

# Vortex86SX Windows CE Development Note

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After installing Vortex86SX BSP, developer can start Windows CE development for Vortex86SX boards. Here are notes for your reference:

## Enable Full Kernel Mode

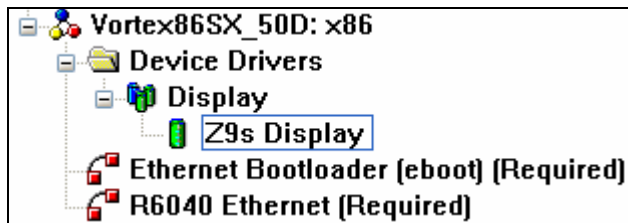
To make sure all Vortex86SX drivers can work properly, please check "Enable Full Kernel Mode" at "Platform Builder Menu -> Platform -> Settings -> Build Options".

## R6040 Ethernet

R6040 is the built-in 10/100Mb Ethernet in Vortex86SX SoC. In order to use KITL to debug, please use eboot.bin at "Vortex86SX\_50D\Src\Bootloader\Boot\bin".

## XGI Z9s Display Driver

Z9s graphic chipset is for most Vortex86SX boards with video function. Vortex86SX BSP will not add XGI display driver by default. The default display driver is VGA flat driver in Platform Builder. If your evaluation boards have video function, please add Z9s display driver manually.



Developer can change display resolution by modifying registry settings. Search "BSP\_VORTEX86SX\_Z9S" in platform.reg. You can find those registry settings:

```
[HKEY_LOCAL_MACHINE\Drivers\Display]
"ModeNumber"=dword:3 ; 0:640x480x16@60Hz, 3:800x600x16@60Hz, 6:1024x768x16@60Hz
```

Here is detail modes list:

640x480x16@60Hz	0	1024x768x16@60Hz	6	640x480x32@60Hz	12	1024x768x32@60Hz	18
640x480x16@75Hz	1	1024x768x16@75Hz	7	640x480x32@75Hz	13	1024x768x32@75Hz	19
640x480x16@85Hz	2	1024x768x16@85Hz	8	640x480x32@85Hz	14	1024x768x32@85Hz	20
800x600x16@60Hz	3	1280x1024x16@60Hz	9	800x600x32@60Hz	15	1280x1024x32@60Hz	21
800x600x16@75Hz	4	1280x1024x16@75Hz	10	800x600x32@75Hz	16		
800x600x16@85Hz	5	1280x1024x16@85Hz	11	800x600x32@85Hz	17		

## Hive-based Registry

The registry settings for hive-based registry settings are added platform.reg. Just add "Hive-based Registry" from catalog window into your workspace to enable hive-based registry support.

## Using 128 MB RAM

The BSP only support 64MB RAM by default. If there are 128MB RAM on your Vortex86SX board, add environment variable (Platform -> Settings -> Environment -> New) "IMGRAM128=1". Do those steps to make Windows CE to recognize 128MB RAM:

1. Modify "%\_WIN\_DIR%\public\common\oak\csp\x86\oal\oeminit.asm".
2. Find "\_OEMAddressTable:",  
change "dd 80000000h, 0, 04000000h"  
to "dd 80000000h, 0, 08000000h"
3. Platform Builder -> Build -> Open Build Release Directory.
4. Change work directory to "%\_WIN\_DIR%\public\common\oak\csp\x86".
5. Run "build".
6. Platform -> Setting -> Build Options -> Enable "Enable Images Larger than 32MB".
7. Build your image.

## Serial Ports

User can find the I/O address of COM1 in **platform.reg** is 0x2F8 and IRQ is 3. This is because Windows CE uses the first serial port as debug port. Here is the table of serial ports setting in Windows CE:

Windows CE	I/O Address	IRQ	Normal PC
Debug Serial	0x3F8		COM1:
COM1:	0x2F8	3	COM2:
COM2:	0x3E8	4	COM3:
COM3:	0x2E8	5	COM4:

If user opens "COM1:" to send data in Windows CE, data will be sent to serial port 2. Follow those steps to disable debug serial port in Windows CE.

1. Open "%\_WIN\_DIR%\PUBLIC\COMMON\OAK\CSPX86\OAL\debug.c" in Platform Builder 5.0:

```
void OEMInitDebugSerial(void)
{
    pBootArgs = (BOOT_ARGS *) ((ULONG)((PBYTE *)BOOT_ARG_PTR_LOCATION) | 0x80000000);

    if ( ! pBootArgs->ucBaudDivisor ) {
        pBootArgs->ucBaudDivisor = 6; // Default to 19.2 if nothing specified.
    }
}
```

```
pBootArgs->ucComPort = 0; //-- add this line
```

```
switch ( pBootArgs->ucComPort ) {  
case 1:  
    IoPortBase = (PUCHAR)COM1_BASE;  
    break;
```

2. Platform Builder -> Build -> Open Build Release Directory.
3. Change work directory to "%\_WIN\_DIR%\public\common\oak\csp\x86\oal"
4. Run "build".
5. The registry settings for serial ports are okay in platform.reg in Vortex86SX BSP. It is no need to modify.
6. If you need COM4, add this environment variable "BSP\_SERIAL4=1".
7. Build your image.

## Technical Support

For more technical support, please visit <http://www.dmp.com.tw/tech/vortex86sx> or mail to [tech@dmp.com.tw](mailto:tech@dmp.com.tw).