Unmanaged MCP2210 DLL Documentation

Contents

Docum	nent Revision History	5
DLL Re	equirements	6
Unmar	naged DLL API Overview	6
D	DIIConstants:	8
DLL Eri	ror Codes	9
Detaile	ed API Function List	. 11
D) Init	. 11
D	DIICleanUp	. 11
V	VriteEEProm	. 11
R	ReadEEProm	. 12
G	GetGpioPinDir	. 12
S	etGpioPinDir	. 12
G	GetGpioPinVal	. 13
S	etGpioPinVal	. 13
Е	interAccessPasswd	. 13
G	GetPasswdAttmptCnt	. 14
G	GetPasswdAccessStatus	. 14
R	RequestSpiBusRel	. 15
Т	xferSpiData	. 15

CancelSpiTxfer	
GetEvntCntFromIntPin	16
GetSpiBusRelExtReqStatus	16
GetSpiBusCurOwner	16
GetVid	18
GetPid	18
GetVidPid	18
SetVidPid	19
GetSerialNumber	19
GetConnectionStatus	19
GetPwrConfigSrc	20
GetPwrConfigRmtWkupCpbl	20
GetPwrConfig	
SetPwrConfig	
GetReqdCurrentLd	
SetReqdCurrentLd	
GetStringManufacturer	
SetStringManufacturer	
GetStringDescriptor	
SetStringDescriptor	
GetPermanentDevLockStatus	
SetPermanentDevLock	
GetPasswdEnStatus	
SetPasswdEnStatus	
SetNewPasswd	24

GetAllChipSettings	. 25
SetAllChipSettings	. 26
GetGpioDfltOutput	. 26
GetGpioDfltDirection	. 27
GetGpioDesignations	. 27
GetGpioConfig	. 28
SetGpioConfig	. 28
GetRmtWkupEnStatus	. 29
SetRmtWkupEnStatus	. 2 9
GetInterruptPinMode	. 30
SetInterruptPinMode	. 30
GetSpiBusReleaseEnStatus	. 31
SetSpiBusReleaseEnStatus	. 31
GetAllSpiSettings	. 32
SetAllSpiSettings	. 32
GetSpiBitRate	. 33
SetSpiBitRate	. 33
GetSpiCsIdleValue	. 33
GetSpiCsActiveValue	. 34
GetSpiCsValues	. 34
SetSpiCsValues	. 35
GetSpiDelayCsToData	. 35
GetSpiDelayDataToData	. 35
GetSpiDelayDataToCs	. 36
GetSpiDelays	. 36

SetSpiDelays	37
GetSpiTxferSize	37
SetSpiTxferSize	37
GetSpiMode	38
SetSpiMode	38
GetDevCount	40
GetSelectedDevNum	40
GetSelectedDevInfo	40
Select Device	41

Document Revision History

Version	Release Date	Description
V1.0	06/27/2014	Initial release
V1.1	09/19/2014	Added error code for SPI transfer timeout (new feature)
V1.1.1	09/24/2014	Corrected function details for both DllInit() and DllCleanUp(). Changed Visual
		C++ redist requirement for managed DLL to reflect recent update.

DLL Requirements

This is the key difference is between the managed and unmanaged DLL versions. The managed DLL runs within the managed Microsoft .NET environment and hence requires the .NET framework (v2.0 or higher) to be installed while the unmanaged DLL does not have this requirement. Hence, the undamaged DLL works best in environments where Python or other languages not supported in Microsoft Visual Studio are to be used. See below for a summary of the DLL requirements for each version.

DLL Version:	Requirements:	
Managed	 .NET framework (v2.0 or higher) Microsoft Visual C++ 2010 Redistributable Package 	
Unmanaged	1. Microsoft Visual C++ 2010 Redistributable Package	

Unmanaged DLL API Overview

The DLL is to be initialized using the **DllInit()** function and the function **DllCleanUp()** is to be called before the DLL is closed.

```
DevIO::DllInit(UINT32 VendorID, UINT32 ProductID)
void
void
      DevIO::DllCleanUp()
            EEPROM Operations
int
      DevFunctions::WriteEEProm(BYTE address, BYTE content)
int
      DevFunctions::ReadEEProm(BYTE address)
      //// GPIO
      DevFunctions::GetGpioPinDir()
int
int
      DevFunctions::SetGpioPinDir(WORD gpioDir)
      DevFunctions::GetGpioPinVal()
int
int
      DevFunctions::SetGpioPinVal(WORD gpioVal)
             Password Operations
      DevFunctions::EnterAccessPasswd(String^ passwd)
int
int
      DevFunctions::GetPasswdAttmptCnt()
      DevFunctions::GetPasswdAccessStatus()
int
      //// SPI Bus Operations
int
      DevFunctions::RequestSpiBusRel()
      DevFunctions::TxferSpiData(BYTE* txData, BYTE* rxData)
int
      DevFunctions::CancelSpiTxfer()
int
      //// Other Chip Status Information
```

```
DevFunctions::GetEvntCntFromIntPin()
int
int
      DevFunctions::GetSpiBusRelExtRegStatus()
int
      DevFunctions::GetSpiBusCurOwner()
      //// USB Related
INT64 DevSettings::GetVid()
INT64 DevSettings::GetPid()
int
      DevSettings::GetVidPid(UINT32* vid, UINT32* pid)
      DevSettings::SetVidPid(UINT32 vid, UINT32 pid)
int
      DevSettings::GetSerialNumber(WCHAR* serialNumber)
int
      DevSettings::GetConnectionStatus()
bool
int
      DevSettings::GetPwrConfigSrc()
int
      DevSettings::GetPwrConfigRmtWkupCpbl()
      DevSettings::GetPwrConfig(int* pwrSrc, bool* isRmtWkupCpble)
int
      DevSettings::SetPwrConfig(int pwrSrc, bool isRmtWkupCpble)
int
int
      DevSettings::GetReqdCurrentLd()
int
      DevSettings::SetReqdCurrentLd(int current)
int
      DevSettings::GetStringManufacturer(WCHAR*)
int
      DevSettings::SetStringManufacturer(WCHAR* newString)
int
      DevSettings::GetStringDescriptor(WCHAR*)
int
      DevSettings::SetStringDescriptor(WCHAR* newString)
      //// Chip Access Settings
      DevSettings::GetPermanentDevLockStatus()
int
int
      DevSettings::SetPermanentDevLock()
int
      DevSettings::GetPasswdEnStatus()
int
      DevSettings::SetPasswdEnStatus(bool onOff, char* newPasswd)
      DevSettings::SetNewPasswd(String^ curPasswd, char* newPasswd)
int
      //// Chip Settings
int
      DevSettings::GetAllChipSettings(int whichToGet, BYTE* gpioPinDes,
                                              int* gpioDfltOutput, int* gpioDfltDir,
                                              bool* rmtWkupEn, BYTE* intPinMd,
                                              bool* spiBusRelEn)
int
      DevSettings::SetAllChipSettings(int whichToSet, BYTE* gpioPinDes,
                                              int gpioDfltOutput, int gpioDfltDir,
                                              bool rmtWkupEn, BYTE intPinMd,
                                              bool spiBusRelEn)
int
      DevSettings::GetGpioDfltOutput(int whichToGet)
int
      DevSettings::GetGpioDfltDirection(int whichToGet)
int
      DevSettings::GetGpioPinDesignations(int whichToGet,
                                              BYTE* gpioPinDes)
      DevSettings::GetGpioConfig(int whichToSet, BYTE* gpioPinDes,
int
                                              int* gpioOutputDflt, int* gpioDir)
int
      DevSettings::SetGpioConfig(int whichToSet, BYTE* gpioPinDes,
                                              int gpioOutputDflt, int gpioDir)
int
      DevSettings::GetRmtWkupEnStatus(int whichToGet)
```

```
DevSettings::SetRmtWkupEnStatus(int whichToSet, bool enStatus)
int
      DevSettings::GetInterruptPinMode(int whichToGet)
int
      DevSettings::SetInterruptPinMode(int whichToSet, int intPinMode)
int
int
      DevSettings::GetSpiBusReleaseEnStatus(int whichToGet)
      DevSettings::SetSpiBusReleaseEnStatus(int whichToSet, bool spiBusRelEn)
int
            SPI Settings
      ////
int
      DevSettings::GetAllSpiSettings(int whichToGet, UINT32* bitRate,
                                              WORD* idleCsVal, WORD* activeCsVal,
                                              WORD* csToDataDly, WORD* dataToDataDly,
                                              WORD* dataToCsDly, WORD* txferSize,
                                              BYTE* spiMd)
int
      DevSettings::SetAllSpiSettings(int whichToSet, UINT32 bitRate,
                                              WORD idleCsVal, WORD activeCsVal,
                                              WORD csToDataDly, WORD dataToDataDly,
                                              WORD dataToCsDly, WORD txferSize,
                                              BYTE spiMd)
int
      DevSettings::GetSpiBitRate(int whichToGet)
      DevSettings::SetSpiBitRate(int whichToSet, UINT32 bitRate)
int
      DevSettings::GetSpiIdleCsValue(int whichToGet)
int
      DevSettings::GetSpiActiveCsValue(int whichToGet)
int
      DevSettings::GetSpiCsValues(int whichToGet, WORD* csIdleCsVal, WORD* csActiveVal)
int
      DevSettings::SetSpiCsValues(int whichToSet, WORD csIdleCsVal, WORD csActiveVal)
int
      DevSettings::GetSpiDelayCsToData(int whichToGet)
int
int
      DevSettings::GetSpiDelayDataToData(int whichToGet)
int
      DevSettings::GetSpiDelayDataToCs(int whichToGet)
int
      DevSettings::GetSpiDelays(int whichToGet, WORD* csToDataDly, WORD* dataToDataDly,
                                              WORD* dataToCsDly)
int
      DevSettings::SetSpiDelays(int whichToSet, WORD csToDataDly, WORD dataToDataDly,
                                              WORD dataToCsDly)
int
      DevSettings::GetSpiTxferSize(int whichToGet)
      DevSettings::SetSpiTxferSize(int whichToSet, WORD txferSize)
int
int
      DevSettings::GetSpiMode(int whichToGet)
      DevSettings::SetSpiMode(int whichToSet, BYTE spiMode)
int
      //// Multiple Device Support
             DevSpecial::GetDeviceCount()
int
int
             DevSpecial::GetSelectedDevNum()
             DevSpecial::GetSelectedDevInfo()
String^
int
             DevSpecial::SelectDev(int devNum)
DllConstants:
//The two constants below are the same - user chooses which is more intuitive
static const int OFF
                                                  = 0;
static const int DISABLED
                                                  = 0;
//The two constants below are the same - user chooses which is more intuitive
static const int ON
                                                  = 1;
```

DLL Error Codes

Nearly every function within the DLL will return an error code should something go wrong in the operation. Use this table to decipher what went wrong and what action to take in order to resolve the error.

Error Code Range and Category:

0 – 99 - Devid

- Device Error codes;

100 - 999

- Error originated from DLL or was further interpreted by DLL

Error Code Table

Error Code	Error Description	Recommended Resolution
0	No error (Success)	N/A
-2	Device is busy	N/A
-3	Wrong password entered	N/A
-4	NVRAM locked	N/A
-8	SPI transfer in progress	N/A
-9	SPI Bus not available	N/A
-10	SPI transfer timeout	N/A
-101	Board not connected	Check connection and device enumeration
-106	Writing to the device failed	Ensure DLL was initialized properly
-107	Reading the device failed	Ensure DLL was initialized properly
-201	Invalid parameter given (1st parameter)	1 st parameter was invalid, verify parameters
-202	Invalid parameter given (2 nd parameter)	2 nd parameter was invalid, verify parameters
-203	Invalid parameter given (3 rd parameter)	3 rd parameter was invalid, verify parameters
-204	Invalid parameter given (4 th parameter)	4 th parameter was invalid, verify parameters
-205	Invalid parameter given (5 th parameter)	5 th parameter was invalid, verify parameters
-206	Invalid parameter given (6 th parameter)	6 th parameter was invalid, verify parameters
-207	Invalid parameter given (7 th parameter)	7 th parameter was invalid, verify parameters

-208	Invalid parameter given (8 th parameter)	8 th parameter was invalid, verify parameters
-209	Invalid parameter given (9 th parameter)	9 th parameter was invalid, verify parameters
-300	USB transfer in progress	N/A
-301	Invalid USB power configuration found	Re-configure device with a valid USB power config
-501	Chip access is password protected	You must enter access password to access settings
-502	Chip NVRAM is permanently locked	No modifications can be made to NVRAM
-503	Password attempt failed, <5 tries remain	Password failed, password mechanism still open for additional attempts.
-504	Password attempt failed, ≥5 tries	Password mechanism is now temporarily blocked. Must power cycle the device in order to unlock for further attempts at accessing the device.
-601	EEPROM write failed	N/A
-602	EEPROM read failed	N/A

Detailed API Function List

```
DllInit
Name:
      DllInit (UINT32 vendorID, UINT32 productID)
Purpose:
      Sets the Vendor and Product ID used for the project. THIS MUST BE DONE IN ORDER TO
      BEGIN USING THE DLL!
Parameters:
     Inputs:
        vendorID - Assigned by USB IF (www.usb.org)
         productID - Assigned by the Vendor ID Holder
     Outputs:
         none
Returns:
       int - Contains error code. 0 = successful. Other = failed
Notes:
      Call this before any other function calls!
```

DllCleanUp

```
Name:
    DllCleanUp ()

Purpose:
    Cleans up internal variables within DLL when finished using the DLL.

Parameters:
    none

Returns:
    none

Notes:
    Call this when exiting your application.
```

WriteEEProm

```
Name:
    WriteEEProm

Purpose:
    Write to the EEPROM

Parameters:
    Inputs:
    address (BYTE) - Location in EEPROM where to write the data content (BYTE) - Content to put in the EEPROM at specified address.
    Outputs:
        none

Returns:
    int - Contains error code. 0 = successful. Other = failed
```

Notes:

None

ReadEEProm

```
Name:
    ReadEEProm

Purpose:
    Read the EEPROM at the specified address

Parameters:
    Inputs:
        address (BYTE) - Location in EEPROM where to write the data
    Outputs:
        none

Returns:
    int - Contains error code or EEPROM data value. Negative value if error,
        otherwise the function was successful and value returned is from EEPROM.

Notes:
```

GetGpioPinDir

```
Name:
GetGpioPinDir
Purpose:
Get GPIO Pin Direction
Parameters:
Inputs:
```

none
Outputs:
none
Returns:

none

int - If successful, return GPIO pin values in lower 9 bits. Other = failed

Notes: none

SetGpioPinDir

```
Name:
```

SetGpioPinDir

Purpose:

Set GPIO Pin Direction

Parameters:

Inputs:

```
Outputs:
    none

Returns:
    int - If successful, 0 is returned. Anything else means operation failed

Notes:
    none
```

GetGpioPinVal

Name:

GetGpioPinVal

Purpose:

Get GPIO Pin Values

Parameters:

Inputs:
 none
Outputs:
 none

.

Returns:

int - If successful, return GPIO pin values in lower 9 bits. Negative = failed

This command will have an effect only on those GPs that are previously configured as GPIOs.

SetGpioPinVal

Name:

SetGpioPinVal

Purpose:

Set GPIO Pin Values

Parameters:

Inputs:

gpioVal (WORD) - values to set the GPIOs to

Mapping(MSB to LSB - only lower 9 bits used):

GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL

Outputs:

none

Returns:

int - If successful, 0 is returned. Anything else means operation failed

Notes:

The GPIO pin value will have an effect only on those GPs that are previously configured as GPIOs.

EnterAccessPasswd

Name:

EnterAccessPasswd

Purpose:

Send the chip access password to the device in attempt to unlock the device for modifying boot-up settings.

Parameters:

Inputs:

strPasswd (char*) - Password to submit to the device (must be 8 characters long)

Outputs:

none

Returns:

Notes:

The device will only allow for five attempts prior to self-locking itself. For more information on the chip access protection settings, see the device datasheet on microchip.com

GetPasswdAttmptCnt

Name:

GetPasswdAttmptCnt

Purpose:

Get the number of password attempts up to this point

Parameters:

Inputs:

none

Outputs:

none

Returns:

int - Number of password access attempts so far. If negative, there was an error.

Notes:

none

GetPasswdAccessStatus

Name:

GetPasswdAccessStatus

Purpose:

Get the password access status (password access granted or not granted)

Parameters:

Inputs:

none

Outputs:

none

Returns:

int - If 0, password has not been guessed correctly and access is not granted.

If 1, password has been guessed correctly and access is granted.

If less than zero, an error occurred.

Notes:

none

RequestSpiBusRel

```
Name:
    RequestSpiBusRel
Purpose:
    Request chip to release the SPI bus
Parameters:
    Inputs:
        none
    Outputs:
        none
Returns:
    int - If successful, return GPIO pin values in lower 16 bits. If error, value is negative.

Notes:
    none
```

TxferSpiData

CancelSpiTxfer

Name:

```
CancelSpiTxfer
Purpose:
    Cancel the current SPI transfer
Parameters:
    Inputs:
        none
    Outputs:
        none
Returns:
    int - Contains error code. 0 = successful. Other = failed
```

```
Notes:
```

none

GetEvntCntFromIntPin

```
Name:
     GetEvntCntFromIntPin
Purpose:
     Get the current number of events from the interrupt pin.
Parameters:
     Inputs:
         none
     Outputs:
         none
Returns:
     int - Current event count. If the value is negative, an error occurred.
Notes:
```

GetSpiBusRelExtReqStatus

```
Name:
```

GetSpiBusRelExtReqStatus

Purpose:

Get status regarding whether or not there is an external request for SPI bus release Parameters:

Inputs: none Outputs: none

none

Returns:

int - If 0, no external request for SPI bus release If 1, pending external request for SPI bus release If less than zero, an error occurred.

Notes:

none

GetSpiBusCurOwner

Name:

GetSpiBusCurOwner

Purpose:

Get information regarding who is the current SPI bus owner

Parameters:

Inputs: none Outputs:

none

Returns:

int - If 0, no owner

If 1, USB Bridge is the owner If 2, an external master is the owner If less than zero, an error occurred.

Notes:

none

GetVid

```
Name:
     GetVid
Purpose:
     Get the vendor ID (VID) of the part.
Parameters:
     Inputs:
        none
     Outputs:
        none
Returns:
     INT64 - VID value is returned. If error, a negative value is returned.
Notes:
     none
      GetPid
Name:
     GetPid
Purpose:
     Get the product ID (PID) of the part.
Parameters:
     Inputs:
        none
     Outputs:
        none
Returns:
     INT64 - PID value is returned. If error, a negative value is returned.
Notes:
     none
      GetVidPid
Name:
     GetVidPid
Purpose:
     Get the vendor ID (VID) and product ID (PID) of the part.
Parameters:
     Inputs:
        none
     Outputs:
        UINT32* - VID value of the part
        UINT32* - PID value of the part
Returns:
     none
Notes:
     This function is only supported in the unmanaged version of the MCP2210 DLL.
```

SetVidPid

```
Name:
    SetVidPid

Purpose:
    Set the VID and PID of the part.

Parameters:
    Inputs:
        vid (UINT32) - Vendor ID value to set
        pid (UINT32) - Product ID value to set
        Outputs:
            none

Returns:
    int - Contains error code. 0 = successful. Other = failed

Notes:
    none
```

GetSerialNumber

```
Name:
    GetSerialNumber

Purpose:
    Get the device serial number.

Parameters:
    Inputs:
        none
    Outputs:
        WCHAR* - Serial number string is returned through output parameter

Returns:
    int - Contains error code. 0 = successful. Other = failed

Notes:
    none
```

GetConnectionStatus

```
Name:
    GetConnectionStatus

Purpose:
    Retrieve the connection status of the device

Parameters:
    Inputs:
        none
    Outputs:
        none

Returns:
    bool - True if connected, false if device is unconnected

Notes:
    none
```

```
GetPwrConfigSrc
```

GetPwrConfigRmtWkupCpbl

```
Name:
    GetPwrConfigRmtWkupCpbl

Purpose:
    Get the USB power configuration setting: remote wakeup capable.

Parameters:
    Inputs:
        none
    Outputs:
        none

Returns:
    int - Will be either TRUE(1) or FALSE (0). If less than zero, there was an error Notes:
        none
```

GetPwrConfig

```
Name:
    SetPwrConfig
Purpose:
    Set the USB power configuration settings for the part.

Parameters:
    Inputs:
        none
    Outputs:
        out_pwrSrc (int*) - USB power mode (0 = Host-Powered, 1 = Self-Powered)
        out_rmtWkup (int*)- Will be either TRUE(1) or FALSE (0).

Returns:
    int - Contains error code. 0 = successful. Other = failed

Notes:
    none
```

SetPwrConfig

```
Name:
    SetPwrConfig
Purpose:
    Set the USB power configuration settings for the part.

Parameters:
    Inputs:
        pwrOptn (int) - USB power mode (0 = Host-Powered, 1 = Self-Powered)
            rmtWkup (bool)- Specify if the device is remote wakeup capable (false = no, true = yes)

Outputs:
        none

Returns:
        int - Contains error code. 0 = successful. Other = failed

Notes:
        none
```

GetReqdCurrentLd

Name:

GetReqdCurrentLd

Purpose:

Gets the amount of current (mA) that the device will request from the USB host

Parameters:

Inputs:

none

Outputs:

none

Returns:

int - If positive, USB device current requested value

Notes:

The value returned is equal to the actual value for this setting (i.e. a return value of 100 means the setting is set to 100mA).

SetReqdCurrentLd

Name:

SetReqdCurrentLd

Purpose:

Sets the amount of current (mA) that the device will request from the USB host Parameters:

Inputs:

newVal (int) - The value to be set.

Outputs:

none

Returns:

int - Contains error code. 0 = successful. Other = failed

Notes:

This function will adjust the value to meet the USB spec (1 = 2mA). So if you want

this setting to be set to 100mA, simply use 100 as input to this function (rather than 50 as the USB spec would require).

GetStringManufacturer

Name:

GetStringManufacturer

Purpose:

Retrieve the manufacturer string from the device.

Parameters:

Inputs:

none

Outputs:

manString (WCHAR*) - If successful, the current device USB manufacturer string is returned. If an error occurred, null is returned.

Returns:

int - Contains error code. 0 = successful. Other = failed

Notes:

The string returned can be up to 29 Unicode characters in length.

SetStringManufacturer

Name:

SetStringManufacturer

Purpose:

Set the USB manufacturer string for the device.

Parameters:

Inputs:

manString (WCHAR*) - Holds Unicode or ANSI string of desired manufacturer string Outputs:

none

Returns:

int - Contains error code. 0 = successful. Other = failed

Notes:

The USB manufacturer string can be up to 29 Unicode characters long.

GetStringDescriptor

Name:

GetStringDescriptor

Purpose:

Retrieve the string descriptor from the device.

Parameters:

Inputs:

none

Outputs:

descString (WCHAR*) - If successful, the current device USB string descriptor is returned. If an error occurred, null is returned.

Returns:

```
int - Contains error code. 0 = successful. Other = failed
Notes:
    The string returned can be up to 29 Unicode characters in length.
      SetStringDescriptor
Name:
    SetStringDescriptor
Purpose:
    Set the USB string descriptor for the device.
Parameters:
    Inputs:
        descString (WCHAR*) - Holds Unicode or ANSI string of desired string descriptor
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
    The USB string descriptor can be up to 29 Unicode characters long.
      GetPermanentDevLockStatus
  Name:
    GetPermanentDevLockStatus
Purpose:
     Get the enable/disable status of the permanent device lock protection
Parameters:
    Inputs:
        none
    Outputs:
        none
Returns:
     int - Value will be 1 if enabled, 0 if disabled, and less than 0 if there was an
              error.
```

SetPermanentDevLock

Notes:

none

```
Name:
    LockDevice
Purpose:
    Permanently lock the part (THIS CANNOT BE UNDONE - USE WITH EXTREME CAUTION!)
Parameters:
    Inputs:
        none
    Outputs:
        none
Returns:
```

```
int - Contains error code. 0 = successful. Other = failed
Notes:
   !! WARNING WARNING !!! -- USE THIS FUNCTION WITH GREAT CAUTION. THE CHIP NON-VOLATILE
        MEMORY CANNOT BE CONFIGURED AFTER THIS FUNCTION HAS BEEN INVOKED!!
```

GetPasswdEnStatus

Name:

GetPasswdEnStatus

Purpose:

Get the enable/disable status of the chip password protection mechanism

Parameters:

Inputs:

none

Outputs:

none

Returns:

int - Value will be 1 if enabled, 0 if disabled, and less than 0 if there was an error.

Notes:

none

SetPasswdEnStatus

Name:

SetPasswdEnStatus

Purpose:

Enable/disable the password protection

Parameters:

Inputs:

enStatus (bool)- True if you want to enable password protection, and false if not passwd (char*) - Must be the desired password when enabling password protection.

The length of this password MUST be 8 characters long. When disabling password protection, this parameter must be NULL.

Outputs:

none

Returns:

int - Contains error code. 0 = successful. Other = failed

Notes:

If you are disabling the password protection, ensure that the access password has already been entered and the device has no protection enabled. If this is not done prior to an attempt to disable the password mechanism, the attempt will fail.

SetNewPasswd

Name:

SetNewPasswd

Purpose:

Change the current password for the device.

```
Parameters:
     Inputs:
        oldPasswd (char*) - Should contain current password if previously set. Otherwise
                              use null in this parameter's place.
        newPasswd (char*) - The new password to set for the device.
     Outputs:
        none
Returns:
      int - Contains error code. 0 = successful. Other = failed
Notes:
      This function is nearly the same as using SetPasswdEnStatus(). Use NULL in the
      oldPasswd parameter if there is currently no password protection enabled and you want
      to enable password protection using the password specified in the newPasswd
      parameter. Use NULL in the newPasswd parameter and supply the current password in
      the oldPasswd parameter if you want to disable password protection. Remember that any
      password chosen must have a length of 8 characters.
      GetAllChipSettings
Name:
     GetAllChipSettings
Purpose:
     Get all the chip settings with one function.
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT SETTINGS ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1,
        gpPinDes (BYTE*) - Array of 9 elements specifying each GPIO pin designation
                         (0 = GPIO, 1 = Chip-selects, 2 = Dedicated pin function)
        dfltGpioOutput (int*) - Default GPIO output.
                         Mapping (MSB to LSB - only lower 9 bits used):
                         GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
        dfltGpioDir (int*) - Default GPIO direction, where 0 = output and 1 = input
                         Mapping (MSB to LSB - only lower 9 bits used):
                         GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
        rmtWkupEn (bool*) - Enable/disable remote wake-up
        intPintMd (BYTE*) - Dedicated Pin function (interrupt pin mode).
                         See below for different modes:
                                 -> b100 - count high pulses
                                 -> b011 - count low pulses
                                 -> b010 - count rising edges
                                 -> b001 - count falling edges
                                 -> b000 - no interrupt counting
        spiBusRelEn (bool*) - SPI Bus release enable.
                         0 = SPI bus is released between transfer,
                         1 = SPI bus is not released by MCP2210 between transfers
     Outputs:
        none
```

int - Contains error code. 0 = successful. Other = failed

Returns:

Notes:

This function is only available in unmanaged DLL version.

```
SetAllChipSettings
Name:
     SetAllChipSettings
Purpose:
     Set all the chip settings with one function.
Parameters:
    Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT SETTINGS ONLY = 0,
                           PWRUP_DEFAULTS_ONLY = 1,
                           BOTH = 2
        gpPinDes (BYTE*) - Array of 9 elements specifying each GPIO pin designation
                         (0 = GPIO, 1 = Chip-selects, 2 = Dedicated pin function)
        dfltGpioOutput (int) - Default GPIO output.
                         Mapping (MSB to LSB - only lower 9 bits used):
                         GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
        dfltGpioDir (int) - Default GPIO direction, where 0 = output and 1 = input
                         Mapping (MSB to LSB - only lower 9 bits used):
                         GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
        rmtWkupEn (bool) - Enable/disable remote wake-up
        intPintMd (BYTE) - Dedicated Pin function (interrupt pin mode).
                         See below for different modes:
                                 -> b100 - count high pulses
                                 -> b011 - count low pulses
                                 -> b010 - count rising edges
                                 -> b001 - count falling edges
                                 -> b000 - no interrupt counting
        spiBusRelEn (bool) - SPI Bus release enable.
                         0 = SPI bus is released between transfer,
                         1 = SPI bus is not released by MCP2210 between transfers
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
     None
```

GetGpioDfltOutput

Name:

GetGpioDfltOutput

Purpose:

Get GPIO configuration default output

Parameters:

Inputs:

```
whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1
     Outputs:
        none
Returns:
     int - If less than zero, there was an error. Otherwise this value is the default
              GPIO output value. More info:
              Mapping(MSB to LSB - only lower 9 bits used):
               GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
Notes:
     none
      GetGpioDfltDirection
Name:
     GetGpioDfltDirection
Purpose:
     Get GPIO configuration default direction
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1
     Outputs:
        none
Returns:
     int - If less than zero, there was an error. Otherwise this value is the
              dfltGpioDir value. More info:
              Default GPIO direction, where 0 = output and 1 = input
              Mapping(MSB to LSB - only lower 9 bits used):
               GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
Notes:
     none
      GetGpioDesignations
Name:
     GetGpioPinDesignations
Purpose:
     Get GPIO Pin designations
Parameters:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0, PWRUP_DEFAULTS_ONLY = 1
```

Outputs:

Returns:

int - If the output Byte array is NULL, then an error occurred. Otherwise it was successful.

Notes:

Since the output of this function is through the Byte array given as a parameter, the contents of this array does not need to be assigned to anything.

GetGpioConfig

```
Name:
    SetGpioConfig
Purpose:
     Get all GPIO configuration settings
Parameters:
     Inputs:
        None
     Outputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT SETTINGS ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1
        gpPinDes (BYTE*) - Array of 9 elements specifying each GPIO pin designation
                            (0 = GPIO, 1 = Chip-selects, 2 = Dedicated pin function)
        dfltGpioOutput (int*)- Default GPIO output.
                            Mapping(MSB to LSB - only lower 9 bits used):
                             GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
        dfltGpioDir (int*) - Default GPIO direction, where 0 = output and 1 = input
                            Mapping(MSB to LSB - only lower 9 bits used):
                             GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
     none
```

SetGpioConfig

```
Name:
     SetGpioConfig
Purpose:
     Allow the user to adjust GPIO configuration settings
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1,
                           BOTH = 2
        gpPinDes (BYTE*) - Array of 9 elements specifying each GPIO pin designation
                            (0 = GPIO, 1 = Chip-selects, 2 = Dedicated pin function)
        dfltGpioOutput (int) - Default GPIO output.
                            Mapping(MSB to LSB - only lower 9 bits used):
```

```
GP8VAL GP7VAL GP6VAL GP5VAL GP3VAL GP2VAL GP1VAL GP0VAL dfltGpioDir (int) - Default GPIO direction, where 0 = output and 1 = input

Mapping(MSB to LSB - only lower 9 bits used):

GP8VAL GP7VAL GP6VAL GP5VAL GP4VAL GP3VAL GP2VAL GP1VAL GP0VAL

Outputs:

none

Returns:

int - Contains error code. 0 = successful. Other = failed

Notes:

none
```

GetRmtWkupEnStatus

```
Name:
     GetRmtWkupEnStatus
Purpose:
     Get the enable state of the remote wakeup setting
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0, PWRUP_DEFAULTS_ONLY = 1
     Outputs:
        none
Returns:
     int - The status of the remote wakeup enable(1)/disabled(0). If negative, this
           is an error code.
Notes:
     none
```

SetRmtWkupEnStatus

```
Name:
     SetRmtWkupEnStatus
Purpose:
     Set the enable state of the remote wakeup setting
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT SETTINGS ONLY = 0,
                           PWRUP_DEFAULTS_ONLY = 1,
                           BOTH = 2
        rmtWkupEn (bool) - Enable(true)/disable(false) remote wake-up
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
```

GetInterruptPinMode

```
Name:
     GetInterruptPinMode
Purpose:
     Get interrupt pin mode settings
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1
     Outputs:
        none
Returns:
     int - Dedicated Pin function (interrupt pin mode). If the return value is
               negative, the operation failed. See below for different modes:
                         -> 4 - count high pulses
                         -> 3 - count low pulses
                         -> 2 - count rising edges
                         -> 1 - count falling edges
                         -> 0 - no interrupt counting
Notes:
     none
      SetInterruptPinMode
```

```
Name:
     SetInterruptPinMode
Purpose:
     Allow the user to adjust GPIO configuration settings
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT SETTINGS ONLY = 0,
                           PWRUP_DEFAULTS_ONLY = 1,
                           BOTH = 2
        intPintMd (int) - Dedicated Pin function (interrupt pin mode). See below for
                          different modes:
                                  -> 4 - count high pulses
                                  -> 3 - count low pulses
                                  -> 2 - count rising edges
                                  -> 1 - count falling edges
                                  -> 0 - no interrupt counting
     Outputs:
        none
Returns:
```

```
int - Contains error code. \theta = successful. Other = failed Notes: none
```

GetSpiBusReleaseEnStatus

```
Name:
     GetSpiBusReleaseEnStatus
Purpose:
     Get the enable state of the SPI bus release setting
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0, PWRUP_DEFAULTS_ONLY = 1
     Outputs:
        none
Returns:
     int - The status of the remote wakeup enable(1)/disabled(0). If not these values,
               it is an error code.
Notes:
     none
```

SetSpiBusReleaseEnStatus

```
Name:
     SetSpiBusReleaseEnStatus
Purpose:
     Set the enable state of the SPI bus release setting
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP_DEFAULTS_ONLY = 1,
                           BOTH = 2
        spiBusRelEn (bool) - SPI Bus release enable.
                         false = SPI bus is released between transfer,
                         true = SPI bus is not released by MCP2210 between transfers
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
     none
```

GetAllSpiSettings

```
Name:
     GetAllSpiSettings
Purpose:
     Get all the SPI settings with one function.
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT SETTINGS ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1
        baudRate (UINT32*) - SPI bit rate speed
        idleCsVal (WORD*) - IDLE CS (chip select) value
        activeCsVal (WORD*) - ACTIVE CS value
        csToDataDly (WORD*) - CS to data delay
        dataToDataDly(WORD*) - Delay between subsequent data bytes
        dataToCsDly (WORD*) - Last data byte to CS
                             - Bytes per SPI transaction
        txferSize (WORD*)
        spiMd (BYTE*) - SPI mode (Possible values: 0, 1, 2, or 3)
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
     This function is available in the unmanaged DLL version only.
```

SetAllSpiSettings

```
Name:
     SetAllSpiSettings
Purpose:
     Set all the SPI settings with one function.
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1,
                           BOTH = 2
        baudRate (UINT32) - SPI bit rate speed
        idleCsVal (WORD) - IDLE CS (chip select) value
        activeCsVal (WORD) - ACTIVE CS value
        csToDataDly (WORD) - CS to data delay
        dataToDataDly(WORD) - Delay between subsequent data bytes
        dataToCsDly (WORD) - Last data byte to CS
        txferSize (WORD) - Bytes per SPI transaction
        spiMd (BYTE) - SPI mode (Possible values: 0, 1, 2, or 3)
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
```

```
GetSpiBitRate
Name:
     GetSpiBitRate
Purpose:
     Get SPI bit rate value.
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0, PWRUP_DEFAULTS_ONLY = 1
     Outputs:
        none
Returns:
     int - The value of the SPI bit rate
Notes:
     none
```

SetSpiBitRate

```
Name:
     SetSpiBitRate
Purpose:
     Set SPI bit rate value.
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1,
                           BOTH = 2
        bitRate (UINT32) - Value of desired bit rate
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
     none
```

GetSpiCsIdleValue

Name:

GetSpiCsIdleValue

Purpose:

Get the SPI chip select idle value

Parameters: Inputs:

```
whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1
     Outputs:
        none
Returns:
     int - The value of the SPI chip select idle value. If the return value is negative,
              the operation failed.
Notes:
     none
      GetSpiCsActiveValue
Name:
     GetSpiCsActiveValue
Purpose:
     Get the SPI chip select active value
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1
     Outputs:
        none
     int - The value of the SPI chip select active value. If the return value is negative,
              the operation failed.
Notes:
     none
      GetSpiCsValues
Name:
     GetSpiCsValues
Purpose:
     Get the SPI chip select values
Parameters:
     Inputs:
        None
     Outputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1
        idleCsVal (WORD*) - IDLE CS (chip select) value
        activeCsVal (WORD*)- ACTIVE CS value
Returns:
```

int - Contains error code. 0 = successful. Other = failed

This function is only available in the unmanaged version of the DLL.

Notes:

```
SetSpiCsValues
```

```
Name:
     SetSpiCsValues
Purpose:
     Set the SPI chip select values
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1,
                           BOTH = 2
        idleCsVal (WORD) - IDLE CS (chip select) value
        activeCsVal (WORD) - ACTIVE CS value
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
     none
```

GetSpiDelayCsToData

```
Name:
     GetSpiDelayCsToData
Purpose:
     Get CS to data SPI delay
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1
     Outputs:
        none
Returns:
     int - Returns CS to data SPI delay value. If return code is less than zero, an
              error occurred.
Notes:
     none
```

GetSpiDelayDataToData

Name:
GetSpiDelayDataToData
Purpose:

Get data to data SPI delay

```
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0, PWRUP_DEFAULTS_ONLY = 1
     Outputs:
        none
Returns:
     int - Returns data to data SPI delay value. If return code is less than zero, an
              error occurred.
Notes:
     none
      GetSpiDelayDataToCs
Name:
     GetSpiDelayDataToCs
Purpose:
     Get data to CS SPI delay
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1
     Outputs:
        none
Returns:
     int - Returns data to CS SPI delay value. If return code is less than zero, an
              error occurred.
Notes:
     none
      GetSpiDelays
Name:
     GetSpiDelays
Purpose:
     Get the SPI delays
Parameters:
     Inputs:
        None
     Outputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1
        csToDataDly (WORD*)- CS to data delay
        dataToDataDly (WORD*) - Delay between subsequent data bytes
```

dataToCsDly (WORD*) - Last data byte to CS

Returns:

```
int - Contains error code. 0 = successful. Other = failed
Notes:
   This function is only available in the unmanaged version of the DLL.
```

```
SetSpiDelays
Name:
     SetSpiDelays
Purpose:
     Set the SPI delays
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT SETTINGS ONLY = 0,
                           PWRUP_DEFAULTS_ONLY = 1,
                           BOTH = 2
        csToDataDly (WORD) - CS to data delay
        dataToDataDly (WORD) - Delay between subsequent data bytes
        dataToCsDly (WORD- Last data byte to CS
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
     none
```

GetSpiTxferSize

```
Name:
     GetSpiTxferSize
Purpose:
     Get the SPI transfer size.
Parameters:
     Inputs:
        whichToGet (int) - Use static constants defined in DllConstants class.
                           Cannot use BOTH in any Get... functions. Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0, PWRUP_DEFAULTS_ONLY = 1
     Outputs:
        none
Returns:
     int - The SPI transfer size is returned. If return code is less than zero, an
              error occurred.
Notes:
     none
```

SetSpiTxferSize

Name:

```
SetSpiTxferSize
Purpose:
     Set the SPI transfer size.
Parameters:
     Inputs:
        whichToSet (int) - Use static constants defined in DllConstants class.
                           Use one of the following:
                           CURRENT_SETTINGS_ONLY = 0,
                           PWRUP DEFAULTS ONLY = 1,
                           BOTH = 2
        txferSize (WORD) - Bytes per SPI transfer (can range from 0 to 65535 inclusive)
     Outputs:
        none
Returns:
     int - Contains error code. 0 = successful. Other = failed
Notes:
     none
      GetSpiMode
Name:
     GetSpiMode
Purpose:
     Get the SPI mode
Parameters:
     Inputs:
```

whichToGet (int) - Use static constants defined in DllConstants class.

int - The value of the SPI Mode (0, 1, 2, or 3). If return code is less than zero,

Cannot use BOTH in any Get... functions. Use one of the following:

CURRENT SETTINGS ONLY = 0, PWRUP DEFAULTS ONLY = 1

SetSpiMode

an error occurred.

Outputs: none

Notes:

none

```
spiMd (BYTE)- Specify SPI mode 0, 1, 2, or 3.
Outputs:
    none
Returns:
    int - Contains error code. 0 = successful. Other = failed
Notes:
    none
```

GetDevCount

```
Name:
```

GetDevCount

Purpose:

Gets the total number of attached devices

Parameters:

Inputs:
 none

Outputs:

Returns:

int - The total number of attached MCP2210 devices.

Notes:

IMPORTANT: You MUST use the GetConnectionStatus() function prior to calling this function since the device count is refreshed by doing so.

GetSelectedDevNum

Name:

GetSelectedDevNum

Purpose:

Gets the unique index number that indicates with MCP2210 device is selected.

Parameters:

Inputs:

none

Outputs:

none

Returns:

int - The unique index number identifying the selected MCP2210 device.

Notes:

Numbering of devices starts with 0. Hence, the first device will be indicated by the number 0 and the 2^{nd} device by 1 and so on.

GetSelectedDevInfo

Name:

GetSelectedDevInfo

Purpose:

Get the information for the currently selected device

Parameters:

Inputs:

none

Outputs:

none

Returns:

String[^] - String that gives information regarding the currently selected device

Notes:

In order to uniquely identify each device from another, you can use this string and/or the device serial number.

SelectDevice

```
Name:
    SelectDev
Purpose:
    Select the device to which the DLL will communicate
Parameters:
    Inputs:
        devNum (int) - The device number to be selected
    Outputs:
        none
Returns:
    int - Contains error code. 0 = successful. Other = failed
Notes:
```

Numbering of devices starts with 0. Hence, the first device will be indicated by the number 0 and the 2nd device by 1 and so on. Be sure to get the total count of devices available before using this function in order to be sure that you are selecting a valid device number (max valid number is devCount-1). ***IMPORTANT: You MUST use the GetConnectionStatus() function after switching your selected device to allow proper operation and manipulation of that device.***