

*fwf<fv fgfsfbfN,îê*——,đ•Ž!,·,é,É,í□A[fwf<fv] ,ì [fgfsfbfN,ìŒŸ□đ] ,đfNfŠfbfN,μ,Ä,,¼,<sup>3</sup>,¢□B

DirectX 0f'ffc0[f<

Microsoft® DirectX® 0f'ffc0[f<,lfw f<fv,lf"à—e,Í0AŽŸ,lf,Æ,,"è,Å,·0B

- DirectX 0f'ffc0[f<,É,Â,Ç,Ä
- -â'è,lf'Œ^`ö,ð"Á'è,.,é
- DirectX fRf"f lf"fg,lfefXfg,ð0s,0
- Šù'è,lf"00lf,ð•lf0X,.,é
- fhf%0fCfo,ð•œŒ³,.,é
- 0î•ñ,ð•Û'ŋ,.,é
- -â'è,ð•ñ00,.,é

DirectX □f'ffc□[f<,É,Â,¢,Ä

DirectX® □f'ffc□[f<,Í□AfVfXfef€□ã,Ì Microsoft® DirectX fAfvfŠfP□[fVf‡f“ fvf□fOf%of~f“fO  
fCf“f^□[ftfFfCfX,ÌfRf“f|□[flf“fg,;æ,Ñfhf%oCfo,ÉŠÖ,·,é□î•ñ,ð•Ž!,μ□AfTfEf“fh,âfOf%oftfBfbfNfX,Ì□o—  
ÍfefXfg,ð□s,¢,Ü,·□B,Ü,½□A^ê•”,Ìfn□[fhfEfFfA fAfNfZf%o fÆ□[f^,Ì<@“\,ð–³Æø,É,·,é,±,Æ,à,Ä,«,Ü,·□B

,±,Ìfc□[f<,ðŽg,¤,Æ□AfTf|□[fg fZf“f^□[Ö,Ì–â,¢□‡,í,¹†,É□î•ñ,ðŽû□W,μ□AfTf|□[fg<Z□pŽÒ,É“,„,é,±  
,Æ,a,Ä,«,Ü,·□B,Ü,½□AfC□[f<,ªŽû□W,μ,½□î•ñ,ð•Ů“¶,μ□A“dŽqf□□[f< f□fbfZ□[fW,É“,è•t,¯,é,±,Æ,à,Ä,«,Ü,·□B

□î•ñ,Í□A□”fy□[fW,Ìf^fu,É•ª,¯,Ä•Ž!,³,ê,Ü,·□Bfy□[fW,©,çfy□[fW,Ö^Ů“®,·,é,É,Í□AZŽÿ,Ì•û–@,ª, ,è,Ü,·□B

- f^fu,ðfNfŠfbfN,·,é□B
- [ŽŸfy□[fW],ðfNfŠfbfN,·,é□B
- “û—ÍftfH□[fJfX,ªf^fu,É, ,é,Æ,«,É□A□¶%oE,Ì•ûÆûfL□[ð%oŸ,·□B

’□ : ffbfXfvfÆfC fJ□[fh,Ìf□f,fŠ—Ê,È,Ç□A^ê•”,)□î•ñ,É,Â,¢,Ä,Í□AŠTŽZ,Ì'l,Â, ,é□ê□‡,ª, ,è,Ü,·□B

-â'è,ìĈë"ö,ð"Á'è,-,é

DirectX fAfvfŠfP□[fVf‡f",ìŽÀ□s't,É-â'è,a"□¶,μ,½□ê□‡,í□ADirectX □fffc□[f<,ðŽg,α,Æ-â'è,ìĈë"ö,ð"Á'è,Ä,«,Ü,·□BŽŸ,ì,æ,α,É-â'è,a,É,¢,©Šm"F,μ,Ä,,¾,¾,¾,¢□B

