WEC7 BSP User Guide for E6xx and x2000

Revision History

Revision	Date	Author	Changes
1.0	23 December 2013	MM	First revision

Via Calamandrei 91, 52100 Arezzo, Italy Tel: +39 0575 26979 - Fax: +39 0575 350210 www.secoqseven.com

1. Preface

This document describes the procedure to compile a Windows® Embedded Compact 7 image for SECO's **E6xx** and **x2000** modules.

2. Supported boards

SECO WEC7 BSP support the following boards:

- **QuadMo747-E6xx**
- **QuadMo747-E6xx/XT**
- **QuadMo747-x2000**
- **SECOMExp-x2000**
- **SECOpITX-x2000**

3. System Requirements

To run the procedure described in the following chapters, it is necessary to have a Development PC with the following requirements:

- One of these OS:
  - **Windows XP SP3**
  - **Windows Vista SP2**
  - **Windows 7 and any available service packs**

- **Visual Studio 2008 SP1** installed
- **Windows Embedded Compact 7 Platform Builder** installed (better to install all available updates). Make sure to install the x86 option when installing WEC7.

4. BSP Installation

4.1 Software requirements

Before proceeding with the build of WEC7, you must have downloaded the **SECO_INTEL_WEC7_BSP_3.2.0.1.zip** package from SECO site containing the following files:

SECO BSP Intel® Atom™ CPU:	**INTEL_CS_SECO_v3.2.0.1.zip**
eGalax USB Touch Screen:	**Wince700_3.2.7.1205-USB-121205.zip**
Utility tools:	**Utility.zip**
Biosloader (bldr):	**Bldr.zip**

4.2 Installing procedure

Follow these steps to install **SECO WEC7 BSP**:

1. Unzip the **SECO_INTEL_WEC7_BSP_3.2.0.1.zip** package to a folder of your choice.

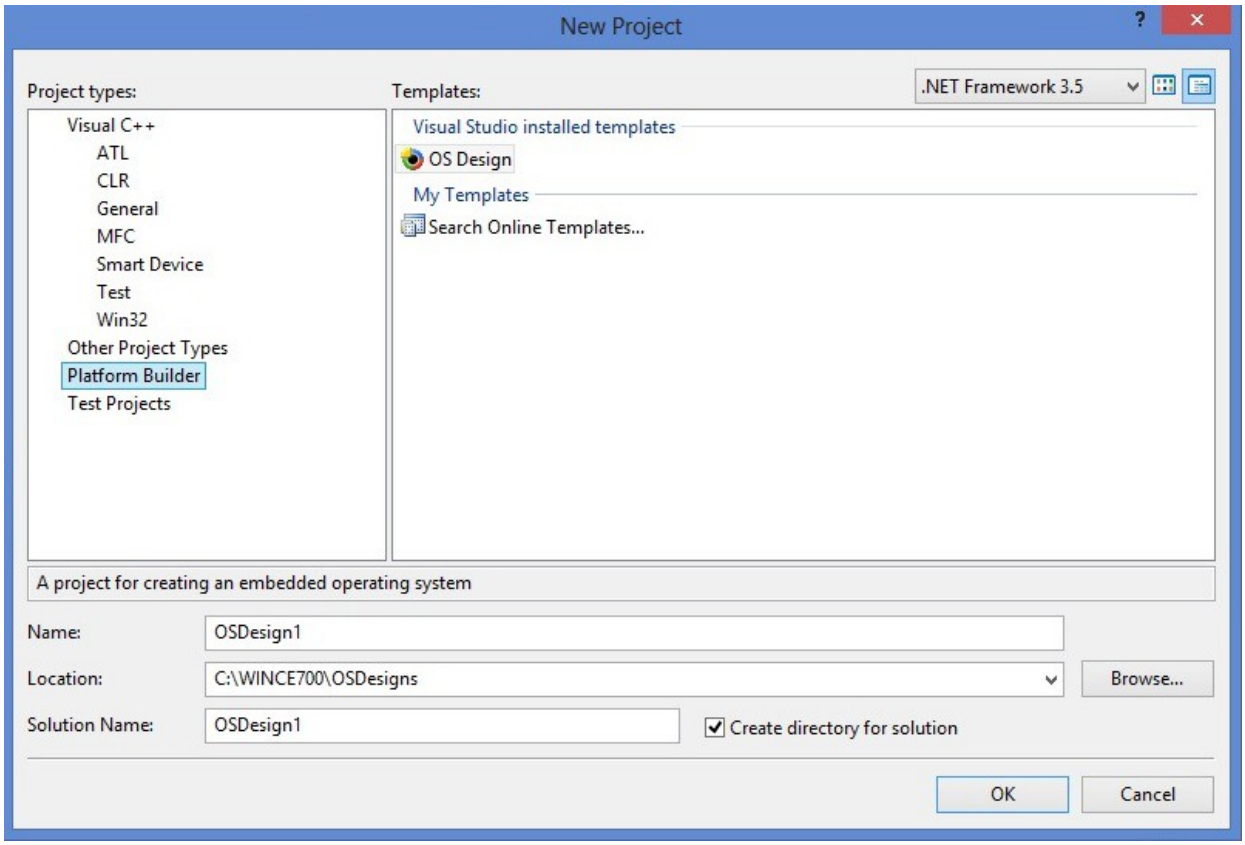
2. From the previously unzipped folder, unzip **INTEL_CS_SECO_v3.2.0.1.zip** package to a folder of your choice.

