

MICROMACHINING EXPERIMENTAL SETUP CONNECTIONS

Boxcar

Signal Output goes to Channel 1 of Tektronix TSD 210 scope

Gate 50 Ohms goes to Channel 2 of Tektronix TSD 210 scope

Averaged Output goes to a T BNC splitter: one line goes ACHO input on National Instruments BNC-2090 panel on micromachining computer stand; other line goes to Fluke 79 multimeter with BNC banana input

Trigger goes to T BNC splitter: one line goes to OUT on bottom grey electronics box; other line goes to optical chopper EXT REF IN

Signal +/- 2 V 1 MOhm to OUT on second (i.e., top) electronics box

Boxcar front settings:

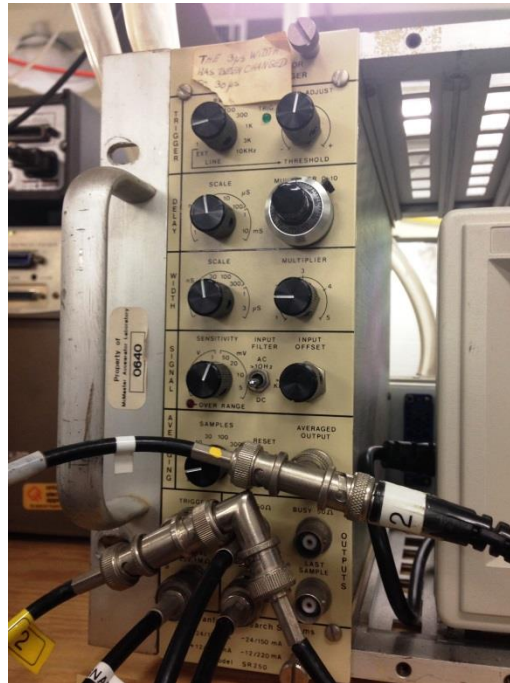
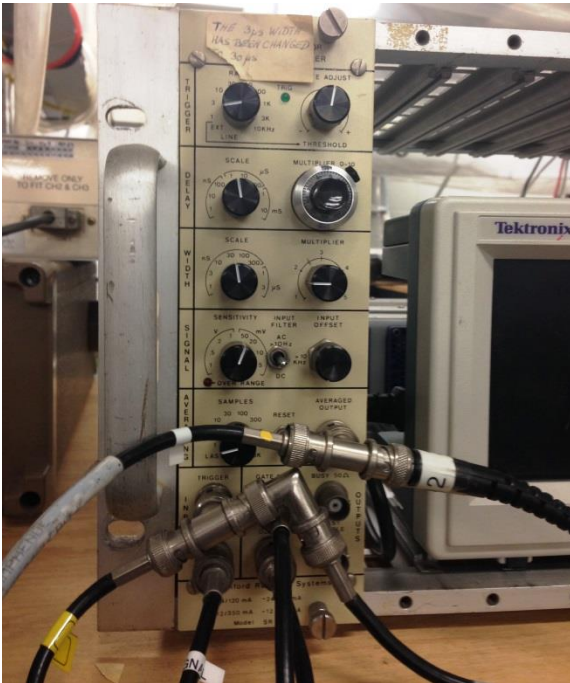
Trigger Rate EXT (was for some odd reason left at 1); and +/- halfway

Delay scale 1 us and multiplier 0?

Width scale 30 ns and multiplier 1.5

Signal Sensitivity 50 mV

Averaging samples 1



Top Small Grey Electronics Box Near Boxcar

Front

A/C PD to autocorrelator photodiode

P/S PD to photodiode off of beamsplitter before going to machining chamber

OUT to Signal +/- 2 V 1 MOhm on Boxcar

Back

Toggle switch currently to P/S PD



Bottom Small Grey Electronics Box Near Boxcar

Front

old trig goes back to Spitfire oscilloscope trigger and Stanford Delay Generator combined **A and B** output

new trig line splits to feed various setups but ultimately runs back to Sync Out Delay on SDG II box for new system

