

P691: G98/GT218, DDR2 MEMORY 64MX16/32MX16

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| REV | VARIANT | NVPN | ASSEMBLY |
|-----|-------------|--------------------|---|
| B | BASE | 600-10691-BASE-200 | BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL |
| 1 | SKU0001 | 600-10691-0001-200 | GT218-300, 550/1375/500, 256MB/64kL, 32Mx16 DDR2, DVI-DL+DP+VGA, DT |
| 2 | SKU0002 | 600-10691-0002-200 | GT218-300, 550/1375/500, 512MB/64kL, 64Mx16 DDR2, DVI-DL+DP+VGA, DT |
| 3 | SKU0010 | 600-10691-0010-200 | G98-400, 550/1375/500, 256MB/64kL, 32Mx16 DDR2, DVI-DL+DP+VGA, DT |
| 4 | SKU0011 | 600-10691-0011-200 | G98-400, 550/1375/500, 512MB/64kL, 64Mx16 DDR2, DVI-DL+DP+VGA, DT |
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2701 SAN TOMAS EXPRESSWAY

SANTA CLARA, CA 95050, USA



NV_PN

600-10691-BASE-200 A

ID

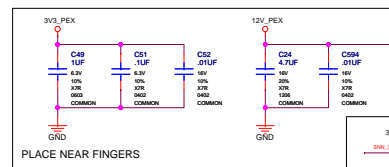
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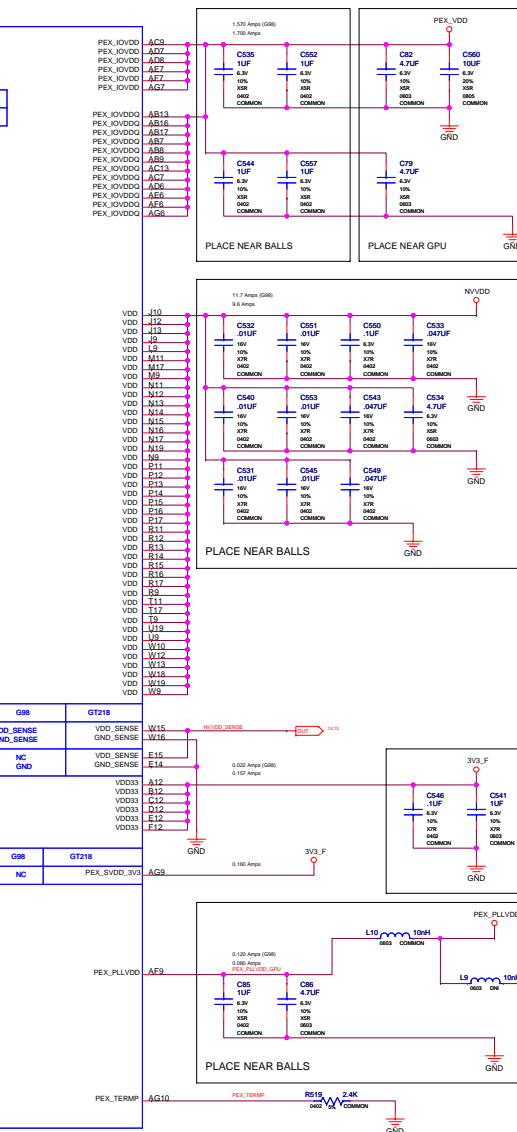
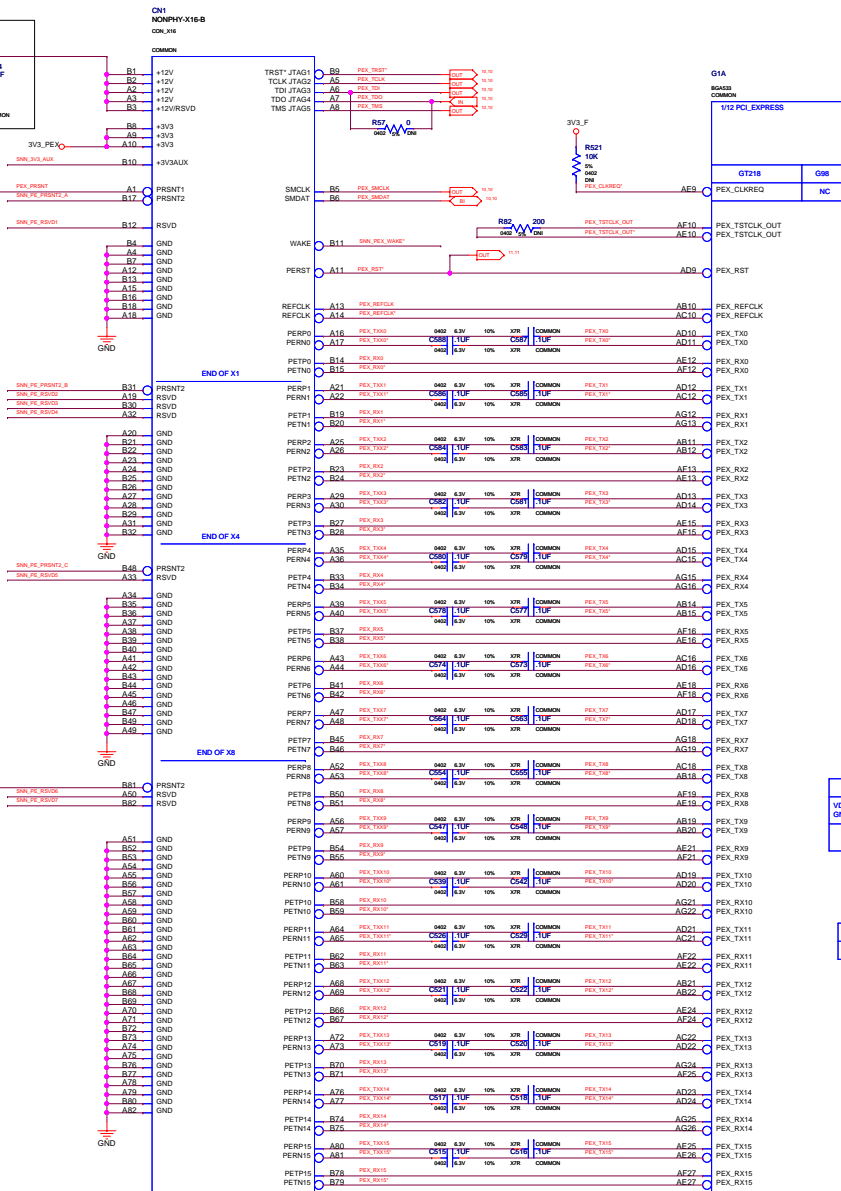
DATE

01-MAY-2009

PCI Express Interface



| Net Name | | DIFF_PAIR | CRITICAL | IMPEDANCE |
|----------|---------|-----------|----------|-----------|
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| IN | FEA_701 | FEA_701 | + | 50000 |
| IN | FEA_702 | FEA_702 | + | 50000 |
| IN | FEA_703 | FEA_703 | + | 50000 |
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| IN | FEA_962 | FEA_962 | | |




| Net Name | MIN_WIDTH | MAX_WIDTH |
|-----------------|-----------|-----------|
| IN0 PEX_PSRST | | |
| IN1 PEX_CLKREQ* | | |
| IN2 PEX_TERM* | 12MIL | |

| Net Name | VOLTAGE | MAX_CURRENT |
|-------------------|---------|--------------|
| IN0 PEX_PLVDD_GPU | 1.05V | 0.150A 12MIL |

