HP 97060A
Graphics Processor

This note provides the necessary information for you to install the HP 97060A Graphics Processor. In addition to the materials included with the HP 97060A, you need an HP 27112A GPIO interface card and cable option 001, and an RS-343-compatible monitor which accepts the sync pulse on the green signal.

The HP 97060A Graphics Processor provides high resolution (1024 × 1024 pixels), rapid graphics processing and a large variety of colors. The display format is 1024 pixels horizontal by 768 pixels vertical. You can also attach an HP 9111A Data Tablet for graphics input.

Materials Supplied

Check that the following materials are included with your HP 97060A.

Item	Quantity
HP 97060A Graphics Processor	1
Power Cord	1
Fast-Blow Fuses	
4A for 110V	1
6.3A for 220V	1
1.8 metre BNC cable	3
Installation Note	1

All software for the Graphics Processor is included with the BASIC 3D Graphics software and with the HP-UX DGL Graphics software.

The Model 520 BASIC Graphics Programming Techniques manual explains how to use the HP 97060A with the BASIC language system. The GRAPHICS/9000 Device Handler's manual explains how to use the HP 97060A with HP-UX.

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Technical Specifications

The HP 97060A Graphics Processor supports a monitor for graphics display. Separate outputs are provided for red, green and blue color data. Sync data is combined with the green signal.

Physical Description

Size: 432mm wide × 140mm high × 533mm deep
Weight: 13.6 Kg

Environmental Specifications

Temperature: 0°C to 55°C operating, −40°C to 75°C storage
Humidity: 5-95% RH @ 40°C
Maximum Operating Altitude: 15,000 ft. or 570 millibars

Electrical Specifications

Rated Line Voltage:

> 110V range: 90 to 132 Vac
> 220V range: 180 to 264 Vac

Frequency Range:

> 47 to 66Hz

Power Consumption:

> 110V: 4A
> 220V: 6.3A

Video Output Level

Levels and timing are RS-343 compatible.

Red and Blue Signals:

> 0.9V peak to peak into 75Ω nominal

Sync/Green Composite Output Mixture:

> Video composite 1V peak to peak.

> Video - 0.7V typical
> Sync - 0.3V typical

Display Format

Standard:
1024 × 768, 33Hz, interlaced

Colors

256 entry color map for 16,777,375 colors.

Cables

1.8m, 75Ω BNC cable; three total

Monitor Bandwidth Requirements

36 MHz

The monitor must have a composite sync (on Green) capability.

Unpacking and Inspection

If the shipping package is damaged, ask the carrier's agent to be present when the equipment is unpacked. If the equipment is damaged or fails to operate properly, notify the carrier and the nearest HP Sales and Support office immediately. Retain the shipping carton for the carrier's inspection. The Sales and Support office will arrange for the repair or replacement of your equipment without waiting for the claim against the carrier to be settled.

Installing the HP 97060A

There are three major pieces which you must install, the HP 27112A GPIO interface card, the HP 97060A Graphics Processor and the monitor.

Note

Make sure that power to the computer is turned off before attempting to install an interface card. Opening the computer's interface card cage door while the computer is on results in an immediate powerdown of the system. Any data and programs resident in memory at that time are lost.

Should this occur, turn the computer's power switch to the 0 (OFF) position and then complete the interface installation procedure.

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1. Turn off the computer.

2. If you have a Model 520, open the cosmetic door on the right side of the computer. If you have a Model 530 or 540, go to step 3.

3. Open the interface card cage door by turning both thumbscrews counterclockwise and pulling the door open. On the Model 520, it is behind the cosmetic door. On the Model 530 and 540, it is at the back of the computer. With the HP 97098 I/O Expander, you can use either card cage.

4. Interface cards are plugged into the computer's interface card cage. Each slot in the interface card cage is assigned a unique number called a select code. An interface card occupying a slot assumes that slot's unique select code. The computer uses the select code to interface with the card, and thus with the device(s) connected to that card. Select codes are assigned to the slots sequentially. With the Model 520, four slots are available, from top to bottom, 2 thru 5. With the Models 530 and 540, seven slots are provided, 0 thru 6. The first I/O Expander, assignments are from 8 thru 11 and 12 thru 15. For the second, they are 16 thru 19 and 20 thru 23.
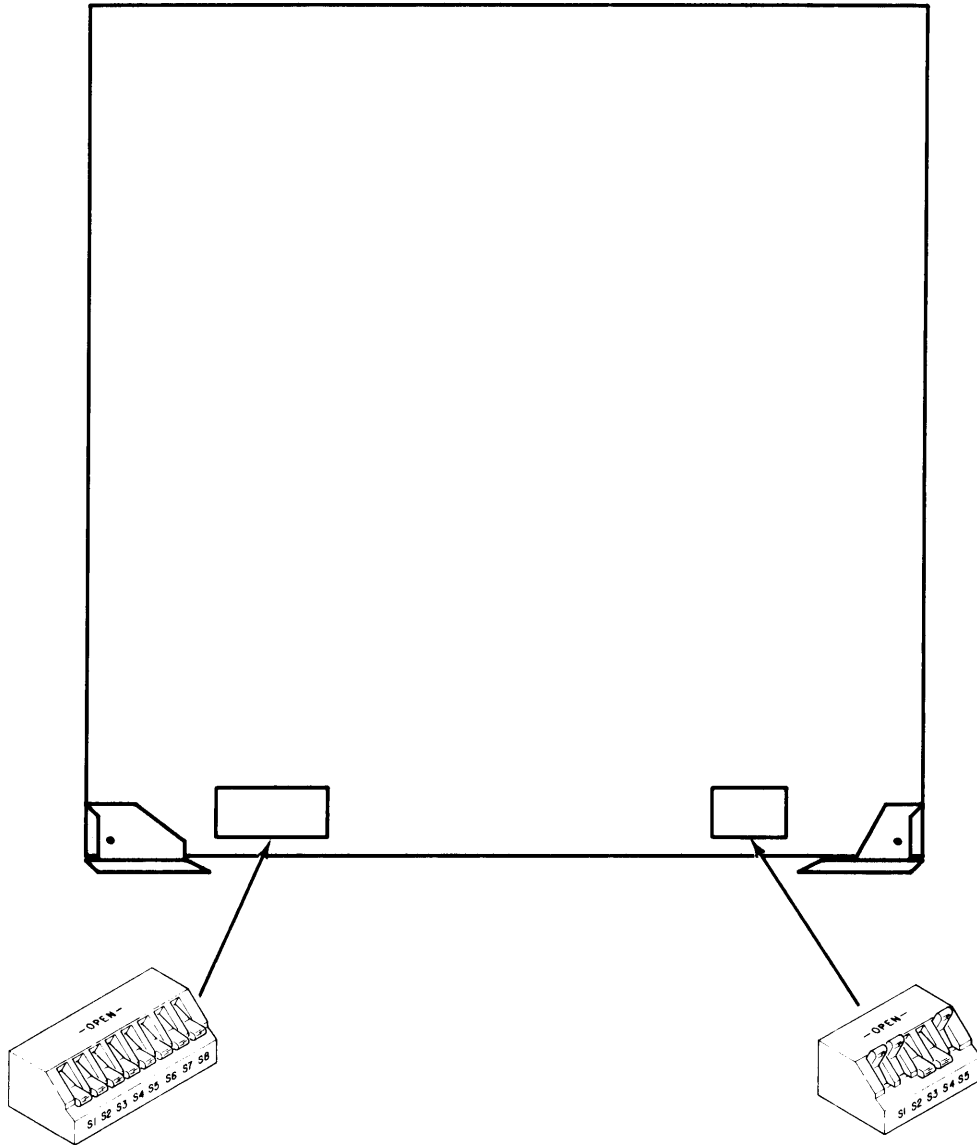

CAUTION

STATIC DISCHARGE CAN DESTROY COMPONENTS ON AN INTERFACE CARD. HANDLE THE CARD BY USING ITS ANTI-STATIC CONTAINER OR BY THE EJECTORS ON THE CARD. DO NOT TOUCH THE ELECTRICAL TRACES OR SET THE CARD ON ANY SURFACE OTHER THAN ITS ANTI-STATIC CONTAINER.

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5. If the interface card has not already been installed, remove it from its anti-static bag and set it on the bag.

6. There are two sets of switches along the cabling side of the card. The Graphics Processor requires the following GPIO switch settings. Note that a switch that is Up is in the open position and represents a logic one; a switch that is Down is in the closed position and represents a logic zero.

For more information, see the HP 27112A General Purpose I/O Interface (GPIO) Installation manual.

HP 27112A Switch Settings for use with the HP 97060A

7. BASIC and HP-UX assume slot 4 (select code 4) as the default location of a HP 97060A interface but any slot may be used. If your interface card is already installed the way you want it, skip to step 11.

8. Orient the card so that the connector is facing into the card cage and is on the right side of the slot. Holding the interface card by its ejectors, slide the card into its slot.

9. To seat the card, push firmly on the ejectors of the card with your thumbs. The ejectors should be flush with the edge of the interface card.

10. Connect the interface cable to the female connector on the interface card. The cables feed out the right side of the card cage door.

11. Close the interface card cage door. Push in and turn the thumbscrews clockwise until they are tight.

12. If you have a Model 520, shut the cosmetic door.

13. Unpack and set up your monitor near your computer. See the monitor's documentation for more instructions.

14. Unpack the HP 97060A Graphics Processor and set it near your computer.

15. If you intend to use an HP 9111A Data Tablet with your system, also set that up. One common configuration is to place the tablet directly in front of the monitor.

16. When the equipment is in place, connect the GPIO interface cable to the connector in back. This connector is labelled "J9/GPIO HOST". The connector only fits one way so if you have trouble attaching it, check its orientation.

17. Connect one of the 1.8 metre BNC cables from the red signal output jack of the Processor to the red signal input jack of the monitor. The Processor's jack is labelled "J1 RED". Check your monitor's documentation to determine which input jack to use.

18. Use the other two BNC cables to connect the green and blue jacks in a similar manner.

19. The video signal must be terminated with 75Ω. To do this, check your monitor to see if it has a 75Ω/HI IMPEDANCE switch or switches. Set it to 75Ω. Some monitors do not have this kind of switch. In this case, check the monitor's documentation.

20. If you intend to use the HP 9111A Data Tablet, connect an HP-IB cable from the Data Tablet to the input jack on the Processor labelled "J10/GPIB TABLET". Ensure that the Data Tablet's device address is set to 6. Ensure that no other interface cable is connected to the Data Tablet.

CAUTION
ENSURE THAT THE PROCESSOR IS CONFIGURED TO MATCH
THE INPUT LINE VOLTAGE.

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21. Now connect the power cords to the Processor and monitor and optionally to the Data Tablet.

22. Turn on your computer, your Processor, monitor and Data Tablet.

23. If you have a Model 520, load the SYSTEM INTEGRITY TESTS system into your computer and run the HP 97060 test.

24. Adjustment of your monitor's horizontal or vertical hold may be necessary to get a stable picture. If so, see the monitor's documentation for instructions.

25. If there are any problems, go through the preceding steps to determine if you have done anything wrong. In particular, make sure the interface card is seated squarely and tightly in the interface card cage, the cable is firmly connected to the interface card, that there are no broken cables, that the interface is properly connected to the Processor, that the Processor is properly connected to the monitor and that the monitor works properly. If you still have a problem, call your HP Sales and Support office for assistance.