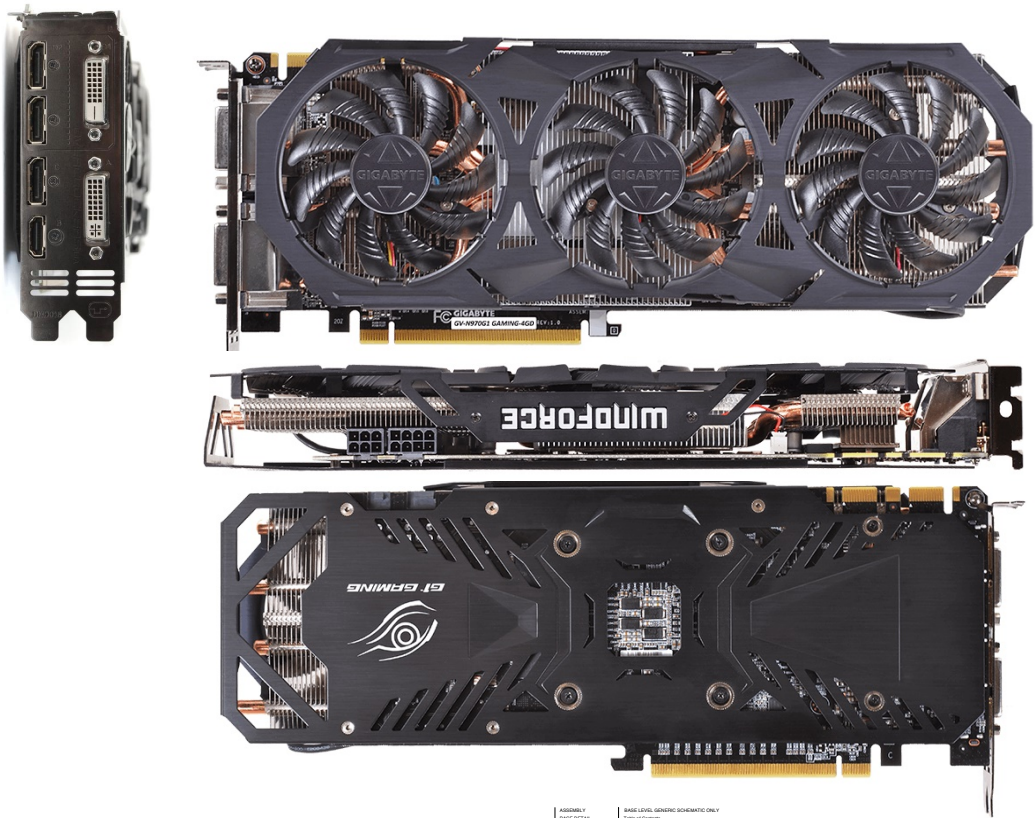


GV-N970G1 GAMING-4GD rev. 1.0



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOMBS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN ERRORS AND OMISSIONS, INCLUDING BUT NOT LIMITED TO, TYPOGRAPHIC ERRORS, OMISSIONS, AND SPECIFIC INFORMATION. NVIDIA MAKES NO WARRANTIES, EXPRESS OR IMPLIED, REGARDING THE MATERIALS. NVIDIA DISCLAIMS ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, THE WARRANTIES OF DESIGN, OF MERCHANTABILITY, OF FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

