


TABLE OF CONTENTS

Page	Description	Page	Description
V228-0A bason P1025 modify			
1.page 4:add framebuffer A circuit			
2.page 31:add framebuffer A memory circuit			
3.page 16 ,17 single DVI componet modify Dual DVI			
4.page 16:remove DP circuit			
5.page 18 add DP circuit			
6.page 18 modify HDMI component			
7.page 21:modify ADT7473 circuit add switch 開關做為使用LN2關閉偵測之用			
8.page 22:add dual VBIOS circuit ,remove HDCP rom			
9.page 23:add 一組PEX conn			
10.page 24:remove 2v5 u6 circuit, PEX_VDD liner modify switch power .			
11.page 25: modify FBVVDD .			
12.page 26,27,28,29,30: modify NVVDDD circuit .			
V228-10 bason 0A modify			
1.modify EC145,EC146,EC150,EC151,EC162,EC164,EC207,EC208 FOOTPEINT			
2.page21,23 modify LN2 shdn circuit			

REV	VARIANT	NVPN	ASSEMBLY
B	BASE	600-11025-BASE-SCH	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU0000	602-11025-0000-300	DT, GF100-050, 659/2000, 1024MB - 32Mx32 GDDR5, DVH1 + DVH4 + mHDMI
2	SKU0001	602-11025-0001-300	DT, GF100-050, 659/2000, 1024MB - 32Mx32 GDDR5, DVH1 + DVH4 + mHDMI
3	SKU0002	602-11025-0002-300	DT, GF100-030, 659/2000, 1280MB - 32Mx32 GDDR5, DVH1 + DP + mHDMI
4	SKU0003	602-11025-0003-300	DT, GF100-030, 659/2000, 1280MB - 32Mx32 GDDR5, DVH1 + DP + mHDMI
5	SKU0004	602-11025-0004-300	DT, GF100-030, 659/2000, 1280MB - 32Mx32 GDDR5, DVH1 + DVH4 + mHDMI
6	SKU0005	602-11025-0005-300	DT, GF100-050, 659/2000, 1024MB - 32Mx32 GDDR5, DVH1 + DVH4 + VENT
7	SKU0006	602-11025-0006-300	DT, GF100-030, 659/2000, 1280MB - 32Mx32 GDDR5, DVH1 + DVH4 + mHDMI
8	SKU0007	602-11025-0007-300	DT, GF100-030, 659/2000, 1280MB - 32Mx32 GDDR5, DVH1 + DVH4 + mHDMI
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
10	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
13	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Table of Contents

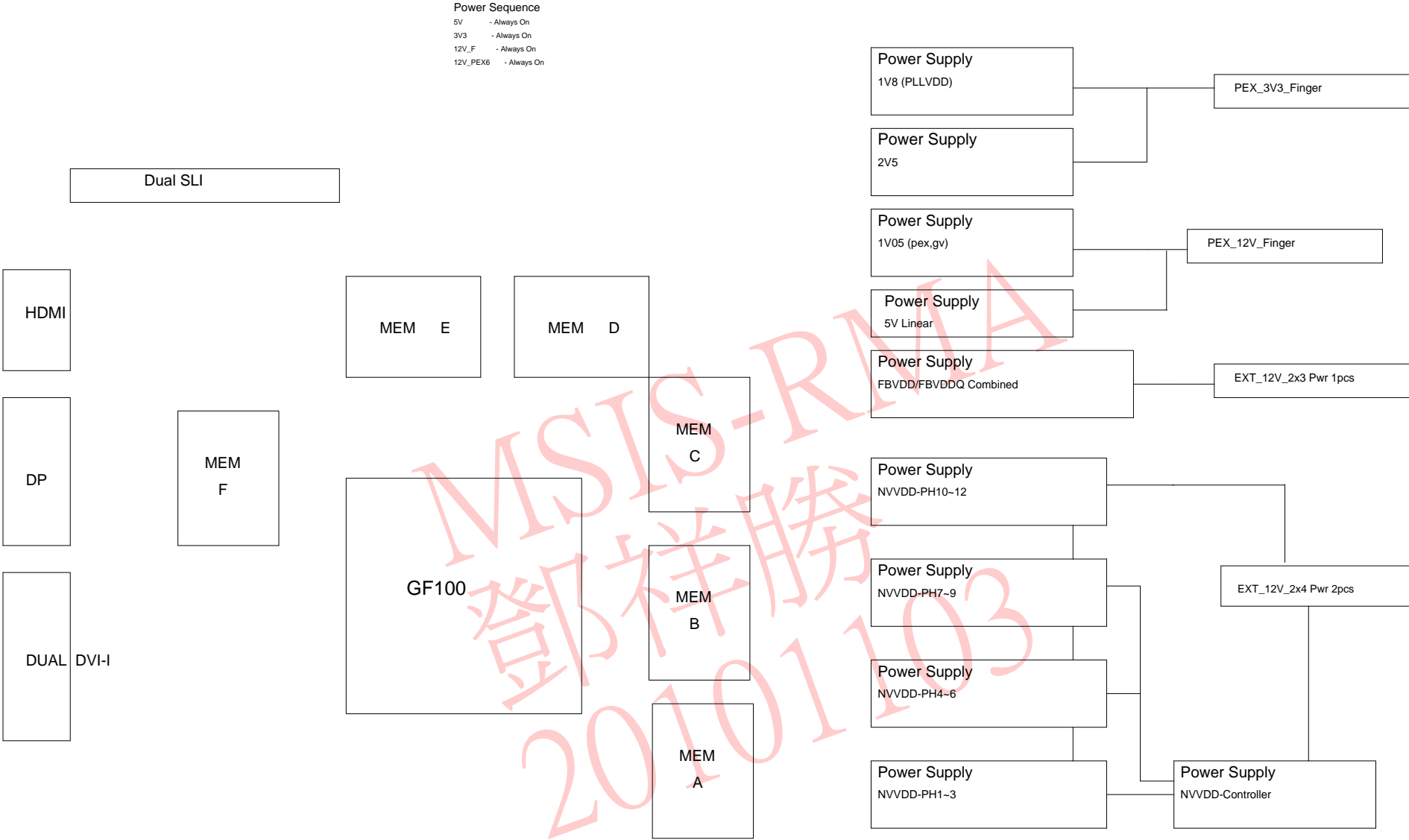


Micro-Star International Co., LTD.

<Title>
600-11022-BASE-SCH

Size Custom	Document Number <Doc>	Rev <Rev Code>
Date: Friday, July 23, 2010	Sheet 1	of 32

Block Diagram



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO-STUFF ASSEMBLY NOTES AND BOARD NOT FINAL Block Diagram

Micro-Star International Co., LTD.

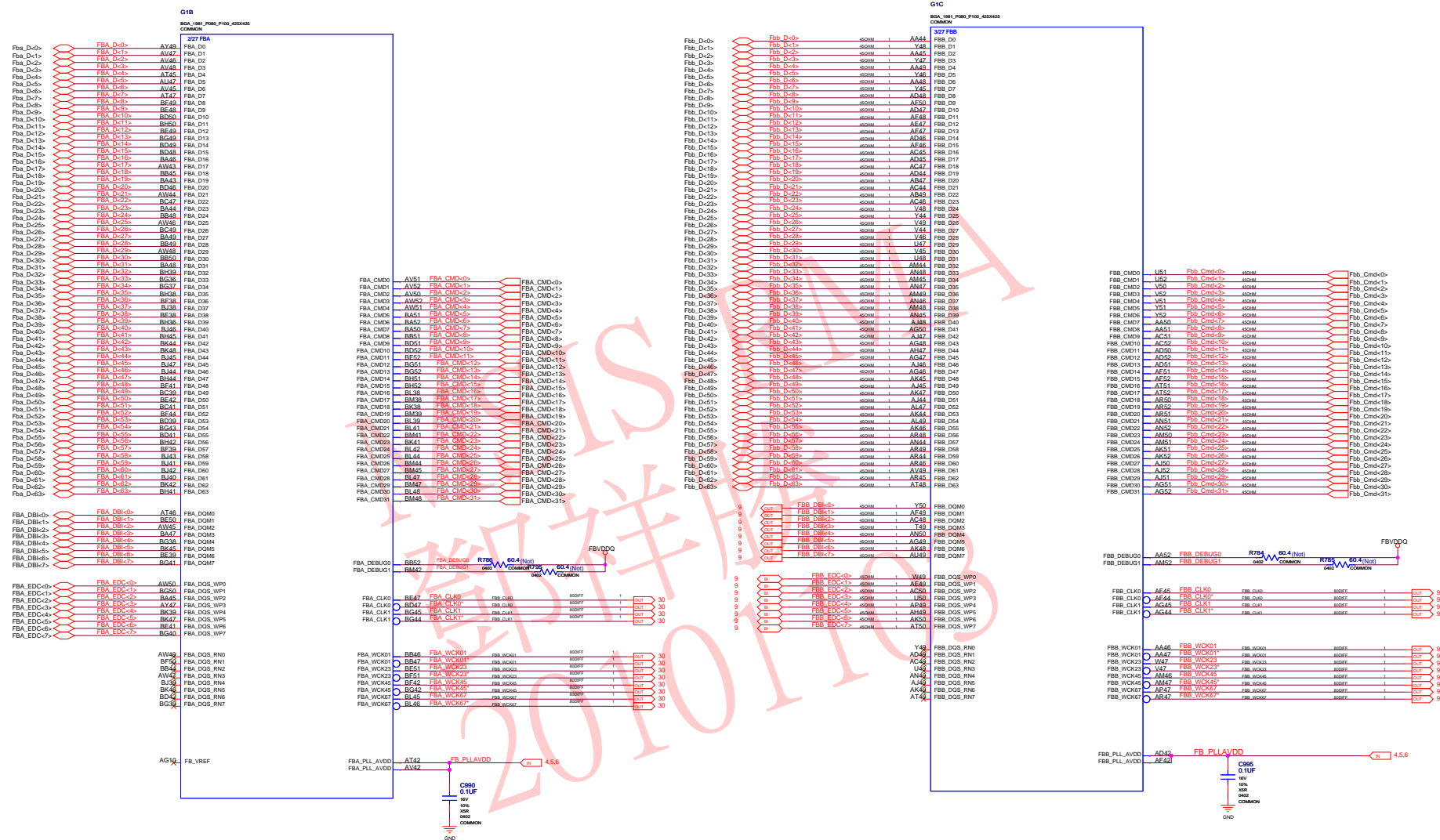
<Title>		
Size Custom	Document Number <Doc>	Rev <Rev Code>
Date: Friday, July 23, 2010	Sheet 2	of 32

PCI Express

0/10 remove R910,R940,R928,R927,R908



Framebuffer A,B: GPU Section



Framebuffer C,D: GPU Section

G1D

REG_1001_P000_P100_A050405

COMMON

4227 FBC

Fbc-D-0<	Fbc-D-0<-common	D40	FBC_D0
Fbc-D-1<	Fbc-D-1<-common	F38	FBC_D1
Fbc-D-2<	Fbc-D-2<-common	G38	FBC_D2
Fbc-D-3<	Fbc-D-3<-common	F38	FBC_D3
Fbc-D-4<	Fbc-D-4<-common	H36	FBC_D4
Fbc-D-5<	Fbc-D-5<-common	F37	FBC_D5
Fbc-D-6<	Fbc-D-6<-common	H38	FBC_D6
Fbc-D-7<	Fbc-D-7<-common	F36	FBC_D7
Fbc-D-8<	Fbc-D-8<-common	M46	FBC_D8
Fbc-D-9<	Fbc-D-9<-common	E45	FBC_D9
Fbc-D-10<	Fbc-D-10<-common	F39	FBC_D10
Fbc-D-11<	Fbc-D-11<-common	C48	FBC_D11
Fbc-D-12<	Fbc-D-12<-common	M45	FBC_D12
Fbc-D-13<	Fbc-D-13<-common	D47	FBC_D13
Fbc-D-14<	Fbc-D-14<-common	D44	FBC_D14
Fbc-D-15<	Fbc-D-15<-common	E44	FBC_D15
Fbc-D-16<	Fbc-D-16<-common	G41	FBC_D16
Fbc-D-17<	Fbc-D-17<-common	F39	FBC_D17
Fbc-D-18<	Fbc-D-18<-common	H42	FBC_D18
Fbc-D-19<	Fbc-D-19<-common	K41	FBC_D19
Fbc-D-20<	Fbc-D-20<-common	G44	FBC_D20
Fbc-D-21<	Fbc-D-21<-common	J39	FBC_D21
Fbc-D-22<	Fbc-D-22<-common	F43	FBC_D22
Fbc-D-23<	Fbc-D-23<-common	J41	FBC_D23
Fbc-D-24<	Fbc-D-24<-common	E42	FBC_D24
Fbc-D-25<	Fbc-D-25<-common	G39	FBC_D25
Fbc-D-26<	Fbc-D-26<-common	D43	FBC_D26
Fbc-D-27<	Fbc-D-27<-common	D41	FBC_D27
Fbc-D-28<	Fbc-D-28<-common	D42	FBC_D28
Fbc-D-29<	Fbc-D-29<-common	E39	FBC_D29
Fbc-D-30<	Fbc-D-30<-common	C42	FBC_D30
Fbc-D-31<	Fbc-D-31<-common	F41	FBC_D31
Fbc-D-32<	Fbc-D-32<-common	P48	FBC_D32
Fbc-D-33<	Fbc-D-33<-common	R47	FBC_D33
Fbc-D-34<	Fbc-D-34<-common	F40	FBC_D34
Fbc-D-35<	Fbc-D-35<-common	R48	FBC_D35
Fbc-D-36<	Fbc-D-36<-common	L46	FBC_D36
Fbc-D-37<	Fbc-D-37<-common	T47	FBC_D37
Fbc-D-38<	Fbc-D-38<-common	F41	FBC_D38
Fbc-D-39<	Fbc-D-39<-common	R49	FBC_D39
Fbc-D-40<	Fbc-D-40<-common	G48	FBC_D40
Fbc-D-41<	Fbc-D-41<-common	H48	FBC_D41
Fbc-D-42<	Fbc-D-42<-common	J50	FBC_D42
Fbc-D-43<	Fbc-D-43<-common	F50	FBC_D43
Fbc-D-44<	Fbc-D-44<-common	H49	FBC_D44
Fbc-D-45<	Fbc-D-45<-common	F49	FBC_D45
Fbc-D-46<	Fbc-D-46<-common	J48	FBC_D46
Fbc-D-47<	Fbc-D-47<-common	J48	FBC_D47
Fbc-D-48<	Fbc-D-48<-common	M46	FBC_D48
Fbc-D-49<	Fbc-D-49<-common	P43	FBC_D49
Fbc-D-50<	Fbc-D-50<-common	L46	FBC_D50
Fbc-D-51<	Fbc-D-51<-common	M43	FBC_D51
Fbc-D-52<	Fbc-D-52<-common	F46	FBC_D52
Fbc-D-53<	Fbc-D-53<-common	P44	FBC_D53
Fbc-D-54<	Fbc-D-54<-common	K47	FBC_D54
Fbc-D-55<	Fbc-D-55<-common	M44	FBC_D55
Fbc-D-56<	Fbc-D-56<-common	L48	FBC_D56
Fbc-D-57<	Fbc-D-57<-common	P46	FBC_D57
Fbc-D-58<	Fbc-D-58<-common	K49	FBC_D58
Fbc-D-59<	Fbc-D-59<-common	M49	FBC_D59
Fbc-D-60<	Fbc-D-60<-common	L49	FBC_D60
Fbc-D-61<	Fbc-D-61<-common	N49	FBC_D61
Fbc-D-62<	Fbc-D-62<-common	L50	FBC_D62
Fbc-D-63<	Fbc-D-63<-common	M48	FBC_D63

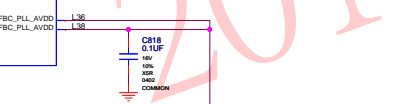
Fbc-DBI-0<	Fbc-DBI-0<-common	C38	FBC_DB0M
Fbc-DBI-1<	Fbc-DBI-1<-common	C45	FBC_DB1M
Fbc-DBI-2<	Fbc-DBI-2<-common	H39	FBC_DB2M
Fbc-DBI-3<	Fbc-DBI-3<-common	F41	FBC_DB3M
Fbc-DBI-4<	Fbc-DBI-4<-common	L46	FBC_DB4M
Fbc-DBI-5<	Fbc-DBI-5<-common	F40	FBC_DB5M
Fbc-DBI-6<	Fbc-DBI-6<-common	P45	FBC_DB6M
Fbc-DBI-7<	Fbc-DBI-7<-common	D47	FBC_DB7M

Fbc-EDC-0<	Fbc-EDC-0<-common	C38	FBC_ED0M
Fbc-EDC-1<	Fbc-EDC-1<-common	C47	FBC_ED1M
Fbc-EDC-2<	Fbc-EDC-2<-common	H41	FBC_ED2M
Fbc-EDC-3<	Fbc-EDC-3<-common	F40	FBC_ED3M
Fbc-EDC-4<	Fbc-EDC-4<-common	F50	FBC_ED4M
Fbc-EDC-5<	Fbc-EDC-5<-common	F50	FBC_ED5M
Fbc-EDC-6<	Fbc-EDC-6<-common	M45	FBC_ED6M
Fbc-EDC-7<	Fbc-EDC-7<-common	N47	FBC_ED7M

Fbc-DQS-RN0	FBC_DQS_RN0		
Fbc-DQS-RN1	FBC_DQS_RN1		
Fbc-DQS-RN2	FBC_DQS_RN2		
Fbc-DQS-RN3	FBC_DQS_RN3		
Fbc-DQS-RN4	FBC_DQS_RN4		
Fbc-DQS-RN5	FBC_DQS_RN5		
Fbc-DQS-RN6	FBC_DQS_RN6		
Fbc-DQS-RN7	FBC_DQS_RN7		

Fbc-WCK01	FBC_WCK01		
Fbc-WCK02	FBC_WCK02		
Fbc-WCK03	FBC_WCK03		
Fbc-WCK04	FBC_WCK04		
Fbc-WCK05	FBC_WCK05		
Fbc-WCK06	FBC_WCK06		
Fbc-WCK07	FBC_WCK07		

