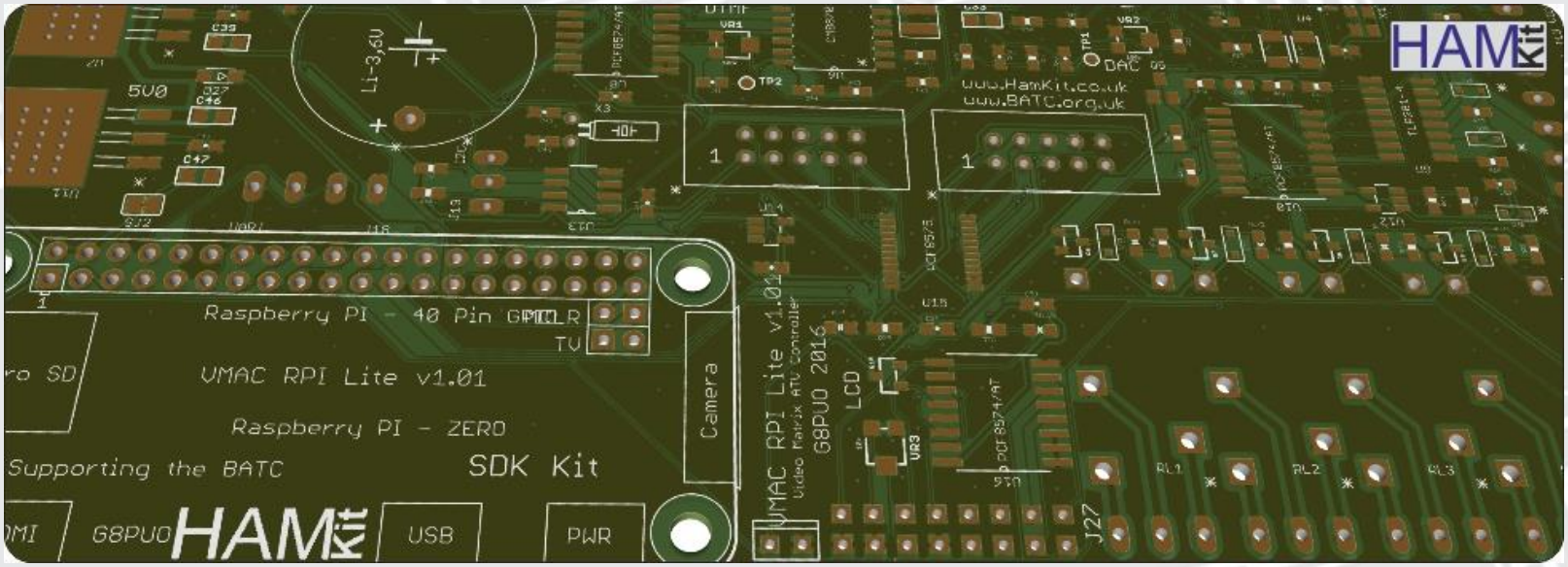
HAMKit

VMAC

VMAC is just one of a series of new electronic kits from HAMKit

