NVIDIA QUADRO SDI CAPTURE CARD

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Installation Guide

DOCUMENT CHANGE HISTORY

DI-04778-001_v01

Version	Date	Authors	Description of Change
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INTRODUCTION

ABOUT QUADRO SDI CAPTURE CARD

Serial Digital Interface (SDI) is a digital, uncompressed high quality video format used to transport video in film, video post production and broadcast environment. The NVIDIA Quadro® SDI Capture Card was designed to capture uncompressed 8-bit, 10-bit and 12-bit video formats directly to the graphics processing unit's (GPU) memory.

Quadro SDI Capture Card

ABOUT THIS DOCUMENT

This installation guide explains the functionality of the operating conditions required for the physical hardware and how-to-diagnose if the system is setup to capture to NVIDIA® Quadro® FX 3800, Quadro FX 4800 and Quadro FX 5800 graphics cards.

OTHER DOCUMENTATION

For details on using the SDK, refer to the *NVIDIA Quadro FX SDI Programmer's Guide.*

SYSTEM REQUIREMENTS

- Supported operating systems
  - Windows XP 32 and 64
  - Linux 32 and 64
- Required NVIDIA hardware
  - If you only intend to use NVIDIA Capture:
    NVIDIA Quadro SDI capture card and supported graphics cards
    - Quadro FX 3800
    - Quadro FX 4800
    - Quadro FX 5800
  - If you want to have a complete input and output solution to NVIDIA GPU:
    NVIDIA Quadro SDI capture card and supported graphics cards
    - Quadro FX 3800 SDI
    - Quadro FX 4800 SDI
    - Quadro FX 5800 SDI
- PCI Express motherboard with 1 PCIe ×16 or PCIe ×8 slot available. For optimal results, install both the GPU and the Quadro SDI capture card. They should both go into slots on the same side of the North Bridge or South Bridge. In system with multiple chipsets, the GPU and SDI capture card should be installed into slots on the same chipset.
- NVIDIA professional graphics driver
  - For Windows: version 191.53 or later (also requires separate WDM driver)
  - For Linux: version 190.38 or later

FUNCTIONALITY

This chapter provides and overview of the Quadro SDI capture card and it's functionality. This chapter includes the following sections:

- **Feature Overview:** This section lists the hardware and supported formats.
- **Installing and Preparing Your Quadro Capture Card:** This section describes how to install the Quadro Capture Card and ensure it's properly installed.
- **Operating Your Quadro Capture Card:** This section provides an overview of capture.

FEATURE OVERVIEW

Input and Output Connections

- 4 BNCs labeled 1, 2, 3, 4 can be used to capture various formats including:
  - 4 single-link SD, HD-SDI inputs
  - 2 dual-link SD, HD-SDI inputs
  - 2 3G SDI single-link inputs (Level A or Level B)
  - 1 3G SDI dual-link input (Level A or Level B)

Note: All inputs must be the same format and Genlocked.

- 1 BNC labeled 'S' is a Monitor Output of input 1

Supported SDI Signal Formats

- 480i at 59.94 Hz (SMPTE259) NTSC
- 576i at 50.00 Hz (SMPTE260) PAL
- 25.00 Hz, 29.97 Hz, 30.00 Hz and 50.00 Hz
- 720p at 59.94 Hz, 60.00 Hz (SMPTE296)
- 1035i at 59.94 Hz, 60.00 Hz (SMPTE260)
- 1080i at 50.00 Hz, 59.94 Hz, 60.00 Hz (SMPTE274)
- 1080PsF at 24.00 Hz, 23.976 Hz
- 1080PsF at 25.00 Hz, 29.97 Hz, 30 Hz (SMPTE274)
- 1080p at 23.976 Hz, 24.00 Hz, 25.00 Hz, 29.97 Hz, 30.00 Hz (SMPTE274)
- 2048 × 1080p at 23.976 Hz, 24.00 Hz, 25.00 Hz, 29.97 Hz, 30.00 Hz, 47.96 Hz, 48 Hz, 60 Hz (SMPTE272)
- 1080p at 50.00 Hz, 59.64 Hz, 60.00 Hz (SMPTE 424M)

Supported SDI Color Formats

- RGB 4:4:4
- YCrCb 4:2:2 or 4:4:4
- 2× YCrCb 4:2:2 + 4:2:2
- YCrCbA 4:2:2:4
- RGBA 4:4:4:4

Supported Capture Modes

- Application-controlled using NVIDIA SDI APIs

INSTALLING AND PREPARING YOUR QUADRO CAPTURE CARD

Installing the Quadro Capture Card

1. Power down the system and open the chassis cover.
2. Insert the capture card into the x16 or ×8 PCI Express slot.
3. Secure the card's bracket using the bracket screw(s) to the system chassis.

