Calculator Memory Map

32 Registers	0×0000 - 0×00 IF
64 I/0 Registers	0×0020 - 0×005F
160 Ext. I/O Registers	0×0060 - OXOOFF
Start of IR Input	0×0100
Start of Decoded Input	0×0400
Entry Flag Location	0×0600
Start of stored Multiplication Product	0×0700
Initial stack location	0×08 FF

Important Registers

Overall Program:

- R16: used to print to LCD
- R24: holds total number of button entries in equation
- R23: holds number of entries in each nibble (1st entry digits in top nibble, 2nd entry digits in bottom nibble)

Button Receive:

- R25: holds state of button
- X: holds length of each signal
- Y: points to memory location of raw data from IR

Decoding:

- R16: used for holding decoded signal, bottom byte of binary input
- R17: used for holding decoded signal, second byte of binary input
- R18: used for holding decoded signal, third byte of binary input
- R19: used for holding decoded signal, top byte of binary input
- R20: used to read in SREG when needed
- R21: counter for looping through decoding loop
- R22: flag to see if we just did initial check or decoding
- Z: points to memory location of raw data from IR

Arithmetic Execution:

- R17: total number of entries from remote
- R18: number of 1st entry digits
- R19: number of 2nd entry digits
- R20: temp hold on 1st entry value of current digit undergoing operation
- R21: temp hold on 2nd entry value of current digit undergoing operation
- R22: holds number of digits to print to LCD
- R26: holds carry bit
- Z: points to location where all entry digits stored, uses r18 as index to access digits individually
- Y: points to location where all entry digits stored, uses r17 as index to access digits individually

*Multiplication uses R25 as the counter for repeated addition based off of what first entry was and R20 as a running sum of repeated addition of second entry