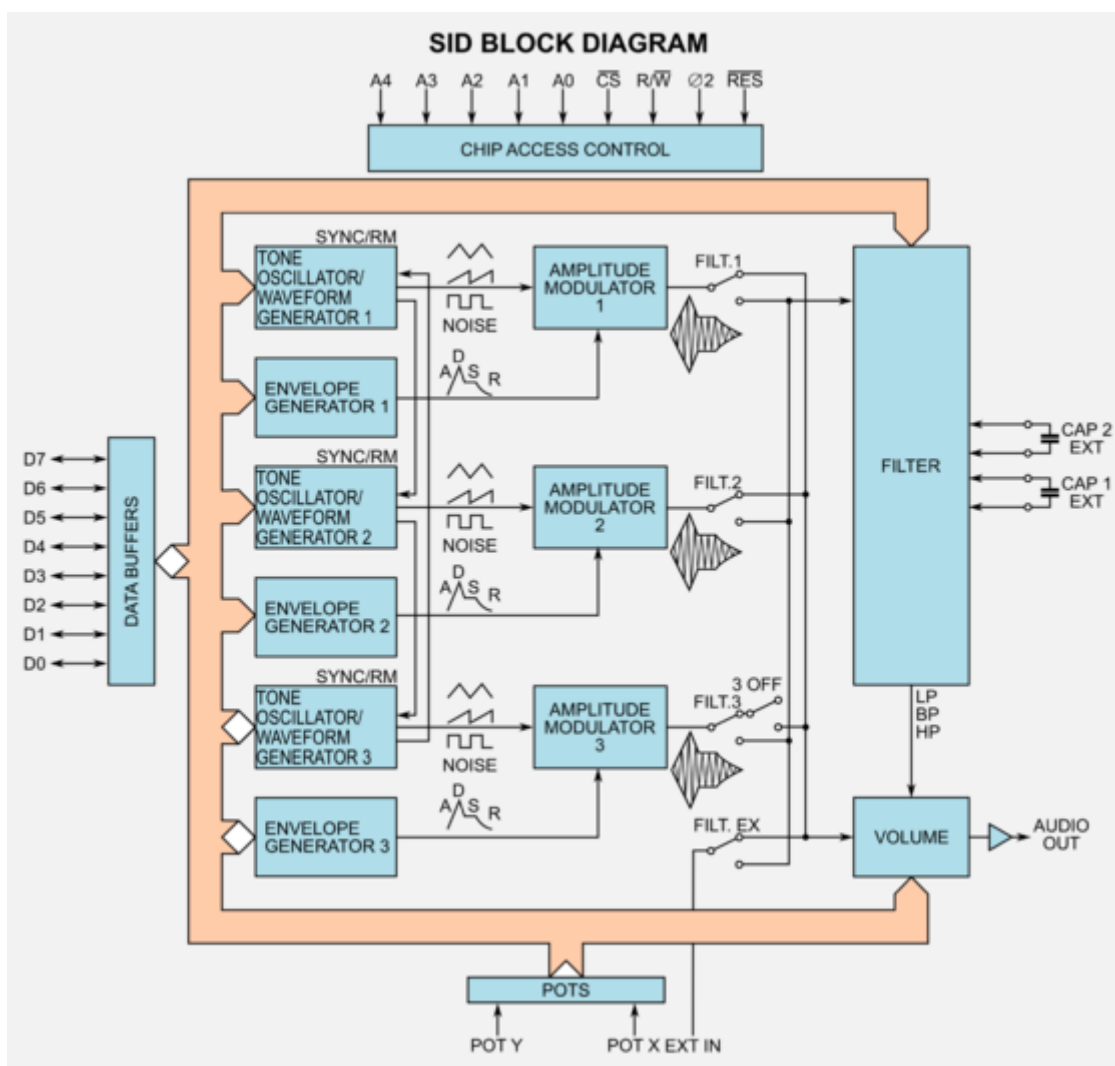


Quazar SID Interface

SID Programming

- <https://www.c64-wiki.com/wiki/SID>
- [MOS6581 SID data sheet.pdf](#)