Fbc-LL-AVDD	FBC_LL_AVDD		
Fbc-LL-AVDD	FBC_LL_AVDD		



G1E

REG_1001_P000_P100_A050405

COMMON

527 FBD

Fbd-D-0<	Fbd-D-0<-common	E21	FBD_D0
Fbd-D-1<	Fbd-D-1<-common	E20	FBD_D1
Fbd-D-2<	Fbd-D-2<-common	E21	FBD_D2
Fbd-D-3<	Fbd-D-3<-common	E20	FBD_D3
Fbd-D-4<	Fbd-D-4<-common	E20	FBD_D4
Fbd-D-5<	Fbd-D-5<-common	E20	FBD_D5
Fbd-D-6<	Fbd-D-6<-common	E21	FBD_D6
Fbd-D-7<	Fbd-D-7<-common	E20	FBD_D7
Fbd-D-8<	Fbd-D-8<-common	E24	FBD_D8
Fbd-D-9<	Fbd-D-9<-common	E28	FBD_D9
Fbd-D-10<	Fbd-D-10<-common	E24	FBD_D10
Fbd-D-11<	Fbd-D-11<-common	E28	FBD_D11
Fbd-D-12<	Fbd-D-12<-common	E25	FBD_D12
Fbd-D-13<	Fbd-D-13<-common	E26	FBD_D13
Fbd-D-14<	Fbd-D-14<-common	E24	FBD_D14
Fbd-D-15<	Fbd-D-15<-common	E28	FBD_D15
Fbd-D-16<	Fbd-D-16<-common	E23	FBD_D16
Fbd-D-17<	Fbd-D-17<-common	E24	FBD_D17
Fbd-D-18<	Fbd-D-18<-common	E24	FBD_D18
Fbd-D-19<	Fbd-D-19<-common	E22	FBD_D19
Fbd-D-20<	Fbd-D-20<-common	E22	FBD_D20
Fbd-D-21<	Fbd-D-21<-common	E23	FBD_D21
Fbd-D-22<	Fbd-D-22<-common	E22	FBD_D22
Fbd-D-23<	Fbd-D-23<-common	E23	FBD_D23
Fbd-D-24<	Fbd-D-24<-common	E18	FBD_D24
Fbd-D-25<	Fbd-D-25<-common	E20	FBD_D25
Fbd-D-26<	Fbd-D-26<-common	E18	FBD_D26
Fbd-D-27<	Fbd-D-27<-common	E18	FBD_D27
Fbd-D-28<	Fbd-D-28<-common	E18	FBD_D28
Fbd-D-29<	Fbd-D-29<-common	E17	FBD_D29
Fbd-D-30<	Fbd-D-30<-common	E18	FBD_D30
Fbd-D-31<	Fbd-D-31<-common	E17	FBD_D31
Fbd-D-32<	Fbd-D-32<-common	E20	FBD_D32
Fbd-D-33<	Fbd-D-33<-common	E33	FBD_D33
Fbd-D-34<	Fbd-D-34<-common	E33	FBD_D34
Fbd-D-35<	Fbd-D-35<-common	E33	FBD_D35
Fbd-D-36<	Fbd-D-36<-common	E32	FBD_D36
Fbd-D-37<	Fbd-D-37<-common	E33	FBD_D37
Fbd-D-38<	Fbd-D-38<-common	E32	FBD_D38
Fbd-D-39<	Fbd-D-39<-common	E32	FBD_D39
Fbd-D-40<	Fbd-D-40<-common	E29	FBD_D40
Fbd-D-41<	Fbd-D-41<-common	E27	FBD_D41
Fbd-D-42<	Fbd-D-42<-common	E27	FBD_D42
Fbd-D-43<	Fbd-D-43<-common	E27	FBD_D43
Fbd-D-44<	Fbd-D-44<-common	E28	FBD_D44
Fbd-D-45<	Fbd-D-45<-common	E27	FBD_D45
Fbd-D-46<	Fbd-D-46<-common	E29	FBD_D46
Fbd-D-47<	Fbd-D-47<-common	E27	FBD_D47
Fbd-D-48<	Fbd-D-48<-common	E28	FBD_D48
Fbd-D-49<	Fbd-D-49<-common	E30	FBD_D49
Fbd-D-50<	Fbd-D-50<-common	E29	FBD_D50
Fbd-D-51<	Fbd-D-51<-common	E31	FBD_D51
Fbd-D-52<	Fbd-D-52<-common	E30	FBD_D52
Fbd-D-53<	Fbd-D-53<-common	E30	FBD_D53
Fbd-D-54<	Fbd-D-54<-common	E31	FBD_D54
Fbd-D-55<	Fbd-D-55<-common	E30	FBD_D55
Fbd-D-56<	Fbd-D-56<-common	E36	FBD_D56
Fbd-D-57<	Fbd-D-57<-common	E33	FBD_D57
Fbd-D-58<	Fbd-D-58<-common	E33	FBD_D58
Fbd-D-59<	Fbd-D-59<-common	E35	FBD_D59
Fbd-D-60<	Fbd-D-60<-common	E35	FBD_D60
Fbd-D-61<	Fbd-D-61<-common	E38	FBD_D61
Fbd-D-62<	Fbd-D-62<-common	E38	FBD_D62
Fbd-D-63<	Fbd-D-63<-common	E38	FBD_D63

Fbd-DBI-0<	Fbd-DBI-0<-common	C20	FBD_DB0M
Fbd-DBI-1<	Fbd-DBI-1<-common	E28	FBD_DB1M
Fbd-DBI-2<	Fbd-DBI-2<-common	E28	FBD_DB2M
Fbd-DBI-3<	Fbd-DBI-3<-common	E18	FBD_DB3M
Fbd-DBI-4<	Fbd-DBI-4<-common	C33	FBD_DB4M
Fbd-DBI-5<	Fbd-DBI-5<-common	E27	FBD_DB5M
Fbd-DBI-6<	Fbd-DBI-6<-common	E30	FBD_DB6M
Fbd-DBI-7<	Fbd-DBI-7<-common	E27	FBD_DB7M

Fbd-EDC-0<	Fbd-EDC-0<-common	D19	FBD_ED0M
Fbd-EDC-1<	Fbd-EDC-1<-common	D25	FBD_ED1M
Fbd-EDC-2<	Fbd-EDC-2<-common	E23	FBD_ED2M
Fbd-EDC-3<	Fbd-EDC-3<-common	E17	FBD_ED3M
Fbd-EDC-4<	Fbd-EDC-4<-common	D34	FBD_ED4M
Fbd-EDC-5<	Fbd-EDC-5<-common	D38	FBD_ED5M
Fbd-EDC-6<	Fbd-EDC-6<-common	C30	FBD_ED6M
Fbd-EDC-7<	Fbd-EDC-7<-common	C36	FBD_ED7M

Fbd-DQS-RN0	FBD_DQS_RN0		
Fbd-DQS-RN1	FBD_DQS_RN1		
Fbd-DQS-RN2	FBD_DQS_RN2		
Fbd-DQS-RN3	FBD_DQS_RN3		
Fbd-DQS-RN4	FBD_DQS_RN4		
Fbd-DQS-RN5	FBD_DQS_RN5		
Fbd-DQS-RN6	FBD_DQS_RN6		
Fbd-DQS-RN7	FBD_DQS_RN7		

Fbd-WCK01	FBD_WCK01		
Fbd-WCK02	FBD_WCK02		
Fbd-WCK03	FBD_WCK03		
Fbd-WCK04	FBD_WCK04		
Fbd-WCK05	FBD_WCK05		
Fbd-WCK06	FBD_WCK06		
Fbd-WCK07	FBD_WCK07		

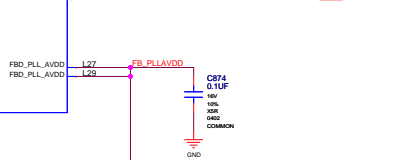


Fbd-CMD0	B17	Fbd-Cmd-0<	Fbd-Cmd-0<
Fbd-CMD1	A17	Fbd-Cmd-1<	Fbd-Cmd-1<
Fbd-CMD2	A18	Fbd-Cmd-2<	Fbd-Cmd-2<
Fbd-CMD3	A18	Fbd-Cmd-3<	Fbd-Cmd-3<
Fbd-CMD4	B18	Fbd-Cmd-4<	Fbd-Cmd-4<
Fbd-CMD5	B20	Fbd-Cmd-5<	Fbd-Cmd-5<
Fbd-CMD6	A20	Fbd-Cmd-6<	Fbd-Cmd-6<
Fbd-CMD7	C21	Fbd-Cmd-7<	Fbd-Cmd-7<
Fbd-CMD8	B21	Fbd-Cmd-8<	Fbd-Cmd-8<
Fbd-CMD9	B23	Fbd-Cmd-9<	Fbd-Cmd-9<
Fbd-CMD10	A23	Fbd-Cmd-10<	Fbd-Cmd-10<
Fbd-CMD11	C24	Fbd-Cmd-11<	Fbd-Cmd-11<
Fbd-CMD12	A24	Fbd-Cmd-12<	Fbd-Cmd-12<
Fbd-CMD13	B24	Fbd-Cmd-13<	Fbd-Cmd-13<
Fbd-CMD14	B26	Fbd-Cmd-14<	Fbd-Cmd-14<
Fbd-CMD15	A26	Fbd-Cmd-15<	Fbd-Cmd-15<
Fbd-CMD16	B30	Fbd-Cmd-16<	Fbd-Cmd-16<
Fbd-CMD17	A36	Fbd-Cmd-17<	Fbd-Cmd-17<
Fbd-CMD18	C35	Fbd-Cmd-18<	Fbd-Cmd-18<
Fbd-CMD19	A35	Fbd-Cmd-19<	Fbd-Cmd-19<
Fbd-CMD20	B35	Fbd-Cmd-20<	Fbd-Cmd-20<
Fbd-CMD21	B33	Fbd-Cmd-21<	Fbd-Cmd-21<
Fbd-CMD22	A33	Fbd-Cmd-22<	Fbd-Cmd-22<
Fbd-CMD23	C32	Fbd-Cmd-23<	Fbd-Cmd-23<
Fbd-CMD24	B32	Fbd-Cmd-24<	Fbd-Cmd-24<
Fbd-CMD25	B30	Fbd-Cmd-25<	Fbd-Cmd-25<
Fbd-CMD26	A30	Fbd-Cmd-26<	Fbd-Cmd-26<
Fbd-CMD27	C29	Fbd-Cmd-27<	Fbd-Cmd-27<
Fbd-CMD28	A28	Fbd-Cmd-28<	Fbd-Cmd-28<
Fbd-CMD29	B28	Fbd-Cmd-29<	Fbd-Cmd-29<
Fbd-CMD30	B27	Fbd-Cmd-30<	Fbd-Cmd-30<
Fbd-CMD31	A27	Fbd-Cmd-31<	Fbd-Cmd-31<



Fbd-CLK0	H26	FBD_CLK0	FBD_CLK0
Fbd-CLK1	H27	FBD_CLK1	FBD_CLK1
Fbd-CLK2	H27	FBD_CLK2	FBD_CLK2
Fbd-CLK3	H27	FBD_CLK3	FBD_CLK3

Fbd-WCK01	D21	FBD_WCK01	FBD_WCK01
Fbd-WCK02	E21	FBD_WCK02	FBD_WCK02
Fbd-WCK03	F18	FBD_WCK03	FBD_WCK03
Fbd-WCK04	G18	FBD_WCK04	FBD_WCK04
Fbd-WCK05	F32	FBD_WCK05	FBD_WCK05
Fbd-WCK06	F34	FBD_WCK06	FBD_WCK06
Fbd-WCK07	F35	FBD_WCK07	FBD_WCK07



Micro-Star International Co., LTD.

<Title>

Size: Custom Document Number: <Doc>

Date: Friday, July 23, 2010 Sheet: 5 of 32

<Rev>

<RevCode>

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. 3100 ASSEMBLY NOTES AND BOI NOT FINAL

Framebuffer C,D: GPU Section

Framebuffer E,F: GPU Section

G1F

85A, 1981, P080, P100, 450A435
COMMON

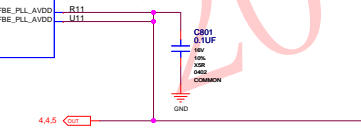
Fbe_D<0>	Fbe_D<0>	COMMON	N4	FBE_D0
Fbe_D<1>	Fbe_D<1>	COMMON	N6	FBE_D1
Fbe_D<2>	Fbe_D<2>	COMMON	R7	FBE_D2
Fbe_D<3>	Fbe_D<3>	COMMON	AC	FBE_D3
Fbe_D<4>	Fbe_D<4>	COMMON	UB	FBE_D4
Fbe_D<5>	Fbe_D<5>	COMMON	T6	FBE_D5
Fbe_D<6>	Fbe_D<6>	COMMON	RS	FBE_D6
Fbe_D<7>	Fbe_D<7>	COMMON	UB	FBE_D7
Fbe_D<8>	Fbe_D<8>	COMMON	G4	FBE_D8
Fbe_D<9>	Fbe_D<9>	COMMON	H5	FBE_D9
Fbe_D<10>	Fbe_D<10>	COMMON	J3	FBE_D10
Fbe_D<11>	Fbe_D<11>	COMMON	E3	FBE_D11
Fbe_D<12>	Fbe_D<12>	COMMON	H4	FBE_D12
Fbe_D<13>	Fbe_D<13>	COMMON	E4	FBE_D13
Fbe_D<14>	Fbe_D<14>	COMMON	J4	FBE_D14
Fbe_D<15>	Fbe_D<15>	COMMON	J5	FBE_D15
Fbe_D<16>	Fbe_D<16>	COMMON	M7	FBE_D16
Fbe_D<17>	Fbe_D<17>	COMMON	L8	FBE_D17
Fbe_D<18>	Fbe_D<18>	COMMON	MU	FBE_D18
Fbe_D<19>	Fbe_D<19>	COMMON	J7	FBE_D19
Fbe_D<20>	Fbe_D<20>	COMMON	P9	FBE_D20
Fbe_D<21>	Fbe_D<21>	COMMON	K8	FBE_D21
Fbe_D<22>	Fbe_D<22>	COMMON	M9	FBE_D22
Fbe_D<23>	Fbe_D<23>	COMMON	P7	FBE_D23
Fbe_D<24>	Fbe_D<24>	COMMON	K4	FBE_D24
Fbe_D<25>	Fbe_D<25>	COMMON	M6	FBE_D25
Fbe_D<26>	Fbe_D<26>	COMMON	L4	FBE_D26
Fbe_D<27>	Fbe_D<27>	COMMON	P9	FBE_D27
Fbe_D<28>	Fbe_D<28>	COMMON	L3	FBE_D28
Fbe_D<29>	Fbe_D<29>	COMMON	M5	FBE_D29
Fbe_D<30>	Fbe_D<30>	COMMON	E14	FBE_D30
Fbe_D<31>	Fbe_D<31>	COMMON	E15	FBE_D31
Fbe_D<32>	Fbe_D<32>	COMMON	G15	FBE_D32
Fbe_D<33>	Fbe_D<33>	COMMON	E16	FBE_D33
Fbe_D<34>	Fbe_D<34>	COMMON	H17	FBE_D34
Fbe_D<35>	Fbe_D<35>	COMMON	E16	FBE_D35
Fbe_D<36>	Fbe_D<36>	COMMON	M7	FBE_D36
Fbe_D<37>	Fbe_D<37>	COMMON	M5	FBE_D37
Fbe_D<38>	Fbe_D<38>	COMMON	D15	FBE_D38
Fbe_D<39>	Fbe_D<39>	COMMON	D7	FBE_D39
Fbe_D<40>	Fbe_D<40>	COMMON	E8	FBE_D40
Fbe_D<41>	Fbe_D<41>	COMMON	C9	FBE_D41
Fbe_D<42>	Fbe_D<42>	COMMON	D8	FBE_D42
Fbe_D<43>	Fbe_D<43>	COMMON	C5	FBE_D43
Fbe_D<44>	Fbe_D<44>	COMMON	D8	FBE_D44
Fbe_D<45>	Fbe_D<45>	COMMON	D6	FBE_D45
Fbe_D<46>	Fbe_D<46>	COMMON	D9	FBE_D46
Fbe_D<47>	Fbe_D<47>	COMMON	E9	FBE_D47
Fbe_D<48>	Fbe_D<48>	COMMON	G12	FBE_D48
Fbe_D<49>	Fbe_D<49>	COMMON	K14	FBE_D49
Fbe_D<50>	Fbe_D<50>	COMMON	H11	FBE_D50
Fbe_D<51>	Fbe_D<51>	COMMON	K12	FBE_D51
Fbe_D<52>	Fbe_D<52>	COMMON	C9	FBE_D52
Fbe_D<53>	Fbe_D<53>	COMMON	J14	FBE_D53
Fbe_D<54>	Fbe_D<54>	COMMON	E10	FBE_D54
Fbe_D<55>	Fbe_D<55>	COMMON	E12	FBE_D55
Fbe_D<56>	Fbe_D<56>	COMMON	E11	FBE_D56
Fbe_D<57>	Fbe_D<57>	COMMON	G14	FBE_D57
Fbe_D<58>	Fbe_D<58>	COMMON	D10	FBE_D58
Fbe_D<59>	Fbe_D<59>	COMMON	D12	FBE_D59
Fbe_D<60>	Fbe_D<60>	COMMON	D11	FBE_D60
Fbe_D<61>	Fbe_D<61>	COMMON	D13	FBE_D61
Fbe_D<62>	Fbe_D<62>	COMMON	C11	FBE_D62
Fbe_D<63>	Fbe_D<63>	COMMON	E12	FBE_D63

FBE_CMD0	R2	Fbe_Cmd0<0>	COMMON	Fbe_Cmd0<0>
FBE_CMD1	R1	Fbe_Cmd1<1>	COMMON	Fbe_Cmd1<1>
FBE_CMD2	R3	Fbe_Cmd2<2>	COMMON	Fbe_Cmd2<2>
FBE_CMD3	P1	Fbe_Cmd3<3>	COMMON	Fbe_Cmd3<3>
FBE_CMD4	P2	Fbe_Cmd4<4>	COMMON	Fbe_Cmd4<4>
FBE_CMD5	M2	Fbe_Cmd5<5>	COMMON	Fbe_Cmd5<5>
FBE_CMD6	M1	Fbe_Cmd6<6>	COMMON	Fbe_Cmd6<6>
FBE_CMD7	M3	Fbe_Cmd7<7>	COMMON	Fbe_Cmd7<7>
FBE_CMD8	L2	Fbe_Cmd8<8>	COMMON	Fbe_Cmd8<8>
FBE_CMD9	J2	Fbe_Cmd9<9>	COMMON	Fbe_Cmd9<9>
FBE_CMD10	J1	Fbe_Cmd10<10>	COMMON	Fbe_Cmd10<10>
FBE_CMD11	H1	Fbe_Cmd11<11>	COMMON	Fbe_Cmd11<11>
FBE_CMD12	P2	Fbe_Cmd12<12>	COMMON	Fbe_Cmd12<12>
FBE_CMD13	E1	Fbe_Cmd13<13>	COMMON	Fbe_Cmd13<13>
FBE_CMD14	E2	Fbe_Cmd14<14>	COMMON	Fbe_Cmd14<14>
FBE_CMD15	E1	Fbe_Cmd15<15>	COMMON	Fbe_Cmd15<15>
FBE_CMD16	B15	Fbe_Cmd16<16>	COMMON	Fbe_Cmd16<16>
FBE_CMD17	A15	Fbe_Cmd17<17>	COMMON	Fbe_Cmd17<17>
FBE_CMD18	C15	Fbe_Cmd18<18>	COMMON	Fbe_Cmd18<18>
FBE_CMD19	A14	Fbe_Cmd19<19>	COMMON	Fbe_Cmd19<19>
FBE_CMD20	B14	Fbe_Cmd20<20>	COMMON	Fbe_Cmd20<20>
FBE_CMD21	B12	Fbe_Cmd21<21>	COMMON	Fbe_Cmd21<21>
FBE_CMD22	A12	Fbe_Cmd22<22>	COMMON	Fbe_Cmd22<22>
FBE_CMD23	C12	Fbe_Cmd23<23>	COMMON	Fbe_Cmd23<23>
FBE_CMD24	B11	Fbe_Cmd24<24>	COMMON	Fbe_Cmd24<24>
FBE_CMD25	B9	Fbe_Cmd25<25>	COMMON	Fbe_Cmd25<25>
FBE_CMD26	A9	Fbe_Cmd26<26>	COMMON	Fbe_Cmd26<26>
FBE_CMD27	A8	Fbe_Cmd27<27>	COMMON	Fbe_Cmd27<27>
FBE_CMD28	B6	Fbe_Cmd28<28>	COMMON	Fbe_Cmd28<28>
FBE_CMD29	A6	Fbe_Cmd29<29>	COMMON	Fbe_Cmd29<29>
FBE_CMD30	A5	Fbe_Cmd30<30>	COMMON	Fbe_Cmd30<30>
FBE_CMD31	J5	Fbe_Cmd31<31>	COMMON	Fbe_Cmd31<31>



FBE_CLK0	H8	FBE_CLK0	COMMON	FBE_CLK0
FBE_CLK1	F8	FBE_CLK1	COMMON	FBE_CLK1
FBE_CLK2	F9	FBE_CLK2	COMMON	FBE_CLK2

FBE_WCK01	L7	FBE_WCK01	COMMON	FBE_WCK01
FBE_WCK02	L6	FBE_WCK02	COMMON	FBE_WCK02
FBE_WCK03	H2	FBE_WCK03	COMMON	FBE_WCK03
FBE_WCK04	G2	FBE_WCK04	COMMON	FBE_WCK04
FBE_WCK05	G11	FBE_WCK05	COMMON	FBE_WCK05
FBE_WCK06	E11	FBE_WCK06	COMMON	FBE_WCK06
FBE_WCK07	B6	FBE_WCK07	COMMON	FBE_WCK07
FBE_WCK08	B7	FBE_WCK08	COMMON	FBE_WCK08



