How to do LPDDR4 DQ Swapping in S32G

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Problem Background

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1. Customer report ddr initialization failed issue when running ATF in their board;
2. Suggested them to do LPDDR4 Firmware_Init_Test but still failed;
3. They used “MT53E1G32D2FW-046”, the LPDDR4 parameter is the same as “MT53D1024M32D4DT-046” in RDB3;
4. Customer just changed “DQ Swapping” in their board;

How to change DQ swapping

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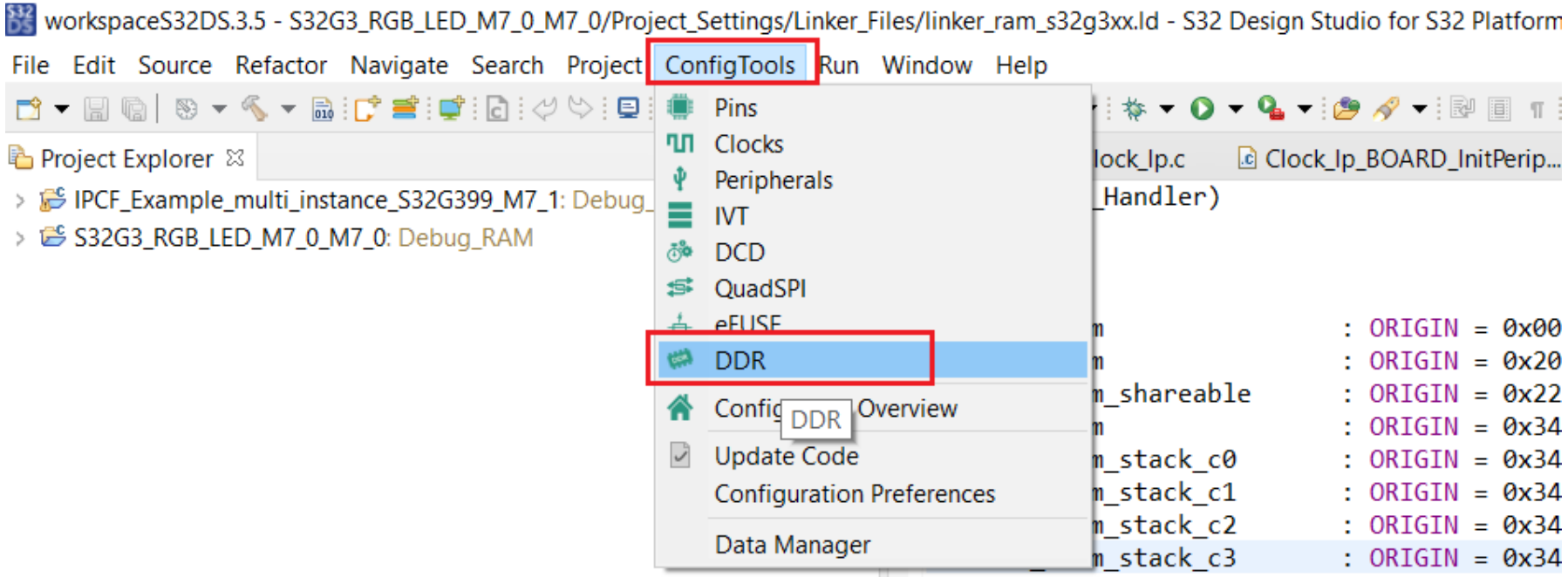
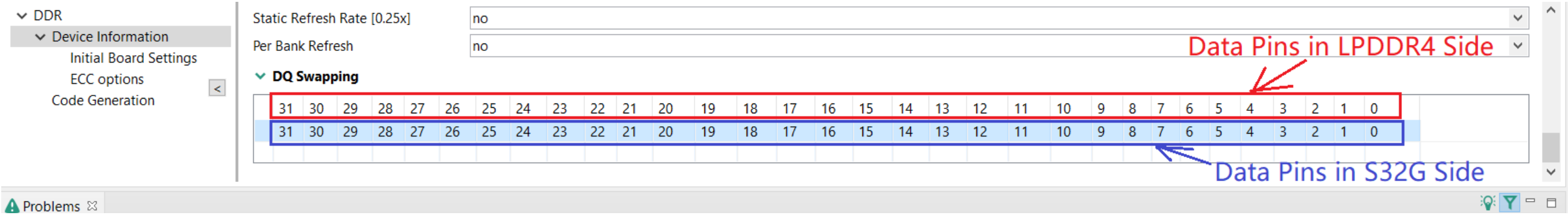
You should create new S32G S32DS project firstly, then you can open DDR tool as following:

For example: if you just install “S32DS.3.5.exe”, you should install “SW32G_S32DS_3.5_D2207.zip ” and “SW32_RTD_4.4_3.0.4_DS_updatesite_D2207.zip”, then create new S32G project firstly.



