



**XINSUN DISPLAY
INTEGRATION LTD.**

***UART
Display Module**

3.5 inch HMI Module



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* Hardware Introduction



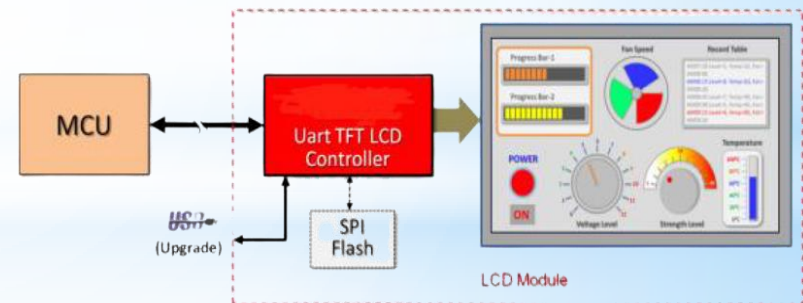
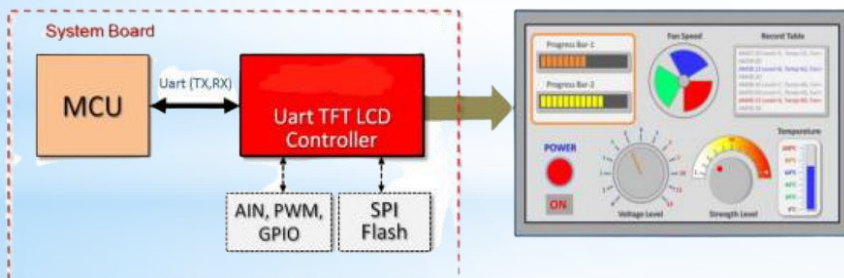
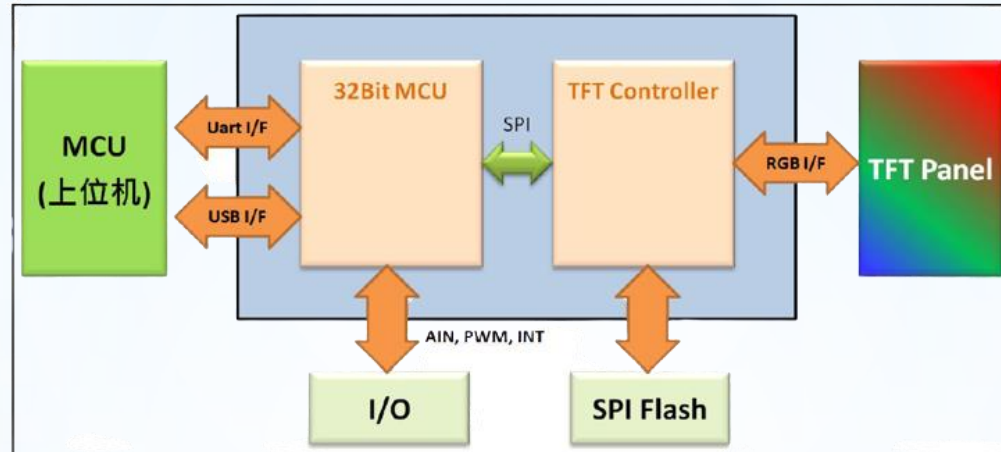
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- * The serial screen control IC combines the core structure of 32bit MCU and TFT graphics accelerator inside. Its main function is to provide Uart and USB serial port communication, so that the host MCU can easily display on the TFT through simple commands.
- * Its content is passed to the TFT driver (Driver). In addition to its own 32-bit MCU, the internal hardware also provides functions such as graphics acceleration, PIP (Picture-in-Picture), geometric drawing, etc., which can improve TFT display efficiency and reduce Time spent by MCU processing graphics display
- * The internal 32-bit MCU has a main frequency of up to 72MHz and contains 64Kbytes Flash and 8Kbytes SRAM. In addition to providing Uart and USB serial communication, it also provides some analog input AIN, PWM and INT interrupt interfaces. These interfaces can also be set as ordinary IO interfaces. In order to achieve multi-level high-resolution display effect.