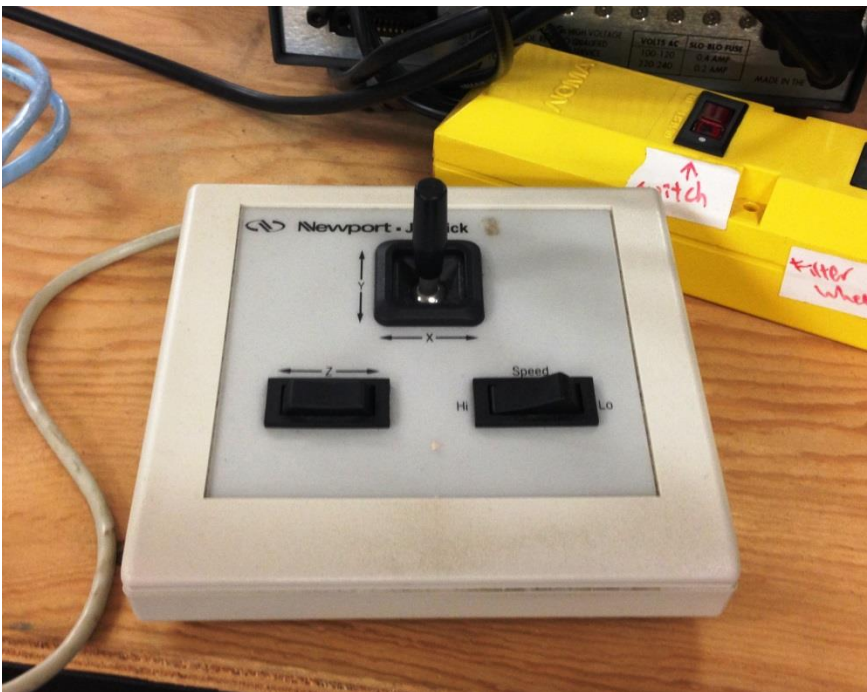
OUT to Trigger on Boxcar

Back

Toggle switch currently down to old trig

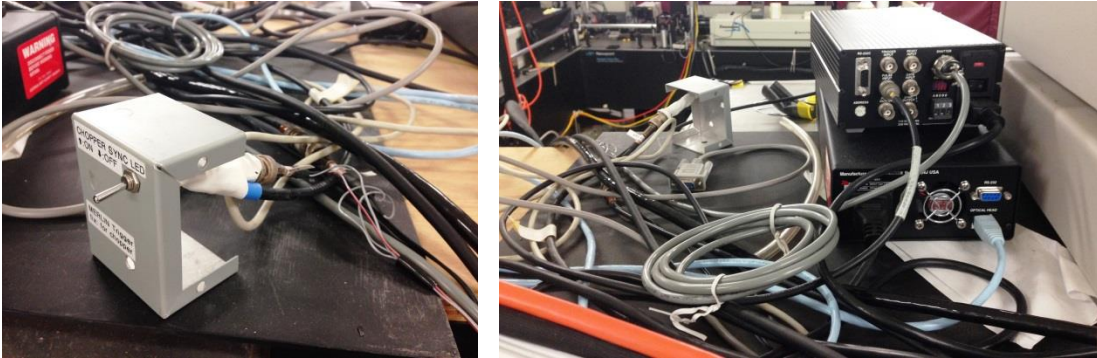
Newport joystick

Runs to second port from left on back of Newport Universal Motion Controller Driver ESP 300 labelled GPIB : 1 micromachining x,y,z



Little Open Grey Switch Box

This has a single ON/OFF toggle switch. It has two BNC cables which emerge from a white wrapping. One cable is immediately broken open with two wires going to the photodiode of the chopper on the micromachining bench and the other wires headed in a BNC cable labelled Photodiode (orange collar) which runs to Input 2 on small grey electronics box perched by Newport motion controllers. The whole BNC coming out of the white wrapping runs to Input 1 on the small grey electronics box perched by Newport motion controllers.



Vincent Associates Uniblitz Model VMM-D1 shutter driver

Front

SYNC ACTIVE down to N.C.

Switch down to remote

Back

PULSE INPUT runs to Input 4 on the small grey electronics box perched by Newport motion controllers.

Shutter cable runs to physical shutter on table located just before entering the chamber area.



