

Embedded LCD Introduction

Orient Display

2019.02

Orient Display Embedded LCD

- Orient display provide total solution for TFT LCD applications which is called -- Embedded LCD.
- The solution include hardware and software.
- The hardware consists of a screen (size/resolution selectable) and an Embedded Micro-Processor (**AGN: ARM9, ACN: SSD1963**) .
- The software is called Orient display Graphic Utilized Software (OGUS) which is a development environment to generate project files that downloaded to Embedded LCD hardware.

Advantage

- Integrated embedded CPU with fast response and low power consumption
- Graphical interface software development environment, fast, flexible, easy to operate
- UART data interface for easy system integration
- Support the rapid development of products
- Strong reliability and stability

Embedded LCD Hardware

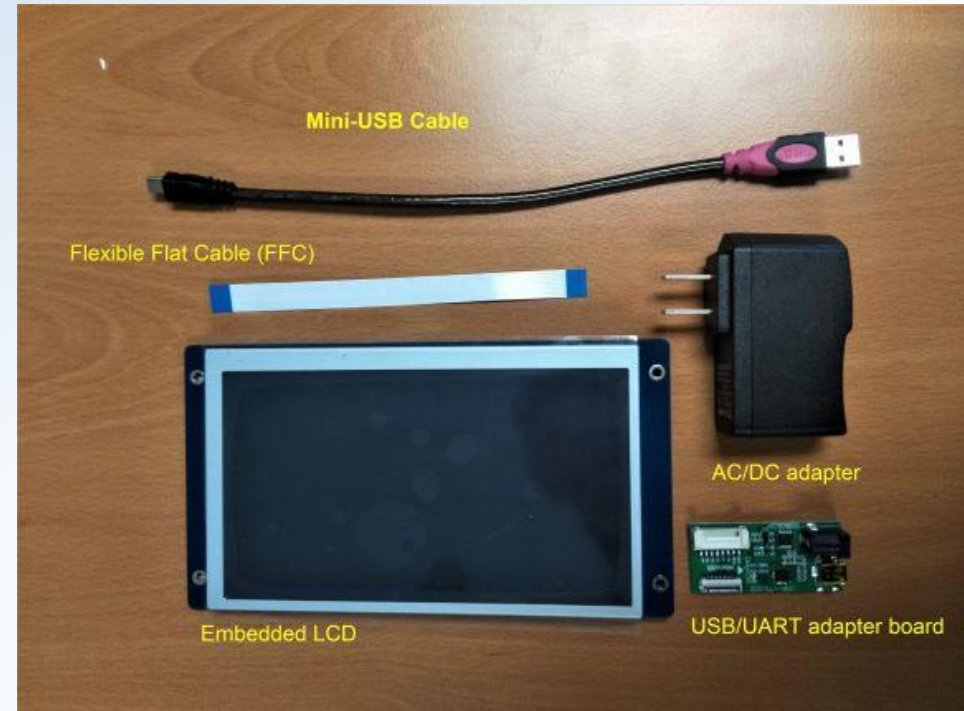
AGN series (Color TFT LCD screen + Embedded CPU)

- Support screen sizes:
 - 3.5" (320x240)
 - 4.3" (480x272)
 - 7.0" (800x480)
- Support UART interface, controllable by software command
- Support 16 bits RGB display
- 64 levels of brightness adjustment
- Project files can be downloaded by SD card

