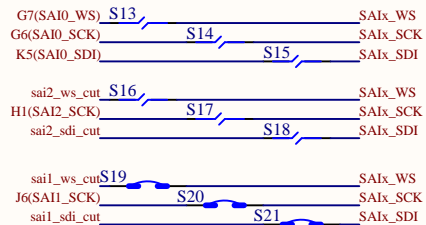
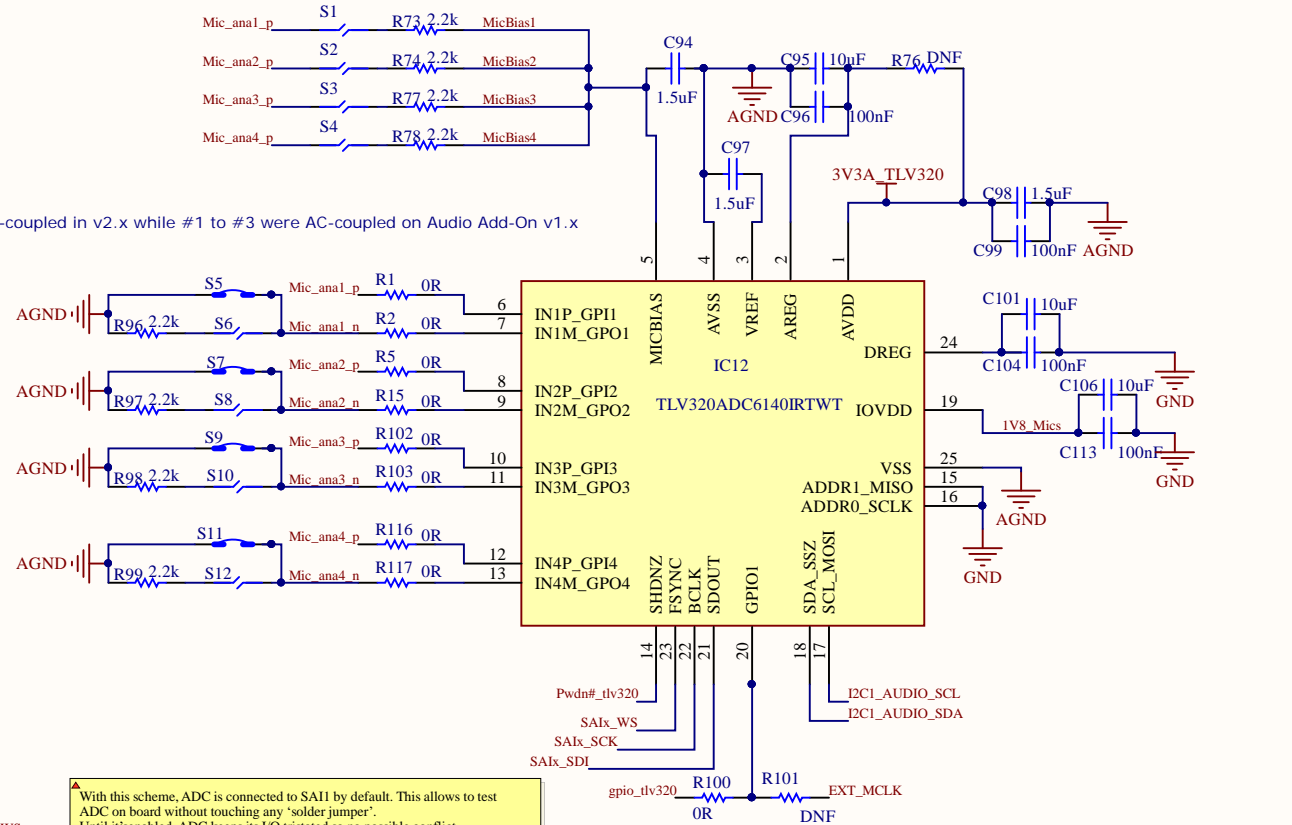


Optional RCA connectors to input single-ended analog line level (2 channels) - Assy option on back side

S1 to S12 are 'solder jumpers' to cope with different type of mics (analog MEMS, analog ECM, PDM), single-ended or differential.

