

f w f < f v f g f s f b f N , ì ^ ê — — , ð • \ Ž ! , , é , É , [ □ A [ f w f < f v ] , ì [ f g f s f b f N , ì Ç È Ÿ □ ð ] , ð f N f Š f b f N , μ , Ä , , ¾ , ³ , † □ B

**DirectX**

Microsoft® DirectX®

DirectX

-â'è.ìĈ^ô.đ"Á'è. .é

DirectX fRf"fi"flf"fg.ìfefXfg.đs.ğ

Šù'è.ì"®ì.đ•ïX. .é

fhf%ofCfo.đ•œĈ³. .é

î•ñ.đ•Û'ł. .é

-â'è.đ•ñ. .é

## DirectX f'ffc[f<,É,Â,ç,Ä

DirectX® f'ffc[f<,íAfvfXfef€ã,ì Microsoft® DirectX fAfvfŠfP[fvf#f“ fvfOf%~f“fO  
fCf“f^ [ftfFfCfX,ífRf“f| [fj“fg,“,æ,Ñfhf%oCfo,ÉŠÖ,·,éí•ñ,ð•\Ž!,μAfTfEf“fh,âOf%oftfBfbfNfX,ìo—  
ÍfefXfg,ð[s,ç,Û,·B,Û,½A^è•”,ìfn [fhfEfFfA fAfNfZf%ofCE [f^,ì<@“\,ð-³CEø,É,·,é,±,Æ,à,Ä,«,Û,·B  
,±,ìfc [f<,ðŽg,æ,ÆAfTf| [fg fZf“f^ [Ö,ì-â,ç#i,¹t,Éí•ñ,ðŽûW,μAfTf| [fg<ZpŽÖ,É“` ,ì,é,±  
,Æ,ª,Ä,«,Û,·B,Û,½Afc [f<,ªŽûW,μ,½í•ñ,ð•Û‘¶,μA“dŽqf [f< ffbfZ [fW,É“\,è•t, ,é,±  
,Æ,à,Ä,«,Û,·B

í•ñ,íA“fy [fW,ìf^fu,É•ª, ,Ä•\Ž!,³,è,Û,·Bfy [fW,©,çfy [fW,Ö^Ú“ ®,·,é,É,íAŽÿ,ì•ù-@,ª, ,è,Û,·B

□ f^fu,ðfNfŠfbfN,·,éB

□ [Žÿfy [fW] ,ðfNfŠfbfN,·,éB

□ “ü—ÍftfH [fjX,ªf^fu,É, ,é,Æ,«,ÉA¶%E,ì•ùCEüfL [ ,ð%ÿ,·B

'□ : ffbfXfvfCfC fj [fh,ìf [f, fŠ—É,È,çA^è•”,ìí•ñ,É,Ä,ç,Ä,íAŠTŽŽ,ìl,Ä, ,éé#ª,ª, ,è,Û,·B

-â'è,ìĈ'ö,ð'Á'è,-,é

DirectX fAfvfšfP[fVf#", ðŽÀs't,É-â'è,ª"Ń,µ,½ê#,"ADirectX f'ffc[f<,ðŽg,æ,Æ-â'è,ìĈ'ö,ð'Á'è,À,«,Û,·BŽÿ,ì,æ,æ,É-â'è,ª,È,ç,©Šm"F,µ,À,,¾,³,çB

