

!¹¿i¶µ¶í©ó¶}±ò©íÄó³-Ää½tÄú¶Æ¼òÄÀ¶\~à;C

Direct3D «ü©w"ã D3D µwÁé¶[³t~àαO²ºÄã¶Ü¾¼¹¶¶±¶dÀ³,Ó¶i¶H°ð!æ³»ÄlÄú¶Æ©íÄä½tÄú¶Æ;C¹³"Ç¹CÀ,µL²k¶
¿½T;a-d_ß D3D µwÁé®Ä~à;A;ý-O«o»ÝnÄä½tÄú¶Ææä´©;C¿i¾¼Ü¹¿i¶µ±N¶i¶H½T«O±±²º NVidia ¹ÿÿ³B²z¾¼¹¶i¶H¶
¿½T°ð!æ!¹Äp¹CÀ;C

³o¨Çzî¶µ@e³\±z±±¨îÅX°Êµ{;²º¥·Æ³B²z¥¨`à;C

¥·Æ³B²z-Oπ@ºØ¶Í©ó¨İ 3D º«¥óÄä½t¥·Æ¥H@ø°£¿÷¾4|²-¥~Æ[²º§p³N;C½Dª`·N;A±Ò°Ê¥·Æ³B²z¨Åπ£.¨İ©Ò!³

Direct3D µ{;¶;Û°Ê´yÄ,¥·Æ³B²z«á²º¼v¹³;C¥·Æ³B²z¥²¶.¶bÀ³¥¶µ{;¶ä´©®Éπ~`à¥¿±`πu\$@;C

®e³\±zjî³/4Ü¥·Æ³B²z"ú¼/4Ëæè!;C

±z¥i¥H;b'£"Ñ³!§ÖªªÀ³¥îμ{!;®Ä¯à»P'yÄ,³î"í«~½è¼/v¹³æ\$¶!;½Ö¾/4ä³]©wÈ;C

®e³\±zjî³/4Û¹îšî³B²z³/4¹©Ò¥î²ºîÛ°Ê³B²z MIP ¶K¹î²ºæèîîîC

±z¥î¥Hjî³/4ÛÂù½u©Ê©Î²T½u©Ê MIP ¶K¹î³B²zæèîîîAÂù½u©Êæèîî³q±`¥î¥H

´£¨Ñšóî²º®Ä`àîAîÓ²T½u©Êæèîî«h³q±`¥î¥H´£¨Ñšóª«~½è²º/4v¹³îC

®e³\±z½Ö¾ã MIP ¶K¹ªº LOD;]ºè²Ó«x; ^º¾@t;C

,û\$Cºº¾@t±N·|´£"Ñşó;nºº¼v¹³«~½è;A!Ó,ûºººº¾@t«h·|

´£ºªÀ³¶íµ{;ªº@Ä`à;C±z¶i¶H;b;u³|´Í¼v¹³«~½è;v»P;u³|´Í@Ä`à;v¶\$¶;ººªÓ¹w³]º¾@tÈ¶¶¶¶;æ;í¾Ü;C

³o¼Ë°µ¶i¶HÁý¹î§í³B²z³¼¹¶RαA|a±N«ü©w¼Æ¶q²º"t²í°O¾4ÐÁé¶í©ó§÷½è¶K¹ÏÀx|s°í;j]Áã¶Ü¾¼¹¶¶±¶d¶»"-
|w,Ë²º°O¾4ÐÁé°£¶~;^;C

µù;G ¶i«O`d¶í©ó§÷½è¶K¹ÏÀx|s°í²º"t²í°O¾4ÐÁé³)¶j@e¶q;jA-O@Ú¾4Ú±z¹q,£¶W;w,Ë²º¹éÁé RAM @e¶q"Ó-
p²â²º;C"t²í RAM ¶V¶j;A±z¶i¶H³]©w²ºË'N¶V¶j;C

¹³]©wË"Ãα£·|¼vÁT°t³Æ AGP Áã¶Ü¾¼¹¶¶±¶d²º"t²í;C

±z²º NVidia ìî§î³B²z³¼¹¥í¥H;Û°Ê³B²z MIP ¶K¹î;A¥H´£°²¶x-y±Æ²º§÷½è¶K¹î¶Ç°e®Ä²v;A~Ã
´£~Ñ§ó°²²²À³¥íµ{;j @Ä~à;C

