



Code: **PSEMBP 101** Category: **STEM** Level: **High School/Community C.**

*ZILOG UART Demonstration – A character is echoed by the UART*

### **Objective:**

At the end of this session, you will have a fair understanding of

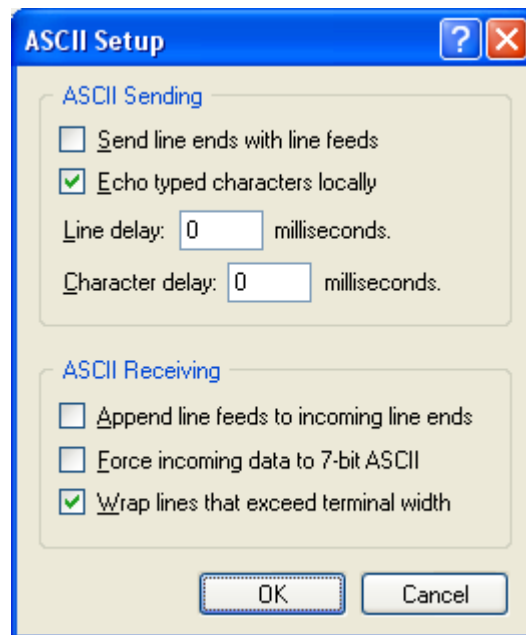
- Z8 Encore! language tools including C compiler, assembler, linker/locator, and librarian
- Instruction set simulator and disassembler
- Zilog Standard Library (ZSL)
- In-Circuit Z8 Encore! Flash MCU debugger and programmer
- USB Smart Cable