3. From the previously unzipped folder, copy **INTEL_CS_SECO** folder on **C:\WinCE700\Platform** folder.

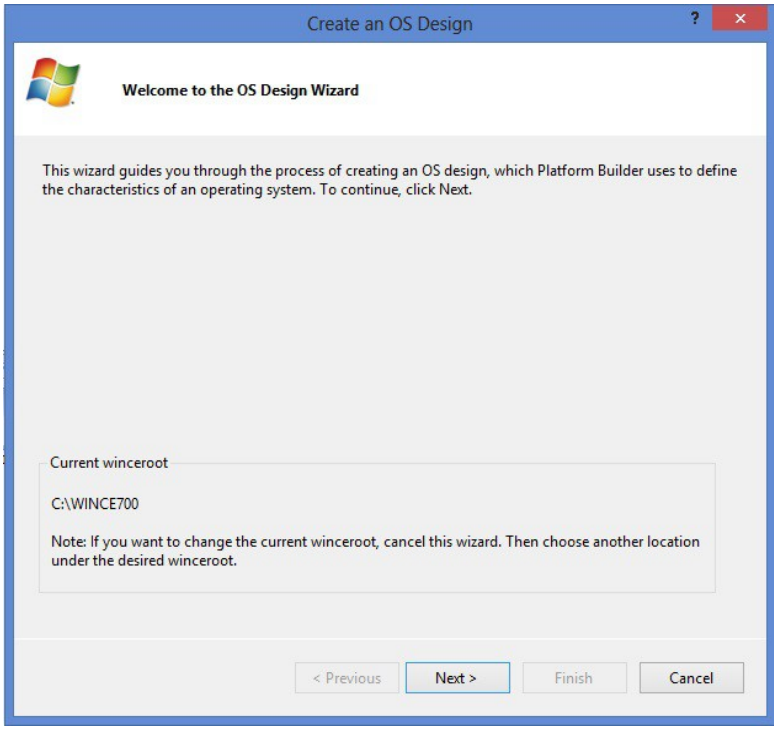
5. Build OS image

5.1 Create and build a new project

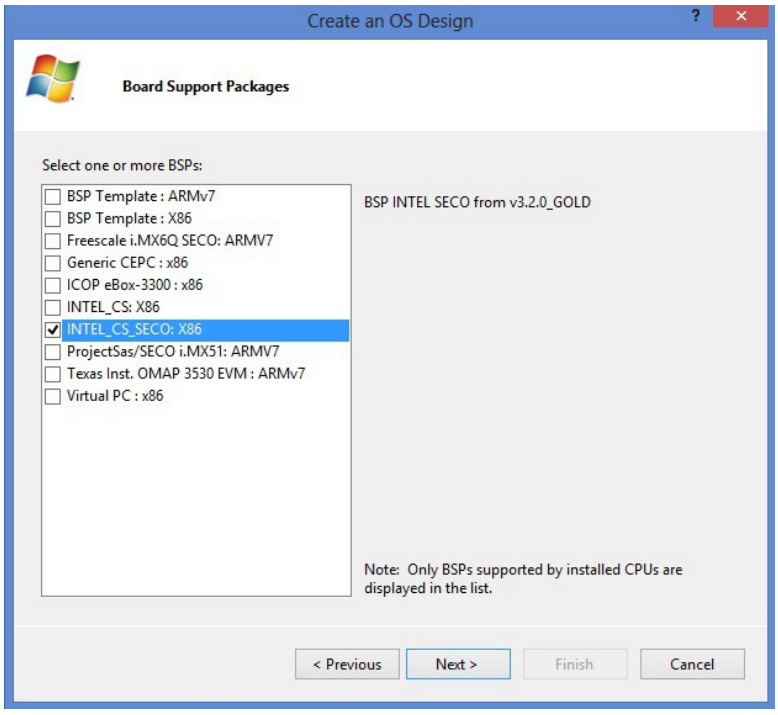
1. From Visual Studio 2008 Menu, select **File** then **New, Project.**
2. Select the item **"Platform Builder"**, insert a name for your WEC7 Image, press **OK**.



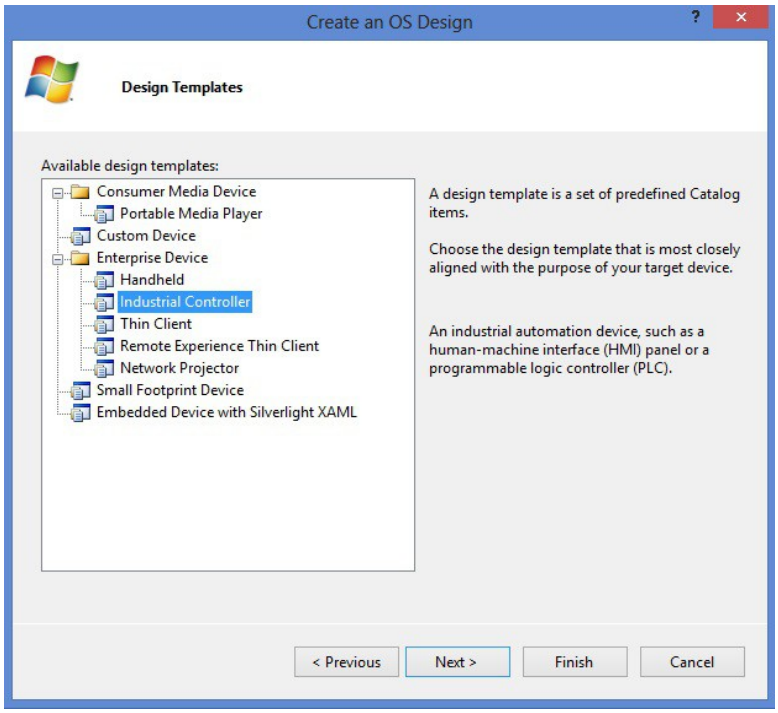
3. Press **Next**.



