

## Catalog #MX-3750 SVGA MEMORY UPGRADE

You can add 256K of memory with part # MX-3750 to the VGA adapter in order to use SVGA monitor.

The video circuitry for the Tandy 4020 SX is included on the main logic board. This circuitry has the following features:

- \* Full IBM Personal System/2 VGA Display adapter compatibility.
- \* Support for extended VGA modes with 132-column text and both 800 x 600 and 1024 x 768 resolution graphics.
- \* A color palette of more than 262,000 possible colors
- \* 256KB video memory (RAM) expandable to 512KB to support more of the extended VGA modes.
- \* Compatibility with Tandy's VGM-100, VGM-200, and VGM-300 monitors, as well as equivalent monitors.

The 256KB of video memory must be upgraded to 512KB for the following extended VGA modes:

- \* 640 x 480, 256-color graphics mode
- \* 1024 x 768, 16-color graphics mode

## MONITOR AND SOFTWARE COMPATIBILITY

The VGA adapter is compatible with software written for the following video standards on color or monochrome VGA analog monitors:

- \* VGA (Video Graphics Array)
- \* MCGA (Multi-Color Graphics Array)
- \* EGA (IBM Enhanced Graphics Adapter)
- \* CGA (IBM Color Graphics Adapter)
- \* MDA (IBM Monochrome Display Adapter)
- \* Hercules graphics (Hercules Graphics Card)

To emulate one of these standards, use the VGA1024.EXE utility found on the Utilities Diskette. This utility is discussed in SETUP.

CAUTION: Your VGA-compatible video circuitry requires the use of a VGA analog monitor. Some of the extended VGA modes require the use of a multiple-frequency monitor. Do not use any other type of monitor.

## DEFAULT CONFIGURATIONS

The VGA adapter defaults to VGA monochrome text mode for a monochrome monitor (or equivalent) or to 80 column color text mode for a color monitor. The VGA1024.EXE utility enables you to switch between color and monochrome modes.

## OPERATION

The VGA adapter, in its default configuration, supports most application software that is designed for VGA or EGA video support. Just turn on the computer, and install the application package as instructed by the software manufacturer.

To use Extended VGA mode features, such as 132-column text and 1024 x 768 resolution graphics capabilities, your application software must support these modes. You must connect a multiple-frequency monitor before using some of the extended modes in the table. Some modes will require additional video memory.

#### CONFIGURING THE SOFTWARE

Many application software packages include a setup, installation, or configuration program to prepare the application with the particular hardware that you are using. Most newer software will be able to run in the default VGA configuration for the VGA adapter.

Because some software packages are written specifically for certain non-EGA, non-VGA video hardware, you might need to configure the VGA adapter to emulate the video adapter need by the software.

#### STANDARD VIDEO MODES

Mode (text or graphic)	Resolution (columns by rows)	Simultaneous (colors [1]/ mapping[2])
VGA, EGA, and MCGA modes		
Monochrome Text Color Text	80 x 25 80 x 25 40 x 25	-/monochrome 16/color 16/color
Graphics	320 x 200 [3] 640 x 200 [3] 320 x 200 [3] 640 x 200 [3] 640 x 350 640 x 350 320 x 200 [3] 640 x 480 640 x 480	4/color 2/color 16/color 16/color 16/color -/monochrome 256/color 2/color 16/color
Extended VGA modes		
132-Column Text	132 x 25 132 x 43 132 x 25 132 x 43	16/color 16/color -/monochrome -/monochrome
Graphics	800 x 600 [4] 800 x 600 [4] 640 x 400 640 x 480 [5] 1024 x 768 [4] 1024 x 768 [4] 1024 x 768 [5] [4]	16/color 2/monochrome 256/color 256/color 2/monochrome 4 color 16/color
CGA mode		

