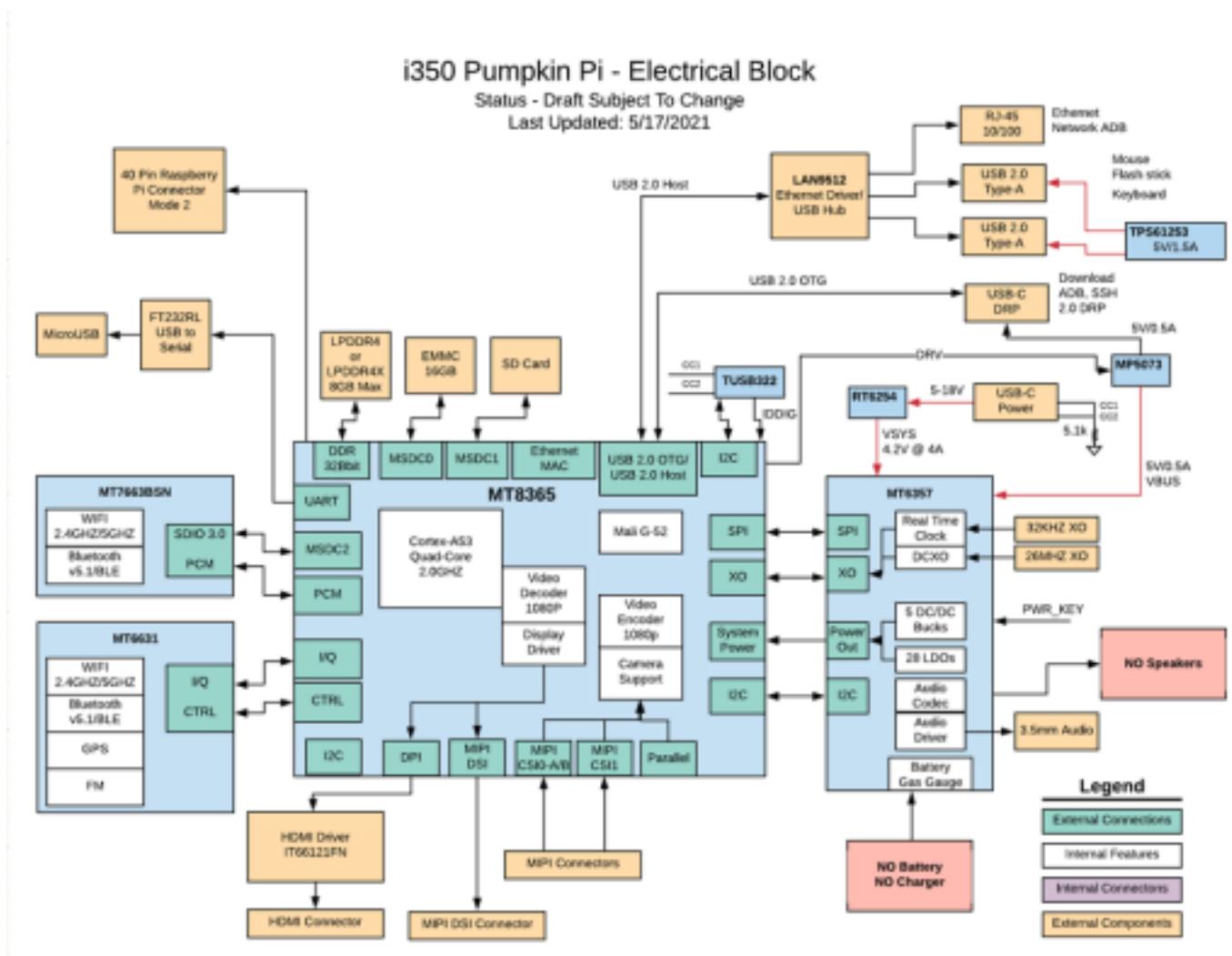


Pumpkin i350 Board Reference Guide

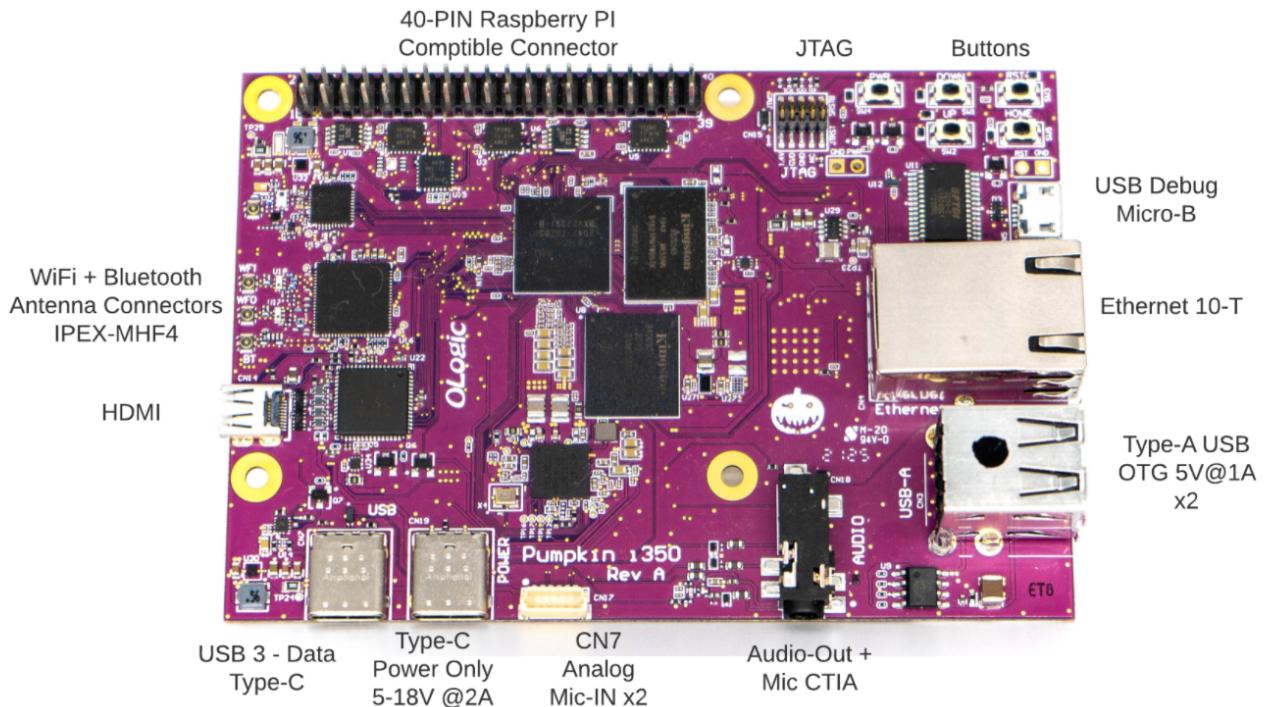
The purpose of this document is to give an overview of all the hardware items on the i350 Pumpkin Board.

Pumpkin i350 Block Diagram:



The Top of the Pumpkin i350:

The top of the board looks like the following picture

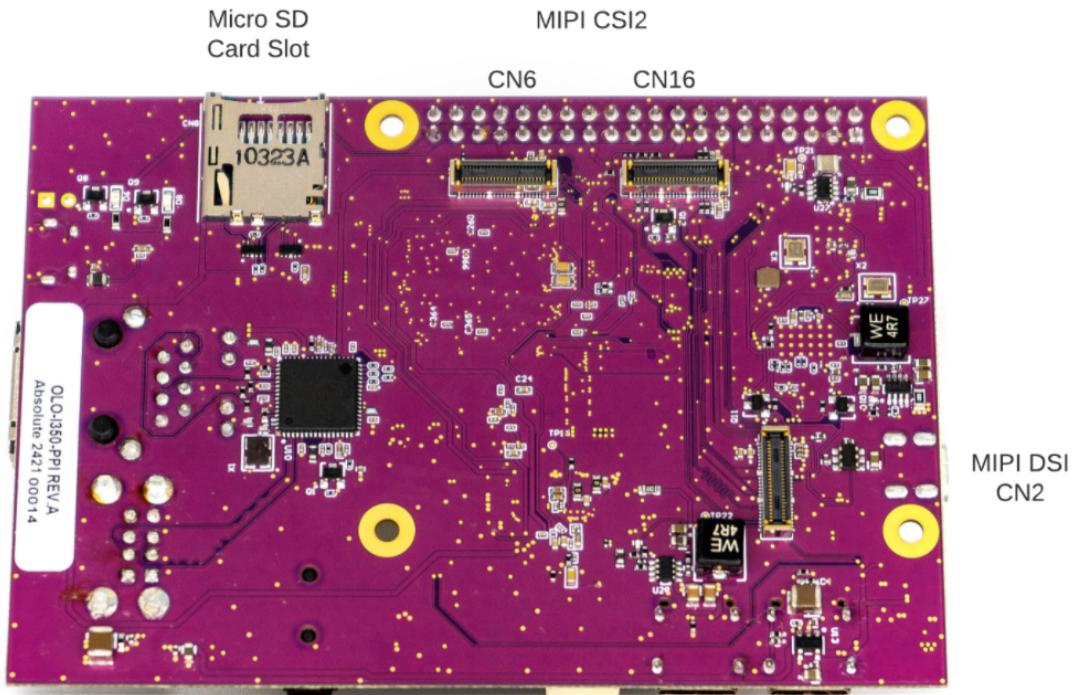


The Type-C Power input connector is non-standard, in that it supports wide-input voltage. You can supply anywhere from 5V up to 18V into the Type-C connector to power the Pumpkin i350.

The 40-Pin Raspberry PI Compatible Connector has the following pinout. You 5V rail on this connection is output-only. Unlike a Raspberry PI, you cannot back-power the board by putting 5V on the 5V pins. You must only power the board via the Type-C power only input.

Pumpkin i350											
Ball Location	PAD	GPIO	MUX	3.3V	1	2	5.0V	MUX	GPIO	PAD	Ball Location
AJ24	SDA1	59		I2C1_SDA	3	4	5.0V				
AH24	SDL1	60		I2C1_SCL	5	6	GND				
P27	NCEB1	106		GPIO106	7	8	UART1_TXD		115	UTXD1	AF23
				GND	9	10	UART1_RXD		121	URXD1	AF22
AE25	TDM_TX_DATA2	134		TDM_DATA2	11	12	TDM_LRCK		130	TDM_TX_LRCK	AF27
P28	NCEB0	107		GPIO107	13	14	GND				
AE29	DMIC1_CLK	120		DMIC1_CLK	15	16	TDM_MCK		131	TDM_TX_MCK	AJ25
				3.3V	17	18	GPIO105		105	NCLE	P29
AG5	SPI1_CAM_MO	29		SPI1_MOSI	19	20	GND				
AE6	SPI1_CAM_MI	28		SPI1_MISO	21	22	PWM_A		16	DPI_D12	AG17
AF6	SPI1_CAM_CLK	27		SPI1_CLK	23	24	SPI1_CSB		26	SPI1_CAM_CSB	AE5
				GND	25	26	PWM_B		17	DPI_D13	AH16
AH27	SDA0	57		I2C0_SDA	27	28	I2C0_SCL		58	SCL0	AH26
AF30	I2S1_BCK	121	DMIC1_DAT0	I2S1_BCK	29	30	GND				
AH29	I2S1_DO	124	DMIC2_DAT0	I2S1_DO	31	32	I2S1_MCK	DMIC2_CLK	123	I2S1_MCK	AF29
AF28	I2S1_LRCK	122	DMIC1_DAT1	I2S1_LRCK	33	34	GND				
AH25	TDM_TX_DATA0	132		TDM_DATA0	35	36	DMIC2_DAT1		125	DMIC2_DAT1	AG29
AF26	TDM_TX_BCK	129		TDM_BCK	37	38	TDM_DATA3		135	TDM_TX_DATA3	AF25
				GND	39	40	TDM_DATA1		133	TDM_TX_DATA1	AG25

Per the board programming instructions document, you can plug a computer into the Type-C data port and flash the board. When you have the Type-C data port attached it will appear as fastboot peripheral and fastboot can be used to program the board. The i350 processor only has one USB port on it. There is a Microchip LAN9512 chip on the board which provides a USB hub + Ethernet much like the original Raspberry Pi 3B. In order to give direct access to the USB port on the i350 chip during programming, the USB-C data port is connected to the i350 via a MUX that switches when plugged into, thus disconnecting the hub. So, you can either have the LAN9512 connected to the i350, OR the direct USB-C data connection, but not both at the same time.



Pumpkin Display Connector:

The Pumpkin MIPI-DSI Display connector is located at CN2 on the bottom of the board. The following is the pinout of the connection and the type of connector used.

