

**Onyx2™ InfiniteReality™
Digital Display Option (DDO2)
Installation Guide**

Document Number 108-0182-001

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Attention

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Document Number 108-0182-001**

**Silicon Graphics Inc.
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About This Guide

This document is intended to provide Silicon Graphics System Support Engineers (SSEs) and factory authorized personnel with the basic information needed to install the Onyx2™ InfiniteReality™ Digital Display Option (DDO2) board set in Onyx2 deskmount and rackmount systems. The manual is organized as follows:

- Chapter 1 “Digital Display Option Overview” describes the necessary hardware configurations for a successful DDO2 board set installation. It provides a product overview and describes a list of applicable parts.
- Chapter 2 “Installing the Digital Display Option” describes the installation procedures required to unpack, cable, and install the DDO2 board set in Onyx2 deskmount and rackmount systems.

It is recommended that you start at the beginning of this document to familiarize yourself with the features and overview of the hardware option. Afterwards, proceed to the installation chapter.

System installation manuals for the Onyx2 products may provide additional helpful hardware and software information.

Chapter 1

Digital Display Option Overview

This chapter provides a product overview and a list of applicable parts.

1.1 Digital Display Option Product Description

The Onyx2 Infinite Reality Digital Display Option (DDO2) is a kit that replaces a standard DG5-2 board to provide specialized, high-resolution, digital imagery capabilities for Onyx2 desktside and rackmount systems.

The DDO2 kit consists of an external CrayLink cable and a DDO2 board set. (The DDO2 board set is composed of a DG5-2 board with an attached DVP2 daughter card.)

The DDO2 board set is installed in the same chassis slot as the original DG5-2 board. The CrayLink cable connects the DDO2 board set to the customer's specialized digital imagery equipment that allows high-resolution graphics emulation. Figure 1-1 shows the DDO2 board set and its connectors.

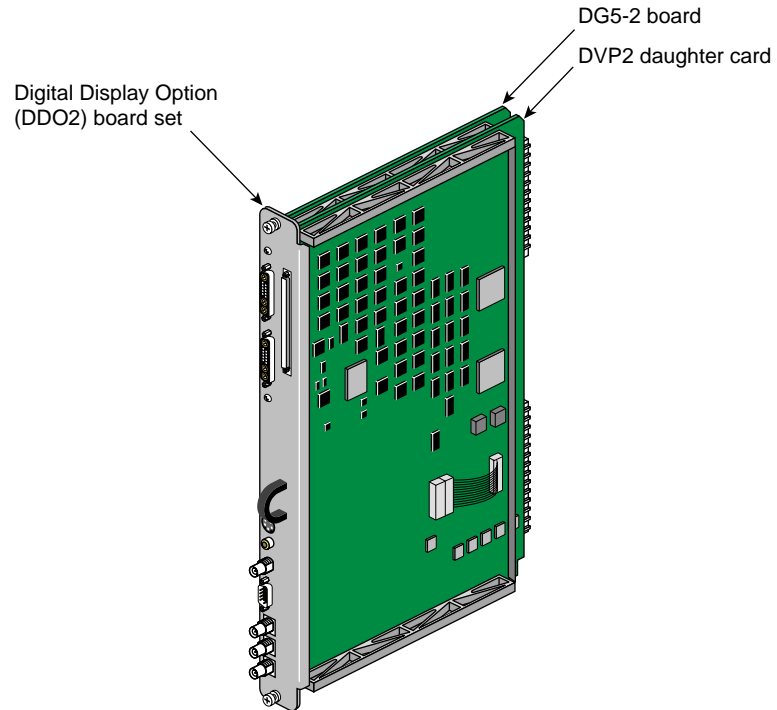


Figure 1-1 Digital Display Option (DDO2) Board Set

1.2 Unpacking and Checking the Parts

Read this section for information on unpacking and checking the DDO2 board set parts. Before beginning the installation procedure, verify that all parts necessary for installation are present. See Figure 1-2 and the following list:

- Digital Display Option (DDO2) Board Set (p/n 013-1973-001)
- Craylink cable (p/n 018-0579-001)
- Installation Guide (p/n 108-0182-001)