Note: ADC inputs #1 to #4 are all DC-coupled in v2.x while #1 to #3 were AC-coupled on Audio Add-On v1.x



With this scheme, ADC is connected to SAI1 by default. This allows to test ADC on board without touching any 'solder jumper'. Until it's enabled, ADC keeps its I/O tristated so no possible conflict. Once enabled, and considering how other solder jumpers configure the board by default:

- Sai1_ws is *input* to PDMamp(R) -- no conflict
- Sai1_sck is *input* to DAC, but driven by non-tristate on-board buffer
- OK as long as ADC is used in *slave* mode (normal case)
- Sai1_sdi is *input* to D/A(R) in PDM mode and to PDMamp(R) --no conflict
- Sai1_sdo is not used by ADC --no conflict.

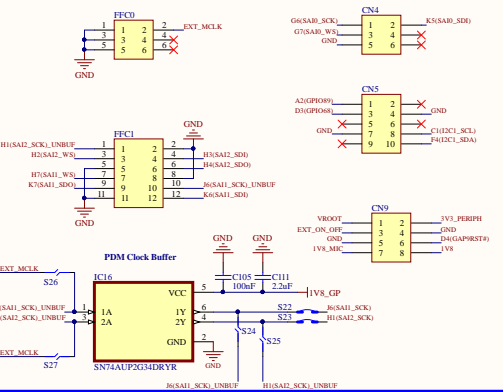
When ADC is in use on SAI1, then SAI2 can be used by GAP9 to communicate :

- with D/A(L) only + Mic.A, which use SAI2 exclusively --D/A(R) should be kept off and Mic.B cannot be used
- Or, *if cutting SB traces to dig. Mics*, with D/A (L+R) over I2S/TDM (so PCM) and no dig. mic.

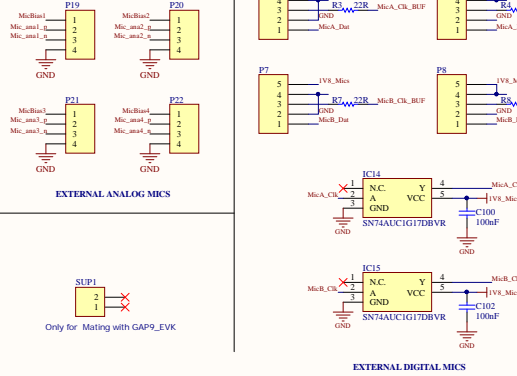
After initial testing of ADC, unless the intended use case requires to have ADC on SAI1, it is recommended to cut SB traces linking ADC to SAI1 for better signal integrity.

Title		
ANALOG LINE-IN + MIC		
Size	Number	Revision
A4		
Date:	03/11/2022	Sheet of
File:	C:\Users\...\GAP9EVK_Analog_Line-In-Draws\Doc	Draws\Doc