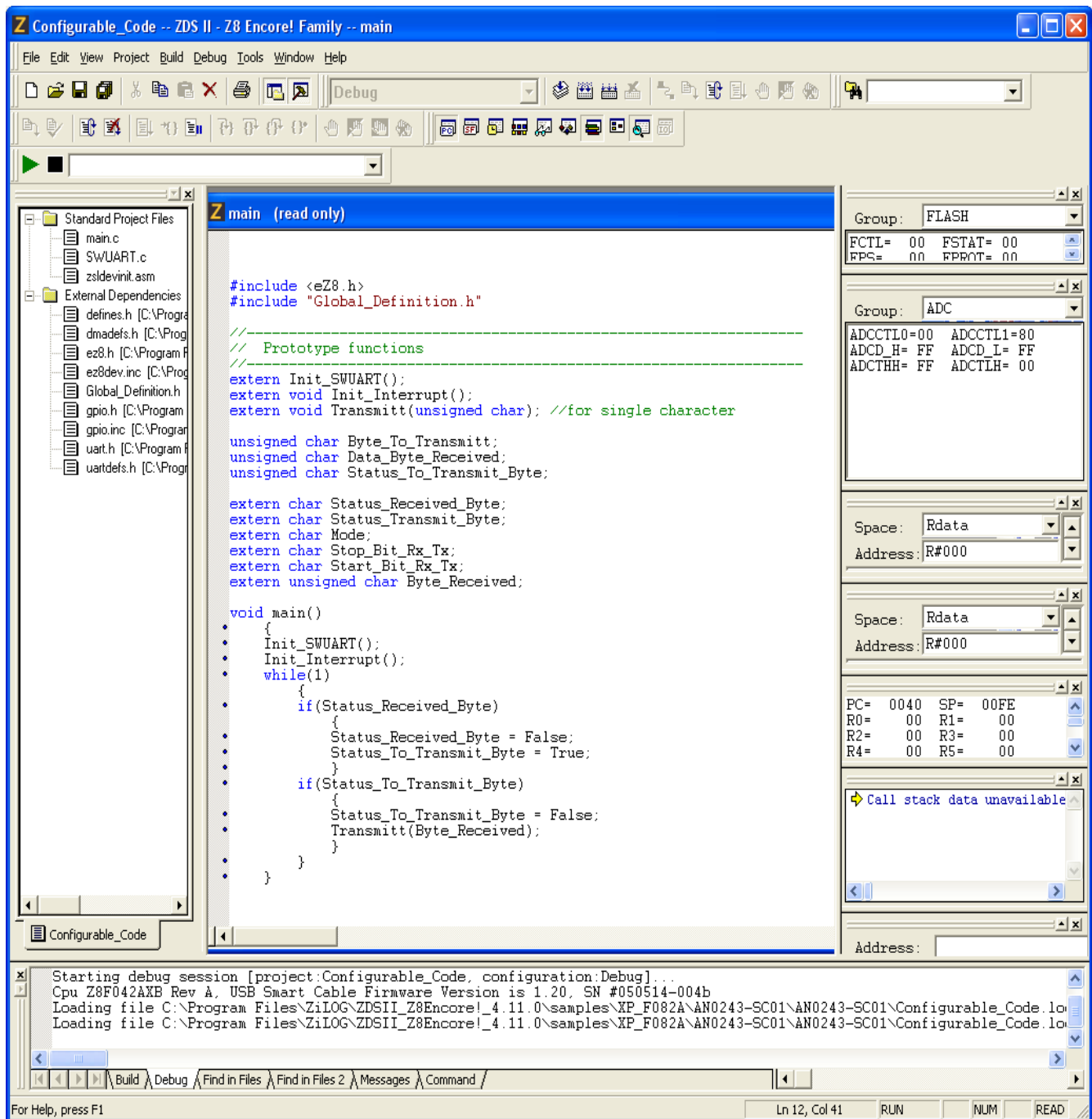
### **Processor:**

**XP8F042A** ( Z8Encore\_XP\_4K\_8Pin\_Series / Z8Encore!\_XP\_F082A\_8Pin\_Series )

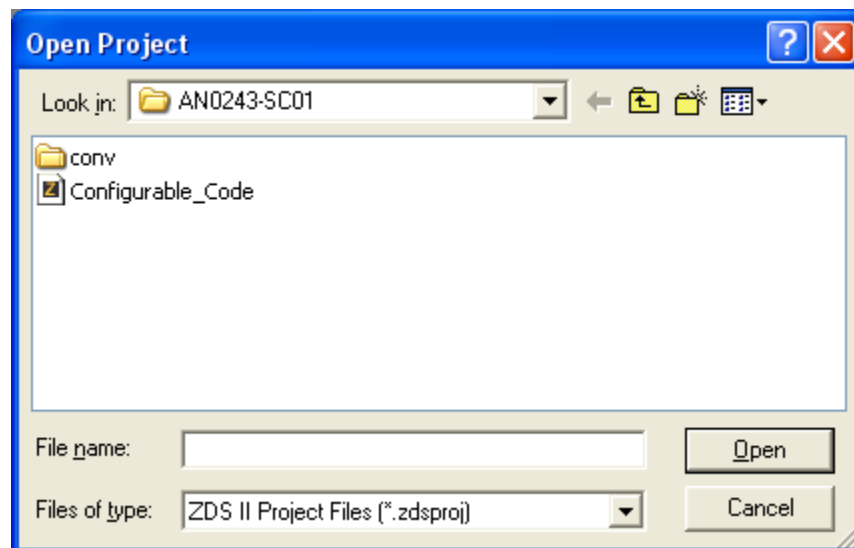
Development Kit used: **Z8F04A08100KIT**

