[Guide]_HD5x0-hdmi_audio_(clover_or_ssdt)_v1.2

HD5x0 HDMI Audio

Skylake/100 Series/Socket 1151: Desktop/Laptop/NUC/BRIX

v1.2: 7/12/2015 - Typos
v1.1: 4/22/2016 - HD530 Update
v1: 4/10/2016 - Initial release

macOS HDMI audio for HD5x0 systems with either: 1. Clover enabled HDMI audio or 2. HDMI audio ssdt (any bootloader). Laptops, use NUC-BRIX Clover/ssdts.

Requirements

1. OS X 10.11.4 and newer
2. AMI UEFI/Skylake/100 or 200 Series/Socket 1151 Intel motherboard
3. HD5x0 graphics, recognized and enabled
4. 100 Series Desktop/Laptop/NUC/BRIX configurations supported
5. 100 Series motherboard audio codecs
    a. Supported: ALC283, ALC887, ALC892 and ALC1150
    b. Unsupported audio codec/HDMI audio only
6. Audio ID: 1 and 2 only

Before You Start

1. MacOS does not provide HDMI audio controls (no volume, no mute, no balance, etc.)
2. The connected HDMI device (TV, receiver, etc.) provides any and

all audio controls
3. Make a bootable backup of your system (CarbonCopyCloner/ SuperDuper)

Tools

1. IORegistryExplorer_v2.1.zip (View Raw)
2. MaciASL
3. Xcode on the Mac App Store

MacOS/HD5x0 HDMI Graphics and Audio

1. HD5x0 (no native HDMI audio support, framebuffer edits required)
    a. HDMI display (SKL framebuffer 0x00001219 or 0x0002619)
        i. AppleIntelFramebuffer@0, Port 0x5/DP
        ii. AppleIntelFramebuffer@1, Port 0x6/DP
        iii. AppleIntelFramebuffer@2, Port 0x7/DP (0x00002619 N/A)
    b. DP audio supported
    c. DVI audio supported (if BIOS enable)
    d. Three displays supported, one with HDMI audio
        i. DP
        ii. DVI (w/DVI2HDMI adapter)
        iii. HDMI
2. Supported Configurations macOS HDMI Audio)
    a. HD5x0 only
    b. Nvidia only
    c. AMD only
    d. HD5x0 and Nvidia
    e. HD5x0 and AMD

HD5x0 HDMI Audio Installation

Step 1: HD5x0 HDMI Audio kext edits (see Step 2/Clover)

1. AppleIntelSKLGraphicsFramebuffer.kext (select one)
    a. HD530 Only (copy and paste to config.plist)
        i. config-hdmi_hd5x0-110.plist (config.plist/ KernelAndKextPatches/KextsToPatch)
            - 10.11.4+-SKL-1912000-4_displays

