Secure Embedded Web

VERSION | 2.0 |

Application Kit

Key Features

- Complete kit including the RCM4300 RabbitCore module and prototyping board
- Software tools including Dynamic C® integrated design environment, RabbitWeb, and FAT file system software module
- Advanced Encryption Standard (AES), Secure Socket Layer (SSL), and Transport Layer Security (TLS) software modules
- Sample security programs to get you started developing a secure data transmission system
- *Practical Embedded Security* resource book by Tim Stapko

Learn Something New

- Gain experience with an HTTPS terminal interface using JavaScript
- Encrypt and decrypt FAT files using Advanced Encryption Standard (AES)
- Interact directly with the FAT file system on the SD card using a remote HTTPS connection
- Control a device or manipulate data over a secure connection
- Configure and change network settings at runtime
- Interact and control using a secure web interface
- Update system settings using a secure web interface

Applications

- Tank monitoring
- Automatic meter reading
- Remote monitoring and communications
- Remote energy management
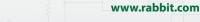- Security and surveillance

The Path to Secure Data Transmission

As more embedded applications access the Internet, securing data transmission grows increasingly critical. This second generation application kit provides the development tools and sample security programs to learn how to build secure web interfaces easily for either new or existing applications.

The Secure Embedded Web Application Kit 2.0 offers Advanced Encryption Standard (AES), Secure Socket Layer (SSL), and Transport Layer Security (TLS) software modules which enables both 256-bit and 128-bit lock and key solutions to encrypt data transfers. Software modules included in the Secure Embedded Web Application Kit 2.0 enable rapid development of secure web browser interfaces for embedded system control.

The kit is a complete out-of-the box solution that enables you to develop secure data transmission for your embedded application. Application code runs on the RCM4300 RabbitCore® module, powered by the Rabbit® 4000 microprocessor that offers a low-cost solution with the performance to run algorithmic-intensive encryption code. The RCM4300 module mounts directly onto a user-designed motherboard and acts as the controlling microprocessor for

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the system. With Megabyte Code Support, the RCM4300 offers more memory via a miniSD™ socket capable of up to 1 GB of memory perfect for security sensitive applications. The kit includes a prototyping board, power supply, and accessories that allow you to build a prototyping system and debug your code directly onto the target hardware. Once your design is complete you are ready to go into production with the RCM4300 module and your fully-debugged design.

Developing with RabbitCores

The RabbitCore family of microprocessor core modules is designed to facilitate rapid development and implementation of embedded systems. Develop programs with our industry-proven Dynamic C® development system, a C-language environment that includes an editor, compiler, and in-circuit debugger.

Download your program from your PC via USB or serial port, and debug right on the target hardware – no in-circuit emulation is required. This environment reduces effort and speeds hardware and software integration. Rabbit provides an extensive library of drivers and sample programs, along with royalty-free TCP/IP stack with source.

Practical Embedded Security

Included with the kit is the book *Practical Embedded Security: Building Secure Resource-Constrained Systems*. The book describes hardware and software solutions for secure embedded designs. Written by one of the engineers at Rabbit, Practical Embedded Security guides embedded designers, programmers, and engineers to build secure, low-cost, and resource-constrained systems.

RCM4300 RabbitCore® Specifications	
Feature	RCM4300
Microprocessor	Rabbit® 4000 @ 58.98 MHz
EMI Reduction	Spectrum spreader for reduced EMI (radiated emissions)
Ethernet Port	10/100Base-T, RJ-45, 3 LEDs
Data SRAM	512K (8-bit)
Shared Code/Data and Program Execution Fast SRAM	1 MB (8-bit)
Serial Flash Memory (used for program storage)	2 MB
Flash Memory (mass data storage)	miniSD™ Card 128 MB – 1 GB (NAND Flash)
LED Indicators	LINK/ACT (link/activity) FDX/COL (full-duplex/collisions) SPEED (on for 100Base-T Ethernet connection) SD
Backup Battery	Connection for user-supplied backup battery (to support RTC and data SRAM)
General-Purpose I/O	28 parallel digital I/O lines, configurable with four layers of alternate functions
Additional Inputs	2 startup mode, reset in, CONVERT
Additional Outputs	Status, reset out, analog VREF
Analog Inputs:	• 8 channels, single-ended or 4 channels differential • 12-bit resolution (11-bit single-ended) • 180 us conversion time
CMOS Compatible Serial Ports	Up to 5 serial ports (ports shared with programming port, A/D converter, miniSD Card, and serial flash)
Serial Rate	Maximum asynchronous baud rate = CLK/8
Slave Interface	Slave port allows the RCM4300 to be used as an intelligent peripheral device slaved to a master processor
Real-Time Clock	Yes
Timers	Ten 8-bit and one 16-bit
Watchdog/Supervisor	Yes
Pulse-Width Modulators	4 PWM registers with 10-bit free-running counter and priority interrupts
Input Capture	2-channel input capture can be used to time input signals from various port pins
Quadrature Decoder	2-channel quadrature decoder accepts inputs from external incremental encoder modules
Power (pins unloaded)	350mA @ 3.3V (typ)
Operating Temperature	Without SD card: -20° C to +85° C With SD card: Varies according to card specs
Humidity	5% to 95%, non-condensing
Connectors	One 2 × 25, 1.27 mm pitch IDC signal header One miniSD™ card socket One 2 × 5, 1.27 mm pitch IDC programming header
Board Size	1.84″ × 2.85″ × 0.84″ (47 mm × 72 mm × 21 mm)
Pricing	
Secure Embedded Web Application Kit Version 2.0 Part Number	$349 101-1243

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