

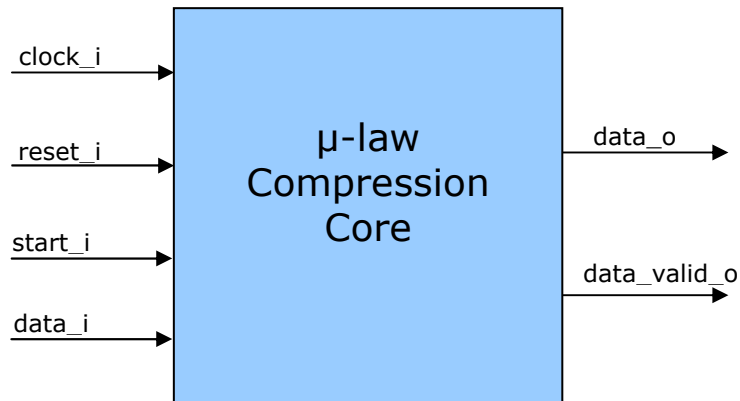
Data sheet for μ -law Speech Compression

Functional Description

The μ -law is speech compression technique, typically used in IP telephony. The μ -law algorithm is a logarithmic data compression technique for audio data and used in digital communication systems. In μ -law system 14-16 bit PCM linear

samples are compress to 8-bits. The compression technique adds bias to the data and preserves five most significant bits for transmitting. Then the bottom 3-bits of the compressed byte are generated using a small look-up table, based on biased value.

Block Diagram



Signal Definition Table:

Signal Name	Width	Direction	Description
clock_i	1	Input	System Clock. All registers are synchronized to rising edge of this signal.
reset_i	1	Input	System Reset.
start_i	1	Input	Signal to start the encoding process when valid input is there on data bus.
data_i	13, 14, 16	Input	Input audio sample data.
data_o	8	Output	Compressed output data.
data_valid_o	1	Output	Output signal goes high with valid compressed data.

Performance:

Device	Slice Count	LUT Count	Frequency
Spartan-3A (xc3s700A)	60	119	209 MHz
Virtex-4(xc4vlx25)	61	121	363 MHz

Verification:

The u-law compression encoder core module has been verified with following approaches:

- Exhaustive Functional/Timing simulation.

Deliverables:

- Verilog RTL source code
- Test benches
- Synthesis and Simulation scripts.
- Detailed user documentation, including RTL source code documentation