Synway SHF Series

SHF-4B-JM/PCI

Fax Decoding Board

Programmer's Manual

Version 1.0.3.1

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Contents

Copyright Declaration

Revision History

Version	Date	Comments
Version 1.0	2004-10	Initial publication
Version 1.0.3.1	2007-03	Newly created after standardized arrangement

Note: Please visit our website http://www.synway.net to obtain the latest version of this document.

Chapter 1 Overview

The SHF series fax decoding board can decode the voice files storing the recorded fax communication process into fax images. It may be used as an add-on for digital call-recording systems.

1.1 Features and Benefits

- Supports decoding at quadruple rate
- Supports line-by-line image output which facilitates dynamic image update, allowing the read of decoded results during the decoding process
- Uses the DSP technology which enables dynamic update of the list of nonstandard fax formats and supports the newly added nonstandard fax format
- Offers an easy interfacing, allowing direct input of the data to be decoded via PCI bus without the help of external connecting lines
- Not demanding on the signal-to-noise ratio of original data

1.2 Channel Description

The channel on the fax-decoding board is a physical circuit entity with the capability of fax decoding.

Regarding the channel numbering, the parameter nCh used by each API function refers to the physical channel number which stands for the channel's number on the board where it locates and is automatically allocated by the driver, numbered from 0. A fax-decoding board has only 4 physical channels and a system is allowed to involve only 1 fax-decoding board.

1.3 Supported Operating Systems

Our driver supports the following Windows operating systems:

- Windows Me, Windows 2000, Windows XP, Windows 2003.

1.4 Key Tips

- The voice file sent to the driver for decoding must be recorded under such a condition that the AGC (Automatic Gain Control) feature is not enabled on the recording channel.
- At present the fax-decoding rate that the driver supports is up to 14400bps.
- The data format of the voice file to be decoded must be A-Law.

Chapter 2 API Functions and Notification Messages

2.1 Related Information

Required Driver Version	FaxDecode Ver. 1.0.0.0
Header	sh_FaxjmApi.h
Library	sh_Faxjm.lib
DLL	sh_Faxjm.dll

2.2 API Functions

2.2.1 For Operation

2.2.1.1 InitJMCard

Format:

int InitJMCard()

Parameter Description:

None

Return Value:

1	Successful
0	Failed

Function Description:

Initializes the fax-decoding board.

Note:

Related Function:

2.2.1.2 ShutJMCard

Format:

int ShutJMCard()

Parameter Description:

None

Return Value:

1	Successful
0	Failed

Function Description:

Closes the fax-decoding board.

Note:

Related Function:

2.2.1.3 GetJMMessage

Format:

int GetJMMessage(LPSTR szMsgBuf)

Parameter Description:

szMsgBuf	Buffer area storing error messages

Return Value:

1	Successful
0	Failed

Function Description:

Obtains the error message in invoking the driver-provided API function for the last time. If the last API function call is successful, an empty string will be returned.

Note:

- szMsgBuf should be a valid character string pointer.

Related Function:

2.2.1.4 IsIdlesse

Format:

int IsIdlesse(int nCh)

Parameter Description:

nCh	Channel number

Return Value:

1	The designated channel is idle
-1	The designated channel is busy decoding

0	Failed

Function Description:

Determines whether the designated channel is idle or not.

Note:

Related Function:

2.2.2 For Data Input and Decoding Control

2.2.2.1 SetOwnerWnd

Format:

int SetOwnerWnd (int nCh, HWND hWnd = NULL)

Parameter Description:

nCh	Channel number
hWnd	Window handle

Return Value:

1	Successful
0	Failed

Function Description:

Sets the handle of the window that the channel belongs to, so that the driver may send specified messages to this window. In the need of receiving the messages sent by the driver to users, this function must be called before StartJMWithFile(Ex) or StartJMWithStream(Ex) is invoked.

Note:

Related Function:

2.2.2.2 HandleLostData

Format:

int HandleLostData (BOOL bHandle)

Parameter Description:

bHandle	Whether to handle the problem of data loss in fax file demodulation

Return Value:

1	Successful
0	Failed

Function Description:

Sets whether the driver will handle the data loss problem in fax file demodulation. Not to handle by default.

Note:

Related Function:

2.2.2.3 StartJMWithFile

Format:

int StartJMWithFile (int nCh, LPSTR szFilePath, int iType, PFN_GETBMPLINE pfnGetBmpLine, BOOL bSaveToBmp)

Parameter Description:

nCh	Channel number
szFilePath	The full path to the fax voice file
iType	Ways to stop decoding: 0: denotes that the decoding is terminated automatically when the driver detects the end-of-file; 1: the driver keeps on checking the file to see whether there come new data until the user calls the function FinishedSendData to indicate that the data receipt is completed. It's applicable to the decoding of the file being recorded
pfnGetBmpLine	The callback function which could be invoked every time when a line in the fax page has been decoded. By setting this function, the user can obtain the decoded data of the fax page in real time so as to enable the dynamic display.
bSaveToBmp	Whether to save the decoced data of the fax page as a bmp file. TRUE: save as a bmp file; FALSE: not save as a bmp file. The file should be named as follows: original voice file name + page number + extension name bmp.

