**Tyler Holland**

11/3/09

Lab 5

No Cheating Signature:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Demo Signature:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**UP2:**

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;Lab 5 User Program 2

;R1 - Asterisk counter register

;

.ORIG x3400

Begin AND R1,R1,#0 ;Clear R1

Loop ADD R1,R1,#1 ;Add 1 to R1

BRzp Loop ;Loop until negative

AND R1,R1,#0 ;Get ready to store R0

ADD R1,R0,R1 ;Store R0 in R1 temporarily

LD R0,Word ;Put \* in R0 for output

OUT ;Print \* to screen

AND R0,R0,#0 ;Clear R0

ADD R0,R0,R1 ;Put old R0 into R0

BRnzp Begin ;Loop it

HALT ;End Program

;

Word .FILL x002A ;Hex for \*

.END

**Trap x26:**

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;Lab 5 Trap x26

;R7 - Holds the PC from UP1

;R1 - Holds temporary KBSR stuff

.ORIG x3300

STI R7,UP1 ;Store UP1's PC in x32FF

LD R1,INTER

STI R1,KBSR ;Enable interrupt bit in KBSR

LD R1,UP2 ;Get ready for JMP

JMP R1 ;Jump to UP2

;

UP1 .FILL x32FF ;Store UP1 here

UP2 .FILL x3400 ;PC location of UP2

INTER .FILL x4000 ;ADD for interrupt bit enable

KBSR .FILL xFE00 ;KBSR location

.END

**Interrupt Service Routine:**

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;Lab 5 - Interrupt Service Routine

;R0 - holds character from KBDR

;R1 - holds temporary values for data movement

;

.ORIG x3500

LDI R0,KBDR ;Load data from KBDR to R0

AND R1,R1,#0 ;Clear R1

STI R1,KBSR ;Clear the KBSR

LDI R1,UP1 ;Put the PC of UP1 into R1

STR R1,R6,#0 ;Put UP1 in the place of UP2

RTI

;

KBDR .FILL xFE02

KBSR .FILL xFE00

UP1 .FILL x32FF

.END