

# ROM EXPANSION

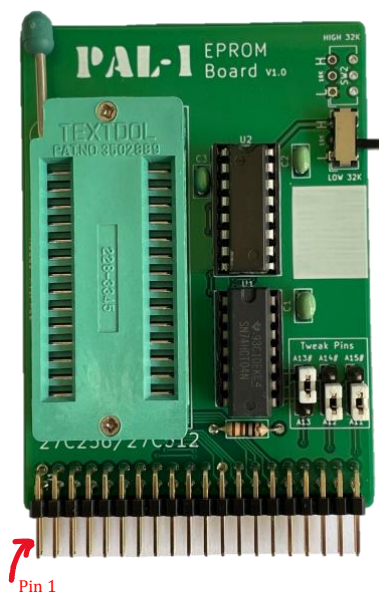
## PAL-1

2021-05-26

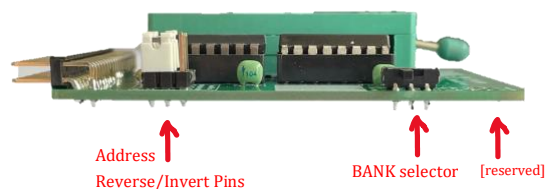
## MANUAL

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Use BOM symbol information to assemble the ROM expansion kit, the finished expansion card looks like this:



Top view



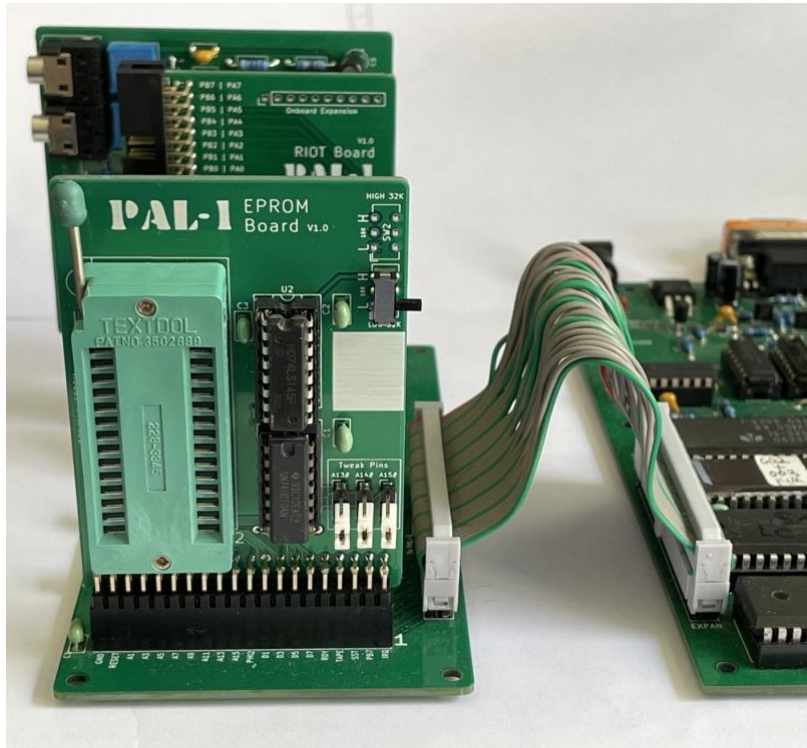
Right side view

Power off your PAL-1, connect the card to PAL-1 SBC using the motherboard card.

Please check if the pin 1 of the expansion card is aligned with the pin 1 of the motherboard socket or PAL-1 expansion port.

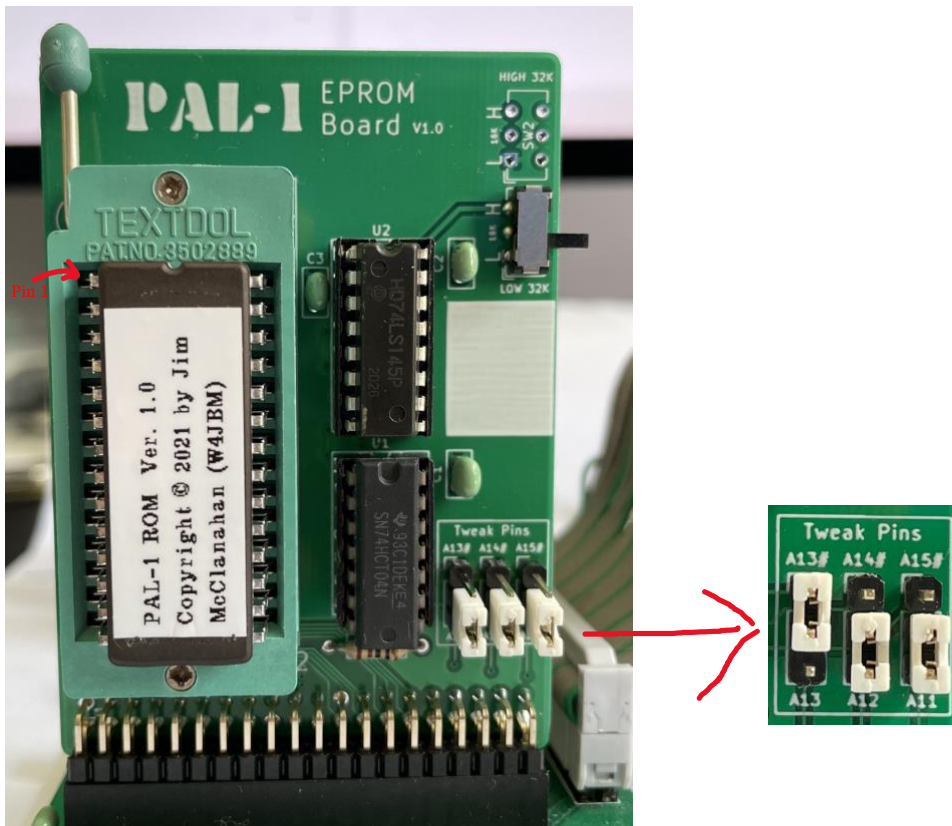
- **You need the 32K RAM Expansion card installed for using this ROM card.** (Or you can patch this card for standalone use)

After connected, the computer system looks like this:



Connect via mainboard

Then, install the default PAL-1 ROM to ZIF socket, and set the tweak pins to A13#, A12, A11 (default is A13, A12, A11, all forward access):



These tweak pins can allow you to select the direction of read/write on specific address lines: A11, A12 and A13. When you port some vintage programs to PAL-1, these pins may be helpful.

The ROM chip shipped with ROM expansion kit is a 32KB EPROM, burned the PAL-1 ROM programmed by Jim McClanahan. The PAL-1 ROM contains Microsoft KIM BASIC, Apple 1 Integer BASIC, FIG FORTH and VTL-02 programming languages, also contains eWoz, PBUG monitors, and a memory test program, finally the ROM loader on BANK 0 can help you get start easily.

You can access 16K space at a time. Using the bank selector switch to select which part of ROM you want to use, L for low, H for high, the low 16K is also called BANK 0, and the high 16K is also called BANK 1.

For more detailed information on how to use PAL-1 ROM, please refer to "Operation Guide PAL-1 EPROM Expansion Card".

This ROM card compatible with 32K EPROM (27C256) and 64K EPROM (27C512), if you want to use a 64K EPROM, you need solder a DPDT switch (not included in ROM expansion kit with 32K EPROM) on the HIGH 32K BANK selector (SW2).