



OS X Audio - Realtek ALC AppleHDA [Guide]

Realtek ALC/Desktop: 269(1), 283(1), 885, 887, 888, 892, 898 and 1150 on board audio (1) BRIX/NUC only

Supports OS X: 10.11, 10.10, 10.9 and 10.8

Native AppleHDA

Enables OS X Realtek ALC on board audio for Intel motherboards. El Capitan requires native AppleHDA.kext. Codec specific script edits binaries and installs specific files. Select one **Realtek ALC AppleHDA Audio Installation Method**.

Change Log

1. v2.4 - 1/21/15: El Capitan/10.11.x update (Details.md deprecated)

Requirements

1. OS X versions supported
 1. El Capitan/10.11.x (Disable SIP)
 - CsrActiveConfig/0x3
 2. Yosemite/10.10.x (Allow unsigned kexts)
 - Boot flag: kext-dev-mode=1
 3. Mavericks/10.9.x
 4. Mountain Lion/10.8.x
2. Intel/Desktop motherboards
3. Native AppleHDA; need native, see [Restore native AppleHDA \[Guide\].pdf](#)
 1. AppleHDA.kext does not work if newer than the installed OS X version
4. Audio codec/ALC Injection, see Tools 3. (below), confirms:
 1. Supported Codecs, see **Realtek Codecs and Applications** (below)
 2. Supported Audio IDs, see **Audio IDs** (below)
 3. Working Audio ID Injection, **Audio ID Injection** (below)

Contents

Part 1: Installation

Part 2: Details/Support

Part 3: Troubleshooting

Part 1: Realtek ALC AppleHDA Audio Installation Methods, select one

Remove installed method to install another method

Realtek ALC AppleHDA Scripts

1. Download script (select one script, Download/View Raw)

A. [audio_cloverALC-110.command.zip](#)

- patch kernel cache
- no edits to any native AppleHDA.kext file
- 2-4 files added to Resources folder

B. [audio_pikeralphaALC-110.command.zip](#)

- patch kernel cache
- native AppleHDA.kext (signed)
- installs AppleHDAxxx.kext (ex., L/E/AppleHDA892.kext)
- Not supported: ALC269 and ALC 283

C. [audio_realtekALC-110.command.zip](#)

- patch kext in place
- edits AppleHDA.kext binaries and adds files
- run script after Software Update

2. Double Click Downloads/audio_ . . ALC-110.command
3. Enter Password
4. Answer questions (y/n)
5. Restart

Piker-Alpha AppleHDA8series Script

1. Download script (see README)

D. [Piker-Alpha/AppleHDA8Series.sh](#) (10.10 working, 10.11TBA, 10.11 fix, see below)

- AppleHDA.kext alias
 - installs AppleHDAxxx.kext (ex., L/E/AppleHDA892.kext)
- no edits to any native AppleHDA.kext file
- Not supported: ALC269 and ALC 283

2. Terminal (select one)

A. ALC audio/Clover patch:

- \$./AppleHDA8Series.sh

B. ALC audio:

- \$./AppleHDA8Series.sh -b AppleHDA

C. ALC audio and HD4600 HDMI audio:

- \$./AppleHDA8Series.sh -b AppleHDA -b AppleHDAController

3. Enter Password
4. ... choose desired codec: (1-7)
5. ... layout-id (y/n)
6. Answer questions (y/n)
7. 10.11 fix, see Credit/lisai9093 (below)
8. Restart

Realtek ALC AppleHDA Installation Methods Summary

Method	Purpose	Bootloaders	New Install	OS X Software Update
Reserved				
A. cloverALC Backup: S/L/E/ AppleHDA.kext remove Resources/ .zml files	1. Verify IOREg/HDEF/ AppleHDA.kext 2. Detect codec 3. Add codec files (see 1. above) 4. Patch cache	1. Clover (EFI, Legacy or root)	1. Install 2. Restart 3. Boot Flag 4. Restart 5. Run Script 6. Restart	1. Disable SIP 2. Update 3. Enable SIP 4. Restart
B. pikeralpha ALC, Clover/ AppleHDA 8series Backup: NA	1. Install ALC enabler kext: S/L/E/ AppleHDAxxx .kext 2. Patch cache	1. Clover (EFI, Legacy or root)	1. Install 2. Restart 3. Boot Flag 4. Restart 5. Run Script 6. Restart	1. Disable SIP 2. Update 3. Enable SIP 4. Restart
C. realtekALC Backup: Desktop/ audio_ALC.../ AppleHDA- orig.kext, rename and install	1. Verify IOREg/ HDEF/Audio ID/ AppleHDA.kext 2. Detect codec 3. Add codec files 4. Patch binaries	1. Chameleon 2. Clover (EFI, Legacy or root)	1. Install 2. Restart 3. Boot Flag 4. Audio ID 5. Restart 6. Run Script 7. Restart	1. Disable SIP 2. Update 3. Restart 4. Run Script 5. Enable SIP 6. Restart
D. Piker-Alpha AppleHDA 8series Backup: NA	1. Install ALC enabler kext: S/L/E/ AppleHDAxxx .kext	1. Chameleon 2. Clover (EFI, Legacy or root)	1. Install 2. Restart 3. Boot Flag 4. Restart 5. Run Script 6. Restart	1. Disable SIP 2. Update 3. Enable SIP 4. Restart

