ENGLISH

Matrox™ **Mura™ IPX Series**, **Mura™ MPX Series**, **C-Series**

MURA-IPX-O4DF
MURA-IPX-I4EF • MURA-IPX-I4EHF • MURA-IPX-I4DF • MURA-IPX-I4DHF
MPX-4/4 • MPX-4/2 • MPX-4/0
MPX-V16 • MPX-V8
MPX-SDI
C900 • C680

User Guide

20129-301-0510
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www.matrox.com/graphics

matrox®
Graphics for Professionals

Contents

Matrox safety information

To ensure safe and reliable operation of your Matrox product, to avoid personal injury, and to prevent damage to your computer or Matrox hardware, read the following guidelines.

Installation and operation

- Read and retain all instructions. Only use your Matrox product according to the instructions, operating ranges, and guidelines provided in the Matrox user guide and other related Matrox documentation. Failure to follow these instructions could result in damage to your product or injury to the user or installer.
- Don't expose your Matrox product to rain, water, condensation, or moisture.
- Your Matrox product (card or unit) can become hot while operating. Always turn off your computer, unplug it, then wait for it to cool before touching any of the internal parts of your computer or installing your Matrox card. Allow hot surfaces to cool before touching your Matrox unit.

- Static electricity can severely damage electronic parts. Before touching any electronic parts, drain static electricity from your body (for example, by touching the metal frame of your computer).
- When handling a card, carefully hold it by its edges and avoid touching its circuitry.
- Don't stack devices or place devices so close together that they're subject to recirculated or preheated air.
- Don't operate your system or Matrox product near a heat source or restrict airflow to your system, and make sure the ambient temperature doesn't exceed the maximum recommended temperatures. Don't block ventilation holes on your unit or system.

If a power supply (internal or external) was included with your product

- Don't place the external power supply directly on top of the device.
- Only use power supplies originally supplied with the product or use a replacement that's approved by Matrox. Don't use the power supply if it appears to be defective or has a damaged chassis.

- Don't defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug doesn't fit into your outlet, consult an electrician to replace the obsolete outlet.
- Make sure that nothing rests on the power cables and that the cables aren't located where they can be stepped on, pinched, or tripped over.
- Don't use damaged power cables.
- Unplug your system or device during lightning storms or if unused for long periods of time.

If your product includes laser-based technology

- The device contains a Class 1 laser product for use only under the recommended operating conditions and guidelines. For more information, see your Matrox user guide.
- Invisible laser radiation may be emitted from disconnected fibers or connectors. Don't stare into beams or view directly with optical instruments.
- Only use optical transceivers originally supplied with the product or use a replacement that's approved by Matrox.
- For more information on laser support and compliance, see your Matrox user guide.

If your product includes a battery

- The battery is non replaceable.
- To dispose of your product, see www.matrox.com/environment/weee.

Repair

- Don't attempt to open or repair a power supply unit (if one was supplied).
- Don't attempt to open or repair your Matrox product.
- If there's a fault with your Matrox product, review your Matrox warranty for more information.

Before you begin

To avoid personal injury and to prevent damage to your system or Matrox hardware, read the following guidelines before installing your Matrox hardware.

Using a validated platform

- For detailed information on how to install your Matrox Mura card in a validated systems, see the Matrox System Builder's Guide (www.matrox.com/mura/support).
- For information on validated systems, motherboards, and chassis models, contact your Matrox representative or see the Matrox web site (www.matrox.com/graphics).

Preventing damage to your hardware

When installing your hardware

- Always turn off your system, unplug it, then wait for it to cool before touching any of the internal parts of your system or installing your Matrox product.
- While your system is turned off but still plugged in, some electrical current is supplied to the motherboard. This current may prevent newly installed hardware from working properly.
- Static electricity can severely damage electronic parts. Before touching any electronic parts, drain static electricity from your body (for example, by touching the metal frame of your system).
- When handling a card, carefully hold it by its edges and avoid touching its circuitry.
- Always try to insert or remove your card as straight as possible.

When connecting your hardware

- Whenever you change your connection setup, make sure you're using the correct connectors and that all connectors are properly fastened.
- Don't change connections while your system is turned on. Before changing connections, make sure your system is shut down and turned off.
- Whenever you restart your system, make sure your monitors are already turned on. Otherwise, the software may not be able to properly detect your monitors.
- When connecting devices, make sure the connectors are properly fastened.

Getting started

Thank you for purchasing a Matrox Display Wall product. You can use Matrox Mura IPX, Mura MPX Series, and C-Series cards as standalone solutions, combined with eath other, or with third-party* hardware to extend the capabilities of your Matrox-based display wall controller.

Hardware supplied†

Mura IPX Series –

- **MURA-IPX-O4DF** – Mura IPX card, 2 ribbon cables‡ (for framelock).
- **MURA-IPX-I4DF and MURA-IPX-I4DHF** – Mura IPX card, 2 ribbon cables‡ (for framelock).
- **MURA-IPX-I4EF and MURA-IPX-I4EHF** – Mura IPX card, 2 ribbon cables‡ (for framelock).

Matrox C-Series –

- **C900** – C-Series graphics card.
- **C680** – C-Series graphics card.

Mura MPX Series –

- **Mura MPX-4/4** – Mura MPX card, 2 KX20 to quad-DVI cables, 8 DVI to HD-15 adapters, 2 ribbon cables (for framelock), washer.
- **Mura MPX-4/2** – Mura MPX card, 1 KX20 to quad-DVI cable, 1 KX20 to dual-DVI cable, 6 DVI to HD-15 adapters, 2 ribbon cables (for framelock), washer.
- **Mura MPX-4/0** – Mura MPX card, 1 KX20 to quad-DVI cable, 4 DVI to HD-15 adapters, 2 ribbon cables (for framelock), washer.
- **Mura MPX-SDI** – Mura MPX card, 1 KX20 to dual-DVI cable, 2 DVI to HD-15 adapters, 2 DIN to BNC adapters, 2 ribbon cables (for framelock), washer.
- **Mura MPX-V16** – Mura MPX card, 2 DVI to BNC adapters, 1 ribbon cable (for framelock), washer.
- **Mura MPX-V8** – Mura MPX card, 1 DVI to BNC adapter, 1 ribbon cable (for framelock), washer.

* For more information on supported third-party graphics cards, see the release notes. For information on how to configure your system, see "Matrox System Builder's Guide."

† The hardware supplied with your Matrox product may vary depending on the SKU or part number of your product. For more information, contact your Matrox representative.

‡ Matrox Mura IPX Series – The ribbon cables (for framelock) are currently unsupported.

Optional hardware (sold separately)

Depending on your connection setup, you may need additional hardware. For more information, see the "Connection setup" section for your Matrox product.

Software supplied

- Windows® driver package – Matrox provides a 64-bit version of the driver to use your Matrox display wall products.
- Linux® package – Matrox supports various distibutions for your Matrox display wall products. For more information, see the *Readme* file included with the Matrox package for Linux.
- SDKs and APIs – Matrox offers a range of software, API, and libraries to configure your display wall and to create your own custom interfaces and applications.

For more information on the software available for your Matrox product, see "Software overview", page 46.

More information

We provide additional information in help and *Readme* files. Be sure to check for any last-minute release notes included with your product. Also, check the Matrox web site (www.matrox.com/graphics) for the latest Matrox software, technical support, and product information.

Overview

Supported product combinations

	Mura IPX Series*	Mura MPX Series	MURA-IPX-O4DF	C900	C680	Third-party hardware†
MURA-IPX-O4DF	—	—	—	—	—	—
Mura IPX Series*	✓	✓	—	✓	✓	✓
Mura MPX Series	✓	✓	—	—	—	—
Matrox C-Series (C900 or C680)	✓	—	—	✓	✓	—

* Excluding MURA-IPX-O4DF.

† For more information on supported third-party graphics cards, see the release notes. For information on how to configure your system, see "Matrox System Builder's Guide."

Supported product capabilities

	MURA-IPX-O4DF	Mura IPX Series* and C-Series (or third-party hardware†)	Mura MPX Series and/or Mura IPX Series*
Supported operating system	—‡	▪ Windows® 10 ▪ Windows® Server® 2012 R2 ▪ Windows® Server® 2008 R2 ▪ Windows® 7 ▪ Windows® Embedded Standard 7 ▪ Linux®	▪ Windows® Embedded Standard 7 (64-bit) ▪ Windows® 7 Professional (64-bit) ▪ Windows® 7 Professional for Embedded Systems (64-bit) ▪ Windows® Server® 2008 R2 (64-bit)
Maximum number of output cards per controller	1§	▪ 2× C900 or C680 ▪ Third-party hardware	14
Maximum number of outputs per controller	4	6 to 18	2 to 56

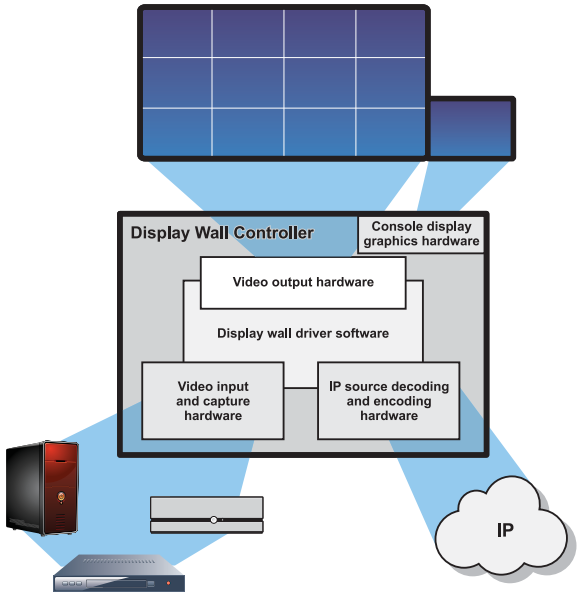
* Excluding MURA-IPX-O4DF.

† For more information on supported third-party graphics cards, see the release notes. For information on how to configure your system, see "Matrox System Builder's Guide."

‡ MURA-IPX-O4DF is a standalone controller that doesn't require an operating system.

§ You can install multiple MURA-IPX-O4DF products in the same system.

Components of a display wall setup



Supported output types

	MURA-IPX-O4DF	Mura IPX Series and C-Series (or third-party hardware*)	Mura MPX Series and/or Mura IPX Series
DisplayPort	MURA-IPX-O4DF	▪ C680 ▪ Third-party hardware	—
HDMI	—	▪ C900 ▪ Third-party hardware	—
DVI	—	▪ C900 ▪ Third-party hardware	▪ Mura MPX-4/4 ▪ Mura MPX-4/2 ▪ Mura MPX-4/0 ▪ Mura MPX-SDI
HD-15	—	—	▪ Mura MPX-4/4 ▪ Mura MPX-4/2 ▪ Mura MPX-4/0 ▪ Mura MPX-SDI

* For more information on supported third-party graphics cards, see the release notes. For information on how to configure your system, see “Matrox System Builder’s Guide.”

Supported input types

	MURA-IPX-O4DF	Mura IPX Series* and C-Series (or third-party hardware†)	Mura MPX Series and/or Mura IPX Series
IP source	MURA-IPX-O4DF	▪ MURA-IPX-I4EF ▪ MURA-IPX-I4EHF ▪ MURA-IPX-I4DF ▪ MURA-IPX-I4DHF	▪ MURA-IPX-I4EF ▪ MURA-IPX-I4EHF ▪ MURA-IPX-I4DF ▪ MURA-IPX-I4DHF
HDMI	—	▪ MURA-IPX-I4EF ▪ MURA-IPX-I4EHF ▪ MURA-IPX-I4DF ▪ MURA-IPX-I4DHF	▪ MURA-IPX-I4EF ▪ MURA-IPX-I4EHF ▪ MURA-IPX-I4DF ▪ MURA-IPX-I4DHF
DVI	—	▪ MURA-IPX-I4EF ▪ MURA-IPX-I4EHF ▪ MURA-IPX-I4DF ▪ MURA-IPX-I4DHF	▪ MURA-IPX-I4EF ▪ MURA-IPX-I4EHF ▪ MURA-IPX-I4DF ▪ MURA-IPX-I4DHF ▪ Mura MPX-4/4 ▪ Mura MPX-4/2
HD-15	—	—	▪ Mura MPX-4/4 ▪ Mura MPX-4/2
S-video	—	—	▪ Mura MPX-4/4 ▪ Mura MPX-4/2 ▪ Mura MPX-V16 ▪ Mura MPX-V8
Composite video (RCA or BNC)	—	—	▪ Mura MPX-SDI ▪ Mura MPX-V16 ▪ Mura MPX-V8
Component video	—	—	▪ Mura MPX-4/4 ▪ Mura MPX-4/2

* Using the fanless versions of Mura IPX Series cards requires a validated system. For more information, see “Matrox System Builder’s Guide.”

† For more information on supported third-party graphics cards, see the release notes. For information on how to configure your system, see “Matrox System Builder’s Guide.”

Setting up a display wall

The following outlines the steps for installing, connecting, and setting up your Matrox card.

Setup overview

MURA-IPX-04DF

1. Install your Matrox cards – see page 22.
2. Connect your cards – see page 41.
3. Update the software on your cards – see page 49.
4. Configure your display wall. You can use the following:
   - Matrox Network API – see page 50.
   - MuraControl for Windows – see page 52.

Mura IPX Series

1. Install your Matrox cards – see page 22.
2. Connect your cards – see page 42.
3. Install your Matrox software – see page 48.
4. Configure your display wall. You can use the following:
   - Matrox Network API – see page 50.
   - Matrox PowerDesk – see page 50.
   - MuraControl for Windows – see page 52.

Using third-party graphics hardware* with Mura IPX Series

1. Install your Matrox cards – see page 22.
2. Connect your cards –
   - Third-party hardware. For more information, see the documentation for your graphics hardware.

* For more information on supported third-party graphics cards, see the release notes. For information on how to configure your system, see “Matrox System Builder’s Guide.”

- Mura IPX Series* cards – see page 42.

3. Install the driver for your third-party hardware. For more information, see the documentation for your graphics hardware.
4. Install the Matrox software for your Mura IPX Series cards – see page 48.
5. Set up your multi-display layout. For more information, see the documentation for your graphics hardware.
6. Configure your display wall. You can use the following:
   - Matrox Network API – see page 50.
   - MuraControl for Windows – see page 52.

