

IoTNext GEN2

Wireless MCU with Integrated Wi-Fi 6 and
Bluetooth Low Energy 5.4

Specification

Rev:0.7

Features

WLAN

- ◆ Support 1x1 dual-band 2.4 GHz/5 GHz Wi-Fi a/b/g/n/ac/ax radio
- ◆ 20 MHz channel operation
- ◆ Wi-Fi 6 Target Wake Time(TWT) support
- ◆ Wi-Fi 6 Extended Range (ER) and Dual Carrier Modulation (DCM)
- ◆ Low-power Wi-Fi idle, standby, and sleep modes
- ◆ WPA2/WPA3 personal and enterprise
- ◆ Integrated Wi-Fi PA, LNA, TX +21 dBm

MCU and system memory

- ◆ 260 MHz Arm Cortex-M33 with TrustZone-M
- ◆ CoreMark® score: 1,033;
3.97 CoreMark/MHz
- ◆ 1.2 MB integrated SRAM
- ◆ FlexSPI external flash interface supports eXecute-In-Place (XIP) and on-the-fly firmware encryption/ decryption and authentication

Bluetooth

- ◆ Bluetooth LE 5.4 certified and Bluetooth LE 5.2 features supported
- ◆ Bluetooth LE 1 Mbps high speed mode and Long Range operation (125 / 500 kbps)
- ◆ Integrated PA / LNA / Switch with up to +15 dBm Tx output

Revision History

Version	Revision Date	Description	Initials	Approved
0.1	2025/1/2	Draft version	James yuan	Granite An
0.2	2025/3/27	Merge Charger board on Core Board	James yuan	Granite An
0.3	2025/4/10	Add Grane mode,Support 18605 Li-ion Battery,	James yuan	Granite An
0.4	2025/5/12	Delete RS 485*1,add RS232*1.	James yuan	Granite An
0.5	2025/6/19	Solved High temp issue, change GPIO which can not used.	James yuan	Granite An
0.6	2025/7/18	Support 12V/24V battery with Auto switch	James yuan	Granite An
0.7	2026.1.25	Modify WiFi and BLE specification	Tengzhi Wei	—

