

EnerChip™ CC Real-Time Clock Evaluation Kit

System Features and Overview

CBC-EVAL-06 is a demonstration kit featuring the Cymbet EnerChip CBC3112 backup power and battery management circuit coupled with the Micro Crystal low power RV-2123 real-time clock (RTC) with integrated crystal.

The kit demonstrates just how compact an RTC and backup power solution can be using the low profile surface mount devices from Cymbet and Micro Crystal. The combined board space of the two-chip solution including RTC, crystal oscillator, rechargeable backup power source, and power management circuits, is **only 0.65 cm²**.

CBC-EVAL-06 has the following elements:

- Solid state rechargeable energy storage in low profile surface mount package, for real-time clock backup power
- Integrated battery management that controls battery charging and discharge cutoff, ensuring maximum service life of on-board storage cells
- Integrated real-time clock and crystal oscillator in small ceramic surface mount package with SPI bus
- USB connector for easy demonstration on personal computer
- Input/output access to board for easy connection to external microcontroller

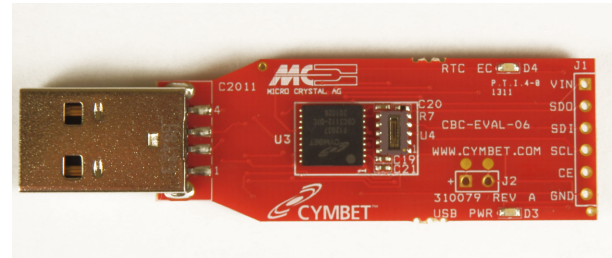


Figure 1: CBC-EVAL-06 Demo Kit.

Smallest RTC Power Backup Footprint

As shown above in Figure 1, the CBC-EVAL-06 demonstrates an extremely compact RTC power backup solution. The EnerChip CC CBC3112 is on the left and the Micro Crystal 2123 is on the right inside the white box. The block diagram of this simple two chip solution is shown in Figure 2.

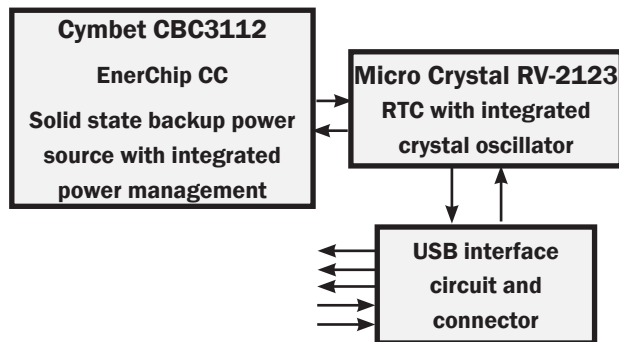
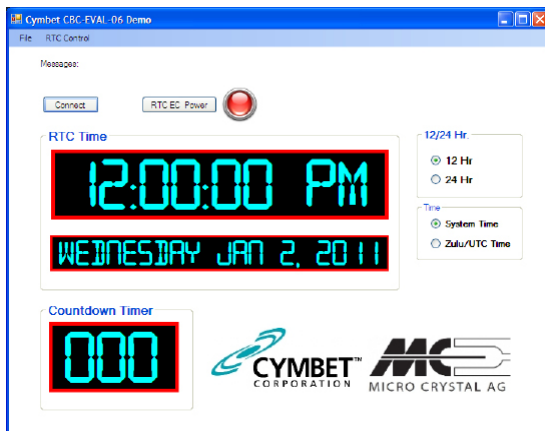


Figure 2: EnerChip CBC-EVAL-06 Demo Kit block diagram.

EVAL-06 Graphical User Interface

The CBC-EVAL-06 includes an easy to use PC based software application that communicates with the USB stick. Users can set the time of day, date and count-down timer values to experiment with RTC power-backup. The software works with Microsoft Windows XP and Windows 7 operating systems. Once the EVAL-06 USB stick is inserted into the PC, the Connect button is clicked in the GUI. This establishes communication over the USB port and the time, date and countdown selections are written to the RTC. The EVAL-06 can then be removed from the PC and the RTC will be powered by the EnerChip CC CBC3112.



