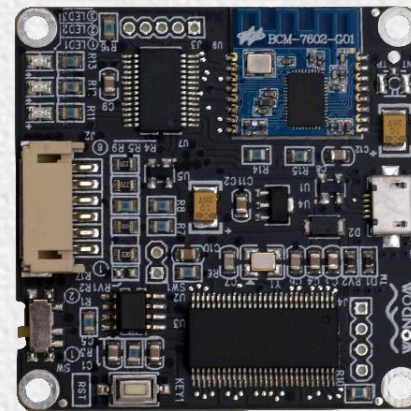
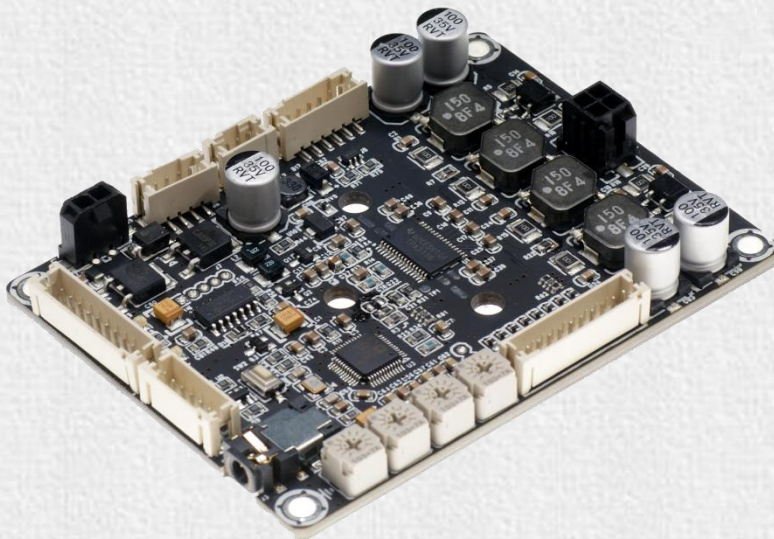


# How to set up JAB3 with WONDOM In-Circuit Programmer?



[VIDEO TUTORIAL](#) ►

# Various Applications Required Products and Instructions

Function	PRODUCT LIST WITH DSP INTEGRATED	ICP PRODUCTS	Software	INSTRUCTION	VIDEO
Programming with SigmaStudio	APM2 + APM3 JAB3 - 160 JAB3 - 1100 JAB3 - 230 JAB3 - 250	<a href="#">ICP1</a>	SigmaStudio	How to Program APM2 with WONDOM ICP How to Program JAB3 with WONDOM ICP	<a href="#">How To Re-Program DSP To Get More Functions</a>
		<a href="#">ICP3</a>			<a href="#">How To Reprogram DSP Function of Amplifier Board With DSP</a>
APP Control		<a href="#">ICP3</a>	Miumax (APP)	How to Realize APP Control with WONDOM ICP	<a href="#">How To Use APP To Change DSP Settings Of Your Amplifier?</a>
		ICP5			
PC UI Control		ICP5	Miumax (PC UI)	How to Realize PC UI Control with WONDOM ICP	Video
Note: The products and documentation in red are processing and will be released soon.					

## Open Source Files for PROGRAMMING

Products	Function	File	Version	Download
APM2	Demonstration of Signal Flow Chart	APM2_SigmaStudio.dspproj	-	<a href="#">Download</a>
JAB3 - Mono	Demonstration of Signal Flow Chart	JAB3_SigmaStudio_MONO.dspproj	-	<a href="#">Download</a>
JAB3 - Stereo	Demonstration of Signal Flow Chart	JAB3_SigmaStudio_STEREO.dspproj	-	<a href="#">Download</a>
Note: All the "Demonstration of Signal Flow Chart" files are just for signal flow chart demonstration and customers can not use them as running programming.				

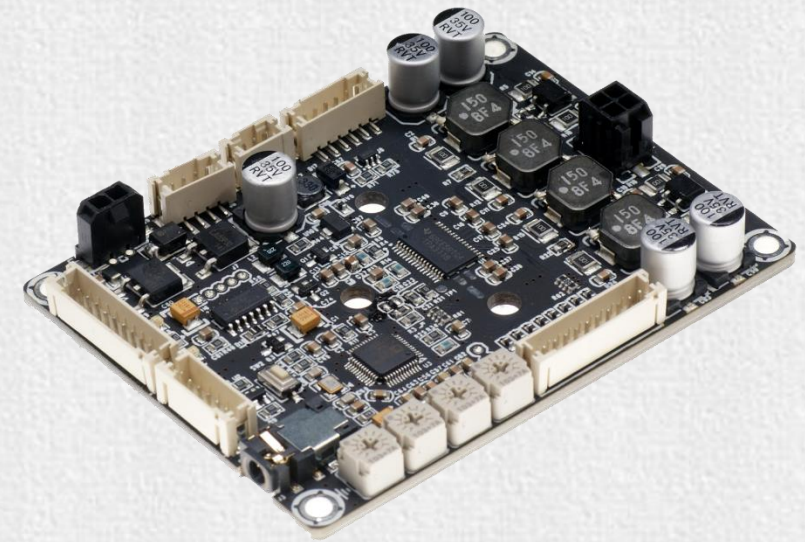


# Overview

JAB3 is an audio amplifier board with control interfaces and signal processing. The application ranges from active louderspeaker concepts (digital 3 way 3 unit, 2 way 2 unit crossover, bass enhancement, etc.) and realizes the transformation from 2.0 to 2.1 (when used with JAB2). With four potentiometers, customers can get the default function and adjust the master volume, high-pass filter, low-pass filter and sub-channel (headphone output).