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1. Introduction

1.1 Product Overview

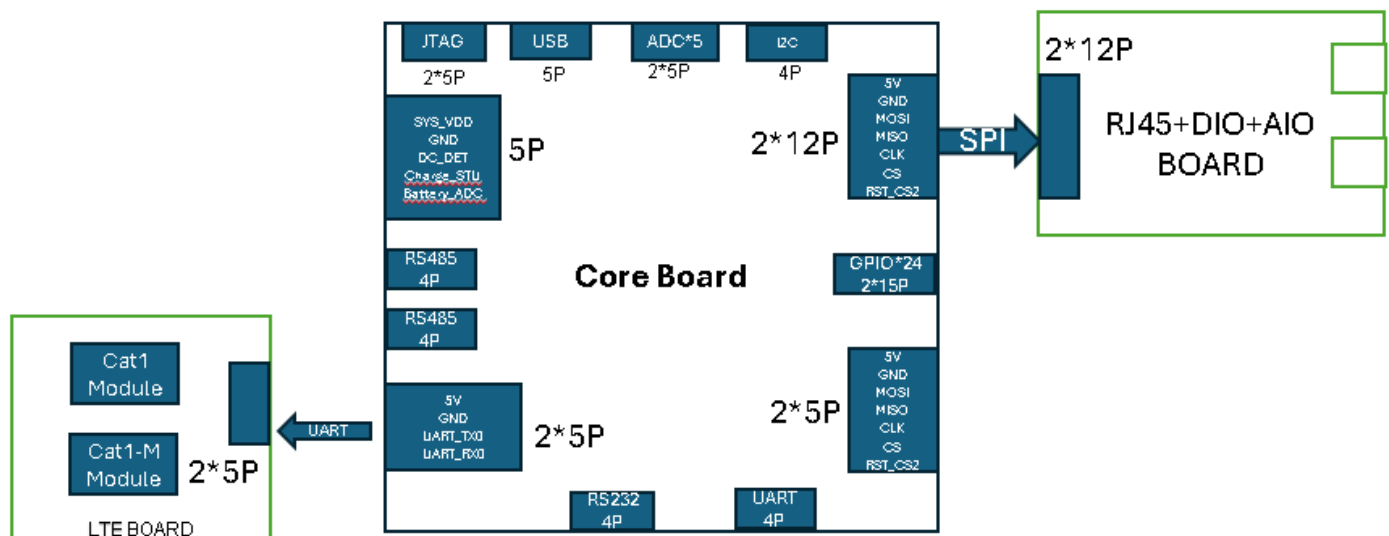
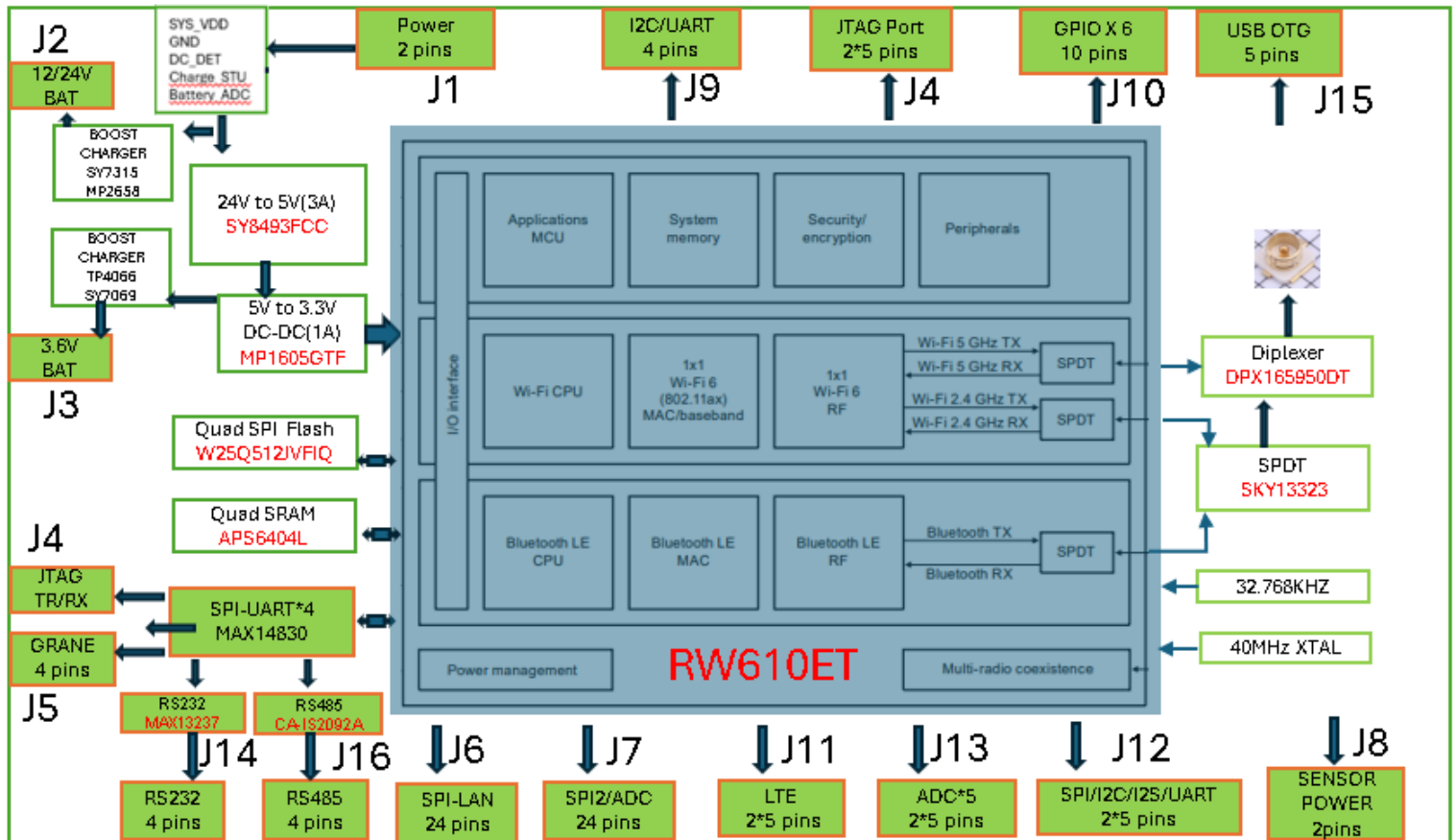
IoTNext GEN2 Core Board is a highly integrated, low-power tri-radio Wireless RW610 MCU with an integrated MCU and Wi-Fi 6 + Bluetooth Low Energy (LE) 5.4 radios designed for a broad array of applications. Applications include connected smart home devices, enterprise and industrial automation, smart accessories, and smart energy.

IoTNext GEN2 Core Board includes a 260 MHz Arm Cortex-M33 core with TrustZone-M, 1.2 MB on-chip SRAM and a Quad SPI interface with high bandwidth

IoTNext GEN2 Core Board includes a full-featured 1x1 dual-band (2.4 GHz / 5 GHz) 20 MHz Wi-Fi 6 (802.11ax) subsystem bringing higher throughput, better network efficiency, lower latency, and improved range over previous generation Wi-Fi standards. The Bluetooth LE radio supports 1 Mbit/s high-speed data rate, long range and extended advertising as well as LE Audio for a better overall audio experience. In addition, IoTNext GEN2 Core Board can support Matter over Wi-Fi or Matter over Thread offering a common, interoperable application layer across ecosystems and products.

