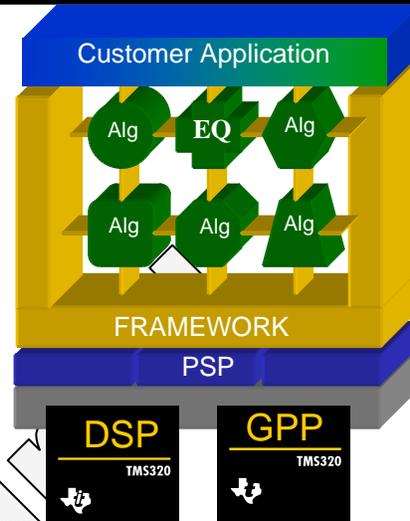




- EQ for TI c55x DSP family
- eXpressDSP™ compliant



description

- Supports N bands of Equalization
- Gain adjustable from -15dB to $+15\text{dB}$ in 1 dB steps
- Distortion free flat spectrum at 0 dB gain
- No unpleasant audible artifacts during gain changes
- 16-bit mono PCM input and output audio data
- Center frequencies and bandwidths are configurable off – line
- Implemented by 2nd order IIR sections in cascade.
- Fully validated on TMS320C55xx EVM using CCS version 2.2 with the code generation tools version 2.56

PRODUCT PREVIEW



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

PRODUCT PREVIEW information concerns products in the formative or design phase of development. Characteristic data and other specifications are design goals. Texas Instruments reserves the right to change or discontinue these products without notice.



Copyright © 2004, Texas Instruments Incorporated

REL_TII_EQ_02_30_00_000



Summary of performance

Table 1. Configuration Table

CONFIGURATION	ID
N=5 (dB Gain: 6,6,6,6,6)	EQ_001

Table 2. Cycles Information – Profiled on TMS320C55xx EVM with CCS 2.2/ cgtools 2.56

CONFIGURATION ID	TEST FILE PARAMETERS	PERFORMANCE STATISTICS (IN MEGACYCLES /SEC) ¹	
		AVERAGE	PEAK
EQ_001	Oops_44khz.pcm	7.637	7.849

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

CONFIGURATION	MEMORY STATISTICS ²				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL	EXTERNAL	STACK	
EQ_001	1.15	.344	0	0.58	2.074

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	
EQ_001	.219	0	0.125

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

³ Does not include I/O buffers

PRODUCT PREVIEW



notes

- I/O Buffers - Input Buffer Size = 128 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 “EQ user manual” Version 1.4

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

EQ	Equalizer
----	-----------

NDA Required

PRODUCT PREVIEW



REVISION HISTORY

Scope: Applicable updates to the Equalizer on TMS320C55xx EVM have been incorporated.

DATE	VERSION	ADDITIONS/CHANGES/DELETIONS
23 rd DEC 03	1.0	Data sheet modified according to new template.
29 th JAN 04	1.1	Data sheet modified according to new template.

PRODUCT PREVIEW

NDA Required

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Copyright © 2004 Texas Instruments Incorporated. All rights reserved.

Information in this document is subject to change without notice. Texas Instruments may have pending patent applications, trademarks, copyrights, or other intellectual property rights covering matter in this document. The furnishing of this documents is given for usage with Texas Instruments products only and does not give you any license to the intellectual property that might be contained within this document. Texas Instruments makes no implied or expressed warranties in this document and is not responsible for the products based from this document. This information applies to a product under development. Its characteristics and specifications are subject to change without notice. Texas Instruments assumes no obligation regarding future manufacturing unless otherwise agreed to in writing.