N e t B u r n e r
Networking in 1 Day!

# Power Over Ethernet

Date: February 10, 2010
Revision 1.0

1. Hardware Compatibility

- MOD5234-200IR
- MOD5270-200IR
- MOD5282-200IR
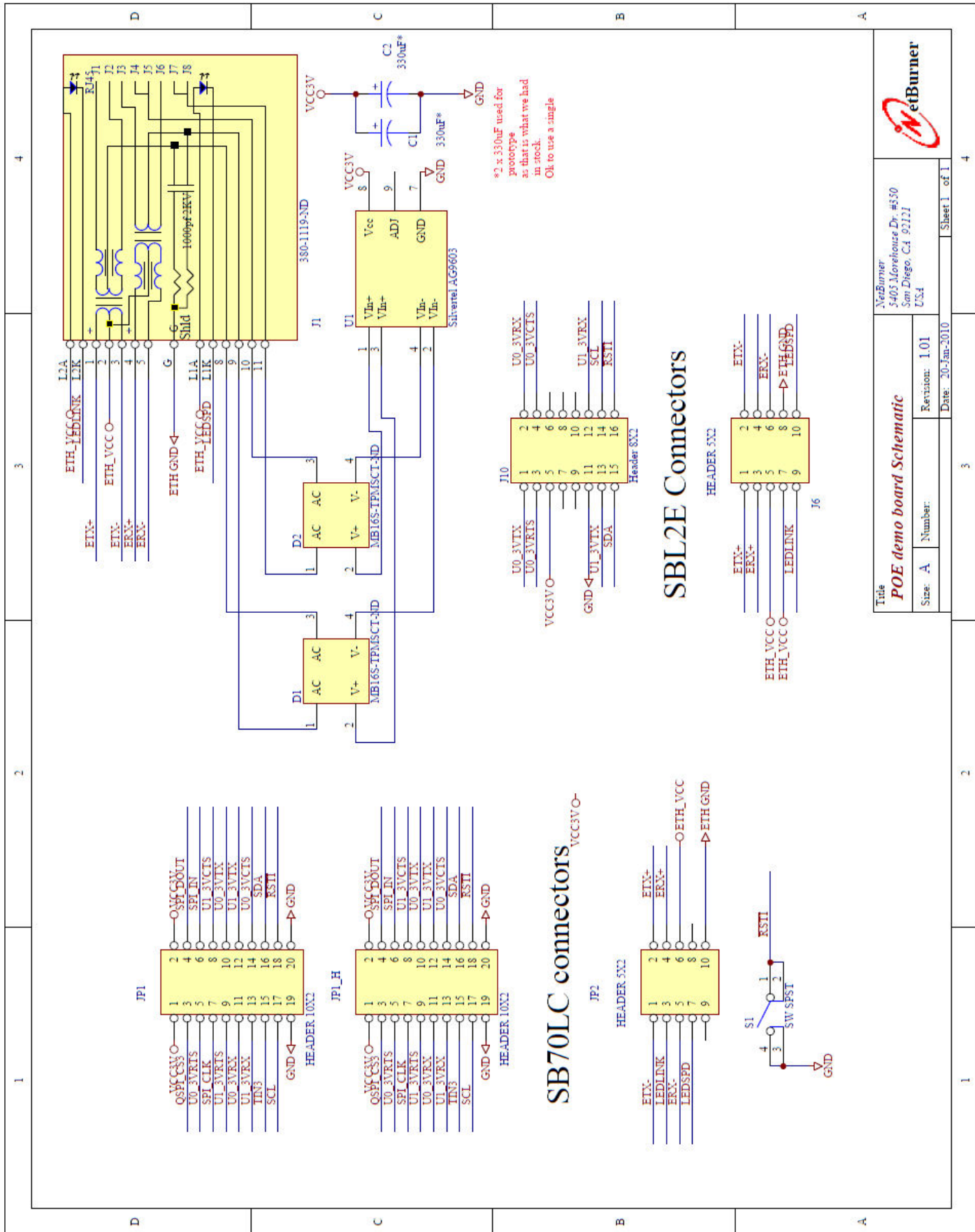- SB70LC-200IR
- SBL2E-200IR

2. Introduction

Power over Ethernet (PoE) applications can vary widely with regard to product design requirements. NetBurner module versions with a 10-pin male header in place of the RJ-45 Ethernet jack can be used in conjunction with a PoE power supply module to create a PoE end product. This application note will provide a design example of PoE using the SB70LC-200IR and SBL2E-200IR modules.

