

Atmel SAMA5D4 Windows Embedded Compact 7 BSP – User manual

Version 1.10.35

History of changes

HISTORY OF CHANGES		
VERSION	DATE	COMMENTS
1.10.11	December 12, 2014 9:35	Initial document version

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1. Introduction

1.1. Introduction

DAB-Embedded BVBA (hereafter "DAB-Embedded") has ported Windows Embedded Compact 7 BSP (hereafter "WEC7") for Atmel SAMA5D4 family based SAMA5D44-EK board. This document describes how to prepare hardware and external storage drives for booting.

1.2. Scope

The primary scope of this document is to provide the user information about running the WEC7 on the target platform including from different boot devices. This document does not describe configuring and compiling steps for the WEC7 BSP. For this information please ask "Developer's Manual" additionally.

1.3. License restriction

The images should be used only in **demo purpose** and only **in 30 days** after starting evaluation.

2. Glossary

Abbreviation	Description	Comment
BSP	Board support package	Number of drivers, bootloaders, kernel modules necessary for starting WEC7 on hardware.
SMP	Symmetric multiprocessing	Ability of CPU that provides fast performance by making multiple CPUs available to complete individual processes simultaneously (multiprocessing).
CPU	Central processing unit	A central processing unit is the electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions.
SD/SDHC Card	Secure Digital / Secure Digital High-Capacity card	Nonvolatile memory card used extensively in portable devices
VFP	Vector Float Point (Unit)	VFP (Vector Floating Point) technology

		is an FPU (Floating-Point Unit) coprocessor extension to the ARM architecture. It provides low-cost single-precision and double-precision floating-point computation fully compliant with the ANSI/IEEE Std 754-1985 Standard for Binary Floating-Point Arithmetic.
LPUART	Low power Universal Asynchronous Receiver/Transmitter	
CEDDK	CE Driver Development Kit	
GPIO	General Purpose Input / Output	
I2C	Inter-Integrated Circuit(referred sometimes as TWI)	
KITL	Kernel Independent Transport Layer	
LED	Light Emitting Diode	
OAL	OS Abstraction Layer	
OEM	Original Equipment Manufacturer	
RTC	Real Time Clock	
SPI	Serial Peripheral Interface	
I2C	Inter-Integrated Circuit interface	
CPLD	Complex programmable logic device	
Boot.bin	First boot loader	This bootloader copies itself from Flash/SD card to internal RAM (SRAM) and runs. Boot.bin initializes DDR2 and Flash.

3. Demo image description

Current (1.10.11) demo image has next features:

- Cache initialization;
- VFP initialization;
- Debug output (USART3);
- Hardware watchdog support;
- LCD (800x480) driver;
- Ethernet (10/100Mbps) driver;
- SD/MMC driver;
- TWI (I2C) driver;
- SPI driver;
- Internal Touch ADC driver;
- USB high speed host (OHCI-EHCI) driver;
- USB high speed function driver;
- GPIO driver;
- mXT768 multitouch screen driver.

Additionally:

- EBOOT with:
 - o I- & D- Cache support;

- 10/100Mbit ethernet support;
- SD/SDHC support.
- Boot.bin (first boot loader for DDR2 and SD/Flash initialization).

EK_SAMA5D4_ARM_WEC7_V1.zip archive has:

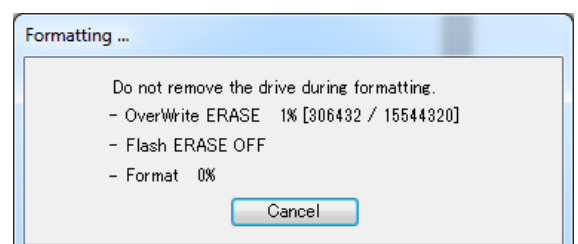
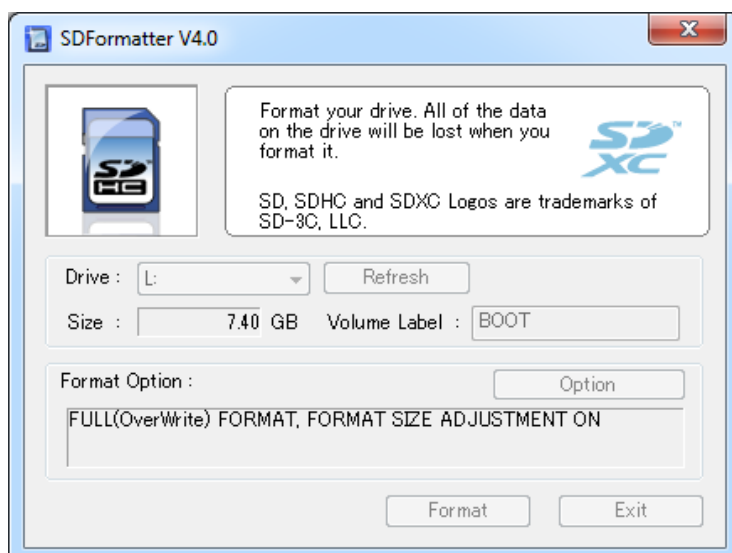
1. "Images" folder:
 - 1.1. boot.bin – First bootloader;
 - 1.2. eboot.nb0 – EBOOT bootloader image;
 - 1.3. NK.bin – Windows Embedded image;
2. "Doc" folder:
 - 2.1. DAB15_WEC7_AT_SAMA5D4_BSP.pdf – WinCE BSP user manual.

4. Preparing SD card for booting and writing images to the SD Card



NOTE: Please use micro SD/SDHC cards with minimum 1Gbyte size!

1. Download SD Formatter for Windows from www.sdcard.org:
 - a. Go to www.sdcard.org -> Menu "Downloads" -> "SD Formatter for Windows Download";
 - b. Agree with EULA by pressing "Accept" in bottom of the page;
 - c. Download ZIP archive, unzip on your hard drive;
 - d. Install tool by executing "Setup.exe" and follow installation process.
2. Extract EK_SAMA5D4_ARM_WEC7_V1.zip to hard drive.
3. Run SD Formatter from Start menu in Windows.



4. Press "Option" and enable format size adjustment and full format (Overwrite).

5. Then press "OK".
6. Press "Format" and agree with warning.
7. When format will finish, close SD Formatter tool.
8. Copy boot.bin, eboot.nb0 and NK.bin to SD card (in FAT partition).
9. Insert SD card (in J19) and power on board.

For normal booting from SD card, you need to do step 4 once, later your SAMA5D4-EK will boots automatically.



NOTE: NK.bin loads from SD card only.