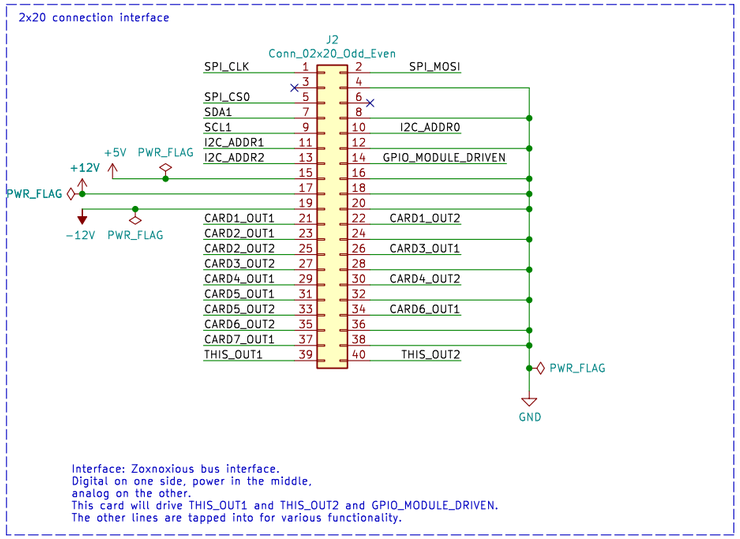
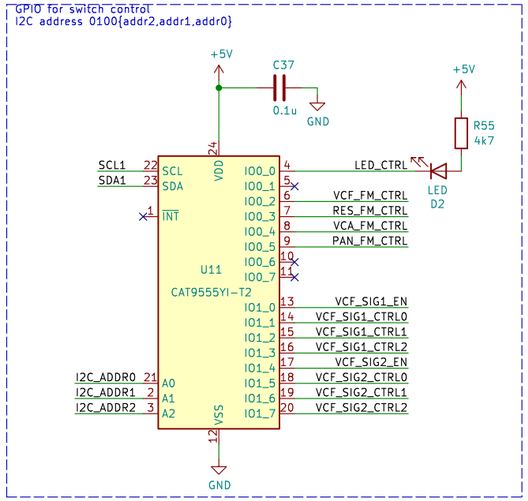
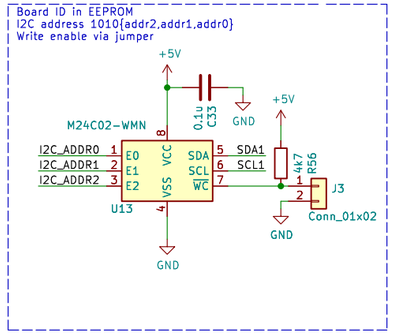
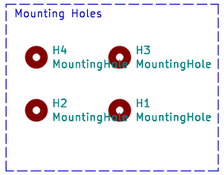
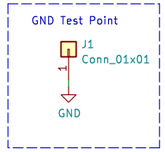
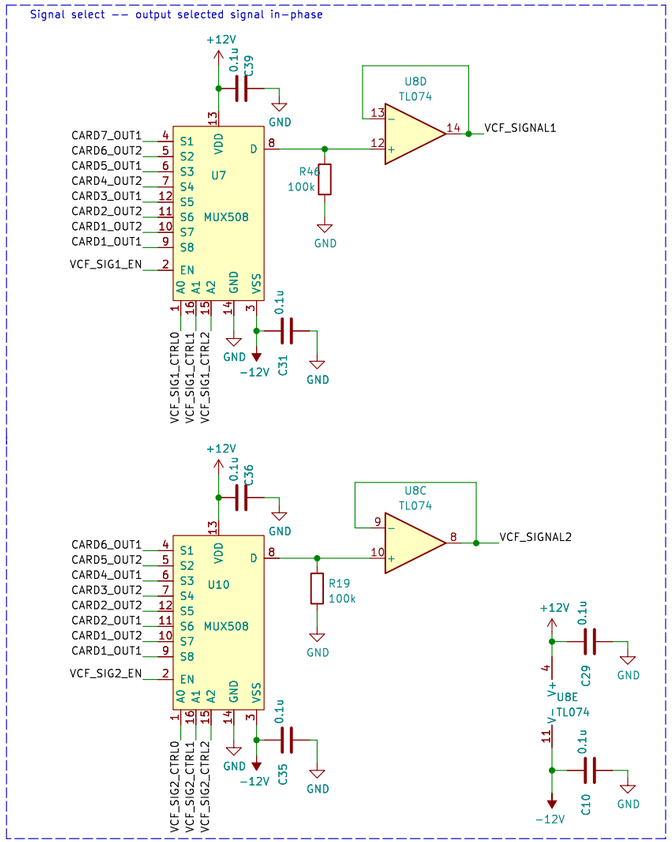


