



# M1357Adv Program user manual

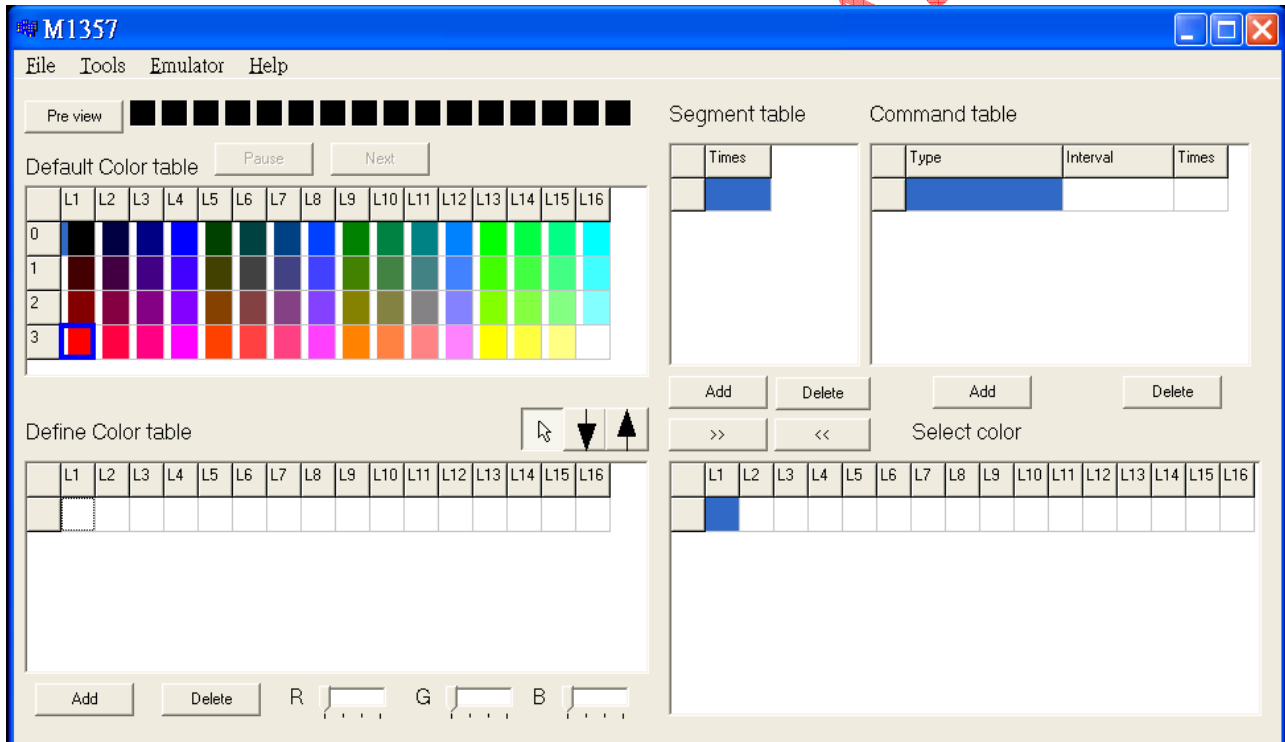
## 1.Introduction

1. M1357 is a monolithic, 4-channel NMOS PWM LED drivers Controller can also be directly programmed through an Serial Bus Micro-Processor Interface for applications where user defined LED pattern, color, and intensity programmability is a priority. Optimized for dimming LEDs in 256 discrete steps for Red/Green/Blue (RGB) color mixing and back light applications
2. M1357Adv program include several action , color and timing to define Composite move.
3. M1357Adv can quickly produce MCU machine code to control M1357. Customers can program PIC16C58B MCU if they have PIC16C58B's writer and blank IC.

## 2.Software operation

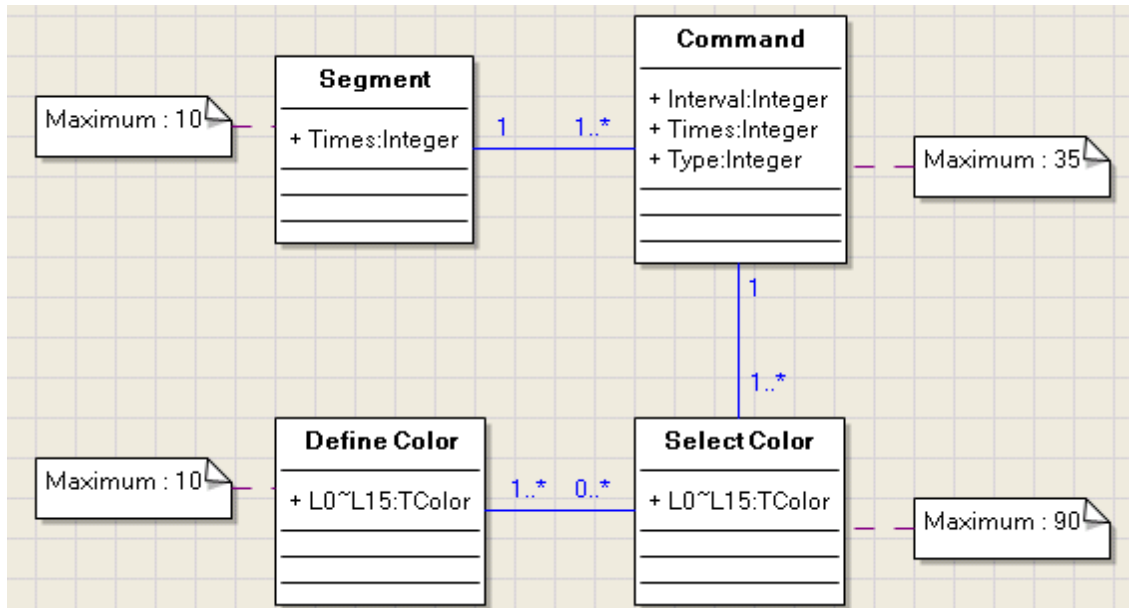
### 1.Environment

It contains [Default Color](#) table , [Define Color](#) table , [Segment](#) table , [Command](#) table and [Select color](#) . [Times](#) is number of times of play.





## 2.Data structure



Data structure show above diagram.

1. **Segment** contains one to many **Commands**, and **Command** be contained by one **Segment**.
2. **Command** contains one to many **Select Color**, and **Select Color** be contained by one **Command**.
3. **Select Color** contains one to many **Define Color**, and **Define Color** be contained by zero or many **Select Color**.

Maybe you are confused now. You have not seen data structure like this before. Now , I explain it on other way.

An area has many companies . A company has many departments. A department has many employees. Person has one job , two job or no job. The segment look like the company. The command look like the department. The select color look like the employee. The define color look like the person.

This software collect data items automatically.

### For example:

First , choose File | open , then open adv.flh. You can see picture as below. Data fields has filled data. Please see **Segment** table. Data field of **times** fill value 1 of Item[0], and it contain one **command** data.



M1357 [Segment table][MAX : 10 ; USED : 2]

File Tools Emulator Help

Pre view [Color bars]

Default Color table [Pause] [Next]

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Black	Dark Blue	Blue	Light Blue	Green	Light Green	Yellow	Orange	Red	Pink	Purple	Dark Purple	Black	Black	Black	Black
1	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
2	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
3	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black

Define Color table [Mouse] [Down Arrow] [Up Arrow]

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
1	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
2	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
3	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
4	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black

Segment table

	Times
0	1
1	1

Command table

	Type	Interval	Times
0	Dim(forward)	1 sec	1

Add Delete Add Delete

>> << Select color

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black

Add Delete R G B

When mouse click the item 1 of segment table. You will see the **command** and **select color** table have change content.

M1357 [Segment table][MAX : 10 ; USED : 2]

File Tools Emulator Help

Pre view [Color bars]

Default Color table [Pause] [Next]

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
1	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
2	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
3	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
4	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black

Define Color table [Mouse] [Down Arrow] [Up Arrow]

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
1	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
2	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
3	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black
4	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black

Segment table

	Times
0	2
1	1

Command table

	Type	Interval	Times
0	flash(whole)	250ms	1
1	Dim(backward)	500ms	2
2	Dim(forward)	500ms	1
3	Dim(backward)	500ms	1
4	Dim(backward)	1 sec	1

Add Delete Add Delete

>> << Select color

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Red	Orange	Yellow	Green	Light Green	Blue	Dark Blue	Black	Black	Black	Black	Black	Black	Black	Black	Black

Add Delete R G B

When mouse click the item 1 of command table. You will see the **select color** table have change content.



M1357 [Command table][MAX : 35 ; USED : 7]

File Tools Emulator Help

Pre view

Default Color table

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
1	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
2	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
3	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black

Define Color table

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Red	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
1	Red	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
2	Red	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
3	Red	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
4	Red	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black

Add Delete R G B

Segment table

Times	
0	1
1	1

Command table

	Type	Interval	Times
0	flash(whole)	250ms	1
1	Dim(backward)	500ms	2
2	Dim(forward)	500ms	1
3	Dim(backward)	500ms	1
4	Dim(backward)	1 sec	1

Add Delete Add Delete

Select color

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
1	Red	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black

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### Data maximum

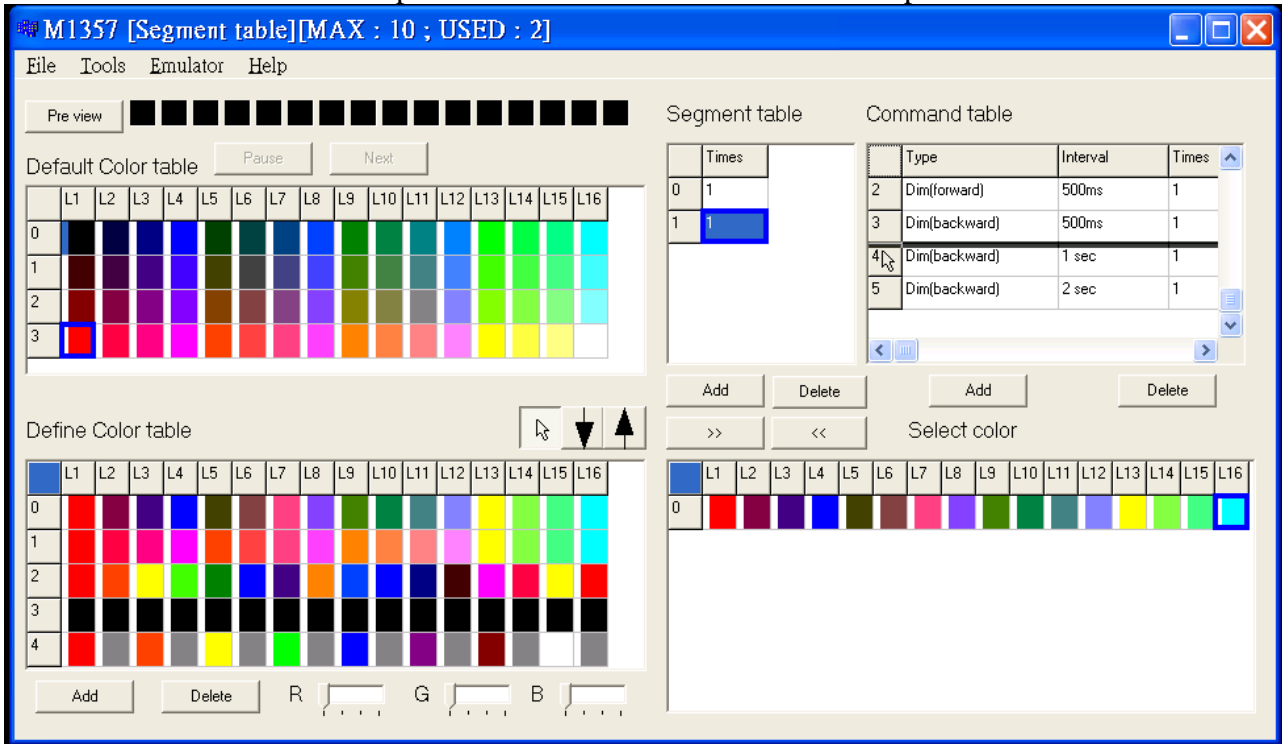
Data item number is limited by MCU's ROM size. Data maximum item show as below.

1. Segment : 10
2. Command : 35
3. Select Color : 90
4. Define Color : 10

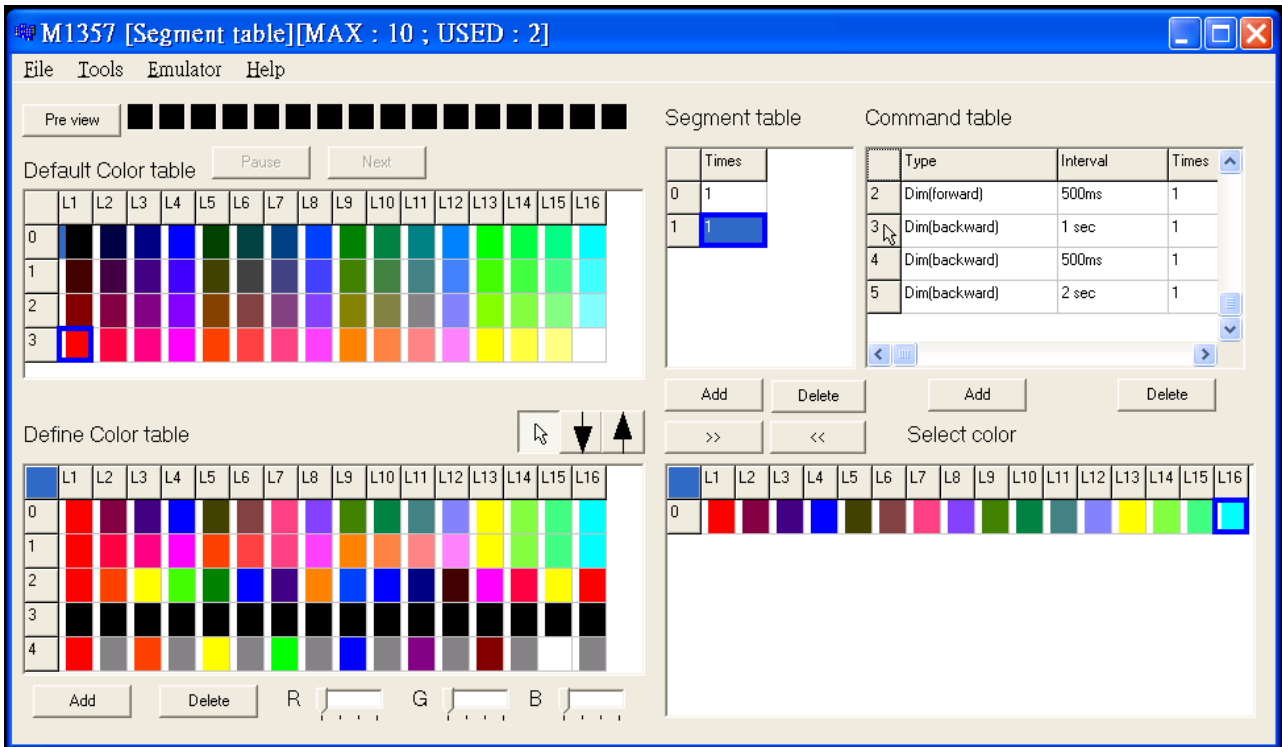
### Move Data item

As below . Click Item 1 of segment table. Mouse left key down and hold on command item

4. Then move mouse up or down. The Item 4 data will move up or down.



Segment table , select color table and define color table have move data item function. It is the same to command table.



### Add and delete item

Define color table , segment table and command table have **Add** and **Delete** button. Select color table is special. It is link between define color table and select color table. First you must select **define color table** one item you want to link. Then , press **>>** button to add link. You can also use **<<** key to delete link of the select color table.

### Define color in **define color table**

It has three bottom and three track bar to define color.

Speed bottom:



If this bottom is selected. Define color table and default color table have not any link.



If this bottom is selected. First you must select a color at default color table. Then click any data grid in the define color table. The color grid your select in the define color table will change to default color table's color your select.



If this bottom is selected. First you must select a color grid at define color table. Then click any color grid you like at default color table. The color grid your select in the define color table will change to default color table's color your select.



### Track bar

Click color grid of the define color table. You can see RGB trace bar change value follow the color grid's color. Then change the trace bar position. You will see the color of the define color table change color to you want.

### Preview the result

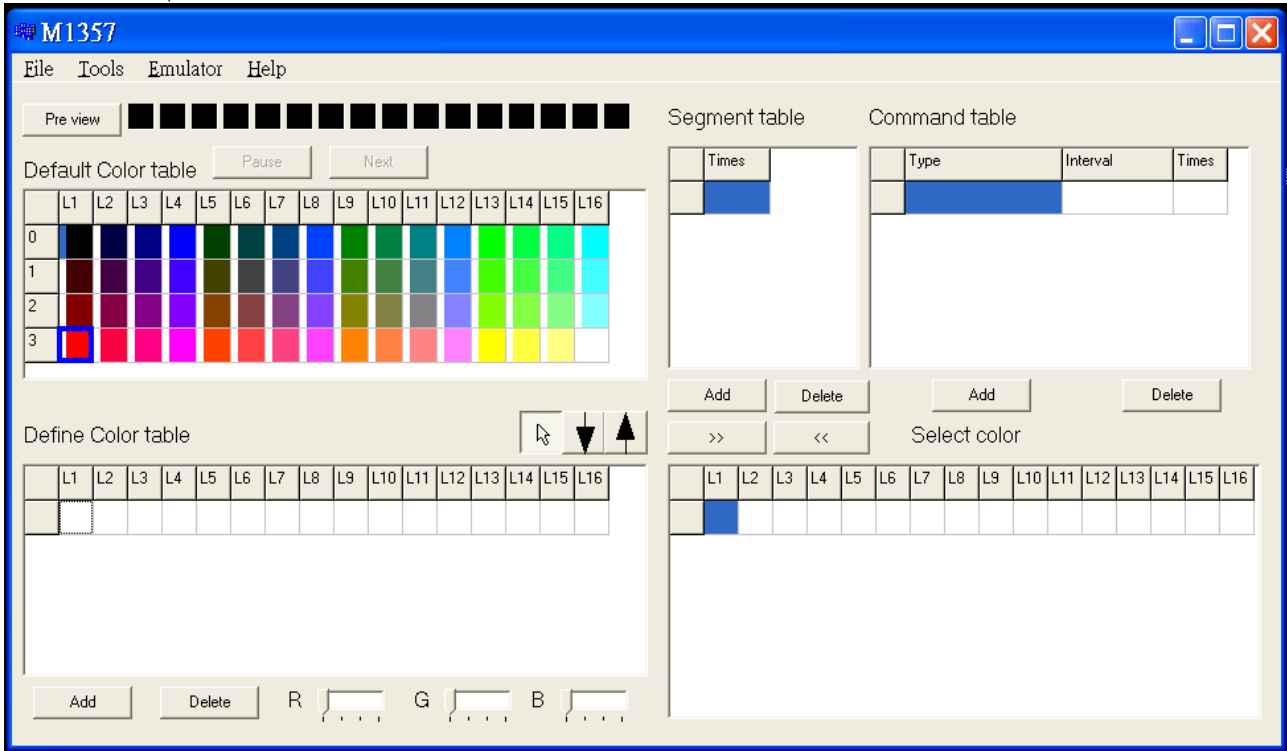
1. Choose main menu File | Open , and select Adv.flh file.
2. Click Preview button , then you will see the animation is running , and Pause and Next button is enable. Now , it is demo mode , can't edit any data of the grid.
3. When animation is running. Segment , command and select color table hight light on the grid will change follow the animation show position of the animation play now.
4. Press the Pause button , you will see the animation is stop running,press again the animation is running again.
5. Press the Next button you will see the segment hight light on the grid will change to next segment then command and select change content.
6. Press stop button to return edition mode.