The advanced design of the IoTNext GEN2 Core Board delivers tight integration, low power, and highly secure operation in a space- and cost-efficient wireless MCU requiring only a single 12V power supply

1.2 Block Diagram



IoTNext GEN2 Block Diagram

1.3 Specifications Table

1.3.1 General

Features	Description
Product Description	IEEE 802.11 a/b/g/n/ac/ax Wi-Fi 6 with Bluetooth 5.4 Core Board
Major Chipset	NXP RW610 TFBGA145 (145 pins)
Interface	UART*2/JTAG*1/SPI*2/I2C*1/GPIO*24/ADC*5/USB*1/RS485*1/RS232*1
Dimension	70 mm x 65 mm x 25 mm(Max)
Power Input	12V-24V 2A
Antenna	ANT: 2. 4G/5G Wi-Fi +BT
Weight	TBD

1.3.2 WLAN

Features	Description
WLAN Standard	IEEE 802.11 a/b/g/n/ac/ax 1T1R
Frequency Range	2.4 GHz: 2400 MHz~2483.5 MHz 5 GHz: 5170 MHz~5895 MHz
Modulation	DSSS, OFDM, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM, OFDMA

Number of Channels						
	2.4 GHz Channel					
	1	2412 MHz	2	2417 MHz	3	2422 MHz
	4	2427 MHz	5	2432 MHz	6	2437 MHz
	7	2442 MHz	8	2447 MHz	9	2452 MHz
	10	2457 MHz	11	2462 MHz	12	2467 MHz
	13	2472 MHz	—	—	—	—
	5 GHz Channel					
	36	5180 MHz	40	5200 MHz	44	5220 MHz
	48	5240 MHz	52	5260 MHz	56	5280 MHz
	60	5300 MHz	64	5320 MHz	100	5500 MHz
	104	5520 MHz	108	5540 MHz	112	5560 MHz
	116	5580 MHz	120	5600 MHz	124	5620 MHz
	128	5640 MHz	132	5660 MHz	136	5680 MHz
	140	5700 MHz	144	5720 MHz	149	5745 MHz
	153	5765 MHz	157	5785 MHz	161	5805 MHz
	165	5825 MHz	169	5845 MHz	173	5865 MHz
	177	5885 MHz	—	—	—	—

Output Power	2.4 GHz					
	Parameter	Condition	Min	Type	Max	Unit
	Maximum linear output power with 20 MHz bandwidth	802.11b 1 Mbps	—	22	—	dBm
		802.11b 11 Mbps	—	22	—	dBm
		802.11g 6 Mbps	—	22	—	dBm
		802.11g 54 Mbps	—	19	—	dBm
		802.11n MCS7	—	19	—	dBm
		802.11ax MCS9	—	18	—	dBm
	5 GHz					
	Parameter	Condition	Min	Type	Max	Unit
	Maximum linear output power with 20 MHz bandwidth	802.11a 6 Mbps	—	23	—	dBm
		802.11a 54 Mbps	—	20	—	dBm
		802.11n MCS0	—	22	—	dBm
		802.11n MCS7	—	20	—	dBm
		802.11ac MCS0	—	22	—	dBm
		802.11ac MCS8	—	19	—	dBm
		802.11ax MCS0	—	22	—	dBm
		802.11ax MCS8	—	19	—	dBm

Receiver Sensitivity	2.4 GHz:					
	Parameter	Condition	Min	Type	Max	Unit
	802.11b	20 MHz 1 Mbps	—	-99.25	—	dBm
	802.11b	20 MHz 11 Mbps	—	-91	—	dBm
	802.11g	20 MHz 6 Mbps	—	-94.5	—	dBm
	802.11g	20 MHz 54 Mbps	—	-77.25	—	dBm
	802.11n	20 MHz MCS0 Nss1 BCC	—	-93.75	—	dBm
	802.11n	20 MHz MCS7 Nss1 BCC	—	-75	—	dBm
	802.11ax	4x3.2 20 MHz MCS0 Nss1 BCC	—	-93.5	—	dBm
	802.11ax	4x3.2 20 MHz MCS9 Nss1 BCC	—	-68.75	—	dBm
	5 GHz:					
	Parameter	Condition	Min	Type	Max	Unit
	802.11a	20 MHz 6 Mbps	—	-93.5	—	dBm
	802.11a	20 MHz 54 Mbps	—	-76.5	—	dBm
	802.11n	20 MHz MCS0 Nss1 BCC	—	-92.75	—	dBm
	802.11n	20 MHz MCS7 Nss1 BCC	—	-74	—	dBm
	802.11ac	20 MHz MCS0 Nss1 BCC	—	-92.75	—	dBm
	802.11ac	20 MHz MCS8 Nss1 BCC	—	-70	—	dBm
	802.11ax	4x3.2 20 MHz MCS0 Nss1 BCC	—	-92.5	—	dBm
	802.11ax	4x3.2 20 MHz MCS9 Nss1 BCC	—	-67.75	—	dBm

Data Rate	WLAN: 802.11b : 1, 2, 5.5, 11Mbps 802.11a/g : 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n : Maximum data rates up to 72 Mbps (20 MHz channel) 802.11ac: Maximum data rates up to 87 Mbps (20 MHz channel) 802.11ax: Maximum data rates up to 115 Mbps (20 MHz channel)
Security	Wi-Fi: WPA2/WPA3 personal and enterprise and AES/CCMP/CMAC/GCMP BT: AES

