

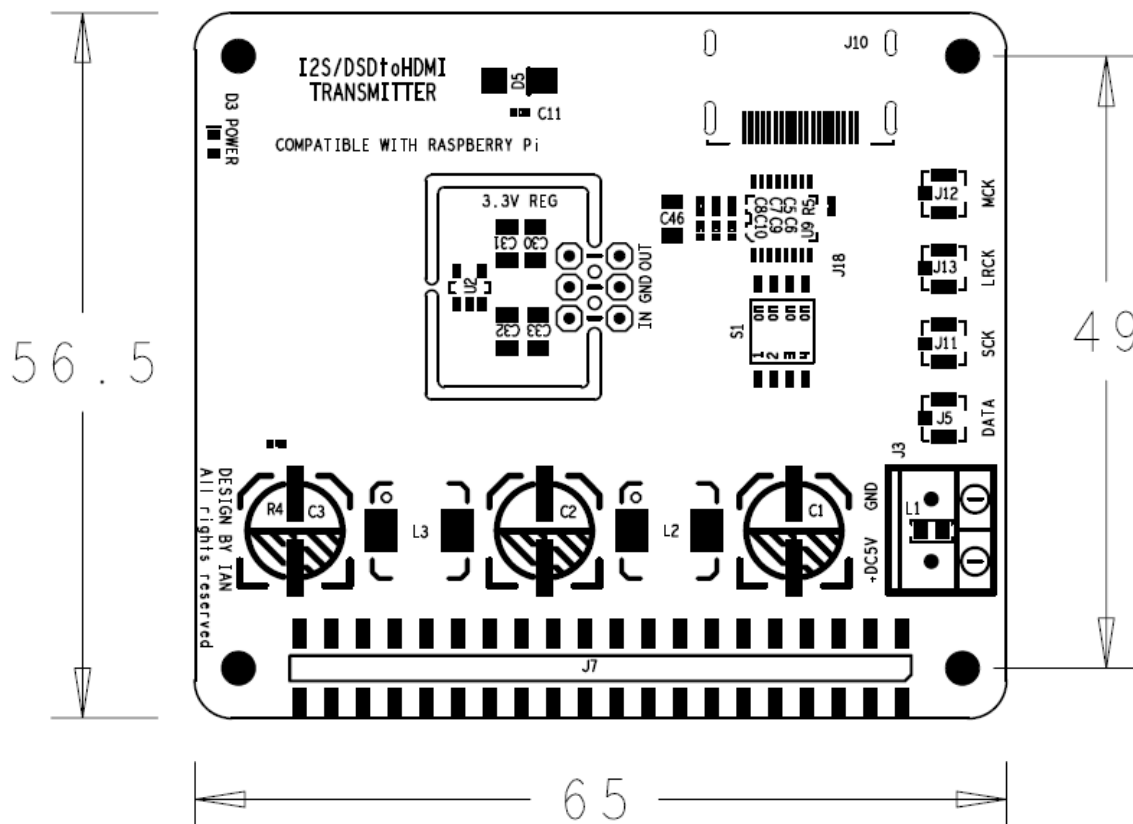
HDMIpi PCM/DSD/DoP to HDMI transmitter user's guide

By Ian Jin May 31, 2019 Ver. 1.0

A. Highlighted Features and Specifications

- Converts PCM/DSD/DoP into balanced LVDS signals to transmit them over HDMI cable
- Standard PCM/DSD/DoP to HDMI signal configuration
- Transmits PCM signals up to 768KHz
- Transmits native DSD signals up to DSD1024
- Transmits DoP signal up to DSD256 in PCM package
- Works with either Raspberry Pi or as independent PCM/DSD/DoP to HDMI transmitter
- Digital music signals input either from GPIO or from high quality u.fl connectors
- Can power HDMI to PCM/DSD/DoP receiver over HDMI cable
- Replaceable 3.3V regulator board ready for higher quality power supply upgrade
- DIY friendly design

B. Layout and Dimensions (in mm)



C. Getting start without MCLK

1. Plug HDMIpi transmitter into the GPIO port of Raspberry Pi.
2. Connect HDMI cable from receiver into HDMI connector J10.
3. Power and Run Raspberry Pi based music player normally

