User Manual

UBIQ-350

7" Mobile AV Control Panel

Trusted ePlatform Services

ADVANTECH

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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.

Part No. UbiQ-350-ZGCE0E Edition 1

Printed in Taiwan August 2007

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. This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order 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

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.

FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FM

This equipment has passed the FM certification. According to the National Fire Protection Association, work sites are classified into different classes, divisions and groups, based on hazard considerations. This equipment is compliant with the specifications of Class I, Division 2, Groups A, B, C and D indoor hazards.

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. 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

Warnings, Cautions and Notes

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

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

Note! *Notes provide optional additional information.*

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such - in writing to:

support@advantech.com

Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately. Do not throw the shipping package away in case you need to ship your product. For the optional accessories, you can contact your local retailers directly.

- DC12V Adapter (100 Vac ~ 240 Vac), excluding power cord
- UbiQ-350 unit
- Table Top cradle
- Wi-Fi module (Spectec SDW-820 and SDW-821)
- WinCE License sticker
- Support CD

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:
15. The power cord or plug is damaged.
16. Liquid has penetrated into the equipment.
17. The equipment has been exposed to moisture.
18. The equipment does not work well, or you cannot get it to work according to the user's manual.
19. The equipment has been dropped and damaged.
20. The equipment has obvious signs of breakage.
21. 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.
22. 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.
23. 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.

Wichtige Sicherheishinweise

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die NetzanschluBsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daB diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim. AnschluB an das Stromnetz die AnschluBwerte.
9. Verlegen Sie die NetzanschluBleitung so, daB niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
15. Netzkabel oder Netzstecker sind beschädigt.
16. Flüssigkeit ist in das Gerät eingedrungen.
17. Das Gerät war Feuchtigkeit ausgesetzt.
18. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
19. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
20. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
21. VOSICHT: Explisionsgefahr bei unsachgemaben Austausch der Batterie.Ersatz nur durch densellben order einem vom Hersteller empfohlene-mahnlichen Typ. Entsorgung gebrauchter Batterien navh Angaben des Herstellers.
22. ACHTUNG: Es besteht die Explosionsgefahr, falls die Batterie auf nicht fachmännische Weise gewechselt wird. Verfangen Sie die Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.
23. Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

Contents

Chapter 1

Introduction

This chapter detailsinformation about the basic components and layout of the UBIQ-350.

Sections include:

- Welcome
- About this Manual
- Dimensions and Cutouts

1.1 Welcome

Congratulations on selecting the UbiQ-350 touch contol PC, supported by Microsoft Windows® CE. This unique touch control computer offers the convenience of highly configurable features, and is designed for wall-mountable eHome/Building applications. The Intel XScale® PXA270 processor is mated with the Microsoft Windows® CE 5.0 operating system, delivering a high performance, reliable, fanless in-wall touch control computer system.

Microsoft WinCE® 5.0 along with the Macromedia® Flash Player enable a user-friendly and attractive GUI interface that is ideal for all eHome / eBuilding applications. A built-in display chip, the Intel 2700G, and 32 MB of VRAM, and a 7.0" 16:9 true color TFT LCD together provide excellent graphical performance.

The UbiQ-350 is equipped with a built-in speaker and microphone that function as an intercom, either through direct analog audio interface, or via LAN.

The stylish design features and smooth glazed finish of the UbiQ-350 makes it an elegant addition, easily mating with any home or building environment. The superior ergonomic design of the docking cradle makes it a breeze to use, in either stand-up or wall-mount configurations. A variety of I/O interfaces are included for further expansions, as well as easily-accessed and programmable hotkeys, are all available for easy peripheral integration.

The main features of the UbiQ-350 touch contol PC are:

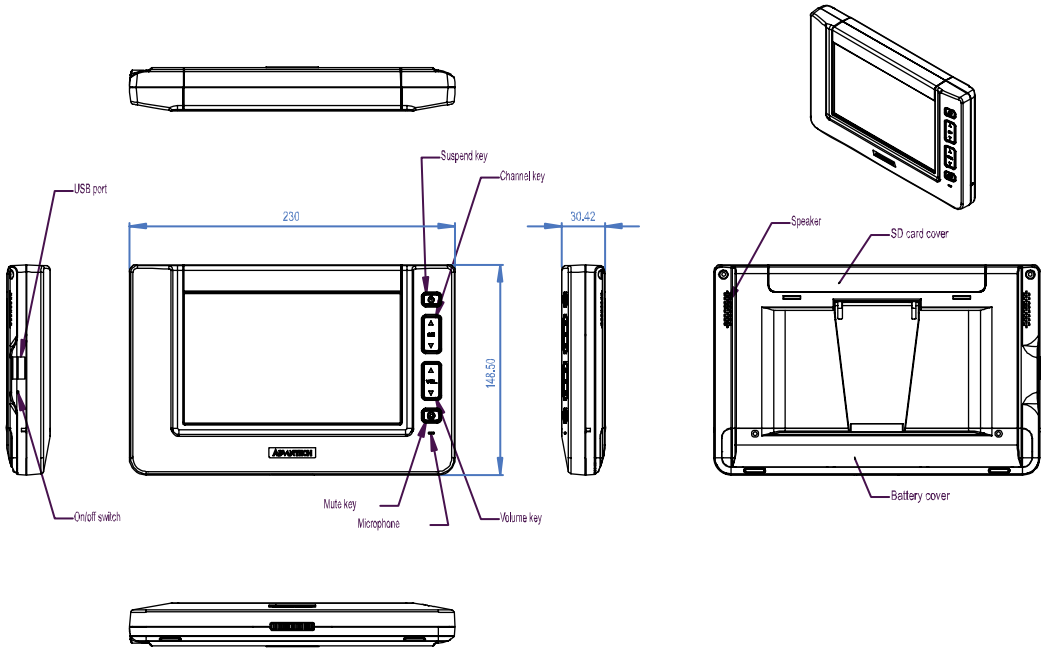
- **Removable SD cover matches every application need**
- **Fan-less design**
- **Ultra low power consumption**
- **Compact size**
- **Versatile I/O: one USB host, one SD WiFi slot and one SD slot.**

1.2 About this Manual

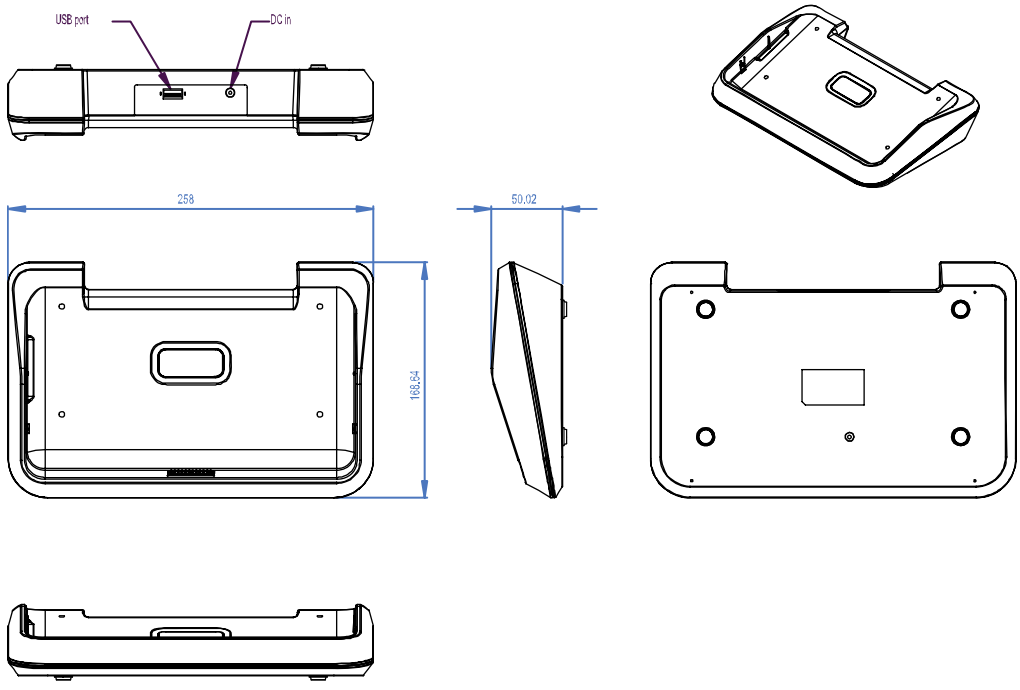
The following chapters contained in this manual are:

- **Chapter 1**: **Introduction** - General information about the tablet PC.
- **Chapter 2**: **Getting Started** - Basic functions of the tablet PC, including: Check the Package, Powering up, Standby Mode, Charging the Battery, and Powering Down
- **Chapter 3**: **Hardware Specs** - Detailed information, including: Specifications; General Views of the UbiQ-350; Block diagram; Connectors, Controls and Audio Features
- **Chapter 4**: **Software Functionality** - Instructions for applying software and developing applications, including: Introduction; Windows® CE Startup Procedure; Upgrade Procedure; Utilities; Network; M-System® Persistent Storage Manger (DiskOnChip); Application Program Development; Windows® CE 5.0 Components List
- **Appendix A**: **Mechanical Functionality** - Diagrams of mechanical layout and dimensions

1.3 Dimension and Cutouts



UbiQ-350 Panel Pc



UbiQ-350 Cradle

Figure 1.1 Dimension and Cutouts

Chapter 2

Getting Started

This chapter details provides brief Instructions for operating the Ubiq-350.

Sections include:

- Check the Package
- Powering up
- Standby Mode
- Charging the Battery
- Powering Down

2.1 Check the Package

Each new UbiQ-350 comes equipped with a range of product support accesories and materials. Check the package and make sure four items are inside. They include:

Figure 2.1 UbiQ-350 and Accessories

A summary of the package contensts:

- DC12V Adapter (100 Vac ~ 240 Vac), excluding power cord
- UbiQ-350 unit
- Table Top cradle
- Wi-Fi module (Spectec SDW-820 and SDW-821)
- WinCE License sticker
- Support CD

2.2 Powering Up the UbiQ-350

To power up and test and configure the functions of the UbiQ-350, follow these instructions:

1. Connect the AC power adapter to the side of the cradle.

Figure 2.2 Connecting the AC adapter

2. Stick a paperclip or needle inside the small hole to switch on the UbiQ-350's power.

Figure 2.3 Turning on the power switch

3. As the system powers up, the boot up screen is displayed. It summarizes the BIOS version, system number and the version date.

Figure 2.4 Boot up screen

4. The Windows CE screen is displayed after the UbiQ-350 has booted up successfullly.

Figure 2.5 Windows CE screen

2.3 Standby Mode

1. The UbiQ-350 Stand-By button is located on the upper right side of the front bezel. Use this button to suspend or resume normal power and operation of the touch panel computer.

Figure 2.6 Standby Button

2. Press the standby button once to place the UbiQ-350 into suspended power, stand-by mode.

Figure 2.7 Blank screen in standby mode

3. Observe that the standby button is illuminated an orange color during the suspended power mode.

Figure 2.8 Standby mode button orange illumination

2.4 Charging the Battery

1. Place the UbiQ-350 on its cradle to charge the internal battery.

Figure 2.9 Placing the UbiQ-350 in the cradle

2. While the battery is charging, the “Battery Icon” flashes.

Figure 2.10 Flashing Battery Icon

2.5 Powering Down the UbiQ-350

To turn off the power, use a strong needle or paperclip. Stick a paperclip or needle into the hole to switch off the UbiQ-350

Figure 2.11 Powering Down

2.6 Installing the WiFi Module

The WiFi module consists of an SD card that must be installed into the UbiQ-350. Turn the UbiQ-350 over. The SD cover is located on the bottom edge of the unit.

- Follow these steps to install the WiFi module.

