

# Firmware Restore Manual for XL4, XL7, EXL6, EXLW, EXL10, and X5

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## SECTION 1: Overview

### 1.1 Introduction

In rare cases, it may be required to boot the OCS from the Removable Media drive, and then perform a system update. This is generally necessary if the OCS does not successfully boot up after applying power.

This document details the procedure used to turn a microSD card into a "boot disk" that can be used to recover the controller.

### 1.2 Materials Needed

- microSD card
- microSD card reader for your computer
- Complete firmware files, including the "make\_uSD.bat" file. Firmware files available for download on the Horner website:
  - North America: <u>https://hornerautomation.com/controller-firmware-cscan/</u>
  - Europe: <u>https://www.hornerautomation.eu/support/firmware/</u>

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## SECTION 2: Procedure to Create a Bootable microSD Drive

#### Step One:

Double click on Make\_uSD.bat file from IMX28 package folder.



#### Step Two:

The following window will be displayed. Enter the necessary fields as shown below:

C:\WINDOWS\system32\cmd.exe	5 6			-	×
RCC / XL4e / XL7e / EXL10e / EX	(L6e / X5 / EXL6e(W) M	icroSD Image Creato	or v5.4		^
CAUTION: This utility will era	ase all files on the s	elected drive!			
Target Model RCC972-CsCAN RCC972-CANopen RCC1410-CsCAN RCC8421-CsCAN RCC8842-CsCAN XL4e-CSCAN XL4e-CANopen XL7e-CSCAN XL7e-CANopen RCC2414-CANopen	Target Model Name rcc972 rcc972c rcc1410 rcc2414 rcc8842 xl4e xl4e xl4ec xl7e xl7e rcc2414c	Target Model EXL10e-CsCAN EXL6e-CSCAN EXL6e-CANopen X5-CsCAN X5-CANopen RCC1410-CANopen EXL6ew-CsCAN EXL6ewC-CANopen RCC8842-CANopen	Target Model Name exl10e exl6e exl6c x5 x5c rcc1410c exl6ew exl6ewc rcc8842c		
Enter the Target Model Name: Enter the MicroSD drive letter: 1. Creatingon MicroSD Driv	ve f: NORMAL xl4e boo	x14e f table image			



#### Step Three:

Select Enter and the batch file will launch the rufus exe. Select Yes. The following window will be displayed:

🕈 Rufus 3.8.1580				×
Drive Properties				
Davice				
XL7E (G:) [4GB]				~
Boot selection				
sdcard_normal_img.bin	~	$\oslash$	SELE	СТ
Partition scheme	Target sy	stem		
MBR ~	BIOS (or	UEFI-CS	5M)	
XL7E File system	Cluster si	ize		
File system	Cluster si	ize		
FAI32 V	4096 byt	tes (Defa	ult)	
Show advanced format option Status	15			
	READY			
S 🛈 🛱 🗐	STAF	RT	CLO	SE

#### Step Four:

Check if Device and Boot Selection fields display the proper data. If so, select **START**. The following warning will be displayed:





#### Step Five:

Reconfirm the message and select OK. The following message will be displayed:



#### Step Six:

Select OK and the Writing Image Process will be started, and status will be displayed as shown below:

onte rioperaes —	
Device	
XL/E (G:) [4GB]	
Boot selection	
sdcard_normal_img.bin	SELECT
Partition scheme	Target system
MBR $\sim$	BIOS (or UEFI-CSM)
<ul> <li>Show advanced drive propertie</li> <li>Format Options —</li> <li>Volume label</li> <li>XL7E</li> </ul>	es
Show advanced drive propertie Format Options — Volume label XL7E File system	es Cluster size
Show advanced drive propertie Format Options Volume label XL7E File system FAT32	cluster size 4096 bytes (Default)
Show advanced drive propertie Format Options Volume label XL7E File system FAT32     Show advanced format option	cluster size 4096 bytes (Default)
Show advanced drive propertie Format Options Volume label XL7E File system FAT32     Show advanced format option Status	es Cluster size 4096 bytes (Default)
Show advanced drive propertie Format Options Volume label XL7E File system FAT32     Show advanced format option Status Writing in	es Cluster size 4096 bytes (Default) is mage: 5.9 MB/s



#### Step Seven:

Once Writing Image Process is complete, the following window will be displayed. Select CLOSE.