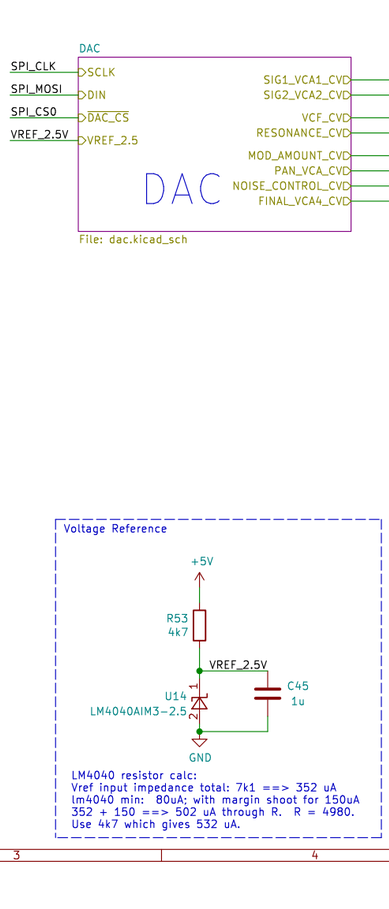


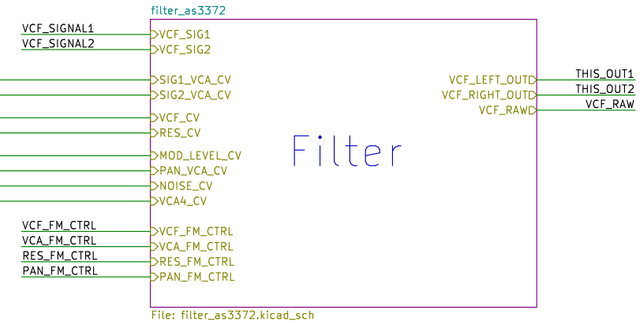


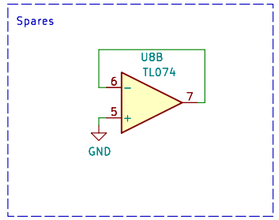


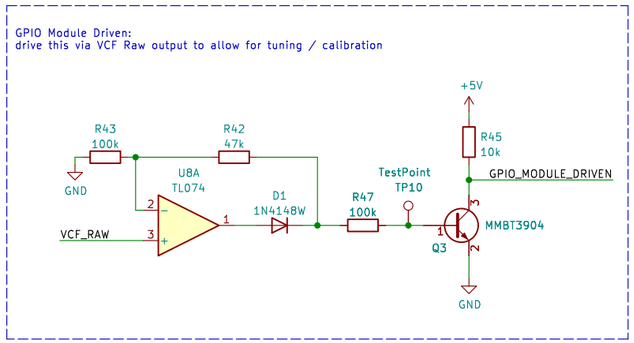








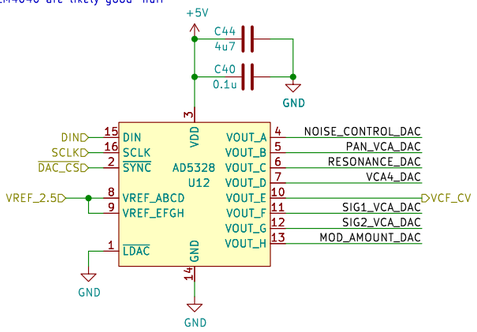




Zoxnoxious Engineering

Sheet: /		
File: z3372.kicad_sch		
Title: Z3372 Signal Processor		
Size: B	Date: 2024-09-19	**Rev: 0.4**
KiCad E.D.A. kicad 7.0.11		Id: 1/3

