



Nanoptix Paycheck™ High Speed Couponing

Firmware Downloading & Installation Instructions

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Section 1: Downloading and Installation

NOTES:

- If you already have a firmware *.zip package in your possession then there is no need to contact Nanoptix you can skip directly to Step 3.
- If your firmware package has already been extracted you can skip directly to Step 4.
- The FlashImage.exe / FlashimageNFF.exe tool does not support running off of a USB Flashdrive or from CD or DVD ROMs. Therefore, it is recommended that the firmware package be extracted to a machine' local hard disk.

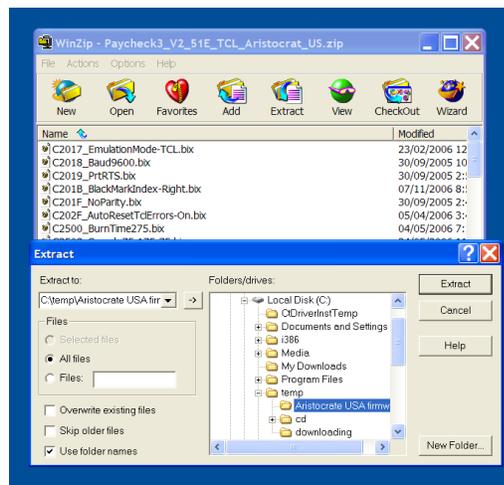


ESD protection (such as a wrist strap) must be used anytime a PCB is exposed



1. For specific firmware requests please contact support@nanoptix.com to receive a download link to the firmware.
2. Download the firmware to a known location on your local disk.
3. Extract the whole content of the “.zip” file to a known location on your local disk using the “.zip” extractor of your choosing.

Note: Running “FlashImage.exe / FlashimageNFF.exe from the “.zip” file is not supported



4. Make sure the PayCheck™ HSC printer is powered up with 24 VDC power source and connected using one of two communication options at the back of the printer, RS232 and USB. The firmware downloading application: **FlashImage.exe** will look for a known printer on the USB port first. If none are found, it will proceed to look at the installed serial com ports on your PC.

Note: *The USB port is strongly recommended since it is much faster*

5. Run **FlashImage.exe / FlashimageNFF.exe**, the application will search for printers. Once a printer is found, it will be put into “download” mode (LED and buzzer will be activated once per second).
6. If required, **FlashImage.exe / FlashimageNFF.exe** tool will download a temporary boot loader to the printer to assist with certain firmware migration paths.

```
First, Looking For Nanoptix Products in USB ports...
Will Now Verify Compatibility of Binary Image with Processor Type...Pass
Found 1 PAYCHECK DSP
Will force a new Boot from directory...
Verifying Unlock (.BIN)
*** SENDING NEW BOOT (found a boot image in current directory) ***
Opening loader.fbl...
CRC of image with a seed of 0x0000 is 1733
CRC of image with a seed of 0x1234 is BD26
Downloading Bank 0....SUCCESS!
Downloading Bank 1....SUCCESS!
Downloading Bank 2....SUCCESS!
Downloading Bank 3....SUCCESS!
Downloading Bank 4....SUCCESS!
Done Downloading!
WILL NOW FLASH IMAGE FROM RAM, PLEASE DO NOT POWER OFF PRINTER
THIS TASK WILL TAKE APPROX. 19 SECONDS
Found 1 DSP Unit(s) in Download Mode
```

7. If configuration files (*.bix) are present in the firmware package, **FlashImage.exe** will download them to the printer.

```
Found 1 DSP Unit(s) in Download Mode
Current boot supports 32 banks
Current boot supports the *Don't Save CRC32* command
Opening Paycheck_U5_40E.bin...
CRC of image with a seed of 0x0000 is 2A43
CRC of image with a seed of 0x1234 is 6D82
Send Configuration file C2000_ResetAllToDefaults.bix
Send Configuration file C2016_ResetAllToDefaults.bix
Send Configuration file C2017_EmulationMode-NtL.bix
Send Configuration file C2018_Baud19200.bix
Send Configuration file C2019_PrtRTS.bix
Send Configuration file C201F_Parity-Netplex.bix
Send Configuration file C202F_AutoResetNtErrors-Off.bix
Send Configuration file C2500_BurnTime250.bix
```

8. **FlashImage.exe / FlashimageNFF.exe** will then download the *firmware image (*.bin or *.nff)* to the printer in blocks of 64KB. In the critical final seconds of the download, the printer then transfers all this information from its RAM to its Flash. Finally, the printer reboots and is put back into “RUN” mode.