Drive Properties —				
Device				
NO_LABEL (G:) [4GB]				~
Boot selection				
sdcard_normal_img.bin	~	$\oslash$	SELECT	
Partition scheme	Target sy	stem		
MBR ~	BIOS (or	UEFI-CSI	VI)	
408				
File system	Cluster s	i <b>ze</b> tes (Defau	lt)	
File system FAT32  Show advanced format options Status	Cluster s 4096 byt	ize tes (Defau	lt)	~
File system FAT32 Show advanced format options Status REA	Cluster s 4096 byt	ize tes (Defau	lt)	~

#### Step Eight:

The Flash files will be copied to the microSD card and the following window will be displayed after a successful completion:

C:\WINDOWS\syst	em32\cmd.exe			14 14	×
Target Model	Target Model Name	Tangat Model	Target Model Name		^
	Turget Hout Hume	Tur Bee Houer	Turbee Houer Hame		
RCC972-CSCAN	rcc972	EXL10e-CSCAN	ex110e		
RCC972-CANopen	rcc972c	EXL6e-CsCAN	ex16e		
RCC972-J1939	rcc9721	EXL6e-CANopen	exl6ec		
RCC1410-CsCAN	rcc1410	EXL6e-DeviceNet	ex16ed		
RCC2414-CsCAN	rcc2414	EXL6e-J1939	ex16ej		
RCC8842-C5CAN	rcc8842	X5-CsCAN	x5		
XL4e-CsCAN	xl4e	X5-CANopen	x5c		
XL4e-CANopen	xl4ec	X5-DeviceNet	x5d		
XL4e-J1939	xl4ej	X5-J1939	x5j		
XL7e-CsCAN	x17e	RCC1410-CANopen	rcc1410c		
XL7e-CANopen	x17ec	RCC1410-J1939	rcc1410j		
RCC2414-CANopen	rcc2414c	RCC2414-J1939	rcc2414j		
RCC8842-CANopen	rcc8842c	RCC8842-J1939	rcc8842j		
EXL6e(W)-CsCAN	exl6ew				
Enter the Target	Model Name:	x17e			
Enter the MicroS	D drive letter:	G			
Create DEBUG ima	ge (Y/N)?	N			
Select OEM (horn	er, hsmotion, bhdt,	imo or novus): horn	er		
1. Creating	on MicroSD Drive G:	NORMAL x17e bootabl	e image		
<ol> <li>Copying</li> </ol>	to MicroSD Drive G:	horner x17e NAND F1	ash files		
Success					
Press any key to	continue				~

#### Step Nine:

Eject the microSD card. It can now be used to boot the unit.

**NOTE:** After inserting the bootable microSD card to the unit, please wait for 4 seconds before applying the power to the device to discharge power supply of the device completely.

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## SECTION 3: Troubleshooting

### 3.1 Issue #1 - Rufus Application does not Launch

If any issue is seen in popping up of rufus.exe application, please follow below troubleshooting procedure and launch the Make\_uSD.bat file again.

Perform the following steps for adding C:\Windows\System32\wbem\ to system PATH environment variable, so that it will be available for all the command prompt sessions:

1. Open Control Panel > System > Advanced System settings. A window like the one below will open:

omputer Name	Hardware	Advanced	System Protection	Remote
You must be log	gged on as	an Administra	tor to make most of t	hese changes
Performance				
Visual effects.	processor s	cheduling, m	emory usage, and vir	tual memory
			-	
			ſ	Settings
			Gan	
User Profiles				
Desktop settin	igs related to	o your logon		
			_	
				Settings
Startup and R	ecovery			
System startup	o, system fai	ure, and deb	ugging information	
			_	
				Settings
			_	
			Environme	nt Variables
			Livioland	



2. Select Environment Variables > System Variables.

Edit Path variable and add C:\Windows\System32\wbem\ to the beginning of the path followed by a semicolon ( ";" ).

