# RAiO

# **Image Tool**

操作说明

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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  |  |  |  |  |  |
|         |                    |                   |  |  |  |  |  |
|         |                    |                   |  |  |  |  |  |
|         |                    |                   |  |  |  |  |  |
|         |                    |                   |  |  |  |  |  |
|         |                    |                   |  |  |  |  |  |



# RA8876 / RA8877

Image Tool User Guide

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操作此软件前的注意事项

1. 此软件支持操作系统 Windows XP, Windows 7, Windows 8.1, Windows 10

2. 使用此软件前,计算机必须安装好 Microsoft Office Excel



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#### 1. 转换 BMP 或 JPG 影像为二进制文件档案(binary file)

1 执行转图工具软件 (Image\_Tool.exe)





#### 3 选择输出二进制文件格式档案(binary file)

| RAiO Image Tool v1.1.0.0  | <mark>/</mark> Image List Vie | w         |       |        |                  |                      | 23 |
|---|-------------------------------|-----------|-------|--------|------------------|----------------------|----|
| BMP<br>JPG PNG I  | Picture                       | File Name | Width | Height | Data Format      | Size (Bytes) or Arra | St |
|   |                               |           |       |        |                  |                      |    |
| RA8871/RA8873/RA8876/RA8877   Binary File (*.bin)                               | <                             |           | m     |        | Total Size (Byte | <b>s)</b> : 0        | •  |
| Display Input Data Format   Load Picture Merging multiple binary files  Convert |                               |           |       |        |                  |                      |    |

4 选择所需的色彩深度(color depth), 并点击 "Load Picture" 按键。

| RAiO Image Tool v1.1.0.0                   | 🔏 Image List View |                          |                         |
|--|-------------------|--------------------------|-------------------------|
| BMP<br>JPG PNG I                           | Picture File Name | Width Height Data Format | Size (Bytes) or Arra St |
| <b>RAIO</b><br>BMP image or JPEG image     |                   |                          |                         |
| RA8871/RA8873/RA8876/RA8877                | •                 | III                      | 4                       |
| Binary File (*.bin)                        | Clear             | Total Size (By           | r <b>tes)</b> : 0       |
| Load Picture Merging multiple binary files |                   |                          |                         |



## Note

■ 未勾选 "Merging multiple binary files" 时 **Merging multiple binary files** 此转图软件将影像档案转为各自的二进制文件档案。

■ 勾选 "Merging multiple binary files" 时 Frequency files 此转图软件将影像档案转换,并合并为单一个二进制文件档案 (All\_xx\_Pic\_xxx.bin),并将其相关信息储存于 excel 档案 (All\_xx\_Pic\_xxx.xls). 此外,软件也会产生 C 语言 header file (All\_xx\_Pic\_xxx.h),其提供一个 Structure,方便使用者透过此 Structure,取得影像档案相关信息。

xx: IC 型号

xxx: 此名称取决于色彩深度设定,例如: 若使用者选择 RA8871/RA8873/RA8876/RA8877 16bpp mode (65k colors),则输出文 件名称为"All\_76\_Pic\_65K.bin".

5 选择一个或多个影像档案(bmp/jpg),并点击"开启旧文件"按键。





6 点击 "Convert" 按键,并等待转换处理完成。

| RAiO Image Tool v1.1.0.0    | 📈 Image List Viev | v          |       |        |                        |                      | 23 |
|-----------------------------|-------------------|------------|-------|--------|------------------------|----------------------|----|
|                             | Picture           | File Name  | Width | Height | Data Format            | Size (Bytes) or Arra | St |
| JPG PNG                     |                   | 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 |
|                             | ۶                 | 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 | •                 |            | III   |        |                        |                      | Þ  |
| Binary File (*.bin)         | Clear             |            |       |        | Total Size (Bytes      | <b>;):</b> 196608    |    |
| 16bpp mode (RGB 5:6:5) 👻    |                   |            |       |        |                        |                      |    |
| Load Picture                |                   |            |       |        |                        |                      |    |
| Convert _                   |                   |            |       |        |                        |                      |    |

