conga-HDA Adapter for conga-CEVAL

Short description of congatec's High Definition Audio adapter

Short Description

Revision 1.0

Revision History

Revision	Date (dd.mm.yy)	Author	Changes
1.0	09.10.07	GDA	Official release

Preface

This short description provides the schematics and information about the BIOS settings, software driver, and how to connect the conga-HDA to conga-CEVAL.

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This short description is intended for technically qualified personnel. It is not intended for general audiences.

Symbols

The following symbols are used in this user's guide:

Warning

Warnings indicate conditions that, if not observed, can cause personal injury.

Caution

Cautions warn the user about how to prevent damage to hardware or loss of data.

Note

Notes call attention to important information that should be observed.

Terminology

Term	Description
HDA	High Definition Audio
conga-HDA	High Definition Audio Prototype adapter designed for conga-CEVAL evaluation carrier board
S/PDIF	Sony/Philips Digital Interconnect Format
Codec	A device or program capable of performing transformations on a data stream or signal.
BIOS	BIOS: Basic Input Output System. BIOS is actually firmware, the software that is programmed into a ROM (Read-Only Memory) chip built onto the motherboard of a computer

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Contents

1 Introduction

This short description describes how to use the conga-HDA adapter card in conjunction with the conga-CEVAL. The conga-CEVAL evaluation baseboard includes a HDA header (connector X49) that provides the ability to connect HDA solutions. When using this connector the onboard codec on the conga-CEVAL will be switched off and the connected solution can be utilized.

congatec has developed a HDA evaluation sound board called the conga-HDA that features the VIA VT1708 HDA codec. The conga-HDA is an add-on card and has been designed for use together with the conga-CEVAL COM Express™ evaluation baseboard. It can be used either for prototyping, demonstration purposes or for debugging issues. It may also serve as a reference schematic for the implementation of a HDA solution on customer specific carrier boards.

Note

Information about what type of audio interface is supported on the COM Express™ module can be found in the corresponding COM Express™ module's user's guide. On COM Express™ modules that support the AC'97 Digital Interface only, it is not possible to use HDA codecs. The High Definition Audio architecture is completely different than the AC'97 architecture and therefore is not backwards compatible. Some COM Express™ modules support both the AC'97 and HDA Interface. In these cases the CPU module's 'BIOS Setup Program' offers a setup entry to choose which interface should be utilized. Only audio codecs that match this setting will work properly. AC'97 and High Definition Audio codecs cannot be mixed on the same link or behind the same controller.

2 Using the conga-HDA Adapter Card

2.1 How to connect the conga-HDA

Connect the conga-HDA adapter card to the HDA header (connector X49) on the congatec COM Express™ evaluation carrier board using the same orientation as shown in Photos 1 and 2. A detailed pinout table of connector X49 can be found in the user's guide of the conga-CEVAL evaluation carrier board.