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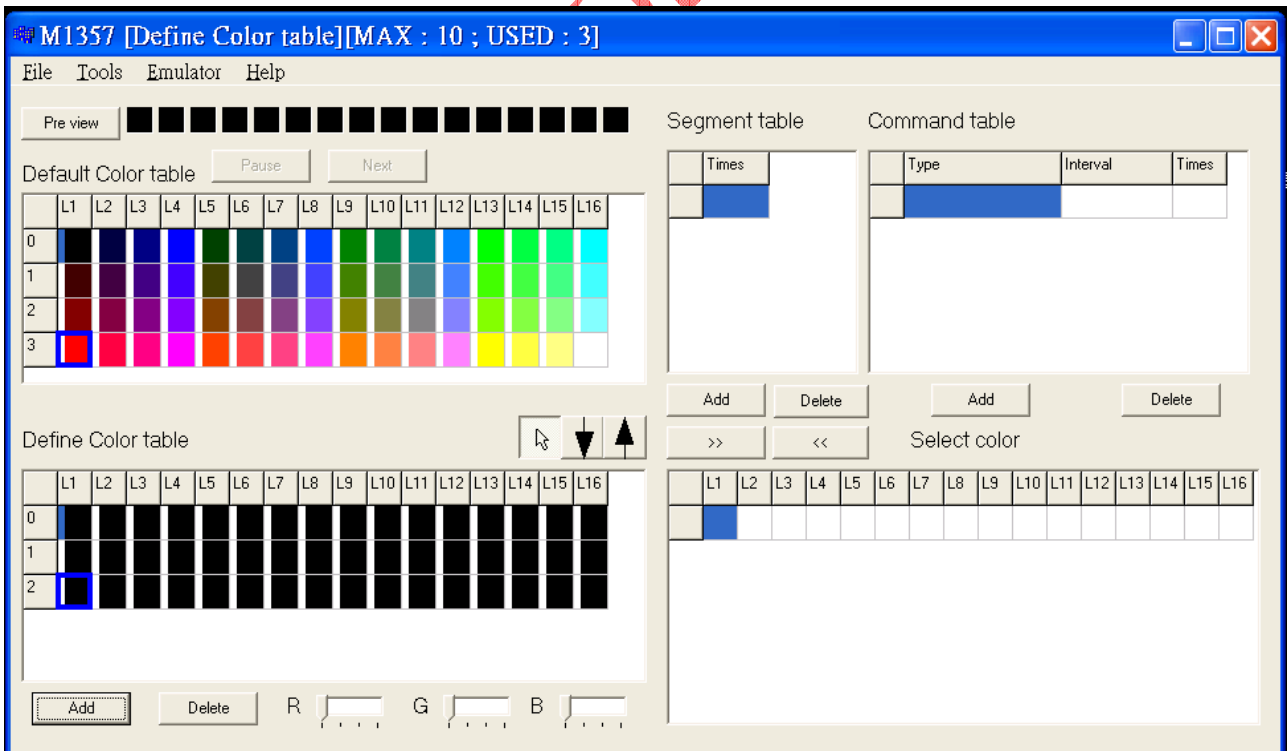


### How to define <Define color table>

Choose File | New to clear all of the data.



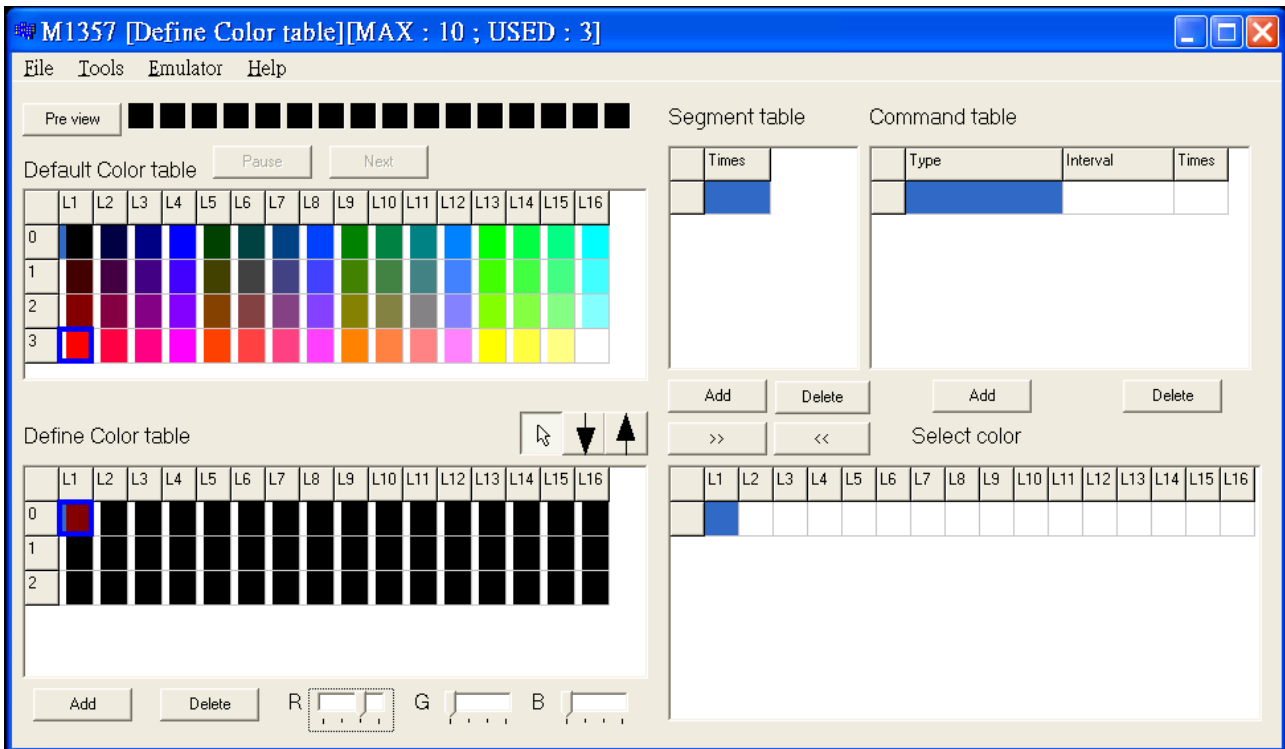
Click Add button three times at the define color table.



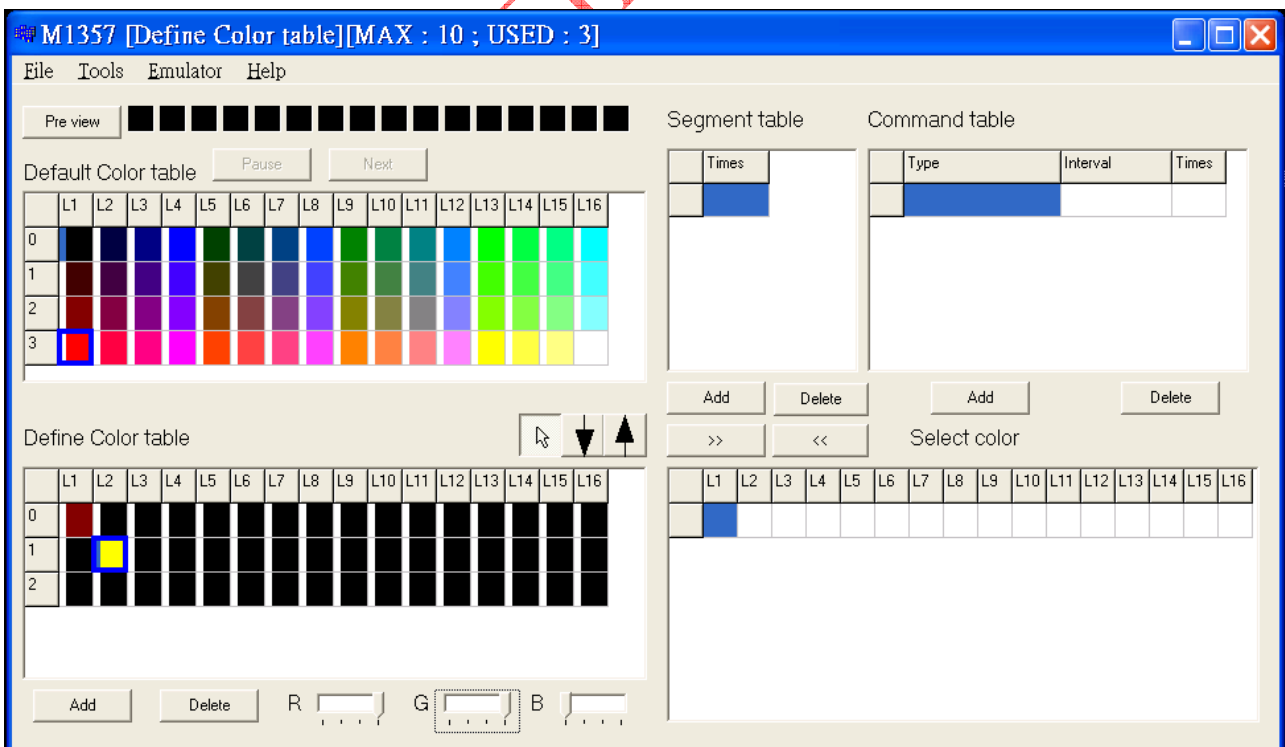




Click Item 0 , L1 at color grid, then change R color trace bar position. The color grid will change color.



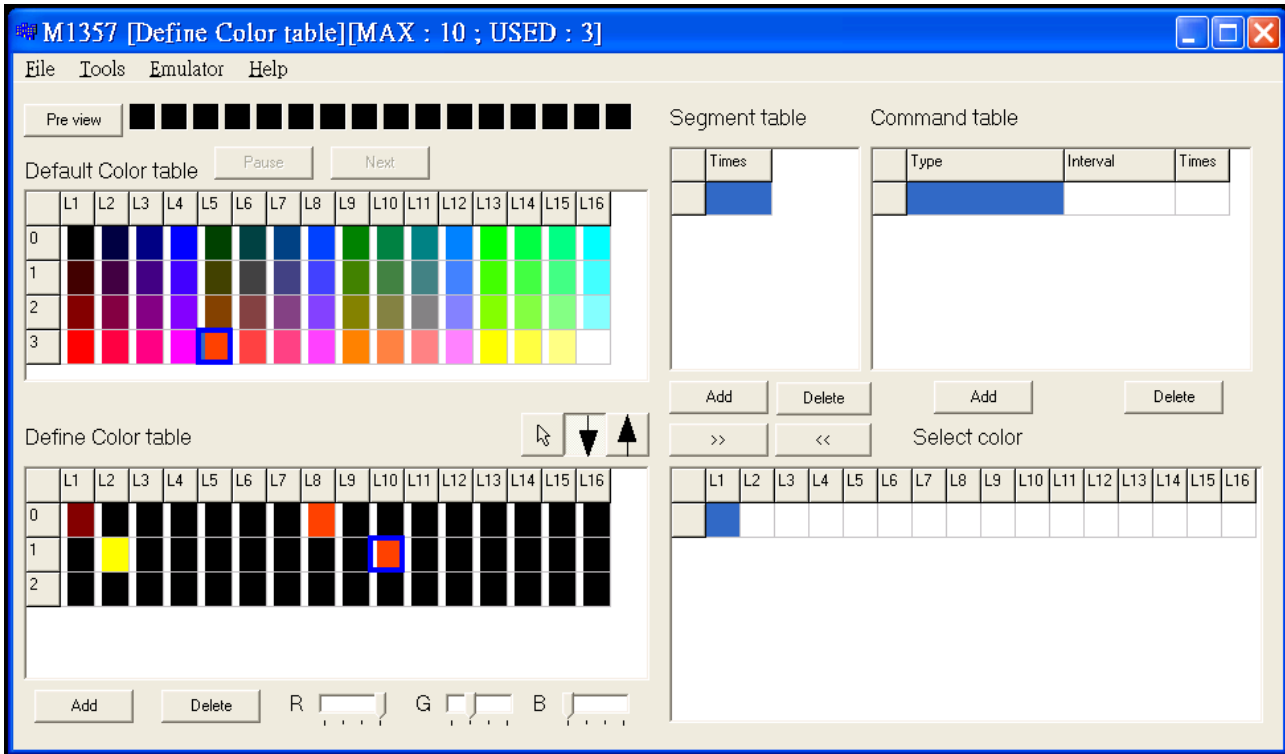
Then click item 1 L2 , and change R and G trace bar position to maximum. The color of the grid will change to yellow.



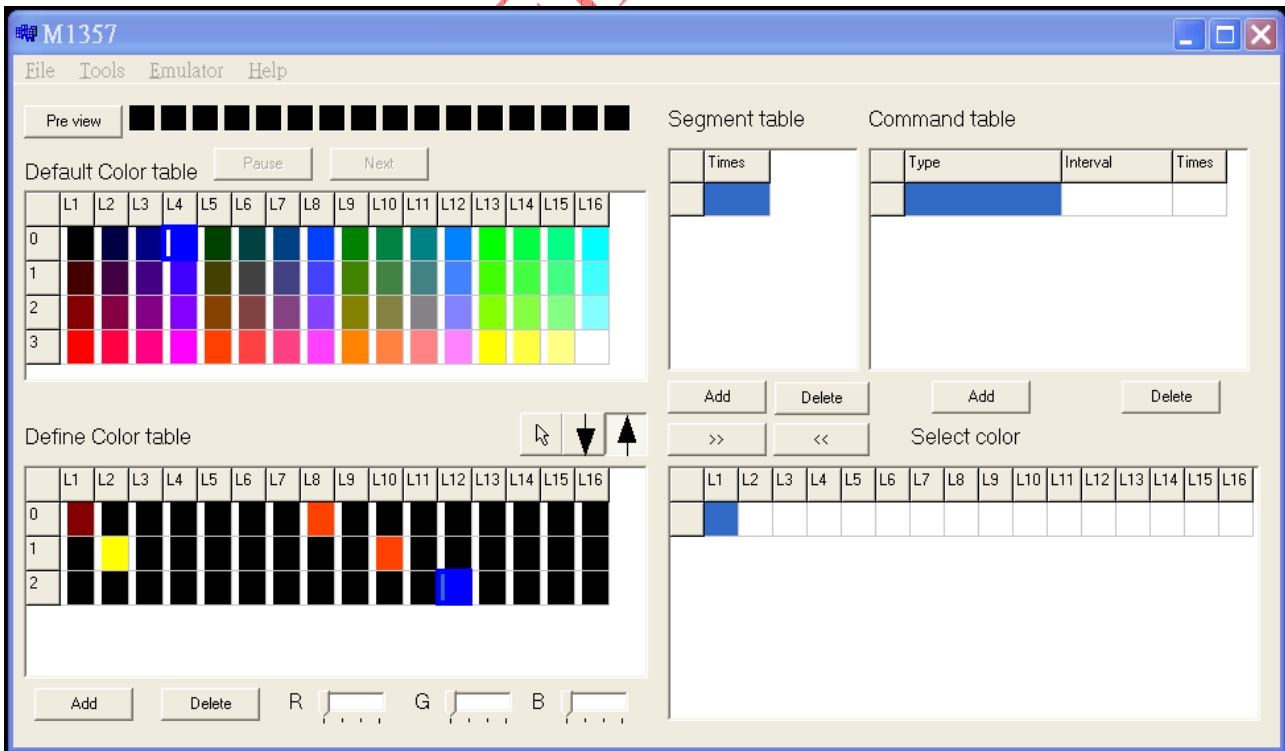
You can also choose other color grid and change R,G,B trace bar to see the color change of the grid.



You click the second speed button , then click default color table item 3 , L5.  
Click item 0 , L8 and item 1 ,L10 at the define color table. You will see as below.



You click the third speed button , then click define color table item 2 , L12.  
Click item 0 , L4 at the default color table. You will see as below.

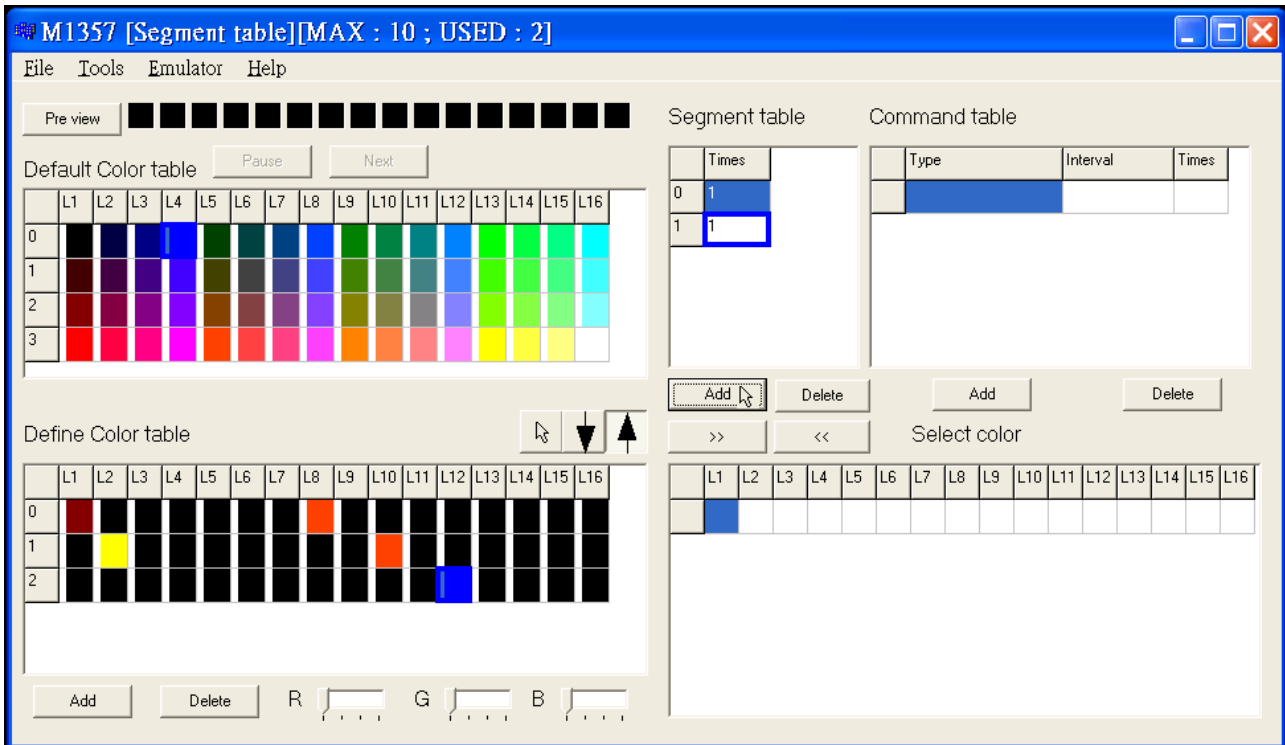


Now, you can define color in <Define color table>.

