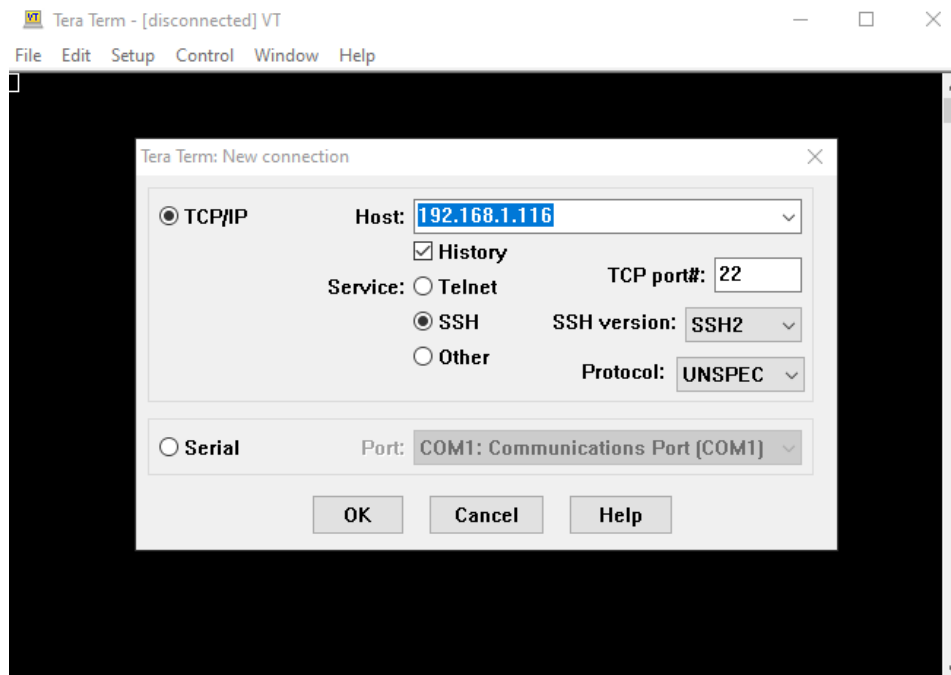
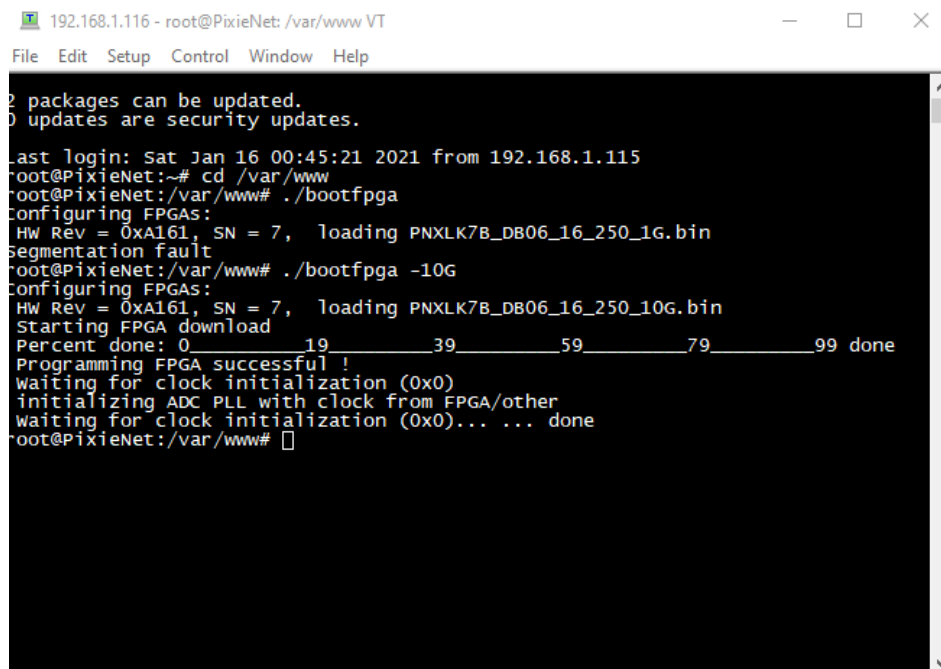


