Trendsetter Spectrum Option
MCE Firmware Version 1.14 Release Notes

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1. SCOPE

This document contains information you need to know to use release 1.14 of the MCE Trendsetter Spectrum firmware. Sections include New Features, Bugs Fixed since the last release (1.10.04), Known Bugs, Device Configuration and Device Calibration. The intended audience is test engineers and service personnel.

Please refer to the TechPlanet firmware documentation pages or the Creo Service CD-ROM for information on commands, error messages, and NVS parameters for the Trendsetter MCE.

Common acronyms used in this document are defined in Appendix A.

2. FORMATTING CONVENTIONS

The formatting conventions used in this document are as follows:

all NVS parameters are in italics and

commands to be typed into the diagnostic terminal are in bold as well as the diagnostic command responses.

3. UPGRADE PROCEDURE

To upgrade the MCE firmware, please perform the following steps:

1. Use the Version Checker applet to identify all firmware components that need to be upgraded. The version checker applet is part of service shell 2.4 and higher. To execute the version checker click on the version checker icon under 'default views'. If the system you are version checking has not been configured then the "**Device is not configured"** message will appear. Please select one of the following actions to continue.

    i. ***If you do NOT have a controlled release CD use "Detect Versions"*:** Detect version will display a menu of supported devices. Once a device is chosen, the version checker will then query all the components for that system. The result of the versions found will be displayed in the version checker window.

    ii. ***If you have a controlled release CD use "Configure System":*** Configure system will ask the user to browse to a version checker file. The controlled release CD will contain a version checker file. This file will be used by version checker to compare versions in the controlled release to versions currently on the device. Click BROWSE and select the version checker file located under the VersionChecker folder on the controlled release CD. The file will have a .ini extension. Then in the RELEASES LISTS box, click the down arrow  and select the controlled release version that you will be installing.

    iii. Note: (Service Shell 2.4 specific) for a system that has already been previously configured with the version checker the behavior of the version checker will change. Once you launch the version checker it will immediately start to test version information. To reconfigure the system, wait for the version checker to complete. Once it has finished querying versions select 'config' in the upper right hand corner of service shell. The next steps will be identical to configure system mentioned above in step B.

2. Run the **FirmwareUpgrade.spt** script from within Service Shell (see Appendix B for details) and select Upgrade Firmware.

<u>For Head Firmware Versions Pre-1.80</u>

If the current head version is pre-1.80, you must upgrade the head firmware before upgrading the MCE firmware. Upgrade the head firmware first by itself, then after the head upgrade completes, continue upgrading the other firmware components.

The script will automatically create backup files for all the NVS parameters on the device, then upgrade the firmware. The script allows several firmware components to be loaded in sequence – for example, MCE Main firmware and Xilinx.

3. Reset the machine with the **reset** command.

4. After the upgrade is complete, run the Version Checker applet again to make sure all components are correct. If the version checker was configured previously in step 1 the version checker will automatically start to query the system. For service shell version 2.5 the version checker will prompt the user if he or she would like to test the versions on the system connected to service shell.

4. NEW FEATURES

4.1 Fuji Media Support

Support added for Fuji proofing media. This is facilitated by setting up a new proof on the MCE, using the following settings:

- *Set proof x bordertype 2*
- *Set proof x recdrumclean true*
- *Set proof x loadclean 4*
- *Set proof x revmediaseal true*
- *Set proof x gentleunload true*

Additionally, a special overwriting pattern is required, now available in MCEOWP104.bin, and must be set up in the media using the following:

- *Set media x patternid 100*

In order to test this feature, you must have a machine with a special Fuji-compatible Spectrum loader installed. For help in verifying that the Fuji media is handled and exposed properly, consult Sunny Wong.

4.2 Dupont Media Support

Support added for Dupont 20 micron Staccato. Use the following overwriting pattern, available in MCEOWP104.bin, when performing Staccato imaging on Dupont media:

- *Set media x patternid 38*

4.3 Unlimited Media Support

Support added for unlimited media and the Media Console utility. This feature is enabled using the command **option media_manager enable**. Notes:

- "Narrow mode" head parameters no longer exist.
- This option only exists for Spectrum product configurations.
- A new *ImageMode* parameter has been added to the media NVS parameter group. This parameter differentiates between normal and FM media settings, where 0 = normal and 1 = FM. The image mode, along with the name and colour of the media, is intended to be used to match media slots on the MCE with the HDM slot in the head. Note, however, that the *ImageMode* parameter does not exist in TH1.7x firmware release 1.83, and will

not until release 1.90. Until then, the image mode is not used to match the media with the HDM. This implies that you cannot define two media with the same name and colour but different image modes without the media manager option enabled.

