# NAU88L25 Demo Board User Manual

**The PCB name: NAU88L25 CEVB Ver.B**

**Ordering P/N: NL-NAU88L25**



For additional information or questions, please contact: Nuvoton Technology Corporation.

www.nuvoton.com

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# 1 OVERVIEW

The NAU88L25 is an ultra-low power high performance audio codec designed for smartphone, tablet PC, laptops, and other portable devices that supports both analog and digital audio functions. It includes one I2S/PCM interface, one digital mixer, two high quality DACs, one high quality ADC, one mono differential analog microphone input, two analog single-ended microphone inputs, and one stereo class G headphone amplifier with automatic headset detection. An integrated headset switch allows 3 different types of headsets to be configured, without changing hardware.

## 2 INTRODUCTION

The DEMO_NAU88L25_QFN system is designed to allow a thorough evaluation of the audio codec.

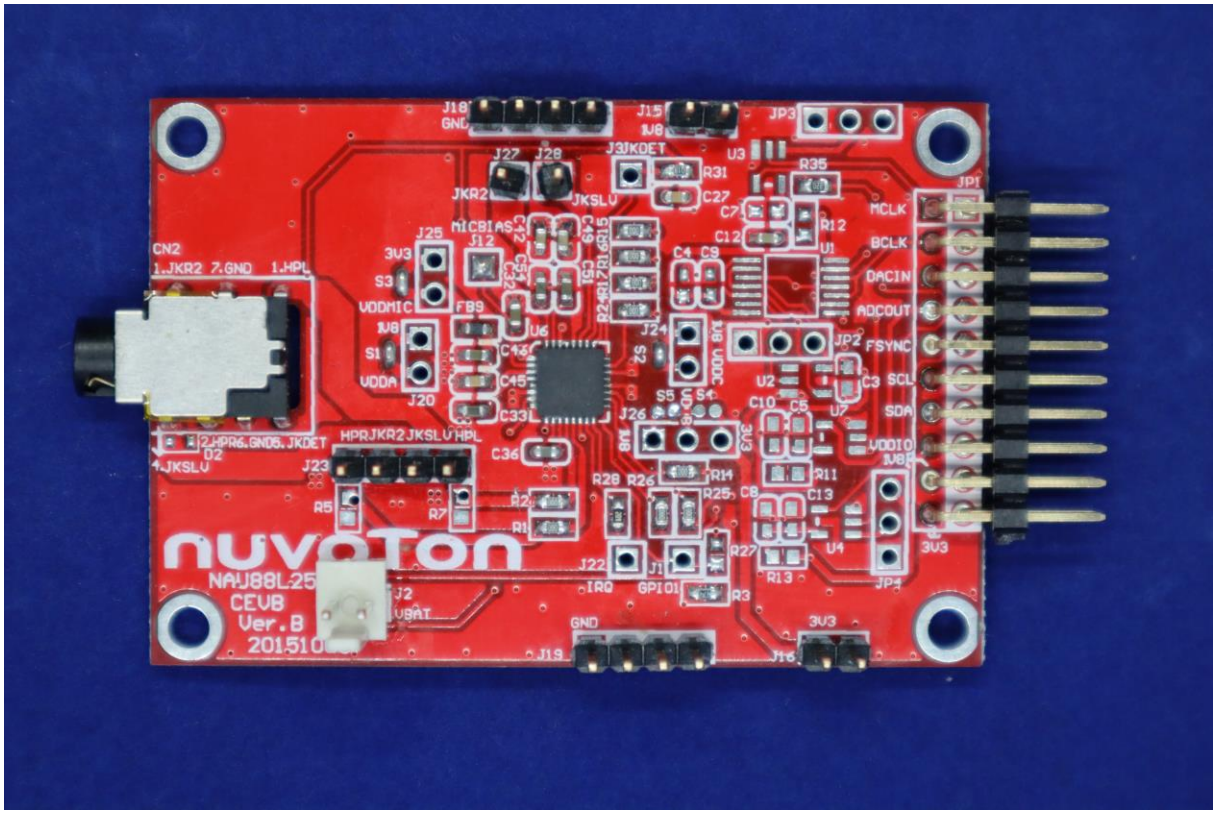



Figure 2-1 NAU88L25 Demo Board

## 2.1 Top View

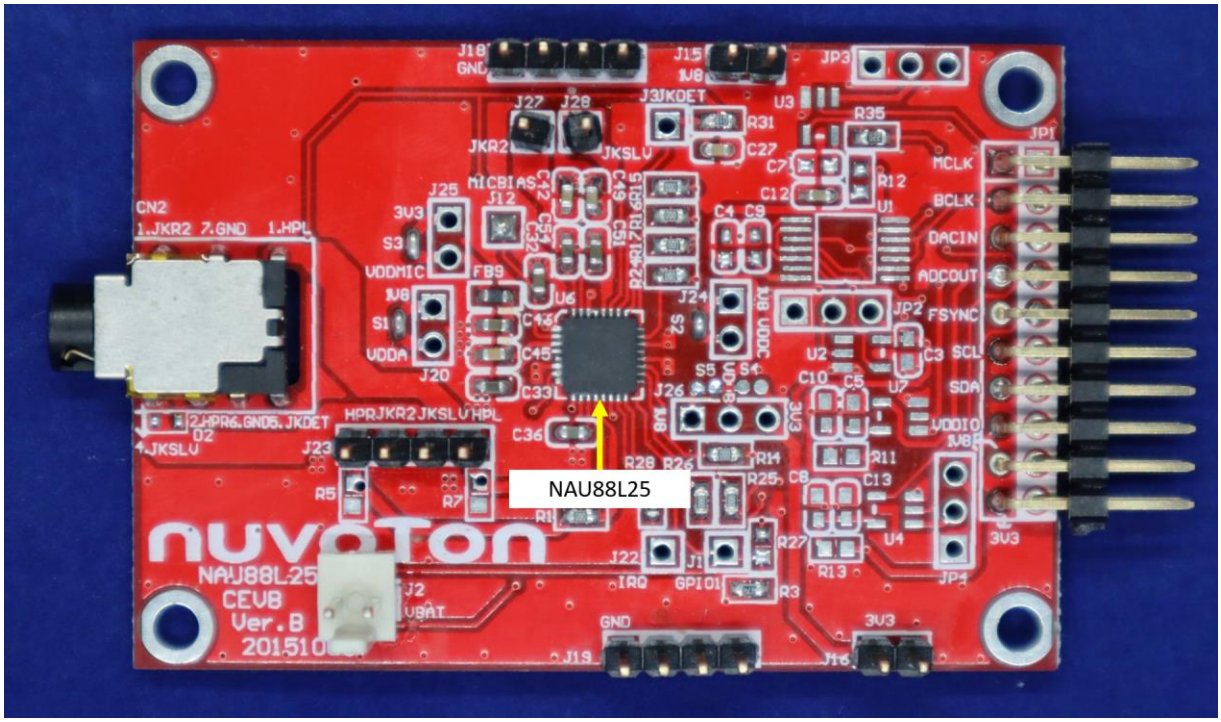



Figure 2.1-1 Top View

| Name | Description |
|---|---|
| NAU88L25 | Audio CODEC |

Table 2.1-1 Main Components

## 2.2 Input / Output

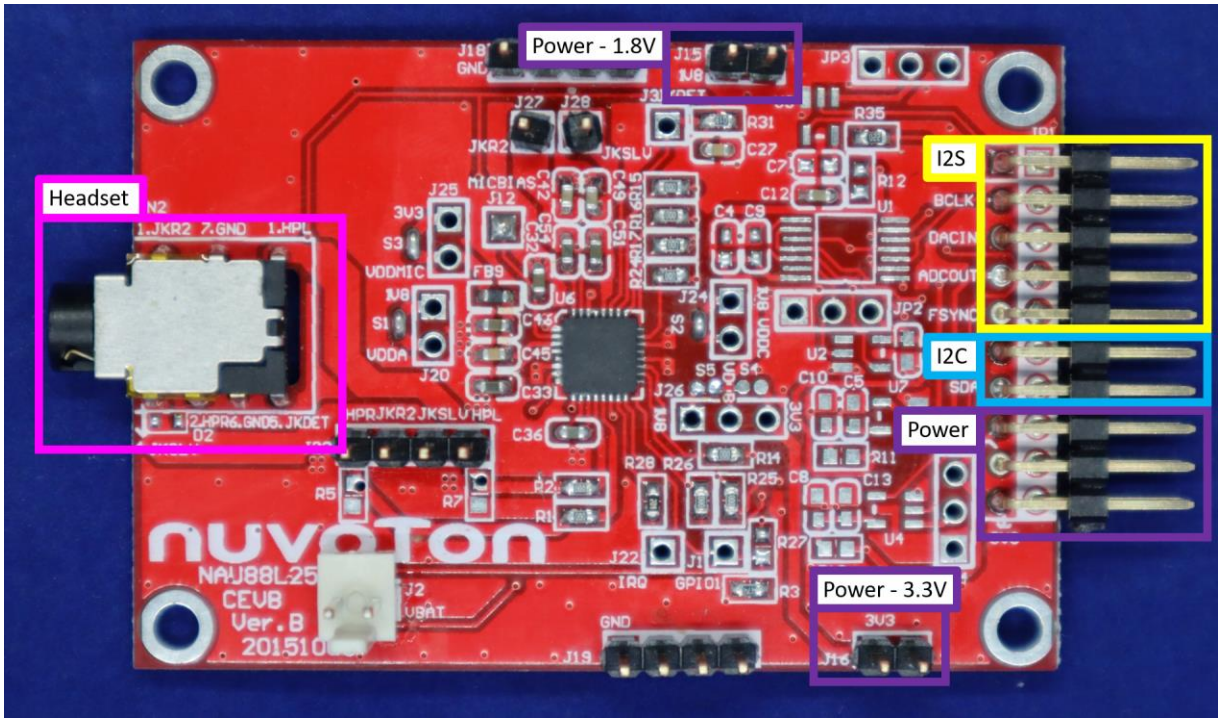



Figure 2.2-1 Input / Output

| Name | Description |
|---|---|
| JP1 | Pin 1 – I2S Interface – MCLK, Master Clock<br>Pin 3 – I2S Interface – BCLK, Bit Clock<br>Pin 5 – I2S Interface – DACIN<br>Pin 7 – I2S Interface – ADCOUT<br>Pin 9 – I2S Interface – FS ,Frame Sync<br>Pin 11 – I2C Interface – SDA<br>Pin 13 – I2C Interface – SCL<br>Pin15 – Power. Provide power to Demo board. – VDDIO<br>Pin 17 – Power. Provide power to Demo board. – VDD1.8<br>Pin 19 – Power. Provide power to Demo board. – VDD3.3 |
| CN2 | Headset connector |
| J15, J16 | Power. These pins can also provide the power to demo board.<br>J17 - J20 or JP1 select one of them. |