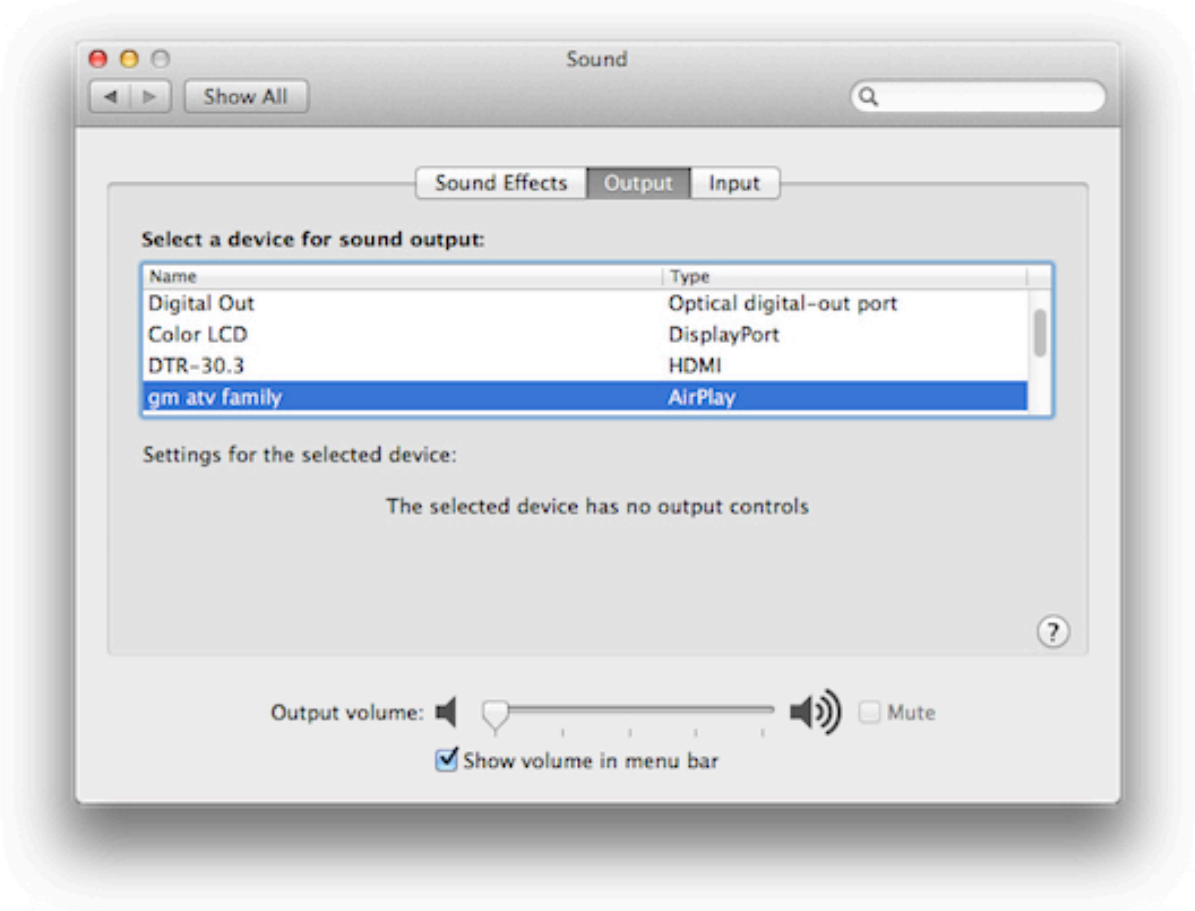
Step 2: OS X HDMI Audio Guides- select Clover or ssdt, one method only

1. Clover:

a. config-hdmi_hd5x0-110.plist
    i. Use Xcode, plist editor, etc.
    ii. Copy and paste each patch
b. All Skylake: config.plist/
    i. ACPI/DSDT/Patches
        - 10.8+-Rename-GFX02IGPU
        - 10.11+-Rename-HDAS2HDEF
        - 10.11+-Rename-HECI2IMEI
    ii. Device/Arbitrary/
        - 10.8+-Intel-IGPU-HDMI-HDA
c. HD530/Desktop: config.plist
    i. Device/Arbitrary/
        - 10.11.4+-Intel-HDA-Desktop
    ii. Graphics/
        - ig-platform-id/19120000 (remove " # HD530")
    iii. KernelAndKextPatches/KextsToPatch
        - 10.11.4+-SKL-1912000-4_displays
        - If no motherboard DP connector, add one HDMI port patch
            - 10.11.4-SKL-1912000-Port_0x5-DP2HDM
            - 10.11.4-SKL-1912000-Port_0x6-DP2HDM
            - 10.11.4-SKL-1912000-Port_0x7-DP2HDM
d. HD540/NUC: config.plist
    i. Device/Arbitrary/
        - 10.11.4+-Intel-HDA-NUC
    ii. Graphics/
        - ig-platform-id/19260000 (remove " # HD540")