CBC-EVAL-06 EnerChip CC RTC Evaluation Kit

CBC-EVAL-06 Module Connector, Jumpers, and Test Points

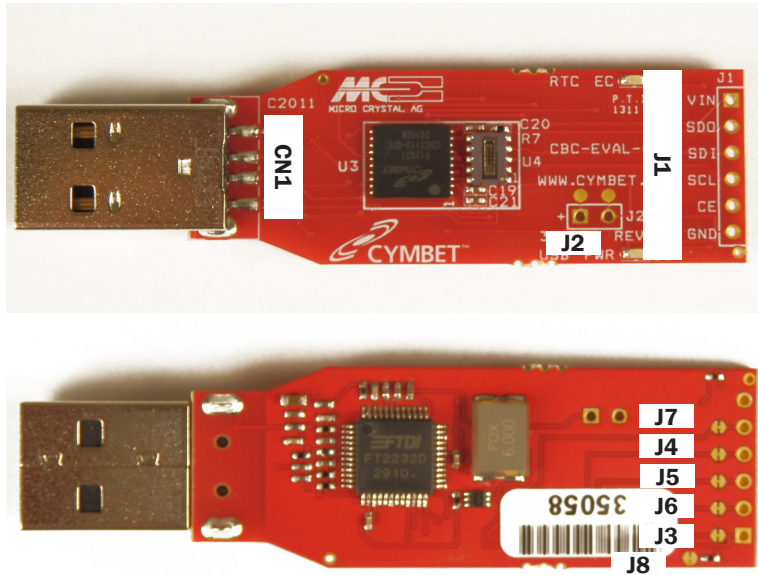


Figure 3: Locations of Connector and Jumpers.

| JUMPERS AND CONNECTORS | | |
|------------------------|------------|------------------------------|
| Jumper | Pin Number | Designation |
| J1 | 1 | VIN |
| | 2 | SDO |
| | 3 | SDI |
| | 4 | SCL |
| | 5 | CE |
| | 6 | GND |
| J2 | 1 | EXT ENERCHIP (+) |
| | 2 | EXT ENERCHIP (-) [GND] |
| J3 | Trace | RTC PWR |
| J4 | Trace | SCL |
| J5 | Trace | SDI |
| J6 | Trace | SDO |
| J7 | Trace | CE |
| J8 | Trace | RTCPWR LED (optional cut) |
| CN1 | 1 | VDD (indirect) |
| | 2 | USBDM (indirect) |
| | 3 | USBDP and RSTOUT# (indirect) |
| | 4 | GND |

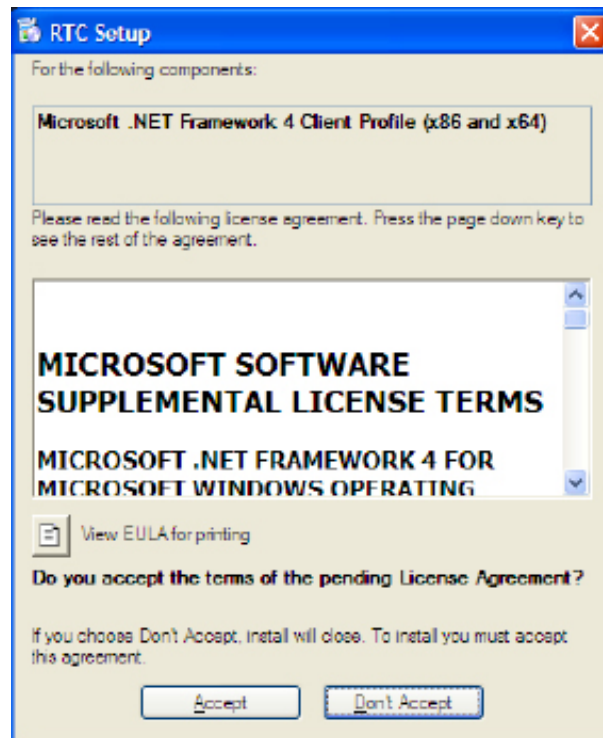
CBC-EVAL-06 EnerChip CC RTC Evaluation Kit

Getting Started

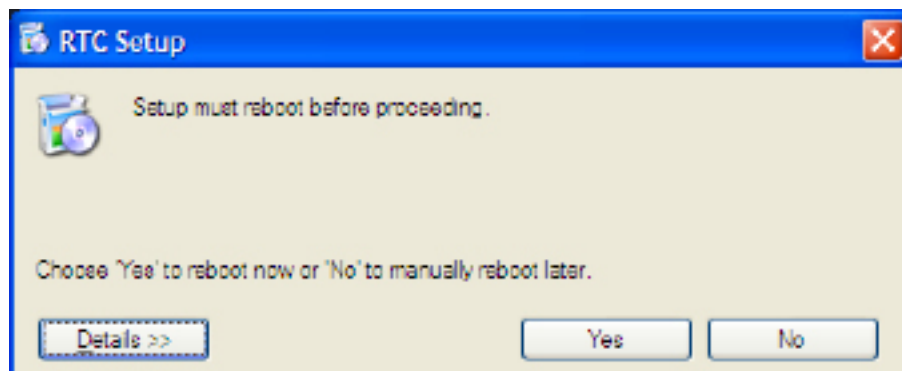
For first time users who have not installed the demonstration software, follow these steps:

Insert the EVAL-06 Kit CD-ROM into the CD drive.

