ADM-XRC-7V1 System Monitor Firmware Release 1.2

Introduction

This note accompanies the System Monitor Firmware for the ADM-XRC-7V1. The latest firmware for the ADM-XRC-7V1 can be downloaded from:

ftp://ftp.alpha-data.com/pub/firmware/adm-xrc-7v1

For support, send e-mail to support@alpha-data.com

Note:
The firmware update procedure in this document requires a Windows PC to host the ADM-XRC-7V1 card that is to be updated. If this is not possible, Alpha Data will supply the source code for the **avrtalk** utility on request, so that it can be built for, and run on, an arbitrary platform (provided that it runs Linux or VxWorks).

Hardware supported

This firmware is for the following Alpha Data products:

- ADM-XRC-7V1 board revision 1 or 2 only.

Prerequisites

Before attempting to update an ADM-XRC-7V1 card with this firmware, ensure that you have the following to hand:

- A host PC running Windows XP or later (32-bit or 64-bit).

  NOTE: Because the commands to program the firmware must be run as Administrator, you must have Administrator privileges on the host PC.

- The ADM-XRC-7V1 to be updated, mounted on a suitable XMC carrier card (e.g. ADC-XMC-II) and plugged into the Windows PC as per the user manuals for both the ADM-XRC-7V1 and the XMC carrier.

- The ADB3 Driver for Windows, release 1.4.10 or later, available from:

  ftp://ftp.alpha-data.com/pub/admxrcg3/windows

  This must be installed on the host PC.

In order to avoid inadvertently updating the firmware for the wrong card, we recommend that the ADM-XRC-7V1 to be updated is the **only** Alpha Data Gen 3 reconfigurable computing card present in the system. Physically removing other Alpha Data reconfigurable computing cards whose firmware is not to be updated is the most reliable way to ensure that the correct card is used.

Before performing the update

Confirm that the version number of the System Monitor Firmware currently resident in the board is lower than the version number of the provided firmware file. This is done as follows:

1. Ensure that **SW1-7** on the ADM-XRC-7V1 is OFF, so that the board in question is **not** in **Service Mode**. If is **SW1-7** is ON, power the system down, set **SW1-7** to OFF and power the system up again.
2. Unzip the .zip file that contains this document to a convenient location on the file-system of the host PC, e.g. a folder called **C:\tmp\sysmon_update**.
3. Start a Command Prompt as Administrator, and change directory to the location you chose in step 2. Enter the following command in a Command Prompt, running as Administrator:

   ```
   avrtalk.exe /v
   ```

   After entering the above command, a version number should be displayed as follows:

   ```
   0x56 0x4e
   VN=a.b.c.d
   ```

The number following VN= is the version number of the current System Monitor Firmware, where *a* is the major version number, *b* is the minor version number, *c* is the internal version number and *d* should always be 0. When comparing two version numbers, compare them in the order of *a*, then *b*, then *c*. For example, 1.5.0.0 is a higher version number than 1.2.3.0.

If the board's current System Monitor Firmware has an equal or higher version number than the version number of the provided firmware file, it is recommended that you do not proceed with the firmware update except on express advice of Alpha Data.

Firmware update procedure

1. With the system powered down, put the board to be upgraded into **Service Mode** by setting **SW1-7** on the ADM-XRC-7V1 to ON. Note: in **Service Mode**, using the version command (**avrtalk.exe /v**) will return the version of the Boot Manager code rather than the version of the System Monitor Firmware.
2. Unzip the .zip file that contains this document to a convenient location on the filesystem of the host PC, e.g. a folder called **C:\tmp\sysmon_update**.
3. Start a Command Prompt as Administrator, and change directory to the location you chose in step 2. Listing the files with the **dir** command should show a number of files, including **avrtalk.exe** and **admxrc7v1_sysmon_x.y.z.0.bin**, where *x.y.z.0* is the version of the System Monitor Firmware that will be programmed into the board.
4. Enter the following command:

   ```
   avrtalk.exe /w admxrc7v1_sysmon_x.y.z.0.bin 0
   ```

   where *x.y.z.0* is the version of the System Monitor Firmware that will be programmed into the board..
5. Wait for the firmware to be programmed into the card. Do not interrupt the process; otherwise, the firmware will be left in an invalid state. The output of **avrtalk** is of the following form, assuming that no errors occur:

   ```
   Reading back end page for modification...
   Performing NVM Read from 0x006a00 size 0x000200
   Reading page: 1 of 1
   Done
   Performing NVM Write to 0x000000 size 0x006c00
   Writing page: 54 of 54
   Done
   ```

   NOTE: If you inadvertently interrupt the process, return to step 4 without power-cycling the system.

   NOTE: If any error messages are displayed by **avrtalk**, contact support@alpha-data.com .
6. Enter the following command to verify the new firmware was programmed correctly:

```
avrtalk.exe /c admxrc7v1_sysmon_x.y.z.0.bin 0
```

7 Wait for the firmware to be verified. The output of **avrtalk** is of the following form, assuming that no errors occur:

```
Performing NVM Read from 0x000000 size 0x006c00
Reading page: 54 of 54
Done

Verifying AVR application ( 27432 bytes @ 0 )...

...done, data matches input file.
```

NOTE: If any error messages are displayed by **avrtalk**, contact support@alpha-data.com .

8 Power down the system and return **SW1-7** on the ADM-XRC-7V1 to the OFF position.

This concludes the firmware update procedure.

After performing the update

Verify that the board is functioning normally, checking the board health using either the **monitor** or **sysmon** utility provided by the ADM-XRC Gen 3 SDK.

If desired, **avrtalk** can be used to confirm the version number of the new firmware, by entering the following command in a Command Prompt as Administrator:

```
avrtalk.exe /v
```

The output of the above command is same as described in Section 4.

System Monitor Firmware releases

Release	System Monitor Firmware version
admxrc7v1_sysmon_1.1.zip	1.1.1.0
admxrc7v1_sysmon_1.2.zip	1.1.4.0

Table 1 : System Monitor Firmware releases

NOTE: "System Monitor Firmware version" is the version reported by **avrtalk.exe /v** when **SW1-7** is OFF (i.e. the board is **not** in **Service Mode**)

NOTE: The above table applies only to the ADM-XRC-7V1 board revision 2, and not to other models.

Release history

Release 1.2

1 Added support for legacy XRMs requesting 2.5V (using the FORCE_2V5 pin) to fall back to closes available supply (IE 1.8V on the ADM-XRC-7V1).

2 Added support for undocumented AVR commands for forcing XRM VCCIO supply (not for normal use).

Release 1.1

1 Added support for provided a voltage in-range for attached XRM's VIO supply when the XRM's requested VIO voltage is not support by the ADM-XRC-7V1, but the ADM-XRC-7V1 can provide another voltage within the XRM's min/max VIO voltage range.

2 Updated thermal limits for Industrial and Extended grade boards to support CC2.

3 Fixed bug with where detected temperatures lower than zero degrees C caused over temperature protection to activate.

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