# AN8: Firmware Change History

1 Introduction

The following instructions assume that a board with the USB300Rev2 is enumerated on a PC with either a USB 2.0 or 3.0 host. To enumerate correctly, a SATA drive must be connected to the USB300Rev2. This release is not intended for the USB300 Rev1 chip or RDK. Only connect the board you want to update to your PC. Do not connect any other USB Mass Storage Devices, including card readers, to the PC.

NOTE: Please delete any previous copies of the USB300 firmware updater (the entire directory) and use this copy instead. Contact support@lucidport.com if you have any questions or run into any problems.

2 Firmware Update Tools

Extract the USB300 Firmware xxxx.rar file. The contents will look like the image below.
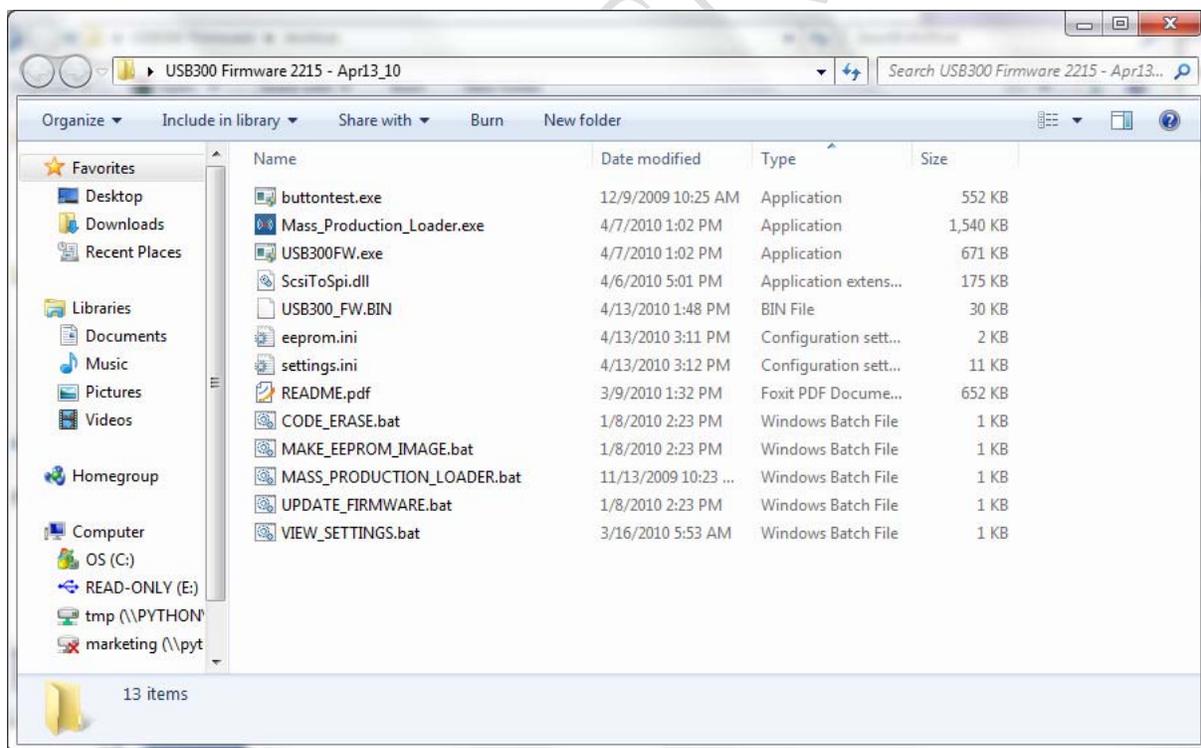
The eeprom.ini file describes the type of EEPROM or Flash that is used to hold the USB300 firmware. The settings.ini file is used for modifying the firmware with customer specific information – like vendor and device ids, serial numbers and descriptors, and GPIO usage. These files can be modified once and never changed again.

USB300_FW.BIN is the firmware used by the update tool.

3 Change History

Added in FW 2580:
1. Fixed problem where device may hang if SMART parameters were not enabled.

Added in FW 2445:
1. Eliminated the instance with some USB3 hosts where the drive would automatically re-enumerate after Windows Safe Remove.
2. Modified the Capacity LED Driver to allow for Windows Safe Remove.

Added in FW 2416:
1. Added hardware write protect switch for bus powered devices

Added in FW 2408:
1. Changed the way that IDE drives get initialized through a IDE to SATA bridge to improve performance and so that the SataIdeBridge option is not needed for IDE drives, only for CF cards.