1. Open the SD cover.

Figure 2.12 Opening the SD cover

2. Locate the SDIO Slot and insert the WiFi module (SDIO WLAN Card).

Figure 2.13 Inserting the WiFi module

3. Firmly push the WiFi module into the SDIO slot.

Figure 2.14 Pushing the WiFi module into the slot

4. The OS auto-detects the WiFi module and a link will pop-up on the taskbar.

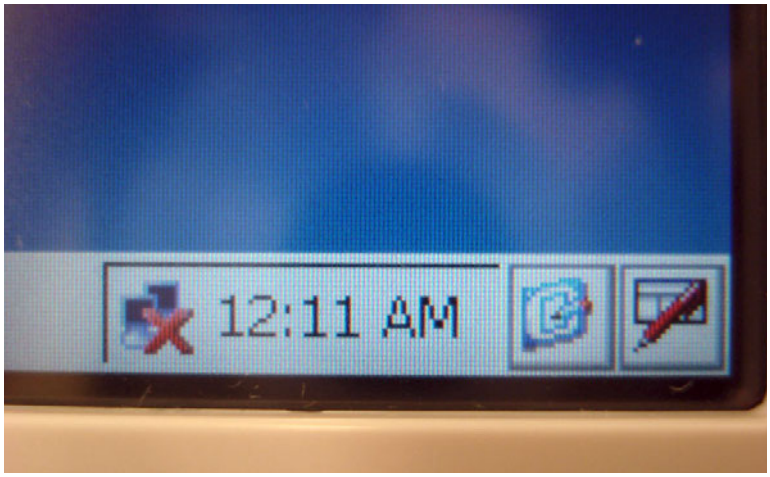


Figure 2.15 WiFi icons on the taskbar

5. An automatic search function is available to select and add a new network. Follow the onscreen instructions.

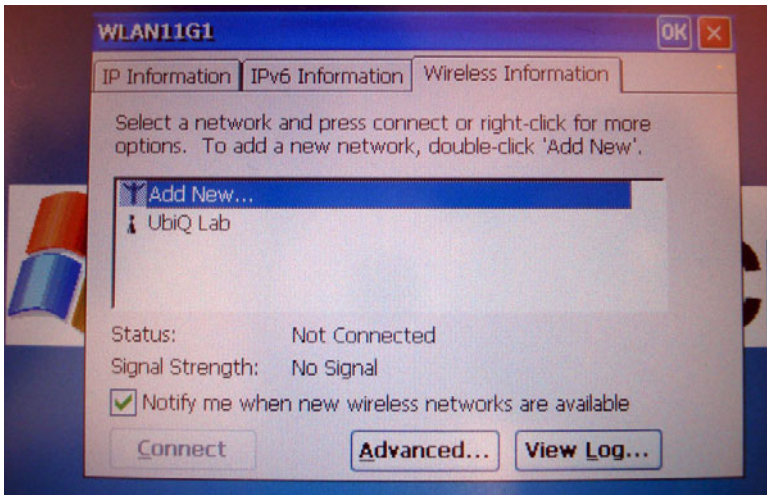


Figure 2.16 Configuring a new WiFi connection

2.7 Replacing the Battery Pack

Before replacing the battery pack, it is important to turn off the power switch on the UbiQ-350. Look for the pinhole next to the RJ45 jack.

1. Carefully insert the pin into the hole and .

Figure 2.17 Turning off the power switch

2. Look for four screws on the back side of the UbiQ-350.

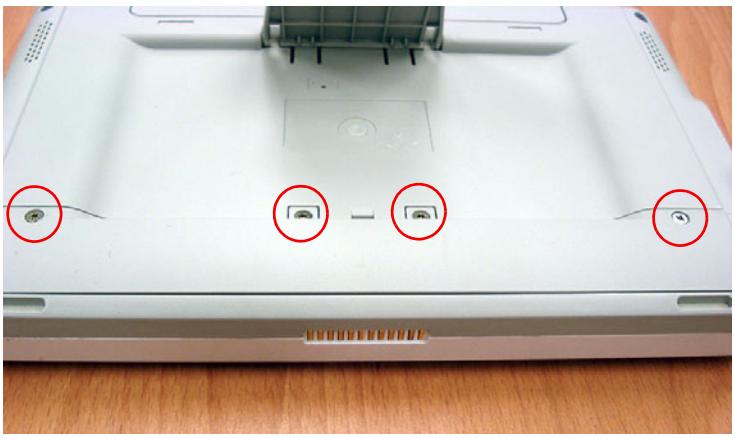


Figure 2.18 Unfastening the four battery cover screws

3. Unfasten the four screws using a Philips head, #M2 screw driver.

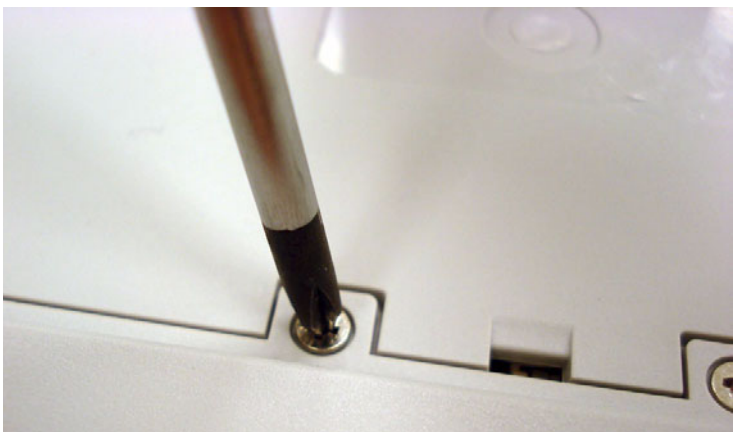


Figure 2.19 Use a Philips head screw driver

4. Remove the battery cover.

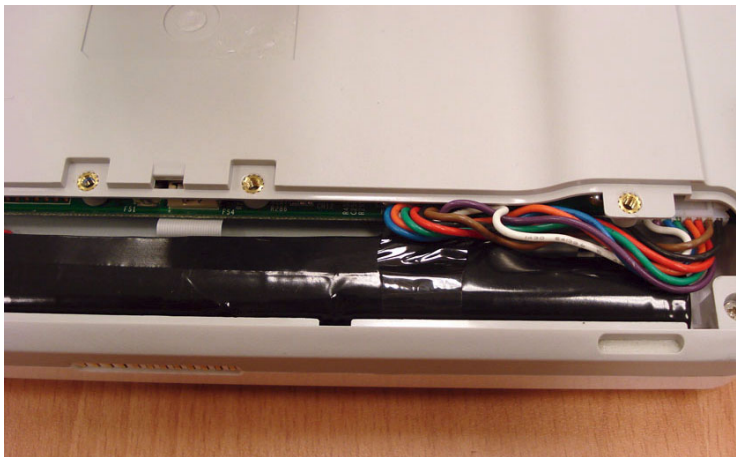
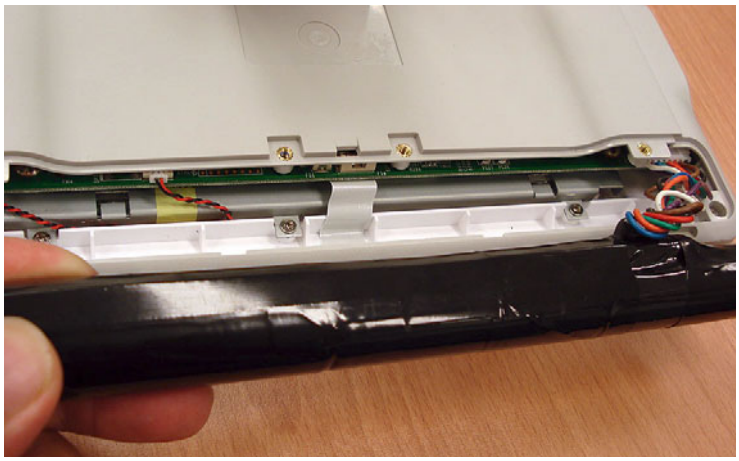


Figure 2.20 Removing the battery cover

5. Pull the battery body out from its receptacle.



6. Carefully pull out and disconnect the battery cable connector.

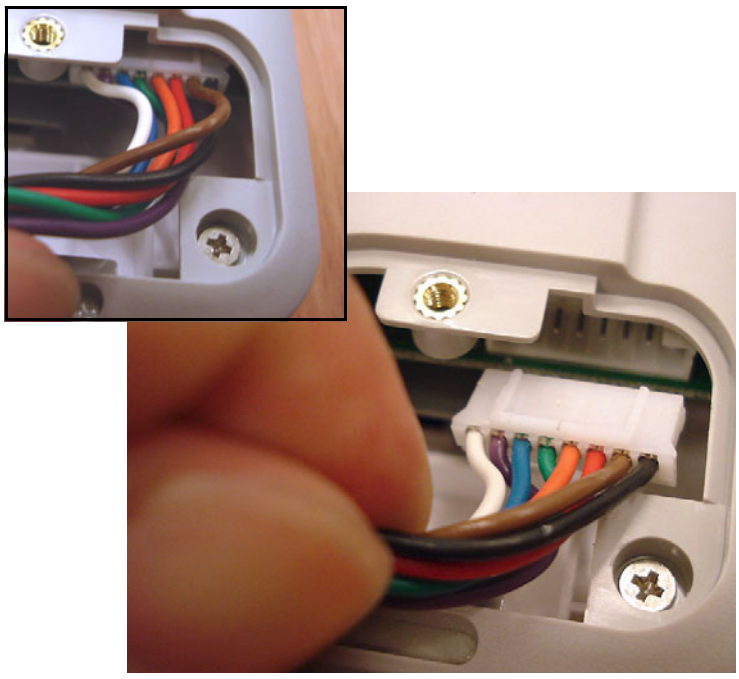


Figure 2.21 Disconnecting the battery cable

Chapter 3

Hardware Specs

This chapter details the specifications and layout of UbiQ-350:

- Specifications
- General Views of the UbiQ-350
- Block diagram
- Connectors, Controls and Audio Features

3.1 Specifications

This chapter describes the specifications and supplies a block diagram of the UbiQ-350. There are three main parts included with the UbiQ-350: one motherboard, the display / touch panel, and the cradle. Study this chapter to understand the basic setup of hardware for the UbiQ-350.

Table 3.1: Specifications for UbiQ-350

Hardware Architecture	
CPU	■ Intel Xscale 32-bit 312MHz (up to 416MHz / 520MHz)
SDRAM	■ 64MB (up to 128MB)
Flash memory	■ M-system H3 128MB
Display	■ 7" 16:9 TFT LCD – Resolution: 800 x 480 – Display colors: 262144 (18-bit) ■ Brightness: 400 nits minimum request ■ Contrast Ration: 400:1 ■ Intel 2700G for multimedia enhancement (option) ■ 4-wire resistance type Touch Panel
Control Interface	
Wireless Network	■ 802.11b/g compatible Wi-Fi thru SD card slot (SI accessible) ■ WEP 128bit encryption and security ■ DHCP and fixed IP mode
ZigBee Capabilities	■ 802.15.4 compliant Zigbee Module
User Interactive Interface	
USB	■ USB host 1.1 × 1
Audio	■ Build-in Microphone
Speaker	■ 2 × 1W Speaker
Buzzer	■ 1 × Buzzer
SD/MMC	■ 2 × SD/MMC Slots – 1 for storage and SDIO card – 1 only for storage card – User accessible
Expansion Interface	
Cradle connecting I/F	■ Cradle docking connector (12-Pin) ■ Supported Interface: ■ Power DC-in: 12V ■ USB Host: USB host 1.1 x 1
Front Panel	
Button	■ Hardware buttons – 1 × Mute – 2 × Volume Adjustment (Up & Down) – 2 × Channel Change (Up & Down) – 1 × START Key (Suspend & Resume) ■ All buttons are software programmable

Table 3.1: Specifications for UbiQ-350	
Indicators	
LEDs	■ Power status LED × 1 – Power ON: Blue – Power Low (> 20%): Amber – Power Charging: Amber blinking ■ Communication LED × 1 – WiFi connection: Blue – ZigBee connection: Blue blinking – Docking status LED × 1 – Dock ON: Blue – Undock: OFF
Power and Battery	
Power Consumption	■ Panel with batteries fully charged or with no batteries: – 5W with LCD panel on
Battery	■ Advantech Battery hard Pack 6450mAh (3S1P) ■ Battery working duration – 8 hrs battery support (25% full run, 25% idle, 50% suspend) – 5 hrs (Full run) – Full charge: 2.5 ~ 3 hr with Wi-Fi play MV from internet for 95% battery capacity ■ Power management: On / Idle / Suspend / Off – Idle: 1. Programmable timing for auto idle by system setting 2. LCD Backlight off while system is stilll in running status 3. Resume by T/S or any hardware keys – Suspend: 1. System is in deep sleep mode but ZigBee is acting 2. Auto-suspend after 3 minutes free in use (Timing is settable) 3. Resume by Start-Button only 4. While power low in 3%, the system will be force to enter suspend mode automatically. System will keep data about 3 hours. 5. While power low in 10%, system buzzer will be acting for reminding in once every 3 seconds. ■ Battery Swap – User accessible & replaceable for extra battery
Others	
Weight	■ Without batteries: 1.45 lbs (0.66 kg) ■ With one battery: 1.76 lbs (0.8 kg)
Dimensions (HWD)	■ 5.12" × 8.27" × 1.81" (13cm × 21cm × 2.8cm)
Operation / Storage Environment	■ Operation Temperature: 0° C to 45° C ■ Operation Humidity: 10% ~ 90% ■ Storage Temperature: -20° C to 60° C
Certification	
	■ FCC Class B, UL and CE

Table 3.1: Specifications for UbiQ-350

Packing list in unit	
	■ UbiQ-350 unit ■ DC12V Adapter (100 Vac ~ 240 Vac), excluding power cord ■ Support CD ■ WinCE License sticker ■ Wi-Fi Module (Spectec SDW-820 and SDW-821)
Cradle Specification	
Model Type	■ Table Top Type – Power DC-in 12V adapter – Weight: 1.5 kg
Functionality	■ USB host 1.1 x 1 for USB peripherals ■ Docking indicator (Docked: Blue, Undocked: OFF) ■ Power DC-in: 12V

3.2 General Views of the UbiQ-350

3.2.1 UbiQ-350 front view

Figure 3.1 Front view UbiQ-350

3.2.2 UbiQ-350 rear view

Figure 3.2 Rear view UbiQ-350

3.2.3 UbiQ-350 cradle front view

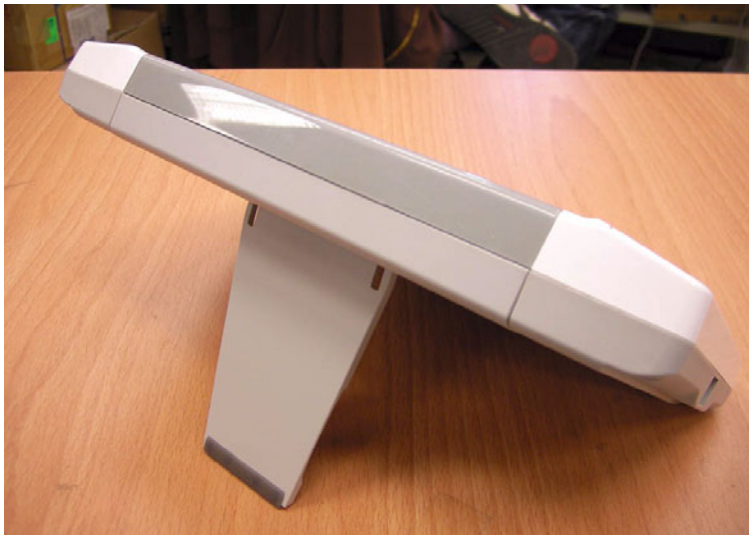


Figure 3.3 Stand view

3.2.4 UbiQ-350 cradle inside view

Figure 3.4 Inside view

3.3 Block Diagram of UbiQ-350

The block diagram of the UbiQ-350 depicts a schematic of the data processing flow through the computer system.

