Data Acquisition Using Non-Volatile Memory

Associated files:

    Data Acquisition Using Non-Volatile Memory.qcp

    Data Acquisition Using Non Volatile.txt

    QCI-AN037 VB Folder and files

This application note describes two methods to upload data from NV memory.

1) Using QuickControl's Upload Program Files Feature

2) Using an External Host (Visual Basic®)

Note: This application note assumes that the reader is familiar with indirect addressing and QuickSilver's Register File System. Refer to application notes AN046 (Indirect Address) and AN042 (Record and Playback) as well as the SilverLode User Manual for additional information.

The included QuickControl program records a series of data into a Register File Array, which can then be retrieved by one of the two methods mentioned above.

QuickControl's Upload Feature

QuickControl's upload feature retrieves both programs and data. Although uploading the program has little use for us since we have the original, the data will be what was recorded when the program "Data Acquisition Using Non-Volatile Memory.qcp" was run. For QuickControl to upload the data, the @NVRegArray directive in " Data Acquisition Using Non Volatile.txt" must not have not have the parameter "startAdr=". The text file has two @NVRegArray entries. Uncomment the one without the startAdr parameter and make sure the other entry is commented out. The active entry should be as follows:

    @NVRegArray: name="Data Acquisition",row=300,col=2,col0Fmt=ulong,col1Fmt=pos

1. Run "Data Acquisition Using Non-Volatile Memory.qcp" to allow it to record data to the Register File Array in NV memory.
2. From the File menu, select Upload Program File to upload program and data.
3. Press 'Upload Programs from device'.
4. Enter the password '1234' then press OK.
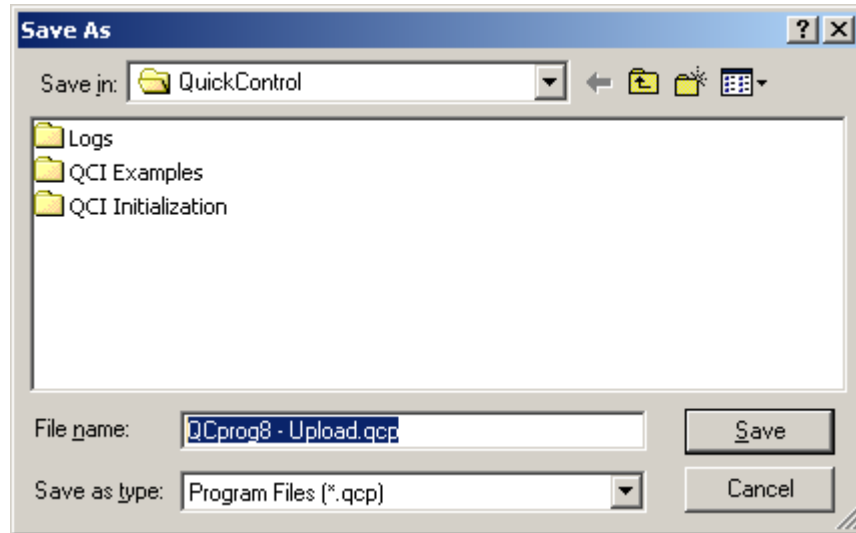5. Save the program to the default folder as shown in Diagram 1.

Diagram 1

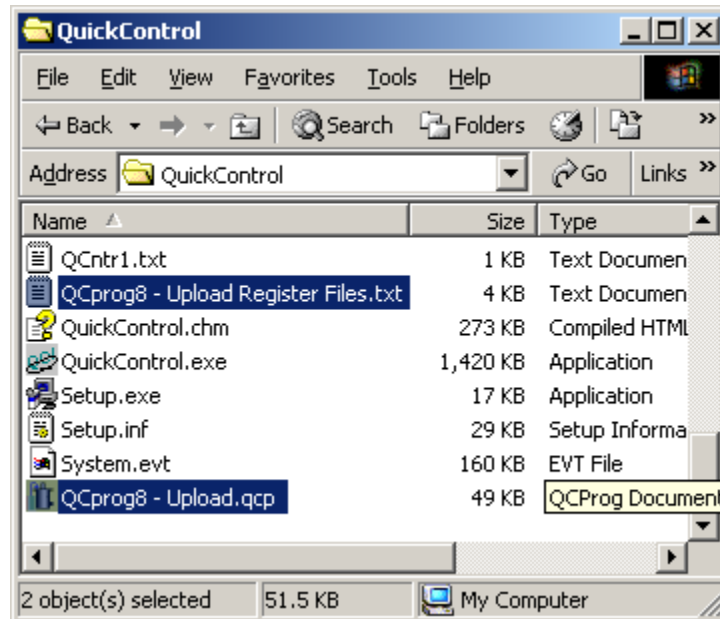Both program and register files are stored in the specified folder (see Diagram 2).