Mura MPX Series

1. Install your Matrox cards – see page 22.
2. Connect your cards – see page 33.
3. Install your Matrox software – see page 48.
4. Configure your display wall. You can use the following:
   - Matrox Network API – see page 50.
   - Matrox PowerDesk – see page 50.
   - MuraControl for Windows – see page 52.

C900 or C680

1. Install your Matrox cards – see page 22.
2. Connect your cards – see page 42.
3. Install your Matrox software – see page 48.
4. Configure your display wall. You can use the following:
   - Matrox Network API – see page 50.
   - Matrox PowerDesk – see page 50.
   - MuraControl for Windows – see page 52.

Determining the order of your input connectors

Mura IPX Series* and Mura MPX Series† products have input connectors. To determine how these inputs are numbered, use the following guidelines:

- Cards are ordered in groups based on their order on the PCI bus. These groups are:
  1. Mura MPX-4/4, MPX-4/2, and MPX-SDI.

     You can specify the order of the cards in this group through DIP switches. For more information, see "Setting your card order", page 18.
  2. Mura MPX-V16 and MPX-V8.
  3. MURA-IPX-I4EF, MURA-IPX-I4EHF, MURA-IPX-I4DF, and MURA-IPX-I4DHF.
- Inputs are then ordered according to the order of the connectors on the card.

* Except MURA-IPX-O4DF.

† Except Mura MPX-4/0.

Planning your output layout

This section describes the steps to consider if you're setting up a Mura-based display wall for the first time. We recommend you review these steps ***before*** setting up your display wall.

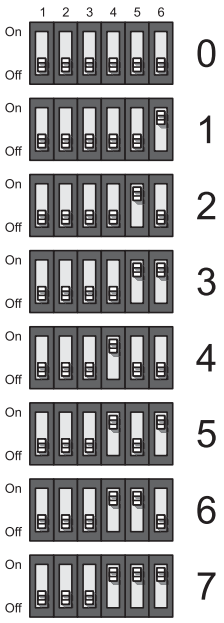
Mura MPX Series

Setting your card order

Mura MPX-4/4, MPX-4/2, MPX-4/0, MPX-SDI only – The DIP switches on your Mura MPX Series output cards are used to control the order in which the GPUs of your cards are used. Setting the DIP switches is useful if you're setting up a large display wall layout that uses multiple cards, because it enables PowerDesk software to properly lay out the outputs of your display wall and avoids you having to manually set up your multi-display layout.

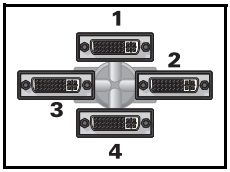
For example, setting the first card to **0** means that card will be the first one used, and the first GPU of that card will be identified by PowerDesk as **A**.

To set the DIP switches on your cards, use the tip of a pen or pencil to flip the switch on or off. We recommend setting your card order as follows, starting with card **0**.*



Setting the order of your output connectors

Monitors are numbered consecutively based on which connector each is attached to. For example, on an Mura MPX Series output card using a quad-monitor cable, the monitor attached to the connector labeled **1** on the cable is identified as **1**, the monitor attached to the connector labeled **2** on the cable is identified as **2**, and so on.



KX20 to quad-DVI cable

* The DIP switches use binary counting to set the card order.

To facilitate the setup of your multi-display layout, we recommend connecting your monitors consecutively and arranging your monitors in pairs.

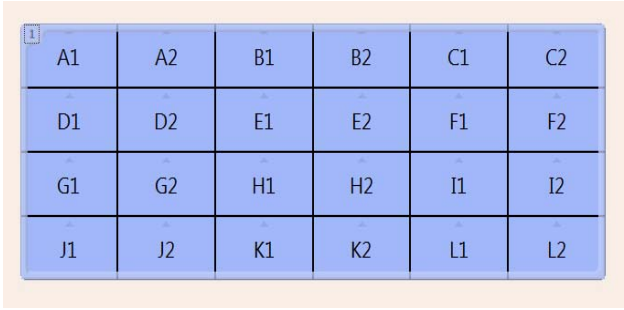
Using PowerDesk to manage your multi-display layout

In a multi-card setup using Matrox Mura MPX Series cards, PowerDesk assigns letters to the GPU and numbers to the outputs associated with that GPU.

In the examples below, the order of the first card (4 outputs) is set as **0**, so its GPUs are identified as **A** and **B**. The four monitors connected to the first card are then identified as **A1**, **A2**, **B1**, and **B2**, which correspond to the monitors attached to connectors labeled respectively **1**, **2**, **3**, and **4** on your KX20 to quad-DVI cable.

Using a multi-display layout with an even number of columns

This multi-display layout shows a 6 × 4 display wall. In this case, monitors are paired and follow each other sequentially from left to right (for example, **A1**, **A2**, **B1**, **B2**, **C1**, **C2**, and so on).



Using a multi-display layout with an uneven number of columns

This multi-display layout shows a 5 × 5 display wall. In this case, monitors are paired but don't follow each other sequentially from left to right. In this case, the GPUs associated with the last card (**K1**, **K2**, **L1**, **L2**, **M1**) are placed in the last column of the layout.

A1	A2	B1	B2	K1
C1	C2	D1	D2	K2
E1	E2	F1	F2	L1
G1	G2	H1	H2	L2
I1	I2	J1	J2	M1

Depending on your installation and connection, you may need to manually rearrange the outputs of your multi-display layout in PowerDesk to match the physical layout of your display wall.

For more information on setting up multiple displays, see "Configuring your display wall layout", page 50.

After planning your output layout, you're ready to install your cards (see "Installing your Matrox cards", page 22).

C-Series

Using PowerDesk to manage your multi-display layout

In a multi-card setup, PowerDesk assigns letters to the GPU and numbers to the outputs associated with that GPU. Each card is identified with a unique GPU. C900 cards have three (3) outputs (**1**, **2**, or **3**) using one or three connectors each. Output **1** uses connectors **1**, **2**, and **3**. Output **2** uses connectors **4**, **5**, and **6**. Output **3** uses connectors **7**, **8**, and **9**. C680 cards have six (6) outputs with a single connector each.

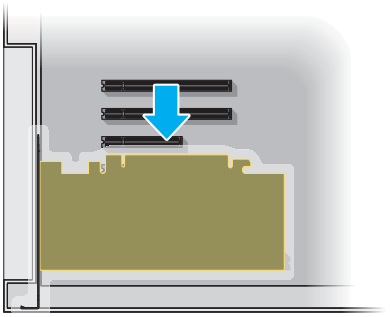
For example, this multi-display layout shows a 5 × 3 display wall on a C-Series based controller with one (1) C900 card and one (1) C680 card. On C900, each output uses three (3) monitors left to right and each output is placed one over another to create the 3 × 3 section on the left of the display wall. On C680, each output uses a single monitor to fill in the 2 × 3 section on the right.

Installing your Matrox cards

This section describes how to install your Matrox card. If your Matrox card is already installed in your system, skip to the "Connection setup" section for the card you want to install. For information specific to your system, like how to remove its cover, see your system manual.

Step-by-step installation

1 Open your system and remove your existing card



If a card ***isn't*** already installed, skip to step 2.

a Using **Programs and Features** in the Windows **Control Panel**, remove any currently installed display drivers. Restart your system for the changes to take effect.

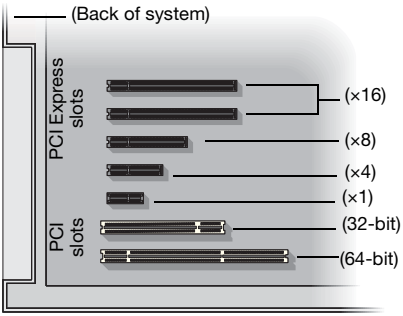
After your system restarts, you may be prompted to install drivers for the new graphics hardware detected. Click **Cancel**.

b Turn off your system and all peripherals such as your monitor or printer.

c Open the system and remove your existing card (if any).

2 Choose an expansion slot

Most systems have different types of expansion slots. Choose a PCI Express® (PCIe®) slot depending on the type of card you have. Your system manual should identify the location of each type of expansion slot in your system.



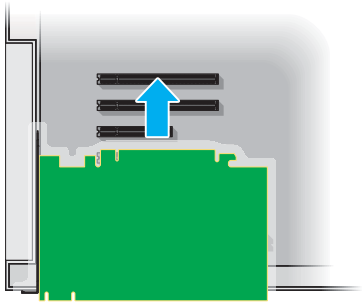
Note: If your system has multiple PCIe ×16 slots, your choice of PCIe slot may affect your card or system performance. Some PCIe ×16 slots support only 8 or 4 lanes. Make sure the PCIe slot you choose supports the proper number of lanes for your Mura card. For more information, see your computer manual or the Matrox System Builder's Guide.

3 Insert your Matrox card

a Position your Matrox card over the expansion slot you've chosen.

b Push the card in firmly and evenly until it's fully seated in the slot.

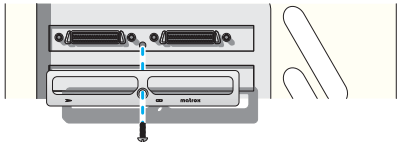
c Secure the bracket of your Matrox card to the frame of your system.



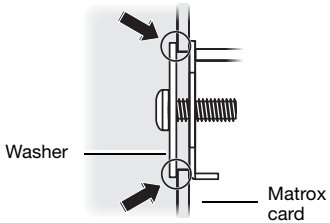
4 Secure the bracket of your Matrox card

Mura MPX Series only – To support the weight of your cable and to avoid damaging your Matrox card, you need to properly secure the bracket of your card to your system.

a To secure your bracket, slip the washer provided with your Matrox product over the connectors, then screw the washer onto the bracket of your Matrox card.



b Make sure the washer lies flat against the frame of your system.

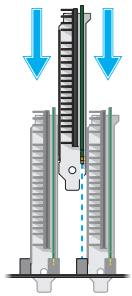


Your Matrox card is now installed. If you're installing more than one card, see "Installing multiple cards", page 24. ***Before restarting your system***, connect your monitors or devices (see the "Connection setup" section for the card you want to connect). ***After connecting***, restart your system and install your Matrox software.

Installing multiple cards

Your chassis model may support the installation of multiple Matrox cards in your system. For information on validated platforms, contact your Matrox representative or see the Matrox web site (www.matrox.com/graphics).

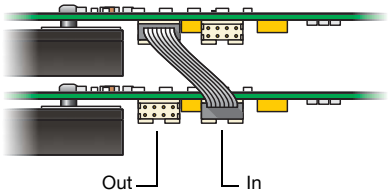
WARNING: To avoid damaging your cards, always insert your card as straight as possible into the slot. Don't rock the card from side to side. If you meet resistance, don't force the card into the slot.



Interconnecting multiple cards (Framelock)

Mura MPX Series, C900, and C680 only – If you have multiple Mura MPX output cards or multiple C900 or C680 graphics cards installed in your system, you can synchronize the frame rate of all your outputs by interconnecting your cards with a ribbon cable.*

Mura MPX Series – Attach the ribbon cable to the connector labeled **Out** on one card to the connector labeled **In** on the next card.

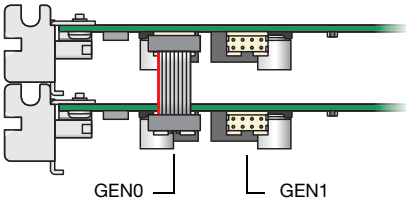


Depending on the length needed, use either the long or short ribbon cable included with your product.

Repeat this for every card installed.

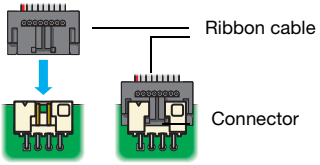
C900 and C680 – You can interconnect either two C900 graphics cards or two C680 graphics cards.

Attach the ribbon cable to the connector labeled **GEN0** on one card and to the connector labeled **GEN0** on the next graphics card.



* Matrox C900 and C680 – Ribbon cable sold separately.

WARNING: To make sure the cable is inserted properly, the cable edge marked with a red line should be closest to the bracket.

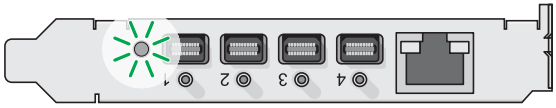


Description of LED indicators

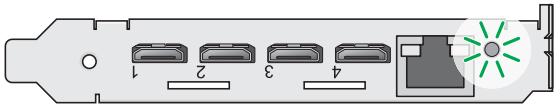
Your Matrox Mura cards have LED indicators that show you the configuration status of your setup and help you troubleshoot your cards.

MURA-IPX-O4DF, MURA-IPX-I4EF, MURA-IPX-I4EHF, MURA-IPX-I4DF, and MURA-IPX-I4DHF

Your Matrox MURA-IPX-O4DF, MURA-IPX-I4EF, MURA-IPX-I4EHF, MURA-IPX-I4DF, and MURA-IPX-I4DHF cards have one LED indicator on their bracket.



MURA-IPX-O4DF



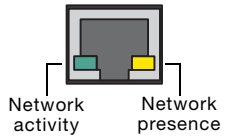
MURA-IPX-I4EF, MURA-IPX-I4EHF, MURA-IPX-I4DF, and MURA-IPX-I4DHF

The following describes the behavior of this LED indicator.

LED Color	Behavior
Green (solid)	Card is active.
Green (slow blink)	Card is restarting.
Green (fast blink)	Factory reset in process.
Amber (solid)	Card is in maintenance mode.
Amber (slow blink)	Card is restarting and is in maintenance mode.
Amber (fast blink)	Card is updating the firmware.
Red (solid)	Card has detected a fatal error. Try restarting your system. If after restarting your system the LED indicator is still red, contact your vendor for technical support (see “Customer support”, page 79).
Red (slow blink)	Card has detected a misconnection. Try restarting your system. If after restarting your system the LED indicator is still red, contact your vendor for technical support (see “Customer support”, page 79).
Black (off)	No power. Make sure your card is properly installed. Also, make sure your system isn’t in power saving mode (see “Installing your Matrox cards”, page 22). For more information, contact your vendor (see “Customer support”, page 79).

