

α0³ãªέμÑÇàÅ×Í;¹Õεà¾×èì;ÓË¹´ãËé;ÒÃ´´ÓÁÍ\$ fog table
·OξO¹EA×lãAè·OξO¹

Direct3D ĘÁÒÂ¶Ö\$;ÒÃì´áÊ´§¼Å¹ÕéÊÒÁÒÃ¶áÊ´§¼Åªºº D3D â
´AaE´§¼Aã´é·Né\$ªºº vertex fog ĘA×l table fog
à;AºOξ»AÐàA:ãAèÈÒÁÒA¶¹OαÇÒAÉÒÁÒA¶¹O;ÍÒÃì´áÇÃì D3D
AÒãªéã´éαμçA»AÐÉO· ÓÁÒ¾ãÅÐμéÍ\$ªªé table fog à·èO¹Né¹
;ÒAàÅ×Í;μÑÇàÅ×Í;¹OéªèÇAãEéª¹éã´á´éCèOà;A»AÐàA:
´N\$;ÁèOÇ´Ð·OξO¹à´έμÒA»;μO;Nªª»Aà«Éà«lAì;AÒ;O;çl\$ NVidia

μÑÇàÅ×Í;¹ÕéªèÇÃãËéκØ³ÊÒÁÒÃ¶Î;àÅÔ;ì;ÒÃãªéκØ³ÊÁºÑμÔ
DirectX àÇIAiªNè¹ãEAè æ ã¹ã 'AàÇIAiã 'é
à;ÁºÒ§»ÃÐàÀ·ÕèàçÕÂ¹çÕé¹à¾¼×èìãªé;Ñº DirectX àCÍÃiªNè¹;èì¹
æ lÒ ªAè·Q§O¹¶éOκØ³μO' μNé§ DirectX àÇIAiªNè¹ 6 EA×I 7 àÇé
;OÀàÅ×Í;μNCàÅ×Í;¹Oéª»ç¹;OA;QE¹ 'ãEéADºº·Q§O¹ã¹ãEA' DirectX
5 'N§¹Né¹à;AAØè¹à;èO' O§ÉOÁOÁ¶·O§O¹ã 'éíÀèO§¶U;μéI§
ãªéμÑÇàÅ×Í;¹ÕéËÒ;κØ³μéI§;ÒÃÃÑ¹à;ÁÃØè¹à;èÒºO§ÃØè¹·ÕèãÁè·
O§O¹EA×I·O§O¹ãAè»ìμO

ãĒéîŒâî´áCãî»ÃÑºæèŒÇŒÁŒŒ;çíſ Z-buffer
ãĒéµAſµŒŒ·Œèáí»¾ŒŒàæªN¹µéíſ;ŒŒ
â´Â»µŒŒŒŒ³æCã;ŒĒ¹´ãĒéµŒÇàŒ×í;¹Œé·ŒſŒ¹
A;àÇé¹ã¹;A³Œ·Œèµéíſ;ŒŒ;ŒĒ¹ Z-buffer àſſ EŒ;ãĒè;ŒĒ¹
´ãĒéµŒÇàŒ×í;¹Œé·ŒſŒ¹ â»Aá;AAáí»¾ŒŒàæªN¹·Œèãªé Z-buffer
«ŒéſãĒéµAſ;Nº·Œèã´é;ŒĒ¹ æèŒŒ¹;Œ;Œ;ãÇé´ĐãĒè·ŒſŒ¹

ÊÒÁÔÃ¶àÅ×Í;ã^aéà·π¹ÔπÊÓËÃÑ^{oo}Ñ;à;ÍÃ;ÒÃáÊ´şÀÒ^¾ 3 ÁÔµÔä´é
π³ÊÁ^oÑµÔ¹Ôé·ÓãËéÍÔÃì´áÇÃìÊÒÁÔÃ¶ã^aé;ÒÃ·ÓŞÒ¹µèÒş æ
ÊÓËÃÑ^{oo}Ñ;à;ÍÃ;ÒÃáÊ´şÀÒ^¾ 3 ÁÔµÔä¹áí»^¾ÃÔàπ^aÑ¹ 16^oÔµ
à^¾×èíãËéÊÓÁÔÃ¶ÊÁéÓŞÀÒ^¾ 3D á´éÁÔ»ÁÐËÔ·,ÔÁÒ^¾ËÛŞÁÔèş
çÔé¹

ıÖÃıÓĒ¹´ăĔéáĔ´şâĀâıé NVidia ã¹ Direct3D
μÑÇàĀ×ıı¹Öé´ĐđĔ´şâĀâıé NVidia ·ÖèÁØÁĀèÒşçÍş´ÍÀÒ¾
ç³Đ·OèAN¹áı»¾ĀOàα²N¹ Direct3D

â»Ãà«Èà«ÍÃì;ÃÒ;Ô; Nvidia, ÈÒÁÒÃ¶ÊÃéÒ§ÁÔ»áÁç»â
ÁINµâ¹ANµQà³⁄₄×éìà³⁄₄OèA·Né§»AÐEO·, OAO³⁄₄ã¹;OAEè§
çéIAUA;OAEAEÓ§³⁄₄×e¹¹⁄₄OÇ¹⁄₄eO¹⁰NEáÁÐ»AÐEO·, OAO³⁄₄ã¹;ÒÃ·Ó§
O¹çI§áI»³⁄₄ÁOàα²N¹
ÍÀèÒ§ãÃ;µÒÁ â»Ãá;ÃÁáI»³⁄₄ÁÔàα²N¹ºÒ§»ÃÐàÀ·ÍÒ··ÁÔ;ÒÃáÊ
§¹⁄₄A·OèãAè¶U;µéI§EO;OÉ¹
ãEèã²éα³ÈAºNµOAO»áAc»ÁÑµâ¹ÁÑµÔ ;ÒÃá;é»ÑÈÒ·ãËéα³Å
ÁÐ·Nº;OAEAEÓ§AO»áAc»Á§¹;CèO·ÐáÊ·§¹⁄₄A¶U;µéI§;OAA·ÁÐ
·Nº·ÁÔ»áAc»·ÐEOAOA¶Iá;é»ÑÈÒ;OACÓ§µOáE¹è§³⁄₄×e¹¹⁄₄OÇãËé
"ãAèAOAIAµèI" (áµè·Ð·OãEéα³·ÁO³⁄₄çI§;OAAE·§¹⁄₄AA·Á§
éÇAà²e¹;N¹)

æèÇÃãËéæø³ÊÒÁÒÃ¶àÅ×í;ÇÔ, ÕÁÔ»áÁç»ÍÑµâ¹ÁÑµÔ·Õèâ»Ãà«Êà«Í
Ãí;ÁÔ;Ôí·Đãæé
æø³ÍÒ·àÅ×í;ÇÔ, Õ;ÒÃÁÔ»áÁç»á^{oo}ã^oÅÔà¹ÕÃÃìËÃ×Íá^{oo} 8-tap
anisotropic à A·Õeá^{oo}ã^oÅÔà¹ÕÃÃì·ĐãËé»AĐÊO· ÕÁÔ^{3/4}·Õè
·Ô;ÇèO ã¹ç³Đ·Õèá^{oo} anisotropic ·ĐÊOÁÔA¶áÉ'şÁÔ^{3/4}ã' éæA^aÑ
iÇèO

æø³ÉÒÁÔÃ¶»ÃÑºæèÒäºáíÊ LOD (Level of Detail) ã¹;ÒÃÁÔ»áÁç»ä
e

æèÒäºáíÊ·ÕèµèÓ·Ð·ÓãÉéæø³ÀÒ³/₄ç|ŞÀÒ³/₄,´ÕçÖé¹ã¹
ç³Ð·Oè;OÃà³/₄OèAæèÒäºáíÊ·ÐàèÇAà³/₄OèA»AÐÉÔ·ÔÀÒ³/₄;ÒÃ·ÓŞÒ
¹ç|Şâ»Aá;AAá|»³/₄ÁÔàæªN¹æø³ÉÒÁÔA¶àA·x|;O;æèÒäºáíÊ O;IAµi
5 æèQ àAÒèA O; "æø³ÀÒ³/₄ç|ŞÀÒ³/₄ O·OèÉØ " ä»¹¶IOŞ
"»AÐÉÔ·OAO³/₄;ÔAAN¹ O·OèÉØ "

ÃÒÂ;ÒÃ;ÒÃμÑέξæèÒάºº;ÓË¹´àίξ (ËÃ×Í "tweak") ·ÕèæØ³ä
éºN¹.Ö;äCé
ãËéàÃ×Í;μÑCàÃ×Í;Ö;ÃQÂ;ÒÃà¾¼×èàÃÕÂ;ãéξÒ¹;ÒÃμÑέξæèÒ·Õ
èμéίξ;OÄ Ö¹Né¹ ãËéæÃÖ;»ØèA "μ;Ãξ" EA×I "μ;Ãξãé"

æÇÃËéø³ÉÒÁÒÑ¹·Ö; ÕµÑέξèÒ»Ñ""øÑ¹ä´é (ÃÇ·Ñέξæø
; ÕµÑέξèÒä¹ä´ÍΔÁç; "çéIUAà¾OèAàµÔÁçIξ Direct3D") à»ç¹
"AU»äºº; ÕµÑέξèO·Oè; OE¹´àIξ" àXéI¹N¹·O; ÕµÑέξèOáAéÇ
ΑÐºº"Ð¹OæO¹Né¹ä»à»ç¹AOÁ; OÁµéI·éOAAOA; OAà´OA·OèAOIAUè
ËÅÑξ"Ò; ø³ä´é; ÕµÑέξèO·Õè´Õ·ÕèÊø´ÉÓËÑºà; Ááºº Direct3D
áAéC äÉéºN¹·O; ÕµÑέξèO¹Né¹äCéà»ç¹AU»äºº·Oè; OE¹´àIξ
(custom tweak) «OèæÇÃËéø³ÉÒÁÒÑ¹; OE¹
æèOæI¹; O; Direct3D ä´éIÀèOŞAC´àAcÇâ
´ÄàAèµéIξµÑέξèOµNÇàÁXç; áµèΑΔΙΑèOŞäËÀè·ÑέξËÁ´

Åº;ÒÃµÑέξκèÒÊÕ·Õèä´éàÅ×Í;äÇé¨Ò;ÃÒÂ;ÒÃ

àÃÕÂ;æèÒ´Õ;íÅµìϕÍ§;ÒÃµÑέ§æèÒ·Ñέ§ËÁ´æ×¹

áÊ´šä´ÍĐĀćí;«Öèšă^âéÊÓĚĂÑ^º»ĂÑ^ºà»ĂŌèĀ¹;ÒĂμÑésæèÒí×è¹ æ
çI§ Direct3D

μÑCàÅxí;¹Öéã²éà»ÅÕèÂ¹ÇÔ Ö;ÒÃ;ÓË¹´μÓáË¹èšçÍ§¾×é¹¼ÔÇ
çÍšà·ç;à«Å (Í§πì»ΑÐ;íºçÍ§¾×é¹¼ÔÇ)
;ÒÃà»ÅÕèÂ¹πèÒ¹Öé·ΔΑÕ¼Åμè;ÒÃ;ÓË¹´μÓáË¹èšà·ç;à«Åà´ÔÁ â
A·OèπèO´O;ÍÅμì ΔΕΙ´πΑεί§;NºπQ³EAºNμOçÍ§ Direct3D
«;μ;ιáÇΑìºO§»ΑÐàA·IO·μεί§;ÒΑ;ÒΑ;OË¹
μOáË¹èšà·ç;à«ÅàCéμèO§EÖ; éÇΑ πQ³Aò¾ã¹;ÒÃáÊ´§¼ÅÀO¾
çÍšáí»¾ÅOàπªN¹»ΑÐàA·N§;ÁèOÇ Δ´OçOé¹ EÖ;AO;ÒΑ;OË¹
çéÍAUÀà·ç;à«ÅãEÀè â
´A»ANºáíºàA×è¹ã»AOÃÐËÇèÒ§ÁOÁº¹«éÒÃáÅÐ´Ø´ÈU¹Â;Àò§
çÍšà·ç;à«Å

â»Ãà«Èà«ÍÃì;ÃÒ;Ô;ã^aé"Ó¹C¹Ë¹èÇÃαÇÒÁ"ÓçÍ\$ÃĐ^{oo}.ÕèÃĐ^oØäCé
çÍ\$·Oèà;ç^{o3/4}xé^{11/4}ÔÇä' é(·Í;·O;·ĐμO' μNé\$E¹èÇÃαÇÒÁ"OçÍ\$;OÀì
áE' \$^{1/4}Ãã^{3/4}OASÍAèO\$à' OAC)

ËÁÒÀÈËμØ: "Ó¹C¹Ë¹èÇÃαÇÒÁ"ÓÈÛ\$ÊØ
çÍ\$ÃĐ^{oo}.ÕèÈÖAÒA"Í¹OAOã^aéEAEÓ\$^{3/4}xé^{11/4}ÔÇÈÒÁÒÃ"μO¹C
3ã' é"O;·O¹C¹ RAM·OèμO' μNé\$IAUèã¹àãÃxéÍ\$αIA^{3/4}ÔÇàμíÁì
çÍ\$μØ³·AOè\$μO' μNé\$ RAM' àCéAO;à·èOã.
xèO·OèÈÖAÒA"Í^aéã' é;ç"Đà^{3/4}OèAAO;çOé¹'éÇÂ

;ÒÃμNé\$μèÒ¹Õéã^aéã' é;Ñ^o;ÒÃì' áÊ' \$^{1/4}Å PCI (ËÃxÍ;ÒÃì' áÊ' \$^{1/4}Å
AGP·Oè·O\$O¹ã¹àEA' PCI)

àÅ×Í;μÑÇàÅ×Í;¹Õéà¾×èÍÀ;àÅÔ;ÿ;ÒÃ«Ôşâ¼Ã¹«ìá¹ÇμÑés
·ÓãĒéáĒ´şÀÒ¾ã»ÂÑşĒ¹éÒ´Íä´é·Ñ¹·Õâ
´ÅãĀèμéÍşĀİãĒéÁÒ;ÒÅ«Ôşâ¼Ã¹«ìÁÒ¾ã¹á¹ÇμÑés;ÅÑºã»·Õè´ÍÀÒ
¾ áĀĐªèÇĀãĒéİΝμÁÒ;ÒÅĒĒ´ş¼ĀĒUş;ÇèÒİΝμÁÒ;ÒĀĀÒà;Āª
çİş´ÍáĒ´ş¼Ā áμèİÒ´Ēèş¼Ā;ĀĐ·ºμèİ¼³ÁÒ¾çİşÁÒ¾ã´é