Download the NVIDIA Driver

To get access to the NVIDIA graphics driver , visit the NVIDIA Web site at www.nvidia.com and download the latest Quadro SDI drivers.

Installing the NVIDIA Graphics Driver on Windows

If you will be installing new drivers for the Quadro FX SDI card, it is highly recommended that you uninstall any previous version of NVIDIA's driver software before installing updated graphics drivers.

Follow the instructions on the nvidia.com Web site driver download page to locate the appropriate driver to download, based on your hardware and operating system.

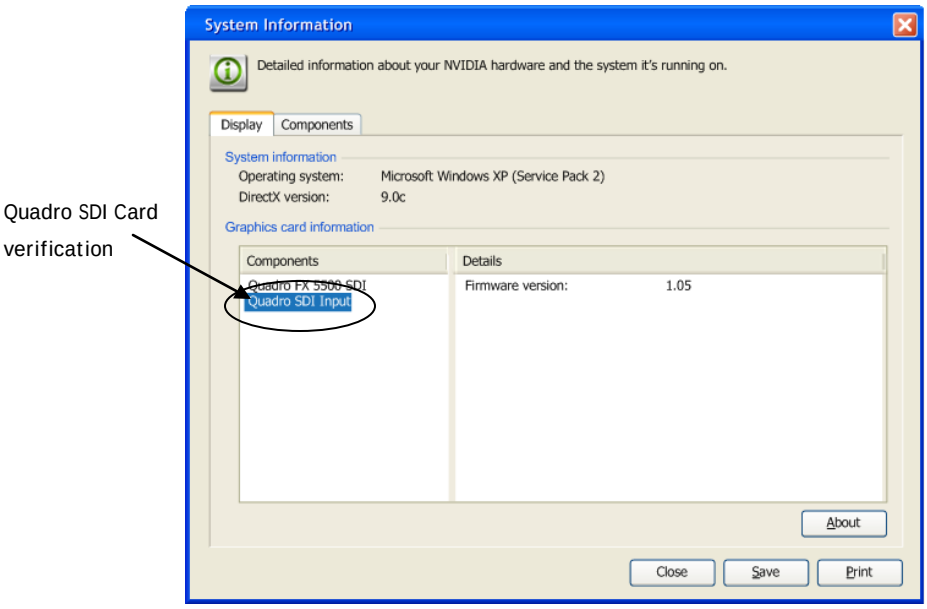
1. Click the driver download link.
2. Click Accept on the license agreement window to accept the terms.
3. Open EXE file. This launches the Install Shield Wizard.
4. Follow the instructions in the Install Shield Wizard to complete the installation.

Installing the NVIDIA Quadro SDI Capture WDM Driver

On Windows systems, the NVIDIA Quadro SDI Capture Card requires the installation of an additional WDM driver. This driver is available from the NVIDIA Web site (www.nvidia.com). After downloading the driver double click on setup.exe to launch the Install Shield Wizard.

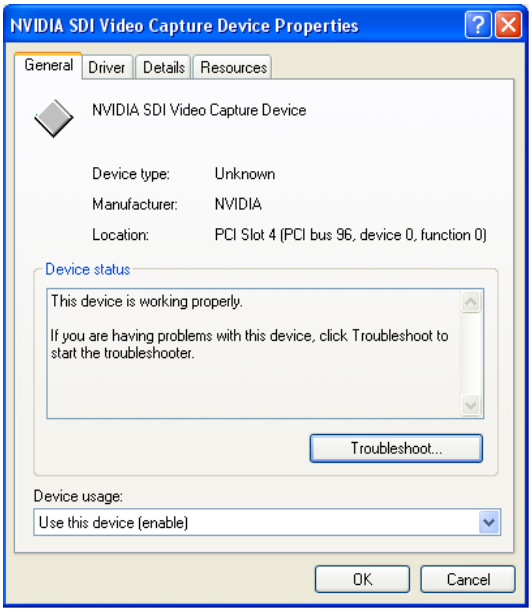
Verifying Graphics Driver Installation

Go to **Control Panel>Help>System Information** and verify that the driver sees the Quadro SDI input card.



Verifying WDM Driver Installation

1. Go to **Control Panel>System>Hardware>Device Manager** and verify that the driver sees the Quadro SDI input card.
2. Select NVIDIA SDI Video Capture Device under Unkown.
3. Double click to bring up the Device Properties. Under Device status, ensure that it states "This device is working properly."

