SBC6300X WinCE 6.0 User Manual

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SBC6300X WinCE6.0 User Manual

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Table of Contents

SBC6300X WINCE 6.0 USER MANUAL	. 1
CHAPTER I. INTRODUCTION OF THE MANUAL	. 4
1.1 Terms and definitions	. 4
1.2 Disclaimer	. 4
CHAPTER II. INTRODUCTION OF WINCE 6.0 SYSTEM	. 5
2.1 Image files related to SBC6300X WinCE 6.0 system	. 5
2.2 Working principles of SBC6300X WinCE 6.0 system	. 5
CHAPTER III. BURNING OF WINCE SYSTEM	. 7
3.1 Introduction of burning SBC6300X WinCE 6.0 system image files	. 7
3.2 Burn SBC6300X WinCE 6.0 system image through SAM-BA	. 7
CHAPTER IV. BOOT WINCE 6.0 SYSTEM	17
4.1 Boot WinCE system	17
CHAPTER V. CUSTOMIZATION OF WINCE SYSTEM BASED ON SBC6300X WINCE 6.0 BSP	18
5.1 Installation of SBC6300X WinCE 6.0 BSP	18
5.2 The compilation of WinCE system based on SBC6300X WinCE 6.0 BSP	18
5.3 The compilation of WinCE system based on SBC6300X WinCE 6.0 BSP	18
5.4 Modules of SBC6300X WinCE 6.0 BSP driver	27

Chapter I. Introduction of the Manual

This Manual mainly expounds the burning of WinCE 6.0 system image files of SBC6300X main board and the system customization based on SBC6300X WinCE 6.0 BSP.

1.1 Terms and definitions

Development Workstation Development Workstation means X86 PC installed with Windows XP operating system, Microsoft Visual Studio 2005 and Windows Embedded CE 6.0 development environment. This PC must have a serial port and a USB port.

NAND flash NAND flash the 8-bit 128MB SAMSUNG K9F1G08UB NAND flash module on SBC6300X main board.

SDRAM SDRAM means the extended 64MB SDRAM on SBC6300X main board, which consists of 2 pieces of 16-bit 32MB HY57V581620FTP-HKOR.

SRAM SRAM means the 16KB SRAM inside AT91SAM9263 chip that SBC6300X main board uses.

DNW The serial port tool running on development workstation.

1.2 Disclaimer

Timll Technic Inc. doesn't provide any expressly or implied warranty for all source code, software, data and documents of the program that are included in this CD, including but not limited to the guarantee for any specific purpose. All risks are borne by the users of the CD. If any defect is found the program, any expenses arising of servicing, modifying or correcting the defects will also be borne by the users.

Chapter II. Introduction of WinCE 6.0 system

2.1 Image files related to SBC6300X WinCE 6.0 system

If WinCE system is customized using SBC6300X WinCE 6.0 BSP that we provide and the compilation is successfully finished, the system will generate 6 image files, i.e.: FIRSTBOOT.nb0, EBOOT.nb0, NK.nb0, FIRSTBOOT.bin, EBOOT.bin, NK.bin, of which 4 files are usually used in burning processes, i.e.: FIRSTBOOT.nb0, EBOOT.nb0, NK.nb0, NK.bin. The files generated in .nb0 format will finally be burnt to NAND flash, and they can directly run in SDRAM; while the files in .bin format must first be converted into .nb0 files by EBOOT running on SBC6300X main board nb0, then they are burnt to NAND flash.

2.2 Working principles of SBC6300X WinCE 6.0 system

At present, our SBC6300X WinCE 6.0 BSP supports two booting modes, i.e.: NAND flash. Figure 2.1 is their rough booting flow chart:



Figure 2.1

2.2.1 Principles on the booting of SBC6300X WinCE 6.0 system from NAND flash

After power on the system is fixed inside CPU of AT91SAM9263, ROMBOOT will automatically copy FIRSTBOOT image, the first-level user booting code from SPI NANDflash 0x0000000 address to SRAM inside CPU of AT91SAM9263 and execute it. FIRSTBOOT's role is to initialize SDRAM memory, SPI NANDflash in AT91SAM9263 CPU and SBC6300X main board, and copy EBOOT, the second-level user booting code from SPI NANDflash 0x00020000 address of SBC6300X main board to SDRAM of SBC6300X main board and execute it; FIRSTBOOT also copy Logo from NANDflash 0x00080000 address of SBC6300X main board to SDRAM. In default state, EBOOT will automatically copy WinCE system image NK from NAND flash 0x0020000 address to SDRAM of SBC6300X main board, and hand over system control to operating system. In addition, EBOOT undertakes the management operations of underlying hardware and settings of the data shared with operating system.