μÑÇàÅ×í;¹Õèãªé;ÓË¹´´Ó¹Ç¹;ÒÃÅ´ÃÍÂËÑ;·Õèãªéã¹áí»¾ÅÔàªÑ¹
D3D

íÒÃÅ´ÃÍÂËÑ;à»ç¹à·ª¹Ôª:Õèãªéã¹;ÒÃÅ´ "àÊé¹çÃØçÃÐ"

«Òè§ºÒ§ªANés. Ð»AO; çÒé¹μOAçíºçISAO¾¾ 3D

ËOEANªáí»¾ÅÔàªÑ¹ºÒ§IAèÒ§ªØ³ÉOAOªàÅ×í;ä

´éμNésáμè;OAAºAÍÂËÑ;íí;ãÊéÉA
´ä»¹ªO§àÅ×í;ãÊéAO´O¹Ç¹AÍÂËÑ;ä´éÊÛ§ÊØ´

ã^aéμÑCàÅ×Í:1Öéã¹;ÒÃÅ
,ΑΙΑΕΑΝ;ã¹άλ»^{3/4}ÅÒàκ^aN¹.ÖèäAèÊÒÁÒÃ¶ã^aéκ³ÊÁ^oÑμÔ¹Öéä´éâ
,ÅμΑξ
â»Ã´.ÃÒ^oCèÒ^oÒςάλ»^{3/4}ÅÔàκ^aN¹«ÖèςäAèÊÒÁÒÃ¶ã^aéà·κ¹Ôκ¹Öéä
έΙΟ::ÖãÊäAèÊÒÁÒÃ¶άÉ´ξ^{1/4}Åä´έΙΑèΟςàΕΑΟΔΕΑ
ËΑ×ÍàΔέΙΟ´àA¹ã´ΙΑΙΑΟ^{3/4}ã´έμΟΑ»;μΟ
κ³κ³CAã^aéμÑCàÅ×Í:1ÖéΙΑèΟςΑΔΑΝ´ÃΔÇÑς »Ô
,μÑCàÅ×Í:1ÖéΕΟ;κ³κ^{3/4}»NEÖã¹;ΟΑάÉ
,ξ^{1/4}Åä;ΑΕΑ×Íάλ»^{3/4}ÅÒàκ^aN¹«ÖèςäAèÊÒÁÒÃ¶ã^aéà·κ¹Ôκ¹;ÒÃÅ
,ΑΙΑΕΑΝ;ã¹é

μΝÇàÅ×í;1Öéã^aé;ÓË¹´;ÒÃàμÃÖÁÁ´´Ó¹Ç¹à;ÃÁ
çí§«O^{3/4}ÖAU;è¹.Òè`Ð»ΑΒΑÇΑ^{1/4}ÀàΑ×èì³àÁÔ;ã^aé;ÒÃ«Ôșâ¹Ãä¹
«iã¹á¹ÇμNés
ã¹⁰Òș;Ã³Ö`ÂÔèșÁÖ´´Ó¹Ç¹à;ÃÁÁÒ;çÖé¹à·èÒã´"input lag"
lÖ´μ⁰E¹í§μèlíØ»;³iμèÒș.æ`à^aè¹´IAEμOé;`à;Áá^{3/4}´
EAXlá»é^{13/4}ÖA^{3/4}lã´é´OçÖé¹
ãËéÁ´¹æèÒ¹ÖéÅșËÒ;^{3/4}ÇèÒ;ÒÃμí⁰Ê¹í§μèlíØ»;³iμèÒș æ
·Oèà^a×èlAμèlIAUè;N⁰à¹ÅA×èlș¹IA^{3/4}OÇàμlAìà»ç¹ã»IAèOșÅèÒ^aéÒÁ
Ô;ã¹ç³Ð·Oè¹×³àÅé¹à;A

OpenGL
GL_KTX_buffer_region a é

3D

àèÇÃãËéÊÓÁÒÃ¶ãéË¹èÇÃαÇÒÁ"ÓÊÓËÃÑºáÊ..
'§¹⁄₄Á Ó;E¹èÇÃαÇÒÁ ÓÉÃÑ;ã é àA×èl;OE¹'ãËéãééŞÒ¹ÊèÇ¹çÂÒÂ
GL_KTX_buffer_region
ÍÂèÒşãÃ;çµÒÁ ÊÒ;ÁÕ"Ó¹C¹Ë¹èÇÃαÇÒÁ"ÓÃĐºº¹éÍÂ;CèÒ 8
àA;Đàºµl , αØ³"ĐàAèÊÓÁÒÁ¶ãéËèÇ¹çÂÒÁáºº'UÍÑÃà³⁄₄Á¹ (dual
planes) ä é
;ÒÃµÑéşαèÒ¹Õé"ĐàÁèÁÕ¹⁄₄ÁËÒ;äÁèä
éãééŞÒ¹µÑçàÁ×l; "ãééŞÒ¹ÊèÇ¹çÂÒÁ³⁄₄×é¹.ÕèçÍşºÑ;à;ÍÃ"'

i.ÒÃ;óË¹´ãËéãªé;ÔÀµíÃì fast linear-mipmap-linear
ÐªeCAà¾¼ÔèA»ÃÐËÔ·,ÔAO¾¼çÍŞál»¾¼ÃÔàªªN¹ áµèªØ³ÀÒ¾¼
çÍŞAO¾¼IO`A`ÃŞ
ã¹ËÃÒÂ.æ ;Ã³ÕªØ³ÀÒ¾¼çÍŞÀÒ¾¼.ÐÃ
ÃŞãAèAQ;¹N;`NŞ¹Né¹ªØ³.ÔŞªÇA;ÖË¹
ãËéãªéŞO¹ªØ³EAºNµÔ¹Ôéà¾¼×éìàËé»ÃÐËÔ·,ÔÀÒ¾¼à¾¼ÔèÁçÖé¹

μÑÇàÅ×í;¹ÕéªèÇÃãËé. OpenGL.ÊÒÁÒÃ¶ãªé;ÒÃ·Ó;ÔÅàμίÃì
anisotropic à^{3/4}×éìà^{3/4}ÔéAαØ³AO^{3/4}ϕ|§AO^{3/4}

ãĒéàĀ×Í;μÑÇàĀ×Í;¹Ōéà¾×èĀ;àĀŌ;ĠŌãªéä´ĀàÇĪĀìĒŌĒĀÑªø
ꝛŌĒĒèš¾ŌãĒĒçĪš«Ō¾ŌĀU
«Ō¾ŌĀUºŌš»ĀĐàĀĒ¹ÑºĒ¹Ō¹ªø´ꝛŌĒĒèš 3D «Ōèšãªéä
é;Nºâ»Āà«Ēà«ĪĪ;ĀŌ;Ō; NVidia
çĪšꝛø³áĀĐà¾ŌèĀ»ĀĐĒŌ. ŌĀŌ¾ãĒĒéà;ĀĒĒ×Īâ»Āá;ĀĀáĪ»¾ĀŌàꝛª
N¹ 3D μÑÇàĀ×Í;¹ŌéªèÇĀãĒĒéꝛø³ĒŌĀŌĀĪĒĒèšĀ;àĀŌ;ĠŌãªéªø
ꝛŌĒĒèš 3D ¾ŌàĒĒĒĒĒĒŌ¹Ōéã¹ã´ĀàÇĪĪ
«ŌèšĀŌ»ĀĐĀĀªĪª¹;ŌĀà»ĀŌĀª.ŌĀª»ĀĐĒŌ. ŌĀŌ¾ĒĒ×Īãªéã¹;ŌĀ
áĪé»NĒŌ

μÑCàÅ×í;àËÀèÒ¹Õé¨Đ;ÓË¹´;ÒÅÅ´ÁÍÂËÂÑ;áººàμçÁË¹éÒ¨Í
ËÖËANºàαA×èíς·Qèãªéã´AàÇIÀi·OpenGL ;OÅÅ
´AIAËAN;à»ç¹à:α¹Oα·Oèãªéã¹;OÅáμésçIº
çI§IIºà¨;μiãËéàAOAºà¾×èIÀ´¨àËé¹çAØçÃĐ"
«Oèς»AO;ªËËàËc¹ã¹ºOςαANés·CQ·O;OÅáË´ς¼Åáºº1.5 x 1.5
ËOAOA¶IÀ´AIAËAN;çI§AO¾ã´éIÀèOς´QàAOèAA ç³Đ·Oèáºº2 x 2
¨Đ·OãËéAO¾·Oèã´éAOαØ³AO¾AI´àÂOèAA

ãĒéä 'ÃàÇÍÃìàíç;«ì»ÍÃìμÃÙ»á^{003/4}Ô;à«ÅçÍ§ÊàμíÃÔâí ã¹
ç³Đ¹Õéâ»Ãá;ÃÁ OpenGL "Đã^aéÊàμíÃÔâíáÅĐ"Đã^aéàÅ¹Êì^aÑμàμíÃì
çÍ§ÊàμíÃÔâí

ãĒéä 'ÃàÇÍÃìàíç;«ì»ÍÃìμÃÙ»á^{003/4}Ô;à«Ãà^{3/4}×èí;ÒÃ«éí¹ÀÒ^{3/4}
à^{3/4}×èíãĒéâ»Ãá;ÃÁ OpenGL ã^aéαØ³ÉÁ^oÑμÔ;ÒÃ«éí¹ÀÒ^{3/4}ä 'é

μÑÇàÅ×Í;¹Õé²èÇÃãËé OpenGL ÊÒÁÒÃ¶ã²é;ÒÃ·Ó;ÔÅàμίÃì
anisotropic à¾×èì¾ÒèÁ×Ø³ÀÒ¾çÍŞÀÒ¾ â»Ã
´ÊÑŞà;μÇèÒ;ÒÃàÅ×Í;×Ø³ÊÁºÑμÔ¹Õé¨Ðà¾ÒèÁ×Ø³ÀÒ¾
çÍŞÀÒ¾άμè¨Ð·ÓãËé»ÃÐÊÔ·,ÔÀÒ¾çÍŞ;ÒÃάÊ´Ş¼ÅÅ´ÅŞà²è¹;Ñ¹

àÁ×èí;ÓË¹´ãËëä´ÃàÇÍÃì OpenGL ¨Ñ´ÊÃÃºÑ;à;ìÃì
´éÒ¹ËÃÑ§áÃÐºÑ;à;ìÃìáÊ´§ÀÒ¾ 3 ÁÔµÔäÇé·ÕèÃÐ´Ñº×ÇÒÁÃÐàíÕÁ
´çÍ§;ÒÃáÊ´§¼ÃÃÐ´Ñºà´ÕÃÇ;Ñ¹

ÇÔ Õ;ÒÃ¹Õé¨Ðä´é¼ÃÃÔè§çÖé¹ËÒ;ãºéË¹èÇÃ×ÇÒÁ¨Ó;ÒÃáÊ´§¼Ã
çÍ§â»Ãá;ÃÁ«Òè§ÁÕËÃÒÃË¹éÒµèÒ§

ËÒ;×Ø³äÁèãºé§Ò¹ä´ÃàÇÍÃì OpenGL ãËé¨Ñ
´ÊÃÃºÑ;à;ìÃìÊèÇ¹ËÃÑ§áÃÐºÑ;à;ìÃìáÊ´§ÀÒ¾ 3 ÁÔµÔäÇé
´éÇÃ;Ñ¹ã¹·Ø;Ë¹éÒµèÒ§·Õèáí»¾ÃÔà×ºÑ¹¹Ñé¹ÊÃéÒ§çÖé¹

×Ø³ÊÁºÑµÔ¹Õé¨ÐºèÇÃà¾ÔèÁ»ÃÐËÔ·ÔÀÒ¾çÍ§â»Ãá;ÃÁ OpenGL
«Òè§ãºéË¹éÒµèÒ§ËÃÒÃË¹éÒµèÒ§¾ÃéíÁ;Ñ¹

μÑέξæèÒãĚé;Ñºâ»Ãá;ÃÁ OpenGL
·ÕèàÅ×Í;äÇéà¾×èĺãĚéâ»Ãá;ÃÁ·ÓξÒ¹ä´é¼Å´Õ·ÕèÊØ´

μÑÇàÅ×Í;¹Õëã²é;ÓË¹´ÇèÒ¾¼×é¹¼ÔÇ·ÕèÁÕÃÐ´ÑºÊÕ¹Ñé¹ æ
"Ð¹ÓAOã²éã¹â»Aâ;AAá¹»¾ÅOàα²N¹ OpenGL EÅ×láAè
μÑÇàÅ×Í; **Use desktop color depth** à»ç¹;ÒÃã²éαÇÒÁàçéÁ
çIŞÉOà´ÓAÇ;Nºà´É;ì·l»çIŞÇO¹â´ÇEì
μÑÇàÅ×Í; **Always use 16 bpp** áÅÐ **Always use 32 bpp**
à»ç¹;ÓA;ÓË¹´ãEëã²é¾¼×é¹¼ÔÇ·ÕèÁOαÇÒÁàçéAEO·Oè;ÓË¹´ â
´ÁãAèαO¹OŞ¶OŞ;ÓA;ÓË¹´αèOã¹à´É;ì·l»

μÑÇàÅ×í;¹ÕëãªéÃÐºØâËÁ´;ÒÃ·ÓξÒ¹ buffer flipping
ãËË·ÓξÒ¹ªººàμçΑΕ¹έΟ´ιçíſáí»¾¼ΑΟàαªN¹ OpenGL
â´ÂαØ³ÊÒΑÒÃñàÅ×í;ãªéçÔ·ÕñèÒÂâí¹çéíÁÙÁáºººÁçíα (Block
Transfer) à¾¼ çÁΟ» (Page Flip) ΕΑ×íàÅ×í;INμâ¹ΑÑμΟ (Auto-select)
icã´é μÑÇàÅ×í;àÅ×í;INμâ¹ΑÑμΟ·Ð·ΟãËë`
´ΑàçíΑíàÅ×í;ãªéçΟ, Õ·Οè´Õ·ΟèËØ´μΟΑαèÒαí¹;Ô;çíſíÒÀì´áçÃì