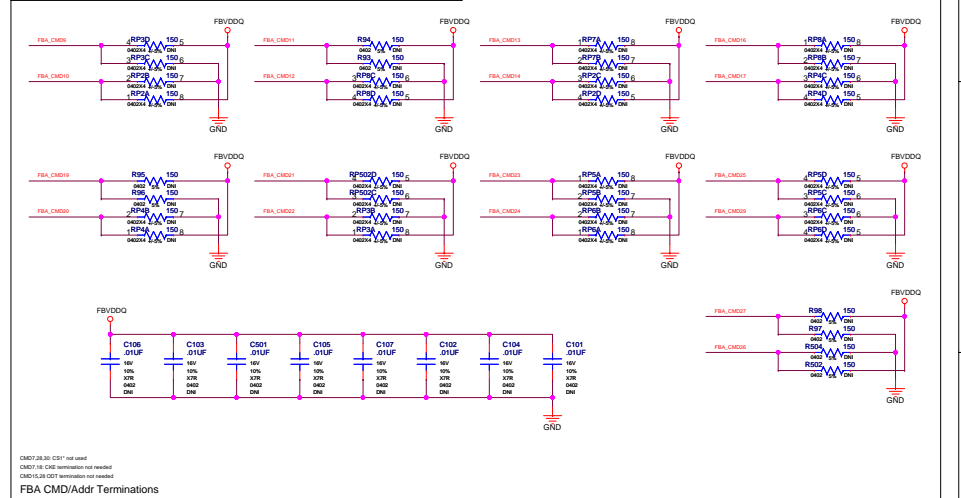
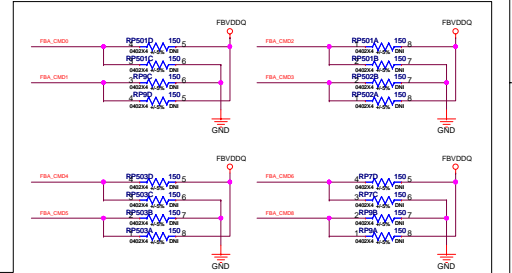
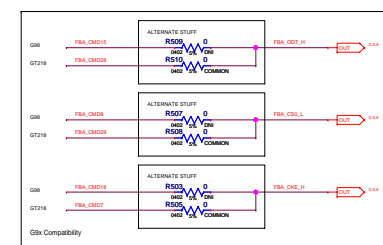
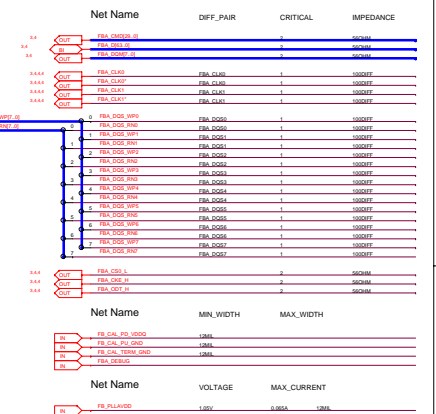
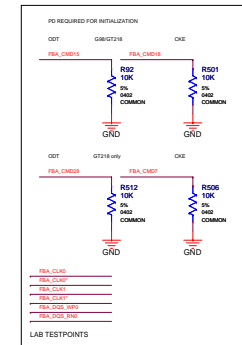
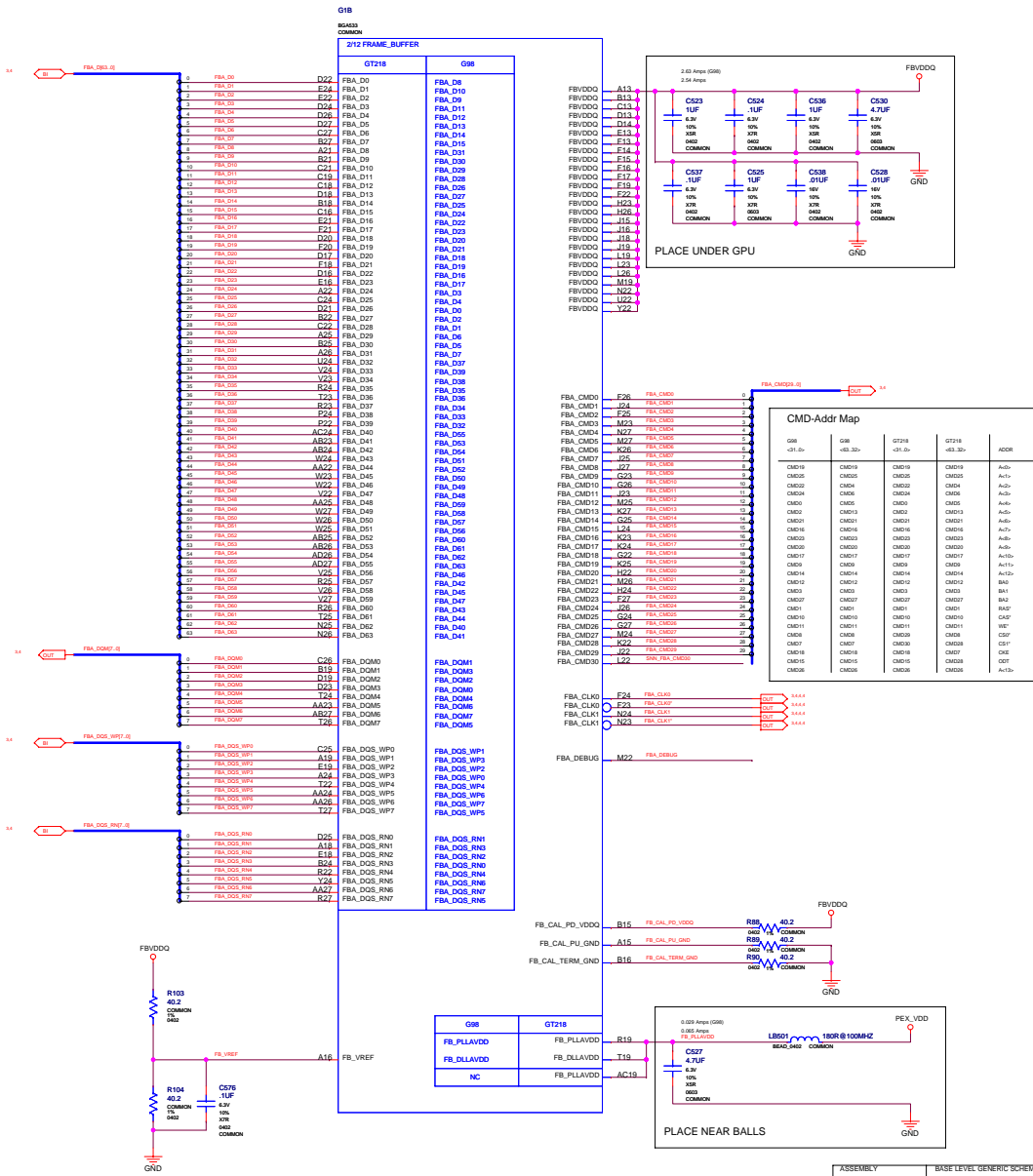
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| | |
|-------------|---|
| ASSEMBLY | BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL |
| PAGE DETAIL | PCI Express Interface |

| | | | |
|--|----------------------|---|-------------|
| NVIDIA CORPORATION 2701 SAN TOMAS EXPRESSWAY SANTA CLARA, CA 95050, USA | |  | |
| NV_PN | 600-10691-BASE-200 A | | |
| ID | | PAGE | |
| NAME | | DATE | 01-MAY-2009 |



Frame Buffer Interface



| CMD-Addr Map | | | | | |
|--------------|---------|---------|---------|---------|--------|
| QSR | QSR | QSR18 | QSR18 | QSR18 | ADDR |
| 001-000 | 001-000 | 001-000 | 001-000 | 001-000 | |
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| CMD05 | CMD05 | CMD05 | CMD05 | CMD05 | Addr1 |
| CMD0A | CMD0A | CMD0A | CMD0A | CMD0A | Addr2 |
| CMD0B | CMD0B | CMD0B | CMD0B | CMD0B | Addr3 |
| CMD0C | CMD0C | CMD0C | CMD0C | CMD0C | Addr4 |
| CMD0D | CMD0D | CMD0D | CMD0D | CMD0D | Addr5 |
| CMD0E | CMD0E | CMD0E | CMD0E | CMD0E | Addr6 |
| CMD0F | CMD0F | CMD0F | CMD0F | CMD0F | Addr7 |
| CMD10 | CMD10 | CMD10 | CMD10 | CMD10 | Addr8 |
| CMD15 | CMD15 | CMD15 | CMD15 | CMD15 | Addr9 |
| CMD1A | CMD1A | CMD1A | CMD1A | CMD1A | Addr10 |
| CMD1B | CMD1B | CMD1B | CMD1B | CMD1B | Addr11 |
| CMD1C | CMD1C | CMD1C | CMD1C | CMD1C | Addr12 |
| CMD1D | CMD1D | CMD1D | CMD1D | CMD1D | Addr13 |
| CMD1E | CMD1E | CMD1E | CMD1E | CMD1E | Addr14 |
| CMD1F | CMD1F | CMD1F | CMD1F | CMD1F | Addr15 |
| CMD20 | CMD20 | CMD20 | CMD20 | CMD20 | Addr16 |
| CMD25 | CMD25 | CMD25 | CMD25 | CMD25 | Addr17 |
| CMD2A | CMD2A | CMD2A | CMD2A | CMD2A | Addr18 |
| CMD2B | CMD2B | CMD2B | CMD2B | CMD2B | Addr19 |
| CMD2C | CMD2C | CMD2C | CMD2C | CMD2C | Addr20 |
| CMD2D | CMD2D | CMD2D | CMD2D | CMD2D | Addr21 |
| CMD2E | CMD2E | CMD2E | CMD2E | CMD2E | Addr22 |
| CMD2F | CMD2F | CMD2F | CMD2F | CMD2F | Addr23 |
| CMD30 | CMD30 | CMD30 | CMD30 | CMD30 | Addr24 |
| CMD35 | CMD35 | CMD35 | CMD35 | CMD35 | Addr25 |
| CMD3A | CMD3A | CMD3A | CMD3A | CMD3A | Addr26 |
| CMD3B | CMD3B | CMD3B | CMD3B | CMD3B | Addr27 |
| CMD3C | CMD3C | CMD3C | CMD3C | CMD3C | Addr28 |
| CMD3D | CMD3D | CMD3D | CMD3D | CMD3D | Addr29 |
| CMD3E | CMD3E | CMD3E | CMD3E | CMD3E | Addr30 |
| CMD3F | CMD3F | CMD3F | CMD3F | CMD3F | Addr31 |

| G98 | GT218 |
|------------|------------|
| FB_PLLAVDD | FB_PLLAVDD |
| FB_DLLAVDD | FB_DLLAVDD |
| NC | FB_PLLAVDD |

0.025 Amps (G60)
0.005 Amps
FB_PLLA_VDD

LS01
BEAD_0402 COMMON

180R @ 100MHZ

PEX_VDD

C527
4.7UF

6.3V
10%
X5R
0603
COMMON

PLACE NEAR BALLS

GND

CMD7,28,30: C51* not used
 CMD7,18: CKE termination not needed
 CMD15,28: CDT termination not needed