BASE LEVEL GENERIC SCHEMATIC ONLY
Table of Contents

GIGABYTE	
Gallery	
GV-N970G1 GAMING-4GD	1.0



A	B	C	D	E	F	G	H
---	---	---	---	---	---	---	---



PAGE: FRAME BUFFER PARTITION A

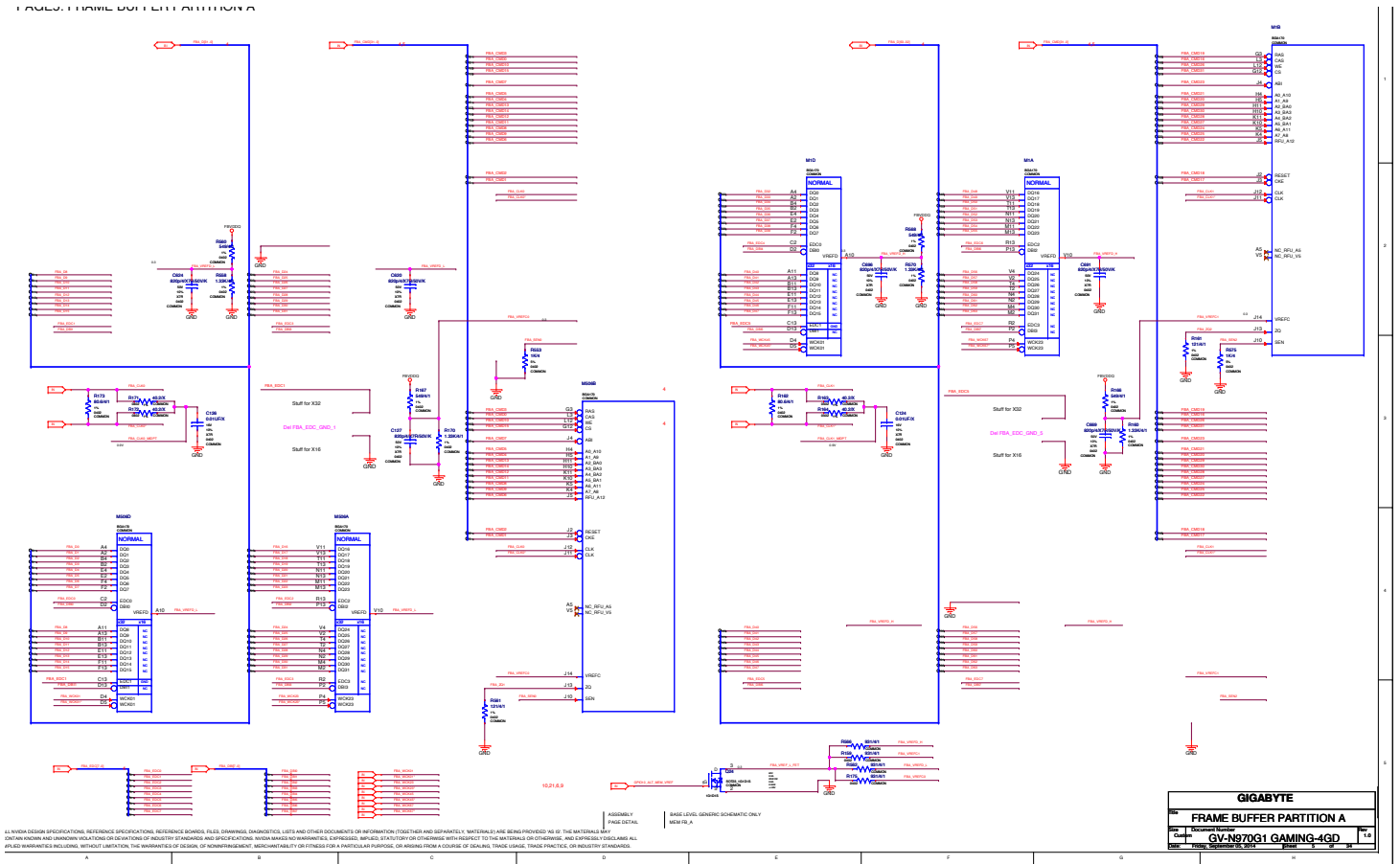
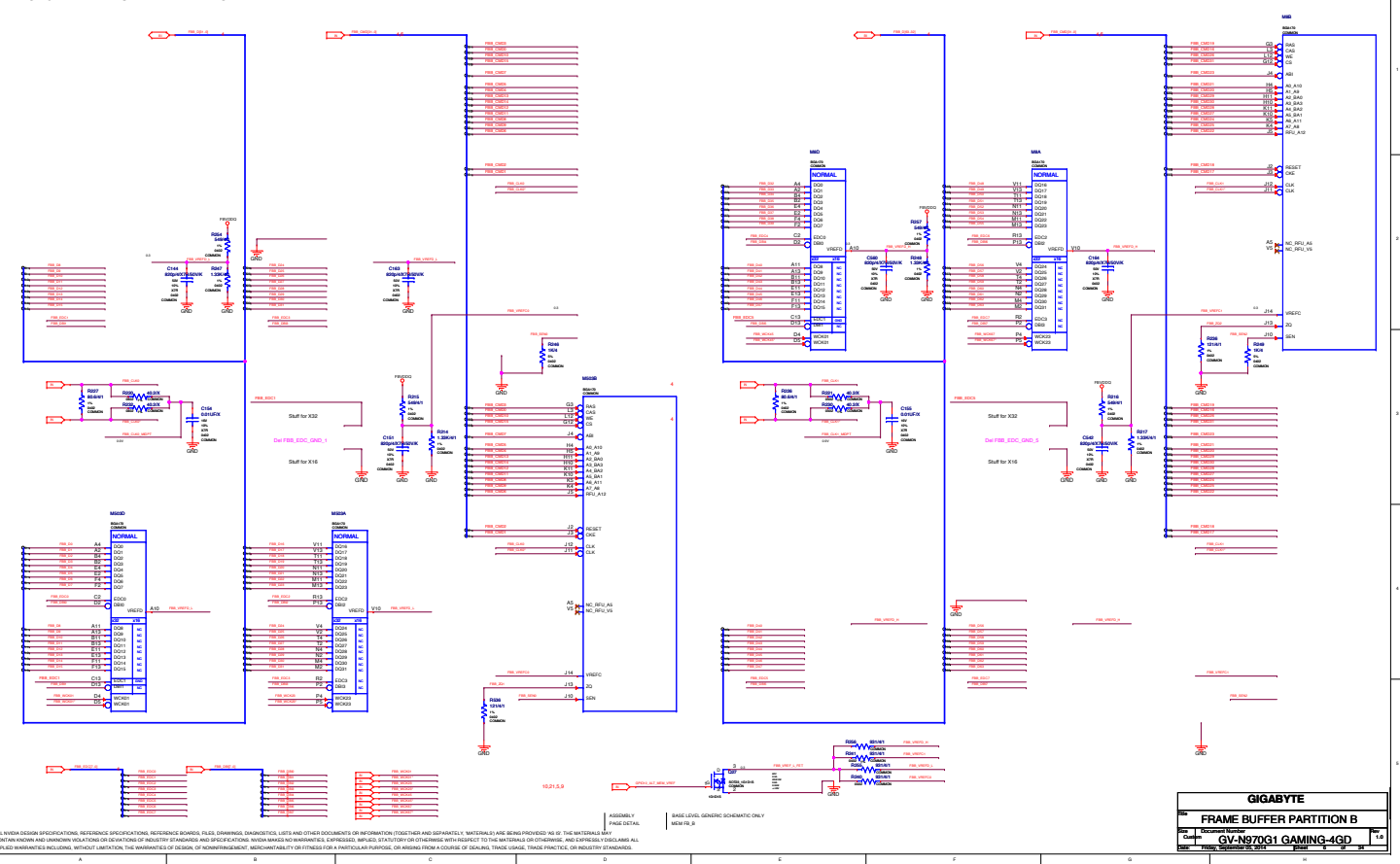
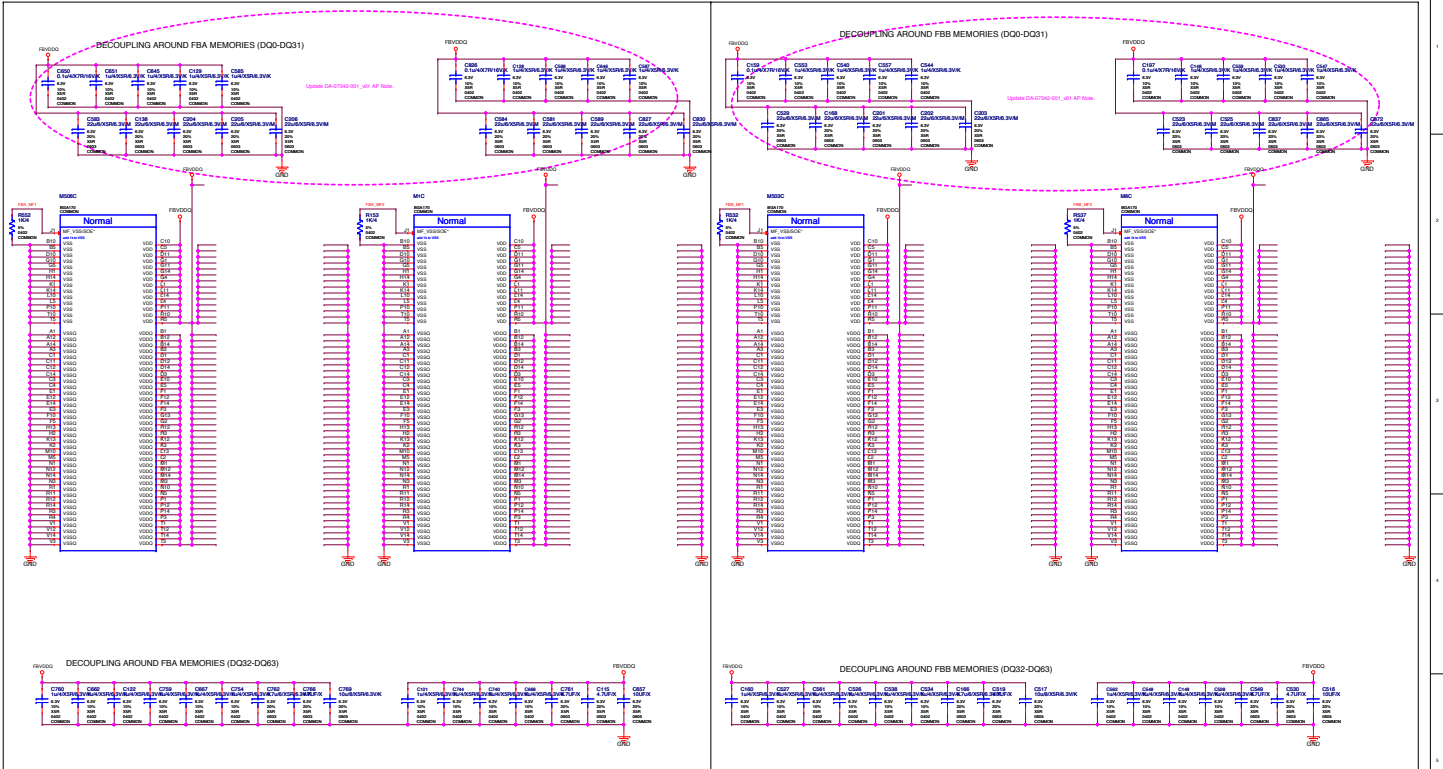


