

User Manual

Revision 1.0

FWA-1214

DIN Rail Network Appliance

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1. How To Use This Manual

Copyright and trademarks

The documentation and the software included with this product are copyrighted by Advantech Co., Ltd.

Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable.

Conventions used in this manual (Warnings & Cautions)



Warning! Warnings indicate conditions, which, if not observed, can cause personal injury.

AVERTISSEMENT! Les avertissements indiquent des conditions qui, si elles ne sont pas observées, peuvent provoquer des blessures.



Caution! Cautions are included to help you avoid damaging hardware or losing data.

ATTENTION! Des précautions sont incluses pour vous aider à éviter d'endommager le matériel ou de perdre des données.



Note! Notes provide additional information.

Remarque! Les notes fournissent des informations supplémentaires.

Product Warranty

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Products/SKUs that this Manual covers

Part Number	Processor	DDR5 slot	Storage slot	LAN port			USB3.0	Console	HDMI	PSU
				1G RJ45	Bypass	1G SFP				
FWA-1214LRI-4CA1R	x7433RE	8 GB	64 GB	4	1	0	1	1	1	Option
FWA-1214FRI-8CA1R	x7835RE	8 GB	64 GB	4	1	2	1	2	1	Option
FWA-1214CRI-4CA1R	x7433RE	8 GB	64 GB	6	1	0	1	1	1	Option

Figure 0-1 Revision list

Revision History

Table 0-1 Revision list

Date	Revision	Modifications
2025-02-14	1.0	Initial version

Related Manuals & Quick Start Image

If you cannot find the information you're looking for or need more detailed information on a specific topic, please refer to the list of additional documents and other sources of information below.

- BIOS Common User Manual
<https://www.advantech.com/zh-tw/support/details/manual?id=1-2F8TKW5>
- Advantech FWA-1214 Quick start guide
<https://advantech-ncg.zendesk.com/hc/en-us/articles/47102986178201-Quick-Start-Guide-for-FWA-1214>
- Advantech FWA-1214 Linux Platform Software Guide
<https://www.advantech.com/en/support/details/manual-?id=1-2V1O5OB>
- NMC-R014TN Linux Platform Software Guide
<https://www.advantech.com/en/support/details/manual-?id=1-2YFYV93>

Please contact your Advantech representative if you reference to the following document(s) and image(s).

- Advantech QuickStart Linux Image Getting Started Guide
- Quick Start Linux Image

2. Getting Started

2.1 Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. This product is intended to be supplied by an UL certified power supply or DC source suitable for use at operation temperature 60 degree C minimum Redundant Power supply: Input: 12VDC- 48VDC, 4.44A - 1.11A, If need further assistance, please contact Advantech for further information.
9. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
10. The power outlet socket should have grounded connection.
11. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
12. Before powering on the equipment, connect the frame of the equipment to earth. For the earthing wire, green and yellow insulation is required and the cross-sectional area of the conductor must be more than 1.25mm² or 16 AWG.
13. All cautions and warnings on the equipment should be noted.
14. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
15. Never pour any liquid into an opening. This may cause fire or electrical shock.
16. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
17. If one of the following situations arises, get the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the user's manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
18. Do not leave this equipment in an environment where the storage temperature may go below -40° C (-40° F) or above 70° C (158° F). This could damage the equipment. The equipment should be in a controlled environment.
19. Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer, discard used batteries according to the manufacturer's instructions.
20. If optical transceivers are used to be connected to SFP connectors, only CDRH certified laser class I optical transceivers shall be used. (UL certificate request).
21. Suitable for installation in Information technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.
22. **RESTRICTED ACCESS AREA:** The equipment should only be installed in a Restricted Access Area.
23. **DISCLAIMER:** This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

French:

1. Lisez ces instructions de sécurité attentivement.
2. Conservez ce manuel d'utilisation pour référence ultérieure.
3. Ce produit est destiné à être alimenté par une alimentation certifiée UL ou une source CC adaptée à une utilisation à une température de fonctionnement de 60 degrés C minimum. Alimentation redondante : Entrée : 12 V CC - 48 V CC, 4,44 A - 1,11 A. Si vous avez besoin d'aide supplémentaire, veuillez contacter Advantech pour plus d'informations.
4. Débranchez cet équipement de toute prise secteur avant de le nettoyer. Utilisez un chiffon humide. N'utilisez pas de détergent liquide ou pulvérisé pour le nettoyage.
5. Pour les équipements enfichables, la prise de courant doit être située près de l'équipement et doit être facilement accessible.
6. Gardez cet équipement à l'abri de l'humidité.
7. Placez cet équipement sur une surface fiable pendant l'installation. Le laisser tomber ou le laisser tomber peut causer des dommages.
8. Les ouvertures sur l'enceinte servent à la convection de l'air. Protégez l'équipement contre la surchauffe. **NE COUVREZ PAS LES OUVERTURES.**
9. Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'équipement à la prise de courant.
10. La prise de courant doit être reliée à la terre.
11. Placez le cordon d'alimentation de manière à ce que personne ne puisse marcher dessus. Ne placez rien sur le cordon d'alimentation.
12. Avant de mettre l'équipement sous tension, connectez le châssis de l'équipement à la terre. Pour le fil de mise à la terre, une isolation verte et jaune est requise et la section transversale du conducteur doit être supérieure à 0,75 mm² ou 18 AWG.
13. Toutes les mises en garde et les avertissements sur l'équipement doivent être notés.
14. Si l'équipement n'est pas utilisé pendant une longue période, débranchez-le de la source d'alimentation pour éviter tout dommage dû à une surtension transitoire.
15. Ne versez jamais de liquide dans une ouverture. Cela pourrait provoquer un incendie ou un choc électrique.
16. N'ouvrez jamais l'équipement. Pour des raisons de sécurité, l'équipement doit être ouvert uniquement par du personnel qualifié.
17. Si l'une des situations suivantes se présente, faites vérifier l'équipement par le personnel de service:
 - Le cordon d'alimentation ou la prise est endommagé.
 - Le liquide a pénétré dans l'équipement.
 - L'équipement a été exposé à l'humidité.
 - L'équipement ne fonctionne pas bien, ou vous ne pouvez pas le faire fonctionner selon le manuel de l'utilisateur.
 - L'équipement a été échappé et endommagé.
 - L'équipement présente des signes évidents de rupture.
18. Ne laissez pas cet équipement dans un environnement où la température de stockage peut descendre en dessous de -40° C (-40° F) ou au-dessus de 70° C (158° F). Cela pourrait endommager l'équipement. L'équipement doit être conservé dans un environnement contrôlé.
19. Attention: Danger d'explosion si la batterie est incorrectement remplacée. Remplacez uniquement par le même type ou un type équivalent recommandé par le fabricant, jetez les piles usagées conformément aux instructions du fabricant.
20. Si des émetteurs-récepteurs optiques sont utilisés pour être connectés à des connecteurs SFP, seuls des émetteurs-récepteurs optiques de classe I laser certifiés CDRH doivent être utilisés. (Demande de certificat UL).

21. Convient pour une installation dans des salles informatiques conformément à l'article 645 du Code national de l'électricité et à la norme NFPA 75.
22. ZONE D'ACCES RESTREINTE: L'équipement ne doit être installé que dans une zone d'accès restreint.
23. AVERTISSEMENT: Cet ensemble d'instructions est donné conformément à la CEI 704-1. Advantech décline toute responsabilité quant à l'exactitude des déclarations contenues dans ce document.

2.2 Declaration of Conformity

2.2.1 FCC Class A

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 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. 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.

Cet appareil est conforme à la partie 15 des règles de la FCC: Le fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas provoquer d'interférences nuisibles.
2. Cet appareil doit accepter toute interférence reçue, y compris les interférences susceptibles de provoquer un fonctionnement indésirable.

Remarque: Cet équipement a été testé et déclaré conforme aux limites d'un appareil numérique de classe A, conformément à la partie 15 des règles de la FCC. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles lorsque l'équipement est utilisé dans un environnement commercial. Cet équipement génère, utilise et peut émettre de l'énergie radiofréquence et, s'il n'est pas installé et utilisé conformément au manuel d'instructions, peut causer des interférences nuisibles aux communications radio. L'utilisation de cet équipement dans une zone résidentielle est susceptible de provoquer des interférences nuisibles, auquel cas l'utilisateur devra corriger les interférences à ses frais.

2.2.2 CCC

警告使用者：这是甲类资讯产品，在居住的环境中使用，可能会造成射频干扰，在这种情况下，使用者会被要求采取某些适当的对抗。

声明：此为A级产品，在生活环境中，可能会造成无线干扰，在这种情况下，可能需要用户对其干扰采取切实可行的措施。

安全指令

1. 請仔細閱讀此安全操作說明。
2. 請妥善保存此用戶手冊供日後參考。
3. 本產品旨在由適用於工作溫度 -40 ~ 60 攝氏度（最低）、額定輸出 12~48VDC、4.44 – 1.11A 的 UL 認證電源或直流電源供電。如果需要進一步的幫助，請聯繫研華以獲取更多信息。
4. 用濕抹布清洗設備前，請從插座拔下電源線。請不要使用液體或去汙噴霧劑清洗設備。
5. 對於使用電源線的設備，設備周圍必須有容易連接到的電源插座。
6. 請讓設備遠離潮濕環境。

7. 請在安裝前確保設備放置在可靠的平面上，意外跌落可能會導致設備損壞。
8. 設備外殼的開口是用於空氣對流，從而防止設備過熱。請不要覆蓋這些開口。
9. 當您連接設備到電源插座上前，請確認電源插座的電壓是否符合要求。
10. 電源插座應接地。
11. 請將電源線安置在人們不易絆到的位置，並不要在電源線上覆蓋任何雜物。
12. 設備上電前，將設備框架接地。對於接地線，需要綠色和黃色絕緣，導體的橫截面積必須大於 0.75mm² 或 18 AWG。
13. 請注意設備上的所有警告和注意標語。
14. 如果長時間不使用設備，請將設備與電源插座間的電線斷開，避免設備被超目標電壓波動損壞。
15. 請不要讓任何液體流入通風口，以免引起火災或者電路短路。
16. 請不要自行打開設備。為了確保您的安全，請由經過認證的工程師來打開設備。
17. 如遇下列情況，請由專業人員來維修：
 - 電源線或者插頭損壞；
 - 設備內部有液體流入；
 - 設備曾暴露在潮濕的環境中使用；
 - 設備無法正常工作，或您無法通過用戶手冊來使其正常工作；
 - 設備跌落或者損壞；
 - 設備有明顯的外觀破損。
18. 請不要把設備放置在超出我們建議的溫度範圍的環境，即不要低於-40°C(-40°F) 或高於 70°C(158°F)，否則可能會損壞設備。
19. 注意：如果電池放置不正確，將有爆炸的危險，因此，只可以使用製造商推薦的同一種或者同等型號的電池進行替換。請按照製造商的指示處理已使用過的電池。
20. 如果使用光收發器連接到 SFP 連接器，則只能使用 CDRH 認證的 I 類激光光收發器。（UL 證書請求）。
21. 根據國家電氣規範第 645 條和 NFPA 75，適合安裝在信息技術室。
22. 根據 IEC 704-1:1982 規定，設備產生的音量不高於 70 分貝。
23. 免責聲明：請安全訓示符合 IEC 704-1 要求。研華公司對其內容之準確性不承擔任何法律責任。

安全指令

1. 請仔細閱讀此安全操作說明。
2. 請妥善保存此用戶手冊供日後參考。
3. 本產品旨在由適用於工作溫度 -40~60 攝氏度（最低）、額定輸出 12~48VDC、4.44 – 1.11A 的 UL 認證電源或直流電源供電。如果需要進一步的幫助，請聯繫研華以獲取更多信息。
4. 用濕抹布清洗設備前，請從插座拔下電源線。請不要使用液體或去污噴霧劑清洗設備。
5. 對於使用電源線的設備，設備周圍必須有容易連接到的電源插座。
6. 請讓設備遠離潮濕環境。
7. 請在安裝前確保設備放置在可靠的平面上，意外跌落可能會導致設備損壞。
8. 設備外殼的開口是用於空氣對流，從而防止設備過熱。請不要覆蓋這些開口。
9. 當您連接設備到電源插座上前，請確認電源插座的電壓是否符合要求。
10. 電源插座應接地。
11. 請將電源線安置在人們不易絆到的位置，並不要在電源線覆蓋任何雜物。
12. 設備上電前，將設備框架接地。對於接地線，需要綠色和黃色絕緣，導體的橫截面積必須大於 0.75mm² 或 18 AWG。
13. 請注意設備上的所有警告和注意標語。
14. 如果長時間不使用設備，請將設備與電源插座間的電線斷開，避免設備被超目標電壓波動損壞。
15. 請不要讓任何液體流入通風口，以免引起火災或者電路短路。
16. 請不要自行打開設備。為了確保您的安全，請由經過認證的工程師來打開設備。
17. 如遇下列情況，請由專業人員來維修：
 - 電源線或者插頭損壞；
 - 設備內部有液體流入；
 - 設備曾暴露在潮濕的環境中使用；
 - 設備無法正常工作，或您無法通過用戶手冊來使其正常工作；

- 设备跌落或者损坏；
 - 设备有明显的外观破损。
18. 请不要把设备放置在超出我们建议的温度范围的环境，即不要低于-40°C(-40°F) 或高于 70°C(158°F)，否则可能会损坏设备。
 19. 注意：如果电池放置不正确，将有爆炸的危险，因此，只可以使用制造商推荐的同一种或者同等型号的电池进行替换。请按照制造商的指示处理已使用过的电池。
 20. 如果使用光收发器连接到 SFP 连接器，则只能使用 CDRH 认证的 I 类激光光收发器。（UL 证书请求）
 21. 根据国家电气规范第 645 条和 NFPA 75，适合安装在信息技术室。
 22. 根据 IEC 704-1:1982 规定，设备产生的音量不高于 70 分贝。
 23. 免责声明：请安全训示符合 IEC 704-1 要求。研华公司对其内容之准确性不承担任何法律责任。

2.2.3 CE Mark

The CE marking on this product indicates that it is in compliance with the European Union EMC Directive 2014/30/EU, Safety Directive 2014/35/EU.

Le marquage CE sur ce produit indique qu'il est conforme à la Directive européenne sur la compatibilité électromagnétique 2014/30 / UE, Directive sur la sécurité 2014/35 / UE.



