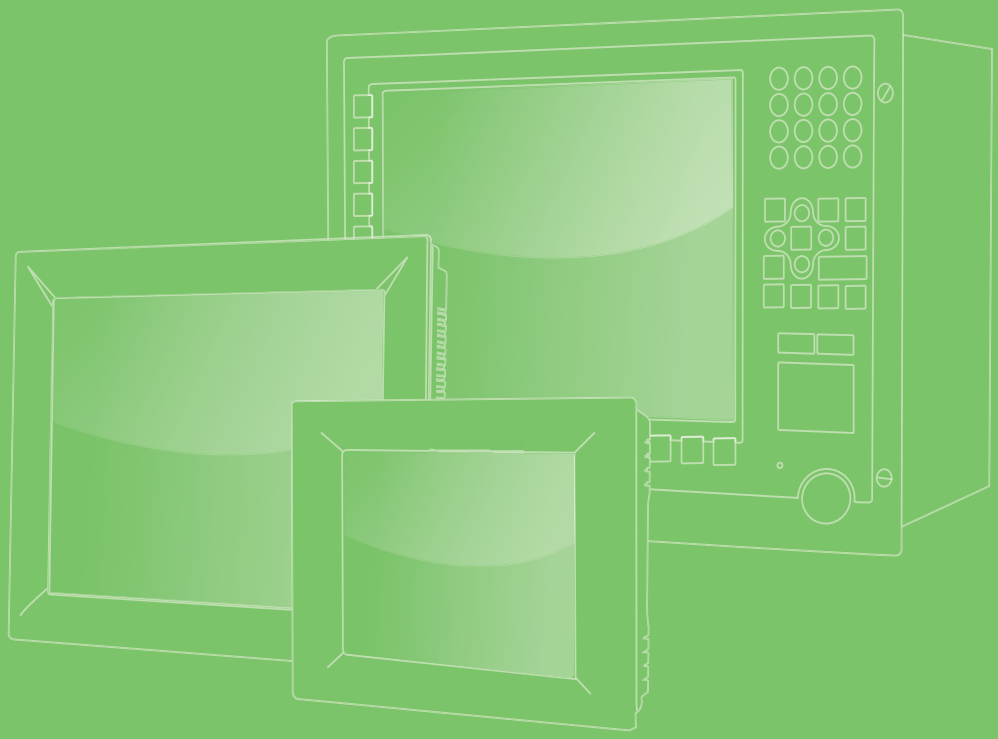

User Manual

SPC-XX40

Stationary Multi-Touch Panel Computer with AMD Dual-core Processor

ADVANTECH
eAutomation

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This Manual Covers the Following Models:

- SPC-1840
- SPC-2140

Part No. 2003184010 Edition 1

Printed in Taiwan May 2013

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 merchandize 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.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

FCC Class A

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.

Technical Support and Assistance

1. Visit the Advantech web site at http://support.advantech.com 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. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages
3. This product is intended to be supplied by a listed power supply complying with UL60950-1; rated $24V_{DC}$, 1.5A.

Safety Instructions

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. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. 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.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. 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.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Caution! *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*

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Chapter 1

General Information

1.1 Introduction

With a brand-new ID design, the SPC-1840/2140 series provide high resolution 18.5"/21.5" display and PCT multi-touch in 16:9 wide format. By embedding an AMD T56N 1.65GHz processor with independent GPU, the SPC-1840/2140 series can support advanced graphical performance in more complex applications. Built-in function and home key button for greater user usability and operating safety. The SPC-1840/2140 series also supports Mini-PCIe slot for communication function expansion. Moreover, SPC-1840/2140 series includes an all around waterproof design with M12 connectors. With this vertical I/O connector, cable routing can be an easy job in stationary / VESA Arm applications.

The following are the key features:

- 18.5" WXGA /21.5" Full HD TFT LED LCD display
- AMD dual-core 1.65GHz processor with independent GPU, advanced graphical performance
- 16:9 wide screen with PCT multi-touch
- Built-in function and home key button used for intuitive UI
- Anti-scratch touch surface: 7H hardness
- All around IP65 with waterproof M12 connector
- Support Mini-PCIe expansion slot
- Front LED indicator to show operating status
- Fanless cooling system
- Winner of the 2013 iF product design award

1.2 Packing List

- 4 x VESA Mount Screws
- 4 x HDD Tray Screws
- 1 x SPC Driver DVD
- 1 x Registration and Warranty Card
- 1 x Simplified Chinese Manual
- 1 x China ROHS list

1.3 Specifications

1.3.1 System Kernel

- **CPU:** AMD G-series T56N1.65GHz
- **BIOS:** AMI 32Mbit BIOS
- **System Chipset:** A50M FCH
- **VGA:** Integrated in A50M FCH
- **Memory:** 4GB SO-DIMM DDR3 SDRAM
- **LAN:** 10/100/1000Base-T x 2 (connection:M12 A-coding, 8-pin female)
- **Watchdog Timer:** 1 ~ 255 sec (system)
- **Expansion Slots:** Full-size Mini PCI-E x 1 (optional)
- **Storage:** 2.5" SATA HDD x 1(optional)
- **OS Support:** Microsoft® Win8/WES7P/XP/WES2009/Linux

1.3.2 I/O Ports

- **1 Serial Port:** RS-232 x 1 (connection:M12 A-coding, 8-pin male)
- **1 USB Port:** USB 2.0 x1 (connection:M12 A-coding, 8-pin female)

1.3.3 Safety and Environment

Safety

- FCC Class A
- CE certificated
- Certified with all around IP65

Environment

- **Operating Temperature:**
  - 0 ~ 50°C (32 ~ 122°F)
- **Storage Temperature:**
  - -20 ~ 60°C (-4 ~ 140°F)
- **Humidity:** 40°C @ 10~95% relative humidity (non-condensing, test times: 48hrs)
- **Vibration:** 1 grms (5 ~ 500 Hz) with HDD

1.4 LCD Specifications

	SPC-1840WP	SPC-2140WP
Display Type	WXGA LED LCD	Full HD LED LCD
Size (diagonal)	18.5"	21.5"
Maximum Resolution	1366 x 768	1920 x 1080
Maximum Colors	16.7 M	16.7 M
Viewing Angle	170°/160°	178°/178°
Luminance (cd / m2)	300	300
Backlight	LED	LED

Note! *There might be several bright or dark pixels on the LCD. This phenomenon is normal in today's LCD manufacturing.*

1.5 Touchscreen Specifications

- **Touch Type:** Projected Capacitive
- **Base Glass Construction:** Tempered glass
- **Light Transmission:** ≥88%(Measured by BYK-Gardner at 550nm, and the test method accorded to ASTM D1003)
- **Controller:** USB Interface

1.6 Power

- **Input Voltage:** $24V_{DC}$ (Typical)
- **Power Consumption:** 35W (Typical)

1.7 I/O Ports Arrangement

The arrangement of the I/O ports is shown in Figure 1.1

Figure 1.1 SPC-1840/2140 Rear View- I/O Port Arrangement

1.8 VESA Mounting

The SPC-1840/2140 have been designed with support for the VESA mount standard. Refer to figure 1.2. Supports 100mm VESA dimension. Use M4 screws (Length 8mm to 10 mm).

