

ASM2464PD USB4 Device Controller MP Tool User Manual

Rev: 0.3

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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 |

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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. 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), and Serial Number (AAAA BBBB 0000). It also has options for EP0 M.String (ASMedia), T10 M.String (ASMT), EP0 P.String (ASM246X series), T10 P.String (ASM246X), Idle Timer (Never), and a FW Browser showing 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 a USB Status dropdown (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, Speed Test, Read, and Auto Safe Remove After (0 Seconds).
- Area D (Status and Results):** A large table at the bottom showing the status of various ports. The first row is highlighted in blue and contains the following data:

| Port# | Status | VID | PID | Serial Number | FW Version | CC | U4 Mode | Capacity | Update | ReLink | Partition | R/W Test | Preload | PD |
|-------|---------|------|------|----------------|--------------|----|---------|----------|--------|--------|-----------|----------|---------|----|
| 0 | SUPERx1 | 174C | 2463 | AAAA BBBB 0000 | 22072981ed00 | 2 | Legacy | 232 GB | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
- Area E (Switch Configures Mode):** Located at the top center, it includes a switch for 'Loc IN' and a 'Save' button.

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' and 'FW Browser' sections of the ASM246x MP Tool interface. 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 input field 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 dropdown menu with the selected file '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.

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

The screenshot shows the 'Device Function' window with the following settings:

- USB Status:** USB 2.0 (dropdown)
- MP Auto Mode:** 1 (dropdown)
- Update FW:** (radio button, selected)
- Reload FW:** (radio button, unselected)
- Config Check:** (radio button, unselected)
- Partition / Format:** (radio button, unselected)
- Partition Type:** MBR (dropdown)
- Format Type:** FAT32 (dropdown)
- Drive Label:** Test (text field)
- W/R Test:** (radio button, unselected)
- Preload Files:** (radio button, unselected)
- Speed Test:** (radio button, unselected)
- Read:** (text field, empty)
- Write:** (text field, empty)
- Auto Safe Remove After:** 0 (text field)
- Seconds:** (text field, empty)

1. USB Status:

Check device status. USB device only.

2. MP Auto Mode:

In MP Auto Mode, only one ASM246x device is supported.

3. Update FW:

Update new firmware and configuration setting.

4. Reload FW:

Reload new firmware and new configuration. Do not supported now.

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 | 22072981f008 | 2 | Legacy | 476 GB | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |

| | | |
|------|------|-------|
| Pass | Fail | Total |
| 0 | 0 | 0 |

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.

--

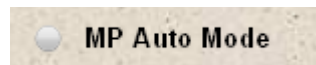
Step1. Please open ASM2464PD MPTool and press Unlock button to modify setting.