Note! The equipment is operated and maintained only by professionals

Remarque! L'équipement est exploité et entretenu uniquement par des professionnels

2.3 Unpacking

The FWA-1214 is packaged in single box inside a 4 in 1 carton, collectively referred to as the “box” in the remainder of this document.

When opening the box, you will find the FWA-1214 embedded in protective paper folding and the accessory space embedded to the accessory paper folding. Remove the accessory paper folding first and then pull out the unit including the protective paper folding using both hands. Now, remove the paper folding and the plastic sleeve on the unit. Please refer to the Figure as illustration.

After unpacking the unit, please check for any visible damage of the unit and contact your Advantech representative in case of any issue.

Please note that unless agreed otherwise power cords and power adapter need to be ordered separately.

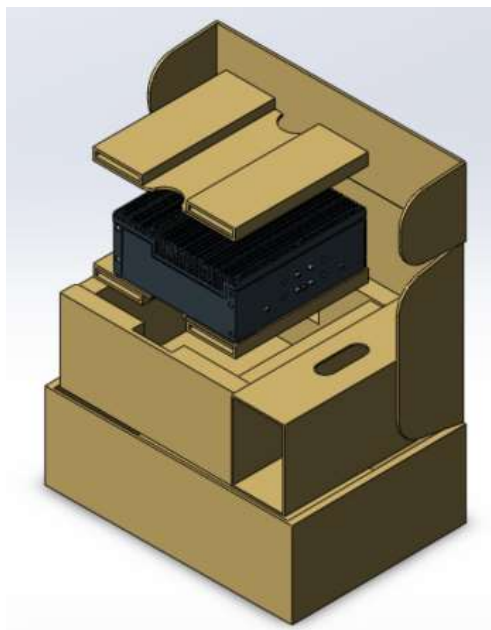


Figure 2.3-1 Box illustration

Please check the delivery for completeness as you open the carton carefully. If any of the items listed in Table 2.3-1 is missing or damaged, please contact your Advantech representative.

Table 2.3-1 Packaging List (Mandatory)

Item	Qty.	Image	Description
FWA-1214	1		Robust Industrial Network Appliance with x7433RE/x7835RE
DIN rail holder	1		DIN rail holder for FWA-1214
Screw	4		M3 type screws for DIN rail holder
Terminal Block	1		6p terminal block for dual DC input

Item	Qty.	Image	Description
Console cable	1		Console cable

Table 2.3-2 *Option module.*

Please note that the option modules need to be ordered separately.

Item	Qty.	Image	Description
NMC-RODK	1		RF Carrier for FWA-1214
NMC-R014T	1/2		LTE RF module kit

2.4 Installation and Configuration

The FWA-1214 is provided as a pre-configured system with an SoC CPU, RAM and Storage already installed. If you need to install additional components in the FWA-1214 for any other reason, please contact your distributor, sales representative, or Advantech's customer service center for details. For other periphery, please refer the datasheet order information to order the correct component(s).

2.4.1 Installation via Monitor, Keyboard and Mouse

If you wish to install an OS with a graphical user interface, such as Windows or Linux with GUI, it is highly recommended to follow this section for guidance. Additionally, these guidelines can also be used for the installation of text-based OS.

The FWA-1214 supports 1x HDMI port and 1x USB ports for connecting of a monitor, keyboard, and mouse (You need an additional USB hub to expand the USB interface). For details on the location of these connectors, please refer to [Section 3.2.1](#).



Figure 2.4-1 Location of the HDMI and USB port

2.4.2 Installation via Serial Console

Note: The serial console port is specifically designed for the installation of TEXT MODE OS only.

It's essential for the OS installation engineer to have expertise in text-based OS installation and to be familiar with serial console client operations.

An RS232-to-RJ45 console cable is provided in the box. If you've misplaced it or need additional cables, make sure to use the appropriate serial console cable to connect the engineer's PC to the FWA-1214's RJ45 serial port (Figure 2.4-2).

For more information on the cable's pin configuration, please refer to [Section 5.2](#), ensuring you use a well-shielded cable, or contact Advantech representative.

If your PC lacks an RS232 port, consider acquiring a USB-to-RS232 cable (Figure 2.4-3). Do note that for the two RS232 ends of the cables, one should be male and the other female.

In this configuration, both BIOS and OS outputs are directed through via a serial terminal connection. Note that only TEXT MODE OS can be installed when using the serial console port.

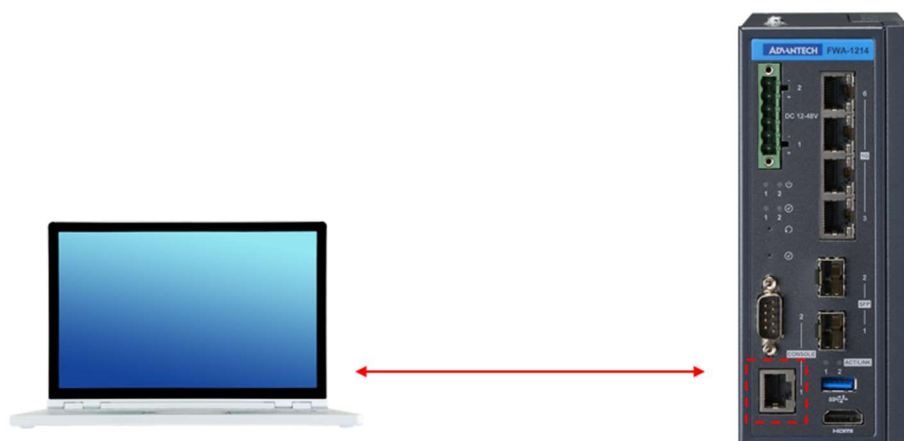


Figure 2.4-2 Access the server through serial console port



Figure 2.4-3 The diagram for the USB to 232 cable

There are several methods to connect to the serial console port.

If you're using Windows OS as your working PC, one common tool is PuTTY. Follow the steps below to establish a connection using PuTTY.

If you're unfamiliar with PuTTY or haven't installed it yet, you can download it from <https://www.putty.org/>.

If you intend to use PuTTY on a PC running Windows OS. The following of this section describes how to configure PuTTY on a Windows platform for connection with the FWA-1214 serial console as a reference.

Otherwise, feel free to skip these steps if you have another preferred method. Other terminal programs may be used in a similar way as well.

Open PuTTY and start the configuration as outlined below. Instead of "COMx", use the actual COM port number from your client machine. The "COMx" designation will vary based on what you observe in your Windows Device Manager (Figure 2.4-4).

In this guide, we're using "COM1" as an example, which you might see listed in the Device Manager.

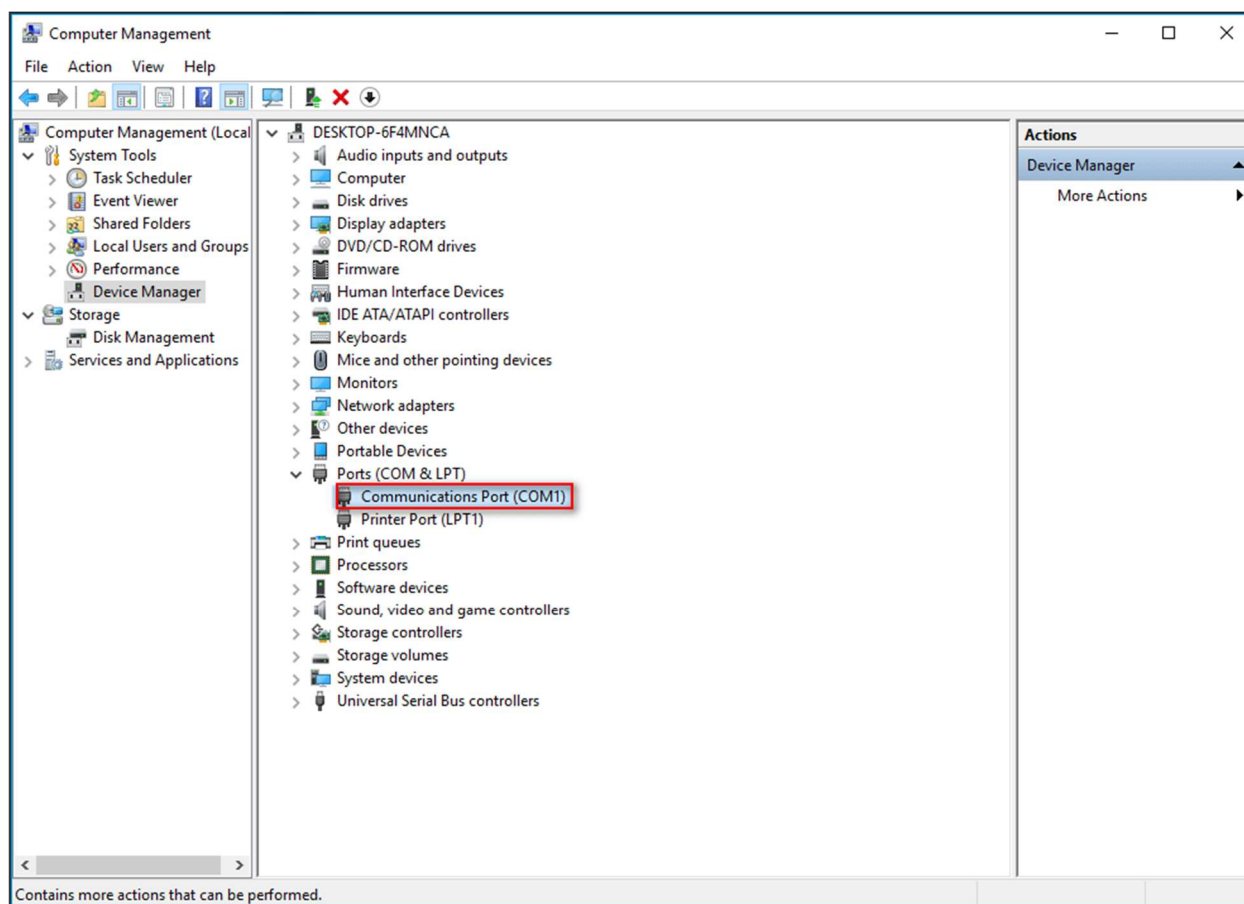


Figure 2.4-4 Windows Device Management COM Number Example

- A. Under "serial line", specify "COM1" and set the speed to "115200". Select "no parity" and "no flow control". The default baud rate for the COM port is 115200 with no parity and no flow control.
- B. If you have previously modified these settings, please use the baud rate you configured in the BIOS, please reference "Common BIOS User Manual (Section 1.2.2.1)". It's worth noting that the BIOS and OS might have different serial console configurations.
- C. To ensure a smooth installation process, verify that both the BIOS and OS have the same serial

console port configuration. Also, confirm that the OS could output to the serial console port.

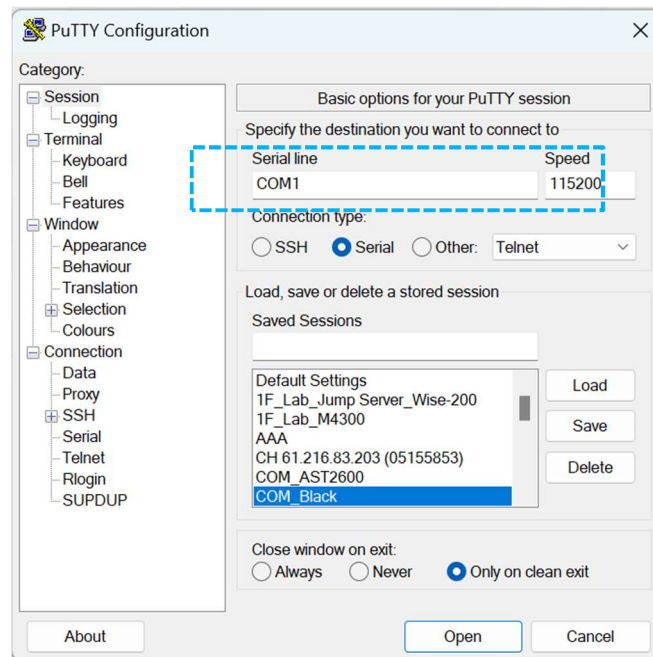


Figure 2.4-5 PuTTY Session Configuration

D. Select “Serial” for connection type.

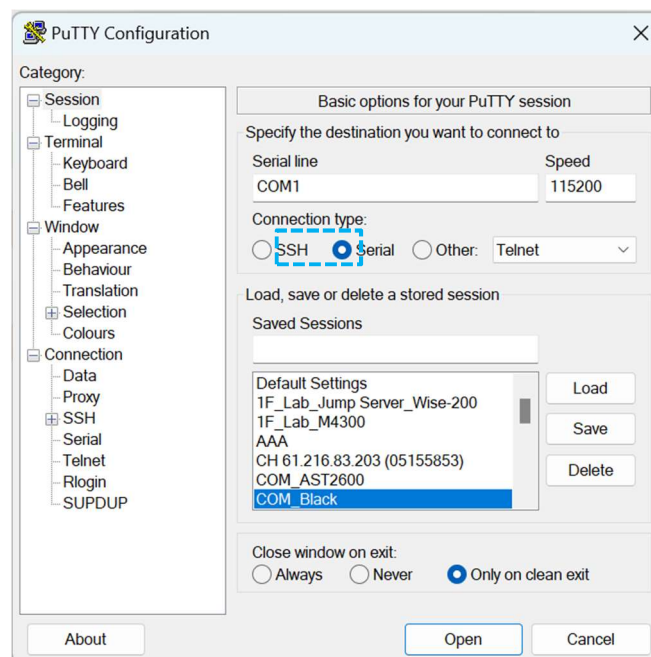


Figure 2.4-6 PuTTY Serial Configuration

E. Check “VT100+” for keypad in the keyboard submenu.

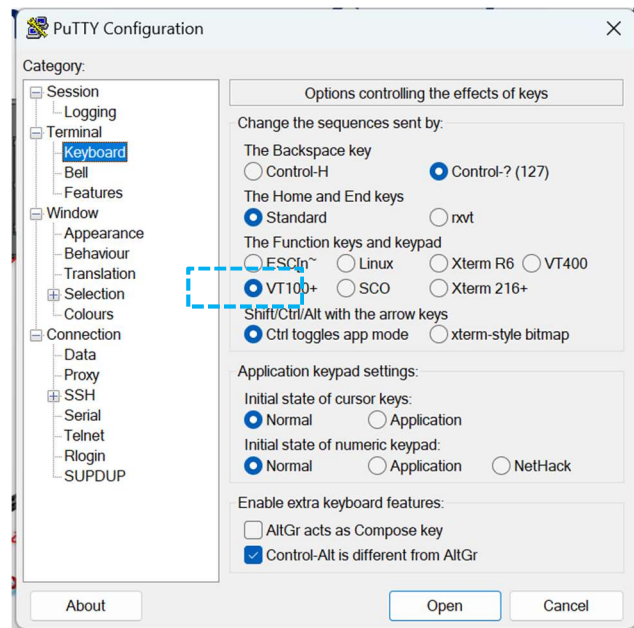


Figure 2.4-7 PuTTY Keyboard Settings

F. Click the “Open” button and a PuTTY terminal screen will be displayed. If you wish to retain the configuration for future use, click the “Save” button.