With integrated debug port for Sigima Studio, customers can pre-program with WONDOM ICP1/ICP3 or the original Analog USBi to get more functions which includes equalization, crossover, bass enhancement, multiband dynamics processing, delay compensation, etc.

Note: In this document, we will use WONDOM ICP3 as the example to show you how to program JAB3. The operation of WONDOM ICP1 is the same.





# In-Circuit Programmer – ICP1

## Function: Programming

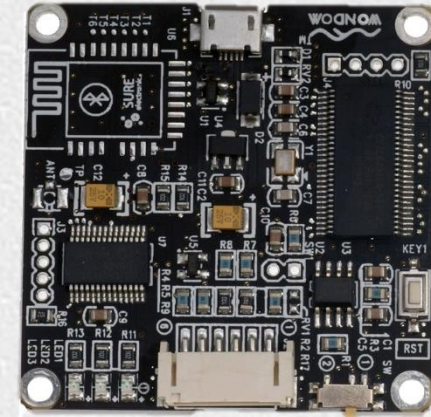
### In-circuit Programmer For ADAU1701 Digital Signal - ICP1

WONDOM provides our own programming board named In-circuit Programmer For ADAU1701 Digital Signal - ICP1. It can be connected directly with JAB3 Board by a 6-pin cable without a pinboard to achieve programming the DSP integrated in JAB3. On-board self-boot EEPROM is included in ICP1 for operating the board independently of the Analog Devices, Inc., SigmaStudio™ software.

The programming package contents include

- ✓ In-circuit Programmer with BLE Bluetooth for APP control – ICP1
- ✓ A 6-pin cable

This kit cost \$19.9.



In-circuit Programmer For ADAU1701  
Digital Signal - ICP1



6 pin cable



# In-Circuit Programmer – ICP3

## Function: Programming + APP Control

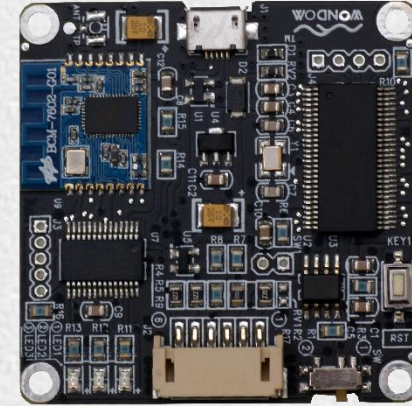
In-circuit Programmer with BLE Bluetooth for APP control - ICP3

WONDOM provides our own programming board named In-circuit Programmer with BLE Bluetooth for APP control - ICP3. It can be connected directly to JAB3 Board by a 6-pin cable without a pinboard to achieve programming the DSP integrated in JAB3. On-board self-boot EEPROM is included in ICP3 for operating the board independently of the Analog Devices, Inc., SigmaStudio™ software. With the Bluetooth integrated, customers can realize APP control of audio system through the ICP3.

The programming package contents include

- ✓ In-circuit Programmer with BLE Bluetooth for APP control - ICP3
- ✓ A 6-pin cable

This kit cost \$24.9.



