

IPC Series

IPC-PT/MV10 Series, IPC-PT/MV11 Series,
IPC-PT/MV15 Series, IPC-PT/MV16 Series,
IPC-PT/LS10 Series, IPC-PT/LS11 Series,
IPC-PT/LS15 Series, IPC-PT/LS16 Series,
IPC-PT/SV10DC1, IPC-PT/SV15DC1,
IPC-PT020LS-AC, IPC-BX/M10DC5
Windows CE .NET 4.2

Software Manual

CONTEC CO.,LTD.

Introduction

This manual describes Windows CE .NET 4.2 installed on the SH4 CPU based, Windows CE .NET 4.2 installed computer *1 (hereafter referred to as the SH4 CPU & .NET installed IPC series).

For information related to this series' hardware, refer to the Hardware Manual.

*1 : IPC-PT/LS10 series, IPC-PT/LS11 series, IPC-PT/LS15 series, IPC-PT/LS16 series, IPC-PT/MV10 series, IPC-PT/MV11 series, IPC-PT/MV15 series, IPC-PT/MV16 series, IPC-PT/SV10DC1, IPC-PT/SV15DC1, IPC-BX/M10DC5, IPC-PT020LS-AC

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1. Features of the Windows CE .NET 4.2

Windows CE .NET 4.2 installed on the SH4 CPU & .NET installed IPC series has the following CONTEC-proprietary features :

- VARIETY OF DRIVERS
As standard equipment, this series provides Windows CE drivers for all devices installed on the motherboard. For information about the drivers, see Chapter 3, “Standard Drivers”.
- Setting function
This series allows you to set each standard driver using the dedicated control panel. You can use this function to customize the unit to your needs.
For information about available adjustments, see Chapter 6, “System Setting”.
- CONTEC Manager
Supplies many remote maintain tools for use this series more easily.
For the details about functions in “CONTEC Manager”, please refer to Chapter 7, “CONTEC Manager”.
- OBJECT STORE / REGISTRY BACKUP FUNCTION
When any modification is made to a driver we have provided, this function allows you to modify the module without changing the Windows CE OS image (“NK.BIN”). Also, it allows you to back up registry settings.
- NFDisk function
As Windows CE can handle onboard NAND Flash as its disk, your application can be copied onto NFDisk.
- Quick boot
This series employs the XIP & memory loading boot function for faster startup (about 10 seconds) and operation.
- WATCH DOG TIMER FUNCTION
This series supports watch dog timer function. User application can use watch dog timer by call watchdog timer APIS.
- BACK LIGHT FUNCTION
This series supports backlight function. This function can be set from the control panel to ensure that the LCD backlight is switched off when no input has been made for a certain period of time.
- Auto-Run function
It is possible to start programs when a ATA card or a CF card is inserted into PC card slots. By using this function, many work can be completed automatically, such as file copying, program installation, etc. Details about the usage of auto-run function, please refer to Chapter 12, “Auto RUN Function”.
- BIOS Update Function
This series uses an exclusive BIOS to provide hardware initialization as well as versatile boot functions.
The BIOS is contained on an EEPROM and includes a BIOS update function which allows easy updating for version upgrades.
Also included is an emergency boot function as a recovery means in case of failing to write BIOS. Details about the recovery method , please refer to Chapter 11, “Emergency Boot Function”.

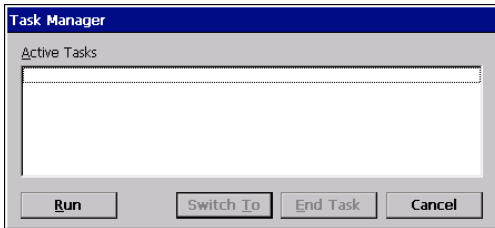
2. Basic operation

Run a program (Using TASKMAN)

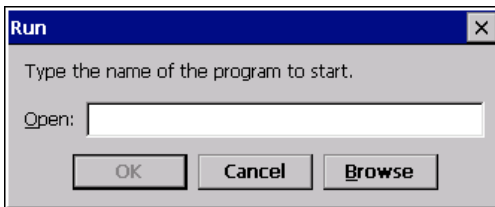
The SH4 CPU & .NET installed IPC series has two shells : a simple shell (TASKMAN) and a Windows like shell (IESHELL).

By default, TASKMAN is selected as the shell, so you need to take the following steps to execute an application.

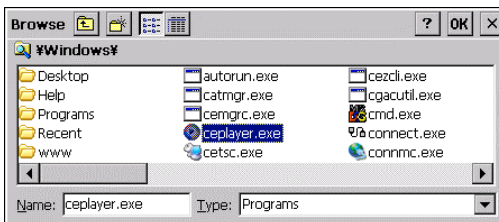
1. With Windows CE up and running, press the ALT and Tab keys at the same time (ALT+Tab) to invoke TASKMAN (Task Manager).



2. When TASKMAN has been started, press the [Run] button to open the “Run” dialog box. When you know the name of a desired program, enter its full pathname in the “Open” field and press the [OK] button to run the program.

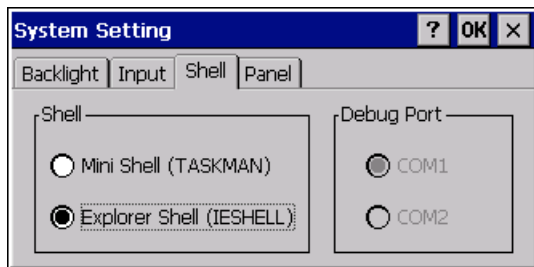


3. If you do not know the name of the desired program, press the [Browse] button in the “Run” dialog box. In the dialog box that appears, select that program and press the [OK] button. The full pathname of the selected program will be entered in the “Open” field in the “Run” dialog box. Press the [OK] button to invoke the desired program.



Switching the Shell

To use IESHELL on the SH4 CPU & .NET installed IPC series, start the “System Setting” applet in the Control Panel(control.exe) to select the shell to be used.

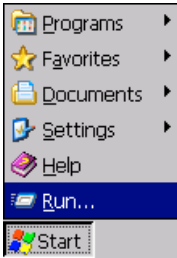


For details on “System Setting”, see Chapter 6 “System Setting”.

Run a program (Using SHELL)

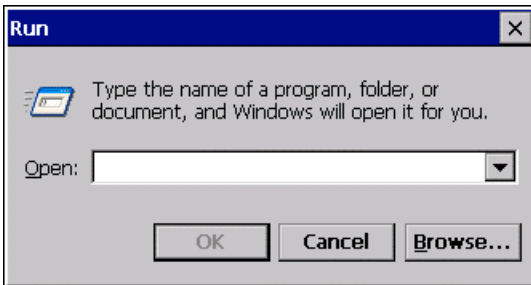
To execute an application with SHELL up and running, select the “Run” command from the Start menu and specify the application.

1. Press “Ctrl+Esc” hot key or “Start” button to pop up the start menu. Select the “Run...” menu; the “Run” dialog box pops up.

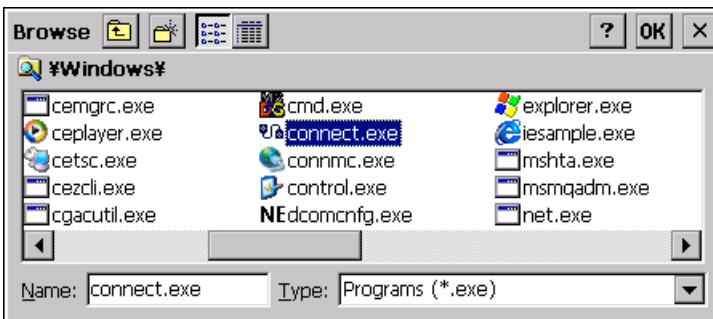


2. Input the program’s name directly in the “Open” combo box, or press the “Browse...” button to select the program.

When the “Browse...” button is pressed, the “Run” browse dialog box pops up, select a program in this dialog box



3. After you select a program, press the OK button. The selected program’s name is added to the “Run” dialog box’s open combo box.



4. After you decide the program name, press the OK button. The specified program is started.



3. Standard Drivers

Windows CE .NET 4.2 on the SH4 CPU & .NET installed IPC series provides the drivers listed below. This chapter describes each of the standard drivers listed.

Table 3.1. Driver List < 1 / 2 >

Driver	Description
Graphic	- Compatible with hardware cursor - LCD output (TFT, VGA/SVGA)
Serial	- Compatible with on-board serial 2-port (RS-232C) (On the IPC-PT/LS10 series, IPC-PT/LS11 series, IPC-PT/LS15 series, IPC-PT/LS16 series, IPC-PT/MV10 series, IPC-PT/MV11 series, IPC-PT/MV15 series, IPC-PT/MV16 series, COM2 can be switched between RS-422 and RS-485 by a jumper on the main unit. See the hardware manual for details.) - Debug port feature supported (COM1 or COM2 can be assigned as a debug port by the DIP switch : For setting DIP switches, refer to the hardware manual. To switch between COM1 and COM2, see Chapter 6 "System Setting".) - PCI serial board *1 By installing an additional CONTEC PCI serial board, you can use up to 10 ports including the serial ports in the main unit. (On the IPC-PT/LS10 series, IPC-PT/LS11 series, IPC-PT/LS15 series, IPC-PT/LS16 series, IPC-PT/MV10 series, IPC-PT/MV11 series, IPC-PT/MV15 series, IPC-PT/MV16 series : Installing the additional PCI serial board requires the optional single-slot expansion unit for PCI half size (IPC-PAC(PCI)-C1)
Touch panel	- CONTEC touch panel controller LCD driver
USB	- Host driver for USB 1.1 - HID driver (supporting the mouse and keyboard)
PS/2 mouse	- PS/2 mouse driver (On the IPC-PT/LS10 series, IPC-PT/LS15 series, IPC-PT/MV10 series and IPC-PT/MV15 series)
PS/2 keyboard	- Driver for PS/2 101 / 106 keyboard (On the IPC-PT/LS10 series, IPC-PT/LS15 series, IPC-PT/MV10 series and IPC-PT/MV15 series)
PCMCIA	- Driver for PCMCIA 2 slot
ATA flash card	- Driver for PCMCIA , CF
LAN	- On board 100/10base LAN driver
Isolated I/O	- DIO port access via DLL
Sound	- Sound source stereo output driver
Function switch	- Driver for the function switches below the front panel of the panel computer (IPC-BX/M10DC5 is not supported.)
Wireless LAN	- Driver for CONTEC wireless LAN card (FX-DS110-PCC or FX-DS110-PCC2)
PC/104 general purpose I/O	- Access DLL for the I/F board connected to the PC/104 - Supports memory, IO, and interrupts (On the IPC-BX/M10DC5)
Internal PIO port	- Access DLL for Internal PIO port. Can be switched between 8 IN + 8 OUT or 16 OUT. (On the IPC-BX/M10DC5)

Table 3.1. Driver List < 2 / 2 >

Driver	Description
PCI bus general-purpose I/O	- Access DLL for the I/F board connected to the PCI bus - Supports memory, IO, and interrupts (On the IPC-PT/LS10 series, IPC-PT/LS11 series, IPC-PT/LS15 series, IPC-PT/LS16 series, IPC-PT/MV10 series, IPC-PT/MV11 series, IPC-PT/MV15 series, IPC-PT/MV16 series)

*1: The supporting CONTEC serial boards are the COM-1(LPCI)H, COM-2(LPCI)H, COM-4(LPCI)H, COM-2(PCI)H, COM-4(PCI)H, COM-8(PCI)H, COM-2P(PCI)H, COM-2PD(PCI)H.

