

PG401 A02


4GB GDDR5, 256b, 128Mx32

Tall DVI-I + DP + DP + DP/HDMI + DP

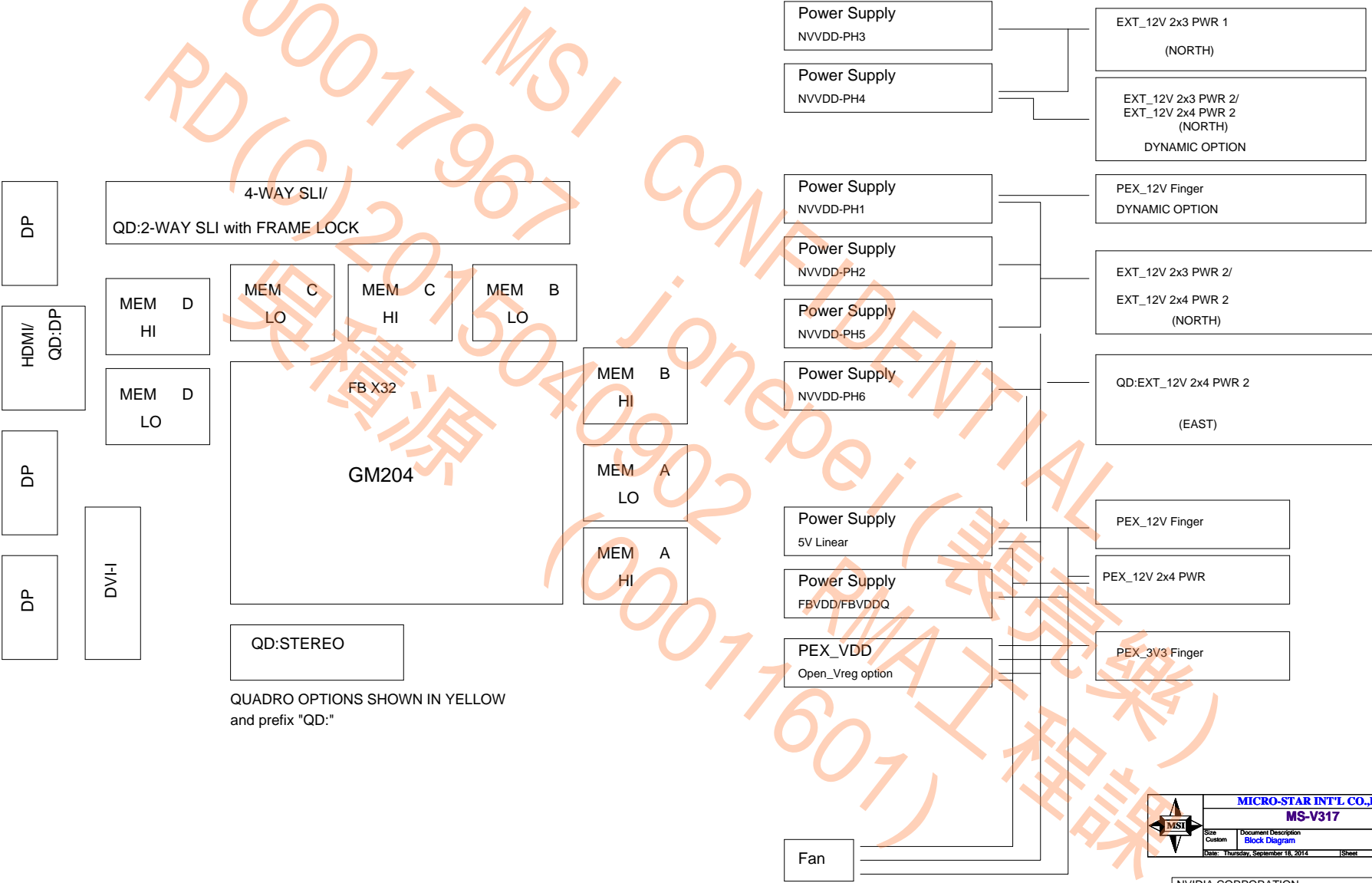
TABLE OF CONTENTS

Page	Description
1	Table of Contents
2	Block Diagram
3	PCI Express
4	MEMORY: GPU Partition A/B
5	MEMORY: FBA[31:0]
6	MEMORY: FBA[63:32]
7	MEMORY: FBB[31:0]
8	MEMORY: FBB[63:32]
9	MEMORY: GPU Partition C/D
10	MEMORY: FBC[31:0]
11	MEMORY: FBC[63:32]
12	MEMORY: FBD[31:0]
13	MEMORY: FBD[63:32]
14	GPU PWR and GND
15	GPU Decoupling
16	DACA Interface
17	IFPAB DVI-I-DL
18	IFPEF with IFPE DP
19	IFPF DP
20	IFPC HDMI/DP
21	IFPD DP
22	MIOA/B Interface and Frame Lock
23	MISC1: Fan, Thermal, JTAG, GPIO, Stereo
24	MISC2: ROM, XTAL, Straps
25	PS: 5V, PEX_VDD

Page	Description
26	PS: FBVDD/Q
27	PS: NVVDD Controller
28	PS: NVVDD Phase 1,2
29	PS: NVVDD Phase 3,4
30	PS: NVVDD Phase 5, 6
31	PS: Dynamic Power Balance Logic
32	PS: Dynamic Power Balance Phases
33	PS: Inputs, Filtering, and Monitoring
34	PS: Shutdown
35	PS: 12V Current Steering PSI Control and LED
36	MECH: Bracket/Thermal
37	MICROCONTROLLER

		MICRO-STAR INT'L CO.,LTD	
		MS-V317	
Size	Custom	Document Description	Rev
		Table of contents	1.1
Date: Thursday, September 18, 2014		Sheet	1 of 37
NVIDIA CORPORATION			
2701 SAN TOMAS EXPRESSWAY			
SANTA CLARA, CA 95050, USA			
NV_PN	600-1G401-BASE-QS1		
PCB REV	PG401-A02	PAGE	1 OF 37
ROM REV	A	DATE	04-AUG-2014


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.



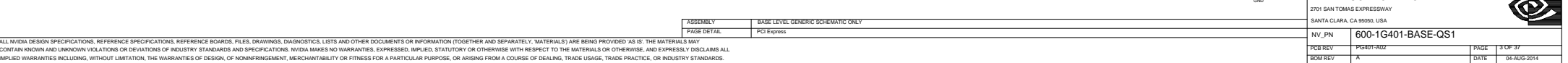
QUADRO OPTIONS SHOWN IN YELLOW
and prefix "QD:"

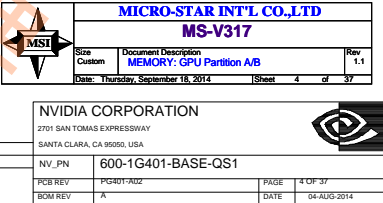
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS 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.

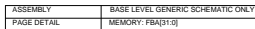
ASSEMBLY	BASIC LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	Block Diagram

		MICRO-STAR INT'L CO.,LTD	
		MS-V317	
Size	Custom	Document Description	Rev
Date:	Thursday, September 18, 2014	Block Diagram	1.1
Sheet	2	of	37

NVIDIA CORPORATION			
2701 SAN TOMAS EXPRESSWAY			
SANTA CLARA, CA 95050, USA			
NV_PN	600-1G401-BASE-QS1		
PCB REV	PG401-A02	PAGE	2 OF 37
BOX REV	A	DATE	04-AUG-2014





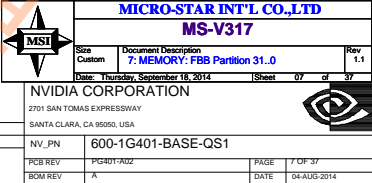


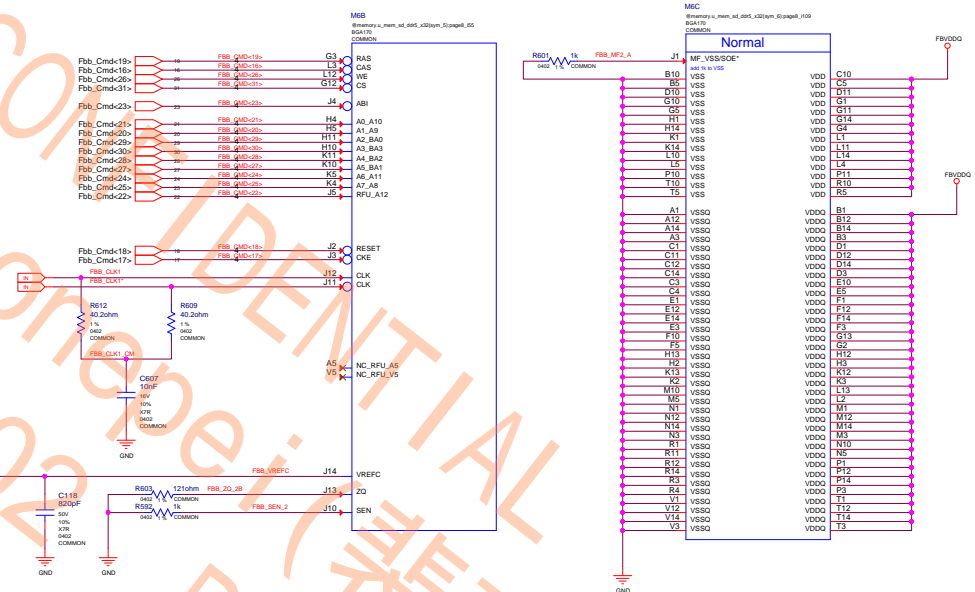
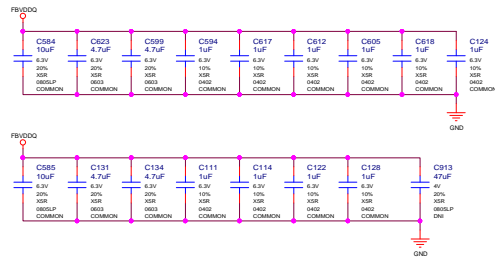