TABLE 1. FRAME DIFFERENTIATION D

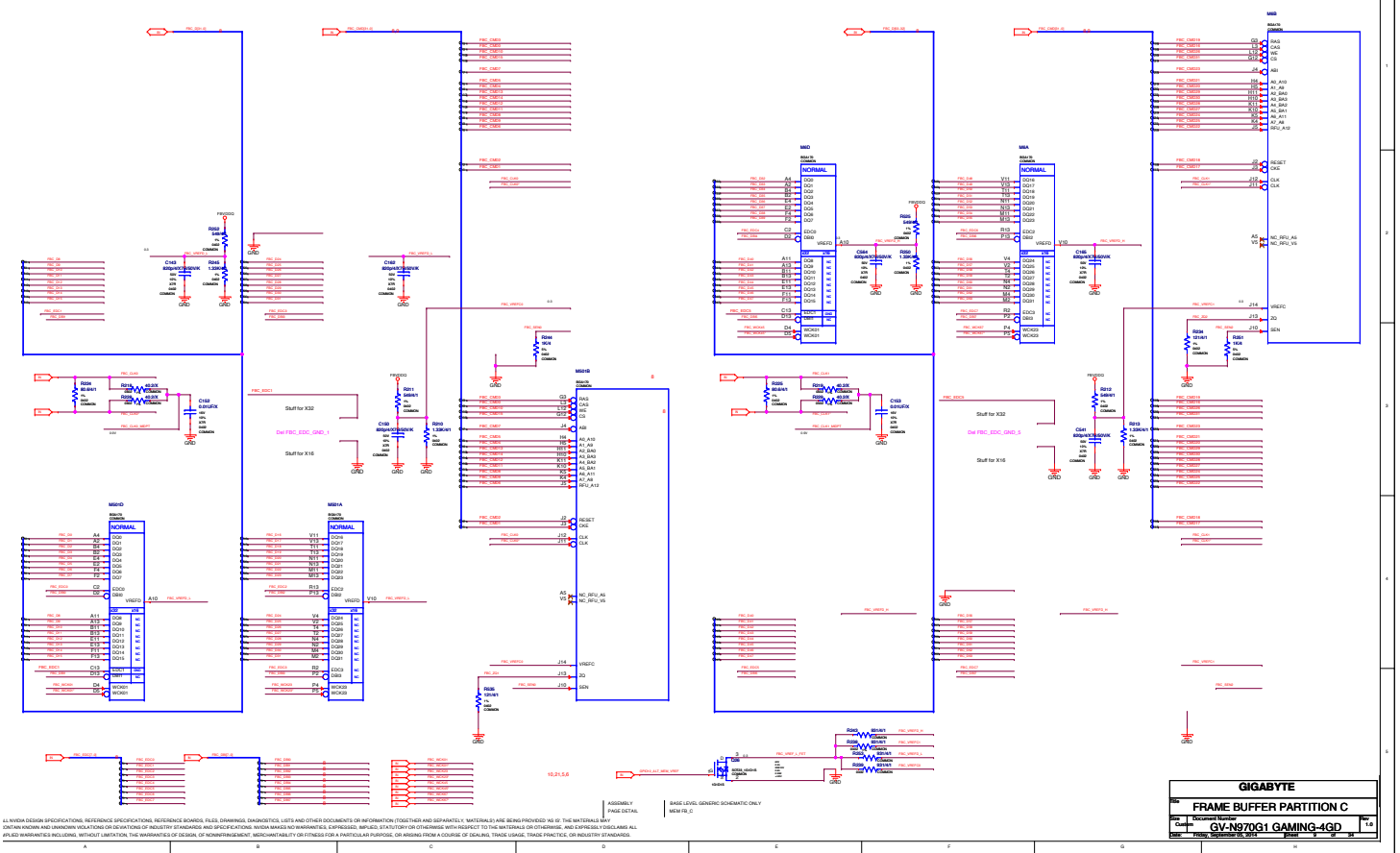






GIGABYTE	
MEMORY: GPU Partition C/D	
Document Number	GV-N970G1 GAMING-4GD
Friday, September 05, 2014	Page 8 of 34

FIGURE 1 FRAME BUFFER PARTITION C



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOMs, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN DESIGN AND/OR MANUFACTURING INFORMATION THAT IS NOT BEING PROVIDED AS IS. NVIDIA DOES NOT WARRANT THE MATERIALS OR THE INFORMATION CONTAINED THEREIN. NVIDIA DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY
PAGE 2 OF 2
BASE LEVEL GENERIC SCHEMATIC ONLY
REV 1.0

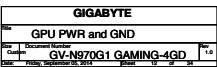
GIGABYTE
FRAME BUFFER PARTITION C
GV-N770G1 GAMING-4GD

[illegible]

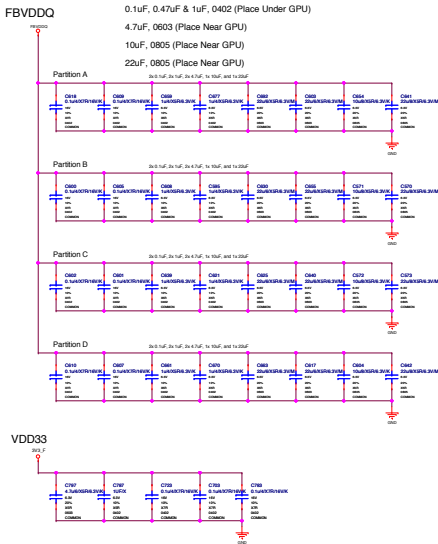
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN KNOWN AND UNKNOWN VIOLATIONS OF OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS. NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL WARRANTIES AND ANY LIABILITY WHATSOEVER FOR THE USE OR NON-USE OF ANY OF THE MATERIALS. NVIDIA ASSUMES NO RESPONSIBILITY FOR ANY DAMAGES, INCLUDING DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, THAT MAY RESULT FROM YOUR USE OF THE MATERIALS. THIS DISCLAIMER DOES NOT APPLY TO THE EXTENT PERMITTED BY APPLICABLE LAW.

ASSEMBLY PAGE DETAIL	BASE LEVEL GENERIC SCHEMATIC ONLY MEM. CD. 0
-------------------------	---

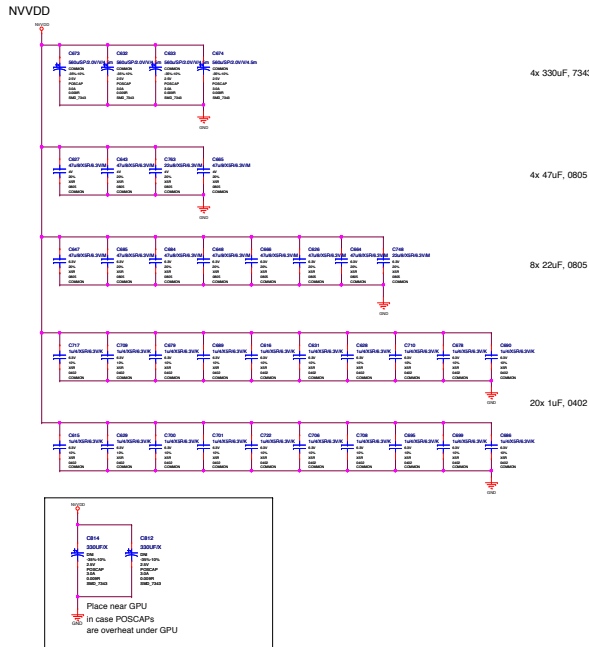
GIGABYTE		
FRAME BUFFER PARTITION D		
Size	Document Number	Rev
Custom	GV-N970G1 GAMING-4GD	1.0



Based on GB2-X GDDR5 FBVDDQ Decap Guideline



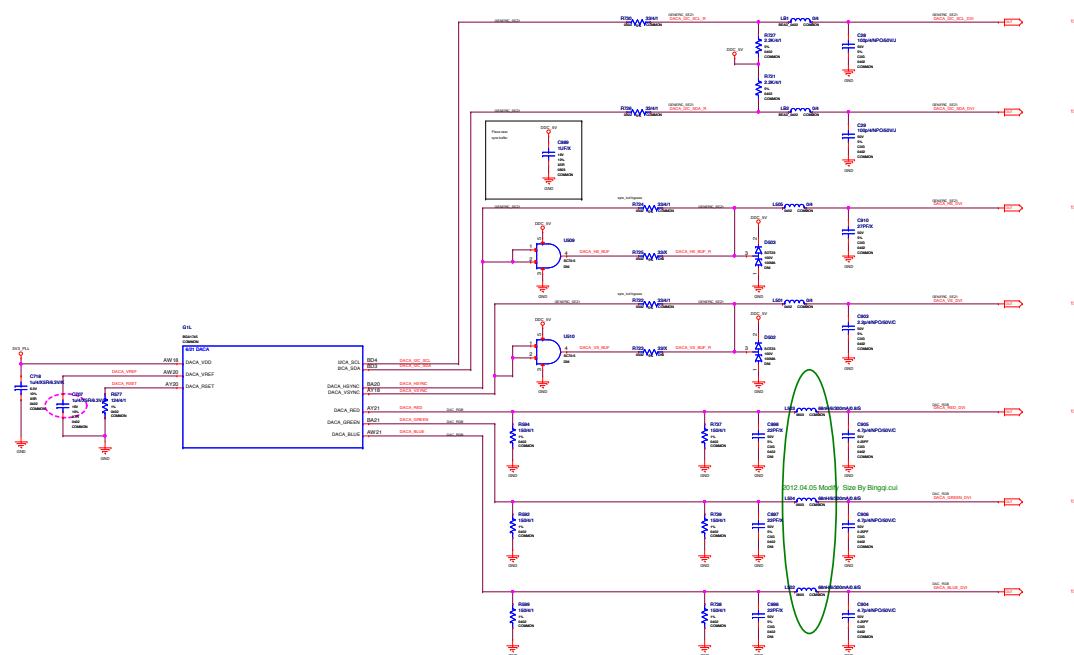
NVVD Decoupling caps. Place under GPU.



