

## **Circuit Cellar project AR1761 abstract.**

The Philips ARM7 uC with its 16550 style UART can be useful for industrial or other data acquisition and control systems using RS232/485 protocols which are well documented. What may not be so well documented is a method of interfacing to a PC and a GUI.

This project offers a basic method of interfacing Philips Arm7 uCs ( more than one if on RS485) to a Windows style GUI. Using the 16550 UART of the Arm7 chip and a 16550 I/O in a PC, the offered GUI can send and receive data to and from the chip(s). Basic functions are exercised such as turning leds on and off, varying the D/A, PWMs and Timer. A/D (10 bit) and switch data can be monitored.

Complete source code is supplied for both the ARM7 chip and the Windows GUI.

A basic knowledge of the C++ programming language *is* required. for both.

Windows programming however, though based on C++ may not be familiar to all. . Thus a brief attempted explanation of the code is supplied.

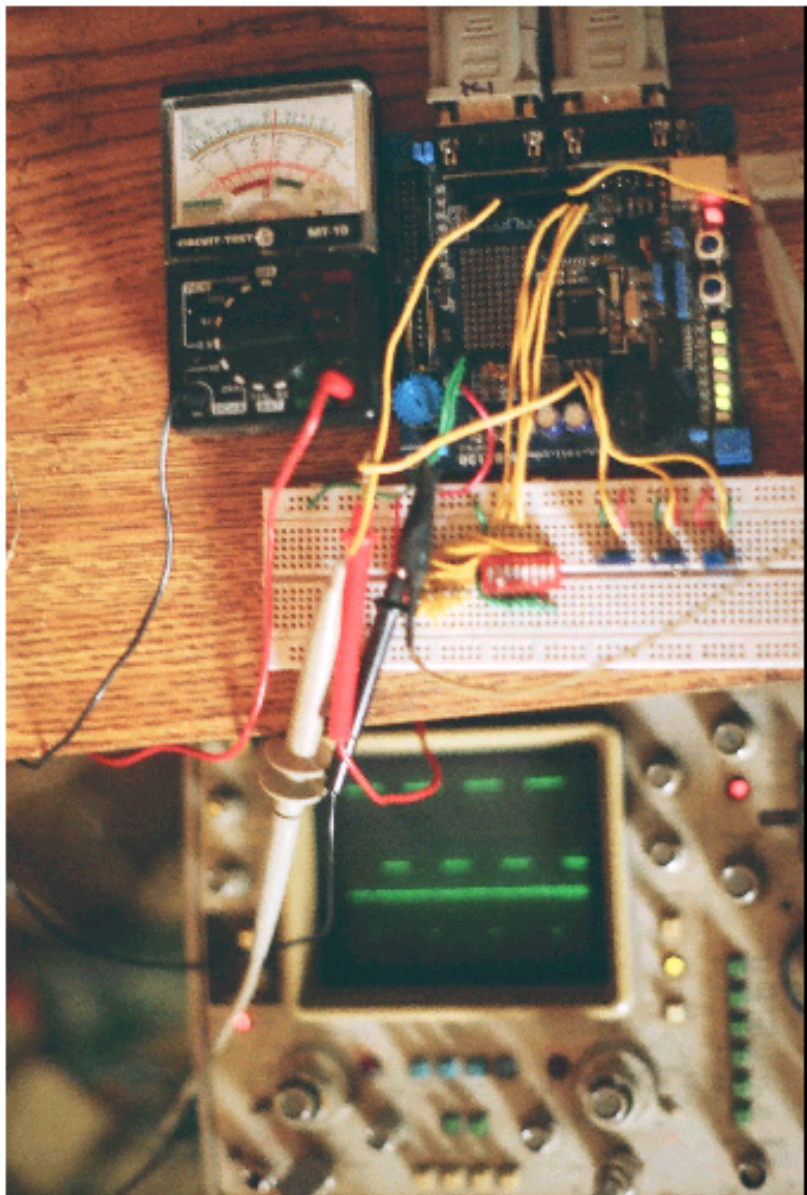
Written in Microsoft Visual C++ 6 it may seem formidable at first but even a cursory glance shows that much is repeats of standard pieces of code; windows are just rectangles on a screen. What you do with them can be simple or complex, using either Microsoft supplied routines or those you create yourself.