2701 SAN TOMAS EXPRESSWAY

PCB REV	PG401-A02
---------	-----------


--	--



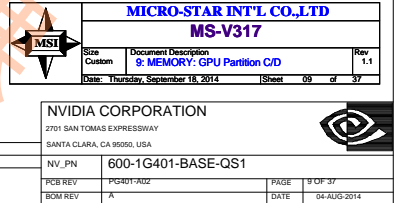


ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	MEMORY: FBB[63:32]

	MICRO-STAR INT'L CO.,LTD		
	MS-V317		
	Size	Document Description	Rev
	Custom	MEMORY: FBB Partition 63.32	1.1
Date: Thursday, September 16, 2014		Sheet 8 of 37	

NVIDIA CORPORATION 2701 S TANOMAS EXPRESSWAY SANTA CLARA, CA 95050, USA			
NV_PN		600-1G401-BASE-QS1	
PCB REV	PG401-A02	PAGE	8 OF 37
BOM REV	A	DATE	04-AUG-2014





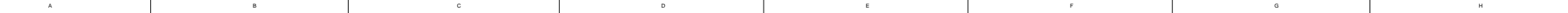


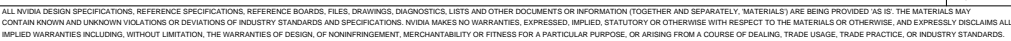
2701 SAN TOMAS EXPRESSWAY

PCB REV	PG401-A02	PAGE	10 OF 37
BOM REV	A	DATE	04-AUG-2014

	H
--	---





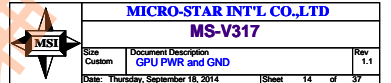


IALS MAY
ESSLY DISCLAIMS ALL
STRY STANDARDS.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	Week 40	Week 41	Week 42	Week 43	Week 44	Week 45	Week 46	Week 47	Week 48	Week 49	Week 50	Week 51	Week 52	Week 53	Week 54	Week 55	Week 56	Week 57	Week 58	Week 59	Week 60	Week 61	Week 62	Week 63	Week 64	Week 65	Week 66	Week 67	Week 68	Week 69	Week 70	Week 71	Week 72	Week 73	Week 74	Week 75	Week 76	Week 77	Week 78	Week 79	Week 80	Week 81	Week 82	Week 83	Week 84	Week 85	Week 86	Week 87	Week 88	Week 89	Week 90	Week 91	Week 92	Week 93	Week 94	Week 95	Week 96	Week 97	Week 98	Week 99	Week 100	Week 101	Week 102	Week 103	Week 104	Week 105	Week 106	Week 107	Week 108	Week 109	Week 110	Week 111	Week 112	Week 113	Week 114	Week 115	Week 116	Week 117	Week 118	Week 119	Week 120	Week 121	Week 122	Week 123	Week 124	Week 125	Week 126	Week 127	Week 128	Week 129	Week 130	Week 131	Week 132	Week 133	Week 134	Week 135	Week 136	Week 137	Week 138	Week 139	Week 140	Week 141	Week 142	Week 143	Week 144	Week 145	Week 146	Week 147	Week 148	Week 149	Week 150	Week 151	Week 152	Week 153	Week 154	Week 155	Week 156	Week 157	Week 158	Week 159	Week 160	Week 161	Week 162	Week 163	Week 164	Week 165	Week 166	Week 167	Week 168	Week 169	Week 170	Week 171	Week 172	Week 173	Week 174	Week 175	Week 176	Week 177	Week 178	Week 179	Week 180	Week 181	Week 182	Week 183	Week 184	Week 185	Week 186	Week 187	Week 188	Week 189	Week 190	Week 191	Week 192	Week 193	Week 194	Week 195	Week 196	Week 197	Week 198	Week 199	Week 200	Week 201	Week 202	Week 203	Week 204	Week 205	Week 206	Week 207	Week 208	Week 209	Week 210	Week 211	Week 212	Week 213	Week 214	Week 215	Week 216	Week 217	Week 218	Week 219	Week 220	Week 221	Week 222	Week 223	Week 224	Week 225	Week 226	Week 227	Week 228	Week 229	Week 230	Week 231	Week 232	Week 233	Week 234	Week 235	Week 236	Week 237	Week 238	Week 239	Week 240	Week 241	Week 242	Week 243	Week 244	Week 245	Week 246	Week 247	Week 248	Week 249	Week 250	Week 251	Week 252	Week 253	Week 254	Week 255	Week 256	Week 257	Week 258	Week 259	Week 260	Week 261	Week 262	Week 263	Week 264	Week 265	Week 266	Week 267	Week 268	Week 269	Week 270	Week 271	Week 272	Week 273	Week 274	Week 275	Week 276	Week 277	Week 278	Week 279	Week 280	Week 281	Week 282	Week 283	Week 284	Week 285	Week 286	Week 287	Week 288	Week 289	Week 290	Week 291	Week 292	Week 293	Week 294	Week 295	Week 296	Week 297	Week 298	Week 299	Week 300	Week 301	Week 302	Week 303	Week 304	Week 305	Week 306	Week 307	Week 308	Week 309	Week 310	Week 311	Week 312	Week 313	Week 314	Week 315	Week 316	Week 317	Week 318	Week 319	Week 320	Week 321	Week 322	Week 323	Week 324	Week 325	Week 326	Week 327	Week 328	Week 329	Week 330	Week 331	Week 332	Week 333	Week 334	Week 335	Week 336	Week 337	Week 338	Week 339	Week 340	Week 341	Week 342	Week 343	Week 344	Week 345	Week 346	Week 347	Week 348	Week 349	Week 350	Week 351	Week 352	Week 353	Week 354	Week 355	Week 356	Week 357	Week 358	Week 359	Week 360	Week 361	Week 362	Week 363	Week 364	Week 365	Week 366	Week 367	Week 368	Week 369	Week 370	Week 371	Week 372	Week 373	Week 374	Week 375	Week 376	Week 377	Week 378	Week 379	Week 380	Week 381	Week 382	Week 383	Week 384	Week 385	Week 386	Week 387	Week 388	Week 389	Week 390	Week 391	Week 392	Week 393	Week 394	Week 395	Week 396	Week 397	Week 398	Week 399	Week 400	Week 401	Week 402	Week 403	Week 404	Week 405	Week 406	Week 407	Week 408	Week 409	Week 410	Week 411	Week 412	Week 413	Week 414	Week 415	Week 416	Week 417	Week 418	Week 419
--	--------	--------	--------	--------	--------	--------	--------	--------	--------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

SANTA CLARA, CA 95050, USA

PCB REV	PG401-AD2
BOM REV	A



2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

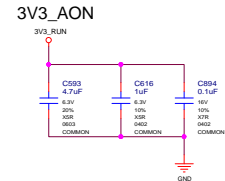
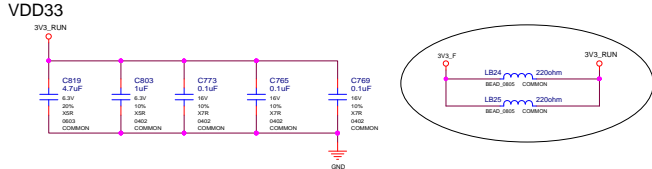
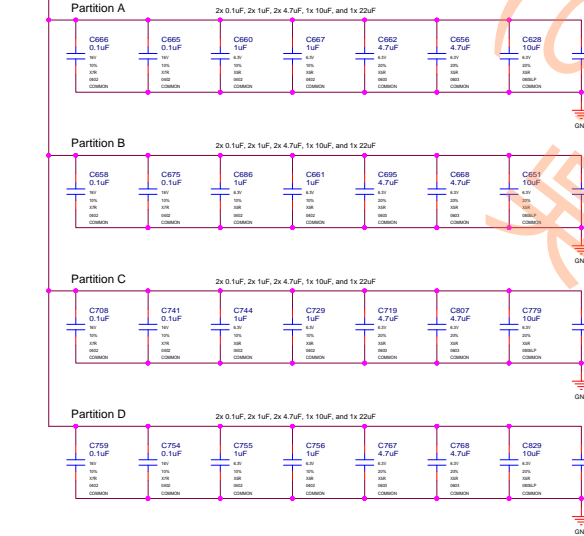


