


MODEL NAME : LS-G88BP
DGFF N18E G3/G2/G1
DAB0003L02P/DAB0003L02Q/DAB0003L02R :

DGFF Board with nVIDIA N18E G3

REV : 2.0
2018.12.14

@ : Nopop Component
EMI@,ESD@,RF@ : EMI/ESD/RF part
CONN@ : Connector Component
@EMI@,@ESD@,@RF@ : Total debug Component
G2G3@:Decoupling Cap.

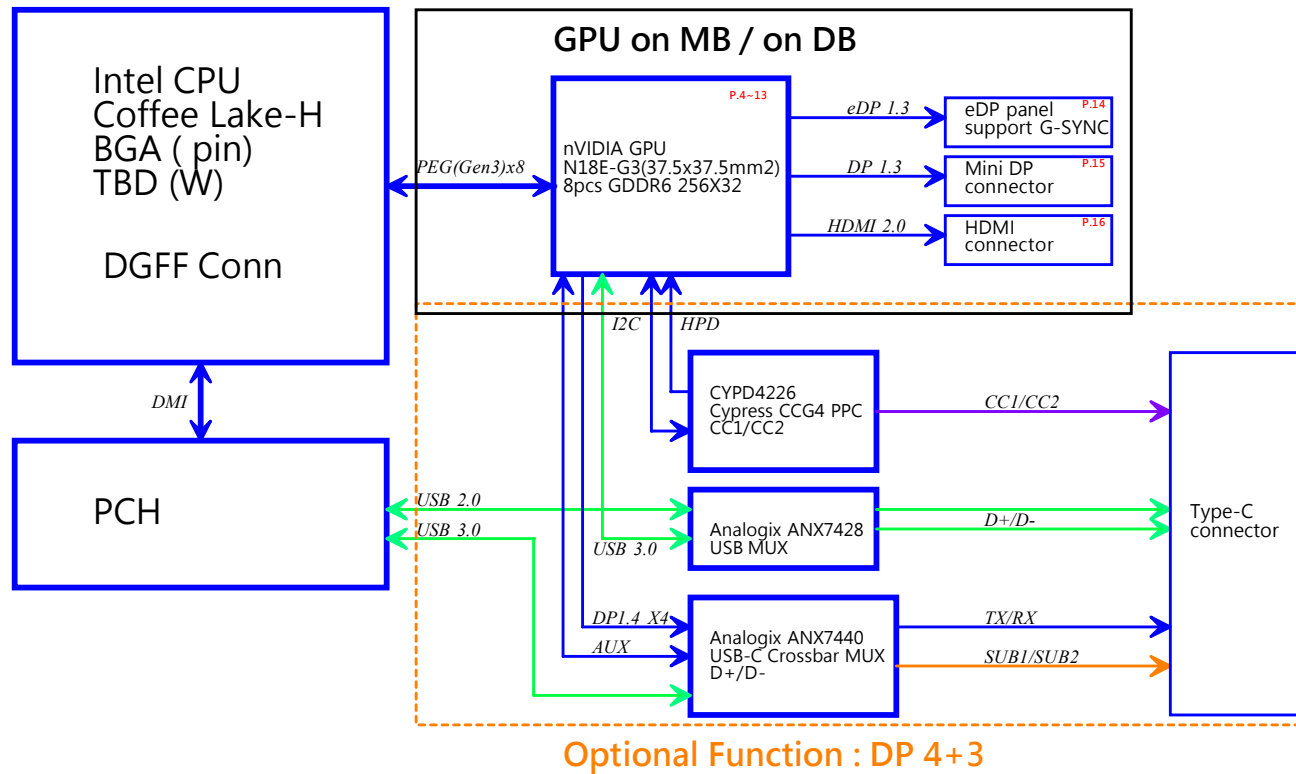
Layout Dell logo

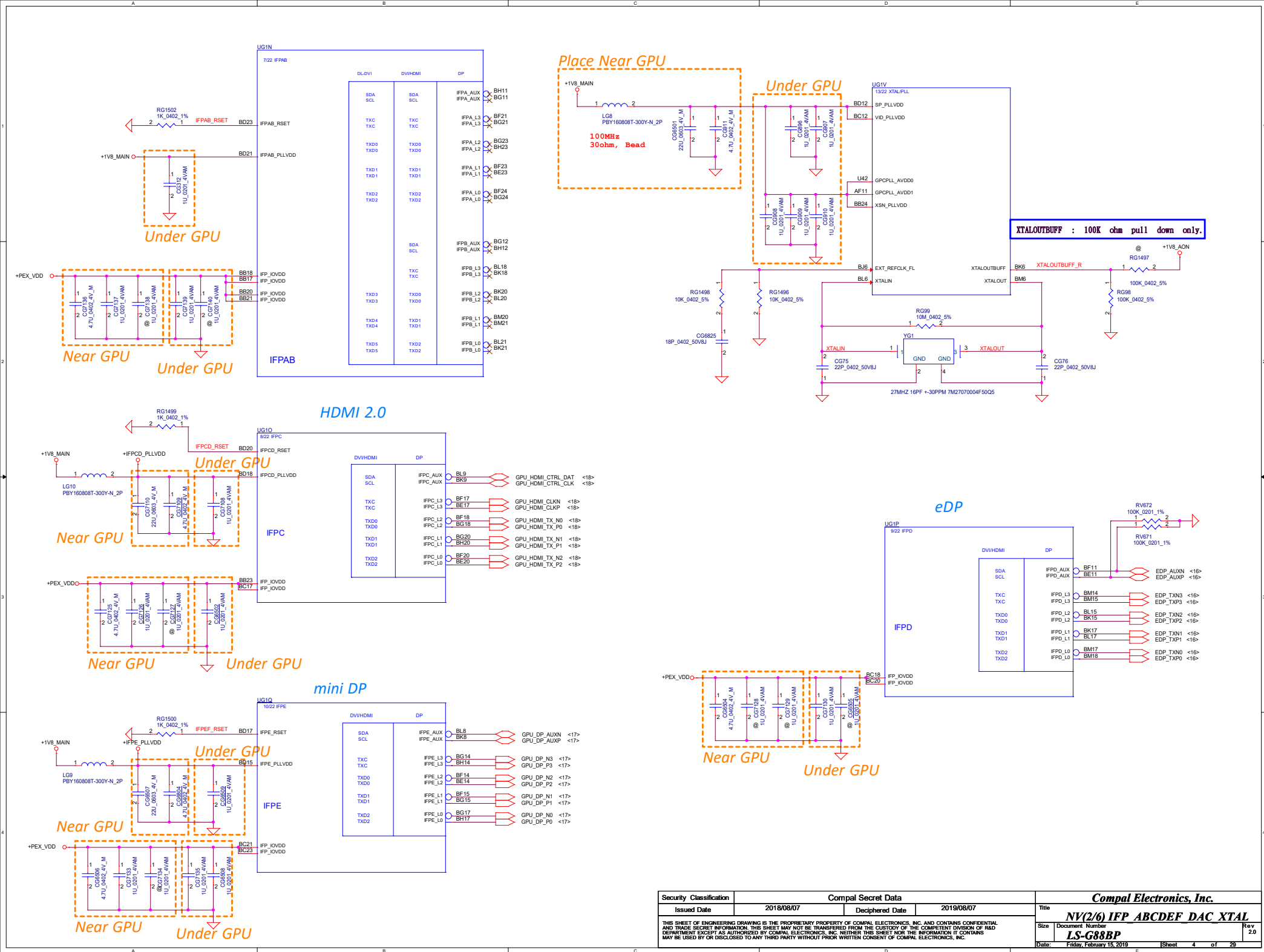


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REV: X00
PWB: XXXXX
DATE: 1450-06

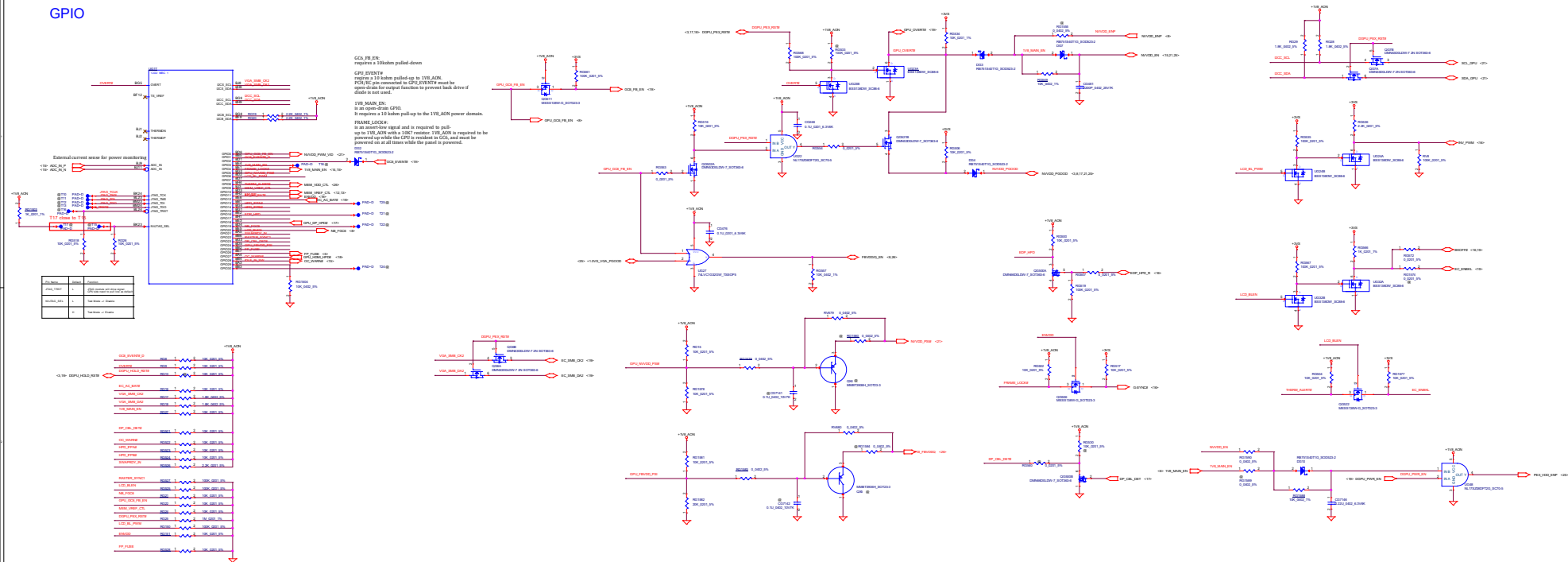
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Block Diagram





