

ASM2464PD USB4 Device Controller MP Tool User Manual

Rev: 0.6

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Environmentally hazardous materials are not used in this product.

Revision History

Rev.	Date	Description
0.1	2022/11/21	Formal release
0.2	2023/08/30	Support PDX FW
0.3	2023/10/12	Add appendix B
0.4	2024/01/23	Support command line /V
0.5	2025/01/21	Support command line /CC
0.6	2025/05/08	Support Reload FW

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Scope:

Customers can easily manufacture ASM2464PD related products.

Operation environment:

Win10 and later version.

MP Tool Interface Overview

The screenshot displays the ASMedia 2464PD MPTool interface, version 1.0.0.4 (1.0.0.2). The interface is divided into several sections:

- Area A (Device Configuration):** Located on the left, it includes fields for Vendor ID (174C), Product ID (2463), Device Revision (0100), Serial Number (AAAA BBBB 0000), and options for increasing HEX and S/N CHK HEX. It also has fields for EP0 M.String (ASMedia), T10 M.String (ASMT), EP0 P.String (ASM246X series), and T10 P.String (ASM246X). The Idle Timer is set to Never. The FW Browser shows AS_USB4_220616_01_00_00.bin.
- Area B (USB4 Device Configuration):** Located in the top center, it includes fields for Vendor Name (ASMedia), Model Name (246x), U4 Mode (3:Auto), Vendor ID (174C), Product ID (2463), Test ID (C0000666), BCD Product FW (1234), Product HW (5A), and TB13 Vendor ID (00B8), Model ID (2463), Model Rev (E3).
- Area C (Device Function):** Located on the right, it includes USB Status (USB 2.0), MP Auto Mode (1), Update FW, Reload FW, Config Check, Partition / Format (MBR, FAT32), Drive Label (Test), W/R Test, Speed Test, Read, and Auto Safe Remove After (0 Seconds).
- Area D (Status and results):** Located at the bottom, it features a table with columns: Port#, Status, VID, PID, Serial Number, FW Version, CC, U4 Mode, Capacity, Update, ReLink, Partition, R/W Test, Preload, and PD. The table shows one device connected at Port# 0 with status SUPERx1, VID 174C, PID 2463, Serial Number AAAA BBBB 0000, FW Version 22072981ed00, CC 2, U4 Mode Legacy, Capacity 232 GB, and Update 0%. Below the table is a progress bar showing 0% completion.
- Area E (Switch configures mode or un-configures mode and save/load ini file):** Located at the top center, it includes icons for Load, Save, and a key icon.

MP tool have 5 major function areas.

Area A: Device Configuration and Device Firmware.

Area B: USB4 Configure device information.

Area C: Device function.

Area D: Status and results.

Area E: Switch configures mode or un-configures mode and save/load ini file.

Area A: Device Configuration and Device Firmware

The screenshot shows the 'Device Configuration' window of the ASM246x MP Tool. It contains several input fields and a 'FW Browser' section at the bottom. The 'Device Configuration' section includes fields for Vendor ID (174C), Product ID (2463), and Device Revision (0100). Below these is a 'Serial Number' section with a text box containing 'AAAABBBB000D', a dropdown menu set to '1.Increase HEX', and a radio button labeled 'S/N CHK HEX'. Further down are fields for EP0 M.String (ASMedia), EP0 P.String (ASM246X series), T10 M.String (ASMT), and T10 P.String (ASM246X). An 'Idle Timer' dropdown is set to 'Never'. The 'FW Browser' section at the bottom shows a file icon and a text box containing 'AS_USB4_220616_81_00_00.bin'.

1. Vendor ID, Product ID and Device Revision:

You can type 4 characters. ("0"~"9" and "A"~"F")

2. Serial Number:

You can type 20 characters ("0"~"9" and "A"~"F")

2-1. S/N Increase Hex or Dec:

You can select auto increase serial number or remain by Hex or Dec .

2-2. Input from Barcode:

The radio is a function that you can input serial number by barcode scanner. There is a limitation is that it is only support one device operation.

2-3. Input from HDD SN:

the radio is a function that the S/N number will use HDD's serial number, USB device only.

2-4. S/N CHK HEX:

The radio is a function that MPTool will check S/N number is valid or not.

3. Manufacturer String and Product String:

All characters are allowed.

4. Device Firmware:

The FW directory must be selected if update FW in area B is checked.

