

PG165-A00

TU116 6GB GDDR5, 192b, X32  
DVI-D + DP + HDMI

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| Page | Description |
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NV\_PN

600-1G165-BASE-000

PCB REV

PG165-A00

BOM REV


8

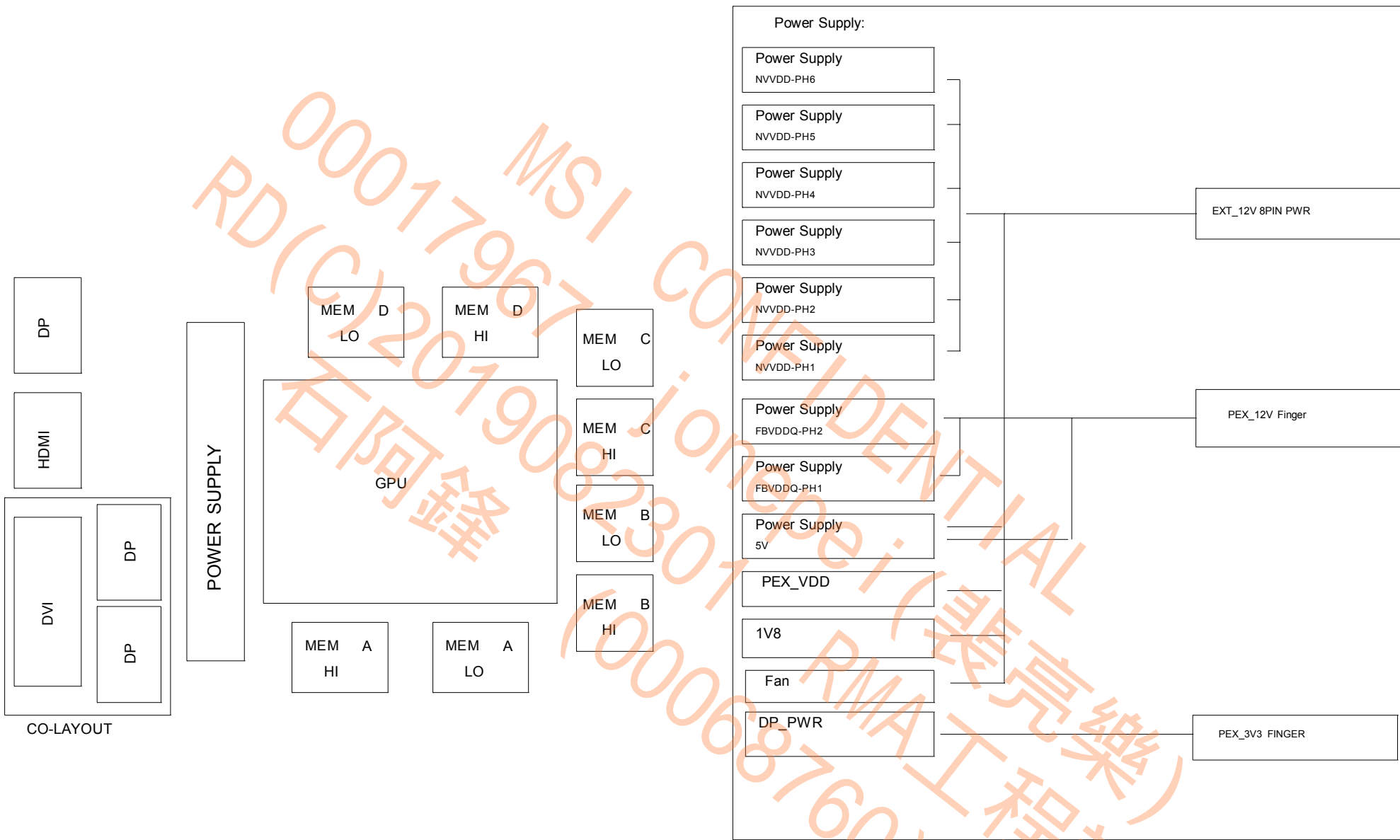
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DATE

14-DEC-2018

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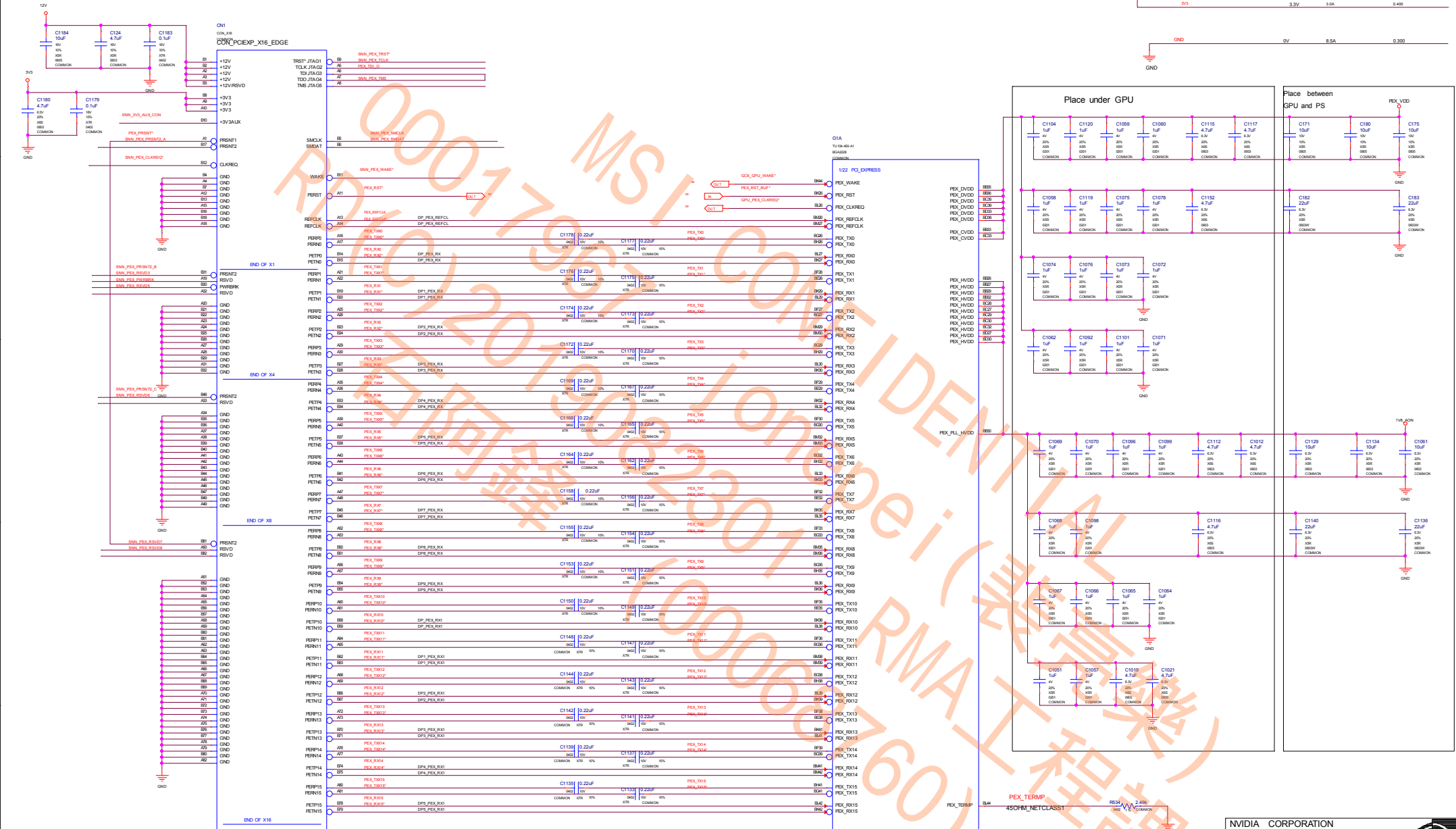




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| ASSEMBLY  | ASSEMBLY DESCRIPTION |
|-----------|----------------------|
| PG165-000 | Block Diagram        |

|                            |                    |      |             |
|----------------------------|--------------------|------|-------------|
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| NV_PN                      | 600-1G165-BASE-000 |      |             |
| PCB REV                    | PG165-A00          | PRG# | 2 OF 42     |
| BOM REV                    | 8                  | DATE | 14-DEC-2018 |



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| ASSEMBLY    | ASSEMBLY DESCRIPTION |
|-------------|----------------------|
| PCI Express | PCI Express          |