Return Value:

1	Successful
0	Failed

Function Description:

Designates the file name. The fax driver reads the file directly and starts to decode.

Note:

- The data format of the voice file should be A-Law.

Related Function: StartJMWithFileEx, StartJMWithStream, StartJMWithStreamEx

2.2.2.4 StartJMWithFileEx

Format:

int WINAPI StartJMWithFileEx (int nCh, LPSTR szFilePath, int iType, PFN_GETBMPLINE pfnGetBmpLine, LPSTR szSaveToFile)

Parameter Description:

nCh	Channel number
szFilePath	The full path to the fax voice file
iType	Ways to stop decoding: 0: denotes that the decoding is terminated automatically when the driver detects the end-of-file; 1: the driver keeps on checking the file to see whether there come new data until the user calls the function of FinishedSendData to indicate that the data receipt is completed. It's applicable to the decoding of the file being recorded
pfnGetBmpLine	The callback function which could be invoked every time when a line in the fax page has been decoded. By setting this function, the user can obtain the decoded data of the fax page in real time so as to enable the dynamic display.
szSaveToFile	The bmp file name and path to be created. The actual bmp file name is szSaveToFile plus page number plus extension name bmp. If this parameter is NULL, the decoded results will not be saved as bmp images.

Return Value:

1	Successful
0	Failed

Function Description:

Designates the file name. The fax driver reads the file directly and starts to decode.

Note:

- The data format of the voice file should be A-Law.

Related Function: StartJMWithFile, StartJMWithStream, StartJMWithStreamEx

2.2.2.5 StartJMWithStream

Format:

int StartJMWithStream (int nCh, PFN_GETBMPLINE pfnGetBmpLine, BOOL bSaveToBmp)

Parameter Description:

nCh	Channel number
pfnGetBmpLine	The callback function which could be invoked every time when a line in the fax page has been decoded. By setting this function, the user can obtain the decoded data of the fax page in real time so as to enable the dynamic display
bSaveToBmp	TRUE: save as a bmp file; FALSE: not save as bmp file. The file is named as follows: stream + serial number + page number + extension name bmp, e.g. stream1.1.bmp

Return Value:

1	Successful
0	Failed

Function Description:

Instructs the driver to start receiving and decoding the data stream. After the call of this function, the functions SendStream and FinishedSendData should be invoked respectively to send the data stream to the driver for decoding and to indicate the completion of data transmission.

Note:

- The data format of the voice file should be A-Law.

Related Function: StartJMWithFile, StartJMWithFileEx, StartJMWithStreamEx

2.2.2.6 StartJMWithStreamEx

Format:

int StartJMWithStreamEx (int nCh, PFN_GETBMPLINE pfnGetBmpLine , LPSTR szSaveToFile)

Parameter Description:

nCh	Channel number
pfnGetBmpLine	The callback function which could be invoked every time when a line in the fax page has been decoded. By setting this function, the user can obtain the decoded data of the fax page in real time so as to enable the dynamic display
szSaveToFile	The bmp file name and path to be created. The actual bmp file name is szSaveToFile plus page number plus extension name bmp. If this parameter is NULL, the decoded results will not be saved as bmp images.

Return Value:

1	Successful
0	Failed

Function Description:

Instructs the driver to start receiving and decoding the data stream. After the call of this function, the functions SendStream and FinishedSendData should be invoked respectively to send the data stream to the driver for decoding and to indicate the completion of data transmission.

Note:

- The data format of the voice file should be A-Law.

Related Function: StartJMWithFile, StartJMWithFileEx, StartJMWithStream

2.2.2.7 SendStream

Format:

int SendStream(int nCh, LPSTR szBuf,int cbSize)

Parameter Description:

nCh	Channel number
szBuf	The head pointer to the data block which is sent to the fax-decoding board
cbSize	The size of the data block which is sent to the fax-decoding board

Return Value:

>=0	The size of the actually written data
-1	Failed

Function Description:

Sends the data block to the fax-decoding board. If StartJMWithStream(Ex) is not called in advance, the function call of SendStream will be failed.

Note:

Related Function: StartJMWithStream, StartJMWithStreamEx

2.2.2.8 FinishedSendData

Format:

int FinishedSendData(int nCh)

Parameter Description:

nCh	Channel number

Return Value:

1	Successful
0	Failed

Function Description:

Terminates the data transmission on the current channel. When users call the function StartJMWithStream(Ex) to decode data, or invoke the function StartJMWithFile(Ex) while setting the parameter iType to 1, this function will be in use to terminate the data transmission.

Note:

Related Function: StartJMWithStream, StartJMWithStreamEx, StartJMWithFile, StartJMWithFileEx

2.2.2.9 CloseJM

Format:

int CloseJM (int nCh)

Parameter Description:

nCh	Channel number

Return Value:

1	Successful
0	Failed

Function Description:

Stops decoding on the designated channel.

Note:

Related Function: StartJMWithStream, StartJMWithStreamEx, StartJMWithFile, StartJMWithFileEx

2.2.3 For Output of Decoded Results

2.2.3.1 GetBmpStyle

Format:

int GetBmpStyle (int nCh, int nPageNum, int *nWidth, int *nHeight)

Parameter Description:

nCh	Channel number
nPageNum	Page number
nWidth	Paper width
nHeight	The total number of lines. During the decoding process, the return value of nHeight in real-time calls of this function may be inaccurate

Return Value:

1	Successful
0	Failed

Function Description:

Obtains the image format for the fax page.

Note:

Related Function:

2.2.3.2 GetFileInfo

Format:

int GetFileInfo (int nCh , int* pDeModemMode, int* pDecodeStyle, int* pPaperWidth, int* pBmpHeight, LPSTR szCISTelNo, LPSTR szTSITelNo, BOOL* pEcmCode)

Parameter Description:

nCh	Channel number
pDeModemMode	Demodulation mode: 0x09: 2400bps V.27 0x0a: 4800bps V.27 0x14: 9600bps V.29 0x12: 7200bps V.29

	0x31: 14400bps V.17 0x32: 12000bps V.17 0x34: 9600bps V.17 0x38: 7200bps V.17 0x78: V34
pDecodeStyle	Decoding mode: 0: MH 1: MR 2: MMR 0xFF: Unknown
pPaperWidth	Paper width
pBmpHeight	The total height of the decoded fax image
szCISTelNo	The called party number
szTSITelNo	The calling party number
pEcmCode	Whether there is ECM (error correction mode) available

Return Value:

1	Successful
0	Failed

Function Description:

When the decoding is terminated on this channel, this function can be called to obtain the call connection information..

Note:

Related Function:

2.2.3.3 GetJMState

Format:

int GetJMState (int nCh)

Parameter Description:

nCh	Channel number

Return Value:

0	decoding
1	The decoding is terminated with some images output
2	The decoding is terminated without any image output
-1	Error and the function exits

Function Description:

Obtains the status information of the designated channel

Note:

- In order to be compatible to early driver versions, this function will return the value of 1 upon a second call after it returns the value of 2. In real application, this function only needs to return either 1 or 2 to indicate the decoding completion, not necessarily to be called again.

Related Function:

2.2.3.4 GetJMStateEx

Format:

int GetJMStateEx (int nCh, LPSTR szJMState)

Parameter Description:

nCh	Channel number
szJMState	Buffer area storing the status information

Return Value:

1	Successful
0	Failed

Function Description:

Obtains the status information of the designated channel.

Note:

Related Function:

2.2.3.5 GetFinishedPercent

Format:

int GetFinishedPercent (int nCh, int* pPercent)

Parameter Description:

nCh	Channel number
pPercent	Finished percentage

Return Value:

1	Successful
0	Failed

Function Description:

Obtains the decoding completion information of the designated channel.

Note:

Related Function:

2.2.3.6 GetBmp

Format:

int GetBmp (int nCh, LPSTR szBmpBuf, int *pCBRead, int *pCurPage)

Parameter Description:

nCh	Channel number
szBmpBuf	The buffer area storing the bmp image data

pCBRead	During data input, pCBRead is the length of the buffer area szBmpBuf; during data output, pCBRead is the length of the data which has been read in the buffer area szBmpBuf
pCurPage	Current page number

Return Value:

>0	The total page number
=0	Failed
-2	Memory insufficient

Function Description:

Obtains a fax page.

Note:

- When *pCurPage is -1, the function returns the total page number.

Related Function:

2.2.3.7 DrawBmp

Format:

BOOL DrawBmp (int nCh, HDC hDC, int nX, int nY)

Parameter Description:

nCh	Channel number
hDC	The device context
nX	The coordinate X of the starting point
nY	The coordinate Y of the starting point

Return Value:

1	Successful
0	Failed

Function Description:

Draws the decoded bmp image on the designated hDC.

Note:

Related Function:

2.3 Notification Messages

WM_FINISHEDPERCENT

The notification message of the decoding completion percentage. This notification message can be used to obtain the decoding completion information of the designated.

Two parameters of the message:

WPARAM	Channel number
LPARAM	Finished percentage

WM_JMSTATE

The status information acquired during the decoding process. This notification message can be used to obtain some status information during the decoding process .

Two parameters of the message:

WPARAM	Channel number
PARAM	Information during the decoding process

Appendix A Technical/sales Support

Thank you for choosing Synway. Please contact us should you have any inquiry regarding our products. We shall do our best to help you.

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