2.3 The address of SBC6300X WinCE 6.0 image files in NAND flash

If you choose to boot from NAND flash, FIRSTBOOT is located at the beginning of 0x0000000 address of Nand flash, the capacity of FIRSTBOOT is 4KB; EBOOT is located at the beginning of 0x00020000 address of Nand flash, the capacity of EBOOT is 200KB; the Logo is saved at 0x00080000 of Nand flash; WinCE system images are located in NAND flash in an area of 40MB starting from 0x0020000 address. The area in NAND flash after 0x2860000 address will provide clients for use as NAND flash hard disk under WinCE system. Therefore, client can customize WinCE system of no more than 40MB. If you need store WinCE system of bigger than 40MB or need reduce the NAND flash partition reserved for WinCE system images, please feel free to contact our technicians.



Figure 2.3

Chapter III. Burning of WinCE system

3.1 Introduction of burning SBC6300X WinCE 6.0 system image files

Now our SBC6300X WinCE 6.0 BSP supports two burning modes, first, burn FIRSTBOOT, EBOOT and WinCE system image NK using the SAM-BA software that ATMEL provides; second, connect VS2005 WinCE 6.0 development environment installed on client development workstation or other TFTP servers (e.g.: CEDownload.exe) to SBC6300X main board, burn WinCE system image files NK via net cable using the EBOOT on SBC6300X (the EBOOT that SBC6300X WinCE 6.0 BSP of current version generates doesn't support for the burning of user booting codes FIRSTBOOT and EBOOT, it can only burn WinCE system image file NK.bin).

Important: if you use EBOOT, the user booting code on SBC6300X main board to WinCE system image file NK, the actual process will be, EBOOT, the user booting code on SBC6300X main board will first download WinCE system image file NK.bin that VS2005 WinCE 6.0 generates from TFTP server running on development workstation to SDRAM onSBC6300X main board via net cable, then the file will be converted into NK.nb0 before being burnt to NAND flash. The TFTP server mentioned here can be the server provided in VS2005 WinCE 6.0 development environment or other TFTP servers. Please note that the port parameter of the TFTP server that you use is 980 instead of 69, the standard TFTP port. The software CEDownload.exe, which we will describe in Section 3.4 below is a TFTP server software, which has changed the default TFTP port from 69 into 980.

3.2 Burn SBC6300X WinCE 6.0 system image through SAM-BA

3.2.1Install SAM-BA software

Install the application <u>\03 WinCE 6.0 Kit\04 Tools \Install AT91-ISP v1.12.exe</u> in SBC6300X CD on your development workstation as the default path and configurations of <u>AT91-ISP v1.12.exe</u> program. After the installation is finished, you will see the icon of <u>SAM-BA v2.8</u> (see Figure 3.1) appearing on the desktop :



3.2.2 Burn SBC6300X system image through SAM-BA software

1. Put the Jump J24 in open status. As shown in Figure 3.16, select <u>NandFlash</u> header in SAM-BA v2.8.

SAT-BA 2.8 -	AT915AE9263-	EK			- D X
AT91SAM9261 Memory Start Address : 0x30000 Size in byte(s) : 0x100	Display	Display format	oit 🔿 16-bit 🕫 32	bit	
0x00300000	0x7C3A346B	0x3046A071	OxC3EFDE83	Ox46FDFF3A	^
0x00300010	OxCAEB351F	0x55F16A9A	OxE33CDO2D	OxF735E7EE	_
0x00300020	0x29F3B5F9	0x7D39EA77	Ox7EDE63F1	0x565A4190	~
<					2
Send File Name :				Send File	e
Address :	0x0 Size	e (For Receive File) :	0x1000 byte(s)	Compare sent file wit	th memory
Scripts					C
Enable NandFlash		Execute			
loading history file (SAM-BA console displa (AT91-ISP v1.12) 1 %) events added ay active (Tcl8.4.1	3 / Tk8.4.13)			2
(AT91-ISP v1.12) 1 %					1

Figure 3.16

 As shown in Figure 3.16 in the <u>Scripts</u> pulldown menu of SAM-BA v2.8, select <u>Enable</u> <u>NandFlash</u>, and click <u>Execute</u> button in the column <u>Scripts</u> to enable NAND flash on SBC6300X main board. After the Enable operation is successful, the interface as shown in Figure 3.17 will appear:

SAM-BA 2.8 -	AT915AE9263-	EK			_ 🗆 🗙
File Script File L	ink Help				
- AT91SAM9261 Memor Start Address : 0x3000 Size in byte(s) : 0x100	y Display 00 Refresh	Display format	oit 🧭 16-bit 💌 32-	bit	
0x00300000	Ox7C3A346B	0x3046A071	OxC3EFDE83	Ox46FDFF3A	
0x00300010	OxCAEB351F	0x55F16A9A	OxE33CDO2D	OxF735E7EE	
0x00300020	0x29F3B5F9	0x7D39EA77	Ox7EDE63F1	Ox565A4190	>
Download / Upload Send File Name : Receive File Name :	File			Send File	
Address :	0x0 Size	e (For Receive File) : [0x1000 byte(s)	Compare sent file wit	h memory
Scripts Enable NandFlash		Execute			
-I- Buffer address : 0: -I- Buffer size: 0x200(-I- Applet initialization	<200047FC 00 bytes				<u>^</u>