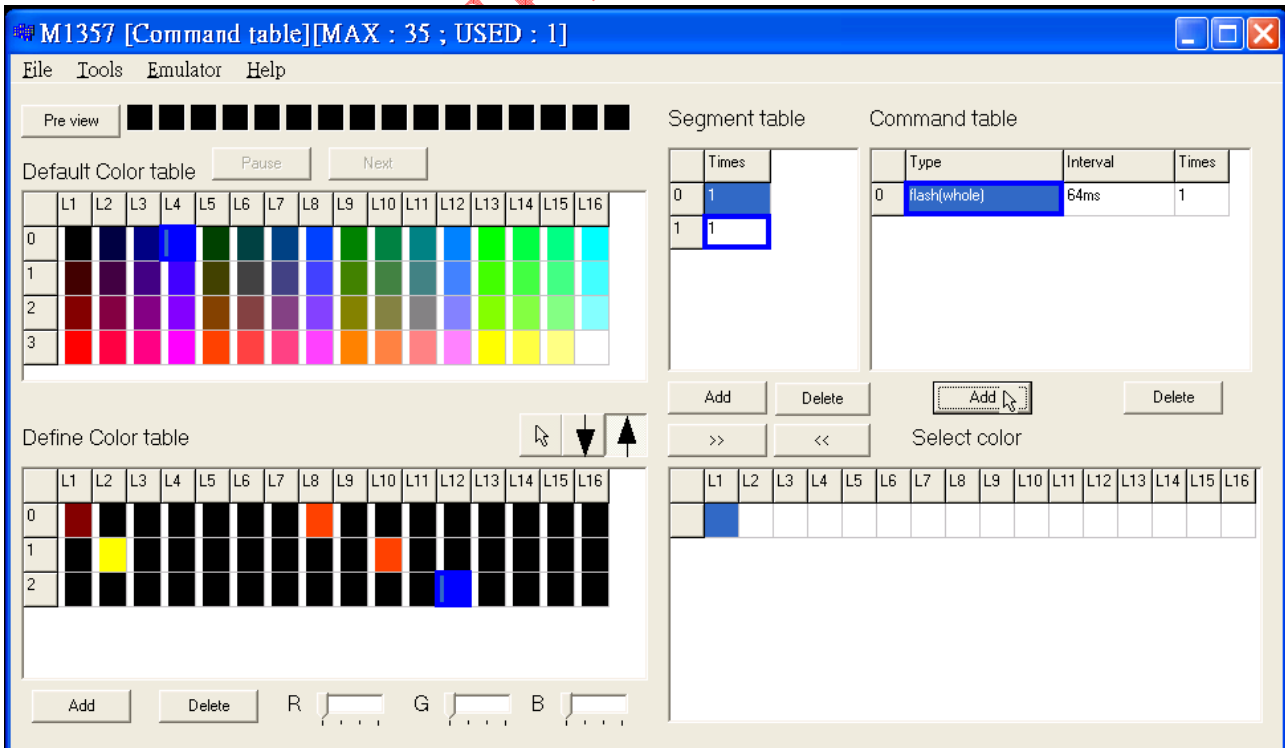


**How to define segment table.**

Press <Add> button twice to add 2 items of the <Segment table>. Now you will see item 1 data show below.



Click item 0 of the <Segment table>, then press <Add> button to add one item of the <Command table>.





Click item 1 of the <Define color table>, then press >> button to link color.

File Tools Emulator Help

Pre view

Default Color table

Define Color table

Command table

Segment table

Times	Type	Interval	Times
0	1		
1	1		

Type	Interval	Times	
0	flash(whole)	64ms	1

Add Delete Add Delete

>> << Select color

L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16

Add Delete R G B

Click item 0 , Type grid.

File Tools Emulator Help

Pre view

Default Color table

Define Color table

Command table

Segment table

Times	Type	Interval	Times
0	1		
1	1		

Type	Interval	Times	
0	flash(whole)	64ms	1

Add Delete Add Delete

>> << Select color

L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16

Add Delete R G B



And click again. You will select type of the command.

M1357 [Command table][MAX : 35 ; USED : 1]

File Tools Emulator Help

Pre view

Default Color table

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0																
1																
2																
3																

Define Color table

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0																
1																
2																

Segment table

Times	
0	1
1	1

Command table

Type	Interval	Times
flash(whole)	64ms	1

Add Delete Add Delete

>> << Select color

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0																

Add Delete R G B

Now choose flash(forward) of the <Command table>.

M1357 [Command table][MAX : 35 ; USED : 1]

File Tools Emulator Help

Pre view

Default Color table

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0																
1																
2																
3																

Define Color table

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0																
1																
2																

Segment table

Times	
0	1
1	1

Command table

Type	Interval	Times
flash(forward)	64ms	1

Add Delete Add Delete

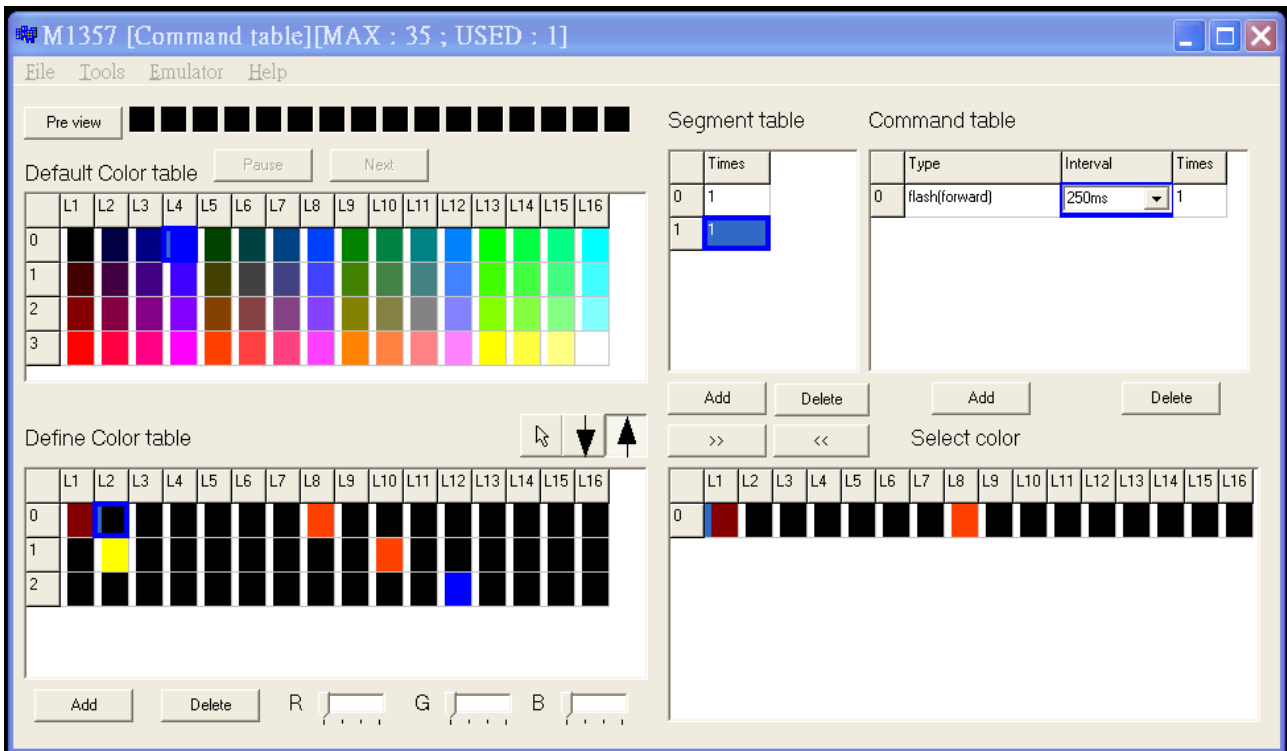
>> << Select color

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
0																

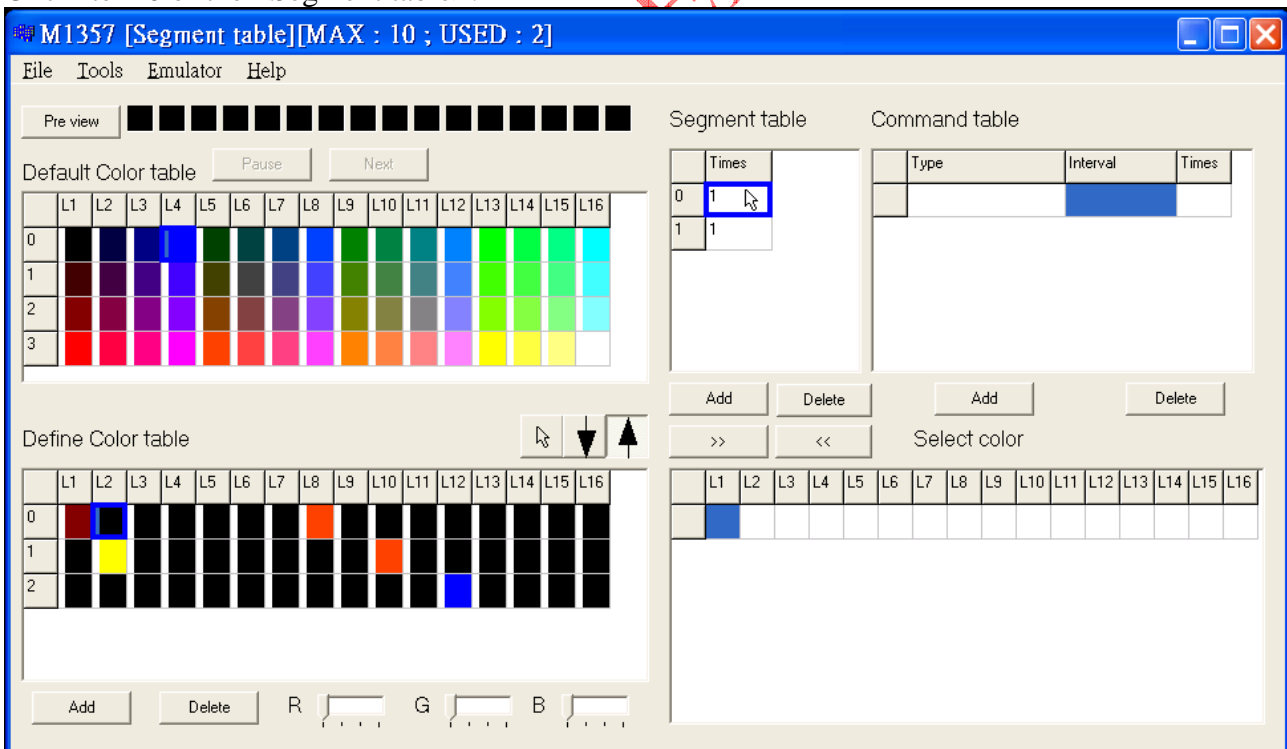
Add Delete R G B



You also can choose other data. For example interval set to 250 ms.

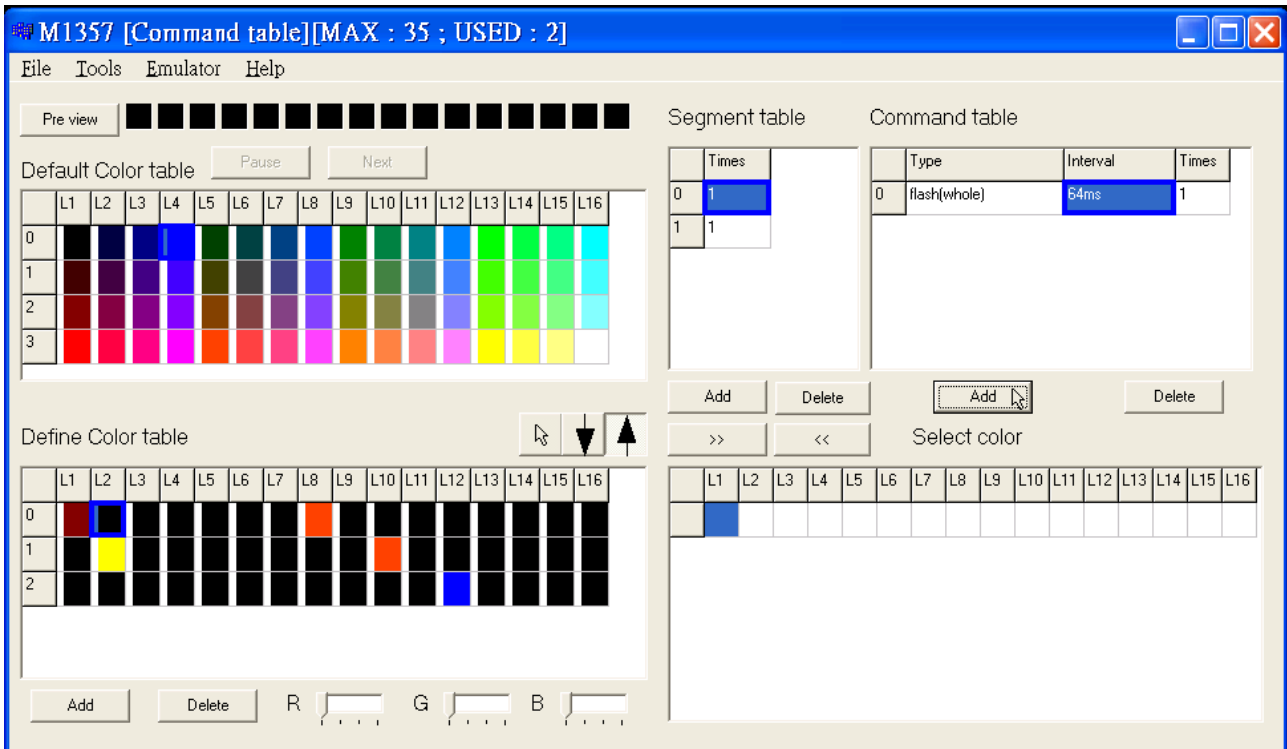


Click item 0 of the <Segment table>.

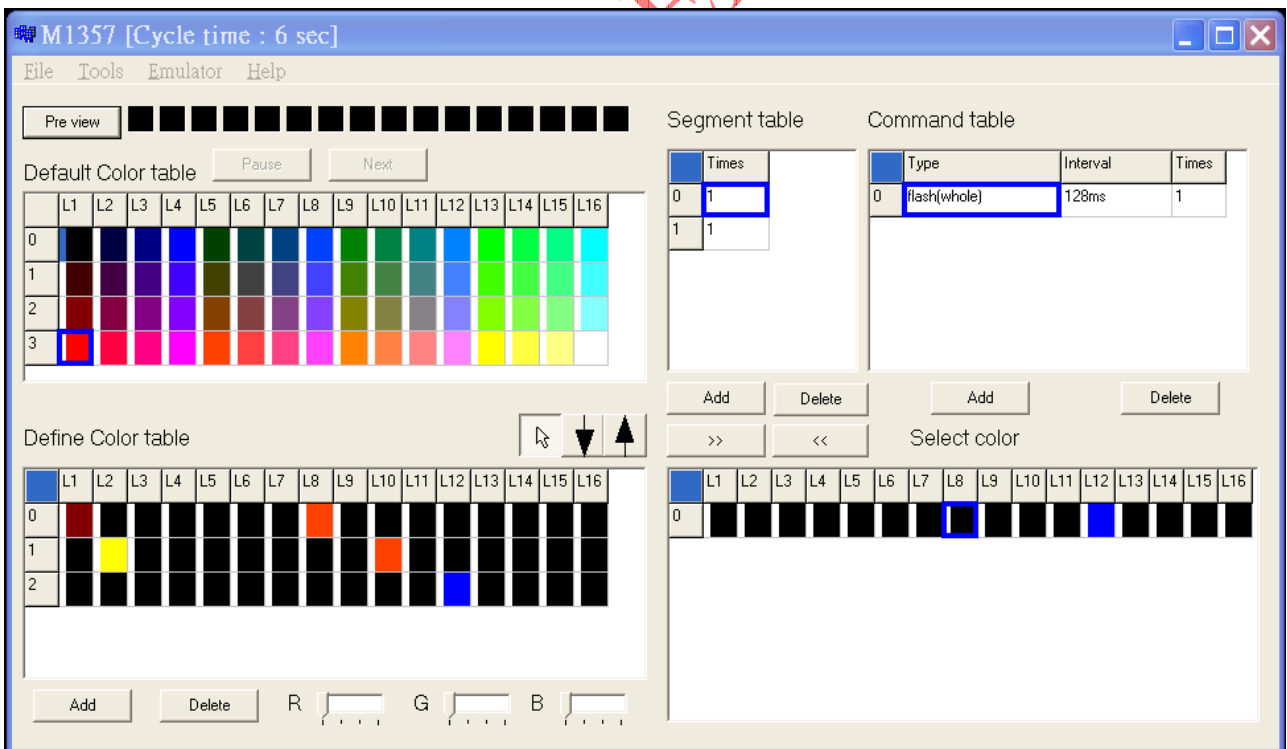




Click <Add> button of the <Command table>.



Click <Define color table> item 2 , then press >> key, and set interval to 128 ms.

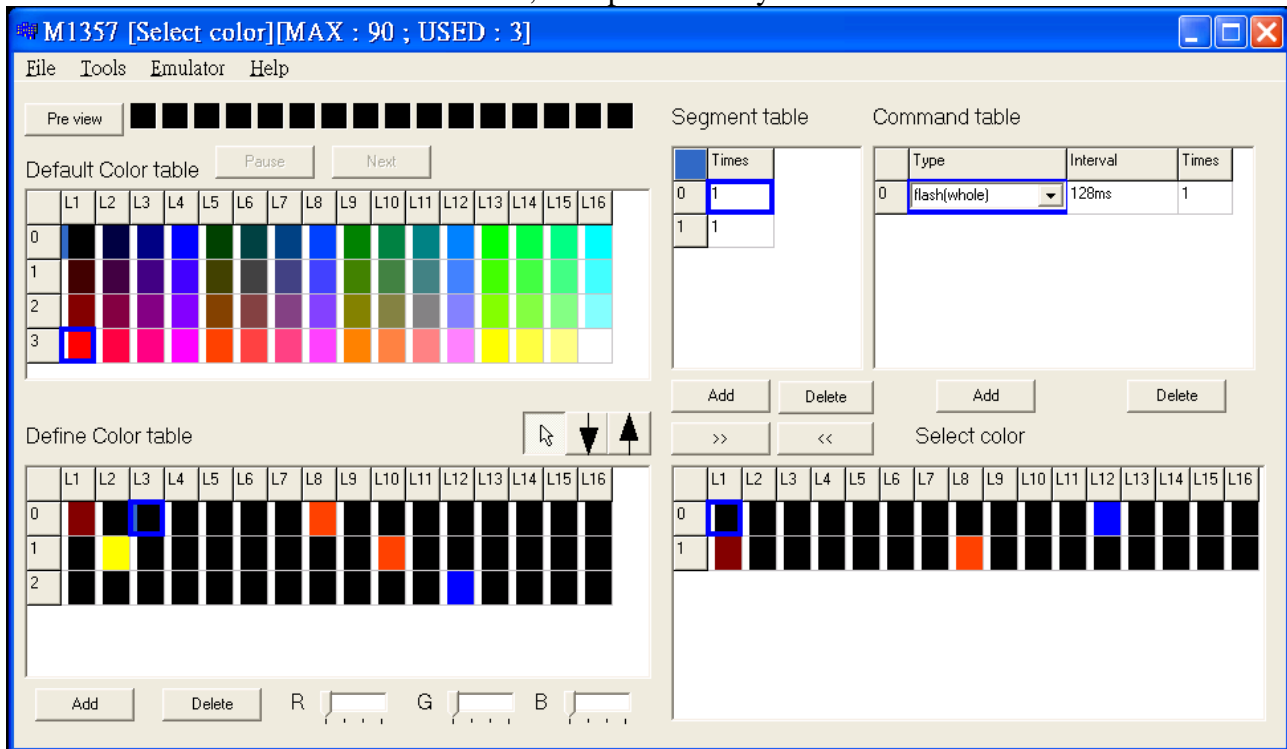


Press Preview button to view the animation.



Add a item of the <Select color>.

Click item 0 of the <Define Color table>, then press >> key of the <Select color>.



Then press preview key to see the animation.

You can also choose other value then press <Preview> to see the animation.

Note :

1. Leftest rectangle's address is 0 and rightest rectangle's address is 15 at the animation.
2. Use A0 ~ A3 pin decide M1357's address.