G1Q

85A, 1981, P080, P100, 450A435
COMMON

Fb_D<0>	Fb_D<0>	COMMON	AN3	FBF_D0
Fb_D<1>	Fb_D<1>	COMMON	AN5	FBF_D1
Fb_D<2>	Fb_D<2>	COMMON	AN8	FBF_D2
Fb_D<3>	Fb_D<3>	COMMON	AN3	FBF_D3
Fb_D<4>	Fb_D<4>	COMMON	AN4	FBF_D4
Fb_D<5>	Fb_D<5>	COMMON	AN7	FBF_D5
Fb_D<6>	Fb_D<6>	COMMON	AN6	FBF_D6
Fb_D<7>	Fb_D<7>	COMMON	AN8	FBF_D7
Fb_D<8>	Fb_D<8>	COMMON	A5	FBF_D8
Fb_D<9>	Fb_D<9>	COMMON	AG3	FBF_D9
Fb_D<10>	Fb_D<10>	COMMON	A3	FBF_D10
Fb_D<11>	Fb_D<11>	COMMON	AG5	FBF_D11
Fb_D<12>	Fb_D<12>	COMMON	AG6	FBF_D12
Fb_D<13>	Fb_D<13>	COMMON	AG8	FBF_D13
Fb_D<14>	Fb_D<14>	COMMON	A7	FBF_D14
Fb_D<15>	Fb_D<15>	COMMON	AG7	FBF_D15
Fb_D<16>	Fb_D<16>	COMMON	AK3	FBF_D16
Fb_D<17>	Fb_D<17>	COMMON	A8	FBF_D17
Fb_D<18>	Fb_D<18>	COMMON	AK6	FBF_D18
Fb_D<19>	Fb_D<19>	COMMON	A9	FBF_D19
Fb_D<20>	Fb_D<20>	COMMON	AL6	FBF_D20
Fb_D<21>	Fb_D<21>	COMMON	AK9	FBF_D21
Fb_D<22>	Fb_D<22>	COMMON	A4	FBF_D22
Fb_D<23>	Fb_D<23>	COMMON	AK7	FBF_D23
Fb_D<24>	Fb_D<24>	COMMON	AN9	FBF_D24
Fb_D<25>	Fb_D<25>	COMMON	AK4	FBF_D25
Fb_D<26>	Fb_D<26>	COMMON	AK9	FBF_D26
Fb_D<27>	Fb_D<27>	COMMON	AK7	FBF_D27
Fb_D<28>	Fb_D<28>	COMMON	AK7	FBF_D28
Fb_D<29>	Fb_D<29>	COMMON	AK8	FBF_D29
Fb_D<30>	Fb_D<30>	COMMON	AK8	FBF_D30
Fb_D<31>	Fb_D<31>	COMMON	AT5	FBF_D31
Fb_D<32>	Fb_D<32>	COMMON	AK9	FBF_D32
Fb_D<33>	Fb_D<33>	COMMON	AK7	FBF_D33
Fb_D<34>	Fb_D<34>	COMMON	AK8	FBF_D34
Fb_D<35>	Fb_D<35>	COMMON	AK7	FBF_D35
Fb_D<36>	Fb_D<36>	COMMON	AK4	FBF_D36
Fb_D<37>	Fb_D<37>	COMMON	AK7	FBF_D37
Fb_D<38>	Fb_D<38>	COMMON	AK7	FBF_D38
Fb_D<39>	Fb_D<39>	COMMON	AK7	FBF_D39
Fb_D<40>	Fb_D<40>	COMMON	AK7	FBF_D40
Fb_D<41>	Fb_D<41>	COMMON	AK7	FBF_D41
Fb_D<42>	Fb_D<42>	COMMON	AK7	FBF_D42
Fb_D<43>	Fb_D<43>	COMMON	AK7	FBF_D43
Fb_D<44>	Fb_D<44>	COMMON	AK7	FBF_D44
Fb_D<45>	Fb_D<45>	COMMON	AK7	FBF_D45
Fb_D<46>	Fb_D<46>	COMMON	AK7	FBF_D46
Fb_D<47>	Fb_D<47>	COMMON	AK7	FBF_D47
Fb_D<48>	Fb_D<48>	COMMON	AK7	FBF_D48
Fb_D<49>	Fb_D<49>	COMMON	AK7	FBF_D49
Fb_D<50>	Fb_D<50>	COMMON	AK7	FBF_D50
Fb_D<51>	Fb_D<51>	COMMON	AK7	FBF_D51
Fb_D<52>	Fb_D<52>	COMMON	AK7	FBF_D52
Fb_D<53>	Fb_D<53>	COMMON	AK7	FBF_D53
Fb_D<54>	Fb_D<54>	COMMON	AK7	FBF_D54
Fb_D<55>	Fb_D<55>	COMMON	AK7	FBF_D55
Fb_D<56>	Fb_D<56>	COMMON	AK7	FBF_D56
Fb_D<57>	Fb_D<57>	COMMON	AK7	FBF_D57
Fb_D<58>	Fb_D<58>	COMMON	AK7	FBF_D58
Fb_D<59>	Fb_D<59>	COMMON	AK7	FBF_D59
Fb_D<60>	Fb_D<60>	COMMON	AK7	FBF_D60
Fb_D<61>	Fb_D<61>	COMMON	AK7	FBF_D61
Fb_D<62>	Fb_D<62>	COMMON	AK7	FBF_D62
Fb_D<63>	Fb_D<63>	COMMON	AK7	FBF_D63

FBF_DBG<0>	AN3	FBF_DBG0<0>	COMMON	FBF_DBG0<0>
FBF_DBG<1>	AG4	FBF_DBG1<1>	COMMON	FBF_DBG1<1>
FBF_DBG<2>	AK5	FBF_DBG2<2>	COMMON	FBF_DBG2<2>
FBF_DBG<3>	AL4	FBF_DBG3<3>	COMMON	FBF_DBG3<3>
FBF_DBG<4>	AK7	FBF_DBG4<4>	COMMON	FBF_DBG4<4>
FBF_DBG<5>	AK7	FBF_DBG5<5>	COMMON	FBF_DBG5<5>
FBF_DBG<6>	AK7	FBF_DBG6<6>	COMMON	FBF_DBG6<6>
FBF_DBG<7>	AK7	FBF_DBG7<7>	COMMON	FBF_DBG7<7>

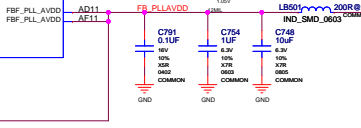
FBF_DQS_WP0	AG4	FBF_DQS_WP0	COMMON	FBF_DQS_WP0
FBF_DQS_WP1	AK4	FBF_DQS_WP1	COMMON	FBF_DQS_WP1
FBF_DQS_WP2	AK1	FBF_DQS_WP2	COMMON	FBF_DQS_WP2
FBF_DQS_WP3	AK3	FBF_DQS_WP3	COMMON	FBF_DQS_WP3
FBF_DQS_WP4	AK7	FBF_DQS_WP4	COMMON	FBF_DQS_WP4
FBF_DQS_WP5	AK7	FBF_DQS_WP5	COMMON	FBF_DQS_WP5
FBF_DQS_WP6	AK7	FBF_DQS_WP6	COMMON	FBF_DQS_WP6
FBF_DQS_WP7	AK7	FBF_DQS_WP7	COMMON	FBF_DQS_WP7

FBF_DQS_RN0	AK6	FBF_DQS_RN0	COMMON	FBF_DQS_RN0
FBF_DQS_RN1	AK6	FBF_DQS_RN1	COMMON	FBF_DQS_RN1
FBF_DQS_RN2	AK6	FBF_DQS_RN2	COMMON	FBF_DQS_RN2
FBF_DQS_RN3	AK6	FBF_DQS_RN3	COMMON	FBF_DQS_RN3
FBF_DQS_RN4	AK6	FBF_DQS_RN4	COMMON	FBF_DQS_RN4
FBF_DQS_RN5	AK6	FBF_DQS_RN5	COMMON	FBF_DQS_RN5
FBF_DQS_RN6	AK6	FBF_DQS_RN6	COMMON	FBF_DQS_RN6
FBF_DQS_RN7	AK6	FBF_DQS_RN7	COMMON	FBF_DQS_RN7

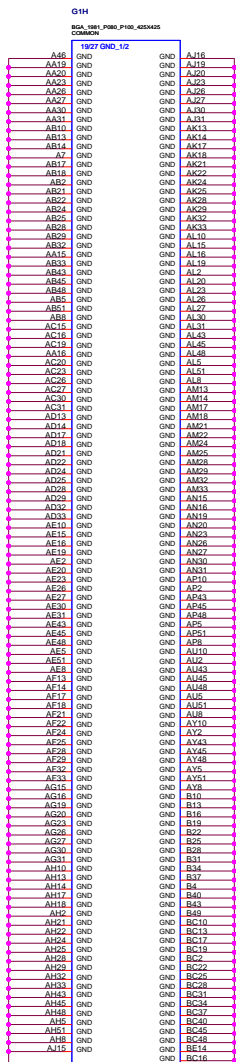


FBF_CLK0	AGB	FBF_CLK0	COMMON	FBF_CLK0
FBF_CLK1	AGB	FBF_CLK1	COMMON	FBF_CLK1
FBF_CLK2	AGB	FBF_CLK2	COMMON	FBF_CLK2

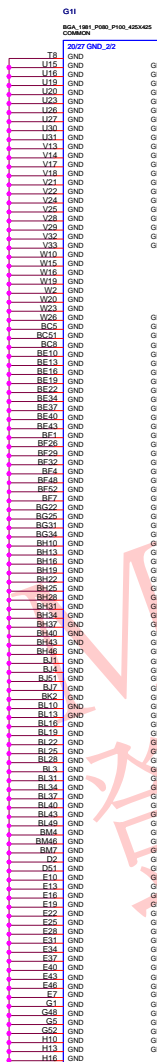
FBF_WCK01	AM7	FBF_WCK01	COMMON	FBF_WCK01
FBF_WCK02	AM6	FBF_WCK02	COMMON	FBF_WCK02
FBF_WCK03	AB6	FBF_WCK03	COMMON	FBF_WCK03
FBF_WCK04	AB6	FBF_WCK04	COMMON	FBF_WCK04
FBF_WCK05	AA7	FBF_WCK05	COMMON	FBF_WCK05
FBF_WCK06	AB6	FBF_WCK06	COMMON	FBF_WCK06
FBF_WCK07	AB6	FBF_WCK07	COMMON	FBF_WCK07
FBF_WCK08	AB6	FBF_WCK08	COMMON	FBF_WCK08



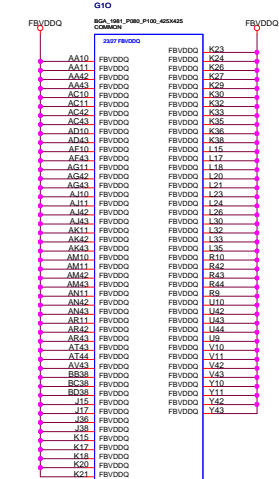
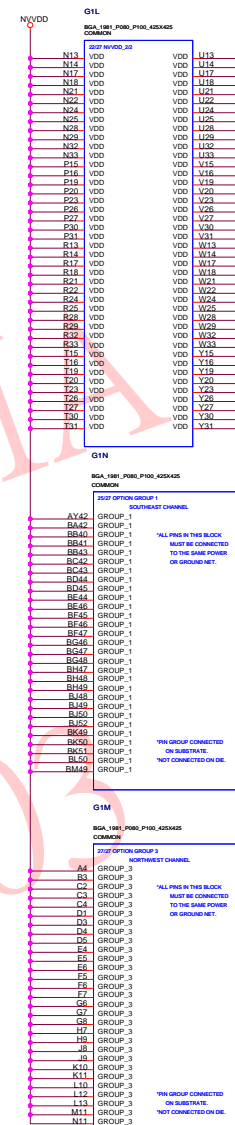
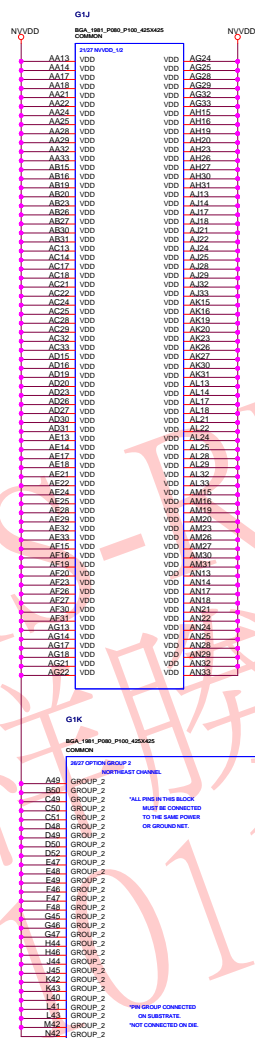
GPU Power and GND



5/12:AY43/AY45/AY48/AY51/BC40/BC45/BC48
接GND



5/12:BC51/BE43/BF48/BF52/BH40/BH46/BJ51/BL40/BL43/BL49 接GND

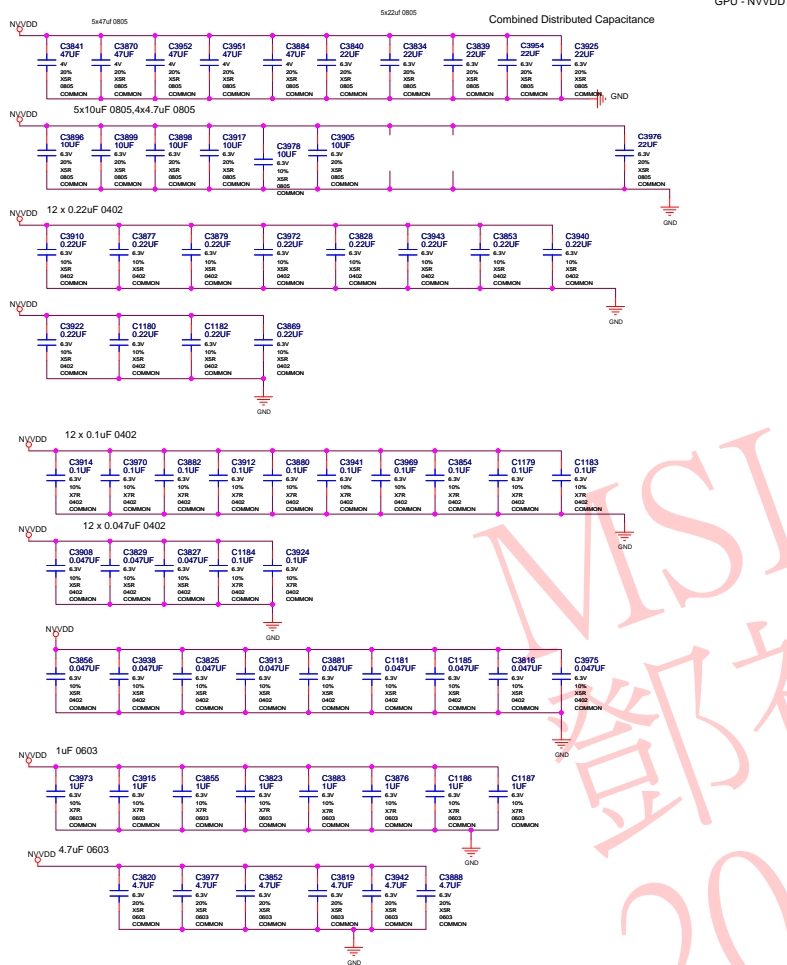


5/12 FOR 480 GPU:BB38/BC38/BD38 接FBVDDQ

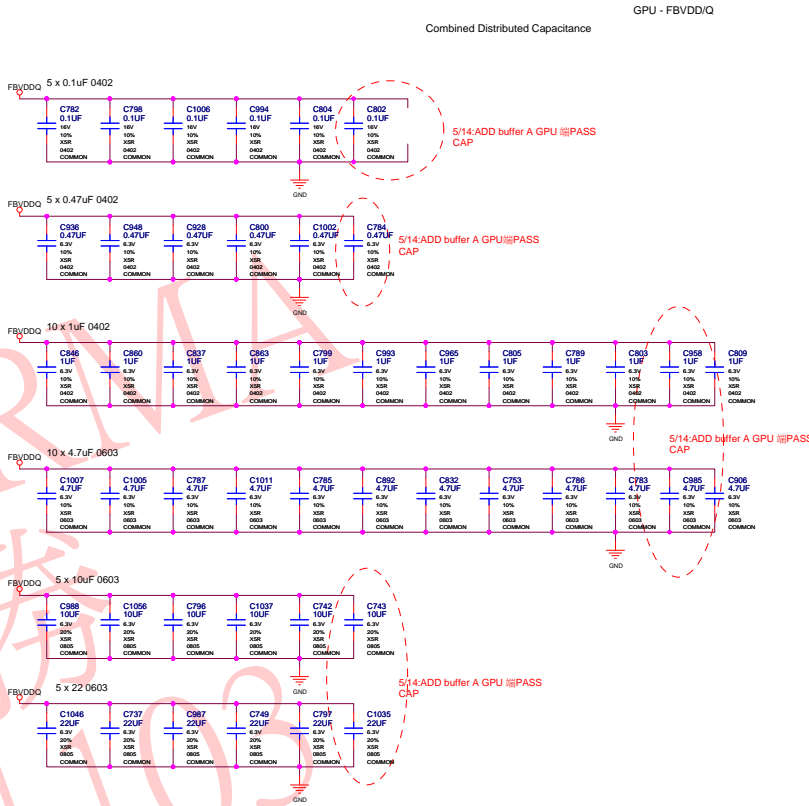


Decoupling: GPU (NVVDD, FBVDDQ)

Decoupling for NVVDD (under GPU)



Decoupling for FBVDDQ (under GPU)



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. 310 OFF ASSEMBLY NOTES AND BOH NOT FINAL Decoupling GPU (NVVDD, FBVDDQ)

Micro-Star International Co., LTD.