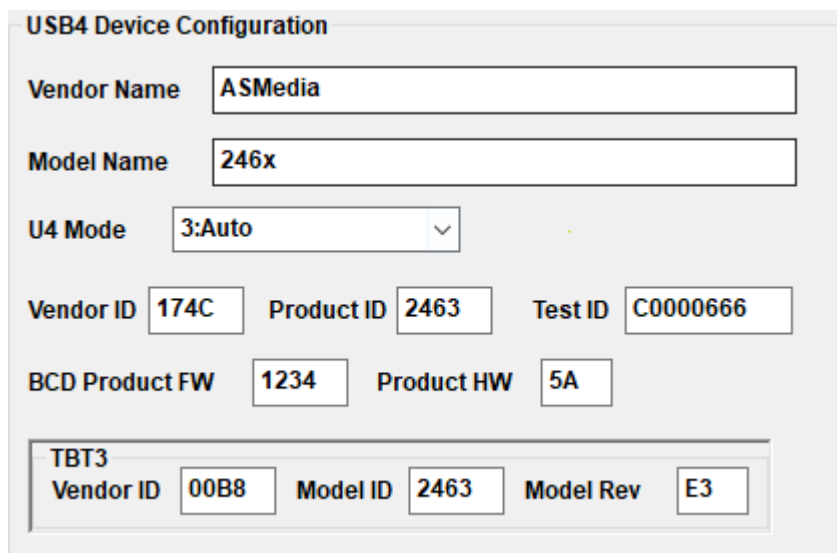
The Preload path must be selected if preload file in area B is checked.

5. Idle Timer:

It allows user to select idle timer to trigger the function of HDD standby.

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Area B: USB4 Configure device information



USB4 Device Configuration

Vendor Name:

Model Name:

U4 Mode:

Vendor ID: Product ID: Test ID:

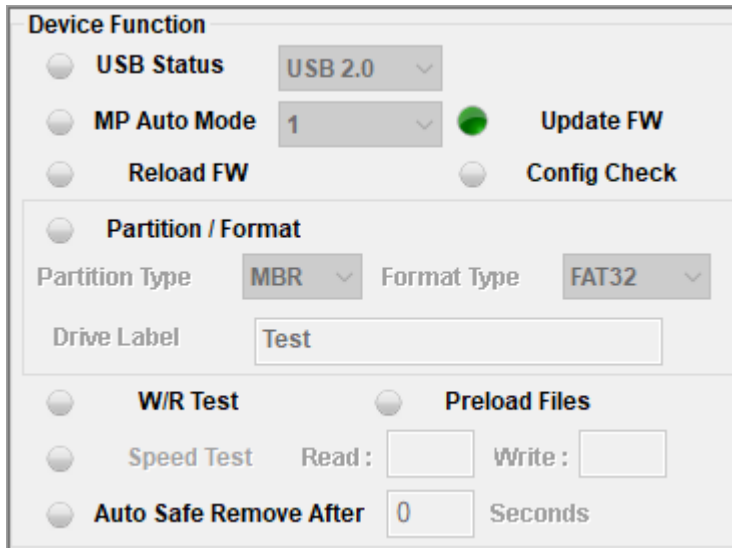
BCD Product FW: Product HW:

TBT3

Vendor ID: Model ID: Model Rev:

1. Vendor Name, Model Name:
You can type 32 characters.
2. U4 Mode:
0: PD + PCIe:
 PD + PCIe tunneling
1: PD + PCIe + Lgcy:
 PD + PCIe tunneling + legacy USB
2: PD + U3 + Lgcy:
 PD + USB3 tunneling + legacy USB
3: Auto:
 Auto by reference host PD PCIe Supported bit
3. Vendor ID, Product ID, Test ID:
You can type 4 characters. ("0"~"9" and "A"~"F")
4. Test ID:
You can type 8 characters. ("0"~"9" and "A"~"F")
5. BCD Product FW:
Set USB4_BcdSync=0 in ini file first for customer setting
6. Product HW:
You can type 2 characters.
7. TBT3 Vendor ID, Model ID, Model Rev:
You can type 4, 4 and 2 ("0"~"9" and "A"~"F")

Area C: Device Function



Device Function

☐ USB Status USB 2.0

☒ MP Auto Mode 1 Update FW

☐ Reload FW Config Check

☐ Partition / Format

Partition Type MBR Format Type FAT32

Drive Label Test

☐ W/R Test Preload Files

☐ Speed Test Read : Write :

