Freescale Semiconductor
Application Note

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Using the Xtrinsic FXOS8700CQ Command Line Interface Software

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1 Introduction

The FXOS8700CQ command line interface driver provides an easy way to communicate with the FXOS8700CQ using the RD4247FXOS8700 sensor toolbox platform. Once the sensor toolbox board is programmed with this firmware, the user can

- modify and read registers,
- view details of the operating mode of the device,
- and stream/view data as signed counts or in signed units

using a generic terminal program via a virtual serial port over USB.

Contents

2 Programming the Sensor Toolbox Hardware

The following items are required to program the sensor toolbox hardware:

- A PE Micro USB multilink device capable of programming HCS08 targets.

www.pemicro.com

- Freescale CodeWarrior for Microcontrollers v6.2 or higher.

www.freescale.com/codewarrior

This project was developed with CodeWarrior for Microcontrollers v6.2 which has the classic IDE environment. The project can be imported into the newer CodeWarrior for Microcontrollers v10.x releases which have the Eclipse environment utilizing the CodeWarrior Classic Project Importer feature (File > Import…). Please see corresponding documentation and help for details.

The following steps are necessary for programming the sensor toolbox board using CodeWarrior for Microcontrollers v6.2.

1. Connect the sensor toolbox board to the host PC using the USB cable included in the kit. For most cases, the FTDI drivers will be installed automatically. If a driver cannot be found by Windows go to www.ftdichip.com to download them.
2. Connect the PE Micro multilink device to the host PC. If this is the first time the device is connected to the PC, the drivers will be installed automatically.
3. Connect the PE Micro multilink device to the sensor toolbox board using the 6-pin ribbon cable attached to the multilink.

Figure 1. PE Micro multilink and sensor toolbox board

4. Turn the board on using the ON/OFF switch. The red LED light will turn on indicating that the board is powered up.

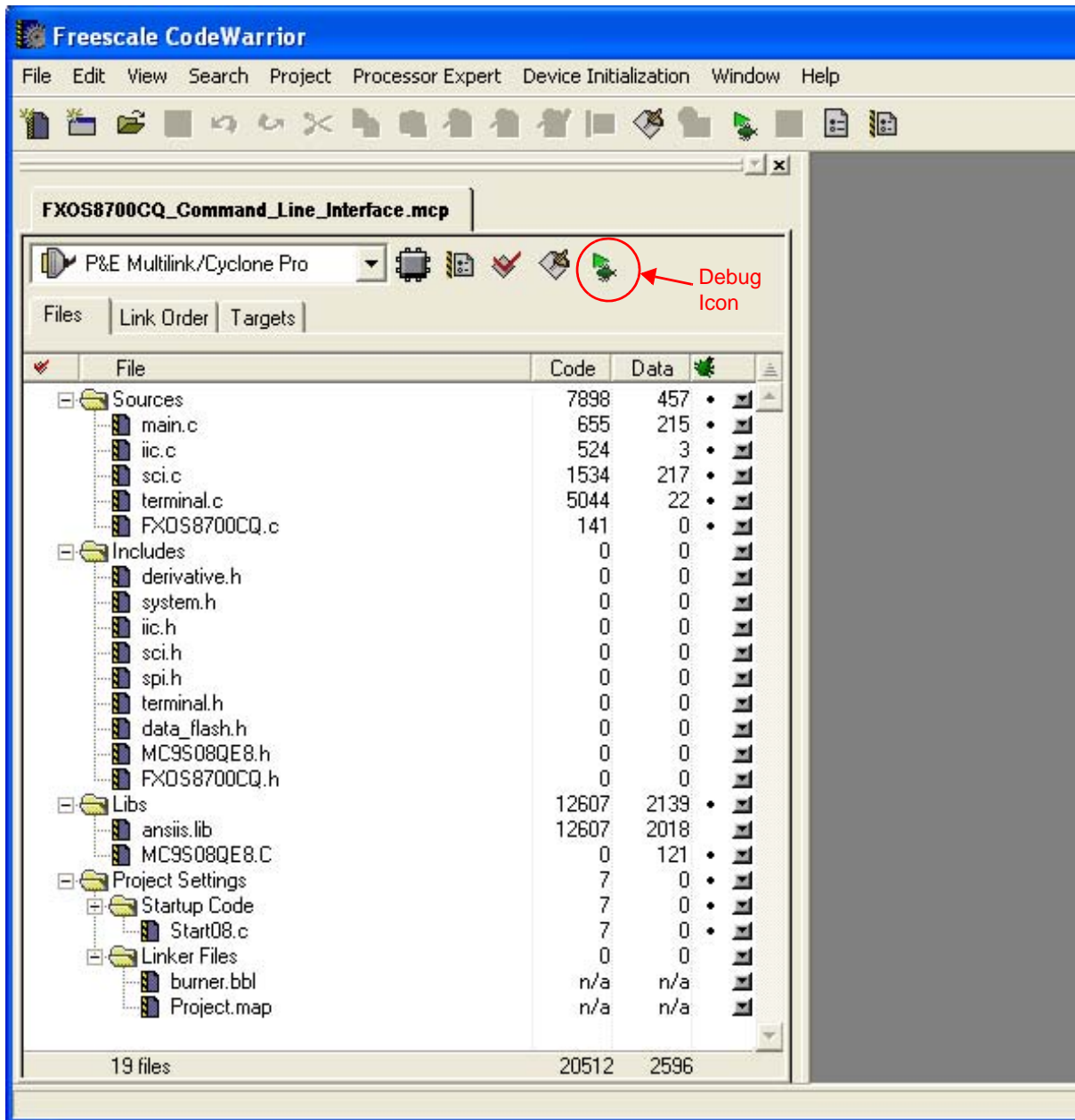5. Start CodeWarrior and open the project file with *.mcp extension.