Figure 3.17

 As shown in Figure 3.18 in the <u>Scripts</u> pulldown menu of SAM-BA v2.8, select <u>Erase All</u>, click <u>Execute</u> button in SAM-BA v2.8, <u>SAM-BA v2.8</u> will automatically erase entire NAND flash. After the Erase operation is successful, the interface as shown in Figure 3.19 will appear:

SBC6300X WinCE6.0 User Manual

💽 SAN-BA 2.8 - AT91SAN9263-EK
File Script File Link Help
TAT91SAM9261 Memory Display
Start Address : 0x300000 Refresh Display format Size in byte(s) : 0x100 C ascii 8-bit C 16-bit 32-bit
0x00300000 0x7C3A346B 0x3046A071 0xC3EFDE83 0x46FDFF3A
0x00300010 OxCAEB351F Ox55F16A9A OxE33CD02D OxF735E7EE
0x00300020 0x29F3B5F9 0x7D39EA77 0x7EDE63F1 0x565A4190
DataFlash AT45DB/DCB SerialFlash AT25/AT26 NandFlash SDRAM SRAM
Send File Name : Send File
Heceive File Name : Heceive File Receive File Receive File Receive File
Address : joxu Size (For Receive File) : joxi 000 byte(s) Compare sent nie with memory
Scripts
Erase All Execute
L Duffer address / 0/200047EC
-I- Buffer size: 0x20000 bytes
-I- Applet initialization done
(AT91-ISP v1.12) 1 %

Figure 3.18

💽 SAM-BA 2.8 - AT91SAM9263-EK	
File Script File Link Help	
AT91SAM9261 Memory Display	
Start Address : 0x300000 Refresh Display format Size in byte(s) : 0x100 C ascii C 16-bit Image: Size in byte(s)	
0x00300000 0x7C3A346B 0x3046A071 0xC3EFDE83 0x46FDFF3A	
0x00300010 OxCAEB351F Ox55F16A9A OxE33CDO2D OxF735E7EE	
0x00300020 0x29F3B5F9 0x7D39EA77 0x7EDE63F1 0x565A4190	
	>
Download / Upload File Send File Send File Send File Name : Send File	e
Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Compare sent file w	vith memory
Scripts	
Erase All Execute	
-I- Applet initialization done (AT91-ISP v1.12) 1 % GENERIC::EraseAll	^
-I- GENERIC: EraseAll	
(VIAT-125, AT'TS) T 20	~

Figure 3.19

4. Select <u>Send Boot File</u> button in the <u>Scripts</u> pulldown menu of SAM-BA v2.8, click <u>Execute</u>

button in SAM-BA v2.8, an <u>open file</u> dialog box as shown in Figure 3.20 will pop up in <u>SAM-BA v2.8</u>:

💽 SAT-BA	打开							?	×
File Script	查找范围(I):	🚞 chinese			*	G 🦻	جي 🥙		
AT91SAM92 Start Address Size in byte(s) 0x0031 0x0031 Cx03	ま 最近的文档	INK. bin							
Scripts Send Boot	网上邻居	文件名 (M): 文件类型 (T):	 Bin Files (*. bin)			× ×	打开 (0) 取消	
-I- GENERIC:: (AT91-ISP v1. (AT91-ISP v1.	EraseAll 12) 1 % GENERIG 12) 1 % GENERIG	C::SendBootFile	eGUI						

Figure 3.20

5. As shown in Figure 3.21, select <u>FIRSTBOOT_NAND.nb0</u> file under the path <u>\03 WinCE 6.0</u> <u>Kit\00 Image\</u> in SBC6300X CD in the <u>open file</u> dialog box of SAM-BA v2.8, then click <u>Open</u> button in <u>open file</u> dialog box of SAM-BA v2.8, <u>SAM-BA v2.8</u> will automatically start burning <u>FIRSTBOOT_NAND.nb0</u> file to the beginning of 0x00000000 address of NAND flash on SBC6300X main board. After the burning is successful, the interface as shown in Figure 3.22 will appear.



