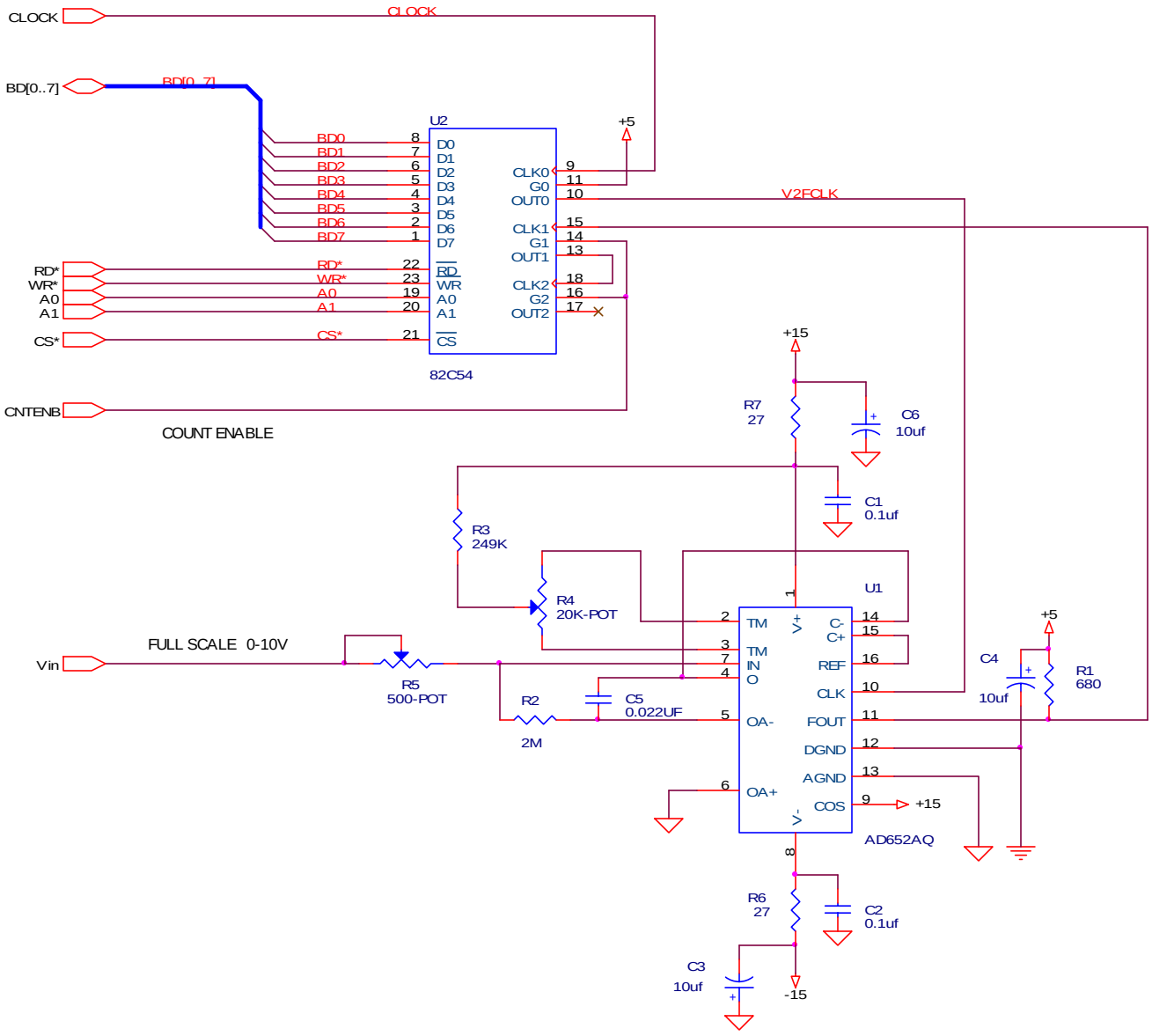
Flexible V to F Converter



Using an 8254 timer/counter for a Flexible V to F Converter

Voltage to Frequency converters are used as integrators for analog inputs. A V to F converter is far more accurate for integration than a microprocessor and an A to D converter. Proper design of a V to F converter requires an accurate clock for the reference and a counter for the output.

Packaged V to F devices are available from several sources. They are power hungry and expensive. Application of this simple design is more flexible and can save you money when building small quantities.

This V to F circuit utilizes an Analog Devices AD652. This device is a Synchronous V to F converter. Output from the AD652 is a one shot pulse, which is input to the 8254 timer for counting. Inputs to the AD652 are a voltage level (the measurement) and a frequency (the integrating base). The reference frequency is generated by the 8254.

The V to F converter circuit is connected to a CPU and controlled by the reading and writing to the 8254 timer/counter. The frequency base is established by setting the preload value in timer 0, which can range from 1KHz to 2Mhz. The integral output is read from counters 1 and 2, providing 32 bits of resolution.