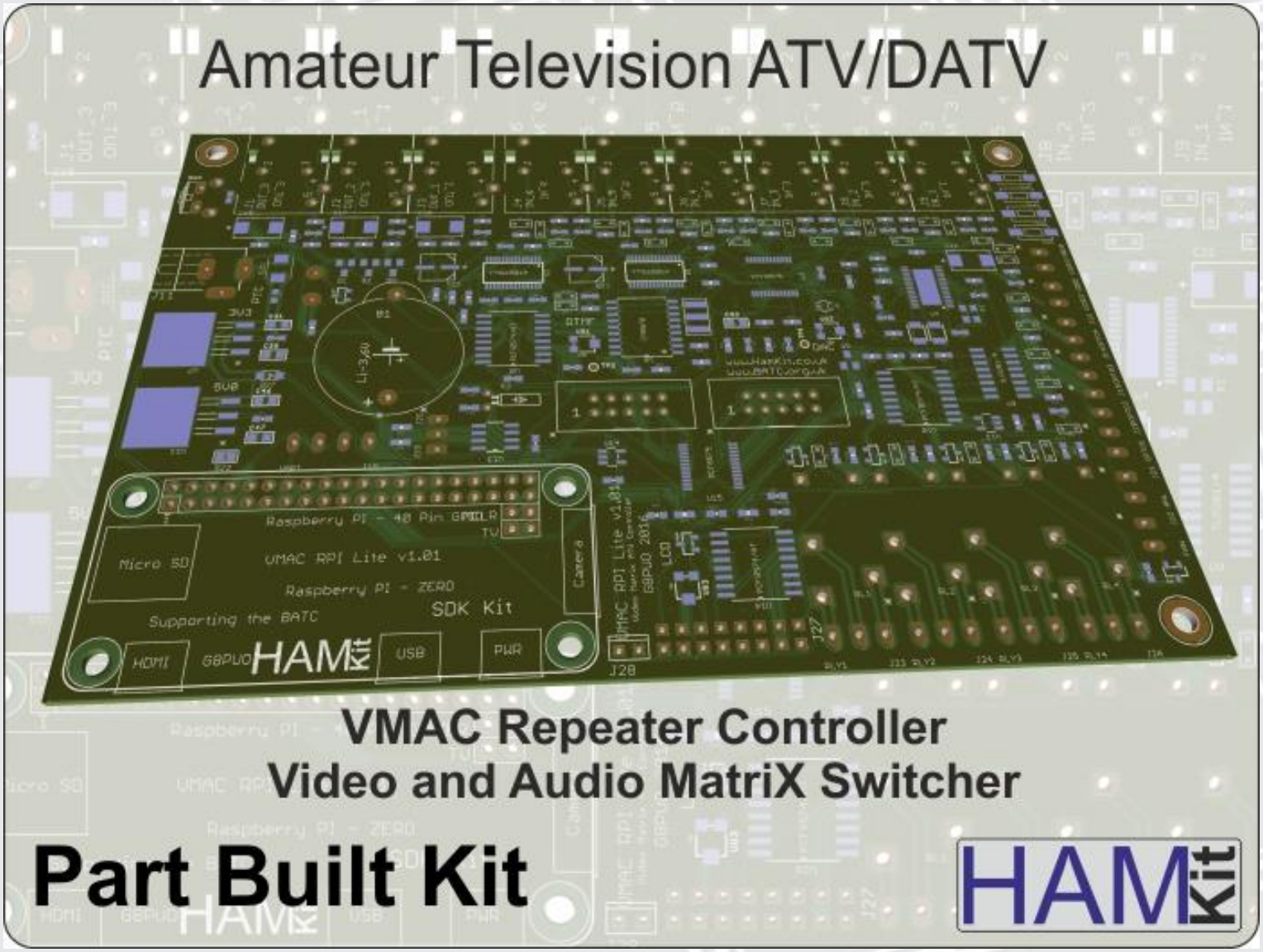
Video Matrix ATV Controller

Presented by Dave Williams, G8PUO



Home Stations | Repeaters |CCTV| IoT

What is VMAC?