!ý-O;Aæ@`ÇÀ³¥íµ{;j;¥í~àµL²k;B;Û°Ê²£¥í²º MIP ¶K¹î±Ò°Ê®É¥¿½TÄã¥Û;Cn§ó¥¿³o`Ç°ÝÄD;A½Ð´îæÖ;Û°Ê²£¥í MIP
¶K¹îµ¥~Å²º;¼Æ;A²½`¼v³³¥í¥H¥¿½TÄã¥Û-°æî;C´îæÖ MIP ¶K¹îµ¥~Å²º;¼Æ³q±`¥í¥H®∅°£§÷½è¶K¹î²ºæ
£¹i»ô©î;µe±¼¹µõ;v²º°ÝÄD;];ý-O³o¼Æ«o|°§Cæ@`Ç®Ä~à;^;C

!²j!µ®e³"ï¥íαT½u©É MIP ¶K¹»¼;â;C

®e³\ MIP ¶K¹»¼;â±N¥i¥H'£°²À³¥îµ{;i²º®Ä-à;A;ý-O«o|°\$Cα@ "Ç¼v¹³«~½è;C|b-Y"Ç±;²pαU;A¼v¹³«~½è²º;ò¥
ç"Äα£®e©ö¹;Ä±;A;]¹±z¥í-à·\$Æ±æ³z¹L±Ò°Ê¹¥\-à"Ó"ú±oÄB¥~²º®Ä-à;C

!z!µ¥i¥H!b¥p;Ä'õºº OpenGL À³¥!µ{!;¥±ò°ÊÄ½¥¥\`à;A³o¼Ë¥i`à|´£ª@Ä`à;C!p²GÃö³¬!z!µ;AOpenGL ±N·|
"i¥!;i¥,°i¥ó¥Ç°e`Ó±N,ê@Æ±q!±½w½Ä°iÄ½Ä`i«e±½w½Ä°i;C

!¹¿ï¶µ¥ï¥H±j¨¨iÅX°Êµ{!;!bA½¶¶«áµ¥«Ý VBlank °T,¹;C

Ãö³¬!¹¿ï¶µ¥ï¥H @ e³\!í @ Ø³t²v°ª © óÅã¶Ü³¼¹ªª§ó·s²v;A;ý¬O³o¼E¥ï¬à·!²£¥íµøÄ±°Æ§@¥í©Mµe±¼¹µöªª°ÝÃD;A±q;Ó-
°§CαF¼v¹³«~½è;C±Ò°Ê!¹¿ï¶µ«h¥ï¥H¨¨iÅX°Êµ{!;µ¥«Ý VBlank °T,¹;C

±zrwÀx!s²q!Ùq³]©wÈ;j]©î;u½õ¾ãÈ;v;^²M³æ;C;î³¼Û;¹²M³æææ²²æ@Ó¶µ¥Ø±N·|±Ò°Ê³]©wÈ;Cn®M¥î³]©w-
È;A½D;î³¼Û;u½T©w;v©î;u®M¥î;v«ö¶s;C

©e³\±z±N¥Ø«e³]©wÈj]¥]-AjuDirect3D - ¶i¶¥;v²i,Üæè¶ðææ²³]©wÈ;^Àx;s¬°;Úq;u½Ö³4ãÈ;v;CæwÀx;s²³]©wÈ±N·|
·s¼W"ì¬Ù³4F²²M³ææW;C

¡bšä"ì" S©w Direct3D ¹CÀ,²³]©wÈæ§«á;A½Ð±N³]©wÈÀx;s¬°;Úq½Ö³4ãÈ;C³o¼È±z
´N¥i¥H;¡b±Ò°È¹CÀ,æ§«e"³³t²Ö²A Direct3D;A!ÓµL»ÝæÀ§O³]©w" CÓ¿i¶µ;C

®e³\±z±N¥Ø«e³]©wÈÀx|s¬°;Ûq;u½Ö¾ãÈ;v;CæwÀx|s²º³]©wÈ±N·|·s¼W``ì-Û¾F²ºM³ææW;C
|bšä``ì`S©w OpenGL À³¥|μ{;;²º³ì``î³]©wÈæ§«á;A½Ð±N³]©wÈÀx|s¬°;Ûq½Ö¾ãÈ;C³o¼È±z
´N¥i¥H;b±Ò°Êμ{;;æ§«e``³³t²ÖºA OpenGL;A;ÓμL»ÝæÀ§O³]©w``CÓ¿i¶μ;C