*Chip-set Introduction



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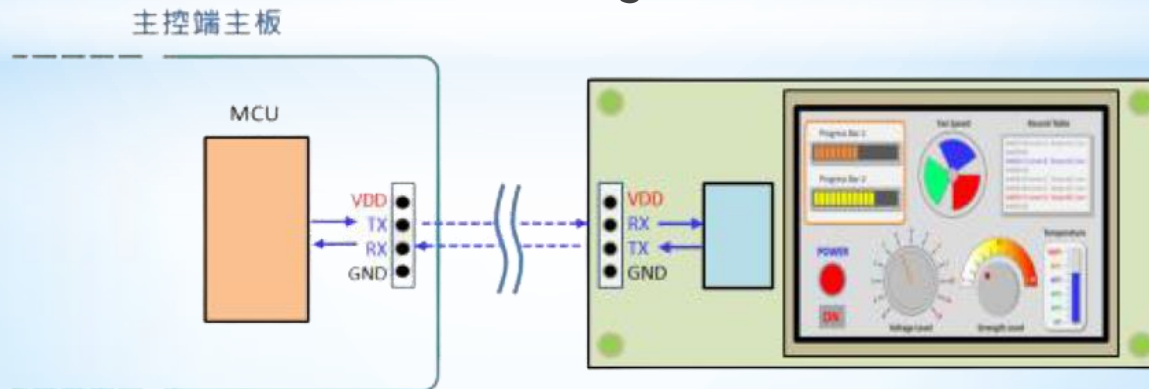


* Application Block Map



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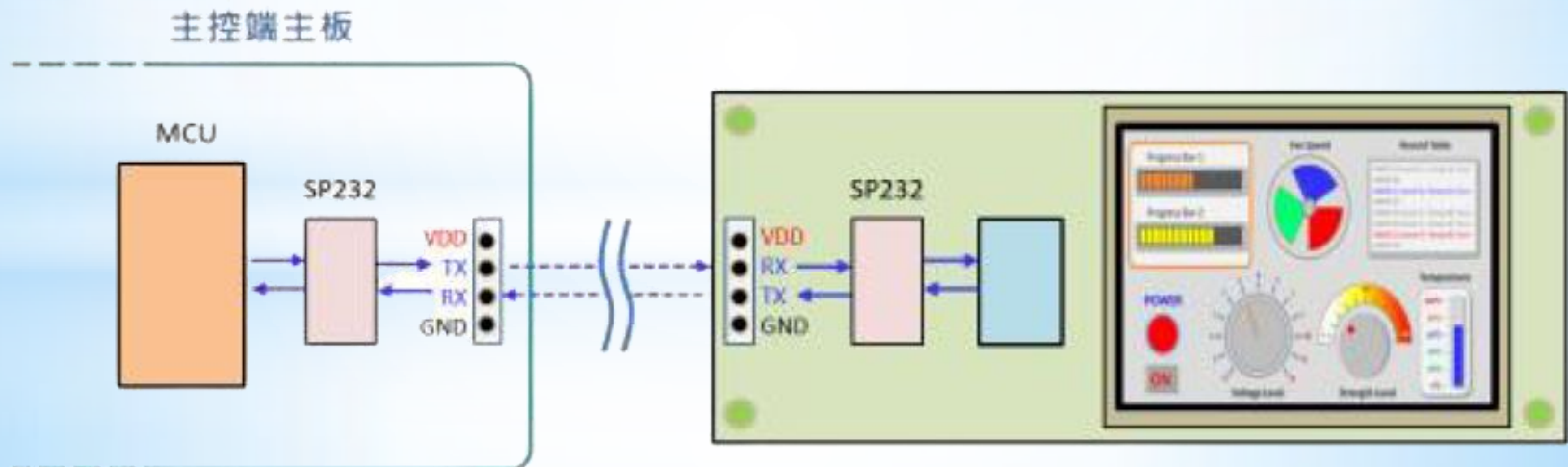
- * The industrial serial screen is to add MCU and TFT controller on the TFT display module. The MCU is responsible for receiving the serial port (Uart) commands sent by the remote motherboard, and then displaying pictures or animations according to these defined commands.
- * The MCU on the remote motherboard does not need to write complicated programs for cumbersome picture display, so the TFT industrial serial screen is actually a command screen structure.
- * The TFT serial port screen mainly communicates through the RS232 interface. If the main distance between the master control terminal and the TFT serial port screen is very close (within ~30cm), the Uart output input port of the MCU of the master control terminal can be directly connected to the Uart output input port on the serial port screen as the schematic diagram below:





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- * If you want to achieve a long-distance communication effect, it is usually necessary to add a special drive chip for RS232. The following diagram shows the RS232 drive IC interface between the main control and the serial port screen:





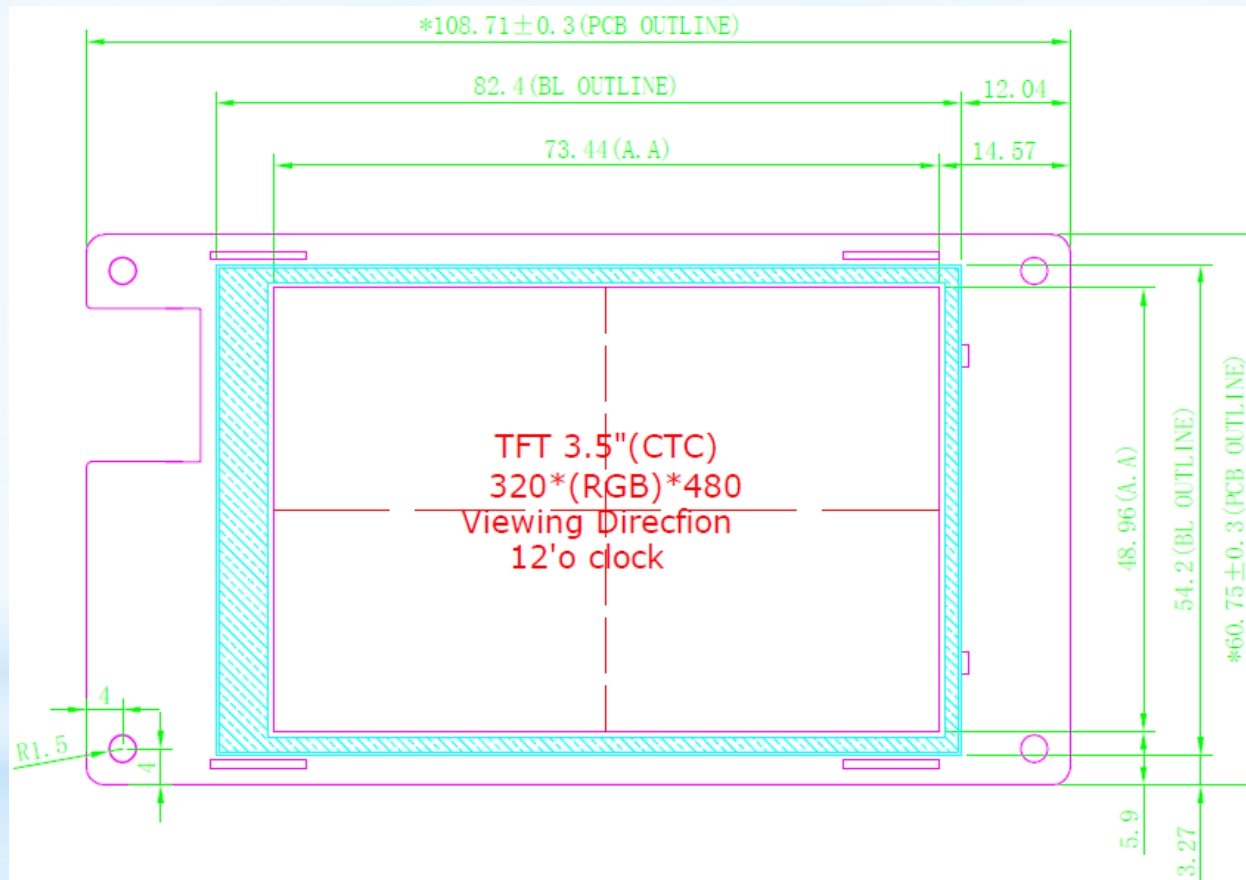
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- * Before using the serial port screen, the graphic integrated compiler and the graphic UI editor two upper computer software to set up and display the TFT serial port
- * During the development of the software, the pictures, text, animation and other information used will be generated into a Bin file, and the Bin file will be burned into the SPI Flash through the SPI Flash burner, and then through the USB to Uart (RS232) control line pair Industrial serial screen for simulation.