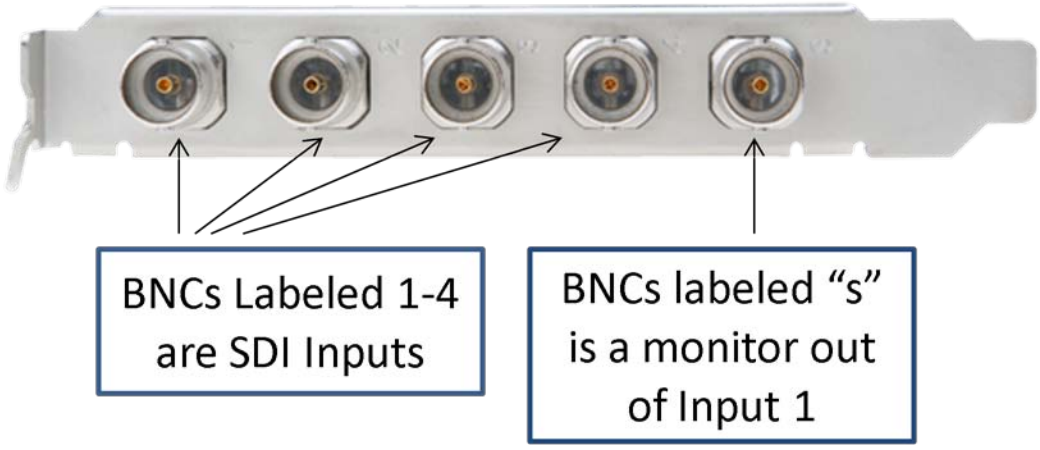


Installing the NVIDIA Graphics Driver on Linux

1. Download the x86 or x86_64.run file from the Quadro SDI Early Access site.
2. At the console, in run mode 3 execute the .run file.

OPERATING QUADRO CAPTURE CARD

Understanding the Connections



Understanding LED Status Signals

During system boot the LEDs will remain on for 10 to 15 seconds during board diagnostic testing.

LED Status Signals

- No LED: no SDI signal is detected
- Steady LED: Quadro SDI capture card can cannot detect valid SDI signal
- Flashing LED: Quadro SDI capture card detects SDI signal

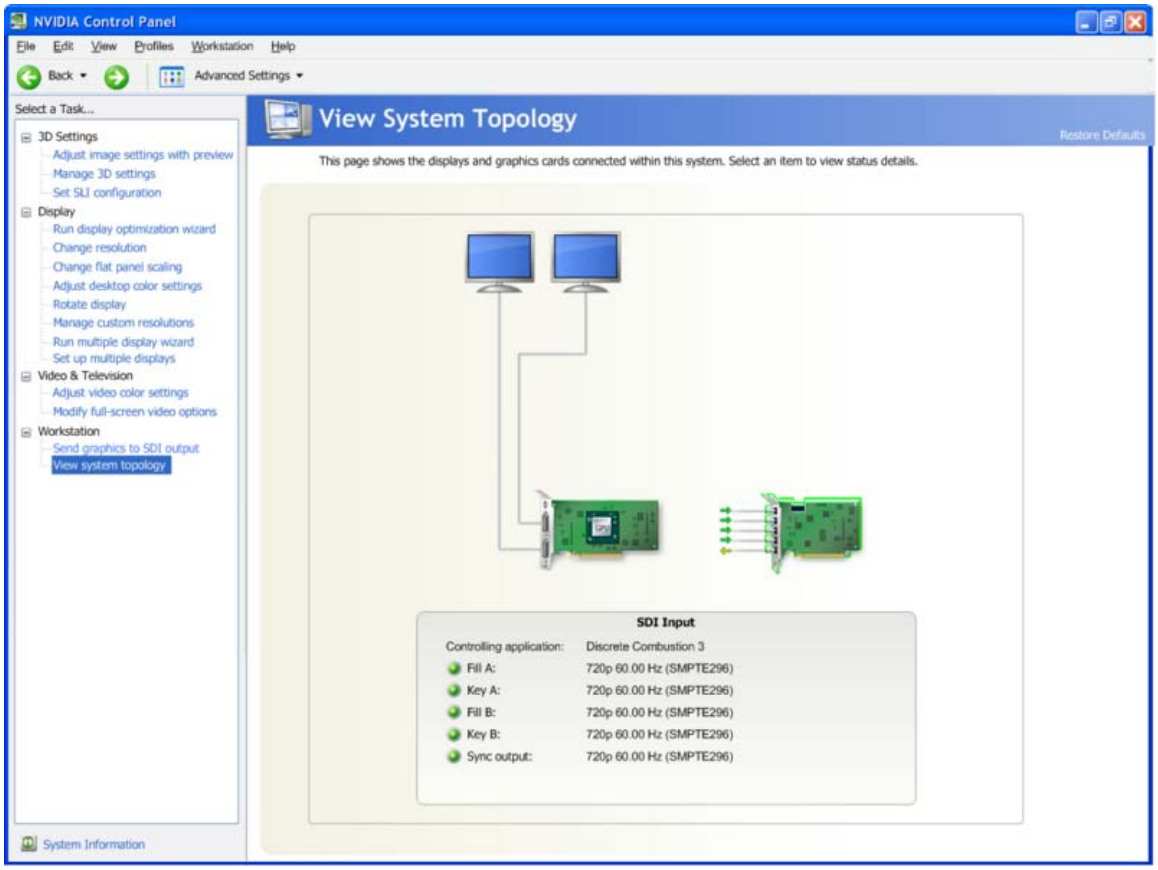
Viewing the SDI Connection Status Using Topology Viewer

For Workstation systems, a graphical topological view of the system is available to let you quickly check the status of your particular environment. The View System Topology page provides SDI status information for each display, graphics card and Quadro SDI accessory cards.

