CHAPTER 5

CONCLUSION

5.0 Overview

This chapter provide conclusion obtained from the result and discussion. The conclusion included summary, recommendation for future project and commercialization potential.

5.1 Summary

As the conclusion this project had not successfully completed basic on project title, but some of the parts had been completed. Overall the objectives of project had been achieved and scope of study that proposed in the proposal. Mask is very important thing to develop the pattern transfer in fabrication process. Based on that, the project fabrication transistor not successful because quality of mask not very compatible to develop the smaller size. For the future, to design mask must used the highest magnification printer or reticle to develop the smaller size of transistor.

For deposit AiNiAu layer on surface wafer using electroless method must consider size of bond pad, chemical and temperature during the process and most important thickness of aluminium, passivation layer also photoresist layer. Generally surface

roughness is higher from zincation process onward compared to initial steps prior zincation. At the initial steps i.e. cleaning and aluminum bond pad activation, surface roughness is almost similar. However, after the first zincation process, surface roughness increased due to deposition of zinc. At zinc removal process the surface roughness reduced as a result of aluminum layer was etched during the first zincation. However the second zincation improved surface roughness as compared to first zincation. Advantages used electroless nickel is no lithography required, no sputter process, and no solvents required.

5.2 Recommendation for Future Project

Below are several recommendations that can use for future project, first recommendation is to design mask must used the highest magnification printer or reticle to develop the smaller size of transistor. Second recommendation is thickness Aluminium bond pad must be thicker, using sputter evaporated method for depositon aluminium, size bond pad must be consider and lastly parameter process must be controlled such as time and temperature.

5.3 Commercialization Potential

Chip packaging is use to provide physical protection for the IC chip, provide a barrier layer against chemical impurities, and also to provide reliability the device. The implementation of an electroless nickel and immersion gold process has a series of beneficial consequences creates a wire bondable surface, creates a barrier layer between the interconnect materials and I/O pad, protects the I/O metal from corrosion and oxidation. Advantages used electroless nickel is no lithography required, no sputter process, and no solvents required. Indeed, this technology can be extended beyond just IC's, this process can be used to create solderable surfaces on fine pitch copper based substrates as well. This technology was driven by electronic product such as communication products, notebook computers, and automotive electronics that are getting smaller, lower cost and with extra functionality.