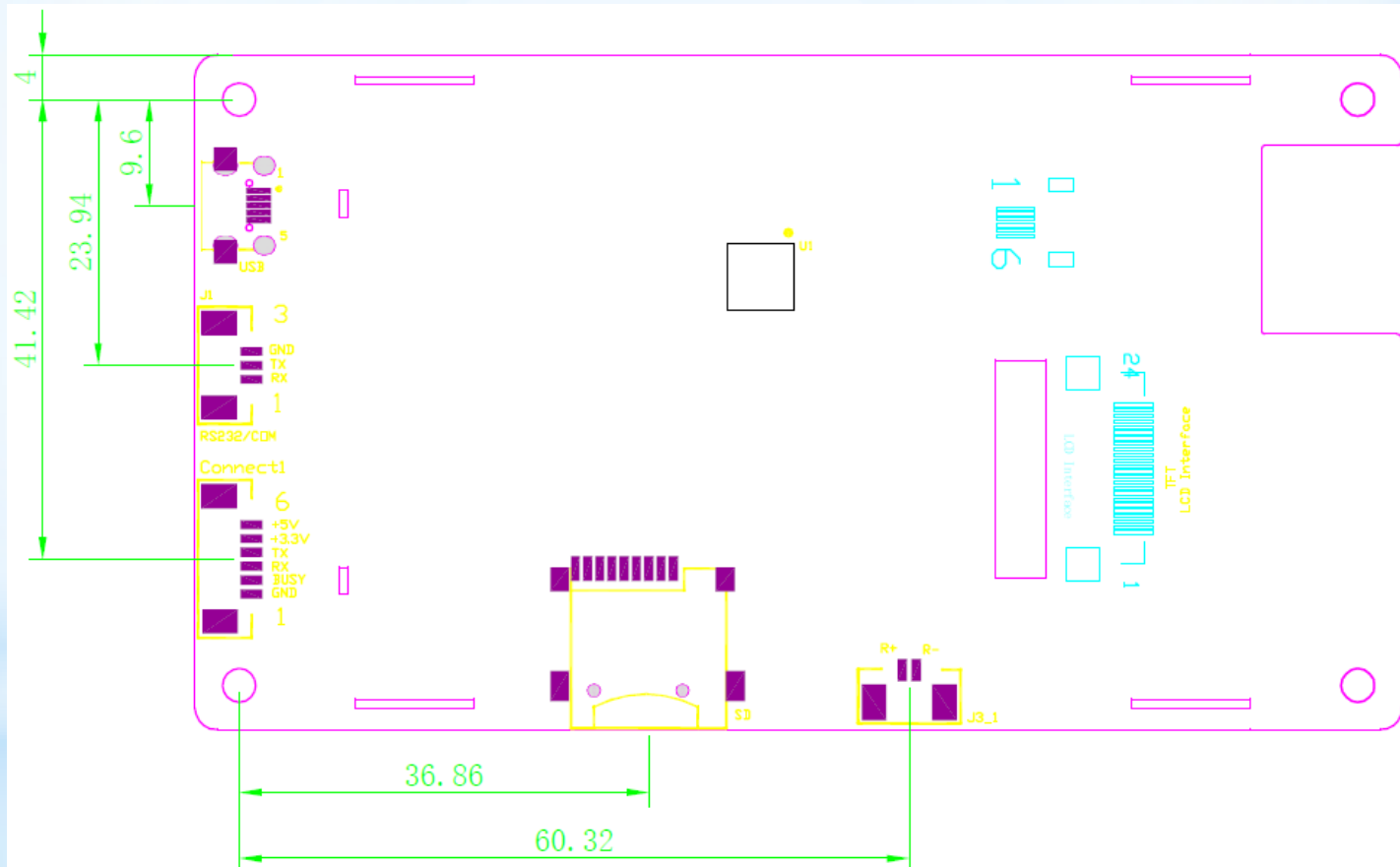
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*Outline Dimensions



