

# 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

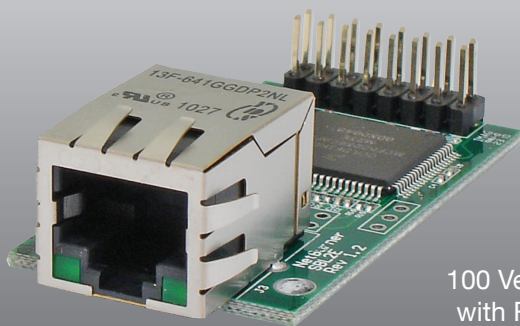
### Features

- 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)

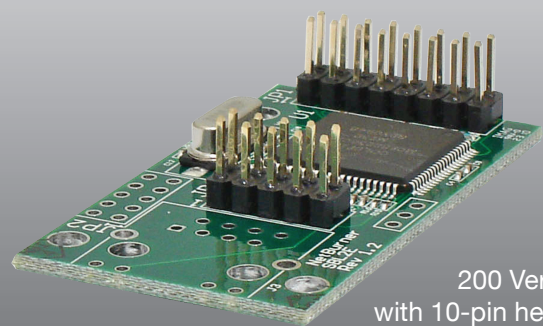
### Optional

*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     | RESET     | -                  | -                   | Processor Reset Input <sup>1</sup>                                           | 3.3VDC      |

**Note:**

- Active low signals, such as RESET, are indicated with an overbar
- All UART signals are TTL Level, external level shifters may be added for RS-232 or RS-422/485 operation
- If using I<sup>2</sup>C, pull-up resistors must be added to open drain SDA/SCL signals.
- 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 Net-Burner device

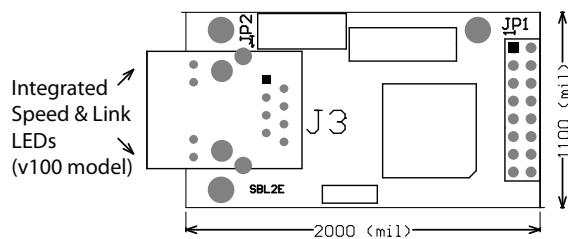
**Table 4: External RJ-45 header (JP3) Pinout and Signal Descriptions<sup>(1)</sup>**

| 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    |

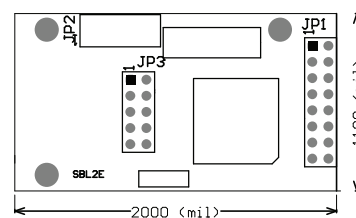
**Note:**

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



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Связь**

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**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331