

ENGINEERING RELEASE NOTES

S3 Savage4 Win2000 Beta3 Driver Version 5.01-8.24.01 (08/23/99)

Recipient

S3

Purpose

The purpose of this release is to switch to DX7.

Products Supported

Savage4™, revisions C and D

Language Support

English only.

Software Requirements

Microsoft Windows2000 build 2105 and later.

Driver/Application/Utility Components

There are no application components released with this Win2000 driver. The driver components that would comprise the contents of an installation disk are:

- S3SAV4.INF
- S3SAV4M.SYS
- S3SAV4.DLL
- S3SAV4.CAT

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Additions and Changes Driver Release History

| Version | Purpose of release |
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| 5.01.824.0001 8/23/1999 | <ul style="list-style-type: none"> Initial DX7 support. |
| 5.01.823.0015 8/18/1999 | <ul style="list-style-type: none"> CR26747. "Rev C only, Win2K 8.20.11: 3D Flower Box Screen Saver hang in 640x480x256 with Hand2 mouse cursor. Fixed by hardware workaround. This was due to a hardware issue: byte-wide accesses of FB cause hang on rev C if 3D4 index register set to 0x58. CR27982. "Rev C Only, 3D Flower Screen Saver hang on Preview when AVI play in the background at 8x6x8bpp or 6x4x8bpp." Fixed by hardware workaround. This was due to a hardware issue: byte-wide accesses of FB cause hang on rev C if 3D4 index register set to 0x58. CR28995. "Rev. C: 2DFlipCube hang when avi and dirloop in background." Fixed by hardware workaround. This was due to a hardware issue: byte-wide accesses of FB cause hang on rev C if 3D4 index register set to 0x58. CR29462. "WHQL PC99 DCT200 - DUAL CPU failed all PCI tests". Resolved. This has been confirmed as an O.S. problem, but will require verification as fixed on a newer version of Win2000 before CR can be closed. See Clarify CR29462 "Notes" section for details. CR29495. "WHQL PC99 DCT200 - D3D failed Overdraw/Underdraw test In Win2000 build 2072". Resolved. This has been confirmed as an O.S. problem. See Clarify CR29495 "Notes" section for details. |
| 5.01.823.0014 8/2/1999 | <ul style="list-style-type: none"> Disable anisotropic filtering to fix DCT200 failure. |
| 5.01.823.0013 7/21/1999 | <ul style="list-style-type: none"> 8BPP S3TC support added. S3TC AGP textures now supported. CR28119. "DCT98 V200: AGP - D3D texture 8x8 ,1024x1024 Fail and rerun will cause blue screen." CR28146. "DCT98 V200: System hang when Select All-Auto Run". The hang was occurring in one of the Beta Preview tests (Blt-Exotic). It appears to be fixed by this 8.23.13 release by the fact that the driver now rejects 24bpp texture surfaces. [Note: that the problem was fixed was not discovered until after the release letter was issued, so you will not see this listed as fixed in the 8.23.13 release letter]. CR28413. "WHQL PC99 DCT200 - PCI Dual CPU failed ALL PCI tests." Resolved. On dual CPU systems, the PCI Interrupt Line register is being reported as unreadable. Microsoft has confirmed that this is a test error and has issued an incident ID that is valid for DCT200 only (they expect to fix the problem in future DCT releases). The incident ID is 244. CR28806. "DX6.1 D3DIM Samples- Compress, texture3 missing at 16x12x16(8MB board only)." Fixed by addition of 8bpp S3TC support. |
| 5.01.823.0012 7/14/1999 | <ul style="list-style-type: none"> The MultiMonitor support has changed somewhat in this driver. The driver now detects whether it is primary (as set by default PCI/AGP precedence or by CMOS option selection) and if is, uses normal BIOS calls, BIOS-reported mode table, etc. If the driver detects that its device is the secondary adapter, then it uses no BIOS calls but uses hardcoded mode tables. Additional modes are now supported in the MultiMonitor-SecondaryDevice configuration. See Resolutions Supported section. Some minor modifications to the .INF file were made. The S3 "generic" PCI ID lines were removed from the customer-specific .INF files. CR28281. "Star Wars Episode 1: No fog appears in the game." |