GPIO

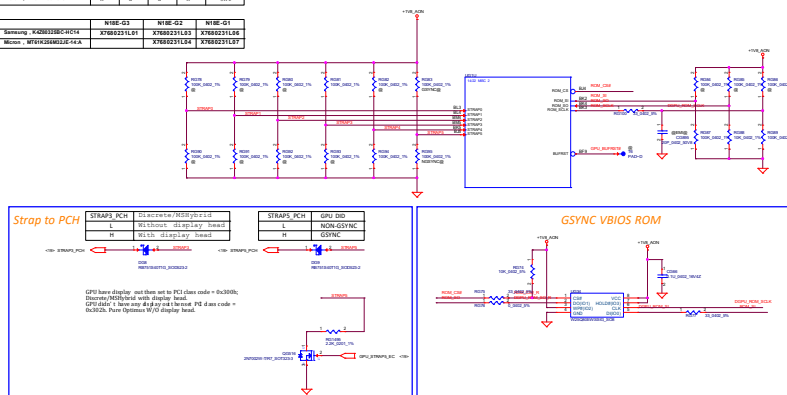


BIOS_STRAP

| G3 | GD0RS VRAM | Strap0 | Strap1 | Strap2 | Strap3 | RAMCFG |
|---------|----------------|--------|--------|--------|--------|--------|
| Samsung | K4A232BEC-PC14 | L | L | L | R | 0x0 |

| G2/G3 | GD0RS VRAM | Strap0 | Strap1 | Strap2 | Strap3 | RAMCFG |
|---------|------------------|--------|--------|--------|--------|--------|
| Samsung | K4A232BEC-PC14 | L | L | L | R | 0x0 |
| Micron | MT69A256M2G2-4E4 | R | L | L | R | 0x1 |

| | N15E-G3 | N15E-G2 | N15E-G1 |
|---------|------------------|------------|------------|
| Samsung | K4A232BEC-PC14 | X760231L01 | X760231L06 |
| Micron | MT69A256M2G2-4E4 | X760231L04 | X760231L07 |



ROM, Straps

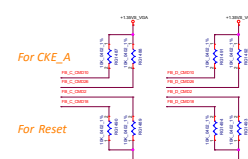
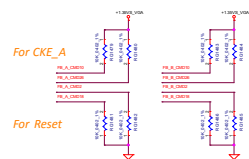
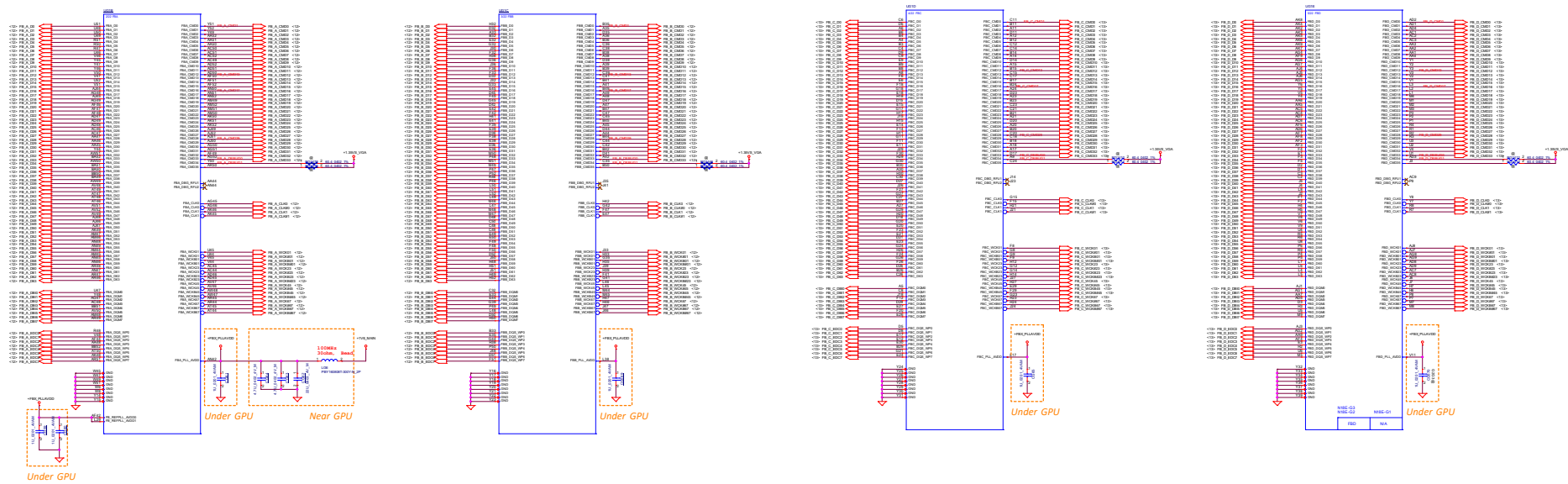
H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

STRAP2 STRAP1

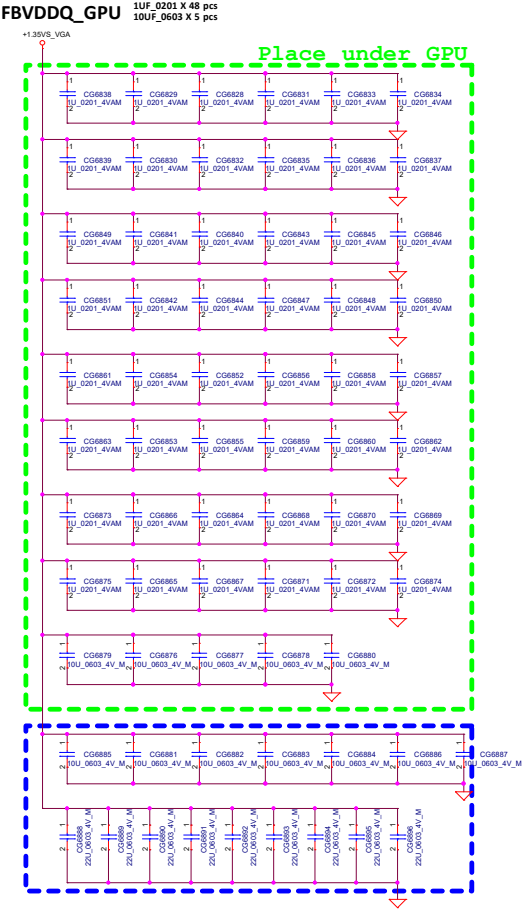
| L-Flow Test to DV | | | | RMC10410 | | | |
|-------------------|---------|---------|------------|----------|-------|--------|-------|
| STRAFP | STRAFP1 | STRAFP3 | RMC10410-E | DENSITY | WGT% | WINDOR | |
| L | L | L | 00008 | RMC10410 | 00008 | 00008 | 00008 |
| L | L | H | 00001 | RMC10410 | 00001 | 00001 | 00001 |
| L | H | L | 00010 | RMC10410 | 00010 | 00010 | 00010 |
| L | H | H | 00011 | RMC10410 | 00011 | 00011 | 00011 |
| H | H | L | 00110 | RMC10410 | 00110 | 00110 | 00110 |
| H | H | H | 00111 | RMC10410 | 00111 | 00111 | 00111 |

| ROM_S0 | ROM_S1 | ROM_SCLK | DUMMY[2:0] FS_OVERT | 1:ENABLE 0:DISABLE | |
|--------|--------|----------|---------------------|--------------------|---------|
| L | L | L | X001 | FS_OVERT_ENABLE | DEFAULT |
| L | L | M | X000 | FS_OVERT_DISABLE | |