If the Microsoft .NET Framework Client Profile has not been loaded, a window will appear as shown below. Click 'Accept.'

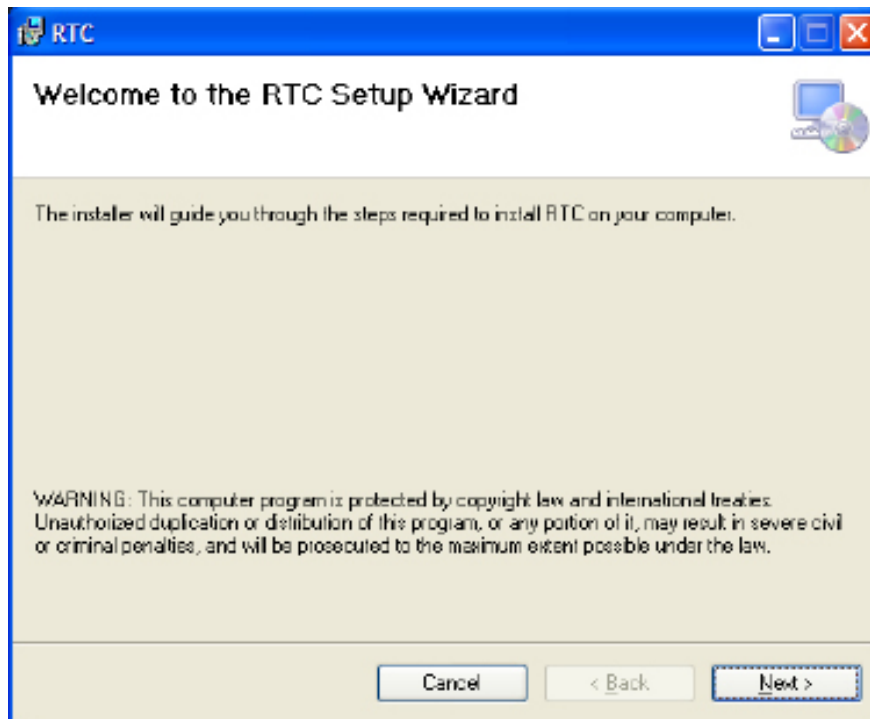


After Framework loads, click 'Yes', on Setup. This will reboot the computer.



When the 'Welcome to the RTC Setup Wizard' window appears, click 'Next.'

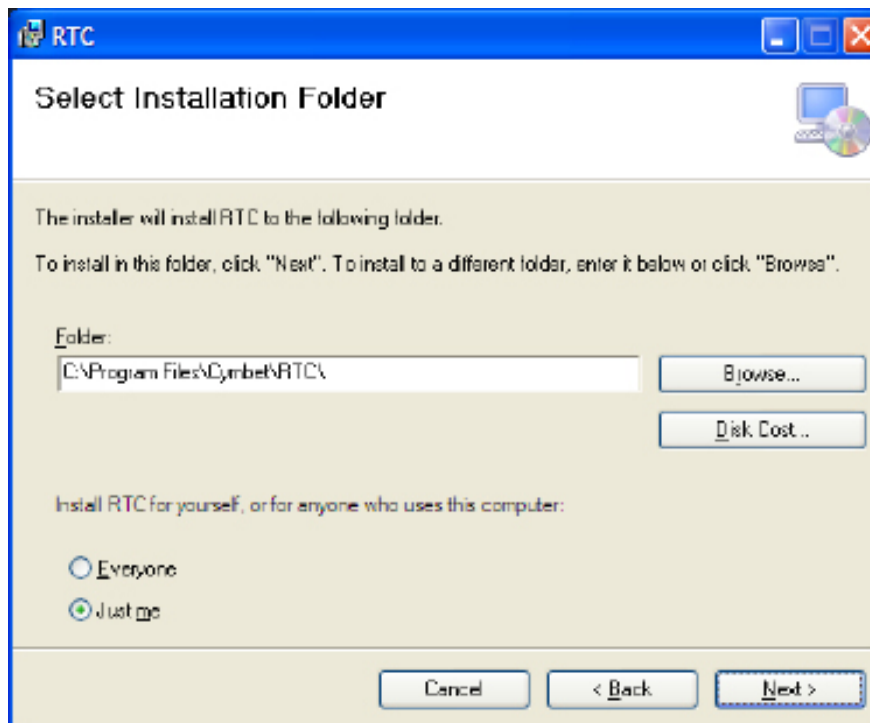
CBC-EVAL-06 EnerChip CC RTC Evaluation Kit



