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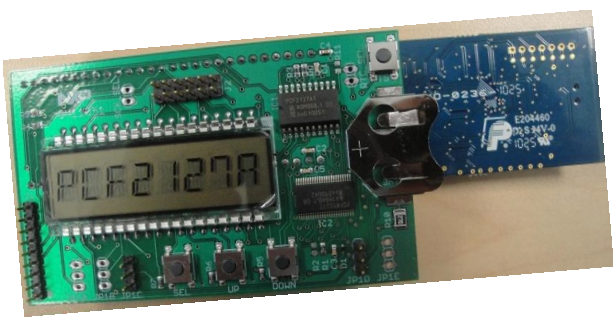
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Accurate Real-Time Clock Evaluation Kit

1. At power up (after connecting the USB cable to the LPCXpresso Board), the word "CLOCK" flashes on the screen for one second and then the time is displayed on the screen in the format: HH--MM--SS. This is the **Clock Mode**.

2. At any time, pressing the TS button will initiate the MCU to read the timestamp information from the RTC and display it on the LCD. This is the **Timestamp Mode**. Thereafter, pressing the TS button again will initiate the MCU to read the new time stamp information from the RTC and update the screen with the new timestamp information. However, if SEL, UP or DOWN switch is pressed, when the time stamped data is displayed on the screen, the word "CLOCK" will flash on the screen for one second and then the current time will be displayed on the LCD and the unit will return to the **Clock Mode** (Step 1).

3. Pressing UP or DOWN will cycle through the different operational modes.

   - In the **Clock Mode**, the word "CLOCK" flashes on the LCD for one second and then the time is displayed on the LCD in the format: HH--MM--SS.

   - In the **Date Mode**, the word "DATE" flashes on the LCD for a second and then the date is displayed on the LCD in the format: MM/DD/YY.

   - In the **Alarm Mode**, the word "ALARM" flashes on the LCD for a second and then the alarm time is displayed on the LCD in the format: HH--MM--SS.

   - In the **Countdown Mode**, the word "COUNTER" flashes on the LCD for a second and then the countdown time is displayed on the LCD in the format: HH--MM--SS. The countdown begins and the display is updated every second. The user may program the countdown time from 00--00--00 to 00--04--15 in increments or 1 second.

   Once the user is done programming, the countdown begins. If the countdown reaches zero (00--00--00), the display flashes and toggles between the words "COUNTER" and "FINISH".

- In the **Format Mode**, the word "FORMAT" flashes on the screen for a second and then the selected time format is displayed on the LCD. The different time formats to select from are 24H (Default at power up), 12H / PM, and 12H / AM.

- In the **Power Mode**, the phrase "PWR ON" is displayed on the LCD. The user may switch to LOW PWR Mode (LCD driver off but MCU on), by:

    i.   Pressing SEL to display the phrase "LOW PWR?" on the LCD.

    ii. Pressing the UP switch for LOW PWR and then SEL to enter **Low Power Mode**.

    iii. After pressing SEL the first time and the phrase "LOW PWR?" is displayed on the LCD, if the user presses the DOWN switch, the phrase "PWR / ON" is displayed again on the screen and pressing SEL will return to the starting point in the Power Mode.

    In the **LOW PWR Mode** (LCD driver off but MCU on), pressing SEL, UP, or DOWN wakes up the MCU, flashes the word "CLOCK" on the screen for one second, reads the current time from the RTC, and displays it on the LCD. This puts the unit back in the **Clock Mode** (step 1).

    In the **Low PWR Mode**, pressing the TS switch wakes up the MCU, reads the timestamp data from the RTC and displays it on the LCD. This puts the unit back in the **Timestamp Mode** (step 2).

- In the **Advertising Mode**, the following words flashes on the LCD for a second and cycle through continuously: WELCOME, NXP, LOW PWR, CLOCK, PCF2127A, LCD, PCF8562.

4. In the **Clock**, **Date**, **Alarm**, **Countdown**, **Format**, and **Power Modes**, pressing SEL will put the unit into the respective **Programming Mode**. In the **Programming Mode**, the variable being programmed will blink as the user sets the desired value. While the variable is blinking, pressing UP once will increment the variable to the next step and pressing DOWN once will decrement the variable to the previous step. If the user holds the UP or DOWN switch, the scroll speed increases.

   After the desired value is set and the user presses the SEL switch, the next variable to be programmed will blink. When all variables have been programmed, the word "FINISH" flashes on the LCD three times and then the display returns to the previous mode prior to entering the **Programming Mode**.

5. At anytime, if there is an alarm, the word "ALARM" flashes on the screen until the user presses SEL, UP, or DOWN switch. At which time, the interrupt will be cleared and the blinking will stop.

6. During operation, the unit may be powered via the USB connector (cable included) or a coin-cell battery (included).

7. This demonstration kit may also be used to evaluate the PCF2129A or the PCA2129 accurate real-time clock devices by swapping the device under evaluation with the PCF2127A device on board.