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

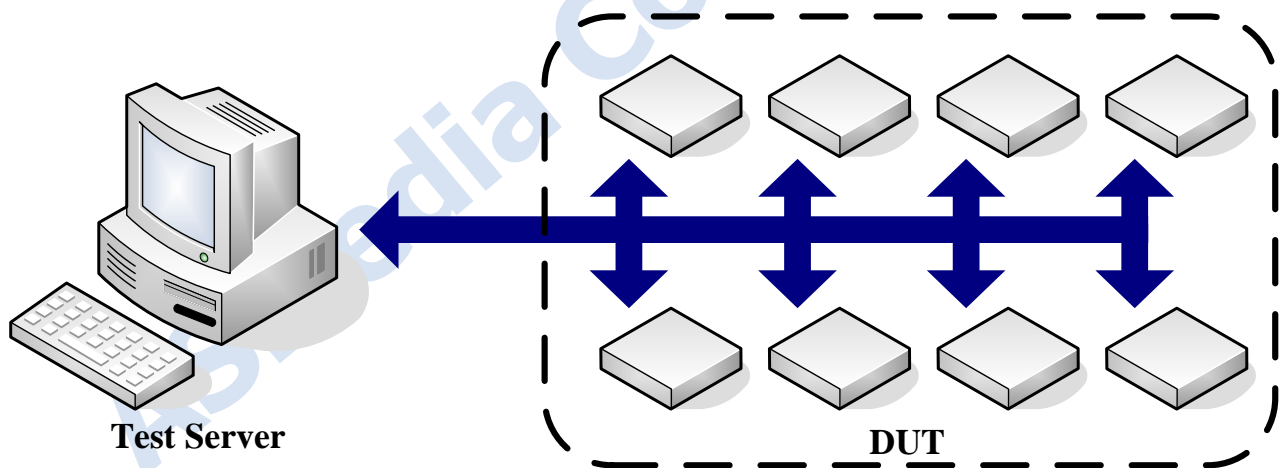


If MP Auto Mode item is not selected, ASM2464PD MPTool will run in Manual Mode.

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

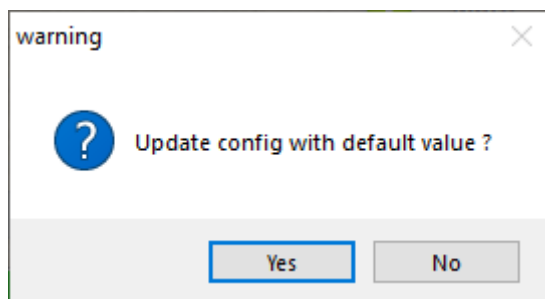
All of USB Ports **can't** connect any other **Mass Storage Device** on test server.

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.



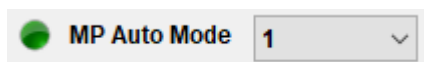
It is not recommended to use default value for config setting.

- 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

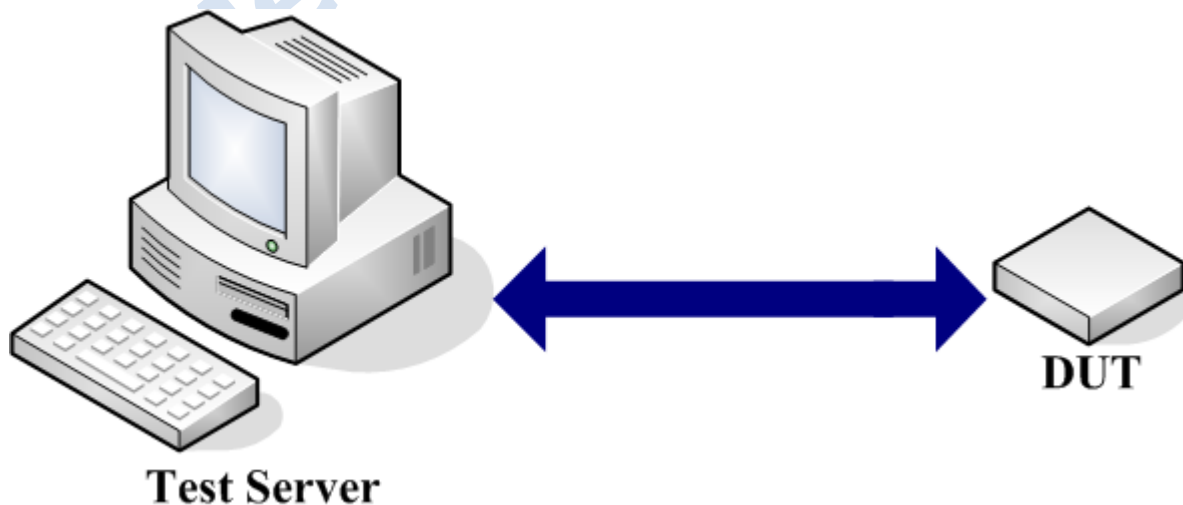


If MP Auto Mode is selected, ASM2464PD MPTool will run in Auto Mode.

In Auto Mode, it only supports one 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 | //1~8: 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=35 //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

[usb_fw]

fw_enable=1 //0: Disable; 1: Enable Firmware update
 fw_binary_name=AS_USB4_220616_81_00_00.bin // Firmware file path for Firmware update
 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

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