

KF70 Steve Haynal

SofterHardware

Sheet: /Ethernet/

File: Ethernet.sch

**Title: Ethernet**

Size: USLetter Date: 2017-11-05

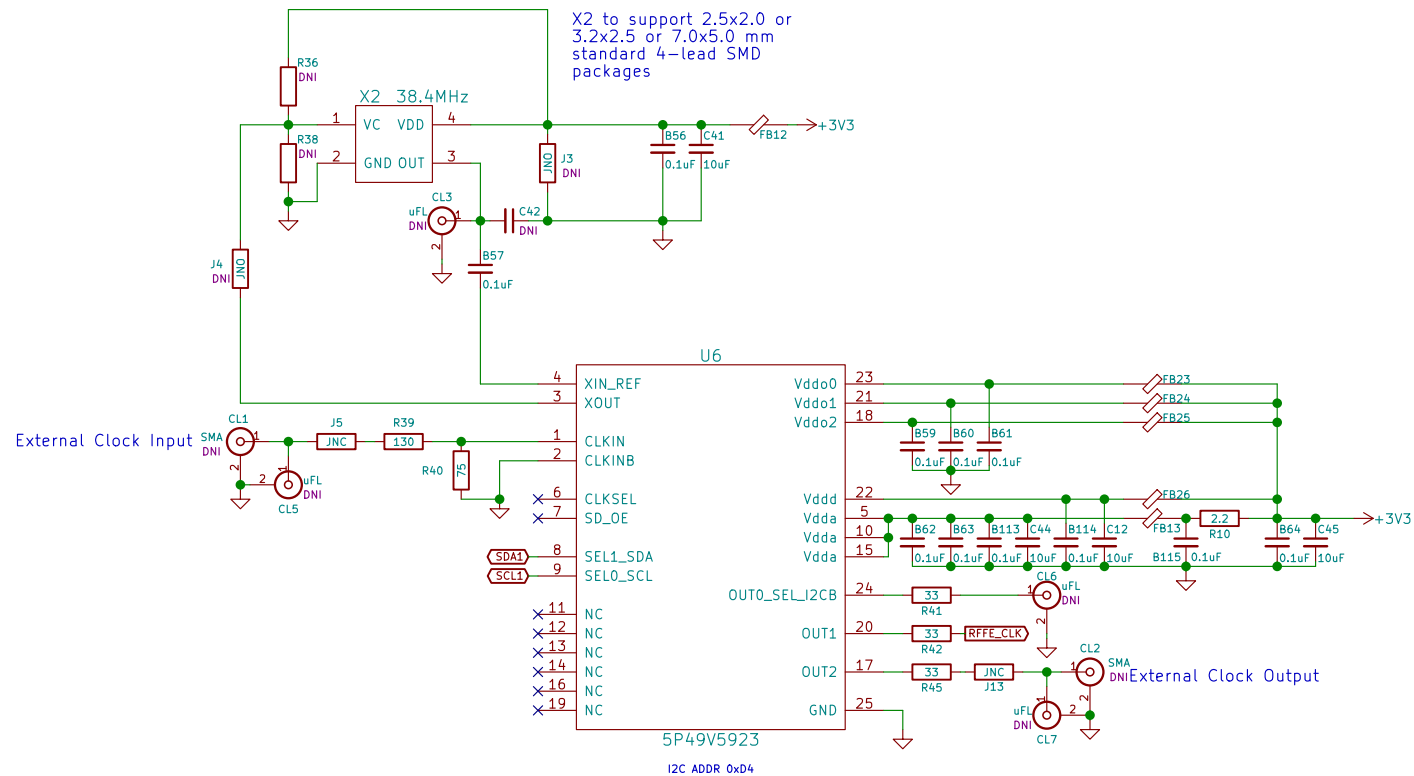
KiCad E.D.A. kicad 4.0.6

**Rev: 2.0-beta5**

Id: 3/7

### Build Options:

Default Versa with oscillator: Include FB12,C41,B56,B57,X2. Include R36,R38 if required by oscillator. Exclude J3,J4,C42.  
Versa with crystal: Include X2 as crystal, B57,J4,J3 as jumper, C42,R38 as 15pF. Exclude FB12,C41,B56,R36.  
External clock: Configure U6 for CLKIN input and correct ratio, drive CL1 or CL5 with external clock.  
Other experimental options possible with uFL connectors. See RF Frontend sheet for additional AD9866 clock options.



