



SFP API Documentation

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1. Introduction

This document describes the various Application Programming Interface (API) functions for the Multilane SFP host board (ML4024). Each function is described with its parameters and return values.

1.1. Acronyms and abbreviations

| | |
|------------|-----------------------------------|
| API | Application Programming Interface |
| DLL | Dynamic Link Library (.dll file) |
| USB | Universal Serial Bus |
| I2C | Inter-Integrated Circuit |

2. APIs

2.1. General Functions

2.1.1. USB Connection

▪ ConnectToHost

| | |
|--------------------|--|
| Description | Opens a USB connection to QSFP Host |
| Call | bool __stdcall ConnectToHost(UInt16 Instance) |
| Parameters | UInt16 Instance: USB instance of plugged host |
| Returns | True or False |

▪ Disconnect

| | |
|--------------------|--|
| Description | Disconnects from CFP2 Host and close open USB connection |
| Call | bool __stdcall Disconnect(UInt16 Instance) |
| Parameters | UInt16 Instance: USB instance of plugged host |
| Returns | True or False |

▪ GetDeviceCount

| | |
|--------------------|--|
| Description | Gets the number of devices attached |
| Call | UInt32 __stdcall GetDeviceCount(void) |
| Parameters | None |
| Returns | Number of connected devices |

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2.1.2. Monitoring

▪ P3V3_Current_Monitor

| | |
|--------------------|---|
| Description | Measures current value on the 3.3V line |
| Call | bool __stdcall P3V3_Current_Monitor(UINT16 Instance, double* data) |
| Parameters | UINT16 Instance: USB instance double* data: Current value in mA |
| Returns | True or False |

▪ GetVCC

| | |
|--------------------|---|
| Description | Measures voltage on VccT and VccR supplies |
| Call | bool __stdcall GetVCC(int Instance, double* Data) |
| Parameters | UINT16 Instance: USB instance double* data: VCC value in V |
| Returns | True or False |

2.2. SFP MSA functions

2.2.1. I2C access

▪ I2CRead

| | |
|--------------------|--|
| Description | Reads I2C |
| Call | bool __stdcall I2CRead(int Instance, BYTE SlaveAddress, BYTE registerAddress, BYTE* ReadBuff, BYTE Length); |
| Parameters | int instance: USB instance BYTE SlaveAddress: Slave Address BYTE registerAddress: Register to read data from BYTE * ReadBuff: Pointer to the data that is read BYTE Length: Number of registers read sequentially (max=32) |
| Returns | True or False |

▪ I2CWrite

| | |
|--------------------|--|
| Description | Writes I2C |
| Call | bool __stdcall I2CWrite(int Instance, BYTE SlaveAddress, BYTE Register , BYTE Value); |
| Parameters | int instance: USB instance BYTE SlaveAddress: Slave Address BYTE Register: Register where the data will be written BYTE Value: The value to write on the Register |
| Returns | True or False |

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2.2.2. Alarms and controls signals

MOD_ABS

| | |
|--------------------|---|
| Description | Reads the MOD_ABS SFP pin to check if the SFP module is inserted in the Host. |
| Call | bool __stdcall MOD_ABS (UInt16 Instance, bool* status) |
| Parameters | UInt16 Instance: USB instance bool* status: True if HW pin is 1 : module absent False if HW pin is 0 : module present |
| Returns | True or False |

RX_LOS

| | |
|--------------------|--|
| Description | Reads the RX_LOS SFP pin |
| Call | bool __stdcall RX_LOS (UInt16 Instance, bool* status) |
| Parameters | UInt16 Instance: USB instance bool* status: True if HW pin is 1 False if HW pin is 0 |
| Returns | True or False |

TX_DIS

| | |
|--------------------|---|
| Description | Asserts/Deasserts TX_DIS |
| Call | bool __stdcall TX_DIS (UInt16 Instance, bool asserted) |
| Parameters | UInt16 Instance: USB instance bool asserted: True to assert TX_DIS False to deassert TX_DIS |
| Returns | True or False |

TX_Fault

| | |
|--------------------|--|
| Description | Reads the TX_Fault SFP pin |
| Call | bool __stdcall TX_Fault (UInt16 Instance, bool* status) |
| Parameters | UInt16 Instance: USB instance bool* status: True if HW pin is 1 False if HW pin is 0 |
| Returns | True or False |

RATE_SELO

| | |
|--------------------|---|
| Description | Asserts/Deasserts RATE_SELO |
| Call | bool __stdcall RS0 (UInt16 Instance, bool asserted) |
| Parameters | UInt16 Instance: USB instance bool asserted: True to assert RATE_SELO False to deassert RATE_SELO |
| Returns | True or False |

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▪ RATE_SEL1

| | |
|--------------------|---|
| Description | Asserts/Deasserts RATE_SEL1 |
| Call | bool __stdcall RS1 (UInt16 Instance, bool asserted) |
| Parameters | UInt16 Instance: USB instance bool asserted: True to assert RATE_SEL1 False to deassert RATE_SEL1 |
| Returns | True or False |

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