

ELSA WINman (ELSA ȳ'è), ìfwf<fv

ELSA WINman (ELSA ȳ'è), í AELSA fOf%oftfBfbfN f{[fh, ÆELSA Windows fhf %ofCfo, ðf,fjf^, É“K†,³,¹,é,½,ß, ìfvf[]Of%of€, Å, ·[]B

[]Ú,µ,ç,±,Æ,í[]AZÿ, ìfL[]f[]fh, ðfNfŠfbfN, ·, é, ©[]Afwf<fv, ì[]ö^ø, ðfNfŠfbfN, µ, Ä, -,³/₄,³,ç[]B


WINman <N“ @f_fCfAf[]fO

f,fjf^, ìfvf[]pfefB

fOf%oftfBfbfN f,[]fh, ì[]C[]³[]Afj[]f%o[][] [“x/‰đ'œ“x/f^fCf~f“fO, ì'²[]@

fOf%oftfBfbfN f,[]fh/f^fCf~f“fO

ELSA WINman (ELSA)

ELSA WINman (ELSA )
Í AELSA fOf%oftfBfbfN f{[fh,Æ ELSA Windows fhf %ofCfo,ðf,fjf^,É“K[±,³,¹,é,½,ß,lfvf[fof%of€,Å,·[B [fffBfXfvf[efC,lfvf[fpfefB] ,lf_fCfAf[fo,²Š],ç,Ä,ç,È,¯,ê,Î[A,±,±,ðNfŠfbfN,µ,Ä,-,¾,³,ç [B

,Ü,½“~f_fCfAf[fo,ì†,Å[WINman]f_fCfAf[fo,²Š],ç,Ä,ç,È,ç,Æ,«,Í[A 
,lf^fu,ðNfŠfbfN,µ,Ä,,¾,³,ç [B

[fXfL[f€](ff[f^ fzfbfg)

^È'O,lfOf%oftfBfbfN f,[fh,ð•Ü'¶,µ,Ä,ç,é[ê[±[A,» ,lf,[fh,É[Ø,è'Ö,¡,é,± ,Æ,²,Ä,«,Ü,·[B

[f,fjf^]

Zg—p,·,·,éf,fjf^,ð“ü—í,µ,Ü,·[B[·[X...],ðNfŠfbfN,µ[A“ü—í,µ,½'l,ðŠm”F,µ,Ä,-,¾,³,ç [B

[A,à[d—v,È,ì,Í[Af,fjf^,ì[A'á[...·½'-[.Žü”g[” (kHz),Å,·(f,fjf^ ff[f^,ì[É^èŽQ[Æ)[B

[fjf%o[[[“x]

256[F,©32768[F,©•K—v,Èfjf%o[[[“x,ð'l'ð,µ,Ü,·[B[Ú,µ,ç,±,Æ,Í[Afjf %o[[[“x,ðNfŠfbfN,µ,Ä,,¾,³,ç [B

[%oÅž<%oð'œ“x]/[fo[f`fff<%oð'œ“x]

1024 x 768,È,Ç[A•K—v,È%oæ-È%oð'œ“x,ðNfŠfbfN,µ,Ü,·[B[Ú,µ,ç,±,Æ,Í[A %oð'œ“x,ðNfŠfbfN,µ,Ä,,¾,³,ç [B

[fŠftf[efbvf... f[ef[f[fg]


75 Hz,È,Ç[A•K—v,ÈfŠftf[efbvf... f[ef[f[fg,ð'l'ð,µ,Ü,·[B[Ú,µ,ç,± ,Æ,Í[AfŠftf[efbvf... f[ef[f[fg,ðŽQ[Æ,µ,Ä,,¾,³,ç [B

[Ú[×...],ðNfŠfbfN,·,é,Æ[A,æ,è[³Šm,È²[®,ð[s,±,Æ,²,Ä,«,Ü,·[B

[OK]/[“K—p]

fefXfg fpf^ [f“ ,²À'è,µ,½,ç[A,Ü,·,Ý'è“à—

e,ð•Ü'¶,µ[AWindows,ð[Ä<N“® ,µ,Ä,©,ç[AffBfXfvf[efC,ìTfCfY,Æ^É'u,ì²[®,ðŽn ,ß,Ü,·[B

fffBfXfvf[efC,ìTfCfY,Æ^É'u,ðf,fjf^,Å²[®,µ,Ä,Ý,Ä,,¾,³,ç [B,±,Ü,,ç ,©,È,ç[ê[±,Í[AWINman (ELSA ) ,Åf,fjf^ f^fCf~f“fo,ð²[®,·,é,± ,Æ,à,Ä,«,Ü,·[B

[f,fjf^,ì[±[~](f}f<f`fXfNfŠ[f“ ,ì,Ý)

fRf“fsf... [f^ ,Éf}f<f`fXfNfŠ[f“‘î%ž,ì•;[” ,)ELSA fOf%oftfBfbfN f{[fh,Æ[AELSA MULTIman Windowsfhf%ofCfo,Æ,²fCf“fXfg[f<,³,é,Ä,ç,ê,Î[A,±,± ,Åf,fjf^ ,ì[±[~ ,Æ^É'u,ðŽw'è,·,é,±,Æ,²,Ä,«,Ü,·[B

“^ê,lfOf%oftfBfbfN f,[]fh,ÅA“^,¶—e—
Ê,lf[]f,fŠ,đŽ[],Á,½A““™,ìELSAf{[]fh,afCf“fXfg[]f<,³,ê,Ä,ç,ê,îA[]Å—
Ç,ìE<%oÊ,đ“¾,é,±,Æ,ª,Å,«,Ü,·B

[fEfBf“fhfE[]\$CEä](f}f<f`fXfNfŠ[]f“,ì,Ý)
f}f<f`fXfNfŠ[]f“,đŽg—p,μ,Ä,ç,Åxf_fCfAf[]fO fEfBf“fhfE,đf,fj^,ì<<ŠE,É•\Ž!,μ,½,-
,É,ç[]ê[]A,±,ê,đ,đfAfNfefBfu,É,μ,Ä,,¾,³,çB

fOf%oftfBfbfN f,[]fh,ìC³AfJf%oo[][]["x/%øð'œ"x/f^fCf~f"fO,ì²@

•K-v,Èfjf%oo[][]["xA%øð'œ"xAfŠftfCfbfVf... fCE[]fg,ð"ü-í,·,é,é,±,Æ,Å,fjf^
f^fCf~f"fO,ª[]¶-³,ê,Ü,·B,±,lf^fCf~f"fO,ìV,µ,çfOf%oftfBfbfN
f,[]fh,Æ,µ,Ä·Û'¶,Å,«,Ü,·B

,»,ê,É,ÍAf,fjf^,ÅŽg-p,Å,«,éÅ'ã...½'-[]_Žü"g" (kHz),ªª,©,Å,Ä,ç,é,±,Æ,
ª·K-v,Ä·(f,fjf^ff[]f^,ìCE^èŽQ[]Æ)[]B