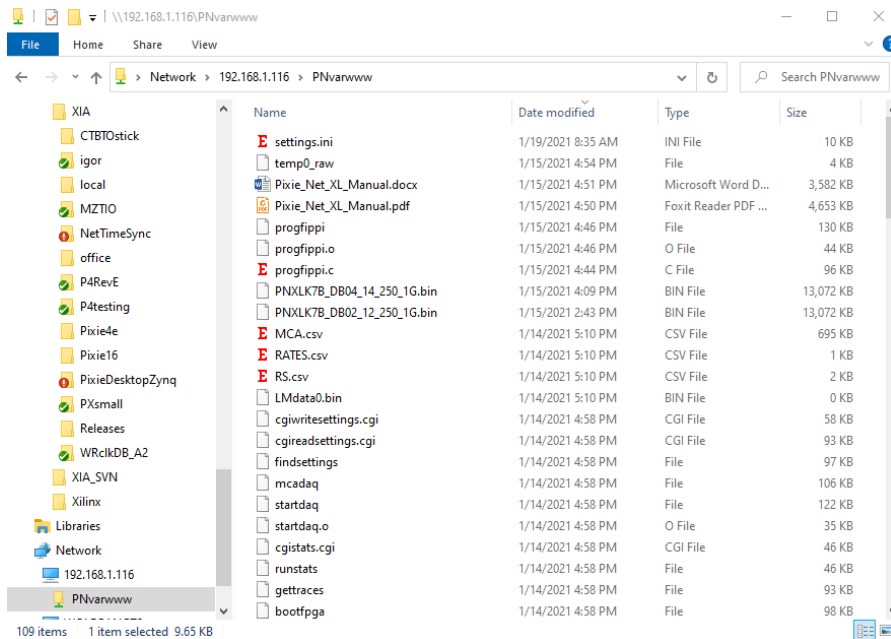
SSH log in to Pixie-Net XL. (If you don't know the IP address, use the USB-UART "serial" option)



Pixie-Net XL runs Ubuntu 18. Go to shared folder and boot FPGAs by typing "bootfpga" (usually automatic at power up and reboot)



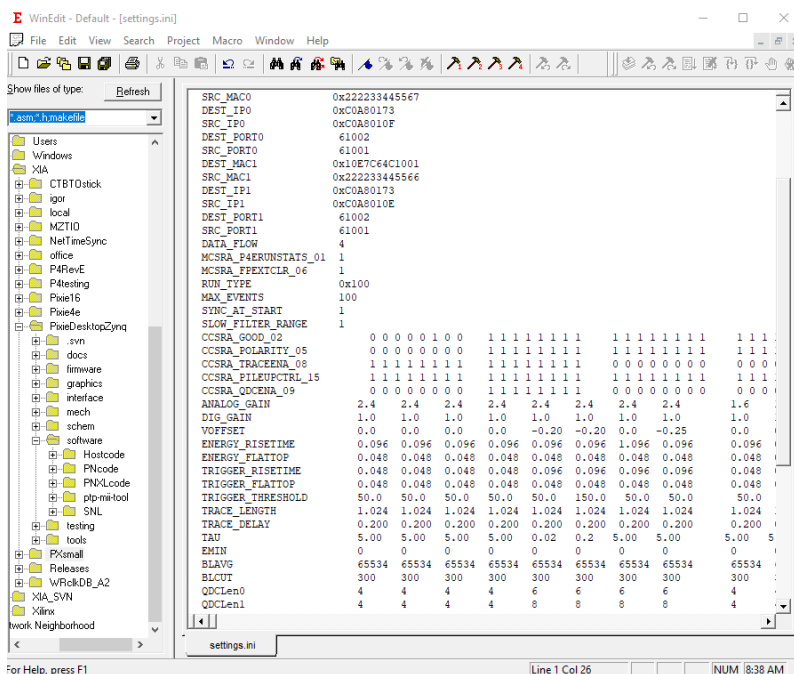
Open Windows Explorer and go to shared folder (Pixie-Net XL IP)



Edit settings.ini, for example analog gain, offset, run type ...

