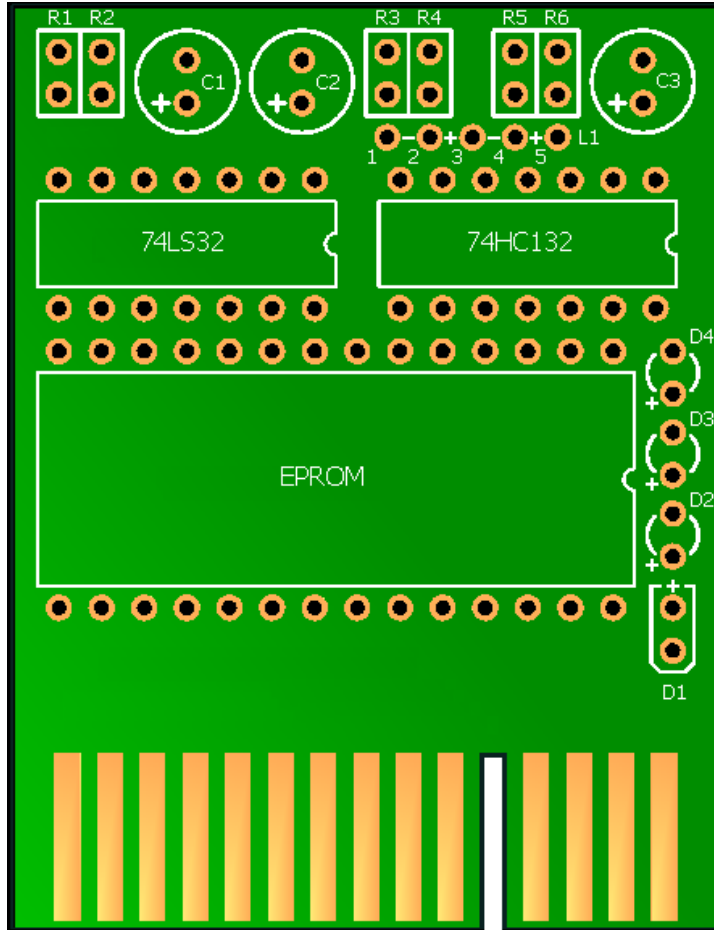# ZX Interface 2 ROM Cartridge Configurations

The ROM cartridge PCB supports a variety of configurations. Each configuration requires the PCB to be populated slightly differently. The following diagram shows the PCB and indicates the components that are affected.

R1, R2 and C1 control the A15 line.
R3, R4 and C2 control the ROMCS line.
R5, R6 and C3 control the A14 line.

L1 selects 64K cartridge format.

3mm 5V LEDs with integral resistors can be fitted to monitor the paging of the 16K banks if required:

D4 = A15

D3 = ROMCS

D2 = A14

D1 is required if the Spectrum ROM will be paged back into the memory map, else a wire link must be fitted.

The following table shows the difference in components for the various configurations:

Cartridge	EPROM	L1	R1	R2	C1	R3	R4	C2	R5	R6	C3	D1
16K	27C128	1-2 3-4	Omit	Short	Omit	Short	Omit	Omit	Omit	Short	Omit	Short
16K + Page Out	27C128	1-2 3-4	Omit	Short	Omit	100K	10K	100u	Omit	Short	Omit	1N4148
32K	27C256	1-2 3-4	Omit	Short	Omit	Short	Omit	Omit	10K	100K	100u	Short
32K + Page Out	27C256	1-2 3-4	Omit	Short	Omit	220K	22K	100u	10K	100K	100u	1N4148
48K	27C512	1-2 3-4	22K	220k	100u	Short	Omit	Omit	10K	100K	100u	Short
48K + Page Out	27C512	1-2 3-4	22k	220k	100u	330K	33K	100u	10K	100K	100u	1N4148
64K	27C512	2-3 4-5	22k	220k	100u	100K	10K	100u	33K	330K	100u	Short

A number of other configurations are also possible:

Cartridge	EPROM	Configuration
2 x 16K	27C256	As *16K* above except the 2 banks are selected using jumpers fitted in place of R5 and R6. Bank 1: R5=open, R6=closed Bank 2: R6=closed, R6=open
2 x 16K + Page Out	27C256	As *16K + Page Out* above but with the same modifications listed for *2 x 16K*.
4 x 16K	27C512	As *16K* above except the 4 banks are selected using jumpers fitted in place of R1, R2, R5 and R6. Bank 1: R1=open, R2=closed, R5=open, R6=closed Bank 2: R1=open, R2=closed, R5=closed, R6=open Bank 3: R1=closed, R2=open, R5=open, R6=closed Bank 4: R1=closed, R2=open, R5=closed, R6=open
4 x 16K + Page Out	27C512	As *16K + Page Out* above but with the same modifications listed for *4 x 16K*.
2 x 32K	27C512	As *32K* above except the 2 banks are selected using jumpers fitted in place of R1 and R2. Bank 1: R1=open, R2=closed Bank 2: R1=closed, R2=open
2 x 32K + Page Out	27C512	As *32K + Page Out* above but with the same modifications listed for *2 x 32K*.

It is also possible to produce 16K, 2 x 16K and 4 x 16K cartridges using fewer components. The method omits the 74HC132 but requires solder bridges or wire links to be made on the board.

Cartridge	EPROM	L1	Configuration
16K (Minimal)	27C128	1-2 4-5	As *16K* above except: D1=short, D4=short, R2=omit, R3=omit, R5=short, R6=omit, 74HC132 pin 8-9=short
2 x 16K (Minimal)	27C256	1-2 4-5	As *16K (Minimal)* above except the 2 banks are selected using jumpers fitted in place of R5 and R6. Bank 1: R5=closed, R6=open Bank 2: R6=open, R6=closed
4 x 16K (Minimal)	27C512	1-2 4-5	As *16K (Minimal)* above except the 4 banks are selected using jumpers fitted in place of R5, R6, D4 and 74HC132 pins 13-14. 74HC132 pin 11-12=short Bank 1: R5=closed, R6=open, D4=closed, 74HC132 pins 13-14=open Bank 2: R6=open, R6=closed, D4=closed, 74HC132 pins 13-14=open Bank 3: R5=closed, R6=open, D4=open, 74HC132 pins 13-14=closed Bank 4: R6=open, R6=closed, D4=open, 74HC132 pins 13-14=closed