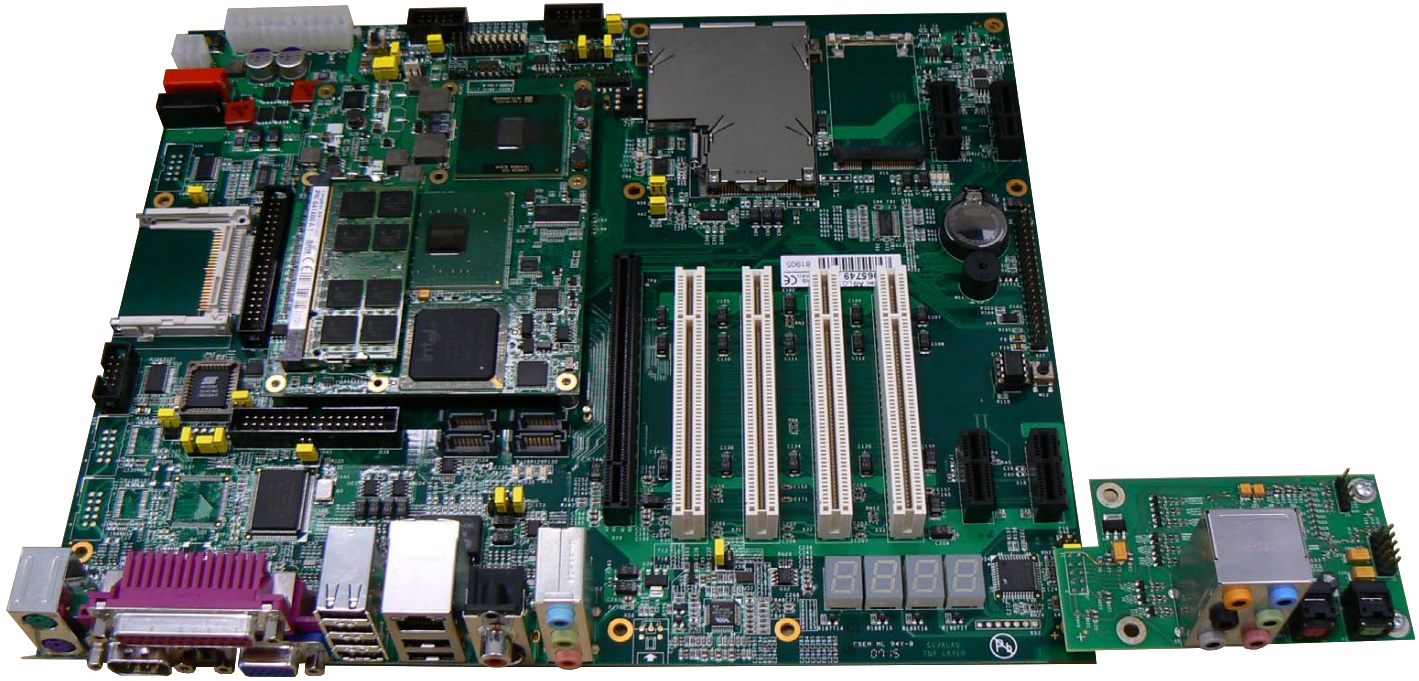


Photo 1: Front view of conga-CEVAL with connected conga-HDA adapter card.

Caution

The conga-HDA will be damaged if it is not connected exactly as shown in Photo 1 and 2.

The conga-CEVAL and conga-HDA are electrostatic sensitive devices and are packaged accordingly. Do not open or handle any of these products except at an electrostatic-free workstation. Be aware that failure to comply with these guidelines will void the congatec AG Limited Warranty.

