

ABSTRACT

Guitar multi effect is a device for guitar instrument which makes the characteristic of guitar' sound more varies. A Guitar multi effect also called a set of guitar effects that chained, so it is more efficient and cheapest than single guitar effect.

Digital Signal Processing (DSP) Processor is a kind of processor which processing digital signal like audio signal in real-time using appropriate program. Using DSP Processor will make design and implementation of Guitar multi effect more easy and cheapest than analog circuit guitar effect.

The target of this final project is to implementing Guitar Multi Effect on DSP Processor. The sound from guitar becomes input signal to the system. Then this input signal will be converted to digital signal by AIC then will be processed by DSP Processor. In DSP Processor, this signal will be processed using more algorithms of guitar effect in appropriate order. Then the output signal will be converted again to analog signal which can heard.

The kind of DSP processor and guitar effect algorithm makes quality and characteristic of Guitar multi effect different. Implementation of Guitar multi effect is using TMS320VC33 which can be found on DSP Starter Kit (DSK). Parameters which have been measured and analyzed are time processing and quality of output sound.

Implementation using TMS320VC33 has been successful. From measurement's result, total signal latency is 893 μ s. Maximum instructions for processing a pair of sample is 2048 instructions for 36.6 kHz sampling rate. From implementation's result, number of optimum instructions is 749 instructions and the usages of memory are 1963 for words internal RAM and 54000 words for external RAM.