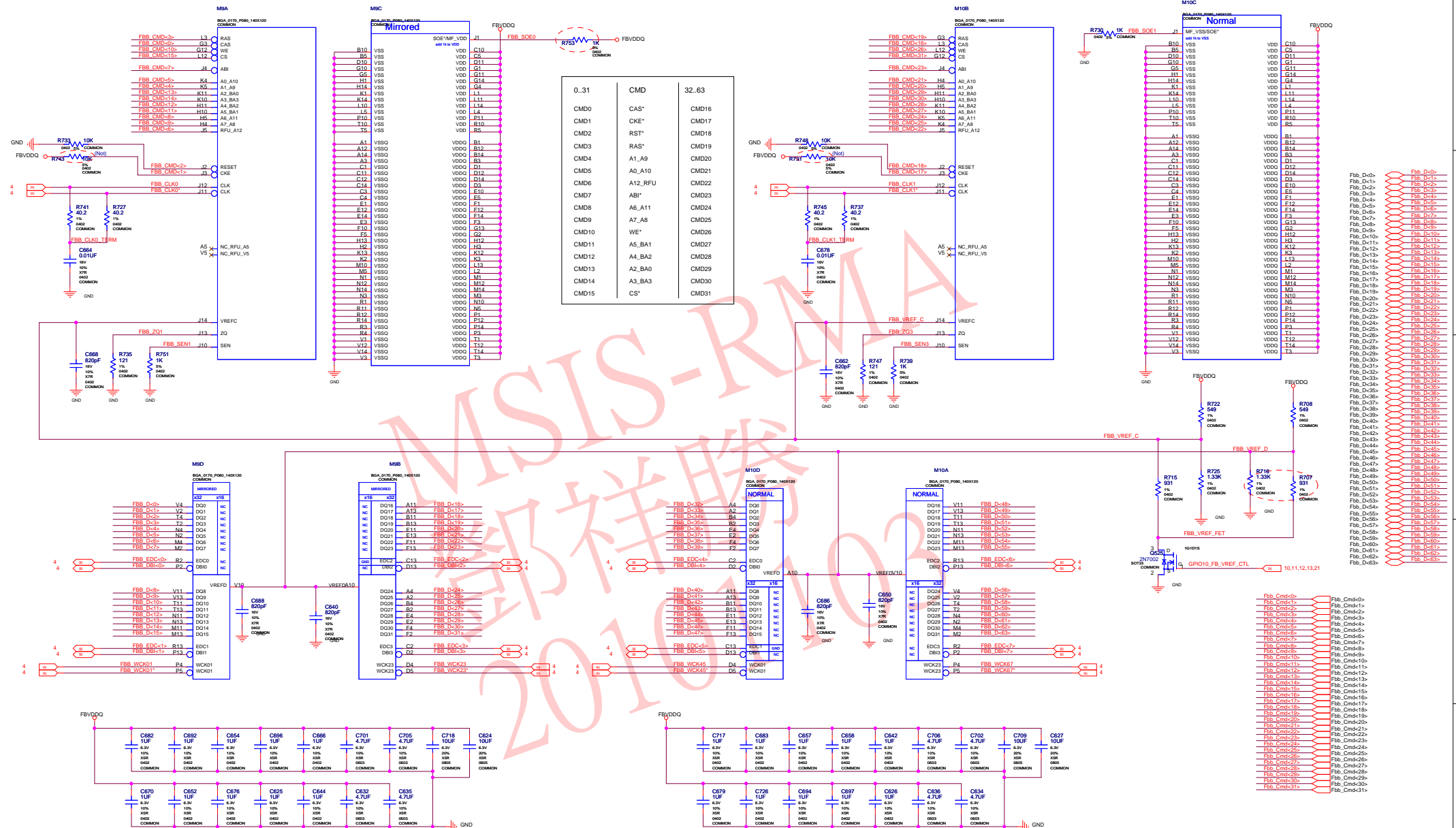
MSI

Size: Custom Document Number: <Doc> Date: Friday, July 23, 2010 Sheet: 8 of 32

Rev: <RevCode>

Framebuffer B: Memory Section

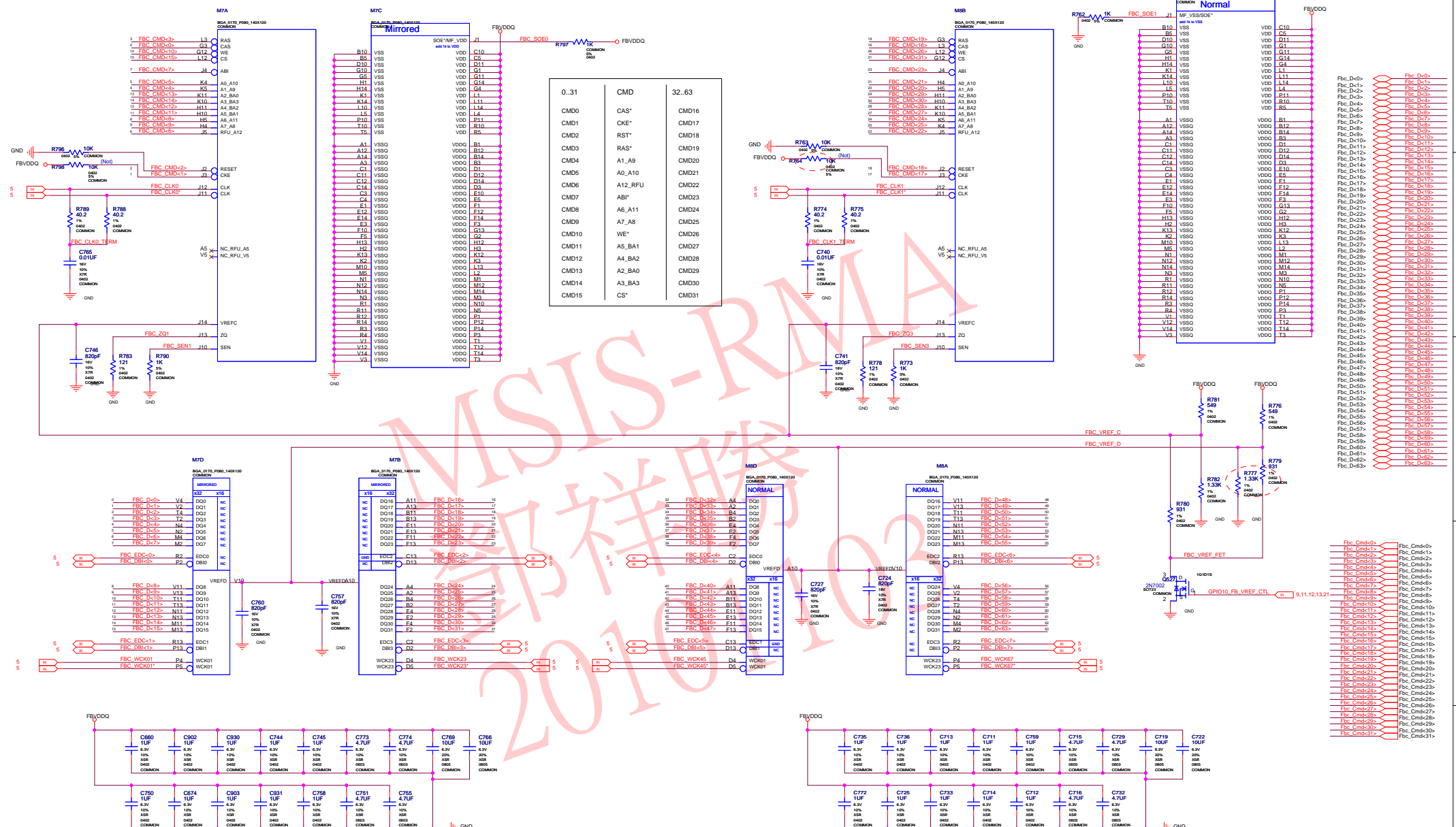
Hynix 32MX32 2000MHZ: 161-0063-100
SAMSUNG 32MX32 2000MHZ: 161-0051-600



ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. 31/00/01/02/03/04/05/06/07/08/09/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/1221/1222/1223/1224/1225/1226/1227/1228/1229/1230/1231/1232/1233/1234/1235/1236/1237/1238/1239/1240/1241/1242/1243/1244/1245/1246/1247/1248/1249/1250/1251/1252/1253/1254/1255/1256/1257/1258/1259/1260/1261/1262/1263/1264/1265/1266/1267/1268/1269/1270/1271/1272/1273/1274/1275/1276/1277/1278/1279/1280/1281/1282/1283/1284/1285/1286/1287/1288/1289/1290/1291/1292/1293/1294/1295/1296/1297/1298/1299/1300/1301/1302/1303/1304/1305/1306/1307/1308/1309/1310/1311/1312/1313/1314/1315/1316/1317/1318/1319/1320/1321/1322/1323/1324/1325/1326/1327/1328/1329/1330/1331/1332/1333/1334/1335/1336/1337/1338/1339/1340/1341/1342/1343/1344/1345/1346/1347/1348/1349/1350/1351/1352/1353/1354/1355/1356/1357/1358/1359/1360/1361/1362/1363/1364/1365/1366/1367/1368/1369/1370/1371/1372/1373/1374/1375/1376/1377/1378/1379/1380/1381/1382/1383/1384/1385/1386/1387/1388/1389/1390/1391/1392/1393/1394/1395/1396/1397/1398/1399/1400/1401/1402/1403/1404/1405/1406/1407/1408/1409/1410/1411/1412/1413/1414/1415/1416/1417/1418/1419/1420/1421/1422/1423/1424/1425/1426/1427/1428/1429/1430/1431/1432/1433/1434/1435/1436/1437/1438/1439/1440/1441/1442/1443/1444/1445/1446/1447/1448/1449/1450/1451/1452/1453/1454/1455/1456/1457/1458/1459/1460/1461/1462/1463/1464/1465/1466/1467/1468/1469/1470/1471/1472/1473/1474/1475/1476/1477/1478/1479/1480/1481/1482/1483/1484/1485/1486/1487/1488/1489/1490/1491/1492/1493/1494/1495/1496/1497/1498/1499/1500/1501/1502/1503/1504/1505/1506/1507/1508/1509/1510/1511/1512/1513/1514/1515/1516/1517/1518/1519/1520/1521/1522/1523/1524/1525/1526/1527/1528/1529/1530/1531/1532/1533/1534/1535/1536/1537/1538/1539/1540/1541/1542/1543/1544/1545/1546/1547/1548/1549/1550/1551/1552/1553/1554/1555/1556/1557/1558/1559/1560/1561/1562/1563/1564/1565/1566/1567/1568/1569/1570/1571/1572/1573/1574/1575/1576/1577/1578/1579/1580/1581/1582/1583/1584/1585/1586/1587/1588/1589/1590/1591/1592/1593/1594/1595/1596/1597/1598/1599/1600/1601/1602/1603/1604/1605/1606/1607/1608/1609/1610/1611/1612/1613/1614/1615/1616/1617/1618/1619/1620/1621/1622/1623/1624/1625/1626/1627/1628/1629/1630/1631/1632/1633/1634/1635/1636/1637/1638/1639/1640/1641/1642/1643/1644/1645/1646/1647/1648/1649/1650/1651/1652/1653/1654/1655/1656/1657/1658/1659/1660/1661/1662/1663/1664/1665/1666/1667/1668/1669/1670/1671/1672/1673/1674/1675/1676/1677/1678/1679/1680/1681/1682/1683/1684/1685/1686/1687/1688/1689/1690/1691/1692/1693/1694/1695/1696/1697/1698/1699/1700/1701/1702/1703/1704/1705/1706/1707/1708/1709/1710/1711/1712/1713/1714/1715/1716/1717/1718/1719/1720/1721/1722/1723/1724/1725/1726/1727/1728/1729/1730/1731/1732/1733/1734/1735/1736/1737/1738/1739/1740/1741/1742/1743/1744/1745/1746/1747/1748/1749/1750/1751/1752/1753/1754/1755/1756/1757/1758/1759/1760/1761/1762/1763/1764/1765/1766/1767/1768/1769/1770/1771/1772/1773/1774/1775/1776/1777/1778/1779/1780/1781/1782/1783/1784/1785/1786/1787/1788/1789/1790/1791/1792/1793/1794/1795/1796/1797/1798/1799/1800/1801/1802/1803/1804/1805/1806/1807/1808/1809/1810/1811/1812/1813/1814/1815/1816/1817/1818/1819/1820/1821/1822/1823/1824/1825/1826/1827/1828/1829/1830/1831/1832/1833/1834/1835/1836/1837/1838/1839/1840/1841/1842/1843/1844/1845/1846/1847/1848/1849/1850/1851/1852/1853/1854/1855/1856/1857/1858/1859/1860/1861/1862/1863/1864/1865/1866/1867/1868/1869/1870/1871/1872/1873/1874/1875/1876/1877/1878/1879/1880/1881/1882/1883/1884/1885/1886/1887/1888/1889/1890/1891/1892/1893/1894/1895/1896/1897/1898/1899/1900/1901/1902/1903/1904/1905/1906/1907/1908/1909/1910/1911/1912/1913/1914/1915/1916/1917/1918/1919/1920/1921/1922/1923/1924/1925/1926/1927/1928/1929/1930/1931/1932/1933/1934/1935/1936/1937/1938/1939/1940/1941/1942/1943/1944/1945/1946/1947/1948/1949/1950/1951/1952/1953/1954/1955/1956/1957/1958/1959/1960/1961/1962/1963/1964/1965/1966/1967/1968/1969/1970/1971/1972/1973/1974/1975/1976/1977/1978/1979/1980/1981/1982/1983/1984/1985/1986/1987/1988/1989/1990/1991/1992/1993/1994/1995/1996/1997/1998/1999/2000/2001/2002/2003/2004/2005/2006/2007/2008/2009/2010/2011/2012/2013/2014/2015/2016/2017/2018/2019/2020/2021/2022/2023/2024/2025/2026/2027/2028/2029/2030/2031/2032/2033/2034/2035/2036/2037/2038/2039/2040/2041/2042/2043/2044/2045/2046/2047/2048/2049/2050/2051/2052/2053/2054/2055/2056/2057/2058/2059/2060/2061/2062/2063/2064/2065/2066/2067/2068/2069/2070/2071/2072/2073/2074/2075/2076/2077/2078/2079/2080/2081/2082/2083/2084/2085/2086/2087/2088/2089/2090/2091/2092/2093/2094/2095/2096/2097/2098/2099/2100/2101/2102/2103/2104/2105/2106/2107/2108/2109/2110/2111/2112/2113/2114/2115/2116/2117/2118/2119/2120/2121/2122/2123/2124/2125/2126/2127/2128/2129/2130/2131/2132/2133/2134/2135/2136/2137/2138/2139/2140/2141/2142/2143/2144/2145/2146/2147/2148/2149/2150/2151/2152/2153/2154/2155/2156/2157/2158/2159/2160/2161/2162/2163/2164/2165/2166/2167/2168/2169/2170/2171/2172/2173/2174/2175/2176/2177/2178/2179/2180/2181/2182/2183/2184/2185/2186/2187/2188/2189/2190/2191/2192/2193/2194/2195/2196/2197/2198/2199/2200/2201/2202/2203/2204/2205/2206/2207/2208/2209/2210/2211/2212/2213/2214/2215/2216/2217/2218/2219/2220/2221/2222/2223/2224/2225/2226/2227/2228/2229/2230/2231/2232/2233/2234/2235/2236/2237/2238/2239/2240/2241/2242/2243/2244/2245/2246/2247/2248/2249/2250/2251/2252/2253/2254/2255/2256/2257/2258/2259/2260/2261/2262/2263/2264/2265/2266/2267/2268/2269/2270/2271/2272/2273/2274/2275/2276/2277/2278/2279/2280/2281/2282/2283/2284/2285/2286/2287/2288/2289/2290/2291/2292/2293/2294/2295/2296/2297/2298/2299/2300/2301/2302/2303/2304/2305/2306/2307/2308/2309/2310/2311/2312/2313/2314/2315/2316/2317/2318/2319/2320/2321/2322/2323/2324/2325/2326/2327/2328/2329/2330/2331/2332/2333/2334/2335/2336/2337/2338/2339/2340/2341/2342/2343/2344/2345/2346/2347/2348/2349/2350/2351/2352/2353/2354/2355/2356/2357/2358/2359/2360/2361/2362/2363/2364/2365/2366/2367/2368/2369/2370/2371/2372/2373/2374/2375/2376/2377/2378/2379/2380/2381/2382/2383/2384/2385/2386/2387/2388/2389/2390/2391/2392/2393/2394/2395/2396/2397/2398/2399/2400/2401/2402/2403/2404/2405/2406/2407/2408/2409/2410/2411/2412/2413/2414/2415/2416/2417/2418/2419/2420/2421/2422/2423/2424/2425/2426/2427/2428/2429/2430/2431/2432/2433/2434/2435/2436/2437/2438/2439/2440/2441/2442/2443/2444/2445/2446/2447/2448/2449/2450/2451/2452/2453/2454/2455/2456/2457/2458/2459/2460/2461/2462/2463/2464/2465/2466/2467/2468/2469/2470/2471/2472/2473/2474/2475/2476/2477/2478/2479/2480/2481/2482/2483/2484/2485/2486/2487/2488/2489/2490/2491/2492/2493/2494/2495/2496/2497/2498/2499/2500/2501

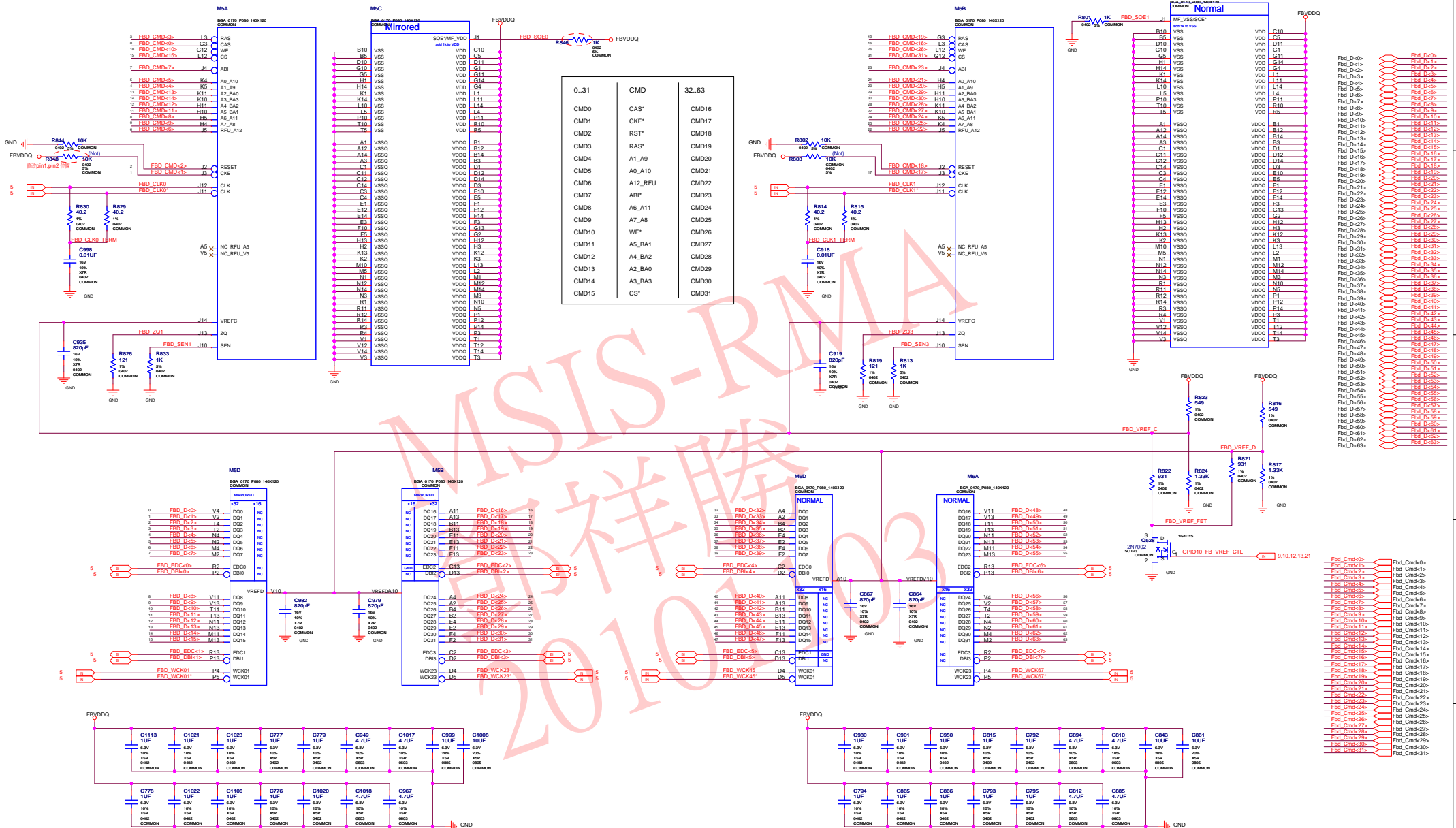
Framebuffer C: Memory Section

HYNIX 32MX32 2000MHZ: 161-0063-100
SAMSUNG 32MX32 2000MHZ: 161-0051-600




Framebuffer D: Memory Section

Hynix 32MX32 2000MHZ: 161-0063-100
SAMSUNG 32MX32 2000MHZ: 161-0051-600



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (INCLUDING INFORMATION TOGETHER AND SEPARATELY) MATERIALS ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY. COMMON & NO. STUFF ASSEMBLY NOTES AND BOI NOT FINAL
Framebuffer D: Memory Section



