RAiO

Image Tool

User Guide

Version 1.0 July 26, 2016

RAiO Technology Inc.

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RA8876 / RA8877

Image Tool User Guide

Revise History						
Version	Date	Description				
0.1	September 01, 2014	Initial Release				
0.2	February 2, 2015	Add Chapter 3 & 4				
1.0	July 26, 2016	Modify Chapter 3				



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Before using this tool

1. This Tool supports Windows XP, Windows 7 and Windows 8.1, Windows 10 $\,$

2. You must first install Microsoft Office Excel before using this tool.



1. Converting image (bmp/jpg) file to binary format

Execute RAiO Image Tool (Image_Tool.exe) 1







RA8876_lib.dll

2 Click the "BMP JPG" button, and select IC model.

BMP JPG PNG III.00
RAiO
BMP image or JPEG image RA8871/RA8873/RA8876/RA8877
Output File Format
Load Picture Merging multiple binary files Convert



3 Select the binary file format.

RAiO Image Tool v1.1.0.0	Mage List View
BMP JPG PNG I	Picture File Name Width Height Data Format Size (Bytes) or Arra St
RAiO	
BMP image or JPEG image	
Binary File (*.bin) Display Input Data Format	Clear Total Size (Bytes) : 0
Load Picture Merging multiple binary files Convert –	

4 Select color depth, and then click the "Load Picture" button.

RAiO Image Tool v1.1.0.0	Mage List View
BMP JPG PNG I	Picture File Name Width Height Data Format Size (Bytes) or Arra St
RAIO BMP image or JPEG image	
RA8871/RA8873/RA8876/RA8877	۲
Binary File (*.bin) 16bpp mode (RGB 5:6:5)	Clear Total Size (Bytes): 0
Load Picture Merging multiple binary files Convert –	



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Note

Uncheck "Merging multiple binary files" setting The tool will convert image files to the separate binary files.

■Check "Merging multiple binary files" setting The tool will convert and merge image files to one binary file (All_xx_Pic_xxx.bin), and generate binary file information in excel file (All_xx_Pic_xxx.xls) and C header file (All_xx_Pic_xxx.h).

xx: IC Model.

xxx: The file name is depended the color depth setting. For example, if user selects the RA8871/RA8873/RA8876/RA8877 16bpp mode (65k colors), and then file name will be "All_76_Pic_65K.bin".

5 Select one or more image (bmp/jpg) files, then click "Open" button.

RAiO Image Tool v1.1.0.0	🚰 Image List View	
▶ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■		—
		▼ 4 ₇ 搜尋1 ♀
組合管理 ▼ 新増資料夾		BR - 🔞
■ 美国 量 最近的位置 ■ の ■ の ■ の ■ の ■ の ■ の ■ の ■ の		
[] 媒體櫃		
■ 文件 ▲ S1_16.bmp		
▲ 音樂 ■ 1000 E S1_24.bmp		
🚢 OS (C:)		
👝 New Volume (C		
🚅 share (\\cont11		
▲ MCN L #265+1+3 檔案名稱(N): "DES_16.bmp" "DES_24.br	mp" "S0_16.bmp" "S0_24.bmp" "S1_16.bmp" "S1_24.bmp"	✓ Bitmaps (*.bmp)
		開設舊檔(2)取満
Load Picture Merging multiple bipary files	Open	
Convert		Select image format



6 Click the "Convert" button and wait the conversion process be finished.

🖌 RAiO Image Tool v1.1.0.0	🖌 Image List View	w					23
	Picture	File Name	Width	Height	Data Format	Size (Bytes) or Arra	St
JPG PNG	1	DES_16.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	0
	2	DES_24.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	32
	3	S0_16.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	65
	4	S0_24.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	98
	S	S1_16.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	13
	6	S1_24.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	16
RA8871/RA8873/RA8876/RA8877							*
Binary File (*.bin)	Clear				Total Size (Byte	s): 196608	
16bpp mode (RGB 5:6:5) 🗸							
Load Picture							

The conversion process is completed.

🖌 RAiO Image Tool v1.1.0.0	📈 Image List View	/					23
	Picture	File Name	Width	Height	Data Format	Size (Bytes) or Arra	St
JPG PNG	1	DES_16.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	0
	2	DES_24.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	32
	3	S0_16.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	65
	4	S0_24.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	98
	Ĩ	S1_16.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	13
	6	S1_24.bmp	128	128	16bpp mode (RGB 5:6:5)	32768	16
RA8871/RA8873/RA8876/RA8877							
Binary File (*.bin)	Clear				Total Size (Bytes	i): 196608	
Load Picture Merging multiple binary files							
Convert complete							

RAIO TECHNOLOGY INC.



8 **Conversion Results**

- Uncheck "Merging multiple binary files" setting
- Merging multiple binary files

Conversion Results:

Conversion Results:



In this operation, the tool will generate an excel file "All_xx_Pic_xxx.xls" and a C header file "All_xx_Pic_xxx.h".

