EM210 WinCE 6.0 User manual

Ver 1.1

Date: 2014-04-08
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<th>Rev</th>
<th>Date</th>
<th>Description</th>
<th>Author</th>
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<td>V1.0</td>
<td>2012-6-9</td>
<td>The initial released Version</td>
<td>fae</td>
</tr>
<tr>
<td>V1.1</td>
<td>2014-4-8</td>
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1. Introduction

1.1. About this Manual
This manual is intended to provide the user with an overview of the board and benefits, complete features specifications, and set up procedures. It contains important safety information as well.

1.2. Feedback and Update to this Manual
To help our customers make the most of our products, we are continually making additional and updated resources available on the Boardcon website (www.armdesigner.com).
These include manuals, application notes, programming examples, and updated software and hardware. Check in periodically to see what's new!
When we are prioritizing work on these updated resources, feedback from customers is the number one influence. If you have questions, comments, or concerns about your product or project, please no hesitate to contact us at support@armdesigner.com.

1.3. Limited Warranty
Boardcon warrants this product to be free of defects in material and workmanship for a period of one year from date of buy. During this warranty period Boardcon will repair or replace the defective unit in accordance with the following process:
A copy of the original invoice must be included when returning the defective unit to Boardcon. This limited warranty does not cover damages resulting from lighting or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.
This warranty is limited to the repair or replacement of the defective unit. In no event shall Boardcon be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this products.
Repairs make after the expiration of the warranty period are subject to a repair charge and the cost of return shipping. Please contact Boardcon to arrange for any repair service and to obtain repair charge information.
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1 WINCE6.0 Introduction

1.1 Wince 6.0 and 5.0 Difference

Redesigned the kernel, the process of support from a number of 32 expanded to 32000. Each process address space from 32 MB expanded to 2 GB. Many system module (such as the file system and device manager) will run in kernel mode, OAL independent from kernel, the driver can run in kernel mode and user mode. Visual Studio 2005 professional version will include a called Platform Builder's powerful plug-ins, it is a special for embedded Platform to provide "integrated development environment". The integrated development environment makes the whole development chain is an organic whole, and provide a from device to applications are easy to use tools, greatly accelerated the development of the equipment listed.

Windows Embedded CE 6.0 joined the new unit core data and voice components. Windows CE 6.0 greatly changed the core addressing and resource allocation mechanism, the old CE time can have only with 32 of program execution to respective 32 MB virtual memory the distribution of space, version 6.0 is greatly eased restrictions, the maximum at the same time executive 32000 procedures, and every program can have independent distribution 2 GB of virtual memory, at the same time, core services, hardware device driver, Windows and events drawing subsystem, file systems services have been transferred to the core system leave space. But this change will also bring users concerns, after all the past NT 4.0 will have been staged a similar mesmerizing, will the driver from the user mode transfer to the core model, although can greatly improve the speed of the application, but a physical bad driver, may drag down the entire system, so in hardware driver development, it must have a valid standards to regulate, had better also import such as WHQL driver validation service, in order to avoid to affect the whole stability of the system.

1.2 Windows CE 6.0 new change

In the open source code in the history, Microsoft want to write down another new milestone, 100% on product developers release the source code, and can allow manufacturers to custom changes or customized, without the release of the amended code, although in general cannot be regarded as really open, but for the love to hide private Ian makers, no doubt, is one of the best means to increase competitiveness. As a development tool of Visual Studio 2005 PRO as Windows CE 6.0 will be one of the overall package, built-in many development tools and definition for developers many relatively easy.

Windows CE 6.0 support Windows.net Compact Framework 2.0 as a application development and management Win32, MFC, ATL, WTL and STL, etc program
development interface provides to develop native applications developers using. Have such a powerful and complete development environment as a support, the developer and manufacturer also can ensure the follow-up of support from want.

And in hardware, not change under in the original hardware structure, import Windows CE 6.0 can greatly improve the original program execution efficiency, and also allow more time with executing simultaneously program, because every program is equipped with the independent executive space, specific procedures when off, also won't affect other applications or system implementation, provides the user ever stronger than the old system of solidity and greater flexibility. And the more growing popular key processing structure, Windows CE 6.0 also cannot change the developers of the original program model under the condition, providing the best of the core work to be automatic distribution and designated, of course, if there is demand of words, developers can still make the decision to specify the core way.

