TWTMC-PPG new Pierce pico gate oscillator

It's a entry level Pierce oscillator using a standard HC-49/U crystal and it's designed to be used as the master clock for digital to analog conversion. The output of this oscillator is square wave therefore it can be directly connected to digital devices such as FIFO or DAC.

Oscillator type: Pierce (CMOS)

Frequencies: 22.5792 MHz, 24.576 MHz
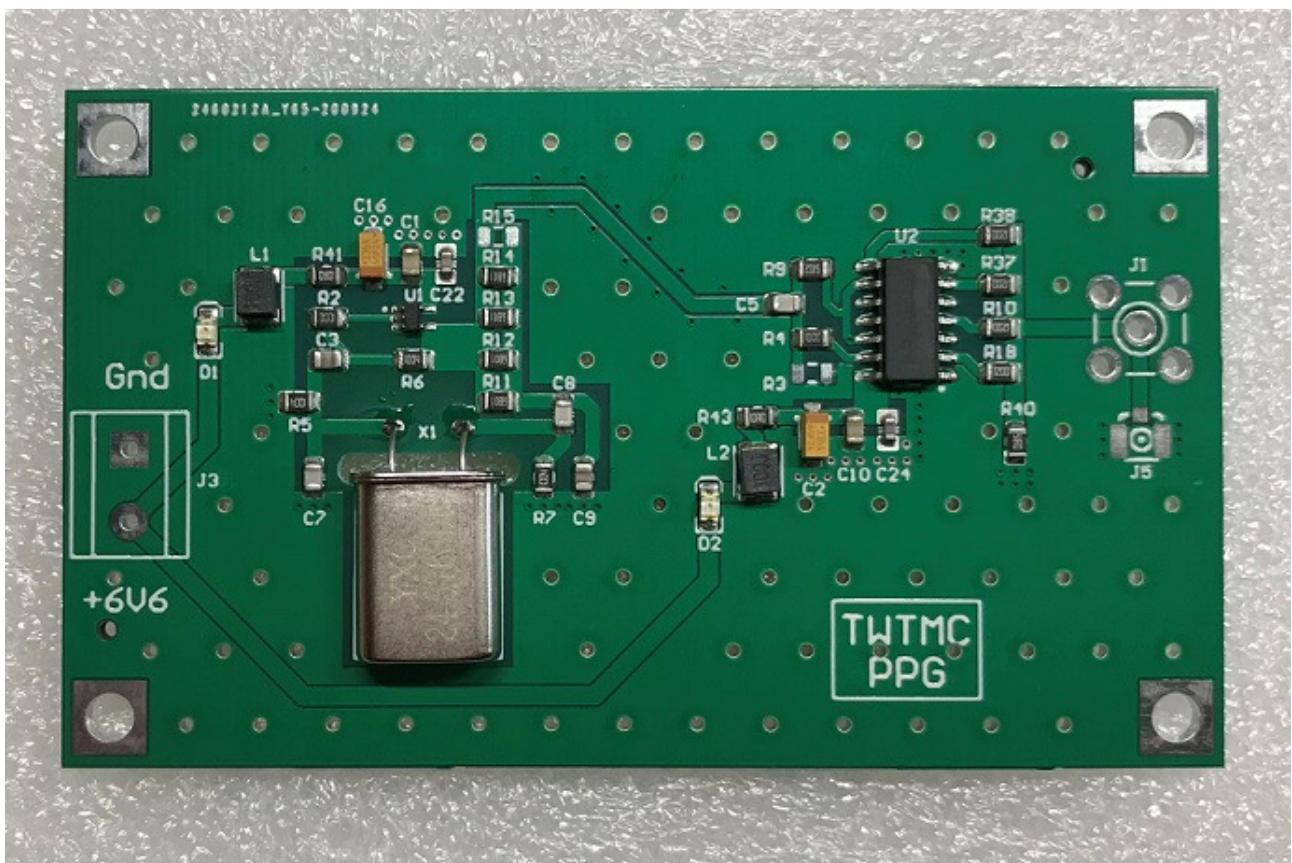
Output: 50 Ohm square wave (+15 dBm)