The excel file contains the file name, width, height, data format, size and start address, etc.

The C header file defines a structure to hold this information which consists of the image filename, width, height, size and start address. Users can use this structure to obtain the image information.



2. Converting image (bmp/jpg) file to C language file format (*.h)

1 Execute RAiO Image Tool (Image_Tool.exe)



Click the "BMP JPG" button, and select IC model.

RAiO Image Tool v1.1.0.0	
RAiO	
BMP image or JPEG image	
Output Fie Format Display Input Data Format	
Load Picture Merging multiple binary files Convert	



Image Tool User Guide

3 Select C language file format.

RAiO Image Tool v1.1.0.0	Mage List View
BMP JPG PNG I	Picture File Name Width Height Data Format Size (Bytes) or Arra St
RAiO	
BMP image or JPEG image	
RA8871/RA8873/RA8876/RA8877 ▼	< Þ
Display Input Data Format	Clear Total Size (Bytes) : 0
Load Picture Merging multiple binary files Convert –	

4 Select data format, then click the "Load Picture" button.

RAiO Image Tool v1.1.0.0	Image List View
BMP JPG PNG I	Picture File Name Width Height Data Format Size (Bytes) or Arra St
RAIO BMP image or JPEG image	
RA8871/RA8873/RA8876/RA8877	۲
C Language File (*.h)	Clear Total Size (Bytes) : 0
Load Picture Merging multiple binary files	



5 Select one or more image (bmp/jpg) files, then click "Open" button.

🛃 RAiO Image Tool v1.1.0.0	
▶ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■	—
G → ■ ● 電腦 → New Volume (D:) → 1 ✓ 4	₽ <u>搜</u> 尋1 ₽
組合管理 ▼ 新増資料夾	# · 🔞
 ■ 貞面 ● 圖 最近的位置 ▲ DES_16.bmp ● DES_24.bmp ● S0_16.bmp ● S0_24.bmp ● S0_24.bmp ● S0_24.bmp ● S1_16.bmp ● S1_16.bmp ● S1_24.bmp ● S1_24.bmp ● S1_24.bmp 	2
■ 電腦 ▲ OS (C:) ■ New Volume (C ♀ share (\\cont11 ■ MCN1 L年45454 ▼ #完全第(AD), "DEC 16 hmm" "DEC 24 hmm" "C0 24 hmm" "C1 16 hmm" "C1 24 hmm" "C1 44 hmm" "C1 4	Riturant (f. hump)
THERETERIULY. DES_LO.DITP DES_24.DITP SU_LO.DITP SU_24.DITP SI_10.DITP SI_24.DITP SI_24	開設苫橫(O) 取満
Load Picture Merging multiple binary files Open Se	lect image format

6 Click the "Convert" button and wait the conversion process be finished.

RAiO Image Tool v1.1.0.0	🛃 Image List Viev	v					83
	Picture	File Name	Width	Height	Data Format	Size (Bytes) or Arra	St
JPG PNG		DES_16.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	0
	2	DES_24.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	0
	3	S0_16.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	0
	4	S0_24.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	0
	S	S1_16.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	0
	6	S1_24.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	0
RA8871/RA8873/RA8876/RA8877	•						•
C Language File (*.h)	Clear				Total Size (Bytes	;): 0	
16-bit MPU, 16bpp mode (RGB 5:6:5) 👻							
Load Picture Merging multiple binary files							



8

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The conversion process is completed.

RAiO Image Tool v1.1.0.0	🛃 Image List View	w					8
	Picture	File Name	Width	Height	Data Format	Size (Bytes) or Arra	St
	1	DES_16.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	o
	2	DES_24.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	o
	3	S0_16.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	o
	4	S0_24.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	o
	₅	S1_16.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	o
	6	S1_24.bmp	128	128	16-bit MPU, 16bpp mode (RGB 5:6:5)	16384	o
RA8871/RA8873/RA8876/RA8877	•						Þ
C Language File (*.h)	Clear				Total Size (Byte	s): 0	
16-bit MPU, 16bpp mode (RGB 5:6:5) 🗸							
Load Picture Merging multiple binary files Convert complete							
Summer 19							
Conversion Results							
Conversion Results					·····		
Conversion Results	DES 16.h	DES 2	1 4.bmp		DES 24.h		
Conversion Results	DES_16.h	DES_24	4.bmp		DES_24.h		











S1_24.h



3. Converting the PNG image file (with alpha channel) to binary format

1 Execute RAiO Image Tool (Image_Tool.exe)



Click the "PNG" button, then click the "Load PNG Picture" button.

RAiO Image Tool v1.1.0.0	
BMP JPG PNG I	
RAIO	
PNG image	
with alpha channel	
Note Merging multiple binary files	
Load PNG (with alpha) Picture	
Convert	
_	

Note

■ Uncheck "Merging multiple binary files" setting The tool will convert image files to the separate binary files.