1.3.3 Bluetooth

Features	Description					
Bluetooth Standard	Full Bluetooth 5.4 features					
Frequency Range	2400MHz~2483.5MHz					
Modulation	GFSK					
Output Power	Parameter	Condition	Min	Type	Max	Unit
	Bluetooth LE maximum transmit power	—	—	15	—	dBm
Receiver Sensitivity	Parameter	Condition	Min	Type	Max	Unit
	Bluetooth LE 1 Mbps	—	—	-100.2	—	dBm
	Bluetooth LE 2 Mbps	—	—	-97.9	—	dBm
	Bluetooth LR 125 Kbps	—	—	-108.1	—	dBm
	Bluetooth LR 500 Kbps	—	—	-101.1	—	dBm

2. Pin Definition for Core Board

J1 for Power supply input Connector, Pin pitch is 3.5mm.

PIN	Descriptions
1	DC INPUT 12V or 24V
2	DC INPUT GND

J2 for 12V or 24V Lead–acid battery Connector, Pin pitch is 3.5mm.

Pin	Descriptions
1	12V or 24V battery Positive
2	12V or 24V battery Negative

J3 for Li-ion Battery Connector, Pin Pitch is 2.54mm.

PIN	Descriptions
1	Input 24V
2	Input GND

J4 For JTAG&SWD Connector,Pin pitch is 1.27mm

PIN	Descriptions	PIN	Descriptions
1	3.3V	2	SWDIO(default) or GPIO7_TMS_SPI_CLK option by R48/R49
3	GND	4	SWCLK(default) or GPIO6_TCK_SPI_CS option by R50/R51
5	GND	6	GPIO9_TDO_SPI_DO
7	EX_TX3	8	GPIO8_TDI_SPI_DIN
9	EX_RX3	10	GPIO_10_JTAG_TRSTN

J5 for UART connector to GRANE board,Pin pitch is 2.54mm.

PIN	Descriptions
1	EX_RX2
2	EX_TX2
3	GND
4	Power Supply From Grane board,12V~24V .

J6 for SPI/GPIO to IO board,Pin Pitch is 1.0mm

PIN	Descriptions	PIN	Descriptions
1	5V Power supply	2	5V Power supply
3	5V Power supply	4	5V Power supply
5	GPIO_59	6	GPIO2_SPI0_MOSI
7	GPIO_60	8	GPIO3_SPI0_MISO
9	GPIO_61	10	GPIO4_SPI0_CLK
11	GPIO_62	12	GPIO0_SPI0_CS
13	GPIO_63	14	GPIO1_SPI0_RST_CS2
15	GND	16	GPIO5_SPI_INT
17	GPIO_26_TX	18	GPIO_25
19	GPIO_24_RX	20	GPIO_27
21	GND	22	GND
23	GND	24	GND

J7 for SPI/GPIO to IO board,Pin Pitch is 1.0mm

PIN	Descriptions	PIN	Descriptions
1	5V Power supply	2	5V Power supply
3	5V Power supply	4	5V Power supply
5	GPIO_21_SPI2_RST2	6	GPIO_13_SPI2-MOSI
7	GPIO_56_I2C_CLK	8	GPIO_14_SPI2-MISO
9	GPIO_57_I2C_DATA	10	GPIO_15_SPI2-CLK
11	GPIO_47_ADC5	12	GPIO_16_SPI2-CS
13	GPIO_46_ADC4	14	GPIO_17_SPI2_RST_CS2

15	GPIO_45_ADC3	16	GPIO_18_SPI2_INT1
17	GPIO_44_ADC2	18	GPIO_19_SPI2_INT2
19	GPIO_43_ADC1	20	GPIO_20_SPI2_RST1
21	GND	22	GND
23	GND	24	GND

J8 for Extend Sensor Power supply,Pin pitch is 3.5mm

PIN	Descriptions
1	Output for sensor power supply
2	GND

J9 for Extend I2C/UART Connector,PIN Pitch is 1.25mm

PIN	Descriptions
1	GPIO_56_I2C_CLK
2	5V
3	GND
4	GPIO_57_I2C_DATA

J10 for Extend GPIO Connector,PIN pitch is 1.25

1	5V	2	5V
3	GPIO_59	4	GPIO_60
5	GPIO_61	6	GPIO_62
7	GPIO_63	8	GPIO_12
9	GND	10	GND

J12 for SPI/I2C/I2S/UART Connector,PIN Pitch is 1.25mm

1	5V	2	5V
3	GPIO2_SPI0_MOSI	4	GPIO3_SPI0_MISO
5	GPIO4_SPI0_CLK	6	GPIO0_SPI0_CS
7	GPIO1_SPI0_RST_CS2	8	GPIO5_SPI_INT
9	GND	10	GND

J13 for Extender ADC Connector,PIN Pitch is 1.25mm

1	5V	2	5V
3	GPIO_43_ADC1	4	GPIO_44_ADC2
5	GPIO_45_ADC3	6	GPIO_46_ADC4
7	GPIO_47_ADC5	8	GND
9	GND	10	GND

J14 for RS232 Connector,PIN Pitch is 3.5mm

PIN	Descriptions
1	5V output
2	RS232_TX
3	RS232_RX
4	GND

J15 for TPYE-C USB connector.

