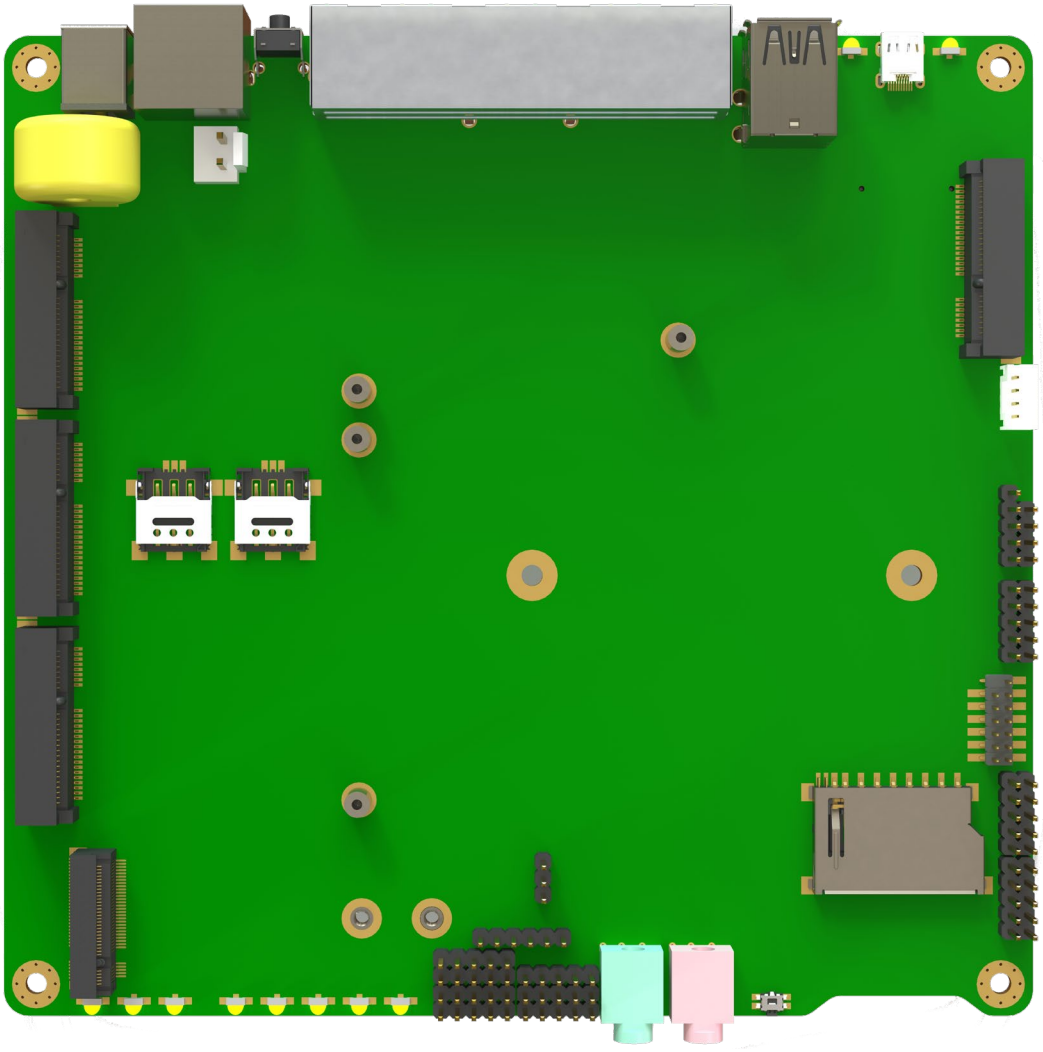
Boingfire

BFT4/8/L2 System Board

Hardware Manual



Version: 1.0

About this Document

This guide provides insights into the diverse features of this product and the necessary steps for setup. It's designed for individuals who are:

In charge of setting up, managing, and addressing issues with this system, like IT experts.

Presumed to possess proficiency in computer equipment servicing, including seasoned system integrators and technical staff.

Acknowledgment

Copyright and Trademarks

Technical Support

Besides reaching out to your distributor or sales agent, there are alternative avenues to seek support from Boingfire:

Email Us
support@boingfire.com

Compliances and Certification

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. To protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the

instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

Safety Guidelines

Adhere to these precautions for optimal safety:

- Ensure the chassis vicinity remains clean and devoid of dust during and post-installation.
- Avoid wearing garments or accessories that might entangle in the chassis. Secure ties or scarves and tuck in your sleeves.
- Employ protective eyewear if operating under conditions potentially harmful to your eyesight.
- Refrain from actions that pose risks to individuals or compromise the equipment's safety.
- Before installing, removing a chassis, or being near power sources, disconnect all electrical connections by switching off and unplugging the power cord.
- Avoid operating in potentially dangerous situations unaccompanied.
- Never presume a circuit is power-free; always conduct a thorough check.

Lithium Battery Caution

- Risk of Explosion if Battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- Installation only by a trained electrician or only by an electrically trained person who knows all English Installation and Device Specifications which are to be applied.
- Do not carry the handle of power supplies when moving to another place.
- The machine can only be used in a fixed location such as labs or computer facilities.

Operating Safety

- Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.

- Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is FW-8894 User Manual available, ground yourself by touching the metal part of the chassis.
- Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

Installation Precautions

Environmental:

- Do not install and/or operate this unit in any place that flammable objects are stored or used in.
- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Installation of the equipment (especially in a rack) should consider the ventilation of the system's intake (for taking chilled air) and exhaust (for emitting hot air) openings so that the amount of air flow required for safe operation of the equipment is not compromised.
- To avoid a hazardous load condition, be sure the mechanical loading is even when mounting.
- Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable earthing should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
- Boingfire Systems shall not be held liable for any losses resulting from insufficient strength for supporting the unit or use of inappropriate installation components.

Installation & Operation:

- The installation of this product must be performed by trained specialists; otherwise, a non-specialist might create the risk of the system's falling to the ground or other damages.
- Boingfire Systems shall not be held liable for any losses resulting from insufficient strength for supporting the system or use of inappropriate installation components.

CHAPTER 1: Introduction

1.1 PRODUCT OVERVIEW

Boingfire Systems BFT motherboards are precision-engineered for fanless network appliances such as routers, firewalls, VPN servers, IPBX units, and IoT gateways. Each board integrates advanced electronic, mechanical, and software optimization to deliver reliable, high-performance operation on leading open-source platforms including CentOS, OpenBSD, OPNsense, and FreeBSD.

Purpose-built for open-source enthusiasts, developers, and enterprise integrators, the BFT platform harnesses Intel's 10 nm process technology to achieve outstanding computing power with exceptional energy efficiency. Its optimized circuitry delivers up to 20% lower power consumption compared to similar products ideal for applications where performance and power savings must coexist.

A carefully designed thermal architecture ensures long-term stability even in compact or fully enclosed chassis, while versatile expansion interfaces enable flexible adaptation to varied networking and communication needs from home and SMB deployments to enterprise data centers and service providers.

To streamline product development and integration, Boingfire Systems provides STEP 3D design files for the BFT series, empowering OEM and integrator partners to accelerate customization and bring new products to market faster.

1.2 Specifications

Processor

- **Intel® Atom™ x5-E3940 (BFT8, BFT4):** Quad-Core, 1.6 GHz base, up to 1.8 GHz burst, 2 MB L2 cache, AES-NI Support
- **Intel® Celeron® J3455 (BFTL2):** Quad-Core, 1.5 GHz base, up to 2.3 GHz burst, 2 MB L2 cache
- BIOS: AMI, 64 Mbit, AES-NI Support

Memory

- Technology: Onboard DDR4
- Capacity Options: 4 GB (BFTL2, BFT4) / 8 GB (BFT8)

Display

- Interface: 1 × Micro-HDMI
- Maximum Resolution: Up to 4096 × 2160 @ 60 Hz

Ethernet

- Interfaces: Up to 4 × RJ45
- Controller: Intel® I226-V 2.5 Gigabit Ethernet

Watchdog Timer

- Output: System Reset
- Internal Watchdog: Programmable 1–255 s, 1–255 min, or Disable

Storage

- mSATA: 2 × Full-size mSATA Slots

Internal I/O

- Serial Ports: Up to 3 (2 × RS-232, 1 × TTL; transfer rate up to 1 Mbit/s)
- Micro-HDMI: 1
- USB Ports: 3 × USB 2.0, 1 × USB 3.0
- GPIO: 24-bit General-Purpose I/O
- I^2C: 1
- Reset Button: 1
- Power Button: 1 (Supports System Wake)

Expansion

- Mini PCIe Slots:
  - MINIPCIE1_WIFI – for Wi-Fi / 4G LTE
  - MINIPCIE2_WIFI – for Wi-Fi / 4G LTE
- M.2 Slot: M2_5G – for 4G / 5G (via USB 2.0 + USB 3.0)
- mSATA Slots:
  - MSATA1 – for mSATA
  - MSATA2 – for mSATA or 4G LTE

Power

- Input Voltage: 12 V ± 10% (DC)
- Typical Power Consumption (pfSense, Minimum System):
  - E3940: 0.6 A @ 12 V (7.2 W)
  - J3455: 0.7 A @ 12 V (8.4 W)
- Maximum Power Consumption (pfSense):
  - E3940: 1.0 A @ 12 V (12 W)
  - J3455: 1.1 A @ 12 V (13.2 W)
- Recommended PSU: 24 – 36 W

Environmental Conditions

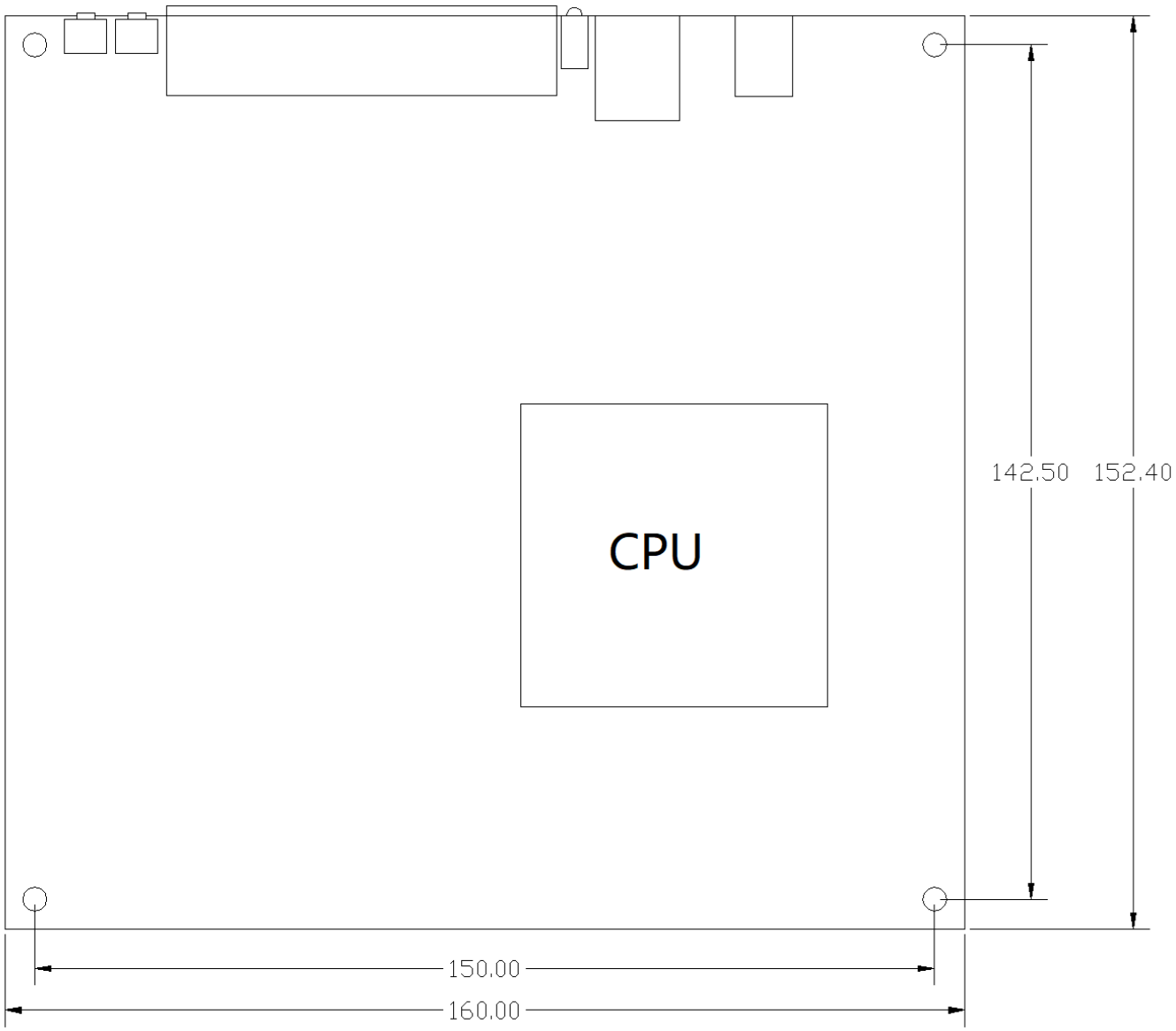
- Operating Temperature: 0 °C – 60 °C (32 °F – 140 °F)
- Operating Humidity: 40 °C @ 95% RH (non-condensing)
- Non-Operating Temperature: –40 °C – 85 °C
- Non-Operating Humidity: 60 °C @ 95% RH (non-condensing)