§R°£¥Ø«e!b²M³æππζ!©w²º;Úq³]©wÈ;C

±N©Ò;³³]©wÈÁÙ;Û"ä¹w³]È;C

ÄäÿÜæ@Ó®e³\±z;Ûq¨ä¥L Direct3D ³]©wÈªª¹ÿ,Üæè¶ó;C

!²z!¶µ¥i¥HÄÜ\$ó¶K¹!¹³-À;j]S÷½è¶K¹!¶, -À; ^²ºµwÁés±½è¶K¹!©w\$}æè®×;C
öÜ\$ó³o"ÇÈ±N·|ÄÜ\$ó©w,q¶K¹!¹³-À·½²º;ì,m;C¹w³]È»P Direct3D ³W®ææ@P;Cj³"Ç³nÁé¥i-à·|
\$Æ±æ;B\$O³B©w,q¶K¹!¹³-À·½;C;p²G«·s©w,q¶K¹!¹³-À·½;A«h!¹ÄpÀ³¥!µ{;²º¼v¹³«~½è±N·'£º²;C±z¥i¥H"i¥i·Æ'í±
±"i;b¶K¹!¹³-À¥²æW"æ»Pææ¥;ì,mæ\$¶;½Ö¾ä¶K¹!¹³-À·½;C

!^z!¶µ@e³\±z`î CPU ¥¡¥H!b¹îš!´¹xù¶¶} ©l³B²zα\$«e·Ç³Æ²²!¶@Ø¼⁄Æj];b VSYNC Ãö³¬@É;^;C
|b¬Y`Ç±;²pαU;A®e³\²²¹w¥ýµÛ;â¹!¶@Ø¼⁄Æ¶V²²;A!^À³·n±i;B¹CÀ,¥x©ÎÁä½Lµ¥,Ë,m²²;u¿é¶|©µ½w;v´N¶Vα[;C
|p²G±z;b²±¹CÀ,®É;A³s±µ;Û±z²²¹q,£α\$¿é¶|,Ë,m¹³©úÁä;^À³©µ½w²²²{¶H;A½D´îαp¹Ë;C

±N©Ò;³³]©wÈÁÙ;Û"ä¹w³]È;C

Ⓜ e³\±z½Ö¾ã!b OpenGL À³¥{μ{;ππÃã¥Ûªº§÷½è¶K¹ĩπ§¼v¹³«~½è;C
³ĩ"ĩπÆ¥HÃð±³ĩ"ĩ¼v¹³«~½è¥H³¡ªªº¼v¹³«~½è-º§÷½è¶K¹ĩμÛ!â;A¥HÃð±³ĩ"ĩªº¥~Æ[;C
³ĩ"ĩπÆ¥HÃð±³ĩ"ĩⓂÃ~à¥H²π§Cªº¼v¹³«~½è-º§÷½è¶K¹ĩμÛ!â;A¥H'fªªÀ³¥{μ{;ªºⓂÃ~à;C
½Ö;X"ĩ¥ĩπWz"âªº¥\~àªºÖ;X;C¹-º¹w³]È;C

OpenGL © `GL_KTX_buffer_region` 3D
C 30 4 E 0 μ i H ä ' © ! © μ ù ¶ \ ~ à 20

@e³\|b GL_KTX_buffer_region ©μ;ù¥\
~`à±ò°Ê®É"ï¥¥»¾÷¼v¹³°O¾ΔÁé;C;ý-O;A;pªG¥i¥îªº¥»¾÷¼v¹³°O¾ΔÁé:Ö©ó 8MB;A«h·|μLªk±ò°ÊÂù¥±©μ;ù¥\
~`à:ä´©;C

Ⓜe³\±z«ü©w PCI §÷½è¶K¹í°î²º³]xjⓂe¶q;C

|b¨ã|³¨→°÷°O¾⁄ÐÁé²º PCI¨¨t²ÍxW¾⁄W¶[;¹É±N¶í¶H©úÁã|a´£°²x@¨¨Ç OpenGL Á³¶íμ{;¹²º@Á¨à;C