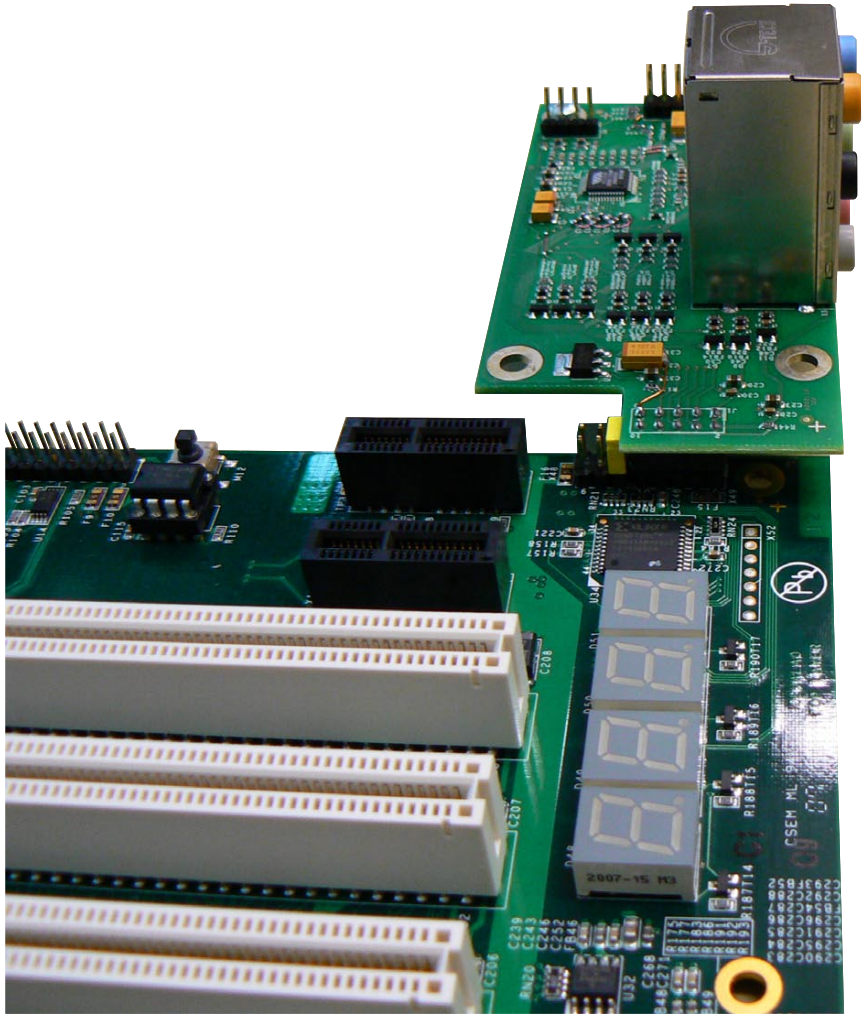


Photo 2: Side view of conga-HDA adapter card connected to conga-CEVAL.

Caution

The conga-HDA will be damaged if it is not connected exactly as shown in Photo 1 and 2.

The conga-CEVAL and conga-HDA are electrostatic sensitive devices and are packaged accordingly. Do not open or handle any of these products except at an electrostatic-free workstation. Be aware that failure to comply with these guidelines will void the congatec AG Limited Warranty.

2.2 Necessary BIOS Settings

Some congatec CPU modules support both the AC'97 and the HDA Interface. In these cases the CPU module's 'BIOS Setup Program' offers a setup entry to choose which interface should be utilized. See Photo 3.

