SBC BL4S200

Single-Board Computer

Rabbit's BL4S200 series of single-board computers deliver the features and wireless connectivity to support networking for industrial control applications.

Overview

Rabbit's BL4S200 single-board computers (SBCs) offer a fullfeatured control and communications solution for industrial applications. The BL4S200 series is designed to provide the microprocessor control and I/O used for reading instruments, timing events precisely, controlling motors, relays and solenoids.

Why SBCs Are Important

Rabbit combines its legendary ease of use with cost-competitive hardware and software to make designing embedded applications straightforward. Rabbit's flexible platform gives customers the ability to choose the right product for their application, while reducing effort and cost.

Many customers take advantage of Rabbit's SBCs to get their product to market quickly and reliably. Rabbit adds further value by allowing migration paths to either RabbitCore[®] modules or the chip level solution, while keeping the same Dynamic C[®] software development environment.

Starter Package

The affordable BL4S200 series starter package includes all the tools you need to develop and debug a design.

RABBIT

^{FROM} \$**328**



Application Highlight



Possible Applications: wireless industrial control, automatic meter reading, encrypted connectivity, data logging

Features and Benefits

- Uses Rabbit[®] 4000 and Rabbit 5000 microprocessors
- Choice of Wi-Fi, ZigBee or Ethernet connectivity
- 40 digital I/O and up to 5 serial ports
- 8 input and 2 output analog channels
- Advanced I/O subsystem is software configurable reducing the load on the processor
- I/O features include event/capture counting, quadrature decoders, PWMs and PPMs



The Rabbit RIO[®] Advantage

The BL4S200 series uses our Rabbit RIO chip to add a powerful I/O subsystem. The on-board Rabbit RIO devices add software configurable counter/timer blocks that can perform a variety of usefull/O capability, including event capture/counting, quadrature decoding, PWM and PPM generation, and edge or level based interrupts. This subsystem capability delivered by the Rabbit RIO device frees the microprocessor for control, data processing and communications tasks. Each BL4S200 board has 24 counter/timer blocks available in the I/O subsystem.

RabbitNet™ Compatible

RabbitNet expansion ports enable a modular and expandable embedded control system whose configuration of expansion cards can be tailored to a large variety of demanding real-time control, display and data-acquisition applications. A typical RabbitNet system consists of a master SBC and one or more peripheral cards.

Available RabbitNet Expansion Cards:

- Digital I/O expansion
- A/D expansion
- D/A expansion
- Relay expansion
- Keypad/Display interface

Development and Evaluation Tools

The BL4S200 Tool Kit contains the essential hardware to develop an embedded application on a BL4S200 SBC and debug right on the target hardware.

Tool Kit Contents:

- Dynamic C[®] CD-ROM, with complete product documentation
- Printed getting started manual and Rabbit 4000/5000 posters
- Demonstration board with pushbutton switches and LEDs to demonstrate the I/O capabilities of the BL4S200
- USB programming cable to connect the BLS4200 to your PC's USB port
- Universal AC adapter, 12 V DC, 1 A (includes Canada/ Japan/U.S., Australia/N.Z., U.K., and European style plugs

The BL4S200 Starter Kit includes your choice of the BL4S200 series and the BL4S200 Tool Kit. The BL4S200 Starter Kit contains the essential hardware and software tools to develop and debug an embedded application.

BL4S200	BL4S210
 Mass storage support with the hot-swappable, industry-standard miniSD[™] memory cards, plus memory to support algorithmic-intensive applications such as graphics and encryption. Uses RCM4310 RabbitCore module 10/100Base-T Ethernet connectivity Socket for up to 1 GB miniSD memory card Part Number: 20-101-1220 	 Targeted for embedded control applications needing 10Base-T Ethernet connectivity for remote monitoring. Uses RCM4010 RabbitCore module 10Base-T Ethernet connectivity Part Number: 20-101-1259

Software

Develop and debug programs using Rabbit's industry-proven Dynamic C integrated development environment (version 10.42 or later). Dynamic C includes the popular µC/OS-II real-time operating system, point-to-point protocol (PPP), FAT file system, RabbitWeb[™] and other select libraries. Connect the BL4S200 board to the PC using a USB cable and then debug using break points, watch expressions and other features oriented toward real-time embedded systems programming. An extensive library of drivers and sample programs is provided, including a royaltyfree TCP/IP stack for network and Internet communications. Full source code is provided for most library routines.

Rabbit also offers for purchase the Rabbit Embedded Security Pack featuring the Secure Sockets Layer (SSL) and the Advanced Encryption Standard (AES) library. In addition to the Web-based technical support included at no extra charge, a one-year telephone-based technical support subscription is also available for purchase. Visit **www.rabbit.com** for further information and complete documentation, or contact your Rabbit sales representative or authorized distributor.

Additional Tools

Rabbit offers additional tools and parts to support engineers building their own wiring assemblies with the friction-lock connectors.

