

!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´yÃ,¥·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'yÃ,³î"í«~½è¼/v¹³æ\$¶!;½Ö¾/4ä³]©wÈ;C

®e³\±zjî³/4Ü¹îšî³B²z³/4¹©Ò¥î²ºîÜ°Ê³B²z MIP ¶K¹î²ºæèîîîC

±z¥î¥Hjî³/4ÜÂù½u©Ê©ÎαT½u©Ê MIP ¶K¹î³B²zæèîîîAÂù½u©Êæèîî³q±`¥î¥H

´£¨Ñšóî²º®Ä`àîAîÓαT½u©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¶¶K¹Ìx|s°í;j]Áã¶Ü¾¼¹¶¶±¶d¶»"-
|w,Ë²º°O¾4ÐÁé°£¶~;^;C

µù;G ¶í«O`d¶í©ó§÷½è¶¶K¹Ìx|s°í²º"t²í°O¾4ÐÁé³)¶j@e¶¶q;A-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£·|¾4vÁT°t³Æ AGP Áã¶Ü¾¼¹¶¶±¶d²º"t²í;C

±z²º NVidia ðí§î³B²z³¼¹¥í¥H¡Û°Ê³B²z MIP ¶K¹î;A¥H´£º¶x-y±Æº§÷½è¶K¹î¶Ç°e®Ä²v;A~Ã
´£~Ñ§óºººÀ³¥íµ{¡¡ @Ä~à¡C

!ý-O;Aæ@`ÇÄ³¥íµ{¡¡¥í~àµLªk;¡Û°Ê²£¥íºº MIP ¶K¹î±Ò°Ê®É¥¿½TÄã¥Û;Cn§ó¥¿³o`Ç°ÝÄD;A½Ð´îœÛ;Û°Ê²£¥í MIP
¶K¹îµ¥~Åº¡,¼Æ;A²½`¼v³³¥í¥H¥¿½TÄã¥Û-º¤î¡C´îœ MIP ¶K¹îµ¥~Åº¡,¼Æ³q±`¥í¥H®º°£§÷½è¶K¹îºº¤
£¹¡»ô©î¡µe±¼¹µö;vºº°ÝÄD;¡;ý-O³o¼È<o|°§Cæ@`Ç®Ä~à¡^¡C

!²j!µ@e³"ĩ¶ĩαT½u©Ê MIP ¶K!ĩ»¼;â;C

@e³\ MIP ¶K!ĩ»¼;â±N¶i¶H'£°²À³¶µ{;i²º@Ä-à;A;ý-O«o|°\$Cα@ "Ç¼v¹³«~½è;C|b-Y"Ç±;²pαU;A¼v¹³«~½è²º;ò¶
ç"Äα£@e©ö¹;Ä±;A;]!±z¶i-à·\$Æ±æ³z¹L±Ò°Ê!¶\-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°² © óÅã¶Ü³/₄¹²³⁴⁵⁶⁷⁸⁹⁰·s²v;A;ý¬O³o¼⁴Ë¥ï¬à·!²£¥íµøÄ±°Æ§@¥í©Mµe±¼⁴¹µð²⁹°ÝÃD;A±q;Ó-
°§CαF¼⁴v¹³«~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;CπwÀx|s²º³]©wÈ±N·|·s¼W¨¨-Û¾F²ºM³æπW;C
|bšä¨¨S©w OpenGL À³¥|μ{;;²º³¨¨Ï³]©wÈπ§«á;A½Ð±N³]©wÈÀx|s¬°;Ûq½Ö¾ãÈ;C³o¼È±z
´N¥i¥H;b±Ò°Êμ{;;π§«e¨¨³³t²ÖºA OpenGL;A;ÓμL»ÝπÀ§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;]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;C!³"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"ï¥i·Æ'í±
±"i;b¶K¹!¹³-À¥²æW"æ»Pææ¥;ì,mæ\$¶;½Ö¾ä¶K¹!¹³-À·½;C

!¹ž!¶μ@e³\±z`î CPU ¥¡¥H!b¹š!´¹æù¶¶} ©l³B²zæ\$«e·Ç³Æ²²!¶@Ø¼⁄Æj];b VSYNC Ãó³¬@É;^;C
|b¬Y`Ç±;²pæU;A®e³\²²¹w¥ýμÛ;â¹!¶@Ø¼⁄Æ¶V²²;A!^À³·n±i;B¹CÀ,¥x©ÎÁä½Lμ¥,Ë,m²²;u¿éæ¶|μ½w;v´N¶Væ[;C
|p²G±z;b²±¹CÀ,®É;A³s±μ;Û±z²²¹q,£æ\$¿éæ¶,Ë,m¹³©úÅä;^À³©μ½w²²²{¶H;A½D´îæp¹Ë;C