μÑÇàÅ×Í;¹Õéãªé;ÓË¹´;ÒÃ«ÔŞâϣÃä¹«ìá¹ÇμÑéŞã¹â»Ãá;ÃÁ OpenGL
μÑÇàÅ×Í; Always off ¨ĐäÁèãªé;ÒÃ«ÔŞâϣÃä¹«ìá¹ÇμÑéŞ
çÍŞáí»¾¼ÃÒàϣªN¹ OpenGL ·NéŞEA
μÑÇàÅ×Í; Off by default ¨ĐäÁèãªé;ÒÃ«ÔŞâϣÃä¹«ìá¹ÇμÑéŞ
¹;ÇèÓ ¨ĐÄÕâ»Ãá;ÃÁáí»¾¼ÃÒàϣªN¹ã´àÃÒÁ;ãªé
μÑÇàÅ×Í; On by default
¨Đäªé;ÒÃ«ÔŞâϣÃä¹«ìá¹ÇμÑéŞà»ç¹ϣèÒ
´Ò;ÍÁµì¹;ÇèÓ ¨ĐÄÕâ»Ãá;ÃÁáí»¾¼ÃÒàϣªN¹·ÕèäÁèµéíŞ;ÒÃãªéŞ
Ò¹ ÓŞ ¨ĐàÃÒ;ãªé;ÒÃ«ÔŞâϣÃä¹«ì¹Óé

ãĒé°Ñ¹·Öᵢᵢ;ÒÃµÑέξæèÒà»ç¹ "ÃÙ»áºº·ÕèᵢÓĒ¹´àίξ"
àA×èlºN¹·Öᵢᵢ;ÒÃµÑέξæèOãÁέC
AĐºº"Đ¹OæèO¹Né¹ä»à»ç¹AÓAᵢ;ÒÃµèí·έOÃÃOÀᵢ;ÒÃà´ÓÁ·ÕèÁÓÍÁÙè
ĒÃñş"ÒᵢæØ³ä´έᵢ;ÒÃµÑέξæèÒ·Õè´Õ·ÕèĒØ´ĒÓĒÃñºáí»¾₄ÃÔàæªÑ¹
OpenGL..áÁέC
ᵢ;ÒAºN¹·Öᵢᵢ;ÒÃµÑέξæèÒ¹Ñé¹äCé"ĐªèCÃãĒÉæØ³ĒÒÁOÃᵢµÑέξæèÒαί
ᵢ;Öᵢ;OpenGL ä´έíAèQŞAC´àAçÇᵢéí¹·Õè´ĐàAÓèAãªéã»AáᵢAA á
´ÁãÁèµéíşµNéşæèOµNÇàÃ×íᵢµèOş æ ãĒAè·ØᵢæANéş

;ÒÃã^aéá¶^oàÁxèl^{1a}èCÃãĒéxØ³»ÃÑ^oαCÒÁĒÇèÒS αCÒÁαÁãÑ´
ÉA×l|xéOá;AAOçlšã^{a1}à¹AEÖ·OèàA×l|ä´é
ã^aé;ÒÃá;éä
çÉOà^{3/4}xèl»ÃÑ^oαCÒÁĒÇèÒS·Õèáμ;μèÒS;Ñ¹ÃĐĒÇèÒSÃÙ»μέ¹©^oÑ^o; N^oàlOμ^{3/4}Øμ·OèáĒ´š^{o1}lØ»jA³láĒ´š^{1/4}A
«OèšAO»ADâA^{a1}lA×èl·OšO¹;N^oâ»Áá;ÃÁ»ÃĐÁÇĀ^{1/4}ĀÃÙ»ÀÒ^{3/4}
à^{3/4}xèlãĒéä´éĒO·Oè¶U;μéš·OèĒØ´(ã^aè¹ AU»¶èOA) àA×èlãĒ
š^{1/4}Ā^{o1} lαlA^{3/4}OÇàμlAi
l;j·Ò;¹Œé à;Á 3D ĒĀÒĀà;Á·ĐÁŒ;ÒÃáĒ´š^{1/4}Ā·Õèxèl¹çéÒšÁx´
;ÒÃã^{3/4}OèA×xéOαCÒÁĒÇèÒSáĀĐ/ÉA×l|xéOá;AAOá^{a1}à¹AEÖ·NéšĒÁ
·Đ^aèÇAãĒÉAO^{3/4}ã¹a;AĒÇèÒSçOé¹ αØ³·OšĒOĀOA¶lãĀé¹à;Aä´é´O
çOé¹

α0³ÉÒÁÒÃñàÅ×íjá¹à¹ÅÊÖä´éâ´ÂãªéáñºàÅ×è¹
·NéξANξEOAOAñ»ANºá¹à¹AEOáξEOàçOACÉAXÍÊÖ¹éÓàξÔ¹ä´éâ
´ΑμΑξÉAXÍ»ANº·Néξ 3 á¹à¹A¾AéIA æ ;N¹;çä´é

Digital Vibrance · ÓãĚéα³ĚÒÁÒÃĬαC⁰αØÁ;ÒÃáÂĬĚŌáÅĐαCÒÁà.
çéAçIšĚŌä'éAO;çŌé¹«ŌèšĚèš^{1/4}ÃĚéAO^{3/4}ã¹áI»^{3/4}AOàα²N¹·NéšĚÁ
AOĚŌ·ŌèαA²N'AOèšçŌé¹

ĩÃÒ;áÊ´šªèÇŞÊÕ àÊé¹âæés¹Õé¨ĐáÊ
§¹⁄₄Ā;OĀà»ĀŌèA¹á»ĀŞ·N¹·Ō·ŌèæØ³»ÃÑºæèŌæÇÒÁæÁªÑ´
æÇŌAÉÇèŌŞ EA×ÍæèŌã;AAO

ÃÒÂ;ÒÃ;ÒÃµÑέξæèÒ·Õèæ³⁰Ñ¹·Ö;äÇé
ãÉéàΑ×|;µΝÇàΑ×|; Ò;ΑΟΑ;ΟΑà^{3/4}×είàÃÕÂ;ã^aέξÒ¹;ÒÃµÑέξæèÒ·Õ
έμείξ;ΟΑ

π³ÉÒÁÔÃ¶^ºÑ¹·Ö;j;ÒÃμÑέξæèÒÊÕ»Ñ^{ˆˆˆ}·Ø^ºÑ¹·äÇéà»ç¹ÃÙ»á^{ºº}·Õè;ÓË
1^ˆ·àíš·é·àA·x·è^º·N¹·Ö;j;ÒÃμÑέξæèÒÁÁéC
ÃĐ^{ºº}·Đ¹·O·æèO¹·Né¹·ä»ä»ç¹·A·O·A;·O·A·μ·é·é·O·Ã·Ã·O·Ã;·O·Ã·à·´·O·Á·Õ·è·Á·O·Í·Á·Ù·è

ÅºÃÒÂ;ÒÃ;ÒÃµÑέξæèÒÊÕ·Õèä´éàÅ×Í;äÇé¨Ò;ÃÒÂ;ÒÃ

àÃÕÂ;çéíÁÙÅæèÒÊÕçíξæèÒíÒÃì´άÇÃì·ÕèμÑέξÁÒ¨Ò;âÃξξÒ¹

ã^aéàÅ×Í;âËÁ´ä·ÁìÁÔèςçÍ§´´ÌÀÒ¾

μÑÇàÅ×Í; Auto-Detect ãËéÇÔ¹â

CEIAN^oæø·OèàÉAOÐÉA´O;´lãE´§^{1/4}Åàí§

«Oè§μÑÇàÅ×Í;¹Oé·Ðã^aéà»ç¹æø´O;´lÅµí·â»Ã

·AO^oÇèO´´ÌAO¾AØè¹à;èO^oØAØè¹IO´´ãAèÉOÁOÃ¶ã^aéæø³ÊÁ^oÑ
μO¹Oéã´é

μÑÇàÅ×Í; General Timing Formula ËÃ×Í **GTF**

ã»ç¹μÑÇàÅ×Í;·OèAN;ã^aé;N^oIOAì´´áÇAIØè¹ãÉAè æ

μÑÇàÅ×Í; Discrete Monitor Timings ËÃ×Í **DMT**

ã»ç¹AOµA^oO¹AØè¹à;èO·OèAN§æã^aéã¹IOAì´´áÇAI^oØ§»ÃÐàÀ·

ãËéã^aé§O¹μÑÇàÅ×Í;¹OéEO;IOAì´´áÇAIçÍ§æø³µéí§ã^aéãËÁ´ DMT

à¾ÔèÁäíí¹ NVidia QuickTweak äÇé·Õè·ÒÊìºÒÃìçÍŞÇÔ¹â´ÇÊì
äíí¹¹Õéãªé;ÓË¹´ÃÙ»áºº Direct3D, OpenGL ĘÃ×Í;ÒÃµÑéŞæèÒÊÕ
´éÇÂµ¹àîŞ "ã, éíÀèOŞAC´àAcC" ¨O;àA¹U»êl»JN» ¹í; O;¹Oé
àA¹U¹OéANŞAOAOA;OAEÓEANºãªéæèO´O;íÁµiáÁĐàAÓA;ãªéä
´IDÁçí 'æØ³EAºNµO;OAáE´Ş¼Á'

α0³ÊÔÁÔÃ¶àÅ×í;äíαí¹ÊÓËÃÑ^ºã^ºéá·¹ÂÛ·ÔÅÔμÕ QuickTweak
0¹·OE;í^ºOAIçIŞÇO¹·â ÇEiã´é
àÅ×í;äíαí¹·ÕèμéIş;ÔÃáÊ´ş¨Ò;ÃÔÂ;ÔÃ¨Ò;¹Ñé¹ αÅÔ; "μ;Åş" ËÃ×Í
"μ;Åşã^ºé" à^{3/4}×éIIN»à´μäíαí¹⁰¹·OE;í^ºOAI

àÅ×í;â»Ãá;ÃÁ"Ñ´;ÒÃà´Ê;ì·Í»çÍ§ NVIDIA
â»Ãá;ÃÁ"Ñ´;ÒÃà´Ê;ì·Í»çÍ§ NVIDIA
Ð^aèÇAãÉé;ÒA·OŞO¹AO»AÐÉO. ÓAO^{3/4}ÁO;ÂÔèşçÖé¹ ÍAèÒşà^aè¹
ÎµαOÀ;í;OA N´;OACÓ¹â Ç; ;OA;OE¹ µOáE¹εµÁŞ;ÁOşãÉé;N^oã
ÍÐAç; áAÐ;OÁ«UA àAxèlα³ãé;OÁ;OE¹
´æOα¹;Oà;IàA^aN¹ãÉé;N^oÉAOA ÍAO^{3/4}.â»Ãá;ÃÁ"Ñ´;ÒÃà
´Ê;ì·Í» ÐE¹N^oE¹Ø¹;OA·OŞO¹çÍşà´Ê;ì·Í»ÉAOAà´Ê;ì·Í»
à^{3/4}xèí^aèÇAãÉéα³Ñ´;ÒA^{3/4}xé¹.Oè·OŞO¹ã¹ã»Aá;AAã´é´ÕÂÔèş
çOé¹

à»Ô´ä´íÐÅçí;;ÒÃ;ÓË¹´æèÒαí¹;Ôà;íàÃªÑ¹çÍšâ»Ãá;ÃÁ´Ñ´;ÒÃà
É;í·í»çÍš NVIDIA

ä´íÐÅçí;;ÒÃ;ÓË¹´æèÒαí¹;Ôà;íàÃªÑ¹ã¹â»Ãá;ÃÁ´Ñ´;ÒÃà
É;í·í» ÐαCºαØΑ;Ν§;íªÑ¹áΑÐæèO:Νε§ΕΑ´ã¹â»Ãá;ÃÁ´Ñ´;ÒÃà
É;í·í» ÍΑèO§àè¹µNCàΑ×í;;ÒΑ;ÓË¹´µOáË¹è§ΕU¹Α;ΑO§çÍšã´íÐÅçí;
;ÒΑàΑ×í;íµαOΑì áΑÐæèO;ÒΑ´Ñ´;ÒΑâ»Ãá;ΑΑ

»Ô´ä´ÍÐÅçí:¹ÕéáÅÐºÑ¹.Ö:;ÒÃà»ÅÕèÂ¹á»ÅšäCé
áμè;OAà»ÅÕèA¹á»Åš ÐAO¹/₄ÅEÅÑš Ö;αØ³αAO; "μ;Åš" ËÃxÍ
"μ;Åšã³é" ä¹ä´ÍÐÅçí; "αØ³EAºNμOã³/₄OèAàμOA"

ãĒéα∅³;ÓĒ¹'ÇèÒ"Đãªé»ØèÁã
çİšàAOĒiàĀŌĀ;àĀ¹UàĀ×èĪAO;ÒĀαĀÔ;·ŌèäĪαĪ¹º¹·ÒĒ;ìºŌĀì

à»Ô´ËÃ×Í»Ô´φείαÇÒÁÂ×¹ÃÑ¹
·ÓàαÃ×έίςËÁÒÂ·ÕèμÑÇàÅ×Í;¹Õέ ËÒ;αØ³äÁèμείς;ÒÃäËéáÊ´ς
φείαÇÒÁÂ×¹ÃÑ¹·Ø;αANés·OèâEA´αl¹;Oà;làA^aN¹ 3D
O;àA¹U·OË;ì^oOÃì

àÅ×ÍμÑÇàÅ×Íι¹Öé ËÖιϣ³μέΙξιÒÃάÊ´§^{1/4}ÅàÁ¹Ù·ÒÊι^ºÒÃι
éÇÃαιçιãιçιμι 3D

μÑÇàÅ×í:1Öëã^aé:ÓË¹´μÓáË¹èξ;ÒÃáÊ´SÀÒ^{3/4}ο¹´´Íá^{ο1}
àA×él:QξQ¹·OèαÇOAAĐàíOÁ´μεO;ÇeOαÇOAAĐàíOÁ´ÊUξÊØ
·OèEOAOA¶ã^aéã´e

ã^aé»ØèÁÅÛ;ÈÃà^{3/4}×èí»ÃÑ^oμÓáË¹èςφίς^{3/4}×é¹.Õèà´Êì·í»^{o1}´´íaÊ
§^{1/4}Å

Ãõà«çµæèÒà´Êµ:Í»à¾¼×èĩãé´Õ;íÅµìφίςæèÒæÇÒÁÅÐàíÕÂ
´άΔΙΝµΑΟ;ΟΑΑΟà;Αª»N´ØºN±

μÑCàÅ×í;àËÀèÒ¹Õéã²é;ÓË¹'»ÃĐàÀ·çÍ§ÍØ»;Ã³íáÊ'§¹¼Å (·íÀÒ¾
íá¹ EA×íâ·A·NE¹íâ' AçÓé¹ÍÁUè;NºÍØ»;A³·Óè;OAI IE¹NºE¹Ø¹)

