tynemouth software

TYNEMOUTH SOFTWARE PET ROM/RAM BOARD USER GUIDE

INSTALLATION

The ROM/RAM board plugs into the 6502 CPU socket in place of original CPU. This should be socketed on all PET models. If not already fitted with a 6502 CPU, the original chip goes into the matching socket on the ROM/RAM board. Pin 1 is closest to the edge of the ROM/RAM board.

DIP SWITCH SETTINGS

The DIP switches on the ROM/RAM board select which parts of the system ROM and RAM are replaced. Note, the video RAM and the character ROM cannot be replaced as they have external connections to the video circuitry not accessible from the CPU socket.

RAM SETTINGS

Switches 1 and 2 control the RAM replacement mode. The PET normally has two banks of 16K RAM. The ROM/RAM board can replace either of those or both. It can be useful if you have a non-booting PET to replace only the lower bank, allowing you to test the existing upper bank with normal test software.

Switch 1	Switch 2	Bank 1 (0x0000-0x3FFF)	Bank 2 (0x4000-0x7FFF)
OFF	OFF	On board	On board
ON	OFF	Replaced	On board
OFF	ON	On board	Replaced
ON	ON	Replaced	Replaced

ROM SETTINGS

Switches 3, 4 and 5 control the ROM replacement mode. None, all or all but one of the system ROM chips can be replaced by the supplied ROM. The settings which replace all but one ROM allow you to run with only that ROM from the original board and all the others replaced, to see if that particular ROM chip is working.

Switch 3	Switch 4	Switch 5	F000-FFFF (Kernal)	E000-E7FF (Editor)	D000-DFFF (BASIC)	C000-CFFF (BASIC)	B000-BFFF (BASIC)	9000-AFFF (OPTION)
OFF	OFF	OFF	On board	On board	On board	On board	On board	On board
ON	OFF	OFF	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
OFF	ON	OFF	Replaced	On board	Replaced	Replaced	Replaced	Replaced
ON	ON	OFF	Replaced	Replaced	Replaced	Replaced	Replaced	On board
OFF	OFF	ON	On board	Replaced	Replaced	Replaced	Replaced	Replaced
ON	OFF	ON	Replaced	Replaced	Replaced	Replaced	On board	Replaced
OFF	ON	ON	Replaced	Replaced	Replaced	On board	Replaced	Replaced
ON	ON	ON	Replaced	Replaced	On board	Replaced	Replaced	Replaced

ROM SELECTIONS

Switches 6, 7, 8 and 9 select the ROM set to be used. The supplied ROM chips will be one of the following.

2001 / 2001N ROM SET – (2001 / 2001N / 30XX / 40XX WITH 9" SCREEN)

This is suitable for all PETs without CRTC chips, usually the machines with 9" screens. Switches 8 and 9 are not used.

Switch 6	Switch 7	ROM set
OFF	OFF	PET Tester (see below)
ON	OFF	BASIC 1 (`*** COMMODORE BASIC ***`)
OFF	ON	BASIC 2 (`### COMMODORE BASIC ###`)
ON	ON	BASIC 4 (`*** COMMODORE BASIC 4.0 ***`)

CRCT ROM SET (40XX / 80XX WITH 12" SCREEN)

This is suitable for all PETs with CRTC chips, usually the machines with 12" screens. Switches 8 and 9 are not used.

Switch 6	Switch 7	ROM set
OFF	OFF	40n50 (BASIC 4, 40 column, normal keyboard, 50 Hz mains)
ON	OFF	40n60 (BASIC 4, 40 column, normal keyboard, 60 Hz mains)
OFF	ON	80b50 (BASIC 4, 80 column, business keyboard, 50 Hz mains)
ON	ON	80b60 (BASIC 4, 80 column, business keyboard, 60 Hz mains)

UNIVERSAL SET

This contains both of the above. Switch 9 is not used.

Switch 6	Switch 7	Switch 8	ROM set
OFF	OFF	OFF	PET Tester (see below)
ON	OFF	OFF	BASIC 1 (`*** COMMODORE BASIC ***`)
OFF	ON	OFF	BASIC 2 (`### COMMODORE BASIC ###`)
ON	ON	OFF	BASIC 4 (`*** COMMODORE BASIC 4.0 ***`)
OFF	OFF	ON	40n50 (BASIC 4, 40 column, normal keyboard, 50 Hz mains)
ON	OFF	ON	40n60 (BASIC 4, 40 column, normal keyboard, 60 Hz mains)
OFF	ON	ON	80b50 (BASIC 4, 80 column, business keyboard, 50 Hz mains)
ON	ON	ON	80b60 (BASIC 4, 80 column, business keyboard, 60 Hz mains)

LED

The LED on the board shows the Read/Write line. When the LED is on, the CPU is in read mode, when it goes off, it is writing. It normal operation it will be on solidly whilst idle, and flashing when working.

PET TESTER

The PET tester ROM on the 2001 and Universal ROM sets can be used to do some simple system testing. It cycles between showing two screens. Note: if you have a CRTC PET, power up using one of the CRTC BASIC ROM images, then switch to the PET tester and press the reset button on the ROM/RAM board to start the PET tester software.

The first screen shows a character map which should look like this:

If you are running an original 2001 PET, there will probably be lots of snow on the screen when this page is shown. If you press and hold the reset button, you should see a clear screen.

If you see a random pattern or stripes or a screen full of the same character, this indicates a fault in the video RAM or supporting circuitry.

If any of the graphics are wrong, distorted or flashing, this indicates a fault in the video ROM or supporting circuitry.

The second is a screen showing the result of testing the first 1K of RAM. 'G' or 'g' indicates a good byte, 'B' or 'b' indicates a RAM fault. If you get any 'B' or 'b' characters, you have a RAM fault in at least the first 1K or RAM (lucky you just bought a RAM replacement board eh, just click on switches 1 and 2 and you should get a screen full of 'G' or 'g').

DOS WEDGE

All the BASIC 2 and BASIC 4 ROM image contain Nils Eilers DOS Wedge as an option ROM at 0x9000. To use this, type

```
SYS 36864
```

or it's easier to remember to type

```
SYS 9*4096
```

This provides some additional features to benefit disk drive operation.

For full information, see http://petsd.net/wedge.php

USEFUL COMMANDS

`@$` - show a directory

`@` - show error info

`@X?` – show drive info

`/name` – loads a program

`↑name` - loads and runs a program

`#` - show current device number

`#n` – change to accessing drive n

`@C:dst=src` – copy file src as file dst (within the same directory)

COMMANDS FOR REAL DISK DRIVES

`@I` – clear errors and re-read current disk

`@N:diskname` – format a disk

`@Dx=y` – copy disk in drive y to drive x (dual drive units only)

COMMANDS FOR PETSD AND PET MICROSD DRIVES

`@CD:image.d64` – load a disk image (for PETSD and PET microSD drives)

`@CD:/dirname` – change to a directory

`@CD←` - change to parent directory / close disk image

`@XE+` - set the option to hide .prg extensions (for this session only unless followed by @XW)

`@XW` – save options