In-circuit Programmer  
with BLE Bluetooth for APP control - ICP3



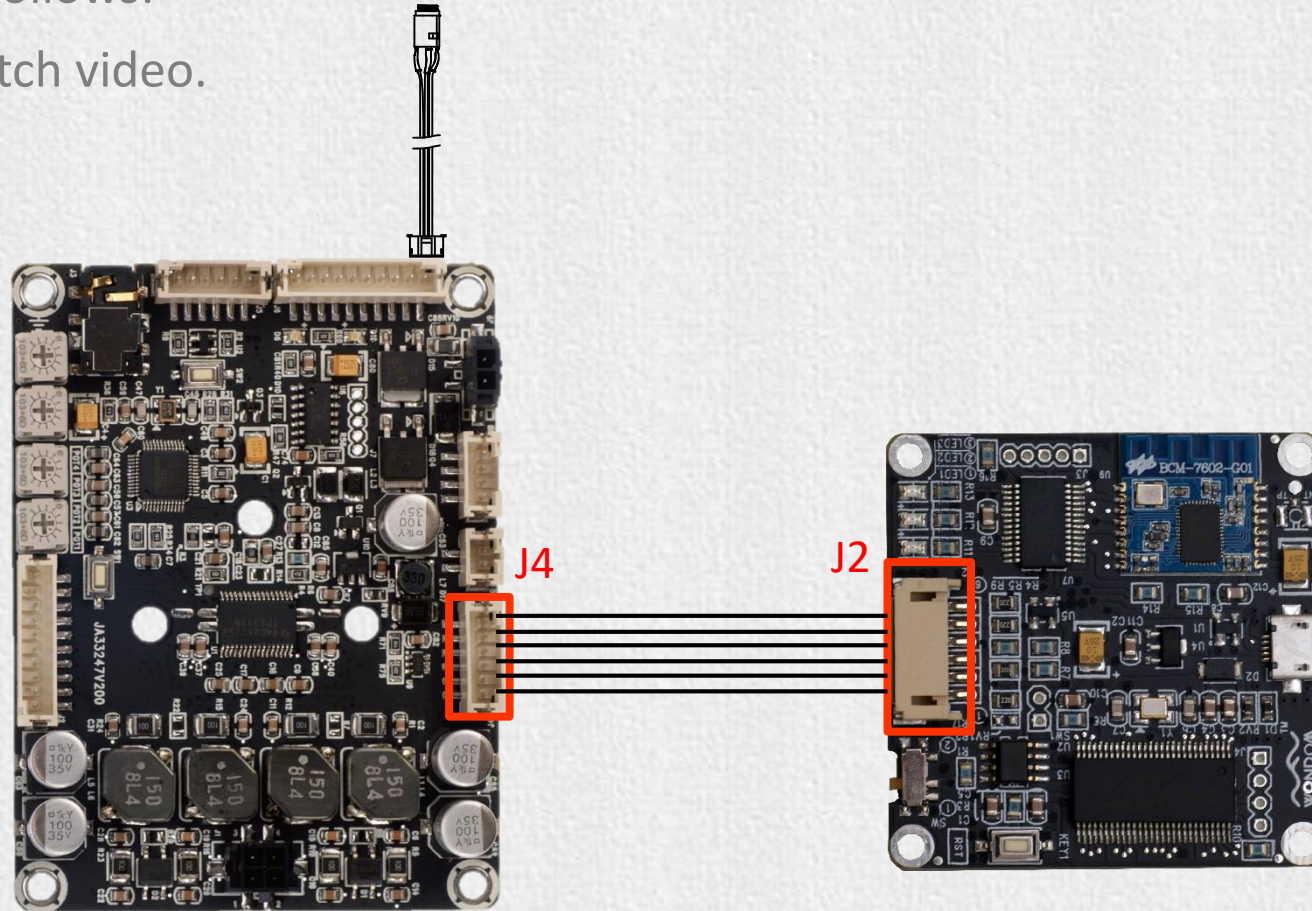
6 pin cable



# Quick Start

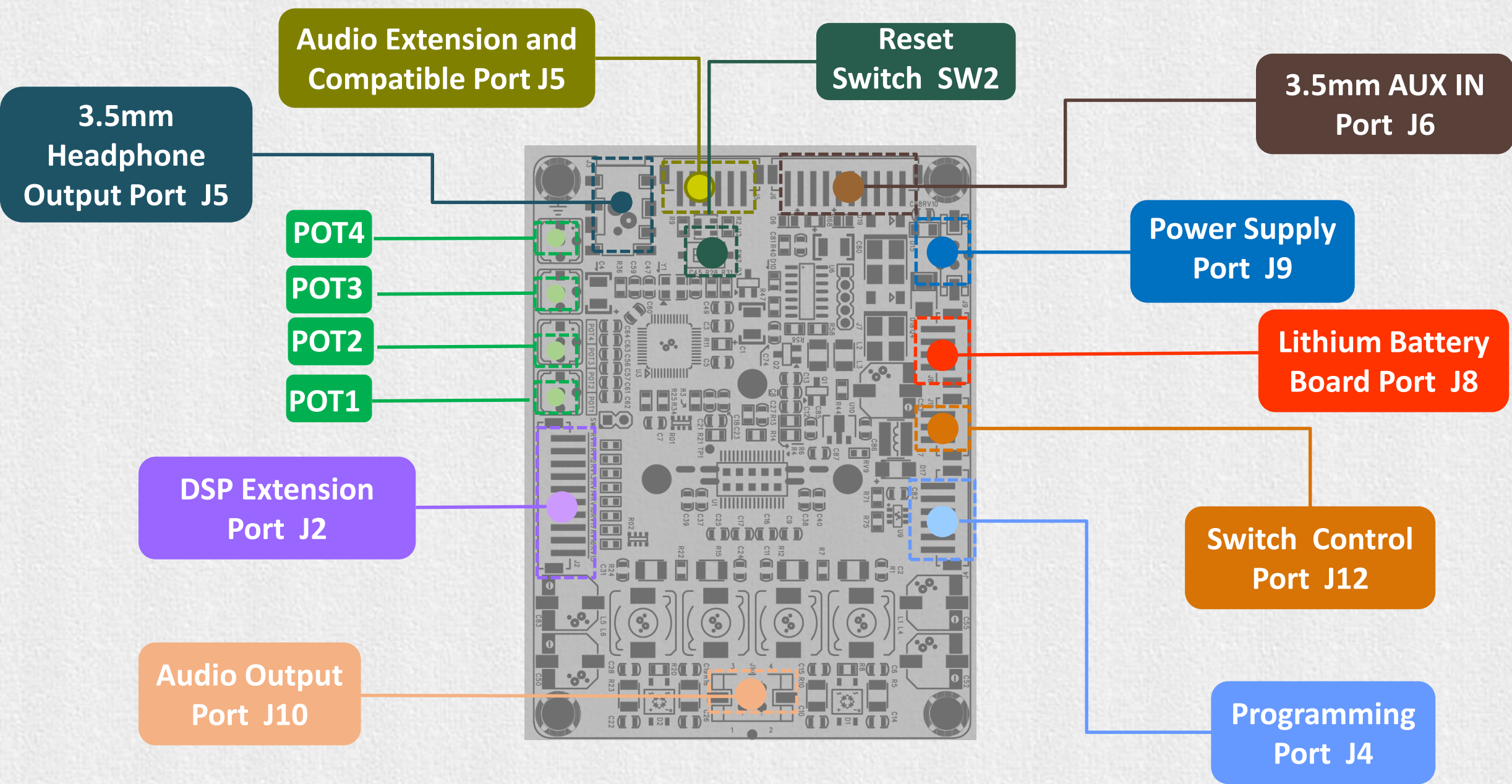
To quickly get started with the JAB3 and In-Circuit Programmer, install the SigmaStudio software, plug in the ICP3, connect with JAB3, power up the board, connect the audio cables, and program as follows:

Click [HERE](#) to watch video.