Physical Characteristics

- Dimensions (L × W): 160 × 152 mm (6.30 × 5.99 in)
- Total Height: 24 mm
- Weight: 0.2 kg (0.44 lb)

CHAPTER 2: CONNECTOR LAYOUT

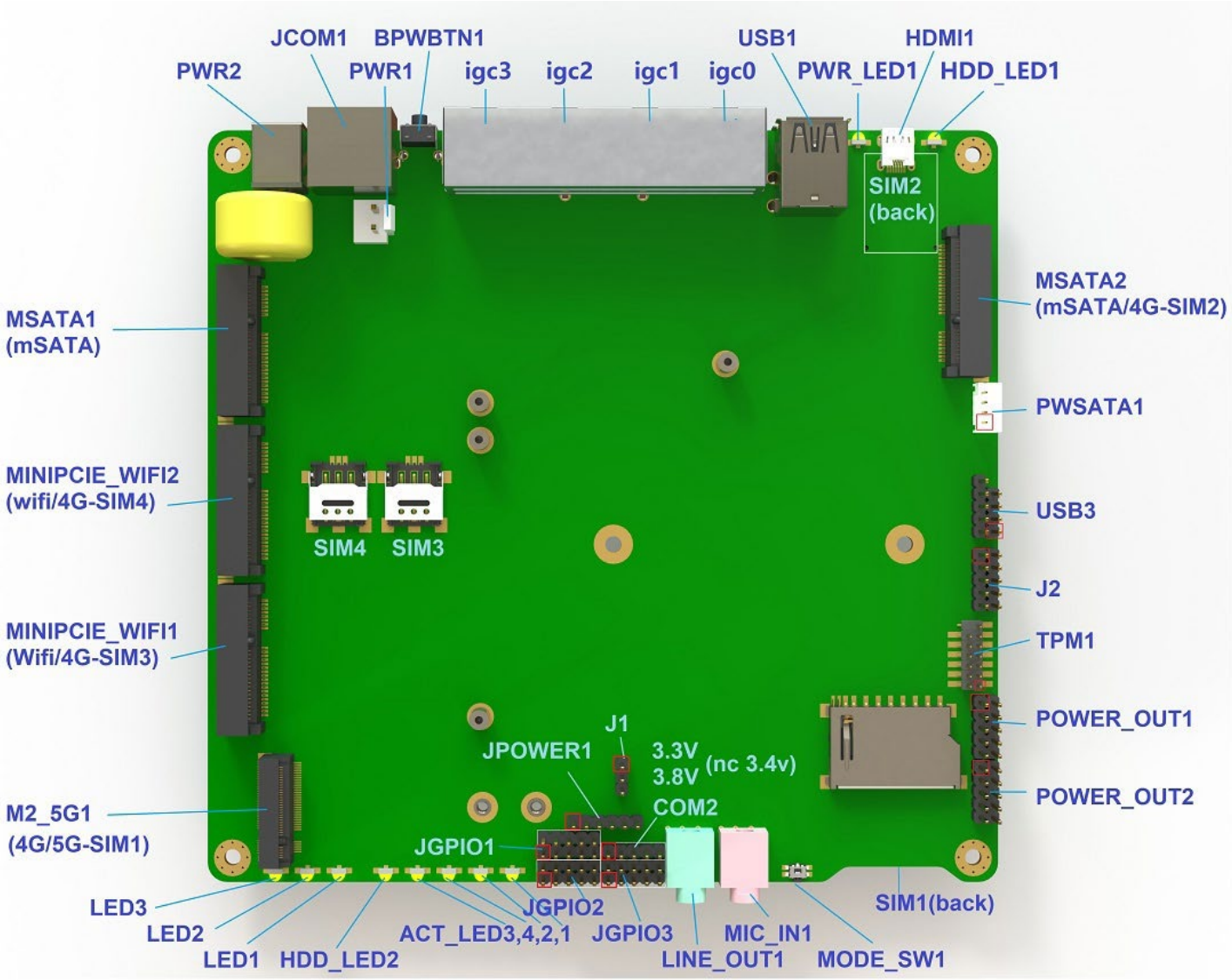
Dimension OF BFT System Board



2D and 3D images are available, contact your distributor/reseller for more information.

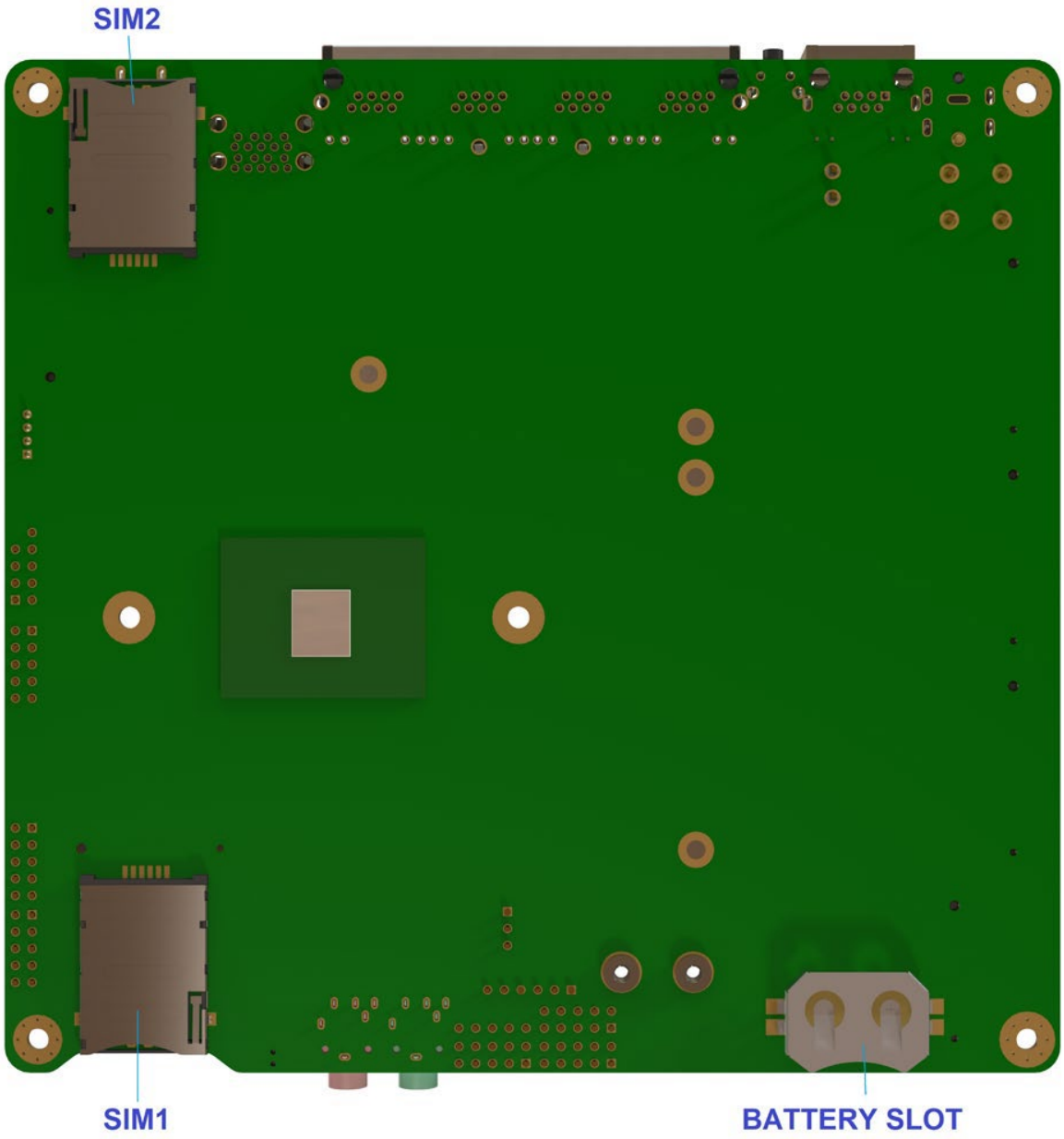
Some conditions apply.

BFT System Board Layout

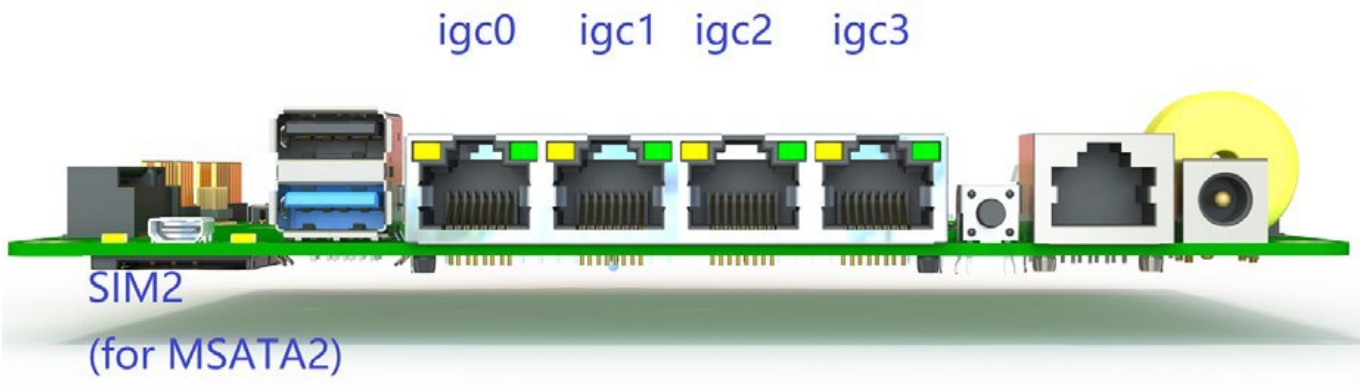


(Audio is only available in BFT8)

At the bottom of the board connector shown in the image below.

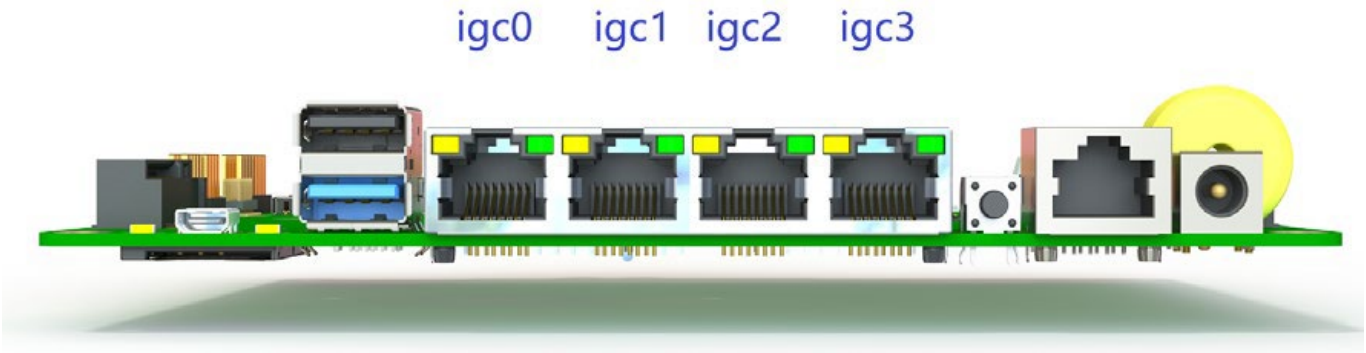


BFT I/O Port Layout



Connector List

igc0, igc1, igc2, igc3 (2.5 Gigabit RJ45 Ports)



Igc0~igc3 Definition

PIN	NAME	PIN	NAME
1	MDI_0+	2	MDI_0-
3	MDI_1+	4	MDI_2+
5	MDI_2-	5	MDI_1-
7	MDI_3+	8	MDI_3-

In FreeBSD, the hardware igc0~igc3 is igc0~3 of OS.

