

⌘Ø³ãéµÑÇàÅ×Í;¹Õéà¾×èÍ;ÓË¹´ãËé;ÒÃ´ÓÁÍ fog table
·ÖŞÖ¹EA×İäAè·ÖŞÖ¹

Direct3D ĖÁÒÂ¶ÖŞ ;ÒÃĩ´áÊ´Ş¼Å¹ÕéÊÒÁÒÃ¶´áÊ´Ş¼Åá°° D3D â´ÂáÊ
´Ş¼Åä´é·NéŞá°° vertex fog ĖA×İ table fog

à;A°ÖŞ»ÄĐàA·äAèĖÖAQ¶¹Ö⌘ÇÖAĖÖAÒÃ¶·Ò;İÒÃĩ´áÇÃİ D3D ÁÒãªéª
´eàuçA»ÄĐĖÖ·ÖAQ¾áÄĐueÍŞãªé table fog à·èÖ¹Né¹
;ÖAäÅ×İ;µÑÇàÅ×Í;¹ÕéªèÇÄãĖéª¹èã´ª´éÇèÒà;A»ÄĐàA·
NŞ;ÄèÖÇ·Đ·ÖŞÖ¹ä´éµÖA»µÖ;Nªâ»Aà«Ėà«İÄ;ÄÖÇÖ;İİŞ NVidia

μÑÇàÅ×Í;¹ÖéªèÇÃãËéꝑØ³ÊÒÁÒÃ¶Â;àÅÔ; ; ÒÃãªéꝑØ³ÊÁºÑμÔ DirectX
àÇÍÃìªNè¹ãÊAè æ ã¹ã´ ÀàÇÍÃìä´ é
à; ÁºÒ§»ÃÐàÀ·. Õèà¢ÕÂ¹¢Öé¹à¾¼×èÍãªé; Ñº DirectX àÇÍÃìªNè¹; è¹ æ
lÖªãAè·Ô§Ô¹¶éOꝑØ³μO´ μNé§ DirectX àÇÍÃìªNè¹ 6 ÊÅ×Í 7 äÇé
; OÄàÅ×Í; μÑÇàÅ×Í;¹Öéà»¢¹; OÄ; OÊ¹ªÊéAÐºº·Ô§Ô¹ã¹âÊA´ DirectX 5
Ñ§¹Né¹à; AÄØè¹à; èO´Ô§ÊOÄOÄ¶·Ó§Ô¹ã´ éÍÃèÔ§¶U; μéÍ§
ãªéμÑÇàÅ×Í;¹ÖéÊÒ; ꝑØ³μéÍ§; ÒÃÃÑ¹à; ÁÃØè¹à; èÒºÒ§ÃØè¹·ÕèäÁè·Ó§Ò
¹ÊÅ×Í·Ô§Ô¹ãAè» ; μÔ

ãĚéîQÃĩ áÇÃì»ÃÑ⁰ðèÒðÇÒÁÅÖ;ϕÍ§ Z-buffer
ãĚéμA§μOÁ·Oèáí»¾¼ÄÖàðªN¹μéÍ§;OÁ
â´Â»;μÔ ðØ³ðÇÃ;ÓĚ¹´ãĚéμÑÇàÅ×Í;¹Ŏé·Ó§Ò¹
A;àÇé¹ã¹;Ä³Ŏ·ŎèμéÍ§;OÁ;ŎĚ¹´ Z-buffer àÍ§ ĚÒ;äÁè;ÓĚ¹
´ãĚéμNÇàÅ×Í;¹Ŏé·Ó§Ò¹ â»Aá;AAáí»¾¼ÄÖàðªN¹·Oèäªé Z-buffer
«OèšäAèμA§;Ñ⁰·Ŏèä´é;ŎĚ¹´ðèOð¹¿Ŏ;äÇé ¨ĐäAè·Ó§Ò¹

ÊÒÁÒÃ¶àÅ×Í;ãªéà·²Ô²ÊÓËÃÑºÑ¿à¿ÍÃì;ÒÃáÊ´§ÀÒ¾ 3 ÁÔµÔä´é
²Ø³ÊÁºÑµÔ¹Õé.ÓãËéÌÒÃì´áÇÃìÊÒÁÒÃ¶ãªé;ÒÃ.Ó§Ò¹µèÒ§ æ
ÊOEANºÑ¿à¿ÍÃì;ÒÃáÊ´§ÀÒ¾ 3 ÁÔµÔä¹áì»¾ÁÔà²Ñ¹ 16 °Ôµ
à¾×èìãËéÊÒÁÒÃ¶EAéO§ÀÒ¾ 3D ä´éÁÔ»AÐÊÔ.ÔÁÒ¾EÛ§ÁÔè§¢Öé¹

ıÖÃıÓĚ´ãĚéáÊ´şâÂıé NVidia ã¹ Direct3D

μÑÇàÅ×ıı¹Œé¨ĐáÊ´şâÂıé NVidia

·ÖèÅØÅÀèÖŞçİŞ¨İAO^{3/4}ç³Đ·ÖèAN¹áı»^{3/4}ÅÔàσªÑ¹ Direct3D

â»Ãà«Êà«ÍÃjÃÒ¿Ôj NVidia ÊÒÁÒÃŦÊÃéÒŠÁÔ»áÁç»â
ÁINuâ¹ANµOà³⁄₄×èl³⁄₄OèA·Nés»AĐÊO· ÓAÔ³⁄₄ã¹jOAEèš¢éÍAUÀjÒÃÊÃ
éOŠ³⁄₄×é¹¹⁄₄ÔÇ¹⁄₄èO¹⁰NĖáAĐ»AĐÊO· ÒAÔ³⁄₄ã¹jOÄ·OŠO¹¢ÍŠál»³⁄₄AÔàª¹N¹
ÍÂèÒšäÃjçuÒÁ â»ÃájÃÁáÍ»³⁄₄AÔàª¹N¹⁰Òš»ÃĐàÀ·ÍÒ·ÁŦjÒÃáÊ
¹⁄₄A·OèaAèŦUjµéÍŠEOjOĖ¹ãĖĖãéªØ³EA⁰NµOAO»áÁç»INuâ¹ÁÑµÔ
jOÄáé»NĖO ãĖªØ³A·AĐ·N⁰jOAEĖéQŠAO»áÁç»ÁŠ·¹jÇèO·ĐáĖ
¹⁄₄AŦUjµéÍŠjOÄA·AĐ·N⁰AO»áÁç»ĐEOAQÁŦáíé»N-
EOjOACOSµOáĖ¹èŠ³⁄₄×é¹¹⁄₄OÇãĖĖ "ãAèAOÁÍÁµel"
(áµè·Đ·ÔãĖĖªØ³AO³⁄₄¢ÍŠjOAáĖ¹⁄₄AA·ÁŠ·éÇAãª¹jÑ¹)

^aèÇÂãĚé¤Ø³ÊÒÁÒÃ¶àÅ×Í;ÇÔ,ÕÁÔ»áÁç»ÍÑμâ¹ÁÑμÔ·Õèâ»Ãà«Êà«ÍÃì;Ã
Ö¿Öì"Đã^aé
¤Ø³ÍÒ"àÅ×Í;ÇÔ,ÕìÒÃÁÔ»áÁç»á⁰⁰ă⁰ÅÔà¹ÕÃÃĚÃ×Íá⁰⁰ 8-tap anisotropic
â´A·Oèá⁰⁰ă⁰ÅQă¹ÔAAì"ĐãĚé»AĐÊÖ·ÔAO¾·Oè´ÖìÇèÖã¹¢³Đ·Oèá⁰⁰
anisotropic "ĐEOAOA¶áE'šAO¾ă´é¤Å^aN'ìÇèO

⌘Ø³ÊÒÁÒÃ¶»ÃÑº⌘èÒä°áíÊ LOD (Level of Detail) ã¹;ÒÃÁÔ»áÁç»ä´é
⌘èÒä°áíÊ·ÕèµèÓ·Ð·ÓãËé⌘Ø³ÀÒ¾¼¿Í\$ÀÒ¾¼´Õ¿Öé¹
ã¹¿³Ð·Öè;ÔÁà¾¼ÖèÀ⌘èÒä°áíÊ·ÐªèÇÁà¾¼ÖèÀ»ÃÐÊÔ·ÔÀÒ¾¼;ÒÃ·Ó\$Ò¹¿Í
\$â»Áá;ÁÁáí»¾¼ÁÒàªN¹ ⌘Ø³ÊÔÁÔÃ¶à×Í;·Ô;⌘èÒä°áíÊ·Ô¿ÍÁµì 5 ⌘èÔ
àÁÔèÀ·Ô; "⌘Ø³ÁÔ¾¼¿Í\$Ô¾¼´Ô·ÖèÊØ" ä»¹¶Ô\$
"»ÃÐÊÔ·ÔÁÔ¾¼;ÔÁÂN¹·Ô·ÖèÊØ"

ÃÒÂ;ÒÃ;ÒÃµÑéšµèÒá[∞];ÓË¹àís (ËÃ×Í "tweak") .ÕèµØ³á' é°Ñ¹.Ö;äCé
ãÉéàÃ×Í;µNCàÃ×Í;Ö;AÒÃ;ÒÃà^{3/4}×èlàAÕÃ;ã^aésÒ¹;ÒÃµÑéšµèÒ.Õèµéís
;ÒÃ "Ö;¹Né¹ãÉéµÃÔ;»ØèA "µ;Ãš" ËÃ×Í "µ;Ãšã^aé"

ªèÇÃãĚéªØ³ÊÒÁÒÃŦ°Ñ¹.Ö; ;ÒÃµÑé§ªèÒ»Ñ"·Ø°Ñ¹ă é (ÃÇÁ·Ñé§ªØ
´;ÒÃµÑé§ªèQã¹ă´İĐÄç; "çelAUÄà¾ŦèAàµŦÄçİ§ Direct3D") à»ç¹
"AU»ă°;ÒÃµÑé§ªèŦ·Ŧè;ŦE¹´àİ§" àA×el°Ñ¹.Ö; ;ÒÃµÑé§ªèŦáÄéÇ
ÄĐ°°·Đ¹ŦªèŦ¹Né¹ă»à»ç¹ÄŦÄ;ŦÄµel·éŦÄÄŦÄ;ŦÄà ŦÄ·ŦèÄŦİAUè
ĚÄÑ§·Ŧ;ªØ³ă´é;ÒÃµÑé§ªèŦ·Ŧè´Ŧ·ŦèÊŦ´ÊŦĚÄÑ°à;Äá° Direct3D
áÄéÇ äĚé°Ñ¹.Ö; ;ÒÃµÑé§ªèŦ¹Né¹ăÇéà»ç¹AU»ă°·Ŧè;ŦE¹´àİ§ (custom
tweak) «Ŧè§ªèÇÃãĚéªØ³ÊŦÄŦÄŦ;ŦE¹´ªèŦª¹;Ŧ; Direct3D ä´elAèŦ§ÄÇ
´àÄçÇâ´ÄäAèµel§µÑé§ªèŦµNÇàA×İ;áµèÄĐİAèŦ§ăĚAè·Né§ĚA´

ÅºìÒÃµÑé§¤èÒÊÕ·Õèä´éàÅ×Í;äÇé¨Ò;ÃÒÂ;ÒÃ

àÃÕÂ;æèÒ´Õ¿ÍÅµìϕÍ§;ÒÃµÑέ§æèÒ·Ñέ§ËÁ´αx¹

áÊ´sä´ÍĐÅçí«ÖèšãªéÊÓËÃÑº»ÃÑºà»ÅÕèÂ¹;ÒÃµÑé\$ªèÒí×è¹ æ ¢Í\$
Direct3D

μÑÇàÀ×Í;¹Öéãªéà»ÃÕèÂ¹ÇÔ_Õ;ÒÃ;ÓË¹
μÓáË¹è\$çÍ\$¾×é¹¹¼ÔÇçÍ\$ã·ç;à«À (Í\$¤ì»ÃĐ;ÍºçÍ\$¾×é¹¹¼ÔÇ)
;ÒÃà»ÃÕèÂ¹¤èÒ¹Öé·ĐÁÕ¹¼ÃµèÍ;ÒÃ;ÓË¹ μÓáË¹è\$à·ç;à«À´ÔÁ â
A·Oè¤èO´O;ÍÃµì·ĐÉ;¤ÃéÍ\$;Nº¤Ø³EÀºNµOçÍ\$ Direct3D
«Í;µíàÇÁºO\$»ÃĐàA·ÍÒ·µéÍ\$;ÒÃ;ÒÃ;ÓË¹
μÓáË¹è\$à·ç;à«ÃäÇéµèO\$EO;´éÇA¤Ø³AÒ¾ã¹;ÒÃáÊ
´\$¹¼AAO¾¼çÍ\$ál»¾¼AÒà¤ªN¹»ÃĐàA·N\$;ÃèOÇ·Đ´OçOé¹ ÈÒ;ÁÕ;ÒÃ;ÓË¹
´çéÍÃÜAà·ç;à«ÃäEÀè.â
´A»ANºá¶¹ªA×èÍ¹ä»AÒÃĐËÇèÒ\$ÁØÁº¹«éÒÃáÃĐ·Ø
´EU¹Ãì;ÃO\$çÍ\$à·ç;à«A

â»Ãà«Êà«ÍÃìÃÒ¿Ôìã^aé"Ó¹Ç¹Ë¹èÇÂ¤ÇÒÁ"ÓÇÍ\$ÃĐ^{oo}·ÕèÃĐ^oØäÇéÇÍ\$·Õè
àìç^{03/4×é11/4}ÔÇä' é (¹ì"Ôì"ĐμÔ' μNé\$E¹èÇÂ¤ÇÒÁ"ÓÇÍ\$ìÔÃì' áÊ
§¹/4Ãà³/4ÔÀ\$ÍÀèÔ\$à ÔÀÇ)

ËÁÒÂàËμØ: "Ó¹Ç¹Ë¹èÇÂ¤ÇÒÁ"ÓÊÙ\$ÊØ
ÇÍ\$ÃĐ^{oo}·ÕèÊÔÀÔÀ¶¹ÔÀQã^aéÊÀéÔ\$³/4×é11/4ÔÇÊÔÀÔÃ¶Ó¹Ç³ä
'é"Ôì"Ó¹Ç¹ RAM ·ÕèμÔ' μNé\$ÍÀUèã¹à¤Ã×èÍ\$¤ÍÀ³/4QÇàμÍÀìÇÍ\$¤Ø³
ÃÔè\$μÔ' μNé\$ RAM äÇéÀÔìà·èÔã' ¤èÔ·ÕèÊÔÀÔÀ¶¹ã^aéä
'éìç"Đà³/4ÔèÀÀÔìÇÔé¹' éÇÀ

ìÒÃμNé\$¤èÒ¹Õéã^aéä' éìÑºìÒÃì' áÊ' §¹/4Å PCI (ËÃ×ÍìÒÃì' áÊ' §¹/4Å AGP
·Õè·Ô\$Ô¹ã¹ãÊÀ' PCI)