#### 7 转换完成。

| 🔏 RAiO Image Tool v1.1.0.0                   | 🛃 Image List Viev | N          |       |        |                        |                      | 83 |
|--|-------------------|------------|-------|--------|------------------------|----------------------|----|
|  | Picture           | File Name  | Width | Height | Data Format            | Size (Bytes) or Arra | St |
|  |                   | DES_16.bmp | 128   | 128    | 16bpp mode (RGB 5:6:5) | 32768                | o  |
|  | 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 |
|  | 5                 | S1_16.bmp  | 128   | 128    | 16bpp mode (RGB 5:6:5) | 32768                | 12 |
|  | 6                 | S1_24.bmp  | 128   | 128    | 16bpp mode (RGB 5:6:5) | 32768                | 16 |
| RA8871/RA8873/RA8876/RA8877                  | •                 |            |       |        |                        |                      | 4  |
| Binary File (*.bin)                          | Clear             |            |       |        | Total Size (Byte       | s): 196608           |    |
| 16bpp mode (RGB 5:6:5) -                     |                   |            |       |        |                        |                      |    |
| Load Picture I Merging multiple binary files |                   |            |       |        |                        |                      |    |
| Convert complete                             |                   |            |       |        |                        |                      |    |



#### 8 转换档案输出结果。

- 未勾选 "Merging multiple binary files" 时
- Merging multiple binary files

转出档案结果:



在此操作之下,软件将产生 "All\_xx\_Pic\_xxx.xls" 与"All\_xx\_Pic\_xxx.h" 档案。

"All\_xx\_Pic\_xxx.xls"为 excel 档案,其内容为影像转为二进制文件文件一些相关信息,包含影像名称、起始地址、高度、宽度、 容量大小与数据格式等信息。

"All\_xx\_Pic\_xxx.h"为 C 语言 header file,其提供一个 Structure,方便使用者透过此 Structure,取得影像档案相关信息。



#### 2. 转换 BMP 或 JPG 影像为 C 语言程序档案(\*\*.h)

1 执行转图工具软件(Image\_Tool.exe)



2 点击 "BMP JPG" 按键,并选择所使用的 IC 型号。

| RAiO Image Tool v1.1.0.0                   |  |
|--|--|
| BMP<br>JPG PNG I                           |  |
| DAIO                                       |  |
| RAIU                                       |  |
| BMP image or JPEG image                    |  |
| RA8871/RA8873/RA8876/RA8877                |  |
| Output File Format                         |  |
| Display Input Data Format 👻                |  |
| Load Picture Merging multiple binary files |  |
| Convert _                                  |  |



## 3 选择输出 C 语言程序档案。

| RAiO Image Tool v1.1.0.0  | Mage List View   |
|---|--|
| BMP<br>JPG PNG i  | Picture File Name Width Height Data Format Size (Bytes) or Arra St |
|   |  |
| RA8871/RA8873/RA8876/RA8877    C Language File (*.h)  Display Input Data Format | Clear Total Size (Bytes) : 0                                       |
| Load Picture Merging multiple binary files Convert –                            |  |

#### 4 选择所需的数据格式,并点击 "Load Picture" 按键。

| RAiO Image Tool v1.1.0.0                   | Image List View  |
|--|--|
| BMP<br>JPG D I                             | Picture         File Name         Width         Height         Data Format         Size (Bytes) or Arra         St |
| 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 选择一个或多个影像档案(bmp/jpg),并点击"开启旧文件"按键。

| RAiO Image Tool v1.1.0.0   | 🔀 Image List View         |                          |                                  |          |
|--|---------------------------|--------------------------|----------------------------------|----------|
| ▶ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■                                |                           |                          |                                  | <b>—</b> |
| G → ↓ 電腦 → New Volume (D:) → 1   |                           |                          | <b>▼ <sup>4</sup></b> <i>損尋1</i> | ٩        |
| 組合管理 ▼ 新増資料夾   |                           |                          |                                  | ii • 🕡   |
| <ul> <li>■ 桌面</li> <li>● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●</li></ul> |                           |                          |                                  |          |
| 檔案名稱( <u>N</u> ): "DES_16.bmp" "DES_24.bn                              | np" "S0_16.bmp" "S0_24.bm | p" "S1_16.bmp" "S1_24.bm | np" 	 Bitmaps (*.bmp)            | <br>取消   |
| Load Picture Merging multiple binary files                             |                           | Open                     |                                  |          |
| Convert _  |                           |                          | Select image                     | format   |
| 击"Convert"按键,并笔待转换处理完成,  |                           |                          |                                  |          |