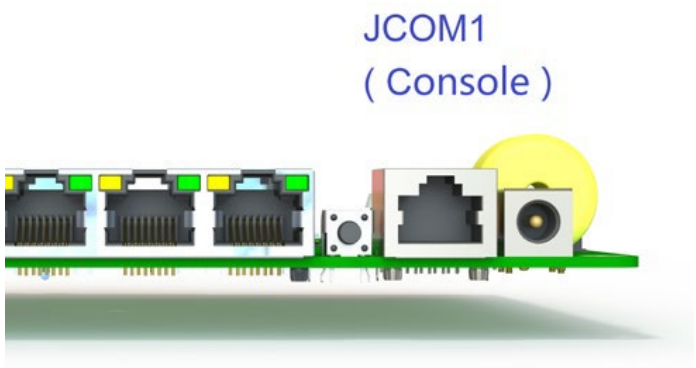
```
root@:~ # uname -a
FreeBSD 12.0-RELEASE FreeBSD 12.0-RELEASE r341666 GENERIC amd64
root@:~ # dmesg | grep address
igc0: Ethernet address: 1c:ae:3e:e6:39:1e    //igc0 The network port close to USB port
igc1: Ethernet address: 1c:ae:3e:e6:39:1f    //igc1
igc2: Ethernet address: 1c:ae:3e:e6:39:20    //igc2
igc3: Ethernet address: 1c:ae:3e:e6:39:21    //igc3 The network port close to console
```

Recommended IP setting (freeBSD)

```
root@:/ # vi /etc/rc.conf
clear_tmp_enable="YES"
sendmail_enable="NONE"
hostname=""
#ifconfig_igc0="DHCP"                                          // dhcp
ifconfig_igc0="inet 192.168.0.210 netmask 255.255.255.0"      // static IP of igb0
ifconfig_igc1="inet 192.168.1.210 netmask 255.255.255.0"
ifconfig_igc2="inet 192.168.2.210 netmask 255.255.255.0"
ifconfig_igc3="inet 192.168.3.210 netmask 255.255.255.0"
sshd_enable=#"YES"
# Set dumpdev to "AUTO" to enable crash dumps, "NO" to disable
dumpdev="AUTO"
sshd_enable=yes                                                // sshd
```

COM Port Information

COM1 Port Identification



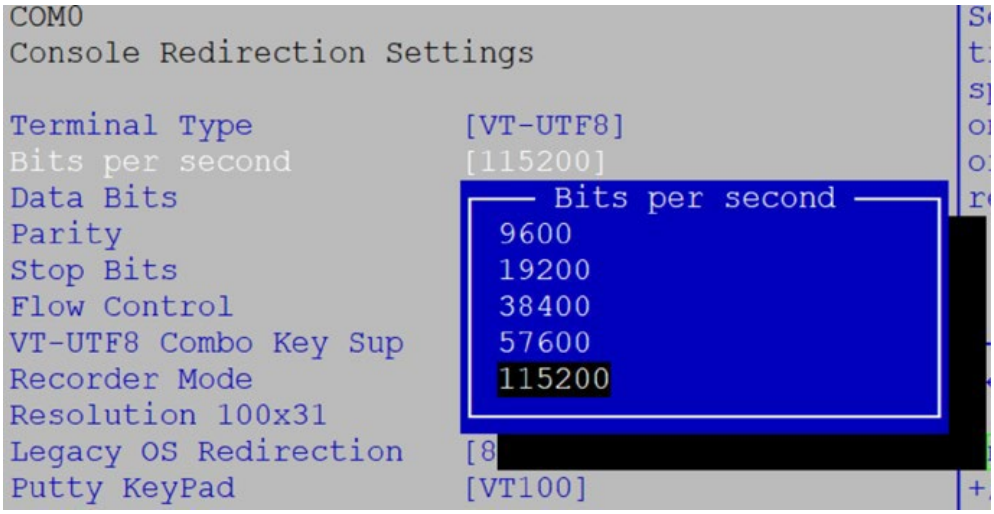
RJ45 console port. Support remote PC accessing.

PIN	NAME	PIN	NAME
1	RTS1	2	DTR1
3	TXD1	4	GND
5	GND	6	RXD1
7	DSR1	8	CTS1

Support typical baud rate from 9600bps ~ 115200bps (115200 default).

For the best user experience, it's recommended to use the RJ45 console cable by Boingfire **BFFTDICON**

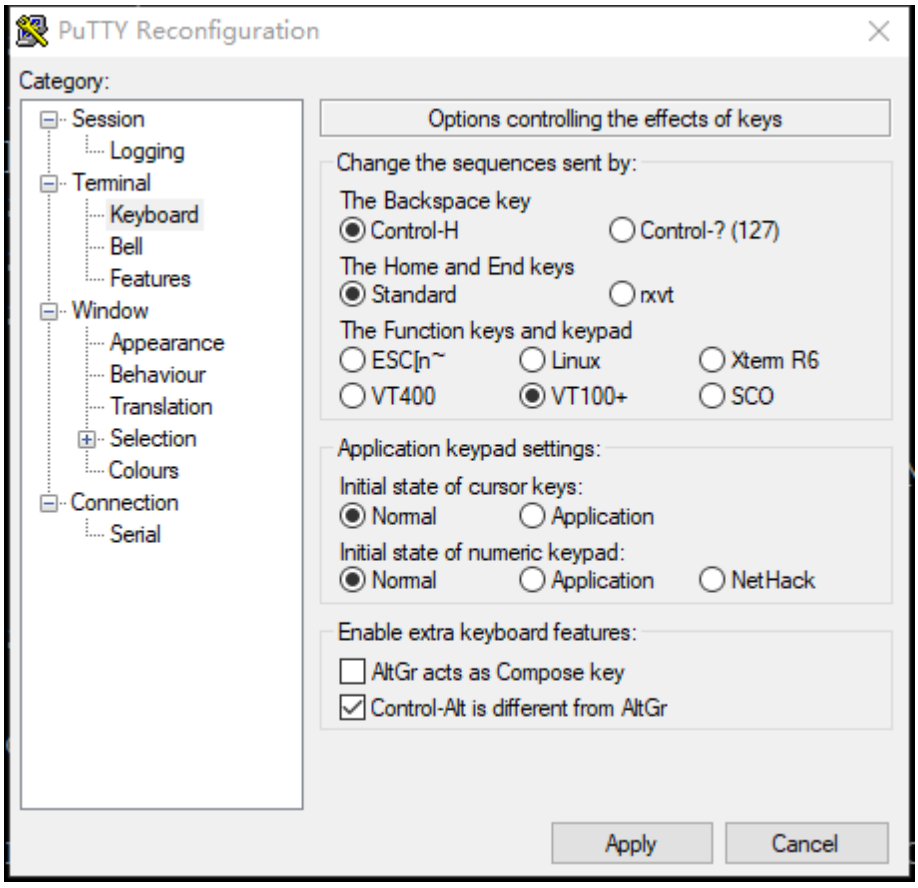
Baud rate setting in BIOS



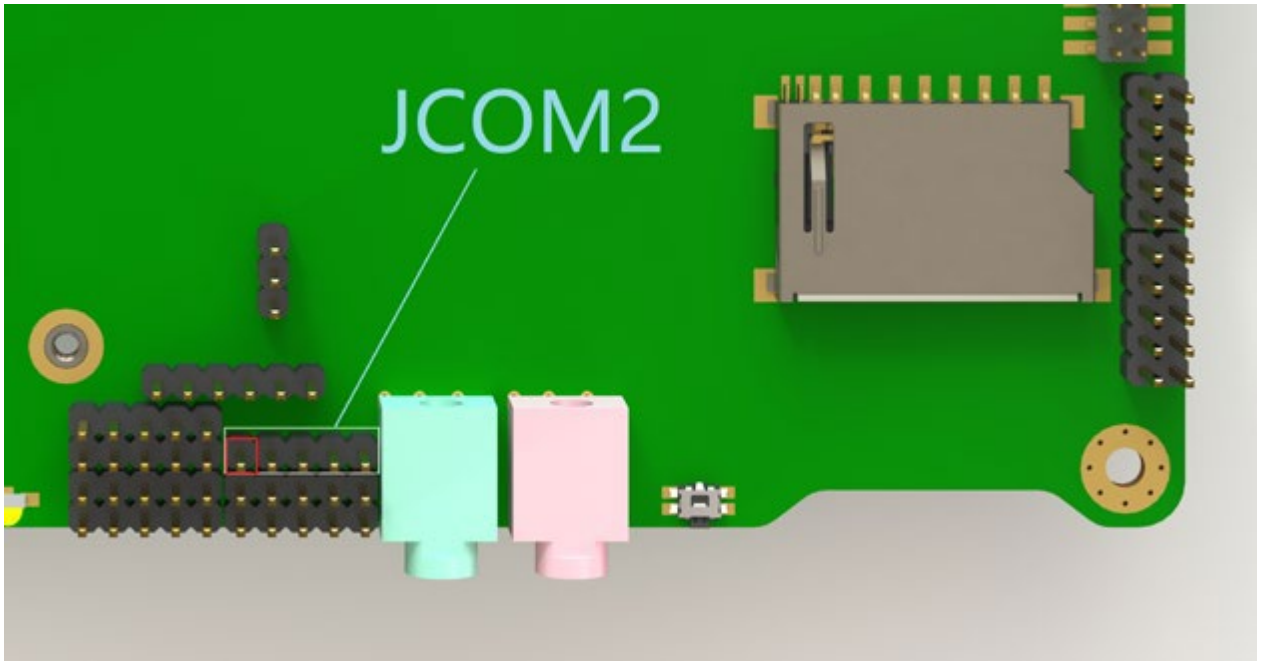
Baud rate setting in freeBSD

```
root@:/ # vi /boot/loader.conf
console="comconsole"                    //select serial portas console
comconsole_speed=115200                 // 115200 is recommended
autoboot_delay="0"                      // waiting time setting
```

Recommended settings on Putty (Remote MS Windows OS)

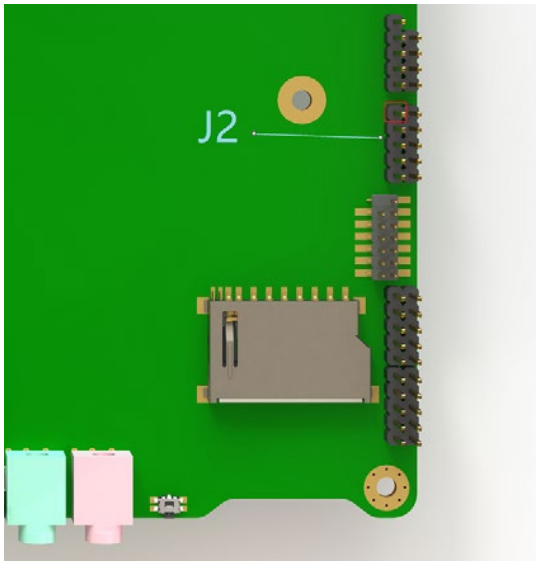


JCOM2(TTL Level)



PIN	NAME
1	VCC3 (3.3V)
2	COM2_TTL_TXD
3	COM2_TTL_RXD
4	GND
5	VCC (5V)

J2

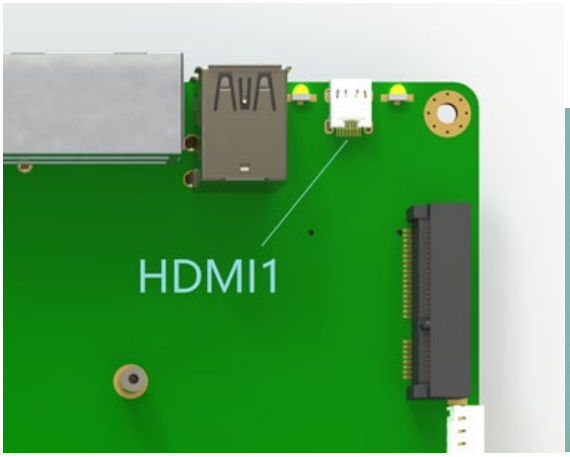


PIN	NAME	PIN	NAME
1	ATX_1	2	SOC_LPSS_RX
3	ATX_2	4	SOC_LPSS_TX
5	GND	6	GND
7	SPI_WP_N	8	SOC_I2C_SCL
9	GND	10	SOC_I2c_SDA

Shorting pin 1-3, AT mode (default), After the power is turned on, the system starts automatically. Opening pin 1-3, ATX mode, After the power is turned on, press the power button and the system will start.

