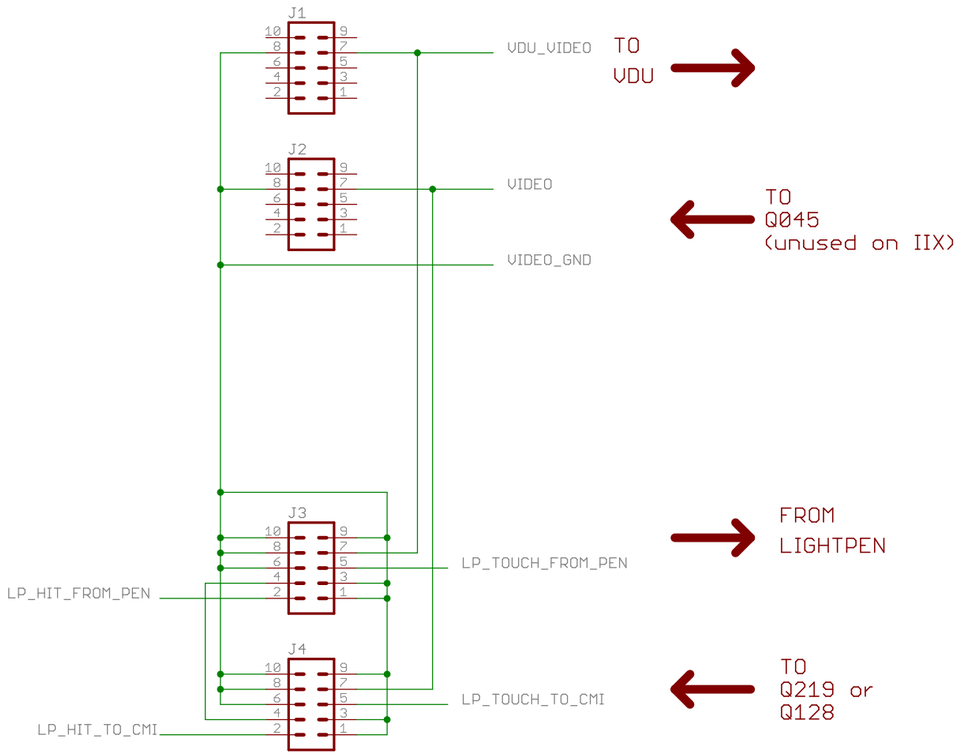
Video only, as on
Q209 S0 (Series IIX)
Q045 S01 (Series II)

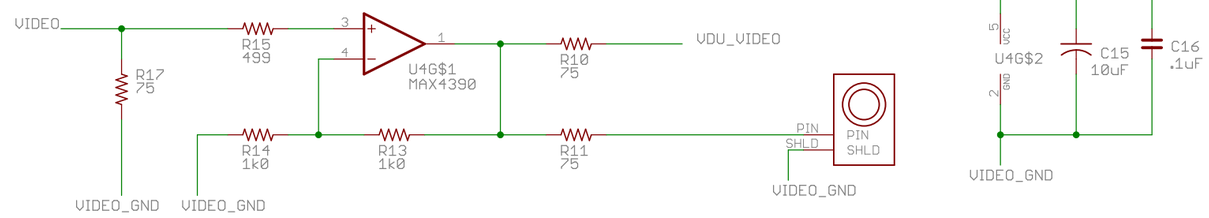


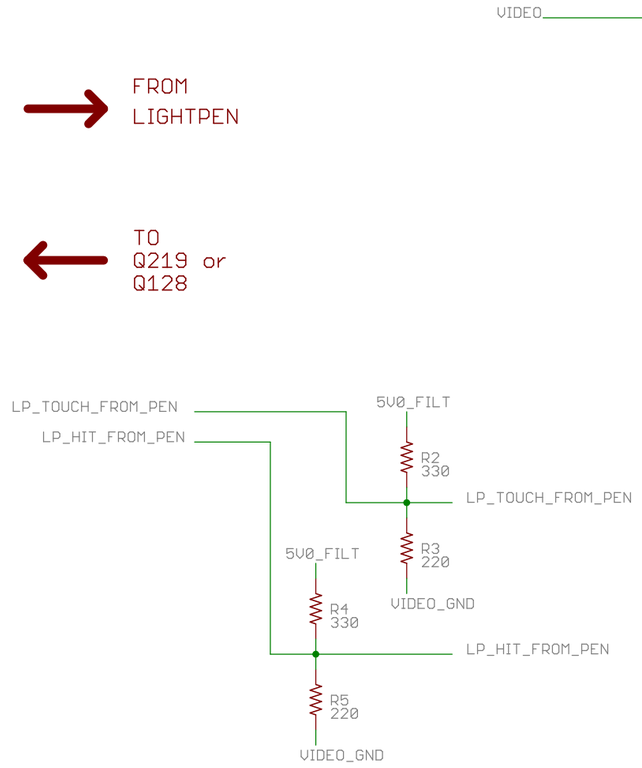
Video and LP on IIX:
Q209 S0
LP only on II:
Q148 S01