Amateur Television ATV/DATV
VMAC Repeater Controller
Video and Audio MatriX Switcher
Part Built Kit
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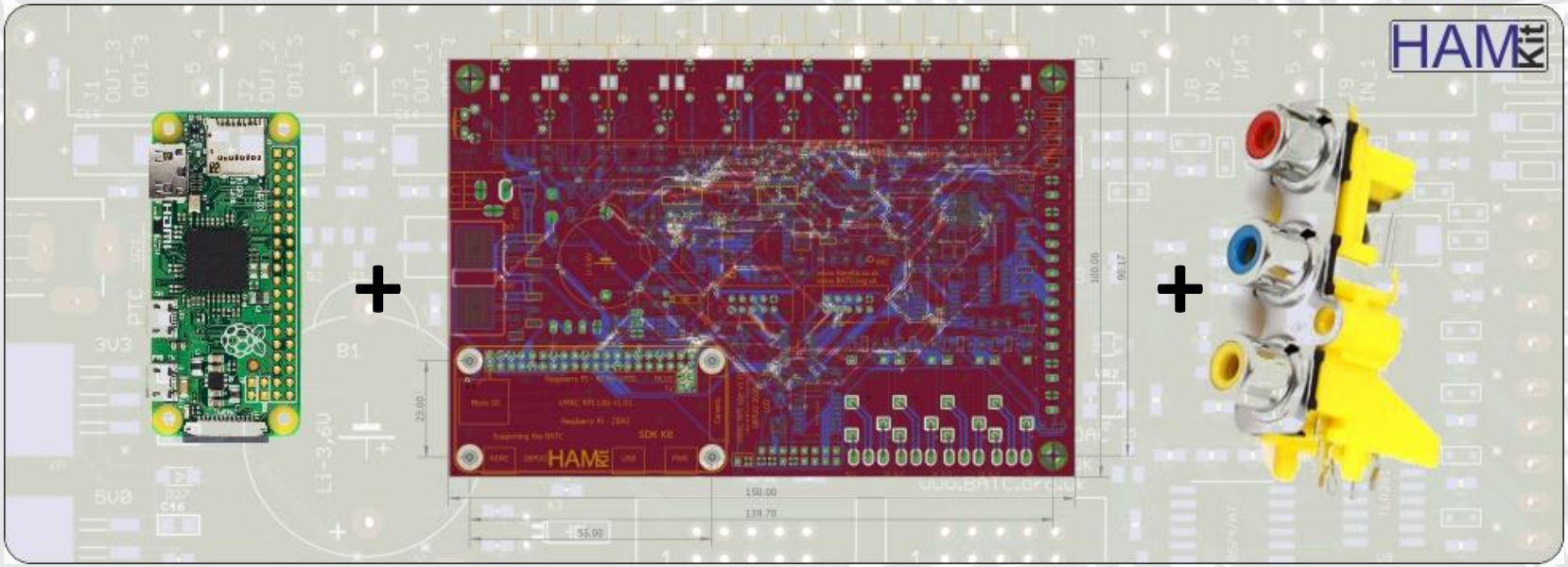
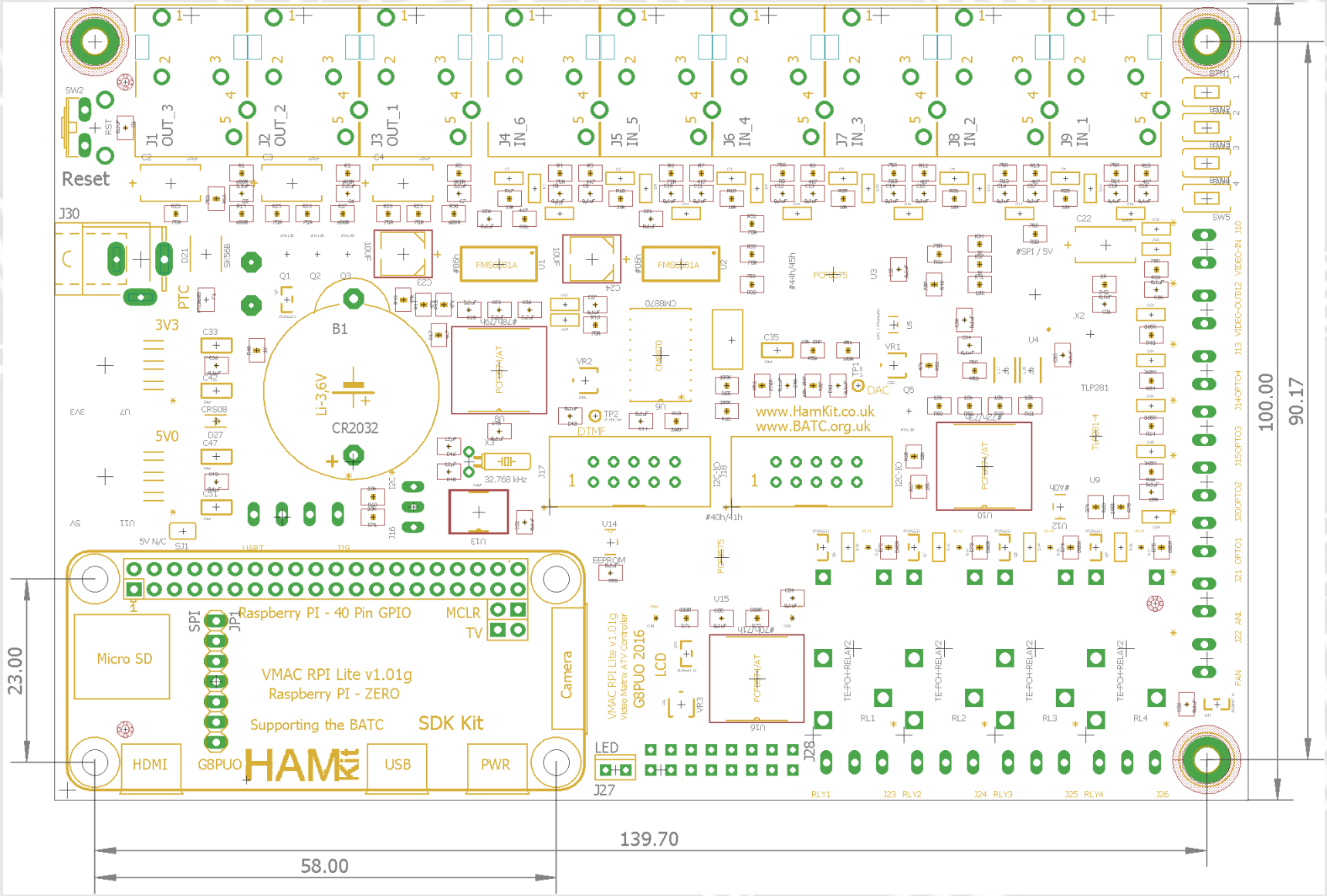
VMAC Building Blocks

