

8988-00A(C277) DESIGN

PAGE SUMMARY:

8981 Ver : 00A modify P229-B01 Summary

- Page 11. Add Video in connect to mini-din 10 pin & remove J5.
- Page 12. Add DVI-I common choke.
- Page 13. Connect net MIOBD 2 , MIOBD 6 & MIOBD 7 to BUS.
- Page 15. Modify Power ,PWM change to ISL6549.
- Page 16. Add Video function.

8988 Ver : 00A modify 8981-100 Summary

- Page 02. Delete PCI-E connector
- Page 15. Change 5V power supply to BR02VDD & Add sequence
- Page 17,18,19,20. Add BR02 bradge circuit

8988 Ver : 00A BOM

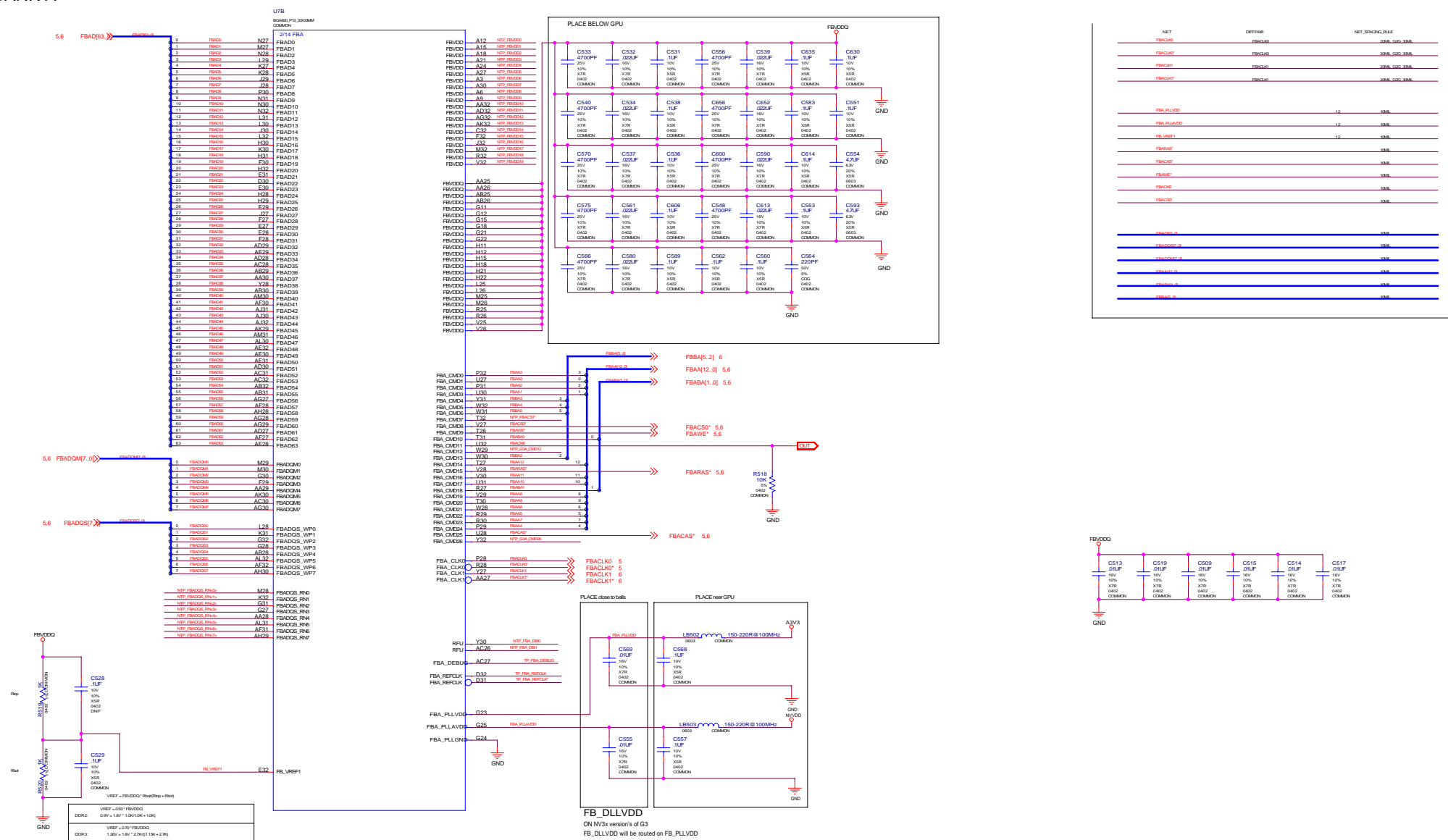
- SKU000:MSI 602-8988-A10 MS-8988 00A NV43/VGA/DVI-I/VHT-10/256M DDR (Hynix 16\*16-4)
- SKU001:MSI 602-8988-A20 MS-8988 00A OPT:A NV43/VGA/DVI-I/VHT-10/128M DDR(Samsung 8\*16-3.6)

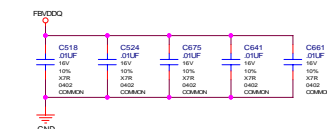
REVISION HISTORY:

X1 Initial Release

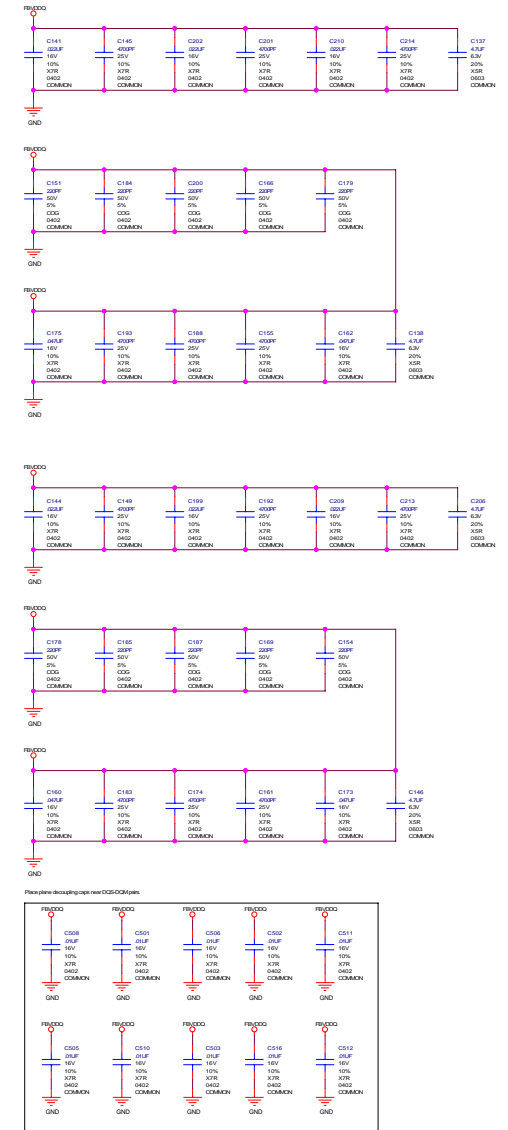
NO.	VARIANT	NPVN	ASSEMBLY
0	BASE	800-10229-0000-101	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	nv43dvlgatv128m16x	800-10229-0003-101	P229-B01 NV43 GEN DV I VGA S VIDEO 128MB 16M*16 TSCP
2	nv43dvlgatv128m8x	800-10229-0003-101	P229-B01 NV43 GEN DV I VGA S VIDEO 128MB 8M*16 TSCP
3	43gtdvlgatv128m8x	800-10229-0001-101	P229-B01 NV43 GL GEN DV I VGA HDTV 128MB 8M*16 TSCP
4	nv43dvlgatv256m16x	800-10229-0004-101	P229-B01 NV43 GEN DV I VGA HDTV 256MB 16M*16 TSCP
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6	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
7	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
8	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
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11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
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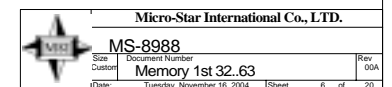




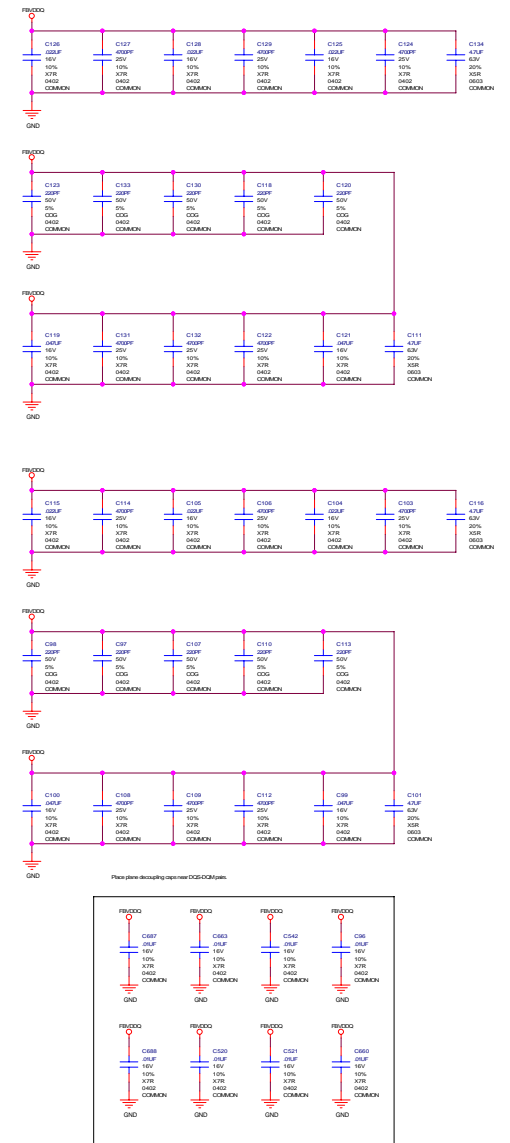
PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY



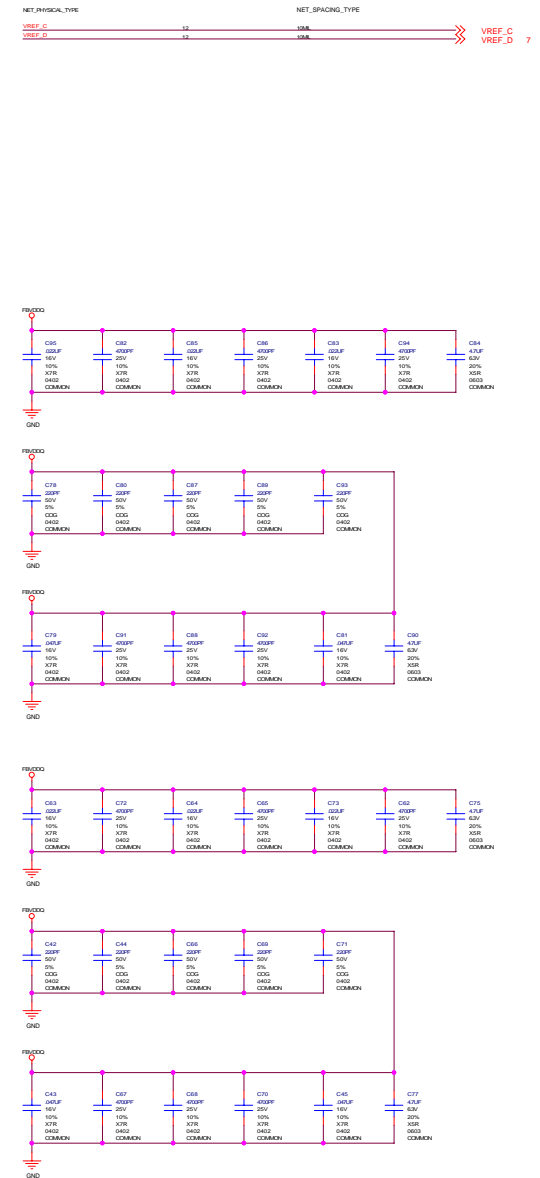
PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY



PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY

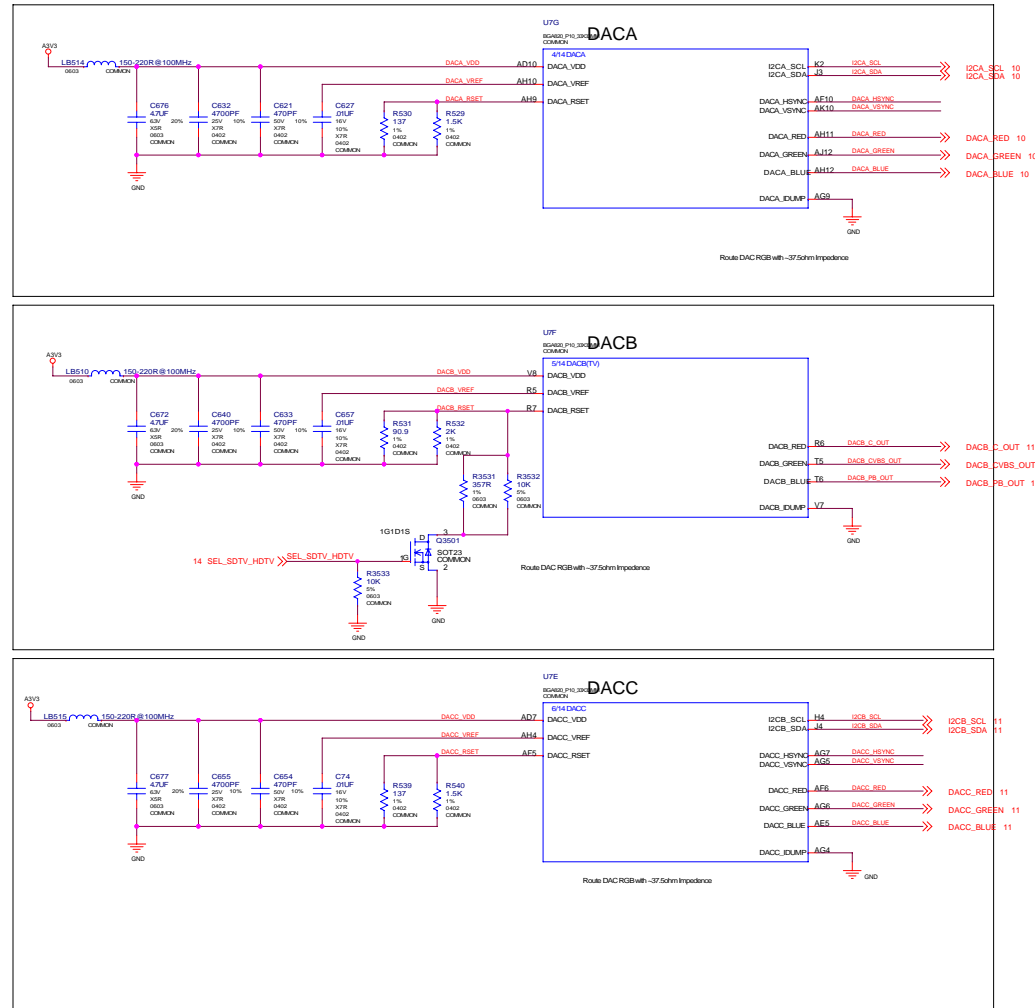


PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE TO MEMORY



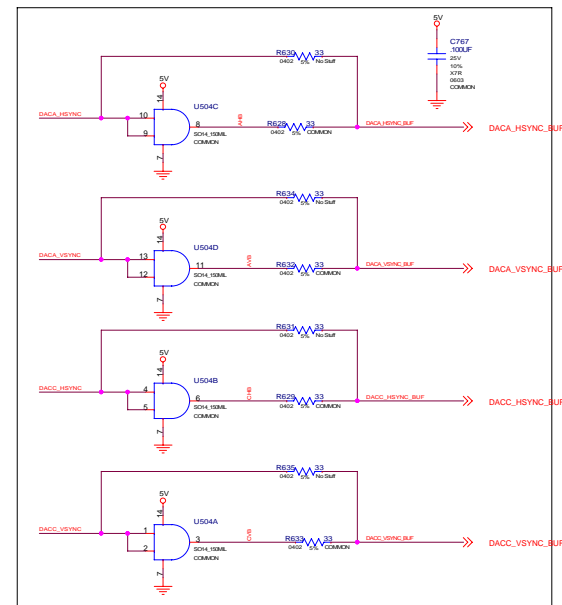


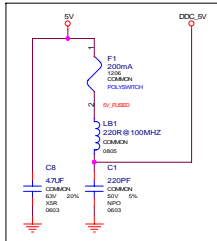
UTD		BGR220 (P41, BGR200M) CONNECTION	
1414_GND			
AK22	GND	GND	K10
AK2	GND	GND	K23
AK31	GND	GND	K28
AK3	GND	GND	K4
BD27	GND	GND	L27
BK6	GND	GND	L1
AC10	GND	GND	M12
AC26	GND	GND	M2
AC28	GND	GND	M31
ACA	GND	GND	M15
AC16	GND	GND	M18
AD17	GND	GND	N29
AD2	GND	GND	N4
AD31	GND	GND	P15
AE17	GND	GND	P18
AE27	GND	GND	P27
AE4	GND	GND	P6
AE11	GND	GND	R13
AF26	GND	GND	R14
AF28	GND	GND	R15
AF4	GND	GND	R18
AE7	GND	GND	R18
AC10	GND	GND	R3
AG11	GND	GND	S20
AG14	GND	GND	S31
AG15	GND	GND	T16
AG19	GND	GND	T17
AG2	GND	GND	T24
AG22	GND	GND	T29
AG31	GND	GND	T4
AG8	GND	GND	U16
AF4	GND	GND	U17
AI10	GND	GND	U24
AI13	GND	GND	U29
AI6	GND	GND	U8
AI17	GND	GND	V13
AI20	GND	GND	V14
AI23	GND	GND	V15
AI26	GND	GND	V18
AI28	GND	GND	V19
AI4	GND	GND	V2
AI7	GND	GND	V20
AK2	GND	GND	V31
AK28	GND	GND	V15
AK31	GND	GND	V18
AI11	GND	GND	W27
AI14	GND	GND	X26
AI19	GND	GND	Y15
AI22	GND	GND	Y18
AI25	GND	GND	Y29
AI3	GND	GND	Y4
AI6	GND	GND	AI10
AM13	GND	GND	AM10
AM16	GND	GND	AK11
AM17	GND		
AM20	GND		
AM23	GND		
AM26	GND		
AM29	GND		
B12	GND		
B15	GND		
B18	GND		
B21	GND		
B24	GND		
B27	GND		
B3	GND		
B36	GND		
B6	GND		
B9	GND		
CA	GND		
C31	GND		
D10	GND		
D13	GND		
D16	GND		
D17	GND		
D20	GND		
D23	GND		
D26	GND		
D29	GND		
D4	GND		
D7	GND		
F11	GND		
F14	GND		
F18	GND		
F2	GND		
F22	GND		
F24	GND		
F31	GND		
F4	GND		
G26	GND		
G29	GND		
G4	GND		
G7	GND		
H27	GND		
H6	GND		
H16	GND		
H17	GND		
J2	GND		
J31	GND		