Warning! *Use suitable mounting apparatus to avoid risk of injury.*

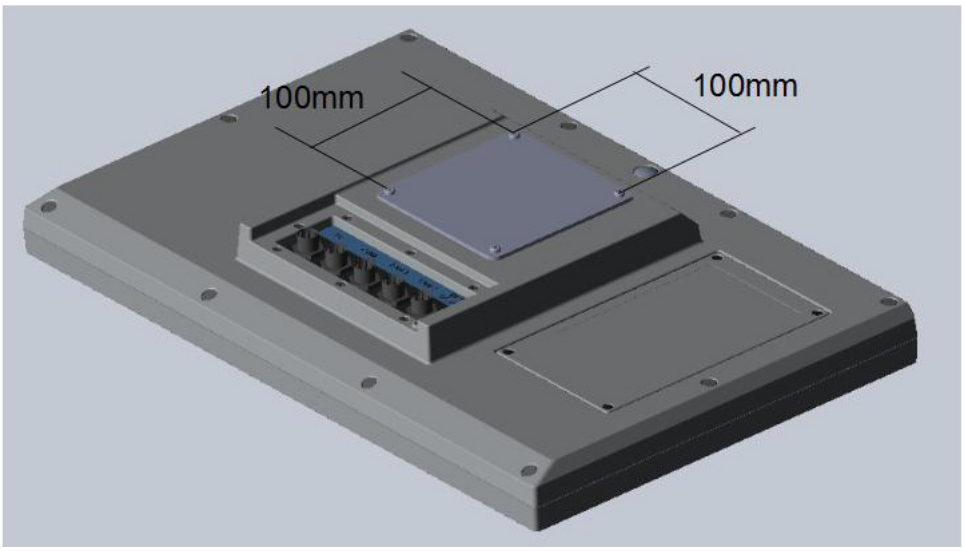


Figure 1.2 VESA Mounting

1.9 Dimensions and Cutout

SPC-1840WP

- **Weight:** 8kg
- **Dimensions (W x H x D):**
  - 488 x 309 x 65mm (19.2" x 21.2" x 2.6")

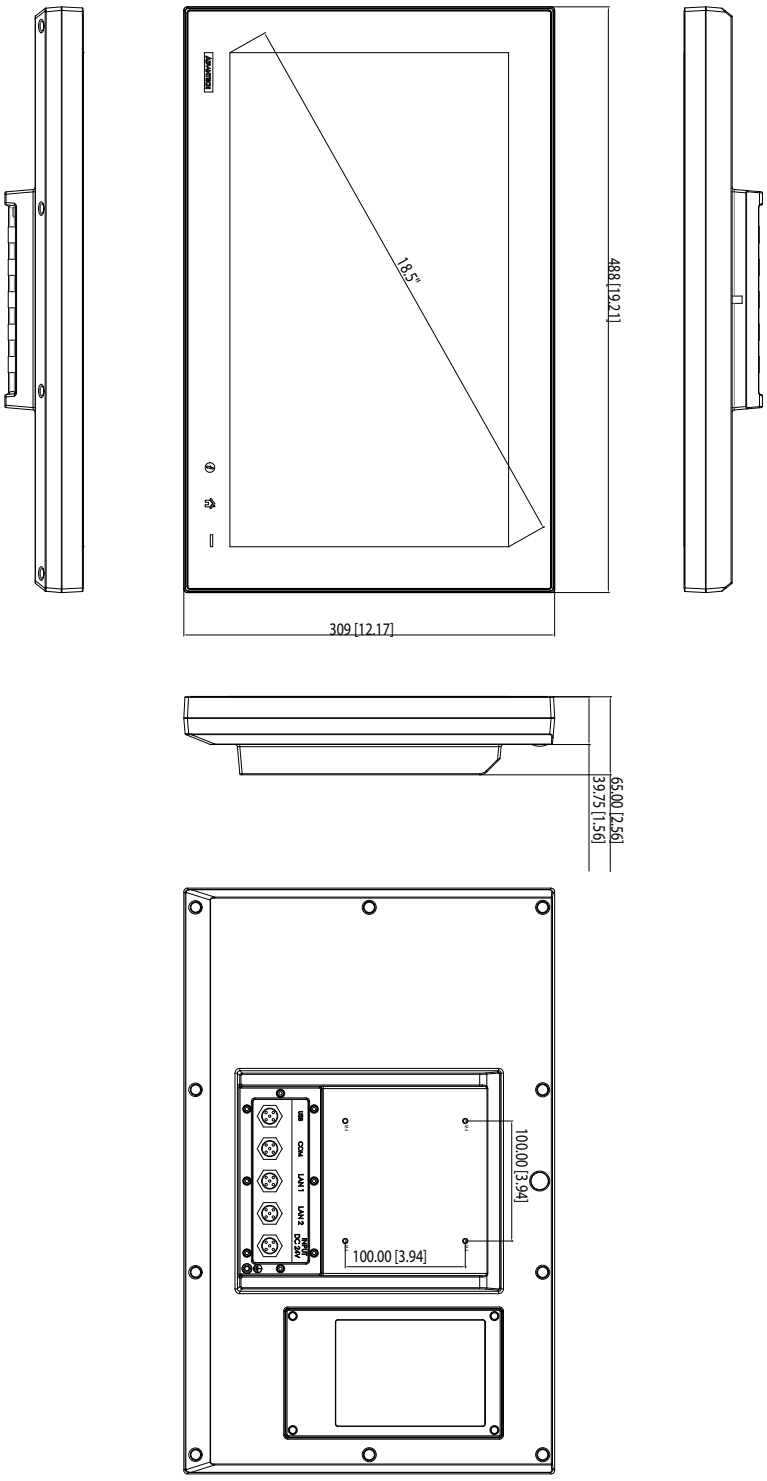


Figure 1.3 SPC-1840WP Dimensions

SPC-2140WP

- **Weight:** 8.5kg
- **Dimensions (W x H x D):**
  - 558.4 x 349.8 x 65 mm (21.98” x 13.77” x 2.56”)