Table 2.2-1 Input / Output

## 2.3 Jumpers

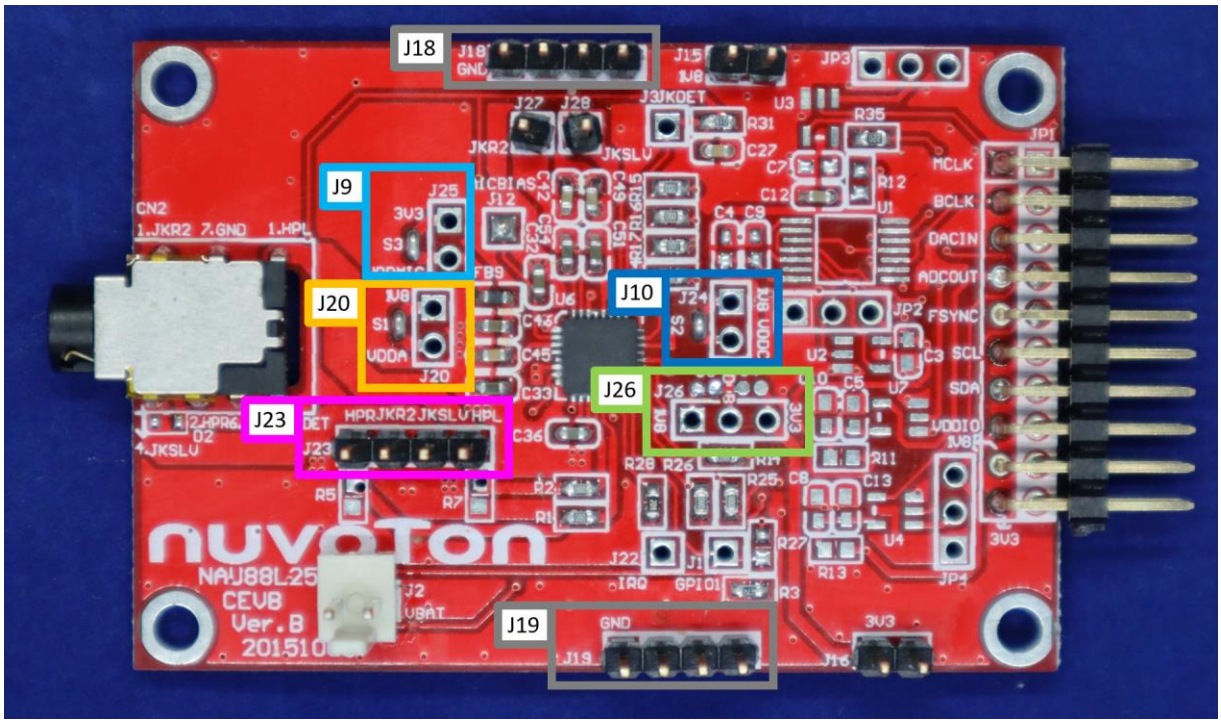
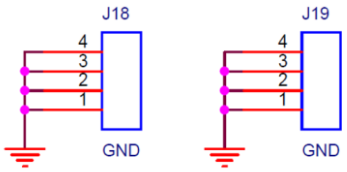
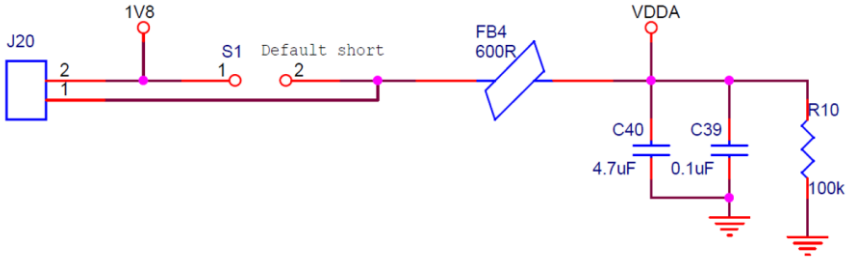


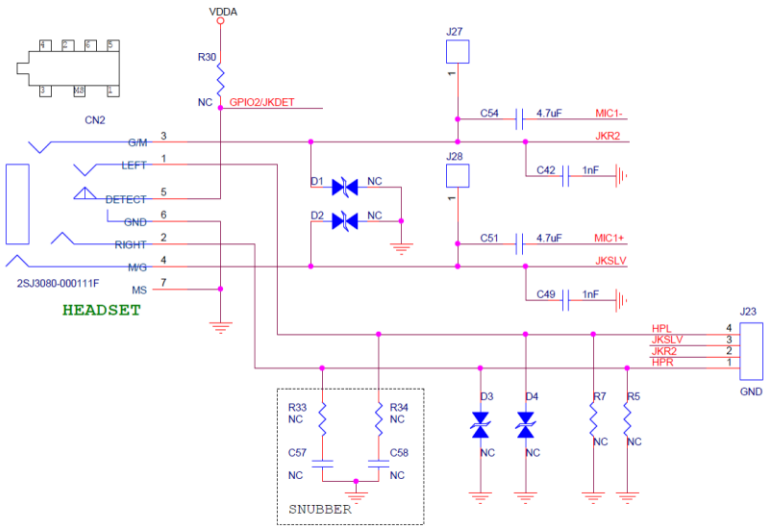
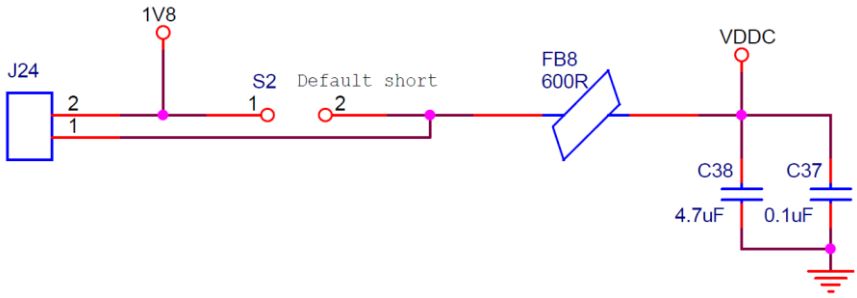