μù;G ¶í«O¨d¶í©ó OpenGL §÷½è¶K¹íÄx|s°î²º¨¨t²Í°O¾⁄ÐÁé³]xjⓂe¶q;A→O@Ú¾⁄Ú±z¹q,£xW;w,Ë²º¹éÁé RAM
;Ó©w;C¨¨t²Í RAM ¶Vxj;A±z¶í¶H³]©w²ºÈ´N¶Vxj;C

|¹³]©wÈ¨¨Áx£·|¾⁄vÁT°t³Æ AGP Áã¶Ü¾⁄¹x¶±¶d²º¨¨t²Í;C

·Æ´Í±±¨i®e³\±z¬°¿i©w²º¡â±m³q¹D½Ö³¼ã«G«x;B¹iπñ«x©Î¡±º¿È¿C

¡â±m,É¿¿±±¨i¶i§U±z¡bÅã¶Û,Ë,mπW½Ö,É¨Ó·½¼v¹³»P¨ä¿é¶Xπ§¶i²º¶ú«x®t²§¿C¹¶\
¬à¿b¨i¶i¼v¹³³B²zÀ³¶iμ{¡¡®É«D±¨i³¶i¡A¶i¶i¶H¡bÅã¶Û¾¼¹WÅã¶Û¼v¹³®É«·s²£¶i¼v¹³¡¡p¬Ûπù¿^¿A¨Ã
´£¨Ñ§óè½T²º¡â±m¿C

¡Ó¶B¿A«Û¿h¨i¶i 3D ¶[³t¶\¬à²º¹CÀ,μe±³£«Û·t¿C¡b©Ò¿³ÅW¹Dππ¼W¶[¬Û¿P²º«G«x©M¿]©Î¡¿^¿±º¿-
Ë±N¶i¶H¨i³o¨Ç¹CÀ,μe±§ó«Gπ®¨Ç¿A³o¼Ë±z´N¶i¶H²M·¿¬Ý¨£¹CÀ,μe±¿A§Ö¾Ö²º±¹CÀ,πF¿C

©e³\±zjî³¼Ü¶Ñ·Æ´Í±±´´³²¹;â±mÀW¹D;C±z¶i¶H±ÀŞO½Ö³¼ä-õ;â;B²ñ;â©ÍÁ;âÀW¹D©Í;P®É½Ö³¼ä³o±TÓÀW¹D;C

±m|â|±½u^{a9}¡š|Áã¥Ü;C;|±½u±N·|b±z½Ö?¼ã'ĩñ«×;B«G«×©|;÷°;È®É\$Y®ÉÅÜ\$ó;C

¿i¼Ü!¿i¶µ±N¥i¥H“í“tî;b«·s±Ò°Ê Windows ®É!Û°ÉÁÛi±z!b!¹³B©Ò\$@²º!â±m½Õ¾ã;C
µù;G |p³G±z²º¹q,£|bºò,ô±W°õ|æ;A«h“t²î±N·|b±zµn¶J Windows «á½Õ¾ã!â±m;C

±zκwÀx!s²q;Ûq;â±m³]©wÈκξ²M³æ;C;î³¼Û!¹²M³æκκ²²κ@Ó¶|μ¥Ø±N·|±Ò°Ê³]©wÈ;C

Áý±z±N¥Ø«e^â!â±m³]©wÈÀx;s-°;Úq³]©wÈ;CαwÀx;s^â³]©wÈ±N·|s¼W[∞]-Ú¼F^â²M³æαW;C

§R°£¥Ø«e!b²M³æææj!©w²²;Úq!â±m³]©wÈ;C

±N©Ò;³â±mÈÁÙ;ÛµwÁé²º¹¼t³]©wÈ;C

®e³\±zjî¼Ü!ÜðvÅã¥Ü¾¹²³p®É¼Ò!;G

!Ü°Ê°»´ú®e³\ Windows ¾±µ±qÅã¥Ü¾¹²³»´±µ|¬¥¿½T²³p®É,ê°T;C!¹¬°¹w³]-
Ë;C½Ðª`·N;A¬Y`ÇÂÂ;Åã¥Ü¾¹²³i¬à¤£¤ä´©!¹¥\`à;C

