

ST Micro Connect 2 host-target interface

Features

- High bandwidth connection to host computer
 - Networked 10/100 Mbit Ethernet connection
 - Local USB 1.1 or 2.0 Type B connection
- VHDCI LVDS connection to target JTAG interface - includes an STMC I/O convertor Type A for target boards with a TTL JTAG connector, an STMC I/O convertor Type C for target boards with an ARM 20-way connector **or** an STMC I/O convertor Type H for target boards with a MIPI-34 connector
- Connects to target RS-232 port for data relay
- Supports STMicroelectronics single and multi-core system-on-chip (SoC) devices
- Provides system startup, program download, debug and I/O services.
- Enables concurrent debug of multiple cores in multi-core SoCs
- Built-in DHCP support
- LCD and software support package for configuration and administration
- Support for Windows XP, Windows 7 and Red Hat Linux hosts
- ST Micro Connection Package

Description

The ST Micro Connect 2 (STMC2) can be connected to a local host or LAN using the 10/100 Mbit Ethernet connection or to a local PC host using the USB 2.0 connection (USB 1.1 compatible). It connects to a target board's JTAG connector and provides host software with the ability to start up the target board, download programs and debug them in the target.

For multi-core system-on-chip devices (SoCs) the ST Micro Connect 2 can support multiple concurrent debuggers, each connecting to a different core on the chip.

The target is connected using a VHDCI LVDS connection. A Type A, Type C **or** Type H I/O convertor is included for target boards without an on-board LVDS connector (the convertor supplied is dependant on order code).

The ST Micro Connection Package provides software utilities and firmware, including TargetPacks for certain ST evaluation boards. Supported hosts are Windows XP, Windows 7 and Red Hat Linux. The ST Micro Connect 2 is compatible with a range of ST cores, SoCs and toolsets: ST20, ST40, ST200, STxP70 and specific ARM based products (including Cortex-A9).



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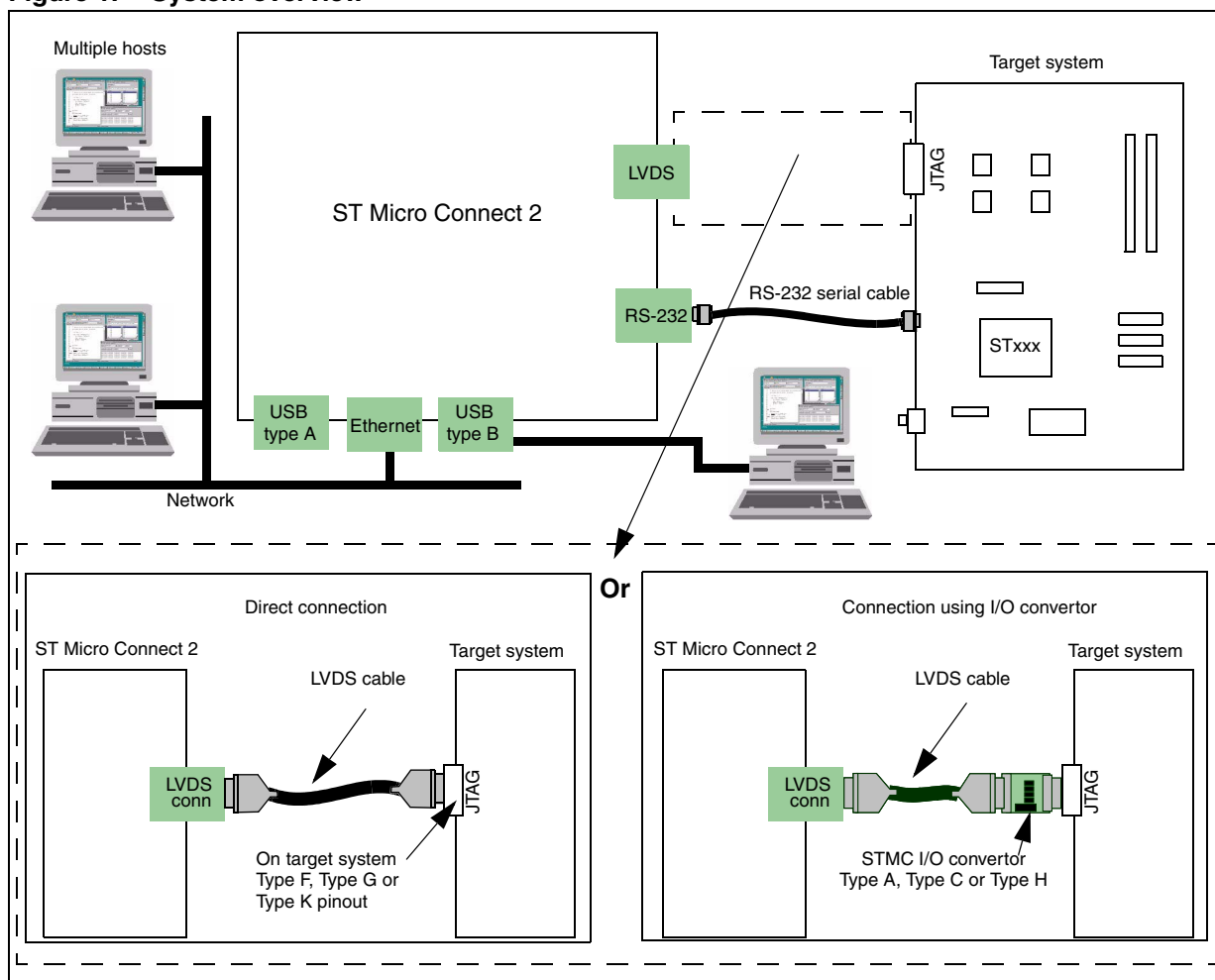
1 Introduction

The ST Micro Connect 2 is a host-target interface for single and multi-core SoCs, providing fast access to host services. It can be used with STMicroelectronics' development boards as well as customer's boards. It enables Windows XP, Windows 7 and Red Hat Linux hosts to connect to a target development board with debug support.

The ST Micro Connect 2 provides support for multiple debug-links multiplexed onto a single JTAG line. For multiple core debug, a single ST Micro Connect 2 replaces the need for multiple ST Micro Connect 1s^(a) used in conjunction with an ST-Multicore/MUX module. Its physical size is comparable to an ST Micro Connect 1.

Figure 1 shows how the ST Micro Connect 2 is used in a system.

Figure 1. System overview



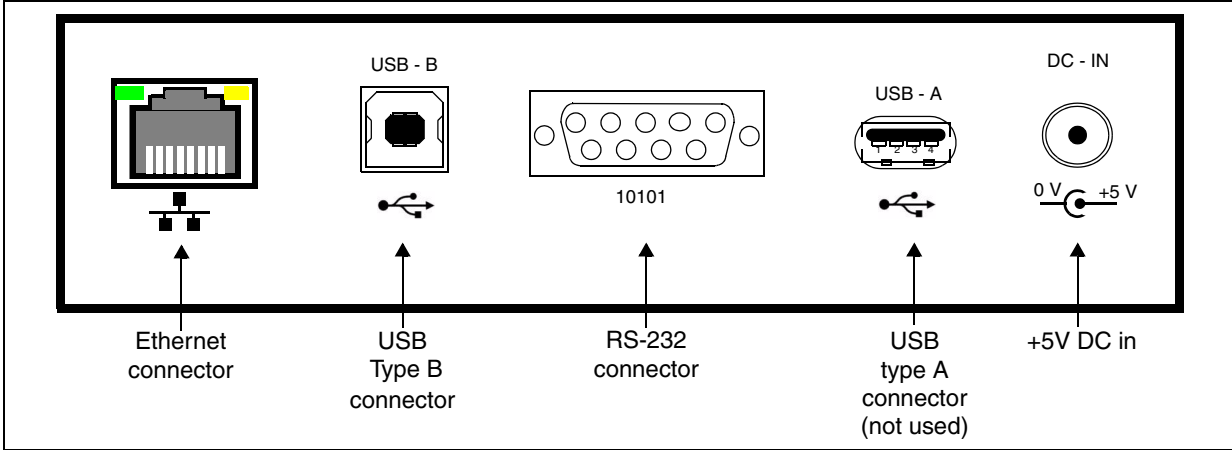
Note: The STMC2-40/200 includes an STMC I/O convertor Type A, the STMC2-JTAG includes an STMC I/O convertor Type C and the STMC2-TYPEH includes an STMC I/O convertor Type H.

a. Please read [Section 1.5: Terminology on page 12](#) for an explanation of the revised terminology.

ST Micro Connect 2 is connected to the host by plugging into an **Ethernet** network or host **USB** port, see [Figure 2](#). Both USB 1.1 and 2.0 are supported.

Note: The ST Micro Connection Package must be installed before connecting the ST Micro Connect 2, see [Section 1.1 on page 8](#).

Figure 2. ST Micro Connect 2 rear panel



When connected to an Ethernet, ST Micro Connect 2 is a network device that provides a fast, flexible interface between the host system and a target development system. Using the ST Micro Connect 2 in this mode enables the target system to be remote and to be easily shared among users. This datasheet assumes that the user is reasonably familiar with the concepts and terms involved with TCP/IP networking.

In USB mode using the USB Type B connector, the ST Micro Connect 2 has full plug-and-play, auto-configure capability.

A USB 2.0 type A connector provides expansion capability, for example to a USB hard disk drive, but is not currently used.

Connection to the development target is through a VHDCI LVDS connector, and a shielded 68-wire SCSI-V cable, (see [Figure 1 on page 6](#)). The connection depends on the type of connector pinout present on the development board. Some boards require an STMC I/O convertor to be connected between the cable and the target interface, see [Table 1](#). An I/O convertor is provided with the product, see [Appendix G: Ordering information on page 51](#).

Table 1. Connection types

Target interface	Description	STMC I/O convertor
Type A	20-way TTL JTAG interface	STMC I/O convertor Type A
Type C	ARM standard 20 way JTAG interface	STMC I/O convertor Type C
Type F	LVDS used on ST validation boards	None
Type G	LVDS used on ST validation boards	None
Type H	MIPI-34 JTAG and STM interface	STMC I/O convertor Type H ⁽¹⁾
Type K	LVDS used on ST validation boards	None

1. This convertor is also available separately, the order code is TYPEH-IO.

Note: The pinouts of the various target interfaces are described in the ST system-on-chip (SoC) debug interfaces technical note (8339250).

An RS-232 serial port connector is provided for connection to the target. This enables serial data to be relayed between the target and the host through the ST Micro Connect 2. A terminal emulation program can be run on the host to receive serial data and for the user to enter serial data, see [Section 5.14: Configure serial redirect \(--serial-relay\) on page 27](#) for further information.

[Appendix A: Connectors on page 36](#) provides detailed information about the physical connectors used on the ST Micro Connect 2.

Configuring the ST Micro Connect 2 is made easy by using an LCD interface, which is located on the top surface of the unit (see [Chapter 2 on page 13](#)). The LCD is operated by two push button switches on the front panel that provide **Select** and **Next** menu navigation. The following functionality is provided:

- status and configuration information display
- user message display
- network configuration
- firmware downgrade
- ST Micro Connect 2 reboot

1.1 ST Micro Connection Package

The ST Micro Connection Package is the software required to use the ST Micro Connect 2. It supports a number of ST Micro Connect products. For ST Micro Connect 2, the ST Micro Connection Package provides:

- libraries for toolsets to connect to an ST Micro Connect 2
- the latest firmware for upgrading existing ST Micro Connect 2 units (if required)
- a host utility **stmconfig** that provides remote system configuration, reporting and scripting facilities, see [Chapter 5 on page 21](#)
- a host utility **sttpdebug** provides facilities to use and debug TargetPacks; includes an interactive command line debugger
- a binary programmer **epldprog** that enables EPLDs to be programmed on ST board products; it is described in [Chapter 6 on page 31](#)
- a host utility **romgen** that derives ROM bootstrap data from a TargetPack, it is documented in the *ST TargetPack User manual* (8020851)
- ST TargetPacks for various ST evaluation and reference boards (only used by some toolsets)
- documentation that includes:
 - this *ST Micro Connect 2 Datasheet*
 - *ST TargetPack User manual* (8020851)
 - *Developing with an ST Micro Connect and ST TargetPacks* (8174498)
 - *ST system-on-chip (SoC) debug interfaces technical note* (8339250)

ST TargetPacks are a unified way of describing certain classes of target systems and preparing them for debugging sessions. They are supplied with a range of STMicroelectronics devices. Those supplied in the ST Micro Connection Package support a number of contemporary ST evaluation and reference boards.

To find out whether a new ST Micro Connection Package is available and how to get it, please contact your ST FAE or ST support centre.