Follow the following operating conditions only when the COM-8(PCI)H is used :

- The COM number of the 10th port (CH8 on the COM-8(PCI)H) is not COM10 but COM0.

Note that the port must be opened as COM0, for example, when used by a program.

4. On-Board DIP Switch Settings

This chapter describes how to adjust the on-board DIP switch settings.

Refer to the hardware manual to access this DIP switch (SW2).

The factory settings are shown below.

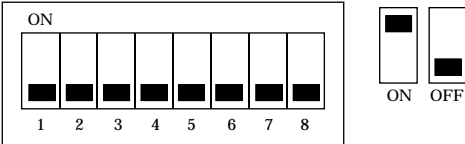


Figure 4.1. DIP Switches - Factory Setting (SW2)

⚠ CAUTION

The on-board dip switch cannot be accessed according to the model. For checking, please refer to each hardware manual.

DIP Switches and Their Functions

DIP Switch (SW2)

Table 4.1. DIP Switch List (SW2)

	Functions	
	ON	OFF
SW2-1	BIOS update option	
	Reprogram the BIOS	Start normally (Default)
SW2-2	System reserved (fixed OFF)	
SW2-3	Boot message output switch	
	Message output	No message output (Default)
SW2-4	System reserved (fixed OFF)	
SW2-5	System reserved (fixed OFF)	
SW2-6	System reserved (fixed OFF)	
SW2-7	Emergency boot setting	
	Emergency bios boot	Normal bios boot (Default)
SW2-8	System reserved (fixed OFF)	

CAUTION

- Do not touch any system-reserved bit in the DIP switch as doing so may cause faults.
- Setting SW2-3 to ON (message output) outputs debug messages to the COM1 port.
You can switch the debug message output port to COM2 by changing the setting using the “System Setting” applet in the Control Panel.
For details, see Chapter 6 “System Setting”.

DIP Switches Available for User

The SH4 CPU & .NET installed IPC series leaves a four-bit DIP switch open to the user. You can obtain bit information on this switch from the CONTEC interface library.

For sample usage, refer to the Platform SDK on the bundled CD-ROM.

- IPC-PT/LS10 series, IPC-PT/LS11 series, IPC-PT/LS15 series,
IPC-PT/LS16 series, IPC-PT/MV10 series, IPC-PT/MV11 series,
IPC-PT/MV15 series, IPC-PT/MV16 series : SW3
- IPC-PT/SV10DC1, IPC-PT/SV15DC1 and IPC-BX/M10DC5 : SW1

5. Function switch, POWER LED and USER LED

This chapter describes the functions switches the POWER LED and USER LED.

Function switch

Some of the .NET installed panel computers in the SH4 CPU & .NET installed IPC series are equipped with function switches.

The following functions are mapped to the function switches.

Key *1	Description *1
F1(■)	Pressing the F1(■) key displays a software keyboard. To dismiss the software keyboard, press the F1(■) key again.
F2(■■)	Pressing the F2(■■) key sends the keyboard's F2 key code to the system.
F3(■■■)	Pressing the F3(■■■) key sends the keyboard's F3 key code to the system.
(■■■■)	Pressing the (■■■■) key sends the F4 keyboard code to the system. (On the IPC-PT/SV10DC1, IPC-PT/SV15DC1)
F1 + F2 (■ + ■)	On the .NET installed panel computer, pressing the F1(■) and F2(■) keys together (*2) decreases the brightness of the backlight of the LCD.
F1 + F3 (■ + ■■■)	On the .NET installed panel computer, pressing the F1(■) and F3(■■■) keys together (*2) decreases the brightness of the backlight of the LCD.

*1 The key names enclosed in () are the names on the IPC-PT/SV10DC1, IPC-PT/SV15DC1.

*2 When pressing a pair of function keys together, press them simultaneously. Pressing one while holding down the other does not activate the function of the key combination.

POWER LED

The POWER LED on this series functions as follows.

- The POWER LED comes on in yellow upon startup of the system. It turns green after a while. If you turn on the power while holding down the Reset button and release it with the LED on in yellow, the system enters the forced reset state.
- During operation of the Windows CE system, the POWER LED serves as the NFDisk access lamp, lighting in yellow during access to NFDisk.

USER LED

The USER LED is included on the IPC-PT/SV10DC1, IPC-PT/SV15DC1 and IPC-BX/M10DC5.

This three-color (green, red, and yellow) LED is available for use by the user and the LED color can be set via the CONTEC I/F library. Refer to the supplied CD-ROM (Platform SDK) for details.

6. System Setting

Windows CE installed on the SH4 CPU & .NET installed IPC series has the “System Setting” icon in the Control Panel as the assorted setting tool to flexibly meet the user’s needs.



System
Setting

CAUTION

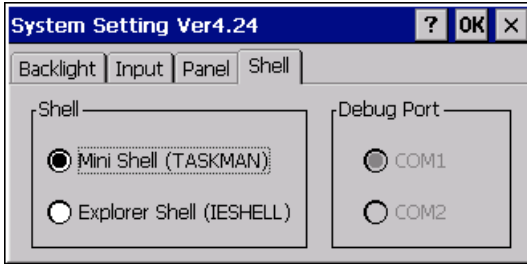
- When you have made changes to system settings, you have to back up the registry to save the new settings to the system.
The changes you made to most of the system settings take effect the next time you start (restart) the system.
 - If you save the registry after selecting SVGA while your system supports only VGA, for example, the system may fail to get started normally.
In such cases, execute a forced reset to start the system restored with the factory settings.
-

System Setting Summary

⚠ CAUTION

System settings may differ depending on the version. Refer to the supplied CD-ROM (Platform SDK) for the latest information.

“Shell” Tab

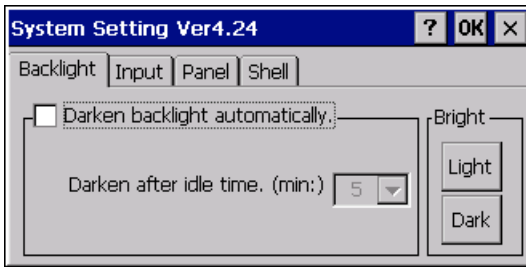


The “Shell” tab provides the following setting items.

Setting tab	Setting item	Description
Shell	Shell	<p>Mini Shell (TASKMAN) Select a simple shell with no taskbar. (Default)</p> <p>Explorer Shell (IESHELL) Select the shell with the taskbar and Start menu as in desktop versions of Windows.</p>
	Debug Port *1	<p>COM1 Output debug messages to COM1 with SW2-3 set to ON (message output).</p> <p>COM2 Output debug messages to COM2 with SW2-3 set to ON (message output).</p>

*1 Debug port output baud rate : 38400bps, 8bits, No parity, 1stop bit

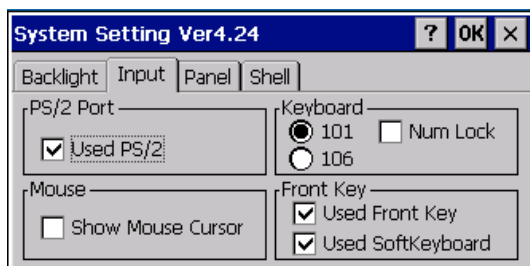
“Backlight” tab



The “Backlight” tab provides the following setting items.

Setting tab	Setting item	Description
Backlight	Darken backlight automatically	Checking this check box turns off the backlight automatically. (Default value : OFF)
	Darken after idle time. (min)	Set the time to turn off the backlight automatically. (Default value : 5 minutes)
	Bright	Adjust the brightness of the backlight.

“Input” tab



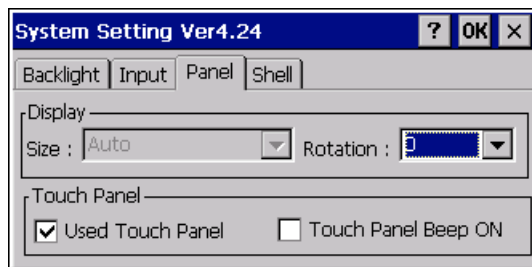
The “Input” tab provides the following setting items.

Setting tab	Setting item	Description
Input	Keyboard	<p>101(USA Keyboard) Select this option if you use a 101-key keyboard. (Default)</p> <p>106(JPN Keyboard) Select this option if you use a 106-key keyboard.</p> <p>NumLock Check this check box to enable the Num Lock key upon startup. (Default: OFF)</p>
	Mouse	<p>Show Mouse Cursor Checking this check box displays the mouse pointer. (Default: OFF)</p>
	PS/2 Port	<p>Used PS/2 *1 Checking this check box enables the PS/2 port. (Default: ON) If your system has a PS/2 port, you can use the PS/2 keyboard and mouse by making this setting. [Note] It takes a bit longer to start up the system with no PS/2 device connected while the PS/2 port has been enabled.</p>
	Front key	<p>Using the front key *2 If the function key on the front side of panel is not needed, leave the check. (default value : ON)</p> <p>Using the software keyboard When the front key is enabled, you can enable/disable the usage of software keyboard. (default value : ON)</p>

*1 The state of model which the PS/2 port is not installed is disabled.

*2 The state of BOX-PC is disabled because the front key is not installed.

“Panel” tab



The “Panel” tab provides the following setting items.

Setting tab	Setting item	Description
Panel	Display	<p>Size *1 This determines the screen size during the startup. Set as follows when the CONTEC LCD display with touch-panel is used.</p> <ul style="list-style-type: none"> - VGA - Display of VGA specification connecting by DVI - SVGA - Display of SVGA specification connecting by DVI - VGA(IPC-SHCL-2T) - Display of VGA specification connecting by IPC-SHCL-2T - SVGA(IPC-SHCL-2T) - Display of SVGA specification connecting by IPC-SHCL-2T <p>When the other LCD display or CRT is used, select the type (VGA or SVGA) suitable for those sizes. When the “Auto” is set, the screen size is VGA. (Default value : Auto)</p> <p>Turn You can turn the screen. (Default value : 0)</p>
	Touch panel	<p>Using the touch panel If the function of touch panel is not needed, leave the check. (default value : ON)</p> <p>Using the beep of touch panel Sounds the touch panel beep at touch panel usage and input. (Default value : OFF)</p>

*1 For PANECON-PC, setting cannot be changed. (Start up by the “Auto” setting.)

7. CONTEC Manager

CONTEC Manager is a program that provides management functions, such as scheduling program execution, loading services, managing user information, managing boot action and displaying system information.

Run/Show/Close/Destroy CONTEC Manager

Run CONTEC Manager

CONTEC Manager program is auto-launched at boot time. If it is not auto-launched at boot time, run “wcemngr.exe” to start CONTEC Manager.

Show CONTEC Manager

Normally CONTEC Manager is not shown, it can be brought to foreground by pressing hot key combine “ALT+ESC” or “CTRL+ALT+DEL”, or by running its executive “wcemngr.exe” again.

Close CONTEC Manager

Press “ESC” key or “Enter” key to close the CONTEC Manager.

