

MSP-FET (v2.06)

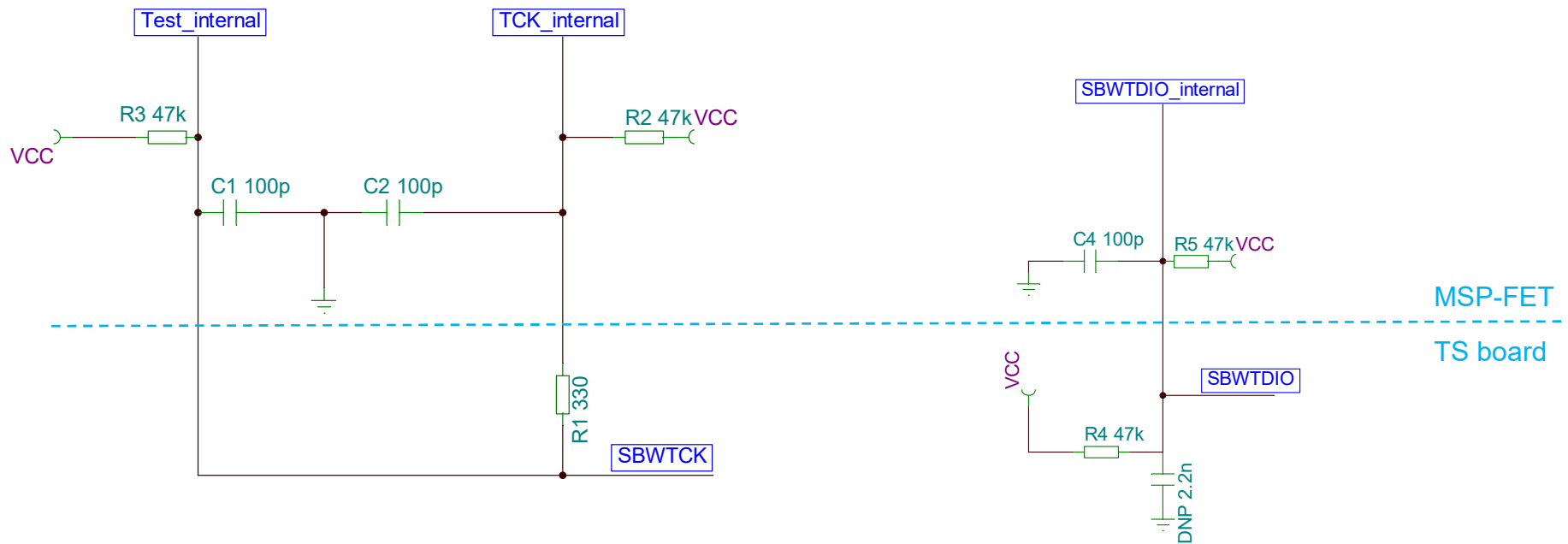
Potential SPY-Bi-Wire issues

What is the issue

- New MSP-FET (v2.06) does not work in SBW mode with TS430-RHA40A (MSP430FR5739)
- Old MPS-FET (v1.2) is not affected, does work in JTAG and SBW mode