¤@`ëp®É¤½;¡©Î GTF ¬O¤j;h¼Æ,û·s!;µwÅé`Ï¥î²³¼Ð·Ç;C

Â÷´²Åã¥Ü¾¹²³p®É©Î DMT ¬O¤@²³,ûÂÅ²³¼Ð·Ç;A|b¬Y`ÇµwÅé¤¤¤´µM`Ï¥î¹¼Ð·Ç;C;p²G±z²³µwÅén`D`Ï¥î
DMT;A½Ð±ò°Ê¹¿i¶µ;C

zĩ¼Ü!¹zĩ¶µ¥HÃö³¬ÅX°Êµ{;i´£"Ñ²º´â¼Ð\$Ö"ú¥\`à;C

!pªG·Æ¹«´â¼Ð;b°ö;æ¬Y"ÇÀ³¥Íµ{;i®ÉµLªk¥¿±`Åã¥Ü©Î££\$¹³¼ă;A½ÐÃö³¬´â¼Ð\$Ö"ú¥\`à;A³o¼Ë±N·|\$ó¥
¿.Ó°ÝÃD;C

!pªGκwÅÛ\$ó!¹³]©wË;A«h±z¥²¶·«·s±Ò°Ê Windows κ~¥i¥H"Ï·s²º³]©wË¥Í@Ã;C

!1z!¶µ¶i~¾¶îiÂX®j²ºÂl°}1½v¹³¶i!æ¹³~À´;Âl²k;C

!pªGn!bÂl°}¹i©ñ¶j®É¶£nÂýÃã¶ÜÂX°Êµ{!i~ä¶i!æju~X¶Æ;v³B²z;A½Dz!i³4Ü!¹¶µ¶Ø;C

!pªG¶wÂÜ§ó!¹³]©wÈ;A«h±z¶²¶·«·s±Ò°Ê Windows ¶~¶i¶H~i·s²º³]©wÈ¶í®Ä;C

3o¼E°μ·|Ãö³¬Ã, »s|±½uªª GDI μwÁéψ[³tψ~`à;C

!pªG±zζi³¼Ü!¹¶μψØ;A``t²í±Nα£·|“í¶íμwÁé;A;Ó·|±j“íÁãψÜÁX°Êμ{;j “í¶í Windows ªªαª³;¾¼÷ªc“Ó
´yÃ, ¶é°é;B¾¼ð¶é§íαí©·½uμψ;C

!pªGαwÁÜ§ó!¹³]©wÈ;A«h±zψ²¶·«·s±Ò°Ê Windows α~¶iψH“í·sªª³]©wÈ¶í@Á;C

±N NVidia QuickTweak 1ÿÛ·s¼WÛ Windows µs@!C;C

!1ÿÛ@e³\±z³z¹Lα@Óæè«K³§ÖÄã;ÿi³æ;A;µ\$Ö³t;a;v@MÿÍ©Ò;³Ûq Direct3D;BOpenGL ©Í!â±m³]©w-
Ë;C!¹ÿi³æÁÛÿ]stÿÍ©óÁÛ¹w³]Ë»P!s"ú;µæ³@e-ÄãÿÛ¼¹;v¹i,Ûæè¶ó³¶µÿØ;C

©e³\±z!b Windows πu\$@!CαW;Aζi³4Ü¥í¥H¥N³í QuickTweak π½¥íμ{!;³ºí¥Ü;C
±q²M³æπζi³4Ü±znÅã¥Ü³ºí¥Ü;CμM«áζi³4Ü;u½T©w;v©Í;u©M¥í;v¥H\$ó·sπu\$@!Cπ³ºí¥Ü;C

žĩ¼Ü!žĩŕµŕĩŕHÃö³-ÅX°Êµ{;ĩ-Ŧ"Ç CPU "ĩŕĩ²º¼W±j«-«üŦO²ºæä´©;C
-Ŧ"Ç CPU æä´©²pŕ[²º 3D «üŦO;A³o"Ç«üŦOŕĩŕH»²ŦU NVidia ¹ĩŦ³B²z³¹"Ã´Ŧº² 3D
¹CÀ, ©ÎÅ³ŕĩµ{;²º@Ã-à;C!žĩŕµ@e³\±z;BÅX°Êµ{;ææÃö³-Ŧ³o"Ç²pŕ[²º 3D «üŦO²ºæä
´©;C³o;Bŕĩ;æ@Ã-àæŕ,û©Î-G»Ü±Æ°Ŧ@É«Ü³ŕĩ;C

¿î¼Ü!¹¿î¶µ¥í¥HÃô³- VBlank µ¥«Ý¥\`à;C

¥çºÜ;uÃö³- VSYNC;v;A¥!@e³¹q,£¥ß§Y±N¼v¹³´yÃ,;b¿Ã¹õ±W;A!ÓµL»Ýµ¥«ÝÃã¥Ü¾¼¹²º;P" B««²½! ^±½°T,¹;C³o·|
"î!î@Ø³t²vºª©óÃã¥Ü¾¼¹²º§ó·s²v;A!ý-O¥í`à·²£¥íµøÃ±°Æ§@¥í©M¹î¹³;u¼¹µõ;v²º°ÝÃD;A±q!Ó°§C¼v¹³«~½è;C