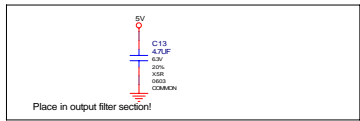
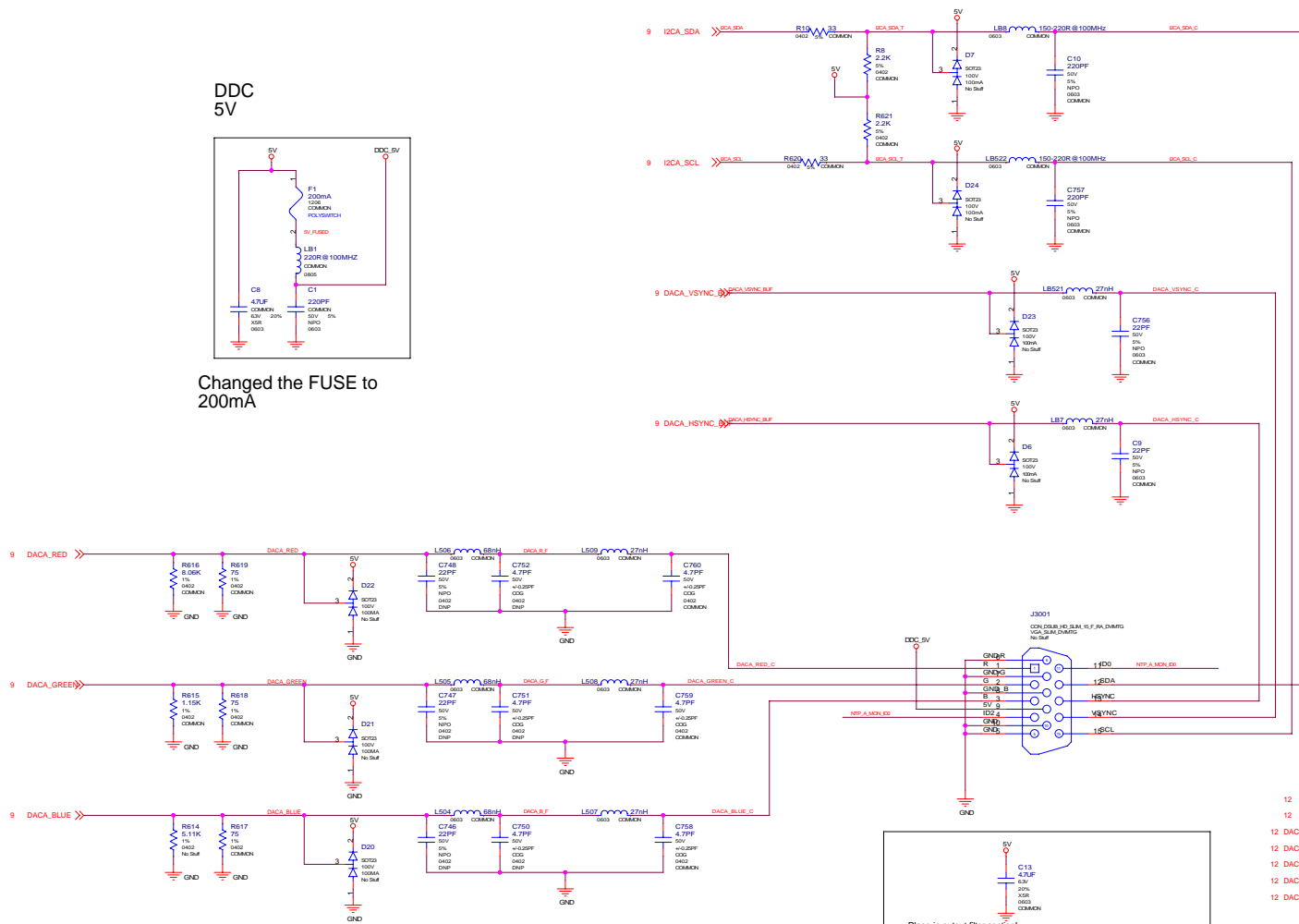
NET RULES			
NET_NAME	MIN_LINE_WIDTH	NET_SPACING_RULE	IMPEDANCE
DCA_RCL		10M	
DCA_RDR		10M	
DCA_RHNG		10M	
DCA_RHNGN		10M	
DCA_RSR		10M	LEADERSHIP 1.07500E+02N
DCA_RSRHNG		10M	LEADERSHIP 1.07500E+02N
DCA_RSL		10M	LEADERSHIP 1.07500E+02N
DCA_RSLD	12	10M	
DCA_RSRF	12	10M	
DCA_RSRFT	12	10M	
DCA_R_C_OUT		20M	LEADERSHIP 1.07500E+02N
DCA_RSR_C_OUT		20M	LEADERSHIP 1.07500E+02N
DCA_R_C_OUT		20M	LEADERSHIP 1.07500E+02N
DCA_RSLD	12	10M	
DCA_RSRF	12	10M	
DCA_RSRFT	12	10M	
DCA_RHNG		10M	
DCA_RHNGN		10M	
DCA_RSR		20M	LEADERSHIP 1.07500E+02N
DCA_RSRHNG		20M	LEADERSHIP 1.07500E+02N
DCA_RSL		20M	LEADERSHIP 1.07500E+02N
DCA_RSLD	12	10M	
DCA_RSRF	12	10M	
DCA_RSRFT	12	10M	
TV_RSRF_RSL	12	10M	
SRD_RSL	12	10M	
SRD_RSLD	12	10M	
SRD_RSRFT	12	10M	
SRD		10M	
DCA_RHNGN_RSL		10M	
DCA_RHNGN_RSL		10M	
CVR		10M	
CVR		10M	
DCA_RHNGN_RSL		10M	
DCA_RHNGN_RSL		10M	

## DACA & DACC Sync Buffers



VGA  
DACA

Changed the FUSE to 200mA

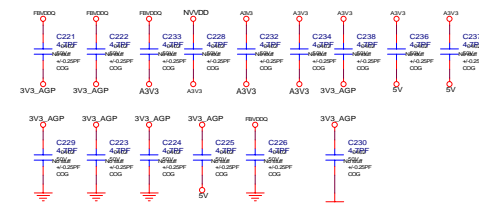
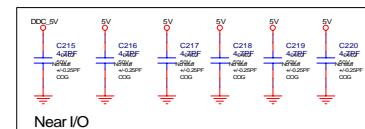


NET NAME		NET_SPACING_RULE	
	DACA_R.F	20M	
	DACA_G.F	20M	
	DACA_B.F	20M	
	DACA_WB.D	20M	
	DACA_GREEN.C	20M	
	DACA_BLUE.C	20M	
	DACA_VSYN.C	10M	
	DACA_HSYN.C	10M	

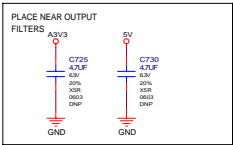
SV_PLED		MIN_LINE_WIDTH		VOLTAGE	
	SV_PLED	16		5V	
5V	5V	16		5V	
5V	5V	16		5V	
A3V3	A3V3	16		3.3V	
GND	GND	16		0V	

EMI Reserve Cap.

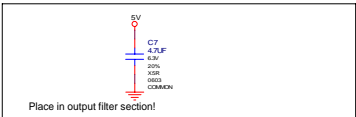


- |    |              |     |              |
|----|--------------|-----|--------------|
| 12 | I2CA_SDA_C   | >>> | I2CA_SDA_C   |
| 12 | I2CA_SCL_C   | >>> | I2CA_SCL_C   |
| 12 | DACA_VSYNC_C | >>> | DACA_VSYNC_C |
| 12 | DACA_HSYNC_C | >>> | DACA_HSYNC_C |
| 12 | DACA_RED_C   | >>> | DACA_RED_C   |
| 12 | DACA_GREEN_C | >>> | DACA_GREEN_C |
| 12 | DACA_BLUE_C  | >>> | DACA_BLUE_C  |

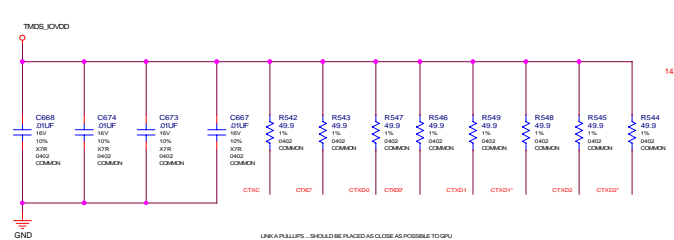
VGA/TV  
DACB/C



NET_NAME	NET_SPACING_TYPE
DAGG_B_F	200u
DAGG_G_F	200u
DAGG_B_R_F	200u
DAGG_RED_C	200u
DAGG_GREEN_C	200u
DAGG_BLUE_C	200u
DAGG_RED_SW	200u
DAGG_GREEN_SW	200u
DAGG_BLUE_SW	200u
DOUF	200u
VSOUT	200u
PROUT	200u
DAGG_VSYN_C	100u
DAGG_HSYN_C	100u
DOUF_C	200u
VSOUT_C	200u
PROUT_C	200u

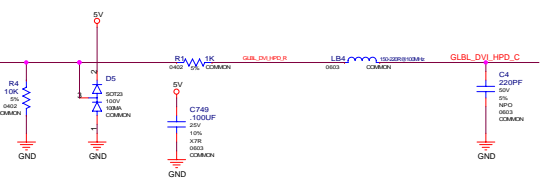


## INTERNAL TMDS



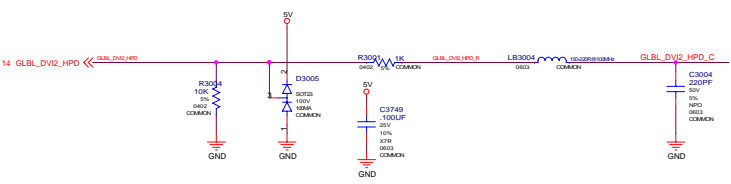
LINK A PULLUPS ... SHOULD BE PLACED AS CLOSE AS POSSIBLE TO GPU

## Hotplug Detection



If no diodes stuffed should I stuff this?