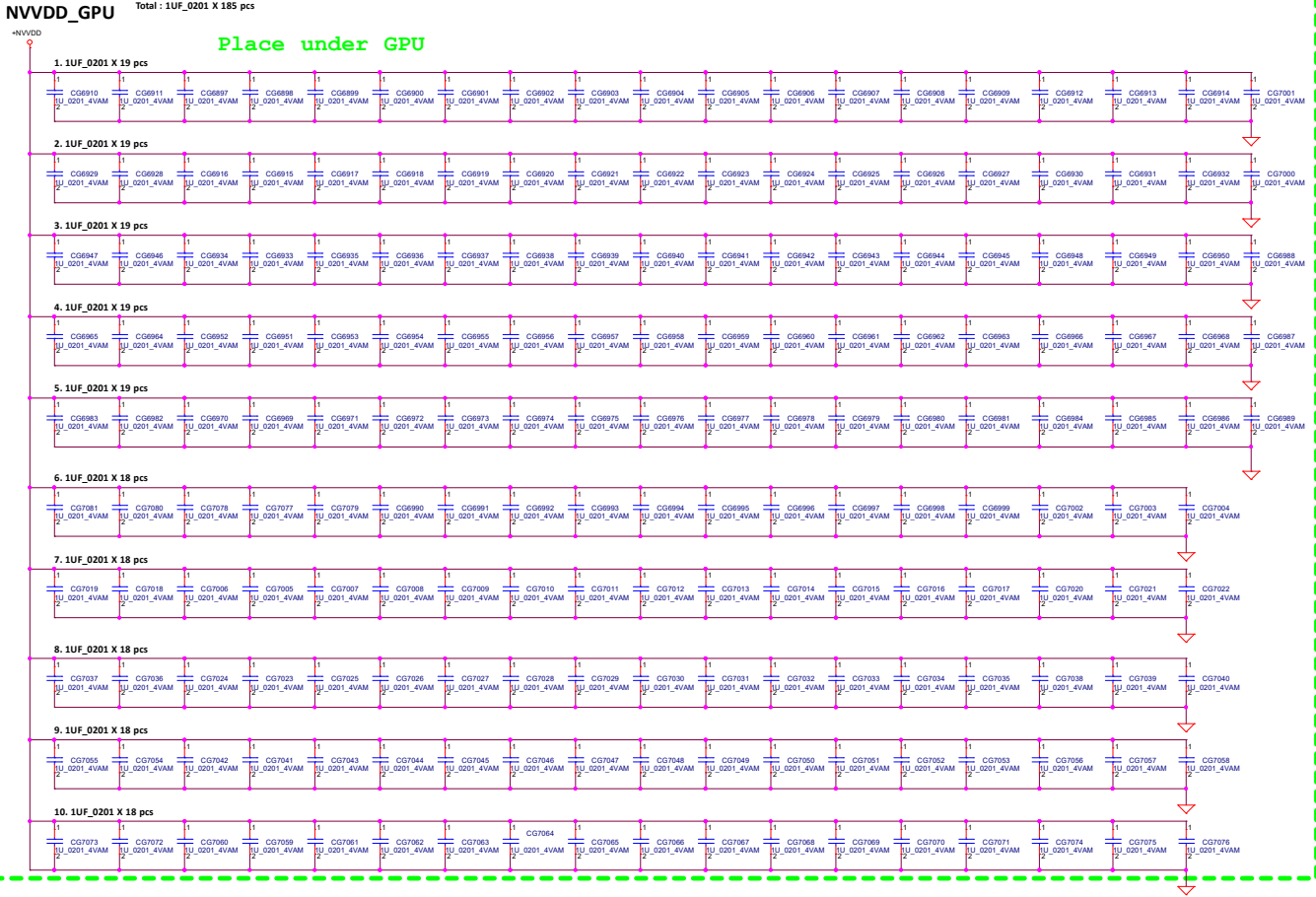
| STRAPS | STRAP4 | STRAP3 | 05M6_AT_ADDR | DEV0_SEL | PCIE_CFG | VGA_DEVICE | |
|--------|--------|--------|--------------|----------|----------|------------|----------------------|
| M | M | M | 1 | 1 | 1 | 1 | 15M6_AT_ADDR ENABLE |
| M | M | L | 1 | 1 | 1 | 1 | 05M6_AT_ADDR DISABLE |
| M | M | L | 1 | 1 | 1 | 0 | 10DEV0_SEL REBRAND |
| M | L | L | 1 | 1 | 0 | 1 | 0DEV0_SEL ORIGINAL |
| L | M | M | 1 | 0 | 1 | 1 | 1PCIE_CFG LOW POWER |
| L | M | M | 1 | 0 | 1 | 0 | 0PCIE_CFG HIGH POWER |
| L | M | H | 1 | 0 | 1 | 0 | 1VGA_DEVICE ENABLE |
| L | M | H | 1 | 0 | 1 | 1 | 0VGA_DEVICE DISABLE |
| L | M | L | 1 | 0 | 0 | 1 | |
| L | L | M | 1 | 0 | 0 | 0 | |
| H | H | H | 0 | 1 | 1 | 1 | |
| H | H | L | 0 | 1 | 1 | 0 | |
| H | L | H | 0 | 1 | 0 | 1 | DEFAULT |
| H | L | L | 0 | 1 | 0 | 0 | |
| L | H | H | 0 | 0 | 1 | 1 | |
| L | H | L | 0 | 0 | 1 | 0 | |
| L | L | H | 0 | 0 | 0 | 1 | |
| L | L | L | 0 | 0 | 0 | 0 | |



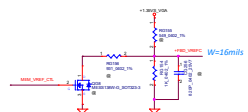
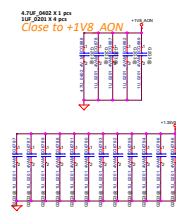
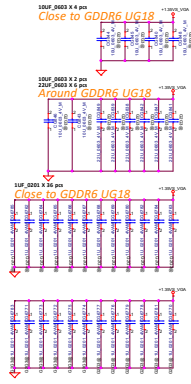
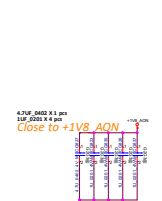
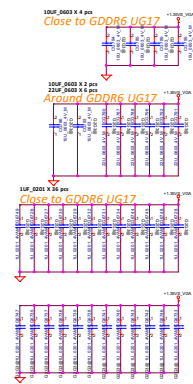
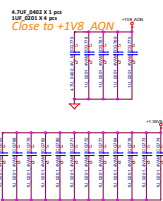
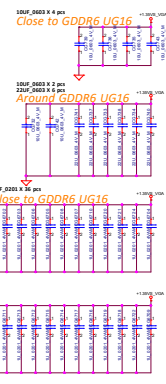
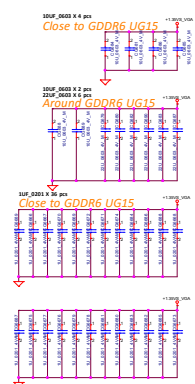
GPU Decoupling - NV Spec Recommendation



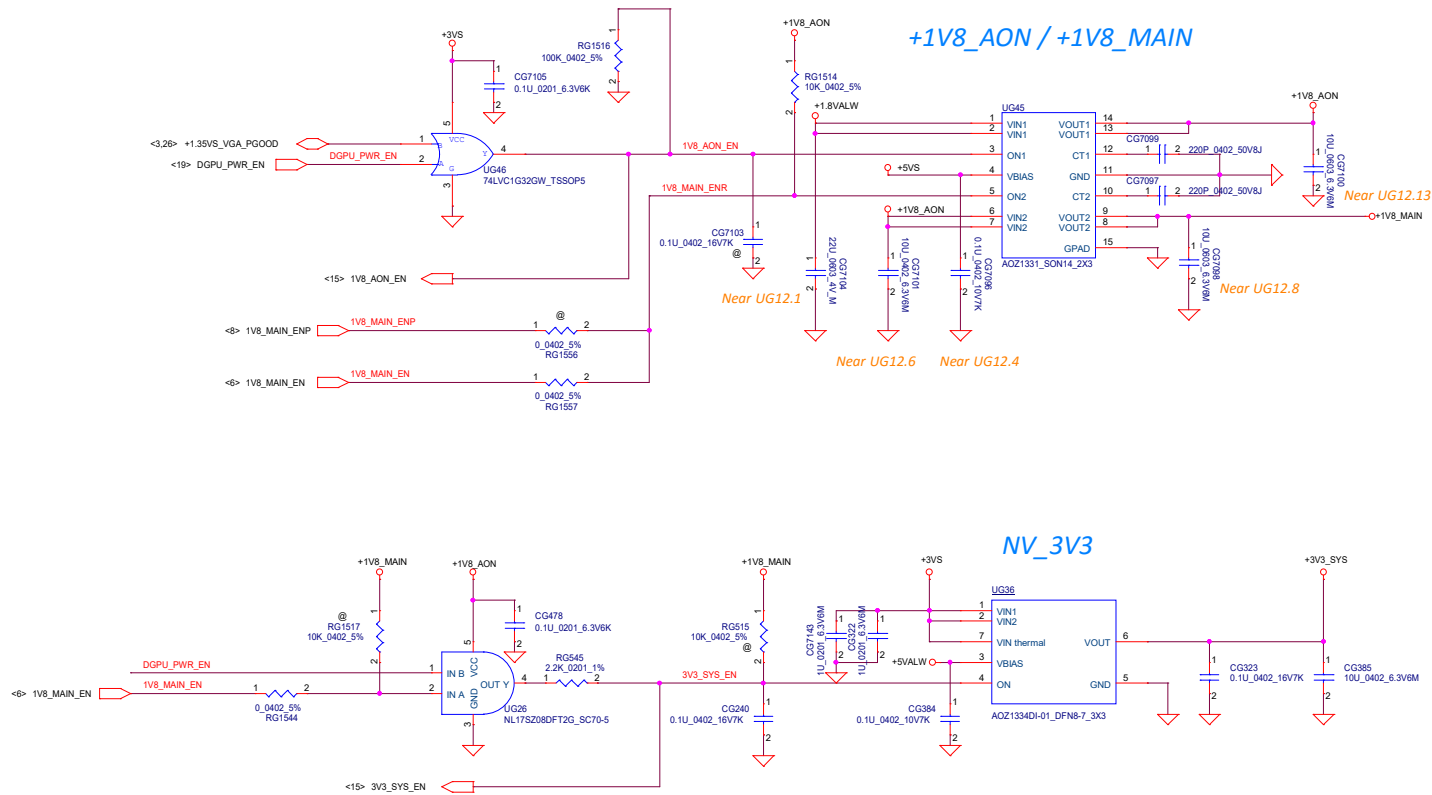
| | N18E-G3/G2 | N18E-G1 |
|-----------------------------|-------------|-------------|
| CAP: 1UF, 1U X6S 0201 | X7680231L13 | X7680231L11 |
| CAP: 0.47UF, 0.47U X6S 0201 | X7680231L14 | X7680231L12 |