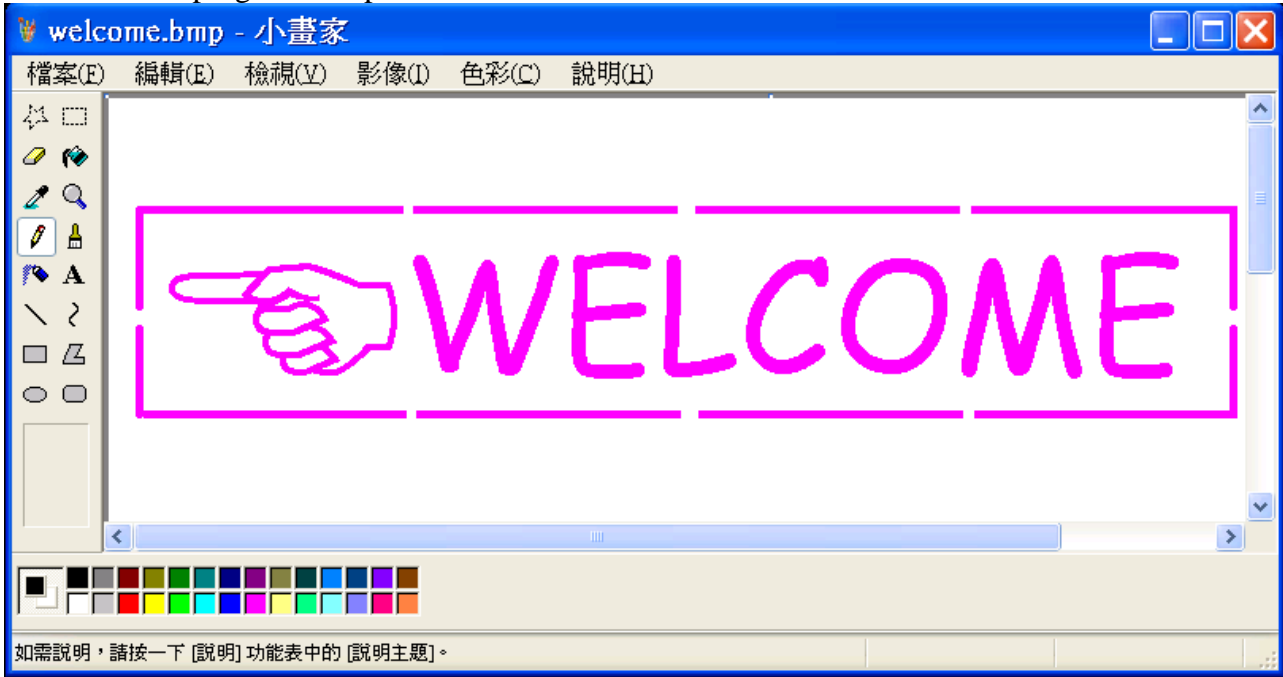
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### How to make advertisement animation.

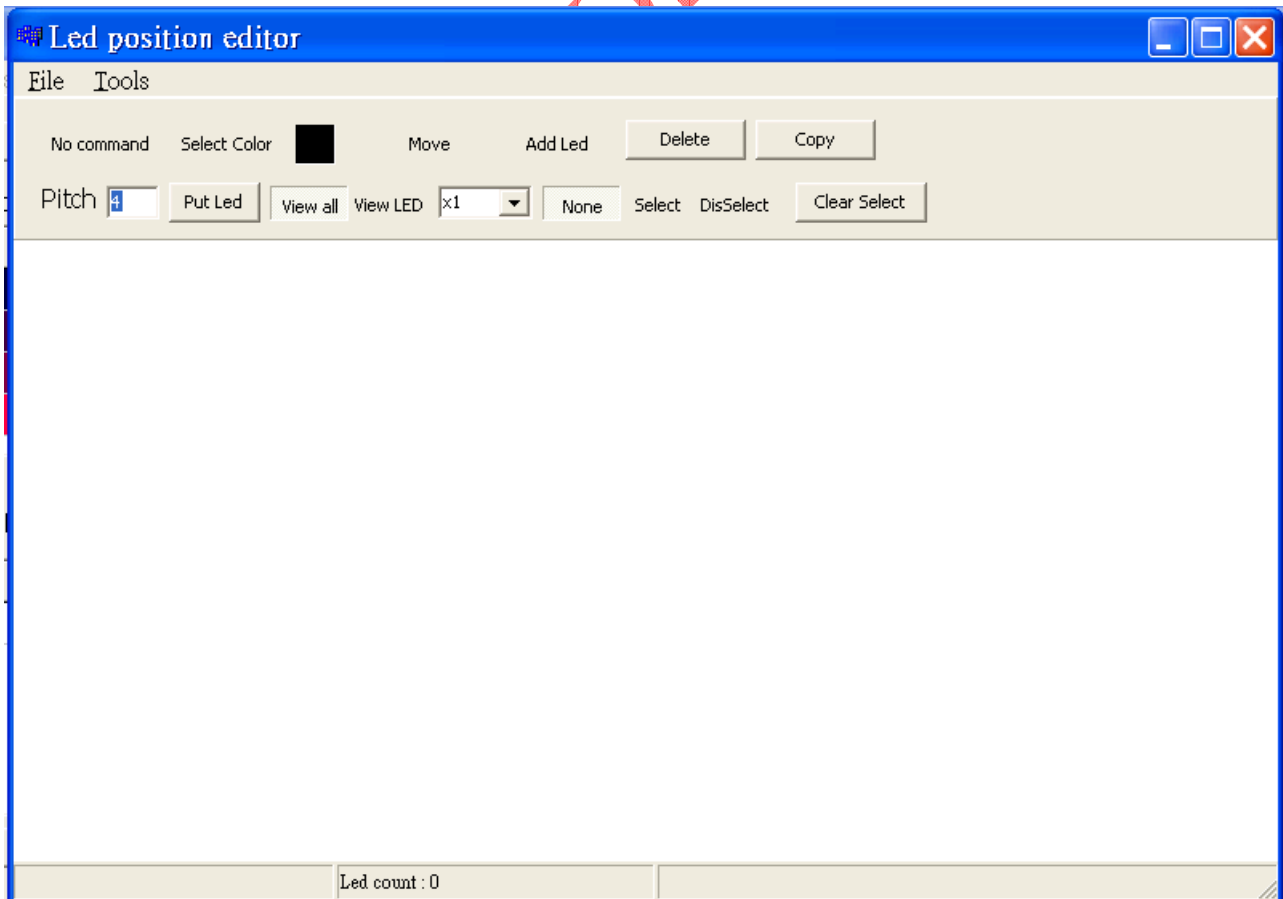
Use microsoft program <mspaint.exe> to create advertisement 's font.



Then you must use mspaint to separate single char.

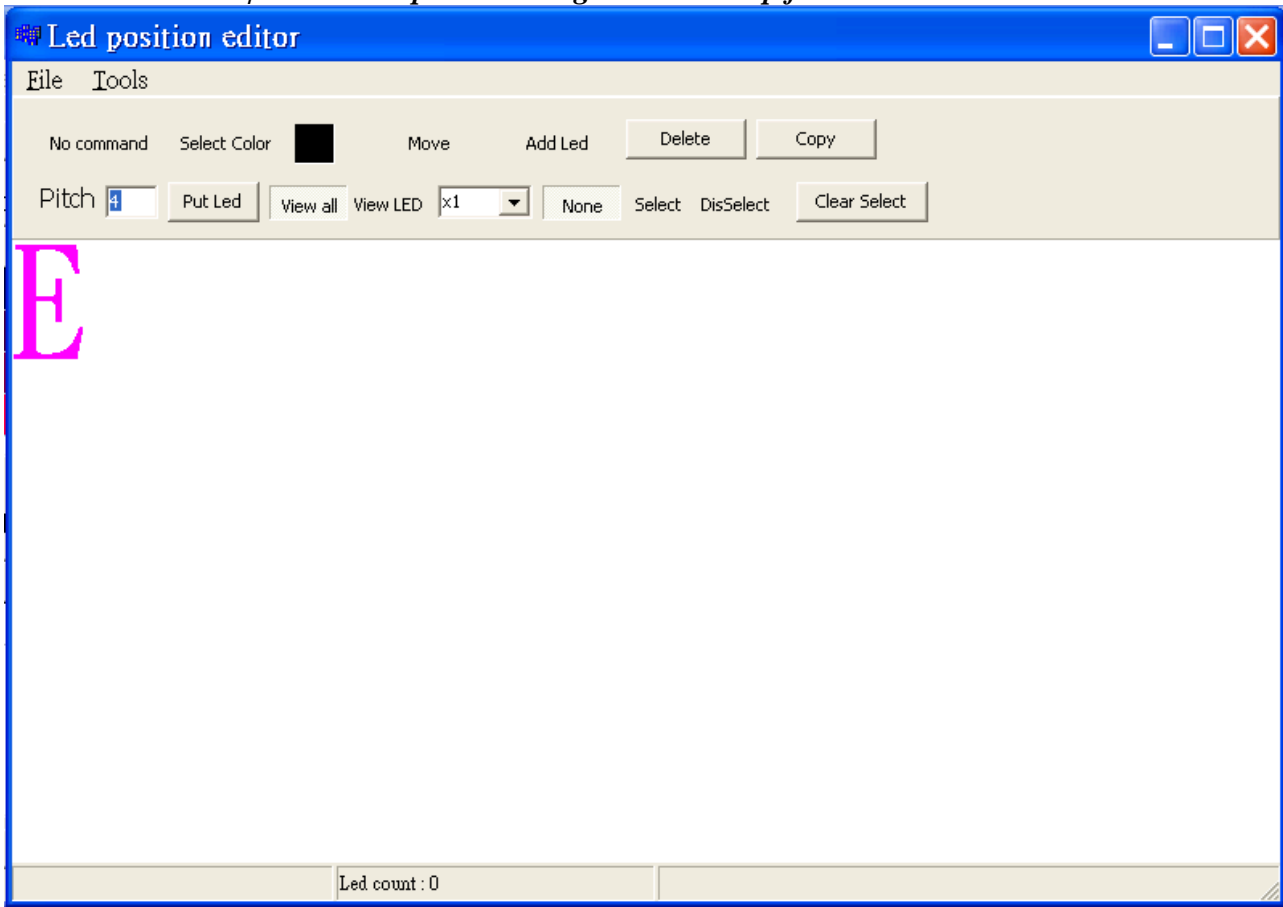
OK now. We will create LED position file.

Choose Tools | Led font Editor in M1357Adv program. It will pop a <Led position editor> form.

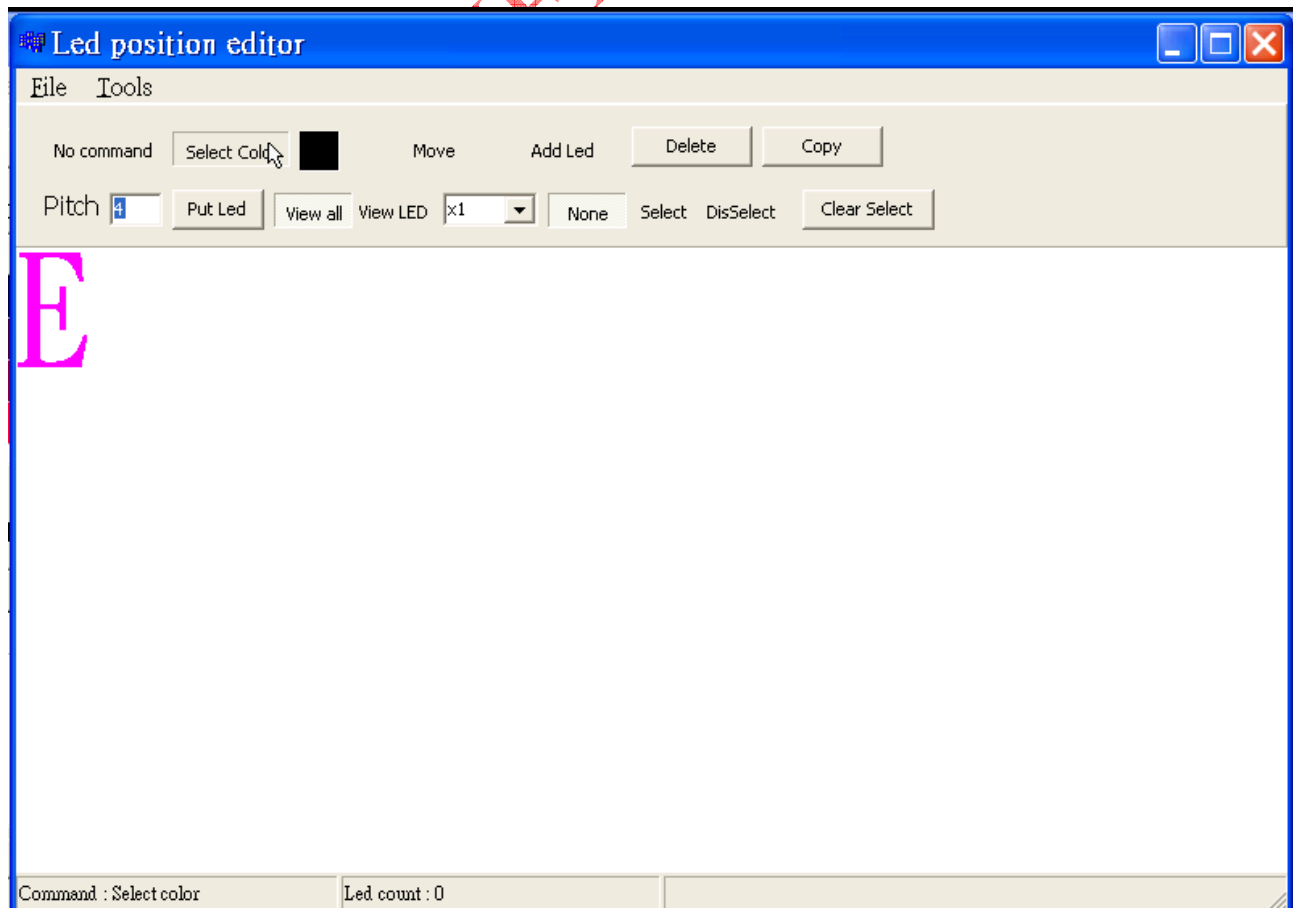




Now choose Tools / Load bitmap to load single char bitmap file.

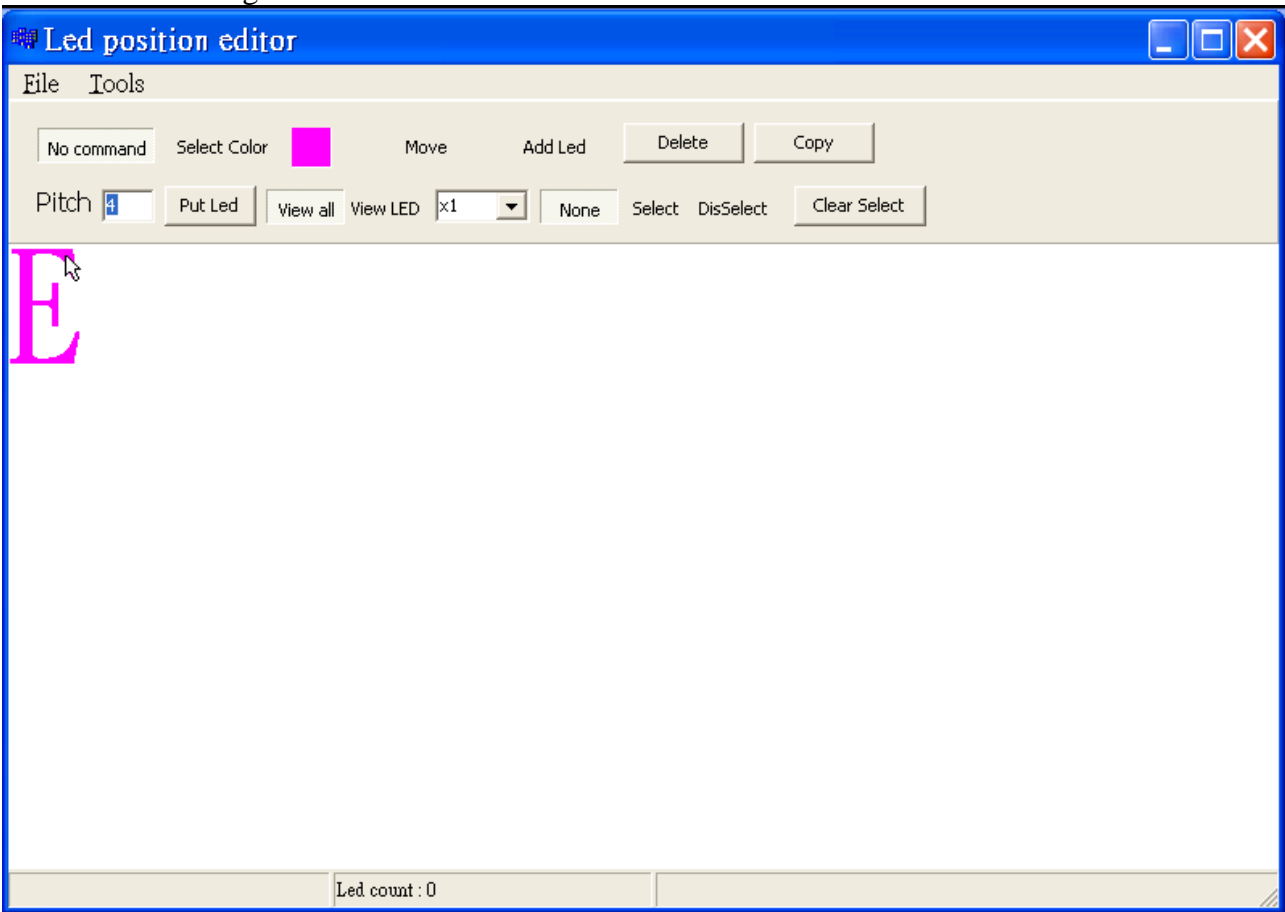


First , you must choose <Select Color> speed button.

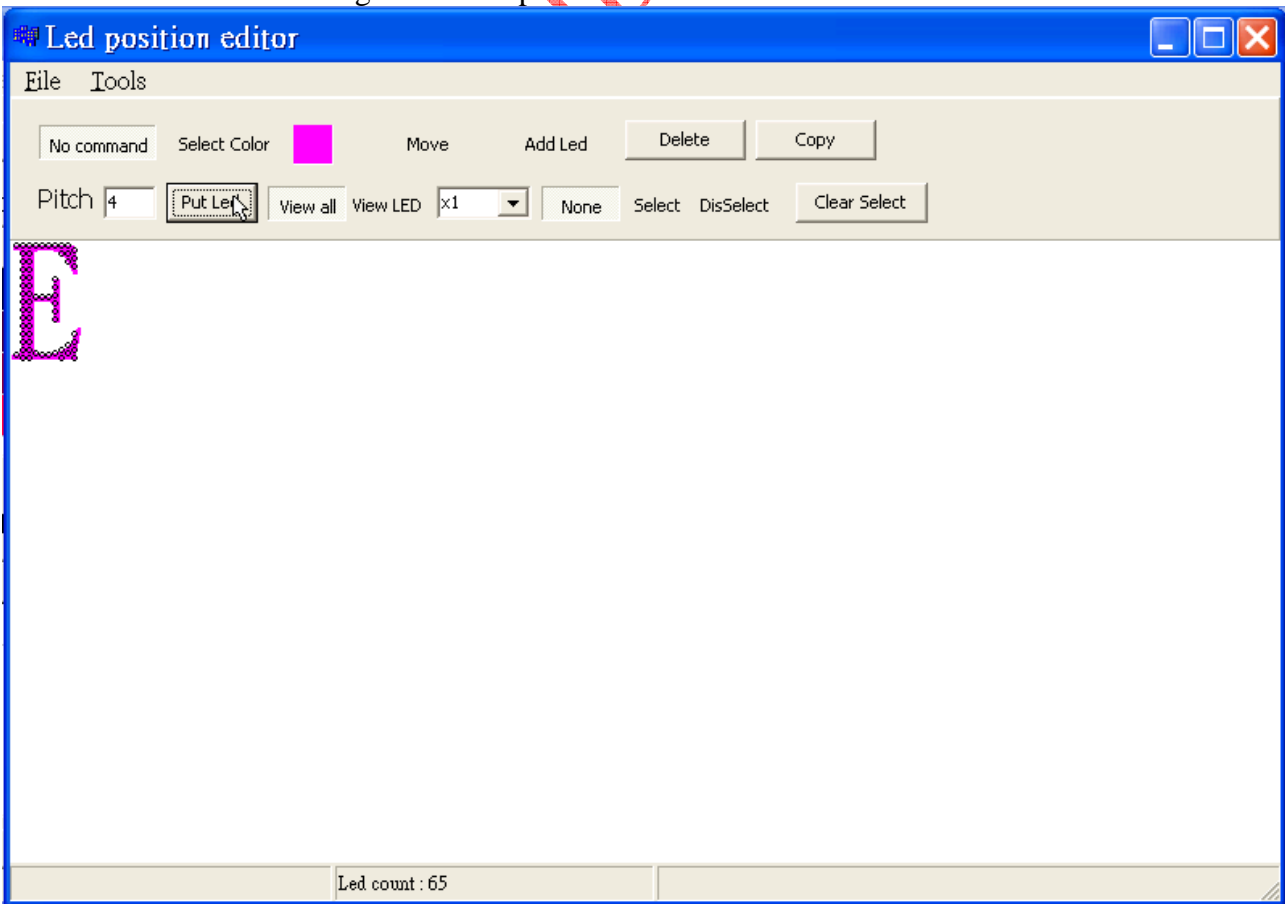




Move mouse to target color then click.

