

EBVXG Graphics Module

User's Guide

EK-EBVXG-UG. B01

September 1997

This guide describes the configuration and installation of the EBVXG graphics module. Read this information before you begin the installation procedure.

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Preface

Purpose and Intended Audience

This guide describes the EBVXG graphics module for the DIGITAL AXPvme single-board computer, including its function, how it is installed, and its specifications. The EBVXG graphics module contains the DECchip 21030 PCI graphic accelerator.

This guide is intended for all users who need to know how to install and use the EBVXG graphics module on their DIGITAL AXPvme single-board computer.

Hereafter, trademarks in this document are not called out with a superscript.

Organization

This guide contains the following chapters and appendix:

- **Chapter 1, Introduction to the EBVXG graphics module**, provides an introduction and an overview.
- **Chapter 2, System Configuration and Connections**, explains the functions of switches and connectors on the EBVXG graphics module.
- **Chapter 3, Installing the Graphics Module**, provides instructions on how to install the EBVXG graphics module in the DIGITAL AXPvme single-board computer. Monitor, keyboard, and mouse cabling information is also covered.
- **Chapter 4, Troubleshooting**, explains what to do if something goes wrong.
- **Appendix A, Specifications**, summarizes the specifications of the EBVXG graphics module, including its electrical specifications and environmental conditions.

Associated Documents

The following publications may be useful for reference:

- *DIGITAL AXPvme Single Board Computer Installation Guide* (EK-EBV1X-IN)
- *DIGITAL AXPvme Single Board Computer Technical Description* (EK-EBV1X-TD)
- *DIGITAL AXPvme Firmware Update Procedures for EBVXG Graphics Module* (AA-QRXHC-TE)
- *DIGITAL AXPvme Firmware Network Boot Read Me First* (AA-QRXGB-TE)
- *DIGITAL EBVXG2xx Read Me First* (AA-QRXJC-TE)
- *VME Workstation Enclosure Installation and Owner's Guide* (EK-VMEWS-IN)

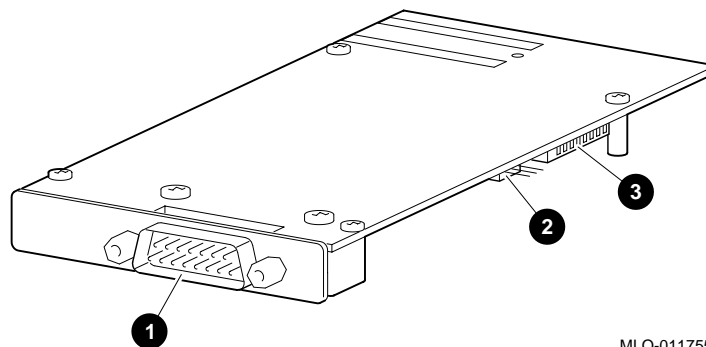
Introduction to the EBVXG graphics module

1.1 Overview of the EBVXG graphics module

The EBVXG graphics module is a 2MB graphics module that supports 1280 x 1024 monitors for 2D and 3D applications; it provides a keyboard and mouse interface for the DIGITAL AXPvme single-board computer (SBC). Without the module, DIGITAL AXPvme single-board computers cannot display graphics or support mouse operations. Installing the EBVXG graphics module in an DIGITAL AXPvme single-board computer enables the computer to work as a single-board VME workstation.

Multi-head systems may be configured with a system total of 3 heads per system. Figure 1-1 shows the EBVXG graphics module.

Figure 1-1 EBVXG Graphics Module



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- 1 Video/Keyboard/Mouse connector
- 2 EEPROM write-enable connector
- 3 Switches (SW) for monitor type setting

1.2 Software

The EBVXG graphics module is compatible with the minimum software revisions shown in Table 1-1.

Table 1-1 Compatible Software Versions

Module	DEC Open3D	DIGITAL UNIX
EBVXG-A2	Version 2.6 minimum	Versions V3.2C, V4.0, V4.0B
AXPvme SBC	Firmware BL14-0.3 minimum	Firmware BL14-0.3 minimum

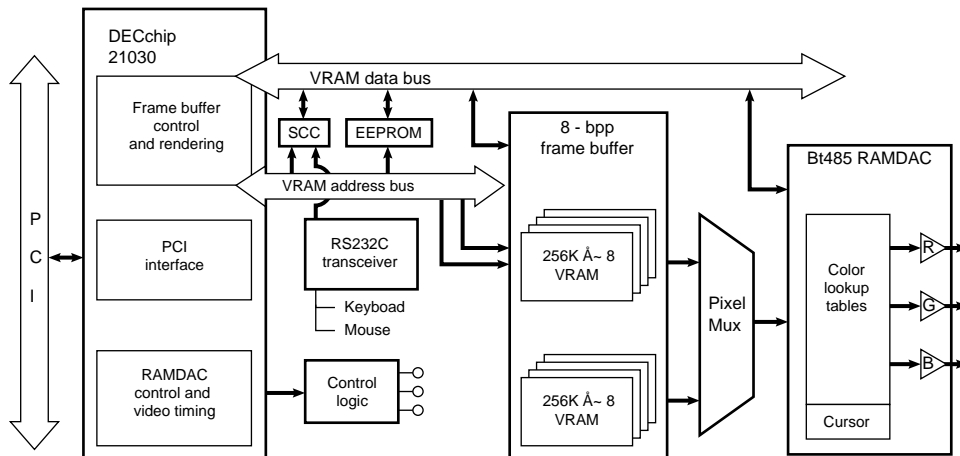
1.3 Components

The EBVXG graphics module consists of the following components:

- DECchip 21030 PCI graphic accelerator
- 8-bpp frame buffer
- Electronically-erasable programmable read-only memory (EEPROM)
- Pixel multiplexer
- Bt485 RAMDAC video chip
- PCI interface
- Control logic
- Keyboard interface
- Mouse interface

Figure 1-2 shows a diagram of the EBVXG architecture.