1.3 WinCE R3 new features

Windows Embedded 6.0 R3 is on Windows CE 6.0 R2 foundation, increased the following technologies:
1. Silverlight for Embedded
2. Internet Explorer Embedded browser
3. Support Flash Lite
4. Gesture recognition
5. Connection Manager
6. Mobile QQ
7. Office Viewer

Among them is the Internet Explorer Embedded by Windows Embedded China research and development team developed alone. And Mobile QQ is by tecent company development of integration.

The new increase Silverlight for Windows Embedded, this function is Microsoft Silverlight technology does not depend on the browser's machine code execution, used for based on Windows Embedded CE 6.0 R3 equipment makes rich immersed in the user interface. For example, in the Expression Blend, can be more easily in view of the development, through the XRCustom UserControlImpl class can simply create a custom control, for the control of high definition view of the size, color and dynamic image, etc many common operations. Now original equipment manufacturer can independent equipment user experience design and core functions development, through the shorten time to help improve application development listed process efficiency, so as to realize the simplified user interface customization, and let designers and developers to focus on their core ability. Can now by special developers to use Silverlight, Microsoft Expression Blend and Internet Explorer Embedded technology development high definition content.

Flash Lite components support and make WinCE have the play Flash animation and video ability, enhance the user experience.
1.4 WinCE6.0 R3 platform for installation software introduced

1. VS2005TEAMSUITE -> VS2005 development environment
2. VS80sp1-KB926604-X86-CHS.exe -> VS2005 SP1 software package
3. Windows Embedded CE 6.0.msi -> PB6.0 compile environment
4. Windows Embedded CE 6.0 Platform Builder Service Pack 1.msi -> 6.0SP1 patch
5. Windows Embedded CE 6.0 R2.msi -> R2 patch
7. WinCEPB60-090131-2009M01-Armv4I.msi -> 0901 patch
8. WinCEPB60-090228-2009M02-Armv4I.msi -> 0902 patch
10. WinCEPB60-090430-2009M04-Armv4I.msi -> 0904 patch
11. WinCEPB60-090531-2009M05-Armv4I.msi -> 0905 patch
12. WinCEPB60-090630-2009M06-Armv4I.msi -> 0906 patch
15. Windows Embedded CE 6.0 R3.msi -> R3 patch
16. Blend_Trial_en.exe -> Blend components(optional)
17. WesttekFileViewers6.exe -> Office components (optional)
18. QQ2008.msi -> Tencent QQ(optional)
2 Compile environment establish

Pay attention to the following software installation, in accordance with the following order installation, otherwise it will cause a compiler error

2.1 VS2005 development environment installation

Double click VS2005\VS2005TEAMSUIT\vs\setup.exe
Microsoft Visual Studio 2005 Setup - Options Page

Select features to install:

- Microsoft Visual Studio 2005 Team Suite
  - Language Tools
  - Visual Basic
  - Visual C++
  - Visual C#
  - Visual J#
  - Visual Web Developer
- .NET Framework SDK
- Developer Community Edition
- Tools for Redistributing Applications
- Team Developer and Tester tools
- Crystal Reports for Visual Studio
- Team Developer and Tester tools
- Microsoft SQL Server 2005 Express Edition

Feature descriptions:

- Visual C++
  Visual C++ 2005 brings amazing productivity, security, performance and a wide choice of technologies to developers around the world.

- Productivity
  Manage large solutions with property.

Feature install path:
d:\Program Files\Microsoft Visual Studio 2005\VC

Disk space requirements:

<table>
<thead>
<tr>
<th>Volume</th>
<th>Disk Size</th>
<th>Available</th>
<th>Required</th>
<th>Remaining</th>
</tr>
</thead>
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<td>46.8 GB</td>
<td>43.7 GB</td>
<td>1.86 GB</td>
<td>41.9 GB</td>
</tr>
<tr>
<td>D</td>
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<td>34.0 GB</td>
<td>2.1 GB</td>
<td>32.0 GB</td>
</tr>
<tr>
<td>E</td>
<td>35.1 GB</td>
<td>27.8 GB</td>
<td>7.3 bytes</td>
<td>26.7 GB</td>
</tr>
</tbody>
</table>

Microsoft Visual Studio 2005 Setup - Finish Page

Success
Visual Studio Setup is complete.