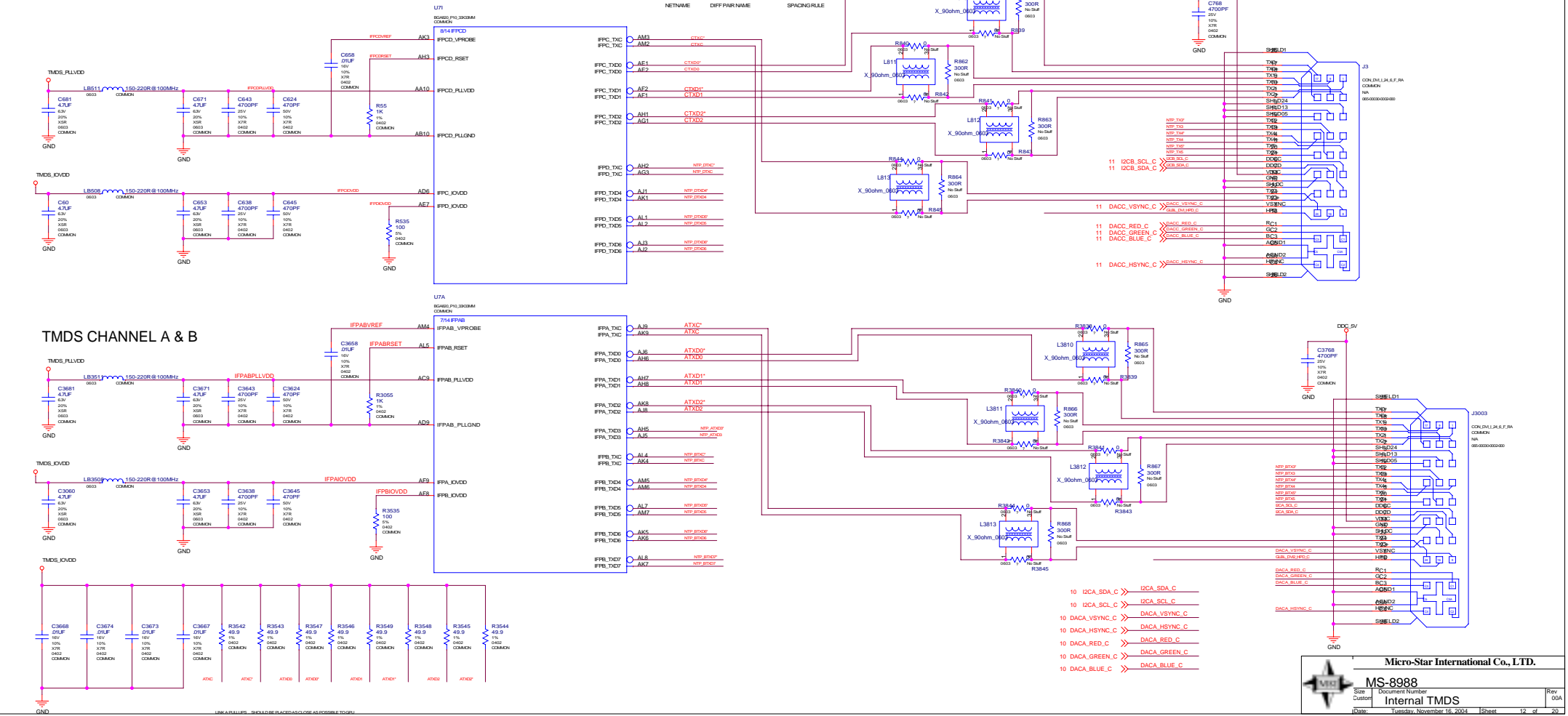
## Hotplug Detection2



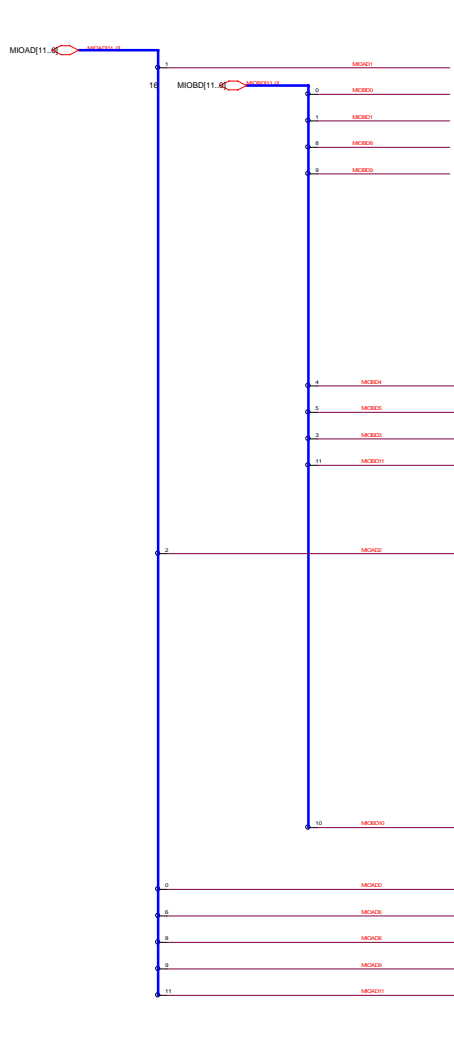
If no diodes stuffed should I stuff this?

INTERNAL TMDS ..LINK  
C/D

NETNAME	OVERPASS NAME	SPACING RULE
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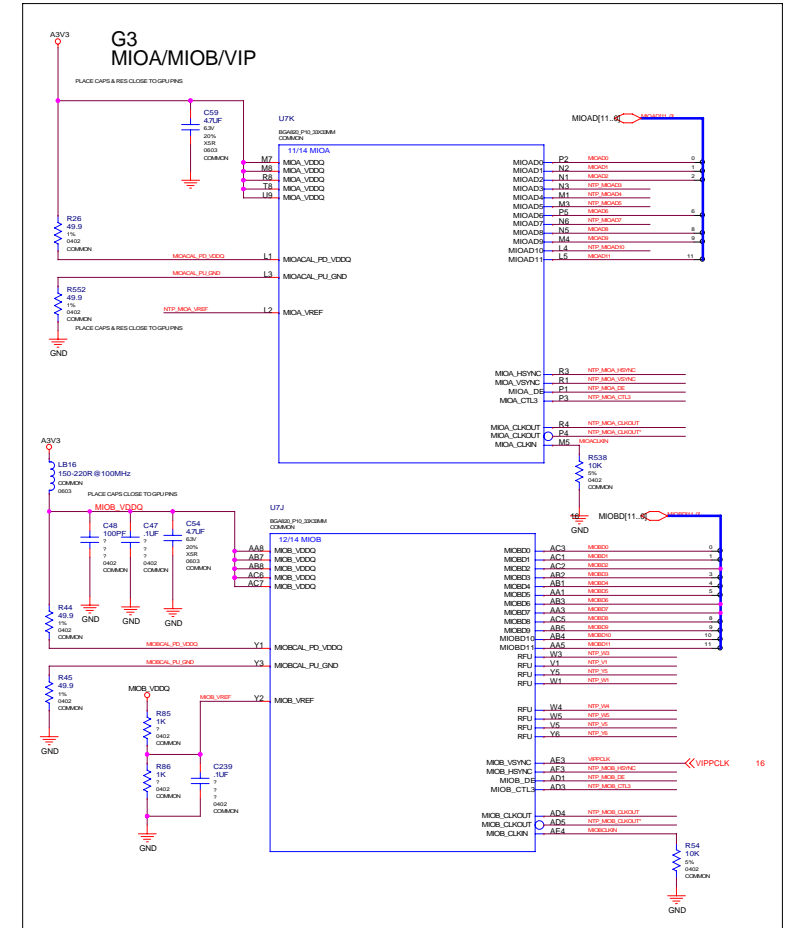
## STRAPS



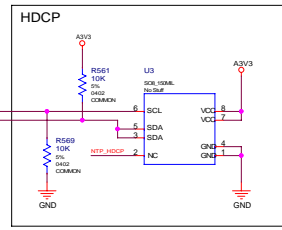
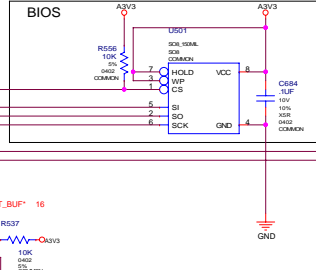
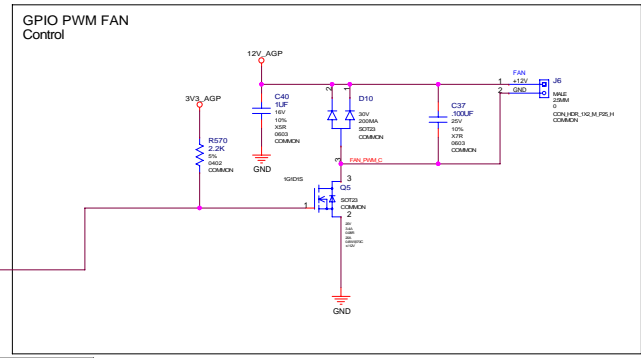
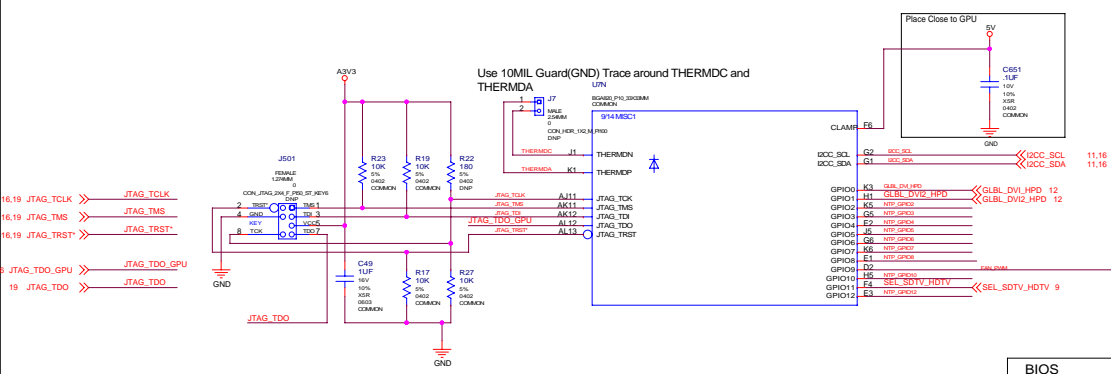
## STRAPS