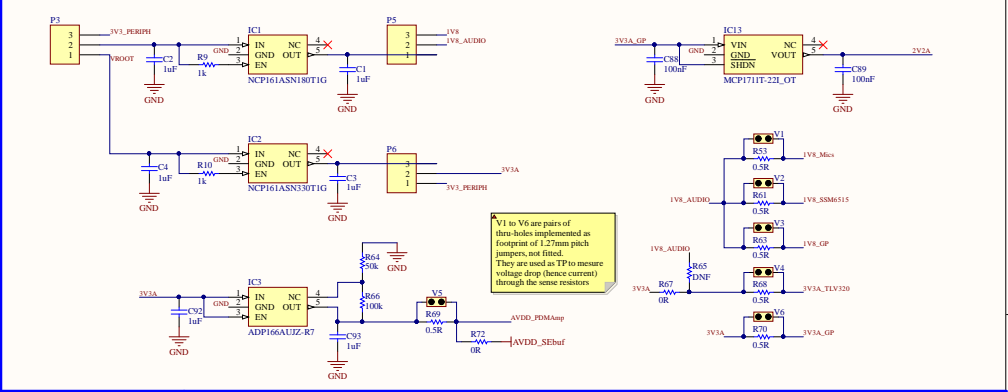
GAP9_EVK HEADERS+FFC



EDGE HEADERS

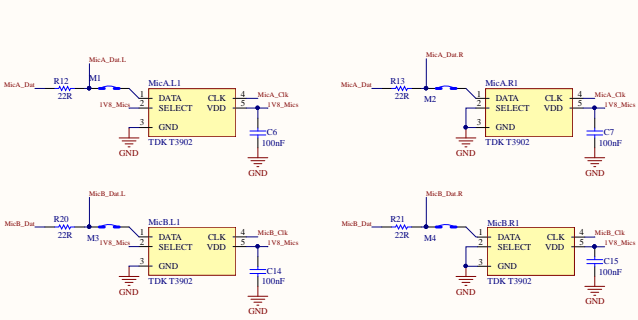


POWER MANAGEMENT



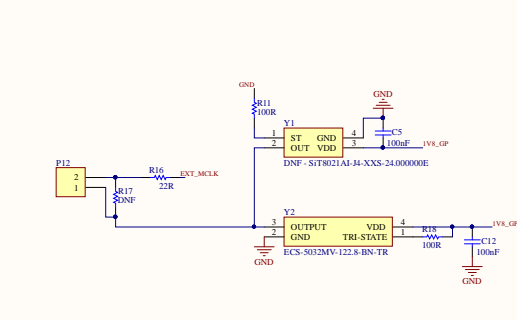
ON-BOARD PDM MICs

DNF / Remove / disconnect (remove 22R below) if using external PDM mic son SAI1 headers (P1, P2, P7, P8 above)

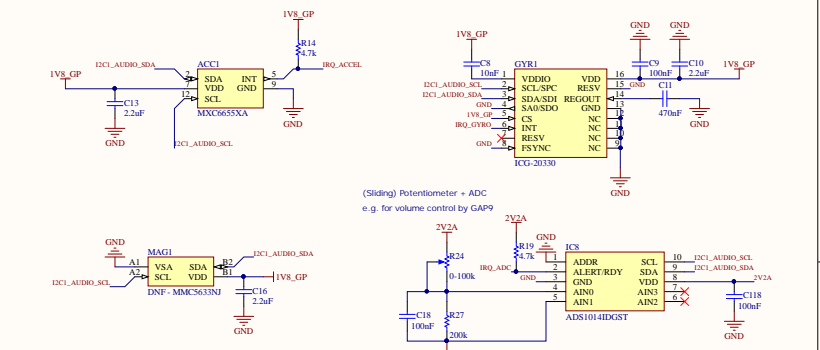


OPTIONAL CLOCK GEN.

