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!

AM8275!
4K UHD MULTIMEDIA SOC

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!

DATASHEET

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! "#$%&$' %
(' (')'&)(' %
%
%

; 0NI"%G0%4GH1"H12%

&$ 9"H"L0I% / "2PLFQ1FGH%$$$

T[2\2 J*;-:-61!Z6&6(76-! .)*'-)336-!2222222222

UJ_ SZL! I2! ! ! W%OJ . !OVJ!WSO!Lc%F V0L!2222222222

&$ 9 "H"LOI% / "2PLFQ1FGH%

D56! % F G#HI! (+! &<''(*4R6146! ` (45! M6;(*'()*! F 61(:! V-)&6++)-! O) . +! NO=+'6 , R)*R . 5(9P! ; )-! . )*+< , 6-! L36&'-)*(&+! ;6:'<-(*4! :! D-<+'61! LY6&<'()*! L*7(-)* , 6*'! ?('5! :*! (*1696*16*'! +6&<-6! )96-:'(*4! +=+'6 , /! XV]!:*1! ` 2#^I!16&)1(*4!<9!')! S3'-:! ` M/!:*1! ` 2#^\!U ` M! , 61(:!M6&)1(*4!:*1!L*&)1(*4! ?('5! , <3'(936! ;)-, :'+/!Q(-636++CQ(-61!86'?)-B(*4/!MDX/!:*1!:!&) , 9-656*+(76!+6'!);! ` (45RO9661!96-(956-:3+2!
!

D56! % F G#HI! (+! 6K<(9961! ?('5! :! 5(45R96-;)-, :*&6! K<:1R&)-6! . VS/! %Z F ! .)-'6YR%I [/! ?('5! IT# d! 0#! . :&56! 6 , >611612! D56! % F G#HI! :3+)! (*'64-:'6+! :*! 6;;(&(6*'! %Z F ! F :3(R\H$! _-:95(&! V-)&6++(*4! S*('! N_VSP!')!:&&636-:'6!#M!:*1![M!4-:95(&+!9-)&6++(*42!U)-!:&&636-:'()*!);!'56! EOM!:*1!#M!<+6-!(*'6-;:&6/! '56!><(3'R(*!O'-6:, (*4!L*4(*6!);!'56!% F G#HI!9-)7(16+!&) , ,)*3=!<+61!1-:?(*4!;<*&'()*+2!D56! . VS!(+! 161(&:'61!')!:993(&:'()*+/!?5(36!,)+'!);!'56!;<*&'()*+!);!'56!% F G#HI!<'(3(e6!+69:-:'6!5:-1?:-6!&(-&<('+!')! 9-)7(16! 6;;(&(6*'3=!)9'(, (e61! +=+'6 , +2! D56! X(16)! MOV!);! '56! % F G#HI! (+! 161(&:'61!')! , :*(9<3:'(*4/! 16&)1(*4! 7(16)! +'-6:, +! (*! 7:-()<+! ;)-, :'+/! 6242! 16&)1(*4! \d#d! `2#^I/! U<33! `M! F VL_TC#C\C`2#^\C`2#^\! F X . /!%X . CX . RT/!XVG/!XV]/!%XO/!%XO!V3<+/!`M!fVL_/!6'&2!X(16)!MOV!&:*! :3+)! 5:*136! 6*&)1(*4!);

