Drivers for Windows

Compressed Modes User's Guide

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CHAPTER

1

COMPRESSED MODES

The information in this document applies to NVIDIA™ Display Drivers for Windows® 2000 and Windows XP, and explains how to use compressed modes for generating available display modes.

Overview

The Reason for Compressed Modes

Advanced NVIDIA graphics processors and software drivers have greatly increased the number of possible display mode combinations. Compressed Modes is a method for efficiently specifying any number of desired display modes without having to add huge mode lists to the Windows registry.

The Compressed Modes Process

The driver includes a number of standard modes that form the basis for the master mode list. This list is refined according to the capabilities of the graphics adapter as well as the monitor.

You can make further changes to the list by adding or subtracting modes, and specifying this in the graphics adapter INF. The general steps involved are:

1. Refer to the default mode list. (See "Modes Included By Default" on page 4.)
2. For any graphics card, determine which modes you want to add and/or remove.
3. List the added or subtracted modes in the "Add registry" section of the adapter INF.

   See "Adding and Subtracting Modes" on page 2 for instructions on creating the list to be included in the INF.

   See "Adding Mode Deltas to the INF" on page 3 for further details on the INF entry.

Adding and Subtracting Modes

Creating the Mode Delta String

For each graphics card, as many modes can be added or subtracted from the default list as desired.

1. Specify each mode range as a string in the format :

   "X Resolution, Y Resolution, Color Depth Range, Refresh Rate Range"

2. Separate multiple mode ranges with a semicolon “;”
3. To add the mode range, precede the string with an “A”.
   - Mode ranges listed thereafter are also added, unless preceded by an “S”.
   - If no “A” or “S” precedes the first range in the list, the mode (and those that follow) are added by default.
4. To subtract the mode range, precede the string with an “S”.
   - Mode ranges listed thereafter are also subtracted, unless preceded by an “A”.
   - If no “A” or “S” precedes the first range in the list, the mode (and those that follow) are added by default.

Specifying Ranges

To specify multiple color depths and refresh rates, use ranges instead of listing each value individually.

Refer to Table 1.1 for guidance on how to use ranges when specifying color depths and refresh rates.

Table 1.1 Range Examples

	Color Depth Example		Refresh Rate Example	
Range Option	**Entry**	**Meaning**	**Entry**	**Meaning**
Single Value	“16”	16	“75”	75
Lower Bound	“16-”	16,32	“75-”	75, 85, 100, 120
Upper Bound	“-16”	8, 16	“-75”	60, 70, 72, 75
Bounded Range	“16-32”	16,32	“75-100”	75, 85, 100
Entire Range	“-”	8, 16, 32	“-”	60, 70, 72, 75, , 85, 100, 120

Adding Mode Deltas to the INF

Creating the INF Entry

For each graphics card, add the following entry under the "NVIDIA Add registry section" of the INF:

HKR[1]**,, *ValueEntry*, %REG_SZ%, "*(mode delta 1);(mode delta 2); ...*"**

Where—

- ***ValueEntry*** = one of NV4_Modes_Delta, NV5_Modes_Delta, NV10_Modes_Delta, etc.
- ***mode delta*** = string data for each mode range, in the format

"*[A or S] X Resolution, Y Resolution, Color Depth Range, Refresh Rate Range*"

Mode Delta Example

```
HKR,, NV4_Modes_Delta, %REG_SZ%, "S 1280,768,-,-;1280,1024,32,120;A 864, 480,-
,60-75"
```

The INF entry above changes the mode list for NV4 graphics boards as follows:

- **Subtract** 1280x768, all bit depths, all refresh rates
- **Subtract** 1280x1024x32@120 Hz.
- **Add** 864x480, all bit depths, 60, 70, 72, and 75 Hz.

1. **For Windows 2000—**
   "HKR" in the INF represents the registry key
   `HKEY_LOCAL_MACHINE \\SYSTEM\\CurrentControlSet\\Services\\nv4\\Device X`
   where X is one of 0, 1, 2, 3, ….
   For Windows XP—
   "HKR" in the INF represents the registry key
   `HKEY_LOCAL_MACHINE \\SYSTEM\\CurrentControlSet\\Control\\Video\\GUID\\XXXX`
   where the "GUID" stands for an ID string and "XXXX" can be either 0000, 0001, 0002, etc.
   The exact path represented by "GUID\\XXXX" is found in the registry key
   `HKEY_LOCAL_MACHINE\\hardware\\Devicemap\\Video\\Device\VideoX,`
   where "X" is one of 0, 1, 2, etc. If an NVIDIA card is the first or only card installed, the key is Video0, which is the most common case.

Modes Included By Default

The refresh rates and resolutions listed below are subject to the graphics adapter's capabilities and the capabilities of the monitor.

Default Resolutions

320 x 200,

320 x 240,

400 x 300,

480 x 360,

512 x 384,

640 x 400,

640 x 480,

800 x 600,

1024 x 768,

1152 x 864,

1280 x 768,

1280 x 960,

1280 x 1024,

1600 x 900,

1600 x 1024,

1600 x 1200,

1920 x 1080,

1920 x 1200,

1920 x 1440,

2048 x 1536

Default Color Bit Depths

In bits per pixel: 8, 16, 32

Default Refresh Rates

In Hz: 60, 70, 72, 75, 85, 100, 120