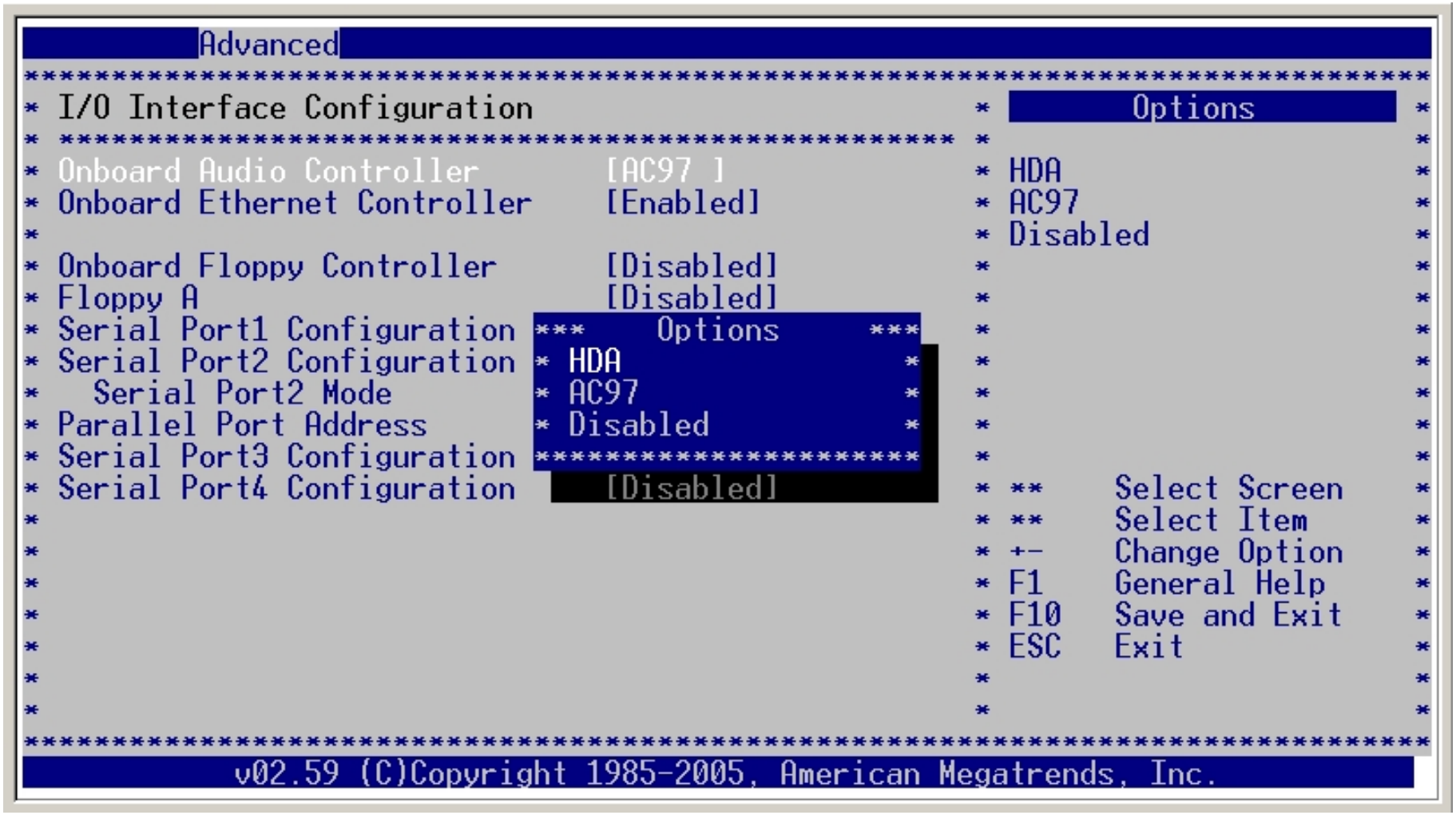


Photo 3: BIOS Setup Program setup node.

2.3 Software Installation

When using the conga-HDA in conjunction with the conga-CEVAL evaluation carrier board, it's necessary to use the following driver:

- VIA HDA Audio Driver called HDA_V330c.zip

Note

The name of the above mentioned driver is current as of October, 2007. The name may change slightly in future as a result of driver updates.

The driver can be found in the driver directory of the conga-CEVAL evaluation carrier board on the congatec website at http://www.congatec.com.

To install the VIA VT1708 HDA audio driver, unzip the driver into a designated folder and run the 'Setup.exe' and then follow the 'Install Shield Wizard' steps. Once this is done you must restart your system in order for the changes to take affect.

If the driver has been installed correctly then there shouldn't be any exclamation mark in the Windows 'Device Manager' view.