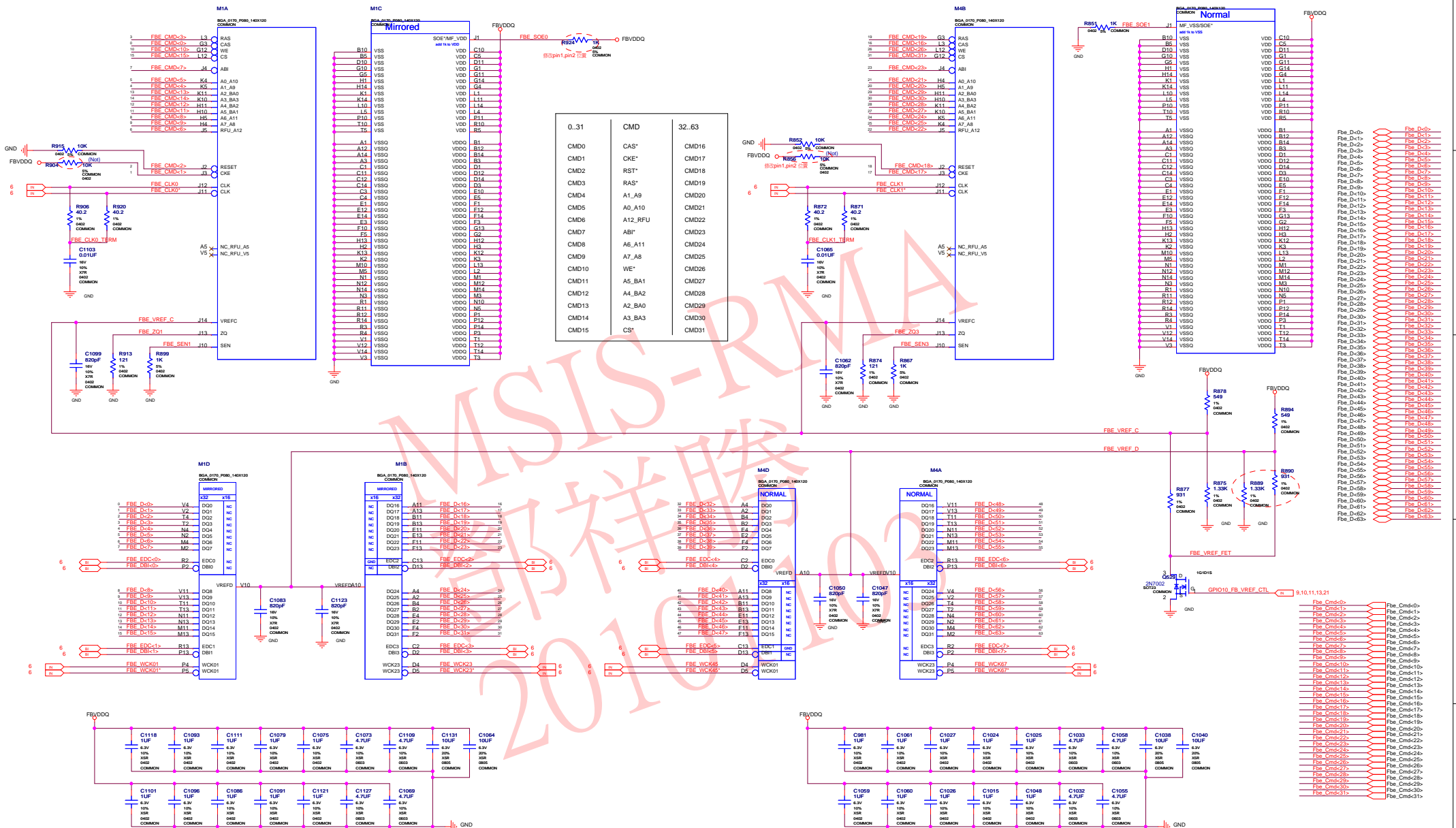
Micro-Star International Co., LTD.

Size	Document Number	Rev
Custom	<Doc>	<Rev Code>

Date: Friday, July 23, 2010 Sheet 11 of 32

Framebuffer E: Memory Section

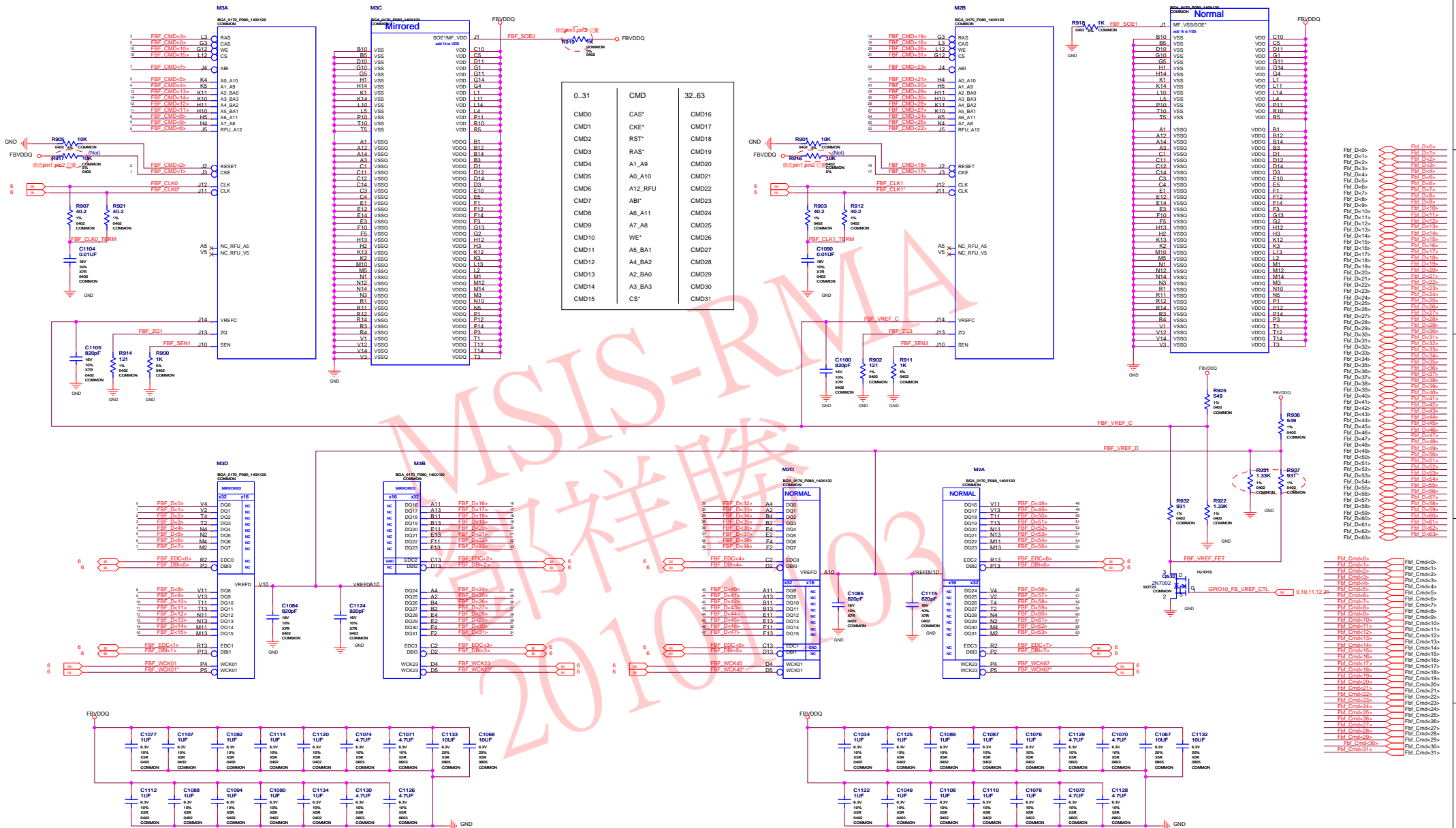
Hynix 32MX32 2000MHZ: 161-0063-100
SAMSUNG 32MX32 2000MHZ: 161-0051-600



ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. STUFF ASSEMBLY NOTES AND BOH NOT FINAL
Framebuffer E: Memory Section

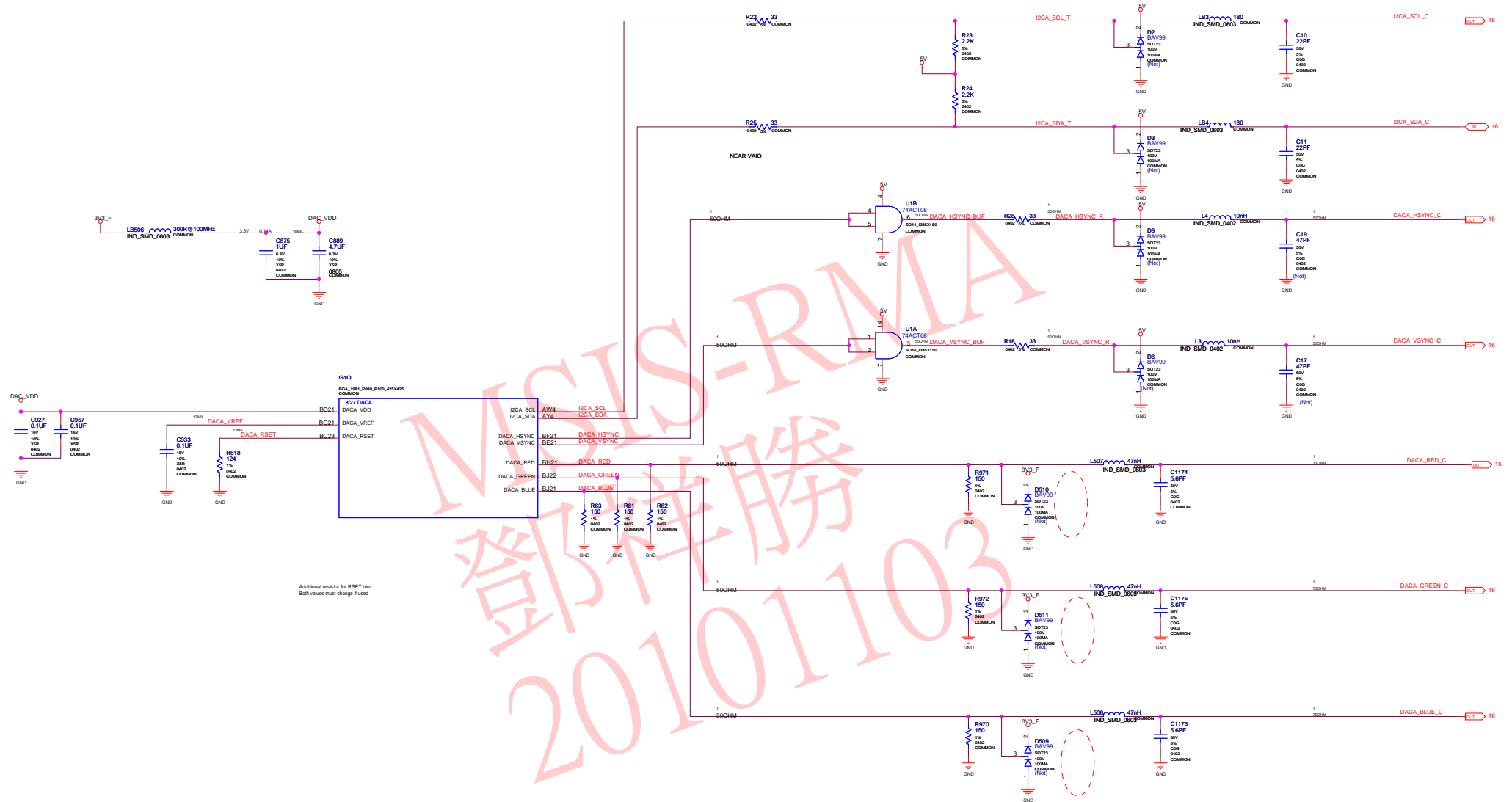
Framebuffer F: Memory Section

Hynix 32MX32 2000MHZ: 161-0063-100
SAMSUNG 32MX32 2000MHZ: 161-0051-600



ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY. COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
Framebuffer F: Memory Section

Display: DACA (South DVI-I)



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Display: DACA (South DVI-I)

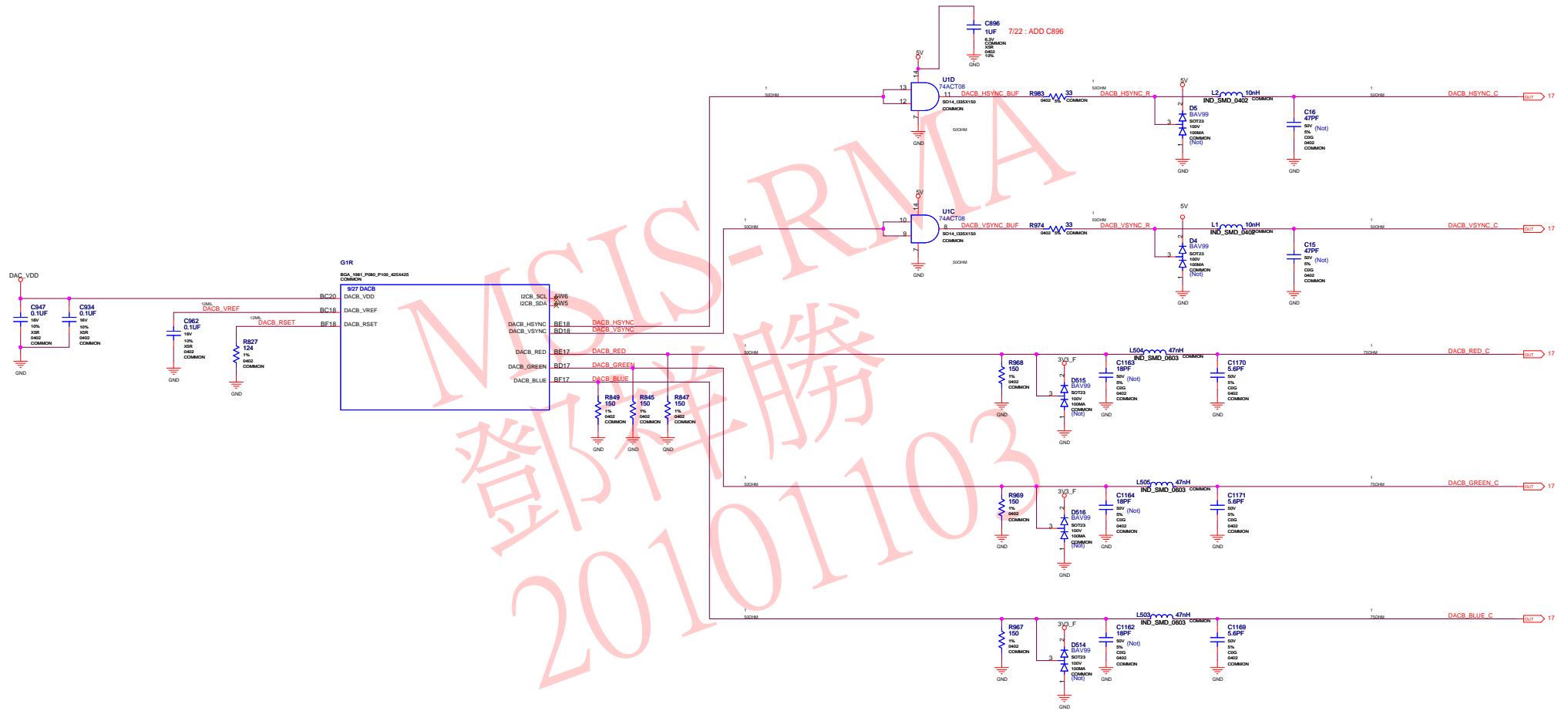


Micro-Star International Co., LTD.

Size	Document Number	Rev
Custom	<Doc>	<RevCode>
Date: Thursday, 11-02-2010 10:00:00 AM		

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

Display: DACB (Middle DVI-I)



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Display: DACB (Middle DVI-I)

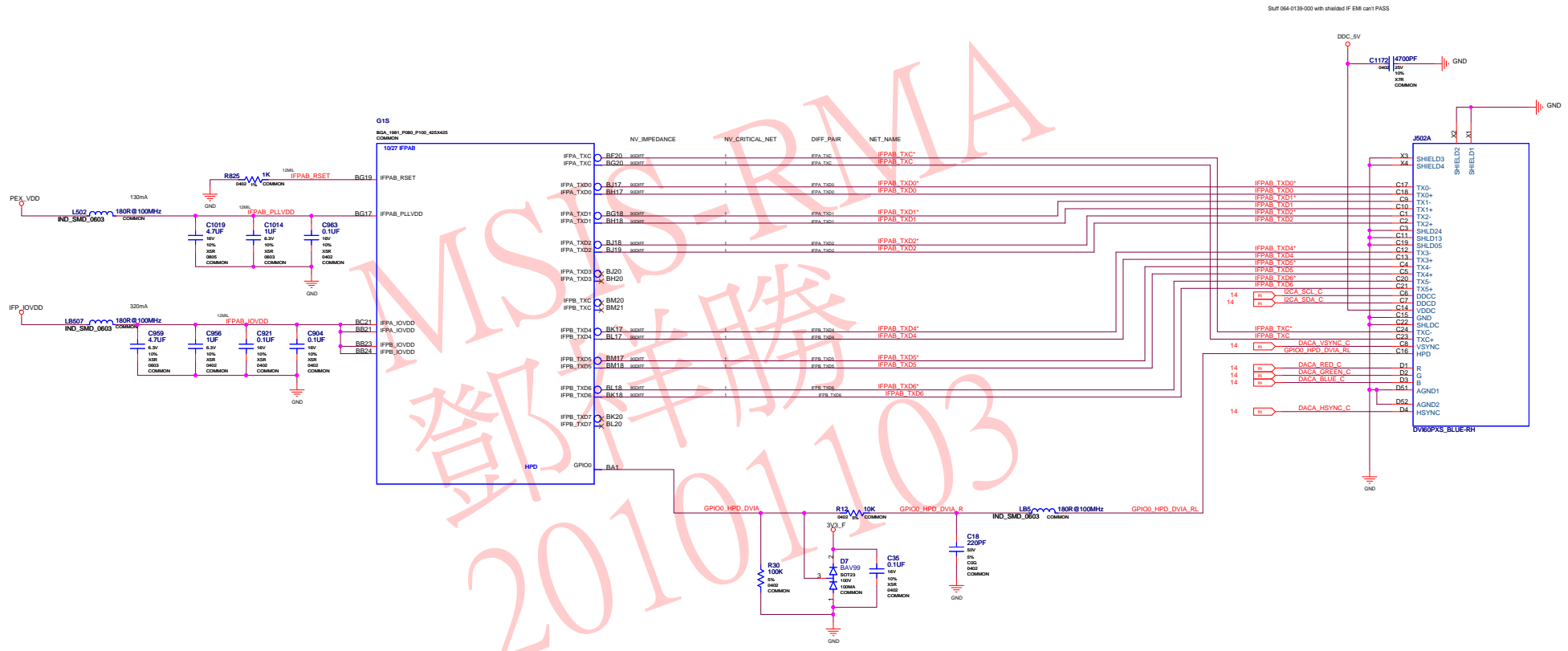


Micro-Star International Co., LTD.