Boot Flag

- El Capitan/10.11.x only/config.plist/RtVariables/CsrActiveConfig/
 - Disable SIP: CsrActiveConfig/0x3
 - Enable SIP: CsrActiveConfig/0x0
- Yosemite/10.10.x only/Boot flag: kext-dev-mode=1
 - Allow unsigned kexts
- 10.8.5 and newer, Boot flag npci=0x3000 disables OS X audio, remove

Unsupported/Non-working Realtek ALC AppleHDA.kext

1. 100 Series/Intel High Definition Audio (Workaround requires A, B, C and D)
 - A. Rename dsdt/HDAS to HDEF
 - i. Clover: Download/[config-audio_cloverALC-100series.plist.zip](#)
 - Add config.plist/ACPI/DSDT/Patches/Rename HDAS to HDEF
 - ii. ssdt injection (Any bootloader. Select Audio ID and install)
 - Audio ID: 1, [ssdt_hdef-1-100-hdas.zip](#)
 - Audio ID: 2, [ssdt_hdef-2-100-hdas.zip](#)
 - Audio ID: 3, [ssdt_hdef-3-100-hdas.zip](#)
 - B. Restart
 - C. Install **Realtek ALC Audio** (see **Realtek ALC Installation Methods**)
 - D. Restart
2. X99/Intel High Definition Audio (Workaround requires A, B, C, D, E and F)
 - A. Install 10.9.5 AppleHDA.kext_v2.6.3
 - i. Extract from Mavericks Installer
 - ii. MultiBeast 6.5.1 [Downloads - tonymacx86.com](#) Skip Step D, below
 - B. Rename dsdt/ALSA to HDEF (Select one method)
 - i. Clover: Download/[config-audio_cloverALC-x99.plist.zip](#)
 - Add config.plist/ACPI/DSDT/Patches/Rename ALZA to HDEF
 - ii. ssdt injection (Any bootloader):
 - Audio ID: 1, install [ssdt_hdef-1-x99_alza.zip](#)
 - C. Restart
 - D. Install **Realtek ALC Audio** (see **Realtek ALC Installation Methods**)
 - E. Add x99 HD Audio device_id (Select one method)
 - i. Clover: Download/[config-audio_cloverALC-x99.plist.zip](#)
 - Add config.plist/KernelAndKextPatches/KextsToPatch/10.9.4-10.10-/x99 ALC Onboard Audio
 - ii. Patched AppleHDA.kext (RealtekALC, MultiBeast 6.5.1 methods)
 - Double Click/[audio_alc_x99-hda-100_patch.command.zip](#)
 - F. Restart
3. 887_v100101 and earlier
 - A. Workaround: try 887 Legacy
4. 888_v100101 and earlier
 - A. Workaround: try 888 Legacy
5. Asus P67H67 3xxx BIOS: Phantom codec
 - A. Workaround: 2xxx BIOS downgrade, 7/8 Series motherboard upgrade
6. MSI motherboards, pre Sandy Bridge
 - A. Workaround: 6/7/8 Series motherboard upgrade
7. AC97 (Front Panel)
 - A. Workaround: HD Audio

Part 2: Realtek ALC AppleHDA Audio - Details/Support

Realtek Codecs and Applications

Codec	Same ID	Device_ID	Version	Appli- cation	Audio IDs	Audio Devices
1. ALC269		0x10ec0269		BRIX	1	HP, SPDIF
2. ALC283		0x10ec0283		NUC/ BRIX Pro	1	HP, Mic
3. ALC885	ALC889A	0x10ec0885		Desktop	1	All
4. ALC887-L	ALC888B	0x10ec0887	0x002002	Desktop	1/2	All
5. ALC887		0x10ec0887	0x003002	Desktop	1/2/3	All
6. ALC888-L	ALC888S	0x10ec0888	0x002002	Desktop	1/2	All
7. ALC888		0x10ec0888	0x003002	Desktop	1/2/3	All
8. ALC889		0x10ec0889		Desktop	1/2	All
9. ALC892		0x10ec0892		Desktop	1/2/3	All
10. ALC898		0x10ec0899		Desktop	1/2/3	All
11. ALC1150		0x10ec0900		Desktop	1/2/3	All

