

MAPS TEST PCB SCHEMATICS REVIEW

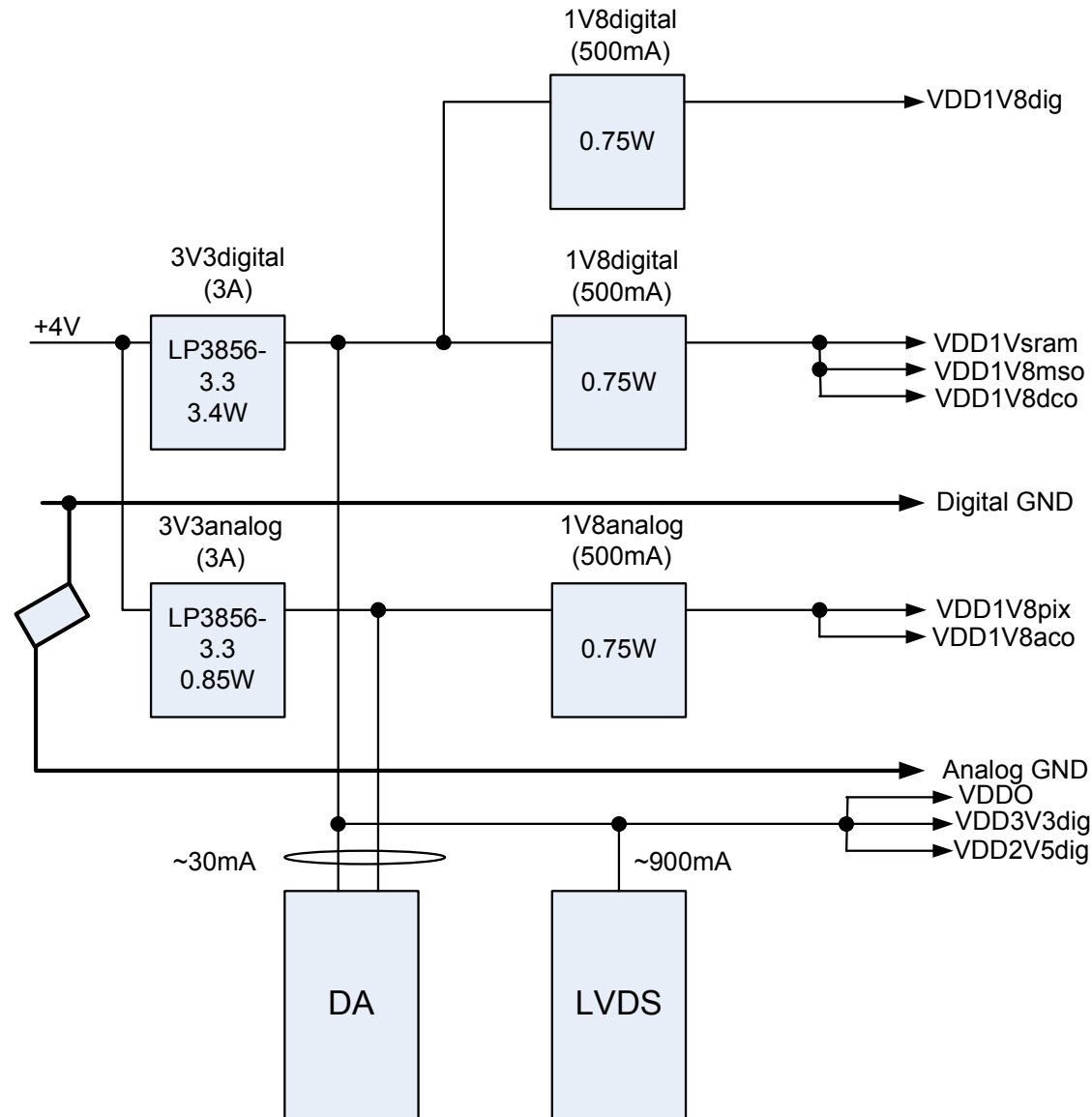
What has changed since the last meeting

- Power supply for the board: not 3.3V but 5V => not 5V but 4V instead, in order to avoid heat-sinking
- Signal wires: not 222way; 220way instead
- Two LA connectors?

