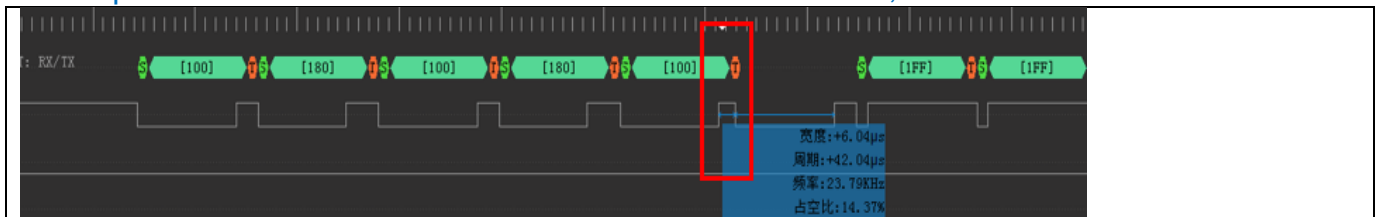


USART data reception error due to narrowed stop bit

Questions:

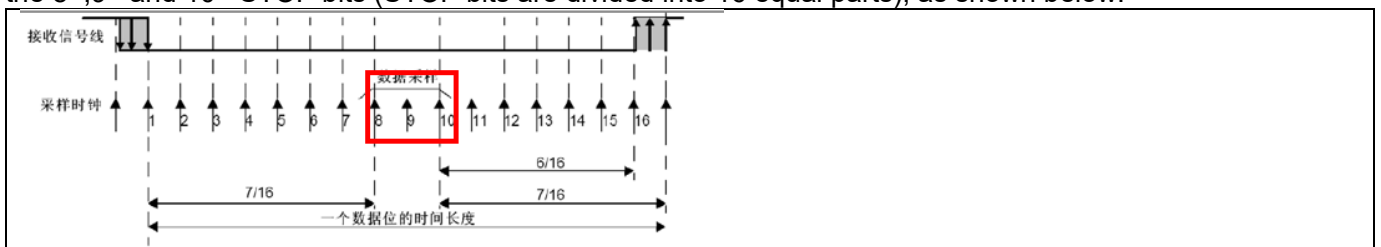
The stop bit sent from other module to MCU is narrowed down, as shown below:



In this case, the received data on USART will be 100,180,100,180,100,1FF,1FF..... (one data is missed: 100), indicating data reception error.

Answer:

The reason for this is that the USART judges whether the received stop bit is correct or not by sampling data on the 8th, 9th and 10th STOP bits (STOP bits are divided into 16 equal parts), as shown below:



Without considering extreme restrictions such as USART frame error or noise error, AT32 MCU is able to receive the start bit of the next frame on the 11th stop bit. So if the stop bit is narrowed, the next data will be lost.

Solution:

Adjust the USART baud rate to its allowable maximum level so that AT32 MCU can determine the start bit of frame as soon as possible, or eliminate the problem from the transmit side.

Type: MCU applications

Applicable products: All AT32 MCUs

Main function: USART

Minor function: None

Document revision history

Date	Revision	Changes
2022.2.16	2.0.0	Initial release

IMPORTANT NOTICE – PLEASE READ CAREFULLY

Purchasers are solely responsible for the selection and use of ARTERY's products and services, and ARTERY assumes no liability whatsoever relating to the choice, selection or use of the ARTERY products and services described herein.

No license, express or implied, to any intellectual property rights is granted under this document. If any part of this document deals with any third party products or services, it shall not be deemed a license grant by ARTERY for the use of such third party products or services, or any intellectual property contained therein, or considered as a warranty regarding the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

Unless otherwise specified in ARTERY's terms and conditions of sale, ARTERY provides no warranties, express or implied, regarding the use and/or sale of ARTERY products, including but not limited to any implied warranties of merchantability, fitness for a particular purpose (and their equivalents under the laws of any jurisdiction), or infringement of any patent, copyright or other intellectual property right.

Purchasers hereby agrees that ARTERY's products are not designed or authorized for use in: (A) any application with special requirements of safety such as life support and active implantable device, or system with functional safety requirements; (B) any air craft application; (C) any automotive application or environment; (D) any space application or environment, and/or (E) any weapon application. Purchasers' unauthorized use of them in the aforementioned applications, even if with a written notice, is solely at purchasers' risk, and is solely responsible for meeting all legal and regulatory requirement in such use.

Resale of ARTERY products with provisions different from the statements and/or technical features stated in this document shall immediately void any warranty grant by ARTERY for ARTERY products or services described herein and shall not create or expand in any manner whatsoever, any liability of ARTERY.

© 2022 Artery Technology -All rights reserved