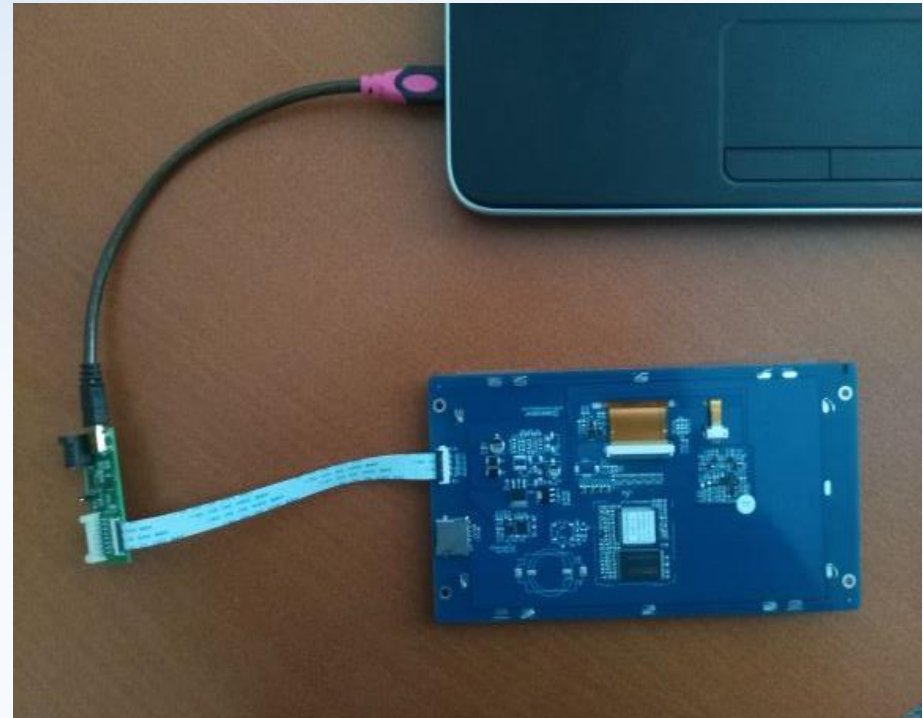
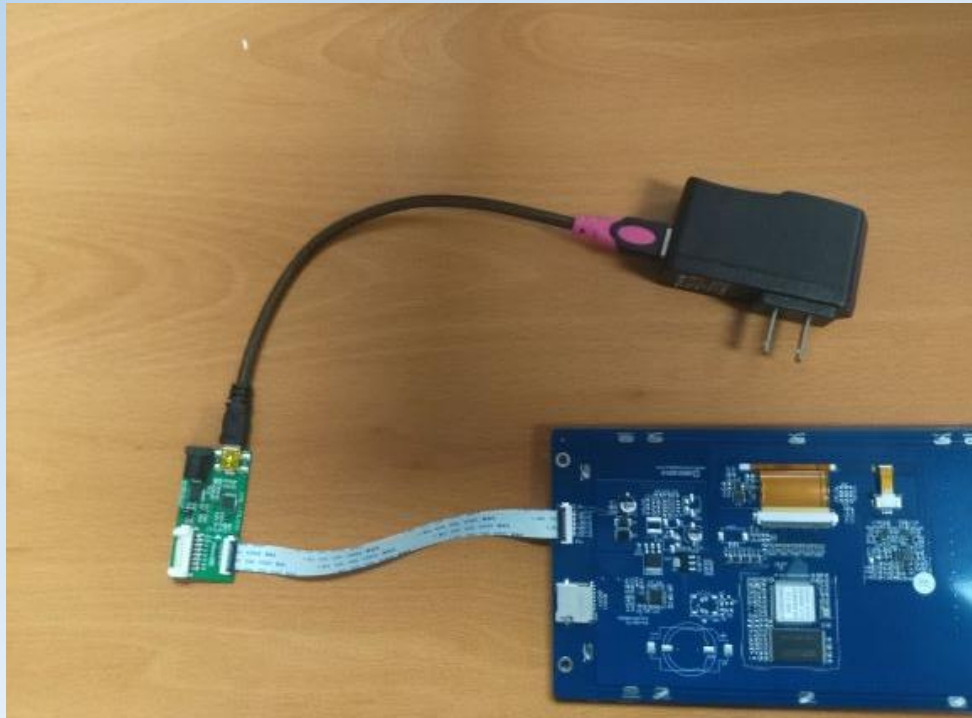
Embedded LCD Demo Kit

Demo Kit includes:

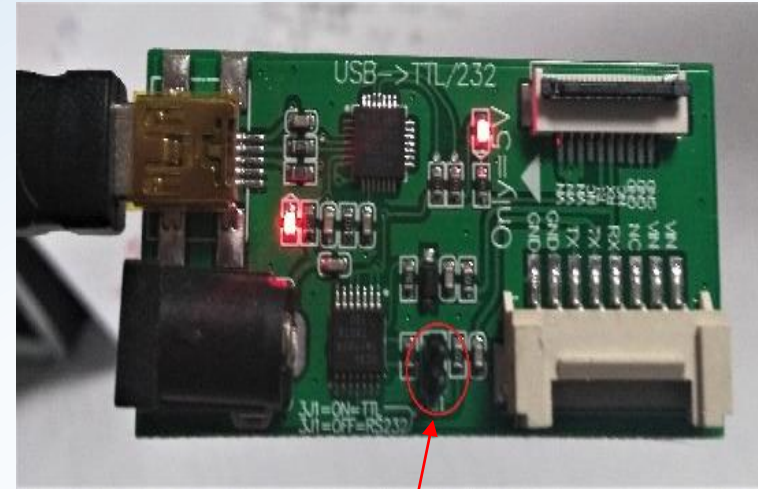
- Embedded LCD platform X 1
- AC/DC adapter X 1
- USB/UART adapter board X 1
- mini-USB cable X 1
- Flexible Flat Cable (FFC) X1



