FCC ID: I27MM-VI01A

EUT: VGA CARD

BIOSTAR MICROTECH INT'L CORP.

USER'S MANUAL

EXHIBIT D

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Intel 740 AGP Card User's Manual

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The Intel740 2D capabilities includes BLT and STRBLT engines, a hardware cursor, and an extensive set of 2D registers and instructions. The high performance 64-bit BitBLT engine provides hardware acceleration for many common Windows* operations.

The Intel740 is a graphics hardware accelerator providing a variety of features which can enhance the speed and visual quality of 2D and 3D applications.

Chapter 2: Features

This section offers a brief overview of the most prominent Intel740 AGP Card features.

✣ Table 2-1. Intel740 AGP Card Feature Summary

HYPER PIPELINED ARCHITECTURE	2D & DISPLAY FEATURES
• Direct Memory Execution (DME)	• Display Resolution: 640x480x8 up to 1280x1024x16 @ 48 Hz - 85 Hz Refresh Rate
• 0.85 Mega-Triangles/Second Peak	• Hardware Cursor
• 425-500K Triangles/Second Full Featured Sustained 3D Performance	• Hardware Overlay
• 45-55 Mega-Pixels/Second Full Features (>140 Pixel Triangles) Sustained 3D Performance	• Blitter Engine
• Full Sideband Accelerated Graphics Port	• Stretch Blitter Engine
• Parallel Execution	• Color Expansion
• Optimized for 440LX Intel AGP Sets	

• Per Pixel Perspective Correct Texture Mapping	
• Mipmapping with Trilinear Filtering 1024x1024 to1x1	
• Texture Formats: 1, 2, 4 or 8-bit palettized;ARGB 1555 0565 4444; Compressed AYUV 0422 0555 1544.	
• Texture Memory Limited Only by System RAM	
• Optimized for 800x600x16 and 640x480x16 Display Resolution	

Chapter 4: Connectors and Jumper Setting

✧4-1 CONNECTORS

Standard 15-pin VGA to
Monitor Connector

- Connect the standard VGA connector to Monitor connector on Intel740 AGP Card to your monitor with a standard monitor cable (See Figure 5-2).

- Secure your computer cover and attach any previously removed cable(s). Hardware installation is completed.

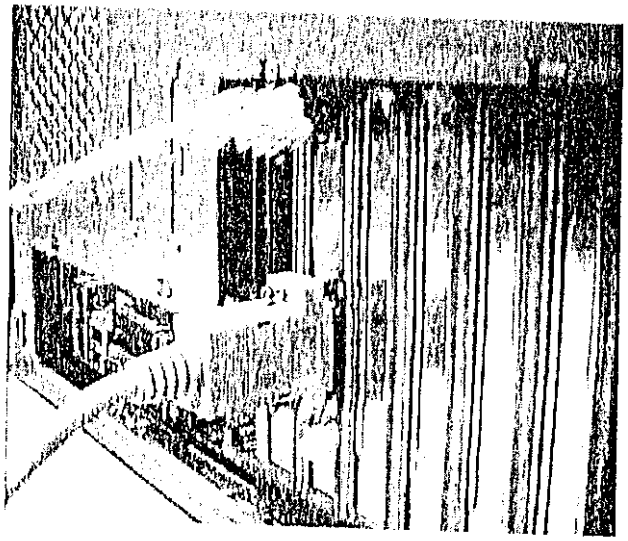

FIGURE 5-2

❖ 6-2 Software Installation

There is an installation wizard, Multimedia CD Installation Utility (START.EXE), located in the root of Multimedia CD to let users install some common used drivers conveniently.

There are two kinds of drivers installation: (You can refer to the section 6-1 Software List)

❖ **The drivers can be installed from Multimedia CD by using CD Installation Utility:**

You can simply put Multimedia CD into CD-ROM drive and the Installation Utility will autorun or you can run the Multimedia CD Installation Utility directly by using mouse cursor to click the proper option on the page. Utility will invoke other applications to complete the rest of installation.

❖6-3 Using Software

❖ 6-3-1 Using Intel740 Windows 95 / 98 Additional Control Panels

NOTE 1: You can move the mouse cursor to the background of screen and right click the mouse. Then please select properties in the pop-up menu to invoke the Display Properties Control Panel as follows.

NOTE 2: If you don't know how to change Resolution, Color Depth and Font Size, please refer to the Windows 95/98 user's manual.

❖ 6-3-1-3 Information Panel

Select **740 Version** property sheet in the Display Properties dialog, you can get the display driver information, BIOS information, Memory Size and DirectX version (See Figure 6-3).