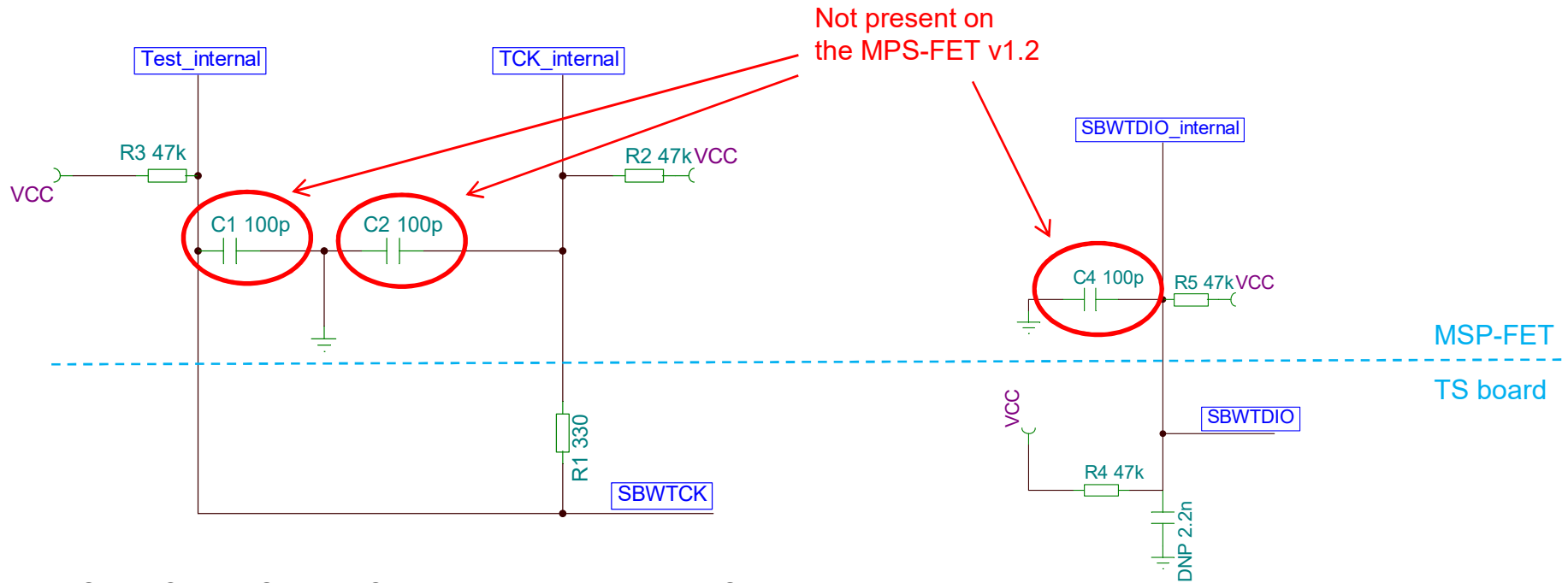


Technical analysis



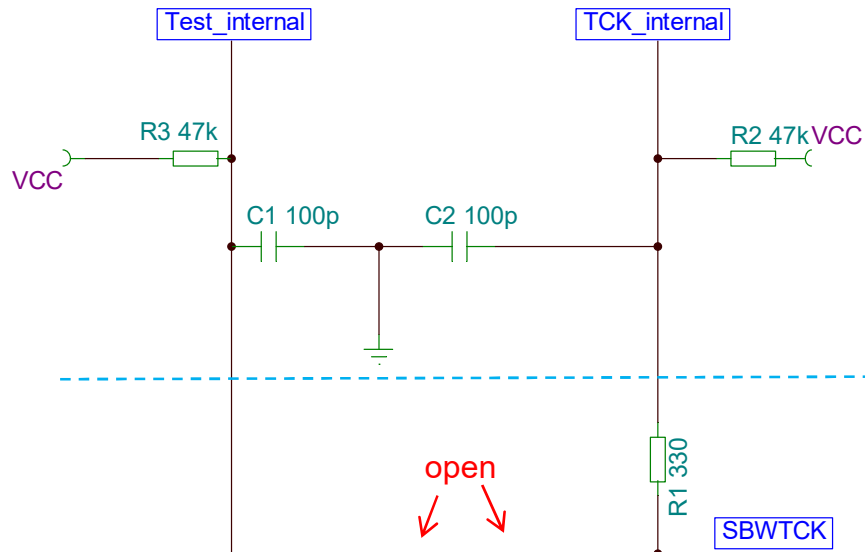
- SBWTCK has a larger capacity (C1+C2) than SBWTDIO (C4) with MSP-FETv2.06
- This leads to different timing behavior for the two signals
- The signals are not synchronized in time

Technical analysis



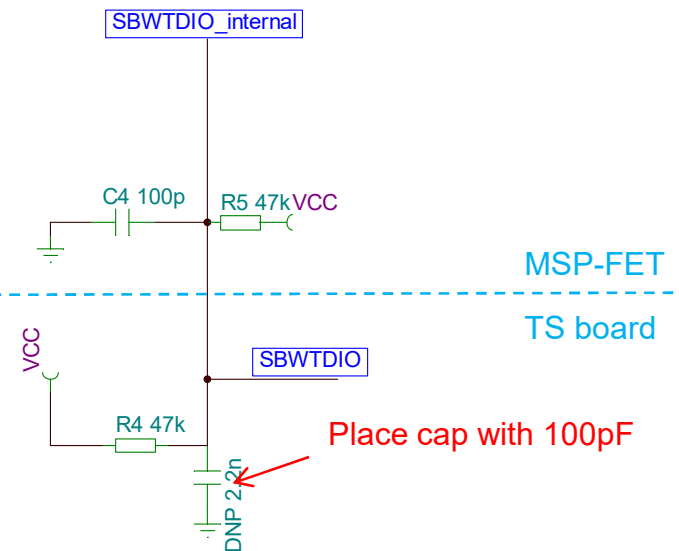
- SBWTCK and SBWTDIO have same capacity with MSP-FETv1.2
- Results in same timing behavior → signals are synchronized

Possible technical solutions



- If shortcut between TEST and TCK/SBWTCK is removed
 - SBWTCK and SBWTDIO have same capacity
 - SBWTCK and SBWTDIO are in sync
- Board redesign or special "SBW cable" that does not connect to MSP-FET's TEST pin

OR



- Add 100pF next to SBWTDIO to make capacity for both signals equal