Power connection



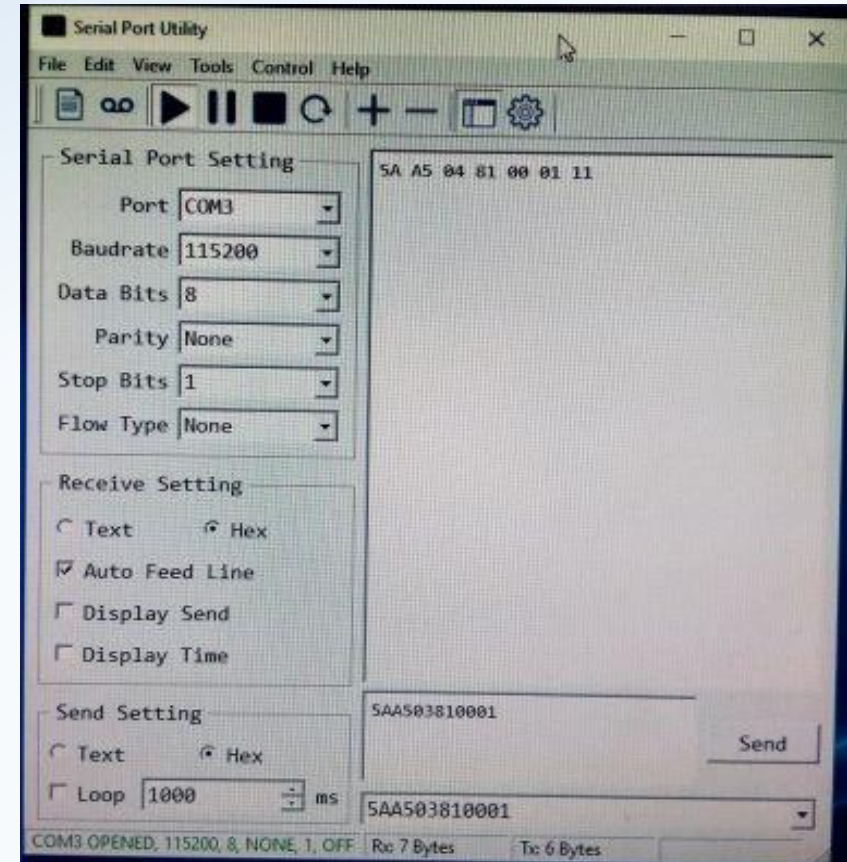
Connection for communication



Disconnect this connector

PC control Demo board

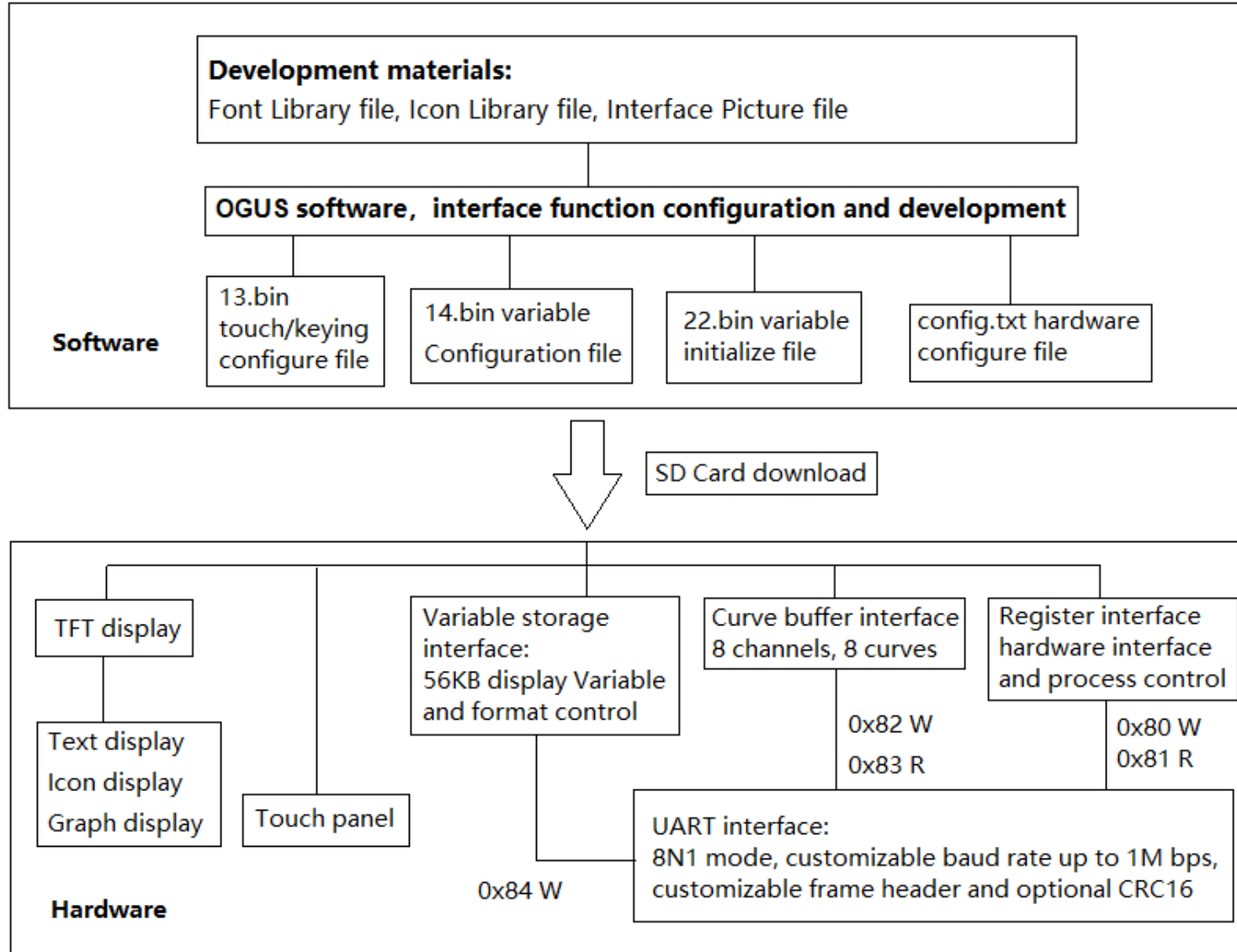
- By UART interface, PC can send command to Embedded LCD Demo board to Read/Write register. By this way, PC can control Embedded LCD's behavior and get data from it.
- PC communicates with Embedded LCD by Serial port utility, the default setting as the figure.