1.1.1 Administrator privilege

Configuring the ST Micro Connect 2 on your network is described in [Chapter 3](#) through [Chapter 5](#). To change network parameters you must have administrator privileges for Windows hosts or root privileges on Linux hosts.

1.1.2 Software installation

Install the ST Micro Connection Package software **prior** to connecting the physical ST Micro Connect 2 device. **This is mandatory.**

Information on how to obtain and install the ST Micro Connection Package is provided in the *Package contents* delivered with the ST Micro Connect 2.

Uninstalling

The uninstall process may report that it fails to remove directories. This is because “.pyc” files have been created by the ST Micro Connect 2 runtime software in these directories. If this occurs remove the root installation directory manually after completing the uninstall process.

1.1.3 Environment variables

A number of environment variables should be set on the host, in order for the ST Micro Connection Package to function correctly.

The installer and the DISPLAY environment variable

On Linux hosts, set the `DISPLAY` environment variable to specify the X server being used, otherwise the installer will fail.

Locale

The ST Micro Connection Package uses American English. To set a compatible locale on your system, perform the following steps:

- Linux hosts:

To set the environment variable `LANG` to use American English and use the UTF-8 unicode standard, enter:

```
setenv LANG en_US.utf-8      on csh compatible shells
export LANG=en_US.utf-8     on POSIX compatible shells
```

To set all `LC*` environment variables to use American English and UTF-8, enter:

```
setenv LC_ALL en_US.utf-8    on csh compatible shells
export LC_ALL=en_US.utf-8    on POSIX compatible shells
```

- Windows XP hosts:

1. From the Windows **start** menu, open the **Control Panel**.
2. Click on **Regional and Language Options** to display the **Regional and Language Options** window.
3. In the **Regional Options** tab, select **English (United States)** from the drop-down menu.
4. In the **Languages** tab, click on **Details....** The **Text Services and Input Languages** window is displayed.

5. In the **Settings** tab, select the option **English (United States)** from the **Default input language** drop-down menu.
 6. Click on **OK**.
 7. In the **Regional and Language Options** window, click on **OK**.
- Windows 7 hosts:
 1. From the Windows **Start** menu, open the **Control Panel**.
 2. Click on **Region and Language** to display the **Regional and Language Options/Region and Language** window.
 3. In the **Formats** tab, select **English (United States)** from the drop-down menu.
 4. In the **Keyboards and Languages** tab, click on **Change keyboards....** The **Text Services and Input Languages** window is displayed.
 5. In the **General** tab, select the option **English (United States)** from the **Default input language** drop-down menu.
 6. Click on **OK**.
 7. In the **Regional and Language Options/Region and Language** window, click on **OK**.

PATH environment variable

For all platforms include the full path to the `bin` directory of the ST Micro Connection Package in the `PATH` environment variable.

Note: On Windows, the ST Micro Connection Package installer sets up the `PATH`, unless this option is de-selected.

LD_LIBRARY_PATH environment variable

On Linux hosts, include the full path to the `lib` directory of the ST Micro Connection Package in the `LD_LIBRARY_PATH` environment variable.

ST Micro Connect 2 communication time-out

By default most communication requests to the ST Micro Connect 2 time-out after 120 seconds.

To override this, set the `STMC_NET_TIMEOUT` environment variable or use the TargetString parameter `stmc_net_timeout`.

If the `stmc_net_timeout` parameter is present, it overrides the `STMC_NET_TIMEOUT` environment variable.

The value is specified in seconds, with 0 meaning no time-out is used - the communication request waits indefinitely.

1.2 System interface

The ST Micro Connect 2 can operate in conjunction with the following STMicroelectronics software products:

- ST20 Embedded Toolset R2.3.1 and later
- ST40 Micro Toolset R4.0.2 and later
- ST200 Micro Toolset R6.1 and later
- STxP70 Toolset R3.3.0 and later
- STLinux 2.2 and later
- STAPI SDK 0.7.0 and later

For details of the latest product availability please contact your ST FAE or ST support centre.

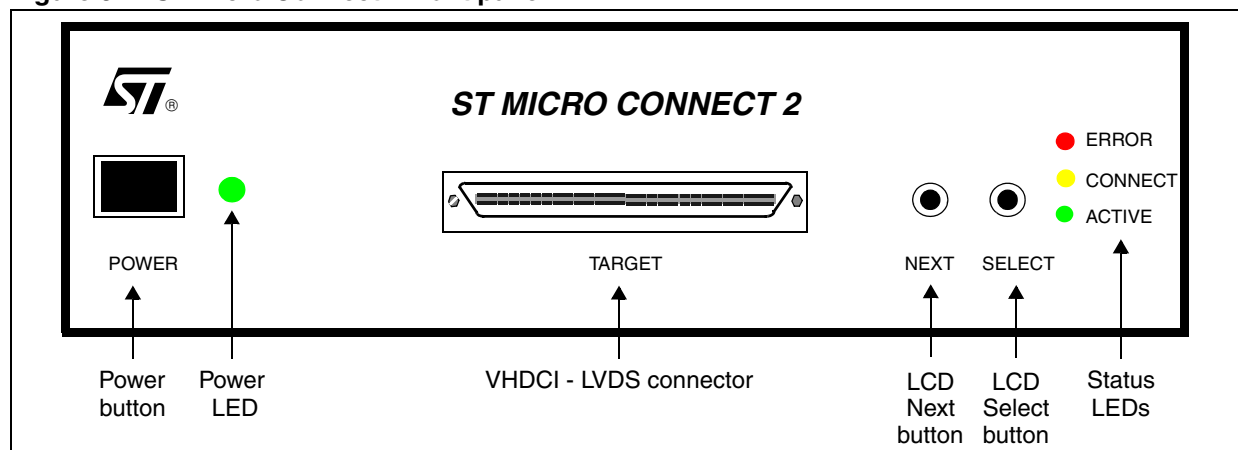
1.3 ST Micro Connect 2 power up

On power up or reboot the ST Micro Connect 2 goes through the following sequence.

The **PWR** LED illuminates when power is applied and the LEDs on the ST Micro Connect 2 front panel are illuminated in the following order: ACTIVE, CONNECT, ERROR. The LEDs then cycle for a few seconds to indicate that the ST Micro Connect 2 software is running. For a description of the status LEDs, see [Appendix C: LEDs on page 43](#).

On boot-up, the LCD displays a ready message and then cycles the **Status and configuration display**, see [Chapter 2: LCD interface on page 13](#).

Figure 3. ST Micro Connect 2 front panel



1.4 Compliance statement

Please refer to [Appendix F on page 49](#) for details of CE compliancy, warnings and safety critical information and end-of-life disposal instructions.

1.5 Terminology

The original ST Micro Connect product was named the **ST Micro Connect**. With the introduction of ST Micro Connect 2 and the ST Micro Connect Lite, the original product is now known as the ST Micro Connect 1 and the generic term **ST Micro Connect** refers to the family of ST Micro Connect devices. In some instances these names are abbreviated to STMC, STMC1 and STMC2 and STMCLite, as described in [Appendix H: Glossary on page 52](#).

2 LCD interface

The ST Micro Connect 2 has a sixteen character by two line LCD that is used to display status information and to configure the ST Micro Connect 2.

The LCD has two modes of display:

- **Status display**, see [Section 2.1](#)
These pages display configuration and status information for the ST Micro Connect 2.
- **Configuration menu**, see [Section 2.2](#)
This menu can be used to configure various aspects of the ST Micro Connect 2 such as Ethernet IP address and Gateway IP address.

On boot-up, the LCD displays a ready message then the pages from the **Status display** are displayed in turn. Press the **Select** button from the **Status display** to access the **Configuration menu**. The **Next** button can be used in both displays to navigate the various pages.

*Note: The LCD can also be used to display messages using the host utility, **stmccconfig** (see [Section 5.10 on page 26](#)). Messages that are longer than 16 characters are scrolled.*

2.1 Status display

The **Status display** pages are organized in a circular list. If no buttons are pressed, each page is displayed for 30 seconds after which the next page in the list is displayed.

The **Status display** pages are:

1. **Ethernet IP**
2. **Ethernet Mask**
3. **Default Gateway**
4. **USB IP**
5. **USB Mask**
6. **Connect Status**
7. **Version** (software and hardware version numbers)

2.2 Configuration menu

The **Configuration menu** is organized as a set of pages in a circular list. Each page corresponds to a single menu action. Use the **Select** button to select an action from the **Configuration menu**.

Note: To return to the **Status display** from the **Configuration menu**, navigate to the **Close Menu** option and press the **Select** button.

The menu options are:

1. **Set Ethernet IP**
2. **Set Gateway IP**
3. **Enable DHCP/ Disable DHCP** (for Ethernet connection)
4. **Set USB IP**
5. **Set Default IP** (for both Ethernet and USB)
6. **Downgrade FLASH**
7. **Reboot**
8. **Close Menu**

2.2.1 Confirmation screen

All menu actions except **Close Menu**, request that you confirm your intention before the action is carried out. The confirmation screen displays a query statement and the words **Yes** and **No**. Selecting **Yes** reboots the ST Micro Connect 2 as well as executing the action.

Press the **Next** button to toggle the position of the cursor between **Yes** and **No**.

Press the **Select** button when the cursor is flashing over **Yes**, to execute the action and reboot the ST Micro Connect 2. If the cursor is over **No** when **Select** is pressed, the action is aborted and LCD menu is displayed.

2.2.2 Setting an IP address

When setting an IP address, the current IP address is displayed in dotted-decimal notation. A cursor flashes over the digit that can be changed.

Pressing the **Next** button increments the digit. The digit rolls over if it is at its limit. The digit range is limited to valid values for that digit. For example, the first digit can only be 0, 1 or 2.

Pressing the **Select** button causes the cursor to move to the next digit. Pressing the **Select** button when the cursor is on the last digit, displays a confirmation screen allowing the IP address to be accepted or discarded.

When entering a network interface IP address, after confirming the IP address you are asked to enter a netmask.

3 USB connection

USB connection is supported on Windows XP, Windows 7 and Red Hat Linux platforms. The ST Micro Connect 2 uses TCP/IP to communicate over a USB connection.

For USB connection, the ST Micro Connect 2 acts as a DHCP server and issues an IP address to the PC for the USB interface, thus creating a subnet. The address issued to the PC is based on the ST Micro Connect 2 USB interface IP address. The default IP address (see [Section 3.1](#)) can be modified as described in [Section 3.2](#).

3.1 Default USB IP address

Warning: The ST Micro Connect 2 has a default USB IP address of 192.168.2.1. This address may conflict with other network devices already configured on your network which could lead to network problems.

[Appendix D: Choosing an IP address on page 44](#) provides more detailed guidance about the possible source of network conflicts and how to avoid them. If in doubt ask your network administrator.

Note: The ST Micro Connect 2 firmware, version 3.4 onwards, supports **Classless Inter-Domain Routing**. Earlier releases of the firmware supported **classful** IP addressing and the documentation assumed private **class C** addresses in the range 192.168.0.0 to 192.168.255.255. Since version 3.4 you can set any network mask on both the Ethernet and USB interfaces.

Consult your network administrator for details of local IP addressing policy and network mask values.

3.2 Configure ST Micro Connect 2 USB IP address

If the default USB IP address of the ST Micro Connect 2 is used by other equipment, follow these instructions to change the address:

1. Before connecting your ST Micro Connect 2 to the host power it up, see [Section 1.3 on page 11](#) for further details.
2. To change the USB IP address, navigate to the LCD menu option **Set USB IP** and set a new network IP address. Guidelines for choosing a new IP address can be found in [Appendix D on page 44](#). LCD navigation is described in [Chapter 2 on page 13](#).

If you wish to connect more than one ST Micro Connect 2 to the same host using USB, then each ST Micro Connect 2 must have a separate **subnet**. The simplest way to achieve this is to increment the third octet in the IP address. For example, if three ST Micro Connect 2s (A, B and C) are to be connected to the same host, they could be given the IP addresses:

192.168.2.1 ST Micro Connect 2 A

192.168.3.1 ST Micro Connect 2 B

192.168.4.1 ST Micro Connect 2 C

3.3 Connection to the host

The following steps should be taken to connect to the host.

1. Start your host and login.
2. Connect the ST Micro Connect 2 USB Type B connector to the Host USB type A connector using the supplied cable.
3. Connect the ST Micro Connect 2 to the power supply and switch the power on at the ST Micro Connect 2 front panel.

3.4 Windows installation

On Windows, the USB connection to the ST Micro Connect 2 appears as another interface in the **Control Panel > Network and Dial-up Connections**.

3.4.1 Host driver installation

The ST Micro Connect 2 USB drivers are copied into the Windows system directories during host software installation. When the ST Micro Connect 2 is connected to the PC for the first time, the PC detects the connection and attempts to load the drivers.

Windows 7

A pop-up displays the message: **"Installing device driver software"**.