Thorlabs Model MC 1000 Optical Chopper

EXT REF IN to Boxcar Trigger

Light blue cable goes to physical chopper on table

Grey Small Electronics Box perched to the side of the Newport Motion Controllers

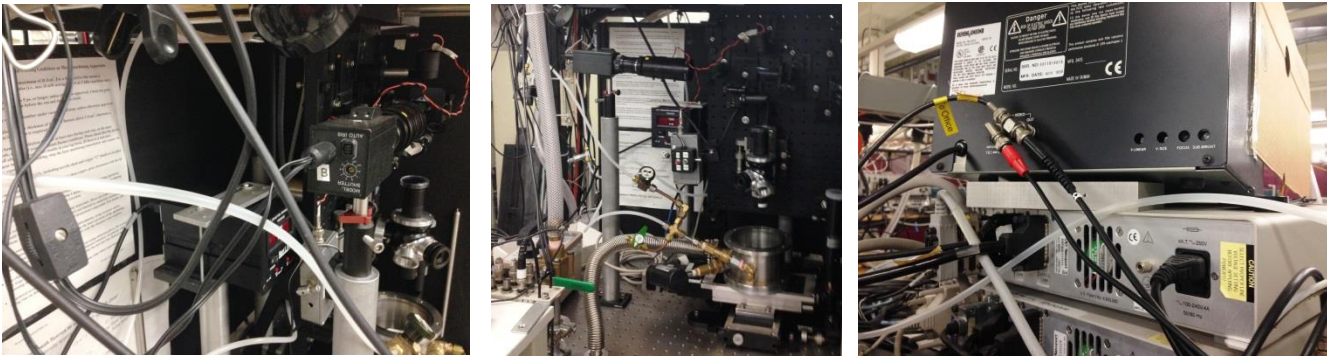
Box has four BNC inputs. Input 1 connects to the little open grey box as described. Input 2 connects to the little open grey box's Photodiode BNC. Input 3 is not used. Input 4 connects to PULSE INPUT on back of Vincent Associates Uniblitz Model VMM-D1 Shutter Driver.

Output of the grey box runs to a communications connector "BNC Box" positioned at the end of the National Instruments BNC-2090 panel on micromachining computer station.



Camera in Micromachining Setup

The cable splits. The main BNC cable goes to VIDEO IN on FemtoVision monitor. The other cable is power.



Micromachining Monitor

Main BNC from micromachining camera goes to VIDEO IN on monitor. Output is fed to office.

Bottom Newport Universal Motion Controller Driver Model ESP 300, labelled GPIB: 1 micromachining x,y,z

Back

Far left: cable to grey electronics box perched nearby with 4 BNC ports but no current connections

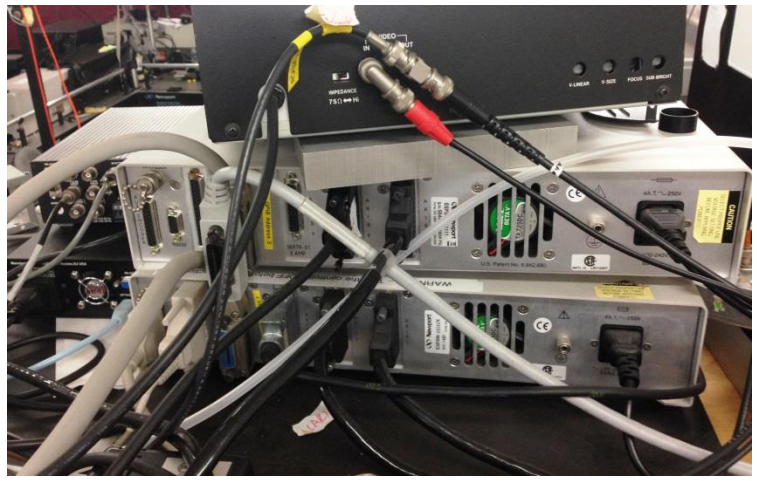
Second from left: joystick

Third from left: GPIB cable to third port from left on upper Newport motion controller

Fourth from left (AXIS 3): runs to ESP Z control on micromachining setup

Fifth from left (AXIS 2): runs to left-right motion controller on machining setup

Sixth from left (AXIS 1): runs to in-out control on micromachining setup



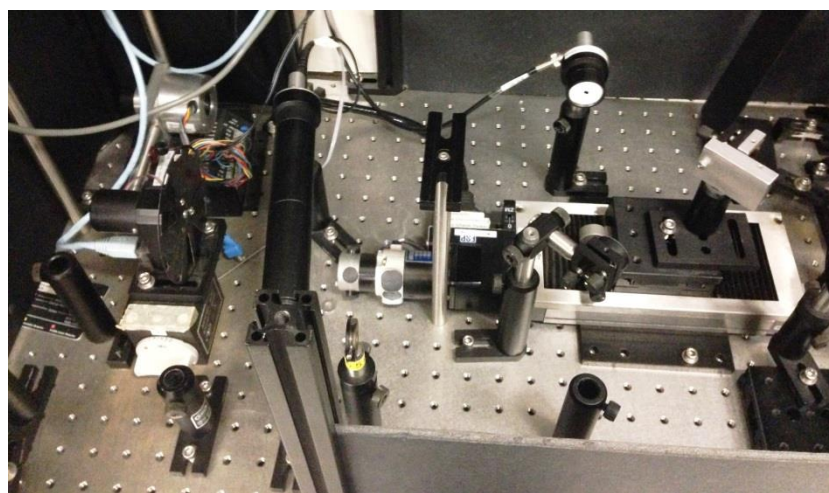
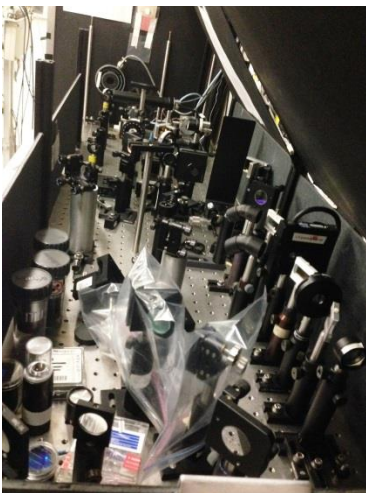
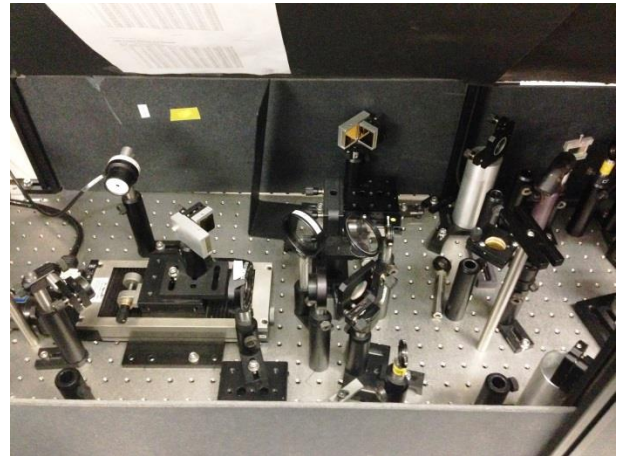
Bottom Newport Universal Motion Controller Driver Model ESP 300, labelled GPIB:3 Axes 1 A/C 2 HWP

