**BINDUBBA 1**
**4 STAGE SEQUENCER**
**BUILD NOTES**

## andrewF

## Thanks to all at Muffwiggler for contributing.

## Links

There are many short jumpers on the PCB. There is one underneath each 4052 IC (U3-6), it is important to install these **before** installing the chips

## CV outputs

| Designator on PCB | Sequence order | IC/section | connector | Connector Pinout pin 1 (square) to jack | Connector Pinout pin 2 to jack |
|---|---|---|---|---|---|
| h | 1234 | U6/B | P4 | Cv out | Inverted cv out |
| i | 2341 | U3/A | P7 | Inverted cv out | Cv out |
| j | 3412 | U5/B | P11 | Inverted cv out | Cv out |
| k | 4123 | U4/A | P8 | Inverted cv out | Cv out |
| l | 4321 | U4/B | P10 | Inverted cv out | Cv out |
| m | 3214 | U5/A | P6 | Inverted cv out | Cv out |
| n | 2143 | U3/B | P9 | Inverted cv out | Cv out |
| o | 1432 | U6/A | P5 | Cv out | Inverted cv out |

The **mix** inputs are marked on the PCB as per the above designators (h, j, k, etc). These can be connected to panel jacks, via pots wired as a voltage dividers if desired.

## Gate Outputs

| Designator on PCB pad - connect to jack | Count from 4024 | LED connector |
|---|---|---|
| a | /2 | P14 |
| b | /4 | P20 |
| c | /8 | P19 |
| d | /16 | P18 |
| e | /32 | P17 |
| f | /64 | P16 |
| g | /128 | P15 |

These are optional LED and gate buffer circuits. If no LED is required a link will need to be inserted in place of the connector.
On the PCB, there is an 'A' next to the hole to be connected to the LED's anode pin. The other hole is of course to the cathode.
**All transistors are NPN**, ostensibly 2N3904 but any general purpose type will do. Check the pinout is correct for whatever transistor you are using. On the PCB, you can see 'e b c' indicating how the transistors should be installed.

The resistors for the buffer circuit are up to you. I chose 1k and 2k2, which give a 6V gate signal when using a 12V PSU and a blue LED which has a 3V voltage drop. ie:

(12V – 3V)(2k2)/(1k +2k2) = 6.2V

Other LEDs have a lower 'on' voltage, so you may want to adjust these resistors to get the gate voltage you desire.

If you don't want gates and LEDs, leave out the transistors and associated components, it will not affect the main circuit.

## 'Song Sequencing'

Around the 4024 chip, you can find pads marked Q3, Q4, Q5, Q6, Q7. These can be connected to rotary or other switches to control the enable inputs of the 4052 chips. When the Q outputs are high, the 4052 chip it is controlling will be turned off.

There are no pads for Q1 and Q2, if you really want to include these you could connect a wire to R82 (where it connects to U3 pin 10) for Q1 and for Q2 connect to the link next to R1, between U1 and U5.

The pads for the enable inputs are marked :

| | |
|---|---|
| U3 | en i, n (sequences starting on 2) |
| U4 | en k, l (sequences starting on 4) |
| U5 | en m, j (sequences starting on 3) |
| U6 | en o, h (sequences starting on 1) |

**None of the Q3-Q7 pads and the 'en' pads should be connected to jacks. They are intended only for internal signal routing.**

If you do not wish to include this function. Do not connect anything to the Q_ and 'en' pads.
R86, R87, R88 & R89 can be replaced with jumpers.

## Other Connectors

| Designator | # of pins | Function | Connection |
|---|---|---|---|
| P1 | 4 | Set voltage levels | Connect to wipers of four 50k-100k pots, wired between +12V and ground. These are used to set up your sequence pattern |
| P2 | 4 | Clock and reset inputs | **Pins 1 (square) & 2** are for gate inputs. One can connect to a jack, the other (optional) to a normally off momentary switch wired to +12V.<br>**Pins 3 & 4** are for the clock inputs, again one to a jack to receive an external clock signal, the other to a mom switch as done for reset (optional). |
| P3 | 2 | staircase | **Pin 1** (square): stair out<br>**pin 2** : inverted staircase out<br>connect to jacks |
| P12 | 3 | Power supply | **Pin1**: -12V<br>**pin 2**: ground<br>**pin 3**: +12V |
| P13 | 3 | +V and Gnd for pots and panel ground connections | **Pin1**: +12V<br>**pins 2, 3**: ground |

## Resistors

| | |
|---|---|
| 10R | R78, R79 |
| 1K | R14, R29, R31, R33, R53, R54, R55, R56, R57, R58, R59, R63, R69, R70, R74, R75, R76, R77, R83, R99, R100, R105, R108, R112, R116 |
| 2K2 | R85, R102, R103, R106, R109, R114, R117 |
| 10K | R82, R84, R98, R101, R104, R110, R113 |
| 15K | R7, R10, R22, R80, R81 |
| 100K | EVERYTHING ELSE |
| 200K | R2, R5, R8, R12, R16, R20, R23, R25 |

*R82, R84 ARE MARKED 100K ON EARLY VERSIONS OF THE SCHEMATIC*

## Caps

| | |
|---|---|
| 10n | C1 |
| 100n | C2, C3, C4, C5, C6, C7, C8, C9 |
| 10u | C10, C11, C12 |