2. ssdt: [Guide]-OSX-hdmi_audio-hdef_audio-ssdt_v3.pdf.zip
    a. ssdt_v3: ssdt_hdmi_hd5x0
        i. ssdt_hdmi-hd530
        ii. ssdt_hdmi-hd540
    b. ssdt - ssdt_hdef (onboard audio, if needed)
        i. ssdt_hdef-1-100-hdas
        ii. ssdt_hdef-2-100-hdas
3. Restart with HDMI device connected, both methods

Step 3: Verify HDMI Audio (Ex., HDMI/DP/AirPlay audio enabled)



kext edit (ex.,HD530)

1. AppleIntelSKLGraphicsFramebuffer.kext
    a. HD530 Only
        i. Hex Editor
            - binary: AppleIntelSKLGraphicsFramebuffer
            - find: 01030303
            - repl: 01030403
            - cmt: 10.11.4+-SKL-1912000-4_displays
        ii. Hex Editor (ex., connector edit)
            - binary: AppleIntelSKLGraphicsFramebuffer
            - find: 01050900 00040000 87010000
            - repl: 01050900 00080000 87010000
            - cmt: 10.11.4-SKL-1912000-Port_0x5-DP2HDM

ssdt edit (ex.,HD530)

1. Name (GFX0._STA, Zero)
   Device (IGPU)

```
{
    Name (_ADR, 0x00020000)
    Method (_INI, 0, NotSerialized)
    {
        Store (Zero, \_SB.PCI0.GFX0._ADR)
    }

    Method (_DSM, 4, NotSerialized)
    {
        If (LEqual (Arg2, Zero))
        {
            Return (Buffer (One)
            {
                0x03
            })
        }

        Return (Package (0x04)
        {
            "AAPL,ig-platform-id",
            Buffer (0x04)
            {
                0x00, 0x00, 0x12, 0x19
            },

            "hda-gfx",
            Buffer (0x0A)
            {
               "onboard-1"
            }
        })
    }
}
```

2.
```
Name (HECI._STA, Zero)
Name (HECI._STA, Zero)
Device (IMEI)
{
    Name (_ADR, 0x00160000)
    Method (_INI, 0, NotSerialized)
    {
```

```
        Store (Zero, \_SB.PCI0.HECI._ADR)
    }

    Method (_DSM, 4, NotSerialized)
    {
        If (LEqual (Arg2, Zero))
        {
            Return (Buffer (One)
            {
                0x03
            })
        }

        Return (Package (0x02)
        {
            "device-id",
            Buffer (0x04)
            {
                0x3A, 0xA1, 0x00, 0x00
            }
        })
    }
}
```

3.
```
Name (HDAS._STA, Zero)
Device (HDEF)
{
    Name (_ADR, 0x001F0003)
    Method (_INI, 0, NotSerialized)
    {
        Store (Zero, \_SB.PCI0.HDAS._ADR)
    }

    Method (_DSM, 4, NotSerialized)
    {
        If (LEqual (Arg2, Zero))
        {
            Return (Buffer (One)
            {
                0x03
            })
```