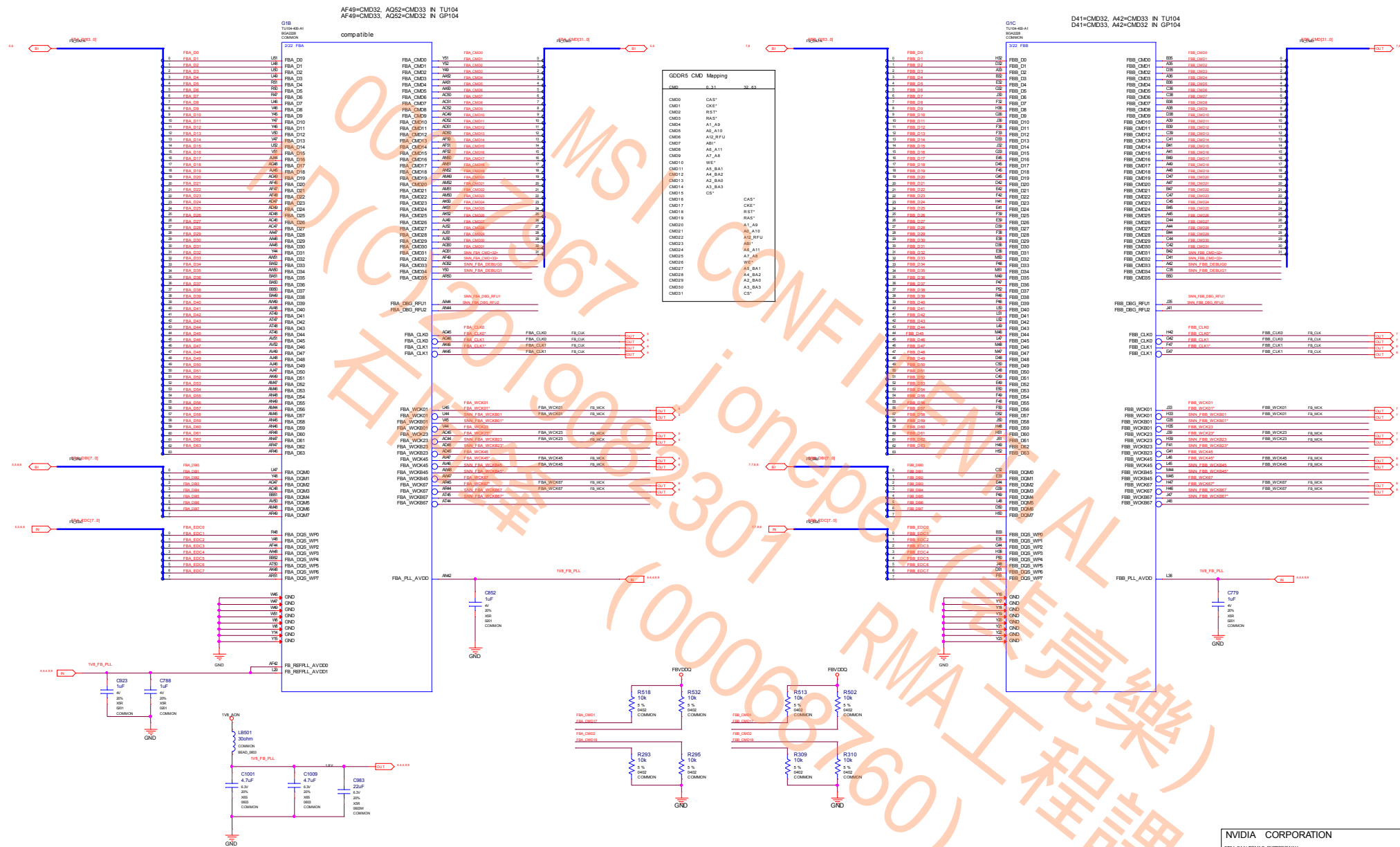
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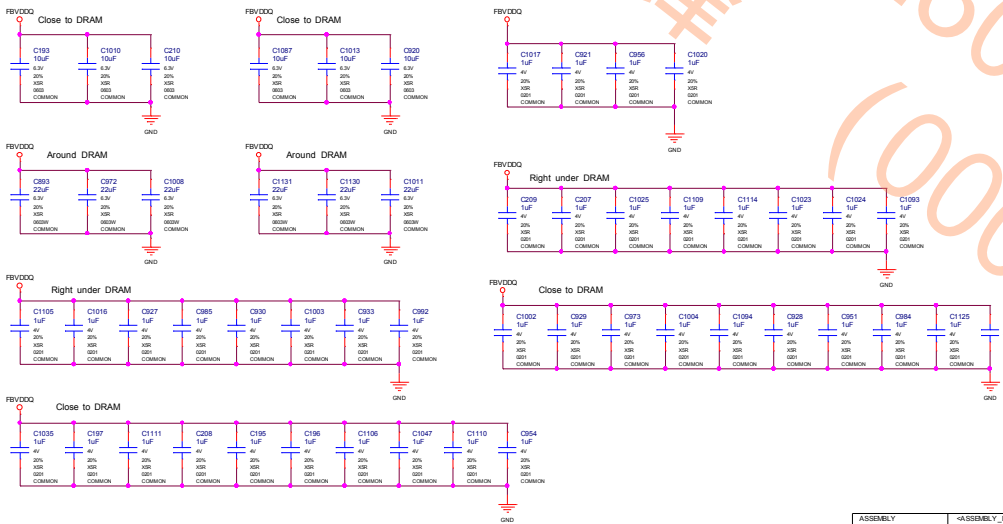
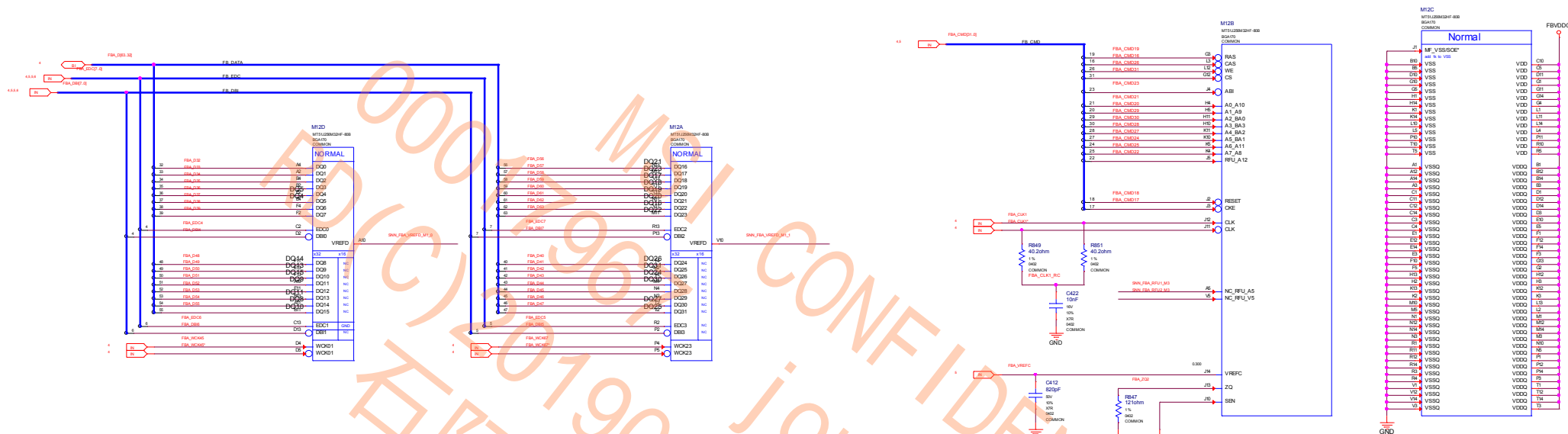
NV\_PN 600-1G165-BASE-000

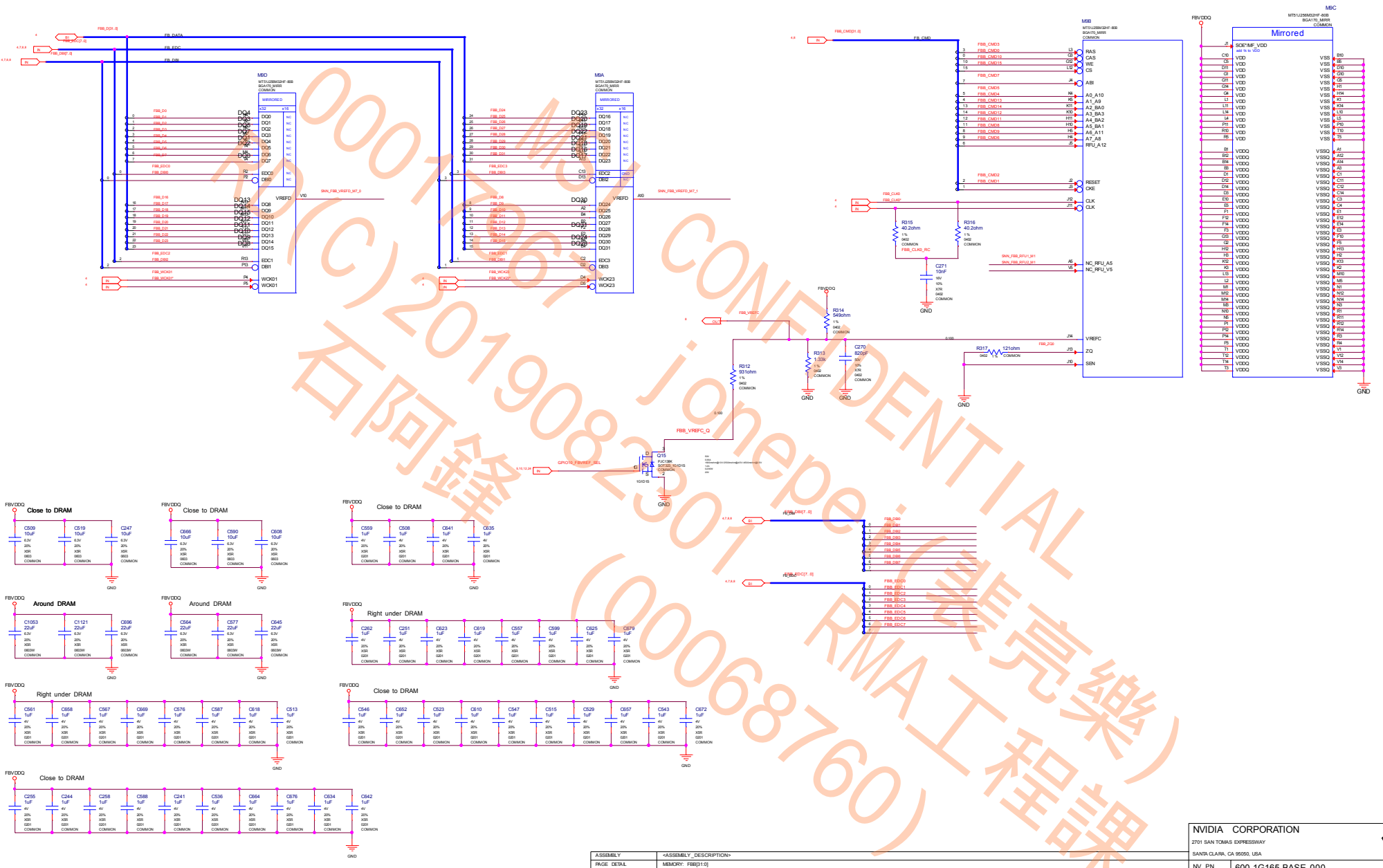
| PCB REV | PG165-A00 | PKG  | 3 OF 42     |
|---------|-----------|------|-------------|
| BOM REV | 8         | DATE | 14-DEC-2018 |