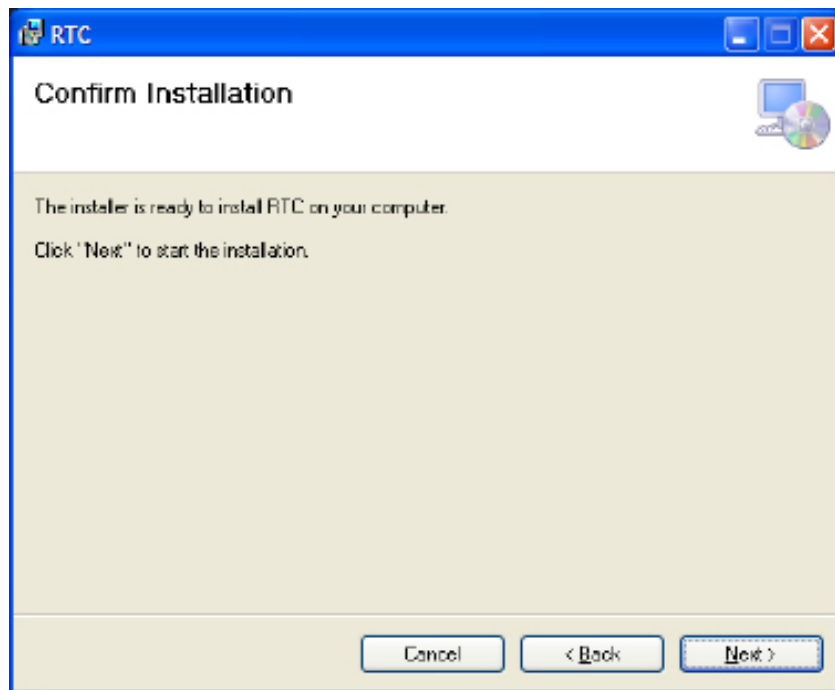
Click 'Next' on each of the next two windows that appear.

Installing RTC ...Installation complete, then click 'Close'

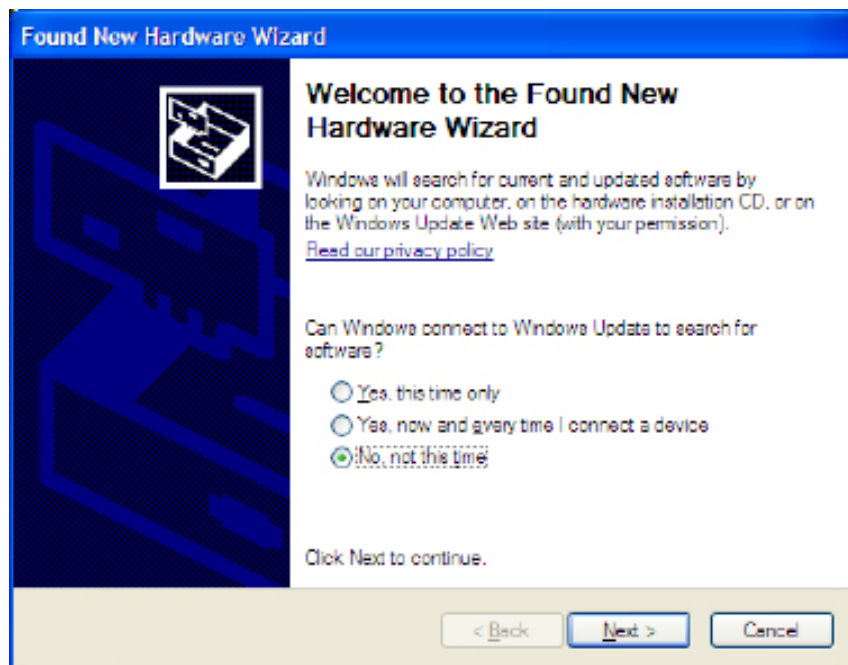
Insert EVAL-06 dongle into USB port. Both red LEDs will be lit