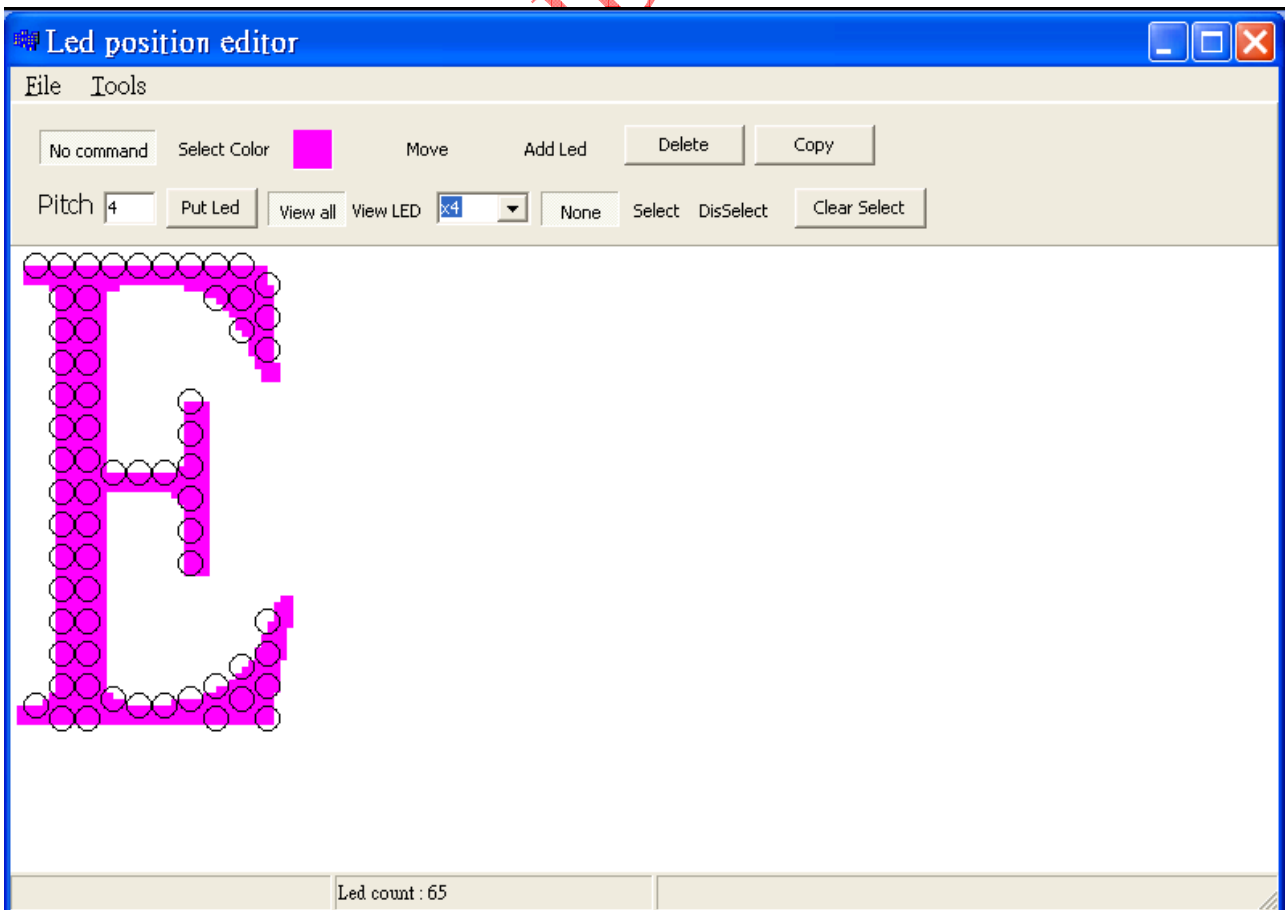
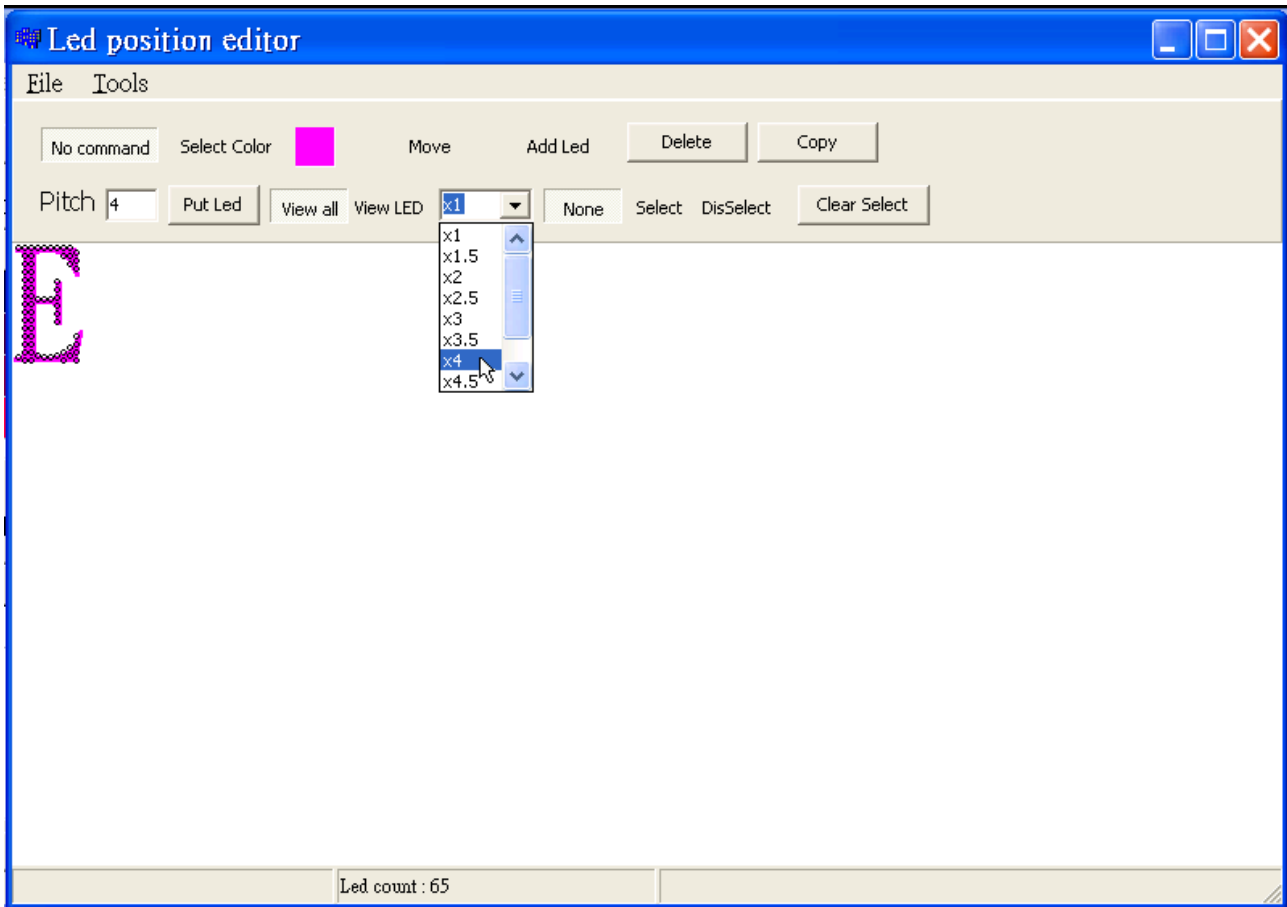


Click <Put Led > button to generate led position.



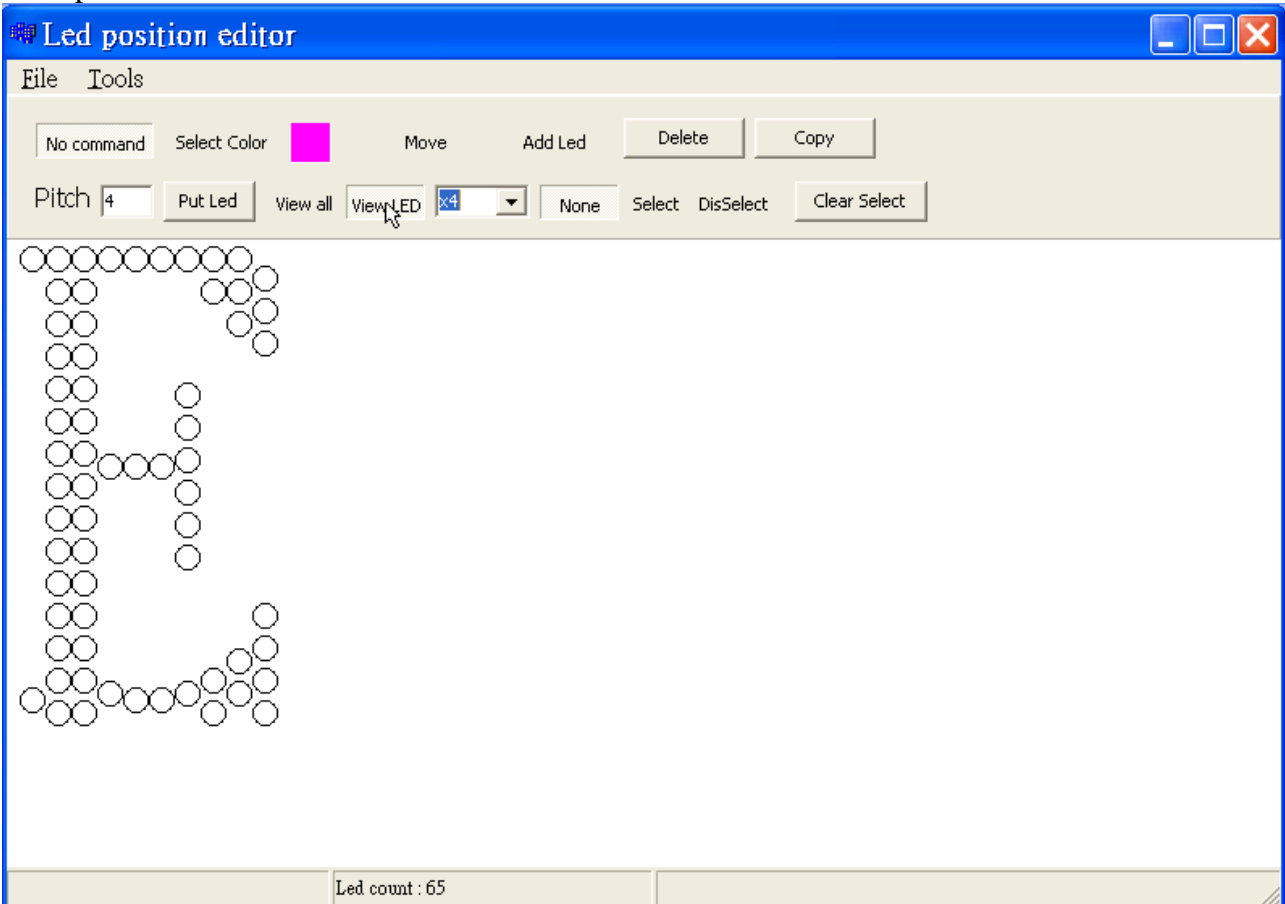


You feel led is too small. You can select view scale.

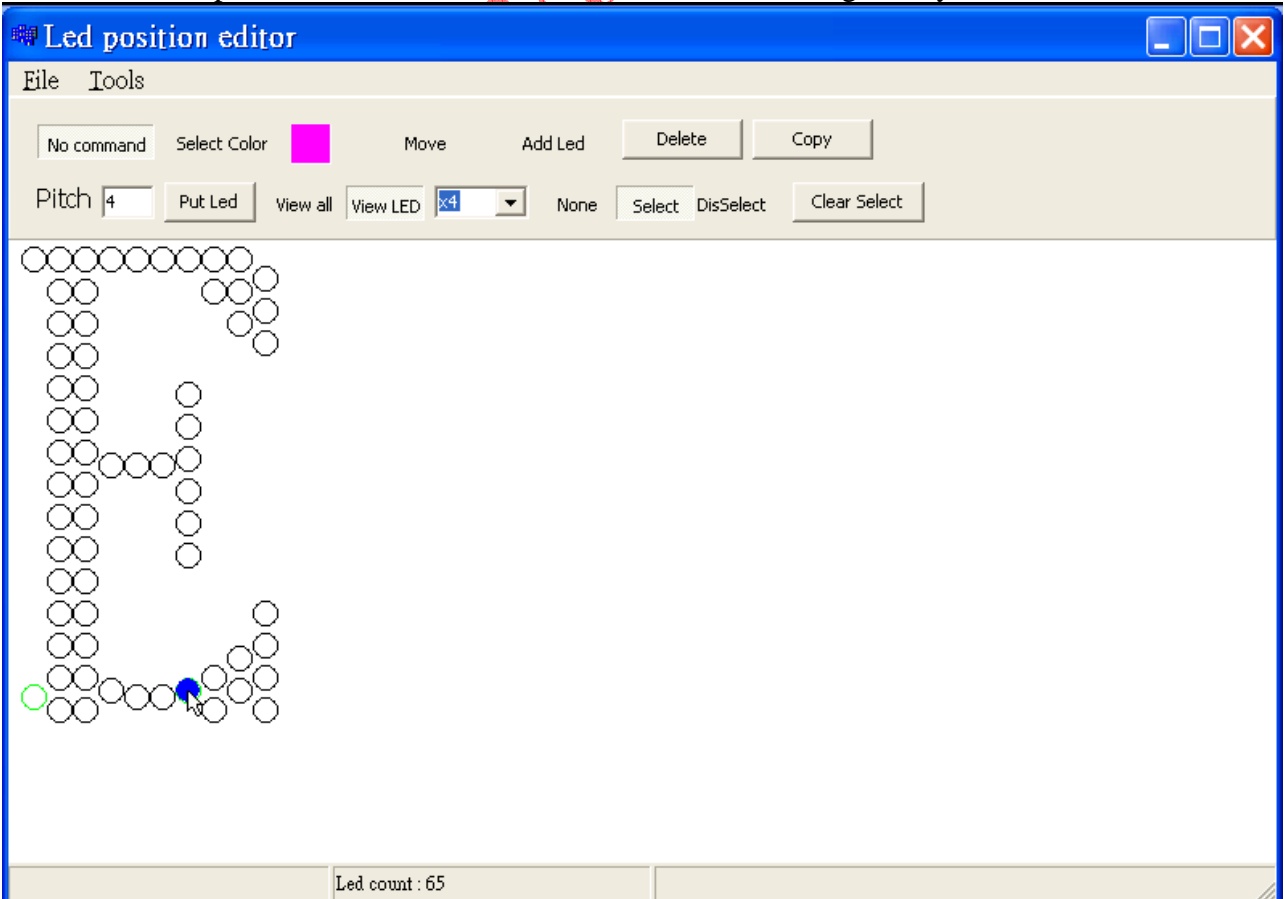




You can click <View LED> speed button to view led only or click <View all> button to view bitmap and led.

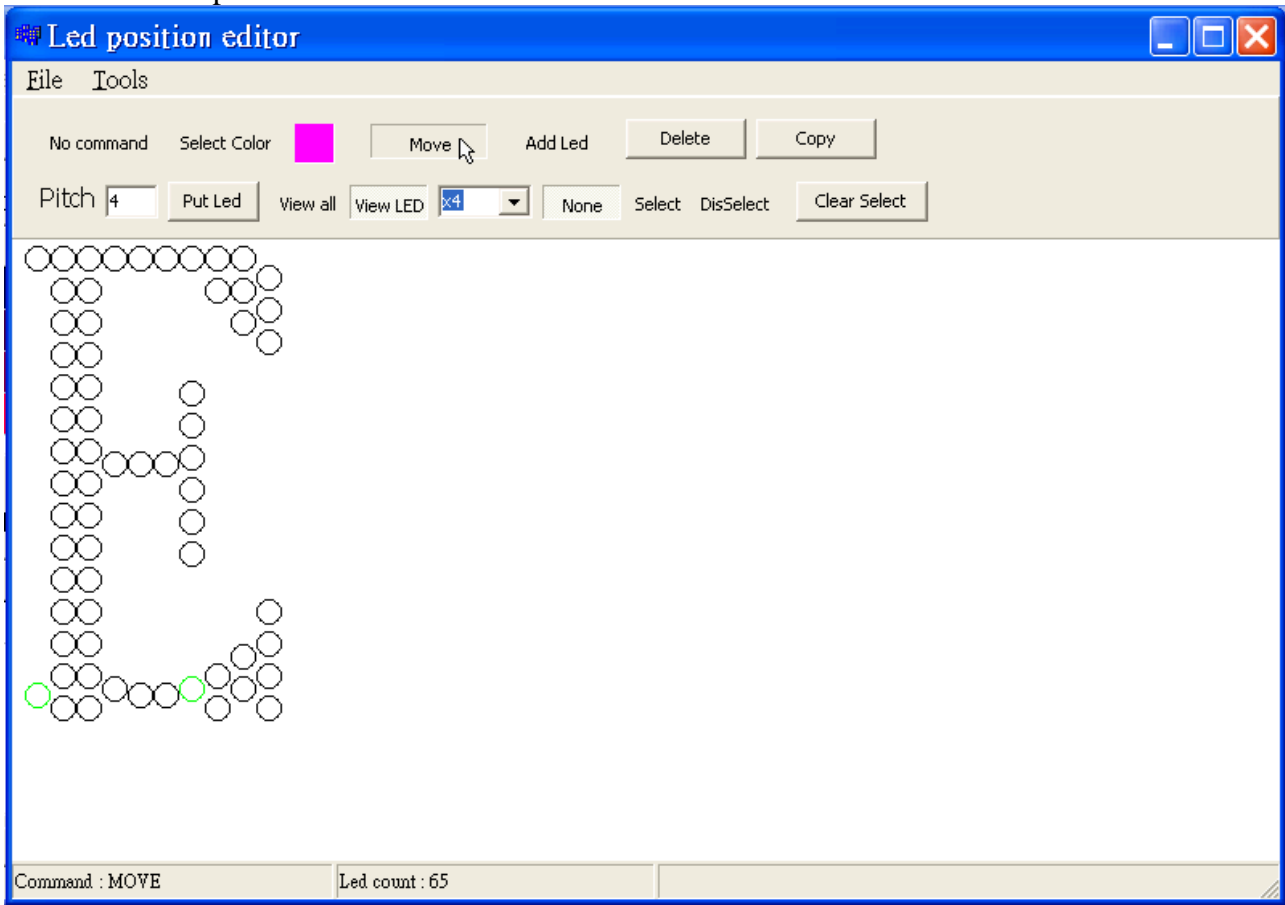


Click <Select> speed button and move the mouse and click on target led you want to select.

