SBL2e

2-Port Serial to Ethernet Server

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

NetBurner

DATASHEET

Key Points

- Serial to Ethernet server
- TTL serial device support
- Up to 10 LVTTL 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

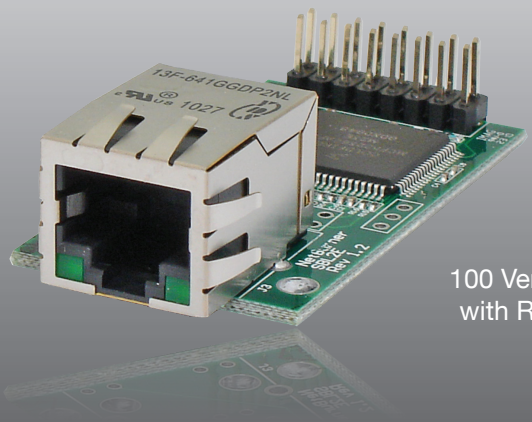
Features

- 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)

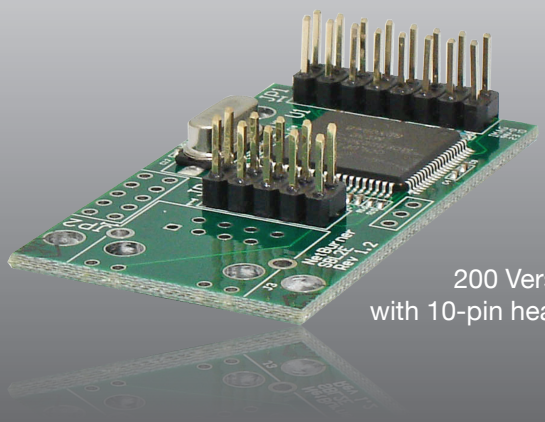
Optional

The following features are available with the optional development kit:

- Customize any aspect of operation including web pages, data filtering, or custom network applications
- I²C 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 10 digital I/O
- Up to 4 12-bit A/D inputs
- I^2C peripheal 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, I²C, 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** (1)

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	$\overline{\text{UART0\_RTS}}$	-	Yes	UART 0 Request To Send[2]	3.3VDC
4	18	$\overline{\text{UART0\_CTS}}$	-	Yes	UART 0 Clear To Send[2]	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[4] or I²C Serial Clock[3,4]	3.3VDC
15	80	UART2_RX	12C_SDA	Yes	UART 2 Receive[4] or I²C Serial Data[3,4]	3.3VDC
16	32	$\overline{\text{RESET}}$	-	-	Processor Reset Input[1]	3.3VDC

Note:

1. Active low signals, such as $\overline{\text{RESET}}$, 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 I²C, pull-up resistors must be added to open drain SDA/SCL signals.
4. I²C 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[1]**

Pin	Signal	Description
1	TX+	Transmit +
2	TX-	Transmit -
3	RX+	Receive +
4	VCC[2]	3.3V
5	VCC[2]	3.3V
6	RX-	Receive -
7	NC	No Connect
8	NC	No Connect
9	VCC[2]	3.3V
10	SLED	Speed LED
11	VCC[2]	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 [1]**

Pin	Signal	Description
1	TX+	Transmit +
2	TX-	Transmit -
3	RX+	Receive +
4	NC	No Connect
5	VCC[2]	3.3V
6	RX-	Receive -
7	VCC[2]	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)**

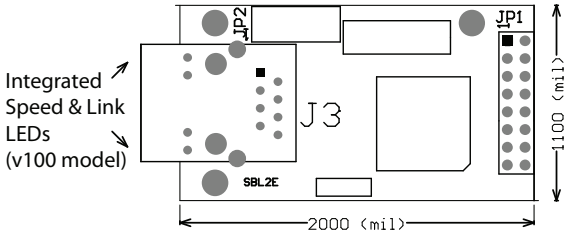
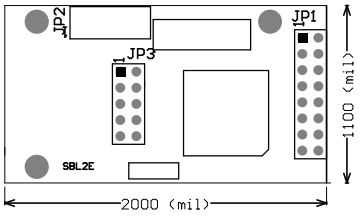


Figure 2: **Connector Locations for JP3 and JP1 (200 version)**



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
Online Store: www.NetBurner.com
Telephone: 1-800-695-6828

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

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