Memory Addresses of the SID

Reg	Function
-----	----------

0	frequency voice 1 low byte							
1	frequency voice 1 high byte							
2	pulse wave duty cycle voice 1 low byte							
	7..4				3..0			
3	—				pulse wave duty cycle voice 1 high byte			
4	control register voice 1							
	<u>7</u>	<u>6</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	<u>0</u>
	noise	pulse	sawtooth	triangle	test	ring modulation with voice 3	synchronize with voice 3	gate
	7..4				3..0			
5	attack duration				decay duration voice 1			
6	sustain level				release duration			
7	frequency voice 2 low byte							
8	frequency voice 2 high byte							
9	pulse wave duty cycle voice 2 low byte							
	7..4				3..0			
10	—				pulse wave duty cycle voice 2 high byte			
11	control register voice 2							
	<u>7</u>	<u>6</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	<u>0</u>
	noise	pulse	sawtooth	triangle	test	ring modulation with voice 1	synchronize with voice 1	gate
	7..4				3..0			
12	attack duration				decay duration voice 2			
13	sustain level				release duration voice 2			
14	frequency voice 3 low byte							
15	frequency voice 3 high byte							
16	pulse wave duty cycle voice 3 low byte							
	7..4				3..0			
17	—				pulse wave duty cycle voice 3 high byte			
18	control register voice 3							

Value	Attack Rate	Decay/Release Rate
Decimal	(Time/Cycle)	(Time/Cycle)
0	2 mS	6 mS
1	8 mS	24 mS
2	16 mS	48 mS
3	24 mS	72 mS
4	38 mS	114 mS
5	56 mS	168 mS
6	68 mS	204 mS
7	80 mS	240 mS
8	100 mS	300 mS
9	250 mS	750 mS
10	500 mS	1.5 S
11	800 mS	2.4 S
12	1 S	3 S
13	3 S	9 S
14	5 S	15 S
15	8 S	24 S

Frequency

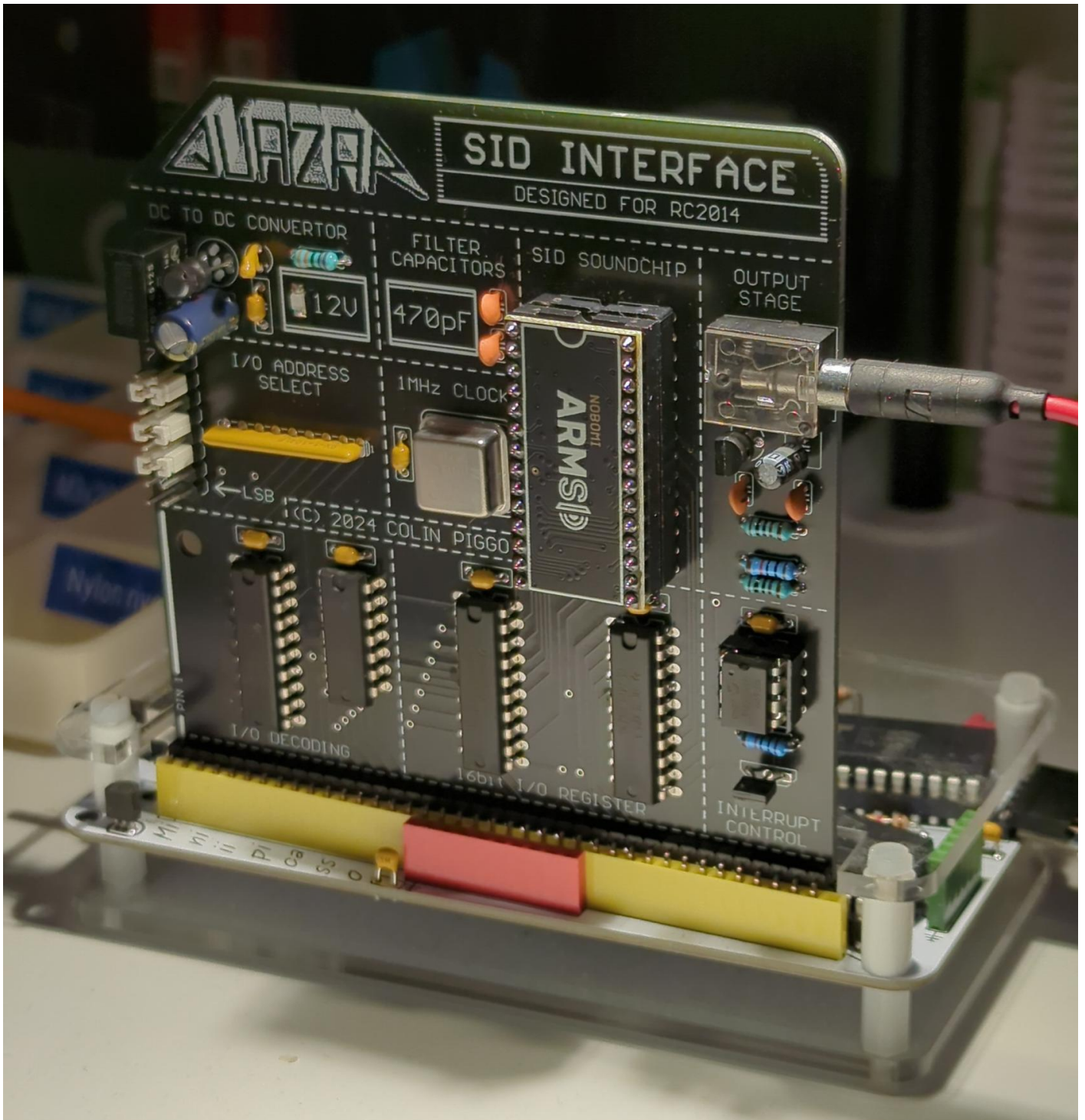
```
\ Frequency table:
: SID:NOTE:C4  4389 ;
: SID:NOTE:C4# 4650 ;
: SID:NOTE:D4  4927 ;
```

```
: SID:NOTE:D4# 5220 ;  
: SID:NOTE:E4 5530 ;  
: SID:NOTE:F4 5859 ;  
: SID:NOTE:F4# 6207 ;  
: SID:NOTE:G4 6577 ;  
: SID:NOTE:G4# 6968 ;  
: SID:NOTE:A4 7382 ;  
: SID:NOTE:A4# 7821 ;  
: SID:NOTE:B4 8286 ;
```

```
\ Octave shifts
```

```
: SID:OCT:UP 2* ;  
: SID:OCT:DOWN 2/ ;
```