à»Ô´Ë¹éÔμèÒξà³/₄χèίμÑέξπèÔμèÒξ æ ϕίσιØ» ;Ã³ιάÊ
ξ¹/₄Å·Öě²έξO¹IAUè

ÃĐ°ØÃÙ»á°°áÃĐ»ÃĐà·È·Õèã°é;ÒÃáÊ´§¼Å·Òșâ·Ã·ÑÈ¹ì

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

ÃÒÂ; ÒÃ¹ÕéãéàÅ×Í; ÃÙ»áºº; ÒÃáÊ
´§¼Å·Ôâ·A·NE¹µÔA»AÐà·È·Õèø³ÍÀÙèíÒÈÑÂ
ËÁÒÂàËµØ: ËÒ;»ÃÐà·È·Õèø³ÍÀÙèãÁè»ÃÒ; ÍÀÙèã¹ÃÒÂ; ÒÃ
ãÉéàÅ×Í;»AÐà·È·ÕèíÀÙèã; Áé»AÐà·È·Õèø³ÍÀÙèAÒ; ÕèËØ´

¡ÓË¹´ãËéÃÙ»áºº·ÕèàÅ×Í;à»ç¹ÃÙ»áºº·ÕèãªéàÁ×èlà»Ô´àãÃ×èí§
àÁ×èlà»Ô´àãÃ×èí§πÍÁ¾ÔÇàμÍÀ·Õèàª×èÍÁμèÍâ·Ã·ÑÈ¹ìà
çéO;Nº;OÃì´.ì´μNÇàÅ×Í;¹OéªèÇAãEéANè¹ã´ã´éçèO
çéìãCOA·Né§EÁ·OéãE
¹§º¹´´ÍAO¾AÐÉÇèÒ§;AÐºÇ¹;ÒÃºÙμ´Ð»ÃÒ;º¹´´Íâ·Ã·ÑÈ¹ìÍÀèÒ§¶Ù;μé
Í§

ã^aé;ÓË¹´^a1Ô´çÍŞËÑÒ³àíÒµì³/₄Øµ·ÕèÊèŞ¹/₄èÒ¹ã»ÂÑşâ·Ã·ÑÈ¹ì
ËÒ;κØ³ä´éà^a×èÍÁµèíâ´Âã^aéÊÔÀ^aκ^oÔÅ·Õè¶Ù;µéíŞ ^a1Ô´ÊÑÒ³á^{oo}
S-Video out ˆĐãÉéκØ³AO³/₄EUŞ;ÇèQËNO³á^{oo} Composite video out
EO;κØ³äAéá¹èã´à;ÖèAÇ;N^oa¹Ô´çÍŞËNO³ãÉéàÅ×Í; **Auto-select**

ã^aé»ØèÁÀÛ;ÈÃ»ÃÑ^oμÓáĒ¹èšà´Ē;ì·Í»^{o1}´íâ·Ã·ÑĒ^l

ĒÁÓĀàĒμØ:

ĒÒ;ÀÒ^{3/4}ã¹â·Ã·ÑĒ^lĀéÁĒ×ĭăĀèÁŌÀÒ^{3/4}à¹xèš"Ò;ì;ÒĀ»ÃÑ^oμ
Nés ãĒéÁĬ»ĀĐĀÓ³ 10 ÇÔ¹Ō·Ō·ĀÓ^{3/4}·Đ;ĀN^oĀÓáĒ
'š^{1/4}Ā·ŌèμŌáĒ¹èš·Ōèà»ç¹Ō;ĬĀμĭâ·ĀĬNμâ¹ĀNμŌ
"Ō;ĬNé¹æŌ³ĀNŞĒŌĀŌĀĬĭăĀŌèĀ·Ō;ŌĀ»ĀN^oμNéšæèŌăĒĀèĬŌ;æ
ĀNéš ĒĀNŞ"Ō;ŌĒ¹μŌáĒ¹èšçĬšà´Ē;ì·Í»ăĀèç
æŌ³μéĬšæĀŌ;Ōè»ØèĀ "μ;Āš" ĒĀ×Ĭ "μ;Āšă^aé"
à^{3/4}xèĬ^oN¹·Ō;æèŌĀŌĀă¹àÇĀŌ 10 ÇÔ¹Ō·Ō

ÃÕà«çµà´Êj·Í»ä»ÂÑşµÓáË¹èş´Õ¿ÍÅµìº¹â·Ã·ÑÈ¹ìâ
´ÃãªéαÇΟΑΑÐàΙΟΑ´»N´ØºN¹

ã^aéµÑÇꝛÇºꝛØÁàËÅèÒ¹Öéã¹;ÒÃ»ÃÑºꝛÇÒÁÊÇèÒŞáÅĐꝛÇÒÁÍÔèÁµ
ÑÇçİŞEOçİŞAO^{3/4}ã¹â·A·NE¹

ã^aéµÑÇꝛC^oꝛØÁàËÅèÒ¹Õéã¹;ÒÃ»ÃÑ^oꝛÇÒÁÊÇèÒŞáÅĐꝛÇÒÁꝛÁ^aÑ
çIŞAO^{3/4}ã¹â·A·NE¹i

ã^äéµÑÇκC^ºαØÁ¹Õéà^¾×èí»ÃÑ^º;ÔÅàµíÃìÅ´;ÒÃÊÑè¹
ϕÍΣΑΟ^¾·ÔèµéíΣ;ΟΑã^äé;Ñ^ºâ·Α·ΝΕ¹ì
ϕÍá¹Ð¹ÓãËéαØ³»Ô´;ÔÅàµíÃìÅ´;ÒÃÊÑè¹
ϕÍΣΑΟ^¾àΑ×èìàÅè¹ΑΟ^¾Α¹µΑì DVD "Ο;|Ø»;Ã³ì¶Í´ÃËÑÊϕÍΣÌÒÃì
άÇΑì

¡ÓË¹'ꝤÇÒÁÅĐàíÕÂ'çÍ§''ÍáÊ'§¼ÅáÅĐÃĐ'ÑºÊÕă¹;ÒÃáÊ
§¼Å·Õ§''Íâ·A·NE¹

ã^aéµÑÇπC^oπØÁàËÀèÒ¹Õéã¹;ÒÃ»ÃÑ^oπØ³ÀÒ^{3/4}çÍŞËÑÒ³ÇÔ´ÕâíËÃ×í
DVD ^{o1}·ÍÁO^{3/4}

πØ³ËÒÁÒÃ¶πC^oπØÁπèÒπÇÒÁËÇèÒş πÇÒÁπÁ^aÑ´
πèÒπÇÒÁÍÒèÁµÑÇçÍŞËÒ^{3/4}×èíπØ³ÁO^{3/4};ÒÁáË´ş^{1/4}Å·Õè
´ÒàA×èlàÀè¹AO^{3/4}Á¹µÀì DVD ã¹àπA×èíşπIA^{3/4}OÇàµíÀì

æØ³.ÊÒÁÒÃ¶»ÃÑºæÇÒÁ¶ÏèÊÑÒ³¹ÒìÔ;ÒËÃÑ; áÅÐÊÑÒ³¹ÒìÔ;Ò
çÌŞË¹èÇAæÇÒÁ·ÒçÌŞâ»Ãà«Èà«ÌÀì;AO¿O;çÌŞ NVidia ä´é

μÑέξγèÒπÇÒÁàÃçÇçÍŞÊÑ-
O³¹OiOjOEANiçIšã»Aà«Eà«ÍÃi;ÃÒ¿Ôi NVidia

ÃĐ°ØꝛÇÒÁàÃçÇÊÑÒ³¹ÒìÔ;ÒËÃÑ;à»ç¹àÁ;ĐàíÔÃµ«ì

¡ÓË¹´ϣÇÒÁàÃçÇÊÑÒ³¹ÒìÔ;ÒϕÍÍÔ¹àμίÃìà;«Ë¹èÇÂϣÇÒÁ´´Óº¹;ÒÃì
áE´§¹⁄₄Ã

ÃĐ°ØαÇÒÁàÃçCÊÑÒ³¹ÒìÔ;Ò
çìÏìÒ¹àμίΑìà;«E¹èÇΑαÇΟΑ`Οà»ç¹àÁ;ĐàÎÔÃμ«ì

·´Êí°πCÒÁàÃçCÊÑÒ³¹ÒìÔ;ÒãËÁèà^{3/4}xèí·´Êí°àÊ¶ÕÃÀÒ^{3/4}
ϕÍΣΑΔ^{σρ}ιελ¹ã^αεξΟ¹··ΑΟΣ
ΕΑΟΑÈΕμΘ: πθ³μείς;´Êí°;ÒÃμÑέςπèÒãËÁè«ÖèξäÁèã^αèπèÒ
´Ο;ΙΑμιϕÍΣ^{1/4}Ué^{1/4}ΑΟμ;ελ¹·Οè·Đã^αéπèΟ¹Νέ¹μΑΙ´ä»

ÒÃàÀ×Í;µÑÇàÀ×Í;¹Õé²èÇÃãËéÁÑè¹ã¨¨ä´éÇèÒ
i;OÀà»ÁOèA¹«ÇOÀ;ÍOèÈNO³¹OÍO;O ÐAO¼Áã²ésÒ¹â
AINµâ¹ANµO·Ø;«ANés·OèàÁOèÃã²ésO¹ÇO¹â´ÇEi
ËÁOÀÈËµØ: «Ø³ÊÒÁOÃ¹çéOÁçÑé¹µí¹;ÒÃµÑésÊÑ-
O³¹OÍO;OINµâ¹ANµO·Oè;OŞO¹ç³ÐàÁOèAµé¹ADººä´éâ
´Á;OÀ;«OÀi <Ctrl> «éOŞãÇéç³Ð·OèÇO¹â
´ÇEi;OÂNŞàÁOèA·OŞO¹
ËO;à«A×éÍŞ«IA¾¼OÇàµíÃià«xéÍÁµèÍÁUè;Ñºà¹çµàÇOÃi;ãËé;
«OÀi <Ctrl> «éOŞãÇé·N¹·Õ ÊÁNŞ¨O;à´éÃç;Í¹â
çéOËUèÇO¹â´ÇEi

ÃÕà«çµÊÑÒ³¹ÒìÔ;Ò:ÑésËÁ´ áÅéÇãËéÃÐ^{oo}µÃÇ´ÊíôíÒÃì
´áÇÀì;AO;Oììèl¹.Òè Ðã^aésO¹µNCçç^oçØÁ.Òè;OE¹´äÇéíÕ;çÃÑés
çl¹Ð¹ÓãËéçØ³ÃÕà«çµ:Ø;çÃÑés.Õèá;Å^a BIOS çlç;ÒÃì´´í â
´Aã^aéã;ÅìlOAàA´EOEAN^olN»à´µ BIOS

æØ³ÊÒÁÒÃ¶àÅ×í;âËÁ´ TwinView ä´é¨Ò; 4 âËÁ´´Ñ§µèlä»¹Õé

Standard – âËÁ´;ÒÃáÊ´§¼ÅáººÁÒµÃ°Ò¹ã¹Ë¹éÒ¨ía´ÕÃÇ

æØ³ÊÒÁÒÃ¶ãæâËÁ´¹Õéã¹;A³O·ÕèAÖIØ»;A³i;OÁáÊ
´§¼Å·Oèµèl;Nº;OAI´´I Nvidia à¾OASIAèOŞà´OAC

Clone –âËÁ´¹Õé¨Ð·ÓãËé¨íaÊ´§¼ÅÃÍŞáÊ´§¼ÅµÒÁË¹éÒ¨ÍËÃÑ;

Horizontal Span – âËÁ´¹Õéãæã¹;ÒÃÇÂÒÂà´Ê;ì·í»çíŞCÔ¹â

´CEiã»ANŞ´íaÊ´§¼Å 2 Ê¹éO¨lã¹á¹C¹l¹ã´éã¹âËÁ´¹Õé¨íaÊ
´§¼Å·NéŞËÍŞ¨Ðãæ×èlAµèl;N¹à»ç¹¾×é¹·Oè;OÁáÊ´§¼Åç¹O´ãË-
èã¾OAS´lã´OAC

Vertical Span – âËÁ´¹Õéãæã¹;ÒÃÇÂÒÂà´Ê;ì·í»çíŞCÔ¹â

´CEiã»ANŞ´íaÊ´§¼Å 2 Ê¹éO¨lã¹á¹CuNéŞã´éã¹âËÁ´¹Õé¨íaÊ
´§¼Å·NéŞËÍŞ¨Ðãæ×èlAµèl;N¹à»ç¹¾×é¹·Oè;OÁáÊ´§¼Åç¹O´ãË-
èã¾OAS´lã´OAC

TwinView Standard - àÅ×Í;âËÁ´;ÒÃáÊ
'\$¼AáººAOµA°O¹ã¹E¹éO`là´OAC ¤Ø³EQAOÃ¶ãªéâËÁ.
'¹Oéã¹;A³Q·OèAQIØ»;A³;OÃáÊ '\$¼A·Oèµè;Nº;OAI´´I Nvidia
à³¼OASIAèOšà´OAC

TwinView Clone - âĒÁ´¹Ōé¨Đ·ÓãĒé¨íaĒ´š¼ÅĀísáĒ
´š¼ÅµŌAE¹éŌ¨IEĀÑi

TwinView Horizontal Span - âĒÁ'1Ōé"Đ.ÓãĒéĒÒÁÒÃ1áĒ
'š¼Aà'Ejì.Í»çIšCO1â'CEI⁰¹..láĒ'š¼A 2 E¹eO'İµèl;N¹ã¹á¹C¹İ'ä' é
ã¹áĒEA¹Oé'..láĒ'š¼A.NéšÉİš"Đà^axèİAµèl;N¹à»ç¹³/4xé¹.Ōè;OAAĒ
'š¼Aç¹O'ãĒĒà³/4OAS'..là'ŌAÇ«Ōèš"Đ^aeÇAãĒĒé'UAO³/4ä' é;ÇéOš
çŌé¹;ÇèŌ;OA'U'Ō;..là'ŌAÇ