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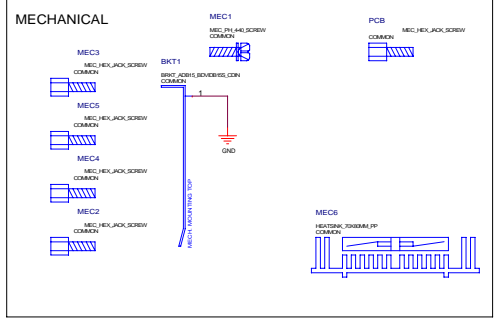
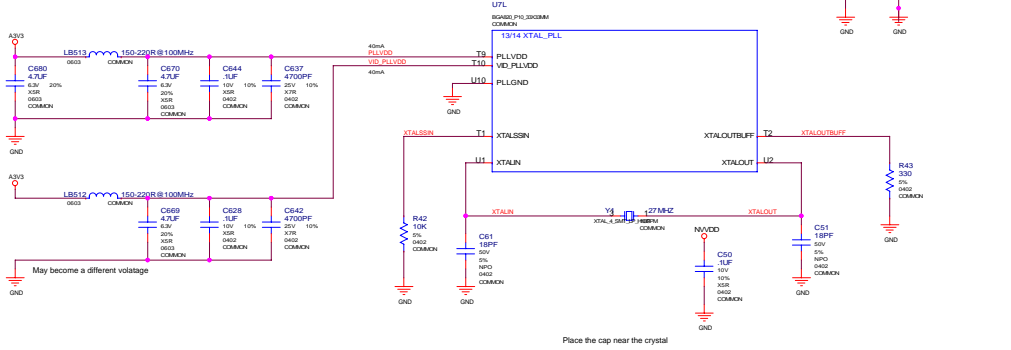
MIOs



XTAL, GPIO, ROM

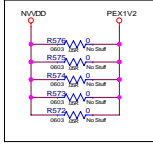


XTAL/PLLVD



NET	MIN_LIN_WIDTH	NET_SPACING_RULE
XTALIN	20M	20M
XTALOUT	20M	20M
PLLVD	12	12M
VD_PLLVD	12	12M
FAN_PWM	20M	20M
FAN_PWM2	20M	20M
FAN_PWM3	20M	20M
THERMDC	10	10M
THERMDA	10	10M

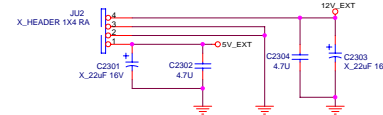
1V2 NVVDD  
bypass



PEX1V2 = 1.2V @ 3A

$$1V_2 = 0.8V \cdot (1 + R_t/R_b)$$

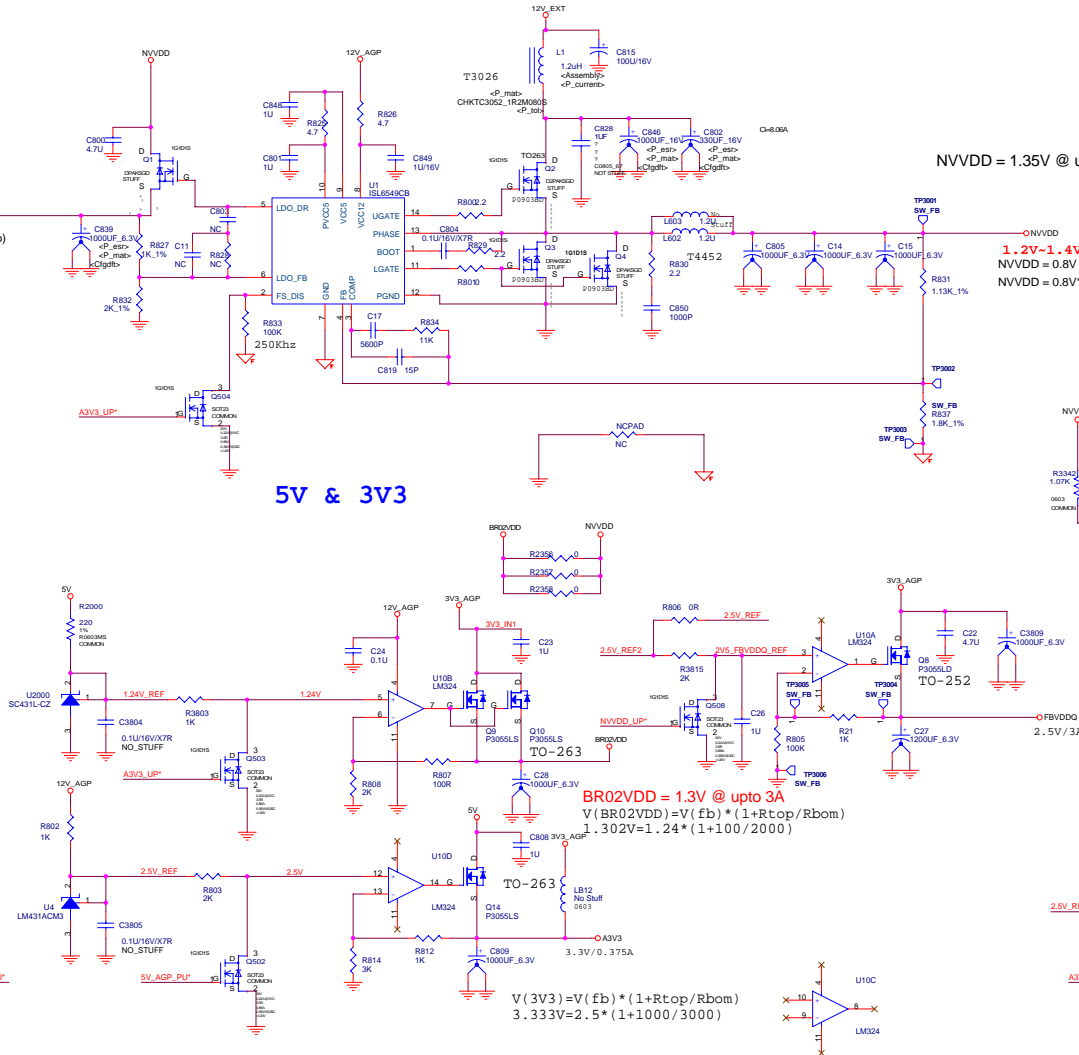
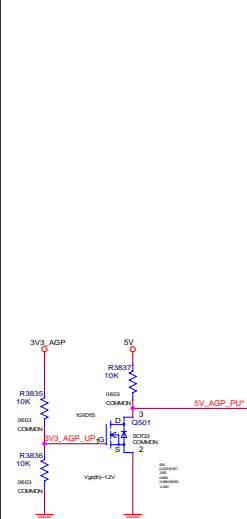
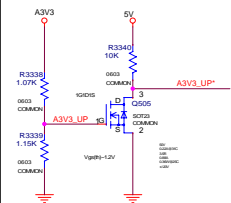
NVVDD & PEX1V2



NVVDD = 1.35V @ upto 24A

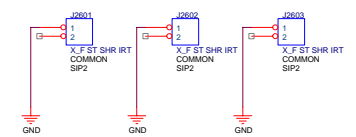
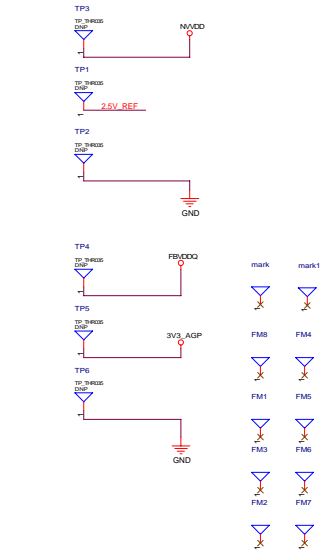
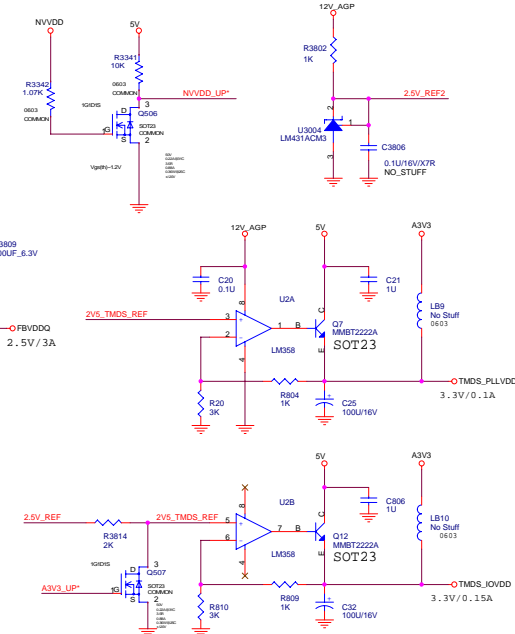
1.2V~1.4V/24A(ambient)  
 $NVDD = 0.8V * (1 + R_t/R_b)$   
 $NVDD = 0.8V * (1 + 1.13k/1.8k) = 1.302V$