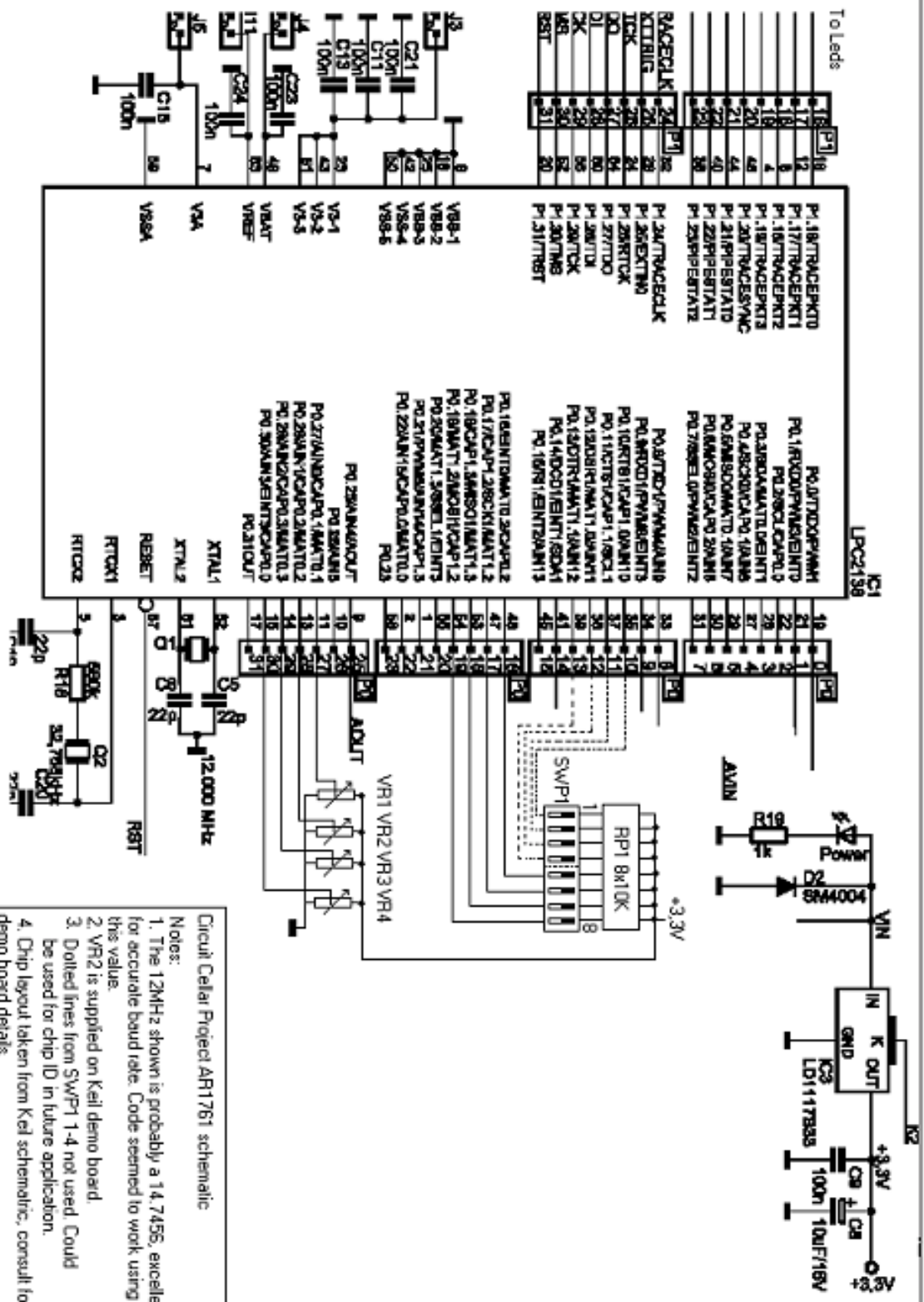
For those without a version of Visual C++, VC++.txt listing should come up in notepad.

Most likely GUIs for monitor and control exist, but may be proprietary or expensive.

This project gives some suggestions as to how to make your own, and it's free

ARM7 development board with extra pots, switches and a voltmeter 'scope showing some variable transmitted data from the GUI.





Circuit Cefai Project AR1761 schematic

Notes:

1. The 12MHz shown is probably a 14.7455, excellent for accurate baud rate. Code seemed to work using this value.
2. VR2 is supplied on Keil demo board.
3. Dotted lines from SWP1 1-4 not used. Could be used for chip ID in future application.
4. Chip layout taken from Keil schematic; consult for full demo board details.