FBA CMD/Addr Termination

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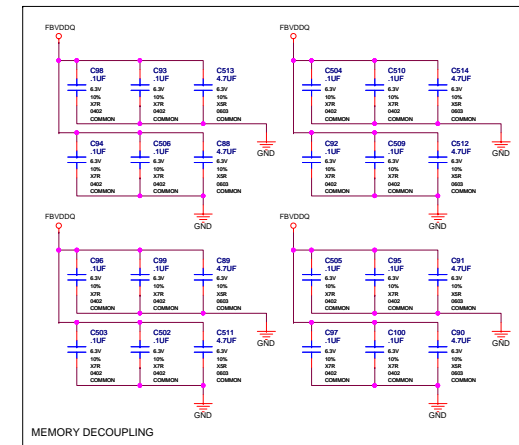
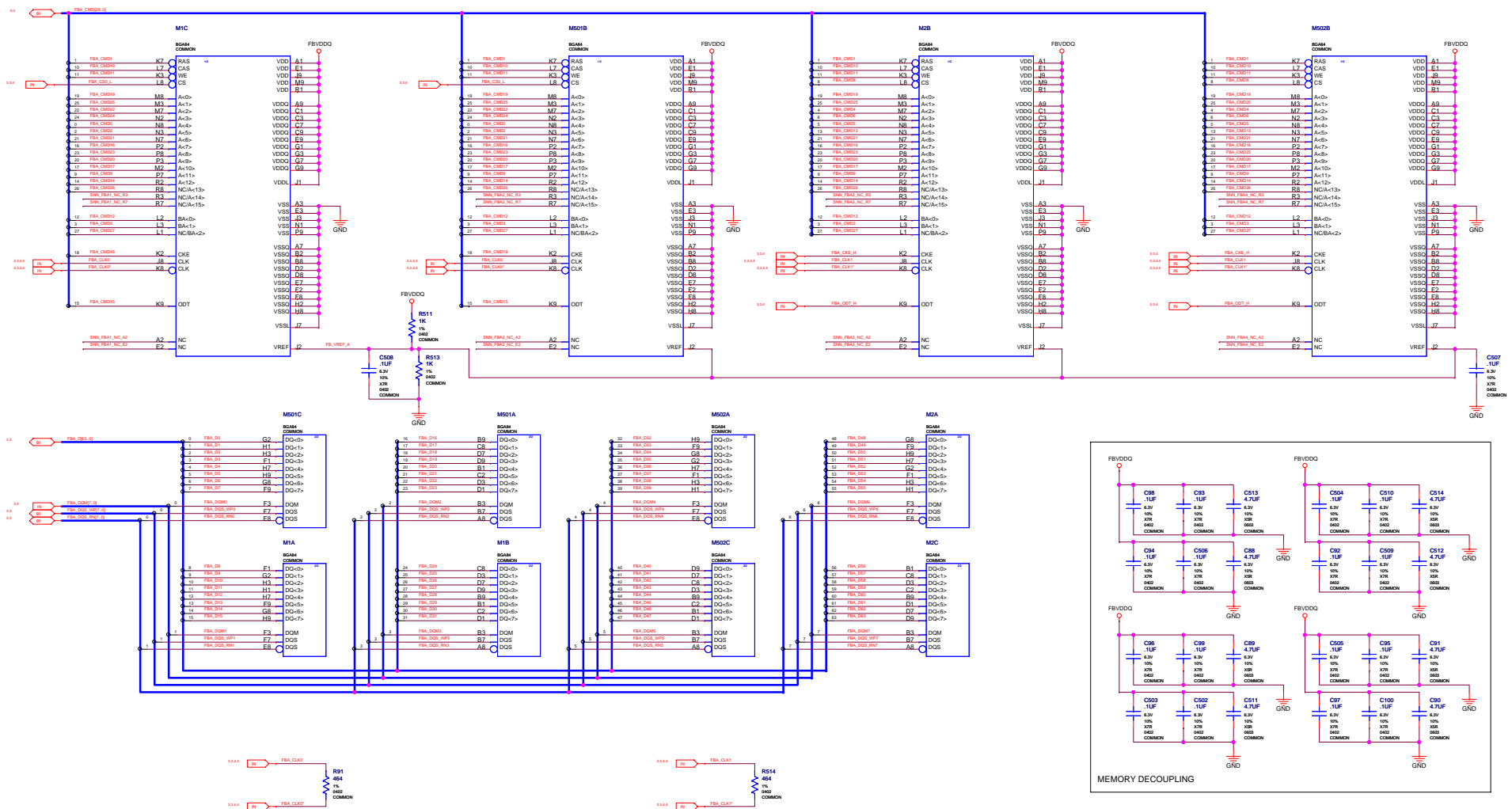
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| PAGE DETAIL | Frame Buffer Interface |

DDR2 Memories



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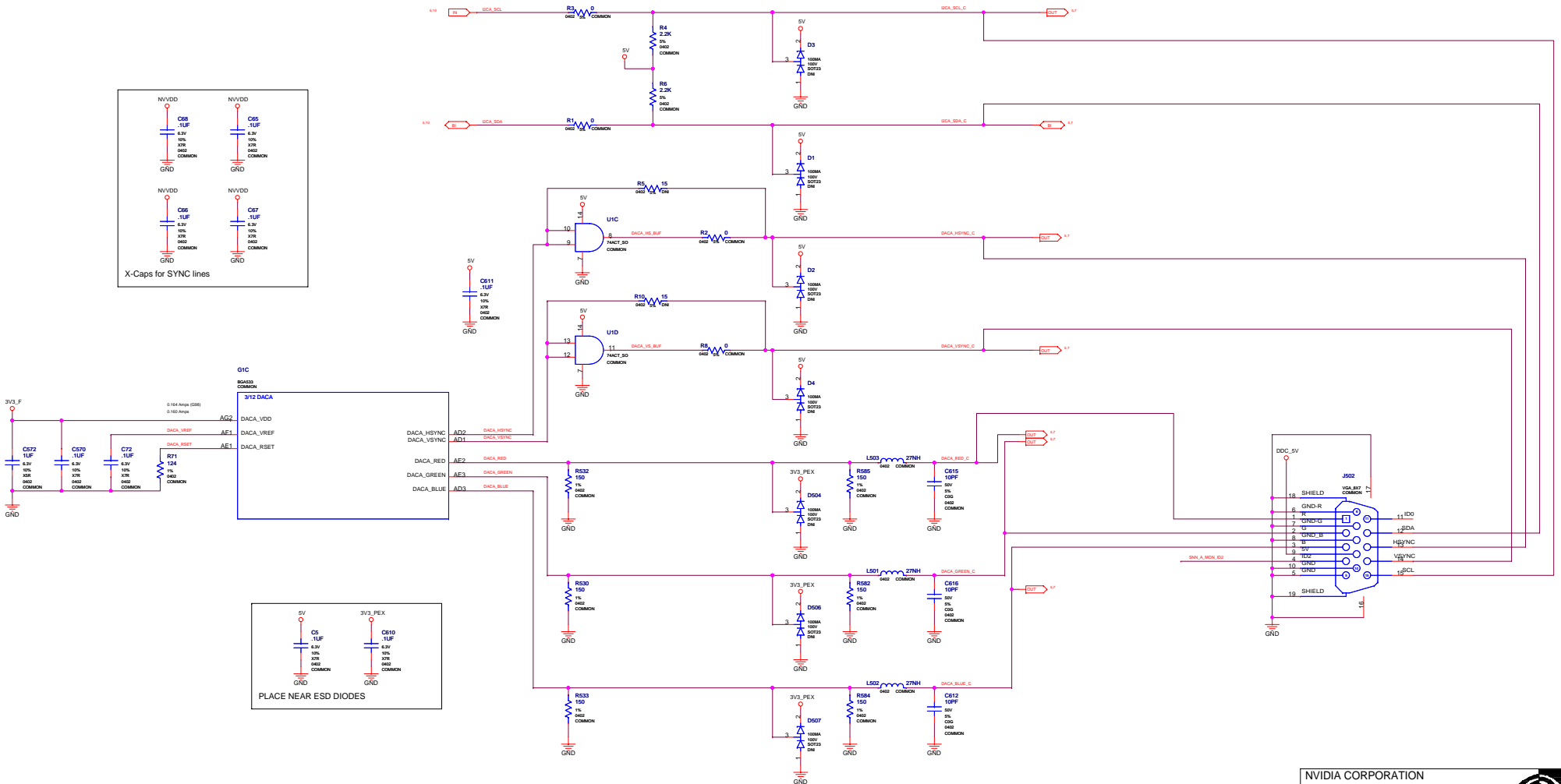
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| PAGE DETAIL | DDR2 Memories |

| | |
|-------------|-------------|
| PAGE DETAIL | DOR2 Memory |
|-------------|-------------|