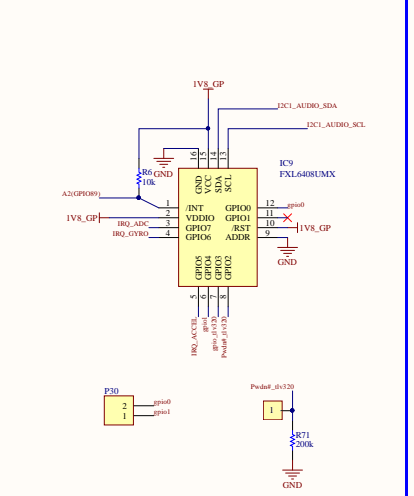
May use up to 24.576MHz



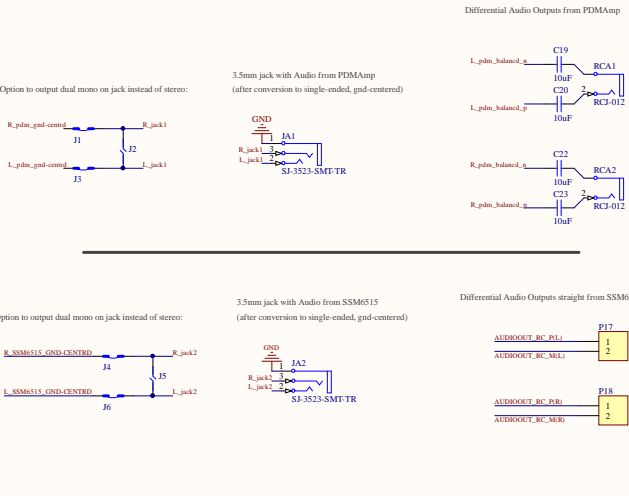
MOTION SENSORS AND UI



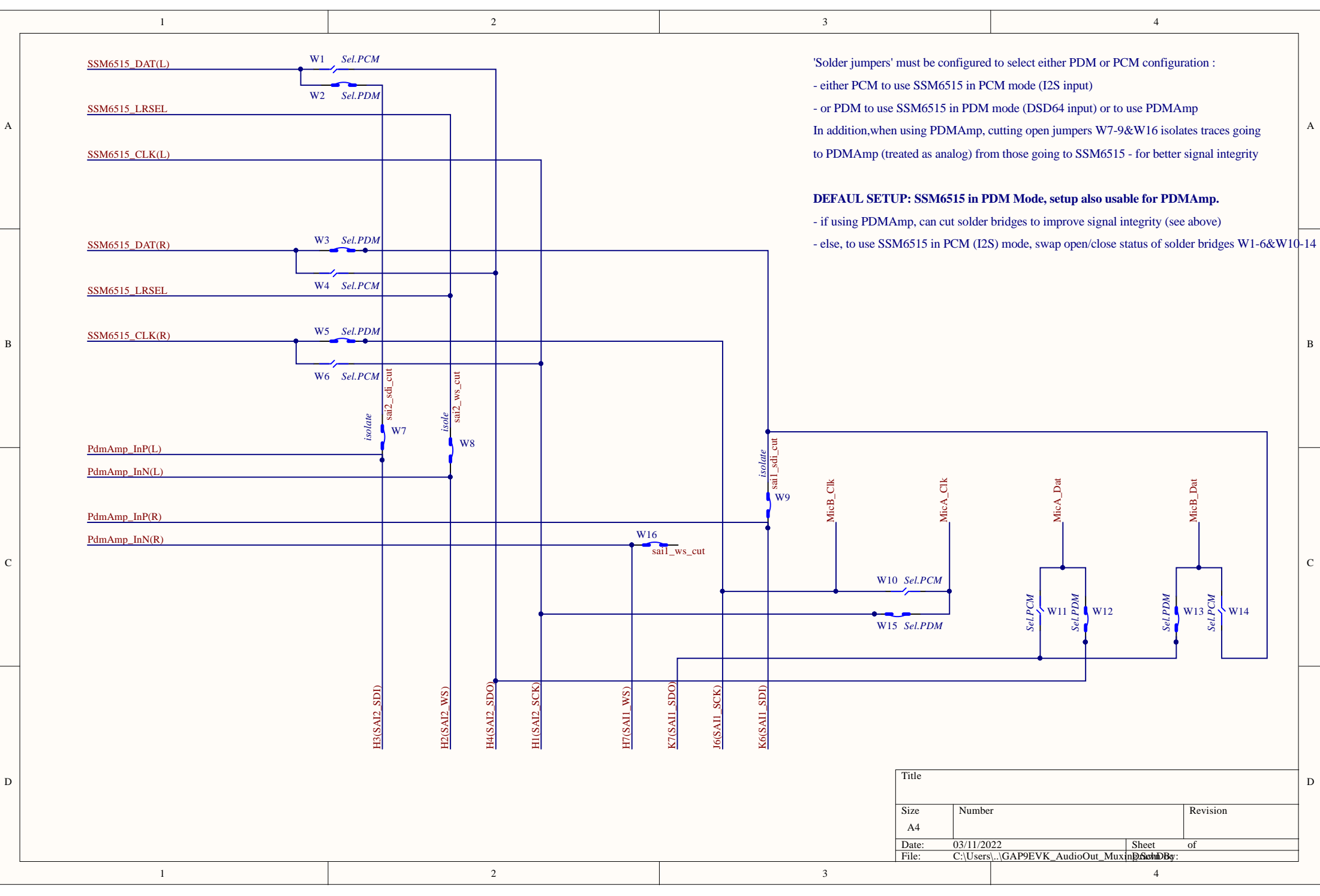
GPIO EXPANDER



AUDIO OUTPUTS



Title		
Size	Number	Revision
A2		
Date:	05/11/2022	Sheet of
File:	C:\Users\GAPDEVK_Audio\Drawings\	



'Solder jumpers' must be configured to select either PDM or PCM configuration :

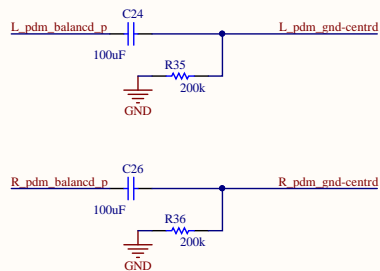
- either PCM to use SSM6515 in PCM mode (I2S input)
 - or PDM to use SSM6515 in PDM mode (DSD64 input) or to use PDMamp
- In addition,when using PDMamp, cutting open jumpers W7-9&W16 isolates traces going to PDMamp (treated as analog) from those going to SSM6515 - for better signal integrity

DEFAUL SETUP: SSM6515 in PDM Mode, setup also usable for PDMamp.