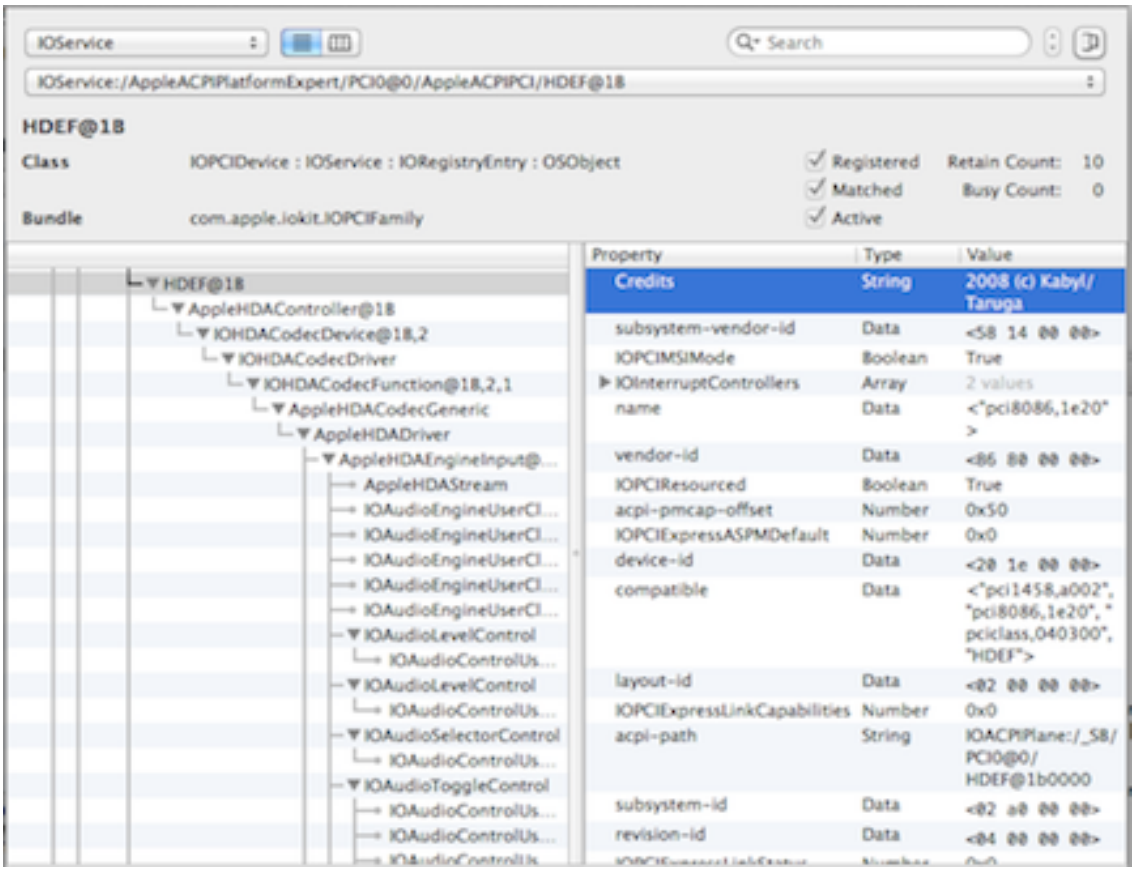
```
        }

        Return (Package (0x06)
        {
            "hda-gfx",
            Buffer (0x0A)
            {
                "onboard-1"
            },

            "layout-id",
            Unicode ("\x03"),
            "PinConfigurations",
            Buffer (Zero) {}
        })
    }
}
```

