

LED CUBE FRAME MAKER TOOL

INFO:

This tool was made for Libre Office Calc. It provides a semi visual means to create frame lists for the RadioShack LED Cube Hat for Arduino. The output from this tool can be pasted into the “stock” Arduino code to produce various LED Cube patterns.

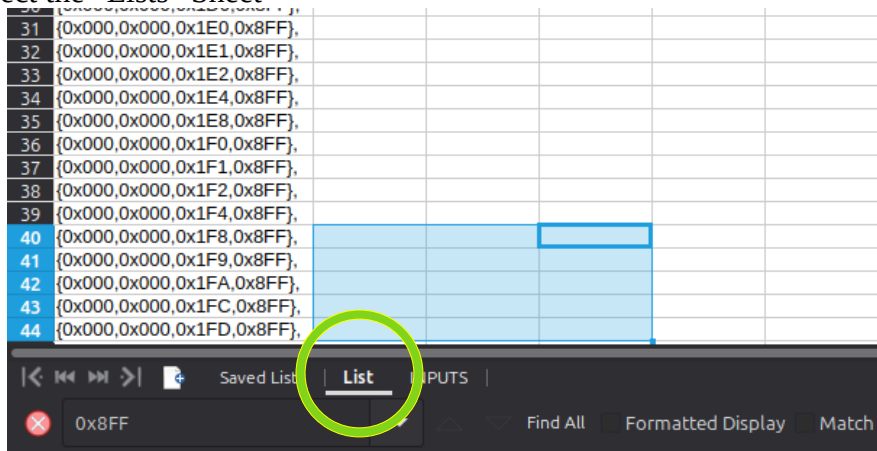
Made By:

Tony

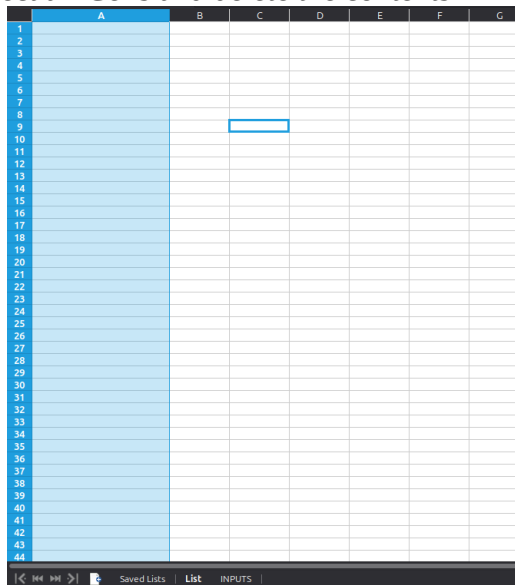
V1.0....February 2026

How To Use:

1. Select the “Lists” Sheet



2. Select all Cells and delete the contents



LED CUBE FRAME MAKER TOOL

6. The “Active Frame” Column represents the frame you will overwrite when clicking on the “Save To Frame” button.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
1 FRAME BACK			ACTIVE FRAME			INPUT			DETAIL											
0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	HEX	0x000										
0	0	1	0	0	0	0	0	0												
0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	HEX	0x000										
0	0	1	0	0	0	0	0	0												
0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	HEX	0x000										
0	0	1	0	0	0	0	0	0												
			LINE			SPEED			04	BRIGHT			88	CODE			0x488			
			04			OUTPUT			{0x000,0x000,0x000,0x488},											
			<div>LAST FRAME</div>			<div>NEXT FRAME</div>			<div></div>	<div>SAVE TO FRAME</div>										

- 1.
7. The “1 Frame Back” Column represents the frame before the active frame.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
1 FRAME BACK			ACTIVE FRAME			INPUT			DETAIL											
0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	HEX	0x000										
0	0	1	0	0	0	0	0	0												
0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	HEX	0x000										
0	0	1	0	0	0	0	0	0												
0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	HEX	0x000										
0	0	1	0	0	0	0	0	0												
			LINE			SPEED			04	BRIGHT			88	CODE			0x488			
			04			OUTPUT			{0x000,0x000,0x000,0x488},											
			<div>LAST FRAME</div>			<div>NEXT FRAME</div>			<div></div>	<div>SAVE TO FRAME</div>										

1.