Crystals: AT-Cut fundamental only (22.5792 MHz and 24.576 MHz)
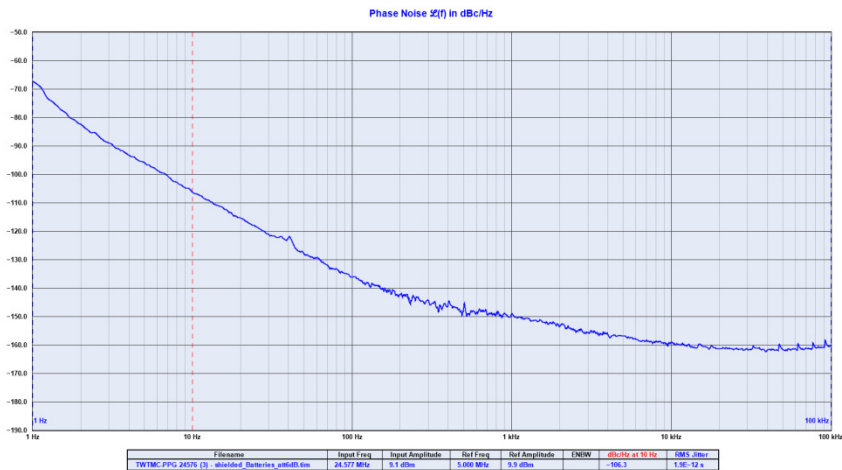
Board size: 81mm x 48mm

Power supply: 6.6 Vdc 25 mA

Board options: finished only
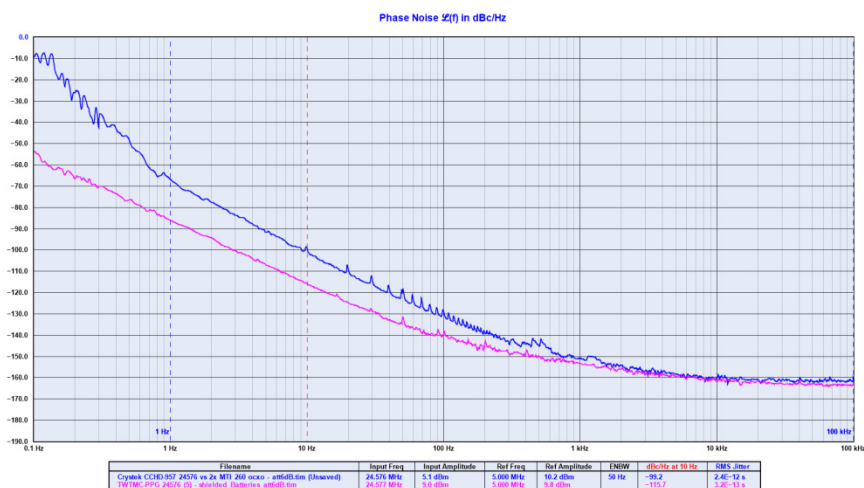
Note: supplied with crystal

The following figures show the measured phase noise of the entry level Pierce oscillator at 24.576 MHz (2 different crystals)

TWTMC-PPG 24.576 MHz phase noise (crystal 3)

TWTMC-PPG 24.576 MHz phase noise (crystal 3)

TWTMC-PPG 24.576 MHz (crystal 5) vs. Crystek CCHD-957 24.576 MHz phase noise

There is 1 available option for this oscillator:

- finished boards with crystal (fully assembled and tested)

TWTMC-STS new Sine to square converter

It's a little board that convert the sine wave output of oscillators and frequency doublers into square wave. Digital devices such as FIFO or DAC have to be fed with square wave therefore this board is required when using the oscillators (TWTMC-DRIXO, TWTMC-EXO, TWTMC-PXO, TWTMC-PXO-AIO) and/or the frequency doubler (TWTMC-DBM).