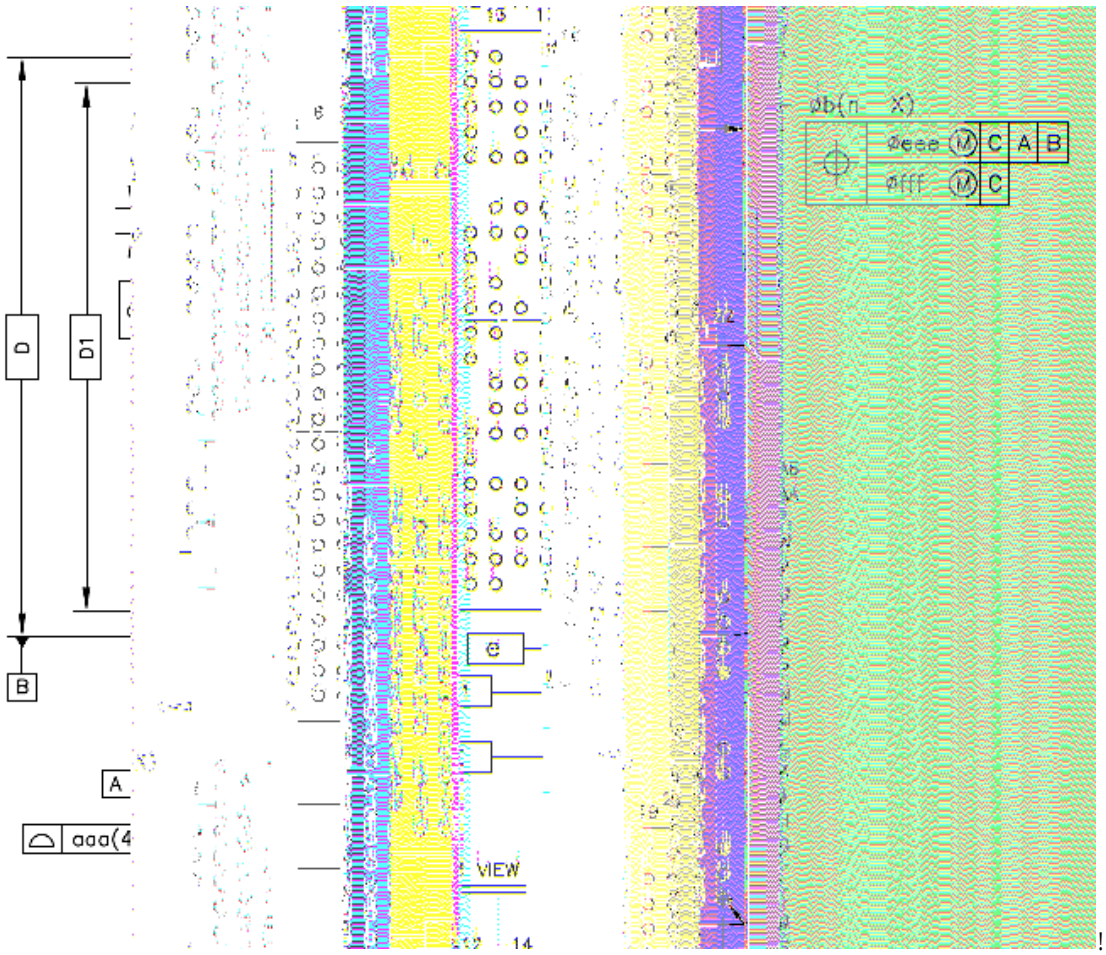
($ R"01JL"2%

- O=+'6 , !:*1!V6-(956-:3+!
  - %Z F ! .)-'6YR%I [!b<:1R .)-6!9-)&6++)-! ?('5!;3):'(*4R9)(*'!<*('!:*1!8LE8! OJ F M!6*4(*6!6 , >61161/!+<99)-'(*4!'56! ^\C[#R>('!%Z F 7G!:-&5('6&'<-6!
  - IT#dW!0#! . :&56!
  - %Z F !D-<+'h)*6!;)-!D-<+'61!LY6&<'()*! L*7(-)* , 6*'!NDLLP!?('5!(*1696*16*'! +6&<-6!)96-:'(*4!+=+'6 , !:*1!(*'64-:'61! +6&<-6!5:-1?:-6!
  - O<99)-'+!E96*_0!LOT2TC#2$!
  - X(16)!MOV!?('5!`Q!:&&636-:'()*!
  - %<1()!MOV!?('5!`Q!:&&636-:'()*!
  - O<99)-'+!<9!')!_W!MMZ\CMMZ[! OMZ%F!?('5!1<:3!&5:**63+!);!T^R>('! 1:':!(*'6-;:&6!
  - O<99)-'+!O6-(:3!U3:+5!?('5!1<:3!JCE!1:':! (*'6-;:&6!
  - O<99)-'+!8%8M!U3:+5!?('5!,:Y(,<,!! T#R>('!L . .!
  - O<99)-'+!6F F .!I2$!
  - W))'RZE F !:*1!EDV!NE*6RD(,6! V-)4-:,,:>36!ZE FP!;)-!O6&<-6RW))'! :*1!d6=!+')-:46!
  - J*'64-:'6+!T$CT$$!L'56-*6'!F%.!:*1! V`a!:*1!4(4:>('!L'56-*6'!F%.!
  - J*'64-:'6+!'-(936!SOW#2$!`(45!O9661! ED_!&)*'-)336-!:*1!V`a!?('5!+<99)-'! ;)-!SOW!D=96R . !-6&69':&36!
  - O<99)-'+!OMJE![2$!(*'6-;:&6!
  - O<99)-'+!OM[2$!(*'6-;:&6!
  - O<99)-'+!O_FJJ!!
  - O<99)-'+!V . J!LY9-6++!#2$!!
  - O<99)-'+!S%ZDCJ#.C_VJECJ-M%! ZYCLfD%_!
- X(16)!:*1!V(&'<-6!M6&)1(*4!U<*&'()*+!
  - `2#^I!FV i 0I2T!F:(*!D(6-!
  - XV]!V-);(36!#!
  - FVL_T/!X . M!T2$C#2$/!OX . M!
  - O<99)-'+!`M!FVL_#!N<9!')!FV i `0! TG(P/!JOECJUECXEWCDO!
  - O<99)-'+!`M!FVL_\!OVC%OV! NH#$9CT$G$(CT$G$9P/!c7(1!
  - `2#^\!FV i 0I2T!
  - `2#^\!FX .!O`V i 0\2T!
  - X . RT!OV/!FV/!%V i 0[!
  - %XO!fh i 0^2#/!%XOj!TG i ^$V!
  - `2#^[!V-);(36$C[i 0H$!TG i ^$V!
  - O)-6*+)*!O9:-B!0H$!
  - XVG!TG i ^$V!
  - `M!fVL_!?('5![#d!Y![#d!,:Y(,<,! -6+)3<'()*!
  - U<33R9(Y63!fVL_!16&)16!?('5!5(45! -6+)3<'()*!e)),R(*!
  - X(16)!<9R+&:3(*4!;-),!OM!')!S3'-:!`M! NH#$9CT$G$(CT$G$9C#T^$9P!
  - O<99)-'+!#\C[$C[^!>('+!1669!&)3)-!
- X(16)!:*1!V(&'<-6!L*&)1(*4!U<*&'()*+!
  - FVL_!\!OV i 0I!
  - `2#^\!WV/!FV/!`V i 0\2#!
  - `2#^\!FX .!O`V!TG i [$V!
  - `2#^[!V-);(36[i 0H$!T$G$ i ^$V!
  - `M!fVL_!(*!5(45!-6+)3<'()*!
- %<1()!J*'6-;:&6+!:*1!U<*&'()*+!
  - W<(3'R(*!%<1()!.)16&!?('5!#\R>('! -6+)3<'()*!
  - E*6!J#O!(*'6-;:&6!N#!&5:**63+P!;)-!%<1()!)<'9<'!

S$ TIGPU%

. $ 6FH%*22FVHK"H12%

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Figure 2. Pin Assignments (Bottom View)

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
	8UmMI!	MW!		8%8M!U3:+5!M:':!I!
WTT!	LFF.mM%D%m$!	MW!	T!	6FF.!M:':!$!
	8UmM[!!	MW!		8%8M!U3:+5!M:':![!
WT#!	LFF.mM%D%mI!	MW!	T!	6FF.!M:':!I!
	8UmM$!!	MW!		8%8M!U3:+5!M:':!$!
WT[!	LFF.m.FM!	MW!	T!	6FF.!.),,:*1!0(*6!
	8UmZMp!!	ME!		8%8M!U3:+5!Z6:1!L*:>36!
WT\!	OVJmOE!!	MW!	R!	O6-(:3!U3:+5!M:':!E<'9<'!N;)-!T!Y!JCEP!C! O6-(:3!M:':!J*9<'!q!E<'9<'!N;)-!#!Y!JCE!Z6:1!F)16P!
	8Um.LTp!	ME!	T!	8%8M!U3:+5!.5(9!L*:>36!T!

WTIME

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
	MMZ[mMb^!	MW!		
L\!	MMZ\mMb#[!			
LI!	_8M!	_8M!	R!	M(4(':3!_-)<*1!

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
U#$!	_8Mm%M%.!	_8M!	R!	%<1()!M%.!_-)<*1!
U#T!	%M%.m%EZ!	%E!	R!	%<1()!M%.!E<'9<'!Z(45'!.5:**63!
U##!	%M%.m%E0!	%E!	R!	%<1()!M%.!E<'9<'!06;'!.5:**63!
_T!	MMZ\mMbT$!	MW!	R!	MMZ\!M:':!T$!
	MMZ[mMbT[!			MMZ[!M:':!T[!

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
fI!	MMZ\mMbOTm&!	MW!	R!	MMZ[ℂMMZ\!MbnTIkGo!M:':!O'-)>6!
f^!	MMZmXJE!	VQZ!	R!	MMZ!V)?6-!
fH!	MMZmXJE!	VQZ!	R!	MMZ!V)?6-!
fG!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
f]!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
fT$!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
fTT!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
fT[!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
fT\!	T2$Xm.EZL!	VQZ!		

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
ZH!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
ZG!	T2GXmMMZ!	VQZ!	R!	MMZ!V)?6-!T2GX!

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
ST!	MMZ\mDL8!	ME!	R!	MMZ\!.)**6&'(7('=!L*:>36!
S#!	MMZ\m%0LZD!	ME!	R!	MMZ\!%36-'!
S[!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
S\!	MMZ\m%[!	ME!	R!	MMZ\!%11-6++![!
	MMZ[m%TI!	ME!		MMZ[!%11-6++!TI!
SI!	MMZ\m%T!	ME!	R!	MMZ\!%11-6++!T!
	MMZ[m%T#!	ME!		MMZ[!%11-6++!T#!
S^!	_8M!	_8M!	R!	M(4(':3!_-)<*1!
SH!	[2[Xm0O%M.!	VQZ!	R!	0O%M.!V)?6-![2[X!
SG!	[2[XmEDVmVZEWL!	VQZ!	R!	EDV!V-)>6!V)?6-![2[X!
S]!	[2[XmSOW!	VQZ!	R!	SOW!V)?6-![2[X!