Raspberry PI Zero **VMAC RPI Lite Board** **Flexible I/O Ports**



VMAC Layout


Reset
J30
3V3
5V0
B1
Li-3.6V
CR2032
32.768 kHz
DTMF
DAC
www.HamKit.co.uk
www.BATC.org.uk
Raspberry PI - 40 Pin GPIO
Micro SD
VMAC RPI Lite v1.01g
Raspberry PI - ZERO
Supporting the BATC
SDK Kit
HDMI
G8PUO
USB
PWR
Camera
MCLR
TV
LED
LCD
EEPROM
VMAC RPI Lite v1.01g
Video Matrix ATV Controller
G8PUO 2016
100.00
90.17
23.00
139.70
58.00

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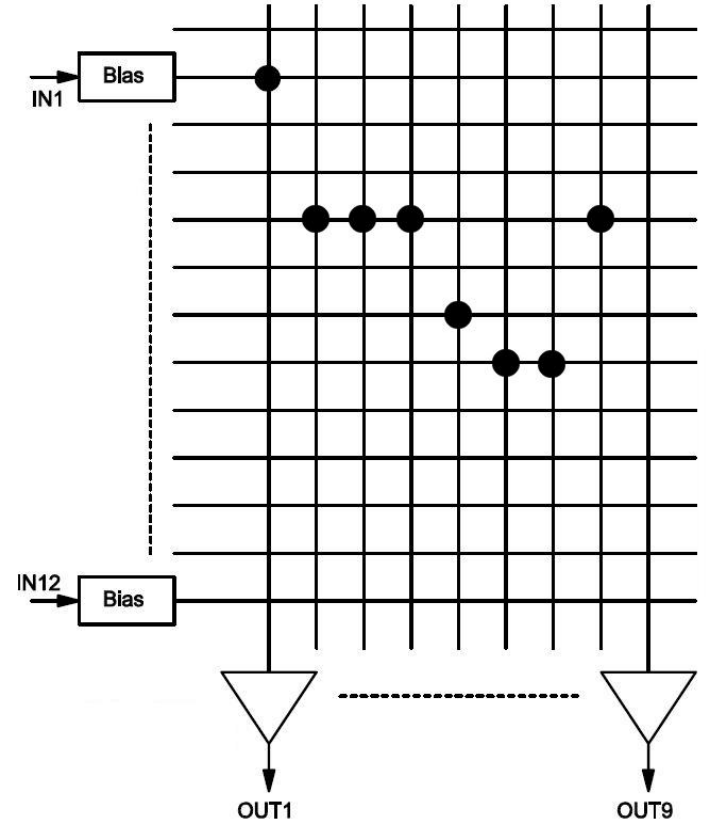
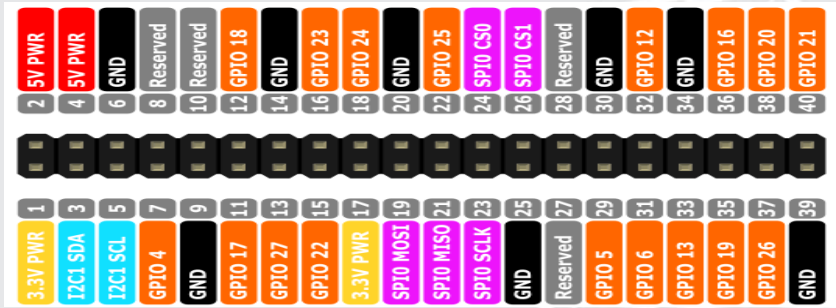
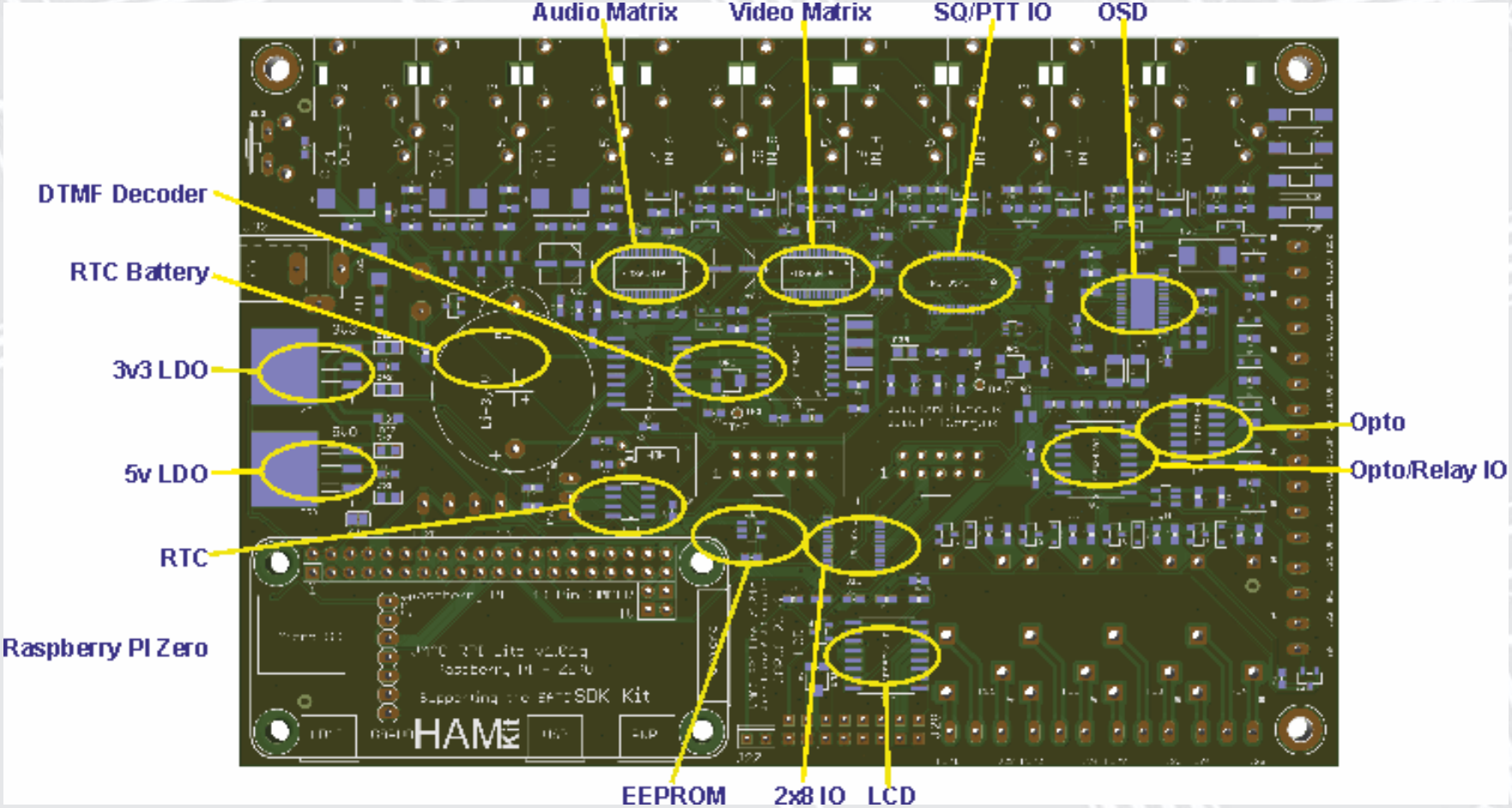
The Chips!