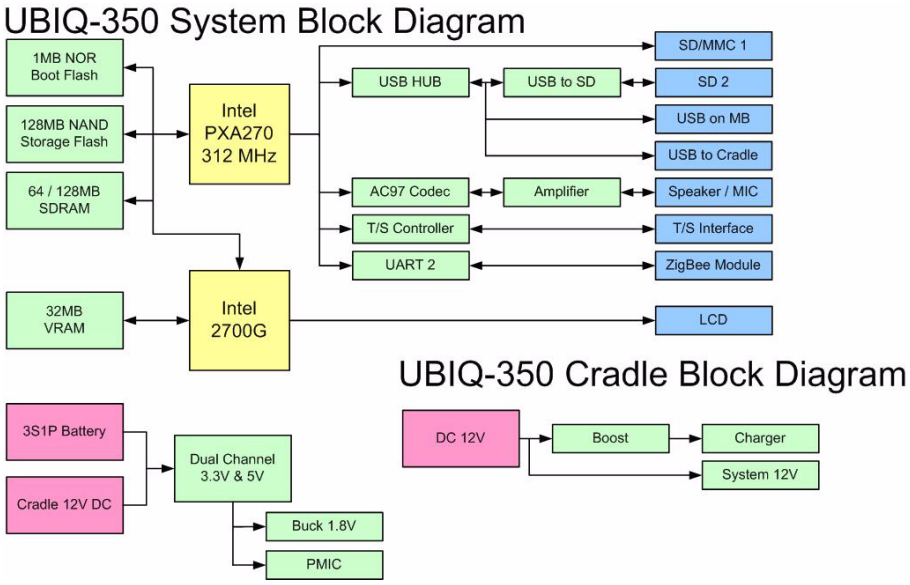


Figure 3.5 Block diagram

3.4 Connectors, Controls and Audio Features

3.4.1 USB port of UbiQ-350

The following figures show I/O connectors and controls located on UbiQ-350 and its cradle.

Figure 3.6 USB port

Figure 3.7 Front panel hotkeys

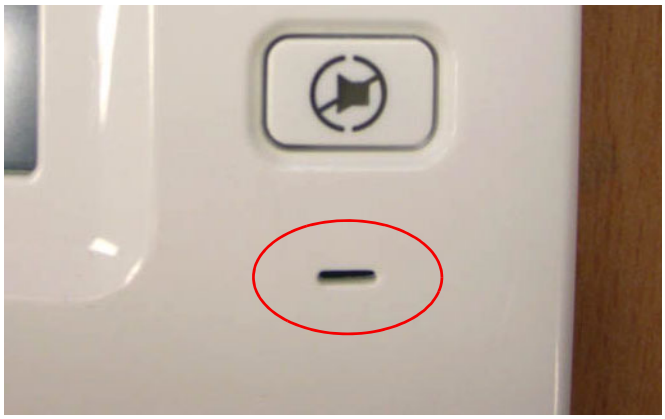


Figure 3.8 Onboard microphone

Figure 3.9 Twin speakers

Figure 3.10 Battery cover

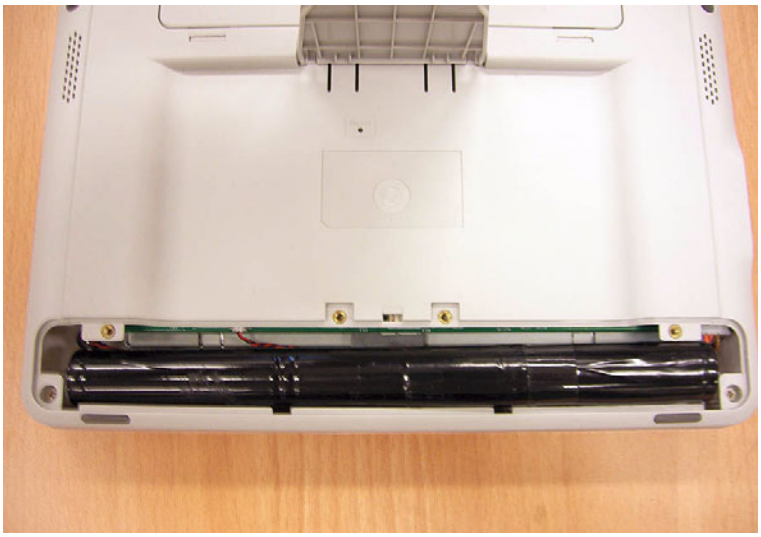


Figure 3.11 Battery cover open

Figure 3.12 SD Cover

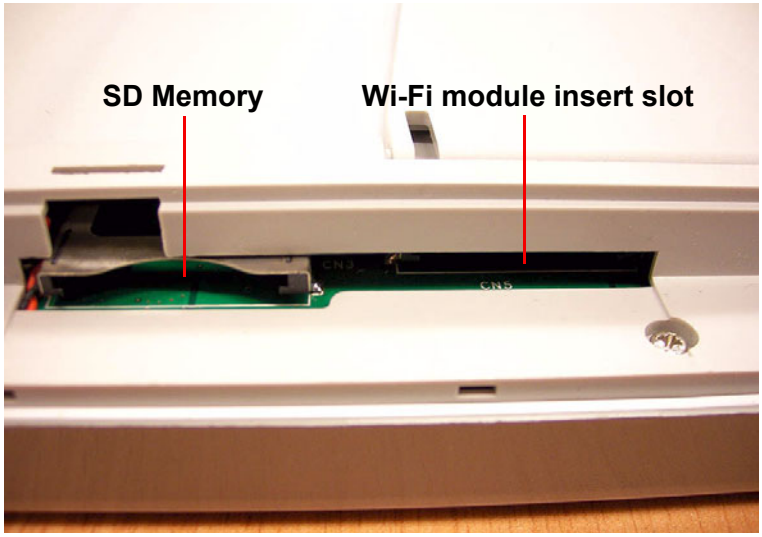


Figure 3.13 SD IO and SD Memory

Figure 3.14 Docking connector UbiQ-350

Figure 3.15 Docking connector on cradle

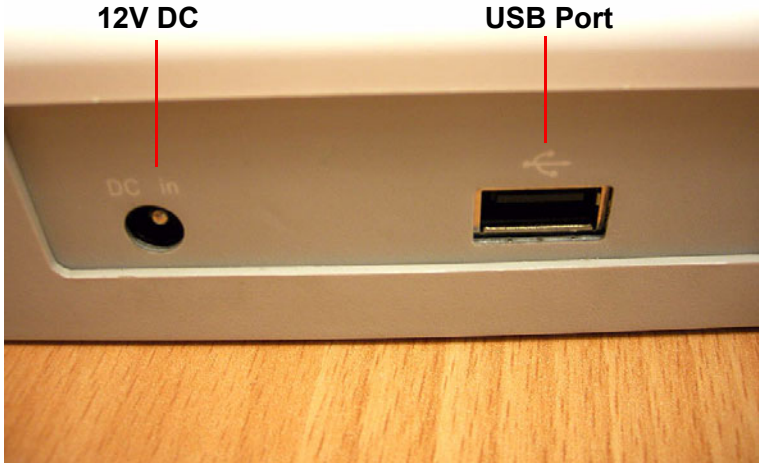


Figure 3.16 12V DC and USB on cradle

3.4.2 List of I/O Connectors

Table 3.2: List of I/O connectors

Item	Connector function
UbiQ-350 MB	
1	Speaker
2	USB
3	2 X SD
4	Battery
5	MIC
6	Hotkey
Cradle	
1	USB
2	12V DC IN

Chapter 4

Software Functionality

This chapter details the Windows® 5.0 operating system on the UbiQ-350 platform.

Sections include:

- Introduction
- Windows® CE Startup Procedure
- Upgrade Procedure
- Utilities
- Network
- M-System® Persistent Storage Manger (DiskOnChip)
- Application Program Development
- Windows® CE 5.0 Components List

4.1 Introduction

The UBIQ-350 platform is an embedded system driven by Windows® CE 5.0. The Windows® CE 5.0 is a compact OS that occupies less storage space or system resources compared with other operating systems like Windows® NT or Windows® XP. By its modular nature, it is possible to choose those functions that are useful for each specific application. This can reduce the system resources required, and also saves start-up time. In the field of embedded applications, this is an appealing feature because downtime is minimized.

Furthermore, the small storage space required by UbiQ-350 makes OS on solid-state disk possible, which implies tougher endurance of harsh environments.

Figure 4.1 Windows® CE 5.0

4.2 Windows CE Startup Procedure

The Windows CE image can be loaded using two methods. The first is by SD / MMC storage card. The second way is by using the on-board flash chip. The storage card has a higher boot priority than on-board system flash chip. According to the BOOTLOADER criteria, the system will first read the Windows CE image from an external storage card. After downloading the image is done, bootloader will burn the image to the on-board flash chip automatically. If an external storage card is unavailable or no Windows CE image is inside, BOOTLOADER will load the Windows CE image from the on-board system flash chip. BOOTLOADER copies the Windows CE image to SDRAM and launches WinCE from SDRAM whenever the system is loaded from an external storage card or an on-board flash chip.

4.3 Upgrade Procedure

Advantech released two images for UBIQ-350 platform. **EBOOT.BIN** is the bootloader and **NK.BIN** is the WinCE5.0 image.

Upgrade the image using these two methods:

1. Upgrade image via bootloader
2. WinCE upgrade utility

4.3.1 Upgrade image via bootloader

The bootloader image supports the image download then burns it to the on-board flash chip automatically. Copy **EBOOT.BIN** or **NK.BIN** image to the storage card separately, then reboot the platform. The system will automatically load the new image from the storage card when booting the next time.

- Bootloader image download

1. Copy **EBOOT.BIN** file to SD / MMC storage card.
2. Power on platform.
3. The system automatically reads *EBOOT.BIN* from the storage card and then writes it to the on-board boot ROM.

- NK image download

1. Copy **NK.BIN** file to SD / MMC storage card. Make sure **EBOOT.BIN** is not written on the storage card in advance.
2. Power on platform.
3. It will automatically read **NK.BIN** from storage card and then write it to the on-board flash chip.

Warning:

Warning! *Please check the image version before installation; using the incorrect version may damage the computer*

4.3.2 Upgrade image via WinCE upgrade utlity

After the OS image is built, it can be written to the on-board system flash chip. Advantech provides a utility, *Upgrade* for updating the bootloader image, WinCE image or boot logo tono the onboard flash chip. The upgrade procedure is as follows:

1. Copy the *Upgrade* utility and image files (For example: **NK.BIN, EBOOT.BIN**, and **WINDOWSCE.BMP**) to an SD / MMC storage card.
2. Insert the storage card into the UBIQ-350 platform, and then launch *Upgrade.exe*.

Figure 4.2 Image files and upgrade utility on storage card

3. Check the items that are to be upgraded as shown in the figure below. To upgrade the boot logo, key in the path of the bitmap file in the edit box or click the “Browse” button to select the file.

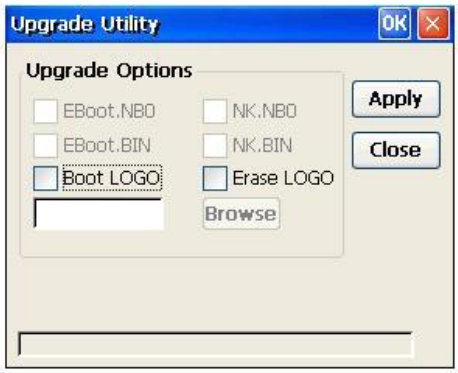


Figure 4.3 Upgrade utility for burn image to flash ROM

4. Press the “Apply” button on the dialog. Then the selected items will be upgraded to the flash ROM. After the upgrading process has finished, reboot the system.