Note: Do not disconnect power or communication until the download is complete.

```

Downloading Bank 15....SUCCESS!
Downloading Bank 16....SUCCESS!
Downloading Bank 17....SUCCESS!
Downloading Bank 18....SUCCESS!
Downloading Bank 19....SUCCESS!
Downloading Bank 20....SUCCESS!
Downloading Bank 21....SUCCESS!
Downloading Bank 22....SUCCESS!
Downloading Bank 23....SUCCESS!
Downloading Bank 24....SUCCESS!
Downloading Bank 25....SUCCESS!
Downloading Bank 26....SUCCESS!
Downloading Bank 27....SUCCESS!
Downloading Bank 28....SUCCESS!
Downloading Bank 29....SUCCESS!
Downloading Bank 30....SUCCESS!
Downloading Bank 31....SUCCESS!
Done Downloading!
Saving CRC in EEPROM 07B2
WILL NOW FLASH IMAGE FROM RAM, PLEASE DO NOT POWER OFF PRINTER
THIS TASK WILL TAKE APPROX. 29 SECONDS
More Time is required, please hold...
Flashimage DONE!
Do you want to Flash another Unit? <Y>es or <N>o ->

```

Note: After downloading **FlashImage.exe / FlashimageNFF.exe** application will ask if you would like to start flashing the printer firmware to another unit. This is normal and is only there for convenience if ever you would like to update the firmware on another unit.

9. As verification a **power on test ticket** can be printed. To print the test ticket, the printer must be powered “ON” while holding the paper feed button for up to 15 seconds. A status ticket similar to below will be printed. Pressing the button again will result in blank tickets. This ticket can be used to verify the *firmware version.*

Model:	PAYCHECK HSC
Firmware:	HSC-3.58Z (0xD5F7)*
Protocol:	ITHACA 950
COMMUNICATION	
Interface:	Serial
Baud:	9600
Data Bits:	8
Parity:	NONE
Handshaking:	PRT+XON+RTS
Print Mode:	Line
PRINT CONTROL	
Print Method:	No HPQ
Speed:	200 mm/sec
Black Bar Index:	Right
No HPQ Burn Time:	275 us
Clear After Cut:	254 steps
Cutter PWM:	80 %
Motor Current:	3
Real Time Command:	Disabled
Validation Bit:	After Barcode
Cut Cal. (Auto):	161+258 steps
PRINTER ENVIRONMENT CONDITIONS	
Voltage:	24.4 Volts
Temperature:	20 Celsius
SYSTEM RESOURCES	
FLASH: Used=00000	RAM: Used=00000
Free=65535	Free=65535
LIBRARY INVENTORY (HSC)	
Templates:	0,1,2,3,4,5,6,7,8,9,A,B,D, E,F
Regions:	1,2,3,4,5,6,7,8,h,9,A,B,C, D,E,F,G,I,J,K,L,N,O,P,Q,R, S,T,U,Z,X,a,b,c,d,e,f,g,i, j,k,l,m,n,o,p,q,r,s,t,u,v, w,x,y,z
Fonts:	0,1,2,3,4,5,7,8,9,A,B,E,P
Graphics:	
MANUFACTURING INFORMATION	
Printer ID:	PC00014
Date Code:	20080623
A to D: 03cc,01e6,01f8,03ce	
* S 0 HSC-3.58Z @ @ @ H @ P *	
* Indicates the Firmware CRC *	

Section 2: Restoring printer's firmware to factory boot

If the printer's power is interrupted while **FlashImage.exe** is downloading the settings or the firmware banks into RAM, the printer will power up again already in download mode and the upgrade can be restarted by closing and reopening **FlashImage.exe**.