Visual Studio Setup has completed.
Read the security notes.

Security Notes:

It is highly recommended that you update this computer with the latest security patches for your operating system. See the Windows Update web site, http://windowsupdate.microsoft.com, for the latest updates. You can also get updates for Windows 2000, Windows XP and Windows Server 2003.

- To analyze your computer for security vulnerabilities, see Microsoft Baseline Security Analyzer (MBSA). MBSA includes a graphical and command line interface that can perform local or remote scans of Windows systems. MBSA runs on Windows 2000 and Windows XP systems.
- If Microsoft Internet Information Server
2.2 Install Visual Studio 2005 Service Pack 1

Double click VS80sp1-KB926604-X86-CHS.exe
Microsoft Visual Studio 2005 Team Suite - E...

View EULA for printing

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I accept  I decline

Microsoft Visual Studio 2005 Team Suite - ENU

Please wait while Windows configures Microsoft Visual Studio 2005 Team Suite - ENU

Gathering required information...

Microsoft Visual Studio 2005 Team Suite - E...

Microsoft Visual Studio 2005 Team Suite - ENU Service Pack 1 (KB926601) was successfully installed on Microsoft Visual Studio 2005 Team Suite - ENU.

OK
2.3 Install Windows Embedded CE 6.0

Double click Windows Embedded CE 6.0.msi
**Customer Information**

Please enter your information.

- **User Name:** [Input Field]
- **Organization:** [Input Field]

Please enter the product key:

- KPCGG
- PCFJT
- 4RP4C
- 9R6WR
- WYYFG

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- **I accept the terms in the License Agreement:** [Checkbox]
- **I do not accept the terms in the License Agreement:** [Checkbox]
Installing Windows Embedded CE 6.0

Please wait while the Setup Wizard installs Windows Embedded CE 6.0. This may take several minutes.

Status:

Completing the Windows Embedded CE 6.0 Setup Wizard

Click Finish to exit the Setup Wizard.
2.4 Install Embedded CE 6.0 Platform Builder Service Pack 1

Double click Windows Embedded CE 6.0 Platform Builder Service Pack 1.msi
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WINDOWS EMBEDDED CE 6.0 PLATFORM BUILDER SERVICE PACK 1
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Print  < Back  Next >  Cancel

Ready to Install
The Setup Wizard is ready to begin the installation

Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

< Back  Install  Cancel
2.5 Install WINCE 6.0 R2

Double click Windows Embedded CE 6.0 R2.msi
Welcome to the Windows Embedded CE 6.0 R2 Setup Wizard

The Setup Wizard will install Windows Embedded CE 6.0 R2 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.

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WINDOWS EMBEDDED CE 6.0 R2

FOR WINDOWS EMBEDDED CE 6.0 TOOLKIT

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Setup will install updates and new features for the Windows Embedded CE 6.0 release.

Select the BSPs you wish to add:

- Windows Embedded CE 6.0 R2
- Board Support Packages
- Voice over IP PXA270: ARMv4I
- ST1109: SH4
- HP Compaq t5530 Thin Client: x86
- Additional Board Support Packages for Windows Embedded CE 6.0 R2 release.

This feature requires 0KB on your hard drive. It has 0 of 2 subfeatures selected. The subfeatures require 0KB on your hard drive.

If a BSP is not listed in the feature tree then the corresponding cpu architecture must be installed from Windows Embedded CE 6.0 prior to the installation.

Ready to Install:

The Setup Wizard is ready to begin the installation.

Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
2.6 Install WinCEPB60-081231-Product-Update-Rollup-Armv4I

Double click
WinCEPB60-081231-Product-Update-Rollup-Armv4I.msi
Welcome!

The Setup Wizard will install WinCEPB60-081231-Product-Update-Rollup-Armv4I on your computer. Click Next to continue or Cancel to exit the Setup Wizard.

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I do not accept the terms in the License Agreement
Ready to Install

The Setup Wizard is ready to begin the installation.

Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

Completing the
WinCEPB60-081231-Product-Update-Rollup-Armv4I Setup Wizard

Click the Finish button to exit the Setup Wizard.
2.7 Install 2009 year patch

Install the following patch respectively, double click it can be installation
WinCEPB60-090131-2009M01-Armv4I.msi  0901 patch
WinCEPB60-090228-2009M02-Armv4I.msi  0902 patch
WinCEPB60-090831-2009M08-Armv4I.msi  0903 patch
WinCEPB60-090430-2009M04-Armv4I.msi  0904 patch
WinCEPB60-090531-2009M05-Armv4I.msi  0905 patch
WinCEPB60-090630-2009M06-Armv4I.msi  0906 patch
WinCEPB60-090731-2009M07-Armv4I.msi  0907 patch
WinCEPB60-090831-2009M08-Armv4I.msi  0908 patch

2.8 Install Platform Builder 6.0 R3

Double click Windows Embedded CE 6.0 R3.msi
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WINDOWS EMBEDDED CE 6.0 R3 FOR MICROSOFT WINDOWS EMBEDDED CE 6.0

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Ready to Install

The Setup Wizard is ready to begin the installation.

Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
2.9 Install Blend components

Click Blend_Trial_en.exe
Begin Installation

You have chosen to install the following components:

Expression Blend 2

Click Next to continue.
Click Back to change installation options.
Click Cancel to exit setup.

Installation Complete

The selected modifications to Microsoft Expression Blend 2 are complete.

For more information see the Microsoft Expression Blend 2 Release Notes.

Click Finish to exit.
2.10 Install Word PDF View components

Click WesttekFileViewers6.exe
2.11 Install QQ components

Double click QQ2008.msi
Welcome to the MobileQQ Setup Wizard

The installer will guide you through the steps required to install MobileQQ on your computer.

WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.

Select Installation Folder

The installer will install MobileQQ to the following folder.

To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".

Folder:

C:\Program Files\Tencent\MobileQQ\n
Install MobileQQ for yourself, or for anyone who uses this computer:

- [ ] Everyone
- [ ] Just me

Next »
License Agreement

Please take a moment to read the license agreement now. If you accept the terms below, click "I Agree", then "Next". Otherwise click "Cancel".

Confirm Installation

The installer is ready to install MobileQQ on your computer. Click "Next" to start the installation.
Installing MobileQQ

MobileQQ is being installed.

Please wait...

Installation Complete

MobileQQ has been successfully installed.
Click "Close" to exit.

Please use Windows Update to check for any critical updates to the .NET Framework.

Close
3 Custom the Wince6.0 kernel

3.1 Install BSP

BSP is board level support package, somewhere between the mainboard hardware and operating system of between a layer, it should be said that it is part of the operating system, the main purpose is to support the operating system that will be able to better running on hardware the mainboard. BSP is relatives concerned to the operating system, different operating system correspond to different definition form of BSP, for example VxWorks BSP and Linux BSP of relative to something it despite the function of the realization of the CPU, but written and the interface definition is completely different, and so the BSP must according to this system BSP form to write the definition of (the programming process is most BSP in a certain forming on the template BSP modified), such can be kept right interface with the upper OS, good support upper OS.

The development board WinCE BSP was based on samsung official SMDK210 development board to modify the BSP, most retained the samsung structure, joined the REALARM hardware design features of a BSP, this BSP support WinCE6.0 R3.

WinCE BSP often put in X:\WINCE600\PLATFORM, so, we need to copy the WinCE BSP\SMDK210 to the X:\WINCE600\PLATFORM\ directory, such as me:

And we need to remove the SMDK210 folder read-only attribute:
Then copy S5PV210_SEC_V1 folder to the directory:
X:\WINCE600\PLATFORM\COMMON\SRC\SOC
Such as me:

Modify the X:\WINCE600\PLATFORM\COMMON\SRC\SOC\ directory dirs file as:

DIRS= S5PV210_SEC_V1

The purpose of the change is to only S5PV210_SEC_V1 compiled, and no longer build other file, reduce compile time.
3.2 Establish new project

Start VS2005, click menu `File\New\Project:` then input project name: EM210 and click OK:

Click next:

Select SMDKV210: ARMV4I and click next:
Board Support Packages

Available BSPs:
- Aruba Board: ARMV4I
- Device Emulator: ARMV4I
- M4Sample OMAP2420: ARMV4I
- MaintstoreIII PXA27X: ARMV4I
- Samsung SMDK2416: ARMV4I
- SMDK5410: ARMV4I
- SMDK5410: ARMV4I

Select one or more BSPs for your OS design.

Note: Only BSPs supported by installed CPUs are displayed in the list.