Figure 3.21

💽 SAN-BA 2.8 - AT91SAN9263-EK	
File Script File Link Help	
AT91SAM9261 Memory Display	
Start Address : 0x300000 Refresh Display format Size in byte(s) : 0x100 C ascii C 16-bit © 32-bit	
0x00300000 0x7C3A346B 0x3046A071 0xC3EFDE83 0x46FDFF3A	^
0x00300010 OxCAEB351F Ox55F16A9A OxE33CD02D OxF735E7EE	
0x00300020 0x29F3B5F9 0x7D39EA77 0x7EDE63F1 0x565A4190	~
	>
Download / Upload File Send File Name : Receive File Name : Address : 0x0 Size (For Receive File) : 0x1000 byte(s) Compare sent file with me Scripts Send File	mory
-I- File size : 0x1000 byte(s) -I- Writing: 0x1000 bytes at 0x0 (buffer addr : 0x200047FC) -I- 0x1000 bytes written by applet	
(AT91-ISP v1.12) 1 %	~

Figure 3.22

6. As shown in Figure 3.23, enter address <u>0x20000 in the Address: field in Download/Upload</u>

<u>File_of_SAM-BA_v2.8.</u> Select SBC6300X CD <u>\03 WinCE_6.0 Kit\00 Image</u> <u>\EBOOT_NAND.nb0</u> file in the text box <u>Send File Name:</u>, then click <u>Send File</u> button in <u>Download/Upload File</u> of <u>SAM-BA v2.8</u>, <u>SAM-BA v2.8</u> will start burning <u>EBOOT_NAND.nb0</u> file to the beginning of <u>0x20000</u> address of NAND flash on SBC6300X main board, After the burning is successful, the interface as shown in Figure 3.24 will appear.

	SAM-BA 2.8	- AT915AH9263-	EK			
F	ïle Script File I	Link Help				
	AT91SAM9261 Memo Start Address : 0x300 Size in byte(s) : 0x100	ry Display 000 Refresh	Display format Cascii C 8-bi	t 🔿 16-bit 🔍 32-l	bit	
I.	0x00300000	Ox774BE771	0x6DF85C88	Ox64BDA585	OxB6E87440	
	0x00300010	OxD5DEAD60	0x7753BBC4	Ox679DBD10	Ox3AEA1FD4	
	0x00300020	OxF85FF0E3	OxD57E28EF	OxBAD9E645	OxEF9BFED8	>
	DataFlash AT45DB/DI — Download / Upload Send File Name : Receive File Name : Address :	CB SerialFlash AT25 File G:/WinCE 6.0/image 0x20000 Size	/AT26 NandFlash /chinese/EBOOT_NA e (For Receive File) : [SDRAM SRAM	Send Fik Receive F Compare sent file w	e ile
	Scripts Send Boot File		Execute			
-I- -I- (A	File size : 0x1000 Writing: 0x 0x1000 byt T91-ISP v1.12) 1 9	byte(s) 1000 bytes at 0x0 es written by apple %	(buffer addr : 0x20 t	00047FC)		

Figure 3.23

💽 SAM-BA 2.8 - AT91SAM9263-EK	
File Script File Link Help	
AT91SAM9261 Memory Display	
Start Address : 0x300000 Refresh Display format Size in byte(s) : 0x100 C ascii 8-bit C 16-bit 32-bit	
0x00300000 0x774BE771 0x6DF85C88 0x64BDA585 0xB6E87440	<u>^</u>
0x00300010 OxD5DEAD60 Ox7753BBC4 Ox679DBD10 Ox3AEA1FD4	
0x00300020 OxF85FF0E3 OxD57E28EF OxBAD9E645 OxEF9BFED8	*
	>
DataFlash AT45DB/DCB SerialFlash AT25/AT26 NandFlash SDRAM SRAM	
Send File Name : G:/WinCE 6.0/image/chinese/EBOOT_NAND.nb0	
Receive File Name : Receive File	
Address : 0x20000 Size (For Receive File) : 0x1000 byte(s) Compare sent file with	memory
Scripts	
Send Boot File Execute	
-I- File size : 0x16800 byte(s) -I- Writing: 0x16800 bytes at 0x20000 (buffer addr : 0x200047EC)	^
-I- Ox16800 bytes written by applet	
(AT91-ISP v1.12) 1 %	~

Figure 24

 As shown in Figure 3.25, enter address <u>0x80000 in the Address:</u> field in <u>Download/Upload</u> <u>File of SAM-BA v2.8.</u> Select SBC6300X CD <u>\03 WinCE 6.0 Kit\00 Image \Logo.bin</u> file in the text box <u>Send File Name:</u>, then click <u>Send File</u> button in <u>Download/Upload File</u> of <u>SAM-BA</u> <u>v2.8</u>, <u>SAM-BA v2.8</u> will start burning <u>Logo.bin</u> file to the beginning of <u>0x80000</u> address of NAND flash on SBC6300X main board.