CBC-EVAL-06 EnerChip CC RTC Evaluation Kit



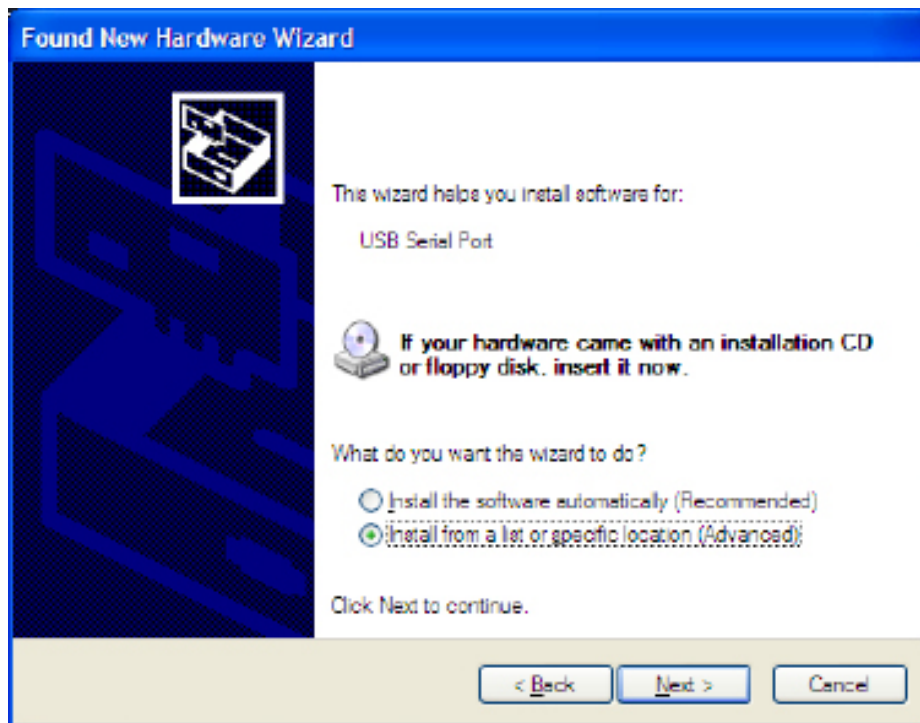
When the 'Found New Hardware Wizard' window appears, click 'No, not this time.'



Click 'Next.'

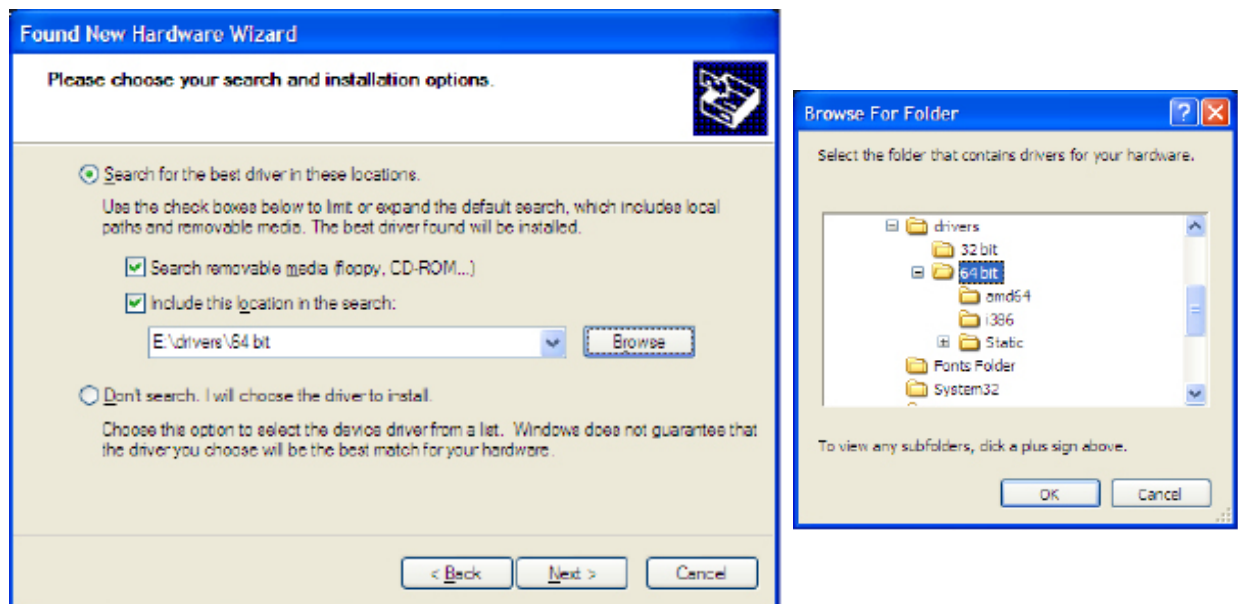
Then, click 'Install from a list or specific location (Advanced)' and click 'Next.'

CBC-EVAL-06 EnerChip CC RTC Evaluation Kit



At the next window, check 'Include this location in the search,' then browse to 'My Computer.'

