

Power and FPGA

Power.sch

Ethernet

Ethernet.sch

Clock

Clock.sch

RF Frontend

RFFrontend.sch

Input Output

InputOutput.sch

PA

PA.sch

Do Not Include (DNI) any components
on this page fo assembly

☒ PCB

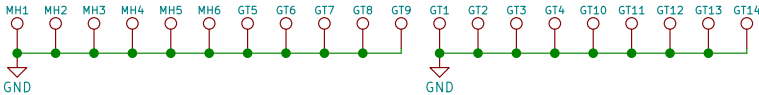
PB1

☒ CASE

EN1

☒ PROG

PG1



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Sheet: /

File: hermeslite.sch

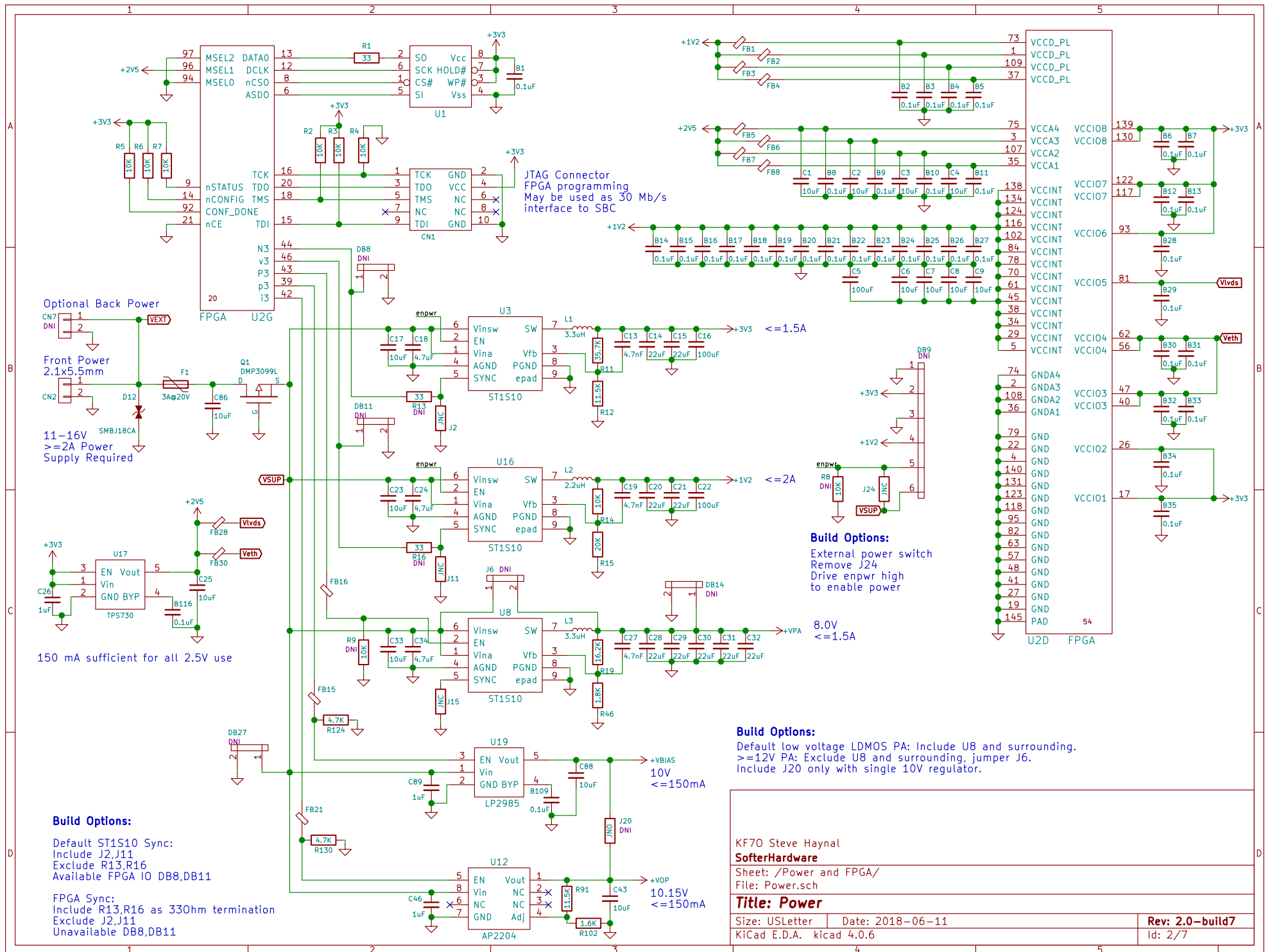
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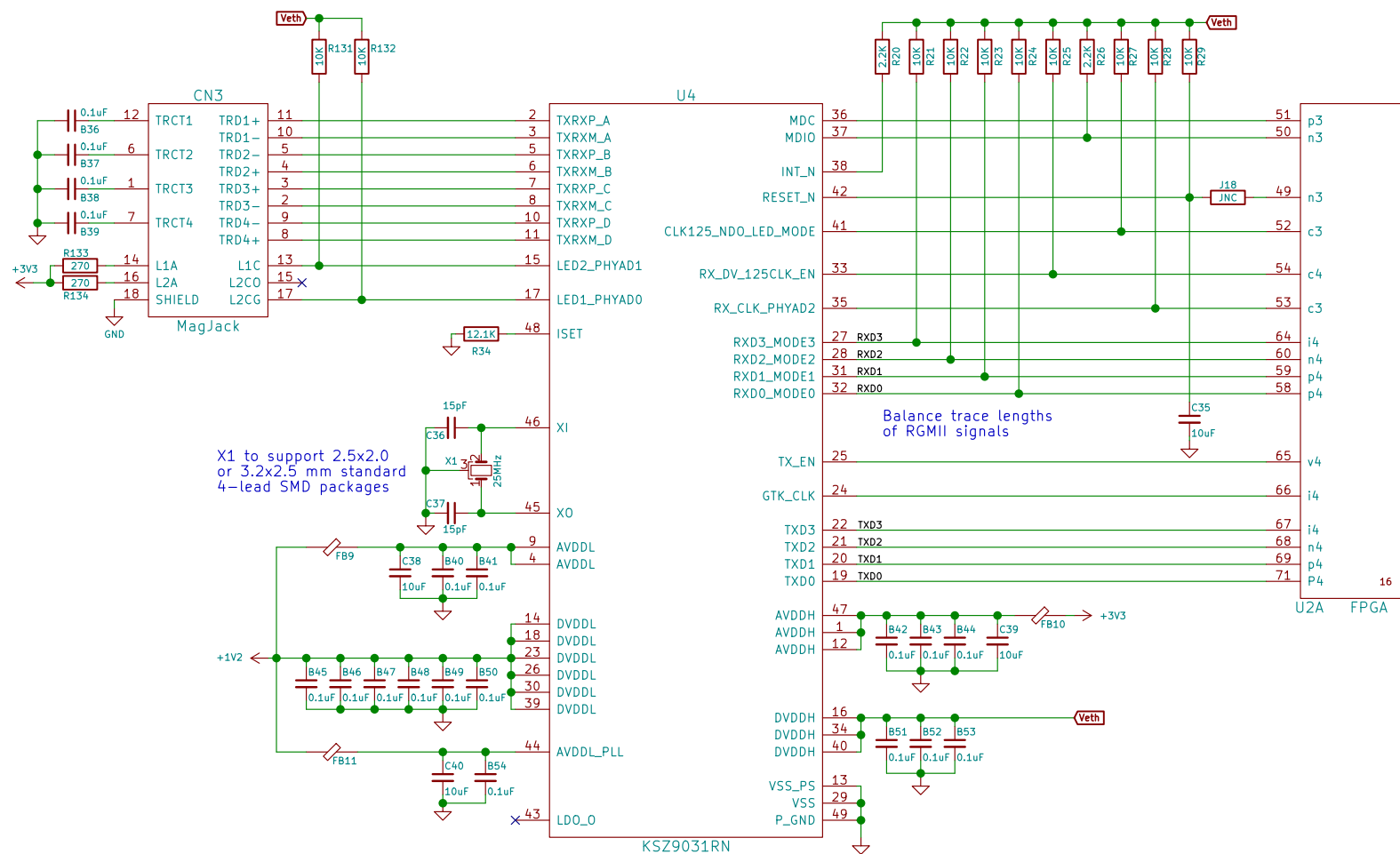
Size: USLetter Date: 2018-06-11

