Misc

File: misc.kicad_sch

- PXCK6M
- H2SYNC
- H
- HPH90
- H2
- H4
- WDRES
- MCK6M
- SCK6M
- H2B
- H4B

CPU

File: cpu.kicad_sch

- WDRES
- MCK6M
- SCK6M
- H2B
- H4B
- PALEN
- VRAMWR
- BGTRNSP
- OBJRAMCS
- OBJORVRAMEN
- MRD
- MWR
- MD[0..7]
- MA[0..12]
- MA12
- YMIRQ
- VBLK
- SA[0..2]
- SD[0..7]
- RDINPUTS
- SET_LOCK1
- SET_LOCK2
- CNT_UP1
- CNT_UP2
- SRD
- SWR
- SRST
- YM2203CS

Graphics

File: graphics.kicad_sch

- PXCK6M
- H2SYNC
- WDRES
- H4B
- HD
- HPH90
- H2
- H4
- PALEN
- VRAMWR
- BGTRNSP
- OBJRAMCS
- OBJORVRAMEN
- MRD
- MWR
- MD[7..0]
- MA[0..11]
- MA12
- SYNC
- RED
- GREEN
- BLUE
- VBLK

IO

File: io.kicad_sch

- SPEAKER+
- SPEAKER−
- SYNC
- RED
- GREEN
- BLUE
- SA[0..2]
- SD[0..7]
- RDINPUTS
- SET_LOCK1
- SET_LOCK2
- CNT_UP1
- CNT_UP2

Sound

File: sound.kicad_sch

- H2B
- SD[0..7]
- SA0
- SRD
- SWR
- SRST
- YM2203CS
- SPEAKER+
- SPEAKER−
- YMIRQ

SA0

RAM

uPD43256BCZ-B

Not mounted

Shared RAM

U26-B06-12
SWAIT = SBANK1 & /I11 & (/SSHRAMEN + SSHRAMRQ)
MWAIT = (OBJORVRAMEN + i6) & SSHRAMEN
SSHRAMEN = SSHRAMRQ + /MASHRAMRQ & SSHRAMEN
MSHRAMEN = MASHRAMRQ + /SSHRAMRQ & MSHRAMEN
SHRAMCS = MSHRAMRQ & SSHRAMRQ
SHRAMWR = MWR & SSHRAMEN + MASHRAMRQ & SSHRAMRQ + SWR & MSHRAMEN
SSHRAMENB = SSHRAMEN

hex flip flop

U56
X2-005

VCC
1P_START 3
1P_BTN_1 5
2P_START 7
2P_BTN_1 9
VCC
IN
IN
IN
IN
2k2
22k
OUT
OUT
OUT
OUT
VCC
GND
1P_START_B
1P_BTN_1_B
2P_START_B
2P_BTN_1_B
GND

U57
X2-005

VCC
SERVICE 3
TILT 5
1P_BTN_3 7
1P_BTN_2 9
VCC
IN
IN
IN
IN
2k2
22k
OUT
OUT
OUT
OUT
VCC
GND
SERVICE_B
TILT_B
1P_BTN_3_B
1P_BTN_2_B
GND

U58
X2-005

VCC
1P_DOWN 3
1P_UP 5
1P_RIGHT 7
1P_LEFT 9
VCC
IN
IN
IN
IN
2k2
22k
OUT
OUT
OUT
OUT
VCC
GND
1P_DOWN_B
1P_UP_B
1P_RIGHT_B
1P_LEFT_B
GND

U59
X2-005

VCC
2P_BTN_3 3
2P_BTN_2 5
2P_DOWN 7
2P_UP 9
VCC
IN
IN
IN
IN
2k2
22k
OUT
OUT
OUT
OUT
VCC
GND
2P_BTN_3_B
2P_BTN_2_B
2P_DOWN_B
2P_UP_B
GND

U60
X2-005

VCC
2P_RIGHT 3
2P_LEFT 5
COIN_2 7
COIN_1 9
VCC
IN
IN
IN
IN
2k2
22k
OUT
OUT
OUT
OUT
VCC
GND
2P_RIGHT_B
2P_LEFT_B
COIN_2_B
COIN_1_B
GND

SA[0..2]