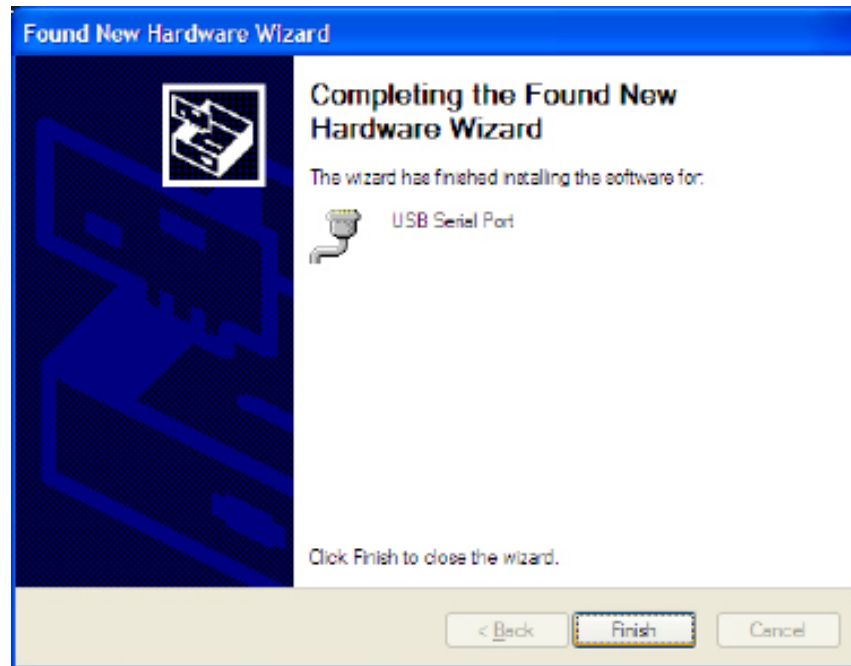
Continue navigating computer folders to the location shown below, then click 'OK' in the 'Browse for Folder' window.



Click 'Next.'

CBC-EVAL-06 EnerChip CC RTC Evaluation Kit

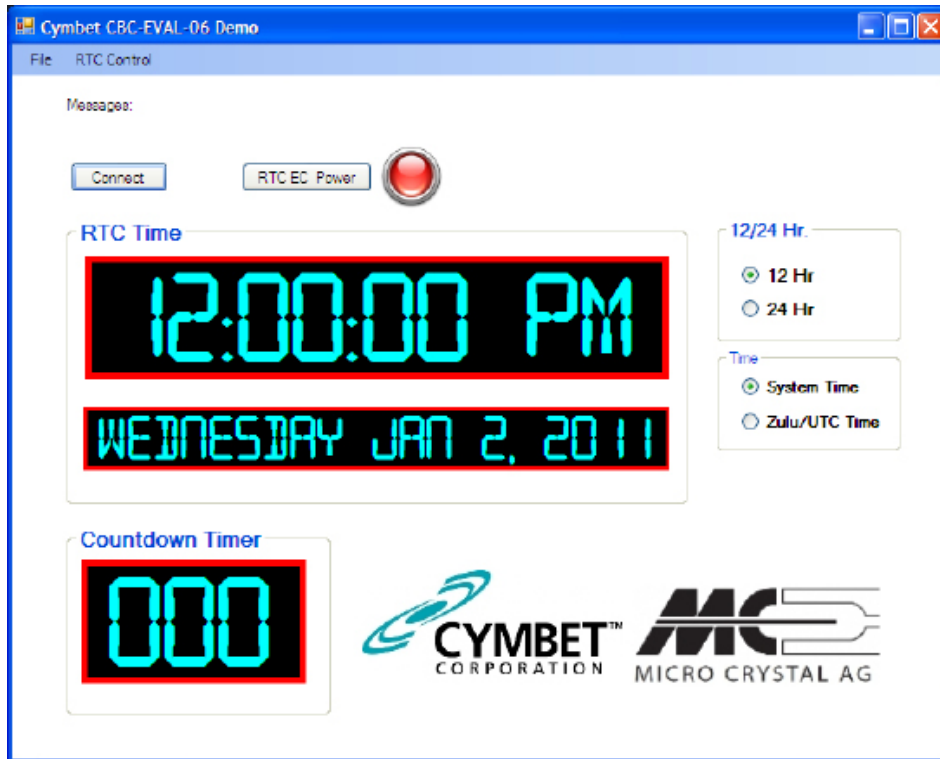
When the 'Found New Hardware Wizard' window appears, Click 'Finish.'



