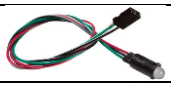
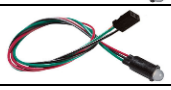
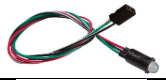
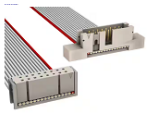
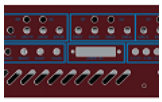
Directions for QICK Enclosure Assembly

This guide provides step-by-step instructions for assembling the QICK product enclosure. **Please note:** the QICK system requires a **ZCU216 board**, which must be purchased separately.

Before you begin, ensure you have a clean, flat workspace approximately 3 feet by 4 feet in size. Set aside about one hour to complete the assembly.

Tools Required:

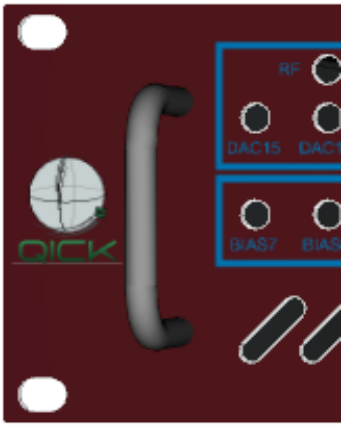
- #1 Phillips screwdriver
- Wrench or nut driver for 3/16” and 1/4” nuts
- Small needle-nose pliers (or fine finger control)
- SMA torque wrench to ensure proper cable tightness for signal integrity without damaging connectors (We recommend the Suhner 74_Z-0-0-21 torque wrench or an equivalent model).

QICK enclosure parts list					
Item	**Qty**	**Description**	**Manufacturer**	**Part Number**	**Photo**
1	3	18” SMA cable	Cinch Connectivity Solutions Johnson	415-0031-018	
2	1	Blue LED with 6” leads	Bivar Inc	PM5BWDW6.0-CC	
3	8	Green LED with 6” leads	Bivar Inc.	PM5GDW6.0-CC	
4	1	12” Ethernet cable	Bel Inc.	BC-5UK001F	
5	14	7” SMA cable	Amphenol RF	135110-01-06.00	
6	16	Green LED with 3” leads	Bivar Inc.	PM5GDW3.0-CC	
7	2	PMOD Cable	Digilent	240-109	
8	1	16-pin IDC ribbon cable	3M	M3AWK-1606J	
9	1	Front panel	Real Digital	QICK	
10	2	FAN AXL 50X15MM 12VDC RECT CONN	Gelid Solutions	FN-SX05-40	
11	1	Cat5e RJ45 Coupler Shielded (8x8) Panel Mount Style	L-com	ECF504-SC5E	
12	2	CONN HEADER R/A 12POS 2.54MM	Samtec Inc.	TSW-106-09-G-D-RA	
13	10	Rubber bumper	Keystone Electronics	720	
14	20	3/16” 4-40 Phillips Machine Screw	Keystone Electronics	9900	
15	1	3/16” 4-40 Phillips Machine Screw	McMaster Carr	91772A105	
16	10	3/16" 4-40 5/8" long threaded hex standoff	McMaster Carr	91115A518	