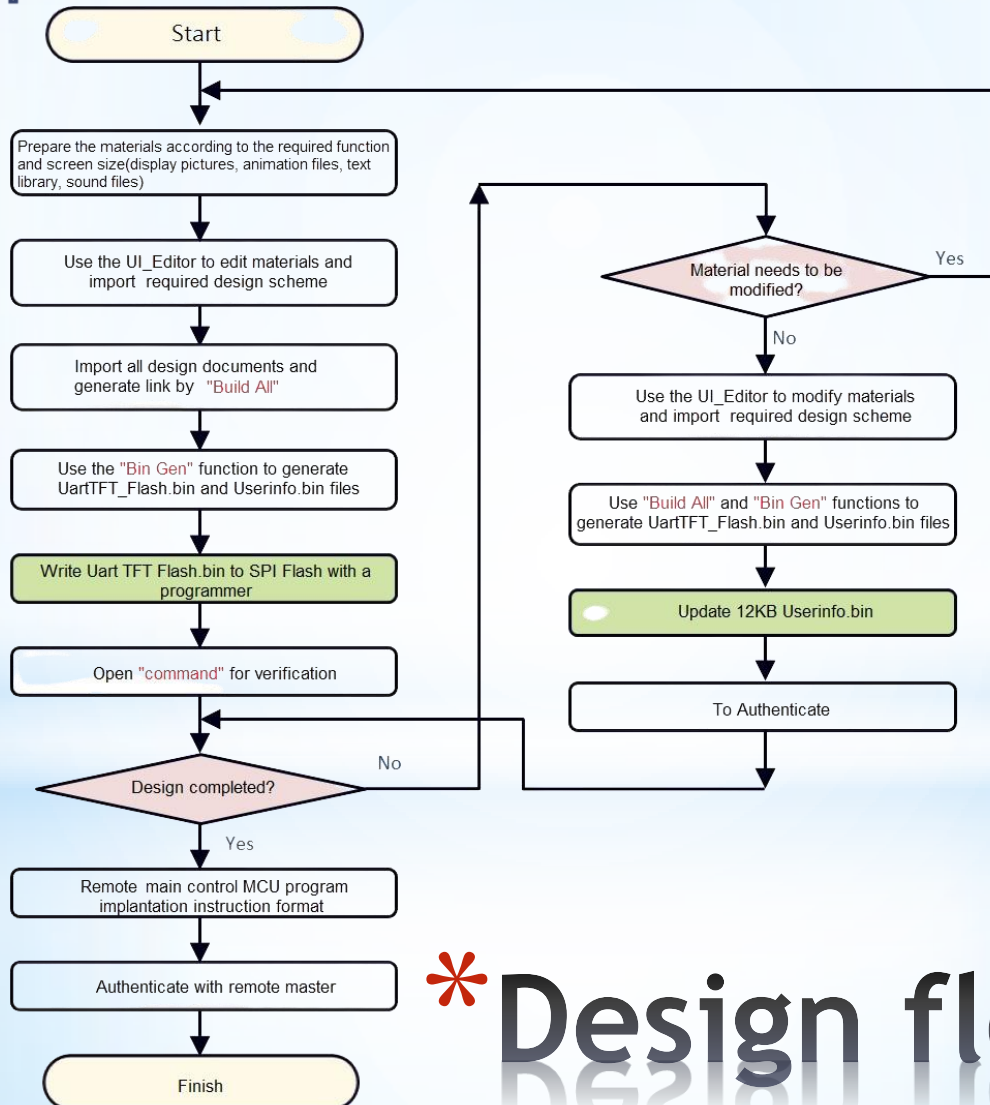
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* Outline Dimensions



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* Design flow using