Parameters [mostly] match the Pixie-16 in meaning and value range. See manual for details!

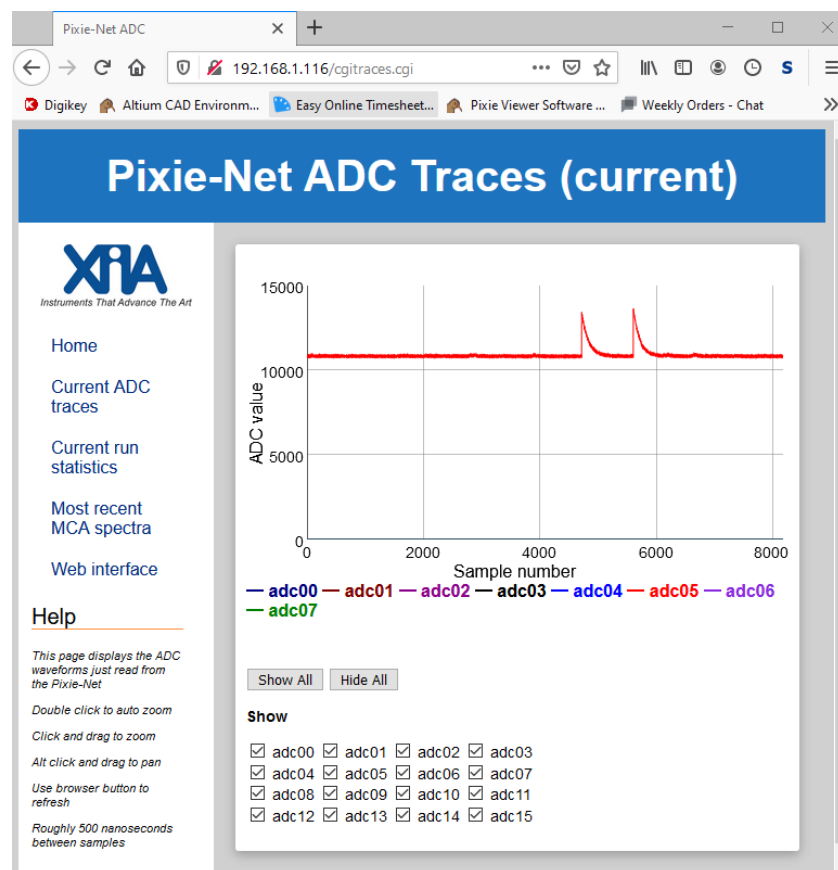
For 10G data streaming, MUST specify correct destination IP and MAC of receiver PC



Apply settings from file by running “progippi” in terminal

```
192.168.1.116 - root@PixieNet: /var/www VT
File Edit Setup Control Window Help
0 updates are security updates.
Last login: Sat Jan 16 00:45:21 2021 from 192.168.1.115
root@PixieNet:~# cd /var/www
root@PixieNet:/var/www# ./bootfpga
Configuring FPGAs:
HW Rev = 0xA161, SN = 7, loading PNXLK7B_DB06_16_250_1G.bin
Segmentation fault
root@PixieNet:/var/www# ./bootfpga -10G
Configuring FPGAs:
HW Rev = 0xA161, SN = 7, loading PNXLK7B_DB06_16_250_10G.bin
Starting FPGA download
Percent done: 0 19 39 59 79 99 done
Programming FPGA successful !
waiting for clock initialization (0x0)
initializing ADC PLL with clock from FPGA/other
waiting for clock initialization (0x0)... .. done
root@PixieNet:/var/www# ./progippi
DEST_MAC1 equal to 10:E7:C6:4C:10:01
SRC_MAC1 equal to 22:22:33:44:55:66
DEST_IP1 0xC0A80173 equal to 192.168.1.115
SRC_IP1 0xC0A8010F equal to 192.168.1.15
UDP_PAUSE, WR Ethernet minimum packet separation: 10 (x 64ns cycles)
UDP_PAUSE, WR Ethernet minimum packet separation: 10 (x 64ns cycles)
PXdesk board temperature: 41 C
DB0 board temperature: 511 C
DB1 board temperature: 82 C
MZ Zynq temperature: 54 C
Main board Revision 0xA161, Serial Number 7
DB0 Revision 0xFFFF
DB1 Revision 0x0060
root@PixieNet:/var/www#
```

