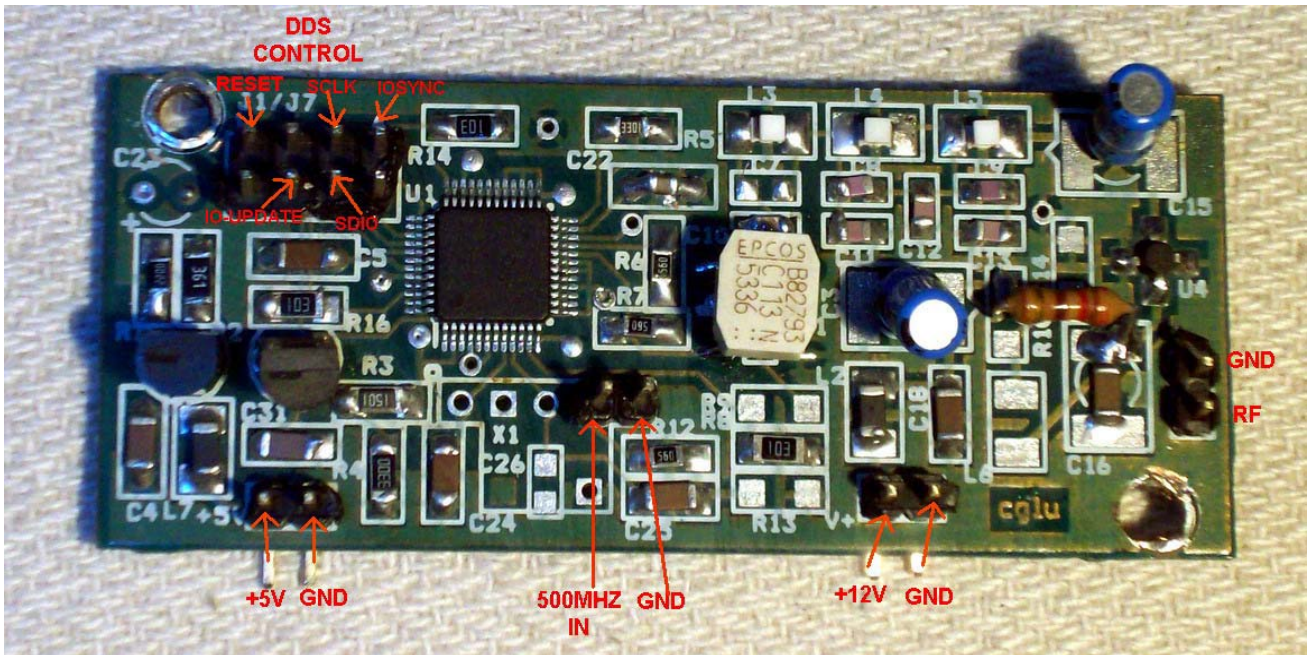


AD9951 DDS Board



Interconnections of PIC controller to DDS

J7 connector is near DDS PCB border

DDS board IOCG	Wire colour	PIC pins	DDS Signal
J1-2	Blue	22	IO-Update
J1-3	White	21	Data
J7-3	Red	16	Sclk
J7-4	Black	14	Iosy

Note that J7 connector is near the DDS PCB border

Note that keyboard connector on the PIC board is pin to pin with PIC connector

ALL DDS board connections.

