

專業主題

FA and signal quality analysis for Server Hardware Engineering

1. FA (Failure analysis) job
2. Low speed bus signal measurement
3. Rework for R&D



內容摘要

I belong to Product Development Division 1 under the Server Business Unit II. In technology support team, we are responsible for backing up EE design tasks, including signal measurement, signal quality verification, analyzing failure project PCBA as return from customer (HP), and reworking for Hardware Engineer. Figure 1 shows the power signal measurement situation.

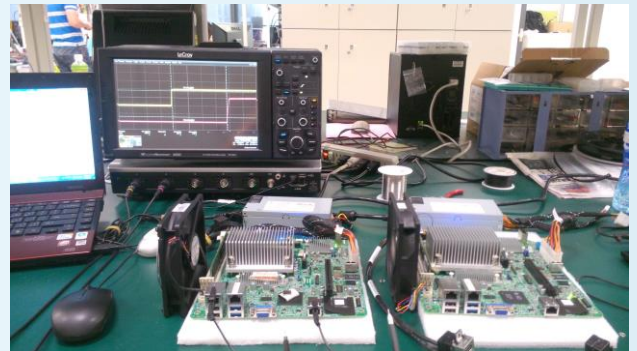


Fig. 1 The power signal measurement

Failure analysis

FA is a job diagnosing failure PCBA return from customer. We learn problem analysis as well as FA writing, and we need to bring this failed unit back for EE validation. Some information about these jobs is shown in Figs. 2 to 4 and Table 1. (Fig. 2 & Fig. 3 and Fig. 4 & Table 1 show two different kinds of tasks.)



Fig. 2 The failure main board

Failure Details and Description:
To respect customer information in order to duplicate the failure on a stand-alone device in the lab, Important: Please provide schematics of the circuit along with measurement results & wave forms separately by email. According to test result of ETD program's (Our customer's Diag program) Serial port test item. The error is Transmitted data isn't equal to Received data with Serial port loopback.
First, we checked the IC supply power is correct (3.295V Pin 26) and measure Transmit Line (TXD) & Receive Line (RXD).
We found out the TXD_1 signal (Pin10) hasn't output, but source side from UART controller has TXD1 signal (Pin 14). (as attached pictures).
Try to changed another chip to fix it, the test result is pass.
Another: the test result is still fail when we exchanged the NG chip to good MB.

Fig. 3 Failure details and description

Table 1 The comparison between the signals of two main boards

M/B	Failure board	Good board
Measure at	CON_TXD&CON_RXD	CON_TXD&CON_RXD
Signal		

實習成果

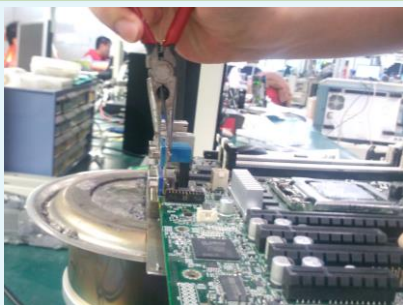


Fig. 4 Dismount a connector from M/B

Low speed bus signal measurement (Signal Integrity)

In order to verify the signal integrity of the lower speed buses on the cartridge, we list all buses (Ex: I²C & LPC) and relevant parameters, test for all conditions of master/slave. Then, the next procedure is used oscilloscope to capture rise, fall, and timing. Figure 5 shows the I²C-bus signal of project board, including "DATA" and "CLK".



Fig. 5 Decode I²C-bus signal

電子工程

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