6FH%AG$%

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
	OMmM[!!	MW!		OMC F F .!M:':[!
	OMJEmM[!	MW!		OMJE!M:':[!N3)&:'()*!$P!
	LfmD.0d!	MJ!		LfD%_!D6+'!F)16!.3)&B!N3)&:'()*!TP!
	_VJEm[[!	MW!	T!	_6*6-:3!V<-9)+6!JCE![[!
Q#$!	OMm.0d!!	ME!	R!	OMC F F .!.3)&B!E<'9<'!
	OMJEm.0d!	ME!		OMJE!.3)&B!E<'9<'!N3)&:'()*!$P!
	LfmDME!			

6FH%AG$%	6FH%A0K"%	8)5%	/"0JI1%E0IJ"%	/"2PLFQ1FGH%
%WT#!	_VJEmIT!	MW!	TCIX!')36-:*&6!	_6*6-:3!V<-9)+6!JCE!IT!

-$ <M21"K%9IGN0I%!"2GJLP"2%

Q%Z8J8_k!%>+)3<'6!,:Y(,<,!-:'(*4+!:-6!3(,('+!>6=)*1!?5(&5!96-,:*6*'!1:,:46!,:=!>6!&:<+61!')! '56!167(&6/!)-!167(&6!-63(:>(3('=!?(33!>6!:;;6&'612!%33!7)3':46+!:-6!+96&(;(61!-6;6-6*&6!')!_8M!<*36++!)'56-?(+6!+96&(;(612!

Table 2. Power Supply Specification

<MKNGI%	+FH$%	+0\$%	@HF1%	/"2PLFQ1FGH%
.VSmMXO!	R$2\!	T2#I!	X!	X)3':46!)*!9)?6-!9(*!;)-!.VS!
TX!	R$2\!	T2#I!	X!	O<993=!7)3':46!)*!9)?6-!9(*!;)-!%*:3)4!)-! M(4(':3!0)4(&/!J+)3:'61!W3)&B!0)4(&/!_VS!
MMZmXJE!	R$2\!	T2]HI!	X!	X)3':46!)*!9)?6-!9(*!;)-!MMZ!&)*'-)336-!
T2GX!	R$2\!	T2]G!	X!	O<993=!7)3':46!)*!9)?6-!9(*!;)-!%*:3)4!)-! M(4(':3!0)4(&!
[2[X!	R$2\!	[2^[!	X!	X)3':46!)*!9)?6-!9(*!;)-!JCE!V:1/!%*:3)4!)-! M(4(':3!0)4(&!
M.!(*9<'!	R$2\!	.)--6+9)*1(*4!O<993=! X)3':46!j$2\!	X!	J*9<'!7)3':46!)*!:*=!JCE!9(*!
M.!)<'9<'!	R$2\!	.)--6+9)*1(*4!O<993=! X)3':46!j$2\!	X!	E<'9<'!7)3':46!)*!:*=!JCE!9(*!
D+'4!	RII!	TI$!	.!	O')-:46!'6,96-:'<-6!

!

J'!(+!(,9)-':*'!')!9-)7(16!:16K<:'6!9)?6-!:*1!4-)<*1!;)-!5(45R+9661!1(4(':3!:*1!+6*+('(76!:*:3)4!16+(4*2! D)!:&5(676!'56!>6+'!K<:3('=/!'56!9)?6-!:*1!4-)<*1!9(*+!:-6!+69:-:'61!(*')!+676-:3!4-)<9+2!D56!M.!7)3':46! 3(+'61!(*!D:>36![!1)6+!*)'!(*&3<16!-(99362!

Table 3. Recommended Operating Conditions

<MKNGI%		+FH$%	;MQ$%	+0\$%	@HF1%	/"2PLFQ1FGH%
.VSmMXO!		$2HG!	T2$!	T2T#!	X!	X)3':46!)*!9)?6-!9(*!;)-!.VS!
TX!		$2]I!	T2$!	T2$I!	X!	O<993=!7)3':46!)*!9)?6-!9(*!;)-!%*:3)4!)-! M(4(':3!0)4(&/!J+)3:'61!W3)&B!0)4(&/!_VS!
MMZmXJE!	U)-!MMZ[!	T2\#I!	T2I!	T2IHI!	X!	X)3':46!)*!9)?6-!9(*!;)-!MMZ!&)*'-)336-!
	U)-!MMZ\!	T2T\!	T2#!	T2#^!		
T2GX!		T2HT!	T2G!	T2G]!	X!	O<993=!7)3':46!)*!9)?6-!9(*!;)-!%*:3)4!)-! M(4(':3!0)4(&!

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Table 4. DC Characteristics

<MKNGI%		+ FH$%	;MQ$%	+ 0\$%	@HF1%	/ "2PLFQ1FGH%
XE`!	U)-!MMZmXJE!	R!	$2]vMMZmXJE!	R!	X!	F(*(,<,!5(45!3676 3!)<'9<'!7)3':46!
	U)-!T2GX!JCE!	T2\Ivv!	R!	R!		
	U)-![2[X!JCE!	#2^vv				

Table 6. Crystal Requirements for the AM8275

<MKNGI%	/ "2PLFQ1FGH) 4 GH [F1FGH%	+ FHFKJK%	; MQFP0I%	

_6*6-:33=/!'56!9)?6-R)*!+6K<6*&6!+5)<31!>6!:+!;)33)?+k!

%9933=!.VSmMXO/!TX!+(,<3':*6)<+3=!

%9933=!MMZmXJE/![2[X/!T2GX!(*!+6K<6*&6!

Q:('!;)-!9)?6-!+<9933(6+!')!+':>(3(e6!

Z6+6'!)96-:'()*!&),9336'6+!

O=+'6,!>))'+!<9!

D56!%FG#HI!(*'64-:'6+!:!V)?6-RE*RZ6+6'!NVEZP!&(-&<('!')!6*+<-6!'56!&5(9!9)?6-+!<9!(*!:!16;:<3'!+':'62!J'!,)*(')-+!'56!+':'<+!);![2[X!:*1!.VSmMXO2!D56!VEZ!&(-&<('!-6+6'!?(33!-636:+6!:;'6-!##$!&-=+':3!&3)&B!&=&36+!?56*!>)'5!9)?6-+!N[2[X!q!T2GXP!:-6!+':>3622!U(4<-6![!4-:95(&:33=!+5)?+!'56!V)?6-RE*!+6K<6*&6!'(,(*42!D56!16':(3611<-:'()*!(+!3(+'61!(*!D:>36!]2!

!

Figure

Table 10. Power-On Reset Trigger Level

, $ / / ! % 4 GH1LGII"L%@HF1%

D56!% F G#HI!MMZ[CMMZ\!.)*'-)336-!S*('!NM.SP!9-)7(16+!,6,)-=!&)*'-)3!+(4*:3+!-6K<(-61!;)-!6Y'6-*:3!
MMZ[CMMZ\!OMZ% F!:&&6++2!Q('5!:![#R>('R?(16!OMZ% F/!'56!M.S!&:*!:&&6++!<9!')!_W2!