☐ Auto Safe Remove After 0 Seconds

1. **USB Status:**
Check device status. USB device only.
2. **MP Auto Mode:**
Tool will run MP process automatically.
3. **Update FW:**
Update new firmware and configuration setting.
4. **Reload FW:**
Reload new firmware and new configuration.
5. **Config Check:**
Check device's PID、VID、Manufacture string、Product String, and Serial number are same with MP tool's setting.
6. **Format Type:**
You can select format type **NTFS**、**FAT32** or **EXFAT**
Drive Label support **11** characters in FAT32 type, **32** characters in NTFS type.
USB device only.
7. **Partition Type**
You can select MBR or GPT. USB device only.
8. **W/R Test:**
MP tool will Write, Read and compare test file on HDD.
The limit size of test pattern file is 180MB.

The file name of test pattern is "rwtest.bin".

USB device only.

9. Speed Test:

Test for device read/write speed. USB device only.

10. Preload Files:

MP tool will copy the files to the HDD.USB device only.

11. Auto Safe remove after ?? second:

this function will auto safely remove after a few second after MP operation success. USB device only.

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Area D: Status and Results

Port#	Status	VID	PID	Serial Number	FW Version	CC	U4 Mode	Capacity	Update	ReLink	Partition	R/W Test	Preload	PD
0	SUPERx1	174C	2463	AAAABBBB0001	22072981fb08	2	Legacy	476 GB						
1														
2														
3														
4														
5														
6														
7														
8														
9														

Pass

Fail

Total

000

Progress Bar

0%

ASM2464PD MPTool will show basic information such as Port Number, Status, PID, VID, Serial Number, FW Version and Capacity and test results.

Area E: Mode select



Lock Mode:

Initially, ASM2464PD MPTool work in Lock Mode. It will load INI file and ready to run.

Unlock Mode:

If you want to enter into Unlock Mode, you must key in password. Password is "asmedia". When you are in Unlock Mode, you can modify Device Configuration, Device Function, Device Firmware, clean test result and save INI.

Password is **"asmedia"**

Operation Procedure:

ASM2464PD MPTool will auto load configuration from "as_mp_toolv0.6.ini". You can edit "as_mp_toolv0.6.ini" by notepad or other edit tool. Please refer to Appendix A.

The standard Operation Procedure is described as followed.

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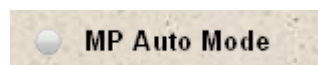
Step1. Please open ASM2464PD MPTool and press Unlock button to modify setting.

Step2. ASM2464PD MPTool will show Login Dialog. Please key in "asmedia".

Step3. You can modify configuration or clean test result.

Step4. Check test configuration items when you begin to test.

Manual Mode

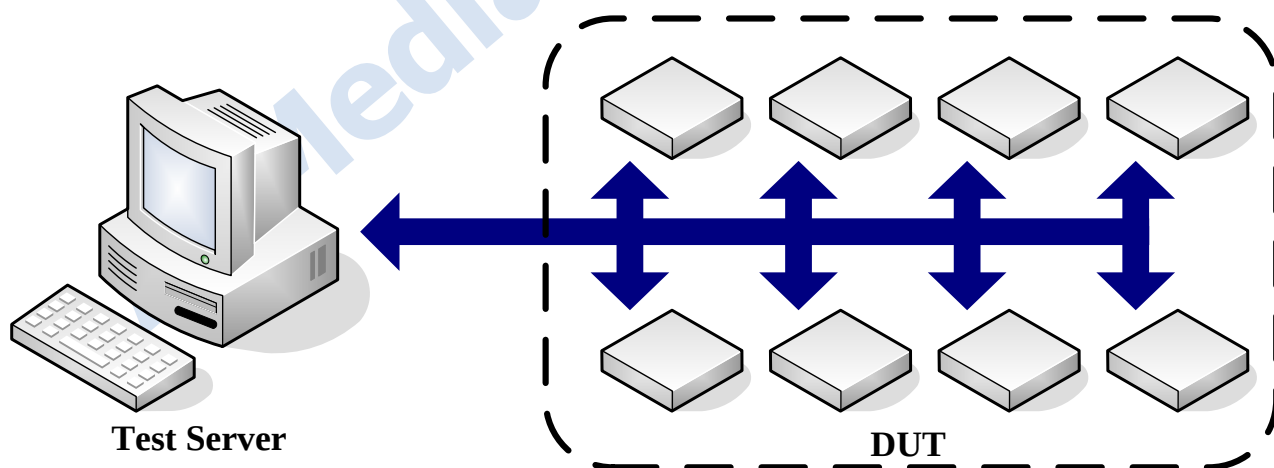


If MP Auto Mode item is not selected, ASM2464PD MPTool will run in Manual Mode.