#### 6 点击 "Convert" 按键,并等待转换处理完成。

| 🔀 RAiO Image Tool v1.1.0.0                 | 📈 Image List Viev | N          |       |        |                                       |                      | 23 |
|--|-------------------|------------|-------|--------|---------------------------------------|----------------------|----|
|  | Picture           | File Name  | Width | Height | Data Format                           | Size (Bytes) or Arra | St |
|  |                   | DES_16.bmp | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                | 0  |
|  | 2                 | DES_24.bmp | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                | o  |
|  | 3                 | S0_16.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                | 0  |
|  | 4                 | S0_24.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                | o  |
|  | S                 | S1_16.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                | o  |
|  | 6                 | S1_24.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                | 0  |
| RA8871/RA8873/RA8876/RA8877 -              |                   |            |       |        |                                       |                      |    |
| C Language File (* b)                      |                   |            |       |        |                                       |                      | •  |
|  | Clear             |            |       |        | Total Size (Byte                      | s): 0                |    |
| 16-bit MPU, 16bpp mode (RGB 5:6:5) 🔹       |                   |            |       |        |                                       |                      |    |
| Load Picture Merging multiple binary files |                   |            |       |        |                                       |                      |    |



## 7 转换完成。

| RAiO Image Tool v1.1.0.0                 | 🛛 💌 📈 Image List V | liew       |       |        |                                       |                      | Σ |
|--|--------------------|------------|-------|--------|---------------------------------------|----------------------|---|
| BMP                                      | Picture            | File Name  | Width | Height | Data Format                           | Size (Bytes) or Arra |   |
| JPG PNG                                  |                    | DES_16.bmp | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                |   |
|  | 2                  | DES_24.bmp | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                |   |
|  | 3                  | S0_16.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                |   |
|  | 4                  | S0_24.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                |   |
|  | s s                | S1_16.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                |   |
|  | 6                  | S1_24.bmp  | 128   | 128    | 16-bit MPU, 16bpp mode<br>(RGB 5:6:5) | 16384                |   |
| RA8871/RA8873/RA8876/RA8877 -            | •                  |            | III   |        |                                       |                      |   |
| C Language File (*.h) 🗸                  | Clear              |            |       |        | Total Size (Byte                      | es): 0               |   |
| 16-bit MPU, 16bpp mode (RGB 5:6:5) 🔹     |                    |            |       |        |                                       |                      |   |
|  |                    |            |       |        |                                       |                      |   |
| Load Picture Merging multiple binary fil | 5                  |            |       |        |                                       |                      |   |
| Convert comp                             | ete                |            |       |        |                                       |                      |   |
|  |                    |            |       |        |                                       |                      |   |

8 转换档案输出结果。



S1\_16.bmp









S0 24.bmp

\$1\_24.bmp





S0\_24.h





#### 3. 转换 PNG 影像(含有透明度) 为二进制文件档案(binary file)

➡ 执行转图工具软件(Image\_Tool.exe)



2 点击 "PNG" 按键,并点击 "Load PNG Picture" 按键。

|  | RAIO Image Tool v1.1.0.0        |  |
|--|---------------------------------|--|
|  | Convert _                       |  |
| Sote ■ 未勾选 "Merging multiple binary files" | 时 Merging multiple binary files |  |

此转图软件将影像档案转为各自的二进制文件档案。

■ 勾选 "Merging multiple binary files" 时

#### Merging multiple binary files

此转图软件将影像档案转换,并合并为单一个二进制文件档案 (All\_76\_alpha\_pixel\_16bit.bin),并将其相关信息储存于 excel 档案 (All\_76\_alpha\_pixel\_16bit.xls). 此外,软件也会产生 C 语言 header file (All\_76\_alpha\_pixel\_16bit.h),其提供一个 Structure, 方便使用者透过此 Structure, 取得影像档案相关信息。





3 选择 PNG 影像档案,并点击 "开启旧文件" 按键。

| RAiO Image Tool v1.1.0.0  | Mage List View                     |
|---|------------------------------------|
| ✓ 開飲舊檔  |                                    |
| - ○ ○ - ● ● ● ● ● ● ● New Volume (D:) → 1   | <ul> <li>- 4y 提尋1 </li> </ul>      |
| 組合管理 ▼ 新増資料本  | # • 🗖 🔞                            |
| <ul> <li>■ 桌面</li> <li>● icon1.png</li> <li>● 最近的位置</li> <li>● icon2.png</li> <li>● icon3.png</li> <li>● icon4.png</li> <li>● icon5.png</li> <li>● 高片</li> <li>● 副片</li> <li>● New Volume (E</li> </ul> |                                    |
| share (\\cont11)  |                                    |
| 檔案名稱( <u>N</u> ): <sup>"</sup> icon1.png" "icon2.png" "i  | icon3.png" "icon4.png" "icon5.png" |
|   | Open                               |