DAC A Slim VGA




| Net Name | | CRITICAL | IMPEDANCE |
|----------|------------------|----------|-----------|
| 6.7 | IN DQX_READ | 1 | 50OHM |
| | IN DQX_GREEN | 1 | 50OHM |
| | IN DQX_BLUE | 1 | 50OHM |
| | IN DQX_READ_C | 1 | 50OHM |
| | OUT DQX_GREEN_C | 1 | 50OHM |
| 6.7 | OUT DQX_READ_C | 1 | 50OHM |
| | IN DQX_WRITE | 2 | 50OHM |
| | IN DQX_WRITE | 2 | 50OHM |
| | IN DQX_WRITE_BUF | 2 | 50OHM |
| | IN DQX_WRITE_BUF | 2 | 50OHM |
| 6.7 | IN DQX_WRITE_C | 2 | 50OHM |
| | IN DQX_WRITE_C | 2 | 50OHM |
| | OUT DQX_WRITE_C | 2 | 50OHM |
| | OUT DQX_WRITE_C | 2 | 50OHM |
| | OUT DQX_WRITE_C | 2 | 50OHM |

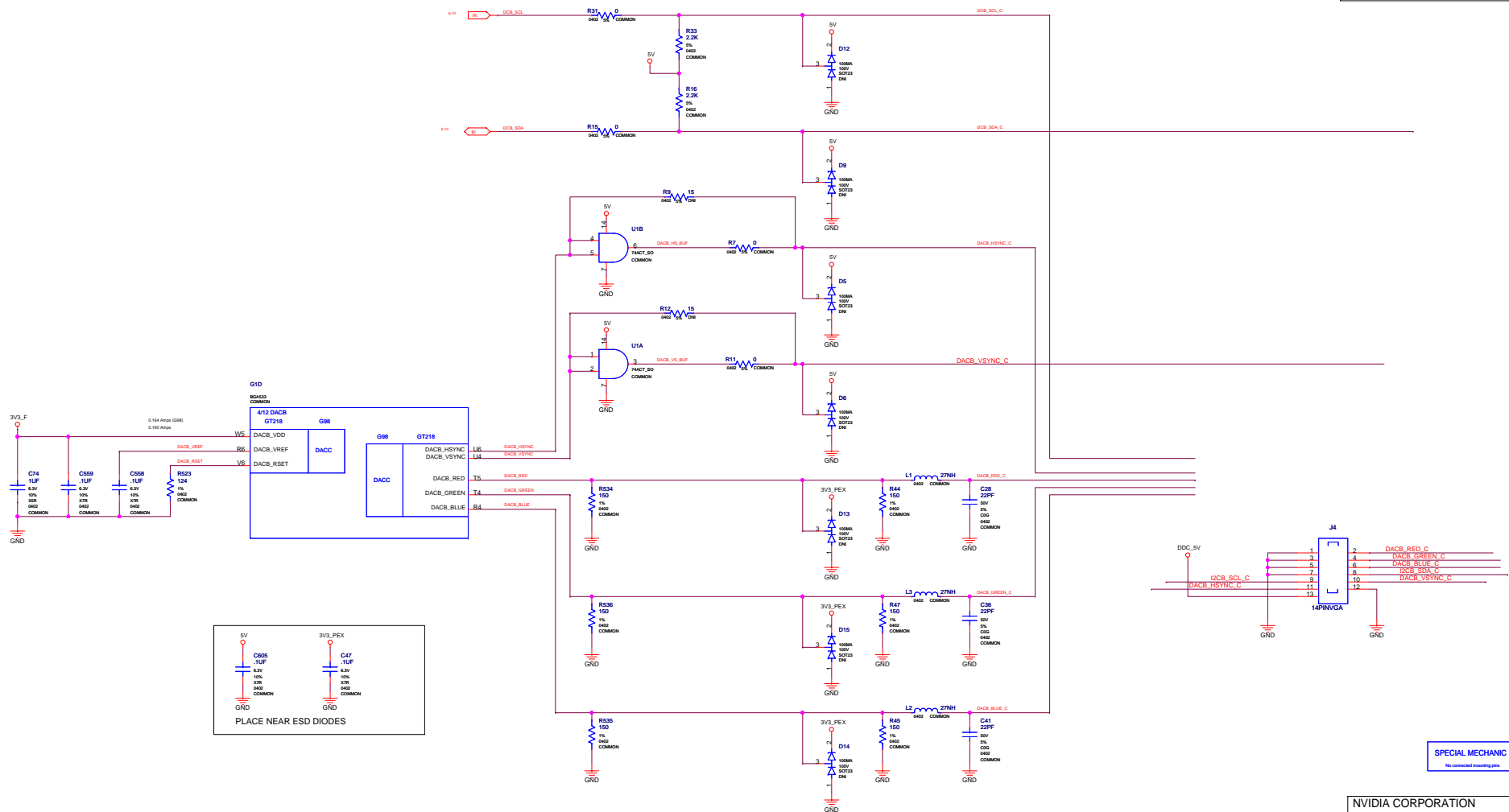
| Net Name | | MIN_WIDTH | MAX_WIDTH |
|----------|----------------|-----------|-----------|
| 6.7 | IN DQX_READ | | |
| | IN DQX_READ | | |
| | OUT DQX_READ_C | | |
| | IN DQX_WRITE | 128MIL | |
| | IN DQX_WRITE | | |

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| ASSEMBLY | BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL |
| PAGE DETAIL | DAC A Slim VGA |

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| ID | | PAGE | |
| NAME | | DATE | 01-MAY-2009 |

DAC B VGA Header




| Net Name | | CRITICAL | IMPEDANCE |
|----------|---------------|----------|-----------|
| IN | DACR_DIN | 1 | 50OHM |
| IN | DACR_GREEN | 1 | 50OHM |
| IN | DACR_RED | 1 | 50OHM |
| IN | DACR_BLUE | 1 | 50OHM |
| IN | DACR_GREEN_C | 1 | 50OHM |
| IN | DACR_BLUE_C | 1 | 50OHM |
| IN | DACR_HVING | 1 | 50OHM |
| IN | DACR_HVING_C | 1 | 50OHM |
| IN | DACR_VS_RFP | 1 | 50OHM |
| IN | DACR_VS_RFP_C | 1 | 50OHM |
| IN | DACR_VS_RFP | 1 | 50OHM |
| IN | DACR_VS_RFP_C | 1 | 50OHM |

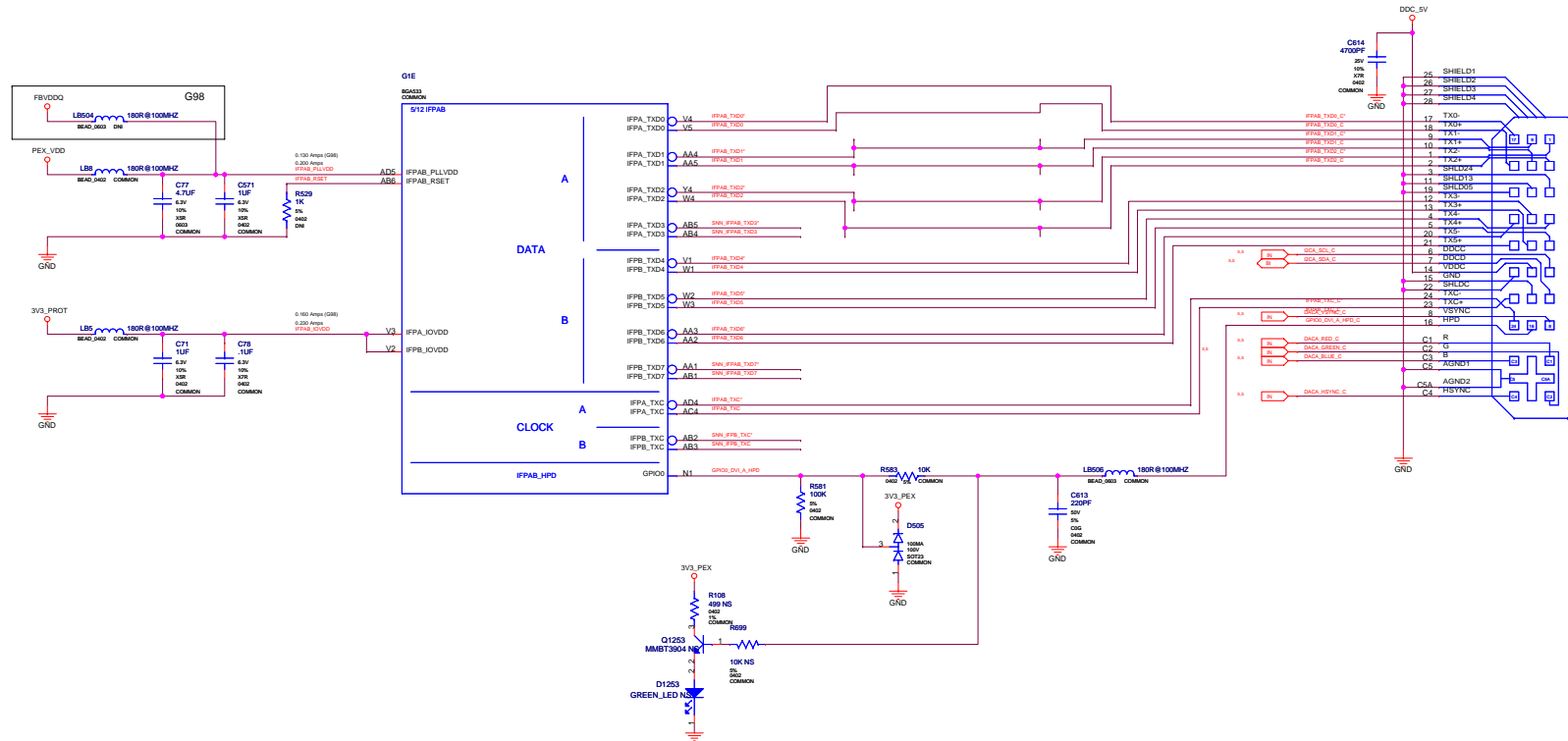
| Net Name | | MIN_WIDTH | MAX_WIDTH |
|----------|------------|-----------|-----------|
| IN | DACR_DIN | | |
| IN | DACR_DIN | | |
| IN | DACR_GSL_C | | |
| IN | DACR_GSL_C | | |
| IN | DACR_GSL_C | 12MIL | |
| IN | DACR_RESET | 12MIL | |