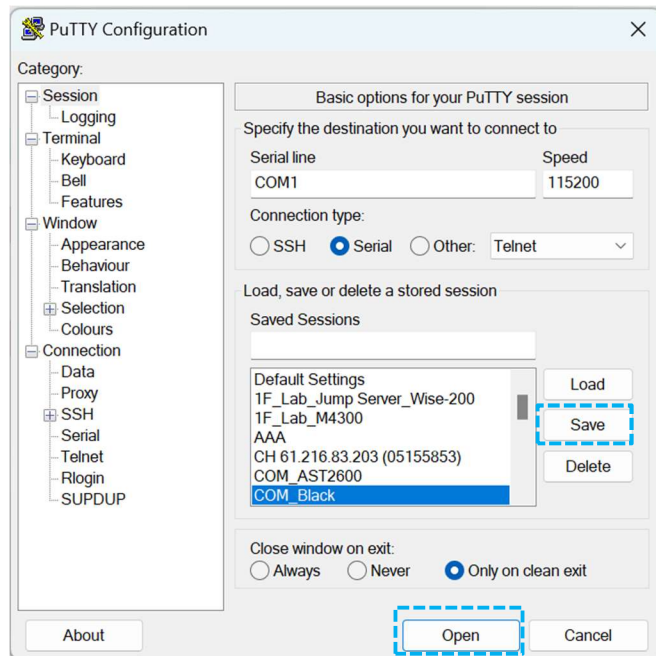


Figure 2.4-8 PuTTY Keyboard Settings

- G. If the connection is successful, after powering on the unit, you should be able to view the BIOS Power-On-Self-Test (POST) screen in the PuTTY terminal as below:

```
Version 2.22.1293. Copyright (C) 2024 AMI
**** FWA-1214 BIOS V1.02 (12/02/2024) ****
Press <DEL> or <F2> to enter setup.
Entering Setup...
```

A9

Figure 2.4-9 BIOS POST Screen



Note:

Please be aware that during the initial startup phase, the BIOS may be performing tasks even if the console appears inactive. It might take a moment for the BIOS POST screen to show up. However, the BIOS has been optimized for a swift boot time. It will progress through the POST rapidly and then attempt to boot an OS based on the boot options selected in the BIOS.

In case you would extend the time, the BIOS displays the POST screen and waits for a key press to enter the setup menu, you can do so via the BIOS setup menu. Please refer to [Section 4.2](#) for details.

- H. Please refer “[Related Manuals & Quick Start Image](#)” to setup system and install OS on FWA-1214

2.4.3 FWA-1214 DIN rail holder Installation

DIN rail holder installation instruction: Align the holes on the DIN rail holder with the holes on the back of FWA-1214. Insert screws through the holes in the DIN rail holder and into the corresponding holes on appliance. Use a screwdriver or power drill with the appropriate bit to tighten the screws. Be careful not to overtighten, as this can damage the appliance.

Please note if you do not need to use the DIN rail holder, please also install the 4 screws included in the accessory box to cover these 4 screw holes. The SCREW SPECIFICATION IS M3*4.0L S/S D=4.8 H=0.8 (2+) ST/H BZN.

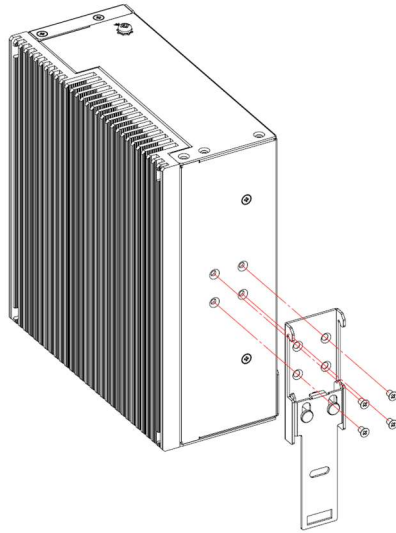


Figure 10 FWA-1214 DIN rail holder Installation

2.4.4 NMC-R0DK and NMC-R014T Installation

NMC-R0DK can be installed with two sets of NMC-R014T. Please refer to the figure below to remove the cover on NMC-R0DK first, then install NMC-R014T into NMC-R0DK and use a screwdriver to tighten the screws with appropriate torque to secure it. Please pay attention to the direction of NMC-R014T to connect it correctly to the connector of NMC-R0DK.

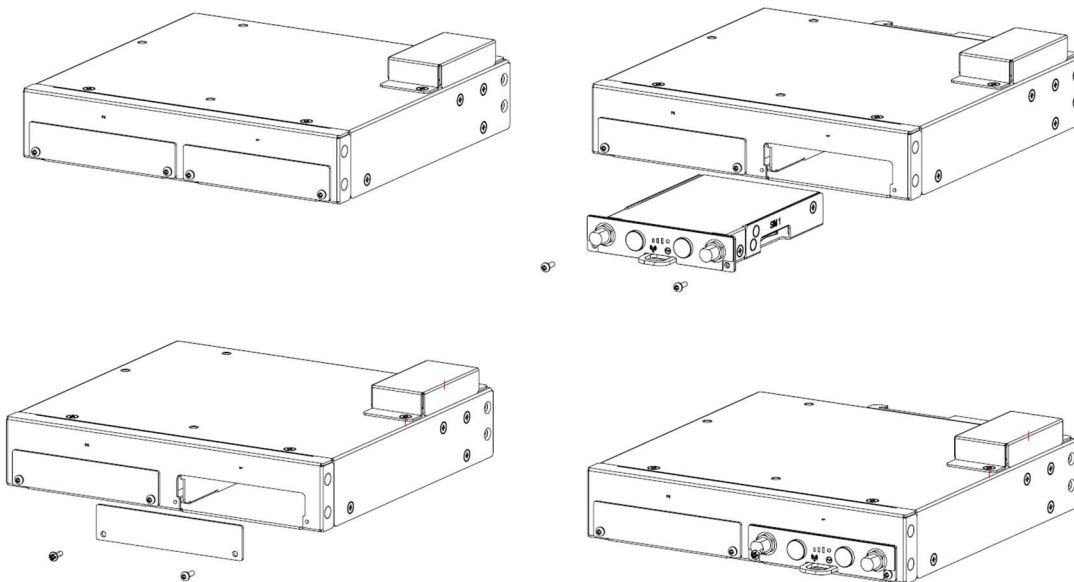


Figure 2.4-11 NMC-R0DK and NMC-R014T Installation

2.4.5 FWA-1214 and NMC-R0DK Installation

NMC-R0DK needs to be assembled with FWA-1214 before use. Please refer to the figure below to first remove the cover on NMC-R0DK, as well as the cover and screws on the corresponding connector position of FWA-1214 (please note that there are 5 screws on the FWA-1214 end that need to be removed).

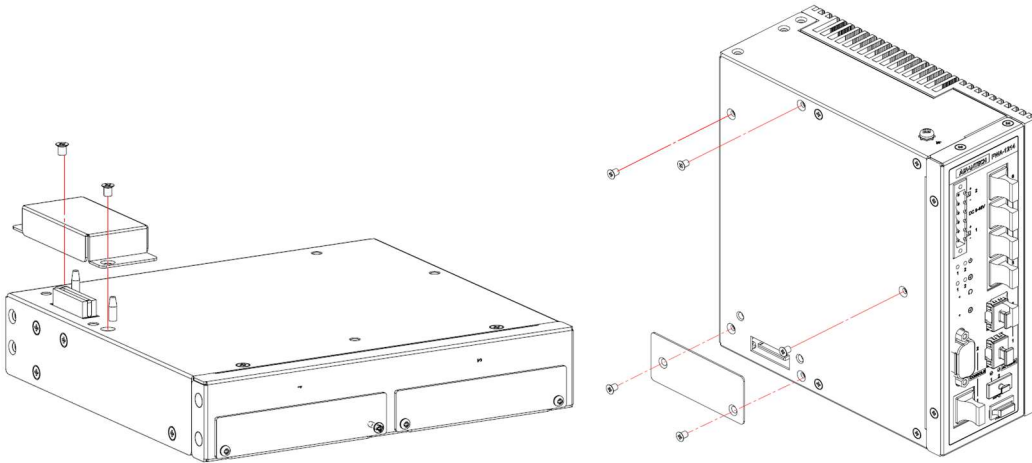


Figure 2.4-12 FWA-1214 and NMC-R0DK Installation

Correctly align the FWA-1214 connector with the NMC-R0DK connector as follows. Take out the five long screws included in the NMC-R0DK accessory box, and insert the five long screws from the NMC-R0DK end and along the screw holes into the corresponding screw holes of FWA-1214. Use a screwdriver to tighten FWA-1214 and NMC-R0DK with appropriate torque. After combining FWA-1214 and NMC-R0DK, only one set of DIN rail holder is needed to stably fix it on the DIN rail. If you need another set of DIN rail holder to provide stronger fixing force, please contact your distributor, sales representative, or Advantech's customer service center for details. Long screw specification is M3x10(36L) F/S D=6 H=1 2+ ST/H BZN HT .

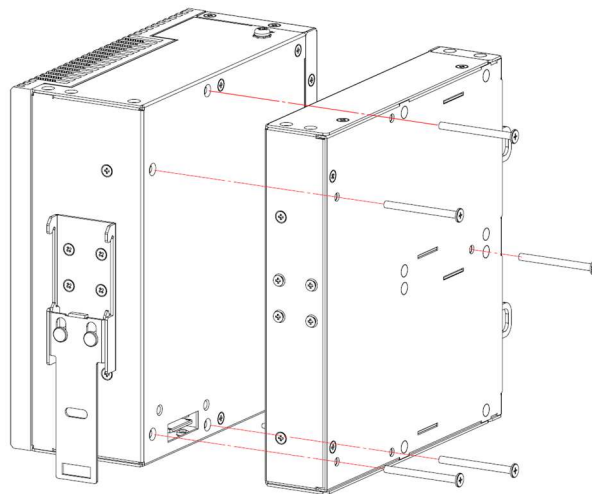


Figure 2.4-13 FWA-1214 and NMC-R0DK Installation

2.4.6 Powering On



Caution!

The following power supply installations must be installed by a skilled person. Before connecting the FWA-1214 to the power source, ensure that the power rating of the power source matched that of the FWA-1214's power input rating. Also, verify the

primary circuit and all power distribution in not overloaded. Inrush current and steady state power specifications for the FWA-1214 can be found at the label under the bottom of the unit. Please use copper conductors only.

Les installations d'alimentation suivantes doivent être réalisées par un professionnel qualifié. Avant de brancher le FWA-1214 à la source d'alimentation, assurez-vous que la puissance nominale de cette dernière correspond à celle du FWA-1214. Vérifiez également que le circuit primaire et l'ensemble de la distribution électrique ne sont pas surchargés. Les spécifications de courant d'appel et de puissance en régime permanent du FWA-1214 sont indiquées sur l'étiquette située sous l'appareil. Veuillez utiliser exclusivement des conducteurs en cuivre.

Please take out the terminal block from the accessory package and connect copper wires only to the positive and negative poles on the terminal block (Female) correctly according to the following figure. With wire range 18 AWG, FW2. Torque value 7lb-inch. Please correctly connect the terminal block into the FWA-1214 and then connect to the DC power source. There are 2 power DC inputs located at the terminal block.



Figure 2.4-11 Location of DC inlet

The unit will automatically power on after power is supplied. The green LED on the front panel should be lit as the unit is under power. Please refer to [Section 3.2.1](#) for the location of front and rear panel elements.

2.5 Getting Help: Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.

2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Worldwide contact information can be found on www.advantech.com. Please have the following information ready before you call:

- Product name and serial number
- Description of your peripheral attachments
- Description of firmware and software versions installed on the product
- A complete description of the problem
- The exact wording of any error messages

3. For more information please contact regional sales or visit [website](#)

3. Product Specification

3.1 Overview

FWA-1214 is a DIN rail network platform powered by Intel® Atom® x7433RE/x7835RE processor. The Intel® Atom® x7433RE/x7835RE processors integrate DDR5 and in-band ECC technology to enhance performance and ensure data integrity and system stability.

The FWA-1214 platform integrates 1G copper/fiber wired network ports and supports up to 2 LTE modules to provide dual-active wireless WAN connections. This makes it the perfect platform for users to integrate LTE-based SD-WAN and OT network security applications.

3.2 Introduction

3.2.1 Features

- CPU: Intel Atom™ x7433RE, 4 cores or x7835RE, 8 cores
- DDR: Support 1 x DDR5 SODIMM slot, Maximum 16 GB, default installation 8 GB
- Storage: Support 2 x M.2 2242 SATA SSD slots, default installation 1 x 64 GB M.2 module
- Ethernet Interface:
 - 4 x 1GbE RJ45 ports with 1 pair bypass
 - Up to 2 x 1GbE RJ45 or SFP ports
- Multiple I/O: 1 HDMI / 1 USB3.0 / 1 Console RJ45 type / D-sub type
- Expansion: 2x M.2 3042/3052 LTE modules by NMC-R0DK and NMC-R014T optional modules

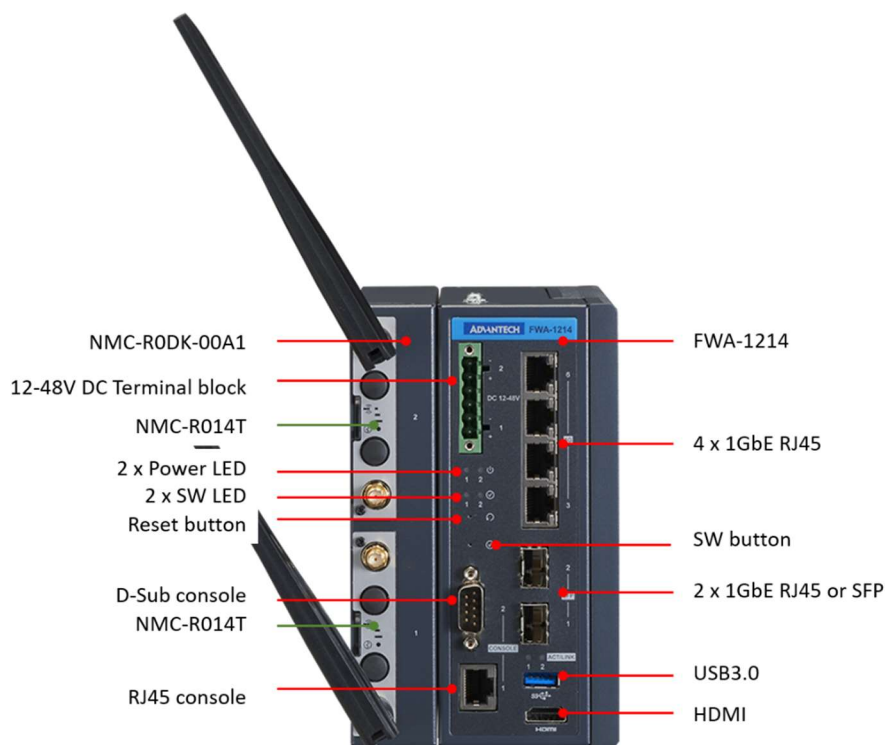


Figure 3.2-1 System Front Panel



Note! The optional modules NMC-R0DK and NMC-R014T need to be ordered separately.