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 ERRORS AND NVIDIA MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, REGARDING THE ACCURACY, COMPLETENESS, OR FITNESS FOR ANY PURPOSE OF THE MATERIALS. NVIDIA DISCLAIMS ALL WARRANTIES, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF DESIGN, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, OR INDUSTRY STANDARDS.

BASE LEVEL GENERIC SCHEMATIC ONLY
GPU Decoupling

GIGABYTE	
GPU Decoupling	
Model	GV-N970G1 GAMING-4GD
Revision	1.0



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOMs, FLEX DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN DESIGN AND/OR MANUFACTURING ERRORS OR OMISSIONS OF ANY KIND, AND SUCH MATERIALS ARE PROVIDED WITHOUT WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE 14/14

GIGABYTE			
DAC Interface			
Rev	1.0	Rev	1.0
GV-N970G1 GAMING-4GD			

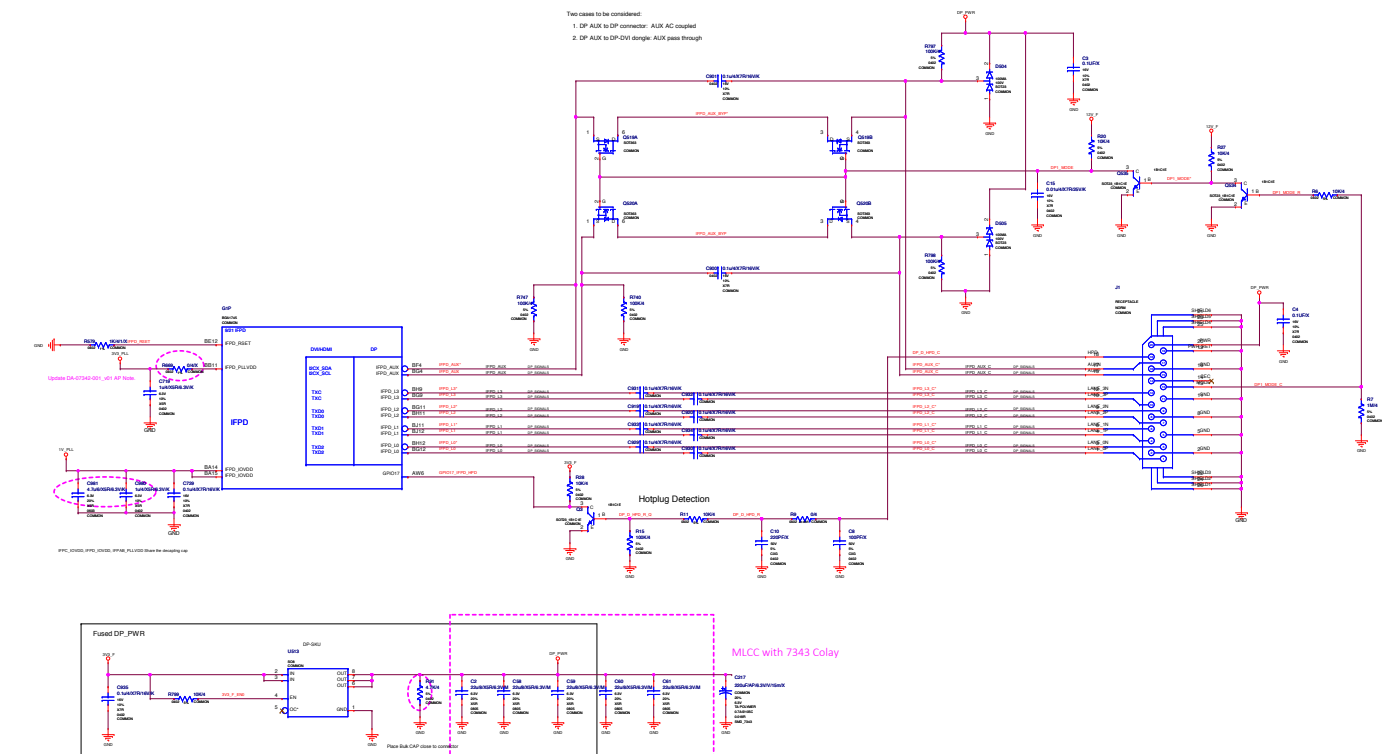


GIGABYTE	
IFPAB DVI-I-DL	
Document Number	
GV-N970G1 GAMING-4GD	
Friday, September 05, 2014	Page 15 of 34





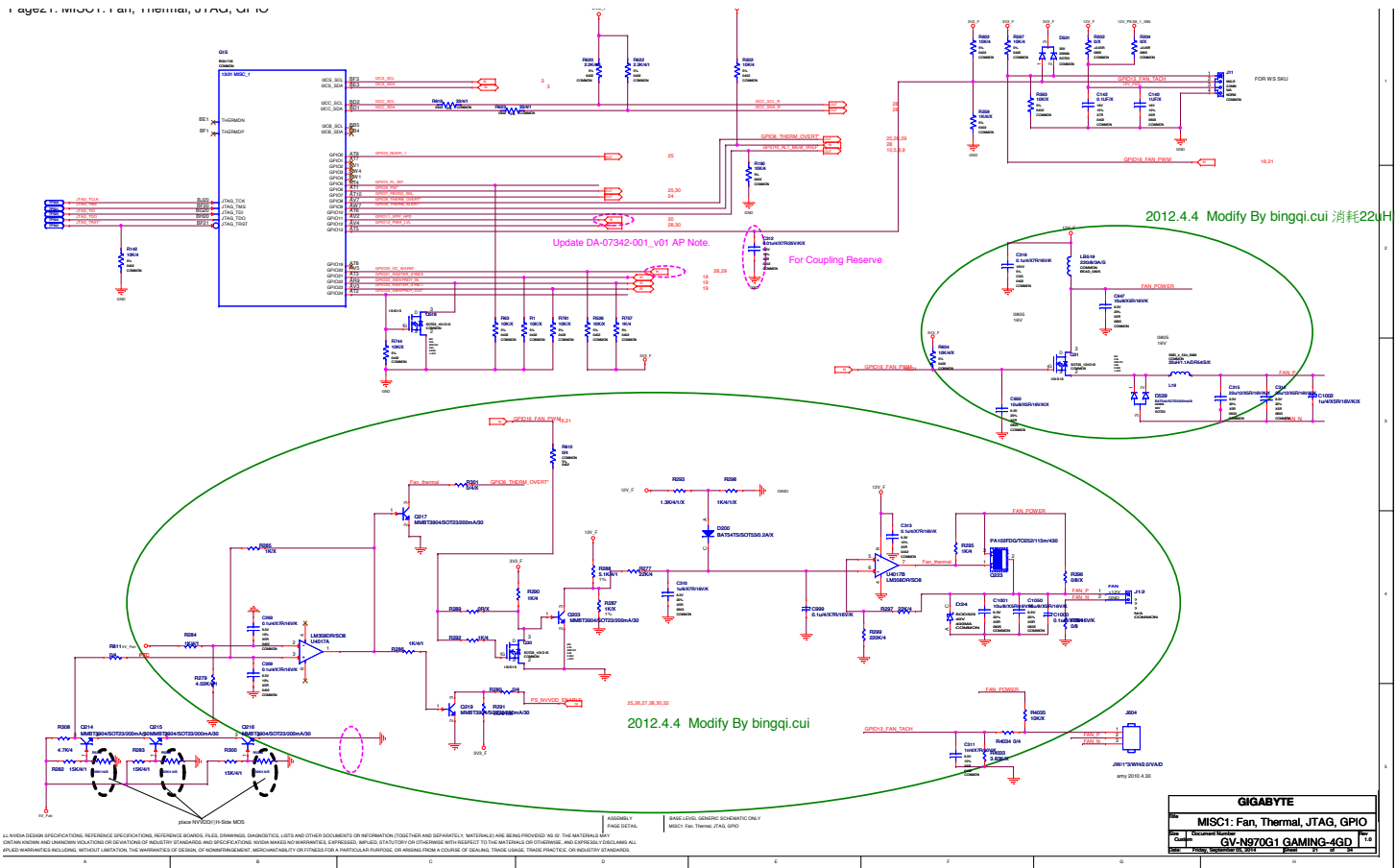
GIGABYTE	
File IFPC HDMI/DP	
Size	Document Number
Custom	GV-N970G1 GAMING-4GD
Area: Friday, September 05, 2014	Sheet 17 of 34



