LCD interferes with SPI RAM communications

I wonder if you can assist me with a problem I'm having with the 23LC1024 RAM in the Micromite LCD BackPack V3 (August 2019; **siliconchip.com.au/Article/11764**). Using the BackPack without the LCD connected, the RAM chip works fine with your sample RAM testing program. It faithfully reads from RAM the numbers written to it.

But when I connect the LCD, the numbers read do not match the numbers written. I modified the test program to include the lines PIN(6) = 1 and PIN(7) = 1 to ensure the SPI lines were not being affected by the LCD. I also modified the test program to simply output the numbers 0 to 10 to the RAM and then read them back. The results below show the errors in the resulting reads.

```
WRITE: 0 1 2 3 4 5 6 7 8 9 10
READ : 0 0 3 3 6 6 7 7 12 12 15
```

I feel that somehow the LCD is still affecting the SPI lines. Can you suggest anything else that I might try? (J. H., Nathan, Qld)

● We ran the same tests you did, and agree that it appears that some screens do cause occasional interference with the MISO data line back to the Micromite, even with their touch controller's CS pin held high (which, of course, they shouldn't do).

We were able to fix the issue by cutting the trace between pin 14 on IC1 and the LCD header and soldering a 220Ω resistor in its place. We also tried a 1kΩ resistor, but this value was too high to allow the touch controller to communicate correctly. After adding that resistor, the tests all ran successfully with or without the LCD screen plugged in.