LED CUBE FRAME MAKER TOOL

8. The Top set of 9 represent the top layer.

The screenshot shows the LED Cube Frame Maker Tool interface. The 'INPUT' column is circled in green. The 'DETAIL' section shows the following values: LINE 01, SPEED 04, BRIGHT 88, CODE 0x488, and OUTPUT {0x013,0x013,0x013,0x488}.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1	1	FRAME BACK	ACTIVE FRAME	INPUT	DETAIL																
2	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
3	###-###-###	0	0	0	0	1	0	HEX	0x013												
4	###-###-###	0	0	0	0	0	0														
5	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
6	###-###-###	0	0	0	0	1	0	HEX	0x013												
7	###-###-###	0	0	0	0	0	0														
8	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
9	###-###-###	0	0	0	0	1	0	HEX	0x013												
10	###-###-###	0	0	0	0	0	0														
11		LINE	SPEED	04	BRIGHT	88	CODE	0x488													
12		01	OUTPUT	{0x013,0x013,0x013,0x488},																	
13		LAST FRAME		NEXT FRAME		SAVE TO FRAME															

1.

9. The middle set of 9 represent the middle layer.

The screenshot shows the LED Cube Frame Maker Tool interface. The 'INPUT' column is circled in green. The 'DETAIL' section shows the following values: LINE 01, SPEED 04, BRIGHT 88, CODE 0x488, and OUTPUT {0x013,0x013,0x013,0x488}.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1	1	FRAME BACK	ACTIVE FRAME	INPUT	DETAIL																
2	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
3	###-###-###	0	0	0	0	1	0	HEX	0x013												
4	###-###-###	0	0	0	0	0	0														
5	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
6	###-###-###	0	0	0	0	1	0	HEX	0x013												
7	###-###-###	0	0	0	0	0	0														
8	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
9	###-###-###	0	0	0	0	1	0	HEX	0x013												
10	###-###-###	0	0	0	0	0	0														
11		LINE	SPEED	04	BRIGHT	88	CODE	0x488													
12		01	OUTPUT	{0x013,0x013,0x013,0x488},																	
13		LAST FRAME		NEXT FRAME		SAVE TO FRAME															

1.

10. The Bottom set of 9 represent the bottom layer.

The screenshot shows the LED Cube Frame Maker Tool interface. The 'INPUT' column is circled in green. The 'DETAIL' section shows the following values: LINE 01, SPEED 04, BRIGHT 88, CODE 0x488, and OUTPUT {0x013,0x013,0x013,0x488}.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
1	1	FRAME BACK	ACTIVE FRAME	INPUT	DETAIL																
2	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
3	###-###-###	0	0	0	0	1	0	HEX	0x013												
4	###-###-###	0	0	0	0	0	0														
5	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
6	###-###-###	0	0	0	0	1	0	HEX	0x013												
7	###-###-###	0	0	0	0	0	0														
8	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1				
9	###-###-###	0	0	0	0	1	0	HEX	0x013												
10	###-###-###	0	0	0	0	0	0														
11		LINE	SPEED	04	BRIGHT	88	CODE	0x488													
12		01	OUTPUT	{0x013,0x013,0x013,0x488},																	
13		LAST FRAME		NEXT FRAME		SAVE TO FRAME															

1.

LED CUBE FRAME MAKER TOOL

11. You can set the length of time each frame is displayed in the “Speed” field.

J12T12										=CONCAT("J12T12",J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12)										
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	X
1	1 FRAME BACK	ACTIVE FRAME	INPUT		DETAIL															
2	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
3	###-###-###	0	0	0	0	1	0	HEX	0x013											
4	###-###-###	0	0	0	0	0	0													
5	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
6	###-###-###	0	0	0	0	1	0	HEX	0x013											
7	###-###-###	0	0	0	0	0	0													
8	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
9	###-###-###	0	0	0	0	1	0	HEX	0x013											
10	###-###-###	0	0	0	0	0	0													
11		LINE	SPEED		04		BRIGHT	88		CODE		0x488								
12		01	OUTPUT		{0x013,0x013,0x013,0x488},															
13	LAST FRAME		NEXT FRAME		SAVE TO FRAME															

1.