VIDEO SPLITTER / AMP

Gen1 lacked this. With this amp,
we can drive 2 monitors simultaneously
(CMI VDU and composite monitor)

This opamp can drive two
150 Ohm loads

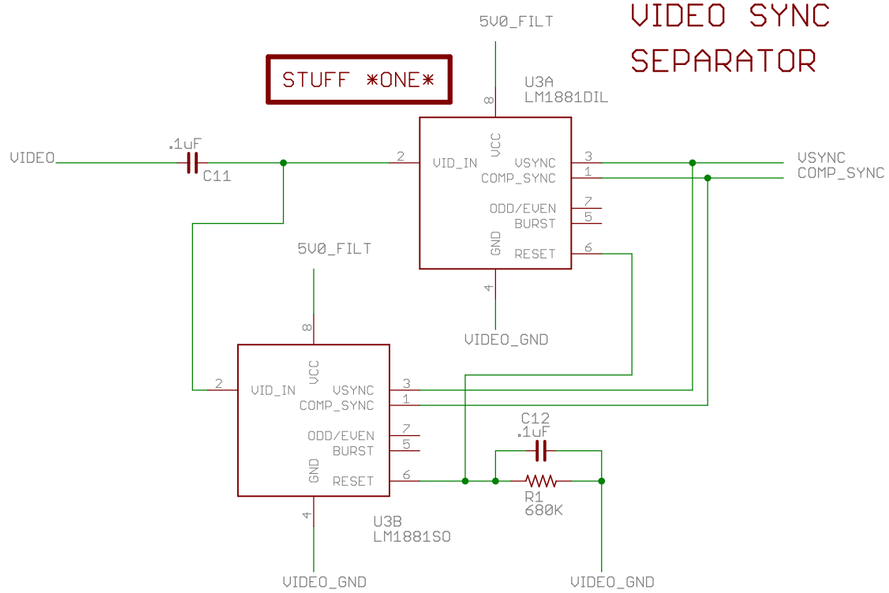




PUP/DN termination, same as
on Q219

VIDEO SYNC SEPARATOR

STUFF *ONE*



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britt@shapetable.com

CMI CONNECTORS

TITLE: usb2cmi	
Document Number:	REV:
Date: 9/30/17 20:27	Sheet: 1/6

LIGHTPEN

8 MHz
X1
OUT GND VCC OE
3V3
GND

EXPANSION CONNECTORS
ON PAGE 6

5V0_FILT
U2P
VCC GND
GND

3V3
R7
56
YELLOW
(Mouse OK)
LED1

3V3
R6
56
GREEN
(Video OK)
LED2

C13
.1uF
GND

C14
47uF
GND

3V3
R12
10K

3V3
3V3

ICP
1 3V3
2 GND
3
4
5

EXPANSION

U1

EXM_RB2_AN2_CN4_C2IN-
EXM_RB3_AN3_CN5_C2IN+
/MOUSE_VBUS_OC
/MOUSE_VBUS_EN
EXM_RB8_AN8_U2CTS_C1OUT
EXM_RB9_AN9_C2OUT_PMA7
EXM_RB10_AN10_TMS_CVREF_PMA13
EXM_RB11_AN11_TDO_PMA12
EXM_RB12_AN12_TCK_PMA11
EXM_RB13_AN13_TDI_PMA10
EXM_RB14_AN14_U2RTS_BCLK2_PMA1
EXM_RB15_AN15_CN12_OCFB_PMA0

LP processor receives MIDI data
and passes it to KB processor

EXM_RD2_OC3_U1RX
EXM_RD3_OC4_U1TX
EXM_RD4_OC5_IC5_CN13_PMWR
EXM_RD5_PMRD_CN14
EXM_RD6_CN15
EXM_RD7_CN16
EXM_RD8_IC1_INT1_RTCC
COMP_SYNC
VSYNC
EXM_RD11_IC4_INT4_PMCS1