U3A
74LS139

SA2   A1   O0
SA1   A0   O1
           O2
RDINPUTS E   O3
decoder

SA0

U51
X1-004

E0
E1
E2
SET_LOCK1D 35 IOD1   IOC1 18 COIN_LOCK_1_A
SET_LOCK2D 34 IOD2   IOC2 19 COIN_LOCK_2_A
CNT_UP1D 33 IOD3   IOC3 20 COIN_CNT_1_A
CNT_UP2D 32 IOD4   IOC4 21 COIN_CNT_2_A
1P_START_B 2 INA1   D7 51 SD7
1P_BTN_3_B 3 INA2   D6 50 SD6
1P_BTN_2_B 4 INA3   D5 49 SD5
1P_BTN_1_B 5 INA4   D4 48 SD4
1P_DOWN_B 6 INA5   D3 47 SD3
1P_UP_B 7 INA6   D2 46 SD2
1P_RIGHT_B 8 INA7   D1 45 SD1
1P_LEFT_B 9 INA8   D0 44 SD0
2P_START_B 10 INB1
2P_BTN_3_B 11 INB2
2P_BTN_2_B 12 INB3
2P_BTN_1_B 13 INB4
2P_DOWN_B 14 INB5
2P_UP_B 15 INB6
2P_RIGHT_B 16 INB7
2P_LEFT_B 17 INB8
COIN_1_B 22 IOA1   IOB1 31 SD3
COIN_2_B 23 IOA2   IOB2 30 SD2
TILT_B 24 IOA3   IOB3 29 SD1
SERVICE_B 25 IOA4   IOB4 28 SD0
GND 38 UK   VCC 52
VCC 36 UK   VCC 27
GND 43 UK   GND 42
VCC 39 UK   GND 1
SD[0..7]

U43
TD62064

COIN_CNT_2_A I1   O1 2 COIN_CNT_2
COIN_CNT_1_A I2   O2 9 COIN_CNT_1
COIN_LOCK_2_A I3   O3 9 COIN_LOCK_2
COIN_LOCK_1_A I4   O4 16 COIN_LOCK_1
+12V COM GND
COM GND
NC GND
NC GND
GND

The I/O direction of each port in X1-004 is
probably determined by connecting the pins
36,38,39, 42 and 43 to VCC and GND accordingly.

In insectx IOD -> IOC, IOA -> IOB

E2 E1 E0   Active output
H   L   L   INA-> D, IOD -> IOC
H   L   H   INB -> D, IOD -> IOC
L   H   L   IOA -> IOB
X   X   X   IOD -> IOC

All inputs are active low, when the outputs
are not active they are in tri-state state.
Except for IOC in this case.

JAMMA_CONN

GND 1 GND   GND A GND
VSSA 2 GND   GND B
VCC 3 VDDA   +5V C VCC
4 +5V   +5V D
5 -5V   -5V E
+12V 6 +12V   +12V F +12V
COIN_CNT_1 8 COIN_CNT_1   COIN_CNT_2 J COIN_CNT_2
COIN_LOCK_1 9 NC   NC K COIN_LOCK_2
SPEAKER+ 10 SPEAKER_(+)   SPEAKER_(-) L SPEAKER-
11 NC   NC M
RED 12 RED   GREEN N GREEN
BLUE 13 BLUE   SYNC P SYNC
GND 14 VIDEO_GND   SERVICE R SERVICE
15 NC   NC S TILT
COIN_1 16 COIN_1   COIN_2 T COIN_2
1P_START 17 1P_START   2P_START U 2P_START
1P_UP 18 1P_UP   2P_UP V 2P_UP
1P_DOWN 19 1P_DOWN   2P_DOWN W 2P_DOWN
1P_LEFT 20 1P_LEFT   2P_LEFT X 2P_LEFT
1P_RIGHT 21 1P_RIGHT   2P_RIGHT Y 2P_RIGHT
1P_BTN_1 22 1P_BTN_1   2P_BTN_1 Z 2P_BTN_1
1P_BTN_2 23 1P_BTN_2   2P_BTN_2 a 2P_BTN_2
1P_BTN_3 24 1P_BTN_3   2P_BTN_3 b 2P_BTN_3
25 1P_BTN_4   2P_BTN_4 c
26 1P_SELECT   2P_SELECT d
27 GND   GND e
GND 28 GND   GND f GND