J16 for RS485 Connector,PIN Pitch is 3.5mm

PIN	Descriptions
1	12V/24V (depending on system power)
2	RS 485_A
3	RS 485_B
4	GND

3. Pin Definition for DIO Board

J1 for LAN and ADC Connector,PIN pitch is 1.0mm(Connect to J7 of Core Board)

PIN	Descriptions	PIN	Descriptions
1	5V Power supply	2	5V Power supply
3	5V Power supply	4	5V Power supply
5	MOSI	6	RST2 (Revised)
7	MISO	8	GPIO_56 (Revised)
9	SCK	10	GPIO_57 (Revised)
11	CS1	12	GPIO_47_ADC5 (Revised)
13	CS2 (Revised)	14	GPIO_46_ADC4 (Revised)
15	LAN_INT1	16	GPIO_45_ADC3 (Revised)
17	LAN_INT2 (Revised)	18	GPIO_44_ADC2
19	RST1	20	GPIO_43_ADC1
21	GND	22	GND
23	GND	24	GND

J2 for RJ45 Connector

J4 for AIO Input Connector

PIN	Descriptions
1	I1+,I mode support 0~20mA DC and V mode support DC 0~30V
2	I1-,I mode support 0~20mA DC and V mode support DC 0~30V

3	I2+,I mode support 0~20mA DC and V mode support DC 0~30V
4	I2-,I mode support 0~20mA DC and V mode support DC 0~30V

J5 for DIO Connector,PIN Pitch is 3.5mm

PIN	Descriptions
1	DI1_AC_+,Channel 1.Support DC 12V~24V,AC12~120V.
2	DI2_AC_+, Channel 2.Support DC 12V~24V,AC12~120V.
3	DI3_AC_+, Channel 3.Support DC 12V~24V,AC12~120V.
4	DI4_AC_+, Channel 4.Support DC 12V~24V,AC12~120V.
5	Common terminal for Channel 1~4.

J6 for DIO Connector,PIN Pitch is 1.0mm

PIN	Descriptions	PIN	Descriptions
1	5V Power supply	2	5V Power supply
3	5V Power supply	4	5V Power supply
5	GPIO2 (Revised)	6	GPIO_59
7	GPIO3 (Revised)	8	GPIO_60
9	GPIO4 (Revised)	10	GPIO_61
11	GPIO0 (Revised)	12	GPIO_62
13	GPIO1	14	GPIO_63
15	GPIO5 (Revised)	16	GND
17	GPIO_25 (Revised)	18	GPIO_26
19	GPIO_27 (Revised)	20	GPIO_24

21	GND	22	GND
23	GND	24	GND

J7 for DO Connector,PIN pitch is 3.5mm

PIN	Descriptions
1	DO1_NO,Relay 1 NO terminal
2	DO1_COM,Relay 1 COM terminal
3	DO2_NO,Relay 2 NO terminal
4	DO2_COM, Relay 2 COM terminal

4. Pin Definition for LTE Board

J6 for UART Connector,PIN Pitch is 1.0mm,Connect to J11 of Core board.