2.4 VIA HD ADeck Software

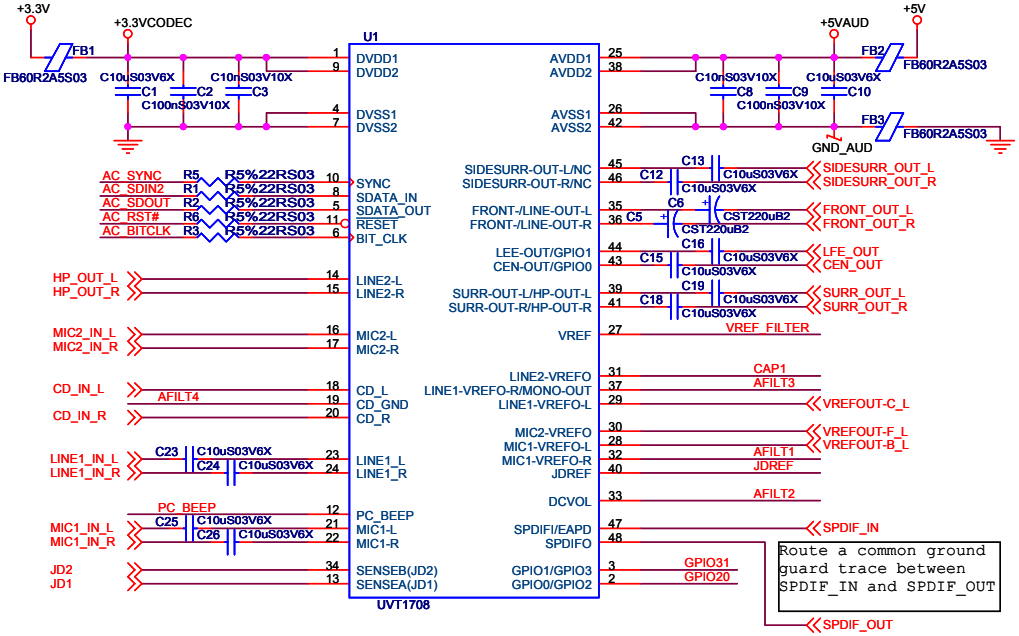
After you have installed the driver correctly and your system has been restarted, an icon called ‘HD ADeck’ will appear on your desktop. Start the ‘HD ADeck’ software by double clicking on the icon. The program window displayed in Photo 4 will open so that the desired settings can be implemented.

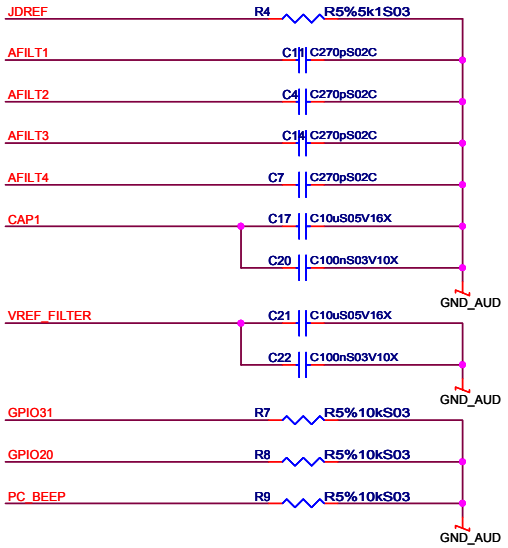
Photo 4: VIA HD ADeck software

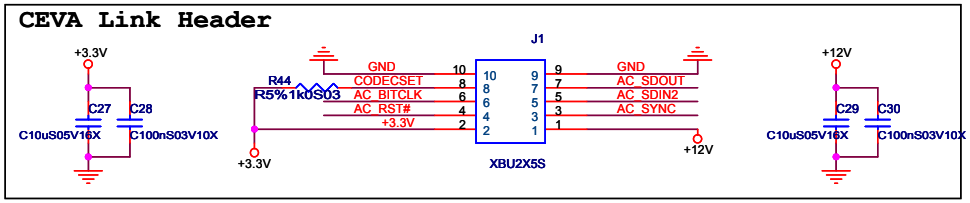
The VIA VT1708 codec used on the conga-HDA only provides a ‘S/PDIF Out’ option, the ‘S/PDIF In’ option is not available in the software that comes with the VT1708 codec. For detailed information about the VIA HD ADeck software refer to VIA’s product manual.