<Title>			
Size	Document Number	Rev	
Custom	<Doc>	<Rev Code>	
Path	Code	1000	15 10 00

Page:	15 of 22
-------	----------

IFPAB for South DVI-I (with DACA)



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPAB for South DVI-I (with DACA)

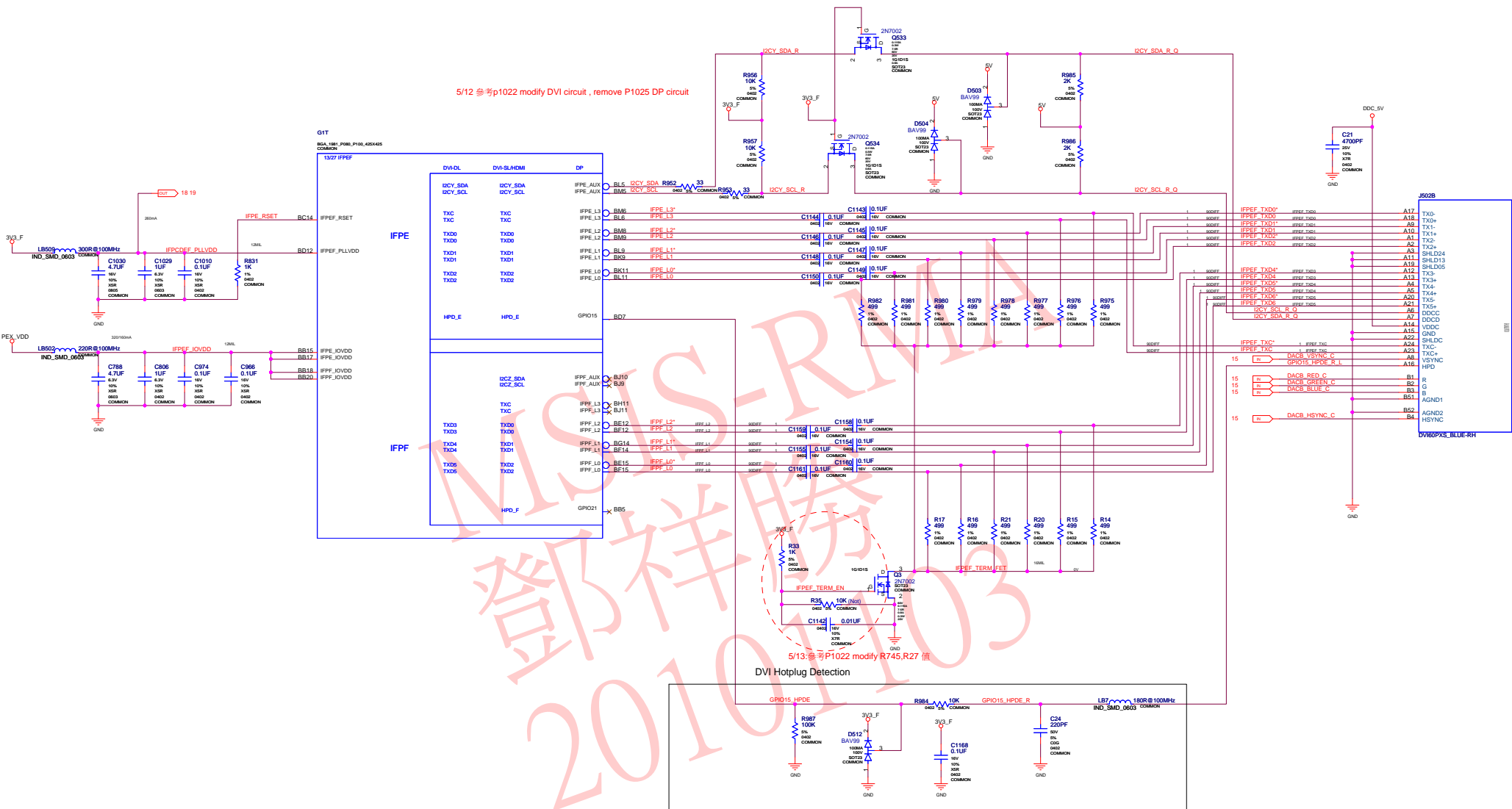


Micro-Star International Co., LTD.

<Title>	
---------	--

Size Custom	Document Number <Doc>	Rev <Rev Code>
Date: Friday, July 23, 2010	Sheet 16 of	22

IFPEF for Middle DVI-I or DP



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPEF for Middle DVI-I or DP



Micro-Star International Co., LTD.

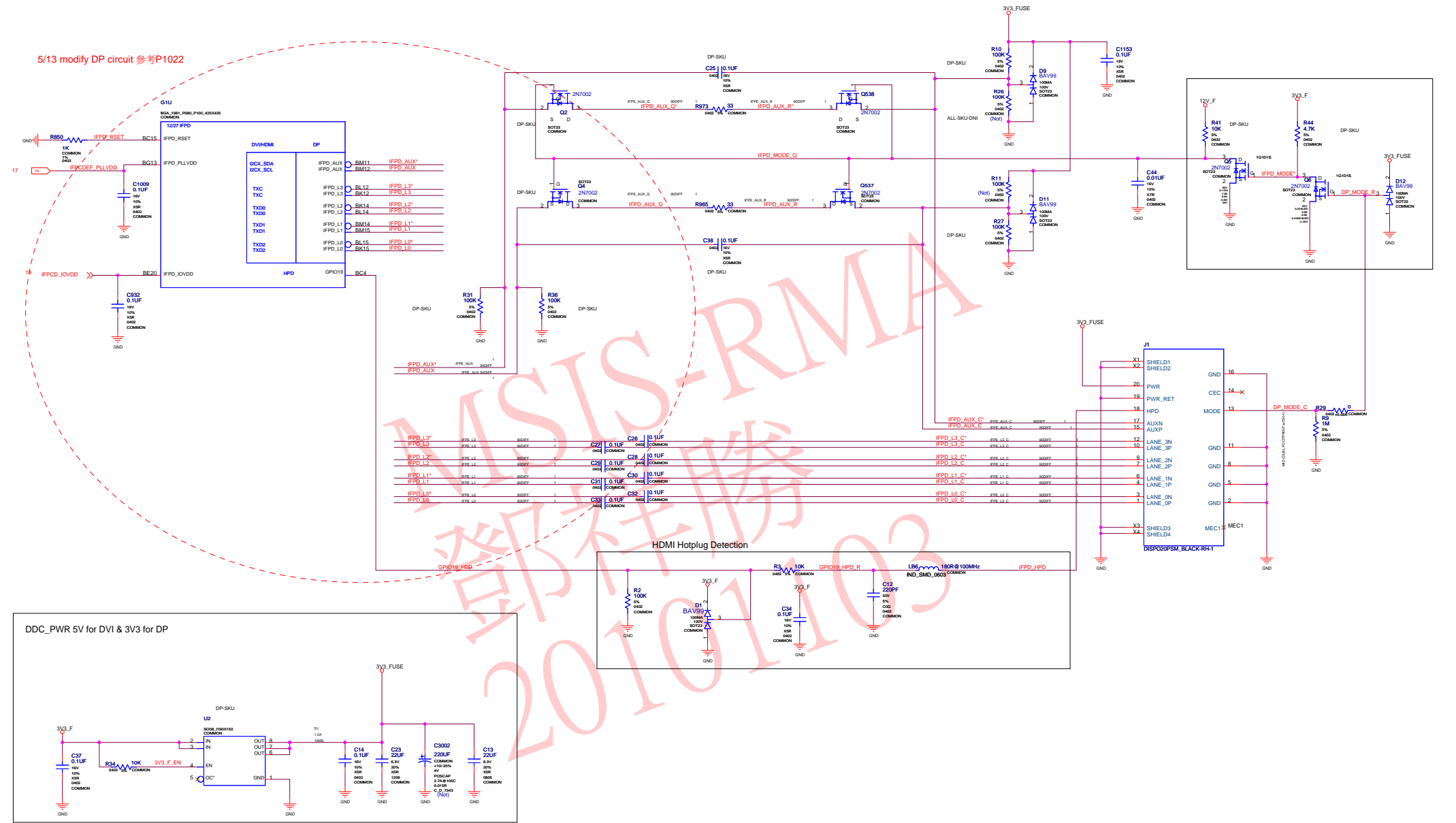
<Title>	
---------	--

Size	Document Number	Rev
Custom	<Doc>	<Rev Code>

Date:	Friday, July 23, 2010	Sheet	17 of 32
-------	-----------------------	-------	----------

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN KNOWNS AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

IFP_D: UNUSED, (MID DP)

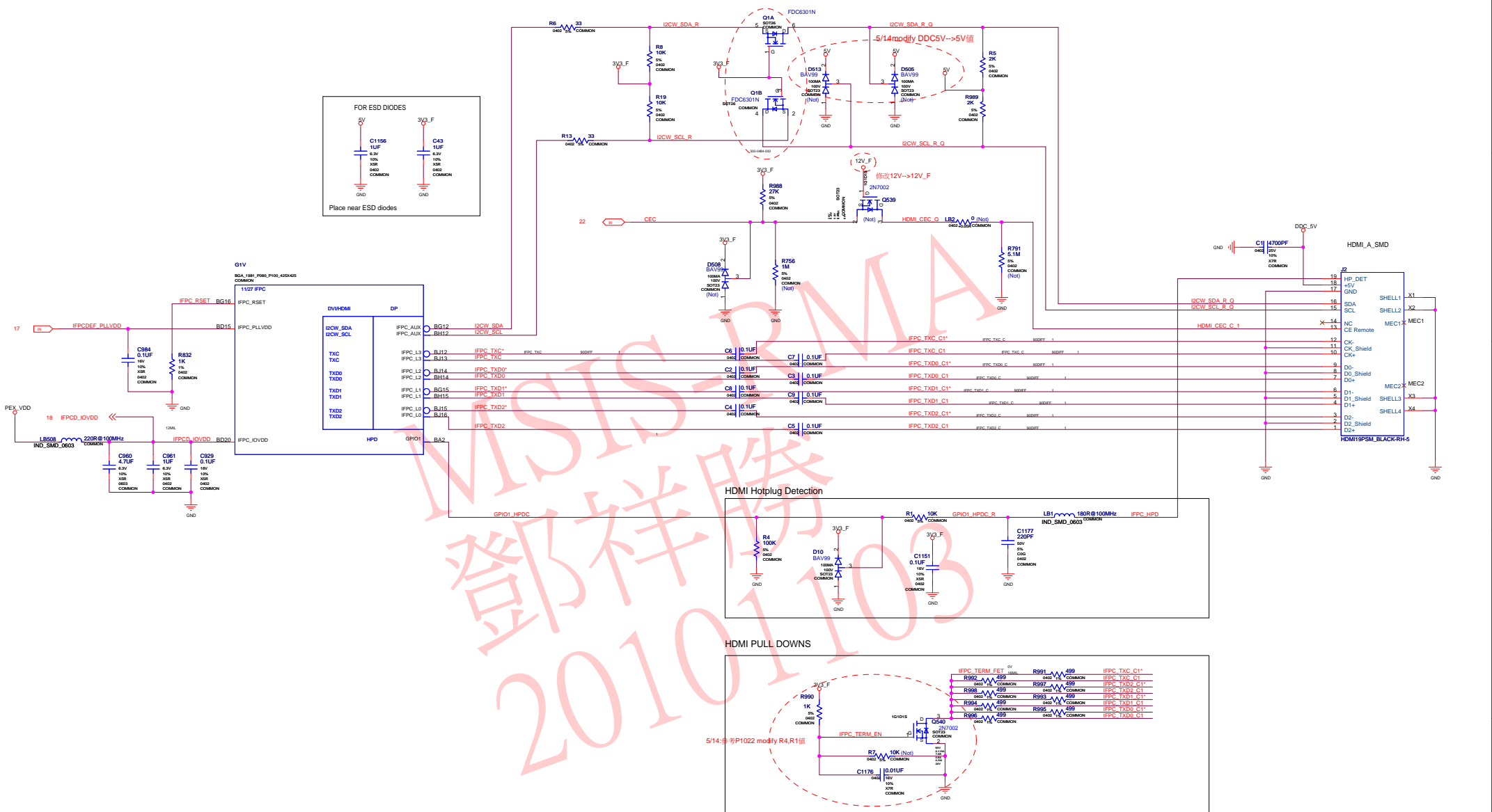


ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

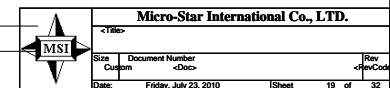
ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. 3107/ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFP_D: UNUSED, (MID DP)

Micro-Star International Co., LTD.	
Title	
Size	Document Number
Custom	«Doc»
Date	Friday, July 23, 2010
Sheet	18 of 32

IFP_C: miniHDMI (NORTH)

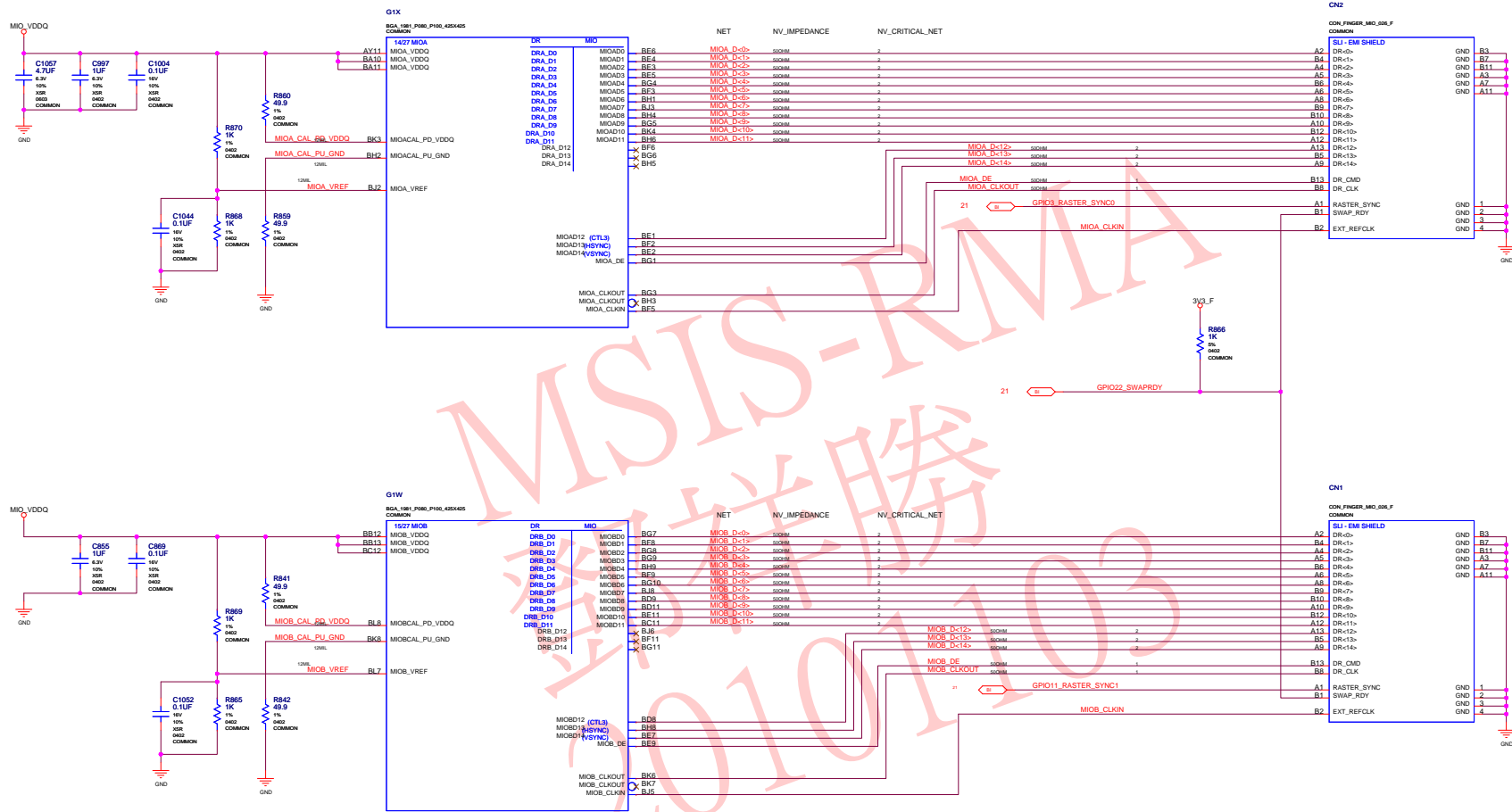


ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFP_C: miniHDMI (NORTH)



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR THEREIN, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE OR INDUSTRY STANDARDS.

Connectors: DR Interface (Dual SLI)



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE DETAIL BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. 310/FF ASSEMBLY NOTES AND BOM NOT FINAL
Connectors: DR Interface (Dual SLI)

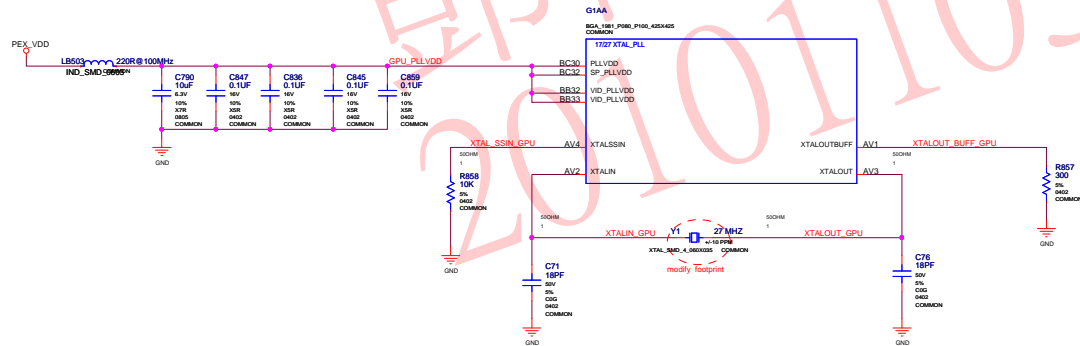
Micro-Star International Co., LTD.	
<Title>	
Size	Document Number
Custom	<Doc>
Date	Friday, July 23, 2010
Sheet	20 of 32

BIOS ROM, HDCP ROM, STRAPPING OPTIONS

STRAP0	USER_BIT [3..0]	0000 => 5K PD	
STRAP1	3GIO_PADCFG_LUT_ADR	0000 => 5K PD	0000 Desktop
STRAP2	PCI_DEVID [3:0]	0000 => 5K PD For 0x06C0	

	GND	3V3
5k	0000	1000
10k	0001	1001
15k	0010	1010
20k	0011	1011
25k	0100	1100
30k	0101	1101
35k	0110	1110
45k	0111	1111

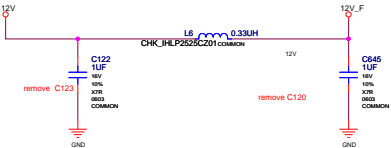
	MULTI_STRAP_REF1_GND	MULTI_STRAP_REF2_GND
BINARY PRODUCTION	40.2k 1% TO GND	NC
BINARY BRINGUP	NC	NC
MULTILEVEL	40.2k 1% TO GND	40.2k 1% TO GND



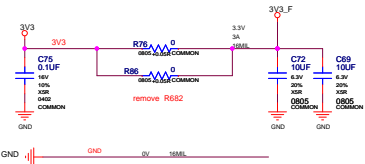
Power Supply: PEX PS INPUT, DETECTION LOGIC, THERM SHUTDOWN LATCH / IFP_IOVDD

Connector Power State Table		
2x3 Connector	Power	STATE
Connected	150W	Full Prof
Not Connected	75W	Board Off

PEX_12V INPUT - 66W

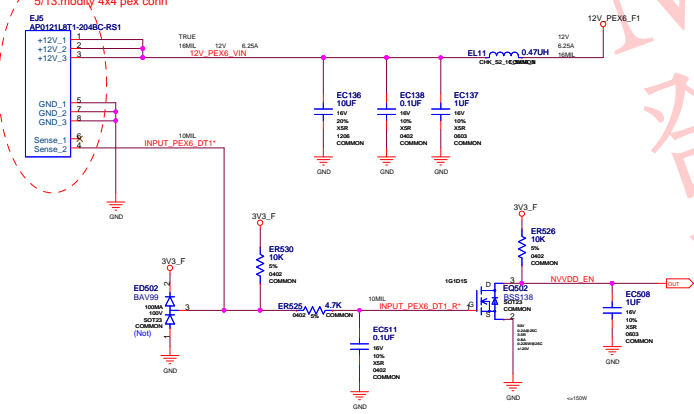


PEX 3V3 INPUT - 10W

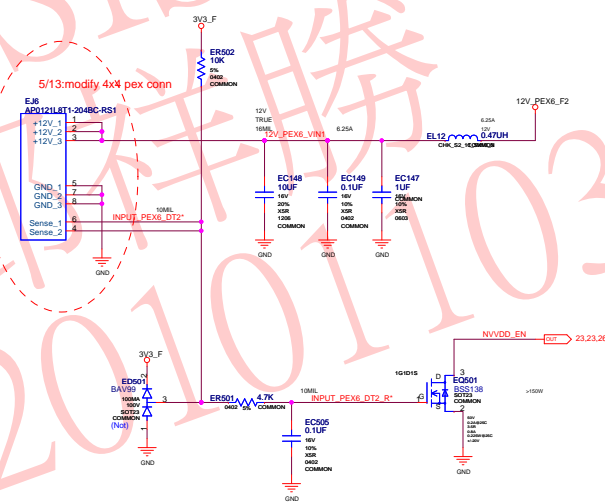


MUST BE ATTACHED AND POWERED TO START BOARD

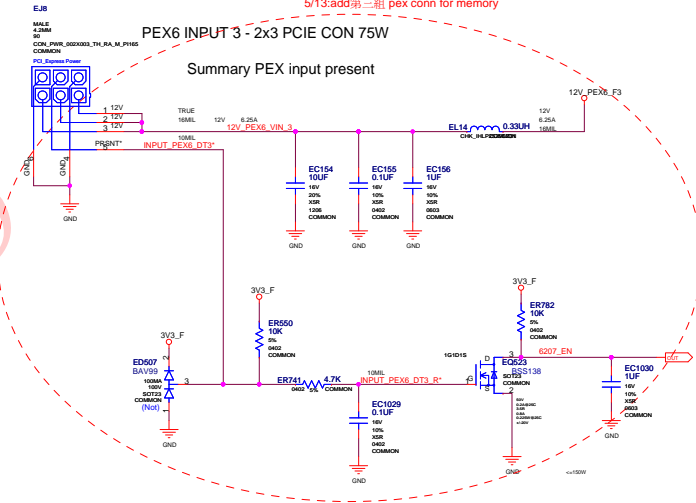
PEX6 INPUT 1 - 4x4 PCIE CON 150W
Summary PEX input present



