2.4GHz & 5 GHz RF Modular Transceiver System (Model 416549)
Installation manual

1. Description

This document describes an RF transceiver module supporting IEEE 802.11abgn WiFi protocols, Bluetooth and Bluetooth Low Energy specification. The module provides its own power regulation and shielding.

2. The module consists of:

1) 2.4 GHz Wi-Fi 802.11 b/g/n MIMO
2.) 2.4 GHz Bluetooth & Bluetooth Low Energy
3.) 5 GHz WiFi 802.11 a/n SISO with antenna diversity.

3. Cautions

This transceiver module is ONLY to be installed in Bose Corporation devices.
The module is to be surfaced mounted to a host printed circuit board with PCB etch type antennas only. There are no antenna connectors used.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

Changes or modifications not expressly approved by Bose Corporation could void the user's authority to operate the equipment."

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

4. Markings

4.1 This module shall be identified with the following ID numbers on the radio shields.

FCC ID : A94416549
IC : 3232A-416549

4.2 End Product Labeling

The final end product which this module is used in must be labeled in a visible area with the following:

"Contains FCC ID: A94416549 / IC:3232A-416549"

5. The following table describes the module line grid array footprint.

Pads	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
X	GND	(void)	GND	GND	SPI_DO	GND	GND	GND	GND	GND	STROBE3	LED0	GND	RMII1_RXERR	RMII1_CRS_DV	GND	RMII1_REFCLK_50M	RMII1_TXD0	GND	GND	GND	GND	GND	GND	GND	GND	I2C1_SDA	GND	GND	(void)	GND	X
W	(void)	GND	UART5_RXD	GND	GND	BL_TXD	GND	GND	IR_IN_BL_RXD	GND	GND	STROBE0	GND	LED1	GND	RMII1_TXD1	GND	GND	EMU0	GND	GND	SM2_1V5	SM2_1V1	GND	VDD_3V6_IN_2	VDD_3V6_IN_2	GND	SM2_1V8	GND	VDD_3V6_IN_2	(void)	W
V	GND	LED3_MICROB_SEL	UART5_TXD	GND	SPI_CLK	GND	RMII1_TXEN	GND	GND	GND	GND	GND	EMU1	RMII1_RXD0	MDIO_DATA	GND	MDIO_CLK	RMII1_RXD1	GND	SM2_1V8_2	GND	GND	GND	GND	GND	GND	I2C1_SCL	GND	GND	VDD_3V6_IN_2	GND	V
U	(void)	NNMI	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	ETAP_TXD	(void)	LED2_MICROB_DET	SWITCH0N	NF_GPMC_AD7	NF_GPMC_AD2	NF_GPMC_AD4	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_2	(void)	U
T	(void)	ETAP_RXD	NRESETIN_OUT	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	USB0_DRVVBUS	GND	(void)	SWITCH2N	STROBE1	NF_GPMC_AD5	NF_GPMC_AD1	NF_GPMC_AD3	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_2	(void)	T
S	GND	SYNC_OUT	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	SWITCH1N	C18_WIFI_EN	(void)	C18_BT_EN	STROBE2	NF_GPMC_AD6	NF_GPMC_AD0	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	PMIC_EN	GND	S
R	(void)	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	SWITCH3N	GND	(void)	GND	GND	(void)	(void)	NF_RE	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	SM2_3V3	(void)	R
Q	(void)	GND	AIN6_LIGHTSENSOR	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	DSP_RESETN	(void)	AUD2_IN_D0	HEADPHONE_DETN	NF_CLE	NF_ALE	NF_WPN	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_1	(void)	Q
P	GND	PORZ	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	DISP_PWR_EN_LED7	AUD_OUT_D1	(void)	AUD2_FS	AUD_IN_FS	NF_WAIT	NF_WE	NF_CE	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_1	GND	P
O	GND	GND	AIN4_PWRMON	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	T3_AMPFAULTN	(void)	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_1	GND	O
N	GND	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	T3_AMPSTBYN	(void)	DISPDCN_LED5	ADC_DAC_RESN	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_1	GND	N
M	GND	DISPCEN_LEDPWM4	C18_PMIC_POWER_EN	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	DISPRESN_LED6	C18_AM_TSYNC	(void)	GND	T3_MUTEOUTN	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_1	GND	M
L	USB0_DM	USB0_VBUS	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	PSM_DISABLE	DSP_CSN	(void)	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	VDD_3V6_IN_1	GND	L
K	USB0_DP	USB0_CE	AIN0_5VMON	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	GND	(void)	SPI_DI	AM3356_JTAG_TDI	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	GND	GND	K
J	GND	AIN1_IDIN	AIN3_PAOFFSET2	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	AUD_IN_BCLK	(void)	AM3356_JTAG_TDO	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	GND	GND	J
H	(void)	USB_FAULTN	USB0_ID	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	AUD_OUT_D2/SPDIF_OUT	GND	(void)	GND	AM3356_JTAG_TMS	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	ANT2_2G4_WIFI_BT	(void)	H
G	(void)	ADCBIAS	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	AUD_OUT_MCLK	(void)	AM3356_JTAG_TCK	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	GND	GND	G
F	GND	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	AUD_OUT_BCLK	GND	(void)	AM3356_JTAG_RTCK	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	ANT4_5G_WIFI	(void)	F
E	(void)	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	AUD_IN_D0	(void)	AM3356_JTAG_NTRST	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	GND	GND	E
D	(void)	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	AUD_OUT_FS	GND	(void)	GND	GND	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	(void)	GND	ANT3_5G_WIFI	(void)	D
C	GND	GND	AIN2_PAOFFSET1	AIN5_THERMISTOR	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	AUD2_BCLK	GND	GND	GND	GND	SM2_1V8_3	GND	GND	WL_DBG	UART_DBUG_BT	AUD_IN_BT	WL1837_JTAG_TDI	WL_RS232_RX	GND	GND	GND	GND	C
B	(void)	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	AUTH_RESETN	GND	GND	GND	GND	GND	GND	GND	C18_HCI_RX_BT	C18_HCI_CTS_BT	C18_HCI_RTS_BT	AUD_CLK_OUT_BT	AUD_OUT_BT	WL1837_JTAG_TDO	WL1837_JTAG_TMS	C18_HCI_TX_BT	GND	ANT1_2G4_WIFI	(void)	B
A	GND	(void)	LEDPWM0	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	WL_RS232_TX	GND	AUD_FSYNC_OUT_BT	GND	GND	WL1837_JTAG_TCK	GND	GND	(void)	GND	A
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	

6. General Electrical specifications

6.1 Power supply 3.6V +/- 5%

6.2 Power consumption <5 Watts

6.3 Operational Temperature 0 ~ 40 C