KiCad E.D.A. kicad 4.0.6

Rev: 2.0-build7

Id: 1/7





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Sheet: /Ethernet/

File: Ethernet.sch

Title: Ethernet

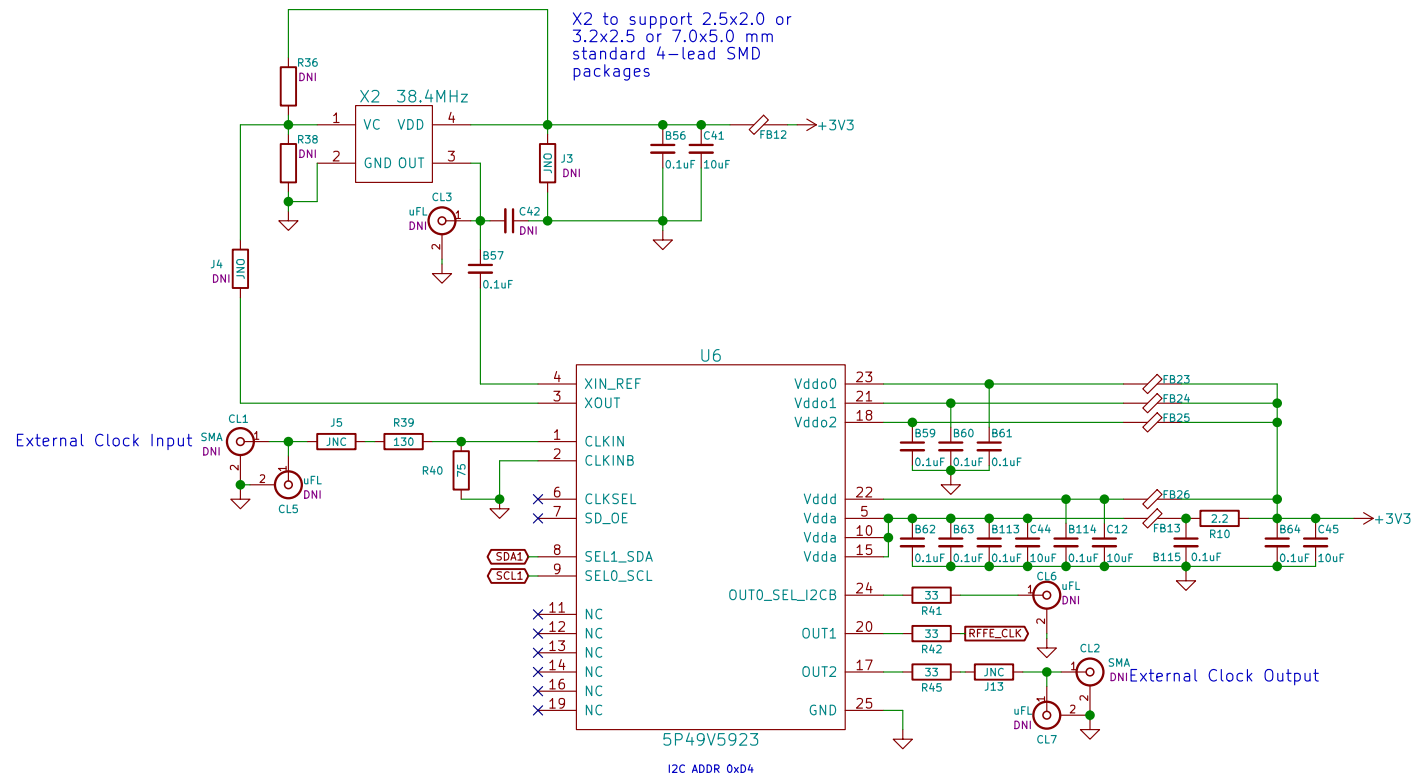
Size: USLetter Date: 2018-06-11

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Rev: 2.0-build7