SAN-BA 2.8 - AT91SAN9263-EK	×
File Script File Link Help	
AT91SAM9261 Memory Display	
Start Address : 0x300000 Refresh Display format Size in byte(s) : 0x100 C ascii C 16-bit Image: Size in the	
0x00300000 0x774BE771 0x6DF85C88 0x64BDA585 0xB6E87440	
0x00300010 OxD5DEAD60 Ox7753BBC4 Ox679DBD10 Ox3AEA1FD4	
0x00300020 OxF85FF0E3 OxD57E28EF OxBAD9E645 OxEF9BFED8	
DataFlash AT45DB/DCB SerialFlash AT25/AT26 NandFlash SDRAM SRAM	
Send File Name : 🕞 //WinCE 6.0/image/chinese/Logo.bin 😂 Send File	
Receive File Name : Receive File	
Address : 0x80000 Size (For Receive File) : 0x1000 byte(s) Compare sent file with memory	
Scripts	
Send Boot File Execute	
-I- File size : 0x16800 byte(s) -I- Writing: 0x16800 bytes at 0x20000 (buffer addr : 0x2000475C)	^
-I- 0x16800 bytes written by applet	
(AT91-ISP v1.12) 1 %	~

- Figure 25
- 8. As shown in Figure 3.26, enter the address <u>0x00200000</u> in the <u>Address:</u> field in <u>Download/Upload File</u> of <u>SAM-BA v2.8</u>, select SBC6300X CD <u>\03 WinCE 6.0 Kit\00 Image</u> <u>\NK.nb0</u> file in the text box <u>Send File Name:</u>, then click <u>Send File</u> button in <u>Download/Upload File</u> of <u>SAM-BA v2.8</u>, <u>SAM-BA v2.8</u> will start burning <u>NK.nb0</u> file to the beginning of <u>0x00200000</u> address of NAND flash on SBC6300X main board. After the burning is successful, the interface as shown in Figure 3.27 will appear.: (it takes 3-10 minutes to burn NK.nb0 file.).

SAN-BA 2.8 - AT91SAN9263-EK
File Script File Link Help
AT91SAM9261 Memory Display
Start Address : 0x300000 Refresh Display format Size in byte(s) : 0x100 C ascii S-bit 16-bit 32-bit
0x00300000 0x774BE771 0x6DF85C88 0x64BDA585 0xB6E87440
0x00300010 0xD5DEAD60 0x7753BBC4 0x679DBD10 0x3AEA1FD4
0x00300020 OxF85FF0E3 OxD57E28EF OxBAD9E645 OxEF9BFED8
DataFlash AT45DB/DCB SerialFlash AT25/AT26 NandFlash SDRAM SRAM
Download / Upload File
Send File Name : Gr/WinCE 6.0/image/chinese/NK.nb0
Receive File Name : Peceive File
Address : 0x200000 Size (For Receive File) : 0x1000 byte(s) Compare sent file with memory
Scripts
Send Boot File Execute
-I- File size : 0x16800 byte(s)
-I- 0x16800 bytes written by applet
(AT91-ISP v1.12) 1 %

Figure 3.26

💽 SAM-BA 2.8 - AT91SAM9263-EK	
File Script File Link Help	
T91SAM9261 Memory Display	
Start Address : 0x300000 Refresh Display format Size in byte(s) : 0x100 C ascii 8-bit C 16-bit 32-bit	
0x00300000 0x774BE771 0x6DF85C88 0x64BDA585 0xB6E87440	^
0x00300010 0xD5DEAD60 0x7753BBC4 0x679DBD10 0x3AEA1FD4	
0x00300020 OxF85FF0E3 OxD57E28EF OxBAD9E645 OxEF9BFED8	~
	>
Download / Upload File	
Bassiva Eila Marra : C. //mage/chinese/NK.nbu	
Address : 0x200000 Size (For Receive File) : 0x1000 byte(s) Compare sent file with	, h memory
Scripts	
Send Boot File Execute	
-I- 0x20000 bytes written by applet	~
-I- Writing: 0x20000 bytes at 0x2040000 (buffer addr : 0x200047FC)	
(AT91-ISP v1.12) 1 %	~



Chapter IV. Boot WinCE 6.0 system

4.1 Boot WinCE system

- 1. select to boot from NAND flash then burn WinCE 6.0 system image files.
- 2. Make the power SWITCH be ON state, WinCE system will be booted. Enter WinCE 6.0 system, TFTLCD will first display <u>calibration touch screen</u> as shown in Figure 4.1.



Figure 4.1

Chapter V. Customization of WinCE system based on

SBC6300X WinCE 6.0 BSP

Notes:

To develop Windows Embedded CE 6.0 operating system using SBC6300X BSP, you need setup Windows Embedded CE 6.0development workstation. This Manual specifies that Windows Embedded CE 6.0 development workstation software is to be installed in Driver F, that is to say, the installation path for Windows Embedded CE 6.0 is [F:\WINCE600].

5.1 Installation of SBC6300X WinCE 6.0 BSP

Unzip SBC6300X CD <u>\03 WinCE 6.0 Kit\01 BSP \SBC6300X.rar</u> to <u>F:\WINCE600\PLATFORM</u> of development workstation. Unzip SBC6300X CD <u>\03 WinCE 6.0 Kit\01 BSP \ATMEL.rar</u> to <u>F:</u> <u>\WINCE600\PLATFORM\COMMON\SRC\SOC</u> of development workstation, then the installation of SBC6300X WinCE 6.0BSP is finished.

