5

ADDI &H0D%5, %11

ILOAD &H0E%5, %11

ISTORE &H0F%5, %11

CALL &H10%5, %11

RETURN &H11%5, 0%11

IN &H12%5, %11

OUT &H13%5, %11

CLI &H14%5, 0%7, %4

SEI &H15%5, 0%7, %4

RETI &H16%5, 0%11

LOADI &H17%5, %11