L: Legacy

Audio IDs

1. **Audio ID: 1** (motherboard with 3, 5 or 6 audio ports)
 - A. Stereo (2 inputs, 4 outputs), 5.1 analog surround (3 outputs) and 5.1 digital surround (optical)
 - a. Front Panel: Pink & Green
 - b. Motherboard: Pink, Blue, Green, Orange, Black and SPDIF
2. **Audio ID: 2** (motherboard with 3 audio ports, enables analog surround sound))
 - A. Stereo (1 input, 4 outputs), 5.1 analog surround (3 outputs) and 5.1 digital surround (optical)
 - a. Front Panel: Pink & Green
 - b. Motherboard: Green, Pink (> Orange), Blue (> Black) and SPDIF
3. **Audio ID: 3** (Enables HD3000/HD4000/HD5xx HDMI audio)
 - A. Stereo (2 inputs, 3 outputs/) and 5.1 digital surround (optical)
 - a. Front Panel: Pink & Green
 - b. Motherboard: Pink, Blue, Green, Black and SPDIF
 - no Orange support, see Customization guide/remove SPDIF

Audio ID Injection, [audio_ALCInjection](#)

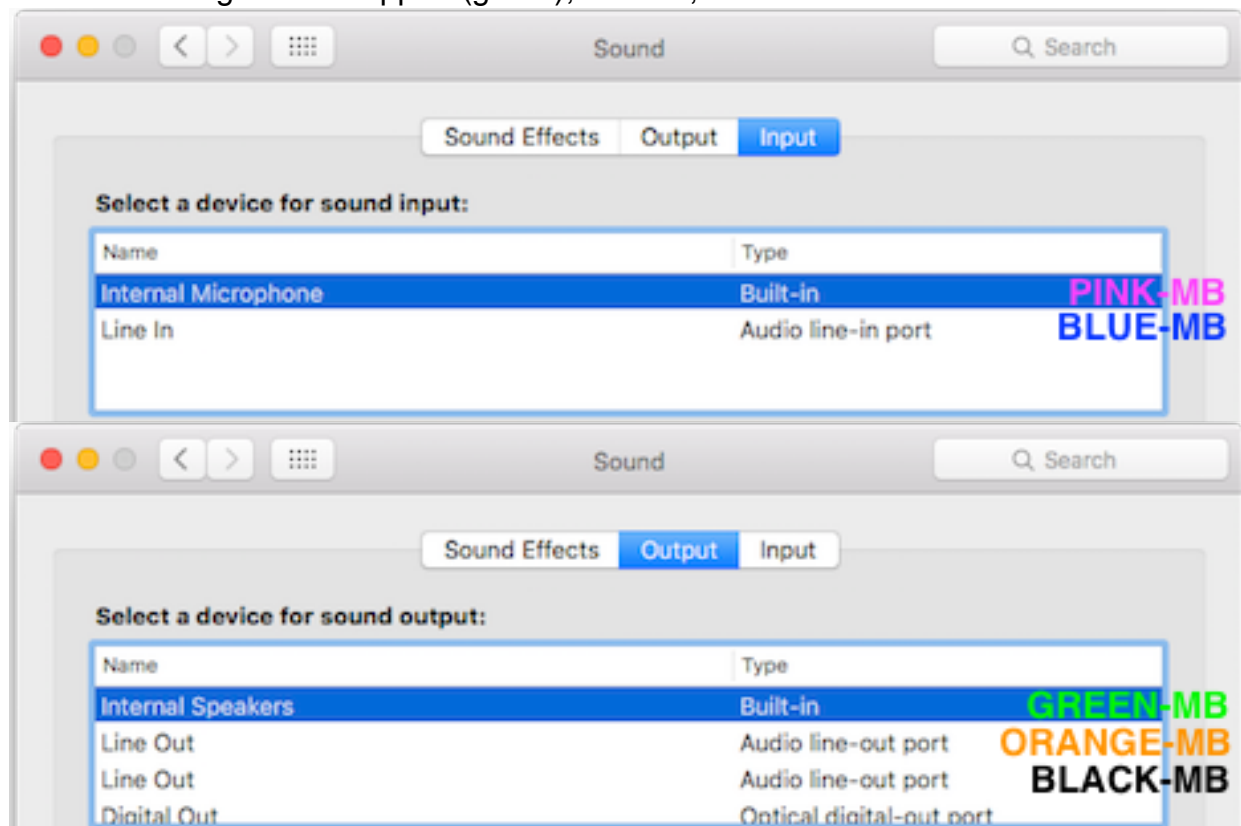
1. HDEF/**kext**/no dsdt/HDAEnablerx.kext, x = Audio_ID
2. HDEF/**dsdt**/layout-id = Audio_ID,
3. HDEF/**ssdt**/layout-id = Audio_ID
4. HDEF/**Clover**/config.plist/Devices/Audio/Inject/ = Audio_ID
5. HDEF/**Chameleon**/Extra/org.chameleon.Boot.plist
 1. HDAEnabler = Yes
 2. HDEFLayoutID = 01000000 or 02000000 or 03000000 (0x = Audio_ID)