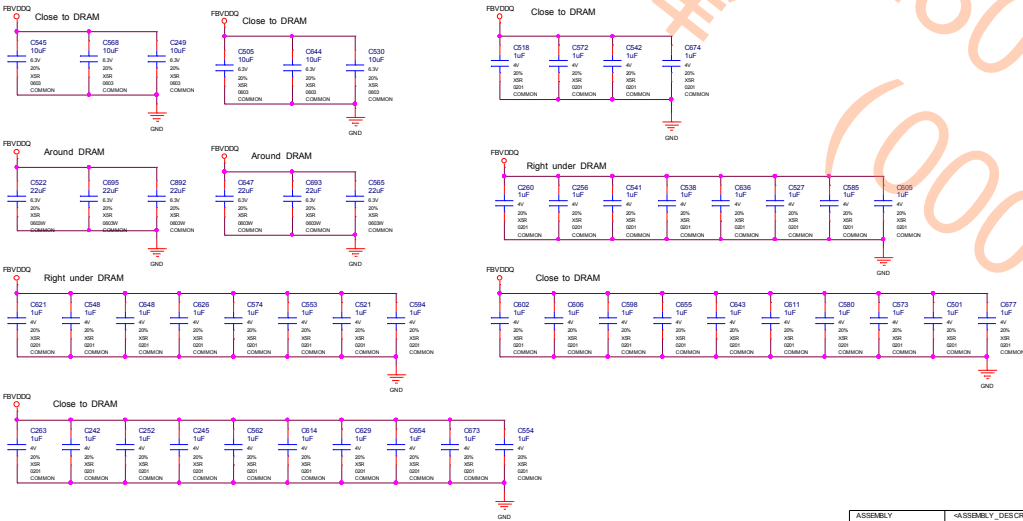







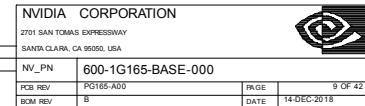






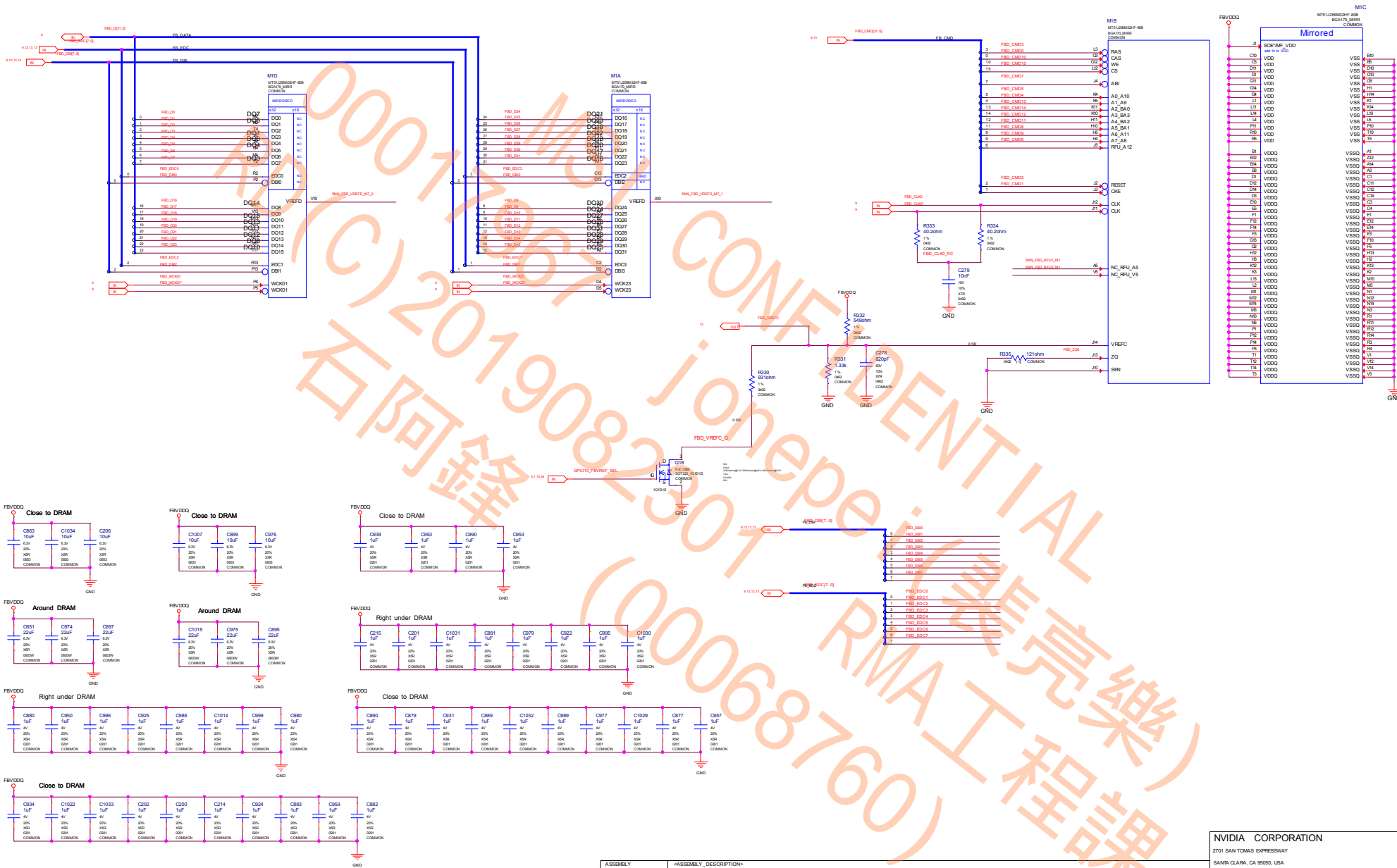
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| <b>NV_PN</b>   |           | <b>600-1G165-BASE-000</b> |   |  |
| PCB REV  | PG165-A00 | PAGE                      | 8 OF 42   |  |
| BOM REV  | B         | DATE                      | 14-DEC-2018   |  |











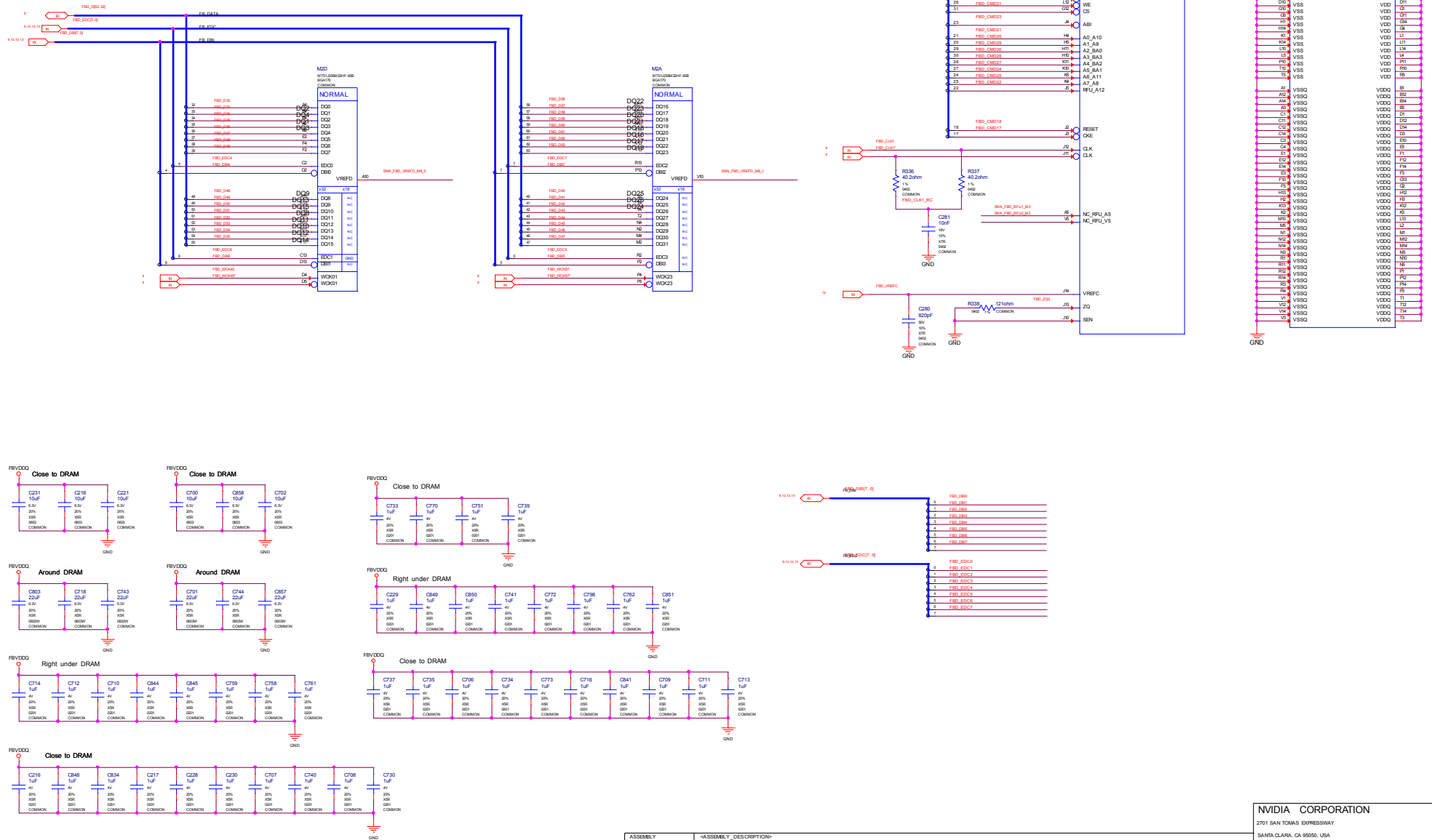
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|         |                    |
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| NV_PN   | 600-1G165-BASE-000 |
| PCB REV | PG165-ADD          |
| ROM REV | B                  |
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|             |                        |
|-------------|------------------------|
| ASSEMBLY    | <ASSEMBLY_DESCRIPTION> |
| PAGE DETAIL | MEMORY: FBQ[1:0]       |



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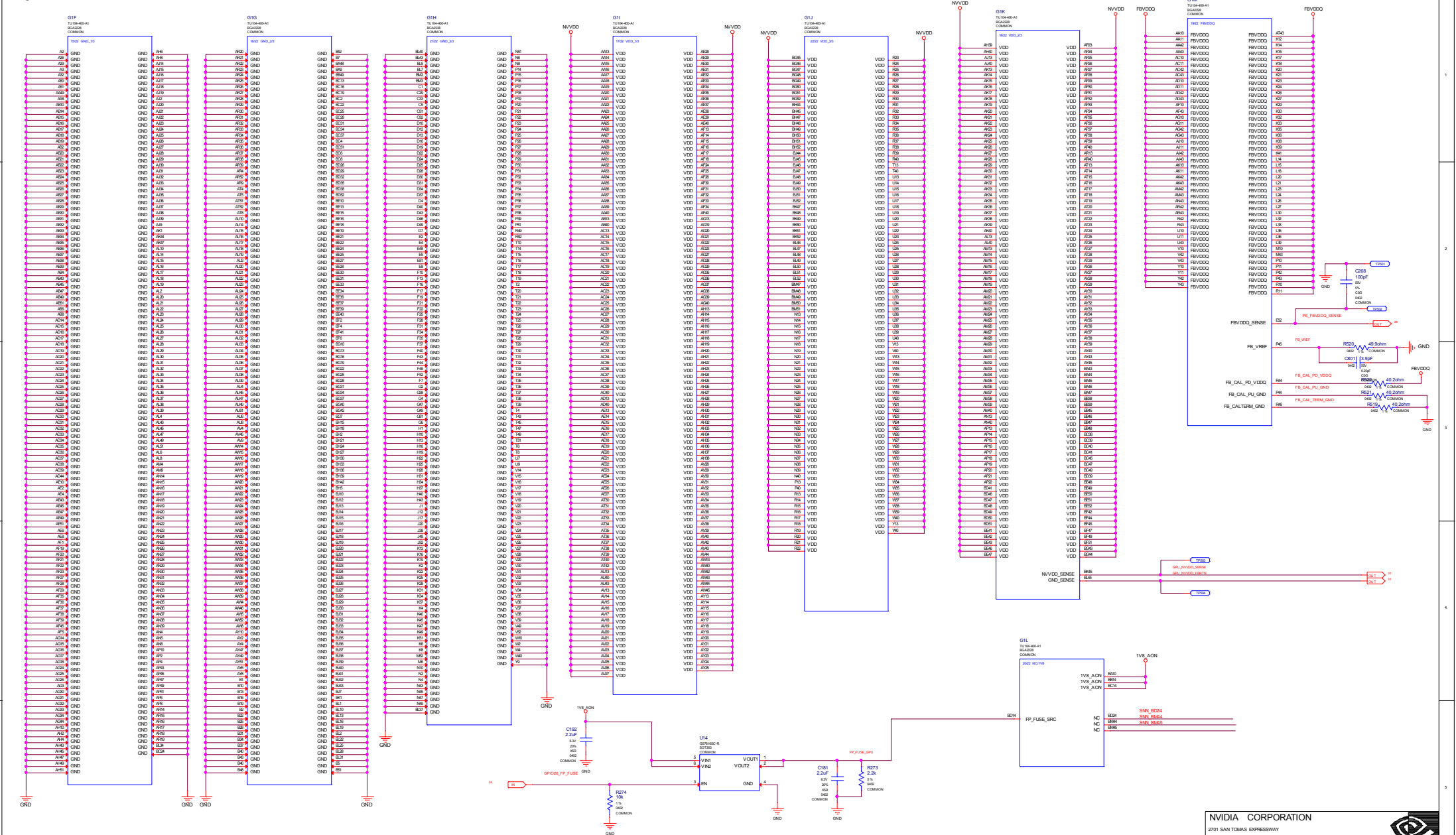
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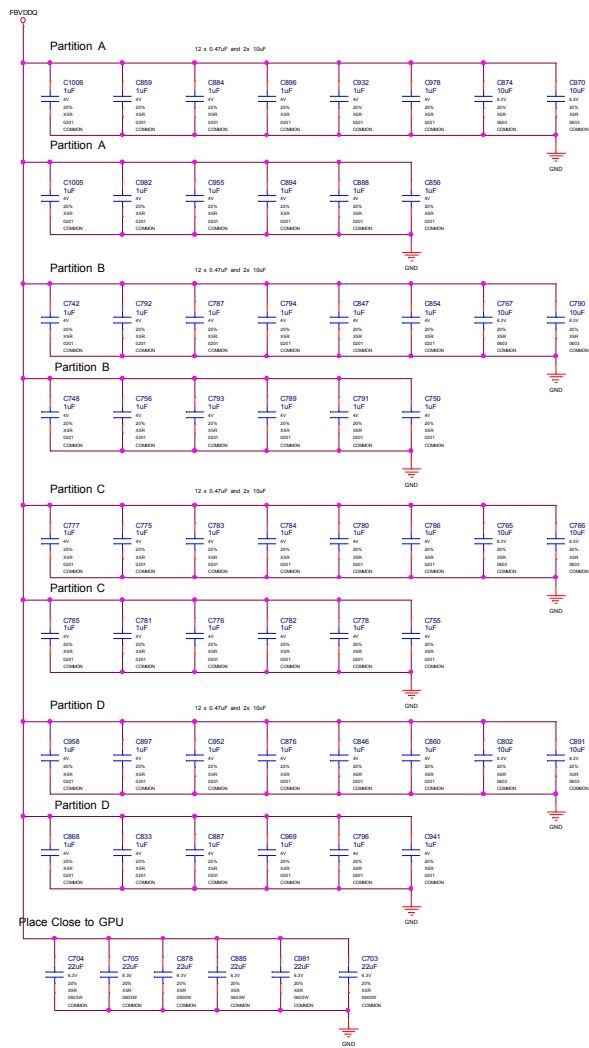
| PCB REV | PG165-A00 | PKG  | 13 OF 42    |
|---------|-----------|------|-------------|
| BOB REV | B         | DATE | 14-DEC-2018 |