Followed by the message: **"STMC2 USB Ethernet/RNDIS Gadget Device driver installed successfully"**.

Windows XP - Found New Hardware wizard

On Windows XP the **Found New Hardware Wizard** offers three options, to proceed:

1. Select **"No, not at this time"** and click on **Next**.
2. The second page of the **Found New Hardware Wizard** form pre-selects "Install software automatically". Click on **Next** to accept this option.
3. Click on **Continue Anyway** on the Windows logo testing form.
4. Click on **Finish** to complete the installation.

3.4.2 Host IP address assignment - USB 2.0

Windows attempts to automatically acquire an address for its new network interface, from the ST Micro Connect 2, using the DHCP protocol. The ST Micro Connect 2 DHCP server offers the Windows host a unique address, so for example if the ST Micro Connect 2 is using the default IP address 192.168.2.1, the ST Micro Connect 2 DHCP server will offer the PC the address 192.168.2.2.

3.4.3 Host IP address assignment - USB 1.1

The automatic configuration of the Windows USB interface using ST Micro Connect 2 DHCP does not work with USB 1.1. For USB 1.1 the Windows interface must be manually configured. [Appendix D on page 44](#) provides advice on choosing an IP address.

The following procedure describes how to assign a Windows XP host IP address for the USB 1.1 interface.

1. From the **Start** menu, select **Control Panel**.
2. From the **Control Panel**, start **Network Connections**.
3. From the **Network Connections** window, select the icon named **Local Area Connection** with the Device Name **STMC2 USB Ethernet/RNDIS Gadget**.
4. From the **File** menu, select **Properties**.
5. On the **Properties** window, select **Internet Protocol (TCP/IP)** and click **Properties**.
6. Select option, **Use the following IP address**.
7. In the **IP address** field, enter the address, for example, 192.168.2.2.
8. Select the **Subnet Mask** field and Windows automatically updates this field with the correct value, for example: 255.255.255.0.
9. Click **OK** for the **Internet Protocol (TCP/IP) Properties** form and the **Local Area Connection Properties** form.

3.5 Linux USB installation

When the ST Micro Connect 2 is connected to the Linux host, Linux detects the event and automatically creates a network interface. The interface is configured by the ST Micro Connect 2 using the DHCP protocol.

- Note:*
- 1 *Ensure the Network Manager on the Linux host is enabled.*
 - 2 *It may take up to a minute for Linux to detect the presence of the ST Micro Connect 2 after it is plugged into the USB interface.*

3.6 Test the connection

To test the connection, from the command line, enter the following command:

```
stmccconfig --ip <ip address> --firmware-version
```

Where *<ip address>* is the address of the ST Micro Connect 2. If the connection is configured correctly, the ST Micro Connect 2 responds with a version number. For example:

```
stmccconfig --ip 192.168.2.1 --firmware-version
STMC2 firmware version 2.0 23 Feb 2006
```

3.7 Connection to the target system

Connection to the target development system is described in [Appendix B: Target interface on page 40](#).

4 Ethernet connection

Ethernet connection is supported on Windows XP, Windows 7 and Red Hat Linux platforms.

If your Ethernet LAN uses a DHCP server to configure the network, then before your ST Micro Connect 2 is physically connected, it must have DHCP capability enabled by using the LCD configuration menu as described in [Section 2.2 on page 14](#). The ST Micro Connect 2 can then be dynamically configured for Ethernet connection using DHCP.

Alternatively your ST Micro Connect 2 may be connected to an Ethernet LAN and be configured with a static address for that network.

4.1 Default Ethernet IP address

Warning: The ST Micro Connect 2 has a default Ethernet address of 192.168.1.1. This address may conflict with other network devices already configured on your network which could lead to network problems.

The use of the default IP address is **not** recommended for Ethernet installation.

When there is the possibility of a network conflict then the ST Micro Connect 2's IP address should be changed using the LCD interface as described in [Section 4.2](#) or [Section 4.3](#) as required. For static configuration this should be done before the ST Micro Connect 2 is physically connected to your host or network. When DHCP configuration is enabled, the ST Micro Connect 2 will automatically attempt to find a new address when it is connected to the network, as described in [Section 4.2](#).

[Appendix D: Choosing an IP address on page 44](#) provides more detailed guidance about the possible source of network conflicts and how to avoid them. If in doubt ask your network administrator.

Note: The ST Micro Connect 2 firmware, version 3.4 onwards, supports **Classless Inter-Domain Routing**. Earlier releases of the firmware supported **classful** IP addressing and the documentation assumed private **class C** addresses in the range 192.168.0.0 to 192.168.255.255. Since version 3.4 you can set any network mask on both the Ethernet and USB interfaces.

Consult your network administrator for details of local IP addressing policy and network mask values.

Should it be required to use the default ST Micro Connect 2 Ethernet IP address (and you are certain a network conflict will not occur) then it is possible to do so and this method is described in [Appendix E on page 48](#).

4.2 Configuring ST Micro Connect 2 with DHCP network configuration

1. Before connecting your ST Micro Connect 2 to the network, turn it on. Power up is described in [Section 1.3 on page 11](#).
2. Navigate to the LCD menu option **Enable DHCP** (see [Chapter 2 on page 13](#)) and enable DHCP.

Note: For DHCP to be enabled, the Ethernet interface may **not** be set to IP address 0.0.0.0. An alternative is to set the Ethernet IP address to the factory default by using the LCD menu or using **stmccconfig** as described in [Section 5.13: Restore network configuration to factory defaults \(--restore-network-config\) on page 27](#).

3. After the ST Micro Connect 2 has rebooted, turn it off.
4. Connect the ST Micro Connect 2 to the network, following the instructions in [Section 4.4 on page 20](#), and then turn it on again.
5. The ST Micro Connect 2 will boot and attempt to acquire a new IP address using the DHCP protocol. If the acquisition is successful, then the acquired IP address is displayed on the LCD. If the acquisition is not successful the LCD displays the message **No IP address**.

Note: An ST Micro Connect 2 configured to acquire an IP address from a DHCP server, will re-acquire an IP address on each reboot. Most DHCP servers attempt to serve a previous client with the same IP address, but this is not guaranteed. Therefore you should confirm the IP address of your ST Micro Connect 2 on each reboot, either by looking at the LCD or running **stmccconfig** with the **--identify** option (see [Section 5.6 on page 24](#)).

It is possible for a DHCP server to be configured to always serve the same IP address to your ST Micro Connect 2. This can be setup by your network administrator.

To disable DHCP IP address acquisition, navigate to the LCD menu option **Disable DHCP** and select. After rebooting the ST Micro Connect 2 is set to the previous static IP address (or default ST Micro Connect 2 Ethernet address).

4.3 Configure ST Micro Connect 2 with a static address

1. Obtain an unused IP address for your network, the netmask and if required, gateway IP address, from your network administrator.
2. Before connecting your ST Micro Connect 2 to the network, turn it on. Power up is described in [Section 1.3 on page 11](#).
3. Navigate to the LCD menu option **Set Ethernet IP** (see [Chapter 2 on page 13](#)) and set the new IP address and netmask. If your ST Micro Connect 2 is to be accessed from other networks, navigate to the LCD menu option **Set Gateway IP**, and enter the network gateway address.
4. Connect the ST Micro Connect 2 to the network following the instructions in [Section 4.4](#).
5. When the ST Micro Connect 2 has rebooted, the LCD displays the new static IP address.

A new IP address can be set at any time by following the same procedure. The factory default configuration for the ST Micro Connect 2 can be restored by selecting the LCD menu option **Set Default IP**.

4.4 Connection to Ethernet

Connect the ST Micro Connect 2 to the Ethernet network, using the supplied CAT 5 UTP Ethernet cable.

4.5 Testing Ethernet configuration

When the ST Micro Connect 2 is configured and connected on the network by Ethernet, it should be visible on the network. [Section 3.6: Test the connection on page 17](#) describes how to test the connection.

4.6 Connection to the target system

Connection to the target development system is described in [Appendix B: Target interface on page 40](#).

5 Configuration using the stmconfig utility

This chapter describes the host utility **stmconfig** that provides a variety of options to report, configure and maintain the ST Micro Connect 2 remotely. It also facilitates firmware upgrades. **stmconfig**'s command line options are listed in [Table 2](#) and detailed in the following sections in alphabetical order.

Note: Some of these commands require a good understanding of networking principles.

To pass commands to an ST Micro Connect 2, **stmconfig** uses the ST Micro Connect 2's IP address as identification. For a variety of reasons this IP address may not be known. [Section 5.6](#) describes how to identify the IP assignment of a particular ST Micro Connect 2 and [Section 5.7](#) describes how to identify all the ST Micro Connect 2s on a network.

Table 2. stmconfig options

Option	Description
--dhcp enable disable ⁽¹⁾	Enable or disable automatic network configuration of Ethernet interface.
--firmware-downgrade ⁽¹⁾	Select alternate ST Micro Connect 2 firmware.
--firmware-upgrade ⁽¹⁾ <firmware dir>	Upgrade firmware in Flash.
--firmware-version	Report firmware version.
--gateway	Assign, remove or report the current gateway.
--help	Display the stmconfig options.
--identify-all	Report network addresses of any ST Micro Connect 2s connected to the network.
--identify <MAC>	Report network addresses of the ST Micro Connect 2 with MAC address <MAC>.
--ifconfig-eth ⁽¹⁾ [Ethernet arguments]	Report or configure Ethernet network interface settings.
--ifconfig-usb ⁽¹⁾ [USB arguments]	Report or configure USB network interface settings.
--ip <ip address>	ST Micro Connect 2 network address. Used in conjunction with many stmconfig options, as described in the following sections.
--lcd-message [message]	Display message on the ST Micro Connect 2 LCD. Without a message parameter, the message display is cleared.
--output <file name>	Redirect output to file.
--reset ⁽¹⁾	Reset the ST Micro Connect 2.
--restore-network-config ⁽¹⁾	Restore factory default network configuration.
--serial-relay [arguments]	Report or configure serial redirect.
--show-log [<log name>]	List available log files or display named log.
--status	Report on system status.
--version	Display the ST Micro Connection Package version.
--visual [<n flashes>]	Visually identify a ST Micro Connect 2 by flashing LEDs. <i>n flashes</i> defaults to 10.

1. Options that reconfigure the ST Micro Connect 2, complete by performing a reboot.

5.1 Automatic network configuration (--dhcp)

For networks that support automatic IP assignment through the DHCP protocol, the ST Micro Connect 2's Ethernet interface can be set to automatically configure on boot. Enable DHCP configuration using the instructions in [Section 4.2: Configuring ST Micro Connect 2 with DHCP network configuration on page 19](#). Use the option `--identify` described in [Section 5.6](#) or `--identify-all` described in [Section 5.7](#) to view the assigned IP address.

- Note:**
- 1 When DHCP configuration is used, the ST Micro Connect 2 becomes reliant on a DHCP server being present. Should the DHCP server be unavailable (for example, the ST Micro Connect 2 is connected to a different network that does not support DHCP) then the ST Micro Connect 2's network interface will not be configured. To establish a network connection, refer to [Chapter 4: Ethernet connection on page 18](#).
 - 2 The `--dhcp` option reboots the ST Micro Connect 2.

Syntax

```
stmconfig --ip <ip address> --dhcp enable | disable
```

Example

```
% stmconfig --ip 192.168.1.1 --dhcp enable
```

5.2 Select alternate firmware partition (--firmware-downgrade)

[Section 5.3](#) describes Flash partition organization. The option `--firmware-downgrade` switches the Flash partition, from which the ST Micro Connect 2 boots. This is useful if the previous firmware needs to be restored. User configuration settings for network interfaces are reset to the settings selected for the previous firmware installation. The command causes the ST Micro Connect 2 to reset and boot from the alternate firmware partition.

- Note:** The `--firmware-downgrade` option reboots the ST Micro Connect 2.

Syntax

```
stmconfig --ip <ip address> --firmware-downgrade
```

Example

```
% stmconfig --ip 192.168.1.1 --firmware-downgrade
```

5.3 Upgrade firmware in Flash (--firmware-upgrade)

Warning: The firmware upgrade process must not be interrupted. Doing so may render your ST Micro Connect 2 unusable. During the upgrade process, a message is displayed on the LCD stating that the upgrade is in progress and the ST Micro Connect 2's three indicator LEDs are lit.

The ST Micro Connect 2 firmware is held in Flash. Two copies of the firmware can be resident in Flash at any one time. When the ST Micro Connect 2 boots, it loads from the "current" firmware partition. The other firmware partition is known as the "alternate" firmware partition. When new firmware is downloaded onto an ST Micro Connect 2, it is written to the alternate firmware partition. On completion of the upgrade, the ST Micro Connect 2 is reset and the alternate partition becomes the current partition, and the ST Micro Connect 2 restarts from the new firmware. User configuration of network interfaces is persistent across the upgrade. The argument to the `--firmware-upgrade` option is the path to the upgrade image on your host.