- Ĉë,Á,½fo□[fWf‡f",ì DirectX fRf"f|□[f|f"f g□B[DirectX ftf@fCf<] f^fu,ì [□^Ó] ,Ä□Afx□[f^ ftf@fCf<,âfffofbfO ftf@fCf<,ÉŠÖ,·,éĈx□□,a,É,¢,©Šm"F,μ,Ä,,¾,¾,¾,¢□Bfx□[f^ ftf@fCf<,í□%Šú,ìfefXfg— pfo□[fWf‡f",Ä□A□□—p fAfvfŠfP□[fVf‡f",Æ<α,ÉfCf"fXfg□[f<,·,x,«,à,ì,Ä,í, ,è,Ü,¹,ñ□BfffofbfO fo□[fWf‡f",ívf□fOf%œ,ðŠJ",·,é□Ü,ÉŽg,í,è,éftf@fCf<,Ä□A,±,ê,à□Ä□I□»·i,Æ<α ,ÉfCf"fXfg□[f<,·,x,«,à,ì,Ä,í, ,è,Ü,¹,ñ□BfffofbfO fo□[fWf‡f",ìfRf"f|□[f|f"f g,a fCf"fXfg□[f<,¾,è,Ä,¢ ,é,Æ□A□»·i"Ä,a fCf"fXfg□[f<,¾,è,Ä,¢,é□ê□‡,æ,è,à fAfvfŠfP□[fVf‡f",ìŽÀ□s'—"x,a"â•□,É'á%°,·,é,±,Æ,a, ,è,Ü,·□B
- "F'è,¾,è,Ä,¢,É,¢fhf%o fCfo□B[DirectX fhf%o fCfo] f^fu,ìftf@fCf<,ìê——,Ä□A-¢"F'è,ðŽ!,·f}□[fN,a"Ž!,¾,è,Ä,¢ ,éfhf%o fCfo,a,É,¢,©Šm"F,μ,Ä,,¾,¾,¾,¢□B[ffBfXfvfĈfC]□A[fTfEf"f h]□A,·,æ,Ñ ["ü—í] f^fu,ì [□^Ó] ,É,à□A,»,ì'¼,ì-â'è,aŽ!,¾,è,Ä,¢,é□ê□‡,a, ,è,Ü,·□B-¢"F'è,ìfhf%o fCfo,í□A□Ä□Vfo□[fWf‡f",ì DirectX ,ÆŠ@'S,ÉĈŸŠ·□«,a, ,é,©,Ç,α,©,ðf}fCfNf□f\ftfg,É,æ,Ä,ÄfefXfg,¾,è,Ä,¢,Ü,¹,ñ□B
- fn□[fhfEfFfA fAfNfZf%o fĈ□[f^,ìĈ#"@□Bê"·,ìvf□fOf%œ,í□ADirectDraw®,Ü,½,í Direct3D® fn□[fhfEfFfA fAfNfZf%o fĈ□[f^,a—~—p,Ä,«,É,¢,Æ□AŽÀ□s'—"x,a"ñ□í,É'á%°,·,é,©□A,Ü,½,í,Ü,Ä,½,- "®□ì,μ,Ü,¹,ñ□B[ffBfXfvfĈfC] f^fu,ì [DirectX,ì<@"] ,Ä□ADirectDraw ,Ü,½,í Direct3D ,É "Žg—p%Ä" ,ÈfAfNfZf%o fĈ□[f^,É,μ" ,Æ•Ž!,¾,è,Ä,¢,É,¢,©Šm"F,μ,Ä,,¾,¾,¾,¢□B•Ž!,¾,è,Ä,¢ ,é□ê□‡,í□Afn□[fhfEfFfA,ìfAbfvfOfĈ□[fh,ðĈŸ"¢,μ,½,Ü,α,a,æ,¢,©,à,μ,è,Ü,¹,ñ□B
- fffo fCfX,a□Ú±,¾,è,Ä,¢,É,¢□BfWf‡fCfXfefBfbfN,È,Ç,ì"ü—íffo fCfX,a%ž"s,μ,È,¢□ê□‡□A□³,μ,- fZfbgfAfbfv,¾,è,Ä,¢,É,¢%Ä"□□«,a, ,è,Ü,·□B,»,ìffo fCfX,a□ADirectX □fffc□[f<,ì ["ü—í] f^fu,É•Ž!,¾,è,Ä,¢ ,é,©,Ç,α,©Šm"F,μ,Ä,,¾,¾,¾,¢□B•Ž!,¾,è,Ä,¢,É,¢□ê□‡,í□A fRf"f g f□□[f< f p f l f<,ðŽg,Á,Äffo fCfX,ðÇ%Ä,μ,Ü,·□B