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| | <p>Improved, but not completely fixed. Improvement “fix”(a hardware workaround) requires that a game-specific patch be enabled. To enable the patch, one must install the GamesFlags2 DWORD registry value, and set the data to 0x01. Note that this issue is also listed under “Unresolved issues”, and will continue to be listed there until confirmed entirely fixed.</p> <ul style="list-style-type: none"> • CR28449. “WHQL PC99 DCT200 – Direct3D W Compare – LessEqual failed.” • CR28450. “WHQL PC99 DCT200 – Direct3D Compressed Texture – DXT1 failed.” Believed to be covered by incident ID #210. |
| <p>5.01.823.0011 7/07/1999</p> | <ul style="list-style-type: none"> • This version adds new feature of MultiMonitor support based on 8.23.01. The version number is 8.23.11 to indicate the addition of new feature. • CR26760. “Multi Monitors: Savage4 doesn't work as secondary display”. |
| <p>5.01.823.0001 7/07/1999</p> | <ul style="list-style-type: none"> • CR27773. “Unavailable Bios Information in Display Properties.” Fixed. Please test to make sure information displays correctly on an Asian version of Win2000 (verify no Unicode issues with the text string created for BIOS version). • CR28043. “S3Swth2 1.00.11 in Win2K, switch on TV to PAL mode, reboot then switch TV back on, CRT goes almost black, TV flickers badly”. Fixed. • CR28303. “Microsoft BaseBall 3D: The color key appears incorrect, and there is serious flickering and screen refresh problems.” Some, but not all, of the issues are fixed in this 8.23.01 release. The purple boxes colorkey issue should be fixed. Release 8.22.09 should have fixed the main flickering issue. Other problems still remain. • CR28332. “Win2K Beta 3 (Build 2031)-DCTv.200: Manual DDC Test FAILURE.” Resolved as no bug, but a DCT200 limitation. 6/29/1999 confirmation from MS: I heard from WHQL that “this test doesn't work under Win2K”, so we're not required to pass it. • CR28435. “WHQL PC99 DCT200 - PC99 #27 RGB Rasterization, required capability not detected.” This and CR28436 are essentially the same problem. We do not have SRCCOLOR and INVSRCOLOR source blend capability on Savage4. MS has confirmed that SRCCOLOR and INVSRCOLOR have been reduced in importance from “Required” to “Recommended”. This, then, will be a No-Fix, with no waiver required. • CR28436. “WHQL PC99 DCT200 - PC99 #27.3 Source Alpha Blending Capabilities, required capability not detected.” This and CR28435 are essentially the same problem. We do not have SRCCOLOR and INVSRCOLOR source blend capability on Savage4. MS has confirmed that SRCCOLOR and INVSRCOLOR have been reduced in importance from “Required” to “Recommended”. This, then, will be a No-Fix, with no waiver required. • CR28446. “WHQL PC99 DCT200 – Direct3D Texture Gradient 8x8 and 16x16 test failed.” Fixed. • CR28447. “WHQL PC99 DCT200 – Direct3D Texture Filter – LinearMipNearest and LinearMipLinear tests failed.” Fixed. • CR28448. “WHQL PC99 DCT200 – Direct3D Texture Blend – Modulate test failed.” Fixed. • CR28452. “WHQL PC99 DCT200 – Direct3D Table Fog – failed Linear, Exponential and Exponential Squared tests.” Fixed. • CR28454. “WHQL PC99 DCT200 – Direct3D: W Fog – failed Linear, Exponential and Exponential Squared tests.” Fixed. |

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| | <ul style="list-style-type: none"> • CR28460: "WHQL DCT150: Manual DDC Test FAILURE." Resolved as no bug, but a DCT limitation. 6/29/1999 confirmation from MS: I heard from WHQL that "this test doesn't work under Win2K", so we're not required to pass it. • CR27786 "DirectX Game, Diablo, during setup become transparent with background." SQA closed this report as an application issue. • CR28224. "2D game: Caesars III: Bitmap does not appear on Autorun." SQA closed this report as duplicate. |
| 5.01.822.0009 6/22/1999 | <ul style="list-style-type: none"> • Add customer-specific .INF files. • CR28184. "FIFO noise appears when selecting between applications in Add/Remove Program window." Partially fixed by identifying Savage4 via PCI subsystem vendor ID of 1033, and applying CR79 engine timeout tweaks for special case handling of 1024x768x32, 1152x864x32, 1280x1024x32, and 1600x1200x32. Additional fixes may be needed, and the cases should be identified separately for (in case there are any differences due to different MCLK, different memory chip types, etc.). • CR28219. "SimCity3000 flickers when run game." Fixed. The fix should fix similar problems on other applications. • CR28228. "Star Wars Phantom Menace main menu flickers". This should be fixed by the fix for CR28219. • CR28238. "A number of DX6 D3DIM apps have broken (missing geometry): Tunnel, Lights, Fog, etc." This problem introduced in 8.22.07 is fixed in 8.22.09. |
| 5.01.822.0008 6/21/1999 | <ul style="list-style-type: none"> • CR27476. "3D WinBench99: Error message when running 3D Quality 4 Zbuffer". Fixed. • CR27610. "DCT v150 WHQL Manual test, Invalid Parameter Test for Primary cause KMODE_EXCEPTION_NOT_HANDLED blue screen hang." The fix is slightly enhanced since its first release in the 8.22.07 release. It has been enhanced to more thoroughly check state values passed to D3DRENDERSTATES. • CR27954. "3D WinBench 99 ver 1.2 Quality Test: Corruption on Text Image". Fixed. • CR28067. "3D WinBench99 v1.2 Quality Test cause blue screen trap. S3Sav4.DLL may be at fault". Fixed. |
| 5.01.822.0007 6/16/1999 | <ul style="list-style-type: none"> • CR27610. "DCT v150 WHQL Manual test, Invalid Parameter Test for Primary cause KMODE_EXCEPTION_NOT_HANDLED blue screen hang." Re-opened (erroneously reported fixed in 8.22.04). Fixed. |
| 5.01.822.0006 6/9/1999 | <ul style="list-style-type: none"> • Flat panel support added. • Use Savage4 ALT_STATUS_WORD_0 for engine/FIFO busy status, rather than reading this information from STATUS_WORD_0 (this change was made based on a recommendation of the hardware group). • CR26094. "DCT v150, build 1988/2000.3:8.20.09 Failed PC 98 test #25 and #27". Fixed 2K by 2K texture bug on 8MB boards (failure on 16MB boards was fixed in 8.22.05). When the texture is too big for adapter memory, driver will convert to use AGP texture (overflow to system memory). • CR27955. "DX6.1 D3DIM-Bend: System hangs when switching between D3D HAL and Software Rasterizer at high res". Fixed. • CR27757. "DCT150: DCT150: Win2000 GDI- GUIJr Fonts Fail." Fixed. • CR27789. "Dx6.1: D3DIM Samples Bend, the banana is white at 12x10x16(8MB board only)". A code change for this Savage3D problem should also fix the problem on Savage4 8MB (Savage4 LT) boards. SQA please verify. • CR27784. "DX6.1: D3DIM Samples Bend, the banana is white at |