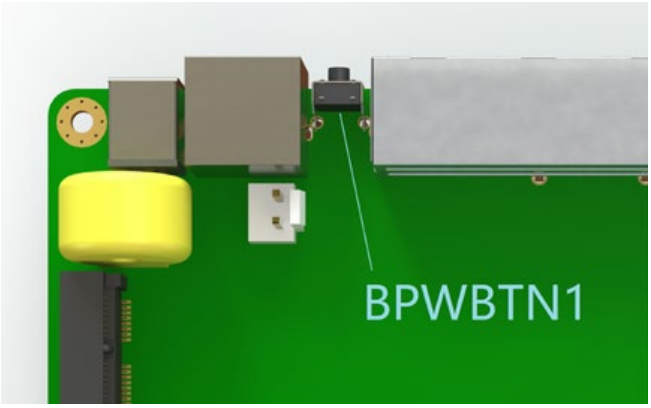
HDMI1

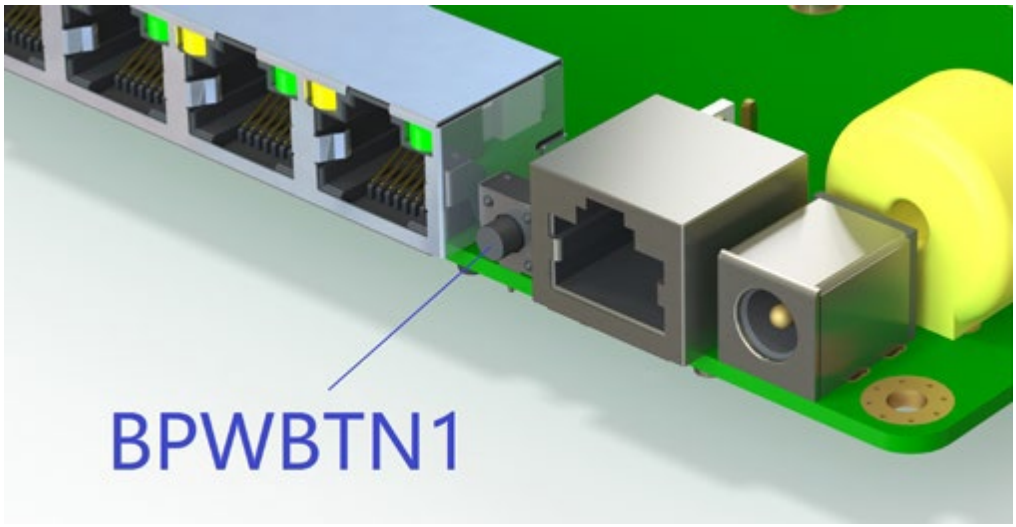
HDMI1 is micro-HDMI female connector. Please use a micro-HDMI male to HDMI female cable to connect monitor to BFT Board



PIN	NAME	PIN	NAME
1	2+	2	HDMI_SCL
3	2+	4	HDMI_SDA
5	1+	6	NC
7	1-	8	DETECT
9	0+	10	DVI_5V (OFF IN S4)
11	0-	12	GND
13	CLK+	14	GND
15	CLK-	16	GND

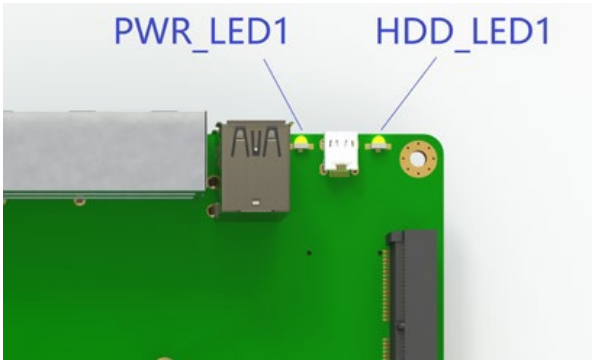
BPWBTN1

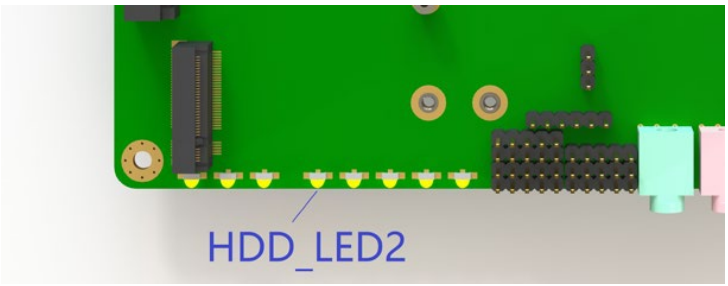




NAME	FUNCTION
BPWBTN1	Power Button

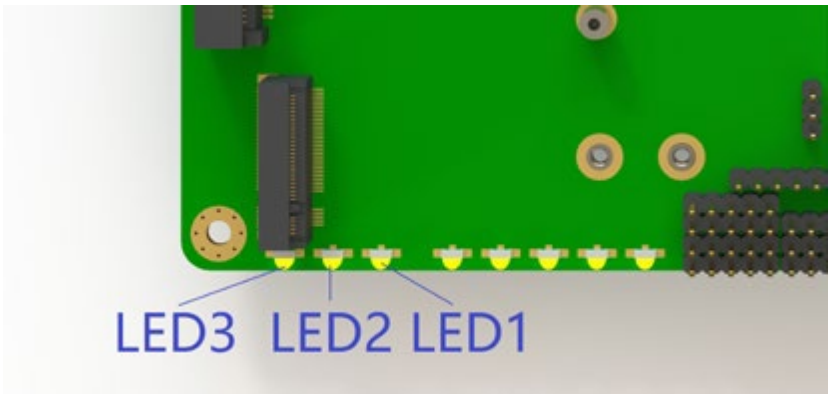
HDD_LED1, HDD_LED2, PWR_LED1





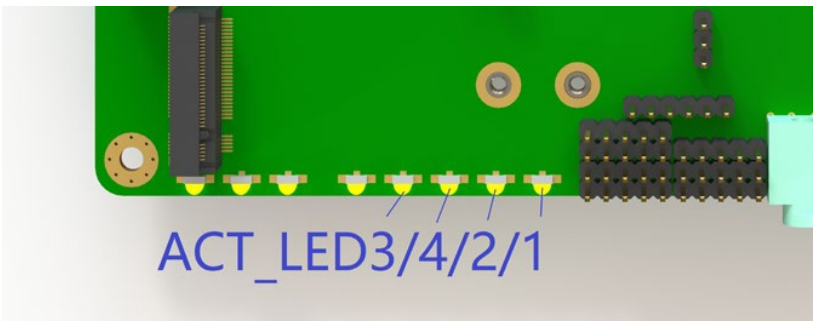
NAME	FUNCTION
HDD_LED1 HDD_LED2	HDD Activity light, blink when HDD in Reading/writing
PWR_LED1	Light off in Case system is in shutdown (S4)

LED1, LED2, LED3



NAME	FUNCTION
LED1	GPIO Pin. Wired out from GPIO3 of SOC (pin B39)
LED2	GPIO Pin. Wired out from GPIO2 of SOC (Pin C39)
LED3	GPIO Pin. Wired out from GPIO of SOC (Pin B33)

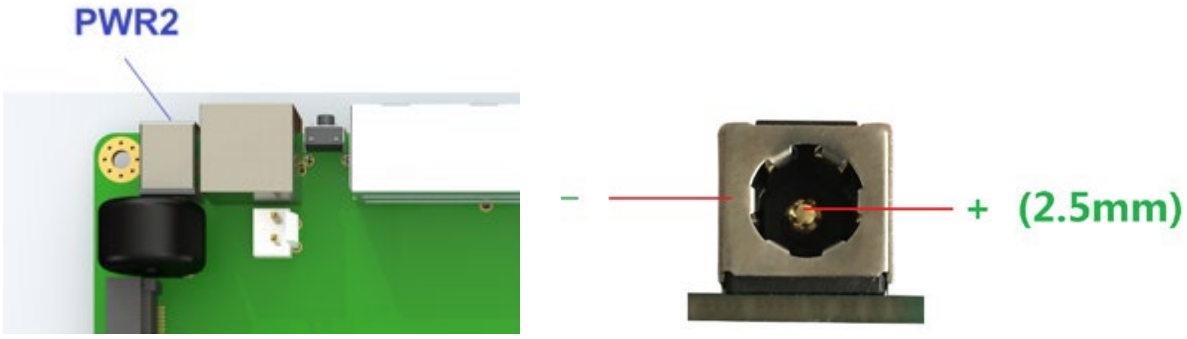
ACT_LED3, ACT_LED4, ACT_LED2, ACT_LED1



NAME	FUNCTION
ACT_LED3	Activity LED of igc3
ACT_LED4	Activity LED of igc2
ACT_LED2	Activity LED of igc1
ACT_LED1	Activity LED of igc0

PWR2

12V power in connector, 5.5mm/2.5mm.

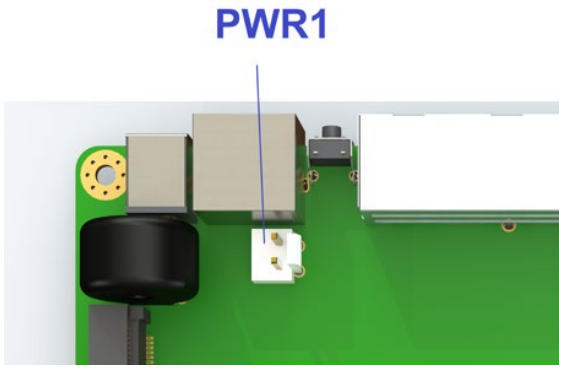


PIN	NAME
1	+12VSB (ALWAYS ON)
2	GND

PWR1

PWR1 and PWR2 are redundant power supply design. No need external redundant unit.

PWR1 is compatible with Boingfire UPS, POE, PSE cards



PIN	NAME
1	+12VSB (ALWAYS ON)
2	GND

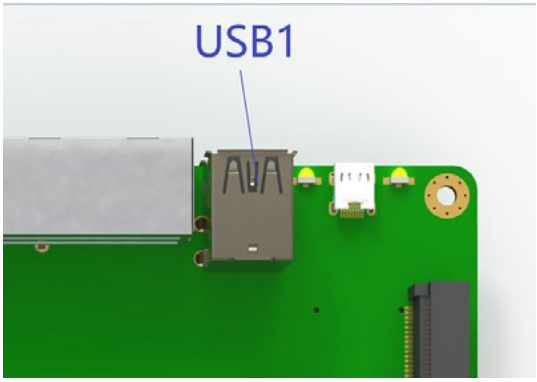
CAUTION:

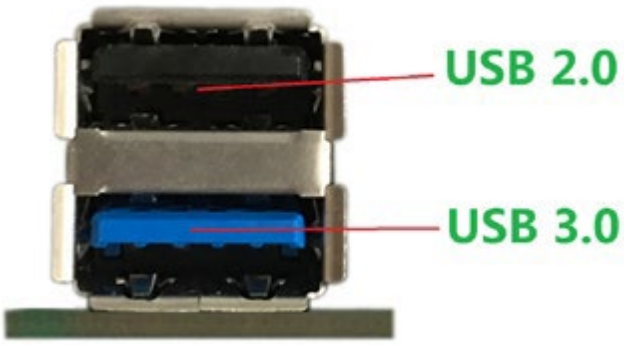
12V_S (OFF IN S4) and +12VSB (ALWAYS ON) are different power rail.

Must not wire +12VSB to 12V_S, Short them would damage the motherboard.