AD5328: "B" version works fine. For use at 2X gain output.
DAC: 2.5V Reference Voltage
B, C, D grades of LM4040 are likely good 'nuff

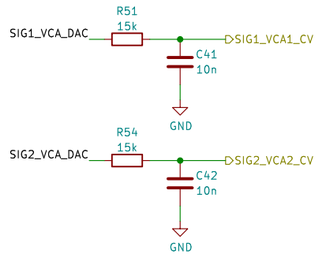


Control Voltage level outputs from sheet:
VCF CV: 0 : 5V
Pan VCA CV: 0 : 5V
Noise Control Level CV: 0 : 1.9V
Res CV: 0 : -3.5V (note negative)
Sig1 VCA CV: 0 : 5V
Sig2 VCA CV: 0 : 5V
VCA4: 0 : -5V (note negative)
VCA Mod Level CV: 0 : 1.9V

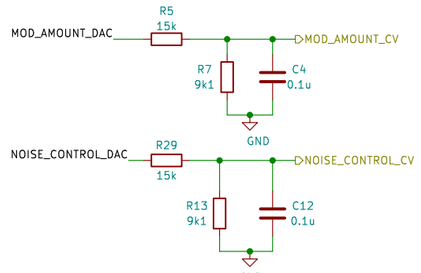
This sheet lowpass filters for nearly all signals.
VCF CF done outside of this sheet. sorry.

Sheet totals:
Vref impedance: 22k || 22k || 20k ==> 7k1

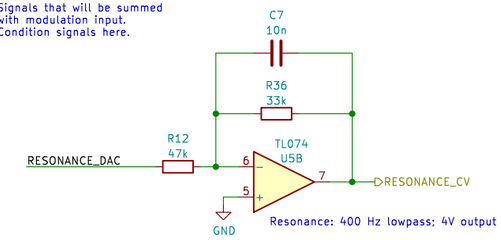
AS3372 input VCAs:
RC lowpass at ~1kHz

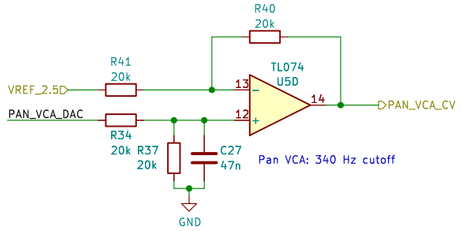


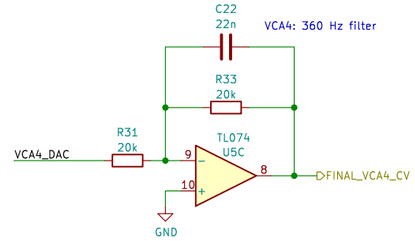
DAC lines for 3360 VCA:
Voltage divider to 1.9V for linear 3360 input.
Cap for lowpass filter of ~285 Hz



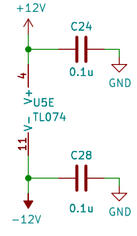
Signals that will be summed
with modulation input.
Condition signals here.



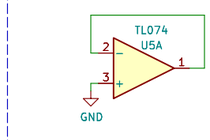




Power / Decoupling



Spares



Zoxnoxious Engineering

Sheet: /DAC/		
File: dac.kicad_sch		
Title: Z3372 Signal Processor		
Size: B	Date: 2024-09-19	**Rev: 0.4**
KiCad E.D.A. kicad 7.0.11		Id: 2/3

Modulation Control
Note VCF_FM does not go through summer
and get inverted.
Resonance does get inverted, rez mod is
out of phase with the filter modulation.

Resonance modulation:
invert with gain of 1.0
Idea being that if one modulates filter cutoff _and_ resonance,
you want res high while cutoff is low and vice versa.

