Haswell HDMI audio
with or without dsdt edits

Haswell/8 Series/Socket 1150 - HD46000/AMD/Nvidia HDMI Audio

Update v1.2: 10/23/13 - Mavericks/10.9 and HD7xxx supported
Update v1.1: 10/14/13 - HDMIx2 and DVI2HDMI audio working

Mountain Lion HDMI audio for Haswell/HD4600 systems with either: 1. HDMI audio edited dsdt or 2. the Haswell HDMI audio ssdt. Both techniques enable native Haswell graphics power management. Haswelll HDMI audio is not native; an AppleIntelFramebufferAzul.kext edit is always required as well as an AppleHDA.kext edit. Credit, PikeRAlpha for both fixes.

Haswell HDMI Audio dsdt edits/HDMI Audio ssdts - **Desktop**
toleda/audio_hdmi_8series
Configure MaciASL/Preferences/Sources/+ with URL: (copy/paste URL)
https://raw.github.com/toleda/audio_hdmi_8series/master

News:
1. Haswell/HD4600/AMD/Nvidia HDMI audio is working
2. This guide assumes Azul framebuffer 0x0300220D, edit AAPL,ig-platform-id (dsdt or ssdt) for your preferred framebuffer
3. New Azul patch supports HDMIx2 and DVI2HDMI audio

Requirements (this version, Haswell HDMI audio)
1. AMI UEFI/Haswell/8 Series/Socket 1150 Intel motherboard
2. HD4600 graphics and/or native OS X HDMI audio graphics support including Nvidia 4xx, 5xx, 6xx and some AMD 5xxx, 6xxx
3. OS X versions supported
    1. Mavericks.10.9 and newer
    2. Mountain Lion/10.8.5 and newer
4. Haswell motherboard audio codecs
    1. Supported: ALC887, ALC892, ALC898 and ALC1150
    2. Unsupported codecs/HDMI audio only, see Note 4, below

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. Remove S/L/E/HDAEnabler1.kext or S/L/E/HDAEnabler2.kext (if present)
4. Remove any property-type injection (Extra/org.chameleon.Boot.plist or Clover/config.plist, remove the injection not the plist file)
5. Apply kext patches per **Notes** 1 and 2, below
6. CAUTION: Do not hot plug the HDMI cable; the system will freeze with a fatal Intel error and restart
7. Wake issues with 10.8.5 and Supplemental Update 1.0, see **Notes**, 7

ML Haswell HDMI audio enabling techniques - select one

1. ML: Haswell HDMI Audio dsdt (with dsdt edits)
2. ML: Haswell HDMI Audio ssdt (with native dsdt)

1. Installation - Haswell HDMI audio dsdt

1. MaciASL, see **Tools**, 1.
2. dsdt must compile before HDMI audio editing dsdt
3. MaciASL/Preferences/Sources/raw.github.com/toleda/audio_hdmi_8series/master
4. MaciASL/Patch/Open/
5. MaciASL/Apply/Compile/Save
6. Install Extra/dsdt.aml
7. Rebuild kernel cache - see **Tools:** 3.
8. Restart
9. Verify HDMI audio

2. Installation - Haswell HDMI audio ssdt

1. audio_hdmi_8series/ssdt_8series at master · toleda/audio_hdmi_8series
2. Copy Downloads/audio_ssdt-hdmi.. . ./SSDT-1.aml to Extra
    1. f Extra/SSDT.aml is present, install SSDT-1.aml as is: Extra/SSDT-1.aml
    2. If no Extra/SSDT.aml, rename SSDT-1.aml to SSDT.aml and install as: Extra/SSDT.aml
    3. The 1st SSDT is SSDT, 2nd is SSDT-1, 3rd is SSDT-2, etc.; no gaps
3. Enable SSDT
    1. Chimera or Chameleon - Extra/org.chameleon.Boot.plist
       <key>DropSSDT</key>
       <string>Yes</string
    2. Clover_v2000+ - EFI/Clover/config.plist/ACPI/SSDT
       <key>DropOem</key>
       <true/>
4. Rebuild kernel cache, see **Tools** 3.
5. Restart
6. Verify HDMI audio