Summary PEX input present
PEX6 INPUT 2 - 2x3 PCIE CON 75W



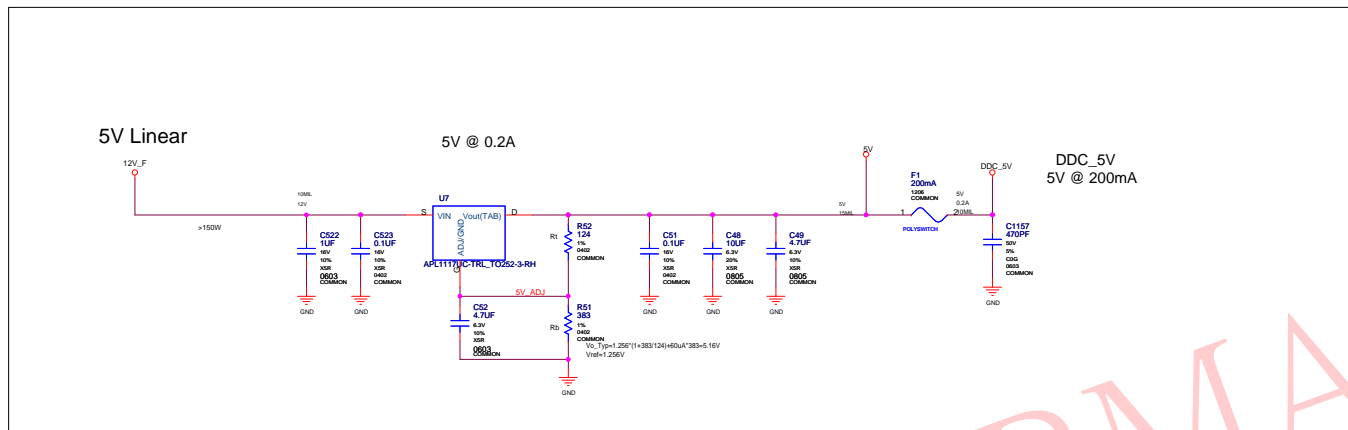
PEX6 INPUT 3 - 2x3 PCIE CON 75W
Summary PEX input present



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO 3/10/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/1221/1222/1223/1224/1225/1226/1227/1228/1229/1230/1231/1232/1233/1234/1235/1236/1237/1238/1239/1240/1241/1242/1243/1244/1245/1246/1247/1248/1249/1250/1251/1252/1253/1254/1255/1256/1257/1258/1259/1260/1261/1262/1263/1264/1265/1266/1267/1268/1269/1270/1271/1272/1273/1274/1275/1276/1277/1278/1279/1280/1281/1282/1283/1284/1285/1286/1287/1288/1289/1290/1291/1292/1293/1294/1295/1296/1297/1298/1299/1300/1301/1302/1303/1304/1305/1306/1307/1308/1309/1310/1311/1312/1313/1314/1315/1316/1317/1318/1319/1320/1321/1322/1323/1324/1325/1326/1327/1328/1329/1330/1331/1332/1333/1334/1335/1336/1337/1338/1339/1340/1341/1342/1343/1344/1345/1346/1347/1348/1349/1350/1351/1352/1353/1354/1355/1356/1357/1358/1359/1360/1361/1362/1363/1364/1365/1366/1367/1368/1369/1370/1371/1372/1373/1374/1375/1376/1377/1378/1379/1380/1381/1382/1383/1384/1385/1386/1387/1388/1389/1390/1391/1392/1393/1394/1395/1396/1397/1398/1399/1400/1401/1402/1403/1404/1405/1406/1407/1408/1409/1410/1411/1412/1413/1414/1415/1416/1417/1418/1419/1420/1421/1422/1423/1424/1425/1426/1427/1428/1429/1430/1431/1432/1433/1434/1435/1436/1437/1438/1439/1440/1441/1442/1443/1444/1445/1446/1447/1448/1449/1450/1451/1452/1453/1454/1455/1456/1457/1458/1459/1460/1461/1462/1463/1464/1465/1466/1467/1468/1469/1470/1471/1472/1473/1474/1475/1476/1477/1478/1479/1480/1481/1482/1483/1484/1485/1486/1487/1488/1489/1490/1491/1492/1493/1494/1495/1496/1497/1498/1499/1500/1501/1502/1503/1504/1505/1506/1507/1508/1509/1510/1511/1512/1513/1514/1515/1516/1517/1518/1519/1520/1521/1522/1523/1524/1525/1526/1527/1528/1529/1530/1531/1532/1533/1534/1535/1536/1537/1538/1539/1540/1541/1542/1543/1544/1545/1546/1547/1548/1549/1550/1551/1552/1553/1554/1555/1556/1557/1558/1559/1560/1561/1562/1563/1564/1565/1566/1567/1568/1569/1570/1571/1572/1573/1574/1575/1576/1577/1578/1579/1580/1581/1582/1583/1584/1585/1586/1587/1588/1589/1590/1591/1592/1593/1594/1595/1596/1597/1598/1599/1600/1601/1602/1603/1604/1605/1606/1607/1608/1609/1610/1611/1612/1613/1614/1615/1616/1617/1618/1619/1620/1621/1622/1623/1624/1625/1626/1627/1628/1629/1630/1631/1632/1633/1634/1635/1636/1637/1638/1639/1640/1641/1642/1643/1644/1645/1646/1647/1648/1649/1650/1651/1652/1653/1654/1655/1656/1657/1658/1659/1660/1661/1662/1663/1664/1665/1666/1667/1668/1669/1670/1671/1672/1673/1674/1675/1676/1677/1678/1679/1680/1681/1682/1683/1684/1685/1686/1687/1688/1689/1690/1691/1692/1693/1694/1695/1696/1697/1698/1699/1700/1701/1702/1703/1704/1705/1706/1707/1708/1709/1710/1711/1712/1713/1714/1715/1716/1717/1718/1719/1720/1721/1722/1723/1724/1725/1726/1727/1728/1729/1730/1731/1732/1733/1734/1735/1736/1737/1738/1739/1740/1741/1742/1743/1744/1745/1746/1747/1748/1749/1750/1751/1752/1753/1754/1755/1756/1757/1758/1759/1760/1761/1762/1763/1764/1765/1766/1767/1768/1769/1770/1771/1772/1773/1774/1775/1776/1777/1778/1779/1780/1781/1782/1783/1784/1785/1786/1787/1788/1789/1790/1791/1792/1793/1794/1795/1796/1797/1798/1799/1800/1801/1802/1803/1804/1805/1806/1807/1808/1809/1810/1811/1812/1813/1814/1815/1816/1817/1818/1819/1820/1821/1822/1823/1824/1825/1826/1827/1828/1829/1830/1831/1832/1833/1834/1835/1836/1837/1838/1839/1840/1841/1842/1843/1844/1845/1846/1847/1848/1849/1850/1851/1852/1853/1854/1855/1856/1857/1858/1859/1860/1861/1862/1863/1864/1865/1866/1867/1868/1869/1870/1871/1872/1873/1874/1875/1876/1877/1878/1879/1880/1881/1882/1883/1884/1885/1886/1887/1888/1889/1890/1891/1892/1893/1894/1895/1896/1897/1898/1899/1900/1901/1902/1903/1904/1905/1906/1907/1908/1909/1910/1911/1912/1913/1914/1915/1916/1917/1918/1919/1920/1921/1922/1923/1924/1925/1926/1927/1928/1929/1930/1931/1932/1933/1934/1935/1936/1937/1938/1939/1940/1941/1942/1943/1944/1945/1946/1947/1948/1949/1950/1951/1952/1953/1954/1955/1956/1957/1958/1959/1960/1961/1962/1963/1964/1965/1966/1967/1968/1969/1970/1971/1972/1973/1974/1975/1976/1977/1978/1979/1980/1981/1982/1983/1984/1985/1986/1987/1988/1989/1990/1991/1992/1993/1994/1995/1996/1997/1998/1999/2000/2001/2002/2003/2004/2005/2006/2007/2008/2009/2010/2011/2012/2013/2014/2015/2016/2017/2018/2019/2020/2021/2022/2023/2024/2025/2026/2027/2028/2029/2030/2031/2032/2033/2034/2035/2036/2037/2038/2039/2040/2041/2042/2043/2044/2045/2046/2047/2048/2049/2050/2051/2052/2053/2054/2055/2056/2057/2058/2059/2060/2061/2062/2063/2064/2065/2066/2067/2068/2069/2070/2071/2072/2073/2074/2075/2076/2077/2078/2079/2080/2081/2082/2083/2084/2085/2086/2087/2088/2089/2090/2091/2092/2093/2094/2095/2096/2097/2098/2099/2100/2101/2102/2103/2104/2105/2106/2107/2108/2109/2110/2111/2112/2113/2114/2115/2116/2117/2118/2119/2120/2121/2122/2123/2124/2125/2126/2127/2128/2129/2130/2131/2132/2133/2134/2135/2136/2137/2138/2139/2140/2141/2142/2143/2144/2145/2146/2147/2148/2149/2150/2151/2152/2153/2154/2155/2156/2157/2158/2159/2160/2161/2162/2163/2164/2165/2166/2167/2168/2169/2170/2171/2172/2173/2174/2175/2176/2177/2178/2179/2180/2181/2182/2183/2184/2185/2186/2187/2188/2189/2190/2191/2192/2193/2194/2195/2196/2197/2198/2199/2200/2201/2202/2203/2204/2205/2206/2207/2208/2209/2210/2211/2212/2213/2214/2215/2216/2217/2218/2219/2220/2221/2222/2223/2224/2225/2226/2227/2228/2229/2230/2231/2232/2233/2234/2235/2236/2237/2238/2239/2240/2241/2242/2243/2244/2245/2246/2247/2248/2249/2250/2251/2252/2253/2254/2255/2256/2257/2258/2259/2260/2261/2262/2263/2264/2265/2266/2267/2268/2269/2270/2271/2272/2273/2274/2275/2276/2277/2278/2279/2280/2281/2282/2283/2284/2285/2286/2287/2288/2289/2290/2291/2292/2293/2294/2295/2296/2297/2298/2299/2300/2301/2302/2303/2304/2305/2306/2307/2308/2309/2310/2311/2312/2313/2314/2315/2316/2317/2318/2319/2320/2321/2322/2323/2324/2325/2326/2327/2328/2329/2330/2331/2332/2333/2334/2335/2336/2337/2338/2339/2340/2341/2342/2343/2344/2345/2346/2347/2348/2349/2350/2351/2352/2353/2354/2355/2356/2357/2358/2359/2360/2361/2362/2363/2364/2365/2366/2367/2368/2369/2370/2371/2372/2373/2374/2375/2376/2377/2378/2379/2380/2381/2382/2383/2384/2385/2386/2387/2388/2389/2390/2391/2392/2393/2394/2395/2396/2397/2398/2399/2400/2401/2402/2403/2404/2405/2406/2407/2408/2409/2410/2411/2412

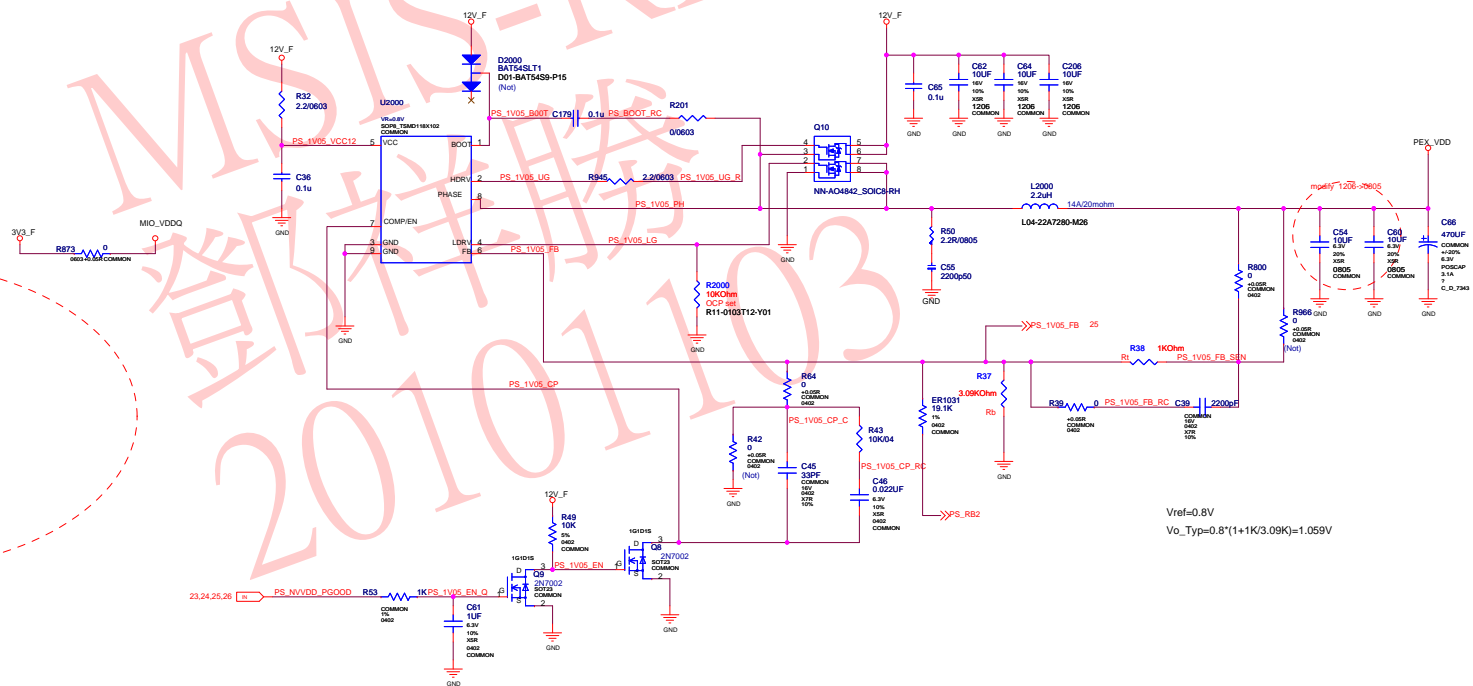
Power Supply: 2V5,5V, PEX_VDD



PEX_VDD

MIO 2V5
2V5 @ 0.8A

5/13:remove u6 circuit



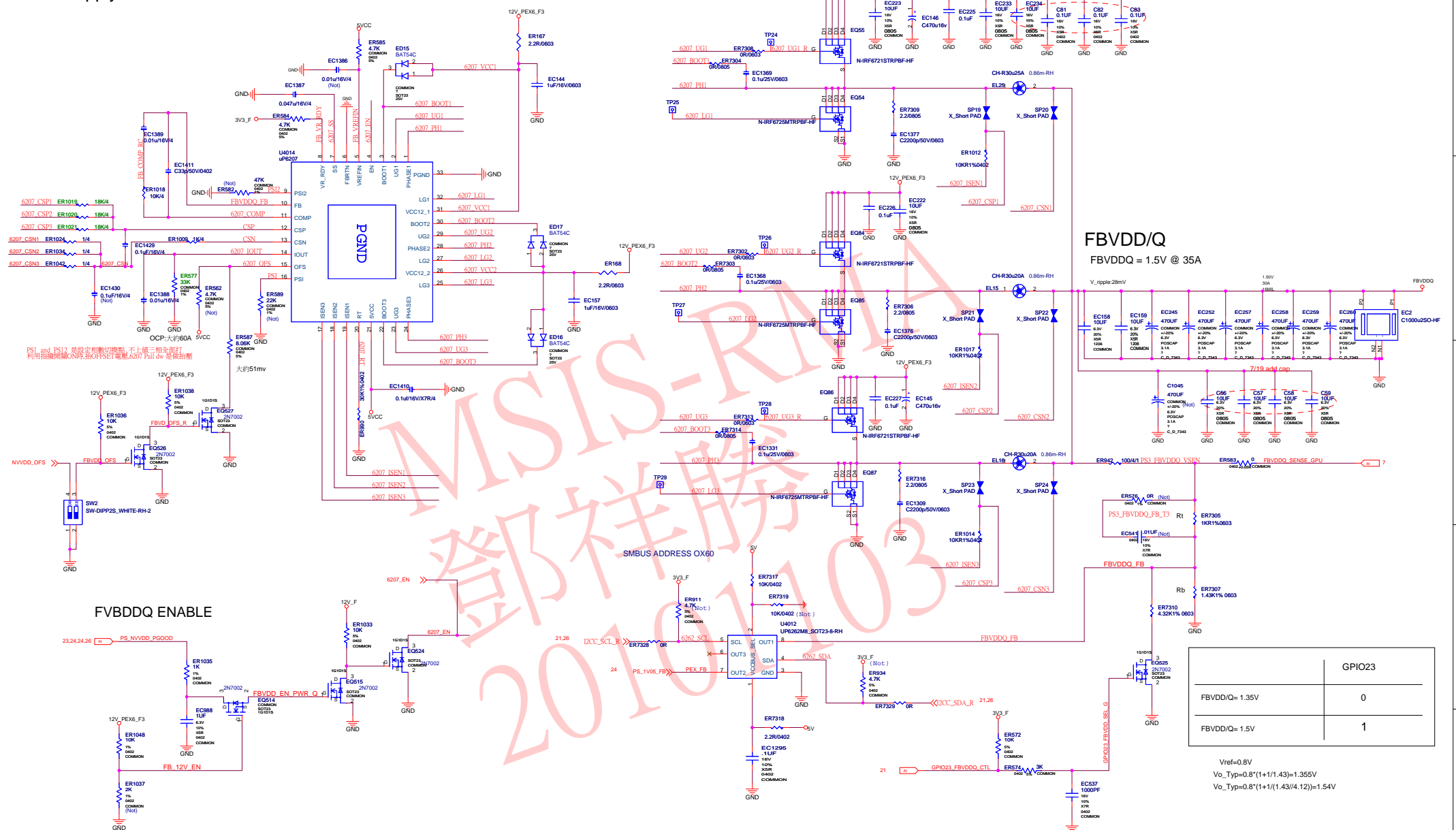
Vref=0.8V
Vo_Type=0.8*(1+1K/3.09K)=1.059V

ASSEMBLY PAGE DETAIL BASE LEVEL 'GENERIC' SCHEMATIC ONLY; COMMON & NO. 31 OFF ASSEMBLY NOTES AND BOM NOT FINAL
Power Supply: 2V5,5V, PEX_VDD

Micro-Star International Co., LTD.	
Size	Document Number
Custom	<Doc>
Date	Friday, July 23, 2010
Sheet	24 of 32

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

Power Supply: FBVDD/Q



	GPI023
FBVDD/Q= 1.35V	0
FBVDD/Q= 1.5V	1

$$V_{ref}=0.8V$$
$$V_{o_Typ}=0.8 \cdot (1+1/1.43)=1.355V$$
$$V_{o_Typ}=0.8 \cdot (1+1/(1.43/4.12))=1.54V$$


Micro-Star International Co., LTD.