Using with RC2014 Mini II Picasso



Limitations

- Interrupt timer won't work since first half of memory is ROM and can't install interrupt handler. This will work with CP/M cards where all memory space is backed by RAM.
- It is not possible to read data from SID chip. Paddled and voice 3 data and ADSR registers cannot be read.

Basic

Set ROM address to (just *Bank 2* set) to boot into *Microsoft BASIC (Phil Green)*.

Insert SID interface card: marked pin is pin 1.

Use the following test BASIC program (as provided in the instructions):

```
10 DATA 205,7,10,123,66,14,84,237,121
20 DATA 0,0,0,203,248,237,121,195,125,17
30 FOR A=-1024 TO -1006
40 READ D
50 POKE A,D
60 NEXT A
70 POKE -32695,0
80 POKE -32694,252
90 LET A=USR(1024)
100 LET A=USR(6159)
101 LET A=USR(1280)
102 LET A=USR(1776)
103 LET A=USR(1041)
110 FOR D=256 TO 511
120 LET A=USR(D)
130 NEXT D
140 GOTO 110
```

Type to start it. You should hear "siren" audio effect.

CamelForth

Set ROM address to (just *Bank 8* set) to boot into *CamelForth (Justin Skists)*.

Paste following Forth program.

```
\ PS2!      c c p-addr --    Data byte (A), high address byte (B), port address (C) - OUT to
port with A and B registers set
: PC2! SWAP >< OR PC! ;
\ SID!      c c --          Data value, register (0-31); bits 5,6 are for interrupt settings;
bit 7 (/CS) is handled
: SID!
  2DUP 128 OR 84 PC2!
  2DUP 127 AND 84 PC2!
  128 OR 84 PC2! ;
```

```
: SIDRST 0 24 SID! 0 4 SID! ;  
: SIDTEST 15 24 SID! 10 0 D0 255 0 D0 I 1 SID! LOOP LOOP 0 24 SID! ;
```

SIDRST

15 24 SID!

0 5 SID!

240 6 SID!

17 4 SID!

SIDTEST

Decimals used:

- 84 = 0x52 - I/O port number
- 24 = 0x18 register 0x18 (24), no interrupt
- 128 - high bit set
- 127 - all but high bit set

See project page for CamelForth SID library: [sid.4th](https://sid.4th.org/)

Revision #17

Created 2025-10-28 20:02:15 GMT by hxd

Updated 2025-11-13 20:47:53 GMT by hxd