A block diagram of the PoE design is shown below. The design uses a RJ-45 PoE jack with integrated magnetics. The power signals are routed to the PoE compatible power module, which then supplies the 3.3VDC power to the NetBurner module. The Ethernet signals are routed to the NetBurner module for network connectivity. The power module in this example design is a Silvertel AG9603.
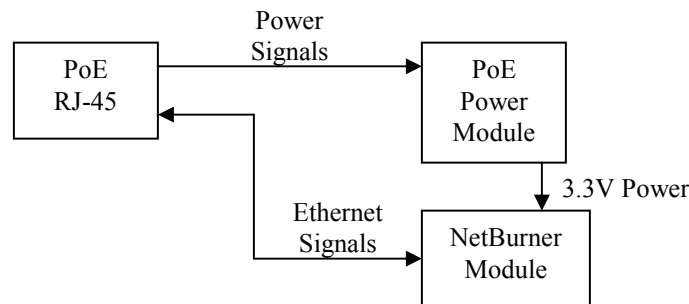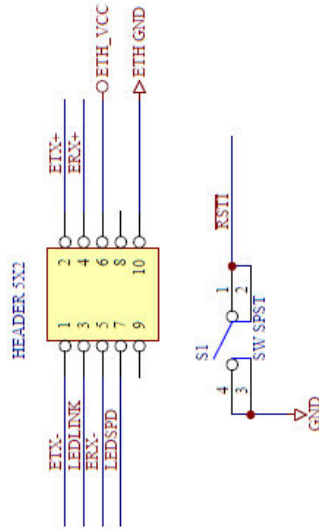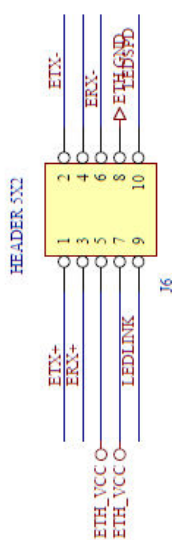

3. Hardware Design

The schematic for the example PoE design is shown on the next page. This design supports the NetBurner SB70LC-200IR and SBL2e-200IR modules. The SB70LC interface connectors are shown on the left side of the page, and the SBL2e module interface connectors are shown on the lower right hand side of the page. You would replace these connectors with the appropriate interface connectors for your specific NetBurner module. Other than the Silvertel PoE power supply module and PoE jack, there are two bridge rectifiers as specified in the Sivertel Ag9600 product series datasheet. The Silverlite 9603 module has an input voltage range of 36V to 57V, and output voltage of 3.3V, and a maximum power output of 6 watts.
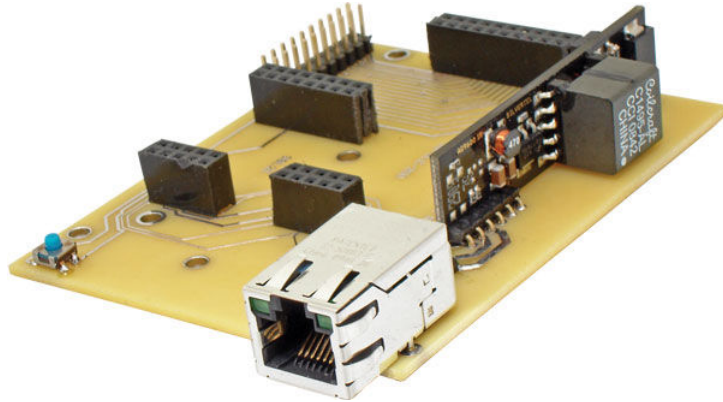
SBL2E Connectors

SB70LC connectors

Title
POE demo board Schematic

Size: A | Number: | Revision: 1.01
Date: 20-Jan-2010 | Sheet 1 of 1

*2 x 330uF used for
prototype
as that is what we had
in stock.
Ok to use a single