- ĈÈ,Á,½fo[fWf#", ð DirectX fRf"fl[f"fgB[DirectX ftf@fCf<] f^fu, ð ['Ń^Ó], ÅAfxf[f^ ftf@fCf<,âfffofbfO ftf@fCf<,ÉŠÖ,·,éĈxŃ,ª,È,ç,©Šm"F,µ,À,,¾,³,çBfxf[f^ ftf@fCf<,ì%Šú,lfefXfg— pfo[fWf#", ÅAŃ—pfAfvfšfP[fVf#",Æ<æ,ÉfCf"fxfg[f<,·,x,«,à,ì,À,í, ,è,Û,¹,ñBfffofbfO fo[fWf#", ðvfŃOf%of€,"ðš],·,éŃÛ,ÉŽg,í,è,éftf@fCf<,ÅA,±,è,àÅŃŃ»·i,Æ<æ,ÉfCf"fxfg[f<,·,x,«,à,ì,À,í, ,è,Û,¹,ñBfffofbfO fo[fWf#", ðRf"fl[f"fg,æfCf"fxfg[f<,³,è,À,ç ,é,ÆŃAŃ»·i"Å,æfCf"fxfg[f<,³,è,À,ç,éĈê#,"æ,è,àfAfvfšfP[fVf#", ðŽÀs'—"x,ª"å·,É'á%º,·,é,±,Æ,ª, ,è, Û,·B
- "F'è,³,è,À,ç,È,çfhf%ofCfoB[DirectX fhf%ofCfo] f^fu, ðftf@fCf<, ðê—, ÅA-ç"F'è,ðŽ,·f}ŃŃN,ª\ Ž,³,è,À,ç,éfhf%ofCfo,ª,È,ç,©Šm"F,µ,À,,¾,³,çB[fffBfXfvfĈfC]ŃA[ftfEf"fh]ŃA,·,æ,Ń ["ü—í] f^fu, ð ['Ń^Ó], É,àŃA,»,"¼, ð-â'è,ªŽ,³,è,À,ç,éĈê#,"ª, ,è,Û,·B-ç"F'è, ðfhf%ofCfo, ðAŃVfo[fWf#", ð DirectX ,ÆŠ@'S,ÉĈÿŠ·Ń<,ª, ,é,©,ç,æ,©,ðf}fCfNfŃŃftfg,É,æ,Á,ÅfefXfg,³,è,À,ç,Û,¹,ñB
- fnŃfhfEfFfA fAfNfZf%ofĈ[f^, ðĈ#"@B^è·", ðvfŃOf%of€, ðADirectDraw® ,Û,½, ð Direct3D® fnŃfhfEfFfA fAfNfZf%ofĈ[f^,ª—~—p,Å,«,È,ç,ÆŃAŽÀs'—"x,ª"ñŃ,É'á%º,·,é,©ŃA,Û,½,í,Û,Á,½,- "ŃŃ,µ,Û,¹,ñB[fffBfXfvfĈfC] f^fu, ð [DirectX, ð@"] , ÅAŃADirectDraw ,Û,½, ð Direct3D ,É "Žg—p%Å"\ ,ÉfAfNfZf%ofĈ[f^,È,µ" ,Æ·\Ž,³,è,À,ç,È,ç,©Šm"F,µ,À,,¾,³,çB·\Ž,³,è,À,ç ,éĈê#,"ŃAfnŃfhfEfFfA, ðfAfbfvfOfĈ[fh,ðĈÿ"ç,µ,½,Û,æ,ª,æ,ç,©,à,µ,è,Û,¹,ñB
- fffofCfX,ªŃŃ'±,³,è,À,ç,È,çBfWf#fCfXfefBfbfN,È,ç, ð"ü—ífffofCfX,ª%ž"š,µ,È,çĈê#ŃAŃ³,µ,- fZfbfgfAfbfv,³,è,À,ç,È,ç%Å"\Ń<,ª, ,è,Û,·B,»,"fffofCfX,ªADirectX f'ffc[f<, ð ["ü—í] f^fu,É·\Ž,³,è,À,ç ,é,©,ç,æ,©Šm"F,µ,À,,¾,³,çB·\Ž,³,è,À,ç,È,çĈê#,"ŃAfrf"fgŃŃ[f< fŃŃf<,ðŽg,Á,ÅffofCfX,ð'ç %Å,µ,Û,·B

**DirectX fRf“f|□[flf“fg,lfefXfg,đ□s,κ**

DirectX □f’ffc□[f<,đŽg,Á,Ä□AfVfXfef€É□Ú’±,³,ê,Ä,ç,éŠef,fjf^,Á,ì DirectDraw ,“,æ,Ñ Direct3D  
,lfefXfg□AŠe WAVE □o—ÍfffofCfX,Á,ì DirectSound® ,lfefXfg□A,“,æ,ÑŠef~f...□[fWfbfN f|□[fg,Á,ì  
DirectMusic™ ,lfefXfg,đ□s,κ,±,Æ,ª,Á,«,Ü,·□B

[lfefXfg] ,đfNfŠfbfN,·,é,Æ□Af□fbfZ□[fW,ª\Ž!,³,ê,½CEã□Af,fjf^,â□o—  
ÍfffofCfX,ÁfefXfg,ªŽÀ□s,³,ê,Ü,·□BfefXfg,ª□—CE÷,μ,½,©,Ç,κ,©,đŠm”F,·,é□fbfZ□[fW,ª\  
Ž!,³,ê,é,Ü,Á□A,»ê,¼,ê,lfefXfg,đŽÀ□s,³,¹,Ü,·□B[,ç,ç,¡]  
,đfNfŠfbfN,μ,½□ê□‡,í□A,»ê,ê^É□āfefXfg,ÍŽÀ□s,³,ê,Ü,¹,ñ□B