Figure 2.3-1 Jumpers

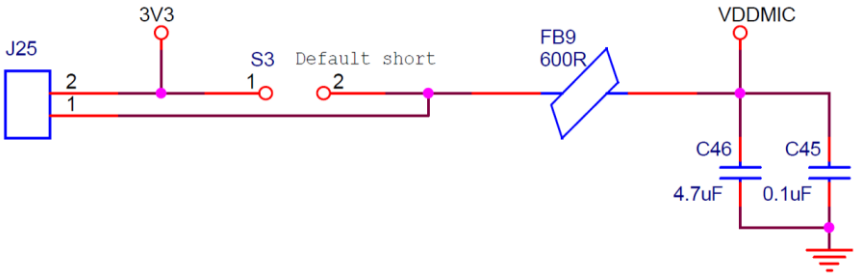
| Name | Pin definition | Description |
|---|---|---|
| J18 | GND |  |
| J20 | VDDA power source selection |  |



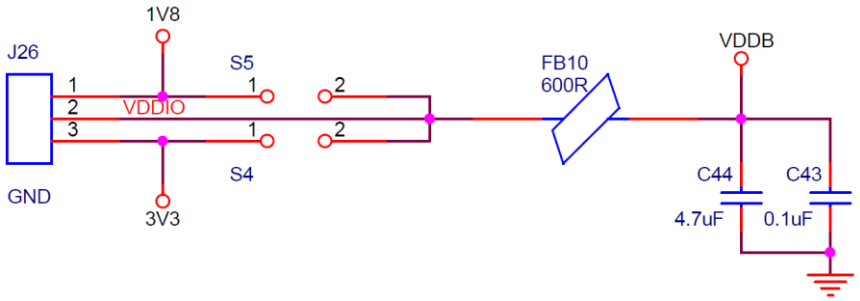


| | S1 short(default) | S1 open |
|---|---|---|
| VDDA | Using power from JP1 | Using power from J2 |

<table>
<tr><td>J23</td><td>Headphone L, Headphone R Jack Sleeve, Jack Ring2, pin header</td><td rowspan="3"> 
</td></tr>
<tr><td>J27</td><td>Jack Ring2 pin header</td></tr>
<tr><td>J28</td><td>Jack Sleeve pin header</td></tr>
<tr><td>J24</td><td>VDDC power source selection</td><td> 

<table>
<tr><td></td><td>S2 short(default)</td><td>S2 open</td></tr>
<tr><td>VDDC</td><td>Using power from JP1</td><td>Using power from J24</td></tr>
</table></td></tr>
<tr><td>J25</td><td>VDDMIC power source selection</td><td> 

<table>
<tr><td></td><td>S3 short(default)</td><td>S3 open</td></tr>
<tr><td>VDDMIC</td><td>Using power from JP1</td><td>Using power from J25</td></tr>
</table></td></tr>
</table>

<table>
<tr>
<td>J26</td>
<td>VDDB<br>power source<br>selection</td>
<td>


<table>
<tr><td></td><td>S4 open<br>S5 open<br>(default)</td><td>S4 short<br>S5 open</td><td>S4 open<br>S5 short</td></tr>
<tr><td>VDDB</td><td>Using power<br>from JP1-pin15</td><td>Using external<br>power 3.3V</td><td>Using external<br>power 1.8V</td></tr>
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</td>
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Table 2.3-1 Jumpers

