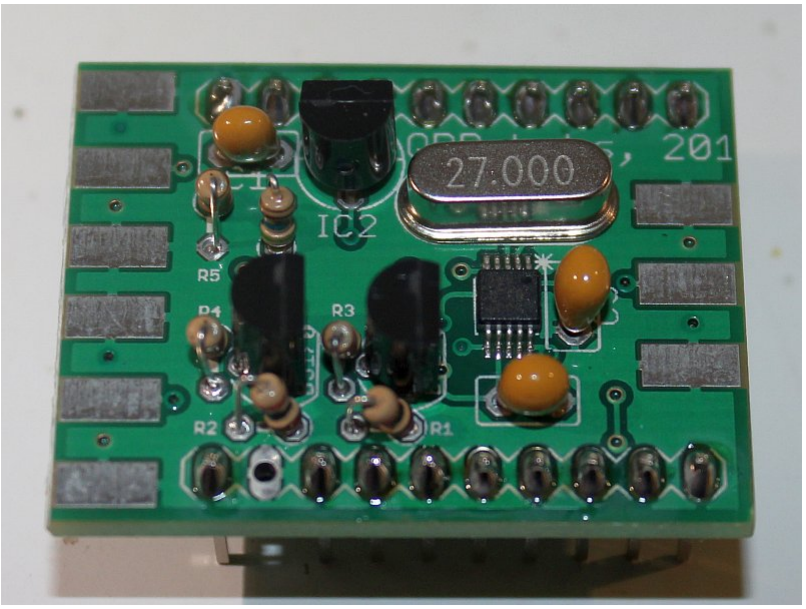

The Si5351A is a relatively recent clock-generator chip manufactured by SiLabs . It can produce three simultaneous independent 50-ohm impedance, squarewave outputs between 8kHz and 160MHz. Configuration of the chip is via a microcontroller with I2C (two-wire) interface.

This Si5351A synthesiser module kit (or "breakout board") runs from a 5V or 3.3V supply. The tiny 0.5mm pin-spaced **Si5351A chip is pre-soldered to the PCB** at the factory. The PCB size is 1.3 x 1 inches (33 x 25mm). The remaining components are all through-hole components so construction is easy. The circuit contains a 3.3V regulator and I2C level converters, for use with 5V microcontroller systems. The kit may also be built without the level converters or regulator, for use in 3.3V systems. The kit has a 2 x 10-pin 0.1-inch header for all connections. Additionally pads are provided on the PCB for soldering SMA connectors if you wish. The kit uses a 27MHz crystal as the reference oscillator.

The synthesizer may be used in a variety of projects. The pinout has been designed to be somewhat similar to the popular AD9850 DDS module and may be substituted in certain cases (with appropriate software changes in the controller). This Si5351A module is also designed to be compatible with the Ultimate3/3S QRSS/WSPR kits . It can be plugged into the U3 kit with certain minimal hardware modifications to the U3. It is directly compatible with the Ultimate3S kit
without modifications. It requires
Ultimate3
firmware v3.07 or above, to communicate with the Si5351A via I2C.
Note that for use in the original U3, not U3S, (PCB revisions 1 to 4), pin 12 of the header needs to be removed before installation.

Documents and Resources

Assembly manual , which also contains some brief notes on theory of operation.
Assembly manual in JAPANESE , many thanks Toru JG1EIQ for the translation
SiLabs Si5351A datasheet
Sample source code, simple examples for using the Si5351A
Purchase ($7.50) the Si5351A Synth from the QRP Labs shop product page

Photographs

Click the following photographs for larger sized versions. The photos show the kit contents and built kit. Note the small number of components. One photo also shows the Si5351A Synth kit installed in an Ultimate3 QRSS/WSPR kit
(apologies for this battered up old U3 kit, it has seen a LOT of action, this old U3).

{gallery}synth{/gallery}