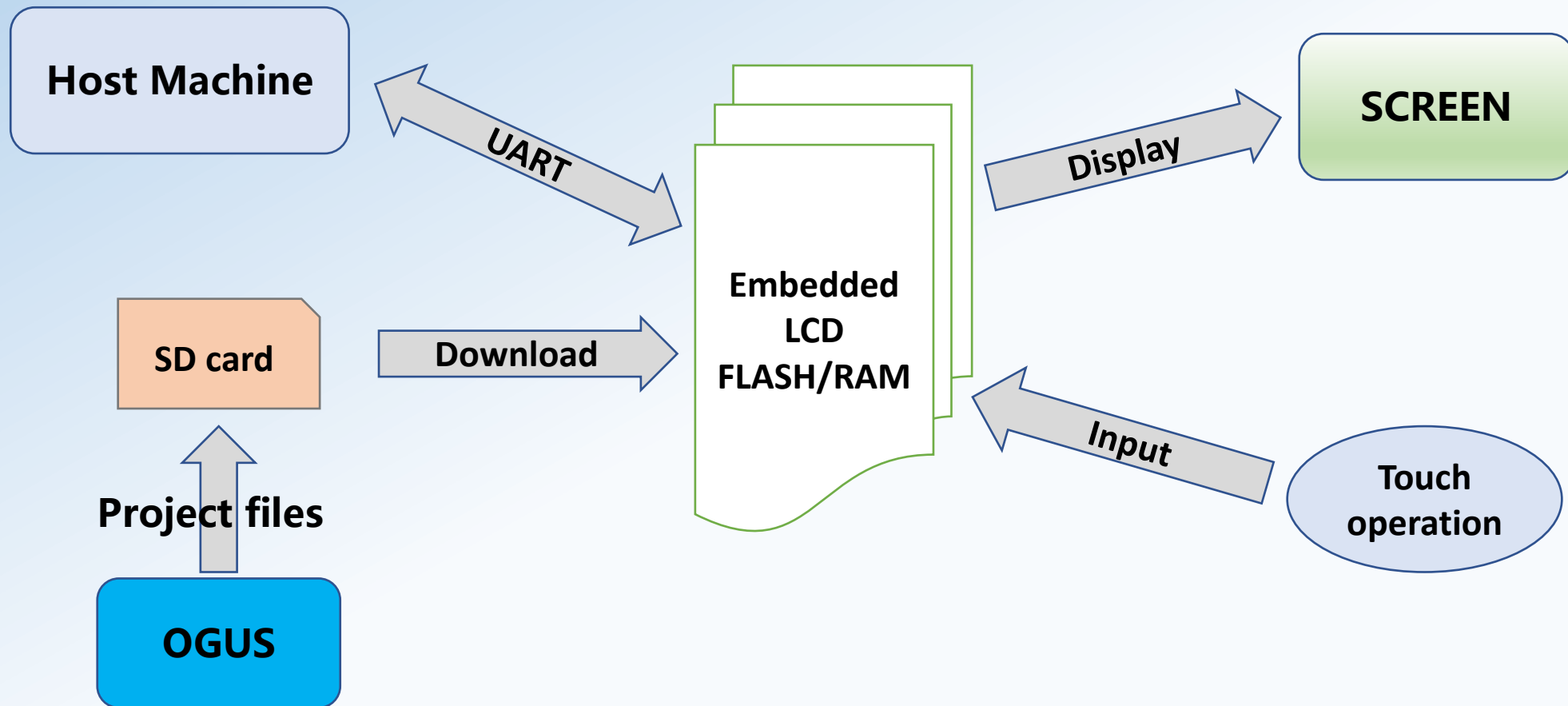
Embedded LCD software

- OGUS is a graphical interface development software, with embedded LCD hardware platform which can greatly simplify the development work
- By OGUS, we can :
 - Define touch functions
 - Design display activities
 - Generate configure files
- Download project files by SD card, it is convenient in mass production.
- Embedded CPU can communicate with host in real time via UART






Product development process



Data Flow Figure



OGUS Software Package

Name	Date modified	Type	Size
 Config	2018-08-01 10:18 ...	File folder	
 OD_0Font	2018-08-01 10:31 ...	Application	101 KB
 OD_ICON	2018-08-01 10:31 ...	Application	176 KB
 OD_ImgConversion	2018-08-01 10:31 ...	Application	411 KB
 OGUS_Ver01	2018-08-01 10:31 ...	Application	7,486 KB