,Ü,,í·K-v,Èfjf%oo[][]["x ('ÊíA8 bpp = 256F),ð'l'ð,µ,Ü,·Bfjf%oo[][]["x,ª'ª,«,-
È,é,ÆA[]Å'ãsfNfZf< fNf[]fbfN,ÍŽ©"®"l,ÉCE,è,Ü,·B·K-v,È
%øð'œ"x,ð²@,µ,Ü,·B%øð'œ"x,ÍAf,fjf^ftfCy,ª15",ì,Æ,«,Í800x
600A16",©,ç18",ì,Æ,«,Í1024x768A19"Êã,ì,Æ,«,Í1280x1024,ª^ê"Ê"l,Å,·B
•K-v,ÈfŠftfCfbfVf... fCE[]fg,ðHz,Å"ü-í,µ,Ü,·B
"wCEi,ì,Ü,Æ,ñ,Ç,ª·,lfAfvfŠfP[]fvf¶",ìè¶A60Hz,Å\
•ª,Å,·BWindows,È,Ç"wCEi,ì-¾,é,çAfvfŠfP[]fvf¶",ÍAfffBfXfvfCfC,ì,ç,Ä,«,ð-
h,®,½,ß,ÉÅ'á75HzÈã,ÅŽÀs,µ,Ä,¾,³,çB'ÊíA[]Å"K,ÈfŠftfCfbfVf...
fCE[]fg,ì85Hz,Å,·B100Hz,ð%øz,ì,Ä,à-Ü,ÉCE©,ì,½%ü'P,ª,É,ç,ì,ª·È,Å,·B

fefXfg fpf^[]f",ª^À'è,µ,½,çA,Ü,,Ý'è"à-
e,ð·Û'¶,µAWindows,ðÄ<N"®,µ,Ä,©,çAfffBfXfvfCfC,ìftfCy,Æ^Ê'u,ì²@,ðŽn
,ß,Ü,·B
fffBfXfvfCfC,ìftfCy,Æ^Ê'u,ðf,fjf^,Å²@,µ,Ä,Ý,Ä,,¾,³,çB,ª,Ü,,ç
,©,É,çè¶,ÍA[WINman (ELSAÝ'è)],Åf,fjf^f^fCf~f"fO,ð²@,·,é,±,
Æ,à,Å,«,Ü,·B

fefXfg fXfNfŠ[f“

WINman (ELSA[Ý'è),Å,í[A[V,μ,ϕf,fjf^
f^fCf~f“fO,ª•Ů'¶,³,ê,é'O,É[A[V,μ,ϕf^fCf~f“fO,ªf,fjf^,É“K,μ,Ä,ϕ,é,©,Ç,α
,©,ªf`fFfbfN,³,ê,Ü,·B
,» ,ì,½,β,É[A,í, ,©,ÈŽžŠÔ,Å,·,ªfefXfg fXfNfŠ[f“,ª•\Ž|,³,ê,Ü,·B
fefXfg fXfNfŠ[f“,ª•\Ž|,³,ê,Ä,à[AfGfXfP[fv fL[(Esc),ð%oŸ,·,±,Æ,Å,ϕ
,Â,Â,à[A,·,±,Æ,ª,Â,« ,Ü,·B
ŽŸ,É[AfefXfg fpf^ [f“,É-â'è,ª,È,ϕ,©,Ç,α,©[q,È,ç,ê,Ü,·B

fefXfg fpf^ [f“,ª^À'è,μ,½,ç[A,Ü, ,Ý'è“à—
e,ð•Ů'¶,μ[AWindows,ð[A<N“® ,μ,Ä,©,ç[AffBfXfvfÇfC,ìfTfCfY,Æ^Ê'u,ì²[®,ðŽn
,β,Ü,·B
fffBfXfvfÇfC,ìfTfCfY,Æ^Ê'u,ðf,fjf^,Å²[®,μ,Ä,Ý,Ä,,¾,³,ϕ[B,α,Ü,,ϕ
,©,É,ϕ[ê[‡,í[A[WINman (ELSA[Ý'è)],Åf,fjf^ f^fCf~f“fO,ð²[®,·,é,±
,Æ,à,Â,« ,Ü,·B

fOf%oftfBfbfN f, [fh(frffflf, [fh) Af, fjj^ f^fCf~f"fo

fOf%oftfBfbfN f, [fh(,Ü,½,Írffflf, [fh), íA, ,éff%o[[["x[A%oð'œ"x[Af, fjj^ f^fCf~f"fo[A,»,'¼,·,×,Ä,ì" ® [if, [fh,ÉŠÖ~A,·,éfefNfjjf< ff [f^,ð<L[q,·,éff [f^ fZfbfg,Å,·B

f, fjj^ f^fCf~f"fo, íA, fjj^ M t, î êžž" ® [i, ð'è<` ,·, éff [f^ fZfbfg, Å, ·B
Šî-{"I,É,ÍfsfNfZf< fNf [fbfN[A...·½'- [, Žü" g" Af f€ [f€, ÍŠtf€fbfVf...
f€ [fg, Å, ·B
[...·½ [, ¼·\Ž; ŽžŠÔ[A'O·"f| [f` [A" Šúpf<fX(Sync) [AĚã·"f| [f` ,Æ, ç, æĚ¾—
t, Å, æ, è³Šm, É<L[q, ³, ê, Ü, ·B
·\Ž; ŽžŠÔ, Æ, íA" dŽqfr [f€, æ%œ-É, ÉfsfNfZf<, ð·` %œ, ·, éžžŠÔ, ì, ±
, Æ, Å, ·B, » , ìĚã[A" dŽqfr [f€, ðÅ%œ, î Ê'u, É-ß, ·, É, í, , éžžŠÔ, ð—v, µ, Ü, ·B, ±, ìfuf
%of" fNŽžŠÔ, íA'O·"f| [f` (·\
Ž; ŽžŠÔ, [i, í, Á, Ä, ©, ç" Šúpf<fX, [Žn, Ü, é, Ü, Å, ìžžŠÔ) [A" Šúpf<fX (" Šúpf<fX, ìžžŠÔ'
±ŠúŠÔ) [A, " , æ, ŃĚã·"f| [f` (" Šúpf<fX, [i, í, Á, Ä, ©, çŽŸ, ì·\
Ž; ŽžŠÔ, [Žn, Ü, é, Ü, Å, ìžžŠÔ), Å [[- , ³, ê, Ü, ·B, ±, ê, í...·½ [, ¼—
¼·û, ìf^fCf~f"fo, É, Å, ç, Ä" —l, Å, ·B

fbf%o[["x/ bpp

fbf%o[["x,ì'á'è'P^Ê,íbpp,©A[F,ì]" ,Å,·B
 bpp (Bits Per Pixel),ÍŠefsfNfZf<,ÉŽg—p,Å,«,éfrfffl f[f,fš,ì—e—Ê,Å,·B,½,Æ,ì,ÎA8
 bpp,ìêê#AŠefsfNfZf<,l8frfbfg,đŽg—p,μA256 (= 2,18æ)F,đŠi"["A·\
 Ž!,Å,«,Ü,·B
 ,±,ì]" ,ÍA(%æ—Êã,ì·\Ž!,É\·ª,ÈsfNfZf<,ª, ,éêê#)"—Žž,É·\Ž!,Å,«,éF,ì]" ,ì,±
 ,Æ,Å,·B

Windows ,ìêê#A'ÊíA256F(= 8 bpp),ªŽg—p,ª,ê,Ü,·B256F,ÍA·\
 Ž!,ì'‰ŽA"x,Æf[f,fšA"i/·\Ž!"—"x,Æ,ÍŠÖEW,ÅÅ—
 Ç,ì'Ã<" ,¾,©,ç,Å,·B[F,ì"Z,ª,ì""'l,ª'á,ç,ÆA'œŽž,ª'á‰,μA'½,-
 ,ìêê#AfffBfUfšf"fO,ª·K—v,É,È,è,Ü,·B[F,ì"Z,ª,ì""'l,ª,,ç
 ,ÆAf[f,fš,ìA"i,ª,·,ìA'Êí,ÍWindows fhf%ofCfo,ì'—"x,ª'x,,È,èA‰đ'œ"x,đ
 ‰,°,é,©A"—,¶‰đ'œ"x,Å,àšftfçfbfVf... fç[f,g,đ‰,°,È,ç,Æ·\Ž!,Å,«,È,-
 ,È,è,Ü,·B
 ^ê"Ê"l,É,íŽÿ,ìÝ'è,đ,,§,μ,Ü,·B
 'Éí,ìfiftfBfX fAfvfšfP[fVf#f" ,É,í 256F(8 bpp)
 frfffl,Ü,½,Í3-DfAfvfšfP[fVf#f" ,É,í 32768,Ü,½,Í65536F(15,Ü,½,Í16 bpp),ìšfAf<ffj
 %o[
 ["x,È‰æ'œ^—,É,í 1670—œF(24,Ü,½,Í32 bpp),ìfgf<[fbf%o[