!

O<99)-'+!<9!')!_W!

6FH%A0K"%	;MQ"%	/ "2PLFQ1FGH%
MMZ\m%nT[k$o!	ME!	MMZ\!%11-6++nT[k$o!
MMZ[mW%n#k$o!	ME!	MMZ[!W:*B!%11-6++n#k$o!
MMZ\mW%nTk$o!	ME!	MMZ\!W:*B!%11-6++nTk$o!
MMZ\mW_nTk$o!	ME!	MMZ\!W:*B!_-)<9nTk$o!
MMZ[mMbn[Tk$o!C!MMZ\mMbn[Tk$o!	MW!	MMZ[C\!M:':n[Tk$o!
MMZ\m%.Dp!	ME!	MMZ\!%&'(7:'()*!.),,:*1!
MMZ\mV%Z!	ME!	MMZ\!.),,:*1!:*1!%11-6++!V:-('=!
MMZ\m%0LZD!	MW!	MMZ\!%36-'!
MMZ\mDL8!	ME!	MMZ\!.)**6&'(7('=!L*:>36!
MMZ[mhb!C!MMZ\mhb!	VQZ!	Z6;6-6*&6!V(*!;)-!hb!.:3(>-:'()*!
MMZ[mhbmXZLU!C!MMZ\mhbmXZLU!	VQZ!	Z6;6-6*&6!X)3':46!;)-!hb!

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Table 12. DCU Block External Pin Mux Table

T0II%AJKN"L%	/ / !S%	/ / !W%
8#!	.d$!	.d$m'!
8[!	.d$p!	.d$m&!
F\!	.dT!	.dTm'!
FI!	.dTp!	.dTm&!
%%H!	R!	.dL$!
%%G!	R!	.dLT!
%W^!	EMD$!	EMD$!
%WH!	EMDT!	EMDT!
D#!	R!	.O$p!
DT!	R!	.OTp!
VI!	%T$!	Z%OpC%T^!
Z\!	%\!	.%OpC%TI!
QG!	Z%Op!	QLpC%T\!

T0II%AJKN"L%	**/ / ! S%**	**/ / ! W%**
S\!	%TI!	%[!
%%T!	%T[!	%\!
X#!	%^!	%I!
Q^!	W%$!	%^!
X[!	%G!	%H!
a I!	%[!	%G!
a#!	%T\!	%]!
a[!		

T0II%AJKN"L%	**/ / ! S%**	**/ / ! W%**
WT!	Mb#^!	Mb[T!
Q I!	%$!	%.Dp!
Q \!	R!	V%Z!
S#!	R!	%0LZD!
ST!		

* + , (- .

Table 15. Boot Device Selection

! 5 + %<"I"P1FGH%	TGG1%4G["%	T5 5 ;`<>=%	9 685`W,%	9 685`WY%
ZE F!)*!OVJ!	6F F .!	T!	T!	T!
	SOW!M67(&6!	T!	T!	$!
	8EZ!	T!	$!	T!
	8%8M!	T!	$!	$!
J*'6-*:3!ZE F!	6F F .!	$!	T!	T!
	SOW!M67(&6!	$!	T!	$!

&'$ " + + 4%4GH1LGII"L%

D56!6 F F . !&)*'-)336-!+<99)-'+!6 F F . 2!D56!1:':!>('!?(1'5!(+!<9!')!G!>('+2!%+!9(*+!:-6!+5:-61!?('5!8%8M!;3:+5/!'56!+=+'6 , !&:*!>))'!;-) , !6 F F ./!8%8M/!)-!+6-(:3!8EZ2!

!

O<99)-'+!6 F F . !I2$!

W<+!?(1'5k!TR>('/!\R>('/!GR>('!

&&$

&($:FV3Z<Q""[%@* ! ; %

D56!% F G#HI!

&S$ 6"LFQ3"L0I2%

D56!%FG#HI!9-)7(16+!,<3'(936!_VJE!9(*+2!L:&5!46*6-:3R9<-9)+6!9(*!&:*!>6!(*1(7(1<:33=!&)*;(4<-61!:+!:*!(*9<'!)-!)<'9<'!9(*!7(:!'56!1(-6&'()*!&)*;(4<-:'()*!-64(+'6-2!D56!M:':!)<'9<'!:*1!(*9<'!-64(+'6-!&:*!>6!<+61!')!&)*'-)3!+(4*:3+!N5(45!)-!3)?P!?56*!'56!_VJE!9(*!(+!&)*;(4<-61!:+!)<'9<'/!:*1!+5)?!'56!+':'<+!?56*!'56!_VJE!9(*!(+!&)*;(4<-61!:+!(*9<'2!

Q56*!:!_VJE!9(*!(+!&)*;(4<-61!:+!(*9<'/!('!&:*!:3+)!>6!&)*;(4<-61!:+!:*!(*'6--<9'!46*6-:')-!N+6'!(*!'56!(*'6--<9'!6*:>36!:*1!16'6&'()*!9)3:-('=!-64(+'6-P!2!

D56!%FG#HI!9-)7(16+!'?)!T^.II$!&),9:'(>36!S%ZD+!NS*(76-+:3!%+=*&5-)*)<+!Z6&6(76-!:*1!D-:*+,(''6-P2!

&S$($&$ R"01JL"2%

S%ZD!.`$!?('5![#R>='6!UJUE!

V-)4-:,,:>36!&5:-:&'6-!9-)96-'(6+/!+<&5!:+!*<,>6-!);!1:':!>('+!96-!&5:-:&'6-!NIyGP/!)9'()*:3!9:-('=!>('!N?('5!)11!)-!676*!+636&'P!:*1!*<,>6-!);!+')9!>('+!NT/!T2I/!)-!#P!

J*'6--<9'!)<'9<'!+(4*:3!)&&<-+!?56*676-!)*6!);!'56!+676-:3!9-()-('(e61!(*'6--<9'!'=96+!:-6!6*:>361!:*1!:&'(76!

Z6&6(76!L--)-!

Z6&6(76!M:':!%7:(3:>36!

.5:-:&'6-!D(,6)<'!

D-:*+,(''6-!`)31(*4!Z64(+'6-!L,9'=!:'!)-!>63)?!'5-6+5)31!

!

&S$($($ @*!;%TIGPU%>\1"LH0I%6FH%/"2PLFQ1FGH%

Table 20. UART Block External Pin Description

6FH%A0K"%	;MQ"%	/"2PLFQ1FGH%
SZ$mZc!	MJ!	S%ZD$!Z6&6(76!M:':!J*9<'!
SZ$mDc!	ME!	S%ZD$!D-:*+,('!M:':!E<'9<'!

!

D56!%FG#HI!&:*!+<99)-'!'5-66! , :+'6-C+3:76!J#.R><+!+6-(:3!(*'6-;:&6+2!%!1(-6&'!O6-(:3!M:':!0(*6!NOM%P! :*1!O6-(:3! .3)&B! 0(*6!NO.0P!&:--=!(*;)-, :'()*!>6'?66*!><+! , :+'6-! :*1! 96-(956-:3! 167(&6+! '5:'! :-6! &)**6&'61!')!'56!J#.R><+2!D56!OM%!:*1!O.0!3(*6+!:-6!>(R1(-6&'()*:32!