PCB REV	PG401-A02	PAGE	14 OF 37
BOM REV	A	DATE	04-AUG-2014

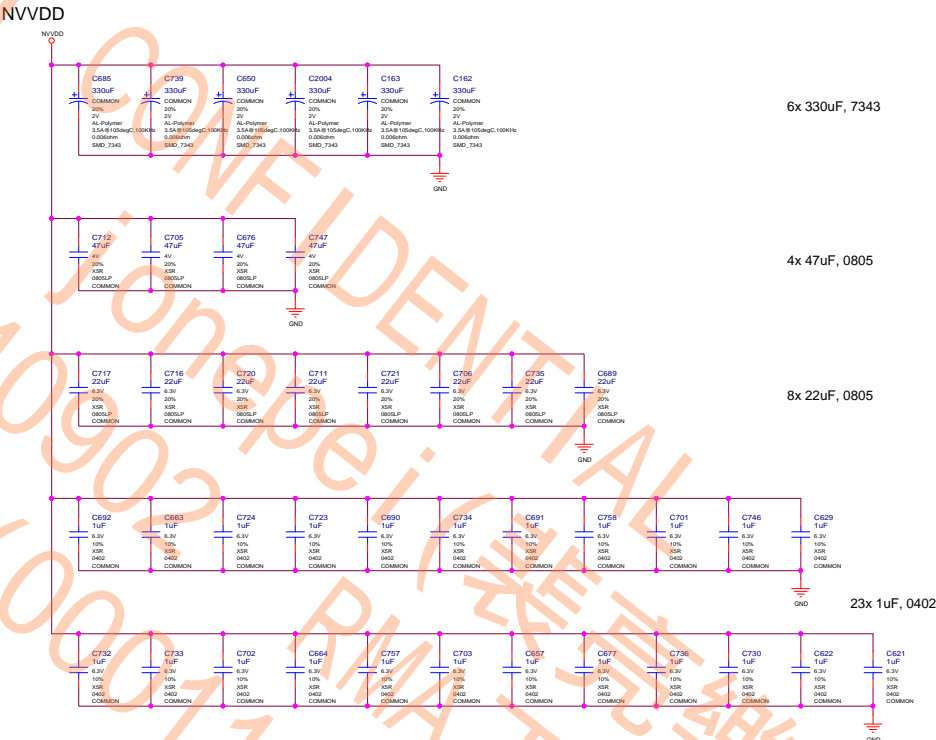
	H
--	---

Based on GB2-X GDDR5 FBVDDQ Decap Guideline

FBVDDQ
0.1uF, 0.47uF & 1uF, 0402 (Place Under GPU)
4.7uF, 0603 (Place Near GPU)
10uF, 0805 (Place Near GPU)
22uF, 0805 (Place Near GPU)



NVVDD Decoupling caps. Place under GPU.



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
PAGE DETAIL	GPU Decoupling

NVIDIA CORPORATION

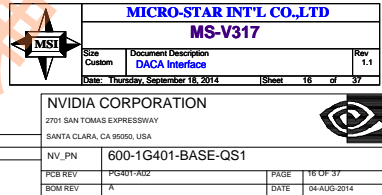
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

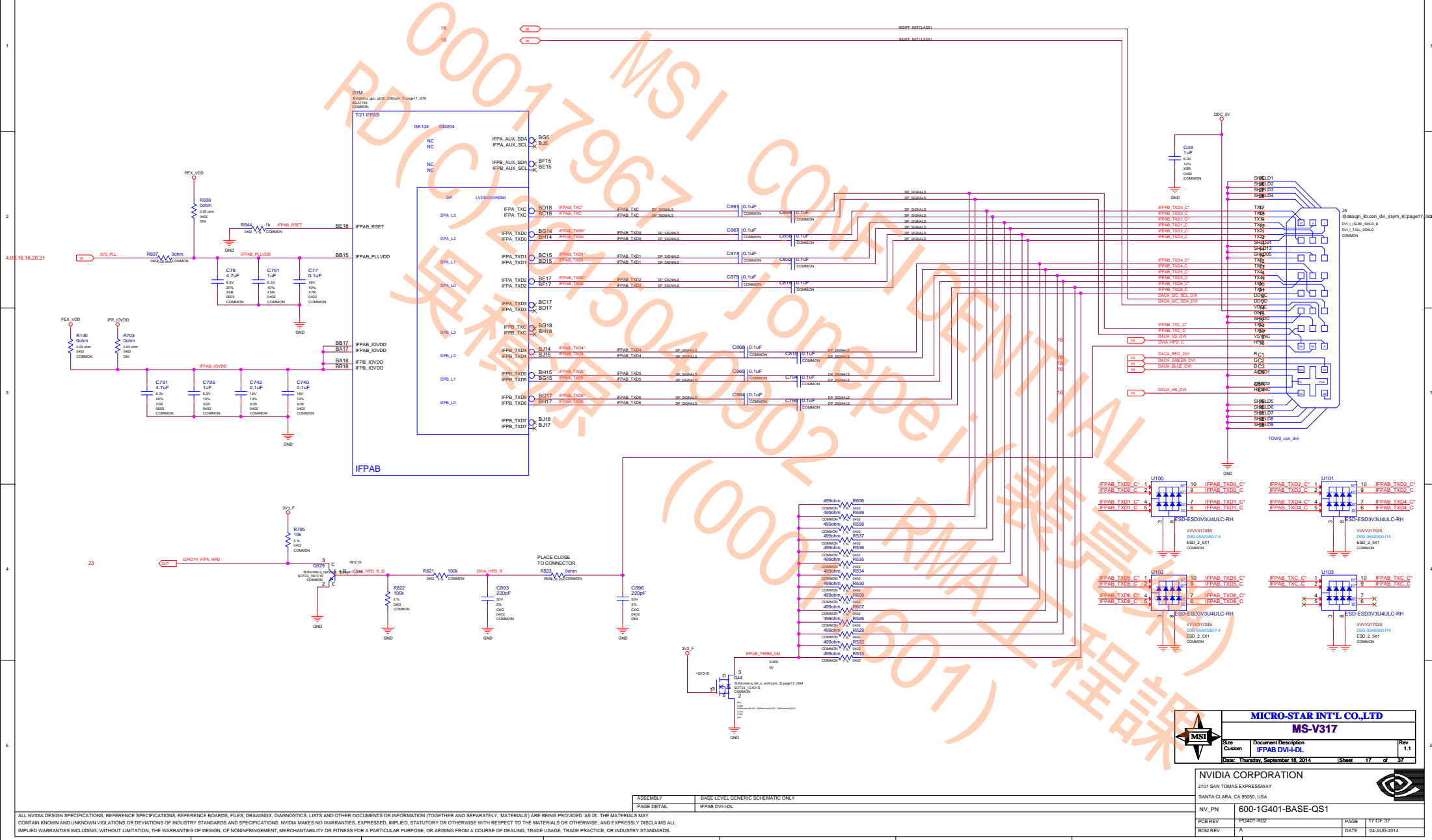
INV_PN 600-1G401-BASE-QS1

PCB REV PG401-A02
BOM REV A

PAGE 15 OF 37
DATE 04-AUG-2014







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
PAGE DETAIL	IFPAB DVI-I-DL

MICRO-STAR INT'L CO.,LTD			
MS-V317			
Size	Document Description	Rev	
Custom	IFPAB DVI-I-DL	1.1	
Date:	Thursday, September 18, 2014	Sheet	17 of 37