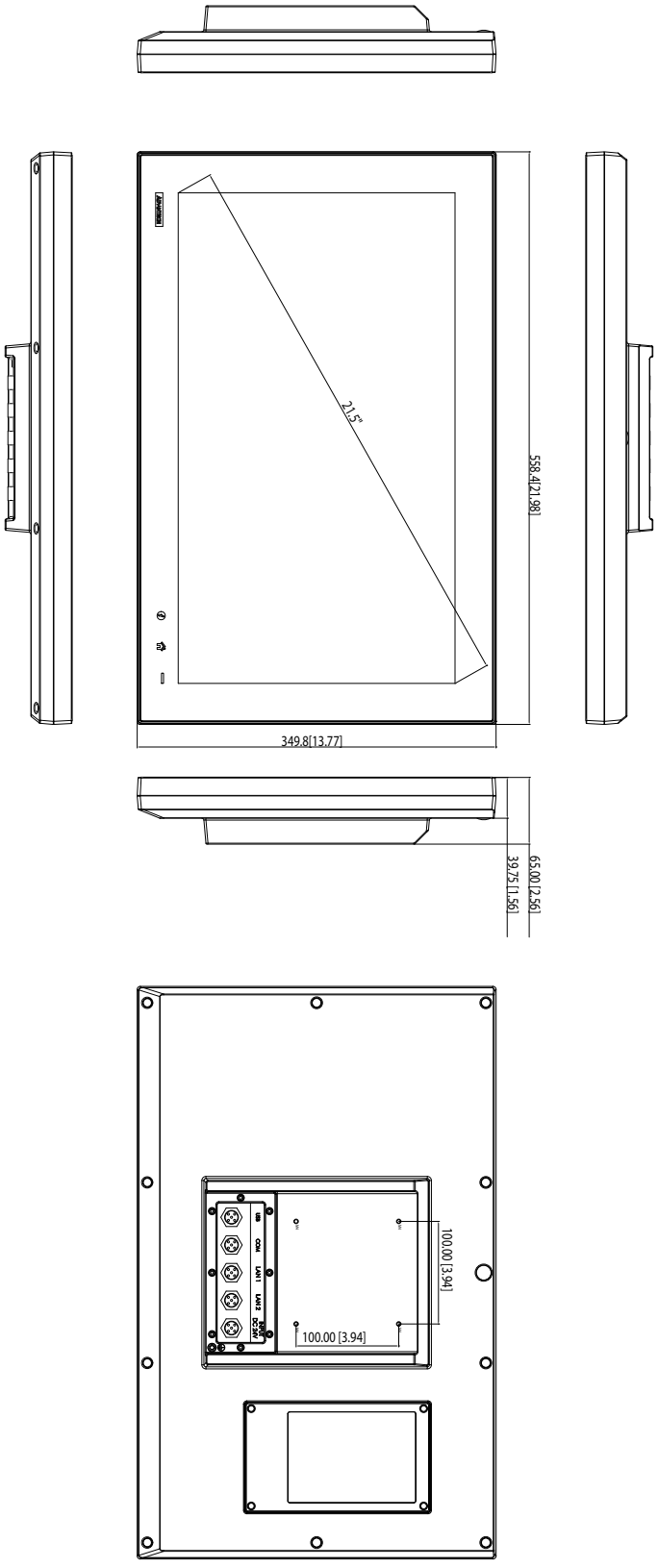


Figure 1.4 SPC-2140WP Dimensions

Chapter 2

System Setup

2.1 System Setup

You can easily get SPC started by following the below steps.

1. Unpack the SPC package. Check the packing list at the beginning of this manual to make sure all items have been included.

Figure 2.1 Unpack the Package

2. Open side cover and then install 2.5" HDD in the HDD tray which contains Windows Embedded Standard 7, Windows Embedded Standard 2009 or another operating system. Then fix the side cover with screws, after that stopper the screw hole with waterproof rubber.

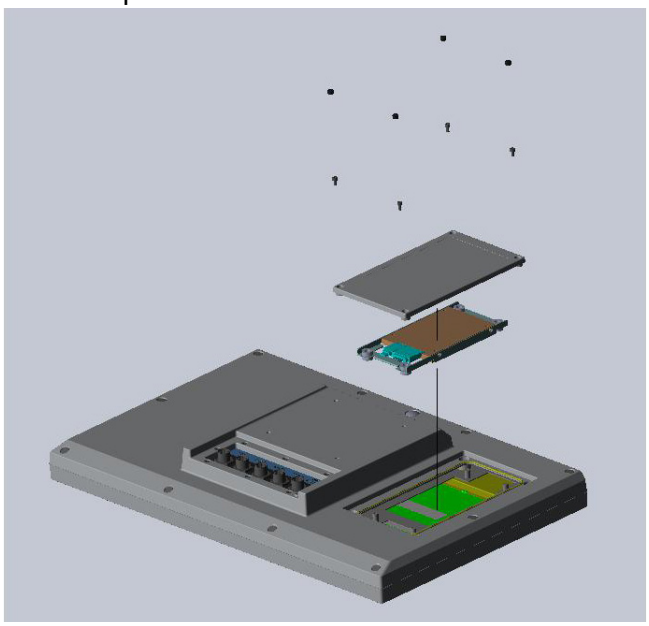


Figure 2.2 2.5" Hard Disk Drive

3. Connect the power connector with M12 connector to the 24 V_{DC} power lines. The power lines can either be of some power adapter or in-house power source.
4.

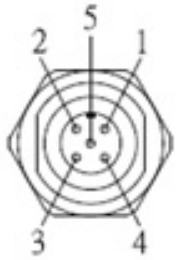
USB	Pin Number	Signal	(Male)
M12-A-5P-M Power	1	DC 24V-	
	2	DC 24V-	
	3	DC 24V+	
	4	DC24V+	
	5	F_GND	

Figure 2.3 Pin Definition of Power Connector

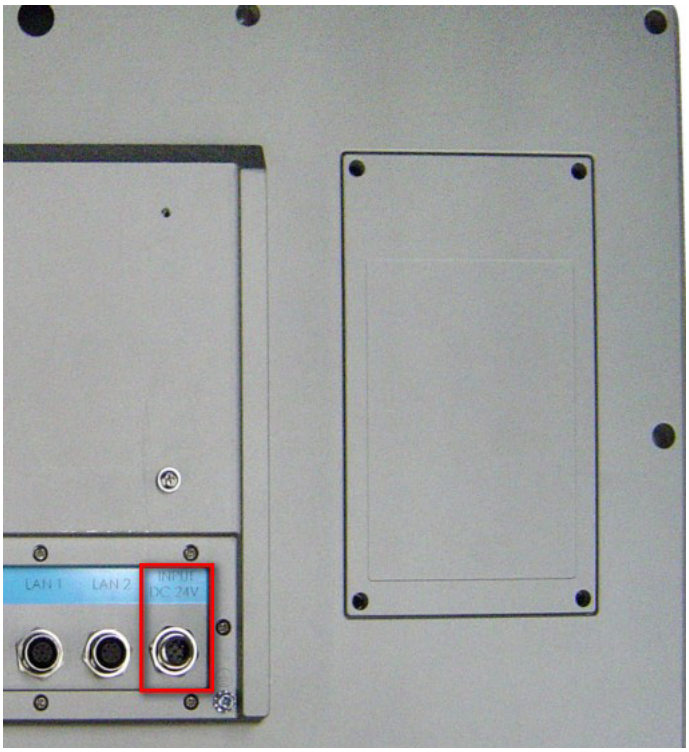


Figure 2.4 Power Receptor with M12 Connector

5. Plug the power lines into the system power receptor with M12 connector.
6. Power on the system.

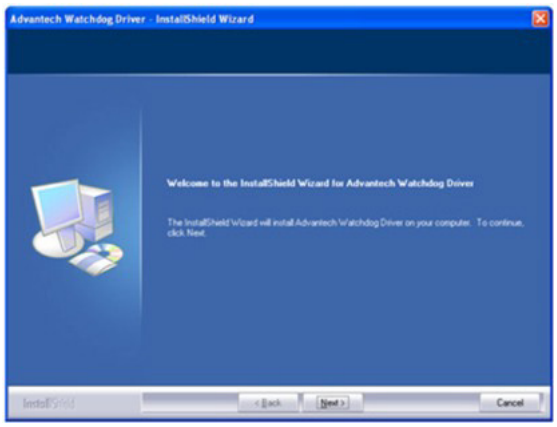
2.2 Installing the Drivers

2.2.1 Installation of Touch Screen driver

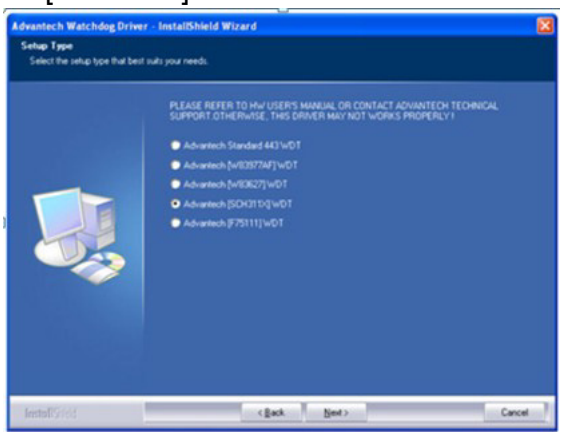
SPC-1840/2140 will use built-in PCT touch driver of OS If operating under Windows 7 and Windows 8.