- Note:*
- 1 The `--firmware-upgrade` option reboots the ST Micro Connect 2.
 - 2 Restoring the previous firmware from the alternate partition is described in [Section 5.2](#).

Syntax

```
stmconfig --ip <ip address> --firmware-upgrade <firmware dir>
```

Example

```
% stmconfig --ip 192.168.1.1 --firmware-upgrade /opt/STM/STMCR1.6.0/firmware
```

5.4 Report the current firmware version (--firmware-version)

The `--firmware-version` option displays the current firmware version.

Syntax

```
stmconfig --ip <ip address> --firmware-version
```

Example

```
% stmconfig --ip 192.168.1.1 --firmware-version
STMC2 firmware version 2.0 23 Aug 2006
```

5.5 Display stmconfig help (--help)

The `--help` option displays a brief description of **stmconfig**'s options. [Table 2 on page 21](#) lists **stmconfig** options.

Example

```
% stmconfig --help
```

5.6 Identify an ST Micro Connect 2 on a network (--identify)

The `--identify` option returns the IP addresses that are assigned to an ST Micro Connect 2 for both the Ethernet and USB-B interfaces. It uses the MAC address of the ST Micro Connect 2's Ethernet port that is printed on the side of the ST Micro Connect 2.

Note: The identify operation only discovers ST Micro Connect 2s on the local network. Any ST Micro Connect 2s on separate networks are not found. The default behavior for routers between networks is to block the UDP broadcast identify message. Routers can be configured to allow the identify broadcast to propagate to other local sub-networks, but this requires intervention by a network administrator.

Syntax

```
stmconfig --identify <MAC>
```

The command returns the IP addresses for both ST Micro Connect 2 network ports, `eth0` and `usb0`.

The format of the output is:

```
Ethernet: {<dns name>...} [<Ethernet IP address>]; USB: {<dns name>...}  
[<USB IP address>];
```

Example

```
% stmconfig --identify 00:80:e1:42:06:75  
Ethernet: name1 [192.168.1.1]; USB: [192.168.2.1]
```

5.7 Identify all ST Micro Connect 2s on a network (--identify-all)

The `--identify-all` option is an extension of the `--identify` option described in [Section 5.6](#). All ST Micro Connect 2s on the LAN are detected.

Note: The identify operation only discovers ST Micro Connect 2s on the local network. Any ST Micro Connect 2s on separate networks are not found. The default behavior for routers between networks is to block the UDP broadcast identify message. Routers can be configured to allow the identify broadcast to propagate to other local sub-networks, but this requires intervention by a network administrator.

Syntax

```
stmconfig --identify-all
```

The command returns the IP addresses for both ST Micro Connect 2 network ports, `eth0` and `usb0`. The format of the output is:

```
Ethernet: {<dns name>...} [*] [<Ethernet IP address>]; USB: {<dns name>...}  
[*] [<USB IP address>];
```

The `*` is displayed when an interface is active and has sent a reply packet to the host.

Example

```
% stmconfig --identify-all
Ethernet: brie0310 thetis * [164.129.14.239]; USB: [192.168.2.1];
STMC booted successfully
STMC in use with TargetPack mb411 by user products from host dingly
Ethernet: brie0029 marin * [164.129.15.135]; USB: [192.168.2.1];
STMC booted successfully
```

5.8 Configure an ST Micro Connect 2 network interface (--ifconfig-eth and --ifconfig-usb)

An ST Micro Connect 2 has two network interfaces, `eth0` and `usb0`. The options `--ifconfig-eth` and `--ifconfig-usb` enable these interfaces to be configured or their configuration to be reported. If no arguments are specified to the `--ifconfig-eth` or `--ifconfig-usb` options, the command reports the current configuration of the interface.

Note: *When used to make configuration changes, the last action of `--ifconfig-eth` and `--ifconfig-usb` is to reboot the ST Micro Connect 2.*

Syntax

```
stmconfig --ip <ip address> --ifconfig-eth [Ethernet arguments]
stmconfig --ip <ip address> --ifconfig-usb [USB arguments]
```

USB or Ethernet arguments

```
<ip address> [netmask <net mask>] [broadcast <broadcast address>]
```

[Section D.1: Factory default configuration on page 44](#) lists both the USB and Ethernet factory default configuration.

Examples

The following example configures the USB network interface:

```
% stmconfig --ip 192.168.1.1 --ifconfig-usb 169.254.14.239 netmask 255.255.0.0
```

The next example, where no arguments are specified, lists the current configuration of the Ethernet network interface:

```
% stmconfig --ip 192.168.1.1 --ifconfig-eth
eth0      Link encap:Ethernet  HWaddr 00:80:E1:42:06:75
          inet addr:192.168.1.1  Bcast:192.168.1.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:60009 errors:0 dropped:0 overruns:0 frame:57773
          TX packets:92 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:4370186 (4.1 MiB)  TX bytes:37458 (36.5 KiB)
```

5.9 Specifying a gateway address (--gateway)

The `--gateway` option is used to provide the ST Micro Connect 2 with the address of a machine to be used as a gateway.

If an IP address is not specified, then the current gateway is reported. If the IP address is specified as `0.0.0.0` then the current gateway is removed.

Caution: If the ST Micro Connect 2 is operating with DHCP configuration, the `--gateway` option cannot be used to specify the gateway.

Syntax

```
stmconfig --ip <stmc2 ip address> --gateway [<gateway ip address>]
```

Examples

Setting a gateway:

```
% stmconfig --ip 169.192.1.1 --gateway 10.65.4.4
```

Removing the gateway:

```
% stmconfig --ip 169.192.1.1 --gateway 0.0.0.0
```

Displaying the gateway:

```
% stmconfig --ip 169.192.1.1 --gateway
```

5.10 Display message on LCD (--lcd-message)

The `--lcd-message` option allows a message to be displayed on the ST Micro Connect 2's LCD. The message is displayed until an LCD menu button is pressed, or a new message is registered. The message is not persistent across reset. If the message is longer than 16 characters, the message scrolls. If the `message` parameter is omitted, then any message displayed on the LCD is cleared.

Syntax

```
stmconfig --ip <ip address> --lcd-message [message]
```

Example

```
% stmconfig --ip 192.168.1.1 --lcd-message "User: Einstein"
```

5.11 Redirect stmconfig output to a file (--output)

The `--output` option allows the output from **stmconfig** to be redirected to a named file.

Syntax

```
stmconfig --ip <ip address> <option> [option arguments] --output  
<file name>
```

Example

```
% stmconfig --ip 192.168.1.1 --ifconfig-eth --output eth0-settings
```

5.12 Reset (--reset)

The `--reset` option causes the ST Micro Connect 2 to reboot.

Syntax

```
stmconfig --ip <ip address> --reset
```

Example

```
% stmconfig --ip 192.168.1.1 --reset
```

5.13 Restore network configuration to factory defaults (--restore-network-config)

Caution: The `--restore-network-config` option removes the network configuration saved to Flash and returns the network configuration to the factory default, see [Section D.1 on page 44](#). All previous settings are lost. The factory default settings will be active after the ST Micro Connect 2 has rebooted.

Note: *The `--restore-network-config` option reboots the ST Micro Connect 2.*

Syntax

```
stmconfig --ip <ip address> --restore-network-config
```

Example

```
% stmconfig --ip 192.168.1.1 --restore-network-config
```

5.14 Configure serial redirect (--serial-relay)

The ST Micro Connect 2 can relay the RS-232 serial port input and output from a target board to a terminal emulation program running on a host. Characters typed in the terminal emulation program are sent to the target's serial port. Characters received from the target's serial port are echoed in the terminal emulation program on the host.

This relay is particularly useful when the target is some distance from the host or when different users need to access the serial port on the target board.

The sequence of actions that must be carried out are:

1. Connect the target board to the ST Micro Connect 2 rear panel connector with a NULL modem cable, see [Section A.4: RS-232 serial data connector on page 38](#).
2. Configure the ST Micro Connect 2 with the serial configuration, described in [Section 5.14.1](#).
3. Start a terminal emulation program on the host, see [Section 5.14.2: Telnet connections to the serial relay on page 28](#).

The ST Micro Connect 2 serial relay must be reconfigured when the ST Micro Connect 2 is power cycled or reset with the **stmconfig** reset facility.

The ST Micro Connect 2 serial relay is reconfigured when the **stmconfig** `--serial-relay` command is issued and any existing terminal emulation session is terminated.

5.14.1 Serial configuration

The ST Micro Connect 2 is configured by the command:

```
stmconfig --ip <ip address> --serial-relay [<channel> <baud>
<databits> <parity> <stopbits> <hw flow>]
```

[Table 3 on page 28](#) lists the valid argument values for this command.

Table 3. stmconfig --serial-relay arguments

Argument	Possible values	Comment
<channel>	0	0 is the mandatory value.
<baud>	300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, 115200	The default is 115200.
<databits>	5, 6, 7 or 8	The default is 8.
<parity>	none, odd, even	The default is none.
<stopbits>	1, 2	The default is 1.
<hw flow>	0, 1	Hardware flow control using the RTS and CTS signals. 0 selects disabled and is the default; 1 selects enabled.

If no arguments are supplied to the `--serial-relay` option, **stmconfig** displays the default values used.

5.14.2 Telnet connections to the serial relay

Note: The telnet client may be configured to use either character mode or line mode, see [Compatibility issues](#) below.

On a Linux host start a telnet session with:

```
host% telnet <ip address> 5331
```

No `.telnetrc` file is required.

On a Windows host start a telnet session with:

```
> telnet <ip address> 5331
```

Compatibility issues

- Line feed

Under some circumstances telnet may need to be setup to send only carriage return (CR) when the return key is pressed.

For example, if the target attached to the serial line appears to give a double prompt this indicates that the telnet client is sending carriage return (CR) and line feed (LF) characters when the return key is pressed.

The telnet client should be set up to send just CR. To do this:

1. Start telnet

```
> telnet
```
2. Escape to command mode by pressing `^]` (control key and right square bracket)

3. Check the line feed mode with the `display` command:

```
Microsoft Telnet> display
```

4. Remove **crlf** mode with:

```
Microsoft Telnet> unset crlf
```

5. Quit telnet

```
> quit
```

The line feed mode will be persistent for subsequent telnet sessions.

- Terminal type

If relaying an STLinux console, and the `resize` command is available on the target, this may be issued to synchronize the target console output with the host telnet window.

When relaying an STLinux console, the terminal type of the host is assumed to be "linux" by the STLinux console driver.

On Windows, telnet does not support the "linux" terminal type so problems may be experienced when running programs such as `vi`.

- Character or line mode

When the telnet client is configured to use character mode, control characters typed at the host are effective immediately.

When the telnet client is configured to use line mode, characters are stored in the client until a carriage return is typed.

The telnet client remembers the mode in which it has been set.

To set the mode:

1. Start the telnet client.

```
>telnet
```

2. Escape to command mode by pressing `^]`.

3. Enter the required mode.

```
mode character
```

```
or
```

```
mode line
```

5.15 Display ST Micro Connect 2 log file (--show-log)

The ST Micro Connect 2 reports its activity to a log file called `messages`. Toolsets can also log their activity to log files. To display the log files use the `--show-log [<log name>]` option. If specific log files are not requested a list of available log files is displayed.

Syntax

```
stmconfig --ip <ip address> --show-log [<log name>]
```

Example

```
stmconfig --ip 192.168.1.1 --show-log messages
Jan 1 00:00:07 (none) user.notice systemmanager: SystemManager starting...
Jan 1 00:00:07 (none) user.notice systemmanager: Waiting for command
Jan 1 00:00:07 (none) user.notice systemmanager: Starting SystemManager thread for
network interface 192.168.1.1.
...
```

5.16 ST Micro Connect 2 status reports (--status)

The `--status` option provides status information for the ST Micro Connect 2. The type of information that can be reported includes: whether the boot was successful, whether the ST Micro Connect 2 is in use and to which host it is connected.

Syntax

```
stmconfig --ip <ip address> --status
```

Example

```
% stmconfig --ip 192.168.1.1 --status
```

5.17 Display version information (--version)

The `--version` option provides the ST Micro Connection Package version information for **stmconfig**.

Example

```
% stmconfig --version  
STMC Package Release 2011.2.1
```

5.18 Visual identification of an ST Micro Connect 2 (--visual)

The `--visual` option allows LEDs on the front panel of an ST Micro Connect 2 to be flashed, allowing easy visual identification of an ST Micro Connect 2. This is most useful when development targets are stored together and identifying a specific ST Micro Connect is difficult. The `<n flashes>` argument to this command is the number of times to flash the LEDs. The default is 10.