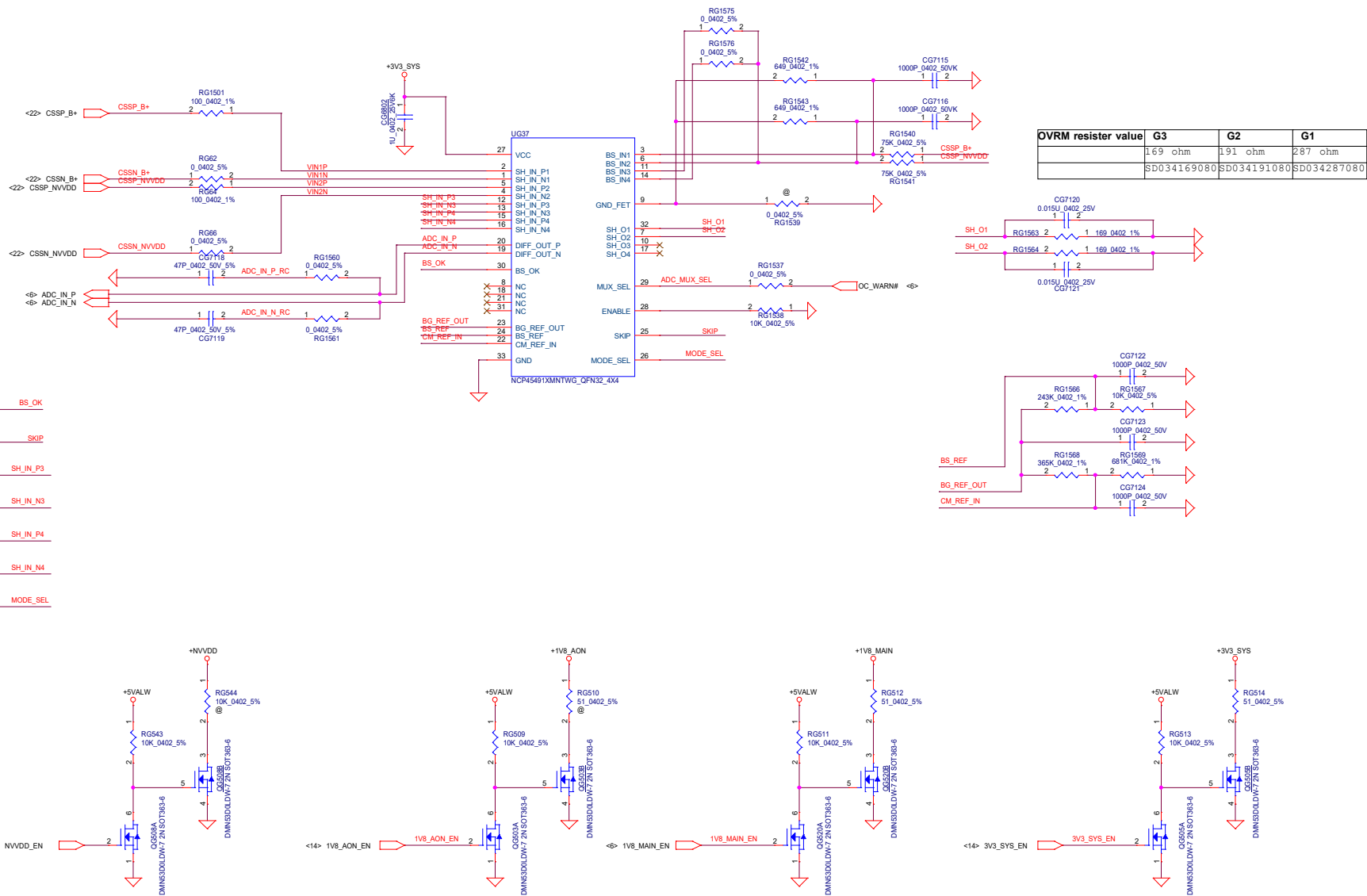


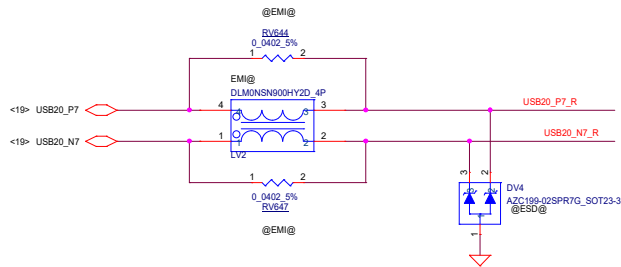
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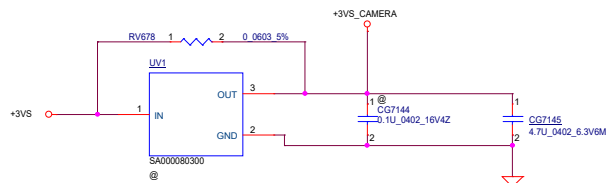
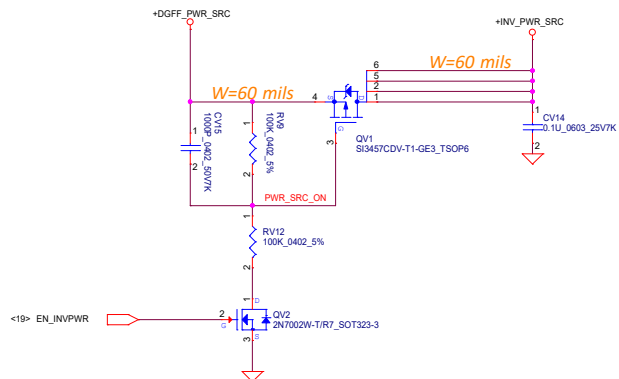
Change: 0.47uF
1. Q401 --> Q201
2. X5R --> X7R or X6