&SS&$ R"01JL"2%

D?)R?(-6CD5-66R?(-6!J#.!+6-(:3!(*'6-;:&6!

O<99)-'+!'?)!+9661+k!O':*1:-1!,)16!NT$$d>9+P!:*1!U:+'!,)16!N\$$d>9+P!

.3)&B!+=*&5-)*(e:'()*!

F:+'6-!)-!+3:76!J#.!)96-:'()*!

O<99)-'+!, <3'(RF:+'6-!)96-:'()*!N><+!:->('-:'()*P!

HR>('!)-!T$

&SW($ 8 ! % ! a%TIGPU%>\1"LH0I%6FH% / "2PLFQ1FGH%

Table 22. IR RX Block External Pin Description

6FH%A0K"%	;MQ"%	/ "2PLFQ1FGH%

&S$,$&$ R"01JL"2%

0<99)-'+!Dw$/!DwT/!:*1!DwT\!9-)')&)32!

!

&S$,$($ <K0L1%40L[%4GH1LGII"L%>\1"LH0I%6FH%/"2PLFQ1FGH%

Table 24. Smart Card Controller External Pin Description

6FH%A0K"%	;MQ"%	/"2PLFQ1FGH%
O.mM%D%!	MW!	O,:-'!.:-1!J*9<'!)-!E<'9<'!;)-!O6-(:3!M:':!
O.mZODp!	ME!	O,:-'!.:-1!Z6+6'!O(4*:3!
O.m.0d!	ME!	O,:-'!.:-1!.3)&B!O(4*:3!
O.m.M!	MJ!	O,:-'!.:-1!.:-1!M6'6&'!O(4*:3!

!

D56! M . ! U% 8 ! -) ' : '( ) *! 16'6&'! &) *' -) 336- ! (+! , : 16! <9!) ;! '5-66! 9 : -'+r! : ! 16R>) <*&6! &(-&<('/! : ! '(, 6-/! : *1! : ! &) <*'6-2!D56!'(, 6-!&) <*'+!: '!] $ d ` e2!O) ;' ? : -6!&: *!+6'<9!'56!'(, 6-!' : -46'!7 : 3<6!') !+') -6!'56!&) <*'6-!7 : 3<62!

Q 56*! '56! '(, 6-! 7 : 3<6! 6K<: 3+! '56! +6'! ' : -46'! 7 : 3<6/! '56! &) <*'6-! 7 : 3<6! ? (33! >6! +') -61! (*! -64(+'6-+! : *1! '56! &) <*'6-!&36 : -612!D56!&) <*'6-!&) <*'+!7(: ! : !U% 8 !' : &5) , 6'6-!9<3+6!+(4*: 32!D56!U% 8 !' : &5) , 6'6-!9<3+6!+(4*: 3!

&.$: / + 8%;L0H2KF11"L%

D56!% F G#HI!(*&)-9)-:'6+!:!`(45RM6;(*('()*! F <3'( , 61(:!J*'6-;:&6!N`M F JP!'-:*+ , (''6-r!:!;<33=!;<*&'()*:3! +(*436R3(*B! '-:*+ , (''6-! ?('5! `(45R>:*1?(1'5! M(4(':3! . )*'6*'! V-)'6&'()*! N`M . VP2! J'! '-:*+ , ('+!

- %<1()!O<99)-'!
  R%<1()!+: , 936!-:'6k![#yT]#B!
  RO: , 936!+(e6k!T^y#\!>('+!
  RS9!')!GR&5:**63!
  RO<99)-'+!V . F/!M)3>=!M(4(':3/!MDO!1(4(':3!:<1()!'-:*+ , (++()*!
  RJL . !^$]IG!:*1!JL . ^T][H!&) , 9:'(>36!
  RO<99)-'+!`(45RW('RZ:'6!%<1()!

- F :+'6-!J# . !(*'6-;:&6!;)-!MM . ! .)**6&'()*!
- O<99)-'+! .)*+< , 6-!L36&'-)*(&+! .)*'-)3!N . L . P!

!

Table 27. HDMI Block External Pin Description

6FH%A0K"%	8)5%	/"2PLFQ1FGH%
DFMOm . d8!	%E!	`MFJ!E<'9<'! . 3)&B!V:(-R!
DFMOm . dV!	%E!	`MFJ!E<'9<'! . 3)&B!V:(-j!
DFMOmE8%!	%E!	`MFJ!E<'9<'!M:':!V:(-!$R!
DFMOmEV%!	%E!	`MFJ!E<'9<'!M:':!V:(-!$j!

&X$ * J [FGZ8H%8H1"L0OP"%

D56! :<1()R(*! (*'6-;:&6! '-:*+;6-+! :<1()! V . F ! 1:':2! %! #R&5:**63! 16;:<3'! J#O! (*'6-;:&6! (+! +<99)-'612! U)-! d:-:)B6!:993(&:'()*/! ` Q!5:+!:*!J#O!(*9<'!3))9>:&B!;<*&'()*2!D56!(*9<'!1:':!);!J#O!(*9<'!&)<31!>6! , (Y61! (*')!V . F !)<'9<'!1:':2!D56!1:':! ? (33!>6! ,)1<3:'61!:*1! , (Y61!(*')!'56!V . F !)<'9<'!0!)-!Z!&5:**632! E*3=! '56!#&5!J#O!(*9<'! ?)<31!>6!3))961!>:&B2!D56!3))9>:&B! 0!&5:**63!&:*!>6!:1161!')!>)'5!)<'9<'!0!:*1!Z! &5:**63+/!:+!&:*!'56!3))9>:&B!Z!&5:**632!

- M(4(':3!J*'6-;:&6!
  - J#O!

    RO: , 936!Z:'6k!GB/!TT2$#IB/!T#B/!T^B/!##2$IB/!#\B/![#B/!\\2TB/!\GB/!^\B/!GG2#B/!]^B/!T#GB/!TH^2\B/! :*1!T]#B ` e!

    RO<99)-'+! F :+'6-!:*1!O3:76! ,)16+!

    RV . F !>('!*< , >6-k!T^/!TG/!#$/!#\/!:*1![#R>('!

    R F <'6!;<*&'()*!;)-!36;'!)-!-(45'!&5:**63!

    RO<99)-'+! d:-:)B6!:993(&:'()*! ? ('5!:*!J#O!(*9<'!3))9>:&B!;<*&'()*2!

! !

%JEm . d!:*1!%JEmW . d!:-6!'56!-6;6-6*&6!&3)&B!+(4*:3+!-63:'61!')!'56!(*9<'!+: , 93(*4!-:'62!
%JEm . d!(+!)<'9<'!:+!+3:76! ,)16/!+)!:*!6Y'6-*:3!&-=+':3!(+!*)'!*66161!;)-!%M . 2!
%JEm0Z . d!(+!<+61!:+!'56!Q)-1!O636&'!3(*6!')!(16*'(;=!'56!+(4*:3!+)<-&62!
U(4<-6!^!:*1!U(4<-6!H!+5) ?!'56!J#O!:<1()R(*!&)*;(4<-:'()*2!