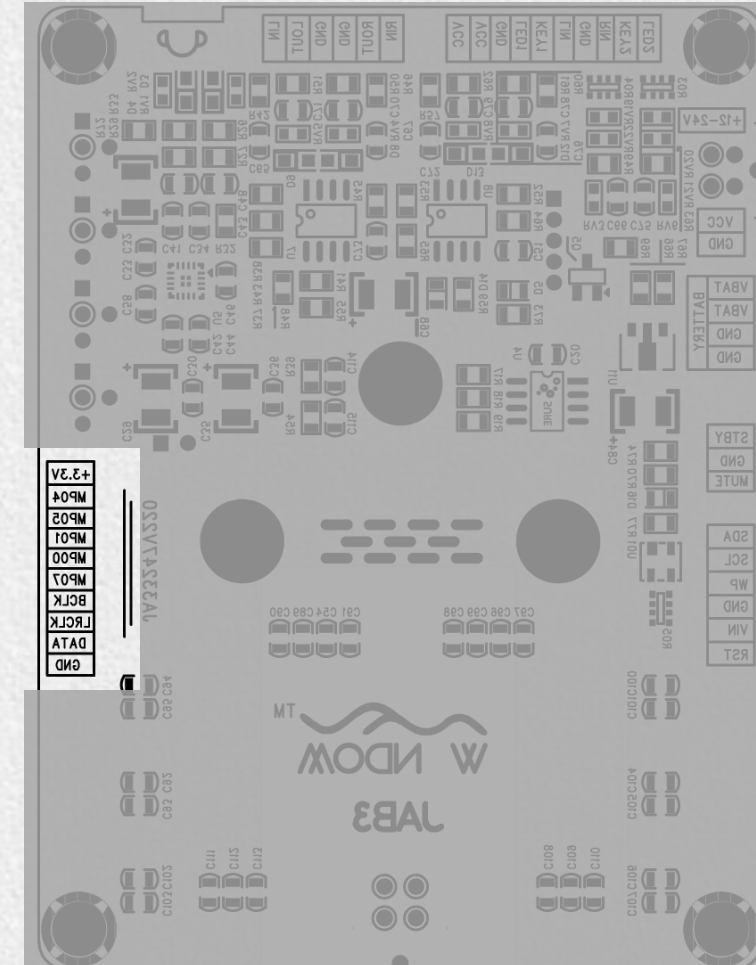
# JAB3 Interfaces



# PIN Definition

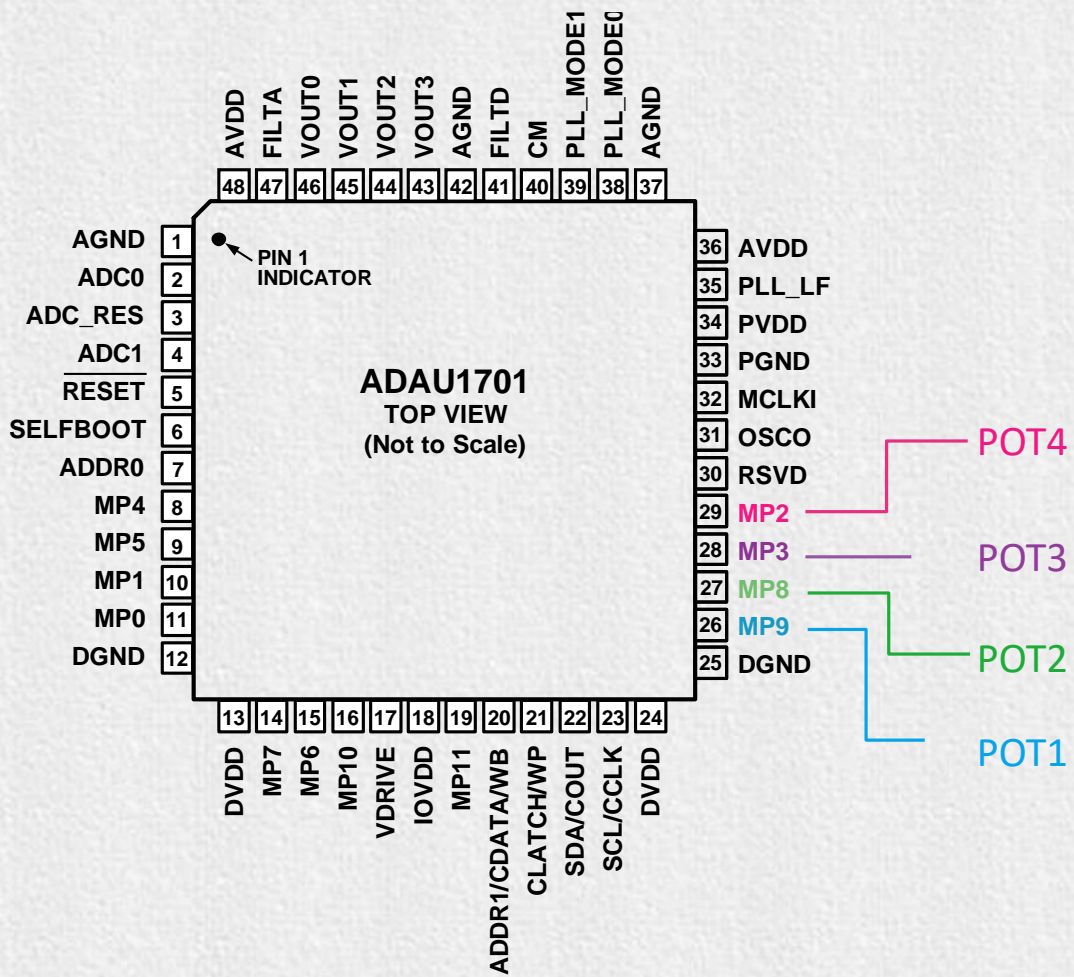
J2 DSP Extension Port, including common I/O port and I2S master mode output