- Connector Cable Assemblies (Part No.151-0153)—Two 2 × 5 friction-lock connectors (3 mm pitch) with harness.
- Crimp tool (Part No. 998-0013) to secure wire in crimp terminals.

Exceptional Support

Our Technical Support staff helps Rabbit users accelerate development schedules. We offer development kits and tool kits to help our customers learn new technologies, get ideas about how to integrate into embedded systems, and arrive at solutions.

In addition, our staff supports the Rabbit Forum **http://rabbit. com/forums/** where the large community of Rabbit designers can interact to learn more about how to use Rabbit products to solve their design challenges.

When you consider Rabbit, consider all that Rabbit does to support you.

BL4S230				
Easily implement a wireless mesh network as part of your control solution.				
 Uses RCM4510W RabbitCore module ZigBee enabled connectivity Part Number: 20-101-1261 				

www.rabbit.com

BL4S200 Series Single-Board Computer Specifications						
Feature	BL4S200	BL4S210	BL5S220	BL4S230		
Microprocessor	Rabbit [®] 4000 @ 58.98 MHz		Rabbit® 5000 @ 73.73 MHz	Rabbit® 4000 @ 29.49 MHz		
Network Interface	10/100Base-T, 3 LEDs	10Base-T, 2 LEDs	Wi-Fi (802.11b/g)	ZigBee PRO Feature Set		
Flash Memory (Program)	512 KB (Serial Flash)	512 KB (Parallel Flash)	1 MB (Parallel Flash)	512 KB (Parallel Flash)		
Flash Memory (Data Storage)	miniSD™ Card 128 MB to 1 GB		—			
Program Execution SRAM	512 KB	—	1 MB	_		
Data SRAM	512 KB					
Battery Backup	Renata CR2032 or equivalent 3 V lithium coin type, 235 mA h standard, socket-mounted					
Configurable I/O	32 individually software-configurable I/O channels may be configured as digital inputs 0–36 V DC, switching threshold 1.4 V/1.9 V typical, or as sinking digital outputs up to 40 V, 200 mA each					
High-Current Digital Outputs	8 outputs individually software-configurable as sinking or sourcing, +40 V DC, 2 A max. per channel					
Analog Inputs	Eight 11-bit res. channels, software-selectable ranges unipolar: 1, 2, 2.5, 5, 10, 20 V DC; bipolar ± 1, ±2, ±5, ±10 V DC: 4 channels can be hardware-configured for 4–20 mA; 1 MΩ input impedance, up to 4,100 samples/s					
Analog Outputs	Two 12-bit res. channels, buffered, 0–10 V DC, ±10 V DC, and 4–20 mA, update rate 12 kHz					
Serial Ports	5 serial ports: 4 serial ports: 5 serial ports: • 1 RS-485 • 1 RS-485 • 1 RS-485 • 2 RS-232 or 1 RS-232 (with CTS/RTS) • 1 RS-232 (no CTS/RTS) • 2 RS-232 or 1 RS-232 (with CTS/RTS)					
	1 clocked serial port multiplexed to 2 RS-422 SPI master ports 1 serial port dedicated for programming/debug					
Serial Rate	Max. asynchronous rate = 120 Kbps					
Hardware Connectors	2 RabbitNet [™] RJ-45 connectors • 7 polarized 2x5 Micro-Fit connectors, 3mm pitch • 1 polarized 2x7 Micro-Fit connector, 3mm pitch • 1 polarized 2x2 Micro-Fit connector, 3mm pitch • 1 polarized 2x3 Micro-Fit connector, 3mm pitch • Programming port: 2 × 5 IDC, 1.27 mm pitch					
Network Connectors	1 RJ-45 Ethe	ernet	1 RP-SMA antenna	_		
Real Time Clock	Yes					
Timers	Ten 8-bit timers (6 cascadable, 3 reserved for internal peripherals), one 10-bit timer with 2 match registers					
Watchdog/Supervisor	Yes					
Power	9-36 V DC, 4.5 W max		9-36 V DC, 9 W max	9-36 V DC, 4.5 W max		
Operating Temperature	-20° C to +85° C (-40° C to +85° C without the miniSD Card)		-30° C to +75° C	-40° C to +85° C		
Humidity	5% - 95%, non-condensing					
Board Size	3.75" × 5.75" × 0.95" (96 mm × 146 mm × 24 mm)		3.75" × 5.75" × 0.66" (96 mm × 146 mm × 17 mm)			
		Pricing				
Price (qty. 1/100) Part Number	\$269/\$225 20-101-1220	\$229/\$191 20-101-1259	\$279/\$238 20-101-1260	\$249/\$207 20-101-1261		
BL4S200 Starter Package Part Numbers	\$368 20-101-1220 101-1270	\$328 20-101-1259 101-1270	\$378 20-101-1260 101-1270	\$348 20-101-1261 101-127		







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