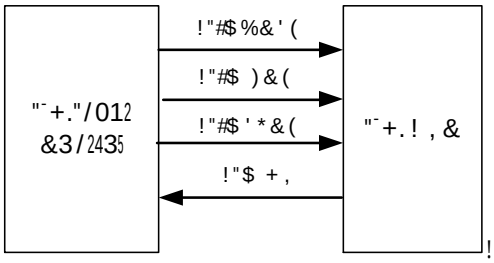


Figure 6. I2S Audio-In Master Mode Interface Configuration

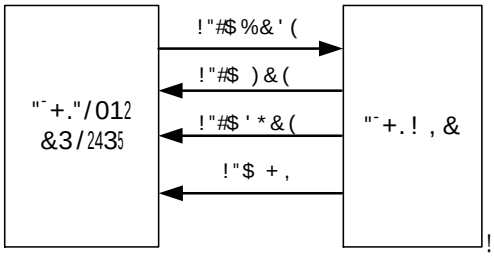


Figure 7. I2S Audio-In Slave Mode Interface Configuration

!

Table 28. Audio-In Block External Pin Description

6FH%A0K"%	;MQ"%	/"2PLFQ1FGH%
%JEm . d!	ME!	F:(*!.3)&B!E<'9<'!')!%M.!:+!F:+'6-!F)16!
%JEmW . d!	MW!	J#O!W('!.3)&B!E<'9<'CJ*9<'!')C;-),!%M.!
%JEm0Z . d!	MW!	J#O!Q)-1!O636&'!.3)&B!E<'9<'CJ*9<'!')C;-),!%M.!
%JmOM!	MJ!	J#O!O6-(:3!M:':!J*9<'!;)-!%<1()!0CZ!J*9<'!

&-$ * J [FGZ 5 J1%8H1"L0OP"%

D56! :<1()R)<'! (*'6-;:&6! '-:*+;6-+! :<1()! V . F ! 1:':!)-! *)*RV . F ! >('R+'-6: , ! 1:':2! D ?)! 1(4(':3! :<1()! JE! (*'6-;:&6+/! J#O! :*1! OVMJU/! :-6! +<99)-'612! D5-66! J#O!)<'9<'! 9-)')&)3+! :-6! +<99)-'61k! M6;:<3'! J#O/! 36;'! l<+'(;(61/!:*1!-(45'!l<+'(;(612!%!#R&5:**63!:<1()!M% . !N(*&3<16+!:!TX- , +!3(*6R3676 3!1-(76-P!(+!6 , >61161!(*! '5(+!&5(92!U)-! ` M F J!)<'9<'/!'56!% F G#HIA+! ` M F J!(*'6-;:&6!&:*!+6*1!'56!V . F !1:':!;-) , !:<1()R)<'!')!'56! ` M F J!D c ! ,)1<362!

!

- M(4(':3!J*'6-;:&6!
  - J#O!
    RD5-66!9-)')&)3!'=96+k!M6;:<3'!J#O/!36;'!l<+'(;(61/!:*1!-(45'!l<+'(;(61!
    RO: , 936!-:'6k!GB/!TT2$#IB/!T#B/!T^B/!##2$IB/!#\B/![#B/!\\2TB/!\GB/!^\B/!GG2#B/!]^B/!T#GB/!TH^2\B/!
    :*1!T]#B ` e!
    RO<99)-'+! F :+'6-!:*1!O3:76! ,)16+!
    R!V . F !>('!*< , >6-k!T^/!TG/!#$/!#\!:*1![#R>('!
    RX:-(:>36! QO!96-()1!
    R F <'6!;<*&'()*!;)-!36;'!)-!-(45'!&5:**63!
  - OVMJU!
    RM6+(4*61!(*!:&&)-1:*&6! ? ('5!JL . !^$]IG!N>)'5!V . F !:*1!*)*RV . F !:-6!+<99)-'61P!
    RO: , 936!-:'6k!GB/!TT2$#IB/!T#B/!T^B/!##2$IB/!#\B/![#B/!\\2TB/!\GB/!^\B/!GG2#B/!]^B/!T#GB/!TH^2\B/!
    :*1!T]#B ` e!
    RV . F !>('!*< , >6-

* + , (- .

&,$ 648%>\QL"22%($'%

D56!%FG#HI!&) , 93(6+! ?('5!'56!V . J!LY9-6++!W:+6!O96&(;(&:'()*!Z67(+()*!#2$/!:*1!-<*+!:'!I _ ` e!+(4*:3!-:'6!?('5!TY!3:*62!V . J!LY9-6++!3:*6!9)3:-('=!-676-+:3!(+!:3+)!+<99)-'61!')!6:+6!V . W!3:=)<'!&)*+'-:(*'+2!

V . J!LY9-6++!(+!<+61!;)-!6Y'6*+()*!&:-1+!+<&5!:+!G$#2TT*/!G$#2TT:&!Q(RU(!167(&6!:*1!8J . !167(&62!

Z6;6-!')!V . J!LY9-6++!W:+6!O96&(;(&:'()*!Z67(+()*!#2$!

J*'64-:'61!V ` a!

V . J!LY9-6++!_6*#2$NI _>9+P!(*!Z))'! .) , 936Y!NZ . P! ,)16!

W<(3'R(*!T$$F ` e!-6;6-6*&6!&3)&B!NV . JLmZLU . 0dmV/!V . JLmZLU . 0dmFP!

O<99)-'+!TY!3:*6!:*1!9)3:-('=!-676-+:3!

O<99)-'+!;)-!#I^!>='6+!9:=3):1!+(e6!

O<99)-'!;<33!:11-6++!'-:*+3:'()*!;-) , !V . JL!:11-6++!+9:&6!')!)*R&5(9! , 6 ,)-=!+9:&6!

!

Table 30. PCI Express 2.0 Block External Pin Description

6FH%A0K"%	85%<10H[0L[%	;MQ"%	/"2PLFQ1FGH%
V . JLm`OEV!	%*:3)4!	%E!	V . J6!