Destroy CONTEC Manager

CONTEC Manager can be destroyed by running its executive “wcemngr.exe” again with a command line argument “CONTEC”, that is “wcemngr CONTEC”.

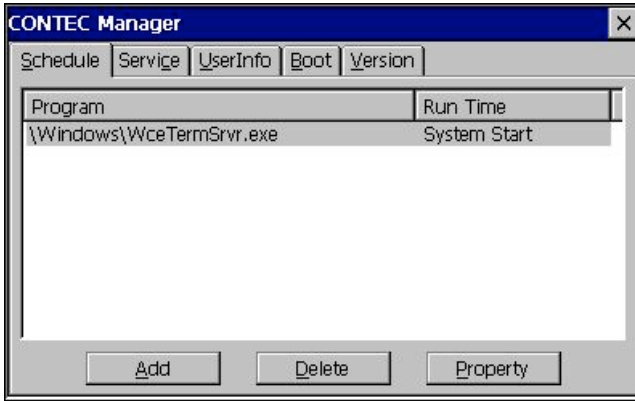
If you press “ESC” key or “ENTER” key to close the CONTEC Manager, it is really not destroyed, only hidden.

Note!

If you destroyed the CONTEC Manager, the scheduling function and the loaded services will no longer functioning. Normally please don't destroy it.

Scheduling Program Execution

Show CONTEC Manager, select the “Schedule” tab.



Add a schedule

Press “Add” button, the “Add Schedule” dialog box is shown.

Set up the dialog content by your demand, press “OK” button or “Enter” key to confirm.

Details about setting up the dialog refer to “Add Schedule” dialog box.

Delete a schedule

Select the schedule wanted to delete in the schedule list. Press the “Delete” button.

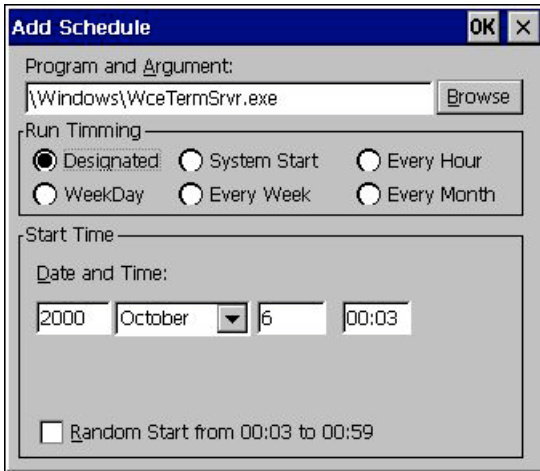
Set property of a schedule

Select the schedule wanted to set up in the schedule list. Press “Property” button, the “Set Schedule” dialog box is shown.

Set up the dialog content by your demand, press “OK” button or “Enter” key to confirm.

Details about setting up the dialog refer to “Set Schedule” dialog box.

“Add Schedule” and “Set Schedule” dialog box



Set Program and its argument

Press “Browse” button to browse a program, the program name will be set to the “Program and Argument:” edit box. If the program needs arguments, input the arguments directly behind the program name.

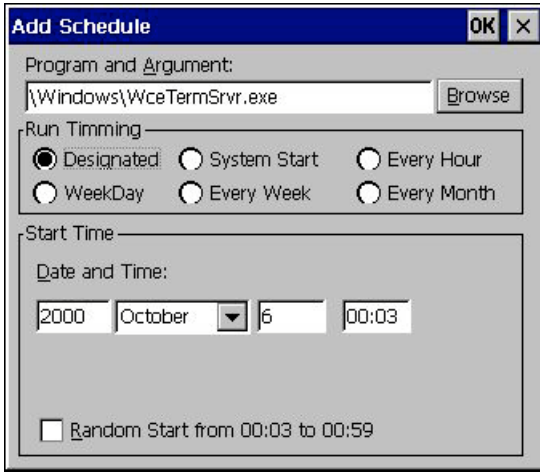
Run Timing Modes

There are six timing modes, “Designated”, “System Start”, “Every Hour”, “WeekDay” “Every Week”, “Every Month”. The meanings of the modes are following.

- “Designated” : The program is run only once at designated date and time.
- “System Start” : The program is run every time the CONTEC manager is started. For the CONTEC Manager is normally auto-launched at system start, so the setting program is run every time the system starts. If the program’s run timing is set as “System start”, it can be selected to run depend on other programs. When all the dependent programs are started and ended, the program is begun to start.
- “Every Hour” : The program is run at the designated minute every designated hours. For example, run at every 8:30, 16:30 and 0:30 every day.
- “WeekDay” : The program is run at every designated week day. For example, run at 8:30 every Monday, Wednesday and Friday.
- “Every Week” : The program is run at designated weekday every week. For example, run at 8:30 every Monday.
- “Every Month” : The program is run at designated day and time every month. For example, run at 8:30 o’clock, 15th every month.

Setting “Designated” Mode

Select “Designated” radio button in “Run Timing” group box.



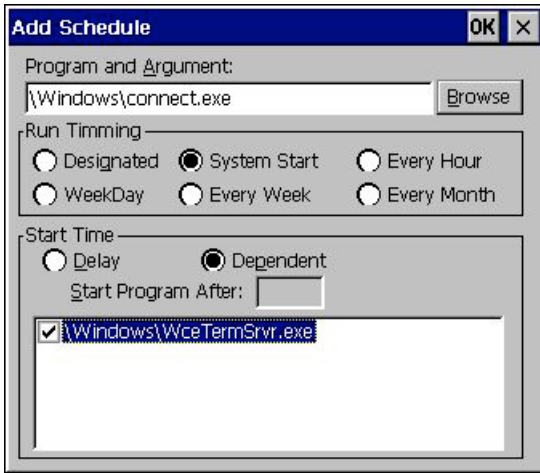
The current date time is displayed in the “Date and Time” edit boxes and combo boxes in the “Start Time” group box.

Checking the “Random Start from xx:xx to yy:yy” option executes the program at a random time between xx:xx and yy:yy.

Even when two or more units in the SH4 CPU & .NET installed IPC series exist with the same settings, this allows the program to start running at different times.

Setting “System Start” Mode

Select “System Start” radio button in “Run Timing” group box.

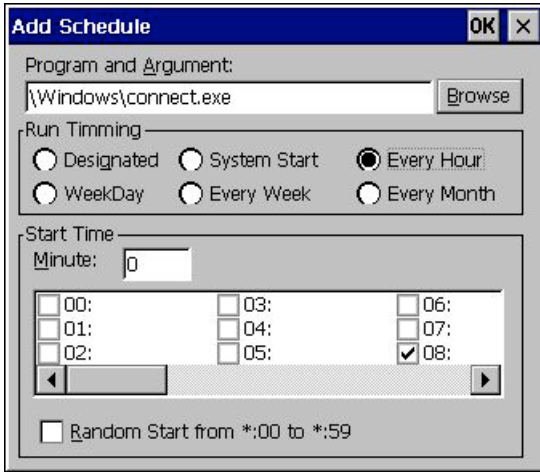


There are two “System Start” modes.

- “Delay” mode : This mode allows you to specify the time from when the system starts up to when a specified program runs by setting a delay time in the “Start Program After :” edit box. When “00:00” is set, the specified program runs immediately after the system starts up. For example, when “00:01” is set, the specified program runs one minute after the system starts up.
- “Dependent” mode : This mode allows you to run a specified program in a dependent manner, according to the end of another program. The dependent program starts up when all of the programs that it is dependent on are exited. You can make the program dependent on other programs which are listed in the dependent list box. You can create a dependent relationship by checking a program shown on the program list of the dependent list box when selecting a program to be depended on.

Setting “Every Hour” Mode

Select “Every Hour” radio button in “Run Timing” group box.



Input the start minute in the “Minute” edit box.

Check the hours wanted to set in the hour list box. You can check multiple hours.

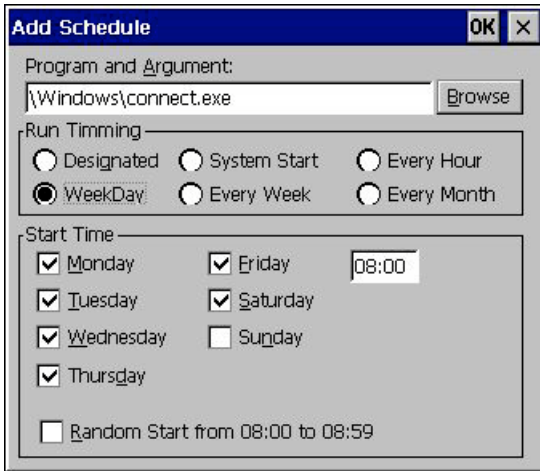
For example, if you check “8:”, “16:” and “0:”, and the minute is 30, then the program will be run at every 8:30, 16:30 and 0:30 every day.

“Random Start from *:?? to *:59” function

If you check the “Random Start from *:?? to *:59” check box, the program will be start randomly from ?? minute to 59 minute at designated hour. The “??” part in “Random Start from *:?? to *:59” check box is the minute you input in the minute edit box. The random start function is provided for reducing network overhead when many Windows CE devices do the same action at one time.

Setting “WeekDay” Mode

Select “WeekDay” radio button in “Run Timing” group box.

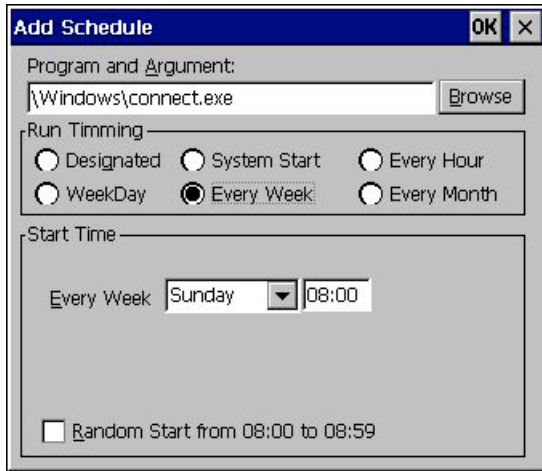


This mode allows you to designate days of the week and specify a time in the edit box to run the program on the designated days every week at the specified time.

For example, Check “Monday”, “Wednesday”, and “Friday”, and input time “8:30”, the program will be run at 8:30 every Monday, Wednesday and Friday.

Setting “Every Week” Mode

Select “Every Week” radio button in “Run Timing” group box.

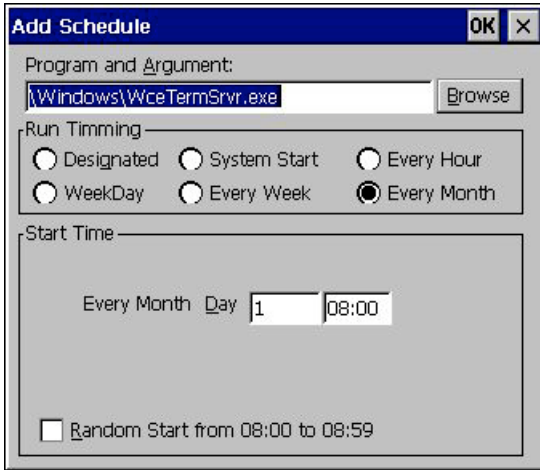


This mode sets the day of the week and the time for the specified program to be run every week.