Figure 2. FXOS8700CQ command line interface project inspector window

6. Click on the green Debug icon for debugging to flash program on to the board.

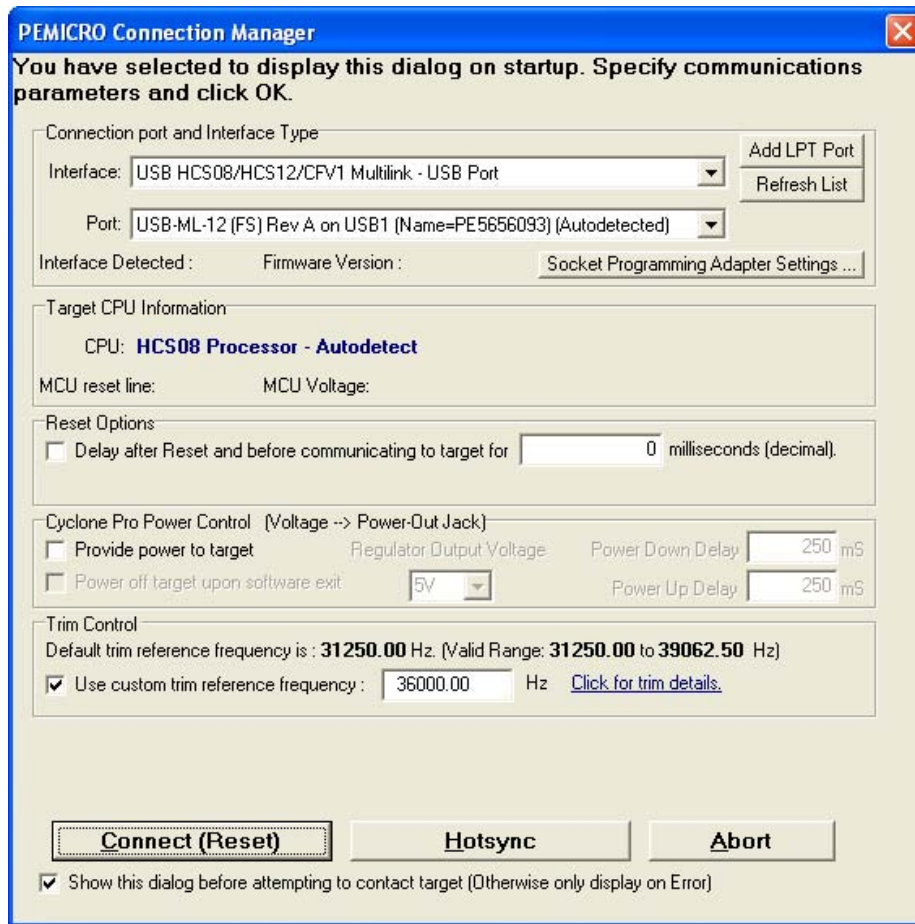7. Click the Connect (Reset) button in the initial dialog window.

Figure 3. PEMICRO Connection Manager window

NOTE

Keep in mind that this dialog may not appear depending on the state of the microcontroller prior to launching the debugger.

8. Click Yes to erase and flash the program in the next dialog window. Once programming is completed, close the debugger and CodeWarrior, and power down the sensor toolbox board using the ON/OFF switch. The command line interface program is now ready to be executed once the sensor toolbox board is powered up again.

Figure 4. Erase and Program Flash window

Using the Xtrinsic FXOS8700CQ Command Line Interface Software, Rev. 1

3   Setup of Terminal Program

Once programmed, turn on the sensor toolbox board and start a terminal program with the following settings:

- Baud: 115200 bps
- Bits: 8
- Parity: None
- Stop Bits: 1
- Hardware Flow Control: None