USB1

USB2.0 _ USB3.0 Connector

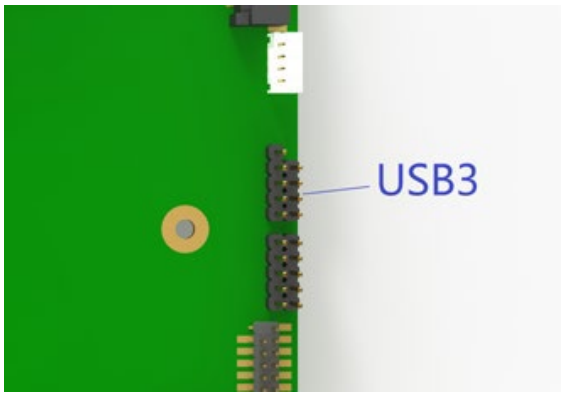




POSITION	USB SPEED
Upper Port	USB2.0
Lower Port	USB3.0

USB3

USB2.0 + USB3 Connector



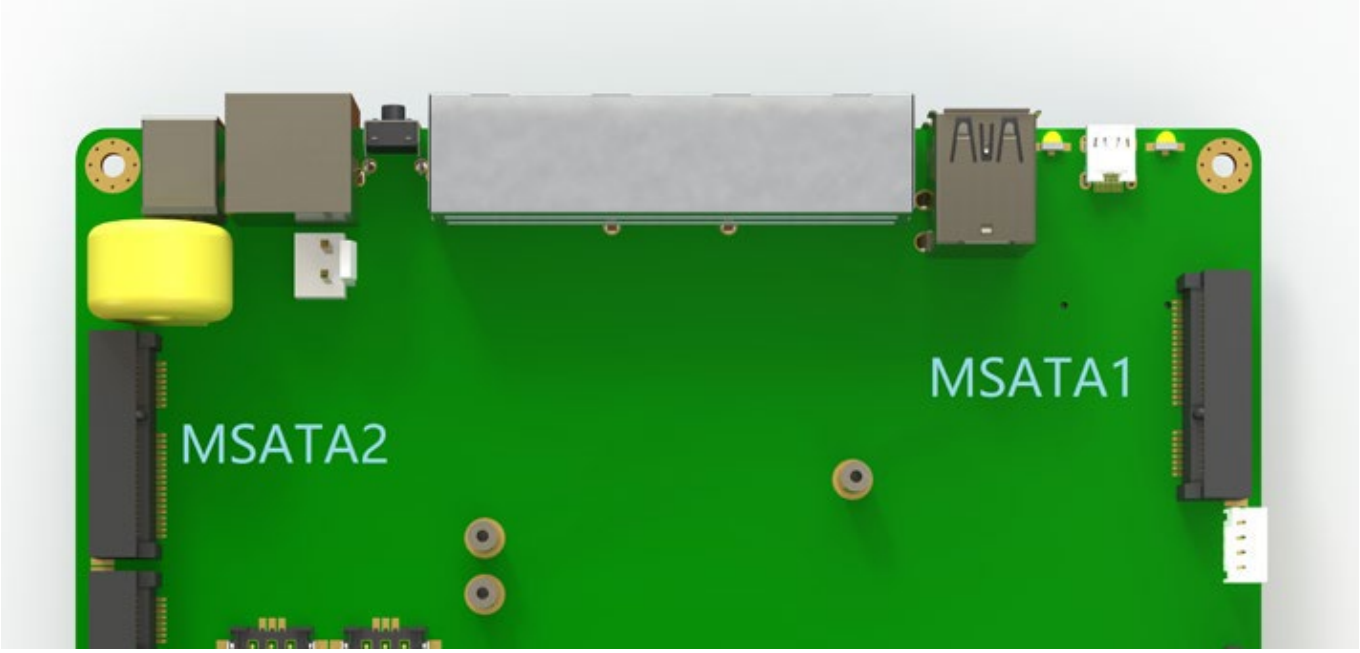
PIN	NAME	PIN	NAME
1	VCC	2	VCC
3	D0-	4	D1-
5	D0+	6	D1+
7	GND	8	GND
		10	GND

MSATA1 (mSATA/4G LTE) and MSATA2 (mSATA)

Support mSATA SSD. SATA 3.0, 6.0 Gb/s.

Based on dual MLC mSATA SSD, user can build soft RAID storage solution.

Significantly improve data and OS reliability.

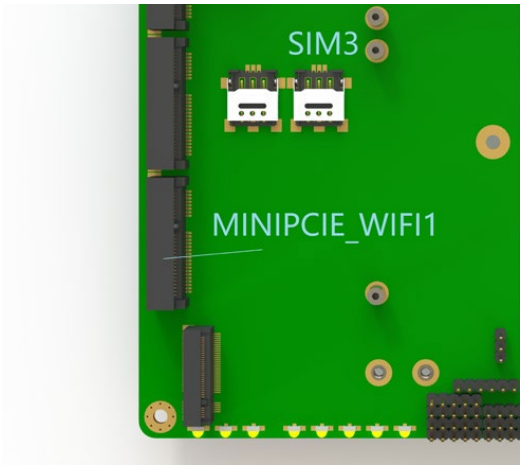


MINIPCIE_WIFI1 (Wifi/4G LTE/5G)

Support mPCIe 4G/LTE/5G module.

MINIPCIE_4G (4G/LTE/5G) is connected to SIM3 slot.

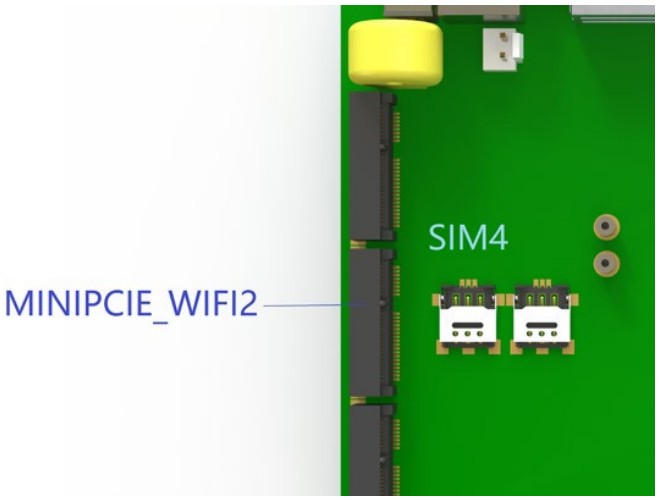
The port would be available as soon as pin header soldered.



MINIPCIE_WIFI2 (Wi-Fi/4G LTE/5G)

Support mPCIe 4G/LTE/5G module.

MINIPCIE_4G (4G/LTE/5G) is connected to SIM4 slot.

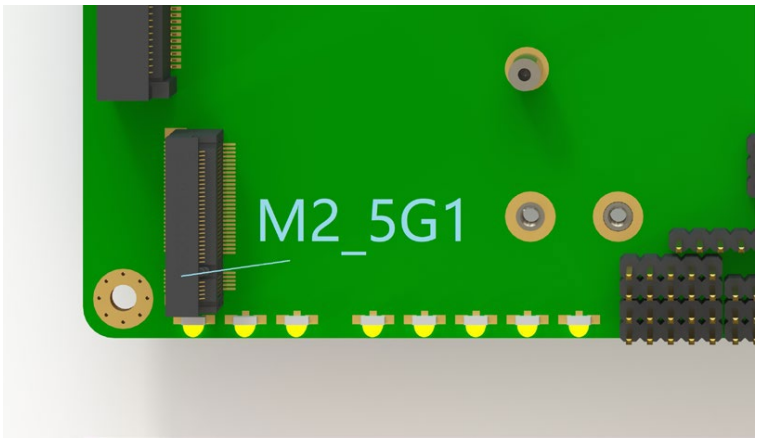


M2_5G1 (4G/5G)

Support M.2 B key 30x42 or 30x52mm 4G/5G module.

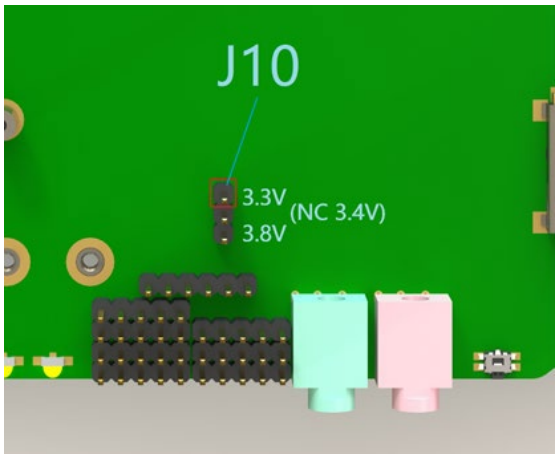
The M.2 slot integrated USB3.0 signal features with up to 5Gbps throughput for 5G cards.

M2_5G1(4G/5G) is connected to **SIM1 slot**(underside).



J10

The jumper is used for setting supply voltage of 4G/5G card in M2_5G1. If the 4G/5G card can accept maximum voltage of 4V, it is strongly recommended to set this jumper to 3.8V in a poor signal environment.

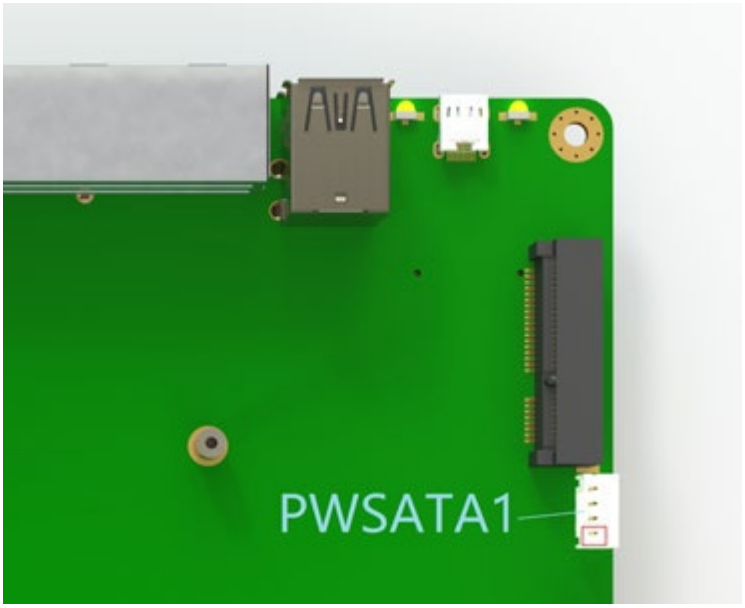


JUMPER SETTING	VOLTAGE OF M2_5G1
1-2 (Default)	3.3V
2-3	3.8V

PWSATA1

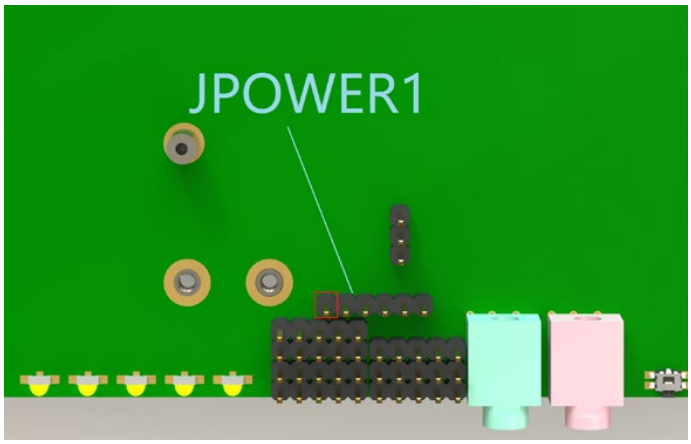
It’s power header for external cards.

1*4*2.0mm pitch header.



PIN	NAME
1	**VCC**
2	**GND**
3	**GND**
4	**12V_S**

JPOWER1

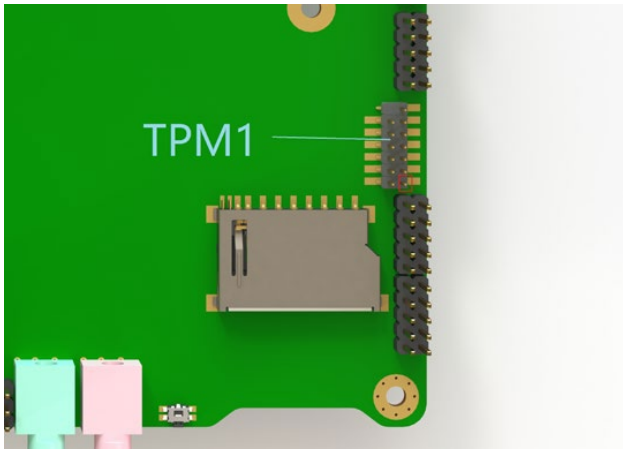


PIN	NAME
1	Power Button
2	GND
3	GND
4	RESET#
5	Watchdog_Trigger# Active-Low Level
6	GND

Shorting pin 4~5 means the watchdog could trigger a system reset after WDT timeout.

Users can refer to the marks on the bottom of the PCB to wire out the pin headers.

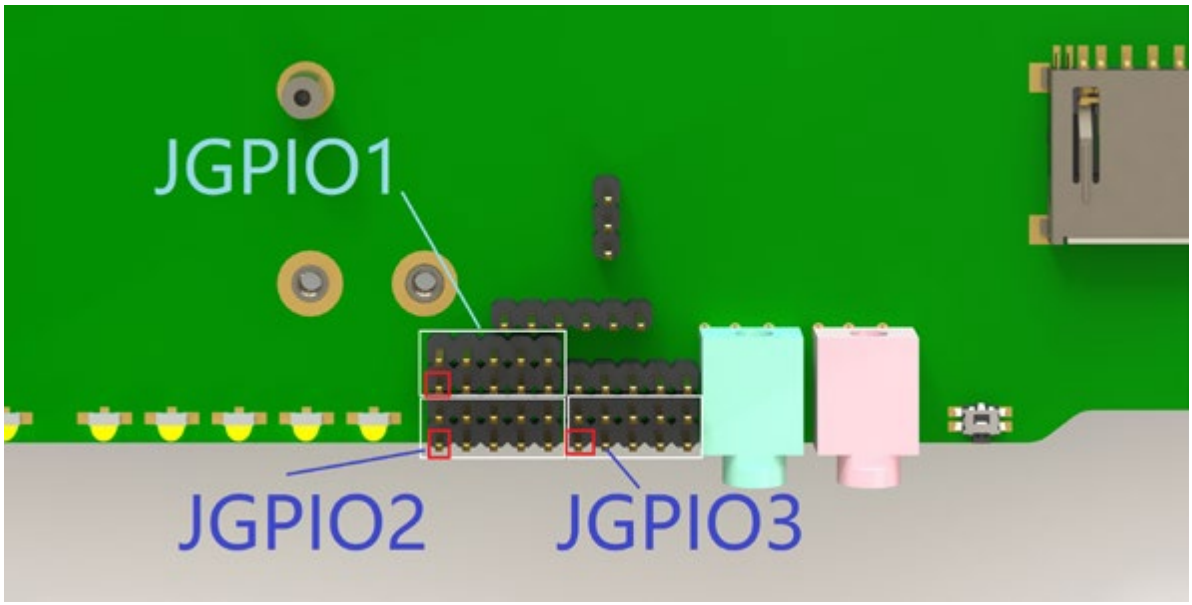
TPM1



PIN	NAME	PIN	NAME
1	SPI_POWER	2	SPI_IRQ#
3	RST#	4	SPI_CS#
5	NC	6	NC
7	NC	8	GND
9	NC	10	SPI_CLK
11	SPI_MISO	12	SPI_MOSI
13	NC	14	NO KEY

JGPIO1, JGPIO2, JGPIO3

BFT has three 10-pin Headers that support up to 24 channels 3.3V GPIO signals. They are controlled by SUPER IO IT8784E-I/EX.



