[Guide]_HD5x0-hdmi_audio_(clover_or_ssdt)_v1

HD5x0 HDMI Audio

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

v1: 4/10/2016 - Initial release

OS X 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 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: 3 only
    a. 3 - HD5x0/HD4000/HD300 HDMI audio
        - 3, 5, 6 port motherboard audio (-A3)
        - Orange port removed (no 5.1 analog)
        - Supports 1x HDMI or DP device

Before You Start

1. OS X 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. DPCIManager
3. MaciASL
4. Xcode on the Mac App Store

OS X/HD5x0 HDMI Graphics and Audio

1. HD5500 (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
    d. Three displays supported, one with HDMI audio
        i. DP
        ii. DVI (w/DVI2HDMI adapter)
        iii. HDMI
2. Supported Configurations (OS X HDMI Audio)
    a. HD5x0 only
    b. Nvidia only
    c. AMD only
    d. HD5x0 and Nvidia
    e. HD5x0 and AMD

HD5x0 HDMI Audio Installation

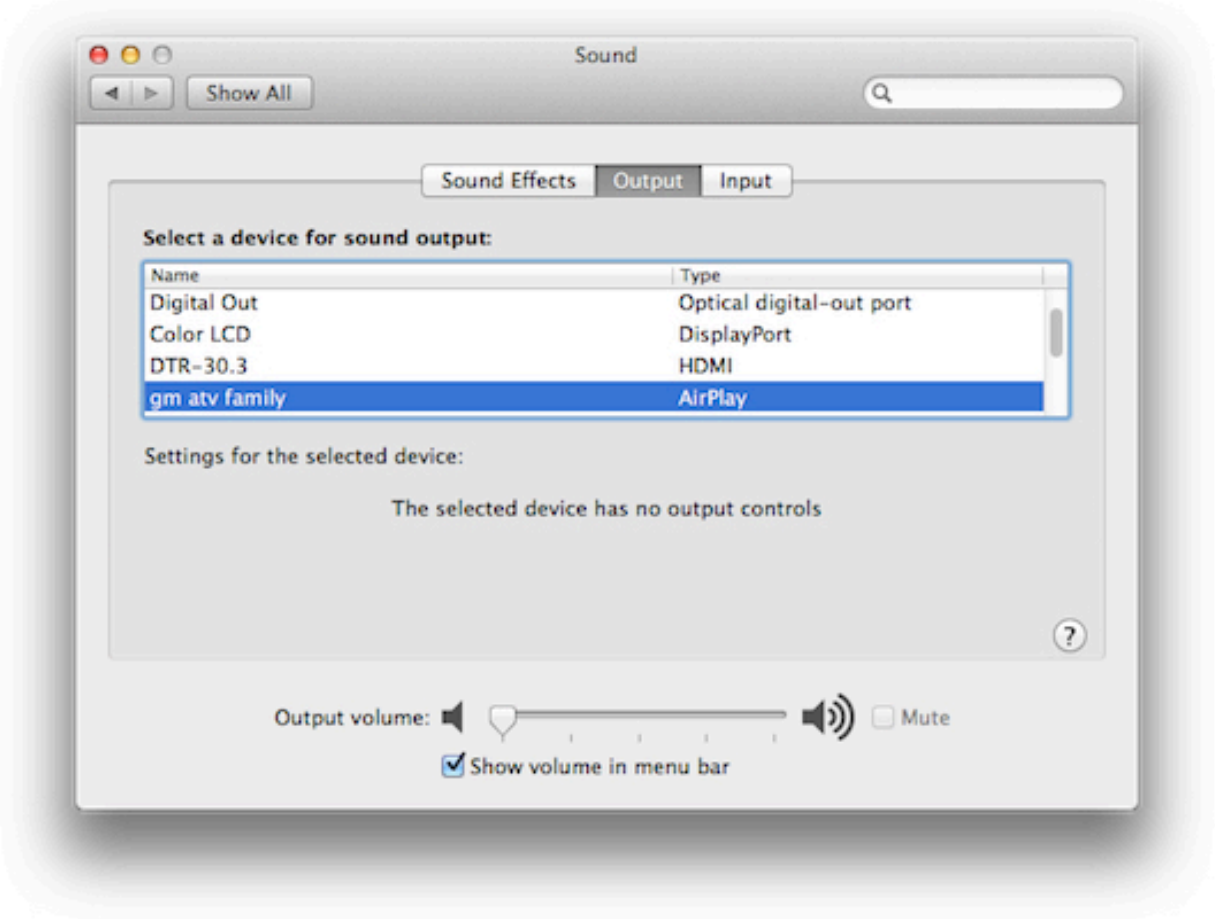
Step 1: HD5x0 HDMI Audio kext edits (see Step 2/Clover)

