In this thesis, the fuzzy theory has been used to control the spindle motor of the CD-ROM. The rotational speed can reach to the target value rapidly and stably. Traditionally, the fuzzy controllers are almost implemented by microprocessor, which has lower operation frequency and results in lower performance of the system when dealing with more complex and high speed system [1]. Therefore, the hardware structure achieved by FPGA had been developed to improve the performance [2-4]. In this thesis, we propose further the ASIC design flow to implement fuzzy controller and expect it to be useful for the "real time system". We design a speed controller and take a spindle motor as the controlled plant. Finally, we use Matlab and Simulink tools to simulate the inference of the controller, and use the hardware description language Verilog to implement hardware architecture.

Keywords: Fuzzy; Spindle Motor; ASIC