NVIDIA CORPORATION

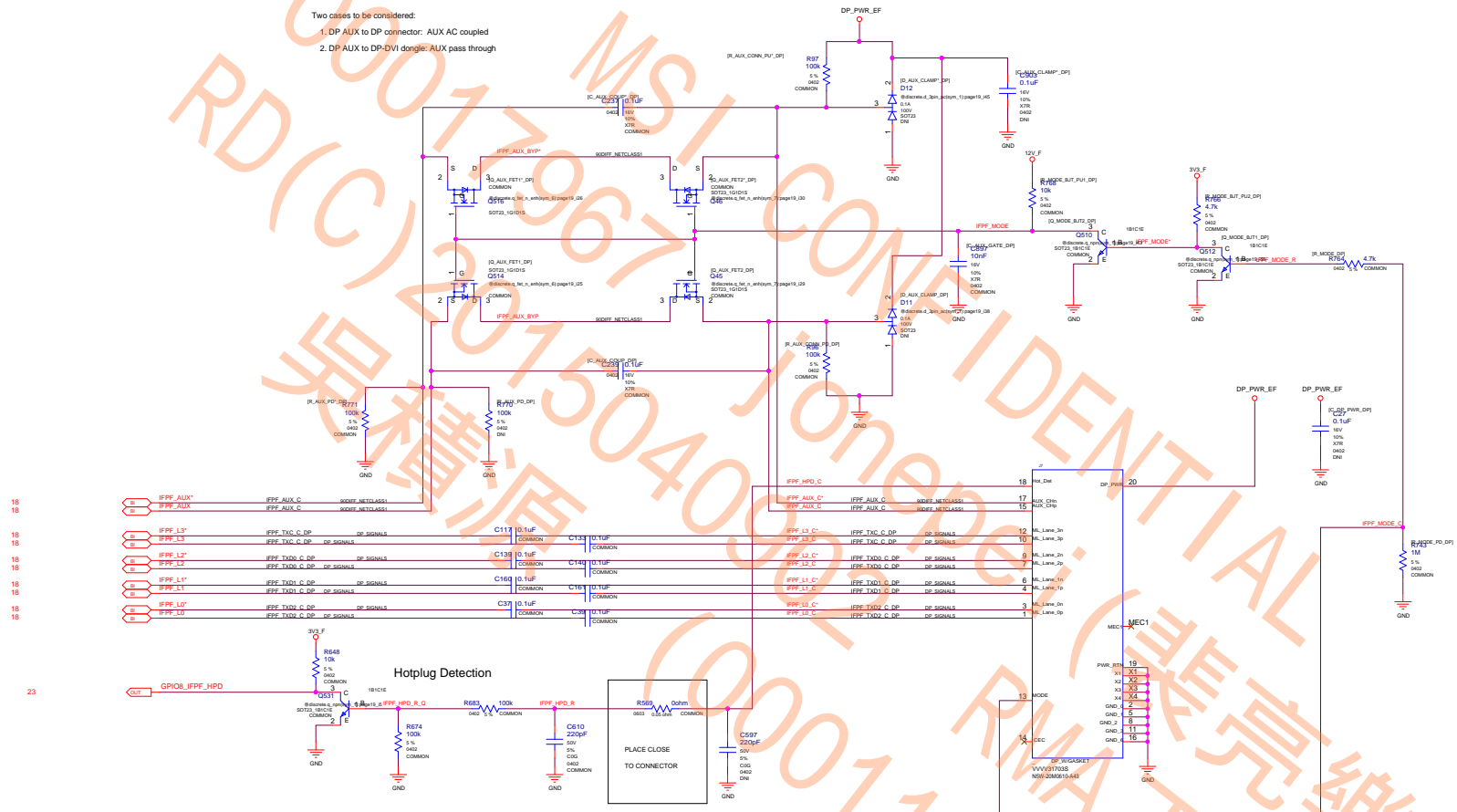
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

NV_PN 600-1G401-BASE-QS1

PCB REV	PG401-A02	PAGE	17 OF 37
BOX REV	A	DATE	04-AUG-2014


Two cases to be considered:

1. DP AUX to DP connector: AUX AC coupled
2. DP AUX to DP-DVI dongle: AUX pass through



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	IFPF DP

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 OR 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.

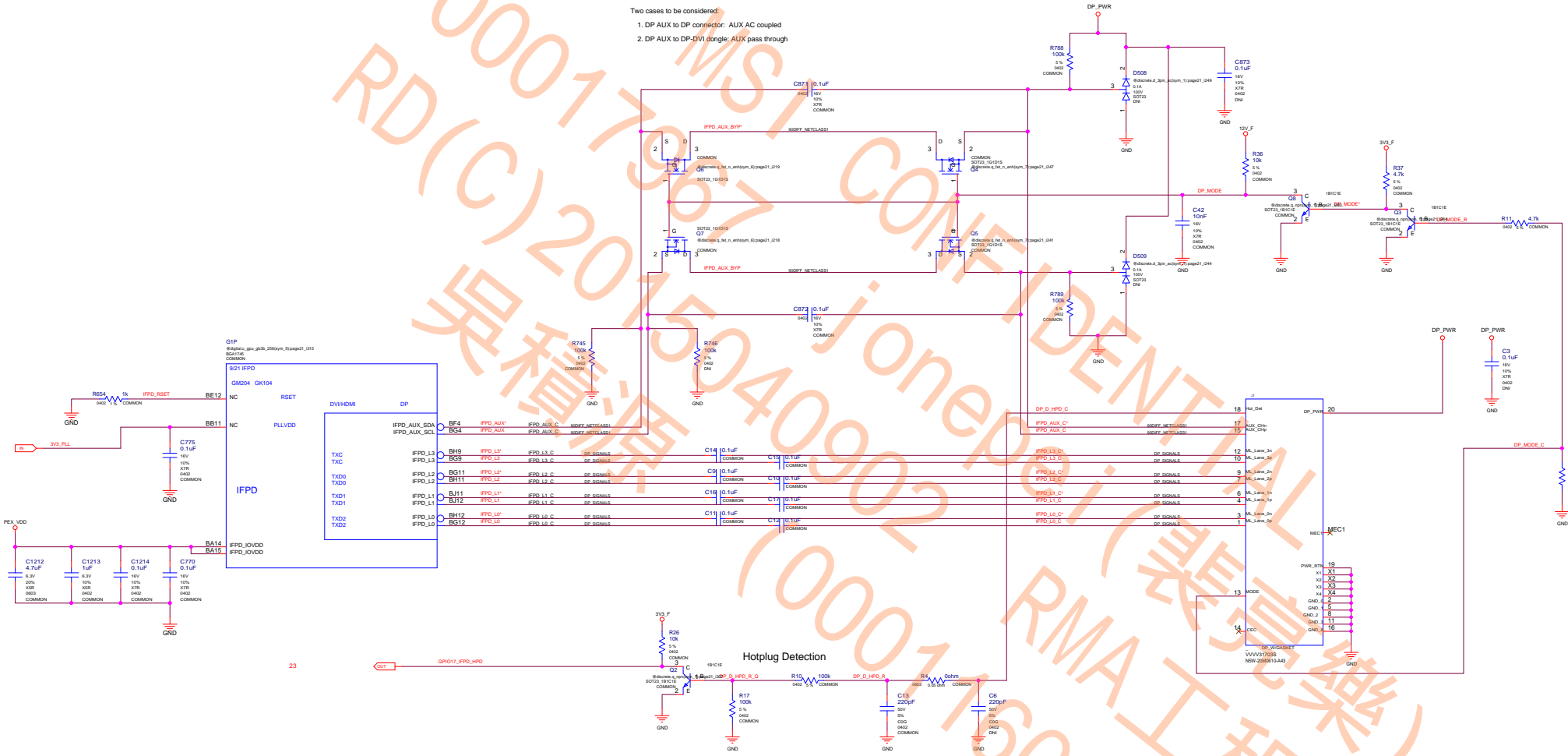
	MICRO-STAR INT'L CO.,LTD		
	MS-V317		
	Size Custom	Document Description IPFF DP	Rev 1.1
	Date: Thursday, September 18, 2014		Sheet 18 of 37

NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA




NV_PN	600-1G401-BASE-QS1		
PCB REV	PG401-A02	PAGE	19 OF 37
BOM REV	A	DATE	04-AUG-2014

Two cases to be considered:
1. DP AUX to DP connector: AUX AC coupled
2. DP AUX to DP-DVI dongle: AUX pass through



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 USAGES, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	IFPD DP