| | |
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| PAGE DETAIL | DAC B VGA Header |

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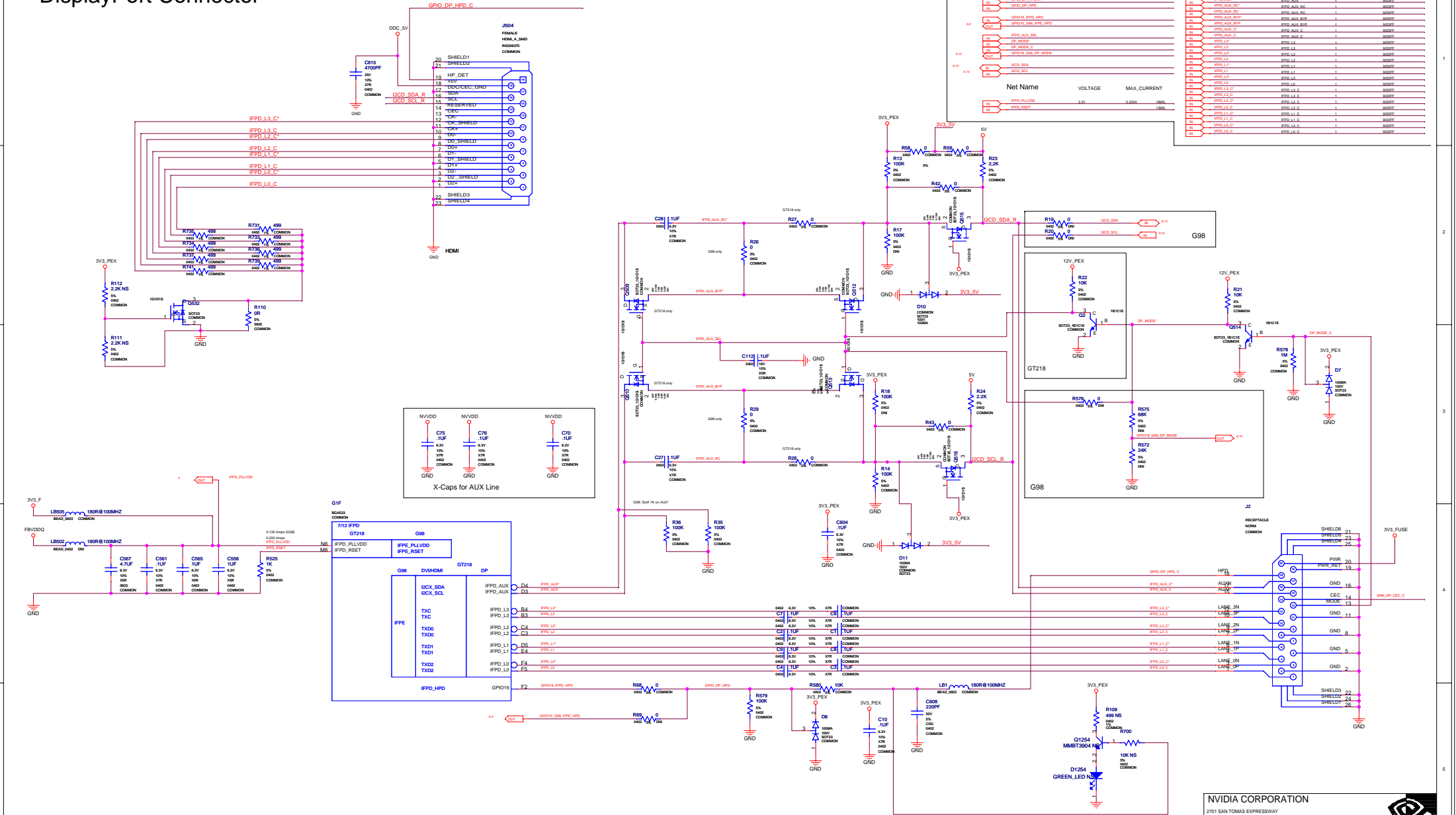
TMDS Interface



| Net Name | | DIFF_PAIR | CRITICAL | IMPEDANCE |
|----------|------------|------------|----------|-----------|
| IN | FPFAB_T207 | FPFAB_T100 | 1 | 50OHM |
| IN | FPFAB_T208 | FPFAB_T100 | 1 | 50OHM |
| IN | FPFAB_T209 | FPFAB_T101 | 1 | 50OHM |
| IN | FPFAB_T210 | FPFAB_T101 | 1 | 50OHM |
| IN | FPFAB_T212 | FPFAB_T102 | 1 | 50OHM |
| IN | FPFAB_T213 | FPFAB_T102 | 1 | 50OHM |
| IN | FPFAB_T214 | FPFAB_T103 | 1 | 50OHM |
| IN | FPFAB_T243 | FPFAB_T104 | 1 | 50OHM |
| IN | FPFAB_T257 | FPFAB_T105 | 1 | 50OHM |
| IN | FPFAB_T258 | FPFAB_T105 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T106 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T106 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T107 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T107 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T108 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T108 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T109 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T109 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T110 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T110 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T111 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T111 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T112 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T112 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T113 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T113 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T114 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T114 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T115 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T115 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T116 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T116 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T117 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T117 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T118 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T118 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T119 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T119 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T120 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T120 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T121 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T121 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T122 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T122 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T123 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T123 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T124 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T124 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T125 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T125 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T126 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T126 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T127 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T127 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T128 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T128 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T129 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T129 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T130 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T130 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T131 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T131 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T132 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T132 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T133 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T133 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T134 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T134 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T135 | 1 | 50OHM |
| IN | FPFAB_T268 | FPFAB_T135 | 1 | 50OHM |
| IN | FPFAB_T267 | FPFAB_T136 | 1 | 50 |