Open web browser to Pixie-Net XL's IP and check detector signal



Open cmd window on PC and start the udp receiver program “udp\_receive.exe”

```
cmd Command Prompt - udp_receive.exe
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 1:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 3:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix  . :

C:\XIA\PixieDesktopZynq\interface\Igor>
C:\XIA\PixieDesktopZynq\interface\Igor>
C:\XIA\PixieDesktopZynq\interface\Igor>
C:\XIA\PixieDesktopZynq\interface\Igor>
C:\XIA\PixieDesktopZynq\interface\Igor>udp_receive.exe

Initialising Winsock...Initialised.
Socket created.
Bind done
SO_RCVBUF Value: 65536
SO_RCVBUF Value: 10000000
Waiting for data...press CTRL-C to quit
Received packet 1 from 192.168.1.14:61001
Received packet 10001 from 192.168.1.14:61001
```

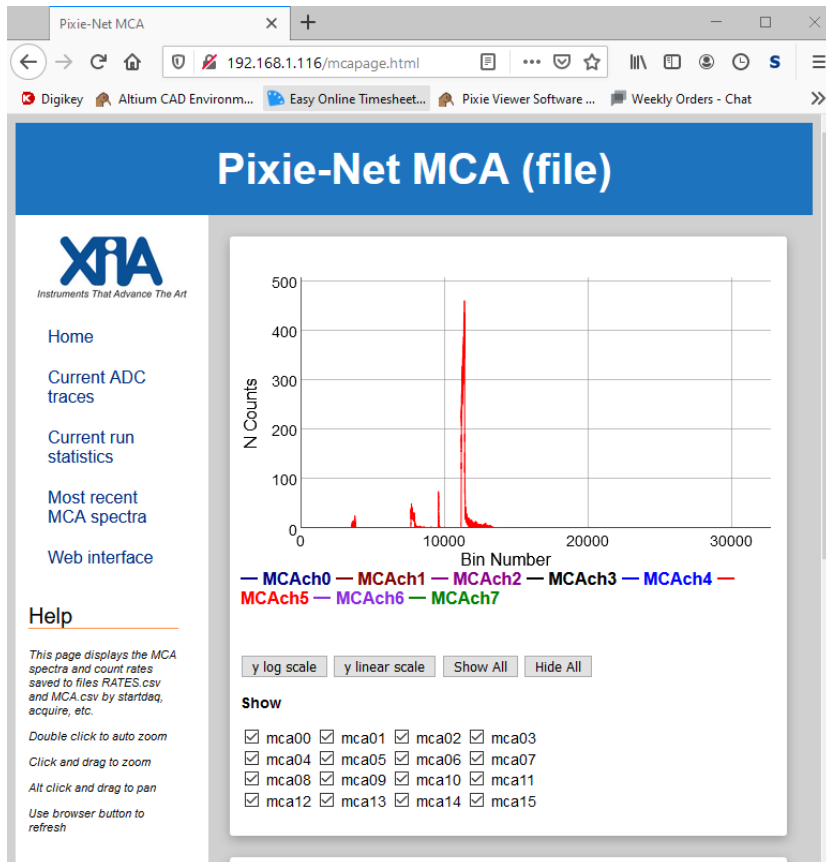
Window may ask for Firewall permission: allow

Start DAQ by typing “startdaq” in terminal ...



