P2002

2GB GDDR5, 256b, 64Mx32

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

TABLE OF CONTENTS

Page Description

1 Table of Contents
2 Block Diagram
3 PCI Express
4 MEMORY: GPU Partition A/B
5 MEMORY: FBA[31:0]
6 MEMORY: FBA[63:32]
7 MEMORY: FBB[31:0]
8 MEMORY: FBB[63:32]
9 MEMORY: GPU Partition C/D
10 MEMORY: FBC[31:0]
11 MEMORY: FBC[63:32]
12 MEMORY: FBD[31:0]
13 MEMORY: FBD[63:32]
14 GPU PWR and GND
15 GPU Decoupling
16 DACA Interface
17 IFPAB DVI-I-DL
18 IFPEF DVI-D-DL
19 IFPC HDMI
20 IFPD DP
21 MIOA/B Interface
22 MISC1: Fan, Thermal, JTAG, GPIO
23 MISC2: ROM, XTAL, Straps
24 PS: 5V, PEX_VDD
25 PS: FBVDD/Q
26 PS: NVVDD Controller
27 PS: NVVDD Phase 1-4
28 PS: NVVDD Phase 5-8
29 PS: NVVDD Phase 9-10 (N/A)
30 PS: Inputs, Filtering, and Monitoring
31 PS: Shutdown
32 PS: 12V Current Steering PSI Control and LED
33 MECH: Bracket/Thermal

2012/02/17 MS-V283-1.0 changed list

Page	Description
3	1.Add 12V_Bus Fuse
17	1. Modify DUAL STACK DVI library
18	1. Modify DUAL STACK DVI library
	2. IFPEF_IOVDD change to PEX_VDD
19	1. Modify HDMI library
	2. IFPCD_IOVDD change to PEX_VDD
20	1. Modify DP library
22	1. Add Thermal IC circuit
	2. Add I2CB to 8318 / 7718 / 6262
	3. Remove GPIO19/GPIO20
23	1. Add Dual BIOS circuit
24	1. Modify U2 footprint
	2. PEX_VDD change to 1-phase PWM
25	1. FBVDD used UPI/1612
26	1. NVVDD used CHIL/8318
27/28	1. Driver IC used IR/3598
	2. MOS used IRF8327 / 8304
	3. Choke used Trio R17 (Golden)
30	1. Remove U502 INA3221 circuit
	2. Modify 12V/PEX_12V current sensor IC circuit
32	1. Remove GeForce Logo LED circuit

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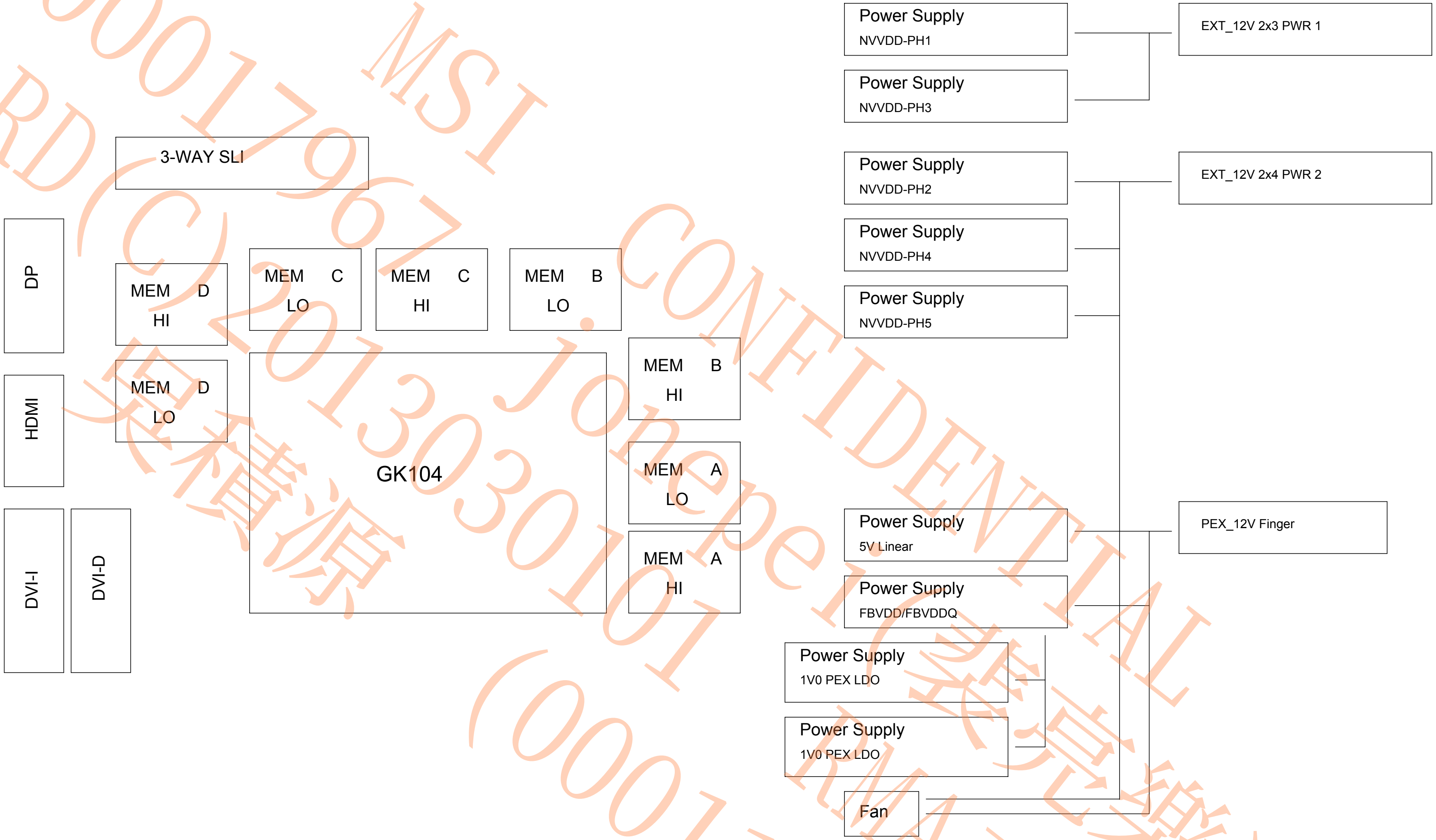
Size	Document Description	Rev
Custom	Table of Contents	1.0

Date: Friday, April 20, 2012 Sheet 1 of 33

Page2: Block Diagram


3-WAY SLI
DP
HDMI
DVI-I
DVI-D
MEM D HI
MEM D LO
MEM C LO
MEM C HI
MEM B LO
MEM B HI
MEM A LO
MEM A HI
GK104
Power Supply NVVDD-PH1
Power Supply NVVDD-PH3
EXT_12V 2x3 PWR 1
Power Supply NVVDD-PH2
Power Supply NVVDD-PH4
Power Supply NVVDD-PH5
EXT_12V 2x4 PWR 2
Power Supply 5V Linear
Power Supply FBVDD/FBVDDQ
PEX_12V Finger
Power Supply 1V0 PEX LDO
Power Supply 1V0 PEX LDO
Fan

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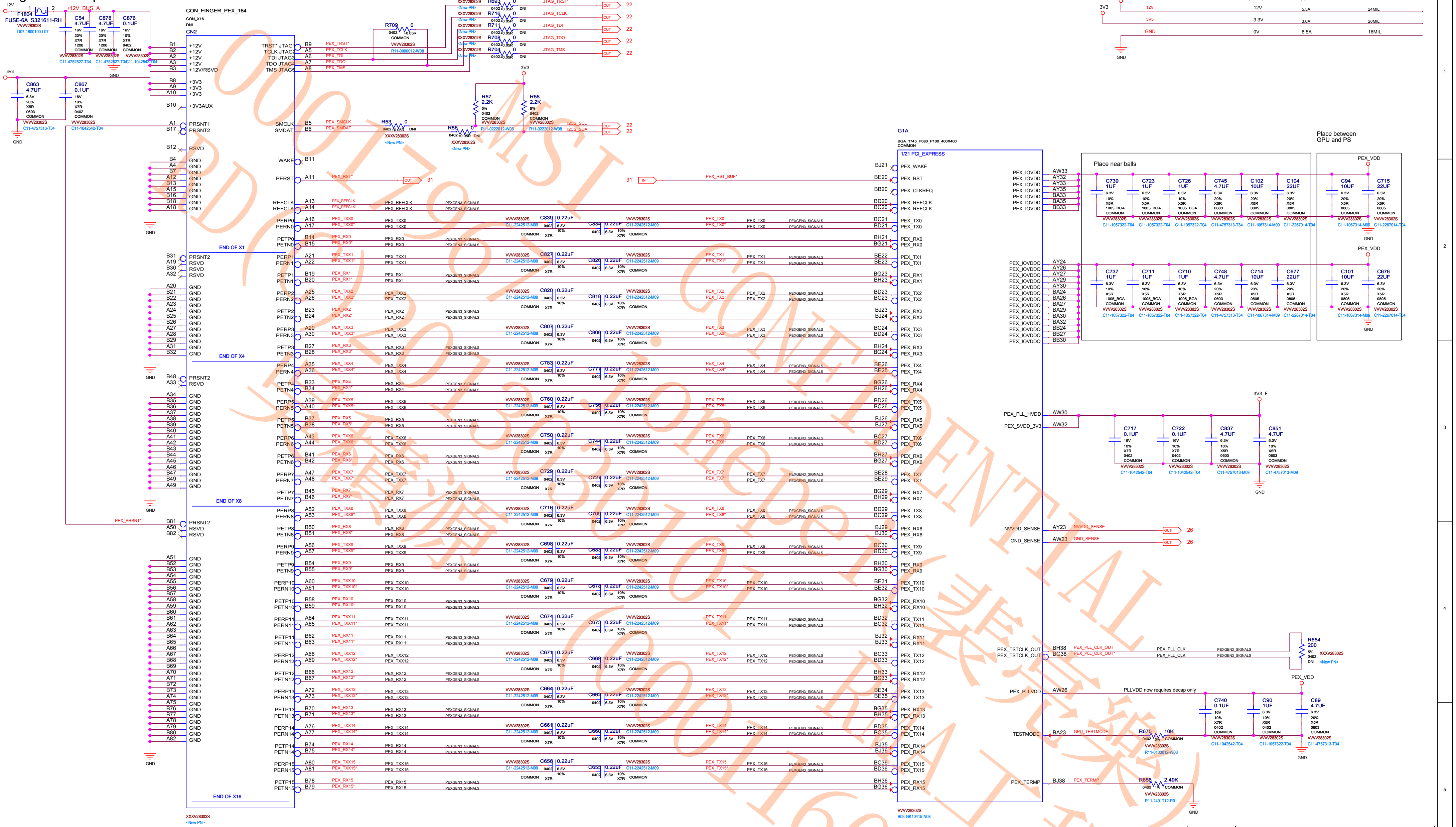
Size	Document Description	Rev
Custom	Block Diagram	1.0