±N©Ò;³³]©wÈÁÙ;Û"ä¹w³]È;C

Ⓜ e³\±z½Ö¾ã!b OpenGL À³¥{μ{;ππÃãÛªº§÷½è¶K¹ĩπ§¼v¹³«~½è;C
³ĩ"ĩπÆ¥HÀò±³ĩ"ĩ¼v¹³«~½è¥H³ºªªº¼v¹³«~½è-º§÷½è¶K¹ĩμÛ!â;A¥HÀò±³ĩ"ĩªº¥~Æ[;C
³ĩ"ĩπÆ¥HÀò±³ĩ"ĩⓂÃ~à¥H²π§Cªº¼v¹³«~½è-º§÷½è¶K¹ĩμÛ!â;A¥H'fªªÀ³¥{μ{;ªºⓂÃ~à;C
½Ö;X"ĩ¥ĩπWz"âªº¥\~àªº²Ö;X;C¹-º¹w³]È;C

OpenGL © `GL_KTX_buffer_region` 3D
C³o¼É°µ¥i¥H"ïä´©!¹©µ!ù¥\~à²º

@e³\|b GL_KTX_buffer_region ©μ;ù¥\
~`à±ò°Ê®É"ï¥¥»¾÷¼v¹³°O¾4ĐÁé;C;ý-O;A;pªG¥i¥îªº¥»¾÷¼v¹³°O¾4ĐÁé:Ö©ó 8MB;A«h·|μLªk±ò°ÊÂù¥±©μ;ù¥\
~`à:ä´©;C

Ⓜe³\±z«ü©w PCI §÷½è¶K¹ï°î²º³]xjⓂe¶q;C

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

μù¡G ¶i«O¨d¶í©ó OpenGL §÷½è¶K¹íÀx¡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¶i¶H³]©w²ºÈ´N¶Vxj¡C

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

·Æ´Í±±¨î®e³\±z¬°¿î©w²º¡â±m³q¹D½Ö³¼ã«G«x;B¹ĩññ«x©Î¡±º¿È¿C

¡â±m,É¿¿±±¨î¶¡§U±z¡bÅã¶Û,Ë,mæW½Ö,É¨Ó·½¼v¹³»P¨ä¿é¶Xæ§¶¡¿º¶ú«x@t²§¿C¹¶\
¬à¿b¨î¶¹¼v¹³³B²zÀ³¶¡µ{¡¡@É«D±¨¹³¶¡¿A¶¡¶¡¶H¡bÅã¶Û¾¼¹WÅã¶Û¼v¹³@É«·s²£¶¹¼v¹³¡]¡p¬Û¶ù¿^¿A¨Å
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¡Ó¶B¿A«Û¿h¨î¶¹ 3D ¶[³t¶\¬à²º¹CÀ,µe±³£«Û·t¿C¡b©Ò¿³ÅW¹Dææ¼W¶[¬Û¿P²º«G«x©M¿]©Î¡¿^¿±º¿-
Ë±N¶¡¶H¨î¶¹o¨Ç¹CÀ,µe±§ó«Gæ@¨Ç¿A³o¼Ë±z¿N¶¡¶H²M·¿¬Ý¨£¹CÀ,µe±¿A§Ö¾Ö²º±¹CÀ,æF¿C

©e³\±zjî³¼Ü¶Ñ·Æ´í±±´´³²¹;â±mÀW¹D;C±z¶i¶H±ÀŞO½Õ³¼ä-õ;â;B²ñ;â©íÁ;âÀW¹D©í;P®É½Õ³¼ä³o±TÓÀW¹D;C

±m|â|±½u^{a9}¡š|Áã¥Ü;C;|±½u±N·|b±z½Ö?¼ã¹ñ«×;B«G«×©|;÷°;È®ÉšY®ÉÁÜ\$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[∞]-Û¼F^â²M³æαW;C

§R°£¥Ø«e;b²M³æææjï©w²º;Úq;â±m³]©wÈ;C

±N©Ò;³â±mÈÁÙ;ÛµwÁé²º¹¼t³]©wÈ;C

®e³\±zjî¼Ü;ÜµvÅã¥Ü¾¹²³p®É¼Ò;ijG

!Ü°Ê°»´ú®e³\ Windows ¾±µ±qÅã¥Ü¾¹²³»´±µî¬¥¿½T²³p®É,ê°T;C;¹¬°¹w³]-
Ë;C½Ðª`·N;A¬Y`ÇÂÂ;Åã¥Ü¾¹²³î¬à¤£¤ä´©!¹¥\`à;C

