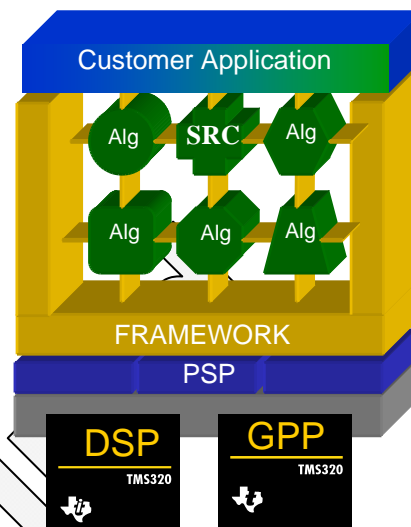- **eXpressDSP™ compliant**
- **Supports sampling frequency conversion from any to any frequency within the standard set (8, 11.025, 16, 22.05, 24, 32, 44.1, 48) KHz**

PRODUCT PREVIEW

description

- Efficient Stereo SRC implementation on a single TMS320C55x DSP

- Supported Sampling Frequencies (KHz): 8, 11.025, 12, 16, 22.05, 24, 32, 44.1, 48

- 16th Order Lagrange Interpolation for upward conversion

- 2nd Order Low pass Elliptic Filter to reduce aliasing

- 16th Order Lagrange Interpolation for downward conversion

- TI eXpressDSP compliant.

- Fully validated on TMS320C5510 EVM using CCS ver 2.2 with the code generation tools version 2.56.

Summary of performance

Table 1. Configuration Table

CONFIGURATION	ID
For Sampling Rate Conversion from 44.1KHz to 48.0KHz	A

Table 2. Cycles Information – Profiled on TMS320C5510 EVM with CCS 2.2/ cgtools 2.56

CONFIGURATION ID	TEST FILE PARAMETERS	PERFORMANCE STATISTICS (IN MEGACYCLES /SEC) [1]	
		AVERAGE	PEAK
A	Sampling Frequency 44.1 KHz	6.852	7.876

Table 3. Memory Statistics - Generated with Code Generation Tools Version 2.56

CONFIGURATION	MEMORY STATISTICS [2]				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL	EXTERNAL	STACK	
A	2.515	2.929	0	0.500	5.944

[2] All memory requirements are expressed in kilobytes (1 kilobyte = 1024 8-bit bytes).

Table 4. Internal Data Memory Split-up

CONFIGURATION	DATA MEMORY – INTERNAL [2]		
	SHARED		INSTANCE [3]
	CONSTANTS	SCRATCH	
A	2.343	0	0.586

[2] All memory requirements are expressed in kilobytes (1 kilobyte = 1024 8-bit bytes)
[3] Does not include I/O buffers

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notes

- I/O Buffers - Input Buffer Size = 64 bytes, Output Buffer Size = 128 bytes.
- Total Data Memory for N *Non-Pre-Emptive* Instances =
    Constants + Runtime Tables + Scratch + N*(Instance + I/O buffers + Stack)
- Total Data Memory for N *Pre-Emptive* Instances =
    Constants + Runtime Tables + N*(Instance + I/O buffers + Stack + Scratch)
- Stack includes stack and sysstack

references

Texas Instruments "SRC reference Manual"

glossary

Constants	Elements that go into .const memory section
Scratch	Memory space that can be reused across different instances of the algorithm
Shared	Sum of Constants and Scratch
Instance	Persistent-memory that contains persistent information - allocated for each instance of the algorithm.

acronyms

SRC   Sample Rate Converter

REVISION HISTORY

Scope: Applicable updates to the Sample Rate Converter on TMS320C55xx EVM have been incorporated.

DATE	VERSION	ADDITIONS/CHANGES/DELETIONS
22ND May 03	V1.0	Initial
28TH May 03	V1.1	Review Comments Incorporated
28TH Jan 04	V1.2	Updated the template

PRODUCT PREVIEW

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