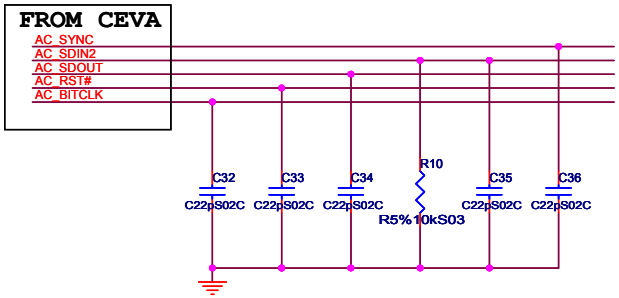
Photo 5: VIA HD ADeck for VT1708 codec

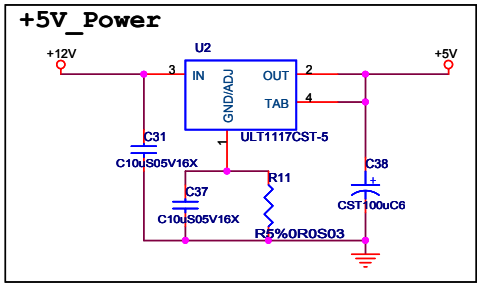
3 conga-HDA Adapter Card Schematics

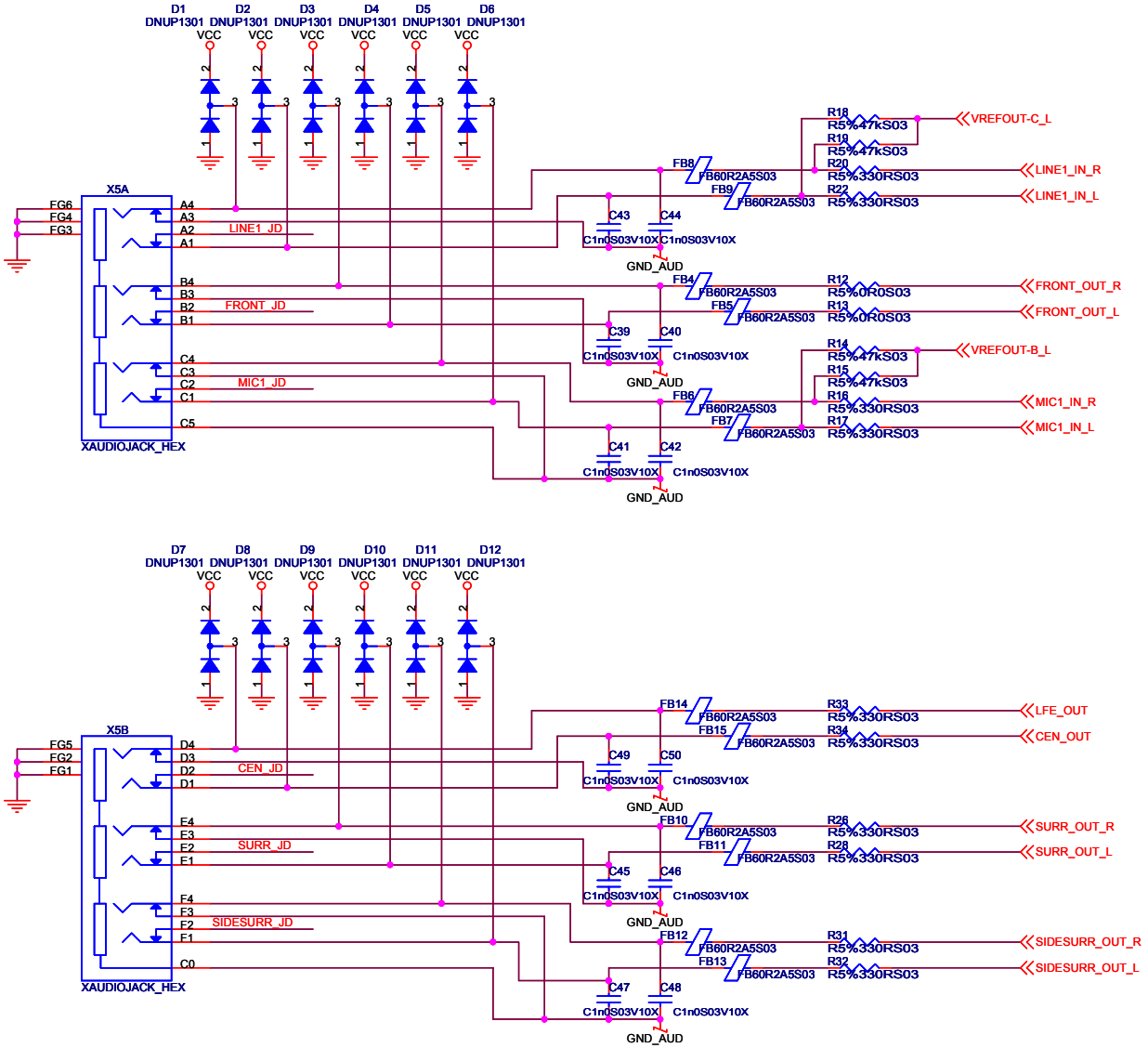








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D3 DNUP1301
D4 DNUP1301
D5 DNUP1301
D6 DNUP1301
VCC
X5A
FG6
FG4
FG3
A4
A3
A2
A1
LINE1_JD
B4
B3
B2
B1
FRONT_JD
C4
C3
C2
C1
MIC1_JD
C5
XAUDIOJACK_HEX
FB8
FB9
FB4
FB5
FB6
FB7
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R13
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R15
R16
R17
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LINE1_IN_L
FRONT_OUT_R
FRONT_OUT_L
VREFOUT-B_L
MIC1_IN_R
MIC1_IN_L
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C44
C39
C40
C41
C42