MICRO-STAR INT'L CO.,LTD


MS-V317

Size: Custom

Document Description: IFPD DP

Date: Thursday, September 18, 2014

Sheet: 21 of 37



NVIDIA CORPORATION
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

Rev: 1.1

PG401:AD2

DATE: 04-AUG-2014

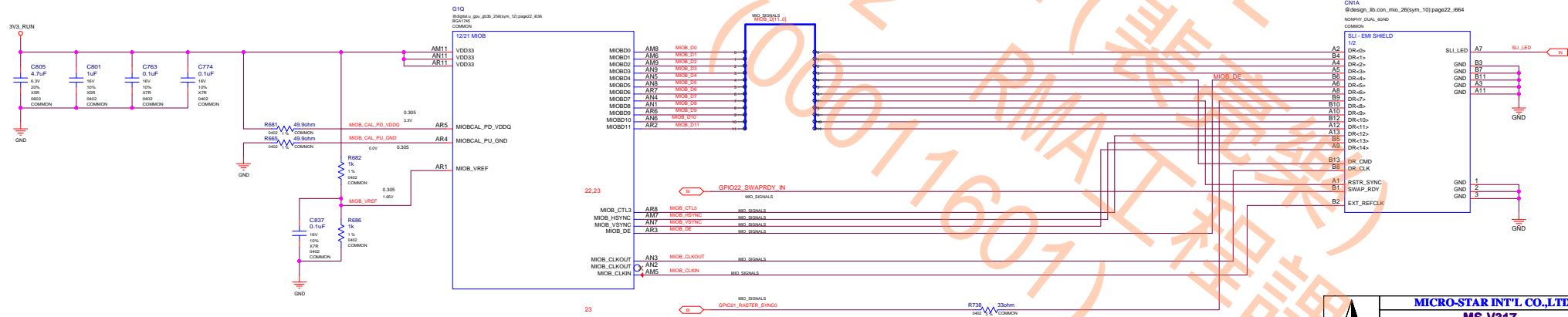
PCB REV: A

DATE: 04-AUG-2014


INV_PN: 600-1G401-BASE-QS1


PG401:AD2

DATE: 04-AUG-2014



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	M/OA/B Interface and Frame Lock

	MICRO-STAR INT'L CO.,LTD		
	MS-V317		
	Size Custom	Document Description MIO/B Interface and FRAME LOCK	Rev 1.1
	Date: Thursday, September 18, 2014		Sheet 22 of 37

NVIDIA CORPORATION 2701 SAN TOMAS EXPRESSWAY SANTA CLARA, CA 95050, USA			
NV_PN		600-1G401-BASE-QS1	
PCB REV		PG401-A02	
BOM REV		PAGE	22 OF 37
A		DATE	04-AUG-2014



NV_PN	600-1G401-BASE-QS1
-------	--------------------

PCB REV	PG401-A02	PAGE	23 OF 37
BOM REV	A	DATE	04-AUG-2014

	H
--	---

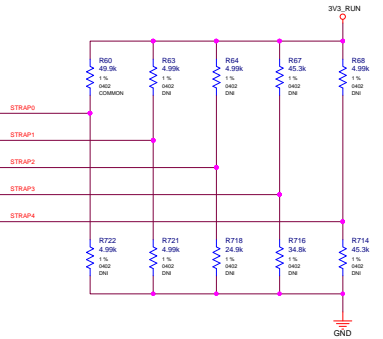


STRAP0	KEPLER		
	USER_BIT [3:0]*	0000*	5K PD*
STRAP1	3GIO_PADCFG_LUT_ADR*	0000*	5K PD Overlap*
STRAP2	PCI_DEVID [3:0]*	0100 - (0x1184)*	25K PD - 45K GPU*
STRAP3	SOR_EXPOSED [3:0]*	1111*	45K PU*
STRAP4	DP_PLL_VDD_33V*	1*	FOR 3_3V*
	PEX_MAX_SPEED*	1*	FOR GEN2/3*
	PEX_SPD_CHANGE_GEN3*	1*	ENABLED*
	*		

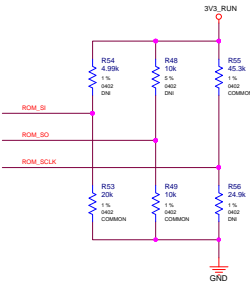
ROM_SI	RAMCFG[0]*	1*	
	RAMCFG[1]*	1*	0111 for 64Mx32 256-bit SAMSUNG SAMSUNG for SKH2 0 primary memory
	RAMCFG[2]*	1*	45K PD*
	RAMCFG[3]*	0*	
ROM_SO	VGA_DEVICE*	1*	
	SMB_ALT_ADDR*	0*	30K PD*
	FB[0]_APERTURE_SIZE*	1*	For 128MB*
	FB[1]_APERTURE_SIZE*	0*	For 128MB*
ROM_SCLK	PEX_PLL_EN_TERM100*	0*	DISABLED*
	PCI_DEVID_EXT[5]*	0*	For 0x1184*
	SUB_VENDOR*	1*	Dedicated BIOS*
	PCI_DEVID_EXT[4]*	0*	For 0x1184*

MAXWELL		
GC6	SEE TABLE BELOW	
RAMCFG[0]*	1*	
	1*	20K PD*
	0*	
	0*	
VGA_DEVICE*	1*	
	0*	10K PD*
	0*	
	0*	
SOR0_EXPOSED*	1*	
	1*	45K PU*
	1*	
	1*	

MULTI_STRAP_REF0_GND	
BINARY PRODUCTION	NC
BINARY BRINGUP	NC
MULTI-LEVEL	45.3K 1% TO GND



MAXWELL		
STRAP0	3.3V	1.65V
STRAP1	1.65V	0V
STRAP2	0V	0V
STRAP3	0V	0V
STRAP4	0V	0V

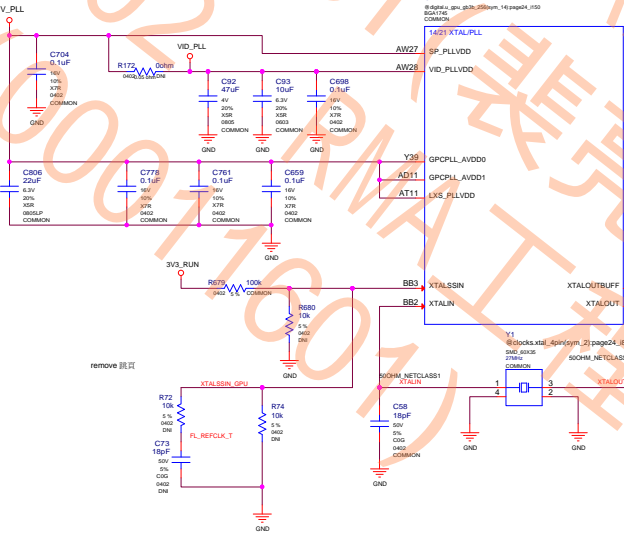


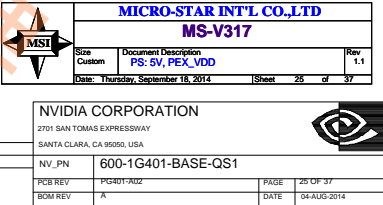
GND		
5K	0000	1000
10k	0001	1001
15k	0010	1010
20k	0011	1011
25k	0100	1100
30k	0101	1101
35k	0110	1110
45k	0111	1111

CFG[3:0] Config Width Vendor		
0000	Reserved	
0001	32Mx32 256-bit Elpida	
0010	32Mx32 256-bit Hynix	
0011	32Mx32 256-bit Samsung	
0100	Reserved	
0101	64Mx32 256-bit Elpida	
0110	64Mx32 256-bit Hynix	
0111	64Mx32 256-bit Samsung	
1000	Reserved	
1001	32Mx32 192-bit Elpida	
1010	32Mx32 192-bit Hynix	
1011	32Mx32 192-bit Samsung	
1100	Reserved	
1101	64Mx32 192-bit Elpida	
1110	64Mx32 192-bit Hynix	
1111	64Mx32 192-bit Samsung	

CFG[3:0] Config Width Vendor		
0000	Reserved	
0001	128Mx32 256-bit Elpida	
0010	128Mx32 256-bit Hynix	
0011	128Mx32 256-bit Samsung	
0100	Reserved	
0101	64Mx32 256-bit Elpida	
0110	64Mx32 256-bit Hynix	
0111	64Mx32 256-bit Samsung	