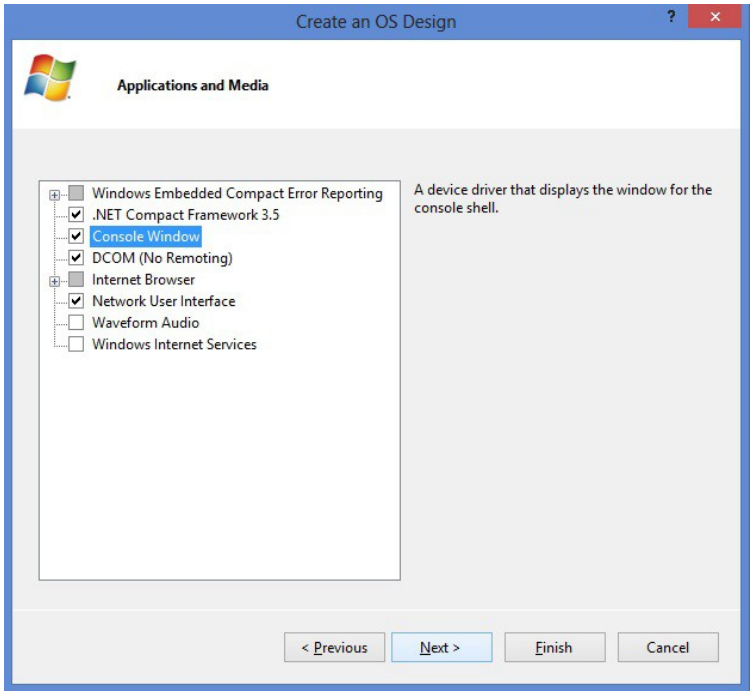
4. Select the item "**Intel_CS_SECO: x86**", then press **Next** again.