12. You can set the Brightness of the lights in the “BRIGHT” field.

J12T12										=CONCAT("J12T12",J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12)										
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	X
1	1 FRAME BACK	ACTIVE FRAME	INPUT		DETAIL															
2	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
3	###-###-###	0	0	0	0	1	0	HEX	0x013											
4	###-###-###	0	0	0	0	0	0													
5	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
6	###-###-###	0	0	0	0	1	0	HEX	0x013											
7	###-###-###	0	0	0	0	0	0													
8	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
9	###-###-###	0	0	0	0	1	0	HEX	0x013											
10	###-###-###	0	0	0	0	0	0													
11		LINE	SPEED		04		BRIGHT	88		CODE		0x488								
12		01	OUTPUT		{0x013,0x013,0x013,0x488},															
13	LAST FRAME		NEXT FRAME		SAVE TO FRAME															

1.

13. Set the states of each light as you would like them to be displayed in the “Input Column”.

J12T12										=CONCAT("J12T12",J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12,J12T12)										
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	X
1	1 FRAME BACK	ACTIVE FRAME	INPUT		DETAIL															
2	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
3	###-###-###	0	0	0	0	1	0	HEX	0x013											
4	###-###-###	0	0	0	0	0	0													
5	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
6	###-###-###	0	0	0	0	1	0	HEX	0x013											
7	###-###-###	0	0	0	0	0	0													
8	###-###-###	0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1			
9	###-###-###	0	0	0	0	1	0	HEX	0x013											
10	###-###-###	0	0	0	0	0	0													
11		LINE	SPEED		04		BRIGHT	88		CODE		0x488								
12		01	OUTPUT		{0x013,0x013,0x013,0x488},															
13	LAST FRAME		NEXT FRAME		SAVE TO FRAME															

1.

LED CUBE FRAME MAKER TOOL

14. Select the “Save To Frame” Button, to save the Input to the current frame and step to the next frame.

0	0	0	0	1	0	HEX	0x013								
0	0	0	0	0	0										
0	0	0	1	1	0	BINARY	0	0	0	0	1	0	0	1	1
0	0	0	0	1	0	HEX	0x013								
0	0	0	0	0	0										
LINE		SPEED		04	BRIGHT	88	CODE	0x488							
01		OUTPUT		{0x013,0x013,0x013,0x488},											
LAST FRAME		NEXT FRAME		SAVE TO FRAME											

1.

15. Create Some Frames as you desire.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	1 FRAME BACK			ACTIVE FRAME			INPUT			DETAIL										
	0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	HEX	0x000									
	0	0	1	0	0	0	0	0	0											
	0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	HEX	0x000									
	0	0	1	0	0	0	0	0	0											
	0	0	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	HEX	0x000									
	0	0	1	0	0	0	0	0	0											
0	0	0	1	0	0	0	0	0	0											
1				LINE			SPEED			04	BRIGHT			88	CODE			0x488		
2				04			OUTPUT			{0x000,0x000,0x000,0x488},										
3				<div>LAST FRAME</div>			<div>NEXT FRAME</div>			<div></div>				<div>SAVE TO FRAME</div>						
4																				
5																				
6																				
7																				
8																				
9																				

1.

16. You can Step back a frame with the “Last Frame” button.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
0	1 FRAME BACK			ACTIVE FRAME			INPUT			DETAIL										
1	1	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0
2	1	1	0	0	1	1	0	0	0	HEX	0x000									
3	0	0	0	0	1	1	0	0	0											
4	1	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
5	1	1	0	0	1	1	0	0	0	HEX	0x000									
6	0	0	0	0	1	1	0	0	0											
7	1	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
8	1	1	0	0	1	1	0	0	0	HEX	0x000									
9	0	0	0	0	1	1	0	0	0											
10	0	0	0	0	1	1	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	1	1	0	0	0	HEX	0x000									
12																				
13				LINE			SPEED			04	BRIGHT			88	CODE			0x488		
14				02			OUTPUT			{0x000,0x000,0x000,0x488},										
15				<div>LAST FRAME</div>			<div>NEXT FRAME</div>				<div></div>			<div>SAVE TO FRAME</div>						
16																				
17																				
18																				
19																				
20																				

1.