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DisplayPort Connector



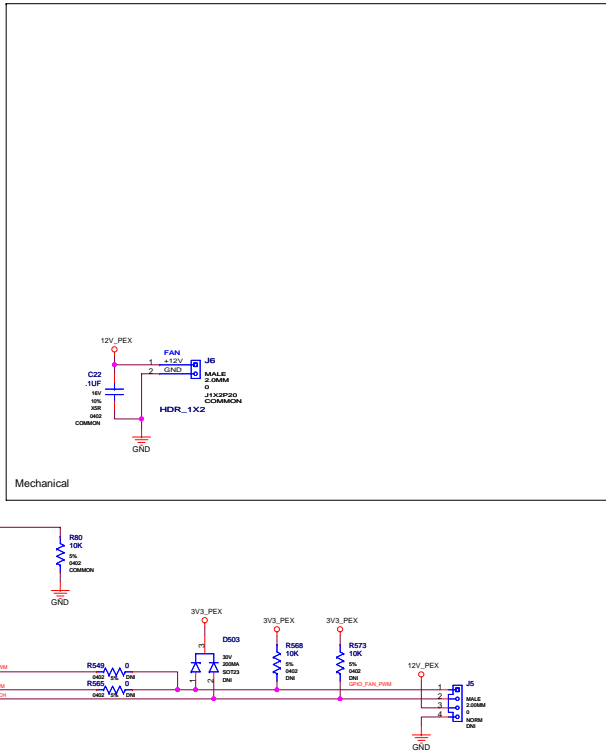
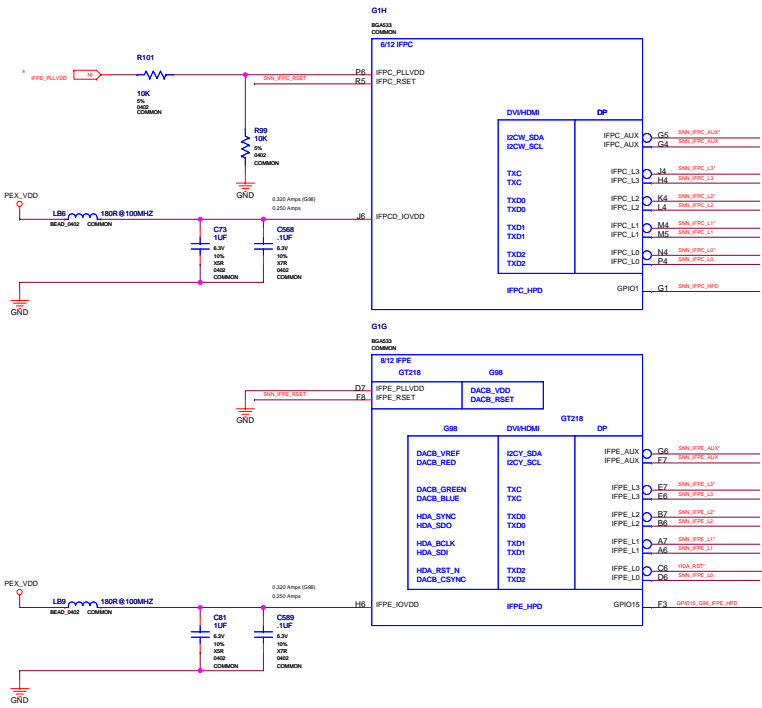
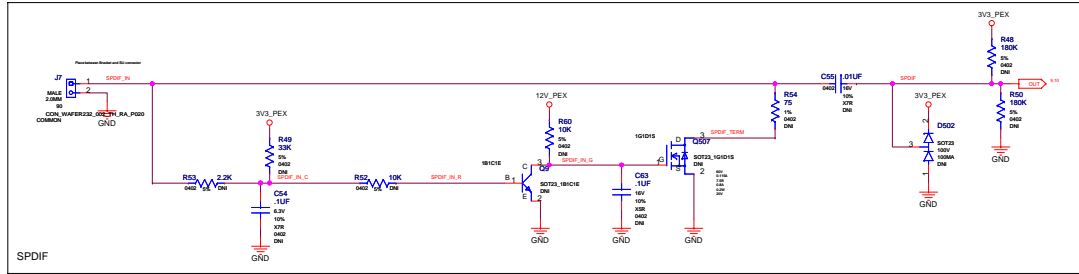
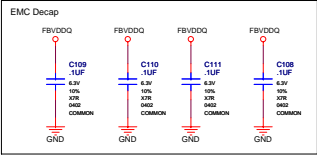
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| ID | | PAGE | |
| NAME | | DATE | 01 MAY 2009 |

| Net Name | MIN_WIDTH | MAX_WIDTH | Net Name | DIFF_PAIR | CRITICAL | IMPEDANCE |
|----------|-----------|-----------|-------------|-------------|----------|-----------|
| IN | 0.10 | 0.10 | IFPD_AUX1 | IFPD_AUX1 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX2 | IFPD_AUX2 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX3 | IFPD_AUX3 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX4 | IFPD_AUX4 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX5 | IFPD_AUX5 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX6 | IFPD_AUX6 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX7 | IFPD_AUX7 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX8 | IFPD_AUX8 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX9 | IFPD_AUX9 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX10 | IFPD_AUX10 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX11 | IFPD_AUX11 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX12 | IFPD_AUX12 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX13 | IFPD_AUX13 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX14 | IFPD_AUX14 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX15 | IFPD_AUX15 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX16 | IFPD_AUX16 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX17 | IFPD_AUX17 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX18 | IFPD_AUX18 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX19 | IFPD_AUX19 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX20 | IFPD_AUX20 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX21 | IFPD_AUX21 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX22 | IFPD_AUX22 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX23 | IFPD_AUX23 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX24 | IFPD_AUX24 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX25 | IFPD_AUX25 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX26 | IFPD_AUX26 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX27 | IFPD_AUX27 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX28 | IFPD_AUX28 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX29 | IFPD_AUX29 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX30 | IFPD_AUX30 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX31 | IFPD_AUX31 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX32 | IFPD_AUX32 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX33 | IFPD_AUX33 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX34 | IFPD_AUX34 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX35 | IFPD_AUX35 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX36 | IFPD_AUX36 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX37 | IFPD_AUX37 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX38 | IFPD_AUX38 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX39 | IFPD_AUX39 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX40 | IFPD_AUX40 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX41 | IFPD_AUX41 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX42 | IFPD_AUX42 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX43 | IFPD_AUX43 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX44 | IFPD_AUX44 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX45 | IFPD_AUX45 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX46 | IFPD_AUX46 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX47 | IFPD_AUX47 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX48 | IFPD_AUX48 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX49 | IFPD_AUX49 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX50 | IFPD_AUX50 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX51 | IFPD_AUX51 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX52 | IFPD_AUX52 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX53 | IFPD_AUX53 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX54 | IFPD_AUX54 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX55 | IFPD_AUX55 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX56 | IFPD_AUX56 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX57 | IFPD_AUX57 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX58 | IFPD_AUX58 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX59 | IFPD_AUX59 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX60 | IFPD_AUX60 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX61 | IFPD_AUX61 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX62 | IFPD_AUX62 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX63 | IFPD_AUX63 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX64 | IFPD_AUX64 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX65 | IFPD_AUX65 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX66 | IFPD_AUX66 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX67 | IFPD_AUX67 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX68 | IFPD_AUX68 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX69 | IFPD_AUX69 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX70 | IFPD_AUX70 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX71 | IFPD_AUX71 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX72 | IFPD_AUX72 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX73 | IFPD_AUX73 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX74 | IFPD_AUX74 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX75 | IFPD_AUX75 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX76 | IFPD_AUX76 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX77 | IFPD_AUX77 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX78 | IFPD_AUX78 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX79 | IFPD_AUX79 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX80 | IFPD_AUX80 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX81 | IFPD_AUX81 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX82 | IFPD_AUX82 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX83 | IFPD_AUX83 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX84 | IFPD_AUX84 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX85 | IFPD_AUX85 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX86 | IFPD_AUX86 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX87 | IFPD_AUX87 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX88 | IFPD_AUX88 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX89 | IFPD_AUX89 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX90 | IFPD_AUX90 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX91 | IFPD_AUX91 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX92 | IFPD_AUX92 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX93 | IFPD_AUX93 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX94 | IFPD_AUX94 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX95 | IFPD_AUX95 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX96 | IFPD_AUX96 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX97 | IFPD_AUX97 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX98 | IFPD_AUX98 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX99 | IFPD_AUX99 | + | 50ohm |
| IN | 0.10 | 0.10 | IFPD_AUX100 | IFPD_AUX100 | + | 50ohm |



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IFPC, IFPE Interface, Mechanical, SPDIF



| Net Name | | MIN_WIDTH | MAX_WIDTH |
|----------|---------------|-----------|-----------|
| IN | HEA_BST1 | 1.0000 | |
| IN | GPIO_FAN_FUSE | | |
| IN | GPIO_TMR0 | | |
| IN | GPIO_IN_0 | | |
| IN | GPIO_IN_1 | | |
| IN | GPIO_IN_2 | | |
| IN | GPIO_IN_3 | | |
| IN | GPIO_IN_4 | | |
| IN | GPIO_IN_5 | | |

| Net Name | | CRITICAL | IMPEDANCE |
|----------|---------|----------|-----------|
| OUT | GPIO | 1 | 50000 |
| IN | GPIO_IN | 1 | 50000 |

| Net Name | | VOLTAGE | MAX_CURRENT |
|----------|-----------|---------|---------------|
| IN | GPIO_OUT0 | 1.2000 | 0.3000A 10000 |