Added in FW 2382:
1. Added HDD health monitoring

Added in FW 2370:
1. Modified Cable Compensation setting for improved USB3 PHY performance
2. Added Enhanced Compatibility option to work better with non-compliant USB3 hubs

Added in FW 2330:
1. Eliminated the instance where writes to drives that take 20 clocks to respond to SATA HOLD will time out if the USB host is too slow. No known hard disk drives do this.
2. Allow for hot swapping of optical drives
3. Added SM bus connection to SiI5923 RAID controller (SMDATA, SMCLOCK on GPIOs)
4. Added REBUILDLED and PORTERRORxLEDs for SiI5923 RAID controller

Added in FW 2313:
1. Added temperature selection for fan control
2. FW2286 locked the soft power button to button0. This change allows it to be either button as long as the programmable timer is greater than zero.

Added in FW 2303:
1. Added "FanFullPowerOnly" option. (35C off/on)
2. Moved SCSI parameters to HDD SMART logs area (affects capacity indicator and software write protection)
3. Added "POWERANDACTIVITY" GPIO option to turn on LED at power up, blink on HDD activity, and stays on even if USB is disconnected
4. Eliminated occasional instance where fan control temperature polling would interfere with SATA disk accesses.

Added in FW 2286:
1. Added programmable timer for soft power button detection
2. Added de-bounce function on soft power button
3. Added power indicator LED (for use with soft power button)
4. Eliminate occasional instance where USB2 indicator LED does not turn off when USB3 is connected.

Added in FW 2280:
1. Changed soft power button function, so when device if off, plugging in the USB cable will not automatically start it up – a push of the button is required
2. Added option to light up both USB2 and USB3 LEDs when USB is not connected
3. Added enhanced compatibility option

Added in FW 2273:
1. Supports Blu-Ray and other SATA based optical drives
2. Added auto-standby disable switch
3. Added breathing LED (breaths on power, blinks on activity)

Added in FW 2268:
1. Added support for different CF cards behind a SATA to IDE bridge
2. Added write protection based on software commands from a PC
3. Added write protection status LED
4. Enables write protect hardware switch (previously disabled by mistake)
5. Includes write protection control in buttontest.exe
6. Includes installer for capacity indicator driver

Added in FW 2253:
1. Added support for SATA to IDE bridges
2. Added customized prefix support for SATA Product ID
3. Enabled capacity indicator for UAS firmware (previously disabled by mistake)

Added in FW 2231:
1. Capacity indicatory blinks on no disk or if disk is still spinning up (rather than not lit)
2. Eliminated instance where GPIO0 blinks when capacity indicator is not enabled
3. Option to flash activity LED occasionally when in automatic standby now also applies to "SATALIGHT" GPIO option (not just "ACTIVITY" option)
4. Soft power button turns on drive even if held for longer than 3 seconds.

Added in FW 2221:
1. Add automatic standby support in UASP firmware (UAS FW only)
2. Add soft power button (press 3 seconds to turn off)
3. Add disk capacity LED indicators
4. Turn on fan for 5 seconds at power-up (helps with production testing)
5. Eliminate occasional instance where the USB300 fails to enumerate when reconnecting to the USB2 host on a Mac.

Added in FW 2187:
1. Speed up enumeration time for bus powered devices

2. Add custom support for HD Tune SCSI pass-through commands
3. Add option for USB2 and UAS LED indicators
4. Add option to blink SATA activity on USB2/USB3/UAS indicator lights
5. Add option to flash activity LED occasionally when disconnected or in standby
6. Add option to use the drive ID as the SCSI Product ID, additional option to prepend "USB3 " in front of the drive ID
7. Add option for one button to act as both push-buttons (based on timing)
8. Add option for a write protect switch
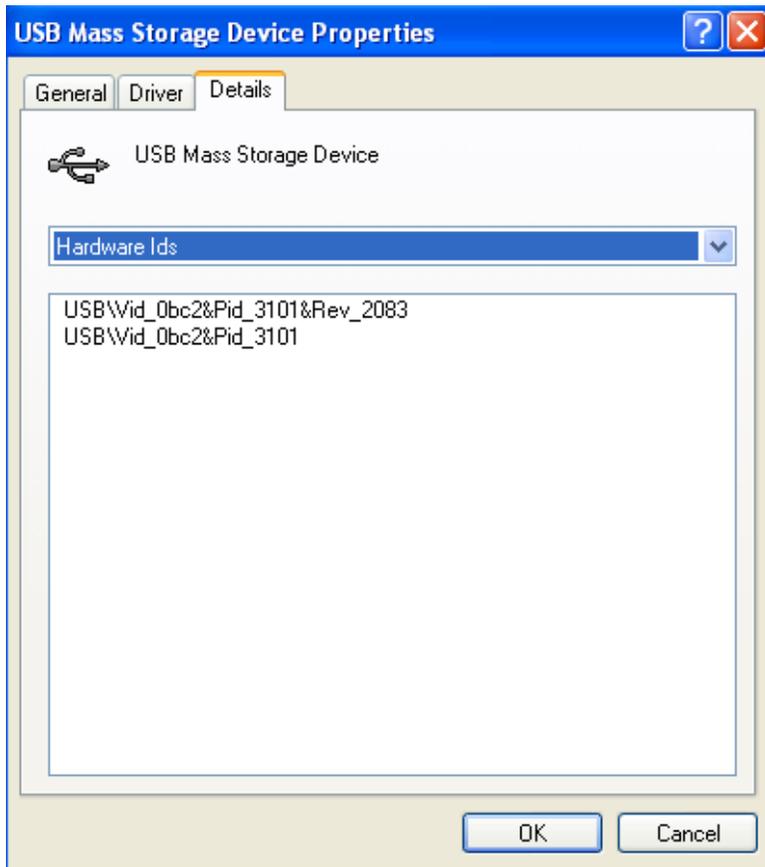9. Add option for activity LED flicker (instead of blink)