Diagram 2

Double click on "…Upload Register Files.txt" file to view the data recorded to the Register File Array 'Data Acquisition' (Diagram 3). The first column is the analog input, and the second column is the actual position.
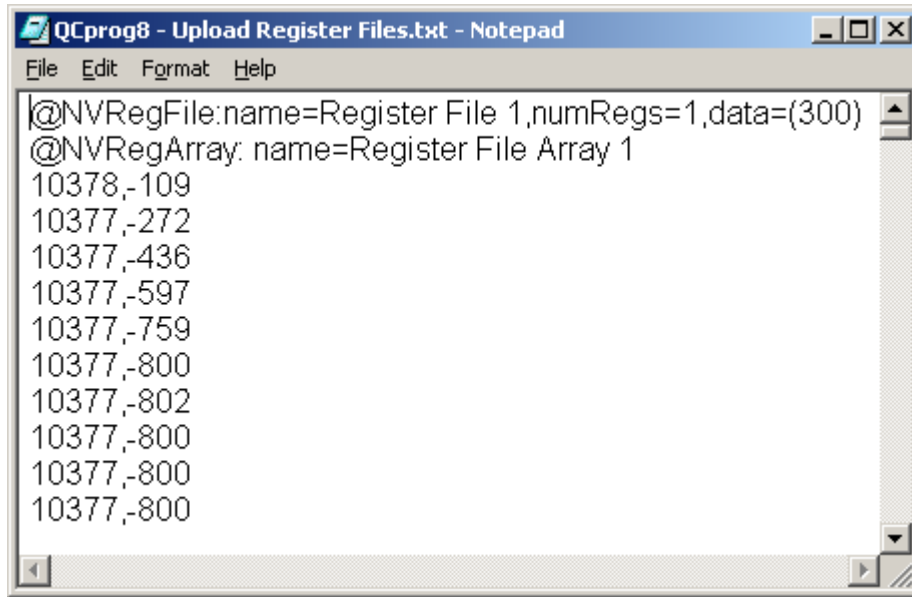
Diagram 3

Using an External Host

For the example VB program to upload the data, the @NVRegArray directive in " Data Acquisition Using Non Volatile.txt" must have the parameter "startAdr=". The text file has two @NVRegArray entries. Uncomment the one with the startAdr parameter and make sure the other entry is commented out. The active entry should be as follows:

@NVRegArray: name="Data Acquisition",startAdr=1000,row=300,col=2,col0Fmt=ulong,col1Fmt=pos

With the above changes made, run " Data Acquisition using Non-Volatile.qcp" and then close QuickControl.

The VB program is programmed for COM1, 57K baud, 8 Bit ASCII protocol and Unit ID16. Verify these communication settings and then run the example VB program.
The Visual Basic® program illustrates how a host would upload data from NV memory. The basic components needed are shown in Diagram 4. Please note the communication and timer components. See Application Note QCI-AN022 Visual Basic Serial Communications for details on serial communication.

The VB program issues a Register Load Multiple (RLM) command to transfer data from NV memory 1000 to user register [25 & 26]. Two registers for two columns defined in the Register File Array 'Data Acquisition'. The program then issues Read Register (RRG) commands to read registers[25 & 26]. The whole process repeats until all data is read from NV memory.
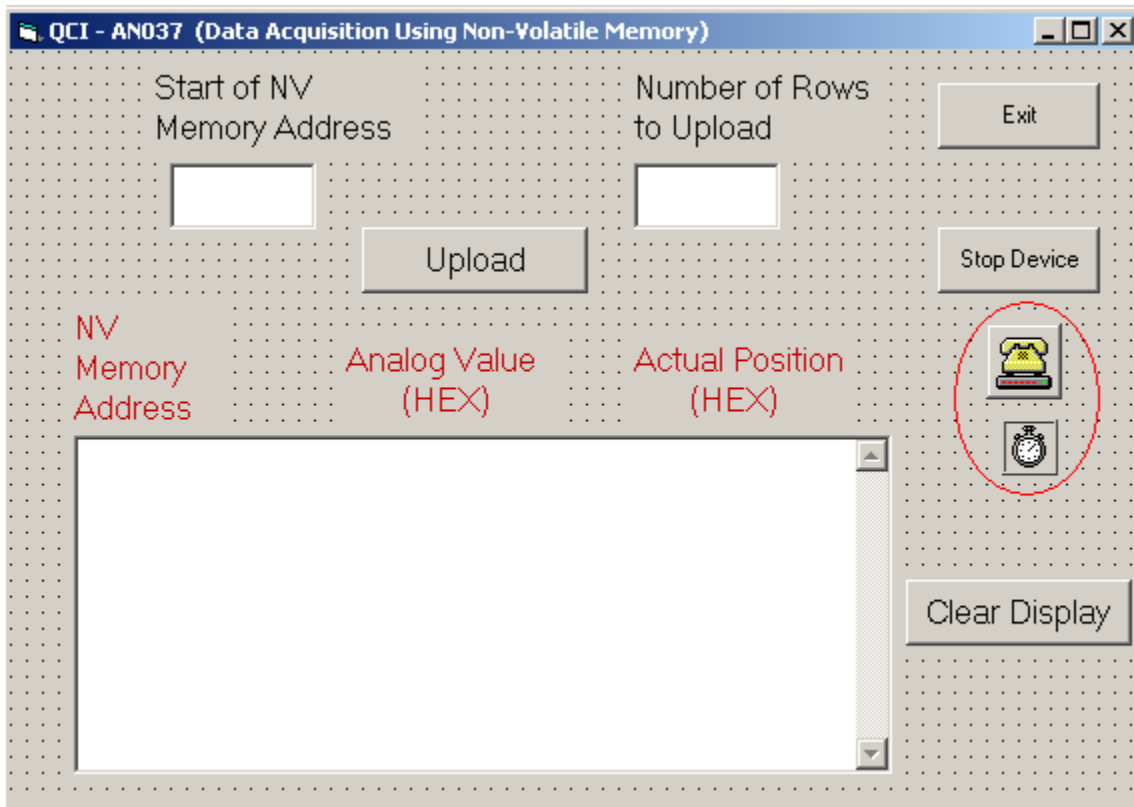

Diagram 4

Run the program with "Starting of NV..." set to 1000 and "Number of Rows…" set to 300. Each NV memory address and data is displayed as it is uploaded. Note the data is shown in hex format. Be patient, as 300 rows takes awhile to upload.