JGPIO1 (SOC Source)

PIN	NAME	PIN	NAME
1	SIO_GP74	2	VCC3
3	SIO_GP75	4	SIO_GP70
5	SIO_GP76	6	SIO_GP71
7	SIO_GP77	8	SIO_GP72
9	GND	10	SIO_GP73

JGPIO2 (SOC Source)

PIN	NAME	PIN	NAME
1	SIO_GP87	2	VCC3
3	SIO_GP32	4	SIO_GP83
5	SIO_GP33	6	SIO_GP84
7	SIO_GP41	8	SIO_GP85
9	GND	10	SIO_GP86

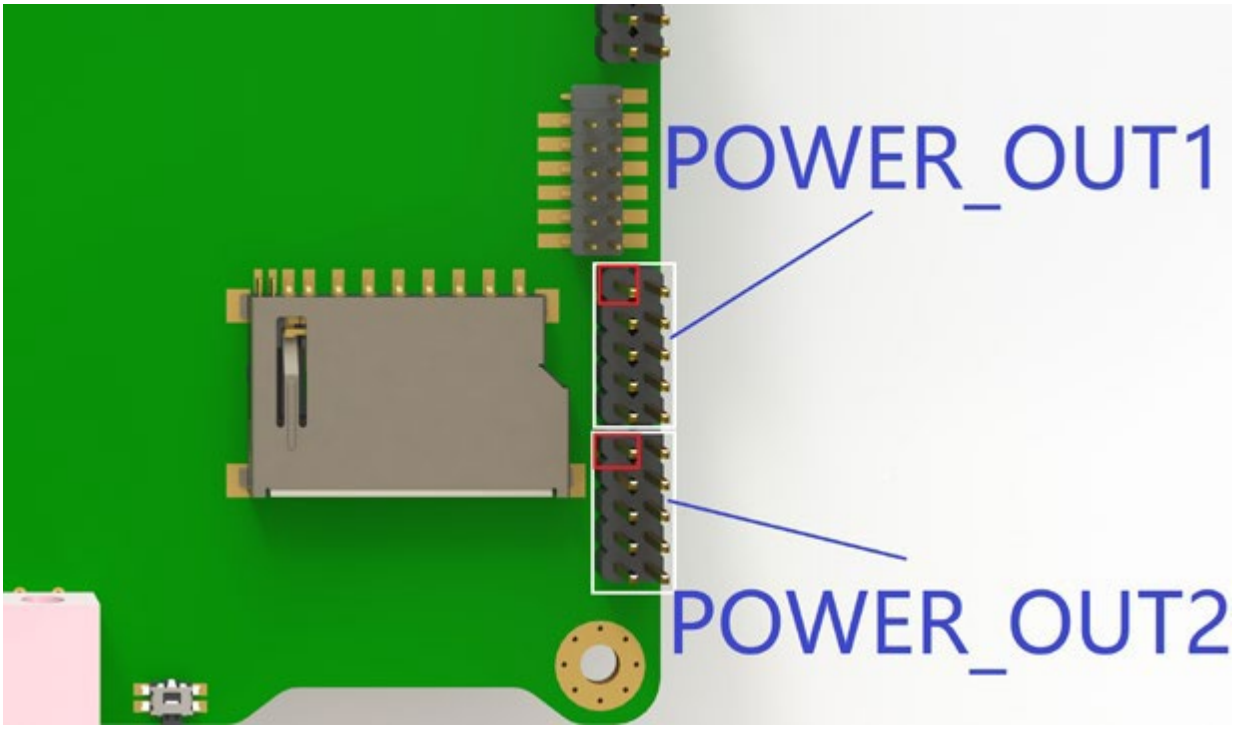
JGPIO3 (Super I/O Source)

PIN	NAME	PIN	NAME
1	SIO_GP50	2	3.3V
3	SIO_GP64	4	SIO_GP11
5	SIO_GP65	6	SIO_GP15
7	SIO_GP67	8	SIO_GP16
9	GND	10	SIO_GP47

In order to help developers carry out secondary development on BFT, Boingfire has released GPIO development tools, (purchase separately) 3 x 8 CH GPIO card, and FreeBSD, Linux, windows demo code.

Contact sales@boingfire.com for more info.

POWER_OUT1, POWER_OUT2



POWER_OUT1

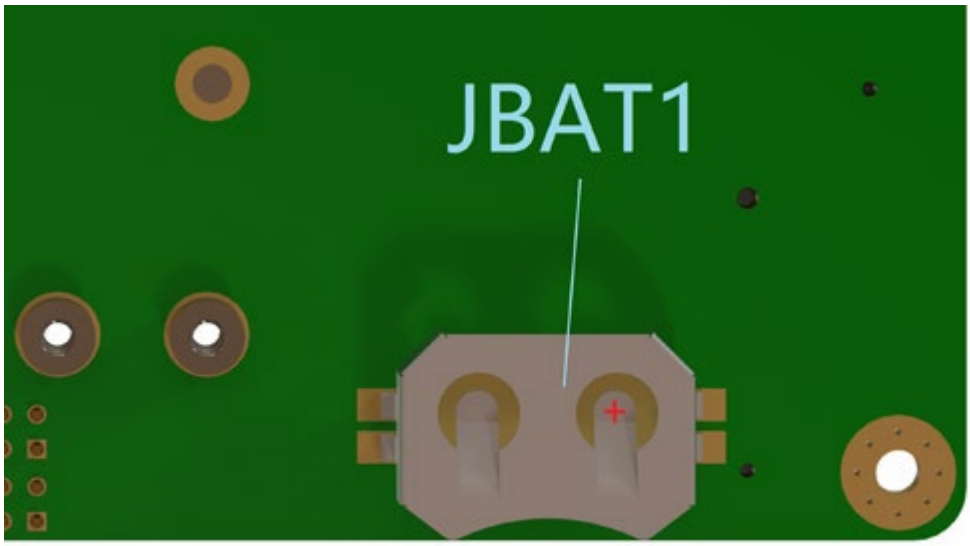
PIN	NAME	PIN	NAME
1	12V_S	2	GND
3	12V_S	4	GND
5	VCC	6	GND
7	VCC	8	GND
9	VCC	10	GND

POWER_OUT2

PIN	NAME	PIN	NAME
1	12V_S	2	GND
3	12V_S	4	GND
5	VCC3	6	GND
7	VCC3	8	GND
9	VCC3	10	GND

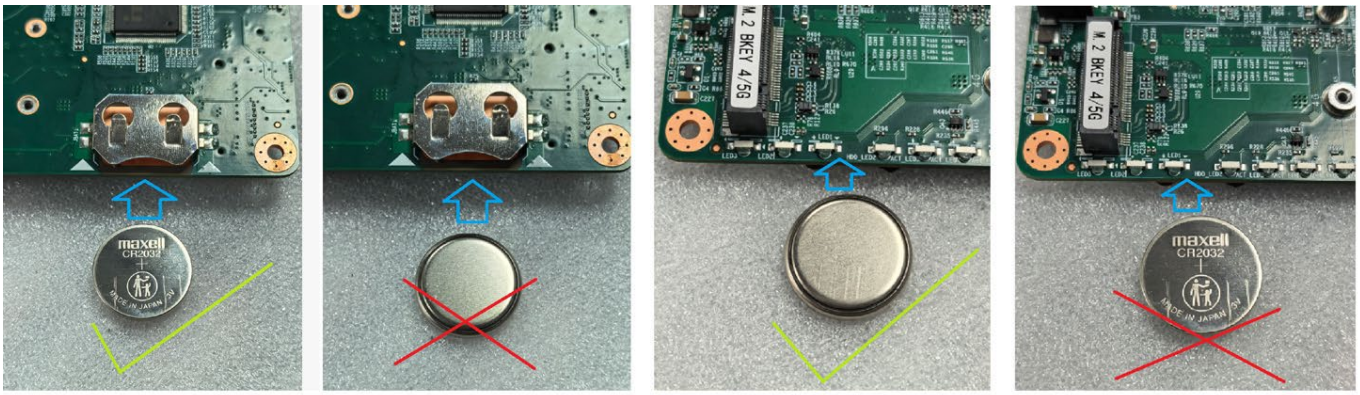
Some pin headers are not soldered by default. Developers & system integrators can use them flexibly as needed.

Battery Holder



PIN	NAME
Pin On PCB (copper)	Negative
Upper Pin (Silvery White)	Positive

When installing the button battery, pay attention to the direction of the battery.

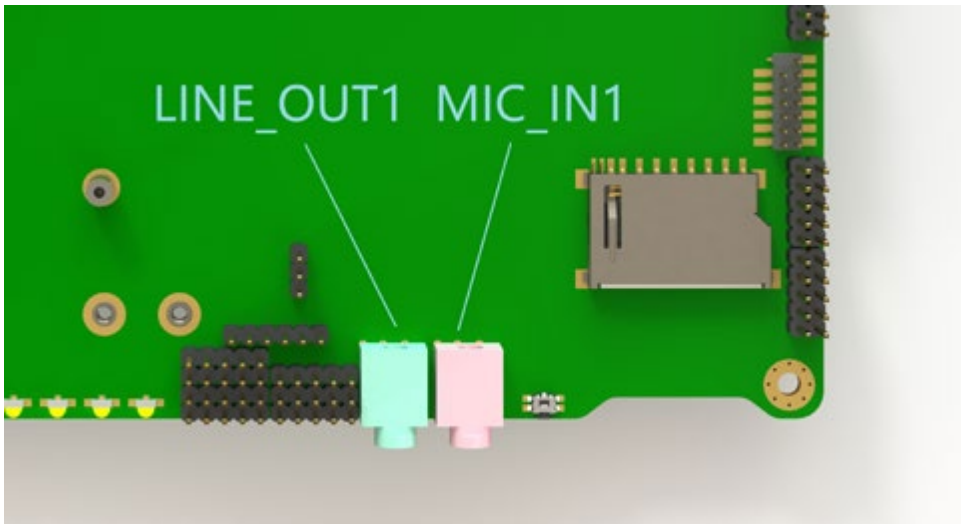


LINE_OUT1 (Only available in BFT8)

3.5mm AUDIO LINE output connector.

MIC_IN1 (only available in BFT8)

3.5mm AUDIO MIC input connector.



CHAPTER 3: BIOS Settings

BFN5 system board comes with 64bit AMI BIOS. You can access BIOS by pressing DEL button at the time of boot up.

In this section we will cover some basic tasks that will help you to start getting into your system for the configurations and OS installation as per your project requirements.

How to configure BFFTDICON Console Cable?

BFFTDICON cable is made up with the FTDI Chip. There are all the drivers available for all the OS that includes, Linux, MacOS, Windows XP to Windows 11 and Windows CE.

https://ftdichip.com/drivers/vcp-drivers/

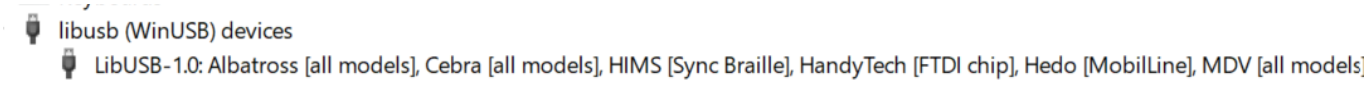
This link contains all the OS drivers, you can download based on your OS and access through Putty or any other terminal software to access system through Serial Port.