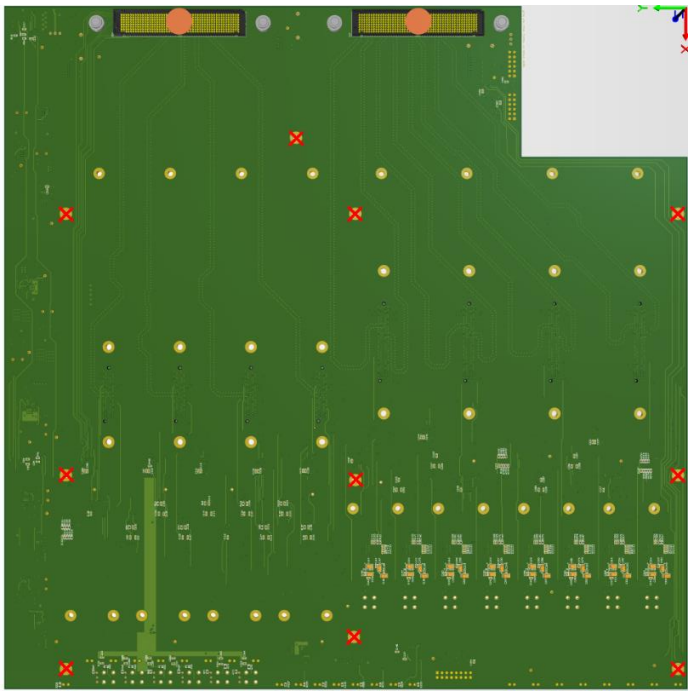
17	1	#4 washer	McMaster Carr	98023A111	
18	24	3/16” 4-40 3/16" Long threaded hex standoff	McMaster Carr	91075A460	
19	6	2-position shunt	Samtec	SNT-100-BK-G	
20	2	Machine Screw	Keystone Electronics	9902	
21	2	4-40 External-Tooth Lock Washer	McMaster Carr	96278A005	
22	6	6-32 1/4" top case screws	McMaster Carr	90272A144	
23	1	3 x 6mm front panel screw	McMaster Carr	91420A116	
24	2	Front panel handles	Bud Industries	H-9166-B	

Assembly Instructions

1. Attach the front panel to the main enclosure body using handles and screws as shown. Install screw #23 in the bottom center of the front panel.

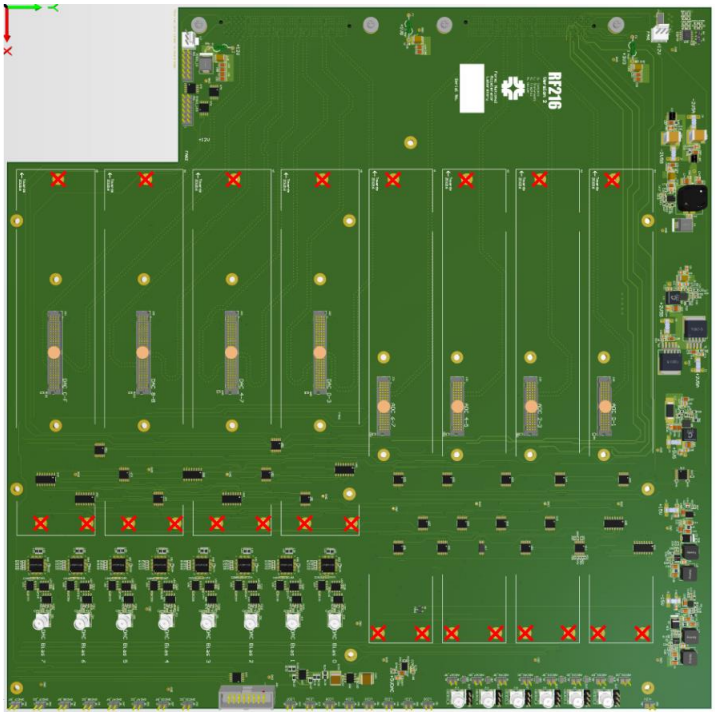


2. Install 10 standoffs (#16) on bottom of RF216 Mainboard using 10 screws (#14) in locations shown below. These standoffs will be used to secure the RF216 board to the enclosure.