Syntax

```
stmconfig --ip <ip address> --visual [<n flashes>]
```

Example

```
% stmconfig --ip 192.168.1.1 --visual 30
```

6 Programming a development board EPLD

This chapter describes the host utility **epldprog** that enables electronically programmable logic devices (EPLDs) to be programmed. ST development boards may have several EPLDs and these can be updated or programmed remotely.

6.1 Connection for EPLD programming

Note: Many ST development platforms consist of more than one board, for example, a core processor board and a peripheral board. The ST Micro Connect 2 **must** connect to the physical board on which the EPLDs reside. This information is given in the board datasheet.

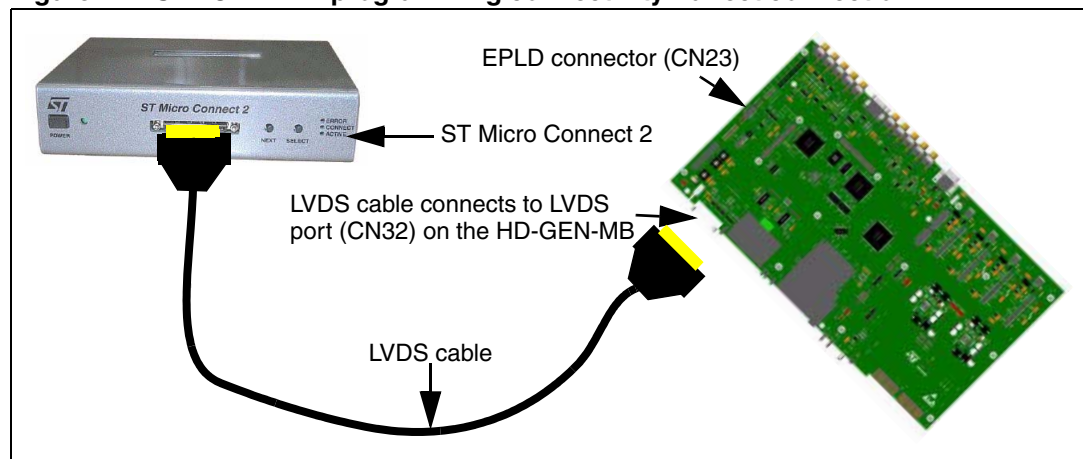
There are two different methods of connecting the ST Micro Connect 2 to a board when programming the EPLDs. One uses a direct LVDS connection (not Type F) on the relevant board, the other uses the STMC Type A or Type H I/O convertor. (See the *ST system-on-chip (SoC) debug interfaces technical note* (8339250) for details of the connectors.) [Figure 4](#) and [Figure 5](#) use the HD_GEN_MB peripheral board as an example to show connectivity.

epldprog is provided for both Windows and Linux hosts and supports both methods of programming EPLDs. It operates on Altera Jam byte-code (.jbc) files and provides information, program and verify operations. The **epldprog** command line is described in [Section 6.2 on page 34](#).

Direct connection

The ST Micro Connect 2 is connected directly to the LVDS port on the board by using an LVDS cable, see [Figure 4](#).

Figure 4. STMC2 ELPD programming connectivity - direct connection

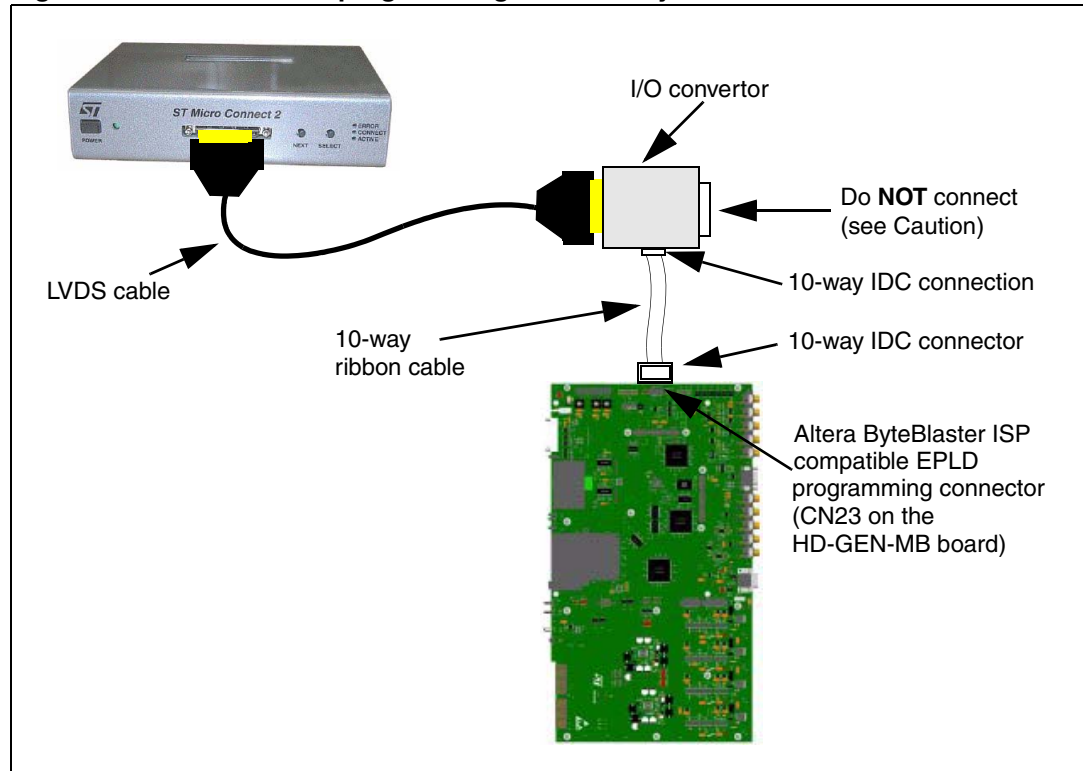


Using an STMC I/O convertor

The ST Micro Connect 2 is connected to an STMC I/O convertor, by an LVDS cable. The 10-way IDC header on the side of the STMC I/O convertor is then connected through a 10-way ribbon cable to an ISP compatible 10-way IDC connector on the board (CN23 in this example), see [Figure 5](#).

The pinout of the 10-way connector for the Type A I/O convertor is shown in [Section 6.1.1](#). The pinout of the 10-way connector for the Type H I/O convertor is documented in the [TypeH-IO datasheet \(8282455\)](#).

Figure 5. STMC2 EPLD programming connectivity - I/O convertor



Caution: When the STMC I/O convertor 10-way IDC header is connected to facilitate EPLD programming the 20-way TTL IDC connector (for Type A) or MIPI-34 connector (for Type H) **must not** be connected to a JTAG debug port on the target board.

Note: The 10-way ribbon cable is not supplied with the ST Micro Connect 2. Users must make up a cable with direct one-to-one pin connectivity.

6.1.1 Type A ISP 10-way IDC connector

The 10-pin connector on the STMC Type A I/O convertor provides a JTAG standard debug interface for EPLD programming. It is a 2 x 5-way 2.54 mm pitch connector.

Figure 6. ISP 10-way IDC connector

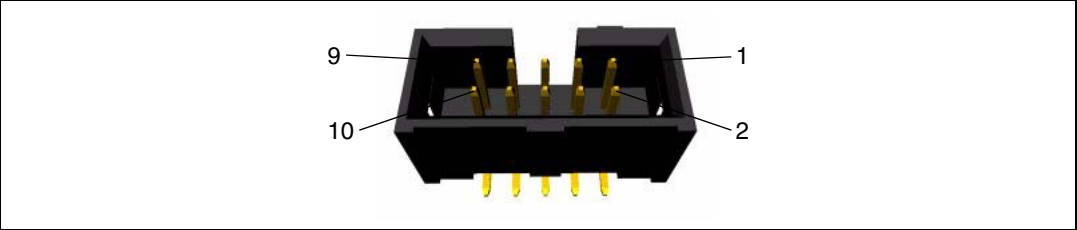


Table 4. 10-way IDC connector pinout

Pin	Description	Signal direction	Pin	Description	Signal direction
1	ISP_TCK_DCLK	To target board	2	GROUND	Not applicable
3	ISP_TDO_CONFDONE	From target board	4	Not connected	
5	ISP_TMS_notCONFIG	To target board	6	Not connected	
7	ISP_notSTATUS	From target board	8	Not connected	
9	ISP_TDI_DATA0	To target board	10	GROUND	

6.2 epldprog command line

epldprog has the following command line syntax:

```
epldprog [options] <stmc2> <command> <filename>.jbc
```

where:

- *options* are listed in [Table 5](#)
- *<stmc2>* is either the name of the ST Micro Connect 2 or its IP address
- *<command>* options are listed in [Table 6](#)
- *<filename>.jbc* is the name of the JBC file containing the information for programming the EPLDs

Note: *If you have .pof format files instead of .jbc, these can be converted to JBC format using the Altera Quartus programmer software.*

Table 5. epldprog options

Option	Description
--convertor	The convertor type is automatically detected, but may be specified explicitly with this option; supported values are: STMC_Type_A This specifies that a Type A STMC I/O convertor is being used to interface to the target board. STMC_Type_G This specifies that the ST Micro Connect 2 is connected directly to a Type G format LVDS convertor on the target board. STMC_Type_K This specifies that the ST Micro Connect 2 is connected directly to a Type K format LVDS convertor on the target board. Convertors are described in detail in Appendix B: Target interface on page 40 .
--help	Displays help for epldprog .
--parameters	TargetString parameters, see the <i>ST TargetPack User manual</i> (8020851).
--tck_frequency	Frequency in Hertz. The default is 1000000 Hertz.

The JBC file provides command line options for use with **epldprog**. Possible commands are shown in [Table 6](#).

Table 6. JBC command line options

Command	Description
INFO	Displays the information on the EPLD.
PROGRAM	Programs and verifies the EPLD.
VERIFY	Checks that the programming information contained within the EPLD and the JBC file have no conflicts.

Refer to your STMicroelectronics board datasheet for further information about programming EPLDs.

6.2.1 Examples of using `epldprog`

In the following examples, the convertor type is automatically detected.

The following example inspects the EPLD values:

```
% epldprog my_stmc2 INFO mb628_02.jbc
```

Where:

- `my_stmc2` is the IP address (or name) of the ST Micro Connect 2
- the `INFO` command is used to display the EPLD values contained in the file `mb628_02.jbc`

The next example programs the EPLDs on the STi7141-MBoard (MB628):

```
% epldprog my_stmc2 PROGRAM mb628_02.jbc
```

Where:

- `my_stmc2` is the IP address (or name) of the ST Micro Connect 2
- `PROGRAM` is the command to program and verify the EPLD
- `mb628_02.jbc` is the JBC file containing the information for programming the EPLDs

In this example, to check the EPLD and the JBC file have no conflicts, use the following command:

```
% epldprog my_stmc2 VERIFY mb628_02.jbc
```

If the board is powered down, it can be remotely powered up by using an additional option (`--parameters "module_function=mb628_power"`). This specifies the Python module that powers up the board:

```
% epldprog --parameters "module_function=mb628_power" my_stmc2  
VERIFY mb628_02.jbc
```

Appendix A Connectors

Figure 2 on page 7 shows the ST Micro Connect 2 rear panel and *Figure 3 on page 11* shows the front panel. The various connectors on the ST Micro Connect 2 are described in this appendix.

A.1 USB 2.0 device Type B connector

In USB mode the Type B connector is connected using the supplied USB cable to the USB type A connector on the host.

Figure 7. USB Type B connector

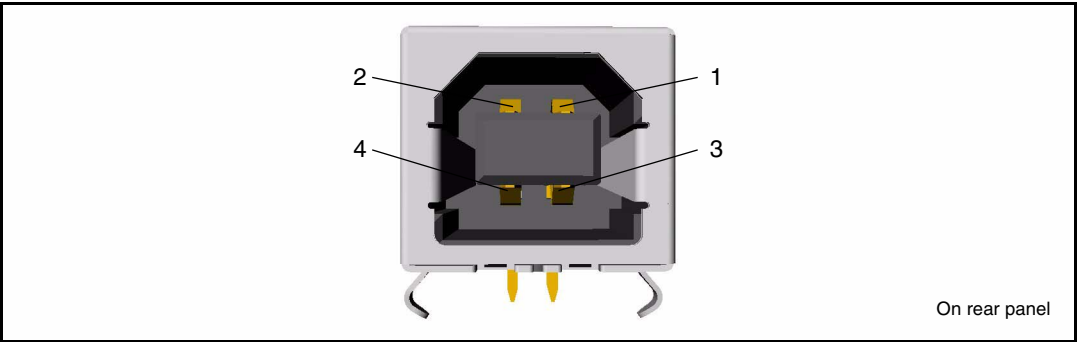


Table 7. USB Type B connector pinout

Pin	Description	Pin	Description
1	VBUS1	3	USBD1P
2	USBD1M	4	GROUND

A.2 USB type A connector

This connection is provided for expansion purposes only and can be connected by cable to the USB Type B connector of the peripheral device.