4.4 New Product Configurations

New configurations have been added. The available Spectrum configurations are as follows:

```
Code        Description
-----------------------------------------
SP4LSE      Trendsetter II 400 S Manual Spectrum
SP4LFE      Trendsetter II 400 F Manual Spectrum
SP4LVE      Trendsetter II 400 V Manual Spectrum
SP4RSE      Trendsetter II 400 S Spectrum
SP4RFE      Trendsetter II 400 F Spectrum
SP4RVE      Trendsetter II 400 V Spectrum
SP8LSE      Trendsetter II 800 S Manual Spectrum
SP8LFE      Trendsetter II 800 F Manual Spectrum
SP8LVE      Trendsetter II 800 V Manual Spectrum
SP8RSE      Trendsetter II 800 S Spectrum
SP8RFE      Trendsetter II 800 F Spectrum
SP8RVE      Trendsetter II 800 V Spectrum
SP4LS       Trendsetter II 400 Quantum S Manual Spectrum
SP4LF       Trendsetter II 400 Quantum F Manual Spectrum
SP4LV       Trendsetter II 400 Quantum V Manual Spectrum
SP4RS       Trendsetter II 400 Quantum S Spectrum
SP4RF       Trendsetter II 400 Quantum F Spectrum
SP4RV       Trendsetter II 400 Quantum V Spectrum
SP8LS       Trendsetter II 800 Quantum S Manual Spectrum
SP8LF       Trendsetter II 800 Quantum F Manual Spectrum
SP8LV       Trendsetter II 800 Quantum V Manual Spectrum
SP8RS       Trendsetter II 800 Quantum S Spectrum
SP8RF       Trendsetter II 800 Quantum F Spectrum
SP8RV       Trendsetter II 800 Quantum V Spectrum
PS8R        Proofsetter Spectrum
```

4.5 *VrHomeAdjust* Parameter

A new NVS parameter has been added to the *mhproof* group, called *VrHomeAdjust*. Use this to adjust the home position of the vacuum roller, which is the position that faces the media in the cassette, in case the roller becomes misaligned with the index sensor.

4.6 Wait Option for Spectrum Commands

Diagnostic commands for Spectrum actuators now have a wait (“w”) option, which displays the elapsed time for the actuator movement.

5. BUGS FIXED

The following bugs have been fixed in this release of the firmware.

5.1 Inverted plots should not be permitted when overwriting is enabled

This problem has been fixed. An error occurs and the plot is aborted if an overwriting and positive media combination is detected. See PRS #2341.

5.2 Carriage should initialize on workstation flush

This problem has been fixed. See PRS #2783.

5.3 TCP IP connection not re-establised after firmware has reset

The latest version of the TRECK TCP/IP stack seems to fix this problem. See PRS #2938.

5.4 Device reports medias to print console that are not set up in the head

This has been fixed. See PRS #3002.

5.5 Same plots at 2400dpi and 1200dpi do not line up in subscan direction

This problem is due to pixel replication for the 1200 dpi plot. The combination of pixel replication and overwriting is not supported. The firmware will now generate an error and abort the plot if this combination is detected. See PRS #3021.

5.6 Vacuum threshold error during receiver or donor load causes carrier to unload

This problem has been fixed. See PRS #3023.

5.7 Carrier verification with door open

It is now possible to perform optical verification with the door open and keyswitch enabled. See PRS #3025.

5.8 Proof Cal command

This command now calibrates the *DvacCarrierThres* value in the *mhproof* NVS parameter group, whereas on the previousl release this parameter had to be manually calibrated. There is no PRS entry for this problem.

5.9 Proofs do not match plates in mainscan

There was a problem where the same image on the same machine placed on a proof would be a different mainscan size than on a plate. It was typically off by less than 2 mm. This has been fixed. There should be no noticeable size difference between the two. There is no PRS entry for this problem.

5.10 Two sides of Dylux images do not align

There was a problem where the two images on a Dylux media did not align or scale properly. This has been fixed. There is no PRS entry for this problem.

5.11 Carrier verfication/load squence gets messed up perhaps due to resuming a "Override keyswitch is on" suspend

This problem has been fixed. See PRS #3040.

5.12 Device suspend options that don't seem to be necessary

This problem has been fixed. The release option has been removed from the specified error. See PRS #3042.

5.13 Image artifacts when proofing using P33 head

Combining overwriting with pixel scrubbing caused this problem. Vertical dashes would appear in the proof as a result. This has been fixed in Xilinx version 1.72, in file MCELCA0172.bin. See PRS #3067.

5.14 Cannot cancel carrier load if verification fails

In the previous release, if this happened, the only option was to re-attempt a load of the carrier. This release allows the operator to cancel the load operation. See PRS #3024.

5.15 Cannot load carrier with override keyswitch on

This problem has been fixed. See PRS #3025.

