

## Stargate NetBridge

### EMBEDDED SENSOR NETWORK GATEWAY

The Stargate NetBridge is an embedded Sensor Network gateway device. Its purpose is to connect Crossbow Sensor Nodes to an existing Ethernet network. It is based on the Intel IXP420 XScale processor running at 266MHz. It features one wired Ethernet and two USB 2.0 ports. The device is further equipped with 8MB of program FLASH, 32MB of RAM and a 2GB USB 2.0 system disk.

- Access Point and Network Coordinator
- Web Interface for Real-time Viewing Sensor Data and Network Health
- Ethernet Interface Backhaul for Remote Access and Viewing
- Plug-and-Play Capability Using Crossbow's BU Series Wireless Sensor Network Base Station

Stargate NetBridge runs the Debian Linux operating system. This is a full fledged standard Linux distribution for the ARM architecture. It comes preloaded with Crossbow's Sensor Network management and data visualization software packages, XServe and MoteExplorer. Those programs are started automatically at boot time of the Stargate NetBridge. In order to set up a Sensor Network gateway configuration, a base station (BU900, BU2400, BU2110 or MIB520, available separately) should be plugged into the secondary USB port of the Stargate NetBridge.

Stargate NetBridge contains a built-in Web server (MoteExplorer) and Sensor Network management tool (XServe). The latter can automatically identify what types of sensor boards are plugged into the nodes of the wireless sensor network and will instruct MoteExplorer to display the data accordingly. Stargate NetBridge's hosted Sensor Network is truly plug-and-play with minimal overhead for configuration and administration.

### User Interface

- 4x status LEDs
- 1x power LED
- 1x soft power button
- 1x reset button
- 1x beeper

### Preloaded Software

- Debian Linux (2.6.18 kernel)
- Crossbow MoteExplorer
- Crossbow XServe

### Crossbow Accessories

- BU900 – MICA2 base station
- BU2400 – MICAz base station
- BU2110 – IRIS base station
- MIB520 – USB interface board

Note: Crossbow Telos and Imote2 Motes can be connected via the USB port, however, Crossbow does not provide software support for such configurations.

| Performance                | Stargate NetBridge                       |
|----------------------------|--|
| <b>CPU</b>                 | IXP420 @ 266MHz                          |
| Program FLASH              | 8MB                                      |
| RAM                        | 32MB                                     |
| USB FLASH Disk             | 2GB                                      |
| <b>I/O</b>                 | 1x RJ45 Ethernet (IEEE 802.3, 802.3u)    |
|                            | 2x USB 2.0 host (USB 1.0/1.1 compatible) |
| <b>Electrical</b>          |  |
| Supply Voltage             | 5V                                       |
| Power Consumption          | ~4W                                      |
| <b>Environmental</b>       |  |
| Operating Temperature      | 5 to 40 °C                               |
| Operating Humidity         | 10% to 80%, non-condensing               |
| Storage Temperature        | -10 to 60 °C                             |
| Storage Humidity           | 5% to 90%, non-condensing                |
| <b>Physical Dimensions</b> |  |
| Size                       | 130mm x 21mm x 91mm                      |
| Weight                     | 160g                                     |

## Other Accessories

Many USB devices are supported natively by the operating system. Others may require specific drivers (marked with \*) to operate properly. Crossbow has tested some devices but the user experience may vary by device manufacturer. Below is a sample list that is by no means complete. This is for user guidance only and does not imply that Crossbow is supporting any specific product.

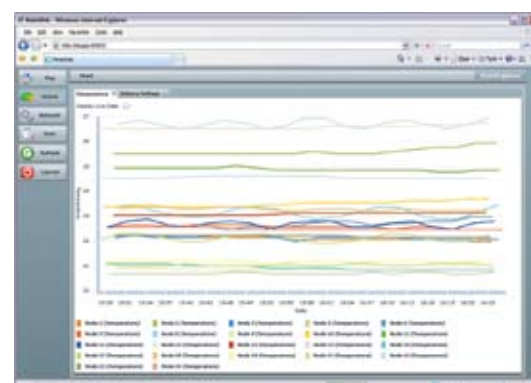
- USB Hubs
- FLASH drives
- Memory card adapters
- UPS devices (\*)
- Serial/parallel port adapters (\*)
- Wifi adapters (\*)
- Cellular modems (\*)
- GPS devices (\*)
- Printers (\*)
- Webcams (\*)
- Audio adapters (\*)

## Support

The Stargate NetBridge is a Crossbow modified Cisco/Linksys NSLU2 device. It is supported by Crossbow only. **Please do not call Linksys or Cisco for support.**

### Ordering Information

| Model   | Description   |
|---------|---|
| NB100CA | Embedded sensor network gateway (Ethernet, USB 2.0) |



Screen: MoteExplorer Chart View



Screen: MoteExplorer Map View

The screenshot displays the MoteExplorer software interface in Network View. It shows a table with multiple columns containing network-related data, such as IP addresses, MAC addresses, and other network parameters. The table lists various network devices and their associated information.

Screen: MoteExplorer Network View

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