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| | <p>12x10x16 (8MB board only). This should be fixed by the fix for CR26094 case #27 (overflow to AGP memory).</p> <ul style="list-style-type: none"> • CR27798. "DX6.1 D3D Samples Lights' on-window display was moved to second D3D Sample." This problem appears to be application misbehavior. Please verify (can cross-test using Reference Rasterizer, competitors' hardware, etc.). • CR27833. "DCT v150 Direct3D failed all MultiTexture tests." All of these failures are "DX_OK" failures (at least on the 16MB board tested) and can thus be covered by incident ID 141. • CR26855. "DCT v150 build 2000.3: 8.20.11 Failed Win2000 GDI(GDIMAN General StretchBlt(gdmvb1) and 8bpp(gdimv8b1), Gradient Fill, Unalign, ...) tests." This is believed to be a test error (as is the same problem reported against Savage3D in Clarify #27369). Even when a GDI-punt driver was used, the same failures were observed. Waiver 221 should cover it. • CR27834. "DCT v150 Direct3D failed Compressed Texture tests." Incident id #210 should cover this. • CR27958. "Savage4: Mediamatics DVD with Win2000 - playing title causes mouse pointer to blink on and off". Closed as not a bug, but a limitation on an 8MB board. • CR27974. "Savage4: Mediamatics DVD with Win2000 - Drops frames during playback". Closed as a not a bug, but a limitation on an 8MB board. • CR27979. "Savage4: Mediamatics DVD with Win2000 - Not using Motion Comp". Closed as not a bug, but a limitation on an 8MB board. • CR27994. "Savage4 not detecting monitor type when installing driver. Always set as Default Monitor." Resolved as user/configuration error. EDID retrieval (DDC detection) on Savage4 is working okay. |
| <p>5.01.822.0005 6/2/1999</p> | <ul style="list-style-type: none"> • Savage4 rev A – C hardware problem workaround code now check for revs A – C, so that workarounds will not be applied to rev D. This should allow easier verification of hardware fixes in rev D. • Savage4 rev A – C hardware workaround: CR79 (2D-engine timeout) programming modified to match the logic currently used by the NT 4.0 Savage4 driver. • AGP texture support added. • TV out support added. • CR26094. "DCT v150, build 1988/2000.3:8.20.09 Failed PC 98 test #25 and #27". Fixed 2K by 2K texture bug (on 16MB boards) plus instance ID's. • CR26508. "Winbench99, Direct Draw test – CPU overclock". This should be fixed by the fix for Win2000 Savage3D like-titled Clarify report CR26509. The two drivers share the code in which the fix was made, so it fixed both problems. SQA verified and closed CR26508. • CR27034. "DDRAW- DCTv.150 DUAL CPU: 8.21.04, SPECIAL_POOL_DETECTED_MEM_CORRUPTION, bluescreen trap". Resolved (no driver fix). The root problem is actually a WIN32K.SYS trap ("SPECIAL_POOL_DETECTED_MEM_CORRUPTION" appears to only occur as a blue-screen trap on reboot after a previous session trapped with the "WIN32K.SYS may be at fault" blue-screen trap. See Clarify report for details. The WIN32K.SYS problem is fixed in Win2000 build 2039; SQA verified on both single and dual CPU systems. • CR27325. "DCT v150 Win2K build 2031 8.22.01: System low in virtual memory when run All DCT tests." Resolved as system configuration |