For example, Select “Monday”, and input time “8:30”, the program will be run at 8:30 every Monday.

Setting “Every Month” Mode

Select “Every Month” radio button in “Run Timing” group box.



This mode allows you to designate a date and time in the “Day” edit box to run the specified program at the specified time on the specified date every month.

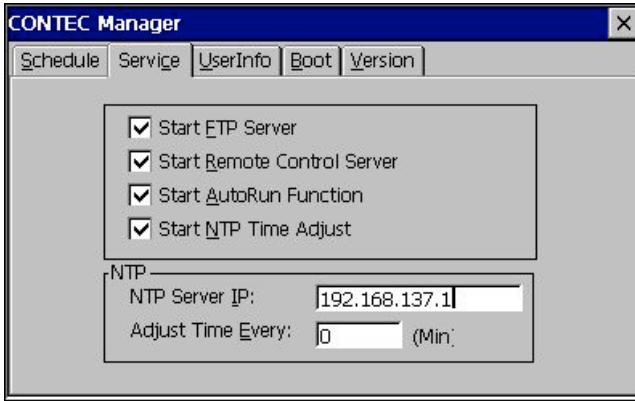
For example, 15 in the “Day” edit box, input “8:30” in time edit box. The program will be run at 8:30 o’clock, 15th every month.

“Random Start from ??:?? to ??:59” function

If you check the “Random Start from ??:?? to ??:59” check box, the program will be start randomly “from ??:?? to ??:59”. The “?:?” part in “Random Start from ??:?? to ??:59” check box is the time you input, The “?:59” part is the 59 minute of the hour you input. The random start function is provided for reducing network overhead when many Windows CE devices do the same action at one time.

Loading services

Show CONTEC Manager, select the “Service” tab.



There are 4 services to load, that is “FTP Server”, “Remote Control Server”, “Auto Run Function”, and “NTP Time Adjust”.

FTP Server

To load “FTP Server” service, check the “Start FTP Server” check box.

If the “FTP Server” is started, the remote FTP client can access the Windows CE file system by FTP protocol.

Remote Control Server

To load “Remote Control Server” service, check the “Start Remote Control Server” check box.

If the Remote Control Server Function is started, the “CONTEC Remote Manager” can control the Windows CE device.

AutoRun Function

To load “AutoRun” service, check the “Start Auto Run Function” check box.

If the AutoRun Function is started, when an ATA card or Compact Flash Card is inserted into the card slot, the AutoRun function will try to find the autorun.inf file in the card. If there exists an autorun.inf, AutoRun will run programs set in the autorun.inf.

NTP Time Adjust

To load “NTP Time Adjust” service, check the “Start NTP Time Adjust” check box.

Designate a NTP server IP address in the “NTP Server IP” edit box.

Input time length in the “Adjust Time Every:” edit box in minutes. If “0” is selected, the NTP server will be accessed only once at startup of CONTEC Manager.

If the NTP Time Adjust Function is started, the Windows CE device will acquire the current time from the specified NTP server to set the system time.

Manage the user information

Show CONTEC Manager, select the “UserInfo” tab.



The user information is used in CONTEC services, such as “FTP Server”, “Remote Control Server”, as “Windows CE Terminal Server”. Only the user listed the “User List” can access CONTEC servers. User information includes user name and password. User name and password are 8 characters string.

Add a user

Input user name in the “Name” edit box, input password in the “Password” and “Re-Password” edit box. Press “Add” button.

Update a user’s information

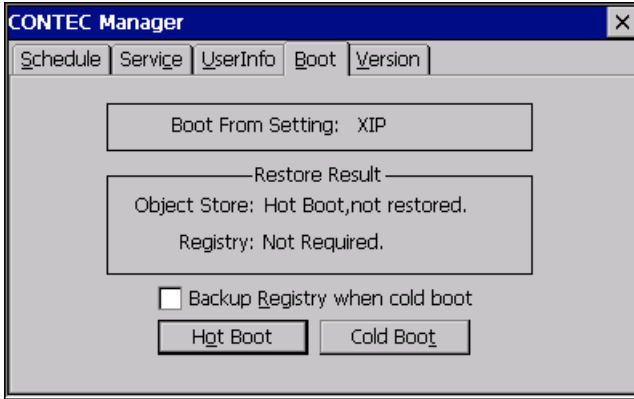
Select a user in the “User list”, Change the user name in the “Name” edit box, or change the password in the “Password” and “Re-Password” edit box. Press “Update” button.

Delete a user

Select the user wanted to delete in the “User list”, Press “Delete” button.

Manage boot action

Show CONTEC Manager, select the “Boot” tab.



Boot action

To Hot Boot the device, press “Hot Boot” button.

When the device is hot boot. The NK.bin OS Image will not be reloaded., the objectstore and registry remain the same after hot boot.

To Cold Boot the device, press “Cold Boot” button. When the device is cold boot, the NK.bin OS Image will be reloaded from the designated boot device.

“Backup Registry when cold boot” check box :

When the CONTEC Manager detected that the settings in itself have been changed. To save any change made to the registry via the Control Panel or Registry Editor, cold-boot the device with this option checked.

If you have not checked this check box when you cold boot, the CONTEC manager will not backup the registry, all the changed setting in the CONTEC manager will be lost after the cold boot!!!. If you want to restore the current registry setting after cold boot, please check this check box.

Boot Information

“Boot From Setting” describes the current boot device setting. The device can be “XIP” and “Emergency”, “Emergency” means current setting is Emergency boot, i.e, the SW2-7 is ON.

“Restore result” “Object store” describes the Object store restore status.

“Restore result” “Registry” describes the Registry restore status.

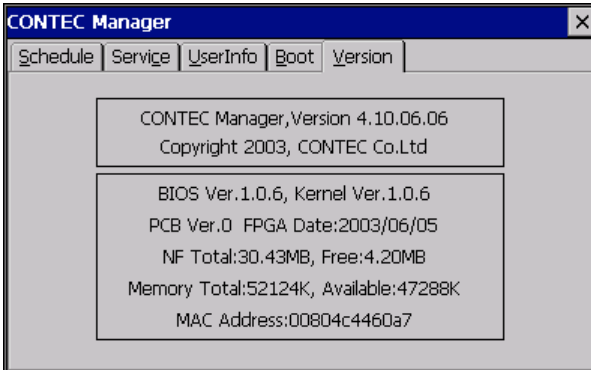
Restore status

“Hot Boot,not restored.”: Not restored for the device is hot booted.

“Restore success.”: The restore is succeed at boot time.

Version and system information

Show CONTEC Manager, select the “Version” tab.



- Version information : The CONTEC Manager’s version, BIOS Version, Kernel Version is displayed here.
- Motherboard information : The PCB number and FPGA production date are displayed here.
- NFDisk information : The total capacity of NFDisk and the size of its free space are displayed here.
- Memory information : The total memory size and available memory size is displayed here.
- Network information : The Ethernet Card MAC address is displayed here.

Change the Title of the CONTEC Manager

By default, the title of the CONTEC Manager is “CONTEC”. You can change the content of the title by modifying the registry.

Table 7.1. Registry Key and value :

[HKEY_LOCAL_MACHINE\Ident]		
Item	Data Type	Description
OEMName	REG_SZ	Input the wanted title here, for example “DAIFUKU”

If you’ve changed the title to “DAIFUKU”, the CONTEC manager will display as following :

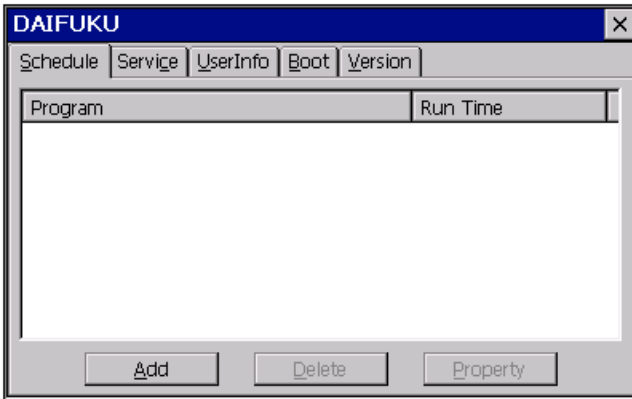


Figure 7.1. CONTEC Manager with the title changed

8. NFDisk-related Processing

The SH4 CPU & .NET installed IPC series has onboard NAND Flash ROM (hereafter abbreviated NF) mounted as NFDisk to be accessible from within Windows CE .NET 4.2.

The system uses part of NFDisk to save the registry (REG3.bin) and ObjectStore files (NFDisk\Update).

NFDisk is used for ObjectStore and registry files as follows.



CAUTION

NFDisk stores data on Compact Flash media. Accordingly, there is a limit to the number of times data can be rewritten. Refer to the hardware manual for details.

ObjectStore files

Object store Backup and Restore

Restore ObjectStore

To update the standard module in NK.BIN, store the update module in the \NFDisk\Update directory.

At startup, this series copies the content of the \NFDisk\Update directory to the root directory and the content of the \NFDisk\Update\Windows to the Windows directory.

For example, when updating the serial driver (serial.dll), this series copies the new serial driver (serial.dll) to the \NFDisk\Update\Windows directory to copy the new serial driver to the Windows directory at startup.

This completes the updating process of the serial driver.

Not to restore ObjectStore

Delete the contents of the \NFDisk\Update directory or execute a forced reset.

Registry Backup and Restore

If you make changes to system settings via the Control Panel, the new settings are saved to the registry. The settings are lost unless backed up. To save them, therefore, be sure to back up the registry.

Backup Registry

To back up the registry, invoke CONTEC Manager, select the “BOOT” tab, check the “Backup Registry when cold boot” check box, then press the [Cold Boot] button to restart the system.

CAUTION

Registry backup takes time.

During backup with the access lamp lit in yellow, neither turn off the power nor reset the system.

The system will be restarted with the new settings upon completion of registry backup.

9. Force Reset Functions

When you set something different to support by using [System settings panel] or NFDisk is damaged and so could not boot, the system can be reset to the default state by using the forced reset.

To perform a force reset, switch the power on while push the “Reset” button of the SH4 CPU & .NET installed IPC series and release the “Reset” button when the lighting of “ACCESS” LED (in case of the PANECON-PC, the LED below the front side of the panel) changes from orange into green (about 2 or 3 seconds after it turns on power).

CAUTION

If a force reset is performed, the system setting will be return to the default setting; the registry and object store will not be restored.

10. BIOS Update Function

The SH4 CPU & .NET installed IPC series is capable of updating the BIOS when it is upgraded. To update the BIOS, take the following steps.

1. Start the system and use CONTEC Manager to check the version of the current BIOS.
2. Copy new BIOS data to the NFDisk's root directory.
3. Turn off the power and set the onboard DIP switch (SW2) appropriately.
Set only SW2-1 to ON and all the other bits to OFF (For details of the onboard DIP switches, refer to Chapter 4 "On-Board DIP Switch Settings").
4. Turn on the power again.
5. When the power is turned on, the POWER LED blinks in yellow and green at intervals of about seven seconds.
Note : The new BIOS is being programmed into EEPROM when the POWER LED is blinking that way.
After a while, the POWER LED blinks in green at intervals of about one second.
This state indicates that the BIOS has been reprogrammed.
6. Turn off the power and return the onboard DIP switch back to the previous states.
Set all the bits in the DIP SW2 to OFF.
7. The BIOS has now been updated completely. Recycle the power to restart the system, invoke CONTEC Manager, and select the "Version" tab to check the version of the new BIOS.