onment Variables	Σ	3 Hotection henote
		ke most of these changes.
Edit System Varia	ble	age, and virtual memory
Variable name:	Path	Settings
Variable <u>H</u> ame.		
Variable <u>v</u> alue:	C:\Windows\System32\wbem\; C:\Users\th:	
	OK Cancel	
	OK Cancel	Settings
ystem variables	OK Cancel	Settings
ystem variables	OK Cancel	Settings
ystem variables Variable Path	OK Cancel Value C:\Users\ths\.m2\bin;C:\Program Files\	Settings
ystem variables Variable Path PATHEXT	OK Cancel Value C:\Users\ths\.m2\bin;C:\Program Files\COM;.EXE;.BAT;.CMDj.VBS;.VBE;.JS;	Settings
ystem variables Variable Path PATHEXT PERL 5LIB	OK Cancel Value C:\Users\ths\.m2\bin;C:\Program Files\COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS; C:\orace\product\10.2.0\db_1\sysman	Settings formation Settings
vstem variables Variable Path PATHEXT PERL SLIB PROCESSOR_A	OK Cancel Value C:\Users\ths\.m2\bin;C:\Program Files\COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS; C:\oracle\product\10.2.0\db_1\sysman AMD64	Settings formation Settings
vstem variables Variable Path PATHEXT PERLSLIB PROCESSOR_A	OK     Cancel       Value     ^       C:\Users\ths\.m2\bin;C:\Program Files\     ^       .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;     _       C:\oracle\product\10.2.0\db_1\sysman     _       AMD64     _       New     Edit	Settings formation Settings Environment Variables

3. Save the changes made to the Path environment variable.

### 3.2 Issue #2 - Unit does not Boot

The Unit does not boot with the created microSD and there is only a white screen. Please try using another microSD and check if the unit boots with the created microSD.

### 3.3 Issue #3 - Cannot Reuse microSD card

Bootable microSD card does not work when the same card is reused.

Some microSD cards, when used for creating bootable microSD card might be successful for the first time and when same card is used to create bootable microSD card for second time, it might fail in certain Windows 10 version. In such cases, user must format disk before making bootable microSD card via Rufus.



## SECTION 4: Helpful Tips

### 4.1 Procedure Options to Format Disks

Method 1:

The following link points at a utility which can be used for formatting cards. <u>https://www.sdcard.org/downloads/formatter/</u>

Method 2:

Open Command Prompt and type "diskPart"

- Type: list disk
- Enter: select disk # (Make sure to select the correct disk.)
- Type: clean
- Type: create partition primary
- Type: format fs=fat32 quick
- Type: assign

Use the formatted microSD card to make the bootable card.

### 4.2 Usability Space

After making bootable microSD card, the card will show size of about 1 GB. In order to make use of remaining space after boot loading the device, user might need to format the disk as mentioned above so that original capacity of the disk is obtained for usage.

#### NOTES:

- a. User may be prompted to update Rufus or may set the settings to update Rufus automatically. If this is done, a newer version is downloaded but the original version "rufus-3.13.exe" included in the package will not be deleted.
- b. If the original version is removed the batch file will not work properly.



## SECTION 5: Restoring an XL4, XL7, or X5

- 1. Power down the unit to be restored.
- 2. Switch number 3 of dipswitch "SW1" should be to the "ON" position. Refer to page 3 for switch location.
- 3. Install the microSD card into the unit and apply power to the unit.
- 4. The unit will power up to the Boot Installer Screen.
- 5. On the Boot Installer Screen, select "Install Bootloader".
- 6. Upon completion of the update, touch "OK", and then power down the unit.
- 7. Set switch 3 of dipswitch "SW1"to the "OFF" position.
- 8. Once all these steps are completed, power on the unit. It should now boot normally.

### SECTION 6: Restoring an EXL6, EXLW, or EXL10

- 1. Power down the unit to be restored.
- 2. Install the boot-enabled the microSD card into the unit.
- 3. Depress the Bootload switch with a paperclip while applying power to the unit. Once power is applied, you can release the Bootload switch. Refer to page 3 for switch location.
- 4. The unit will power up to the Boot Installer Screen.
- 5. On the Boot Installer Screen, select "Install Bootloader".
- 6. Upon completion of the update, touch "OK", and then power down the unit.
- 7. Set switch 3 of dipswitch "SW1"to the "OFF" position.
- 8. Once all these steps are completed, power on the unit. It should now boot normally.



## SECTION 7: Locations of Bootloader Switches