4.4 Utilities

There are several useful utilities added to the standard Windows® CE 5.0:

4.4.1 Test Utility

The utility *AdvDiag.exe* is an integrated test tool, which includes functional validation for peripherals. Use this tool to verify whether the peripheral functions are working correctly or not. Copy this utility to the storage card and then launch from WinCE by double clicking it.

4.4.1.1 Main Functions

The most important tools in the utility are detailed in the following table:

Table 4.1: Test Utility Tools

Item	Function Description
TOUCH SCREEN	Touchscreen function validation
Audio Play	Audio play function validation
Audio Record	Audio record function validation

Table 4.1: Test Utility Tools	
USB Keyboard	USB Keyboard function validation
USB Mouse	USB Mouse function validation
WATCHDOG Timer	Watchdog timer validation
Backlight Test	Backlight function validation
Power Properties	Get power information
PAUSE	Pause test process
REPEAT TEST	Repeat test process

4.4.1.2 Test Procedure:

A lot of test items are available in the “left zone” after launching this utility. Insert sufficient test items into the “right zone” by pressing the "Add" button. The test items in the “right zone” will be executed. Remove test items from the “right zone” by pressing the "Remove" button.

After adding test items, proceed to the function test by pressing the "EXE ALL" button. Then press the "View Rpt" button to see the test results.

Figure 4.4 Test Utility

4.4.2 Startup Execution

The UBIQ-350 platform has a useful function called *Startup execution*. After the system boots up, the *Startup execution* function will automatically be performed. This function causes the control system to activate the initialization processes, or other pre-set procedures. In the UBIQ-350 platform, there are two methods for performing the "Startup" function.

- Method 1:

1. Create a "startup" directory on the SD/MMC storage card, or in "\DiskOnChip\".
2. Copy executable files to the "startup" directory created by Step 1.

Example:

Copy two executable files "softreset.exe" and "Notepad.exe" to "\DiskOnChip\Startup" directory, and then reboot the system. After the system boots up, the two executable files are automatically executed.

- Method 2:

1. Create "startup" directory in SD/MMC storage card or in "\DiskOnChip\".
2. Create a file called "startup.ini" in "startup" directory. Type in the commands you want to execute after boot up in that file.

Example:

Create "Startup.ini" in "\DiskOnChip\Startup" directory and reboot the system. The content of startup.ini is listed below:

\windows\tty.exe

\windows\registry.exe

After the system reboots, "\windows\tty.exe" and "\windows\ registry.exe" will be automatically executed. Be sure that the two methods are independent. This means that they can be applied simultaneously.

4.4.3 Factory Mode

UBIQ-350 allows the user to alter registry settings, and save them using either the API "RegFlushKey," or the "Save" registry button on the "Misc" page of the "Platform Setting" menu. Sometimes users may make some inappropriate registry setting, and this may cause a boot failure, and the UBIQ-350 will fail to start up. In this circumstance, the easiest way to boot up the UBIQ-350 platform is to use the default registry setting from the Windows® CE 5.0 image. When the UBIQ-350 platform is booted up with the default registry setting, it is placed into "safe mode". To enter "safe mode" manually, the user must perform several steps as described below:

1. Create a file whose filename is "safemode" on the SD/MMC storage card.
2. Insert the SD/MMC card into the UbiQ-350 platform.
3. Turn on the power switch of UBIQ-350 platform.
4. Optionally, press the "Clean" button on the “Misc page” in “Platform Settings.”

4.4.4 Platform Setting

Platform Setting is an outstanding utility designed by the Advantech Windows® CE software team. It provides an integrated environment in which users can get practical system information as well as configure favorite system settings and control functions. Double click the *Platform Setting* icon on the desktop. *Platform Setting* is also available on the Control Panel. The following sections illustrate the functions of *Platform Setting*.

4.4.4.1 General

Platform Setting displays memory information, including DRAM and DiskOnChip. Platform names, and version controls.

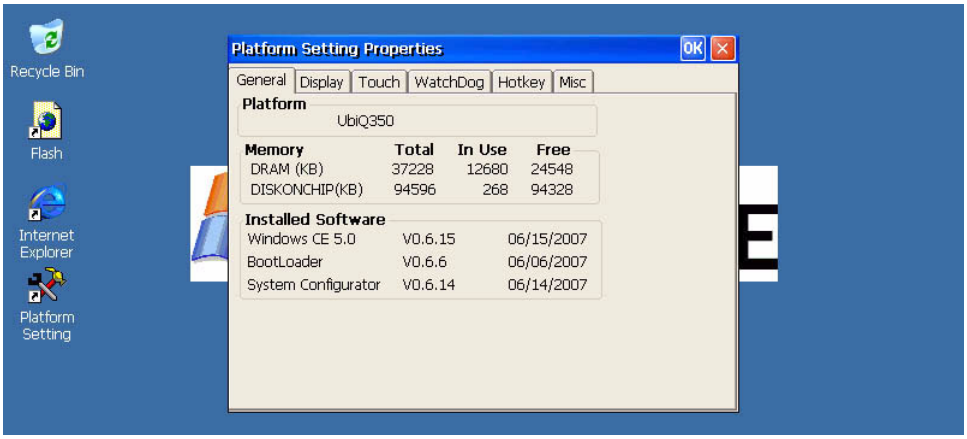


Figure 4.5 General information

4.4.4.2 Display

From time to time it is necessary to turn on the display attached to the UBIQ-350 all day. The “Display” page provides several frequently used functions such as turning off the LCD and its backlight to protract the active display period, and to access basic

adjustment of the display brightness. Users can click the "Off Now" button to turn off the backlight on the display panel immediately. Once the backlight whas been turned off, there are three inputs to turn it back on: (1) mouse; (2) keyboard; (3) touch-screen; users can set any one of them to turn on the display. The lower "Brightness" block employs scroll bars to permit tuning of the brightness level of the TFT LCD.

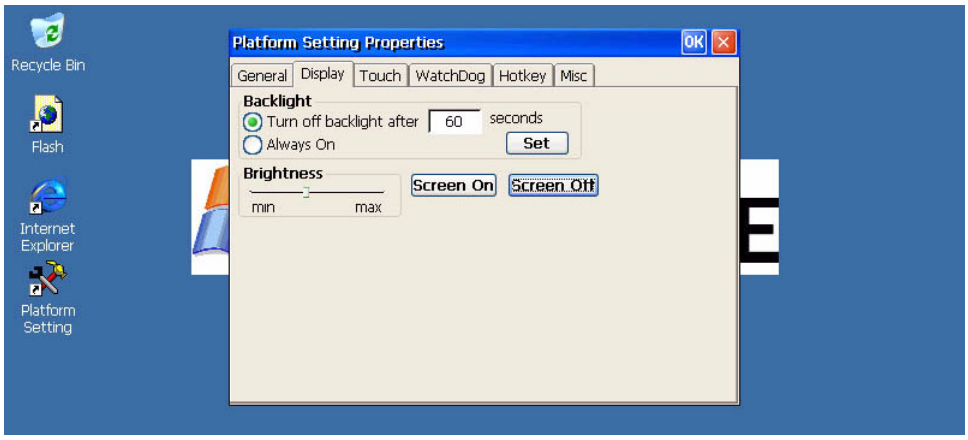


Figure 4.6 Display configuration

4.4.4.3 Touchscreen

The “Touchscreen” page provides a calibration function. Click the “Calibration” button, and the "Stylus Properties" windows will appear. Then click the "calibrate" button in the “Stylus Properties” window to begin the calibration process. During the calibration process, the user taps the center of the target on the screen; then, the target will move to the next position. After calibration, press "OK" to leave the “Stylus Properties” window. It will automatically save the calibration setting to the registry.

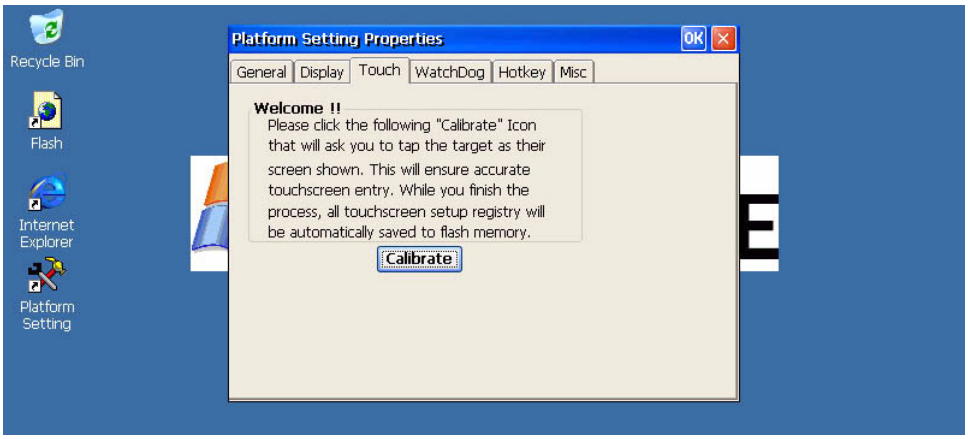


Figure 4.7 Touch Calibration

4.4.4.4 WatchDog timer

Industrial applications and control systems must not crash, and they must be capable of self-reseting if they are halted somehow. The “WatchDog” timer function can automatically reset the system; therefore it is provided with UBIQ-350. There is a timer inside the watchdog function. The User's AP can invoke the associated APIs in the “WatchDog” function to start the timer; then, the “WatchDog” function repeats a countdown of the the specified period of time required to reboot the system, assuming that the user's AP does not clear the timer periodically. The watchdog function in the UBIQ-350 provides eight different time intervals: 2 seconds, 5 seconds, 10 seconds, 30 seconds, 60 seconds, 2 minutes, 5 minutes and 10 minutes. The "Enable"

button is used to start the Watchdog function.. Pressing the "REBOOT" button will cause the system to perform a cold boot.

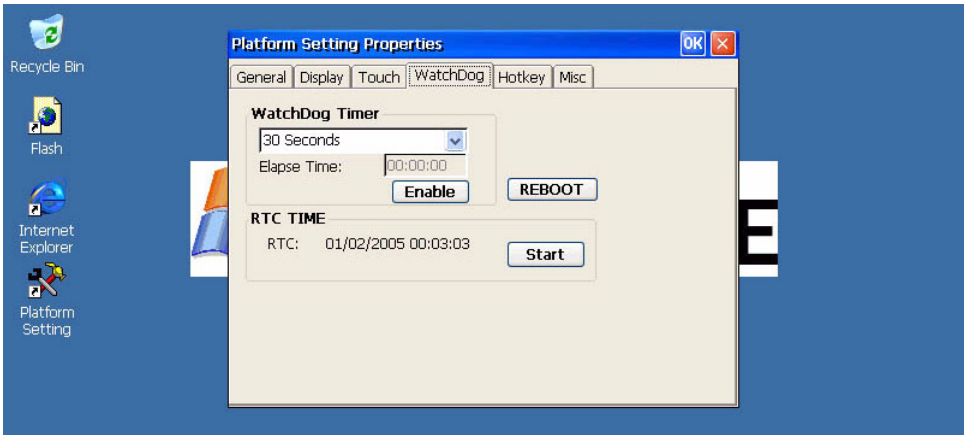


Figure 4.8 WatchDog timer

4.4.4.5 Hotkeys

UbiQ-350 provides five ”Hotkeys.” “Hotkeys” can launch associated applications once an assigned key is pressed; however, it is necessary to configure “Hotkey” settings in advance. Users can define the function of each hotkey via the “Hotkey” page.

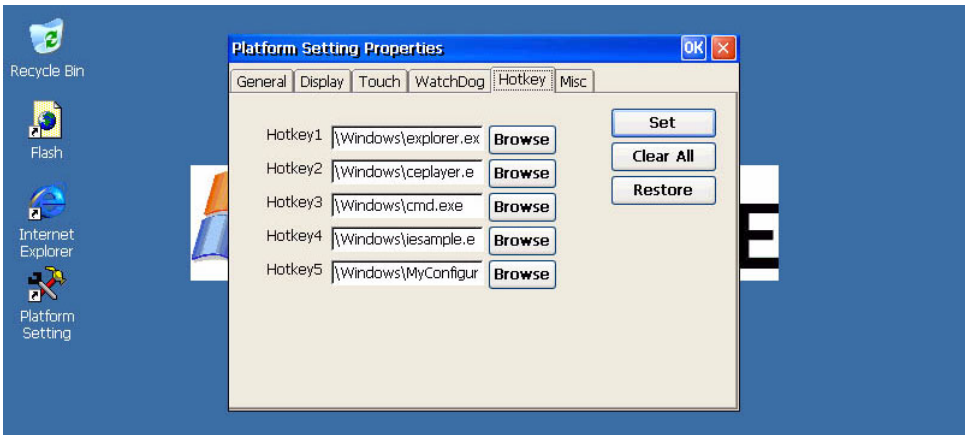


Figure 4.9 Hotkey settings

4.4.4.6 Miscellaneous

The “Miscellaneous” page provides several functions described below. The "Registry" block provides a registry saving and registry cleaning function. By pressing the "Save" button, the registry settings will be saved to persistent storage as DISKON-CHIP. By pressing the "Clean" button, the registry settings will return to default settings. The “Memory Management” block will check if the memory size needs to be allocated automatically during boot up. Once this has been checked, the program memory will be allocated to half the size of the available memory, and the storage memory will occupy the remainder.