Date: Friday, April 20, 2012
Sheet 2 of 33

Page3: PCI Express


12V
F1804
FUSE-6A_S321611-RH
VVVV28302S
D07-1800100-L07
+12V_BUS_A
C54 4.7UF 16V 20% X7R 1206 COMMON
C878 4.7UF 16V 20% X7R 1206 COMMON
C876 0.1UF 16V 10% X7R 0402 COMMON
C11-4752527-T34
C11-1042542-T04
3V3
C863 4.7UF 6.3V 20% X5R 0603 COMMON
C867 0.1UF 16V 10% X7R 0402 COMMON
C11-4757313-T34
GND
CON_FINGER_PEX_164
CON_X16
DNI
CN2
B1 B2 A2 A3 B3 +12V +12V +12V +12V +12V/RSVD
B8 A9 A10 +3V3 +3V3 +3V3
B10 +3V3AUX
A1 PRSNT1
B17 PRSNT2
B12 RSVD
TRST* JTAG1 B9 PEX_TRST*
TCLK JTAG2 A5 PEX_TCLK
TDI JTAG3 A6 PEX_TDI
TDO JTAG4 A7 PEX_TDO
TMS JTAG5 A8 PEX_TMS
R709 0 0402 +0.05R COMMON R11-0000012-W08
R693 R716 R711 R708 R704 0 0402 +0.05R DNI XXXV28302S <New PN>
JTAG_TRST* JTAG_TCLK JTAG_TDI JTAG_TDO JTAG_TMS OUT 22
R57 2.2K 5% 0402 COMMON
R58 2.2K 5% 0402 COMMON
R11-0222012-W08
SMCLK B5 PEX_SMCLK
SMDAT B6 PEX_SMDAT
R53 0 R56 0 DNI
I2CS_SCL I2CS_SDA OUT 22
WAKE B11
PERST A11 PEX_RST* OUT 31
REFCLK A13 A14 PEX_REFCLK PEX_REFCLK*
PEXGEN3_SIGNALS
END OF X1
END OF X4
END OF X8
END OF X16
B31 PRSNT2
B48 PRSNT2
B81 PRSNT2
PEX_PRSNT*
RSVD
PERP0…PERP15 / PERN0…PERN15
PETP0…PETP15 / PETN0…PETN15
PEX_TXX0…PEX_TXX15
PEX_RX0…PEX_RX15
C839 C834 C827 C826 C820 C818 C807 C806 C783 C777 C760 C756 C750 C744 C729 C727 C716 C709 C698 C683 C679 C678 C674 C673 C671 C669 C664 C662 C661 C660 C656 C655
0.22uF 0402 6.3V 10% X7R COMMON
C11-2242512-M09
XXXV28302S <New PN>
31 IN PEX_RST_BUF*
G1A
BGA_1745_P080_P100_400X400
COMMON
1/21 PCI_EXPRESS
BJ21 PEX_WAKE
BE20 PEX_RST
BB20 PEX_CLKREQ
BD20 BC20 PEX_REFCLK
PEX_TX0…PEX_TX15
PEX_RX0…PEX_RX15
B03-GK10415-N08
PEX_IOVDD AW33 AY32 AY33 AY35 BA33 BA35 BB33
PEX_IOVDDQ AY24 AY26 AY27 AY29 AY30 BA24 BA26 BA27 BA29 BA30 BA32 BB24 BB27 BB30
Place near balls
Place between GPU and PS
PEX_VDD
C739 C723 C726 1UF 6.3V 10% X5R 1005_BGA COMMON C11-1057322-T04
C745 4.7UF 6.3V 20% X5R 0603 COMMON C11-4757313-T34
C102 10UF 6.3V 20% X5R 0805 COMMON C11-1067314-M09
C104 22UF 6.3V 20% X5R 0805 COMMON C11-2267014-T04
C94 10UF C715 22UF
C737 C711 C710 1UF
C748 4.7UF C714 10UF C677 22UF
C101 10UF C676 22UF
NET VOLTAGE MAX_CURRENT MIN_WIDTH
12V 12V 5.5A 24MIL
3V3 3.3V 3.0A 20MIL
GND 0V 8.5A 16MIL
3V3_F
PEX_PLL_HVDD AW30
PEX_SVDD_3V3 AW32
C717 0.1UF C722 0.1UF 16V 10% X7R 0402 COMMON C11-1042542-T04
C837 4.7UF C851 4.7UF 6.3V 10% X5R 0603 COMMON C11-4757013-M09
NVVDD_SENSE AY23 NVVDD_SENSE OUT 26
GND_SENSE AW23 GND_SENSE OUT 26
PEX_TSTCLK_OUT BH38 PEX_PLL_CLK_OUT
PEX_TSTCLK_OUT BG38 PEX_PLL_CLK_OUT*
PEX_PLL_CLK
R654 200 5% 0402 DNI XXXV28302S <New PN>
PEX_PLLVDD AW26
PLLVDD now requires decap only
C740 0.1UF 16V 10% X7R 0402 COMMON C11-1042542-T04
C90 1UF 6.3V 10% X5R 0402 COMMON C11-1057322-T04
C89 4.7UF 6.3V 20% X5R 0603 COMMON C11-4757313-T34
TESTMODE BA23 GPU_TESTMODE
R675 10K 0402 5% COMMON R11-0103012-W08
PEX_TERMP BJ38 PEX_TERMP
R656 2.49K 0402 1% COMMON R11-2491T12-R01

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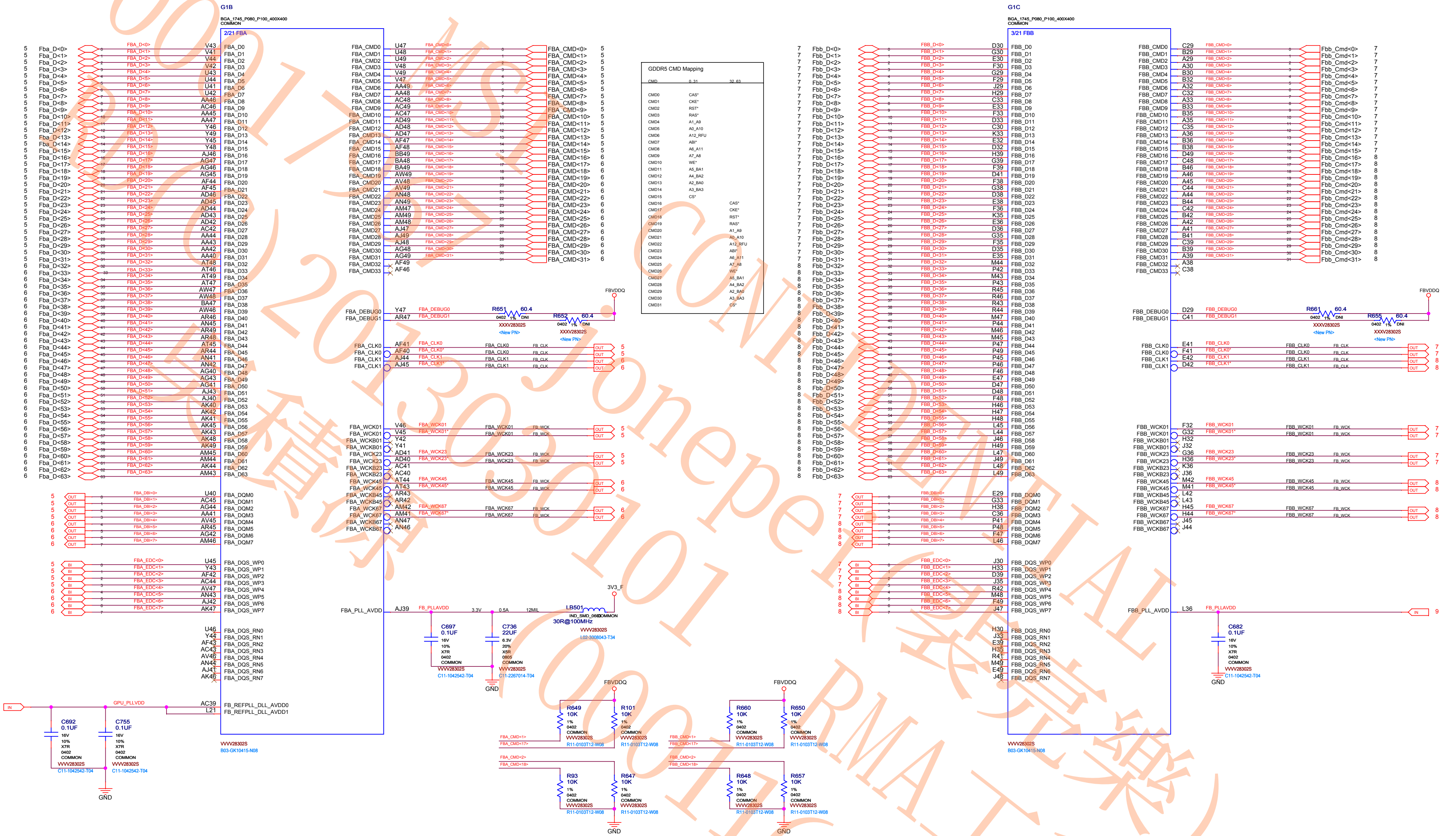
Size	Document Descriptionc	Rev
Custom	PCI Express	1.0