## 2.4 Schematic

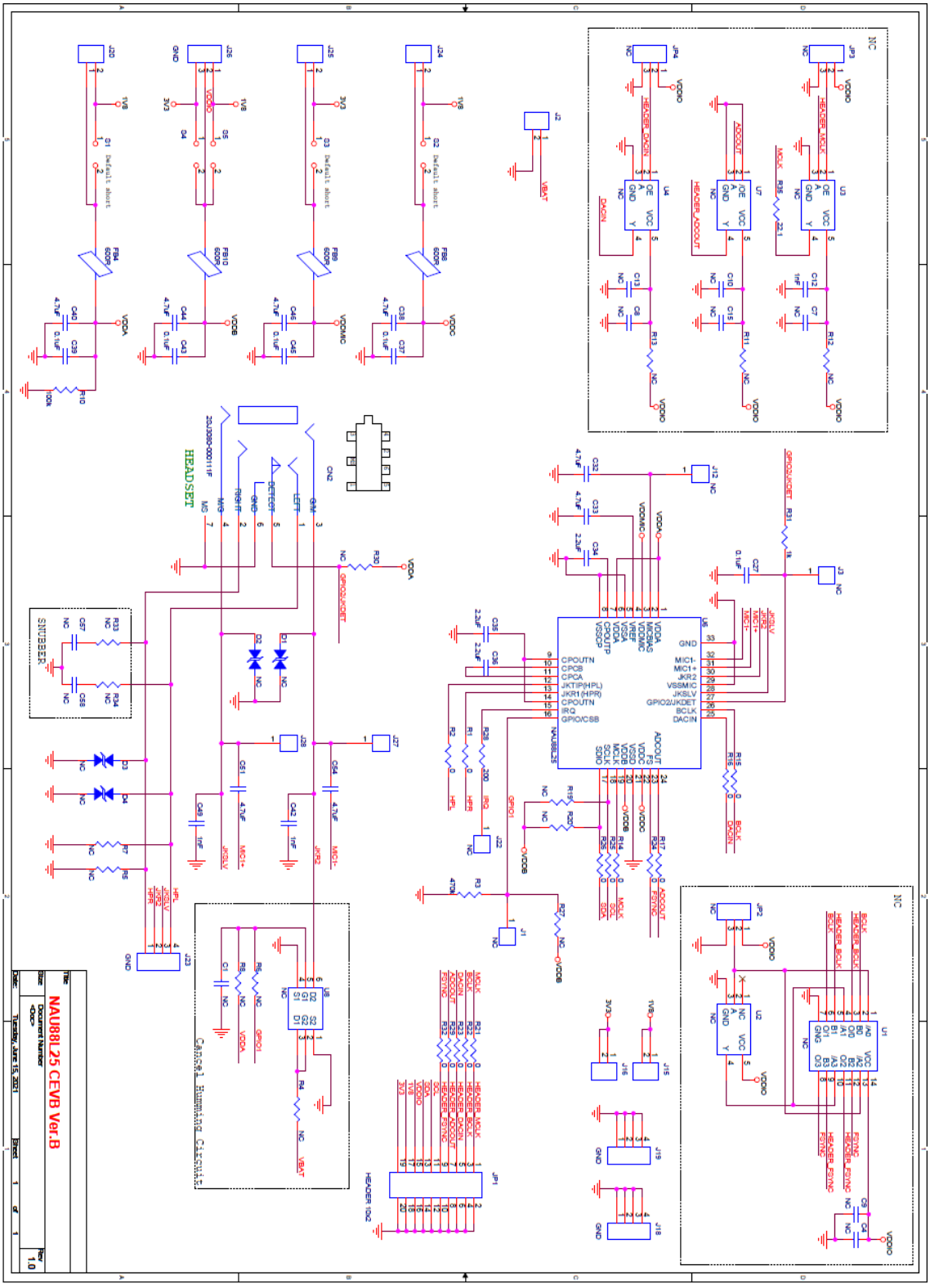


Figure 2.4-1 Schematic

## 2.5 Bare Board

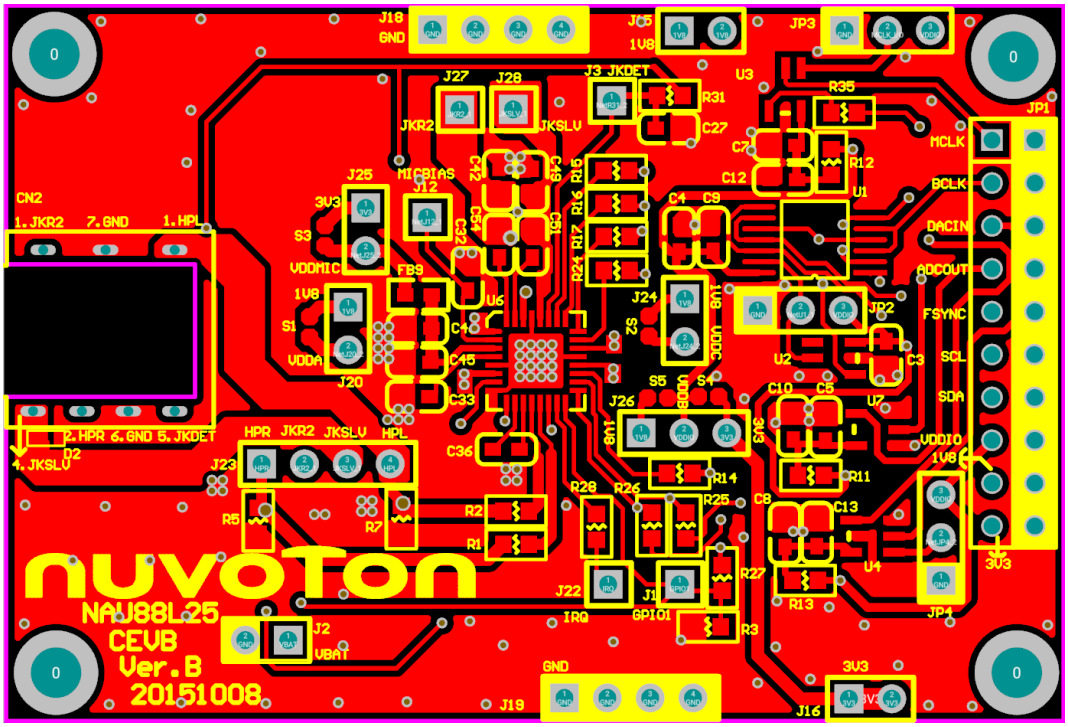


Figure 2.5-1 Top View of Bare Board

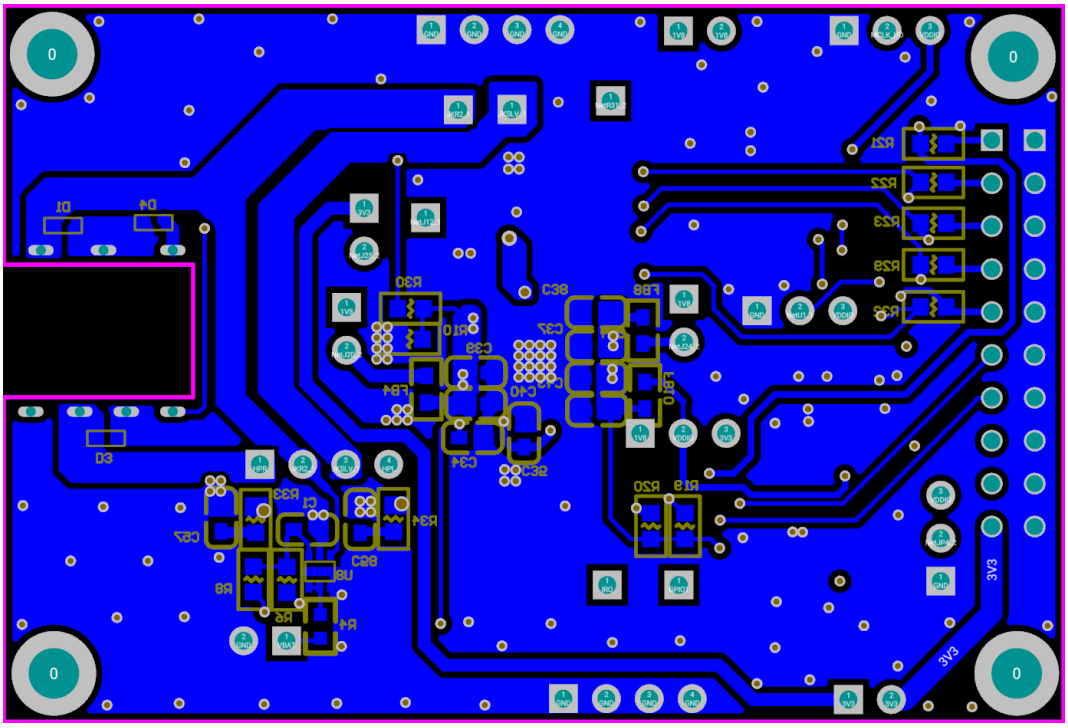

Figure 2.5-2 Bottom View of Bare Board

# 3 CONNECTED TO AUDIO CONTROL BOARD

If there is Nuvoton's Audio Control Board, NAU88L25 Demo Board can be used with Audio Control