Oscillator type: any

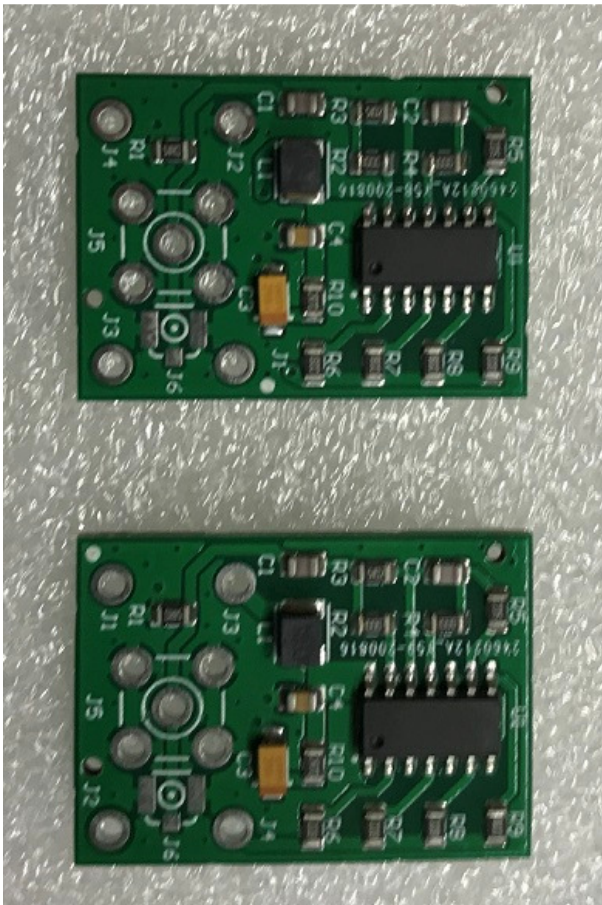Frequencies: 5.6448 MHz to 98.304 MHz

Input: 50 Ohm sine wave

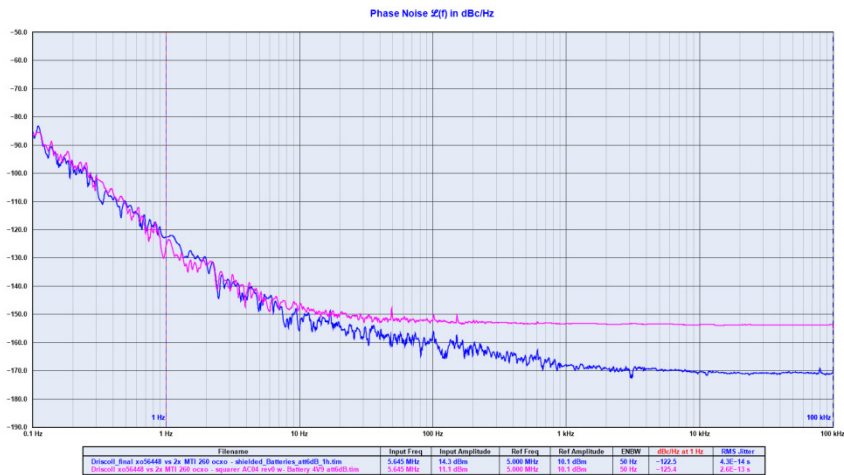Output: 50 Ohm square wave (+15 dBm)

Board size: 21mm x 28mm

Power supply: 3.3 Vdc 15 mA
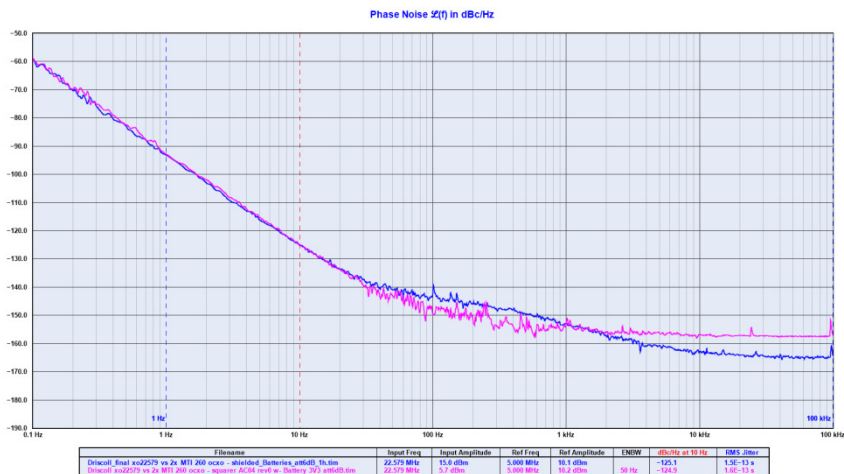
Board options: finished only