àÅ×ÍµÑÇàÅ×Í¹Öéà¾×èÍÂ;àÅÔ;ÖÃ«ÔŞâ¸Ãä¹«ìá¹ÇµÑés
·ÓãĚéáĚ´ŞÀÒ¾ă»ÂÑŞĚ¹éÒ´Íă´é·Ñ¹·Õâ
´ĀăAèµèĴĀİăĚéAO;OA«ÔŞâ¸Ãä¹«ìAO¾ă¹á¹ÇµÑés;ÅÑºă»·Öè´ÍÀÒ¾
áĀĐªèÇĀăĚéĴµAO;OAáĚ´Ş¼ĀĚUŞ;ÇèOĴĴµAO;OAAOà¿ĀªĴİŞ´ÍáĚ
´Ş¼Ā áµèĴÖ´ĚèŞ¼Ā;ĀĐ·ºµè¸Ø³AO¾ĴİŞAO¾ă´é

μÑÇàÅ×Í¡¹Õëãªé¡ÓË¹´´Ó¹Ç¹¡ÒÃÅ´ÃÍÂËÂÑ¡·Õèãªéã¹áí»¾ÅÔàªªÑ¹ D3D
¡ÒÃÅ´ÃÍÂËÂÑ¡à»ç¹à·ª¹Ôª·Õèãªéã¹¡ÒÃÅ´ "àÊé¹¢ÃØ¢ÃÐ"
«Òè§ºÔ§ªANé§´Ð»AÔ¡_¢Öé¹µOÀ¢¹º¢ÍSAÔ¾¾ 3D
EOËANºáí»¾ÅÔàªªÑ¹ºQ§IAèO§_ªØ³EOAOA¶àÅ×Í¡ä
´éµNé§áµè¡OAAºÃÍÂËÂÑ¡II¡äEéEÁ´ä»´¹¶OSàÅ×Í¡äEéÁÕ´´Ó¹Ç¹ÃÍÂËÂÑ¡ä
´éEUSEØ´

ã^aéµÑÇàÅ×Í;¹Öéã¹;ÒÃÅ
´AIAEÄN;ã¹ál»¾¼ÄÖàªªN¹. ÖèäÁèÊÒÁÒÃ¶ã^aéªØ³ÊÁºÑµÔ¹Öéä´éâ´ÂµÃ§
â»Ã´.ÃÒºÇèÒºÒ§ál»¾¼ÄÖàªªN¹«Öè§äÁèÊÒÁÒÃ¶ã^aéà.ª¹Ôª¹Öéä
éÍÖ´.ÖãÊéäAèÊÖÁÖÁ¶áE´§¼¼Ää´éIAèÖSàEAÖÐEA EA×IäÄèÍÖ´àÃ¹à
IAjAO¾¼ä´éµÖA»µÖªØ³ªCAã^aéµÑÇàÅ×Í;¹ÖéIAèÖSADAN´ADÇN§ »Ö
µNCàÅ×Í;¹ÖéÊÖjªØ³¾¼º»NEÖã¹;ÖAäE
´§¼¼Ää;AEÄ×Iál»¾¼ÄÖàªªN¹«Öè§äAèÊÖÁÒÃ¶ã^aéà.ª¹Ôª;ÒÃÅ´ÃÍÄËÄÑ;ä
e

μÑÇàÅ×í;¹Öéãªé;ÓË¹
;ÖÀàμΑΟΑΑ·Ö¹Ç¹à;ÃÁ¢Í§«Ö¾ÖÂÙ;èí¹.Öè·Ð»ÃÐÁÇÅ¼ÅàÁ×èÍªØ³àÅ
Ö;ãªé;ÖΑ«Ö§âªÃª¹«íã¹á¹ÇμÑé§
ã¹ºÒ§;Ã³Ö ÂÔè§ΑÖ·Ó¹Ç¹à;ÃÁÁÒ;¢Öé¹à·èÒã´ "input Jag"
ÍÖ·μíºË¹Í§μèÍØ»í;Ã³ìμèÖ§ æ àªè¹·ÍÆμÖè; à;Αά¾· ΕΑ×Íá»é¹¾ÔÁ¾ìã´ é
·Ö¢Öé¹
ãËéÁ´ªèÒ¹ÖéÅ§ËÒ;¾ºÇèÒ;ÒÃμíºË¹Í§μèÍØ»í;Ã³ìμèÒ§ æ
·Öèªª×èÍΑμèÍΑÙè;ÑºªªÃ×èÍ§ªÍΑ¾ÖÇàμÍΑì»ç¹ã»ÍÆèÖ§ÅèÒªéÒÁÒ;ã¹¢
³Ð·ÖèªØ³àÆè¹à;Α

^aèÇÂãĚéä´ÃàÇÍÃîÊÔÁÒÃſſã^aéÊèÇ¹¢ÂÒÂ OpenGL
GL_KTX_buffer_region ä é

^aèÇÂà¾ÔèÁ»ÃĐÊÔ·ÔÀÒ¾¢ſſã»ÃájÃÁ·Œèã^aéÊÃéÒſâÁà´Å 3D
·ŒèÊ¹N⁰Ê¹Ø¹ĵŒÁ·ŒŒŒ¹ÀèÇÁĵN⁰ÊèÇ¹¢AŒÁ¹Œé

aèÇÂãĚĚĚÒÁÒÃ¶ã^aéĚ¹èÇÂ[▯]ÇÒÁ^ˆÓÊÓĚÃ[°]áĚ^ˆ
ˆs^{1/4}Ä^ˆÖĚ¹èÇÂ[▯]ÇÒÁ^ˆÖĚÃĚã^ˆ é àÁ×èĚĚ¹ãĚĚã^aéSÒ¹ĚèÇ¹ϕÄÒÄ
GL_KTX_buffer_region
ÍĚèÒSãÄĚĚ^ˆÖĚÄ^ˆÖĚ^ˆÓ¹Ç¹Ě¹èÇÂ[▯]ÇÒÁ^ˆÓĚĐ⁰⁰¹éÍĚĚèÒ 8 àÁĚĐă[°]μĚ^ˆ
▯Ø^{3ˆ}ĐăÄĚĚÖÖÖĚ¶ã^aéĚèÇ¹ϕÄÖÄá^{00ˆ}ŮĚNÄà^{3/4}Ä¹ (dual planes) ä^ˆ é
ĚÒĚμĚĚéS[▯]èÒ¹Ōé^ˆĐăÄèÄ^ˆÖ^{1/4}Ä^ˆÖĚĚĚÄèä^ˆ
éã^aéSÒ¹μNÇàÄ×ĚĚ "ã^aéSÒ¹ĚèÇ¹ϕÄÖÄ^{3/4}×é¹·ŌèϕÍS[°]ŊĚàĚÍĚÄ^ˆ"

ıÖÃıÖĚ¹ˆãĚéã^aé;ÔÅàıíÃ\ fast linear-mipmap-linear
Đ^aèÇÀà^{3/4}ÔèA»ÃĐÊÔ.ÔÀÔ^{3/4}ÇİŚáı»^{3/4}ÃÔà^aN¹
áμè^aØ³ÀÔ^{3/4}ÇİŚÀÔ^{3/4}İÔˆÁˆÃŚ
ã¹ĚÅÒÂæıÃ³Õ^aØ³ÀÔ^{3/4}ÇİŚÀÔ^{3/4}ˆĐÅ
ˆÃŚãAèAQı¹NıˆŊŚ¹Ŋé¹^aØ³ˆÔŚ^aÇÃıÖĚ¹
ˆãĚéã^aéŚÔ¹^aØ³ÉA⁰NμÔ¹Ôéà^{3/4}×élãĚé»ÃĐÊÔ.ÔÀÔ^{3/4}à^{3/4}ÔèÁÇÖé¹

μÑÇàÅ×Í;¹ÕéªèÇÃãËé OpenGL ÊÒÁÒÃ¶ãªé;ÒÃ·Ó¿ÔÅàμÍÃì anisotropic
ã¾¾×êlã¾¾ÔèA∅³ÃÖ¾¾ϕl§AÖ¾¾

ãĖĖàĀ×Í;µÑÇàĀ×Í;¹ŌĖà¾×èĀ;àĀŌ;ĭ;ÒÃãªĖá´ĀàÇÍĀìÊÓĖĀÑªø
´ºŌĖĖĖš¾ŌàĖĖçĭš«Ō¾ŌĀU
«Ō¾ŌĀUºŌš»ĀĐàÀ·Ė¹ÑºĖ¹Ø¹ªØ´ºÓĖĖĖš 3D «ŌĖšªĖă
´ĕĭNªâ»Āà«Ėà«ĭĀ;ĭĀŌ;Ō; Nvidia
çĭšºØ³áĀĐà¾ŌĖĀ»ĀĐĖŌ· ŌĀŌ¾ãĖĖà;ĀĖĀ×ĭâ»Āá;ĀĀáĭ»¾ĀŌàªªÑ¹
3D µÑÇàĀ×Í;¹ŌĖªĖÇĀãĖĖªØ³ĖŌĀŌĀ¶ĖĖĖšĀ;àĀŌ;ĭ;ŌĀãªĖªØ´ºŌĖĖĖš
3D ¾ŌàĖĖĖàĖĀĖŌ¹ŌĖã¹ă´ĀàÇÍĀì
«ŌĖšĀŌ»ĀĐăĀª¹ĭă¹;ŌĀà»ĀŌĀª·ŌĀª»ĀĐĖŌ·,ŌÀŌ¾ĖĖĀ×ĭăªĖă¹;ŌĀáĭĕ»
NEO

μÑÇàÅ×í|àĖĀèÒ¹ŒéˆĐ;ÓĖ¹;ÒĀĀˆĀíĀĖĀÑ;áˆˆμçÁĖ¹éÒˆí
ĖŒĖĀNˆˆˆA×èİ·ŒèãˆēăĀàÇİĀİOpenGL;ŒĀĀ
ˆĀİĖĖĀN;à»ç¹ă·ˆ¹Œˆ·Œèãˆēă¹;ŒĀáμèšçı¹çıİıˆˆıμıăĖĖàĀŒĀˆˆà¾×èİĀˆ
"àĖĖ¹çĀŒçĀĐ" «Œèš»ĀŒı-ăĖĖàĖç¹ă¹⁰ŒšˆĀNéšÇŒŒıŒĀáĖˆš¼Āáˆˆ
1.5 x 1.5.ĖŒĀŒĀıĀˆĀİĖĖĀN;çİšĀŒ¾ăˆéİĀèŒŒˆŒĀŒŒĖĀŒç³Đ·Œèáˆˆ 2 x
2ˆˆĐ·ŒăĖĖĖĀŒ¾·ŒèăˆéĀŒˆŒ³ĀŒ¾ĀıˆàĀŒèĀĀ

ãĚéä´ÃàÇÍÃìàíçj«ì»ÍÃìµÃÙ»á⁰⁰³/₄Ôjà«Å¢Í§ÊàµíÃÔâí ã¹¢³Đ¹Õéâ»ÃájÃÁ
OpenGL ``Đă^aéÊàµíÃÔâíaÅĐ``Đă^aéàÅ¹Êì^aÑµàµíÃì¢Í§ÊàµíÃÔâí

ãĚéä´ÃàÇÍÃìàíç;«ì»ÍÃìμÃÙ»á⁰⁰³/₄Ô;à«Åà³/₄×èÍ;ÒÃ«éÍ¹ÀÒ³/₄
à³/₄×èÍãĚéâ»Ãá;ÃÁ OpenGL ã^aéϣØ³ÊÁ°ÑμÔ;ÒÃ«éÍ¹ÀÒ³/₄ä´é

μÑÇàÅ×Í¡¹ÕéªèÇÃãËé OpenGL ÊÒÁÒÃ¶ãªé¡ÒÃ·Ó¿ÔÀàμÍÃì anisotropic
à¾¼×èíà¾¼ÔèÁ¤Ø³ÀÒ¾¼¢Í\$ÀÒ¾¼ â»Ã
´ÊÑ\$à¡μÇèÒ¡ÒÃàÅ×Í¡¤Ø³ÊÁºÑμÔ¹Õé¨Ðà¾¼ÔèÁ¤Ø³ÀÒ¾¼¢Í\$ÀÒ¾¼áμè¨Ð·Ó
ãËé»ÃÐÊÔ·ÔÀÒ¾¼¢Í\$¡ÒÃáÊ´§¹¼ÅÅ´Å\$àªè¹¡Ñ¹

àÁ×èí;ÓË¹´ãËëä´ÃàÇÍÃ` OpenGL ´Ñ´ÊÃÃºÑ¿à¿ÍÃ`
´éÒ¹ËÃÑ§áÃÐºÑ¿à¿ÍÃ`íaÊ´§ÀÒ¾ 3 ÁÔµÔäÇé·ÖèÃÐ´ÑºÇÒÁÃÐàÍÕÃ
´¢Í§;ÒÃáÊ´§¼ÃÃÐ´Ñºà´ÕÃÇ;Ñ¹

ÇÔ,Õ;ÒÃ¹Öé´Ðä´é¼ÃÃÔè§¢Öé¹ËÒ;ãªéË¹èÇÃÇÒÁ´Ó;ÒÃáÊ
´§¼Ã¢Í§â»Ãá;ÃÃ«Öè§ÁÕËÃÒÃË¹éÒµèÒ§

ËÒ;µØ³äÃèãªé§Ò¹ä´ÃàÇÍÃ` OpenGL ãËé´Ñ
´ÊÃÃºÑ¿à¿ÍÃ`ÊèÇ¹ËÃÑ§áÃÐºÑ¿à¿ÍÃ`íaÊ´§ÀÒ¾ 3 ÁÔµÔäÇé
´éÇÃ;Ñ¹ã¹·Ø;Ë¹éÒµèÒ§·ÖèáÍ»¾ÃÔàªÑ¹¹Ñé¹ÊÃéÒ§¢Öé¹

µØ³ÊÁºÑµÔ¹Öé´ÐªèÇÃà¾ÔèÁ»ÃÐÊÔ·ÔÀÒ¾¢Í§â»Ãá;ÃÃ OpenGL
«Öè§ãªéË¹éÒµèÒ§ËÃÒÃË¹éÒµèÒ§¾ÃéÍÁ;Ñ¹

μÑé\$▣èÒãĚé;Ñ°â»ÃájÃÁ OpenGL
·ÕèàÅ×Í;äÇéà¾×èÍãĚéâ»ÃájÃÁ·Ó§Ò¹ă´é¼Å´Õ·ÕèÊ∅´

μÑÇàÅ×Í;¹Öéãªé;ÓË¹ÇèÒ¾×é¹¼ÔÇ·ÖèÁÕÃĐ'ÑºÊÕ¹Ñé¹ æ
Đ¹ÓAOãªéã¹â»Áá;ÁÁá»¾ÁÔàªN¹ OpenGL ĒÅ×ÍäAè
μÑÇàÅ×Í; **Use desktop color depth** à»ç¹;ÒÃãªéªÇÒÁà¢éÁ¢ÍÊÕà
ÓAÇ;Nºá'É;ì·Í»¢Í§ÇÓ¹á'ÇÈì
μÑÇàÅ×Í; **Always use 16 bpp** áÅĐ **Always use 32 bpp** à»ç¹;ÒÃ;ÓË¹
ãÊéãªé¾×é¹¼ÔÇ·ÖèÁOªÇÓÁà¢éAEO·Oè;ÓË¹ ä
'ÄäAèªO¹Ö§¶Ö§;ÒÁ;ÓË¹ ¢èÒã¹à'É;ì·Í»