GIGABYTE			
IFPD DP			
Doc Number	GV-N970G1 GAMING-4GD		Rev 1.1
Date	Friday, September 05, 2014	Sheet	18 of 34

ASSEMBLY BASE DETAIL	BASE LEVEL GENERIC SCHEMATIC ONLY MIL-STD-883C Interface and Frame Lock
-------------------------	--

GIGABYTE			
MIOA/B Interface and Frame Lock			
File	Document Number		Rev
GV-N970G1	GAMING-4GD		1.0
Date:	Friday, September 05, 2014	Printed	19 of 34



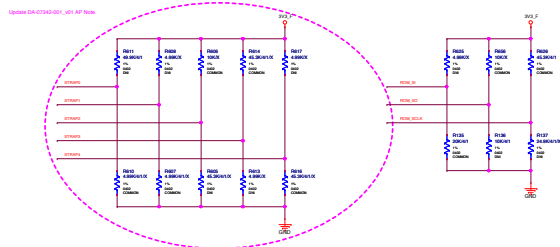
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS, AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY BE USED FOR PERSONAL OR INTERNAL USE OF INDIVIDUALS OR ENTITIES FOR RESEARCH, EDUCATION, AND SPECIFIC PROFESSIONAL PURPOSES ONLY. NVIDIA DISCLAIMS ANY WARRANTY, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ON ANY MATERIALS PROVIDED. NVIDIA SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM OR OUT OF THE USE OF THE MATERIALS. NVIDIA SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM OR OUT OF THE USE OF THE MATERIALS.

ASSEMBLY
PAGE 0001

BASE LEVEL GENERIC SCHEMATIC ONLY
MISC1: Fan, Thermal, JTAG, GPIO

STRAP0	USER_BIT [3:0]	0000	5K F0*
STRAP1	SGIO_PADCFG_LUT_ADR*	0000	5K F0 Disabled
STRAP2	PCI_DEVID [3:0]	0111 - (0x1187)	10K F0 - 32S GPU*
STRAP3	SOP_EXPOSED [3:0]	1111*	45K F0*
STRAP4	DP_PLL_VDD_33V*	1 st FOR 3_33V*	
	PEX_MAX_SPEED*	1 st FOR GEN2/3*	45K F0*
	PEX_SPD_CHANGE_GEN*	1 st ENABLED*	
ROM_SI	RAMCFGQ[0]	0*	
	RAMCFGQ[1]	1*	45K F0 - 32S GPU* (0x1187) - 32S GPU* (0x1187)
	RAMCFGQ[2]	1*	
	RAMCFGQ[3]	0*	
ROM_SO	VGA_DEVICE*	1*	
	SMBL_ALT_ADDR*	0*	
	FB[0].APERTURE_SIZE*	0 th For 128MB*	30K F0*
	FB[1].APERTURE_SIZE*	0 th For 128MB*	
ROM_SCLK	PEX_PLL_EN_TERM100*	0 th DISABLE*	
	PCI_DEVID_EXT[0]	0 th For 0x1189*	25K F0*
	SUB_VENDOR*	1 st Dedicated BIOS*	
	PCI_DEVID_EXT[4]	0 th For 0x1189*	

X32 MODE 256bit	
CFG32.0 Config Width	Vendor
0000	Reserved
0001	32MAx32 256-bit Elpida
0010	32MAx32 256-bit Hynix
0011	32MAx32 256-bit Samsung
0100	Reserved
0101	64MAx32 256-bit Elpida
0110	64MAx32 256-bit Hynix
0111	64MAx32 256-bit Samsung

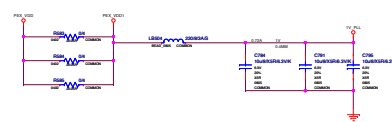
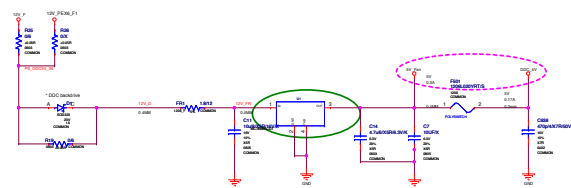
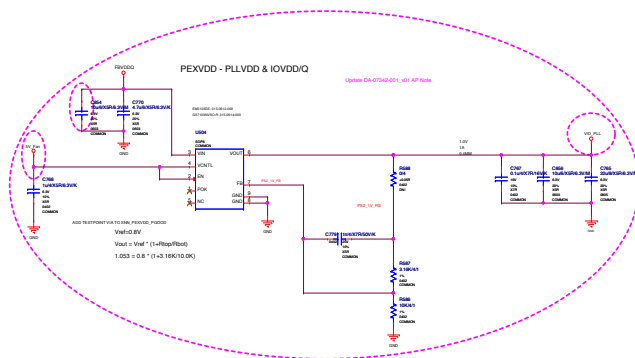


ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY
 CONTAIN KNOWN AND UNKNOWN VIOLATIONS OR DEVIATIONS OF INDUSTRY STANDARDS AND SPECIFICATIONS.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

BASE LEVEL GENERIC SCHEMATIC ONLY
MIGR: FROM XTAL, Smps

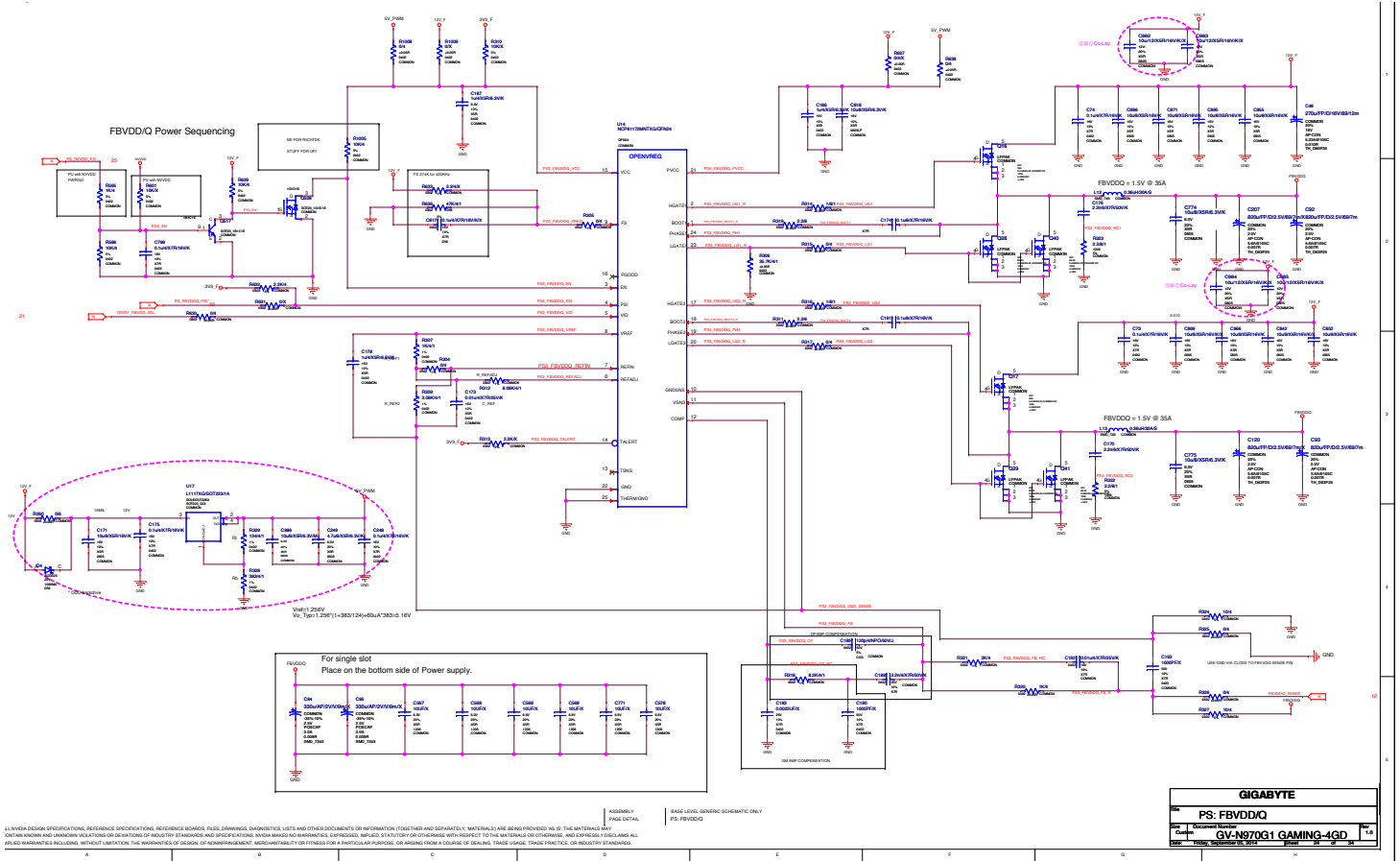
XTALBLEN	XTALOUTBUFF	Inverted Error on P000 %
PU2	PU2	66(33% high)
PU2	PD2	33(50% high)
PD2	PU2	33(66% high)
PD2	PD2	0(100% high)