Network connector

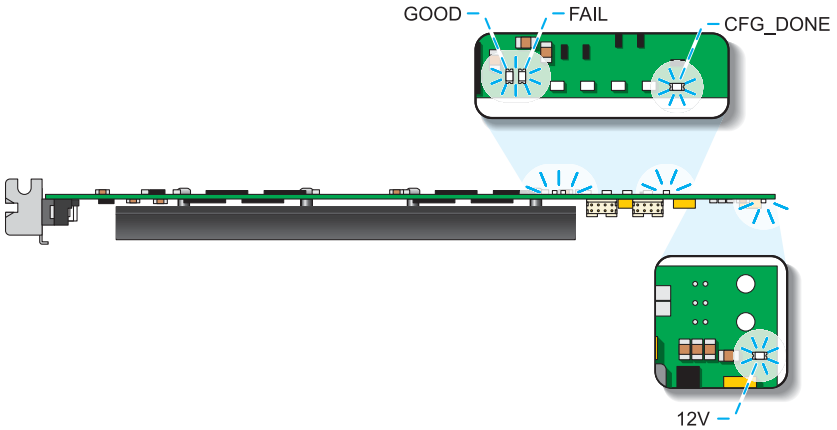
The network connectors on your IPX Series cards use LED indicators to provide information on the network activity and presence. The following describes the different network connector LEDs.



LED color	Network activity	Network presence
No LED (black)	No data transfer in progress or no network detected.	No communication established.
Green (fast blink)	Data transfer in progress.	—
Orange	—	Network communication established.

Mura MPX-4/4, MPX-4/2, and MPX-4/0

Your Matrox Mura MPX Series cards have four LED indicators labeled (**Good**, **12V**, **Fail**, **CFG_Done**).

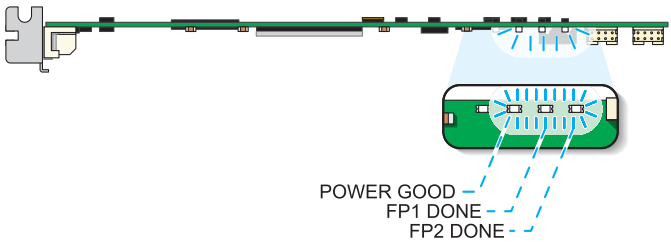


The following describes the behavior of these LED indicators.

LED	Color	Behavior
Good	Green	Card is active.
12V	Green	Card is properly powered.
Fail	Red	Card may have insufficient power. Try restarting your system. If after restarting your system the LED indicator is still red, contact your vendor for technical support (see “Customer support”, page 79).
CFG_Done	Black (off)	Problem occured while programming your card. For more information, contact your vendor (see “Customer support”, page 79).

Mura MPX-V16 and MPX-V8

Your Matrox Mura MPX-V16 card has three LED indicators labeled (**Power Good**, **FP1 Done**, **FP2 Done**) and your Mura MPX-V8 card has two LED indicators labeled (**Power Good**, **FP2 Done**).



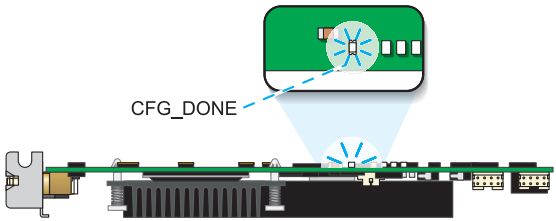
(Mura MPX-V16 shown)

The following describes the behavior of these LED indicators.

LED	Color	Behavior
Power Good	Green	Card is properly powered.
FP1 Done or FP2 Done	Green	Card is active.
FP1 Done or FP2 Done	Black (off)	Problem occured while programming your card. For more information, contact your vendor (see “Customer support”, page 79).

Mura MPX-SDI

Your Matrox Mura MPX-SDI card has one LED indicator labeled (**CFG_Done**).



The following describes the behavior of these LED indicators.

LED	Color	Behavior
CFG_Done	Green	Card is active.
CFG_Done	Black (off)	Problem occured while programming your card. For more information, contact your vendor (see “Customer support”, page 79).

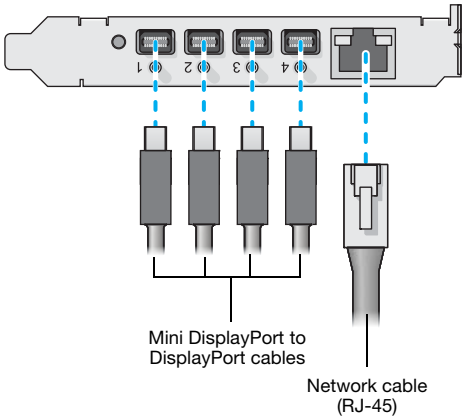
Connecting your MURA-IPX-O4DF card

This section describes how to connect your MURA-IPX-O4DF card.

> **Note**: To make sure your cables are securely attached to your Matrox cards, use a cable retention bracket. To purchase a cable retention bracket, contact your Matrox representative. For more information, see "Appendix C – Matrox secure cable solution", page 77.

MURA-IPX-O4DF

Connection overview



Desciption of supported connections

Device connector	Description
DisplayPort	If your monitor has a DisplayPort connector, attach your mini DisplayPort to DisplayPort cable to your Matrox card. Connect the other end of the cable to your monitor.
DVI	If your monitor has a DVI connector, use a mini DisplayPort to DVI adapter (active) to connect to the mini DisplayPort connector on your Matrox card. Connect your monitor to the DVI connector on your adapter.

Device connector	Description
HDMI	If your monitor has an HDMI connector, use a mini DisplayPort to HDMI adapter (active) to connect to the mini DisplayPort connector on your Matrox card. Connect your monitor to the HDMI connector on your adapter.
Network (RJ-45)	If your video device streams to an IP network, connect a network cable to your Matrox card. Your video device must stream using an RTSP protocol.

Once all your cards are connected, restart your system and install your Matrox software (see "Installing your software", page 48).

Connecting your Mura IPX Series card

This section describes how to connect your Mura IPX Series card.

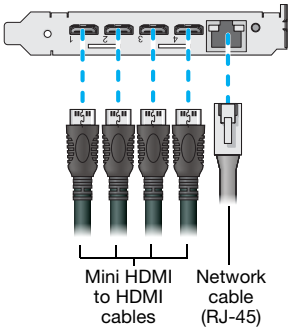
	Supported hardware	More information
Input/Output	Mura MPX-4/4, MPX-4/2	See page 34.
	Mura MPX-SDI	See page 36.
Input	MURA-IPX-I4EF, MURA-IPX-I4EHF, MURA-IPX-I4DF, MURA-IPX-I4DHF	See page 32.
	Mura MPX-V16, MPX-V8	See page 40.
Output	Mura MPX-4/0	See page 38.
	C900	See page 43.
	C680	See page 44.
Console	P690 PCIe ×16	See page 67.
	P690 Plus LP PCIe ×16 (dual-monitor cable)	See page 68.
	P690 Plus LP PCIe ×16 (quad-monitor cable)	See page 70.
	M9120 PCIe ×16, M9125 PCIe ×16	See page 71.
	M9120 Plus LP PCIe ×1 / ×16	See page 72.
	M9140 LP PCIe ×16	See page 73.
	M9128 LP PCIe ×16	See page 74.
	M9138 LP PCIe ×16, M9148 LP PCIe ×16	See page 75.

Once all your cards are connected, restart your system and install your Matrox software (see "Installing your software", page 48).

Note: To make sure your cables are securely attached to your Matrox cards, use a cable retention bracket. To purchase a cable retention bracket, contact your Matrox representative. For more information, see "Appendix C – Matrox secure cable solution", page 77.

MURA-IPX-I4EF, MURA-IPX-I4EHF, MURA-IPX-I4DF, and MURA-IPX-I4DHF

Connection overview



Description of supported connections

Device connector	Description
HDMI	If your video device has an HDMI connector, attach your mini HDMI to HDMI cable to your Matrox card. Connect the other end of the cable to your video device.
DVI	If your video device has a DVI connector, use a mini HDMI to DVI adapter to connect to the mini HDMI connector on your Matrox card. Connect your video device to the DVI connector on your adapter.
Network (RJ-45)	If your video device streams to an IP network, connect a network cable to your Matrox card. Your video device must stream using an RTSP protocol. **Mura-IPX-I4EF and Mura-IPX-I4EHF only** – You need to connect to the network to record to a Network Attached Storage (NAS) device or to stream video.

Note: To connect to the bracket of your Matrox product, the overmold (or boot) of the mini HDMI connectors must respect the maximum width (0.551"/14 mm) and thickness (0.331"/8.4 mm) stated in the HDMI specifications.

Note: Inputs from your Mura IPX Series cards are ordered according to the order of the cards on the PCI bus and then the order of the connectors on the card.

Connecting your Mura MPX Series card

This section describes how to connect your Matrox Mura MPX Series card.

	Supported hardware	More information
Input/Output	Mura MPX-4/4, MPX-4/2	See page 34.
	Mura MPX-SDI	See page 36.
Input	Mura IPX Series*	See page 31.
	Mura MPX-V16 , MPX-V8	See page 40.
Output	Mura MPX-4/0	See page 38.
Console	P690 PCIe ×16	See page 67.
	P690 Plus LP PCIe ×16 (dual-monitor cable)	See page 68.
	P690 Plus LP PCIe ×16 (quad-monitor cable)	See page 70.

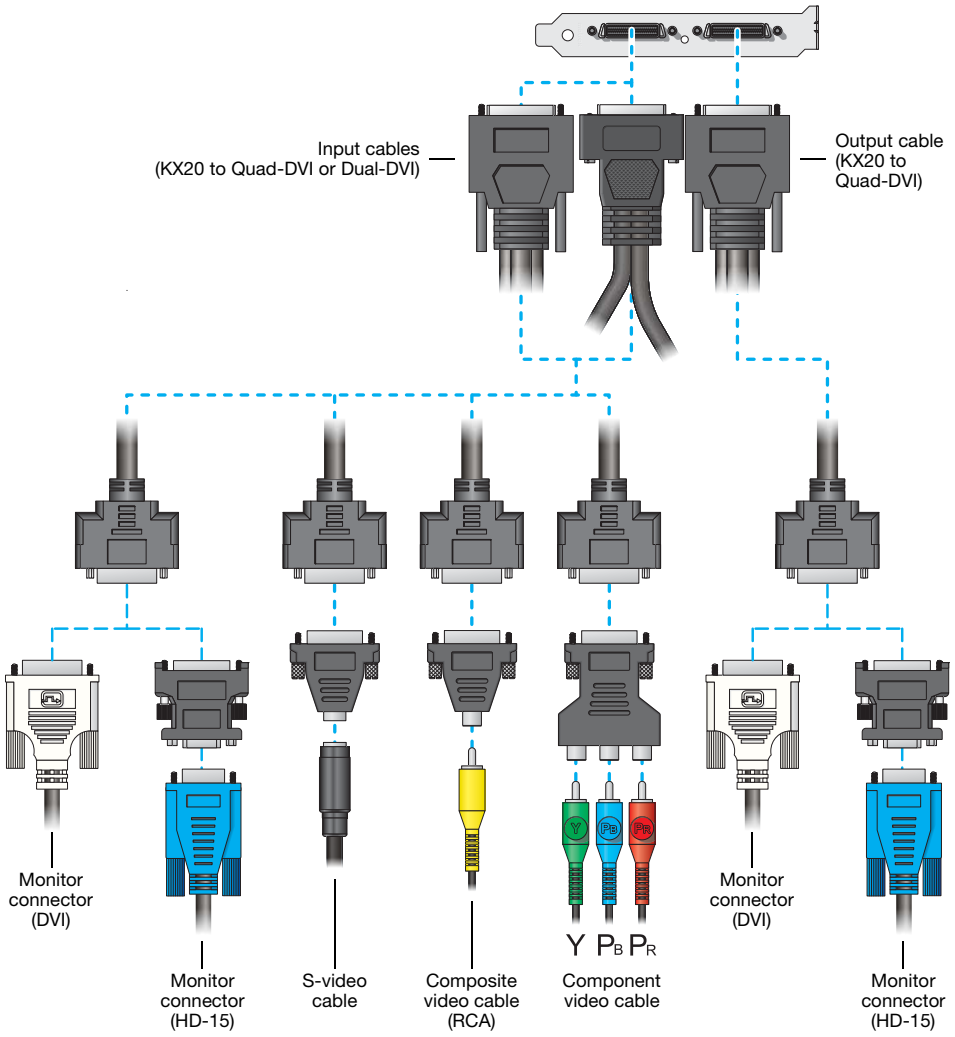
* Except MURA-IPX-O4DF.

Once all your cards are connected, restart your system and install your Matrox software (see "Installing your software", page 48).

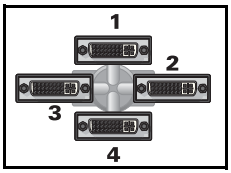
Mura MPX-4/4 and MPX-4/2

This section describes how to connect your output devices (monitors) and input devices to your Mura MPX-4/4, and MPX-4/2 cards.

Connection overview



Description of cables

Cable	Description
Output	Mura MPX-4/4 and MPX-4/2 cards use KX20 to quad-DVI cables to connect up to four (4) monitors per card. Monitors are numbered consecutively based on which connector each is attached to, starting with connector labeled 1.  KX20 to quad-DVI cable
Input	A Mura MPX-4/4 card uses a KX20 to quad-DVI cables to connect up to four (4) input devices per card. A Mura MPX-4/2 card uses a KX20 to dual-DVI cable to connect its input devices.