The specific COM port is determined using the Device Manager feature of Windows.
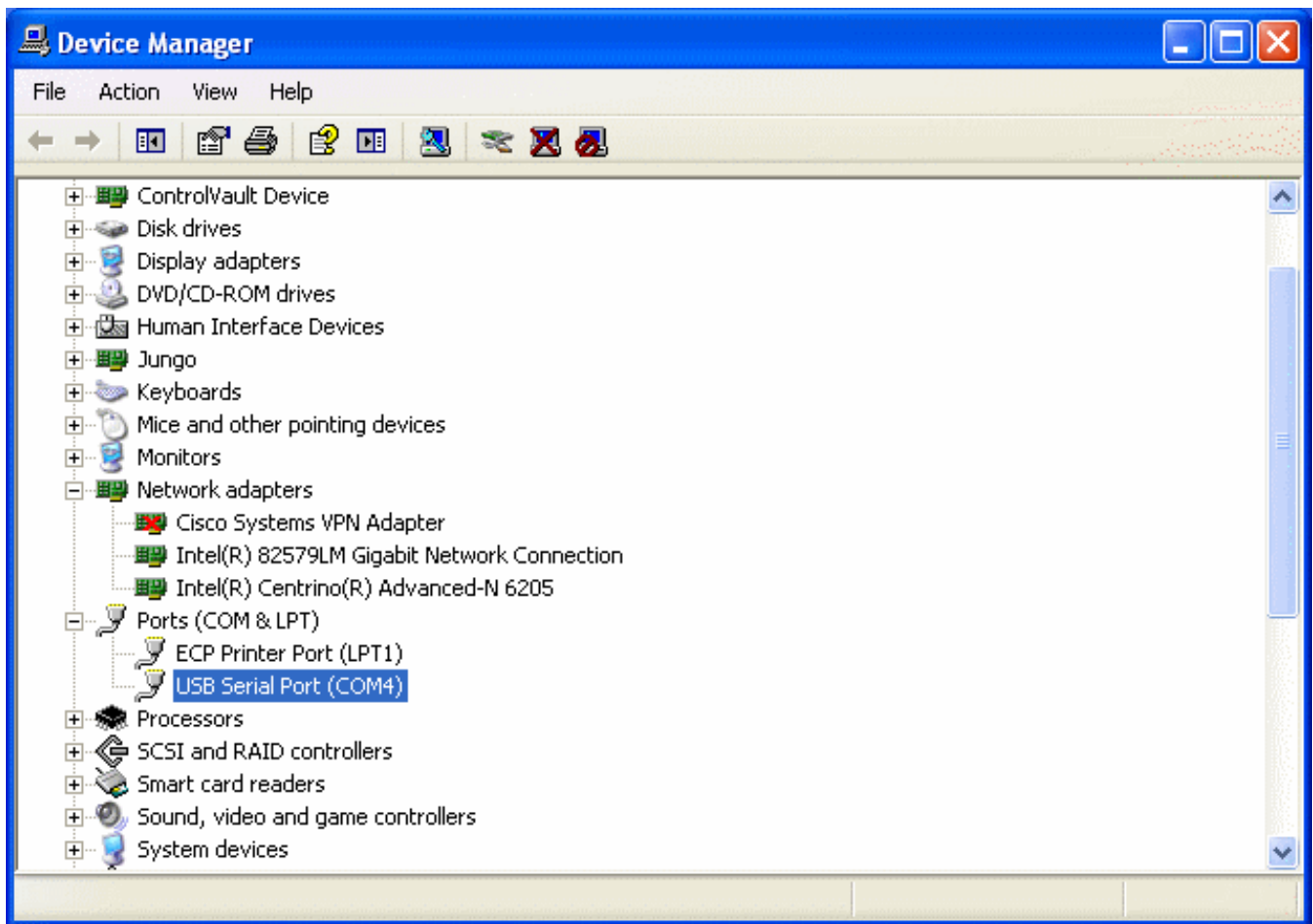

Figure 5. Device Manager

Once the terminal program is set up as specified, press the Enter key; this will result in the displaying of the program header which indicates

- the compile date and time of the firmware image
- firmware revision number
- detected iic address and whoami of the sensor on board
- the details of the operating mode of the device
- followed by the command prompt.

Pressing the Enter key after the startup of the program will generate an output similar Example 1.

Example 1.

```
**   Freescale Semiconductor   **
**   FXOS8700CQ Demo           **
**      using the MC9S08QE8    **
**                             **
**   Aug 16 2012    16:42:43   **

Command Line Interface Software Revision: 1.00

This version of command line interface does
not support external flash

FXOS8700CQ :  IIC Address = 0x1E, WhoAmI = 0xC7

Operating Mode = Hybrid (Accel+Mag), ACTIVE,
ODR = 50Hz,
Hybrid auto inc = ON,
Mag OSR = 16,
Accel OSR = Normal,
HP = 2Hz,
Accel FSR = 2g

FXOS8700CQ>
```

4 List of Commands

A list of commands can be viewed by pressing ? key followed by the Enter key. Example 2 outlines the details of each command (parameters accepted, output format, special cases, and so on). The commands are not case-sensitive.

Example 2. List of Commands

```
FXOS8700CQ>? List of FXOS8700CQ commands:
RR xx    :    Register xx Read
RW xx=nn :    Register xx Write value nn
RF       :    Report Configuration Specifics
CN       :    XYZ data as Signed Counts
CH       :    XYZ data as Signed Counts, with Accel HP Filter enabled
GN       :    XYZ data in Signed Units
GH       :    XYZ data in Signed Units, with Accel HP Filter enabled
S aa     :    Stream XYZ:
I aa n   :    Stream XYZ via Interrups
         :    n:  1=INT1; 2=INT2
F aa ww  :    Stream XYZ via FIFO
         :    aa: CN, CH, GN or GH as explained above
         :    ww: Watermark= 1 to 31

FXOS8700CQ>
```

4.1 Register Read (RR)

This command simply reads the register contents.

Format

RR xx<ENTER> or RR<ENTER>

Input Parameter(s)

xx: two ASCII characters representing a 1-byte register address as hexadecimal.

Output

Content of the register specified. If no register is specified, all register contents will be displayed.

Example 3. Register Read sample output (WHOAMI register)

```
FXOS8700CQ>RR 0D = C7
FXOS8700CQ>
```

Example 4. Read All Registers sample output

```
FXOS8700CQ>RR Read All Registers
00 = FF FE 80 00
04 = C4 40 A0 00
08 = 00 03 00 01
0C = 01 C7 00 00
10 = 00 80 00 84
14 = 44 00 00 00
18 = 00 00 00 00
1C = 00 00 00 00
20 = 00 00 00 00
24 = 00 00 00 00
28 = 00 00 19 00
2C = 00 01 00 00
30 = 00 00 FF FE
34 = EF FF 36 FE
38 = 88 00 00 00
3C = 00 00 00 00
40 = 00 00 00 00
44 = 00 FF 1F 00
48 = 87 FE B3 FE
4C = 5B FF 01 FD
50 = F7 16 00 00
54 = 00 00 00 00
58 = 00 00 00 1F
5C = 20 00 01 00
60 = 00 00 00 00
64 = 00 00 00 00
68 = 00 00 00 00
6C = 00 00 00 00
70 = 00 00 00 00
74 = 00 00 00 00
78 = 00

FXOS8700CQ>
```

4.2 Register Write (RW)

This command writes a single byte to the specified address.

Format

```
RW xx=nn<ENTER>
```

Input Parameter(s)

xx: two ASCII characters representing a 1-byte register address in hexadecimal.

nn: two ASCII characters representing a byte in hexadecimal, to be written to *xx*.

Output

Success or Failure

NOTE

A warning message will be displayed when modifying the CTRL_REG1 (0x2A) indicating that the part must be in Standby mode prior to changing output data rate (ODR).

Example 5. Register Write sample output (OFF_X register)

```
FXOS8700CQ>RW 2F=AA   Success
FXOS8700CQ>
```

4.3 Report Configuration (RF)

This command display the specifics of the operating configuration of the sensor device.

Format

RF<ENTER>

Input Parameter(s)

None

Output

Operating Mode:

Hybrid (Accel+Mag), Accel Only, Mag Only, Rsrvd + ACTIVE, STANDBY

Output Data Rate (ODR):

800Hz, 400Hz, 200Hz, 100Hz, 50Hz, 25Hz, 12.5Hz, 6.25Hz, 3.15Hz, 1.56Hz, 0.8Hz

Hybrid Mode Auto Increment (Hybrid auto inc): Displayed only if device is configured for hybrid mode

ON, OFF

Magnetometer Oversampling Ratio (Mag OSR):

2, 4, 8, 16, 32, 64, 128, 256, 512, 1024

Accelerometer Oversampling Ratio (Accel OSR):

Normal, Low Noise, High Res, Low Power

High-Pass Filter (HP):

0.031Hz, 0.063Hz, 0.12Hz, 0.25Hz, 0.5Hz, 1Hz, 2Hz, 4Hz, 8Hz, 16Hz

Acceleration Full-Scale Range (Accel FSR):

±2g, ±4g, ±8g, Rsvd

Example 6. Report Configuration sample output

```
FXOS8700CQ>RF
Operating Mode = Hybrid (Accel+Mag), ACTIVE,
ODR = 50Hz,
Hybrid auto inc = ON,
Mag OSR = 16,
Accel OSR = Normal,
HP = 2Hz,
Accel FSR = 2g
FXOS8700CQ>
```

4.4 Display XYZ Data as Signed Counts (CN)

This command displays the sensor data from a single acquisition cycle from enabled sensors. If device is in Hybrid (Accel+Mag) mode XYZ data from both sensors will be displayed. If device is in Accel Only or Mag Only mode, then XYZ data from a single sensor will be displayed accordingly.

Format

CN<ENTER>

Input Parameter(s)

None

Output

XYZ data will be displayed based on current configuration. Acceleration data will be in the range [-8192,+8191]. Magnetometer data will be in the range [-32768,32767].

Example 7. Display Sensor Data as Signed Counts sample output

```
FXOS8700CQ>CN
Xacc=-00770;Yacc=-00040;Zacc=+04136;Xmag=-00502;Ymag=-00677;Zmag=-00242
FXOS8700CQ>
```

4.5 Display XYZ Data as Signed Counts, with HPF Enabled (CH)

Identical to Section 4.4 except accelerometer data is fed through a high-pass filter before being displayed. Please note that the high-pass filter may only be applied to the accelerometer data.

This command displays sensor data from a single acquisition cycle from enabled sensors. If device is in Hybrid (Accel+Mag) mode XYZ data from both sensors will be displayed. If device is in Accel Only or Mag Only mode, then XYZ data from a single sensor will be displayed accordingly.

Format

CH<ENTER>

Input Parameter(s)

None

Output

XYZ data will be displayed based on current configuration. Acceleration data will be in the range [-8192,+8191]. Magnetometer data will be in the range [-32768,32767].

Example 8. Display sensor data as counts, with HPF enabled

```
FXOS8700CQ>CH
******************************************************************
*   WARNING - HPF requires samples to settle after an activation   *
******************************************************************

Xacc=-00008;Yacc=-00004;Zacc=-00012;Xmag=-00494;Ymag=-00660;Zmag=-00260
FXOS8700CQ>
```

4.6 Display XYZ Data in Signed Units (GN)

This command displays sensor data from a single acquisition cycle from enabled sensors. If device is in Hybrid (Accel+Mag) mode XYZ data from both sensors will be displayed. If device is in Accel Only or Mag Only mode, then XYZ data from a single sensor will be displayed accordingly.

Format

GN<ENTER>

Input Parameter(s)

None

Output

XYZ data will be displayed based on current configuration. Data read from the sensors will be converted to *g* and *μT* units for acceleration and magnetic field respectively. Acceleration data will be in the range as specified in Accel FSR (for Accel FSR = 2g, in the range [-2.0000 g, +1.9999 g]). Magnetometer data will be in the range [-3276.8 µT, 3276.7 µT].

Example 9. Display Sensor Data in Signed Units output sample

```
FXOS8700CQ>GN
Xacc=-0.7305g;Yacc=-0.0137g;Zacc=+1.0225g;Xmag=-00047uT;Ymag=-00063uT;Zmag=-00023uT
FXOS8700CQ>
```

4.7 Display XYZ Data in Signed Units, with HPF Enabled (GH)

Identical to Section 4.6 except accelerometer data is fed through a high-pass filter before being displayed. Please note that the high-pass filter may only be applied to the accelerometer data.

This command displays sensor data from a single acquisition cycle from enabled sensors. If device is in Hybrid (Accel+Mag) mode XYZ data from both sensors will be displayed. If device is in Accel Only or Mag Only mode, then XYZ data from a single sensor will be displayed accordingly.

Format

GH<ENTER>

Input Parameter(s)

None

Output

XYZ data will be displayed based on current configuration. Data read from the sensors will be converted to *g* and *µT* units for acceleration and magnetic flux density respectively. Acceleration data will be in the range as specified in Accel FSR (for Accel FSR = 2 g, in the range [-2.0000 g, +1.9999 g]). Magnetometer data will be in the range [-3276.8 µT, 3276.7 µT].