In Manual Mode, It support Max eight DUTs to test at the same time.

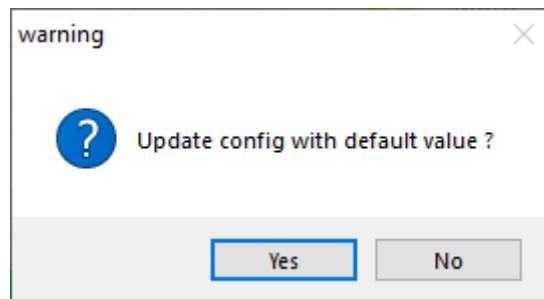
All of USB Ports **can't** connect any other **Mass Storage Device** on test server.

1.1 Connect DUT to platform.



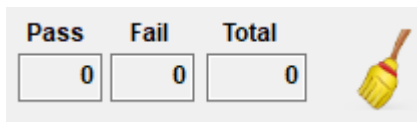
1.2 Press **start** in bottom left.

1.2.1 if user didn't change the default config setting, tool will pop-up warning msg box.



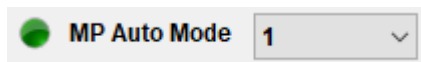
It is not recommended to use default value for config setting.

- 1.3 The progress can be monitored from Progress Bar or % in bottom right.
- 1.4 When the test is finished, users can see pass count, fail count and total count in the screen.



- 1.5 Press safely Remove and change next DUT
- 1.6 ASM2464PD MPTool will save the test result in file named "YYYYMMDD.log"

Auto Mode

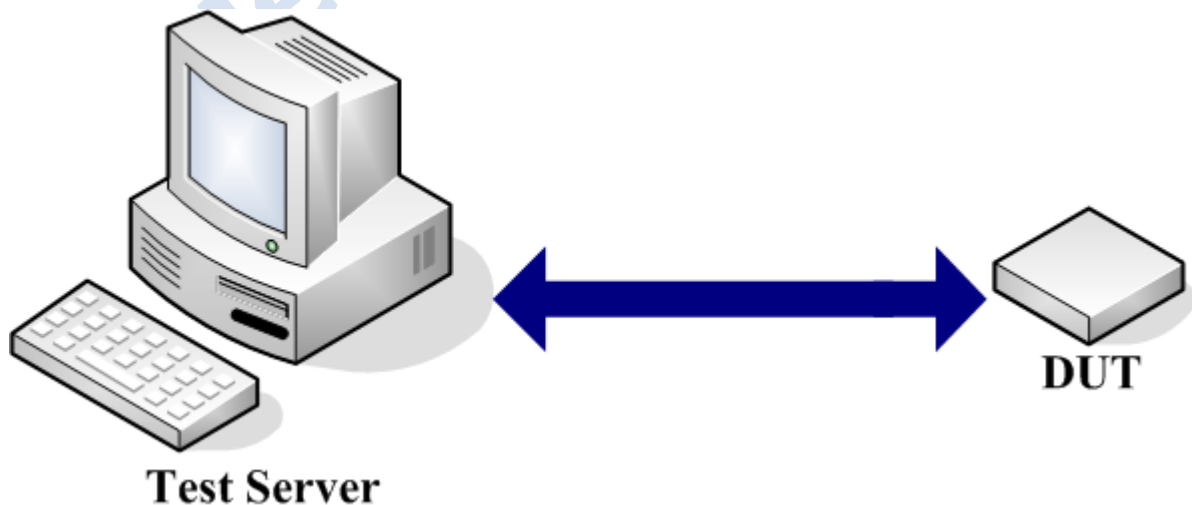


If MP Auto Mode is selected, ASM2464PD MPTool will run in Auto Mode.

In Auto Mode, it supports 1 ~ 4 DUT to test at the same time.