5.2 The compilation of WinCE system based on SBC6300X WinCE

6.0 BSP

Here we will not describe how to customize a WinCE project based a BSP in VS2005 WinCE 6.0 development environment, user can directly copy SBC6300X CD <u>\03 WinCE 6.0 Kit\02 Project</u> <u>\SBC6300X.rar</u> file to the directory <u>F:\WINCE600\OSDesigns\</u> of development workstation, and unzip this file under the same directory. User can directly open the project file <u>SBC6300X.sln</u> [under <u>F:\WINCE600\OSDesigns\SBC6300X</u> folder], then you can select [Build-> Build Solution] in VS2005 to start compiling the customized WinCE system.

5.3 The compilation of WinCE system based on SBC6300X WinCE

6.0 BSP

This section will describe the steps on how to customize WinCE 6.0 in SBC6300X BSP:

1. Open Visual Studio 2005, click <u>File</u>-><u>New</u>-><u>Project</u>, see Figure 6.1 below:



Figure 6.1

2. Select <u>Platform Builder for CE 6.0</u> from <u>Other project types</u> in <u>New Project</u> wizard, enter <u>SBC6300X</u> in <u>name:</u>, see Figure 6.2:

New Project			? 🗙
Project types:		Templates:	
Visual C++		Visual Studio installed templates	
CLR		🛞 OS Design	
General MFC		My Templates	
Smart Devi Win32	се	Search Online Templates	
Other Languag Other Project 1	es Ivnes		
Platform Builde	r for CE 6.0		
A project for creati	ng a Windows Embed	ded CE 6.0 operating system	
Name:	SBC6300X		
Location:	C:\WINCE600\OSDe	esigns 🛛 😽 Brow	ise
Solution Name:	SBC6300X	Create directory for solution	
		OK Car	ncel

- Figure 6.2
- 3. Click <u>OK</u> button as shown in Figure 6.2, the system will next step of <u>Windows Embedded CE 6.0</u> <u>OS Design Wizard</u>, see Figure 6.3:



Figure 6.3

4. Click <u>Next</u> button in <u>Windows Embedded CE 6.0 OS Design Wizard</u> as shown in Figure 6.3, select <u>SBC6300X:ARMV4I</u> in <u>Board Support Packages (BSPs)</u> as shown in Figure 6.4:

Windows Embedded CE 6.0 OS De	sign Tizard 🛛 ? 🗙
Board Support Packages	
<u>A</u> vailable BSPs: Aruba Board: ARMV4I	A BSP contains a set of device drivers that
AT91SAM9261EK AT91SAM9263EK Device Emulator: ARMV4I	are added to your OS design. Select one or more BSPs for your OS design.
DevKit8000: ARMV4I ESP375: ARMV4I H4Sample OMAP2420: ARMV4I	BSP for Timll SBC6300x
MainstoneIII PXA27X: ARMV4I SBC6000X: ARMV4I SBC6300x: ARMV4I	
SBC9261: ARMV4I	
	Note: Only BSPs supported by installed CPUs are displayed in the list.
〈上一步	(2) 下一步(2) > 完成 (2) 取消



5. Click <u>Next</u> button as shown in Figure 6.4, select <u>PDA Device</u> in newly opened <u>Design</u> <u>Templates->Available design templates</u>, see Figure 6.5:

Windows Embedded CE 6.0 OS Design Wiza	ırd 🛛 💽 🔀
Design Templates A design template is a set of predefined catalog i	items.
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.
Previous	ext > Finish Cancel

Figure 6.5

6. Click <u>Next</u> as shown in Figure 6.5, select <u>Mobile Handled</u> in newly opened <u>Design Template</u> <u>Variants->Variants</u>, see Figure 6.6:

Windows Embedded CE 6.0 OS Design Wiza	ırd 🛛 💽 🔀
Design Template Variants Select a design template variant that provides th requires.	e functionality that your target device
Variants: Mobile Handheld Enterprise Web Pad	Mobile Handheld
Previous	ext > Finish Cancel

Figure 6.6

7. Click <u>Next</u> button as shown in Figure 6.6 to open <u>Applications & Media</u> window, add <u>Internet</u> <u>Browser->Internet Explorer 6.0</u> and <u>WordPad</u> in existing default options, see Figure 6.7:

Windows Embedded CE 6.0 OS Design Wize	rd 🛛 💽 🔀
Applications & Media Select items for applications and media to includ	le in your OS design.
 .NET Compact Framework 2.0 File Systems and Data Store Windows Embedded CE Error Reporting ActiveSync Internet Browser Internet Explorer 6.0 Quarter VGA Resources - Portrait Mode Windows Media Audio/MP3 Windows Messenger WordPad 	A Windows Embedded CE-based word processing application.
Previous	ext≻ Finish Cancel

Figure 6.7

 Click <u>Next</u> button as shown in Figure 6.7 to open <u>Networking & Communications</u>, remove <u>Personal Area Network(PAN)->Bluetooth</u> and <u>Personal Area Network(PAN)->IraDA</u> from in existing default options, see Figure 6.8:



Figure 6.8

9. Click <u>Next</u> button as shown in Figure 6.8, Click <u>finish</u> in newly opened <u>OS Design Project Wizard</u> <u>Complete</u>, see Figure 6.9:

Windows Embedded CE 6.0 OS Design Wizard	? 🗙
OS Design Project Wizard Complete	
You have completed the wizard. Press Finish to create your OS Design project.	
< Previous Next > Finish Can	cel

Figure 6.9

10. Click <u>Acknowledge</u> in the interface as shown in Figure 6.10 to finish the initial customization of WinCE 6.0 OS.