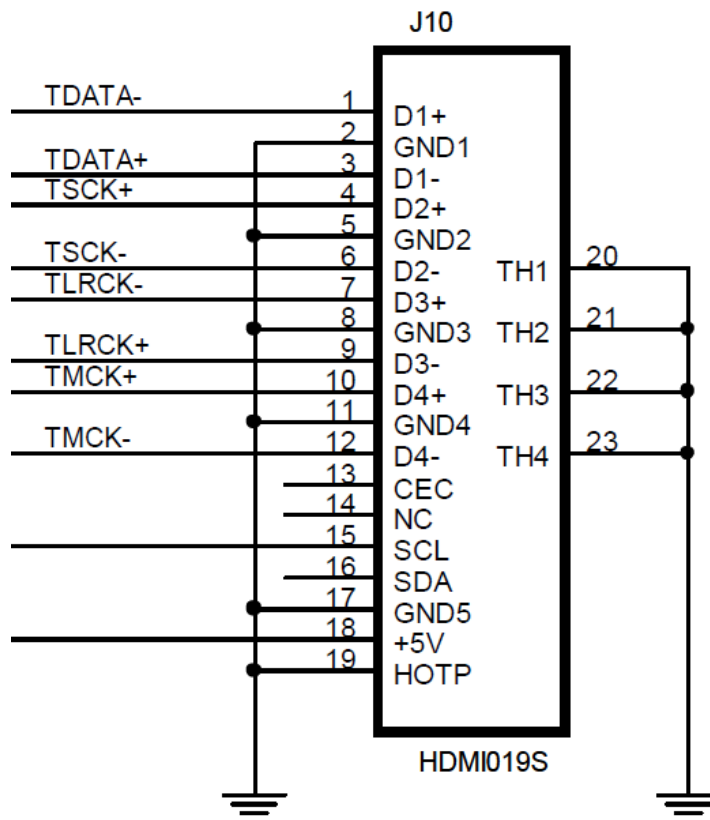
D. Getting start with MCLK

1. Plug HDMIpi transmitter into the isolated GPIO port of FifoPi.
2. Connect MCLK clock signal from FifoPi to MCK connector J12 through u.fl cable. Make sure switch S1.4 is set at off position
3. Connect HDMI cable from receiver into HDMI connector J10.
4. Power and run Raspberry Pi/FifoPi based music player normally

E. Connectors

J10: HDMI output connector

Standard HDMI type A connector. To output LVDS PCM/DSD/DoP signals to receiver through HDMI cable. For higher signal quality, high speed HDMI cables version 2.0 or higher are recommended. Please refer the following schematic for signal configurations.



40 pin GPIO connectors

pin number	J1 40 PIN GPIO connector to board below (Raspberry Pi, IsolatorPi I/II, FiFoPi, or similar)	J7 Optional 40 PIN GPIO connector to HAT on top (was not installed by default)
1,17	3.3V from preceding board	3.3V from preceding board
2,4	5V from preceding board	5V from preceding board
6,9,14,20, 25,30,34, 39	GND	GND
12	SCK input	SCK from preceding board
35	LRCK/D1 input	LRCK/D1PIN from preceding board
40	SD/D2 input	SD/D2 PIN from preceding board
All other pins	same pin from preceding board	same pin from preceding board

40 pin GPIO connector note: All input/output signals are LVTTTL (3.3V) logic level except power and ground.

J12: External MCLK input (u.fl coaxial cable socket)

When including the MCLK signal into HDMI cable, connect the external MCLK signal from a FifoPi or similar low jitter re-clocking source using a u.fl coaxial cable. Switch S1.4 needs to be set at off position in this case.

J11: High quality SCK input (u.fl coaxial cable socket)

When high quality SCK signal is required, connect the SCK signal from a FifoPi or similar low jitter re-clocking source using a u.fl coaxial cable. Switch S1.2 needs to be set at off position in this case.

J13: High quality LRCK/D1 input (u.fl coaxial cable socket)

When high quality LRCK/D1 signal is required, connect the LRCK/D1 signal from a FifoPi or similar low jitter re-clocking source using a u.fl coaxial cable. Switch S1.3 needs to be set at off position in this case.

J11: High quality SD/D2 input (u.fl coaxial cable socket)

When high quality SD/D2 signal is required, connect the SD/D2 signal from a FifoPi or similar low jitter re-clocking source using a u.fl coaxial cable. Switch S1.1 needs to be set at off position in this case.