Note: supplied without connectors, fits Ian's FIFO

The following figures show the measured phase noise of the Sine to square converter at different oscillator frequencies (5.6448 MHz and 22.5792 MHz)

TWTMC-STS 5.6448 MHz phase noise (Driscoll oscillator)

TWTMC-STS 22.5792 MHz phase noise (Driscoll oscillator)

There is 1 available option for this board:

- finished boards without connectors (fully assembled and tested)

There are two different layouts for this board:

- TWTMC-STS-SX (Ian's Dual XO board, McFifo, FifoPi)

- TWTMC-STS-DX (McFifo, FifoPi)

TWRPS-pp Low noise push-pull regulator

It's a low noise linear push-pull regulator designed to provide power supply to the oscillators and the frequency doublers.

Input: AC

Output voltage: 10 to 16 Vdc

Output current: up to 500 mA

Power supply for: 2 x oscillators + 4 x frequency doublers

Board size: 107mm x 102mm

Board options: bare PCB only

Note: all parts are through hole

There is 1 available option for this board:

- bare PCB (all parts are through hole)

The BOM is available at post #160 on the diyaudio.com thread: The Well Regulated Power Supply.

TWRPS-UGL Low noise linear regulator

It's a low noise linear regulator designed to provide power supply to the oscillators and the frequency doublers.
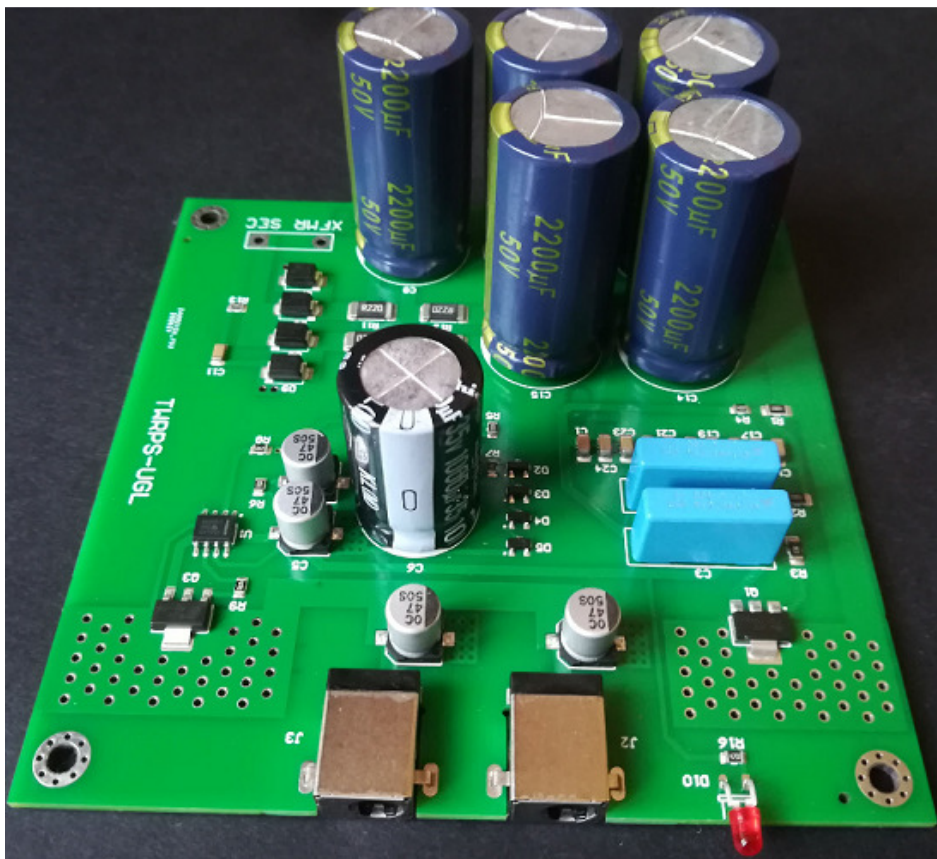
Input: AC