4	Catalog Item Notification	X
	NDIS User-mode I/O Protocol Driver	
	Security Warning	
	Security Warning NDISUIO allows applications to send and receive raw Ethernet packets directly to an NDIS interface. Applications can use this method to cause undesired behavior in an operating system that does not require privileged applications. For more information, see <u>NDISUIO Implementation</u> .	
	Acknowledge	

Figure 6.10

11. Tick the following options under <u>View->other windows->Catalog Items View->SBC6300X->Core</u> <u>OS->CEBASE->Core OS Services->USB HOST Support in Catalog Items View</u> of VS2005.

USB Function Driver

USB Host Support

USB Human Input Device (HID) Class Driver->USB HID Keyborad and Mouse

USB Storage Class Driver

See Figure 6.11.



Figure 6.11

12. Add the following options following the steps of add USB relevant modules as described above:

Core OS->CEBASE -> Communication Services and Networking->Networking-General->

Domain Discovery

<u>Core OS->CEBASE -> Communication Services and Networking->Networking-General-></u> Extended DNS Querying and Update(DNSAPI)

Here we remove the remove the existing default option below:

<u>Core OS->CEBASE -> Communication Services and Networking ->Networking-General-></u> TCP/IPv6 Support

Continue to add the following options:

Core OS->CEBASE->File Systems and Data Store->Storage Manager->Storage Manager

Control Panel Applet

<u>Core OS->CEBASE->International->Locale Specific Support-> Chinese (Simplified)</u> ->Fonts->SimSun&NsimSun(Choose 1)->SimSun&NsimSun_

Core OS->CEBASE->International->Locale Specific Support-> Chinese (Simplified)

->GB1803030 Data Converter-

Core OS->CEBASE->International->Locale Specific Support-> Chinese (Simplified) ->

Monotype Imaging AC3 Font Compression

Device Drivers->SDIO->SDIO Host->SDIO Standard Host Controller

Device Drivers->SDIO->SDIO Memory->SD Memory

Device Drivers->USB Function->USB Function Clients->Mass Storage

Device Drivers->USB Function->USB Function Clients->serial

13. Set compilation type as <u>SBC6300X ARMV4I Release</u>, see Figure 6.12:



Figure 6.12

14. Click <u>Project</u>->properties in VS2005, see Figure 6.13:

🀼 SBC6300x - Licz	osoft Visual Studio	
File Edit View Pro	ject Build Debug Target Too	o <mark>ls Windo</mark> w Community Help
i 🛅 🔹 🛅 👻 🚺	Add New Subproject	- 🖳 🕨 SBC6300x ARM Platform I
Device: CE Device	Add Existing Subproject	
Solution Explorer - SB	Set Subproject Build Order	Start Page
	Add New SDK	
Solution SBC6300	Add Existing SDK	Microsoft
	Unload Project	visual Stu
🚽 Favorite	Set as StartUp Project	
🖃 🧾 Paramet	Properties	Recent Projects
📑 Subprojects		3BC9261
		BevKit270
		sbc2410

Figure 6.13

15. Tick <u>Enable eboot space in memory(IMAGE=1)</u> in Build Options, as shown in Figure 6.14, click <u>OK</u> to finish the settings of compilation.

SBC6300x Property Pages	
Configuration: Active(SBC9261 ARM - Common Properties - Build Tree (WINCEROOT) - Configuration Properties - General - Locale - Build Options - Environment - Custom Build Actions - Subproject Image Settings	/41 Platform: N/A Configuration Manager Build options: Buffer tracked events in RAM (IMGOSCAPTURE=1) Enable eboot space in memory (IMGEB00T=1) Enable event tracking during boot (IMGCELOGENABLE=1) Enable hardware-assisted debugging support (IMGHDSTUB=1) Enable kernel debugger (no IMGNODEBUGGER=1) Enable kernel debugger (no IMGNODEBUGGER=1) Enable ship build (WINCESHIP=1) Enable ship build (WINCESHIP=1) Flush tracked events to release directory (IMGAUTOFLUSH=1) Run-time image can be larger than 32 MB (IMGRAM64=1) Use xcopy instead of links to populate release directory (BUILDREL_USE_COPY=1) Write run-time image to flash memory (IMGFLASH=1)
	OK Cancel Apply

Figure 6.14

16. As shown in Figure 6.15, tick the driver of the module you need SBC6300X main board, in <u>View->Other window->Catalog Items View->SBC6300X->Third Party->SBC6300X:ARMV4I</u> in VS2005. (For details of each driver module please refer to Section 6.5).