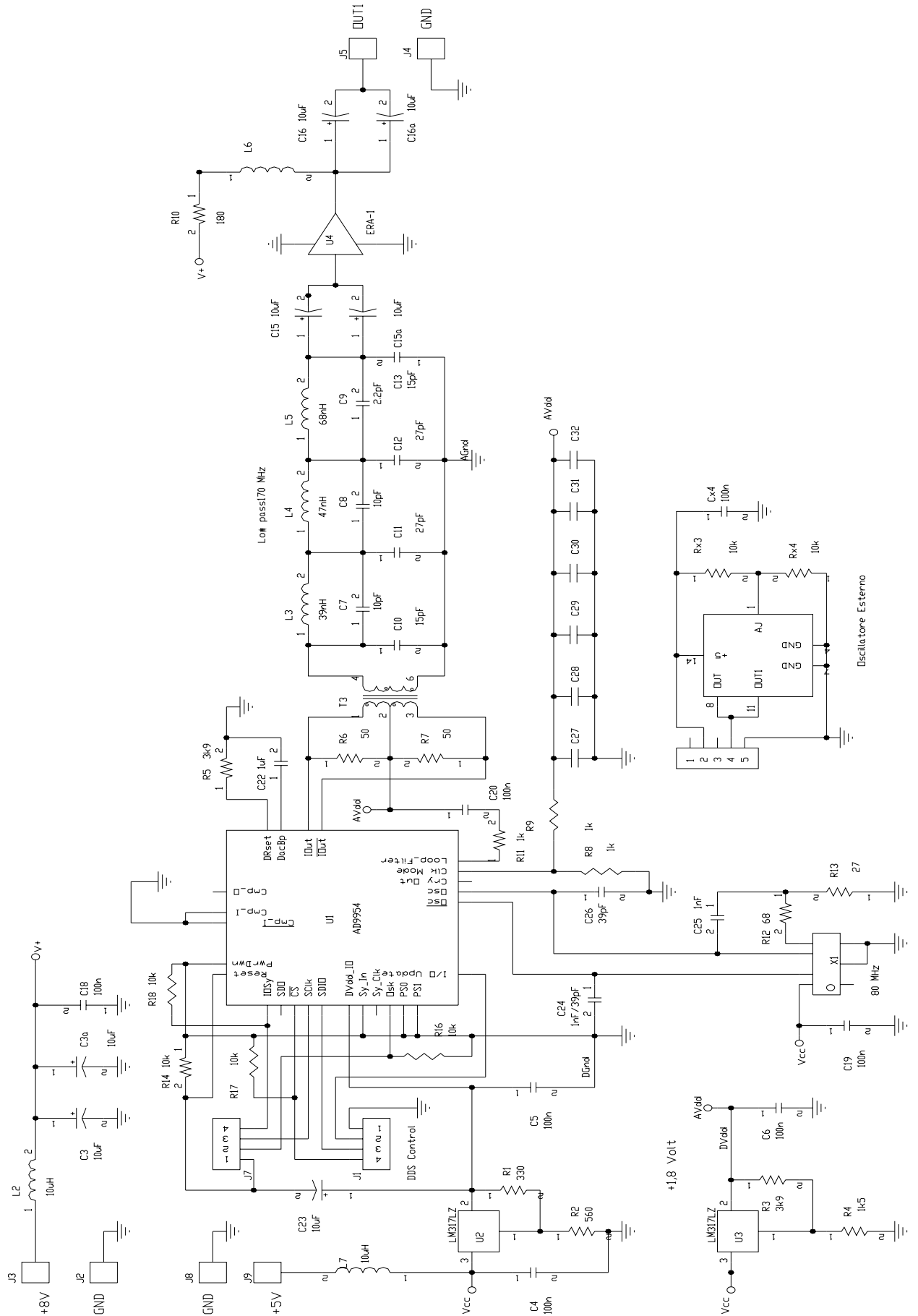
DDS board connector	DDS Signal	DDS PIN
J1-1	GND	
J1-2	IO-Update	1
J1-3	SDIO	41
J1-4	CS	39
J7-1	RESET	36
J7-2	OSK	48
J7-3	SCLK	40
J7-4	IOSYNC	37

Power supply:

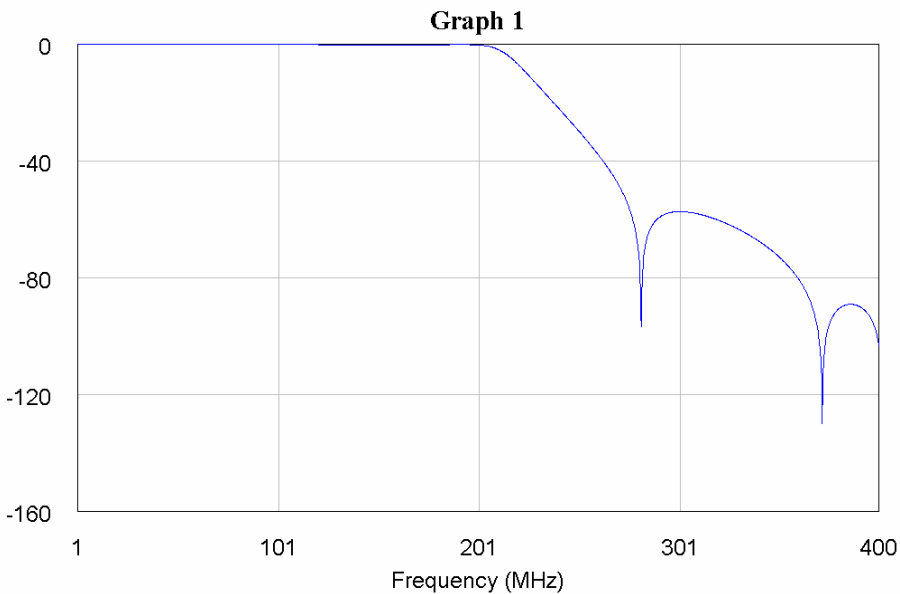
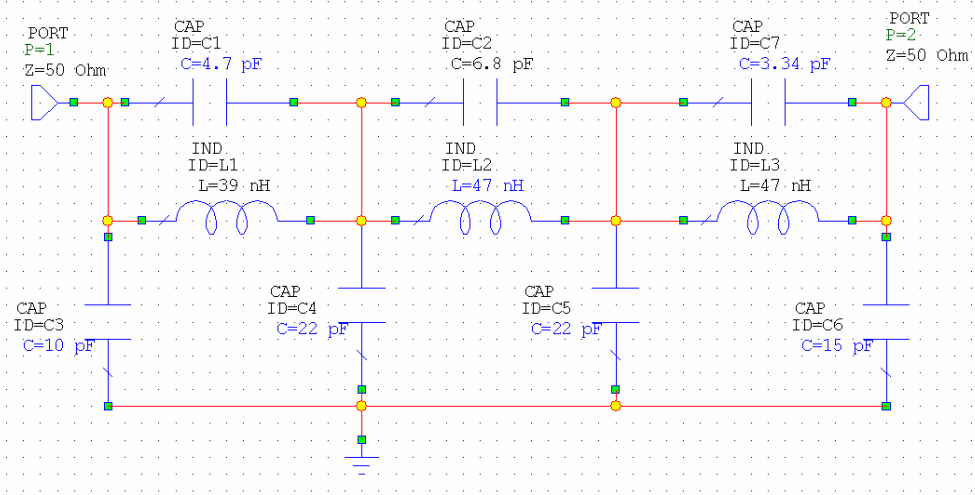
pin		On Layout
J3	+12V	V+
J2	GND	
J9	+5V	+5V
J8	GND	