Example 10. Display Data in Signed Units, with HPF Enabled sample output

```
FXOS8700CQ>GH
******************************************************************
*   WARNING - HPF requires samples to settle after an activation   *
******************************************************************

Xacc=+0.0000g;Yacc=+0.0039g;Zacc=-0.0020g;Xmag=-00046uT;Ymag=-00059uT;Zmag=-00020uT
FXOS8700CQ>
```

4.8   Stream XYZ Data by Polling (S)

Stream sensor XYZ data (by polling).

The characteristic of the streamed data will be the same as the output generated by one of the four display commands explained above in Section 4.4 through 4.7; this will be specified via the *aa* parameter of this command.

NOTE

Streaming data is not recommended for ODR settings faster than 100 Hz in Hybrid (Accel+Mag) mode and faster than 200 Hz in Accel Only and Mag Only modes due to the limitations of the serial port. Streaming faster than recommended may lead to missed samples.

Press <ENTER> to stop streaming at any time.

This command will disable all interrupt sources routed to pins INT1 and INT2. It will put the device in ACTIVE mode if it is not in ACTIVE mode already.

Format

S aa<ENTER>

Input Parameter(s)

aa: CN or CH or GN or GH

Output

Data will be streamed based on command parameter and current configuration.

Example 11. Stream Data by Polling sample output

```
FXOS8700CQ>S CN

*Recommended Streaming ODR<=100Hz for HYBRID mode,*
*ODR<=200Hz for Mag Only or Accel Only modes*

 - Streaming XYZ data as signed counts
Xacc=-00096;Yacc=+00020;Zacc=+04104;Xmag=-00353;Ymag=+00088;Zmag=-00378
Xacc=-00102;Yacc=+00036;Zacc=+04108;Xmag=-00360;Ymag=+00092;Zmag=-00408
Xacc=-00098;Yacc=+00026;Zacc=+04076;Xmag=-00360;Ymag=+00098;Zmag=-00388
Xacc=-00110;Yacc=+00030;Zacc=+04110;Xmag=-00372;Ymag=+00109;Zmag=-00407
Xacc=-00096;Yacc=+00026;Zacc=+04122;Xmag=-00354;Ymag=+00082;Zmag=-00397
Xacc=-00102;Yacc=+00026;Zacc=+04078;Xmag=-00341;Ymag=+00081;Zmag=-00377
Xacc=-00108;Yacc=+00026;Zacc=+04062;Xmag=-00362;Ymag=+00108;Zmag=-00386
Xacc=-00100;Yacc=+00018;Zacc=+04088;Xmag=-00360;Ymag=+00099;Zmag=-00419
Xacc=-00106;Yacc=+00030;Zacc=+04096;Xmag=-00357;Ymag=+00089;Zmag=-00370
Xacc=-00108;Yacc=+00030;Zacc=+04090;Xmag=-00357;Ymag=+00106;Zmag=-00391
Xacc=-00102;Yacc=+00028;Zacc=+04084;Xmag=-00372;Ymag=+00106;Zmag=-00404
Xacc=-00103;Yacc=+00034;Zacc=+04110;Xmag=-00361;Ymag=+00104;Zmag=-00400
Xacc=-00106;Yacc=+00023;Zacc=+04108;Xmag=-00349;Ymag=+00100;Zmag=-00387
Xacc=-00098;Yacc=+00020;Zacc=+04128;Xmag=-00359;Ymag=+00105;Zmag=-00390
Xacc=-00096;Yacc=+00045;Zacc=+04088;Xmag=-00362;Ymag=+00112;Zmag=-00392

FXOS8700CQ>
```

4.9 Stream XYZ Data via Interrupts (I)

This command streams sensor XYZ data (via interrupts).

The characteristic of the streamed data will be the same as the output generated by one of the four display commands explained above in Section 4.4 through 4.7; this will be specified via the *aa* parameter of this command.

NOTE

Streaming data is not recommended for ODR settings faster than 100 Hz in Hybrid (Accel+Mag) mode and faster than 200 Hz in Accel Only and Mag Only modes due to the limitations of the serial port. Streaming faster than recommended may lead to missed samples.

Press <ENTER> to stop streaming at any time

Format

I aa n<ENTER>

Input Parameter(s)

aa: CN or CH or GN or GH

n: 1 for INT1 or 2 for INT2, specifying which interrupt pin to use for streaming.

Output

Data will be streamed based on command parameter and current configuration.

