DORDT COLLEGE

Engineering Department

I COMPUTER CONNECTION TO OSCILLOSCOPE

The lab computer can communicate with the oscilloscope through a local area computer network on the workbench known as the *General Purpose Interface Bus* or GPIB. It is also known as the Hewlett Packard Interface Bus, HPIB, and the IEEE-488 interface bus. This local area network technology was invented by Hewlett Packard in the 1960's for networking of lab instruments. Later the IEEE standardized it. For obvious marketing reasons, Tektronix, and most other manufacturers, prefer to call it the GPIB. Although it is an old and nearly obsolete computer networking technology, it has some unique capabilities which keep it in service to this day. Look at the back of the oscilloscope for the large connector. This is the GPIB cable and connector. The connectors are stackable so that more than one instrument can be connected to the network (up to 15). The oscilloscope is the only instrument we routinely use in our lab that connects to the GPIB, but in industry it is somewhat more common.

The lab computers have a program called *OpenChoice Desktop* which allows one to use the GPIB to do a screen capture, to upload front-panel oscilloscope settings into a text file on the computer, to download settings to the oscilloscope, and to capture data from the oscilloscope and put it into a spreadsheet. Start the OpenChoice Desktop program. Use the "Select Instrument" button in OpenChoice Desktop to select the instrument on the GPIB connection. When you achieve this, "TDS-210," the model number of your oscilloscope, should show up in OpenChoice Desktop underneath the "Select Instrument" button. The Oscilloscope is now connected to the computer and communicating with the OpenChoice Desktop program.

II SCREEN CAPTURE

On OpenChoice Desktop, click on the "Screen Capture" tab and then the "Get Screen" button. From there you can copy the screen capture to the Windows clipboard and later past it into a Word (or any other) document

You also can save the screen capture as if it was a photograph. This is useful if you have not yet written up your report but you want to save screen shots. Usually the PNG file format will be your best choice for the type of work done in our lab. You can view the file using any standard image editing software or photo viewer, for example Irfanview is loaded on the lab computers.

In OpenChoice Desktop you have a choice of Bitmap (BMP), Portable Network Graphics (PNG) or Tagged Image File Format (TIFF) to choose from when saving a screen shot. Bitmap files are uncompressed. They will take up a relatively large amount of disk space. It is pretty rare here at Dordt College that you would need this unwieldy format. Portable network graphics format uses lossless data compression. It is usually the best choice (smallest file, fastest loading and viewing) for saving a screen-shot as a photograph. Tagged Image File Format is a widely recognized format for photographs. The standard allows for lossy or lossless compression, multiple images in one file, and a bunch of other options. It is however also a dated standard and is becoming less popular as time passes. It is included in OpenChoice Desktop probably for computability with a wide variety of image editing software.

III SAVE/RECALL SETTINGS

Click on the "Get & Send Settings" tab in OpenChoice Desktop. Then click on the "Get Settings" button. A text file appears. Use the "Save As" button to save the file somewhere. You can now open notepad and find the file you just saved. You may have to turn on word-wrap in notepad in order to view the whole file. You may edit this file and then upload it to the oscilloscope to change settings, or you may just save the file in order to upload your previous settings unchanged at a later time.

Any time you want to save the settings so that you can easily return to them later, you may use this feature. Just set the oscilloscope up using the front panel knobs and buttons and then save all the settings in a file using OpenChoice Desktop.