TwinView Vertical Span - âĒÁ.´¹Ōé¨Đ.ÓãĒéĒÒÁÒÃŋáĒ´š¼Āà.
É;ì·l»ç|šCÔ¹â´CĒi⁰¹¨lāE´š¼Ā.2 É¹éO¨lùè;N¹ã¹á¹CμNesā´è ā¹âĒÁ
´¹Ōé¨lāE´š¼Ā.NesĒiš¨Đà^axèlAue;N¹ā»ç.¹³/₄xé¹.Ōè;OĀáĒ´š¼Ā
ç¹O´ãĒèà³/₄OĀš¨là´OĀÇ«Ōes¨Đ^aèÇĀãĒÉé¨UĀO³/₄ä´é;ÇeOš
çŌé¹;ÇèO;OĀ´U¨O;¨là´OĀÇ

ÀÒ¾;ÃÒ;Ô;μÒÁæèÒαί;Ôà;IàÃÑ¹çÍ§;ÒÃáÊ´§¼Åã¹âËÁ´ TwinView
;ÒÃαÅÔ;ÀÒ¾;ÃÒ;Ô;¹;ÀÒ¾;Ðà»ç¹;ÒÃàÅ×Í;ãËé´IáÊ
¼Å¹Ñé¹à»ç¹;IáÊ;¼Å»Ñ;ØºÑ¹çÍ§αØ³
àA×éIαØ³αÅÔ;çCO¹ÀÒ¾;ÃÒ;Ô;·Oè´IÀÒ¾
αØ³;ÐàË¹AOÁ;ÔAmèO§æ
·OèαØ³EOAOA¶»ANºà»AOèÅ¹ãËé;ÑºIØ»IÃ³;ÒÃáÊ
¼Å·Oèà;OèAÇçéI§;N¹

ËÖ:ã^aéâĒÁ´ Clone ꝥØ³ˆĐÊŌÁŌÃ¶;ŌË¹´;ŌÃáĒ
,s^{1/4}Āã¹E¹éŌˆĪEĀNĵãĒéÁŌꝥéŌꝥŌAĀĐàĪŌA´çĪšà
,ĒĵĪĪ»AŌĵĵCèŌã¹E¹éŌˆĪĪšĒŌ;ꝥèŌꝥŌAĀĐàĪŌA´çĪšˆĪáĒ
,s^{1/4}ĀĪš¹éĪĵCèŌꝥŌAĀĐàĪŌA´çĪšˆĪáĒ,s^{1/4}ĀĒANĵĵĵĪĪ»çĪšˆĪáĒ
,s^{1/4}ĀĪšˆĐá^{3/4}àĪšĵĵĪNμĵĵĪNμŌàA×èĪꝥØ³àA×èĪĵĵĪ»ĒŌ
çĪ^oĪ

Â:àÂÔ:;ÔÃã^aé \varnothing ³ÉÁ^oÑμÔ:ÔÃá^{3/4}â´ÁÍÑμâ¹ÁÑμÔã¹·ÍáÉ´ ξ ^{1/4}ÁÃÍ ξ
ÉÔ:ã´éá \times Í;μNCà \times Í: "ã^aéà´É:í:í»àÉ \times Í¹·ÁÔ ξ :N^o·ÍáÉ´ ξ ^{1/4}ÁÃÍ ξ ã
´é"ãCé«Ô ξ ·Đ·ÔãÉéá´É:í:í» "É \varnothing ´;íOA·Ô ξ O¹"ã¹μOáÉ¹é ξ ã
´μOáÉ¹é ξ E¹Oé ξ
 \varnothing ³ÉÁ^oÑμÔ¹OéàÉÁÔĐÉÓÉÑ^o:ÔÃ¹OàÉ¹Í ξ O¹ã¹áí»^{3/4}ÂÔà α ^aÑ¹·Ôèã^a
é α ÇOAAĐàÍOÁ´ã¹;íOAáÉ´ ξ ^{1/4}ÁÉU ξ

¡ÒÃã^aésÒ¹π³ÉÁ^oÑμÔ¹Õé“ĐĀćíμÓáĒ¹ès;ÒÃá^{3/4}»Ñ““Ø^oÑ¹ϕís“íaÊ
§^{1/4}·OeàĀ×ljäCéã¹ϕ³Đ¹Öé «Oèš..Đ·OãEeà'Éj·l» "EĀØ
'jOA·OŠO¹"ã¹μOáE¹èsã'μOáE¹èsE¹Oèš
π³ÉÁ^oÑμÔ¹OéàEAOĐEOÉAN^o;OA¹OàE¹ísÒ¹ã¹ál»^{3/4}ĀOàπ^aÑ¹·Õèã^a
éπÇOAAĐàIOA'ã¹;OAáE'§^{1/4}ĀEU§

ã^aéşÒ¹κØ³ÉÁ^oÑμÔçÍşà´Ê;ì·Í»àÉÁ×Í¹·ÃÔşã¹âÉÁ´;ÒÃçÂÒÂÀÒ^{3/4}çÍş
TwinView
;ÒÃã^aéşÒ¹κØ³ÉÁ^oÑμÔ¹Õé·Đ·ÓãËéκØ³μÑéşκèÒà´Ê;ì·Í»ãËéÁÕç¹Ò
ãËé;ÇèÒ·ÍáÉ´ş^{1/4}·Òèà^a×éÍÁàçéÒ´éÇÁ;Ñ¹
ÇÔÇ·Õèà^a×éÍÁμèÍàçéÒ´éÇÁ;Ñ¹·Đ»ÃÒ;·ãËéàËç¹μÁÍ´^{3/4}×é¹·Õèà
´Ê;ì·Í»·ÒèãËéçÒé¹
àÁ×éÍκØ^{3/4}ÁÓÁÓÁàÁ×éÍ¹àÁÒÈìÍ;·Ò;^{3/4}×é¹·Õè·ÕèáÉ´ş

ÀÒ¾¼;ÃÒ;Ô;μÒÁκèÒκί¹;Ôà;íàÃªÑ¹ϕÍ§;ÒÃάÊ´§¼ÅÃί§ã¹âËÁ´
TwinView

ι;ÒÃκÅÔ;·Õè;ÃÒ;Ô;·Đ·ÓãËέκØ³ÊÒΑÒÃ¹μÑέ§κèÒίØ»;Ã³;ÒÃάÊ
§¼Å«Oε§μελ;N^σ·laÉ, §¼ÅΑί§·Oεãªε;OAI´·I·OεάE´§¼Åά^{οβ}
TwinView á´éã¹ϕ³Đ·O§O¹IAUεâEA´ Clone

¡ÓË¹´ã̃é;ÒÃꝤCºꝤØÁ;ÒÃ«ÙÁà¾¼×èíãËéÊÒÁÒÃ¶«ÙÁà
çéOä»AN§E¹éO·í;OÄáE´§¼Á·Oèμéí§;OÄä´é

ã¹âĒÁ¹Ōé π³ĒÒÁŌÃŋàÅ×í:¾×é¹.ŌèĒ¹éŌ.ÍĒèÇ¹.Ōèμéíς;ŌÃ«ÚÁ
ĒĀN§.Ō;àÅ×í;áĒéÇ π³ĒÒÁŌÃŋ«ÚĀä».ŌèĒ¹éŌ.ÍĒèÇ¹¹Né¹ā
é·N¹.Ō ā'ĀàÅ×èl¹μNÇàÅ×èl¹'éŌ¹ĀeŌς

ãËéçø³ËÒÁÒÃñàÅ×Í;;ÒÃ«ÙÁàçéÒËÃ×ÍÍ;ã¹ËèÇ¹çÍË¹éÒ´´ÍáË
§¹⁄₄Å·ÒèàÅ×Í;ãÇé

àÅ×í;íØ»;Ã³;ÒÃáÊ´§¼ÅÊÓËÑº;ÒÃáÊ´§ÀÒ¾ã¹âËÁ´;ÒÃáÊ
´§¼ÅáºµçÆ¹éÓ´

gø³.ÊÒÁÒÃñàÅ×í;ÊÑ´ÊèÇ¹çí\$ÀÒ¾ (ç¹Ò´ã¹á¹Ç¹í¹μèí¹çμÑés)
ÉOÉANº;OAAÉ´§¼AáººàμçAE¹éO`i

ı̀ÖÃã^aésÖ¹μÑÇàÅ×ı̇¹Öé̄̄Đ:ÓãĒëä´ÃàÇı̇İ̇ı̇ÖÃáÊ
§^{1/4}ĀĒÖĀÖĀı̇ı̇ÖĒ¹·æèOαÇÖĀĀĐàı̇ÖĀ´·ÖèäĒĀÖĐĒĀı̇Ñ^oı̇ÖÃáÊ
§^{1/4}Āá^{oo}àμçĀĒ¹éŌ·İ̇ä´é

¡ÒÃã^aéşÒ¹µÑÇàÅ×Í;¹Õé¨Đà»ç¹;ÒÃà^a×èÍÁâÂş;ÒÃç^oçØÁ;ÒÃ«ÚÁ
ã¹E¹éO;ÒÃç^oçØÁáàÇÍÀàÁÁ;N^o;ÒÃç^oçØÁ;ÒÃ«ÚÁã¹;ÒÃáE
ş^{1/4}Áá^oàµçÁE¹éO lä éã¹ç³Đà ÓÇ;N¹

ıÖÃ¼ÅÔı·Õè»ØèÁ¹Õé¨Đ·ÓãĔéãªésÒ¹¼Ø³ĔÁºÑμÔıÒÃáĔ´š¼Å
çNé¹EUšâ´AãªéâĔA´TwinView Clone â»A..
ĔENšàıμCèQmélšãªésO¹âĔA´Clone ĩAUè¨Öš¨Đà
çéOãªe¼Ø³ĔAºNμOàĔAèO¹Oéã´é

¡ÒÃã^aéşÒ¹µÑÇàÅ×Í;¹Õé.Đà»ç¹¡ÒÃ;ÓË¹
ãÉé«Í;µáÇÁîãlàÇÍÁìàÁÁìàAÓÁ;ã^aé^oNEÁÒÈàµÍÀìÃÔş
äAèá¹Đ¹ÓãÉéø³ãÅ×Í;µÑÇàÅ×Í;¹Óé à^{3/4}AÓĐ Đ·ÓãÉéà;Ô´»Ñ-
EOã¹¡OÃáE şAO^{3/4}o¹í à^ae¹áE
şAO^{3/4}äAè¶U;µéİŞËÅ×İäAèAÓÀ^{3/4}»ÃÒ;çÖé¹àÅÂ

áÊ´§ª¹Ô´çÍ§¨ÍÀÒ¾·ÕèκØ³;ÓÅÑ§ãªé;Ñº;ÒÃì´´Í·ÕèàÅ×Í;äÇé

ᾠὲ ἰα^{3/4} x ἐλάε´ s ᾠ³ ἘΑ⁰ Ἰμὸς ἰσᾶ
Ἰὰ ᾠ ἰα^{3/4} Ἰα³ Ἰεὸεἰ Ἰα^{3/4} Ἰε¹

áÊ´şÍÑµÃÒ;ÒÃÃÒà;Ãª·ÑésËÁ´·Õèãªéä´é;Ñº·ÍÀÒ¾¹Õé
ÍNµÃÒ;ÒAAÒà;Aª·ÕèAÒαÇOA¶OèEUŞçOé¹·ĐÁ´ÍNµÃÒ;ÒÃÊÑè¹
çIŞAO¾¹E¹éO´I

ÃĐ°ØÇèÒÃÒÂ;ÒÃã¹ ¸ÇÒÁ¶Õèã¹;ÒÃÃÕà;Ãª ¨ĐĂÇÁâËÁ
´·Oè ¨IAO¾¹OèäAèä´éE¹NºE¹Ø¹IAUèEA×lāAè ;OÃãÁ×l;âËÁ
´·OèäAèàÉAOĐEA;Nº ¨IAO¾¼çl§xØ³JO ¨·OãEèà;O ¨»N-
ËOAéOAáAšã¹;OAAÉ´§¼AáADIO ¨·OãEéIOAI´áÇÀìçl§xØ³àÊÕÊËÒÂ

μÑÇàÅ×í;¹Õέ;ÓË¹´ãËëä´ÃàÇÍÃì OpenGL ãªéªÑ;à;ìÃì;ÒÃáÊ´\$ÀÒ¾
3 ÁÔμÔάªª 16 ªÔμâ´ÂäÁèαÓ¹Ö\$¶Ö\$ÃÙ»áªª
çÍ\$¾Ô;à«Å·Õèáí»¾ÅÔàαªÑ¹ä´éàÅ×Í;äÇé
μÑÇàÅ×í;¹Õέ·ÐªèÇÃà¾ÔèÁ»ÃÐËÔ· ÒÀÒ¾
çÍ;ÒΑ·Ò\$Ò¹άÃÐ;ÒΑΑªçéíΑΥÃª¹ªÑ;à;ìÃì;ÒΑáÊ´\$ÀÒ¾ 3
ΑΟμÔ·ÒèΑΟαÇÒΑ¶U;μéí\$ã¹;ÒΑà;çªçéíΑΥ¹éíΑ

àÁ×èí;ÓË¹´ãªésÒ¹μÑÇàÅ×í;¹ÕéáÅéÇ OpenGL ¨ĐãªéκØ³ÊÁºÑμÔ
Advanced Multi-Monitor φί§ Windows2000

ϣ³ÊÒÁÒÃñã^aéμÑÇàÅ×Í;¹Õéã¹;ÒÃàÅ×Í;CèÒ:“ĐãËé“íaÊ´§¼Åã´áÊ
‘šà’Èì·l»ã¹AØA⁰¹«ěOA’ÉÒèš·OeàÈç¹ã´é^aN´·OèEØ
‘ã¹;OAàÅ×Í;μÑÇàÅ×Í;¹Oé;ç^a×Í;OAáE´§¼A“Đà»ÃÕèÂ¹μÓáË¹èš
ϕlšAO^{3/4}ã¹E¹eO“l

ã¹ç³Đ¹Öé ãĔÉáÉ´š´íáÉ´š^{1/4}Åçİš.TwinView ·ÑéšĔÁ´
EQ;æ³µellØ»iA³iaCéAO;çeOE¹OèšIAèOšáADæ³ä
´ea»AOèA¹âĔÁ´;OAáÉ´š^{1/4}Āā»ç¹âĔÁ´ ã´;çµOA·OèãAèãèâĔÁ´
Standard æ³µéšàÅxI;ÇèO ĐáÉ´š^{1/4}Ā·Oè ĩă
¹í;¨Ò;¹Öé
æ³ANšĔOÁÒĀ¶æĀÔ;ĀÒ;Ô;Öè»ĀÒ;Ĵ⁰¹ĴĀÒ^{3/4}ã¹µÑCæC²æQÁ
´éO¹⁰¹ã´éá´AµAšà^{3/4}xèlàÅxI;ãĔÉáÉ´š^{1/4}Āã¹·Ī·OèáÉ´šIAUèã¹
ç³Đ¹Öé