PIN	Description
+3.3V	Analog Audio Input 0
MP04	Analog Audio Input 1
MP05	I <sup>2</sup> C Clock
MP01	I <sup>2</sup> C Data
MP00	Active Low Reset Input
MP07	Serial Input Port Data 2
DATA	Serial Input Port Data 3
LRCLK	Serial Output Port Data 2
BCLK	Serial Output Port Data 3
GND	Digital Power Supply Output





# PIN Definition

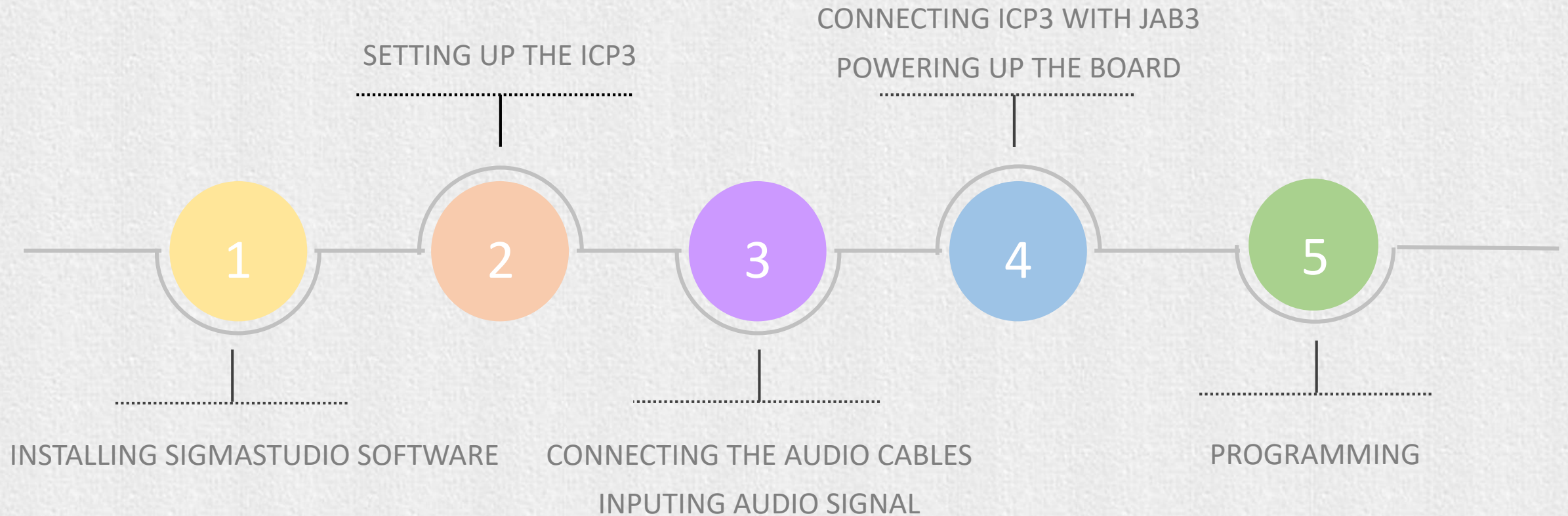


The correspondence between four potentiometers and for pins on ADAU1701 is shown in the figure.

Functions of potentiometers based on specific applications			
Port	Function	JAB3S	JAB3M
POT1	CH2 Gain	Gain of 3.5mm Headphone Output	Gain of 3.5mm Headphone Output
POT2	CH2 HPF	High-pass Filter of 3.5mm Headphone Output	High-pass Filter of 3.5mm Headphone Output
POT3	CH1 HPF or BPF	High-pass Filter of Speaker Output	Band-pass Filter of Speaker Output
POT4	CH1 & CH2 Volume	Volume of Speaker & 3.5mm Headphone Output	Volume of Speaker & 3.5mm Headphone Output



# How to programme





# Installing Sigmastudio software

1. Open the provided zip file and extract the files to your computer. Alternately, insert the SigmaStudio CD into the PC optical drive and select the SigmaStudio folder.

2. Install Microsoft .NET Framework version 2.0, if it has not been previously installed. To do so, double-click “dotnetfx.exe”.

