

*f**wf*<*f**v* *f**gfsfbfN*,î[^]ê——,đ•Ž!,·,é,É,í□*A*[*f**wf*<*f**v*] ,ì [*f**gfsfbfN*,ìŒŸ□đ] ,đ*fNfŠfbfN*,μ,Ä,,¾,³,¢□*B*

DirectX

Microsoft® DirectX®

- DirectX
- -â'è.ìĈ^ô.đ"Á'è. .é
- DirectX fRf"f|"[f|f"fg.ìefXfg.đ□s,□
- Šù'è.]"@□ì.đ•ì□X. .é
- fhf%fo,đ•œĈ³. .é
- □î•ñ.đ•Ů'ŋ. .é
- -â'è.đ•ñ□□. .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□AŽŸ,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□□—pAfvfŠfP□[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,àfAfvfŠfP□[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,Ń ["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□[fhfEfFA fAfNfZf%o fĈ□[f^,ìĈ#"@□Bê" ,ìvf□fOf%œ,í□ADirectDraw®,Ü,½,í Direct3D® fn□[fhfEfFA 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□[fhfEfFA,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'±,³ê,Ä,¢,éŠef,fj^,Ä,ł DirectDraw ,“,æ,Ń Direct3D ,lfefXfg□AŠe
WAVE □o—ÍfffofCfX,Ä,ł DirectSound® ,lfefXfg□A,“,æ,ŃŠef~f...□[fWfbfN f|□[fg,Ä,ł DirectMusic™
,lfefXfg,đ□s,▯,±,Æ,^aÄ,«,Ü,·□B

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

DirectMusic ,l□ê□‡,Í□A'P^ê,lfefXfg,^a□s,í,ê,Ü,·□B%%'t,³ê,½%¹Šy,É–â'è,^aÈ,¢□ê□‡□A,Ü,½,Í□³,μ,%
%^o't,³ê,È,¢□ê□‡□A'P,É [OK] ,đfNfŠfbfN,μ,Ü,·□B

□î•ñ,đ•Ů'ŋ,μ,Ä,à□AfefXfg,łŒ<%Ê,Í•Ů'ŋ,³ê,Ü,¹ñ□B

Šù'è,ì"®ì,ð•î□X,·,é

$fVfXf\epsilon f\epsilon,ÉfCf" fXfg□[f<^3,ê,Ä,¢,éŠefffBfXfvf\epsilon fC\ fffo fCfX,É'î,·,é[fffBfXfvf\epsilon fC]f_y□[fW,Ä[-^3\epsilon\emptyset]$
,ðfNfŠfbfN,·,é,Æ□ADirectDraw,Ü,½,í Direct3D (—~—p%Ä",É□ê□‡) ,îfn□[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\epsilon ä,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 ,îfAfNfZf% f\epsilon□[f^,à-^3\epsilon\emptyset,É,É,è,Ü,·□B

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

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

1. [.,»,ê,Ä,à-â'è,^a%ð\epsilon^,µ,É,¢□ê□‡] f^fu,Ä□A[□ã□',«] ,ðfNfŠfbfN,µ,Ü,·□B
2. [DirectDraw fŠftf\epsilon fbVf... 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\epsilon fbVf... 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

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

1. [.,»,ê,Ä,à-â'è,^a%ð\epsilon^,µ,É,¢□ê□‡] f^fu,Ä□A[□ã□',«] ,ðfNfŠfbfN,µ,Ü,·□B
2. [DirectDraw fŠftf\epsilon fbVf... f\epsilon□[fg,ì□ã□',«] f_CfAf□fO f{fbfNfX,Ä□A[Šù'è'l] ,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□[ffBfI fhf%oCfo,;æ,ÑfrrffI
fhf%oCfo,ð•œƎ³,Á,«,Ü,·□Bfhf%oCfo,l"ñŒÝŠ·□«,l-â`è,l%oðƎ^,É,Í□A,±,ê,a□Ä,à,æ,¢•û-@,Ä, ,é□ê□‡,a, ,è,Ü,·□B
[,>,ê,Ä,à-â`è,a%oðƎ^,µ,È,¢□ê□‡] f^fu,É [•œƎ³] f{f^f",a\Ž!,³,ê,Ä,¢,é□ê□‡,Í□A,±,lf{f^f",ðfNfŠfbfN,µ□ADirectX
fZfbfgfAfbfv fvff□fOf%of€,ðŽÀ□s,Ä,«,Ü,·□B