Date: Monday, April 23, 2012 | Sheet 3 of 33

Page4: MEMORY: GPU Partition A/B


G1B
BGA_1745_P080_P100_400X400
COMMON
2/21 FBA
5 Fba_D<0> FBA_D<0> V43 FBA_D0
5 Fba_D<1> FBA_D<1> V41 FBA_D1
5 Fba_D<2> FBA_D<2> V44 FBA_D2
5 Fba_D<3> FBA_D<3> V42 FBA_D3
5 Fba_D<4> FBA_D<4> U43 FBA_D4
5 Fba_D<5> FBA_D<5> U44 FBA_D5
5 Fba_D<6> FBA_D<6> U41 FBA_D6
5 Fba_D<7> FBA_D<7> U42 FBA_D7
5 Fba_D<8> FBA_D<8> AA46 FBA_D8
5 Fba_D<9> FBA_D<9> AC46 FBA_D9
5 Fba_D<10> FBA_D<10> AA45 FBA_D10
5 Fba_D<11> FBA_D<11> AA47 FBA_D11
5 Fba_D<12> FBA_D<12> Y46 FBA_D12
5 Fba_D<13> FBA_D<13> Y49 FBA_D13
5 Fba_D<14> FBA_D<14> Y45 FBA_D14
5 Fba_D<15> FBA_D<15> Y48 FBA_D15
5 Fba_D<16> FBA_D<16> AJ46 FBA_D16
5 Fba_D<17> FBA_D<17> AG47 FBA_D17
5 Fba_D<18> FBA_D<18> AG46 FBA_D18
5 Fba_D<19> FBA_D<19> AG45 FBA_D19
5 Fba_D<20> FBA_D<20> AF44 FBA_D20
5 Fba_D<21> FBA_D<21> AF45 FBA_D21
5 Fba_D<22> FBA_D<22> AD46 FBA_D22
5 Fba_D<23> FBA_D<23> AD45 FBA_D23
5 Fba_D<24> FBA_D<24> AD44 FBA_D24
5 Fba_D<25> FBA_D<25> AD43 FBA_D25
5 Fba_D<26> FBA_D<26> AD42 FBA_D26
5 Fba_D<27> FBA_D<27> AC42 FBA_D27
5 Fba_D<28> FBA_D<28> AA44 FBA_D28
5 Fba_D<29> FBA_D<29> AA43 FBA_D29
5 Fba_D<30> FBA_D<30> AA42 FBA_D30
5 Fba_D<31> FBA_D<31> AA40 FBA_D31
6 Fba_D<32> FBA_D<32> AT48 FBA_D32
6 Fba_D<33> FBA_D<33> AT46 FBA_D33
6 Fba_D<34> FBA_D<34> AT49 FBA_D34
6 Fba_D<35> FBA_D<35> AT47 FBA_D35
6 Fba_D<36> FBA_D<36> AW47 FBA_D36
6 Fba_D<37> FBA_D<37> AW48 FBA_D37
6 Fba_D<38> FBA_D<38> BA47 FBA_D38
6 Fba_D<39> FBA_D<39> AW46 FBA_D39
6 Fba_D<40> FBA_D<40> AR46 FBA_D40
6 Fba_D<41> FBA_D<41> AN45 FBA_D41
6 Fba_D<42> FBA_D<42> AR49 FBA_D42
6 Fba_D<43> FBA_D<43> AR48 FBA_D43
6 Fba_D<44> FBA_D<44> AT45 FBA_D44
6 Fba_D<45> FBA_D<45> AR44 FBA_D45
6 Fba_D<46> FBA_D<46> AN41 FBA_D46
6 Fba_D<47> FBA_D<47> AN42 FBA_D47
6 Fba_D<48> FBA_D<48> AG40 FBA_D48
6 Fba_D<49> FBA_D<49> AG43 FBA_D49
6 Fba_D<50> FBA_D<50> AG41 FBA_D50
6 Fba_D<51> FBA_D<51> AJ43 FBA_D51
6 Fba_D<52> FBA_D<52> AJ40 FBA_D52
6 Fba_D<53> FBA_D<53> AK40 FBA_D53
6 Fba_D<54> FBA_D<54> AK42 FBA_D54
6 Fba_D<55> FBA_D<55> AK41 FBA_D55
6 Fba_D<56> FBA_D<56> AK45 FBA_D56
6 Fba_D<57> FBA_D<57> AK43 FBA_D57
6 Fba_D<58> FBA_D<58> AK48 FBA_D58
6 Fba_D<59> FBA_D<59> AK49 FBA_D59
6 Fba_D<60> FBA_D<60> AM45 FBA_D60
6 Fba_D<61> FBA_D<61> AM44 FBA_D61
6 Fba_D<62> FBA_D<62> AK44 FBA_D62
6 Fba_D<63> FBA_D<63> AM43 FBA_D63
5 OUT FBA_DBI<0> U40 FBA_DQM0
5 OUT FBA_DBI<1> AC45 FBA_DQM1
5 OUT FBA_DBI<2> AG44 FBA_DQM2
5 OUT FBA_DBI<3> AA41 FBA_DQM3
6 OUT FBA_DBI<4> AV45 FBA_DQM4
6 OUT FBA_DBI<5> AR45 FBA_DQM5
6 OUT FBA_DBI<6> AG42 FBA_DQM6
6 OUT FBA_DBI<7> AM46 FBA_DQM7
5 BI FBA_EDC<0> U45 FBA_DQS_WP0
5 BI FBA_EDC<1> Y43 FBA_DQS_WP1
5 BI FBA_EDC<2> AF42 FBA_DQS_WP2
5 BI FBA_EDC<3> AC44 FBA_DQS_WP3
6 BI FBA_EDC<4> AV47 FBA_DQS_WP4
6 BI FBA_EDC<5> AN43 FBA_DQS_WP5
6 BI FBA_EDC<6> AJ42 FBA_DQS_WP6
6 BI FBA_EDC<7> AK47 FBA_DQS_WP7
U46 FBA_DQS_RN0
Y44 FBA_DQS_RN1
AF43 FBA_DQS_RN2
AC43 FBA_DQS_RN3
AV46 FBA_DQS_RN4
AN44 FBA_DQS_RN5
AJ41 FBA_DQS_RN6
AK46 FBA_DQS_RN7
23 IN GPU_PLLVDD
AC39 FB_REFPLL_DLL_AVDD0
L21 FB_REFPLL_DLL_AVDD1
C692 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C755 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
GND
VVVV28302S
B03-GK10415-N08
FBA_CMD0 U47 FBA_CMD<0> FBA_CMD<0> 5
FBA_CMD1 U48 FBA_CMD<1> FBA_CMD<1> 5
FBA_CMD2 U49 FBA_CMD<2> FBA_CMD<2> 5
FBA_CMD3 V48 FBA_CMD<3> FBA_CMD<3> 5
FBA_CMD4 V49 FBA_CMD<4> FBA_CMD<4> 5
FBA_CMD5 V47 FBA_CMD<5> FBA_CMD<5> 5
FBA_CMD6 AA49 FBA_CMD<6> FBA_CMD<6> 5
FBA_CMD7 AA48 FBA_CMD<7> FBA_CMD<7> 5
FBA_CMD8 AC48 FBA_CMD<8> FBA_CMD<8> 5
FBA_CMD9 AC49 FBA_CMD<9> FBA_CMD<9> 5
FBA_CMD10 AC47 FBA_CMD<10> FBA_CMD<10> 5
FBA_CMD11 AD49 FBA_CMD<11> FBA_CMD<11> 5
FBA_CMD12 AD48 FBA_CMD<12> FBA_CMD<12> 5
FBA_CMD13 AD47 FBA_CMD<13> FBA_CMD<13> 5
FBA_CMD14 AF47 FBA_CMD<14> FBA_CMD<14> 5
FBA_CMD15 AF48 FBA_CMD<15> FBA_CMD<15> 5
FBA_CMD16 BB49 FBA_CMD<16> FBA_CMD<16> 6
FBA_CMD17 BA48 FBA_CMD<17> FBA_CMD<17> 6
FBA_CMD18 BA49 FBA_CMD<18> FBA_CMD<18> 6
FBA_CMD19 AW49 FBA_CMD<19> FBA_CMD<19> 6
FBA_CMD20 AV48 FBA_CMD<20> FBA_CMD<20> 6
FBA_CMD21 AV49 FBA_CMD<21> FBA_CMD<21> 6
FBA_CMD22 AN48 FBA_CMD<22> FBA_CMD<22> 6
FBA_CMD23 AN49 FBA_CMD<23> FBA_CMD<23> 6
FBA_CMD24 AM47 FBA_CMD<24> FBA_CMD<24> 6
FBA_CMD25 AM49 FBA_CMD<25> FBA_CMD<25> 6
FBA_CMD26 AM48 FBA_CMD<26> FBA_CMD<26> 6
FBA_CMD27 AJ47 FBA_CMD<27> FBA_CMD<27> 6
FBA_CMD28 AJ49 FBA_CMD<28> FBA_CMD<28> 6
FBA_CMD29 AJ48 FBA_CMD<29> FBA_CMD<29> 6
FBA_CMD30 AG48 FBA_CMD<30> FBA_CMD<30> 6
FBA_CMD31 AG49 FBA_CMD<31> FBA_CMD<31> 6
FBA_CMD32 AF49
FBA_CMD33 AF46
FBA_DEBUG0 Y47 FBA_DEBUG0
FBA_DEBUG1 AR47 FBA_DEBUG1
R651 60.4 0402 1% DNI XXXV28302S <New PN>
R652 60.4 0402 1% DNI XXXV28302S <New PN>
FBVDDQ
FBA_CLK0 AF41 FBA_CLK0 FBA_CLK0 FB_CLK OUT 5
FBA_CLK0 AF40 FBA_CLK0* FBA_CLK0 FB_CLK OUT 5
FBA_CLK1 AJ44 FBA_CLK1 FBA_CLK1 FB_CLK OUT 6
FBA_CLK1 AJ45 FBA_CLK1* FBA_CLK1 FB_CLK OUT 6
FBA_WCK01 V46 FBA_WCK01 FBA_WCK01 FB_WCK OUT 5
FBA_WCK01 V45 FBA_WCK01* FBA_WCK01 FB_WCK OUT 5
FBA_WCKB01 Y42
FBA_WCKB01 Y41
FBA_WCK23 AD41 FBA_WCK23 FBA_WCK23 FB_WCK OUT 5
FBA_WCK23 AD40 FBA_WCK23* FBA_WCK23 FB_WCK OUT 5
FBA_WCKB23 AC41
FBA_WCKB23 AC40
FBA_WCK45 AT44 FBA_WCK45 FBA_WCK45 FB_WCK OUT 6
FBA_WCK45 AT43 FBA_WCK45* FBA_WCK45 FB_WCK OUT 6
FBA_WCKB45 AR43
FBA_WCKB45 AR42
FBA_WCK67 AM42 FBA_WCK67 FBA_WCK67 FB_WCK OUT 6
FBA_WCK67 AM41 FBA_WCK67* FBA_WCK67 FB_WCK OUT 6
FBA_WCKB67 AN47
FBA_WCKB67 AN46
FBA_PLL_AVDD AJ39 FB_PLLAVDD 3.3V 0.5A 12MIL
LB501 IND_SMD_0603 COMMON 30R@100MHz VVVV28302S L02-3008043-T34
3V3_F