DDS AD9951 (ED2) schematic

Attention: the correct components value are in the Bill of materials



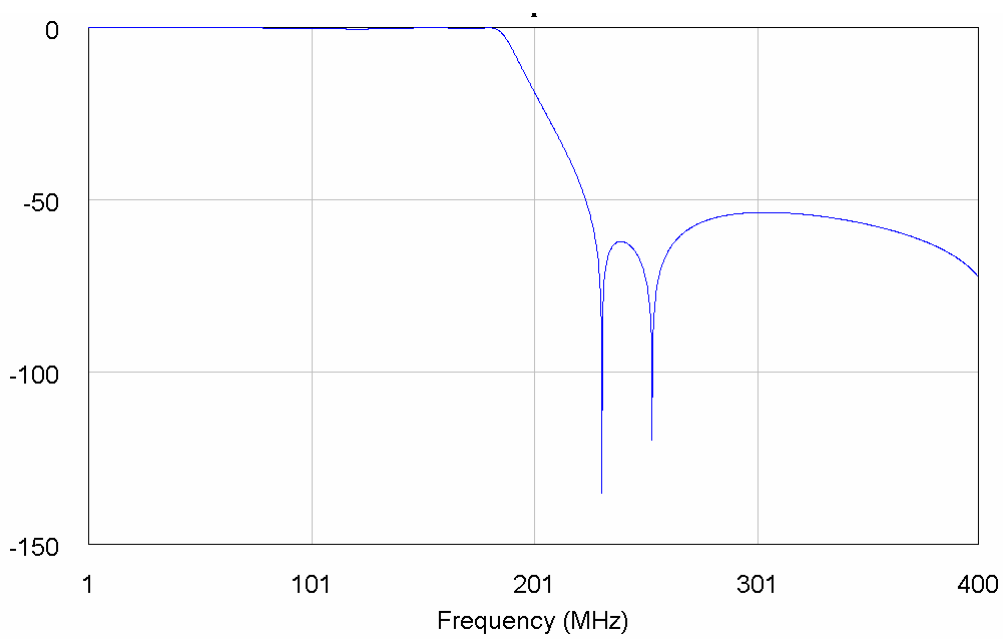
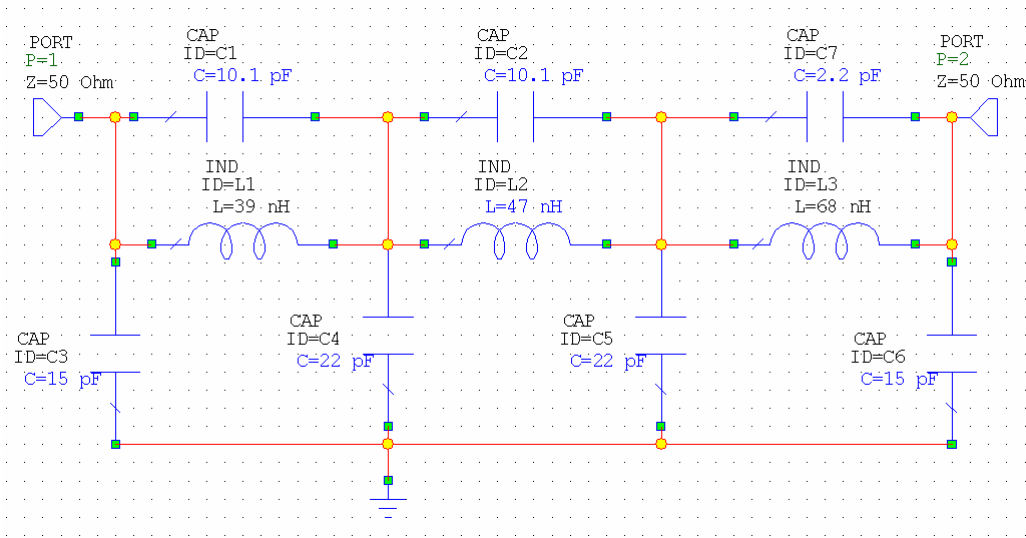
200 MHz low pass filter used whit external 500 MHz osc.