µÑÇàÅ×Í;¹ÕéãéÃĐ°ØâĖÁ;òÃ·Ó§Ò¹ buffer flipping
ãĖĖ·Ó§Ò¹áººàµçĖĖ¹éÖ·İçİşál»¾¼ĖÖàªªN¹ OpenGL
â´ĖªØ³ĖÒÁÒĖĖàÅ×Í;ãéçÔ·ÕĖĖÒĖĖ¹çéÍÁÙĖªººĖçÍª (Block Transfer)
à¾¼·ç·ĖÖ» (Page Flip) ĖĖ×ÍàÅ×Í;İNµâ¹ĖNµÖ (Auto-select) ;çã´é
µÑÇàÅ×Í;àÅ×Í;İNµâ¹ĖNµÖĐ·ÖãĖĖĖ·ĖçİĖİàÅ×Í;ãéçÖ, Ö·Öè´Ö·ÖèĖØ
µÖĖªèÖªİ¹ç·ÖçİşİÖĖİ´áÇĖİ

µÑÇàÅ×Í;¹Õéãªé;ÓĚ´;ÒÃ«ÔŞâªÃä¹«ìá¹ÇµÑéŞã¹â»ÃájÃÁ OpenGL

µÑÇàÅ×Í; Always off

“ĐăĂèãªé;ÔÃ«ÔŞâªAä¹«ìá¹ÇµÑéŞ¢ÍŚáÍ»¾⁄₄ĀÔàªªÑ¹ OpenGL ·ÑéŞĚÁ´

µÑÇàÅ×Í; Off by default “ĐăĂèãªé;ÒÃ«ÔŞâªAä¹«ìá¹ÇµÑéŞ

¹;ÇèO“ĐĀOâ»ĀájĀĀáÍ»¾⁄₄ĀÔàªªÑ¹ă´àĀÔĀ;ăªé

µÑÇàÅ×Í; On by default “Đăªé;ÒÃ«ÔŞâªAä¹«ìá¹ÇµÑéŞà»ç¹ªèÒ

“O¿ĬĀµì´¹;ÇèQ“ĐĀOâ»ĀájĀĀáÍ»¾⁄₄ĀÔàªªÑ¹.OèăĂèµéÍŞ;ÔĀăªéŞO¹“ÖŞ

“ĐăĀO;ăªé;ÔÃ«ÔŞâªAä¹«ì¹Oé

ãĚé°Ñ¹.Öï;ÒÃµÑé\$ðèÒà»ç¹ "ÃÛ»áº.Õè;ÓĚ¹´àÍ\$"
àA×èÍ°Ñ¹.Öï;ÒÃµÑé\$ðèÒãĚéÇ
AĐºº.Đ¹ÓðèÒ¹Ñé¹ă»ă»ç¹ĀOĀ;ÒÃµèÍ.éÒĀĀÒĀ;ÒĀà´ÔĀ.ÕèĀŎÍĀÙè
ĚĀÑ\$¨Ò;ðØ³ă´é;ÒÃµÑé\$ðèÒ.Õè´Õ.ÕèĚØ´ĚÓĚĀÑºáÍ»¾ĀÔàðªÑ¹
OpenGLăĚéÇ
;ÔĀºÑ¹.Öï;ÒÃµÑé\$ðèÒ¹Ñé¹ăÇé¨ĐªèÇĀăĚéðØ³ĚÒĀÒĀ;µÑé\$ðèÒðÍ¹¿Ô;
OpenGLă´éĬĚèO\$AÇ´ăAçÇ;èÍ¹.Ŏè¨ĐăĀŎèĀăªéă»Āă;ĀĀă
´ĀăĀèµèÍ\$µÑé\$ðèŎµÑÇăĀ×ĬµèO\$æăĚĀè.Ø;ðĀÑé\$

¡ÒÃã^aéá¶^oàÀ×èí^{1a}èÇÃãĚé^ø³»ÃÑ^oÇÒÁÊÇèÒ§ ¢ÇÒÁ[¢]Á^aÑ[´]
ÉA×l[¢]èOá¡AAO¢Íšá^{a1}à¹ĀĒŌ.ŌèàÀ×l¡ã[´]é
ã^aé¡ÒÃá¡éä¢ĒŌà^{3/4}×èl¡»ÃÑ^oÇÒÁÊÇèÒ§.Ōèáμ¡μèÒ§¡Ñ¹ĀĐĚÇèÒ§ĀŬ»μ
é¹©^oN^o¡N^oàlŌμ^{3/4}Ōμ.ŌèáĒ[´]§^{o1}lŌ»¡Ā³lāĒ[´]§^{1/4}Ā
«Ōè§ĀŌ»ĀĐāĀ^{a1}àA×èl.Ō§Ō¹¡N^oā»Āá¡ĀĀ»ĀĐÁÇĀ^{1/4}ĀĀŬ»ĀŌ^{3/4}
à^{3/4}×èlāĒĒéä[´]éĒŌ.Ōè¶U¡μéls.ŌèĒŌ[´](à^aè¹ĀŬ»¶èŌĀ)àA×èlāĒ[´]
§^{1/4}Ā^{o1}¶lĀ^{3/4}ŌÇàμlĀl
¹l¡j[´]Ō¡¹Ōé à¡Á 3D ĒĀŌĀà¡Ā[´]ĐĀŌjŌĀáĒ[´]§^{1/4}Ā.Ōè[¢]èl¹¢éŌ§Ā×[´]
jŌĀà^{3/4}ŌèA[¢]èO[¢]ÇÒÁÊÇèŌ§áĀĐ/ÉA×l[¢]èOá¡AAŌá^{a1}à¹ĀĒŌ.ÑésĒĀ
Đ^aèÇĀãĒĒéĀŌ^{3/4}ā¹à¡ĀĒÇèŌ§¢Ōé¹ ¢Ō³Ō§ĒŌĀŌĀ¶àĀè¹à¡Āă[´]é Ō¢Ōé¹

⌘Ø³ÊÒÁÒÃŦàÅ×í:á^{a1}à¹ÅÊÕä´éâÂã^aéáŦ^oàÅ×è¹
·NéŞANŞÊOAOAŦŦ»AN^oá^{a1}à¹ÅÊOáŞÊOàçOÄÇËÃ×ÍÊÕ¹éÓàŞÔ¹ä´éâ
´ÅµAS EA×l»AN^o.NéŞ 3 á^{a1}à¹A^{3/4}AéIA æ iN¹içä é

Digital Vibrance

·QāEéꞤØ³EOAÖÃ¶C⁰ꞤØÁ;QÃáÂ;ÊÕáÅĐꞤÇÒÁàçéÁçÍÊÕä´éÁÖ;çÖé¹
«Oè§Eè§¹/₄ÃäEéAO³/₄ã¹ál»³/₄AOàꞤ^aN¹.Né§EÁ´AOEÖ·OèꞤA^aN´AOè§çÖé¹

jÃ0¿áÊ´šªèÇšÊÕ àÊé¹âæéš¹Õé·ĐáÊ
·š¼ÄjOÄà»ÄOèA¹á»Äš·N¹·O·Oè²Ø³»ÃÑº²èÒ²ÇÒÁ²ÁªÑ´ ²ÇÒÁÊÇèÒš
EA×l²èOájAAO

j ÒÃàÅ×íjµÑÇàÅ×íj¹Õé`Đ: ÓãĚéÃĐ^{oo}ã^aéj ÒÃµÑé\$µèÒ·ÕèµØ³j ÓĚ¹
`äÇéç³Đ^oUµãµA×èlšâ`ÂlÑµâ¹ANµÔ

ĚÁÒÂàĚµØ:

EOjãµA×èlšµíÁ³/₄ÔÇàµíÃiçlšµØ³·Ó\$Ò¹ÎUèã¹à¹çµàÇÔÃij j ÒÃáĚ¹
`š¹/₄ĀĚÖ`Đà»ĀOèA¹ă»Ā\$ĒĀN\$`Öjă`éAçljl¹àçéOEUEçO¹ă
`ÇĒiăĀéÇ

ÃÒÂ;ÒÃ;ÒÃµÑé§èÒ·ÕèØ³⁰Ñ¹.Ö;äÇé
ãÉéàÃ×l;µNÇàÃ×l;Ö;ÃÖÃ;ÖÃà³/₄×èlãÃÖÃ;ã^aé§Ò¹;ÒÃµÑé§èÒ·ÕèµéÍ§
iOA

⌘Ø³ÊÒÁÒÃŦ°Ñ¹.ÖᵢᵢÒÃµÑé§⌘èÒÊÕ»Ñ´·Ø°Ñ¹ăÇéà»ç¹ÃÙ»áº.ÕèᵢÓË¹
´àİă´é àA×eİ°N¹.ÖᵢᵢÒÃµÑé§⌘èQáĂéÇ
ĂĐºº.Đ¹O⌘èÖ¹Né¹ă»à»ç¹AOĂᵢOĂµèİ·éÒÂÃÒÂᵢÒÃà´ÔÁ·ÕèÁÕÍÂÙè

Å°ÃÒÂ¡ÒÃ¡ÒÃµÑé§¤èÒÊÕ·Õèä´éàÅ×Í¡äÇé¨Ò¡ÃÒÂ¡ÒÃ

àÃÕÂ¡¢éíÁÙÅ¤èÒÊÕ¢í§¤èÒÎÒÃĩ´áÇÃì·ÕèµÑé§ÁÒ¨Ò¡âÃ§§Ò¹

ãªéàÅ×Í;ãĚÁ´ä·ÁìÁÔèšŒÍš´ÍÀÒ¾

μÑÇàÅ×Í; Auto-Detect ãĚéÇÔ¹â´ÇÊìÃÑºèÒ·ŒèàĚÁÒĐĚÁ´Òì´ÍáĚ
s¼ÅàÍš «ŒèšμÑÇàÅ×Í;¹Œé·Đãªéã»ç¹èèŒ´Œ¿Íμì â»A
·AOºÇèŒ´IAO¾AØè¹à;èOºŒSAØè¹Œ´ãAèEOAOA¶ãªéèØ³ĚÁºÑμÔ¹Œ
éä´é

μÑÇàÅ×Í; General Timing Formula ĚÃ×Í **GTF**
à»ç¹μÑÇàÅ×Í;·ŒèAN;ãªé;NºŒŒAì´áÇÃìÃØè¹ãĚÁè æ

μÑÇàÅ×Í; Discrete Monitor Timings ĚÃ×Í **DMT**
à»ç¹AŒμAºO¹AØè¹à;èŒ·ŒèANšºšãªéã¹ŒŒAì´áÇÃìºŒš»ÃĐàÀ·
ãĚãªéšŒ¹μÑÇàÅ×Í;¹ŒéEO;ŒŒAì´áÇÃìŒÍšºØ³μéÍšãªéãĚÁ´ DMT

à¾ÔèÁäíí¹ NVidia QuickTweak äÇé·Õè·ÒÊ;ìºÒÃìí§ÇÔ¹â´ÇÊì
äíí¹¹Õéãªé;ÓË¹´ÃÙ»áº Direct3D, OpenGL ËÃ×Í;ÒÃµÑé§ªèÒÊÕ
´éÇÂµ¹àì§ "ä´éíÃèOSAC´àAcC" ¨Ö;àA¹U»êì»ìÑ»¹ì;Ö;¹Öé
àA¹U¹ÖéÃÑ§AQQA;QAEÖEÃÑºãªéªèO´ÖçÌÃµíáÃĐàAOÂ;ãªéä
¹ĐÄçì;ªØ³EAºNµO;ÖAáE´§¹¼Ä¹

⌘Ø³ÊÒÁÒÃ¶àÅ×Í;äÍ⌘¹ÊÓËÃÑ°ãªéá.¹ÂÙ·ÔÅÔμÕ QuickTweak
¹.ÔÊìºÔÃì¢Ì§ÇÔ¹â ÇÊìä´é
àÅ×Í;äÍ⌘¹.ÕèμέÍ§;ÒÃάÊ´§¨Ò;ÃÒÂ;ÒÃ¨Ò;¹Ñé¹ ⌘ÅÔ; "μ;Å§" ÊÃ×Í
"μ;Å§ãªé" à¾×èÍÎ»à´μäÍ⌘¹¹.ÔÊìºÔÃì

àÅ×Íjâ»Ãá;ÃÁ`Ñ´;ÒÃà´Êjì·Í»¢Í\$ NVIDIA
â»Ãá;ÃÁ`Ñ´;ÒÃà´Êjì·Í»¢Í\$ NVIDIA
`Đ^aèÇÃãÉé;ÒÁ·ÔŜÔ¹ÁÔ»ÃĐÊÔ· ÔÀÔ^{3/4}ÁÔ;ÂÔè\$¢Öé¹ ÍÂèÔ\$à^aè¹
Îµ^µÔÀì;ÒÁ`Ñ´;ÔÃÔ¹â´Ç), ;ÒÁ;ÔÊ¹µÔáÉ¹è\$µÂ\$;ÂÔ\$ãÉé;Ñ^oã
ÍĐÀç; áÃĐ;ÔÃ«UÁ àA×èl^µØ³ã^aé;ÔÃ;ÔÊ¹
´gèÔ^µl¹;Ôà;làA^aN¹ãÉé;Ñ^oÉÃÔÃ`ÍÃÔ^{3/4}·â»Ãá;ÃÁ`Ñ´;ÒÃà
´Êjì·Í»`ĐÊ¹N^oÊ¹Ø¹;ÒÁ·ÔŜÔ¹¢Í\$à´Êjì·Í»ÉÃÔÃà´Êjì·Í»
à^{3/4}×èl^aèÇÃãÉé^µØ³`Ñ´;ÒÁ^{3/4}×é¹·Ôè·ÔŜÔ¹ã¹â»Ãá;ÃÁ`Ñ´;ÒÃà

à»Ô´ä´ÍĐĀčlĭ; ÒÃĭÓĚ¹´¤èÒ¤Í¹; ÔàĭÍàÃªÑ¹¢Íšâ»ÃáĭÃÁ´Ñ´ĭ ÒÃà´Êĭ·Í»¢Íš
NVIDIA

ä´ÍĐĀčlĭ; ÒÃĭÓĚ¹´¤èÒ¤Í¹; ÔàĭÍàÃªÑ¹ã¹â»ÃáĭÃÁ´Ñ´ĭ ÒÃà
´Êĭ·Í» Đ¤Çº¤ØĀ; ŊšĭĭªÑ¹áĀĐ¤èÒ·NéšĒĀ´ã¹â»ÃáĭÃÁ´Ñ´ĭ ÒÃà´Êĭ·Í»
ÍĀeOšāªē¹ĭŊCāĀ×ĭĭ; ŌĀĭŌĚ¹´µŌáĒ¹èšĒU¹ĀĭĀQš¢Íšä
´ÍĐĀčlĭ ĭ ŌĀāĀ×ĭĭĭµ¤ŌĀĭ áĀĐ¤èŌĭŌĀ´Ñ´ĭ ŌĀā»ÃáĭĀĀ