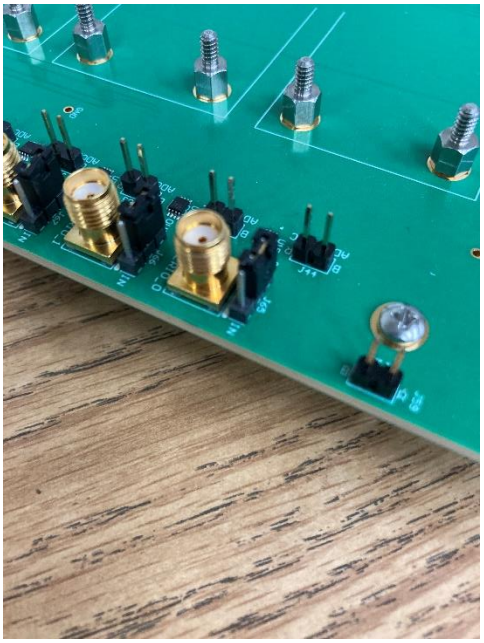


3. Standoffs should already be mounted to ZCU216. Remove rubber bumpers (#13) if present.

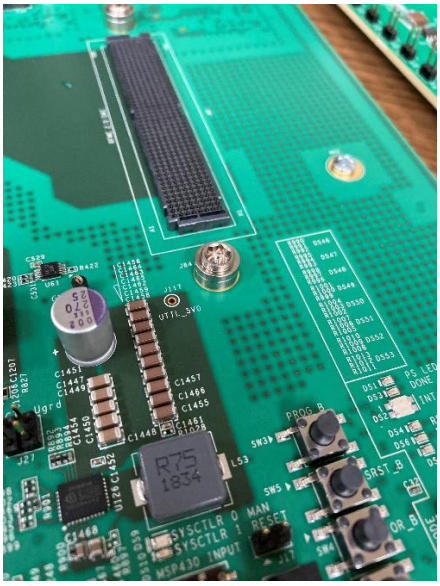
4. Using 24 of the 3/16” 4-40 screws (#15), mount 24 threaded hex standoffs (#18) to the top side of the RF216 Main board. The male portion of the standoff should be pointed up and away from the RF216 Main board. Standoff locations are shown with red X’s below.



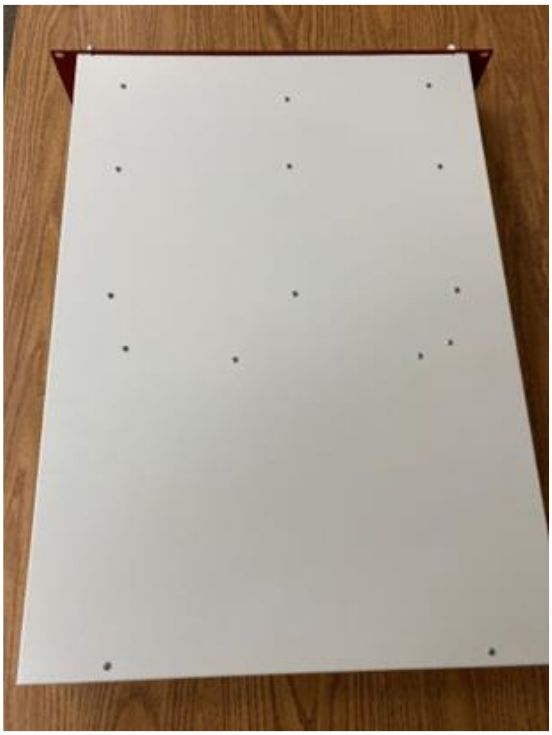
5. Using small needle nose pliers (or fingers), install 6 shunt jumpers (#19) on USERIO 0-5 3-pin headers as shown below. Choose IN or OUT depending on your needs.



6. Connect the RF216 Main board to the ZCU216 board, and use the ZCU216's jackscrews to secure the boards together as shown.

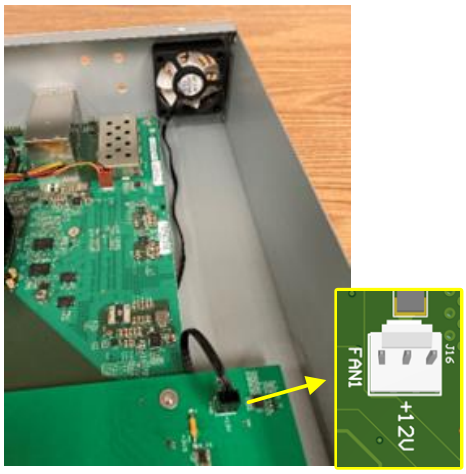


7. Place ZCU216/RF216 Main board assembly in the enclosure with ZCU216 toward rear of enclosure. Secure the board assembly to enclosure using 10 screws (#14) for RF216 Main board, and the screws provided with ZCU216 to attach the ZCU216 board. Mounting holes are pre-drilled in the enclosure.