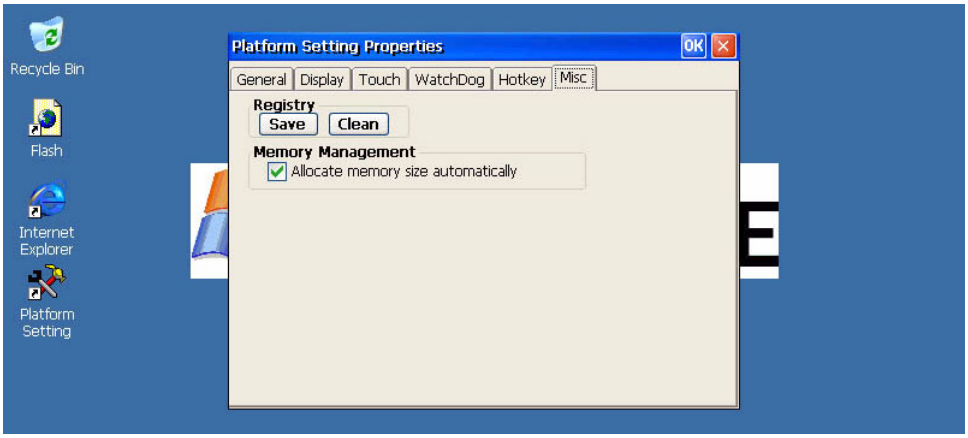


Figure 4.10 Miscellaneous setting

4.5 M-System® Persistent Storage Manger (DiskOnChip)

4.5.1 Introduction to M-System Persistent Storage Manger

The M-System® “Persistent Storage Manager” was designed and developed specifically as an enhancement for Microsoft Windows CE operating systems. “DiskOnChip” eliminates the necessity for extra disk-like storage, like storage cards, redundant RAM and ROM.

4.5.2 DiskOnChip folder in UbiQ-350

UbiQ-350 uses M-System Persistent Storage Manger to utilize the free space of the flash ROM for persistent storage. The “DiskOnChip” region in the system is located in "\DiskOnChip" directory. Any file or directory stored in "\DiskOnChip" directory will be persistently retained, even if power to the UBIQ-350 is turned off. The user can store software or data in \DiskOnChip rather than on an external storage card to avoid inconvenience.

4.6 Application Program Development

The UBIQ-350 is bundled with a pre-installed Windows® CE 5.0 operating system. Unlike other Windows operating systems, Windows CE 5.0 is a hardware-dependent OS. That is to say, Windows CE 5.0 application programs are only portable at the source code level. Users must rebuild the runtime file when installing each different Windows CE 5.0 platform to conform to the unique applications being installed, even though their source code, and the Windows CE 5.0 platform may not have changed at all from previous installations.

4.6.1 PC System requirements

- Intel® Pentium-90 CPU or more advanced
- Microsoft® Windows® 2000 Professional or Windows® XP
- Microsoft® eMbedded Visual C++ 4.0 or Virtual Studio 2005
- Platform SDK for UBIQ-350
- 64MB DRAM
- CD-ROM drive
- Monitor with VGA resolution at least
- Mouse
- 200MB free hard disk space at least
- UbiQ-350 platform

4.6.2 Building Windows CE program

By applying the platform SDK bundled with the standard UBIQ-350, users can build the Windows CE runtime application program with help from the “eMbedded Visual Tools.”

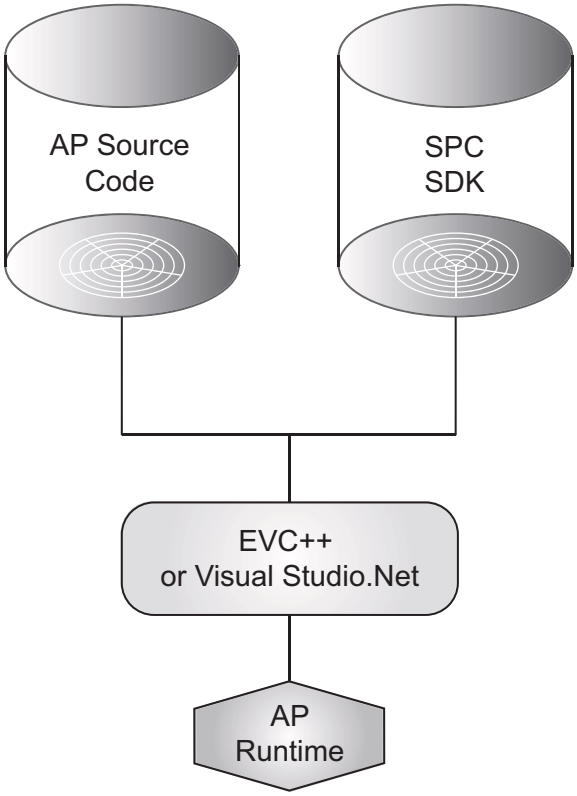


Figure 4.11 Flow-chart for Building Windows® CE 5.0 runtime

4.6.3 How to install SDK

Copy UBIQ-350 SDK file, **PXA270_WCE500_SDK_V101.msi** to the PC, and launch it. Then, install SDK by steps.