200 MHz Low pass filter simulation.

Attention: components numbering for simulations are not same as in the bill of materials

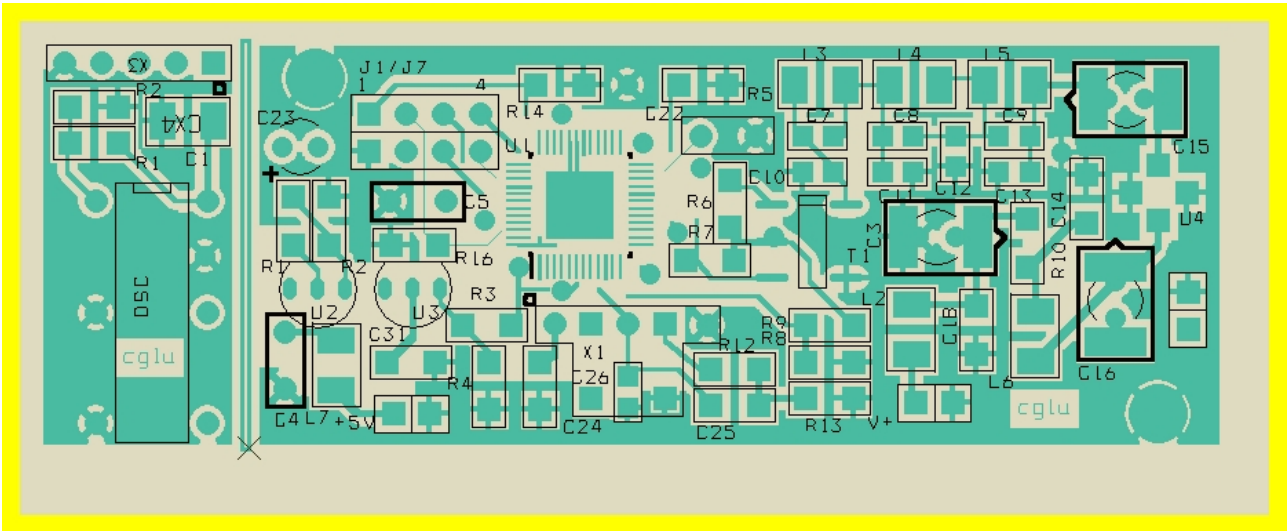
170 MHz low pass filter used whit on board 400 MHz osc.