DirectX fRf“f|□[f|f“fg,lfefXfg,đ□s,▯

DirectX □f'fc□[f<,đŽg,Á,Ä□AfVfXfef€É□Ú'±,<sup>3</sup>ê,Ä,¢,éŠef,fj^,Ä,ì DirectDraw ,“,æ,Ñ Direct3D ,lfefXfg□AŠe  
WAVE □o—ÍfffofCfX,Ä,ì DirectSound® ,lfefXfg□A,“,æ,ÑŠef~f...□[fWfbfN f|□[fg,Ä,ì DirectMusic™  
,lfefXfg,đ□s,▯,±,Æ,<sup>a</sup>Ä,«,Ü,·□B

[fefXfg] ,đfNfŠfbfN,·,é,Æ□Af□fbfZ□[fW,<sup>a</sup>Ž!,<sup>3</sup>ê,½Œã□Af,fj^,â□o—  
ÍfffofCfX,ÄfefXfg,<sup>a</sup>ŽÄ□s,<sup>3</sup>ê,Ü,·□BfefXfg,<sup>a</sup>□~Œ÷,μ,½,©,Ç,▯  
,©,đŠm“F,·,éf□fbfZ□[fW,<sup>a</sup>Ž!,<sup>3</sup>ê,é,Ü,Ä□A,»,ê,¼,ê,lfefXfg,đŽÄ□s,<sup>3</sup>,<sup>1</sup>Ü,·□B[,¢,¢,!]  
,đfNfŠfbfN,μ,½□ê□‡,Í□A,»,ê^È□ãfefXfg,ÍŽÄ□s,<sup>3</sup>ê,Ü,<sup>1</sup>ñ□B

DirectMusic ,ì□ê□‡,Í□A'P^ê,lfefXfg,<sup>a</sup>□s,í,ê,Ü,·□B%‰'t,<sup>3</sup>ê,½‰<sup>1</sup>Šy,É–â'è,<sup>a</sup>È,¢□ê□‡□A,Ü,½,Í□<sup>3</sup>,μ,%  
‰'t,<sup>3</sup>ê,È,¢□ê□‡□A'P,É [OK] ,đfNfŠfbfN,μ,Ü,·□B

□î•ñ,đ•Ú‘ŋ,μ,Ä,à□AfefXfg,ìŒ<%Ê,í•Ú‘ŋ,<sup>3</sup>ê,Ü,<sup>1</sup>ñ□B

Šù'è,ì"®ì,ð•ì□X,·,é

$fVfXf\epsilon f\epsilon,ÉfCf" fXfg□[f<^3,ê,Ä,¢,éŠefffBfXfvf\epsilon fC\ fffo fCfX,É'î,·,é[f ffBfXfvf\epsilon fC] f y□[fW,Ä[-^3\epsilon\emptyset]$   
,ðfNfŠfbfN,·,é,Æ□ADirectDraw ,Ü,½,í Direct3D (—~—p%Ä",É□ê□‡) ,ìfn□[fhfEfFA fAfNfZf% f\epsilon□[f^,ð-  
^3\epsilon\emptyset,É,·,é,±,Æ,^a,Ä,«,Ü,·□B-^3\epsilon\emptyset,É,µ,½fAfNfZf% f\epsilon□[f^,í DirectX □f'fc□[f<,ð□|—  
^1,µ,½\epsilonä,à,»,ì,Ü,Ü,Ä□AfAvfŠfP□[fVf‡f",©,ç~—p,·,é,±,Æ,í,Ä,«,Ü,^1,ñ□BfAfNfZf% f\epsilon□[f^,ð,à,σ^ê"x—  
L\epsilon\emptyset,É,·,é,É,í□A[—L\epsilon\emptyset] fNfŠfbfN,µ,Ü,·□B