4. Bill of Material

```
Used  Part Type            Designator  Vendor              Part Number         Description
====  ===================  ==========  ==================  =================   ==========================
2     330uF*               C1 C2       Digikey             493-2157-1-ND       CAP 330UF 6.3V ELECT WT SMD
1     380-1119-ND          J1          DIGIKEY             380-1119-ND         POE Ethernet Jack
2     HEADER 5X2           J6 JP2      Central components  ARS-02-10-GD        0.1" 2x5 Receptacle
2     HEADER 10X2          JP1 JP1_H   Central Components  ARS-02-20-GD        0.1" 2x10 Receptacle
1     Header 8X2           J10         Central Components  ARS-02-16-GD        0.1" 2x8 Receptacle
2     MB16S-TPMSCT-ND      D1 D2       Digikey             MB16S-TPMSCT-ND     Schlocky Bridge Rectifier
1     SW SPST              S1          Digikey             7914G-000ECT-ND     Reset pushbutton
1     Silvertel AG9603     U1          Silvertel           Ag9603              POE power converter
```

5. Photos of completed product

PoE Adapter board. The blue button is a reset button. The two female connectors on the left side of the PCB are for the SBL2e. The two female connectors in the center of the board are for the SB70LC. The Silverlight PoE module is shown on the right side of the board.

PoE adapter board with SB70LC Development Board connected to provide serial port level shifters and DB9 connectors
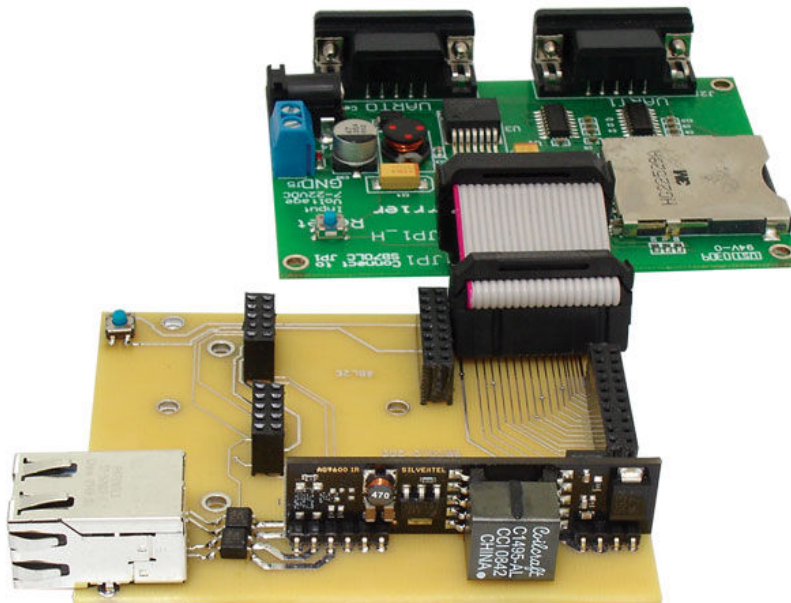
PoE adapter board with SB70LC installed.
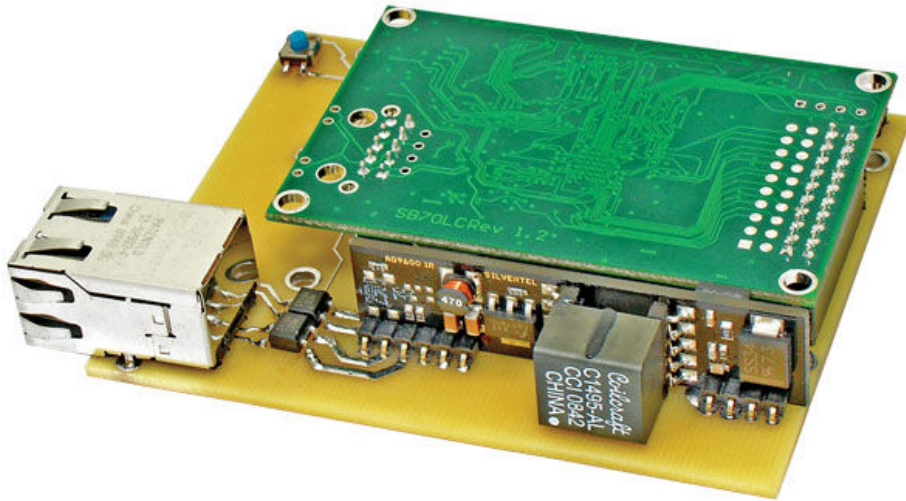
PoE adapter board with SBL2e installed.