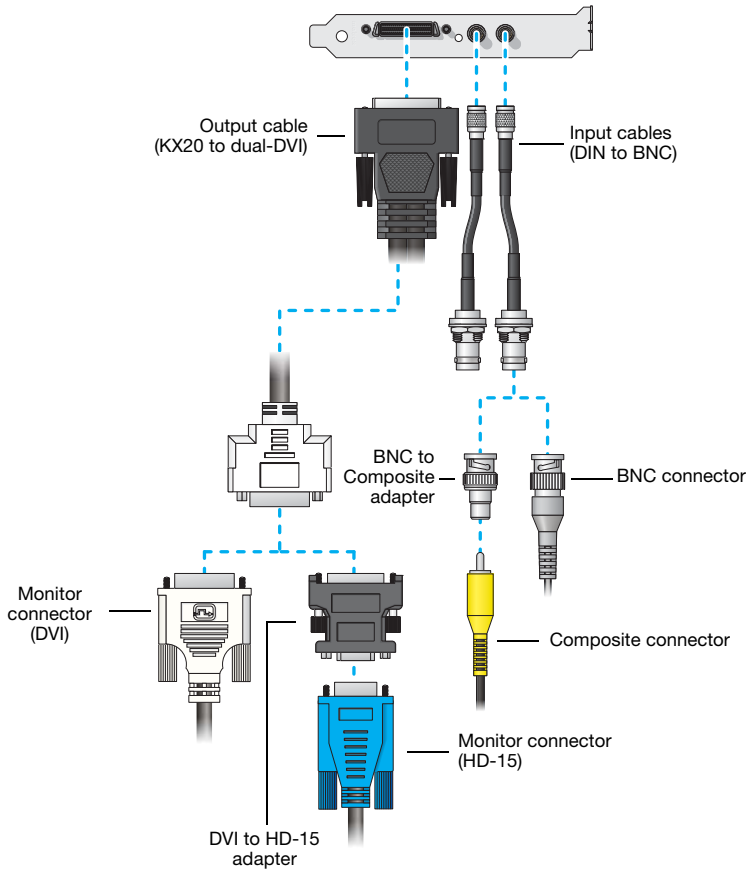
Description of supported connections

Device connector	Output	Input	Description
DVI	✓	✓	If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your output cable. If you connect a graphics card with a DVI monitor cable, connect your monitor cable directly to your input cable.
HD-15	✓	✓	If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your output cable. If you connect a graphics card with an HD-15 monitor cable, use a DVI to HD15 adapter included with your Mura product to connect your monitor cable to your input cable.
S-video		✓	If your video device has an S-video connector, use a DVI to S-video adapter to connect to the DVI connector on your input cable. Connect your video device to the S-video connector on your adapter.
Composite		✓	If your video device has a composite connector, use a DVI to Composite (RCA) adapter to connect to the DVI connector on your input cable. Connect your video device to the composite connector on your adapter.
Component		✓	If your video device has a component connector, use a DVI to Component adapter to connect to the DVI connector on your input cable. Connect your video device to the component connector on your adapter.

Mura MPX-SDI

This section describes how to connect your output devices (monitors) and input devices to your Mura MPX-SDI card.

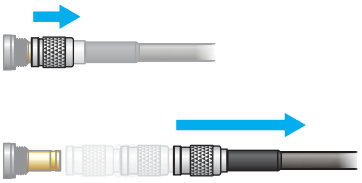
Connection overview



Description of cables

Cable	Description
Output	Mura MPX-SDI cards use a KX20 to dual-DVI cable to connect up to two (2) monitors per card.
Input	Mura MPX-SDI cards use a DIN to BNC cable to connect up to two (2) input devices per card.

WARNING: To avoid damaging the DIN connector (1.0/2.3) on your DIN to BNC adapter or on your card, firmly hold the adapter, pull back the metal ring around the DIN connector on the cable, then carefully remove the DIN to BNC adapter.



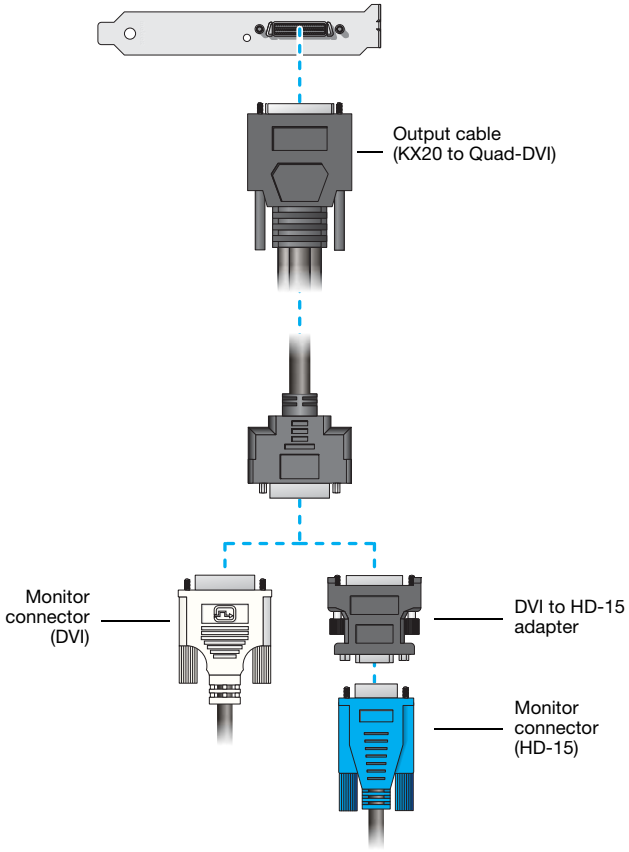
Description of supported connections

Connection	Output	Input	Description
DVI	✓		If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your output cable.
HD-15	✓		If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your output cable.
Composite (RCA)		✓	If your video device has an RCA composite connector, use a BNC to Composite (RCA) adapter to connect to the BNC connector on your input cable. Connect your video device to the composite connector on your adapter.
Composite (BNC)		✓	If your video device has a BNC composite connector, connect the composite cable directly to the BNC connector on your input cable.

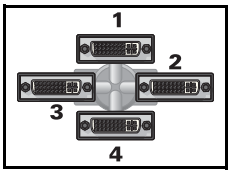
Mura MPX-4/0

This section describes how to connect your output devices (monitors) to your Mura MPX-4/0 card.

Connection overview



Description of cables

Cable	Description
Output	Mura MPX-4/0 cards use KX20 to quad-DVI cables to connect up to four (4) monitors per card. Monitors are numbered consecutively based on which connector each is attached to, starting with connector labeled 1.  KX20 to quad-DVI cable

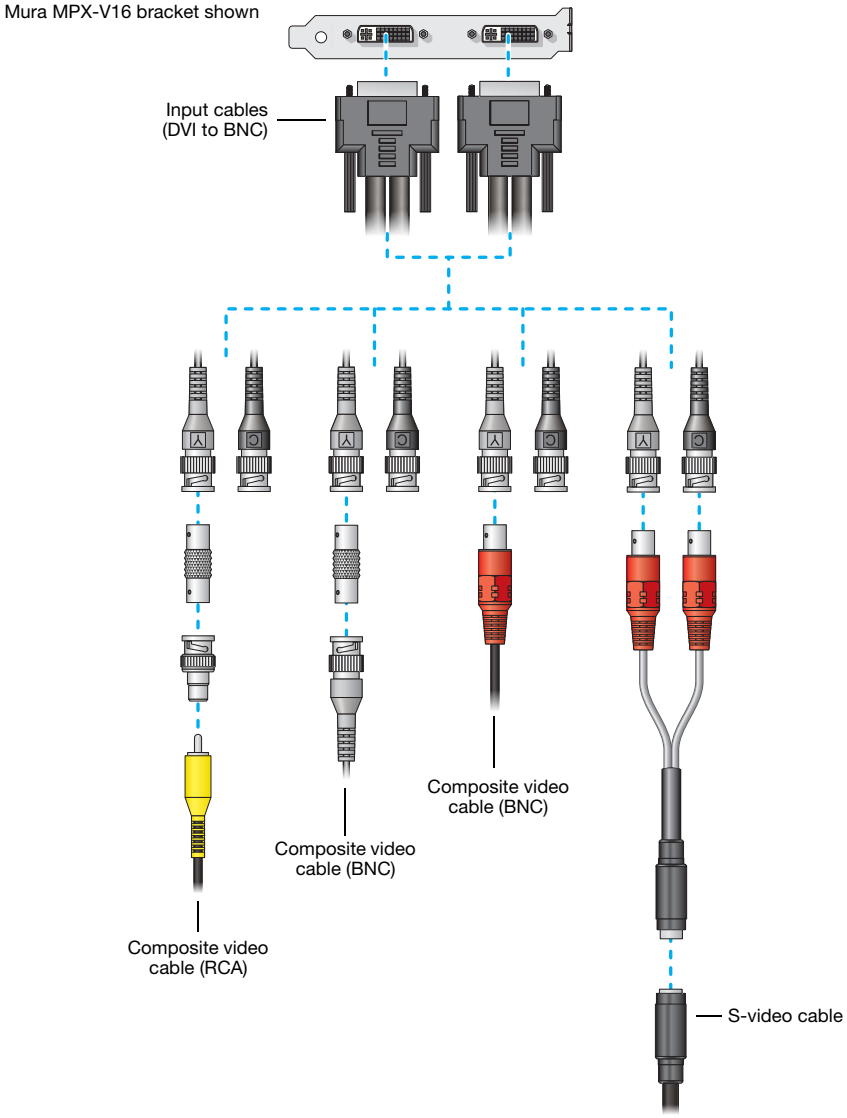
Description of supported connections

Device connector	Description
DVI	If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your output cable.
HD-15	If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your output cable.

Mura MPX-V16 and MPX-V8

This section describes how to connect your input devices to your Mura MPX-V16 or MPX-V8 card.

Connection overview



Description of cable

Cable	Description
Input	Mura MPX-V16 or MPX-V8 cards use DVI to BNC cables to connect to input devices.

Description of supported connections

Connector	Description
Composite (RCA)	If your video device has an RCA composite connector, use a BNC to Composite (RCA) adapter to connect to the **Y** connector on your input cable. Connect your video device to the composite connector on your adapter.
Composite (BNC)	If your video device has a BNC composite connector, connect the composite cable directly to the **Y** connector on your input cable.
S-video	If your video device has an S-video connector, use a BNC to S-video adapter to connect to the **Y** and **C** connectors on your input cable. Connect your video device to the S-video connector on your adapter.

Connecting your C-Series card

This section describes how to connect your Matrox C-Series card.

	Supported hardware	More information
Input	Mura IPX Series*	See page 31.
Output	C900	See page 43.
	C680	See page 44.
Console	M9120 PCIe ×16, M9125 PCIe ×16	See page 71.
	M9120 Plus LP PCIe ×1 / ×16	See page 72.
	M9140 LP PCIe ×16	See page 73.
	M9128 LP PCIe ×16	See page 74.
	M9138 LP PCIe ×16, M9148 LP PCIe ×16	See page 75.

* Excluding MURA-IPX-O4DF.

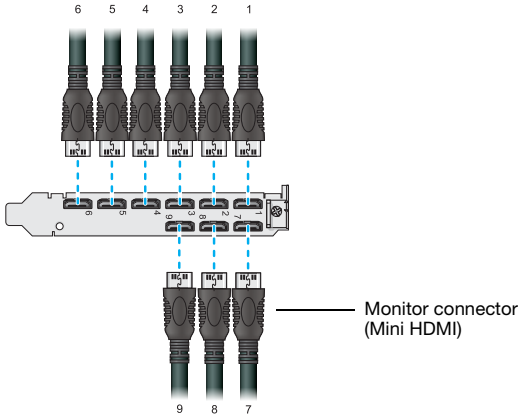
Once all your cards are connected, restart your system and install your Matrox software (see "Installing your software", page 48).

Note: To make sure your cables are securely attached to your Matrox cards, use a cable retention bracket. To purchase a cable retention bracket, contact your Matrox representative. For more information, see "Appendix C – Matrox secure cable solution", page 77.

C900

This section explains how to connect your output devices (monitors) to your C900 card.

Connection overview



Description of supported connections

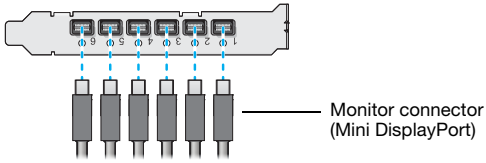
Device connector	Description
HDMI	If your monitor has an HDMI connector, attach your mini HDMI to HDMI cable to your Matrox card. Connect the other end of the cable to your monitor.
DVI	If your monitor has a DVI connector, use a mini HDMI to DVI adapter to connect your monitor cable to the mini HDMI connector on your Matrox card. Connect the other end of the cable to your monitor.

Note: To connect to the bracket of your Matrox product, the overmold (or boot) of the mini HDMI connectors must respect the maximum width (0.551"/14 mm) and thickness (0.331"/8.4 mm) stated in the HDMI specifications.

C680

This section explains how to connect your output devices (monitors) to your C680 card.

Connection overview



Description of supported connections.

Device connector	Description
DisplayPort	If your monitor has a DisplayPort connector, attach your mini DisplayPort to DisplayPort adapter to the mini DisplayPort connector on your Matrox card. Connect the other end of the cable to your monitor.
HDMI	If your monitor has an HDMI connector, use a mini DisplayPort to HDMI adapter (active) to connect your monitor cable to the mini DisplayPort connector on your Matrox card. Connect the other end of the cable to your monitor.
DVI	If your monitor has a DVI connector, use a mini DisplayPort to DVI adapter (active) to connect your monitor cable to the mini DisplayPort connector on your Matrox card. Connect the other end of the cable to your monitor.

Validating the network discovery of your Mura IPX Series cards

Matrox Mura IPX Series cards are initially assigned their IP addresses through DHCP (Dynamic Host Control Protocol). After connecting your devices, we recommend verifying that all your devices are discovered by the network.

Under the **Network** section in the Windows **File Explorer**, make sure the Mura IPX Series cards and IP source devices connected to the network are listed.

If prompted to enable network discovery and file sharing on your network when validating network discovery, enable these two features by clicking the prompt at the top of your Windows Explorer window. These two features must be enabled for Windows to detect the Mura IPX Series cards on your subnet.

Multiple subnet support

Mura IPX Series in the same subnet can be detected through the UPnP (Universal Plug and Play) protocol. If you have cards in different subnets of your network, you need to validate network discovery in each subnet separately.

Software overview

Available software

Matrox drivers

	Description	Supported hardware
Windows®	▪ Windows® 10 ▪ Windows® Server® 2012 R2 ▪ Windows® 7 (64-bit) ▪ Windows® Server® 2008 R2	▪ Mura IPX Series* ▪ C-Series (C900 and C680)
	▪ Windows® 7 (64-bit) ▪ Windows® Server® 2008 R2 ▪ Windows® Embedded Standard 7 (64-bit) ▪ Windows® Embedded Enterprise 7 (64-bit)	▪ Mura IPX Series* ▪ Mura MPX Series
Linux®	For more information on the supported Linux distributions, see the Readme file included with your package for Linux.	▪ Mura IPX Series* ▪ C-Series (C680 only)

* MURA-IPX-O4DF – MURA-IPX-O4DF is a standalone controller that doesn't require an operating system.

