ClearSpeed™

Firmware Installation guide

Overview

This document includes instructions for reprogramming the firmware in the flash memory on the Advance e710, e720, e620 and X620 cards.

1 Installation procedure

Note: *The ClearSpeed runtime software must be installed to reprogram the firmware. For software releases prior to 3.0 the board diagnostics package must also be installed. Both of these are provided as part of the base software which is provided on CD-ROM with the Advance card or downloadable from the ClearSpeed support site:*

http://support.clearspeed.com/downloads/

It is advisable to print a copy of these instructions prior to installing the update as a complete power down is required.

1. Identify card type and firmware version. Refer to *How to identify your card type on page 2*.
2. Download correct firmware. Refer to *Obtaining the firmware update on page 3*.
3. Run firmware update. Refer to *Firmware update on page 3*.
4. After successful update ensure a complete power down and reboot is executed.
5. Repeat Step 1 to confirm upgrade.

Caution: If failure occurs at step 3, do not power down, instead repeat steps 1 to 3. If a failure occurs after a second attempt please contact ClearSpeed support (do not power down).

Note: *If failure occurs at step 5, please contact ClearSpeed support.*

2 How to identify your card type

The correct firmware image must be used depending on the type and revision of the Advance card. The following notes describe how to identify the type of card installed.

2.1 Finding the card type, serial number and firmware version

The serial numbers on Advance cards have the prefix:

- CLUJ (Advance e710),
- CLVJ (Advance e720),
- CLTJ (Advance e620), or
- CLSJ (Advance X620),

followed by a series of digits.

The serial number can be retrieved by software, it is also on a label on the back of the card[1]. To obtain the serial number of a card in a system, use the `csreset` command with the 'verbose' option. For example:

```
csreset -A -v
```

This will print out a large amount of information for each card including lines of the form:

```
Card type:               e710
Card serial number:      CLUJ08050091
```

The output from the `csreset` command also includes one line indicating the FPGA (firmware) version number (and timestamp). Only the FPGA version number should be required (the timestamp is an additional check).

Example output for the Advance e720:

```
Fpga version number:     0x8f023000
Fpga timestamp:          2008-07-11 10:36:30Z (0x487737ae)
```

Example output for the Advance e710:

```
Fpga version number:     0x8f023000
Fpga timestamp:          2008-07-11 10:36:30Z (0x487737ae)
```

Example output for the Advance e620:

```
Fpga version number: 0x6f02c000
Fpga timestamp: 2007-08-16 10:08:17Z (0x46c42211)
```

1. ClearSpeed do NOT advise the card be removed from the system. However if you can not obtain the serial number from the `csreset` command, the cards can be identified physically. The Advance e720 card is an HP mezzanine, Type II format card. The Advance e710 card is a low-profile PCIe format card. The Advance e620 card is a PCI Express format card. The Advance X620 card is a two-thirds length PCI-X format card. The serial number will distinguish this card from an earlier full-length PCI-X format card (no longer supported).

Example output for the Advance X620:

```
Fpga version number: 0x3f020000
Fpga timestamp: 2006-12-21 13:10:07Z (0x458a87af)
```

An upgrade should be considered if it does not match the versions in the table given on

http://support.clearspeed.com/downloads/firmware/

3 Obtaining the firmware update

Download the appropriate firmware update file from the ClearSpeed customer support web site.

http://support.clearspeed.com/downloads/firmware/

Note: *If using Linux, you can use the md5sum command to generate the MD5 checksum for the image file. This can be compared with the appropriate value in the table on the above link to ensure the file is undamaged.*

4 Firmware update

Note:

1. *If the firmware update is interrupted, it may leave the Advance card in an unusable state.*
2. *Do not interrupt the programming software (`xsvfplayer`) before it has completed.*
3. *Consider using an uninterruptible power supply (UPS) to prevent unplanned interruption during the update.*
4. *If the programming software fails, do NOT turn off your computer. Removing power after a failed upgrade attempt may leave the Advance card in an unusable state. Check that you have identified the card correctly and that you have downloaded the correct FPGA image, before trying again.*
5. *Please report any repeated failures of the programming software to ClearSpeed Support.*

4.1 Reprogramming the firmware

Use the `xsvfplayer` program, supplied as part of the base package, to reprogram the firmware. For example:

```
xsvfplayer filename
```

Please be patient whilst reprogramming. The process may take up to 10 minutes on Linux, and up to 20 minutes for Microsoft Windows.

After the programming software has completed successfully, you must shut down the computer and remove power to complete the update.

Note: *A reboot is insufficient. A total power down is required.*

After power cycling the machine, check the upgrade is successful by rechecking the firmware version.

```
csreset -A -v
```

The version number reported should match the version number stated on the firmware download. Refer to *How to identify your card type on page 2*.

4.2 Using multiple cards

If you have multiple advance cards in the system, the `xsvfplayer` tool will normally connect to the first card in the system (instance number 0). The environment variable `LLDINST` can be used to specify the instance number of the card to be updated. See the *Runtime User Guide* for more details.

Linux

To program the firmware for instance number 1, the following command can be used:

```
LLDINST=1 xsvfplayer filename
```

Running the `xsvfplayer` without specifying the instance number is equivalent to the following command:

```
LLDINST=0 xsvfplayer filename
```

Microsoft Windows

To program the firmware for instance number 1, the following commands can be used:

```
set LLDINST=1
xsvfplayer filename
set LLDINST=
```

It is important to reset the environment variable after programming the firmware, otherwise it may affect the behavior of other commands which connect to the cards.

ClearSpeed Technology Ltd
130 Aztec West
Park Avenue
Bristol BS32 4UB
United Kingdom

Tel: +44 (0)1454 629 623
Fax: +44 (0)1454 629 624

Email: info@clearspeed.com

Web: http://www.clearspeed.com

Support: http://support.clearspeed.com