5.16 Bypassing proofing loader sensors does not work properly

This problem was due to a bug in the way the stepper motor control worked. The bug manifested only when sensors were bypassed, due to the changes in timing. Problem fixed. See PRS #3038.

5.17 teb should be referred to tec rather than teb 'Product:Trailing edge backbone (teb) is down, cannot move nor spin the drum'

Text of error message has been improved. See PRS #3039.

5.18 Workstation flush - forces user to remove proofing media from the drum manually. This could be done for the user. A plate is ejected by device, so should a proof.

This problem has been fixed. The drum vacuum is checked to see if proofing media is loaded, and if so it is unloaded. See PRS #3043.

5.19 Diagnostic load of a plate after a proof was unloaded

More stringent error checking is done on the **load** command, so that the user is forced to enter the media index or type after unloading a proof. See PRS #3045.

5.20 Flushing device with media on the load ramp fails (media was left there from an unload)

This problem has been fixed. The firmware now ensures that a media handler init will not be processed at the same time as an unload. See PRS #3046.

5.21 'Loaded' command with proofing material loaded - refers to media index for receiver and carrier these slot sshould be filled with NA rather than a value

The media index is now only displayed for the proof donor. See PRS #3053.

5.22 Proof loading check squence - Operator Prompt Messages

The prompts have been changed to the more generic “Loading Media” and “Unloading Media”. See PRS #3063.

5.23 Flyoff condition does not seem to be retained after a reset

This problem has been fixed. The flyoff condition is now only cleared if a suspend occurred during initialization and the media was released. See PRS #3064.

5.24 Suspended states are not cleared from progress bar in PC

This problem has been fixed. See PRS #3071.

5.25 Scheduler command can crash firmware

This problem has been fixed. See PRS #6039.

5.26 Canceling a proof job that failed leaves the receiver on the drum

This problem has been fixed. The receiver is now unloaded when the cancel occurs. See PRS #6017.

5.27 'option unlimited-media enable' should warn user to reset device

This problem has been fixed. See PRS #6005.

5.28 Statistics Management:Statistic data type description index out of range

This problem has been fixed. See PRS #6002.

5.29 Unload carrier from PC does not work

This problem has been fixed. See PRS #6003.

5.30 List ovwr format should change to display similar info as MPE

This problem has been fixed. The “step” and “version” columns have been added, but not the “overwriting” column, because this one is always one less than the “masks” column, and is thereby superfluous. See PRS #6010.

5.31 Canceling a diagnostic load is not effective through PC

This problem has been fixed. The cancel button has been removed from all load prompts that originate due to a diagnostic or DCAPI load command. See PRS #6078.

5.32 Load carrier feature does not work

This problem has been fixed. See PRS #6084.

5.33 'list ovwr' is hidden by the access expert command

This problem has been fixed. The “list ovwr” command is now field-accessible. See PRS #6093.

5.34 sim mh with proofing leaves the drum vacuum proper monitoring is disabled

This problem has been fixed. Fixed handling of drum vacuum when simulation is enabled after the media has been loading. It will no longer turn on the dvac, but will continue to monitor the pressure as if there was no simulation. Warning: if the media is unloaded under simulation, the drum vacuum will still be turned off! This means that the next job should be run soon, before the drum vacuum drops too much and the media falls off. See PRS #6107.

5.35 Cannot set a media slot 'set media x' with panels open. Common procedure when installing a head

This problem has been fixed. See PRS #6108.

5.36 Media thickness out of range - prevents 'media x' command from working

This problem has been fixed. See PRS #6109.

5.37 Aborting a proof job through diagnostics leaves the reciever and donor on the drum

This problem has been fixed. See PRS #6111.

6. KNOWN BUGS

This section lists the known problems that have not been fixed for this release of the firmware. Where possible, workarounds to the problems are described.

6.1 Device does not report if Fanbox Panel is closed

See PRS #2919.

6.2 Unable to single step (spectrum step) a carrier load successfully. (Spectrum Step Enable)

See PRS #3020.

6.3 Cannot set HDM drum speed to zero

See PRS #3029.

6.4 Cannot load maximum plate size

See PRS #3030.

6.5 Media type for film loaded through the cassettes is required. Currently we arepatching it, identifying it as a donor

See PRS #3034.

6.6 "scan sp" group does not follow the proper naming convention. If the bit is a sensor the name should have the word sensor in it

See PRS #3036.

6.7 Poor recovery on flyoff during proof media load

See PRS #3065.

6.8 TH1.x heads require script to initialize when installed

See PRS #3073.

6.9 Test Plot Applet not supported

This release does not support the Test Plot Applet. Support will be added in the next minor release of the firmware.

6.10 Alarm buzzer not working properly

The alarm buzzer does not sound when a suspend occurs during a proof. The behaviour of the alarm buzzer with respect to suspends needs to be properly defined and implemented. There is currently no PRS entry for this problem.