Figure 1-2 EBVXG Graphics Module Architecture



1.4 Functional Components

The following sections describe the main features of the EBVXG graphics module.

1.4.1 8-Bit Per Pixel (bpp) Frame Buffer

The EBVXG 8-bpp frame buffer, 2 megabytes in size, consists of eight video RAMs with a capacity of 256 kilobytes (kB) each.

1.4.2 EEPROM

The EBVXG graphics module contains one 64 kilobyte EEPROM (electrically erasable, programmable read-only memory). The EEPROM, however, is reserved for future functional enhancement and is not used at present.

1.4.3 DECchip 21030 PCI Graphics Accelerator

The DECchip 21030 PCI graphic accelerator is designed for use in PCI-based workstations and PCs driven by high-performance microprocessors. The DECchip 21030 PCI graphic accelerator provides timing and control signals for the 8-bpp frame buffer, PCI interface, and RAMDAC (RAM digital/analog converter).

The DECchip 21030 PCI graphic accelerator allows the EBVXG graphics module to offer the following features:

- Support for a wide range of monitor resolutions, resulting from fully-programmed video timing and an ICS 1562 phase-lock loop (PLL) video clock generator.
- Support for several graphics modes, including accelerated mode and simple frame buffer.
- Implementation of a 2D and a 3D graphical user interface (GUI)
- Large-scale integration single-chip accelerator.
- Unique frame buffer configuration built on a high-speed 64-bit memory bus.
- Patented dithering algorithm (AccuLook) giving 8-bpp images the simulated appearance of 16-bpp (high color) images.
- Nominal fill rate to screen higher than 640 Mpixels/s.

1.4.4 Bt485 RAMDAC

The Brooktree Bt485 RAMDAC chip is connected to the DECchip 21030 PCI graphic accelerator and the 8-bpp frame buffer.

The Bt485 RAMDAC chip offers the following features:

- Pipelined operation
- $\times 2$ clock multiplier
- $64 \times 64 \times 2$ program cursor
- Triple 8-bit D/A converters
- Three 256×8 color palette RAMs
- Three 3×8 cursor color palettes

1.4.5 Serial Communications Controller (SCC)

The EBVXG graphics module supports a keyboard and mouse interface, using the DECchip 21030 PCI graphic accelerator's EEPROM address space to map the serial communications controller (SCC) for handling keyboard and mouse input and output.

System Configuration and Connections

2.1 Overview

This chapter describes the system configuration, installation, cable connections, as follows:

- Exterior views of the module and components list
- Switches
- Connectors
- Configuration Register

2.2 Exterior Views of the Module and Components List

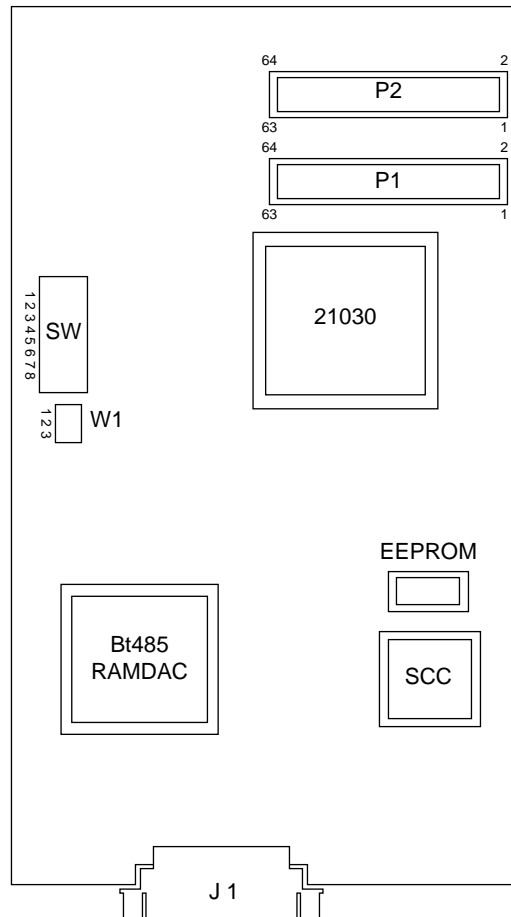
Table 2–1 lists the module's primary components.

Table 2–1 EBVXG Module: Components

Component	Qty	On-board position
EEPROM write-enable connector	1	W1 (Figure 2–1)
DIP switch, 8-position	1	SW (Figure 2–1)
Connector, Dsub, 15-pin	1	J1 (Figure 2–1)
Bt485 RAMDAC	1	RAMDAC (Figure 2–1)
DECchip 21030 PCI graphic accelerator	1	21030 (Figure 2–1)
EEPROM, 64K × 8	1	EEPROM (Figure 2–1)
PCI Mezzanine Connector	2	P1, P2 (Figure 2–1)
85C30	1	SCC (Figure 2–1)
CMOS VRAM, 70 ns, 256K × 8	8	8-bpp frame buffer (Figure 2–2)
ICS 1562 video clock generator	1	PLL (Figure 2–2)

Figure 2-1 shows side one (bottom view) of the EBVXG module.

