**Versa64Cart v1.3**

**Functional Description**

J1 are the contacts, that fit into the Commodore C64 expansion port. The pin numbering is identical to those of the C64. IC1 is the EPROM, which can be socketed or not. C1 is the blocking capacitor, that should help to keep the noise from the supply voltage out of the IC.

The configuration is achieved with the DIP-Switch SW1, jumper J5 and jumper J6. SW1-1 and SW1-2 set the signals and . These signalize the C64 the mode of the cartridge. The switches SW1-3 to SW3-5 are responsible for the (manual) bank select: The configure the three most sufficient address bit of the EPROM, since those are not asserted by the C64, which only addresses 8kB blocks.

For 16kB cartridges, a further address bit (A13) is required. Since this kind of cartridge uses both chip selects ( and ) the signal is used for this purpose. It will be low, while the lower 8kB are addressed and HIGH, while the upper 8kB are addressed.

The 16k cartridge configuration requires to combine and to one chip select signal. This function is provided by the wired AND circuit D1, D2 and R1. R1 is pulling the RH&RL signal HIGH. In case one of those signals is low, the RH&RL is driven LOW.

The required chip select signal can be selected with J6.

In 8k mode, the address bit A13 is set by the DIP-switch. Jumper J5 has to be set to the “Switch” position.

While and utilize the pull-up resistors inside the C64, the address signals A13 to A15 require Pull-Up resistors on the cartridge board (R2-R4). There are solder bridges on the component side if the Versa64Cart, that can be used alternatively to the DIP-Switch to pull each signal low. In case the Pull-Up resistors R2-R4 are not populated, additional solder bridges can be used to set A13 – A15 to a HIGH level (only those, that are set to a HIGH level). It is obvious, that closing the HIGH bridge and the LOW bridge of a signal at the same time produces a short circuit.

SW2 is the reset switch. A pull-up resistor on the C64 mainboard is utilized here.