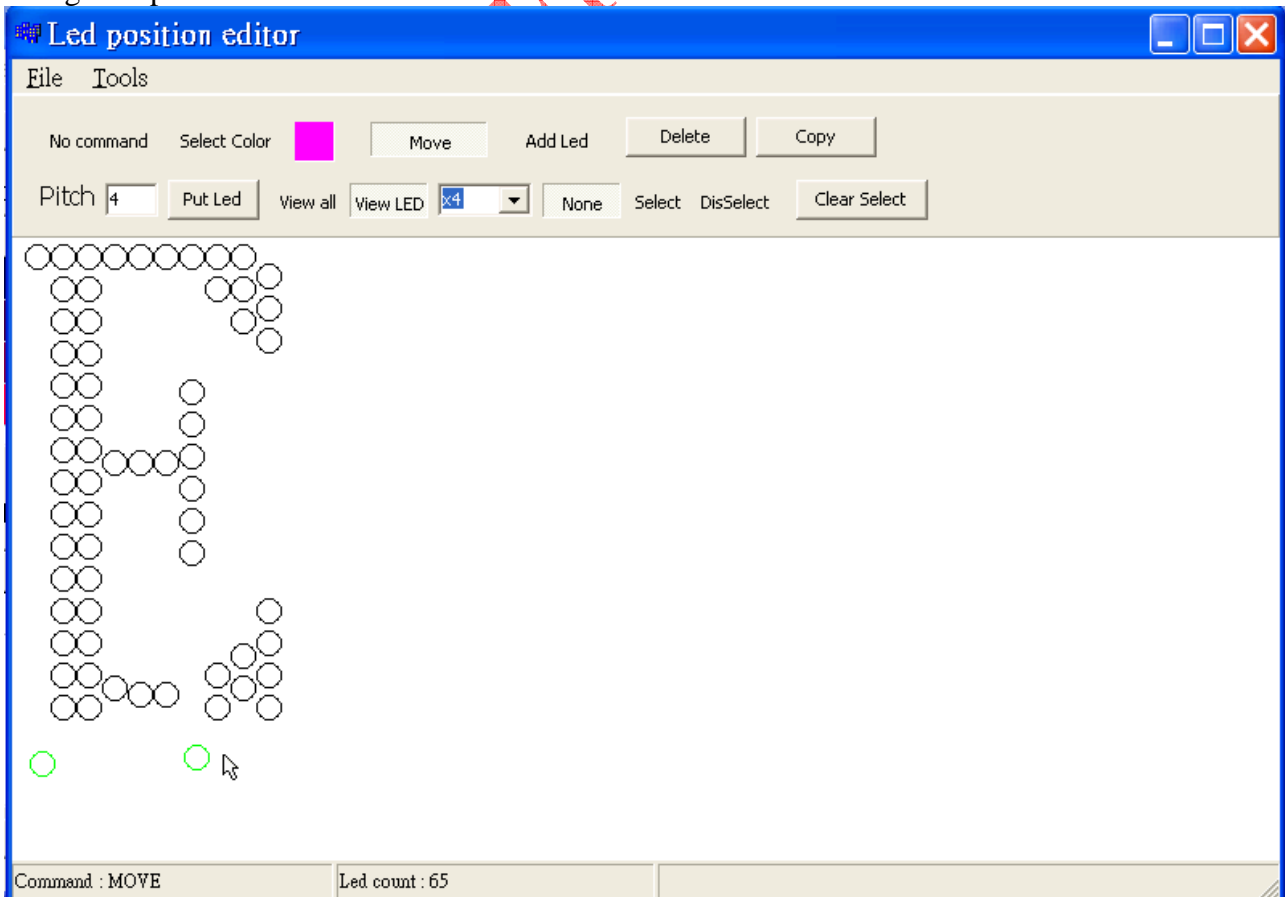




Click <Move> speed button.

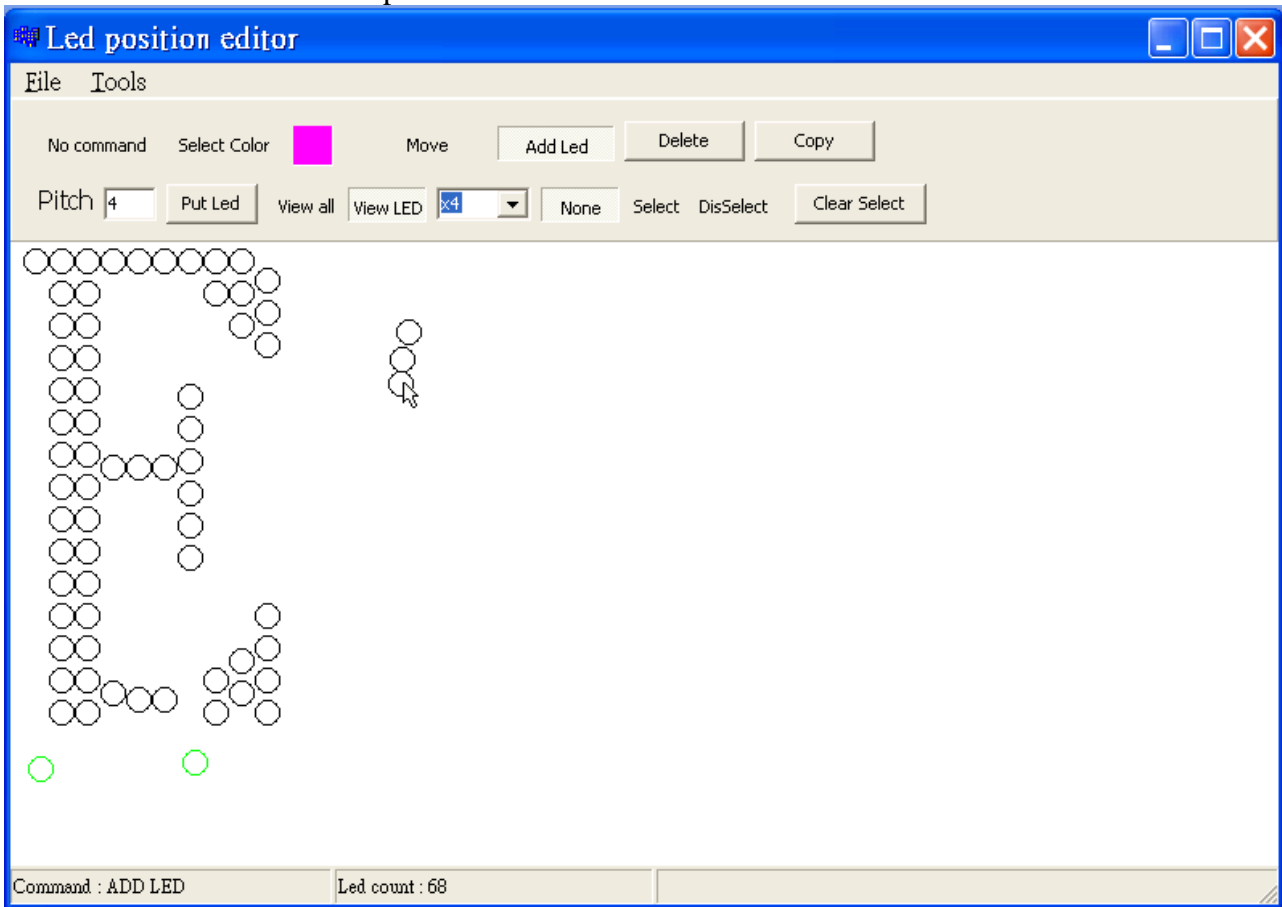


Mouse left key down and hold then move. When mouse key up , you will see led your select is change the position.

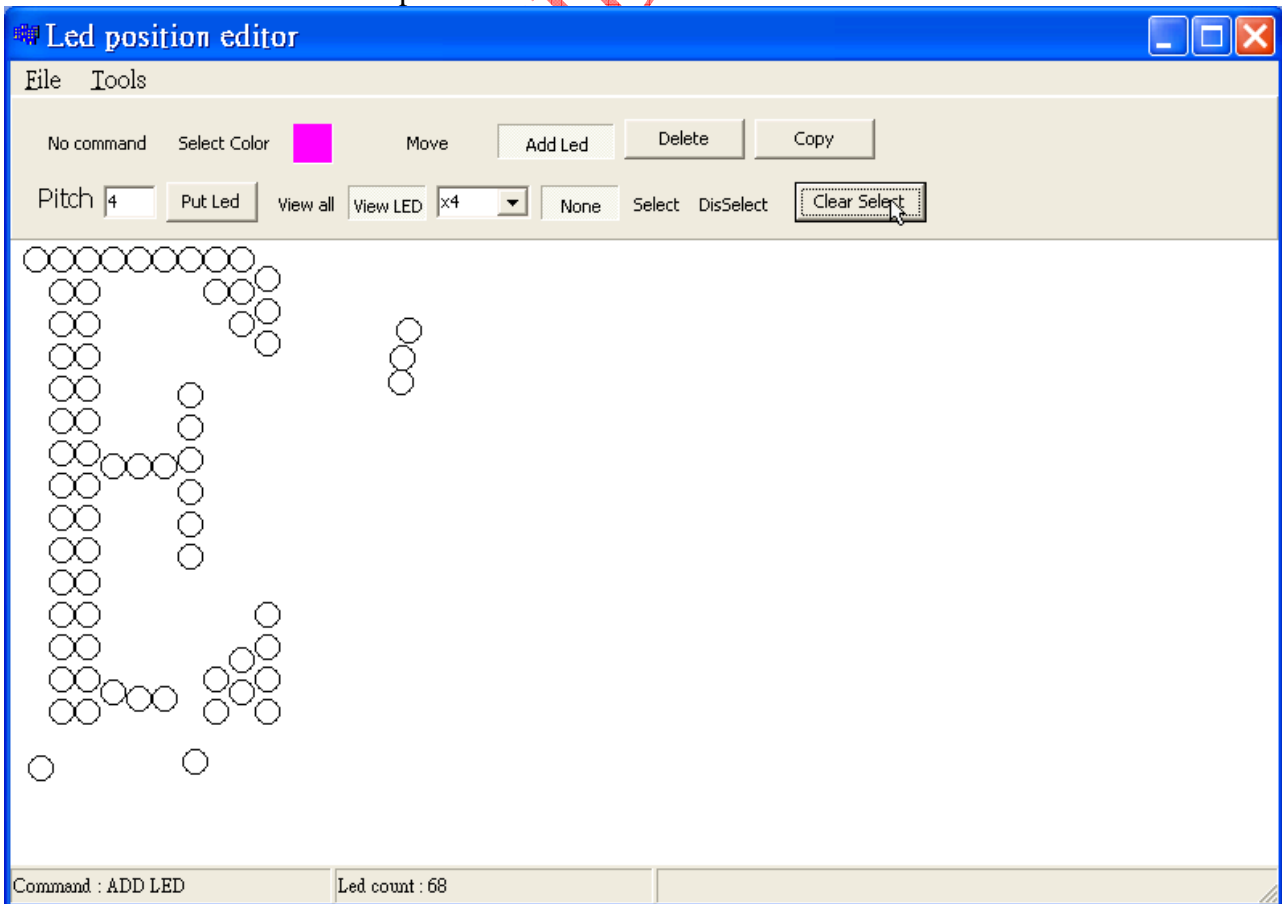




You can choose <Add Led> speed button then move the moue and click. It will add led.

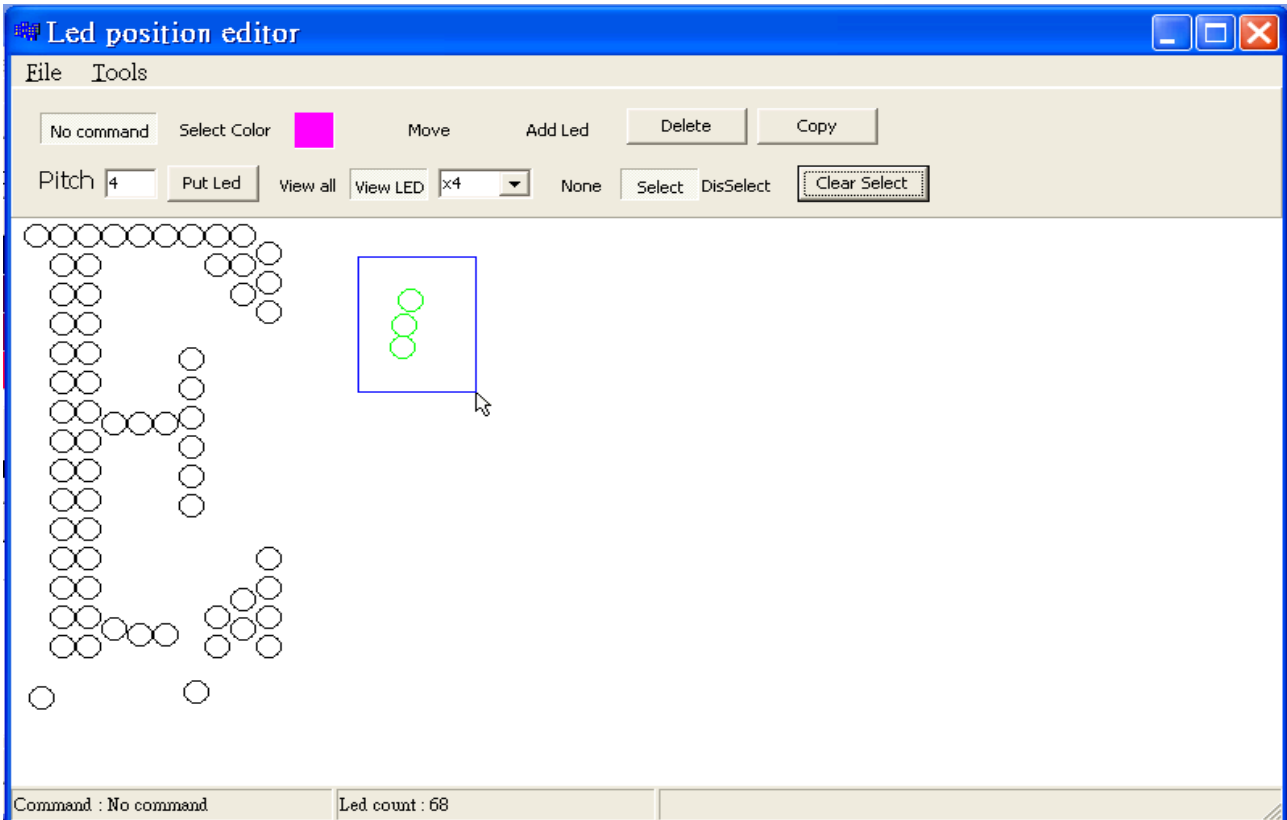


You can click <Clear Select> speed button to disselect all.

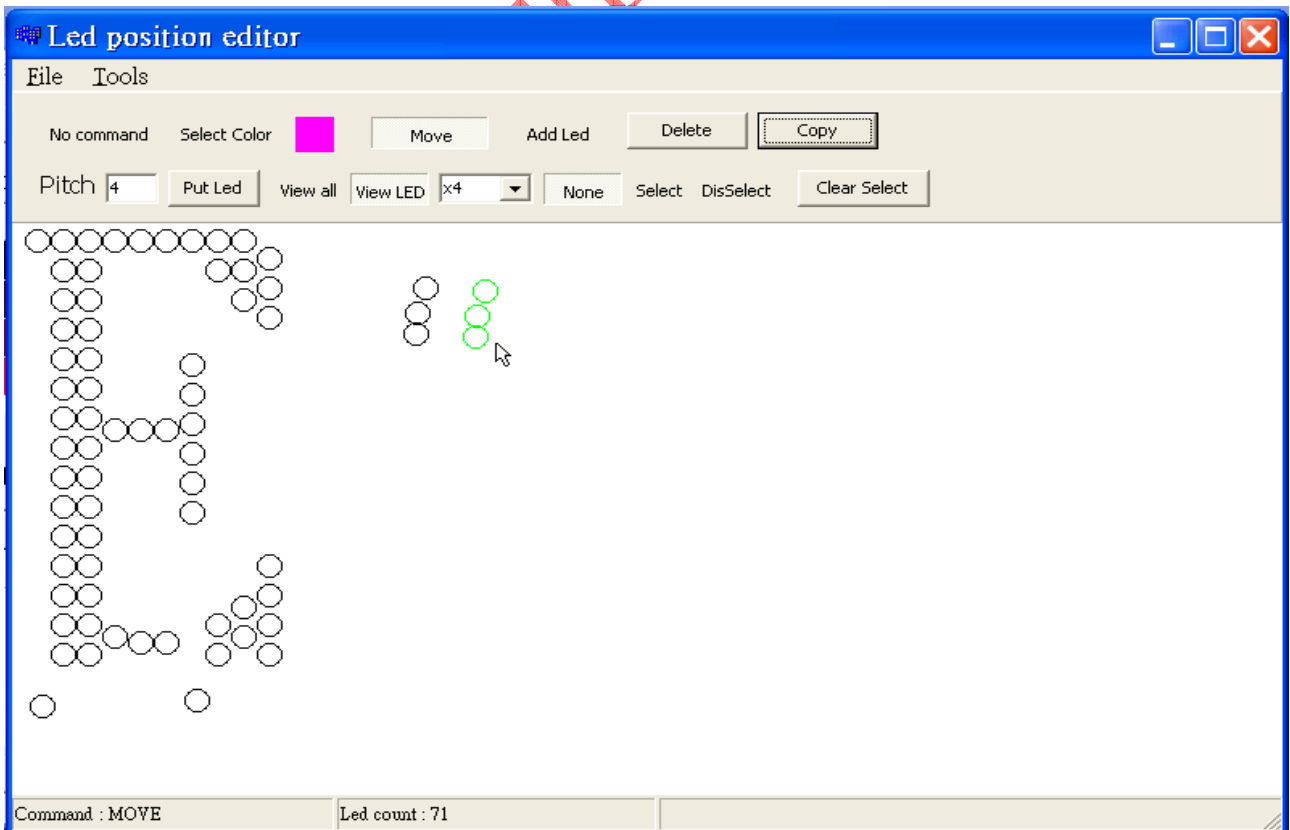




Click <No command> and <Select> speed button. Mouse's left key down and hold then move the mouse then release the mouse's left key. It will select led all in the rectangle.



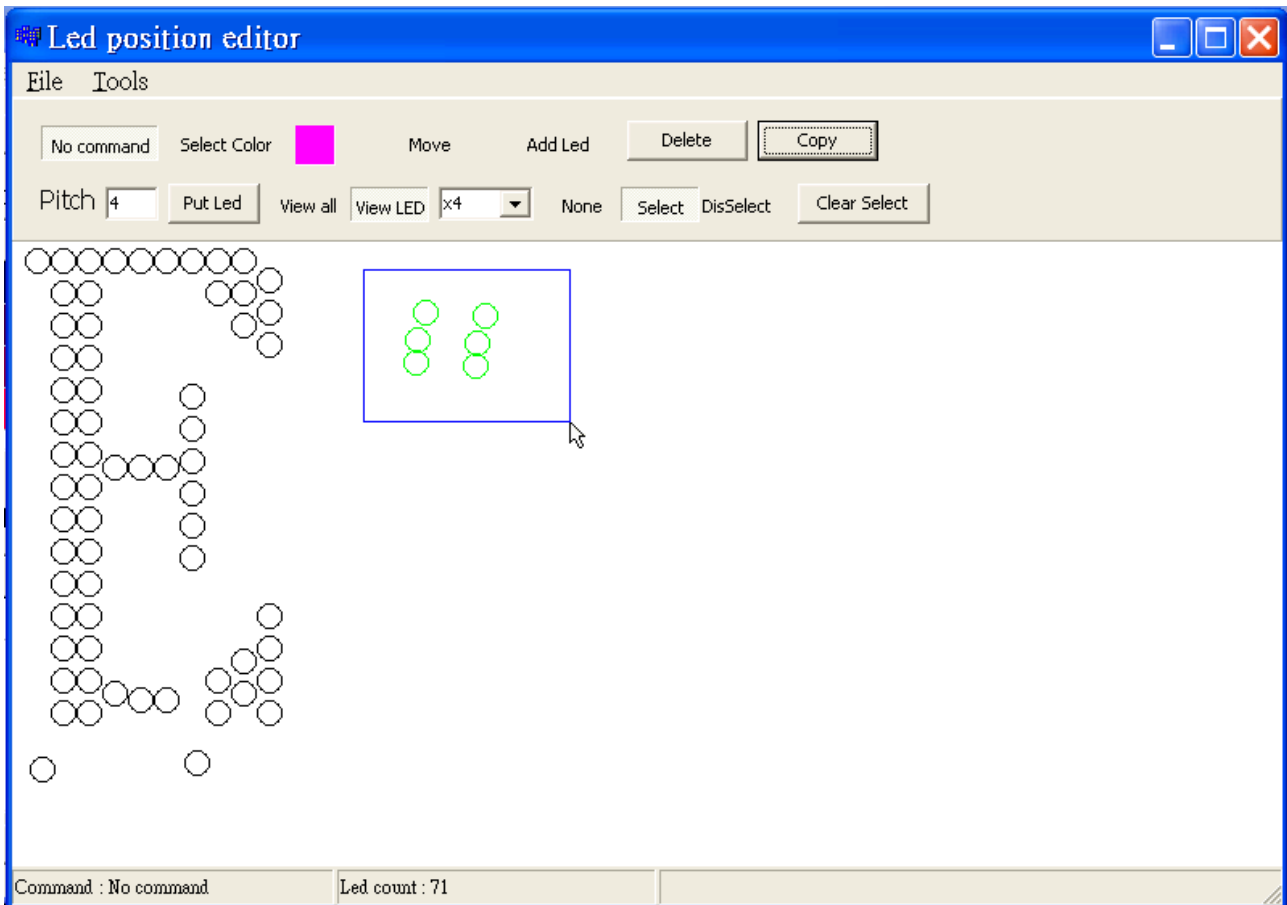
Click <Copy> button . It will copy led your select. Click <Move> speed button then do move operation.





