



NBWIFIIN Hardware Interface Guide

Revision History

Date	Revision	Description
6/10/2015	1.0	Initial release
7/15/2015	1.1	Corrected IRQ pin for SB70LC: was 17, should be 15. Added default values for chip selects on all platforms for clarification.

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1 Introduction

This document describes the signal connections between the NBWIFIIN-SOM Wifi adapter and compatible NetBurner core modules. Data can be transmitted over a UART or SPI interface. SPI will be significantly faster.

2 NBWIFIIN Adapter Board

The NNDK-NBWIFIIN-KIT development kit includes the NBWIFIIN-SOM Wifi module mounted on an adapter board so it can plug into the 50-pin J2 header of the MOD-DEV-70 development board. At the time of this writing, an adapter board for the SB70LC and NANO54415 platforms does not exist, but you can use jumper wires to make the necessary connections.

The pin signals are shown below for revision 1.2 of the NBWIFI-ADPT-300IR adapter board. Please verify the part number and revision on the silkscreen of your device. The schematic for the adapter board is included in \nburn\docs\platform.

3 IRQ Selection

The Wifi adapter board has a 10-pin dual row header that is used to select which IRQ is used on NetBurner MODxxxx core modules. Jumpering 2 of the header pins will steer the single IRQ output signal of the NBWIFIIN-SOM module to one of 5 pins on the Wifi adapter board's 50 pin connector. The Wifi software drivers will default to IRQ3, but you can select a different one by specifying it in the driver function calls. See the software example comments for more details.

Adapter board default jumper positions

Module	Jumper Position	Signal Connection
MOD5234	5-6	J2-45
MOD5270	5-6	J2-45
MOD5272	5-6	J2-45 (must also remove R6 and install R5)
MOD5282	5-6	J2-45
MOD5441x	1-2	J2-26

3.1 Revisions

Before finalizing any hardware designs, be sure to check the NetBurner web site for the latest data sheets for your products, and compare the latest hardware revisions to the revisions listed in this application note.

3.2 All Available Signals On Wifi Adapter Board

Adapter Pin	Signal	Comments
1	GND	
49	GND	
50	Vcc3.3V	
25	SPI CLK	
27	Master SPI MISO	Connect to the serial data input of the master device. This signal is connected to the serial output of the NBWIFI-SOM.
28	Master SPI MOSI	Connect to the serial data output of the master device. This signal is connected to the serial input of the NBWIFI-SOM.
30	SPI Chip Select	SPI chip select or GPIO pin, depending on platform.
41	Master UART RX	Connect to the UART RX signal of the master device. This signal is connected to UART0 TX of the NBWIFI-SOM.
44	Master UART TX	Connect to the UART TX signal of the master device. This signal is connected to UART0 RX of the NBWIFI-SOM.
42	Reset Input	Active low reset sign input
26	IRQ 3	Adapter board output signal to master IRQ input (default)
45	IRQ1	
43	IRQ2	
47	IRQ6	
48	IRQ7	Warning: IRQ7 is unmaskable

3.3 All Available Signals On NBWIFIIN-SOM Modle

Please refer to the NBWIFI-SOM module data sheet available on the wifi product page at www.netburner.com for detailed information.

4 MODxxxx Core Modules

4.1 Wifi NBWIFI-ADPT-300IR Adapter Board

The Wifi adapter board was designed to interface to the MOD-DEV-70 J2 header, so the signal pin numbers will match.

SPI MODE

Signal Name	Pin Number	Comments
GND	1, 49	
Vcc 3.3V	50	
SPI CLK	25	
SPI MISO	27	
SPI MOSI	28	
SPI Chip Select	30	Can be SPI CS, or GPIO pin, platform dependent MOD5234: J2-30, GPIO MOD5270: J2-30, GPIO MOD5272: J2-40, GPIO, RemoveR6, install R5, 0 Ohms MOD5282: J2-30, GPIO MOD5441x: J2-30, SPI CS0 NANO54415: Pin 15, SPI1 CS0
Reset input	42	
IRQ output	26	Default Settings: MOD5234: IRQ3, J2-45 MOD5270: IRQ3, J2-45 MOD5272: IRQ3, J2-45 MOD5282: IRQ3, J2-45 MOD5441x: IRQ3, J2-26 NANO54415: IRQ3, Pin 49
J5 Jumper	n/a	Remove Jumper
J6 Jumper	n/a	Remove Jumper

UART MODE

Signal Name	Pin Number	Comments
GND	1, 49	
Vcc 3.3V	50	
Master UART RX	41	
Master UART TX	44	
Reset input	42	
J5 Jumper	n/a	Remove Jumper
J6 Jumper	n/a	Add Jumper

4.2 NBWIFIIN-SOM Module

SPI MODE

Signal Name	MODxxxx	NBWIFI-SOM	Comments
GND		1, 3, 17, 20, 35-44	
Vcc 3.3V		2, 14	
SPI CLK	25	11	
SPI MISO	27	10	
SPI MOSI	28	9	
SPI Chip Select	30	12	Can be SPI CS, or GPIO Pin
Reset input	42	34	
IRQ output	26	23	
GPIO 1	n/a	24	Pull up to 3.3V
GPIO 2	n/a	25	Pull up to 3.3V

UART MODE

Signal Name	MODxxxx	NBWIFI-SOM	Comments
GND		1, 3, 17, 20, 35-44	
Vcc 3.3V		2, 14	
Master UART RX	41	22	
Master UART TX	44	21	
Reset input	42 (default)	34	Can use different MODxxxx GPIO pin.
GPIO 1	n/a	24	Pull down to GND
GPIO 2	n/a	25	Pull up to 3.3V

5 SB70LC

5.1 Wifi NBWIFI-ADPT-300IR Adapter Board

SB70LC connections from the SB70LC JP1 20-pin header to the Wifi adapter.