»Ô´ä´ÍĐĀçĭ;1ŌéáĀĐ°Ñ1.Öĭ;ÒÃà»ĀŌèĀ1á»ĀšăCé
áμè;ŌĀà»ĀŌèĀ1á»Āš·ĐĀŌ^{1/4}ĀĒĀŊš·Ōĭ;ϰŌ³ϰĀŌĭ "μĭĀš" ĒÃ×Í "μĭĀšăé"
ă1ă´ÍĐĀçĭ; "ϰŌ³ĒĀ°ŊμŌà^{3/4}ŌèĀăμŌĀ"

ãĚé∅³;ÓĚ¹ÇèÒ¨Đãªé»ØèÁã
´ϕİšàAÒĚìàÃŎĀ;àA¹UàA×èİAŎ;ÒÃ∅ÅÔ;·Ŏèăİ∅¹¹¹.ÒĚ;ìºÒÃì

à»Ô´ËÃ×Í»Ô´¢éÍ¤ÇÒÁÂ×¹ÂÑ¹
·Óà¤Ã×èÍËÁÒÂ·ÕèµÑÇàÅ×Í;¹Õé·ËÒ;¤Ø³äÁèµéÍ;ÒÃãËéáÊ
´¢éÍ¤ÇÒÁÂ×¹ÂÑ¹·Ø;¤AÑé§·ÕèâÉÁ´¤Í¹¿Ôà;làAªN¹ 3D
“Ô;àÁ¹Û·ÔË;ìºÔÀì

àÅ×ÍµÑÇàÅ×Í¹Öé ËÖᵢ∅³µéÍ§ᵢÒÃáÊ´§¼ÅàÁ¹Ù·ÒÊᵢºÒÃì
´éÇAálççàççµì 3D

μÑÇàÅ×í;¹Öéãªé;ÓË¹´μÓáË¹è§;ÒÃáÊ´§ÀÒ¾¹´´Íá¹
âA×è;·ÖÖ¹·Öè²ÇÓÁÁĐàÍÖÁ´μèÖ;ÇèÖ²ÇÓÁÁĐàÍÖÂ´ÊÙ§ÊØ
´·ÖèÉÖÁÖÁ¶ãªéã´é

ã^aé»ØèÁÅÙ;ÈÃà¾×èÍ»ÃÑ^oμÓáË¹è§¢Í§¾×é¹.Õèà´Êì·Í»^{o1}·íaÊ´§¼Å

ÃŒà«çµðèÒàÊì·Í»à¾×èÍã^aé'Œ¿ÍÅµìŒÍ§ðèÒðÇÒÁÅĐàÍŒÂ
´áÅĐÍÑµÅŒıŒAAŒà¿A^a»N'°N¹

uÑÇàÅ×Í:àËÅèÒ¹Öéãªé;ÓË¹´»ÃĐàÀ·¢Í§ÍØ»jÃ³ìáÊ´§¼₄Å (´ÍÀÒ¾ ´´Íá¹
ÉÅ×ìâ·Ã·NE¹ìâ´A¢Öé¹íAUè;NºíØ»jA³ì·Öè;OÃì´´ÍE¹NºE¹Ø¹)

à»Ô´Ë¹éÒµèÒ§à³/₄×èÍµÑé§¤èÒµèÒ§ æ ¢Í§ÍØ»¡Ã³íaÊ
§¹/₄Å·Öèã^aé§O¹IAUè

ÃĐ°ØÃÙ»»á^{oo}áÅĐ»ÃĐà·È·Õèã^aé¡ÒÃáÊ´§¼Å·Ò§â·Ã·ÑÈ¹ì

à»Ô´Ë¹éÒµèÒ§à¾×èÍÃĐ°ØÃÙ»áº;ÒÃáÊ´§¼Å·Ò§â·Ã·ÑÈ¹ì

ÃÒÂ;ÒÃ¹ÕéãéàÅ×Í;ÃÙ»áº;ÒÃáÊ
´§¼Ä·Ôšâ·Ä·ÑÉ¹ιμÔÃ»ÃĐà·È·Õè∅³ÍÂÙèÍÒÈÑÂ
ĚÁÒÂaĚμ∅: ĚÒ;»ÃĐà·È·Õè∅³ÍÂÙèäÁè»ÃÒ;ÍÂÙèã¹ÃÒÂ;ÒÃ
ãĚéaÅ×Í;»ÃĐà·È·ÕèÍÂÙèã;Áé»ÃĐà·È·Õè∅³ÍÂÙèÃÔ;·ÕèĚ∅´

ıÓĚ¹ˆãĚéĂŨ»á^{oo}.ŦèàĀ×Íıà»ç¹ĂŨ»á^{oo}.Ŧèã^aéàĀ×èÍà»Ô´à▯Ă×èÍŖ
àĀ×èÍà»Ô´à▯Ă×èÍŖıÍĀ³/₄ÔÇàμÍĀı.Ŧèà^a×èÍĀμèÍâ.Ă.ŦĚ¹ıàçéÒıŦ^oıÒĂıˆı
μŦÇàĀ×ıı¹Ŧé^aèÇĂãĚéĀŦĚ¹ăăéÇèŦçéı▯ÇŦĀ.ŦéŖĒĀ´.ŦèáĒ
Ŗ^{o1}ıĀŦ³/₄ĀĐĚÇèŦŖıĀĐ^oç¹ıŦĀ^oŨμˆĐ»ĀŦı^{o1}ıâ.Ā.ŦĚ¹ıĀèŦŖıŦıμéÍŖ

ã^aé;ÓË^{1'}_{a1}Ô´çİŞÊÑÒ³àÍÒµì³/₄Øµ·ÕèÊè§¹/₄èÒ¹ä»ÂÑşâ·Ã·ÑÈ¹ì
ËÒ;¤Ø³ă´éà^a×èÍÁµèÍÁ·Âă^aéÊÒÂà¤à^oÔÂ·ÕèŦÙ;µéİş^{a1}Ô´ÊÑÒ³á^{oo} S-
Video out·ĐăÊé¤Ø³AO³/₄ÊUş;ÇèÖÊÑÒ³á^{oo} Composite video out
ËÒ;¤Ø³ăAèá¹èă´à;ÖèAÇ;N^{oa1}Ô´çİŞÊÑÒ³ăÊéàÂ×Í; **Auto-select**

ã^aé»ØèÁÀÙ;ÈÃ»ÃÑ^oμÓáĚ¹èšà´Ê;ì·Í»^{o1}·Íâ·Ã·ÑÈ¹;

ĚÁÒÂàĚμØ:

ĚÒ;ÀÒ^{3/4}ã¹â·Ã·ÑÈ¹;ĀéÁĚÃ×ĭăÁèÁŎÀÒ^{3/4}à¹×èÍš·Ò;ĭ;ÒÃ»ÃÑ^oμÑés
ãĚéĀĭ»AĐAO³ 10 ÇO¹Ŏ·Ŏ ÀŎ^{3/4}·Đ;ĀN^oAOáĚ
·š^{1/4}·Ā·ŎèμOáĚ¹èš·Ŏèà»ç¹·Ŏ;ĬĀμĭă·ĀNμâ¹ĀNμŎ
··Ŏ;ĭ¹Né¹μØ³ĀNšĚOAOĀĭăĀŎèĀ·Ŏ;ŎĀ»ĀN^oμÑésμèÒãĚÁèĬŎ;μĀÑ
ésĚĀNš·Ŏ;ĭ;ŎĚ¹·μOáĚ¹èšçĬšà´Ê;ì·Í»áĀéÇ μØ³μéÍšμĀŎ;Ŏè»ØèĀ
"μĭĀš" ĒĀ×Ĭ "μĭĀšã^aé" à^{3/4}×èĬ^oN¹·Ŏ;μèOAOĀã¹àÇĀŎ 10 ÇO¹Ŏ·Ŏ

ÃŒà«çµà´Êì·Í»ä»ÂÑ§µÓáË¹è§´Œ¿ÍẢµìº¹â·Ã·ÑÈ¹ìâ´Âãªé¤ÇÒÁẢĐàíŒÂ
»N¹N¹

ã^aéµÑC⌘C^o⌘ØÁàËÀèÒ¹Õéã¹¡ÒÃ»ÃÑ^o⌘ÇÒÁÊÇèÒ§áÅĐ⌘ÇÒÁÍÔèÁµÑÇ¢
Í§EO¢Í§AÖ¾ã¹â·A·NE¹ì

ãªéµÑÇ¤Çº¤ØÁàËÀèÒ¹Õéã¹;ÒÃ»ÃÑº¤ÇÒÁÊÇèÒ§áÅĐ¤ÇÒÁ¤ÁªÑ
´ϕISO¾¼ã¹â·A·NE¹ì

ã^aéµÑÇᵂC^oᵂØÁ¹Õéà¾×èÍ»ÃÑ^o¿ÔÅàµÍÃìÅ
´iOAÊÑè¹¢ÍSAO¾·OèµéÍ§iÔÃã^aéiN^oâ·A·NÈ¹i
¢Íá¹Đ¹ÓãËéᵂØ³»Ô´¿ÔÅàµÍÃìÅ´jÒÃÊÑè¹¢ÍSAÒ¾àÁ×èÍàÅè¹ÀÒ¾Â¹µÃì
DVD ¨Oj|Ø»iA³i¶I´ÃÊNÈ¢Í§IOAÍ´áÇÀì

jÓË¹ ¢ÇÒÁÂĐàİÕÂ´ ¢İ§´İáÊ´ §¼¼ÁáÂĐÃĐ´ Ñ°ÊÕă¹; ÒÃáÊ
§¼¼Â·Õ§´İâ·Â·ÑÊ¹İ

ã^aéµÑÇꣳÇ^oꣳØÁàĚĚèÒ¹Ōéã¹ǝŌÃ»ÃÑ^oꣳØ³ÀÒ³/₄ꣳİŜĚÑÒ³ÇÔ´ŌâĚĚ×Í
DVD ^{o1}·ÍĀŌ³/₄

ꣳØ³ĚÒÁÒÃǝꣳÇ^oꣳØÁꣳèÒꣳÇÒÁĚÇèÒſ ꣳÇÒÁꣳÁ^aÑ´
ꣳèÒꣳÇŌĀĬŌèĀµÑÇꣳİŜĚŌà³/₄×èĬꣳØ³ĀŌ³/₄ǝŌĀáĚ´ſ¹/₄Ā·Ōè
´ŌāĀ×èĬāĚè¹ĀŌ³/₄Ā¹µĀĬ DVD ã¹àꣳĀ×èĬſꣳĀ³/₄ŌÇāµĬĀĬ

ǫØ³ÊÒÁÒÃ¶»ÃÑºǫÇÒÁ¶ÕèÊÑÒ³¹ÒìÔ¿ÒËẢÑ¿áẢĐÊÑ-
Õ³¹ÔìÔ¿Ô¿İŞĖ¹èÇẢǫÇÔẢ·Ô¿İŞâ»Ãà«Ėà«ĬĂì¿ĂÔ¿Ô¿İŞ NVidia ä´é

μÑέξϣèÒϣÇÒÁàÃçÇϕÍŜÊÑ-
O³¹OÍÔĭOEĀNĭϕÍŜă»Āà«Ēà«ÍĀĭ;ĂŌ¿Ôĭ NVidia

ÃĐ°ØƙÇÒÁàÃçÇÊÑÒ³¹ÒÌÔ;ÒËẢÑ;à»ç¹àÁ;ĐàÎÔÃµ«ì

jÓË¹ ¢ÇÒÁàÃçÇÊÑÒ³¹ÒìÔ;Ò¢Í§ÍÔ¹àµÍÃìà¿«Ë¹èÇÂ¢ÇÒÁ¨Ó¹;ÒÃĩ´áÊ
§¹⁄₄Å

ÃĐ°Ø¤ÇÒÁàÃçÇÊÑ-
Ö³¹ÖİÖıÖ¢İŞİÖ¹âıİÀìàç«Ë¹èÇÂ¤ÇÒÁ´´Óà»ç¹àÁıĐàİÔÃµ«ì

.´Êí°¤ÇÒÁàÃçÇÊÑÒ³¹ÒìÔ;ÒãËÁèà^{3/4}×èí.
´Êí°àÊ¶ÒÁÁÁÒ^{3/4}¢Í\$ÃĐ⁰⁰íêí¹ã^aé\$Ò¹´´ÁÔ\$
ËÁÒÂàËµØ: ¤Ø³µéí\$.´Êí°;ÒÃµÑé\$¤èÒãËÁè«Öè\$äÁèã^aè¤èÒ
´Ö¿ÍÁµì¢Í\$^{1/4}Ué^{1/4}ÃÔµ;êí¹.Öè´´Đã^aé¤èÒ¹Ñé¹µÁí´ã»

;OÀàÀ×l;µÑCàÀ×l;¹QéªèÇÃãÉéÁÑè¹ãªª´éÇèÒ
 ;OÀà»ÀOèA¹µCOA¶OèENO³¹OIO;O´ÐAO¹¼AãªesÒ¹ã
 AINµâ¹ANµO·Ø;µANés·OèàAOèAãªesO¹ÇO¹ãÇÈì
 ÈÁÒÀãÈµØ: µØ³ÈÒÀÒÃ¶¶éÒÀçÑé¹µl¹;OÀµÑésÊÑ-
 O³¹OIO;OìÑµâ¹ANµO·Oè·OŠO¹ç³ÐàAOèAµé¹AÐªªª´éª
 Â;OÀj;µOÀì <Ctrl> µéOŠàCéç³Ð·OèCÓ¹ãÇÈì;OÁÑSàÀOèÁ·ÓŠÒ¹
 ÉOjªµA×èlSµlA¾¼QÇàulAªª×èlAµèlAÜè;Nª¹cµaCOAì;ãÉéj;µOÀ
 ì<Ctrl> µéOŠàÇé·N¹·O ÉANS·Ojª´éAçljl¹ãçéOÉUèÇO¹ãÇÈì

ÃÕà«çµÊÑÒ³¹ÒìÔ;Ò·ÑésĚÁ´ áÅéÇãĚéÃĐ^{oo}µÃÇ·ÊÍ°îÒÃì
´áÇAì;ÃO¿;Ô;ìèl¹.Ôè·Đã^aéŞÔ¹µNÇđÇ^oµØA·Ôè;ÔĚ¹´ăÇéIÔ;µÃÑés
¢Íá¹Đ¹ÓăĚéµØ³ÃÕà«çµ·Ø;µÃÑés·Ôèá¿Å^a BIOS ¢ÍŞ;ÔÃì´´Í â
´Aă^aéă¿AìlÔAăA·ĚOEAN^olN»à´µ BIOS

