32:1

nonlinearcircuits

The 32:1 can split one input signal into 32 outputs or switch 32 inputs into 1 output. Use the reset to get lower counts and the direction control to add a dash of complexity to your mux. If nothing is patched into the in/out jack, it works as a 32 stage counter.

The LEDs count in binary, so just 5 of them...rather than 32.

This module is inspired by the 32 stage counter/multiplexor developed by Julian Driscoll and Warren Burt, although this version is a completely different & simplified design using 16:1 analogue switching ICs that will pass any voltage within the rails.

10 Pin 2.54mm Single Row Female Pin Header	5	Tayda: A-1306
10 Pin 2.54mm Single Row Pin Header Strip	5	Tayda: A-197 (cut to length)
kobiconn style jack	36	Tayda: A-865
4029	2	SOIC cmos Mouser # - 595-CD4029BM96
TL074	1	SOIC
DG406 or DG506	2	SOIC 28 pin, I used this one from Mouser: DG506BEW-T1-GE3 (US$5)
LED	5	3mm
LL4148 diode	4	sod-80
BC847	5	sot-23 NPN
10 pin eurorack power connector	1	Tayda: A-198
10R	2	thru-hole
470R	34	0805
RL	5	0805 select to suit LED brightness
10k	12	0805
100k	13	0805
10uF	3	electro, 2mm spacing
100nF(104)	5	0805

Building:

Install the 0805 components 1st. Easiest way is to put a blob of solder on one pad of each pair. Pick up the component with tweezers, put it in position across the pads and then reheat the solder so the component drops onto the pad. Let it cool down the put some solder on the other pad.

Note: two 10k resistors and a 100nF (104) cap are soldered onto the 2nd PCB.

Once the 0805 parts and ICs are installed and then start on the thru-hole components. Make sure the LEDs, caps and diodes are installed in the correct direction.

To install the connectors for stacking the PCBs; install on one PCB 1st and solder just the end pins in. Try to make sure they are as perpendicular as possible. Put the other set in the 2nd PCB and connect to the 1st. Make sure everything is straight & true then start soldering.

Installing the jacks, this is a bit of a delicate operation. If using the regular Kobiconns (ie – like the ones from Tayda), install them on the panel and solder wire across the rows of ground pins so they are all connected. It will be impossible to solder the ground pins once the PCB is attached. Note the ground pins of adjacent rows point towards each other and share the tabs on the PCB,

If using Thonkiconn style jacks; it is easiest to place them on the PCB (without soldering). If you gently press/bend the ground lead towards the body of the jack, you will find they sit on the PCB nicely and are quite content to share ground tabs.

Once all 36 jacks are in place, attach it to the panel with some careful jiggling and some gentle help with a fine screwdriver to help the jacks get into their correct panel holes.

<div align="center">

`Don't forget the LEDs!`

</div>

nonlinearcircuits
32 board A vers3

2   1   in/out   up/down   reset   clock

10k
10k
104

io
G
1
2
6
7
8
12
13
14

ck
rt
ud
G
3
4
5
9
10
11

8   7   6   5   4   3

14   13   12   11   10   9

Slippery Dick.....fish.....Atlantic

20   19   18   17   16   15

19
20
25
26
31
32
G
+V
G
e

17
18
23
24
29
30
G
G
c
d

15
16
21
22
27
28
G
G
a
b

26   25   24   23   22   21

32   31   30   29   28   27

2^4   2^3   2^2   2^1   2^0

32B
vers4

104   100k   10k   100k   10k   100k

io
G
1
2
6
7
8
12
13
14

100k

100k

DG406/DG506   A

K
100k   K
100k
100k

100k   10k   ck
rt
10k   ud
100k   G

4029A

3
4
5
9
10
11

470R
x10

104

10u

+

470R
x6

10k
4029B

transistors
=BC847

W.Burt   explorations   of 31 (1981)   nonlinearcircuits

DG406/DG506   B

x6
470R   10k
R
104
R

470R   x6

19
20
25
26
31
32
G
+V
G
e

104
R

10k

10k
104
R

10k   10u
+   10k   +
10R   10R

10k
R

15
16
21
22
27
28
G
G
a
b

-V   gnd   +V

G
G
c
d

RED STRIPE

based on Warren Burt/Driscoll concept

nonlinearcircuits

32 way bi-di router

andrewF

Rev 2

27-3-2016

Page # or name

main clk
reset
up/dn

J7
1
2
3
4

R86 10k
R84 100k
R83 10k
R81 100k
R82 10k
R88 100k

R79 -12v 10k
R80 100k
+12v

2
3
-
+
U2 TL074
4
11
1
D26
R90 100k

6
5
-
+
U2 TL074
7
D23
R77 100k

9
10
-
+
U2 TL074
8
D22
R78 100k

U
17 A0
16 A1
15 A2
14 A3
18 EN
1 V+
27 V-
a
ADG406
D 28
S1 19
S2 20
S3 21
S4 22
S5 23
S6 24
S7 25
S8 26
S9 11
S10 10
S11 9
S12 7
S13 6
S14 5
S15 5
S16 4
GND 12

470R
470R
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
470R on S1-S16
16
470R
GND

100k
V+
V-
GND
10k
100k
GND

U
4 J1
12 J2
13 J3
3 J4
VDD 16
V+
Q1 6
Q2 11
Q3 14
Q4 2
5 /CIN
/COUT 7
15 CLK
1 PREEN
9 BIN/DEC
10 UP/DN
VSS 8
D
CD4029a
V+

U
4 J1
12 J2
13 J3
3 J4
VDD 16
V+
Q1 6
Q2 11
Q3 14
Q4 2
5 /CIN
/COUT 7
15 CLK
1 PREEN
9 BIN/DEC
10 UP/DN
VSS 8
B
CD4029b
V+

U
17 A0
16 A1
15 A2
14 A3
18 EN
1 V+
27 V-
b
ADG406
D 28
S1 19
S2 20
S3 21
S4 22
S5 23
S6 24
S7 25
S8 26
S9 11
S10 10
S11 9
S12 7
S13 6
S14 5
S15 5
S16 4
GND 12

470R
470R
17
18 19 20
21
22 23
24
25 26 27
28 29
30
31
470R on S1-S16
470R
32
GND

10k
V+
V-
GND

10k
counter in/out
10k V+

2^4
2^3
2^2
2^1
2^0

LED RL 10k V+ GND (×6)