DirectMusic ,ì□ê□‡,í□A’P^ê,lfefXfg,ª□s,í,ê,Ü,·□B%%o’t,³,ê,½%o¹Šy,É-â’è,ª,È,ç□ê□‡□A,Ü,½,í□³,μ,%o  
%o’t,³,ê,È,ç□ê□‡□A’P,É [OK] ,đfNfŠfbfN,μ,Ü,·□B

□î•ñ,đ•Ú’¶,μ,Ä,à□AfefXfg,ìCE<%oÊ,í•Ú’¶,³,ê,Ü,¹,ñ□B

**Šù'è,ì"®ì,ð•ïX,·,é**

fVfXfeJÉ,ÉfCf"fxfg[]f<,³,è,Ä,ç,éŠefffBfXfvfCEfC fffofCfX,É'í,·,é [fffBfXfvfCEfC] fy[]fW,Ä [-³CEø]  
,ðNfŠfbfN,·,é,Æ[]ADirectDraw ,Ü,½,í Direct3D (—~—p%Ä"\,É[]é[]#) ,ìfn[]fhhEJfFA fAfNfZf%ofCE[]f^,ð-  
³CEø,É,·,é,±,Æ,ª,Ä,«,Ü,·[]B-³CEø,É,µ,½fAfNfZf%ofCE[]f^,í DirectX []f'ffc[]f<,ð[]—  
¹,µ,½CEä,à,»,ì,Ü,Ü,Ä[]AfAvfŠfP[]fVf#f", ©,ç—~—p,·,é,±,Æ,í,Ä,«,Ü,¹,ñ[]BfAfNfZf%ofCE[]f^,ð,à,æ"è"x—  
LCEø,É,·,é,É,í[]A[-LCEø] fNfŠfbfN,µ,Ü,·[]B

'[] : DirectDraw fAfNfZf%ofCE[]f^,ð-³CEø,É,·,é,Æ[]ADirect3D ,ìfAfNfZf%ofCE[]f^,à-³CEø,É,È,è,Ü,·[]B

,Ü,½[]ADirectDraw ,ì'S%æ-È•\žìfAvfŠfP[]fVf#f"Žg—pŽž,ìf,ffj^,ìfŠftfCEfbfVf... fCE[]fg,ð•ïX,·,é,±  
,Æ,à,Ä,«,Ü,·[]B,±,ì•ï[]X,í[]A"Á'è,ìfAvfŠfP[]fVf#f", ÄfffBfXfvfCEfC,ÉŠÖ,·,é-à'è,ª"[]¶,µ,Ä,ç  
,Ä[]A,»,ìfAvfŠfP[]fVf#f",ª-³CEø,ÉfŠftfCEfbfVf... fCE[]fg,ðŸ'è,µ,Ä,ç,é,ÆŽv,í,é,é[]³"-,É—[]—  
R,ª, ,é[]é[]#f,É,¾,¯[]s,Ä,Ä,¾,¾,ç[]B

▶ **fŠftfCEfbfVf... fCE[]fg,ð•ïX,·,é,É,í**

1. [,»,è,Ä,à-à'è,ª%øðCE^,µ,È,ç[]é[]#f] f^fu,Ä[]A[[]ä[]',«] ,ðNfŠfbfN,µ,Ü,·[]B
2. [DirectDraw fŠftfCEfbfVf... fCE[]fg,ì[]ä[]',«] f\_fCfAf[]fO f{fbfNfX,ÄfGfffBfbfg  
f{fbfNfX,ð'í'ð,µ[]Af,ffj^,É'í,µ,Ä—LCEø,ÉfŠftfCEfbfVf... fCE[]fg,ð"ü—í,µ,Ü,·[]B,±,ìf{fbfNfX,É'í,ð"ü—  
í,·,é,Æ[]A[[]ä[]',«'í] ,ªŽ©"®"í,Éfjf",É,È,è,Ü,·[]B
3. [OK] ,ðNfŠfbfN,µ,Ü,·[]B

