

# WISE-1520

## M2.COM Low Power Wi-Fi IoT Node

**NEW**



### Features

- ARM Cortex-M4 Processor
- RAM 256 KB memory / 1MB Serial Flash
- Built-in Low-power Wi-Fi Connectivity
- Supports 1 UART, 1 I2C , 1 SPI, 2 GPIO, 2 PWM, 2 ADC
- 22 x 30 mm M.2 key E

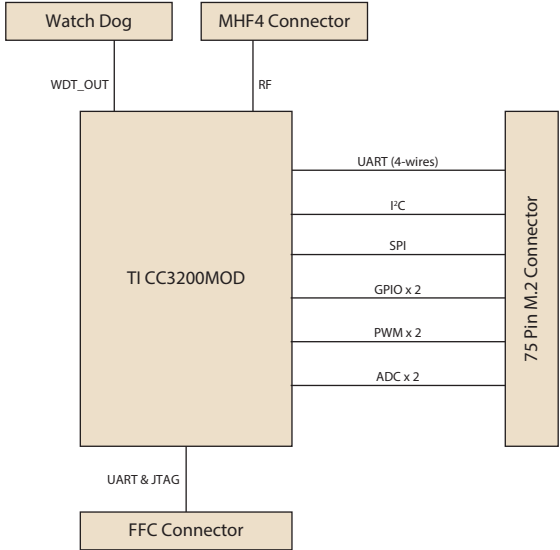
### Introduction

WISE-1520 series is a wireless IoT platform with ARM Cortex-M4 Processor and low power Wi-Fi connectivity. This technology is fully compatible with existing Wi-Fi infrastructure, while benefiting from low power consumption. It is convenient to build your IoT sensor products indoor or short distance environments. Advantech WISE-1520 supports all the necessary software stacks to build up IoT sensor devices. The ARM mbed or RTOS is the foundation of the embedded microprocessor operating system, which supports multiple IoT communication protocols including LWM2M, OSGI, AllJoyn and MQTT. Data can be quickly and easily acquired and transformed into a different format to communicate with WISE-PaaS or other cloud services. Developer can build their application backbone faster and focus on their applications and value-added services.

### Specifications

Processor System	CPU/MCU	TI ARM Cotec-M4 Processor
	RAM	256KB
	Flash	1MB
Form Factor		M.2 TYPE 2230-D3-E
Wireless Network	Standard	IEEE802.11 b/g/n
	Frequency Band	2.412~2.472 GHz
	Channels	World Wide 13 Channels 1-11 with active scan, Channels 12,13 with passive scan
	Topology	Star network
	Transmit Power	17 dBm at 1 DSSS 17.25 dBm at 11 CCK 13.5 dBm at 54 OFDM
	Receiver Sensitivity	-94.7 dBm at 1 DSSS -87 dBm at 11 CCK -73 dBm at 54 OFDM
	RF Data Rate	UDP:16Mbps TCP: 13Mbps
	Function	End node
	Antenna Connector	MHF4 connector
Ethernet		-
Cellular		-
GPS		-
I/O Interface	UART	1 4-wire(TX/RX/CTS/RTS)
	CANbus	-
	I <sup>2</sup> C	1
	I <sup>2</sup> S	-
	GPIO	2
	PWM	2
	SPI	1
	ADC	2 (1 for VCC voltage detect)
	USB	-
Programing Port		-

**Block Diagram**



**Specifications Cont.**

Debug Port		1 develop and debug with WISE-ED20
Watchdog Timer		1 TPS3820 WDT, 900ms time-out
Indicator and Button	LED	-
	Button	-
	Serial Port	-
	Switch	-
	SD Socket	-
	USB Port	-
Expansion	SIM Socket	-
	Mini PCIe Socket	-
Power	Power Supply Voltage	3.3V
	Power Consumption	MCU active at UDP full load: ave. 203mA at 3.33V
		Transmit sensor per 30 secs: ave. 12mA at 3.33V
Environment	Operational Temperature	-20 ~ 70° C
	Operating Humidity	5% ~ 95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	22 x 30 mm
	Mounting	-
	Weight	3g
Operating System		TI RTOS/mbed OS (coming soon)
Certification		CE/FCC Class B

**Ordering Information**

Part No.	Description
WISE-1520ITB-TDA1E	WISE1520 M2.COM Wi-Fi module with TI-RTOS -20 ~ 70° C

**Optional Accessories**

Part No.	Description
WISE-DB1500-01A1E	M2.COM evaluation carrier board
1750000318	EMI Antenna 2DBI 2.4GHz SMA CONN
1750007965-01	Antenna Cable R/P SMA (M) to MHF4, 300mm

## WISE-1520 Module Pin-out

M2.COM		CC3200MOD		M2.COM	
1	GND	GND	3.3V	VCC	2
3	N.C.		3.3V	VCC	4
5	N.C.			N.C.	6
7	GND	GND		N.C.	8
9	N.C.			N.C.	10
11	N.C.			N.C.	12
13	N.C.			N.C.	14
15	N.C.		U2 PIN1	CB_RESET_OUT# (O)(0/3.3V)	16
17	N.C.		GND	GND	18
19	N.C.		GPIO11	CB_PWR_ON (O)(0/3.3V)	20
21	N.C.		GPIO1	UART0 TXD (O)(0/3.3V)	22
23	N.C.			Connector Key	
	Connector Key			Connector Key	
	Connector Key			Connector Key	
	Connector Key			Connector Key	
	Connector Key		GPIO2	UART0 RXD (I)(0/3.3V)	32
33	GND	GND	GPIO7	UART0 RTS (O)(0/3.3V)	34
35	N.C.		GPIO6	UART0 CTS (I)(0/3.3V)	36
37	N.C.		GPIO22	GPIO0 (I/O)(0/3.3V)	38
39	GND	GND	GPIO28	GPIO1 (I/O)(0/3.3V)	40
41	PWM0 (O)(0/3.3V) / GPIO8 (I/O)(0/3.3V)	GPIO9		N.C.	42
43	PWM1 (O)(0/3.3V) / GPIO9 (I/O)(0/3.3V)	GPIO10		N.C.	44
45	GND	GND		N.C.	46
47	ADC0 / GPIO10 (I/O)(0/1.4V)	GPIO5		N.C.	48
49	N.C.			N.C.	50
51	GND	GND		N.C.	52
53	N.C.			N.C.	54
55	N.C.		GPIO8	W_DISABLE# (I)(0/3.3V)	56
57	GND	GND	GPIO13	I2C_DATA (I/O)(0/3.3V)	58
59	ADC4 (for detect Vcc) / GPIO14 (I/O)(0/1.4V)	GPIO3	GPIO12	I2C_CLK (I)(0/3.3V)	60
61	N.C.		GPIO16	SPIO_MOSI (O)(0/3.3V)	62
63	GND	GND	GPIO30	SPIO_MISO (I)(0/3.3V)	64
65	N.C.		GPIO14	SPIO_CLK (O)(0/3.3V)	66
67	Backup# (I)(0/3.3V)	GPIO0	GPIO17	SPIO_CS0# (O)(0/3.3V)	68
69	GND	GND		N.C.	70
71	RESET_IN# (I)(0/3.3V)	U3 PIN4	3.3V	VCC	72
73	Wake# (I)(0/3.3V)	GPIO4	3.3V	VCC	74
75	GND	GND			

Please refer to the below link for more information on software API.

<http://ess-wiki.advantech.com.tw/view/MCU/WISE-1520>