Color Text	80 x 25 40 x 25	16/color 16/color
Color Graphics	320 x 200 [3] 640 x 200 [3]	4/color 2/color
Hercules Graphics mode and MDA mode		
Monochrome Text	80 x 25	-/monochrome
Monochrome Graphics	720 x 348	-/monochrome
<p>[1] Simultaneous colors refers to the number of colors or shades that can be displayed at one time.</p> <p>[2] Simultaneous mapping refers to the type of old-style display for which the mode was originally designed.</p> <p>[3] 200-line vertical resolution modes are double-scanned to display 400 lines on the screen.</p> <p>[4] Requires a multiple-frequency monitor.</p> <p>[5] Requires the installation of 512KB of video memory.</p>		

#### SOFTWARE TIPS

- \* The best-looking display can usually be achieved by selecting the highest resolution mode available when you install your application software packages.
- \* Some applications automatically detect the type of video adapter and monitor combination installed and configure themselves to take best advantage of the available hardware.
- \* If your software specifies that it is VGA, PS/2 video, or EGA, install the software for the appropriate adapter. This enables your software to run on your VGA adapter in the adapter's startup configuration.
- \* If your software does not specify a VGA, PS/2 video, or EGA option and you are using an RGB color analog monitor, try installing the software for color, if available. This usually works with your VGA adapter's default color mode on color monitors.
- \* To enable the VGA adapter to run software that will not run on VGA hardware, you must configure the VGA adapter to operate in another mode (such as CGA or Hercules), using the VGA1024.EXE utility.
- \* Hercules-compatible software and CGA-compatible games require using the VGA1024.EXE utility to set the VGA adapter to the appropriate video standard.
- \* Software that requires a certain video mapping may require you to use the VGA1024.EXE utility to set the VGA adapter to color or monochrome text as needed. For example, if the VGA adapter was set for color VGA text mode and you want to run software that requires monochrome text, you can use the VGA1024.EXE utility to switch modes.

- \* The VGA adapter default mapping depends on the type of monitor being used. If you are using the color monitor, the default mapping will be color. If you are using the monochrome monitor, the default mapping will be monochrome.

#### TROUBLESHOOTING

Symptom	Solution
No display	<ul style="list-style-type: none"> <li>* The monitor and/or power cable is not properly plugged in.</li> <li>* The monitor is not turned on.</li> <li>* The brightness and/or contrast control on the monitor is not turned up far enough.</li> </ul>
F1 SETUP error when you start up the system.	<ul style="list-style-type: none"> <li>* The Setup utility was not run.</li> </ul>
Distorted images or a blank screen when you run your software.	<ul style="list-style-type: none"> <li>* The software is not configured or compatible with the VGA graphics adapter's current video configuration. Run VGA1024.EXE.</li> </ul>

#### VGA SOFTWARE

Normally, the default video standard for the video circuitry is VGA. If a program requires mapping standards that are incompatible with VGA, you can use the VGA1024.EXE utility on the Utilities Diskette to override the VGA setting. Vga1024.exe enables you to choose from the VGA, CGA, and Hercules standards.

You can also use the LOCK command to make your particular configuration the new default mode (instead of VGA mode). When you use the LOCK command, the configuration you lock acts as the default video mode until you press the RESET button or turn off the computer power.

If you have a hard disk installed, you can copy the vga1024.exe utility to the hard disk. We recommend making a backup copy of the VGA utilities.

To access VGA1024.EXE:

1. Start up your computer.
2. At the MS-DOS prompt, insert the Utilities Diskette into Drive A.
3. Type a:vga1024. Then press ENTER.  
A simple menu appears, listing some of the options available.
4. Use the up and down direction keys on your keyboard to select your desired feature, and then press ENTER. Choose Exit or press ESC to exit and return to the operating system.

If you wish, you can bypass the vga1024.exe menu by including the desired

option when accessing vga1024.exe. Use one of the following either at the MS-DOS prompt or in a batch file.