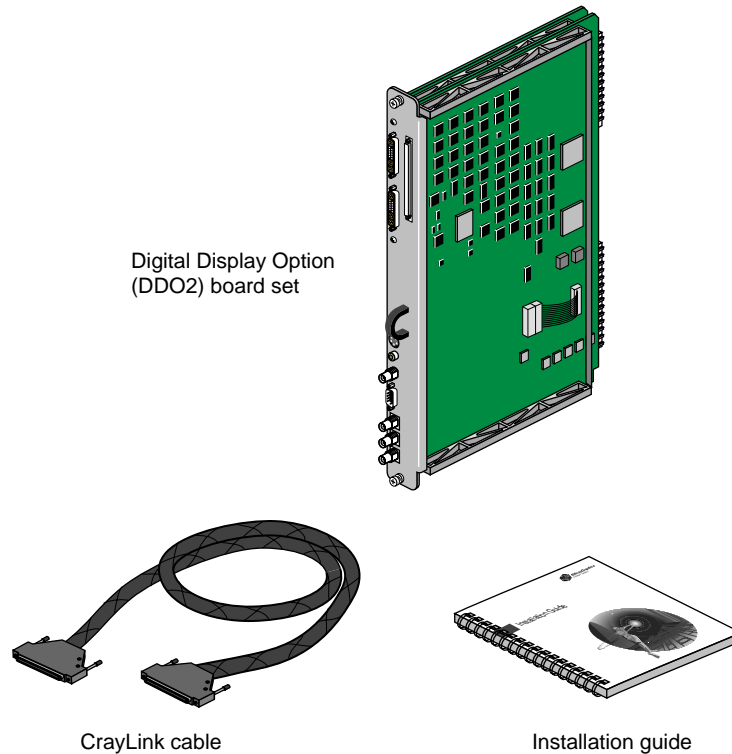


Figure 1-2 Digital Display Option (DDO2) Kit

1.3 Restrictions and Important Notes

The DVP2 daughter card is designed for use with a DG5-2 board only. The Digital Display Option (DDO2) does not support Onyx2 systems configured with DG5-8 boards.

1.4 Safety



Read these safety statements carefully before you install or remove any part of the system.

Warning: Installation of this product requires specific training and technical knowledge. These instructions have been provided for the use of Silicon Graphics system support engineers (SSEs) or Silicon Graphics trained and authorized personnel only. This equipment uses electrical power internally that is hazardous if the equipment is improperly assembled or disassembled.

Caution: This equipment is extremely sensitive to damage from electrostatic discharge (ESD), an electrical charge caused by the buildup of electrical potential on clothing and other materials. You must use the following ESD preventive measures:

- Attach a ground strap to your wrist when connecting or disconnecting boards.
- To avoid damage from ESD, ensure that you and all electrical equipment that you handle during this installation are at ground potential.
- Keep the boards in the provided antistatic bags until they are needed.
- Do not place boards on top of the antistatic bag unless the outside of the bag also has antistatic protection. If you are not sure that the outside of the bag is protected, place the boards on top of an antistatic mat.
- Remove a board from its antistatic bag only when you are properly grounded to the chassis ground with a ground strap.
- Do not disconnect the power cord from the wall socket *or* the chassis if you are servicing a system or installing a hardware upgrade. You will lose the system ground and could damage the equipment as a result.
- Do not use an ohmmeter on the boards because ICs and other sensitive parts may be damaged.

Chapter 2

Installing the Digital Display Option

2.1 Overview

This chapter describes how to install the Digital Display Option (DDO2) board set in Onyx2 deskside and rackmount systems.

2.2 Digital Display Option Installation Summary

The installation procedure is divided into the following steps:

1. Power down the system.
2. Remove the existing DG5-2 board.
3. Install the replacement DDO2 board set in the chassis.
4. Restart the system and install the DDO2 patch (# 2326).
5. Test the installation.

For detailed information about each step, refer to the following sections. Additional information about replacing other circuit boards can be found in the following Silicon Graphics document: *Origin2000 and Onyx2 Deskside and Rackmount Installation Instructions* (108-0155-xxx)

If applicable, be sure you have other pertinent release notes and field information bulletins.

2.3 Installing the Digital Display Option in Onyx2 Deskside Systems

2.3.1 Removing the Existing DG5-2 Board

To remove the existing DG5-2 board, refer to Figure 2-1 and complete the following steps:

1. With the customer's help, make sure all users are off the system. Shut down and power off the system.



Warning: Wait two full minutes after turning off the power to allow the system's stored electrical charge to dissipate. Failure to wait can cause serious injury or death due to electrocution from power stored within the system components.

2. Prepare a nonstatic surface large enough to accommodate the existing DG5-2 board and the replacement DDO2 board set.
3. Remove the new DDO2 board set from its antistatic bag. (Retain the antistatic bag for the old DG5-2 board.)
4. Disconnect the cables from the DG5-2 board connectors.
5. Carefully remove the DG5-2 board, taking care not to damage components on it or adjacent boards.
6. Place the DG5-2 board in the antistatic bag, package it appropriately, and send it back to Silicon Graphics.