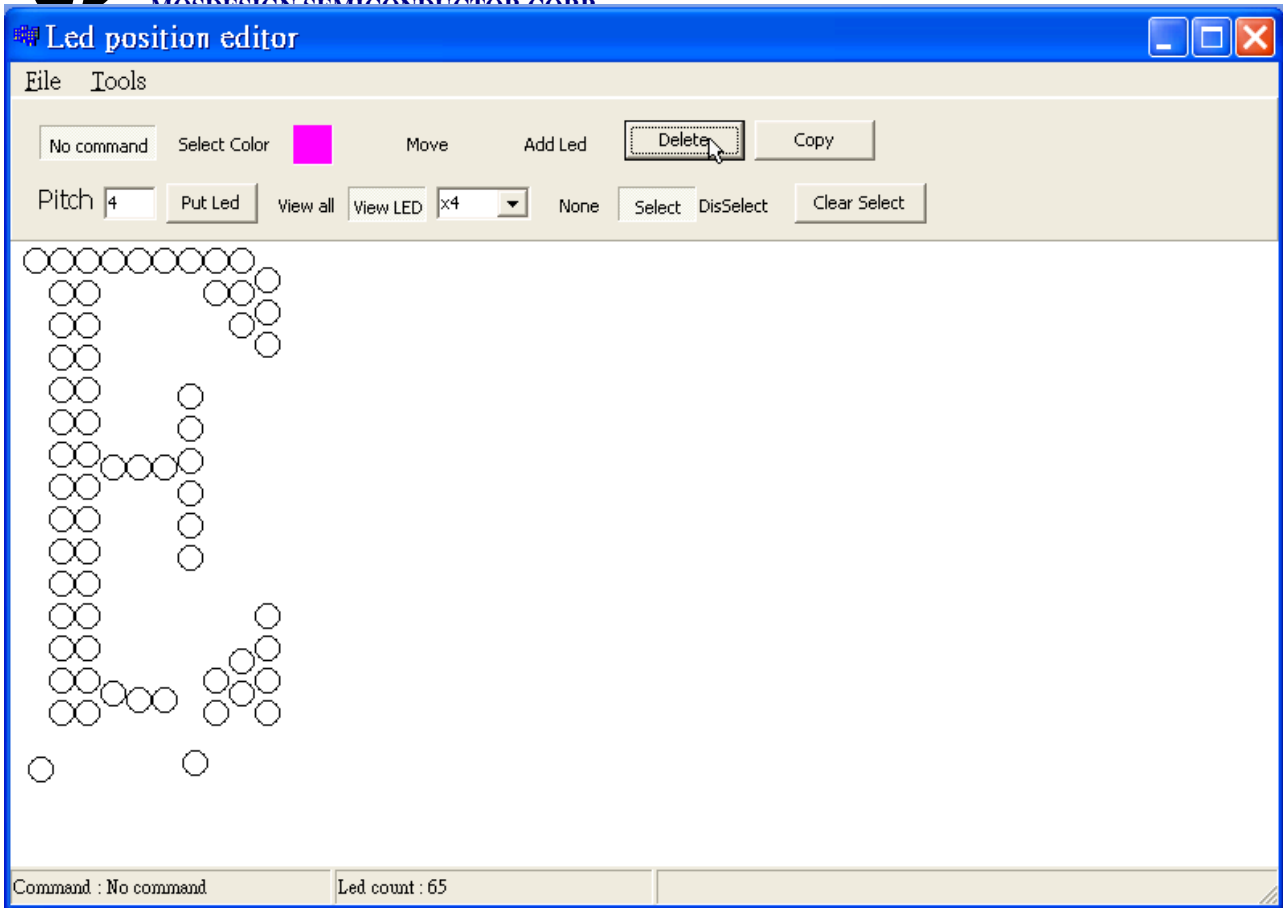


Click <No command> speed button and <Select> button. Rectangle select led like below.



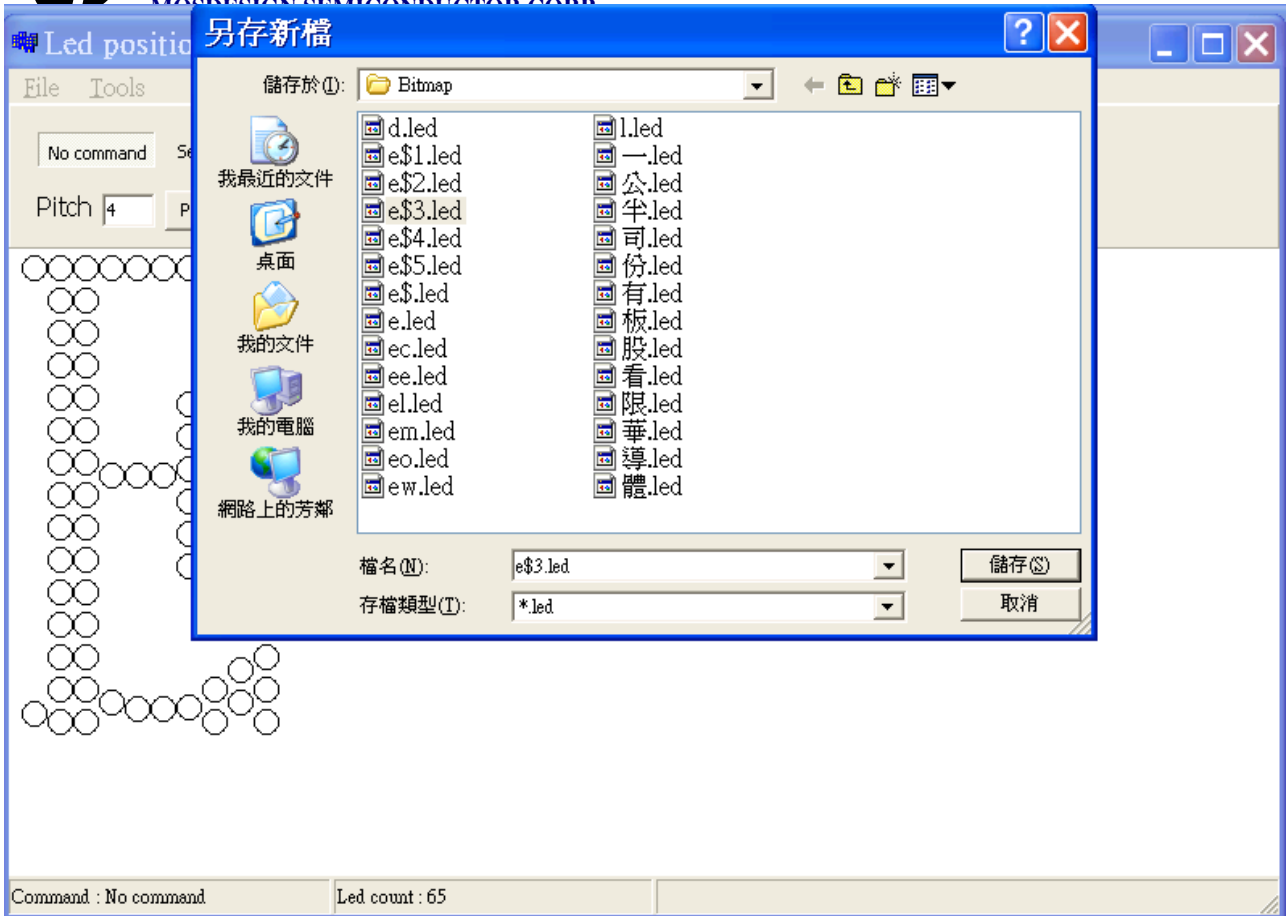
Then click <Delete> button. It will delete led your select.

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Choose File | Save to save to file.

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You can define the other char by yourself.

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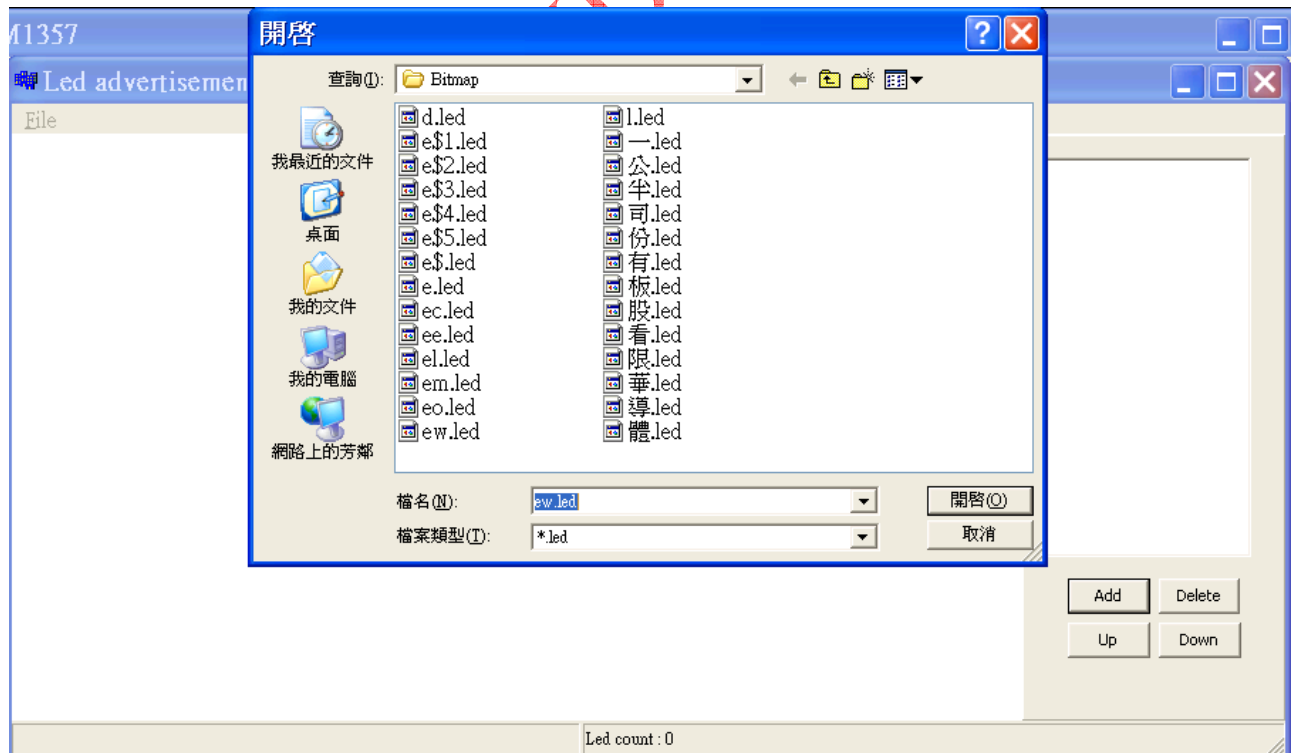


Now , you are finished all of the single char led file. Next , you must combine all of the single char to an advertisement board.

Choice Tools | Font position editor in M1357Adv program.

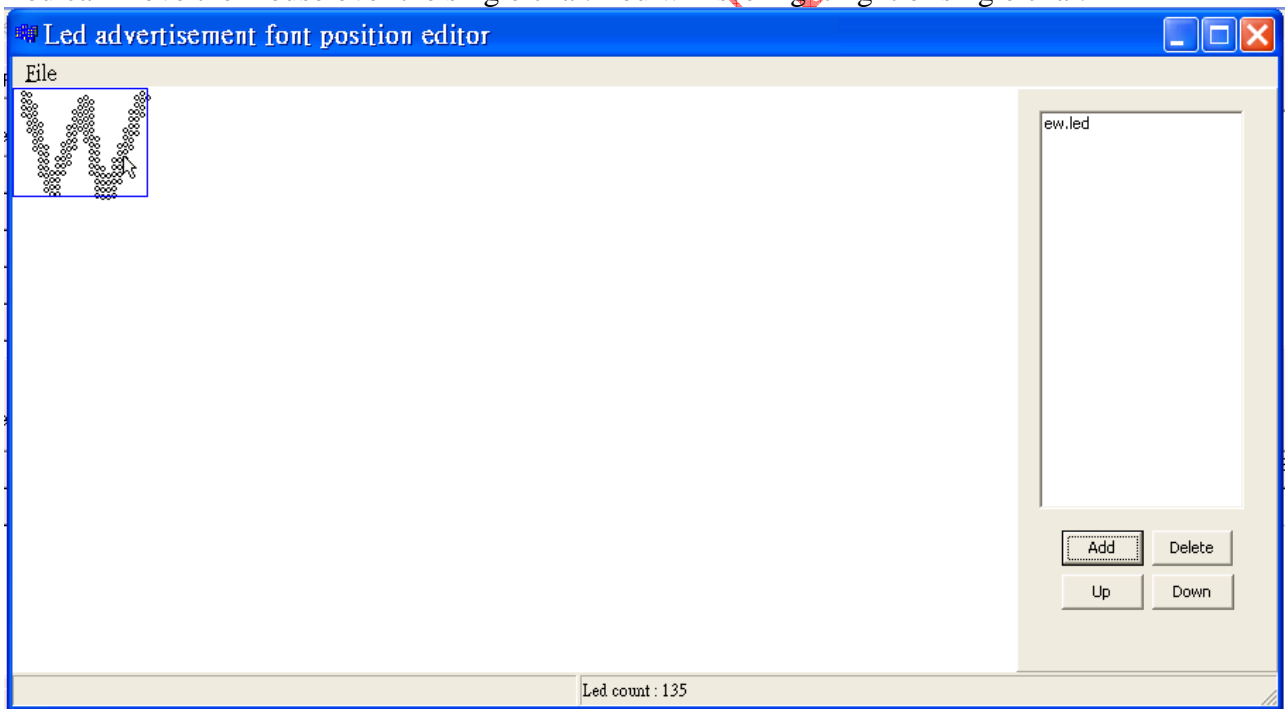


Click <Add> button to add \*.led file.



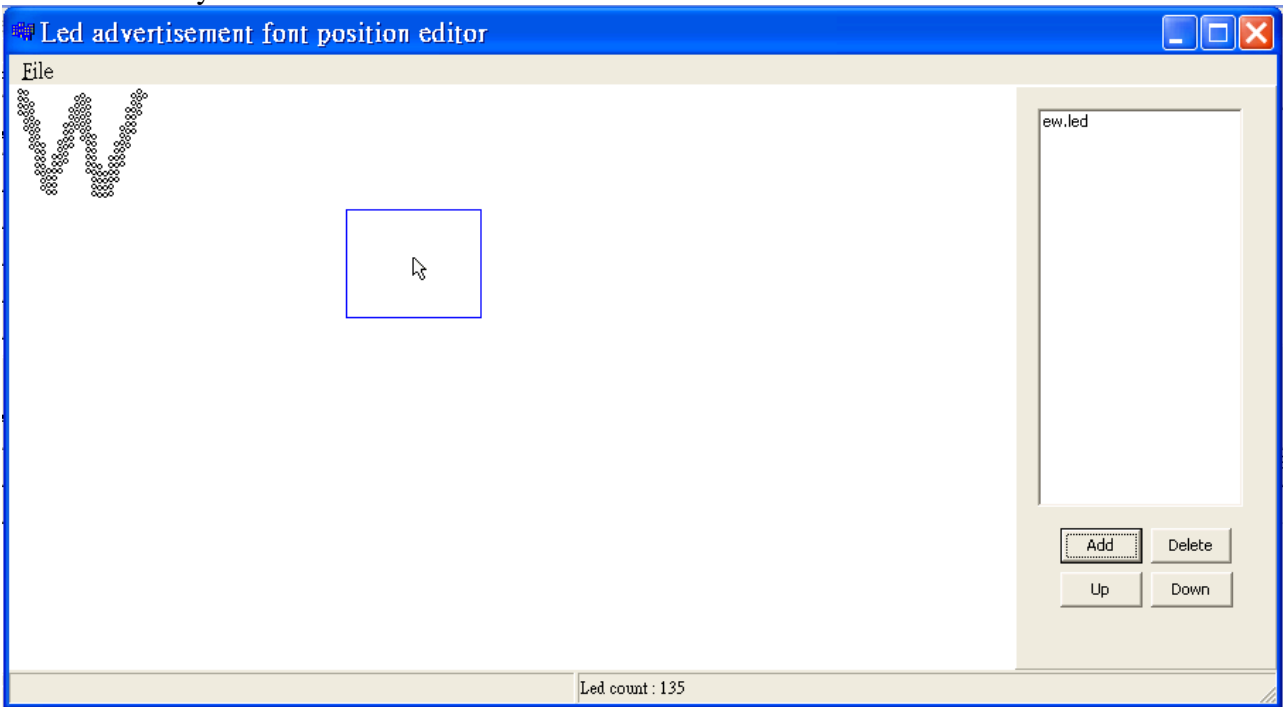


You can move the mouse over the single char. You will see hight light of single char.

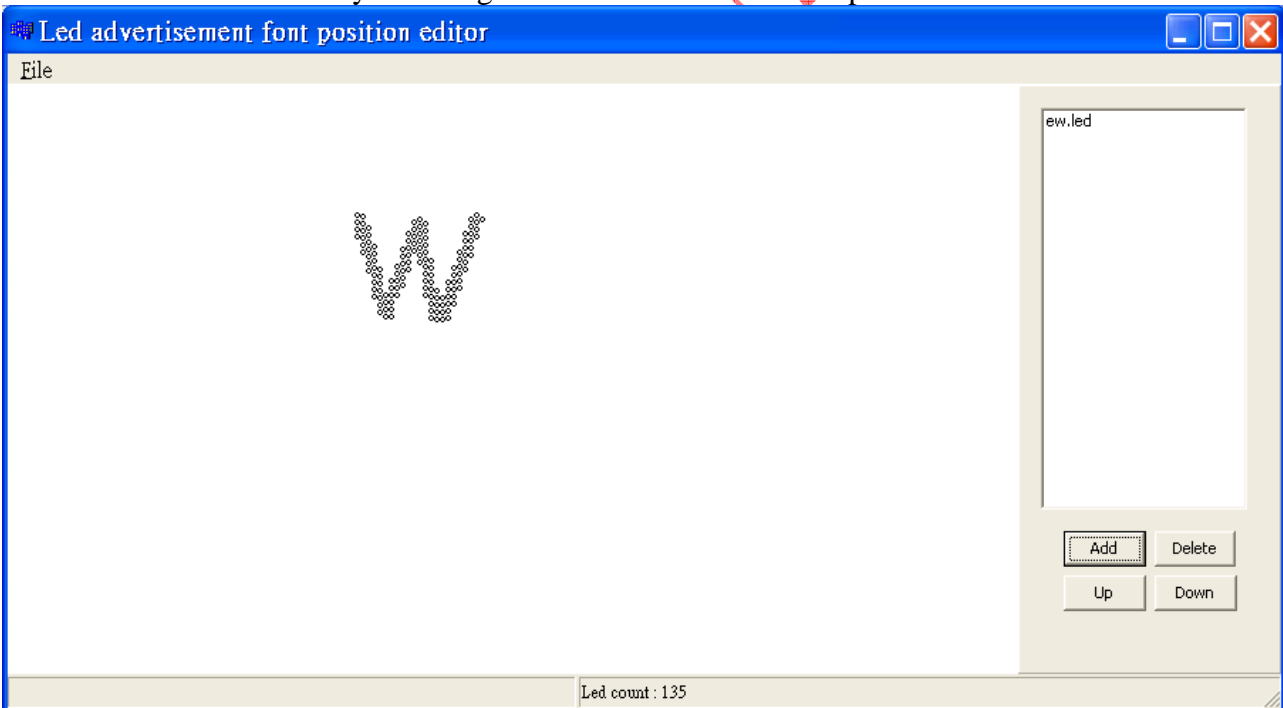




Mouse's left key down and hold then move.

