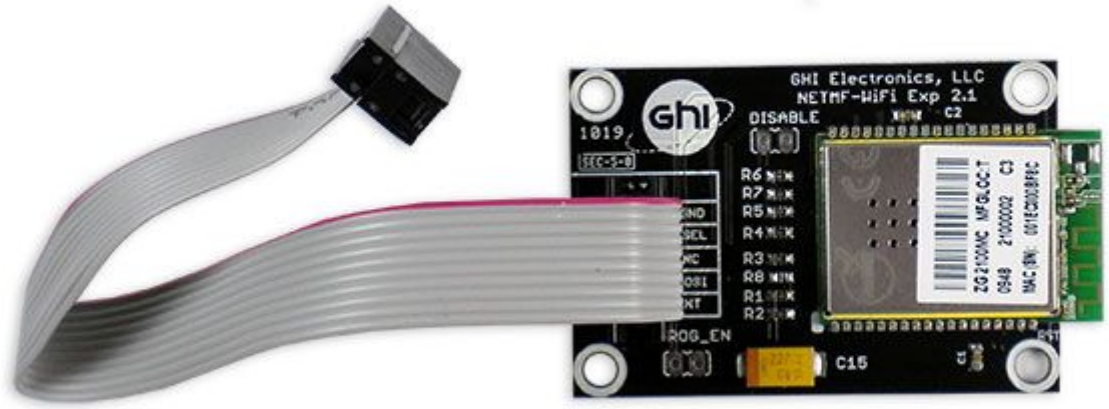
NETMF WiFi Expansion

Date: August 3, 2010 User Guide



Document Information

Information	Description
Abstract	This guide includes a brief overview of the NETMF WiFi Expansion and how to attach it to GHI NETMF devices.

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1. Introduction

NETMF WiFi Expansion hosts the ZeroG ZG2100 module which is an SPI-based WiFi module. This module adds Wireless LAN capabilities to ChipworkX and Embedded Master by attaching the NETMF WiFi Expansion to the development system. Note that it does not work with USBizi based products.

ZG2100 and ZG2101 modules are inexpensive and FCC certified which makes them ideal for Microsoft .NET Micro Framework solutions. The only difference between ZG2100 and ZG2101 is that ZG2100 hosts an on-board antenna and ZG2101 includes a connection for an external antenna.

GHI Electronics LLC is a ZeroG authorized design partner:

http://www.microchip.com/zerog/partners/partnersdevelop.html

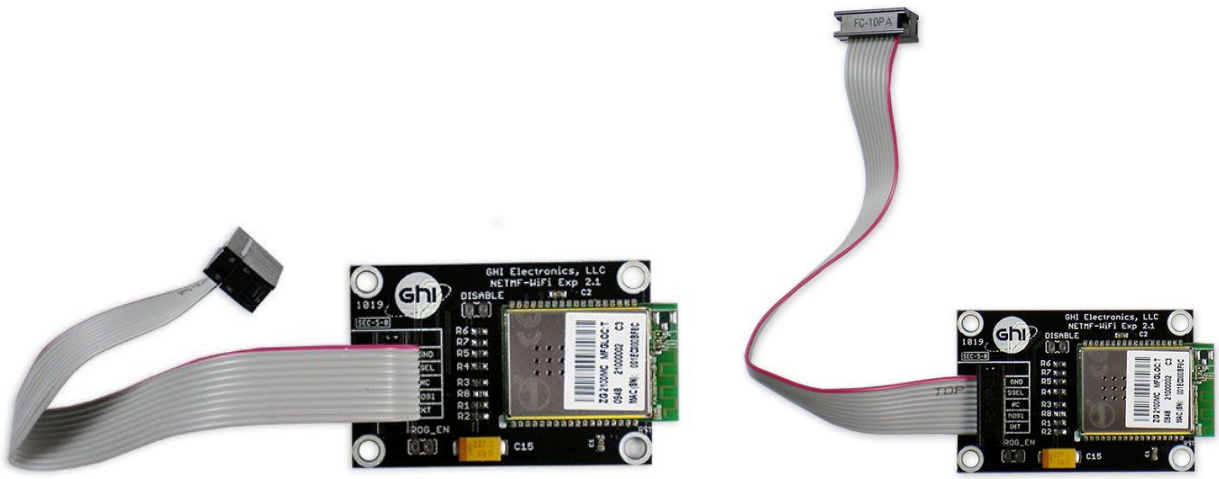
ZG2100/ZG2101 Key Features

- Single-chip 802.11B including MAC, baseband, RF and power amplifier
- Data Rate: 1 & 2 Mbps
- 802.11B/G and 802.11n draft 2.0 compatible
- Low power operation
- PCB or external antenna options
- Hardware support for AES and RC4 based ciphers (WEP, WPA, WPA2 security)
- SPI slave interface with interrupt
- Single 3.3V supply
- 21mm x 31mm 36-pin Dual Flatpack
- FCC Certified (USA, FCC ID: W7O-ZG2100-ZG2101)
- IC Certified (IC: 8248A-G21ZEROG)
- Wi-Fi Certified
- RoHS and CE compliant
- Fully compliant with European Market and meet the R&TTE Directive for Radio Spectrum

2. NETMF WiFi Expansion Connection

NETMF WiFi Expansion can be used directly with the ChipworkX or Embedded Master Development Systems (including EMX). The module comes with a cable that is UEXT connector compatible. This connector is already available on ChipworkX and Embedded Master development system.

The included cable should be connected from one side to the WiFi module and the other side to the UEXT on the development system. Note that the cable's red wire should align with VCC/GND pins. See the possible connections below.

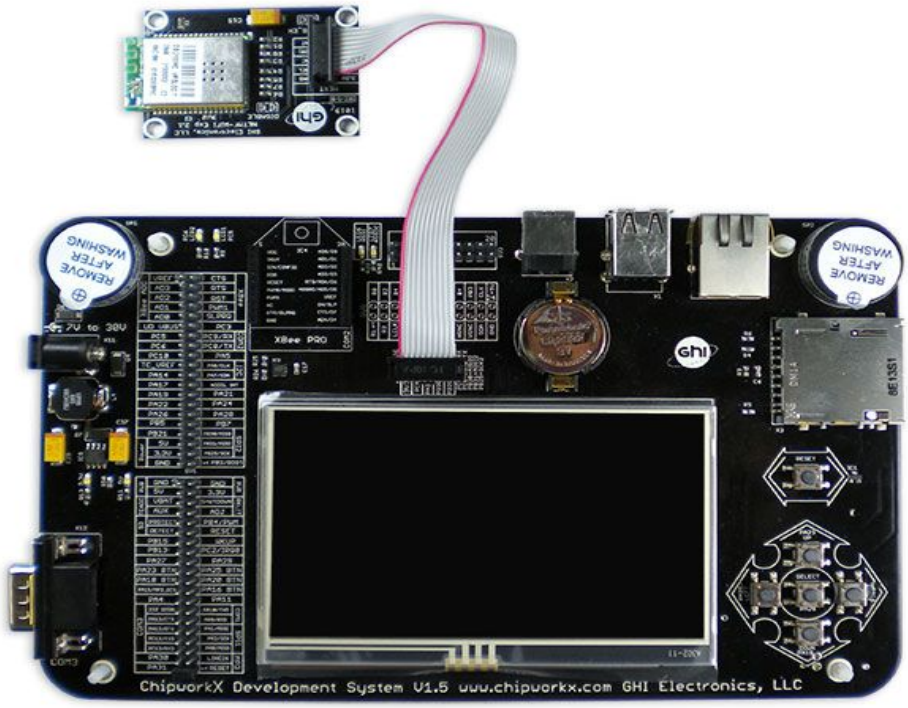


To use the WiFi Capability, refer to GHI's library documentation and *GHIElectronics.NETMF.Net*

2.1. ChipworkX Development System

The connection to ChipworkX development system is shown below. By looking at connections and matching the pinout for UEXT connector, The WiFi module should be initialized as follows:

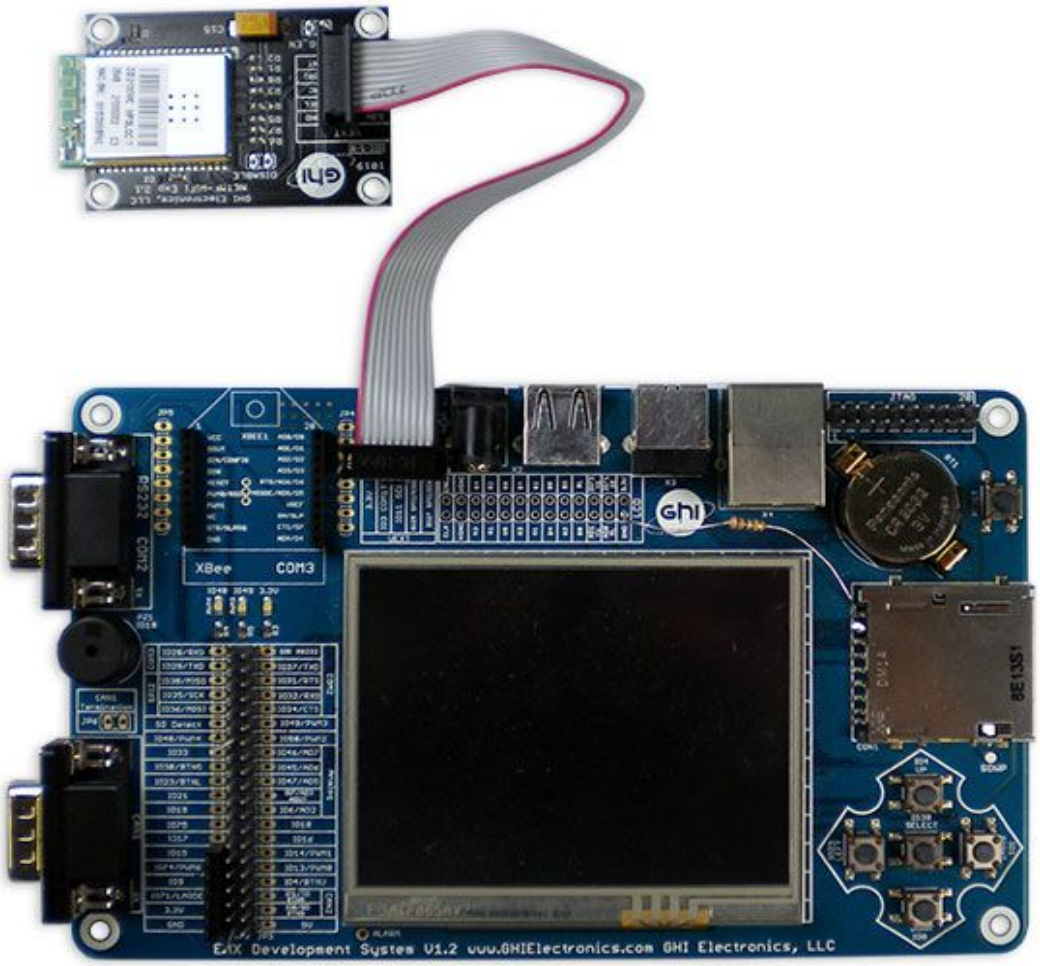
```
WiFi.Enable(SPI.SPI_module.SPI2, ChipworkX.Pin.PC9, ChipworkX.Pin.PA19);
```



2.2. EMX Development System

The connection to EMX development system is shown below. By looking at connections and matching the pinout for UEXT connector, The WiFi module should be initialized as follows:

```
WiFi.Enable(SPI.SPI_module.SPI1, EMX.Pin.IO2, EMX.Pin.IO26);
```



2.3. FEZ Cobra

The connection to FEZ Cobra is shown below. By looking at connections and matching the pinout for UEXT connector, The WiFi module should be initialized as follows:

```
WiFi.Enable(SPI.SPI_module.SPI2, (Cpu.Pin)FEZ_Pin.Digital.IO2, (Cpu.Pin)FEZ_Pin.Interrupt.IO26);
```