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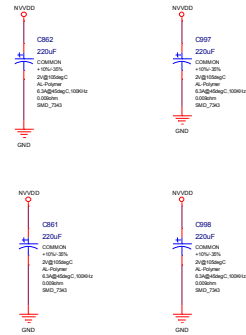


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| PCB REV                    | PGT165-A00 | PAGE               | 14 OF 42  |  |
| BOM REV                    | B          | DATE               | 14-DEC-2018   |  |

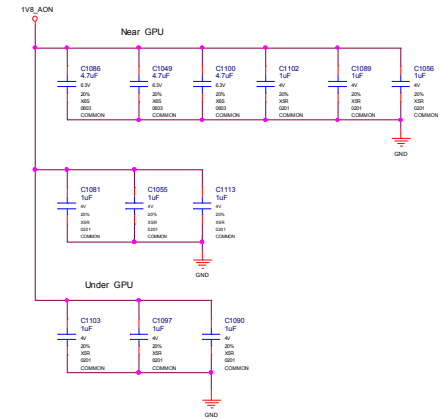
FBVDDQ



NVDD



1V8\_AON



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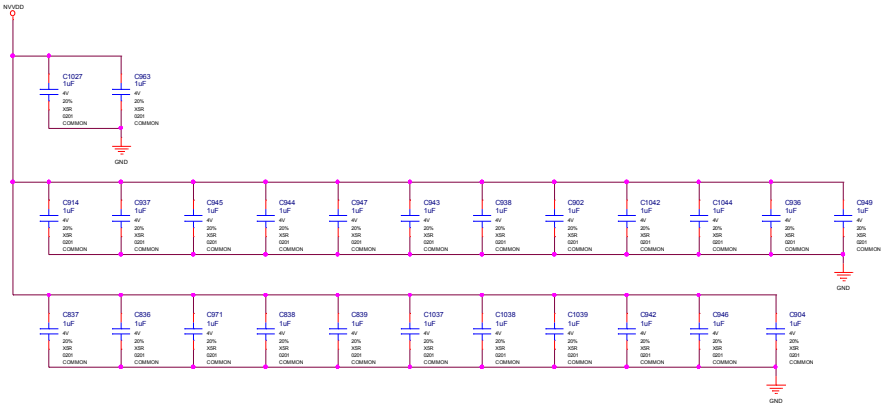
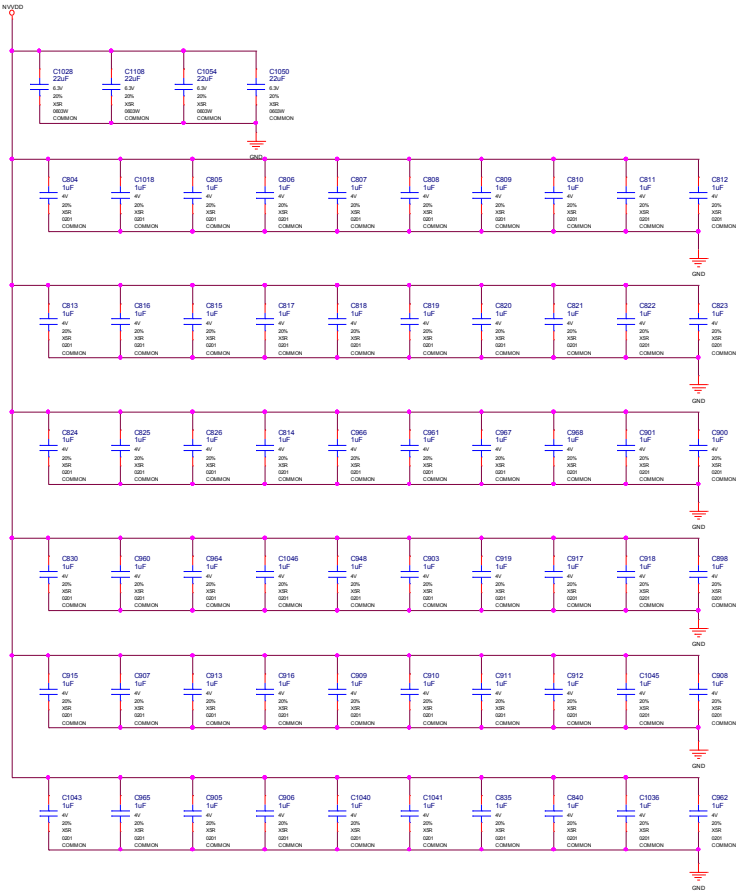
| ASSEMBLY      | ASSEMBLY DESCRIPTION |
|---------------|----------------------|
| FRIDGE DETAIL | GPU DECOUPLING 1     |

|                    |                    |                            |             |
|--------------------|--------------------|----------------------------|-------------|
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| NV_PN              | 600-1G165-BASE-000 | FRIDGE                     | 15 OF 42    |
| PCB REV            | PG165-A00          | DATE                       | 14-DEC-2018 |
| BOM REV            | 8                  |                            |             |





NVDD

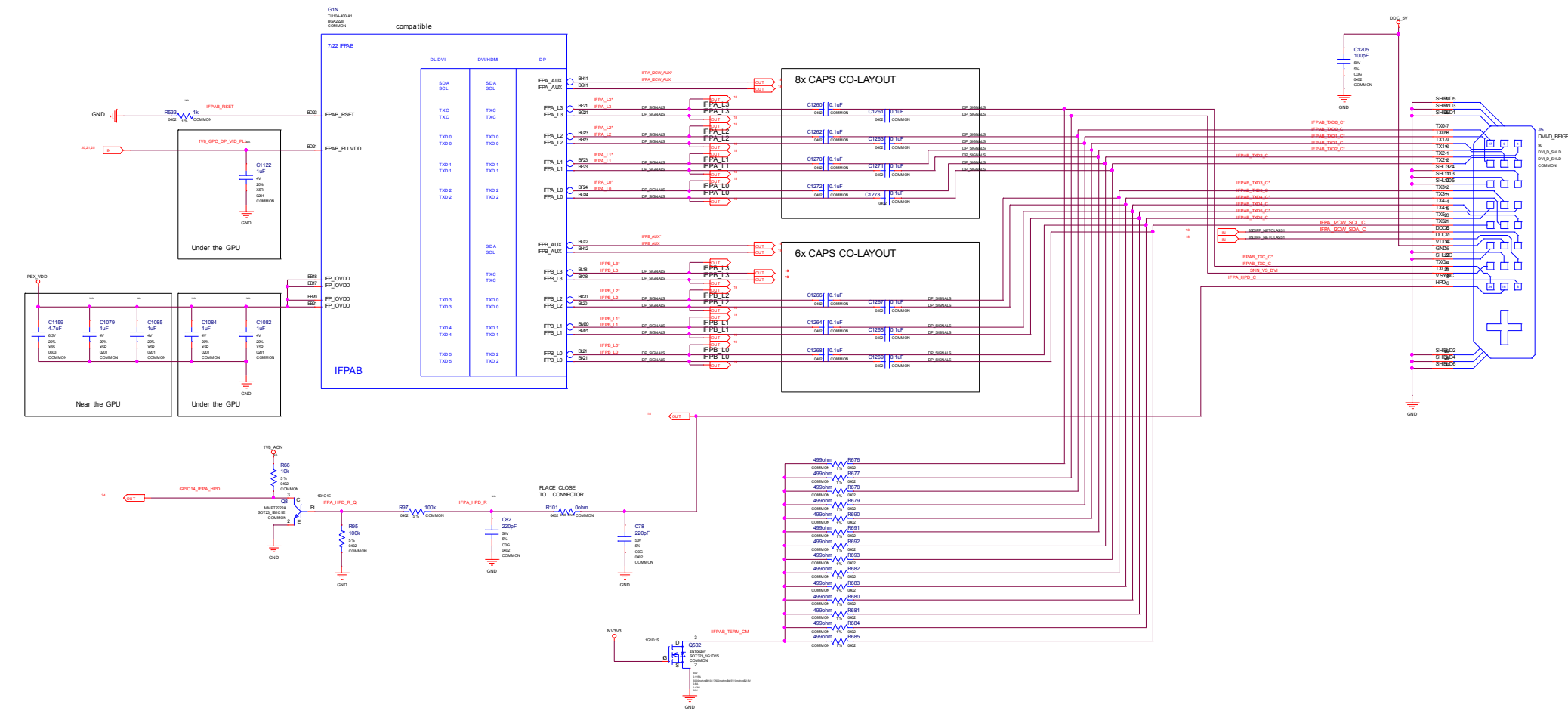


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|            |                        |
|------------|------------------------|
| ASSEMBLY   | *ASSEMBLY DESCRIPTION* |
| PCB DETAIL | GPU DECOUPLING 2       |

|                    |            |                            |             |
|--------------------|------------|----------------------------|-------------|
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| NV_PN              |            | 600-1G165-BASE-000         |             |
| PCB REV            | PG165-ADD0 | PRG#                       | 16 OF 42    |
| BCM REV            | B          | DATE                       | 14-DEC-2018 |