0x13C0





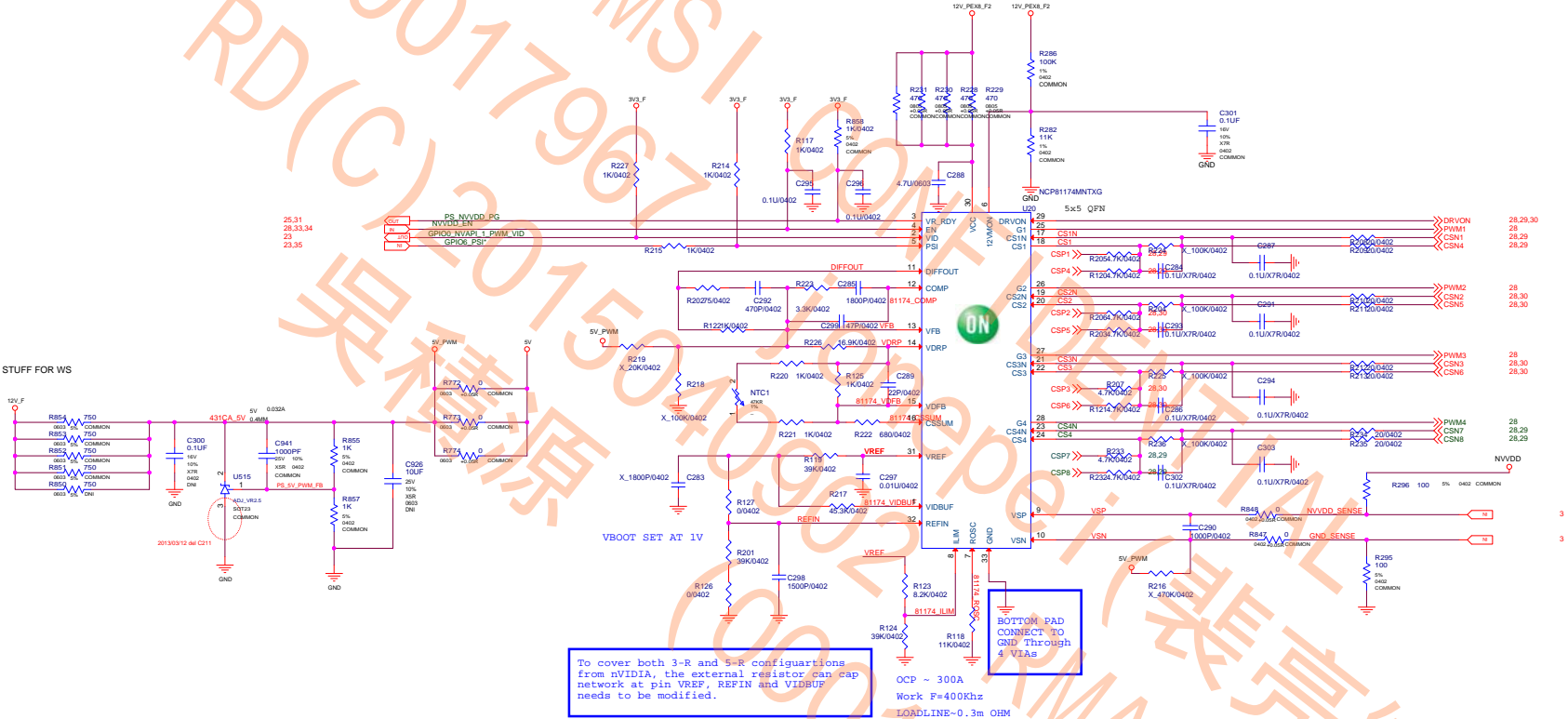
MSI CONFIDENTIAL
00017967 jonepei (裴亮樂)
RD(C)2015040902 RMA工程師
吳積源 (00011601)

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	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	P/S FBVDDV

MICRO-STAR INT'L CO.,LTD		
MS-V317		
Size	Document Description	Rev
Custom	NA	1.1
Date: Thursday, September 18, 2014		Sheet 26 of 37

NVIDIA CORPORATION		
2701 SAN TOMAS EXPRESSWAY		
SANTA CLARA, CA 95050, USA		
NV_PN	600-1G401-BASE-QS1	
PCB REV	PG401-A02	PAGE 26 OF 37
BOX REV	A	DATE 04-AUG-2014



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	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	PS: NVVDD Controller

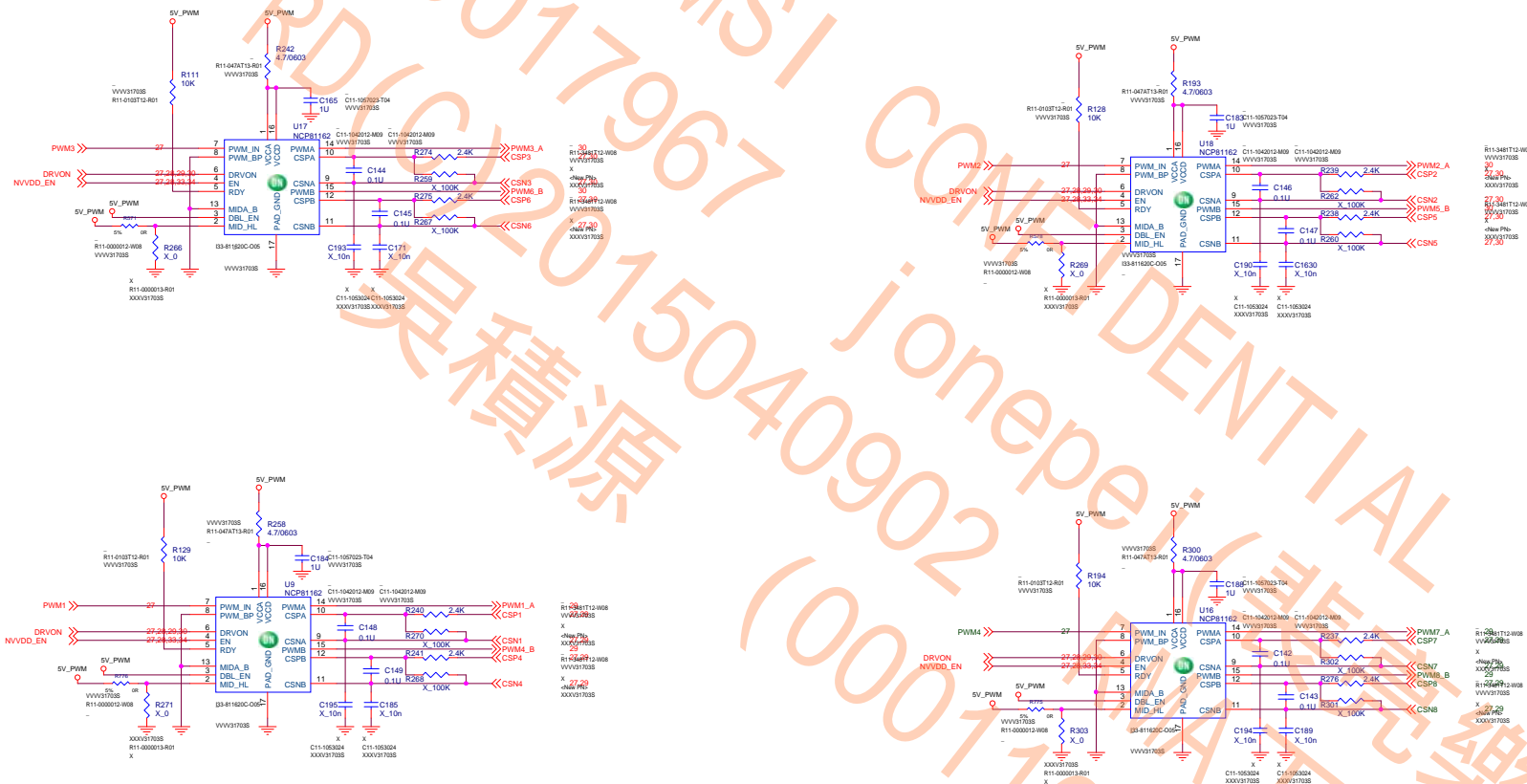
NVIDIA CORPORATION

2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

INV_P/N 600-1G401-BASE-QS1

PCB REV	PG401-A02	PAGE	27 OF 37
DOC REV	A	DATE	04-AUG-2014

MICRO-STAR INT'L CO., LTD			
MS-V317			
Size	Custom	Document Description	Rev
Date	Thursday, September 18, 2014	PS: NVVDD Controller	1.1
		Sheet	27 of 37



MICRO-STAR INT'L CO., LTD		
MS-V317		
Size	Document Description	Rev
Custom	NVDD PHASE DOUBLERS	1.1
Date: Thursday, September 16, 2014 (Sheet 28 of 37)		