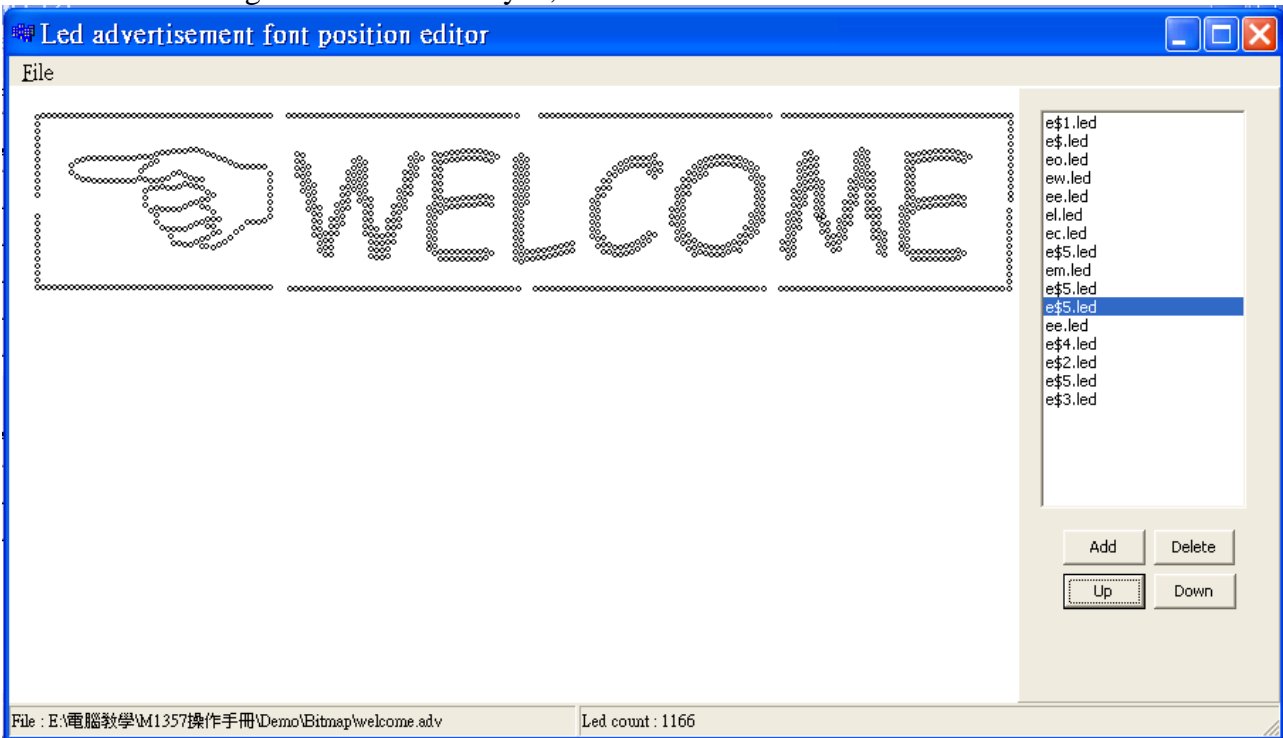


When release the mouse key. The single char will move to mouse position.

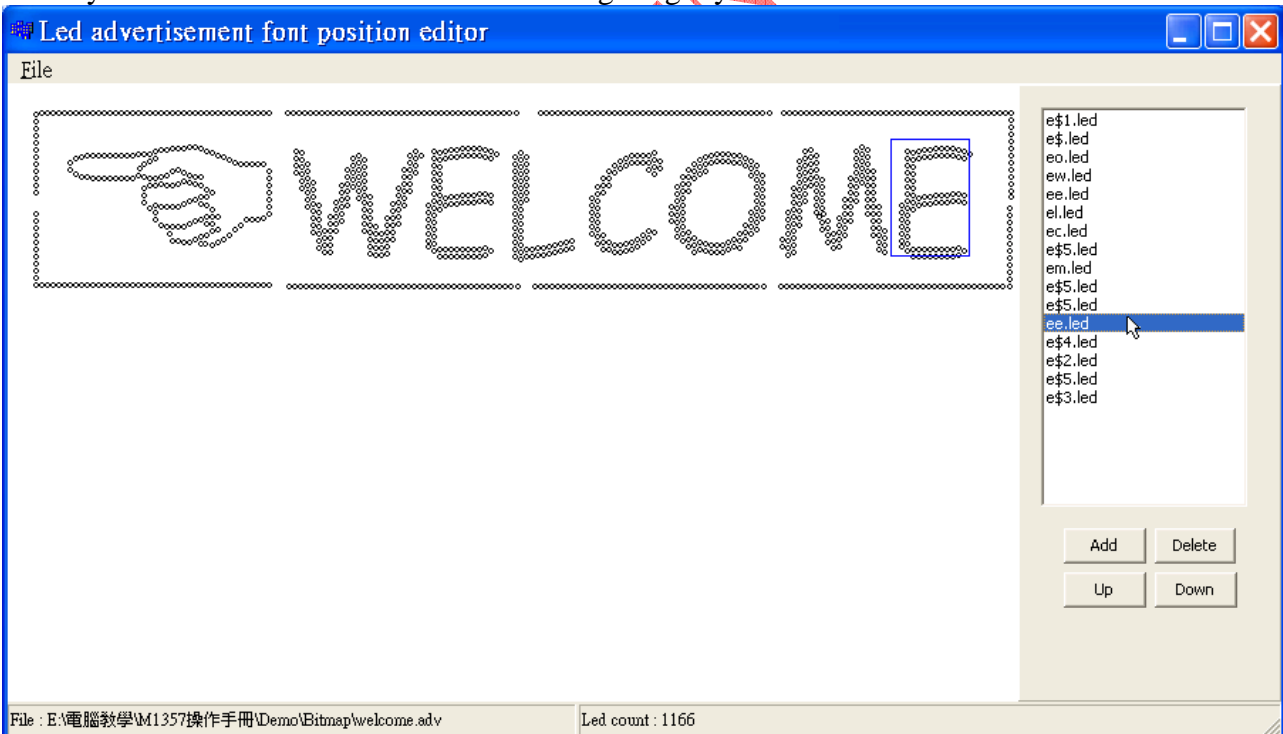




You load and arrange all of th char. Maybe, it look like below.



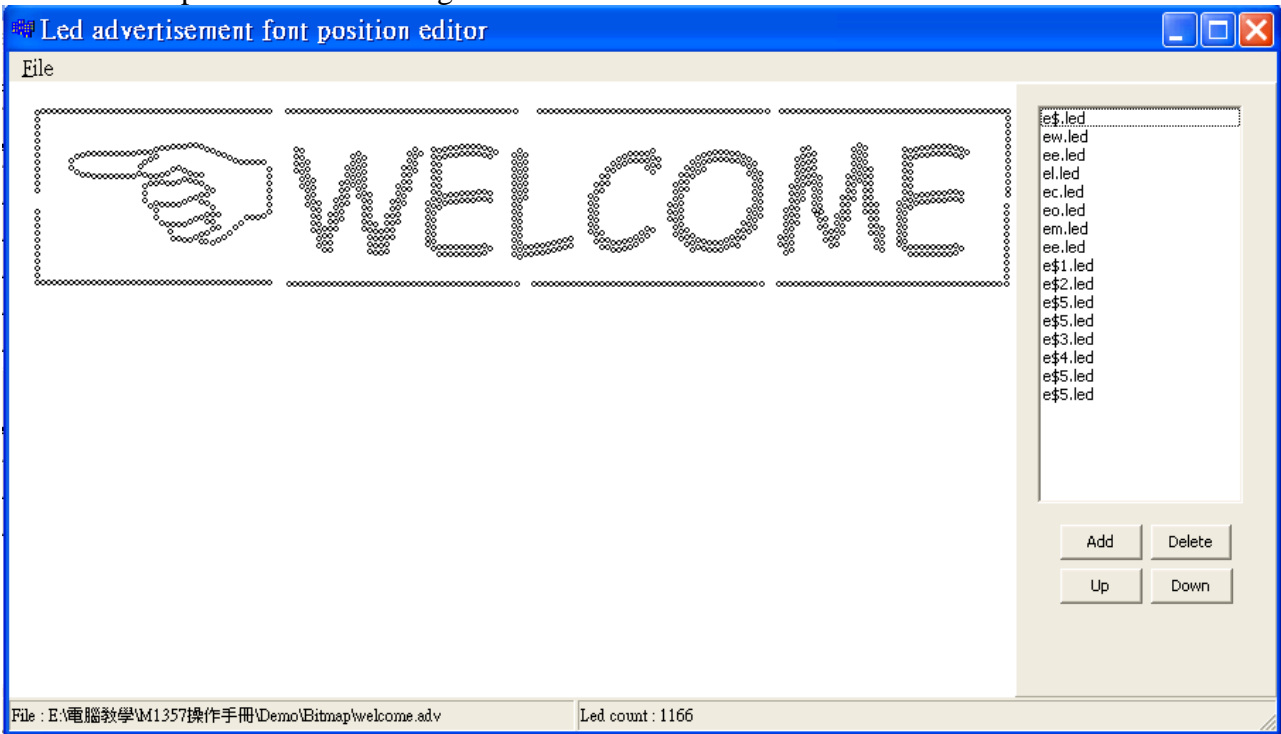
When you click list. You will see the char is high light your select.



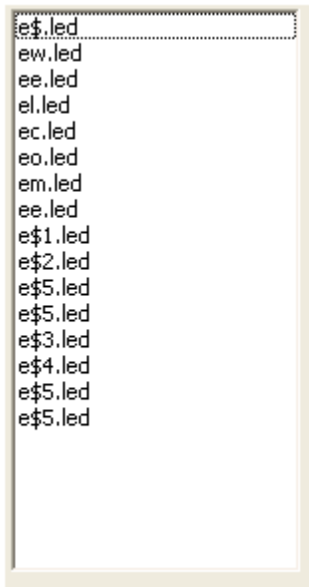
You can also delete , move up and down the item of the char.



You can use up and down to arrange the char's address.



Address : 0  
Address : 1  
Address : 2  
  
Address : 15



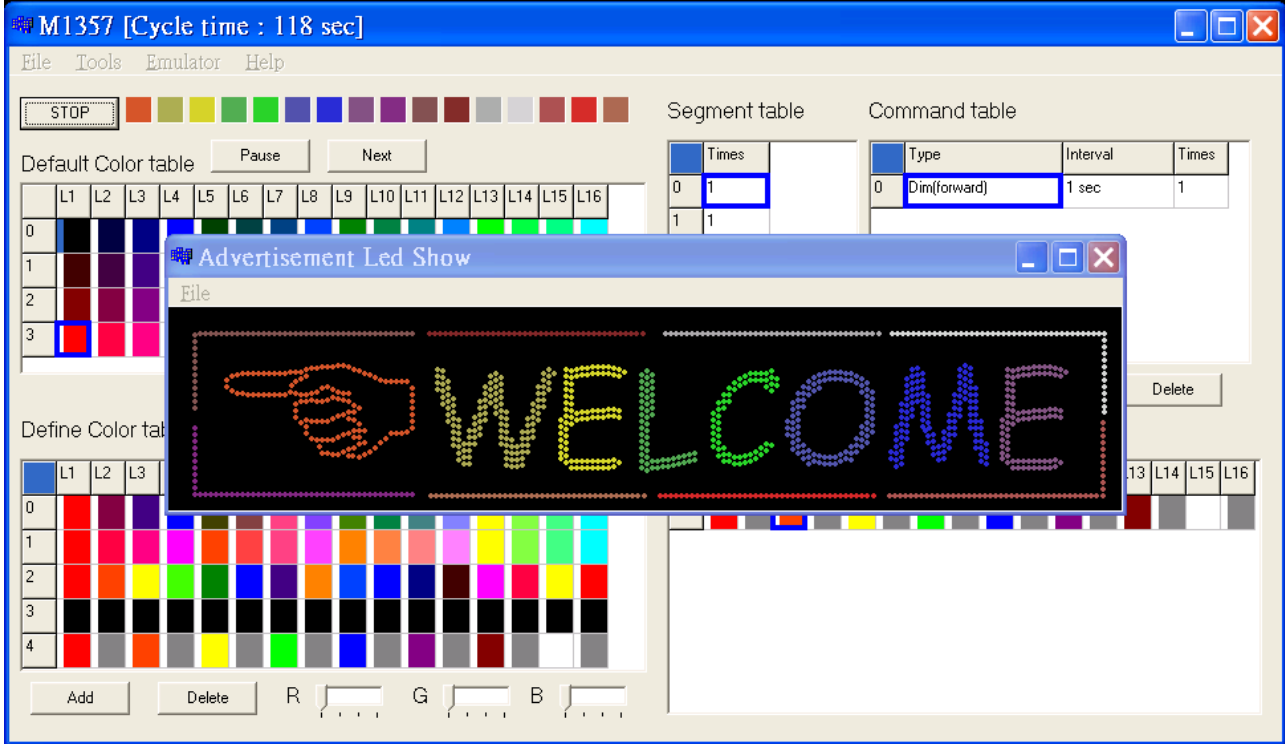
Remember this , save to file is every important.  
Choose File | Save to save file to \*.adv file.





Now , you can see advertisement board's animation.

Choice <File | Open> in M1357Adv to load “Adv.flh” file. Choice <Tools | Advertisement Demo> to call <Advertisement Led Show> form. Choose <File | Open> to open <welcome.adv>. Click <Preview> button to see the advertisement board's animation.



Writing M1357.ini

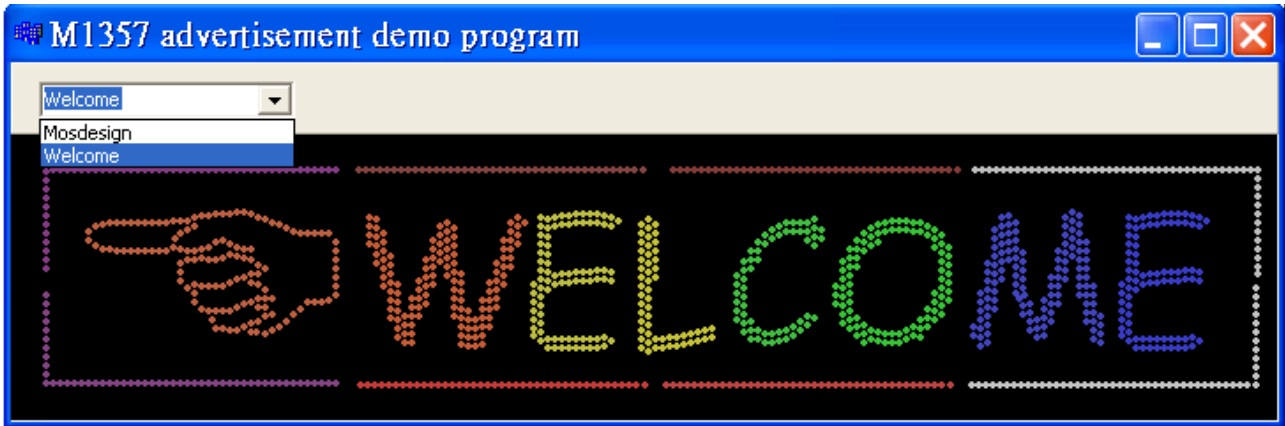
Below is ini the file example

```
Name Mosdesign
  LedGroupFile  mosdesign.adv
  PatternFile   Adv.flh
end
```

```
Name Welcome
  LedGroupFile  welcome.adv
  PatternFile   Adv.flh
end
```

EndOfFile

Shows by above,ini file defines Mosdesign and Welcome demo. All of the \*.adv , \*.flh , and other file put into the same catalog. Then run the M1357Demo.exe program. You will see the led demo pattern.



Generate MCU machine code file

Tools -> MCU . It will generate filename\_RGBW.HEX and filename\_RGBR.HEX at the same \*.flh category.

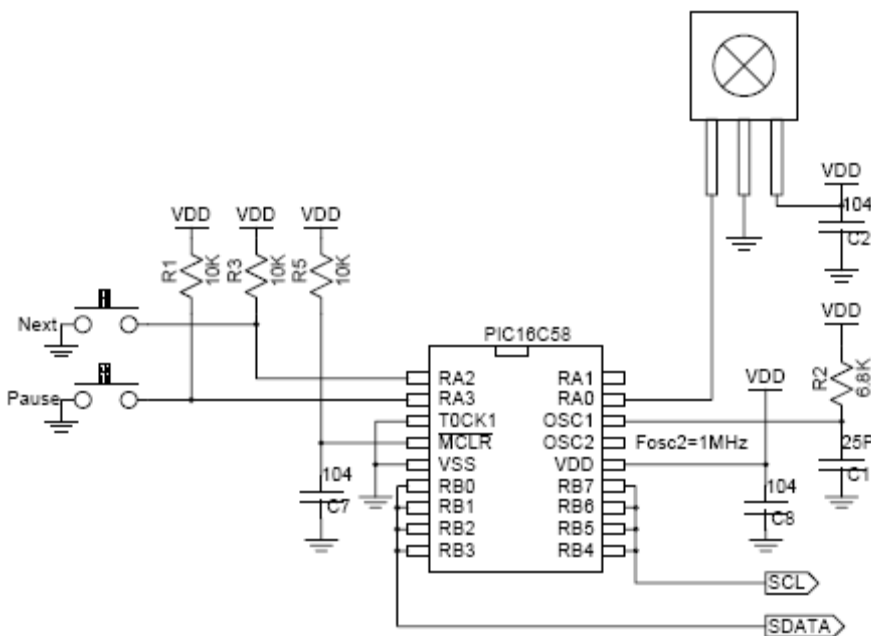
PIC16C58B configuration bits

Oscillator : RC

Watchdog Timer : off

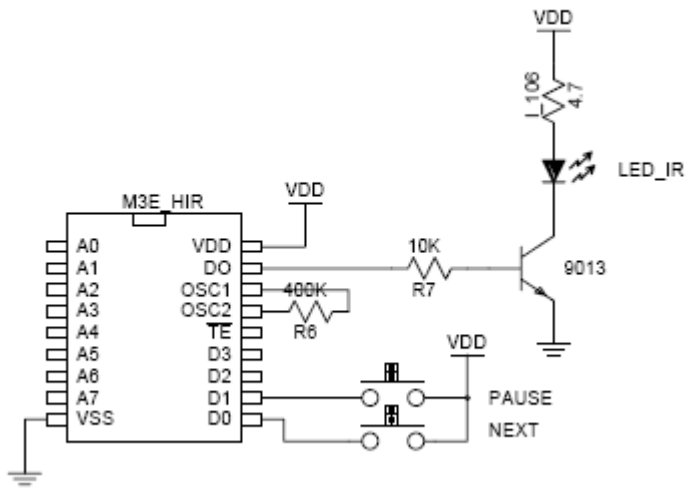
Controller application circuit --- PIC16C58

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### IR remote control Application circuit --- Pair with M3E-HIR



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