

# SBL2e

## 2-Port Serial to Ethernet Server

100 Version with RJ-45 | 200 Version with 10-pin header



# DATASHEET

### Key Points

- Serial to Ethernet server
- TTL serial device support
- Up to 10 LVTTTL digital I/O
- Up to four 12-bit A/D inputs
- Works out of the box - no programming is required
- Board level product
- Customize with development kit

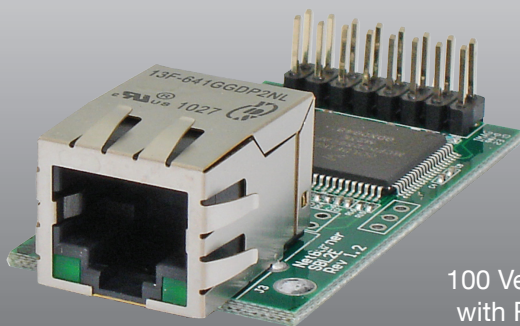
### Features

- 10/100Mbps Ethernet
- TCP/UDP/Telnet modes
- DHCP/Static IP modes
- Web or AT command based configuration
- 32-bit performance
- Industrial Temperature Range (-40°C to 85°C)
- Standard and custom baud rates with factory application
- Custom serial packetization options
- RS-232 and RS-422/485 ready (require external level shifter)

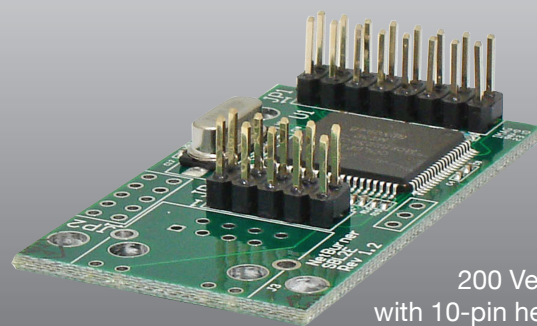
### Optional

*The following features are available with the optional development kit:*

- Customize any aspect of operation including web pages, data filtering, or custom network applications
- I<sup>2</sup>C support



100 Version  
with RJ-45



200 Version  
with 10-pin header

## Factory Application Specifications

### Serial Port Baud Rate

Factory application supports up to 115,200 bps. Supports custom baud rates.

### Serial Protocols Supported

2 TTL

### Serial Configurations

The UARTs can be configured in the following way:

- Up to 2 TTL ports
- Add external level shifter for RS-232
- Add external level shifter for RS-422/485 (up to one port)

Note: UART 0 also provides RTS/CTS hardware handshaking signals.

### Analog to Digital Converter

Four 12-Bit

### Digital I/O

Up to 10

## Hardware Specifications

### Processor

32-bit Freescale ColdFire 52236 running at 50MHz

### Network Interface

10/100 BaseT with RJ-45 connector (100 Version)

10-pin header (200 Version)

### Data I/O Interface (JP1)

- Two UARTs
- Up to 4 12-bit A/D inputs
- Up to 10 digital I/O
- I<sup>2</sup>C peripheral interface

### LEDs

Links, Speed

### Physical Characteristics

Dimensions (inches): 2.00" x 1.10"

Weight: 1 oz.

Mounting Holes: 3 x 0.125" dia.

### Power

DC Input Voltage: 3.3V @ 300mA typical

### Environmental Operating Temperature

-40° to 85° C

### RoHS Compliance

The Restriction of Hazardous Substances guidelines ensure that electronics are manufactured with fewer environment harming materials.

## Connector Interface Description and Pinouts

Table 1: Connector Description

Connector	Description
JP1	Multi-function I/O Connector (UART, analog to digital converter, I <sup>2</sup> C, power and ground); 16-pin dual row header
J3	On board RJ-45 jack connector; 12-pin (100 version only)
JP3	External RJ-45 jack header; 10-pin (200 version only)

### Multi-function I/O Connector (JP1)

The SBL2e board has one dual in-line, 16 pin header, which enables you to quickly and easily connect to one of our standard NetBurner Adapter Boards, or a board you create on your own. Table 2 provides a description of pin function for the JP1. Figures 1 and 2 show its location on the 100 and 200 version board.

Table 2: Multi-function I/O Connector (JP1) Pinout and Signal Descriptions <sup>(1)</sup>