GIGABYTE			
File			
MISC2: ROM, XTAL, Straps			
Date	Document Number		Page 1.1
	GV-N970G1 GAMING-4GD		
Date:	Friday, September 05, 2014	Sheet	22 of 34

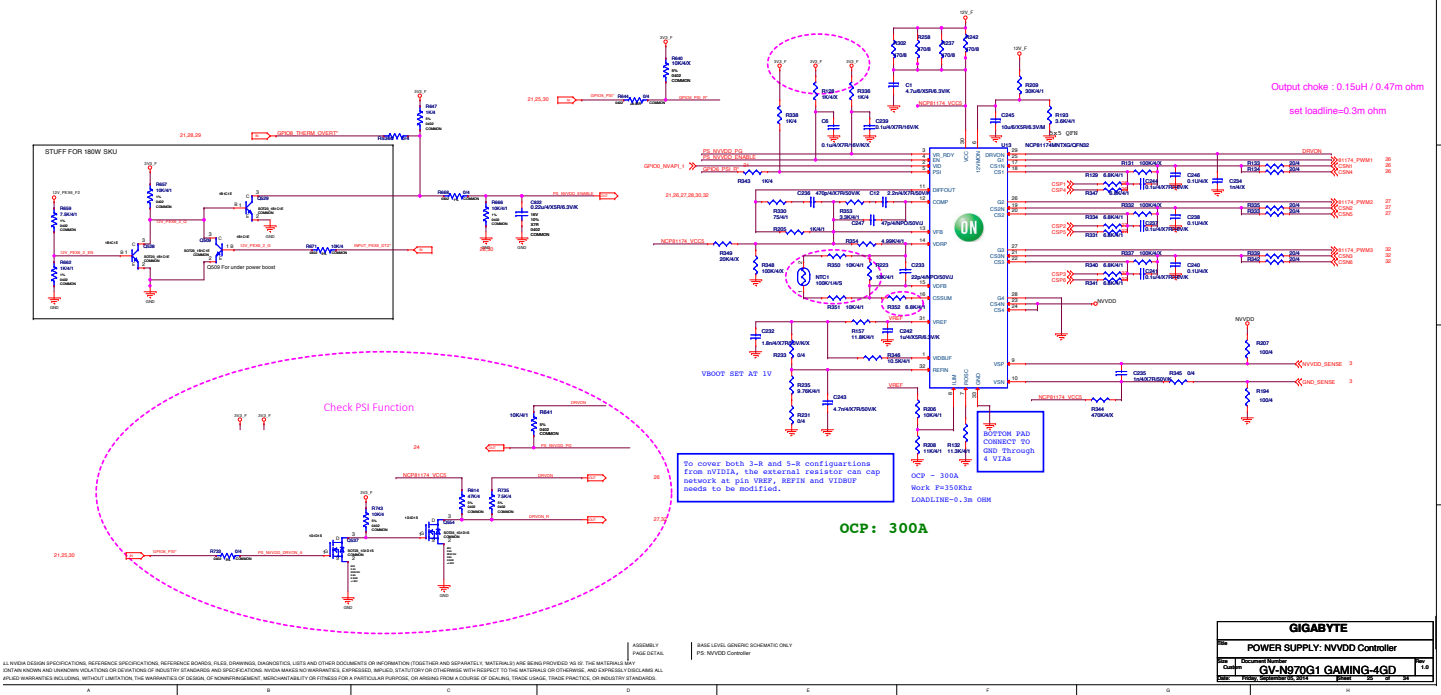


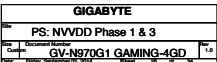
BASE LEVEL GENERIC SCHEMATIC ONLY
P2: SV, PGX_VDD

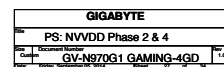
GIGABYTE	
PS: 5V, PEX_VDD	
Document Number	GV-N970G1 GAMING-4GD

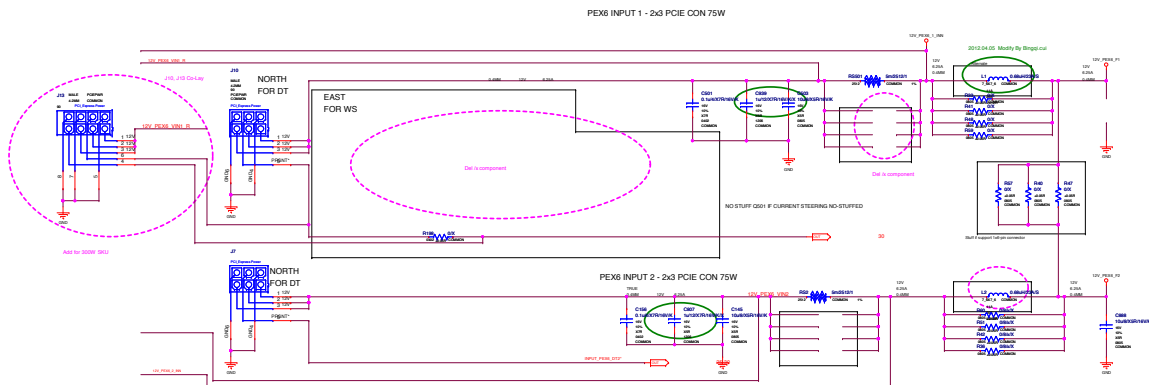
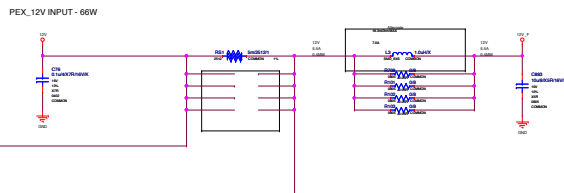


ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SCHEMATICS, REFERENCE BOMs, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN DESIGN AND/OR MANUFACTURING INFORMATION THAT IS NOT INTENDED TO BE USED FOR REPRODUCTION OR REUSE. NVIDIA DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