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Sheet: /Clock/

File: Clock.sch

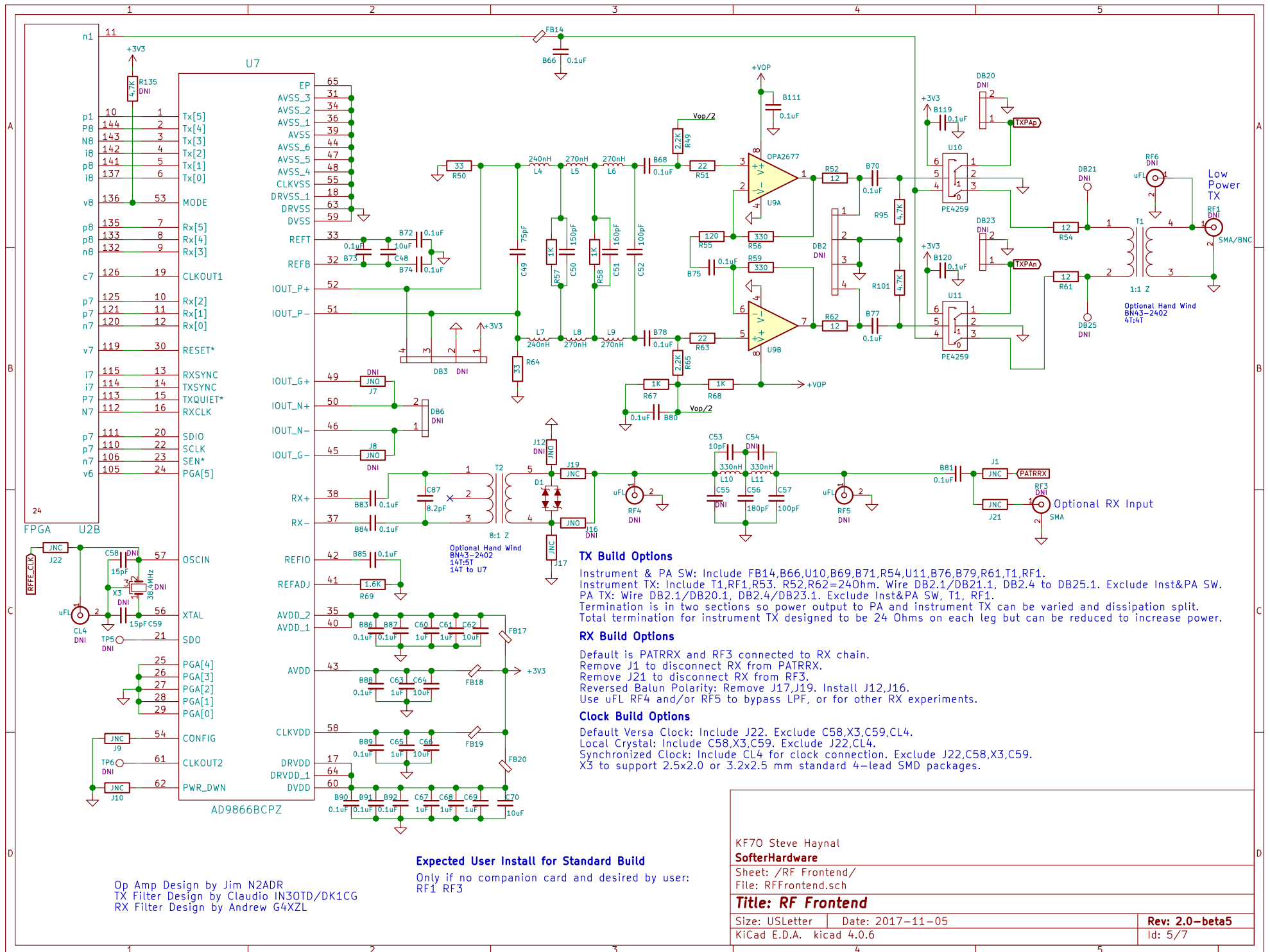
**Title: Clock**

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Rev: 2.0-beta5

Id: 4/7





## Build Options

Any or all components may be excluded if PA is unused.