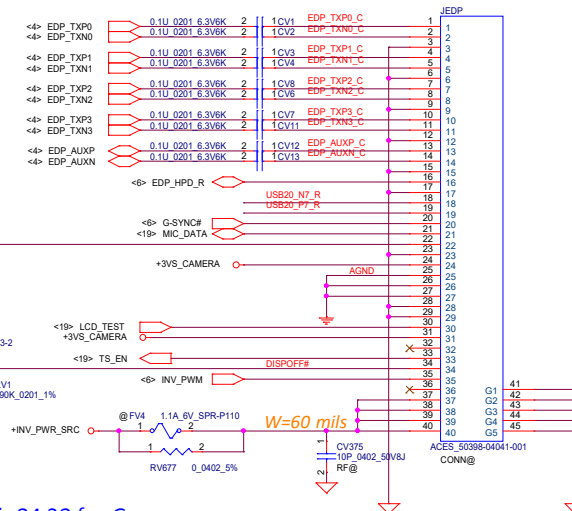




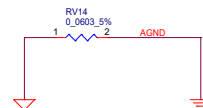
LCD backlight power control



eDP connector

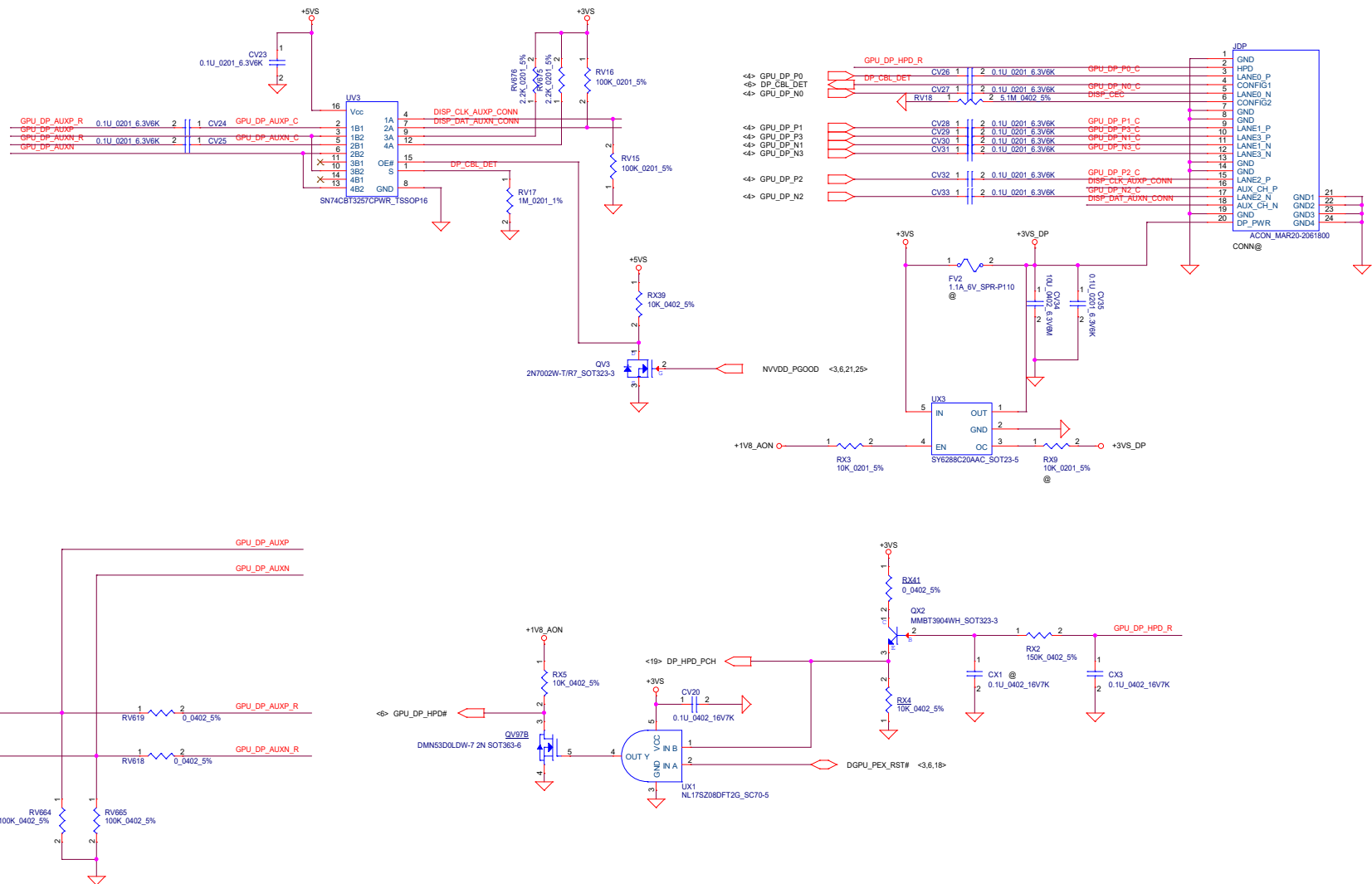


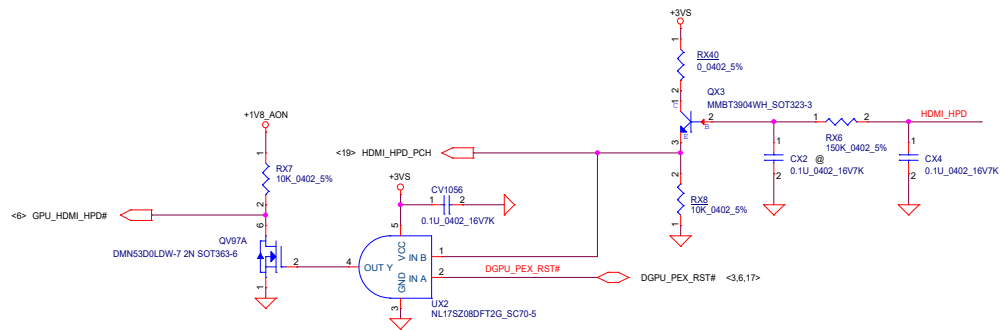
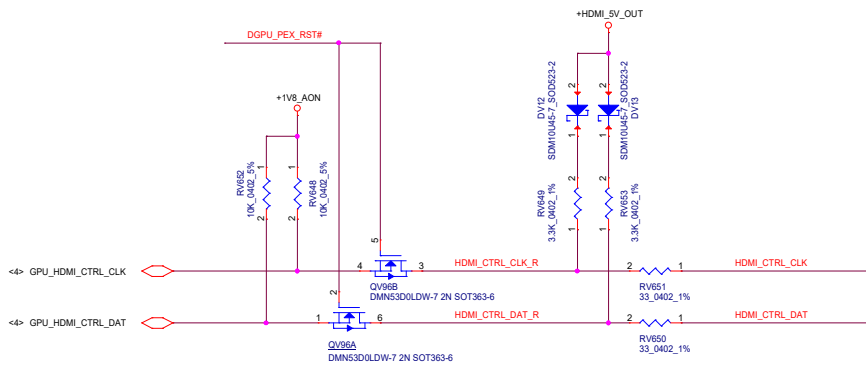
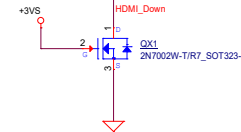
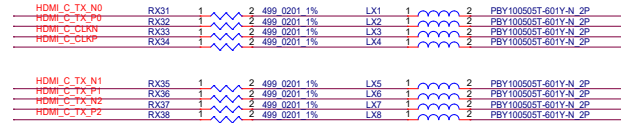
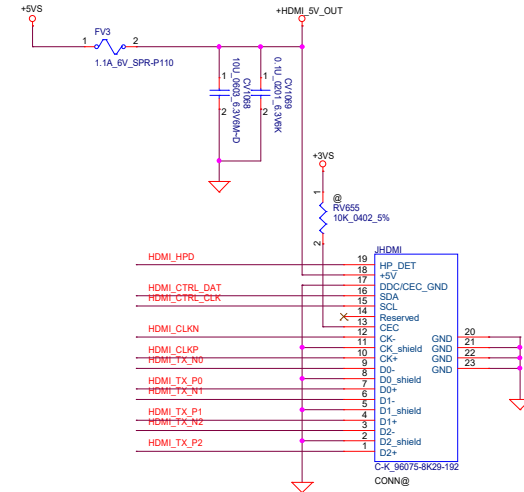
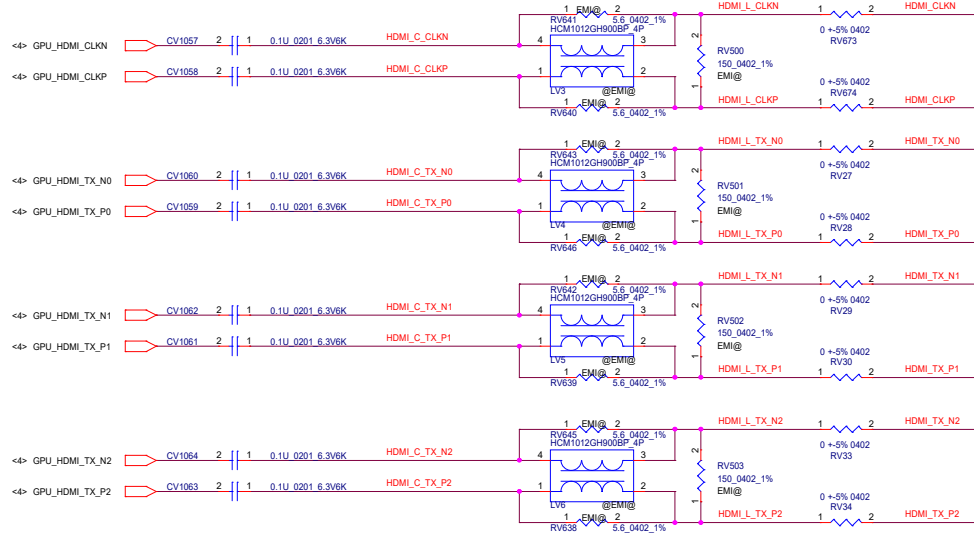
Pin24,32 for Camera power



IR camera pindefine :
 IR_LED+
 IR_LED+
 IR_LED+/NC
 IR_LED-/DET , connect to PCH GPIO
 IR_LED-
 IR_LED-
 Diglog_loop , connect to PCH GPIO
 DGND
 D+
 D-
 USB3V3
 MIC_SIG
 MIC_CLK
 DGND

| | | | | |
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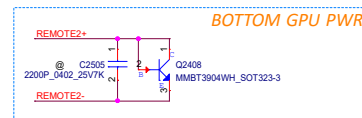


Diagram illustrating four fiducial markers (FD1, FD2, FD3, FD4) used for registration. Each marker consists of a blue square with a red crosshair in the center.