System Preferences/Sound Labels (SP/S Label) Motherboard (Audio IDs 1)

Audio Device	Jack	SP/S Label	Surround (3)	Audio Cable
1. Microphone	Pink	Internal Mic (1)		Pink
2. Mic/Device	Blue	Line In		Blue
3. Speaker	Green	Internal Speaker (2)	Front	Green
4. Speaker	Orange	Line Out (1st)	Center/Sub	Orange
5. Speaker	Black	Line Out (2nd)	Side	Black
6. Speaker	Gray	Line Out (3rd) (4)	Rear	Gray
7. Optical Cable	SPDIF	Digital Audio (5)	DD/DTS	
8. Monitor	DP	DisplayPort	DD/DTS	
9. TV/Receiver	HDMI	HDMI	DD/DTS	

Notes

1. Front Panel Mic mutes Motherboard Mic, SP/S Label: Line In replaces Internal Microphone
2. Front Panel Headphone mutes Motherboard Speaker, SP/S Label: Headphone replaces Internal Speakers
3. Analog surround requires Audio MIDI Setup/Aggregate Device, see Surround Sound Guide
4. Gray Support requires AppleHDA.kext edits and removing SPDIF support
5. Separating front and rear pink or green requires AppleHDA.kext edits and removing SPDIF support (green); 4 and 5, see Customization Guide



System Information/Audio (Audio ID:1)