Merging multiple binary files

Merging multiple binary files Check "Merging multiple binary files" setting The tool will convert and merge image files to one binary file (All_76_alpha_pixel_16bit.bin), and generate binary file information in excel file (All_76_alpha_pixel_16bit.xls) and C header file (All_76_alpha_pixel_16bit.h).





3 Select a PNG image file, then click "Open" button.

RAiO Image Tool v1.1.0.0	
✓ 開設苫檔	
○○○□↓ ◆ 電腦 → New Volume (D:) → 1	 ✓ 4y 搜尋1
組合管理 ▼ 新増資料本	# - 0
■ 桌面 ● icon1.png ● 最近的位置 ● icon2.png ● icon3.png	
Q 煤體櫃 ■ icon4.png	
■ 文件 ■ icon5.png	
視訊	
1 電腦	
🚢 OS (C:)	
👝 New Volume (D	
🚽 share (\\cont11	
1 NUCNI L406444B	
檔案名稱(<u>N</u>): "icon1.png" "icon2.png" "icon3.png" "icon4.png" "icon5.png"	✓ PNG Format (*.png)
	開設舊檔(2) 取消
Ор	en
-	

4 Click the "Convert" button and wait the conversion process be finished.

RAiO Image Tool v1.1.0.0	🛃 Image List Vie	w					23
	Picture	File Name	Width	Height	Data Format	Size (Bytes) or Arra	St
		icon 1.png	128	128	Alpha Blending 16bit pixel mode	32768	0
	2	icon2.png	128	128	Alpha Blending 16bit pixel mode	32768	32
	5M5 3	icon3.png	128	128	Alpha Blending 16bit pixel mode	32768	65
	4	icon4.png	128	128	Alpha Blending 16bit pixel mode	32768	98
	5	icon5.png	128	128	Alpha Blending 16bit pixel mode	32768	13
✓ Merging multiple binary files	4						
Load PNG (with alpha) Picture	Clear				Total Size (Byte	s): 163840	
Convert _							



5 The conversion process is completed.

RAiO Image Tool v1.1.0.0	🛃 Image List Vie	w					23
BMP	Picture	File Name	Width	Height	Data Format	Size (Bytes) or Arra	St
JPG PNG		icon 1.png	128	128	Alpha Blending 16bit pixel mode	32768	0
	2	icon2.png	128	128	Alpha Blending 16bit pixel mode	32768	32
	SMS 3	icon3.png	128	128	Alpha Blending 16bit pixel mode	32768	65
	4	icon4.png	128	128	Alpha Blending 16bit pixel mode	32768	98
	5	icon5.png	128	128	Alpha Blending 16bit pixel mode	32768	13
Merging multiple binary files	•						•
Load PNG (with alpha) Picture	Clear				Total Size (Byte	s): 163840	
Convert							
complete							

6 Conversion Results. (Check "Merging multiple binary files" setting)



This binary file is used for BTE alpha blending 16bit pixel mode.(RA8871 / RA8873 / RA8876 / RA8877)



4. Converting the graphic cursor image file to binary format (or C language format)

Execute RAiO Image Tool (Image_Tool.exe)





3 Select a graphic cursor image file, then click "Open" button.

RAiO Image Tool v1.1.0.0	
✓ 開設茜檔	
- ○ ○ □ → 電腦 → New Volume (D:) → 1	▼ 4 ₃ 援募1
組合管理 ▼ 新増資料夾	
 ★ 我的最愛 ● 下載 ● 桌面 ● 最近的位置 ● 案 ● 常築 ● 副片 ● 電腦 ● 00 (7) 	選取要預覽的損案。
檔案名稱(N): Convert	▼ Bitmaps (t bmp) ▼ 開設舊檔(①) 取消 」 Open

Select binary file or C language file, then click the "Convert" button and wait the conversion process be finished.

🖌 RAiO Image Tool v1.1.0.0
BMP JPG PNG i
The size of graphic cursor is 32x32 pixels, each pixel is composed by 2-bit, which indicates 4 colors setting.
2'b00 : color 0 2'b01 : color 1 2'b10 : background color 2'b11 : the inversion of background color
Load Picture
C Language File (*.h)
Convert



5 The conversion process is completed.

若 RAiO Image Tool v1.1.0.0 - • × BMP JPG The size of graphic cursor is 32x32 pixels, each pixel is composed by 2-bit, which indicates 4 colors setting. 2'b00 : color 0 2'b01 : color 1 2'b10 : background color 2'b11 : the inversion of background color 7 Load Picture C Language File (*.h) Convert OK 6 Conversion Results ■Binary File (.bin) busy_im.bi busy_im.b n mp ■C Language File (.h) busy_im.b busy_im.h

mp