OD_0Font: Font library generator

OD_ICON: library generator

OD_ImgConversion: Image format converter

OGUS_Ver01: OGUS executable file

Project Files Sample

Name	Date	Type	Size
 0_RTC	2019-02-21 1:51 PM	BMP File	1,182 KB
 1_Keyboard	2019-02-20 4:28 PM	BMP File	1,126 KB
 13_TouchConfiguration.bin	2019-02-21 11:51 AM	BIN File	1 KB
 14_VariableConfiguration.bin	2019-02-21 11:51 AM	BIN File	4 KB
 22_Config.bin	2019-02-21 11:51 AM	BIN File	56 KB
 48	2019-02-21 11:46 AM	Icon	876 KB
 CONFIG	2019-02-20 2:34 PM	Text Document	1 KB

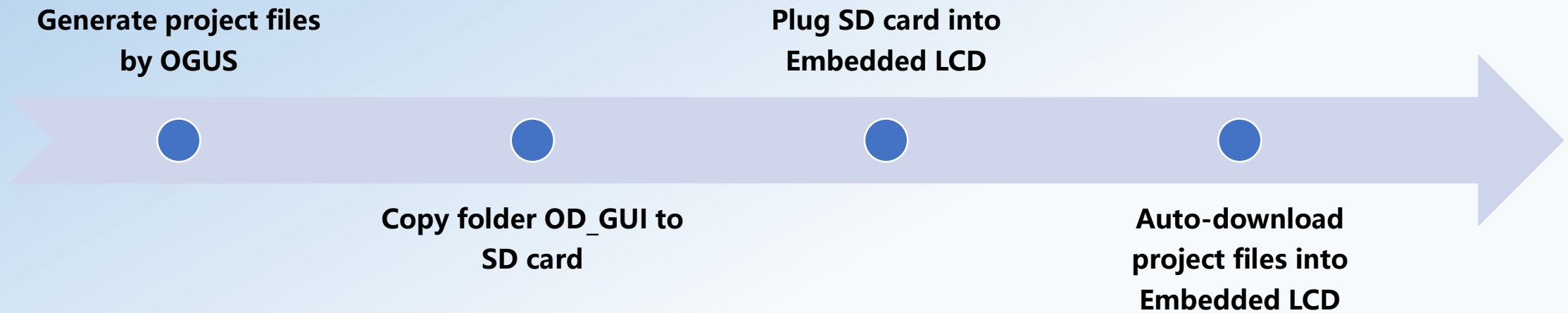
Software configure files: 13_TouchConfiguration.bin; 14_VariableConfiguration.bin; 22_Config.bin

