XMOS

AN02004: Biquad Quantization Noise in Fixed Point DSP (README)

IN THIS DOCUMENT

vendor
> XMOS

version
> 1.0.0

scope
> Example

description
> This note describes quantization noise and how it can effect biquads in particular

category
> Audio

keywords
> BSP, biquad

hardware
> None

1 Overview

The difference between the ideal mathematical value and the actual value as processed in fixed-point arithmetic is known as *quantization noise*. There are many factors that can influence the level of the quantization noise, some of which that affect biquad filters are discussed below. This note focuses on Biquad filters as they have a feedback component in them that can amplify the noise.

2 Key Features

▶ Description of a biquad

▶ Desciption of fixed point number formats and relation to *quantization noise*

▶ Description of the quantization employed by the *xcore.ai* Vector Processing Unit (VPU)

3 Known Issues

▶ None

4   Required Tools

▶ None

5   Required Libraries (Dependencies)

▶ None

6   Related Notes

▶ None

7   Support

This package is supported by XMOS Ltd. Issues can be raised against the software at:
http://www.xmos.com/support