Table 3.2-1 Internal system components list

Item	Element	Description
M.2	M.2 Socket	M-key slots for 2242 SATA SSD (SATA 3.0) x 2
DIMM	DDR5 Socket	DDR5 SODIMM slot x 1
TPM	Trusted Platform Module	SPI TPM 2.0 on board

The FWA-1214 supports an array of status LEDs and buttons at system front panel.

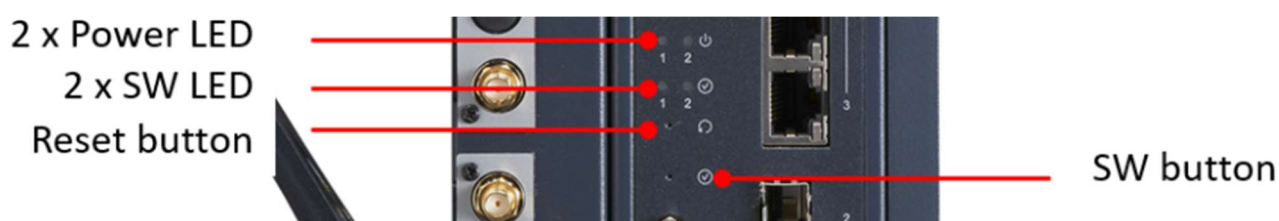


Figure 3.2-2 Front Buttons

Table 3.2-2 Status LEDs

No. or Icon (Up to Down)	LED Name	Software Controllable	Description	Software Controllable
① 	Power led	Green Amber	S0: Green S5: Amber with power supply connected No power: off	No
② 	SW_DEF led	Green Amber	Software-Defined LED (User-Defined)	Yes

Table 3.2-3 Front Buttons

No. or Icon (Up to Down)	Button Name	Description
① 	SW_DEF button	It is a software defined button. BIOS is programmed well to monitor button event trigger.
② 	Reset button	It is a hardware reset

3.3 Product Versions/Ordering Information

The FWA-1214 is available in the following standard configurations.

Contact your Advantech representative for availability of other configuration options.

Table 3.3-1 Available Product Versions

Model Name	Configurations
FWA-1214LRI-4CA1R	DIN rail, Intel x7433RE, 4x 1G RJ45, 1x pair bypass, 8G RAM, 64G SSD, 1x RJ45 console, 1xHDMI
FWA-1214CRI-4CA1R	DIN rail, Intel x7433RE, 6x 1G RJ45, 1x pair bypass, 8G RAM, 64G SSD, 1x RJ45 console, 1xHDMI
FWA-1214FRI-8CA1R	DIN rail, Intel x7835RE, 4x 1G RJ45, 1x pair bypass, 2x 1G SFP, 8G RAM, 64G SSD, 1x RJ45 console, 1x D-Sub console, 1xHDMI
NMC-R0DK-00A1	RF carrier for FWA-1214. It can install 2 x NMC-R014T-12A1
NMC-R014T-12A1	LTE RF module kit for FWA-1214. It includes LN920A LTE module and antenna kits
96PSA-A60W24T2-3	60W power adapter for FWA-1214  Note! The FWA-1214 certification does not include power adapter. Please select a suitable power supply based on the specifications of your site.

3.4 Technical Specifications

Table 3.4-1 Datasheet

System P/N		FWA-1214LRI-4CA1R	FWA-1214CRI-4CA1R	FWA-1214FRI-8CA1R
Form Factor		DIN-Rail		
Processor System	Processor	x7433RE	x7433RE	x7835RE
	Core Count	4	4	8
	Base Frequency	1.5 GHz	1.5 GHz	1.3 GHz
	BIOS	AMI UEFI		
Virtualization		Intel® VT-X, VT-D		
Memory	Technology	DDR5		
	Max. Capacity	Maximum 16 GB, default installation 8 GB		
	Socket	SODIMM		
	ECC Support	In-Band ECC		
Networking	Controller	Intel i210		
	1 GbE	4 x 1 GbE RJ45	6 x 1 GbE RJ45	4 x 1 GbE RJ45 2 x 1 GbE SFP
	LAN Bypass	1 pair		
Expansion Slot	M.2 (Except SSD)	Option		
	SIM Socket	Option		
Storage	M.2	M.2 2242, M key, SATA SSD, default installation 64 GB		
	eMMC	Option by project		
I/O	Console	1 x RJ45 type console	1 x RJ45 type console	1 x RJ45 type console 1 x D-sub type console
	USB	1 x USB 3.0		
	LED Indicator	2 x Power LED, 2 x Software-defined LED		
	Display	1 x HDMI port		
	Button	1 x Reset button, 1 x Software-defined button		
TPM	TPM2.0	On board		
Power Supply	Power Type	Terminal Block		
	Watts	60 W (Optional power adapter not included with FWA-1214 certification)		
	Input	Dual DC: 12~48V		
	Connector	6P terminal block		
Environment	Operating Temperature	-40 ~ 60 °C (-40 ~ 140 °F) (0.7m/s air flow and not including power adapter)		
	Non-operating Temperature	-40 ~ 70 °C (-40 ~ 158 °F), 60 °C@95% Non-Condensing Humidity		
	Vibration Resistance (Operation)	5-500 Hz, 1 Grms, 3 axes, 1 hr/per axis		
	Shock Protection (Operation)	10 G, 11 ms		
Cooling		Fanless		
Mechanical	Metallic Material	SGCC & Aluminum		
	Mounting	DIN-Rail		
	Dimensions (W x H x D)	160 x 96.5 x 150 mm (6.3" x 3.8" x 5.9") w/ NMC-R0DK 160 x 66.2 x 150 mm (6.3" x 2.6" x 5.9") w/o NMC-R0DK		
	Weight (G.W.)	2.5kg		
OS Support		Linux		
Advantech S/W Packages		1. ALBPCU 2. Server Monitoring 5. Quick Start Linux Image		
Certification	EMC/Safety	CE, FCC, CB, UL, CCC		
	Others	IEC-61850-3, IEEE-1613		

3.4.1 Processor(s)

The FWA-1214 supports single Intel Atom® x7433RE or x7835RE processors. The table below gives an overview of the processor SKUs for communication infrastructure which can be supported on the FWA-1214:

Table 3.4-2 Intel Atom® x7000 series processors supported list

CPU SKU	Cores	Base Frequency	Cache	DDR5	TDP
x7433RE	4	1.5GHz	6MB	4800MHz	9W
x7835RE	8	1.3GHz	6MB	4800MHz	12W

3.4.2 Network Interface

In the front panel, FWA-1214 provide all the on-board LAN ports for network connection. The FWA-1214 supports 4 x 1GbE RJ45 ports and additional 2 x 1GbE RJ45 or SFP ports (By SKU) implemented using Intel i210 Ethernet controllers.

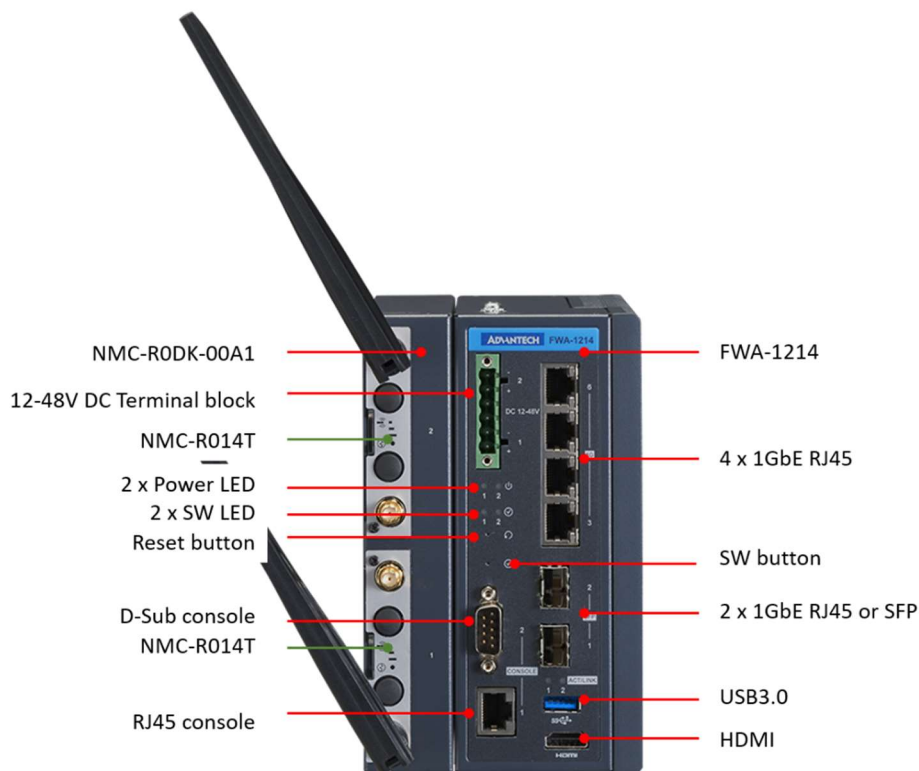


Figure 3.4-1 On-board Network Ports

FWA-1214 can support LTE connection by installing NMC-R0DK-00A1 and NMC-R014T-12A1 modules. NMC-R014T-12A1 is pre-installed with LN920A LTE module and antenna kits and supports 2x SIM slots. FWA-1214 can install up to two NMC-R014T-12A1 modules.



Note! The certification of FWA-1214 does not include RF certification. According to the regulations of the country, it may be necessary to obtain RF certification when using FWA-1214 with NMC-R014T-12A1 installed. If you need to purchase and install NMC-R014T-12A1, please

contact your distributor, sales representative, or Advantech's customer service center for detail.

3.4.3 TPM

A 2.0 Trusted Platform Module is supported on the FWA-1214.

Trusted Platform Module (TPM): A TPM is a dedicated hardware component or microcontroller that provides secure storage and cryptographic functions. It is designed to enhance the security of a computing platform by securely storing encryption keys, performing cryptographic operations, and verifying the integrity of the system.

3.4.4 Internal Storage

FWA-1214 support two M.2 2242 SSDs. The FWA-1214 comes pre-installed with 1x 64GB M.2 SSD. You can install an additional M.2 2242 SSD module on the 2nd M.2 slot. For detail on socket location, refer to [Section 5.1](#) note

3.4.5 System Memory

A total of 1 x DDR5 SODIMM are supported on the FWA-1214. The FWA-1214 supports up to 16GB of DDR5 SODIMM and default installation is 8GB. We do not recommend replacing DDR module by yourself. If you need to change the capacity or brand of DDR module, please contact your distributor, sales representative, or Advantech's customer service center for technical support.

3.4.6 Redundant DC input

FWA-1214 supports redundant 12-48VDC power input, and terminal blocks are provided in the accessory box. Please read the power input rating specifications on the product label carefully and select a suitable power supply based on the specification requirement of your site.

3.4.7 BIOS

FWA-1214 BIOS is based on AMI's APTIO BIOS and compliant to the UEFI, SMBIOS and ACPI specifications.

The BIOS performs probing, initialization and configuration of the FWA-1214 and initializes the OS boot process at the end of POST (Power-On-Self-Test).

Regular BIOS output as well as the setup menu are displayed via console port and please note that the FWA-1214 does not have any on-board POST Code LEDs. A special POST code adapter is required to retrieve BIOS error codes.

All BIOS configuration parameters are stored in NVRAM, a dedicated section of the BIOS flash chip. Parameters are no longer stored in legacy CMOS RAM by the platform BIOS. I.e. BIOS configuration parameters will not be lost due to an empty battery.

3.4.8 iServer monitoring (optional)

iServer Monitoring is a comprehensive software solution to secure the efficient operation of your servers. It actively monitors the health of your hardware, tracks resource utilization and identify any anomalies that could be potentially indicate early signs of failure. By doing so, it effectively minimizes the need for daily patrols and inspections in IT/OT maintenance, enabling you to dedicate more time to engaging and proactive tasks. For a detailed description of **iServer Monitoring** features, please contact Advantech representative directly to obtain the **iServer Monitoring** specification and quotation.