Figure 6.15

 As shown in Figure 6.16, click <u>Build->Advanced Build Commands->Sysgen</u> of VS2005 to start compiling:



Figure 6.16

18. As the compilation may take a long time (depends on the hardware configurations of development workstation), please wait. After the system compilation is successful, VS2005 will export the following information as shown in Figure 6.17:

Output
Show output from: Build 💽 🗟 🗐 🖓 🖓 🖓
makeing: Check for d:\WINCE600\0SDesigns\SBC6300X\SBC6300X\RelDir\SBC6300X_ARMV4I_Rel makeing: Check for d:\WINCE600\0SDesigns\SBC6300X\SBC6300X\RelDir\SBC6300X_ARMV4I_Rel makeing: Change directory to d:\WINCE600. makeing: run command: cmd /C d:\WINCE600\public\common\oak\misc\pbpostmakeimg Volume in drive D is WORK Volume Serial Number is 5867-4BDE
Directory of d:\WINCE600\OSDesigns\SBC6300X\\SBC6300X\RelDir\SBC6300X_ARMV4I_Release
03/31/2009 12:34 PM 20,082,367 NK.bin 1 File(s) 20,082,367 bytes 0 Dir(s) 5,635,424,256 bytes free
BLDDEM0: SBC6300X build complete.
SBC9261 - 0 error(s), 1546 warning(s) ======= Build: 1 succeeded or up-to-date, 0 failed, 0 skipped =========

Figure 6.17

 The moment 6 WinCE 6.0 image files, i.e.: FIRSTBOOT.nb0, EBOOT.nb0, NK.nb0, FIRSTBOOT.bin, EBOOT.bin, NK.bin, will be generated under F:\WINCE600\OSDesigns\SBC6300X\SBC6300X\RelDir\SBC6300X_ARMV4I_Releas\folder.

5.4 Modules of SBC6300X WinCE 6.0 BSP driver

After SBC6300X WinCE 6.0 BSP is installed and the project based on the BSP is initially customized following the instructions of Section 6.4, click <u>View->Other window->Catalog Items</u> <u>View->SBC6300X</u>-><u>Third Party</u>-><u>SBC6300X:ARMV4I</u> in VS2005, you will see the modules of each driver module of SBC6300X WinCE 6.0 BSP, you can choose them on your demand. The table below will describe the functions of each module in details.

Module	Functions	Remarks

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Timll

ADC	ADC driver	ADC driver.
🖃 🔁 Audio V Audio Driver	AC97 driver	AC97 driver.
BSP_EXTUART BSP_EXTUART BSP_EXTUART	SC16C554 serial chip driver	SC16C554 serial chip driver
buzzer buzzer buzzer	Buzzer driver	Buzzer driver.
□-□ Display □ LCDC	Display driver	Display driver.
Ethernet Ethernet Driver	Emacb driver	Emacb driver.
GPIO GPIO driver	GPIO driver	GPIO driver.
i⊇ i2C I2C (TWI) Driver	I2C driver	I2C driver.
I2C_EEPROM I2C EEPROM Driver	I2C EEPROM driver	I2C EEPROM driver.
	IO driver	IO driver.
🖃 📴 Keypad	IO key driver	IO key driver.
Ethernet Driver	DM9000 driver	DM9000 driver
□ · 📴 matrixkey ▼ matrixkey	6X6 matrix keyboard driver	6X6 matrix keyboard driver
PWM PWM Driver	PWM driver	PWM driver.
SDHC SD Host Controller Driver (Bottom Slot) SD Host Controller Driver (Top Slot)	SD card SDIO driver	SD card SDIO driver.
i istanti Serial Driver €	AT91SAM9263 serial driver	AT91SAM9263 serial driver
TFTLCD TFTLCD 320X240 TFTLCD 480X272 TFTLCD 640X480 TFTLCD 800X480 TFTLCD 800X480 TFTLCD 800X480	TFTLCD driver	TFTLCD driver
Touchscreen 	Touch screen driver	Touch screen driver.
USB Function USB Function Bus Drivers USB Function Driver	USB device driver	USB device driver.

SBC6300X WinCE6.0 User Manual

⊡⊡ USB Host ⊡⊡ USB Host Controllers 	USB host driver	USB host driver.
Ethernet bootloader O Dataflash bootloader Image: Standard Stand	Bootloader	Bootloader
🖃 🧰 Saved Registry Registry saved in NAND Flash (Hive)	Hive registry	Hive registry.
- Candflash	NAND flash driver	NAND flash driver.
SD Memory Card Drivers	SD card 4 cables SPI driver	SD card 4 cables SPI driver.Note: SD card SDIO driver and SD card 4 cables SPI driver can only be selected one.