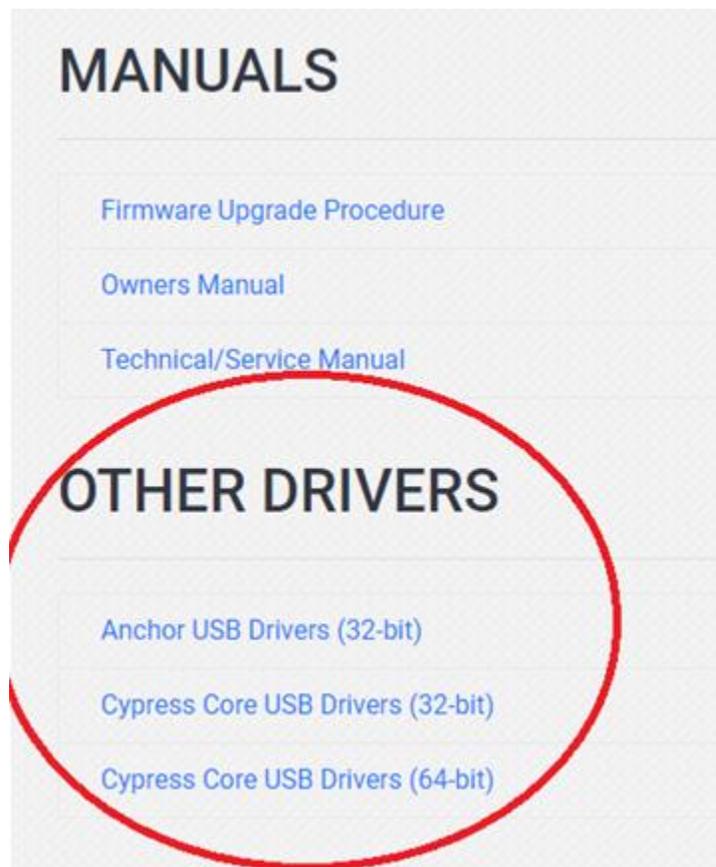
On the other hand, if the printer's **power is interrupted during the final seconds** of downloading, it might not have been able to finish the transfer from RAM to Flash. If the power is restored to the printer and it is non responsive (Does not feed paper), the printer will have to be restored to its **default factory boot**.

1. When a printer is first received from the factory or if the current firmware is not valid it is possible to place it into a **factory boot mode** in order to download a fresh new version of firmware. Some drivers need to be downloaded from the Nanoptix web site in order for windows to detect the printer in its factory boot mode.

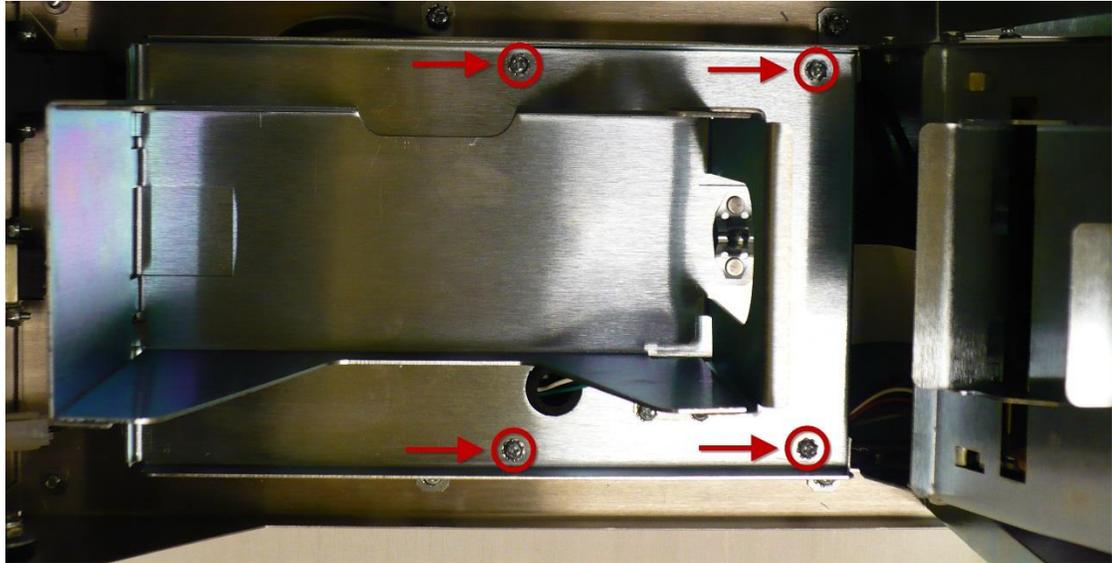
First, navigate to the Support section of the Nanoptix website at <http://support.nanoptix.ca/> and then click on the appropriate product support page.

Then, click on the appropriate driver link for your Windows OS, Cypress Core USB Drivers (32 or 64 bit).