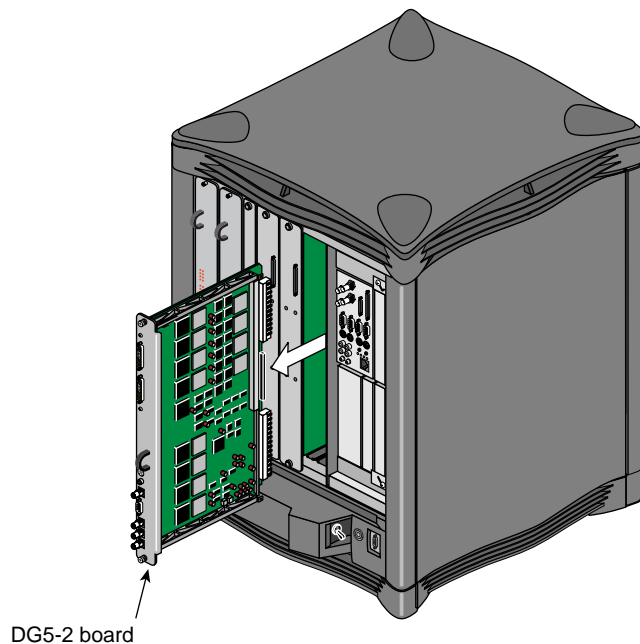


Figure 2-1 Removing the DG5-2 Board

2.3.2 Installing the DDO2 Board Set in the Chassis

To install the new DDO2 board set in the system chassis, see Figure 2-2 and complete the following steps:

1. Carefully position the new DDO2 board set over the same chassis slot that contained the DG5-2 board.
2. Insert the DDO2 board set completely into the chassis until it seats firmly into the backplane connectors.
3. Secure the DDO2 board set to the chassis by tightening the thumb screws.

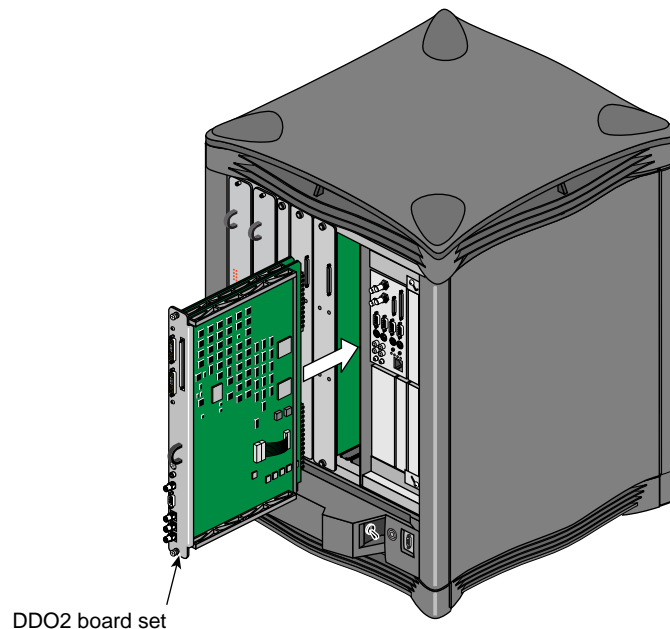


Figure 2-2 Installing the DDO2 Board Set

2.3.3 Connecting the CrayLink Cable

To connect the CrayLink cable to the DDO2 board set, see Figure 2-3 and complete the following steps:

1. Attach the one end of the external CrayLink cable to the Digital Video Pixel Output connector.
2. Attach the other end of the CrayLink cable to the customer's specialized digital imagery equipment.
3. If required, attach all other cables that were connected to the original DG5-2 board.
4. Ground the specialized digital imagery chassis to the Onyx2 chassis through a dedicated ground strap.

Note: Grounding issues are very important in the Onyx2 systems. Each Silicon Graphic's system chassis must be well grounded through its power connector. All Onyx2 chassis connected with XIO copper cables must share the same transformer, be well grounded through the same earthing rod, and be on the same branch circuit. If you have any doubts about the quality of the ground connection, it is important that you consult with a qualified electrician. A grounding cable connected between the specialized digital imagery chassis and the host Onyx2 system eliminates any problems related to common grounding.