3. Double-click “setup.exe” and following the prompts. A computer restart is not required.



# Setting up the ICP3

1. Compile the needed program in advance.
2. Set the SW of ICP3 at ①\* and connect the ICP3 to the computer with a USB cable.
3. Select “USBi” from the list on the left and drag it to the blank area on the right. Repeat the action to move “ADAU1701” and “E2Prom” to the right.
4. Please notice whether the ICP3 can be recognized by the computer, if the underpainting of the “USB” turn green, it represents the ICP3 is recognized, otherwise it will turn orange and you should reconnect the ICP3 until it turn green. See figure 1.

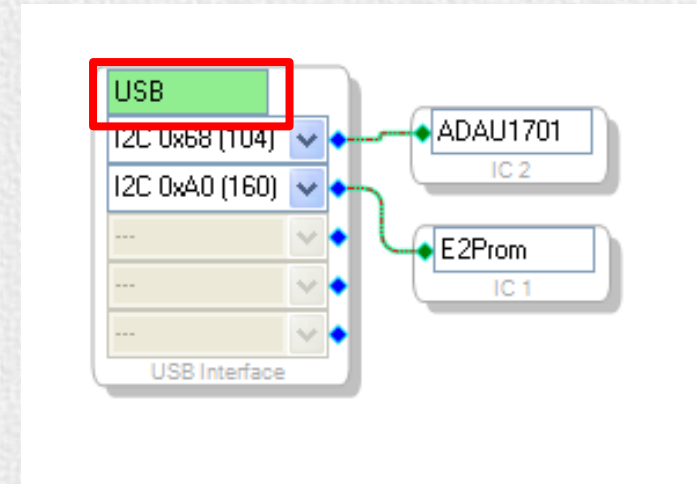
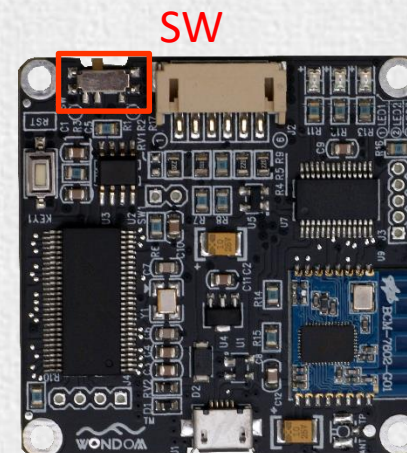


Figure 1



Setting of SW

- |   |                |
|---|----------------|
| ① | <b>PROGRAM</b> |
| ② | REMOTE         |

**\*Note:**

Customers can realize program with SigmaStudio or APP control of audio system with ICP3 because of the integrated Bluetooth. We provide a switch on ICP3 for customers to switch between program and remote control mode.



# Connecting Audio Cables

\*Note: Signal level sensor system is employed in JAB3 so JAB3 will enter into standby mode when there is no audio signal. Please feed audio signal to JAB3 when programming it.

01.



Connection

- 1) 3.5mm AUX-IN cable
- 2) Bluetooth or 3.5mm AUX-IN of JAB2



02.

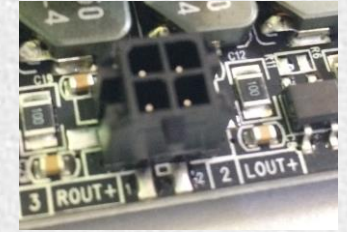
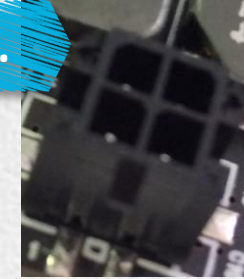


Input

- 1) Use 3.5mm AUX-IN cable for playing music.
- 2) Connect the JAB3 with JAB2 through J5 on JAB3 and J11 on JAB2 for audio input.

Refer to <Installation Guide for JAB3 & JAB2.pdf> for details.

03.



Molex-4pin-3mm

Output



- 1) Molex 4-Pin-3mm connector of JAB3 for audio output (J10)
- 2) 3.5mm headphone output of JAB3 (J3)
- 3) PH-6-Pin-2mm connector to transmit audio signal to JAB2 (J5)



# Powering up the board

Power up the JAB3 and then connect ICP3 with the JAB3.



## 1. Power of JAB3 board:

The JAB3 could be powered by:

- 1) External 12-24V DC supply through Vin control port (J9)
  - 2) Be powered by 3S18650 Lithium Battery Balance and Protection Extension Board (J8)
  - 3) The two methods could be used at the same time.
- If the voltage of external power supply > the voltage of battery board, the JAB3 board would be powered by the external power supply;
  - If the voltage of external power supply < the voltage of battery board, the JAB3 board would be powered by the battery board.



## 2. Power of IC Programmer:

WONDOM ICP3 could be powered by:

- 1) 5V micro USB through micro USB charging port
- 2) JAB3 board through the 6-pin connection cable

# Programming and writing

1. Click the “Link Compile Connect” (see figure 2) and you will find “Ready: Compiled” in the lower right corner of your computer.

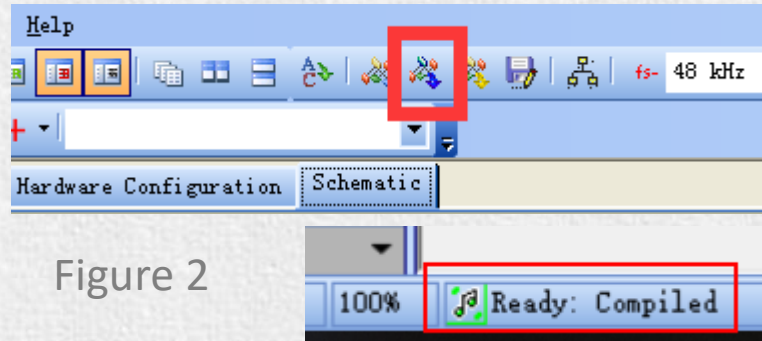


Figure 2

2. Click the “Link Compile Download” (see figure 3) and you will find “Active: Compiled” in the lower right corner of your computer.