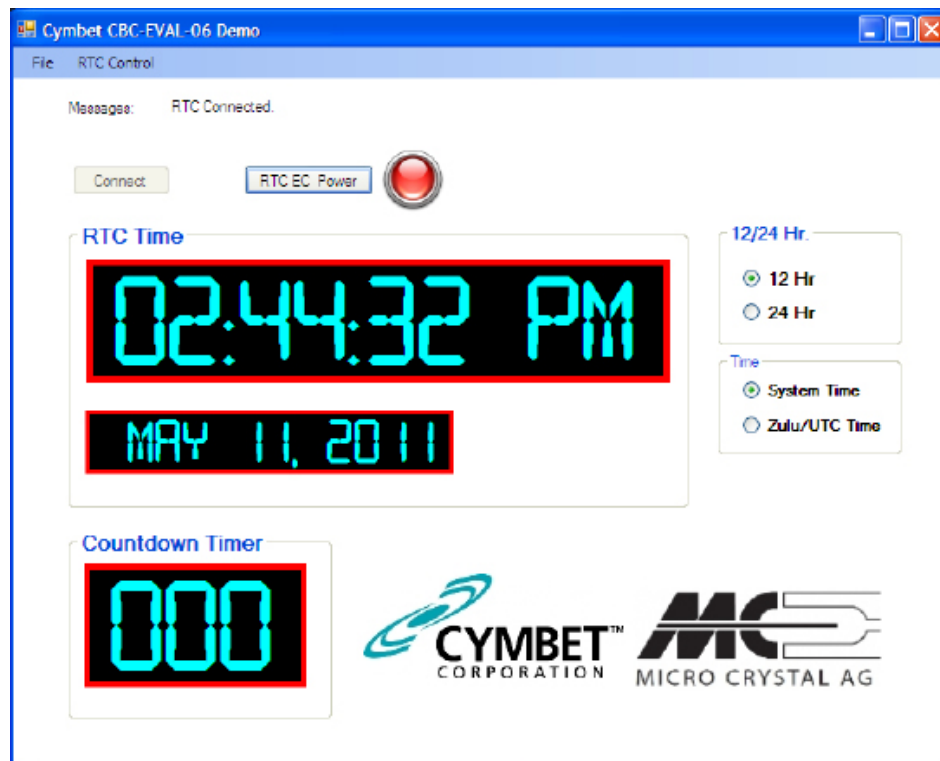
A 'Found New Hardware' balloon will appear on your screen, indicating a successful installation. The system is now ready to run the RTC demo.

CBC-EVAL-06 EnerChip CC RTC Evaluation Kit

Double-click the 'Cymbet RTC Demo' icon on the desktop. The following window should appear.



Plug in the EVAL-06 USB stick into a PC USB Port. Click 'Connect' on the Graphical User Interface (GUI). The System time will appear.

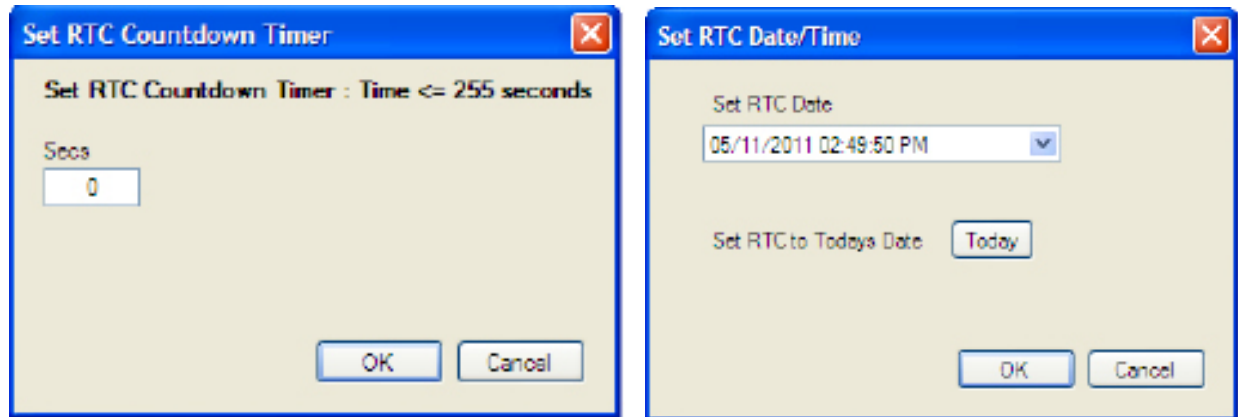


CBC-EVAL-06 EnerChip CC RTC Evaluation Kit

Click 'RTC EC Power' to disable power from the dongle. Power LED will turn off.

Click RTC EC Power to again apply power to the dongle.

To use Countdown Timer or clock settings, open 'RTC Control' menu.



Select either option.

RTC Countdown Timer option allows user to apply a value from 0 to 255 in 'Secs' field.

Alternatively, the 'Set RTC Date/Time' option allows the user to set a specific date and time. Enter any arbitrary date and time as the starting time.

Once countdown timer or date and time have been set, the CBC3112 EnerChip can be used to maintain the timer or time by either disabling power from the dongle by clicking the 'RTC EC Power' button or removing the dongle from the USB port. In the absence of USB power, the CBC3112 will provide power to the RV-2123 RTC for up to 100 hours. Simply re-insert the dongle or re-apply power to verify that the countdown timer or time and date were maintained while the dongle was not under USB power.