Hardware configure file: CONFIG.txt

Background picture files: 0_RTC.bmp; 1_Keyboard.bmp

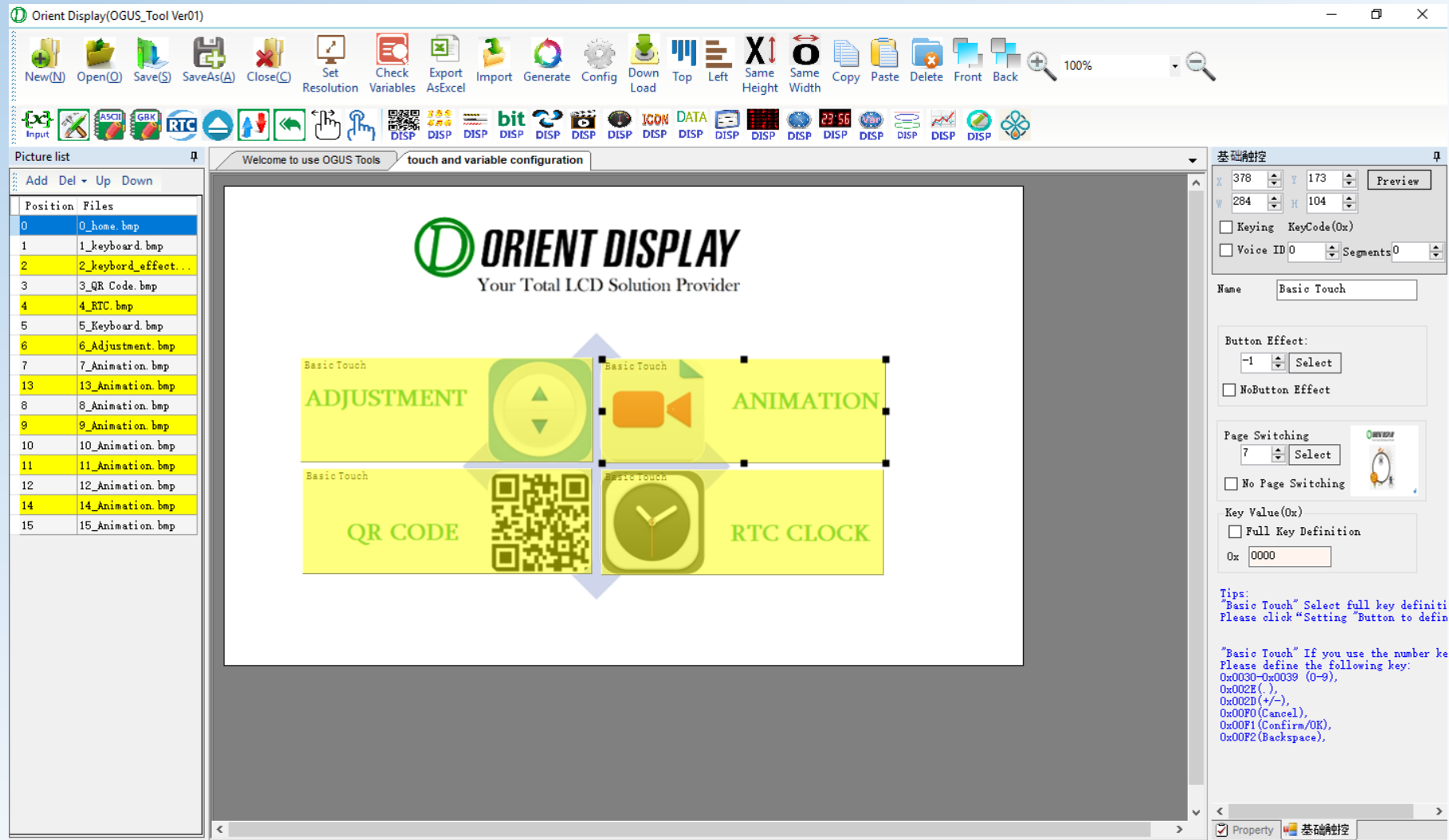
Icon library file: 48.ico

Project Files Download Flow



Note: Embedded LCD support SD card hot plug. When the plug in is detected, Embedded LCD will try to find the folder OD_GUI and download the files automatically. This feature is useful in mass production.

OGUS Working Interface



Solution Customized Services

Orient Display also provides solution customized service for Embedded LCD, which includes:

- Hardware platforms
- Embedded software platforms
- Application software package
- Dedicated instruction Set (for UART)

The final customized solution can be used as a UART device which has advantages of high functional integration, easy connection, easy to develop and high reliability.

ACN series (24-bits Color TFT LCD + CTP)

- Support screen sizes:
 - 3.5" (320x240)
 - 4.3" (480x272)
 - 7.0" (800x480)
- 3V input
- 8-line parallel MCU interface
- 8080 or 6800 interface timing
- Backlight brightness can be adjusted by outside PWM signal
- 24 bits RGB display

Reference Information

- Product information:

<http://orientdisplay.com/products/embedded-lcd/>

- OGUS training video:

<http://orientdisplay.com/knowledge-base/embedded-lcds/>

- Embedded LCD user manual and development guide:

<http://orientdisplay.com/knowledge-base/embedded-lcds/>