SOT-89 or TO-220 LDMOS supported on main circuit board  
TO-220 mounts to side of enclosure  
SOT-89 dissipates heat to PCB and side of enclosure

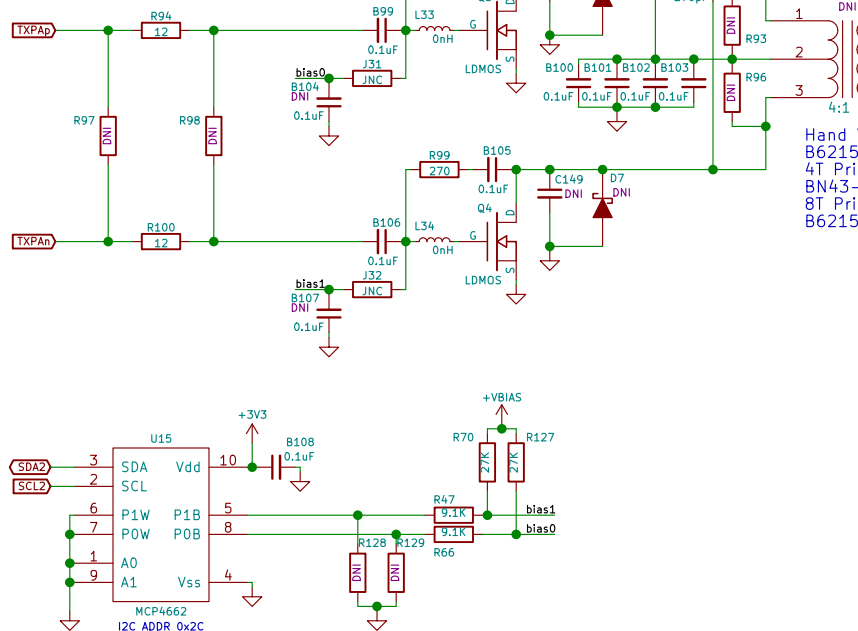
Default build uses 2 AFT05MS003 mounted on main board, 110mA bias

PLD-1.5 and alternate SOT-89 supported by adapter board  
Adapter board dissipates heat to side of enclosure

## RD15HVf1 Build Option

L33,L34 = 4.7 Ohm  
R92,R99 = 500 Ohm  
T3 = BN61-202 4T Pri, 2+2T Sec  
200 mA bias

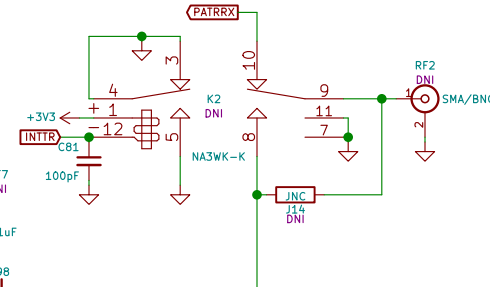
Add attenuation with R97,R98,R94,R100  
if PA is overdriven



R101,R95,R47,R66 set for AFT05MS003. Bias voltage ranges from 2.5 to 3.5V  
Set R101,R95 to 7.5K, R47,R66 to 3.3K for bias voltage range from 3.1 to 5.3V

## Build Options

No onboard TR relay installed by assembly house  
On board TR: Hand install K2  
External TR: Install J14 or wire from K2 pin 8 to pin 9



## Expected User Install for Standard Build

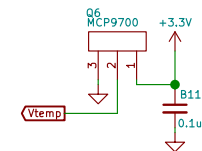
T3  
Either K2 or J14/equivalent wire  
RF2 if no companion card

Hand Wind  
B62152A4X30 or BN43-202  
4T Primary, 1+1T Secondary  
BN43-1502  
8T Primary, 2+2T Secondary  
B62152A4X30 runs hot, use 24AWG PTFE/FEP Wire

Internal PTT  
May ground pin 1 during TX  
depending on firmware setting  
Pullup to 3.3V by K2  
May pullup to 28V if K2 absent

External PTT  
Will ground pin 1 during TX  
External PA to supply pullup  
voltage up to 28V

## LDMOS Temperature Sensor



Design based on work by Claudio IN30TD/DK1CG, John W9JSW, and other LDMOS/MOSFET QRP PA designs

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**Title: Hermes-Lite V2 5W Power Amplifier**

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