⌘Ø³ÊÒÁÒÃ¶àÅ×Í;âĚÁ´ TwinView ä´é¨Ò; 4 âĚÁ´´Ñšµèlä»¹Ŏé

Standard – âĚÁ´; ÒÃáĚ´ §¼ÅáººÁÒµÃº¹ã¹Ě¹éÒ¨là´ŎÂÇ

⌘Ø³ÊÒÁÒÃ¶ãªéâĚÁ´¹Ŏéã¹; Å³Ŏ·ŎèÁŎÍŎ»Í; Å³Í; ŎÃáĚ´
´§¼Å·Ŏèµèl; Nº; ŎÃÍ¨Í Nvidia à¾ŎÃšÍÁèŎšà´ŎÂÇ

Clone –âĚÁ´¹Ŏé¨Đ·ŎãĚé¨làĚ´ §¼ÅÃÍšáĚ´ §¼ÅµÒÁĚ¹éÒ¨ÍĚÅÑ;

Horizontal Span – âĚÁ´¹Ŏéãªéã¹; ÒÃŦÂÒÂà´Ěì·Í»ŦÍšÇŎ¹â

´ĈĚiã»ANš¨làĚ´ §¼Å 2 Ě¹éŎ¨là¹á¹Ĉ¹Íá´é ã¹âĚÁ´¹Ŏé¨làĚ´
´§¼Å·NéšĚÍš¨Đãª×èlAµèl; N¹à»ç¹³¼×é¹·Ŏè; ŎÃáĚ´ §¼ÅŦ¹Ŏ´ãĚ-
èà¾¼ŎÃš¨là´ŎÂÇ

Vertical Span – âĚÁ´¹Ŏéãªéã¹; ÒÃŦÂÒÂà´Ěì·Í»ŦÍšÇŎ¹â

´ĈĚiã»ANš¨làĚ´ §¼Å 2 Ě¹éŎ¨là¹á¹ĈµNéšã´é ã¹âĚÁ´¹Ŏé¨làĚ´
´§¼Å·NéšĚÍš¨Đãª×èlAµèl; N¹à»ç¹³¼×é¹·Ŏè; ŎÃáĚ´ §¼ÅŦ¹Ŏ´ãĚ-
èà¾¼ŎÃš¨là´ŎÂÇ

TwinView Standard - àÅ×Í;âËÁ;ÒÃáÊ´§¼Å°ÁÒµÃ°Ò¹ã¹Ë¹éÒ´Íà´ÕÂÇ
¤Ø³EOAOA¶ãªéâEA´¹Oéã¹;A³O·OèAOÍØ»;A³;í;ÒAáÊ´§¼Å·Oèµè;N°;OÄi
´´I Nvidia à¾OA§IAèO§à´OAC

TwinView Clone - äÄ´¹Öé¨Ð·ÓãËé¨íaÊ´§¼ÅÃísáÊ
´§¼ÅµOÄË¹éO¨ÍEÄÑ¡

TwinView Horizontal Span - âĖÁ´¹Œë¨Đ·ÓăĖĖÊÔÁÒĂªáĖ´š¼Ả
 Ėĭj·l»¢ł\$ÇO¹â ÇEł⁰¹łáĖ´š¼Ả 2 Ė¹éO¨łųēłN¹ă¹C¹łă ē ā¹ăĖA´¹Œé ¨łáĖ
 ´š¼Ả·NešĖłšĐă^axēłAųēłN¹à»¢ł¹³/₄xé¹.OēłOAăĖ´š¼Ả¢łO āĖ-
 èā¾OAšłā OAC«Ōēs ĐăeČAăĖĖ UAO¾ă ēłĆēŌšŁŌéłıÇēŌłŌ
 ŪłŌłłā OAC

TwinView Vertical Span - âĖĀ¹ŎéĎ.ÓăĖĖĖĖÔÁÔĂġláĖ¹ŖĀà
Ėġ.ġ»ċİŞCÔ¹âĊĖİ⁰¹ġáĖ¹ŖĀ 2 Ė¹éOġġuèġN¹ă¹á¹ĊġNéŖă é â¹âĖĀ¹Ŏé
ġáĖ¹ŖĀ.ŖéŖĖİŖĖĐà^a×èġAġuèġN¹ă»ċ¹³ŖĀ⁴×é¹.ŎèġOĂăĖ¹ŖĀ¹OġăĖ-
èà³ŖĀŖġáġŖĀĊ«ŎèŖĖĐà^aĊĂăĖĖĖĖUĂŖĀ³ă éġĊéOŖĊŖĖ¹ġĊèOġŖĀ
UġŖġġáġŖĀĊ

ÀÒ¾¼¡ÃÒ¿Ô¡µÒÁ¤èÒ¤Í¹¿Ôà¡làÃªÑ¹¢Í§¡ÒÃáÊ´§¹¼Åª¹âËÁ´ TwinView
¡ÒÃ¤ÅÔ¡ÀÒ¾¼¡ÃÒ¿Ô¡¹¹´´ÍÀÒ¾¼´´Ðà»¿¡ÒÃà×Í¡ãËé´´ÍáÊ´§¹¼Å¹Ñé¹à»¿´´ÍáÊ
´§¹¼Å»Ñ´´ØºÑ¹¢Í§¤Ø³àÁ×èÍ¤Ø³¤ÅÔ¡¢ÇÒº¹ÅÒ¾¼¡ÅÒ¿Ô¡·Òè´´ÍÅÒ¾¼
¤Ø³´ÐàË¹ÅÔÂ¡ÔÃµèÔ§æ
·Òè¤Ø³ËÔÀÔÂ´´»ÅÑºà»ÅÒèÂ¹ãËé¡ÑºÍØ»¡Ã³¡ÒÃáÊ
´§¹¼Å·Òèà¡ÒèÀÇ¢éÍ§¡Ñ¹

ËÒjã^aéâËÁ´ Clone ¢Ø³´ ÐÊÒÁÒÃŦjÓË¹´jÒÃáÊ
´s^{1/4}Ãã¹Ê¹éO´ÍÊÂNjãÊéAÖ¢èO¢COAÃÐàlOÁ´¢Ísà
´Êjì·l»AOjìCèOã¹Ê¹éO´ÍÁIs ÊOjìèO¢COAÃÐàlOÁ´¢Ís´ÍáÊ
´s^{1/4}ÃÁIs¹éIÄjCèO¢COAÃÐàlOÁ´¢Ís´ÍáÊ´s^{1/4}ÃÊÂNj·à´Êjì·l»¢Ís´ÍáÊ
´s^{1/4}ÃÁIs´Ðá^{3/4}¹álIsâ´ÁINµâ¹ANµOàA×èl¢Ø³ãA×èl¹àAOËIä»ÊØ´¢l⁰´l

Â;àÀÔ;ì;ÒÃã^aé^øø³ÊÁ^oÑ_μÔ;ÒÃã^{3/4}â´ÁÍÑ_μâ¹ÁÑ_μÔã¹´ÍáÊ´§^{1/4}ÃÁÍ§ËÒ;ä
´éàÃ×Í;μNCàÃ×Í; "ã^aéà´Ê;ì·Í»àÊÃ×Í¹´AÔ§;N^o´ÍáÊ´§^{1/4}ÃÁÍ§ã´é" àCé
«Òè§´Đ·ÔãÊéà´Ê;ì·Í» "ÊÃØ´;ÒÃ·Ó§O¹" ã¹μÓáÊ¹è§ã´μÓáÊ¹è§Ê¹Òè§
øø³ÊÁ^oÑ_μÔ¹ÒéàÊÃØĐÊOÊÃN^o;ÔÃ¹ÔàÊ¹Í§O¹ã¹ál»^{3/4}ÃOà^øN¹·Òéã^aé^øÇ
ÒAÃĐàÍÔÃ´ã¹;ÔAáÊ´§^{1/4}ÃÊU§

jÒÃã^aé§Ò¹⌘Ø³ÊÁ^ºÑµÔ¹Õé"ĐĂçí⌘µÓáĚ¹è§jÒÃá^{¾1}»Ñ""Ø^ºÑ¹çí§"íaÊ
§^{¼1}Ā·ŌèàĀ×lǐăCéã¹ç³Đ¹Ōé «Ōè§Đ·ŌãĚèàĚjì·l» "ĒĀØ'jŌĀ·Ō§Ō¹"
ã¹µŌáĚ¹è§ã'µŌăĚ¹è§Ē¹Ōè§
⌘Ø³ÊÁ^ºÑµÔ¹ŌèàĒĀŌĐĒŌĒĀÑ^ºjŌĀ¹ŌàĒ¹í§Ō¹ã¹ái»^{¾1}ĀŌà⌘Ñ¹·Ōèã^aé⌘Ç
ŌĀĀĐàlŌĀ'ã¹jŌĀáĒ'§^{¼1}ĀĒU§

ã^aé§Ò¹∅³ÊÁ⁰ÑμÔϕÍ§à´Êì·Í»àÊÁ×Í¹··ÃÔ§ã¹âËÁ´ìÒÃϕÂÔÂÀÒ³/₄ϕÍ§
TwinView
ìÒÃã^aé§Ò¹∅³ÊÁ⁰ÑμÔ¹Õé¹·Ð·ÓãËé∅³μÑé§∅èÒà´Êì·Í»ãËéÁÕϕ¹Ò´ãË-
èìÇèÒ´ÍáÉ´§¹/₄··Õèà^a×èìÁàϕéÓ´éÇÂìÑ¹
ÇÔÇ·Õèà^a×èìÁμèìàϕéÒ´éÇÂìÑ¹··Ð»ÃÒì·ãËéàËç¹μÁ¹·³/₄×é¹·Õèà
·Êì·Í»·ÕèãËèçÕé¹ àA×èì∅³/₄··ÔÔÔÔAaA×èì¹àAÔËììì··Ôì³/₄×é¹·Õè·ÕèáÊ
·§

ÀÒ¾¼¿ÃÒ¿Ô¿µÒÁ¤èÒ¤Í¹¿Ôà¿làÃªÑ¹¢Í§¿ÒÃáÊ´§¼ÅÃÍ§ã¹âËÁ´ TwinView
¿ÒÃ¤ÅÔ¿·Õè¿ÃÒ¿Ô¿·Ð·ÓãËé¤Ø³ÊÒÁÒÃ¿µÑé§¤èÒÍØ»¿Ã³¿¿ÒÃáÊ
§¼Å«Öè§µè¿¿Nº¿láÊ´§¼ÅÃÍ§·Öèãªé¿ÔÀ¿·Í·ÖèáÊ´§¼Åªºº TwinView ä´é
ã¹¢³Ð·Ö§O¹¿AUèâËÁ´ Clone

jÓĚ¹
ã^aé;ÒÃꝛC^oꝛØÁ;ÒÃ«ÙÁà³/₄×èíãĚéÊÒÁÒÃ¶«ÙÁàꝛéÒă»ÂÑŒĚ¹éÒ^ˆÍ;ÒÃá
Ê^ˆŒ¹/₄Ä·ŒěméłŒ;ŒÄ^ˆé

ã¹âĖÁ¹Ōé ¢Ø³ÊÒÁÒÃ¶àÅ×Í;¾×é¹.ŌèĖ¹éÒ¹ÍÊèÇ¹.ŌèµéÍ§;ÒÃ«ÙÁ
EĀNŠ¹Ò;àÅ×Í;áĀéÇ ¢Ø³ÊÒÁÒÃ¶«ÙĀă»·ŌèĖ¹éŌ¹ÍÊèÇ¹¹Né¹ă¹é·N¹.Ō â
ĀàÅ×è¹µNÇàÅ×è¹éŌ¹ĀèŌ§

ãËéøø³ÊÒÁÒÃŋàÅ×Í;ÒÃ«ÙÁà¢éÒËÃ×ÍÍ;ã¹ÊèÇ¹¢ÍË¹éÒ´íaÊ
ŝ¼Å·ÕèàÅ×IjäÇé

àÅ×Í;ÍØ»;Ã³;ÒÃáÊ´§¼ÅÊÓËÃÑº;ÒÃáÊ´§ÀÒ¾ã¹âËÁ´;ÒÃáÊ´
§¼ÃáºµçÆ¹éÖ·Í

ꞡØ³ÊÒÁÒÃŕàÅ×ÍĵÊÑ´ÊèÇ¹ϕÍ\$ÀÒ¾ (ϕ¹Ò´ã¹á¹Ç¹Í¹μèíá¹ÇμÑés)
ÊÔÊÃÑºĵÔÃáÊ´\$¼ÃáºòàμçÆ¹éÔ´Í

jÒÃã^aéşÒ¹µÑCàÅ×Íj¹Õé·Đ·ÓãĚéä´ÃàCÍÃìjÒÃáÊ´ş^{1/4}ÂÊÒÁÒÃ¶jÓĚ¹
æèOꞤÇÓÁĀĐǎlŌĀ´·ŌèàĒÁŌĐĒA;N⁰jŌAáÊ´ş^{1/4}Āá⁰⁰ăµçĀĒ¹éÔlă´é

iÒÃã^aéSÒ¹μÑÇàÅ×Íj¹Õé¨Đà»ç¹iÒÃà^a×èÍÁâÂŞjÒÃᄁÇ⁰ᄁØÁjÒÃ«ÙÁã¹Ë¹é
ÖjÒÃᄁÇ⁰ᄁØAâlàÇlÀiàÅÀi jN⁰iÒÃᄁÇ⁰ᄁØAjÒA«UÁã¹jÒAáË
ˆS^{1/4}Áá⁰⁰ãµçAE¹éO`lă`éã¹¢³Đà`ÒAÇjN¹

jÒÃ¸ÅÔi.Õè»ØèÁ¹Õé¨Đ·ÓãĚéãªésÒ¹¸Ø³ÊÁºÑμÔj:ÒÃáÊ´§¼Å¢Ñé¹ÊÙšâ
ĤÃªéâĚÁ´ TwinView Clone â»A´ĚNšàμÇèOμéłšãªésO¹âĚÁ´ Clone
ÍAUè¨Ō§¨Đà¢éOãªé¸Ø³EAºNμOàĚÀèO¹Ōéã é

jÒÃã^{aé}šÒ¹µŃÇàĀ×Í;¹Ŏé^{˙˙}Đà»ç¹iÒÃjÓĚ¹
ãĚé«l;µiáÇĀiālàÇĀiàĀĀiàĀŎĀ;ã^{aé°}NEÁŎĚàµíĀiĀŎš
ăĀèá^{1Đ¹}ŎãĚéçØ³ăĀ×ÍµŃÇàĀ×Í;¹Ŏé à^{3/4}ĀŎĐ^{˙˙}Đ·ŎãĚéàjÔ´»Ń-
EQã¹jŎĀãĚ[˙]šĀŎ^{3/4°1˙}jã^{aé¹}ăĚ[˙]
˙šĀŎ^{3/4}ăĀè¶UjµéİšĚĀ×lăĀèĀŎÀ^{3/4}»ÃŎj^ˉçŎé¹ăĀĀ