Design Templates

Available design templates:
- Consumer Media Device
- Custom Device
- Industrial Device
- PDA Device
- Phone Device
- Small Footprint Device
- Thin Client

Choose the design template that is most closely aligned with the purpose of your target device.

Provides the starting point for a range of personal digital assistants (PDAs) or mobile devices with a clamshell-and-keyboard design.
EM210 Wince6.0 User manual

Networking Communications

- **TCP/IPv6 Support**
  - Wide Area Network (WAN)
  - Local Area Network (LAN)
  - Personal Area Network (PAN)
  - Security

The Internet standard protocol, version 6.

You have completed the wizard. Press Finish to create your OS Design project.
3.3 Generate image files type choice

PlatformBuilder can generate two type image files:
One: User for release to the user, called Release version, after generation the file stored in:
D:\WINCE600\OSDesigns\EM210\EM210\RelDir\SMDKV210_ARMV4I_Release
The EM210 is our project name.
Two: User for debugging, called Debug version, after generation the file stored in:
D:\WINCE600\OSDesigns\EM210\EM210\RelDir\SMDKV210_ARMV4I_Debug
Here we can action to choose the type of image files as follows:
We use release, so chose SMDKV210_ARMV4I_Release:
3.4 Set the engineering properties

Right click the project “EM210”, and select properties:
Through the Locate option, we choose the language to species, click Clear All, select English, such as follows:

Build Options: Because we use EBOOT to guide WINCE mirror, so keep EBOOT space, KTL is used for debugging WINCE OS, here we not chose it, then click OK:
3.5 Choose the end user application

Choose for End user use Application (Application-End User), are shown below. Click on the left side of the window below, “Catalog Items View” option:
ActiveSync: Use for development board with PC synchronization, proposal chose, Otherwise can't through USB and PC synchronization.

CAB Installer/Uninstaller: The CAB install and uninstall program files.

Games: Wince bring little game, such as the need to choose

Help: Wince help files

Remote Desktop Connection: VS2005 and development board connect remotely agreement RDP choice, the choice can be through ActiveSync connection after PC to check the registry, WINCE desktop and other information

Terminal Emulator: Terminal simulation program

Windows Messenger: MSN chat software.

WordPad: The Wince word version.

3.6 Choose the development of the library with foundation

Choose the Development application or service program of the base class library (Application&ServiceS Development) as shown below.

According to your own development needs select the corresponding class library.
Pay special attention to:
FRAMEWORK2.0 is bring their own installation.
FRAMEWORK3.5: if choice, Framework3.5 must be installed on your PC, or you will be a compiler error.

3.7 Chose communication component
3.8 Selection the operating system service component
3.9 Selection the file system component

- Core OS
  - CIBASI
    - Applications - End User
    - Applications and Services Development
    - Communication Services and Networking
    - Core OS Services
    - Device Management

- File Systems and Data Store
  - Compression
    - Database Support
      - File and Database Replication
        - File Cache Manager
  - File System - Internal (Choose 1)
    - RAM and ROM File System
    - ROM only File System
  - Registry Storage (Choose 1)
    - Msvr-based Registry
      - RAM-based Registry

- Storage Manager
  - Binary Rom Image File System
  - CB/UDFS File System
  - eFAT File System
  - FAT File System
    - File Change Notification Component
    - File Lock Manager (LCKMGR)
  - Landscape Storage Properties
  - Partition Driver
  - Portrait Storage Properties
  - Release Directory File System
  - Silent FAT File System UI
  - Storage Manager Control Panel Applet
    - Transaction-Safe FAT File System (CFAT)
  - System Password
3.10 System English font options

3.11 System English font options
3.12 The language font support

3.13 Select the Internet service
3.14 Shell and the user interface choice

- Shell and User Interface
  - Graphics, Windowing and Events
  - Shell
  - User Interface
    - Accessibility
    - Common Controls
      - Common Dialog Support
      - Control Panel Applets
    - Controls Option B
    - Customizable UI
      - Windows XP-like Sample Skin
    - Gesture
      - Gesture Animation Support
      - Gesture Support for Win32 Controls
      - Single-Touch Gesture Recognition
    - Menu Tool Tip
      - Mouse
      - Network User Interface
      - Overlapping Menus
      - Quarter VGA Resources - Portrait Mode
      - Silverlight for Windows Embedded
      - Software Input Panel
      - Touch Screen (Stylus)
    - Voice over IP Phone Services
3.15 The choice of the generic driver

3.16 The third party components choice

So far, project set up complete
4 Compile the project

**Build and Sysgen**: Suitable for newly-built project or modify the configuration options in the project.

**Build Current BSP and Subprojects**: Suitable for have completed compiled project, and not modified configuration options in the project, used to rebuild the BSP, debug driver, etc.

