

Embedded CPU Module

White Paper

English ver 1.0

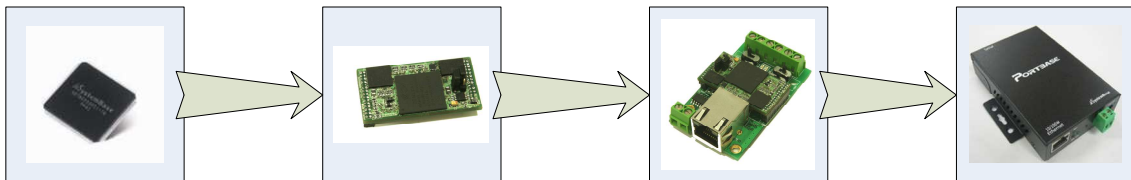
January 25, 2007



Overview

In the field of device networking, device servers have been playing a huge role in providing network connectivity for serial devices. A **device server** connects individual serial device to the network, working as a serial to LAN converter. It is composed of at least one LAN port and one or more serial ports, so that serial devices can be connected to the device server using their serial ports, and eventually can be connected to LAN with a single LAN cable. Devices attached to the device server operate as if they were connected to LAN directly, yet using serial communication internally. With the help of the device server, devices logically and indirectly, rather than physically and directly, are linked to the target machine through LAN connection. Consequently, more effective and dynamic tasks can be performed.

Four Implementations, Four Tastes



There are various types of device servers available in the market, and they are packaged in four different implementations: Semiconductors, Embedded CPU Modules, Embedded Device Servers, and External Device Servers. As the diagram above suggests, these four implementations are indeed gradually different in their characteristics.

Semiconductors are core blocks for device servers. Device servers usually deploy CPU with at least 16-bits. Nowadays more powerful CPUs are adopted in even single port units to provide more applications protocol ranges. When the user implements a device server with only a semiconductor, it is most probably

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that he or she is involved in a very big project or a very specific device. The time for development is also the longest of four.

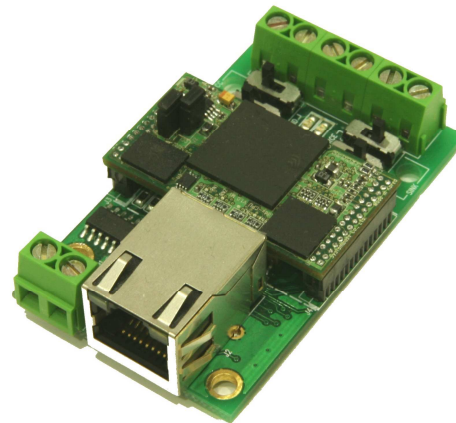
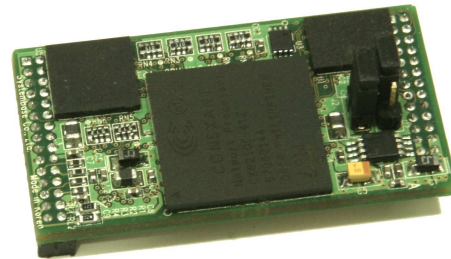
Embedded CPU modules lie between semiconductors and embedded device servers. This white paper will focus on these in more detail later on. These modules provide CPU, Flash, and RAM with interface pins. The rest of the work is upon users. It combines the convenience of built-in components that brings shorter development cycle and more stable operation and the flexibility of semi-completed blocks where users can implement the interface parts.

Embedded device servers are not quite the external boxed device servers, nor are they similar to CPU modules or semiconductors. These modules are fixed in their hardware, but flexible in software side. Basically many of these modules are associated with SDK or API so that users can program their own applications and execute the customized firmware. Commonly they are operated in direct connection with terminal devices that require Ethernet connection.

External device servers have been the most common type among four. They have long been predominant in the market, but now these devices are confronting a battle with more flexible, smaller, and more price effective module-type device servers. Built-in applications provide users with high stability and functionality, while they may not be fully customized to meet each user's application.

SystemBase Eddy-CPU

Eddy-CPU is a high-performance embedded CPU module with ARM9 core processor. On this thumb-sized module, there is much more than you can imagine: 8-bit address and 8-bit data bus interface for connecting external UART, PHY interface for Ethernet connectivity, and 17 programmable GPIO pins. Enjoy the flexible and powerful features of Eddy-CPU to implement your own device with customized applications and hardware!



Tired of investigating through thick databooks of your CPU and memory? Planning on implementing only a few hundreds or thousands of units but feeling helpless to meet the MOQ? Want to simply cut to the chase and work on your core application, rather than spending months to port Linux on the CPU and make it compatible with the memory and I/O? Eddy-CPU ships with built-in 32-bit ARM9 CPU with 168MHz clock, 4MB Flash memory, and 8MB SDRAM. Embedded Linux fully compatible with these hardware is in operation. All you have to do is focusing on your core application, owing to off-the-shelf convenience and readiness of Eddy-CPU. And all these features are embedded on a size even smaller than your thumb!

Applications of Eddy-CPU

- **Factory / Industrial Automation**

PLC, Robot arms, Human-Machine Interface, Warehouse rails

Medical instruments, Inspection equipment controllers

Alarming units

- **Home Appliances / Electronic Devices**

Power controller, Gaming machines

Scales, Gas detection units, Water & pollution metering devices

Data collection and distribution units

- **Financial / Building Automation**

Card readers, Barcode scanners, KIOSKs, Point-Of-Sale related devices

Serial printers, Cash registers, Credit card authorization terminals

Biometric detection units, Security devices

- **OEM Device Server Distributors**

OEM device server with distributor's own case & brand

Ready-to-go device or customized application / setup mode can be inserted