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

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
    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-3-100-hdas
3. dsdt edits: not available
4. Restart with HDMI device connected

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

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
         }
      })
   }
}
```

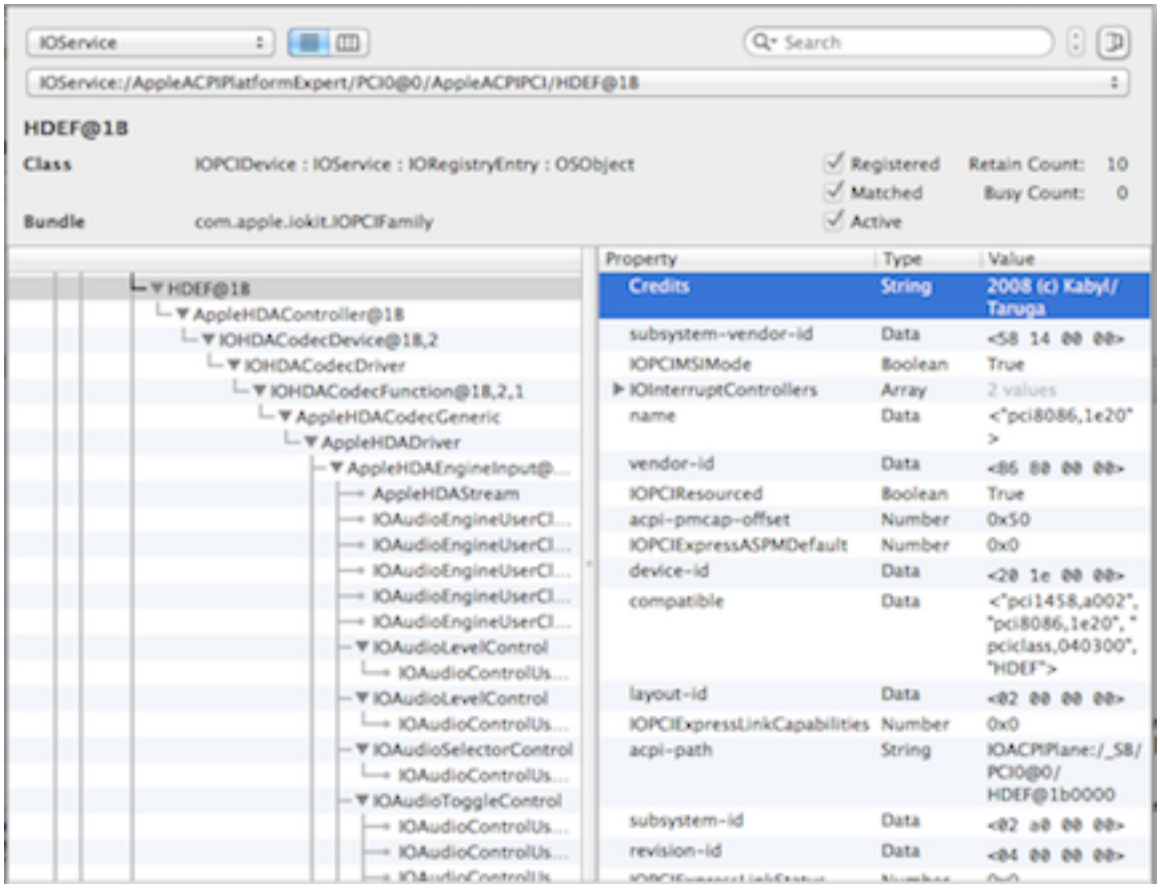
3.
```
Name (HDAS._STA, Zero)
Device (HDEF)
{
```