C697 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C736 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
GND
FBVDDQ
R649 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
R101 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
FBA_CMD<1>
FBA_CMD<17>
FBA_CMD<2>
FBA_CMD<18>
R93 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
R647 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
GND
FBVDDQ
R660 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
R650 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
FBB_CMD<1>
FBB_CMD<17>
FBB_CMD<2>
FBB_CMD<18>
R648 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
R657 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
GND
G1C
BGA_1745_P080_P100_400X400
COMMON
3/21 FBB
7 Fbb_D<0> FBB_D<0> D30 FBB_D0
7 Fbb_D<1> FBB_D<1> G30 FBB_D1
7 Fbb_D<2> FBB_D<2> E30 FBB_D2
7 Fbb_D<3> FBB_D<3> F30 FBB_D3
7 Fbb_D<4> FBB_D<4> G29 FBB_D4
7 Fbb_D<5> FBB_D<5> F29 FBB_D5
7 Fbb_D<6> FBB_D<6> J29 FBB_D6
7 Fbb_D<7> FBB_D<7> H29 FBB_D7
7 Fbb_D<8> FBB_D<8> C33 FBB_D8
7 Fbb_D<9> FBB_D<9> E33 FBB_D9
7 Fbb_D<10> FBB_D<10> F33 FBB_D10
7 Fbb_D<11> FBB_D<11> D33 FBB_D11
7 Fbb_D<12> FBB_D<12> C30 FBB_D12
7 Fbb_D<13> FBB_D<13> K33 FBB_D13
7 Fbb_D<14> FBB_D<14> E32 FBB_D14
7 Fbb_D<15> FBB_D<15> D32 FBB_D15
7 Fbb_D<16> FBB_D<16> H39 FBB_D16
7 Fbb_D<17> FBB_D<17> G39 FBB_D17
7 Fbb_D<18> FBB_D<18> F39 FBB_D18
7 Fbb_D<19> FBB_D<19> D41 FBB_D19
7 Fbb_D<20> FBB_D<20> F38 FBB_D20
7 Fbb_D<21> FBB_D<21> G38 FBB_D21
7 Fbb_D<22> FBB_D<22> D38 FBB_D22
7 Fbb_D<23> FBB_D<23> E38 FBB_D23
7 Fbb_D<24> FBB_D<24> F36 FBB_D24
7 Fbb_D<25> FBB_D<25> K35 FBB_D25
7 Fbb_D<26> FBB_D<26> E36 FBB_D26
7 Fbb_D<27> FBB_D<27> D36 FBB_D27
7 Fbb_D<28> FBB_D<28> G35 FBB_D28
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8 Fbb_D<37> FBB_D<37> R46 FBB_D37
8 Fbb_D<38> FBB_D<38> R43 FBB_D38
8 Fbb_D<39> FBB_D<39> R44 FBB_D39
8 Fbb_D<40> FBB_D<40> M47 FBB_D40
8 Fbb_D<41> FBB_D<41> P44 FBB_D41
8 Fbb_D<42> FBB_D<42> M46 FBB_D42
8 Fbb_D<43> FBB_D<43> M45 FBB_D43
8 Fbb_D<44> FBB_D<44> P47 FBB_D44
8 Fbb_D<45> FBB_D<45> P49 FBB_D45
8 Fbb_D<46> FBB_D<46> P45 FBB_D46
8 Fbb_D<47> FBB_D<47> P46 FBB_D47
8 Fbb_D<48> FBB_D<48> F46 FBB_D48
8 Fbb_D<49> FBB_D<49> E47 FBB_D49
8 Fbb_D<50> FBB_D<50> D47 FBB_D50
8 Fbb_D<51> FBB_D<51> D48 FBB_D51
8 Fbb_D<52> FBB_D<52> F48 FBB_D52
8 Fbb_D<53> FBB_D<53> H46 FBB_D53
8 Fbb_D<54> FBB_D<54> H47 FBB_D54
8 Fbb_D<55> FBB_D<55> H48 FBB_D55
8 Fbb_D<56> FBB_D<56> L45 FBB_D56
8 Fbb_D<57> FBB_D<57> L44 FBB_D57
8 Fbb_D<58> FBB_D<58> J46 FBB_D58
8 Fbb_D<59> FBB_D<59> H49 FBB_D59
8 Fbb_D<60> FBB_D<60> L47 FBB_D60
8 Fbb_D<61> FBB_D<61> J49 FBB_D61
8 Fbb_D<62> FBB_D<62> L48 FBB_D62
8 Fbb_D<63> FBB_D<63> L49 FBB_D63
7 OUT FBB_DBI<0> E29 FBB_DQM0
7 OUT FBB_DBI<1> G33 FBB_DQM1
7 OUT FBB_DBI<2> H38 FBB_DQM2
7 OUT FBB_DBI<3> C36 FBB_DQM3
8 OUT FBB_DBI<4> P41 FBB_DQM4
8 OUT FBB_DBI<5> P48 FBB_DQM5
8 OUT FBB_DBI<6> F47 FBB_DQM6
8 OUT FBB_DBI<7> L46 FBB_DQM7
7 BI FBB_EDC<0> J30 FBB_DQS_WP0
7 BI FBB_EDC<1> H33 FBB_DQS_WP1
7 BI FBB_EDC<2> D39 FBB_DQS_WP2
7 BI FBB_EDC<3> J35 FBB_DQS_WP3
8 BI FBB_EDC<4> R42 FBB_DQS_WP4
8 BI FBB_EDC<5> M48 FBB_DQS_WP5
8 BI FBB_EDC<6> F49 FBB_DQS_WP6
8 BI FBB_EDC<7> J47 FBB_DQS_WP7
H30 FBB_DQS_RN0
J33 FBB_DQS_RN1
E39 FBB_DQS_RN2
H35 FBB_DQS_RN3
R41 FBB_DQS_RN4
M49 FBB_DQS_RN5
E49 FBB_DQS_RN6
J48 FBB_DQS_RN7
VVVV28302S
B03-GK10415-N08
FBB_CMD0 C29 FBB_CMD<0> Fbb_Cmd<0> 7
FBB_CMD1 B29 FBB_CMD<1> Fbb_Cmd<1> 7
FBB_CMD2 A29 FBB_CMD<2> Fbb_Cmd<2> 7
FBB_CMD3 A30 FBB_CMD<3> Fbb_Cmd<3> 7
FBB_CMD4 B30 FBB_CMD<4> Fbb_Cmd<4> 7
FBB_CMD5 B32 FBB_CMD<5> Fbb_Cmd<5> 7
FBB_CMD6 A32 FBB_CMD<6> Fbb_Cmd<6> 7
FBB_CMD7 C32 FBB_CMD<7> Fbb_Cmd<7> 7
FBB_CMD8 A33 FBB_CMD<8> Fbb_Cmd<8> 7
FBB_CMD9 B33 FBB_CMD<9> Fbb_Cmd<9> 7
FBB_CMD10 B35 FBB_CMD<10> Fbb_Cmd<10> 7
FBB_CMD11 A35 FBB_CMD<11> Fbb_Cmd<11> 7
FBB_CMD12 C35 FBB_CMD<12> Fbb_Cmd<12> 7
FBB_CMD13 A36 FBB_CMD<13> Fbb_Cmd<13> 7
FBB_CMD14 B36 FBB_CMD<14> Fbb_Cmd<14> 7
FBB_CMD15 B38 FBB_CMD<15> Fbb_Cmd<15> 7
FBB_CMD16 D49 FBB_CMD<16> Fbb_Cmd<16> 8
FBB_CMD17 C48 FBB_CMD<17> Fbb_Cmd<17> 8
FBB_CMD18 B46 FBB_CMD<18> Fbb_Cmd<18> 8
FBB_CMD19 A46 FBB_CMD<19> Fbb_Cmd<19> 8
FBB_CMD20 A45 FBB_CMD<20> Fbb_Cmd<20> 8
FBB_CMD21 C44 FBB_CMD<21> Fbb_Cmd<21> 8
FBB_CMD22 A44 FBB_CMD<22> Fbb_Cmd<22> 8
FBB_CMD23 B44 FBB_CMD<23> Fbb_Cmd<23> 8
FBB_CMD24 C42 FBB_CMD<24> Fbb_Cmd<24> 8
FBB_CMD25 B42 FBB_CMD<25> Fbb_Cmd<25> 8
FBB_CMD26 A42 FBB_CMD<26> Fbb_Cmd<26> 8
FBB_CMD27 A41 FBB_CMD<27> Fbb_Cmd<27> 8
FBB_CMD28 B41 FBB_CMD<28> Fbb_Cmd<28> 8
FBB_CMD29 C39 FBB_CMD<29> Fbb_Cmd<29> 8
FBB_CMD30 B39 FBB_CMD<30> Fbb_Cmd<30> 8
FBB_CMD31 A39 FBB_CMD<31> Fbb_Cmd<31> 8
FBB_CMD32 A38
FBB_CMD33 C38
FBB_DEBUG0 D29 FBB_DEBUG0
FBB_DEBUG1 C41 FBB_DEBUG1
R661 60.4 0402 1% DNI XXXV28302S <New PN>
R655 60.4 0402 1% DNI XXXV28302S <New PN>
FBVDDQ
FBB_CLK0 E41 FBB_CLK0 FBB_CLK0 FB_CLK OUT 7
FBB_CLK0 F41 FBB_CLK0* FBB_CLK0 FB_CLK OUT 7
FBB_CLK1 E42 FBB_CLK1 FBB_CLK1 FB_CLK OUT 8
FBB_CLK1 D42 FBB_CLK1* FBB_CLK1 FB_CLK OUT 8
FBB_WCK01 F32 FBB_WCK01 FBB_WCK01 FB_WCK OUT 7
FBB_WCK01 G32 FBB_WCK01* FBB_WCK01 FB_WCK OUT 7
FBB_WCKB01 H32
FBB_WCKB01 J32
FBB_WCK23 G36 FBB_WCK23 FBB_WCK23 FB_WCK OUT 7
FBB_WCK23 H36 FBB_WCK23* FBB_WCK23 FB_WCK OUT 7
FBB_WCKB23 K36
FBB_WCKB23 J36
FBB_WCK45 M42 FBB_WCK45 FBB_WCK45 FB_WCK OUT 8
FBB_WCK45 M41 FBB_WCK45* FBB_WCK45 FB_WCK OUT 8
FBB_WCKB45 L42
FBB_WCKB45 L43
FBB_WCK67 H45 FBB_WCK67 FBB_WCK67 FB_WCK OUT 8
FBB_WCK67 H44 FBB_WCK67* FBB_WCK67 FB_WCK OUT 8
FBB_WCKB67 J45
FBB_WCKB67 J44
FBB_PLL_AVDD L36 FB_PLLAVDD IN 9
C682 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
GND