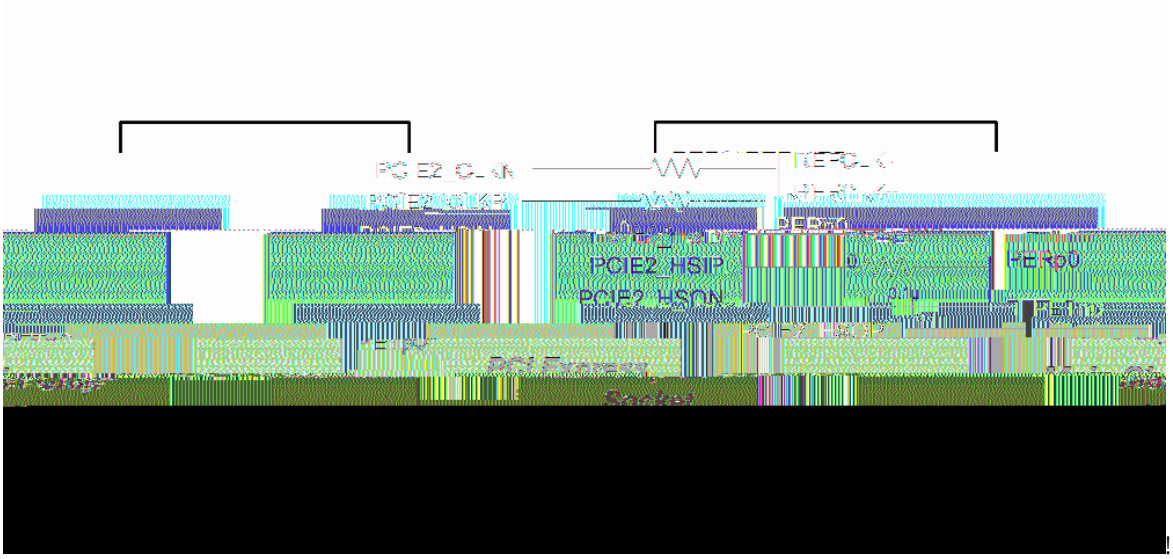


Figure 10. Typical PCI Express 2.0 Application

&Y$ >13"LH"1%4GH1LGII"L%

D56!% F G#HI!(*'64-:'6+!:!T$CT$$CT$$$ F !L'56-*6'! F % . /!T$CT$$ F !V ` a/!:*1!)9'()*:3!O_ F JJ2!J'!9-)7(16+!;<33!&) , 93(:*&6! ?('5!JLLL!G$#2[!&) , 93(:*'! F 61(:!%&&6++! .)*'-)336-!:*1!JLLL!G$#2[Y!U<33!M<936Y!U3) ?! .)*'-)32!

!

T$ F !:*1!T$$ F >9+!)96-:'()*/!&) , 93(:*'! ?('5!JLLL!G$#2[/!JLLLG$#2[<!

O<99)-'+!%<')R864)'(:'()*! ?('5!86Y'!V:46!&:9:>(3('=!

%<') , :'(&!V)3:-('=! .)--6&'()*!

O<99)-'+!:<')! F MJc!

O<99)-'+!0(*B!M) ?*!V) ?6-!O:7(*4!

T$$$ F >9+!NO_ F JJ!)*3=P!)96-:'()*!

F (&-)+);'!8MJOI/!8MJO^! . 56&B+< , !E;;3):1!NJV7\/!JV7^/!D . V/!SMVP!:*1!O64 , 6*':'()*!D:+BR);;3):1!N0:-46!+6*1!7T!:*1!0:-46!+6*1!7#P!+<99)-'!

O<99)-'+!Q:B6R)*R0%8!NQE0P!

O<99)-'+!U<33!M<936Y!;3) ?!&)*'-)3!NJLLL!G$#2[YP!

O<99)-'+!JLLL!G$#2Tb!X0%8!':44(*4!

!

Table 31. Ethernet 10/100/1000M Block External Pin Description

6FH%A0K"%	;MQ"%	

Figure 11. Relationship of PCIe and Ethernet Block

Figure 12. Typical Gigabit Ethernet Application

* + , (- .%

(&$;L0H2QGL1% + G[JI"%

D56!'-:*+9)-'!,)1<36!9-)7(16+!>:+(&!+<99)-'!;)-! F VL_!D-:*+9)-'!O'-6:, +!NDOP!;-), !'-:*+9)-'!(*'6-;:&6+2! J'!+<99)-'+!+676-:3!,)16-*!1(4(':3!DX!+6-7(&6+2!D?)!'-:*+9)-'!(*'6-;:&6+!:-6!+<99)-'61!(*!'56!% F G#HIr! >)'5!);!?5(&5!&:*!)96-:'6!+(, <3':*6)<+3=2!

!

((\$ 40L[%!"0["L%4GH1LGII"L%

D56!&:-1!-6:16-!&)*'-)336-!+<99)-'+!OM!&:-12!D56!1:':!>('!?(1'5!(+!<9!')!\!>('+2!

!

OM![2\$!N\R>('!><+!?(1'5/!&3)&B!;-6K<6*&=!<9!')!#\$G!F `eP!

!

Table 34. Card Reader Block External Pin Description

6FH%A0K"%	;MQ"%	/"2PLFQ1FGH%
OMmQV!	MJ!	OMCFF.!Q-('6!V-)'6&'!
OMm.M!	MJ!	OMCFF.!.:-1!M6'6&'!
OMm.0d!	ME!	OMCFF.!.3)&B!E<'9<'!
OMm.FM!	MW!	OMCFF.!.),,:*1!0(*6!
OMmMn[k\$o!	MW!	OMCFF.!M:':n[k\$o!

(S$ < / 8 5 %

D56!OMJE!&)*'-)336-!+<99)-'+!OMJE2!D56!1:':!>('!?(1'5!(+!<9!')!\!>('+2!

!

OMJE![2$!N\R>('!><+!?(1'5/!&3)&B!;-6K<6*&=!<9!')!#$G!F `eP!

!