1. Launch the UBIQ-350 SDK file, and then click the “Next” button.

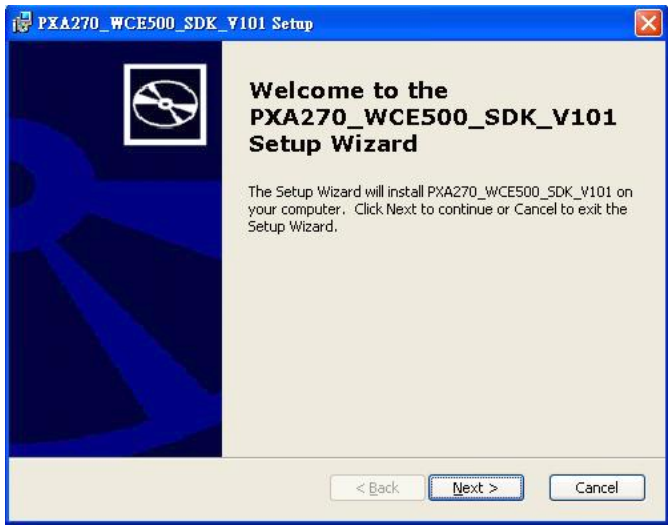


Figure 4.12

2. Accept the “License Agreement’ and click next.

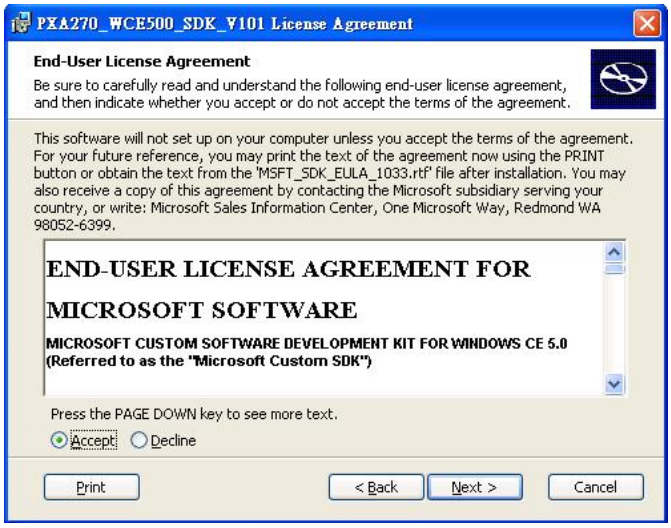


Figure 4.13

3. Key in I.D. information and click next.

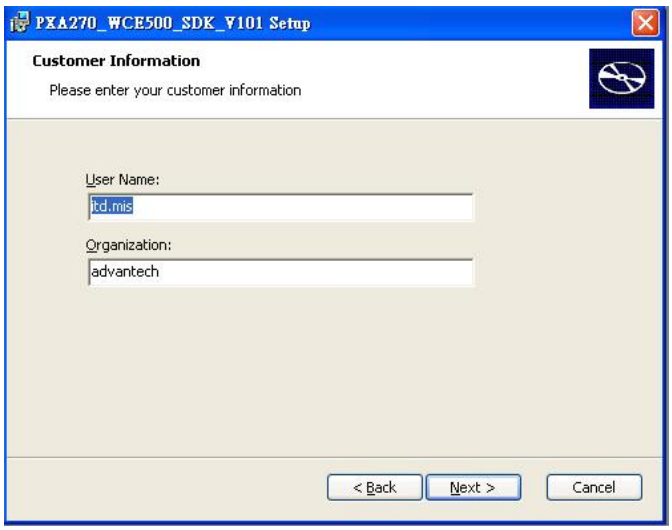


Figure 4.14

4. Choose setup type.

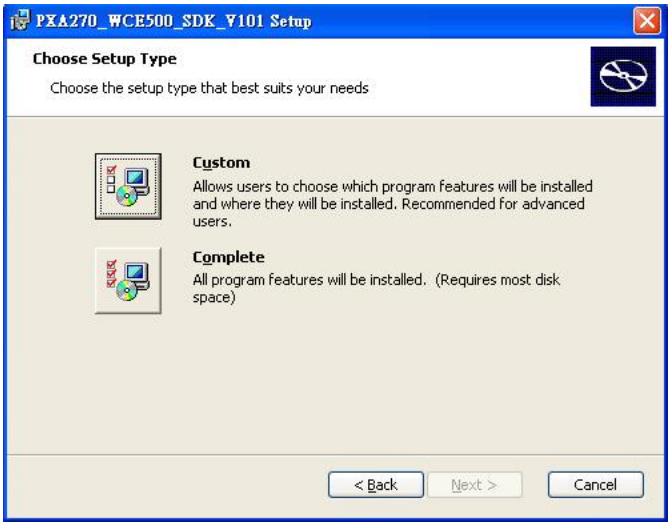


Figure 4.15

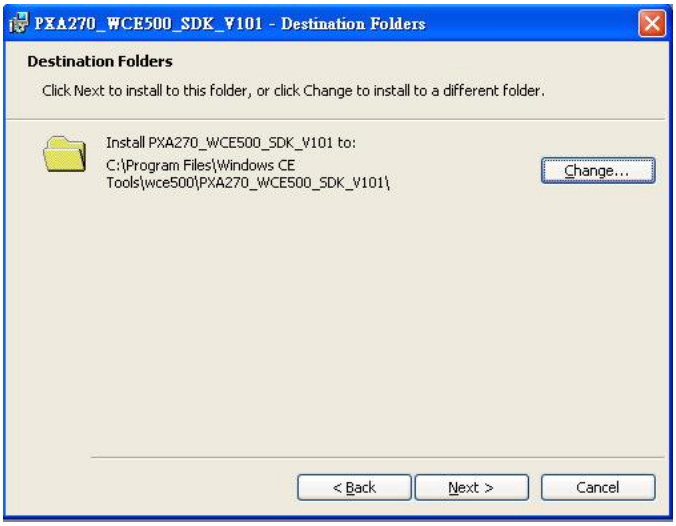


Figure 4.16

5. Click the "Install" button to install SDK.

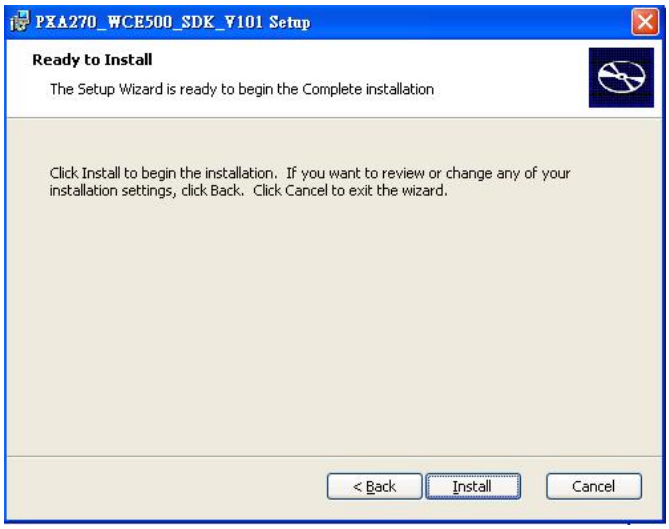


Figure 4.17

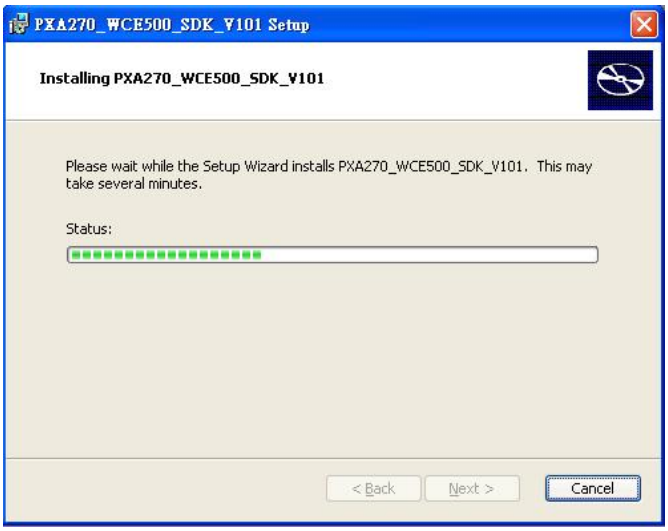


Figure 4.18

6. Finish installing.

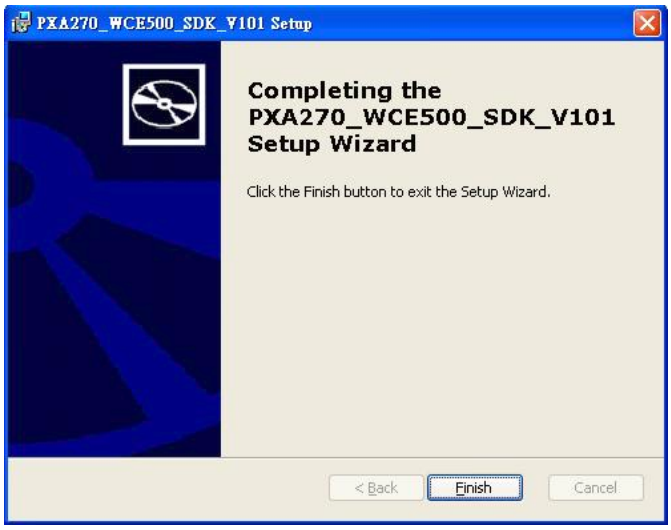


Figure 4.19

4.6.4 Running application programs)

After implementing the application code, choose “Advantech SDK” to compile the programs.

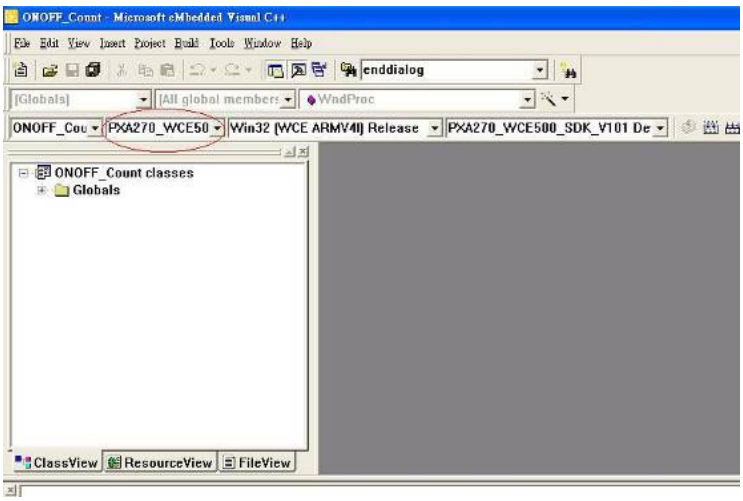


Figure 4.20

4.6.5 AdvLib library for application programs

UBIQ-350 is targeted as an ideal embedded device for system integrators. Advantech provides one “AdvLib static library”* for use by the system integrator. The AdvLib library includes several useful APIs. System integrators need only introduce the static library to their application development system for current projects; all the benefits of the AdvLib library and its usefulness for system development then become easily accessible.

AdvLib library package include following content:

- **AdvLib.lib**
- **AdvLib.h**
- **AdvLib User Guide**

* Please refer to ***AdvLib User Guide*** available on the support CD for details.