8. Install left fan (#10) using 4 screws provided with the fan. Note the orientation of the fan plug wire and the direction the fan is facing. Connect left fan to RF216 Main board at connector J17.

9. Install right fan (#10) using 4 screws provided with the fan. Note the orientation of the fan plug wire and the direction the fan is facing. Connect right fan to RF216 Main board at connector J16.

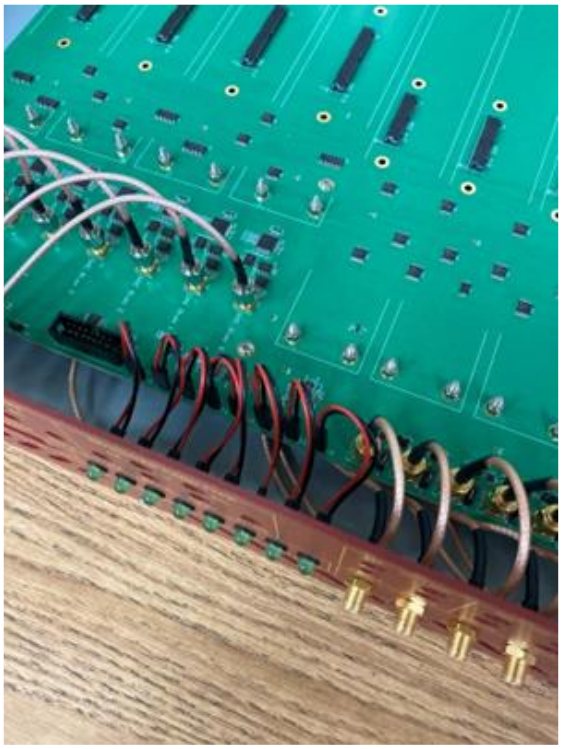


10. Install the RJ45 panel mount coupler (#11) into the rear panel of the case, and connect the RJ45 cable (#4) between RJ45 coupler (#11) and Ethernet connector P1 on ZCU216 as shown.

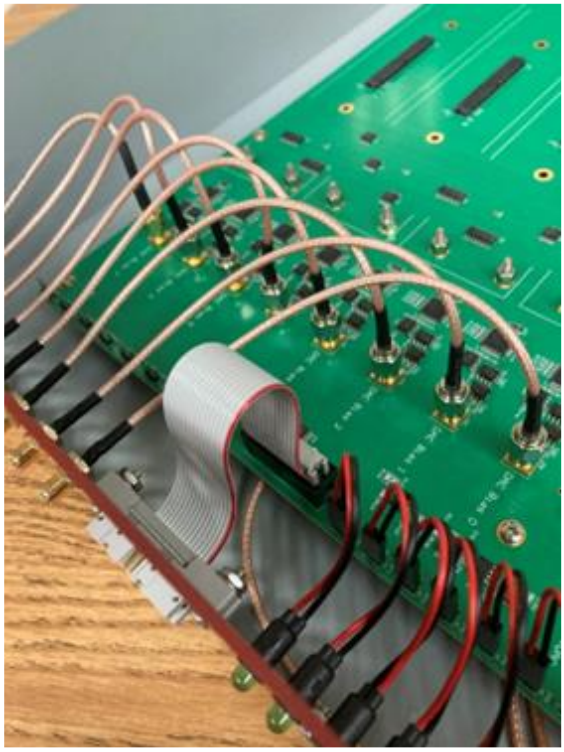
11. Install eight 7” SMA cables (#5) in the “BIAS” 0-7 labeled front panel holes. Use the SMA torque wrench to install opposite end of the SMA cables on “DAC Bias” 0-7 SMA connectors on RF216 Main board.