+12V
PWR_FLAG
GND
PWR_FLAG
VCC
PWR_FLAG

+12V
ZD2 >12V   C10 220uF   C15 470uF   ZD1 6.2V
GND   VCC   GND

U3B
74LS139

13 A1   O0 12
14 A0   O1 11
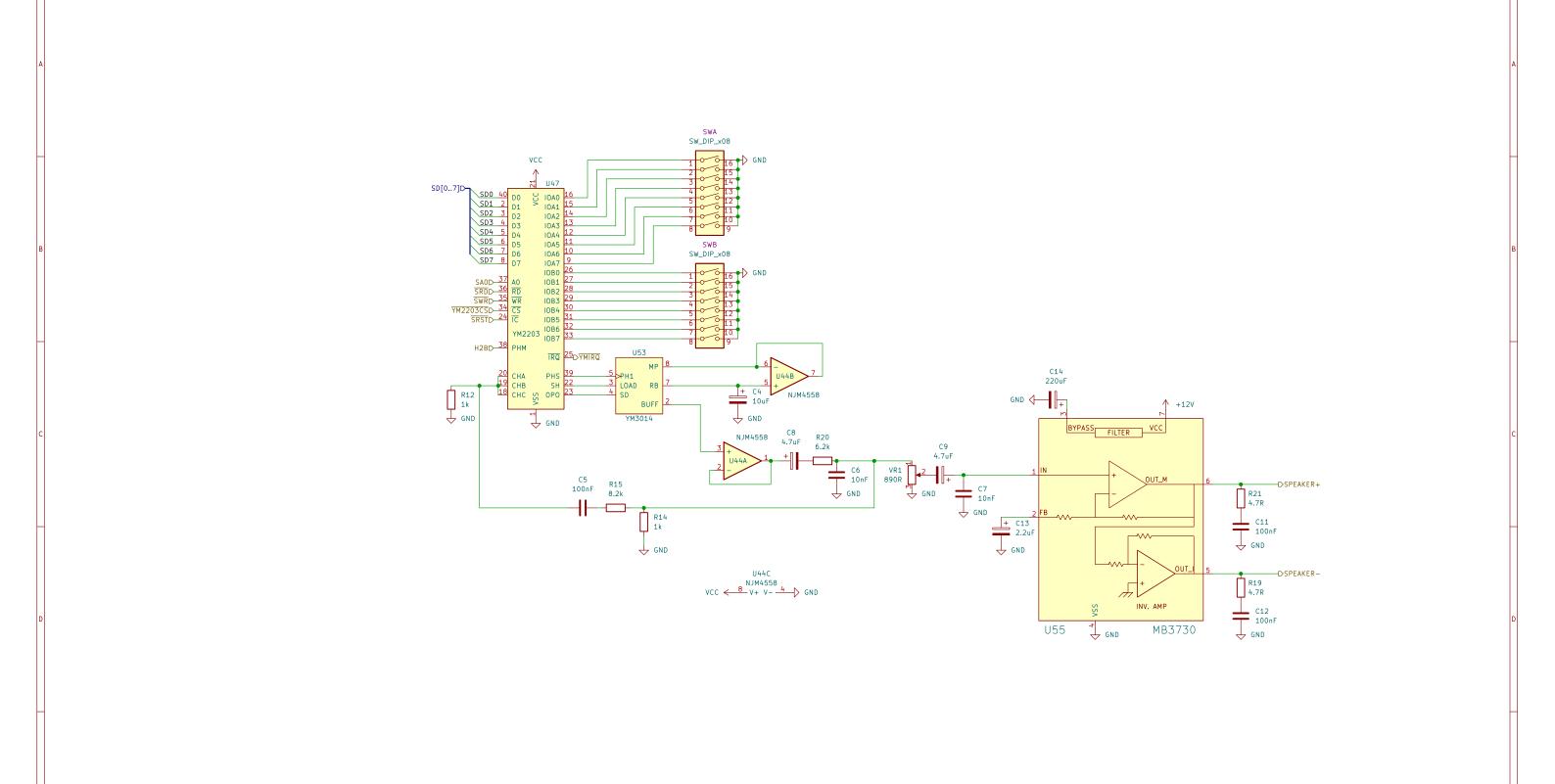   O2 10
15 E   O3 9
decoder

Ulf Skutnabba, twitter: @skutis77
Sheet: /IO/
File: io.kicad_sch
Title: Insector X - P0-056A
Size: A3   Date: 2022-12-01   Rev:
KiCad E.D.A. kicad 6.0.2+dfsg-1   Id: 4/6