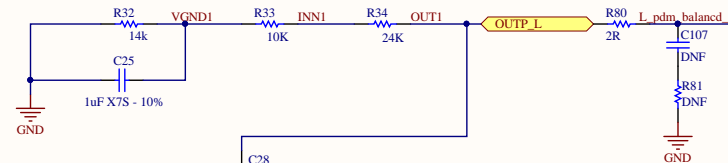
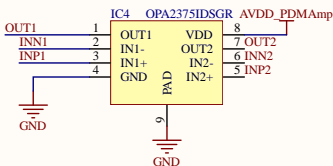
- if using PDMamp, can cut solder bridges to improve signal integrity (see above)
- else, to use SSM6515 in PCM (I2S) mode, swap open/close status of solder bridges W1-6&W10-14

Title		
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A4		
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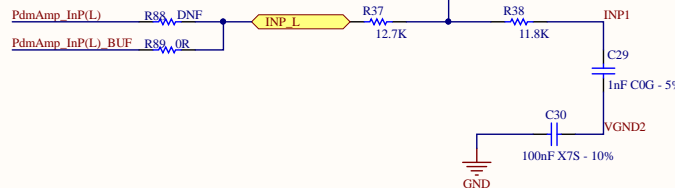
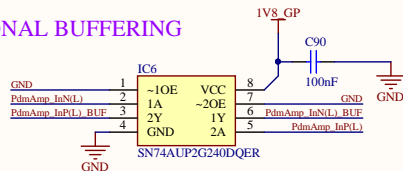
Diff to Single - GND-Ref'd conversion



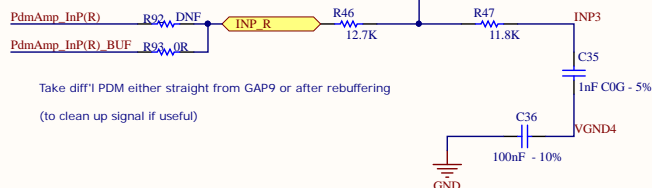
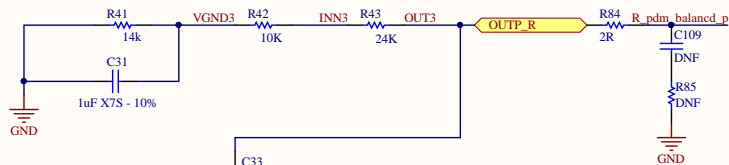
DIFFERENTIAL INPUT LEFT



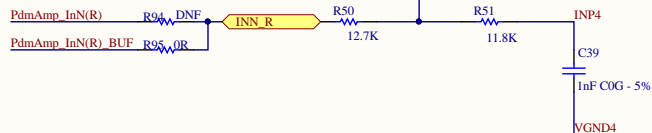
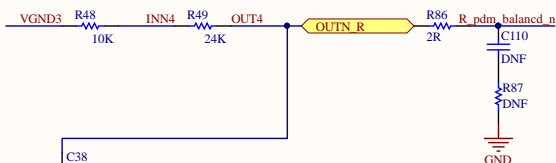
OPTIONAL BUFFERING



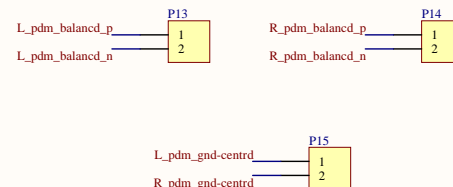
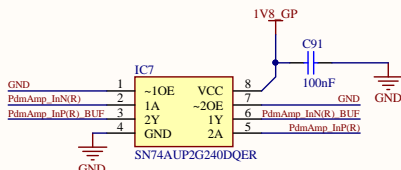
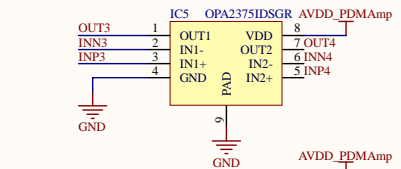
DIFFERENTIAL INPUT RIGHT