αΑÔj»ØèÁ¹Õéà^{3/4}xèíμÑέςπèÒËÃxÍà»ΑÕèÂ¹;ÒÃμÑέςπèÒ
ϕΙ§IØ»jA³i;OAAÉ'§^{1/4}A«Oèšã^aé;N^o..ÍáE'§^{1/4}A»N' Ø^oN¹

ıÖÃç⁰øÁıÖÃá^{3/4}ã¹éıÖË¹ç¹Ö
çı^{3/4}x¹ÖèE¹éQıÖèĐEÖAOAıUä
éãEéEN^{3/4}N¹ıN^{03/4}x¹ÖèàEııı»AQŞ.ÖèAÖÍÁUè
«ÖèŞĐã^aéã¹ıÖÃáEŞ^{1/4}ÁàEııı»«ÖèŞAOç¹OãEèıÇèÖ»ıμÔ.ÖèáÊ
Şãéã¹ıAO^{3/4}ıá⁰¹ÉAXııı.ÖÇÖ

ϣΑÔ;à^{3/4}xèíμÃC̄·Éí⁰·íaÊ´§^{1/4}·ÑésËÁ´·Õèμèlà^axèíÁàçéÔ;Ñ⁰;ÒÃì
·l̄ãÉéã^aéϣ³EA⁰NμO¹OéEO;ϣ³àEOÁ⁰»ANê;àçéO;N⁰·íaE
´§^{1/4}AEAN§̄·O;·Oèà»O´ϣ¹â·AA^{3/4}Oà¹AçOé¹AOáAéÇ

·ÓàπÃxèì§ÈÁÔÂ·Õè^aèì§¹Õé·ÈÒ;π³à^axèíÁμèí·íÁÒ^{3/4}à
çéO;N^{oa}èì§àÉOÀ^o·láE·\$^{1/4}AAI§«OèšãAèã·éμAC·Ei^oíAUèã¹ç³Đ¹Õé
;QA·Oà^aè¹¹Õé·Đà»ç¹»AĐâA^{a1}μèí·íÁÒ^{3/4}ÁOè¹à;èO
ÉAxí·íÁÒ^{3/4}·Oèà^axèíÁμèí;N^{oa}èì§àÉOÀ^o·BNC

π&O; à^{3/4}×èlàçéO´ÙçείÁÙ&·Õèà;ÕèÂÇçείς;ÑºÍĐά´»àμίÃ;ÒÃì´´Í
çÍ§ NVIDIA

αΑÔ;à¾×èíàçéÔăéαØ³ÊÁºÑμÔà¾ÔèÁàμÔÁçίς;ÔÃì´´ίçίς NVIDIA

⌘ Å Ô ; à ¾ × è í à ç é Ò ´ Ù ç é í Á Ù Å á Å Ð ä ´ Ñ à Ç í Ñ ï Ñ Ø è ¹ Å è Ò Ê Ø ´ ç í § ; Ò Ñ ï
¹ · Ò è à » ç ¹ ç í § NVIDIA ã ¹ à Ç ç ° ä « μ í ç í § NVIDIA

çéíÁÛÅ¹Öé“ĐăĚéÃÒÂÅĐàíÕÂ´à;ÕèÂÇ;ÑºíÒÃì´áÇÃìçÍ§;ÒÃì
“í·ÖèàÅ×l;äÇéã¹ç³Đ¹Öé

çéíÁÙÅ¹Öé"ĐăĚéÃÒÂĐàÍŌÂ' à;ÖèÂÇ;ÑçéíÁÙÅ
çÍŠAD⁰⁰·OèàA×IjãÇé«OèšĚèš^{1/4}Åµèl»ĂĐĚŌ·,ŌAO^{3/4}çÍš;ÃŌ;Ô;â
AAÇÁ

μÒÃÒξ¹Õέπ×ÍÃÒÂ;ÒÃä;Âì áÅĐçéíÁÙÅàÇíÃì²Ñè¹.Õèà;ÕèÂÇ
çéíξ;N¹.ÕèΑΟ;ΟΑã²é;N²;ΟΑι´íã¹ç³Đ¹Οέ

Ë¹éò;ÒÃµÑέξæèÒ ;ÒÃ¨Ñ´;ÒÃάί»^{3/4}ΆΟὰα^αÑ¹·ã^αέã¹;ÒÃ¨Ñ
´CòςµOáE¹έςç|ςE¹έOµèOςáλ»^{3/4}ΆOὰα^αÑ¹AĐECèOς´IáE´ς^{1/4}ΆάΆĐà
´Ej·I»EAOA´I`ã`AmNéξæèO·OÁĐáλ»^{3/4}ΆOὰα^αÑ¹

ÃÒÂ; ÒÃ¹Õé×ÍÃÒÂ; ÒÃá»¾ÅÒà×ªÑ¹·Õèâ»Ãá;ÃÁ"Ñ'; ÒÃà
Éi·|»·Ñ'; ÒÃÁUèã¹ç³Ð¹Õé
àÃ×; íá»¾ÅÒà×ªÑ¹·Õ; ÅÒÂ; ÒÃà¾×èµÑés×èÒ×í¹; Ô; ÒÃ"Ñ
; ÒÃá»¾ÅÒà×ªÑ¹ á; éäçÅÒÂ; ÒÃâ' Åãé»ØèÅ "à¾ÕèÅ" áÃÐ
"ÃºÍ;" ·ÕèÁUè·ÕççÇÒ

ı'»ØèÁ¹Õéà^{3/4}×èíà^{3/4}ÔèÁâ»ÃáıÃÁáı»^{3/4}ÅÔàğ^aÑıá^{oo}ãËÁè
çİŞAOÄıOAáı»^{3/4}ÅOàğ^aN¹.Oèâ»ÁáıAA'NıOAà'Éııı»NıOÃÍÁUè

i' »øèÁ¹Õéà^{3/4}xèíÁ^oáí»^{3/4}ÅÔà^αÑ¹·ÕèàÅxí;äÇéã¹
ç³Đ¹Öéllj[·]Ö;AOA;OÁáí»^{3/4}ÅÔà^αÑ¹·Oèâ»Aá;AA[·]Ñ' ;ÒÃà'Ê;ì·Í»[·]Ñ
;OÁIAUe

ι´»ØèÁ¹Õéà¾¼×èÍ°áí»¾¼ÅÔàα²Ñ¹·ÑέξËÁ´Íί;¨Ò;ÃÒÂ;ÒÃ
αÓàμ×Í¹:
ιΟΑ;´»ØèÁàËÀèÒ¹Õέ¨Ðà»ç¹;ÒÃÃÒà«çμ;ÒÃμÑέξαèÒ·ÑέξËÁ
·ΟεαØ³`á´έ;ΟΕ¹`äçέËΟΕΑÑ°áí»¾¼ÅÔàα²Ñ¹

ıÖÃàÅ×ÍµÑÇàÅ×Í:1Öéà»ç1ıÖÃıÓË1'ãËéË1éÒµèÒŞ
çİŞáı»³/₄ÄÖà²Ñ1»ÄÖı çÖé1¹ıáÉ'Ş¹/₄ÄÖè³ä'éıÖË1'äÇéàÊÁı

¿ÔÂ î¹Õé"ĐĂĐ^oØÇèÒ"ĐáÊ'şáí»^{3/4}ĂÔà^aÑ¹·Õèä' éàĂ×Í;äÇéă¹
ç³Đ¹Ôéă¹~láE,ş^{1/4}Ă (ĴĂQ^{3/4}) "lă' ĘOjă
' éàĂ×Í;µŃCàĂ×Í; "ăĂOèĂă»O
'ă^aéşO¹ăí»^{3/4}ĂÔà^aÑ¹ă¹E¹éO"ĬĚĂÔĂàĂç" äÇé

ËÖ;π³àÅxί;μÑCàÅxί;¹Öé â»Ãáj;ÃÁ"Ñ';ÒÃà'Êì·Í»"ÐμÔ'μÒÁç¹Ò
'άΔμΟάE¹èsçlçE¹éOμèQşál»³/₄ÀOà^aN¹¹Oé
àAxèlπ³àÀOéAμέ¹ã^aésO¹ál»³/₄ÀOà^aN¹â»Ãáj;ÃÁ"Ñ';ÒÃà
'Êì·Í»"Ð;OE¹'E¹éOμèQşál»³/₄ÀOà^aN¹¹OéãEéAOç¹O
'άΔμΟάE¹èsμΟΑ·Öè^oN¹·O;äÇé;èl¹E¹éO¹Oé

μÑÇàÅ×Í:¹Õéãªéã¹;ÒÃ;ÓË¹'ÇèÒ"ĐãËé;ÒÃçÂÒÂç¹Ò
"É¹éQμèOšáI»¾AOaαªN¹áÉ'šàμçAE¹éO. Ià©¾OD"J.ÕèáÊ'šÍÀÙè â
'AãAeçAOA;OAáE'š¼AãEéàμçA¾×é¹.Oèà'Éjì.I»·NéšEA
«OèšIÖ ãªeEAOAE¹éO' I

àÅ×Í;μÑÇàÅ×Í;¹Õéà¾¼×èlàÃÔèÁãªésÒ¹áí»¾¼ÅÔàαÑ¹¹Õéº¹à
É;ì·ì»áì»¾¼ÅÔàαÑ¹·Õèä´é;OE¹´ãÇÉìO;â»Aá;AAE¹Oèş
μÑÇÍÀèOşàªè¹ αØ³ÊÒÁÒÃ¶ÉÃéOşà´É;ì·ì»à¾¼ÔèÁ
çOé¹à¾¼×èlàªésO¹IAèOşì×è¹ àªè¹ ÉOEANºàCçºàºÅÒà«ÍÀì
ÉOEANºãªéìèO¹ìOàAAì ¹ì;àE¹×ì·Ò;à´É;ì·ì»çìşÇÓ¹â´ÇÈì·Oèà»ç¹
O;ìÀμì

»éí^{1a}xèlà´Êì·Í»áí»^{3/4}ÅÔà^aÑ¹·ÕèÊÃéÒ§
ç·Oé¹EOÉAN^bã^aésO¹íxè¹ã¹μNCàA×I¹Oé¹í·¨Ò¹Õé
^aØ³ANŞEOAOA¹ã^aé»ØèAá^bAI»OC¹ã¹IOAàA×I¹à
´Êì·Í»·Oè^aØ³EAéOŞäÇéEOÉAN^oáí»^{3/4}ÅÔà^aÑ¹íxè¹
¿ÔÅ¹î¹Õé¨ĐÁÕ¹çμèlàA×èí^aØ³ä
é·Oà^aA×èíŞEAOAàA×I¹μNCàA×I¹;"àÃÔèÁã^aésO¹áí»^{3/4}ÅÔà^aÑ¹¹Õ
éã¹IO¹à´Êì·Í»E¹Oèş"

Ë¹éÒíμϱŌÂîă²éă¹·ŌÃ»ÃÑ⁰à»ÅŌèÂ¹ "ÍμϱŌÂî" à³/₄xèí·ŌË¹
μŌáE¹èsE¹éŌμεŌśáí»³/₄AOàϱ²N¹⁰¹à 'Ejì·l» 'éÇAμNÇϱŌ³àíś

ı ÖÃã^aéπÖÂı^{1/4}ÊÁ¹Öé"ĐÂéÖÂË¹éÒμèÒş.Öè; ÓÂÑşã^aéşÖ¹ÍAÙèã¹
ç³Đ¹Öé (.Öè; ÖÂÑş. QşÖ¹ÍAÙè) ä»ANŞİÖ; İAO^{3/4}E¹Oèşâ
ÁÍAÙèã¹μOáE¹èşâ ÓAÇ;N¹

ϣŌÂ\¼ÊÁ¹Ōé¨ĐÂéŌÂĚ¹éŌµèŌς·ÑésĚÁ´ã¹¨íaÊ
´ş¼AáAĐál»¾AŌàϣªN¹·ŌeãªesŌ¹IAUèã¹
ç³Đ¹Ōeã»ANşİŌ;Ě¹éŌ¨ÍĚ¹Ōes

ğÖÂî¼ÊÁ¹Öé¨ĐÂéÒÂË¹éÒµèÒşçÍşáí»¾ÅÒàğªÑ¹·ÑésËÁ
ä»ANŞ ĩáE ş¼Å«OèşAOàAOËİ¾¼IAàµİAİUAUè

ËÒ;ϣØ³ÁÕà´Êì·Í»áí»¾¼ÅÔàϣªÑ¹·ÕèãªésÒ¹ÍÂÙèËÀÒÂË¹éÒ
ϣOAI¼EA¹Oé`Đà»ÁOèA¹·Oìà´Êì·Í»E¹Oèš»ANŞIOìà´Êì·Í»E¹Oèš
ϣØ³EOAOA¶ì·ϣOAI¼EA¹Oé«éOìN¹EAOAϣANéš¾¼×èIÇ¹´Uà
´Êì·Í»áí»¾¼ÅÔàϣªÑ¹·NéŞEA´·OèãªésO¹IAUè

à¾ Global Setting »ÃĐ;í°´éCÂµÑÇàÅxÍ;«Öèšà»ç¹µÑÇÃèÇÁ
çÍšâ»Aá;AA·N´;QAà·Éj;Í.»áÃĐâ»Aá;AA·N
;OAáI»¾AOàαªN¹·NéšEA

ÿÒÃàÅ×Í;çÂÒÂç¹Ò´áí»¾¼ÅÒàæªÑ¹ãËéáÊ´§¼Åã¹"à´Ê;ì:Í»·ÑésËÄ´"
ËÄÖÄ¶Ï§;ÏÄçÄÖÄç¹Ò´áí»¾¼ÅÒàæªÑ¹ãËéáÊ´§¼ÅãµçÆ¹éÖà
´Ê;ì:Í» ÄÇÄ¶Ï§;Ä³Ö·ÖèµéíççÄÖÄ;ÖÄáÊ´§¼Åà»ç¹ËÄÖÄÆ¹éÖ´Í
ÿÒÃàÅ×Í;çÂÒÂç¹Ò´áí»¾¼ÅÒàæªÑ¹ãËéáÊ´§¼Åã¹"Ë¹éÒ´Í·ÖèáÊ
´§¼ÄÜè" ËÄÖÄ¶Ï§;ÏÄçÄÖÄç¹Ò´áí»¾¼ÅÒàæªÑ¹ãËéáÊ
´§¼ÅãµçÆ¹éÖ´Íà©¾¼ÖÐã¹"Íà´ÖÄ·ÖèãªéÍÄÜè

