

## ABSTRACT

VLSI (Very Large Scale Integration) technology is very useful for microprocessor chip developers, one example is for multimedia microprocessor developers, especially in making Special Purposes Processor like audio processing processor. Audio processing in various processors, for example audio mixing process. Special Purposes audio processing is equipped with capability to mix audio can be one of DSP (Digital Signal Processor). DSP is a processor developed to process signals, such as audio signals. This processor will also be equipped with a special component mixer, in order to be mix 2 audio signals that have been set by the main component, the CU (Control Unit). The control unit here will give control signal to the mixer component.

In this Final Project, we design and simulate a VLSI (Very Large Scale Integration) layout for control unit components that are useful for managing datapath by sending control signals, especially mixer components, and mixer components in order to mix 2 different audio. The designed layout starts from the gate layout, is the base gate, until it becomes a control unit layout and mixer layout.

With the use of technology layout that is 300nm technology will be generated die size of each component made, with unit size  $\text{mm}^2$ . Clock frequency required for multimedia processor is from the interval 44.1 KHz up to 625MHz maximum frequency.

*Keyword: VLSI, microprocessor, Control Unit, Special Purposes Processor, Mixer, Clock, Die Size*