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| | <p>problem: need 256M system.</p> <ul style="list-style-type: none"> • CR27478. "WHQL DCT98(Ver.150) PC98 test: PC98 #24 ,26,28 required capability not detected" we have instance ID's for them. • CR27489: "DX6.1 – Run AVI and two D3DIM Samples – shadow volume2 and bend cause blue screen". This has been fixed. • CR27832 "DCT Direct3D failed Texture Filter – LinearMipNearest and Texture Filter – LinearMipLinear" is fixed. • CR27326. "Miscellaneous DCT150 failures". This was closed by SQA, and a few of the remaining failures were opened as separate,: Texture Filter tests (see CR27832, fixed by 8.22.05), Multitexture Tests (see CR 27833), Compressed Texture (see CR 27834). |
| <p>5.01.822.0004 5/26/1999</p> | <ul style="list-style-type: none"> • CR27284 fixed. Fixed screen corruption while playing video problem. • CR27597 fixed. Fixed 1600x1200x32 3D Flipcube hang problem. • CR27610 fixed. Fixed DCT Invalid Parameter Test hang problem. [NOTE: this was erroneously reported as fixed. Problem reopened in 8.22.05-06 timeframe). • Change driver name to be Savage4 specific. |
| <p>5.01.822.0003 5/19/1999</p> | <ul style="list-style-type: none"> • Internal iDriverVersion (returned at DrvEnableDriver time) changed to return DDI_DRIVER_VERSION_NT5 instead of GDI_DRIVER_VERSION. According to a comment in the Win2000 DDK include file WINDDI.H, it seems that GDI_DRIVER_VERSION would imply this was an NT 4.0 driver. • S3Gamma support logic updated. • The miniport driver no longer imports any functions from HAL or NTOSKRNL DLLs. This change is made to comply with a new Win2000 WHQL requirement; these functions are considered illegal for Win2000 drivers. Some of these illegal functions have been replaced with new Win2000 functions. This should not impact driver performance, stability, memory usage, etc... but it could. • 4 BPP S3TC support has been added • CR26456, CR26405 (same issue). Title: "Full screen dirloop stop looping when AVI is playing in the background". When an AVI clip playing in the background completes, DOS DIR loop running in DOS full-screen session halts. Resolution: fixed. • CR27326 (partial fix). Miscellaneous DCT 150 test failures. Alpha Blend tests now pass. S3TC 4BPP support may fix part of Compressed Texture portion of test. • CR27329: No compressed texture displayed. Resolution: Added 4BPP S3TC support. • CR26609. VPE_Flip DCT test failures fixed. • No CR available. VPE fix for scaling problems while resizing DirectShow window during HW DVD playback. • CR26248. GX3. "DCT v160 build 1988: 8.20.09 Corruptions in OverFly Direct Draw". This Clarify report has been closed as fixed in "8.21.01". Please verify that it is fixed in this 8.22.03 release as well (different source base). • CR26340. GX3. "Monster Truck Madness: While running the game there is polygon dropping." This Clarify report has been closed as fixed in 8.21.06. Please verify that it is fixed in this 8.22.03 release as well (different source base). • CR26997. GX3. "DCT150: D3D-Texture Gradient 8x8,..., 1024x1024 fail". This Clarify report has been closed as fixed in "8.22.07" [sic – should be 8.21.07]. This should be fixed in this 8.22.03 release as well. • CR27375. GX3. "WHQL- D3D Flipcube severe texture corruption on the top portion or the cube". This was closed as fixed in 8.21.07. It should |

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| | <p>be fixed in this release as well.</p> <ul style="list-style-type: none"> • CR27361: GX3. "DX6.1 D3DIM samples – Compress no Texture Display". Should be fixed by the addition of 4BPP S3TC support (8BPP S3TC still unsupported). |
| <p>5.01.822.0002 5/12/1999</p> | <ul style="list-style-type: none"> • Fix handling of textures smaller than one tile (fixes TextureGradient DCT tests) • Fix texture colorkey • Change amount of memory mapped for 8bpp: this fixes the inability to set 8bpp desktop modes • 1280x1024x32bpp modes are now blocked if the refresh rate exceeds 75 Hz, rather than being specifically blocked for 85 Hz or 100 Hz. • 1600x1200x16bpp modes are now blocked if the refresh rate exceeds 75 Hz, rather than being specifically blocked at 85 Hz. • Allow support for 1600x1200x32bpp for Savage4 (still blocked for Savage3D). Please report all noise issues by refresh rate, whether desktop or secondary streams noise. See Resolutions Supported section for details. • Allow support for 1920x1440 resolutions, if supported by the video BIOS. Please report all noise issues – no refresh rates or color depths are blocked for this resolution in this release. • Make use of the MS1 extended Y coordinate range • Fixed CR27233: D3DRM sample missing "donut" when switching between Point and Linear filter. • CR27326 partially fixed: Fixed: Gradient Texture 8x8, 16x16, 32x32, Texture Colorkey, W compare Greater/Equal, Subpixel Sampling, Texture Perspective, Texture Blend – Modulate. • CR27233: DX6.0 D3DRM samples – Texture mapping V corruption. Fixed. This was not listed in the release notes for 8.22.02, but discovered later. |
| <p>5.01.822.0001 5/05/1999</p> | <ul style="list-style-type: none"> • Initial release of the Win2000 driver supporting both Savage3D and Savage4 and providing Direct3D support for both. |

Resolutions Supported

- This driver uses dynamic mode table support when its device is the primary display adapter. In that case, it uses the mode table reported by the BIOS and prunes out only certain modes as needed.
- If the adapter is the secondary adapter in a MultiMonitor configuration, however, it is not allowed to make BIOS calls. In that case, it uses hardcoded mode tables and BIOS-simulation functions.

Resolutions Supported – Device is Primary

- In this configuration, refer to the BIOS release letter for the mode list. The driver will get the list from the BIOS, so that is the starting point for the modelist.
- The driver will, however, deliberately block the following modes, even if supported in the BIOS:
 - Any resolution not in the set of:
 - Direct Draw Modes: 320x200, 320x240, 400x300, 512x384, 640x400
 - Desktop Modes: 640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200, 1920x1440.
 - Note that this driver does not support the DVD resolutions: 720x480, 720x576.
 - Any desktop resolution whose color depth is not in the set of: 8, 16, 32.

- If TV is the only display active, the following modes are pruned: 320x200, 320x240, 400x300, 512x384, and any resolution larger than 640x480 if NTSC-TV or 800x600 if NTSC-PAL.
- 1280x1024 is pruned if the color depth is 32bpp and the refresh rate is greater than 75.
- Prune 1600x1200 if 16bpp and refresh rate exceeds 75 Hz.
- Prune 1600x1200 if 32bpp and it's a Savage4 and the refresh rate exceeds 60 Hz.
- The driver prunes all interlaced modes (refresh rate is 43 interlaced or 48 interlaced).
- If a flat panel is active, the driver will prune any desktop resolution that exceeds the dimensions of the fixed resolution flat panel device (in height, width, or both).
- If a flat panel is active, the driver prunes all resolutions other than 60 Hz.