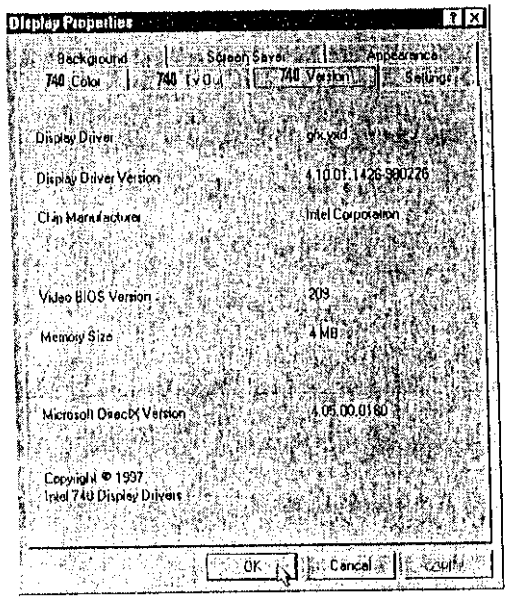

FIGURE 6-3

APPENDIX A: 3D Dictionary

- **Alpha blending**

  Combining two images with different transparency levels so that one image appears visible through the other. An object's transparency is defined as its Alpha value or Alpha level.

- **Anti-aliasing**

  The removal of artifacts from an image.

- **Bi-linear sampling/filtering**

  A combination of four colors in a single 3D image used to improve that image's resolution.

- **Clipping**

  Removal of any image displayed outside of a predefined shape.

- **Compressed Textures Depth cueing**

  Changing the color and brightness of a 3D image as it moves, relevant to the viewer. Color becomes less bright as the image moves away, brighter as it moves closer.

❖ **Rasterization**

Transformation of a 2D object into a 3D object.

❖ **Ray tracing**

One way of rendering a picture. The computer computes the path of a light ray from the light source to the objects (from which the ray reflects), and further to the observer. It does this for every pixel on the monitor.This is a very intensive calculation,but the results are worth it.

❖ **Refraction**

Bending of light when it passes through another substance.

❖ **Rendering**

Converting a graphics image into an array of pixel colors for the display.

❖ **Shading (gouraud/phong)**

Both shading methods make the surface and color of an object appear smoother. Phong shading takes more CPU time but gives better results. Gouraud shading is faster.

❖ Z-buffer

A two dimensional array made up of a grid of points on a sea-level plane, each containing the value of the depth (z) at that point. This way every pixel on the monitor has a "depth value" so that the program knows which polygons are in the foreground and which are in the background.

- **Texture mapping**

  Overlaying a graphics image on a 3D object, so that the photo takes the shape of that object.

- **Transparent/Translucent : An image that can partially be seen through.**

- **Tri-linear mip-mapping**

  The texture map is stored at several levels of detail in a structure called mip-map. You compute the texture coordinates and the exact level of detail. This gives you the two closest levels of detail available in the mip-map. In each one you perform a bilinear interpolation, and then a linear interpolation between the two levels (that's why it's called tri-linear). High-end graphics workstation (like SGI Reality Engine) use tri-linear mip-mapping.

- **Tri-Strip processing Vertex**

  A point which marks the intersection of two or more edges of a polygon or other graphics object.

- **Video mapping**

  The same as texture mapping. In the case of video mapping, the texture is applied to an animation or a video clip.

- **Dithering**

  Substituting combinations of colors you do have for colors that you don't. For example, if your computer is only capable of displaying 256 colors and you load an image that use 65,000 colors, your computer will create substitutes for the colors you don't have by combining the colors that you do. The color quality of a dithered image is inferior to a non-dithered image

- **Double buffering**

  A way for your computer to work on an image two different ways at once. Before displaying an image, your video card calculates what a finished image will look like and displays that image while it is calculating the next image in a video stream. Double-buffering affords smoother playback for video or any other multiple-frame file format.

- **Frames Per Second (FPS)**

  A measurement of how often information in a video or animation file is updated on your screen or how many frames of motion you see in a given second. Movies and television shows are shown at 24fps.

- **Photo mapping**

  Overlaying a photo image on a 3D object, so that the photo takes the shape of that object.

❖ 6-3-2 Using Xing MPEG Player

After the Xing MPEG Player Software Installation completed, If you don't know how to use Xing MPEG Player, please refer to Xing MPEG Player Help in the Xing MPEG Player Group.

❖ 6-3-1-1 Gamma Control Panel

Select **740 Color** property sheet in the Display Properties dialog, you can use the functions provided by this sheet to do the Gamma Correction of Red, Green and Blue Color Channels (See Figure 6-1).