Board (USB_I2C_I2S_Control_Board_V1.1). When the Audio Control Board is connected to the NAU88L25 Demo Board, the PC or USB host can use the GUI to control the NAU88L25 Demo Board and know the status of the NAU88L25 Demo Board

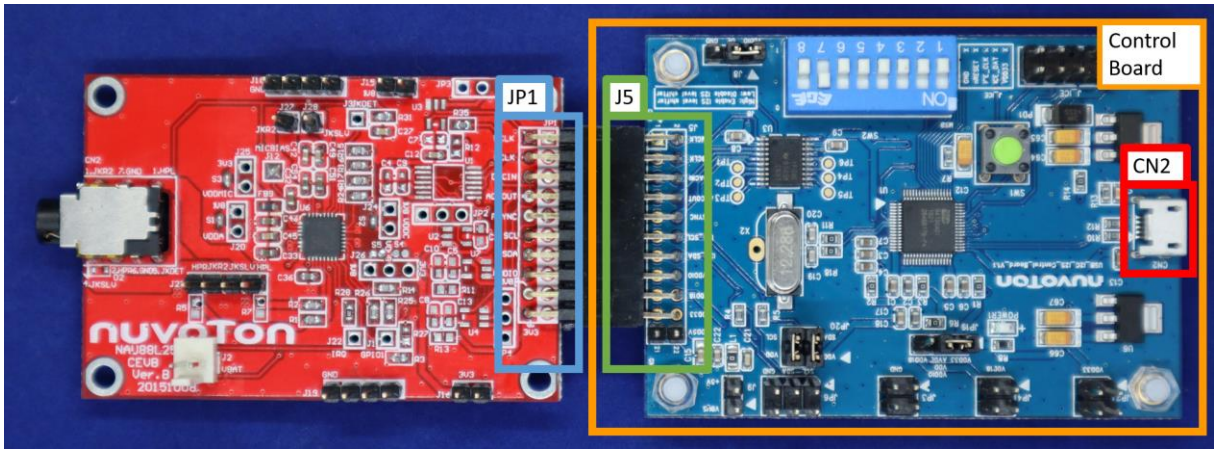


Figure 3-1 Connection Audio Control Board

**Signal path:**

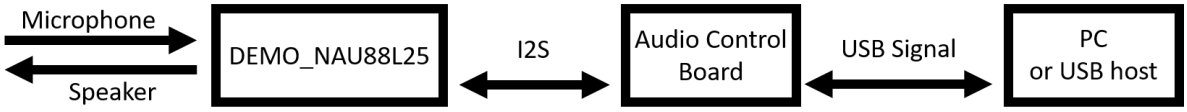


Figure 3-2 Signal Path

**Board setting SOP:**

Reference Figure 3-1

Step1: Connect JP1 of the NAU88L25 Demo Board to J5 of the Audio Control Board.

Step2: Connect CN2 of the Audio Control Board to PC or USB host via USB cable.

# 4 REVISION HISTORY

| Date | Revision | Description |
|---|---|---|
| 2021.06.22 | 1.0 | 1st version release |
| | | |
| | | |

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