| G11 | | BOARD CONNECTION | |
|--------------|-----|------------------|-----|
| 12/12 GND_NC | | | |
| AC11 | GND | NC | C15 |
| AC14 | GND | NC | D15 |
| AC17 | GND | NC | |
| AC2 | GND | NC | |
| AC20 | GND | NC | |
| AC23 | GND | | |
| AC26 | GND | | |
| AC5 | GND | | |
| AC8 | GND | | |
| AE11 | GND | | |
| AE14 | GND | | |
| AE17 | GND | | |
| AE2 | GND | | |
| AE20 | GND | | |
| AE23 | GND | | |
| AE26 | GND | | |
| AE5 | GND | | |
| AE8 | GND | | |
| B11 | GND | | |
| B14 | GND | | |
| B17 | GND | | |
| B2 | GND | | |
| B20 | GND | | |
| B23 | GND | | |
| B26 | GND | | |
| B5 | GND | | |
| B8 | GND | | |
| E11 | GND | | |
| E17 | GND | | |
| E2 | GND | | |
| E20 | GND | | |
| E23 | GND | | |
| E26 | GND | | |
| E5 | GND | | |
| E8 | GND | | |
| H2 | GND | | |
| H5 | GND | | |
| H11 | GND | | |
| H14 | GND | | |
| H17 | GND | | |
| K19 | GND | | |
| K9 | GND | | |
| L11 | GND | | |
| L12 | GND | | |
| L13 | GND | | |
| L14 | GND | | |
| L15 | GND | | |
| L16 | GND | | |
| L17 | GND | | |
| L2 | GND | | |
| L6 | GND | | |
| M12 | GND | | |
| M13 | GND | | |
| M14 | GND | | |
| M15 | GND | | |
| M16 | GND | | |
| M18 | GND | | |
| P2 | GND | | |
| P23 | GND | | |
| P26 | GND | | |
| P5 | GND | | |
| P9 | GND | | |
| T12 | GND | | |
| T13 | GND | | |
| T14 | GND | | |
| T15 | GND | | |
| T16 | GND | | |
| U11 | GND | | |
| U12 | GND | | |
| U13 | GND | | |
| U18 | GND | | |
| U15 | GND | | |
| U16 | GND | | |
| U17 | GND | | |
| U2 | GND | | |
| U23 | GND | | |
| U26 | GND | | |
| U5 | GND | | |
| V18 | GND | | |
| V9 | GND | | |
| W11 | GND | | |
| W14 | GND | | |
| W17 | GND | | |
| Y2 | GND | | |
| Y23 | GND | | |
| Y26 | GND | | |
| Y5 | GND | | |

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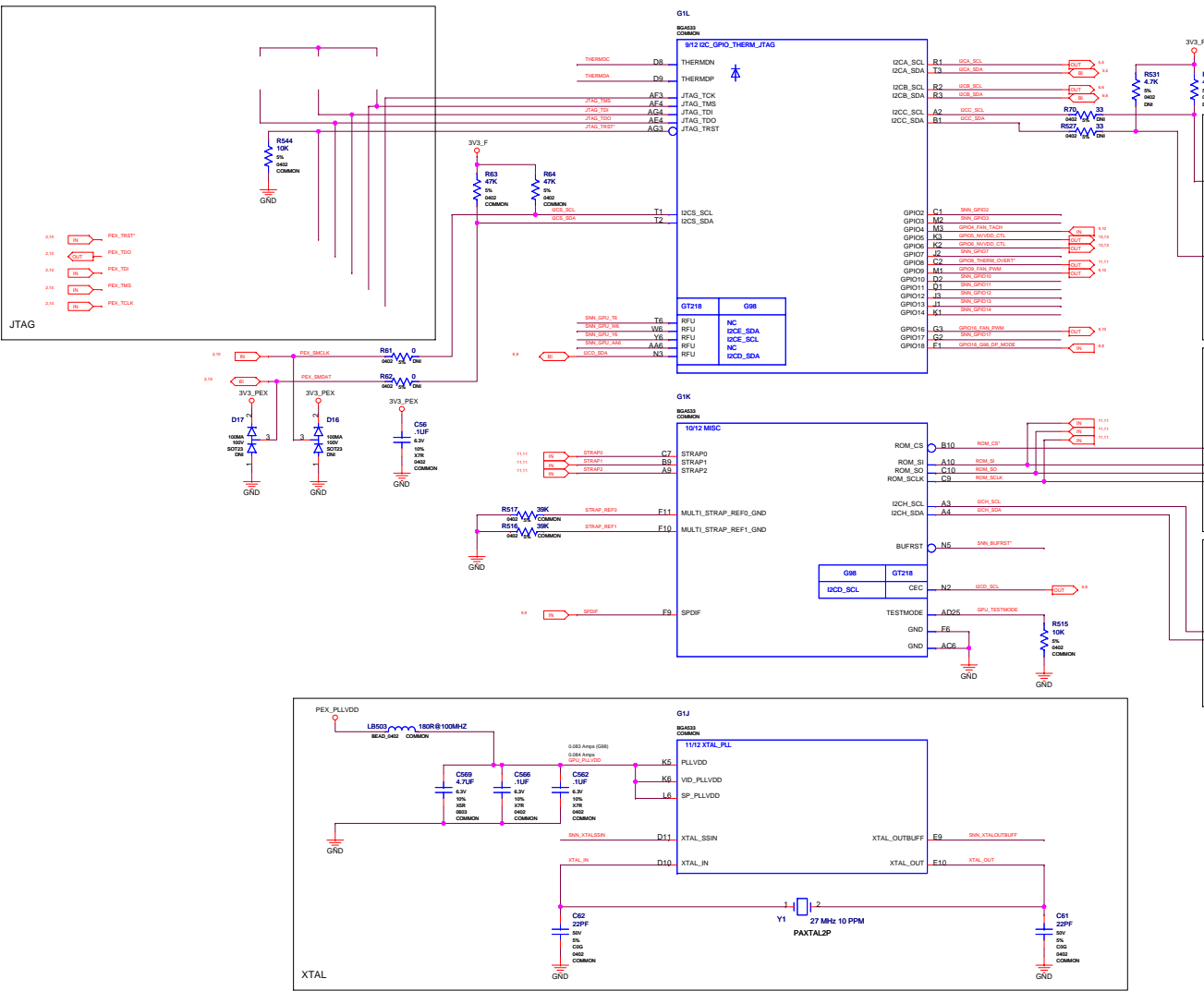


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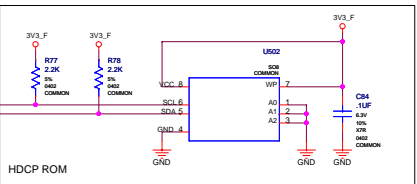
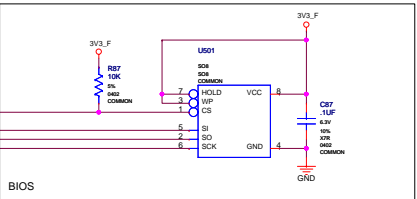
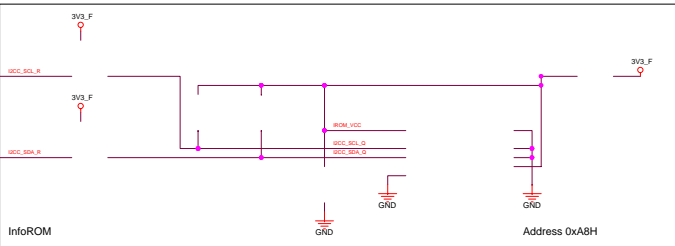
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XTAL, ROM, JTAG



| Net Name | CRITICAL | IMPEDANCE | Net Name | MIN_WIDTH | MAX_WIDTH |
|----------|----------|-----------|-----------|-----------|-----------|
| XTAL_OUT | 1 | 50OHM | DCC_SCL | | |
| XTAL_IN | 1 | 50OHM | DCC_SDA | | |
| | | | DCC_SCL_P | | |
| | | | DCC_SDA_P | | |
| | | | DCC_SCL_D | | |
| | | | DCC_SDA_D | | |
| | | | DCC_SCL_I | | |
| | | | DCC_SDA_I | | |
| | | | DCC_SCL_O | | |
| | | | DCC_SDA_O | | |
| | | | DCC_SCL_T | | |
| | | | DCC_SDA_T | | |
| | | | DCC_SCL_B | | |
| | | | DCC_SDA_B | | |
| | | | DCC_SCL_G | | |
| | | | DCC_SDA_G | | |
| | | | DCC_SCL_H | | |
| | | | DCC_SDA_H | | |
| | | | DCC_SCL_L | | |
| | | | DCC_SDA_L | | |
| | | | DCC_SCL_M | | |
| | | | DCC_SDA_M | | |
| | | | DCC_SCL_N | | |
| | | | DCC_SDA_N | | |
| | | | DCC_SCL_O | | |
| | | | DCC_SDA_O | | |
| | | | DCC_SCL_P | | |
| | | | DCC_SDA_P | | |
| | | | DCC_SCL_Q | | |
| | | | DCC_SDA_Q | | |
| | | | DCC_SCL_R | | |
| | | | DCC_SDA_R | | |
| | | | DCC_SCL_S | | |
| | | | DCC_SDA_S | | |
| | | | DCC_SCL_T | | |
| | | | DCC_SDA_T | | |
| | | | DCC_SCL_U | | |
| | | | DCC_SDA_U | | |
| | | | DCC_SCL_V | | |
| | | | DCC_SDA_V | | |
| | | | DCC_SCL_W | | |
| | | | DCC_SDA_W | | |
| | | | DCC_SCL_X | | |
| | | | DCC_SDA_X | | |
| | | | DCC_SCL_Y | | |
| | | | DCC_SDA_Y | | |
| | | | DCC_SCL_Z | | |
| | | | DCC_SDA_Z | | |