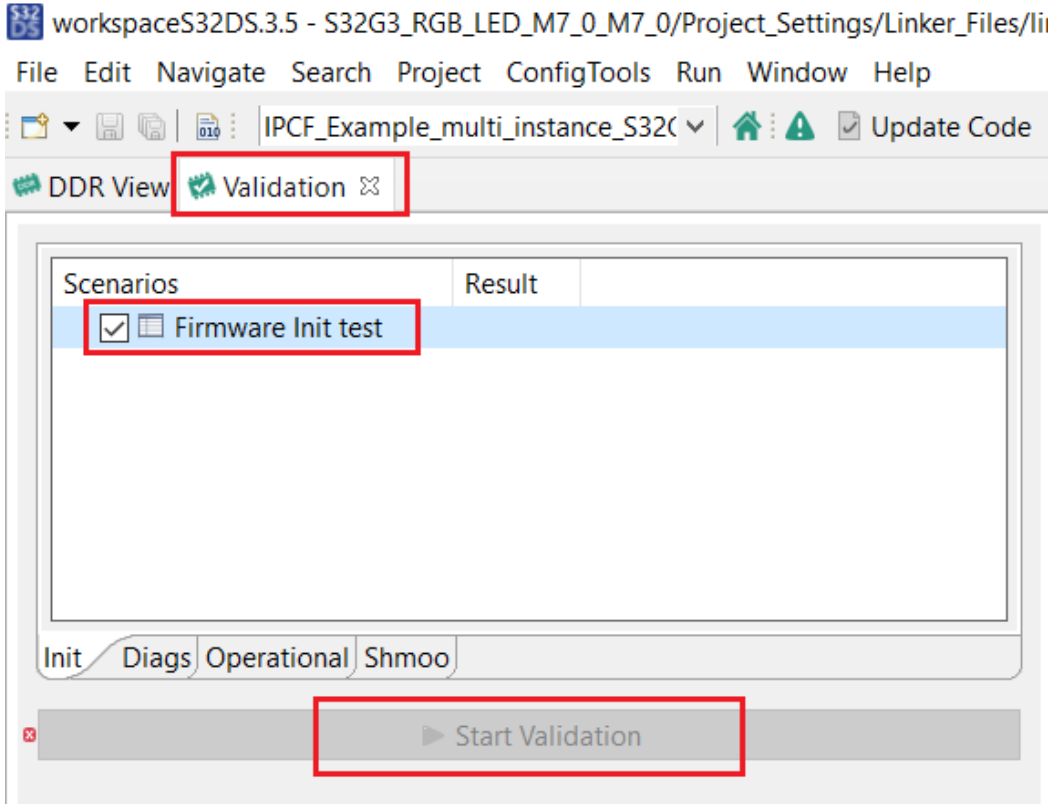
How to change DQ swapping

You can change DQ Swapping sequence as following, please caution that: the fixed upper line means Data Pins in LPDDR4 side, you can just change Data Pins sequence in S32G Side:



How to change DQ swapping

You can do LPDDR4 Firmware_Init_Test, this is basic test, you should confirm this test can be passed in your board, otherwise you should check your “S32G + LPDDR4” related hardware based on hardware design guide:

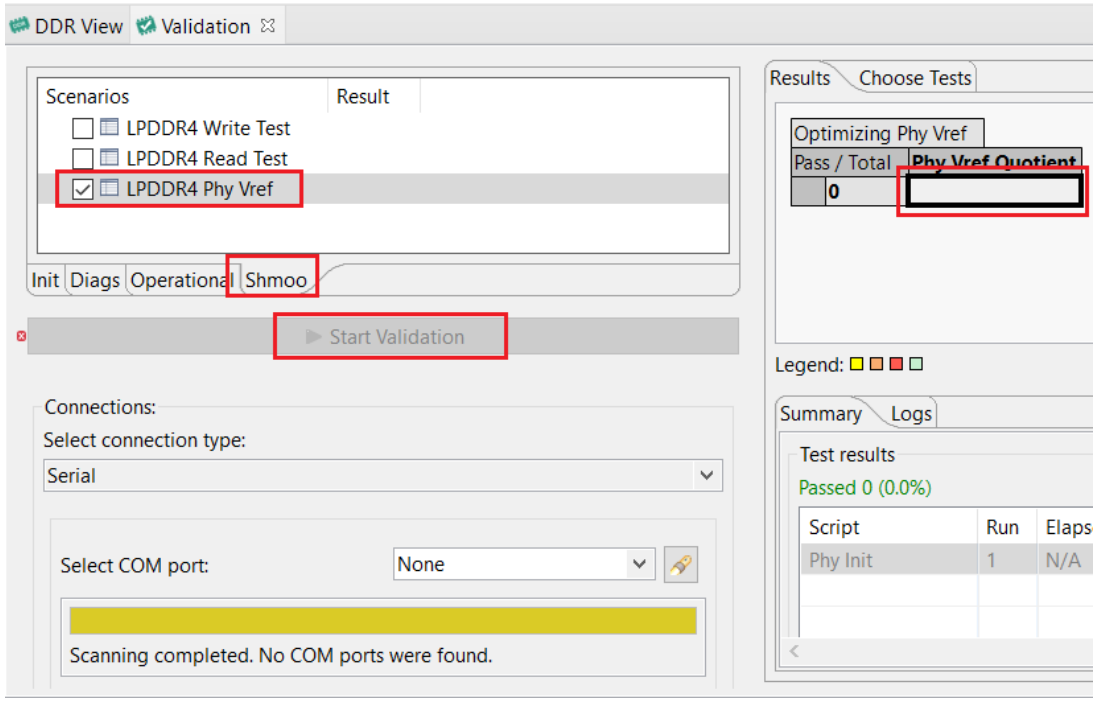


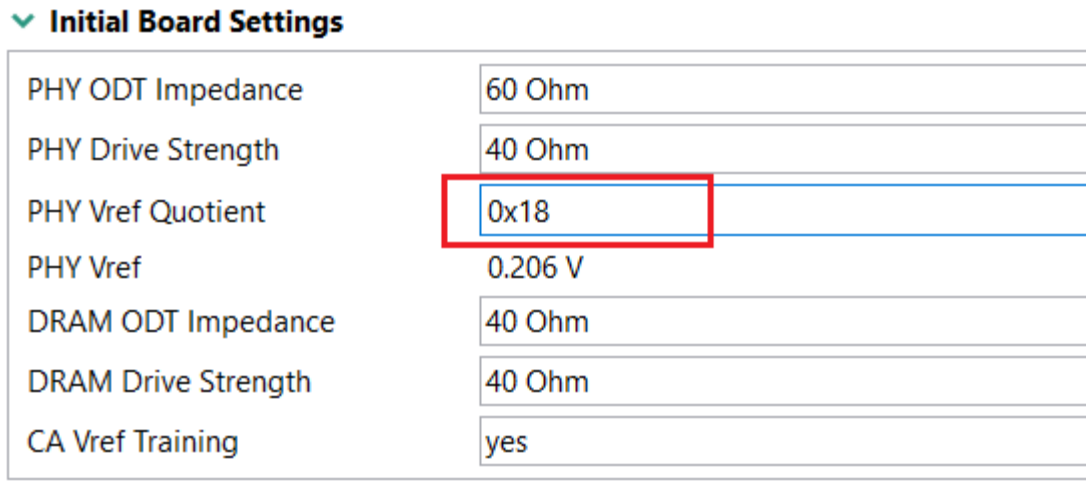
How to change DQ swapping

If you encounter LPDDR4 Firmware_Init_Test failed issue:

1). You should double confirm “DDR View configuration” firstly;

2). You can do “phy vref shmoo” and replace the phy quotient default value with the shmoo test result;

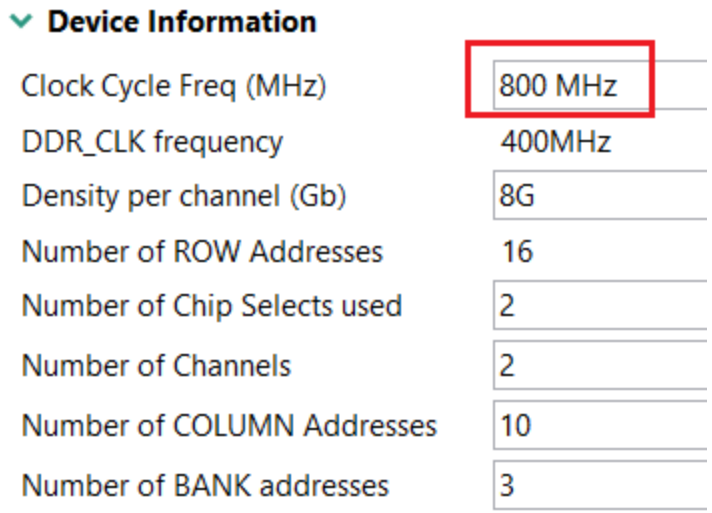




How to change DQ swapping

If you encounter LPDDR4 Firmware_Init_Test failed issue:

3). You can try to lower LPDDR4 Clock Cycle Freq to 800MHz, default is 1600MHz;

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