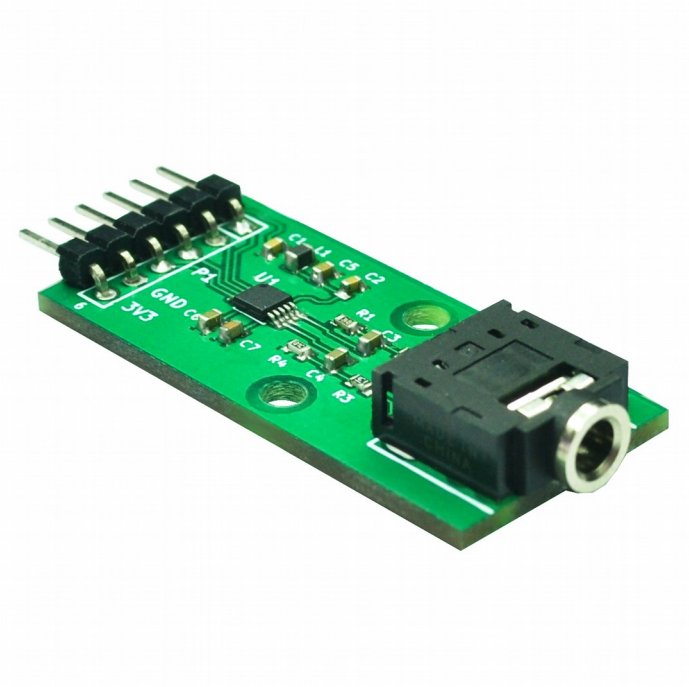

CS4344 AUDIO Expansion Module
User Guide

NUMATO LAB

www.numato.com

Rev 9

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* Mail orders, phone orders and direct pick up are not available at this time. Please visit our online store to place your order. Estimated shipping time to your address will be displayed in the shopping cart before checkout.

Introduction

This module features CS4344, a 24-Bit, 192 kHz Stereo D/A Converter which enables producing high quality stereo audio from a digital source. It supports all major audio data interface formats. This module is designed to be used with Numato Lab's FPGA/Micro-controller boards featuring a 2x6 pin Expansion connector. It can also be used with other boards and connector types by using manual wiring.

Applications

- Product prototyping
- Gaming consoles
- Audio playback devices

Board features

- Fourth-order Multi-bit Delta-Sigma Modulator with a linear analog low-pass filter
- Automatically Detects Sample Rates up to 192 kHz
- 24-bit Conversion
- 105 dB Dynamic Range
- Dimension: 41mm X 19mm

How to use the module

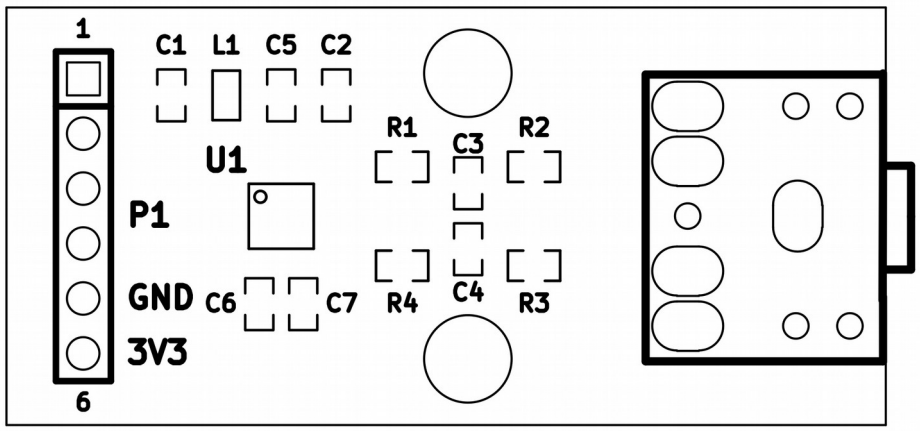
The following section describes how to use this module.