3.5 Available Accessories and Related Products

The following accessories are available for ordering. Please contact your Advantech representative

Table 3.55-1 Accessories

Order Number	Description
1702002600	Power cable 3P 180 cm, USA
1702002605	Power cable 3P 180 cm, Europe
1700000237	Power cable 3P 180 cm, JP
1700009652	Power cord 3P 180 cm, China
1700032693-11	Power Cord 3P 183cm, BSI
96PSA-A60W24T2-3	60W power adapter
NMC-R0DK-00A1	RF carrier
NMC-R014T-12A1	LTE RF module kit

4. Configuration and Service

4.1 On board connectors

Table 4.1-1 Main board connectors Position (TOP)

Location	Function
CN1	SPI socket for SPI flash (BIOS)
CN3	80-port connector
CN12	8051 Programming Header
CN16	M.2 #1 connector
CN17	M.2 #2 connector
CN26	Front USB disable jumper
BAT1	Battery holder for coin battery
USB1	USB connector (USB2.0 x2)
FAN1	FAN connector

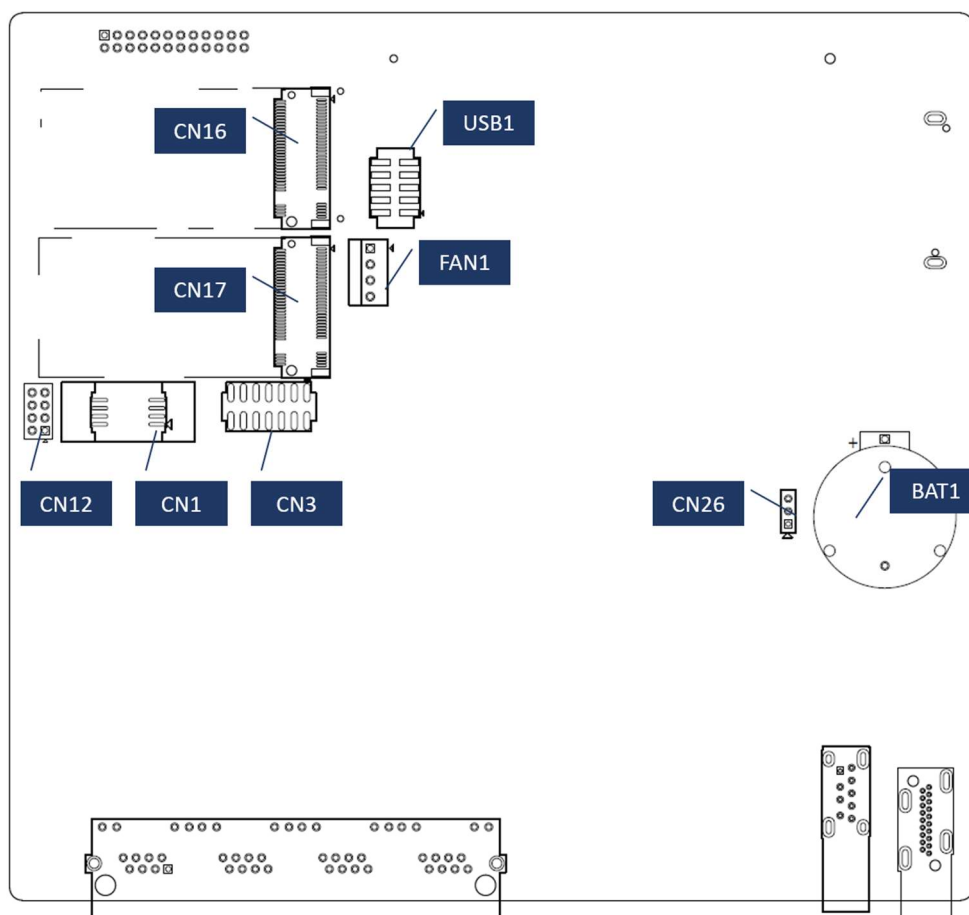


Figure 4.1-1 Main board connectors (TOP)

Table 4.1-2 Main board connectors Position (BUTTON)

Location	Function
C0-DIMM_A1	DDR5 SODIMM SLOT
CN14	GEN-Z connector
CN20	For Front Console and DB9 connector
CN21	For Front LED Control Header
CN23	Power connector

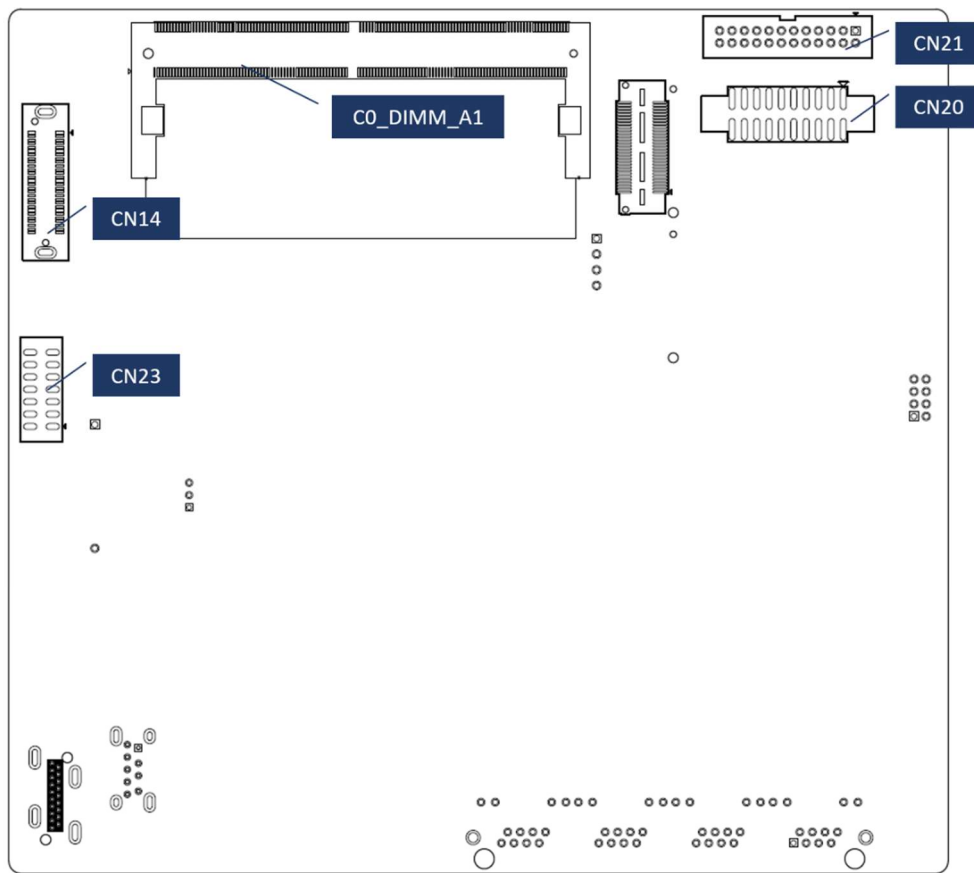


Figure 4.1-2 Main board connectors (BUTTON)

Table 4.1-3 Power board connectors Position

Location	Function
CN1	Power connector
CN6	For Front Console and DB9 connector
CN7	For Front LED Control Header

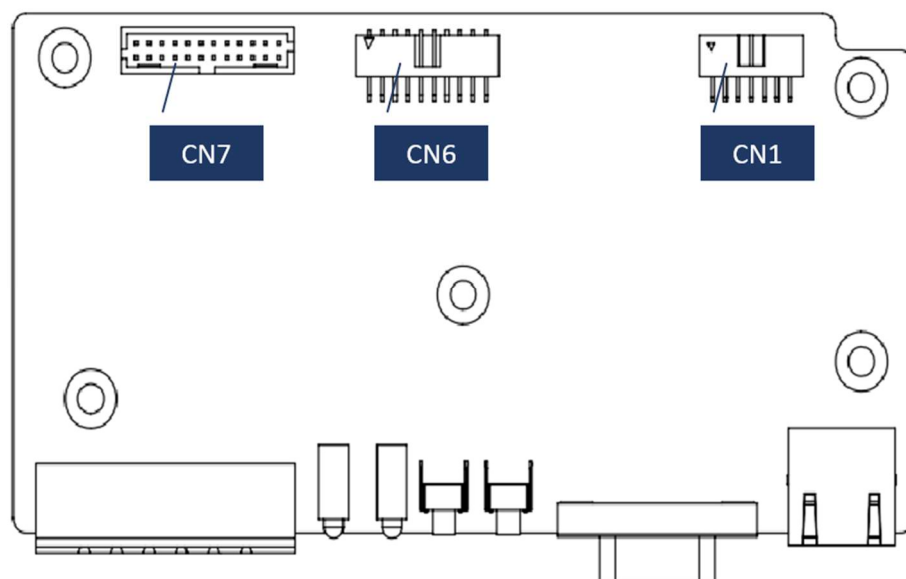


Figure 4.1-3 Main board connectors (BUTTON)

4.2 BIOS Setup Menu

FWA-1214 BIOS is based on AMI's APTIO BIOS and compliant to the UEFI, SMBIOS and ACPI specifications.

The BIOS performs probing, initialization and configuration of the FWA-1214 and initializes the OS boot process at the end of POST (Power-On-Self-Test).

Regular BIOS output as well as the setup menu are displayed via console port and please note that the FWA-1214 does not have any on-board POST Code LEDs. A special POST code adapter is required to retrieve BIOS error codes.

All BIOS configuration parameters are stored in NVRAM, a dedicated section of the BIOS flash chip. Parameters are no longer stored in legacy CMOS RAM by the platform BIOS. I.e. BIOS configuration parameters will not be lost due to an empty battery.

4.2.1 BIOS Defaults

The BIOS comes with a set of configuration parameters when shipped by Advantech referred to as "Optimized Defaults" or "factory defaults". The user can change BIOS settings via the setup menu either temporarily or permanently by saving the changes as "User defaults".

The BIOS loads Optimized Defaults by the option "Restore Defaults; and loads User defaults by the option "Restore User Defaults". If no User defaults have been defined, the BIOS will do nothing.

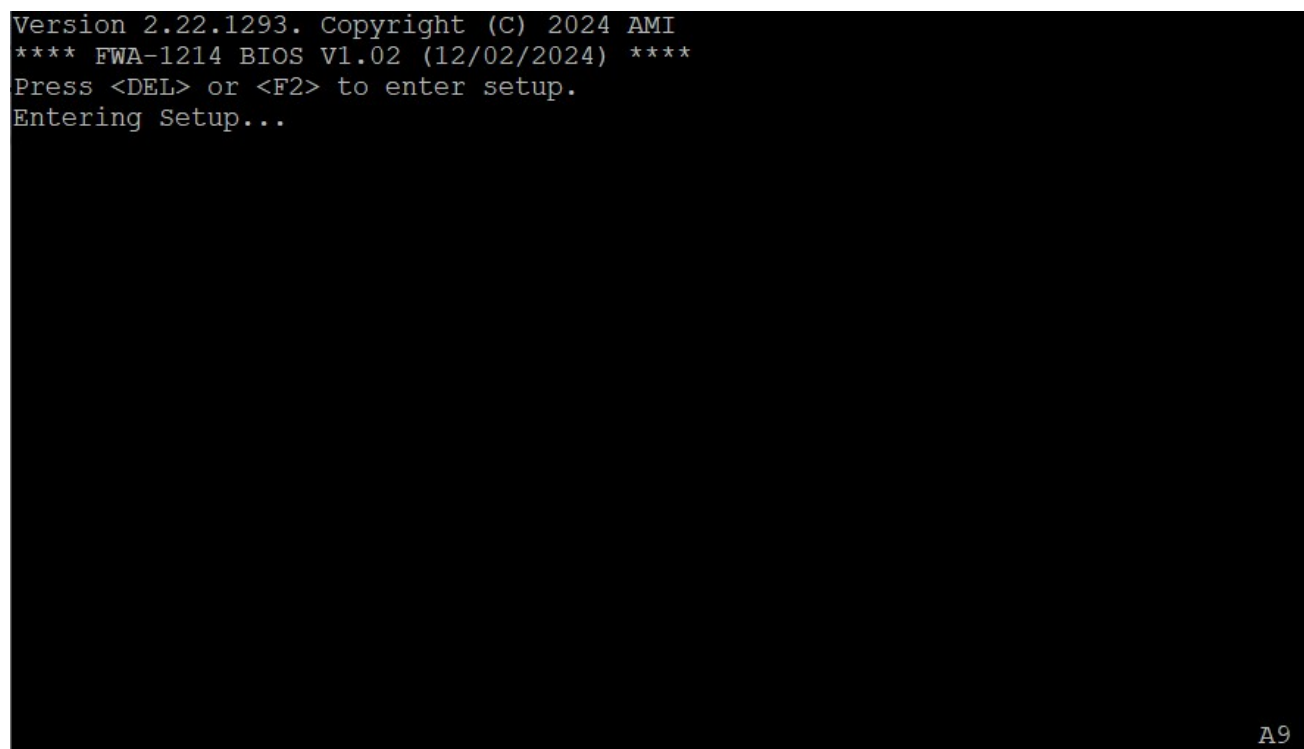
4.2.2 BIOS Setup Menu

This section describes the FWA-1214's UEFI BIOS based on AMI's APTIO BIOS.

Users can modify BIOS settings and control the special features of the FWA-1214 using the BIOS setup menu.

Please note that Advantech supports shipping the FWA-1214 with custom BIOS defaults to simplify the deployment and integration for our customers. Please contact your Advantech representative if you want to receive more information regarding this service.

The BIOS Setup Menu can be entered via the BIOS POST screen displayed on the console interface:

A screenshot of a BIOS POST screen. The background is black, and the text is white. The text reads: "Version 2.22.1293. Copyright (C) 2024 AMI", "**** FWA-1214 BIOS V1.02 (12/02/2024) ****", "Press or <F2> to enter setup.", and "Entering Setup...".

```
Version 2.22.1293. Copyright (C) 2024 AMI
**** FWA-1214 BIOS V1.02 (12/02/2024) ****
Press <DEL> or <F2> to enter setup.
Entering Setup...
```

A9

Figure 4.2-1 BIOS POST screen (example)

BIOS Setup can be entered by hitting or <F2> keys during POST.

The BIOS setup menu screens have a few main elements as shown below. The menu bar displays the selectable menu pages as tabs. The parameter window displays and allows configuration of the settings available in a given menu page or a submenu thereof. Auxiliary text providing information about the selected setup item is displayed in the top right corner.