```
    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) {}
        })
    }
}
```

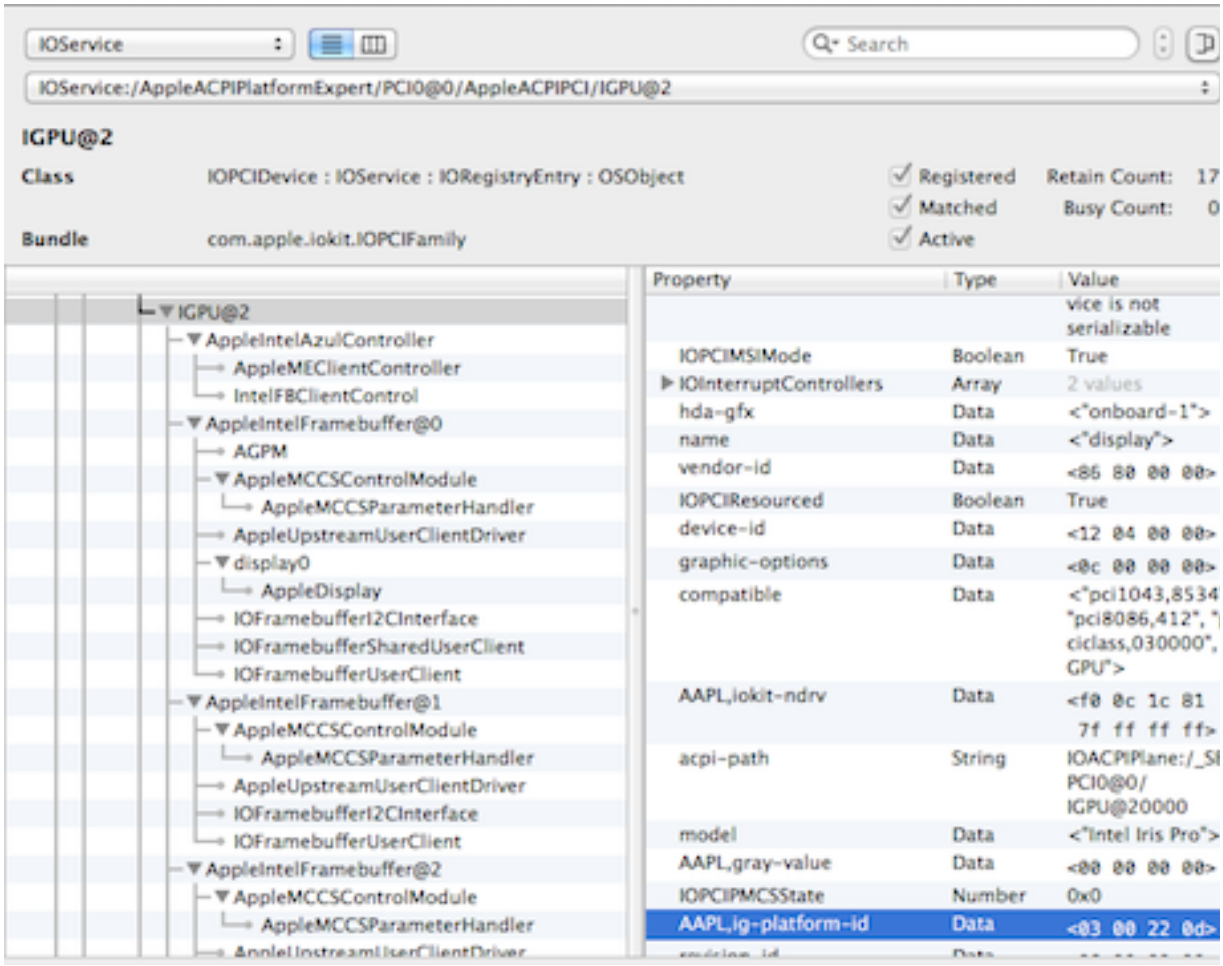
Troubleshooting

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.

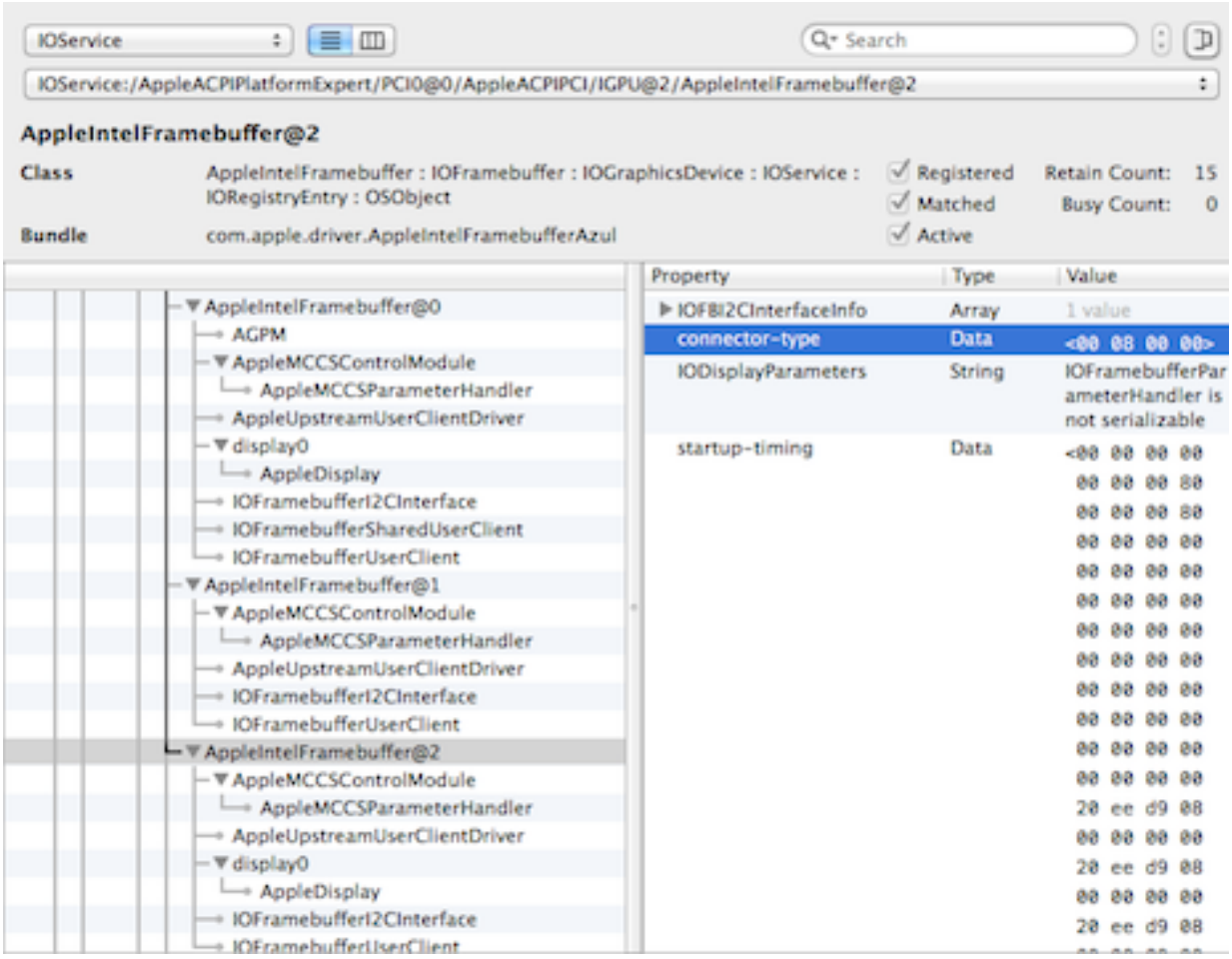


4. IOReg/IOJones/Verify IGPU@2 (or GFX0@2)
    a. If no IGPU@2 verify HD5x0 HDMI audio ssdt
    b. Verify hda-gfx = <onboard-1>
    c. If no AppleIntelSKLController, verify HD5x0 HDMI audio ssdt
    d. Verify HD530/AAPL,ig-platform-id=<00 00 12 19> OR
    e. Verify HD540/AAPL,ig-platform-id=<00 00 26 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