# Chapter 6: VB.net 2008 Program Running In WinPAC-8xx7 Access To ISaGRAF Variables

This chapter lists the procedure for creating the first demo program by Visual Studio .NET 2008 development tool. There is some sample programs in the WinPAC-8xx7 CD-ROM.

WinPAC-8xx7 CD-ROM : \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\ wp\_vb01 : Digital I/O demo with one I-87055W in slot 0 of the WinPAC-8xx7. wp\_vb02 : Analog I/O demo with one I-87024W in slot 1 and one I-8017HW in slot 2. wp\_vb03 : Read / Write ISaGRAF internal integers, timers and real variables. (No I/O)

The related ISaGRAF demo project name are "wp\_vb01.pia", "wp\_vb02.pia" and "wp\_vb03.pia" in the same directory.

# 6.1 Create a New Project

1. In the first, users need to open Microsoft Visual Studio .NET 2008 software. And then in the menu of "File", please run the "New Project".



2. Check the "Smart Device" on the left, then selecting the ".NET frame work 2.0" and "Smart Device Project". Then entering a proper project name and the last click on "OK".

New Project			? ×
Project types: - Visual Basic - Windows - Web - Smart Device - Office - Database - Reporting - Test - WCF		Templates: Visual Studio installed temp Smart Device Project My Templates Search Online Templates	NET Framework 2.0
A project for Smart Name:	Device applications. Cho	ose target platform, Framework versi	on, and template in the next dialog bo: OK Cancel

3. Select the **"Device Application"** and **"Windows CE**" and **".NET Compact Framework Version 2.0**", then click on "OK".

# 6.2 Add Project Reference for an Application

The "QuickerNet" library contains all modules' functions. Before you use the "Quicker" keyword in the program, you must add the "QuickerNet.dll" into the reference list of your application.

1. Right click on the Project name on the right hand side , then select "Add Reference ..."

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2. Select the "**mscorlib**" in the list box and click the button "**OK**" (the component "**mscorlib**" must appear in the Selected Components area)

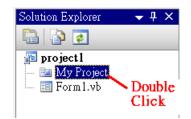
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Component Name CustomMarshalers Microsoft.VisualBasic Microsoft.WindowsCE.Form Microsoft.WindowsMobile Microsoft.WindowsMobile System.Data System.Data.SqlCl System.Data.SqlCl System.Data.SqlSe System.Drawing System.Messaging System.Messaging System.Net.IrDA System.Web.Services System.Windows.Forms System.Windows.Forms.Dat	2.0.0.0 2.0.0.0 2.0.0.0 2.0.0.0 10.00 2.0.0.0 2.0.0.0 2.0.0.0 2.0.0.0 2.0.0.0 2.0.0.0	 Path C:\Program Files\Microsoft.NET\ C:\Program Files\Microsoft.NET\ C:\Program Files\Microsoft.NET\ C:\Program Files\Microsoft.NET\ C:\Program Files\Microsoft.NET\ C:\Program Files\Microsoft.NET\ C:\Program Files\Microsoft SQL S C:\Program Files\Microsoft.NET\ C:\Program Files\Microsoft	
		OK Cancel	

3. Click the **"Browse**" button. Select the **"QuickerNet.dll"** from **WinPAC-8xx7 CD-ROM** : \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\wp\_vb01\vb01\ subfolder or from your own location.

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4. When both "**mscorlib**" and "**QuickerNet.dll**" are added, please double click on "My Project" to check if the "**QuickerNet.dll**" is well added.



Application	References:				Unused References Reference Paths	project1
Compile	Reference Name	Type	Vers	Copy Local	Path	📃 🔚 Form1.vb
Debug	QuickerNet System	.NET .NET	1.0.0.9	True False	D:\Chun_D\WP8x47\WP-8xx7-CD\napdos\isagraf\wp-8xx7\vb C:\Program Files\Microsoft.NET\SDK\CompactFramework\v2	
References	System.Data	.NET	2.0.0.0	False	C:\Program Files\Microsoft.NET\SDK\CompactFramework\v2	
Resources	System.Drawing System.Windows.For System.Xml	.NET .NET .NET	2.0.0.0 2.0.0.0 2.0.0.0	False False False	C:\Program Files\Microsoft.NET\SDK\CompactFramework\v2 C:\Program Files\Microsoft.NET\SDK\CompactFramework\v2 C:\Program Files\Microsoft.NET\SDK\CompactFramework\v2	
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5. Right-click on the "**Form1.vb**" and select "**View Code**" from the pop-up Move cursor to top and insert the "**Option Explicit On**" and "**Imports Quicker**" in the first two statements.

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Solution Explorer 🗸 🕂 🗙	Form1.vb [Design] Form1.v	b
Image: Second system         Image: Second system	(General) Option Explicit On Imports Quicker	Each variable must be declared well
Open     Right       Open     With       View Code       View Designer	□ Public Class Form1 Dim is_try_ok As B	yte ' try catch state, 1: Ok, O: error

Then you can design all required objects and actions inside your VB Forms .

# 6.3 Compiling an Application Program

When you have finished writing a program, you can build an application by the following steps.

1. Remember to save at any time for safety.

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2. Then compile (Build) the project . The result is listed in the "Error List" windows at the bottom .

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Description					
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3. You can find the execution file in

<Your VB.net Project folder> \bin\Release\ <project\_name>.exe

Please copy this execution file to the WinPAC-8xx7's \System\_Disk\ISaGRAF\ path to run it.

Note: User may copy the VB.net execution file to other path to run it but there should contain at least three DLL files with it or it can not run correctly. For ex, the project1.exe can run in the \Micro\_SD\ path if there is three plus one file in it. The "project1.exe", "QuickerNet.dll", "Quicker.dll" and "Mscorlib.dll". (The "QuickerNet.dll", "Quicker.dll" and "Mscorlib.dll" can be copied from the WinPAC-8xx7's "\System\_disk\ISaGRAF\" path)

# 6.4 QuickerNET.DLL

This section we will focus on the description of the application example of QuickerNET.DLL functions. There are some functions that can be used to R/W data from/to the ISaGRAF softlogic. The functions of QuickerNET.DLL can be clarified as two groups as depicted as below:

- 1. Digital R/W Functions
- 2. Analog R/W Functions

# 6.4.1 Digital R/W Functions

UserSetCoil

## **Description:**

This function is to set the value to a Boolean variable by Modbus network address.

# Syntax:

ScanKernel.UserShare.UserSetCoil (iUserAddress As System.UInt16, iStatus As byte)

## **Parameter:**

iUserAddress : Specify the Modbus Network Address of Variable (1 to 8191) iStatus : Set the status. For instance, iStatus = 1 for True, iStatus = 0 for False

## **Return Value:**

None

## Example:

'Set the output variable of Modbus Network Address "1" to True. ScanKernel.UserShare.UserSetCoil(Convert.ToUInt16(1), 1)

## **Demo program :**

WinPAC-8xx7 CD-ROM: \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\wp\_vb01



## **Description:**

This function is to get the value from a boolean variable by Modbus network address.

# Syntax:

ScanKernel.UserShare.UserGetCoil ( iUserAddress As System.UInt16, ByRef iStatus As byte)

## **Parameter:**

iUserAddress : Specify the Modbus Network Address of Variable (1 to 8191) iStatus : Get the variable status , iStatus = 1 for True, iStatus = 0 for False

## **Return Value:**

None

## Example:

'Get the variable status of Network Address "1". Dim iStatus As Byte ScanKernel.UserShare.UserGetCoil(Convert.ToUInt16(1), iStatus)

### **Demo program :**

WinPAC-8xx7 CD-ROM: \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\wp\_vb01

# 6.4.2 Analog R/W Functions

# UserSetReg\_short UserSetReg\_long UserSetReg\_float

### **Description:**

These functions are to set 16-bit short integer , 32-bit long integer & 32-bit float value to the specified Modbus network address.

### Syntax:

ScanKernel.UserShare.UserSetReg\_Short (ByVal *iUserAddress* As <u>System.UInt16</u>, ByRef *iStatus* As <u>Integer</u>) As <u>Byte</u>

ScanKernel.UserShare.UserSetReg\_Long (ByVal *iUserAddress* As <u>System.UInt16</u>, ByRef *iStatus* As <u>Integer</u>) As <u>Byte</u>

ScanKernel.UserShare.UserSetReg\_Float (ByVal *iUserAddress* As <u>System.UInt16</u>, ByRef *iStatus* As <u>Single</u>) As <u>Byte</u>

#### Parameter:

iUserAddress : Specify the Network Address of Variable (1 to 8191) iStatus : Set the short or long integer or float value.

### **Example:**

'Set a long value "1234567" to the variable of Modbus Network Address "1". ScanKernel.UserShare.UserSetReg\_long(Convert.ToUInt16(1), Convert.ToInt32(1234567))

'Set a short value "-1234" to the variable of Modbus Network Address "3". ScanKernel.UserShare.UserSetReg\_short(Convert.ToUInt16(3), Convert.ToInt16(-1234))

'Set a float value "2.174" to the variable of Modbus Network Address "4". ScanKernel.UserShare.UserSetReg\_float(Convert.ToUInt16(4), Convert.ToSingle(2.174))

### **Demo program :**

WinPAC-8xx7 CD-ROM:

1. \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\wp\_vb02 for R/W analog I/O

 \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\wp\_vb03 for R/W internal long integer, Timer and Real (floating-point) values.

#### Note:

The long integer & timer & real variable's Network Address No. must occupy 2 No. in the ISaGRAF project (refer to section 4.2 of "User's Manual of ISaGRAF Embedded Controllers" or in the CD-ROM:\napdos\isagraf\wp-8xx7\english\_manu\" User\_Manual\_I\_8xx7.pdf")

# UserGetReg\_short UserGetReg\_long UserGetReg\_float

## **Description:**

These functions are to get 16-bit short integer , 32-bit long integer & 32-bit float value from the specified Modbus network address.

## Syntax:

ScanKernel.UserShare. UserGetReg\_Short (ByVal *iUserAddress* As <u>System.UInt16</u>, ByRef *iStatus* As <u>Integer</u>) As <u>Byte</u>

ScanKernel.UserShare. UserGetReg\_Long (ByVal *iUserAddress* As <u>System.UInt16</u>, ByRef *iStatus* As <u>Integer</u>) As <u>Byte</u>

ScanKernel.UserShare. UserGetReg\_Float (ByVal *iUserAddress* As <u>System.UInt16</u>, ByRef *iStatus* As <u>Single</u>) As <u>Byte</u>

## **Parameter:**

iUserAddress : Specify the Network Address of Variable (1 to 8191) iStatus : Get the short or long integer or float value.

## **Example:**

Dim float\_val As Single Dim short\_val As Int16 Dim long\_val As Int32

'Get float value of the variable of Modbus Network Address "7". ScanKernel.UserShare.UserGetReg\_float(Convert.ToUInt16(7), float\_val)

'Get long value of the variable of Modbus Network Address "9". ScanKernel.UserShare.UserGetReg\_long(Convert.ToUInt16(9), long\_val)

'Get short value of the variable of Modbus Network Address "11". ScanKernel.UserShare.UserGetReg\_short(Convert.ToUInt16(11), short\_val)

## Demo program :

WinPAC-8xx7 CD-ROM:

- 3. \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\wp\_vb02 for R/W analog I/O
- 4. \napdos\isagraf\wp-8xx7\vb.net\_2008\_demo\wp\_vb03 for R/W internal long integer, Timer and Real (floating-point) values.

### Note:

The long integer & timer & float variable's Network Address No. must occupy 2 No. in the ISaGRAF project (refer to section 4.2 of "User's Manual of ISaGRAF Embedded Controllers" or in the CD-ROM:\napdos\isagraf\wincon\english\_manu\" User\_Manual\_I\_8xx7.pdf")