^ê"Ê"l,Èfbf%o[["x

F,ì]"	bpp,Å·\ ,í,μ,½ffj %o[["	fRf[f"fg
-	-	---
2	1	""·Af,fmfNf
16	4	VGA 640x480,È,Ç,ìpfçfbf g
256	8	fpfçfbfgA^ê"Ê"l,È ,‰đ'œ"xfOf ‰ftfBfbfN f{[fh,ì·W€f,[fh
32768	15	fšfAf<ffj%o[5 + 5 + 5 bpg
65536	16	fšfAf<ffj%o[5 + 6 + 5 bpg
1670—œ	24,Ü,½,Í 32	Äf<[fbf%o[8 + 8 + 8 bpg

4, Ü, ½, Í 8 bpp, ìê#A F, ì", ÌpfCEfbfg (RAM DAC fff% [fe [fuf <), đŽg, Á, Ä • \
Ž, ³, ê, éŽÀ Û, ì F, É • ĨŠ, ³, ê, Ü, · B, ±, ÌpfCEfbfg, Å A262144 F, ÌGf "fgfŠ (6
bpp, ìê#), â 1670-œ F, ÌGf "fgfŠ (8 bpp, ìê#), ð% Å "\, Å, · B

bpp, Æ bpp, đ - " - , μ, È, ç, æ, π, É, μ, Ä, , ¾, ³, ç Bbpp, Í ARGB F • ð " z, ², Æ, Ìff
% [[[" x, đŽ, μ, Ü, · (bpp = Bits Per Gun) B, ½, Æ, Ì, Î A16 bppfŠfAf < fff% [, ìê# A5
+ 6 + 5 bpp, Í 3 F • ð " z, Ì Ô A - Î A Â, ÉŽg - p, Å, «, éfrfbfg " , Å, · B

fXfNfŠ[f“ fTfCfY[A%oÅŽ</fo[f` fff< fXfNfŠ[f“ ,ì%ođ‘œ“x

fXfNfŠ[f“ fTfCfY

f,fjf^ fTfCfY,ì'l,í%oA<ÉüŠÇ(CRT),ì'îŠpü,ìCEöìfTfCfY,Å,·B%oÅŽ<·\Ž|—
 î^æ,ì'îŠpüfTfCfY,æ,è,à,μ'â,«,É'l,Å,·B^ê"É"l,È'l,íŽÿ,ì·\,ì,Æ," ,è,Å,·B

íŠpü,ì	íŠpü,ì	,, ,æ,»	^ê"É"l,È
CEöìfTf	CEöìfTf	,ì	%ođ‘œ“x
CfY(inch)	CfY(cm)	%oÅŽ<—	
)		î^æ(cm)	
-	-	-	-
14"	35,5	27 x 20	800 x 600
17"	43	32 x 24	1024 x 768
20"	51	38 x 29	1280 x 1024

u"v,ífCf“f` A1 inch = 2.54 cmB

%oÅŽ<%ođ‘œ“x

%ođ‘œ“x,Æ,íA·\Ž!,Å,«,éfsfNfZf<“,ì,±,Æ,Å,·B,½,Æ,ì,îA1024 x 768,ìèè#A...·½,ìSeqs,É 1024fsfNfZf<,ª·\Ž!,³,êA,¼,ìSe—ñ,É768fsfNfZf<,ª·\Ž!,³,ê,Ü,·B,μ,½,ª,Á,Ä%oæ-Éã,ì'fsfNfZf<“,í1024 x 768 = 786432,É,È,è,Ü,·B

'ÉíA13",Ü,Å,íf,fjf^ ,ì%ođ‘œ“x,í 640 x 480,ÉA14",©,ç15",íf,fjf^ ,ì%ođ‘œ“x,í800 x 600,ÉA16",©,ç 18",íf,fjf^ ,ì%ođ‘œ“x,í1024 x 768,ÉA19" ^ Èã,íf,fjf^ ,ì %ođ‘œ“x,í1280 x 1024,ÉfZfbfg,³,ê,Ü,·B,½,¾,μAÅ, %ođ‘œ“x,ífhfbfg fsfbf` fTfCfY,âA'â...·½'-, Žü"q",È,Ç,ì—v^ö,É,æ,Á,Ä^Ü,È,è,Ü,·B

%ođ‘œ“x,í dpi (Dot Per Inch),Å,à·\Ž!,Å,«,Ü,·B

fo[f` fff<%ođ‘œ“x(fXfNfŠ[f“ ,ìfpf“)

fo[f` fff< fXfNfŠ[f“ ,áfAfnfefBfu,É,È,Á,Ä,ç,é,ÆAWindows,ìì<Æ—î^æ,ì·\Ž!,³,ê,Á,ç,é%oÅŽ<fXfNfŠ[f“ ,æ,è,à'â,«,,È,é)B %oÅŽ<%ođ‘œ“x,æ,è,à'â,«,,È,é)B %oB,è,½—î^æ,íAf}fEfX fj[f<,áfXfNfŠ[f“ ,ì<«ŠE,É—^ ,é,ÆCE© ,ì,é,æ,ª ,É,È,è,Ü,·B,» ,ìEã%oÅŽ<fXfNfŠ[f“ ,ì“à—e,áfXfNfš[f<,³,ê,Ü,·B,± ,ì“ ®ì,ð,Åufpf“v,Æ,àCE¾,ç,Ü,·B

fsfNfZf< fNf[]bfN/MHz

fsfNfZf< fNf[]bfN, Ü, 1/2, ÍsfNfZf< fCE[]fg, íMHz(f[]Kfwf<fc), Å•\, í, ³, ê, Ü, ·[]B, ±, ì'ì, ì"í^í, í'Ê[]í10, ©, ç250 MHz, Å, ·[]B, 1/2, Æ, ì, î[]A75 Hz, Å, ì%øđ'œ"x 1024 x 768, É, í[]A79 MHz, ìsfNfZf< fNf[]bfN, ð•K—v, Å, ·[]BfsfNfZf< fNf[]bfN, ì'ì, í[]A1•b, É[]', <[]ž, Ü, ê, ésfNfZf<[]", ð•S-œ'P^É, ÅŽì, μ, Ü, ·[]B

□...•½'-□,Žü"g□"/kHz

□...•½'-□,Žü"g□"□A,·,È,í,ž□A•ÎĚüŽü"g□",ì'è'è'P^Ê,í kHz,Å,·□B,±,ì'l,ì"í^í,í'Ê□í
30,©,ç110 kHz,Å,·□B,½,Æ,í,î□A75 Hz,Å,ì%øđ'œ"x 1024 x 768,ìê□#□A60 kHz,ì...
•½'-□,Žü"g□",^a•K—v,Å,·□B,±,ì'l,í□AfsfNfZf< f
%ofCf",^a□',«□ž,Ü,è,é'¬,³□A,Å,Ü,è□A"dŽqfr□[f€,^a%øA<É□üŠÇ,ì't,đ-^•b%ø½□ç
%øñ□¶,©,ç%øE,É"®,,ì,©,đŽ!,μ,Ü,·□B

fŠftfÆfbfVf... fÆ[fg/Hz

ftfÆ[fÆ fŠftfÆfbfVf...