Resolutions Supported – Device is Secondary

- This driver hardcodes support for a specific set of graphics modes.
- The driver makes no BIOS calls.
- Currently it only supports following modes and refresh rates:
 - Mode list is same as Primary adapter except that it doesn't support refresh rate higher than 85hz.
- The driver will, however, deliberately block the following modes, even if supported in the BIOS:
 - Any resolution not in the set of:
 - Direct Draw Modes: 320x200, 320x240, 400x300, 512x384, 640x400
 - Desktop Modes: 640x480, 800x600, 1024x768, 1152x864, 1280x1024, 1600x1200, 1920x1440.
 - Note that this driver does not support the DVD resolutions: 720x480, 720x576
- Any desktop resolution whose color depth is not in the set of: 8, 16, 32
- If TV is the only display active, the following modes are pruned: 320x200, 320x240, 400x300, 512x384, and any resolution larger than 640x480 if NTSC-TV or 800x600 if NTSC-PAL.
- 1280x1024 is pruned if the color depth is 32bpp and the refresh rate is greater than 75.
- Prune 1600x1200 if 16bpp and refresh rate exceeds 75 Hz.
- Prune 1600x1200 if 32bpp and it's a Savage4 and the refresh rate exceeds 60 Hz.
- The driver prunes all interlaced modes (refresh rate is 43 interlaced or 48 interlaced).
- If a flat panel is active, the driver will prune any desktop resolution that exceeds the dimensions of the fixed resolution flat panel device (in height, width, or both).
- If a flat panel is active, the driver prunes all resolutions other than 60 Hz.

Registry Keys and Build Switches

This driver was built with the following build switches (additional switches, irrelevant to list here, may be found in the S3GX3.H file labeled for this release):

- D3DDX7 is 1.
- MULTIMON defined.
- GX3_MS1_NONSTD_STATUS defined and S3_SAVAGE4_REVB_USE_ALT_STATUS defined as true: this means that Savage4 code will use the ALT_STATUS_WORD_0 register, rather than the STATUS_WORD_0 register.
- USE_TILE_Y_RANGE_FLAG is set. This allows, for MS1-only, variation in the amount of bits used for X and Y in the address (enabling a smaller pitch to be used, when possible).
- MS1D3D_STRIP: this means that hardware culling is not used.
- D_FLUSH defined: flush pending D3D Z and destination writes bit is set.
- SUPPORT_DMA is false and BCIUSWC is TRUE: BCI write combining is supported, but DMA is not.
- MSMOTION is TRUE: S3 Motion Compensation is provided for Win2000 builds.
- SUPPORT_VPE is TRUE: S3 Video Port Extensions are provided for Win2000 builds.
- SUPPORT_FLAT_PANEL is TRUE: flat panel support is not enabled.
- SUPPORT_GAMMA_CORRECTION is TRUE: Gamma correction is supported, via either S3Gamma or Win2000 built-in support.

NT registry keys actively used with this driver:

- S3Inc.GeneralConfigData section defines MaximumDeviceMemoryConfiguration=128. This is needed for support of our tiling architecture under Win2000.
- S3Inc: GammaSupportEnabled, GammaFor16bppModes, GammaFor32BppModes for S3Gamma support
- S3Inc: VideoOffsetX, VideoOffsetY for VPE support
- S3Inc: GamesFlags1, GamesFlags2. These are used for testing of D3D game-specific patches. The .INF file does not automatically install these keys, because they are presently intended only for use by development and Software Quality Assurance.
- S3Inc: CapabilityOverride set to 0 to enable full HW acceleration.

Installation Instructions

Use the standard method for installing Windows2000 display drivers: use the Device Manager to uninstall all display devices and reboot to let PNP installation find the S3 adapter and driver or install from Update Drivers page off SystemProperties\Hardware\DeviceManager\DisplayAdapters\DriverName.

Known Limitations or Issues

- The D3D app MFCTEX does not display properly on Savage4 when run in full-screen. It is not known if this is due to an app limitation (the DX6 readme.txt file implies that is possible) or a driver bug.
- Palettized textures are not supported.
- This driver does not support DirectX 6.0.
- The driver does not support the DVD resolutions: 720x480, 720x576. 720x576 may be required to satisfy a PC99 requirement (14.14.1).
- DFP (Digital Flat Panel) support has not yet been implemented.

Resolved Issues

- DX7 support.

