

# Investigations of the Effects of the Power Trace and Decoupling Capacitors of High-Speed IC on board-level EMI

Student : Chia-I Liu

Advisor: Dr.Lin-Kun Wu

Degree Program of Electrical Engineering Computer Science

National Chiao Tung University



In this thesis, we use demo board to simulate non-ideal return current paths. There are two key variables in a loop path. One is return current path, the other is the inductance in PCB power trace which voltage fluctuation is induced at high frequency, produces simultaneous switching noise and causes EMI issue. Finally, FFT is used to transfer simultaneous switching noise from time domain to frequency time to inspect far-field EMI spectrum, that is effective to reduce the debug schedule and find the root cause of EMI issue exactly.