Note: Not currently supported.

Figure 8. USB type A connector

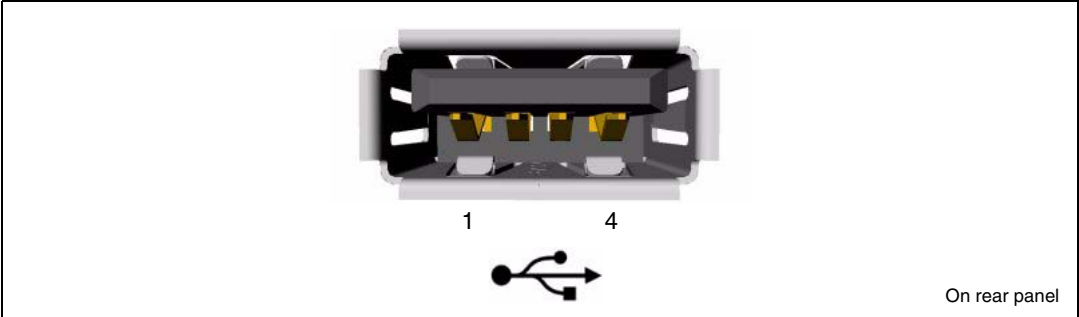


Table 8. USB type A connector pinout

Pin	Description	Pin	Description
1	VBUS1	3	USBD1P
2	USBD1M	4	GROUND

A.3 RJ45 Ethernet connector

Figure 9. RJ45 type Ethernet interface

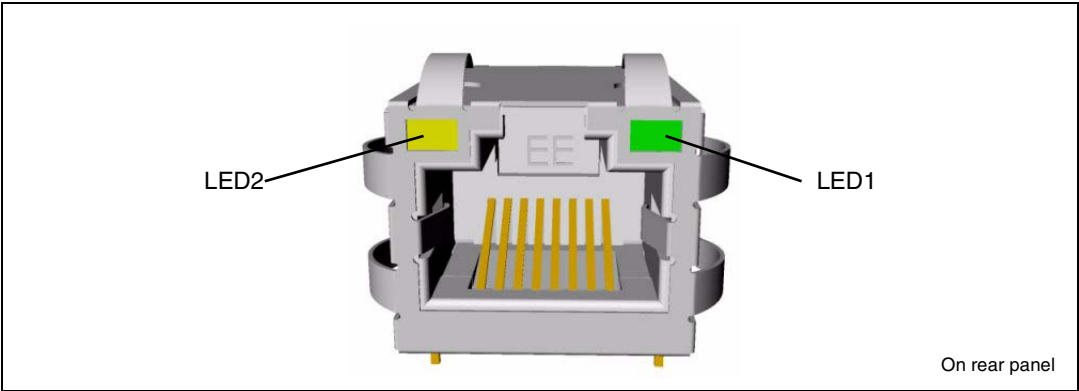


Table 9. RJ45 10/100 Mbit Ethernet interface

Pin	Description	Pin	Description
1	TXDATA+	5	Not connected
2	TXDATA-	6	RXDATA-
3	RXDATA+	7	Not connected
4	Not connected	8	Not connected

A.4 RS-232 serial data connector

An RS-232 9-pin general purpose D-type male connector may be used to connect the ST Micro Connect 2 to the target development board. This connection can only be used for serial relay to a host running a terminal emulation program.

Figure 10. RS-232 serial data and debug

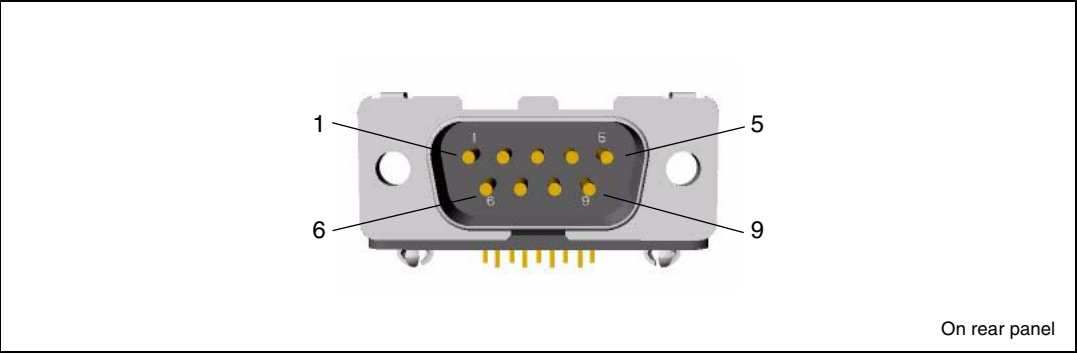


Table 10. RS-232 connector pinout

Pin	Description	Pin	Description
1	Not connected	6	Not connected
2	Receive data (RXD)	7	Request to send
3	Transmit data (TXD)	8	Clear to send
4	Not connected	9	Not connected
5	GROUND		

A.5 VHDCI LVDS host interface

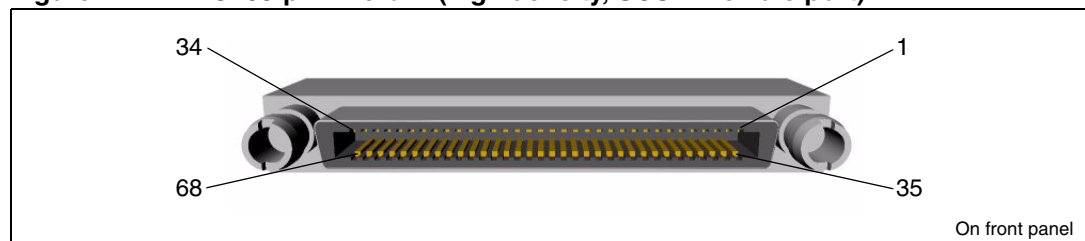
This port can be connected, using an SCSI-V VHDCI cable, to:

- a Type A STMC I/O convertor
- a Type C STMC I/O convertor
- a Type H STMC I/O convertor
- a target with a Type F pinout (LVDS convertor on the ST evaluation board)
- a target with a Type G pinout (LVDS convertor on the ST evaluation board)
- a target with a Type K pinout (LVDS convertor on the ST evaluation board)

The pinouts are described in the *ST system-on-chip (SoC) debug interfaces technical note* (8339250).

Further information about connecting to the target is given in [Appendix B: Target interface on page 40](#).

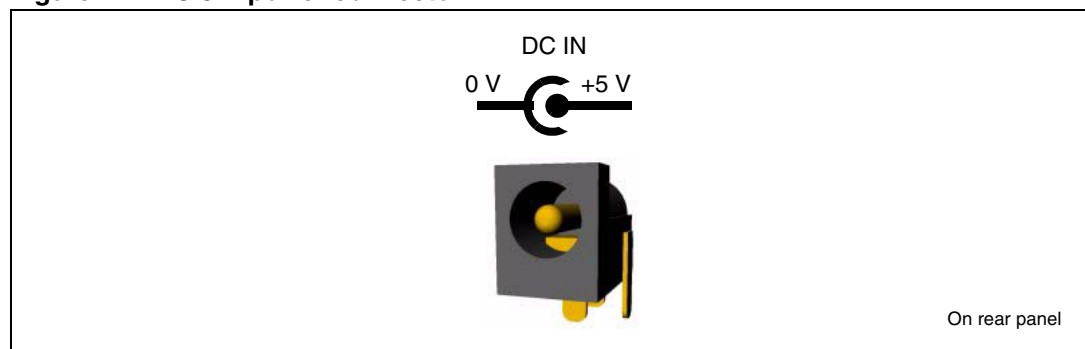
Figure 11. VHDCI 68-pin micro-D (high density, SCSI-V female port)



A.6 Power supply

The ST Micro Connect 2 uses a lump-in-cord power supply providing +5 V DC. All other required voltages are provided by on-board voltage regulators.

Figure 12. DC 5 V power connector



Appendix B Target interface

The ST Micro Connect 2 can connect to different generations of STMicroelectronics development boards and to customer board designs. The following target pinouts are supported:

- STMC Type A (using an STMC I/O convertor Type A)
- STMC Type C (using an STMC I/O convertor Type C)
- STMC Type F (using an LVDS target connection)
- STMC Type G (using an LVDS target connection)
- STMC Type H (using an STMC I/O convertor Type H^(b))
- STMC Type K (using an LVDS target connection)

The different connectors on the I/O convertors are described in the *ST system-on-chip (SoC) debug interfaces technical note* (8339250).

[Appendix G: Ordering information on page 51](#) provides details of which I/O convertor is supplied with each STMC2 product. All products support Type F, Type G and Type K connection, the only difference between the products is the bundled STMC I/O convertor.

Caution: It is important that the correct STMC I/O convertor is used with a target, or permanent damage can occur to either the STMC I/O convertor or the target itself.

Caution: The convertor can have a metallic body, If so, do not allow it to come into physical contact with the target board. Such contact can cause a short circuit that could damage the board.

B.1 Connection to ST's validation boards

Many of ST's SoC validation platforms provide direct connection using an SCSI-V cable to the target board. Connect these products as shown in [Figure 13](#). A 68-way SCSI-V cable provides the interface between the ST Micro Connect 2 and the target board's LVDS connector. The LVDS is used across this target interface, for improved speed and signal integrity.

Figure 13. Direct connection to the ST Micro Connect 2



b. This convertor is also available separately, the order code is TYPEH-IO.

B.2 Connection using an STMC I/O convertor

The STMC I/O convertors convert LVDS signalling on the ST Micro Connect 2 to TTL signalling on the target. The convertors are supplied with the ST Micro Connect 2 products as described in [Appendix G: Ordering information on page 51](#). An example of an STMC I/O convertor is shown in [Figure 14](#).

Figure 14. STMC I/O convertor - outer casing

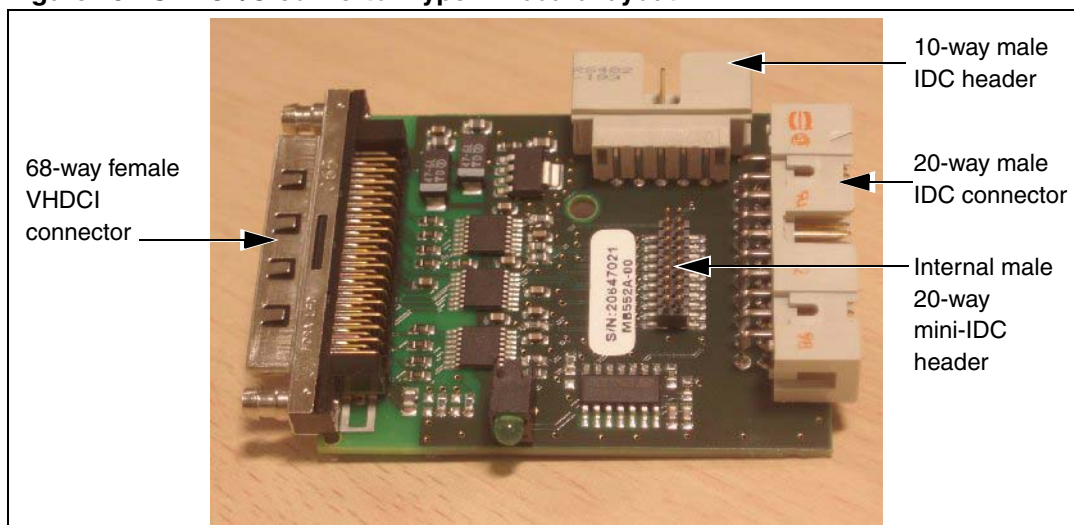


The STMC I/O convertor has the following connectors.

- 68-way female high density VHDCI connector, Honda part HDRA-E68LFDT-SLF+, for connection to ST Micro Connect 2 through the SCSI-V cable.
- 10-way right-angled male IDC header. This connector supports the Altera ByteBlaster interface for configuring Altera EPLD devices using the JTAG and passive serial programming methods, see [Chapter 6 on page 31](#).
- A connector for connecting to the target board. The type of connector depends on the convertor. This **MUST NOT** be connected while the 10-way right-angled male IDC header is connected for EPLD programming.

The Type A I/O convertor also has an internal 20-way male mini-IDC header, for connection to customer reference boards that support the 20-way mini-IDC to 20-way mini-IDC ribbon cable. This is described in [Section B.2.2 on page 42](#).