1	5V	2	5V
3	RX	4	5V
5	TX	6	GND
7	PWR_ON	8	GND
9	HW_Down	10	GND

4.1 Pin Table

Function Interface	Symbol	TFBGA145	Pin name	Type	Supply	Description
Quad SPI for 32MB flash memory	GPIO[28]	F4	FlexSPI_flash_SSEL0	O	VIO_4	FlexSPI flash client select 0
	GPIO[29]	D2	FlexSPI_flash_DQS			Can No used
	GPIO[30]	F3	FlexSPI_flash_D0	I/O	VIO_4	Data bit 0 for FlexSPI flash
	GPIO[31]	D3	FlexSPI_flash_D1	I/O	VIO_4	Data bit 1 for FlexSPI flash
	GPIO[32]	F2	FlexSPI_flash_D2	I/O	VIO_4	Data bit 2 for FlexSPI flash
	GPIO[33]	G3	FlexSPI_flash_D3	I/O	VIO_4	Data bit 3 for FlexSPI flash
	GPIO[34]	E3	FlexSPI_flash_CLK0	O	VIO_4	Clock 0 signal for FlexSPI flash interface
Quad SPI for Extension (Configuration from FlexSPI SRAM,)	GPIO[35]	B3	FlexSPI_SRAM_CLK0	O	VIO_5	Clock 0 signal for FlexSPI SRAM interface
	GPIO[36]	B4	FlexSPI_SRAM_SSEL0	O	VIO_5	FlexSPI SRAM client select 0
	GPIO[37]	B2	FlexSPI_SRAM_DQS			Can No used
	GPIO[38]	C3	FlexSPI_SRAM_D0	I/O	VIO_5	Data bit 0 for FlexSPI SRAM
	GPIO[39]	A2	FlexSPI_SRAM_D1	I/O	VIO_5	Data bit 1 for FlexSPI SRAM interface
	GPIO[40]	A1	FlexSPI_SRAM_D2	I/O	VIO_5	Data bit 2 for FlexSPI SRAM interface
	GPIO[41]	B1	FlexSPI_SRAM_D3	I/O	VIO_5	Data bit 3 for FlexSPI SRAM interface
Wifi&Bluetooth	Integrated					
JTAG & SWD (GPIO6~4) Multiplex	GPIO[6]	L5	JTAG_TCK	I	VIO_1	JTAG test clock input signal/Flexcomm 1 USART clear-to-send
	GPIO[7]	L9	JTAG_TMS	I	VIO_1	JTAG test mode select input signal/Flexcomm 1 USART clock
	GPIO[8]	M6	JTAG_TDI	I	VIO_1	JTAG test data input signal/Flexcomm 1 USART transmitter
	GPIO[9]	M4	JTAG_TDO	O	VIO_1	JTAG test data output signal/Flexcomm 1 USART receiver
	GPIO[10]	M3	JTAG_TRSTN	I	VIO_1	JTAG test reset signal/Flexcomm1 USART request-to-send
	GPIO[13]	G5	SWCLK	I/O	VIO_1	FC2_RXD_SDA_MOSI_DATA_SPI : SPI controller out/target in (Flexcomm 2)
	GPIO[14]	K4	SWDIO	I/O	VIO_1	FC2_TXD_SCL_MISO_WS_SPI: SPI controller in/ target out (Flexcomm 2)
SPI/I2C/I2S/UART On CoreBoard Flexcomm 0	GPIO[0]	M1	SPI0_CS	I/O	VIO_1	FC0_CTS_SDA_SSELN0_SPI: SPI chip select (Flexcomm 0)
	GPIO[1]	N2	SPI0_RST_SC2	I/O	VIO_1	GPIO mode: General purpose I/O 1
				I		CT_INP1: pin input 1 to CTIMER
				O		CT0_MAT1: CTIMER 0 match output 1

	GPIO[2]	F10	SPI0 Data In	I/O	VIO_6	FC0_RXD_SDA_MOSI_DATA_SPI : SPI controller out/target in (Flexcomm 0)
	GPIO[3]	C13	SPI0 Data Out	I/O	VIO_6	FC0_TXD_SCL_MISO_WS_SPI: SPI controller in/ target out (Flexcomm 0)
	GPIO[4]	F8	SPI0 Clk	I/O	VIO_6	FC0_SCK_SPI: SPI clock (Flexcomm 0)
	GPIO[5]	L7	SPI0 CS3	I/O I/O O	VIO_1	GPIO mode: General purpose I/O 5
On board SPI-UART*4 Flexcomm 1 Multiplex	GPIO[6]	L5	SPI_CS	I	VIO_1	FC1_CTS_SDA_SSELN0_SPI: SPI chip select(Flexcomm 1)
	GPIO[7]	L9	SPI_CLK	I	VIO_1	FC1_SCK_SPI: SPI clock(Flexcomm 1)
	GPIO[8]	M6	SPI_DIN	I	VIO_1	FC1_TXD_SCL_MISO_WS_SPI: SPI controller in/target out(Flexcomm 1)
	GPIO[9]	M4	SPI_DO	O	VIO_1	FC1_RXD_SDA_MOSI_DATA_SPI : SPI controller out/target in(Flexcomm 1)
	GPIO[10]	M3	SPI_RST	I	VIO_1	SPI RESET
	GPIO[11]	M2	Chip_INT	I/O O	VIO_1	GPIO mode: General purpose I/O 11 SCT0_OUT8: SCTimer 0/PWM output 8
SPI/I2C/I2S/UART/AIO*5 TO IO BOARD (2*12P) Flexcomm 2	GPIO[13]	G5	SPI2-MOSI	I/O	VIO_1	FC2_RXD_SDA_MOSI_DATA_SPI : SPI controller out/target in (Flexcomm 2)
	GPIO[14]	K4	SPI2-MISO	I/O	VIO_1	FC2_TXD_SCL_MISO_WS_SPI: SPI controller in/ target out (Flexcomm 2)
	GPIO[15]	H3	SPI2-CLK	I/O	VIO_1	FC2_SCK_SPI: SPI clock (Flexcomm 2)
	GPIO[16]	J3	SPI2-CS	I/O	VIO_1	FC2_CTS_SDA_SSELN0_SPI: SPI chip select (Flexcomm 2)
	GPIO[17]	H2	SPI2_RST_CS2	I/O	VIO_1	GPIO mode: General purpose I/O 17 / UTICK_CAP2: Micro-tick timer capture input 2
	GPIO[18]	K3	GPIO[18]	I/O O	VIO_2	GPIO mode: General purpose I/O 18 GPIO_INT_BMAT: Output of the interrupt pattern match engine
	GPIO[19]	L3	16	D7	VIO_2	FC3_RTS_SCL_SSELN1_I2C_COPY: (I2C_SCL) Flexcomm 3 backup-I2C clock
	GPIO[20]	K2	17	C7	VIO_2	FC3_CTS_SDA_SSELN0_I2C_COPY: (I2C_SDA) Flexcomm 3 backup-I2C data in/out
	GPIO[21]	H4	GPIO[21]	I/O O I	VIO_2	GPIO mode: General purpose I/O 21 CT1_MAT1: CTIMER 1 match output 1 CT_INP5: Pin input 5 to CTIMER