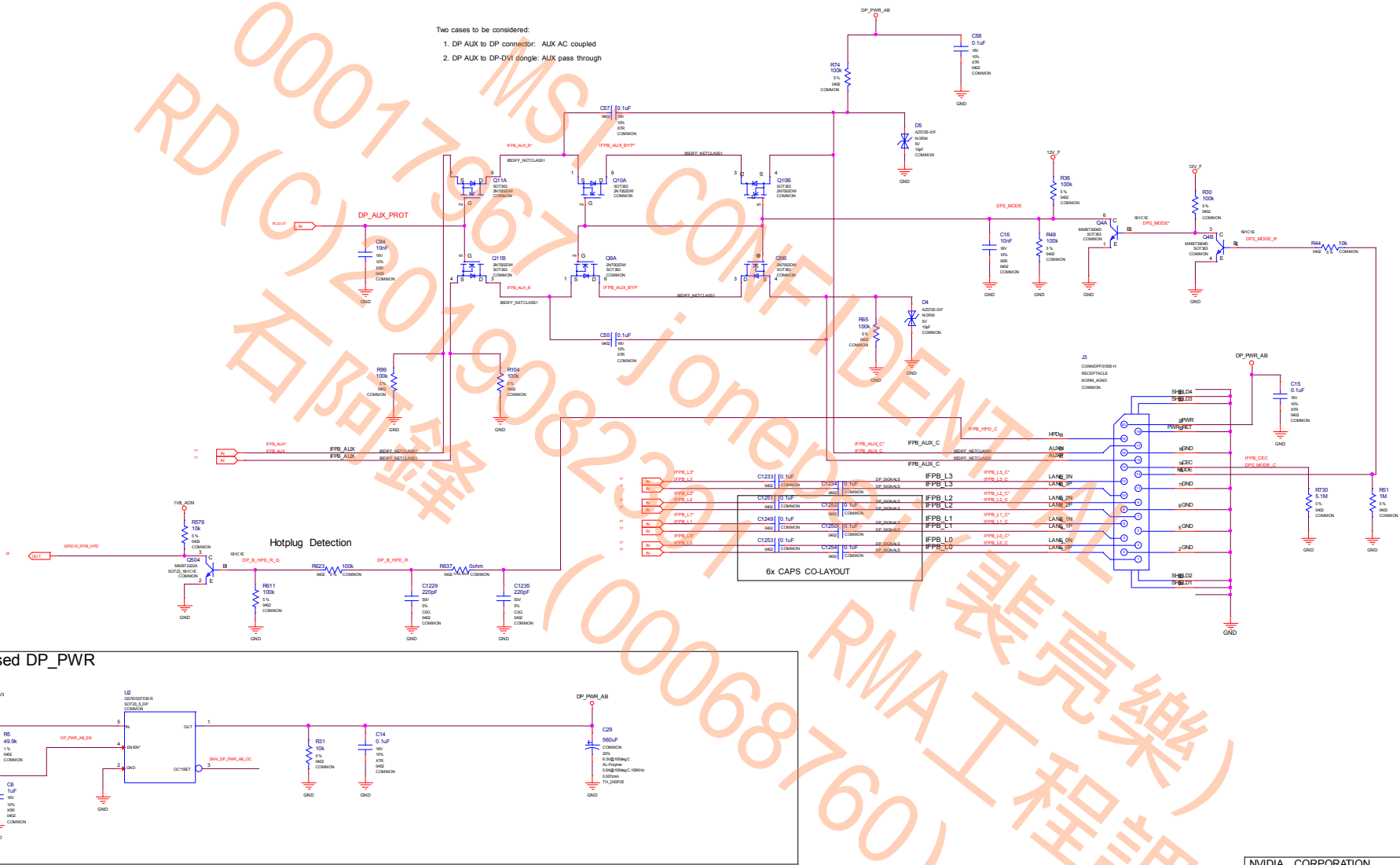






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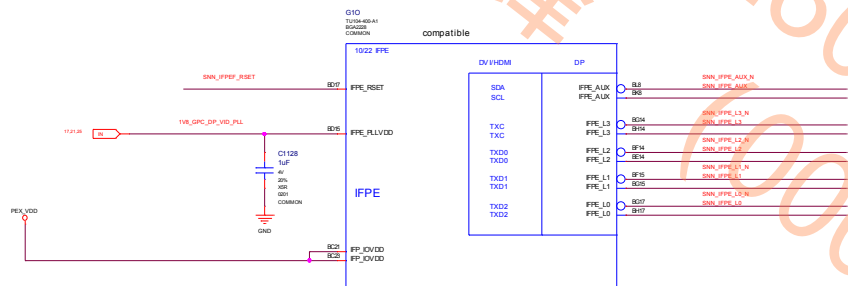
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| NV_PN   | 600-1G165-BASE-000 |      |             |
| PCB REV | PG165-A00          | PAGE | 18 OF 42    |
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| ASSEMBLY   | ASSEMBLY DESCRIPTION |
|------------|----------------------|
| PCB DETAIL | IC: IFPB DP          |

|                            |                    |
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| PCB REV                    | PG165-A00          |
| ICOM REV                   | B                  |
| PRG#                       | 19 OF 42           |
| DATE                       | 14-DEC-2018        |



|             |                       |
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| ASSEMBLY    | <ASSEMBLY_DESCRIPTION |
| PAGE DETAIL |                       |

IO: IFPE & IFFP NC

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|       |                    |
|-------|--------------------|
| NV_PN | 600-1G165-BASE-000 |
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| PCB REV | PG165-A00 |
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| BOM REV |  |
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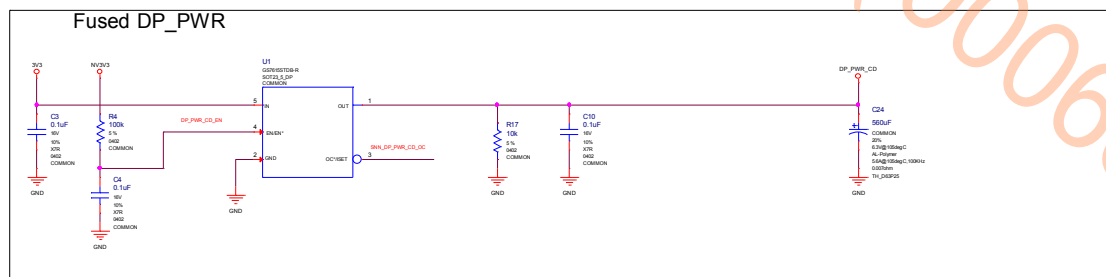
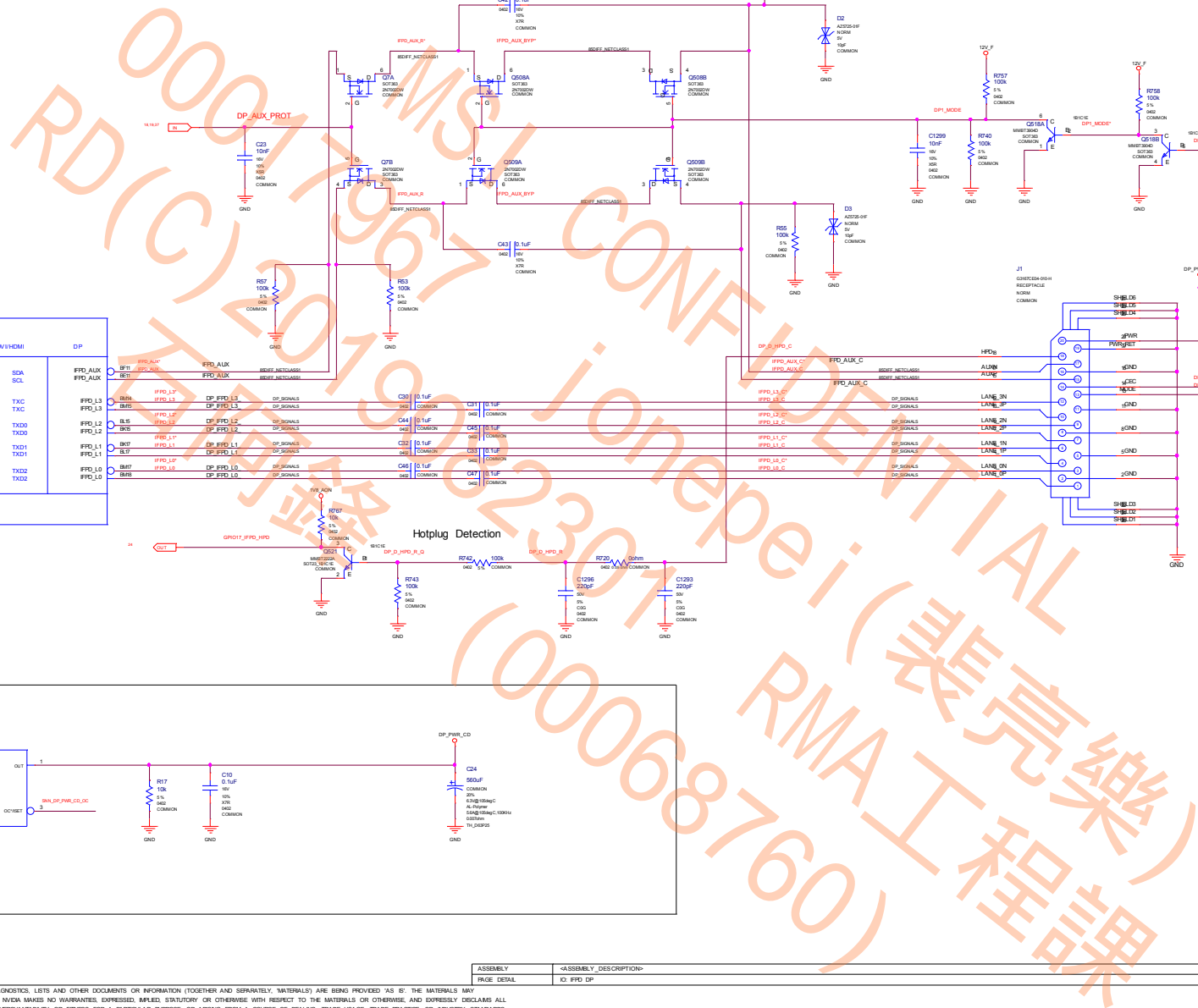
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| PAGE | 20 OF 42 |
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|  | DATE |  |
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14 DEC 2018





|             |                        |
|-------------|------------------------|
| ASSEMBLY    | <ASSEMBLY_DESCRIPTION> |
| PAGE DETAIL | IO: IFFD DP            |

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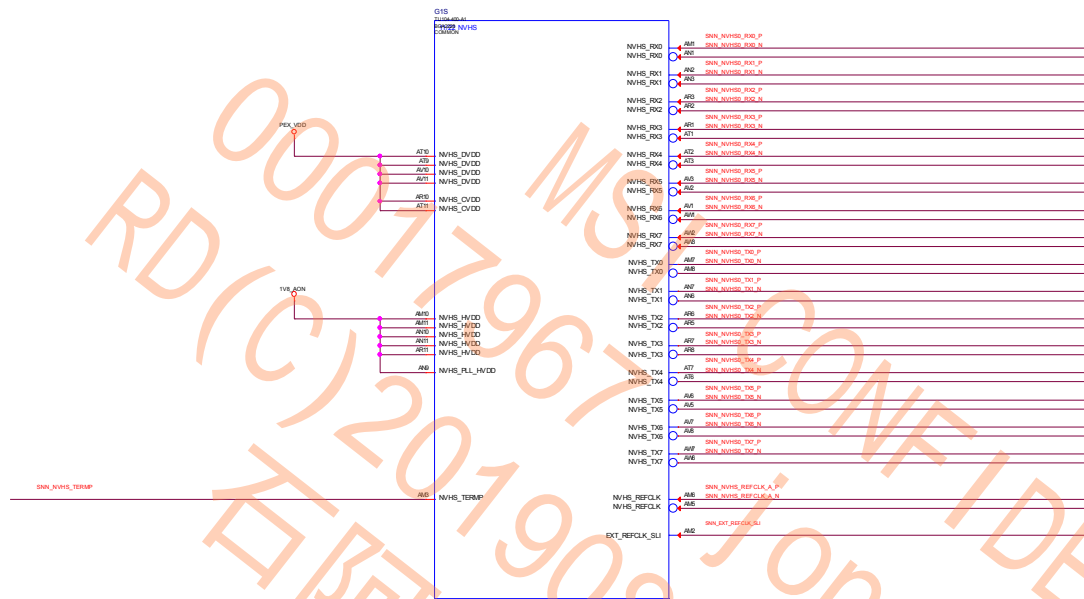