24LC01 24AA01 EEPROM
CM8870SI DTMF
FMS6501A MATRIX 12x9
MAX7456 OSD
MCP7940N RTC
PCF8574AT IO8
PCF8575C IO16
TLP281-4 OPTO



Circuit Overview



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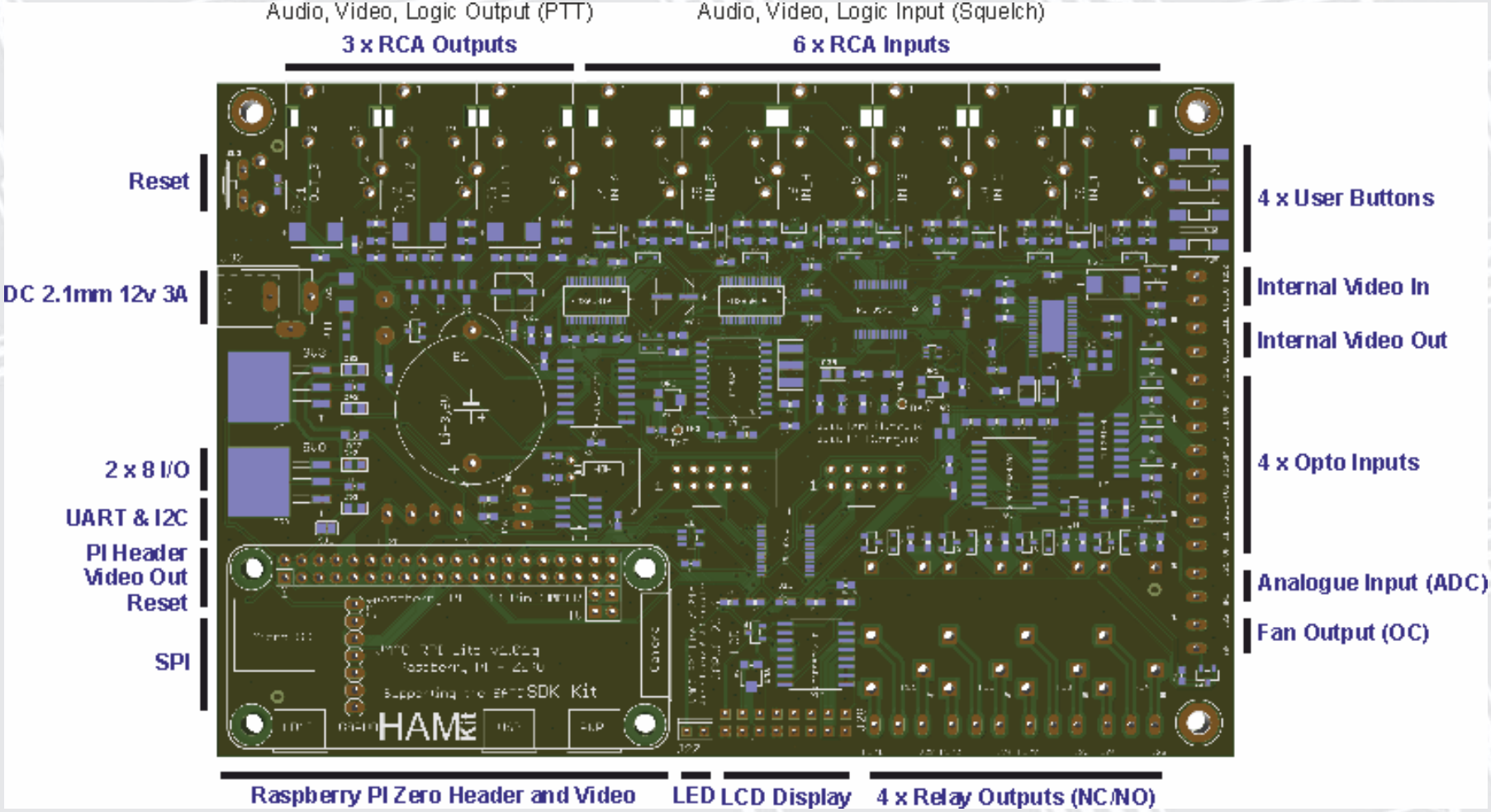
I/O Ports



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Overview

VMAC is a Video Matrix ATV (Amateur Television), Controller development project. The design revolves around a new flexible and powerful range of boards which can run stand-alone using an on-board Micro board (Raspberry PI ZERO, Raspberry PI, Orange PI, Banana PI etc., our future custom ArduinoPI, MicrochipPI), or controlled via a PC, tablet or mobile phone.

VMAC can be used to Control an ATV repeater(s), or Analogue FM repeater(s), or both. Plus be used as a flexible Video and/or Audio matrix switcher in the home or office. It can also be used for other development projects such as CCTV control.

VMAC can also be used as a universal self-contained development board for a range of audio and video projects. The VMAC RPI Lite is our SDK version which will evolve into a range of planned variations and options, all based on the same development theme.

The whole VMAC software project is designed to be open-source in order to gain experimenters, hobbyists and other like-minded innovative people. Due to the compactness of the board design and the use of surface mount components, the board will initially be provided partly build.

Overview

As VMAC has two FMS6501A ICs, software control can allow simultaneous settings for both audio and video matrix configuration, or independently drive video and audio matrix separately.

The OSD display is provided via a trusty MAX7456 which is a Single-Channel Monochrome On-Screen Display.

VMAC RPI Lite is self-contained and allows six inputs to three outputs. An additional video input and output is provided for internal use such as monitor, test card generator etc.

The DTMF decoder samples the audio in and the PI audio DAC output can be fed into the audio bus and through to the audio matrix for Morse idents and alert tones.

The on-board battery backed Real Time Clock is coupled to the I2C bus, alongside the various IO switches. An ADC is used to sample the DC input and can used to monitor battery volts or other sensor requirements. SPI connector can be used to add Ethernet or WLAN to the PI, allowing easy remote control and access.