PowerDesk

	Description	Supported hardware
PowerDesk	Your Matrox driver includes Matrox PowerDesk software. Use Matrox PowerDesk software to set up your multi-display layout, change certain display settings, or access Matrox features.	▪ Mura MPX Series ▪ C-Series (C900 and C680)

SDKs and APIs

	Description	Supported hardware
Network API	Command-level API that can be transmitted from any network device through Telnet, RS-232, and HTTP/HTTPS.	▪ Mura IPX Series ▪ Mura MPX Series ▪ C900, C680

Matrox VWLib API	C/C++ based API that can be used to build custom display wall applications. The VWLib API allows full control of the Matrox hardware.	▪ Mura IPX Series* ▪ C900, C680
Matrox Display Wall Controller (DWC) API	C/C++ based API that can be used to build custom display wall applications.	▪ Mura IPX Series* ▪ Mura MPX Series
DirectShow support	Matrox filters for Microsoft DirectShow that can be used to leverage existing applications for your Matrox display wall products.	▪ Mura IPX Series* ▪ C900, C680
Matrox tablet SDK	Software development kit that can be used to build applications for tablets to configure your display wall through the Matrox Network API.	▪ Mura IPX Series ▪ Mura MPX Series ▪ C900, C680

* Excluding MURA-IPX-O4DF.

For more information, see the documentation included with your Matrox API.

MuraControl

	Description	Supported hardware
MuraControl for Windows	Matrox MuraControl enables you to configure and manage your Matrox display wall.	▪ Mura IPX Series ▪ Mura MPX Series ▪ C900, C680

For more information, see "Matrox MuraControl software", page 52.

More information

We provide additional information in help and *Readme* files. Be sure to check for any last-minute release notes included with your product. Also, check the Matrox web site (www.matrox.com/graphics) for the latest Matrox software, technical support, and product information.

Installing your software

This section describes how to install your Matrox driver and software.

Obtaining a driver and additional software

- If your Matrox product was provided by the manufacturer of your system, check the web site of that manufacturer for the latest driver. A driver provided by the manufacturer of your system is more likely to be tested with your system model.
- Matrox makes the latest drivers, software, and utilities available on the Matrox Mura product page (www.matrox.com/graphics/en/support/drivers/download/mura).
- For additional SDKs and APIs, contact your Matrox representative.

Before you install

- You may need administrator rights to install or uninstall certain software, or to change certain settings. For more information, see Windows documentation.
- To avoid potential problems, we recommend you install the latest Service Pack and hot fixes for your version of Windows.

Installing your driver

Windows

Download and run the Matrox driver package, then follow the on-screen instructions.

Linux

Download and run the Matrox driver package for Linux, then follow the on-screen instructions. For more information on the supported Linux distributions, see the *Readme* file included with your package for Linux.

Installing your APIs

Run the *MSI* from your Matrox API package. For more information, see the documentation included with your Matrox API.

Updating your MURA-IPX-04DF card

Download the Mura IPX Updater software package. Run the appropriate updater and follow the on-screen instructions. The Matrox Network API is automatically installed. You can use the Matrox Network API or MuraControl for Windows to configure your MURA-IPX-O4DF card.

Configuring your display wall layout

Using the Network API to manage your layout

Use the Matrox Network API to set up your outputs and configure the advanced features of your display wall layout.

For more information, see the documentation included with the Network API.

Using PowerDesk to set up your multi-display layout

Setting up your multi-display layout using PowerDesk software involves entering the number of columns and rows for your display wall layout and adjusting the settings for your outputs (such as rotation, resolution, color palette, and refresh rate).

Mura MPX Series

To set up a multi-display layout for your Mura MPX Series card:

1. Right-click your Windows desktop and select **Launch Matrox PowerDesk**. From the main interface of Matrox PowerDesk, click **Multi-Display Setup**.
2. Under **Basic configurations**, select **Use stretched mode**.
3. Enter the number of **Columns** and **Rows** for your multi-display setup, then click **OK**.
4. Preview your setup in the work area. If you're satisfied, click **OK** or **Apply** to apply your multi-display layout. Otherwise, click **Cancel**.

   Depending on your installation and connection, you may need to manually rearrange the outputs of your multi-display layout in PowerDesk to match the physical layout of your display wall.

For more information on setting up multiple displays, see Matrox PowerDesk help.

C-Series

To set up a multi-display layout for your C900 or C680 card:

1. Right-click your Windows desktop and select **Launch Matrox PowerDesk**. From the main interface of Matrox PowerDesk, click **Multi-Display Setup**.
2. Select a multi-display mode:

   C900 – Click **Set up 3x3 configuration**.

C680 – Right-click a display, click **Use stretched mode**, then select the layout you want to use for your multi-display setup.

3 Preview your setup in the work area. If you're satisfied, click **OK** or **Apply** to apply your multi-display layout. Otherwise, click **Cancel**.

Depending on your installation and connection, you may need to manually rearrange the outputs of your multi-display layout in PowerDesk to match the physical layout of your display wall.

For more information on setting up multiple displays, see Matrox PowerDesk help.

Matrox MuraControl software

Use Matrox MuraControl for Windows to manage your Matrox display wall. With MuraControl software, you can create, save, and edit layouts so your source content appears where and how you want it.

Supported Matrox hardware

Matrox MuraControl for Windows supports the following Matrox hardware:

- Matrox Mura IPX Series
- Matrox Mura MPX Series
- Matrox C-Series (C900 and C680 only)

Obtaining MuraControl software

Matrox MuraControl for Windows software is available for download on the Matrox web site (www.matrox.com/graphics/en/products/video-wall/muracontrol).

More information

To run Matrox MuraControl for Windows, a USB dongle (hardware lock) is required.

A 21-day free trial of Matrox MuraControl for Windows is available for download. Following the expiry of the 21-day free trial, you must purchase a software license in the form of a USB dongle to continue using MuraControl for Windows software.

To purchase a software license, contact your Matrox representative.

For more information on MuraControl software, see the Matrox MuraControl user guide.

Troubleshooting

What to do if you have a problem

If you experience problems with your Matrox product:

- Make sure your Matrox card is properly installed, you're using the correct connectors, and that all connectors are properly fastened.
- Make sure you have administrator rights on the system you want to use. For more information, see Windows documentation.
- Review the documentation provided with your Matrox product, including the information in this section and in your Matrox System Builder's Guide (www.matrox.com/mura/support), to see if your problem is already addressed.
- For troubleshooting information on your Matrox C-Series product, see your Matrox C-Series user guide.

If your problem persists, contact Matrox. For more information, see "Customer support", page 79.

Common problems and solutions

This section addresses specific problems to your Matrox product that could prevent you from using your system or graphics hardware.

Problem **Not all graphics cards in the computer are fully supported**
(Software doesn't work with a certain graphics card, or another graphics card doesn't work at all)

Cause If you have different models of graphics cards in your computer, your Matrox driver may not support all the graphics cards in your computer.

Solution Disable or remove any graphics hardware not supported by the driver you want to use. If there's graphics hardware built into the motherboard of your computer that's not supported by your software, see your system manual for information on how to disable this graphics hardware.

Cause **Windows 10/7** – If the Windows method for driver installation was used (instead of running the setup program included with your Matrox driver), the driver may not be installed for all the graphics cards it supports.

Solution Run the setup program included with the Matrox driver. The setup program automatically installs the driver for each Matrox graphics card it supports.

Problem System performance is slow or degraded

Cause Your system or cards may be overheating.

Solution Make sure the operating temperature of your graphics chip is within a normal range:

1. Access Matrox PowerDesk (see "Using PowerDesk to set up your multi-display layout", page 50).
2. From the main interface, click **Help and Troubleshooting → Troubleshoot**.
3. Check the peak temperature being reported.

Cause You may be using a platform that hasn't been validated by Matrox.

Solution Use a validated platform. For information on supported systems, motherboards, and chassis models, contact your Matrox representative or see the Matrox web site (www.matrox.com/graphics).

Problem Mura IPX Series card not discovered on the network

Cause Your Matrox product may not be properly connected or may be on a different subnet.

Solution Verify the connection and status LEDs on your Matrox product (see "Network connector", page 27). Also, make sure your Matrox product is properly connected and that all connectors are properly fastened.

Cause Your Matrox product may be on an external network or on a different subnet.

Solution Make sure your Mura IPX Series card and the IP source are on the same subnet (see "Validating the network discovery of your Mura IPX Series cards", page 45). For more information, contact your network administrator.

Cause **Windows Server 2012 R2/2012/2008 R2 only** – The Windows SSDP Discovery service may be disabled on your system.

Solution Make sure the SSDP Discovery service is enabled on your system.

Cause Network discovery and file sharing may not be enabled on your system.

Solution Enable network discovery and file sharing on your system.

Cause The firewall for your display wall system or for your network may be enabled and may prevent communication with your Mura IPX Series cards.

Solution Make sure your firewall is properly configured to allow the necessary communication between your Mura IPX Series cards and the various networked components. For more information, see "Appendix A – Firewall requirements".

Product information

Specifications

MURA-IPX-O4DF

	MURA-IPX-O4DF
Operating systems supported	—*
Card type	PCIe ×8 2.0 (power only)
Form factor	ATX
Memory	4 GB
Connectors	4× Mini DisplayPort, 1× 100/1000 Base-T RJ45 Ethernet Port
Output formats supported†	DisplayPort, DVI, HDMI
Outputs supported	4
Inputs supported	IP
Maximum output resolutions	3840 × 2160 (DisplayPort)
IP stream support	RTSP
Video CODEC engine	H.264
H.264 decode ‡	two 3840 × 2160 @ 60 Hz, four 3840 × 2160 @ 30 Hz, eight 1920 × 1080 @ 60 Hz, sixteen 1920 × 1080 @ 30 Hz, or numerous SD channels
Maximum card dimensions	L: 9.02 in / W: 0.75 in / H: 4.376 in L: 22.9 cm / W: 1.91 cm / H: 11.1 cm
Certifications	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea

* MURA-IPX-O4DF is a standalone controller that doesn't require an operating system.

† DVI and HDMI monitors are supported using identical third-party active adapters (sold separately).

‡ Standard resolutions listed above. Support for custom resolutions available. For specific requirements, contact your Matrox representative.

MURA-IPX-I4EF, MURA-IPX-I4EHF, MURA-IPX-I4DF, MURA-IPX-I4DHF

	MURA-IPX-I4EF • MURA-IPX-I4EHF	MURA-IPX-I4DF • MURA-IPX-I4DHF
Operating systems supported	Windows® 10 64-bit, Windows® 7 64-bit, Windows® Server® 2012 R2 64-bit, Windows® Server® 2008 R2, Windows® Embedded Standard 7 64-bit, Windows® Embedded Enterprise 7 64-bit, Linux®	
Card type	PCIe ×8 2.0	PCIe ×8 2.0
Form factor	ATX	ATX
Memory	4 GB	4 GB
Connectors	4× Mini HDMI, 1× 100/1000 Base-T RJ45 Ethernet Port	4× Mini HDMI, 1× 100/1000 Base-T RJ45 Ethernet Port
Outputs supported	—	—
Inputs supported	4× HDMI + IP	4× HDMI + IP
Maximum HDMI input resolutions	4096 × 2160 @ 60 Hz*, 4096 × 2160 @ 30 Hz, 3840 × 2160 @ 60 Hz*, 3840 × 2160 @ 30 Hz	4096 × 2160 @ 60 Hz*, 4096 × 2160 @ 30 Hz, 3840 × 2160 @ 60 Hz*, 3840 × 2160 @ 30 Hz
IP stream support	RTSP	RTSP
Video CODEC engine	H.264	H.264
H.264 decode †	two 3840 × 2160 @ 60 Hz, four 3840 × 2160 @ 30 Hz, eight 1920 × 1080 @ 60 Hz, sixteen 1920 × 1080 @ 30 Hz, or numerous SD channels	two 3840 × 2160 @ 60 Hz, four 3840 × 2160 @ 30 Hz, eight 1920 × 1080 @ 60 Hz, sixteen 1920 × 1080 @ 30 Hz, or numerous SD channels
H.264 encode †	two 3840 × 2160 @ 60Hz, four 3840 × 2160 @ 30Hz, eight 1920 × 1080 @ 60Hz, sixteen 1920 × 1080 @ 30Hz, or numerous SD IP streams	—
Maximum card dimensions	L: 9.02 in / W: 0.75 in / H: 4.376 in L: 22.9 cm / W: 1.91 cm / H: 11.1 cm	
Certifications	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea

* In YUV 4:2:0, 12 bits per pixel (8 bits per component).

† Standard resolutions listed above. Support for custom resolutions available. For specific requirements, contact your Matrox representative.

Mura MPX-4/0, MPX-4/2, MPX-4/4, MPX-SDI

	Mura MPX-4/0	Mura MPX-4/2	Mura MPX-4/4	Mura MPX-SDI
Operating systems supported	Windows® Embedded Standard 7 (64-bit), Windows® 7 Professional (64-bit), Windows® 7 Professional for Embedded Systems (64-bit), Windows® Server® 2008 R2 (64-bit)			
Card type	PCIe ×16 2.0	PCIe ×16 2.0	PCIe ×16 2.0	PCIe ×16 1.0
Form factor	ATX	ATX	ATX	ATX
Memory	2 GB	2 GB	2 GB	1 GB
Output formats supported	DVI, RGB/VGA	DVI, RGB/VGA	DVI, RGB/VGA	DVI, RGB/VGA
Input formats supported	—	DVI, RGB/VGA, Component, S-video, Composite	DVI, RGB/VGA, Component, S-video, Composite	SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 424M, SMPTE 425M
HDCP compliant*	✓	✓	✓	✓
Connectors	1× KX20	2× KX20	2× KX20	1× KX20, 2× DIN 1.0/2.3
Outputs supported	4	4	4	2
Inputs supported	0	2	4	2
Maximum output resolutions	2048 × 1152 (DVI), 2048 × 1536 (RGB/VGA)	2048 × 1152 (DVI), 2048 × 1536 (RGB/VGA)		1920 × 1080
Maximum input resolutions	—	2560 × 1600† (DVI), 2048 × 1536‡ (RGB/VGA), 1920 × 1080 (Component)		1920 × 1080
Maximum card dimensions	L: 9.50 in / W: 0.75 in / H: 4.407 in L: 24.13 cm / W: 1.91 cm / H: 11.2 cm	L: 9.50 in / W: 0.75 in / H: 4.407 in L: 24.13 cm / W: 1.91 cm / H: 11.2 cm	L: 9.50 in / W: 0.75 in / H: 4.407 in L: 24.13 cm / W: 1.91 cm / H: 11.2 cm	L: 6.60 in / W: 0.75 in / H: 4.407 in L: 16.80 cm / W: 1.91 cm / H: 11.2 cm
Certifications	Class A: FCC, CE, ACMA, VCCI, ICES, CSA, Korea			

* Certain limitations may apply. Matrox strongly recommends that you review the HDCP web site (www.digital-cp.com) and make sure you understand your legal obligations and responsibility.