Example 12. Stream Data via Interrupts sample output

```
FXOS8700CQ>I GN 2

*Recommended Streaming ODR<=100Hz for HYBRID mode,*
*ODR<=200Hz for Mag Only or Accel Only modes*

 - Streaming XYZ data via INT2 in signed units
Xacc=-0.0273g;Yacc=+0.0069g;Zacc=+1.0039g;Xmag=-00035uT;Ymag=+00010uT;Zmag=-00039uT
Xacc=-0.0239g;Yacc=+0.0059g;Zacc=+0.9786g;Xmag=-00035uT;Ymag=+00009uT;Zmag=-00040uT
Xacc=-0.0259g;Yacc=+0.0074g;Zacc=+1.0083g;Xmag=-00035uT;Ymag=+00010uT;Zmag=-00041uT
Xacc=-0.0239g;Yacc=+0.0098g;Zacc=+1.0156g;Xmag=-00036uT;Ymag=+00008uT;Zmag=-00040uT
Xacc=-0.0264g;Yacc=+0.0090g;Zacc=+0.9922g;Xmag=-00035uT;Ymag=+00009uT;Zmag=-00039uT
Xacc=-0.0254g;Yacc=+0.0049g;Zacc=+0.9942g;Xmag=-00036uT;Ymag=+00007uT;Zmag=-00039uT
Xacc=-0.0273g;Yacc=+0.0100g;Zacc=+1.0117g;Xmag=-00035uT;Ymag=+00008uT;Zmag=-00039uT
Xacc=-0.0278g;Yacc=+0.0103g;Zacc=+1.0000g;Xmag=-00034uT;Ymag=+00008uT;Zmag=-00039uT
Xacc=-0.0259g;Yacc=+0.0059g;Zacc=+0.9952g;Xmag=-00034uT;Ymag=+00009uT;Zmag=-00039uT
Xacc=-0.0259g;Yacc=+0.0064g;Zacc=+1.0015g;Xmag=-00036uT;Ymag=+00008uT;Zmag=-00039uT
Xacc=-0.0283g;Yacc=+0.0064g;Zacc=+1.0054g;Xmag=-00036uT;Ymag=+00010uT;Zmag=-00039uT
Xacc=-0.0249g;Yacc=+0.0083g;Zacc=+0.9976g;Xmag=-00036uT;Ymag=+00011uT;Zmag=-00038uT
Xacc=-0.0266g;Yacc=+0.0064g;Zacc=+0.9976g;Xmag=-00037uT;Ymag=+00007uT;Zmag=-00040uT
Xacc=-0.0269g;Yacc=+0.0083g;Zacc=+1.0025g;Xmag=-00036uT;Ymag=+00009uT;Zmag=-00041uT
Xacc=-0.0249g;Yacc=+0.0054g;Zacc=+1.0039g;Xmag=-00036uT;Ymag=+00008uT;Zmag=-00039uT

FXOS8700CQ>
```

4.10 Stream XYZ Data via the FIFO Buffer (F)

This command streams sensor XYZ data (via the FIFO buffer).

The characteristic of the streamed data will be the same as the output generated by one of the four display commands explained above in Section 4.4 through 4.7; this will be specified via the *aa* parameter of this command.

NOTE

Streaming data is not recommended for ODR settings faster than 100 Hz in Hybrid (Accel+Mag) mode and faster than 200 Hz in Accel Only and Mag Only modes due to the limitations of the serial port. Streaming faster than recommended may lead to missed samples.

Press <ENTER> to stop streaming at any time.

This command will enable the FIFO interrupt on INT2 pin as push-pull, active low and disable all other interrupt sources. It will put the device in ACTIVE mode if it is not in ACTIVE mode already.

Format

F aa ww<ENTER>

Input Parameter(s)

aa: CN or CH or GN or GH, specifying the data format for streaming.

ww: 1 - 31 samples per FIFO acquisition, utilizing the watermark detection feature.

0 for filling the whole buffer, utilizing the overflow detection feature.

Output

Data will be streamed based on command parameter and current configuration.

Example 13. Stream Data via the FIFO Buffer sample output

```
FXOS8700CQ>F GN 03
* !!! - FIFO Streaming is not possible in Mag Only mode *



*Recommended Streaming ODR<=100Hz for HYBRID mode,*
*ODR<=200Hz for Mag Only or Accel Only modes*

 - Streaming XYZ data via FIFO in signed units
FIFO Watermark Samples= 3 group= 00
Xacc=-0.0288g;Yacc=+0.0005g;Zacc=+1.0078g
Xacc=-0.0234g;Yacc=+0.0051g;Zacc=+0.9737g
Xacc=-0.0234g;Yacc=+0.0098g;Zacc=+0.9961g
FIFO Watermark Samples= 3 group= 01
Xacc=-0.0273g;Yacc=+0.0098g;Zacc=+1.0220g
Xacc=-0.0239g;Yacc=+0.0049g;Zacc=+0.9918g
Xacc=-0.0269g;Yacc=+0.0078g;Zacc=+0.9879g
FIFO Watermark Samples= 3 group= 02
Xacc=-0.0269g;Yacc=+0.0093g;Zacc=+1.0137g
Xacc=-0.0259g;Yacc=+0.0103g;Zacc=+1.0083g
Xacc=-0.0230g;Yacc=+0.0078g;Zacc=+0.9893g
FIFO Watermark Samples= 3 group= 03
Xacc=-0.0249g;Yacc=+0.0059g;Zacc=+0.9981g
Xacc=-0.0269g;Yacc=+0.0078g;Zacc=+1.0083g
Xacc=-0.0249g;Yacc=+0.0059g;Zacc=+0.9966g
FIFO Watermark Samples= 3 group= 04
Xacc=-0.0264g;Yacc=+0.0039g;Zacc=+0.9981g
Xacc=-0.0269g;Yacc=+0.0074g;Zacc=+1.0049g
Xacc=-0.0234g;Yacc=+0.0049g;Zacc=+1.0039g
FIFO Watermark Samples= 3 group= 05
Xacc=-0.0259g;Yacc=+0.0069g;Zacc=+0.9947g
Xacc=-0.0244g;Yacc=+0.0069g;Zacc=+1.0054g
Xacc=-0.0239g;Yacc=+0.0095g;Zacc=+1.0074g
FIFO Watermark Samples= 3 group= 06
Xacc=-0.0244g;Yacc=+0.0054g;Zacc=+0.9922g
Xacc=-0.0269g;Yacc=+0.0069g;Zacc=+0.9947g
Xacc=-0.0264g;Yacc=+0.0093g;Zacc=+1.0078g
FIFO Watermark Samples= 3 group= 07
Xacc=-0.0273g;Yacc=+0.0093g;Zacc=+1.0015g
Xacc=-0.0264g;Yacc=+0.0051g;Zacc=+0.9918g
Xacc=-0.0264g;Yacc=+0.0103g;Zacc=+1.0069g

FXOS8700CQ>
```

5   Recovering the Bootloader for Sensor Toolbox

In the zipped file, AN4460SW.zip, in the directory named Bootloader, there is an s19 image file named Bootloader.s19. This image must be programmed into the flash memory of the microprocessor on the sensor toolbox board in order to use with the PC software. The following steps recover the bootloader using CodeWarrior v6.x.