2.2.2 Installation of Watchdog driver

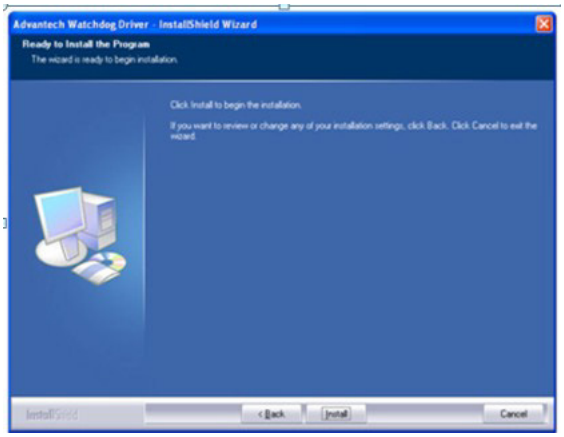
1. Enter into Watchdog folder, double click AdvWDT icon, and then click "Next" under InstallShield Wizard window.



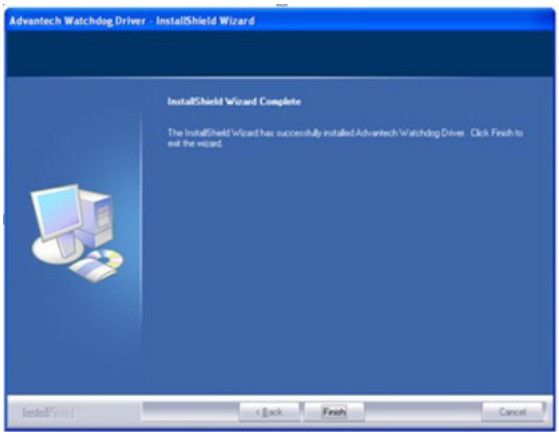
2. Select "Advantech [SCH311X] WDT" and click "Next"



3. Click "Install"

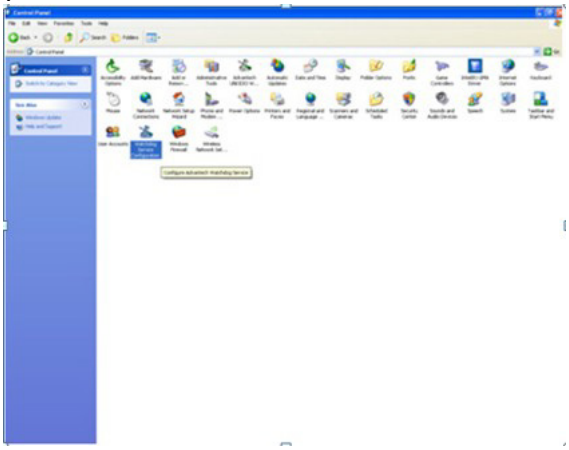


4. Click "Finish" to finish the installation

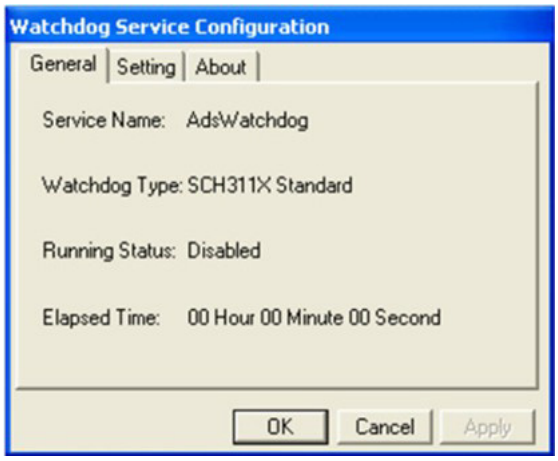


5. Select “Yes, I want to restart my computer now” and click “OK”

6. After installing Watchdog driver, a "Watchdog Service Configuration" icon will show in control panel.

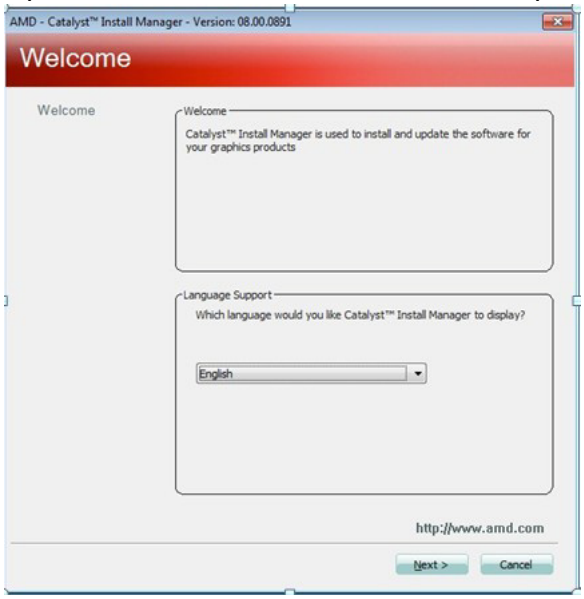


7. Double click the "Watchdog Service Configuration" icon, and you can configure the Watchdog timer function.

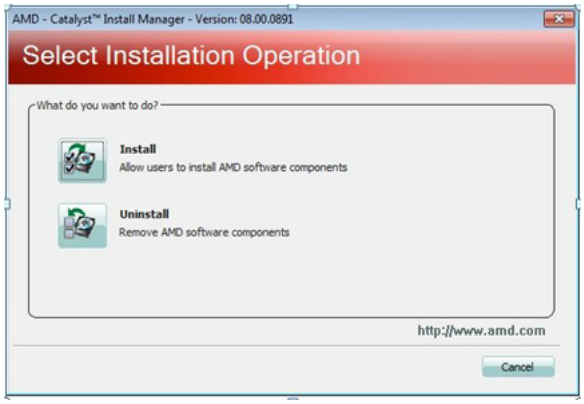


2.2.3 Installation of graphic driver

1. Enter into TS folder, enter into" graphic driver for Windows 7" Driver folder and double click setup icon, and then click "Next" under setup wizard window.



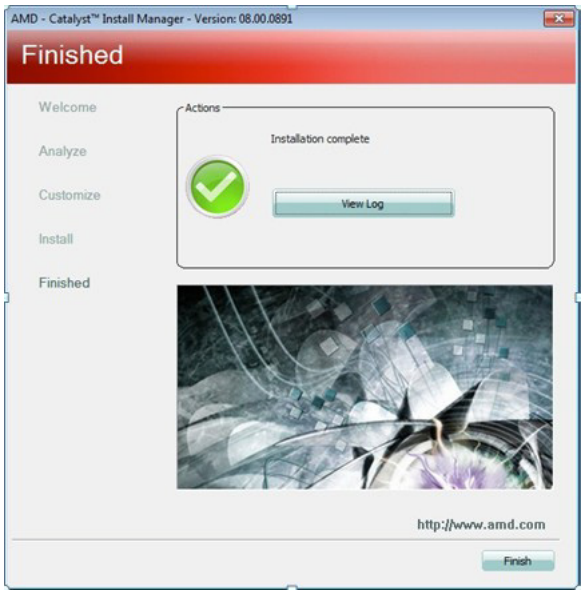
2. Click "Install"



3. Select "Express" and click "Next"

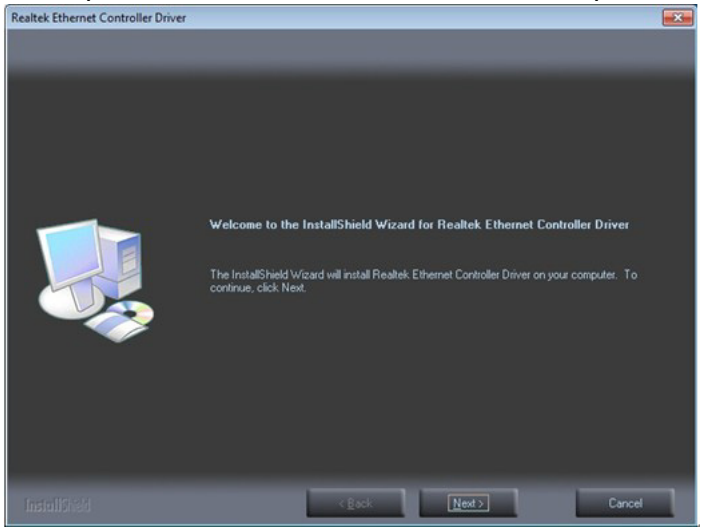
4. Click “Accept”

5. Click “Finish” to finish the installation

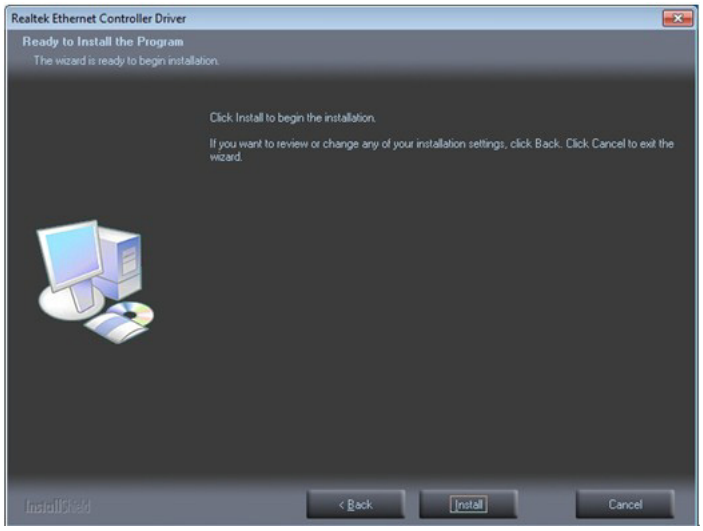


2.2.4 Installation of LAN driver

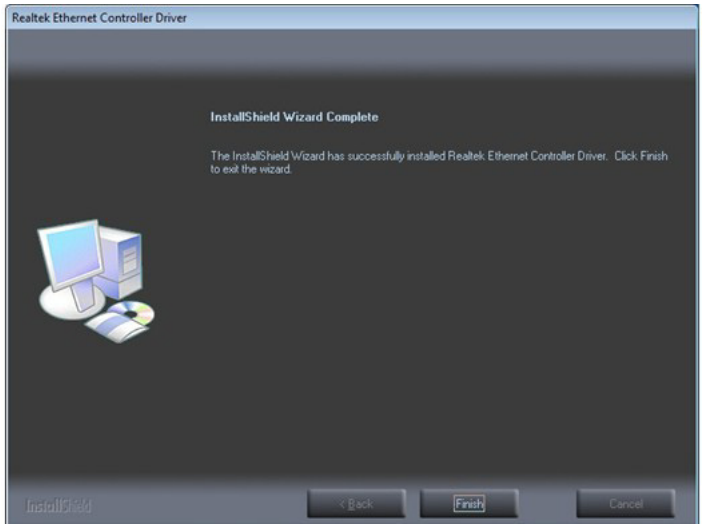
1. Enter into TS folder, enter into “Ethernet driver for Windows 7" Driver folder and double click setup icon, and then click “Next” under setup wizard window.



2. Click ”Install”



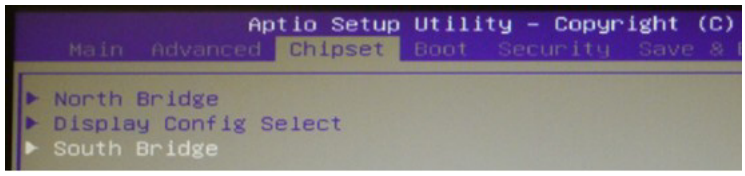
3. Click “Finish” to finish the installation



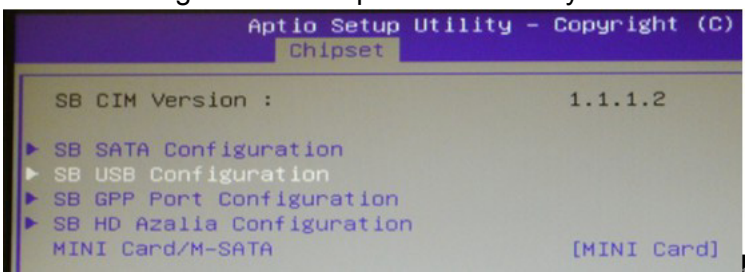
2.3 Wake up from Suspend Mode

1. SPC-1840 /2140 can wake up from Suspend Mode (S3) by touch and USB devices (For example USB mouse or USB keyboard).
2. User can disable USB wake up function through BIOS setting as following steps.

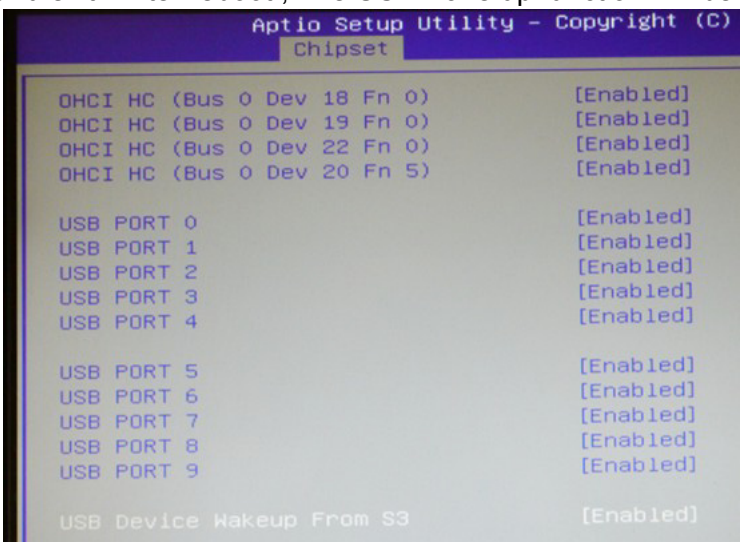
a. Press keyboard “delete” key in the BIOS setup utility, than select “Chipset / South Bridge” and press “Enter” key.



b. Select "SB USB Configuration” and press “Enter” key



c. Select “USB Device Wake up from S3" and change to “Disable” , than save your change and exit . After reboot , The USB wake up function will be disabled.