CAUTION

The SH4 CPU & .NET installed IPC series contains the emergency BIOS for recovery in case the BIOS fails to be reprogrammed. At worst, however, updating the BIOS still involves a risk that the system comes to be unable to be restarted.

Use meticulous care in updating the BIOS. Never turn off the power or reset the system when the BIOS is being updated.

11. Emergency Boot Function

The SH4 CPU & .NET installed IPC series has duplicated BIOSes (normal BIOS and emergency BIOS) for BIOS protection purposes.

With the dual-BIOS architecture, the system can be restarted by booting from the emergency BIOS even if the normal BIOS develops a problem.

To perform emergency booting, or to boot the SH4 CPU & .NET installed IPC series from the emergency BIOS, remove the upper cover from the main unit, set SW2-7 to ON (see Chapter 4 “On-Board DIP Switch Settings”), then turn on the power.

12. Auto RUN Function

When the user want to setup many machine to same setting, or to perform same action automatically, the Auto-Run function is useful.

In this case, the function allows you to write the file containing the processing sequence (AutoRUN.inf) on the ATA card and plug that card in to carry out the processing in accordance with the sequence written in AutoRUN.inf.

The Auto-Run function is a very effective tool to use in the above situation.

CAUTION

While the Auto-Run function has been working for an ATA card, it does not work for any other ATA card containing AutoRUN.inf even when the other card is plugged. Before the Auto-Run function can work for the second ATA card, unplug the currently active ATA card and plug the new ATA card.

Usage of Auto-Run function

If user wants to use Auto-Run function, the “Start AutoRun Function” check box in “Service” tab of “CONTEC Manager” must be checked.

Note!

If status of the “Start AutoRun Function” check box in “Service” tab of “CONTEC Manager” is changed, it will be take effect at the next the system is booted.

Method to set AutoRun.inf

For using auto-run function, the AutoRun.inf file must be described in following formation.

Command		Description
#wait	Value	Wait for value designated time period. The unit is millisecond. For example, to wait for a second, set 1000.
	Depend	If "Depend" is set, this command is started until the previous command is ended.
;		If ";" is set, this line is regarded as a comment line.

Sample:

```
; AutoRUN.inf sample file
; for Example INF File Format
; Run test1.exe in the "\storage card" directory. If the file name includes blank,
; include the file name between two quotation marks.
"\storage card\test1.exe" /a /b /c"
; "#wait depend" command, wait for the previous command to end
#wait depend
; Run test2.exe in the "\Windows" directory.
; If the file name does not include blank, the quotation marks are not necessary.
\windows\test2.exe
; "#wait value" command, Wait for value designated time period in milliseconds.
#wait 1000

; Run test3.exe, If the program's path is not designated, the program in the PC card,
; where the AutoRUN.inf exists, is started.
    test3.exe

; You can escape a double quotation mark " in an argument by preceding it with another double quote as
""".

; For example, \windows\cmd.exe /c ""\storage card\abc.bat"" can be defined in AutoRUN.inf as follows:
\windows\cmd.exe /c """"storage card\abc.bat"""""
```

13. Appendix

How to Develop Applications for Windows CE

Development Environment

For the SH4 series with Windows CE .NET 4.2 installed, the following development languages can be used to develop applications:

- eMbedded Visual C++ 4.0
- Visual Studio .NET 2003
 - Visual Basic and Visual C# can be used as Net Compact Framework development languages.

For debugging the WindowsCE application is performed by remote debug method, a LAN environment is also necessary.

System requirements

<eMbedded Visual C++ 4.0>

- Computer with the Pentium II or a higher processor. A 450 MHz or faster processor is recommended.
- Windows 2000 Professional SP2 or later, Windows 2000 Server SP2 or later, or Windows XP Professional. *1
- 96 MB of RAM for Windows 2000 Professional or Windows XP Professional (at least 128 MB recommended) or 192 MB of RAM for Windows 2000 Server (at least 256 MB recommended).
- CD-ROM drive
- VGA or higher-resolution monitor. SVGA (800 x 600 or more) is recommended.
- Mouse or a compatible pointing device
- Hard disk drive with a free space of at least 200 MB
- Network Interface Card
- Network Accessories such as UTP Cable and HUB (100/10BASE-T)

<Visual Studio .NET 2003>

- Computer with a processor equivalent to the 450-MHz Pentium II or higher. A processor equivalent to the 600-MHz Pentium III or higher is recommended.
- Windows Server 2003, Enterprise Edition, Windows Server 2003, Standard Edition or Windows XP Professional, Windows XP Home Edition or Windows 2000 Professional Service Pack 3 or higher, Windows 2000 Server Service Pack 3 or higher, Windows 2000 Advances Server Service Pack3 or higer. *1
- Windows Server 2003, Enterprise Edition / Standard Edition :At least 192 MB of RAM is required. Windows XP Professional : At least 160 MB of RAM is required. Windows XP Home Edition : At least 128 MB of RAM is required. Windows 2000 Professional : At least 96 MB of RAM is required. Windows 2000 Sever / Advanced Server : At least 192 MB of RAM is required.

- The system's drive and the drive to install Visual Studio .NET 2003 require at least 900 MB and 3.3 GB of free space, respectively. An additional free disk space of at least 2.0 GB is required for optionally installing the documents for MSDN Library.
 - Monitor capable of displaying at a resolution of at least 1024 x 768 pixels in at least 256 colors (a monitor supporting Hi-Color is recommended.)
 - CD-ROM drive
 - Mouse or a compatible pointing device
 - Network Interface Card
 - Network Accessories such as UTP Cable and HUB (100/10BASE-T)
- *1: A network environment (TCP/IP) must have been installed. Although it can be either the DHCP or fixed-IP environment, the IP address of the development machine is required for connection to the target machine.

Software (Development tool)

<eMbedded Visual C++ 4.0>

- eMbedded Visual C++ 4.0
Downloadable from
<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=1DACDB3D-50D1-41B2-A107-FA75AE960856>.
- eMbedded Visual C++ 4.0 Service Pack 3
Downloadable from
<http://www.microsoft.com/downloads/details.aspx?FamilyID=5bb36f3e-5b3d-419a-9610-2fe53815ae3b&displaylang=en>
- SDK for CONTEC Platforms (abbreviated as 'CONTEC SDK' in following article)

<Visual Studio .NET 2003>

- Visual Studio .NET 2003
- Windows CE Utilities for Visual Studio .NET 2003 Add-on Pack
Downloadable from
<http://www.microsoft.com/downloads/details.aspx?FamilyId=7EC99CA6-2095-4086-B0CC-7C6C39B28762&displaylang=en>

Development Machine Software Installation

<eMbedded Visual C++ 4.0>

You should install the development machine software (Development tool) in the following order:

1. eMbedded Visual C++ 4.0 Installation
2. eMbedded Visual C++ 4.0 Service Pack 3 Installation
3. CONTEC SDK Installation

If you want to uninstall the above software, uninstall each software in the reverse order. If any files remain after uninstall, please delete them manually.

<Visual Studio .NET 2003>

Install software (development tools) on the development machine in the following order:

1. Visual Studio .NET 2003 Installation
2. Windows CE Utilities for Visual Studio .NET 2003 Add-on Pack

Set Target Machine IP Address

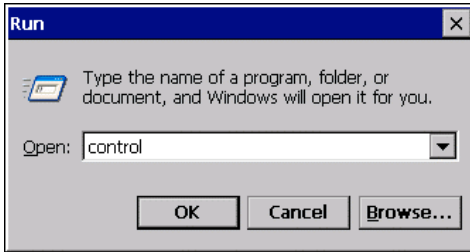
If there is a DHCP server on the network, you do not need to set the IP address. If not, you have to set a fixed IP address to the development machine and to the target machine.

The following shows how to set the target machine IP address.

CAUTION

If you turn off the power without saving the target machine's IP address after changing it, the IP address reverts to its previous setting.

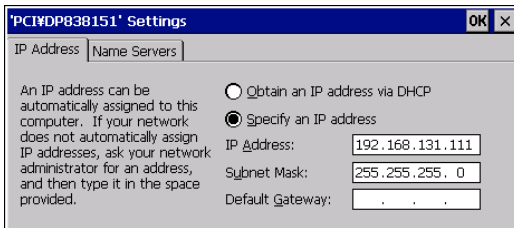
- 1) Start the control.exe according to method described in chapter 2 “Basic operation of SH4 Series”.



- 2) Start [Network and Dial-up Connection] at the control panel. Double click on the “PCI-DP838151” icon.



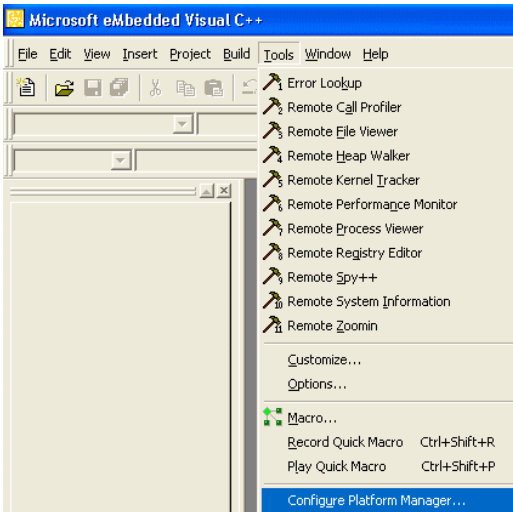
- 3) Select [Specify an IP Address] at [IP address] tab of ['PCI\DP838151' Settings] dialog box. Input [IP Address] and [Subnet Mask] – Push the [OK] button.



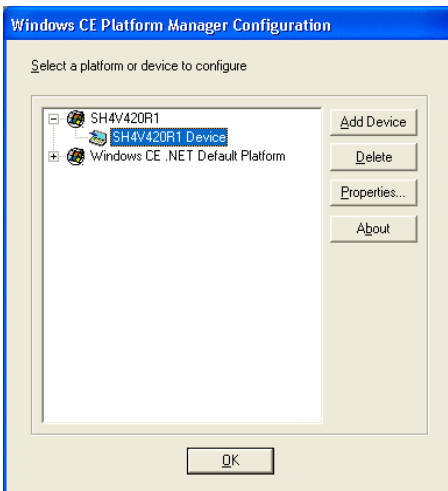
- 4) Close the “Network and Dial-up Connection” window.
- 5) Close the control panel.
- 6) The IP address has been changed by now; if you want to remember the change even you re-boot the device. Please follow the next steps.
- 7) Press “CTRL+ALT+DEL” hot key to pop up “CONTEC Manager”, check the “Backup Registry when cold boot” checkbox, and press “Cold boot” button to reboot the device.
- 8) Once Windows CE is restarted on the target machine, the specified IP address will be assigned.

Checking the Connection between the Development and Target Machines (eMbedded Visual C++ 4.0)

- 1) Start eMbedded Visual C++ (eVC++) on the development machine.
- 2) Select “Tools”→“Configure Platform Manager” menu in eVC++.