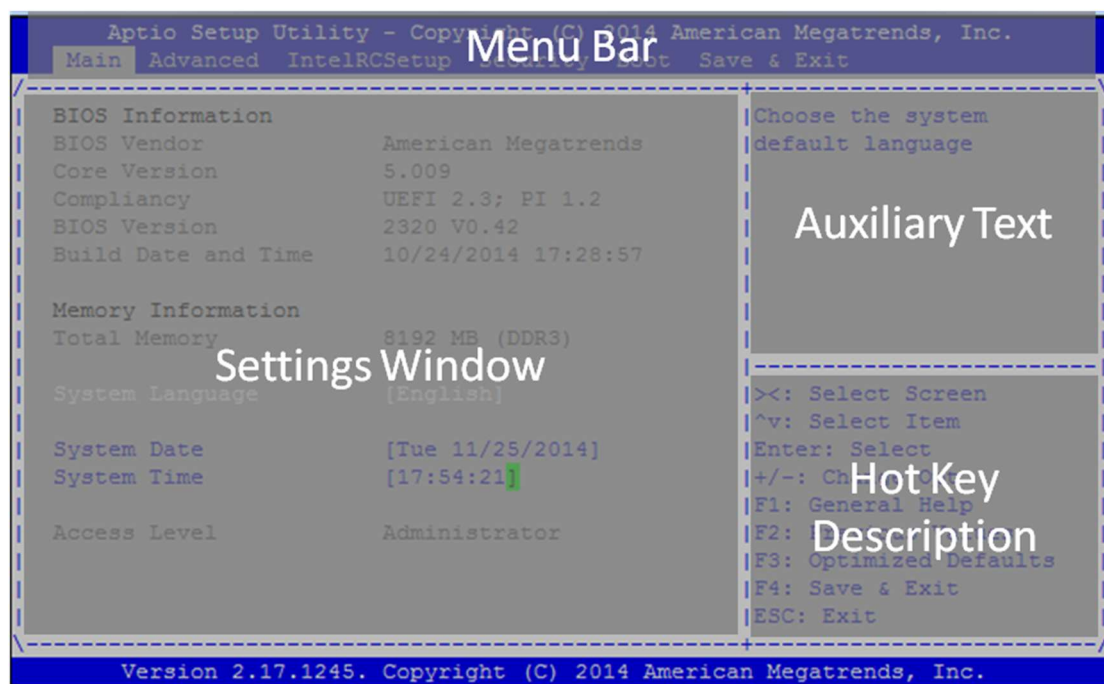


Figure 4.2-2 BIOS Setup Screen Organization

4.2.3 Main Setup Menu

Please reference “Common BIOS User Manual”, Chapter 1.2.1.

<https://www.advantech.com/zh-tw/support/details/manual?id=1-2F8TKW5>

4.2.4 Platform Setup Menu

Here only described “Hardware Monitor” “Watchdog Configuration” “SIO Configuration” “SW Button Configuration” and “SW GPIO Configuration”. Please reference “Common BIOS User Manual”, Chapter 1.2.2 for other items.

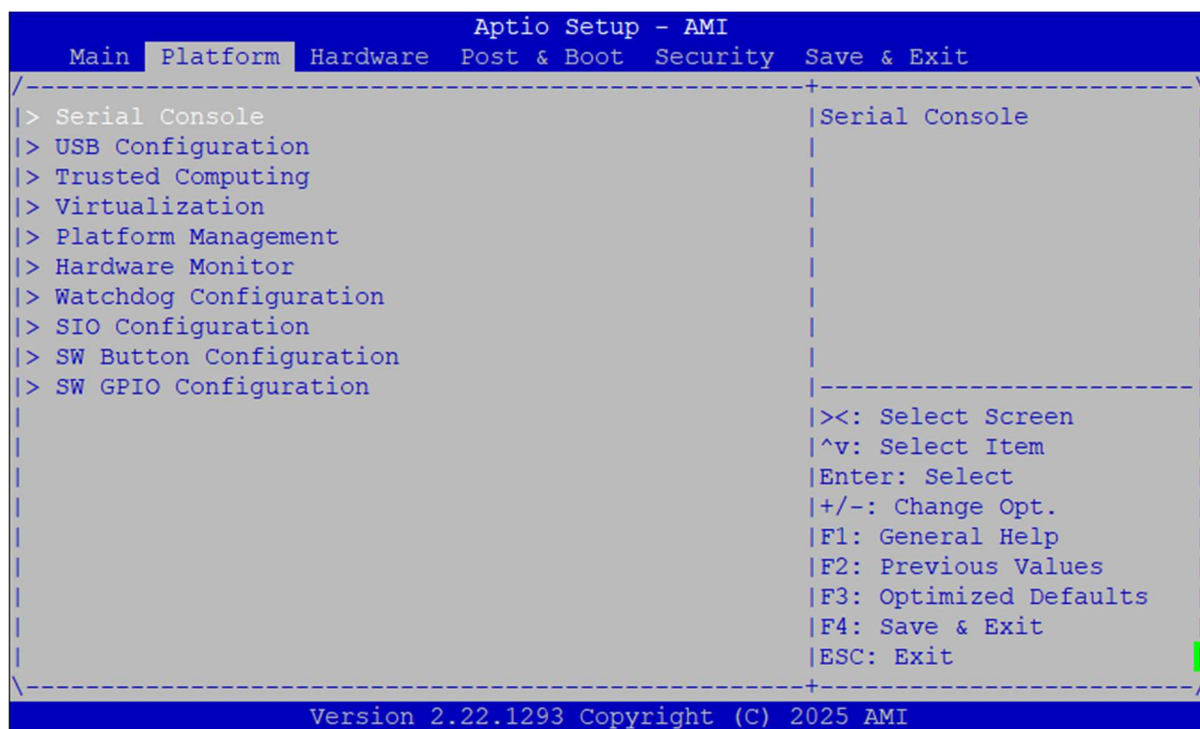


Figure 4.2-3 Platform Setup Main screen

4.2.4.1 Hardware Monitor

This sub menu allows you to check system voltage and temperature values.

Platform		Aptio Setup - AMI	
CPU-TMP		:	+37 .C
PCB_BUTTON-TMP		:	+28 .C
PCB_TOP-TMP		:	+29 .C
AUX_5-VOL		:	+4.992 V
PAY_5_0-VOL		:	+5.024 V
PAY_12-VOL		:	+11.932 V
CPU_VCORE-VOL		:	+0.840 V

Figure 4.2-4 Platform Setup: Hardware Monitor Menu

4.2.4.2 Watchdog Configuration

This sub menu allows you to change the settings used for Watchdog.

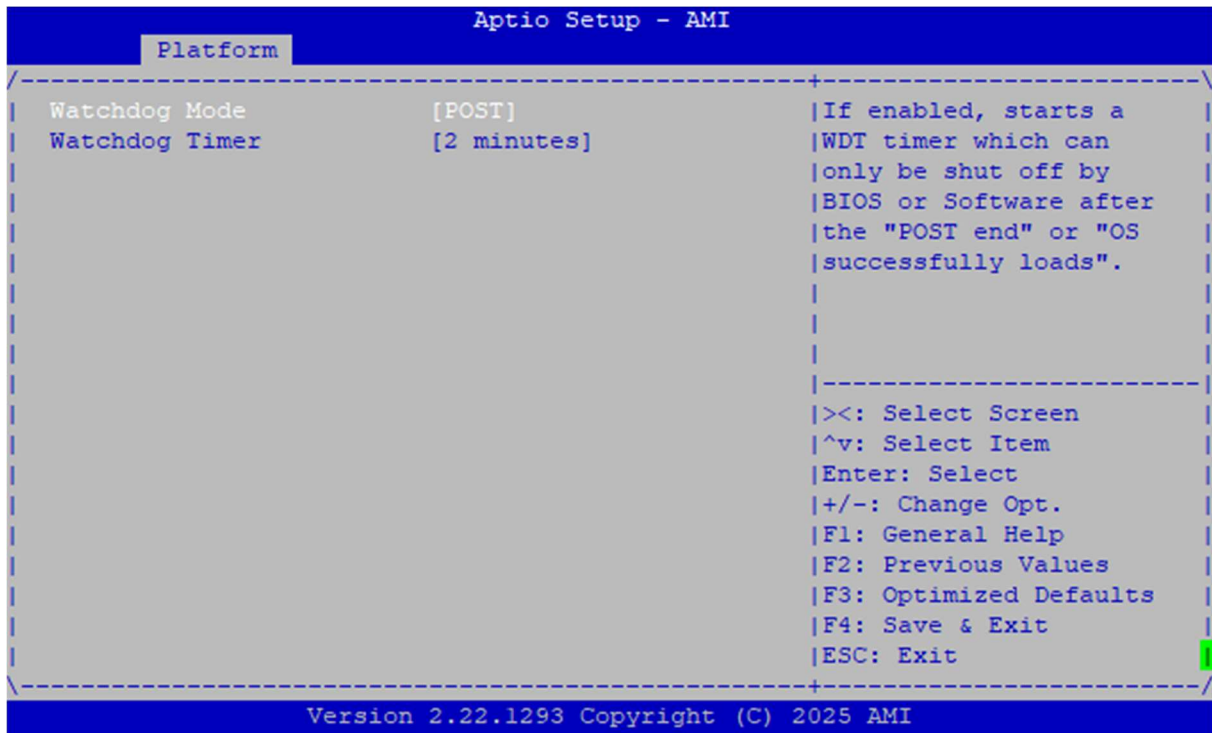


Figure 4.2-5 Platform Setup: Watchdog configuration Menu

Table 2-1 Watchdog Setup Menu

Setup item	Access / Options	Description
Watchdog Mode	Disabled / POST * / OS / PowerON	If enabled, starts a WDT timer which can only be shut off by BIOS or Software after the "POST end" or "OS successfully loads". Disabled : Disabled WDT POST : WDT is only on during BIOS boot time. (Default) OS : WDT is only on during OS boot time. PowerON : WDT is on during BIOS and OS boot time.
Watchdog Timer	2 minutes * / 4 minutes / 6 minutes / 8 minutes / 10 minutes	Configure the length of the Watchdog Timer. Not available if Watchdog Timer is disabled.

“*” mean BIOS default setting

4.2.4.3 SIO Configuration

This sub menu allows you to change the settings used for COM2.

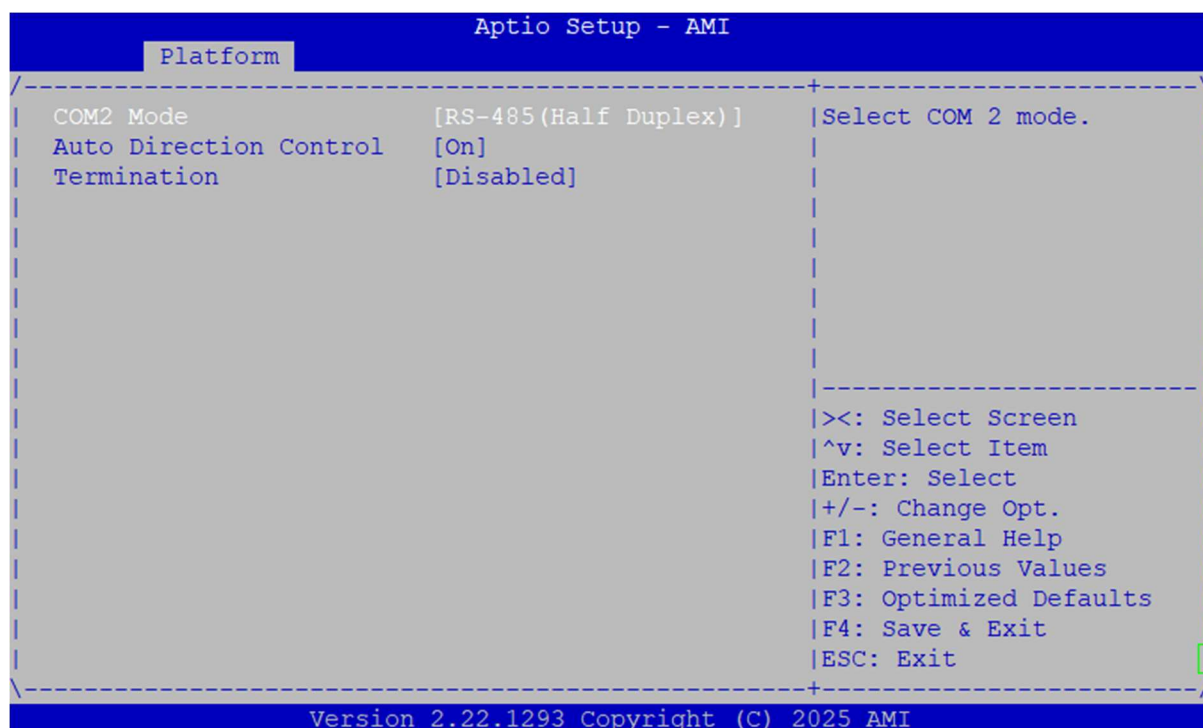


Figure 4.2-6 Platform Setup: SIO configuration Menu

Table 3 SIO configuration Setup Menu

Setup item	Access / Options	Description
COM2 Mode	LoopBack / RS-232* / RS-485(Half Duplex) / RS-422(Full Duplex)	Select COM 2 mode.
Auto Direction Control	On* / Off	Configure auto flow control. Only available if COM2 mode is RS-485 or RS-422. On : Enable auto flow control Off : Disable auto flow control
Termination	Disabled* / Enabled	Enable or Disable RS-485 receiver termination. Only available if COM2 mode is RS-485.

* mean BIOS default setting

4.2.4.4 SW Button Configuration

This sub menu allows you to change the settings used for the SW Button Mode.

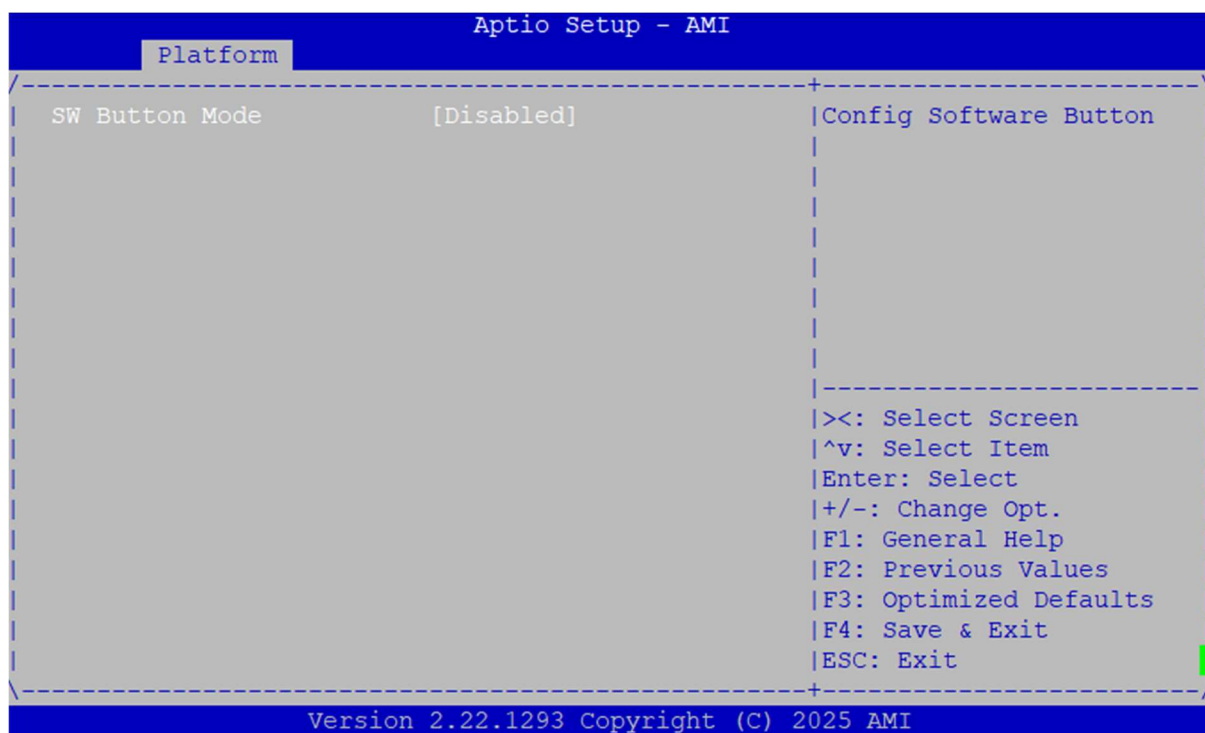


Figure 4.2-7 Platform Setup: SW Button Configuration Menu

The settings for SW Button can be accessed in this menu.