Pin	µP Pin	Function	Secondary Function	General Purpose I/O	Description	Max Voltage
1	22	UART0_TX	-	-	UART 0 Transmit	3.3VDC
2	21	UART0_RX	-	-	UART 0 Receive	3.3VDC
3	17	UART0_RTS	-	Yes	UART 0 Request To Send <sup>2</sup>	3.3VDC
4	18	UART0_CTS	-	Yes	UART 0 Clear To Send <sup>2</sup>	3.3VDC
5		VCC3V	-	-	Input Voltage 3.3VDC	3.3VDC
6		GND	-	-	Ground	-
7	68	ADC_IN0	-	Yes	Analog to Digital Converter Input 0	3.3VDC
8	67	ADC_IN1	-	Yes	Analog to Digital Converter Input 1	3.3VDC
9	66	ADC_IN2	-	Yes	Analog to Digital Converter Input 2	3.3VDC
10	65	ADC_IN3	-	Yes	Analog to Digital Converter Input 3	3.3VDC
11		GND	-	-	Ground	-
12	23	UART1_RX	-	Yes	UART 1 Receive	3.3VDC
13	24	UART1_TX	-	Yes	UART 1 Transmit	3.3VDC
14	79	UART2_TX	I2C_SCL	Yes	UART 2 Transmit <sup>4</sup> or I <sup>2</sup> C Serial Clock <sup>3,4</sup>	3.3VDC
15	80	UART2_RX	I2C_SDA	Yes	UART 2 Receive <sup>4</sup> or I <sup>2</sup> C Serial Data <sup>3,4</sup>	3.3VDC
16	32	<u>RESET</u>	-	-	Processor Reset Input <sup>1</sup>	3.3VDC

**Note:**

1. Active low signals, such as RESET, are indicated with an overbar
2. All UART signals are TTL Level, external level shifters may be added for RS-232 or RS-422/485 operation
3. If using I<sup>2</sup>C, pull-up resistors must be added to open drain SDA/SCL signals.
4. I<sup>2</sup>C and UART2 function only available with development kit.

## Ethernet Interface Pinouts (J3 and JP3)

The board has a direct Ethernet RJ-45 jack connector (100 version only) or a 10-pin header (200 version only) to connect to an external RJ-45 jack. Tables 2 through 4 provide descriptions of the pin function for J3 and JP3. Figures 1 and 2 show their locations on the board.

**Table 3: On board RJ-45 connector (J3) pinout and Signal Description<sup>(1)</sup>**

Pin	Signal	Description
1	TX+	Transmit +
2	TX-	Transmit -
3	RX+	Receive +
4	VCC <sup>2</sup>	3.3V
5	VCC <sup>2</sup>	3.3V
6	RX-	Receive -
7	NC	No Connect
8	NC	No Connect
9	VCC <sup>2</sup>	3.3V
10	SLED	Speed LED
11	VCC <sup>2</sup>	3.3V
12	LDLED	Link LED

**Note:**

1. Optional RJ-45 connector with integrated magnetics
2. Ethernet magnetics center tap voltage provided by NetBurner device

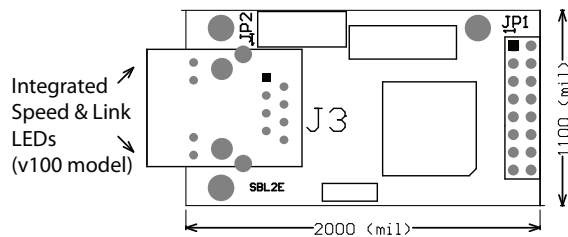
**Table 4: External RJ-45 header (JP3) Pinout and Signal Descriptions<sup>(1)</sup>**

Pin	Signal	Description
1	TX+	Transmit +
2	TX-	Transmit -
3	RX+	Receive +
4	NC	No Connect
5	VCC <sup>2</sup>	3.3V
6	RX-	Receive -
7	VCC <sup>2</sup>	3.3V
8	GND	Ground
9	SLED	Speed LED
10	LDLED	Link LED

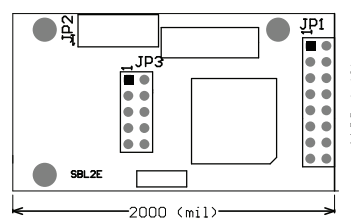
**Note:**

1. Optional 0.1" dual row 10-pin header
2. Ethernet magnetics center tap voltage provided by NetBurner device

**Figure 1: Connector Locations for J3 and JP1 (100 version)**



**Figure 2: Connector Locations for JP3 and JP1 (200 version)**



## Part Numbers

### **SBL2e 2-Port Serial to Ethernet Server (100 Version, with RJ-45)**

Part Number: SBL2e-100IR

### **SBL2e 2-Port Serial to Ethernet Board (200 Version, with 10-pin header)**

Part Number: SBL2e-200IR

### **SBL2e Evaluation Kit**

Part Number: EVAL-SBL2E-KIT

The SBL2e Evaluation Kit is designed as a complete evaluation platform for NetBurner's SBL2e board. If you plan to use an SBL2e - we highly recommend getting the evaluation kit. The kit includes an SBL2e-ADPT-100CR evaluation board with Ethernet RJ-45, RS-232 serial ports, USB, and RS-485/422 connector. *This is not a software development kit for custom applications. If you need to modify the standard serial to Ethernet factory application or create your own application, we recommend the SBL2e development kit.*

### **SBL2e Development Kit**

Part Number: NNDK-SBL2E-KIT

Kit includes all the hardware and software you need to customize the included platform hardware. See NetBurner Store product page for package contents.

## Ordering Information

E-mail: [sales@netburner.com](mailto:sales@netburner.com)

Online Store: [www.NetBurner.com](http://www.NetBurner.com)

Telephone: 1-800-695-6828