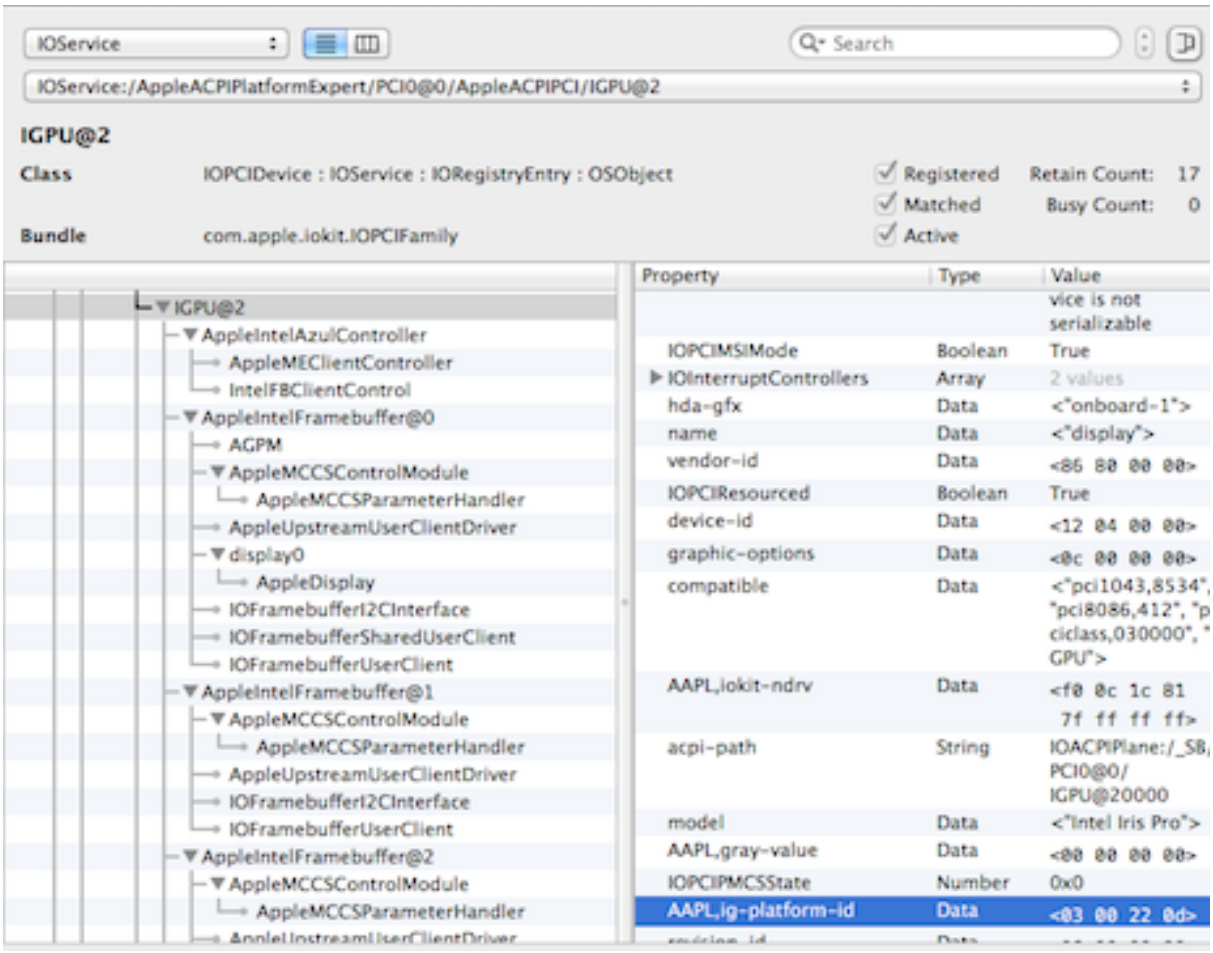
Troubleshooting

1. Verify HDMI device connected
    a. System Information/Graphics/Display/HDMI device/ Television/Yes
2. Run IOReg/IOJones/Verify Devices HDEF, IGPU (native/GFX0) and HDAU
    a. Ex. IOReg/Search: HDEF
    b. Select HDEF
    c. Cancel Search (x)
    d. Scroll up to view HDEF device and properties
3. IOReg/IOJones/Verify HDEF@1B
    a. If Credits, delete S/L/E/HDAEnabler1.kext or HDAEnabler2.kext
    b. Verify layout-id = 3
    c. Verify hda-gfx = <onboard-1>
    d.