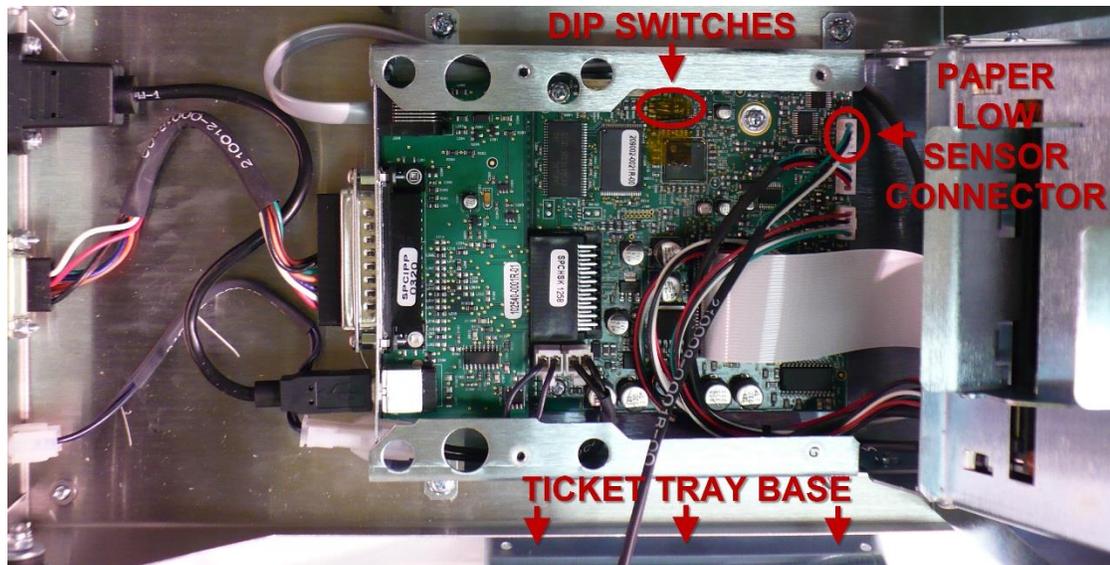
NOTE: For legacy OS support, the **Anchor USB Drivers (32-bit)** are still offered.



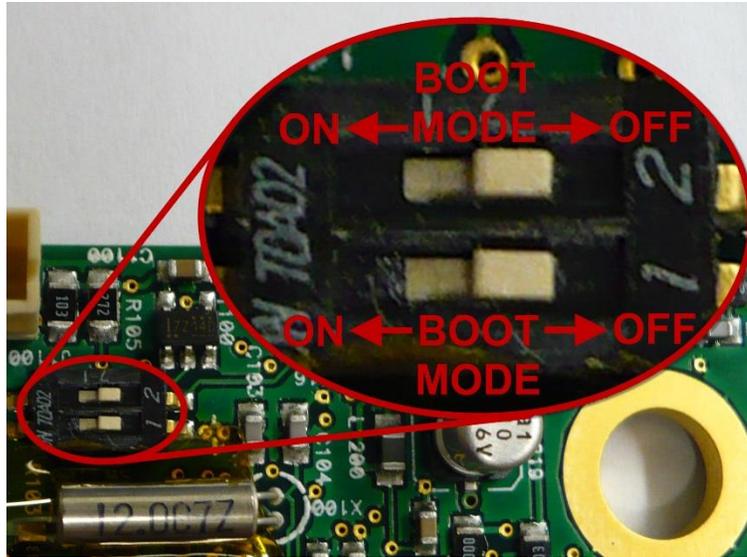
2. Download the **.zip** file and extract the content to a known location on your local disk. These files will be used a few steps further, in *section 8*.
3. To place a printer into **factory boot mode** you first need to locate the “boot mode dip switch bank” on the main controller board.
4. Remove the power and communication connections from the printer.
5. Remove the paper stack from the Ticket Tray and remove the 4 screws holding the Ticket Tray Base to the frame.



6. Carefully remove the Ticket Tray and Ticket Tray Base while leaving the Paper Low Sensor connected to the Main Board. The Paper Low Sensor cable is long enough to move the Ticket Tray Base to the side of the frame.



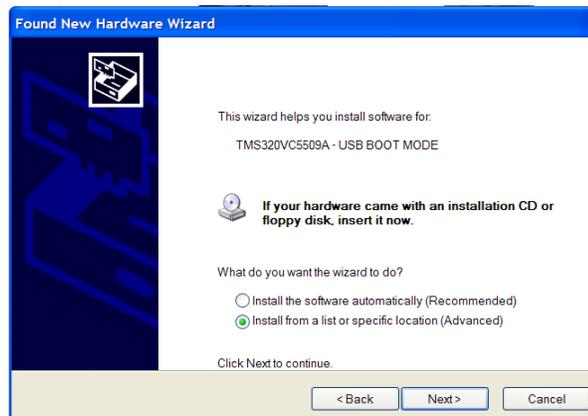
7. Locate the DIP Switches and move both switches to the ON position. This will place the printer into Boot Mode on power up.