SD[0..7]

U47

SWA
SW_DIP_x08

SWB
SW_DIP_x08

GND

GND

YM2203

VCC

D0 / D1 / D2 / D3 / D4 / D5 / D6 / D7
IOA0 / IOA1 / IOA2 / IOA3 / IOA4 / IOA5 / IOA6 / IOA7
IOB0 / IOB1 / IOB2 / IOB3 / IOB4 / IOB5 / IOB6 / IOB7

SD0 40 D0
SD1 2 D1
SD2 3 D2
SD3 4 D3
SD4 5 D4
SD5 6 D5
SD6 7 D6
SD7 8 D7

SA0D 37 A0
SRDD 36 RD
SWRD 35 WR
YM2203CSD 34 CS
SRST 24 IC

H2BD 38 PHM

IRQ 25 YMIRQ

CHA 20
CHB 19
CHC 18

PHS 39
SH 22
OPO 23

VSS

GND

R12
1k

GND

U53

YM3014

PH1 5
LOAD 3
SD 4

MP 8
RB 7
BUFF 2

C4
10uF

GND

U44B
NJM4558

7

C5
100nF

R15
8.2k

R14
1k

GND

NJM4558

U44A

C8
4.7uF

R20
6.2k

C6
10nF

GND

VR1
890R

C9
4.7uF

GND

C7
10nF

GND

U44C
NJM4558
8 V+ V− 4
VCC   GND

C14
220uF

GND

+12V

BYPASS   FILTER   VCC

IN 1

FB 2

OUT_M 6

OUT_I 5

INV. AMP

VSS

U55   MB3730

GND

SPEAKER+

R21
4.7R

C11
100nF

GND

SPEAKER−

R19
4.7R

C12
100nF

GND

C13
2.2uF

GND

Clock

U22C
74LS244_Split

HPH90 6 14 SCK6M

U22B
74LS244_Split
4 16

R5
150

U22H
74LS244_Split
17 3

U22G
74LS244_Split
15 5 SCK6M

MCK6M

C1
200pF

GND

U22A
74LS244_Split

H2 2 18

VCC

U17A
74LS74

2 D 5 Q
3 6 Q̄

U29C
74LS32
10 8 H2SYNC

9

H2B

GND

VCC

U22D
74LS244_Split

H4 8 12 H4B

U11C
74LS04
5 6

JP7
Jumper_8_Bridged1

R18
24

PXCK6M

U22F
74LS244_Split
H 13 7

U11B
74LS04
3 4

JP8
Jumper_8_Bridged1

JP9
Jumper_8_Bridged1

U22E
74LS244_Split
11 9

GND

Watchdog

VCC

R13
1k

U49
74LS161

GND 3 D0 Q0 14
GND 4 D1 Q1 13
GND 5 D2 Q2 12
GND 6 D3 Q3 11

JP10 not soldered on Insector X

U48E
74LS14

JP10

GND

9 PE TC 15
7 VCC CEP
10 VCC CET
2 CP
1 MR counter

R10
2M2

U48D
74LS14
11 10

2.07Hz

C3
220n

GND

U48D
74LS14
9 8

BNKSW 10 74LS08
9 8
U12C

GND

TR1
MPSA45
2
1

VCC

SW_DIP_x02

GND 1 6
2 5
3 4

R9
250k

VCC

C2
220n

GND

SW

U48F
74LS14
13 12

U29A
74LS32
1 3
2

U48A
74LS14
1 2

U48B
74LS14
3 4

WDRES

CLK (12M)

H

HPH90, PXCK6M, MCLK, SCLK

H2(B)

H4(B)

H8, H8R

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