fÆ[fg, ·, È, í, ç, '¼•ÎĈÛŽÛ"g", ì'á'è'P^Ê, íĀHz, Å, ·B'ÊíĀ'í, ì"í'í, í60, ©, ç100 Hz, Å, ·BHz, Æ, íHertz(fwf<fc), ì—ªĈê, Å, ·B75 Hz, È, çĀA-^•b 75, ìftfÆ[fÆ,ª\ Ž,ª,³,ê,é,Æ,ç,±,±,Æ,Å,·B

"wĈei, ì, Û, Æ, ñ, Ç,ª•, ìfAfvfŠfP[fVf†f", ìĕê†Ā60 Hz, Å\ª, Å, ·B, æ, è" wĈei, ì-¾, é, ç Windows, ì, æ, ±, ÈfAfvfŠfP[fVf†f", ìĕê†Ā, ç, ç, Å, «, ð-hŽ~ , ·, é, ½, ß, ÈĀĀ'á75 Hz^Êĭ, ÅŽĀs, µ, Å,¾,³, çĀB'ÊíĀĀ"K, ÈfŠftfÆfbfVf... fÆ[fg, í85 Hz, Å, ·BfŠftfÆfbfVf... fÆ[fg,ª100 Hz, ð%oz, ì, Å, à-Ú, ÅSm" F, Å, «, é%ü'P, ì, ·, è, Û,ª, ñĀB

'Êí, ìfmf"fCf"f^ [fÆ[fX"®Ā, Å, íĀftfÆ[fÆ, ìfŠftfÆfbfVf... fÆ[fg, ì, '¼•ÎĈÛŽÛ"g", Æ"- , Ā, ·B 'á...•½'-Ā, ŽÛ"g", Å, àĀ, fŠftfÆfbfVf... fÆ[fg, ð^óĀÛ•t, ·, é, ½, ß, ÈfCf"f^ [fÆ[fX fffBfXfvfÆfC,ª%ß<Ž, È, æ, —p, ç, ç, è, Û, µ, ½ĀB, ±, ìf, Āfh, Å, íĀŠeftfÆ[fÆ,ª2•ªŠ,,,³, è, Û, ·BĀĀ%ü, ì"¼•ª, ìftfÆ[fÆ, Å<Ā"f%ofCf",ª•`%œ,ª, èĀ1f%ofCf"fV•ªfvftfg, µ, ÅŠiĀ", ìf%ofCf",ª•`%œ,ª, è, Û, ·B, µ, ½,ª, Á, ĀĀ, '¼•ÎĈÛŽÛ"g", ìftfÆ[fÆ fŠftfÆfbfVf... fÆ[fg, ì" {, È, È, è, Û, ·B , ±, ì•\Ž|Žè-@, íĀfēfÆfr, ÈŽg, í, è, Ā, ç, ĀĀIBM 8514/A frfffi fAf_fvf^, È, àĀ—p,ª, è, Ā, ç, Û, ·B , ½,¾, µĀA•\Ž|•î^Ê,ª, ç, ì, ìfmf"fCf"f^ [fÆ[fX f, Āfh, ì•û, Å, ·B

ftfÆ[fÆ fŠftfÆfbfVf... fÆ[fg, ìf, fjf^, ðĀİŜÔĀHŠw"í, ÈĈ©, ½ĕê†ĀĀd—v, Å, ·B75 Hz, ð%œ%œñ, èfŠftfÆfbfVf... fÆ[fg, âĀfCf"f^ [fÆ[fX, ìŽg—p, íĀİŜÔĀHŠw"í, ÈĀD, Û, µ, ·, È, ç, Æ,ª, è, Ā, ç, Û, ·B , à, ç, è, ñĀİŜÔĀHŠw"í, È, íĀA•úŽĔĀü,ªĀ, È, ç, ±, Æ, âĀf, fjf^ fTfCfY, ·, æ, Ñfhfbfg fsfbf` , È"K, µ, ½%œð'œ"x, È, Ç, ì"ÁĀ« , àĀ—Ā,ª, è, Û, ·B

f}f<f`fXfNfŠ[]f“(MULTIman)

fRf“fsf...[]f^,É ELSA MULTIman Windows fhf%ofCfo,afCf“fXfg[]f<,³,ê,Ä,ç
,ê,î[]AWindows,đ‘½fXfNfŠ[]f“(f}f<f`fXfNfŠ[]f”),ÅŽg,κ,±,Æ,ª,Å,«,Ü,·[]BfRf“fsf...
[]f^,É,ÍELSA fOf%oftfBfbfN f{[]fh,ª 1-‡^È[]ãfCf“fXfg[]f<,³,ê,Ä,ç
,È,¯,ê,î,È,è,Ü,¹,ň[]B,½,¾,μ‘¼,lf{[]fh,Æ”C^Ó,É‘g,Ý[]‡,í,ª,Å,«,é,í,¯,Å,í, ,è,Ü,¹,ň[]BŽ
w’è,³,ê,½‘g,Ý[]‡,í,¹^ÈŠO,ÍŽg,|,Ü,¹,ň[]B“^ê,lfOf%oftfBfbfN f,[]fh,Å[]A“¯,¶—e—
Ê,lf[]f,fŠ,đŽ[],Á,½[]A““™,ìELSAf{[]fh,afCf“fXfg[]f<,³,ê,Ä,ç,ê,î[]A[]Å—
Ç,ìC<%oÊ,đ“¾,é,±,Æ,ª,Å,«,Ü,·[]B

ftfHf“fg fTfCfY

Windows, ÅŽg—p, ., éftfHf“fg fTfCfY, í²□@%oÂ“\, Å, .□BftfHf“fg
fTfCfY, í□A800x600, Ü, Å, ì%ođ‘œ“x, Å, í 96dpi (□→)□A1024x768^È□ã, ì%ođ‘œ“x, Å, í
120dpi (‘â),^â•□’ÊŽg—p,³ê, Ü, .□B

f, fff^ ff[f^, iCE^è

ELSA fOf%oftfBfbfN

f{[fh, ðf, fff^, É“K[±, ³, ¹, é, É, í[Af, fff^“ ®[ì, ìff[f^, Æ”í^í, ðCE^è, ·, é, ±, Æ, º•K—
v, Å, ·[B
, ±, ±, Å, í[Af, fff^, ì[Å^â[... •½’- [, Žü”g[” (kHz), º“Á, É[d—v, Å, ·[B, ±
, ì[ãCEÀ, ð’ , , é, Æ[A[Å^« , ì[ê[±f, fff^, ÉCE[á, ð—^ , ·, ±, Æ, º, , è, Ü, ·[B

f, fff^, ìf[[fj[[[Af, fff^, ì<@Ží-¼

’É[í[Af[[[fj[[, , æ, ÑCE^-¼, ìf, fff^, ì”w-É, É, , è, Ü, ·, º[A, È, ç[ê[±, ìf, fff^ f}ffj...
fAf<, ðŽQ[Æ, µ, Å, , ¾, ³, ç[B

CEö[ìf, fff^ fTfCfY

f, fff^ fTfCfY, ì’l, í[A%oA<É[üŠÇ(CRT), ì’ÍSp[ü, ìCEö[ìfTfCfY, Å, ·[B, ±, é, í[A%oAŽ<•\
Ž’—l^æ, ì’ÍSp[ü, ìfTfCfY, æ, è, à[, µ’â, «, È’l, Å, ·[B^ê”É”l, È’l, í[A14” (35.5 cm)[A17”
(43 cm) [A, Ü, ½, ì20” (51 cm), Å, ·[B<L[+u”[v, ìfCf”f^ (2.54 cm), ð•\, µ, Ü, ·[B

[... •½’- [, Žü”g[” , ì”í^í (kHz) [A
[, ¼fŠftfCEfbfVf... fCE[[fg, ì”í^í (Hz)