RES_FM_CTRL
VCF_FM_CTRL
PAN_FM_CTRL
VCA_FM_CTRL
DG442xY
U4D
U4A
U4B
U4C
RES_FM
VCF_FM
VCA4_FM
PAN_FM
MOD_VCA_OUT
TP8
TestPoint
U1B
AS3360-Audio
V_E
V_O
V_C
Signal
Io
U2B
TL074
R26
47k
R16
20k
MOD_LEVEL_CVD
VCF_SIG1D
VCF_SIG2D
R21
68k
R20
1k
R22
68k
R27
1k
GND

U3B
AS3372
VCA1_IN
VCA2_IN
VCA1_CV
VCA2_CV
VCF_CV
Res_CV
VCA_OUT1/2
VCF_Out
Res_In
WHITE_NOISE
TP3
TestPoint
SIG1_VCA_CVD
SIG2_VCA_CVD
VCF_FM
36k
R38
VCF_CVD
R52
2k
C25
0.1u
R39
18k
R28
36k
R24
1k
−5V
TP6
TestPoint
TP11
TestPoint
C34
2u2
VCF_RAW
TP5
TestPoint
C38
2u2
R50
27k
R49
1k
C15
33n
C17
33n
C20
33n
C21
330p
C11, C12, C15, C17: NP0 or better
C14, C16: Film cap or similar

VCF Control:
VCF from DAC has 2k/0.1u RC
filter @ 800 Hz. External
mod has slightly less pull at
36k versus DAC at 20k effective.

RES_FM
R8
30k
R6
20k
RES_CVD
R4
20k
U2A
TL074
TP1
TestPoint
Resonance control:
CV from DAC lowpass set to 530 Hz.
External mod inverted.

Pan CVA CV: Input range −2.5V : 2.5V.
Take 0V : 5V from DAC shift to −2.5V : 2.5V output.
33n cap to give a -482 Hz low pass filter
Modulation: sum in at 1X gain

PAN_FM
R9
30k
R11
20k
PAN_VCA_CVD
R10
20k
U2D
TL074
PAN_CV
TP4
TestPoint

VCA4: Input range 0 : 5V.
33n cap to give a -482 Hz low pass filter
Modulation: sum in at 1X gain

VCA4_FM
R30
30k
VCA4_CVD
R35
20k
R32
20k
U2C
TL074
TP9
TestPoint
U3C
AS3372
VCA4_CV
VCA4_OUT
VCA4_IN
R23
22k
TP7
TestPoint
R25
510
VCA5_IN
VCA6_IN
VCA5/6_CV
VCA5_OUT
VCA6_OUT
U3D
C9
33p
R15
33k
U6A
NE5532
R18
51
VCF_LEFT_OUT
C30
33p
R44
33k
U6B
R48
51
VCF_RIGHT_OUT

WHITE NOISE
+12V
NOISE_CVD
R1
330k
R2
330k
R17
4k7
C11
4u7
R3
36k
TP2
TestPoint
U1A
AS3360-Audio
WHITE_NOISE
Q1
Q2
MMBT3904
C2
0.1u
C13
22u
R14
1k
VCA input resistor:
Assume noise is ~2V p-p.
Input to 3372 should be no more
than 60 uA. The 3360 has a max
gain of 1, so limit input here to ~60 uA.
So 2V p-p / 47k => 43uA

Decoupling Caps
U3A
AS3372
U2E
TL074
U6C
NE5532
U4E
DG442xY
C16
C3
C32
C23
C8
C14
C26
C19
0.1u
−5V
−12V

Linear regulator −5V from −12V
C43
1u
C18
1u
U9
L79L05_TO92

C5
0.1u
C6
4n7
C1
0.1u
U1C
AS3360-Audio

Sheet Totals:
Vref_2.5 load: 20k

Zoxnoxious Engineering
Sheet: /filter_as3372/
File: filter_as3372.kicad_sch
Title: Z3372 Signal Processor
Size: B | Date: 2024-09-19 | Rev: 0.4
KiCad E.D.A. kicad 7.0.11 | Id: 3/3