

App\_Imageviewer2: How to generate the flash image

**Version 1.0**

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# Introduction

## Overview

The demo application App\_Imageviewer2 uses several images to display on the LCD, these images are stored on the flash memory of the EVE platform.

This document provide information on how to create the flash image and use it to display images on the EVE platform.

## Scope

The scope of this application note is to explain steps to create the flash image for EVE platform, and how App\_Imageviewer2 use the created flash image to display images on EVE platform.

## Compatibility

The method provided is primarily targeted for the App\_Imageviewer2 application, this application should only be run on BT815 and BT816 SoC with flash memory attached on the board.

Tool EVE Asset Builder used in this document is at version 0.3.2. It is available at https://brtchip.com/eve-toolchains

# Display image on EVE platform with flash image

The App\_Imageviewer2 uses several images in ASTC format, they are converted from JPG images.

All the ASTC images are combined into one flash image.

## Generating the flash image

### List of images used by App\_Imageviewer2

Below are list of images using by App\_Imageviewer2, they are located in UI\_Assets folder:

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Image size | Name | Image size |
| F0.jpg | 120x60 | S\_F0.jpg | 800x480 |
| F1.jpg | 120x60 | S\_F1.jpg | 800x480 |
| F2.jpg | 120x60 | S\_F2.jpg | 800x480 |
| F3.jpg | 120x60 | S\_F3.jpg | 800x480 |
| F4.jpg | 120x60 | S\_F4.jpg | 800x480 |
| F5.jpg | 120x60 | S\_F5.jpg | 800x480 |
| F6.jpg | 120x60 | S\_F6.jpg | 800x480 |
| F7.jpg | 120x60 | S\_F7.jpg | 800x480 |
| F8.jpg | 120x60 | S\_F8.jpg | 800x480 |
| F9.jpg | 120x60 | S\_F9.jpg | 800x480 |
| F10.jpg | 120x60 | S\_F10.jpg | 800x480 |
| F11.jpg | 120x60 | S\_F11.jpg | 800x480 |
| F12.jpg | 120x60 | S\_F12.jpg | 800x480 |
| F13.jpg | 120x60 | S\_F13.jpg | 800x480 |
| F14.jpg | 120x60 | S\_F14.jpg | 800x480 |
| F15.jpg | 120x60 | S\_F15.jpg | 800x480 |
| F16.jpg | 120x60 | S\_F16.jpg | 800x480 |
| F17.jpg | 120x60 | S\_F17.jpg | 800x480 |
| F18.jpg | 120x60 | S\_F18.jpg | 800x480 |
| F19.jpg | 120x60 | S\_F19.jpg | 800x480 |

Table 1: Image list

### Convert images into ASTC format

The purpose of this step is to compress the image into a smaller size. This can be done with EAB tool. The steps are described as below:

* Start EAB tool and select tab “Image converter”:

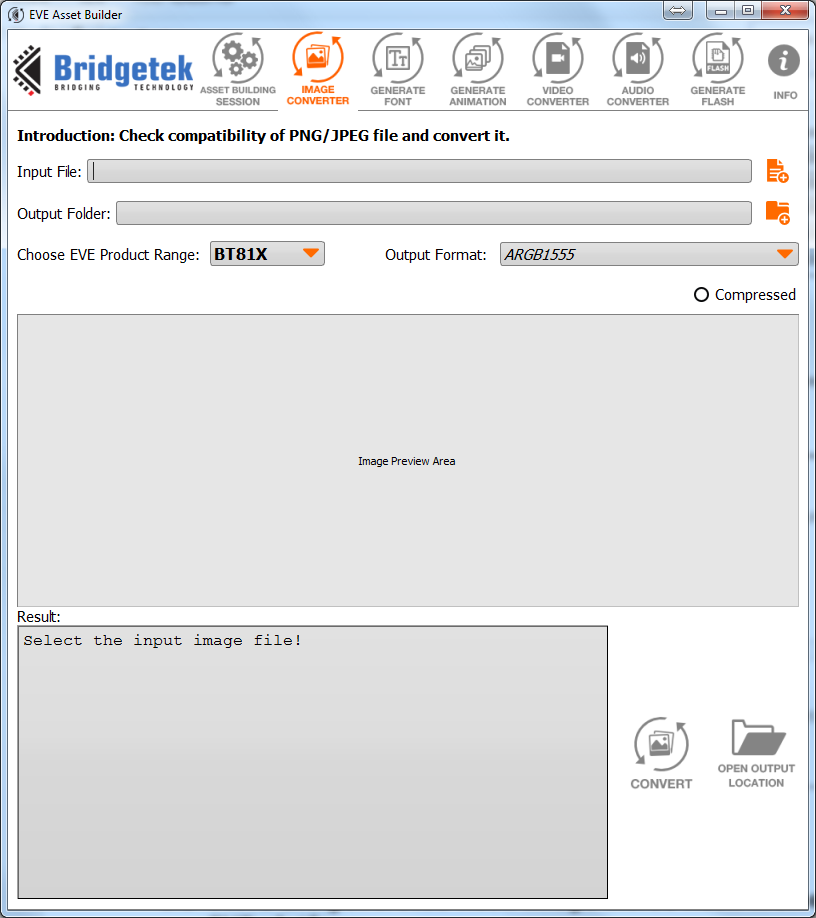


Figure 1: Start EAB tool and select tab “Image converter”

* Press Input button and select Jpeg images as the input file:

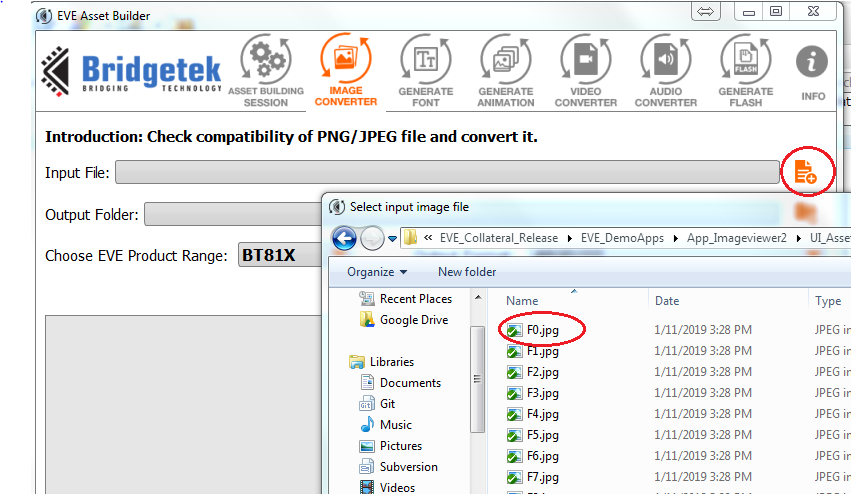


Figure 2: Select input file

* Select output folder, Output format as ASTC 4x4 and the compression speed:

\*The “Compressed” radio button should be uncheck

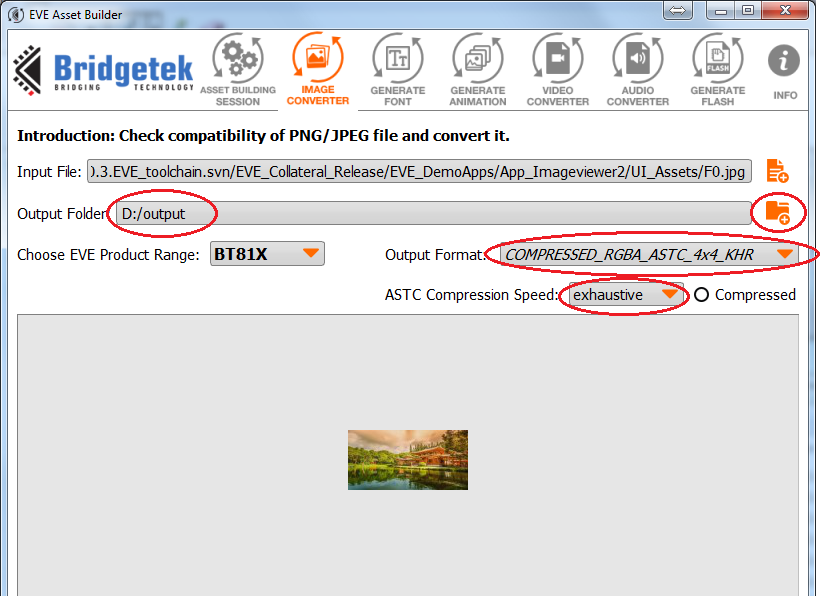


Figure 3: Select output

* Press “Convert” button to start convert image:

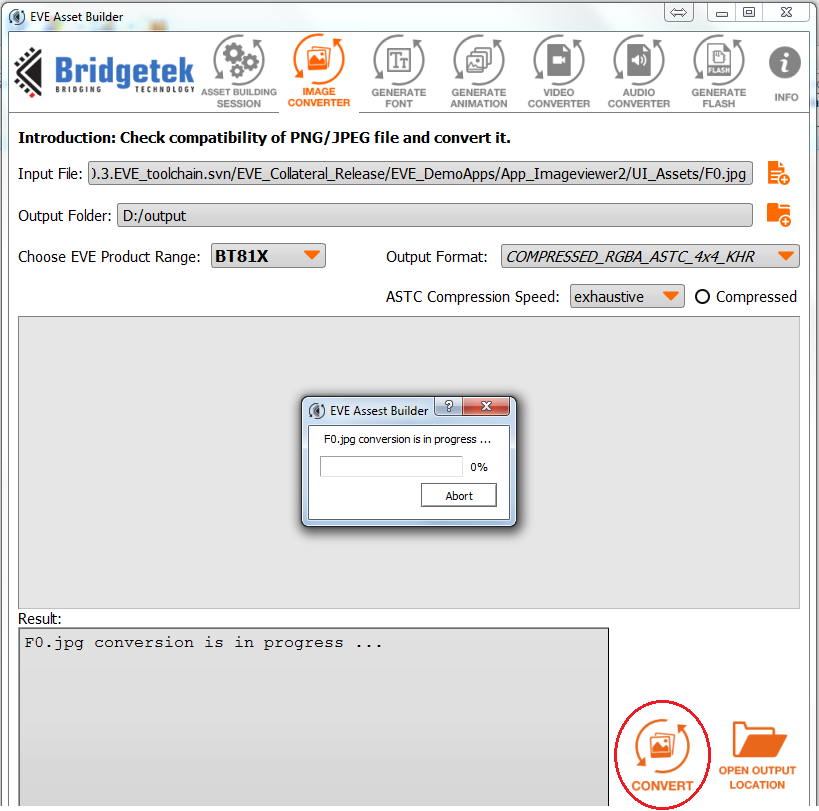


Figure 4: Start convert image

* The Jpeg images are converted into raw file, repeat for other input:

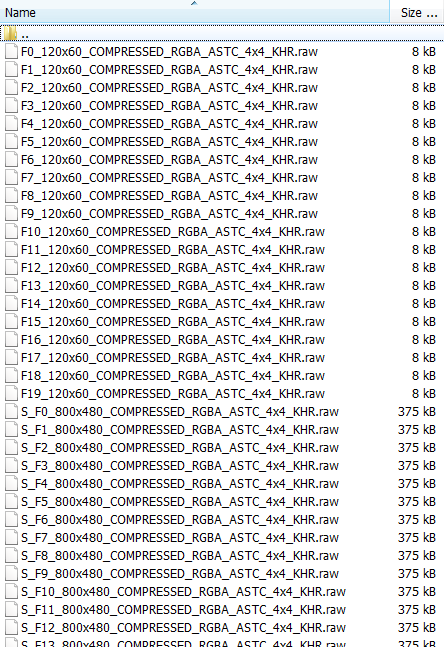


Figure 5: Converted images

### Generate flash image with converted images

This step combine all the raw file into one flash file. The steps are described as below:

* Start EAB tool and select tab “Generate Flash:

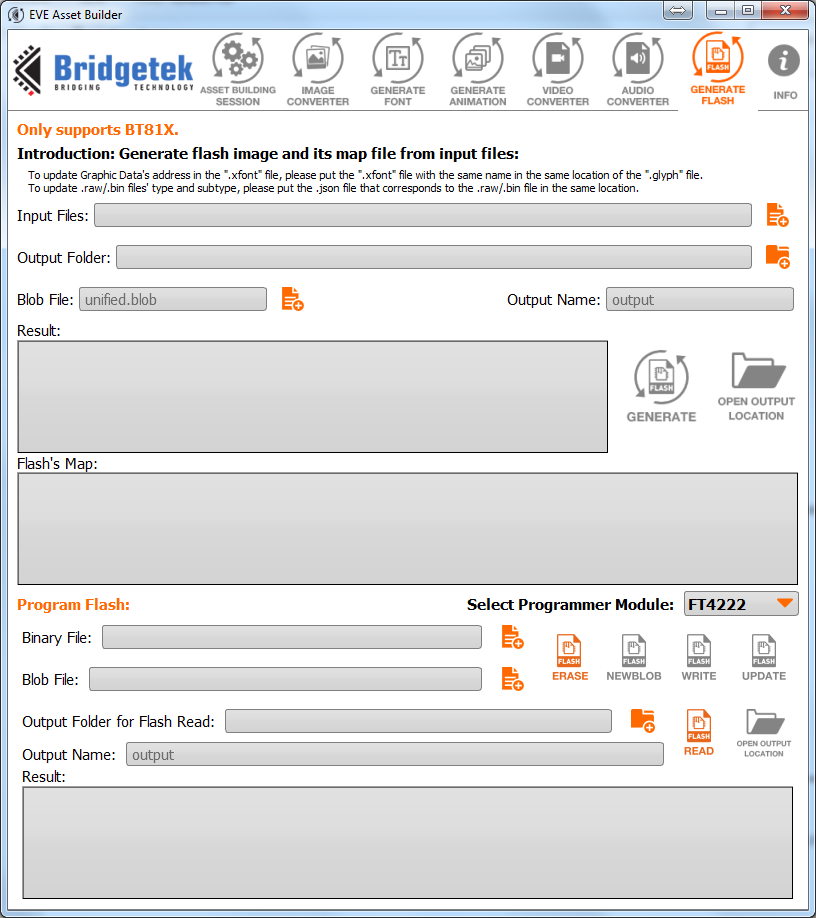


Figure 6: Generate flash tab

* Select raw files in the previous steps as the input, select output and type the flash’s file name in the “Output name”, then press “Generate”:

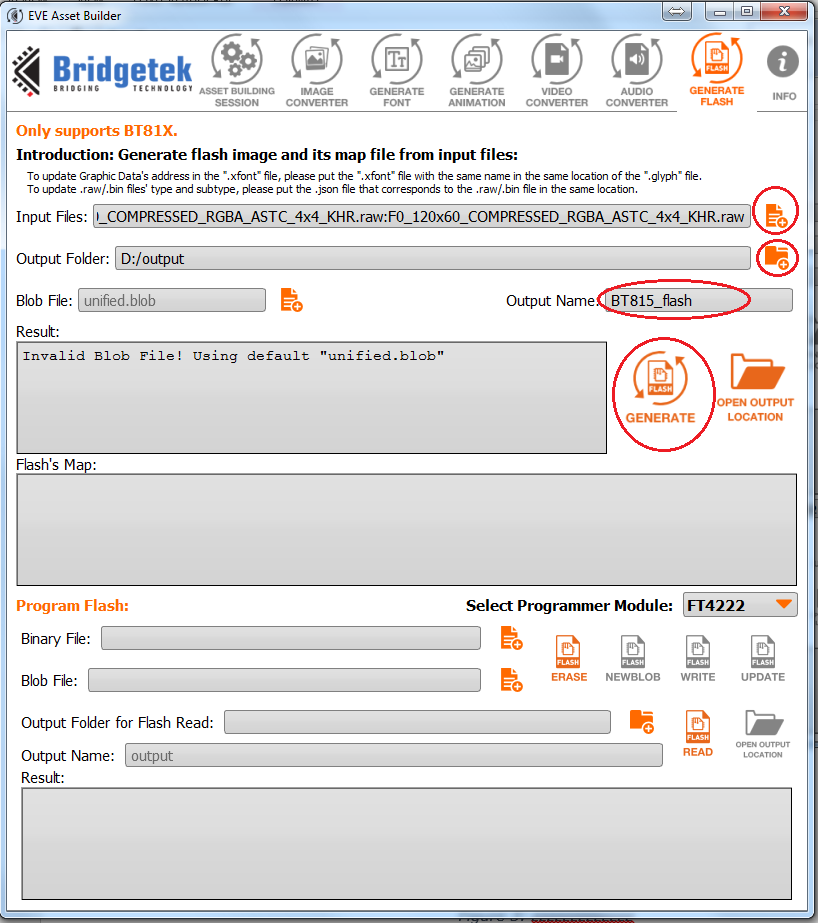


Figure 7: Setting for flash generation

* Generating screen:

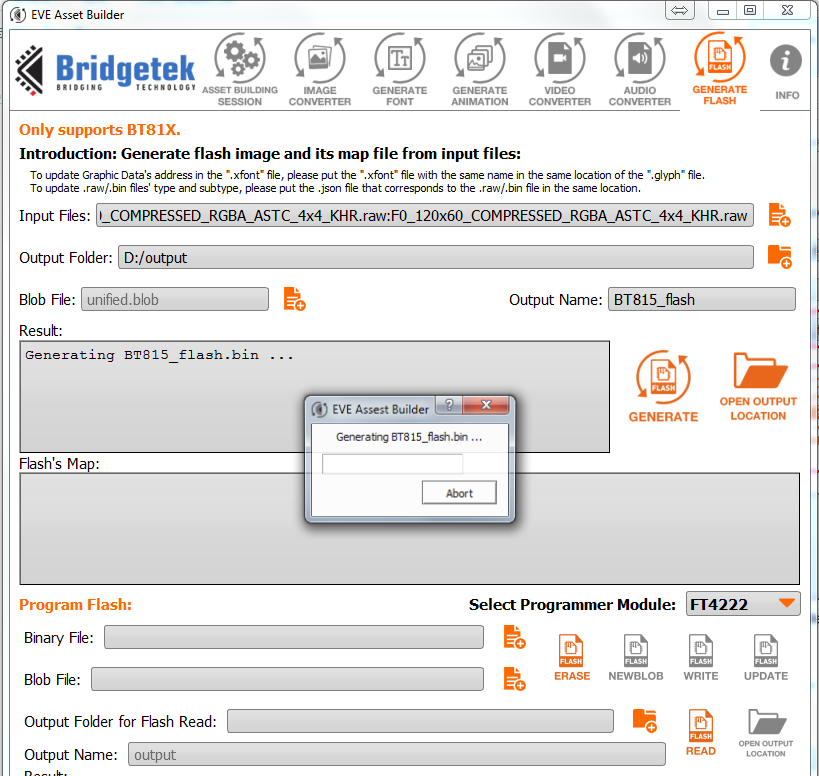


Figure 8: Generating screen

* After generated, Flash’s map is appear:

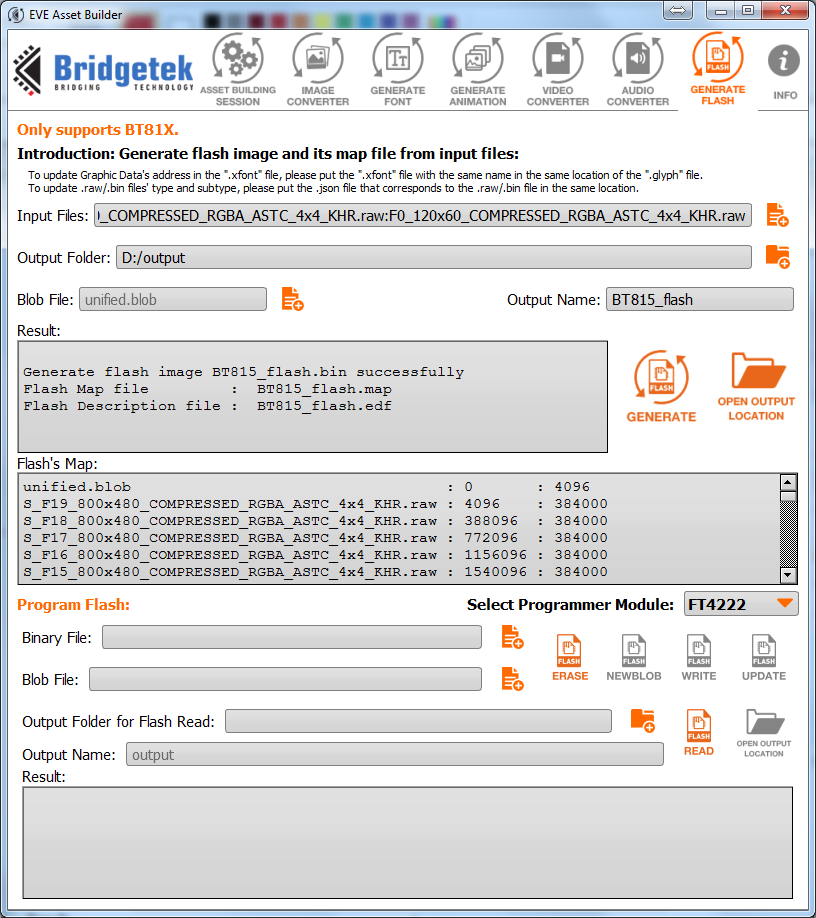


Figure 9: Generate flash done

* The flash image is put into output folder with extension .bin:

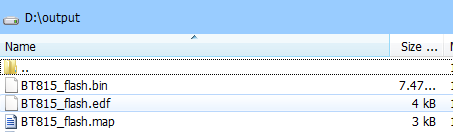


Figure 10: Output folder

* The map file contains the address and size of raw files:

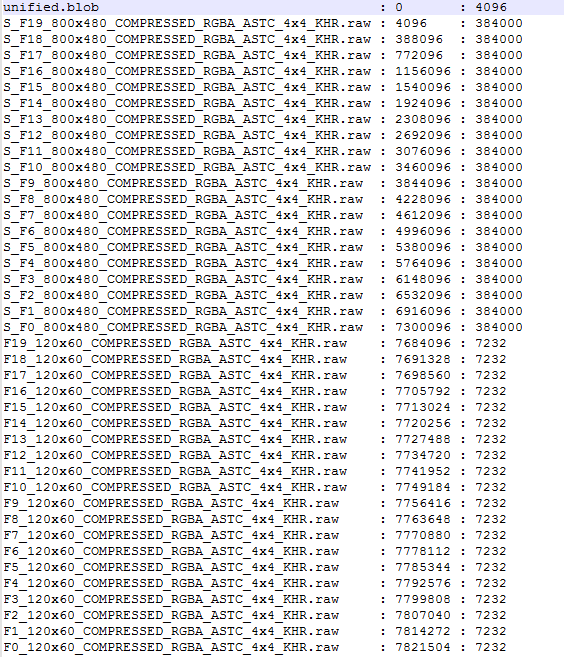


Figure 11: Content of the map file

## Store the generated flash image inside flash memory on EVE platform

* Select programmer module, binary file is the generated \*.bin file, the press update:

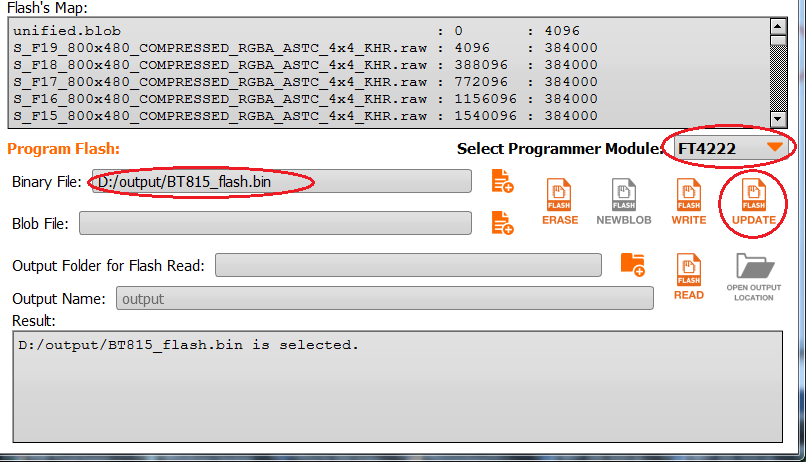


Figure 12: Update flash image

## Display images using generated flash image

* The sample code is generated into output folder too:

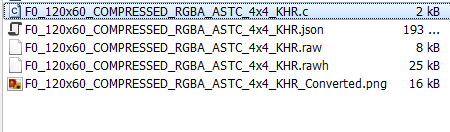


Figure 13: sample source file

* Follow the sample code to display the image:

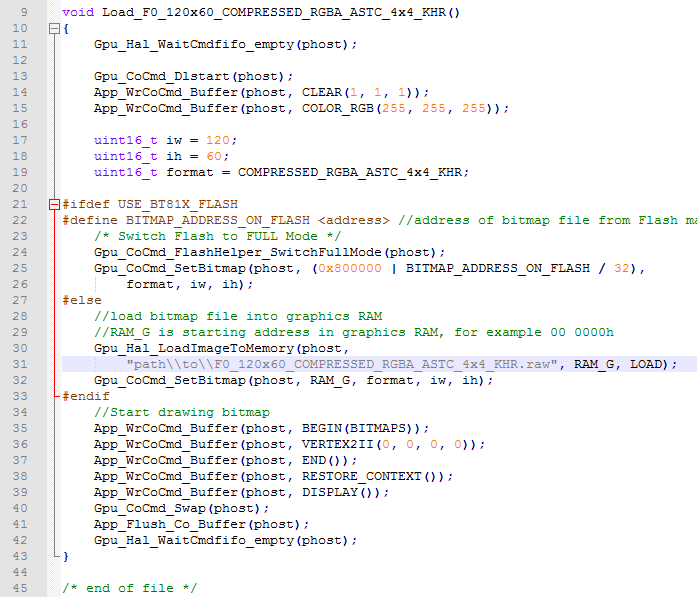


Figure 14: Sample code to display image

# Contact Information

|  |  |  |  |
| --- | --- | --- | --- |
| **Head Quarters – Singapore** | | **Branch Office – Taipei, Taiwan** | |
|  | |  | |
| Bridgetek Pte Ltd  178 Paya Lebar Road, #07-03  Singapore 409030  Tel: +65 6547 4827  Fax: +65 6841 6071 | | Bridgetek Pte Ltd, Taiwan Branch  2 Floor, No. 516, Sec. 1, Nei Hu Road, Nei Hu District  Taipei 114  Taiwan , R.O.C.  Tel: +886 (2) 8797 5691  Fax: +886 (2) 8751 9737 | |
|  | |  | |
| E-mail (Sales) | [sales.apac@brtchip.com](mailto:sales.apac@brtchip.com) | E-mail (Sales) | [sales.apac@brtchip.com](mailto:sales.apac@brtchip.com) |
| E-mail (Support) | [support.apac@brtchip.com](mailto:support.apac@brtchip.com) | E-mail (Support) | [support.apac@brtchip.com](mailto:support.apac@brtchip.com) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Branch Office - Glasgow, United Kingdom** | | **Branch Office – Vietnam** | |
|  | |  | |
| Bridgetek Pte. Ltd.  Unit 1, 2 Seaward Place, Centurion Business Park  Glasgow G41 1HH  United Kingdom  Tel: +44 (0) 141 429 2777  Fax: +44 (0) 141 429 2758 | | Bridgetek VietNam Company Limited  Lutaco Tower Building, 5th Floor, 173A Nguyen Van Troi, Ward 11, Phu Nhuan District, Ho Chi Minh City, Vietnam  Tel : 08 38453222 Fax : 08 38455222 | |
|  | |  | |
| E-mail (Sales) | [sales.emea@brtichip.com](mailto:sales.emea@brtichip.com) | E-mail (Sales) | [sales.apac@brtchip.com](mailto:sales.apac@brtchip.com) |
| E-mail (Support) | [support.emea@brtchip.com](mailto:support.emea@brtchip.com) | E-mail (Support) | [support.apac@brtchip.com](mailto:support.apac@brtchip.com) |

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# Appendix A– References

## Document References

* [AN\_391 EVE Platform Guide](http://brtchip.com/wp-content/uploads/Support/Documentation/Application_Notes/ICs/EVE/AN_391-EVE-Platform-Guide.pdf)
* [BT8XX Series Programmer Guide](http://brtchip.com/programming-guide/)
* [BT815/6 Embedded Video Engine Datasheet](http://brtchip.com/wp-content/uploads/Support/Documentation/Datasheets/ICs/EVE/DS_BT815_6.pdf)

## Acronyms and Abbreviations

|  |  |
| --- | --- |
| **Terms** | **Description** |
| EVE | Embedded Video Engine |
| MSVC | Microsoft Visual Studio C++ |
| SPI | Serial Peripheral Interface |
| UI | User Interface |
| HAL | Hardware Abstraction Layer |

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| Revision | Changes | Date |
| 0.1 | Initial release | 2018-08-21 |

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**Revision History**

Revision history (internal use only, please clearly state any changes here before saving the file)

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| --- | --- | --- | --- |
| **Revision** | **Date**  **YYYY-MM-DD** | **Changes** | **Editor** |
| Draft | 2019-01-14 | Created initial draft | Tuan Nguyen |
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