All of USB Ports **can't** connect any other **Mass Storage Device** on test server.

- 2.1 Plug DUT to USB port, after entered MP Tool window.



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- 2.2 ASM2464PD MPTool will automatically test when the USB device is plugged into test server.
- 2.3 You can monitor the progress through Progress Bar or % in bottom right.
- 2.4 When the test is finished, users can see pass count, fail count and total count in the screen.

Pass	Fail	Total
0	0	0



- 2.5 Press safely remove and change next DUT
- 2.6 ASM2464PD MPTool will save the test result in file named "YYYYMMDD.log"

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Appendix A:

INI file Description:

=====INI file Start=====

INI file Description:

[usb_func]

format_enable=0	//0: Disable; 1: Enable Format disk
format_drive_type=1	//0: NTFS; 1: FAT32; 2: exFAT
partition_drive_type=0	//0: MBR; 1:GPT
drive_label_name=Test	//Setup Disk label name
wr_test_enable=0	//0: Disable; 1: Enable Read/Write test
wr_test_binary_name=rwtest.bin	//File name for read/write test
wr_test_count=1	//Loop count for read/write test
auto_mp=0	//0: Disable; 1: Enable Auto MP mode
auto_mp_DevNum=1	//1~4: When Auto MP mode enable, determine how many devices plug-in will trigger MP process
preload_enable=0	//0: Disable; 1: Enable Preload load file
preload_folder_path=D:\temp	//File folder path for preload
Check_USBStatus_enable=0	//0: Disable; 1: Enable Check USB status
Check_USBStatus=0	//0: USB2.0; 1: USB3.0; 2: USB3.1
Check_SerialNumber=0	//0: Disable; 1: Enable check input serial number is hex
Auto_Safe_Remove=0	//0: Disable; 1: Enable auto safe remove after MP process
Scan_BarCode=0	// Do not support now
uiRemove_after_finish=0	//if Auto_Safe_Remove enable, wait X sec, remove device
Speed_test_enable=0	//0: Disable; 1: Enable read write speed test
Scan_HDDSN=0	//0: Disable; 1: Enable this item is not used currently
check_config=0	//0: Disable; 1: Enable check PID, VID, Manufacture string, Product string, and serial number

```

SN_EditType=1          //input serial number edit type:
                        0: user define;
                        1: Increase Hex;
                        2: Increase Dec;
                        3: serial number from barcode scanner;
                        4: serial number from HDD SN

USB4_ComponentID_EditType=5 //Only for Asmedia internal test
CmdLineTimeOut=15        //the timeout while executing tool by commandline
                        (unit:second)

USB4_BcdSync=1           //0: customer can modify U4 BCD Product FW
                        1: U4 BCD Product FW use ASmedia default value

Reload_Waiting=5         //the delay time for every device during relink,
                        total delay time will be Reload_waiting * device
                        count (unit:second)

CmdLineNoDevRetryMax=5   //retry times if tool find no device plug-in when
                        using command line execute MPTool

CmdLineNoDevDelaysms=3000 //the delay time for every retry if tool find no
                        device plug-in when using command line execute
                        MPTool (unit:milisecond)

[usb_fw]
fw_enable=1             //0: Disable; 1: Enable Firmware update
fw_binary_name=AS_USB4_220616_81_00_00.bin // Firmware file path
fw_reload=0             //0: Disable; 1: Enable relink
rescan_after_relink=0    //Only for Asmedia internal test always set to 0
ext_fw_enable=0          //Only for Asmedia internal test always set to 0
pd_fw_enable=0           //Only for Asmedia internal test always set to 0
mcu_fw_enable=0          //Only for Asmedia internal test always set to 0
pd_binary_name=          //Only for Asmedia internal test always set to NULL
mcu_binary_name=         //Only for Asmedia internal test always set to NULL

[usb_config]
config_format=4          //Always set to format 4
vendor_id=174C           //Setup for vender ID
product_id=2463          //Setup for product ID