PC will now receive packets and Pixie-Net XL will count the run time

```
192.168.1.116 - root@PixieNet: /var/www VT
File Edit Setup Control Window Help
Programming FPGA successful !
Waiting for clock initialization (0x0)
initializing ADC PLL with clock from FPGA/other
Waiting for clock initialization (0x0)... .. done
root@PixieNet:/var/www# ./progfippi
DEST_MAC1 equal to 10:E7:C6:4C:10:01
SRC_MAC1 equal to 22:22:33:44:55:66
DEST_IP1 0xC0A80173 equal to 192.168.1.115
SRC_IP1 0xC0A8010F equal to 192.168.1.15
UDP_PAUSE, WR Ethernet minimum packet separation: 10 (x 64ns cycles)
UDP_PAUSE, WR Ethernet minimum packet separation: 10 (x 64ns cycles)
PXdesk board temperature: 41 C
DB0 board temperature: 51 C
DB1 board temperature: 82 C
MZ Zynq temperature: 54 C
Main board Revision 0xA161, Serial Number 7
DB0 Revision 0xFFFF
DB1 Revision 0x0060
root@PixieNet:/var/www# ./startdaq
total_time 0
total_time 0.43588
total_time 0.87359
total_time 1.3133
total_time 1.7533
total_time 2.2152
total_time 2.6551
total_time 3.095
total_time 3.5356
total_time 3.9757
total_time 4.4163
total_time 4.8578
```

Can see MCA on webpage



And LM file in Windows Explorer

Name	Date modified	Type	Size
 LMdata.bin	1/19/2021 8:53 AM	BIN File	55,742 KB
 Pixie.nyn	1/15/2021 4:35 PM	PXD File	8,305 KB

The UDP receive program exists for Windows and Linux. It's basically copied from a socket programming tutorial, 1-2 pages of code.


If you feel adventurous, you can also try the web interface to set parameters and start runs.

Pixie-Net XL ADC Setup

192.168.1.116/webops/adcs67%

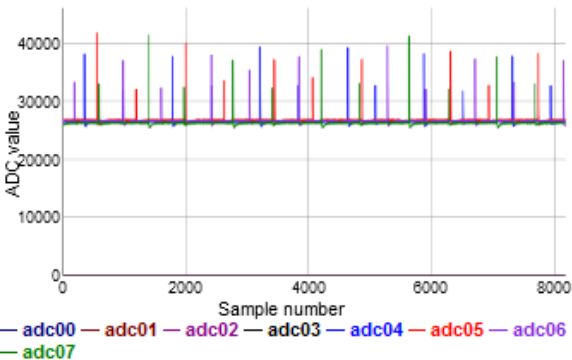
DigikeyAltium CAD Environ...Easy Online Timesheet...Pixie Viewer Software ...

# Pixie-Net XL ADC Setup



[Home](#)[ADC setup](#)[DAQ control](#)[Most recent MCA spectra](#)[Current run statistics](#)[Web interface](#)

Initialize: Boot FPGA Program FPGA Read Settings



ADC value

Sample number

— adc00 — adc01 — adc02 — adc03 — adc04 — adc05 — adc06 — adc07

Read Settings Apply (progfippi) Refresh Traces

Channel	Inverted	Offset	Analog Gain	Digital Gain	Tau	Show
00	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
01	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
02	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
03	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
04	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
05	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
06	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
07	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
08	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
09	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
10	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
11	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
12	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
13	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
14	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>
15	0	0.000	0.000	0.000	0.000	<input checked="" type="checkbox"/>

## Help

This page displays the ADC waveforms read directly from the module along with parameters relevant to the input signals.

First click the top 3 buttons to initialize

Click "Apply" after changing parameters

Roughly 600 nanoseconds between samples

Network setup: The “Receiver PC” can be the same as the “Control PC”. However control is 1G Ethernet, data is 10G Ethernet.