12. Install six 7” SMA cables (#5) in the “USER I/O” 0-5 labeled front panel holes. Use the SMA torque wrench to install opposite end of “USER I/O” SMA cables on “USER I/O” SMA connectors on RF216 Main board.

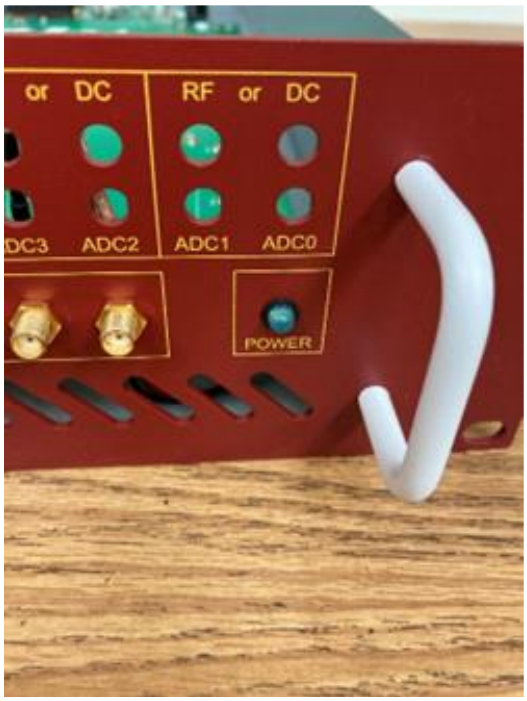
13. Install eight 3” LEDs (#6) in LED 0-7 holes on enclosure front panel. Connect opposite end of those LEDs to 2-pin headers labeled “LED0” – “LED7” on the RF216 Main board. Notice that the headers have one pin labeled “B” (Black) and one pin labeled “R” (Red). Match the wire color of the LED accordingly.

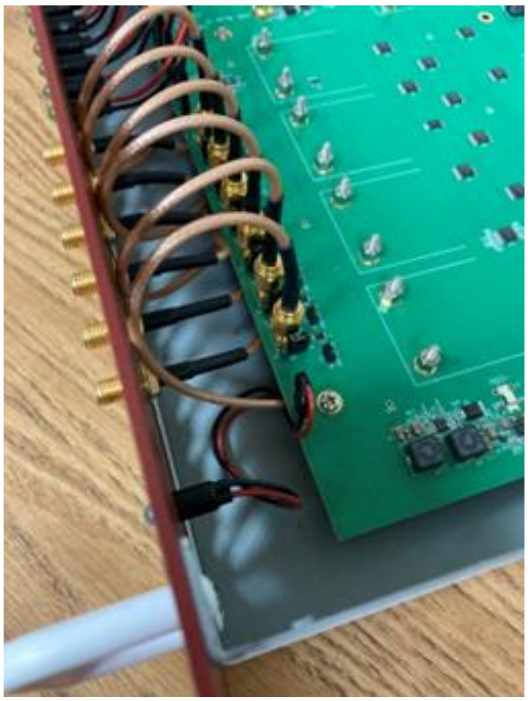


14. Install the panel mount side of IDC Cable (#8) in rectangular cutout marked “USER I/O” on the enclosure front panel, with the tab cutout side of connector facing up. Use ½” 4-40 screws (#20) and 4-40 nuts (#21) to secure header to front panel. Insert opposite end of IDC Cable in connector J60 on RF216 Main board. Match pin 1 of cable connector with J60 connector pin 1 designator.