5V & 3V3



$$V(3V3) = V(fb) * (1 + R_{top}/R_{bom})$$

$$3.333V = 2.5 * (1 + 1000/3000)$$

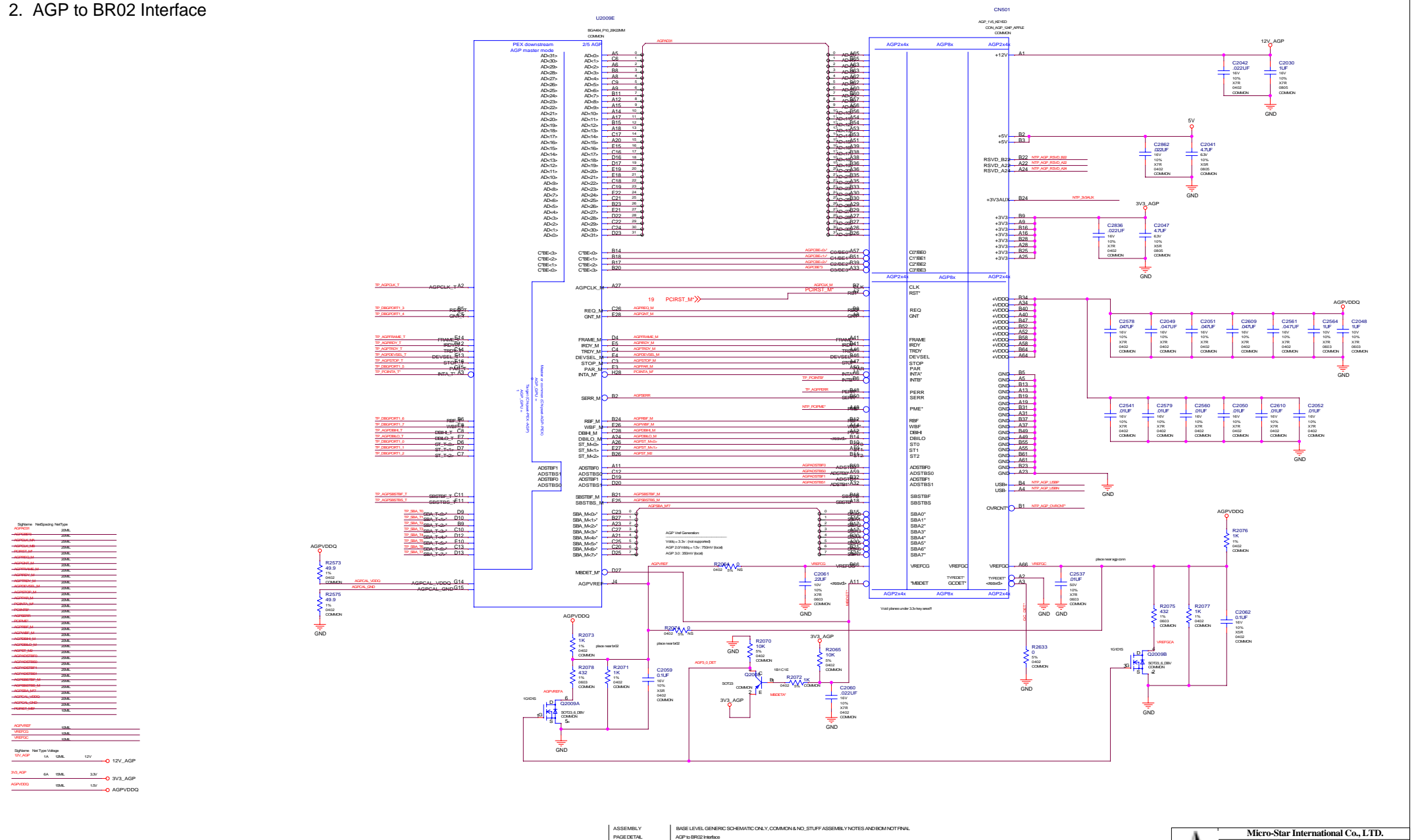
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## Video In