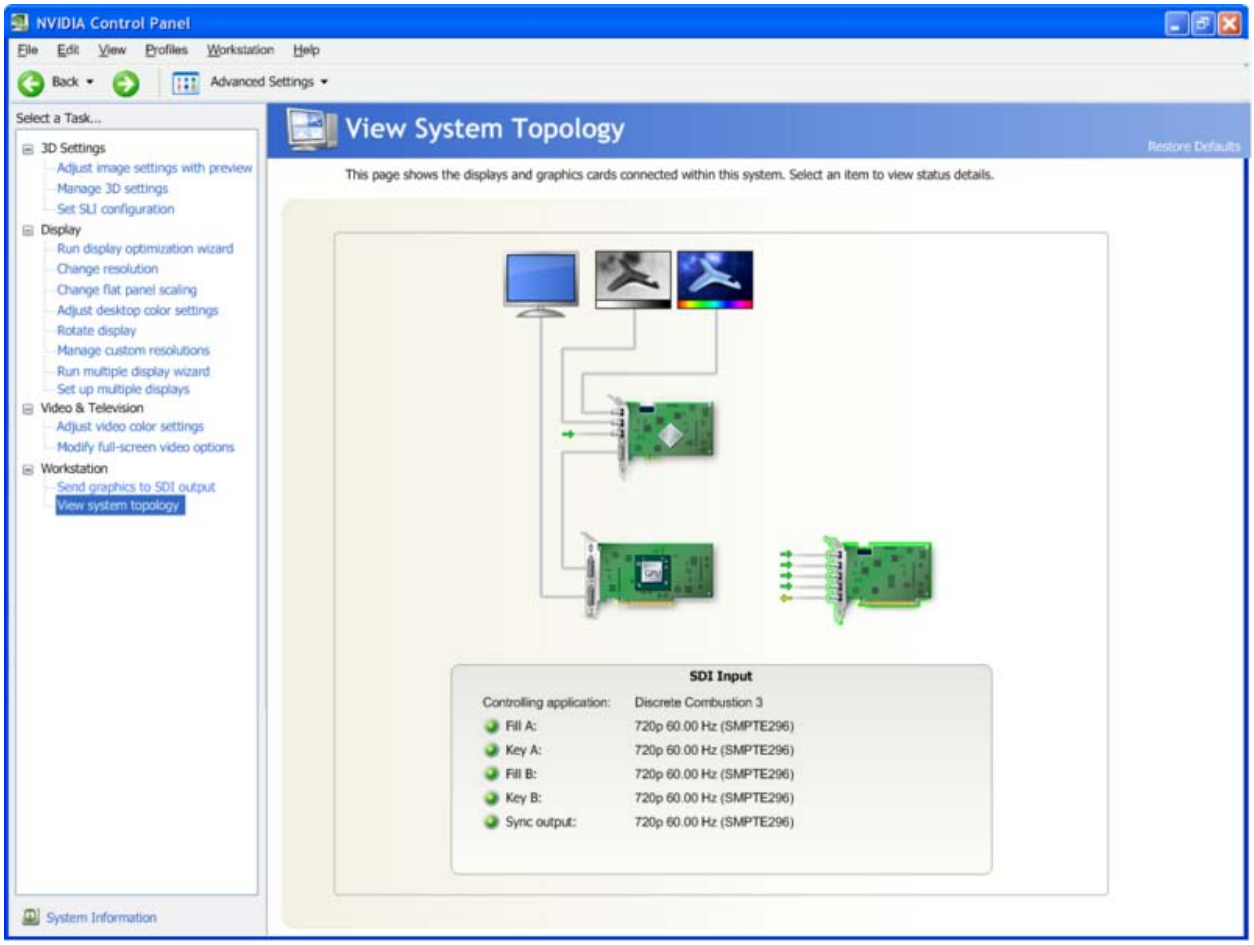
To View the System Topology of Your Setup

1. Select a **task** pane under Workstation from the NVIDIA Control Panel.
2. Click **View System Topology**.
3. Click any of the icons to view connection and signal status details.

Quadro SDI Capture to Quadro FX Graphics Card



Quadro SDI Capture to Quadro FX SDI



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