DGFF Conn

JDGFF1

UNIMI_FBGCA011

JDGFF2

UNIMI_FBGCA011

Sensor---> CPU core

BOTTOM GPU PWR

PCB Screw Hole

Fiducial Mark

FD1 @FIDUCIAL

FD2 @FIDUCIAL

FD3 @FIDUCIAL

FD4 @FIDUCIAL

H1 H_3P0-G

H2 H_3P0-G

H3 H_3P3-G

H4 H_3P0-G

H5 H_3P1-G

H6 H_3P1-G

H7 H_3P1X3P7-G

H8 H_3P3-G

H9 H_3P3-G

H10 H_3P3-G

H11 H_3P3-G

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2019/08/07

Title

DGFF Connector SCREW

Size

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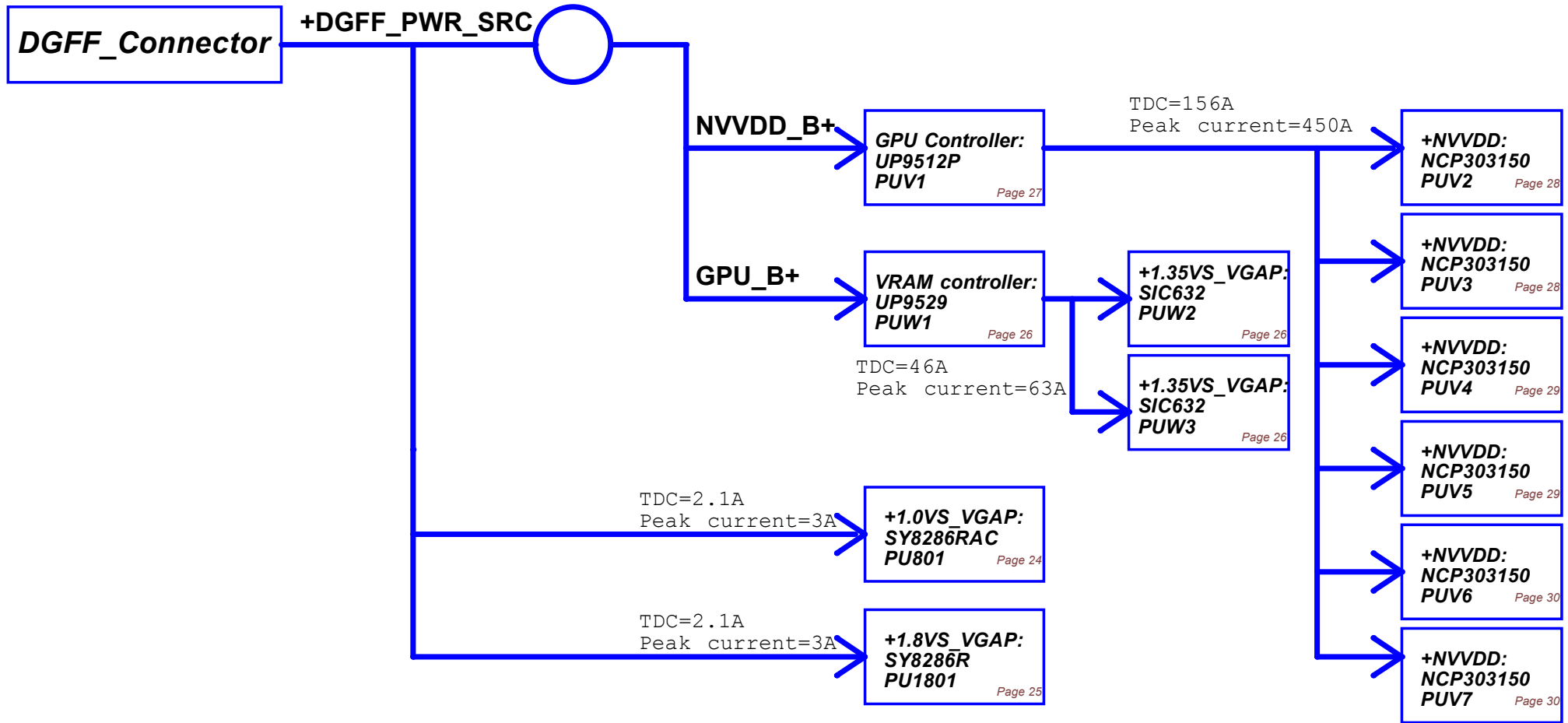
Sheet

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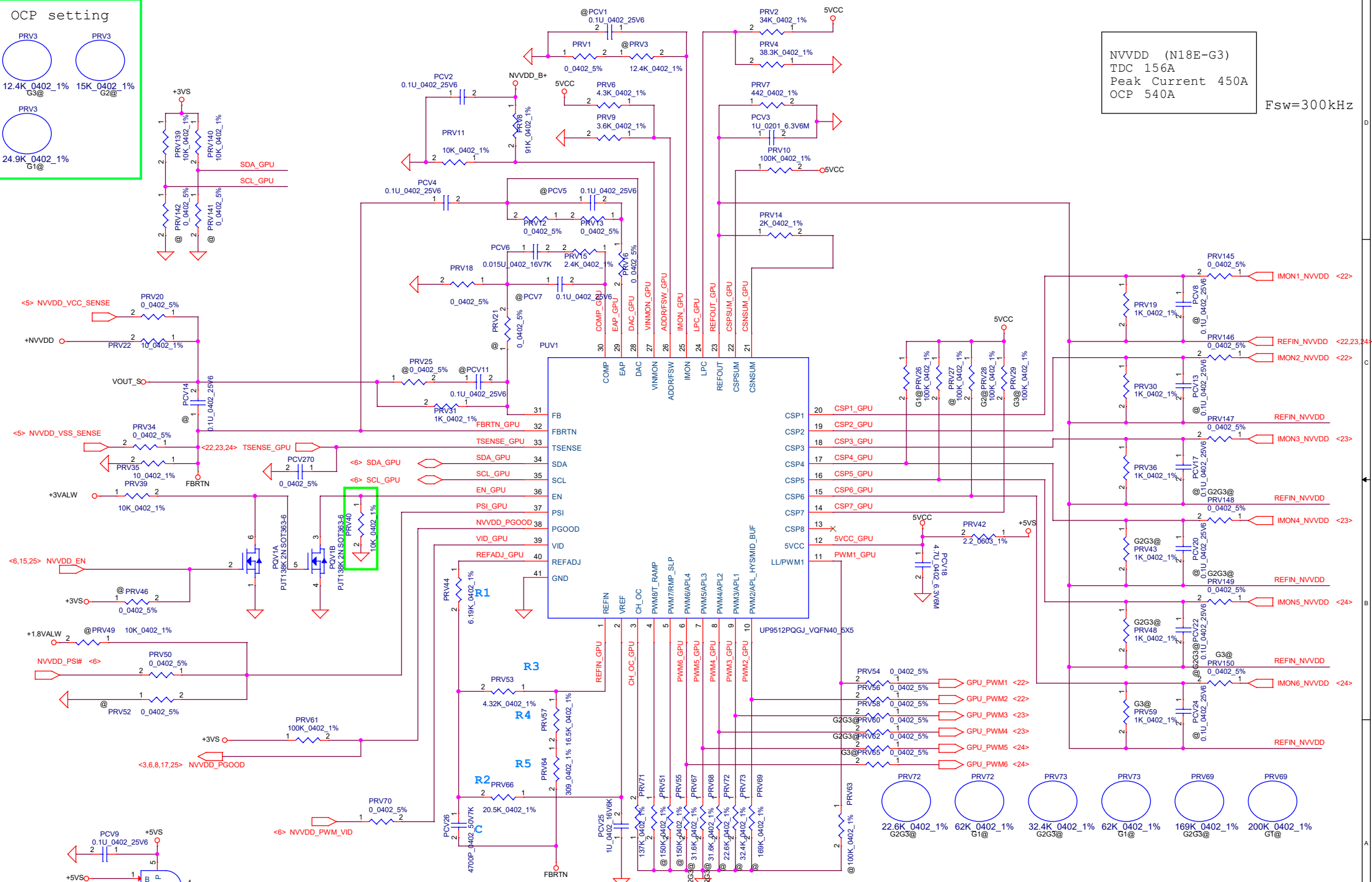
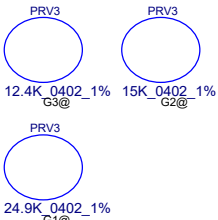
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DGFF N18E-G3 Power block



| | | | | | |
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| | | | | 2.0 | |

OCV setting



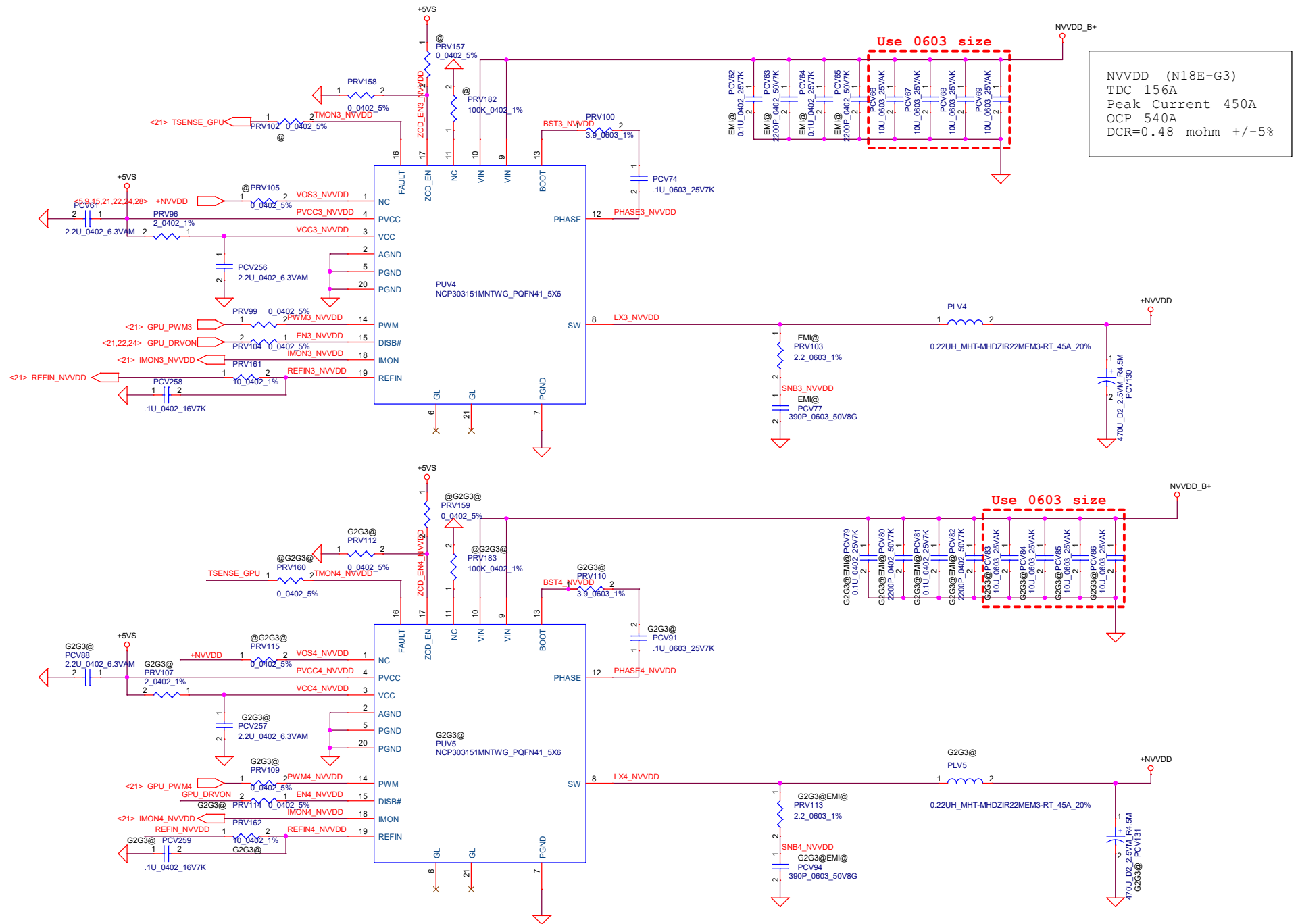
NVDD (N18E-G3)
TDC 156A
Peak Current 450A
OCV 540A