PUMPKIN i350 DS/Display CONNECTOR PIN-OUT MAP			
Shielded DF40 48-pin			
DF40GB(3.0)-48DS-0.4V			
VSYS (4.2V)	1	2	1.8V
VSYS (4.2V)	3	4	2.8V
VSYS (4.2V)	5	6	3.3V
	7	8	
I2S5_BCK	9	10	
I2S5_FS	11	12	DSI_CK_P
I2S5_DATA	13	14	DSI_CK_N
GND	15	16	GND
GND	17	18	GND
I2S5_MCLK	19	20	DSI_D3_P
DISPLAY_GPIO0	21	22	DSI_D3_N
DISPLAY_GPIO1	23	24	
DISPLAY_GPIO2	25	26	GND
I2C3_SDA	27	28	DSI_D2_P
I2C3_SCL	29	30	DSI_D2_N
GND	31	32	GND
GND	33	34	GND
DSI_D0_P	35	36	DSI_D1_P
DSI_D0_N	37	38	DSI_D1_N
	39	40	GND
	41	42	DISP_PWM
I2C45_SDA	43	44	DSI_TE
I2C5_SCL	45	46	DISP_RST
TOUCH_INT	47	48	TOUCH_RST

Pumpkin i350 Camera Ports:

The Pumpkin i350 has two camera connectors used to bring out all the camera connections from the i350 processor. The i350 has two 2-Lane MIPI ports and one 4-Lane MIPI port. The challenge with the i350 here is that the two 2-Lane ports can be combined to form a single 4-Lane port. This connector pinout makes it possible to support the camera connections in either configuration, and also be compatible with the OLogic camera connection boards such as the Pumpkin Cam, and the Pumpkin ISP Cam. The Pumpkin Cam board brings out two 2-Lane direct MIPI ports, whereas the Pumpkin ISP Cam board wires right into the two 4-Lane configured connections. The pin arrangement outlined in light yellow here shows the 4-Lane configuration of the two 2-Lanes combined to form it on CN6. Or you could just access to the two lane arrangement direct on the CN16. The CAM2/CAM0 arrangement to make a single 4-Lane connection only exists on the Rev B Pumpkin i350 and not the Rev A. If you want two 4-Lane MIPI ports on a Rev A Pumpkin i350, use CAM0 and CAM2 combined on CN16.

PUMPKIN i350 CAMERA CONNECTOR PIN-OUT MAP

Shielded DF40 48-pin				Shielded DF40 48-pin			
DF40GB(3.0)-48DS-0.4V				DF40GB(3.0)-48DS-0.4V			
VSYS_4.2V	1	2	VCAMA1_PMU	2.8V	VSYS_4.2V	1	2
VSYS_4.2V	3	4	VLDO28_PMU	2.8V	VSYS_4.2V	3	4
CAM_D	5	6	VCAMIO_PMU	1.8V	1.2V	5	6
SPI2_CLK	7	8	SPI2_MO		CAM1_RST	7	8
SP2_CSB_CAM	9	10	SPI2_MI			9	10
CAM0_D0_P	11	12	CAM2_D0_P		CAM1_D0_P	11	12
CAM0_D0_N	13	14	CAM2_D0_N		CAM1_D0_N	13	14
GND	15	16	GND		GND	15	16
GND	17	18	GND		GND	17	18
CAM0_CLK_P	19	20	CAM2_CLK_P		CAM1_CLK_P	19	20
CAM0_CLK_N	21	22	CAM2_CLK_N		CAM1_CLK_N	21	22
CAM_GPIO0	23	24	CAM_GPIO3		CAM_GPIO4	23	24
CAM_GPIO1	25	26	CAM_GPIO2			25	26
CAM0_D1_P	27	28	CAM2_D1_P		CAM1_D1_P	27	28
CAM0_D1_N	29	30	CAM2_D1_N		CAM1_D1_N	29	30
GND	31	32	GND		GND	31	32
GND	33	34	GND		GND	33	34
CAM0_RST	35	36	CAM2_RST		CAM1_D2_P	35	36
CAM0_PDN	37	38			CAM1_D2_N	37	38
CAM1_PDN	39	40	CAM2_PDN			39	40
CAM_SCL2	41	42	CAM_SCL3		CAM1_D3_P	41	42
CAM_SDA2	43	44	CAM_SDA3		CAM1_D3_N	43	44
	45	46				45	46
CAM0_MCLK	47	48			CAM1_MCLK	47	48
CN16				CN6			
2x2L configuration				4-Lane-MIPI			
1x4L configuration							

Audio Jack:

Audio – 3.5mm Jack

- AHJ (CTIA) standard
- Headset accessory detection



Mechanical Outline and Connectors:

