

**top16.dll API**

Version: 20-June-2008

The following files should accompany this document:

**FTD2XX.dll** DLL from FTDI chip  
**top16.dll** Functions to interface the Top16 Module, requires the FTD2XX.dll

The following functions are provided by top16.dll to interface the Top16 USB Module.

int32_t ListTop16Boards(char stringArray[][20]).....	1
int32_t SetOutputs(uint32_t Handle, uint8_t mask, uint8_t set) .....	2
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**int32\_t ListTop16Boards(char stringArray[][20])**

Search for attached TCTEC Top16 boards.  
 The stringArray will be filled with the names of the boards.  
 It must point to a 2 dimensional char (8bit) array of dimensions [n][20]  
 where n is the number of boards expected.

Returns:

The number of top16 boards found or 0 if none found.

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## **int32\_t SetOutputs(uint32\_t Handle, uint8\_t mask, uint8\_t set)**

Set the digital output states.

8 bits of the 'mask' determines which outputs will be affected:

- 1 = output will be affected
- 0 = leave alone (don't change)

'set' determines whether the output will be switched on or switched off.

- 1 = output on (pulled low)
- 0 = output off (not pulled low).

Returns:

The state of the outputs after the action.

0 to FF:

- 1 = output is on (pulled low).
- 0 = output is off (not pulled low)

A negative number indicates an error:

- 1 invalid board handle (board not found)
- 2 DLL function not loaded (FTD2XX.DLL not found)
- 3 Invalid bit mask (must be 0 to FF)
- 4 Undefined error

## **int32\_t GetInputs(uint32\_t Handle)**

Read the digital inputs.

Returns:

The state of the digital inputs

0 to FF:

- 1 = input is high
- 0 = input is low

A negative number indicates an error:

- 1 invalid board handle (board not found)
- 2 DLL function not loaded (FTD2XX.DLL not found)
- 4 Undefined error

## **int32\_t readAnalogInput(uint32\_t Handle, int16\_t input, uint8\_t gain)**

Read an analog input.

The internal analog amplifier is set to the gain specified and an input is sampled.

Handle            A handle to an open board (returned by OpenBoard)

input            The input to read (1 to 8)

gain             The gain setting

Gain setting	Gain
'Z'	1
'Y'	2
'X'	4
'W'	8
'V'	16
'U'	32
'T'	64

Returns:

The raw analog input value (12 bit).

A negative number indicates an error:

- 1 invalid board handle
- 2 DLL function not loaded (FTDXX.DLL not found)
- 3 invalid gain
- 4 undefined error

## **uint32\_t OpenBoard(char\* board)**

Initialize a top16 board, returns a Handle (uint32) to opened board if successful.

Must be called first before set and get commands.

Returns:

>0 = Handle of opened board.

-1 = invalid board

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## **int32\_t CloseBoard(uint32\_t Handle)**

Close an open board.

The board must be closed when application has finished communicating with it.

Closing a board releases a handle and frees up memory it does not affect the actual hardware or its output states.

Handle = Handle of open board.

Returns:

0 == success

## **int32\_t dllversion()**

Returns the version of this DLL.

Returns:

major and minor version number.

i.e

11 = version 1.1

24 = version 2.4

etc