Figure 15. STMC I/O convertor Type A - board layout



B.2.1 Connecting the STMC I/O convertor to an ST target board

The STMC I/O convertor can be connected to an STMicroelectronics target board as shown in [Figure 16](#). This figure shows the STMC I/O convertor Type A connecting to the target board using the 20-way IDC to 20-way IDC ribbon cable.

Figure 16. Connecting the STMC I/O convertor to an ST board



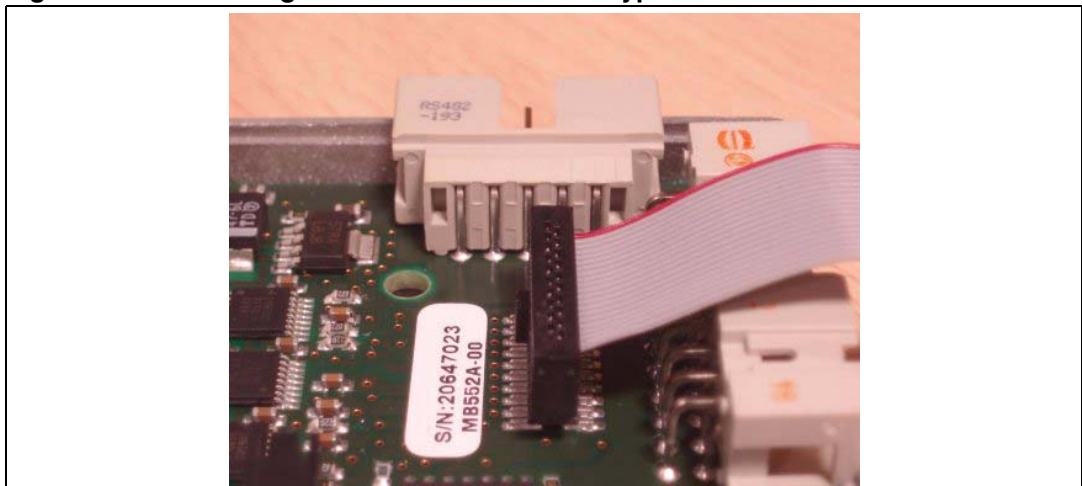
B.2.2 Connecting the STMC I/O convertor Type A using the mini-IDC connector

The STMC I/O convertor type A can be connected to a customer reference board using the 20-way mini-IDC cable, as follows:

1. Remove the single screw in the plastic housing of the STMC I/O convertor Type A.
2. Separate the two halves of the plastic housing.
3. Fit the 20-way mini-IDC cable to the internal mini-IDC connector as shown in [Figure 17](#).

Caution: Ensure that the cable is fitted the correct way around, as the connector is not keyed.

Figure 17. Connecting the STMC I/O convertor Type A to a customer board



Appendix C LEDs

[Table 11](#) describes the status LEDs provided on the front panel, see [Figure 3 on page 11](#).

Table 11. Front panel status LEDs

LED	Color	Description
PWR	Green	Power status, illuminated indicates the ST Micro Connect 2 is powered on.
ERR	Red	Fatal internal ST Micro Connect 2 error has occurred. Communication with the host may not be possible.
CON	Amber	Target connection; illuminated indicates the target is connected.
ACT	Green	Target connection activity; illuminated indicates read or write activity on the target connection.

[Table 12](#) describes the Ethernet RJ45 status LEDs located on the back panel, see [Figure 2 on page 7](#).

Table 12. Rear panel status LEDs

LED	Color	Description
ACT	Green	Ethernet active, illuminated indicates the Ethernet connection is active.
SPEED	Amber	Ethernet speed, illuminated indicated the Ethernet is operating at 100 Mbits, not illuminated indicates the Ethernet is operating at 10 Mbits.

Appendix D Choosing an IP address

This appendix is aimed at network administrators and is not meant to be a comprehensive guide to IP address allocation.

D.1 Factory default configuration

The ST Micro Connect 2 is delivered with the factory default configuration listed in [Section D.1.1](#) and [Section D.1.2](#). This configuration is easily changed using the LCD menu options described in [Chapter 2 on page 13](#).

D.1.1 USB

The USB factory default configuration for the network interfaces are:

- `usb0`
- Class C network address - private LAN - `192.168.2.1`
- netmask `255.255.255.0`
- broadcast address `192.168.2.255`

D.1.2 Ethernet

The Ethernet factory default configuration for the network interfaces are:

- `eth0`
- Class C network address - private LAN - `192.168.1.1`
- netmask `255.255.255.0`
- broadcast address `192.168.1.255`

D.2 Selecting an Ethernet IP address

For Ethernet networks it is expected that the Ethernet interface is assigned a network configuration for the local network (see [Section 4.3 on page 19](#)), or is configured to request an IP configuration from a DHCP server (see [Section 4.2 on page 19](#)). An ST Micro Connect 2 connected to a LAN is accessible from all hosts on that LAN.

It is possible to use the default Ethernet IP address on any network where the address does not conflict with other equipment, but this is discouraged for anything other than the most impromptu use. See [Appendix E on page 48](#).

D.3 Selecting a USB IP address

USB devices are connected directly to a host-PC and are accessed from the host^(c).

Each ST Micro Connect 2 connected to a host must be on a unique **subnet**.

D.3.1 USB IP address allocation strategy

It is expected that a small number of ST Micro Connect 2s, one or two, will be connected to a host by USB. Each ST Micro Connect 2 connected to a host must be on a unique subnet.

The default IP addresses chosen for the ST Micro Connect 2 are private LAN address range 192.168/16, defined in *RFC 1918 Address allocation for private internets*. This address range provides for 256 contiguous class C networks of 256 hosts.

It is possible that your network already utilizes part of this address range for other local equipment, so be careful not to introduce a conflict when allocating addresses.

When it is required to make ST Micro Connect 2s available to other hosts on a network it is recommended that this is done using Ethernet rather than USB. This ensures a unique Ethernet address. ST Micro Connect 2s connected locally by USB are not normally visible to other hosts, and so an ST Micro Connect 2 connected to host A, can use the same (USB) IP address as an ST Micro Connect 2 connected to host B.

For a class C address, the first three octets define the network element of the address. For the default address therefore, the network address is 192.168.2. The simplest way to allocate unique network addresses to ST Micro Connect 2s is to increment the default address. For example, if four ST Micro Connect 2s A, B, C and D are to be connected to a single host, they might be given the IP addresses:

192.168.2.1 *ST Micro Connect 2 A*

192.168.3.1 *ST Micro Connect 2 B*

192.168.4.1 *ST Micro Connect 2 C*

192.168.5.1 *ST Micro Connect 2 D*

See [Section 3.2 on page 15](#) for instructions on setting the USB IP address.

D.4 Possible network conflicts

This section describes some possible network conflicts.

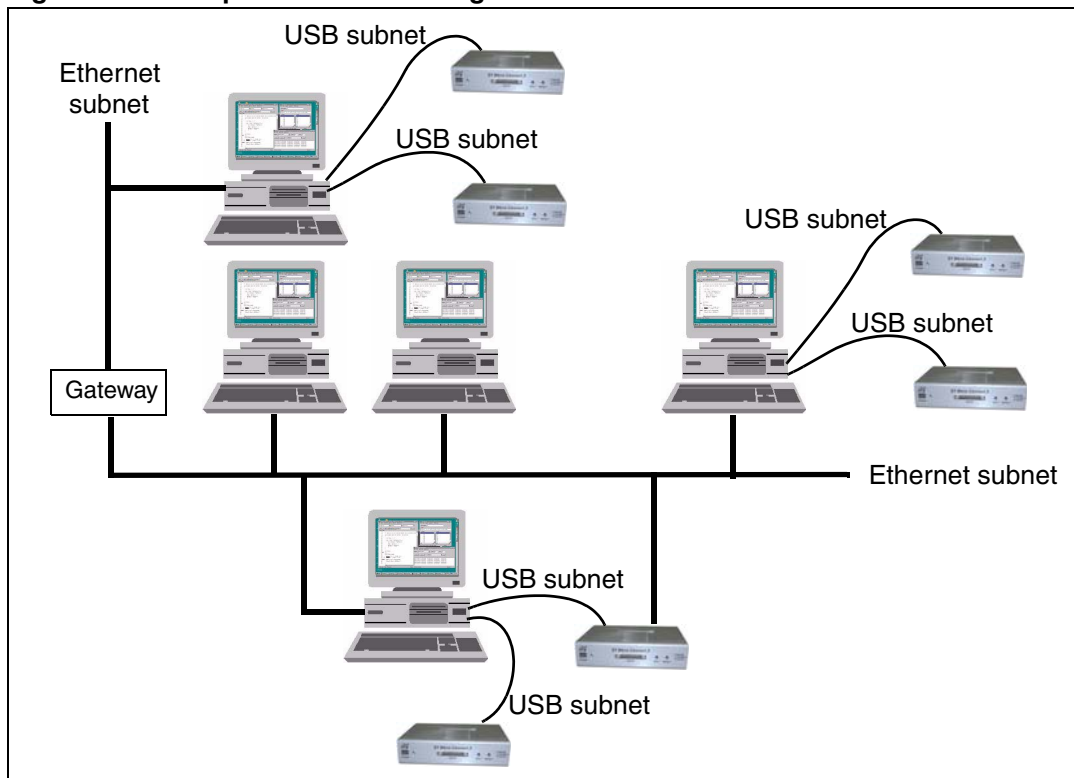
- Each ST Micro Connect 2 has two network interfaces, Ethernet and USB, with no possibility in the user interface to disable either one. ST Micro Connect 2 software treats both as always 'live', using factory default settings if no user settings have been applied. You must therefore ensure there is no conflict between the IP configurations of the ST Micro Connect 2's two network interfaces **even if one is not used**.
- A host may have other network interfaces (LAN, ADSL...) in addition to those used to connect to the ST Micro Connect 2. You need to ensure that there are no conflicts

c. It would be possible to make an ST Micro Connect 2 connected to a host by USB, to be made available to a wider network. This is not described here. If network access is required then connect the ST Micro Connect 2 to the network using Ethernet.

between the IP configurations of **all** the host's network interfaces, including the IP configuration served by ST Micro Connect 2 for its USB interface.

Figure 18 shows an example network with multiple hosts and ST Micro Connect 2s connected using Ethernet and USB subnets. All the subnets are required to be unique.

Figure 18. Example network showing Ethernet and USB subnets



D.5 Check addresses are not on the same network

When using the front panel buttons or **stmconfig** to set up an interface, checks are automatically made to prevent setting up a clash. To check if the subnets will be different:

1. Determine the network mask of each interface (consult your network administrator).
2. Perform a bit wise AND on these to obtain the least restrictive net mask.
3. Then perform a bitwise AND of this mask with the intended addresses for each interface.
4. If the result gives the same number for each interface there will be a conflict.

Section D.5.1 on page 47 provides an example.

If in doubt consult your network administrator for guidance on suitable interface configurations particularly if the ST Micro Connect 2 Ethernet interface is to be set up for DHCP. If the default and suggested range for the USB IP addresses are not suitable you may also wish to consider using an alternative private address for the USB in the 172.16.0.0 to 172.31.255.255 range.

D.5.1 Example

This example compares the following two network addresses to check if they are on the same subnet:

Address A: 192.168.16.20, hex representation: 0xC0A81014, binary representation: 1100000010101000000100000010100

Address B: 192.168.17.20, hex representation 0xC0A81114, binary representation: 11000000101010000001000100010100

Network mask for classful decimal 255.255.255.000, hex representation: 0xFFFFFF00, binary representation: 111111111111111111111111100000000

Network mask for classless decimal 255.255.240.000 hex representation 0xFFFFF000 binary representation: 111111111111111111111000000000000

To determine the subnet for address A with classful network MASK:

```
Address 11000000101010000001000000010100
Mask    111111111111111111111111100000000
Subnet  11000000101010000001000000000000    #bitwise AND
```

To determine the subnet for address B with classful network MASK:

```
Address 11000000101010000001000100010100
Mask    111111111111111111111111100000000
Subnet  11000000101010000001000100000000    #bitwise AND
```

To determine the subnet for address A with classless network MASK:

```
Address 11000000101010000001000000010100
Mask    111111111111111111111000000000000
Subnet  11000000101010000001000000000000    #bitwise AND
```

To determine the subnet for address B with classless network MASK:

```
Address 11000000101010000001000100010100
Mask    111111111111111111111000000000000
Subnet  11000000101010000001000000000000    #bitwise AND
```

The results show that for the classful network mask the addresses A and B are on separate subnets. When using the classless network mask the addresses are on the same subnet.

Appendix E Ethernet connection using the default IP address

Warning: This configuration should be used for impromptu use only. A network conflict is possible that could lead to lost data.

The ST Micro Connect 2 Ethernet interface is configured by default to be IP address, 192.168.1.1. The ST Micro Connect 2 can be connected to a network that does not share the same network address, but in this case the ST Micro Connect 2 must be given the route to the host.