Note: cuttable trace on pcb

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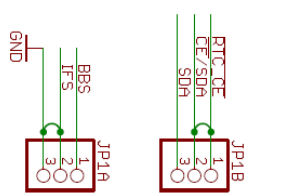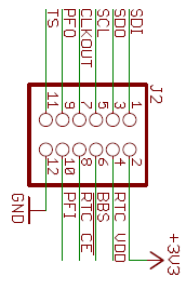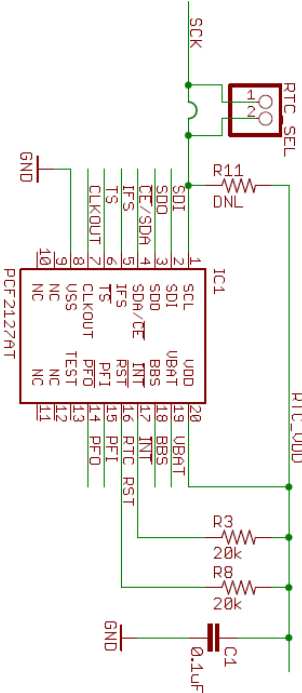
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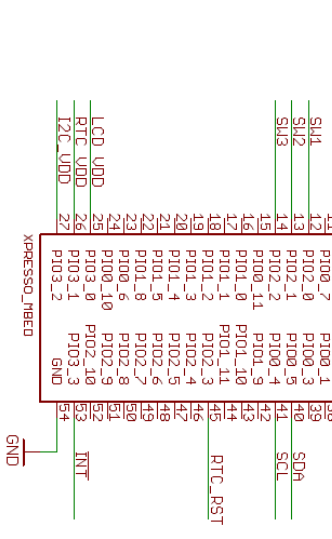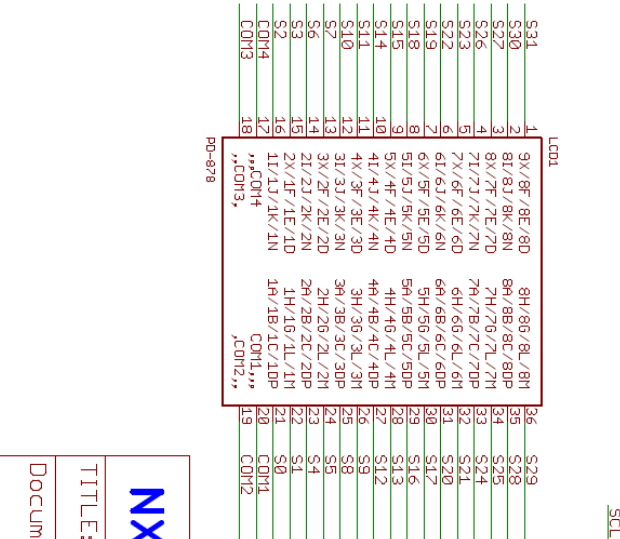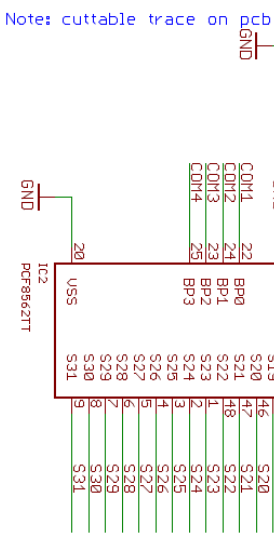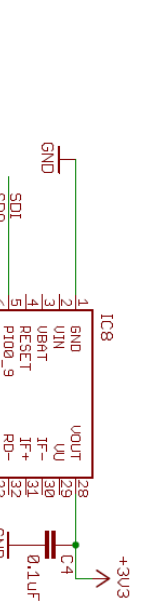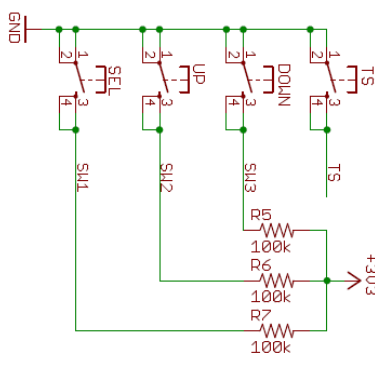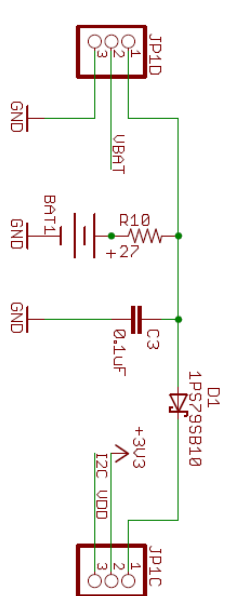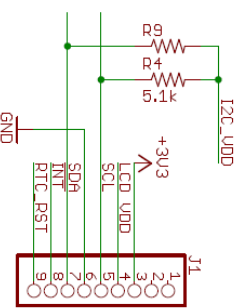
NXP SEMICONDUCTORS

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