'□ : DirectDraw fAfNfZf% f\epsilon□[f^,ð-^3\epsilon\emptyset,É,·,é,Æ□ADirect3D ,ìfAfNfZf% f\epsilon□[f^,à-^3\epsilon\emptyset,É,É,è,Ü,·□B

,Ü,½□ADirectDraw ,ì'S%æ-Ê•Ž!fAfvfŠfP□[fVf‡f"Žg—pŽž,ìf,fj f^,ìfŠftf\epsilonfbfVf... f\epsilon□[fg,ð•ì□X,·,é,±  
,Æ,à,Ä,«,Ü,·□B,±,ì•ì□X,í□A"Á'è,ìfAfvfŠfP□[fVf‡f",ÄffBfXfvf\epsilon fC,ÉŠÖ,·,é-â'è,^a□¶,µ,Ä,¢  
,Ä□A,»,ìfAfvfŠfP□[fVf‡f",^a-^3\epsilon\emptyset,ÉfŠftf\epsilonfbfVf... f\epsilon□[fg,ð□Y'è,µ,Ä,¢,é,ÆŽv,í,ê,é□^3"-,É—□—  
R,^a,·,é□ê□‡,É,¾,□s,Ä,Ä,,¾,¾,¾□B

►  **$fŠftf\epsilonfbfVf... f\epsilon□[fg,ð•ì□X,·,é,É,í$**

1. [.,»,è,Ä,à-â'è,^a%ð\epsilon^,µ,É,¢□ê□‡] f^fu,Ä□A[□ã□',«] ,ðfNfŠfbfN,µ,Ü,·□B
2. [DirectDraw fŠftf\epsilonfbfVf... f\epsilon□[fg,ì□ã□',«] f\_CfAf□fO f{fbfNfX,ÄfGffBfbfg  
f{fbfNfX,ð'I'ð,µ□Af,fjf^,É'í,µ,Ä—L\epsilon\emptyset,ÉfŠftf\epsilonfbfVf... f\epsilon□[fg,ð"ü—í,µ,Ü,·□B,±,ìf{fbfNfX,É'I,ð"ü—  
í,·,é,Æ□A[□ã□',«'¶] ,^aŽ©"®"l,ÉfIf",É,É,è,Ü,·□B
3. [OK] ,ðfNfŠfbfN,µ,Ü,·□B

►  **$fŠftf\epsilonfbfVf... f\epsilon□[fg,ì•ì□X,ðŽæ,è□Á,µ,Ä□ADirectDraw$   
 $fAfvfŠfP□[fVf‡f",^a"ÆŽ©,ìfŠftf\epsilonfbfVf... f\epsilon□[fg,ð□Y'è,Ä,«,é,æ,π,É,·,é,É,í$**

1. [.,»,è,Ä,à-â'è,^a%ð\epsilon^,µ,É,¢□ê□‡] f^fu,Ä□A[□ã□',«] ,ðfNfŠfbfN,µ,Ü,·□B
2. [DirectDraw fŠftf\epsilonfbfVf... f\epsilon□[fg,ì□ã□',«] f\_CfAf□fO f{fbfNfX,Ä□A[Šù'è'¶] ,ðfIf",É,µ,Ü,·□B
3. [OK] ,ðfNfŠfbfN,µ,Ü,·□B

*fhf%oCfo,ð•œƎ³,·,é*

□\□¬,É,æ,Á,Ä,Í□A DirectX® □f'fc□[f<,Á□A`È`O,lfI□[ffBfl fhf%oCfo,;æ,Ñfrffl  
fhf%oCfo,ð•œƎ³,Á,«,Ü,·□Bfhf%oCfo,l"ñŒÝŠ·□«,l-â`è,l%ðƎ^,É,Í□A,±,ê,<sup>a</sup>□Ä,à,æ,¢•û-@,Ä, ,é□ê□‡,<sup>a</sup>, ,è,Ü,·□B  
[,>,ê,Ä,à-â`è,<sup>a</sup>%ðƎ^,µ,È,¢□ê□‡] f^fu,É [•œƎ³] f{f^f",<sup>a</sup>√Ž!,<sup>3</sup>ê,Ä,¢,é□ê□‡,Í□A,±,lf{f^f",ðfNfŠfbfN,µ□ADirectX  
fZfbfgfAfbfv fvf□fOf%of€,ðŽÀ□s,Ä,«,Ü,·□B