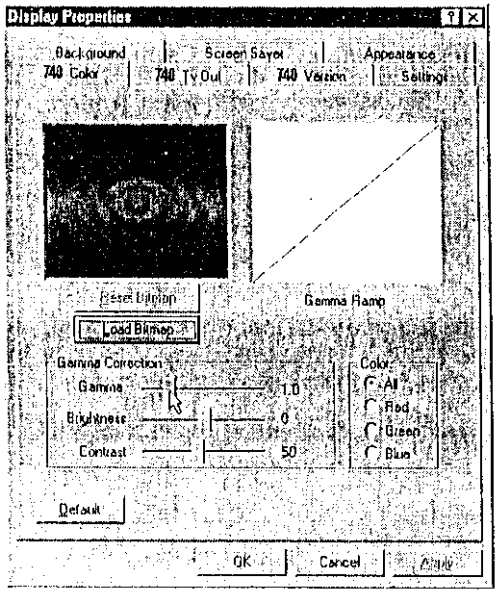

FIGURE 6-1

❖ The drivers CAN NOT be installed directly from Multimedia CD by using CD Installation Utility:

Please read the README.TXT located in the root directory on Multimedia CD to get drivers' location and then refer to the INSTALL.TXT files located in each driver directory on the Multimedia CD to install drivers.

NOTE : Recommended installation orders for Windows 95/98:

1. Intel740 Windows 95/98 Drivers
2. Microsoft DirectX
3. Others (Games, Testing Applications...)

Chapter 6: Intel740 AGP Card Software

❖ 6-1 Software List

NOTE: * It can be installed directly from Multimedia CD by using CD Installation Utility (i.e. START.EXE).

❖ Drivers

Category	Location in CD
Windows 95 / 98 *	\Intel740\Win9x
Windows NT 4.0	\Intel740\WinNT40
DirectX *	\Intel740\DirectX

❖ Applications

Name	Platform
Xing MPEG Player *	Win 31/Win95 / NT

Chapter 5: Intel740 AGP Card Hardware Installation

- With the power off, remove your computer cover. Find the AGP slot and remove the bracket and screw. (Remember which cables go to which connectors. You may want to label your computer's cables before disconnecting them!)
- Insert Intel740 AGP Card firmly into the AGP slot. Care should be taken to press the card evenly and snugly into its slot. Once Intel740 AGP Card has been installed properly in its slot, secure its screw (See FIGURE 5-1).

FIGURE 5-1

Chapter 3: Specifications

- Graphics Engine:
  - Intel740 Graphics and Video Accelerator
- Bus Type:
  - 64 bit AGP 1.0 Interface
  - Support for AGP 2X Mode and Execute-Mode plus Sideband Addressing
- Memory Configuration:
  - 2MB, 4MB or 8MB
- Connectors:
  - Standard 15 pin VGA to monitor connector
- Software and Driver
  - Windows 95, Windows 98, Windows NT 4.0, DirectX, and OpenGL
  - Xing Software MPEG Player

3D FEATURES
• Z-Buffering
• Back Face Culling
• Antialiasing
• Flat and Gouraud Shading
• Specular Highlighting
• Fog with RGB Components
• Color Alpha Blending
• Color Dithering
• Stippling or "Screen Door" transparency
• Texture Color Keying and Chroma Keying

The Intel740 OpenGL driver set runs on personal computers that are based on the Intel Architecture with Accelerated Graphics Port (AGP) support and have Microsoft WindowsNT* 4.0 or newer operating system with the OpenGL 1.1 application programming interface (API). The Intel740 DirectX driver set runs on personal computers that are based on the Intel Architecture with AGP support and have the Microsoft Windows98*, Windows95* with USB support, or WindowsNT 5.0 operating system with DirectX 5.0 (or newer) and Win32 programming interfaces. This manual presents the Intel740 accelerated functions that are callable from OpenGL, DirectX and Win32 application programs.

Intel740 AGP Card

User's Manual

Chapter 1: Introduction

The Intel740 is a highly integrated graphics accelerator designed for the Accelerated Graphics Port (AGP). Its architecture consists of dedicated multi-media engines executing in parallel to deliver high performance 3D, 2D and video capabilities. The 3D and 2D engines are managed by a 3D /2D pipeline preprocessor allowing them a sustained flow of graphics data. The 3D engine has been architected as a deep pipeline, where performance is maximized by parallel data paths and allowing each pipeline stage to simultaneously operate on different primitives or portions of the same primitive. The Intel740 supports perspective-correct texture mapping, bilinear MIP-Mapping, Gouraud shading, alpha-blending, stippling, antialiasing, fogging and Z Buffering. A rich set of 3D instructions permit these features to be independently enabled or disabled. Textures can be located in AGP memory to free up local memory for other uses (e.g., back and Z Buffers, bitmaps, etc.).

FEDERAL COMMUNICATIONS COMMISSION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions :(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient o relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

EXHIBIT D