NOTE

For instructions using CodeWarrior v10.x, go to Start > Programs > Freescale CodeWarrior > CW for MCU v10.x > Documentation. On the webpage that opens up click on the FAQ Guide link and search for "How can I flash or download a binary file to the target" in the FAQ document.

1. Go to the following path C:\Program Files\Freescale\CodeWarrior for Microcontrollers V6.2\prog

NOTE

Note that actual path may be different depending on where the application is installed on host PC.

2. Double-click on the file hiwave.exe., this will initiate the True-Time Simulator & Real-Time Debugger as shown in Figure 6. If the Connection Manager window (Figure 3 on page 4) appears, click Abort.
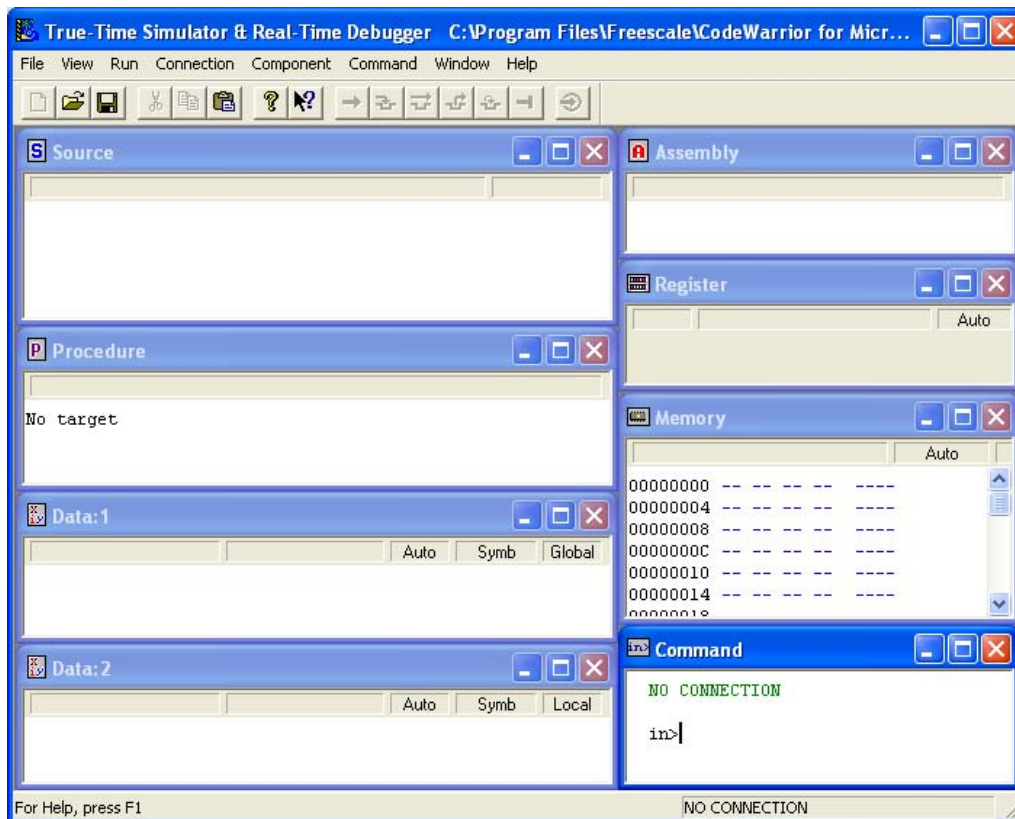
Figure 6. True-Time Simulator and Real-Time Debugger

3. From the menu, go to File > Open Configuration… and select the BDM_P&E_Multilink_CyclonePro.ini file included in the AN4460SW.zip archive.

4. Ensure the PE Micro device is connected to the host PC. When the interface and port settings are configured correctly, click Connect (Reset). (see Figure 3 on page 4)