¡ÒÃ¡ÓË¹´ãªéæØ³ÊÁºÑμÔ¹Õé·ÓãËéÁÕàÁ¹ÙÂèÍÂ "NVIDIA Desktop
Manager" à¾¼OèAçOé¹AÔã¹àA¹UADºº
çÍË¹éOμèOšáí»¾¼AÔàæªN¹·OèIAUè´éO¹º¹·ÑéšËÁ´
àA¹UAèIA¹Oè ÐªèCAãEéàçéOãªé;Nš;íªÑ¹;OA N
´¡OAáí»¾¼AÔàæªN¹·NéšËA à´éšèOAãÁÐAC àAcCÂÔèšçÖé¹â
´AãAè´Oà»ç¹μéÍšà»O º¹â·AA¾¼Oà¹AçÍšâ»Aá;AA´N´¡OAà´É;í·Í»
æØ³ÊÒÁÒÃ¡àçéOÈËÙèàÁ¹ÙÃÐººçÍË¹éOμèOšáí»¾¼AÔàæªÑ¹ä´éâ
´AæAO;çCO·OèãμàμOÁºOAì EÁxIæAQ;·Oèáíæ¹àAc;æ
çÍšáí»¾¼AÔàæªN¹«OèšIAUè´éO¹«éOAÉØ´çÍšãμàμOÁºOÀì

ıÖÃàÅ×ı;μÑÇàÅ×ı;¹Öé“Đ̄èÇÂãĒéâ»Ãá;ÃÁ“Ñ´ıÖÃà
Eı·l»»éı;N¹ÇÖ¹â;Çı»êl»IN»AD´NºEUS;Oı;OA
çAQAEÅ×ı;OÃáAıllıã»ç¹EıS İAO¾ (EA×ıAOı;CèO¹Ñé¹) â
AıOAıOE¹μOáE¹eş»êl»IN»ãEAéãĒéàçéOıNºE¹éO İ

àÅ×Í;µÑCàÅ×Í;¹Õéà¾¼×è"Ñ
É¹éΟµèΟς»êí»ÍΝ»ãÉείΑΥέµÃς;ΑὸςË¹έὸ"Í·Õèα∅³àÅ×Í;àÊΑί

àÅ×j, "íÀÒ^{3/4}. Õèϣ³μείς; ÕÃãËéË¹éÒμèÒς»éí»ÍÑ»íÂÙèμÃς; ÅÒς â
'Α; ÕÃ j¹Οέ ΔΑΟ;çμèíàÅ×éíϣ³. ΟàϣÅ×éíςΕΑΟΑàÅ×lj»ΟεΑ " N
'ãÉéË¹éΟμèΟς»éí»ÍÑ»»ΑΟ; çΟέ¹μΑς; ÅΟςË¹éΟ "íΕΑΟΑàΑç"

μÑCàÅ×j:¹Öé·ÓãËéË¹éÒμèÒ§»éí»ÍÑ» («Öè§çÂÒÂjÒÃáË
§¹⁄₄Ää»ÄÑ§ËÄÖÄË¹éÖ¹) IAUEμASjAOS'láE §¹⁄₄Ä·ÖèAOàαíÄà«ÍÄì
à¹×è§·ÖjAOαÇOAà»ç¹ä»ä'éAOj·ÖèEØ'ÇèOαØ³jOAN§ã²é§O¹·láË
§¹⁄₄Ä¹Ñé¹IAUE

μÑÇàÅ×Í;¹Öé“ĐºÑ¹·Ö;Ë¹έΟμεòΣ»εί»ÍÑ»ϕÍΣάí»¾ÅÔàαªÑ¹äÇεã¹Ë¹
έΟ·là·OAC;NºE¹έΟμεòΣάí»¾ÅÔàαªÑ¹à
·OÁ:OèãªέÉAεOξE¹έΟμεòΣ¹Né¹ EÖ;E¹έΟμεòΣ»εί»ÍÑ» "¾ÅÒ´"
ä»»AO;·OèlO;·làE·§¼AE¹Oèς·â»Aá;AA·N·iOAA
É;·l·l·»·ĐàÅ×èl¹ä»lAUè·Oè·làE·§¼A
ϕÍΣE¹έΟμεòΣάí»¾ÅÔàαªÑ¹Né¹

ί´»øèÁ¹Õέά³⁄₄×èìàÃÕÂ;æèÒÃèÇÁ·Õèà»ç¹´ÕζίΆμιαΆΔίίμχÕÂì
çÍšâ»Aá;AA`N´;OÀà´É;í·í»
ËÁÒÂàËμø:
;OÀ;´»øèA¹Õέ´·ΔäÁèÊèξ¹⁄₄Άμεί;ÒÃ»ÃÑºà»ΆÕèÂ¹άί»³⁄₄ΆÔàæªÑ¹·Õ
èæø³ä´é·OäÇέã¹E¹éO Application Management

i'»ØèÁ "μiÅš" à³/₄·xèíÂx¹ÂÑ¹áÅĐ¹Ó:ÒÃà»ÅÕèÂ¹á»Åš·Õèø³ä
é·Oä»ã²éjN⁰æéO N' iOAà'Éjì·l» ÉANš"Oj¹Né¹ãÉé»O É¹éOμèOš
çIšx¹â·AA³/₄Oà¹A

ι´»ØèÁ "Â;àÂÔ;" à^{3/4}×èí»Ô´Ë¹éÒμèÒςαí¹â·Ã^{3/4}Òà¹Â
ç|šâ»Aá;AA~N´;QAà Èj·I» â
AaAèμείς⁰N¹·Ô;EA×I¹O;OAà»ÃÕèÂ¹á»Ãšä»ã²é
αÓàμχί¹: "ΔÃÕ;ÒÃÂ;àÂÔ;ì;ÒÃμñέςαèÒ·Õèα³ä
éà»AOèÂ¹á»ÃšäÇé

í »øèÁ "μiÅšãé"
à^{3/4}xèlã=ésO¹ãÅĐºÑ¹·Öj;ÒÃà»ÅÕèÂ¹á»ÅšxèÒ·ÑésËÁ´
EANS"Oj¹Ne¹ãEéà»O´E¹eOμéOšxí¹â·AA^{3/4}Oà¹Åçlšã»Aá;ÃÁ"Ñ
iOAà Éj;í·l»

⌘Ø³ÊÒÁÒÃ¶àÅ×í;áí»¾ÅÔà⌘Ñ¹áººãËÁèä´éâ´Âãªéä´íÐÅçí;¹Õé
«Oèš Đ Ñ ; OAâ Aâ»Aá;AA Ñ ; OÃà Éj·l»

ÃÒÂ; ÒÃ¹Õéà»ç¹ÃÒÂ; ÒÃáí»¾¼ÃÒàªª¹.Õè; ÓÃÑšªªésÒ¹ÍÀÙèã¹à
É;í·|»ªØ³|Ò àÃ×|;áí»¾¼ÃÒàªª¹.Ò;ÃÒÂ; ÒÃ¹Õé
ËA×|AÐºØáí»¾¼ÃÒàªª¹|×é¹ àªè¹ áí»¾¼ÃÒàªª¹.ÕèäÁèä
éªªésÒ¹IAUèã¹ç³Đ¹Óé á'Á;ÒÂ; »ØèA "àºAOËi"

í'»øèÁ¹Õéà^{3/4}xèlà»Ô'ä
í'DAçljä;Ai«OèşxO³àA×í;áí»^{3/4}ÅÔàæÑ¹ÇÔ¹â'ÇÊãËéâ»Ãá;ÃÁ"Ñ
í'OAã Eij·l»'Oà¹O¹;OA

i'»øèÁ¹Õéà^{3/4}xèíÂx¹ÂÑ¹ä;Åîâ»Ãá;ÃÁ:Õèø³àÅxí;äÇé
ãÉéà»ç¹ál»^{3/4}ÅOàα²N¹ãEÁe·Oèâ»Aá;AA¹N¹;OÀà¹Éí·l»Đ
Oà¹O¹;OA

i. '»øèÁ¹ÕéËÒ;ø³äÀèμείς;ÒÃàÅ×ί;αί»^{3/4}ÅÔàκ^αÑ¹ã¹ç³Ð¹Õé
'ÐΑΟ;ΟΑ»Ο' ä JÐÅç;αί»^{3/4}ÅÔàκ^αÑ¹ã¹ΕΑέ' â
'ÅãΑέ·Ο;ΟΑà»ΑΟèΑ¹á»Åξ;ΟΑμÑέξæεΟã' æ

ä´ÍĐÅçí;¹Õéãªéã¹;ÒÃ»éí¹ª×èlà´Ê;ì·Í»·Õèà»Ô´ái»¾¼ÅÔàªÑ¹ãËÁè

»éí^{1a}xèlà´Êì·Í»·ÕèÁÕ;ÒÃà»Ô´áí»^{3/4}ÅÔà^aN¹ãËÄèäÇéã^{1ä}
´ÍÐÀçì¹Óé¹ì;Òì¹Óé¹α³ANŞEOAOA¶àÅ×ì^axèlà
´Êì·Í»´Òì^axéíáí»^{3/4}ÅÔà^aN¹×è¹·Óeä´éAD^oØäÇé
μÑÇÍÄèÒŞà^aè¹α³ÍÒ´´μéíŞ;ÒÃãËéà
´Êì·Í»çÍŞàÇç^oà^oAOà«ÍÁíã^aé^axèÍÇèÒ"àÇç^o"
à»Aá;AAíOàAAíã^aéÇèÒ"àAAí"´α³ÊA^oNμÓ"ÍíμαÕÂì"
çÍŞà»Aá;AA^oN´íOAã´Êì·Í»ÐãËéα³àÅ×ì;íOÃ·ÓŞO¹çÍŞà
´Êì·Í»áí»^{3/4}ÅÔà^aN¹μèOŞæä´é´éÇÂμ¹àíŞ

í »ØèÁ "μ;Åš" à³/₄×èlã^aé^a×èlà'Ê;ì·Í»^a×èlãËÁè
αØ³·ĐäAèEOAQA¶i' »ØèA¹Oèä' é¹;ÇèOαØ³·Đ»éí^{1a}×èlà
'Ê;ì·Í»·Oèã^aéä' é

ı´»ØèÁ "ÂıàÅÔı" ĘÒıκØ³äÁèμείςıÒÃ»εί^{1a}×èlà´Êıì·Í»ã¹ϕ³Đ¹Õé

μΩÂì¼ÊÁ¹Öé¨ĐάÊ
΄šàϣ|Aìà«|AìAU»EOèàËÅÖèÂÁáºº·Öºà¾¼×èíãËéϣØ³;ÓË¹
μOáË¹éšàϣ|Aìà«|Aìϕ|šàAOËìä´é

àÅxÍ;µÑÇàÅxÍ;¹Õéà¾¼xèlãËÉ¹éÒµèÒ§»ÃÒ;·.ÕèË¹éÒ"ía
É¹éÒ IE¹Oèξà¾¼OASÉ¹éÒ"là OAC
ç³D·OèαØ³ã²éàAOÉiAO;E¹éOµèO§

μÑÇàÅ×ί;1Öé·ΔΑΩ¼Åμèίςπì»ÃĐ;íõã¹ÂÙÊà«ÍÃíÔ¹àμίÃìà;«º¹ÇÔ¹â
CEiçIšàãÅ×éIšãÅà¹μi à²è¹ AN;E³Đ
çIš·OE;íºOAiáAĐE¹éOμèOŠEÀNº;OA·OšO¹

àÅxÍµÑCàÅxÍ;¹Öéà¾¼xèlãªésÒ¹Ë¹éÒµèÒ§ÊÃÑº;ÒÃ·Ó§Ò¹.«Öèšä
éANº;OA;OE¹,ã¹âEA, TwinView, ãEéáE, §¹¼A·Oè;Oè§;AO§Ë¹éO, I
¹; O;¹Qé, ¤Ø³AN§EOAÒA¹ãªéE¹éOµèO§
¹Ns;AèOCEANº;Nº;áI»¾¼AOàªªN¹·OèãªésÒ¹º¹à´Ê;ì·I»µèO§æ ä
éIÖ;´éÇA
Ë¹éÒµèÒ§ÊÃÑº;ÒÃ·Ó§Ò¹¹Öé´Ð»ÃÒ;´çÖé¹àÁxèI;´ªÕÂ¹¼ÊÁ
Alt+Tab

ıÖÃ:ÓàãÃxèİËÁÒÂàÅxÍ:ÖèµÑÇàÅxÍ:¹Öé:Đ:ÓãËéË¹éÒµèÒşÊÅÑ
ıÖÃ:ÓàãÃxèİËÁÒÂàÅxÍ:ÖèµÑÇàÅxÍ:¹Öé:Đ:ÓãËéË¹éÒµèÒşÊÅÑ

àÅ×í;·íÀÒ¾:Öèø³μείς;ÒÃãËéáÊ´šË¹έÒμèÒξÊÅÑº;ÒÃ·ÓξÒ¹â
'Ααø³ÉΟΑΟΑ¶àÅ×í·Οι·íΑΟ¾·Οεã²έςΟ¹íΑUεã¹ç³Ð¹Οεà·έΟ¹Νέ¹

àÅ×í;µÑÇàÅ×í;¹Õéà¾×èlãĚé·ÒĚ;ìºÒÃì·ÓşÒ¹;Ñº"íÀÒ¾"íà´ÕÂÇ
à¾×él»élş;N¹äAèãĚeAO;OAã²éşO¹çéOA'IAO¾

μÑÇàÅ×í;àËÅèÒ¹Õé¨Đ;ÓË¹ÇÔ Õ·Õèâ»Ãá;ÃÁ¨Ñ´;ÒÃà´Ê;ì;Í;»;ÓË¹
´μOáË¹èšçIŞË¹éOμèOš»êí»ÍÑ»AÇA¶Ošã´ÍĐAçI;ºI;«içéIαÇOAáAĐä
´ÍĐAçI;áI»¾/4AOàα²N¹