DirectX fZfbfgfAfbfv,É,Í□A[fI□[ffBfl fhf%oCfo,l•œƎ³] ,Æ [ffBfXfvfƎfC fhf%oCfo,l•œƎ³]  
f{f^f",<sup>a</sup>, ,è,Ü,·□B,¢,,è,©,lf{f^f",ðfNfŠfbfN,·,é,Æ□AfVfXfef€,É DirectX  
,ðfCf"fXfg□[f<,µ,<sup>1</sup>/<sub>2</sub>,Æ,«,É'u,«Š·,!,ç,ê,<sup>1</sup>/<sub>2</sub>fhf%oCfo,<sup>a</sup>•œƎ³,<sup>3</sup>ê,Ü,·□Bf{f^f",<sup>a</sup>Žg—p%Ä"l  
,Ä,É,¢□ê□‡,Í□A•œƎ³,·,éfhf%oCfo,Í, ,è,Ü,<sup>1</sup>,ñ□B,»,l□ê□‡,Í□Afn□[fhfEfFfA,l□»'¢Ǝ³,É-  
â,¢□‡,í,<sup>1</sup>,Ä□Ä□V,lfhf%oCfo,ð"üŽè,µ,Ä,,<sup>3</sup>/<sub>4</sub>,<sup>3</sup>,¢□B

DirectX fZfbfgfAfbfv,É,Í□ADirect3D fn□[fhfEfFfA fAfNfZf%oƎ□|f^,ð-  
³Ǝø,É,·,éf`fFfbfNf{fbfNfX,à, ,è,Ü,·,<sup>a</sup>□A ,±,ê,Í□ADxDiag "à,Ä,à□s,±,±,Æ,<sup>a</sup>,Ä,«,Ü,· (Šù`è,l"©□l,ð•l□X,·,é  
,ðŽQ□Æ,µ,Ä,,<sup>3</sup>/<sub>4</sub>,<sup>3</sup>,¢)□B

□î•ñ,ð•Ô•¶,·,é

DirectX □fffc□[f<,ªŽû□W,μ,½□î•ñ,ð•Ô•¶,·,é,É,Í□A2 ,Â,}•û-@,ª, ,è,Û,·□B

· [□î•ñ,ð,·,x,Ä•Ô•¶] ,ðfNfŠfbfN,μ,Û,·□B,·,x,Ä,}fy□[fW,}□î•ñ,ª□AZw'è,μ,½□ê□Š,É, ,éŽw'è,μ,½-  
¼'O,}ftf@fCf<,É•Ô•¶,³,è,Û,·□B

,±,}fc□[f<,}ŠJ"ŽÒÆü,¯fŠfŠ□[fX,ðŽg,Á,Ä,¢,éf\ftfgfEfFfAŠJ"ŽÒ,Â, ,è,Î□AZÿ,}•û-@,ð,Æ,é,±,Æ,à,Â,«,Û,·□B

· [„»,è,Â,â-â'è,ª%ðÆ^,μ,È,¢□ê□‡] f^fu,Â□A[•ñ□□] ,ðfNfŠfbfN,μ,Û,·□B[□áŠQ•ñ□□,}□î•ñ] f\_fCfAf□fO  
f{fbfNfX,ª•Ž,³,è,Û,·□B•K—v,È,·,x,Ä,}ff□[f^,ð"ü—Í,μ□I,},½,ç□A['—□M]  
,ðfNfŠfbfN,μ,Û,·□B^êŽžffBfÆfNfgfŠ (½,Æ,¡,Î□AC:Windows\Temp) ,É Dxinfo.txt ,Æ,¢,ª-¼'O,}fefLfXfg  
ftf@fCf<,ª□ì□¬,³,è□Af□f, ' ,ĂŠJ,©,è,Û,·□B,±,}ftf@fCf<,É,Í□A'O,}•û-  
@,ĂŽû□W,³,è,½□î•ñ,}ì,Û,©,É□Af\_fCfAf□fO f{fbfNfX,Ă"ü—Í,μ,½ÆÂ□I□î•ñ,â,»,}¼,}□î•ñ,ªŠÛ,Û,è,Û,·□B



