



Bridging Media Interfaces with Zilog Microcontrollers

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Abstract

This application note discusses bridging media interfaces with Zilog's Microcontrollers Unit (MCU). There are many interface media options available to us today—RS-232, RS-485, Ethernet, IrDA, and USB. MCU continue to evolve with more features—smaller size, lower cost, and higher performance. They have also become easier to program. This combination of technological advances displays a very powerful way to bring these different interface options together.

Discussion

IrDA—Infrared Digital Assistant (IrDA) is a low-cost wireless interface. It is used in devices like PDAs, cell phones, and laptops—but has many applications outside the standard beaming business card handshake. There is also a new class of devices called IrDA Control Points available. With each of these possibilities, IrDA can bring a very simple and elegant user interface into your system.

Adding IrDA functionality allows for many control nodes. With an IrDA Control Point, controlling a device at the end of an RS-485 multidrop network can now be realized using a PDA with an IrDA port.

Bridging—Figure 1 on page 2 displays the conversion of one interface media to another. This conversion concept is referred to as *bridging*. It also displays a multiprocessor system in which each MCU can offload processing tasks or distribute the workload, thereby maintaining a robust system.

This bridging example includes Zilog's Z8 Encore! XP[®] F64xx Series microcontroller that serves as the RS-485 multidrop Master device. In turn, this Master communicates to a number of Zilog's Z8 Encore! XP

devices that serve as Slaves or endpoints on the same RS-485 network. These high-performance Flash microcontrollers offer a rich set of serial communication peripherals. For example, the IrDA encoder/decoder block onboard Z8 Encore! XP devices allow you to bridge data to and from the RS-485 multidrop bus. This design approach provides for a wireless path to and from an RS-485 multidrop bus and an IrDA transceiver.

You also want to add Internet control to the system. By adding another Zilog device into the system—the eZ80F91 Flash microcontroller—control via an Internet GUI is obtained. Bridging to another IrDA transceiver results in an Internet-to-IrDA to IrDA-to-RS-485 connection. Developing such a system opens up a control path for any IrDA-enabled device to also control the RS-485 bus. This wireless IrDA approach vs. a hard-wired design between the eZ80F91 MCU and the Z8 Encore! XP MCU allows for other IrDA-enabled devices to control the system.

Summary

This application note describes how Zilog devices like Z8 Encore! XP Flash microcontrollers help to bridge data to and from various devices using interfaces like RS-485, IrDA etc. It also describes controlling IrDA, Internet, and RS-485 connection by bridging.

Figure 1 displays the conversion of one interface media to another.

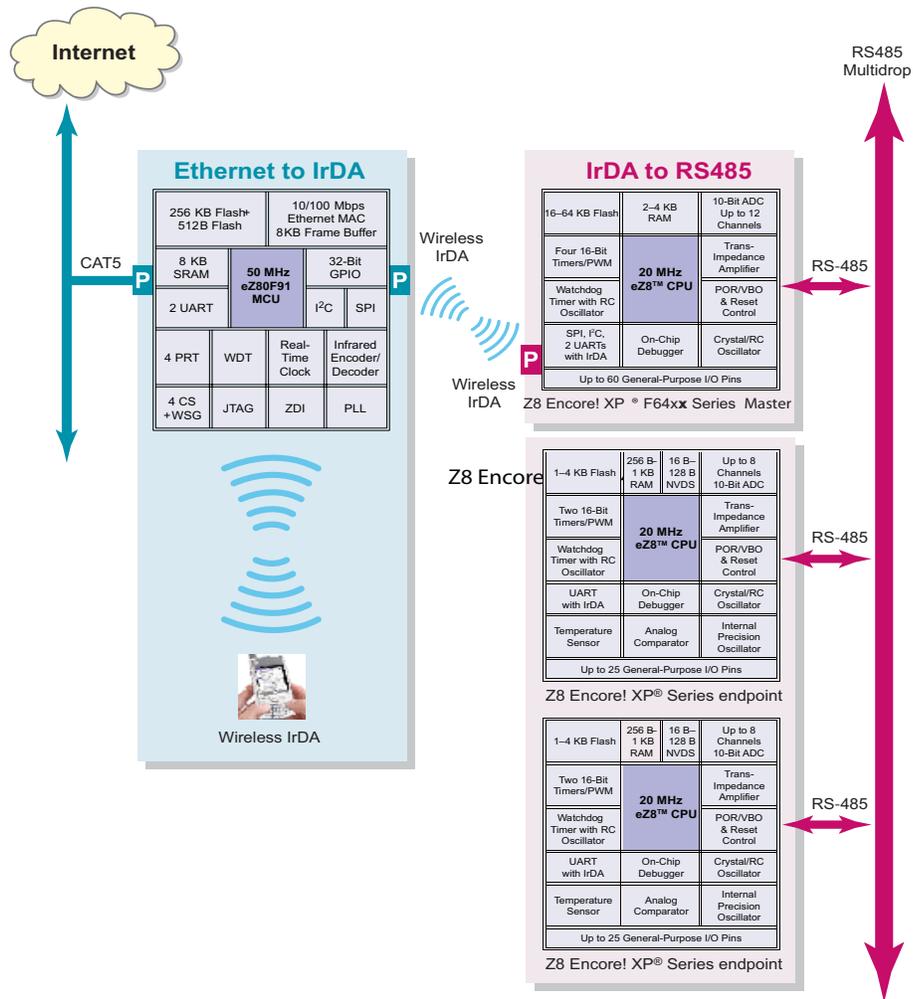


Figure 1. Bridging the Ethernet to IrDA, and IrDA to an RS-485 Multidrop Network



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