```

```
device_revision=0100 //Setup for revision
manufacturer_string=ASMedia //Setup for manufacturer string EP0
product_string=ASM246X series //Setup for product string EP0
manufacturer_string_T10=ASMT //Setup for manufacturer string T10
product_string_T10=ASM246X //Setup for product string T10
serial_number=AAAABBBB000D //Setup for serial number
serial number shall contain 12 ~ 20 valid digits

serial_number_increase=1 // Do not support now
serial_number_increase_HEX=1 // Do not support now
serial_number_increase_DEC=0 // Do not support now
SN_fix_length=0 //0~20: tool will check if input serial number' s
length is equal the setting before MP process

SN_remain_value_enable=0 //0: Disable; 1: Enable the serial number remain
value

SN_remain_value_length=8 //if enable serial number increase hex or dec, MP
tool will auto increase the serial number without
the setting digits
e.g. serial_number_increase_HEX=1,
serial_number=AABBCCDD0000,
SN_remain_value_length=8, MP tool will keep the 8
digits value "AABBCCDD" , and increase the last 4
digits, from 0000 to FFFF

standby_timer=0 //Only for Asmedia internal test always set to 0
hdd_standby=0 //Only for Asmedia internal test always set to 0
image0=1 //Only for Asmedia internal test always set to 1
image1=0 //Only for Asmedia internal test always set to 0
crc32=0 //Only for Asmedia internal test always set to 0

[USB4_Config]
USB4_VendorName=ASMedia //Setup for USB 4 vender Name
USB4_ModelName=246x //Setup for USB 4 Model Name
USB4_VendorID=174C //Setup for USB 4 Model ID
USB4_ProductID=2463 //Setup for USB 4 Product ID
USB4_TestID=C0000666 //Setup for USB 4 Test ID
USB4_BcdProductFWRevision=1234 //Setup for USB 4 BCD ID
```

USB4_ProductHWRevision=5A //Setup for USB 4 Prodcut HW Revision
USB4_TBT3VendorID=00B8 //Setup for thunderbolt 3 Vendor ID
USB4_TBT3ModelID=2463 //Setup for thunderbolt 3 Model ID
USB4_TBT3ModelRevision=E3 //Setup for thunderbolt 3 Model Revesion
USB4_U4Mode=3 //Setup for USB4 Mode
0:Support PD + PCIe tunneling
1:Support PD + PCIe tunneling + Legacy USB
2:Support PD + USB3 tunneling + Legacy USB
3:Auto by reference host PD PCIe Supported bit (default)

[PCIe]

PCIe_Scan=1 //0: Disable; 1: Enable pcie scanning
PCIe_VendorID=1B21 //Setup for PCIe scan Vendor ID
PCIe_DeviceID=2463 //Setup for PCIe scan Device ID
PCIe_SSDRelinkTime=10 //Only for Asmedia internal test

=====INI file End=====

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Appendix B:

MPTool in command line mode:

User can execute MP tool without GUI by using command line window

Currently available commands as below:

/?, /DBG, /S, /C:YYMMDDAABBCC, /SPD

/? // Pop-up a message box, to show the available commands
// e.g. ASM246xMPTool.exe /?

/DBG // Set the debug message level(0~4)
It will display GUI and user can monitor the debug
message by
DebugView.exe(a windows tool to capture debug messages)
// e.g. ASM246xMPTool.exe /DBG 4

/S // Execute the MP tool without GUI
Tool setting depend on ini
return 0 if success
// e.g. ASM246xMPTool.exe /S

/C:YYMMDDAABBCC // Check FW version if equal YYMMDDAABBCC
Return 0 if same FW version, return -2 if FW unmatched
// e.g. ASM246xMPTool.exe /C: 230801850000

/SPD // Get current speed
Return value:
0: Legacy USB2.0
1: Legacy USB3 Gen1x1
2: Legacy USB3 Gen1x2
3: Legacy USB3 Gen2x1
4: Legacy USB3 Gen2x2
5: USB3 Tunnel Gen2x1

6: USB3 Tunnel Gen2x2
7: USB3 Tunnel Gen3x1
8: USB3 Tunnel Gen3x2
9: PCIE Tunnel Gen2x1
10: PCIE Tunnel Gen2x2
11: PCIE Tunnel Gen3x1
12: PCIE Tunnel Gen3x2
13: TBT3 Tunnel Gen2x1
14: TBT3 Tunnel Gen2x2
15: TBT3 Tunnel Gen3x1
16: TBT3 Tunnel Gen3x2
255: UNKNOWN

// e.g. ASM246xMPTool.exe /SPD

/V // Output FW version to ASM2464Version.txt
// e.g. ASM246xMPTool.exe /V

/CC Return value:
4: CC1
5: CC2
// e.g. ASM246xMPTool.exe /CC