Components/Tools required

Along with the module, you may need the items in the list below for easy and fast installation.

1. Any FPGA board featuring a 2x6 pin Expansion connector (Manual wiring may be needed if using with boards that does not have 2x6 expansion connector)
2. DC Power supply (Optional).

Connection Diagram



This diagram should be used as a reference only. For detailed information, see the schematics at the end of this document. Details of individual connectors are as below.

To use this module, directly attach the 1x6 male header on the expansion module to the upper or lower row of a 2x6 expansion connector on FPGA/Micro-controller development board. If 2x6 female headers are not available, manually make the connections as per the connection details below.

Connection Details

Header P3

Header Pin No.	Pin Details
1	SDIN
2	SCLK
3	LRCK
4	MCLK
5	GND
6	VCC3V3

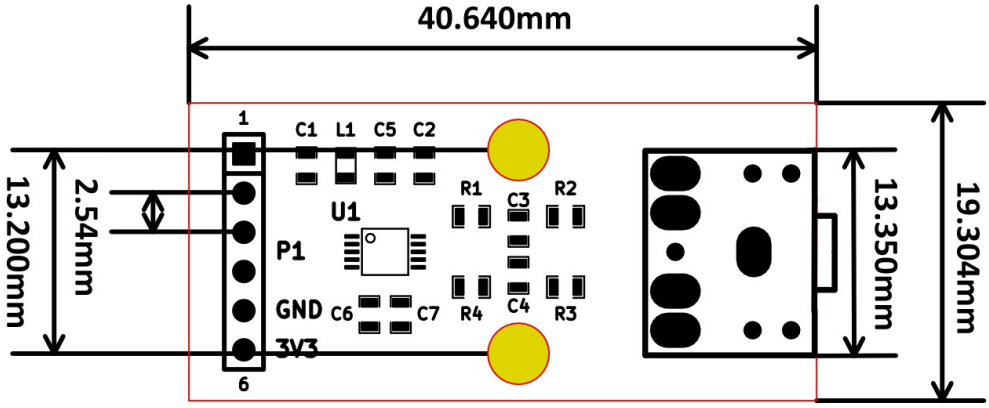
For more information, refer the schematics below.

Technical Specifications

Parameter *	Value	Unit
Basic Specifications		
Conversion resolution	24	Bits
Max Sample rate	192	KHz
Dynamic Range	105	dB
DC Power Supply	3.3	V
Digital Input Voltage	-0.3 – DC Power +0.4	V

* All parameters considered nominal. Numato Systems Pvt Ltd reserve the right to modify products without notice.

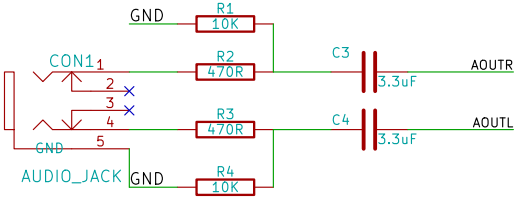
Physical Dimensions

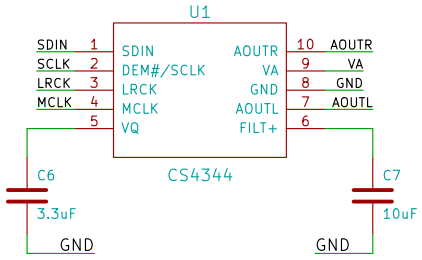


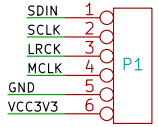
L x W x H : 40.640 mm x 19.304 mm x 7 mm
Mechanical Hole Diameter : 3.04 mm

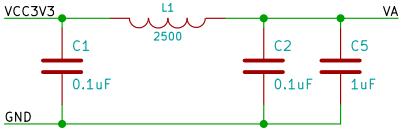
Schematics

See next page.









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File: AudioExpasionModule.sch Sheet: /		
Title: CS4344 Audio Expasion Module		
Size: A4	*Date: 17 mar 2014*	*Rev:*
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