LED CUBE FRAME MAKER TOOL

17. Can Step to the next frame in the list with the “Next Frame” button

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	1 FRAME BACK			ACTIVE FRAME			INPUT			DETAIL										
2	1	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	0
3	1	1	0	0	1	1	0	0	0	HEX	0x000									
4	0	0	0	0	1	1	0	0	0											
5	1	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
6	1	1	0	0	1	1	0	0	0	HEX	0x000									
7	0	0	0	0	1	1	0	0	0											
8	1	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
9	1	1	0	0	1	1	0	0	0	HEX	0x000									
10	0	0	0	0	1	1	0	0	0											
11				LINE			SPEED			04	BRIGHT	88	CODE			0x488				
12				02			OUTPUT			{0x000,0x000,0x000,0x488},										
13				LAST FRAME			NEXT FRAME													
14																				
15																				
16																				
17																				
18																				
19																				
20																				

1.

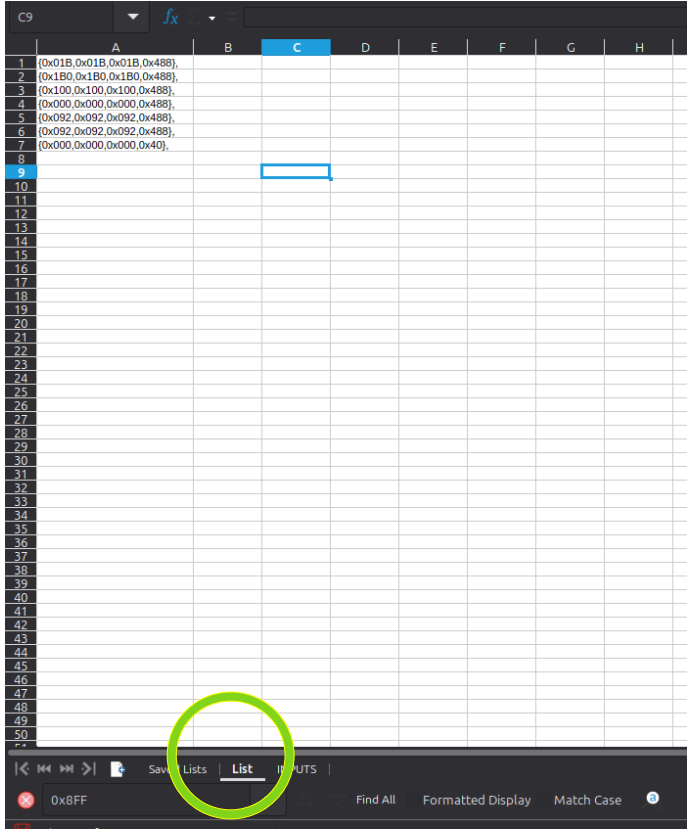
18. For your very last Frame, Set the “Bright” field to 00 and all lights to 0. Save this frame at the end of your frames List. This prevents an issue of weird light patterns displayed at the end of a frame list.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	1 FRAME BACK			ACTIVE FRAME			INPUT			DETAIL										
2	0	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
3	0	1	0	0	0	0	0	0	0	HEX	0x000									
4	0	1	0	0	0	0	0	0	0											
5	0	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
6	0	1	0	0	0	0	0	0	0	HEX	0x000									
7	0	1	0	0	0	0	0	0	0											
8	0	1	0	0	0	0	0	0	0	BINARY	0	0	0	0	0	0	0	0	0	
9	0	1	0	0	0	0	0	0	0	HEX	0x000									
10	0	1	0	0	0	0	0	0	0											
11				LINE			SPEED			04	BRIGHT	0	CODE			0x40				
12				07			OUTPUT			{0x000,0x000,0x000,0x40},										
13				LAST FRAME			NEXT FRAME													
14																				
15																				
16																				
17																				
18																				
19																				
20																				

