

# 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

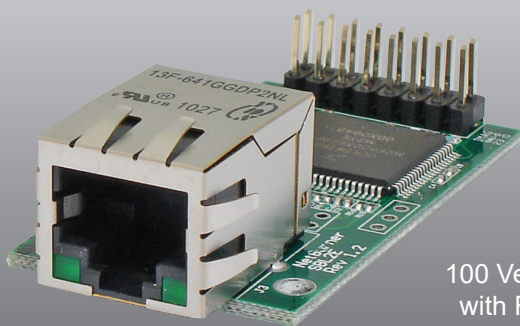
### Features

- 10/100Mbps Ethernet Half Duplex
- 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)

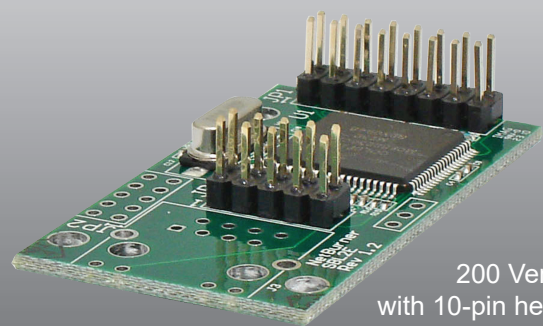
### Optional

*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.

Refer to the application note, “Adding an External Ethernet RJ-45 Connector and PCB Layout Guidelines for NetBurner -200 Version Modules”, for details and examples.

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	TXCT/ RXCT	VCC 3.3V - Transmit Data Center Tap - Receive Data Center Tap - Speed/LED power - Link/Activity LED power
6	RX-	Receive -
7	TXCT/ RXCT	VCC 3.3V - Transmit Data Center Tap - Receive Data Center Tap - Speed/LED power - Link/Activity LED power
8	GND	Ground
9	SLED	LED control sink, speed
10	LDLED	LED control sink, link/activity

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)

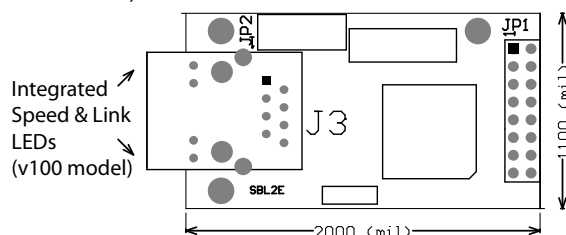
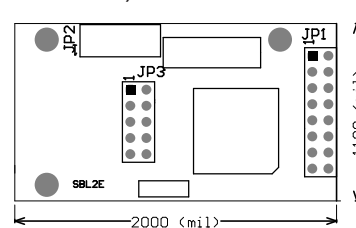


Figure 2: Connector Locations for JP3 and JP1 (200 version)



## 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