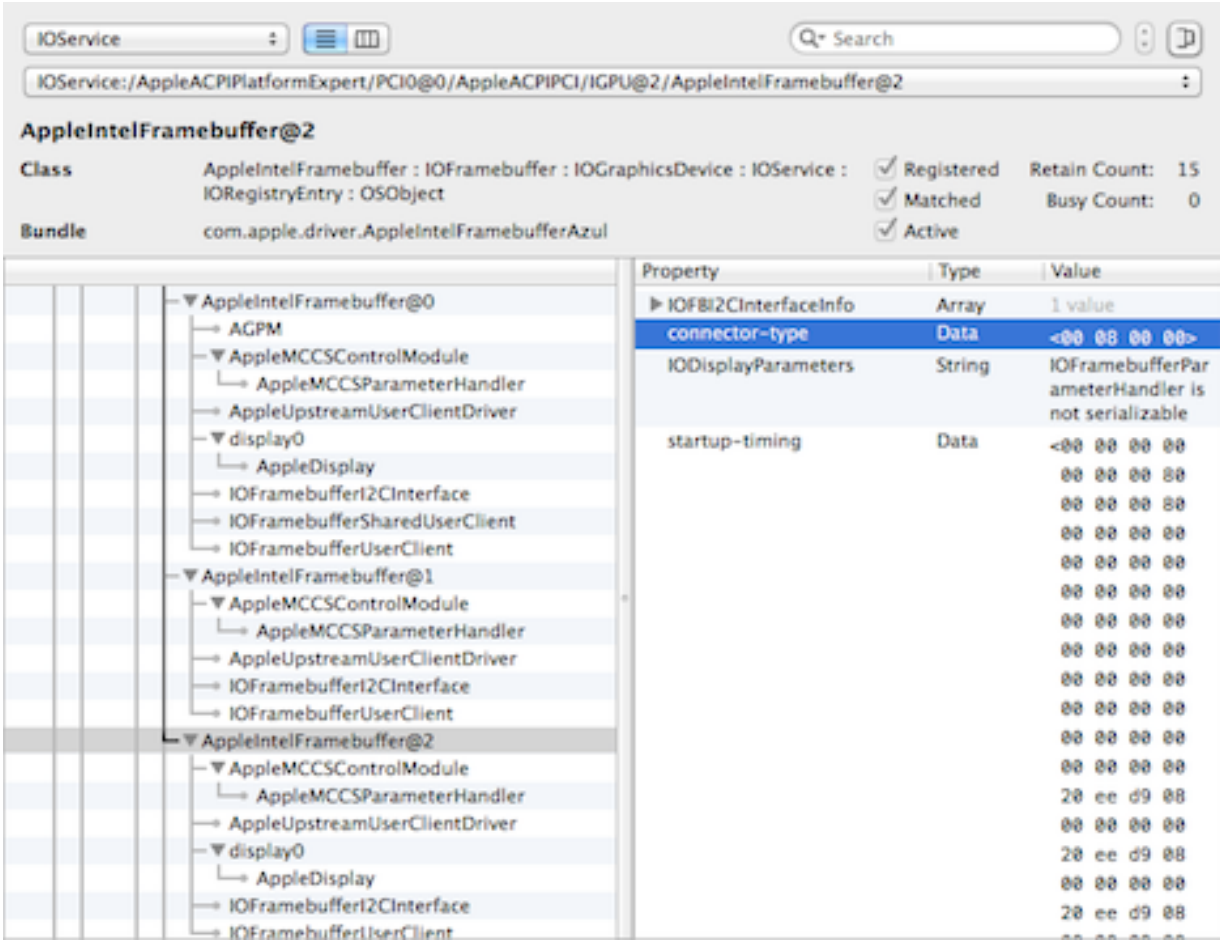
4. IOReg/IOJones/Verify IGPU@2 (or GFX0@2)

a. If no IGPU@2 verify HD5x0 HDMI audio ssdt
b. Verify hda-gfx = <onboard-1>
c. If no AppleIntelSKLController, verify HD5x0 HDMI audio ssdt
d. Verify HD530/AAPL,ig-platform-id=<00 00 12 19> OR
e. Verify HD540/AAPL,ig-platform-id=<00 00 26 19>
f.



5. Verify AppleIntelFramebuffer@[0, 1 or 2] with display0 attached
   a. HDMI: connector-type=<00 08 00 00>
   b. DVI: connector-type=<00 08 00 00>
   c. DP: connector-type=<00 04 00 00>

d.



Problem Reporting

1. Problem Reporting/Post to:
2. Problem Reporting/Attached requested files

Credit

RehabMan

bcc9, Post #11 http://www.insanelymac.com/forum/top...ort/?p=1934889