Output voltage: 15 Vdc

Output current: up to 150 mA

Power supply for: 1 x oscillators + 2 x frequency doublers

Board size: 100mm x 100mm

Board options: finished and semi-finished

There are 2 available options for this board:

- finished boards (fully assembled and tested)

- semi-finished boards (users have to solder a few parts, mostly TH)

The BOM for semi-finished board is available at post #161 on the diyaudio.com thread: The Well Regulated Power Supply.

TWSAFB-RPI Raspberry power supply & isolated I2S

It's designed to be stacked onto the Raspberry PI. It provides power supply for the RPI and the official 7" touch screen. It provides galvanic isolated I2S output. The purpose of this board is to build a I2S source from the Raspberry.

5V Linear regulator to supply RPI and SSD hard disk

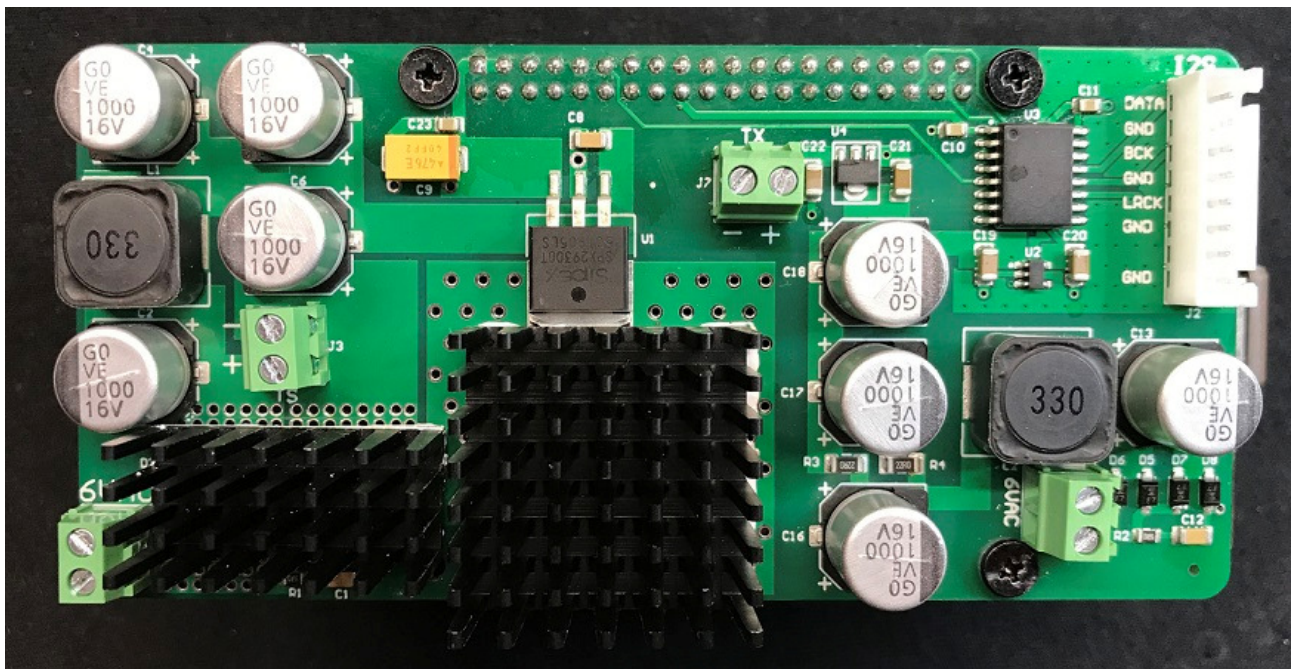5V connector to supply the official 7" touch screen