▶ **fŠftfCEfbfVf... fCE[]fg,ì•ïX,ðžæ,è[]Á,µ,Ä[]ADirectDraw  
fAfVfŠfP[]fVf#f",ª"ÆZ©,ìfŠftfCEfbfVf... fCE[]fg,ðŸ'è,Ä,«,é,æ,æ,æ,É,·,é,É,í**

1. [,»,è,Ä,à-à'è,ª%øðCE^,µ,È,ç[]é[]#f] f^fu,Ä[]A[[]ä[]',«] ,ðNfŠfbfN,µ,Ü,·[]B
2. [DirectDraw fŠftfCEfbfVf... fCE[]fg,ì[]ä[]',«] f\_fCfAf[]fO f{fbfNfX,Ä[]A[Šù'è'í] ,ðfjf",É,µ,Ü,·[]B
3. [OK] ,ðNfŠfbfN,µ,Ü,·[]B

**fhf%ofCfo,đ•œCE³,·,é**

□\□¬,É,æ,Á,Ä,Í□A DirectX® □f'ffc□[f<,Á□A^È'O,ìf□[fffBfì fhf%ofCfo,¨,æ,Ñfrffì fhf %ofCfo,đ•œCE³,Ä,«,Ü,·□Bfhf%ofCfo,ì"ñCEÝŠ·□«,ì-â'è,ì%øCE^,É,Í□A,±,é,ª□Ä,à,æ,¢•û-@,Ä, ,é□ê□‡,ª, ,è,Ü ,·□B

[,»,é,Á,à-â'è,ª%øCE^,µ,È,¢□ê□‡] f^fu,É [•œCE³] f{f^f",ª\Ž!,³,è,Ä,¢,é□ê□‡,Í□A,± ,ìf{f^f",đfNfŠfbfN,µ□ADirectX fZfbfgfAfbfv fv□fOf%of€,đŽÀ□s,Ä,«,Ü,·□B

DirectX fZfbfgfAfbfv,É,Í□A[fì□[fffBfì fhf%ofCfo,ì•œCE³] ,Æ [fffBfXfvfCEfC fhf%ofCfo,ì•œCE³] f{f^f",ª, ,è,Ü,·□B,¢, ,è,©,ìf{f^f",đfNfŠfbfN,·,é,Æ□AfVfXfef€,É DirectX ,đfCf"fXfg□[f<,µ,½,Æ,«,É'u,«Š·,!,ç,è,½fhf%ofCfo,ª•œCE³,³,è,Ü,·□Bf{f^f",ªŽg—p%øÄ" \ ,Ä,É,¢□ê□‡,Í□A•œCE³,·,éfhf%ofCfo,ì, ,è,Ü,¹,ñ□B,»,ì□ê□‡,Í□Afn□[fhfEfffA,ì□»'¢CE³,É-â,¢□‡,í,¹,Ä□Ä□V,ìfhf %ofCfo,đ"üŽè,µ,Ä,,¾,¾,³,¢□B

DirectX fZfbfgfAfbfv,É,Í□ADirect3D fn□[fhfEfffA fAfNfZf%ofCE□]f^,đ- ³CEø,É,·,é ffbfNf{fbfNfX,à, ,è,Ü,·,ª□A ,±,é,Í□ADxDiag "à,Ä,à□s,±,Æ,ª,Ä,«,Ü,· (Šù'è,ì"®□ì,đ•í□X,·,é ,đŽQ□Æ,µ,Ä,,¾,¾,³,¢)□B

□î•ñ,ð•Û'¶,·,é

DirectX □f'ffc□[f<,ªŽú□W,μ,½□î•ñ,ð•Û'¶,·,é,É,Í□A2 ,Â,ì•ù-@,ª, ,è,Û,·□B

□ [□î•ñ,ð,·,×,Ä•Û'¶] ,ðfNfŠfbfN,μ,Û,·□B,·,×,Ä,ìfy□[fW,ì□î•ñ,ª□AZw'è,μ,½□ê□Š,É, ,éŽw'è,μ,½-¼'O,ìftf@fCf<,É•Û'¶,ª,è,Û,·□B

,±,ìfc□[f<,ìŠJ"ŽÒEü,~fšfš□[fX,ðŽg,Á,Ä,ç,éftfgfEfFfAšJ"ŽÒ,Â, ,é,Í□AZÿ,ì•ù-@,ð,Æ,é,±,Æ,à,Â,«,Û,·□B