Unresolved Issues

- CR26603 "Some cards cannot change to VGA 8x6 mode".
- CR26786 "Windowed Dirloop does not run smoothly in 10x7x16bpp/256colors".
- CR27346 "DX6.1 D3DIM samples- MFCTexture: the texture on the wall disappears no texture display". This appears to be an application bug, the reference rasterizer and RGB emulation results do not match at 16bpp. Driver behavior appears to be correct.
- CR27500 "DCT v150 DUAL Cpu: PC98 hang on Var20:PC98 linear-mapped low-res modes when run all PC98 tests." This problem does not appear on rev D Savage4 boards. No workaround for older boards has yet been found.
- CR27830 "8.22.04 Video clips and Speedy cause system hang when leave on for about 1 hour." SQA has verified that this is not fixed in rev D hardware.
- CR27873 On dual CPU, playing video clip and moveing mouse: causes system hang". This problem does not appear on rev D Savage4 boards. No workaround for older boards has yet been found.
- CR27953 3D WinBench99 failed Quality Tests".
- CR28031 DX6.1 D3DIM samples- Compress: Blue screen when switching texture at 12x10x16."
- CR28040 Savage4: Mediamatics DVD with Win2000 - Notice playback when scaling jagged edges appear."
- CR28178 Rev D only: Block of pixel drop along the title bar of video when moves to off screen slowly 16x12x16@60Hz."
- CR28184 FIFO noise appears when selecting between applications in Add/Remove Program Window."
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- CR28274 The following games lock up when attempting to launch: Powerslide, Half Life, Shogo.”
- CR28275 Baldur’s Gate: A DirectDraw error occurs when attempting to load a post-install cinematic. However, despite this error pop-up, this does not affect gameplay, or the successful completion of the installation.”
- CR28276 Close Combat III: If the user attempts to access the scenario editor, immediately after launching the game, the game will exit to desktop.”
- CR28278 Caesar III: The game will frequently refuse to enter windowed mode.”
- CR28279 Caesar III: The bitmap image is missing from the autorun menu, and fonts are missing from the loading screen boxes during installation.”
- CR28281 Star Wars Episode 1: no fog appears in the game.” Win9x corresponding problem is CR28041. Fog partially fixed in 8.23.12 driver release, but according to games tester, the fogging effect is not yet thick enough.
- CR28287 Tiger Woods Golf ’99: There is a moderate amount of texture flickering in background of playing area.”
- CR28292 Tiger Woods: The game will not run properly in any mode above 800x600.” Clarify report details include: “The same bug occurs with 9x, and also on TNT.”
- CR28303 Microsoft BaseBall 3D: The color key appears incorrect, and there is serious flickering and screen refresh problems.” Some of the issues described in this report are fixed in the 8.23.01 release, but not all.
- CR28304 Wargasm: After launch, the main menu and all subsequent menus will shake vertically.” Behavior improved significantly in 8.23.01 release, and severity was decreased. Still needs additional fixing.
- CR28310 Rev C: Star Wars Phantom Menace: A horizontal pixel-width strip is visible on the main menu.” As title has changed to indicate, this is now believed to occur only with Rev C hardware.
- CR28445 WHQL PC99 DCT200 – DirectDraw, Blt- ColorKey – Vmem to Primary test failed.” The failing tests are pixel mismatch problems in the portion of the test “BLT, SRCKEY (from Vmem) with unused pixel bits set”. The problem stems from our not having the ability to limit the bits used for a blt colorkey to anything less than the color depth normally uses. This test is setting alpha bits in 32bpp, but setting the mask for the alpha bits to be ignored – our hardware doesn’t know to ignore them. Microsoft is confirming what WHQL will allow for failures of this test, even though they have decided to leave it in the test suite. We need to get the appropriate waiver or incident ID.
- CR28461 Rev C only: On DUAL CPU, 3D pipe ScreenSaver causes a system hang.” This is probably another instance of the problem described in CR27982.”
- CR28749 2D: The “my Computer” icon becomes discolored when accessing CD-ROM applications in all 8-bit modes.”
- CR28787 WHQL PC99 DCT200 - Beta Preview-Cubic Mapping tests (Yaw, Pitch, Mipmapping), required capabilities not detected.”
- CR28789 WHQL PC99 DCT200 - Beta Preview failed PC99#29 Multi Texturing.”
- CR28807 WHQL PC99 DCT200 - Beta Preview-Bump Map Textures test, required capabilities not detected.”
- CR28808 WHQL PC99 DCT200 - Beta Preview-Luminance Textures, required capabilities not detected.”
- CR28809 WHQL PC99 DCT200 - Beta Preview-Lightmap, required capabilities not detected.”
- CR28812 WHQL PC99 DCT200 - Beta Preview failed PC99#31 Texture Sizes.”
- CR28813 WHQL PC99 DCT200 - Beta Preview failed PC99#34 Performance.”
- CR28814 WHQL PC99 DCT200 - Beta Preview failed MipFilter Point - Non-Square Width, NonSquare Height and Full Square tests.”
- CR28949 Some boards: Noise when move Advance Display Properties up and down. More severe in high res modes.”
- CR28971 Wargasm: All pre gameplay menu screens will only display in windowed mode”
- CR28974 Star Wars Pod Racer: Background and characters are not drawn properly.”
- CR28981 H/W cursor flashes when running a DDraw app”
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- CR28984 Corruption in 3D FlipCube when full screen avi played and full screen dirloop in background. 16x12x32bpp.”
- CR28985 Noise in 3D FlipCube in 16x12x32bpp. 16MB and 32MB boards only.”
- CR29025 DFP & CRT Displays: 8.16.04, display is forced into VGA mode after a successful installation of the driver if DFP is connected but powered off.”
- CR29045 DFP (Viewsonic150): 8.23.12, DFP does not turn-off when Power Scheme Monitor-Off is set, the display just flickers, happens on some boards (revD).”
- CR29093 Win2K (Bld 2031): NEC 8.23.12, cannot change modes after installing drivers on Some boards.
- CR29136 Background color changed with stream on at 8bpp.”
- CR29149 WHQL PC99 DCT200 - Beta Preview failed Blt-Exotic tests.”
- CR29339 MultiMonitor: SimCity 3000 text under desktop icons corrupted on one display screen if run game demo on the other monitor screen”
- CR29343 SimCity 3000 occasionally missing triangles when run game demo”
- CR29363 Pixel Drop occurs on dos loop command prompt title bar using Savage4 Pro (86C397P) with driver 8.23.13.”
- CR29419 Some Ares (MS1) - Ares Win 2000 #9 AVI corruption in 256 color.”
- CR29455 Pixel drop when drag a window on top of a movie window”
- CR29464 3D Flipcube: No texture when switch mode to 11x8x32(8MB)”
- CR29465 System hang when running both D3DIM Samples Lights and Bend”
- CR29466 3D WinBench 1.2 3D WinMark blue screen trap when test setting is 10x7x32bpp. 16MB and 32MB boards only.”
- CR29490 Using some boards, System hangs when loading windows after installing latest driver 8.23.14.”
- CR29497 Mediamatics: system hang when playing DVD in 1600x1200x32 mode”
- CR29499 Mediamatics: video will not play, application error when playing in 11x8, 12x10, 32bpp modes”
- CR29501 Mediamatics: loss of video/app hang when toggling to full screen command prompt while DVD is playing”
- CR29502 Mediamatics: video is jaggy when downscaled below 50%”
- CR29511 Mediamatics: player is corrupted when explorer is opened in 8bpp modes”
- CR29513 Mediamatics: cannot play mpg2 file aqua_001.mpg”
- CR29596 WHQL DCT200: Win2000 build 2072 hung on Win2000 GDI GUIMAN WinGDI test when run All Auto”
- CR29600 Quadrant HWDVD: playback scrambles, jitters, macroblocks, gets blocky when downscles, upscaled”
- CR29601 Quadrant HWDVD: multicolored blocks left behind from pop-up windows on desktop”
- CR29602 Quadrant HWDVD: subtitles flicker”
- CR29606 Some Ares (MS1)- W2K: Video never recovers from the manual standby.” Note: also happens with a competitor’s product on same system.
- CR29653 Driver version didn’t update after updated the driver”. Particular installation sequence: see Clarify report for details.
- CR29734 Rev. E 32 bit only. FIFO noise when move Display Properties box. [12x10x32@60](#)”
- CR29740 Rev. E 32 bit only. FIFO noise in 3DFLipCube in [12x10x32@60](#) test modes causes system hung.”
- CR29744 Rev. E 32 bit only. 2D Flip Cube shakes horizontally when test setting is [12x10x32@60](#)”