6.11 Warning message required on media/hdm NVS change with media manager enabled

See PRS #6013.

6.12 Data Path Control:timed out waiting for stripe to complete

See PRS #6040.

6.13 'set ehi tstk 0' should warn user that this setting is zero when beam balance should be preformed

See PRS #6044.

6.14 Plate wrong size. Recovery has extra unnecessary step

See PRS #6104.

7. DEVICE CONFIGURATION PROCEDURES

7.1 Configuring the Device Model

All available model configurations can been displayed using the **config** command by itself. The model is configured using the **config <password> <model>** command, for example (command is case-sensitive):

config <password> SP8RV

After using this command and setting the options appropriately (see next section), reset the machine and use the **config** command on its own to verify that the model was set correctly.

7.2 Enabling Options

Use the **option** command to list all options, and enable/disable options applicable to the model. Ideally, all required NVS parameters would be configured automatically when the model is configured. This has not yet been done, in part because a single model can have different options that change its characteristics. The following list defines what settings must be verified when a model or feature is changed (do **access dev** first to gain access to commands):

- **option autoloader disable** disabled for all Spectrum configurations
- **option spectrum enable** enabled for all Spectrum configurations
- **option debris udrcb enable** if UDRC-B is installed
- **option debris udrcl enable** if UDRC-L is installed

After using this command, reset the machine then use the **option** command on its own to verify that the options were set correctly.

7.3 Using Dylux

The procedure for setting up Dylux media on the MCE is slightly different than the MPE. The carrier thickness for Dylux is set using the following command:

set prd defaultcarrierthk xxx

The media type must be set to “blueline”, using this command:

set media x type 18

When loading Dylux media from the diagnostic prompt, you must specify the image side with the load command, as in this example:

load m 770 s 1055 is 1

The “is <n>” parameter specifies which side you are loading, either 1 or 2. Consult the syntax of the load command for more information. Note that if you do not specify the media index of the Dylux media in the load command, you must specify the media type as “i 18”, meaning blueline.

APPENDIX A: COMMON ACRONYMS

MCE	Master Control Electronics
CTP	Computer to Plate (this includes Trendsetters and Platesetters)
NVS	Non-Volatile-Storage
PDB	Power Distribution Board
GENINE	Generic I/O Node Electronics Board
LIONEL	Little I/O Node Electronics Board
POST	Power-On Self Test
BBR	Boot-block Recovery
PC	Print Console
TH2	Thermal 2 Head
TH1.7x	Thermal 1.7x Head
WS	Workstation
TSAL	Trendsetter Autoloader
TS	Trendsetter – base model
SP	Trendsetter Spectrum
NEWS	Trendsetter NEWS

APPENDIX B: NVS BACKUP/RESTORE AND LOADING FIRMWARE

Service Shell is required to load new firmware, and to backup or restore NVS parameters. A script has been written to simplify these tasks.

As part of the Service Shell install, a script named **FirmwareUpgrade.spt** is copied to the Device scripts folder. A document describing how to configure Service Shell and how to use the script is also included in the **d:\ServiceShell\scripts\device** folder. Service Shell is installed on every workstation before it leaves the factory, so this document will be present on every workstation. An updated copy with more MCE-specific information is available in the Trendsetter MCE Controlled Release V1.0.

Inside Service Shell, left-click on the Scripts icon, then left-click on the Device group. Double-click on FirmwareUpgrade.spt to start the script. It is very important to use this script for the upgrade to make sure a full NVS backup is performed.

RAM vs. FLASH Parameters in MCE Machines

There are two separate types of NVS parameters that are accessed by the MCE firmware. Most parameters are stored in RAM. A few parameters that are not expected to be changed frequently are stored in Flash. Both sets of parameters must be backed up to fully capture the state of the machine; and both sets of parameters must be loaded onto a new board to restore the machine to its previous state. The FirmwareUpgrade.spt script automatically creates two separate files, one for each type of NVS, and expects both files when restoring parameters.

NVS parameters in general provide the following:

- Storage for machine-dependent parameters that must remain intact between power cycles.
- Storage for “state variables” that allow a machine to resume where it left off if power is cycled during loading or imaging.

All parameters are saved immediately as soon as they are changed.

When firmware is upgraded on a device, any new parameters will automatically be set to their default value. If a more complicated upgrade procedure is required, a script will be created to perform this upgrade, and this script will be released with the firmware.

IMPORTANT: BEFORE UPGRADING THE FIRMWARE OF ANY MACHINE YOU MUST BACKUP THE CONTENTS OF THE CURRENT NON-VOLATILE STORAGE IN CASE IT BECOMES NECESSARY TO REVERT TO THE PREVIOUSLY INSTALLED VERSION OF FIRMWARE!