DOG-1 USER Interface Cheatsheet

	0	1	2	3	4	5	6	7
LEDs	Negative	Overflow	Zero	Carry	*	*	*	*
7-Segs	-	-	Program-	Counter	*Mode*	*Inc/Dec*	Op-	Code
Buttons	o	o	o	o	o	o	o	o

Flags

Bit	Flag	Name	Description
0	N	Negative	Set if bit 7 of ACC is set
1	V	Overflow	-
2	Z	Zero	-
3	C	Carry	-
4-7	X	Aux	-

The functionality of the I/O will depend on the system's mode : **Program** or **Run**. Display 4 shows the current mode, P or R.

Push-button 4 switches between these modes. At any time, pressing buttons 4 and 5 **together** will reset the PC to 0000.

Program Mode

Pressing the buttons 0-3, 6-7 will increment the value corresponding to that of the display above it. Programming is achieved by pressing button 3 to increment the PC (with overflow occurring, counting up on displays 0-2). Pressing button 7 will increment the value on display 7 (*without* overflowing to display 6), ditto for button 6/display 6, together providing the value at the given address.

Pressing button 5 will switch the response from increment to decrement. The PC buttons/display *does* carry values and wrap at max and min (0000). The code buttons/display act independently to each other and don't wrap in the <0 direction.

Pressing button 4 will switch to **Run** mode.

Double Key Presses

- 0 & 1 - full-on reset & wipe
- 4 & 5 - reset pc
- 0 & 4 - display Accumulators A, B
- 0 & 5 - display Index Register
- 0 & 6 - display PC Stack Pointer
- 0 & 7 - display Auxiliary Stack Pointer & status
- 0 & 3 - flip from single-step to free run

Run Mode

Initially the system will be halted at the current address. Pressing button 3 will single-step through the program (pressing buttons 0-3 will cause the PC to skip to the corresponding address [running or skipping code in between? TBD]).

Alternately the program may be run in real time by pressing button 5. Pressing this button again will halt the program.

The HALT opcode will terminate a program and wait for keyboard input before switching to Program mode and zeroing the program counter.

Special Instructions

- Pause

If the instruction PAUSE is encountered in a program, the program will freeze at this point at display 'PAUSE...'. The flags and registers maynow be inspected. Pressing key 4 sets the program running again.