GDDR5 CMD Mapping

CMD	0_31	32_63
CMD0	CAS*	
CMD1	CKE*	
CMD2	RST*	
CMD3	RAS*	
CMD4	A1_A9	
CMD5	A0_A10	
CMD6	A12_RFU	
CMD7	ABI*	
CMD8	A6_A11	
CMD9	A7_A8	
CMD10	WE*	
CMD11	A5_BA1	
CMD12	A4_BA2	
CMD13	A2_BA0	
CMD14	A3_BA3	
CMD15	CS*	
CMD16		CAS*
CMD17		CKE*
CMD18		RST*
CMD19		RAS*
CMD20		A1_A9
CMD21		A0_A10
CMD22		A12_RFU
CMD23		ABI*
CMD24		A6_A11
CMD25		A7_A8
CMD26		WE*
CMD27		A5_BA1
CMD28		A4_BA2
CMD29		A2_BA0
CMD30		A3_BA3
CMD31		CS*

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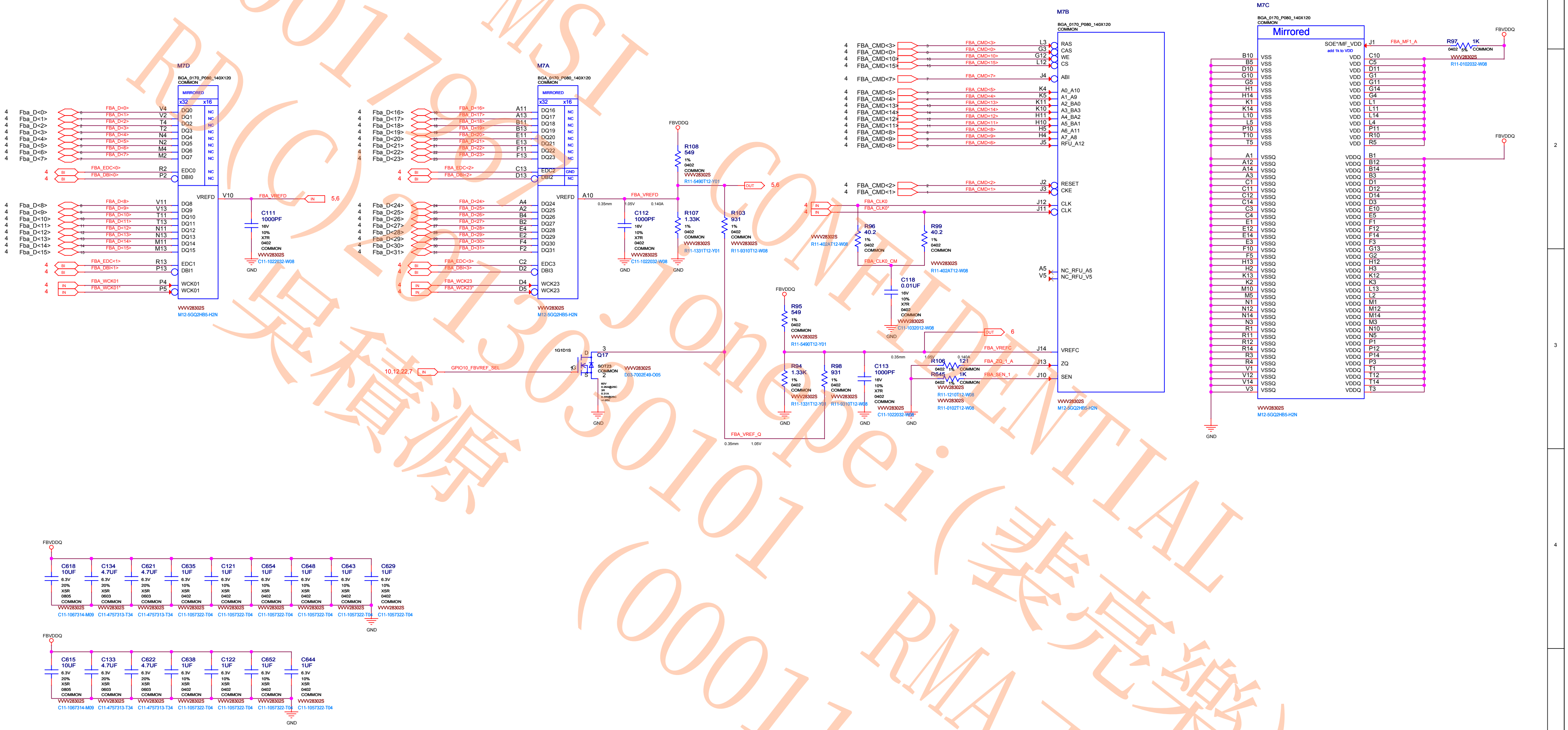
MS-V283

Size	Document Description	Rev
Custom	MEMORY_ GPU Partition A_B	1.0

Date: Monday, April 23, 2012 Sheet 4 of 33

00017 MSI CONFIDENTIAL Jonepel (資訊) 2013/01/01 RMA工程課 (0001601)

Page5: MEMORY: FBA Partition 31..0


M7D
BGA_0170_P080_140X120
COMMON
MIRRORED
x32
x16
4 Fba_D<0>
4 Fba_D<1>
4 Fba_D<2>
4 Fba_D<3>
4 Fba_D<4>
4 Fba_D<5>
4 Fba_D<6>
4 Fba_D<7>
FBA_D<0> V4 DQ0
FBA_D<1> V2 DQ1
FBA_D<2> T4 DQ2
FBA_D<3> T2 DQ3
FBA_D<4> N4 DQ4
FBA_D<5> N2 DQ5
FBA_D<6> M4 DQ6
FBA_D<7> M2 DQ7
NC
4 BI FBA_EDC<0> R2 EDC0
4 BI FBA_DBI<0> P2 DBI0
VREFD V10
FBA_VREFD
IN 5,6
4 Fba_D<8>
4 Fba_D<9>
4 Fba_D<10>
4 Fba_D<11>
4 Fba_D<12>
4 Fba_D<13>
4 Fba_D<14>
4 Fba_D<15>
FBA_D<8> V11 DQ8
FBA_D<9> V13 DQ9
FBA_D<10> T11 DQ10
FBA_D<11> T13 DQ11
FBA_D<12> N11 DQ12
FBA_D<13> N13 DQ13
FBA_D<14> M11 DQ14
FBA_D<15> M13 DQ15
4 BI FBA_EDC<1> R13 EDC1
4 BI FBA_DBI<1> P13 DBI1
4 IN FBA_WCK01 P4 WCK01
4 IN FBA_WCK01* P5 WCK01
VVVV28302S
M12-5GQ2HB5-H2N
C111
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
M7A
BGA_0170_P080_140X120
COMMON
MIRRORED
x32
x16
4 Fba_D<16>
4 Fba_D<17>
4 Fba_D<18>
4 Fba_D<19>
4 Fba_D<20>
4 Fba_D<21>
4 Fba_D<22>
4 Fba_D<23>
FBA_D<16> A11 DQ16
FBA_D<17> A13 DQ17
FBA_D<18> B11 DQ18
FBA_D<19> B13 DQ19
FBA_D<20> E11 DQ20
FBA_D<21> E13 DQ21
FBA_D<22> F11 DQ22
FBA_D<23> F13 DQ23
4 BI FBA_EDC<2> C13 EDC2 GND
4 BI FBA_DBI<2> D13 DBI2 NC
VREFD A10
4 Fba_D<24>
4 Fba_D<25>
4 Fba_D<26>
4 Fba_D<27>
4 Fba_D<28>
4 Fba_D<29>
4 Fba_D<30>
4 Fba_D<31>
FBA_D<24> A4 DQ24
FBA_D<25> A2 DQ25
FBA_D<26> B4 DQ26
FBA_D<27> B2 DQ27
FBA_D<28> E4 DQ28
FBA_D<29> E2 DQ29
FBA_D<30> F4 DQ30
FBA_D<31> F2 DQ31
4 BI FBA_EDC<3> C2 EDC3
4 BI FBA_DBI<3> D2 DBI3
4 IN FBA_WCK23 D4 WCK23
4 IN FBA_WCK23* D5 WCK23
VVVV28302S
M12-5GQ2HB5-H2N
FBA_VREFD
0.35mm 1.05V 0.140A
C112
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
FBVDDQ
R108
549
1%
0402
COMMON
VVVV28302S
R11-5490T12-Y01
OUT 5,6
R107
1.33K
1%
0402
COMMON
VVVV28302S
R11-1331T12-Y01
GND
R103
931
1%
0402
COMMON
VVVV28302S
R11-9310T12-W08
10,12,22,7 IN GPIO10_FBVREF_SEL
1G1D1S
Q17
3 D
1 G
S 2
SOT23
COMMON
60V
0.26A@25C
3R
0.31A
0.3W@25C
+/-20V
VVVV28302S
D03-7002E49-O05
GND
FBA_VREF_Q
0.35mm 1.05V
M7B
BGA_0170_P080_140X120
COMMON
4 FBA_CMD<3> FBA_CMD<3> L3 RAS
4 FBA_CMD<0> FBA_CMD<0> G3 CAS
4 FBA_CMD<10> FBA_CMD<10> G12 WE
4 FBA_CMD<15> FBA_CMD<15> L12 CS
4 FBA_CMD<7> FBA_CMD<7> J4 ABI
4 FBA_CMD<5> FBA_CMD<5> K4 A0_A10
4 FBA_CMD<4> FBA_CMD<4> K5 A1_A9
4 FBA_CMD<13> FBA_CMD<13> K11 A2_BA0
4 FBA_CMD<14> FBA_CMD<14> K10 A3_BA3
4 FBA_CMD<12> FBA_CMD<12> H11 A4_BA2
4 FBA_CMD<11> FBA_CMD<11> H10 A5_BA1
4 FBA_CMD<8> FBA_CMD<8> H5 A6_A11
4 FBA_CMD<9> FBA_CMD<9> H4 A7_A8
4 FBA_CMD<6> FBA_CMD<6> J5 RFU_A12
4 FBA_CMD<2> FBA_CMD<2> J2 RESET
4 FBA_CMD<1> FBA_CMD<1> J3 CKE
4 IN FBA_CLK0 J12 CLK
4 IN FBA_CLK0* J11 CLK
A5 NC_RFU_A5
V5 NC_RFU_V5
FBA_VREFC J14 VREFC
FBA_ZQ_1_A J13 ZQ
FBA_SEN_1 J10 SEN
VVVV28302S
M12-5GQ2HB5-H2N
VVVV28302S
R11-402AT12-W08
R96
40.2
1%
0402
COMMON
R99
40.2
1%
0402
COMMON
VVVV28302S
R11-402AT12-W08
FBA_CLK0_CM
C118
0.01UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1032012-W08
GND
OUT 6
FBVDDQ
R95
549
1%
0402
COMMON
VVVV28302S
R11-5490T12-Y01
R94
1.33K
1%
0402
COMMON
VVVV28302S
R11-1331T12-Y01
GND
R98
931
1%
0402
COMMON
VVVV28302S
R11-9310T12-W08
C113
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
0.35mm 1.05V 0.140A
R106 121 0402 1% COMMON
R645 1K 0402 1% COMMON
VVVV28302S
R11-1210T12-W08
VVVV28302S
R11-0102T12-W08
GND
M7C
BGA_0170_P080_140X120
COMMON
Mirrored
SOE*/MF_VDD J1
add 1k to VDD
FBA_MF1_A
R97 1K 0402 5% COMMON
VVVV28302S
R11-0102032-W08
FBVDDQ
B10 B5 D10 G10 G5 H1 H14 K1 K14 L10 L5 P10 T10 T5 VSS
VDD 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 VSSQ
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
VVVV28302S
M12-5GQ2HB5-H2N
GND
FBVDDQ
C618 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C134 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C621 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C635 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C121 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C654 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C648 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C643 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C629 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND
FBVDDQ
C615 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C133 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C622 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C638 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C122 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C652 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C644 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND

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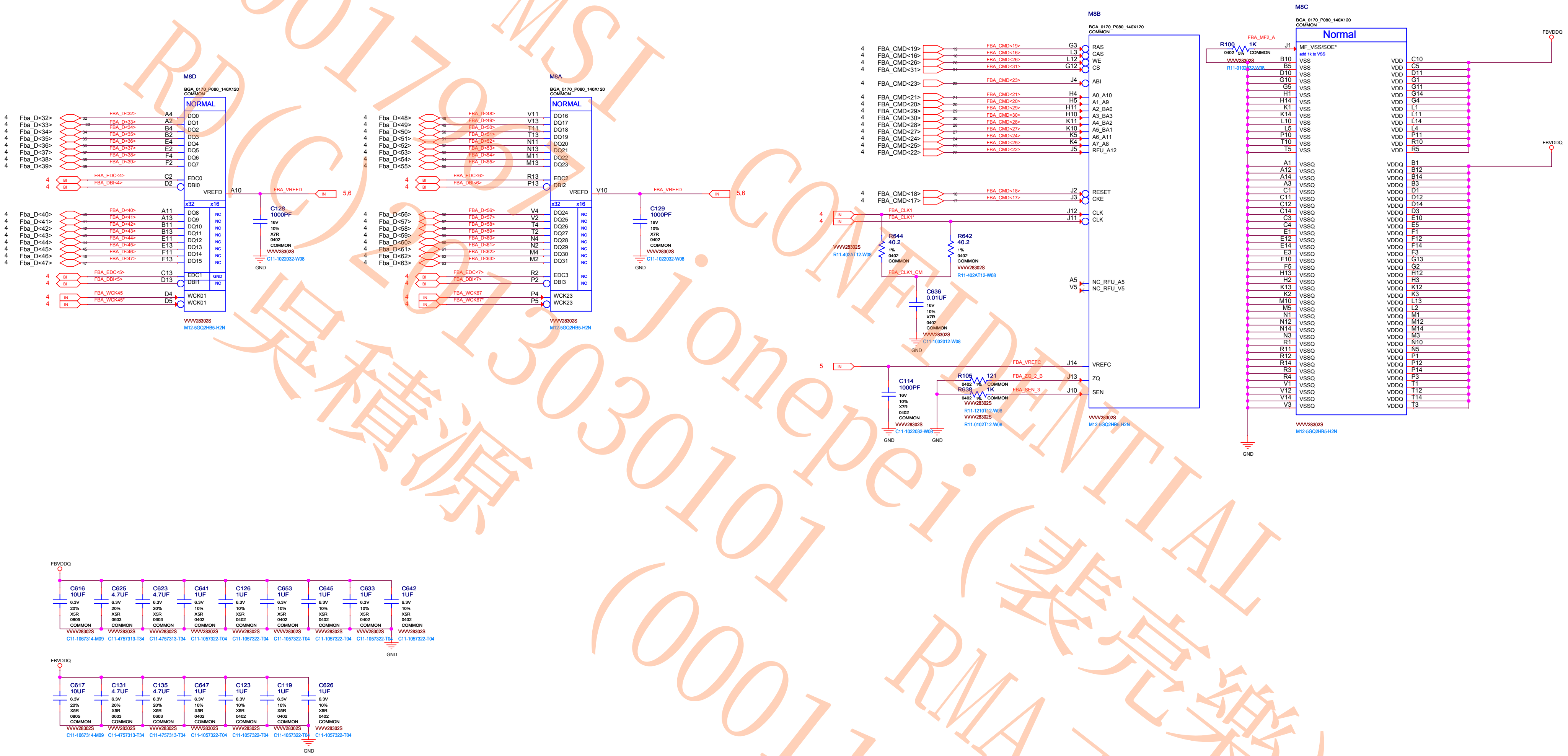
MS-V283

Size	Document Description	Rev
Custom	MEMORY_ FBA[31_0]	1.0
Date: Monday, April 23, 2012	Sheet 5 of 33	

Page6: MEMORY: FBA Partition 63..32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BGA_0170_P080_140X120
COMMON
NORMAL
Fba_D<32>
Fba_D<33>
Fba_D<34>
Fba_D<35>
Fba_D<36>
Fba_D<37>
Fba_D<38>
Fba_D<39>
FBA_D<32> A4 DQ0
FBA_D<33> A2 DQ1
FBA_D<34> B4 DQ2
FBA_D<35> B2 DQ3
FBA_D<36> E4 DQ4
FBA_D<37> E2 DQ5
FBA_D<38> F4 DQ6
FBA_D<39> F2 DQ7
FBA_EDC<4> C2 EDC0
FBA_DBI<4> D2 DBI0
BI
VREFD A10
FBA_VREFD
IN
5,6
x32 x16
Fba_D<40>
Fba_D<41>
Fba_D<42>
Fba_D<43>
Fba_D<44>
Fba_D<45>
Fba_D<46>
Fba_D<47>
FBA_D<40> A11 DQ8
FBA_D<41> A13 DQ9
FBA_D<42> B11 DQ10
FBA_D<43> B13 DQ11
FBA_D<44> E11 DQ12
FBA_D<45> E13 DQ13
FBA_D<46> F11 DQ14
FBA_D<47> F13 DQ15
NC
FBA_EDC<5> C13 EDC1 GND
FBA_DBI<5> D13 DBI1 NC
FBA_WCK45 D4 WCK01
FBA_WCK45* D5 WCK01
VVVV28302S
M12-5GQ2HB5-H2N
C128
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
M8A
BGA_0170_P080_140X120
COMMON
NORMAL
Fba_D<48>
Fba_D<49>
Fba_D<50>
Fba_D<51>
Fba_D<52>
Fba_D<53>
Fba_D<54>
Fba_D<55>
FBA_D<48> V11 DQ16
FBA_D<49> V13 DQ17
FBA_D<50> T11 DQ18
FBA_D<51> T13 DQ19
FBA_D<52> N11 DQ20
FBA_D<53> N13 DQ21
FBA_D<54> M11 DQ22
FBA_D<55> M13 DQ23
FBA_EDC<6> R13 EDC2
FBA_DBI<6> P13 DBI2
VREFD V10
FBA_VREFD
IN
5,6
x32 x16
Fba_D<56>
Fba_D<57>
Fba_D<58>
Fba_D<59>
Fba_D<60>
Fba_D<61>
Fba_D<62>
Fba_D<63>
FBA_D<56> V4 DQ24
FBA_D<57> V2 DQ25
FBA_D<58> T4 DQ26
FBA_D<59> T2 DQ27
FBA_D<60> N4 DQ28
FBA_D<61> N2 DQ29
FBA_D<62> M4 DQ30
FBA_D<63> M2 DQ31
FBA_EDC<7> R2 EDC3 NC
FBA_DBI<7> P2 DBI3 NC
FBA_WCK67 P4 WCK23
FBA_WCK67* P5 WCK23
VVVV28302S
M12-5GQ2HB5-H2N
C129
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
M8B
BGA_0170_P080_140X120
COMMON
FBA_CMD<19> G3 RAS
FBA_CMD<16> L3 CAS
FBA_CMD<26> L12 WE
FBA_CMD<31> G12 CS
FBA_CMD<23> J4 ABI
FBA_CMD<21> H4 A0_A10
FBA_CMD<20> H5 A1_A9
FBA_CMD<29> H11 A2_BA0
FBA_CMD<30> H10 A3_BA3
FBA_CMD<28> K11 A4_BA2
FBA_CMD<27> K10 A5_BA1
FBA_CMD<24> K5 A6_A11
FBA_CMD<25> K4 A7_A8
FBA_CMD<22> J5 RFU_A12
FBA_CMD<18> J2 RESET
FBA_CMD<17> J3 CKE
FBA_CLK1 J12 CLK
FBA_CLK1* J11 CLK
R644
40.2
1%
0402
COMMON
VVVV28302S
R11-402AT12-W08
R642
40.2
1%
0402
COMMON
VVVV28302S
R11-402AT12-W08
FBA_CLK1_CM
C636
0.01UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1032012-W08
GND
A5 NC_RFU_A5
V5 NC_RFU_V5
FBA_VREFC J14 VREFC
C114
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
R105 121
0402 1% COMMON
FBA_ZQ_2_B J13 ZQ
R638 1K
0402 1% COMMON
FBA_SEN_3 J10 SEN
VVVV28302S
R11-1210T12-W08
VVVV28302S
R11-0102T12-W08
VVVV28302S
M12-5GQ2HB5-H2N
M8C
BGA_0170_P080_140X120
COMMON
Normal
R100 1K
0402 5% COMMON
VVVV28302S
R11-0102T32-W08
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
VVVV28302S
M12-5GQ2HB5-H2N
FBVDDQ
GND
FBVDDQ
C616 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C625 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C623 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C641 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C126 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C653 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C645 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C633 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C642 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND
FBVDDQ
C617 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C131 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C135 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C647 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C123 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C119 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C626 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND

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Size	Document Description	Rev
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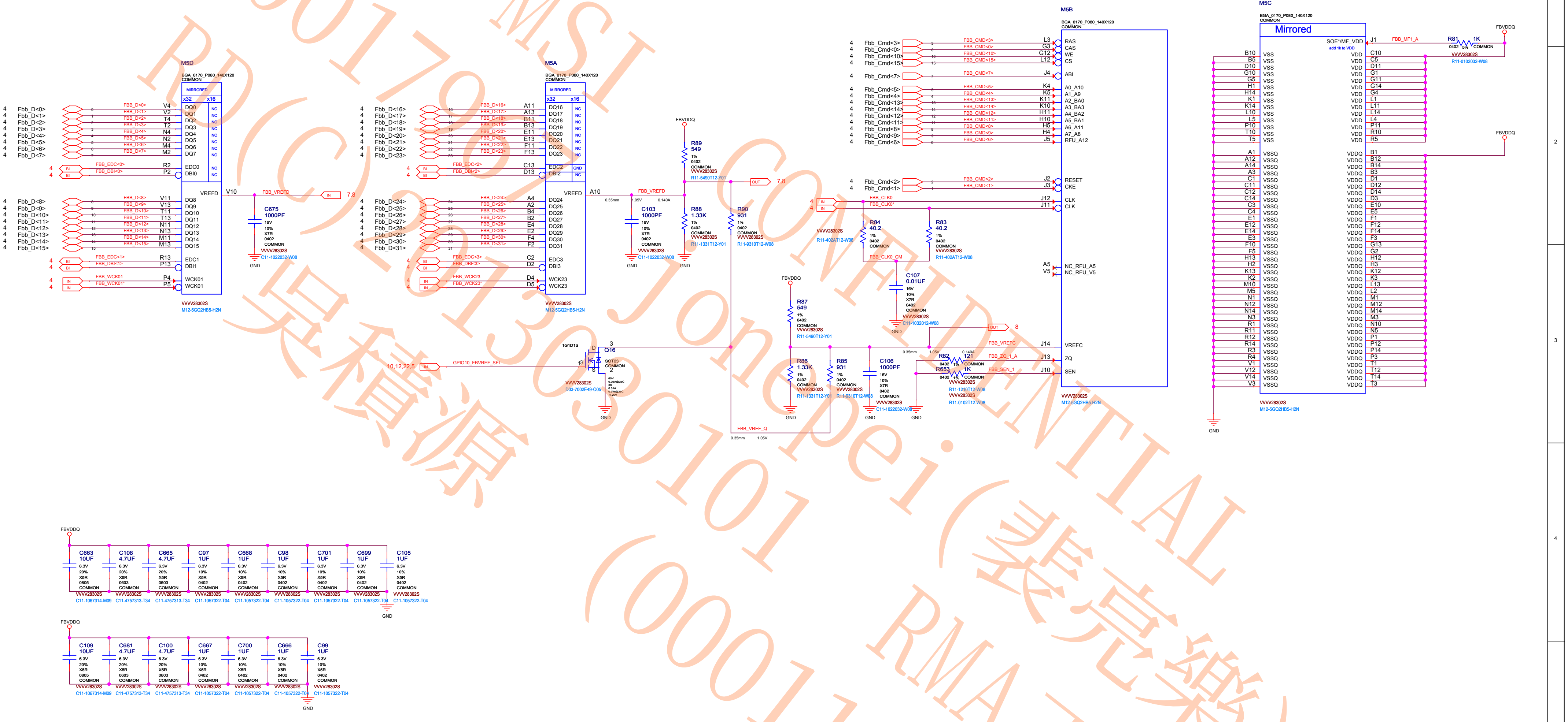
Date: Monday, April 23, 2012 Sheet 6 of 33