This sub menu allows you to change the settings used for the SW Button. For example, users can define the SW Button Mode as Sleep Button or others.

Table 4.2-4 SW Button Configuration Menu items

Setup item	Access / Options	Description
SW Button Mode	Sleep Button / Driver / Disabled *	Set the SW Button as Sleep Button or Driver mode or disable it.

“*” mean BIOS default setting

4.2.4.5 SW GPIO Configuration

This sub menu allows you to change the settings used for SW GPIO.

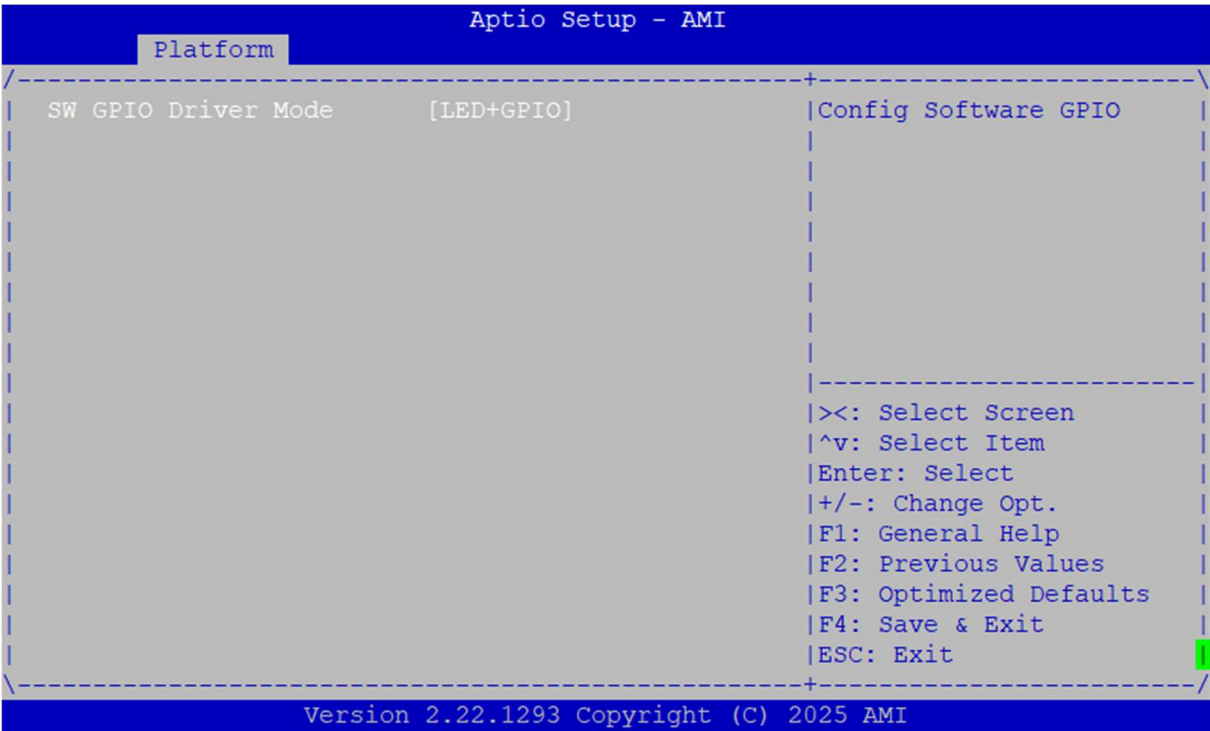


Figure 4.2-8 Platform Setup: SW GPIO Configuration Menu

Table 4.2-5 SW GPIO Configuration Menu

Setup item	Access / Options	Description
SW GPIO Driver Mode	GPIO Only / LED+GPIO *	Set SW GPIO Driver mode to GPIO Only or both LED and GPIO.

“*” mean BIOS default setting

4.2.5 Hardware Setup Menu

This sub menu allows you to change the settings of the Intel chipset. Please note that “chipset” is a legacy term and the related functionality is split over the CPU and PCH portions of the SoC. Similarly, the terms “South Bridge” and “North Bridge” are legacy terms and do not represent the silicon implementation any more. However, those terms are kept consistent with previous products to allow users to navigate more easily.

The sub menus are described on the following pages.

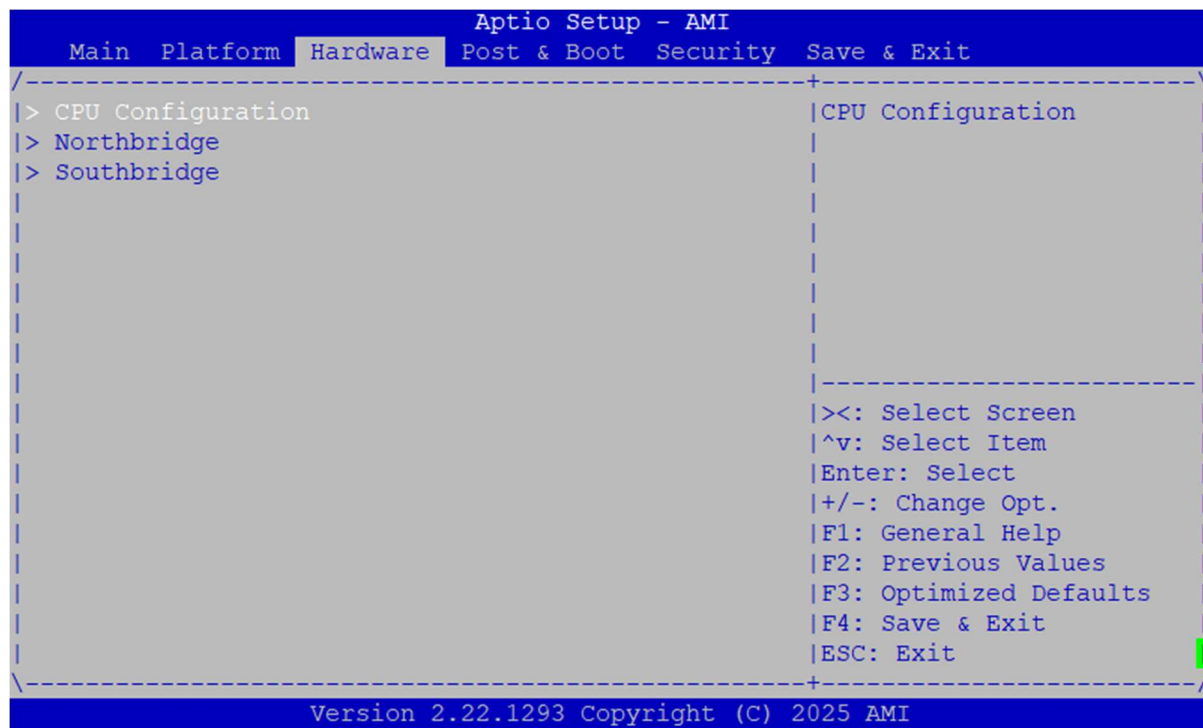


Figure 4.2-9 Hardware Configuration Menu

4.2.5.1 Hardware Setup: CPU Configuration

This menu use example of Amstonlake CPU configuration.

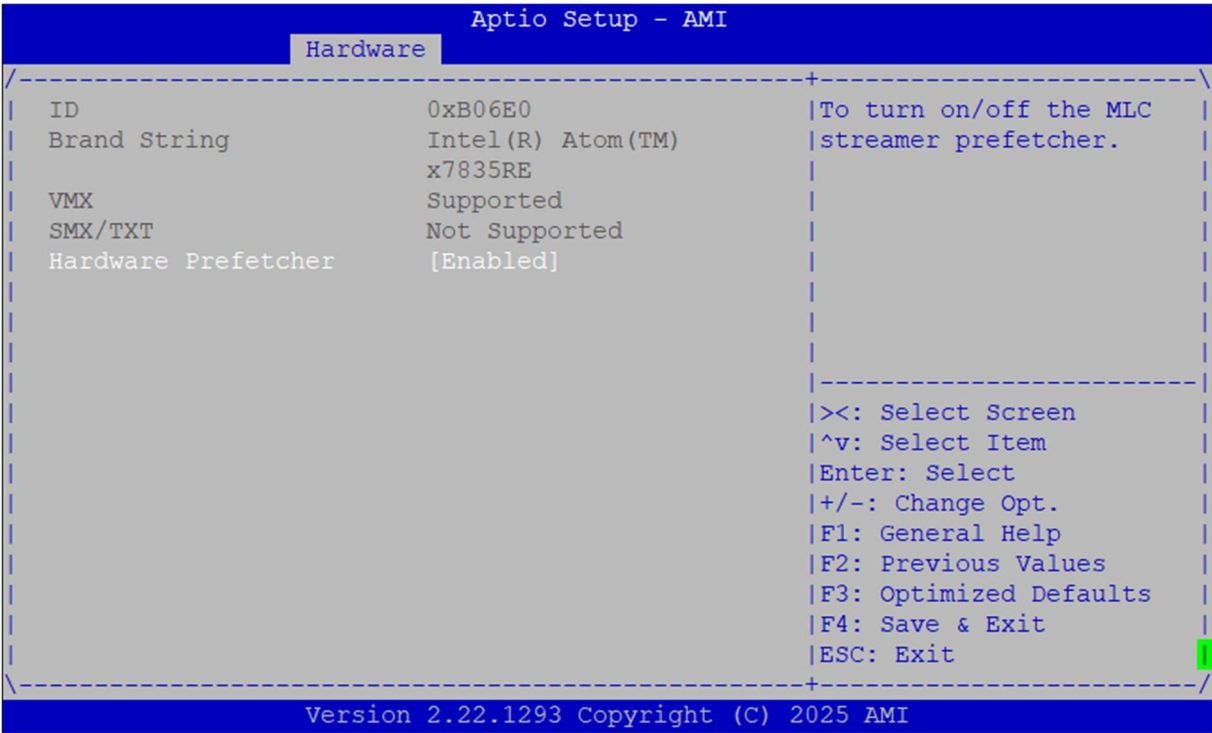


Figure 4.2-10 Processor Configuration Menu

Table 4.2-6 Processor Configuration Menu

Setup item	Access / Options	Description
ID	Display only	Displays information on the processor installed
Brand String		
VMX		
SMX/TXT		
Hardware Prefetcher	Enable * Disable	Enable or disable Hardware Prefetcher feature. = MLC Streamer Prefetcher (MSR 1A4h Bit[0])
Adjacent Cache Line Prefetch	Enable * Disable	To turn on/off prefetching of adjacent cache lines

“*” mean BIOS default setting

4.2.5.2 Hardware Setup: North Bridge Configuration

This menu allows the configuration of the memory controller and graphics of the SoC.

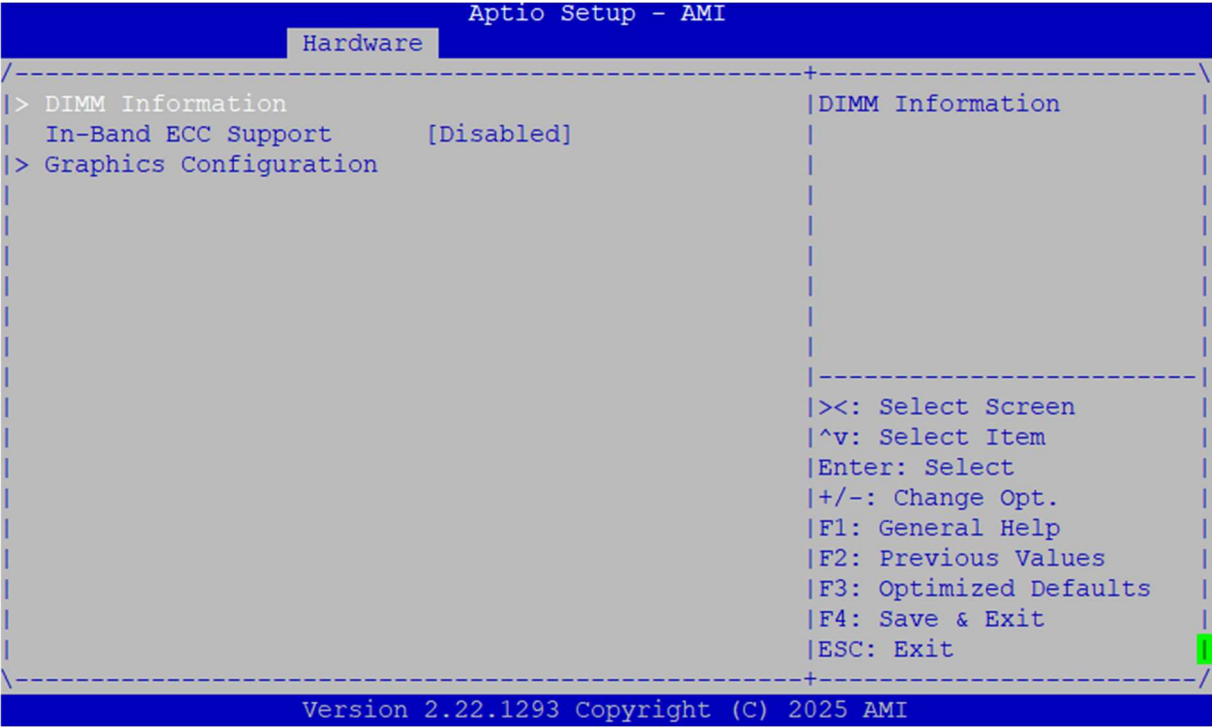


Figure 4.2-11 North Bridge Configuration Menu

Table 4.2-7 North Bridge Configuration Menu

Group	Setup item	Access / Options	Description
DIMM Information	DIMM Information	Display only	Displays information on the processor installed
None	In-Band ECC Support	Disabled * / Enabled	Enable/Disable In-Band ECC. Will be enabled if memory has symmetric configuration
Graphics Configuration	GTT Size	2MB / 4MB / 8MB *	Select the GTT Size
	Aperture Size	128MB / 256MB * / 512MB / 1024MB	Select the Aperture Size

“*” mean BIOS default setting

4.2.5.3 Hardware Setup: South Bridge Configuration

This menu contains settings for the South Bridge for related SATA and ACPI setting etc.