16	RB0/AN0/CN2/VR+/PGD1/PMA6		
15	RB1/AN1/CN3/VR-/PGC1		
14	RB2/AN2/CN4/C2IN-		
13	RB3/AN3/CN5/C2IN+		
12	RB4/AN4/CN6/C1IN-		
11	RB5/AN5/CN7/C1IN+/VBUSON		
17	RB6/AN6/OCFA/PGC2		
18	RB7/AN7/PGD2		
21	RB8/AN8/U2CTS/C1OUT		
22	RB9/AN9/C2OUT/PMA7		
23	RB10/AN10/TMS/CVREF/PMA13		
24	RB11/AN11/TDO/PMA12		
27	RB12/AN12/TCK/PMA11		
28	RB13/AN13/TDI/PMA10		
29	RB14/AN14/U2RTS/BCLK2/PMA1		
30	RB15/AN15/CN12/OCFB/PMA0		
46	RD0/OC1/INT0		
49	RD1/OC2/U1RTS/BCLK1		
50	RD2/OC3/U1RX		
51	RD3/OC4/U1TX		
52	RD4/OC5/IC5/CN13/PMWR		
53	RD5/PMRD/CN14		
54	RD6/CN15		
55	RD7/CN16		
42	RD8/IC1/INT1/RTCC		
43	RD9/IC2/INT2/U1CTS/SDA1		
44	RD10/IC3/INT3/PMCS2/SCL1		
45	RD11/IC4/INT4/PMCS1		
12	AVDD		
56	VDDC		
10			
26	VDD		
38			
57			
7	ENVREG	MCLR	
39		RC12/CLKI/OSC1	
40		RC15/CLKO/OSC2	EXM_RC15_CLKO
47		SOSCI/CN1/RC13	EXM_SOSCI_CN1_RC13
48		SOSCO/T1CK/CN0/RC14	EXM_SOSCO_T1CK_CN0_RC14
58		RF0	
59		RF1	
34		VBUS	
33		USBID/RF3	
31		PMA9/SDA2/CN17/U2RX/RF4	EXM_PMA9_SDA2_CN17_U2RX_RF4
32		PMA8/SCL2/CN18/U2TX/RF5	EXM_PMA8_SCL2_CN18_U2TX_RF5
35		VUSB	3V3 PUT 0.1uF CAP NEAR
37		D+/RG2	MOUSE_D+
36		D-/RG3	MOUSE_D-
4		PMA5/CN8/SCK2/RG6	EXM_PMA5_CN8_SCK2_RG6
5		PMA4/CN9/SDI2/RG7	EXM_PMA4_CN9_SDI2_RG7
6		PMA3/CN10/SDO2/RG8	EXM_PMA3_CN10_SDO2_RG8
8		PMA2/CN11/SS2/RG9	EXM_PMA2_CN11_SS2_RG9
60		PMD0/RE0	EXP_MOUSE_D0
61		PMD1/RE1	EXP_MOUSE_D1
62		PMD2/RE2	EXP_MOUSE_D2
63		PMD3/RE3	EXP_MOUSE_D3
64		PMD4/RE4	EXP_MOUSE_D4
1		PMD5/RE5	EXP_MOUSE_D5
2		PMD6/RE6	EXP_MOUSE_D6
3		PMD7/RE7	EXP_MOUSE_D7
20	AVSS		
9			
25	VSS		
41			

by DODOTRONIC

PIC32MX440FH

EXP_MOUSE_D[0..7]

