Product Types:
Toshiba Microcontrollers TX03 and TX04 series
TMPM330  TMPM333  TMPM341  TMPM365  TMPM366  TMPM367  
TMPM368  TMPM369  TMPM36B  TMPM370  TMPM372  TMPM376  
TMPM380  TMPM384  TMPM395  TMPM367  TMPM440  

Restrictions on use of the TRST pin

This is to inform you of restrictions on use of the TRST pin. If you need any further information, please contact your local Toshiba sales representative.

1. Description

In JTAG debug mode, when four pins (TDI, TDO, TMS, and TCK) are connected to the JTAG tool, if the TRST pin is used for other functions including general-purpose port, debugging cannot be performed using JTAG connection.

*JTAG debug mode: A mode in which JTAG pins (TDI, TDO, TMS, TCK, and TRST) are used.
*There is no restrictions on use of serial-wire debug mode (SWCLK, SWDIO) regarding this problem.

2. Conditions

This problem occurs when the TRST pin is used as a shared pin including general-purpose port when four pins are used in JTAG debug mode. Other factors do not cause this problem.

3. Restrictions (Workarounds)

This problem can be avoided by the following two methods:

1) In JTAG debug mode, five pins (TDI, TDO, TMS, TCK, and TRST) should be used as the debug pins.
2) In JTAG debug mode, when four pins (TDI, TDO, TMS, and TCK) of the above five pins are connected to the JTAG tool, these four pins should be set as the debug pins. At this time, do not change the port function setting by program, and all five pins including the TRST pin should be used as the debug pins.

The TRST pin should be set to OPEN or High. (Refer to the figure below.)

![Connection Diagram](image)