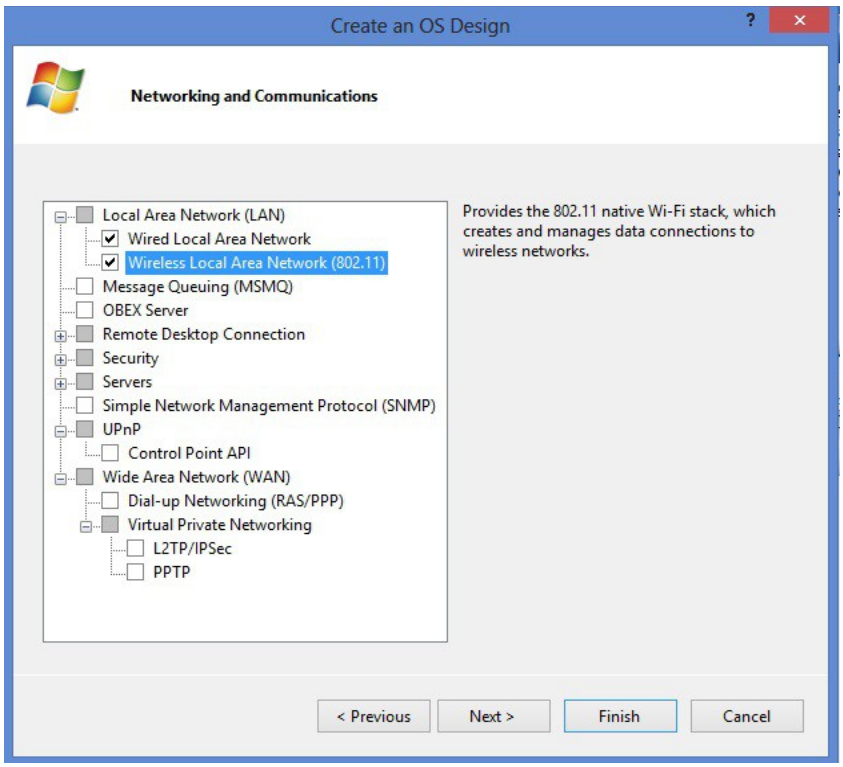


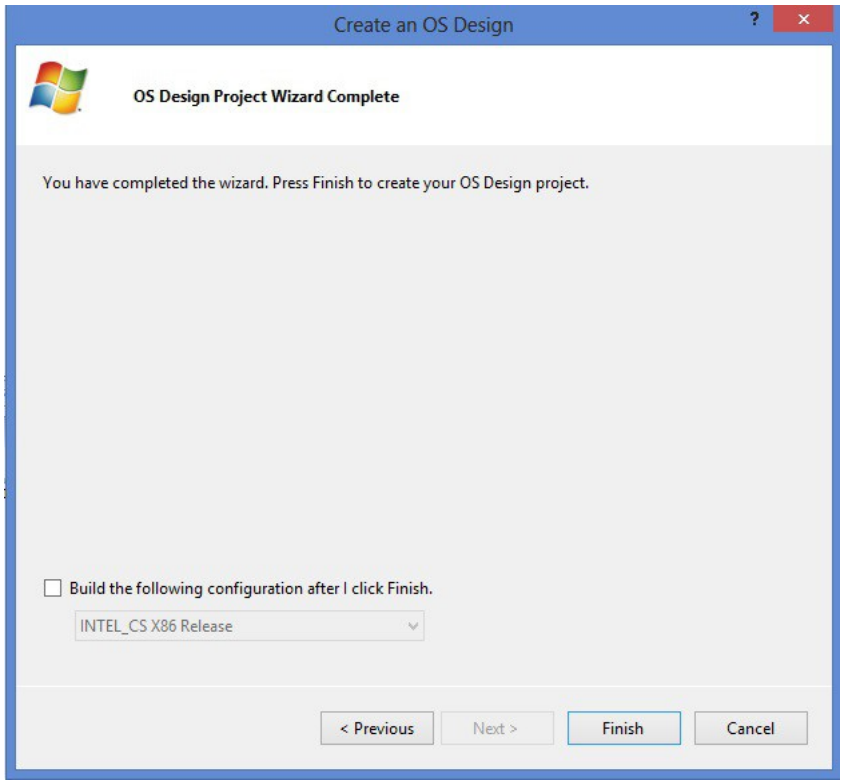
5. Select your template i.e. "**Industrial Controller**" and press **Next**.



6. Select the component to add to the OS according to your needs in each windows and then press **Finish**.




Create an OS Design
Networking and Communications
Local Area Network (LAN)
Wired Local Area Network
Wireless Local Area Network (802.11)
Message Queuing (MSMQ)
OBEX Server
Remote Desktop Connection
Security
Servers
Simple Network Management Protocol (SNMP)
UPnP
Control Point API
Wide Area Network (WAN)
Dial-up Networking (RAS/PPP)
Virtual Private Networking
L2TP/IPSec
PPTP
Provides the 802.11 native Wi-Fi stack, which creates and manages data connections to wireless networks.
< Previous
Next >
Finish
Cancel


Create an OS Design
OS Design Project Wizard Complete
You have completed the wizard. Press Finish to create your OS Design project.
Build the following configuration after I click Finish.
INTEL_CS X86 Release
< Previous
Next >
Finish
Cancel

7. Verify and confirm Microsoft Acknowledgement messages.
8. Switch to Catalg view selecting ***View->Other Windows->Catalog Item View***
9. Select from catalog the BSP component to add to the OS according to your needs:

   Selece your SECO module from:

   Third Party\BSP\INTEL_CS_SECO:X86\Device Drivers\SECO Device

   - QuadMo747-E6xx / QuadMo747-E6xx/XT
   - QuadMo747-x2000 / SECOMExp-x2000 / SECOpITX-x2000

   Selece your display video resolution from:

   Third Party\BSP\INTEL_CS_SECO:X86\Device Drivers\EMGD Display Driver

   - 640x480@18bit or 24bit
   - 800x480@18bit or 24bit
   - 800x600@18bit or 24bit
   - 1024x600@18bit or 24bit
   - 1024x768@18bit or 24bit
   - 1280x786@18bit or 24bit
   - 1366x768@18bit or 24bit

   Selece your audio support basing on Audio Codec present on your board or carrier board, from:

   Third Party\BSP\INTEL_CS_SECO:X86\Device Drivers\Audio

   - Audio Support (ALC886)
   - Audio Support (ALC888)

   Enable ATAPI, Ethernet, Serial Port and USB Support respectively from :

   - *Third Party\BSP\INTEL_CS_SECO:X86\Device Drivers\ATAPI Support*
   - *Third Party\BSP\INTEL_CS_SECO:X86\Device Drivers\Serial Port Support*
   - *Third Party\BSP\INTEL_CS_SECO:X86\Device Drivers\USB Support*

10. From **Build->Configuration Manager->Active solution configuration** select **INTEL_CS_SECO X86 Release** configuration
11. Select **Build->Advanced Build Commands->Sysgen** to start the build process.
12. Follow chapter 6 to boot from SECO boards.

5.2 Additional drivers

Follow these steps to install the eGalax touch screen controller driver present on **SECO_INTEL_WEC7_BSP_3.2.0.1.zip** package:

1. Unzip the eGalak touch screen controller package **Wince700_3.2.7.1205-USB-121205.zip** to a folder of your choice.
2. Follow installation procedure described in **EETI WinCE7.0 Touch Driver Installation Guide.pdf** file for USB controller.

Note that eGalax touch screen controller is needed using **SECO CrossPlatform Development Kit.**

6. Booting WEC7 on the target device using the Platform Builder

First of all, you will need to create a DOS bootable 3.5" Floppy Disk, using your development workstation. Since E6xx and x2000 SECO boards don't support boot from Floppy Disk, you will then need to create a bootable USB Disk, to be used to finally format and make WEC7-bootable the internal Flash Disk of **E6xx** and **x2000** SECO modules.

To do this:

1. On your development workstation, insert a blank 3.5-inch floppy disk in the floppy disk drive.

2. Navigate to the %ProgramFiles%\Microsoft Platform Builder\7.00\CEPB\Utilities folder, and then run MakeImageDisk.exe.

3. From the MakeImageDisk window, choose Open.

4. Navigate to the %_WINCEROOT%\Platform\CEPC\Src\Bootloader\Biosloader\Diskimages folder, and choose Setupdisk.144

5. Choose Start and the image will be copied to the floppy disk.

6. Choose Exit to close the MakeImageDisk application when the floppy disk preparation is complete.

7. Download and install 'HP USB Disk Storage Format Tool' from Internet (it is a freeware application to create DOS bootable USB disks).

8. Plug your USB disk to the development workstation.

9. Launch now the HP USB Disk Storage Format Tool.

10. In the command windows that will appear, check that in the “Device” Dialog box is selected the USB disk you want to use. Now, set:

File System:	FAT
Quick Format:	Enabled
Create a DOS start-up disk:	Enabled
Using DOS system files located at:	A:\

11. Press Start and wait for the end of the procedure.

12. Copy all file in floppy disk into your USB key except for command.com, io.sys and msdos.sys. Copy also file DACTIVE.COM (contained in **Utility.zip** package on **SECO_INTEL_WEC7_BSP_3.2.0.1.zip** file you downloaded from SECO site).

13. Copy the **nk.bin** file you built into the USB key.

14. Replace **bldr** file in your USB key with the correct one present on **bldr.zip** alligned with your system filesystem renaming it as **bldr**.

15. Connect now the USB key to your system.

16. Turn on your system, and enter the BIOS setup menu. In the “Advanced CMOS configuration” menu, set the “First boot device:” to USB disk. Save CMOS and exit from BIOS setup menu.

17. Wait for your system boot from your USB disk.

18. Now, create a partition on your storage disk (that is now seen as D:\) using ***fdisk*** command. Then ***format*** this partition using format tool, WITHOUT transferring DOS system, with the syntax ***format d:***.

19. Launch now the ***dactive*** command, to activate the boot partition on ***d:***.

20. Launch now the command ***mkdisk d:***.

21. Copy the nk.bin file you built into the storage disk (***copy nk.bin d:***\).

22. Re-boot the system without USB key.

23. The system will now be able to boot using your WEC7 O.S. Image

7. Supported features

SECO boards:

- QuadMo747-E6xx
- QuadMo747-E6xx/XT
- QuadMo747-x2000
- SECOMExp-x2000
- SECOpITX-x2000

Display outputs:

- 640x480 resolution
- 800x480 resolution
- 800x600 resolution
- 1024x600 resolution
- 1024x768 resolution
- 1280x786 resolution
- 1366x768 resolution
- sDVO output for E6xx boards
- HDMI otuput for x2000 boards

Ethernet:

- RTL 8111E/8111F (QuadMo747-E6xx / QuadMo747-x2000 / SECOMExp-x2000 / SECOpITX-x2000)

USB

Serial Port

Touch Screen controller:

- eGalax

Not supported features:

Ethernet:

- INTEL 82574 (QuadMo747-E6xx/XT)

USB to Serial:

- FT2232D (QuadMo747-x2000)