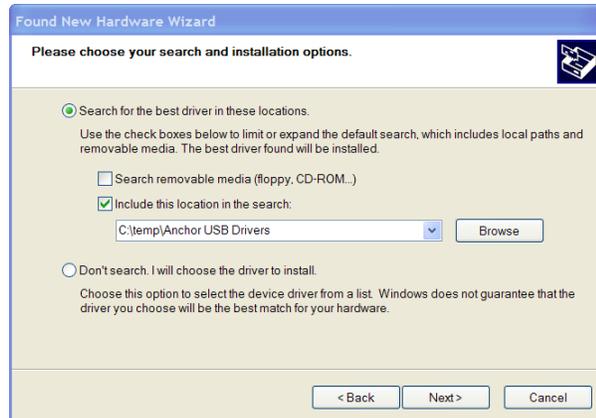
8. Apply power to the printer.
9. Once the green power LED has been on for at least 3 seconds, move the DIP Switches back to the OFF Position. Leave power applied to the printer.
10. Connect the printer to the host via USB. The Windows USB detection will discover an unknown device and ask for drivers. The following screen will be displayed, Select "No, not this time" and then click "next"



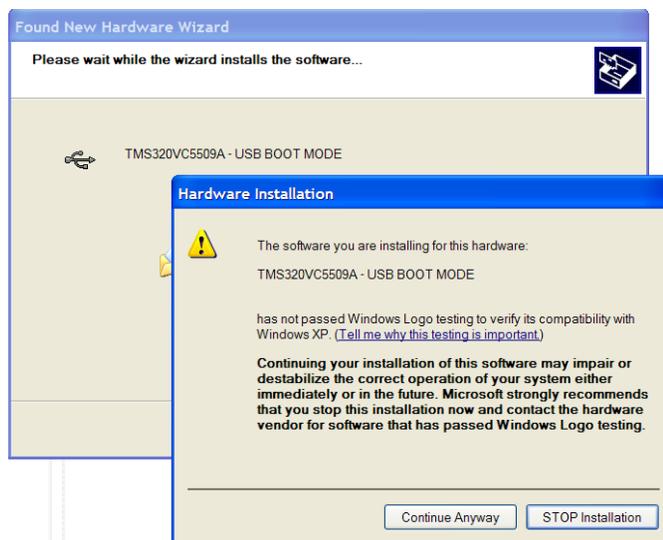
11. Select "Install from a list or specific location" and then click "next"



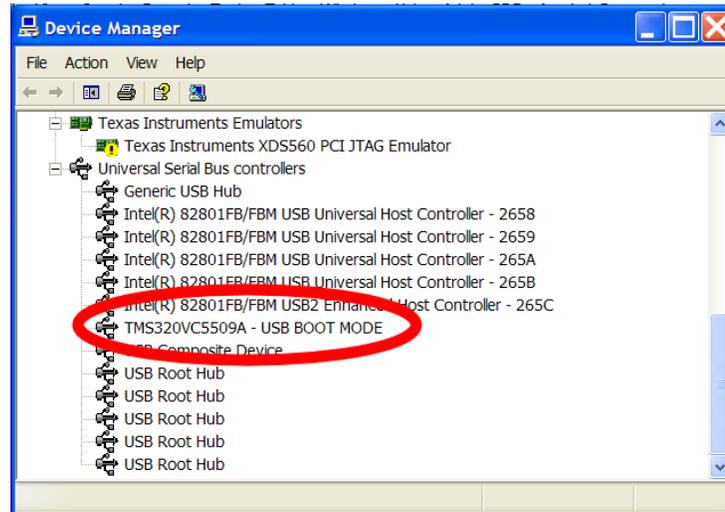
12. Browse to the **Cypress or Anchor USB Drivers** which have been downloaded and extracted to a known location, then click “next”



13. Click “Continue Anyway” and then “finish”



- Open the device manager to verify that the printer (in USB Boot mode) was correctly detected by Windows. To do this, select: **Start / Control panel / System / Hardware / Device Manager**, scroll down to “**Universal serial bus controller**” and make sure that “**TMS320VC5509A – USB BOOT MODE**” is listed



- At this point everything is ready. Run **FlashImage.exe**. Because of the previous steps, when Windows looks for “**USB BOOT MODE**” drivers, they will have already been installed and the download will proceed and should complete successfully.

*Note: The **USB ANCHOR /CYPRESS CORE USB DRIVERS** have to be installed for every single USB port on your computer.*