† At 30 Hz. For specific requirements, contact Matrox.

‡ At 47 Hz. For specific requirements, contact Matrox.

Mura MPX-V8, MPX-V16

	Mura MPX-V8	Mura MPX-V16
Operating systems supported	Windows® Embedded Standard 7 (64-bit), Windows® 7 Professional (64-bit), Windows® 7 Professional for Embedded Systems (64-bit), Windows® Server® 2008 R2 (64-bit)	
Card type	PCIe ×4 1.0	PCIe ×4 1.0
Form factor	ATX	ATX
Memory	128 MB DDR SDRAM	256 MB DDR SDRAM
Input formats supported	S-video, Composite	S-video, Composite
Connectors	1× DVI-I	2× DVI-I
Outputs supported	—	—
Inputs supported	8	16
Maximum input resolution	NTSC/PAL/SECAM	NTSC/PAL/SECAM
Maximum card dimensions	L: 8.10 in / W: 0.75 in / H: 4.376 in L: 20.6 cm / W: 1.91 cm / H: 11.1 cm	
Certifications	Class A: FCC, CE, ACMA, VCCI, ICES, CSA, Korea	

C900, C680

	Matrox C900	Matrox C680
Operating systems supported	Windows® 10, Windows® Server® 2012 R2, Windows® Server® 2008 R2, Windows® 7, Windows® Embedded Standard 7, and Linux®	
GPU	AMD™	
Audio output formats	Multi-stream audio through HDMI	Multi-stream audio through DisplayPort
Digital monitor support*	DVI, HDMI	DisplayPort, DVI, HDMI
Memory	4 GB GDDR 5	4 GB GDDR 5†
Card type	PCIe ×16	PCIe ×16
Form factor	Full height	Full height
Monitors supported	9	6
Connectors	9× Mini HDMI	6× Mini DisplayPort
Maximum resolution	1920 × 1200 @ 60 Hz (HDMI, DVI)	4096 × 2160 @ 30 Hz (DisplayPort) 4096 × 2160 @ 60 Hz (DisplayPort, Max. 3 monitors) 3840 × 2160 @ 30 Hz (DisplayPort, HDMI)
HDCP compliant‡	✓	✓
Framelock	✓	✓
Maximum card dimensions	L: 9.02 in / W: 0.75 in / H: 4.376 in L: 22.91 cm / W: 1.91 cm / H: 11.115 cm	L: 6.60 in / W: 0.75 in / H: 4.045 in L: 16.76 cm / W: 1.91 cm / H: 10.274 cm
Certifications	Class A: FCC, CE, ACMA, VCCI, ICES, CSA, Korea	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea

* C680 only – DVI and HDMI monitors are supported using identical third-party active adapters (sold separately).

† C680 only – The C680-E4GBF SKU has 4 GB of memory. The C680-E2GBF SKU has 2 GB of memory.

‡ Certain limitations may apply. Matrox strongly recommends that you review the HDCP web site (www.digital-cp.com) and make sure you understand your legal obligations and responsibility.

Additional specifications – Matrox consoles

	M9120 PCIe	M9120 Plus LP PCIe	M9125 PCIe	M9140 LP PCIe
Operating systems supported	Windows® 10, Windows® Server® 2012 R2, Windows® Server® 2008 R2, Windows® 7, Windows® Embedded Standard 7, and Linux®			
Digital monitor support	DVI	DVI	Dual-link DVI	DVI
Memory	512 MB	512 MB	512 MB	512 MB
Card type	PCIe ×16	PCIe ×1 or ×16	PCIe ×16	PCIe ×16
Form factor	ATX	Low-profile	ATX	Low-profile
Monitors supported	2	2*	2	4
Connectors	2× DVI	1× LFH-60	2× DVI	1× KX20
Maximum analog resolution	2048 × 1536	2048 × 1536	2048 × 1536	1920 × 1200
Maximum digital resolution	1920 × 1200	1920 × 1200	Up to 1920 × 1200, and 2560 × 1600	1920 × 1200
Maximum card dimensions	L: 6.600 in / H: 4.376 in / W: 0.750 in L:16.80 cm / H: 11.10 cm / W: 1.91 cm	L: 6.600 in / H: 2.712 in / W: 0.750 in L: 16.80 cm / H: 6.90 cm / W: 1.91 cm	L: 6.600 in / H: 4.376 in / W: 0.750 in L: 16.80 cm / H: 11.10 cm / W: 1.91 cm	L: 6.600 in / H: 2.712 in / W: 0.750 in L: 16.80 cm / H: 6.90 cm / W: 1.91 cm
Certifications	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea			

* Quad analog display upgrade kit available (see shopmatrox.com).

	M9128 LP PCIe	M9138 LP PCIe	M9148 LP PCIe
Operating systems supported	Windows® 10, Windows® Server® 2012 R2, Windows® Server® 2008 R2, Windows® 7, Windows® Embedded Standard 7, and Linux®		
Digital monitor support	DisplayPort, DVI	DisplayPort, DVI	DisplayPort, DVI
Memory	1 GB	1 GB	1 GB
Card type	PCIe ×16	PCIe ×16	PCIe ×16
Form factor	Low-profile	Low-profile	Low-profile
Monitors supported	2	3	4
Connectors	2× DisplayPort	3× Mini DisplayPort	4× Mini DisplayPort
Maximum resolution	2560 × 1600 @ 60 Hz (DisplayPort) 1920 × 1200 @ 60 Hz (DVI)	2560 × 1600 @ 60 Hz (DisplayPort) 1920 × 1200 @ 60 Hz (DVI)	2560 × 1600 @ 60 Hz (DisplayPort) 1920 × 1200 @ 60 Hz (DVI)
Maximum card dimensions	L: 6.600 in / H: 2.712 in / W: 0.750 in L: 16.80 cm / H: 6.90 cm / W: 1.91 cm		
Certifications	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea		

	P690 PCIe ×16	P690 Plus LP PCIe ×16
Operating systems supported	Windows® Embedded Standard 7 (64-bit), Windows® 7 Professional (64-bit), Windows® 7 Professional for Embedded Systems (64-bit), Windows® Server® 2008 R2 (64-bit)	
Digital monitor support	DVI	DVI
Memory	128 MB	256 MB
Card type	PCIe ×16	PCIe ×16
Form factor	Full height	Low-profile
Monitors supported	2	2 DVI / 4 HD-15
Connectors	2× DVI	1× LFH-60
Maximum resolution	1920 × 1200 @ 60 Hz (DVI) 2048 × 1536 @ 60 Hz (HD-15)	1920 × 1200 @ 60 Hz (DVI, 4× HD-15)) 2048 × 1536 @ 60 Hz (2× HD-15)
Maximum card dimensions	L: 6.6 in / H: 4.376 in / W: 0.75 in L: 16.76 cm / H: 11.12 cm / W: 1.91 cm	L: 6.6 in / H: 2.712 in / W: 0.75 in L: 16.76 cm / H: 6.89 cm / W: 1.91 cm
Certifications	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea	Class B: FCC, CE, ACMA, VCCI, ICES, CSA, Korea

Environmental

Temperature, operational	Mura MPX Series: 0 to 40 ºC (32 to 104 ºF) Mura IPX Series: 0 to 45 ºC (32 to 113 ºF) C-Series: 5 to 55 ºC (41 to 131 ºF) (near board ambient)
Temperature, non-operational storage and transportation	Mura IPX and MPX Series: -40 to 65 ºC (-40 to 149 ºF) C-Series: -40 to 70ºC (-40 to 158 ºF)
Humidity, operational (indoor)	20 to 80% (non-condensing)
Humidity, non-operational storage and transportation	10% to 95% (non-condensing)
Atmospheric pressure, operational	650hPa (3,580 meters / 11,745 feet) to 1013hPa (0 meters / 0 feet)
Atmospheric pressure, non-operational and transportation	192hPa (12,000 meters / 39,370 feet) to 1020hPa (-50 meters / -164 feet)

Mean Time Before Failure (MTBF)

	MTBF*
MURA-IPX-O4DF	7.09 years or 62,149 hours
MURA-IPX-I4EHF	79.19 years or 693,669 hours
MURA-IPX-I4EF	7.26 years or 63,598 hours
MURA-IPX-I4DHF	79.19 years or 693,669 hours
MURA-IPX-I4DF	7.26 years or 63,598 hours
Mura MPX-4/4 †	71.11 years or 622,944 hours
Mura MPX-4/2 †	75.41 years or 660,615 hours
Mura MPX-4/0 †	90.03 years or 788,631 hours
Mura MPX-V16 †	89.48 years or 783,822 hours
Mura MPX-V8 †	142.26 years or 1,246,230 hours
Mura MPX-SDI †	102.33 years or 896,427 hours

* Calculated at operating temperature of 40 ºC, operating 24 hours/day. For more information, contact your Matrox representative.

† Applies to MPX fanless SKUs only.

Notes

- The display resolutions and refresh rates available depend on your Matrox card, driver, software monitor settings, and monitor. For information on the capabilities of your monitor, see your monitor documentation.

Appendix A – Firewall requirements

The following are the firewall requirements for your display wall system and for a network when using Network API, MuraControl, or a Mura IPX Series product.

Network API and MuraControl

The following are the firewall requirements when using Network API or MuraControl through the network to configure your display wall controller.

Network ports	Type	Inbound	Outbound	Functionality
23	TCP	✓	✓	**Telnet**: Telnet commands
46272	TCP	✓	✓	**HTTPS**: Authentication

Display wall system

The following are the requirements for a network firewall present on a network with a Mura IPX Series product.

Network ports	Type	Inbound	Outbound	Functionality
69	UDP	—	✓	**DHCP**: DHCP client
123	UDP	✓	✓	**NTP**: Network Time Protocol
161	UDP	✓	✓	**SNMP**: Network management – public community string
1900	UDP	✓	✓	**UPnP**: Microsoft SSDP for discovery of UPnP devices
554, 8554*	TCP	✓	✓	**RTSP**: Streaming (configurable)
16000+	UDP	✓	✓	**RTP/RTCP**: Audio and video streams and control

* Default ports. Actual ports may vary.

Matrox IPX Updater

The following are the firewall requirements for a system running the network version of the Matrox IPX Updater.

Network Port	Type	Inbound	Outbound	Functionality
20,21	TCP	—	✓	**FTP**: File upload
22*	TCP	✓	✓	**SSH**: Firmware update
443*	TCP	—	✓	**HTTPS**: Authentication
1900*	UDP	✓	✓	**UPnP**: Microsoft SSDP for discovery of UPnP devices

* Minimum requirements.

Accessing your Windows Firewall settings

> **Note:** You may need administrator rights to modify your Windows Firewall settings. For more information, see Windows documentation or contact your system administrator.

To access your Windows Firewall settings:

Windows 10/7 –

1. Windows 10 – Click **Start → Settings → Network & Internet → Ethernet → Windows Firewall**.

   Windows 7 – Click **Control Panel → Network and Internet** * **→ Network and Sharing Center** *. (* Depending on your configuration, these steps may be unnecessary.)

2. Windows 10 – In the left panel, click **Advanced Settings**.

   Windows 7 – In the left panel, click **Windows Firewall → Advanced Settings**.

Appendix B – Adding a console display

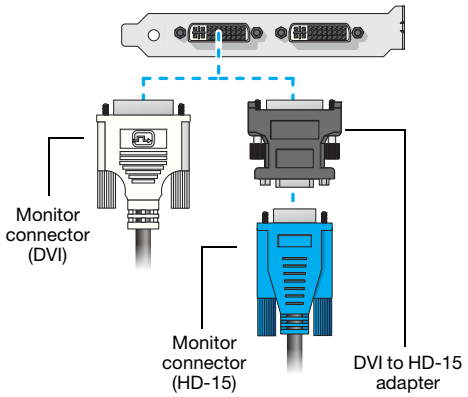
With a console display, you can run applications to manage the layout of the display wall locally without affecting the appearance of your display wall.

Supported hardware

	Supported console	More information
Mura MPX Series	P690 PCIe ×16	See page 67.
	P690 Plus LP PCIe ×16 (dual-monitor cable)	See page 68.
	P690 Plus LP PCIe ×16 (quad-monitor cable)	See page 70.
C900, C680	M9120, M9125 PCIe ×16	See page 71.
	M9120 Plus LP PCIe ×1 / ×16	See page 72.
	M9140 LP PCIe ×16	See page 73.
	M9128 LP PCIe ×16	See page 74.
	M9138 LP PCIe ×16, M9148 LP PCIe ×16	See page 75.