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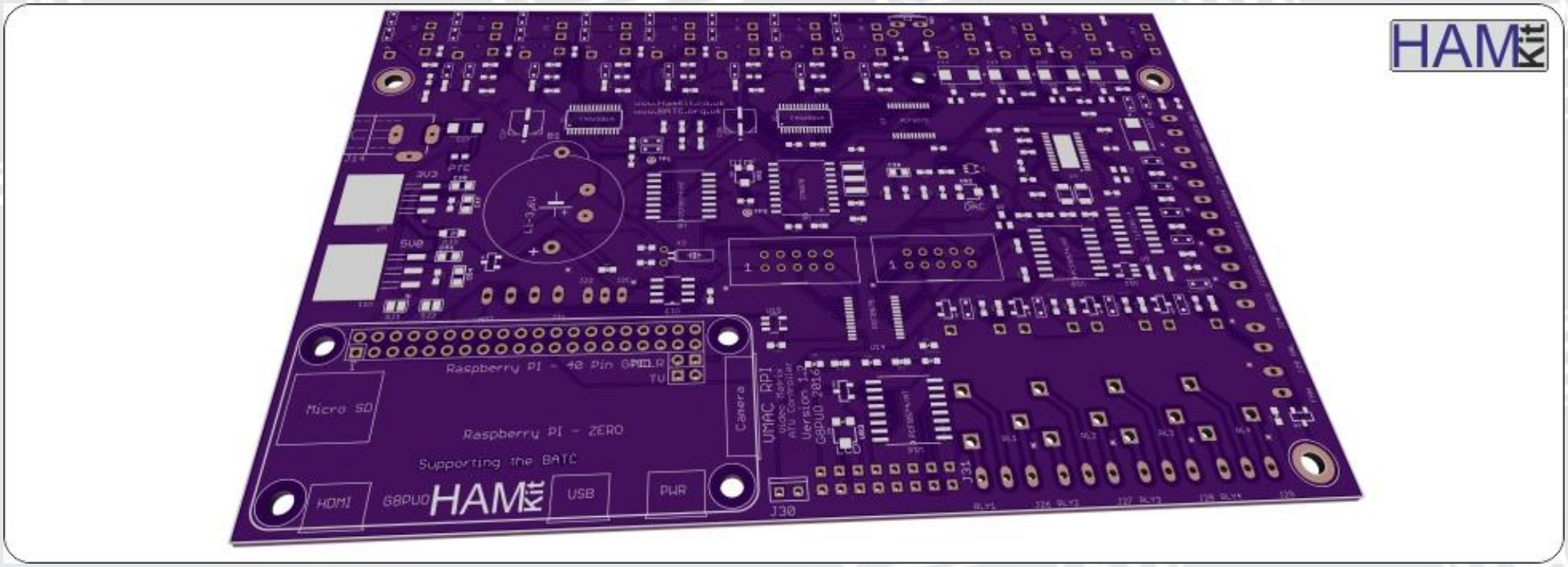
Specifications

* Standard Raspberry PI 40 pin header
* Open source software
* 6 x video/audio inputs with squelch or controlling logic input (PCB mounted stacked RCA sockets, software configurable)
* 3 x video/audio outputs with PTT or controlling logic output (PCB mounted stacked RCA sockets, software configurable)
* 4 x Optical isolated inputs (PCB Screw Blocks, software configurable)
* 4 x Relay isolated outputs (PCB Screw Blocks, software configurable NO/NC)
* 16 (2x8) x I/O for push buttons, LED etc. (Header, software configurable)
* Fan output (PCB Screw Block, software configurable OC)
* Analogue input (software configurable)
* Local video input for test card use etc. (PCB Screw Block, software configurable)
* Local video output for monitor use etc. (PCB Screw Block, software configurable)
* LCD display controller (Header)
* On-Screen Display (software configurable)
* DTMF decoder (software configurable)
* I2C bus (Header)
* UART (Header RX/TX/RTS, configurable)
* ADC (configurable)
* DAC (configurable)
* SPI (Header)
* Real-time clock (on board battery)
* Audio Idents (software configurable)
* EEPROM
* Sounder
* 12v DC input (~3A, 2.1mm Socket)
* Board only 150mm x 100mm
* Plus a load more features that will be shared as the project evolves!

VMAC Bigger Brother



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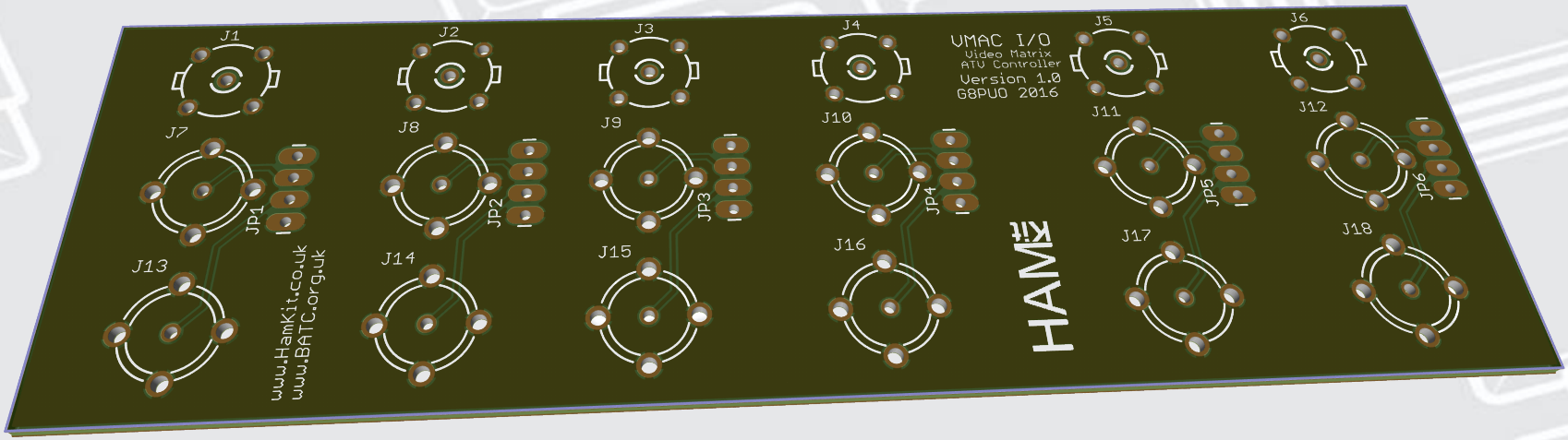
I/O Riser Board