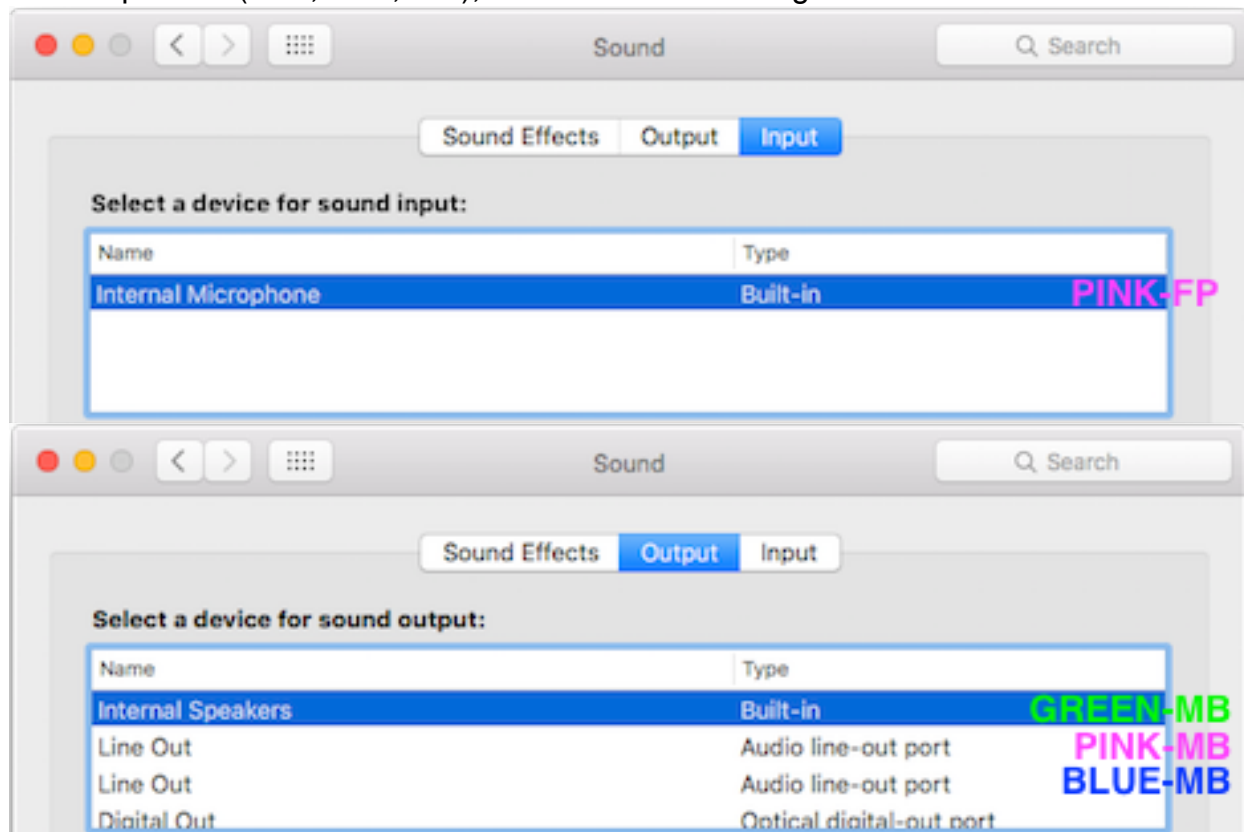
iMac	
▼ Hardware	Audio
ATA	▼ Devices
Audio	AirPlay
Bluetooth	Built-in Input
Camera	Built-in Line Input
Card Reader	Built-in Output
Diagnostics	Built-in Line Output
Disc Burning	Built-in Line Output
Ethernet Cards	Built-in Digital Output
Fibre Channel	DisplayPort
FireWire	▼ Intel High Definition Audio
Graphics/Displays	Speaker
Hardware RAID	Line Output
Memory	Line Output
NVMeExpress	Internal Microphone
PCI	Line Input
Parallel SCSI	Line Input
Power	Headphone
Printers	S/PDIF Optical Digital Audio Output
SAS	HDMI / DisplayPort Output
SATA/SATA Express	HDMI / DisplayPort Output
SPI	
Storage	Intel High Definition Audio:
Thunderbolt	Audio ID: 1
USB	
▼ Network	Speaker:
Firewall	Connection: Internal
Locations	
Volumes	Line Output:
WWAN	Connection: 1/8-Inch Jack
Wi-Fi	
▼ Software	Line Output:
Accessibility	Connection: 1/8-Inch Jack
Applications	
Components	Internal Microphone:
Developer	Connection: Internal
Disabled Software	
Extensions	Line Input:
Fonts	Connection: 1/8-Inch Jack
Frameworks	
Installations	Line Input:
Logs	Connection: 1/8-Inch Jack
Managed Client	
Preference Panes	Headphone:
Printer Software	Connection: 1/8-Inch Jack
Profiles	
Startup Items	S/PDIF Optical Digital Audio Output:
Sync Services	Connection: Combination Output
	HDMI / DisplayPort Output:
	Connection: Display
	HDMI / DisplayPort Output:
	Connection: Display

Motherboard (Audio IDs 2, 3 port motherboard audio, surround sound))

Audio Device	Jack	SP/S Label	Surround (2)	Audio Cable
1. Speaker	Green	Internal Speaker (1)	Front	Green
2. Speaker	Pink	Line Out (1st)	Center/Sub	Orange
3. Speaker	Blue	Line Out (2nd)	Side	Black
4. Optical Cable	SPDIF	Digital Audio	DD/DTS	
5. Monitor	DP	DisplayPort	DD/DT	
6. TV/Receiver	HDMI	HDMI	DD/DT	

Notes

1. Front Panel Headphone mutes Motherboard Speaker, SP/S Label: Headphone replaces Internal Speakers
2. Analog surround requires Audio MIDI Setup/Aggregate Device. Analog and digital surround requires surround capable player depending on installation specifics (Plex, Kodi, etc.), see Surround Sound guide



System Information/Audio (Audio ID: 2)

Hardware

ATA

Audio

Bluetooth

Camera

Card Reader

Diagnostics

Disc Burning

Ethernet Cards

Fibre Channel

FireWire

Graphics/Displays

Hardware RAID

Memory

NVMeExpress

PCI

Parallel SCSI

Power

Printers

SAS

SATA/SATA Express

SPI

Storage

Thunderbolt

USB

Network

Firewall

Locations

Volumes

WWAN

Wi-Fi

Software

Accessibility

Applications

Components

Developer

Disabled Software

Extensions

Fonts

Frameworks

Installations

Logs

Managed Client

Preference Panes

Printer Software

Profiles

Startup Items

Sync Services

iMac

Audio

Devices

AirPlay

Built-in Microphone

Built-in Output

Built-in Line Output

Built-in Line Output

Built-in Digital Output

DisplayPort

Intel High Definition Audio

Speaker

Line Output

Internal Microphone

Line Output

Headphone

S/PDIF Optical Digital Audio Output

HDMI / DisplayPort Output

HDMI / DisplayPort Output

Intel High Definition Audio:

Audio ID: 2

Speaker:

Connection: Internal

Line Output:

Connection: 1/8-Inch Jack

Internal Microphone:

Connection: Internal

Line Output:

Connection: 1/8-Inch Jack

Headphone:

Connection: 1/8-Inch Jack

S/PDIF Optical Digital Audio Output:

Connection: Combination Output

HDMI / DisplayPort Output:

Connection: Display

HDMI / DisplayPort Output:

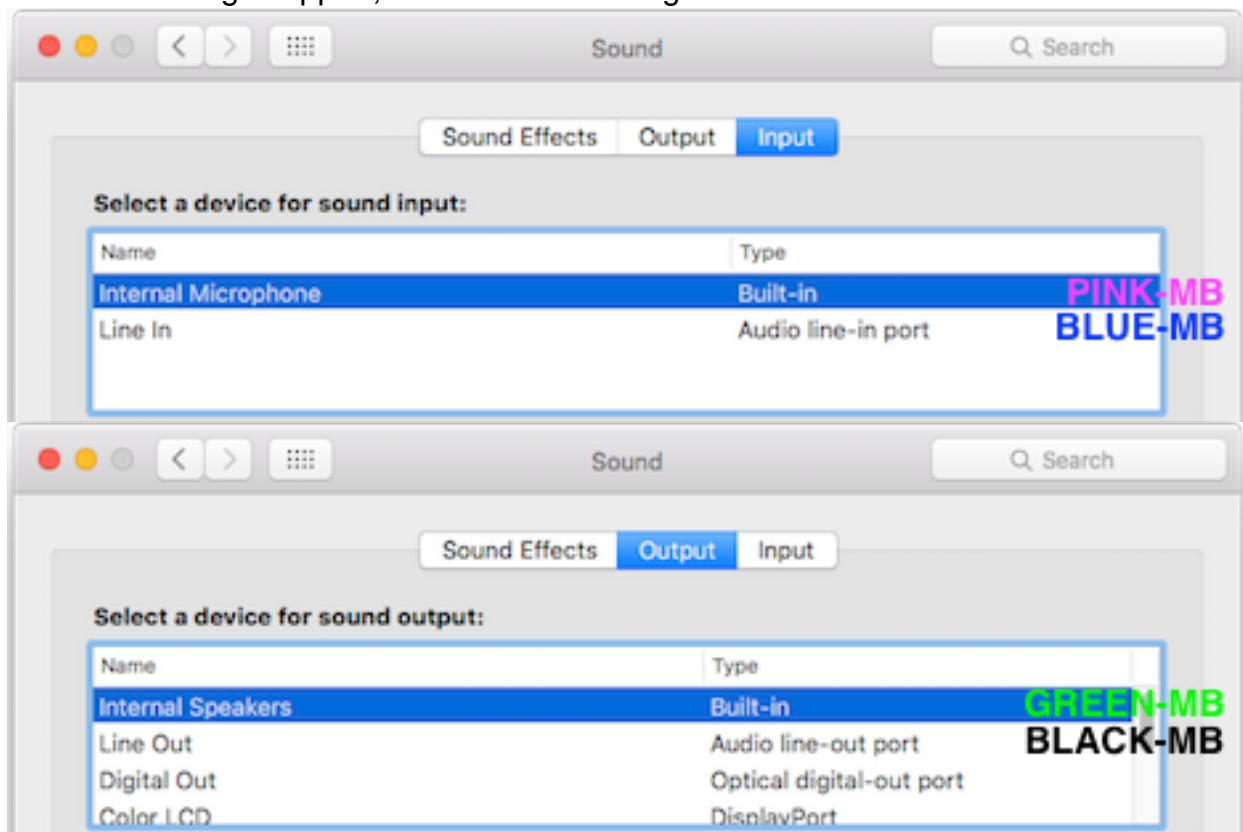
Connection: Display

Motherboard (Audio IDs 3, mandatory for HD3000/HD4000/HD5xx HDMI audio)