4.7 Windows® CE 5.0 Component List

Table 4.2: Windows® CE 5.0 Component List

APPLICATIONS AND SERVICES DEVELOPMENT	Core	Professional	Advantech Core	Advantech Core Professional
Active Template Library (ATL)	x	x	x	x
C Libraries and Runtimes	x	x	x	x
C++ Runtime Support for Exception Handling and Runtime Type Information	x	x	x	x
Full C Runtime	x	x	x	x
Standard I/O (STDIO)	x	x	x	x
Standard I/O ASCII (STDIOA)	x	x	x	x
String Safe Utility Functions	x	x	x	x
Standard String Functions - ASCII (corestra)	x	x	x	x
Component Services (COM and DCOM)	x	x	x	x
Component Object Model	x	x	x	x
COM	x	x	x	x
CoCreateGuid functionality for OLE32	x	x	x	x
COM Storage	x	x	x	x
DCOM	x	x	x	x
COM Storage	x	x	x	x
DCOM Remote Access	x	x	x	x
Minimal COM (No OLE Support)	x	x	x	x
CoCreateGuid functionality for OLE32	x	x	x	x
COM Storage	x	x	x	x
Speech Interface	x	x		
Speech API (SAPI) 5.0	x	x		
Microsoft English (US) Windows CE Speech Recognizer (available in 4.2 only)*		x		
Lightweight Directory Access Protocol (LDAP) Client	x	x	x	x
Message Queuing (MSMQ)	x	x	x	x
SOAP Reliable Messaging Protocol (SRMP)	x	x	x	x
MSMQ ActiveX Wrappers	x	x	x	x
Microsoft Foundation Classes (MFC)	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Object Exchange Protocol (OBEX)	x	x	x	x
OBEX Server	x	x	x	x
OBEX Inbox	x	x	x	x
OBEX File Browser	x	x	x	x
OBEX Client	x	x	x	x
Pocket Outlook Object Model (POOM) API		x		
SOAP Toolkit	x	x	x	x
Client	x	x	x	x
Server	x	x	x	x
Standard SDK for Windows CE		x		x
.NET Compact Framework	x	x	x	x
OS Dependencies for .NET Compact Framework 1.0	x	x	x	x
Smart Device Authentication Utility	x	x	x	x
.NET Compact Framework 1.0	x	x	x	x
SQL Server CE 2.0 .NET Data Provider	x	x	x	x
SQL Server 2000 .NET Data Provider	x	x	x	x
SQL Server CE 2.0	x	x	x	x
XML	x	x	x	x
MSXML 3.0	x	x	x	x
XML Core Services and Document Object Model (DOM)	x	x	x	x
XML HTTP	x	x	x	x
XML Query Languages (XQL)	x	x	x	x
XML Stylesheet Language Transformations (XSLT)	x	x	x	x
XML SAX	x	x	x	x
XML Error Strings	x	x	x	x
XML Minimal Parser	x	x	x	x
Exchange Client	x	x		
APPLICATIONS - END USER				
ActiveSync		x		
File Sync	x	x	x	x
Inbox Sync		x		
Pocket Outlook Database Sync		x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
CAB File Installer/Uninstaller	x	x	x	x
File Viewers*				x
Microsoft Excel Viewer*				x
Microsoft Image Viewer*				x
Microsoft PDF Viewer*				x
Microsoft PowerPoint Viewer*				x
Microsoft Word Viewer*				x
FLASH Update Sample Application	x	x		
Games	x	x		
Freecell	x	x		
Solitaire	x	x		
Help*		x		x
Inbox		x		
Remote Desktop Connection		x		x
Remote Desktop Protocol (RDP)		x		x
User Interface Dialog Boxes		x		x
Smart Card Redirection		x		x
File Storage Redirection		x		x
Filtered File Storage Redirection		x		x
Cut/Copy/Paste Clipboard Redirection		x		x
Serial and Parallel Port Redirection		x		x
Audio Playback Redirection		x		x
Printer Redirection		x		x
Terminal Emulator	x	x	x	x
Windows Messenger		x		
WordPad		x		x
CORE OS SERVICES				
Battery Driver	x	x	x	x
Display Support	x	x	x	x
Serial Port Support	x	x	x	x
Parallel Port Support	x	x	x	x
Internet Appliance (IABASE) Support	x	x		
Notification LED Support	x	x		
PNP Notifications	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
USB Host Support	x	x	x	x
USB Human Input Device (HID) Class Driver	x	x	x	x
USB HID Keyboard and Mouse	x	x	x	x
USB HID Keyboard Only	x	x	x	x
USB HID Mouse Only	x	x	x	x
USB Printer Class Driver	x	x	x	x
USB Storage Class Driver	x	x	x	x
USB Remote NDIS Class Driver	x	x	x	x
Debugging Tools	x	x	x	x
Keyboard Test Application	x	x		
Touch Driver Test Application	x	x		
Remote Display Application	x	x		
Tiny Kernel Test Sample Application	x	x		
Toolhelp API	x	x	x	x
LMemDebug Memory Debugging Hooks	x	x		
Notification (Choose 1)	x	x		
UI based Notification	x	x		
Non UI based Notification	x	x		
Power Management (Choose 1)	x	x	x	x
Power Management (Full)	x	x	x	x
Power Management (Minimal)	x	x		
Device Manager	x	x	x	x
Kernel Features	x	x	x	x
Target Control Support (Shell.exe)	x	x	x	x
Fiber API	x	x	x	x
FormatMessage API	x	x	x	x
Memory Mapped Files	x	x	x	x
Message Queue - Point-to-Point	x	x	x	x
COMMUNICATIONS SERVICES AND NETWORKING				
Networking Features	x	x	x	x
Domain Discovery	x	x	x	x
Extended DNS Querying and Update (DNSAPI)	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Secure DDNS	x	x	x	x
Extensible Authentication Protocol	x	x	x	x
Firewall	x	x		
Internet Connection Sharing (ICS)	x	x	x	x
Gateway Logging	x	x	x	x
IPSec v4	x	x	x	x
NDIS Packet Capturing DLL	x	x		
NDIS User-mode I/O Driver	x	x	x	x
Network Bridging	x	x	x	x
Network Driver Architecture (NDIS)	x	x	x	x
Network Utilities (IpConfig, Ping, Route)	x	x	x	x
Reference Gateway User Interface	x	x		
Remote Configuration Framework	x	x		
TCP/IP	x	x	x	x
IP Helper API	x	x	x	x
TCP/IPv6	x	x	x	x
Universal Plug and Play (UPnP)	x	x	x	x
Control Point API	x	x	x	x
Device Host API	x	x	x	x
Device Host API (Minimal Subset)	x	x	x	x
Sample UPnP IGD Schema Implementation	x	x	x	x
UPnP Tools	x	x	x	x
UPnP Audio-Video DCP	x	x	x	x
AV Control Point API	x	x	x	x
AV Device API	x	x	x	x
AV Renderer Sample		x		x
USB Flash Config Tool	x	x		
Windows Networking API/Redirector (SMB/CIFS)	x	x	x	x
Winsock Support	x	x	x	x
Networking - Local Area Network (LAN)	x	x	x	x
Native Wi-Fi WLAN Access Point Components	x	x	x	x
Native Wi-Fi WLAN STA	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Wired Local Area Network (802.3, 802.5)	x	x	x	x
Wireless LAN (802.11) STA - Automatic Configuration and 802.1x	x	x	x	x
Networking - Personal Area Network (PAN)	X	x		
Bluetooth	x	x		
Bluetooth Protocol Stack with Transport Driver Support	x	x		
Bluetooth Stack with Integrated CSR Chipset Driver	x	x		
Bluetooth Stack with Universal Loadable Driver	x	x		
Bluetooth Stack with Integrated SDIO Driver	x	x		
Bluetooth Stack with Integrated USB Driver	x	x		
Bluetooth Stack with Integrated UART Driver	x	x		
Bluetooth Profiles Support	x	x		
Bluetooth HS/HF and Audio Gateway Service	x	x		
Bluetooth LAP and Configuration Utility		x		
Bluetooth DUN Gateway	x	x		
Bluetooth PAN	x	x		
Bluetooth HID Device Support	x	x		
Bluetooth HID - Keyboard	x	x		
Bluetooth HID - Mouse	x	x		
IrDA	x	x		
Networking - Wide Area Network (WAN)	x	x	x	x
Dial Up Networking (RAS/PPP)	x	x	x	x
AutoDial	x	x	x	x
Standard Modem Support for Dial Up Networking	x	x	x	x
Point-to-Point Protocol over Ethernet (PPPoE)	x	x	x	x
Telephony API (TAPI 2.0)	x	x	x	x
Unimodem support	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Virtual Private Networking	x	x	x	x
PPTP	x	x	x	x
L2TP/IPSec	x	x	x	x
Servers	x	x	x	x
Core Server Support	x	x	x	x
FTP Server	x	x		
File Server	x	x		
File Server Customizable UI	x	x		
Windows Peer-to-Peer Networking	x	x		
Peer Name Resolution Protocol (PNRP)	x	x		
Identity Manager	x	x		
Print Server	x	x		
RAS Server/PPTP Server (Incoming)		x		
Telnet Server	x	x		
Web Server (HTTPD)	x	x	x	x
Active Server Pages (ASP) Support	x	x	x	x
JScript 5.6	x	x	x	x
VBScript 5.6	x	x	x	x
Device Management ISAPI Extension	x	x	x	x
WebDAV Support	x	x	x	x
Web Server Administration ISAPI	x	x	x	x
Web Proxy	x	x		
Parental Controls	x	x		
Simple Network Time Protocol (SNTP)	x	x		
SNTP Server	x	x		
SNTP Client with DST	x	x		
SNTP Automatic Updates and Server Synchronization	x	x		
DEVICE MANAGEMENT				
Device Management Client	x	x		
Simple Network Management Protocol (SNMP)	x	x		
FILE SYSTEMS AND DATA STORE				
Compression	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Database Support	x	x	x	x
File and Database Replication (Choose 1)	x	x	x	x
Bit-based	x	x	x	x
Count-Based	x	x		
File System - Internal (Choose 1)	x	x	x	x
RAM and ROM File System	x	x	x	x
ROM-only File System	x	x		
Registry Storage (Choose 1)	x	x	x	x
Hive-based Registry	x	x	x	x
RAM-based Registry	x	x		
Storage Manager	x	x	x	x
Binary Rom Image File System	x	x		
Storage Manager Control Panel Applet	x	x	x	x
EDB Database Engine	x	x		
Partition Driver	x	x	x	x
CD/UDFS File System	x	x	x	x
FAT File System	x	x	x	x
Transaction-Safe FAT File System (TFAT)	x	x		
System Password	x	x	x	x
FONTS				
Arial	x	x		
Arial (Subset 1_30)	x	x		
Arial Black	x	x		
Arial Bold	x	x		
Arial Bold Italic	x	x		
Arial Italic	x	x		
Comic Sans MS	x	x		
Comic Sans MS	x	x		
Comic Sans MS Bold	x	x		
Courier New	x	x	x	x
Courier New (Subset 1_30)	x	x	x	x
Courier New Bold	x	x		
Courier New Bold Italic	x	x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Courier New Italic	x	x		
Georgia	x	x		
Georgia	x	x		
Georgia Bold	x	x		
Georgia Bold Italic	x	x		
Georgia Italic	x	x		
Impact	x	x		
Kino	x	x		
MSLogo	x	x		
Symbol	x	x	x	x
Tahoma	x	x	x	x
Tahoma (Subset 1_07)	x	x	x	x
Tahoma Bold	x	x		
Times New Roman	x	x	x	x
Times New Roman (Subset 1_30)	x	x	x	x
Times New Roman Bold	x	x		
Times New Roman Bold Italic	x	x		
Times New Roman Italic	x	x		
Trebuchet MS	x	x		
Trebuchet MS	x	x		
Trebuchet MS Bold	x	x		
Trebuchet MS Bold Italic	x	x		
Trebuchet MS Italic	x	x		
Verdana	x	x		
Verdana	x	x		
Verdana Bold	x	x		
Verdana Bold Italic	x	x		
Verdana Italic	x	x		
Webdings	x	x		
Wingding	x	x	x	x
INTERNATIONAL				
Input Method Manager (IMM)	x	x	x	x
Locale Services (Choose 1)	x	x	x	x
National Language Support (NLS)	x	x	x	x
English (US) Language Support only	x	x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Locale Specific Support	x	x		
Arabic	x	x		
Fonts	x	x		
Tahoma (subset 1_08)	x	x		
Tahoma Bold (subset 1_08)	x	x		
Arial (subset 1_08)	x	x		
Arial Bold (subset 1_08)	x	x		
Courier New (subset 1_08)	x	x		
Keyboard	x	x		
Arabic Keyboard (101)	x	x		
Chinese (Simplified)	x	x		
Agfa AC3 Font Compression	x	x		
Fonts	x	x		
SimSun & NSimSun (Choose 1)	x	x		
SimSun & NSimSun	x	x		
SimSun & NSimSun (Subset 2_20)	x	x		
SimSun & NSimSun (Subset 2_50)	x	x		
SimSun & NSimSun (Subset 2_60)	x	x		
SimSun & NSimSun (Subset 2_70)	x	x		
SimSun & NSimSun (Subset 2_80)	x	x		
SimSun & NSimSun (Subset 2_90)	x	x		
SC_Song	x	x		
GB18030 Data Converter	x	x		
Input Method Editor (Choose 1)	x	x		
MSPY 3.0 for Windows CE	x	x		
MSPY 3.0 for Windows CE Database (Choose 1)	x	x		
1.1 MB - Minimal Database	x	x		
1.3 MB - Compact Database	x	x		
1.7 MB - Standard Database	x	x		
Double Spelling (Shuang Pin) soft keyboard - Large	x	x		
Double Spelling (Shuang Pin) soft keyboard - Small	x	x		
Pocket IME	x	x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Double Spelling (Shuang Pin) soft keyboard - Small	x	x		
Chinese (Traditional)	x	x		
Agfa AC3 Font Compression	x	x		
Fonts	x	x		
MingLiU & PMingLiU (Choose 1)	x	x		
MingLiU & PMingLiU	x	x		
MingLiU & PMingLiU (Subset 2_70)	x	x		
MingLiU & PMingLiU (Subset 2_80)	x	x		
MingLiU & PMingLiU (Subset 2_90)	x	x		
MS Ming	x	x		
Input Method Editor	x	x		
Pocket IME	x	x		
Input Methods	x	x		
Input by Radical (Chang Jei)	x	x		
Handwriting Recognizer Engine (HWX)		x		
MboxCHT HWX Sample UI		x		
Phonetic Input (Bopomofo)	x	x		
English (Worldwide)	x	x		
Input Methods	x	x		
Handwriting Recognizer Engine (HWX)		x		
English (U.S.)	x	x		
Input Methods	x	x		
Transcriber Handwriting Recognition Application		x		
French	x	x		
Input Methods	x	x		
Transcriber Handwriting Recognition Application		x		
German	x	x		
Input Methods	x	x		
Transcriber Handwriting Recognition Application		x		
Hebrew	x	x		
Fonts	x	x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Tahoma (subset 1_08)	x	x		
Arial (subset 1_08)	x	x		
Tahoma Bold (subset 1_08)	x	x		
Arial Bold (subset 1_08)	x	x		
Courier New (subset 1_08)	x	x		
Keyboard	x	x		
Hebrew Keyboard	x	x		
Indic	x	x		
Hindi	x	x		
Fonts	x	x		
Mangal	x	x		
Keyboard	x	x		
Hindi Traditional Keyboard	x	x		
Marathi	x	x		
Fonts	x	x		
Mangal	x	x		
Keyboard	x	x		
Marathi Keyboard	x	x		
Punjabi	x	x		
Fonts	x	x		
Raavi	x	x		
Keyboard	x	x		
Punjabi Keyboard	x	x		
Telugu	x	x		
Fonts	x	x		
Gautami	x	x		
Keyboard	x	x		
Telugu Keyboard	x	x		
Gujarati	x	x		
Fonts	x	x		
Shruti	x	x		
Keyboard	x	x		
Gujarati Keyboard	x	x		
Kannada	x	x		
Fonts	x	x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Tunga	x	x		
Keyboard	x	x		
Kannada Keyboard	x	x		
Tamil	x	x		
Fonts	x	x		
Latha	x	x		
Keyboard	x	x		
Tamil Keyboard	x	x		
Japanese	x	x		
Agfa AC3 Font Compression	x	x		
Fonts	x	x		
MS Gothic (Choose 1)	x	x		
MS Gothic & MS PGothic & MS UI Gothic	x	x		
MS Gothic & MS PGothic & MS UI Gothic				
(Subset 1_50)	x	x		
MS Gothic & MS PGothic & MS UI Gothic				
(Subset 1_60)	x	x		
MS Gothic & MS PGothic & MS UI Gothic				
(Subset 1_80)	x	x		
MS Gothic & MS PGothic & MS UI Gothic				
(Subset 1_90)	x	x		
MS Gothic & MS PGothic & MS UI Gothic				
(Subset 1_70)	x	x		
MS Gothic & MS PGothic (Subset 30)	x	x		
MS Gothic & MS PGothic (Subset 30_1_19)	x	x		
MS Mincho & MS PMincho	x	x		
Input Method Editor (Choose 1)	x	x		
IME 3.1	x	x		
IME 3.1 Database (Choose 1)	x	x		
Standard Database	x	x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Compact Database	x	x		
Optional UI Components	x	x		
Dictionary Tool	x	x		
Properties Dialog Box	x	x		
Advanced Settings Dialog Box				
(Landscape mode only)	x	x		
System Tray Icon Manager	x	x		
Pocket IME (Choose Additional Databases)	x	x		
Name/Place Database	x	x		
Supplemental Database	x	x		
Test IME	x	x		
Input Methods	x	x		
All Characters List	x	x		
Handwriting Recognizer Engine (HWX)		x		
Character Auto Complete - HWX Sample UI		x		
Multibox HWX Sample UI		x		
Kana Soft Keyboard	x	x		
Romaji/English Soft Keyboard	x	x		
Search by Radical	x	x		
Search by Stroke	x	x		
Korean	x	x		
Agfa AC3 Font Compression	x	x		
Fonts	x	x		
Gulim (GL_CE)	x	x		
Gulim & GulimChe (Choose 1)	x	x		
Gulim & GulimChe (Subset 1_30)	x	x		
Gulim & GulimChe (Subset 1_40)	x	x		
Gulim & GulimChe (Subset 1_50)	x	x		
Gulim & GulimChe (Subset 1_60)	x	x		
Input Method Editor	x	x		
IME 97	x	x		
Input Methods	x	x		
Handwriting Recognizer Engine		x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
MboxKOR HWX Sample UI		x		
Korean Soft Keyboard Sample	x	x		
Thai	x	x		
Fonts	x	x		
Tahoma (subset 1_08)	x	x		
Keyboard	x	x		
Thai Kedmanee Keyboard	x	x		
Multilingual User Interface (MUI)	x	x		
Unicode Script Processor for Complex Scripts	x	x		
Internet Client Services	x	x		x
Browser Application		x		x
Internet Explorer 6.0 for Windows CE - Standard Components		x		x
Internet Explorer 6.0 Sample Browser		x		x
TV-Style Navigation Components		x		
Pocket Internet Explorer		x		
Internet Explorer 6.0 for Windows CE Components				x
Internet Explorer Browser Control Host		x		x
Internet Explorer HTML/DHTML API		x		x
Internet Explorer HTML Application		x		x
Filter and Translation		x		x
Internet Explorer Plug-in Image Decoder API		x		x
Internet Explorer PNG Image Decoder		x		x
Internet Explorer Theme Library		x		x
Internet Explorer Multiple-Language Base API	x	x	x	x
Internet Explorer Multiple-Language Full API		x		x
Optional Charset/Encoding in registry		x		x
Internet Explorer RPC Support		x		x
Internet Explorer TV-Style Navigation		x		
Fixed-Width Layout		x		
Directional Tabbing		x		