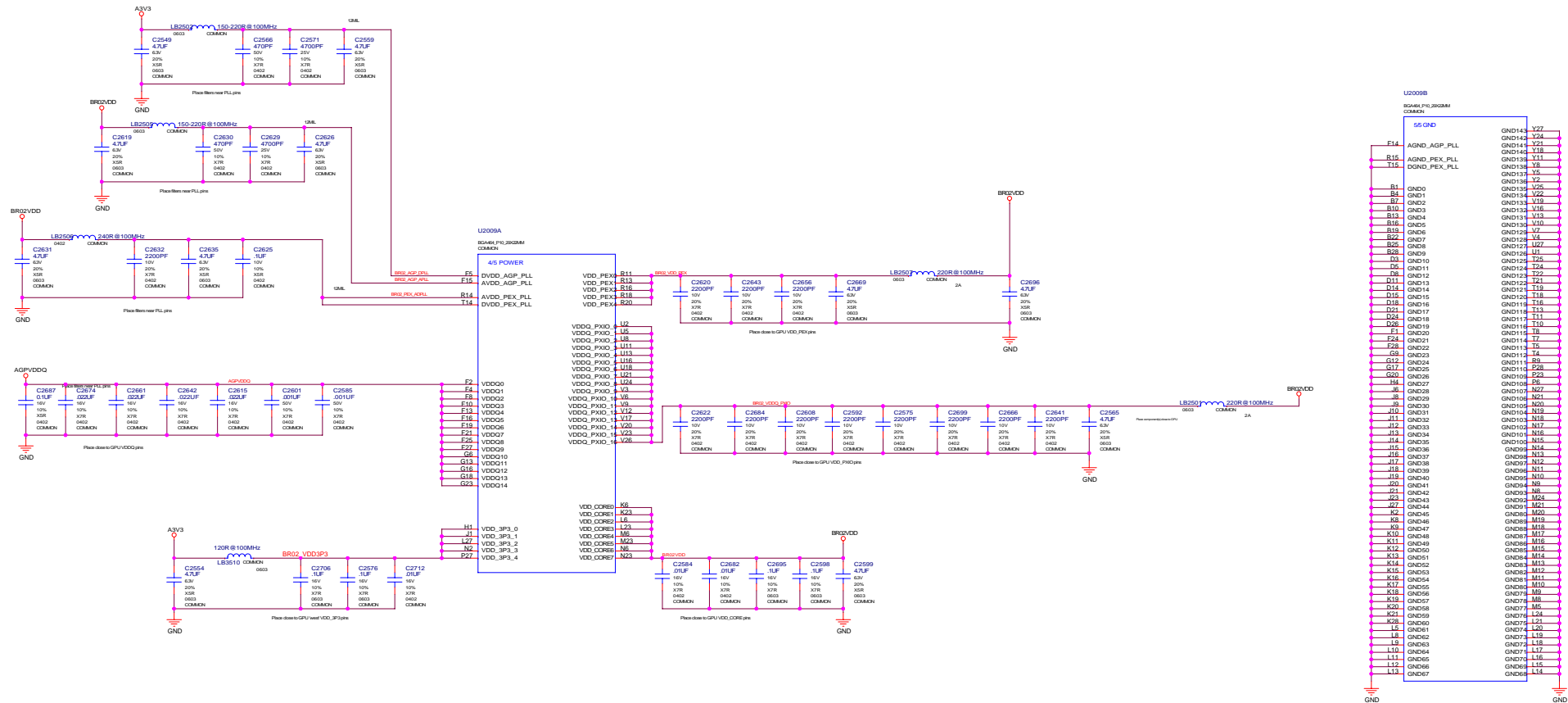




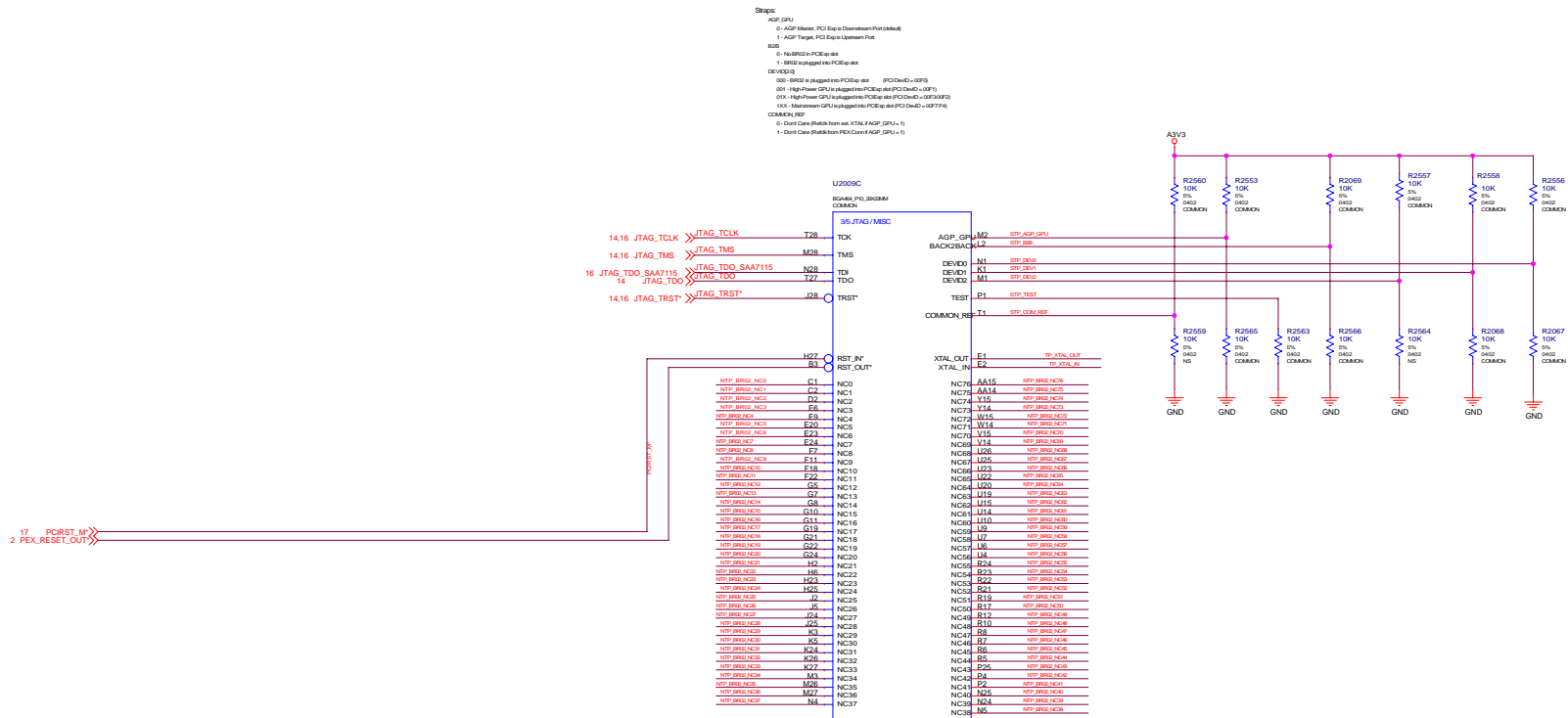
## 2. AGP to BR02 Interface



### 3. BR02 PWR/GND/De-Coupling



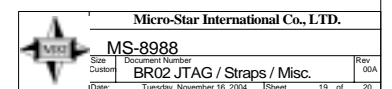
#### 4. BR02 JTAG / Straps / Misc.



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ASSEMBLY  
PAGE DETAIL

BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO\_STUFF ASSEMBLY NOTES AND BOM NOT FINAL  
BR02 JTAG / Straps / Misc.