áÊ´§ª¹Ô´¢Í§¨¨ÍÀÒ¾·Õè¤Ø³;ÓÃÑ§ãªé;Ñº;ÒÃì¨¨Í·ÕèàÅ×Í;äÇé

▯ÅÔ;à¾×èÍáÊ´§▯Ø³ÊÁ°ÑμÔϕÍ§ä´ÃàÇÍÃìáÅĐÍØ»;ĩ³ĩÊÓËÃÑ°·ÍÀÒ¾¹Õé

áÊ´§ÍÑµÃÒ;ÒÃÃÕà;Ãª·ÑéŞĚÁ´·Õèãªéä´é;Ñº·ÍÀÒ¾¹Õé
ÍÑµAO;OAAQà;Aª·ÕèÁOꞤCOA¶OèEU\$¢Oé¹·ĐẢ
ÍÑµAO;OAENE¹¢ÍSAO¾¹E¹éO·Í

ÃĐ°ØÇèÒÃÒÂ;ÒÃã¹ ¢ÇÒÁ¶Õèã¹;ÒÃÃÕà;Ãª ¨ĐÃÇÁâĚÁ
´·Oè¨İAO¾¹OéãAèã´éÊ¹NºE¹Ø¹İAUèĚA×İăAè ;QAàÃ×İ;âĚÁ
´·OèãAèàĚAOĐĚA;NºİAO¾¹ÇİS¢Ø³İº·OãĚé;O´»N-
ĚOAéOAáAŞã¹;OAáE´S¼ĚáAĐİO¨·OãĚéİOAİ´áÇAİÇİS¢Ø³àÊÕÂĚÒÂ

μÑÇàÅ×Í;¹Õé;ÓĚ¹ˆãĚéä´ÃàÇÍÃì OpenGL ãªéºÑ¿à¿ÍÃìÒÃáĚ´šÀÒ¾ 3
ÁÔμÔáº 16 °Ôμâ´ÂäÁèªÓ¹Õš¶ÖšÃÙ»áººÇÍš¾Ô;à«Å·ÕèáÍ»¾ÅÔàªÑ¹ä
´éàÅ×Í;äÇé

μÑÇàÅ×Í;¹ÕéˆĐªèÇÂà¾ÔèÁ»ÃĐĚÔˆ, ÔÀÒ¾ÇÍš;ÒÃ·ÓšÒ¹áÅĐ;ÒÃÅºÇéÍ
ÅUÃã¹ºÑ¿à¿ÍÃìÒÃáĚ´šÀÒ¾ 3
ÅÔμÔ·ÕéÅÔªÇÔÃ¶U;μéÍšã¹;ÔÃà;çºÇéÍÁÙÅ¹éÍÂ

àÁ×èí;ÓË¹ãªé§Ò¹μÑÇàÀ×Í;¹ÕéáÅéÇ OpenGL ¨Đãªé¤Ø³ÊÁºÑμÔ
Advanced Multi-Monitor ¢Í§ Windows2000

␣Ø³ÊÒÁÒÃŋãªéµÑÇàÅ×Ĳ¹Ŧéã¹;ÒÃàÅ×Ĳ;ÇèÒ·ĐãĚé·ÍáÊ´§¼Åã´áÊ´šà
´ĚĲ·Ĳ»ã¹AØA⁰¹«éOÃĚQèš·ŦèàĚç¹ă´éªN´·ŦèÊØ
´ã¹;ŦAàÅ×Ĳ;µÑÇàÅ×Ĳ¹Ŧé;ç␣×Ĳ;ŦÃăĚ
´§¼A·Đà»ÃŦèA¹µŦáE¹èšŦİšAŦ¾ã¹E¹éÒ·Í

ã¹¢³Ð¹Õé ãĚéáĚ´š´íáĚ´š¼Å¢íš TwinView :ÑéšĚÁ´
ĚŌ;µØ³µèlØ»;Ā³iäÇéAO;ÇèOE¹OèšIAèŌšáĀÐµØ³ă éà»ĀŌèĀ¹âĚÁ
ĵŌAáĚ´š¼Āà»ç¹âĚÁ´ăĵµŌA·ŌèăAeăªèâĚÁ´ Standard
µØ³µélsăĀ×lĵÇèŌ´ĐáĚ´š¼Ā·Ōè´lă´
¹ĵ;Ō;¹Ōé
µØ³ĀÑšĚŌÁŌĀŋµĀŌĵ;ĀŌ;Ōĵ·Ōè»ĀŌ;ŋ¹ĵĀŌ¾ă¹µÑŌµŌµØ³éŌ¹Ō¹ă
´éâ´ĀµĀšà¾×èlăĀ×lĵăĚéáĚ´š¼Āă¹´Ī·ŌèáĚ´šĪAUèă¹¢³Ð¹Ōé

⌘ÅÔ¡»ØèÁ¹Õéà¾×èÍµÑé\$⌘èÒËÃ×ía»ÅÕèÂ¹¡ÒÃµÑé\$⌘èÒ¢Í\$ÍØ»¡Ã³¡¡ÒÃ
áÉ´\$¼Å«Òè\$ãªé¡Ñº·ÍáÉ´\$¼Å»Ñ···ØºN¹

j ÒÃ Ç ¢ Ø Á ; ÒÃ á ³/₄ ¹ã^aé ; Ó Ë ¹¢ ¹Ò ¢ Í § ³/₄ × é¹ . Õ è Ë ¹é Ò ¨ Í . Õ è ¨ Ð Ê Ò Á Ò Ã ¶ ´ Ù ä
éã Ê é Ê Ñ Á ³/₄ Ñ¹ ì ; Ñ ⁰³/₄ × é¹ . Õ è à ´ Ê ì · Í » ¨ Á Ò § . Õ è Á Ò Í Á Ù è
« Õ è § ¨ Ð ã^a éã¹ ; Ò Á á Ê ´ § ¹/₄ Å à ´ Ê ì · Í » « Õ è § Á Ò ¢ ¹Ò ´ ã Ê è ; Ç è Ò » ; µ Ô · Õ è á Ê ´ § ä
´ éã¹ ¨ Í Á Ò ³/₄ ¨ Í á⁰¹ Ê Á × Í ¨ Í · Õ Ç Ò

▯ÅÔ;à³/₄×èíμÃÇ¨Êí°¨ÍáÊ´S¹/₄Å·ÑésĚÁ´·ÕèμèÍà^a×èÍÁà¢éÒ;Ñ°;ÒÃì¨Í
ãĚéã^aé▯Ø³ĚA°ÑμO¹QéEO;▯Ø³àEOÂ°»ÅNê;à¢éO;N°¨ÍáĚ
´S¹/₄ÅĚÅN§¨O;·Oèà»O´▯l¹â·ÅÅ³/₄Oà¹Å¢Oé¹AOáĚéÇ

.ÓàðÃ×èİĖÁÒÂ.Ōè^aèİİ¹Ōé
ĖŌ;ðŌ³à^a×èİÀμèİ'İÀŌ³/₄àċéŌ;Ŋ^{oa}èİİàĖŌÂ^oÍáĖ'İ¹/₄ÅÃİİ«ŌèİäÁèä
éμĀĊ'Ėİ'İÀUèã¹Ċ³Đ¹Ōé
İŌĀ.Ōàè^aè¹¹Ōé'Đà»ċ¹»ĀĐâĀ^{a1}İμèİ'İÀŌ³/₄ÃŌè¹à;èŌ
ĖĀ×İ'İÀŌ³/₄.Ōèà^a×èİÀμèİ;Ŋ^{oa}èİİàĖŌÂ^o BNC

⌘ÅÔ;à³/₄×èlàϕéÒ´ÙϕείÁÙÅ·Õèà;ÕèÂÇϕεί§;ÑºÍĐά´»àμíÃì;ÒÃì´´ÍϕÍS
NVIDIA

▯ÅÔ;à¾×èíà¢éÒãªé▯Ø³ÊÁºÑμÔà¾ÔèÁàμÔÁ¢Í§;ÒÃŸ´´Í¢Í§ NVIDIA

⌘ÅÔ;à¾×èíà¢éÒ´Ù¢éÍÁÙÅáÅĐă´ÃàÇÍÃìÃØè¹ÅèÒÊØ´¢Í§;ÒÃì
´´Í·Ôèà»ç¹¢Í§ NVIDIA ã¹àÇçºă«µì¢Í§ ÑVIDIA

ϕέíÀÙÅ¹Õé¨ĐãĚéÃÒÂÅĐàíÕÂ´à;ÕèÂÇ;Ñ°íÒÃĩ´áÇÃìϕí§;ÒÃì
¨¨í·ÕèàÅ×í;äÇéã¹ϕ³Đ¹Õé

¢éíÁÙÅ¹Õé¨ĐãĚéÃÒÂÅĐàíÕÂ
´à;ÔèÂÇ;Nº¢éíÁUÅ¢íŠADºº.ÔèàÅ×í;äÇé«ÖèŠÊè§¼Åµèí»ÃĐÊÔ·,ÔÀÒ¾
¢íŠ;ÃÖ¿Ô;â ÅAÇA

μÒÃÒ§¹Õéꞡ×ÍÃÒÂ¿ÒÃä¿Àì
áÀĐꞡéÍÁUÃàÇÍÀìªNè¹.Öèà¿ÖèÂÇꞡéÍ§¿Ñ¹.ÕèÁÕ¿ÒÃãªé¿Ñº¿ÒÃì
“Íã¹ꞡ³Đ¹Öé

Ë¹éÒ; ÒÃµÑé§µèÒ ; ÒÃ^ˆÑ^ˆ; ÒÃáí»¾ÅÔàµ^aÑ¹ ã^aéã¹; ÒÃ^ˆÑ^ˆ
‘CÔşµÔáE¹è§çİŞE¹éOµèÒŞáí»¾ÅÔàµ^aÑ¹AĐĖCèÒŞ^ˆÍáE^ˆş¹¾ÅáÅĐà
‘Ė;ì·İ»ĖÁOĖ^ˆİ â^ˆÅµÑé§µèO·ÔĖĐáí»¾ÅÔàµ^aÑ¹’

ÃÒÂ;ÒÃ¹Õé¤×ÍÃÒÂ;ÒÃáí»¾ÅÔà¤ªÑ¹.Õèâ»Ãá;ÃÁ·Ñ´;ÒÃà´Ê;ì·í»·Ñ
´;ÔÃÍÀUèã¹¢³Ð¹Õé
àÃ×Í;áí»¾ÅÔà¤ªÑ¹·Ò;ÃÒÂ;ÒÃà¾×èÍµÑé§¤èÒ¤Í¹;Ô;Ô;ÒÃ·Ñ
´;ÔÃáí»¾ÅÔà¤ªÑ¹ á;éä¢ÀÒÂ;ÒÃâ´Ãªªé»ØèA "à¾ÕèA" áÃÐ "ÃºÍ;"
·ÕèÍÀUè·Õ§¢ÇÒ

j´»ØèÁ¹Õéà¾¼×èíà¾¼ÔèÁâ»ÃájÃÁáí»¾¼ÅÔàªªN¹áººãËÁè¢Í§ÃÒÂ¡ÒÃáí»¾¼
ÅÔàªªN¹.Ôèâ»ÁájAA¨N´¡OAà Ê¡·l»¨N´¡OAÍÂUè

j´»ØèÁ¹Õéà¾×èÍÀ°áí»¾ÀÔàª¹.ÕèàÀ×íäÇéã¹¢³Ð¹ÕéÍí;¨Ò;ÃÒÂ;ÒÃáí»
¾ÀÔàª¹.Õèâ»Áá;AA¨N´;OÃà´Ê;ì·l»¨N´;OÃIAUè

j´»ØèÁ¹Õéà¾¼×èÍĀºáí»¾¼ĀÔàªªÑ¹.ÑéŒĚÁ´Íj¨¨ÒjĀÒÂjÒĀ
ªÓàµ×í¹: jÒĀj´»ØèÁàĚĀèÒ¹Õé¨Đà»ç¹jÒĀĀĀà«çµjÒĀµÑéŒªèÒ.ÑéŒĚÁ
´.ÕèªØ³ă éjOE¹´ăÇéEOEĀÑºáí»¾¼ĀÔàªªÑ¹

jÒÃàÅ×ÍjµÑÇàÅ×Íj¹Öéà»ç¹jÒÃjÓË¹
ãËéË¹éÔµèÖ§Í§áI»¾ÅÖàªªN¹»ÅÖj⁻çÖé¹ã¹´íaÊ´§¼Å·ÖèªØ³ä´éjÓË¹
´äÇéàÉAI

¿ÔÅ´ì¹Õé"ĐÃĐ°ØÇèÒ"ĐáÊ´şáí»¾ÅÔàªÑ¹.Õèä
´éàÅ×lᵢäÇéã¹¢³Đ¹Õéã¹"íaÊ´ş¼Å ("IAO¾) "Íă´ÊOᵢä
´éàÅ×lᵢµNÇàÅ×lᵢ "àAÕèAà»O´ãªéşO¹ái»¾ÅÔàªÑ¹ã¹Ë¹éÒ"ÍËÁÒÂàÅ¢"
äÇé

ÈÒ;ø³àÅ×í;µÑÇàÅ×í;¹Õé â»Ãáj;ÃÁ"Ñ´;òÃà`Ê;ì·Í»"ÐµÔ´µÒÁ¢¹Ò
 ´áÐµÔáÊ¹é§ç;ì§Ê¹éÒµèÒ§ál»¾/₄ÃÒàªªÑ¹¹Òé
 àÅ×è;ìø³àÃÒèÀµé¹ãè§Ò¹ál»¾/₄ÃÒàªªÑ¹ â»Ãáj;ÃÁ"Ñ´;òÃà`Ê;ì·Í»"Ð;ÒÊ¹
 ´Ê¹éÒµèÒ§ál»¾/₄ÃÒàªªÑ¹ÒéãÊéÀÒ¢¹Ò
 ´áÐµÔáÊ¹é§µÔÁ·ÒèºÑ¹·Ò;äÇé;è¹Ê¹éÒ¹Õé

μÑÇàÅ×Í;¹Öéãªéã¹;ÒÃ;ÓË¹ÇèÒĐãËé;ÒÃ¢ÂÒÂ¢¹Ò
E¹éOμèQ\$ál»¾ÄÒàªN¹ãÊŠàμçAE¹éQÌà©¾ODÌÖèáÊ´\$ÍÂÙè â
´AäAè¢AOA;OAáE´\$¼ÄãÊéàμçA¾×é¹Öèà´Ejì·l»·Né\$EA
«Öè\$IO´ãªéEAOAE¹éO´l

àÅ×ÍµÑÇàÅ×Í¹Öéà¾×èìàÃÔèÁãªésÒ¹áí»¾ÅÔàªÑ¹¹Öé¹à
´Éì·Í»áí»¾ÅÔàªÑ¹·Öèä´éìÖÉ¹`äÇéÍÖìâ»ÁáìAAÉ¹Öè§
µÑÇÍÂèÒ§àªè¹ªØ³ÊÒÁÒÃ¶ÊÃéÒ§à
´Éì·Í»à¾ÖèAÇÖé¹à¾×èìãªésÒ¹IAèO§í×è¹àªè¹ÊÓËÃÑºàÇÇºàºÃÒà«ÍÃì
ÉOÉANºãªéìèO¹ÍÒàAAì¹ìàE¹×Í´Öìà´Éì·Í»¶Í§ÇO¹ã´ÇÉì·Öèã»ç¹Ö¿IAµì