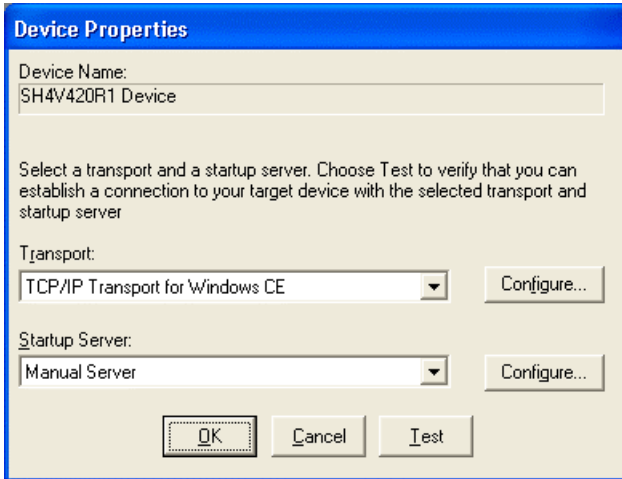
- 3) Select [SH4V420R1 Device] as configuration device in [Windows CE Platform Manager Configuration] dialog box – Press the [Properties] button.



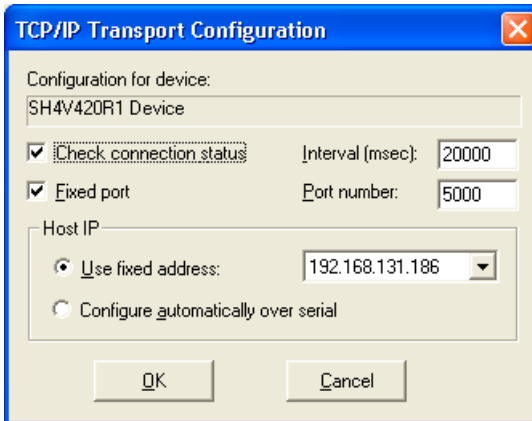
- 4) The [Device Properties] dialog box pops up.

Select [TCP/IP Transport for Windows CE] in the [Transport] combo box.

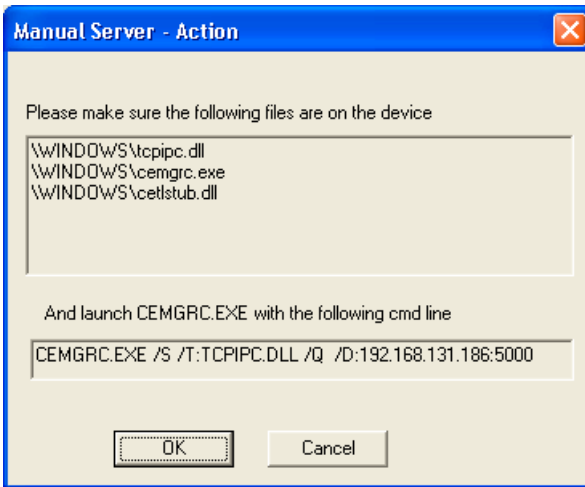
Select [Manual Server] in the [Startup Server] combo box.



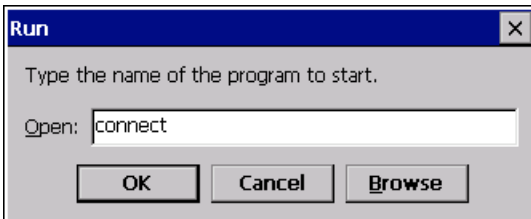
- 5) Select [Configure] button on the right side of the [Transport] part. The [TCP/IP Transport Configuration] dialog box pops up. Check the [Fixed Port] checkbox, and Input 5000 in the [Port Number]. Click [OK] button.



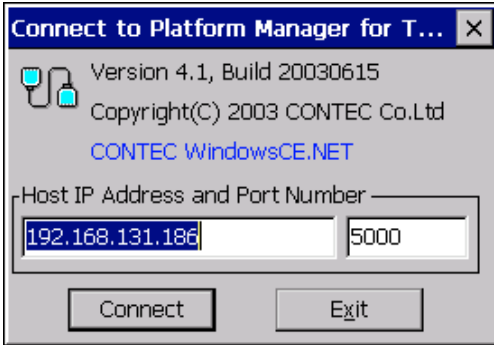
- 6) Select [Test] button at [Device Properties] dialog box.
[Manual Server - Action] dialog box is displayed.



- 7) Start the control.exe on the target machine, according to the method described in Chapter2 "Basic operation of SH4 Series".



- 8) [Connect to Platform Manager for TCP/IP] dialog box is displayed. Type IP address of the development machine into [Host IP Address and Port Number]. Type port number into [Port Number] that you entered in procedure 5.



(If the [Exit] button is pushed, the IP address and port number will be saved to the registry, and the connect.exe will be end.

If the IP address or the port number is empty, you will unable to exit. If you really want to exit push the "X" button on the right-top corner.)

- 9) Select [OK] at [Manual Server - Action] dialog box of the development machine.
- 10) Press the [Connect] button at [Connect to Platform Manager for TCP/IP] dialog box of the target machine.
- 11) Test the connection between the development machine and the target machine starts.
- 12) If the test result is successful, the message [Connection to device established] is displayed on [Testing Device Connection] dialog box in the development machine. Select [OK].



- 13) This completes the connection check between the development machine and target machine.

- 14) If the test result fails, the message [Establishing platform manager connection to device] will be displayed in [Testing Device Connection] dialog box in the development machine. Select [Cancel]. Check all the previous steps again. Check network equipment and so on. Retry this test procedure.

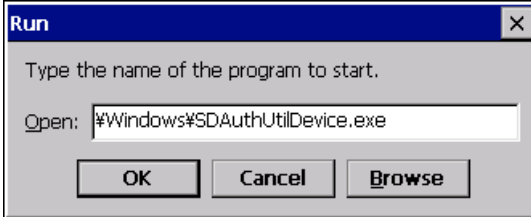


- 15) If the development machine fails to be connected to the target machine even after taking Step 14) above, change the port number to be used to a number (for example, 5100) other than 5000 (in the port number fields set in Steps 5) and 8) above) to retry connection. If it still fails to establish the connection, uninstall the software from the development machine and reinstall it. For uninstalling the software, please refer to the uninstall steps described in the Chapter 13 “Appendix: Development Machine Software Installation“.

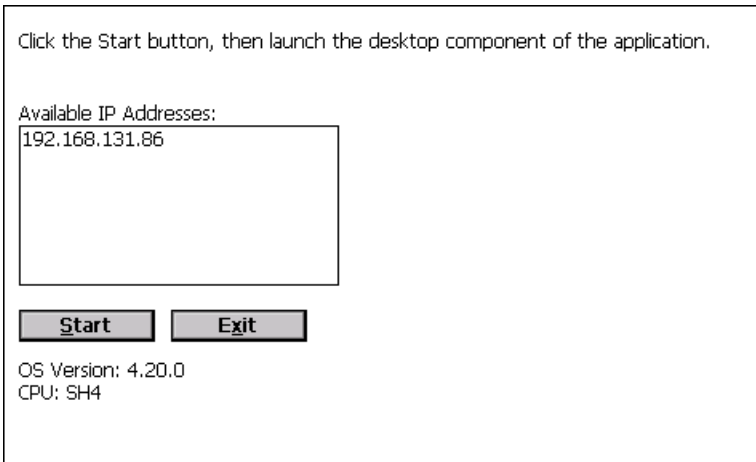
Checking the Connection between the Development and Target Machines (Visual Studio .NET 2003)

- 1) Run \Windows\SDAuthUtilDevice.exe on the target machine.

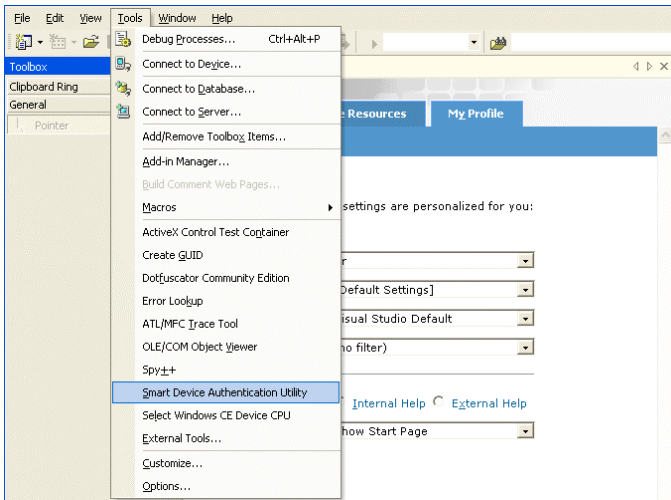
According to Chapter2, “Basic operation of SH4 Series”, start SDAuthUtilDevice.exe on the target machine.



- 2) Click on [Start].



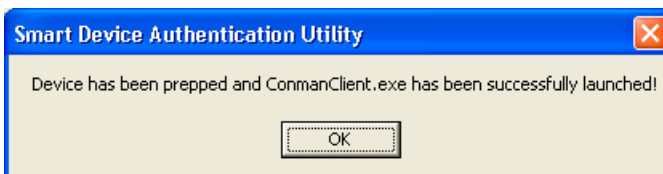
- 3) Start Visual Studio .NET 2003 (it is hereafter abbreviated VS.NET) and then click on the [Smart Device Authentication Utility] from [Tools] menu of VS.NET.



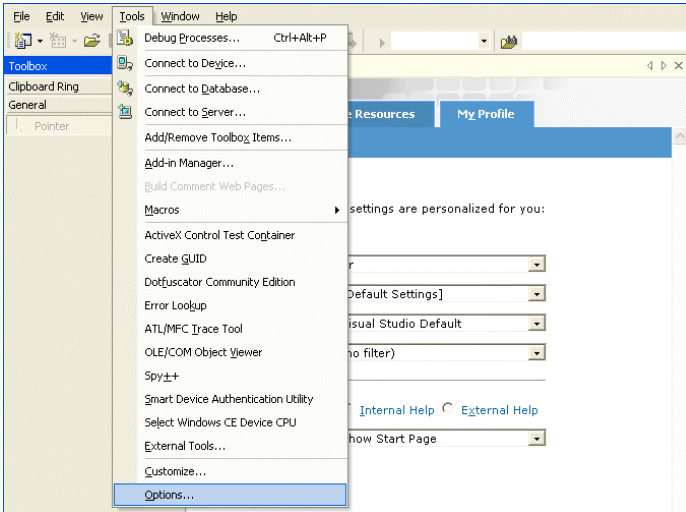
- 4) Enter the IP address of target machine in [Device IP address] box.



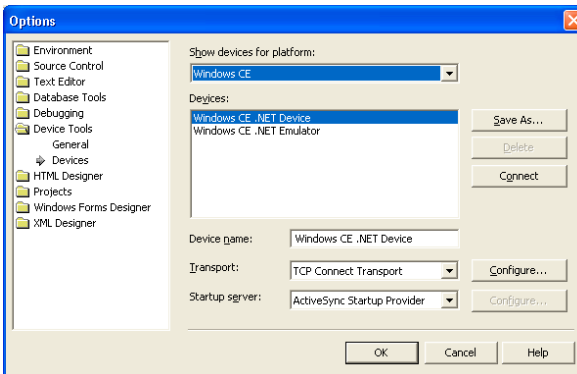
- 5) Click on [Set Up Device], and you will see the following dialog box. Click on [OK]. You have now successfully finished connecting the development machine to the target machine.