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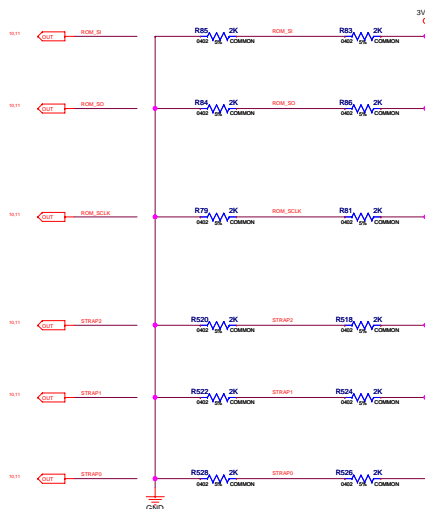
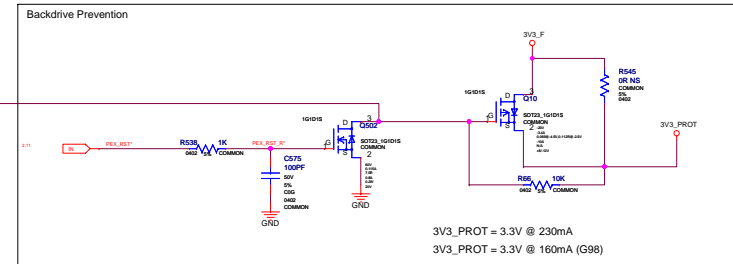
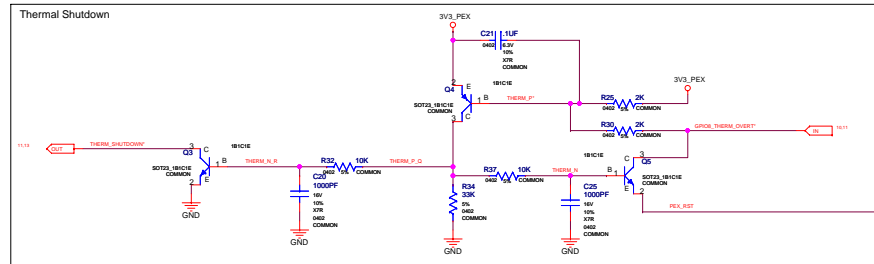
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Thermal Protection, Protected 3V3, Straps



GT218 Straps
MLS Mode

| Bit Signal | | Values | | Multilevel Straps | |
|------------|------------------------|--------|--------------------|-------------------|--------------------|
| 03 | RANCFQS1 | 0000 | Elpis | 50 to GND | 0000 |
| | | 0001 | Serpinion Micron | 100 to GND | 0001 |
| 02 | RANCFQS2 | 0010 | Gemina | 200 to GND | 0010 |
| | | 0011 | Narya | 300 to GND | 0011 |
| 01 | RANCFQS1 | 0100 | Narya | 400 to GND | 0100 |
| | | | | 450 to GND | 0110 |
| | | | | 500 to GND | 0111 |
| 03 | JKLX_417 | 0 | 277 (Default) | 50 to VCC | 1000 |
| | | | | 100 to VCC | 1001 |
| | | | | 150 to VCC | 1010 |
| | | | | 200 to VCC | 1011 |
| 02 | FQS3 | 0 | 250M (Default) | 250 to VCC | 1100 |
| | | | | 300 to VCC | 1101 |
| | | | | 350 to VCC | 1110 |
| | | | | 400 to VCC | 1111 |
| 01 | SWR_ACT_A2DR | 0 | SWR | 100 to VCC | 1000 |
| | | 1 | SWR | 150 to VCC | 1001 |
| | | | | 200 to VCC | 1010 |
| | | | | 250 to VCC | 1011 |
| 00 | VGA_DEVICE | 0 | Class code 300 | 300 to VCC | 1100 |
| | | 1 | Class code 400 | 350 to VCC | 1101 |
| | | | | 400 to VCC | 1110 |
| | | | | 450 to VCC | 1111 |
| 03 | PCI_DEVEXT | 0 | GT710-300-A1 | | |
| | | | | | |
| | | | | | |
| 02 | SUB_VENDOR | 0 | No BNCs | | |
| | | 1 | BNCs | | |
| | | | | | |
| 01 | SLOT_CIA_CFG | 0 | Disable | | |
| | | 1 | Enable | | |
| | | | | | |
| 00 | PEX_FLT_EN_TERM100 | 0 | Disable | | |
| | | 1 | Enable | | |
| | | | | | |
| 03 | PCI_DEVQS3 | 0000 | GT710-300-A1 | | |
| | | | | | |
| | | | | | |
| 02 | PCI_DEVQS2 | | | | |
| | | | | | |
| 01 | PCI_DEVQS1 | | | | |
| | | | | | |
| 00 | PCI_DEVQS0 | | | | |
| | | | | | |
| 03 | SGSD_PCIQCFG_LUT_ADR0E | 0000 | DISKTOP_DEFAULT | 1000 | DISKTOP_ITHRS |
| | | 0001 | MOBILE_DEFAULT | 1001 | MOBILE_ITHRS_NAOP |
| | | 0010 | MOBILE_ITHRS_LAMP | 1010 | MOBILE_ITHRS_LAMP |
| | | 0011 | MOBILE_ITHRS_LAMP | 1011 | MOBILE_ITHRS_LAMP |
| | | 0100 | MOBILE_ITHRS_ITHRS | 1100 | MOBILE_ITHRS_ITHRS |
| | | 0101 | MOBILE_ITHRS_ITHRS | 1101 | MOBILE_ITHRS_ITHRS |
| | | 0110 | MOBILE_ITHRS_ITHRS | 1110 | MOBILE_ITHRS_ITHRS |
| | | 0111 | MOBILE_ITHRS_ITHRS | 1111 | MOBILE_ITHRS_ITHRS |
| | | | | | |
| 02 | USQSQ2 | 0000 | Default | | |
| | | | | | |
| 01 | USQSQ1 | | | | |
| | | | | | |
| 00 | USQSQ0 | | | | |

GT218 Straps
BU Mode[illegible]GT218 Straps
PM Mode

| Bit Signal | Values | |
|---------------|--------|------------------|
| PCI_DEVIO_EXT | 0 | 0219-300-A1 |
| SCUL_4147 | 0 | 2702T OR 4144T |
| PCI_DEVIOE | 0 | 0219-300-A1 |
| RANKCFGQ | 0000 | Elyria |
| | 0001 | Stamming, Missou |
| | 0010 | Orlando |
| | 0011 | Hayden |
| | 0100 | Nampa |
| RANKCFGQ1 | | |
| RANKCFGQ2 | | |

| Mode | REF0REF1 |
|------|-----------|
| MLS | Drift |
| Bd | No drift |
| PM | Drift one |

G98 Straps
MLS Mode

| Bit | Signal | Values |
|------|------------------------|--------------------------------|
| (0) | RANFCQ[0] | 0000 Enable |
| (1) | RANFCQ[1] | 0100 Track |
| (2) | RANFCQ[2] | 0101 Sampling |
| (3) | RANFCQ[3] | 0110 Clockrate |
| (4) | RANFCQ[4] | 0111 Hystis |
| (5) | NGUX_277 | 1 Enabled |
| (6) | TUNMODE[2] | 001 NTSC_I |
| (7) | TUNMODE[3] | |
| (8) | TUNMODE[4] | |
| (9) | TUNMODE[5] | |
| (10) | PCI_DEVIO_EXT | 0 (SBR-409-L2) (SBR-409-L2) |
| (11) | SUB_VENDOR | 1 BIOS |
| (12) | SLCT_CLK_CFG | 0 Disable 1 Enable |
| (13) | PEX_PLL_A3_TERM100 | 0 Disable |
| (14) | PCI_DEVIO[0] | 0000 CPU |
| (15) | PCI_DEVIO[1] | 0100 (SBR-409-L2) |
| (16) | PCI_DEVIO[2] | 0101 (SBR-40-A2) |
| (17) | PCI_DEVIO[3] | 0102 (SBR-40-L2) |
| (18) | PCI_DEVIO[4] | |
| (19) | PCI_DEVIO[5] | |
| (20) | XG0_PNDQ[0]_LUT_ADR[0] | 0000 00007000_00F0A1 |
| (21) | XG0_PNDQ[0]_LUT_ADR[1] | |
| (22) | XG0_PNDQ[0]_LUT_ADR[2] | |
| (23) | XG0_PNDQ[0]_LUT_ADR[3] | |
| (24) | USER[0] | 0000 Default |
| (25) | USER[1] | |
| (26) | USER[2] | |
| (27) | USER[3] | |
| (28) | USER[4] | |

| Multilevel Straps | |
|-------------------|------|
| 5K to GND | 0000 |
| 10K to GND | 0001 |
| 15K to GND | 0010 |
| 20K to GND | 0011 |
| 25K to GND | 0100 |
| 30K to GND | 0101 |
| 35K to GND | 0110 |
| 40K to GND | 0111 |
| 5K to VCC | 1000 |
| 10K to VCC | 1001 |
| 15K to VCC | 1010 |
| 20K to VCC | 1011 |
| 25K to VCC | 1100 |
| 30K to VCC | 1101 |
| 35K to VCC | 1110 |
| 40K to VCC | 1111 |

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