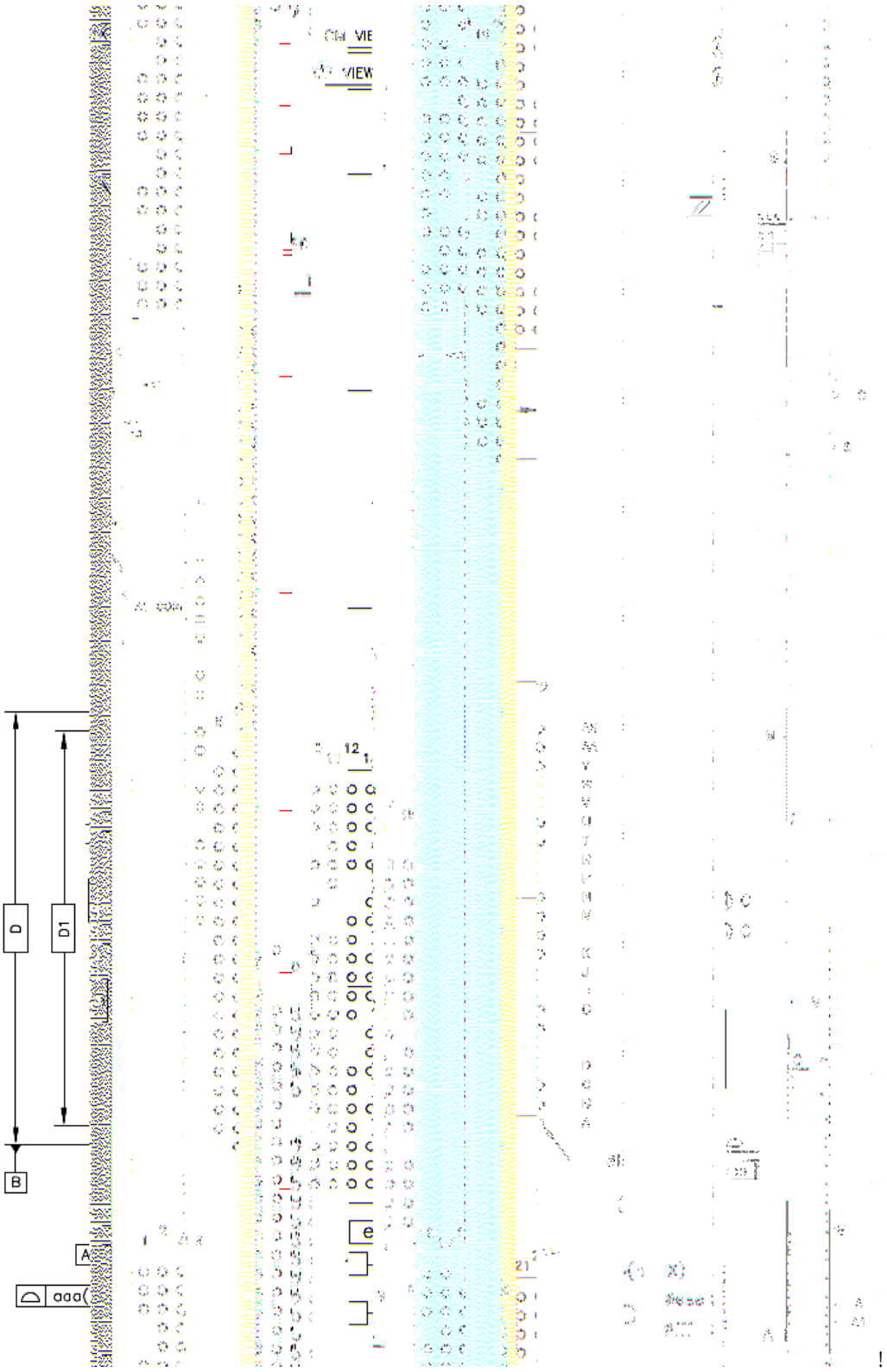
(W$ <GI["LFHV% ! "0IG] %6LG0FI"%

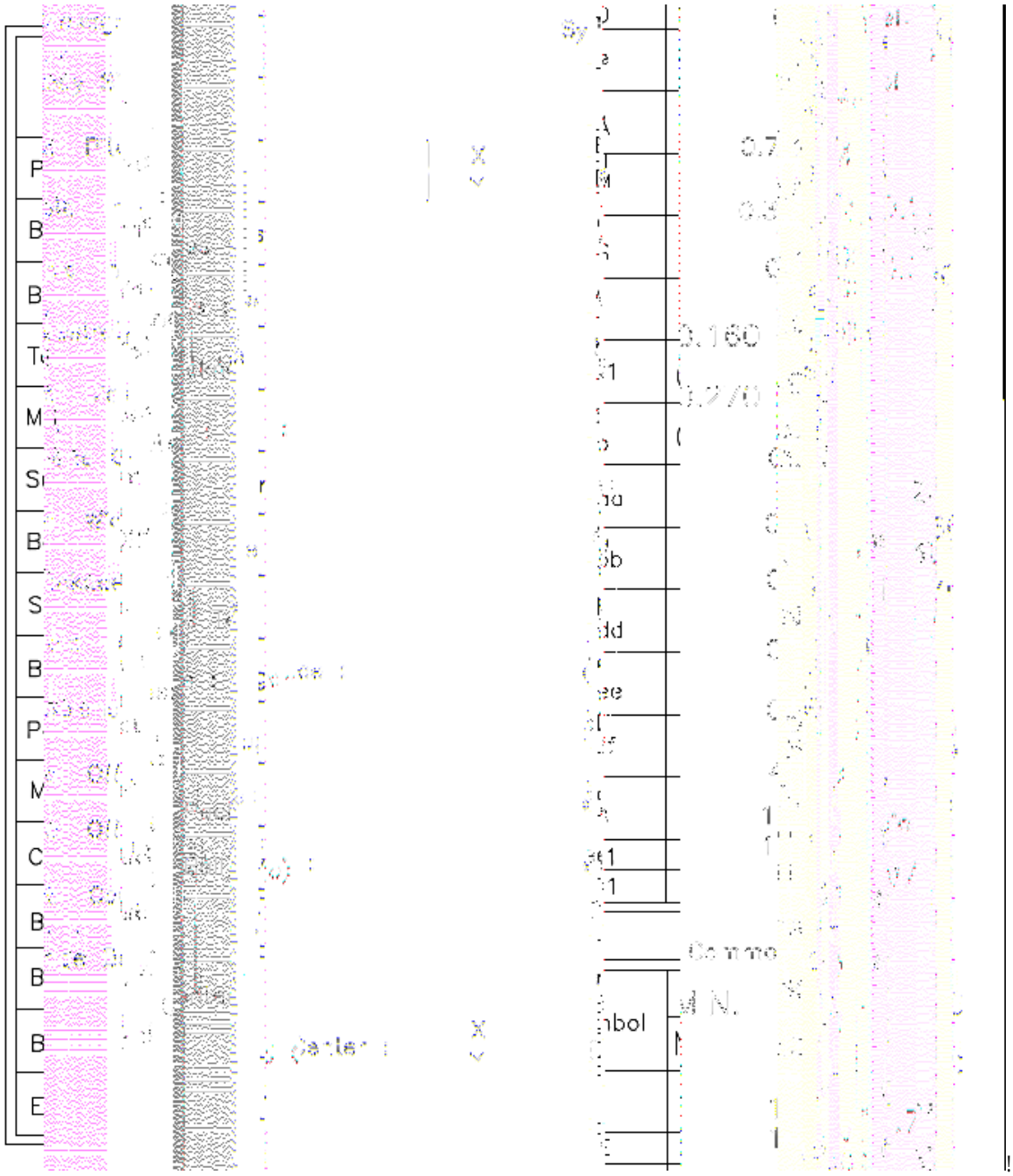
D56!-6;3) ?!9-);(36!(+!;)-! F O0!&3:++(;(&:'()*!)*3=/!*)'!:!-6&) , , 6*1:'()*!;)-!O F D!9-)&6++2!%&'<:3!>):-1!:++6 , >3=!9-);(36+!+5)<31!>6!16763)961!>:+61!)*!+96&(;(&!9-)&6++!*661+!:*1!>):-1!16+(4*+/!:*1!+5)<31!*)'!6Y&661!'56!9:-: , 6'6-+!(*!D:>36![^2!

Table 36. Classification Reflow Profile

6LG0FI"%R"01JL"%	6NZRL""%*22"KNIM%
%76-:46!Z: , 9RS9!Z:'6!ND0!')!DvP!	[x.C+6&)*1! , :Y!
V-656:'! D+ , (*! D+ , :Y! '0!	! TI$x.! , (*! #$$x.! , :Y! ^$yT#$!+6&)*1+!
D(, 6! F :(*':(*61!%>)76! D0! '0!	! #THx.! ^yTI!+6&)*1+!
V6:B!V:&B:46!W)1=!D6 , 96-:'<-6!ND vP!	#^$x.! , :Y!
D(, 6!N'vP!?('5(*!Ix.!);!%&'<:3!V6:B!D6 , 96-:'<-6!	[$!+6&)*1+!

(. $ + "P3OHFPOI% / FK"H2FGH2%





!

!

(X$ 5L["LFHV%8H0GLK01FGH%

Table 37. Ordering Information