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| NV_PN | 600-1G165-BASE-000 |
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|         |           |      |             |
|---------|-----------|------|-------------|
| PCB REV | PG165-A00 | PAGE | 22 OF 42    |
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|---------|--------------------|------|-------------|
| NV_PN   | 600-1G165-BASE-000 |      |             |
| PCB REV | PG165-A00          | PAGE | 24 OF 42    |
| BOM REV | BA                 | DATE | 14-DEC-2018 |

| STRAP2 | STRAP1 | STRAP0 | RAMCFG[4:0] |
|--------|--------|--------|-------------|
| L      | L      | L      | 00000       |
| L      | L      | H      | 00001       |
| L      | H      | L      | 00010       |
| L      | H      | H      | 00011       |
| H      | H      | L      | 00110       |
| H      | H      | H      | 00111       |
| L      | L      | M      | 01000       |

| STRAP2 | STRAP1 | STRAP0 | RAMCFG[4:0] |                                       |
|--------|--------|--------|-------------|---------------------------------------|
| L      | L      | L      | 0000        | Samsung 8Gb 256Mx32 K4G80325FC-HC25   |
| L      | L      | H      | 0001        | Micron 8Gb 256Mx32 MT51J256M32HF-80:B |
| L      | H      | L      | 0010        | Hynix 8Gb 256Mx32 H5GC8H24AJR-R2C     |
| L      | H      | H      | 0011        | Hynix 8Gb 256Mx32 H5GQ8H24MJR-R4C     |
| H      | H      | L      | 0110        |                                       |
| H      | H      | H      | 0111        |                                       |
| L      | L      | M      | 1000        |                                       |
| L      | M      | L      | 1001        |                                       |

| ROM_SO | ROM_SI | ROM_SCLK | DUMMY[2:0]_FS_OVERT | 1:ENABLE 0:DISABLE |         |
|--------|--------|----------|---------------------|--------------------|---------|
| L      | L      | L        | XXX1                | FS_OVERT ENABLE    | DEFAULT |
| L      | L      | M        | XXX0                | FS_OVERT DISABLE   |         |

| STRAP5 | STRAP4 | STRAP3 | SMB_ALT_ADDR | DEVID_SEL | PCIE_CFG | VGA_DEVICE |
|--------|--------|--------|--------------|-----------|----------|------------|
| M      | H      | H      | 1            | 1         | 1        | 1          |
| M      | H      | L      | 1            | 1         | 1        | 0          |
| M      | L      | H      | 1            | 1         | 0        | 1          |
| M      | L      | L      | 1            | 1         | 0        | 0          |
| L      | H      | M      | 1            | 0         | 1        | 1          |
| L      | M      | H      | 1            | 0         | 1        | 0          |
| 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          |
| 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 DEFAULT  |
| L      | L      | L      | 0            | 0         | 0        | 0          |

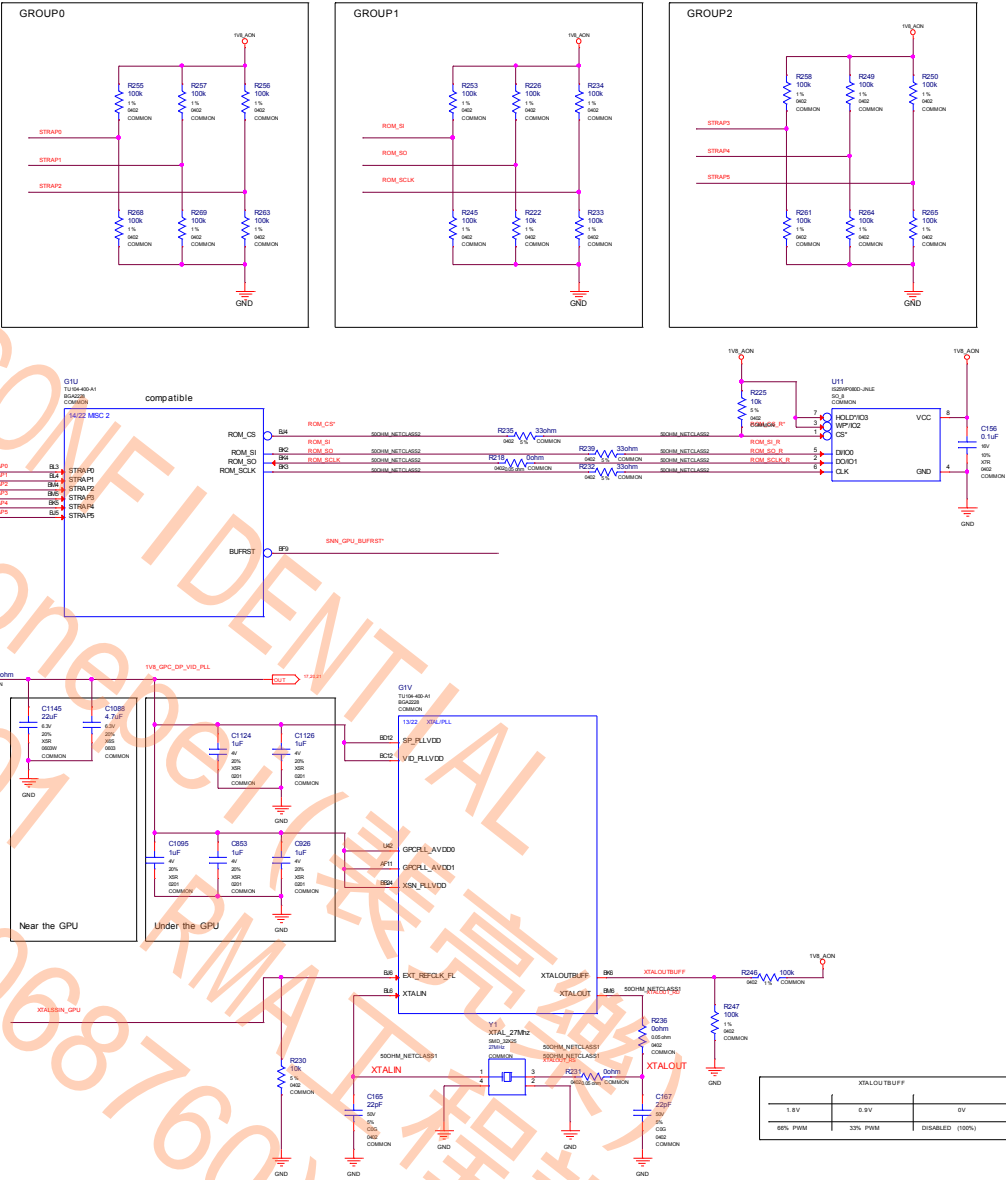
H=High :Tied to 1.8V  
M=Middle:Tied to 0.9V  
L=Low :Tied to 0V

1:SMB\_ALT\_ADDR ENABLE  
0:SMB\_ALT\_ADDR DISABLE

1:DEVID\_SEL REBRAND  
0:DEVID\_SEL ORIGINAL

1:PCIE\_CFG LOW POWER  
0:PCIE\_CFG HIGH POWER

1:VGA\_DEVICE ENABLE  
0:VGA\_DEVICE DISABLE

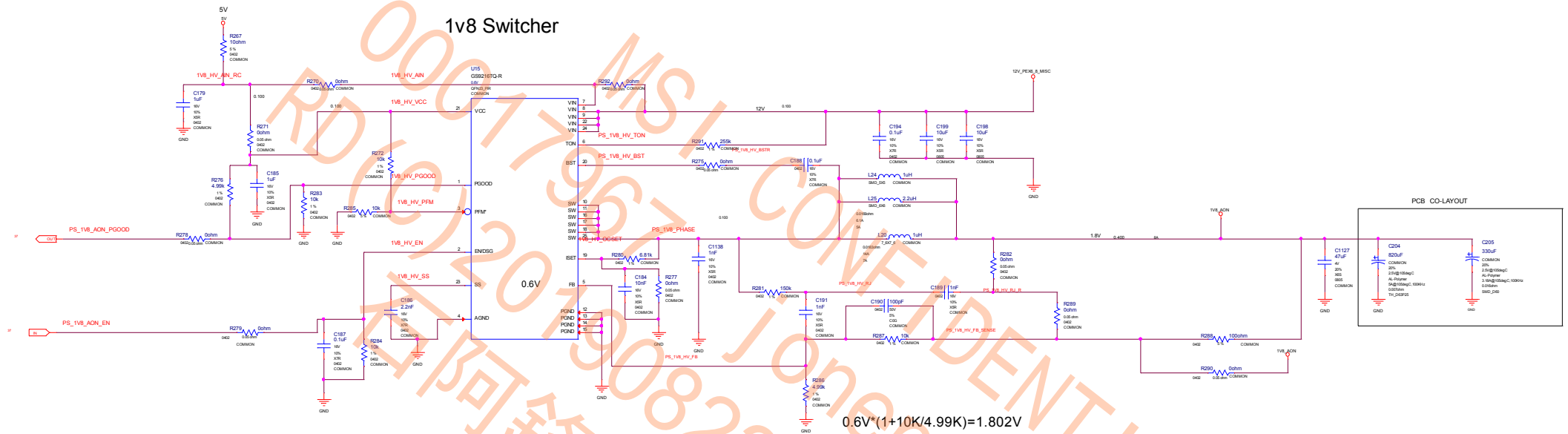



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| ASSEMBLY    | <ASSEMBLY_DESCRIPTION>   |
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| PAGE DETAIL | MISC2: ROM, XTAL, STRAPS |