SPI MODE

Signal Name	SB70LC	Wifi Adapter	Comments
GND	19,20	1, 49	
Vcc 3.3V	1,2	50	
SPI CLK	7	25	
SPI MISO	6	27	
SPI MOSI	4	28	
SPI Chip Select	3	30	Uses pin 3 configured as GPIO
Reset input	16	42	
IRQ	15	26	Timer 3 input pin
J5 Jumper	n/a	n/a	Remove Jumper
J6 Jumper	n/a	n/a	Remove Jumper

UART MODE

Signal Name	SB70LC	Wifi Adapter	Comments
GND	19,20	1, 49	
Vcc 3.3V	1,2	50	
Master UART RX	13	41	UART 1
Master UART TX	12	44	UART 1
Reset input	16	42	
J5 Jumper	n/a	n/a	Remove Jumper
J6 Jumper	n/a	n/a	Add Jumper

5.2 NBWIFIIN-SOM Module

SPI MODE

Signal Name	SB70LC	NBWIFI-SOM	Comments
GND	19,20	1, 3, 17, 20, 35-44	
Vcc 3.3V	1,2	2, 14	
SPI CLK	7	11	
SPI MISO	6	10	
SPI MOSI	4	9	
SPI Chip Select	3	12	Uses pin 3 configured as GPIO
Reset input	16	34	
IRQ	15	23	Note that signal Timer 3 is configured as a GPIO input that can generate an IRQ. This is handled by the Wifi driver.
GPIO 1	n/a	24	Pull up to 3.3V
GPIO 2	n/a	25	Pull up to 3.3V

UART MODE

Signal Name	SB70LC	NBWIFI-SOM	Comments
GND	19,20	1, 3, 17, 20, 35-44	
Vcc 3.3V	1,2	2, 14	
Master UART RX	13	22	UART 1
Master UART TX	12	21	UART 1
Reset input	16	34	
GPIO 1	n/a	24	Pull down to GND
GPIO 2	n/a	25	Pull up to 3.3V

6 NANO54415

6.1 Wifi NBWIFI-ADPT-300IR Adapter Board

The tables below are for connecting a Nano54415 Rev 1.3 Development Board to the NBWIFI Development board.

SPI MODE

Signal Name	NANO Dev	Wifi Adapter	Comments
GND	18	1, 49	
Vcc 3.3V	17	50	
SPI CLK	31	25	
SPI MISO	33	27	
SPI MOSI	35	28	
SPI Chip Select	15	30	Default is SPI CS0
Reset input	Select	42	Reset is specified in the wifi init call. Can be any GPIO signal
IRQ	Select	26	Any available IRQ can be used. Specify in wifi init call.
J5 Jumper	n/a	n/a	Remove Jumper
J6 Jumper	n/a	n/a	Remove Jumper

UART MODE

Signal Name	NANO Dev	Wifi Adapter	Comments
GND	18	1, 49	
Vcc 3.3V	17	50	
Master UART RX	20	41	
Master UART TX	22	44	
Reset input	Select	42	Reset is specified in the wifi init call. Can be any GPIO signal
J5 Jumper	n/a	n/a	Remove Jumper
J6 Jumper	n/a	n/a	Add Jumper

6.2 NBWIFIIN-SOM Module

The tables below are for connecting a Nano54415 **Core Module** to the NBWIFI **Development board**.

SPI MODE

Signal Name	NANO Module	NBWIFI-SOM	Comments
GND	18	1, 3, 17, 20, 35-44	
Vcc 3.3V	17	2, 14	
SPI CLK	31	11	
SPI MISO	33	10	
SPI MOSI	35	9	
SPI Chip Select	15	12	Default is SPI CS0
Reset input	Select	34	Reset is specified in the wifi init call. Can be any GPIO signal
IRQ	Select	23	Any available IRQ can be used. Specify in wifi init call.
GPIO 1	n/a	24	Pull up to 3.3V
GPIO 2	n/a	25	Pull up to 3.3V

UART MODE

Signal Name	NANO Module	NBWIFI-SOM	Comments
GND	18	1, 3, 17, 20, 35-44	
Vcc 3.3V	17	2, 14	
Master UART RX	20	22	
Master UART TX	22	21	
Reset input	Select	34	Reset is specified in the wifi init call. Can be any GPIO signal
GPIO 1	n/a	24	Pull down to GND
GPIO 2	n/a	25	Pull up to 3.3V