Installation documentation is available on their website as follows:

https://ftdichip.com/document/installation-guides/

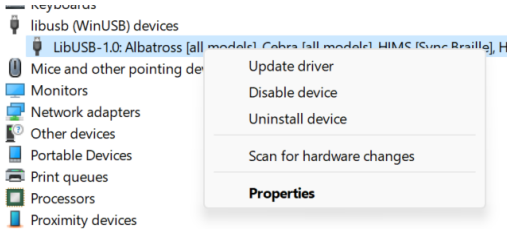
Windows Issue after driver installation.

After installation of driver you might get the following device in your windows machine and system will not recognize BFFTDICON as COM port.



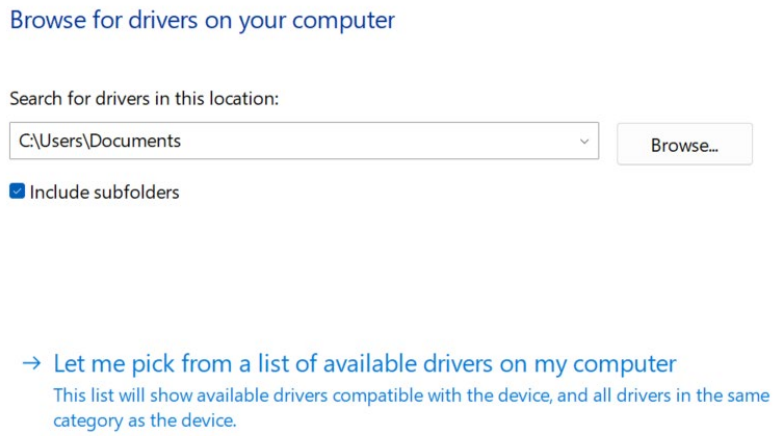
After confirmation that driver is installed, you have to keep cable connected to your Windows machine and follow the instructions below to resolve this issue.

1. Go to your Device Manager
2. Right click on the device showing as LibUSB-1.0…..

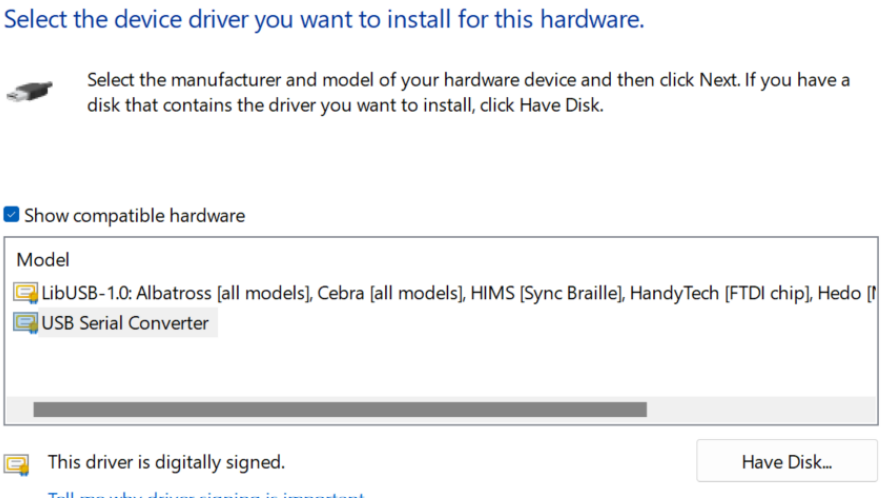


3. Click on update driver

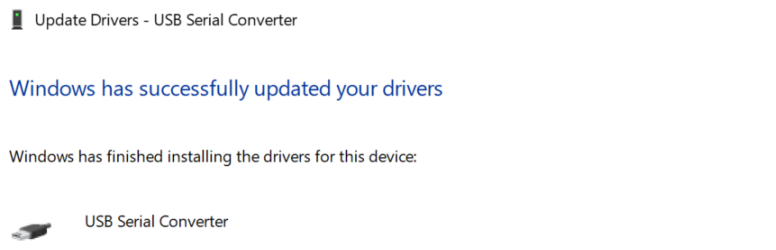
4. You will see this window open, click on Browse my PC for drivers



5. Click on **“Let me pick from a list of available drivers on my computer”**
6. You should see this screen if your drivers are already installed.



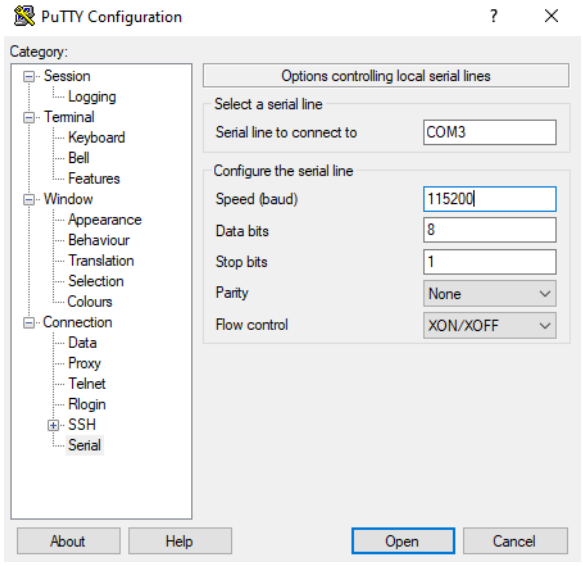
7. Select “USB Serial Converter” and proceed.
8. You should see this screen

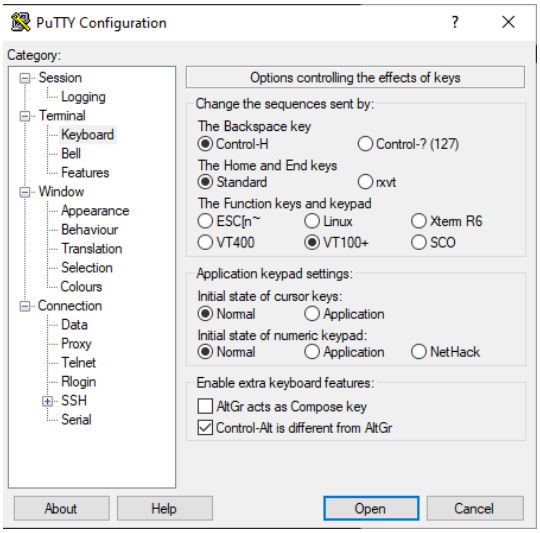


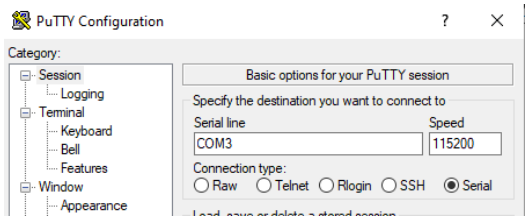
9. Now go to your Device Manager and you can see the COM port with the number as showing in the image below.

10. You computer can show multiple COM ports and number could be different than this guide.

11. Open putty (Recommended) and select following configurations.



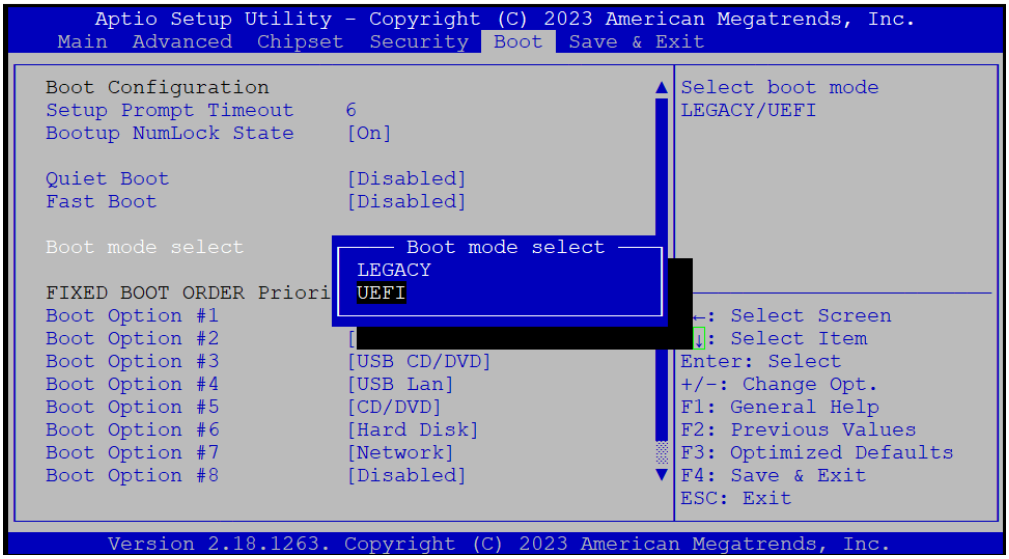




12. Click Open and you should be able to see your Terminal screen now.

Booting BFN5 system from USB.

By default system configured with the UEFI boot option where BFN5 System boots up from EFI System Partition. To enable system to boot from USB or other media sources, you have to go to BIOS by following the instructions available in this document.



Change Boot Mode from UEFI to LEGACY, Save and Exit. Now your system will boot up from the Sequence of BOOT ORDER

Guidance on Console Redirection Configuration

For optimal system performance and visual output, users are given the capability to manage Console Redirection settings. If the system employs an HDMI port as the primary display output and you are in the process of installing operating systems such as pfSense, OPNSense, or any other OS compatible with Serial Console, an issue may arise during the initial boot from USB.

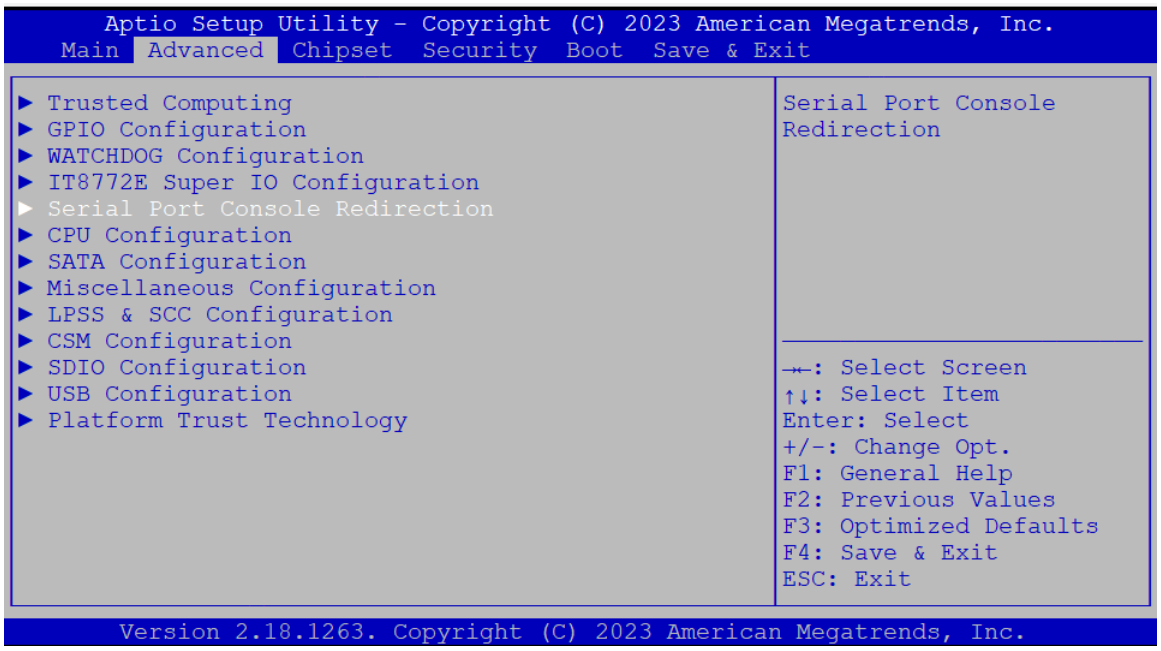
Specifically, the visual output might cease midway, creating an impression that the system has become unresponsive. This phenomenon is typically due to the COM port redirection capturing part of the display output.

To ensure uninterrupted visual feedback on the monitor connected via HDMI, it's recommended to disable COM port redirection. This adjustment ensures that the entire display output remains consistently visible on the HDMI-connected monitor.