Back

Third from left: GPIB cable to third port from left on bottom Newport motion controller, and a second cable runs to GPIB input on micromachining computer

Fifth from left (AXIS 2): goes to waveplate rotary stage

Sixth from left (AXIS 1): goes to autocorrelator translation stage



National Instruments BNC-2090 Panel located on side of Micromachining Computer Stand

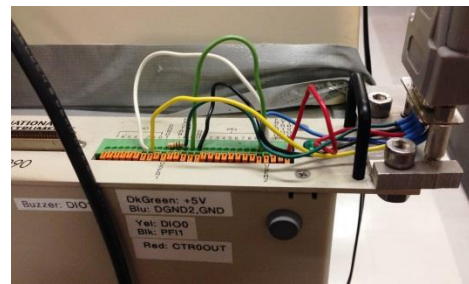
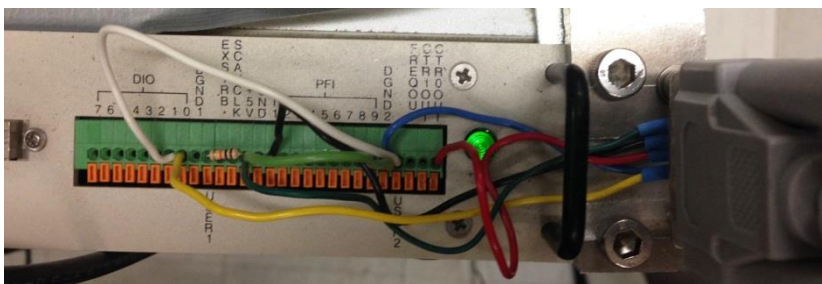
The BNC box (the small grey electronics box perched by the motion controllers and having four BNC connectors) goes to various hard wired inputs via individual signal wires.

Grey buzzer box is coupled to the USER 2 BNC.

ACH0 is connected to AVERAGED OUTPUT on Boxcar.

ACH8, ACH9, and ACH10 have BNC terminators.

Large communications cable runs to port on back of micromachining computer.



Little Grey Buzzer Box perched on National Instruments BNC-2090 panel

Runs by a long cable back to the office. Currently buzzer and LED toggles are in OFF position.

Micromachining Computer



BECKS 130.113.108.185

Dell Optiplex GX1 computer

Express Service Code 505-975-81

Service Tag: U4HCD

Running Microsoft Windows 98

External connections as viewed when looking at the back of the computer:

- Left, top (labelled with a series of 1's) COM1 cable feeds into the small black umbilical – goes to the “wheel” connection which is not currently connected in the experimental setup
- Left, second from top, keyboard connection
- Left, third from top, mouse connection
- Left, fourth from top, NOVA OPHIR power meter
- Left, fifth from top, LCD display for computer
- Left, sixth from top, internet cable apparently running back to the office
- Second panel from left, communications port running to Newport Universal motion controller (top of the two ESP300 modules on the shelf)
- Third panel from left, communications port to electronic unit on top side of computer stand
- Fourth panel from left, cable to OPHIR BEAMSTAR beam profiler
- Second panel from right, orange fiber optic connector for on-board spectrometer