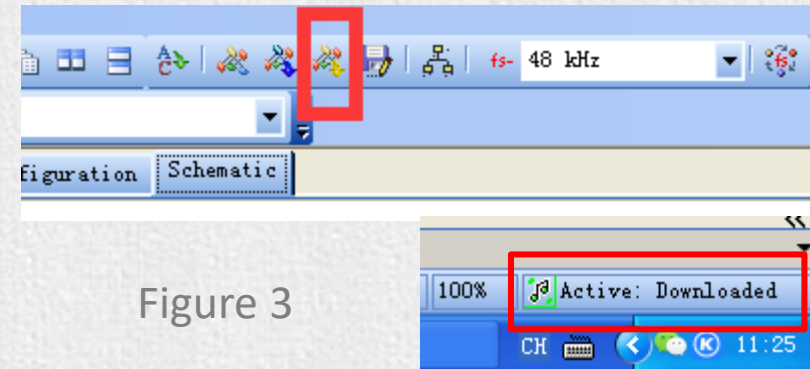


Figure 3

3. Make sure the SW of ICP3 is at ①, and right-click the “ADAU1701” and select “Write Latest Compilation to E2PBOM” to download the program (see figure 4), then you will see a window, choose the “I2C” on the right and click “OK” (see figure 5).

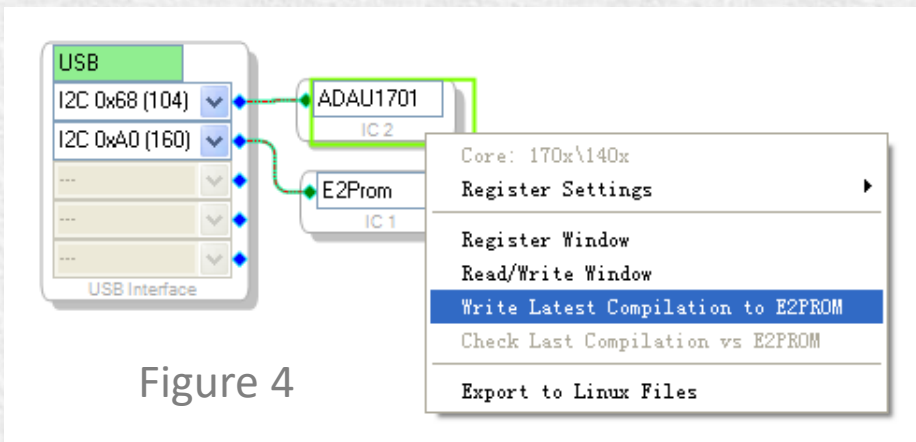


Figure 4

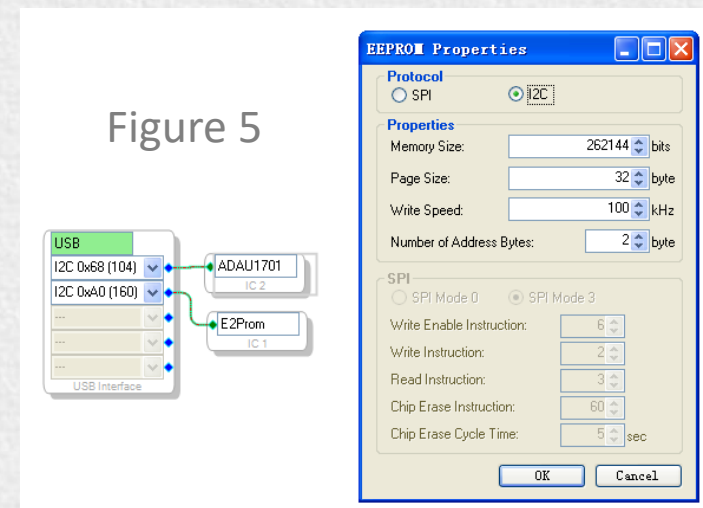
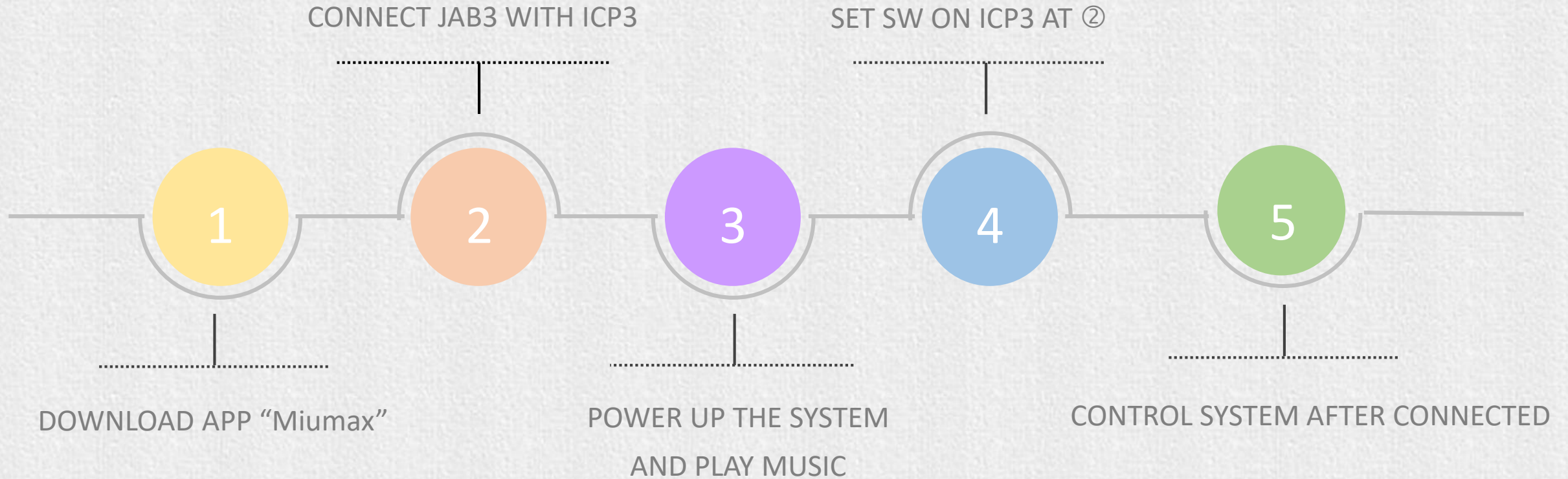


