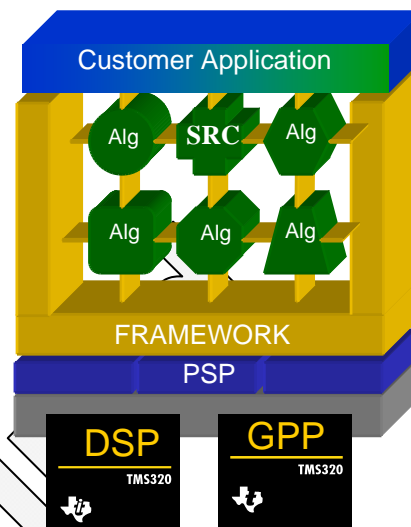




- eXpressDSP™ compliant
- Supports sampling frequency conversion from any to any frequency within the standard set ( 8, 11.025, 16, 22.05, 24, 32, 44.1, 48) KHz



## 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
- 16<sup>th</sup> Order Lagrange Interpolation for upward conversion
- 2<sup>nd</sup> Order Low pass Elliptic Filter to reduce aliasing
- 16<sup>th</sup> 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.

PRODUCT PREVIEW



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## 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) <sup>1</sup>	
		AVERAGE	PEAK
A	Sampling Frequency 44.1 KHz	6.352	7.876

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

CONFIGURATION	MEMORY STATISTICS <sup>2</sup>				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL	EXTERNAL	STACK	
A	2.515	2.929	0	0.500	5.944

<sup>2</sup> All memory requirements are expressed in kilobytes (1 kilobyte = 1024 8-bit bytes).

**Table 4. Internal Data Memory Split-up**

CONFIGURATION	DATA MEMORY – INTERNAL <sup>2</sup>		
	SHARED		INSTANCE <sup>3</sup>
	CONSTANTS	SCRATCH	
A	2.343	0	0.586

<sup>2</sup> All memory requirements are expressed in kilobytes (1 kilobyte = 1024 8-bit bytes)

<sup>3</sup> Does not include I/O buffers



## 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
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## REVISION HISTORY

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

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

PRODUCT PREVIEW

NDA Required

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