COMMAND	FUNCTION
VGA1024 VGA	Sets the video circuitry to VGA mode (the default configuration)
VGA1024 CGA	Sets the video circuitry to CGA mode. This mode emulates the video capabilities of the IBM Color/Graphics Adapter. Press CTRL+ALT+DEL to return to VGA mode.
VGA1024 MDA	Sets the video circuitry to emulate the Hercules Graphics Card with no graphics memory allocated. This configuration is equivalent to IBM's text-only Monochrome Display Adapter. Press CTRL+ALT+DEL to return to VGA mode.
VGA1024 HERC0	Sets the video circuitry to emulate the Hercules Graphics Card with one page of graphics memory allocated. This configuration is equivalent to using the Hercules HGC HALF command. Press CTRL+ALT+DEL to return to VGA mode.
VGA1024 HERC1	Sets the video circuitry to emulate the Hercules Graphics Card with two pages of graphics memory allocated. This configuration is equivalent to using the Hercules HGC FULL command. Press CTRL+ALT+DEL to return to VGA mode.
VGA1024 COLOR	Changes the video circuitry to color mapping as needed. This setting supports video modes that require color mapping.
VGA1024 MONO	Changes the video circuitry to monochrome mapping as needed. This setting supports video modes that use monochrome mapping (such as monochrome text mode).
VGA1024 13225	Switches the VGA adapter to 132 column, 25-line color text mode. This mode is only for applications that are designed to take advantage to 132-column text capabilities.
VGA1024 13243	Switches the VGA adapter to 132-column, 43-line color text mode. This mode is only for application programs that are designed to take advantage of the 132-column text capabilities.
VGA1024 LOCK	Locks in the current video configuration as the new default configuration. this command can be used in conjunction with another parameter to lock in that particular mode. For example, the command VGA1024 CGA LOCK will enable the video circuitry to survive a soft reboot (pressing CTRL+ALT+DEL) configured as a color/graphics adapter. Any specific video mode

command such as VGA1024 CGA unlocks the video circuitry unless you include LOCK in your particular command. If you enter an incorrect VGA command, the program displays a prompt and gives you the option of using the VGA1024.EXE menu or returning to MS-DOS. The Lock command does not work with the VGA1024 13225 and VGA1024 13234 commands.
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## MOUSE USERS

If you are installing your mouse driver using a program such as mouse.com, or if you already have your mouse drive installed through the config.sys file, use the following procedure to switch from VGA to CGA, MDA, or Hercules mode when the mouse driver is installed.

1. At the VGA1024.exe menu, select your desired option. (Set CGA, HERCULES, or MDA.)
2. Choose the REBOOT SYSTEM IN CURRENT MODE OPTION. The system restarts. Reload any drivers or TSR utilities you want to run.
3. To return to VGA mode, run the VGA1024.exe utility and select a VGA option.

Refer to your mouse installation guide for more information and instructions.

### Notes:

- \* using the Reboot System in Current Mode option is equivalent to activating the vga1024.exe utility's Lock Current Mode option and then pressing CTRL+ALT+DEL. subsequent restarts cause the VGA adapter to come up in the selected modes (Hercules, CGA, or MDA). Using the Vga1024.exe utility to select any other mode causes subsequent restarts to come up in the default VGA mode.
- \* The Reboot System in Current Mode option can be accessed from the MS-DOS command line or through an MS-DOS batch file by using the REBOOT parameter. For example, to switch from VGA mode to Hercules mode when the mouse driver has been loaded, use the following command:

```
VGA1024 HERC1 REBOOT
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## SYSTEMS USING TWO MONITORS

The on-board VGA circuitry may be used with a video adapter installed in an expansion slot and a second monitor. The video adapter/ monitor pair must be either a monochrome display adapter and a monochrome monitor, or a color/graphics adapter and an RGB color monitor. These are the only multiple monitor and video installations that will work with VGA circuitry.

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