

DE1-SoC Remote FPGA Access

Connect to the DE1-SoC Virtual Interface

1. Connect to the VPN - “Connect from Home”. See the Remote Procedure document for download instructions.
2. In Windows, search and start “Remote Desktop Protocol” (RDP). RDP is also available for Mac from the App Store under the name “Microsoft Remote Desktop”.
3. Click “Show Options”.
4. Enter the computer host/IP and enter the User name. Contact your TA for this information.
5. Click the “Local Resources” tab group.
6. Click “More” under the “Load devices and resources” group.
7. Check “Drives” to enable access to your local files.
8. Click “Connect”.
9. Enter the password when prompted and click “Ok”.
10. Accept the connection despite the certificate if prompted.
11. You are now connected to the machine.
12. Navigate to the desktop.
13. Double click “DE1-SoC” on the desktop to launch the virtual interface application.

How to use the DE1-SoC Virtual Interface

The virtual interface program should look something like figure [1](#).

The left part of the application, labelled “Live FPGA Video Feed” contains the live video feed from which you can discern the status of the LEDRs and the HEXs.

The top right, labelled “Program FPGA” contains a button called “Select .sof file and upload to FPGA” that opens a file picker for you to choose the .sof file that represents your circuit. You can find this file in the output directory in your Quartus project directory. Make sure you enabled access to your drives when setting up the RDP so you can access this file. Do not move files to the machine as other people also have access to the machine.

The middle right, labelled “KEY [0...3]” and “SW [0...9]” contain toggleable push buttons that emulate the physical switches on the FPGA. These buttons trigger signals on the GPIOs rather than the physical KEYS or SWs; for this reason you MUST use the remote.qsf pin assignments file rather than the DE1-SoC.qsf file.

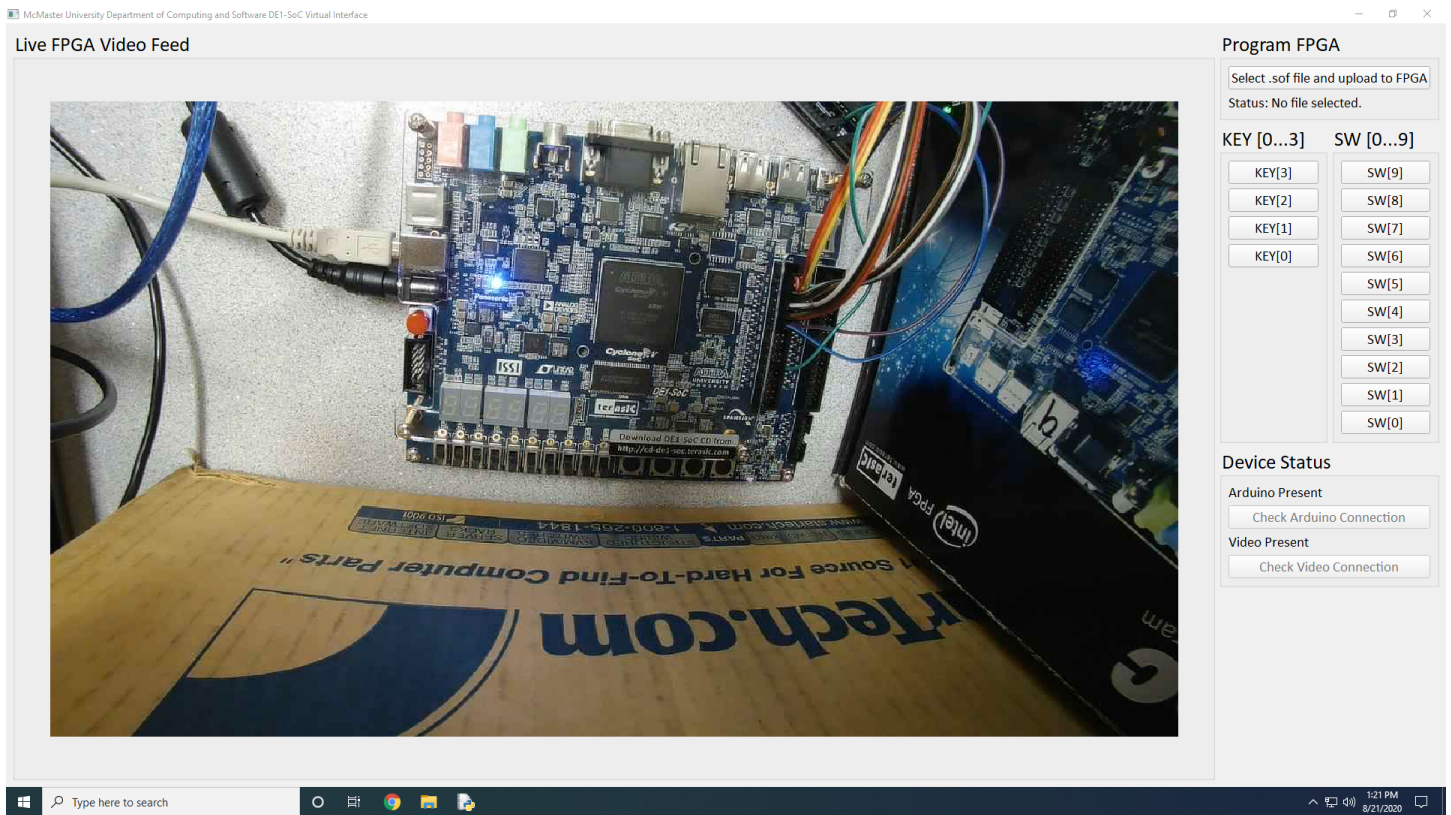


Figure 1: DE1-SoC Virtual Interface

The bottom right, labelled “Device Status” contains information about the status of the Arduino and Video feed. If the hardware is working as intended, “Arduino Status” and “Video Status” will be “Working”. If the hardware fails, the status will become “Failure” and an error box will appear. You can attempt to resolve the error by clicking the “Check Arduino Connection” or “Check Video Connection” buttons which only become active after hardware failure. If connection is successful, the buttons will deactivate and an info box will appear. If the connection failure persists, contact a TA to diagnose the errors - most likely the error is a result of an improper cable connection.