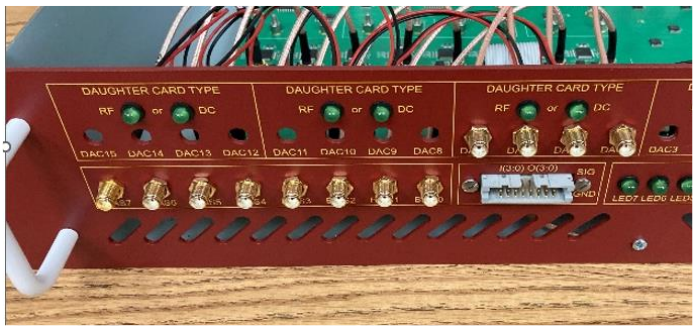


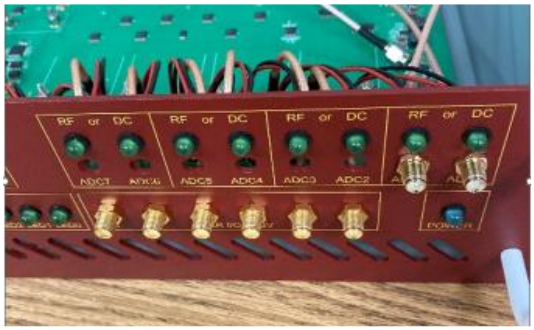
15. Insert the 6” Blue LED (#2) in the enclosure front panel hole labeled “POWER”. Connect the other end of Blue LED to 2-pin header J59 labeled “+12V”. Notice that the header has one pin labeled “B” (Black) and one pin labeled “R” (Red). Match the wire color of the LED accordingly.





16. Insert as many 15” SMA cables as necessary for your “OUT” and “IN” daughter board configuration into enclosure front panel holes labeled “DACx” and/or “ADCx”. “DAC” (Or “OUT” daughter boards) use 4 SMA cables each, and “ADC” (Or “IN” daughter boards) use 2 SMA cables each. Note that daughterboard cables ship with the daughterboards.



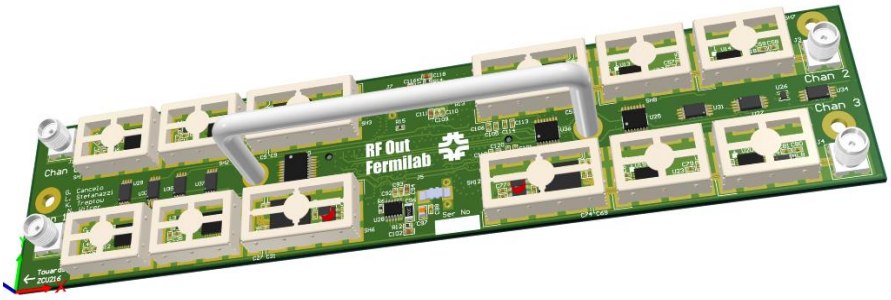


17. Insert eight 6” LEDs (#3) in enclosure front panel holes labeled “RF” and “DC” above the “DAC” SMAs. Connect other end of the eight 6” LEDs to the eight 2-pin headers labeled “DACxx_RF” and “DACxx_DC” on the RF216 Main board. The “xx” value of the 2-pin header should match the value of the associated DAC SMA cables. Notice that the 2-pin header has one pin labeled “B” (Black) and one pin labeled “R” (Red). Match the wire color of the LED accordingly.

18. Insert eight 3” LEDs (#6) in enclosure front panel holes labeled “RF” and “DC” above the “ADC” SMAs. Connect other end of the eight 3” LEDs to the eight 2-pin headers labeled “ADCxx_RF” and “ADCxx_DC” on the RF216 Main board.

19. Assemble and install Daughter boards:

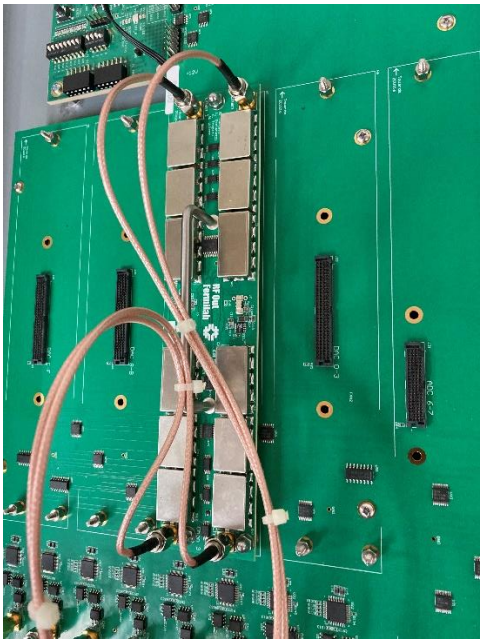
a. Install the handles provided with the daughter boards using two 4-40 screws provided with the handles. IN (ADC) daughter boards use 2” handles. OUT (DAC) daughter boards use 3” handles.