Native ML/10.8.5 HDMI Audio Graphics

1. HD4600 (no native HDMI audio support, framebuffer edits required)
    1. HDMI display (Azul framebuffer 0x0300220D)

        1. AppleIntelFramebuffer@0, native supports DP
        2. AppleIntelFramebuffer@1, with edit, supports DVI or HDMI
        3. AppleIntelFramebuffer@2, with edit, supports HDMI
    2. DP audio supported
    3. DVI audio supported
    4. Three displays supported, two with HDMI audio
        1. DP + HDMI or DP + DVI
        2. DVI (w/DVI2HDMI adapter)
        3. HDMI, HDMIx2 or HDMI + DVI
        4. Special case: DP and DPx2, no Azul edit required.
2. Nvidia 4xx/5xx/6xx7xx
    1. Not supported natively: GTS 450, GTX 550ti, and GTX560ti
    2. All Nvidia graphic card connectors support HDMI audio (DVI2HDMI, DP2HDMI)
    3. DP audio supported
    4. DVI audio supported
3. AMD HD5xxx/HD6xxx/HD7xxx (framebuffer injection/editing may be required)
    1. Framebuffers, see ATI/AMD 5xxx & 6xxx Graphics Cards Framebuffer Personalities,
    2. Framebuffer edits,
        1. Lion HDMI Audio - Part 3a: Kext Edits - AMD
        2. Editing custom personalities for ATI Radeon HD[45]xxx - ATi - InsanelyMac Forum)
    3. DP audio supported
    4. DVI audio not supported
4. Supported Configurations (ML Haswell HDMI Audio)
    1. HD4600 only
    2. Nvidia only
    3. AMD only
    4. HD4600 and Nvidia
    5. HD4600 and AMD

Notes

1. Haswell/AppleHDA.kext (backup native kext before patching)
    1. 10.9/AppleHDA.kext_v2.5.2 only edit
        1. MultiBeast 6.0 or newer
        2. Select View Raw: audio_hdmi_8series/audio_hdmi_hd5K-hda-90_patch.command.zip at master · toleda/audio_hdmi_8series
    2. 10.8.5/AppleHDA.kext_v2.4.7 only edit
        1. MultiBeast 5.5.3 or newer
        2. Select View Raw: audio_hdmi_8series/audio_hdmi_hd5K-hda-85_patch.command.zip at master · toleda/audio_hdmi_8series
2. Haswell/AppleIntelFramebufferAzul.kext (backup native kext before patching)
    1. 10.9/AppleIntelFramebufferAzul.kext_v8.18.26 only edit

        1. Select View Raw: audio_hdmi_8series/audio_hdmi_hd5k-azul-90_patch.command.zip at master · toleda/audio_hdmi_8series
    1. 10.8.5/AppleIntelFramebufferAzul.kext_v8.16.74 only edit
        1. Select View Raw: audio_hdmi_8series/audio_hdmi_hd5k-azul-85_patch.command.zip at master · toleda/audio_hdmi_8series
3. Haswell HDMI audio woks with two ML Audio IDs select one ID
    1. Audio_ID: 1 supports HD4600/AMD/Nvidia HDMI and 3, 5 and 6 port Realtek ALC onboard audio
    2. Audio_ID: 2 supports HD4600/AMD/Nvidia HDMI and 3 port Realtek ALC onboard audio
4. For unsupported motherboard audio codecs, the native 10.8.5 AppleHDA.kext supports HDMI audio only when configured properly (Notes 1, 2 and 3-1)
5. Haswell patches must be applied after each software update.
6. No testing on laptops has been performed to date.
7. 10.8.5 and 10.8.5 Supplemental Update 1.0
    1. No HDMI audio after wake, restart required. (DP audio OK)
    2. 2nd HDMI display may wake to black screen