	GPIO[5 6]	L3	I2C_CLK	I/O	VIO_6	FC14_TXD_SCL_MISO_WS_I2C: Flexcomm 14 I2C clock
	GPIO[5 7]	K2	I2C_DATA	I/O	VIO_6	FC14_RXD_SDA_MOSI_DATA_I2C: Flexcomm14 I2C data in/out
	GPIO[4 3]	H12	GPIO/DAC/ADC	A,I	VIO_6	ADC0_1: ADC0 channel 1
				A,I		ACOMP1: ACOMP channel 1
				A,O		DAC_B: DAC channel B
	GPIO[4 4]	J11	GPIO/DAC/ADC	A,O	VIO_6	DAC_A: DAC channel A
				A,I		ADC0_2: ADC0 channel 2
				A,I		ACOMP2: ACOMP channel 2
	GPIO[4 5]	H10	GPIO/ADC/Vref of DAC	A,I	VIO_6	ADC0_3: ADC0 channel 3
						ACOMP3: ACOMP channel 3
I2C/UART Flexcomm 14	GPIO[5 6]	L3	I2C_CLK	I/O	VIO_6	FC14_TXD_SCL_MISO_WS_I2C: Flexcomm 14 I2C clock
	GPIO[5 7]	K2	I2C_DATA	I/O	VIO_6	FC14_RXD_SDA_MOSI_DATA_I2C: Flexcomm14 I2C data in/out
LTE IF Flexcomm 3	GPIO[2 4]	A14	UART_RX	I	VIO_3	FC3_RXD_SDA_MOSI_DATA_USART: Flexcomm 3 USART receiver
	GPIO[2 6]	B13	UART_TX	O	VIO_3	FC3_TXD_SCL_MISO_WS_USART: Flexcomm 3 USART transmitter
	GPIO[2 5]	E7	GPIO[25]	I/O	VIO_3	GPIO mode: General purpose I/O 25
				O		CT1_MAT3: 32-bit CTIMER 1 match output 3
	GPIO[2 7]	C5	GPIO[27]	I/O	VIO_3	GPIO mode: General purpose I/O 27
				O		SCT0_OUT5: SCTimer 0/PWM output 5
USB Interface	/	D8	USB_DP	A, I/O	AVDD33_USB	USB bus data+
	/	C7	USB_DM	A, I/O	AVDD33_USB	USB bus data-
	/	B7	USB_ID	A, I	AVDD33_USB	USB OTG ID pin
ADC*8		G13	BATTERY ADC	A,I	VIO_6	ADC0_0: ADC0 channel 0

	GPIO[4 2]			A,I		ACOMP0: ACOMP channel 0
	GPIO[4 3]	H12	AIO1_0~20mA/0~3 0V	A,I	VIO_6	GPIO mode: General purpose I/O 43
				A,I		ADC0_1: ADC0 channel 1
				A,I		ACOMP1: ACOMP channel 1
				A,O		DAC_B: DAC channel B
	GPIO[4 4]	J11	AIO2_0~20mA/0~3 0V	A,O	VIO_6	GPIO mode: General purpose I/O 44
				A,I		ADC0_2: ADC0 channel 2
				A,I		DAC_A: DAC channel A
				A,I		ACOMP2: ACOMP channel 2
	GPIO[4 5]	H10	GPIO/ADC/Vref of DAC	A,I	VIO_6	GPIO mode: General purpose I/O 45
						EXT_VREF_ADC0_DAC: ADC0 or DAC
						ADC0_3: ADC0 channel 3
						ACOMP3: ACOMP channel 3
	GPIO[4 6]	F12	GPIO/ADC/ACOMP	A,I	VIO_6	ADC0_4: ADC0 channel 4
	GPIO[4 7]	E13	GPIO/ADC/ACOMP	A,I	VIO_6	ACOMP4: ACOMP channel 4
						ADC0_5: ADC0 channel 5
						ACOMP5: ACOMP channel 5
	GPIO[4 8]	D13	Grane_Bat_ADC	I/O	VIO_6	GPIO mode: General purpose I/O 48
				A,I		ADC0_6: ADC0 channel 6
				A,I		ADC1_6: ADC1 channel 6
				A,I		ACOMP6: ACOMP channel 6
	GPIO[4 9]	D14	DC_ADC	I/O	VIO_6	GPIO mode: General purpose I/O 49
				A,I		ADC0_7: ADC0 channel 7
				A,I		ADC1_7: ADC1 channel 7
				A,I		ACOMP7: ACOMP channel 7
GPIO	GPIO[5 0]	K12	12/24V Charger_ON	I/O	VIO_6	GPIO mode: General purpose I/O 50
	GPIO[2 5]	E7	GPIO[25]	I/O	VIO_3	GPIO mode: General purpose I/O 25
				O		CT1_MAT3: 32-bit CTIMER 1 match output 3
	GPIO[2 2]	B6	NC	I/O	VIO_3	Not used
	GPIO[2 3]	B5	NC	I/O	VIO_3	Not used
	GPIO[2 7]	C5	GPIO[27]	I/O	VIO_3	GPIO mode: General purpose I/O 27
				O		SCT0_OUT5: SCTimer 0/PWM output 5
				I		SCT0_PIN_INP5: Pin input 5 to SCTimer 0/ PWM
	GPIO[5 1]	M8	BOOST_ON	I/O	VIO_1	GPIO mode: General purpose I/O 51
				O		CT2_MAT3: CTIMER 2 match output 3
				I		CT_INP11: Pin input 11 to CTIMER