SQA Engineering Release Comments Status as of Date: 08/25/99

- Acceptance Status: This version of software product has been in test for less than 48 hours and has passed a limited suite of Acceptance testing for the following controllers: Savage4 (394/395/396/397 Rev. C and Rev. D).
- Regression Status: Regression of all open issues HAS been completed.

Issues Fix Verified:

CR29600 Quadrant HWDVD: playback scrambles, jitters, macroblocks, gets blocky when downscles, upscaled

New Issues Found:

CR29925 WHQL PC99 DCT250 - PC99 failed PC99#29 Multi Texturing CR29926: WHQL PC99 DCT250 - PC99 failed PC99#31 Texture Sizes

CR29927 WHQL PC99 DCT 200: D3D failed in Overdraw/underdraw on 32-bit memory access board

CR29935 INSTALL on IBM Ares systems/N9 BIOS: S3 8.23.xx, Page_Fault bluescreen occurs at boot-up,

CR29944 WHQL PC99 DCT 250 - Win2K build 2105 Blue screen trap when run All Auto

CR29946 WHQL DCT 250 - D3D failed Texture Gradient 8x8 and 16x16

CR29947 WHQL DCT250 - D3D failed Overdraw/Underdraw

CR29951 WHQL DCT250 - D3D failed Texture Filter - Nearest and LinearMipNearest

CR29953 WHQL DCT250 - D3D Failed All Texture Blends - Decal, DecalAlpha, ModulateAlpha, Copy and Add

CR29954 DISPLAY TYPE, BIOS INFO: S3 8.xx.xx, N9 BIOS version (4.12.10) is mis-reported as 2.1D.07 (S3 version string) on some cards.

CR29955 WHQL DCT250 - D3D failed Texture Formats - Compare

CR29956 WHQL DCT250 - D3D Failed all Compressed Texture - DXT1, DXT2, DXT3, DXT4 and DXT5

CR29961 WHQL DCT250: Run AGP D3D Texture 1024x1024 gave KMODE_EXCEPTION_NOT_HANDLED blue screen trap.

CR29965 WHQL DCT250: D3D failed Stencil tests CR29966: WHQL DCT250 : D3D failed TextureStage tests

CR29967 WHQL DCT250 - D3D failed DX6:Texture Filter - Nearest Nearest and LinearMipNearest

CR29968 WHQL DCT250 - D3D Failed All DX6 Texture Blends - Decal, DecalAlpha, ModulateAlpha, Copy and Add

CR29969 WHQL DCT250: D3D failed DX6 Stencil tests

CR29978 WHQL DCT250: Direct Draw failed VPE and Kernel test.

Issues Not Fixed:

CR26508 Winbench99, Direct Draw test - CPU overclock

CR26786 Windowed Dirloop does not run smoothly in 10x7x16bpp or 256colors.

CR27346 DX6.1 D3DIM samples- MFCtexture : the texture on the wall disappears .