## 5. BR02 PCI Express

Sphere	NetSping	URL	Link	URL	Offset
PERM.T001		200K_GSM_32KHz	1.00K	PERM.B001.T001	
PERM.B001.T001		200K_GSM_32KHz	1.00K	PERM.B001.T001	
PERM.B001.T002		200K_GSM_32KHz	1.00K	PERM.B001.T002	
PERM.B001.T003		200K_GSM_32KHz	1.00K	PERM.B001.T003	
PERM.B001.T004		200K_GSM_32KHz	1.00K	PERM.B001.T004	
PERM.B001.T005		200K_GSM_32KHz	1.00K	PERM.B001.T005	
PERM.B001.T006		200K_GSM_32KHz	1.00K	PERM.B001.T006	
PERM.B001.T007		200K_GSM_32KHz	1.00K	PERM.B001.T007	
PERM.B001.T008		200K_GSM_32KHz	1.00K	PERM.B001.T008	
PERM.B001.T009		200K_GSM_32KHz	1.00K	PERM.B001.T009	
PERM.B001.T010		200K_GSM_32KHz	1.00K	PERM.B001.T010	
PERM.B001.T011		200K_GSM_32KHz	1.00K	PERM.B001.T011	
PERM.B001.T012		200K_GSM_32KHz	1.00K	PERM.B001.T012	
PERM.B001.T013		200K_GSM_32KHz	1.00K	PERM.B001.T013	
PERM.B001.T014		200K_GSM_32KHz	1.00K	PERM.B001.T014	
PERM.B001.T015		200K_GSM_32KHz	1.00K	PERM.B001.T015	
PERM.B001.T016		200K_GSM_32KHz	1.00K	PERM.B001.T016	
PERM.B001.T017		200K_GSM_32KHz	1.00K	PERM.B001.T017	
PERM.B001.T018		200K_GSM_32KHz	1.00K	PERM.B001.T018	
PERM.B001.T019		200K_GSM_32KHz	1.00K	PERM.B001.T019	
PERM.B001.T020		200K_GSM_32KHz	1.00K	PERM.B001.T020	
PERM.B001.T021		200K_GSM_32KHz	1.00K	PERM.B001.T021	
PERM.B001.T022		200K_GSM_32KHz	1.00K	PERM.B001.T022	
PERM.B001.T023		200K_GSM_32KHz	1.00K	PERM.B001.T023	
PERM.B001.T024		200K_GSM_32KHz	1.00K	PERM.B001.T024	
PERM.B001.T025		200K_GSM_32KHz	1.00K	PERM.B001.T025	
PERM.B001.T026		200K_GSM_32KHz	1.00K	PERM.B001.T026	
PERM.B001.T027		200K_GSM_32KHz	1.00K	PERM.B001.T027	
PERM.B001.T028		200K_GSM_32KHz	1.00K	PERM.B001.T028	
PERM.B001.T029		200K_GSM_32KHz	1.00K	PERM.B001.T029	
PERM.B001.T030		200K_GSM_32KHz	1.00K	PERM.B001.T030	
PERM.B001.T031		200K_GSM_32KHz	1.00K	PERM.B001.T031	
PERM.B001.T032		200K_GSM_32KHz	1.00K	PERM.B001.T032	
PERM.B001.T033		200K_GSM_32KHz	1.00K	PERM.B001.T033	
PERM.B001.T034		200K_GSM_32KHz	1.00K	PERM.B001.T034	
PERM.B001.T035		200K_GSM_32KHz	1.00K	PERM.B001.T035	
PERM.B001.T036		200K_GSM_32KHz	1.00K	PERM.B001.T036	
PERM.B001.T037		200K_GSM_32KHz	1.00K	PERM.B001.T037	
PERM.B001.T038		200K_GSM_32KHz	1.00K	PERM.B001.T038	
PERM.B001.T039		200K_GSM_32KHz	1.00K	PERM.B001.T039	
PERM.B001.T040		200K_GSM_32KHz	1.00K	PERM.B001.T040	
PERM.B001.T041		200K_GSM_32KHz	1.00K	PERM.B001.T041	
PERM.B001.T042		200K_GSM_32KHz	1.00K	PERM.B001.T042	
PERM.B001.T043		200K_GSM_32KHz	1.00K	PERM.B001.T043	
PERM.B001.T044		200K_GSM_32KHz	1.00K	PERM.B001.T044	
PERM.B001.T045		200K_GSM_32KHz	1.00K	PERM.B001.T045	
PERM.B001.T046		200K_GSM_32KHz	1.00K	PERM.B001.T046	
PERM.B001.T047		200K_GSM_32KHz	1.00K	PERM.B001.T047	
PERM.B001.T048		200K_GSM_32KHz	1.00K	PERM.B001.T048	
PERM.B001.T049		200K_GSM_32KHz	1.00K	PERM.B001.T049	
PERM.B001.T050		200K_GSM_32KHz	1.00K	PERM.B001.T050	
PERM.B001.T051		200K_GSM_32KHz	1.00K	PERM.B001.T051	
PERM.B001.T052		200K_GSM_32KHz	1.00K	PERM.B001.T052	
PERM.B001.T053		200K_GSM_32KHz	1.00K	PERM.B001.T053	
PERM.B001.T054		200K_GSM_32KHz	1.00K	PERM.B001.T054	
PERM.B001.T055		200K_GSM_32KHz	1.00K	PERM.B001.T055	
PERM.B001.T056		200K_GSM_32KHz	1.00K	PERM.B001.T056	
PERM.B001.T057		200K_GSM_32KHz	1.00K	PERM.B001.T057	
PERM.B001.T058		200K_GSM_32KHz	1.00K	PERM.B001.T058	
PERM.B001.T059		200K_GSM_32KHz	1.00K	PERM.B001.T059	
PERM.B001.T060		200K_GSM_32KHz	1.00K	PERM.B001.T060	
PERM.B001.T061		200K_GSM_32KHz	1.00K	PERM.B001.T061	
PERM.B001.T062		200K_GSM_32KHz	1.00K	PERM.B001.T062	
PERM.B001.T063		200K_GSM_32KHz	1.00K	PERM.B001.T063	
PERM.B001.T064		200K_GSM_32KHz	1.00K	PERM.B001.T064	
PERM.B001.T065		200K_GSM_32KHz	1.00K	PERM.B001.T065	
PERM.B001.T066		200K_GSM_32KHz	1.00K	PERM.B001.T066	
PERM.B001.T067		200K_GSM_32KHz	1.00K	PERM.B001.T067	
PERM.B001.T068		200K_GSM_32KHz	1.00K	PERM.B001.T068	
PERM.B001.T069		200K_GSM_32KHz	1.00K	PERM.B001.T069	
PERM.B001.T070		200K_GSM_32KHz	1.00K	PERM.B001.T070	
PERM.B001.T071		200K_GSM_32KHz	1.00K	PERM.B001.T071	
PERM.B001.T072		200K_GSM_32KHz	1.00K	PERM.B001.T072	
PERM.B001.T073		200K_GSM_32KHz	1.00K	PERM.B001.T073	
PERM.B001.T074		200K_GSM_32KHz	1.00K	PERM.B001.T074	
PERM.B001.T075		200K_GSM_32KHz	1.00K	PERM.B001.T075	
PERM.B001.T076		200K_GSM_32KHz	1.00K	PERM.B001.T076	
PERM.B001.T077		200K_GSM_32KHz	1.00K	PERM.B001.T077	
PERM.B001.T078		200K_GSM_32KHz	1.00K	PERM.B001.T078	
PERM.B001.T079		200K_GSM_32KHz	1.00K	PERM.B001.T079	
PERM.B001.T080		200K_GSM_32KHz	1.00K	PERM.B001.T080	
PERM.B001.T081		200K_GSM_32KHz	1.00K	PERM.B001.T081	
PERM.B001.T082		200K_GSM_32KHz	1.00K	PERM.B001.T082	
PERM.B001.T083		200K_GSM_32KHz	1.00K	PERM.B001.T083	
PERM.B001.T084		200K_GSM_32KHz	1.00K	PERM.B001.T084	
PERM.B001.T085		200K_GSM_32KHz	1.00K	PERM.B001.T085	
PERM.B001.T086		200K_GSM_32KHz	1.00K	PERM.B001.T086	
PERM.B001.T087		200K_GSM_32KHz	1.00K	PERM.B001.T087	
PERM.B001.T088		200K_GSM_32KHz	1.00K	PERM.B001.T088	
PERM.B001.T089		200K_GSM_32KHz	1.00K	PERM.B001.T089	
PERM.B001.T090		200K_GSM_32KHz	1.00K	PERM.B001.T090	
PERM.B001.T091		200K_GSM_32KHz	1.00K	PERM.B001.T091	
PERM.B001.T092		200K_GSM_32KHz	1.00K	PERM.B001.T092	
PERM.B001.T093		200K_GSM_32KHz	1.00K	PERM.B001.T093	
PERM.B001.T094		200K_GSM_32KHz	1.00K	PERM.B001.T094	
PERM.B001.T095		200K_GSM_32KHz	1.00K	PERM.B001.T095	
PERM.B001.T096		200K_GSM_32KHz	1.00K	PERM.B001.T096	
PERM.B001.T097		200K_GSM_32KHz	1.00K	PERM.B001.T097	
PERM.B001.T098		200K_GSM_32KHz	1.00K	PERM.B001.T098	
PERM.B001.T099		200K_GSM_32KHz	1.00K	PERM.B001.T099	
PERM.B001.T100		200K_GSM_32KHz	1.00K	PERM.B001.T100	
PERM.B001.T101		200K_GSM_32KHz	1.00K	PERM.B001.T101	
PERM.B001.T102		200K_GSM_32KHz	1.00K	PERM.B001.T102	
PERM.B001.T103		200K_GSM_32KHz	1.00K	PERM.B001.T103	
PERM.B001.T104		200K_GSM_32KHz	1.00K	PERM.B001.T104	
PERM.B001.T105		200K_GSM_32KHz	1.00K	PERM.B001.T105	
PERM.B001.T106		200K_GSM_32KHz	1.00K	PERM.B001.T106	
PERM.B001.T107		200K_GSM_32KHz	1.00K	PERM.B001.T107	
PERM.B001.T108		200K_GSM_32KHz	1.00K	PERM.B001.T108	
PERM.B001.T109		200K_GSM_32KHz	1.00K	PERM.B001.T109	
PERM.B001.T110		200K_GSM_32KHz	1.00K	PERM.B001.T110	
PERM.B001.T111		200K_GSM_32KHz	1.00K	PERM.B001.T111	
PERM.B001.T112		200K_GSM_32KHz	1.00K	PERM.B001.T112	
PERM.B001.T113		200K_GSM_32KHz	1.00K	PERM.B001.T113	
PERM.B001.T114		200K_GSM_32KHz	1.00K	PERM.B001.T114	
PERM.B001.T115		200K_GSM_32KHz	1.00K	PERM.B001.T115	
PERM.B001.T116		200K_GSM_32KHz	1.00K	PERM.B001.T116	
PERM.B001.T117		200K_GSM_32KHz	1.00K	PERM.B001.T117	
PERM.B001.T118		200K_GSM_32KHz	1.00K	PERM.B001.T118	
PERM.B001.T119		200K_GSM_32KHz	1.00K	PERM.B001.T119	
PERM.B001.T120		200K_GSM_32KHz	1.00K	PERM.B001.T120	
PERM.B001.T121		200K_GSM_32KHz	1.00K	PERM.B001.T121	
PERM.B001.T122		200K_GSM_32KHz	1.00K	PERM.B001.T122	
PERM.B001.T123		200K_GSM_32KHz	1.00K	PERM.B001.T123	
PERM.B001.T124		200K_GSM_32KHz	1.00K	PERM.B001.T124	
PERM.B001.T125		200K_GSM_32KHz	1.00K	PERM.B001.T125	
PERM.B001.T126		200K_GSM_32KHz	1.00K	PERM.B001.T126	
PERM.B001.T127		200K_GSM_32KHz	1.00K	PERM.B001.T127	
PERM.B001.T128		200K_GSM_32KHz	1.00K	PERM.B001.T128	
PERM.B001.T129		200K_GSM_32KHz	1.00K	PERM.B001.T129	
PERM.B001.T130		200K_GSM_32KHz	1.00K	PERM.B001.T130	
PERM.B001.T131		200K_GSM_32KHz	1.00K	PERM.B001.T131	
PERM.B001.T132		200K_GSM_32KHz	1.00K	PERM.B001.T132	
PERM.B001.T133		200K_GSM_32KHz	1.00K	PERM.B001.T133	
PERM.B001.T134		200K_GSM_32KHz	1.00K	PERM.B001.T134	
PERM.B001.T135		200K_GSM_32KHz	1.00K	PERM.B001.T135	
PERM.B001.T136		200K_GSM_32KHz	1.00K	PERM.B001.T136	
PERM.B001.T137		200K_GSM_32KHz	1.00K	PERM.B001.T137	
PERM.B001.T138		200K_GSM_32KHz	1.00K	PERM.B001.T138	
PERM.B001.T139		200K_GSM_32KHz	1.00K	PERM.B001.T139	
PERM.B001.T140		200K_GSM_32KHz	1.00K	PERM.B001.T140	
PERM.B001.T141		200K_GSM_32KHz	1.00K	PERM.B001.T141	
PERM.B001.T142		200K_GSM_32KHz	1.00K	PERM.B001.T142	
PERM.B001.T143		200K_GSM_32KHz	1.00K	PERM.B001.T143	
PERM.B001.T144		200K_GSM_32KHz	1.00K	PERM.B001.T144	
PERM.B001.T145		200K_GSM_32KHz	1.00K	PERM.B001.T145	
PERM.B001.T146		200K_GSM_32KHz	1.00K	PERM.B001.T146	
PERM.B001.T147		200K_GSM_32KHz	1.00K	PERM.B001.T147	
PERM.B001.T148		200K_GSM_32KHz	1.00K	PERM.B001.T148	
PERM.B001.T149		200K_GSM_32KHz	1.00K	PERM.B001.T149	
PERM.B001.T150		200K_GSM_32KHz	1.00K	PERM.B001.T150	
PERM.B001.T151		200K_GSM_32KHz	1.00K	PERM.B001.T151	
PERM.B001.T152		200K_GSM_32KHz	1.00K	PERM.B001.T152	
PERM.B001.T153		200K_GSM_32KHz	1.00K	PERM.B001.T153	
PERM.B001.T154		200K_GSM_32KHz	1.00K	PERM.B001.T154	
PERM.B001.T155		200K_GSM_32KHz	1.00K	PERM.B001.T155	
PERM.B001.T156		200K_GSM_32KHz	1.00K	PERM.B001.T156	
PERM.B001.T157		200K_GSM_32KHz	1.00K	PERM.B001.T157	
PERM.B001.T158		200K_GSM_32KHz	1.00K	PERM.B001.T158	
PERM.B001.T159		200K_GSM_32KHz	1.00K	PERM.B001.T159	
PERM.B001.T160		200K_GSM_32KHz	1.00K	PERM.B001.T160	
PERM.B001.T161		200K_GSM_32KHz	1.00K	PERM.B001.T161	
PERM.B001.T162		200K_GSM_32KHz	1.00K	PERM.B001.T162	
PERM.B001.T163		200K_GSM_32KHz	1.00K	PERM.B001.T163	
PERM.B001.T164		200K_GSM_32KHz	1.00K	PERM.B001.T164	
PERM.B001.T165		200K_GSM_32KHz	1.00K	PERM.B001.T165	
PERM.B001.T166		200K_GSM_32KHz	1.00K	PERM.B001.T166	
PERM.B001.T167		200K_GSM_32KHz	1.00K	PERM.B001.T167	
PERM.B001.T168		200K_GSM_32KHz	1.00K	PERM.B001.T168	
PERM.B001.T169		200K_GSM_32KHz	1.00K	PERM.B001.T169	
PERM.B001.T170		200K_GSM_32KHz	1.00K	PERM.B001.T170	
PERM.B001.T171		200K_GSM_32KHz	1.00K	PERM.B001.T171	
PERM.B001.T172		200K_GSM_32KHz	1.00K	PERM.B001.T172	
PERM.B001.T173		200K_GSM_32KHz	1.00K	PERM.B001.T173	
PERM.B001.T174		200K_GSM_32KHz	1.00K	PERM.B001.T174	
PERM.B001.T175		200K_GSM_32KHz	1.00K	PERM.B001.T175	
PERM.B001.T176		200K_GSM_32KHz	1.00K	PERM.B001.T176	
PERM.B001.T177		200K_GSM_32KHz	1.00K	PERM.B001.T177	
PERM.B001.T178		200K_GSM_32KHz	1.00K	PERM.B001.T178	
PERM.B001.T179		200K_GSM_32KHz	1.00K	PERM.B001.T179	
PERM.B001.T180		200K_GSM_32KHz	1.00K	PERM.B001.T180	
PERM.B001.T181		200K_GSM_32KHz			

