

# COMPONENTS AND METHODS

## DSP Programming – Demonstration Program 2

```
' DemoRecord - Demonstrate use of BasicDSP and ZedGraph libraries
' to record, replay and display
'
' You may need to add the ZedGraph component to the toolbox:
' - Tools | Choose Toolbox Items
' - .NET Framework Components, browse to ZedGraph.dll and select
'
' Create a form with a menu strip for the Play command, then add a
' ZedGraph control, and dock to fill the form.
'
' Use the "My Project" dialog to configure the program:
' - under the Compile tab, press "Advanced Compilation Options"
'   and change the Target CPU to "x86"
' - under the References tab, click the "Add" button then browse for
'   and select the BasicDSP.dll library
'
Imports BasicDSP
Public Class Form1
    ' recording configuration
    Const MAXTIME As Integer = 5          ' maximum recording length (5s)
    Const SAMPRATE As Double = 22050.0   ' sampling rate
    ' Waveform object
    Dim wv As New Signal(SAMPRATE, SAMPRATE)
    ' Graph Object
    Dim gp As Graph
    ' Initialise
    Private Sub Form1_Load(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles MyBase.Load
        ' create a graph object
        gp = New Graph(Me.CreateGraphics, ZedGraphControl1, 1, 1,
"Recording")
    End Sub
    ' Record menu item
    Private Sub RecordToolStripMenuItem_Click(ByVal sender As
System.Object, ByVal e As System.EventArgs) Handles
RecordToolStripMenuItem.Click
        ' initialise the beep
        Dim beep As New Signal(1000, SAMPRATE)
        For i As Integer = beep.First To beep.Last
            beep(i) = 10000 * Math.Sin(2 * Math.PI * i * 500 / SAMPRATE)
        Next
        ' play the beep
        beep.Replay()
        ' start the recording up to max time
        wv = New Signal(SAMPRATE, SAMPRATE)
        wv.RecordStart(MAXTIME * SAMPRATE)
        ' wait for recording to stop
        While (wv.Recording)
            wv.RecordWait()
        End While
        ' complete the recording
        wv.RecordDone()
        ' replay a beep to say we've finished
        beep.Replay()
    End Sub
End Class
```

```
' display waveform in graph
gp.PlotClear(1)
gp.PlotSignal(1, wv, "Signal")
End Sub
' Play menu item
Private Sub PlayToolStripMenuItem_Click(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles PlayToolStripMenuItem.Click
wv.Replay()
End Sub
End Class
```