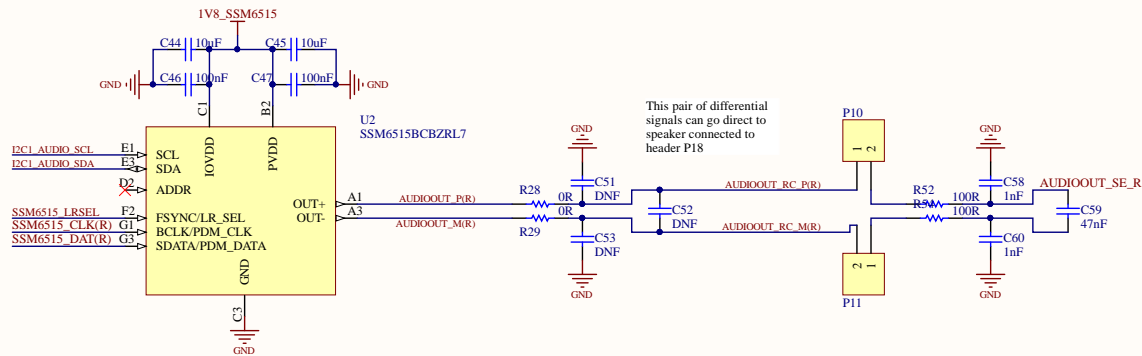
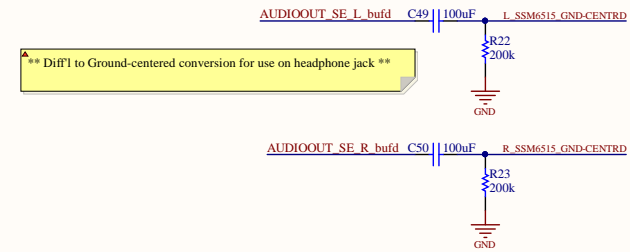
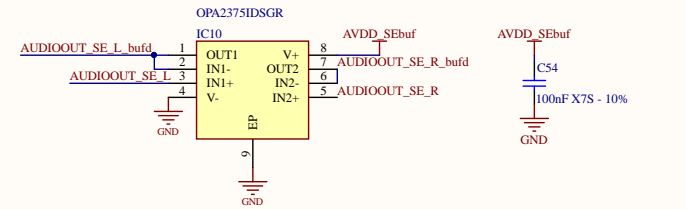
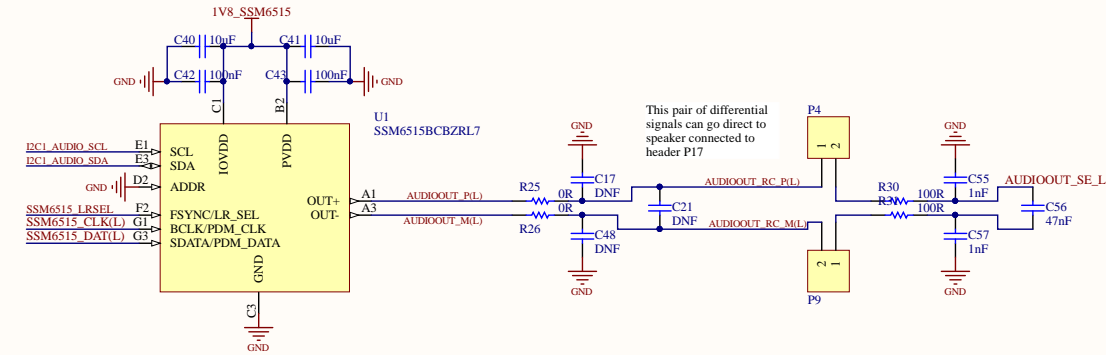
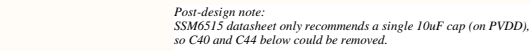
Take diff'l PDM either straight from GAP9 or after rebuffering
(to clean up signal if useful)



OPTIONAL INPUT BUFFERING

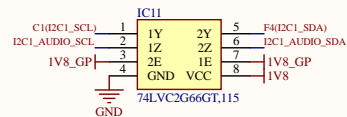


Title		
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A3		
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File:	C:\Users\...\GAP9EVK_PDMcore_OPA2375_SchDoc	



I2C ISOLATION

to avoid I2C bus being pulled low by SSM6515 in case its power supply (1V8_SSM6515) is switched off (1V8 is always on and 1V8_GP is equivalent to 1V8_SSM6515)



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