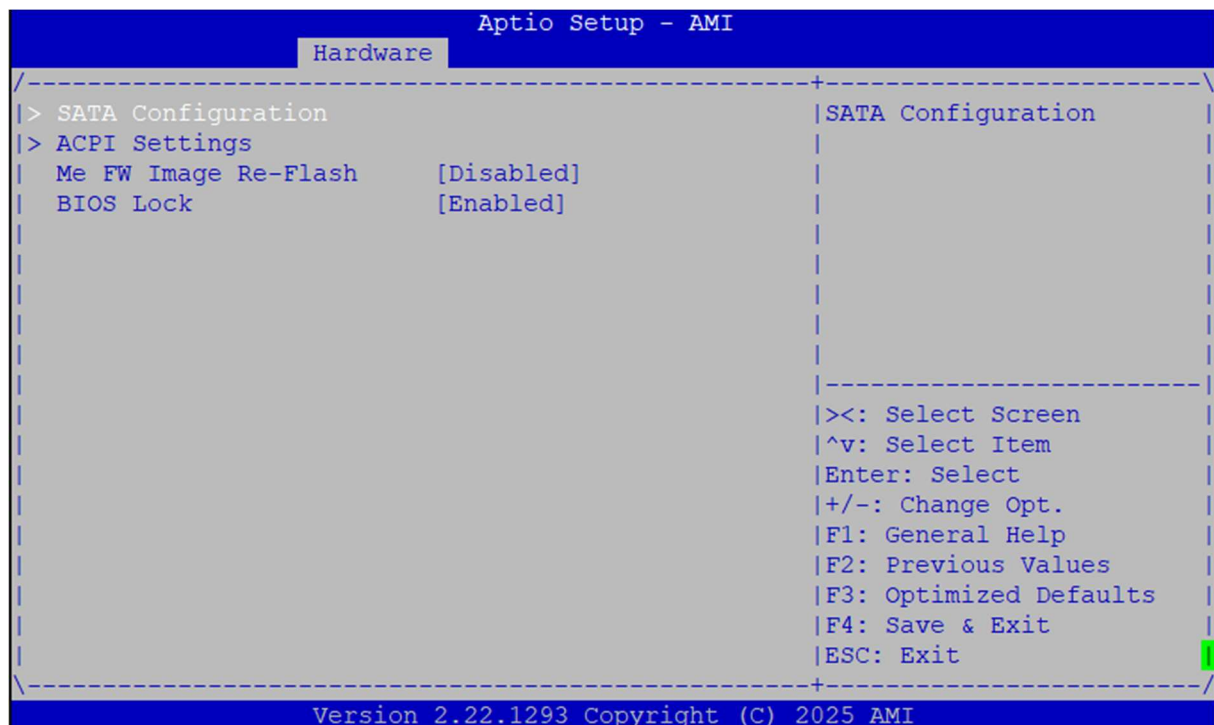


Figure 4.2-12 Hardware Setup: South Bridge Configuration

Table 4.2-8 Hardware Setup: South Bridge Configuration Menu Items

Setup item	Access / Options	Description
SATA Configuration	N/A	Select sub-menu.
ACPI Settings	N/A	Select sub-menu.
Me FW Image Re-Flash	Disabled * / Enabled	Enable/Disable Me FW Image Re-Flash function.
BIOS Lock	Disabled / Enabled *	Enable/Disable the PCH BIOS Lock Enable feature. Required to be enabled to ensure SMM protection of flash.

“*” mean BIOS default setting

4.2.5.4 South Bridge Configuration: SATA Configuration

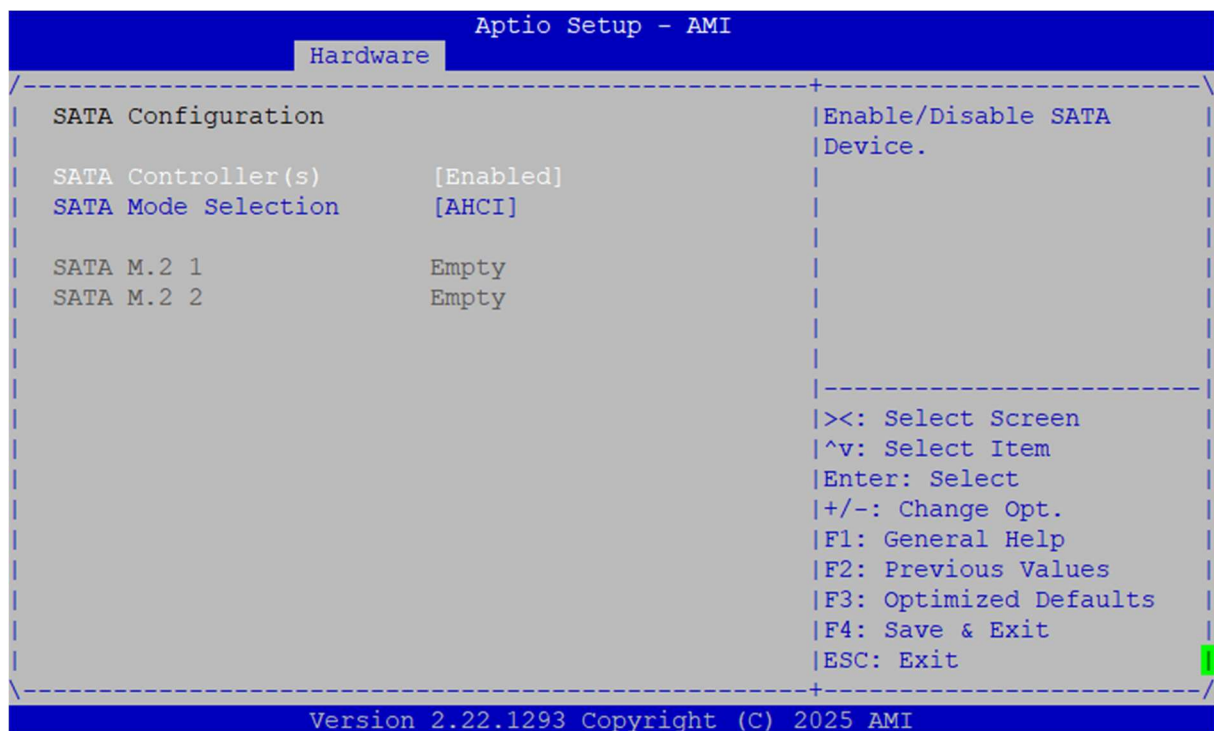


Figure 4.2-13 Hardware Setup: South Bridge Configuration

Table 9 Hardware Setup: SATA Configuration Menu Items

Feature	Default	Description
SATA Controller	Enabled* Disabled	To enable the SATA controller
SATA Mode Selection	AHCI	Determines how SATA controller operate.
SATA M.2 1	Display only	Show current SATA devices in use on the FWA-1214
SATA M.2 2	Display only	

“*” mean BIOS default setting

4.2.5.5 ACPI Setting

This menu contains settings for the ACPI configuration.

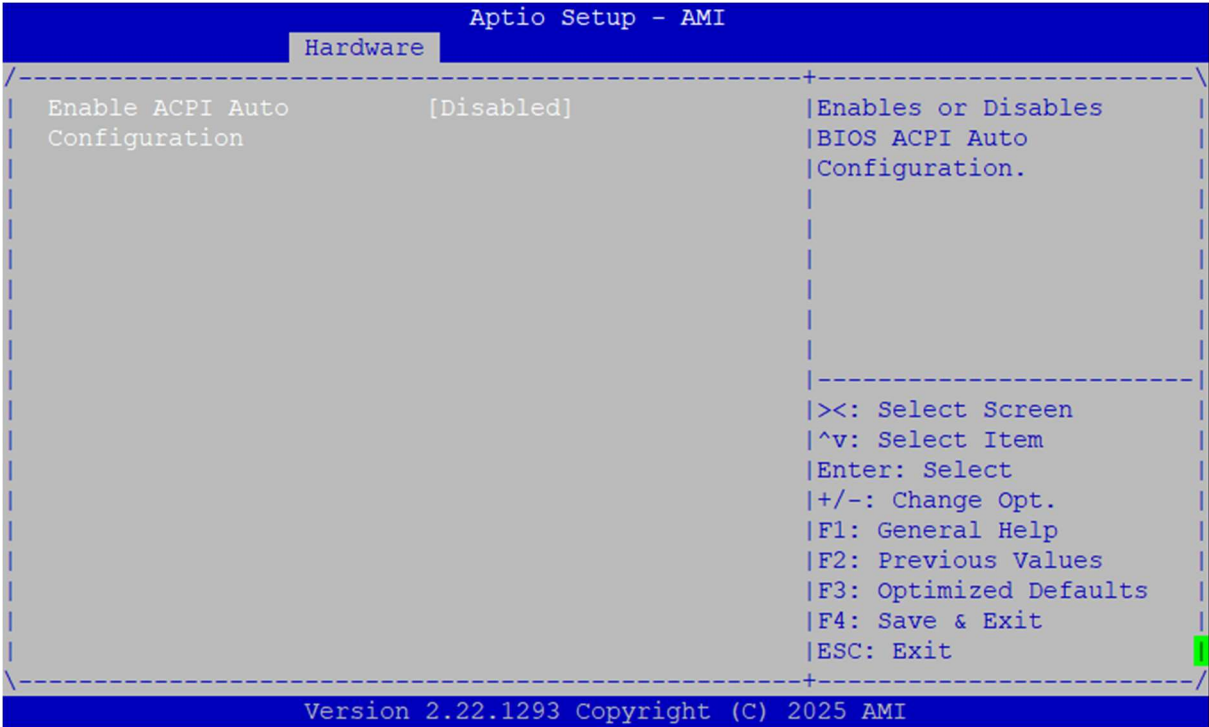


Figure 4.2-14 Hardware Setup: ACPI Configuration

Table 10 Hardware Setup: SATA Configuration Menu Items

Setup item	Access / Options	Description
Enable ACPI Auto Configuration	Enabled Disabled *	Enable or disable BIOS ACPI auto configuration

“*” mean BIOS default setting

4.2.6 SETUP POST & BOOT MENU

Users can configure the system boot priority settings via the boot page.

Please reference “Common BIOS User Manual”, Chapter 1.2.5 .

4.2.7 SECURITY SETUP

Allows users to configure the system a password

Please reference “Common BIOS User Manual”, Chapter 1.2.6 .

4.2.8 SAVE & EXIT MENU

Allows users to store BIOS configuration results and exit.

Please reference “Common BIOS User Manual”, Chapter 1.2.7 .

5. Appendix

5.1 Serial console cable pin configuration

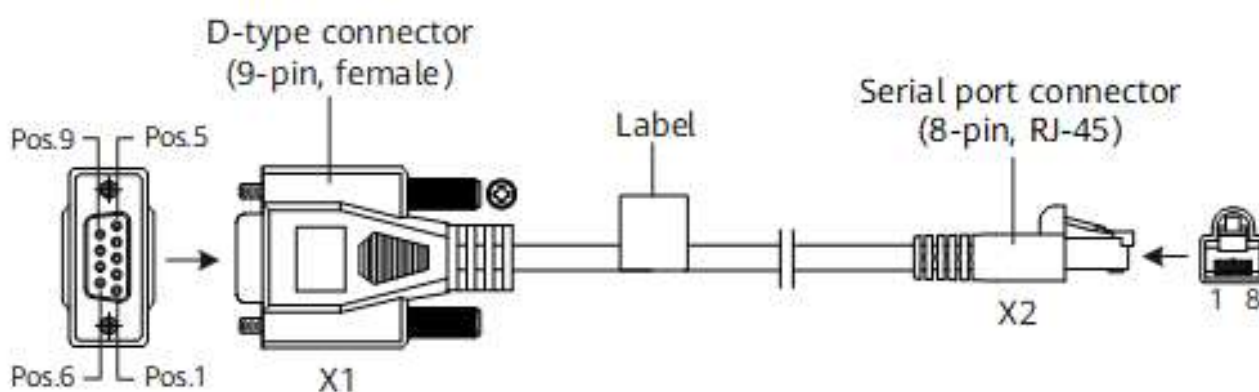


Figure 5.1-1 Serial Console port PIN definition

Table 11 Connector and Jumper List

Connector	X1 (DB9)	X2(RJ45)
Pin assignment	2	3
	3	6
	5	5

5.2 BIOS Post code

Please refer to the BIOS POST Codes Table in the document linked below:

<https://www.advantech.com/zh-tw/support/details/manual?id=1-2F8TKW5>

5.3 Sensors

The SIO uses Sensor Data Records (SDRs) to describe the sensors and their capabilities.

5.3.1 Sensor List

The following table is the list of sensors provided by the SIO:

Table 12 SIO Sensor list

SW Naming		Range				
(SW/BMC/BIOS)	MIN	N/A	N/A	N/A	MAX	Sensor-Reader
	N/A	max_hyst	max	crit_hyst	crit	Temp
	min	N/A	N/A	N/A	max	Vol/Fan
PCB_BOTTOM-TMP	0	82	85	87	90	PCB_BOTTOM-TMP
PCB_TOP-TMP	0	82	85	87	90	PCB_TOP-TMP
AUX_5-VOL	4.75	-	-	-	5.25	AUX_5-VOL
PAY_5_0-VOL	4.75	-	-	-	5.25	PAY_5_0-VOL
PAY_12-VOL	11.4	-	-	-	12.6	PAY_12-VOL
CPU_VCORE-VOL	0	-	-	-	1.8	CPU_VCORE-VOL
CPU-TMP	0				105	CPU-TMP

www.advantech.com

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