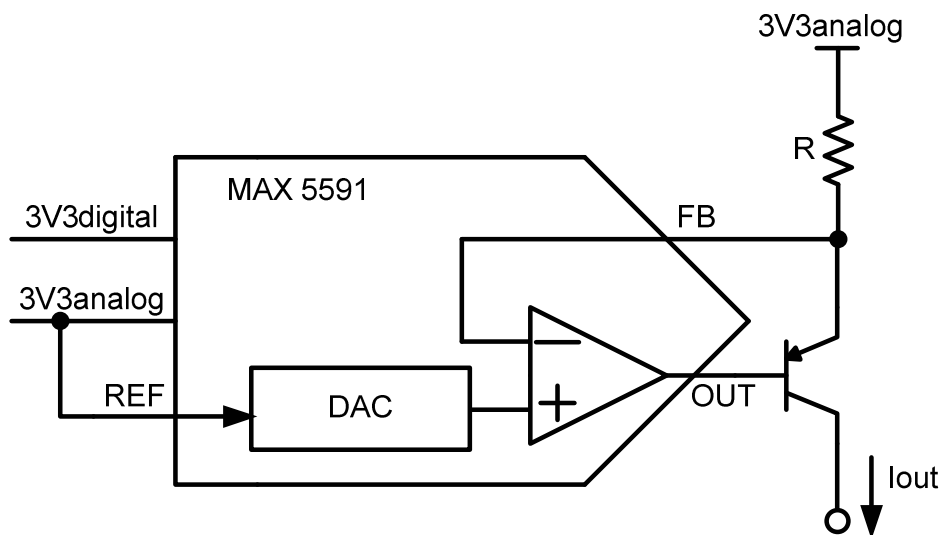
What I forgot to draw

- Ground hook(s)
- Measurement of bias currents and reference voltages... Discussion anybody...?
- (did not really forget) LA connector(s)

Power distribution



Current sources

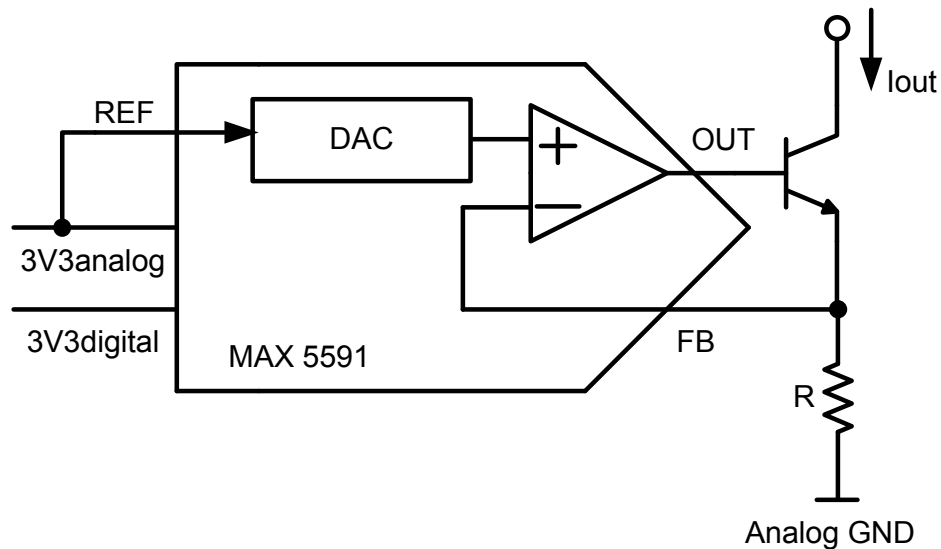


$$I_{OUT} = \frac{3.3V - \frac{3.3V}{2} \frac{D}{4096}}{R}$$

after power-up $D = 2048$:

$$I_{OUT} = \frac{3}{4} \frac{3.3V}{R}$$

Current sinks

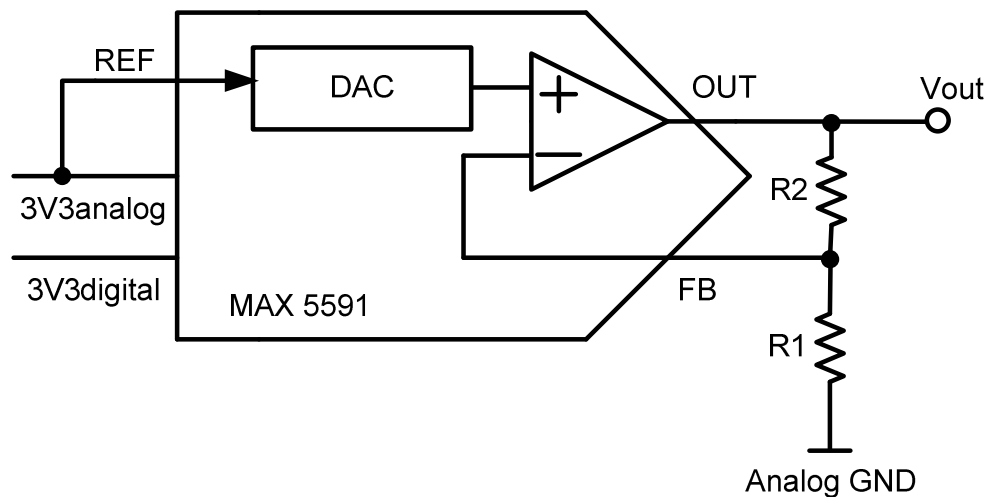


$$I_{OUT} = \frac{3.3V}{2} \frac{D}{4096 R}$$

after power-up $D = 2048$:

$$I_{OUT} = \frac{1}{4} \frac{3.3V}{R}$$

Voltage references



$$V_{OUT} = \frac{3.3V}{2} \left(1 + \frac{R_2}{R_1} \right) \frac{D}{4096}$$

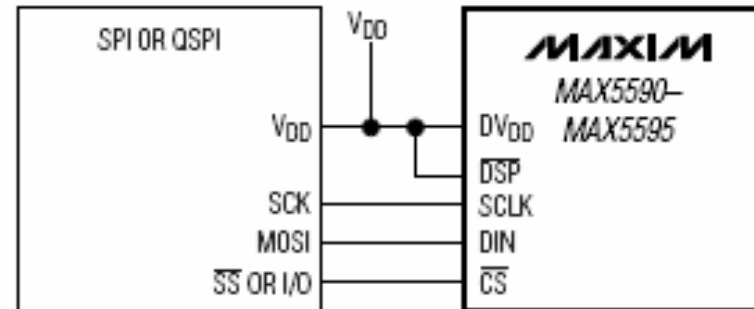
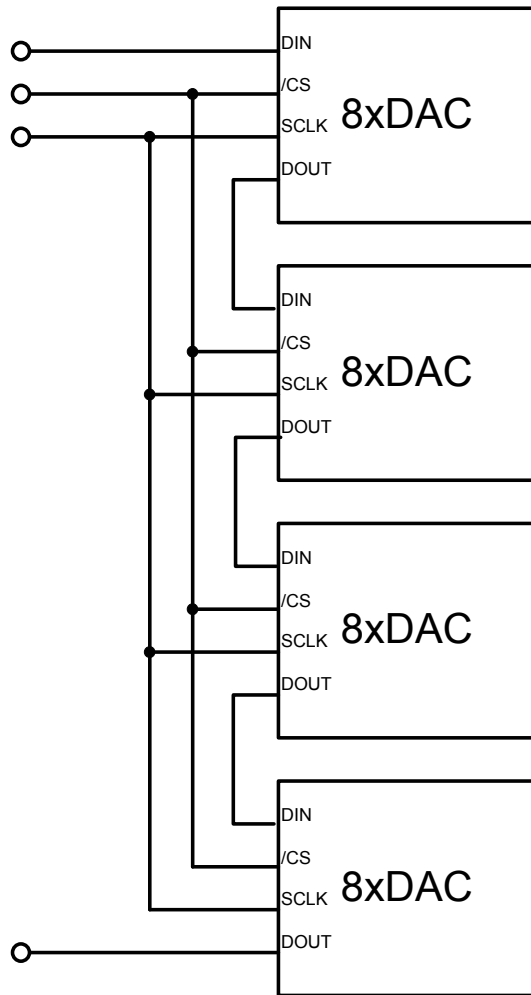
when $D = 4096$:

$$V_{OUT} = 1.8V$$

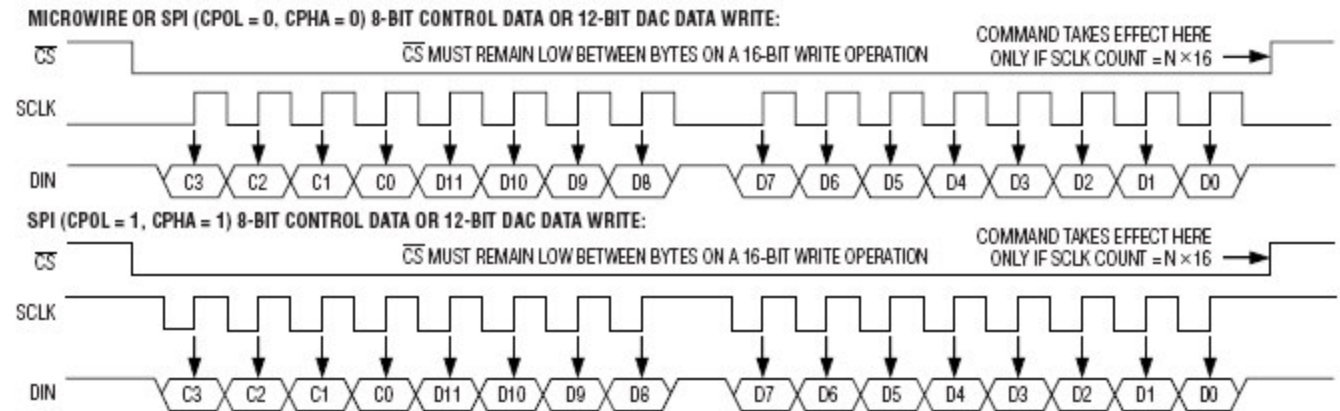
SPI

Daisy chain:

DOUT needs to be configured



waveforms for Matt

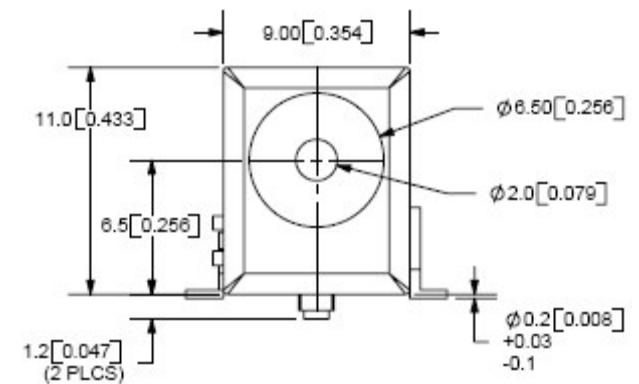
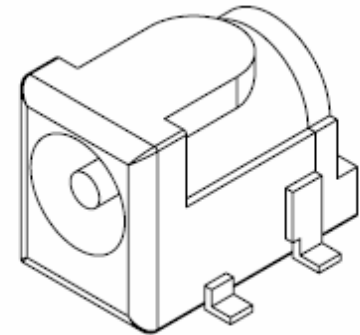


Probes' Access

- every named power net equipped with a dedicated jumper
- 6 analog signals on a dedicated header
- 6 digital signals on a dedicated header
- forgot to draw a ground hook ☹ and circuitry for bias currents and voltage references ☹ ☹

Connectors

- Signal connector -> 220way
 - ▶ no match so far
- Power supply -> tbd
 - ▶ low profile? how much low is low?
- Logic Analyzer -> two connectors?



Giulio's notes

- Analog outputs: directly connected to header
- 4cm clearance around the sensor seems a bit too much. Do I get it well it should be a 8cm x 8cm square?
- Power lines with jumpers -> done
- Chip carrier package: anybody?

What I need in order to proceed?

- Sensor footprint
- Connectorrrrrs ☹️
- How will bias currents and reference voltages be measured?
 - ▶ Currents (21):
 - ⇒ jumpers -> bulky
 - ⇒ series resistors -> voltage drop might cause malfunction if resistance too high? instruments' sensitivity -> is voltage drop of 30mV - 100mV acceptable?
 - ▶ Voltages (10):
 - ⇒ Header(s)?