Figure 2-1 EBVXG (Side 1)



Important

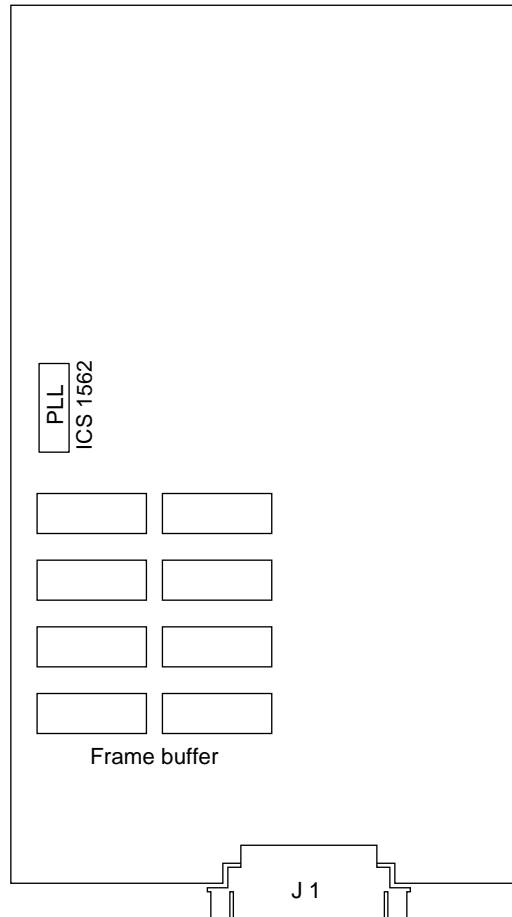
When the EBVXG module is mounted in position, SW and J1 are accessible. However, once the module is installed in a chassis, SW and J1 are *not* accessible.

The following terminology is used in running text:

- P1—refers to etch connector J1
- P2—refers to etch connector J2
- SW—refers to the DIP switches described in Table 2-2
- W1—EEPROM write-enable connector

Figure 2-2 shows the top view (side two) of the EBVXG module.

Figure 2-2 EBVXG (Side 2)



2.3 Switches

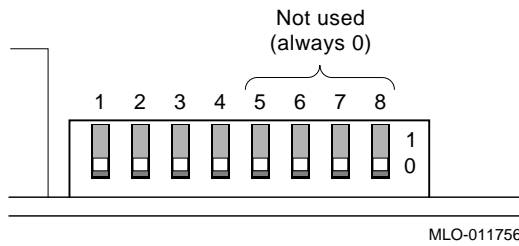
2.3.1 SW: Monitor Type Setting

SW is a switchpack on the EBVXG graphics module. See Figure 2-1 for the on-board location of the switchpack (SW).

The switches are used to set the monitor type. The firmware determines the monitor resolution and timing by reading the switch setting. Since the switch settings cannot be accessed from the system I/O panel, be sure that the switches are set correctly before you install the EBVXG graphics module.

See Table 2-2 for the switch settings. The switchpack consists of eight switches; only the first four switches are used for setting (Figure 2-3). Each switch corresponds to a binary (0 or 1) place in the table. All zeros to 1111 is equal to 0 to 15 decimal combinations. The EBVXG is shipped with all these switches set to 0000 (all 0s).

Figure 2–3 SW Settings



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2.3.2 Switch Settings and Monitor Values

Table 2–2 lists the switch settings and their corresponding frequencies, monitor resolutions, refresh rates, and monitor model numbers.

Table 2–2 Switch Settings and Monitor Values

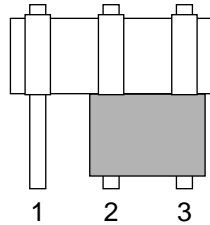
Switch Settings	Pixel Frequency (MHz)	Monitor Resolution (Pixels)	Refresh Rate (Hz)	Current Monitor Model Numbers	Prior Monitor Model Numbers
0000	130	1280x1024	72	VRC16-HA/H4, PCXAV-EA/EC/ED/HA/H4, VRC21-HA/H4	VRT19-HA
0001	119	1280x1024	66	VRC16-CA/C4/HA/H4, PCXAV-EA/EC/ED/HA/H4, VRC21-HA/H4	VRT19-DA
0010				Not Used	
0011				Not Used	
0100				Not Used	
0101				Not Used	
0110	74	1024x768	72	VRC16-HA/H4, PCXBV-PC/PD, PCXAV-EA/EC/ED/HA/H4, VRC21-HA/H4	
0111	69	1024x864	60	PCXAV-EC/ED/HA/H4, VRC21-HA/H4	VR290-DA, VR299-DA
1000				Not Used	
1001				Not Used	
1010				Not Used	
1011				Not Used	
1100				Not Used	
1101				Not Used	
1110				Not Used	
1111				Not Used	

2.3.3 W1: EEPROM Write-enable Connector

W1 is the EEPROM write-enable jumper. See Figure 2-1 for its on-board location.

W1 is reserved for future enhancement. Leave W1 at its factory setting (Figure 2-4) when using the EBVXG graphics module.

Figure 2-4 EEPROM (W1) Factory Setting



Pins 2 and 3 jumpered are in the disable position
Pins 1 and 2 jumpered are in the enable position

2.4 Connectors

2.4.1 J1 External Cable Connector

J1 is a video connector. It also carries mouse and keyboard signals. See Figure 2-1 for on-board location.

Figure 2-5 shows the pin assignments for this connector.

Figure 2-5 J1 Pin Assignments

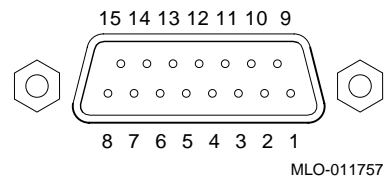


Table 2–3 lists the J1 video, keyboard, and mouse signals.

Table 2–3 J1 Video, Keyboard, and Mouse Signals

Pin	Signal	Pin	Signal
1	Red video	9	No connection
2	Red/Blue/Green ground	10	Green video (Composite Sync)
3	No connection	11	Blue video
4	Mouse +5V	12	Mouse –12V
5	Mouse Receive Data	13	Mouse Transmit Data
6	Keyboard ground	14	Keyboard Receive Data
7	Mouse ground	15	Keyboard Transmit Data
8	Keyboard/Mouse +12V		

The composite signal (green) has an amplitude of 1.0 V \pm 10% when the interface cable is 75 Ω \pm 2%. The sync amplitude of the signal (green) is 27 to 33% of the peak-to-peak voltage.

2.4.2 P1, P2: PCI Mezzanine Connectors

P1 and P2 PCI mezzanine connectors conform to the IEEE 1386 specifications. Connect the EBVXG graphics module to an DIGITAL AXPvme single-board computer. PCI signals are transferred between P1 and P2. See Figure 2–1 for the on-board location and pin assignments for the PCI mezzanine connector.

Table 2-4 lists the numbers of the pins and designations of the signals on P1.

Table 2-4 Signals on P1

Pin	Signal	Pin	Signal
1	Not used	33	PCIFRAME L
2	-12V	34	GND
3	GND	35	GND
4	PCI_IRQA L	36	PCIRRDYL
5	Not used	37	PCIDEVSEL L
6	Not used	38	+5V
7	PCI_PRESENT1 L	39	GND
8	+5V	40	Not used
9	Not used	41	Not used
10	Not used	42	Not used
11	GND	43	PCIPAR H
12	Not used	44	GND
13	PCICLK H	45	Not used
14	GND	46	PCIAD<15> H
15	GND	47	PCIAD<12> H
16	PCIGNT L	48	PCIAD<11> H
17	PCIREQ L	49	PCIAD<9> H
18	+5V	50	+5V
19	Not used	51	GND
20	PCIAD<31> H	52	PCICBE<0> L
21	PCIAD<28> H	53	PCIAD<6> H
22	PCIAD<27> H	54	PCIAD<5> H
23	PCIAD<25> H	55	PCIAD<4> H
24	GND	56	GND
25	GND	57	Not used
26	PCICBE<3> L	58	PCIAD<3> H
27	PCIAD<22> H	59	PCIAD<2> H
28	PCIAD<21> H	60	PCIAD<1> H
29	PCIAD<19> H	61	PCIAD<0> H
30	+5V	62	+5V
31	Not used	63	GND
32	PCIAD<17> H	64	Not used

Table 2–5 lists the numbers of the pins and designations of the signals on P2.

Table 2–5 Signals on P2

Pin	Signal	Pin	Signal
1	+12V	33	GND
2	Not used	34	Not used
3	Not used	35	PCITRDY L
4	Not used	36	Not used
5	Not used	37	GND
6	GND	38	PCISTOP L
7	GND	39	Not used
8	Not used	40	GND
9	Not used	41	Not used
10	Not used	42	Not used
11	PCI_PRESENT2	43	PCICBE<1> L
12	Not used	44	GND
13	PCIRST L	45	PCIAD<14> H
14	PCI_PRESENT3	46	PCIAD<13> H
15	Not used	47	GND
16	PCI_PRESENT4	48	PCIAD<10> H
17	Not used	49	PCIAD<8> H
18	GND	50	Not used
19	PCIAD<30> H	51	PCIAD<7> H
20	PCIAD<29> H	52	Not used
21	GND	53	Not used
22	PCIAD<26> H	54	Not used
23	PCIAD<24> H	55	Not used
24	Not used	56	GND
25	PCIIDSEL	57	Not used
26	PCIAD<23> H	58	Not used
27	Not used	59	GND
28	PCIAD<20> H	60	Not used
29	PCIAD<18> H	61	Not used
30	GND	62	Not used
31	PCIAD<16> H	63	GND
32	PCICBE<2> L	64	Not used

2.5 Configuration Register

The EBVXG graphics module has a configuration register that can be accessed in the EBVXG address space, which is slot-dependent (Figure 2–6). The address of the register is $base\ address + 10.01E0_{16}$.

Figure 2–6 Configuration Register Fields

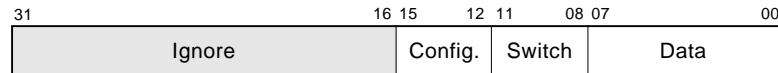


Table 2–6 describes the three EBVXG configuration register fields: data, switch, and config.

Bits <31:16> are not used.

Table 2–6 Configuration Register Field Descriptions

Field	Bits	Description
Data	<07:00>	Byte of data from the EEPROM or SCC.
Switch	<11:08>	Current setting of switchpack S.
Config	<15:12>	Module configuration: 0100 —Mezzanine 8 bpp

Installing the Graphics Module

3.1 Overview

This chapter describes the following:

- Verifying the shipment
- Environmental requirements
- Installing the EBVXG graphics module
- Completing the installation.

3.2 Verifying the Shipment

The EBVXG graphics module is provided in three configurations. A bill of materials is provided with each package and lists the contents of the package.

Table 3–1 Package List for 2T–EBVXG–AA

Component	Part Number
EBVXG graphics module	EBVXG–A2
Video cable for front access	BC19S–10
Strain relief	74–41177–01
EBVXG graphics module User's Guide	EK–EBVXG–UG. B01

Table 3–2 Package List for 2T–EBVXG–BA

Component	Part Number
EBVXG graphics module	EBVXG–A2
Video/keyboard/mouse cable	2T–VMECA–CG
EBVXG graphics module User's Guide	EK–EBVXG–UG. B01
Triple DB bulkhead plate	2T–VMEBB–AB
Standoff to mount keyboard, mouse and wide cable to bulkhead	90–00007–64
Nut for standoff	90–06557–00

Table 3-3 Package List for 2T-EBVXG-CA

Component	Part Number
EBVXG graphics module	2T-EBVXG-A2
Video/keyboard/mouse cable	2T-VMECA-CG
EBVXG graphics module User's Guide	EK-EBVXG-UG. B01
Standoff to mount keyboard, mouse and wide cable to bulkhead	90-00007-64
Nut for standoff	90-06557-00

If any component is missing or damaged, call the DIGITAL field representative, customer support division, shipping agent, or dealer.

3.3 Environmental Requirements

The EBVXG graphics module requires the same environmental conditions as the DIGITAL AXPvme single-board computer. See Appendix A for the operating temperature and humidity requirements.

3.4 Installing the Graphics Module

Install the EBVXG graphics module in the DIGITAL AXPvme single-board computer following steps 1 through 9.

Caution

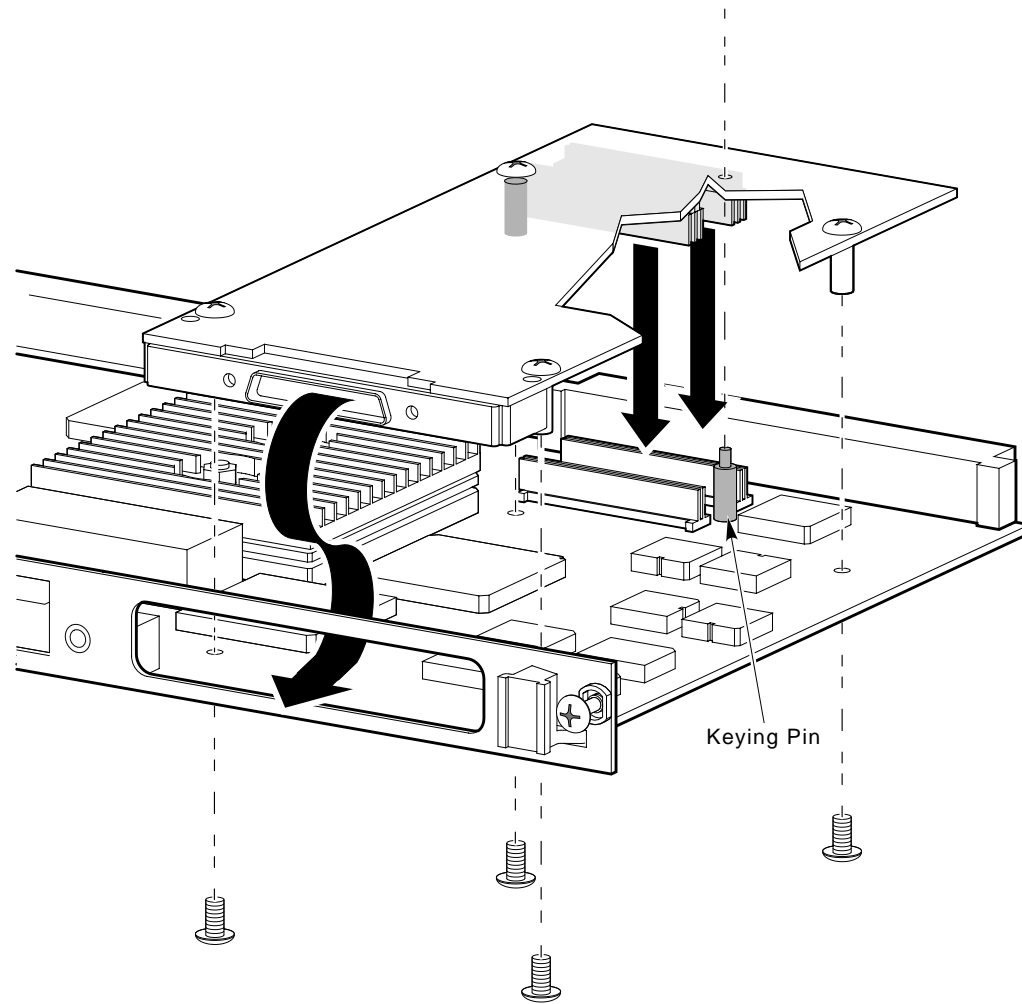
Electrostatic discharge may cause the EBVXG graphics module to malfunction. When you handle graphics modules, wear the antistatic wrist strap with the wire clipped to the frame of the VME chassis.

Before you place the EBVXG graphics module on a desktop or other surface, first lay the electrostatic protective bag in which the EBVXG was wrapped, underneath the module.

1. Verify that the TGA*M supporting firmware (BL14-0.3 or greater) is installed. If the prerequisite firmware is not installed, then proceed with the installation of firmware kit YT-VMEWS-H8. Refer to *DIGITAL AXPvme Firmware Update Procedures for EBVXG Graphics Module (AA-QRXHC-TE)* for information. This step must be complete before the module is installed.
2. Verify that the DIGITAL UNIX support for the TGA*M module is installed. If this software is not installed, then proceed with the installation of kit YT-TGA8M-H8. This step must be complete before the module is installed.
3. Turn off the power to the VME chassis. Remove the cables from the DIGITAL AXPvme single-board computer. Loosen the two (single-height SBC) or four (dual-height SBC) capture screws on each corner of the DIGITAL AXPvme single-board computer (see 2 in Figure 3-2 and Figure 3-3). Using the thumb of each hand, push the card ejectors (next to the screws) outward and pull the DIGITAL AXPvme single-board computer toward you to remove the module from the chassis.
4. Set the EBVXG switches (SW) before proceeding with the installation of the EBVXG graphics module on the DIGITAL AXPvme single-board computer. Refer to Table 2-2 for information on the switch settings for your monitor. See Section 2.3.1 for information on setting the switches (SW) for your monitor. See Figure 2-1 for the location of the switches (SW).

5. To install the EBVXG graphics module in the DIGITAL AXPvme single-board computer, follow these steps:
 - a. Remove the PCI cover plate for the PCI mezzanine option; the cover plate is attached to the bulkhead of the DIGITAL AXPvme single-board computer. Push on the inside of the cover plate with a finger until the plate pops out.
 - b. Remove the four screws from the EBVXG standoffs. See Figure 3-1.
 - c. Align the option module with the front bulkhead (see Figure 3-1), so that the P1 and P2 connectors on the EBVXG module align with the J11 and J12 connectors on the DIGITAL AXPvme single-board computer.
 - d. Push down on the EBVXG graphics module, so that P1, P2 and the keying pin on the DIGITAL AXPvme single-board computer make a firm connection.
 - e. Reinsert the four screws. See Figure 3-1.

Figure 3-1 EBVXG Standoffs

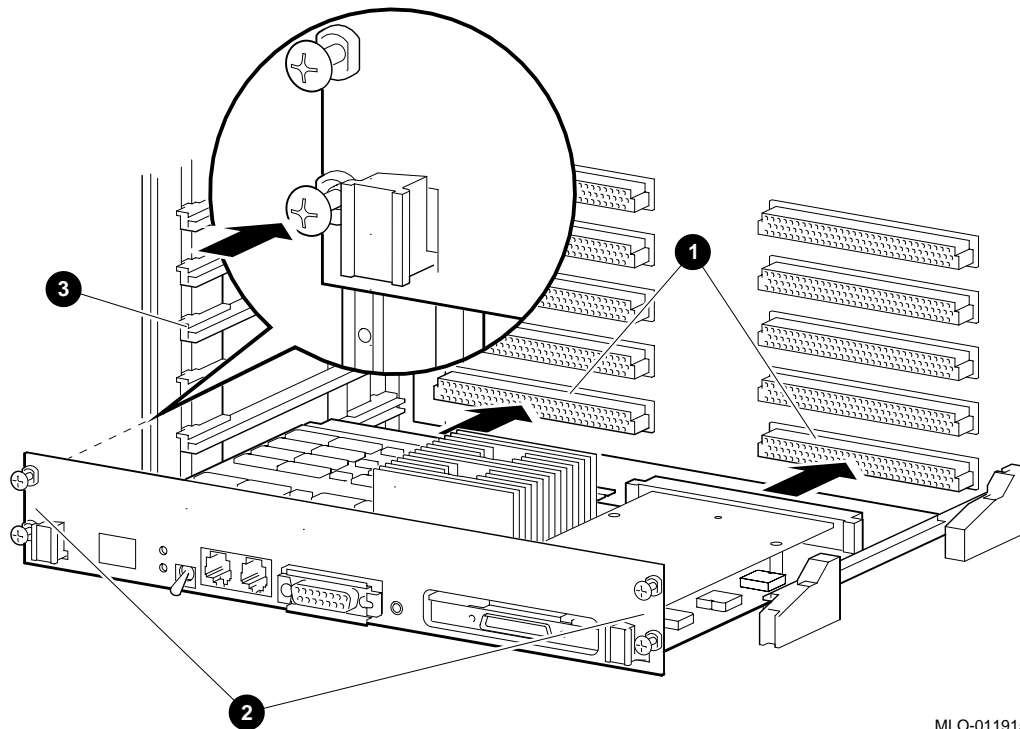


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6. Reinstall the DIGITAL AXPvme single-board computer in the VME chassis using the visual steps shown in Figure 3-2. Figure 3-2 illustrates the installation of the dual-height SBC.

- 1 Backplane SBC connectors
- 2 Captive screws (4)
- 3 Card cage guides

Figure 3-2 Dual-Height SBC



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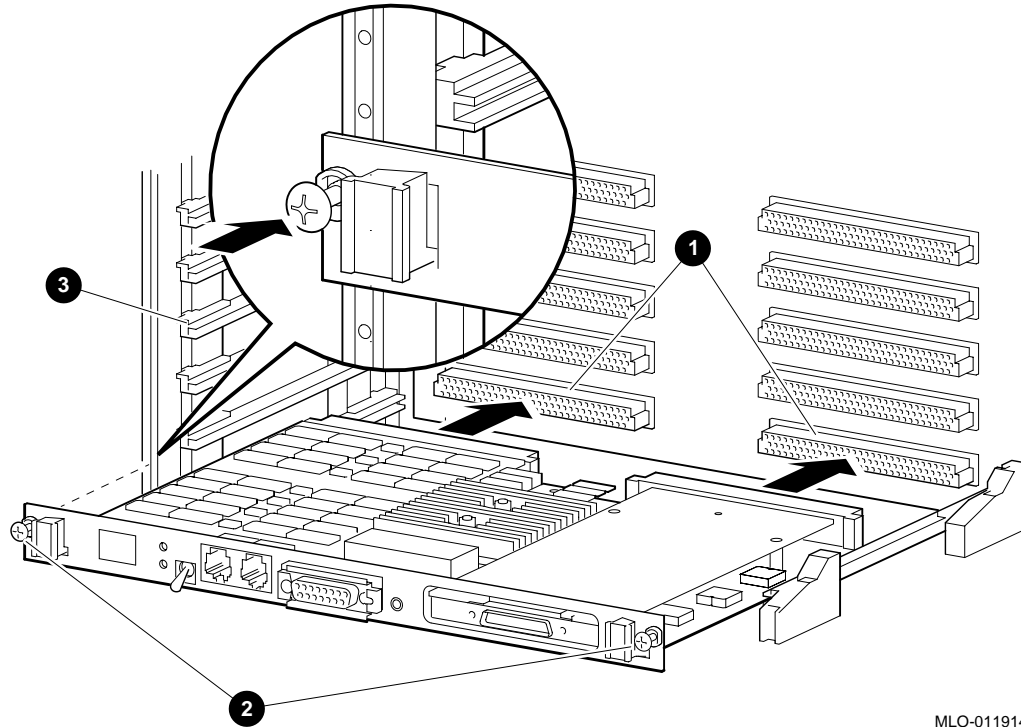
For additional information, refer to:

- *DIGITAL AXPvme Single Board Computer Installation Guide, EK-EBV1X-IN*
- *VME Workstation Enclosure Installation and Owner's Guide, EK-VMEWS-IN*

Figure 3-3 illustrates the installation of the single-height SBC.

- 1 Backplane SBC connectors
- 2 Captive screws (2)
- 3 Card cage guides

Figure 3-3 Single-Height SBC



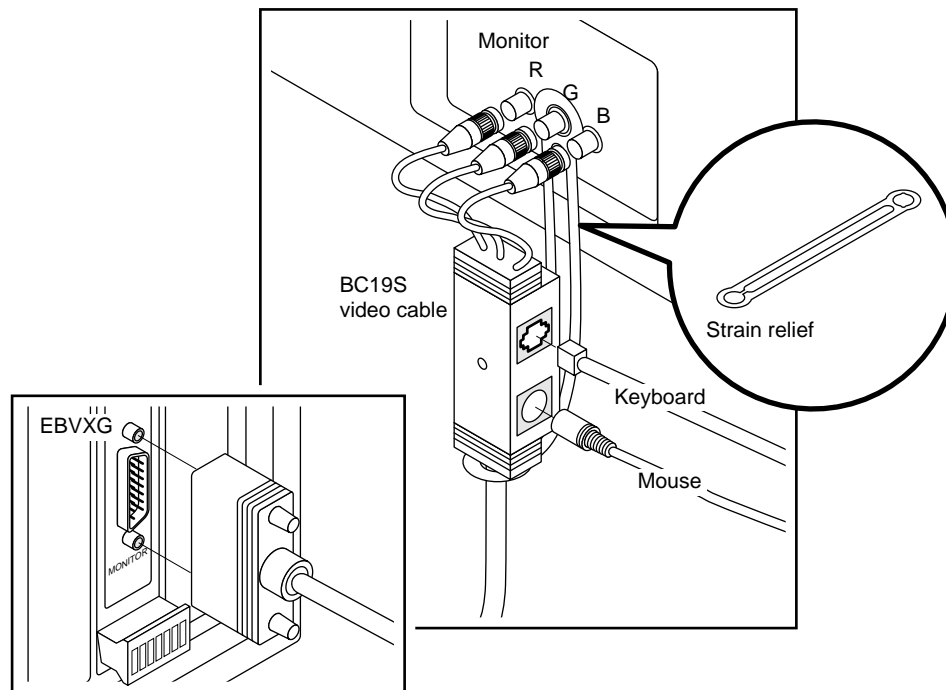
MLO-011914

For additional information, refer to:

- *DIGITAL AXPvme Single Board Computer Installation Guide*, EK-EBV1X-IN
- *VME Workstation Enclosure Installation and Owner's Guide* EK-VMEWS-IN

7. If you purchased a 2T-EBVXG-AA kit, connect the BC19S video cable, mouse and keyboard, as shown in Figure 3-4.

Figure 3-4 2T-EBVXG-AA Kit Cable Connections

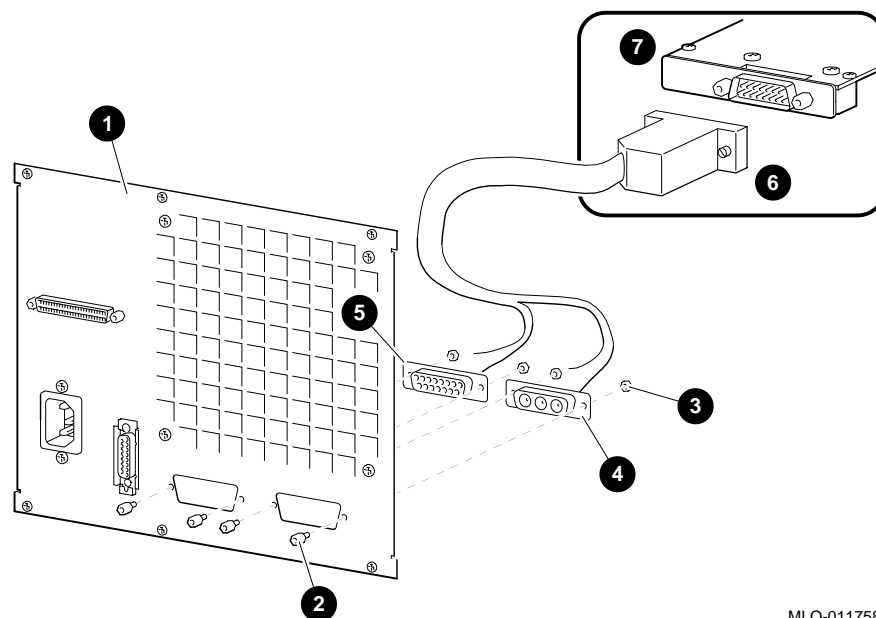


To connect the BC19S video cable, follow these steps:

- a. Insert the BC19S video cable supplied into the monitor connector on the EBVXG graphics module, and tighten the screws on the monitor cable.
- b. Insert the BC19S video cable connector through the notched end of the strain relief strap, and attach the other end of the strap to the G-connector of the monitor.
- c. Connect the RGB video cable connectors to the monitor.
- d. Connect the keyboard cable and the mouse cable to the BC19S video cable connector.

8. If you purchased the 2T-EBVXG-BA module with factory integration, your installation is complete; skip the following steps. If you purchased the 2T-EBVXG-BA kit without factory integration, follow these steps:
 - a. Route the 2T-VMECA-CG video/keyboard/mouse cable through the system. Assemble the parts in the order listed below (each part is labeled with a callout number in Figure 3-5).

Figure 3-5 Routing the Video/Keyboard/Mouse Cable



MLO-011758

- > Step 1: Insert keyboard/mouse cable connector 4 through the open port in the bulkhead.
- > Step 2: Insert video cable connector 5 through the open port in the bulkhead.
- > Step 3: Insert a standoff 2 through each hole in the bulkhead and connector mounting plate.
- > Step 4: Attach a nut 3 to each standoff to secure the connectors to the bulkhead.
- > Step 5: Attach the other end of the video cable 6 to the EBVXG graphics module 7 video/keyboard/mouse connector.
- > Step 6: Mount the bulkhead plate 1 to your system.

Refer to the *VME Workstation Enclosure Installation and Owner's Guide* (EK-VMEWS-IN. A01), for additional information.

- b. If you ordered an Ethernet cable with your system, route the DIGITAL-supplied Ethernet cable through the system.
Attach one end of the Ethernet cable to the Ethernet port on the SBC; attach the other end of the Ethernet cable to Ethernet port on the Triple DB bulkhead plate. Refer to the *VME Workstation Enclosure Installation and Owner's Guide* for additional information.

- c. Install the DIGITAL-supplied Triple DB bulkhead plate to the back of your system.
9. If you purchased the 2T-EBVXG-CA kit:
 - a. Route the 2T-VMECA-CG video/keyboard/mouse cable through the system. Refer to the *VME Workstation Enclosure Installation and Owner's Guide* for additional information.
 - b. Attach the 2T-VMECA-CG cable to the EBVXG graphics module. The keyboard, mouse and video connectors attach to the bulkhead ports.
 - c. Install a customer-supplied bulkhead plate on the back of the chassis.

Installation of the EBVXG graphics module and cabling is now complete. Proceed to the next section to verify the installation.

3.5 Verifying the Installation

Once you have installed the TGA*M supporting firmware on your SBC, you can verify the installation.

Turn on the power to both the monitor and the VME chassis. If the EBVXG graphics module has been set up correctly and is seen by the system, the console prompt (>>>) is displayed on the monitor connected to the EBVXG graphics module.

Enter the following command at the console prompt to verify the settings of the EBVXG graphics module. For example:

```
>>> tga8m_switch[Return]
```

A display like the following indicates that installation is verified:

```
(EBVXG-AA -D 69 Mhz)
-----
Video Ram Size      2097152
Number of Planes    8
Crystal Selected (Mhz) 69
Refresh Rate (Hz)   60
Active Pixels       1028
Displayable Pixels  1024
Horizontal Front Porch 12
Horizontal Sync     128
Horizontal Back Porch 116
Vertical Scanlines  864
Vertical Front Porch 0
Vertical Sync       3
Vertical Back Porch 34
-----
(ROM configuration register 0xffff4733)
-----
DIP-Switch          7
-----
```

```
>>>
```

The installation check is now complete.

Note

The mouse is not enabled until the operating system and the windowing software are booted.

Troubleshooting

4.1 Overview

This chapter describes an EBVXG graphics module board test, and some of the problems that could develop during operation. Table 4–1 lists suggested corrective actions to help you recover from problems.

4.2 Option Board Test

An option board test takes place during DIGITAL AXPvme single-board computer system startup which checks the EBVXG graphics module.

Please contact your DIGITAL service representative if the EBVXG graphics module test fails.

4.3 Determining the Problem

Table 4-1 lists the symptoms of the problems that could develop during the EBVXG graphics module operation and the corresponding corrective actions.

Table 4-1 Problems and Corrective Actions

Symptom	Corrective action
Console messages are not displayed on the monitor connected to the EBVXG, or colors or characters are not displayed correctly.	Make checks in this order: <ol style="list-style-type: none">1. Check to see if the power to the monitor is on.2. Check the video cable for correct connection.3. With the power to the VME chassis off, pull out the DIGITAL AXPvme single-board computer and check to see if the SW setting (monitor type) matches the type of the monitor connected to the EBVXG. (See Section 2.3.1.)4. Start the DIGITAL AXPvme single-board computer without the EBVXG module in position. Remove the EBVXG module and connect a serial terminal to the console port (left connector marked CON). If the system can be started successfully, the EBVXG needs replacement. Please call our customer support division.
Entry from the keyboard or mouse connected to the EBVXG is disabled.	Make checks in this order: <ol style="list-style-type: none">1. Check the video cable for correct connection.2. If KEYBOARD ERROR is displayed on the console, EBVXG and/or the keyboard needs replacement.3. If MOUSE ERROR is displayed on the console, EBVXG and/or the mouse needs replacement.4. Check power supply voltages. DIGITAL'S 2T-VMEWS-AA workstation series displays green LEDs when the voltages are OK; the LEDs should always be green. If not, call your DIGITAL service representative.

A

Specifications

A.1 EBVXG Graphics Module Dimensions

Dimensions	74 mm × 149±0.8 mm (2.91 inches × 5.83 inches)
Height	Side1: 4.7 mm (P1 and P2 connector side) Side2: 2.0 mm
Weight	120 g (4.2 oz)

A.2 Environmental Conditions

	Operating	Idle
Temperature	0°C to 40°C (32°F to 104°F)	-10°C to 66°C (14°F to 131°F)
Humidity	10% to 90% (free from condensation)	10% to 95%
ESD	Contact discharge: 6 kV Aerial discharge: 8 kV	
PWB temperature rise	15°C or lower (59°F)	

A.3 Electrical Specifications

Supply voltage	+5±0.25 V +12±0.50 V -12±0.50 V	
Current	+5 V +12 V -12 V	1.0 A 70 mA 5 mA
Power consumption	6 W	

A.4 Interface

J1	15-pin D-sub connector
P1, P2	PCI bus mezzanine connectors conform to the IEEE 1386 specifications 1 mm pitch SMT type Vertical plug

A.5 Video Signals

Video signal levels	RS-343 interface	
	Red, Blue	(p-p)0.714V±10% (terminated by 75Ω±2%)
	Green	(p-p)1.0 V±10% (terminated by 75Ω±2%)

The green signal levels are shown in Figure A-1.

Figure A-1 Signal Levels (Green)