1. Connect the ST Micro Connect 2 to Ethernet as described in [Section 4.4 on page 20](#).
2. On the host enter one of the following commands as appropriate to your host:
 - For Linux hosts:

```
% route add default gw <host ip address> [eth <n>]
```

where <host ip address> [eth <n>] is the address of the host's network interface that connects to the same network the ST Micro Connect 2 is connected to.
 - For Windows:

```
C:\>route add 192.168.1.1 <host ip address>
```

where <host ip address> is the address of the host's network interface that connects to the same network the ST Micro Connect 2 is connected to.
For example:

```
C:\>route add 192.168.1.1 164.129.14.242
```
3. Enter the command `stmconfig --identify <MAC>`, where <MAC> should be replaced with the ST Micro Connect 2 MAC address printed on the side of your ST Micro Connect 2, for example:

```
stmconfig --identify 00:80:e1:42:06:71
Ethernet: [192.168.1.1]; USB: [192.168.2.1];
```

The ST Micro Connect 2 is now available to this host.

Note: *Step 3. must be repeated if the ST Micro Connect 2 is reset or power cycled.*

Appendix F Compliance statement

The ST Micro Connect 2 equipment has been designed and tested to meet the requirements of the 89/336/EEC EMC directive, and complies with ITE EN55022 Class B standards for radiated and conducted emissions, and ITE EN55024 immunity standards, when tested under the conditions and requirements detailed in [Section F.1](#).

F.1 Conditions and requirements for CE compliance

This product respects the EMC requirements of the European guideline 89/336/ EEC under the following conditions.

F.1.1 Anti-static precautions

Observe the following precautions for handling Electrostatic Sensitive Devices. Failure to observe these precautions may result in an interruption of operation, loss of data, or damage to the product:

1. Any tester, equipment, or tool used at any production step, or for any manipulation of semiconductor devices, or any product containing semiconductor devices, must have its shield connected to GROUND.
2. The product should be placed on a work table covered by an antistatic surface (with superficial resistivity equal to or higher than 0.5MOhm/cm^2). The work table surface should be properly earthed.
3. The work table must be free of all non-antistatic objects.
4. It is recommended that the operator wear an antistatic wrist strap, connected to the grounded work table surface.

F.1.2 EMC radiated emissions test conditions

To fully comply with the 89/336/EEC EMC directive ITE EN55022 Class B standards for radiated emissions, the following conditions of operation must be observed:

1. The ST Micro Connect 2 must be powered using the supplied power supply with pre-fitted EMC ferrite.
2. Because of the highly configurable and flexible nature of the ST Micro Connect 2 product, any change in mode of operation outside of that provided as part of the ST Micro Connect 2 product hardware and software support packages, may result in a condition where the product fails to comply with ITE EN55022 Class B standards for radiated emissions. Users of the ST Micro Connect 2 hardware who operate the product in such a mode, should consider the product as part of their own system and EMC test it as such.

F.2 Warnings and safety critical information

In a residential environment, this product may cause radio-electrical disturbances.

Use of this product in, or with, life support devices or systems must be expressly authorized. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without the express written approval of STMicroelectronics, as defined herein:

1. Life support devices or systems are those which (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided with the product, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can reasonably be expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

F.3 Disposal of this equipment at end-of-life

F.3.1 Countries in the European Union (EU)

The components, materials, and manufacturing processes used in the production of this equipment are compliant with EU RoHS and WEEE legislation. As such, this equipment should not be disposed of as general or household waste at its end-of life. Instead, the product should be returned to STMicroelectronics for proper treatment, recovery and recycling in accordance with your national legislation.

F.3.2 Countries outside the European Union (EU)

Customers wishing to dispose of this product should do so in accordance with any national legislation which is applicable to the recycling and treatment of end-of-life electrical and electronic equipment.

Appendix G Ordering information

The ST Micro Connect 2 products include an SCSI-V cable to connect to development boards that have an on-board LVDS Type F, Type G or Type K debug connector. The products are differentiated by the STMC I/O convertor supplied, see [Table 13](#). It is important that you identify which type of debug connector is on your target development board. For STMicroelectronics development boards this information can be found in the board datasheet.

Note: *Although most development boards populated by ST20, ST40 and ST200 based SoCs use either an on-board LVDS connection or a TTL IDC 20-way JTAG connector, this is **not** always the case. In addition STxP70 cores can be found on development boards using different debug connector type.*

Table 13. Ordering information

Order number	Description	STMC I/O convertor supplied	Target debug connector
STMC2-40/200	ST Micro Connect 2 host-target interface. Includes SCSI-V cable for direct connection to target board's LVDS debug connection.	Type A	TTL IDC 20-way JTAG
STMC2-JTAG		Type C	ARM standard 20-way JTAG
STMC2-TYPEH		Type H ⁽¹⁾	MIPI-34 JTAG and STM

1. This convertor is also available separately, the order code is TYPEH-IO.

Appendix H Glossary

DHCP	Dynamic host configuration protocol
LVDS	Low-voltage differential signalling
STMC	ST Micro Connect family of host-target interfaces
STMC1	ST Micro Connect 1
STMC2	ST Micro Connect 2
STMCLite	ST Micro Connect Lite
TAP	Test access port
TAPMux	A protocol for multiplexing and demultiplexing JTAG standard TAP signals.
VHDCI	Very high density cable interconnect

Acknowledgements

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The ST200 series cores are based on technology jointly developed by Hewlett-Packard Laboratories and STMicroelectronics.

ST Micro Connect 2 runs a Linux kernel. The Linux sources can be obtained either on CD from STMicroelectronics by emailing st40.support@st.com or through the <http://www.stlinux.com/> website.

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Revision history

Table 14. Document revision history

Date	Revision	Changes
06-Dec-2011	12	Revised to support the ST Micro Connection Package 2011.2. Added STMC2-TYPEH. Removed references to Windows 2000 and Windows Vista. Added Table 1: Connection types on page 7 to Chapter 1: Introduction. Updated list of documents provided in Section 1.1: ST Micro Connection Package on page 8. Moved Section 1.1.2: Software installation on page 9 to be before Section 1.1.3: Environment variables on page 9. Reworded Chapter 2: LCD interface on page 13. Reworded introduction to Chapter 3: USB connection on page 15, note in Section 3.1: Default USB IP address on page 15 and Section 3.2: Configure ST Micro Connect 2 USB IP address on page 15. Reworded note in Section 4.1: Default Ethernet IP address on page 18. Updated description of <code>--version</code> option in Table 2: stmccconfig options on page 21 and in Section 5.17: Display version information (--version) on page 30. Updated Section 6.1: Connection for EPLD programming on page 31. Moved Section 6.1.1: Type A ISP 10-way IDC connector on page 33 from Appendix B: Target interface. Added STMC_Type_K to <code>--convertor</code> option Table 5: epldprog options on page 34. Updated Section A.5: VHDCI LVDS host interface on page 39 and removed pinout table that is now in the <i>ST system-on-chip (SoC) debug interfaces technical note</i> (8339250). Removed Section A.7: Cables as this information is in the printed <i>Package contents</i>. Removed information from Appendix B: Target interface on page 40 that is now in the <i>ST system-on-chip (SoC) debug interfaces technical note</i> (8339250). Added Type K information to Appendix B: Target interface on page 40. Reworded Section B.1: Connection to ST's validation boards on page 40. Reworded Section B.2: Connection using an STMC I/O convertor on page 41 to be generic, previously Type A specific. Updated the order codes in Appendix G: Ordering information on page 51.

Table 14. Document revision history

Date	Revision	Changes
05-Oct-2010	K	Additional modifications to support ST Micro Connect 2 R1.6. (Minor rewording not listed). Added Windows Vista and Windows 7 hosts throughout. Updated Locale on page 9. Updated Section 1.5: Terminology on page 12. Updated Section 2.2: Configuration menu on page 14. Updated Chapter 3: USB connection on page 15 throughout. Updated Chapter 4: Ethernet connection on page 18 through to Section 4.2: Configuring ST Micro Connect 2 with DHCP network configuration on page 19 inclusive. Added Section D.4: Possible network conflicts on page 45 through to Section D.5.1: Example on page 47 inclusive. Updated Figure 12: DC 5 V power connector on page 39.
11-Aug-2010	J	Revised to support ST Micro Connect 2 R1.6. Updated Section 1.2: System interface on page 11. Added character/line mode details to Section 5.14.2: Telnet connections to the serial relay on page 28. Updated Section 6.1: Connection for EPLD programming on page 31. Updated Figure 7 on page 36. Updated throughout to clarify product differentiation. Added Type C signal information to Table 11 (removed in revision 12) and clarified that the table describes the host side of the connection. Added signal direction to Table 4 on page 33 for the Altera compatible 10-way header on the Type A STMC I/O convertor. Updated Section B.3: Connection using the STMC I/O convertor Type C and added signal direction to Table 12. (Removed in revision 12.) Updated Appendix G: Ordering information on page 51. Updated throughout details of supported hosts.
06-Nov-2009	I	Revised to support ST Micro Connect 2 R1.5. Added the option <code>--gateway</code> to Table 2: stmconfig options on page 21 and Section 5.9: Specifying a gateway address (--gateway) on page 26. Removed the option <code>--route</code> and all references to it. Replaced previous Section 5.14.2 with new Section 5.14.2: Telnet connections to the serial relay on page 28. Updated the title of Chapter 6: Programming a development board EPLD on page 31. Updated connector diagrams throughout. Standardized pin names.

Table 14. Document revision history

Date	Revision	Changes
04-Jun-2009	H	Revised to support ST Micro Connect 2 R1.4. Added warning to Section 5.3: Upgrade firmware in Flash (--firmware-upgrade) on page 23. Simplified example in Section 5.5: Display stmconfig help (--help) on page 23. Updated the description of the <code>stmconfig --route</code> option in Section 5.13: Configure ST Micro Connect 2 routing table and corrected the example (removed section in revision I). Updated Section 5.14.2: Telnet connections to the serial relay on page 28; details for kermit. Edited pin names to make them upper-case throughout Appendix A: Connectors on page 36 and Appendix B: Target interface on page 40. Corrected use of order codes throughout.
22-Oct -2008	G	Updated front cover Features and Description. Updated Chapter 1: Introduction on page 6 and Figure 1 to introduce Type F and Type G connectors. Added Section 1.1: ST Micro Connection Package on page 8 and Section 1.2: System interface on page 11. Updated Chapter 3: USB connection on page 15 throughout. Updated Section 5.14.1: Serial configuration, Table 3 on page 28 to add defaults. Added Chapter 6: Programming a development board EPLD on page 31. Updated the following sections to add convertor information: Section A.5: VHDCI LVDS host interface on page 39 Section B.1: Connection to ST's validation boards on page 40 Section B.2: Connection using an STMC I/O convertor on page 41 Added Section B.1.1: Connection to a Type F or Type G on-board convertor (removed in revision 12).
May 2008	F	Revised to support ST Micro Connect 2 R1.2. Updated Section 4.2: Configuring ST Micro Connect 2 with DHCP network configuration on page 19 to add note. Revised throughout to describe the use of a terminal emulator program rather than Telnet. In particular updated Section 5.14: Configure serial redirect (--serial-relay) and Section A.4: RS-232 serial data connector on page 38. Updated Appendix G: Ordering information on page 51.
Oct 2007	E	Minor change to the diagram and a note added to Chapter 1: Introduction. Updated Appendix B: Target interface. Updated Acknowledgements.
Jun 2007	D	Updated Appendix G: Ordering information

Table 14. Document revision history

Date	Revision	Changes
Feb 2007	C	Revised to support the ST Micro Connect 2 R1.0.1. Inserted Section 1.5: Terminology on page 12 and updated Appendix H: Glossary on page 52 to explain the naming conventions for the ST Micro Connect family of products. Revised list of supported hosts in Chapter 3: USB connection on page 15. Revised Section 5.7: Identify all ST Micro Connect 2s on a network (--identify-all) on page 24 to add details and examples of the * indicator. Revised the example in Section 5.17: Display version information (--version) on page 30. Revised Table 11: 68-pin VHDCI host connector (high density, SCSI-V female port) (removed in revision 12). Revised Appendix B: Target interface on page 40. Added Appendix G: Ordering information on page 51.
Nov 2006	B	Revised to reflect the ST Micro Connect 2 R0.5.0 that includes an LCD interface and UNIX support. All existing chapters updated and the following added: Chapter 2: LCD interface on page 13. Appendix D: Choosing an IP address on page 44. Appendix E: Ethernet connection using the default IP address on page 48. Appendix F: Compliance statement on page 49.
May 2006	A	First revision to support the ST Micro Connect 2 R0.3.0.

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