NORTHROP GRUMMAN



SERVICE BULLETINNote No.SVC-FSB-0030Release Date9/17/2015Contactngceoservice@ngc.com

# eDrive Expansion Module Microcontroller Programming Guide

#### Summary

This technical note describes the programming procedure for the eDrive Expansion Module (EM) Microcontroller.

### Scope

This technical note applies to all 2U and 4U eDrives

# **Materials and Equipment**

- A #2 Phillips® screwdriver
- A PC running Windows XP or later with COM port or USB port
- Analog Devices USB-EA-CONVZ Dongle and USB Cable
- Analog Devices MicroConverter Windows Serial Downloader Software (WSD)
- A Version Description Document and data package provided by NGCEO

Contact NGCEO for assistance in obtaining any of these items.

## **Programming Instructions**

- 1. Remove all 22 screws around the perimeter of the eDrive top cover.
- 2. Remove the top cover by lifting it gently off the chassis.
- 3. Download the Version Description Document package and all files to your computer.
- 4. Connect the Analog Devices USB-EA-CONVZ Dongle and USB cable to your PC.
- 5. Connect the white 2-pin connector to the EM **J20** connector.

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Figure 1-1: Analog Devices USB-EA Dongle connected to EM 1 connector.

- 6. Run the Analog Devices MicroConverter WSD software.
- 7. Select Configuration.

Vindows Serial Downloader for ADuCBox MicroConverters					
Configuration Beset Download Ryn					
<connect></connect>	Erase Download Verify Bootload Secure Run Complete				
Part Crystal %Baud Er. Dwnlod Md. XMit Size	: Code Only Security : None : 8 Success : SUCCESS : C:\eDrive_sw\aim v3.2.0\obj\aim.hex				
	: : Resetting the target device (2) : Reset GKT ADuC841 device detected				

Figure 1-2: Startup Screen for the MicroConverter WSD

- 8. Under the **Port** field, select the proper COM port.
  - a. To discover the proper COM port, first unplug the USB-EA dongle.
  - b. Open your computer's **Device Manager** and view the list of available Com ports.
  - c. Plugging the USB-EA dongle back into the computer should reveal a new Com port in the **Ports** field.

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Configuration
Serial Port Setup Port Crystal Frequency C Default O Default O Uther crystal 20.000000 MHz MicroConverter Baud Rate PC Baud Rate 9600 bps
Code and Data Flash/EE Memory Erase Mode C Download Mode C Download CODE and DATA C Erase the CODE ONLY C Erase the CODE and DATA C Download CODE ONLY C Download DATA ONLY Secure Mode
Run       Image: Run Automatically after download       Image: Run from start:       0 Hex       Image: Run from start:       0 Hex         Image: Run Automatically after download       Image: Run from start:       0 Hex       Image: Run from start:       0 Hex         Image: Run Automatically after download       Image: Run from address:       0000       Image: Run from address:       Verify Code Downloaded DK         Image: Run Automatically after download       Image: Run from address:       0000       Image: Run from address:       Verify hex file checksum
Download Files         ✓         Prompt me for the files when downloading         Code Flash File         Cited Flash File         Data Flash File         QK         Qancel         Cogy

Figure 1-3: Configuration Screen in MicroConverter WSD

- 9. In the Crystal Frequency field, Other crystal should be selected.
- 10. Set the frequency to 8 MHz.
- 11. In the Code and Data Flash/EE Memory field, the Erase Mode should be set to Erase the CODE ONLY.
- 12. Under the **Download Files** field, ensure that **Prompt me for the files when downloading** is checked.
- 13. Select OK.
- 14. The home screen will appear again. Select **Reset**. The status should read **Reset OK!** ADUC841 Device Detected!
- 15. Select **Download**.
- 16. Browse to the **.hex** file included in the data package from NGCEO.
- 17. Select **Open**. The loading will begin.

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Windows Serial Downloader for ADuC8xx MicroConverte	ers		
ANALOG Micr DEVICES Windows Serial D			
<u>Configuration</u> <u>Reset</u>	<u>D</u> ownload Ryn		
Connect Erase <download> Verify Bootlo</download>	oad Secure Run Complete		
Crystal : 20000000 Hz Run A %Baud Er. : 0.00% Verif	e Data : false Adr. : fy : false rity : None ess : SUCCESS		
Stage : Downloading bytes to code flash			
Operation : Downloading using quick protocol Status :	1		

18. When the process has completed, the status will read OK!

#### 19. Close the WSD software

- 20. Remove the USB-EA dongle from the computer and the EM board.
- 21. Turn the eDrive on to initiate the reloading of the firmware.
- 22. To verify that the firmware has installed correctly, select the following functions on the eDrive user menu: Utility Functions  $\rightarrow$  Systems Status  $\rightarrow$  EM.
- 23. Ensure that the firmware listed matches the number specified in the Version Description Document provided by NGCEO.
- 24. Turn the eDrive off.
- 25. Remount the cover to the chassis.
- 26. Reinstall the 22 screws to secure the cover.