Matrox P690 PCIe ×16

Connection overview



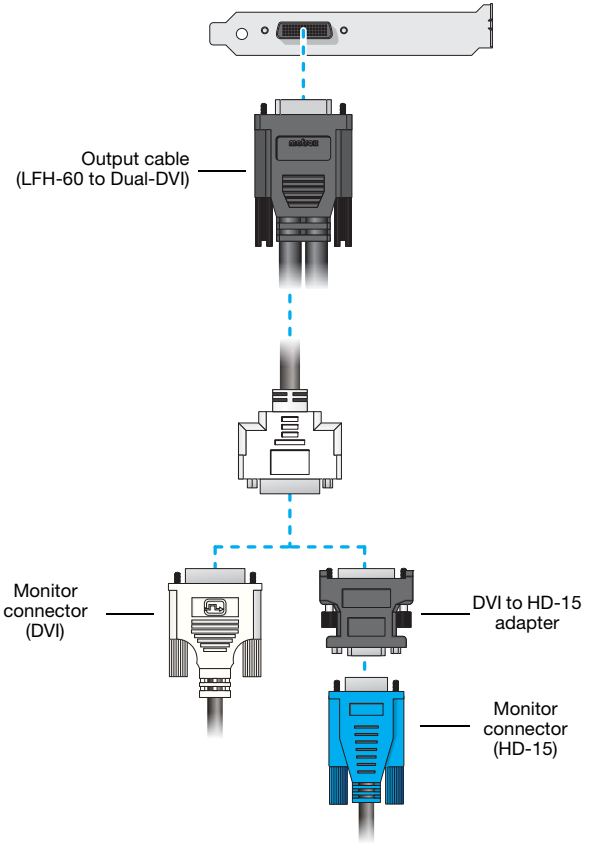
Description of supported connections

The following describes the connections supported by your P690 graphics card.

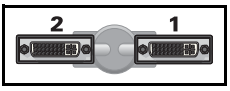
Device connector	Description
DVI	If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your Matrox card.
HD-15	If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your Matrox card.

Matrox P690 Plus LP PCIe ×16 (dual-monitor cable)

Connection overview



Description of cable

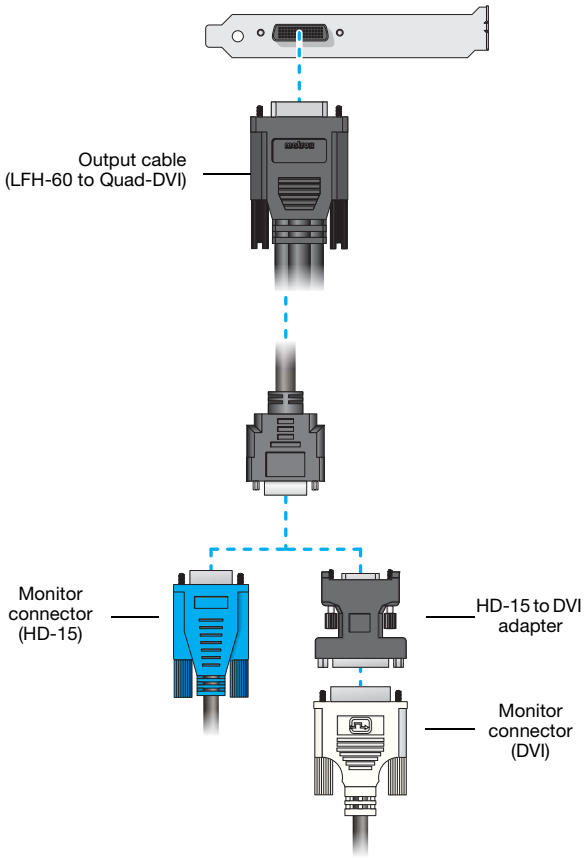
Cable	Description
Output	Matrox P690 cards use an LFH-60 to dual-DVI cable to connect up to two (2) monitors per card. Monitors are numbered consecutively based on which connector each is attached to, starting with connector labeled 1.  LFH-60 to dual-DVI cable

Description of supported connections

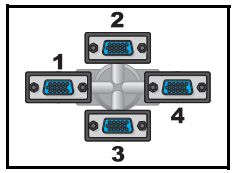
Device connector	Description
DVI	If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your output cable.
HD-15	If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your output cable.

Matrox P690 Plus LP PCIe ×16 (quad-monitor cable)

Connection overview



Description of cable

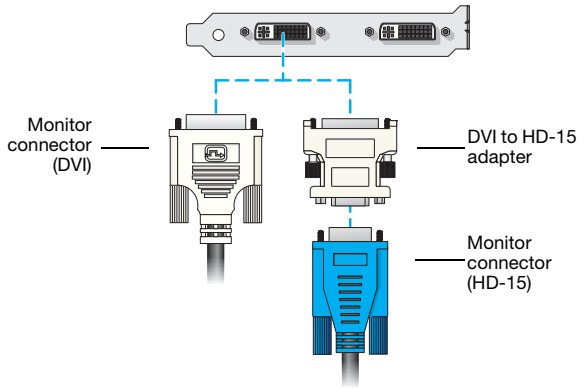
Cable	Description
Output	Matrox P690 cards use an LFH-60 to quad-HD15 cable to connect up to four (4) monitors per card. Monitors are numbered consecutively based on which connector each is attached to, starting with connector labeled 1.  LFH-60 to quad-HD-15 cable

Description of supported connections

Device connector	Description
HD-15	If your monitor uses an HD-15 connector, connect it directly to your quad-monitor cable.
DVI	If your monitor uses a DVI connector and supports analog input, you need an HD15-to-DVI adapter (sold separately). Some monitors with DVI connectors support both digital and analog input. If you're using one of these monitors with your Matrox product, make sure it's configured to use analog input. For more information, see your monitor documentation.

Matrox M9120 and M9125 PCIe ×16

Connection overview

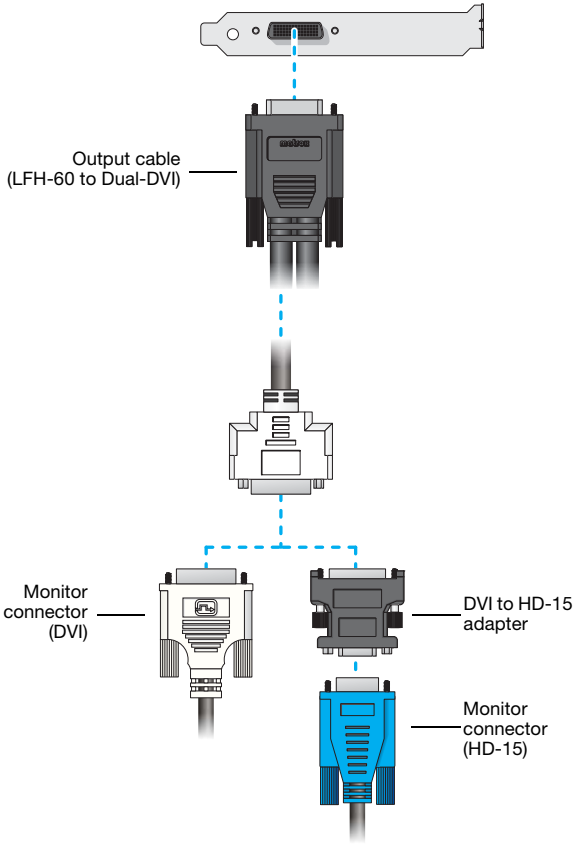


Description of supported connections

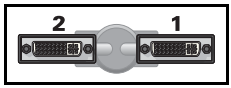
Device connector	Description
DVI	If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your Matrox card.
HD-15	If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your Matrox card.

Matrox M9120 Plus LP PCIe ×1 / ×16

Connection overview



Description of cable

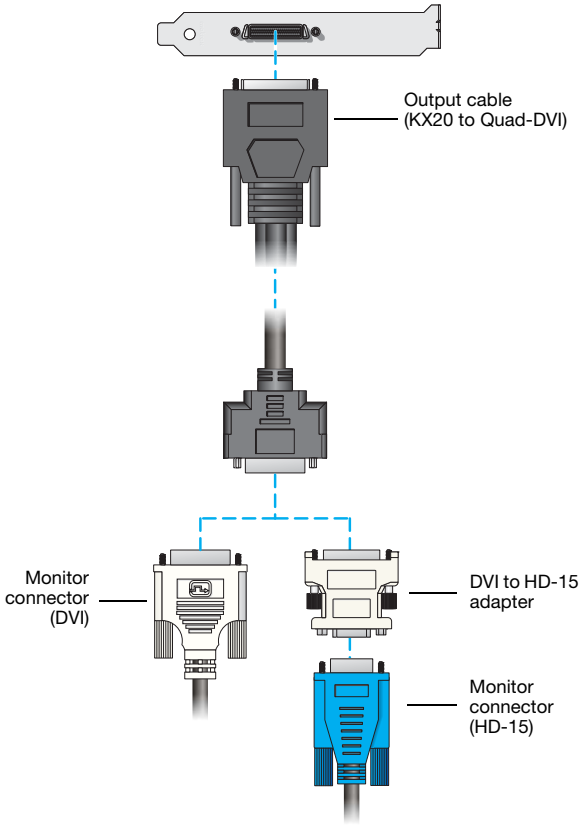
Cable	Description
Output	M9120 Plus LP cards use an LFH-60 to dual-DVI cable to connect up to two (2) monitors per card. Monitors are numbered consecutively based on which connector each is attached to, starting with connector labeled 1.  LFH-60 to dual-DVI cable

Description of supported connections

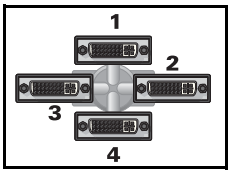
Device connector	Description
DVI	If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your output cable.
HD-15	If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your output cable.

Matrox M9140 LP PCIe ×16

Connection overview



Description of cables

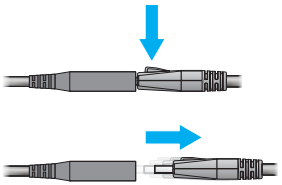
Cable	Description
Output	M9140 cards use KX20 to quad-DVI cables to connect up to four (4) monitors per card. Monitors are numbered consecutively based on which connector each is attached to, starting with connector labeled 1.  KX20 to quad-DVI cable

Description of supported connections

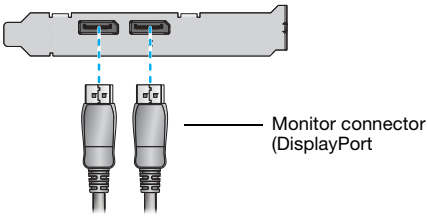
Device connector	Description
DVI	If your monitor has a DVI connector, connect your monitor cable directly to a DVI connector on your output cable.
HD-15	If your monitor has an HD-15 connector, use a DVI to HD-15 adapter included with your Mura product to connect your monitor cable to your output cable.

Matrox M9128 LP PCIe ×16

WARNING: To avoid damaging the DisplayPort connector on your DisplayPort monitor cable or on your graphics hardware, carefully remove the DisplayPort cable by pressing the latch on the top of the DisplayPort connector while removing the connector.



Connection overview

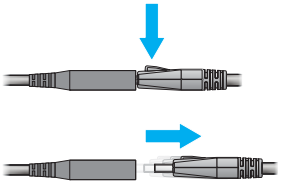


Description of supported connections

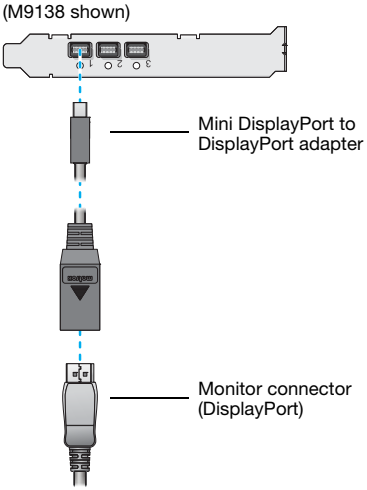
Device connector	Description
DisplayPort	If your monitor has a DisplayPort connector, attach your monitor cable to the DisplayPort connector on your Matrox card. Connect the other end of the cable to your monitor.
DVI	If your monitor has a DVI connector, use a DisplayPort to DVI adapter (active) to connect your monitor cable to the DisplayPort connector on your Matrox card. Connect the other end of the cable to your monitor.

Matrox M9138 LP PCIe ×16 and M9148 LP PCIe ×16

WARNING: To avoid damaging the DisplayPort connector on your DisplayPort monitor cable or on your graphics hardware, carefully remove the DisplayPort cable by pressing the latch on the top of the DisplayPort connector while removing the connector.



Connection overview



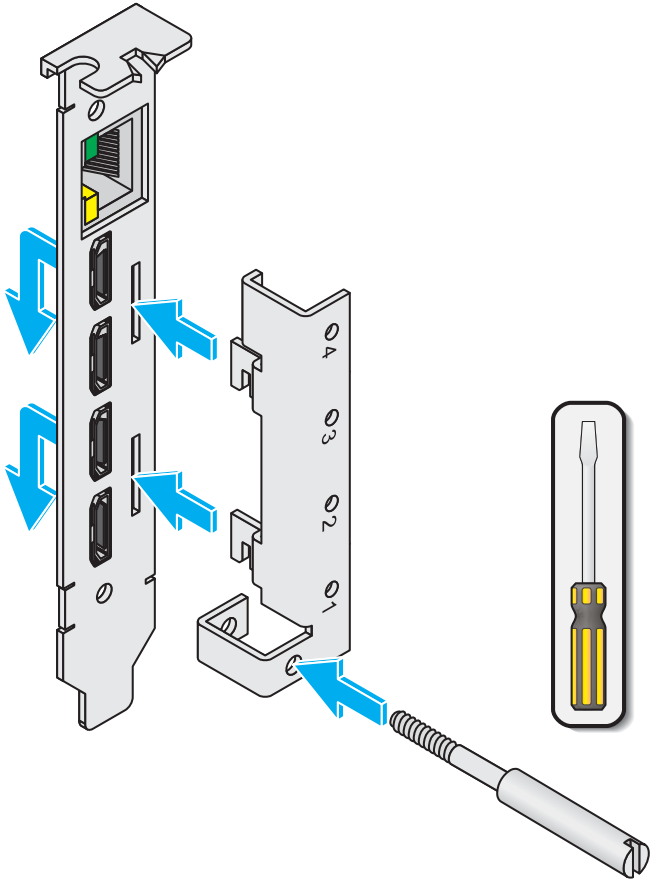
Description of supported connections

Device connector	Description
DisplayPort	If your monitor has a DisplayPort connector, attach your mini DisplayPort to DisplayPort cable to your Matrox card. Connect the other end of the cable to your monitor.
DVI	If your monitor has a DVI connector, use a mini DisplayPort to DVI-D adapter (active) to connect your monitor cable to the mini DisplayPort connector on your output cable. Connect the other end of the cable to your monitor.