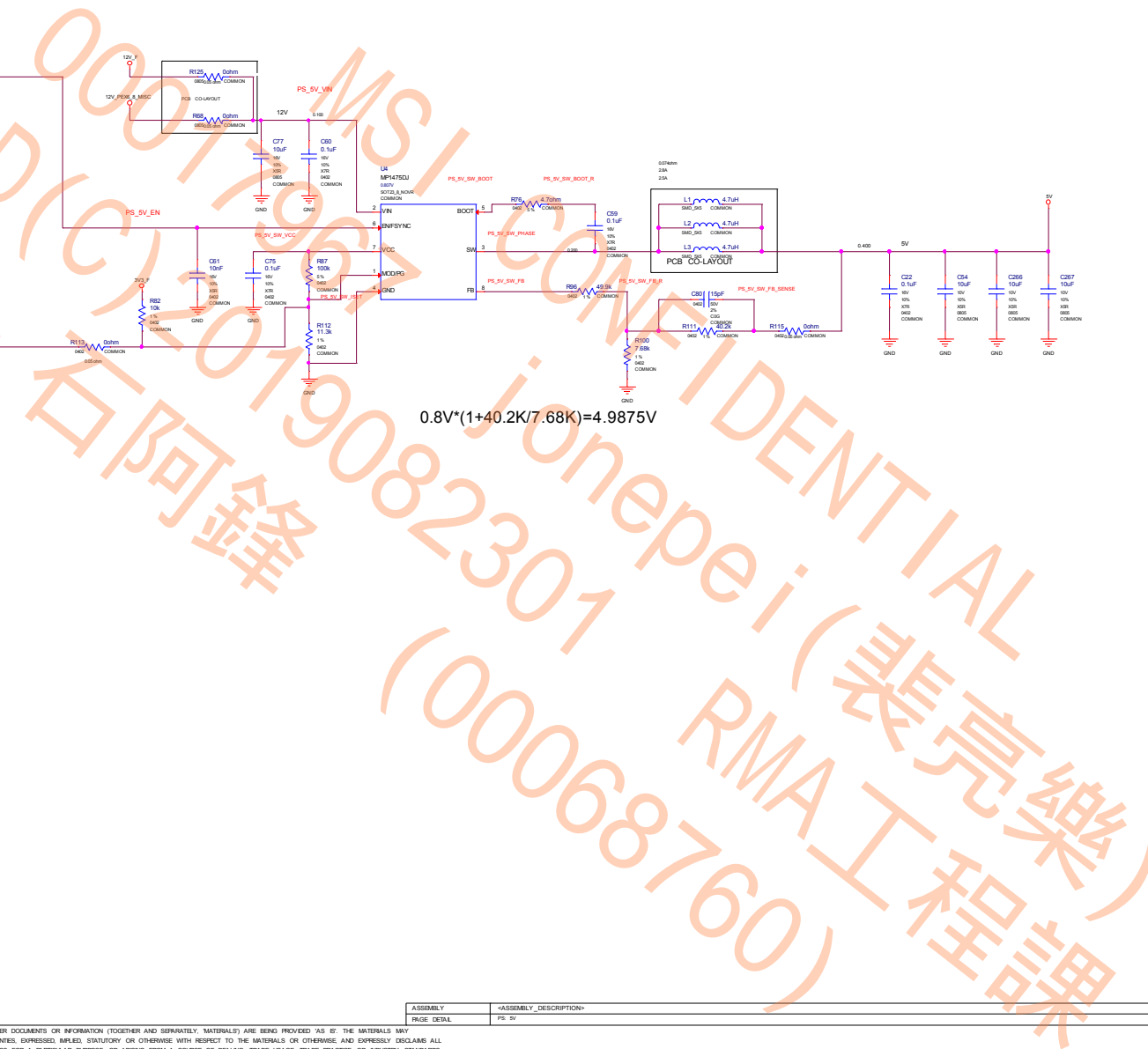
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SANTA CLARA, CA 95050, USA

|         |                    |
|---------|--------------------|
| NV_PN   | 600-1G165-BASE-000 |
| PCB REV | PG165-ADD          |
| ROM REV | BA                 |
| FRGE    | 25 OF 42           |
| DATE    | 14-DEC-2018        |


$$0.6V \cdot (1 + 10K/4.99K) = 1.802V$$

|  |           |   |             |
|--|-----------|---|-------------|
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| <b>NV_PN</b><br>600-1G165-BASE-000   |           |   |             |
| PCB REV  | PG165-A00 | PRG#  | 28 OF 42    |
| BOM REV  | B         | DATE  | 14-DEC-2018 |

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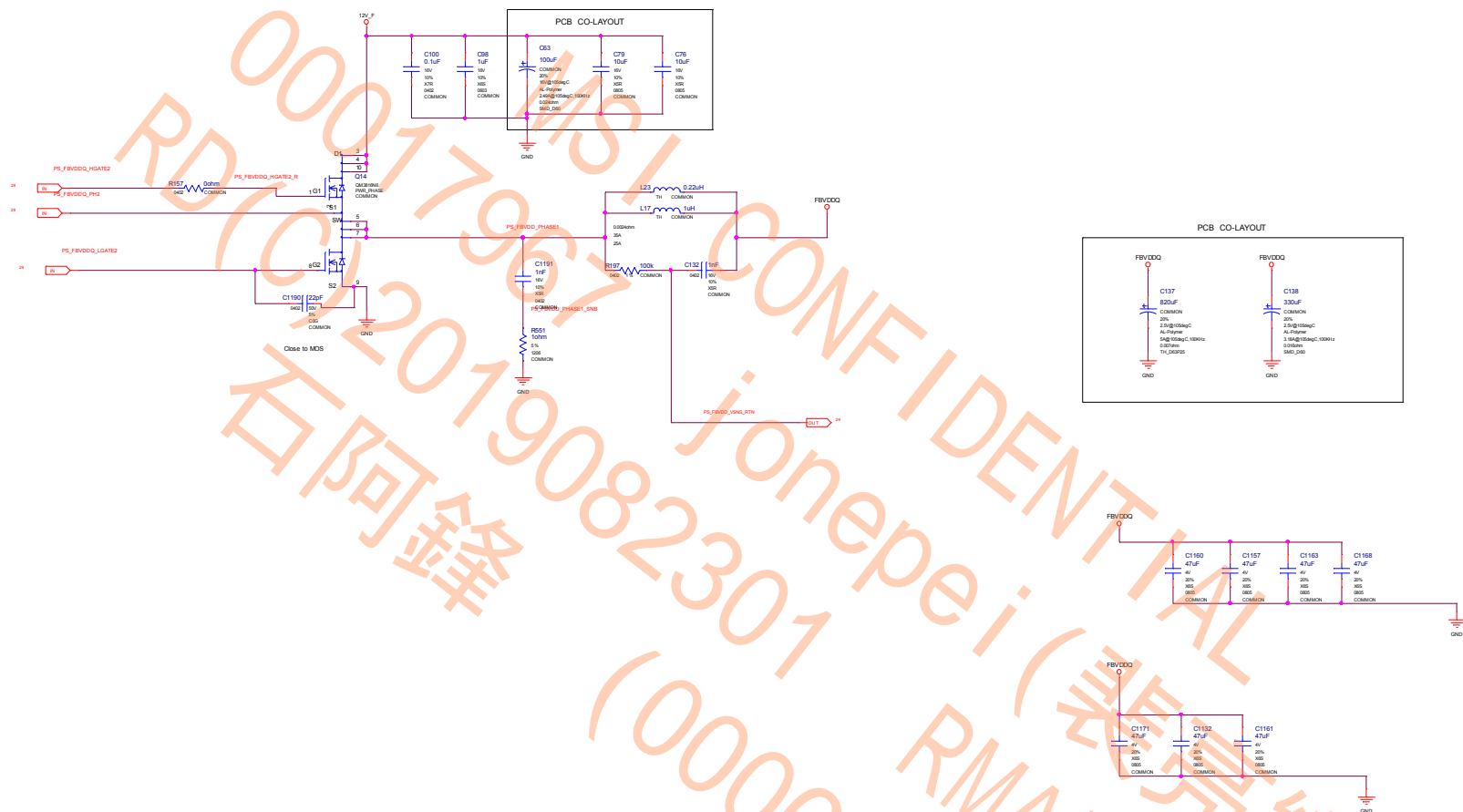


| A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|
|---|---|---|---|---|---|---|---|---|









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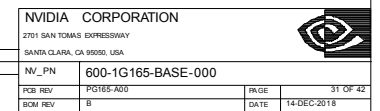
|       |                    |
|-------|--------------------|
| NV_PN | 600-1G165-BASE-000 |
|-------|--------------------|

|         |           |
|---------|-----------|
| PCB REV | PG165-A00 |
|---------|-----------|

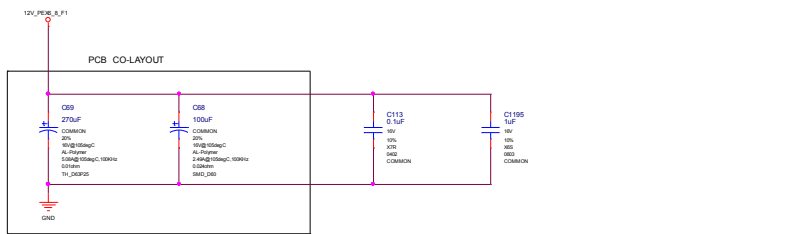
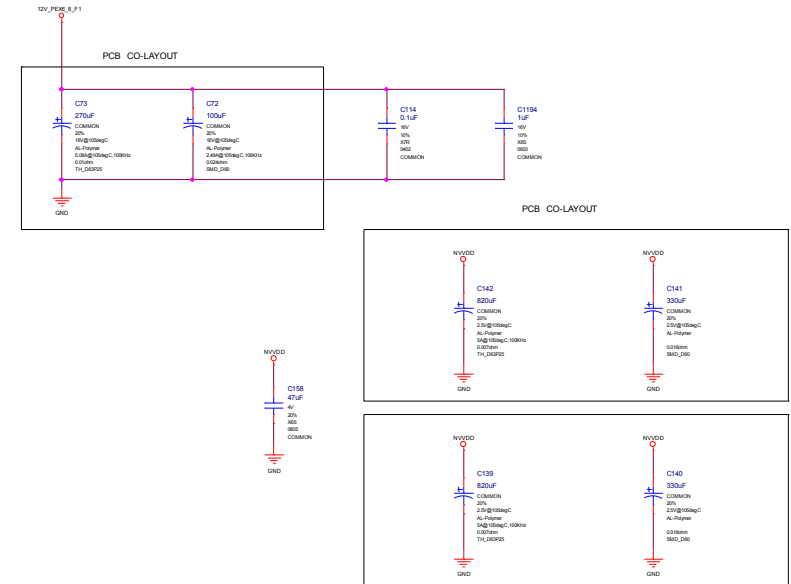
|         |   |
|---------|---|
| BOM REV | B |
|---------|---|


