

Technical Data
Color Video Output Interface

For HP 1000 A-Series Computer Systems
Product Number
12065A

The HP 12065A is a plug-in interface card providing full-color video output capability for the HP 1000 A-Series family of real-time computers.

Features

- | Graphics/1000-II Version 2.0 compatible
- | Red-Green-Blue (RGB) RS-343 compatible video output
- | 512 x 512 pixel resolution for 1:1 aspect ratio displays
- | 576 x 455 pixel resolution for 4:3 aspect ratio displays
- | 16 colors selected from a palette of 4096
- | Alphanumeric text overlay
- | On-card, independent blink control of each color
- | Polygon area fill
- | Scrolling capability
- | Two RS-232-C ports for keyboards, touch screens, and mice

Functional Description

The 12065A Video Output Interface provides full-color video output capability to color displays for the HP 1000 A-Series family of computer products. The 12065A has been designed to specifically address the needs of the computer-aided manufacturing marketplace. This video interface offers medium resolution, as well as some unique display features that will dramatically increase your productivity.

The card utilizes a Motorola 68008 16-bit microprocessor for system control and backplane communications. It also provides supervisory control over a specialized graphics processor, pixel memory and video circuits. Four pixel memory planes provide for two combinations of color and character capability. In one mode, three pixel memory planes are used to produce 8 colors from a palette of 4096 leaving the fourth plane for overlay of characters, cursors, and prompts. In the second color mode, all four planes are used to produce 16 colors from a palette of 4096. In both modes, independent blink control of each color is possible on-card.

A standard character set is provided in ROM with user-specified size and orientation for maximum flexibility. In addition, the card will support user-defined characters, for example, foreign languages which can be downloaded to local RAM from the A-Series CPU.

Benefits of the on-card intelligence and the DMA per I/O card A-Series architecture result in flexible drawing capabilities. In an Update mode, an existing screen is added to, either with characters or vectors, with immediate display of results. This is the mode you would use to change data or to perform limited animation, such as increasing or decreasing tank levels in a process control flow application.

Using the Frame Buffer Read/Write capability, entire screens can be downloaded via DMA to pixel display memory (frame buffer) and then to the screen. The whole screen image is displayed within seconds. This feature is particularly useful in applications where several displays are used frequently as operators execute sequences of control or trackdown process problems tagged with alarms. Frame Buffer Reads/Writes automatically take advantage of flash-fill, where data

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is written to display memory while the screen is continuously blanked. The screen is then unblanked to display the image. Update mode can also be configured for flash-fill to take advantage of the higher performance realized.

In general, display images used frequently will be initially created in Update mode. Once in frame buffer memory, the image will be stored in A-Series memory, or on disk, via Frame Buffer Reads. Later, the A-Series can redisplay the image using Frame Buffer Writes; additional modifications can be made in Update mode.

Finally, the 12065A also supports two RS-232-C serial ports to allow for the direct attachment of graphics input accessories. This allows devices like custom keyboards and keypads, touch screens, trackballs, joy sticks, or mice to be interfaced through one graphics sub-system. This saves money and I/O slots.

Functional Specifications

Video Output: Compatible with RGB RS-343. Three BNC connectors for RED, GREEN, and BLUE

Resolution: 576 x 455 (4:3 aspect ratio) or 512 x 512 (1:1 aspect ratio)

Polygon Area Fill: 8 unique styles

Write Modes: Flash-fill: blanking the screen, then writing vectors, pixels, and characters, then displaying the screen. Update: single character or vector writes to existing display.

Scrolling Capability

Direct Pixel Memory Frame Buffer Reads and Writes: Yes

Memory Maps: 4 planes partitioned as:

- | 3 planes producing 8 colors from a palette of 4096 and 1 overlay plane for alphanumeric text, or
- | 4 planes producing 16 colors from a palette of 4096, plus
- | Onboard blink control of all memory planes.

Accessory Datacom: Two RS-232-C ports, three wire. User programmable baud rate to 9600 baud, noncontinuous for interfacing Graphics Accessories.

Electrical Specifications

dc Supply	Maximum Current	Maximum Power Used
+5 Volts	3.760 amps	19.9 watts
+12 Volts	0.062 amps	0.7 watt
-12 Volts	0.018 amps	0.2 watts

Hardware Vector Generator: See graphs 1, 2, and 3.

Characters per second to overlay plane (one color):
See graph 4.

Character Display:

- Variable size and orientation (90 degree increments),
- Onboard ROM storage of standard character set,
- Onboard RAM for user downloadable character sets,
- Onboard character field blinking.

Environmental Characteristics

Operating Temperature:

0°C to 55°C (32°F to 131°F)

Maximum Total Cable Distance from 3-meter HP 12065A Cable to Monitor:

- For RG 59/U (Belden #9259) Cable is 250 feet
- For RG 11/U (Belden #9212) Cable is 500 feet

Maximum Numbers of monitors per Card: 5

HP Supported Monitor: HP 13279B

Please note that the HP 13279B is currently the only 19-inch monitor tested for FCC RFI compliance. The responsibility of non-HP monitor FCC RFI compliance is with the user.

Ordering Information

The HP 12065A includes:

- 12065-60001** Video Output Interface Assembly
- 12065-63001** 3-meter BNC Video Output Cables
- 12065-90001** Color Video Output Interface Reference Manual
- 12065-90003** Color Video Device Handlers Manual

HP 12065A Option:

- 001** Adds an additional 3-meter RS-232-C input cable with an edge connector to a female 25-pin connector, P/N 12065-63002.

A self-test loopback connector for optional use with the on-card self-test is available (HP P/N 12065-67001)