Audio Device	Jack	SP/S Label	Surround (4)	Audio Cable
1. Microphone	Pink	Internal Mic (1)		Pink
2. Mic/Device	Blue	Line In		Blue
3. Speaker	Green	Internal Speaker (2)	Front	Green
4. Speaker	Black	Line Out	Side	Black
5. Optical Cable	SPDIF	Digital Audio	DD/DTS	
6. Monitor	DP	DisplayPort	DD/DTS	
7. TV/Receiver	HDMI	HDMI	DD/DTS	
8. Speaker	Orange	Line Out (3)	Center/Sub	Orange

Notes

1. Front Panel Mic mutes Motherboard Mic, SP/S Label: Line In replaces Internal Microphone (5)
2. Front Panel Headphone mutes Motherboard Speaker, SP/S Label: Headphone replaces Internal Speakers
3. No Orange support, see Customization guide/remove SPDIF

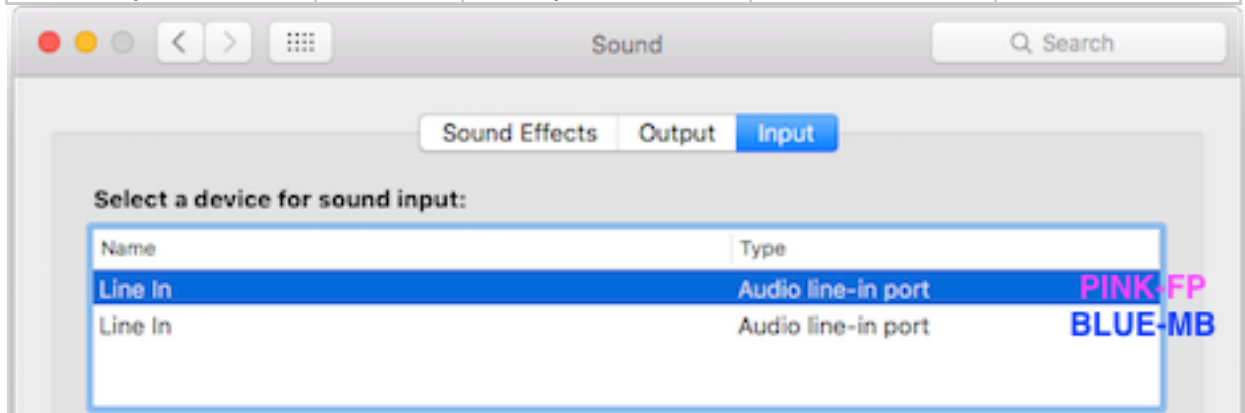


System Information/Audio (Audio ID: 3)

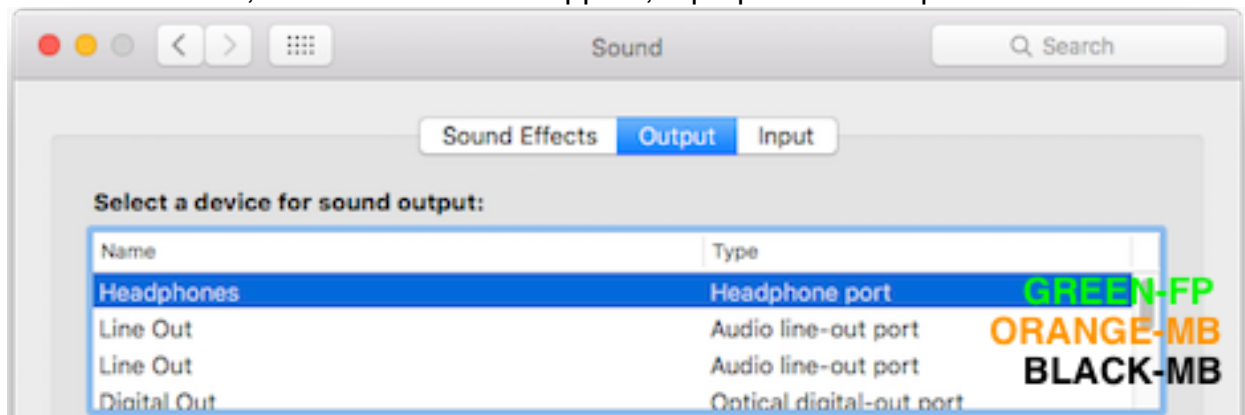
iMac	
▼ Hardware	Audio
ATA	▼ Devices
Audio	AirPlay
Bluetooth	Built-in Input
Camera	Built-in Line Input
Card Reader	Built-in Output
Diagnostics	Built-in Line Output
Disc Burning	Built-in Digital Output
Ethernet Cards	DisplayPort
Fibre Channel	▼ Intel High Definition Audio
FireWire	Speaker
Graphics/Displays	Line Output
Hardware RAID	Internal Microphone
Memory	Line Input
NVMeExpress	Line Input
PCI	Headphone
Parallel SCSI	S/PDIF Optical Digital Audio Output
Power	HDMI / DisplayPort Output
Printers	HDMI / DisplayPort Output
SAS	
SATA/SATA Express	Intel High Definition Audio:
SPI	Audio ID: 3
Storage	Speaker:
Thunderbolt	Connection: Internal
USB	Line Output:
▼ Network	Connection: 1/8-Inch Jack
Firewall	Internal Microphone:
Locations	Connection: Internal
Volumes	Line Input:
WWAN	Connection: 1/8-Inch Jack
Wi-Fi	Line Input:
▼ Software	Connection: 1/8-Inch Jack
Accessibility	Headphone:
Applications	Connection: 1/8-Inch Jack
Components	S/PDIF Optical Digital Audio Output:
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Extensions	Connection: Display
Fonts	HDMI / DisplayPort Output:
Frameworks	Connection: Display
Installations	
Logs	
Managed Client	
Preference Panes	
Printer Software	
Profiles	
Startup Items	
Sync Services	