□ [,»è,Â,à-â'è,ª%øðCE^,μ,È,ç□ê□‡] f^fu,Â□A[•ñ□□] ,ðfNfŠfbfN,μ,Û,·□B[□áŠQ•ñ□□,ì□î•ñ] f\_fCfAf□fO f{fbfNfX,ª•\Ž!,ª,è,Û,·□B•K-v,È,·,×,Ä,ìff□[f^,ð"ü-Í,μ□l,!,½,ç□A['-□M] ,ðfNfŠfbfN,μ,Û,·□B^êŽžffBfCEfNfgfŠ (,½,Æ,!,ì□AC:\Windows\Temp) ,É Dxinfo.txt ,Æ,ç,±-¼'O,ìfefLfXfg ftf@fCf<,ª□ì□-,ª,è□Af□f,' ,ÁŠJ,©,è,Û,·□B,±,ìftf@fCf<,É,Í□A'O,ì•ù-@,ÂŽú□W,ª,è,½□î•ñ,ì,Û,©,É□Af\_fCfAf□fO f{fbfNfX,Â"ü-Í,μ,½CEÄ□ì□î•ñ,â,»!,¼,ì□î•ñ,ªšÛ,Û,è,Û,·□B



-â'è,ð•ñ□□,·,é

DirectX ,lfRf“f□□lf“fg,Ü,½,ífhf%ofCfo,ÉŠÖCEW,ª, ,é,ÆŽv,í,è,é-â'è,ª”□¶,µ,½□ê□#,í□Af}fCfNf□\ftfg  
fefNfjffj< ftf□□fg,É~A—□,·,é,±,Æ,ª,Ä,«,Ü,·□BfefNfjffj< ftf□□fg,Ö,ì~A—□,ì•ù-@,É,Ä,ç,Ä,í□AMicrosoft®  
Windows® fwf<fv,ì□ufgf%ofuf<fvf...□[fefBf“fO□v,ðŽQ□Æ,µ,Ä,,¾,¾,ç□BŠJ”-  
ŽÖCEü,~fŠfŠ□□fX,ì□f'ffc□□f<,ðŽg,Ä,Ä,ç,é\ftfgfEfffAŠJ”ŽÖ,Ä, ,é,í□A“dŽqf□□f<,Ä-â'è,ð•ñ□□,·,é,±  
,Æ,à,Ä,«,Ü,·□B

'□ : Žÿ,ìŽè□#,í□A,±,íf□□f<,ìŠJ”ŽÖCEü,~fŠfŠ□□fX,É,ì,Ý“K—p,¾,è,Ü,·□B,±,ì•ù-  
@,í□A,·,x,Ä,ìft□□fU□□,ªŽg,ì,é,í,~,Ä,í, ,è,Ü,¹,ñ□B

► “dŽqf□□f<,Ä-â'è,ð•ñ□□,·,é,É,í

1. [,>,è,Ä,à-â'è,ª%ðCE^,µ,È,ç□ê□#, f^fu ,Å□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□-,¾,è,½fefLfXfg ftf@fCf<,ìftf< fpfX,Æ“dŽqf□□f< fAfhfCEfX,ðŽì,·f□fbfZ□□fW,ª•\Žì,¾,è,Ü,·□B“dŽqf□□f<  
fAfhfCEfX,ð□',«,Ä,~,Ä,~,«,Ü,·□B[OK] ,ðfNfŠfbfN,µ,Ü,·□Bf□f,' ,ª<N“®,¾,è□ADxinfo.txt ,ì“à—e,ª•\  
Žì,¾,è,Ü,·□B
4. f□f,' ,ì [•Ò□W] f□fjf...□[ì [,·,x,Ä'í'ð] ,ðfNfŠfbfN,µ□A[•Ò□W] f□fjf...□[ì [fRfs□□]  
,ðfNfŠfbfN,µ,Ü,·□Bftf@fCf<,ì,·,x,Ä,ì“à—e,ªfNfŠfbfvf{□□fh,É“ü,è,ç,è,Ü,·□B
5. “dŽqf□□f< fvf□fOf%of€ ,Å□V,µ,çf□fbfZ□□fW,ð□ì□-,µ□AfNfŠfbfvf{□□fh,ì“à—e,ðf□fbfZ□□fW-{•¶,É“\  
,è•t,~,Ü,·□B,±,ìf□fbfZ□□fW,ð□AŽè□# 3 ,Å□',«,Ä,~,½fAfhfCEfX,É'—□M,µ,Ü,·□B