5. When finished, install the DDO2 software patch and test the system (see Section 2.5).

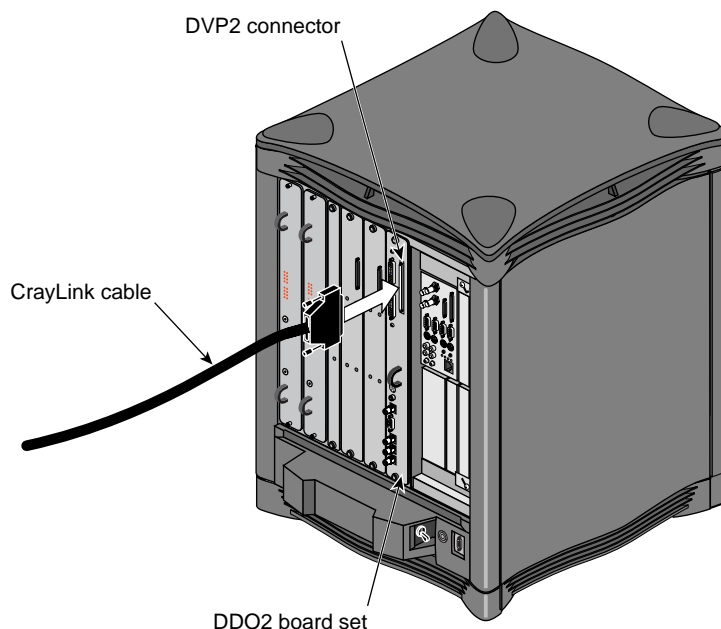


Figure 2-3 Connecting the CrayLink Cable

2.4 Installing the Digital Display Option in Onyx2 Rackmount Systems

2.4.1 Removing the Existing DG5-2 Board

To remove the existing DG5-2 board, complete the following steps:

1. With the customer's help, make sure all users are off the system. Shut down and power off the system.



Warning: Wait two full minutes after turning off the power to allow the system's stored electrical charge to dissipate. Failure to wait can cause serious injury or death due to electrocution from power stored within the system components.

2. Prepare a nonstatic surface large enough to accommodate the existing DG5-2 board and the replacement DDO2 board set.

3. Remove the new DDO2 board set from its antistatic bag. (Retain the antistatic bag for the old DG5-2 board.)
4. Disconnect the cables from the DG5-2 board connectors.
5. Carefully remove the DG5-2 board, taking care not to damage components on it or adjacent boards.
6. Place the DG5-2 board in the antistatic bag, package it appropriately, and send it back to Silicon Graphics.

2.4.2 Installing the DDO2 Board Set in the Chassis

To install the new DDO2 board set in the system chassis, complete the following steps:

1. Carefully position the new DDO2 board set over the same chassis slot that contained the DG5-2 board.
2. Insert the DDO2 board set completely into the chassis until it seats firmly into the backplane connectors.
3. Secure the DDO2 board set to the chassis by tightening the thumb screws.

2.4.3 Connecting the CrayLink Cable

To connect the CrayLink cable to the DDO2 board set, complete the following steps:

1. Attach the one end of the external CrayLink cable to the Digital Video Pixel Output connector.
2. Attach the other end of the CrayLink cable to the customer's specialized digital imagery equipment.
3. If required, attach all other cables that were connected to the DG5-2 board.
4. Ground the specialized digital imagery chassis to the Onyx2 chassis by connecting a dedicated ground strap to the two systems.

Note: Chassis grounds (on the Onyx2 system and the customer equipment) must be at the same potentials, and supplied from the same AC mains and ground. If there is a significant difference in ground potential between the two equipment chassis, a shutdown of the DDO2 interface will occur to prevent equipment damage. Power to both chassis should be supplied from the same AC electrical source in order to minimize ground differentials between chassis. Any difference in ground potential greater than 500 millivolts (0.5 volts) between two chassis connected by copper XIO cables can cause severe equipment damage, and can create hazardous conditions. A grounding cable connected between the specialized digital imagery chassis and the host Onyx2 system eliminates any problems related to common grounding.

5. When finished, install the DDO2 software patch and test the system (see Section 2.5).

2.5 Restarting the System and Installing the DDO2 Software Patch

If the DDO2 hardware is installed on IRIX™ 6.4 version systems, load the graphics patch 2326 or later from a Silicon Graphics CD-ROM. (If you do not have the CD-ROM, contact Silicon Graphics.) The system must be restarted so that it can be reconfigured for the new hardware. To verify correct patch installation, access *IRcombine*. It should display a DVP channel as the eighth channel.

DDO2 software images are created in *inst* format and require the *inst* program. Installation software and instructions are included with the standard Silicon Graphics software products.

Note: If the DDO2 hardware is installed on IRIX 6.5 or later version systems, the software is built-in and no graphics patch is required.