**Clean Sysgen**: Clear compiled

So, we use “Build and Sysgen” compiled the project, after the project compiled, if only modify the BSP content, we use “Build Current BSP and Subprojects” compiled project.

After we click “Build and Sysgen”, it will pop-up a window, only click “OK”, then, the project start compile:
Compile the project need a very lot time, please wait, after compiled finish the project, such as follow:

The image (BL1_UART.nb0, bootimage.nb0, EBOOT.nb0, NK.bin) which download to the board are in the directory:
D:\WINCE600\OSDesigns\EM210\EM210\RelDir\SMDKV210_ARMV4I_Release
5 Download Wince6.0 Image

5.1 The S5PV210 process of UART BOOT

As show the picture:

**IROM CODE**: is samsung curing in the internal ROM a program, when the user choose to start from a serial port, this program segment will run, its role is to download the first level BOOT to internal 96 K SRM in and run.

1\(^{st}\) Boot loader:

After it run, initialize USB, and through the USB download 2\(^{nd}\) Boot Loader, and run it.

2\(^{nd}\) Boot Loader:

It is responsible for the management of the FLASH, download NK and other documents and burn wrote NAND inside OS:

WINCE OS BIN file.

From the above analysis we can know:

In S5PV210 iROM is samsung curing internal, is the factory with good, we cannot change, and never lost. And 1\(^{st}\) Boot loader and 2\(^{nd}\) Boot Loader is running in RAM, does not keep them to NAND.

Serial port is used to guide from the first written burn blank NAND, we call it IROM guide.
5.2 The S5PV210 process of NAND BOOT

<table>
<thead>
<tr>
<th>BOOTIMAGE.NB0</th>
<th>TOC</th>
<th>MBR</th>
<th>NK.BIN/CHAIN.LST</th>
<th>EXTENSION PARTITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEPLDR</td>
<td>EBOOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 0</td>
<td>Block 1~Block 4</td>
<td>Block 5</td>
<td>Block 6 Sector 384</td>
<td>Single-XIP Multiple-XIP (BINFS)</td>
</tr>
</tbody>
</table>

From the above graph, we know:
Written in the burning SD(INAND) have two files, one is BOOTIMAGE.NB0, one is NK.
Bin one of the BOOTIMAGE. NB0 is STEPLDR and EBOOT connected together a file
Choose from SD(INAND) started, the S5PV210 will first loading STEPLDR, STEPLDR reload EBOOT, EBOOT reload NK.
From INAND FLASH start, we call it normal guide.

5.3 The compiled BSP generated several files introduction

BL_UART.nb0: Use IROM guide 1st Bootloader, only run in IRAM
EBOOT.nb0: Use IROM guide 2nd Bootloader, only run in IRAM
BootImage.nb0:
It is normal to guide the documents, the lead when IROM into two parts Stepldr + EBOOT, burned into NAND respectively
NK.bin: WINCE OS.

5.4 The IROM Serial guide to burn WINCE IMAGE

<table>
<thead>
<tr>
<th>Boot mode</th>
<th>J1</th>
<th>J2</th>
<th>J3</th>
<th>J4</th>
<th>J5</th>
<th>J6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAND</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>SD(INAND)</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>USB</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
</tbody>
</table>

Note: The switch "JP106" up is OFF, down is ON.
Board default is SD(INAND) start-up mode.
(6) Download WINCE IMAGE: set your board start from USB, insert the USB line, power on your board, then open the "Dragin V1.26.2.exe" software, and set it as follow:

Then click "DETECT":

EM210 Wince6.0 User manual
Then press "Reset" button, and the image will be downloaded into your board:
Download NK.bin:
After download all image to your board, then close it:
(7) Set your board start from “SD(INAND)” pull out the USB line, open the SecureCRT, repower on your board:

That , we click [SPACE], select the LCD size:
Then restart your board, you will see the WINCE6.0 system is start: