P2030

GK106, 2GB GDDR5, 192b mixed mode x16, x32

Stacked DVI-I/DVI-D + HDMI/DP + DP

TABLE OF CONTENTS

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

Page	Description
26	PS: NVVDD Phase4
27	PS: Inputs, Filtering, and Monitoring
28	PS: Shutdown
29	PS: Board LED; Lighted SLI LED
30	MECH: Bracket/Thermal

SKU	VARIANT	NVPN	ASSEMBLY
B	BASE	600-12030-BASE-000	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU0000	600-12030-0000-000	GK106-400, 2048MB, GDDR5 192b Stacked DVI-I DL/DVI-D DL, HDMI, DP
2	SKU0010	600-12030-0010-000	GK106-250, 2048MB, GDDR5, 192b Stacked DVI-I DL/DVI-D, HDMI, DP
3	SKU0050	600-12030-0050-000	GK106-200, 2048MB, GDDR5, 128b Stacked DVI-I DL/DVI-D, HDMI, DP
4	SKU0500	600-52030-0500-000	GK106-875, 3072MB, GDDR5, 192b DVI-I, DP, DP Workstation
5	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
6	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
7	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
8	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
10	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
13	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

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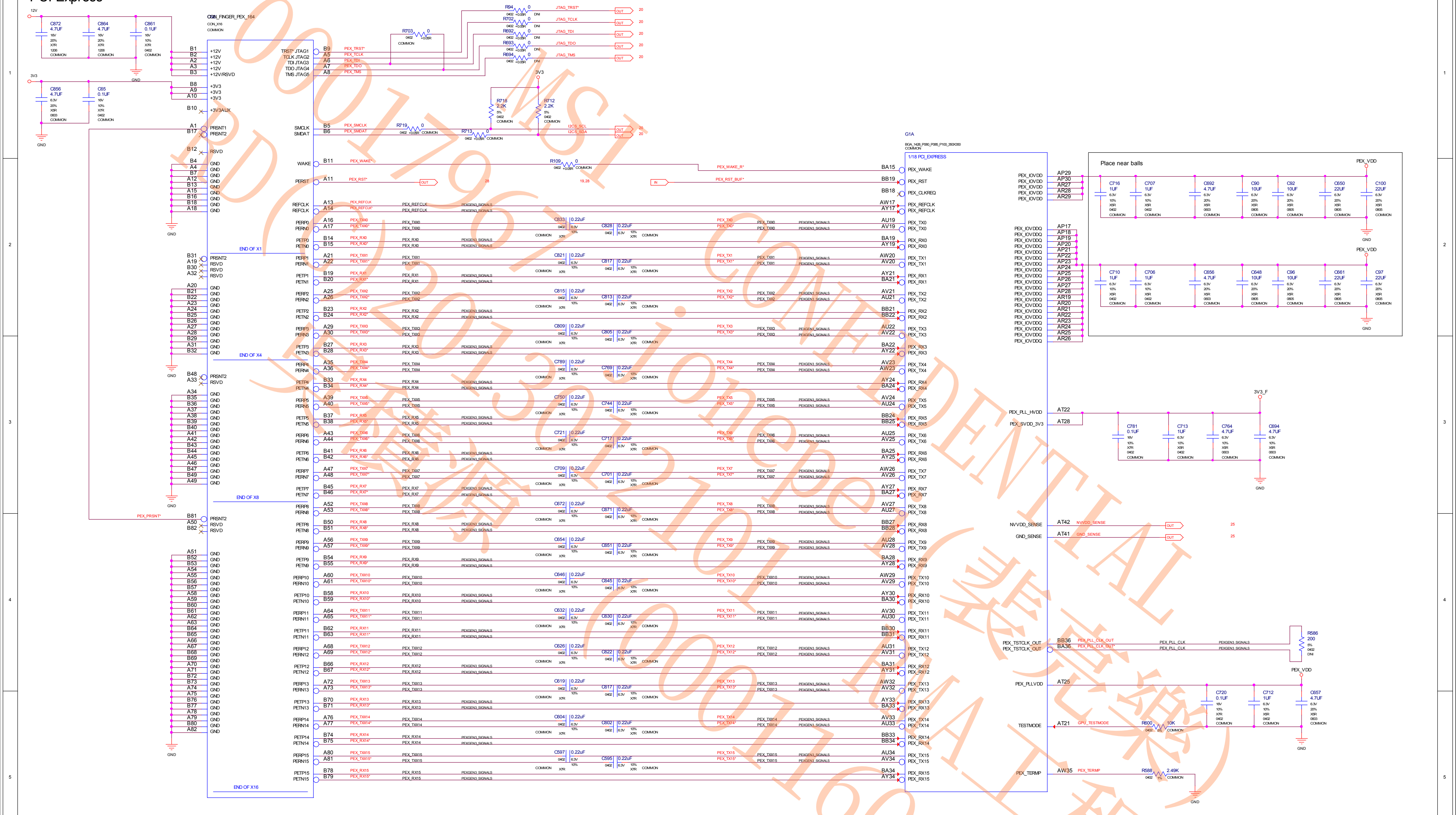
MS-V287
Size Custom
Document Description 01_Table of Contents
Rev 1.0
Date: Friday, July 20, 2012
Sheet 1 of 30

PCI Express


12V
3V3
GND
C872 4.7UF
C864 4.7UF
C861 0.1UF
C856 4.7UF
C65 0.1UF
CON_FINGER_PEX_164
CON_X16
COMMON
+12V
+12V/RSVD
+3V3
+3V3AUX
PRSNT1
PRSNT2
RSVD
GND
END OF X1
END OF X4
END OF X8
END OF X16
TRST* JTAG1
TCLK JTAG2
TDI JTAG3
TDO JTAG4
TMS JTAG5
SMCLK
SMDAT
WAKE
PERST
REFCLK
PERP0 … PERP15
PERN0 … PERN15
PETP0 … PETP15
PETN0 … PETN15
PEX_TRST*
PEX_TCLK
PEX_TDI
PEX_TDO
PEX_TMS
JTAG_TRST*
JTAG_TCLK
JTAG_TDI
JTAG_TDO
JTAG_TMS
R94
R702
R692
R693
R694
R703
DNI
R718 2.2K
R712 2.2K
R719
R713
PEX_SMCLK
PEX_SMDAT
I2CS_SCL
I2CS_SDA
PEX_WAKE*
R109
PEX_WAKE_R*
PEX_RST*
PEX_RST_BUF*
PEX_REFCLK
PEX_REFCLK*
PEX_PRSNT*
PEXGEN3_SIGNALS
0.22uF
G1A
BGA_1426_P080_P085_P100_350X350
1/18 PCI_EXPRESS
PEX_WAKE
PEX_RST
PEX_CLKREQ
PEX_REFCLK
PEX_TX0 … PEX_TX15
PEX_RX0 … PEX_RX15
PEX_IOVDD
PEX_IOVDDQ
Place near balls
PEX_VDD
C716 1UF
C707 1UF
C692 4.7UF
C90 10UF
C92 10UF
C650 22UF
C100 22UF
C710 1UF
C706 1UF
C656 4.7UF
C648 10UF
C96 10UF
C661 22UF
C97 22UF
PEX_PLL_HVDD
PEX_SVDD_3V3
3V3_F
C781 0.1UF
C713 1UF
C764 4.7UF
C694 4.7UF
NVVDD_SENSE
GND_SENSE
PEX_TSTCLK_OUT
PEX_TSTCLK_OUT*
PEX_PLL_CLK
R586 200
PEX_PLLVDD
C720 0.1UF
C712 1UF
C657 4.7UF
TESTMODE
GPU_TESTMODE
R600 10K
PEX_TERMP
R588 2.49K
OUT
IN

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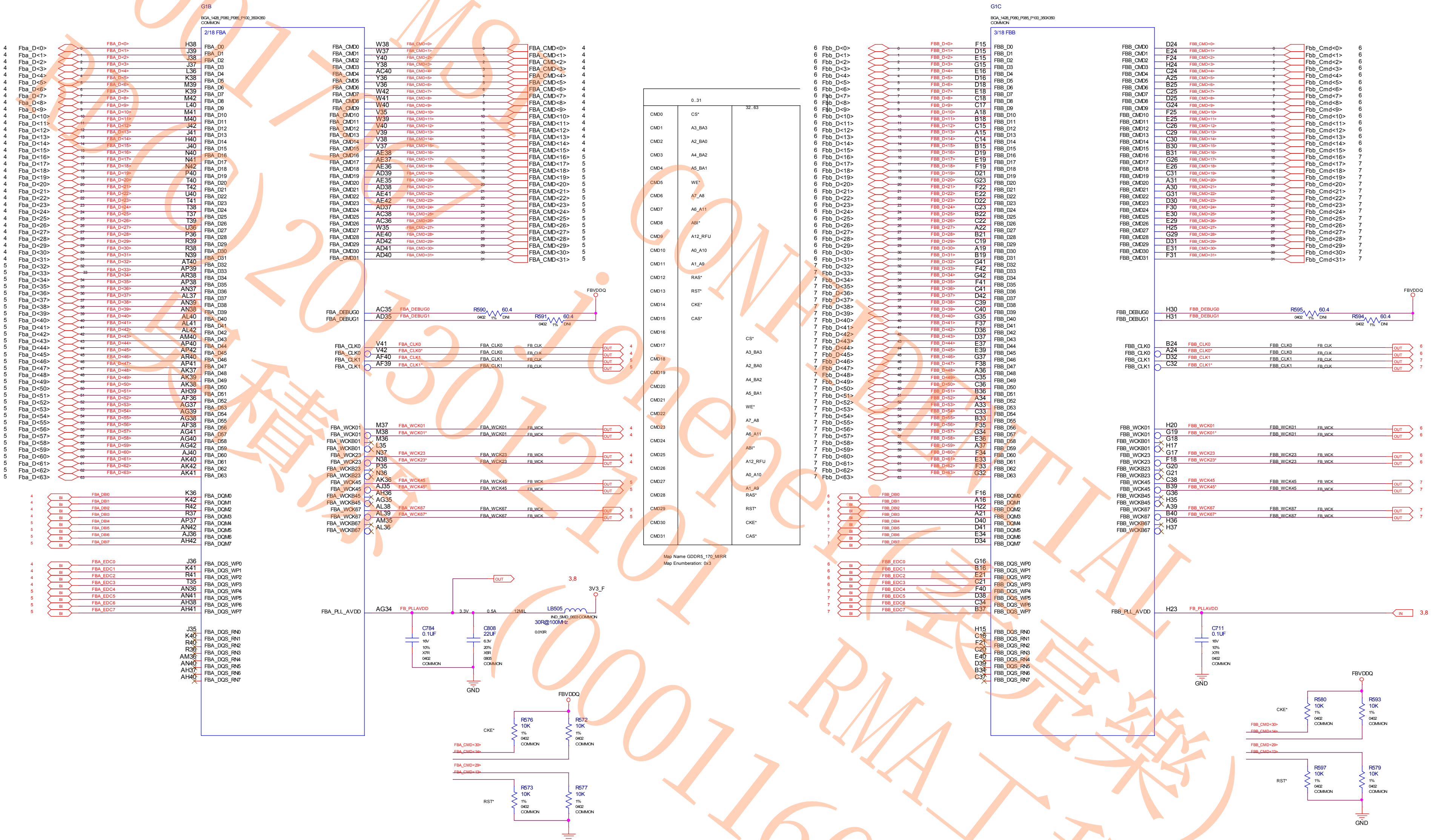
Size	Document Description	Rev
Custom	02_PCI Express	1.0

Date: Friday, July 20, 2012 Sheet 2 of 30

MEMORY: GPU Partition A/B


G1B
BGA_1428_P080_P085_P100_350X350
COMMON
2/18 FBA
FBA_D0 … FBA_D63
FBA_CMD0 … FBA_CMD31
FBA_DQM0 … FBA_DQM7
FBA_DQS_WP0 … FBA_DQS_WP7
FBA_DQS_RN0 … FBA_DQS_RN7
FBA_DEBUG0
FBA_DEBUG1
FBA_CLK0
FBA_CLK0*
FBA_CLK1
FBA_CLK1*
FBA_WCK01
FBA_WCKB01
FBA_WCK23
FBA_WCKB23
FBA_WCK45
FBA_WCKB45
FBA_WCK67
FBA_WCKB67
FBA_PLL_AVDD
FB_PLLAVDD
R590 60.4
R591 60.4
C784 0.1UF
C808 22UF
LB505 30R@100MHz
3V3_F
FBVDDQ
GND
R576 10K
R572 10K
R573 10K
R577 10K
CKE*
RST*
CMD0 … CMD31
CS*
RAS*
CAS*
WE*
CKE*
RST*
Map Name GDDR5_170_MIRR
Map Enumeration: 0x3
G1C
3/18 FBB
FBB_D0 … FBB_D63
FBB_CMD0 … FBB_CMD31
FBB_DQM0 … FBB_DQM7
FBB_DQS_WP0 … FBB_DQS_WP7
FBB_DQS_RN0 … FBB_DQS_RN7
FBB_DEBUG0
FBB_DEBUG1
FBB_CLK0
FBB_CLK0*
FBB_CLK1
FBB_CLK1*
FBB_WCK01
FBB_WCK23
FBB_WCK45
FBB_WCK67
FBB_PLL_AVDD
R595 60.4
R594 60.4
C711 0.1UF
R580 10K
R593 10K
R597 10K
R579 10K

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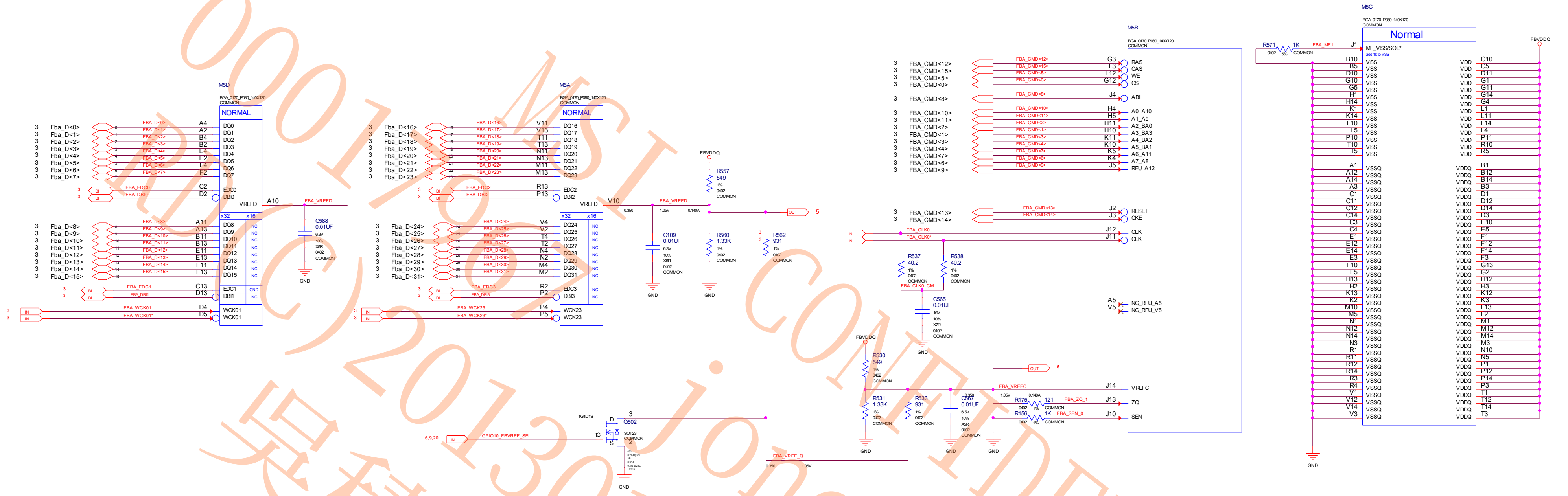
Size	Document Description	Rev
Custom	03_MEMORY_ GPU Partition A_B	1.0

Date: Friday, July 20, 2012 Sheet 3 of 30

MEMORY: FBA Partition 31..0


M5D
BGA_0170_P080_140X120
COMMON
NORMAL
Fba_D<0>
Fba_D<1>
Fba_D<2>
Fba_D<3>
Fba_D<4>
Fba_D<5>
Fba_D<6>
Fba_D<7>
FBA_D<0>
FBA_D<1>
FBA_D<2>
FBA_D<3>
FBA_D<4>
FBA_D<5>
FBA_D<6>
FBA_D<7>
A4
A2
B4
B2
E4
E2
F4
F2
DQ0
DQ1
DQ2
DQ3
DQ4
DQ5
DQ6
DQ7
FBA_EDC0
FBA_DBI0
C2
D2
EDC0
DBI0
VREFD
A10
x32
x16
Fba_D<8>
Fba_D<9>
Fba_D<10>
Fba_D<11>
Fba_D<12>
Fba_D<13>
Fba_D<14>
Fba_D<15>
A11
A13
B11
B13
E11
E13
F11
F13
DQ8
DQ9
DQ10
DQ11
DQ12
DQ13
DQ14
DQ15
NC
FBA_EDC1
FBA_DBI1
C13
D13
EDC1
DBI1
GND
FBA_WCK01
FBA_WCK01*
D4
D5
WCK01
WCK01
FBA_VREFD
C588
0.01UF
6.3V
10%
X5R
0402
COMMON
GND
M5A
BGA_0170_P080_140X120
COMMON
NORMAL
Fba_D<16>
Fba_D<17>
Fba_D<18>
Fba_D<19>
Fba_D<20>
Fba_D<21>
Fba_D<22>
Fba_D<23>
V11
V13
T11
T13
N11
N13
M11
M13
DQ16
DQ17
DQ18
DQ19
DQ20
DQ21
DQ22
DQ23
FBA_EDC2
FBA_DBI2
R13
P13
EDC2
DBI2
VREFD
V10
Fba_D<24>
Fba_D<25>
Fba_D<26>
Fba_D<27>
Fba_D<28>
Fba_D<29>
Fba_D<30>
Fba_D<31>
V4
V2
T4
T2
N4
N2
M4
M2
DQ24
DQ25
DQ26
DQ27
DQ28
DQ29
DQ30
DQ31
FBA_EDC3
FBA_DBI3
R2
P2
EDC3
DBI3
FBA_WCK23
FBA_WCK23*
P4
P5
WCK23
WCK23
BI
IN
OUT
0.350
1.05V
0.140A
FBVDDQ
R557
549
1%
0402
COMMON
C109
0.01UF
R560
1.33K
R562
931
1G1D1S
Q502
SOT23
COMMON
6,9,20
GPIO10_FBVREF_SEL
FBA_VREF_Q
M5B
BGA_0170_P080_140X120
COMMON
FBA_CMD<12>
FBA_CMD<15>
FBA_CMD<5>
FBA_CMD<0>
G3
L3
L12
G12
RAS
CAS
WE
CS
FBA_CMD<8>
J4
ABI
FBA_CMD<10>
FBA_CMD<11>
FBA_CMD<2>
FBA_CMD<1>
FBA_CMD<3>
FBA_CMD<4>
FBA_CMD<7>
FBA_CMD<6>
FBA_CMD<9>
H4
H5
H11
H10
K11
K10
K5
K4
J5
A0_A10
A1_A9
A2_BA0
A3_BA3
A4_BA2
A5_BA1
A6_A11
A7_A8
RFU_A12
FBA_CMD<13>
FBA_CMD<14>
J2
J3
RESET
CKE
FBA_CLK0
FBA_CLK0*
J12
J11
CLK
CLK
R537
40.2
R538
40.2
FBA_CLK0_CM
C565
0.01UF
16V
A5
V5
NC_RFU_A5
NC_RFU_V5
R530
549
R531
1.33K
R533
931
C567
0.01UF
FBA_VREFC
J14
VREFC
R175
121
FBA_ZQ_1
J13
ZQ
R156
1K
FBA_SEN_0
J10
SEN
M5C
BGA_0170_P080_140X120
COMMON
Normal
R571
1K
5%
FBA_MF1
J1
MF_VSS/SOE*
add 1k to VSS
VSS
VDD
VSSQ
VDDQ
B10
B5
D10
G10
G5
H1
H14
K1
K14
L10
L5
P10
T10
T5
C10
C5
D11
G1
G11
G14
G4
L1
L11
L14
L4
P11
R10
R5
A1
A12
A14
A3
C1
C11
C12
C14
C3
C4
E1
E12
E14
E3
F10
F5
H13
H2
K13
K2
M10
M5
N1
N12
N14
N3
R1
R11
R12
R14
R3
R4
V1
V12
V14
V3
B1
B12
B14
B3
C1
D1
D12
D14
D3
E10
E5
F1
F12
F14
F3
G13
G2
H12
H3
K12
K3
L13
L2
M1
M12
M14
M3
N10
N5
P1
P12
P14
P3
T1
T12
T14
T3
GND

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Size: Custom
Document Description: 04_MEMORY_FBA[31_0]
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 4 of 30

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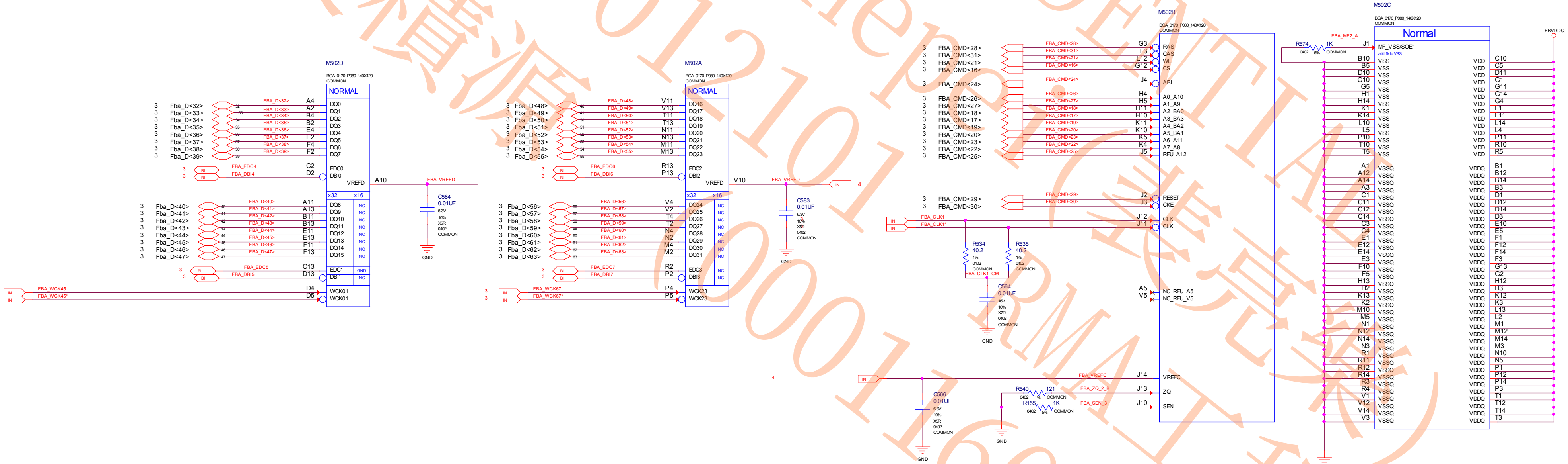
MEMORY: FBA Partition 63..32



M502D
BGA_0170_P080_140X120
COMMON
NORMAL
3 Fba_D<32> FBA_D<32> A4 DQ0
3 Fba_D<33> FBA_D<33> A2 DQ1
3 Fba_D<34> FBA_D<34> B4 DQ2
3 Fba_D<35> FBA_D<35> B2 DQ3
3 Fba_D<36> FBA_D<36> E4 DQ4
3 Fba_D<37> FBA_D<37> E2 DQ5
3 Fba_D<38> FBA_D<38> F4 DQ6
3 Fba_D<39> FBA_D<39> F2 DQ7
3 BI FBA_EDC4 C2 EDC0
3 BI FBA_DBI4 D2 DBI0
VREFD A10 FBA_VREFD
x32 x16
3 Fba_D<40> FBA_D<40> A11 DQ8 NC
3 Fba_D<41> FBA_D<41> A13 DQ9 NC
3 Fba_D<42> FBA_D<42> B11 DQ10 NC
3 Fba_D<43> FBA_D<43> B13 DQ11 NC
3 Fba_D<44> FBA_D<44> E11 DQ12 NC
3 Fba_D<45> FBA_D<45> E13 DQ13 NC
3 Fba_D<46> FBA_D<46> F11 DQ14 NC
3 Fba_D<47> FBA_D<47> F13 DQ15 NC
3 BI FBA_EDC5 C13 EDC1 GND
3 BI FBA_DBI5 D13 DBI1 NC
IN FBA_WCK45 D4 WCK01
IN FBA_WCK45* D5 WCK01
C584 0.01UF 6.3V 10% X5R 0402 COMMON
GND
M502A
BGA_0170_P080_140X120
COMMON
NORMAL
3 Fba_D<48> FBA_D<48> V11 DQ16
3 Fba_D<49> FBA_D<49> V13 DQ17
3 Fba_D<50> FBA_D<50> T11 DQ18
3 Fba_D<51> FBA_D<51> T13 DQ19
3 Fba_D<52> FBA_D<52> N11 DQ20
3 Fba_D<53> FBA_D<53> N13 DQ21
3 Fba_D<54> FBA_D<54> M11 DQ22
3 Fba_D<55> FBA_D<55> M13 DQ23
3 BI FBA_EDC6 R13 EDC2
3 BI FBA_DBI6 P13 DBI2
VREFD V10 FBA_VREFD IN 4
x32 x16
3 Fba_D<56> FBA_D<56> V4 DQ24 NC
3 Fba_D<57> FBA_D<57> V2 DQ25 NC
3 Fba_D<58> FBA_D<58> T4 DQ26 NC
3 Fba_D<59> FBA_D<59> T2 DQ27 NC
3 Fba_D<60> FBA_D<60> N4 DQ28 NC
3 Fba_D<61> FBA_D<61> N2 DQ29 NC
3 Fba_D<62> FBA_D<62> M4 DQ30 NC
3 Fba_D<63> FBA_D<63> M2 DQ31 NC
3 BI FBA_EDC7 R2 EDC3 NC
3 BI FBA_DBI7 P2 DBI3 NC
3 IN FBA_WCK67 P4 WCK23
3 IN FBA_WCK67* P5 WCK23
C583 0.01UF 6.3V 10% X5R 0402 COMMON
GND
M502B
BGA_0170_P080_140X120
COMMON
3 FBA_CMD<28> FBA_CMD<28> G3 RAS
3 FBA_CMD<31> FBA_CMD<31> L3 CAS
3 FBA_CMD<21> FBA_CMD<21> L12 WE
3 FBA_CMD<16> FBA_CMD<16> G12 CS
3 FBA_CMD<24> FBA_CMD<24> J4 ABI
3 FBA_CMD<26> FBA_CMD<26> H4 A0_A10
3 FBA_CMD<27> FBA_CMD<27> H5 A1_A9
3 FBA_CMD<18> FBA_CMD<18> H11 A2_BA0
3 FBA_CMD<17> FBA_CMD<17> H10 A3_BA3
3 FBA_CMD<19> FBA_CMD<19> K11 A4_BA2
3 FBA_CMD<20> FBA_CMD<20> K10 A5_BA1
3 FBA_CMD<23> FBA_CMD<23> K5 A6_A11
3 FBA_CMD<22> FBA_CMD<22> K4 A7_A8
3 FBA_CMD<25> FBA_CMD<25> J5 RFU_A12
3 FBA_CMD<29> FBA_CMD<29> J2 RESET
3 FBA_CMD<30> FBA_CMD<30> J3 CKE
IN FBA_CLK1 J12 CLK
IN FBA_CLK1* J11 CLK
R534 40.2 1% 0402 COMMON
R535 40.2 1% 0402 COMMON
FBA_CLK1_CM
C564 0.01UF 16V 10% X7R 0402 COMMON
GND
A5 NC_RFU_A5
V5 NC_RFU_V5
IN FBA_VREFC J14 VREFC
C566 0.01UF 6.3V 10% X5R 0402 COMMON
GND
R540 121 0402 1% COMMON FBA_ZQ_2_B J13 ZQ
R155 1K 0402 5% COMMON FBA_SEN_3 J10 SEN
GND
4
M502C
BGA_0170_P080_140X120
COMMON
Normal
R574 1K 0402 5% COMMON FBA_MF2_A J1 MF_VSS/SOE*
add 1k to VSS
B10 B5 D10 G10 G5 H1 H14 K1 K14 L10 L5 P10 T10 T5 VSS
A1 A12 A14 A3 C1 C11 C12 C14 C3 C4 E1 E12 E14 E3 F10 F5 H13 H2 K13 K2 M10 M5 N1 N12 N14 N3 R1 R11 R12 R14 R3 R4 V1 V12 V14 V3 VSSQ
VDD C10 C5 D11 G1 G11 G14 G4 L1 L11 L14 L4 P11 R10 R5
VDDQ B1 B12 B14 B3 D1 D12 D14 D3 E10 E5 F1 F12 F14 F3 G13 G2 H12 H3 K12 K3 L13 L2 M1 M12 M14 M3 N10 N5 P1 P12 P14 P3 T1 T12 T14 T3
FBVDDQ
GND

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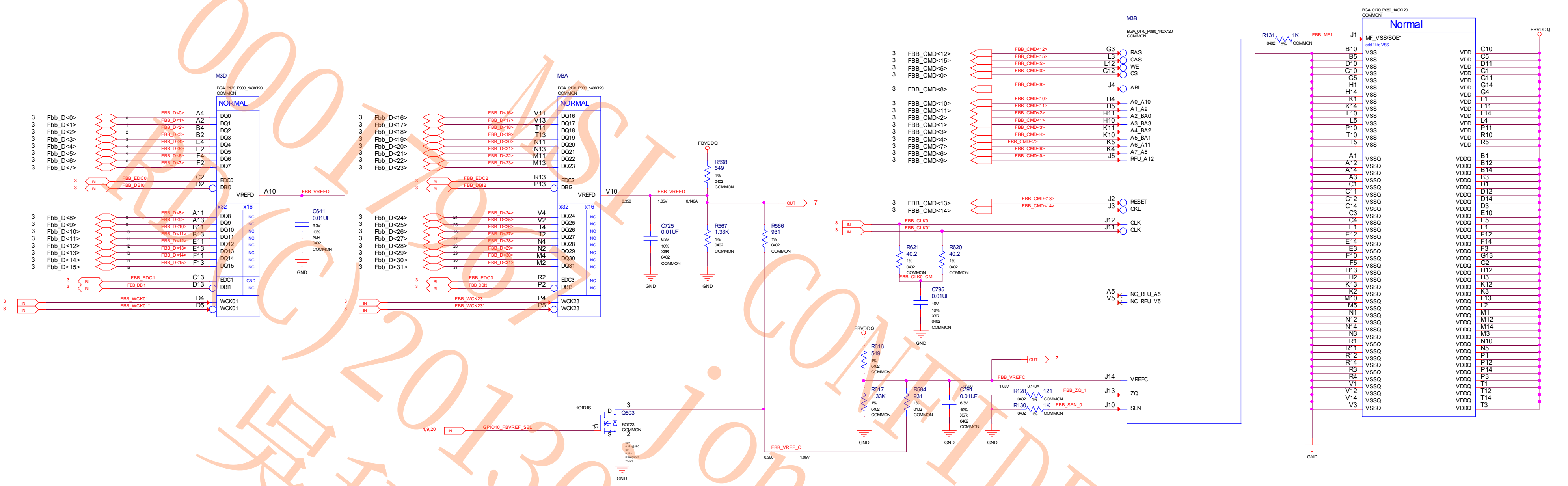
Size	Document Description	Rev
Custom	05_MEMORY_FBA[63_32]	1.0

Date: Friday, July 20, 2012 | Sheet 5 of 30

MEMORY: FBB Partition 31..0


M3D
BGA_0170_P080_140X120
COMMON
NORMAL
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Fbb_D<2>
Fbb_D<3>
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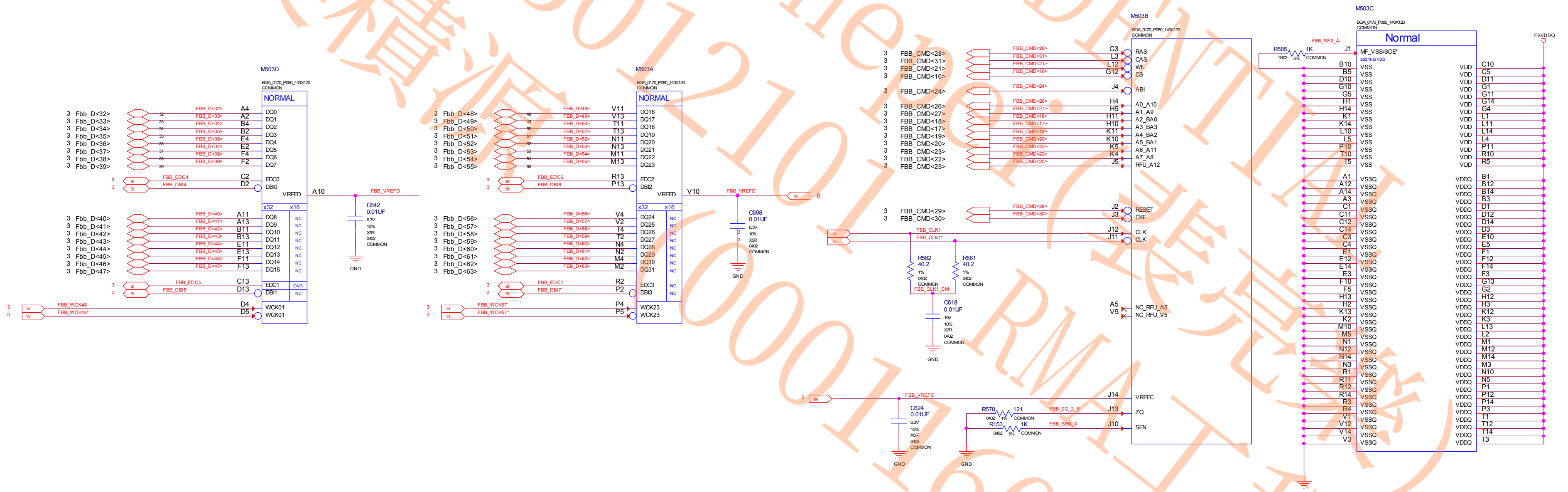
FBB_DBI0
DQ0
DQ1
DQ2
DQ3
DQ4
DQ5
DQ6
DQ7
EDC0
DBI0
VREFD
A10
FBB_VREFD
Fbb_D<8>
Fbb_D<9>
Fbb_D<10>
Fbb_D<11>
Fbb_D<12>
Fbb_D<13>
Fbb_D<14>
Fbb_D<15>
DQ8
DQ9
DQ10
DQ11
DQ12
DQ13
DQ14
DQ15
FBB_EDC1
FBB_DBI1
EDC1
DBI1
FBB_WCK01
FBB_WCK01*
WCK01
WCK01
C641
0.01UF
GND
M3A
NORMAL
Fbb_D<16>
Fbb_D<17>
Fbb_D<18>
Fbb_D<19>
Fbb_D<20>
Fbb_D<21>
Fbb_D<22>
Fbb_D<23>
DQ16
DQ17
DQ18
DQ19
DQ20
DQ21
DQ22
DQ23
FBB_EDC2
FBB_DBI2
EDC2
DBI2
VREFD
V10
Fbb_D<24>
Fbb_D<25>
Fbb_D<26>
Fbb_D<27>
Fbb_D<28>
Fbb_D<29>
Fbb_D<30>
Fbb_D<31>
DQ24
DQ25
DQ26
DQ27
DQ28
DQ29
DQ30
DQ31
FBB_EDC3
FBB_DBI3
EDC3
DBI3
FBB_WCK23
FBB_WCK23*
WCK23
WCK23
FBVDDQ
R598
549
C725
0.01UF
R567
1.33K
R566
931
OUT
7
GPIO10_FBVREF_SEL
Q503
SOT23
FBB_VREF_Q
M3B
FBB_CMD<12>
FBB_CMD<15>
FBB_CMD<5>
FBB_CMD<0>
FBB_CMD<8>
FBB_CMD<10>
FBB_CMD<11>
FBB_CMD<2>
FBB_CMD<1>
FBB_CMD<3>
FBB_CMD<4>
FBB_CMD<7>
FBB_CMD<6>
FBB_CMD<9>
RAS
CAS
WE
CS
ABI
A0_A10
A1_A9
A2_BA0
A3_BA3
A4_BA2
A5_BA1
A6_A11
A7_A8
RFU_A12
FBB_CMD<13>
FBB_CMD<14>
RESET
CKE
FBB_CLK0
FBB_CLK0*
CLK
CLK
R621
40.2
R620
40.2
FBB_CLK0_CM
C795
0.01UF
NC_RFU_A5
NC_RFU_V5
R616
549
R617
1.33K
R584
931
C791
0.01UF
FBB_VREFC
VREFC
R128
121
FBB_ZQ_1
ZQ
R130
1K
FBB_SEN_0
SEN
M3C
Normal
R131
1K
FBB_MF1
MF_VSS/SOE*
add 1k to VSS
VSS
VSSQ
VDD
VDDQ
FBVDDQ
GND

MICRO-STAR INT'L CO.,LTD			
MS-V287			
Size Custom	Document Description 06_MEMORY_FBB[31_0]		Rev 1.0
Date: Friday, July 20, 2012		Sheet 6 of 30	

00011601
MSI CONFIDENTIAL
(RMA)2013012101 jonepei(裘亮樂)
吳積源 (00011601) RMA工程課

MEMORY: FBB Partition 63..32


M503D
BGA_0170_P080_140X120
COMMON
NORMAL
Fbb_D<32>
Fbb_D<33>
Fbb_D<34>
Fbb_D<35>
Fbb_D<36>
Fbb_D<37>
Fbb_D<38>
Fbb_D<39>
Fbb_D<40>
Fbb_D<41>
Fbb_D<42>
Fbb_D<43>
Fbb_D<44>
Fbb_D<45>
Fbb_D<46>
Fbb_D<47>
FBB_EDC4
FBB_DBI4
FBB_EDC5
FBB_DBI5
FBB_WCK45
FBB_WCK45*
FBB_VREFD
C642
0.01UF
GND
M503A
BGA_0170_P080_140X120
COMMON
NORMAL
Fbb_D<48>
Fbb_D<49>
Fbb_D<50>
Fbb_D<51>
Fbb_D<52>
Fbb_D<53>
Fbb_D<54>
Fbb_D<55>
Fbb_D<56>
Fbb_D<57>
Fbb_D<58>
Fbb_D<59>
Fbb_D<60>
Fbb_D<61>
Fbb_D<62>
Fbb_D<63>
FBB_EDC6
FBB_DBI6
FBB_EDC7
FBB_DBI7
FBB_WCK67
FBB_WCK67*
C598
0.01UF
M503B
BGA_0170_P080_140X120
COMMON
FBB_CMD<28>
FBB_CMD<31>
FBB_CMD<21>
FBB_CMD<16>
FBB_CMD<24>
FBB_CMD<26>
FBB_CMD<27>
FBB_CMD<18>
FBB_CMD<17>
FBB_CMD<19>
FBB_CMD<20>
FBB_CMD<23>
FBB_CMD<22>
FBB_CMD<25>
FBB_CMD<29>
FBB_CMD<30>
RAS
CAS
WE
CS
ABI
A0_A10
A1_A9
A2_BA0
A3_BA3
A4_BA2
A5_BA1
A6_A11
A7_A8
RFU_A12
RESET
CKE
CLK
CLK
NC_RFU_A5
NC_RFU_V5
VREFC
ZQ
SEN
FBB_CLK1
FBB_CLK1*
R582 40.2
R581 40.2
FBB_CLK1_CM
C618 0.01UF
FBB_VREFC
C624 0.01UF
R578 121
R153 1K
FBB_ZQ_2_B
FBB_SEN_2
M503C
BGA_0170_P080_140X120
COMMON
Normal
R565 1K
FBB_MF2_A
MF_VSS/SOE*
VSS
VSSQ
VDD
VDDQ
FBVDDQ
GND

MICRO-STAR INT'L CO.,LTD
MS-V287
Size: Custom
Document Description: 07_MEMORY_FBB[63_32]
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 7 of 30

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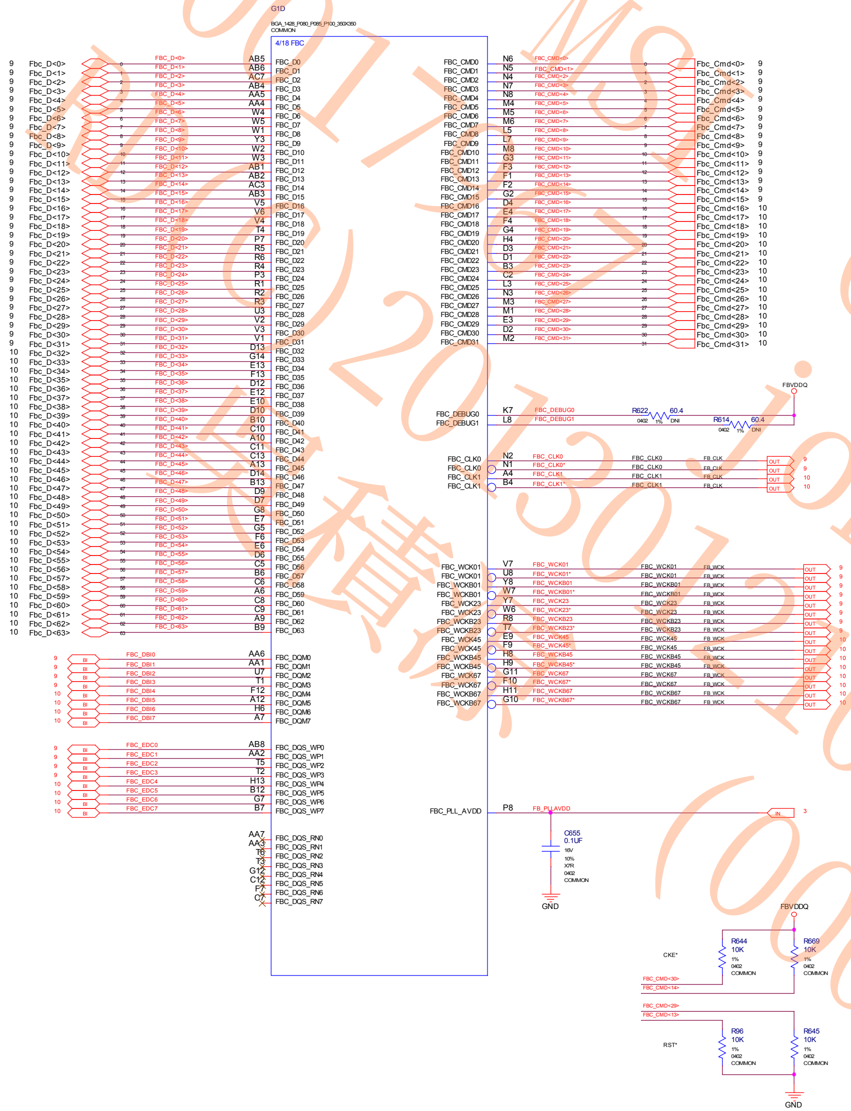
00017967
RD(C)20130121
吳積源(00016601)
RMA工程課

MEMORY: GPU Partition C


G1D
BGA_1428_P080_P085_P100_350X350
COMMON
4/18 FBC
Fbc_D<0> … Fbc_D<63>
FBC_D0 … FBC_D63
FBC_CMD0 … FBC_CMD31
Fbc_Cmd<0> … Fbc_Cmd<31>
FBC_DEBUG0
FBC_DEBUG1
R622 60.4 0402 1% DNI
R614 60.4 0402 1% DNI
FBVDDQ
FBC_CLK0
FBC_CLK0*
FBC_CLK1
FBC_CLK1*
FB_CLK
OUT
FBC_WCK01
FBC_WCK01*
FBC_WCKB01
FBC_WCKB01*
FBC_WCK23
FBC_WCK23*
FBC_WCKB23
FBC_WCKB23*
FBC_WCK45
FBC_WCK45*
FBC_WCKB45
FBC_WCKB45*
FBC_WCK67
FBC_WCK67*
FBC_WCKB67
FBC_WCKB67*
FB_WCK
FBC_DBI0 … FBC_DBI7
FBC_DQM0 … FBC_DQM7
BI
FBC_EDC0 … FBC_EDC7
FBC_DQS_WP0 … FBC_DQS_WP7
FBC_DQS_RN0 … FBC_DQS_RN7
FBC_PLL_AVDD
P8
FB_PLLAVDD
IN
C655 0.1UF 16V 10% X7R 0402 COMMON
GND
CKE*
FBC_CMD<30>
FBC_CMD<14>
R644 10K 1% 0402 COMMON
R569 10K 1% 0402 COMMON
FBC_CMD<29>
FBC_CMD<13>
RST*
R96 10K 1% 0402 COMMON
R645 10K 1% 0402 COMMON
GND

	0..31	32..63
CMD0	CS*	
CMD1	A3_BA3	
CMD2	A2_BA0	
CMD3	A4_BA2	
CMD4	A5_BA1	
CMD5	WE*	
CMD6	A7_A8	
CMD7	A6_A11	
CMD8	ABI*	
CMD9	A12_RFU	
CMD10	A0_A10	
CMD11	A1_A9	
CMD12	RAS*	
CMD13	RST*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3_BA3
CMD18		A2_BA0
CMD19		A4_BA2
CMD20		A5_BA1
CMD21		WE*
CMD22		A7_A8
CMD23		A6_A11
CMD24		ABI*
CMD25		A12_RFU
CMD26		A0_A10
CMD27		A1_A9
CMD28		RAS*
CMD29		RST*
CMD30		CKE*
CMD31		CAS*

Map Name GDDR5_170_MIRR
Map Enumeration: 0x3

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MS-V287

Size	Document Description	Rev
Custom	08_MEMORY_ GPU Partition C	1.0

Date: Friday, July 20, 2012 | Sheet 8 of 30

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2013/01/01
(00011601)
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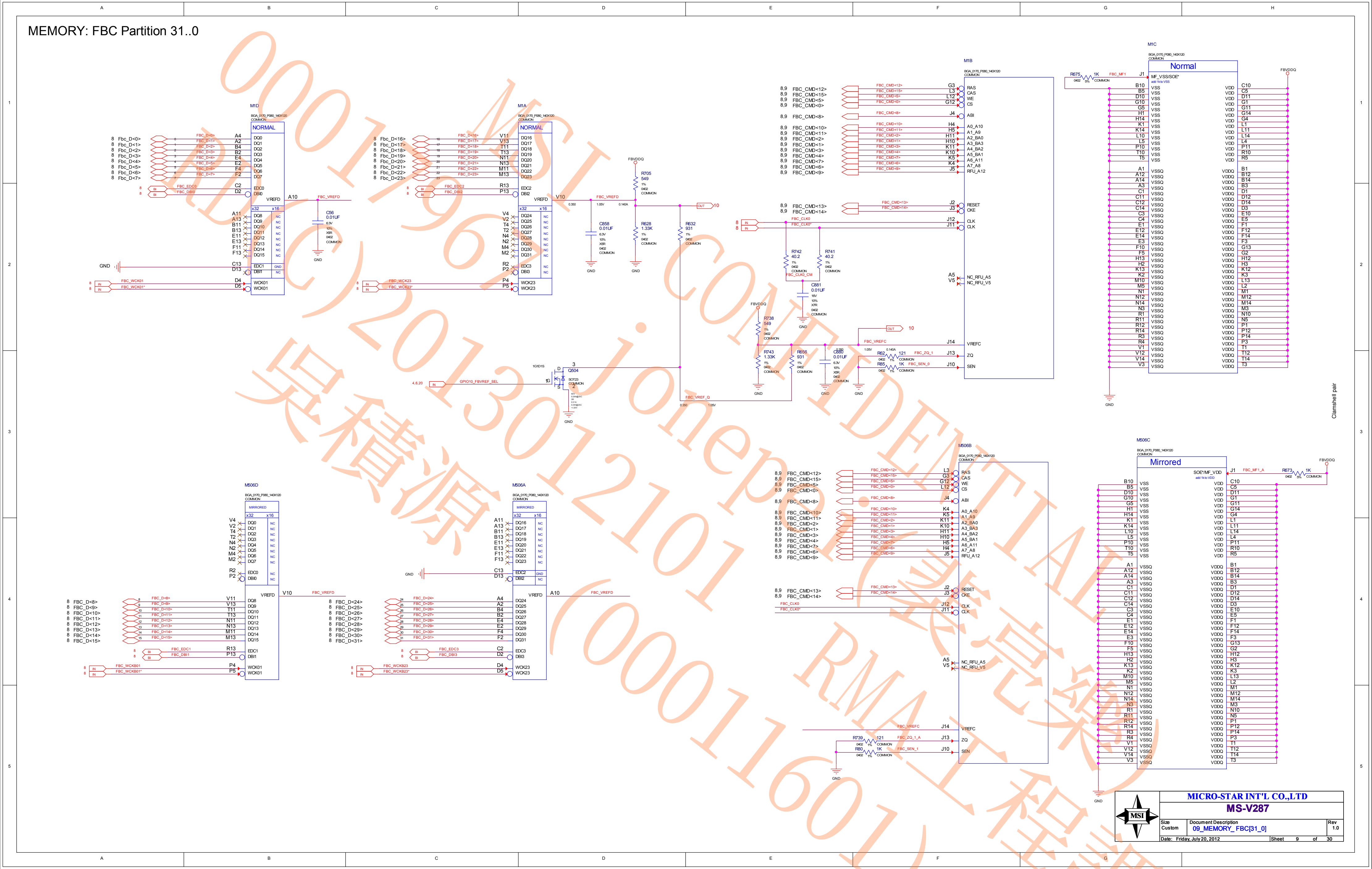
MEMORY: FBC Partition 31..0



M1D
NORMAL
Fbc_D<0> … Fbc_D<7>
DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7
EDC0
DBI0
VREFD
A10
FBC_VREFD
x32 x16
DQ8 … DQ15
EDC1
DBI1
GND
WCK01
FBC_WCK01
FBC_WCK01*
C56
0.01UF
M1A
NORMAL
Fbc_D<16> … Fbc_D<23>
DQ16 … DQ23
EDC2
DBI2
V10
DQ24 … DQ31
EDC3
DBI3
WCK23
FBC_WCK23
FBC_WCK23*
FBVDDQ
R705
549
C858
0.01UF
R628
1.33K
R632
931
Q504
SOT23
GPIO10_FBVREF_SEL
FBC_VREF_Q
M1B
FBC_CMD<12> FBC_CMD<15> FBC_CMD<5> FBC_CMD<0>
RAS CAS WE CS
FBC_CMD<8>
ABI
FBC_CMD<10> FBC_CMD<11> FBC_CMD<2> FBC_CMD<1> FBC_CMD<3> FBC_CMD<4> FBC_CMD<7> FBC_CMD<6> FBC_CMD<9>
A0_A10 A1_A9 A2_BA0 A3_BA3 A4_BA2 A5_BA1 A6_A11 A7_A8 RFU_A12
FBC_CMD<13> FBC_CMD<14>
RESET CKE
FBC_CLK0 FBC_CLK0*
CLK CLK
R742 40.2
R741 40.2
C881 0.01UF
NC_RFU_A5
NC_RFU_V5
R738 549
R743 1.33K
R656 931
C880 0.01UF
VREFC
ZQ
SEN
R62 121
R85 1K
FBC_ZQ_1
FBC_SEN_0
M1C
Normal
R675 1K
FBC_MF1
MF_VSS/SOE*
VSS
VDD
VSSQ
VDDQ
Clamshell pair
M506D
MIRRORED
FBC_D<8> … FBC_D<15>
FBC_EDC1
FBC_DBI1
FBC_WCKB01
FBC_WCKB01*
M506A
MIRRORED
FBC_D<24> … FBC_D<31>
FBC_EDC3
FBC_DBI3
FBC_WCKB23
FBC_WCKB23*
M506B
M506C
Mirrored
SOE*/MF_VDD
R673 1K
FBC_MF1_A
R739 121
R80 1K
FBC_ZQ_1_A
FBC_SEN_1

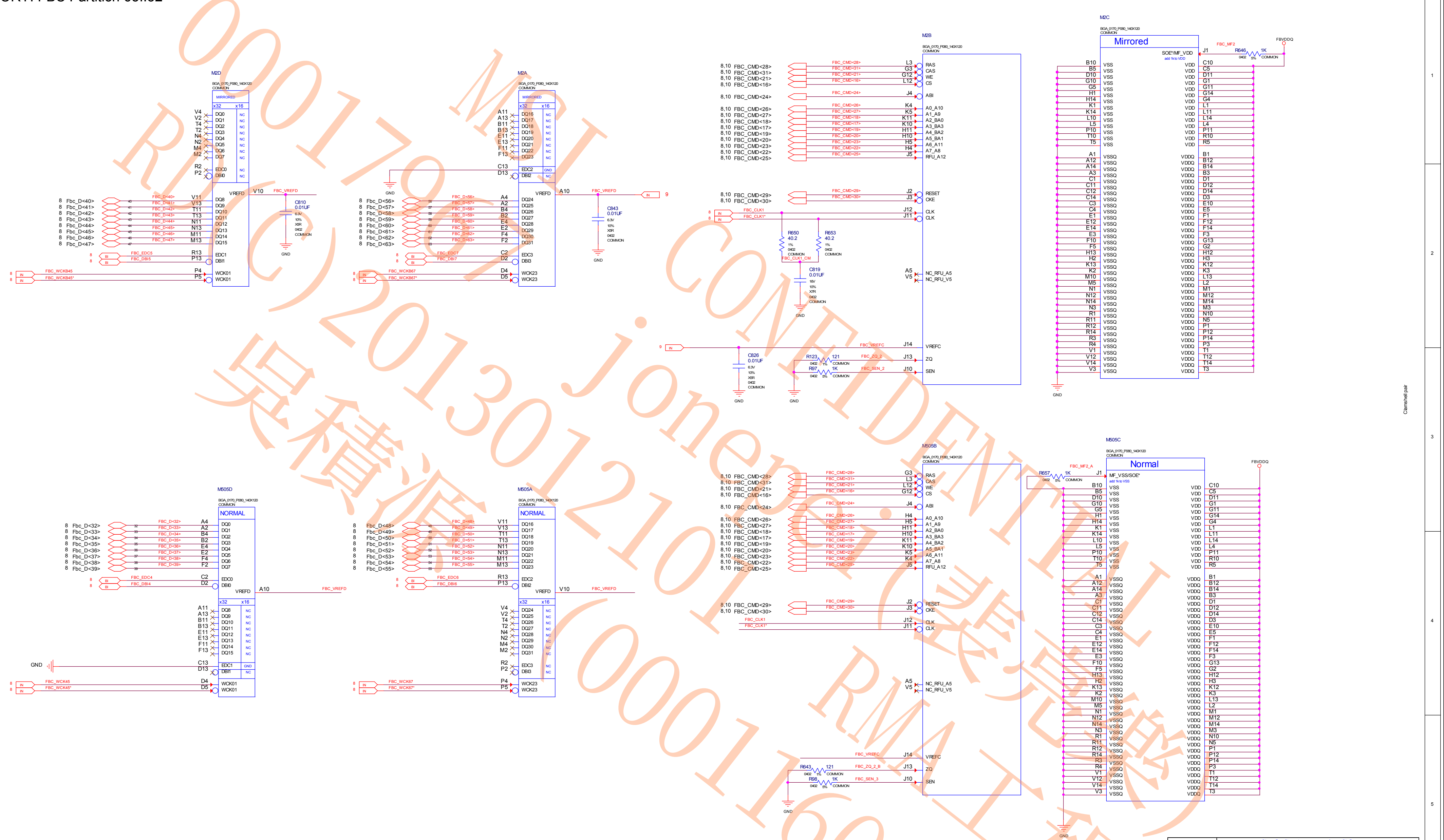
0001796 MSI CONFIDENTIAL (RDC) 2013012101 jonepan (吳積源) (00011601) RMA工程課

MICRO-STAR INT'L CO.,LTD
MS-V287

Size	Document Description	Rev
Custom	09_MEMORY_ FBC[31_0]	1.0

Date: Friday, July 20, 2012 Sheet 9 of 30

MEMORY: FBC Partition 63..32


M2D
BGA_0170_P080_140X120
COMMON
MIRRORED
M2A
M2B
M2C
Mirrored
SOE*/MF_VDD
FBVDDQ
FBC_MF2
R646 1K
M505D
NORMAL
M505A
M505B
M505C
Normal
MF_VSS/SOE*
FBC_MF2_A
R657 1K
FBC_VREFD
FBC_VREFC
VREFD
VREFC
C810 0.01UF
C843 0.01UF
C826 0.01UF
C819 0.01UF
R650 40.2
R653 40.2
FBC_CLK1_CM
R123 121
R97 1K
R643 121
R98 1K
FBC_ZQ_2
FBC_SEN_2
FBC_ZQ_2_B
FBC_SEN_3
FBC_CLK1
FBC_CLK1*
FBC_WCK45
FBC_WCK45*
FBC_WCK67
FBC_WCK67*
FBC_WCKB45
FBC_WCKB45*
FBC_WCKB67
FBC_WCKB67*
FBC_EDC4
FBC_DBI4
FBC_EDC5
FBC_DBI5
FBC_EDC6
FBC_DBI6
FBC_EDC7
FBC_DBI7
Fbc_D<32>…Fbc_D<39>
Fbc_D<40>…Fbc_D<47>
Fbc_D<48>…Fbc_D<55>
Fbc_D<56>…Fbc_D<63>
FBC_CMD<16>…FBC_CMD<31>
RAS
CAS
WE
CS
ABI
A0_A10
A1_A9
A2_BA0
A3_BA3
A4_BA2
A5_BA1
A6_A11
A7_A8
RFU_A12
RESET
CKE
CLK
NC_RFU_A5
NC_RFU_V5
ZQ
SEN
WCK01
WCK23
EDC0
EDC1
EDC2
EDC3
DBI0
DBI1
DBI2
DBI3
VSS
VDD
VSSQ
VDDQ
GND
Clamshell pair

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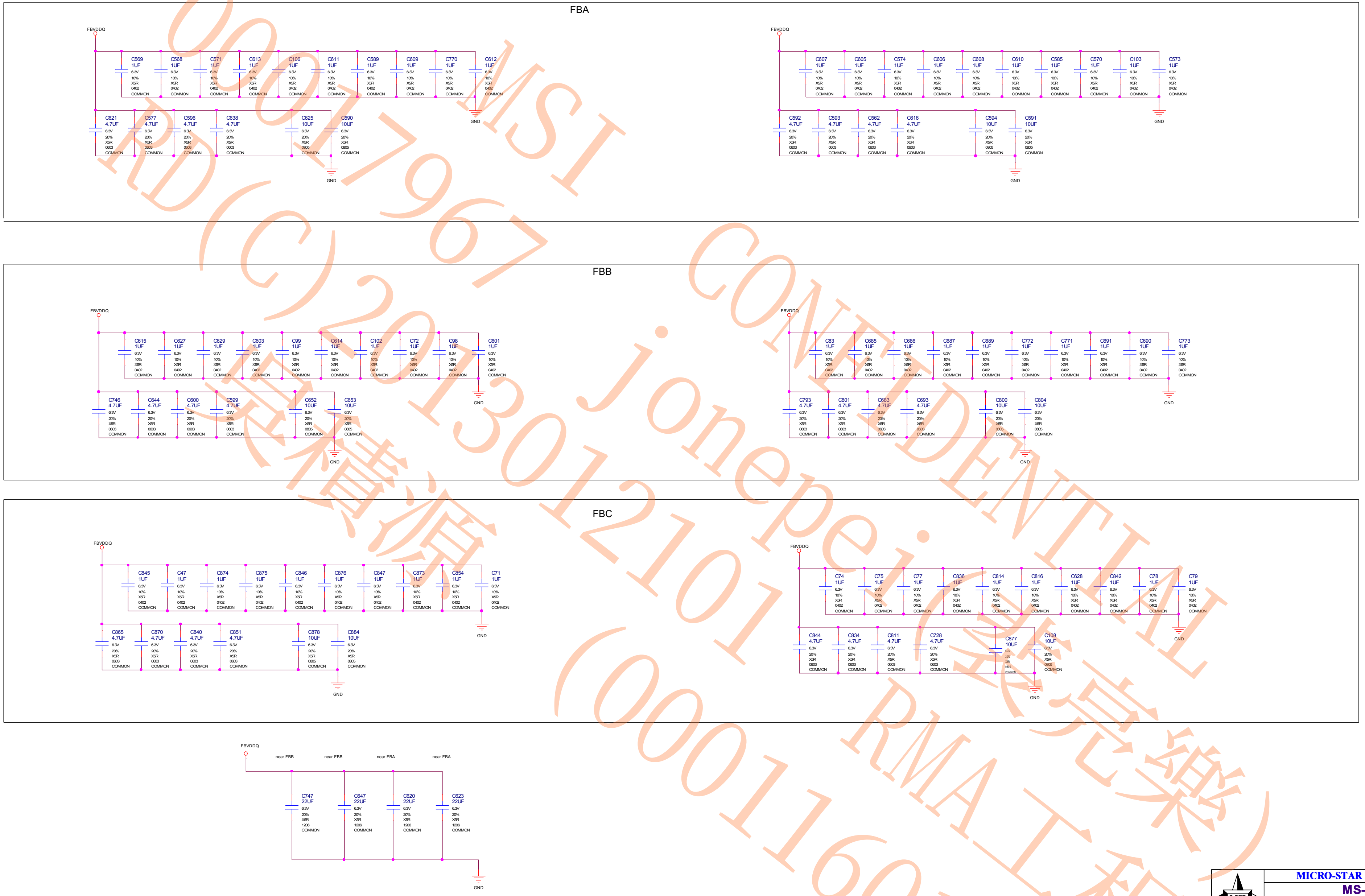
MS-V287
Size: Custom
Document Description: 10_MEMORY_FBC[63_32]
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 10 of 30

000179967 MSI RD(C)2013012101 jonep.Lu CONFIDENTIAL 吳積源 (裴亮樂) RMA工程課 (0001601)

MEMORY: DECAP


FBA
FBVDDQ
C569 1UF 6.3V 10% X5R 0402 COMMON
C568 1UF 6.3V 10% X5R 0402 COMMON
C571 1UF 6.3V 10% X5R 0402 COMMON
C613 1UF 6.3V 10% X5R 0402 COMMON
C106 1UF 6.3V 10% X5R 0402 COMMON
C611 1UF 6.3V 10% X5R 0402 COMMON
C589 1UF 6.3V 10% X5R 0402 COMMON
C609 1UF 6.3V 10% X5R 0402 COMMON
C770 1UF 6.3V 10% X5R 0402 COMMON
C612 1UF 6.3V 10% X5R 0402 COMMON
GND
C621 4.7UF 6.3V 20% X5R 0603 COMMON
C577 4.7UF 6.3V 20% X5R 0603 COMMON
C596 4.7UF 6.3V 20% X5R 0603 COMMON
C638 4.7UF 6.3V 20% X5R 0603 COMMON
C625 10UF 6.3V 20% X5R 0805 COMMON
C590 10UF 6.3V 20% X5R 0805 COMMON
GND
FBVDDQ
C607 1UF 6.3V 10% X5R 0402 COMMON
C605 1UF 6.3V 10% X5R 0402 COMMON
C574 1UF 6.3V 10% X5R 0402 COMMON
C606 1UF 6.3V 10% X5R 0402 COMMON
C608 1UF 6.3V 10% X5R 0402 COMMON
C610 1UF 6.3V 10% X5R 0402 COMMON
C585 1UF 6.3V 10% X5R 0402 COMMON
C570 1UF 6.3V 10% X5R 0402 COMMON
C103 1UF 6.3V 10% X5R 0402 COMMON
C573 1UF 6.3V 10% X5R 0402 COMMON
GND
C592 4.7UF 6.3V 20% X5R 0603 COMMON
C593 4.7UF 6.3V 20% X5R 0603 COMMON
C562 4.7UF 6.3V 20% X5R 0603 COMMON
C616 4.7UF 6.3V 20% X5R 0603 COMMON
C594 10UF 6.3V 20% X5R 0805 COMMON
C591 10UF 6.3V 20% X5R 0805 COMMON
GND
FBB
FBVDDQ
C615 1UF 6.3V 10% X5R 0402 COMMON
C627 1UF 6.3V 10% X5R 0402 COMMON
C629 1UF 6.3V 10% X5R 0402 COMMON
C603 1UF 6.3V 10% X5R 0402 COMMON
C99 1UF 6.3V 10% X5R 0402 COMMON
C614 1UF 6.3V 10% X5R 0402 COMMON
C102 1UF 6.3V 10% X5R 0402 COMMON
C72 1UF 6.3V 10% X5R 0402 COMMON
C98 1UF 6.3V 10% X5R 0402 COMMON
C601 1UF 6.3V 10% X5R 0402 COMMON
GND
C746 4.7UF 6.3V 20% X5R 0603 COMMON
C644 4.7UF 6.3V 20% X5R 0603 COMMON
C600 4.7UF 6.3V 20% X5R 0603 COMMON
C599 4.7UF 6.3V 20% X5R 0603 COMMON
C652 10UF 6.3V 20% X5R 0805 COMMON
C653 10UF 6.3V 20% X5R 0805 COMMON
GND
FBVDDQ
C83 1UF 6.3V 10% X5R 0402 COMMON
C685 1UF 6.3V 10% X5R 0402 COMMON
C686 1UF 6.3V 10% X5R 0402 COMMON
C687 1UF 6.3V 10% X5R 0402 COMMON
C689 1UF 6.3V 10% X5R 0402 COMMON
C772 1UF 6.3V 10% X5R 0402 COMMON
C771 1UF 6.3V 10% X5R 0402 COMMON
C691 1UF 6.3V 10% X5R 0402 COMMON
C690 1UF 6.3V 10% X5R 0402 COMMON
C773 1UF 6.3V 10% X5R 0402 COMMON
GND
C793 4.7UF 6.3V 20% X5R 0603 COMMON
C801 4.7UF 6.3V 20% X5R 0603 COMMON
C683 4.7UF 6.3V 20% X5R 0603 COMMON
C693 4.7UF 6.3V 20% X5R 0603 COMMON
C800 10UF 6.3V 20% X5R 0805 COMMON
C804 10UF 6.3V 20% X5R 0805 COMMON
GND
FBC
FBVDDQ
C845 1UF 6.3V 10% X5R 0402 COMMON
C47 1UF 6.3V 10% X5R 0402 COMMON
C874 1UF 6.3V 10% X5R 0402 COMMON
C875 1UF 6.3V 10% X5R 0402 COMMON
C846 1UF 6.3V 10% X5R 0402 COMMON
C876 1UF 6.3V 10% X5R 0402 COMMON
C847 1UF 6.3V 10% X5R 0402 COMMON
C873 1UF 6.3V 10% X5R 0402 COMMON
C854 1UF 6.3V 10% X5R 0402 COMMON
C71 1UF 6.3V 10% X5R 0402 COMMON
GND
C865 4.7UF 6.3V 20% X5R 0603 COMMON
C870 4.7UF 6.3V 20% X5R 0603 COMMON
C840 4.7UF 6.3V 20% X5R 0603 COMMON
C851 4.7UF 6.3V 20% X5R 0603 COMMON
C878 10UF 6.3V 20% X5R 0805 COMMON
C884 10UF 6.3V 20% X5R 0805 COMMON
GND
FBVDDQ
C74 1UF 6.3V 10% X5R 0402 COMMON
C75 1UF 6.3V 10% X5R 0402 COMMON
C77 1UF 6.3V 10% X5R 0402 COMMON
C836 1UF 6.3V 10% X5R 0402 COMMON
C814 1UF 6.3V 10% X5R 0402 COMMON
C816 1UF 6.3V 10% X5R 0402 COMMON
C628 1UF 6.3V 10% X5R 0402 COMMON
C842 1UF 6.3V 10% X5R 0402 COMMON
C78 1UF 6.3V 10% X5R 0402 COMMON
C79 1UF 6.3V 10% X5R 0402 COMMON
GND
C844 4.7UF 6.3V 20% X5R 0603 COMMON
C834 4.7UF 6.3V 20% X5R 0603 COMMON
C811 4.7UF 6.3V 20% X5R 0603 COMMON
C728 4.7UF 6.3V 20% X5R 0603 COMMON
C877 10UF
C108 10UF 6.3V 20% X5R 0805 COMMON
GND
FBVDDQ
near FBB
near FBB
near FBA
near FBA
C747 22UF 6.3V 20% X5R 1206 COMMON
C647 22UF 6.3V 20% X5R 1206 COMMON
C620 22UF 6.3V 20% X5R 1206 COMMON
C623 22UF 6.3V 20% X5R 1206 COMMON
GND

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MS-V287

Size	Document Description	Rev
Custom	11_MEMORY_DECAP	1.0
Date: Friday, July 20, 2012	Sheet 11 of 30	

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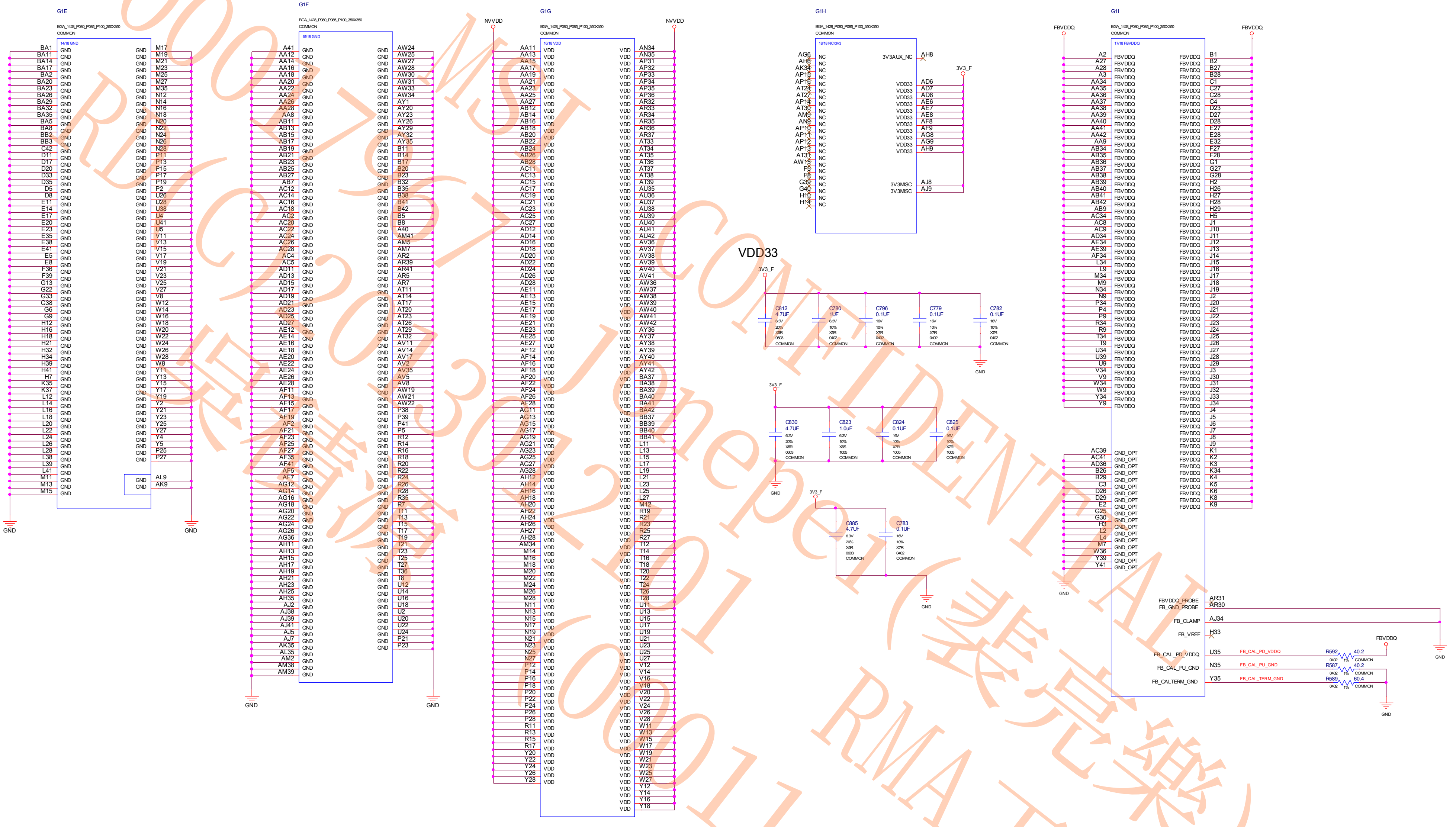
(00011601)
RMA工程課

GPU PWR and GND


G1E
BGA_1428_P080_P085_P100_350X350
COMMON
14/18 GND
G1F
15/18 GND
G1G
16/18 VDD
NVVDD
G1H
18/18 NC/3V3
3V3AUX_NC
VDD33
3V3MISC
3V3_F
G1I
17/18 FBVDDQ
FBVDDQ
GND_OPT
GND
VDD33
C812 4.7UF
C780 1UF
C796 0.1UF
C779 0.1UF
C782 0.1UF
C830 4.7UF
C823 1.0UF
C824 0.1UF
C825 0.1UF
C885 4.7UF
C783 0.1UF
FBVDDQ_PROBE AR31
FB_GND_PROBE AR30
FB_CLAMP AJ34
FB_VREF H33
FB_CAL_PD_VDDQ U35 R592 40.2
FB_CAL_PU_GND N35 R587 40.2
FB_CALTERM_GND Y35 R589 60.4

000175617 MSI CONFIDENTIAL
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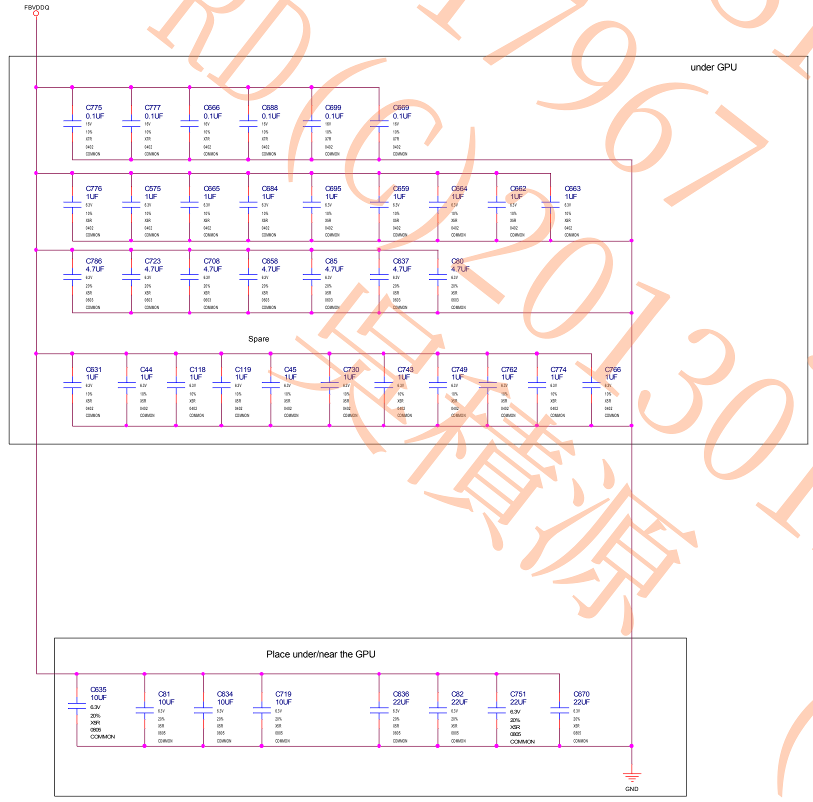
RMA工程課
(00011601)

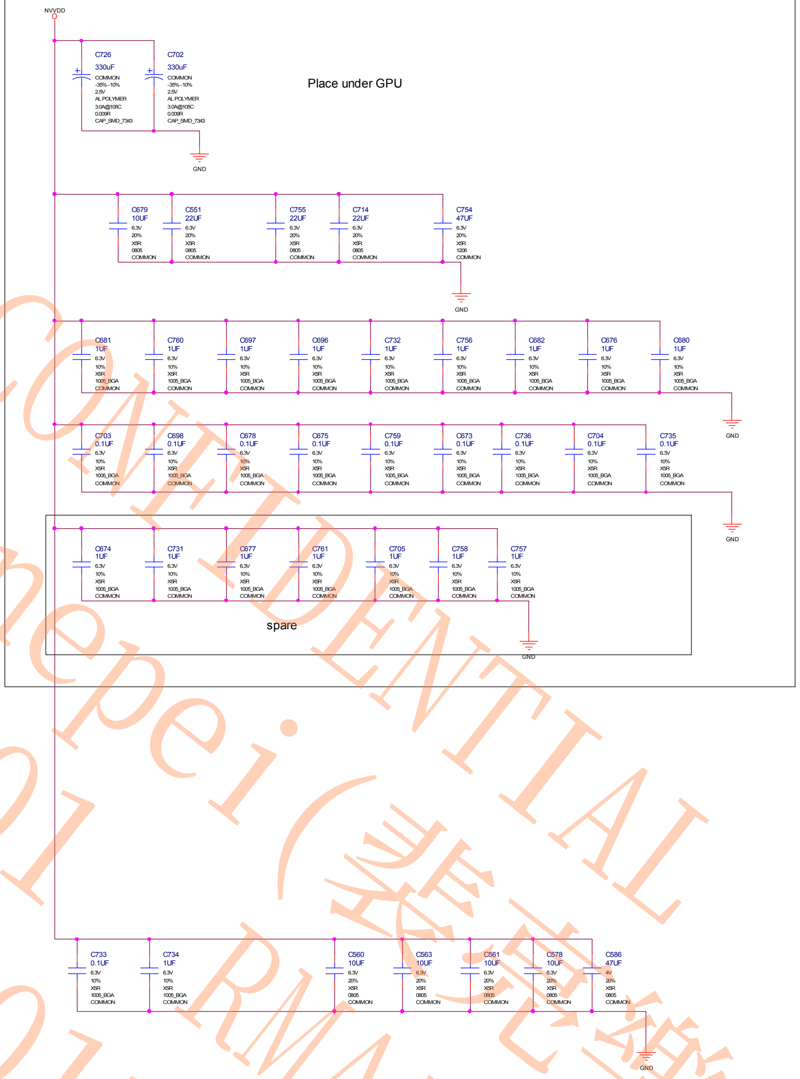
MICRO-STAR INT'L CO.,LTD
MS-V287
Size: Custom
Document Description: 12_GPU PWR and GND
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 12 of 30

GPU Decoupling

FBVDDQ


FBVDDQ
under GPU
C775 0.1UF 16V 10% X7R 0402 COMMON
C777 0.1UF 16V 10% X7R 0402 COMMON
C666 0.1UF 16V 10% X7R 0402 COMMON
C688 0.1UF 16V 10% X7R 0402 COMMON
C699 0.1UF 16V 10% X7R 0402 COMMON
C669 0.1UF 16V 10% X7R 0402 COMMON
C776 1UF 6.3V 10% X5R 0402 COMMON
C575 1UF 6.3V 10% X5R 0402 COMMON
C665 1UF 6.3V 10% X5R 0402 COMMON
C684 1UF 6.3V 10% X5R 0402 COMMON
C695 1UF 6.3V 10% X5R 0402 COMMON
C659 1UF 6.3V 10% X5R 0402 COMMON
C664 1UF 6.3V 10% X5R 0402 COMMON
C662 1UF 6.3V 10% X5R 0402 COMMON
C663 1UF 6.3V 10% X5R 0402 COMMON
C786 4.7UF 6.3V 20% X5R 0603 COMMON
C723 4.7UF 6.3V 20% X5R 0603 COMMON
C708 4.7UF 6.3V 20% X5R 0603 COMMON
C658 4.7UF 6.3V 20% X5R 0603 COMMON
C85 4.7UF 6.3V 20% X5R 0603 COMMON
C637 4.7UF 6.3V 20% X5R 0603 COMMON
C80 4.7UF 6.3V 20% X5R 0603 COMMON
Spare
C631 1UF 6.3V 10% X5R 0402 COMMON
C44 1UF 6.3V 10% X5R 0402 COMMON
C118 1UF 6.3V 10% X5R 0402 COMMON
C119 1UF 6.3V 10% X5R 0402 COMMON
C45 1UF 6.3V 10% X5R 0402 COMMON
C730 1UF 6.3V 10% X5R 0402 COMMON
C743 1UF 6.3V 10% X5R 0402 COMMON
C749 1UF 6.3V 10% X5R 0402 COMMON
C762 1UF 6.3V 10% X5R 0402 COMMON
C774 1UF 6.3V 10% X5R 0402 COMMON
C766 1UF 6.3V 10% X5R 0402 COMMON
Place under/near the GPU
C635 10UF 6.3V 20% X5R 0805 COMMON
C81 10UF 6.3V 20% X5R 0805 COMMON
C634 10UF 6.3V 20% X5R 0805 COMMON
C719 10UF 6.3V 20% X5R 0805 COMMON
C636 22UF 6.3V 20% X5R 0805 COMMON
C82 22UF 6.3V 20% X5R 0805 COMMON
C751 22UF 6.3V 20% X5R 0805 COMMON
C670 22UF 6.3V 20% X5R 0805 COMMON
GND

NVVDD


NVVDD
Place under GPU
C726 330uF COMMON -35% -10% 2.5V AL POLYMER 3.0A@105C 0.009R CAP_SMD_7343
C702 330uF COMMON -35% -10% 2.5V AL POLYMER 3.0A@105C 0.009R CAP_SMD_7343
GND
C679 10UF 6.3V 20% X5R 0805 COMMON
C551 22UF 6.3V 20% X5R 0805 COMMON
C755 22UF 6.3V 20% X5R 0805 COMMON
C714 22UF 6.3V 20% X5R 0805 COMMON
C754 47UF 6.3V 20% X5R 1206 COMMON
GND
C681 1UF 6.3V 10% X5R 1005_BGA COMMON
C760 1UF 6.3V 10% X5R 1005_BGA COMMON
C697 1UF 6.3V 10% X5R 1005_BGA COMMON
C696 1UF 6.3V 10% X5R 1005_BGA COMMON
C732 1UF 6.3V 10% X5R 1005_BGA COMMON
C756 1UF 6.3V 10% X5R 1005_BGA COMMON
C682 1UF 6.3V 10% X5R 1005_BGA COMMON
C676 1UF 6.3V 10% X5R 1005_BGA COMMON
C680 1UF 6.3V 10% X5R 1005_BGA COMMON
GND
C703 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C698 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C678 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C675 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C759 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C673 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C736 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C704 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C735 0.1UF 6.3V 10% X5R 1005_BGA COMMON
GND
C674 1UF 6.3V 10% X5R 1005_BGA COMMON
C731 1UF 6.3V 10% X5R 1005_BGA COMMON
C677 1UF 6.3V 10% X5R 1005_BGA COMMON
C761 1UF 6.3V 10% X5R 1005_BGA COMMON
C705 1UF 6.3V 10% X5R 1005_BGA COMMON
C758 1UF 6.3V 10% X5R 1005_BGA COMMON
C757 1UF 6.3V 10% X5R 1005_BGA COMMON
spare
GND
C733 0.1UF 6.3V 10% X5R 1005_BGA COMMON
C734 1UF 6.3V 10% X5R 1005_BGA COMMON
C560 10UF 6.3V 20% X5R 0805 COMMON
C563 10UF 6.3V 20% X5R 0805 COMMON
C561 10UF 6.3V 20% X5R 0805 COMMON
C578 10UF 6.3V 20% X5R 0805 COMMON
C586 47UF 4V 20% X5R 0805 COMMON
GND

	guidelines	actual
Under GPU	2x 330uF 9mOhm	1x 330uF 9mOhm
	1x 47uF 1206	1x 22uF 1206
	2x 22uF 805	4x 22uF 805
	2x 10uF 805	9x 1uF 402
	9x 1uF 402	9x 0.1uF 402
	9x 0.1uF 402	
		spare sites (not stuffed) 1x 7343 27x 402
near GPU	1x 47uF 1206	2x 22uF
	2x 22uF 805	
	2x 10uF 805	spare sites (not stuffed) 3x 805
	2x 4.7uF 603	
	1x 1uF 402	
	1x 0.1uF 402	

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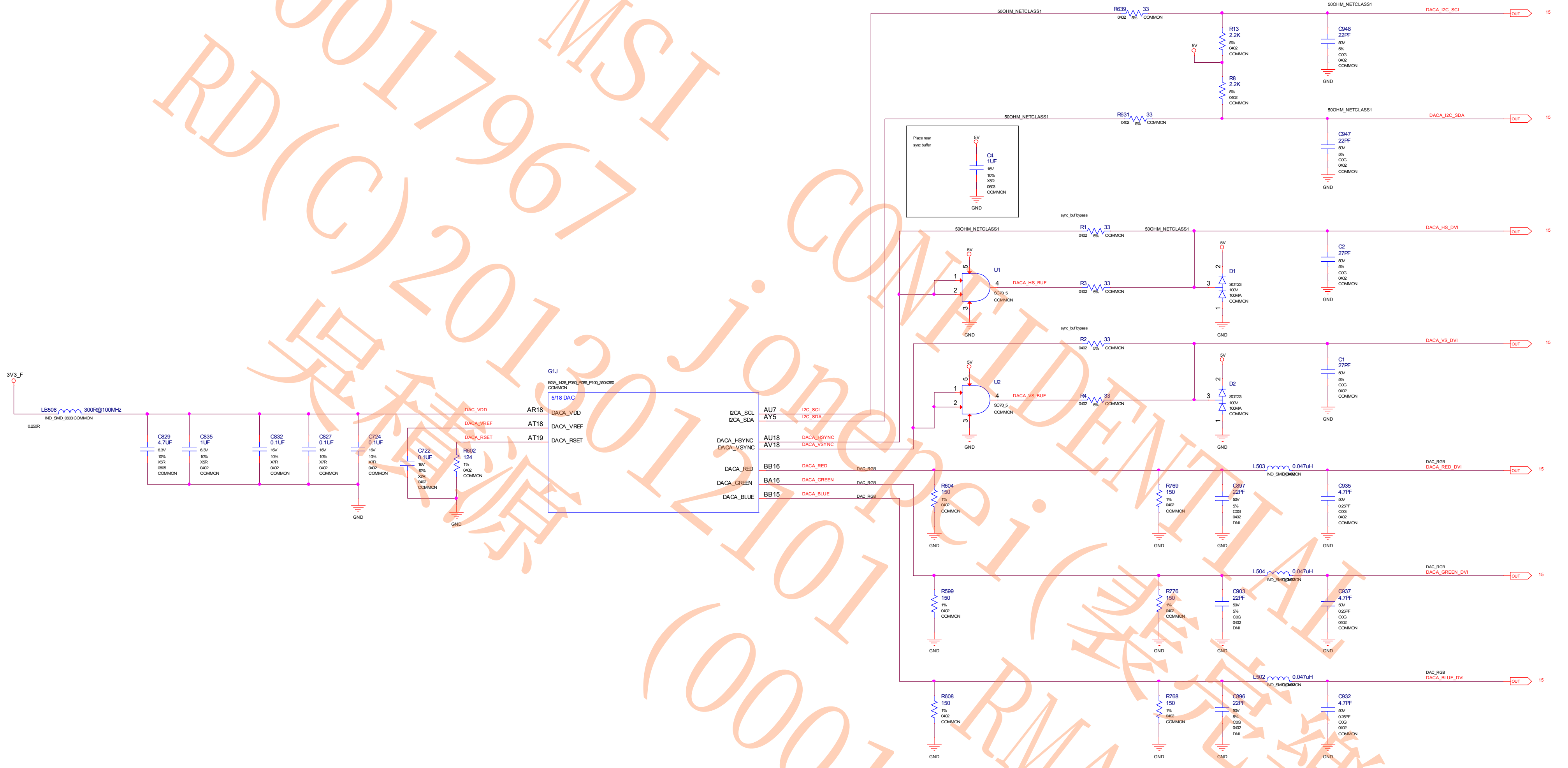
MICRO-STAR INT'L CO.,LTD
MS-V287
Size: Custom
Document Description: 13_GPU Decoupling
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 13 of 30

DACA Interface


3V3_F
LB508
300R@100MHz
IND_SMD_0603 COMMON
0.250R
DAC_VDD
DACA_VREF
DACA_RSET
C829
4.7UF
6.3V
10%
X5R
0805
COMMON
C835
1UF
6.3V
10%
X5R
0402
COMMON
C832
0.1UF
16V
10%
X7R
0402
COMMON
C827
0.1UF
16V
10%
X7R
0402
COMMON
C724
0.1UF
16V
10%
X7R
0402
COMMON
C722
0.1UF
16V
10%
X7R
0402
COMMON
R602
124
1%
0402
COMMON
GND
G1J
BGA_1428_P080_P085_P100_350X350
COMMON
5/18 DAC
AR18
DACA_VDD
AT18
DACA_VREF
AT19
DACA_RSET
I2CA_SCL
AU7
I2CA_SDA
AY5
DACA_HSYNC
AU18
DACA_VSYNC
AV18
DACA_RED
BB16
DACA_GREEN
BA16
DACA_BLUE
BB15
I2C_SCL
I2C_SDA
DACA_HSYNC
DACA_VSYNC
DACA_RED
DACA_GREEN
DACA_BLUE
DAC_RGB
50OHM_NETCLASS1
R639
33
0402
5%
COMMON
R13
2.2K
5%
0402
COMMON
5V
R8
2.2K
5%
0402
COMMON
C948
22PF
50V
5%
C0G
0402
COMMON
DACA_I2C_SCL
OUT
15
R631
33
C947
22PF
DACA_I2C_SDA
Place near
sync buffer
C4
1UF
16V
10%
X5R
0603
COMMON
sync_buf bypass
R1
33
U1
DACA_HS_BUF
SC70_5
COMMON
R3
33
D1
SOT23
100V
100MA
COMMON
C2
27PF
DACA_HS_DVI
R2
33
U2
DACA_VS_BUF
R4
33
D2
C1
27PF
DACA_VS_DVI
L503
0.047uH
IND_SMD_0402 COMMON
R604
150
1%
0402
COMMON
R769
150
C897
22PF
50V
5%
C0G
0402
DNI
C935
4.7PF
50V
0.25PF
C0G
0402
COMMON
DACA_RED_DVI
L504
0.047uH
R599
150
R776
150
C903
22PF
C937
4.7PF
DACA_GREEN_DVI
L502
0.047uH
R608
150
R768
150
C896
22PF
C932
4.7PF
DACA_BLUE_DVI

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
DAC_VDD	3.3V	0.25A	16MIL

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MS-V287

Size: Custom
Document Description: 14_DACA Interface
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 14 of 30

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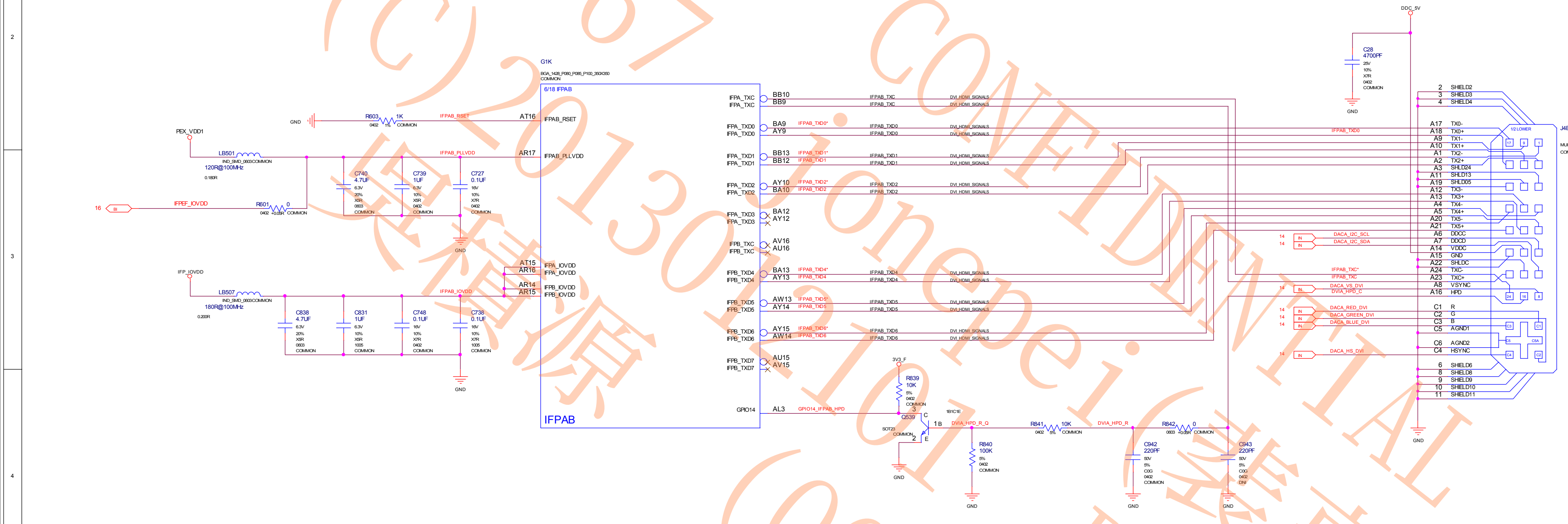
IFPAB DVI-I-DL



A B C D E F G H
1 2 3 4 5
G1K
BGA_1428_P080_P085_P100_350X350
COMMON
6/18 IFPAB
IFPAB
GND
R603 1K 0402 1% COMMON
IFPAB_RSET
AT16 IFPAB_RSET
PEX_VDD1
LB501
IND_SMD_0603COMMON
120R@100MHz
0.180R
IFPAB_PLLVDD
AR17 IFPAB_PLLVDD
C740 4.7UF 6.3V 20% X5R 0603 COMMON
C739 1UF 6.3V 10% X5R 0402 COMMON
C727 0.1UF 16V 10% X7R 0402 COMMON
16 BI IFPEF_IOVDD
R601 0 0402 +0.05R COMMON
IFP_IOVDD
LB507
IND_SMD_0603COMMON
180R@100MHz
0.200R
IFPAB_IOVDD
AT15 IFPA_IOVDD
AR16 IFPA_IOVDD
AR14 IFPB_IOVDD
AR15 IFPB_IOVDD
C838 4.7UF 6.3V 20% X5R 0603 COMMON
C831 1UF 6.3V 10% X5R 1005 COMMON
C748 0.1UF 16V 10% X7R 0402 COMMON
C738 0.1UF 16V 10% X7R 1005 COMMON
IFPA_TXC BB10
IFPA_TXC BB9
IFPA_TXD0 BA9 IFPAB_TXD0*
IFPA_TXD0 AY9
IFPA_TXD1 BB13 IFPAB_TXD1*
IFPA_TXD1 BB12 IFPAB_TXD1
IFPA_TXD2 AY10 IFPAB_TXD2*
IFPA_TXD2 BA10 IFPAB_TXD2
IFPA_TXD3 BA12
IFPA_TXD3 AY12
IFPB_TXC AV16
IFPB_TXC AU16
IFPB_TXD4 BA13 IFPAB_TXD4*
IFPB_TXD4 AY13 IFPAB_TXD4
IFPB_TXD5 AW13 IFPAB_TXD5*
IFPB_TXD5 AY14 IFPAB_TXD5
IFPB_TXD6 AY15 IFPAB_TXD6*
IFPB_TXD6 AW14 IFPAB_TXD6
IFPB_TXD7 AU15
IFPB_TXD7 AV15
GPIO14 AL3 GPIO14_IFPAB_HPD
IFPAB_TXC DVI_HDMI_SIGNALS
IFPAB_TXD0 DVI_HDMI_SIGNALS
IFPAB_TXD1 DVI_HDMI_SIGNALS
IFPAB_TXD2 DVI_HDMI_SIGNALS
IFPAB_TXD4 DVI_HDMI_SIGNALS
IFPAB_TXD5 DVI_HDMI_SIGNALS
IFPAB_TXD6 DVI_HDMI_SIGNALS
3V3_F
R839 10K 5% 0402 COMMON
Q539 SOT23 COMMON 1B1C1E
3 C
1 B
2 E
DVIA_HPD_R_Q
R840 100K 5% 0402 COMMON
R841 10K 0402 5% COMMON
DVIA_HPD_R
R842 0 0603 +0.05R COMMON
C942 220PF 50V 5% C0G 0402 COMMON
C943 220PF 50V 5% C0G 0402 DNI
DDC_5V
C28 4700PF 25V 10% X7R 0402 COMMON
IFPAB_TXD0
14 IN DACA_I2C_SCL
14 IN DACA_I2C_SDA
IFPAB_TXC*
IFPAB_TXC
14 IN DACA_VS_DVI
DVIA_HPD_C
14 IN DACA_RED_DVI
14 IN DACA_GREEN_DVI
14 IN DACA_BLUE_DVI
14 IN DACA_HS_DVI
2 SHIELD2
3 SHIELD3
4 SHIELD4
A17 TX0-
A18 TX0+
A9 TX1-
A10 TX1+
A1 TX2-
A2 TX2+
A3 SHLD24
A11 SHLD13
A19 SHLD05
A12 TX3-
A13 TX3+
A4 TX4-
A5 TX4+
A20 TX5-
A21 TX5+
A6 DDCC
A7 DDCD
A14 VDDC
A15 GND
A22 SHLDC
A24 TXC-
A23 TXC+
A8 VSYNC
A16 HPD
C1 R
C2 G
C3 B
C5 AGND1
C6 AGND2
C4 HSYNC
6 SHIELD6
8 SHIELD8
9 SHIELD9
10 SHIELD10
11 SHIELD11
1/2 LOWER
J4B
MULTI_CON_DVI
COMMON
17 9 1 24 16 8
C3 C1 C5 C5A C4 C2
GND

MICRO-STAR INT'L CO.,LTD

MS-V287

Size Custom
Document Description 15_IFPAB DVI-I-DL
Rev 1.0
Date: Friday, July 20, 2012
Sheet 15 of 30

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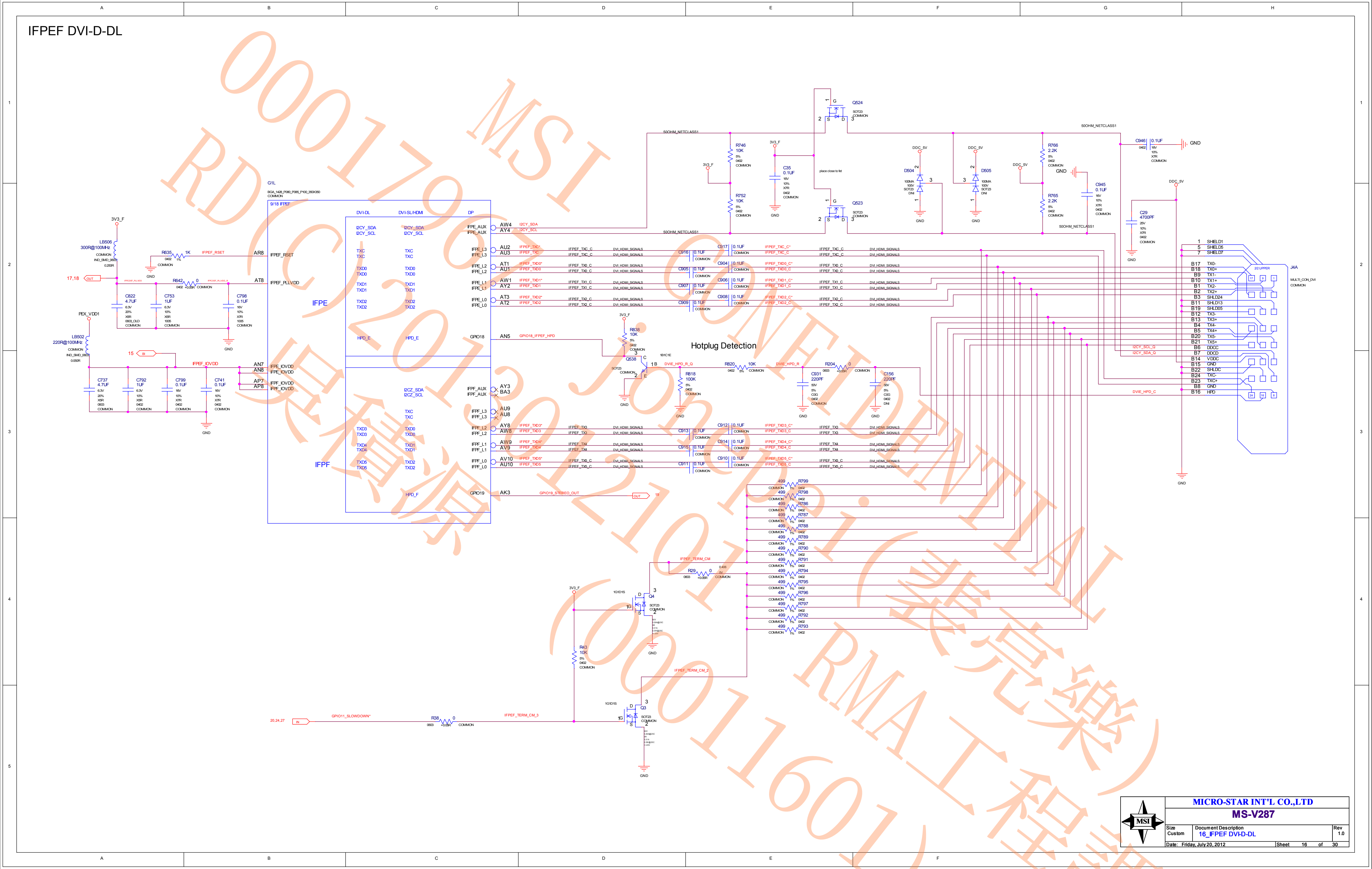
000179967 RD(C)2013012101 迅積源
jonepei(裴亮樂) RMA工程課(000011601)

IFPEF DVI-D-DL


G1L
BGA_1428_P080_P085_P100_350X350
COMMON
9/18 IFPEF
DVI-DL
DVI-SL/HDMI
DP
I2CY_SDA
I2CY_SCL
TXC
TXD0
TXD1
TXD2
HPD_E
IFPE
IFPF
I2CZ_SDA
I2CZ_SCL
TXD3
TXD4
TXD5
HPD_F
IFPE_AUX
IFPE_L3
IFPE_L2
IFPE_L1
IFPE_L0
GPIO18
IFPF_AUX
IFPF_L3
IFPF_L2
IFPF_L1
IFPF_L0
GPIO19
IFPEF_RSET
IFPEF_PLLVDD
IFPE_IOVDD
IFPF_IOVDD
AR8
AT8
AN7
AN8
AP7
AP8
AW4
AY4
AU2
AU3
AT1
AU1
AW1
AY2
AT3
AT2
AN5
AY3
BA3
AU9
AU8
AY8
AW8
AW9
AY9
AV10
AU10
AK3
3V3_F
LB506
300R@100MHz
IND_SMD_0603
0.250R
R635 1K
R642 0
C822 4.7UF
C753 1UF
C798 0.1UF
PEX_VDD1
LB502
220R@100MHz
IFPEF_IOVDD
C737 4.7UF
C792 1UF
C799 0.1UF
C741 0.1UF
GND
17,18
15
50OHM_NETCLASS1
R746 10K
R752 10K
C35 0.1UF
Q524
Q523
SOT23
place close to fet
DDC_5V
D504
D505
R766 2.2K
R765 2.2K
C945 0.1UF
C946 0.1UF
C29 4700PF
C916 0.1UF
C917 0.1UF
C905 0.1UF
C904 0.1UF
C907 0.1UF
C906 0.1UF
C909 0.1UF
C908 0.1UF
DVI_HDMI_SIGNALS
Hotplug Detection
R838 10K
Q538
DVIE_HPD_R_Q
R818 100K
R820 10K
DVIE_HPD_R
R204 0
C931 220PF
C156 220PF
DVIE_HPD_C
C913 0.1UF
C912 0.1UF
C915 0.1UF
C914 0.1UF
C911 0.1UF
C910 0.1UF
GPIO19_STEREO_OUT
R799 R798 R786 R787 R788 R789 R790 R791 R794 R795 R796 R797 R792 R793
499
IFPEF_TERM_CM
R29 0
Q4
R43 10K
IFPEF_TERM_CM_2
Q3
20,24,27
GPIO11_SLOWDOWN*
R38 0
IFPEF_TERM_CM_3
J4A
MULTI_CON_DVI
2/2 UPPER
SHIELD1
SHIELD5
SHIELD7
TX0-
TX0+
TX1-
TX1+
TX2-
TX2+
SHLD24
SHLD13
SHLD05
TX3-
TX3+
TX4-
TX4+
TX5-
TX5+
DDCC
DDCD
VDDC
GND
SHLDC
TXC-
TXC+
HPD
I2CY_SCL_Q
I2CY_SDA_Q

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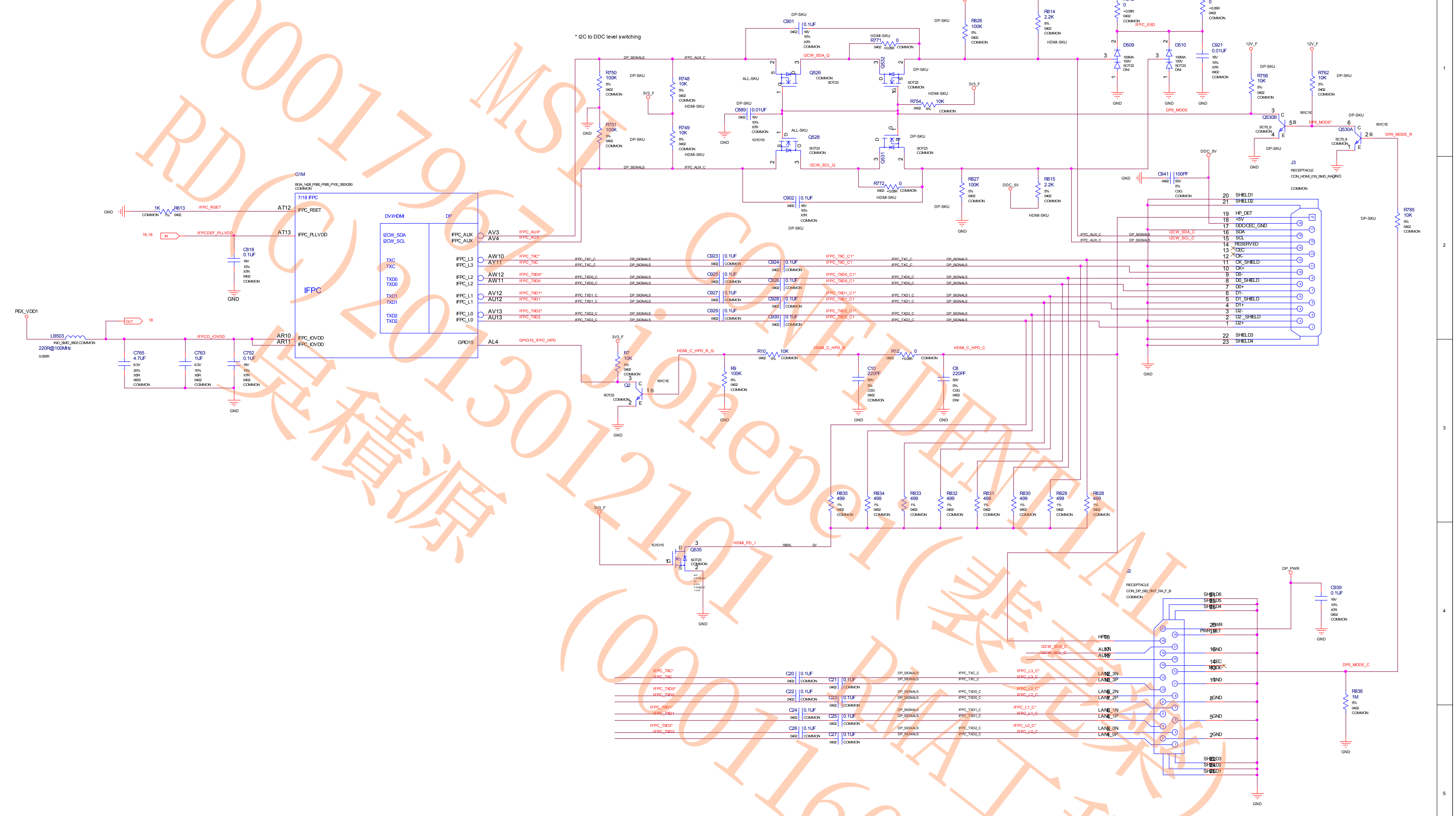
MS-V287

Size	Document Description	Rev
Custom	16_IFPEF DVI-D-DL	1.0

Date: Friday, July 20, 2012 Sheet 16 of 30

IFPC HDMI/DP


* I2C to DDC level switching
G1M
BGA_1428_P080_P085_P100_350X350
7/18 IFPC
IFPC
DVI/HDMI
DP
AT12 IFPC_RSET
AT13 IFPC_PLLVDD
AR10 IFPC_IOVDD
AR11 IFPC_IOVDD
AL4 GPIO15
AV3 IFPC_AUX
AV4 IFPC_AUX
AW10 IFPC_L3
AY11 IFPC_L3
AW12 IFPC_L2
AW11 IFPC_L2
AV12 IFPC_L1
AU12 IFPC_L1
AV13 IFPC_L0
AU13 IFPC_L0
I2CW_SDA
I2CW_SCL
TXC
TXD0
TXD1
TXD2
IFPC_RSET
IFPCDEF_PLLVDD
IFPCD_IOVDD
GPIO15_IFPC_HPD
PEX_VDD1
LB503
220R@100MHz
C765 4.7UF
C763 1UF
C752 0.1UF
C818 0.1UF
R613 1K
GND
3V3_F
DP_PWR
DDC_5V
12V_F
Q526
Q528
Q532
Q531
Q530A
Q530B
Q2
Q535
D509
D510
R750 100K
R751 100K
R748 10K
R749 10K
C889 0.01UF
C901 0.1UF
C902 0.1UF
R771 0
R772 0
R754 10K
R826 100K
R827 100K
R814 2.2K
R815 2.2K
R812 0
R806 0
C921 0.01UF
R756 10K
R762 10K
R785 10K
C941 100PF
R7 10K
R9 100K
R10 10K
R12 0
C10 220PF
C8 220PF
C923 0.1UF
C924 0.1UF
C925 0.1UF
C926 0.1UF
C927 0.1UF
C928 0.1UF
C929 0.1UF
C930 0.1UF
R835 499
R834 499
R833 499
R832 499
R831 499
R830 499
R829 499
R828 499
I2CW_SDA_Q
I2CW_SCL_Q
I2CW_SDA_C
I2CW_SCL_C
IFPC_AUX_C
DP_SIGNALS
DP0_MODE
DP0_MODE_R
DP0_MODE_C
HDMI_C_HPD_R_Q
HDMI_C_HPD_R
HDMI_C_HPD_C
HDMI_PD_1
DP-SKU
HDMI-SKU
ALL-SKU
J3
RECEPTACLE
CON_HDMI_019_SMD_RA
SHIELD1
SHIELD2
HP_DET
+5V
DDC/CEC_GND
SDA
SCL
RESERVED
CEC
CK-
CK_SHIELD
CK+
D0-
D0_SHIELD
D0+
D1-
D1_SHIELD
D1+
D2-
D2_SHIELD
D2+
SHIELD3
SHIELD4
J2
RECEPTACLE
CON_DP_020_SMT_RA_F_B
C939 0.1UF
R836 1M
C20 0.1UF
C21 0.1UF
C22 0.1UF
C23 0.1UF
C24 0.1UF
C25 0.1UF
C26 0.1UF
C27 0.1UF
HPD
AUX
PWR
RET
LANE3_3N
LANE3_3P
LANE2_2N
LANE2_2P
LANE1_1N
LANE1_1P
LANE0_0N
LANE0_0P
GND
MODE

MICRO-STAR INT'L CO.,LTD		
MS-V287		
Size Custom	Document Description 17_IFPC HDMI_DP	Rev 1.0
Date: Friday, July 20, 2012	Sheet 17 of 30	

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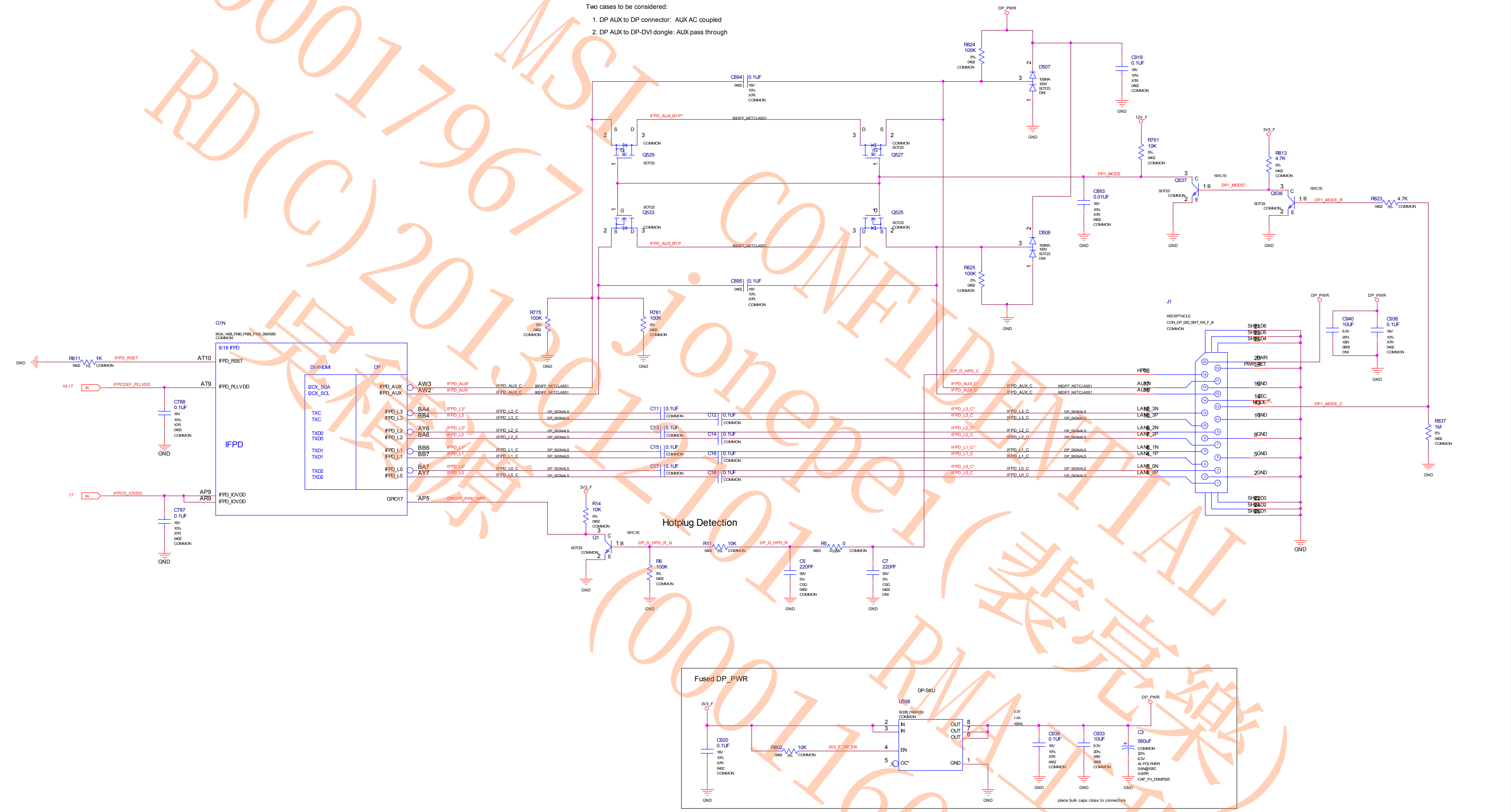
IFPD DP


Two cases to be considered:

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

Hotplug Detection

Fused DP_PWR

place bulk caps close to connectors

G1N
BGA_1428_P080_P085_P100_350X350
COMMON
8/18 IFPD
IFPD
DVI HDMI
DP
I2CX_SDA
I2CX_SCL
TXC
TXC
TXD0
TXD0
TXD1
TXD1
TXD2
TXD2
IFPD_RSET
IFPD_PLLVDD
IFPD_IOVDD
IFPD_AUX
IFPD_L3
IFPD_L2
IFPD_L1
IFPD_L0
GPIO17
AT10
AT9
AP9
AR9
AW3
AW2
BA4
BB4
AY6
BA6
BB6
BB7
BA7
AY7
AP5
R611 1K 0402 1% COMMON
IFPD_RSET
IFPCDEF_PLLVDD
IFPCD_IOVDD
C788 0.1UF
C787 0.1UF
GND
IFPD_AUX*
IFPD_AUX_C
90DIFF_NETCLASS1
IFPD_L3*
IFPD_L3_C
DP_SIGNALS
C11 0.1UF
C12 0.1UF
C13 0.1UF
C14 0.1UF
C15 0.1UF
C16 0.1UF
C17 0.1UF
C18 0.1UF
GPIO17_IFPD_HPD
R775 100K
R781 100K
C894 0.1UF
C895 0.1UF
IFPD_AUX_BYP*
IFPD_AUX_BYP
Q529 SOT23
Q527 SOT23
Q533 SOT23
Q525 SOT23
DP_PWR
R824 100K
R825 100K
D507 100MA 100V SOT23 DNI
D508 100MA 100V SOT23 DNI
C919 0.1UF
12V_F
R761 10K
DP1_MODE
C893 0.01UF
Q537 SOT23
DP1_MODE*
3V3_F
R813 4.7K
Q536 SOT23
DP1_MODE_R
R823 4.7K
R837 1M
J1
RECEPTACLE
CON_DP_020_SMT_RA_F_B
COMMON
C940 10UF
C936 0.1UF
DP_D_HPD_C
IFPD_AUX_C*
IFPD_L3_C*
IFPD_L2_C*
IFPD_L1_C*
IFPD_L0_C*
HPD
PWR RET
AUXN
AUXP
LANE_3N
LANE_3P
LANE_2N
LANE_2P
LANE_1N
LANE_1P
LANE_0N
LANE_0P
CEC
MODE
SHLD1
SHLD2
SHLD3
SHLD4
SHLD5
SHLD6
DP1_MODE_C
R14 10K
Q1 SOT23
DP_D_HPD_R_Q
R11 10K
DP_D_HPD_R
R5 0
R6 100K
C5 220PF
C7 220PF DNI
DP-SKU
U608
SO08_I15GX150
COMMON
IN
EN
OC*
OUT
GND
3V3_F_DP_EN
R802 10K
C920 0.1UF
C938 0.1UF
C933 10UF
C3 560uF
3.3V
1.0A
16MIL

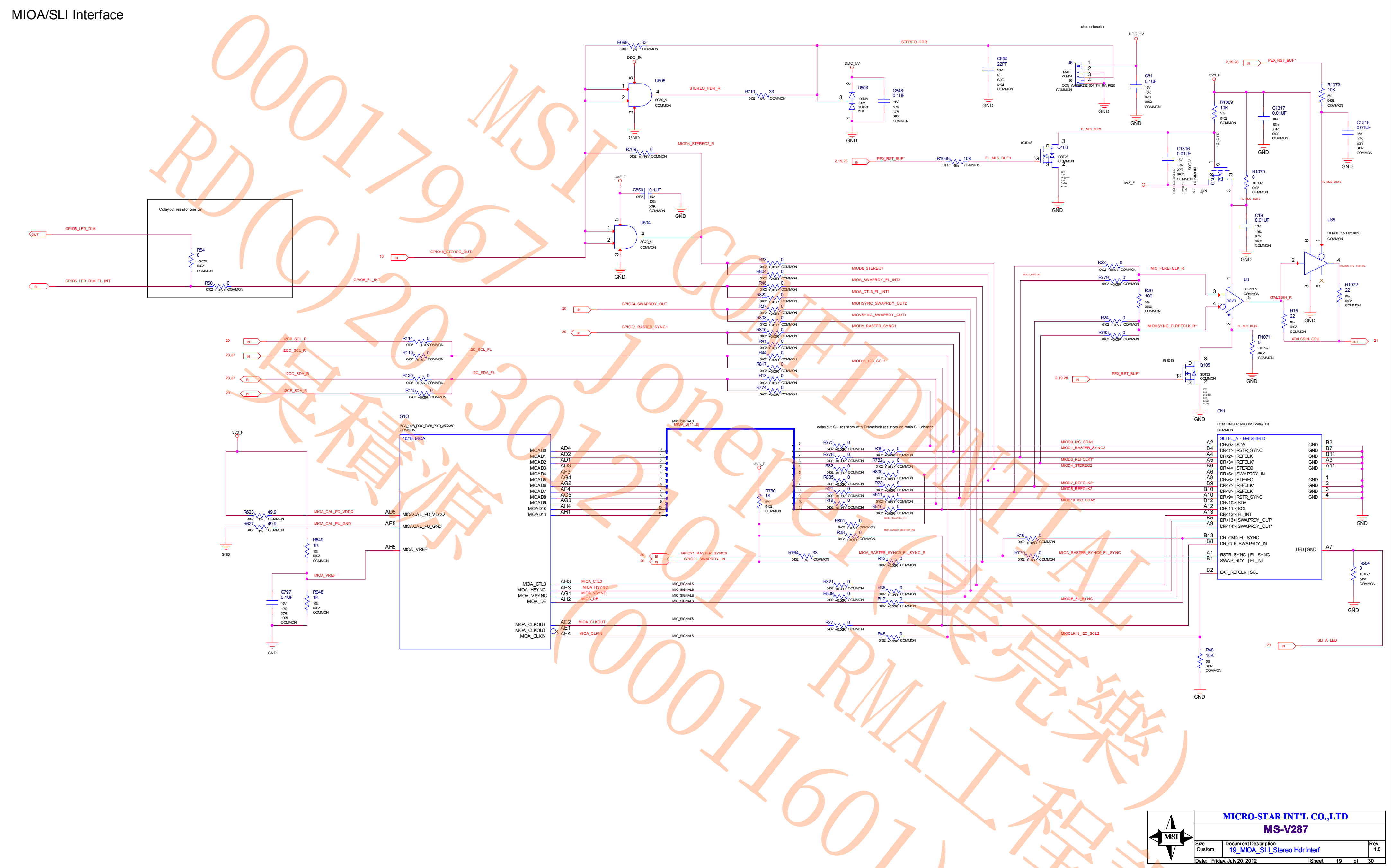
MICRO-STAR INT'L CO.,LTD

MS-V287

Size: Custom
Document Description: 18_IFPD DP
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 18 of 30

00017967 RD(C)20130101 吴信源
MSI CONFIDENTIAL jonepei(裴宗樂) (00011601) RMA工程課

MIOA/SLI Interface

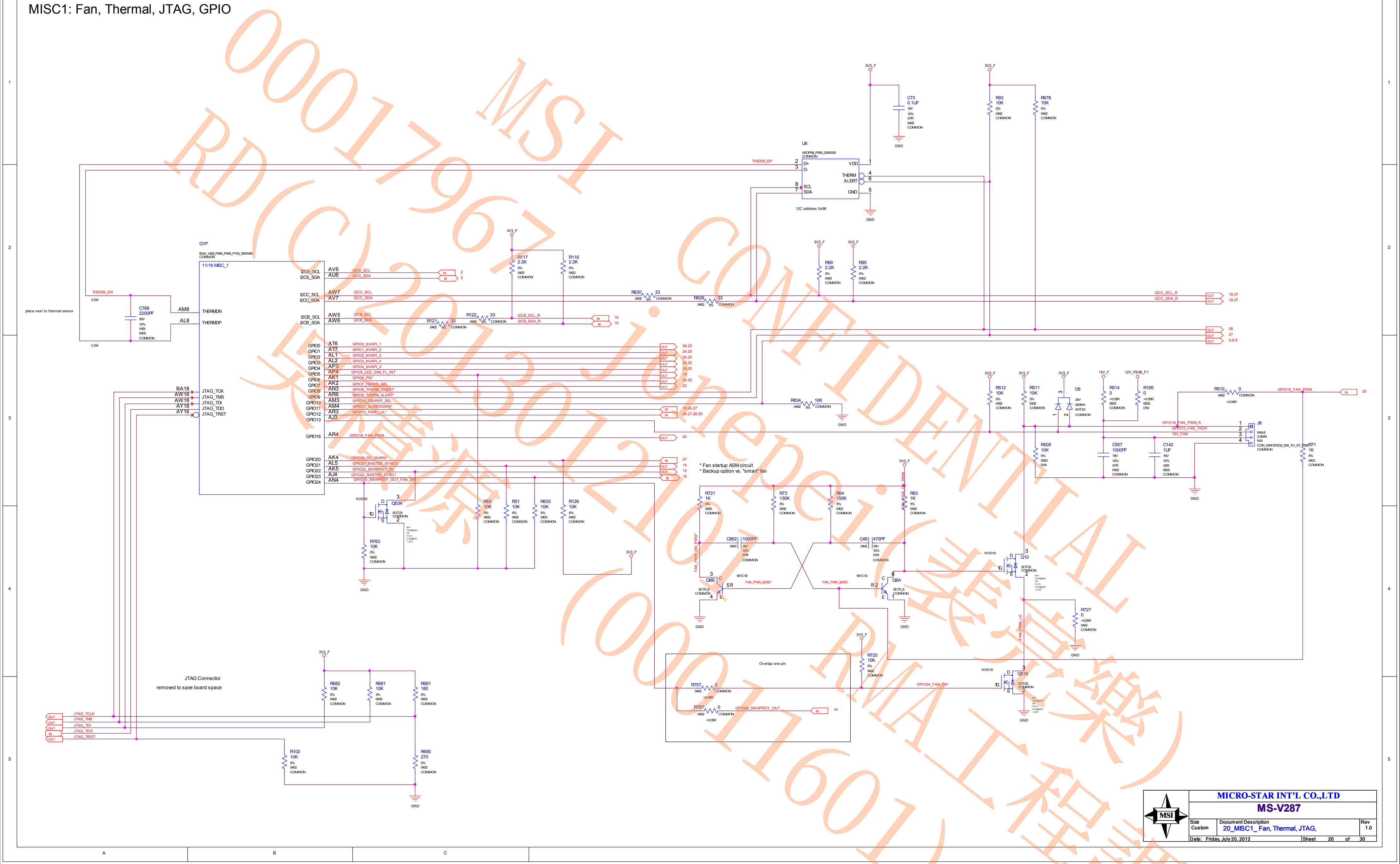


A
B
C
D
E
F
G
H
1
2
3
4
5
stereo header
STEREO_HDR
R699 33 0402 5% COMMON
DDC_5V
U505
SC70_5 COMMON
STEREO_HDR_R
R710 33 0402 5% COMMON
D503
100MA 100V SOT23 DNI
C848 0.1UF 16V 10% X7R 0402 COMMON
C855 22PF 50V 5% C0G 0402 COMMON
J6
MALE 2.0MM 90
CON_WAFER232_004_TH_RA_P020 COMMON
C61 0.1UF 16V 10% X7R 0402 COMMON
GND
MIOD4_STEREO2_R
R709 0 0402 +0.05R COMMON
3V3_F
C859 0.1UF 0402 16V 10% X7R COMMON
U504
SC70_5 COMMON
Colayout resistor one pin
GPIO5_LED_DIM
OUT
R54 0 +0.05R 0402 COMMON
GPIO5_LED_DIM_FL_INT
BI
R50 0 0402 +0.05R COMMON
GPIO5_FL_INT
16
IN
GPIO19_STEREO_OUT
20
GPIO24_SWAPRDY_OUT
GPIO23_RASTER_SYNC1
I2CB_SCL_R
I2CC_SCL_R
I2CC_SDA_R
I2CB_SDA_R
20,27
R114 0 0402 +0.05R COMMON
R119 0 0402 +0.05R COMMON
R120 0 0402 +0.05R COMMON
R115 0 0402 +0.05R COMMON
I2C_SCL_FL
I2C_SDA_FL
R33
R804
R46
R822
R37
R808
R810
R41
R44
R817
R18
R774
MIOD6_STEREO1
MIOA_SWAPRDY_FL_INT2
MIOA_CTL3_FL_INT1
MIOHSYNC_SWAPRDY_OUT2
MIOVSYNC_SWAPRDY_OUT1
MIOD9_RASTER_SYNC1
MIOD11_I2C_SCL1
2,19,28
PEX_RST_BUF*
R1068 10K 0402 5% COMMON
FL_MLS_BUF1
FL_MLS_BUF2
FL_MLS_BUF3
FL_MLS_BUF4
FL_MLS_BUF5
1G1D1S
Q103
SOT23 COMMON
60V 0.3A 2R@10V 0.8A 0.35W +/-20V
C1316 0.01UF 16V 10% X7R 0402 COMMON
Q106
SOT23 COMMON
R1069 10K 5% 0402 COMMON
C1317 0.01UF 16V 10% X7R 0402 COMMON
R1073 10K 5% 0402 COMMON
C1318 0.01UF 16V 10% X7R 0402 COMMON
R1070 0 +0.05R 0402 COMMON
C19 0.01UF 16V 10% X7R 0402 COMMON
U35
DFN06_P050_015X010 COMMON
XTALSSIN_GPU_TRISTATE
R22 0 0402 +0.05R COMMON
R779 0 0402 +0.05R COMMON
MIO_FLREFCLK_R
MIOD2_REFCLK1
R20 100 5% 0402 COMMON
R24 0 0402 +0.05R COMMON
R783 0 0402 +0.05R COMMON
MIOHSYNC_FLREFCLK_R*
U3
SOT23_5 COMMON
RCVR
XTALSSIN_R
R15 22 5% 0402 COMMON
R1072 22 5% 0402 COMMON
XTALSSIN_GPU
21
R1071 0 +0.05R 0402 COMMON
Q105
SOT23 COMMON
CN1
CON_FINGER_MIO_026_2WAY_DT COMMON
SLI-FL_A - EMI SHIELD
A2 DR<0> | SDA
B4 DR<1> | RSTR_SYNC
A4 DR<2> | REFCLK
A5 DR<3> | REFCLK*
B6 DR<4> | STEREO
A6 DR<5> | SWAPRDY_IN
A8 DR<6> | STEREO
B9 DR<7> | REFCLK*
B10 DR<8> | REFCLK
A10 DR<9> | RSTR_SYNC
B12 DR<10>| SDA
A12 DR<11>| SCL
A13 DR<12>| FL_INT
B5 DR<13>| SWAPRDY_OUT*
A9 DR<14>| SWAPRDY_OUT*
B13 DR_CMD| FL_SYNC
B8 DR_CLK| SWAPRDY_IN
A1 RSTR_SYNC | FL_SYNC
B1 SWAP_RDY | FL_INT
B2 EXT_REFCLK | SCL
GND B3
GND B7
GND B11
GND A3
GND A11
LED | GND A7
R684 0 +0.05R 0402 COMMON
29
SLI_A_LED
R48 10K 5% 0402 COMMON
G10
BGA_1428_P080_P085_P100_350X350 COMMON
10/18 MIOA
MIOAD0 AD4
MIOAD1 AD2
MIOAD2 AD1
MIOAD3 AD3
MIOAD4 AF3
MIOAD5 AG4
MIOAD6 AG2
MIOAD7 AF4
MIOAD8 AG5
MIOAD9 AG3
MIOAD10 AH4
MIOAD11 AH1
MIOACAL_PD_VDDQ AD5
MIOACAL_PU_GND AE5
MIOA_VREF AH5
MIOA_CTL3 AH3
MIOA_HSYNC AE3
MIOA_VSYNC AG1
MIOA_DE AH2
MIOA_CLKOUT AE2
MIOA_CLKOUT AE1
MIOA_CLKIN AE4
MIO_SIGNALS
MIOA_D[11..0]
R623 49.9 0402 1% COMMON
R627 49.9 0402 1% COMMON
MIOA_CAL_PD_VDDQ
MIOA_CAL_PU_GND
R649 1K 1% 0402 COMMON
MIOA_VREF
C797 0.1UF 16V 10% X7R 1005 COMMON
R648 1K 1% 0402 COMMON
colayout SLI resistors with Framelock resistors on main SLI channel
R773
R778
R32
R805
R21
R19
R40
R782
R800
R23
R811
R816
R780 1K 5% 0402 COMMON
R801 0 0402 +0.05R COMMON
R28 0 0402 +0.05R COMMON
MIOD5_SWAPRDY_IN1
MIOA_CLKOUT_SWAPRDY_IN2
GPIO21_RASTER_SYNC0
GPIO22_SWAPRDY_IN
R764 33 0402 5% COMMON
MIOA_RASTER_SYNC0_FL_SYNC_R
R42 0 0402 +0.05R COMMON
R16 0 0402 +0.05R COMMON
R770 0 0402 +0.05R COMMON
MIOA_RASTER_SYNC0_FL_SYNC
MIOD0_I2C_SDA1
MIOD1_RASTER_SYNC2
MIOD3_REFCLK1*
MIOD4_STEREO2
MIOD7_REFCLK2*
MIOD8_REFCLK2
MIOD10_I2C_SDA2
MIOA_CTL3
MIOA_HSYNC
MIOA_VSYNC
MIOA_DE
R821 0 0402 +0.05R COMMON
R809 0 0402 +0.05R COMMON
R36 0 0402 +0.05R COMMON
R17 0 0402 +0.05R COMMON
MIODE_FL_SYNC
MIOA_CLKOUT
MIOA_CLKIN
R27 0 0402 +0.05R COMMON
R45 0 0402 +0.05R COMMON
MIOCLKIN_I2C_SCL2

MICRO-STAR INT'L CO.,LTD		
MS-V287		
Size Custom	Document Description 19_MIOA_SLI_Stereo Hdr Interf	Rev 1.0
Date: Friday, July 20, 2012	Sheet 19 of 30	

00017967
RD(C)20130121
吳檣源
MSI CONFIDENTIAL
Jone.pei(裴亮樂)
RMA工程課
(00011601)

MISC1: Fan, Thermal, JTAG, GPIO


U6
XSOP08_P065_230X330
COMMON
THERM_DP
D+
D-
VDD
THERM
ALERT
SCL
SDA
GND
I2C address 0x98
C73
0.1UF
R93
10K
R678
10K
3V3_F
GND
G1P
BGA_1426_P080_P065_P100_350X350
COMMON
11/18 MISC_1
THERM_DN
place next to thermal sensor
C768
2200PF
AM8
AL8
THERMDN
THERMDP
I2CS_SCL
I2CS_SDA
I2CC_SCL
I2CC_SDA
I2CB_SCL
I2CB_SDA
AV6
AU6
AW7
AV7
AW5
AW6
R117
2.2K
R116
2.2K
R630
33
R629
33
R121
33
R122
33
I2CB_SCL_R
I2CB_SDA_R
R99
2.2K
R95
2.2K
I2CC_SCL_R
I2CC_SDA_R
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO16
GPIO20
GPIO21
GPIO22
GPIO23
GPIO24
AT6
AT7
AL1
AL2
AP3
AP4
AK1
AK2
AN3
AR6
AM3
AM4
AR3
AJ3
AR4
AK4
AL5
AK5
AJ4
AN4
GPIO0_NVAPI_1
GPIO1_NVAPI_2
GPIO2_NVAPI_3
GPIO3_NVAPI_4
GPIO4_NVAPI_5
GPIO5_LED_DIM_FL_INT
GPIO6_PSI*
GPIO7_FBVDD_SEL
GPIO8_THERM_OVERT*
GPIO9_THERM_ALERT*
GPIO10_FBVREF_SEL
GPIO11_SLOWDOWN*
GPIO12_PWR_LVL*
GPIO16_FAN_PWM
GPIO20_OC_WARN*
GPIO21_RASTER_SYNC0
GPIO22_SWAPRDY_IN
GPIO23_RASTER_SYNC1
GPIO24_SWAPRDY_OUT_FAN_EN*
R634
10K
BA18
AW16
AW18
AY18
AY16
JTAG_TCK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRST
Q534
SOT23
R763
10K
R53
10K
R51
10K
R633
10K
R126
10K
* Fan startup ASM circuit
* Backup option vs. "smart" fan
R721
1K
R73
130K
R64
150K
R63
1K
C862
1000PF
C48
470PF
Q8B
Q8A
FAN_PWM_BASE*
FAN_PWM_BASE
FAN_PWR_ON_PWM*
R512
10K
R511
10K
D5
R514
0
R195
0
12V_F
12V_PEX6_F1
R510
0
GPIO16_FAN_PWM
GPIO16_FAN_PWM_R
GPIO13_FAN_TACH
12V_FAN
J8
MALE
2.0MM
N/A
CON_WAFER232_004_TH_ST_P2
R509
10K
C557
1000PF
C142
1UF
R71
1K
Q10
R727
0
FAN_PWM_LO
R720
10K
Q516
GPIO24_FAN_EN*
Overlap one pin
R757
0
R767
0
GPIO24_SWAPRDY_OUT
JTAG Connector
removed to save board space
R682
10K
R681
10K
R691
180
R102
10K
R690
270
JTAG_TCLK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRST*

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MS-V287

Size: Custom
Document Description: 20_MISC1_ Fan, Thermal, JTAG,
Rev: 1.0
Date: Friday, July 20, 2012
Sheet 20 of 30

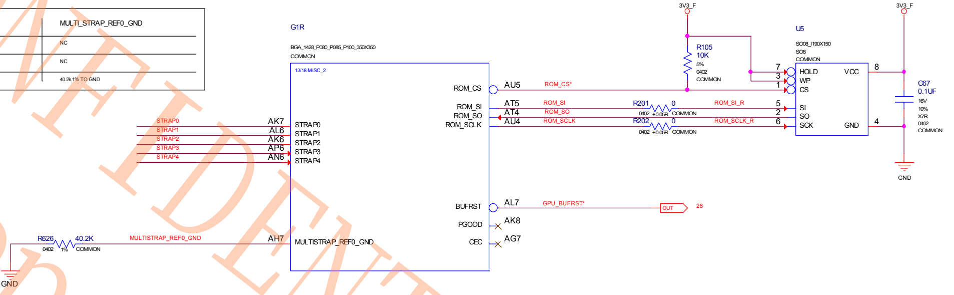
MSI CONFIDENTIAL
00017967 RD(C)20130121(Jonepei(裴宗樂)(00011601) RMA工程課
吳詩源

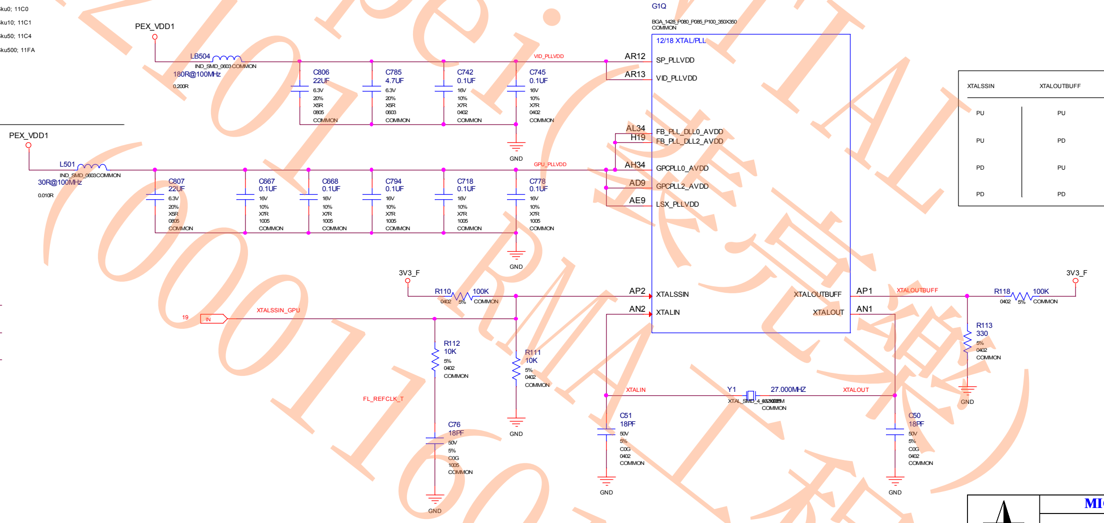
MISC2: ROM, XTAL, Straps

STRAP0	USER_BIT [3:0]*	0000*		5K PD*	
STRAP1	3GIO_PADCFG_LUT_ADR*	0000*		5K PD Desktop*	
STRAP2	PCI_DEVID [3:0]*	0000 - (0x11C0)* 0010 - (0x11C1)* 0050 - (0x11C4)* 0500 - (0x11FA)*		5K PD -400 GPU* 10K PD -250 GPU* 25K PD -225 GPU* 15K PU -875 GPU*	
STRAP3	SOR_EXPOSED [3:0]*	1111*		45K PU*	
STRAP4	*			45K PD*	
	PEX_SPD_CHANGE_GEN3*	1*	ENABLED*		
	PEX_MAX_SPEED*	1*	FOR GEN2/3*		
	DP_PLL_VDD_33V*	1*	FOR 3_3V*		
ROM_SI	RAMCFG[3]*	0*		35K PD* 45K PD*	Hynix Samsung
	RAMCFG[2]*	1*			
	RAMCFG[1]*	1*			
	RAMCFG[0]*	0*			
ROM_SO	FB[1]_APERTURE_SIZE*	0*	For 128MB*	30k PD*	
	FB[0]_APERTURE_SIZE*	1*	For 128MB*		
	SMB_ALT_ADDR*	0*			
	VGA_DEVICE*	1*			
ROM_SCLK	PCI_DEVID_EXT[4]*	0*	For 0x11C0*	25K PD* 25K PD* 25K PD* 35K PU*	Sku0; 11C0 Sku10; 11C1 Sku50; 11C4 Sku500; 11FA
	SUB_VENDOR*	1*	Dedicated BIOS*		
	PCI_DEVID_EXT[5]*	0*	For 0x11C0*		
	PEX_PLL_EN_TERM100*	0*	ENABLED*		

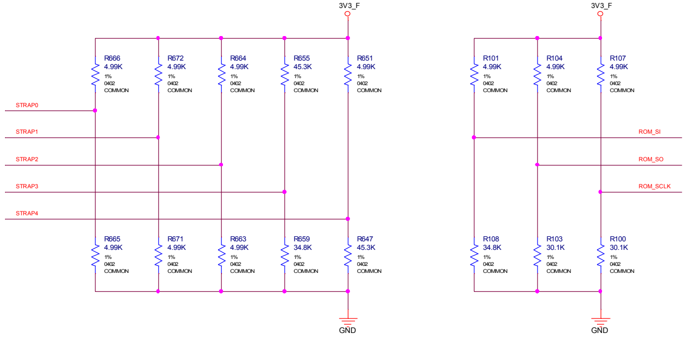
	GND	3V3
5k	0000	1000
10k	0001	1001
15k	0010	1010
20k	0011	1011
25k	0100	1100
30k	0101	1101
35k	0110	1110
45k	0111	1111

	MULTI_STRAP_REF0_GND
BINARY PRODUCTION	NC
BINARY BRINGUP	NC
MULTI-LEVEL	40.2k 1% TO GND


G1R
BGA_1428_P080_P085_P100_350X350
COMMON
13/18 MISC_2
STRAP0
STRAP1
STRAP2
STRAP3
STRAP4
AK7
AL6
AK6
AP6
AN6
ROM_CS
ROM_SI
ROM_SO
ROM_SCLK
AU5
AT5
AT4
AU4
ROM_CS*
ROM_SI
ROM_SO
ROM_SCLK
BUFRST
PGOOD
CEC
AL7
AK8
AG7
GPU_BUFRST*
OUT
28
R626
40.2K
0402
1%
COMMON
MULTISTRAP_REF0_GND
AH7
GND
3V3_F
R105
10K
5%
0402
COMMON
R201
0
0402
+0.05R
COMMON
R202
0
ROM_SI_R
ROM_SCLK_R
U5
SO08_I190X150
SO8
COMMON
7
3
1
5
2
6
HOLD
WP
CS
SI
SO
SCK
VCC
GND
8
4
C67
0.1UF
16V
10%
X7R
0402
COMMON


G1Q
BGA_1428_P080_P085_P100_350X350
COMMON
12/18 XTAL/PLL
PEX_VDD1
LB504
IND_SMD_0603 COMMON
180R@100MHz
0.200R
VID_PLLVDD
C806
22UF
6.3V
20%
X5R
0805
COMMON
C785
4.7UF
6.3V
20%
X5R
0603
COMMON
C742
0.1UF
16V
10%
X7R
0402
COMMON
C745
0.1UF
16V
10%
X7R
0402
COMMON
GND
AR12
AR13
SP_PLLVDD
VID_PLLVDD
AL34
H19
FB_PLL_DLL0_AVDD
FB_PLL_DLL2_AVDD
PEX_VDD1
L501
IND_SMD_0603COMMON
30R@100MHz
0.010R
GPU_PLLVDD
C807
22UF
6.3V
20%
X5R
0805
COMMON
C667
0.1UF
C668
0.1UF
C794
0.1UF
C718
0.1UF
C778
0.1UF
16V
10%
X7R
1005
COMMON
AH34
AD9
AE9
GPCPLL0_AVDD
GPCPLL2_AVDD
LSX_PLLVDD
3V3_F
R110
100K
0402
5%
COMMON
AP2
AN2
XTALSSIN
XTALIN
XTALOUTBUFF
XTALOUT
AP1
AN1
XTALOUTBUFF
R118
100K
0402
5%
COMMON
3V3_F
R113
330
5%
0402
COMMON
19
IN
XTALSSIN_GPU
R112
10K
5%
0402
COMMON
R111
10K
5%
0402
COMMON
FL_REFCLK_T
C76
18PF
50V
5%
C0G
1005
COMMON
XTALIN
Y1
27.000MHZ
XTAL_SMD_4
COMMON
XTALOUT
C51
18PF
50V
5%
C0G
0402
COMMON
C50
18PF
50V
5%
C0G
0402
COMMON
GND

XTALSSIN	XTALOUTBUFF	SmartFan PWM %
PU	PU	66 (33% high)
PU	PD	50 (50% high)
PD	PU	33 (66% high)
PD	PD	0 (100% high)


3V3_F
R666
4.99K
R672
4.99K
R664
4.99K
R655
45.3K
R651
4.99K
1%
0402
COMMON
STRAP0
STRAP1
STRAP2
STRAP3
STRAP4
R665
4.99K
R671
4.99K
R663
4.99K
R659
34.8K
R647
45.3K
GND
3V3_F
R101
4.99K
R104
4.99K
R107
4.99K
ROM_SI
ROM_SO
ROM_SCLK
R108
34.8K
R103
30.1K
R100
30.1K
GND

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MS-V287

Size	Document Description	Rev
Custom	21_MISC2_ ROM, XTAL, Straps	1.0

Date: Friday, July 20, 2012 | Sheet 21 of 30

000179967 MSI
RD(C)20130121 吳積源
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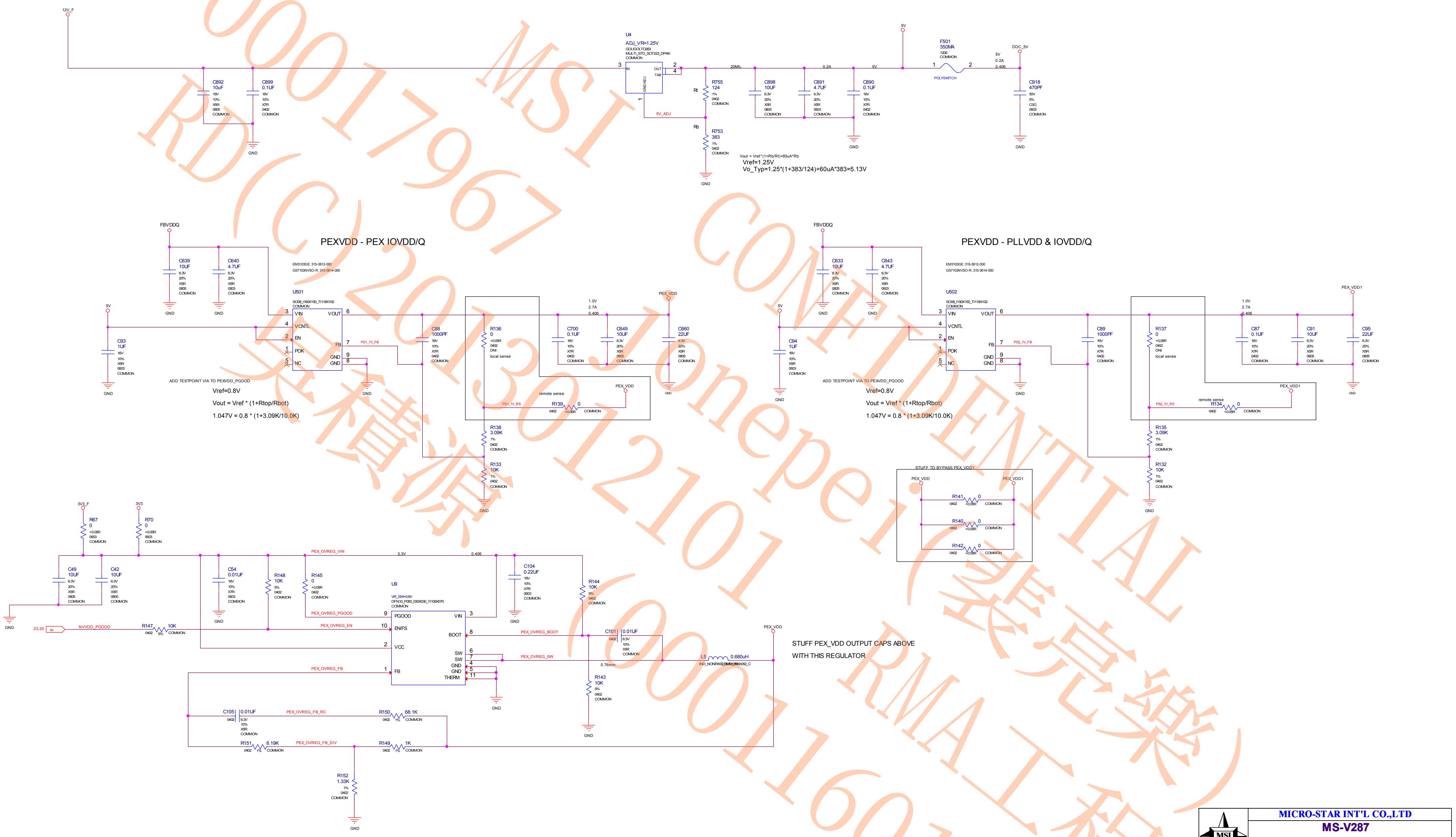
(0001601) RMA工程課

PS: 5V, PEX_VDD


12V_F
C892 10uF 16V 10% X5R 0805 COMMON
C899 0.1UF 16V 10% X7R 0402 COMMON
GND
U4 ADJ_VR=1.25V G0UGOLT0263 MULTI_STD_SOT223_DPAK COMMON
IN OUT TAB GND/ADJ
5V_ADJ
R755 124 1% 0402 COMMON
Rt
R753 383 1% 0402 COMMON
Rb
20MIL
0.2A
5V
C898 10UF 6.3V 20% X5R 0805 COMMON
C891 4.7UF 6.3V 20% X5R 0603 COMMON
C890 0.1UF 16V 10% X7R 0402 COMMON
F501 350MA 1206 COMMON POLYSWITCH
5V 0.2A 0.406
DDC_5V
C918 470PF 50V 5% C0G 0603 COMMON
Vout = Vref*(1+Rb/Rt)+60uA*Rb
Vref=1.25V
Vo_Typ=1.25*(1+383/124)+60uA*383=5.13V
PEXVDD - PEX IOVDD/Q
FBVDDQ
C639 10UF 6.3V 20% X5R 0805 COMMON
C640 4.7UF 6.3V 20% X5R 0603 COMMON
EMS103GE: 315-0612-000
GS7103NVSO-R: 315-0614-000
U501 SO08_I150X150_TI118X102 COMMON
VIN VOUT VCNTL EN FB POK NC GND GND
PS1_1V_FB
5V
C93 1UF 16V 10% X5R 0603 COMMON
ADD TESTPOINT VIA TO PEXVDD_PGOOD
Vref=0.8V
Vout = Vref * (1+Rtop/Rbot)
1.047V = 0.8 * (1+3.09K/10.0K)
C88 1000PF 16V 10% X7R 0402 COMMON
R136 0 +0.05R 0402 DNI local sense
1.0V 2.7A 0.406
PEX_VDD
C700 0.1UF 16V 10% X7R 0402 COMMON
C649 10UF 6.3V 20% X5R 0805 COMMON
C660 22UF 6.3V 20% X5R 0805 COMMON
remote sense
PS1_1V_RS
R139 0 0402 +0.05R COMMON
R138 3.09K 1% 0402 COMMON
R133 10K 1% 0402 COMMON
PEXVDD - PLLVDD & IOVDD/Q
C633 10UF 6.3V 20% X5R 0805 COMMON
C643 4.7UF 6.3V 20% X5R 0603 COMMON
U502 SO08_I150X150_TI118X102 COMMON
PS2_1V_FB
C94 1UF 16V 10% X5R 0603 COMMON
C89 1000PF 16V 10% X7R 0402 COMMON
R137 0 +0.05R 0402 DNI local sense
PEX_VDD1
C87 0.1UF 16V 10% X7R 0402 COMMON
C91 10UF 6.3V 20% X5R 0805 COMMON
C95 22UF 6.3V 20% X5R 0805 COMMON
PS2_1V_RS
R134 0 0402 +0.05R COMMON
R135 3.09K 1% 0402 COMMON
R132 10K 1% 0402 COMMON
STUFF TO BYPASS PEX_VDD1
R141 0 0402 +0.05R COMMON
R140 0 0402 +0.05R COMMON
R142 0 0402 +0.05R COMMON
3V3_F
3V3
R67 0 +0.05R 0603 COMMON
R70 0 +0.05R 0603 COMMON
C49 10UF 6.3V 20% X5R 0805 COMMON
C42 10UF 6.3V 20% X5R 0805 COMMON
C54 0.01UF 16V 10% X7R 0402 COMMON
R148 10K 5% 0402 COMMON
R145 0 +0.05R 0402 COMMON
PEX_OVREG_VIN
3.3V 0.406
C104 0.22UF 16V 10% X7R 0603 COMMON
R144 10K 5% 0402 COMMON
U9 VR_SW=0.6V DFN10_P050_0300X300_TI100X070 COMMON
PGOOD VIN EN/FS BOOT VCC SW SW GND GND FB THERM
PEX_OVREG_PGOOD
PEX_OVREG_EN
PEX_OVREG_BOOT
PEX_OVREG_SW
PEX_OVREG_FB
23,25 IN NVVDD_PGOOD
R147 10K 0402 5% COMMON
C101 0.01UF 0402 6.3V 10% X5R COMMON
0.76mm
L5 0.680uH IND_NONRKE_0MMO_RHS252_C
R143 10K 5% 0402 COMMON
STUFF PEX_VDD OUTPUT CAPS ABOVE
WITH THIS REGULATOR
C105 0.01UF 0402 6.3V 10% X5R COMMON
PEX_OVREG_FB_RC
R150 68.1K 0402 1% COMMON
R151 6.19K 0402 1% COMMON
PEX_OVREG_FB_DIV
R149 1K 0402 1% COMMON
R152 1.33K 1% 0402 COMMON
GND

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MS-V287

Size	Document Description	Rev
Custom	22_PS_ 5V, PEX_VDD	1.0

Date: Friday, July 20, 2012 Sheet 22 of 30

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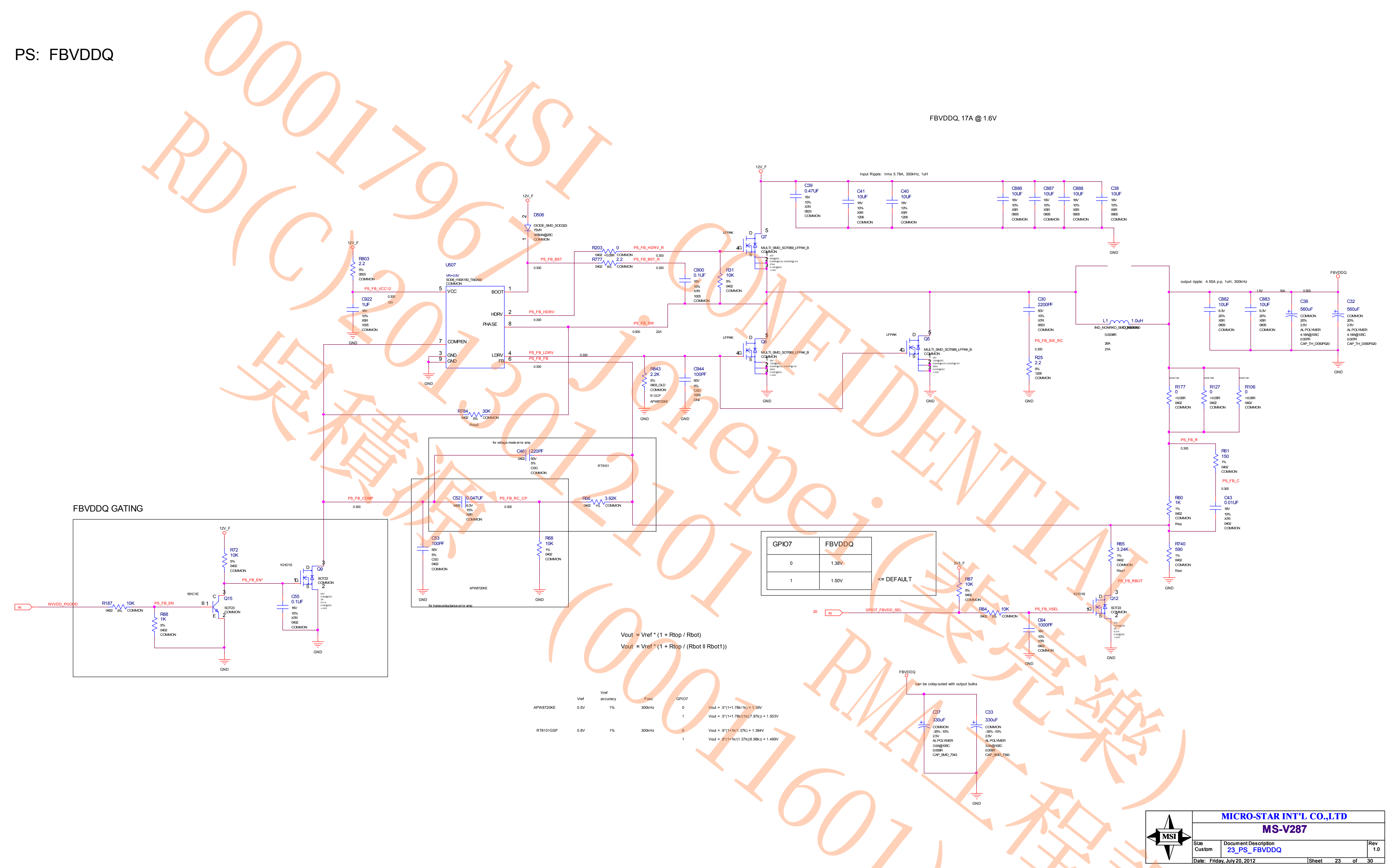
PS: FBVDDQ


FBVDDQ, 17A @ 1.6V
Input Ripple: Irms 5.78A, 300kHz, 1uH
output ripple: 4.55A p-p, 1uH, 300kHz
12V_F
FBVDDQ
U507
VCC
BOOT
HDRV
PHASE
COMPEN
GND
LDRV
FB
D506
Q7
Q6
Q5
L1 1.0uH
PS_FB_VCC12
PS_FB_BST
PS_FB_HDRV
PS_FB_SW
PS_FB_LDRV
PS_FB_FB
PS_FB_COMP
PS_FB_RC_CP
PS_FB_R
PS_FB_C
PS_FB_RBOT
PS_FB_VSEL
for voltage-mode error amp
for transconductance error amp
RT8101
APW8720KE
FBVDDQ GATING
NVVDD_PGOOD
PS_FB_EN
PS_FB_EN*
Q15
Q9
Q12
3V3_F
GPIO7_FBVDD_SEL
can be colayouted with output bulks
C37 330uF
C33 330uF
GND

GPIO7	FBVDDQ
0	1.38V
1	1.50V

<= DEFAULT

Vout = Vref * (1 + Rtop / Rbot)

Vout = Vref * (1 + Rtop / (Rbot ll Rbot1))

	Vref	Vref accuracy	Fosc	GPIO7	
APW8720KE	0.5V	1%	300kHz	0	Vout = .5*(1+1.78k/1k) = 1.39V
				1	Vout = .5*(1+1.78k/(1k||7.87k)) = 1.503V
RT8101GSP	0.8V	1%	300kHz	0	Vout = .8*(1+1k/1.37k) = 1.384V
				1	Vout = .8*(1+1k/(1.37k||6.98k)) = 1.499V

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MS-V287

Size	Document Description	Rev
Custom	23_PS_ FBVDDQ	1.0

Date: Friday, July 20, 2012 Sheet 23 of 30

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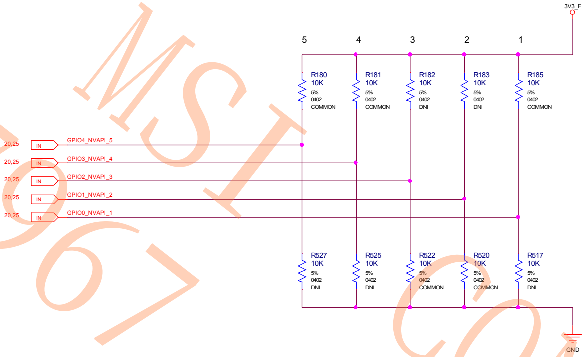
Jonepei(裴完樂)
吳積源(0001601)
RMA 工程課

PS: NVVDD Controller, VID and PSI

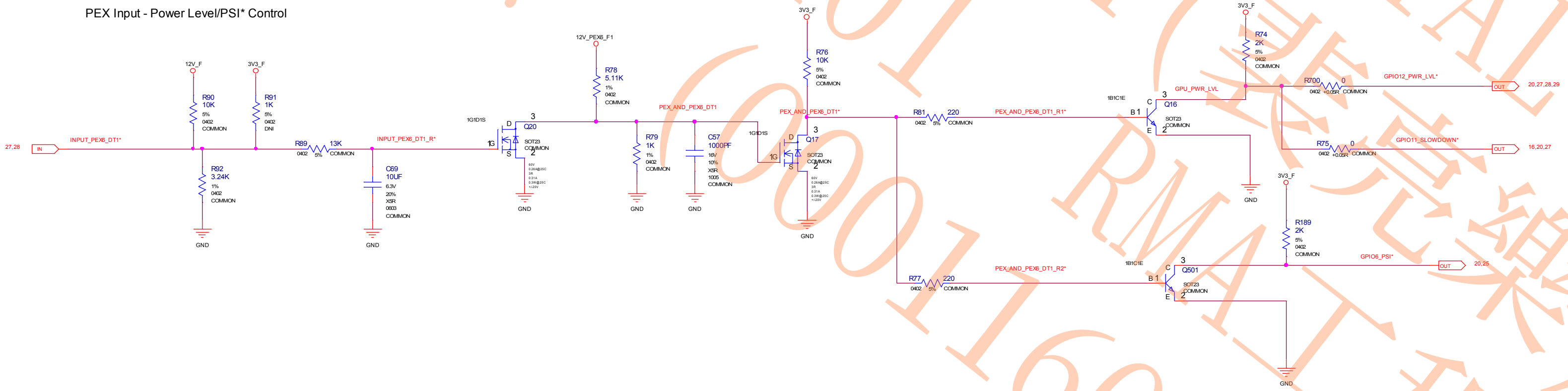
VID Table

GPIO4 VID_5	GPIO3 VID_4	GPIO2 VID_3	GPIO1 VID_2	GPIO0 VID_1	VOUT
0	0	0	0	0	1.2125V
0	0	0	0	1	1.2000V
0	0	0	1	0	1.1875V
0	0	0	1	1	1.1750V
0	0	1	0	0	1.1625V
0	0	1	0	1	1.1500V
0	0	1	1	0	1.1375V
0	0	1	1	1	1.1250V
0	1	0	0	0	1.1125V
0	1	0	0	1	1.1000V
0	1	0	1	0	1.0875V
0	1	0	1	1	1.0750V
0	1	1	0	0	1.0625V
0	1	1	0	1	1.0500V
0	1	1	1	0	1.0375V
0	1	1	1	1	1.0250V
1	0	0	0	0	1.0125V
1	0	0	0	1	1.0000V
1	0	0	1	0	0.9875V
1	0	0	1	1	0.9750V
1	0	1	0	0	0.9625V
1	0	1	0	1	0.9500V
1	0	1	1	0	0.9375V
1	0	1	1	1	0.9250V
1	1	0	0	0	0.9125V
1	1	0	0	1	0.9000V
1	1	0	1	0	0.8875V
1	1	0	1	1	0.8750V
1	1	1	0	0	0.8625V
1	1	1	0	1	0.8500V
1	1	1	1	0	0.8375V
1	1	1	1	1	0.8250V


3V3_F
5
4
3
2
1
R180 10K 5% 0402 COMMON
R181 10K 5% 0402 COMMON
R182 10K 5% 0402 DNI
R183 10K 5% 0402 DNI
R185 10K 5% 0402 COMMON
20,25 IN GPIO4_NVAPI_5
20,25 IN GPIO3_NVAPI_4
20,25 IN GPIO2_NVAPI_3
20,25 IN GPIO1_NVAPI_2
20,25 IN GPIO0_NVAPI_1
R527 10K 5% 0402 DNI
R525 10K 5% 0402 DNI
R522 10K 5% 0402 COMMON
R520 10K 5% 0402 COMMON
R517 10K 5% 0402 DNI
GND

GPIO12_PWR_LVL	GPU SPEED
0	Slow
1	Normal

PEX Input - Power Level/PSI* Control


27,28
IN
INPUT_PEX6_DT1*
12V_F
R90 10K 5% 0402 COMMON
3V3_F
R91 1K 5% 0402 DNI
R92 3.24K 1% 0402 COMMON
GND
R89 13K 0402 5% COMMON
INPUT_PEX6_DT1_R*
C69 10UF 6.3V 20% X5R 0603 COMMON
GND
1G1D1S
Q20
D
1G
S
3
2
SOT23 COMMON
60V 0.26A@25C 3R 0.31A 0.3W@25C +/-20V
GND
12V_PEX6_F1
R78 5.11K 1% 0402 COMMON
PEX_AND_PEX6_DT1
R79 1K 1% 0402 COMMON
GND
C57 1000PF 16V 10% X5R 1005 COMMON
GND
3V3_F
R76 10K 5% 0402 COMMON
PEX_AND_PEX6_DT1*
1G1D1S
Q17
D
1G
S
3
2
SOT23 COMMON
60V 0.26A@25C 3R 0.31A 0.3W@25C +/-20V
GND
R81 220 0402 5% COMMON
PEX_AND_PEX6_DT1_R1*
1B1C1E
B 1
C
E
3
2
Q16
SOT23 COMMON
GPU_PWR_LVL
3V3_F
R74 2K 5% 0402 COMMON
GND
R700 0 0402 +0.05R COMMON
GPIO12_PWR_LVL*
OUT
20,27,28,29
R75 0 0402 +0.05R COMMON
GPIO11_SLOWDOWN*
OUT
16,20,27
R77 220 0402 5% COMMON
PEX_AND_PEX6_DT1_R2*
1B1C1E
B 1
C
E
3
2
Q501
SOT23 COMMON
3V3_F
R189 2K 5% 0402 COMMON
GPIO6_PSI*
OUT
20,25
GND

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MS-V287

Size	Document Description	Rev
Custom	24_PS_ NVVDD VID and PSI	1.0

Date: Friday, July 20, 2012 | Sheet 24 of 30

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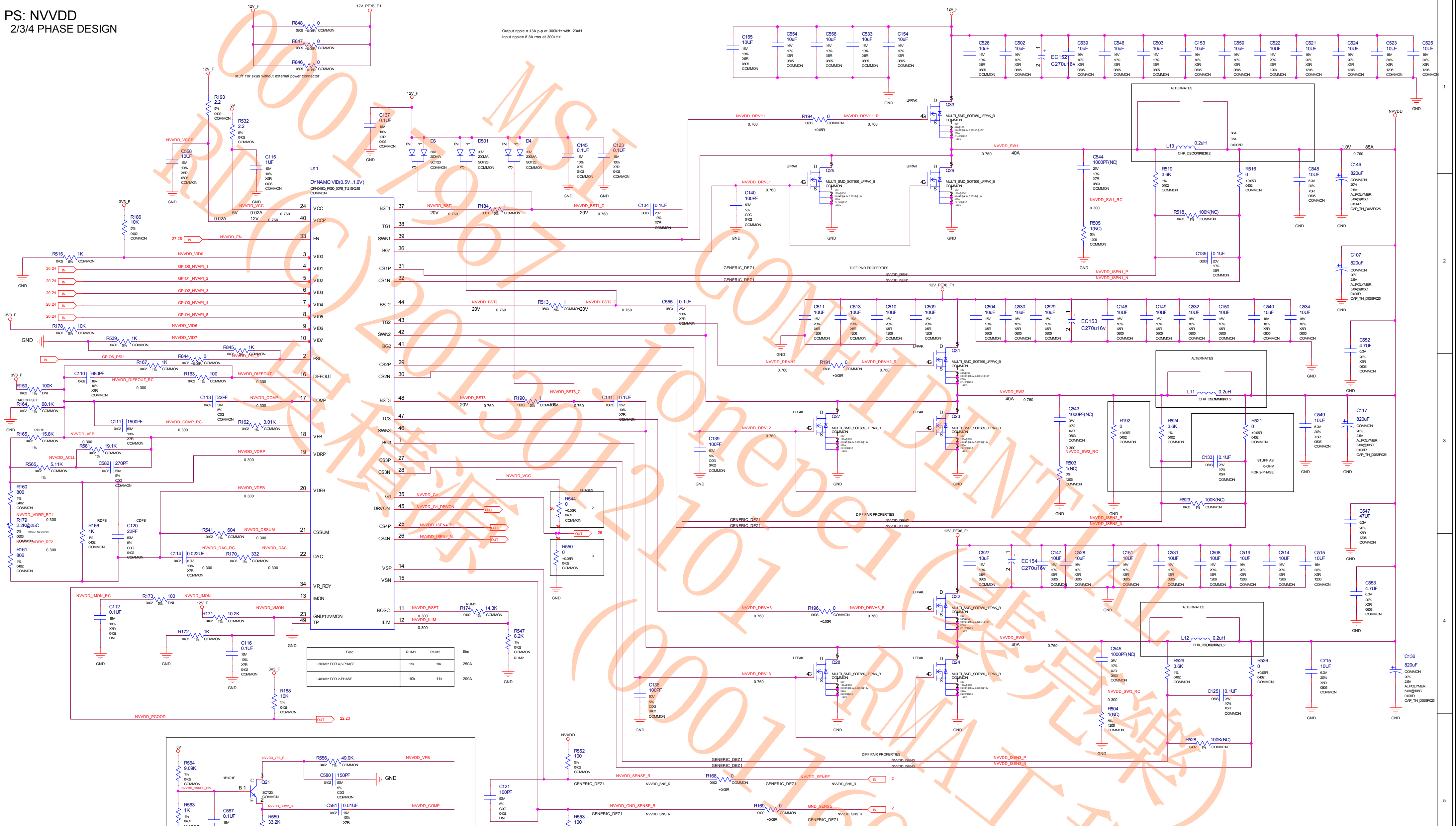
PS: NVVDD

2/3/4 PHASE DESIGN



12V_F
12V_PEX8_F1
R848 0 0805 +0.05R COMMON
R847 0 0805 +0.05R COMMON
R846 0 0805 +0.05R COMMON
stuff for skus without external power connector
Output ripple = 13A p-p at 300kHz with .23uH
Input ripple= 8.8A rms at 300kHz
R193 2.2
R532 2.2
5V
NVVDD_VCCP
C558 10UF
C115 1UF
C137 0.1UF
D3
D501
D4
C145 0.1UF
C123 0.1UF
U11
DYNAMIC VID(0.5V..1.6V)
QFN48Q_P050_0075_T121SX215
COMMON
VCC
VCCP
EN
VID0
VID1
VID2
VID3
VID4
VID5
VID6
VID7
PSI
DIFFOUT
COMP
VFB
VDRP
VDFB
CSSUM
DAC
VR_RDY
IMON
GND/12VMON
TP
BST1
TG1
SWN1
BG1
CS1P
CS1N
BST2
TG2
SWN2
BG2
CS2P
CS2N
BST3
TG3
SWN3
BG3
CS3P
CS3N
G4
DRVON
CS4P
CS4N
VSP
VSN
ROSC
ILIM
NVVDD_VCC
NVVDD_EN
NVVDD_VID0
GPIO0_NVAPI_1
GPIO1_NVAPI_2
GPIO2_NVAPI_3
GPIO3_NVAPI_4
GPIO4_NVAPI_5
NVVDD_VID6
NVVDD_VID7
GPIO6_PSI*
NVVDD_DIFFOUT
NVVDD_DIFFOUT_RC
NVVDD_COMP
NVVDD_COMP_RC
NVVDD_VFB
NVVDD_ACLL
NVVDD_VDRP
NVVDD_VDFB
NVVDD_VDRP_RT1
NVVDD_VDRP_RT2
NVVDD_CSSUM
NVVDD_DAC_RC
NVVDD_DAC
NVVDD_IMON_RC
NVVDD_IMON
NVVDD_VMON
NVVDD_PGOOD
NVVDD_BST1
NVVDD_BST1_C
NVVDD_BST2
NVVDD_BST2_C
NVVDD_BST3
NVVDD_BST3_C
NVVDD_G4
NVVDD_G4_DRVON
NVVDD_ISEN4_P
NVVDD_ISEN4_N
NVVDD_RSET
NVVDD_ILIM
R174 14.3K RLIM1
R547 8.2K RLIM2
PHASES
R544 0
R550 0
NVVDD_DRVH1
NVVDD_DRVH1_R
R194 0
Q33
Q25
Q29
MULTI_SMD_SOT669_LFPAK_B
LFPAK
NVVDD_DRVL1
C140 100PF
NVVDD_SW1
40A
L13 0.2uH
CHK_D2_OO_MH_2
ALTERNATES
C544 1000PF(NC)
NVVDD_SW1_RC
R505 1(NC)
R519 3.6K
R516 0
R518 100K(NC)
C135 0.1UF
NVVDD_ISEN1_P
NVVDD_ISEN1_N
GENERIC_DEZ1
DIFF PAIR PROPERTIES
C548 10UF
C146 820uF
C107 820uF
NVVDD
1.0V
85A
EC152 C270u16v
C155 10UF
C554 10uF
C556 10uF
C533 10uF
C154 10uF
C526 10uF
C502 10uF
C539 10uF
C546 10uF
C503 10uF
C153 10uF
C559 10uF
C522 10UF
C521 10UF
C524 10UF
C523 10UF
C525 10UF
NVVDD_DRVH2
NVVDD_DRVH2_R
R191 0
Q31
Q27
Q23
NVVDD_DRVL2
C139 100PF
NVVDD_SW2
L11 0.2uH
C543 1000PF(NC)
NVVDD_SW2_RC
R503 1(NC)
R192 0
R524 3.6K
R521 0
C133 0.1UF
STUFF AS 0-OHM FOR 2-PHASE
R523 100K(NC)
NVVDD_ISEN2_P
NVVDD_ISEN2_N
C549 10UF
C117 820uF
C552 4.7UF
C547 47UF
EC153 C270u16v
C511 10UF
C513 10UF
C510 10UF
C509 10UF
C504 10uF
C530 10uF
C529 10uF
C148 10UF
C149 10UF
C532 10UF
C150 10UF
C540 10UF
C534 10UF
NVVDD_DRVH3
NVVDD_DRVH3_R
R196 0
Q32
Q28
Q24
NVVDD_DRVL3
C138 100PF
NVVDD_SW3
L12 0.2uH
C545 1000PF(NC)
NVVDD_SW3_RC
R504 1(NC)
R529 3.6K
R526 0
C125 0.1UF
R528 100K(NC)
NVVDD_ISEN3_P
NVVDD_ISEN3_N
C715 10UF
C136 820uF
C553 4.7UF
EC154 C270u16v
C527 10UF
C147 10UF
C528 10UF
C151 10UF
C531 10UF
C508 10UF
C519 10UF
C514 10UF
C515 10UF
R552 100
R553 100
C121 100PF
NVVDD_SENSE_R
NVVDD_SENSE
NVVDD_GND_SENSE_R
GND_SENSE
R168 0
R169 0
NVVDD_SNS_R
R564 9.09K
R563 1K
C587 0.1UF
Q21
NVVDD_OSREC_DIV
NVVDD_VFB_R
R556 49.9K
C580 150PF
C581 0.01UF
R559 33.2K
NVVDD_COMP_C
Overshoot recovery enhancement
GND
3V3_F
IN
OUT

Fosc	RLIM1	RLIM2	Ilim
~300kHz FOR 4,3-PHASE	11k	18k	250A
~400kHz FOR 2-PHASE	10k	11k	209A

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MS-V287

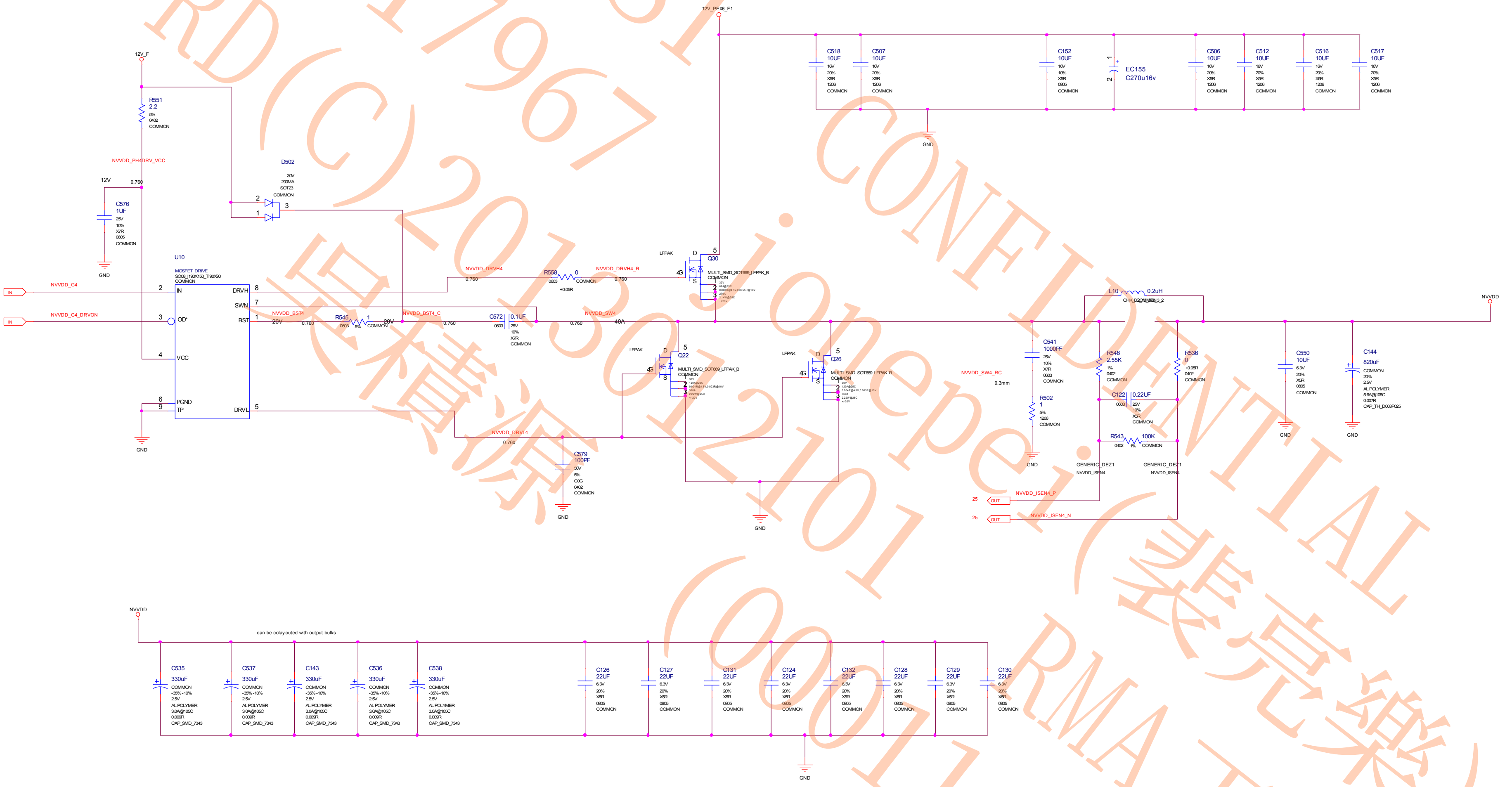
Size Custom

Document Description 25_PS_ NVVDD Supply

Rev 1.0

Date: Monday, July 23, 2012

Sheet 25 of 30


12V_PEX6_F1
C518 10UF 16V 20% X5R 1206 COMMON
C507 10UF 16V 20% X5R 1206 COMMON
C152 10UF 16V 10% X5R 0805 COMMON
EC155 C270u16v
C506 10UF 16V 20% X5R 1206 COMMON
C512 10UF 16V 20% X5R 1206 COMMON
C516 10UF 16V 20% X5R 1206 COMMON
C517 10UF 16V 20% X5R 1206 COMMON
GND
12V_F
R551 2.2 5% 0402 COMMON
NVVDD_PH4DRV_VCC
12V
0.760
C576 1UF 25V 10% X7R 0805 COMMON
D502 30V 200MA SOT23 COMMON
U10
MOSFET_DRIVE
SO08_I190X150_TI90X90
COMMON
IN
NVVDD_G4
NVVDD_G4_DRVON
OD*
VCC
PGND
TP
DRVH
SWN
BST
DRVL
NVVDD_BST4
20V
R545 1 0603 5% COMMON
NVVDD_BST4_C
NVVDD_DRVH4
R558 0 0603 COMMON +0.05R
NVVDD_DRVH4_R
C572 0.1UF 0603 25V 10% X7R COMMON
NVVDD_SW4
40A
LFPAK
Q30
MULTI_SMD_SOT669_LFPAK_B COMMON
30V 69A@25C 0.008R@4.5V,0.0055R@10V 276A 2.14W@25C +/-20V
Q22
MULTI_SMD_SOT669_LFPAK_B COMMON
30V 120A@25C 0.004R@4.5V,0.003R@10V 360A 2.22W@25C +/-20V
Q26
MULTI_SMD_SOT669_LFPAK_B COMMON
NVVDD_DRVL4
C579 100PF 50V 5% C0G 0402 COMMON
L10 0.2uH
NVVDD
C541 1000PF 25V 10% X7R 0603 COMMON
NVVDD_SW4_RC
0.3mm
R502 1 5% 1206 COMMON
R546 2.55K 1% 0402 COMMON
R536 0 +0.05R 0402 COMMON
C122 0.22UF 0603 25V 10% X5R COMMON
R543 100K 0402 1% COMMON
GENERIC_DEZ1 NVVDD_ISEN4
GENERIC_DEZ1 NVVDD_ISEN4
25 OUT NVVDD_ISEN4_P
25 OUT NVVDD_ISEN4_N
C550 10UF 6.3V 20% X5R 0805 COMMON
C144 820uF COMMON 20% 2.5V AL POLYMER 5.6A@105C 0.007R CAP_TH_D063P025
can be colayouted with output bulks
C535 330uF COMMON -35% - 10% 2.5V AL POLYMER 3.0A@105C 0.009R CAP_SMD_7343
C537 330uF COMMON -35% - 10% 2.5V AL POLYMER 3.0A@105C 0.009R CAP_SMD_7343
C143 330uF COMMON -35% - 10% 2.5V AL POLYMER 3.0A@105C 0.009R CAP_SMD_7343
C536 330uF COMMON -35% - 10% 2.5V AL POLYMER 3.0A@105C 0.009R CAP_SMD_7343
C538 330uF COMMON -35% - 10% 2.5V AL POLYMER 3.0A@105C 0.009R CAP_SMD_7343
C126 22UF 6.3V 20% X5R 0805 COMMON
C127 22UF 6.3V 20% X5R 0805 COMMON
C131 22UF 6.3V 20% X5R 0805 COMMON
C124 22UF 6.3V 20% X5R 0805 COMMON
C132 22UF 6.3V 20% X5R 0805 COMMON
C128 22UF 6.3V 20% X5R 0805 COMMON
C129 22UF 6.3V 20% X5R 0805 COMMON
C130 22UF 6.3V 20% X5R 0805 COMMON

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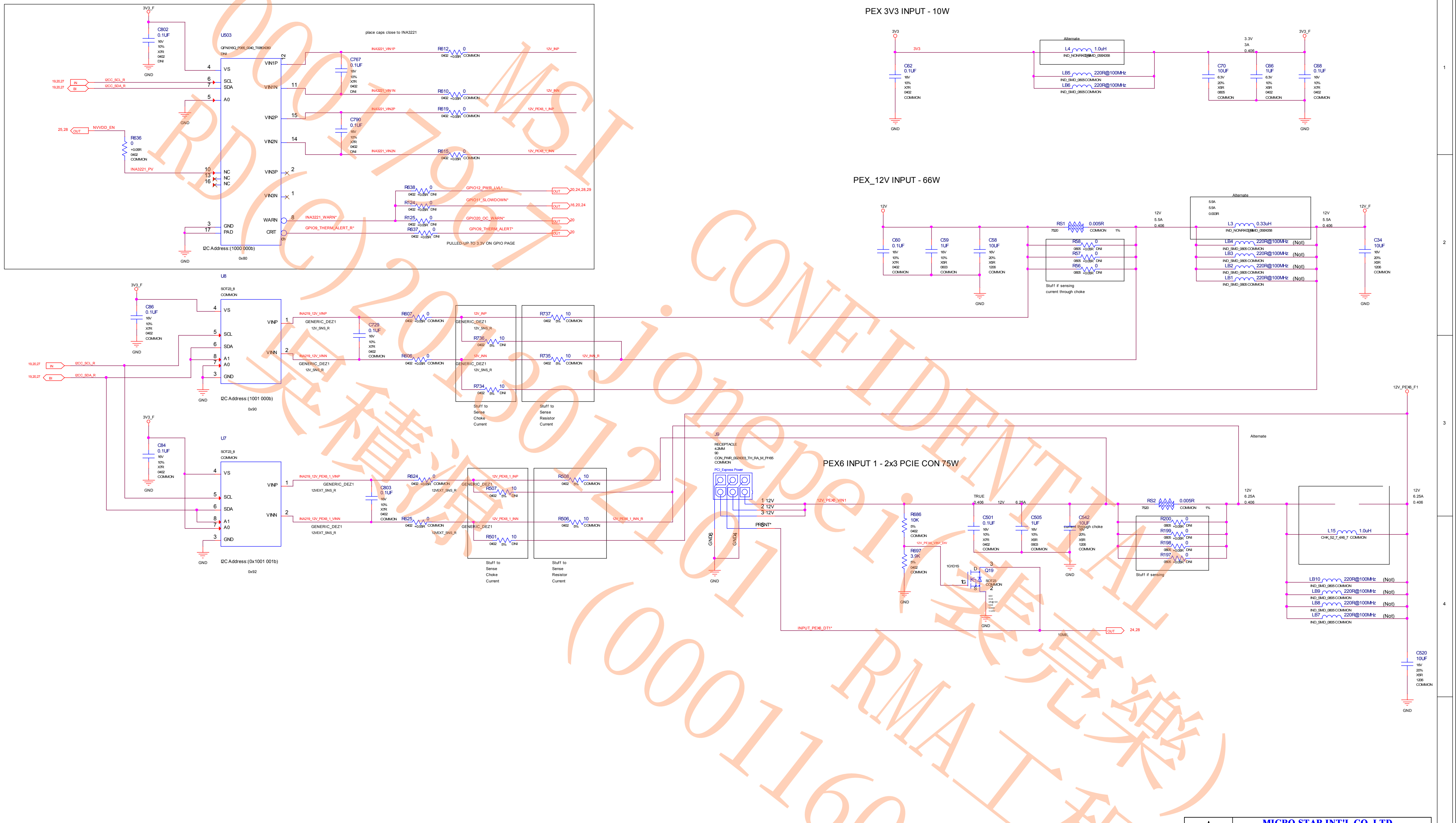
MS-V287

Size	Document Description	Rev
Custom	26_PS_ NVVDD Phase4	1.0

Date: Friday, July 20, 2012 Sheet 26 of 30

PS: Inputs, Filtering, and Monitoring


U503
QFN016Q_P065_0040_TI080X080
DNI
3V3_F
C802
0.1UF
16V
10%
X7R
0402
DNI
GND
VS
SCL
SDA
A0
NC
NC
NC
GND
PAD
VIN1P
VIN1N
VIN2P
VIN2N
VIN3P
VIN3N
WARN
CRIT
19,20,27
IN
BI
I2CC_SCL_R
I2CC_SDA_R
25,28
OUT
NVVDD_EN
R636
0
+0.05R
0402
COMMON
INA3221_PV
I2C Address:(1000 000b)
0x80
place caps close to INA3221
INA3221_VIN1P
INA3221_VIN1N
INA3221_VIN2P
INA3221_VIN2N
C767
0.1UF
C790
0.1UF
R612
R610
R619
R615
12V_INP
12V_INN
12V_PEX6_1_INP
12V_PEX6_1_INN
R638
R124
R125
R637
INA3221_WARN*
GPIO9_THERM_ALERT_R*
GPIO12_PWR_LVL*
GPIO11_SLOWDOWN*
GPIO20_OC_WARN*
GPIO9_THERM_ALERT*
20,24,28,29
16,20,24
20
PULLED-UP TO 3.3V ON GPIO PAGE
U8
SOT23_8
COMMON
C86
0.1UF
VINP
VINN
A1
INA219_12V_VINP
INA219_12V_VINN
GENERIC_DEZ1
12V_SNS_R
C729
0.1UF
R607
R606
R737
R736
R735
R734
12V_INN_R
Stuff to Sense Choke Current
Stuff to Sense Resistor Current
I2C Address:(1001 000b)
0x90
U7
C84
0.1UF
INA219_12V_PEX6_1_VINP
INA219_12V_PEX6_1_VINN
12VEXT_SNS_R
C803
0.1UF
R624
R625
R508
R507
R506
R501
12V_PEX6_1_INN_R
I2C Address:(0x1001 001b)
0x92
PEX 3V3 INPUT - 10W
3V3
C62
0.1UF
Alternate
L4
1.0uH
IND_NONRKO_SMD_058X058
DNI
LB5
LB6
220R@100MHz
IND_SMD_0805COMMON
3.3V
3A
0.406
C70
10UF
C66
1UF
C68
0.1UF
PEX_12V INPUT - 66W
12V
C60
0.1UF
C59
1UF
C58
10UF
RS1
0.005R
7520
1%
R58
R57
R56
Stuff if sensing current through choke
5.5A
0.003R
L3
0.33uH
LB4
LB3
LB2
LB1
(Not)
12V_F
C34
10UF
12V_PEX6_F1
J9
RECEPTACLE
4.2MM
90
CON_PWR_002X003_TH_RA_M_P165
PCI_Express Power
1 12V
2 12V
3 12V
PRSNT*
GND6
GND4
PEX6 INPUT 1 - 2x3 PCIE CON 75W
12V_PEX6_VIN1
R686
10K
12V_PEX6_VIN1_DIV
R697
3.9K
1G1D1S
Q19
SOT23
TRUE
6.25A
C501
0.1UF
C505
1UF
C542
10UF
INPUT_PEX6_DT1*
24,28
10MIL
RS2
0.005R
R200
R199
R198
R197
Stuff if sensing
L15
1.0uH
CHK_S2_7_4X6_7 COMMON
LB10
LB9
LB8
LB7
C520
10UF

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MS-V287

Size	Document Description	Rev
Custom	27_PS_ Inputs, Filtering, and	1.0

Date: Friday, July 20, 2012 Sheet 27 of 30

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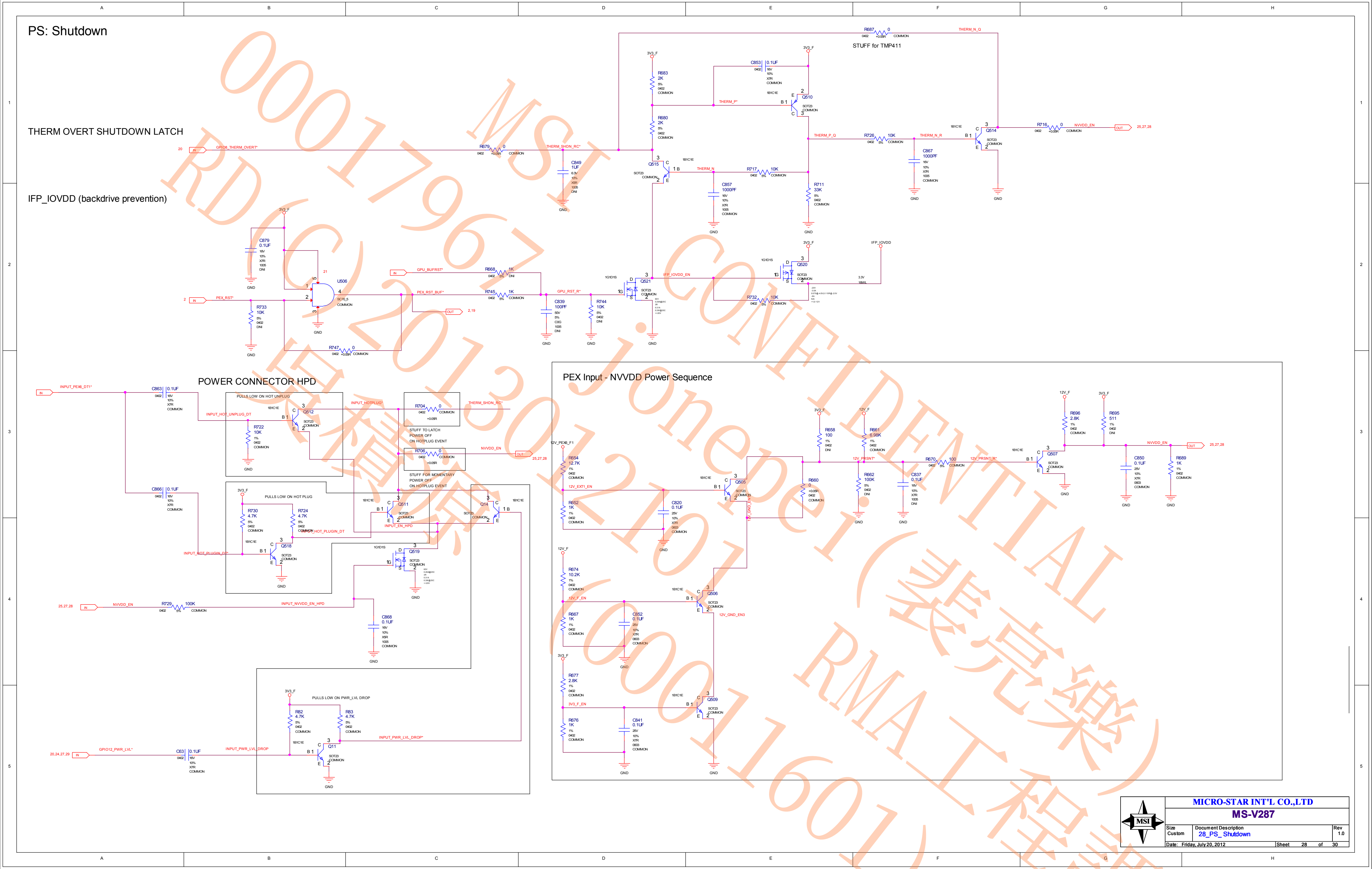
PS: Shutdown
THERM OVERT SHUTDOWN LATCH
IFP_IOVDD (backdrive prevention)
POWER CONNECTOR HPD
PEX Input - NVVDD Power Sequence
STUFF for TMP411
GPIO8_THERM_OVERT*
THERM_SHDN_RC*
THERM_P*
THERM_N
THERM_P_Q
THERM_N_R
THERM_N_Q
NVVDD_EN
GPU_BUFRST*
PEX_RST*
PEX_RST_BUF*
GPU_RST_R*
IFP_IOVDD_EN
IFP_IOVDD
INPUT_PEX8_DTI*
INPUT_HOT_UNPLUG_DT
INPUT_HOTPLUG*
INPUT_HOT_PLUGIN_DT
INPUT_EN_HPD
INPUT_NVVDD_EN_HPD
GPIO12_PWR_LVL*
INPUT_PWR_LVL_DROP
INPUT_PWR_LVL_DROP*
PULLS LOW ON HOT UNPLUG
PULLS LOW ON HOT PLUG
PULLS LOW ON PWR_LVL DROP
STUFF TO LATCH POWER OFF ON HOTPLUG EVENT
STUFF FOR MOMENTARY POWER OFF ON HOTPLUG EVENT
12V_PEX8_F1
12V_EXT1_EN
12V_F_EN
12V_GND_EN3
3V3_F_EN
12V_PRSNT*
12V_PRSNT_R*
U506
Q510
Q514
Q515
Q520
Q521
Q505
Q506
Q507
Q509
Q511
Q512
Q514
Q518
Q519
Q11
3V3_F
12V_F
GND
IN
OUT
25,27,28
2,19
20
2
20,24,27,28

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MS-V287

Size Custom
Document Description 28_PS_ Shutdown
Rev 1.0

Date: Friday, July 20, 2012 Sheet 28 of 30

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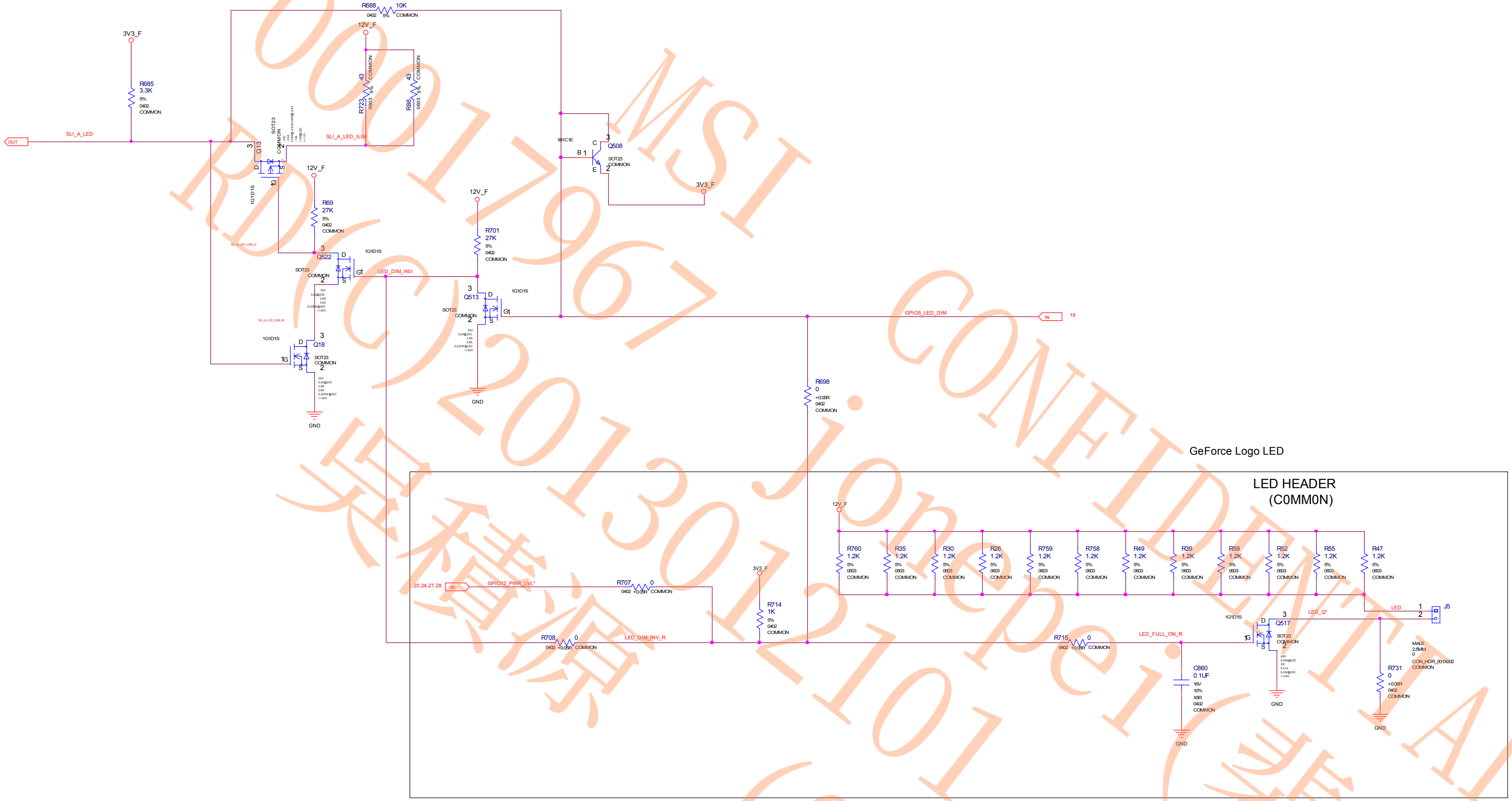
PS: Board LED



3V3_F
R685
3.3K
5%
0402
COMMON
OUT
SLI_A_LED
R688
10K
0402
5%
COMMON
12V_F
R723
43
5%
0603
COMMON
R86
43
5%
0603
COMMON
SLI_A_LED_ILIM
Q13
SOT23
COMMON
1G1D1S
-20V
-3.5A
0.06R@-4.5V 0.096R@-2.5V
-14A
1.5W@25C
+/-12V
12V_F
R69
27K
5%
0402
COMMON
SLI_A_LED_ILIM_G
Q522
SOT23
COMMON
1G1D1S
G1
LED_DIM_INV
50V
0.2A@25C
3.5R
0.8A
0.225W@25C
+/-20V
SLI_A_LED_ILIM_M
1G1D1S
Q18
SOT23
COMMON
1G
GND
1B1C1E
Q508
SOT23
COMMON
3V3_F
12V_F
R701
27K
5%
0402
COMMON
Q513
SOT23
COMMON
1G1D1S
GND
GPIO5_LED_DIM
IN
19
R698
0
+0.05R
0402
COMMON
GeForce Logo LED
LED HEADER
(C0MM0N)
12V_F
R760 1.2K 5% 0603 COMMON
R35 1.2K 5% 0603 COMMON
R30 1.2K 5% 0603 COMMON
R26 1.2K 5% 0603 COMMON
R759 1.2K 5% 0603 COMMON
R758 1.2K 5% 0603 COMMON
R49 1.2K 5% 0603 COMMON
R39 1.2K 5% 0603 COMMON
R59 1.2K 5% 0603 COMMON
R52 1.2K 5% 0603 COMMON
R55 1.2K 5% 0603 COMMON
R47 1.2K 5% 0603 COMMON
20,24,27,28
IN
GPIO12_PWR_LVL*
R707
0
0402
+0.05R
COMMON
3V3_F
R714
1K
5%
0402
COMMON
R708
0
0402
+0.05R
COMMON
LED_DIM_INV_R
R715
0
0402
+0.05R
COMMON
LED_FULL_ON_R
C860
0.1UF
16V
10%
X5R
0402
COMMON
GND
1G1D1S
Q517
SOT23
COMMON
60V
0.26A@25C
3R
0.31A
0.3W@25C
+/-20V
GND
LED
LED_Q*
J5
MALE
2.5MM
0
CON_HDR_001X002
COMMON
R731
0
+0.05R
0402
COMMON
GND

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MS-V287

Size	Document Description	Rev
Custom	29_PS_ Board LED; Lighted SLI	1.0

Date: Friday, July 20, 2012 Sheet 29 of 30

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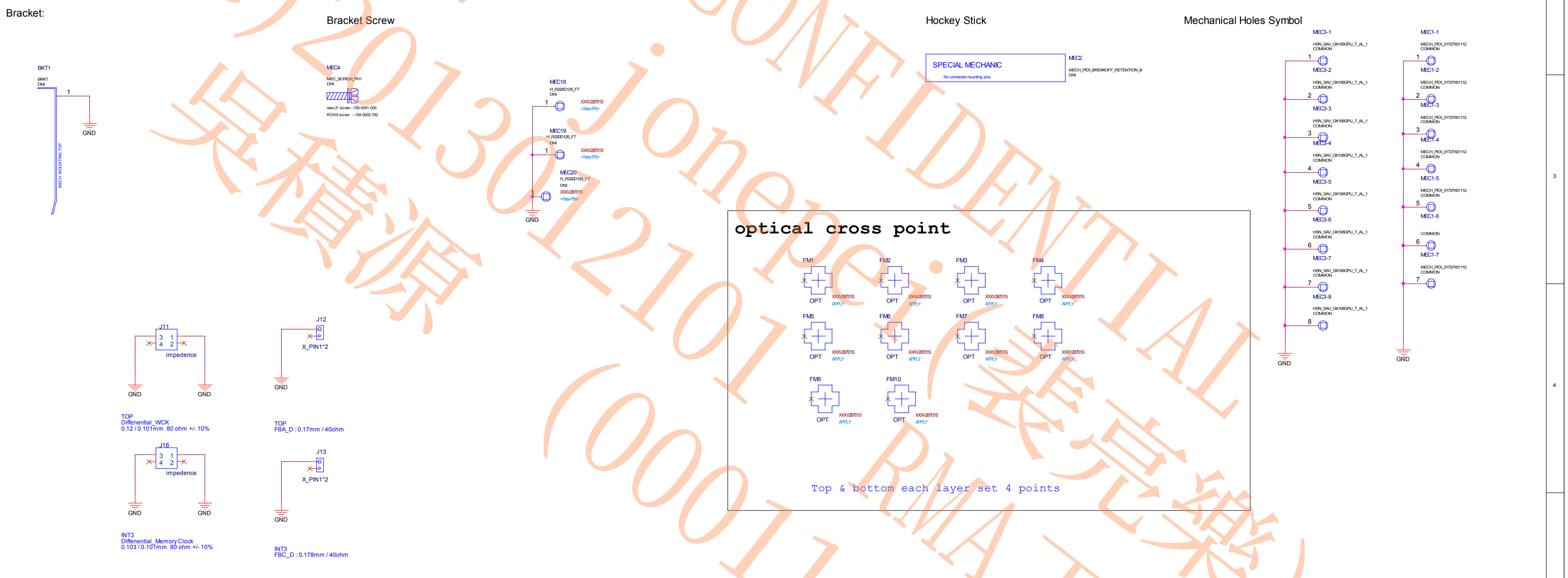
Mechanical: Bracket/Thermal Solution


Bracket:
BKT1
BRKT
DNI
1
GND
MECH. MOUNTING TOP
Bracket Screw
MEC4
MEC_SCREW_PH1
DNI
new LF screw --155-0001-000.
ROHS screw --154-0003-700.
MEC18
H_R220D125_FT
DNI
1
XXXV28701S
<NewPN>
MEC19
H_R220D125_FT
DNI
1
XXXV28701S
<NewPN>
MEC20
H_R220D125_FT
DNI
1
XXXV28701S
<NewPN>
GND
Hockey Stick
SPECIAL MECHANIC
No connected mounting pins
MEC2
MECH_PEX_BREAKOFF_RETENTION_B
DNI
Mechanical Holes Symbol
MEC3-1
HSN_SAV_GK106GPU_T_AL_1
COMMON
1
MEC3-2
HSN_SAV_GK106GPU_T_AL_1
COMMON
2
MEC3-3
HSN_SAV_GK106GPU_T_AL_1
COMMON
3
MEC3-4
HSN_SAV_GK106GPU_T_AL_1
COMMON
4
MEC3-5
HSN_SAV_GK106GPU_T_AL_1
COMMON
5
MEC3-6
HSN_SAV_GK106GPU_T_AL_1
COMMON
6
MEC3-7
HSN_SAV_GK106GPU_T_AL_1
COMMON
7
MEC3-8
HSN_SAV_GK106GPU_T_AL_1
COMMON
8
GND
MEC1-1
MECH_PEX_01727X01112
COMMON
1
MEC1-2
MECH_PEX_01727X01112
COMMON
2
MEC1-3
MECH_PEX_01727X01112
COMMON
3
MEC1-4
MECH_PEX_01727X01112
COMMON
4
MEC1-5
MECH_PEX_01727X01112
COMMON
5
MEC1-6
COMMON
6
MEC1-7
MECH_PEX_01727X01112
COMMON
7
GND
optical cross point
FM1 OPT XXXV28701S APPLY
FM2 OPT XXXV28701S APPLY
FM3 OPT XXXV28701S APPLY
FM4 OPT XXXV28701S APPLY
FM5 OPT XXXV28701S APPLY
FM6 OPT XXXV28701S APPLY
FM7 OPT XXXV28701S APPLY
FM8 OPT XXXV28701S APPLY
FM9 OPT XXXV28701S APPLY
FM10 OPT XXXV28701S APPLY
Top & bottom each layer set 4 points
J11
3 1
4 2
impedence
GND
GND
TOP
Diffenential_WCK
0.12 / 0.101mm 80 ohm +/- 10%
J12
X_PIN1*2
GND
TOP
FBA_D : 0.17mm / 40ohm
J16
3 1
4 2
impedence
GND
GND
INT3
Diffenential_Memory Clock
0.103 / 0.101mm 80 ohm +/- 10%
J13
X_PIN1*2
GND
INT3
FBC_D : 0.178mm / 40ohm

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MS-V287
Size Custom
Document Description 30_MECH_ Bracket_Thermal
Rev 1.0
Date: Friday, July 20, 2012
Sheet 30 of 30