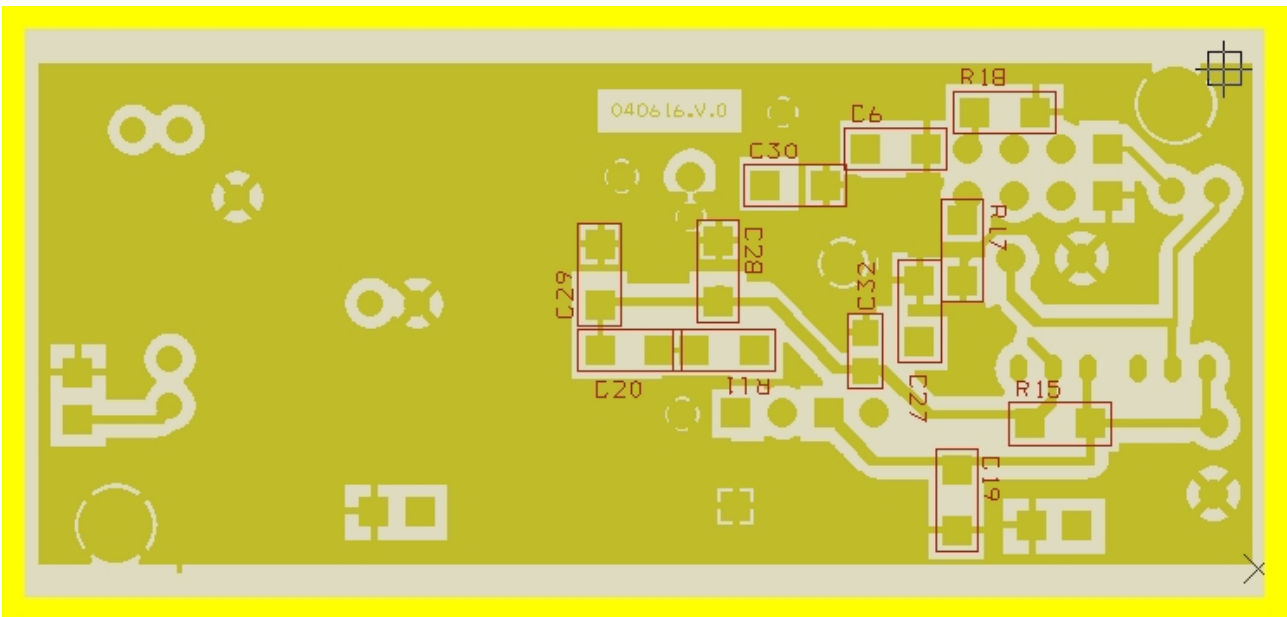
170 MHz Low pass filter simulation

Attention: components numbering for simulations are not same as in the bill of materials