				O		ACOMP0_GPIO_OUT: Analog comparator 0 level output
	GPIO[5 2]	K8	Crane_CHG_ON	I/O	VIO_1	GPIO mode: General purpose I/O 52
				O		CT3_MAT0: CTIMER 3 match output 0
				I		CT_INP12: Pin input 12 to CTIMER
				O		ACOMP0_EDGE_PULSE: Analog comparator 0 edge pulse
	GPIO[5 3]	L11	BOOST_PWR_GO OD	I/O	VIO_1	GPIO mode: General purpose I/O 53
				I		CT_INP13: Pin input 13 to CTIMER
				O		ACOMP1_GPIO_OUT: Analog comparator 1 level output
	GPIO[5 4]	M10	CHG_STAT	I/O	VIO_1	GPIO mode: General purpose I/O 54
				O		ACOMP1_EDGE_PULSE: Analog comparator 1 edge pulse
				O		CT3_MAT2: CTIMER 3 match output 2
				I		CT_INP14: Pin input 14 to CTIMER
	GPIO[5 5]	K6	CHG_CURRENT 0.1/0.2A	I/O	VIO_1	GPIO mode: General purpose I/O 55
				O		SCT0_OUT9: SCTimer 0/PWM output 9
	GPIO[5 8]	G11	12_24_Batt_SW	I/O	VIO_6	GPIO mode: General purpose I/O 58
				A,I		ADC1_3: ADC1 channel 3
				A,I		EXT_VREF_ADC1: ADC1 external voltage reference input
Connector J10	GPIO[1 2]	N8	GPIO[12]	I/O	VIO_RF	GPIO mode: General purpose I/O 12
				O		CT0_MAT2: CTIMER 0 match output 2
				I		CT_INP2: Pin input 2 to CTIMER
	GPIO[5 9]	D12	GPIO[59]	I/O	VIO_6	GPIO mode: General purpose I/O 59
				A,I		ADC1_2: ADC1 channel 2
	GPIO[6 0]	E11	GPIO[60]	I/O	VIO_6	GPIO mode: General purpose I/O 60
				A,I		ADC1_1: ADC1 channel 1
	GPIO[6 1]	A13	GPIO[61]	I/O	VIO_6	GPIO mode: General purpose I/O 61
				A,I		ADC1_0: ADC1 channel 0
	GPIO[6 2]	B14	GPIO[62]	I/O	VIO_6	GPIO mode: General purpose I/O 62
	GPIO[6 3]	A15	GPIO[63]	I/O	VIO_6	GPIO mode: General purpose I/O 63

5. Electrical Characteristics

5.1 Absolute Maximum Ratings

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT	DC supply for the 3.3V input	-	3.3	3.96	V
VIO	1.8 V/3.3 V digital I/O power supply	-	1.8	2.16	V
			3.3	3.96	V

5.2 Recommended Operating Conditions

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT	DC supply for the 3.3V input	3.14	3.3	3.46	V
VIO	1.8 V/3.3 V digital I/O power supply	1.71	1.8	1.89	V
		3.14	3.3	3.46	V

5.3 Digital IO Pin DC Characteristics

5.3.1 VIO 1.8V Operation

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VIO	I/O pad supply voltage	1.71	1.8	1.89	V

V_{IH}	Input high voltage	$0.7 \cdot V_{IO}$	-	$V_{IO} + 0.4$	V
V_{IL}	Input low voltage	-0.4	-	$0.3 \cdot V_{IO}$	
V_{HYS}	Input Hysteresis	100	-	-	mV

5.3.2 VIO 3.3V Operation

Symbol	Parameter	Minimum	Typical	Maximum	Unit
V_{IO}	I/O pad supply voltage	3.14	3.3	3.46	V
V_{IH}	Input high voltage	$0.7 \cdot V_{IO}$	-	$V_{IO} + 0.4$	V
V_{IL}	Input low voltage	-0.4	-	$0.3 \cdot V_{IO}$	
V_{HYS}	Input Hysteresis	100	-	-	mV

FCC Compliance Statements

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.

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.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.