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D9 DNUP1301
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FG5
FG2
FG1
D4
D3
D2
D1
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E4
E3
E2
E1
SURR_JD
F4
F3
F2
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R28
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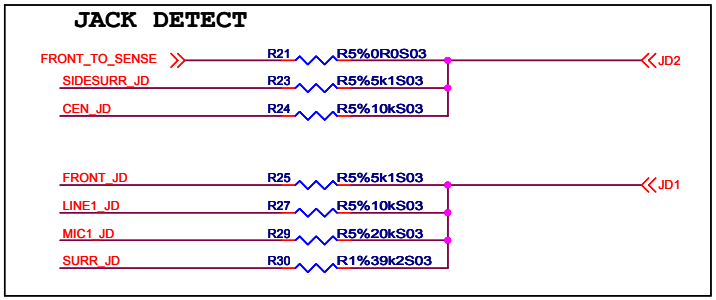
C45
C46
C47
C48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LINE1_JD
MIC1_JD
SURR_JD
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R25
R27
R29
R30
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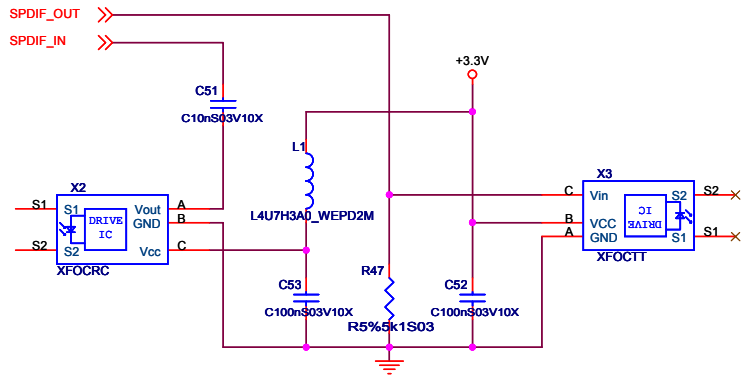
JD2
JD1

S/PDIF



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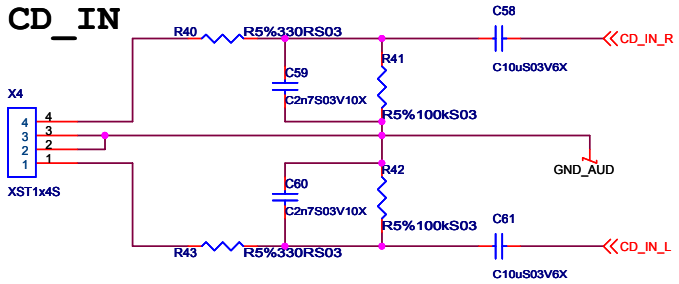

Front-Panel Onboard Header