CR27798 Dx6.1 D3D Samples Lights' on-window display was moved to second D3D Sample

CR27830 Rev.C: 8.22.04 Video clips and Speedy cause system hang when leave on for overnight.

CR27873 Rev.C Only. On dual CPU, play video clip and move mouse: causes system hang.

CR27953 3D WinBench99 Failed Quality Tests #10, #29 and 52 when testing mode is set to 10x7x32bpp .

CR27993 S3Swthc2 v.1.00.11 in Win2K, information page not displaying BIOS version, only ???(3 question marks)

CR28040 Savage4: Mediamatics DVD with Win2000 - Notice playback when scaling jagged edges appear.

CR28184 Rev. C. FIFO noise appears when selecting between applications in Add/Remove Program window.

CR28274 The following games lock up when attempting to launch: Powerslide, Half Life, Shogo

CR28275 Baldur's Gate: A direct draw error occurs when attempting to load a post-install cinematic

CR28276 Close Combat III: If the user attempts to access the scenario editor, immediately after launching the game, the game will exit to desktop

CR28279 Caesar III: The bitmap image is missing from the autorun menu, and fonts are missing from the loading screen boxes, during installation

CR28281 Star Wars Episode I: No fog appears in the game
CR28287 Tiger woods Golf '99: There is a moderate amount of texture flickering in background of playing area
CR28292 Tiger Woods: The game will not run properly in any mode above 800x600
CR28303 Microsoft BaseBall 3D: The color key appears incorrect, and there is serious flickering and screen refresh problems
CR28304 Wargasm: After launch, the main menu. and all subsequent menus will shake vertically
CR28310 Rec. C only. Star Wars Phantom menace: A horizontal pixel-width strip is visible on the main menu
CR28318 Noise in Winbench99 ver 1.1 Business Graphic Winmark tests in 16x12x32bpp.
CR28461 Rev. C only: On DUAL Cpu, 3D pipe Screen Saver causes system hang
CR28749 2D: My Computer icon becomes discolored when accessing CD-ROM applications in all 8-bit modes
CR28789 WHQL PC99 DCT200 - Beta Preview failed PC99#27 Multi Texturing.
CR28812 WHQL PC99 DCT200 - Beta Preview failed PC99#31 Texture Sizes
CR28813 WHQL PC99 DCT200 - Beta Preview failed PC99#34 Performance
CR28814 WHQL PC99 DCT200 - Beta Preview failed MipFilter Point - Non-Square Width, NonSquare Height and Full Square tests.
CR28868 WHQL PC99 DCT200 - Beta Preview failed all MipFilter Linear tests Non-Square Width, NonSquare Height Full Square tests...
CR28910 WHQL PC99 DCT200 - Beta Preview failed MipFilter Linear - MinPoint and MinLinear
CR28913 WHQL PC99 DCT200 - Beta Preview failed PC99TA 6.8.6 720x568 resolution
CR28914 WHQL PC99 DCT200 - Beta Preview failed PC99TA 6.8.4 YUV support
CR28915 WHQL PC99 DCT200 - Beta Preview failed PC99TA 6.8.5 Qual Scaling Cons.
CR28916 WHQL PC99 DCT200 - Beta Preview failed MipFilter Point - LOD Bias
CR28919 WHQL PC 99 DCT200 - Beta Preview - PCI Latency Win2000, results inconclusive.
CR28971 Wargasm: All pre gameplay menu screens will only display in windowed mode
CR28974 Star Wars Pod Racer: Background and characters are not drawn properly.
CR28984 Corruption in 3D FlipCube when full screen avi played and full screen dirloop in background. 16x12x32bpp.
CR28985 Noise in 3D FlipCube in 16x12x32bpp. 16MB and 32MB boards only. CR29025: DFP & CRT Displays: 8.23.12, display is forced into VGA mode after a successful installation of the driver if DFP is connected but powered off.

CR29093 Win2K (Bld 2031): NEC 8.23.12, cannot change modes after installing drivers on some boards. Creative & Diamond boards are OK.
CR29136 Background color changed with stream on at 8bpp
CR29149 WHQL PC99 DCT200 - Beta Preview failed Blt-Exotic tests.
CR29339 MultiMonitor: SimCity 3000 text under desktop icons corrupted on one display screen if run game demo on the other monitor screen
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CR29501 Mediamatics: loss of video/app hang when toggling to full screen command prompt while DVD is playing

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CR29511 Mediamatics: player is corrupted when explorer is opened in 8bpp modes

CR29513 Mediamatics: cannot play mpg2 file aqua_001.mpg

CR29596 Rev C only. WHQL DCT200: Win2000 build 2072 ran forever on Win2000 GDI GUIMAN WinGDI test when run All Auto

CR29600 Quadrant HWDVD: playback scrambles, jitters, macroblocks, gets blocky when downscles, upscaled

CR29601 Quadrant HWDVD: multicolored blocks left behind from pop-up windows on desktop

CR29602 Quadrant HWDVD: subtitles flicker

CR29653 Driver version didn't update after updated the driver

CR29811 Color corruption in media player when exit 2D FlipCube in 16 and 32 bpp modes with avi running in the background.

CR29815 WHQL PC99 DCT 98 V200- Test Manager hung at BLT_offscreen overlap

CR29822 Some Rev C boards: Noise when resize My Computer when avi is open.

CR29924 Quadrant HWDVD: downscaled picture gets "ridges"