Ãð³¬¡¹ï,Ûæè¶ô`ÃÄx¡s©Ò§@ººÄÛ§ó;A¶H«K±z¡b¡u`ä¶Læº@e¡v¹ï,Ûæè¶ôææ
¿ï¾Û¡u½T©w¡v©Î¡u©M¶¡¡v©É¡A`ï³o`Ç³]©wÈ¶Í©Ä¡C

Ãð³¬!¹¹ÿ,Ûæè¶ð;Óæ£Àx|s©Ò§@²²ÂÛ§ó;C

!¹¿ï¶µ@e³\±zÃö³¬ÅX°Êµ{;|;²º DirectX 6 ¥\`à;C

¬Y"Ç¬°,ûÂÂª©¥»²º DirectX ½s¼g²º¹CÀ,¡A¥i¬àµLªk°t;X±w|w,Ë²º DirectX 6 ±ÍÅX°Êµ{;|;±±±Ò°Ê²º DirectX 6 ±ä
´©¥\`à¥¿±`°ò;æ;C¿i³¼Ü!¹¿ï¶µ¥i±j"iÅX°Êµ{;|;|b DirectX 5 ¬Û®e¼Ò;±U°ò;æ;A¥H«KÂÂª©¹CÀ,¥i¥H¥¿±`°ò;æ;C

!pªG±zn°ò;æ¬Y"ÇµLªk¥¿±`±Ò°Ê©Í°ò;æ²ºÂÂª©¹CÀ,¡A½Ð"ï¥Í¹¿ï¶µ;C

Åy±z\$PÂ_pπ@Ó·Æ¹««ö¶s·|b³æ«öπu\$@|C¹i¥Ü®ÉÅã¥Ü¿i³æ;C

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!b±qzï³æ,ü¶J Direct3D ©î OpenGL ²Ö²A®É;A;p²G±z±£nÅã¶Ü½T»{°T®§;A½D®Özï¹zï¶µ;C

!pªG±zn“í¥í 3D ©ÄªG“ÓÄã¥Üæu\$@!Czĩ³æ;A½Đzĩ¼Ü!¹zĩ¶µ;C

!b¥HSC©ó³!°ãä´©,ÑªR«x²º,ÑªR«x°ó;æ®É;A³o`Ç;ï¶μ®e³\±z\$PÂ_¼v¹³; b¥ºOÂã¥Ü¾¼¹κWººÂã¥Ü;ì,m;C

!pªG±zn“!žĩ©wªºžĩ!µ; b“C! , ±Ò°Ê Windows ©É¥!@Ä;A½Džĩ%Ü! !µ¥Ø;C

½Ð¨ï¶ï½bÀY«ö¶½Ö¾ãÄã¶Ü¾¼¹W²º@à±Äã¶Üï,mjC

© Ú¾¼Ú¥Ø«e²º,Ñ²R«x»PŞó·s²v;A±N@à±«³]!Ü¨ä¹w³]!ì,m;C

3o`Çziïµ@e³\±z;î¼Ü;é¥XÄâ¥Ü,Ë,m;J@Ú¼ÚÄâ¥Ü¼¹±¶d©Òæä´©²²,Ë,m;A±z¥i¥H;î¼ÜÄâ¥Ü¼¹;B¼Æ;î¥-
²OÄâ¥Ü¼¹©î¹µø;^;C

¶}±òæ@Ó¶i|b¨äææ¬º²{¶fººÅã¶Ü,Ë,m!Ùq³]©wÈººμøμ;C

ÀãÛí©ó¹µø¿é¥Xªº¥Ø«e®æ¡¡»P°éSO³]©wÈ¡C

¶}±Ò¤@Ó¥¡|b¨¨ä¤¤«ü©w`S©w¹qμøζέ¥X®æ¡¡ªºμθμ¡¡C

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μù;G !p²G±z©Ò!b²º°é@a"5!³!C!b²M³æππ;A±zÀ³,Óζĩ³/4ÛÁ+!Ûπν©Ò!b!a°ĩ³!ñ²º°é@a;C

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