Chapter 3

Features in Windows Embedded

3.1 Features in Windows Embedded

SPC product supports the embedded Windows platform. This section outlines the important features (EWF and HORM), that are provided in Windows XP embedded.

3.2 EWF

EWF stands for Enhanced Write Filter. It provides an upper filter in the storage device driver stack that redirects disk write operations to volatile (RAM) or non-volatile (disk) storage. EWF protects a volume from write access. The benefits are as the following.

Write-protect one or more partitions on your system.

Enable read-only media, such as CD-ROM or flash, to boot and run.

Prolong the lifespan of write-sensitive storage, such as CompactFlash.

SPC-1840/2140 XPE provides EWF RAM-REG mode on system partition. All write to system partition will be redirected to RAM once this mode is enabled. This mode is manually enabled by customers after they finish all their changes on system such as installing their applications or adjusting system setting.

Advantech provides a pair of utilities to operate EWF, OSLock andOSUnLock. Refer the training slide in the folder, file name is “Advantech XPe Add-one.pdf”.

3.3 HORM

HORM stands for Hibernate Once Resume Many. In HORM environment, a single hibernation file is used to boot the system repeatedly. To set a HORM environment, please follow the steps below.

Make sure EWF is disabled. You can run OSUnLock to disable EWF.

Enable hibernation support:

Run “power options” in control panel, and then select “Enable Hibernation” in hibernation pane.

Enable EWF:

Run OSLock, and then system reboot automatically.

Open those software that customers want to directly use after system resume from hibernation.

Hibernate via Advantech HORM utility:

Click **Start Menu**->**All Programs**->**Advantech**->**AdvWF**

HORM environment remains all along unless the following events occur:

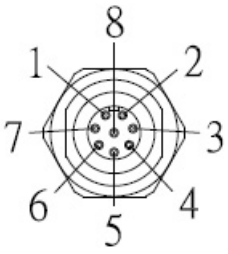
Run EWF commit command (ewfmgr c: -commit) and then reboot system.

Select “Discard hibernation file” by clicking F8 when system is starting up.

Appendix A

M12 connector I/O pin definition

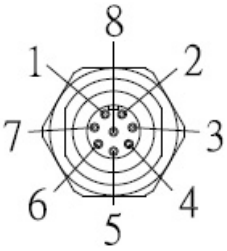
A.1 LAN1 / LAN2 pin definition with M12 connectors

LAN	Pin Number	Signal	(Female)
M12-A-8P-F LAN	1	TX_D1+	
	2	TX_D1-	
	3	RX_D2+	
	4	BI_D3+	
	5	BI_D3-	
	6	RX_D2-	
	7	BI_D4+	
	8	BI_D4-	

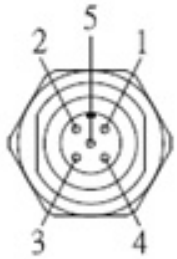
A.2 RS-232 pin definition with M12 connector

RS-232	Pin Number	Signal	(Male)
M12-A-8P-F LAN	1	CD	
	2	RXD	
	3	TXD	
	4	DTR	
	5	GND	
	6	DSR	
	7	RTS	
	8	CTS	

A.3 USB pin definition with M12 connector

USB	Pin Number	Signal	(Female)
M12-A-8P-F USB	1	Vcc	
	6	D-	
	3	D+	
	5	Vss	
	8	Shielding	

A.4 Power Input pin definition with M12 connector

USB	Pin Number	Signal	(Male)
M12-A-5P-M Power	1	DC 24V-	
	2	DC 24V-	
	3	DC 24V+	
	4	DC24V+	
	5	F_GND	

Appendix B

UI Operating Process

B.1 UI Operating Process

This section is to introduce how to operate HMI utility(GL_Utility), you can download the utility from Advantech's product support portal of SPC-1840WP/2140WP at http://support.advantech.com. See the process below:

1. As you can find 2 function buttons in the lower right corner of front panel, represents “intelligent” key while represents “home” key. At the same time you can find status indicator show in following table:

Table B.1: Status indicator table

Indicator	Status
Blue	Power on
Orange	Stand by
No light	Off

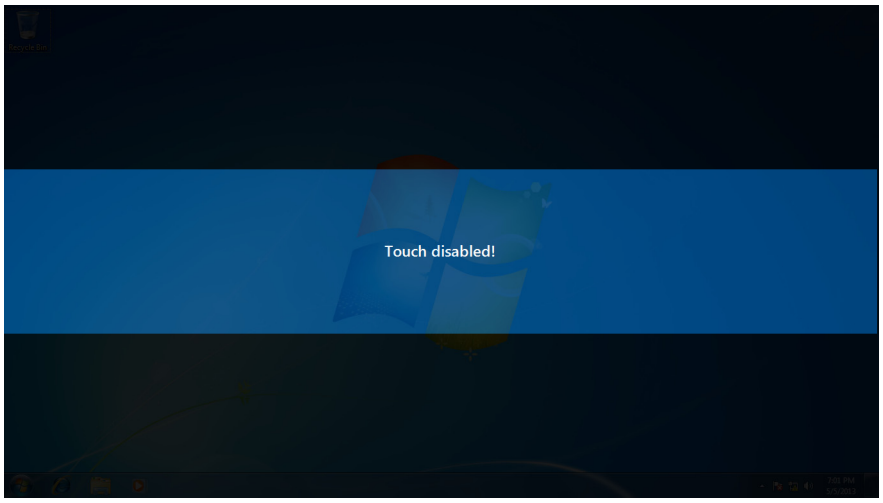
2. One press Home Key->

Home – Back to desktop (default setting)

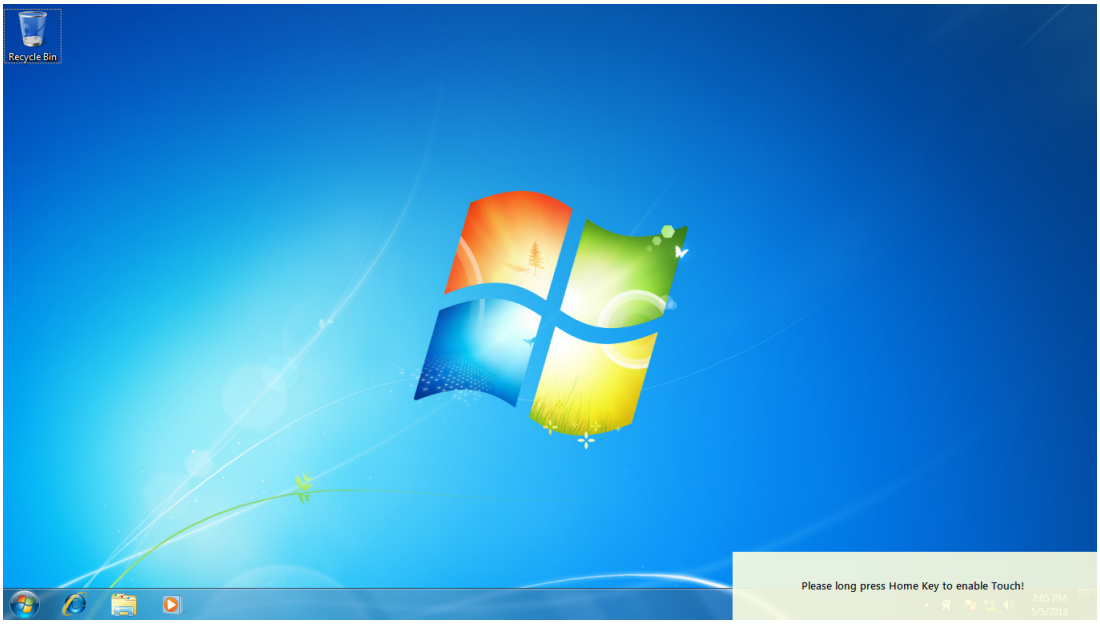
Home - Execute Home-key App (Set up in setting page)