5. In the True-Time Simulator & Real-Time Debugger window (Figure 7) click on Multilink Cyclone Pro > Load… and select the file Bootloader.s19 included in the AN4460.zip. (Figure 8)
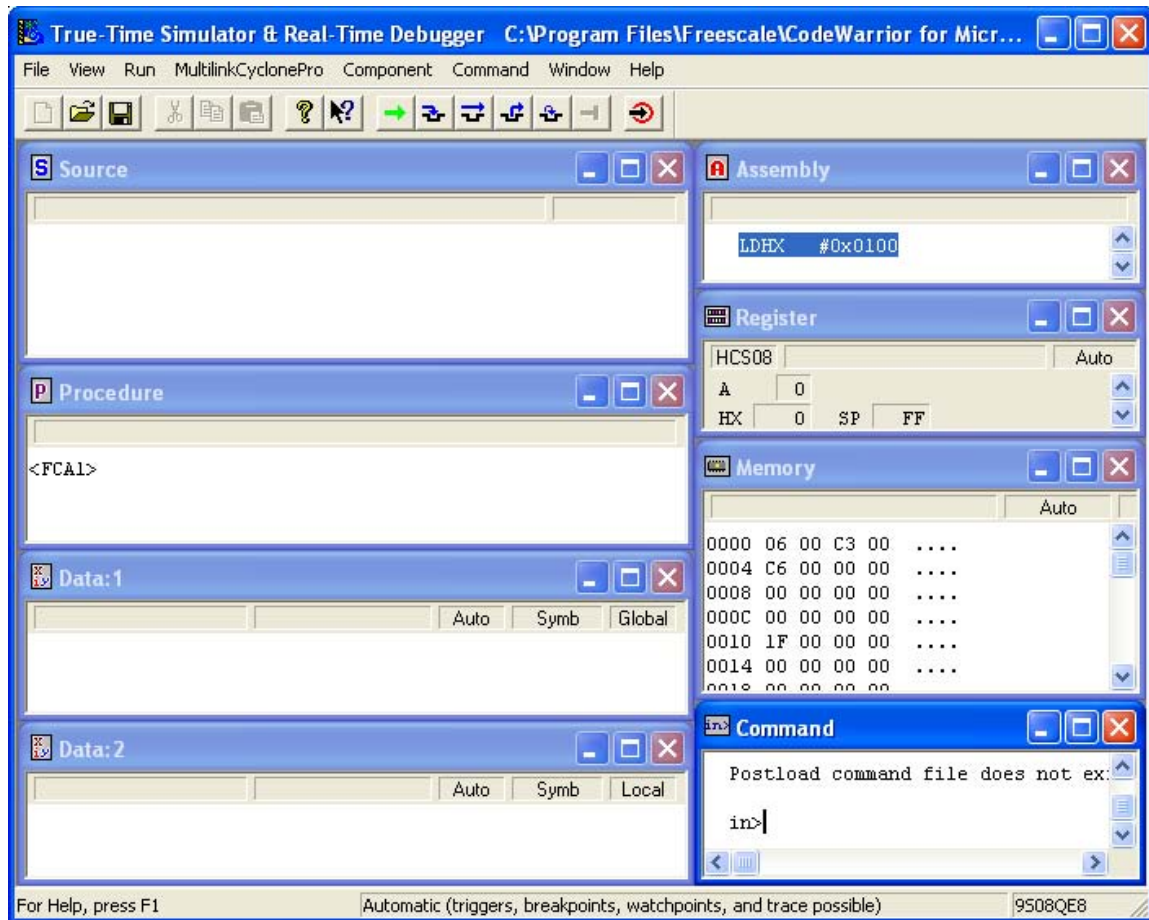
Figure 7. True-Time Simulator and Real-Time Debugger
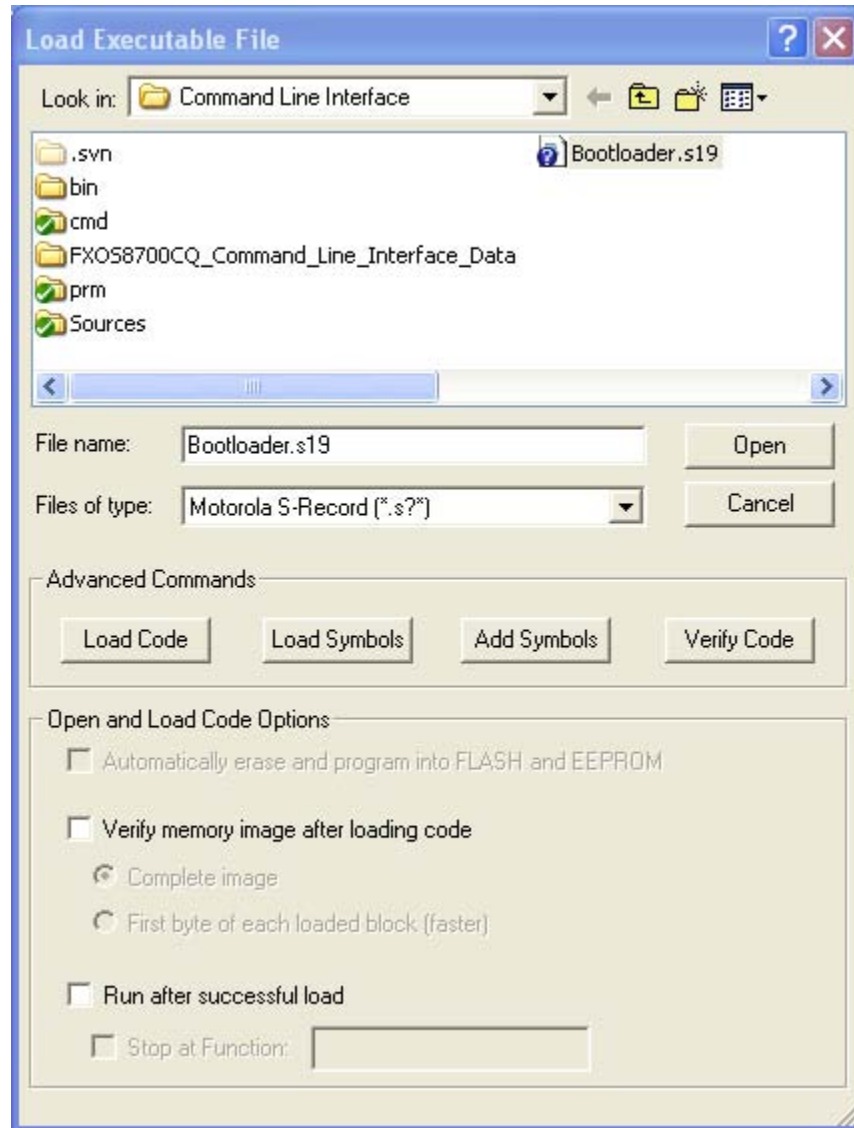
Figure 8. Load Executable File

6. Click on Open. In the next prompt window, click Yes (Figure 4 on page 4). A window will display information about the programming process. Once complete, the window shown in Figure 6 will remain. The bootloader is now programmed into the flash memory of the microprocessor on the sensor toolbox board. Disconnect the PE Micro device from sensor toolbox board and switch off and on the power prior to using the board with sensor toolbox PC software.

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