Fsw=300kHz

PWMVID 的 RC BOM

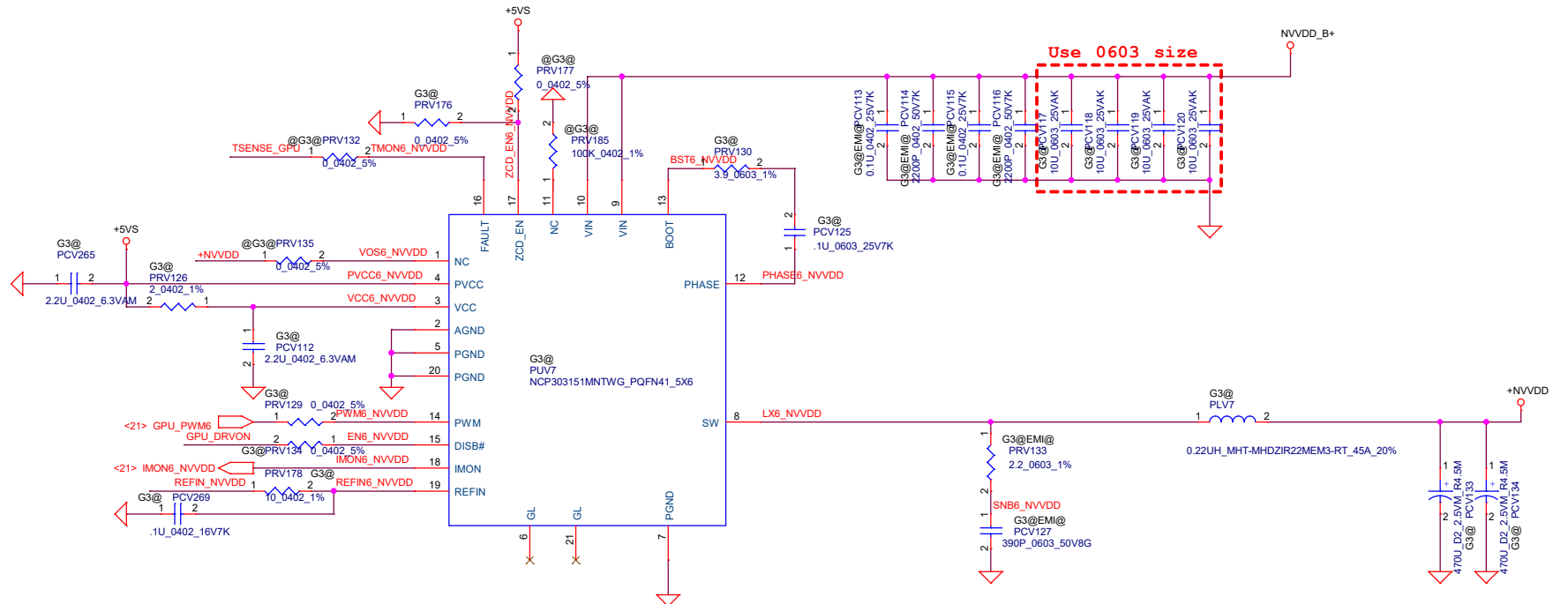
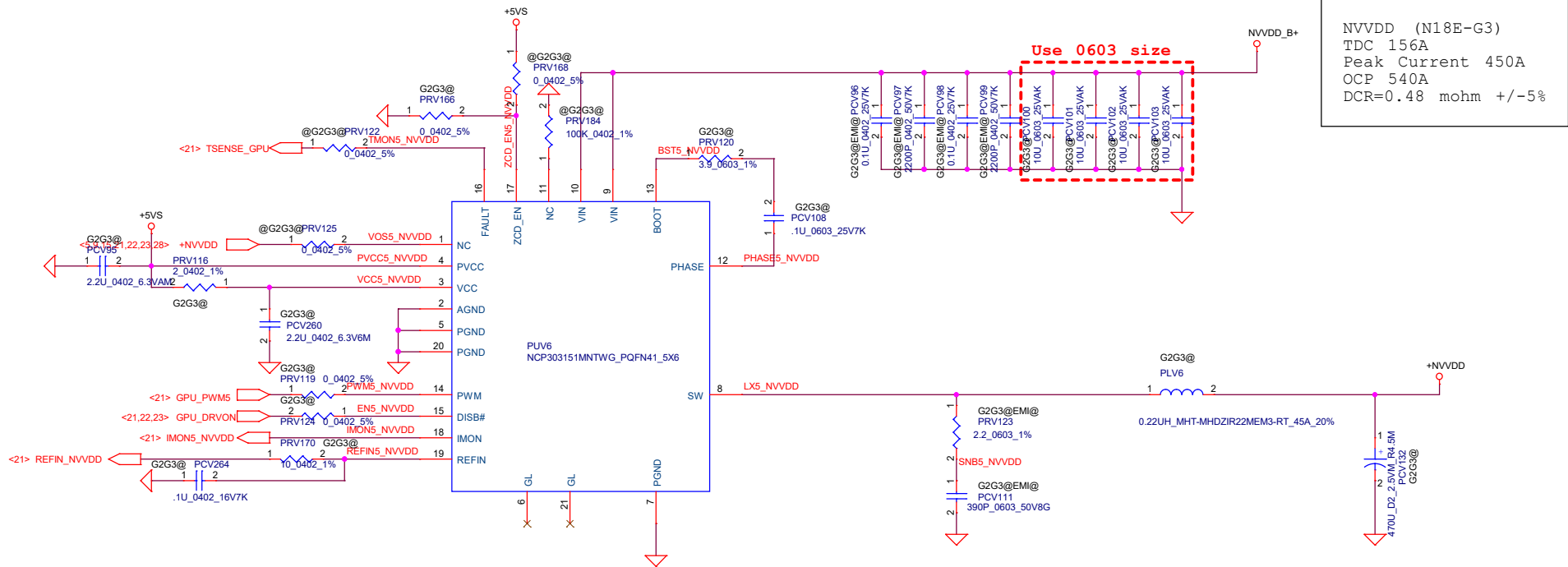
請根據GPU's config 處

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| | | | | | | | | | | PWR +NVVDD1 | |
| | | | | | | | | | | Size Document Number | |
| | | | | | | | | | | LS-G88BP | |
| | | | | | | | | | | Rev | |
| | | | | | | | | | | 2.0 | |
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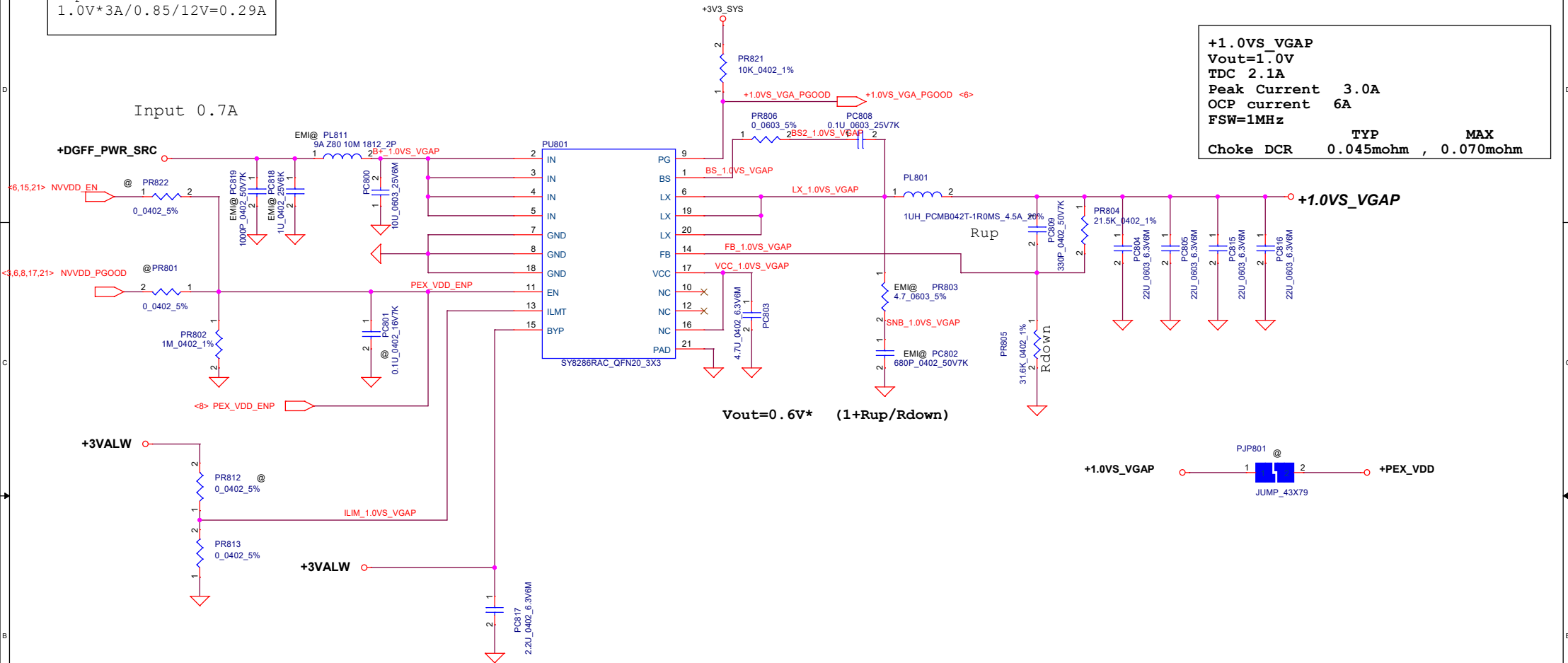