3. Long press Home Key->

Home - Long press to disable / enable touch function

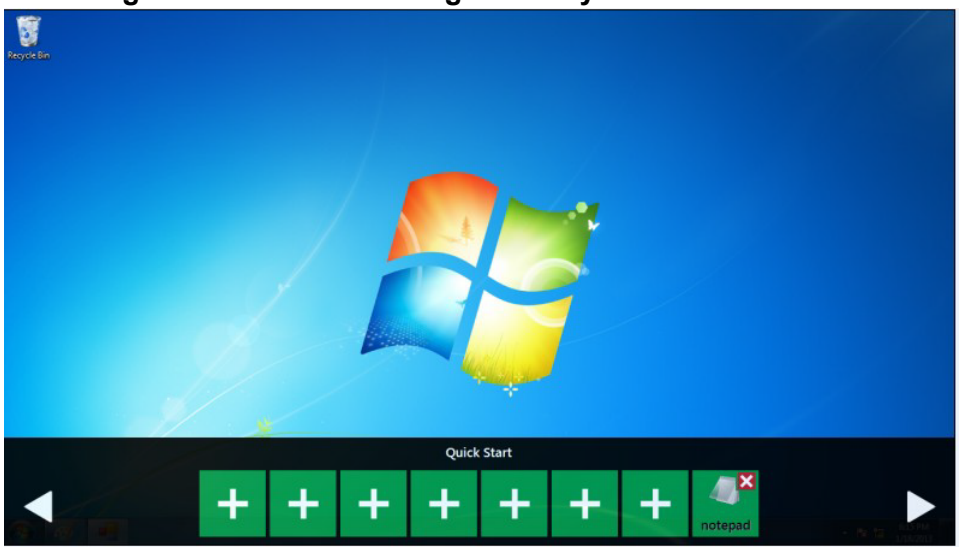


Note! *When touch function is disabled, you'll see a message up in the lower right corner of screen*


Recycle Bin
Please long press Home Key to enable Touch!

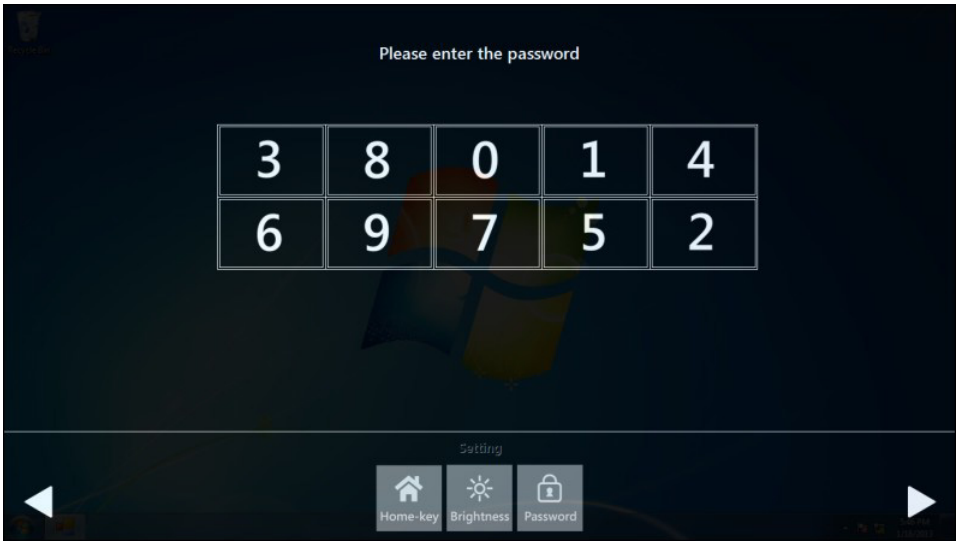
4. One press Intelligent Key->

Intelligent - Advantech Intelligent Utility



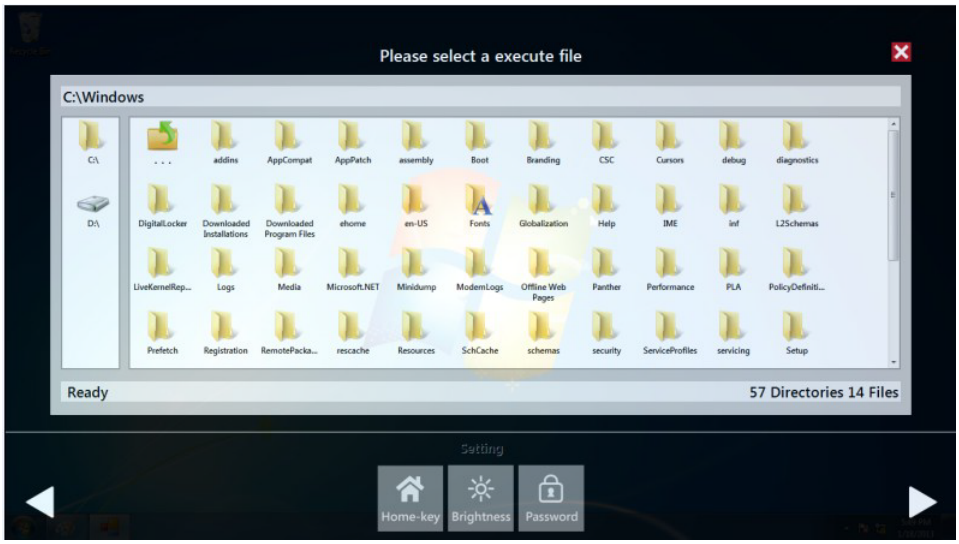
A. Quick start->

- Press “+” to add shortcut
- Long press the icon to perform “right click” until an “X” mark appears in upper right corner to “delete”