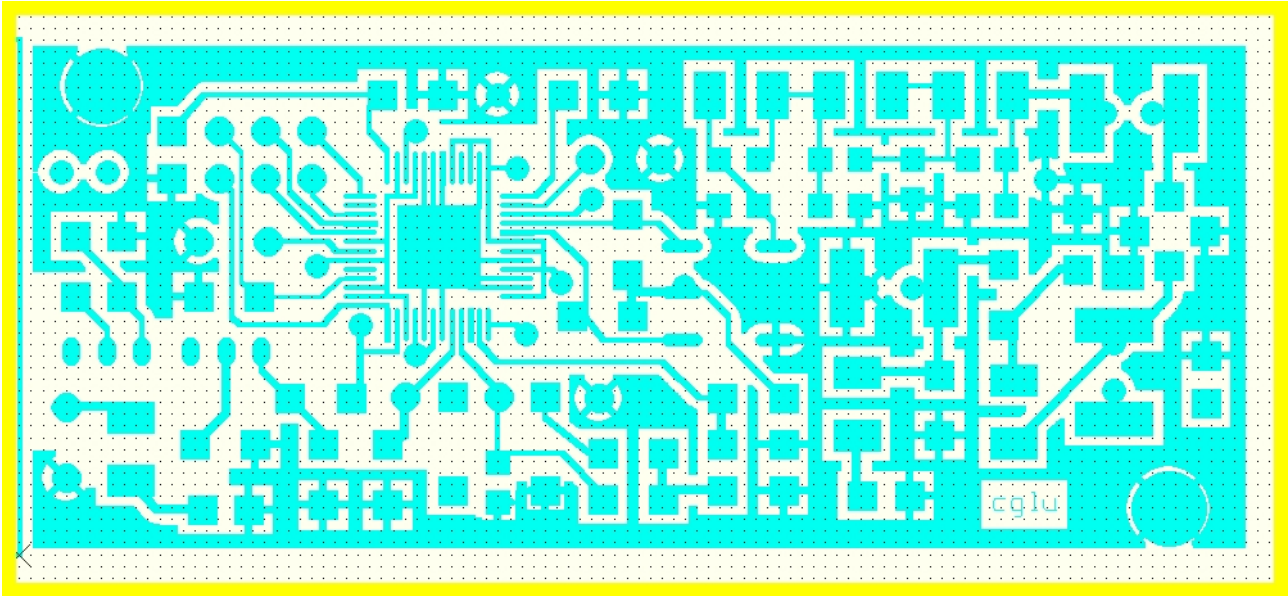
DDS Layout



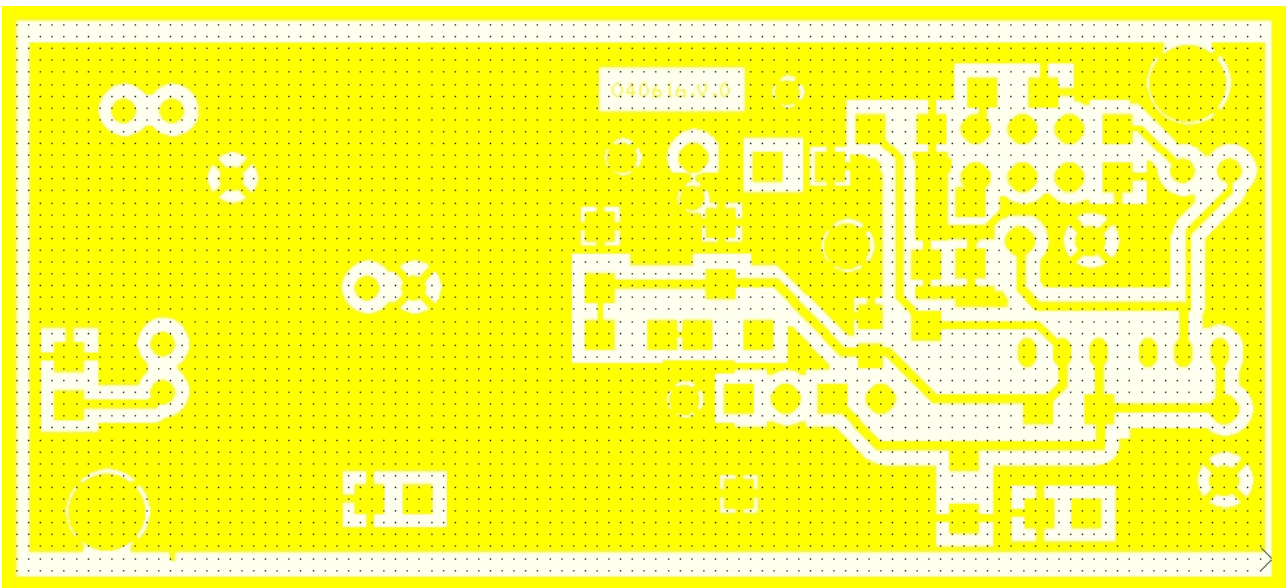
Layout – Top View



Layout – Bottom View



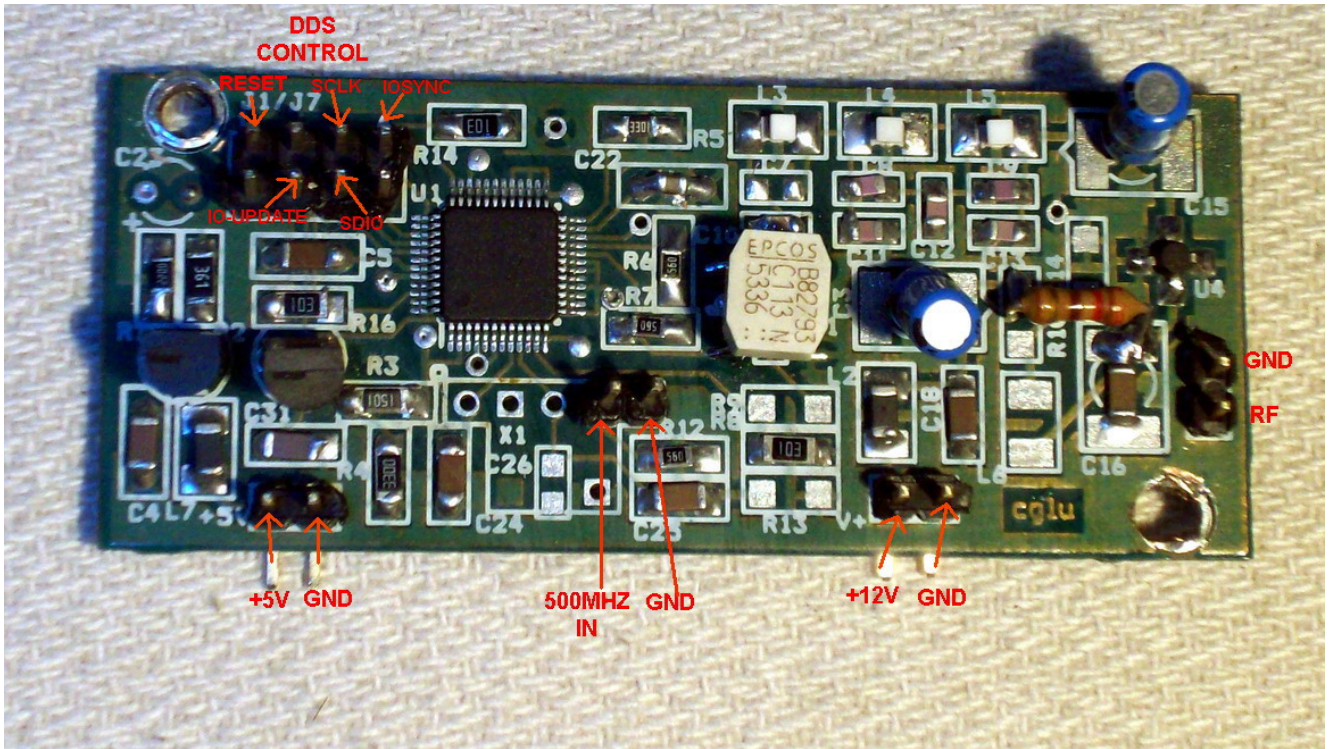
Top layer



Bottom Layer

Notes:

- 1: if use a quartz as oscillator : install R9, C26 , not install R8
- 2: if use the on board 100 MHz oscillator: Install R8, not install R9, C26
- 3: if use the on board 100 MHz oscillator R12 must be 470 ohm, R13 must be 33 ohm
- 4: if use a 500 MHz external oscillator R12 must be 47 ohm, R13 must be removed.



Bill of materials

Quantity	Reference	Part
7	Cx4, C4, C5, C6, C18, C19, C20	100n
4	C3, C15, C16, C23	2.2uF
1	C7	10pF (4.7 pF for 200 MHz L.P.)
1	C8	10pF (6.8 pF for 200 MHz L.P.)
1	C9	2.2pF (3.3 pF for 200 MHz L.P.)
1	C10	15pF
1	C11	22pF
1	C12	22pF
1	C13	15pF (10 pF for 200 MHz L.P.)
1	C14	not installed
1	C25	100nF
1	C22	1uF
1	C24	100nF/(39pF if Quartz installed)