NVIDIA CORPORATION

2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

NV_PN 600-1G401-BASE-QS1

PCB REV PG401-A02

BOB REV A

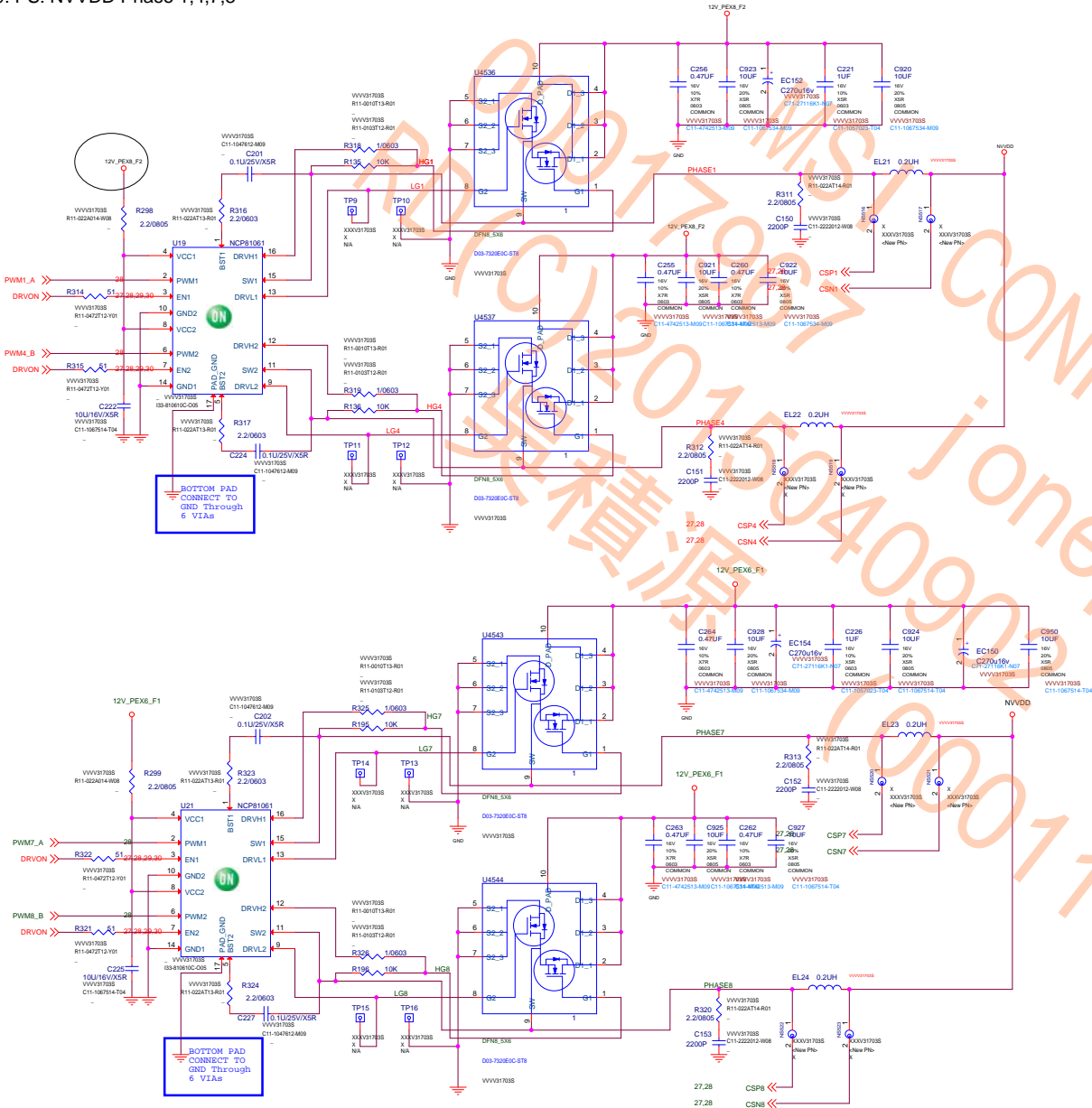


PAGE 28 OF 37

DATE 04-AUG-2014

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	PS: NVDD Phase 1.2

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.

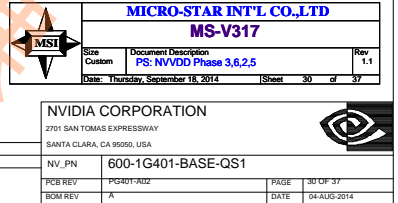


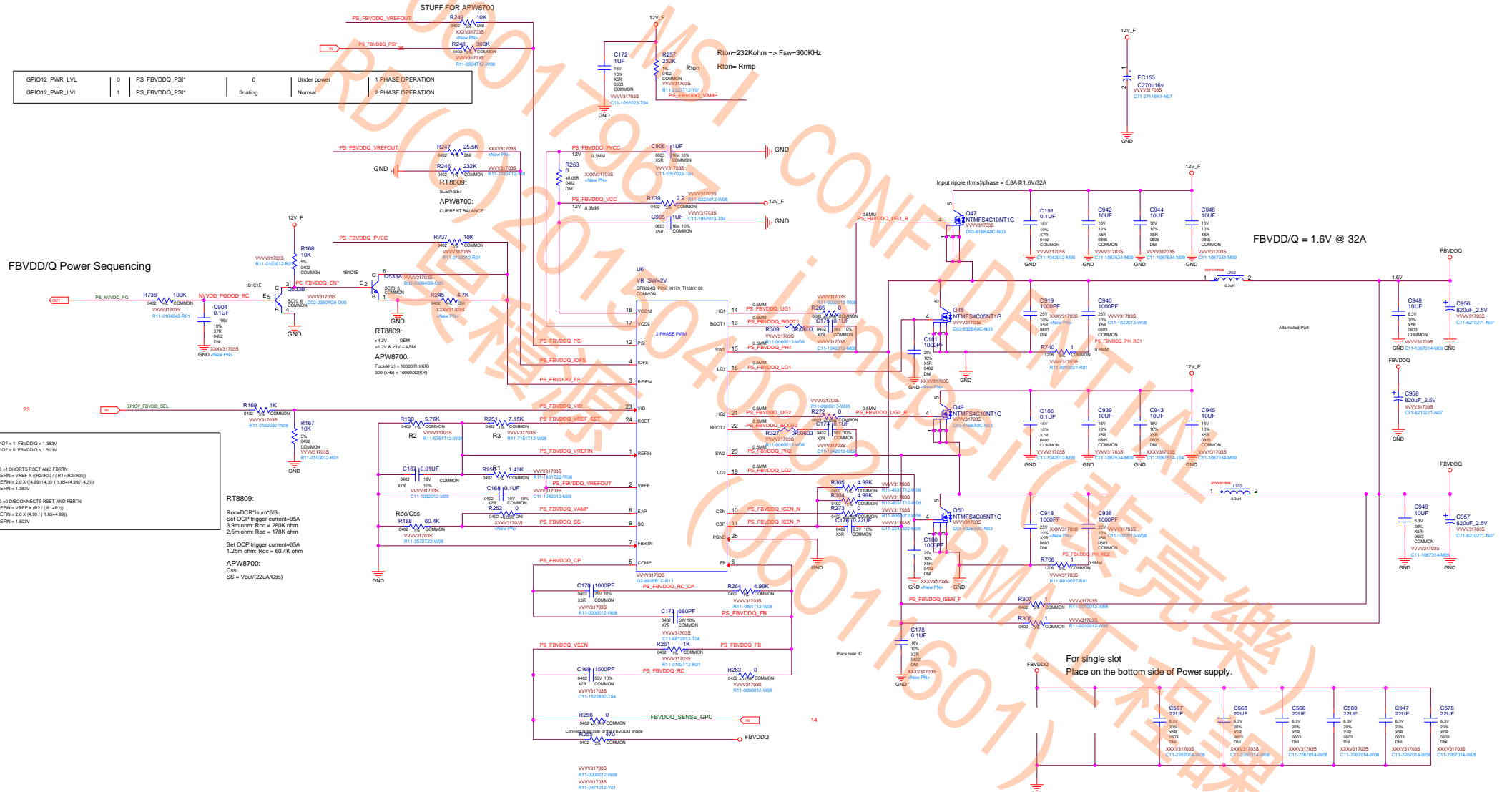
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS 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
PAGE DETAIL	PS: NVVDD Phase 3.4

MICRO-STAR INT'L CO.,LTD		
MS-V317		
Size	Custom	Rev
Document Description	NVVDD Phase 1 & 4/7 & 8	
Date:	Thursday, September 16, 2014	Sheet 29 of 37

NVIDIA CORPORATION		
2701 SAN TOMAS EXPRESSWAY		
SANTA CLARA, CA 95050, USA		
INV_PN	600-1G401-BASE-QS1	
PCB REV	PG401-A02	PAGE 29 OF 37
BOB REV	A	DATE 04-AUG-2014





Thermal IC : NCT7511Y

Layout notice :
*Add ground chi

- *Add ground shielding for D+ and Dtraces.
- *D+/D- route has to be away from the high noise area.
- *The recommended traces width and ground shielding spacing are 10mils.