5V independent linear regulator to supply I2S LVDS transmitter

Galvanic isolated I2S output

Board size: 117mm x 56mm

Board options: finished and semi-finished

Note: supplied without heatsink and raw materials to stack it onto the RPI

There are 2 available options for this board:

- finished boards (fully assembled and tested)

- semi-finished boards (users have to solder a few TH parts)

The BOM for semi-finished board is available at post #125 on the diyaudio.com thread: The Well synchronized asynchronous FIFO buffer - Slaved I2S reclocker.

TWSAFB-TX LVDS transmitter I2S over HDMI

It's a little board used to transmit I2S signals over HDMI cable. The purpose of this board is to keep the I2S source far from the DAC. The I2S input is single-ended CMOS, the I2S output is LVDS.

Input: I2S CMOS single-ended (MCLK, BCK, LRCK, DATA)
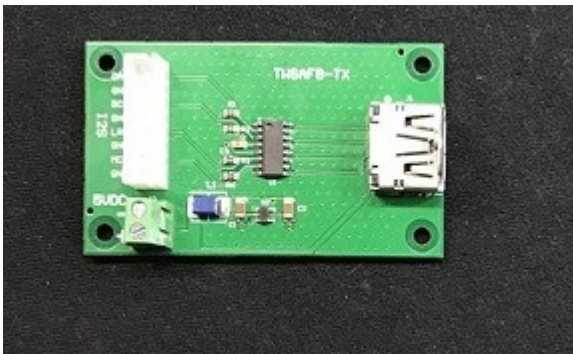
Output: I2S LVDS (MCLK, BCK, LRCK, DATA)

Power supply: 5 Vdc (3V3 low noise regulator on board)

5V output to supply receiver board

Board size: 64mm x 38mm

Board options: finished and semi-finished

Note: TWSAFB-RPI provides 5V power supply to this board

There are 2 available options for this board:

- finished boards (fully assembled and tested)

- semi-finished boards (users have to solder a few SMD and TH parts)

The BOM for semi-finished board is available at post #126 on the diyaudio.com thread: The Well synchronized asynchronous FIFO buffer - Slaved I2S reclocker.

TWSAFB-RX LVDS receiver I2S over HDMI

It's a little board used to receive I2S signals over HDMI cable. The purpose of this board is to keep the I2S source far from the DAC. The I2S input is LVDS, the I2S output is single-ended CMOS.

Input: I2S I2S LVDS (MCLK, BCK, LRCK, DATA)

Output: I2S CMOS single-ended (MCLK, BCK, LRCK, DATA)

Power supply: 2 x5 Vdc (2 x 3V3 low noise regulator on board)

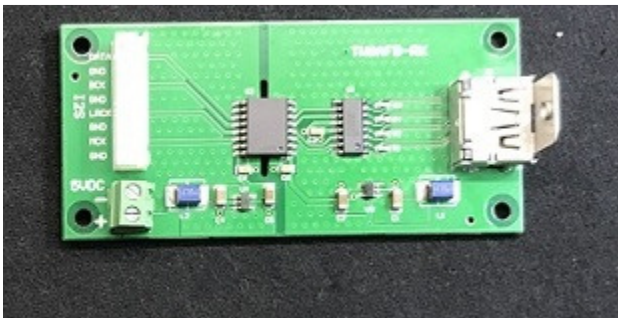5V power supply from transmitter board (non isolated section)

Connector for independent 5V power supply (isolated section)

Galvanic isolated I2S output

Board size: 82mm x 38mm

Board options: finished and semi-finished

Note: TWSAFB-LT FIFO buffer provides 5V power supply to this board

There are 2 available options for this board:

- finished boards (fully assembled and tested)

- semi-finished boards (users have to solder a few SMD and TH parts)

The BOM for semi-finished board is available at post #127 on the diyaudio.com thread: The Well synchronized asynchronous FIFO buffer - Slaved I2S reclocker.