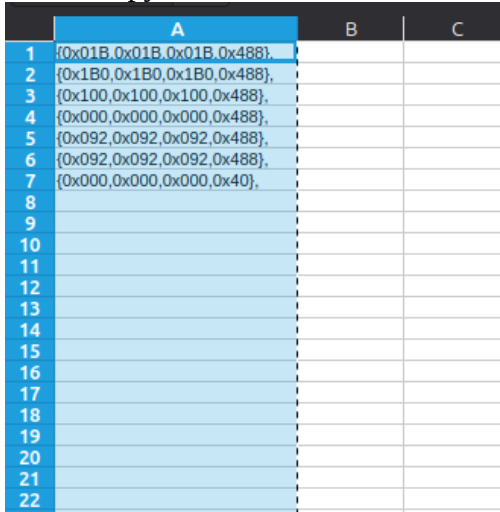
1.

LED CUBE FRAME MAKER TOOL

19. Select the “Lists” sheet.



- 1.
20. Select and copy all lines in Column A.



1.

LED CUBE FRAME MAKER TOOL

21. Paste this List into the Arduino Code after the line “`const unsigned int table[][4]={`”. You can leave the existing lines if you wish and comment them out or delete them all so only the new frame List is left.

```
42 // #define page 64          // Repeats four patterns
43 #define page 214
44
45 const unsigned int table[][4]={
46
47 {0x01B,0x01B,0x01B,0x488},
48 {0x1B0,0x1B0,0x1B0,0x488},
49 {0x100,0x100,0x100,0x488},
50 {0x000,0x000,0x000,0x488},
51 {0x092,0x092,0x092,0x488},
52 {0x092,0x092,0x092,0x488},
53 {0x000,0x000,0x000,0x40},
54
55
56
57 };
58
59
60 int scannow=0,scandir=0;
```

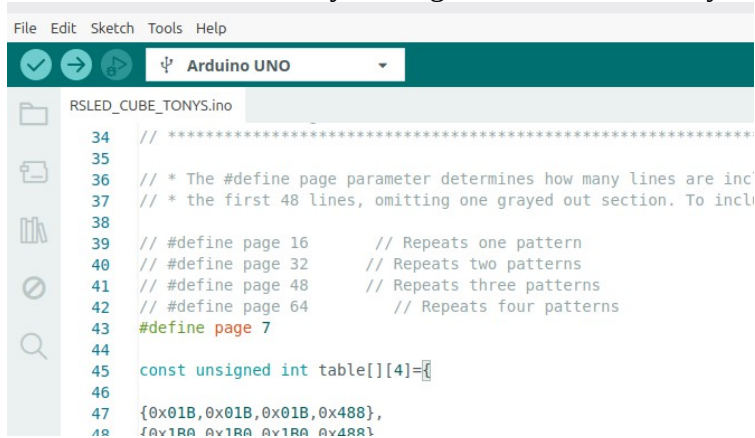
1.

22. Set “Page” to equal the number of lines in your frames list.

```
40 // #define page 32          // Repeats two patterns
41 // #define page 48          // Repeats three patterns
42 // #define page 64          // Repeats four patter
43 #define page 7
44
45 const unsigned int table[][4]={
46
47 {0x01B,0x01B,0x01B,0x488},
48 {0x1B0,0x1B0,0x1B0,0x488},
49 {0x100,0x100,0x100,0x488},
50 {0x000,0x000,0x000,0x488},
51 {0x092,0x092,0x092,0x488},
```

1.

23. Upload the Arduino Code to your target device and watch your frames cycle through the cube.



```
File Edit Sketch Tools Help
[Icons] Arduino UNO
RSLED_CUBE_TONYS.ino
34 // *****
35
36 // * The #define page parameter determines how many lines are incl
37 // * the first 48 lines, omitting one grayed out section. To incl
38
39 // #define page 16          // Repeats one pattern
40 // #define page 32          // Repeats two patterns
41 // #define page 48          // Repeats three patterns
42 // #define page 64          // Repeats four patterns
43 #define page 7
44
45 const unsigned int table[][4]={
46
47 {0x01B,0x01B,0x01B,0x488},
48 {0x1B0,0x1B0,0x1B0,0x488},
```

1.