1	C26	not installed (39pF if quartz installed)
6	C27, C28, C29, C30, C31, C32	100 nF
1	J1	5 pin HEDER
2	J8, J2	HEADER 1 GND
1	J3	HEADER 1 +12V
1	J4	HEADER 1 GND
1	J5	HEADER 1 OUT1
1	J7	5 pin HEDER
1	J9	HEADER 1 +5V
2	L2, L7	from 10uH to 33 uH
1	L3	39nH
1	L4	47nH
1	L5	68nH (47 nH for 200 MHz L.P.)
1	L6	NOT INSTALLED
1	OS2	Optional external oscillator
5	Rx3, Rx4, R14, R16, R17	10k
1	R1	220
1	R2	360
1	R3	750
1	R4	330
1	R5	2.7 K
2	R7, R6	47
2	R8, R9	10k (for 5x7 osc. install only R9, if Quartz use only R8)
1	R10	220 1/4 W (no SMD)
1	R11	220
1	R12	470 (47 if 500 MHz external osc used)
1	R13	33 (not installed if 500 MHz external osc used)
1	R15	NOT INSTALLED (present only on layout (botton layer))
1	T3	TRANSf 1:1 (Trasf. with C.T. isn't necessary)Epcos B82793
1	U1	AD9951YSV ANALOG DEVICE
2	U2, U3	LM317LZ
1	U4	ERA-1 MINICIRCUIT
1	X1	100 MHz 5V SMD oscillator ECS-3951M-BM (DIGIKEY XC327CT-ND)
1	X3	5 pin HEADER (external oscillator connector)