IOCS	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Read	PIN	Rr_	Rw	Dr_	Dw	Lr_	Lw	Ur_	Uw				PIN		PIN		PIN	
Write	PIN	state				DB	WD		pin		pin		PIN	state	PIN	state	PIN	state
	SR				VCO						9-bit DAC output level				(155 xor)			

PIN state	01=**WEAK PULLDOWN**	00=tristate	10=Vss(0)	11=Vdd(1)	-Pin State
WD	0=**NORMAL**	1=inverted			-Wake Direction
DB	1=**OUTPUT**	0=tristate			-Data Bus direction
SR	0=**RECEIVE**	1=send			-Serializer/Deserializer
VCO	10=**OFF**	00=input	01=Vdd calibrate	11=Vss calibrate	-Voltage Controlled Oscillator

Name	Address	Description
-d-u	105	Down, Up
-d--	115	Down
-dlu	125	Down, Left, Up
-dl-	135	Down, Left
data	141	Up, no handshake
---u	145	Up
iocs	15d	18-bit I/O Control/Status
--lu	165	Left, Up
--l-	175	Left

Name	Address	Description
rd-u	185	Right, Down, Up
rd--	195	Right, Down
rdlu	1a5	Right, Down, Left, Up
rdl-	1b5	Right, Down, Left
r--u	1c5	Right, Up
r---	1d5	Right
r-lu	1e5	Right, Left, Up
r-l-	1f5	Right, Left

Note: ALWAYS refer to ports by Name, addresses may change.

Address	18-bit external address bus
Data	18-bit external data bus
A	18-bit general, address, 7-bit auto-increment
B	9-bit general, address (write only)

P	10-bit program register, 7-bit auto-increment
R	18-bit 1+8 return stack
T, S	18-bit 2+8 data stack
IOCS	18-bit I/O Control and Status Register

Opcode	Hex	Slot	Notes -- ADDRESS opcodes	
;	00	0123	return	
;:	01	012	swap P and R (coroutine)	cf ;'
-;	02	012	jump	cf ;
:	03	012	call	cf red
unext	04	0123		
next	05	012		
if	06	012	jump t=0	
-if	07	012	jump t17=0	
@p+	08	0123	literal	
@a+	09	012		cf @+
@b	0a	012		
@a	0b	012		cf @
!p+	0c	0123		
!a+	0d	012		cf !+
!b	0e	012		
!a	0f	012		cf !

Opcode	Hex	Slot	Notes -- ALU opcodes	
+*	10	0123	. +*	
2*	11	012		
2/	12	012	signed	
not	13	012	invert (3ffff xor)	cf -
+	14	0123	. +	
and	15	012		
xor	16	012		cf or
drop	17	012		
dup	18	0123		
pop	19	012		
over	1a	012		
a@	1b	012	register fetch	cf a
.	1c	0123	nop	
push	1d	012		
b!	1e	012	register store	
a!	1f	012	register store	

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