**Baudrate : 4800-8-N-1 flowrate None**





**File → Open Project**



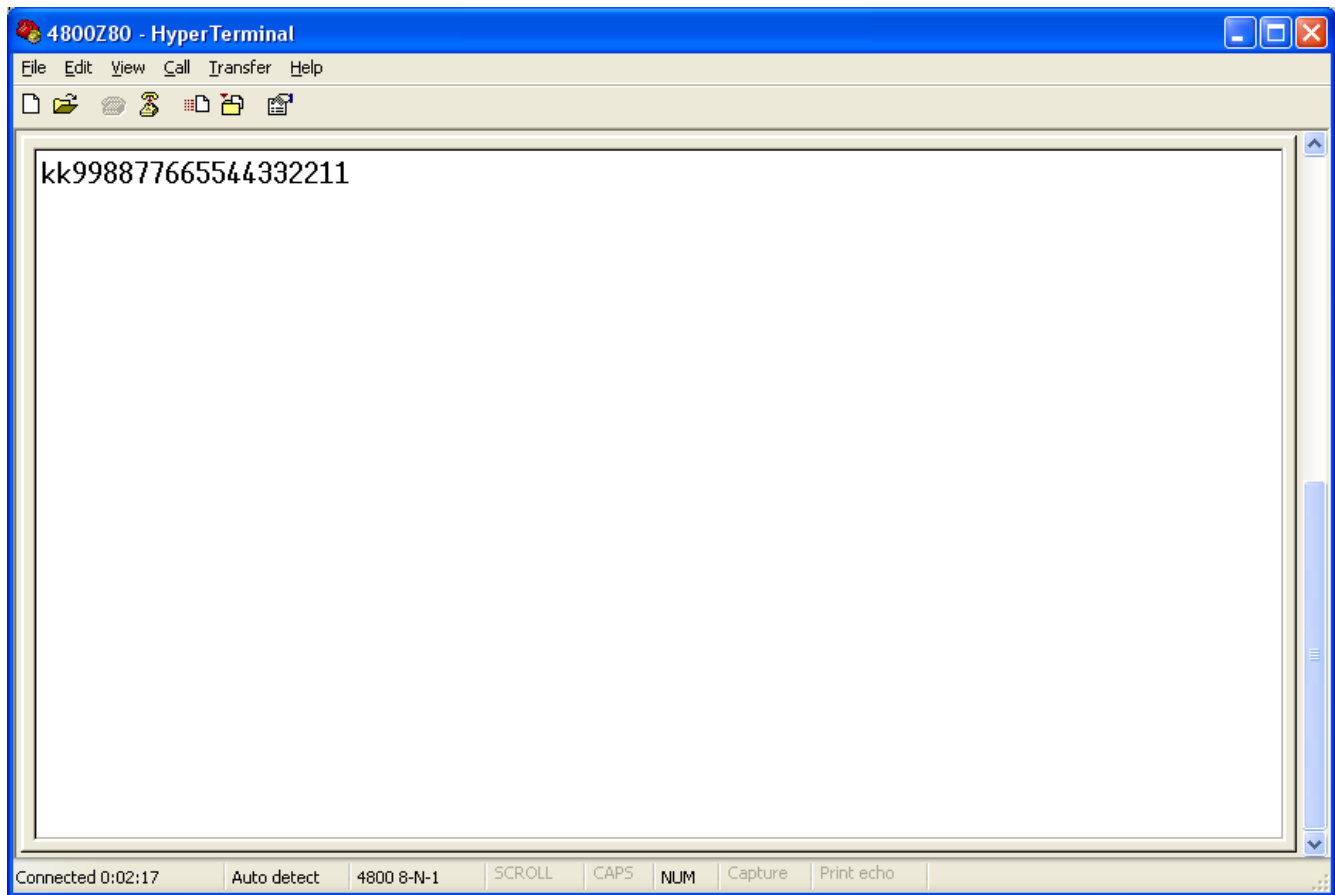
## UART

- C Programming fundamentals (1 week)
- Understanding CPU **XP8F042A capabilities**
- Hardware Details

The key features of the Z8 Encore! XP® F042A Series 8-pin MCU include:

- eZ8™ core CPU • 4 KB Flash memory with in-circuit programming capability
- 1 KB register RAM • 5-channel, 10-bit analog-to-digital converter (ADC)
- Full-duplex UART • Infrared Data Association (IrDA)-compliant infrared encoder/decoder
- Two 16-bit timers with capture, compare, and PWM capability
- Watchdog Timer (WDT) with internal RC oscillator
- Six I/O pins • Programmable priority interrupts
- On-Chip Debugger
- Voltage Brownout (VBO) Protection
- Power-On Reset (POR)
- 2.7 V–3.6 V operating voltage with 5 V-tolerant inputs
- Operating temperatures: 20 °C ±10 °C

- Connecting the Development Kit to the smart USB cable and uploading the firmware to CPU flash memory.
- Running the program
- Single stepping the program and monitor the registers
- Z8 Encore XP F042A Series 8-Pin Dev Kit User Manual UM0187.pdf
- Z8 Encore XP F042A 8-Pin Development Kit QS0055
- <http://www.zilog.com/docs/z8encorex/appnotes/AN0243.pdf>



**The default mode is Rx.**

Upon entering a character in HyperTerminal, it is echoed back to the screen.

After a brief delay, the same character is displayed again in the HyperTerminal window.

This indicates that the character was received by the software UART's Rx Data buffer, transferred to the Tx Data buffer, and transmitted

**Development Kit:** The student would be recommended to buy an appropriate Development kit from Zilog. All programming and technical support and guidance would be provided by ProjectSchool.

Recommended for : **High School STEM students/Community College**