»é^{1a}xèíà
Éì·Í»ál»³/₄ÂÔà^aÑ¹·ÕèÊÃéÒ\$Öé¹ÊÓËÃÑ⁰ã^aésÒ¹Íxè¹ã¹μÑÇàÂ×Í¹Õé
¹Í·Ö¹Öé^aØ³ANŞEOAOA¶ã^aé»ØèÁá⁰⁰·AI»·OC¹ã¹Í·OÃàÂ×Íà
Éì·Í»·Õè^aØ³EAéOŞăÇéEOÉAN⁰ál»³/₄ÂÔà^aÑ¹Íxè¹
¿ÔÂ¹Õé·ĐÁÕ;çµèíàÁ×èÍ^aØ³ă
é·Oà^aÂ×èÍŞÉAOAàÂ×Í;μÑÇàÂ×Í; "àÃÔèÁã^aésÒ¹ál»³/₄ÂÔà^aÑ¹¹Õéã¹ÍÕ;
àÉì·Í»É¹Õè\$"

Ë¹éÒÎĴμ⌘ÕÂîãªéã¹;ÒÃ»ÃÑºà»ÅÕèÂ¹ "ÎĴμ⌘ÕÂî" à¾¼xèĴ;ÓË¹
 ´μÓáE¹è§E¹éÔμèÔ§áĴ»¾¼ÅÓà⌘ªN¹⁰¹à´ÉĴ·Ĵ»´éÇÅμNÇ⌘Ø³àĴ§

jÒÃã^aéᵂÕÂî¼ÊÁ¹Õé·ĐÂéQÂË¹éÒµèÒ§.ÕèjÓÃÑ§ã^aé§Ò¹ÍÂÙèã¹ϕ³Đ¹Õé
(.OèjOÃÑ§.Ó§O¹ÍÂÙè) ä»AN§ÍOj·IAO¾E¹Oèšâ´AÍÂÙèã¹µOáE¹èšà
ÕAÇjN¹

ϣŌÂj¼ÊÁ¹Ōé¨ĐÂéÒÂË¹éÒµèÒ§·ÑésĚÁ´ã¹´ÍáÊ
´§¼ÁáĂĐál»¾¼ĂŌàϣªN¹.ŌèãªésO¹IAUèã¹ϣ³Đ¹Ōéä»ÂÑ§ÍŌjË¹éÒ¨ÍË¹Ōè§

⌘ÕÂ½¼ÊÁ¹Õé¨ÐÂéÒÂË¹éÒµèÒ\$Í\$áÍ»¾ÅÔà⌘ªÑ¹.Ñé\$ËÁ´ä»ÂÑ\$¨íaÊ
´\$½¼Å«Ôè\$AÔàAÔËì¾¼lÂàµlAìlAUè

ËÒ;ø³ÁÕà´Êì·Í»áí»¾¼ÅÔàªªÑ¹.ÕèãªésÒ¹ÍÂÙèËÀÒÂË¹éÒ
ªOÀì¹¼EÀ¹Oé´Đà»ÀOèÀ¹·Oìà´Êì·J»E¹OèSä»ANŞIOìà´Êì·l»Ë¹ÖèS
ø³EOAOA¶Jì·ªOÀì¹¼EÀ¹Oé«éOìN¹EÀOAªANéSà¾¼×èIÇ¹Uà
´Êì·l»áí»¾¼ÅÔàªªÑ¹.NéŞEA´.OèãªésÒ¹ÍÂÙè

à³/₄ Global Setting »ÃĐıÍ°
éÇÂµNÇàÃ×ıı«QèŞà»ç¹µÑÇÃèÇÁıÍŞâ»ÃájÃÁıÑıÒÃà
Éıııı»áÃĐâ»AájAAıNııOAáı»³/₄ÃÖà^aN¹·NéŞEÁı

ıÖÃàÅ×Í;¢ÂÒÂ¢¹Ò´áı»¾ÅÔàªªÑ¹ãĖĕáĖ´š¼Åã¹ "à´Ėı·Í»·ÑésĖĖÁ´"
ĖAOA¶OSıOA¢ÂOA¢¹O´áı»¾ÅÔàªªÑ¹ãĖĕáĖ´š¼Åàµ¢AĖ¹éOà´Ėı·Í»
AÇA¶OSıA³O·Oèµéİš¢AOAıOAáĖ´š¼Åà»ç¹EĖOAĖ¹éO´ı
ıÖÃàÅ×Í;¢ÂÒÂ¢¹Ò´áı»¾ÅÔàªªÑ¹ãĖĕáĖ´š¼Åã¹ "Ė¹éO´ı·ŖĕáĖ´şÍĖUè"
ĖAOA¶OSıOA¢ÂOA¢¹O´áı»¾ÅÔàªªÑ¹ãĖĕáĖ´š¼Åàµ¢AĖ¹éO´ıà©¾ŖĐã¹ıà´ŖA·ŖĕãĖıĖUè

jÒÃjÓË¹ãªéØ³ÊÁ°ÑμÔ¹Õé.ÓãËéÁÕàÁ¹ÙÂèÍÂ "NVIDIA Desktop
Manager"
à¾ÔèÀçÖé¹ÁÒã¹àÁ¹ÙÃĐ°°ÇÍŠË¹éÒμèÒ§ál»¾ÅÔàªÑ¹.ÕèÍÂÙè
éO¹⁰¹.Né§ÊÁ´àÁ¹ÙÂèÍÂ¹ÕéĐªèÇÃËéàçéOãªé¿Ñ§jªÑ¹jOA´N
´jOÃál»¾ÅÔàªÑ¹.Né§ÊÁ´ãé§èOÃáÃĐAC´àAçÇAOè§çOé¹â
´ÄäAè´Oà»ç¹μéÍ§à»Óª¹â.ÅÅ¾Oà¹ÃçÍ§â»ÁájAA´N´jOAà´Ejì.Ì»
ªØ³ÊÒÁÒÃ¹àçéÒÊÙèàÁ¹ÙÃĐ°°ÇÍŠË¹éÒμèÒ§ál»¾ÅÔàªÑ¹ã´éâ
´AªAOjçCÔ.ÒèãμàμOÁ°OAìÊÃ×jªÃÔj.ÒèäÌª¹àÃçjæ
çÍ§ál»¾ÅÔàªÑ¹«Òè§IAÙè´éO¹«éOAEØ´çÍ§ãμàμOÁ°OAì

jÒÃàÅ×ÍjμÑÇàÅ×Íj:¹Õé"ĐªèÇÂãĚéâ»Ãá;ÃÁ"Ñ´jÒÃà´Êjì·Í»»éÍsjÑ¹ÇÔ¹â
Çì»êl»lN»AD´NºĚUŠ"Q;jOÄ¢AOAĚA×l;OÄáA;l;là»ç¹EÍŠ"lAO¾
(ĚA×lAO;jÇèO¹Né¹) â´A;OÄ;OĚ¹
μOáĚ¹èš»êl»lN»ãĚAēãĚéà¢éO;ÑºĚ¹éO"Í

àÅ×ÍµÑÇàÅ×Í;¹Öéà¾×èÍÑ
´E¹éÔµèÖ§»êÍ»ÎÑ»ãÉÍÃUèµÃ§;ÅÒ§Ë¹éÒ´Í·Öè«Ø³àÅ×Í;àÊÁÍ

àÅ×Íj·ÍÀQ¾.Õèø³μέί§;ÒÃãĚĚ¹έΟμεò§»êÍ»ÍÑ»ÍÎÙèμÃ§;Åò§ â
´Ä;OÄ`ì¹Oé·ĐAÖ;çμεlàA×è|▯Ø³.OàøA×èlSEAOÄàÅ×Íj»ØèA""N
´ãĚĚ¹έΟμεò§»êÍ»ÍN»»AOj_¢Oé¹μA§;Åò§Ě¹έO"ÍEAOÄàA¢"

[illegible]

μÑÇàÅ×í_i¹Õé°ĐÑ¹.Ö_iË¹éÒµèÒ§»êÍ»ÍÑ»ϕÍ§áÍ»³/₄ÅÔà^σ^aÑ¹äÇéã¹Ë¹éÒíà
..OAC_jN^oË¹éÒµèÒ§áÍ»³/₄ÅÔà^σ^aÑ¹à´OÁ·Oèã^aéEÁéO§Ë¹éÒµèÒ§¹Né¹
ËO_jË¹éÒµèÒ§»êÍ»IN» "3/4AO´" ä»»AQ_j·OèÍO_jíáE´§¹/₄ÅË¹Oè§
â»AáíAA´N´_iOAã´E_j·I»°ĐàÅ×è¹ä»IAUè·OèíáË
´§¹/₄ÅϕI§Ë¹éÒµèÒ§áÍ»³/₄ÅÔà^σ^aÑ¹¹Né¹

j´»ØeÁ¹Õéà¾×èlàÃÕÂjðèÒÃèÇÁ·Õèà»ç¹
Õ¿lÀµiáÃĐlµªOAìçlšâ»AájAAˆN´jOAàÊjì·Í»
ËÁÒÂàËµØ·
jOAj´»ØeA¹Õé·ĐäÁèÊè§¼ÅµèÍjÒÃ»ÃÑºà»ÃÕèÂ¹áÍ»¾ÅÔàªÑ¹·ÕèªØ³ä
é·OäÇéã¹E¹éO Application Management

j'»ØèÁ "µjÅs" à¾×èÍÂ×¹ÃÑ¹áÅĐ¹Ó;ÒÃà»ÃÕèÂ¹á»Ås.ÕèαØ³ä
é·Oä»ãªé;NºαèO·Ñ'jOÃà'Ejì·l» ÈÃÑs·Oj¹Né¹ãÉé»Ö
É¹éOµèO\$çÍ\$αl¹â·AA¾Oà¹Å

j´»ØèÁ "Â;àÂÔ;" à¾×èl»Ô´Ë¹éÒµèÒ§µí¹â·ÃÅ¾Òà¹Å¢Íſâ»Ãá;ÃÁ·Ñ
jÔÀà´Ê;ì·l» â´ÃäAèµéIſ°N¹.Ö;EA×l¹O;ÔAà»ÃÖèA¹á»Ãſä»ãªé
µÓàµ×Í¹: "ĐÁŒ;ÒÃÂ;àÂÔ;j;ÒÃµÑéſµèÒ·ŒèµØ³ă´éà»ÃŒèÂ¹á»ÃſäÇé

j'»ØèÁ"ujÅšã^aé" à³/₄xèíã^aésÒ¹áÅĐ⁰Ñ¹.ÖjjÒÃà»ÃÕèÂ¹á»Åš^aèÒ.ÑéšËÁ
'ÉÅÑš"Öj¹Né¹ãÉéà»Ô'É¹éOμèOš^aí¹â.ÃÃ³/₄Oà¹Å¢İšâ»AájAA"N'jOAà
Éjì.İ»

␣Ø³ÊÒÁÒÃŦàÅ×Í;áÍ»¾ÅÔà␣Ñ¹áººãËÁèä´éâ´Âãªéä´ÍĐÂçÍ;¹Õé
«ÕèŠ´Đ´N´;ÔAâ´Ââ»Aá;AA´N´;ÔAà´Ë;ì·l»

ÃÒÂ;ÒÃ¹Õéà»c¹ÃÒÂ;ÒÃáí»¾ÃÒàªÑ¹.Õè;ÓÃÑsãªésÒ¹ÃÙèã¹à´Ê;ì·í»
ªØ³|Ó·àÃ×|;áí»¾ÃÒàªÑ¹·Ö;ÃÒÂ;ÒÃ¹Õé ÉA×|ÃĐºØáí»¾ÃÒàªÑ¹|xè¹
àªè¹ áí»¾ÃÒàªÑ¹.ÕèäAèä´éãªésÒ¹ÃÙèã¹¢³Đ¹Óé â´Ã;ÒÃ;´»ØèA
"àºÃÖÈi"

j'»ØèÁ¹Õéà^{3/4}xèÍà»Ô'ä'ÍĐÅçí;ä¿Àì«Öèξ⊞Ø³àÅ×Í;áí»^{3/4}ÅÔà^aÑ¹ÇÔ¹â
ÇÊiãĒéâ»Aá;ĀĀ'N'jŌAà'Êj'·l»Ōà¹Ō¹jŌĀ

ı'»ØèÁ¹Õéà¾×èÍÂ×¹ÂÑ¹ăĴÂî»ÃájÃÁ·ÕèσØ³àÅ×ÍjăCé
ăĒéà»ç¹áı»¾ĀŌàσªN¹ăĒĀē·Ōèâ»AájAA"NıŌAà´Ēıı·ı»"Đ´Óà¹Ô¹ıŌĂ

j'»ØèÁ¹ÕéËÒ;¤Ø³äAèµéÍ§;ÒÃàÅ×Í;ál»¾ÅÔà¤ªÑ¹ã¹¢³Ð¹Õé ¨ÐÁÕ;ÒÃ»Ô
ä'ÍÐÁç;ál»¾ÅÔà¤ªÑ¹ãÉAè â´AäÁè·Ö;ÔÃà»ÃÖèA¹á»Å§;ÔÃµNés¤èOä´
æ

ä´ÍÐÅç¡¹Öéãªéã¹ÒÃ»é¹ª×èlà´Êì·Í·Öèà»Ô´á¹»¾ÅÔàªÑ¹ãËÁè

»éí^{1a}×èlà´Êì·Í»·ÕèÁÕìÒÃà»Ô´áí»^{3/4}ÅÔà^aÑ¹ãËÁèäÇéã¹ä´ÍĐÅçì¹Õé
¹ì·Òì¹Õé ¢Ø³ÃÑŞËÒÀÒÀ¶àÅ×ì^a×èlà
´Êì·Í»·Òì^a×èlàí»^{3/4}ÅÔà^aÑ¹ì×è¹·Õèä´éÃĐ^oØäÇé
µÑÇÍÂèÒŞà^aè¹ ¢Ø³ÍÒ·µéíŞìÒÃãËéà´Êì·Í»ÇÍŞàÇç^oà^oÃÒà«ÍÃìã^aé^a×èíÇèÒ
"àÇç^o" â»Aá;AÁÍÒàAÁìã^aéÇèQ "àAÁì" ¢Ø³EA^oÑµO "Íµ¢ÓÁì"
ÇÍŞã»Aá;AA´N´ìOÀ´Êì·Í»ĐãËé¢Ø³àÅ×ììÒÃ·ÓŞÖ¹ÇÍŞà
´Êì·Í»áí»^{3/4}ÅÔà^aÑ¹µèÖŞæ ä´é´éÇÂµ¹àíŞ

í'»ØèÁ "µ;Å\$" à¾×èíã^aé^a×èíà´Êì·Í»^a×èíãËÁè
¼Ø³"ĐăÁèEOÁOÁ¶í'»ØèÁ¹Oéă é¹ÇèO¼Ø³"Đ»éÍ^{1a}×èíà´Êì·Í»·Õèã^aéă´é