Id: 3/7

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/

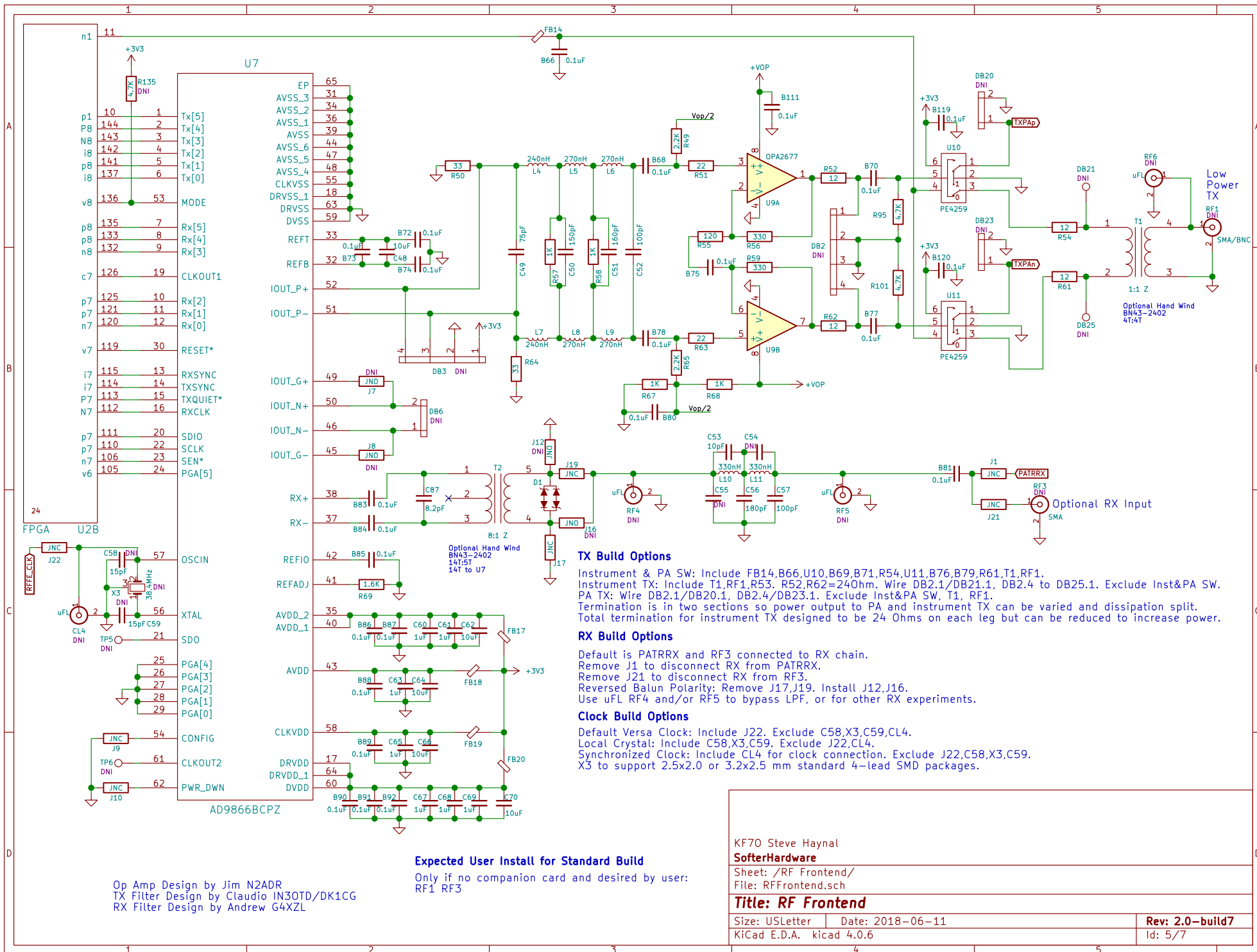
Title: Clock

Size: USLetter Date: 2018-06-11

Size: 65Kbit	Date: 11/11/2023
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Rev: 2.0–build7

