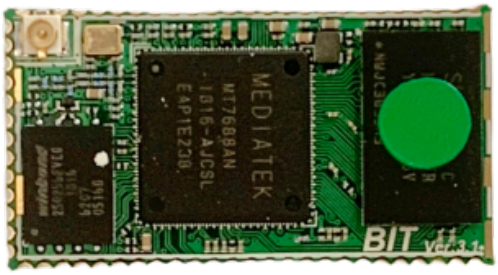
IoT WiFi Linux Computer Module

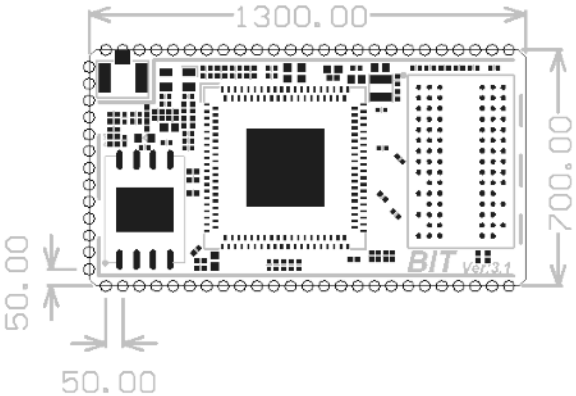
What the heck is an IoT computer? It is a Linux computer designed specifically for building connected hardware applications. It combines the tiny form factor and power-efficiency of the Arduino, with the power and flexibilities of the Raspberry Pi.

- Easy to use, even for people who are just getting started with building hardware and software.
- Expandable, and plugs into a variety of “dock” boards which support a family expansion to allow you to make cool projects.
- Affordable, allowing everyone to own one.



With it, we want to lower the barrier of entry, and allow everyone to take the leap into hardware development.

Size



1.3 inches * 0.7 inches, It is really very small.so that it can easily fit into your class project or company’s product.

Specifications

MODEL: BIT32CYI1,BIT16CYI1

Field：

[1-3]: Series。BIT： MT7688AN core module

[4-5]: FLASH size, 16:16MB, 32:32MB, 08:8MB

[6]: RAM size, A: 32MB, B: 64MB, C: 128MB, D: 256MB

[7]: connect type, Y: Stamps half hole, H: Pin

[8]: I: Wide temperature

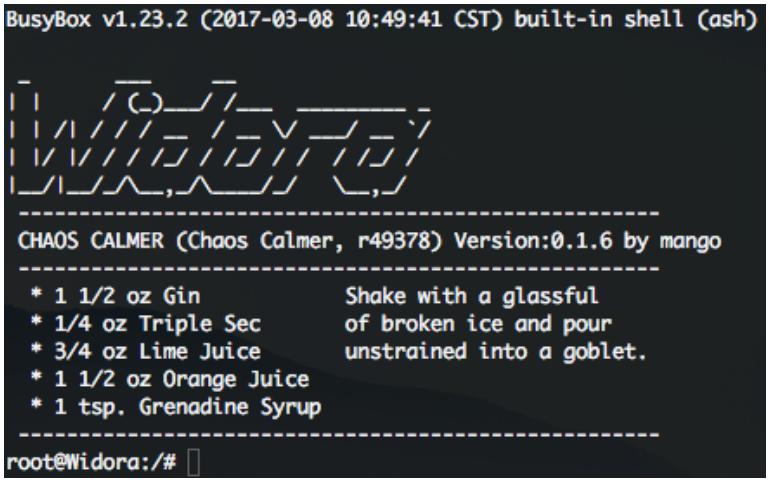
[9]: 1: V3.1

Interfaces

There is a wide range of digital inputs and output available on the BIT which will allow you to interface to the external world. USB provides you with a wired connection to your computer, power and peripheral devices like Webcams. I2C and SPI allow you to connect to industry standard devices like sensors and actuators. I2S connects to audio devices, Ethernet to wired legacy networks, and General Purpose (GPIO) pins are available for simple or custom designed interfaces.

interfaces	
WiFi	IEEE 802.11b/g/n
Ethernet	5 port 10M/100Mbps Adaptive
USB2.0	1
SDIO	1
SPI	1
I2C	1
I2S	1
UART	3
PWM	4
GPIO	8+

Full OpenWrt/Linux Support



Support many languages

An important benefit of running Linux is that the module can be programmed with whatever language you want. Save time by using languages and libraries you are already familiar with. such as:

- Shell
- C or C++
- JavaScript(node.js)
- Python
- golang

Other Features

Wi-Fi features	
Frequency	2.4GHz ISM Band, 802.11b/g/n, 1T1R, 150Mbps
RF power (11b)	13dBm ± 1dB
RF power (11g)	11dBm ± 1dB
RF power (11n n20)	11dBm ± 1dB
RF power (11n n40)	10dBm ± 1dB
Channel	1-11
Supported antenna models	
Model	HLK-TX-PCB-G
Name	2.4GHz Integral Antenna
Peak gain	4dBi
Admitted power	2W
Connector	IPEX
Power	
Voltage	3.3V±0.2V
Average current	170±50mA
Peak current	800mA
Conditions	
Operating temperature	-20°C to +55°C
Storage temperature	-20°C to +80°C