[Å^â, , æ, Ñ[Å^á, ì[... •½’- [, Žü”g[” , ÆfŠftfCEfbfVf... fCE[[fg, í[A, “Žè<- , ìf, fff^
f}ffj... fAf<, É<L[Ü, ³, é, Å, ç, Ü, ·[B
, ±, ±, Å, í[Af, fff^, ì[Å^â[... •½’- [, Žü”g[” (kHz), º“Á, É[d—v, Å, ·[B, ±
, ì[ãCEÀ, ð’ , , é, Æ[A[Å^« , ì[ê[±f, fff^, ÉCE[á, ð—^ , ·, ±, Æ, º, , è, Ü, ·[B, » , ì¼, ì’l, ºCE^ ,
Ü, ç, É, ç[ê[±[Af[f[, ì, Ü, Ü, É, µ, Å, , ç, Å, ©, Ü, ç, Ü, ¹, ñ[B

f, fff^, ìfvf[fpfefB, iCE^è

f, fff^, ìfvf[fpfefB, ðCE^è, ·, é, É, í[AŽŸ, ÉŽ[, , ç, , Å, ©, ì•û-@, º, , è, Ü, ·[B

f, fff^ f}ffj... fAf<:

f, fff^, ì<Z[pZd—l, í[Af, fff^, É•t’ ® , , éf}ffj... fAf<, É<L[Ü, ³, é, Å, ç, Ü, ·[B

VESA DDC:

f, fff^, ÉVESA DDC fRfIfNf^, º’•”ð, ³, é[AfOf%oftfBfbfN f{[fh, º VESA DDC
CEŸŠ , ì[ê[±[Af, fff^ ff[f^ , ìf, fff^ fP[[fuf<, ð%oî, µ, ÅfOf%oftfBfbfN
f{[fh, ÉŽ© “ ® “l, É’—[M, ³, é, Ü, ·[B

VESA VDIF f, fff^ <L[qftf@fCf<(*.VDA):

f, fff^, ÉVESA VDIF f, fff^ <L[qftf@fCf<(*.VDA), º“Y•t, ³, é, Å, ç, é[ê[±[A•K—
v, Éff[f^ , ì, ±, é, ©, ç “Ç, Ý[ž, Ü, è, Ü, ·[Bf, fff^ ff[f^ , ð“ü—l , , é, Æ, «[AWINman
(ELSA[Ÿ^è), É[AVDIFftf@fCf<, ð“Ç, Ý[ž, p, ½, ß, ìf{f^f” , º•\Ž[, ³, é, Ü, ·[B

ELSA f,fjf^<L□qftf@fCf<WINman.MON:

ELSA f,fjf^<L□qftf@fCf<WINman.MON,ÉŽg—p,·,éf,fjf^,ª<“,ª,Á,Ä,ç,ê,î□A,»,±
,©,çf,fjf^ ff□lf^,ªŽæ“¾,³,ê,Ü,·□B,±,ê,í□Af,fjf^ ff□lf^“ü—
í,ì□Ü,Éf,fjf^,lf□□lf□□,Æ<@Ží-¼,đ'l'đ,·,é,±,Æ,ÅŽ©“®“l,É□s,í,ê,Ü,·□B

f, fĵf^ f}fĵf...fAf<

ELSA fOf%oftfBfbfN

f{ [fh, ðf, fĵf^, ÉĀ“K, Èó‘Ô, Ā“Kĵ, 3, 1, é, ½, ß, ÉĀZÿ, ÉŽ!, ·ff [f^, ðf, fĵf^, ĩf}fĵf...
fAf<, Ā‘T, μ, Ā,, ¾, 3, çB

f, fĵf^ f [f] [Af, fĵf^, ĩ<@Ží-¼ AfCf“f^, Ü, ½, ĩfZf“f ‘P^Ê, ĩ‘ĩŠpü, ĩĈö ĩf, fĵf^
fTfCfY (=

fCf“f^, Ü, ½, ĩfZf“f ‘P^Ê, ĩCRT, ĩ‘ĩŠpü fTfCfY) ĀkHz‘P^Ê, ĩĀ‘á, “, æ, ÑĀ‘â... ·½’-
Ā, Žü”gĀ” (= Ā... ·½·ĩĈüŽü”gĀ” = ‘-

Ā, fĈ [fg) ĀHz‘P^Ê, ĩĀ‘á, “, æ, ÑĀ‘â, ‘¼ftfĈ [fĕfŠftfĈfbfVf... fĈ [fg (=

Ā, ‘¼·ĩĈüŽü”gĀ”)B

, ±, ±, Ā, ĩ Af, fĵf^, ĩ<—eĀ‘â... ·½’-Ā, Žü”gĀ” (kHz), a“Á, ÉĀd—v, Ā, ·B, ±,
ĩ, ĩăĈĀ, ð’ , ĩ, é, ĀĀĀ^«, ĩĕĀf, fĵf^, ÉĈĩĀ, ð—^, ·, ±, Ā, a, , è, Ü, ·B

WINman.MON

ELSA f,fjf^<L□qftf@fCf<WINman.MON,ÉŽg—p,·,éf,fjf^,ª<“,ª,Á,Ä,ç,ê,î□A,»,±
,©,ç“®□ì”í^í,ª•ª,©,è,Ü,·□B,±,ìftf@fCf<,É,í□Af|fsf...f
%o□[,Èf,fjf^,ìŽâ,È“Á□«,Æ□\$CEÀ,ª<L%o¯,³,ê,Á,ç,Ü,·□B

,±,ìASCIIfefLfXfg ftf@fCf<,É,íf,fjf^,ìff□[f^,ª<L□q,³,ê,Ä,ç
,Ü,·□B,»,ì<L□q,ìfGf“fgfŠ,ìŽŸ,ì,Æ,“,è,Å,·□B
f,fjf^,ìf□□[fj□[□Af,fjf^,ì<@Ží-¼□AfCf“f’P^Ê,ìîŠp□ü,ìCEö□ìf,fjf^
fTfCfY□AkHHz’P^Ê,ì□Á’á,“,æ,Ñ□Á’â□...•½’-
□,Žü”g□”□AHHz’P^Ê,ì□Á’á,“,æ,Ñ□Á’â□,’¼ftfCE□[f€ fŠftfCEfbfVf...
fCE□[fg□Af~fŠ’P^Ê,ìfsfNfZf< fTfCfY/fhfbbfg fsfbf` □B

,±,ìftf@fCf<,Á,íf,fjf^,ì<L□q,í—á,!,ìŽŸ,ì,æ,α,É,È,è,Ü,·□B
LSA, GDM-17E40, 17", 29-82kHz, 50-150Hz, 0.26mm

VESA VDI f, fjjf^ < L qftf @ fCf <

VDIF, íf, fjjf^ Žd—l, ð < L q, , é, ½, ß, ìftf @ fCf < Ě Ž ®, ð'è < , , é VESA
< KŠi, Ā, . BVDIFftf @ fCf <, É, Í % œ—Ě, Ì Í Šp üftfCfY, È, Ç, ìf, fjjf^ “Ā < , â A Ā'â < —e...
• ½'—, Žü”g” (kHz), È, Ç, ìf, fjjf^, Ì “ ®” Í Í, É, Ā, ç
, Ā, ìff [f^, ā ŠÜ, Ü, ê A, » , Ì [PREADJUSTED_TIMING], ìfZfNfVf#f” , É, Í ŠY—
, , éf, fjjf^ , É “K, μ, ½f, fjjf^ f^fCf~f”fO, É, Ā, ç, Ā, ìff [f^ fZfbfg, ā < L q, ³, ê, Ā, ç, Ü, . B

VDIFftf @ fCf <, ð Žg—p, , é, Ā Af, fjjf^ ff [f^ , Ì · Ű ‘ ħ A ^ ø “n, μ A Ā—~—p, ā, Ā, «, Ü, . B

*. VDA VDI f, í ASCIIftf @ fCf <, È, Ì, Ā A · W € , ìfefLfXfg
fGffBf^ , ð Žg, Ā, Ā Ì Ì—, , æ, N C ³ , , é, ±, Ā, ā, Ā, «, Ü, . B
*. VDB VDI f, ì ofCfifŠ fR [fh ftf @ fCf <, È, Ì, Ā A “Ā Ž ê, È f\ftfgfE fFfA, ¾, , Ā Žg—
p, ³, ê, Ü, . B
WINman (ELSA ħ'è), Í *. VDA
VDIFftf @ fCf <, Ì “Ç, Ÿ Ž æ, è, Ā ħ , « ħ Ž, Ÿ, ā, Ā, «, Ü, . B WINman, āftf @ fCf <, ð ħ' , « ħ Ž, p, Ā, «, Í
A WINman, É Š Ö Ě W , , é ħ €—
Ű, ¾, , ā < L “ü, ³, ê, Ü, . B WINman, Ā Ì Ì—, ³, ê, ½ftf @ fCf <, ð ¼, ìf\ftfgfE fFfA, ā Žg—
p, , é ħ ħ # A u = ħ v < L ħ + , Ì % E, Ì ó — “ , É A · s' « , μ, ½ ħ' ħ · ñ, ðfefLfXfg
fGffBf^ , ð Žg, Ā, Ā < L “ü, , é, ±, Ā, ā · K—v, Ā, . B

*. VDA VDI f, í A Ž Ÿ, É Ž ! , , ç , Ā, © , ìfZfNfVf#f” , Ā A ħ—, ³, ê, Ā, ç, Ü, . B

[VERSION]

VESA < KŠi, ìfo [fWf#f”” Ō ħ + B

[MONITOR_DESCRIPTION]:

Manufacturer = f, fjjf^ f [f] [A ModelNumber = f, fjjf^ , Ì @ Ž Í—¼ A CRTSize = % œ—
Ě, Ì Í Šp üftfCfY, È, Ç, Ì è “É” Ī, È f, fjjf^ < L q B

[OPERATIONAL_LIMITS]:

MinHorFrequency = Ā'á... • ½'—, Žü”g” A MaxHorFrequency = Ā'á... • ½'—
 , Žü”g” A MinVerFrequency = Ā'á , ¼ Šftf ĚfbfVf... f Ě [fg A MaxVerFrequency
 = Ā'á , ¼ Šftf ĚfbfVf... f Ě [fg, È, Ç, ìf, fjjf^, Ì “ ®” Í Í B

[PREADJUSTED_TIMING]:

PreadjustedTimingName = f^fCf~f”fO—¼ A HorPixel/VerPixel = X/Y · Ű Ě ü, Ì
% œ “x A HorFrequency = ... • ½'—, Žü”g” A VerFrequency =
 , ¼ Šftf ĚfbfVf... f Ě [fg A PixelClock = fsfNfZf < fNf ħfbfN f Ě [fg A TotalTime =
 Ž Ž Š Ō ħ Ě v A AddrTime = · \ Ž ! Ž Ž Š Ō A BlankStart = · \ Ž ! , ā Ž n, Ü, Ā, Ā, © , ç fuf
 % of “fLf”fO, ā Ž n, Ü, é, Ü, Ā, Ì Ž Ž Š Ō A BlankTime = fuf % of “fLf”fO Ž Ž Š Ō A SyncStart = · \
 Ž ! , ā Ž n, Ü, Ā, Ā, © , ç “Š ú p f < fX, ā Ž n, Ü, é, Ü, Ā, Ì Ž Ž Š Ō A SyncTime =
 “Š ú p f < fX, Ì Ž ħ ± Š ú Š Ō, È, Ç, ìf, fjjf^ f^fCf~f”fO, ìff [f^ fZfbfg B

VESA VDIF f,fjf^<L□qftf@fCf<,ì“Ç,ÝŽæ,è

ELSA fOf%oftfBfbfN

f{□[fh,ðf,fjf^,É“K□‡,³,¹,é,½,ß,É□Af,fjf^“®□ì,ìff□[f^,Æ”í^í,ðCE^è,·,é,±,Æ,ª•K—
v,Å,·□BŽg—pf,fjf^,ÉŠY“—,·,éVESA VDIFf,fjf^<L□qftf@fCf<(*.VDA)
,ª, ,è,í□A,» ,ìftf@fCf<,ðŽg—p,μ,Ä,,¾,³,ç□B,» ,ì¼,ì•û-@,í□Af,fjf^
ff□[f^,ìCE^è,Æ,ç,αCE©□o,μ,Å□à-¾,³,è,Ä,ç,Û,·□B

[WINman (ELSA□Ý^è)],ì[VESA VDIF f,fjf^<L□qftf@fCf<,ð“Ç,ÝŽæ,é]
,ìf_fCfAf□fO,Å□A,Û,·•K—v,Èff%oo□□□[“x (’É□í□A8 bpp = 256□F),ð’l’ð,μ,Û,·□Bffj
%oo□□□[“x,ª□,ç,Æ□A’l’ð,Å,« ,éf,fjf^ f^fCf~f“fO,ì’l,ÌŽ©“®“l,É□¬,³,-
,É,è,Û,·□BŽÝ,É•K—v,Èf,fjf^ f^fCf~f“fO,ð’l’ð,μ,Û,·□B□Å□%oo,ì2,Ä,ì’l,íX,ÆY,ì
%ooð’œ“x (□...•½,Æ□,¼,ì%ooð’œ“x),ð•\,í,μ,Û,·□B%ooð’œ“x,ìf,fjf^ fTfCfY,ª
15",Û,Å,ìf,fjf^,É,ì 800 x 600□A16",©,ç18",Û,Å,ìf,fjf^,É,ì 1024 x
768□A19"ˆÉ□ã,ìf,fjf^,É,ì 1280 x 1024,ª•□’É,Å,·□BŽÝ,ì’l,ìftfCE□[f€,ìŠftfCEfbfVf...
fCE□[fg(ftfCE□[f€/•b),ð Hz’P^É,Å•\,í,μ,Ä,ç,Û,·□B
”wCEi,ì,Û,Æ,ñ,Ç,ª□•,ìfAfvfŠfP□[fVf†f“,ì□è□‡□A60 Hz,Å□\•ª,Å,·□B,æ,è”wCEi,ì-
¾,é,ç Windows ,ì,æ,α,ÈfAfvfŠfP□[fVf†f“,ì□è□‡□A,ì,ç,Ä,« ,ð-
hŽ~,·,é,½,ß,É□A□Á’á75 Hz^É□ã,ÄŽÀ□s,μ,Ä,,¾,³,ç□B’É□í□A□Á“K,ÈfŠftfCEfbfVf...
fCE□[fg,ì85 Hz,Å,·□BfŠftfCEfbfVf... fCE□[fg,ª100 Hz,ð%ooz,ì,Ä,à-Û,ÅŠm”F,Å,« ,é
%ooü’P,ì, ,è,Û,¹,ñ□B

ªCEè□ui□v,“,æ,Ñ□uni□v,í□A,» ,è,¼,èfCf“f^□□fCE□[fX,“,æ,Ñfmf“fCf“f^□□fCE□[fX,ð
•\,í,μ,Ä,ç,Û,·□B
kHz,ì’l,í□...•½’-□,Žü”g□”,ð•\,í,μ,Û,·□B,±,è,ªf,fjf^,ì□Á’á...•½’-
□,Žü”g□”,ð’ ,ì,Ä,í,ç, ,Û,¹,ñ(VDIFftf@fCf<,Å’ ,ì,é,±,Æ,ì, ,è,Û,¹,
ñ)□BMHz,ì’l,ìfsfNfZf< fNf□fbfN,ð•\,í,μ,Û,·□BfOf%oftfBfbfN f{□[fh,í□A,» ,ìfsfNfZf<
fNf□fbfN,ð□¶□¬,Å,« ,é,±,Æ,ª•K—v,Å,·(WINman,ªf`fFfbfN,μ,Û,·)□B

f, fjjf^ f^fCf~f"fo, ð VESA VDIF ftf@fCf<, Æ, μ, Å•Û'¶, , é

[WINman (ELSA ¶Ý'è)], ìf_fCfAf¶fO[VESA VDIF f, fjjf^ <L¶qftf@fCf<, Æ, μ, Å•Û'¶]
, Å, Í¶A¶V, μ, ¶f, fjjf^ f^fCf~f"fo, ð VESA VDIF f, fjjf^ <L¶qftf@fCf<(*.VDA)
, É•Û'¶, ð, è, Ü, ¶B

, ±, ±, Å, Í¶A Windows, Í¶V, μ, ¶fOf%oftfBfbfN f, ¶[fh, É, Í¶Ø, è'Ö, í, è, Ü, ð, ñ¶B

VDIF, Í¶Af, fjjf^ "Å¶«, ð<L¶q, , é, ½, ß, ìff¶[f^Æ`Ž®, ð'è<` , , éVESA<KŠi, Å, ¶BVDIFftf@
fCf<, É, Í¶æ-É, Ì'ÍŠp¶üfTfCfY, È, Ç, ìf, fjjf^ "Å¶«, â¶A¶Å'â<-e¶... •½'-¶, Žü"g¶"(kHz)
, È, Ç, ìf, fjjf^, Ì"®¶"Í'Í, É, Å, ¶, Å, ìff¶[f^, ðSÜ, Ü, è¶A, »), Ì[PREADJUSTED_TIMING]
, ìfZfNfvf¶f", É, ÍSY"- , , éf, fjjf^, É"K, μ, ½f, fjjf^ f^fCf~f"fo, É, Å, ¶, Å, ìff¶[f^
fZfbfg, ð<L¶q, ð, è, Å, ¶, Ü, ¶B
VDIFftf@fCf<, ðŽg-p, , é, Æ¶Af, fjjf^ ff¶[f^, Ì•Û'¶¶A^ø"n, μ¶A¶Ä-~ -p, ð, Å, «, Ü, ¶B

[WINman (ELSA ¶Ý'è)], Í¶A¶V<KVDIFftf@fCf<-
p, ìfef"fvfÆ¶[fg, ð¶ì¶- , μ, Ü, ¶B WINTM, Å, Í, , x, Å, Ì¶€-Ú, ð"ü-Í, ð, è, é, í, -, Å, È, -
¶Aftf@fCf<, ð-~ -p, , é, Ì, É¶Å"Ç, Ý¶ž, Ý, , é•K-v, Ì, , é¶€-
Ú, ¾, -, Å, ¶Bftf@fCf<, ð'¼, ìfvf¶fOf%of€, ÅŽg-p, , é¶ê¶¶A'¼, Ì¶€-Ú, à"ü-
Í, μ, È, -, è, Í, È, è, Ü, ð, ñ¶BfL¶[f¶[fh, ð, , é, Ì, É¶A¶u=¶v<L¶t, Ì%oE'x, ð<ó", Ì¶ó'Ô, Å, , è, Í¶
A•s'« , μ, ½¶î•ñ, ð<L'ü, μ, È, -, è, Í, È, è, Ü, ð, ñ¶B*.VDA VDIF, Í¶f¶^, È
ASCIIftf@fCf<, È, Ì, Å¶A^È¶ã, Ì¶ì<Æ, Í•W¶€, ìfefLfXfg fGfffBf^, Å¶s, Ì, Ü, ¶B
WINman, Í, , x, Å, ìf, fjjf^
f^fCf~f"fo, É'Í, μ, Å¶V<Kftf@fCf<, ð¶ì¶- , μ, Ü, ¶B"^-^èf, fjjf^, É•í¶", ìf, fjjf^
f^fCf~f"fo, ð® , μ¶A, » , è, ç, ð, Ð, Æ, Å, È, , é¶ê¶¶AfefLfXfg
fGfffBf^, ðŽg, Å, Å¶A'¼, ìftf@fCf<, Ì[PREADJUSTED_TIMING]fZfNfvf¶f", ð¶A¶%o
, ìftf@fCf<, Ì¶Í, í, è, É'Ç%oÅ, μ, È, -, è, Í, È, è, Ü, ð, ñ¶B

VDIFftf@fCf<-¼

VDIFftf@fCf<, Ì¶A¶%o, Ì 3•¶Žš, ìf, fjjf^ f¶[fj¶[-¼, Å¶A'±,
5, Å, Ì•¶Žš, Ü, ½, Ì¶"Žš, ìf, fjjf^, Ì<@Ž'¼, Å, ¶Bftf@fCf<-¼, ÌŠg'£Žq, Í.VDA, É, μ, Å, -
, ¾, ð, ¶B"ü-Í, ð, è, ½f¶fX-¼, Í¶A, Å, «, è, ìftf@fCf<[fffBfXfN, Å, È, fn¶[fh
fffBfXfN, ÉŽw'è, μ, Ü, ¶Bftf@fCf<[fffBfXfN, ÉŽw'è, , é, Æ¶A•Û'¶, É, ©, È, è', ¶žžšÔ,
ð-v, μ, Ü, ¶B

CEö¶ìf, fjjf^ ftfCfY

f, fjjf^ ftfCfY, Ì'Í, Í¶A%oA<É¶üŠÇ(CRT), Ì'ÍŠp¶ü, ÌCEö¶ìftfCfY, Å, ¶B, ±, è, Í¶A%oÅŽ<•\
Ž'Í-Í æ, Ì'ÍŠp¶üfTfCfY, æ, è, à¶, μ'â, «, È'Í, Å, ¶B^è"É"Í, È'Í, Í¶A14" (35.5 cm)¶A17" (43
cm) ¶A20" (51 cm), Å, ¶B<L¶t¶u¶v, ìfCf" f` (2.54 cm), Ì, ±, Æ, Å, ¶Bfvf¶fOf%of€, ðŽg-
p, , é, Ì, ìfCf" f` , Ì'Í, ¾, -, Å, , ð¶A, ±, Ì'Í, ðCE^, ß, é, Ì, É¶A'ÍŠp¶ü, ìftfCfY, ðfZf" f` , Å•\, í, μ, Å¶A
%oÅŽ<%oæ-É-Í æ, ðfZf" f` , Å'è, μ, ½, Ý, Å, à, æ, ¶, Å, μ, ð, ¶B

kHz¶...•½'-¶, Žü"g¶"Í'Í¶A

Hz¶, ¼fŠftfÆfbfVf... fÆ¶[fg, Ì"Í'Í
¶A'á, Æ¶A'â, Ì¶...•½'-¶, Žü"g¶", ÆftfÆ¶[f€, ìfŠftfÆfbfVf... fÆ¶[fg, ìf, fjjf^ f}fjjf...

fAf<,É,à<LÚ,³,ê,Ä,ç,Û,·B
,±,±,Å,íAf,fjf^,ìÅ'å...•½'-,Žü"q"(kHz),^aÁ,Éd—v,Å,·B,±
,ìãÆÀ,ð',!,é,ÆAÅ^«,ìêf,fjf^,ÉÆìá,ð—^,·,±,Æ,^a,è,Û,·B