-â'è,ð•ñ□□,·,é

DirectX,ìfRf"fi□[fi|f"fg,Ü,½,Ífhf%fcfo,ÉŠÖŒW,<sup>a</sup>,,é,ÆŽv,í,ê,é-â'è,<sup>a</sup>□¶,μ,½□ê□‡,Í□Af})fCfNf□f\ftfg  
fefNfjJf< fTf|□[fg,É~A—□,·,é,±,Æ,<sup>a</sup>Ä,«,Ü,·□BfefNfjJf< fTf|□[fg,Ö,İ~A—□,İ•û-@,É,Ä,¢,Ä,Í□AMicrosoft®  
Windows® fwf<fv,ì□ufgf%fu f<fVf...□[fefBf"fO□v,ðŽQ□Æ,μ,Ä,,¾,<sup>3</sup>,¢□BSJ"-  
ŽÒŒü,¬fŠfŠ□[fX,ì□fffc□[f<,ðŽg,Ä,Ä,¢,éf\ftfgfEfFAŠJ"ŽÒ,Ä, ,ê,î□A"dŽqf□□[f<,Ä-â'è,ð•ñ□□,·,é,±  
,Æ,à,Ä,«,Ü,·□B

'□ : ŽŸ,ìŽè□‡,Í□A,±,ìfc□[f<,İŠJ"ŽÒŒü,¬fŠfŠ□[fX,É,İ,Ÿ"K—p,<sup>3</sup>ê,Ü,·□B,±,ì•û-  
@,Í□A,·,x,Ä,ìf†□[fU□[<sup>a</sup>Žg,ì,é,í,¬,Ä,Í, ,è,Ü,<sup>1</sup>,ñ□B

► “dŽqf□□[f<,Ä-â'è,ð•ñ□□,·,é,É,Í

1. [,»,ê,Ä,à-â'è,<sup>a</sup>‰ðŒ<sup>^</sup>,μ,È,¢□ê□‡] f^fu ,Ä□A[•ñ□□] ,ðfNfŠfbfN,μ,Ü,·□B
2. [□áŠQ•ñ□□,ì□î•ñ] f\_fCfAf□fO f{fbfNfX,É•K—v,È,·,x,Ä,ì□î•ñ,ð“ü—Í,μ□A[—□M] ,ðfNfŠfbfN,μ,Ü,·□B
3. □ì□¬,<sup>3</sup>ê,½fefLfxfg ftf@fCf<,ìftf< fpfX,Æ“dŽqf□□[f<  
fAfhfŒfX,ðŽ!,·f□fbfZ□[fW,<sup>a</sup>Ž!,<sup>3</sup>ê,Ü,·□B“dŽqf□□[f< fAfhfŒfX,ð□',«,Ä,¬,Ä,¬,«,Ü,·□B[OK]  
,ðfNfŠfbfN,μ,Ü,·□Bf□f,' ,<sup>a</sup>«N“@,<sup>3</sup>ê□ADxinfo.txt ,ì“à—e,<sup>a</sup>Ž!,<sup>3</sup>ê,Ü,·□B
4. f□f,' ,ì [•Ò□W] f□fjf...□[ì [,·,x,Ä'ì'ð] ,ðfNfŠfbfN,μ□A[•Ò□W] f□fjf...□[ì [fRfs□□  
,ðfNfŠfbfN,μ,Ü,·□Bftf@fCf<,ì,·,x,Ä,ì“à—e,<sup>a</sup>fNfŠfbfvf{□[fh,É“ü,ê,ç,ê,Ü,·□B
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