Page7: MEMORY: FBB Partition 31..0


M5D
BGA_0170_P080_140X120
COMMON
MIRRORED
x32 x16
4 Fbb_D<0> FBB_D<0> V4 DQ0 NC
4 Fbb_D<1> FBB_D<1> V2 DQ1 NC
4 Fbb_D<2> FBB_D<2> T4 DQ2 NC
4 Fbb_D<3> FBB_D<3> T2 DQ3 NC
4 Fbb_D<4> FBB_D<4> N4 DQ4 NC
4 Fbb_D<5> FBB_D<5> N2 DQ5 NC
4 Fbb_D<6> FBB_D<6> M4 DQ6 NC
4 Fbb_D<7> FBB_D<7> M2 DQ7 NC
4 BI FBB_EDC<0> R2 EDC0 NC
4 BI FBB_DBI<0> P2 DBI0 NC
VREFD V10 FBB_VREFD IN 7,8
4 Fbb_D<8> FBB_D<8> V11 DQ8
4 Fbb_D<9> FBB_D<9> V13 DQ9
4 Fbb_D<10> FBB_D<10> T11 DQ10
4 Fbb_D<11> FBB_D<11> T13 DQ11
4 Fbb_D<12> FBB_D<12> N11 DQ12
4 Fbb_D<13> FBB_D<13> N13 DQ13
4 Fbb_D<14> FBB_D<14> M11 DQ14
4 Fbb_D<15> FBB_D<15> M13 DQ15
4 BI FBB_EDC<1> R13 EDC1
4 BI FBB_DBI<1> P13 DBI1
4 IN FBB_WCK01 P4 WCK01
4 IN FBB_WCK01* P5 WCK01
VVVV28302S
M12-5GQ2HB5-H2N
C675 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
GND
M5A
BGA_0170_P080_140X120
COMMON
MIRRORED
x32 x16
4 Fbb_D<16> FBB_D<16> A11 DQ16 NC
4 Fbb_D<17> FBB_D<17> A13 DQ17 NC
4 Fbb_D<18> FBB_D<18> B11 DQ18 NC
4 Fbb_D<19> FBB_D<19> B13 DQ19 NC
4 Fbb_D<20> FBB_D<20> E11 DQ20 NC
4 Fbb_D<21> FBB_D<21> E13 DQ21 NC
4 Fbb_D<22> FBB_D<22> F11 DQ22 NC
4 Fbb_D<23> FBB_D<23> F13 DQ23 NC
4 BI FBB_EDC<2> C13 EDC2 GND
4 BI FBB_DBI<2> D13 DBI2 NC
VREFD A10
4 Fbb_D<24> FBB_D<24> A4 DQ24
4 Fbb_D<25> FBB_D<25> A2 DQ25
4 Fbb_D<26> FBB_D<26> B4 DQ26
4 Fbb_D<27> FBB_D<27> B2 DQ27
4 Fbb_D<28> FBB_D<28> E4 DQ28
4 Fbb_D<29> FBB_D<29> E2 DQ29
4 Fbb_D<30> FBB_D<30> F4 DQ30
4 Fbb_D<31> FBB_D<31> F2 DQ31
4 BI FBB_EDC<3> C2 EDC3
4 BI FBB_DBI<3> D2 DBI3
4 IN FBB_WCK23 D4 WCK23
4 IN FBB_WCK23* D5 WCK23
VVVV28302S
M12-5GQ2HB5-H2N
FBB_VREFD 0.35mm 1.05V 0.140A
C103 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
GND
FBVDDQ
R89 549 1% 0402 COMMON VVVV28302S R11-5490T12-Y01
OUT 7,8
R88 1.33K 1% 0402 COMMON VVVV28302S R11-1331T12-Y01
R90 931 1% 0402 COMMON VVVV28302S R11-9310T12-W08
GND
10,12,22,5 IN GPIO10_FBVREF_SEL
1G1D1S
Q16 D G S 3 1 2
SOT23 COMMON
60V 0.26A@25C 3R 0.31A 0.3W@25C +/-20V
VVVV28302S D03-7002E49-O05
GND
FBB_VREF_Q 0.35mm 1.05V
FBVDDQ
R87 549 1% 0402 COMMON VVVV28302S R11-5490T12-Y01
R86 1.33K 1% 0402 COMMON VVVV28302S R11-1331T12-Y01
R85 931 1% 0402 COMMON VVVV28302S R11-9310T12-W08
C106 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
GND
OUT 8
FBB_VREFC 0.35mm 1.05V 0.140A
R82 121 0402 1% COMMON VVVV28302S R11-1210T12-W08
R653 1K 0402 1% COMMON VVVV28302S R11-0102T12-W08
FBB_ZQ_1_A
FBB_SEN_1
4 IN FBB_CLK0
4 IN FBB_CLK0*
VVVV28302S R11-402AT12-W08
R84 40.2 1% 0402 COMMON
R83 40.2 1% 0402 COMMON VVVV28302S R11-402AT12-W08
FBB_CLK0_CM
C107 0.01UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1032012-W08
GND
M5B
BGA_0170_P080_140X120
COMMON
4 Fbb_Cmd<3> FBB_CMD<3> L3 RAS
4 Fbb_Cmd<0> FBB_CMD<0> G3 CAS
4 Fbb_Cmd<10> FBB_CMD<10> G12 WE
4 Fbb_Cmd<15> FBB_CMD<15> L12 CS
4 Fbb_Cmd<7> FBB_CMD<7> J4 ABI
4 Fbb_Cmd<5> FBB_CMD<5> K4 A0_A10
4 Fbb_Cmd<4> FBB_CMD<4> K5 A1_A9
4 Fbb_Cmd<13> FBB_CMD<13> K11 A2_BA0
4 Fbb_Cmd<14> FBB_CMD<14> K10 A3_BA3
4 Fbb_Cmd<12> FBB_CMD<12> H11 A4_BA2
4 Fbb_Cmd<11> FBB_CMD<11> H10 A5_BA1
4 Fbb_Cmd<8> FBB_CMD<8> H5 A6_A11
4 Fbb_Cmd<9> FBB_CMD<9> H4 A7_A8
4 Fbb_Cmd<6> FBB_CMD<6> J5 RFU_A12
4 Fbb_Cmd<2> FBB_CMD<2> J2 RESET
4 Fbb_Cmd<1> FBB_CMD<1> J3 CKE
J12 CLK
J11 CLK
A5 NC_RFU_A5
V5 NC_RFU_V5
J14 VREFC
J13 ZQ
J10 SEN
VVVV28302S
M12-5GQ2HB5-H2N
M5C
BGA_0170_P080_140X120
COMMON
Mirrored
SOE*/MF_VDD J1 FBB_MF1_A
add 1k to VDD
R81 1K 0402 5% COMMON VVVV28302S R11-0102032-W08
FBVDDQ
B10 B5 D10 G10 G5 H1 H14 K1 K14 L10 L5 P10 T10 T5 VSS
C10 C5 D11 G1 G11 G14 G4 L1 L11 L14 L4 P11 R10 R5 VDD
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
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 VDDQ
VVVV28302S
M12-5GQ2HB5-H2N
GND
FBVDDQ
C663 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C108 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C665 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C97 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C668 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C98 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C701 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C699 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C105 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND
FBVDDQ
C109 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C681 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C100 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C667 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C700 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C666 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C99 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND

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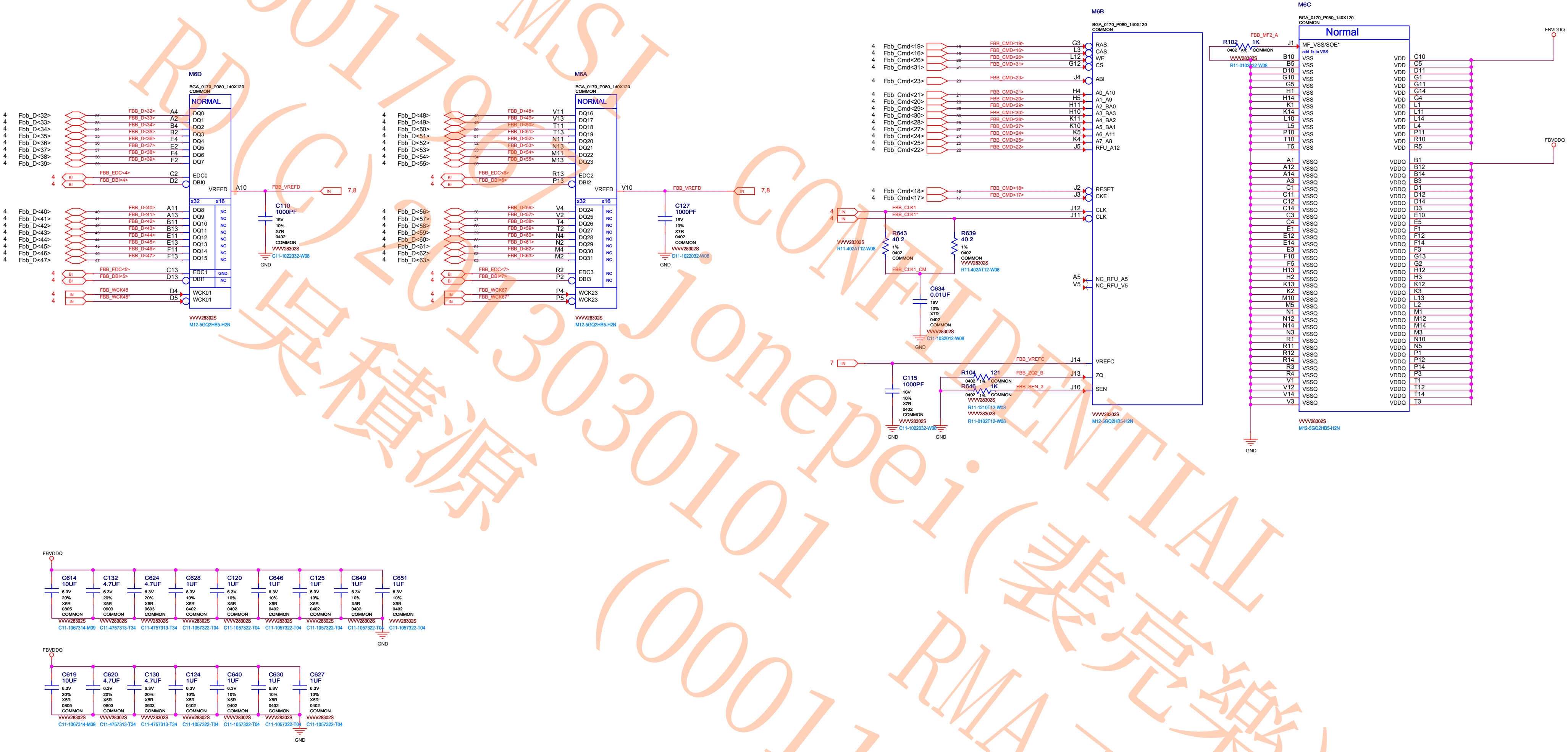
Date: Monday, April 23, 2012