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| | | | | | | | | | | PWR +NVVDD1 | |
| | | | | | | | | | | Size Document Number | |
| | | | | | | | | | | LS-G88BP | |
| | | | | | | | | | | Rev | |
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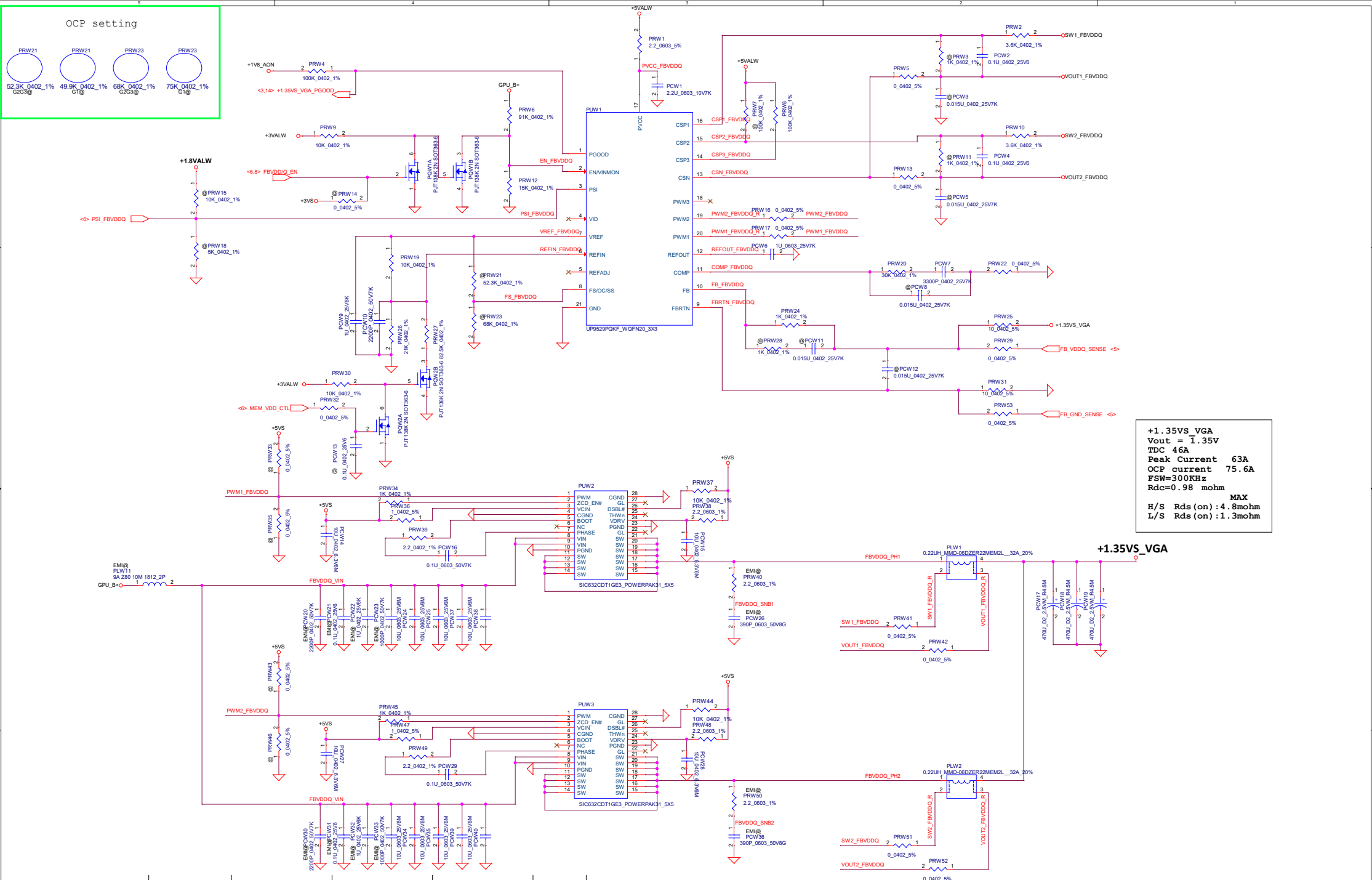
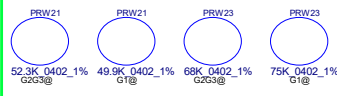
Input Current: 0.29A
 $1.0V \times 3A / 0.85 / 12V = 0.29A$

+1.0VS_VGAP
Vout=1.0V
TDC 2.1A
Peak Current 3.0A
OCF current 6A
FSW=1MHz
TYP **MAX**
Choke DCR 0.045mohm , 0.070mohm



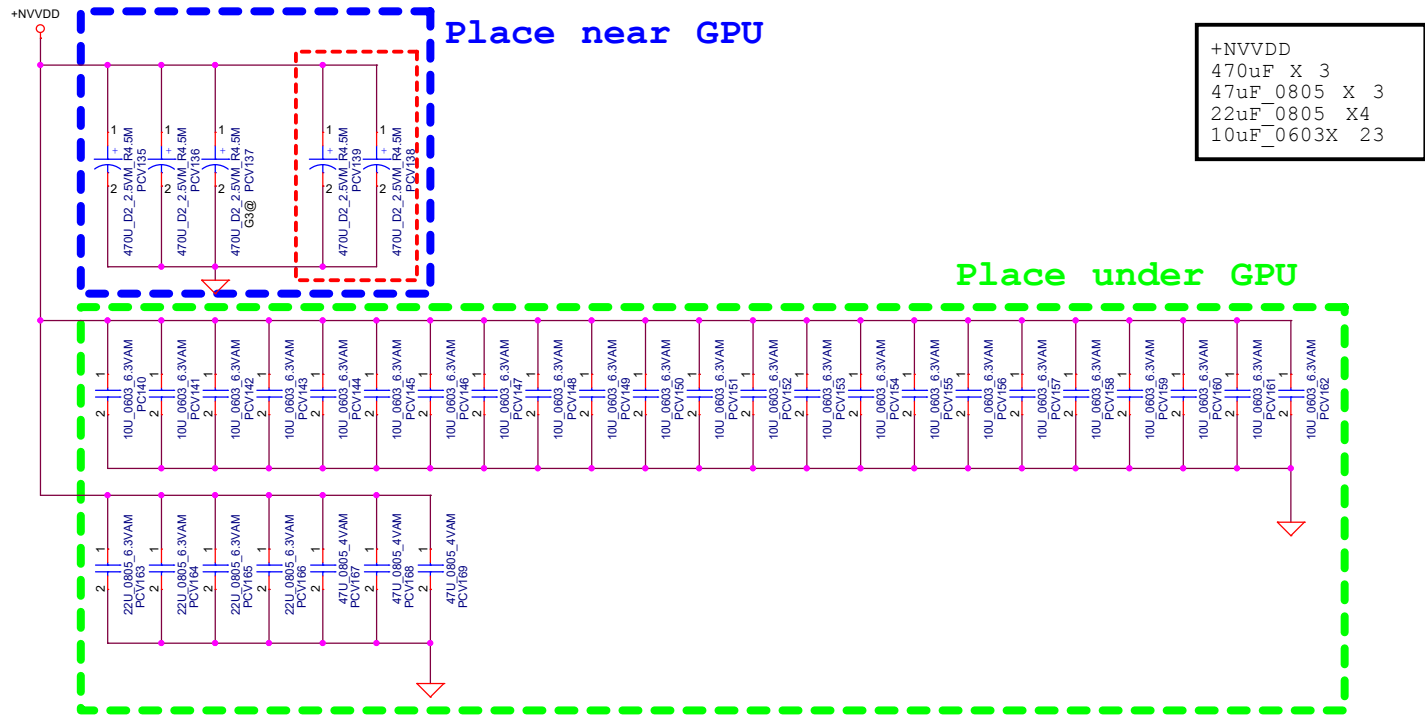
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| | LS-G88BP | 2.0 | | Friday, February 15, 2019 | |
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OCP setting



+1.35VS_VGA
 Vout = 1.35V
 TDC 46A
 Peak Current 63A
 OCP current 75.6A
 FSW=300KHz
 Rdc=0.98 mohm
 MAX
 H/S Rds (on) : 4.8mohm
 L/S Rds (on) : 1.3mohm

| BOM config | GPU type | VRAM memory | VRAM vender | RVL | PRW26 | PRW27 |
|------------|------------|-------------|-----------------|-------|-------|-------|
| | N18E G2/G3 | | SAMGSUNG/MICRON | 1.35V | 21K | @ |



| | | | | | |
|---|------------|--------------------|------------|--------------------------|-----------------|
| Security Classification | | Compal Secret Data | | Compal Electronics, Inc. | |
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| | | | | Size | Document Number |
| | | | | LS-G88BP | |
| Date: Friday, February 15, 2019 | | Sheet 28 of 29 | | Rev 2.0 | |