ı'»ØèÁ "ÂıàÅÔı" ËÒıϣØ³äÁèμέί§ıÒÃ»éı¹×èıà´Êı·ı·ı»ã¹¢³Đ¹Œé

␣ÖÂì¼ÊÁ¹Öé´ĐáÊ
´šà␣Āìà«ĀìĀU»EÖèàĒĀÖèĀĀá^{oo}.Ö^oà¾×èĺăĒé␣Ø³;ÓĒ¹
´μOáĒ¹èšà␣Āìà«ĀìŦĪšàAOĒìă´é

àÅ×ÍµÑCàÅ×Í¹Œéà¾×èíãĚéĚ¹éÒµèÒ§»ÃÒ¯.ŒèĚ¹éÒ·íã
Ě¹éÒ·íĚ¹Œèšà¾ŒÅĚ¹éÒ·làŒÅÇ¢³Đ.Œè▯³ãªéàÃŒĚìÃÒĵĚ¹éÒµèÒ§

μÑÇàÅ×í;¹Öé`ĐÁÕ¼ÅµèÍİşı»ÃĐ;íºã¹ÂÛÊà«ÍÃíÔ¹àµíÃìà¿«¹ÇÔ¹â
ÇÉİÇİşàşÅ×èİşăşÅà¹µì àªè¹
ÅÑ;E³ĐÇİŞ·ÖÉ;íºÖAİáÅĐE¹éÒµèÒŞÊÅÑº;ÒÃ·ÓŞÒ¹

àÅ×ÍµÑÇàÅ×Í;¹Öéà¾×èíãªésÒ¹Ë¹éÒµèÒ§ÊÅÑº;ÒÃ·Ó§Ò¹ «Öè§ä
´éANº;OÄ;ÖË¹ ã¹âEA´ TwinView ãÉéáE´§¼Å·Öè;Öè§;ÅO§E¹éO´I
¹;¹Ö;¹Öé ¢Ø³ÂN§EOAOA¶ãªéE¹éOµèO§
´N§;ÀèOÇÉANº;Nºáí»¾ÅOàªN¹·ÖèãªésÒ¹ºà´Ê;ì·Í»µèÒ§æ ä´éÍÖ;´éÇÂ
Ë¹éÒµèÒ§ÊÅÑº;ÒÃ·Ó§Ò¹¹Öé´Ð»ÃÒ;¬ÖÖé¹àÁ×èí;ªÖÂ¼ÊÁ Alt+Tab

iÒÃ·ÓàgÃ×èÍ§ĚÁÒÂàÅ×Íj·ÕèμÑÇàÅ×Íj¹Õé·Đ·ÓăĚéĚ¹éÒμèÒ§ÊÃÑºiÒÃ
·ÖŞÖ¹»ÄÖj⁻⁰¹·İÄÖ¾·Öè∅³iÖĒ¹'ăÇéàĒÄİ

àÅ×Í_j¨ÍÀÒ¾·Õè¤Ø³µéÍ§;ÒÃãĚéáÊ´šĚ¹éÒµèÒ§ÊÅÑº;ÒÃ·Ó§Ò¹ â
´Å¤Ø³EOAOÄ¶àÅ×Í_j¨O_iÍÀÒ¾·Õèãªé§O¹IAUèã¹¢³Đ¹Óéà·èO¹Né¹

àÅ×ÍµÑÇàÅ×Í¹Öéà¾×èãĚé·ÒÊì°ÒÃì·ÓŞÒ¹Ñ°·ÍÀÒ¾··Íà´ÕÂÇ
à¾×èl»éÍŞìÑ¹ăĂèãĚéĂŌìŌĂăéŞŌ¹ŒéŌĂ·ÍĂŌ¾

μÑÇàÅ×í|àËÄèÒ¹Õé¨Đ;ÓË¹ÇÔ_Õ·Õèâ»ÃájÃÁ¨Ñ´;ÒÃà´Ê|ì·Í»|ÓË¹
μÓáE¹è\$¢|§E¹éOμèO\$»êÍ»ÍÑ»ÃÇÁ¶Ösä´ÍĐÄç|;º|;«ì¢é|¤ÇÓÁáÄĐä
´ÍĐÄç|;ál»¾⁄₄ÄÖà¤ⁿ¹

àÅ×ÍµÑÇàÅ×Í;¹Öèà¾×èíãªésÒ¹µØ³ÊÁºÑµÔ«ÙÁ
«Òès Ð¢ÅÖÅÖ¾ã¹⁰AQàÇ³.ÒèÅÖàµÍÀìà«ÍÀìÇÍàÁÖÈíÂÙè
AO¾.Òè¢AOÁáÁéÇ Ð»AQ; ¯¢Qé¹⁰¹ÍÖ; ÍAO¾E¹Òès«ÒèsäAèÁÕàµÍÃìà«Í
ÀìÇÍàÁÖÈ; òAàÅ×è¹àµÍÀìà«ÍÀìÁÖÈìä»·Òè ÍAO¾ã´
Ð·ÖãÉéAO¾.Òè«ÙAäÇéà»ÁÖèA¹ä»áE´S·ÒèÍÖ; ÍAO¾â´ÂÍÑµâ¹ÁÑµÔ
µØ³ÊÁºÑµÔ«ÙÁ Ð·ÓÖ¹;çµèìàÅ×èÍµØ³ä
´éàª×èÍµèÍ ÍAO¾ÊAÖA´ìä¢éÖ´éÇA;N¹áÁÐµØ³ä´éàÅ×Í;âËÁ
´ÍÖÃ¢AOAAO¾ã¹á¹Ç¹¹EAXÍÁ¹ÇµNésäÇéáÁéÇ

àÅ×ÍµÑÇàÅ×Í;¹Öéà¾×è¢ÂÒÂÀÒ¾â´ÂãªéÊà;Ááºº Filtered
(áºº»ÁÐÁÖ³¤èÖ)

ϣØ³ÊÒÁÒÃŧãªéİµϣÕÂİµèİä»¹Õéà¾×èİϣÇºϣØÁϣØ³ÊÁºŊµÔ«ÙÁă´é
ÇÖÖİÖË¹İİµϣÕÂİ·ĐªĂéÖÂİŊº·Öè·Õă¹ă·çº "Hot Keys" â ÂªĂÖİ·Öè¿ÔĂ
İ áĂĐİ·ϣÕÂİ¼ĖĖ·Öèϣ³µéİİİÖÂ
ËĂÒÂàËµØ: İİµϣÕÂİ·ĐăĂè·ÓİÖ¹àĂ×èİϣØ³à»Ô´Ë¹éÒ "Zoom" ËĂ×Í "Hot
Keys" ¢éÖİăÇĉ·Ŋéİ¹Öéà¾×èİ»éİİİŊ¹ăĂèăËéϣ³İÖË¹
İİµϣÕÂİăĖĖ·Ŋº«éİ¹İŊºİİµϣÕÂİ·ÖèăªéİÖ¹İĖUè

ÎíµϣÕÂì¹Õé¨Ðà»Ô´ËÃ×Í»Ô´;ÒÃ·Ó§Ò¹ϣØ³Ê°ÑµÔ«ÙÁ

Îíµ▯ÕÂì¹Õéà¾ÔèÁÃĐ´Ñº;ÒÃ«ÙÁÀÒ¾

Îíµ²ÕÂì¹ÕéÅ´ÃÐ´ÑºìÒÃ«ÙÁÀÒ¾

¾ÒÃÒÁÔàµÍÃ¹Õé·ĐÃĐ°ØÇèÒÁÕ:ÒÃ»ÃÑ°:ÒÃ«ÙÁÀÒ¾¼jÕèªÃÑésµèÍÇ
Q¹Q·ÒàA×éläAèAQ:OÀàA×él¹àAOÉj (»jµÖĐAOjOA»ANºjOA«UAAO¾¼â
´ÁINµâ¹ANµQ·ØjªANés·OèàA×él¹àAOÉj) â»A
´OãCéÇèOjOÀã¾¼OèAªèOã¹¾¼QAOAOàµÍÃ¹ÕéÍÒ·ÓãĚé»ÃĐÊÔ·ÔÀÒ
¾¼jOÀ·OSO¹çISADººEAXÍÁl»¾¼AOàªN¹A´A§

ϣèÒã^{13/4}ÒÃÒÁÔàμÍÀì¹Õéà»ç¹μÑÇàÅ¢áÊ´§;ÒÃ´ÕàÅÂîâ
´AAQÊ¹èÇÃà»ç¹AOÅÅQÇO¹O.O
jèl¹.Oè`ĐÉAN⁰¡OÀ«UAAO^{3/4}´Oj´IAÒ^{3/4}Ë¹Öè§ä»à»ç¹ÍÕ;´IAÒ^{3/4}Ë¹Öè§ ;ÒÃ
OàAAì¹Öé`Đ^aèÇÃ»éí§;N¹äAèãÉéAO^{3/4}.Oè«UAäCé";¡Đâ´´"
ä»AO.N¹.QAĐEÇèO§´IAO^{3/4}ã¹;A³O.OèϣØ³àÅ×èl¹àϣIAià«IAiàÁOÈì^{3/4}ÅÒ
´ä»äCé⁰¹´IAO^{3/4}.ÖéáE´SAO^{3/4}«UAJAUè
ϣØ³lO´μÑé§ϣèO^{3/4}OAOAOàμIAi¹Oéà»ç¹EÙ¹ÂìÈÒ;äÁèμéí§;ÒÃãËéÁÕ;Ò
Ã´OàAAi

àÅ×ÍµÑÇàÅ×Í;¹Öéà¾×èíà»ÅÕèÂ¹ÃĐ´Ñº;ÒÃ«ÙÁÀÒ¾·ÖèáÊ´ŚÎÙè â
´Ã´»ØèÅ Ctrl/Alt/Shift ¢éŒäÇé áÅĐàÅ×è¹â´ÃãªéàÅŒÈì

àÅ×ÍÇèÒ“Đã^aéğÕÂ½ÊÁăŃĐËÇèÒ§ Ctrl, Alt áÅĐ Shift
à¾×éİ»ĂŒèÂ¹ĂĐ’N°İŒ«UAă’Ăă^aéàĂŒÈì

Ë¹éÒÎÎµªÕÂîãªéã¹;ÒÃ»ÃÑºà»ÃÕèÂ¹ "ÎÎµªÕÂî" à¾¼×èÍ;ÓË¹
´µÓáE¹è§E¹éÔµèÓ\$ál»¾¼ÃÓàªªN¹º¹à´Éì·Í»´éÇÃµÑÇªªØ³àÍ\$
ËÁÒÂàËµØ: ÎÎµªÕÂî"ÐãÁè·Ó\$Ò¹àÁ×èÍªªØ³à»Ô´Ë¹éÒ."Zoom" ËÃ×Í "Hot
Keys"ªéÓ\$ãÇé·Né\$¹Óéà¾¼×èÍ»éÍ\$;Ñ¹ãÁèãËéªªØ³;ÓË¹
ÎÎµªÕÂîãËÁè·Nº«éÍ¹;NºÎÎµªÕÂî·Óèãªé\$Ó¹IAUè

μÑÇàÅ×Í;¹Õé`ĐÂ;àÀÔ;ì;ÒÃãªé¤Ø³ÊÁºÑμÔÅ´ÃÍÂËÂÑ;ã¹áí»¾ÅÔàªªÑ¹
3D
àÅ×Í;μÑÇàÅ×Í;¹ÕéËÒ;¤Ø³μέÍ§;ÒÃãËéáí»¾ÅÔàªªÑ¹ϕÍ§¤Ø³ÁÕ»ÃĐÊÔ·,
OAO¾EUSÊØ

μÑÇàÅ×Í;¹Õé¨ĐãªéªØ³ÊÁºÑμÔẢ´ÃÍÂËÂÑ;ă´éă¹;Ã³Õ·ÕèªØ³ăªéâËÁ´ 2x
â´ÂâËÁ´¹Õé¨ĐãËªéªØ³ÀÒ¾¼¢Í§ÀÒ¾¼·ÕèªÑ
à´¹ăĂĐ»ĂĐÊÔ·,ÔĂÔ¾¼;ÔĂ·Ô§Ô¹¢Í§ăÍ»¾¼ĂÔàªªÑ¹ 3D à¾¼ÔèÁÊÙ§¢Öé¹

μÑÇàÅ×Í;¹Õé"ĐàÅ×Í;à·¤¹Ô¤;ÒÃÅ'ÃÍÂËÂÑ;·Õè¶Ù;μέίς·ÕèÁÕã¹ÃØè¹
GeForce3 GPU

¤Ø³ÊÁºÑμÔ;ÒÃÅ'ÃÍÂËÂÑ;¶ίς Quincunx "Đ·ÓãËéâËÁ' 4x AA
·Õè·Ó§Ò¹ªéÒ;ÇèÒάμè"ĐãËé»ÃĐÊÔ·,ÔÀÒ¾·Õè'Õ;ÇèÒâËÁ' 2x AA

μÑÇàÅ×í₁¹Öé¹Đã^aé^aØ³ÊÁ^oÑμÔÅ¹ÃÍÂËÂÑ_íä¹éã¹_íÃ³Õ·Öè^aØ³ã^aéâËÁ¹ 4x
â¹Â¹ĐãËé^aØ³À^o¾₄ÇÍ₃À^o¾₄ÊÙ₃ÊØ¹ á^aμè·ÓãËé»ÃĐÊÔ¹·ÔÀ^o¾₄ÇÍ₃ÒÃ^aé¹
¹¾₄ÃÃ¹Ã¹éÇÃ^aè¹_íN¹

μÑÇàÅ×Í;¹Öé¨ĐàÅ×Í;²èÒ;ÒÃÅ´ÃÍÂËÂÑ;·Öè´Õ·ÖèÊØ
ãÊë;Nºáí»¾ÄÖà²ªN¹ 3D «ÖèŞÊ¹NºÊ¹Ø¹;ÖÄ·ÖŞÖ¹;ÖÃÅ´ÃÍÂËÂÑ;

μÑCàÅ×Í;¹ÖéˆĐãĚéαØ³àÅ×Í;ãªéâĚÁ´;ÒÃÅ
AIAĚÂN;¢³ĐÂN¹ái»¾⁄ÅÔàªN¹ 3D

ϕéÍÁÙÀà;ÕèÂÇ;ÑºèÒ AGP »Ñ´´ØºÑ¹ã¹àºÃ×èÍ§¼ÍÁ¾ÔÇàμíÃìϕÍ§ºØ³

μÑÇàÅ×í:¹Õé:ĐãĚé∅³àÅ×í:ãªéĨμÃÒ AGP ä´é
éÇÃμ¹àİŞ:Ö;ADººÄèIÆİSAO¾¼;AO;Ö;EO;∅³äÁèá¹èãÇèÖ∅³ãªéĨμ
ÅÖ AGP ä´äĚéàÇé¹ªèİŞ.OàªA×èİŞÉAOA¹QéäÇé
ĚANS:Ö;¹Né¹ADººĐ;OE¹İNμAO AGP EÜŞEØ´â´ÁÍÑμâ¹ÁÑμÔ

»ÃÑ°á¶àÅ×èÍ¹à¾×èÍàÅ×Í;ãéÍÑµÃÒ AGP
éÇÅµ¹àÍŠ·Ö;ÃĐ°°ÃèÍÃÍŠÃÖ¾;ÃÖ¿Ö;