DirectX fZfbfgfAfbfv,É,Í□A[fI□[ffBfI fhf%oCfo,l•œƎ³] ,Æ [ffBfXfvfƎfC fhf%oCfo,l•œƎ³]
f{f^f",a, ,è,Ü,·□B,¢,,è,©,lf{f^f",ðfNfŠfbfN,·,é,Æ□AfVfXfef€,É DirectX
,ðfCf"fXfg□[f<,µ,½,Æ,«,É'u,«Š·,!,ç,ê,½fhf%oCfo,a•œƎ³,³,ê,Ü,·□Bf{f^f",aŽg—p%oÂ"l
,Ä,É,¢□ê□‡,Í□A•œƎ³,·,éfhf%oCfo,Í, ,è,Ü,¹,ñ□B,»,l□ê□‡,Í□Afn□[fhfEfFfA,l□»'¢Ǝ³,É-
â,¢□‡,í,¹,Ä□Ä□V,lfhf%oCfo,ð"üŽè,µ,Ä,,¾,³,¢□B

DirectX fZfbfgfAfbfv,É,Í□ADirect3D fn□[fhfEfFfA fAfNfZf%oƎ□|f^,ð-
³Ǝø,É,·,éf`fFfbfNf{fbfNfX,à, ,è,Ü,·,a□A ,±,ê,Í□ADxDiag "à,Ä,à□s,±,±,Æ,a,Ä,«,Ü,· (Šù`è,l"©□l,ð•l□X,·,é
,ðŽQ□Æ,µ,Ä,,¾,³,¢)□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,lfy□[fW,ì□î•ñ,ª□AŽw'è,μ,½□ê□Š,É, ,éŽw'è,μ,½-
¼'O,lfyf@fCf<,É•Ô•¶,³,è,Û,·□B

,±,lf□[f<,lŠJ"ŽÒÆü,¯fŠfŠ□[fX,ðŽg,Á,Ä,¢,éf\ftfgfEfFfAŠJ"ŽÒ,Â, ,è,Î□AŽÿ,)•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□□,ì□î•ñ] f_fCfAf□fO
f{fbfNfX,ª•Ž,³,è,Û,·□B•K—v,È,·,x,Ä,lf□[f^,ð"ü—Í,μ□l,½,ç□A['—□M]
,ðfNfŠfbfN,μ,Û,·□B^êŽžffBfÆfNfgfŠ (½,Æ,¡,Î□AC:Windows\Temp) ,É Dxinfo.txt ,Æ,¢,ª-¼'O,lfefLfXfg
ftf@fCf<,ª□ì□¬,³,è□Af□f, ' ,ĂŠJ,©,è,Û,·□B,±,lfyf@fCf<,É,Í□A'O,)•û-
@,ĂŽû□W,³,è,½□î•ñ,ì,Û,©,É□Af_fCfAf□fO f{fbfNfX,Ä"ü—Í,μ,½ÆÂ□□î•ñ,â,»,)¼,ì□î•ñ,ªŠÛ,Û,è,Û,·□B

-â'è,ð•ñ□□,·,é

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

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

► “dŽqf□□[f<,Ä-â'è,ð•ñ□□,·,é,É,Í

1. [,»,ê,Ä,à-â'è,^a‰ðŒ[^],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□¬,³ê,½fefLfXfgftf@fCf<,ìftf<fpfX,Æ“dŽqf□□[f<
fAfhfŒfX,ðŽ!,·f□fbfZ□[fW,^aŽ!,³ê,Ü,·□B“dŽqf□□[f<fAfhfŒfX,ð□',«,Ä,¬,Ä,¬,«,Ü,·□B[OK]
,ðfNfŠfbfN,μ,Ü,·□Bf□f,' ,^a«N“@,³ê□ADxinfo.txt ,ì“à—e,^aŽ!,³ê,Ü,·□B
4. f□f,' ,ì [•Ö□W] f□fjf...□[ì [,·,x,Ä'ì'ð] ,ðfNfŠfbfN,μ□A[•Ö□W] f□fjf...□[ì [fRfs□□
,ðfNfŠfbfN,μ,Ü,·□Bftf@fCf<,ì,·,x,Ä,ì“à—e,^afNfŠfbfvf{□[fh,É“ü,ê,ç,ê,Ü,·□B
5. “dŽqf□□[f<fvf□fO%fc€,Ä□V,μ,¢f□fbfZ□[fW,ð□ì□¬,μ□AfNfŠfbfvf{□[fh,ì“à—e,ðf□fbfZ□[fW-{•¶,É“\
,è•t,¬,Ü,·□B,±,ìf□fbfZ□[fW,ð□AŽè□‡ 3 ,Ä□',«,Ä,¬,½fAfhfŒfX,É'—□M,μ,Ü,·□B