CBC-EVAL-06 EnerChip CC RTC Evaluation Kit

CBC-EVAL-06 Assembly Diagrams

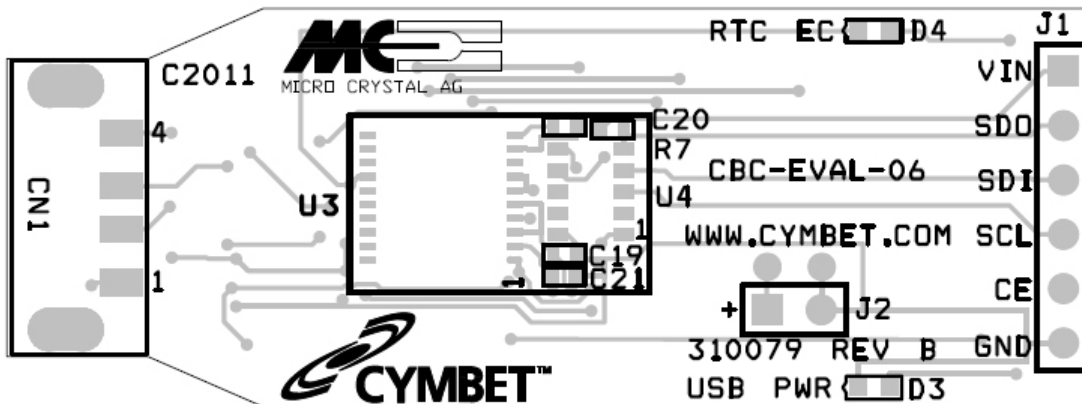


Figure 5: CBC-EVAL-06 Assembly Diagram (Top View).

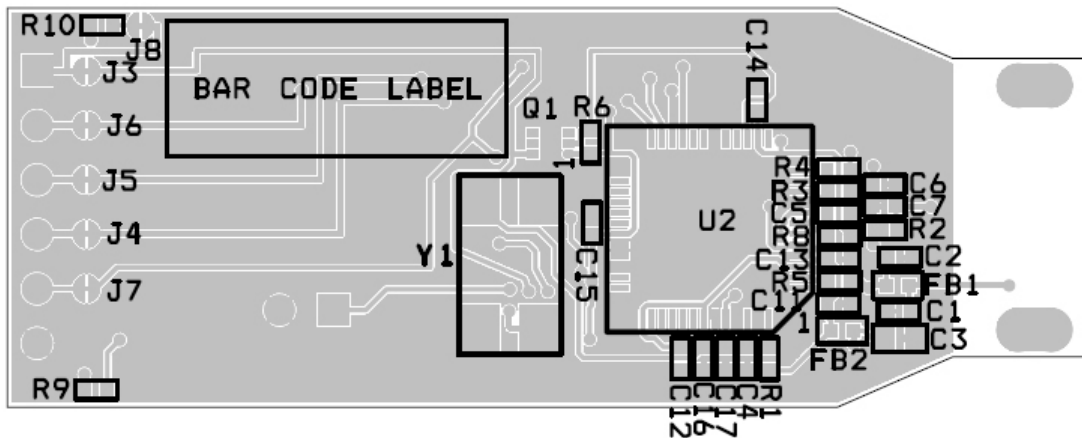


Figure 6: CBC-EVAL-06 Assembly Diagram (Bottom View).

Ordering Information

| EnerChip Part Number | Description | Notes |
|----------------------|--|--|
| CBC-EVAL-06 | EnerChip CC RTC Demo Kit | Contains USB Stick with EnerChip CC and RTC Module |
| CBC3112-D7C | EnerChip CC with Integrated Power Management | Packaged in Tape and Reel or Tubes |
| CBC012-D5C | EnerChip 12 μ Ah Solid State Battery | Packaged in Tape and Reel or Tubes |

Disclaimer of Warranties; As Is

The information provided in this data sheet is provided "As Is" and Cymbet Corporation disclaims all representations or warranties of any kind, express or implied, relating to this data sheet and the Cymbet battery product described herein, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, non-infringement, title, or any warranties arising out of course of dealing, course of performance, or usage of trade. Cymbet battery products are not approved for use in life critical applications. Users shall confirm suitability of the Cymbet battery product in any products or applications in which the Cymbet battery product is adopted for use and are solely responsible for all legal, regulatory, and safety-related requirements concerning their products and applications and any use of the Cymbet battery product described herein in any such product or applications.

**Cymbet, the Cymbet Logo and EnerChip are trademarks of Cymbet Corporation. All Rights Reserved.
EnerChip products and technology are covered by one or more patents or patents pending.**