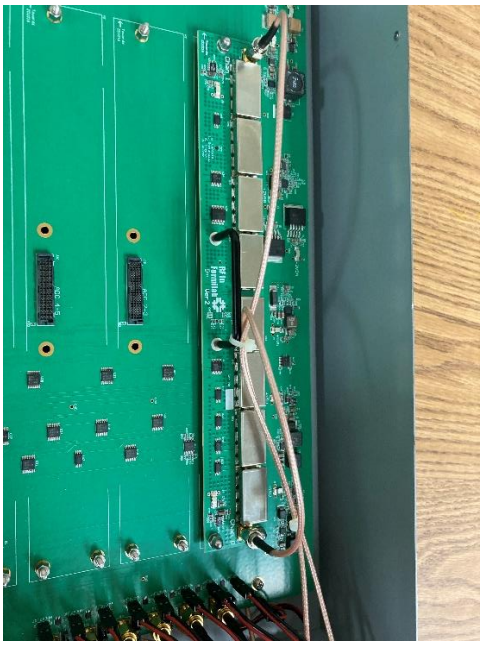


b. Mount daughter boards onto correct IN (ADC) or OUT (DAC) RF216 Main board connector. Verify correct board rotation. There are marks on the edge of the daughter board describing the correct daughter board mounting position.

c. Install three 1/4" cap nuts (shipped with daughterboards) on daughter board mounting posts.

d. Use the SMA torque wrench to connect enclosure front panel SMA cable to appropriate channel on daughter card.





e. Use cable ties to neatly organize the SMA cables. Cable ties are not provided.

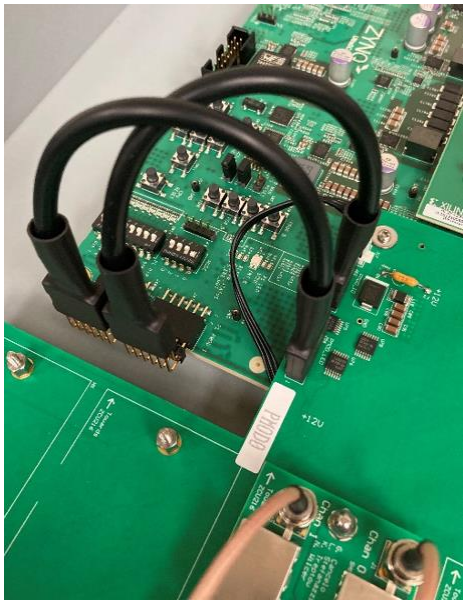
f. Any SMA cables that are not connected to SMA connectors on a daughter board should have the cable end covered with a vinyl cap to prevent shorting.

20. If CLK104 board is not already installed on ZCU216 on connector J101, install it and secure the board with the 3 screws on the ZCU216.

21. Mount three 15” SMA cables (#1) to rear of enclosure. Use the SMA torque wrench to connect other end of the 3 SMA cables to the CLK104 board as described below:

Rear Panel	**CLK104**
REF OUT	OUTPUT_REF
IN REF	INPUT_REF_CLK
SYNC	SYNC_IN

22. Install 2 right angle connector header (#12) to PMOD cables (#7). Install the PMOD cables to ZCU216 and RF216 Main board as shown below. Pay particular attention to pin 1 markings on cables and pin 1 markings on pc boards.



23. Install QICK enclosure cover and secure with 6 screws provided with the enclosure.