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Disable Vertical Scroll Bar and Events		x		
Customizable Font Range		x		
URL Moniker Services	x	x	x	x
Windows Internet Services	x	x	x	x
Passport SSI 1.4 Authentication	x	x	x	x
Platform for Privacy Preferences (P3P)	x	x	x	x
XML Data Islands	x	x	x	x
XML MIME Viewer	x	x	x	x
Pocket Internet Explorer HTML View (WEBVIEW)		x		
Internet Options Control Panel		x		x
Scripting	x	x	x	x
JScript 5.6	x	x	x	x
Script Authoring (Jscript)	x	x	x	x
Script Encode (Jscript)	x	x	x	x
VBScript 5.6	x	x	x	x
Script Authoring (VBScript)	x	x	x	x
Script Encode (VBScript)	x	x	x	x
MsgBox and InputBox support	x	x	x	x
GRAPHICS AND MULTIMEDIA TECHNOLOGIES				
Graphics	x	x		
Raster Fonts Support	x	x		
V1 Font Compatibility	x	x		
Alphablend API (GDI version)	x	x		
Gradient Fill Support	x	x	x	x
Multiple Monitor Support	x	x		
Imaging	x	x	x	x
Still Image Codec Support (Encode and Decode)	x	x	x	x
Still Image Decoders	x	x	x	x
PNG Decoder	x	x	x	x
BMP Decoder	x	x	x	x
GIF Decoder	x	x	x	x
ICO Decoder	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
JPG Decoder	x	x	x	x
Still Image Encoders	x	x	x	x
GIF Encoder	x	x	x	x
BMP Encoder	x	x	x	x
JPG Encoder	x	x	x	x
PNG Encoder	x	x	x	x
Direct3D Mobile	x	x	x	x
DirectDraw	x	x	x	x
Audio	x	x	x	x
Audio Compression Manager	x	x	x	x
GSM 6.10 Codec	x	x	x	x
MSFilter Codec	x	x	x	x
Waveform Audio	x	x	x	x
Media	x	x	x	x
Streaming Media Playback (requires WMP application)		x		x
WMA and MP3 Local Playback	x	x	x	x
WMA and MP3 Streaming (requires WMP application)		x		x
Digital Rights Management	x	x		
Digital Rights Management (DRM)	x	x		
DRM for Portable Devices	x	x		
DRM License Acquisition OCX	x	x		
DirectShow	x	x	x	x
DirectShow Core	x	x	x	x
DirectShow Display	x	x	x	x
DirectShow Error Messages	x	x	x	x
DMO Wrapper Filter	x	x	x	x
ACM Wrapper Filter	x	x	x	x
Media Formats	x	x	x	x
AVI Filter	x	x	x	x
MPEG-1 Parser/Splitter	x	x	x	x
Audio Codecs and Renderers	x	x	x	x
G.711 Audio Codec	x	x	x	x
GSM 6.10 Audio Codec	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
IMA ADPCM Audio Codec	x	x	x	x
MP3 Codec	x	x	x	x
MPEG-1 Layer 1 and 2 Audio Codec	x	x	x	x
MS ADPCM Audio Codec	x	x	x	x
Waveform Audio Renderer	x	x	x	x
WMA Codec	x	x	x	x
WMA Voice Codec	x	x	x	x
Wave/AIFF/au/snd File Parser	x	x	x	x
Video Codecs and Renderers	x	x	x	x
DirectShow Video Renderer	x	x	x	x
MPEG-1 Video Codec	x	x	x	x
MS RLE Video Codec	x	x	x	x
Overlay Mixer	x	x	x	x
Video/Image Compression Manager	x	x	x	x
WMV/MPEG-4 Video Codec	x	x	x	x
DVD-Video	x	x		
DVD-Video	x	x		
DVD-Video Samples	x	x		
Windows Media Player		x		x
Windows Media Player		x		x
Windows Media Player OCX		x		x
Windows Media Technologies	x	x		x
ASX v1 and M3U File Support	x	x		x
ASX v2 File Support	x	x		x
ASX v3 File Support	x	x		x
Windows Media Multicast and Multi-Bit Rate	x	x		x
NSC File Support	x	x		x
Windows Media Streaming from Local Storage	x	x		x
Windows Media Streaming over HTTP	x	x		x
Windows Media Streaming over MMS	x	x		x
SECURITY				
Authentication Services (SSPI)	x	x	x	x
NTLM	x	x	x	x

Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Kerberos	x	x	x	x
Schannel (SSL/TLS)	x	x	x	x
Cryptography Services (CryptoAPI 1.0) with High Encryption Provider	x	x	x	x
Certificates (CryptoAPI 2.0)	x	x	x	x
Cryptographic Messaging (PKCS#7)	x	x	x	x
Personal Information Exchange Standard (PKCS #12)	x	x	x	x
Diffie-Hellman/DSS Provider	x	x	x	x
Smart Card Encryption Provider	x	x		
Local Authentication Sub-System	x	x		
Password Local Authentication Plug-in	x	x		
Microsoft Certificate Enrollment Tool Sample	x	x		
Credential Manager	x	x		
SHELL AND USER INTERFACE				
Graphics, Windowing and Events	x	x	x	x
Minimal GWES Configuration	x	x	x	x
Minimal GDI Configuration	x	x	x	x
Minimal Input Configuration	x	x	x	x
Minimal Window Manager Configuration	x	x	x	x
Shell		x		
Graphical Shell (Choose 1)		x		
Standard Shell	x	x	x	x
Windows Thin Client Shell		x		
AYGShell API Set		x		x
Command Shell	x	x	x	x
Console Window	x	x	x	x
Command Processor	x	x	x	x
User Interface	x	x	x	x
Accessibility	x	x	x	x
Common Dialog Support	x	x	x	x
Controls Option B	x	x		
Control Panel Applets	x	x	x	x
Customizable UI	x	x	x	x

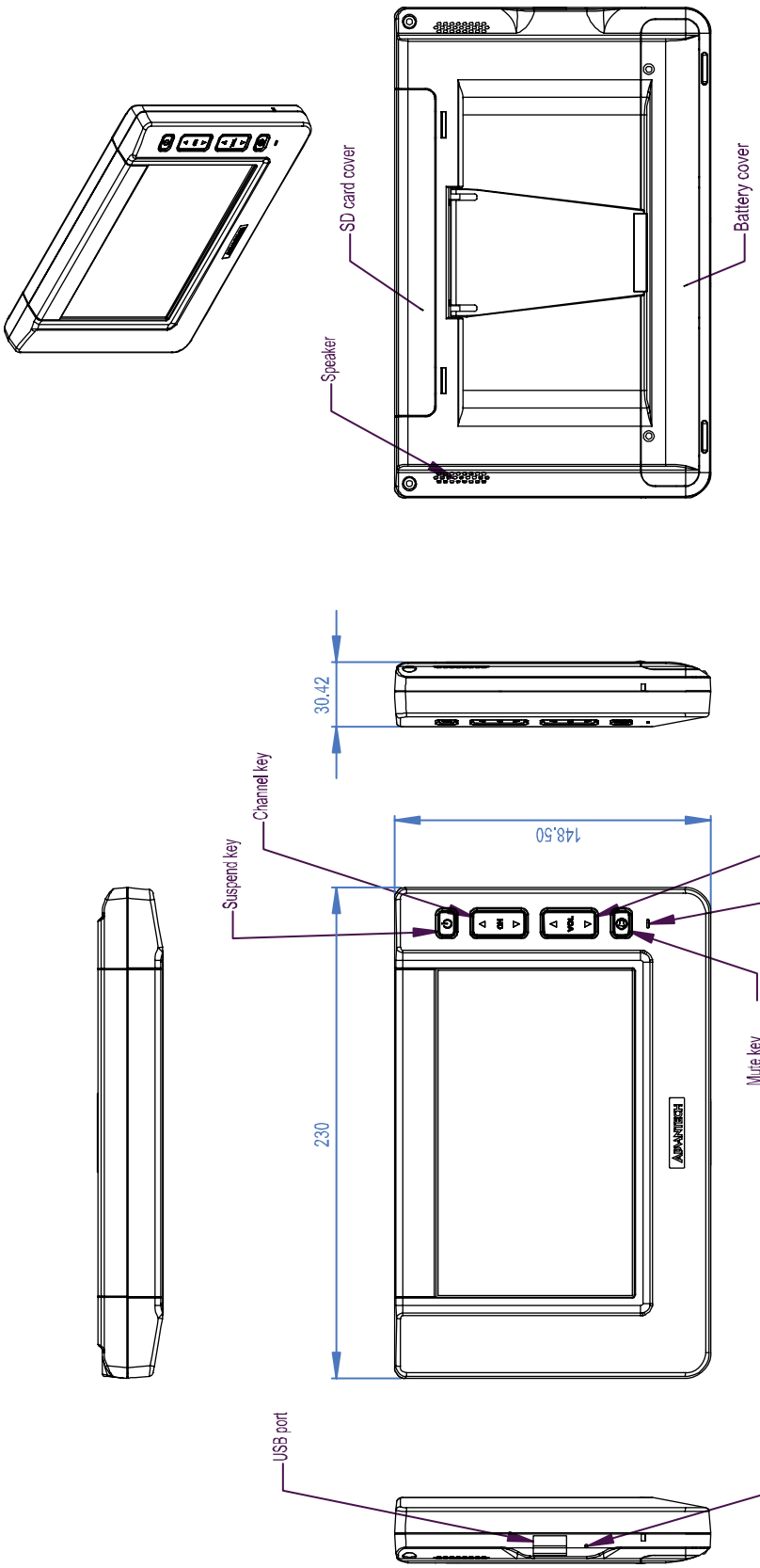
Table 4.2: Windows® CE 5.0 Component List				
APPLICATIONS AND SERVICES DEVELOPMENT	**Core**	**Professional**	**Advantech Core**	**Advantech Core Professional**
Windows XP-like Sample Skin	X	X	X	X
Menu Tool Tip	X	X	X	X
Mouse	X	X	X	X
Network User Interface	X	X	X	X
Overlapping Menus	X	X	X	X
Software Input Panel	X	X	X	X
Software-based Input Panel Driver	X	X	X	X
Software-based Input Panel (SIP) (Choose 1 or more)	X	X	X	X
SIP for Small Screens	X	X	X	X
SIP for Large Screens	X	X	X	X
Touch Screen (Stylus)	X	X	X	X
Quarter VGA Resources - Portrait Mode	X	X		
Common Controls	X	X	X	X
Animation Control	X	X	X	X
Common Control	X	X	X	X
Windows CE Error Reporting	X	X		
Error Report Generator	X	X		
Report Upload Client	X	X		
Report Upload Client User Interface	X	X		
Error Report Transfer Driver	X	X		
Error Reporting Control Panel	X	X		
VOICE OVER IP PHONE SERVICES				
Phone IME	X	X		
PC Authentication	X	X		
Telephony User Interface	X	X		
VoIP Application Interface Layer (VAIL)	X	X		
VAIL Database Store	X	X		
Phone Provisioner	X	X		
Reference Media Manager	X	X		
Real-time Communications (RTC) Client API	X	X		
SIREN/G.722.1 Codecs	X	X		

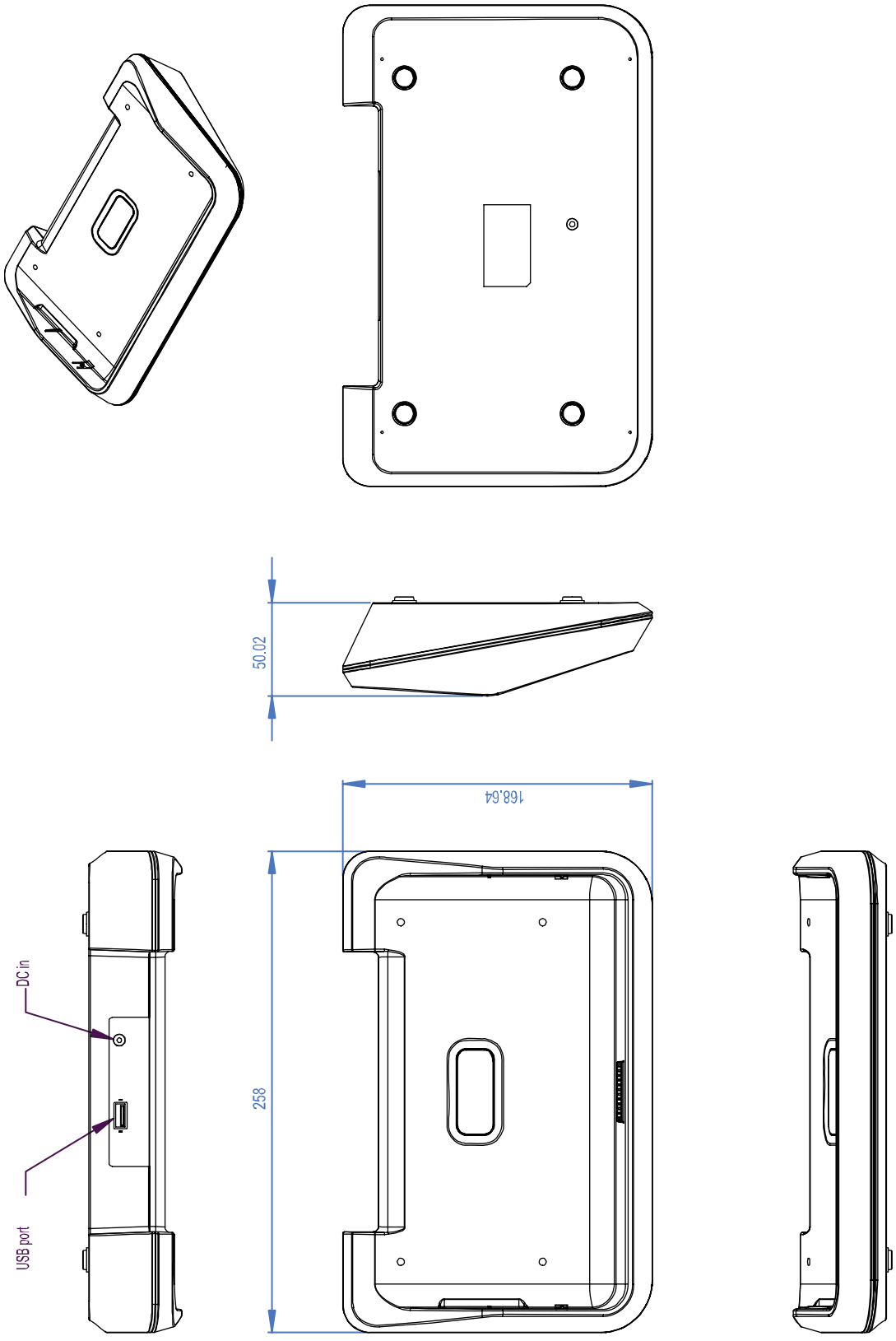
Appendix A

Mechanical Functionality

This chapter details the mechanical layout and dimensions of the UbiQ-350.

A.1 Mechanical Layout and Dimensions




50.02
168.64
258
DC in
USB port

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