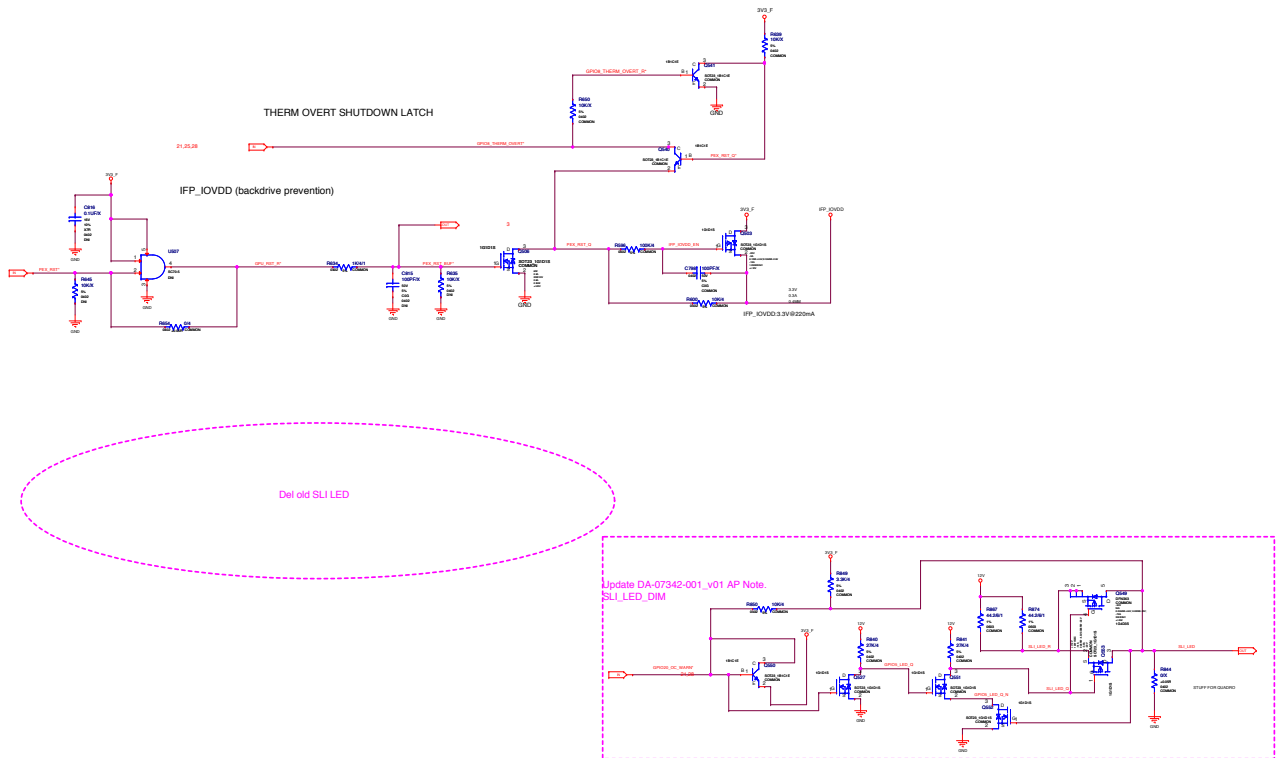








Page 29 of 30 Thermal Shutdown & Light SLI DRIVER



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOMs, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED AS IS. THE MATERIALS MAY CONTAIN DESIGN AND/OR MANUFACTURING ERRORS OR OMISSIONS. NVIDIA DISCLAIMS ANY WARRANTY, EXPRESS OR IMPLIED, IN CONNECTION WITH THE MATERIALS OR OTHERWISE, AND SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, OF MERCHANTABILITY, OF FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY
PAGE 29/30

BASE LEVEL GENERIC SCHEMATIC ONLY
PG Thermal Shutdown & Light SLI DRIVER

GIGABYTE	
Thermal Shutdown & Light SLI DRIVER	
GV-N97001 GAMING-4GD	

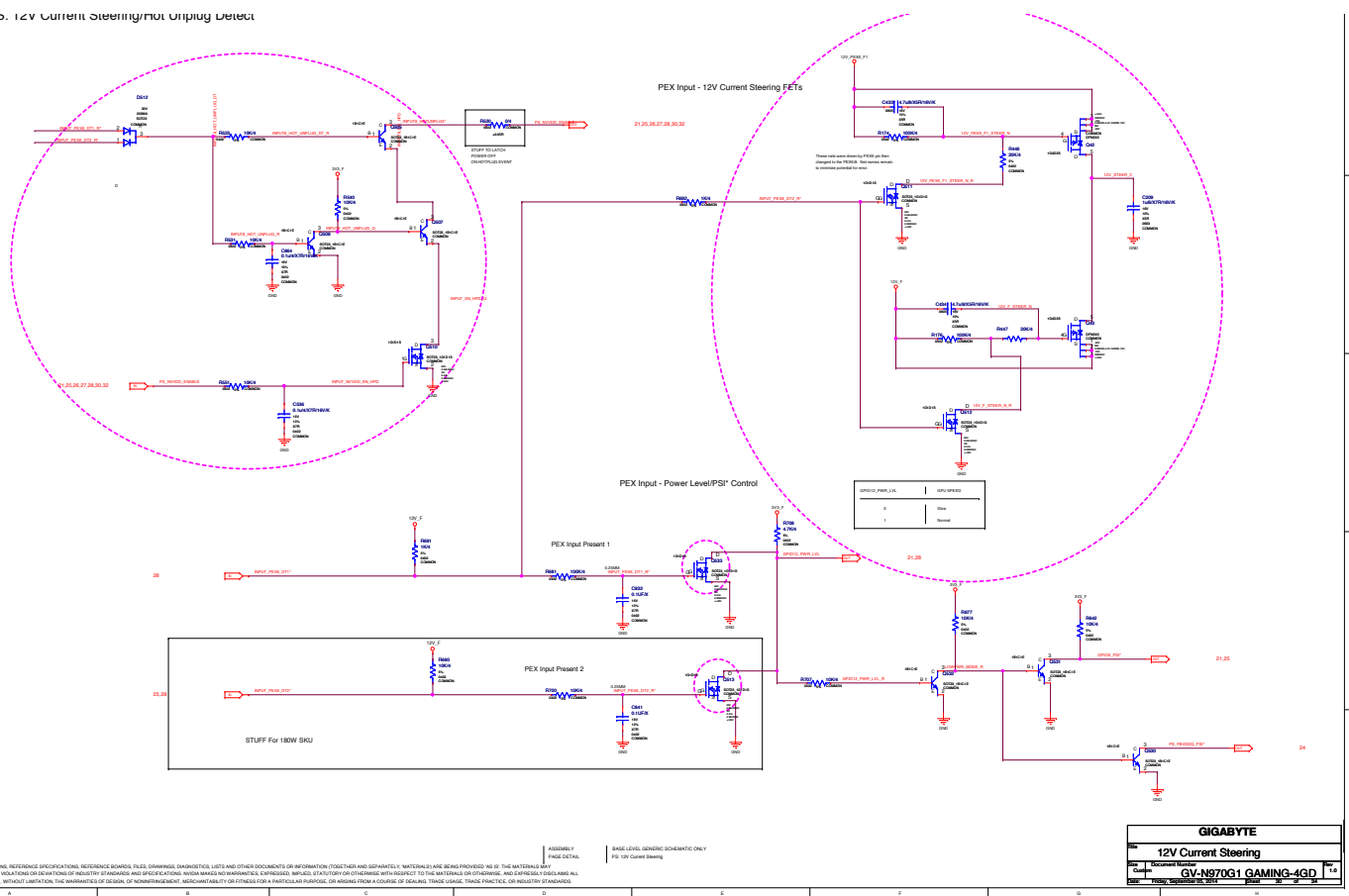
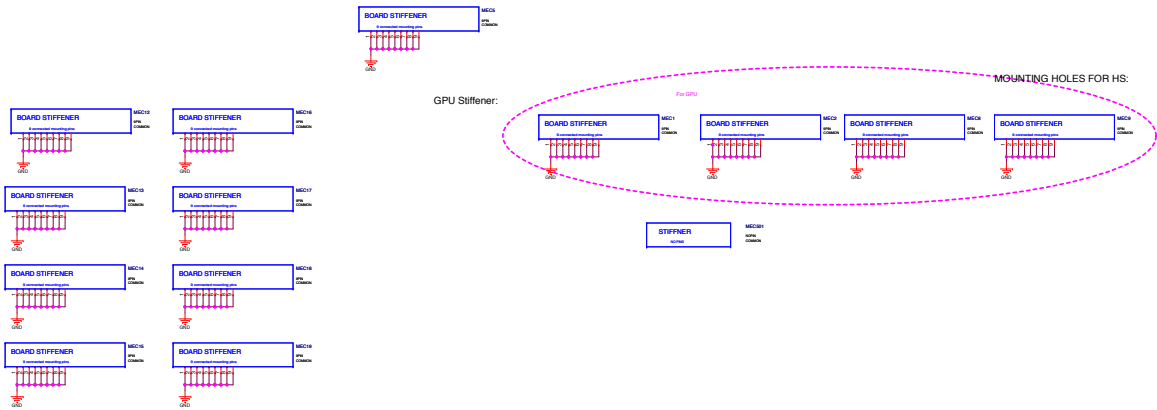


Figure 1: MECH

Brackets:

MH-C236D118-8

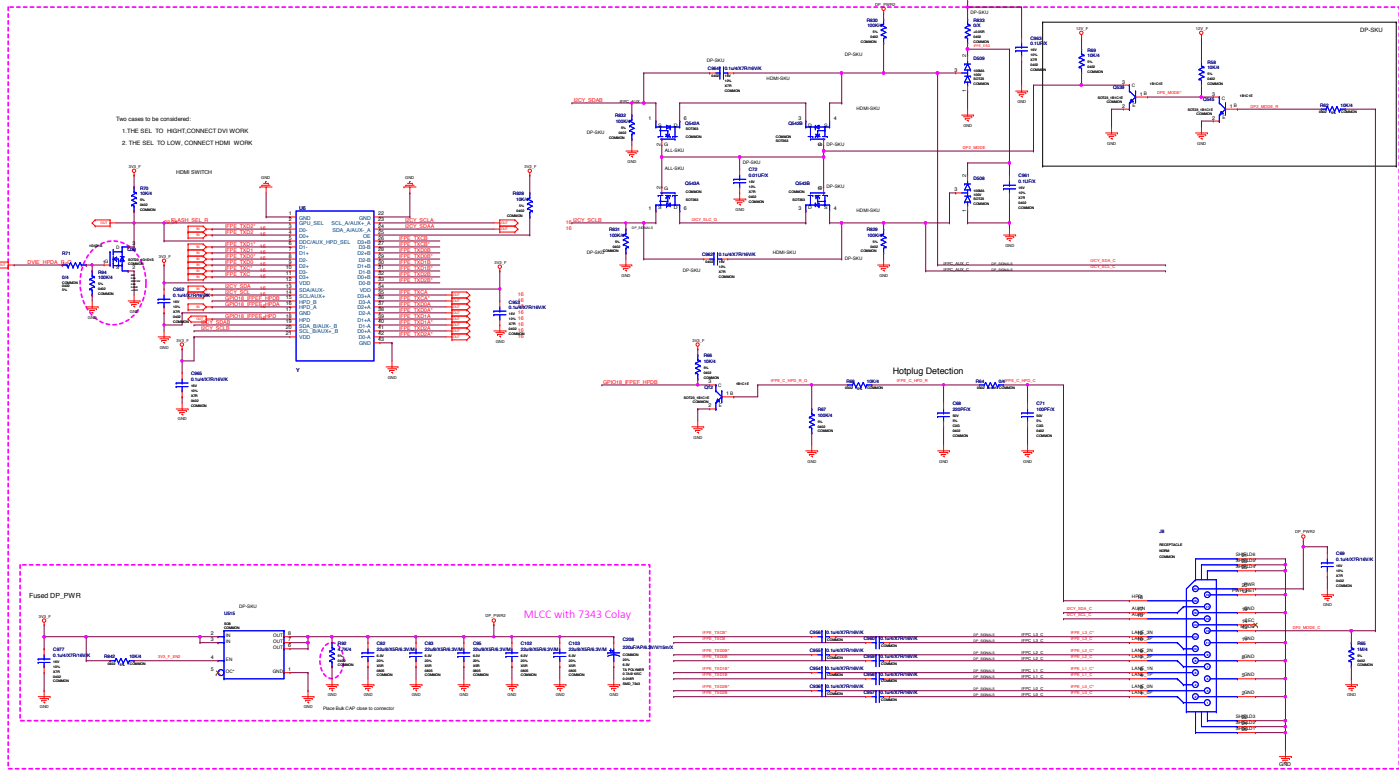


ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOMs, FPCs, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." THE MATERIALS MAY CONTAIN DESIGN AND/OR MANUFACTURING ERRORS OR OMISSIONS. NVIDIA DISCLAIMS ANY WARRANTY, EXPRESS OR IMPLIED, IN CONNECTION WITH THE MATERIALS OR OTHERWISE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF DESIGN, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

ASSEMBLY PAGE 02/04
BASE LEVEL GENERIC SCHEMATIC ONLY
MECH

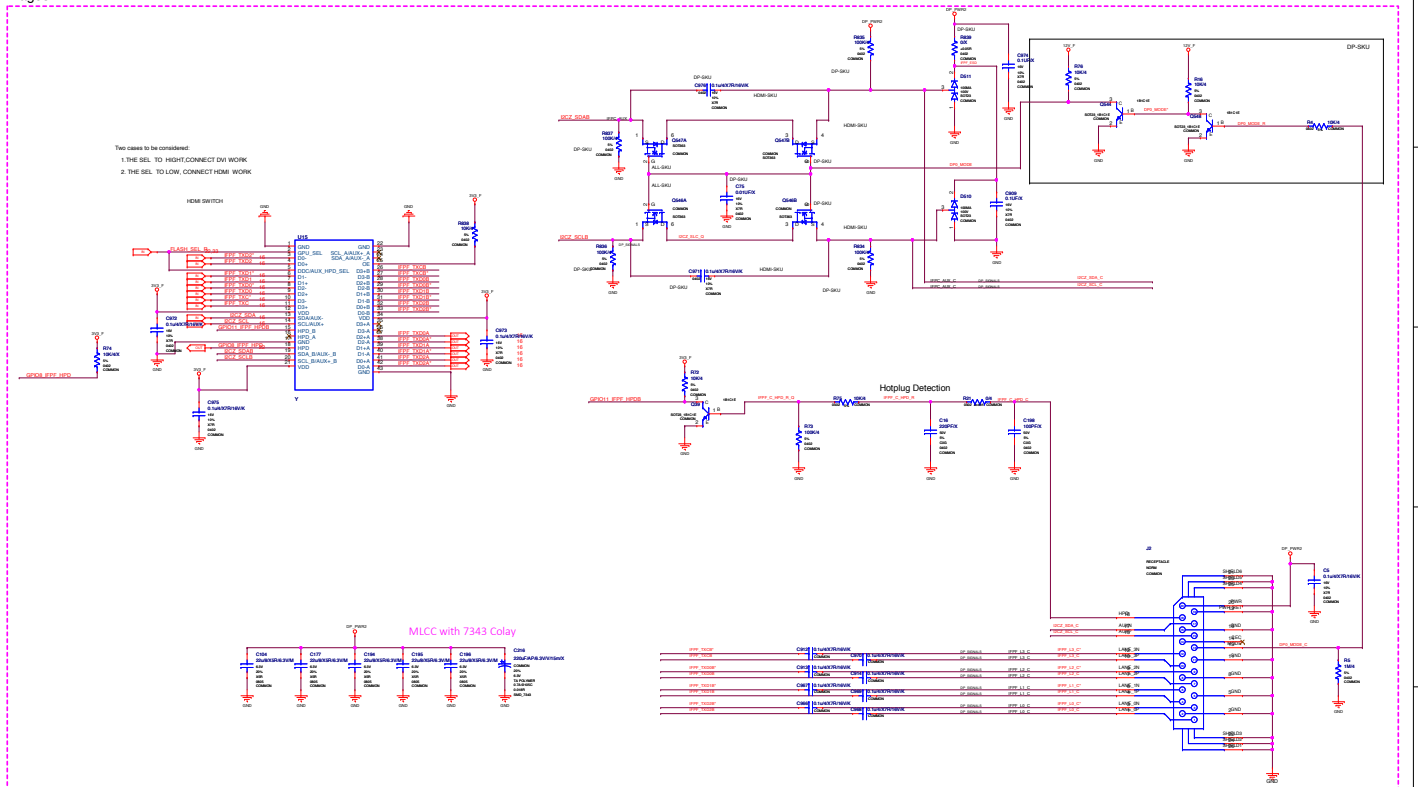
GIGABYTE			
Rev	Rev	Rev	Rev
1.0	1.0	1.0	1.0
MECH			
GV-N970G1 GAMING-4GD			
GIGABYTE			





ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE SPECIFICATIONS, REFERENCE BOMs, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS OR INFORMATION (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". THE MATERIALS MAY CONTAIN DESIGN AND/OR MANUFACTURING ERRORS OR OMISSIONS. NVIDIA DISCLAIMS ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, TRADE USAGE, TRADE PRACTICE, OR INDUSTRY STANDARDS.

GIGABYTE	
PS: NVVDD Phase 1 & 3	
GV-N970G1 GAMING-4GD	



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.

GIGABYTE		
PS: NVDD Phase 1 & 3		
Doc Number	Document Number	Rev 1.0
GV-N970G1 GAMING-4GD		