4 Determining your current firmware version

To determine the firmware version running on your board, first plug it into a USB port. Right click on "My Computer" and select "Manage". In the Computer Management window that pops up, select "Device Manager" on the left plane.
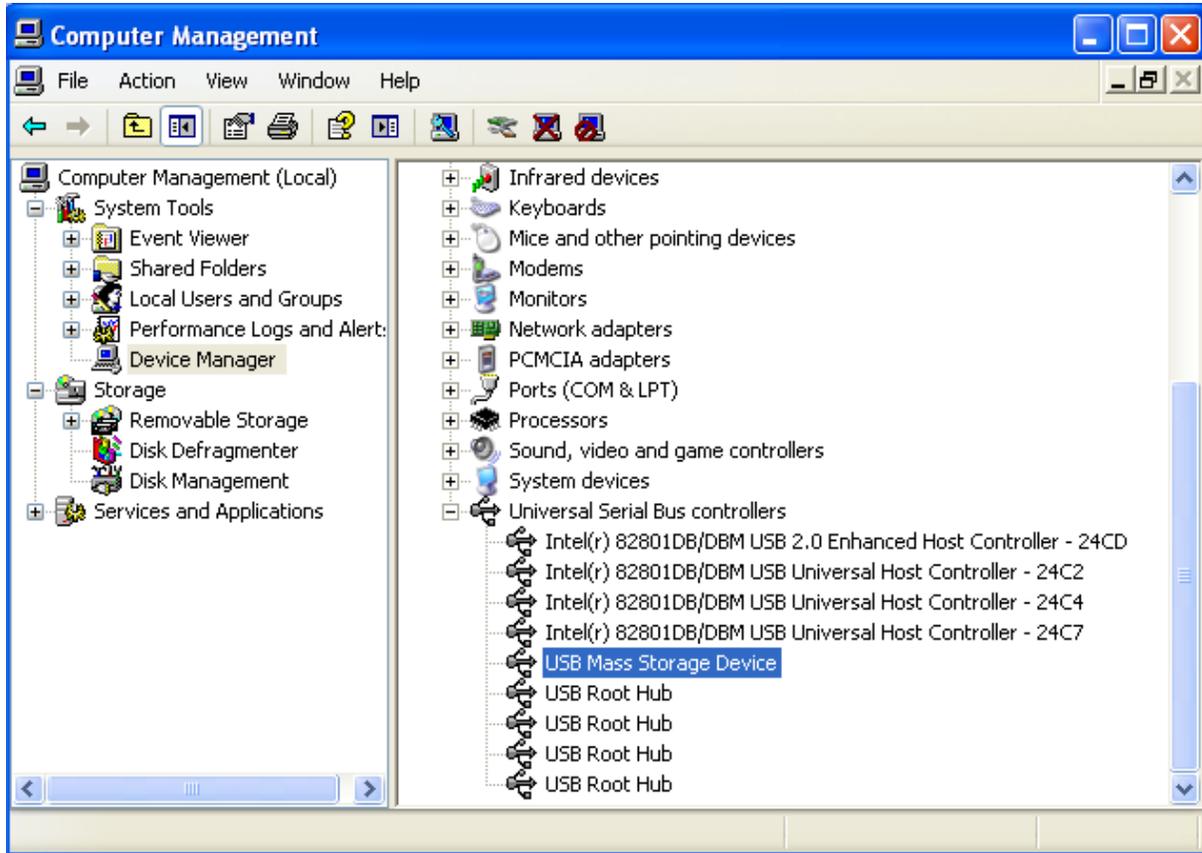
In the right side window, select "Universal Serial Bus Controllers". In the list of items, right click on "USB Mass Storage Device". Select "Properties" in the menu that comes up.

From the properties window, click the "Details" tab. Select "Hardware Ids" from the drop down menu. The "Rev_xxxx" indicates the current firmware version.

USB Mass Storage Device Properties

General | Driver | Details

USB Mass Storage Device

Hardware Ids

USB\Vid_0bc2&Pid_3101&Rev_2083
USB\Vid_0bc2&Pid_3101

OK   Cancel

You will not be able to check the firmware version number if it has been overwritten in the settings.ini file.