J3: Optional DC power input

If don't want picking up power from GPIO, you can connect a 5V DC / 100mA (minimum) power supply to the 2-pin 5.0mm terminal J3. MAINTAINING CORRECT POLARITY!!! Low noise linear 5V power supply will be good for HDMIpi transmitter. Direct-connected 3.3V ultra capacitor / LifePO4 battery power supply can also be used. J3 was not installed by default. L1 needs to be removed before solder the supplied terminal block to J3 position.

J18: Optional control input

Reserved optional input that the logic level can be transmitted to the receiver.

Jumper Settings

Jumper Switch S1	OFF	ON
1	Input SD/D2 from u.fl connector only	Input SD/D2 from GPIO (default)
2	Input SCK from u.fl connector only	Input SCK from GPIO (default)
3	Input LRCK/D1 from u.fl connector only	Input LRCK/D1 from GPIO (default)
4	Input MCLK from u.fl connector only (default)	Reserved

F. LED indicator

D3: Power indicator

G. Upgrade options

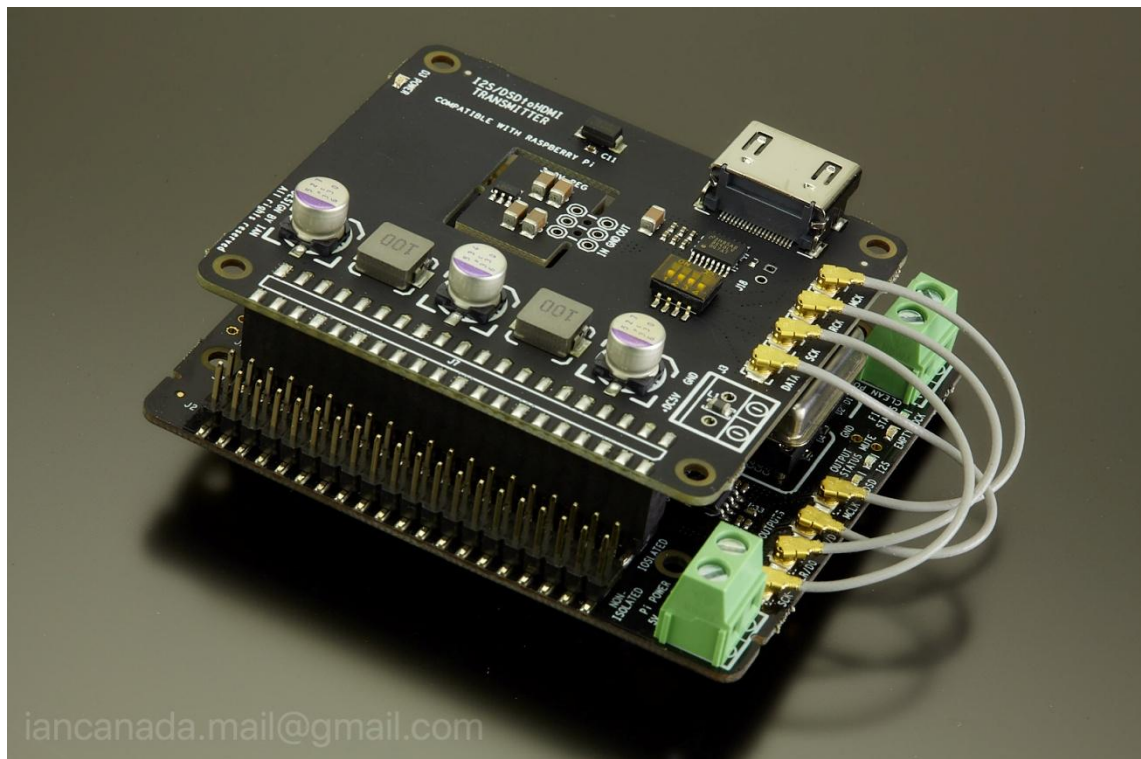
1. Works with low jitter re-clocking board such as FifoPi through u.fl cables. Make sure all jumper switches (S1) are at off position if use u.fl cables.
2. Replace on-board 3.3V regulator with ultra-low noise regulator board such as LT3042/LT3045 or so on.
3. Using independent high quality power supply through J3. Need to remove L1 first, and then solder the supplied terminal block to the J3 position.
4. Use Direct-connected 3.3V ultra capacitor / LifePO4 battery power supply. In this setup, 3.3V regulator board can be removed with IN and OUT pins bridged together.

H. Pictures of HDMIpi PCM/DSD/DoP to HDMI transmitter

1. HDMIpi PCM/DSD/DoP to HDMI transmitter as shipped



2. Works with FifoPi



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