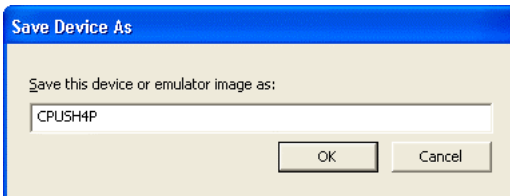
- 6) Set up the debugging environment. Click on [Options] from the [Tools] menu of VS.NET.



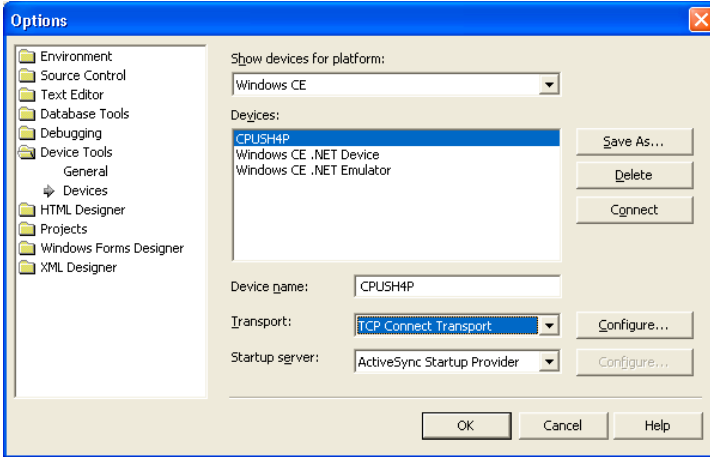
- 7) Click on [Device Tools] and then click on [Devices]. After that, select [Windows CE] in the [Show devices for platform] box.



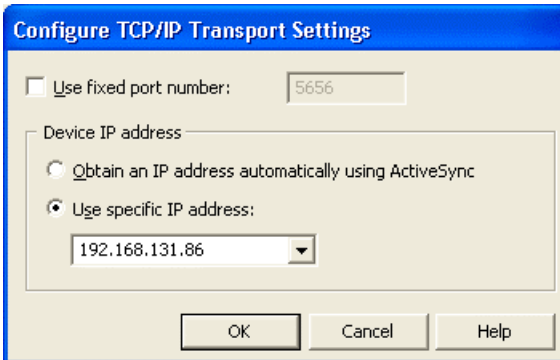
- 8) Select [Windows CE .NET Device] from the [Devices:] list, then click on [Save As...]. Then, enter the new name in the box (in this case, the name is "CPUSH4P") and click on [OK].



- 9) Click on [TCP Connect Transport] in the [Transport] box.



- 10) Click on the [Configure...]. (Click on the [Configure...] on the right of [Transport].) Click on [Use specific IP address] and then enter the IP address of target machine.



- 11) Click on [OK]. You can now debug and deploy Windows CE .NET 4.2 applications created with VS .NET.

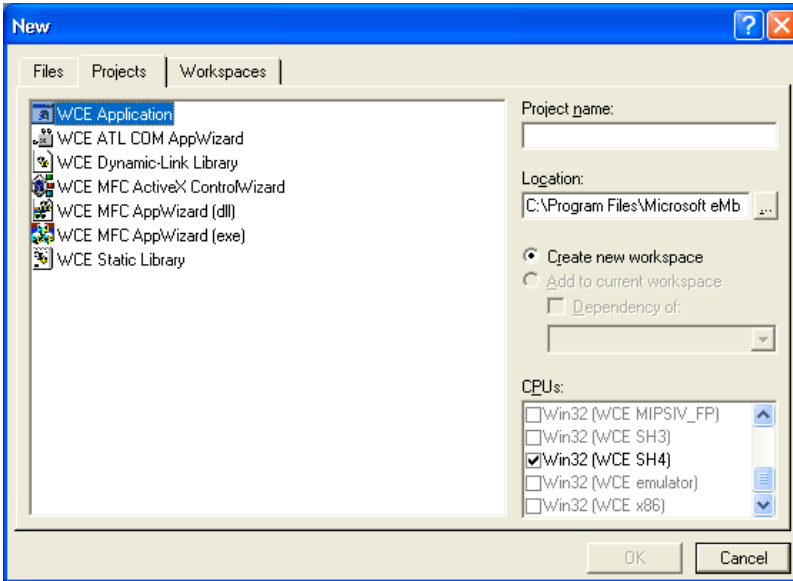
Developing Applications by eMbedded Visual C++4.0

Windows CE applications are developed by using eMbedded Visual C++ 4.0 's Application Wizard.

⚠ CAUTION

Some APIs and MFC classes are not supported by Windows CE.

- 1) Start eVC++4.0 on the development machine.
- 2) Select [New] in [File] menu of eVC++4.0. [New] dialog box is displayed.



- 3) Enter [Project name:] and [Location:] just like Windows 95/98/NT application projects.
- 4) Select a project type starting with WCE and set it according to the wizard.
- 5) Then, complete the task following the same procedure as for application development for Windows 95/98/NT.

Make sure to select [SH4V420R1] [SH4V420R1 Device] for [WCE configuration].

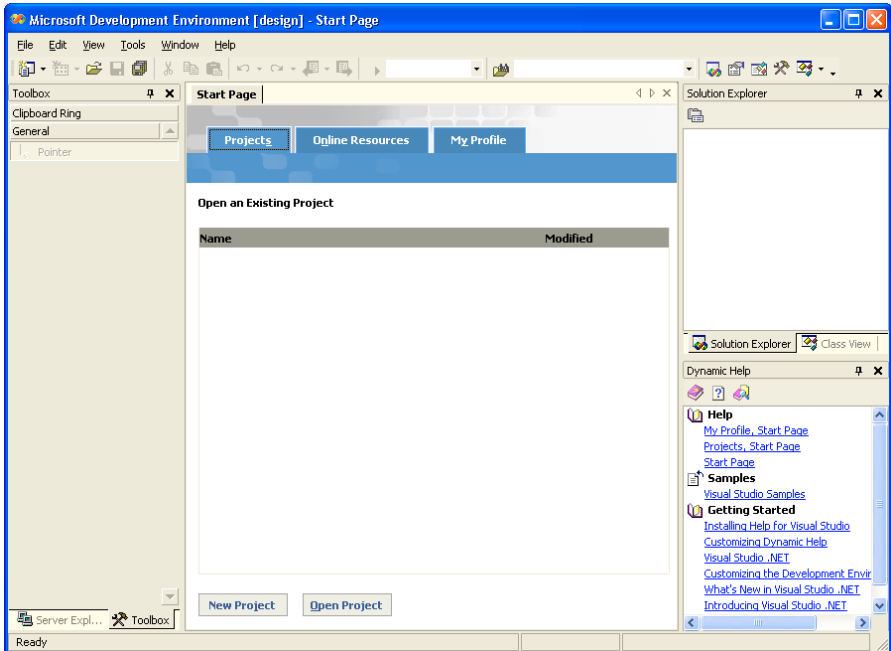


Application development using Visual Studio .NET 2003

Develop an application for Windows CE using application wizard of Visual Studio .NET 2003 (it is hereafter abbreviated VS.NET).

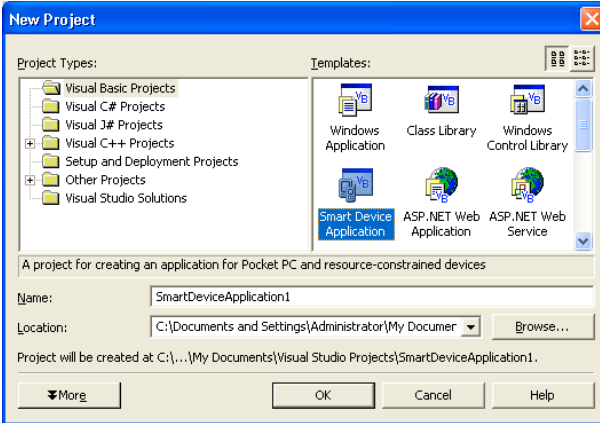
Both of Visual Basic and Visual C# can be used for developing Windows CE applications. This section explains how to use Visual Basic.

- 1) Start the VS.NET using the development machine.



2) Click on [Visual Basic Projects] button. After “New Projects” windows is opened, select or enter from the following items and then click on [OK] button.

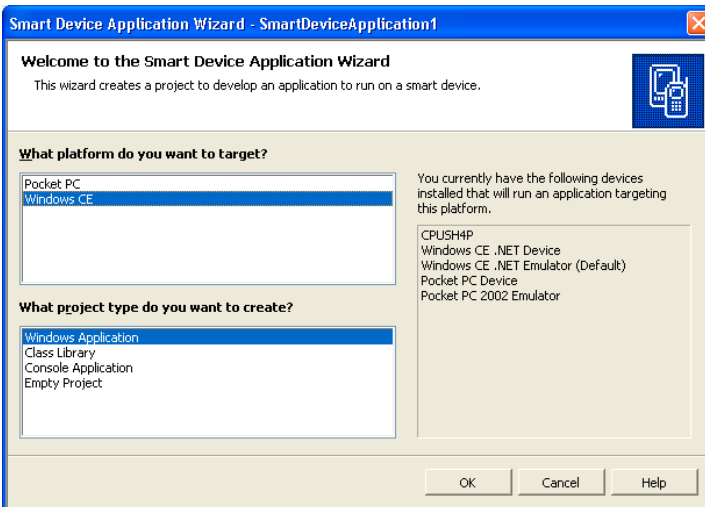
- Project types : Visual Basic Projects
- Templates : Smart Device Application
- Name : Enter the voluntary name (in this case, name is SmartDeviceApplication1).



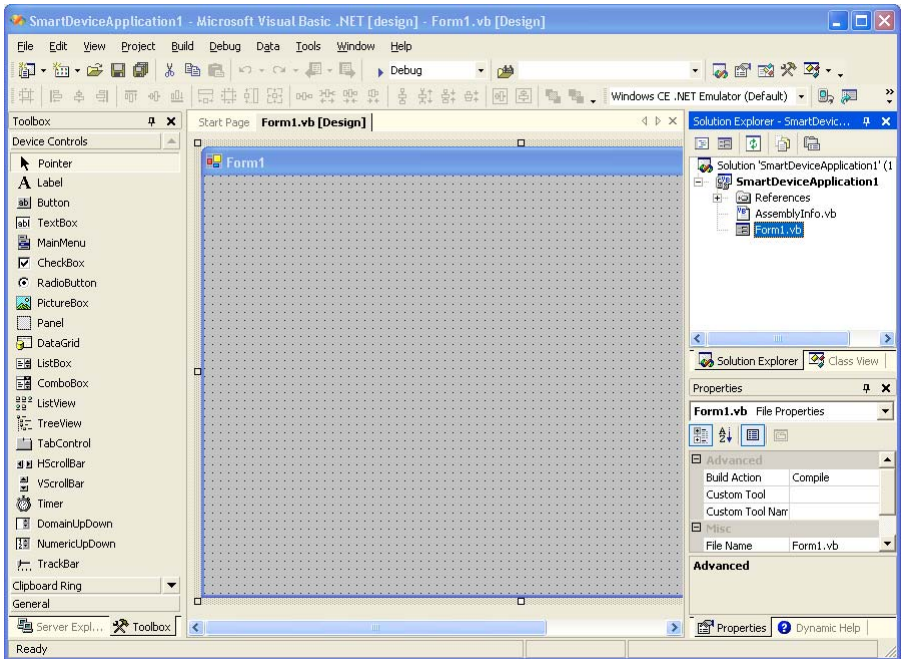
3) Set the device to target, type of application to make out after the Smart Device Application Wizard is displayed.