àÅxí;µÑCàÅxí;¹Öéà¾xèlã²ésÒ¹xØ³ÉÁºÑµÔ«ÚÁ «Öèξ”Đ.
çAOAAO¾ã¹ºAOàÇ³.ÖèAOàxIÀià«IÀiçIŞàAOËiIAUè AO¾.Öè
çAOAáAeÇ.Đ»AO; çOè¹ºIÖ; IAO¾E¹Oèş«OèşäAeAOàxIÀià«IÀi
çIŞàAOËi;IOAàÅxèl¹àxIÀià«IÀiàAOËiä».Öè IAO¾ã
Đ:OãÉeAO¾.Öè«UAäÇéà»AOèA¹ä»áÉ ξ·OèIÖ; IAO¾â
ÁINµâ¹ANµO

xØ³ÉÁºÑµÔ«ÚÁ”Đ·ÓşÒ¹;çµèlã²xèlã²xØ³ä
éà²xèlã²IAO¾EAOA IäçéO éCA;Ñ¹áÅĐxØ³ä
éàÅxí;âEA;IOAçAOAAO¾ã¹á¹ç¹I¹EAxíá¹çµNéşäÇéáAéç

àÅ×Í;µÑçàÅ×Í;¹Õéà¾×èíçÀÒÀÒ¾â´ÂãªéÊà;Ááºº Filtered
(áºº»ΑΒΑΟ³αèΟ)

α0³ÊÒÁÒÃñãªéíμãÕÂìμèlä»¹Õεà¾×είαÇºα0Áα0³ÊÁºÑμÔ«ÙÁä´έ
ÇΟ_Ο;0E¹,Íμã0Αι·ΔαΑέ0Α;Νº·0ε·0ã¹á·çº "Hot Keys" ä
"ΑαΑ0;·0ε;0Α´í áΑΔ;´α0Αι¼ÊΑ·0εα0³μεί§;0Α
ÊΑ0ΑèÊμ0: ÍμãÕÂì·ΔäÁè·0§0¹àÁ×εία0³à»Ô´Ë¹έ0 "Zoom"
ÊΑ×Í "Hot Keys" αέ0§ãÇé·Νέ§¹0εà¾×εί»εί§;Ñ¹äΑèãÊεα0³;0Ë¹
Íμã0ΑιäÊΑε·Νº«εί¹;ΝºÍμã0Αι·0εãªέ§0¹ΙΑUε

ÍíµκÕÂî¹Õé¨Đà»Ô´ËÃ×Í»Ô´;ÒÃ·ÓξÒ¹κØ³ÊÁºÑµÔ«ÙÁ

ÍµαŒî¹Œéà¾ŒèÁÃĐ´Œº;ŒÃ«ÚÁÀŒ¾

ÍμκÕÂì¹ÕéÅ´ÃÐ´Ñº;ÒÃ«ÙÁÀÒ¾

¾ÒÃÒÁÔ`μίÃì¹Õέ·ĐǺĐºØCèÒÁÕ:ÒÃ»ÃÑº;ÒÃ«ÚÁÀÒ¾;ÕèκÃÑές
μè|ÇO¹O·QãA×èlãAèAO;OÀ`A×èl¹àAOËì
(»;μO·ĐAO;OA»ANº;OA«UAAO¾â
AINμâ¹ANμO·Ø;κANές·Oè`A×èl¹àAOËì) â»Ã
·OãCéCèO;OA¾¾OèA×èOã¹¾OAOAO`μíAì¹OéíO··ÓãËé»ÃĐÊÔ·
ÔAO¾;OA·OŞO¹çIŞĐººEA×lál»¾AO`κ²N¹A·AŞ

ϣèÒã^{13/4}ÒÃÒÁÔàμίÃì¹Õéà»ç¹μÑçàÅçáÊ´§;ÒÃ´ÕàÅÂîâ
AAQĒ¹èÇÀ»ç¹AOÄOÇO¹O:O
jèl¹.Qè ðĒAN^σ;OA«UAAO^{3/4}Ö;“ÍAO^{3/4}Ē¹Öèšä»à»ç¹ÍŌ;“ÍAO^{3/4}Ē¹Öèš
i,OA´OàAAi¹Oé ð^aèÇÀ»éi§;N¹ãAeãÉéAO^{3/4}·Oè«UAäÇé "iADâ´" "
ã»AO·N¹·OÄĒÇèOS·ÍAO^{3/4}
ã¹;A³O·Oèϣ³àÅxèl¹àϣiAià«ÍÃiàAOĒi^{3/4}ÅÒ´ä»äÇé⁰¹“ÍAO^{3/4}·ÖèáÊ
šAO^{3/4}«UAiAUè
ϣ³Ō¹O·μNé§ϣèO^{3/4}ÒÃÒÁÔàμίÃì¹Õéà»ç¹ÈÛ¹ÂiÈÒ;äAèμέi§;ÒÃãĒéÁ
Ō;OA´OàAAi

àÅ×Í;µÑÇàÅ×Í;¹Õéà¾×èlà»ÅÕèÂ¹ÃĐ´Ñº;ÒÃ«ÙÁÀ¾·ÕéáÊ
ŞIAUé â´Á; »ØèA Ctrl/Alt/Shift æéOŞăÇé áADàÅ×el¹â´AãéàÁOÈì

àÅ×í;CèÒ¨Đã^aéxÕÂì¼ÊÁã´ÃĐĚCèÒ§ Ctrl, Alt áÅĐ Shift
à^{3/4}×eíà»ÅOèA¹AD´N^o;OA«UAâ´Ãã^aéàAOÉì

Ë¹éÒíµαÕÀîã²éã¹;ÒÃ»ÃÑºà»ÅÕèÂ¹ "ÍµαÕÀî" à¾¼xèí;ÓË¹
µOáE¹èξE¹éOµéOξáí»¾¼AOàα²N¹º¹à 'Ej·l» 'έÇAµNÇαØ³àίξ
ËΑΟÀÈµØ: ÍµαÕÀî·ΔäÀè·ÓξÒ¹àÁxèíαØ³à»Ó´Ë¹éÒ "Zoom"
EAxÍ "Hot Keys" αέOξäÇé·Néξ¹Oéà¾¼xèí»éίξ;Ñ¹äAèãÈéαØ³;ÓË¹
ÍµαÕÀîãEÀè·Nº«éí¹;NºÍµαÕÀî·Oèã²éξO¹IAUè

μÑÇàÅ×Í;¹Õé¨ÐäÁèÅ´ÁÍÂËÂÑ;ã¹áí»¾ÅÔàαÑ¹ 3D
àÅ×Í;μÑÇàÅ×Í;¹ÕéËÒ;αØ³μείς;ÒÃăËéáí»¾ÅÔàαÑ¹
ϕÍ\$αØ³ΑΟ»ΑΔΕΟ·, ΟΑΟ¾ΕΥΞΕØ

μÑÇàÅxí;1Öé¨Đã^aéxØ³ÊÁ^oÑμÔÅ´ÃÍÊËÑ;ä
éã¹;A³O·ÖèxØ³ã^aéâÊÁ´2x

â´ÂâÊÁ´¹Öé¨ĐãÊéxØ³ÀQ^{3/4}çÍ\$ÀQ^{3/4}·Öè^aÑ
à¹áAĐ»AĐÊO·,OAO^{3/4};OA·O\$O¹çÍ\$áI»^{3/4}ÂÔàx^aÑ¹ 3D à^{3/4}ÔèÁÊÛ\$
çÖé¹

μÑÇàÅ×Í;¹Õé¨ÐàÅ×Í;à·κ¹Ôκ;ÒÃÅ
´ÃÍÃËÃÑ;·Õè¶Ù;μέÍ§·ÕèÃÕã¹ÃØè¹ GeForce3 GPU

κØ³ÊÁºÑμÔ;ÒÃÅ´ÃÍÃËÃÑ;¶Í§ Quincunx¨ÐÃÕâËÁ´ 4x AA
·Õè·Ó§Ò¹ªéÒ;ÇèÒ άμè¨ÐãËé»ÃÐËÔ·,ÔÀÒ¾·Õèã;ÅéàκÔÂ§;ÑºâËÁ´
2x AA ·ÕèàÃçÇ;ÇèÒ

μÑCàÅxí;1Öé"Đã^aéxØ³ÊÁ^oÑμÔÅ'ÃÍÊËÑ;ä
éã¹;A³O·OèxØ³ã^aéâÊA' 4x

â'Â"ĐãËéxØ³ÀÒ^{3/4}çÍŞÀÒ^{3/4}ÊÛŞÊØ'·à·èÒ·Õè"Đà»ç¹ä»ä'éâ
A·OŞO¹αÆéOA;N^oál»^{3/4}AOàx^aN¹ 3D

μÑÇàÅ×Í;¹Öé¨ĐàÅ×Í;æèÒ;ÒÃÅ´ÃÍÄËÂÑ;·Öè´Õ·ÖèÊØ
ãÊé;NºáI»¾/4ÅOàæªN¹ 3D «ÖèξÊ¹NºE¹Ø¹;OÄ·OξO¹;OAA´ÃÍÄËÂÑ;

μñCàÅxí;¹Öé¨ĐăĚéαØ³àÅxí;ă²éâĚÁ´;ÒÃÅ
AIAEAN;ç³ĐAN¹áI»¾AOàα²N¹ 3D

çéíÁÙÀà;ÕèÂÇ;ÑºæèÒ AGP »Ñ'''ØºÑ¹ã¹àæÃxèíξαίÁ¾ÔÇàμίÃì
çíξαØ³

μÑÇàÅ×Í;1Öé"ĐăĔĕxØ³àÅ×Í;ăéÍñμÃÒ AGP ä´é
éÇAμ¹àİŞ"O;ADººAèIA
çİŞAO³/₄;ÅÒ;O;ĔO;ꝛØ³ăÁèá¹èă"ÇèÒꝛØ³ăéÍñμÃÒ AGP ä´
ăĔĕàÇé¹aēİŞ·OàꝛA×èİŞEAOA¹Oéà»ç¹ăººăAèă
é·OàꝛA×èİŞEAOAăÇé EÅNŞ"O;¹Né¹ADºº"Đ;ÓĔ¹´ÍñμÃÒ AGP
ĔUŞEØ´ă´AÍñμâ¹ANμO

»ÃÑ^oá¹¶^oà¹×¹è¹à^{3/4}×¹è¹à¹×¹í;ã^aéíÑμÃÒ AGP ·Õ^èã^aéâ´ÂÃÐ^oÂ^èíÂ
ϕÍSAO^{3/4};AO₂O_i´éÇAμ¹àÍ

ãËéø³àÅ×Í;CÔ Õ;ÒÃ·Õèä´ÃàÇÍÃì"Ñ´Ë¹èÇÂαÇÒÁ"Ó;ÒÃáÊ
§¼Å"Ó;Ë¹èÇÃαÇÒÁ"ÓçISADºº

æCÂxØ³ÃÐºØ·Ó¹Ç¹Ë¹èCÂxÇÒÁ·Ó†Í§ÃÐºº·Õèãæ
μΟΑÇΟ, ΟἰΟΑ·ΟèxØ³ÃÐºØãÇéã¹âΕΑ, à¿ÃÁºN¿à¿ÃÀì»Ñ···ØºÑ¹

μÑÇàÅ×Í;1Öé"ĐăĔéαØ³ÃĐºØÇÔ Ö;ÒÃ"Ñ
"iOAE¹èÇÃαÇÒA"Oà¿AAºN¿à¿IAI àÁ×èlãªéâĔÁ´à¿ÃÁºÑ¿à¿ÍAìáºº
"ã¹OAOα"

â»Ãá;ÃÁ PowerMizer çí\$ Nvidia
Đ^aèCAαQ³αC⁰αOA;OAã^aé^{3/4}ANSSO¹çí\$ GPU
αQ³E⁰AOA¶^aèCA^{3/4}OèAÍOAO;OAã^aes⁰çí\$á⁰μàμíÃÕèä'éâ
'A;OAμNé\$αèOà»ç¹"»AĐEAN'ä;EU\$EØ"ÉA×Jã^aé;OAáÉ
'\$;AO;O;IAèO\$àμçÁ»AĐEO: OAO^{3/4}çí\$ GPU â'ÀàÅ×I;·Oè
"»AĐEO·, OAO^{3/4};OA·O\$O¹EU\$EØ'"

μÑÇàÅ×ί;¹Õé¨ĐăĚéκØ³ÃĐºØ¨Ó¹Ç¹κÓϕÍÊÛ§ÊØ
´·ÕèÃĐººĚÃÑ;ÊÒÁÒÃ¶¨¨Ñ´κÔÇã¹μÑÇà»éÒĚÁÒÂä´é
ĚÒ;κØ³μέί§;ÒÃăĚéä´ÃàÇÍÃìÊÒÁÒÃ¶¨;ÓĚ¹´κÇÒÁÃÖ;ϕÍ§κÔÇκÓϕÍ
ăĚéàÅ×ί; "àÅ×ί;ίÑμâ¹ÁÑμÔ"

μÑÇàÅxÍ;1Öé;ĐăĚéα0³ãªé;ÒÃ·ÓÃÒÂ;ÒÃ;ÒÃàçÕÂ¹íÂèÒšÃÇ
àAçCã¹Í¹àμíAíà;« AGP.ã é ĚÓ;ª0
ªO»çíšx0³E¹NºE¹0¹x0³EAºNμO¹Öé

μÑCàÅxί;¹Öé¨Đ:ÓãĚéãªéϕ³ĚÁºÑμÔ;ÒÃàªχèíÁμèí;ÒÃàϕÕÂ¹
ϕÍ§ªϕªO» AGP ĚOEANºáI»¾/4ÁOàªªN¹ 3D ä´é

μÑÇàÅ×í;1Öé"Đ.ÓãĚéã^aéá^{ao}Ñ;à;ÍÃì^αÓĚÑèšä´é
ãA×éí.ÖŞO¹;N^oáí»^{3/4}AOà^αN¹.ÖéãĀeAO;OAàĀeš^αÇÒÁàÃçÇ;ÒÃáÊ
§^{1/4}Āá^{oo} 3D

ãËéã^aéÊàμíÃÔâí·ÕèÊ¹Ñ^oÊ¹Ø¹â´Â API OpenGL

ãĚéϣø³àÅ×í;âĚÁ´ĚàμίÃÔâí·Õè¨Đãªéã¹;ÒÃÑ¹áí»¾ÅÔàϣªÑ¹
OpenGL

;ÃÑ^{01/4}ÃÑ^{3/4} ìçíñàíÒμì^{3/4}ØμÊàμíÃÔáí à^aè¹ ;ÒÃÁίξàËç¹çίξμÒάμèÅÐ
çéΟξ·Òèà»ÃÕèA¹ã»