Figure 5



# How to realize APP control



Note: Please take reference to <[How to realize APP control with WONDOM ICP3.pdf](#)>

"Miumax" APP



Android



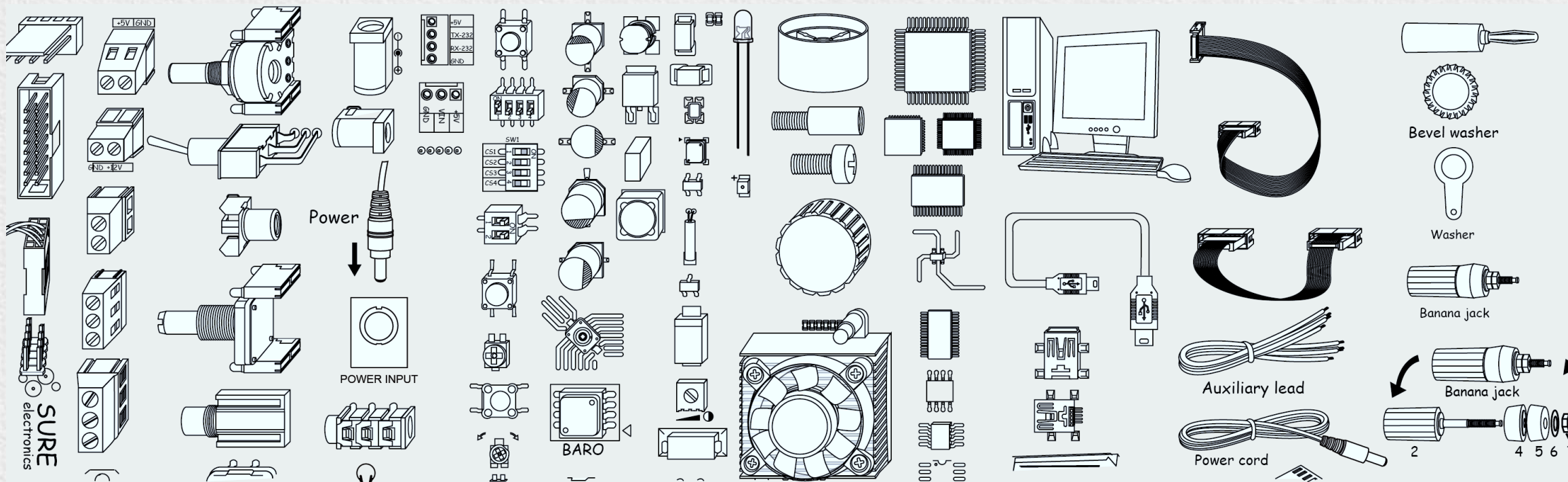
iOS

# TROUBLE SHOOTING

TROUBLE	HOW TO SOLVE
Cannot writing the program into DSP successfully	<ul style="list-style-type: none"><li>➤ Make sure the ICP3 be recognized by PC</li><li>➤ Make sure the JAB3 is not in the standby mode*</li><li>➤ Make sure the SW of ICP3 is at ① (PROGRAM)</li></ul>
JAB3 cannot work normally under powering condition when connected with ICP3	<ul style="list-style-type: none"><li>➤ Power on again</li><li>➤ Press the SW2 switch on JAB3 at first, then press the RST (KEY1) switch on ICP3</li></ul>
ICP3 cannot be recognized by PC	<ul style="list-style-type: none"><li>➤ Make sure the Micro USB cable is of good quality and support data communication</li><li>➤ Make sure ICP3 is not connected to controlled device (JAB3) when connected to PC</li></ul>
APP control failure	<ul style="list-style-type: none"><li>➤ The SW on ICP3 is set at ② (REMOTE)</li><li>➤ Relaunch the APP</li><li>➤ Do not press the SW2 on JAB3 when using APP control</li></ul>

\*Note: Signal level sensor system is employed in JAB3 so JAB3 will enter into standby mode when there is no audio signal. Please feed audio signal to JAB3 when programming it.





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