|      |             |
|------|-------------|
| PAGE | 30 OF 42    |
| DATE | 14-DEC-2018 |

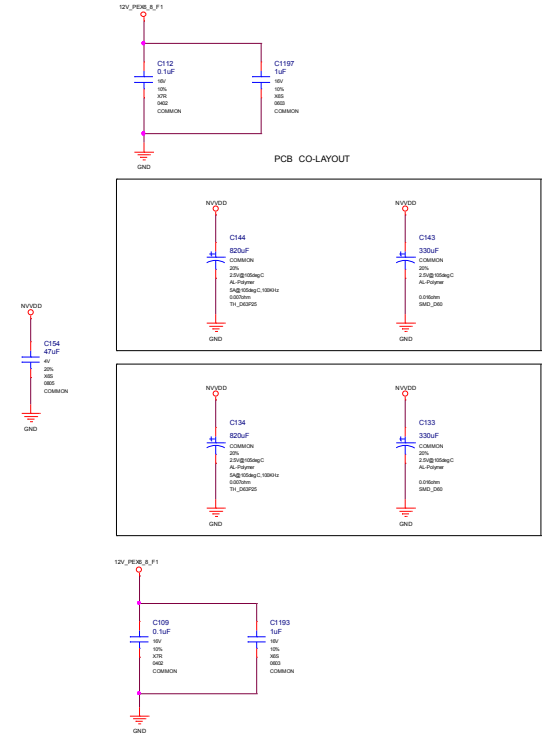
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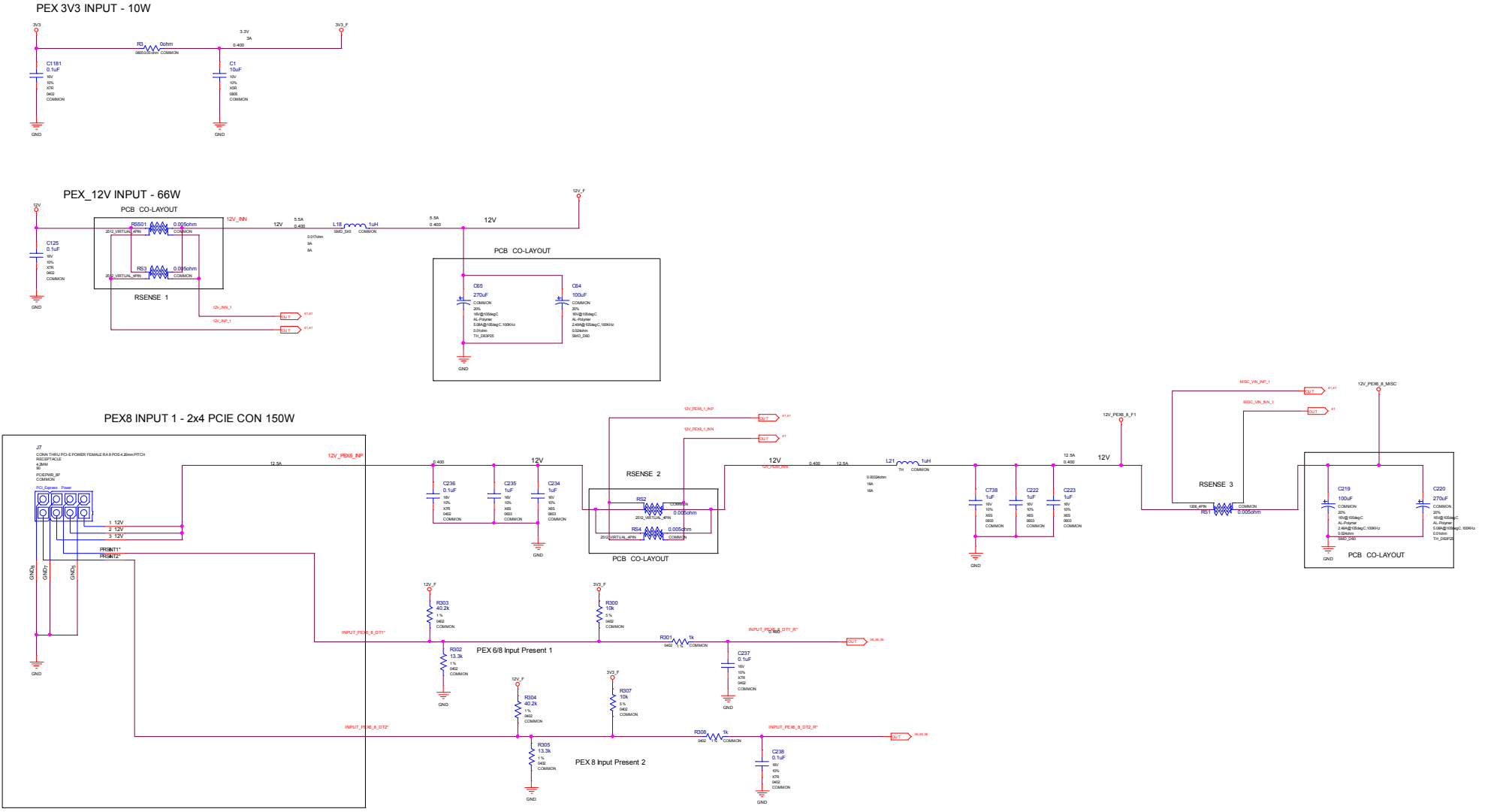




|   |  |                      |  |   |  |
|---|--|----------------------|--|---|--|
| ASSEMBLY  |  | ASSEMBLY DESCRIPTION |  | SANTA CLARA, CA 95050, USA  |  |
| PAGE DETAIL   |  | PS: N-ViD Phase 3.5  |  |  |  |
| REVISION  |  | REV                  |  | <b>600-1G165-BASE-000</b>   |  |
| ALL DIMENSIONS ARE IN MILLIMETERS<br>UNLESS OTHERWISE SPECIFIED |  | PCB REV<br>BOM REV   |  | PCB REV<br>BOM REV  |  |
|   |  | DATE<br>14-DEC-2018  |  | 33 OF 42  |  |



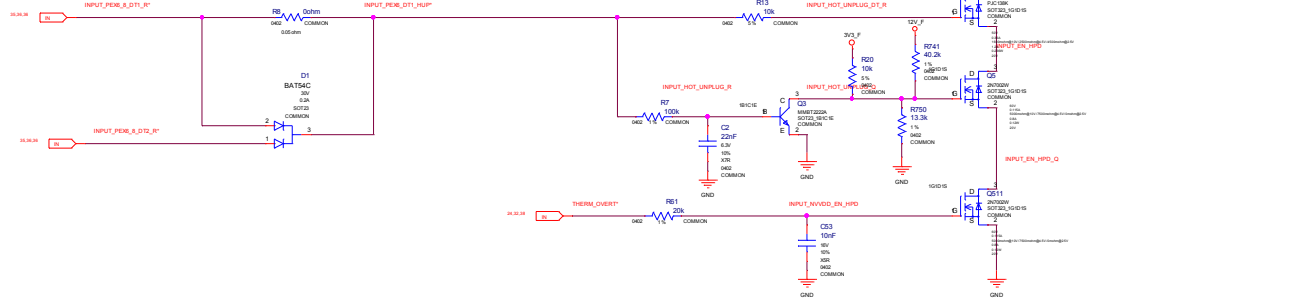
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|---------|--------------------|------|-------------|
| NV_PN   | 600-1G165-BASE-000 |      |             |
| PCB REV | PG165-A00          | PAGE | 34 OF 42    |
| BOM REV | B                  | DATE | 14-DEC-2018 |



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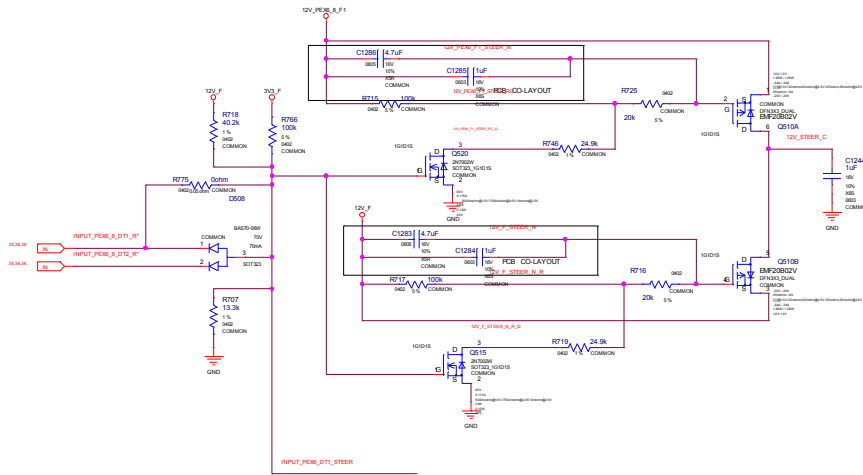
|                            |                    |
|----------------------------|--------------------|
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| SANTA CLARA, CA 95050, USA |                    |
| NV_PN                      | 600-1G165-BASE-000 |
| PCB REV                    | PG165-A00          |
| BCM REV                    | B                  |
| PRG#                       | 35 OF 42           |
| DATE                       | 14-DEC-2018        |

### PEX Input Present 1

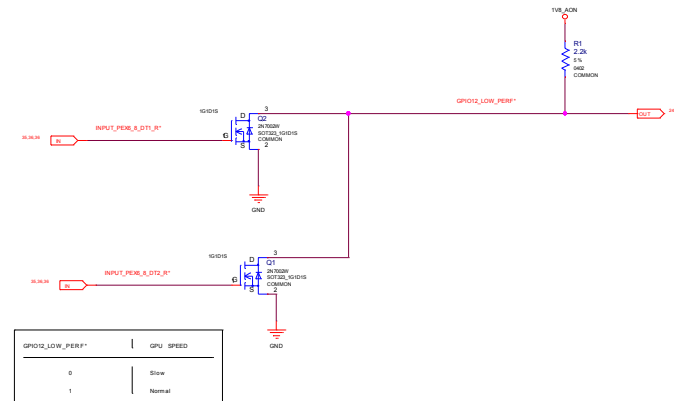


### 12V CURRENT STEERING (UNDER POWER BOOT):

GUIDES CURRENT FROM PEX EDGE TO PEX 6 PIN INPUT AREA



### PEX Input - Power Level/PSI\* Control




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| NV_PN                      | 600-1G165-BASE-000 | PG#  | 36 OF 42    |
| PCB REV                    | PG165-A00          | DATE | 14-DEC-2018 |
| BCM REV                    | 8                  |      |             |




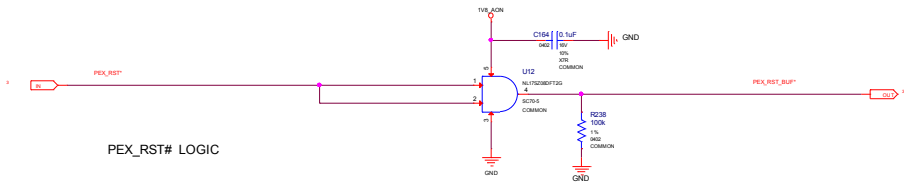
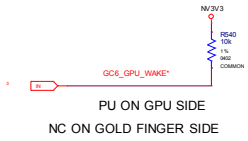


|             |   |
|-------------|---|
| ASSEMBLY    | <ASSEMBLY_DESCRIPTION>                            |
| PAGE DETAIL | SEQ: 1V8_AON, 3V3_SEQ, NV3V3, DDC_5V, DP_AUX_PROT |

|                            |                    |   |             |
|----------------------------|--------------------|---|-------------|
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| NV_PN                      | 600-1G165-BASE-000 |   |             |
| PCB REV                    | PG165-A00          | PRGE  | 37 OF 47    |
| BOM REV                    | 8                  | DATE  | 14-DEC-2018 |




|  |           |   |             |
|--|-----------|---|-------------|
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| <b>NV_PN</b>   |           | <b>600-1G165-BASE-000</b>   |             |
| PCB REV  | PG165-A00 | PRGE  | 38 OF 42    |
| BOX REV  | B         | DATE  | 14-DEC-2018 |



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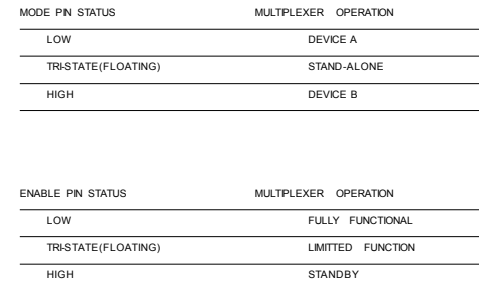
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|         |           |                    |             |
|---------|-----------|--------------------|-------------|
| NV_PN   |           | 600-1G165-BASE-000 |             |
| PCB REV | PG165-A00 | PRGE               | 39 OF 42    |
| ROM REV | B         | DATE               | 14-DEC-2018 |





|  |                  |                           |   |  |
|--|------------------|---------------------------|---|--|
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| <b>NV_PN</b>   |                  | <b>600-1G165-BASE-000</b> |   |  |
| <b>PCI REV</b>   | <b>PG165-A00</b> | <b>PAGE</b>               | <b>41 OF 42</b>   |  |
| <b>BOM REV</b>   | <b>B</b>         | <b>DATE</b>               | <b>14-DEC-2018</b>  |  |

BK1  
BK1\_DUAL\_ATX\_27AB\_PG101  
ATX\_2X\_2P  
COMBON

1  
2

MCH: MOUNTING ALL

GROUND

BOARD STIFFENER

4 connected mounting pins

MEC601  
GRU\_STIFFENER\_PG160  
4PIN  
COMMON

GND



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