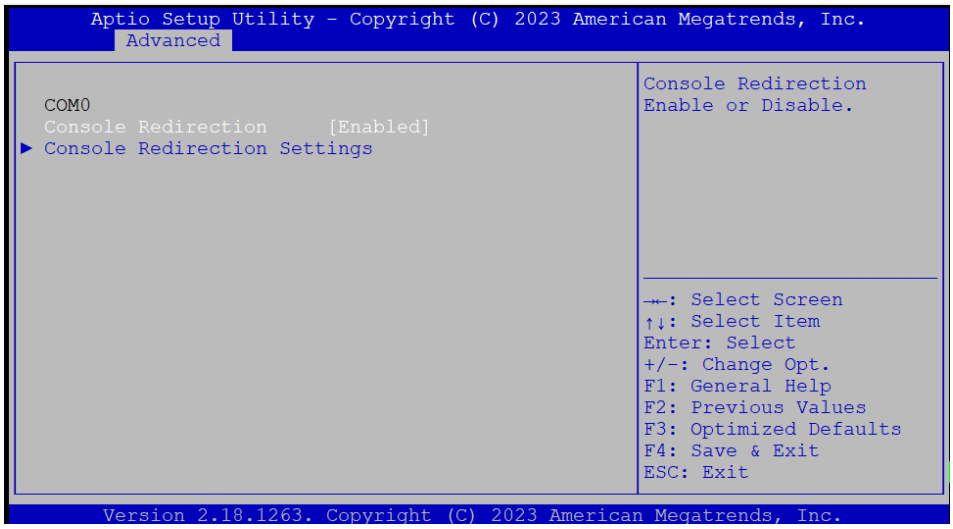
You need to do this activity through BIOS.

Follow these screen shots to Enable/Disable Console Redirection.

1. Restart your system and wait till you get the DEL message to enter into BIOS
2. Go to Advanced Tab and go to



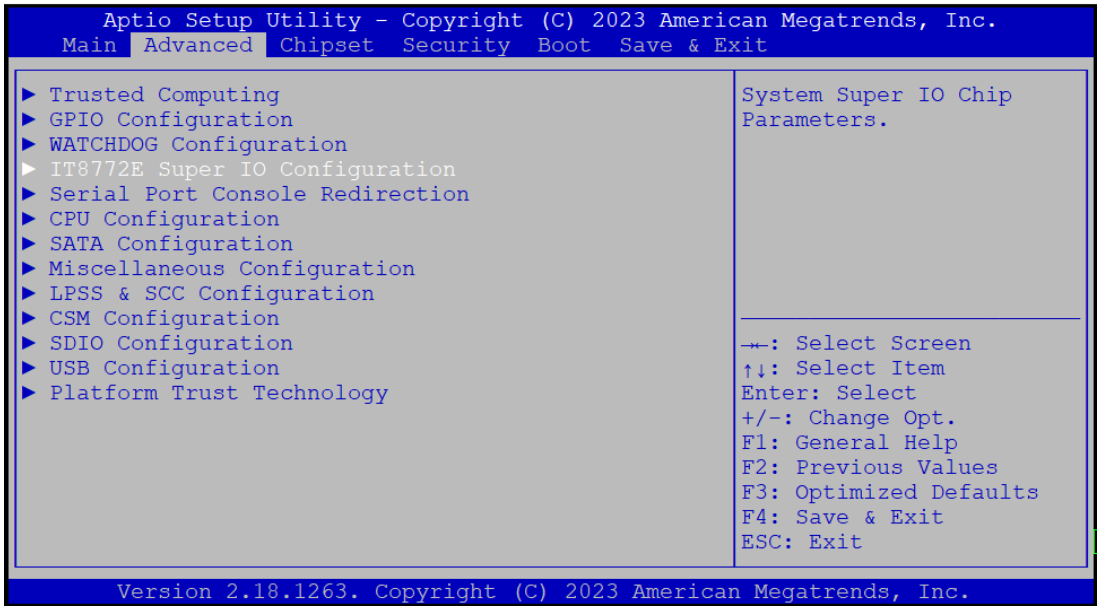
3. Open “Serial Port console Redirection”



4. You can Enter by selecting the options shown in the step 3 and Disable it if you want to Disable it, or enable it if you want to enable redirection.

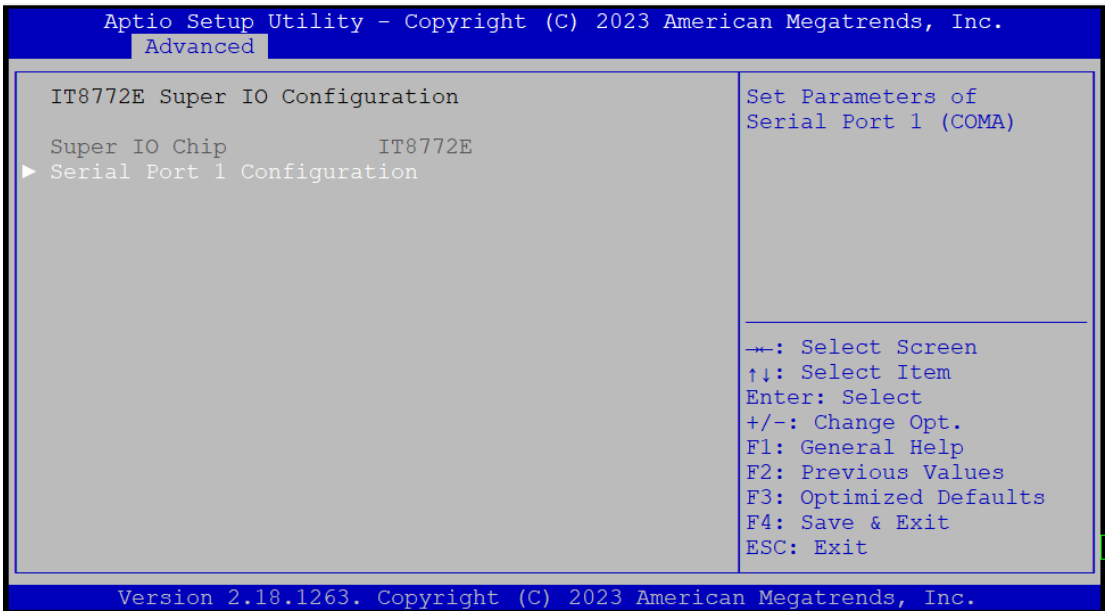
You can enable/disable COM Port by following steps.

1. Go to BIOS as mentioned previously and follow the screen shots shown below.

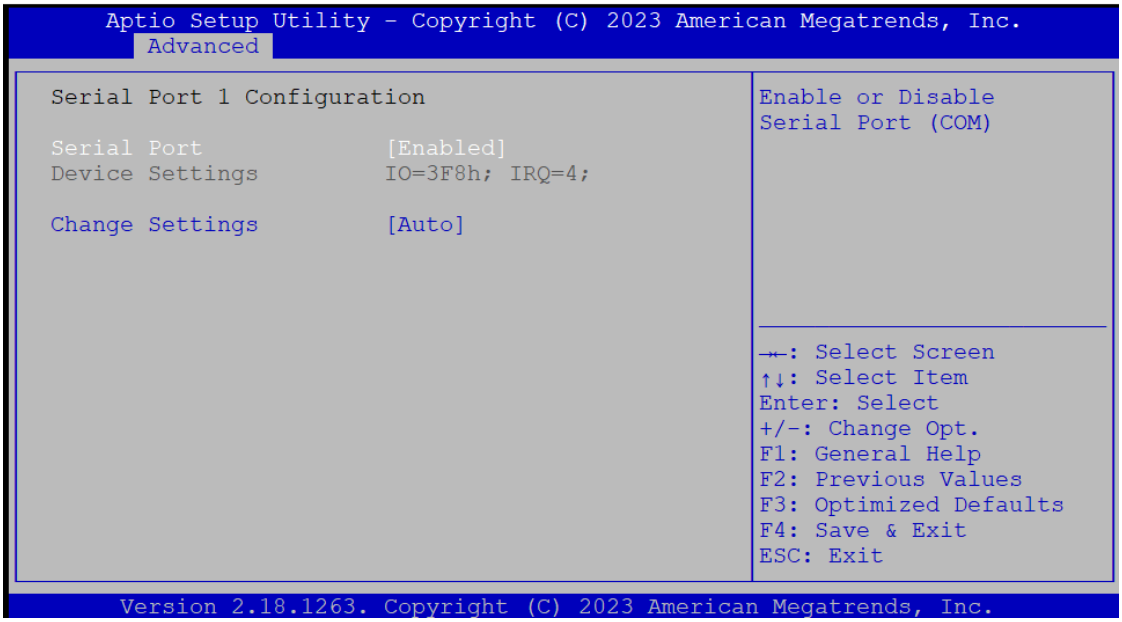


2. Open "**IT8772E Super IO Configuration**" by pressing Enter

3. Open "**Serial Port 1 Configuration**"



4. Disable by selecting Serial Port and press enter to change settings to Disable or Enable depending on your requirements.



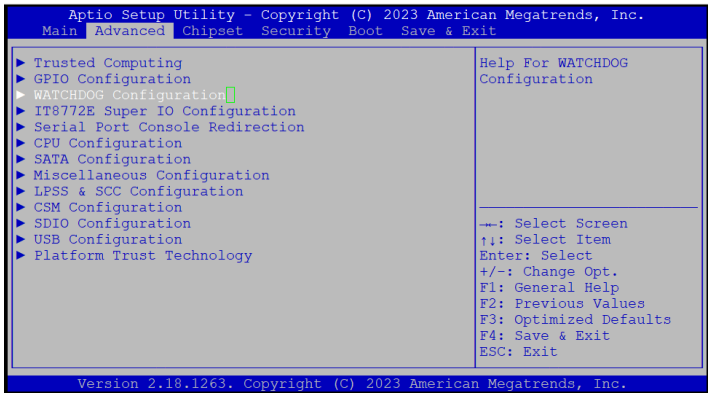
Watchdog settings in the BIOS

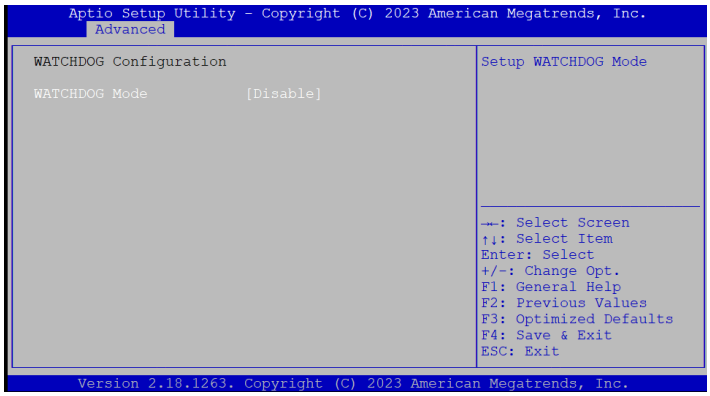
1. **System Monitoring:** At its core, the watchdog timer in the AMI BIOS is designed to keep an eye on system operations to ensure that everything is running smoothly.

2. **Automatic Recovery:** It provides an automated recovery mechanism in scenarios where system malfunctions occur. This helps in cases where there might not be immediate human intervention available to reset the system.

BFT System board Watchdog Configuration

Go to BIOS and follow the following Screen shots to enable and configure Watchdog.




Aptio Setup Utility – Copyright (C) 2023 American Megatrends, Inc.
Advanced
WATCHDOG Configuration
WATCHDOG Mode [Disable]
Setup WATCHDOG Mode
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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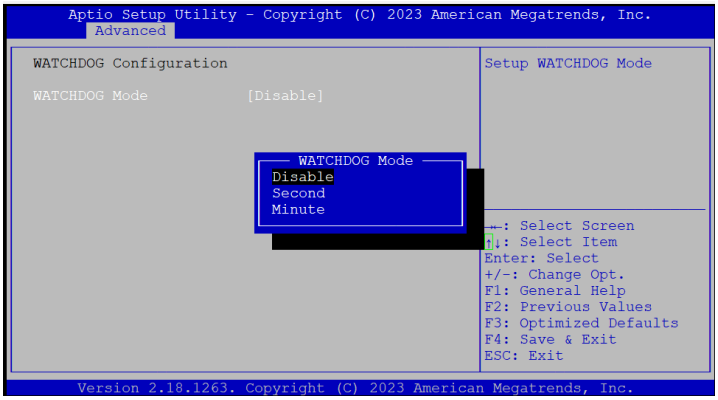
Aptio Setup Utility – Copyright (C) 2023 American Megatrends, Inc.
Advanced
WATCHDOG Configuration
WATCHDOG Mode [Disable]
Setup WATCHDOG Mode
WATCHDOG Mode
Disable
Second
Minute
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.18.1263. Copyright (C) 2023 American Megatrends, Inc.

TERMS AND CONDITIONS

Warranty Policy

1. Products come with a one-year warranty from the purchase date, covering defects in materials and craftsmanship.
2. During the warranty period, the buyer covers the shipping costs for returning products for repairs, while the manufacturer pays for the return shipping post-repair.
3. Post-warranty, the buyer is responsible for all repair costs (including parts and labor) and both-way shipping charges.
4. Incomplete or incorrect RMA Service Request Forms will result in the return of items at the customer's expense.
5. Warranty does not cover:
    - Customer's failure to maintain the product properly.
    - Unauthorized alterations, misuse, or backward engineering.
    - Usage beyond the product's specified environmental conditions

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