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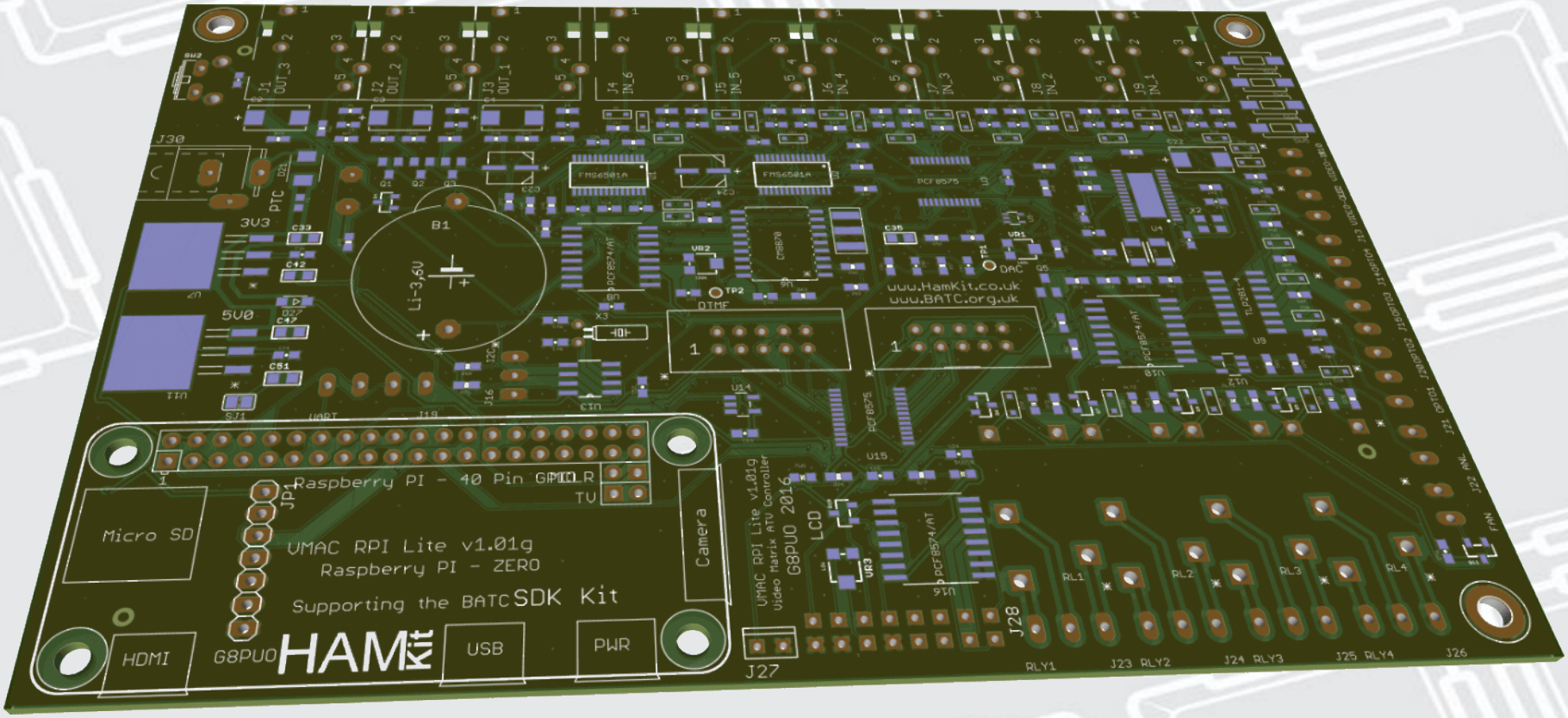
Thank You



Further Details www.hamkit.co.uk

Supporting the BATC