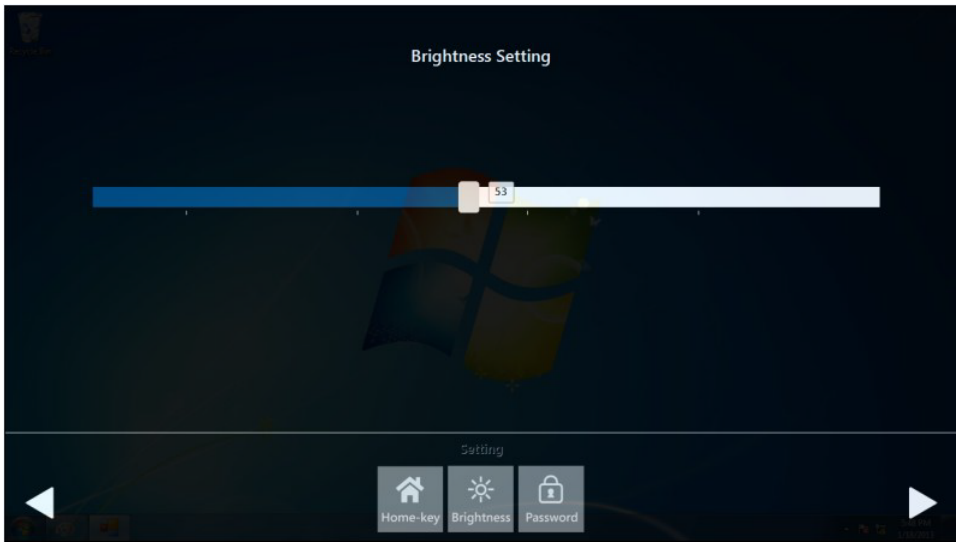


B. Setting ->

Password confirmation for authority confirmation when first log in, default password is “1234” without input order to active.



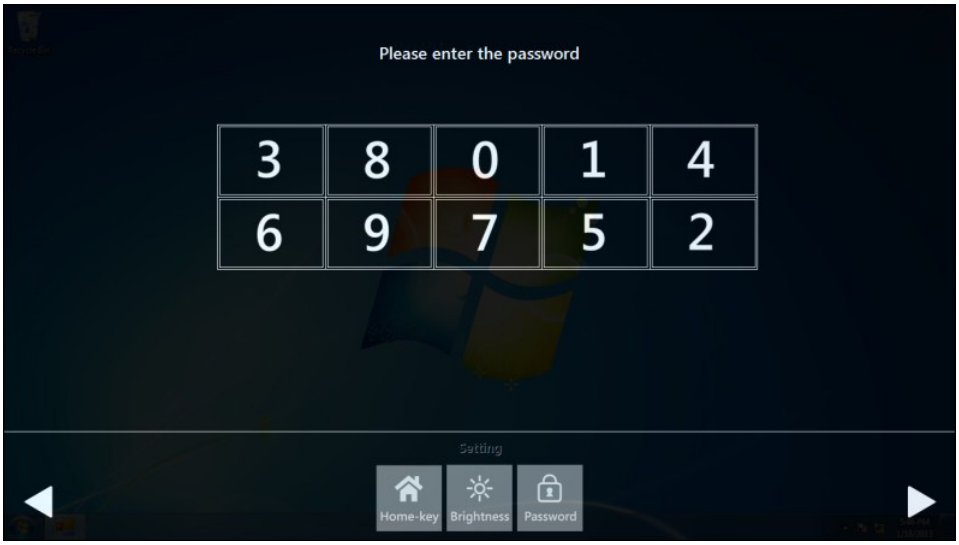
– Setting - Home-key: Select an execute file to set up as "Home-key" App, in default path is to show “desktop”

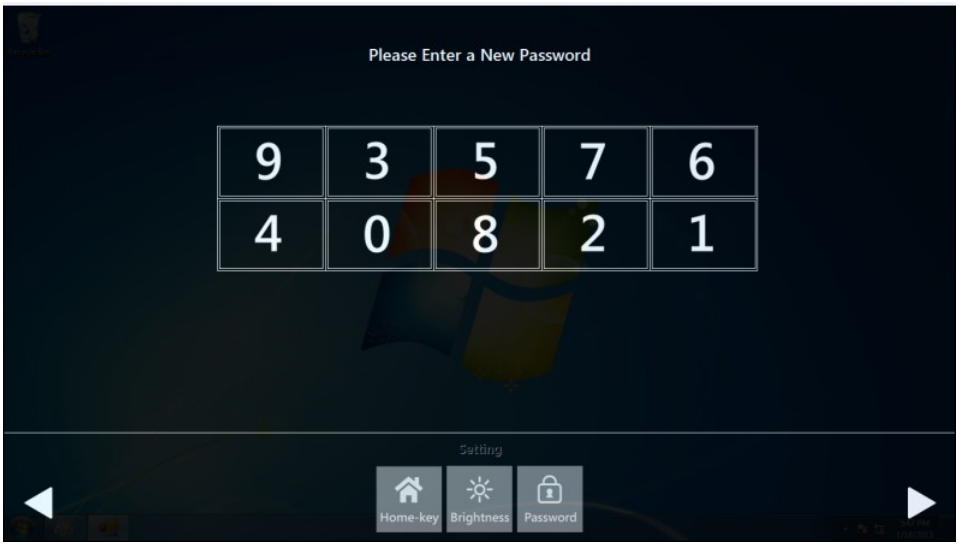


– Setting - Brightness: Brightness control from 10 to 100 percent

Note! *If you use other brightness setting tools such as iManager, remember not to adjust below 10 percent to prevent a black screen.*

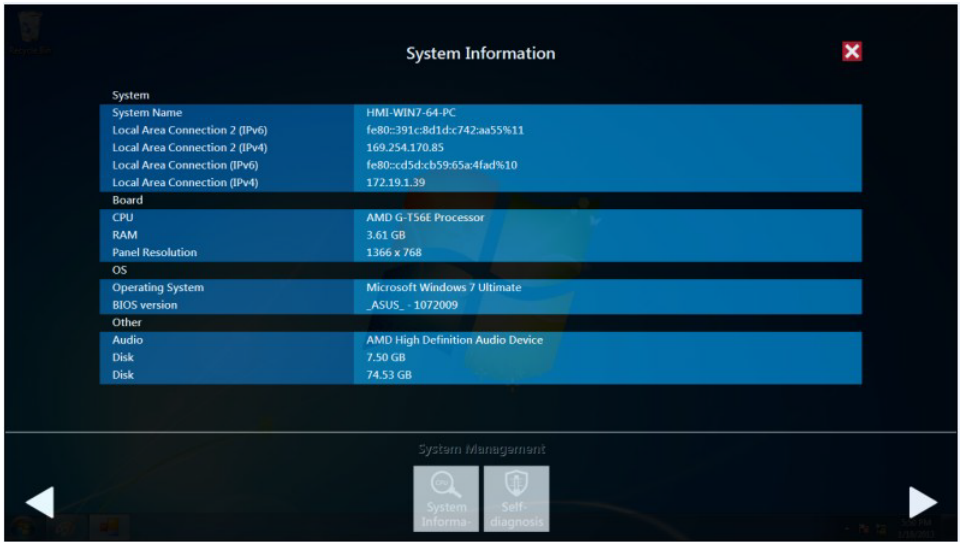
– Setting - Password: Change password function





C. System management->

– System information:



– Self Diagnosis:

Note!* *SPC-1840/2140 also provides open button code as following definition for customer's configuration to their Apps/SW applications. The codes are defined from general keyboard input.*

Table B.2: Button code definition

	One press	Long press
I key(icon)	Ctrl+Shift+Alt+I	Ctrl+Shift+Alt+U
H Key(icon)	Ctrl+Shift+Alt+H	Ctrl+Shift+Alt+L

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eAutomation

www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

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