- Select the platform to target : Windows CE
- Select the project type to make out. : In this case, select the Windows application.

After finishing selecting, click on [OK] button.



- 4) Taking these steps completes preparations for creating Windows CE applications, invoking the development environment.



- 5) After that, Operate in the same way as desktop application development. In the [Device to deploy] field, select the device name entered in step 8) of “Checking the Connection between the Development and Target Machines”. In this case, the name is “CPUSH4P”.



Download application

<eMbedded Visual C++ 4.0>

In eMbedded Visual C++4.0 (eVC++4.0) after the application is built, it is automatically downloaded to the target machine by the default setting.

If [Manual Server - Action] dialog box is displayed while downloading, please connect the development machine to the target machine by following the steps starting at step 7) of “Check Connection between Development Machine and Target Machine”. In the Step 8, please type '5000' in [Port Number] at [Connect to Platform Manager for TCP/IP] dialog box of the target machine.

After building the application you can also download the application file manually. The following is the manual download operation.

- 1) Select [Update Remote Output Files] at [Build] menu of eVC++4.0.
- 2) [Manual Server - Action] dialog box will be displayed. Connect to the target machine, as described above.

< Visual Studio .NET 2003>

In Visual Studio .NET, you can download an application to the target machine by clicking on “Deploy solutions” or “Deploy xxxxx” in the “Build” menu.

Debug Application

Windows CE debugging is done remotely.

You can debug applications by using the integrated debugger of the eVC++4.0 and Visual Studio .NET. The debug method is just the same as that of the Windows 95/98/NT applications.

- 1) Build the application, and download it to the target machine.
- 2) Set break points and other items, and press [F5] (Run) or [F11] (Step In) to run the application.
- 3) The steps that follow are the same as those in the debugging procedure for Windows 95/98/NT applications.

Embedding the application

Following is the method for embedding applications to the target machine.

Copy the developed application into “\NFDisk”*1 directory of this series. There are following 2 methods to copy application to “\NFDisk”.

- Use this series' FTP server to copy applications by network.
- Use ATA Flash card or CF card to copy application to NFDisk.

*1: The “\NFDisk” directory is mounted on the onboard NAND Flash Disk of this series. Files stored in this directory will not disappear even if the power is shut down.

Using Remote Tools

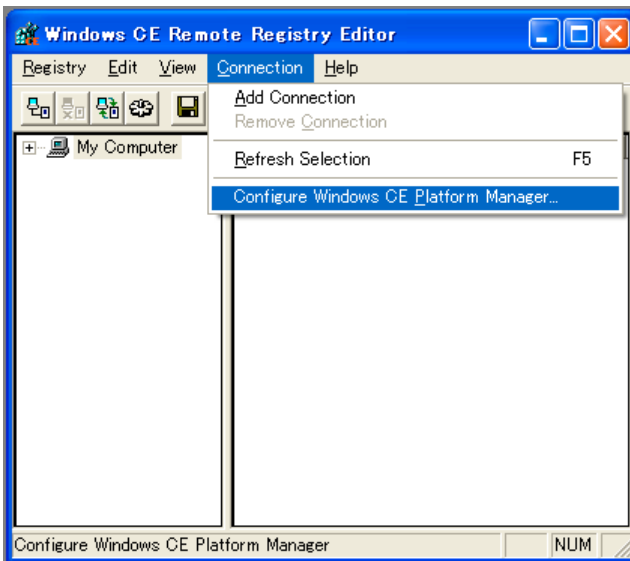
Microsoft development environments such as eVC++4.0, provide convenient tools such as the “Remote Registry Editor”. This allows the user to manipulate the registry of Windows CE when a Windows CE machine is connected to a development machine. This series also supplies these tools.

Connecting the Development and Target Machines

To use remote tools it is necessary to connect the development machine to the target machine, as in debugging.

This process uses the same procedure described in Chapter 13 of this manual “Appendix: Application Development Procedures,” with the “Windows CE Platform Manager Configuration” selected for each tool from the remote side.

Normally the “Windows CE Platform Manager Configuration” for each remote tool is shown on the Connection menu.



After the development machine and target machine have been connected, each of the tools is ready to use.

For information on the use of tools, refer to the Help menu.

FAQ

Operating Edition

Q. Is a watchdog timer available?

A. The SH4 CPU & .NET installed IPC series supports the watchdog timer function.
User applications can use the watchdog timer function by calling the watchdog timer API.
For detailed API usage, refer to the CONTEC Platform SDK.

Q. Can I use a PS/2 mouse?

A. Yes. You can use the PS/2 mouse by starting the “System Setting” applet from within the Control Panel, selecting the “Input” tab, checking “Used PS/2” and “Show Mouse Cursor”, then saving the registry.

However, the SH4 CPU & .NET installed IPC series requires a PS/2 keyboard/mouse splitter cable plugged into the PS/2 connector on the main unit.

Check out the following URL for details.

<http://www.contec.co.jp/embisol/>

* It corresponds to IPC-PT/LS10 series, IPC-PT/LS15 series, IPC-PT/MV10 series, and IPC-PT/MV15 series.

Q. Can I use a USB mouse/keyboard.

A. Yes.

The HID driver is standard with the system. Plug the USB mouse/keyboard cable into the USB connector.

Only when the USB mouse is used, the mouse pointer appears automatically as soon as you plug it in even without checking the “Show Mouse Cursor” option under the “Input” tab in the “System Setting” dialog box opened from within the Control Panel.

Q. I want to use a Japanese keyboard. Do I have to switch the driver.

A. Launch the “System Setting” applet from within the Control Panel, and you can select either the 101-key or 106-key keyboard.

You can use the selected type of keyboard after saving the registry

Q. I wish to use a touch panel...

A. As the panel computers in the SH4 CPU & .NET installed IPC series have their LCD equipped with a touch panel, it is readily available.

Q. How can I turn on the touch panel beep?

A. On the panel computer in the SH4 CPU & .NET installed IPC series, start the “System Setting” applet from within the Control Panel, select the “Backlight” tab, then check “Touch Panel Beep ON” to let the touch panel beep sound.

- Q. How can I adjust the brightness of the LCD.
- A. On the panel computer in the SH4 CPU & .NET installed IPC series, you can adjust the LCD's brightness either by starting the "System Setting" applet from within the Control Panel, selecting the "Backlight" tab, and clicking on the [Bright] button or by pressing the F1+F2 or F1+F3 function keys simultaneously.
(On the IPC-PT/SV10DC1 and IPC-PT/SV15DC1 adjust using ■+■■■ or ■+■■■■)

Q. I want to run applications automatically. Is this possible?

- A. I recommend use of the schedule function of "CONTEC Manager".
In addition, although it becomes possible by describing to the registry of following Windows CE .NET 4.2, keep in mind that registry change may affect operation of OS.
You can edit the registry by running "RegEdit.exe" in the Windows directory.

\\HKEY_LOCAL_MACHINE\initKey		
Item	Data type	Description
Launchxx	REG_SZ	The "String" type describes the application name (program name) to perform. Enter the application name to run. "xx" is the ID number. [Note] Full path name cannot be used for the application name.
Dependxx	REG_BINARY	A dependency describes the dependency by the identification number ("Binary" type) in order of execution of the application specified by Launch (in order to start a program, when another program needs to start beforehand). If the running order of applications has dependence relation, specify the relation by ID numbers.

Example: Launch90 : "shell.exe"
Launch95 : "myProg.exe"
Depend95 : 5A, 00

Note, however, that the program specified here to be started must be located in the Windows directory since it cannot be defined by its full pathname.

Also, by making use of the schedule function in "CONTEC Manager", program can be started in a more complicated timing. Details please refer to the manual of "CONTEC Manager".

The following is an example of a registry in an actual default (Mini shell).

```
Launch16 WceObjUp.exe
Launch20 device.exe          depend20 Hex 10, 00
Launch30 gwes.exe           depend30 Hex 14, 00
Launch50 taskman.exe        depend50 Hex 14, 00 / 1E, 00
Launch60 service.exe        depend60 Hex 14, 00
Launch80 wcemngr.exe         depend80 Hex 14, 00 / 1E, 00
```

(Notes)

Please do not perform the above rewritings of the registry indicated by the default, or deletion. It is new and specification of a program to perform surely needs to perform a new addition for the existing registry number.

Q. Where can I find the latest information on the SH4 CPU & .NET installed IPC series.

A. Check out the following URL for details.

<http://www.contec.co.jp/embisol/>

Development Edition

Q. I want to create an application for the SH4 CPU & .NET installed IPC series. What is required?

A. The following are required for application development:

- Development by VB or C#
 - Microsoft Visual Studio .NET 2003
 - Windows CE Utilities for Visual Studio .NET 2003 Add-on Pack
(Download from
<http://www.microsoft.com/downloads/details.aspx?FamilyId=7EC99CA6-2095-4086-B0CC-7C6C39B28762&displaylang=en>)
- Development by VC++
 - eMbedded Visual C++ 4.0 + SP3
 - CONTEC Platform SDK (This is the standard attachment of the SH4 series devices with WindowsCE.NET 4.2 Installed)

For information on development, see the “Application Development Procedure” in this document.

Q. Is there any way to debug a driver I have created?

A. Setting SW2-3 to ON causes the SH4 CPU & .NET installed IPC series to output debug messages. You can use “System Setting” in the Control Panel to select COM1 or COM2 as the debug message output port.

You can use this arrangement to build in a RETAILMSG into the drivers you create. Use this for debugging so that the message is displayed in terminal software etc.

Q. What is the maximum baud rate acceptable to the onboard serial interface?

A. 115,200 bps.

Q. How can I use the user-open DIP switch on the SH4 CPU & .NET installed IPC series?

A. Use the CONTEC I/F API (ContecIF.dll).

For how to use the CONTEC I/F API, refer to the CONTEC I/F header file (ContecIF.h) found on the CD-ROM (CONTEC SDK) bundled with the product.

Q. How can I use the insulated general-purpose I/O port on the SH4 CPU & .NET installed IPC series?

A. Use the CONTEC I/F API (ContecIF.dll).

For how to use the CONTEC I/F API, refer to the CONTEC I/F header file (ContecIF.h) found on the CD-ROM (CONTEC SDK) bundled with the product.

IPC-PT/MV10 Series, IPC-PT/MV11 Series,
IPC-PT/MV15 Series, IPC-PT/MV16 Series,
IPC-PT/LS10 Series, IPC-PT/LS11 Series,
IPC-PT/LS15 Series, IPC-PT/LS16 Series,
IPC-PT020LS-AC,
IPC-PT/SV10DC1, IPC-PT/SV15DC1,
IPC-BX/M10DC5

Windows CE .NET 4.2 Software Manual

IPC-SH4CE4-SME

CONTEC CO., LTD.

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