Front Panel (Audio IDs 1, 2 or 3)

Audio Device	Jack	SP/S Label	Surround	Audio Cable
1. Microphone	Pink	Line In (1)		Pink
2. Headphone	Green	Headphones		Green



Note: Audio ID: 2, BLUE-MB does not appear, repurposed to Output/BLACK



Note: Audio ID: 3, ORANGE-MB does not appear; replaced by DP/HDMI audio device

More Information [audio_ALC_guides](#)

1. Enhancements
 - A. Customization - Realtek ALC AppleHDA [Guide].pdf
 - Manual speaker and headphone selection, Substitute SPDIF-2 Wire Output
 - B. Surround Sound - Realtek ALC AppleHDA [Guide].pdf
 - Players, analog, optical, HDMI, USB

Optional Installs

1. Connect Audio Input to Audio Output
 - A. Line In - <http://www.rogueamoeba.com/freebies/>

Uninstall Realtek ALC AppleHDA

1. cloverALC, remove:
 - A. S/L/E/AppleHDA.kext and install the native AppleHDA.kext
 - or S/L/E/AppleHDA.kext/Contents/Resources/layout1.zml.zlib, layout2.zml.zlib, layout3.zml.zlib, Platforms.zml.zlib
 - B. config.plist/.../KextsToPatch/AppleHDA (3x)
 - C. EFI/CLOVER/kexts/10.xx or other/realtekALC.kext
2. pikeralphaALC, remove:
 - A. L/E/AppleHDA8xx.kext
 - B. config.plist/.../KextsToPatch/AppleHDA (3x)
3. realtekALC, remove:
 - A. S/L/E/AppleHDA.kext and install the native AppleHDA.kext
4. pikeralpha AppleHDA8Series, remove:
 - A. S/L/E/AppleHDA8xx.kext and install the native AppleHDA.kext

Part 3: Troubleshooting

More Information [audio_ALC_guides](#)

1. Troubleshooting
 - A. No Audio Devices - Realtek ALC AppleHDA [Guide].pdf
 - No audio devices, no sound, no codec
 - B. No Sound - Realtek ALC AppleHDA [Guide].pdf
 - Audio devices present, no sound when selected
 - C. No Audio After Sleep/Wake - Realtek ALC AppleHDA [Fixes].pdf
 - No audio devices on wake
 - D. Problem Reporting - Realtek ALC AppleHDA [Guide].pdf
 - Tools, Post to, troubleshooting files

Audio Popping

- A. Symptoms
 1. After a short period of no audio, the amp is turned down/quieted to eliminate static/noise. When the audio signal returns, the amp is powered up causing a pop.
- B. Work Around:
 1. [Turn Off Your Mac's Volume Pop Sound with a Click](#)
 2. Digital audio (HDMI, optical, USB, etc.)
 3. Black or orange ports
 4. Anti pop software
 5. Macpro3,1 system definition

Problem Reporting

- A. See [Problem Reporting](#)
 1. Links: **Problem Reporting**/12. Post to
 2. Attached requested files

Credit

lisai9093, Post #5, [AppleHDA for El Capitan discussion](#)

THE KiNG [\[HOW TO\] Patch AppleHDA - Knowledge Base - Project OS X Forums](#)

PikeRAAlpha [New style of AppleHDA.kext patching for Yosemite I Pike's Universum](#)

abxite <http://applelife.ru/...06/#post-353647>

TimeWalker75a, Post # 20, [No sound after waking from sleep](#)

RevoGirl

toleda

https://github.com/toleda/audio_ALC_guides