VESA DDC (•Ž!ff[]f^ f`fff“fif<)

f,fjf^,ªVESADDC,đfTf[]f[]fg,µ[]Af,fjf^ fP[]fuf<,ª DDC,É“K,µ[]AfOf%oftfBfbfN
f{[]fh,ªVESADDCÉYŠ·,ì[]ê[]#[]Af,fjf^ ff[]f^,đfOf%oftfBfbfN f{[]fh,Éf,fjf^
fP[]fuf<,đ%oi,µ,ÄŽ©“®“l,É’—[]M,Ä,«,Ü,·[]B

ŽŸ,ÉŽ!,·,Æ,“,è[]ADDC1[]ADDC2B[]ADDC2AB,Æ,ç,¸ 3,Â,ì^Ù,È,Á,½<KŠi,ª, ,è,Ü,·[]B

DDC1

f,fjf^ fP[]fuf<,lf%ofCf“,í[]Af,fjf^,©,çfOf%oftfBfbfN,Ö’P•ûCEü,ì~A’±,µ,½ff[]f^
fXfgfS[]f€,đ’—[]M,·,é,ì,ÉŽg—p,³,è,Ü,·[]B•W[]€,ì IBM VGACÉYŠ· 15-fsf“ f,fjf^
fRfIfNf^,ì[]ê[]#[]Afsf“ 12 (^È’O[]Af,fjf^ IDfrfbfg 1,Æ,µ,ÄŽg—p),lf[]f^’—[]M,ÉŽg—
p,³,è[]Afsf“ 14,ì[],’¼“~Šú[]M[]+,í’—[]MfNf[]fbfN(VCLK),Æ,µ,ÄŽg—
p,³,è,Ü,·[]B128fofCfg,ìEDID ff[]f^ fZfbfg(Sg’£fffBfXfvfCEfCID),íCE,è•Ô,µ’—
[]M,³,è[]A,»,±,©,çfRf“fsf...[]f^,íŽå—v,Éf,fjf^ ff[]f^,đ“Ç,ÝŽæ,é,±
,Æ,ª,Ä,«,Ü,·[]B,±,lf[]f^,ì[]\[]—v’f,íA3•¶Žš,lf[]f^[]f^,ìEISA-CFG fL[][]Af,fjf^
fTfCfY[]ADPMSfTf[]f[]fg,ì”í^í[]Afjf%oo[]“Á«[]AfTf[]f[]fg,³,è,Ä,ç,é VESA f,fjf^
f^fCf~f“fO,lfŠfXfg[]A,ç,,Ä,©,ìŽ©—R,É’è<^,ì,Ä,«,é,f,fjf^ f^fCf~f“fO,È,Ç,Ä,·[]B

DDC2B

12Cfvf[]fgfRf<,ÉŠî,Ä,‘o•ûCEüff[]f^ f`fffif<,ª[]Af,fjf^,ÆfOf%oftfBfbfN
f{[]fhSÔ,ì’É[]M,ÉŽg—p,³,è,Ä,ç,Ü,·[]B•W[]€,ì IBM VGACÉYŠ· 15-fsf“ f,fjf^
fRfIfNf^,ì[]ê[]#[]Afsf“ 12 (^È’O[]Af,fjf^ IDfrfbfg 1,Æ,µ,ÄŽg—p),lf[]f^’—[]M,ÉŽg—
p,³,è(SDA)[]Afsf“ 15 (^È’O[]Af,fjf^ IDfrfbfg 3,Æ,µ,ÄŽg—p),í’—[]MfNf[]fbfN(SCL)
,Æ,µ,ÄŽg—p,³,è,Ü,·[]BfOf%oftfBfbfN f{[]fh,í’Z,çEDID[]î•ñ(DDC1ŽQ[]Æ)
,Æ[]A,æ,è•iŠ±“l,ÈVDIF[]î•ñ(VESAfffBfXfvfCEfCŽ~•Éftf@fCf<),đ<¸,É—
v[]A,«,Ü,·[]B

DDC2AB

DDC2B,ìŽŸ,ìDDC2AB,Ä,í[]A%ooæ-È,ì^È’u,â-
¾,é,³,ì’²[]®,È,Ç[]Af,fjf^ []\$CEä,lfRf}f“fh,đfRf“fsf...[]f^,©,ç’—[]M,·,é,±
,Æ,ª,Ä,«,Ü,·(ACCESSfofX,É<ß,ç)[]B

VESA DPMS

ffBfXfvfCfC,ì“d—ÍŠÇ—□□M□†

VESA DPMS<KŠi,í□Af,fjf^—çŽg—pŽž,ì□È“d—Íf,□[fh,É□Ø,è‘Ö,í,é•û-
@,đ<L□q,μ,Ä,ç,Ü,·□B,±,ì•û-@,ÍfXfNfŠ□[f“ fZ□[fo□[fvf□fOf%of€
,É,Ç,É,æ,èŽ©“®“l,É<N“®),Å,«,Ü,·□B,±,é,ÍfL□[f{□[fh,Æf}fEfX,^a, ,é^è‘è,ìŽžŠÔŽg
—p,³,é,È,ç,Æ□Af,fjf^,đ□È“d—Íf,□[fh,É,μ,Ü,·□BfL□[,đ
%oÿ,·,©f}fEfX,đ“®),©,·,Æ□Af,fjf^,í□³í,È“®ì,É□Ø,è‘Ö,í,è,Ü,·□B

,±,±,Å‘è<`³,é,éDPMS□ó‘Ô,ÍŽÿ,ì4,Â,Â,·□B

ON

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□M,³,é,Ü,·□B
,±,Íf,□[fh,Í□í,ÉfTf|□[fg,³,é,Ä,ç,é,í,~,Å,Í, ,è,Ü,¹,ñ□B

fTfXfyf“fh

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%oæ-Ê,đfuf%of“fN,É,μ□A□,‘¼“~Šú□M□†,đflft,É,·,é,±,Æ,Åf,fjf^,É‘—□M,³,é,Ü,·□B

OFF

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□M,³,é,Ü,·□B

fCfWfXfgfŠ,ift[fU fAfJfEf“fgC —

fCfWfXfgfŠ,Ö,ì‘,«ž,ÝC —,đŽ,Á,Ä,ç,È,ç,½,ß,É[A[OK],Ü,½,í[“K—p]f{f^f“,đ
%oÿ,µ,½Cä,É[AfOf%oftfBfbfN f,[fh,đØ,è’Ö,ì,é,±,Æ,ì,Å,«,È,çŽ,đ’m,ç,¹,éfGf
%o[f ffbfZ[fW,²o,½ê#AŽÿ,ÉŽ!,·,Æ,“,èAŞÇ—ŽÒ,É,»,ìC —,đ—v<,µ,Ä,-
³/₄,³,çB

fCfWfXfgfŠ,Å[A[HKEY_LOCAL_MACHINE]AŽÿ,É[System\CurrentControlSet\
Services\WINNER],Æi,ñ,ÅfL[,đ’ì’đ,µ,Ü,·B[Security]x[Permissions]
,đ’ì’đ,µ,ÄAf_fCfAf[fO[Registry Key Permissions],đŠ],«,Ü,·B
,±,ìfL[,É’ì,µ,ÄA•K—v,Èft[fU fOf<[fv(’Éí[Aç Users£,Ü,½,Íç Power User£)
,ì[Registry Key Permissions],đŠg’£,µ,Ü,·B,Å,Ü,è,±,ìfOf<[fv,É’ì,µ,ÄA[Special
Access...],ì,Æ,±,è,ÅA[Query Value]A[Set Value]A[Create Subkey]A[Enumerate
Subkeys]A[Delete],ìŠefAfNfZfXC ,đ—^,!,ÄA[Type of Access]
,đC³,µ,Ü,·Bf_fCfAf[fO[Registry Key Permissions],Åf`fFfbfNf{fbfNfX[Replace
Permission on Existing Subkeys],đfAfNfefBfu,É,µ,Ü,·B