Micro-Star International Co., Ltd.		
<Title>		
Size	Document Number	Rev
Custom	<Doc>	<Rev Code>

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply: FRVDDIO

VID Table

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply: NVDD Regulator



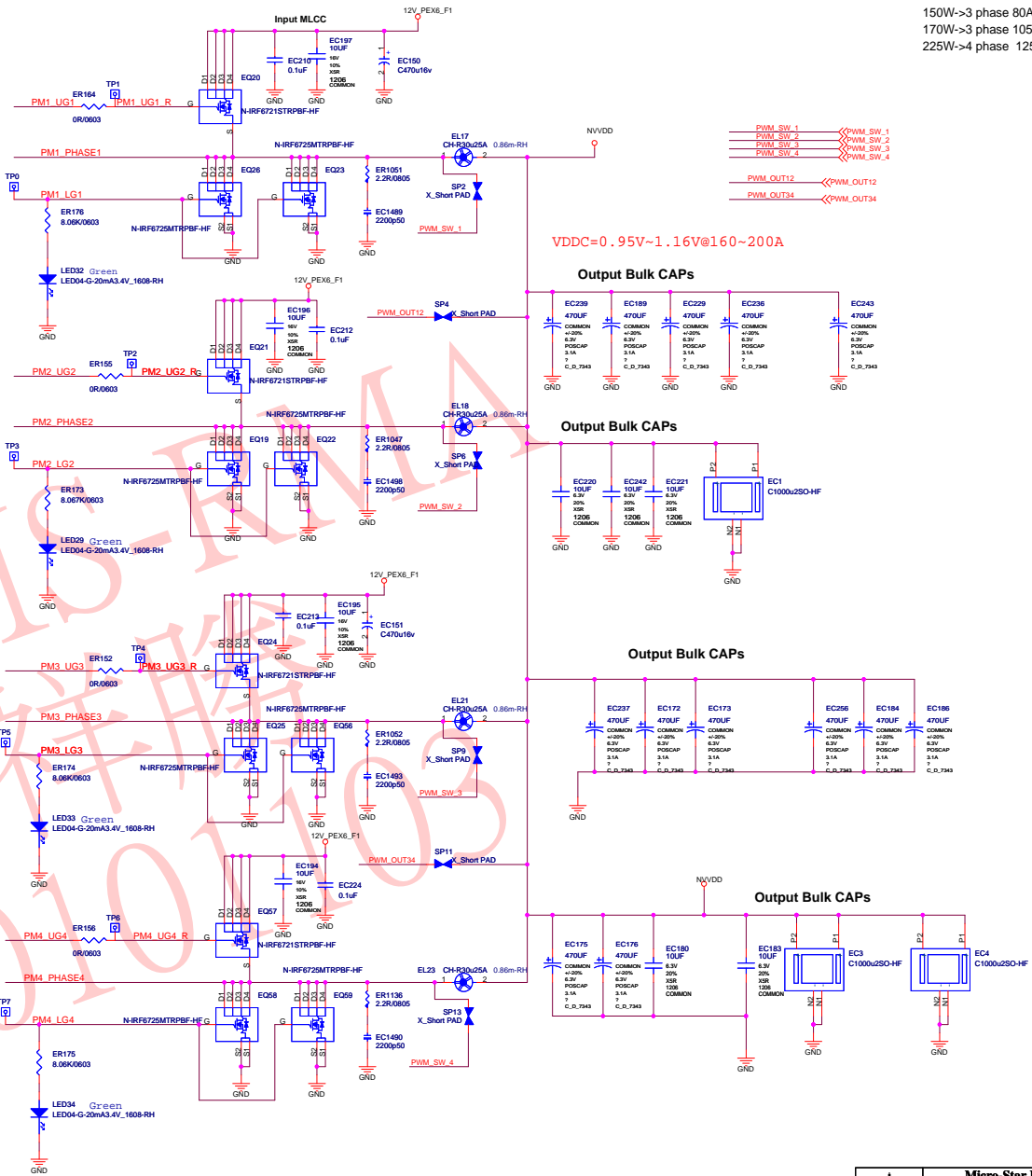
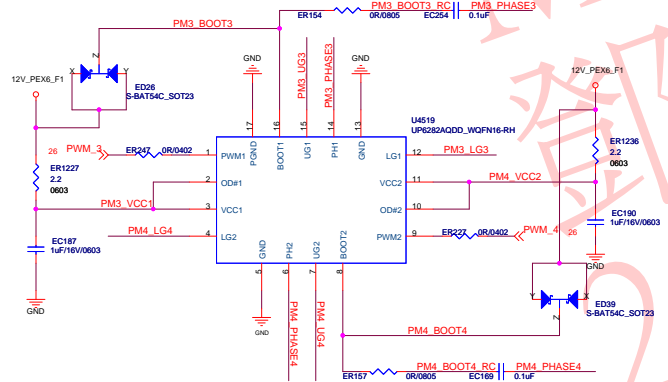
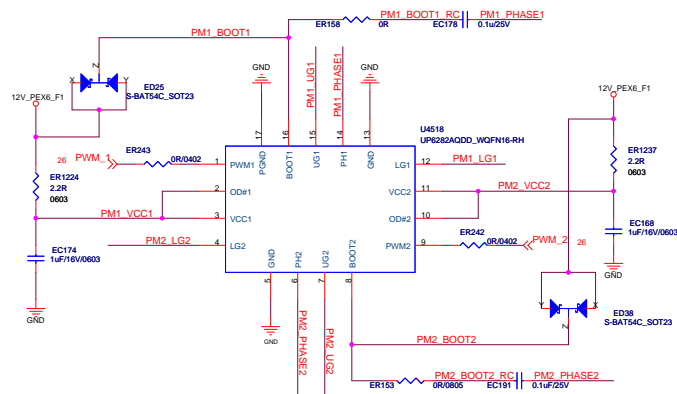
<Title>

Size	Document Number
Custom	Doc


Date:	Transfer August 22, 2012	Sheet	22
-------	--------------------------	-------	----

Power Supply: NVVDD PHASE 1,~4

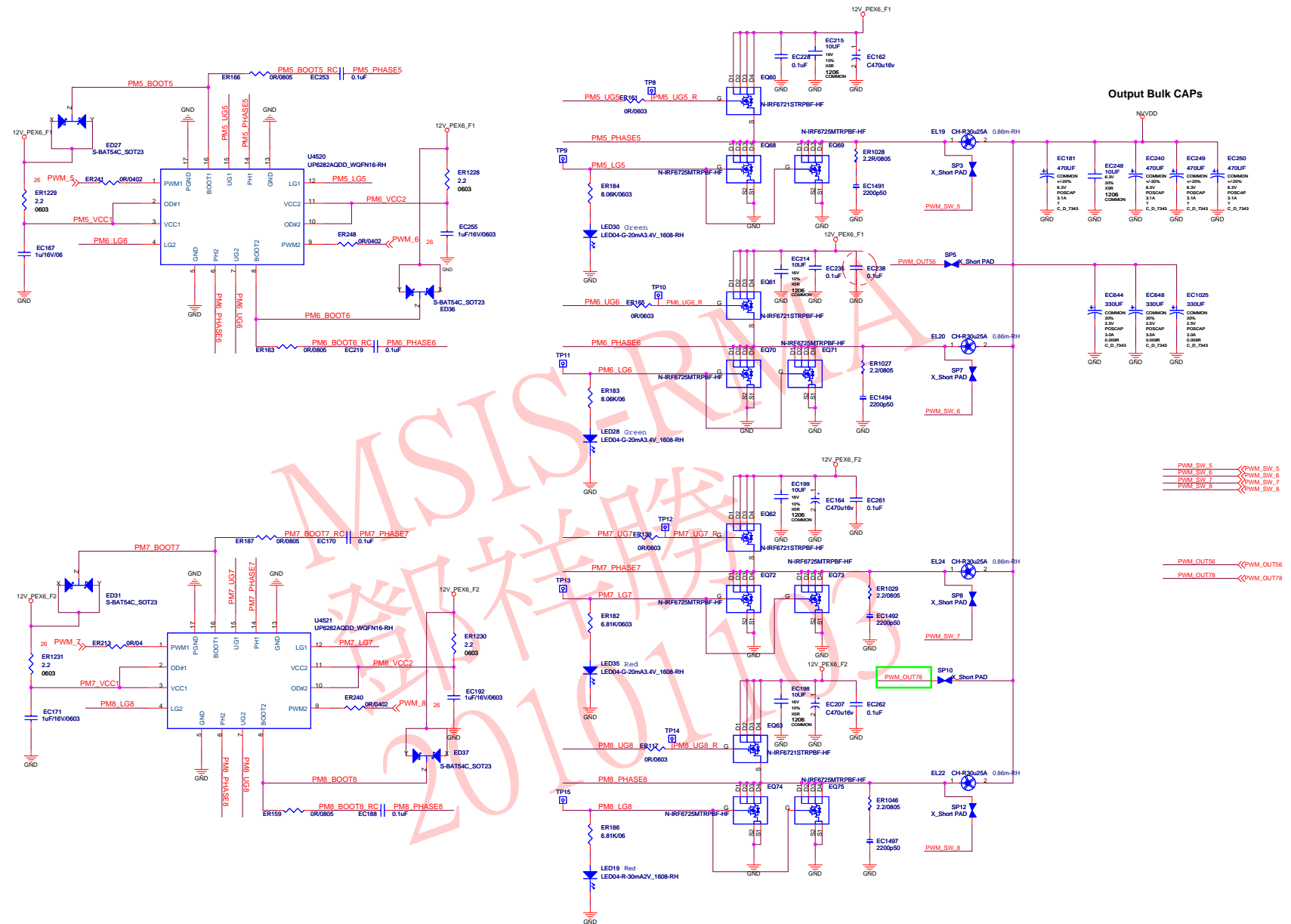
150W->3 phase 80A
170W->3 phase 105A
225W->4 phase 125A




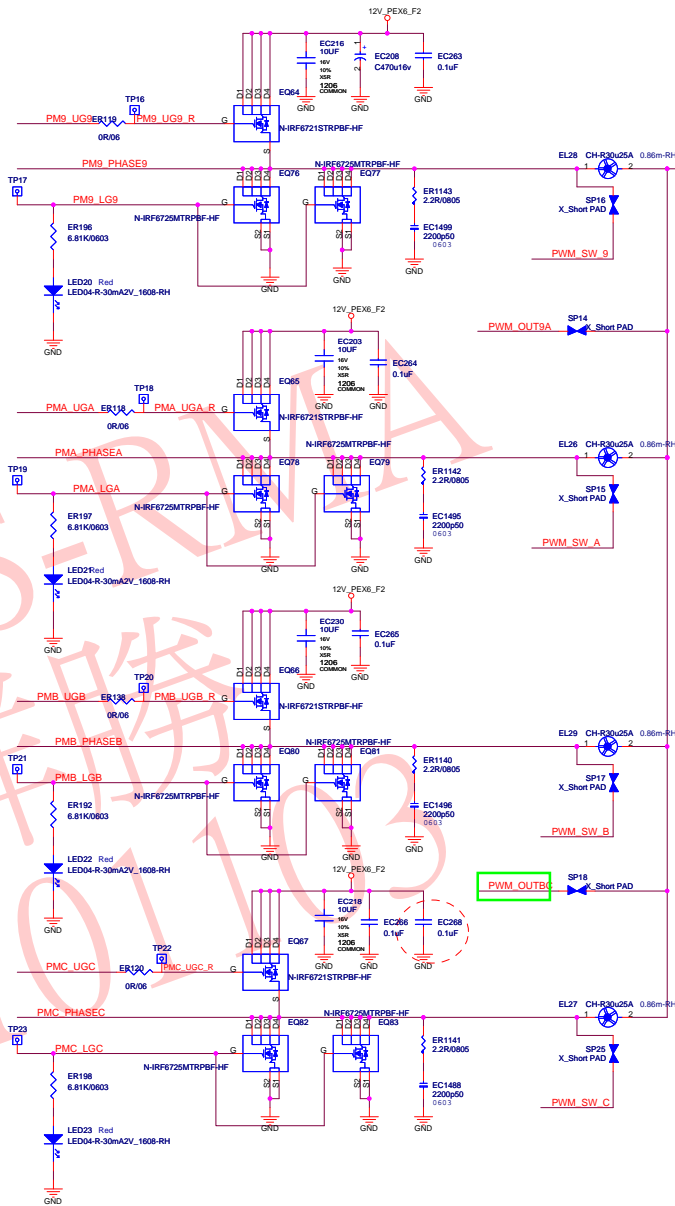
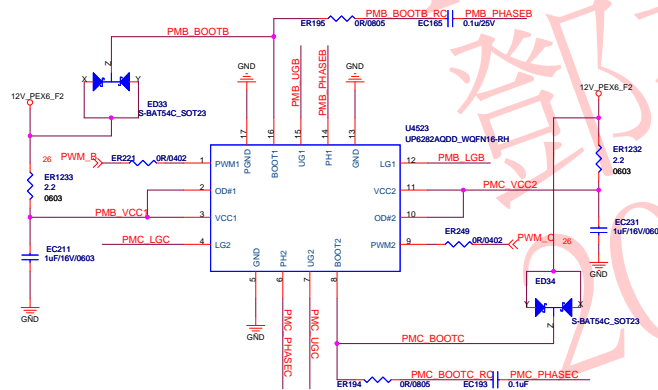
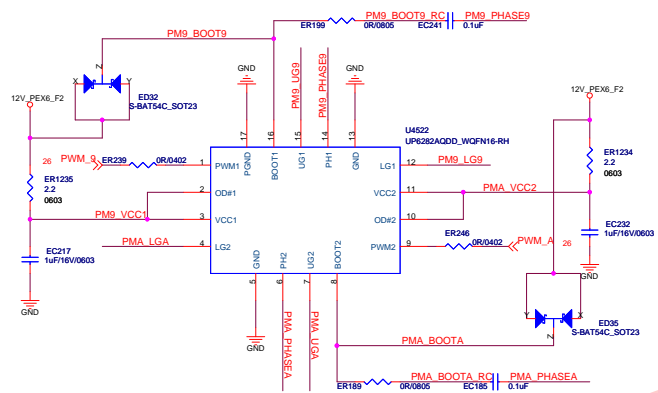
ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply: NVDD PHASE 1, 2

	Micro-Star International Co., LTD.		
	<Title>		
	Size Custom	Document Number <Doc>	Rev <Rev Code>
	Date Tuesday, July 27, 2010	Sheet 27 of	32

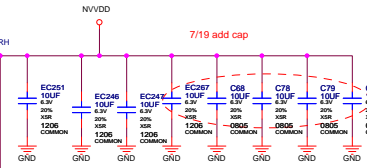
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.



	Micro-Star International Co., LTD.		
	<Title>		
	Size Custom	Document Number <Doc>	Rev <Rev Code>
	Date: Tuesday, July 27, 2010	Sheet 28	of 32



Output Bulk CAPs



PWM_SW_9 <- PWM_SW_9
PWM_SW_A <- PWM_SW_A
PWM_SW_B <- PWM_SW_B
PWM_SW_C <- PWM_SW_C
PWM_OUT9A <- PWM_OUT9A
PWM_OUTB <- PWM_OUTB

ASSEMBLY PAGE DETAIL
BASE LEVEL 'GENERIC' SCHEMATIC ONLY; COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
Power Supply: 2V5.5V_PEX_VDD

Micro-Star International Co., LTD.			
Title			
Size	Document Number	Rev	
Custom		<RefCode>	
Date:	Tuesday, July 27, 2010	Sheet	29 of 32

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY) ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

0..31	CMD	32..63
CMD0	CAS*	CMD16
CMD1	CKE*	CMD17
CMD2	RST*	CMD18
CMD3	RAS*	CMD19
CMD4	A1_A9	CMD20
CMD5	A0_A10	CMD21
CMD6	A12_RFU	CMD22
CMD7	AB1*	CMD23
CMD8	A6_A11	CMD24
CMD9	A7_A8	CMD25
CMD10	WE*	CMD26
CMD11	A5_BA1	CMD27
CMD12	A4_BA2	CMD28
CMD13	A2_BA0	CMD29
CMD14	A3_BA3	CMD30
CMD15	CS*	CMD31

Micro-Star International Co., LTD.

MSI
Date: Friday, July 23, 2010 Sheet 30 of 32

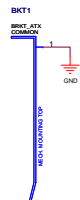
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY) ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN DEFICIENCIES OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

Thermal/Mechanical/ID

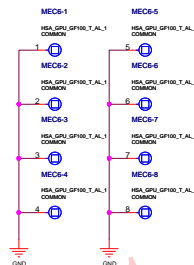
Manual BOM Change

Bracket and Assembly

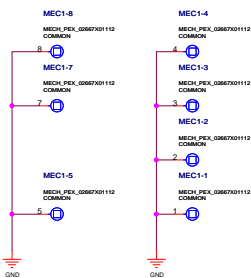
Bracket with DVI, DP, 3IN1D6 151-10001-0001-008
Bracket with DVI, DP, 3IN1D6 151-10001-0002-008



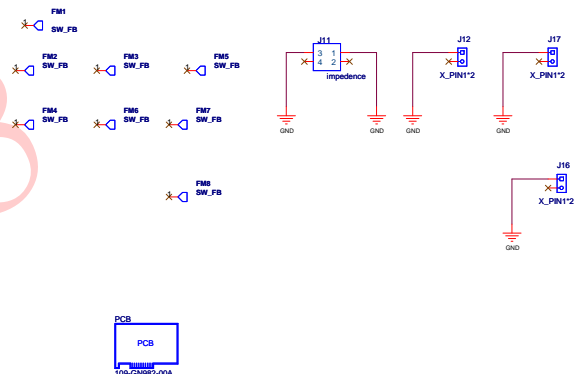
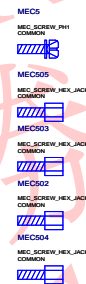
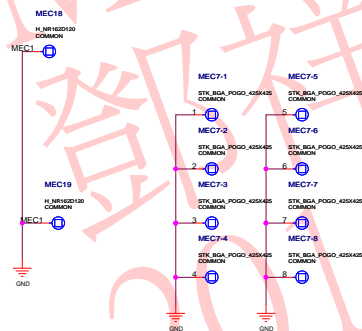
GPU Stiffener



THERMAL/MECHANICAL HOLES



BOARD STIFFENER

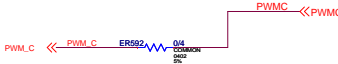
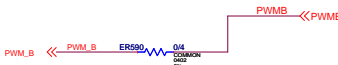
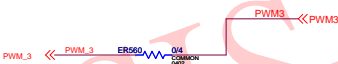
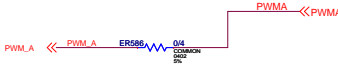
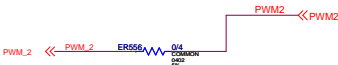
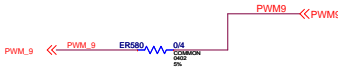
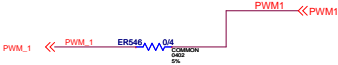
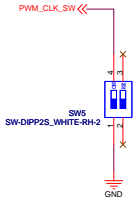


ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE DETAIL
BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
Thermal/Mechanical/ID

Micro-Star International Co., LTD.			
<Title>			
Size	Document Number	<Doc>	
Custom		<Rev>	
Date:	Thursday, July 23, 2010	Sheet	31 of 32

Reverse Phase



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY	BASE LEVEL 'GENERIC' SCHEMATIC ONLY; COMMON & NO-STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	ThermalMechanicalID

Micro-Star International Co., LTD.

<Title>

Size	Document Number	<Doc>	<Rev>
Custom			

Date: Wednesday, July 28, 2010 Sheet 32 of 32