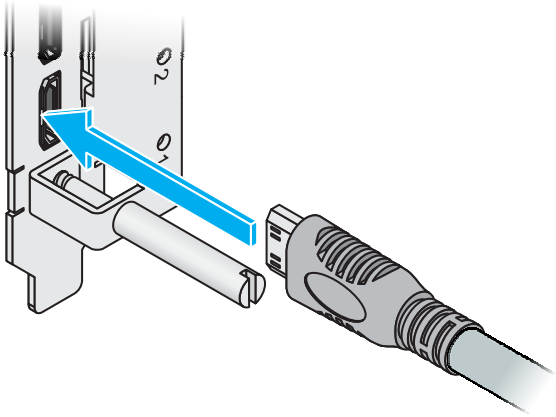
Appendix C – Matrox secure cable solution

Mini HDMI® – MURA-IPX-I4EF • MURA-IPX-I4EHF • MURA-IPX-I4DF • MURA-IPX-I4DHF

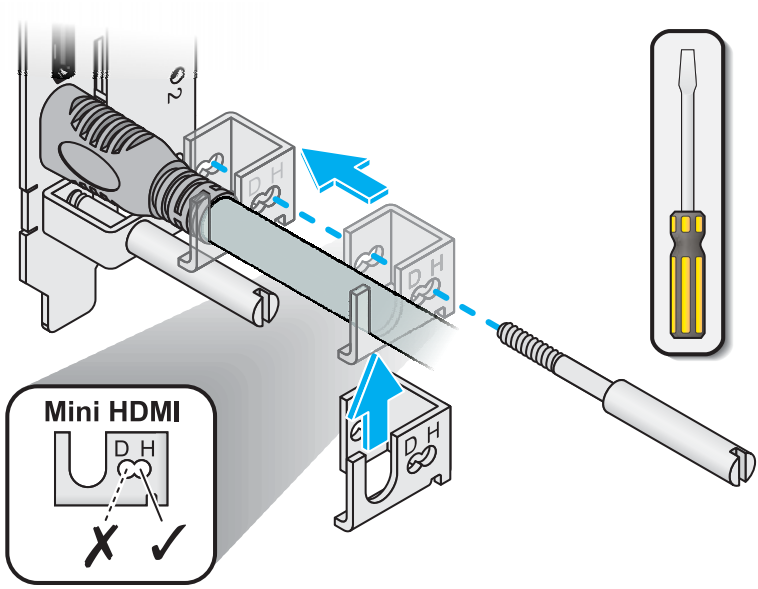
1



2



3



Customer support

Matrox Web

Our Web site has product literature, press releases, technical material, a sales office list, trade show information, and other relevant material. Visit the Matrox Graphics Web site at www.matrox.com/graphics.

Technical support

Matrox values your business and offers professional support for your Matrox product. If you have a problem, we recommend you follow the procedure below for the quickest results.

1. **Contact your integrator** – This is usually the quickest and most effective method of technical assistance. Your integrator is familiar with your complete system. In the case of hardware warranty assistance, the product must be returned to the integrator, who will return it to Matrox.
2. If your Matrox product was provided by your computer manufacturer, contact this manufacturer. For contact information, see your computer documentation or contact the vendor.
3. **Direct Matrox technical support** – If you still can't resolve a problem (and your Matrox product wasn't provided by your computer manufacturer), you can get technical assistance by contacting Matrox technical support at dwcsupport@matrox.com.

Information we need

Please give a complete description of the problem, and include:

- Matrox card serial number, model number, revision number, BIOS number, driver type and version, and memory address at which the Matrox card is installed.
- Computer brand and model name.
- Monitor brand and model name.
- Operating system, version, and service pack.
- Brand and model of any other cards and devices installed on your system.

Program specific problems

If a problem appears with a specific program, please give us the following information:

- Display settings (color palette, display resolution, and so on) applied when the problem occurs.
- If possible, take note of the file and segment address that caused the problem.
- Detailed steps known to cause the bug, so we can reproduce it.

Driver and software download

From your integrator or manufacturer – If your product was purchased through an integrator or a manufacturer, contact them for the latest display driver, software, and system utilities as they're familiar with your complete system. An integrator or a manufacturer may also have directives regarding software updates.

Directly from Matrox – A more recent display driver may support more features and may offer increased capabilities (such as higher display resolutions). Matrox makes the latest display drivers, software, and system utilities available on the Matrox Technical Support Web site (www.matrox.com/graphics/en/support/drivers).

View your warranty information

Matrox makes warranty information available on the Matrox site (www.matrox.com/graphics/en/about/warranty).

Third party software notices and/or additional terms and conditions

Matrox makes information about any open-source packages used for your product available on the Matrox site (thirdpartylicenses.matrox.com).

Register your Matrox product

Please register online (www.matrox.com/graphics/en/registration) to receive new product announcements and information on special offers and upcoming events.

Hot surface Allow hot surfaces to cool before touching your Matrox unit.

Surface chaude Laissez refroidir les surfaces chaudes avant de toucher votre appareil Matrox.

Battery replacement The battery is non replaceable. To dispose of your product, see www.matrox.com/environment/weee.

Remplacement des piles La pile n'est pas remplaçable. Pour se défaire du produit, voir www.matrox.com/environment/weee.

USA

FCC Compliance Statement

Remark for the Matrox hardware products supported by this guide This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: • Reorient or relocate the receiving antenna • Increase the separation between the equipment and receiver • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected • Consult the dealer or an experienced radio/TV technician for help.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment.

Declaration of conformity of a Class B digital device according to the FCC rules

We, the Responsible Party Matrox, 2002 Ridge Road, Champlain, NY 12919 • Telephone: (514) 822-6000 (extension 2026) • Attention: Conformity Group Matrox

Declaration The Matrox hardware products supported by this guide comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation. Any question regarding this declaration should be forwarded to the above coordinates.

CANADA

(English) Industry Canada Compliance Statement

Remark for the Matrox hardware products supported by this guide These digital devices do not exceed the Class B limits for radio noise emission from digital devices set out in the Radio Interference Regulation of Industry Canada.

(Français) Conformité avec les exigences du ministère de l'Industrie Canada

Remarque sur les produits matériels Matrox couverts par ce guide Ces appareils numériques n'émettent aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

USA

FCC Compliance Statement

Remark for the Matrox hardware products supported by this guide This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment. The use of shielded cables for connection of the monitor to the card is required to meet FCC requirements.

CANADA

(English) Industry Canada Compliance Statement

Remark for the Matrox hardware products supported by this guide These digital apparatus does not exceed the Class A limits for radio noise emission from digital devices set out in the Radio Interference Regulation of Industry Canada.

(Français) Conformité avec les exigences du ministère de l'Industrie Canada

Remarque sur les produits matériels Matrox couverts par ce guide Ce present appareil numérique n'émet aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

JAPAN

VCCI Compliance Statement

Remark for the Matrox hardware products supported by this guide This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。 VCCI－B

JAPAN

VCCI Compliance Statement

Remark for the Matrox hardware products supported by this guide This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

KOREA

B 급 기기 (가정용 방송통신기자재)
이 기기는 가정용 (B 급) 전자파적합기기로서 주 로 가정에서 사용하는 것을 목적으로 하며 , 모든 지역에서 사용할 수 있습니다 .

KOREA

A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주의하시기 바라 며 , 가정외의 지역에서 사용하는 것을 목적으 로 합니다 .

EUROPE

(English) European user's information – Information on Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with EC Directive 2014/30/EU for a Class B digital device. They have been tested and found to comply with EN55022/CISPR22 and EN55024/CISPR24. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. These products have been tested in a typical class B compliant host system. It is assumed that these products will also achieve compliance in any class B compliant system.

(Français) Informations aux utilisateurs Européens – Informations sur la conformité

Remarque sur les produits matériels Matrox couverts par ce guide Ces unités sont conformes à la directive communautaire 2014/30/EU pour les unités numériques de classe B. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55022/CISPR22 et EN55024/CISPR24. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Ces produits ont été testés dans un système hôte typique compatible classe B. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe B.

(Deutsch) Information für europäische Anwender – Konformitäts-Informationen

Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch Diese Geräte entsprechen EC Direktive 2014/30/EU für ein digitales Gerät Klasse B. Sie wurden getestet und entsprechen demnach EN55022/CISPR22 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Diese Produkt wurden in einem typischen, der Klasse B entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse B entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Informazioni sulla conformità

Nota per i prodotti hardware Matrox supportati da questa guida Questi dispositivi sono conformi alla direttiva CEE 2014/30/EU relativamente ai dispositivi digitali di Classe B. Sono stati provati e sono risultati conformi alle norme EN55022/CISPR22 e EN55024/CISPR24. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Questi prodotti sono stati provati in un tipico sistema host conforme alla classe B. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla classe B.

(Español) Información para usuarios europeos – Información sobre la conformidad

Observación referente a los productos de hardware de Matrox apoyados por este manual Estos dispositivos cumplen con la directiva de la CE 2014/30/EU para dispositivos digitales de Clase B. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55022/CISPR22 y EN55024/CISPR24. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la clase B.

EUROPE

(English) European user's information – Declaration of Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with EC Directive 2014/30/EU for a Class A digital device. They have been tested and found to comply with EN55022/CISPR22 and EN55024/CISPR24. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. To meet EC requirements, shielded cables must be used to connect the monitor and other peripherals to the card. These products have been tested in a typical class A compliant host system. It is assumed that these products will also achieve compliance in any class A compliant system.

(Français) Informations aux utilisateurs Européens – Déclaration de conformité

Remarque sur les produits matériels Matrox couverts par ce guide Ces unités sont conformes à la directive communautaire 2014/30/EU pour les unités numériques de classe A. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55022/CISPR22 et EN55024/CISPR24. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Pour respecter les impératifs communautaires, les câbles de connexion entre le moniteur ou autres périphériques et la carte doivent être blindés. Ces produits ont été testés dans un système hôte typique compatible classe A. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe A.

(Deutsch) Information für europäische Anwender – Konformitätserklärung

Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch Diese Geräte entsprechen EC Direktive 2014/30/EU für ein digitales Gerät Klasse A. Sie wurden getestet und entsprechen demnach EN55022/CISPR22 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Um EG-Anforderungen zu entsprechen, müssen zum Anschließen des Monitors und anderer Peripheriegeräte an die Karte abgeschirmte Kabel verwendet werden. Diese Produkt wurden in einem typischen, der Klasse A entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse A entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Dichiarazione di conformità

Nota per i prodotti hardware Matrox supportati da questa guida Questi dispositivi sono conformi alla direttiva CEE 2014/30/EU elativamente ai dispositivi digitali di Classe A. Sono stati provati e sono risultati conformi alle norme EN55022/CISPR22 e EN55024/CISPR24. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Per soddisfare i requisiti CEE, il monitor e le altre periferiche vanno collegati alla scheda grafica con cavi schermati. Questi prodotti sono stati provati in un tipico sistema host conforme alla classe A. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla classe A.

(Español) Información para usuarios europeos – Declaración de conformidad

Observación referente a los productos de hardware de Matrox apoyados por este manual Estos dispositivos cumplen con la directiva de la CE 2014/30/EU para dispositivos digitales de Clase A. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55022/CISPR22 y EN55024/CISPR24. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Para satisfacer las disposiciones de la CE, deberán utilizarse cables apantallados para conectar el monitor y demás periféricos a la tarjeta. Estos productos han sido sometidos a prueba en un típico sistema anfitrión que responde a los requisitos de la clase A. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la clase A.

ROVI CORPORATION

(Italiano) Questo prodotto incorpora la tecnologia di protezione di copia protetta da uno o più brevetti USA e da altri diritti di proprietà intellettuale di Rovi Corporation. È vietato decodificare o disassemblare il prodotto.

(Español) Este producto incorpora tecnología de protección de copia que está protegida por patente(s) de EE. UU. y por otros derechos de propiedad intelectual de Rovi Corporation. La ingeniería inversa y el desmontaje están prohibidos.

EUROPE

(English) European user's information – Directive on Waste Electrical and Electronic Equipment (WEEE)

Please refer to the Matrox Web site (www.matrox.com/environment/en/weee) for recycling information.

(Français) Informations aux utilisateurs Européens – Règlementation des déchets d'équipements électriques et électroniques (DEEE)

Se référer au site Web de Matrox (www.matrox.com/environment/en/weee) pour l'information concernant le recyclage.

(Deutsch) Information für europäische Anwender – Europäische Regelungen zu Elektro- und Elektronikaltgeräten (WEEE)

Bitte wenden Sie sich an der Matrox-Website (www.matrox.com/environment/en/weee) für Recycling-Informationen.

(Italiano) Informazioni per gli utenti europei – Direttiva sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)

Si prega di riferirsi al sito Web Matrox (www.matrox.com/environment/en/weee) per le informazioni di riciclaggio.

FRANCE

Avertissement sur l'épilepsie

À lire avant toute utilisation d'un jeu vidéo par vous-même ou votre enfant Certaines personnes sont susceptibles de faire des crises d'épilepsie ou d'avoir des pertes de conscience à la vue de certains types de lumières clignotantes ou d'éléments fréquents dans notre environnement quotidien. Ces personnes s'exposent à des crises lorsqu'elles regardent certaines images télévisées ou qu'elles jouent à certains jeux vidéo. Ces phénomènes peuvent apparaître alors même que le sujet n'a pas d'antécédent médical ou n'a jamais été confronté à une crise d'épilepsie.

Si vous-même ou un membre de votre famille avez déjà présenté des symptômes liés à l'épilepsie (crise ou perte de conscience) en présence de stimulations lumineuses, veuillez consulter votre médecin avant toute utilisation.

Nous conseillons aux parents d'être attentifs à leurs enfants lorsqu'ils jouent avec des jeux vidéo. Si vous-même ou votre enfant présentez un des symptômes suivants: vertige, trouble de la vision, contraction des yeux ou des muscles, perte de conscience, trouble de l'orientation, mouvement involontaire ou convulsion, veuillez immédiatement cesser de jouer et consultez un médecin.

Précautions à prendre dans tous les cas pour l'utilisation d'un jeu vidéo Ne vous tenez pas trop près de l'écran. • Jouez à bonne distance de l'écran de TV et aussi loin que le permet le cordon de raccordement. • Utilisez de préférence les jeux de vidéo sur un écran de petite taille. • Évitez de jouer si vous êtes fatigué ou si vous manquez de sommeil. • Assurez-vous que vous jouez dans une pièce bien éclairée. • En cours d'utilisation, faites des pauses de dix à quinze minutes toutes les heures.

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