#### 4 点击 "Convert" 按键并等待处理完成。

| RAiO Image Tool v1.1.0.0      | 🛃 Image List Vie | w          |       |        |                                    |                      | 83 |
|-------------------------------|------------------|------------|-------|--------|------------------------------------|----------------------|----|
|                               | Picture          | File Name  | Width | Height | Data Format                        | Size (Bytes) or Arra | St |
|                               |                  | icon 1.png | 128   | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 0  |
|                               | 2                | icon2.png  | 128   | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 32 |
|                               | ŞM5 3            | icon3.png  | 128   | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 65 |
|                               | 4                | icon4.png  | 128   | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 98 |
|                               | € €              | icon5.png  | 128   | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 13 |
| Merging multiple binary files |                  |            |       |        |                                    |                      |    |
| Load PNG (with alpha) Picture | Clear            |            |       |        | Total Size (Byte                   | s): 163840           |    |
| Convert _                     |                  |            |       |        |                                    |                      |    |



5 转换处理完成。

| 🔀 RAiO Image Tool v1.1.0.0                            | 🛃 Image List View         | 1          |        |        |                                    |                      | 8    |
|---|---------------------------|------------|--------|--------|------------------------------------|----------------------|------|
|   | Picture                   | File Name  | Width  | Height | Data Format                        | Size (Bytes) or Arra | . St |
|   |                           | icon 1.png | 128    | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 0    |
|   | 2                         | icon2.png  | 128    | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 32   |
|   | <b>5M5</b> 3              | icon3.png  | 128    | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 65   |
|   | 4                         | icon4.png  | 128    | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 98   |
|   | <b>1</b> 5                | icon5.png  | 128    | 128    | Alpha Blending 16bit pixel<br>mode | 32768                | 13   |
| ✓ Merging multiple binary files                       | •                         |            | III    |        |                                    |                      | F    |
| Load PNG (with alpha) Picture                         | Clear                     |            |        |        | Total Size (Bytes                  | <b>;):</b> 163840    |      |
| <ul> <li>6 转换档案输出结果。(勾选 "Merging multiple)</li> </ul> | binary files")            |            |        |        |                                    |                      |      |
|   |                           |            |        |        |                                    |                      |      |
| All_76_alpha_pix All_7<br>el_16bit.h el               | 6_alpha_pix<br>_16bit.xls | ico        | n1.png | 9      | icon2.png                          |                      |      |
| SMS   |                           |            |        |        |                                    |                      |      |
| icon3.png ic  | on4.png                   | ico        | n5.png | 9      | All_76_alpha_p<br>el_16bit.bin     | ix                   |      |
|   |                           |            |        |        |                                    |                      |      |



4. 转换 graphic cursor 影像档案为二进制文件档案(binary file)或 C 语言程序档案(\*.h)

1 执行转图工具软件(Image\_Tool.exe)





3 选择一个 graphic cursor 影像档案,并点击"开启旧文件"按键。

| 🛃 RAiO Image Tool v1.1.0.0 🗖 🗉 🖾  |                                 |       |
|---|---------------------------------|-------|
| ✓ 開設茜檔  |                                 |       |
| - ○ ○ - ● ● ● ● ● ● New Volume (D:) → 1   | <b>▼ 4</b>                      | Q     |
| 組合管理 ▼ 新増資料夾  |                                 | 0     |
| <ul> <li>★ 我的最愛</li> <li>● 下載</li> <li>● 桌面</li> <li>● 最近的位置</li> <li>● 最近的位置</li> <li>● 最近的位置</li> <li>● 電纜</li> <li>● 電腦</li> <li>● ● SC(C:)</li> </ul> | 選取要預覽的檔案。                       |       |
| 檔案名稱( <u>N</u> ):   | ▼ Ritmaps (* bmp)<br>開設舊檔(0) 取消 | •<br> |
| Convert   | /<br>Open                       |       |

4 选择输出二进制档案或 C 语言程序档案,再点击 "Convert" 按键,并等待转换处理完成。

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



5 转换处理完成。

# RA8876 / RA8877 Image Tool User Guide