¤@`ëp®É¤½;ij©Î GTF ¬O¤j;h¼Æ,û·s;ijµwÅé`î¥î²³¼Ð·Ç;C

Â÷´²Åã¥Ü¾¹²³p®É©Î DMT ¬O¤@ªØ,ûÂÂ²³¼Ð·Ç;A;B¬Y`ÇµwÅé¤¤¤´µM`î¥î¹¼Ð·Ç;C;pªG±z²³µwÅén`D`î¥î
DMT;A½Ð±ò°Ê¹¿îµ;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££\$¹³¼ã;A½ÐÃö³¬'â¼Ð\$Ö"ú¥\`à;A³o¼Ë±N·|\$ó¥
¿.Ó°ÝÃD;C

!pªGκwÅÛ\$ó!¹³]©wÈ;A«h±z¥²¶·«·s±Ò°Ê Windows π~¥i¥H"Ï·s²º³]©wÈ¥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·sªº³]©wÈ¶í®Ä;C

3o¼Ë°μ·|Ãö³¬Ã, »s|±½uªª GDI μwÁéψ[³tψ~`à;C

!pªG±zζi³¼Û!¹¶μψØ;A``t²í±Nα£·|“íψíμwÁé;A;Ó·|±j“íÁãψÛÁX°Êμ{;j “íψí Windows ªªαª³;¾÷ªc“Ó
´yÃ, ¶é°é;B¾ð¶é§íαí©·½uμψ;C

!pªGαwÁÛ§ó!¹³]©wË;A«h±zψ²¶·«·s±Ò°Ê Windows α~ψiψH“í·sªª³]©wËψí@Á;C

±N NVidia QuickTweak 1iÿÜ·s¼W!Ü Windows µu\$@!C;C

!1iÿÜ@e³\±z³z¹Lα@Óæè«K²º§ÖÄã;ç³æ;A;u\$Ö³t;a;v@MÿÍ©Ò³;Ûq Direct3D;BOpenGL ©Í!â±m³]©w-
È;C!¹ç³æÁÛÿ]stÿÍ©óÁÛ¹w³]È»P!s"ú;uαº@e-ÄãÿÜ¾¼¹;v¹i,Üæè¶ó²º¶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 ıĩŕĩ²º¼W±j«-«üŦO²ºŕä´©;C
-Ŧ Ç CPU ŕä´©²ŕŕ[²º 3D «üŦO;A³o Ç«üŦOŕĩŕH»²ŞU NVidia ıĩŕĩ³B²z³41"Ã´Ŧº² 3D
¹CÀ, ©ÎÃ³ŕĩµ{;²º@Ã-à;C!žĩŕµ@e³\±z;ŕÅX°Êµ{;ŕŕÃö³-Ŧ³o Ç²ŕŕ[²º 3D «üŦO²ºŕä
´©;C³o;ŕŕŕ;æ@Ã-àŕŕ,û©Î-G»Ü±Æ°Ŧ@É«Üı³ŕİ;C

¿i³¼Ü!¹¿i¶µ¥i¥HÄö³- VBlank µ¥«Ý¥\`à;C

¥çºÜ;uÄö³- VSYNC;v;A¥|@e³¹q,£¥ß§Y±N¼v¹³´yÄ,;b¿Ä¹õæW;A;ÓµL»Ýµ¥«ÝÄã¥Ü¾¼¹²º;P" B««²½; ^±½°T,¹;C³o·|
"i¹|@Ø³t²vº²©óÄã¥Ü¾¼¹²º§ó·s²v;A;ý-O¥i`à·²£¥íµøÄ±°Æ§@¥í©M¹i¹³;u¼¹µõ;v²º°ÝÄ;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¥¿±`°ö;æ;C¿i³¼Ü!¹¿ï¶µ¥i±j"iÅX°Êµ{;|;|b DirectX 5 ¬Û®e¼Ò;±U°ö;æ;A¥H«KÂÂª©¹CÀ,¥i¥H¥¿±`°ö;æ;C

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

Ây±z\$PÂ_pπ@Ó·Æ¹««ö¶s·||b³æ«öπu\$@|C¹ï¥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®Özï³zï¶µ;C

!pªG±zn“í¥í 3D ©ÄªG“ÓÄã¥Üæu\$@!Czĩ³æ;A½Đçĩ¼Ü!¹çĩ¶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“!zï©wªºzï!µ; b“C! , ±Ò°Ê Windows ©É¥í@Ä;A½zDzï%Ü!¹!µ¥Ø;C

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

© Ú¾Ú¥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

¶}±ò¤@Ó¥i|b¨¨ä¤¤¬²{¥fªªÅã¥Ü,Ë,m!Ûq³]©wÈªªμøμ;C

ÀãÛí©ó¹µø¿é¥Xªº¥Ø«e®æ¡¡»P°éSO³]©wÈ¡C

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