Thermal Diode

Please refer datasheet
TCRIT_SET Table
If floating, shutdown temp. set to 65°C



NVIDIA CORPORATION

2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

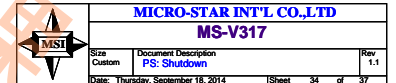


NV_PN	600-1G401-BASE-QS1		
PCB REV	PG401-A02	PAGE	32 OF 37
BOM REV	A	DATE	04-AUG-2014

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	PS: Dynamic Power Balance Phases

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 KNOW OR 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_IOVDD (backdrive prevention)

[illegible]

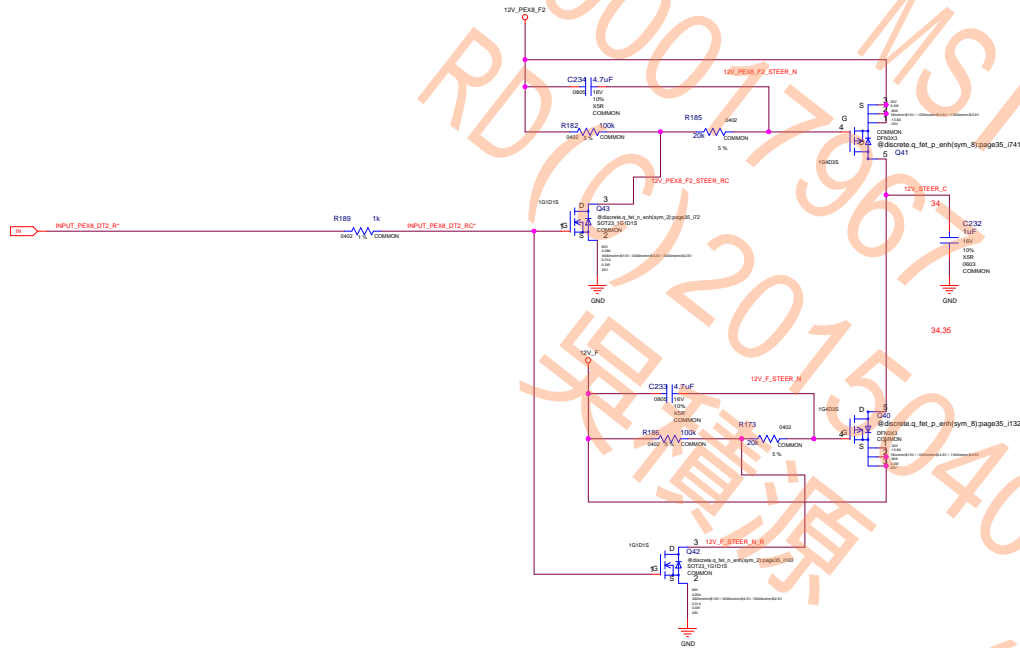
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA



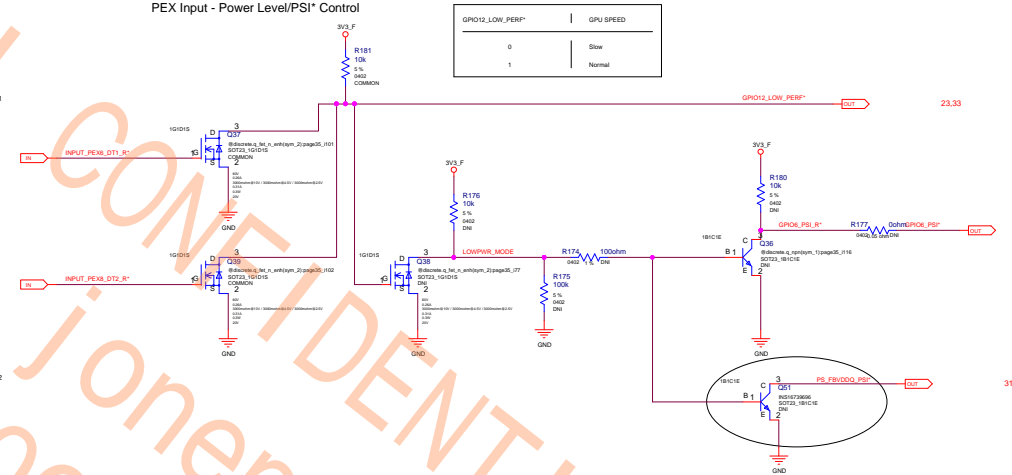
PCB REV	PG401-A02
BOM REV	A

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	PS: Shutdown

PEX Input - 12V Current Steering FETs

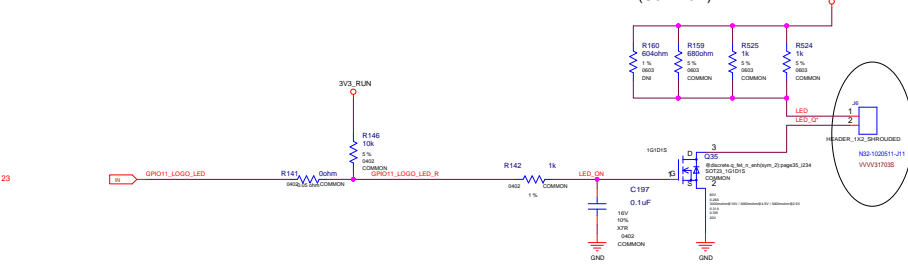


PEX Input - Power Level/PSI* Control

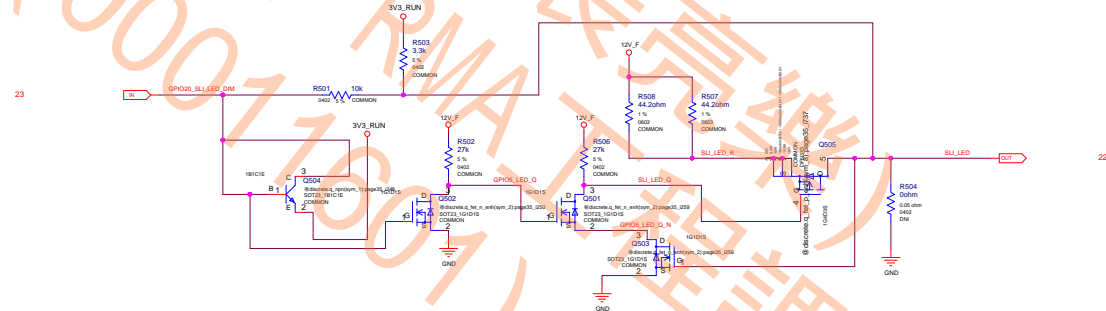


GeForce Logo LED

LED HEADER (COMMON)



SLI LED (GEFORCE ONLY)



NVIDIA CORPORATION

2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

NV_PN 600-1G401-BASE-QS1

PCB REV PG401-A02

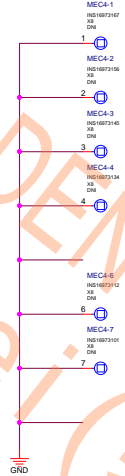
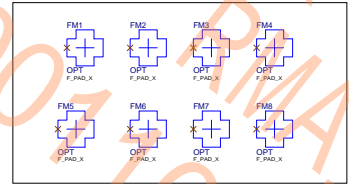
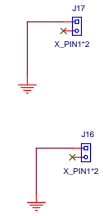
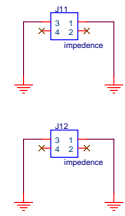
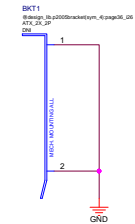
BOM REV A

PAGE 35 OF 37

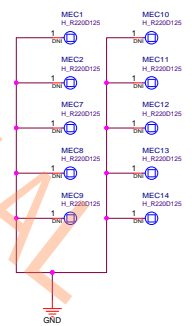
DATE 04-AUG-2014

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (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.

Brackets:



Mechanical Holes Symbol



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	BASE LEVEL GENERIC SCHEMATIC ONLY
PAGE DETAIL	MECH Bracket/Thermal

MICRO-STAR INT'L CO.,LTD		
MS-V317		
Size Custom	Document Description Mechanical Bracket/Thermal Solution	Rev 1-1
Date: Thursday, September 18, 2014 (Sheet 38 of 37)		

NVIDIA CORPORATION	
2701 SAN TOMAS EXPRESSWAY	
SANTA CLARA, CA 95050, USA	
NV_PN	600-1G401-BASE-QS1
PCB REV	PG401-AD2
BCM REV	A
PAGE	38 OF 37
DATE	04-AUG-2014

- Page37:
- 1.P17 增加DVI ESD
 - 2.P18~P21 修改HDMI,DP footprint, 增加HDMI ESD
 - 3.简化S L I 線路
 - 4.移除原本FBVDDQ線路
 - 5.P27~P30 更換NVVD 線路
 - 6.P31~32 移除dynamic power circuit/增加風扇7511線路
 - 7.P33 更換反插8PIN,Input choke
 - 8.P35 增加MEM PSI 晶體
 - 9.Remove MICROCONTROLLER

MSI CONFIDENTIAL
RD(C)2015040902 jonepei (裴亮樂)
吳積源 (00011601) RMA工程師

MICRO-STAR INT'L CO.,LTD		
MS-V317		
Size	Document Description	Rev
Custom	NA	1.0
Date: Thursday, September 18, 2014		Sheet 37 of 37

NVIDIA CORPORATION			
2701 SAN TOMAS EXPRESSWAY			
SANTA CLARA, CA 95050, USA			
NV_PN	600-1G401-BASE-QS1		
PCB REV	PG401-A02	PAGE	37 OF 37
BOX REV	A	DATE	04-AUG-2014

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
PAGE DETAIL	MICROCONTROLLER