Pins

PIN	Function	Feature	Description
A1	I2S_SDI	I	I2S data in
A2	I2S_SDO	O	I2S data out
A3	I2S_WS	O	I2S channel, 0: left, 1: right
A4	I2S_CLK	O	I2S bit clock
A5	I2C_SCLK	O	I2C clock
A6	I2C_SD	I/O	I2C data
A7	VDD_FLASH	I	Independent power supply of FLASH
A8	SPI_CS1	O	SPI chip select 1
A9	SPI_CLK	O	SPI clock
A10	SPI_MISO	I	SPI data master in slave out
A11	SPI_MOSI	O	SPI data master out slave in
A12	SPI_CS0	O	SPI chip select 0
A13	GPIO_O	I/O	GPIO11
B1	UART_TXD0	O	Serial port0 data out
B2	UART_RXD0	I	Serial port0 data in
B3	RXI_P	A	network port0 receive positive
B4	RXI_N	A	network port0 receive negative
B5	TXO_P	A	network port0 send positive
B6	TXO_N	A	network port0 send negative
B7	GPIO14/TXO_P	I/O	GPIO14/network port1 send positive
B8	GPIO15/TXO_N	I/O	GPIO15/network port1 send negative
B9	GPIO16/RXI_P	I/O	GPIO16/network port1 receive positive
B10	GPIO17/RXI_N	I/O	GPIO17/network port1 receive negative
B11	PWM_CH0	O	PWM channel 0
B12	PWM_CH1	O	PWM channel 1
B13	TXD2/PWM2	O	Serial port2 data out/PWM channel 2

B14	RXD2/PWM3	I/O	串口2数据接收/PWM通道3
B15	SD_WP	I	write protect, 1: protect, 0: write
B16	SD_CD	I	insert detect, 1: not insert, 0: insert
B17	SD_D1	I/O	SDIO data 1
B18	SD_D0	I/O	SDIO data 0
B19	SD_CLK	O	SDIO clock
B20	SD_CMD	O	SDIO command
B21	SD_D3	I/O	SDIO data 3
B22	SD_D2	I/O	SDIO data 2
B23	GND	P	Power ground
B24	UD_P	I/O	USB data positive
B25	UD_N	I/O	USB data negative
C1	GND	P	Power ground
C2	RF	A	RF
C3	GND	P	Power ground
C4	GND	P	Power ground
C5	UART_RXD1	I	Serial port1 data in
C6	UART_TXD1	O	Serial port1 data out
C7	WLED_N	O	WIFI LED, low active
C8	LINK0	O	PORT0 LED, low active
C9	GPIO42/LINK1	I/O	GPIO42/PORT1 LED, low active
C10	GPIO41/LINK2	I/O	GPIO41/PORT2 LED, low active
C11	PCIE_CKP0	O	PCIE bus clock out positive
C12	PCIE_CKN0	O	PCIE bus clock out negative
C13	PCIE_RXN0	I	PCIE bus data receive negative
C14	PCIE_RXP0	I	PCIE bus data receive positive
C15	PCIE_TXP0	O	PCIE bus data send positive
C16	PCIE_TXN0	O	PCIE bus data send negative
C17	3.3VD	P	3.3V Power
C18	GND	P	Power ground
C19	GPIO40/LINK3	I/O	GPIO40/PORT3 LED, low active

C20	GPIO39/LINK4	I/O	GPIO39/PORT4 LED, low active
C21	CPURST_N	I	CPU rat in, low active
C22	WPS_RST_PBC	I	user button, WPS, low active
C23	REF_CLK	O	reference
C24	PERST_N	O	PCIE reset out
C25	GND	P	Power ground

Ordering Infomation

Model: BIT32CYI1 Description: FLASH: 32MBytes RAM: 128MBytes
Model: BIT16CYI1 Description: FLASH: 16MBytes RAM: 128MBytes

FCC Statement
FCC standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247
Integral antenna with antenna gain 4.0dBi
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.
Any Changes or modifications not expressly approved by the party responsible for compliance 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.
We will retain control over the final installation of the modular such that compliance of the end product is assured. In such cases, an operating condition on the limit modular approval for the module must be only approved for use when installed in devices produced by a specific manufacturer. If any hardware modify or RF control software modify will be made by host manufacturer,C2PC or new certificate should be apply to get approval,if those change and modification made by host manufacturer not expressly approved by the party responsible for compliance ,then it is illegal.
FCC Radiation Exposure Statement
The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device.
This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.
If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: 2AULM-BIT32CYI Or Contains FCC ID: 2AULM-BIT32CYI ”
When the module is installed inside another device, the user manual of the host must contain below warning statements;
1. 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.
(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.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.
Any company of the host device which install this modular with limit modular approval should perform the test of radiated & conducted emission and spurious emission,etc. according to FCC part 15C : 15.247 and 15.209 & 15.207 ,15B Class B requirement, Only if the test result comply with FCC part 15C : 15.247 and 15.209 & 15.207 ,15B Class B requirement， then the host can be sold legally.

FCC Radiation Exposure Statement:

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 & your body.

OEM INTEGRATION INSTRUCTIONS:

This device is intended only for OEM integrators under the following conditions:

The module must be installed in the host equipment such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the internal on-board antenna that has been originally tested and certified with this module. External antennas are not supported. As long as these 3 conditions above are met, further transmitter test will not be required.

However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.). The end-product may need Verification testing, Declaration of Conformity testing, a Permissive Class II Change or new Certification. Please involve a FCC certification specialist in order to determine what will be exactly applicable for the end-product.

Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization. In such cases, please involve a FCC certification specialist in order to determine if a Permissive Class II Change or new Certification is required.

Upgrade Firmware:

The software provided for firmware upgrade will not be capable to affect any RF parameters as certified for the FCC for this module, in order to prevent compliance issues.

End product labeling:

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains 2AULM-BIT32CYI”.

Information that must be placed in the end user manual:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.