AppleIntelFramebufferAzul.kext/Framebuffer 0x0300220D/edit

1. Native

    01 05 12 00 00 04 00 00 87 00 00 00
    02 04 14 00 00 04 00 00 87 00 00 00
    03 06 10 00 00 04 00 00 11 00 00 00

2. Edited

    01 05 12 00 00 04 00 00 07 01 00 00
    02 04 14 00 00 08 00 00 06 00 00 00
    03 06 12 00 00 08 00 00 06 00 00 00

Troubleshooting

1. Verify HDMI device connected
    1. System Information/Graphics/Display/HDMI device name/Television/Yes
2. Run IOReg/IOJones/Verify Devices (PEGP, IGPU and HDAU)
    1. Device (IGPU and HDAU) may not be present if HD4600/HD5000 Graphics is not enabled
    2. Device (PEGP) may not be present if no discrete graphics
    3. If GFX0@2 exits, edited dsdt or ssdt not installed or installed improperly
3. IOreg/IOJones/Verify HDAU@3
    1. IOHDACodecDevice@3/IOHDACodecVendorID: …80862807
    2. If no codec, apply **Notes**: 1. AppleHDA.kext edit
4. IOreg/IOJones/Verify IGPU@2
    1. AppleIntelFramebuffer@2/connector-type=<00 08 00 00>
    2. if wrong connector, apply **Notes**: 2: AppleIntelFramebufferAzul.kext edit

Problem Reporting

1. Motherboard/BIOS version/processor/graphics/OS and version
2. Copy of dsdt (if edited)
3. Copy of HDMI audio SSDT ((if installed)
4. Copy of IORegistryExplorer/IOJones
5. Post: see README.txt/Problem Reporting, toleda/audio_hdmi_8series

Credit
PikeRAlpha Haswell HDAU solution | Pike's Universum
bcc9 http://www.insanelymac.com/forum/top...ort/?p=1934889, Post #11

Tools (Guides below)
1. Edit dsdt with MaciASL http://maciasl.sourceforge.net/
2. Rebuild kernel cache: see http://sourceforge.net/projects/dpcimanager/
3. Find HD4600 HDMI port-number: Alternative to IORegistryExplorer: IOJones

Guides
Rebuild kernel cache
Find HD4600 HDMI AppleIntelFramebuffer
Successful Terminal/audio_hdmi_hd5K-hda-85_patch.command
Successful Terminal/audio_hdmi_hd5K-azul-85_patch.command

Rebuild kernel cache
1. Open Downloads/DPCIManager/DPCIManager
2. Select: Rebuild Cache

Find HD4600 HDMI AppleIntelFramebuffer
1. Boot system with only HDMI display connected
2. Open Downloads/IOJones
3. Search: AppleIntelFr
   - Screenshot
4. Open each framebuffer to find display0
5. Select: AppleIntelFramebuffer (with display0)
6. Cancel Search (X)
7. Scroll up for AppleIntelFramebuffer to show
8. Note AppleIntelFramebuffer#0, 1 or 2
9. If HDMI display is attached to
10. AppleIntelFramebuffer#2, no further edits
11. AppleIntelFramebuffer#0, see instructions below
12. AppleIntelFramebuffer#1, see instructions below

Successful Terminal/audio_hdmi_hd5K-hda-85_patch.command

Last login: Sat Sep 28 15:32:41 on ttys000
$ .../Downloads/audio_hdmi_hd5K-hda-85_patch.command ; exit;
Patch binary ...
Fix permissions ...
Kernel cache...

Finished, restart required.
logout

[Process completed]

Successful Terminal/audio_hdmi_hd5K-azul-85_patch.command

Last login: Sat Sep 28 15:28:45 on console
$ .../Downloads/audio_hdmi_hd5k-azul-85_patch.command ; exit;
Patch binary ...
Password:
Fix permissions ...
Kernel cache...
Finished, restart required.
logout

[Process completed]