tynemouth software

TYNEMOUTH SOFTWARE ATARI 400 48K RAM BOARD

DESCRIPTION

This board can be used to replace the existing 8K or 16K RAM board in an Atari 400 and upgrade it to 32K or 48K, making it largely compatible with Atari 800 and later Atari 8 bit software.

CONSTRUCTION (KIT VERSION)

PARTS

- Atari 48K RAM PCB
- 1 x 128K SRAM chip (AS6C1008 / 628128 / 621024)
- 1 x GAL chip (ATF22V10C pre-programmed)
- 4 x 10K Resistor
- 2 x 100nF axial capacitor

ASSEMBLY

Start with the passive components, then the IC sockets. Clean any flux residue then install the two ICs.

INSTALLATION

There are two options for installation. The simplest involves no modifications to the Atari 400, but is limited to 32K RAM. The second gives the full 48K RAM, but requires 4 wire links to be installed.

DISASSEMBLY

Disassemble the Atari 400, this can be most easily achieved upside down. Remove the 4 screws on the bottom of the case and remove the base, continue with the 8 screws around the metal shield and remove that. The motherboard can then be lifted upwards, enough to clear the power / video board connector and unplug the keyboard ribbon.

32K RAM OPTION

To upgrade to 32K RAM, unplug the RAM board, the one nearest the cartridge connector, and install the new RAM board in its place, facing in the same direction, with the chips away from the cartridge connector.

If you are happy to stick with 32K RAM, this is all that is required. The Atari 400 can now be reassembled and tested.

With a BASIC cartridge installed, type

```
PRINT FRE(0)
```

The result should be 29710, indicating 32K has been recognised (some of which is used by BASIC).

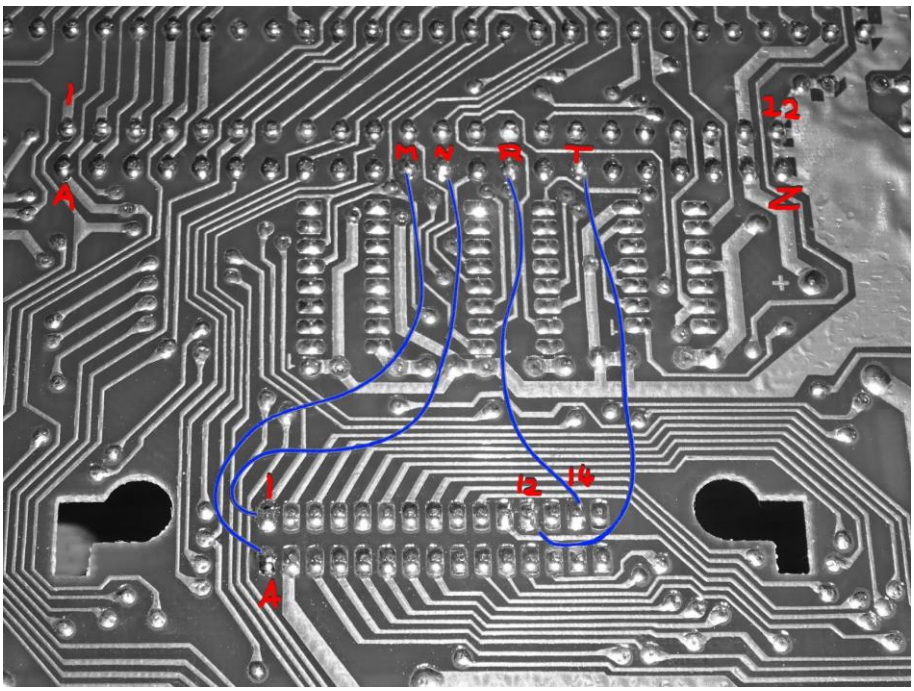
48K RAM OPTION

To enable 48K, some soldering is required. 4 wire links need to be made between the cartridge connector and the RAM slot.

1. RAM slot M → Cart slot A (pulled high by cartridge when S4 area in use)
2. RAM slot N → Cart slot 1 (/S4 signal)
3. RAM slot R → Cart slot 14 (pulled high by cartridge when S5 area in use)
4. RAM slot T → Cart slot 12 (/S5 signal)

Not the numbering and lettering arrangements of the connector, the top row (nearest the back of the case) is 1-22, the front row is A-Z (missing out G, I, O and Q). The cartridge is port is labelled 1-14, A-S.

As shown in the following diagram.



The 48K RAM board can now be installed and the system reassembled.

With a BASIC cartridge installed, type

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PRINT FRE(0)
```

The result should be 37902, indicating 40K RAM has been recognised (some of which is used by BASIC), the remaining 8K is hidden behind the ROM cartridge. Some games (e.g. Pole Position), require the BASIC cartridge to be removed before they are loaded. They can then make use of the full 48K of RAM.

DOWNGRADING

To return to the original 8K or 16K, remove the wire links (if fitted) and reinstall the original card. Do not install the original RAM card with the wire links fitted.