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

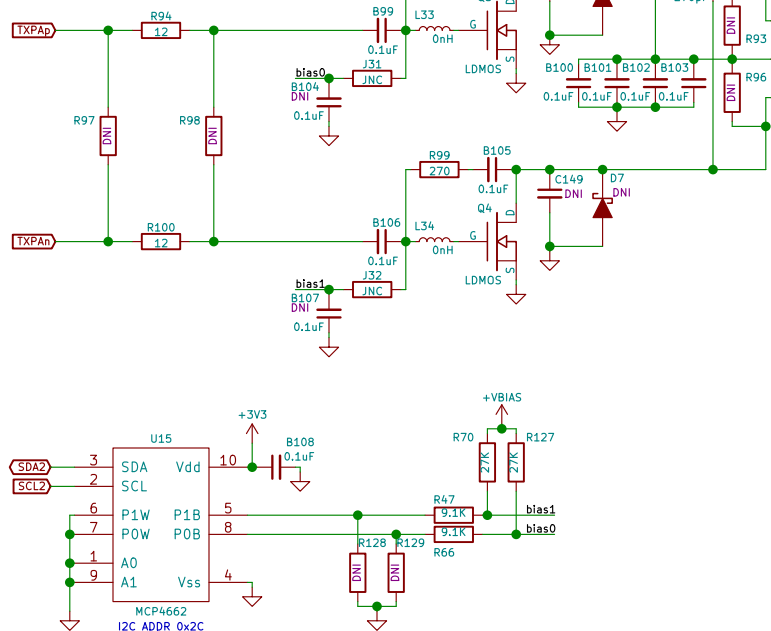
Deafult build uses 2 AFT05MS003 mounted on main board, 110mA bias

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

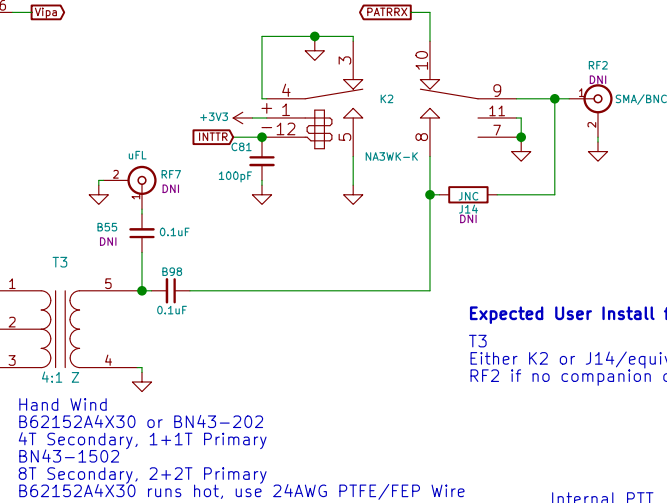
Add attenuation with R97,R98,R94,R100
if PA is overdriven



R127,R70,R47,R66 set for AFT05MS003. Bias voltage ranges from 2.5 to 3.5V
Set R127,R70 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

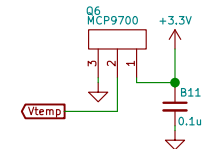
T3
Either K2 or J14/equivalent wire
RF2 if no companion card

Hand Wind
B62152A4X30 or BN43-202
4T Secondary, 1+1T Primary
BN43-1502
8T Secondary, 2+2T Primary
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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Sheet: /PA/

File: PA.sch

Title: Hermes-Lite V2 5W Power Amplifier

Size: USLetter Date: 2018-06-11

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Rev: 2.0-build7

Id: 7/7