GND

EXPANSION

U2C
9
10
8 LP_TOUCH_TO_CMI
74LS00D

LP_TOUCH_FROM_PEN

R16
0
NEEDED FOR HOST ONLY?
MOUSE_VBUS

U2A
1
2
3
74LS00D

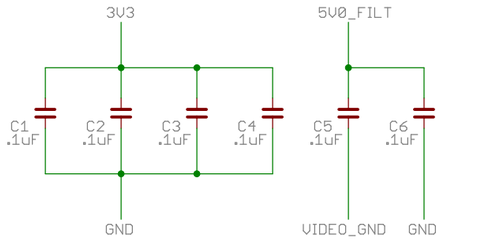
U2B
4
5
6
74LS00D

U2D
12
13
11 LP_HIT_TO_CMI
74LS00D

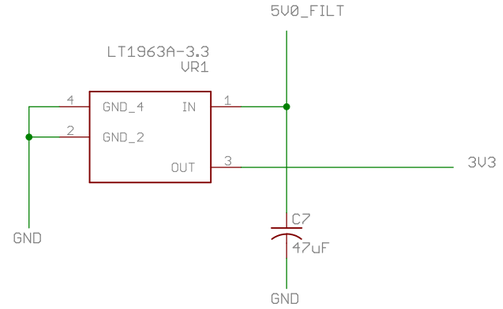
LP_HIT_FROM_PEN

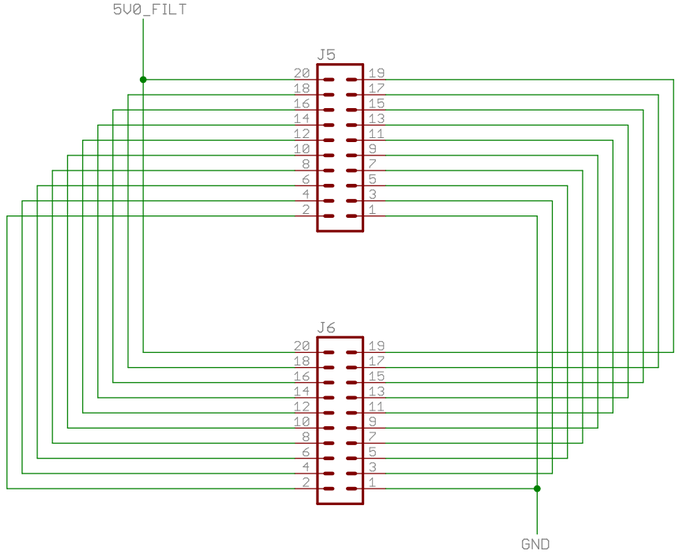
PROCESSOR

TITLE: usb2cmi	
Document Number:	REV:
Date: 9/30/17 20:27	Sheet: 2/6



C5 is bypass for the LM1881
which is connected to VIDEO_GND





POWER SUPPLIES & DECOUPLING

TITLE: usb2cmi	
Document Number:	REV:
Date: 9/30/17 20:27	Sheet: 3/6

KEYPAD & LED DISPLAYS

TITLE: usb2cmi

Document Number:

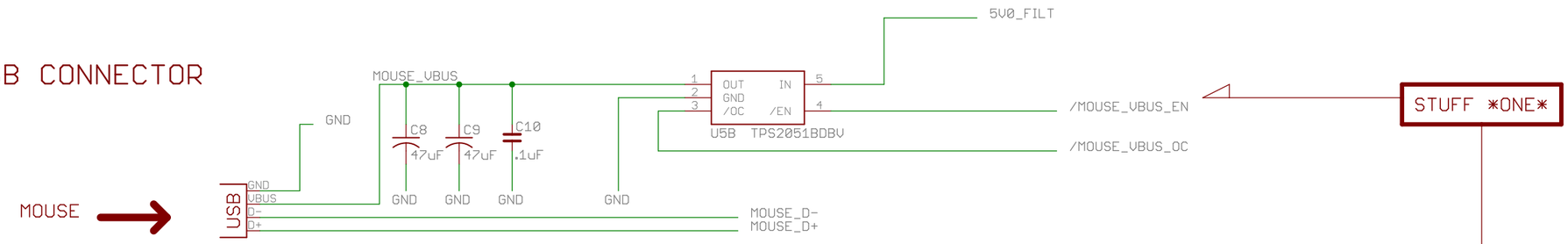
REV:

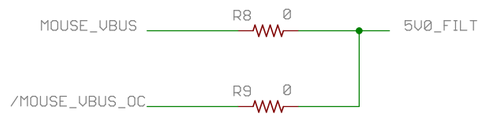
Date: 9/30/17 20:27

Sheet: 4/6

CHECK 100UF FOOTPRINT

USB CONNECTOR





STUFF *ONE*

The original run of units used a proper overcurrent detection circuit.

A couple of 0-ohm resistors can be loaded if you want to build without the overcurrent detector.

USB HOST CONNECTORS	
TITLE: usb2cmi	
Document Number:	REV:
Date: 9/30/17 20:27	Sheet: 5/6

Mouse/Lightpen Processor

Note:
EXP connectors are pinned out for ease of PCB routing

10-way header/ribbon used on these pins to connect to keyboard interface

Keyboard interface provides +5V

UART2 TX sends G-Pad data

EXPANSION CONNECTOR

TITLE: usb2cmi	
Document Number:	REV:
Date: 9/30/17 20:27	Sheet: 6/6