Page8: MEMORY: FBB Partition 63..32


M6D
BGA_0170_P080_140X120 COMMON
NORMAL
Fbb_D<32> … Fbb_D<39>
FBB_D<32> … FBB_D<39>
A4 A2 B4 B2 E4 E2 F4 F2
DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7
FBB_EDC<4> C2 EDC0
FBB_DBI<4> D2 DBI0
VREFD A10
x32 x16
Fbb_D<40> … Fbb_D<47>
FBB_D<40> … FBB_D<47>
A11 A13 B11 B13 E11 E13 F11 F13
DQ8 DQ9 DQ10 DQ11 DQ12 DQ13 DQ14 DQ15
NC
FBB_EDC<5> C13 EDC1 GND
FBB_DBI<5> D13 DBI1 NC
FBB_WCK45 D4 WCK01
FBB_WCK45* D5 WCK01
VVVV28302S
M12-5GQ2HB5-H2N
BI
IN
FBB_VREFD
7,8
C110 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
GND
M6A
BGA_0170_P080_140X120 COMMON
NORMAL
Fbb_D<48> … Fbb_D<55>
FBB_D<48> … FBB_D<55>
V11 V13 T11 T13 N11 N13 M11 M13
DQ16 DQ17 DQ18 DQ19 DQ20 DQ21 DQ22 DQ23
FBB_EDC<6> R13 EDC2
FBB_DBI<6> P13 DBI2
VREFD V10
Fbb_D<56> … Fbb_D<63>
FBB_D<56> … FBB_D<63>
V4 V2 T4 T2 N4 N2 M4 M2
DQ24 DQ25 DQ26 DQ27 DQ28 DQ29 DQ30 DQ31
FBB_EDC<7> R2 EDC3
FBB_DBI<7> P2 DBI3
FBB_WCK67 P4 WCK23
FBB_WCK67* P5 WCK23
VVVV28302S
M12-5GQ2HB5-H2N
C127 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
M6B
BGA_0170_P080_140X120 COMMON
Fbb_Cmd<19> FBB_CMD<19> G3 RAS
Fbb_Cmd<16> FBB_CMD<16> L3 CAS
Fbb_Cmd<26> FBB_CMD<26> L12 WE
Fbb_Cmd<31> FBB_CMD<31> G12 CS
Fbb_Cmd<23> FBB_CMD<23> J4 ABI
Fbb_Cmd<21> FBB_CMD<21> H4 A0_A10
Fbb_Cmd<20> FBB_CMD<20> H5 A1_A9
Fbb_Cmd<29> FBB_CMD<29> H11 A2_BA0
Fbb_Cmd<30> FBB_CMD<30> H10 A3_BA3
Fbb_Cmd<28> FBB_CMD<28> K11 A4_BA2
Fbb_Cmd<27> FBB_CMD<27> K10 A5_BA1
Fbb_Cmd<24> FBB_CMD<24> K5 A6_A11
Fbb_Cmd<25> FBB_CMD<25> K4 A7_A8
Fbb_Cmd<22> FBB_CMD<22> J5 RFU_A12
Fbb_Cmd<18> FBB_CMD<18> J2 RESET
Fbb_Cmd<17> FBB_CMD<17> J3 CKE
FBB_CLK1 J12 CLK
FBB_CLK1* J11 CLK
R643 40.2 1% 0402 COMMON VVVV28302S R11-402AT12-W08
R639 40.2 1% 0402 COMMON VVVV28302S R11-402AT12-W08
FBB_CLK1_CM
C634 0.01UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1032012-W08
A5 NC_RFU_A5
V5 NC_RFU_V5
FBB_VREFC J14 VREFC
R104 121 0402 1% COMMON FBB_ZQ2_B J13 ZQ
R646 1K 0402 1% COMMON FBB_SEN_3 J10 SEN
VVVV28302S R11-1210T12-W08
VVVV28302S R11-0102T12-W08
C115 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
VVVV28302S
M12-5GQ2HB5-H2N
M6C
BGA_0170_P080_140X120 COMMON
Normal
R102 1K 0402 5% COMMON VVVV28302S R11-0102832-W08
FBB_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
VVVV28302S
M12-5GQ2HB5-H2N
FBVDDQ
C614 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C132 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C624 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C628 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C120 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C646 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C125 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C649 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C651 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C619 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C620 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C130 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C124 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C640 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C630 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C627 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND

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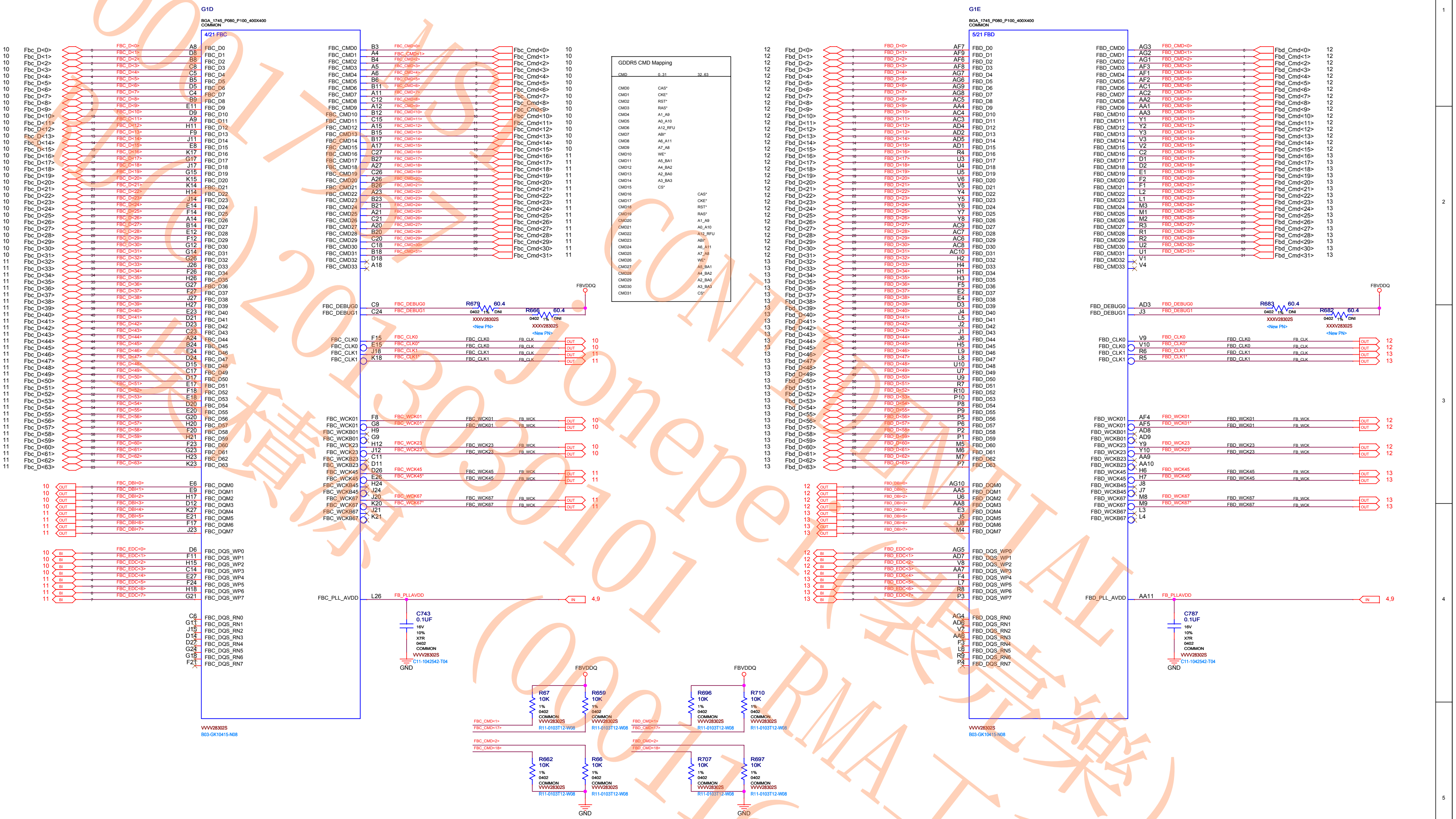
Date: Monday, April 23, 2012 | Sheet 8 of 33

Page9: MEMORY: GPU Partition C/D


G1D
BGA_1745_P080_P100_400X400
COMMON
4/21 FBC
Fbc_D<0> … Fbc_D<63>
FBC_D0 … FBC_D63
FBC_CMD0 … FBC_CMD33
Fbc_Cmd<0> … Fbc_Cmd<31>
FBC_DEBUG0
FBC_DEBUG1
FBC_CLK0
FBC_CLK1
FBC_WCK01
FBC_WCKB01
FBC_WCK23
FBC_WCKB23
FBC_WCK45
FBC_WCKB45
FBC_WCK67
FBC_WCKB67
FBC_DQM0 … FBC_DQM7
FBC_DBI<0> … FBC_DBI<7>
FBC_DQS_WP0 … FBC_DQS_WP7
FBC_EDC<0> … FBC_EDC<7>
FBC_DQS_RN0 … FBC_DQS_RN7
FBC_PLL_AVDD
L26
FB_PLLAVDD
IN
4,9
C743
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
GND
R679
60.4
0402 1% DNI
XXXV28302S
<New PN>
R666
60.4
0402 1% DNI
XXXV28302S
<New PN>
FBVDDQ
FB_CLK
FB_WCK
OUT
BI
VVVV28302S
B03-GK10415-N08
G1E
BGA_1745_P080_P100_400X400
COMMON
5/21 FBD
Fbd_D<0> … Fbd_D<63>
FBD_D0 … FBD_D63
FBD_CMD0 … FBD_CMD33
Fbd_Cmd<0> … Fbd_Cmd<31>
FBD_DEBUG0
FBD_DEBUG1
FBD_CLK0
FBD_CLK1
FBD_WCK01
FBD_WCKB01
FBD_WCK23
FBD_WCKB23
FBD_WCK45
FBD_WCKB45
FBD_WCK67
FBD_WCKB67
FBD_DQM0 … FBD_DQM7
FBD_DBI<0> … FBD_DBI<7>
FBD_DQS_WP0 … FBD_DQS_WP7
FBD_EDC<0> … FBD_EDC<7>
FBD_DQS_RN0 … FBD_DQS_RN7
FBD_PLL_AVDD
AA11
FB_PLLAVDD
C787
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
R683
60.4
R682
60.4
R67 10K
R659 10K
R662 10K
R66 10K
R696 10K
R710 10K
R707 10K
R697 10K
1%
0402
COMMON
VVVV28302S
R11-0103T12-W08
FBC_CMD<1>
FBC_CMD<17>
FBC_CMD<2>
FBC_CMD<18>
FBD_CMD<1>
FBD_CMD<17>
FBD_CMD<2>
FBD_CMD<18>
FBVDDQ
GND

GDDR5 CMD Mapping

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

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MS-V283

Size: Custom
Document Description: MEMORY_ GPU Partition C_D
Rev: 1.0
Date: Monday, April 23, 2012
Sheet 9 of 33

MSI CONFIDENTIAL
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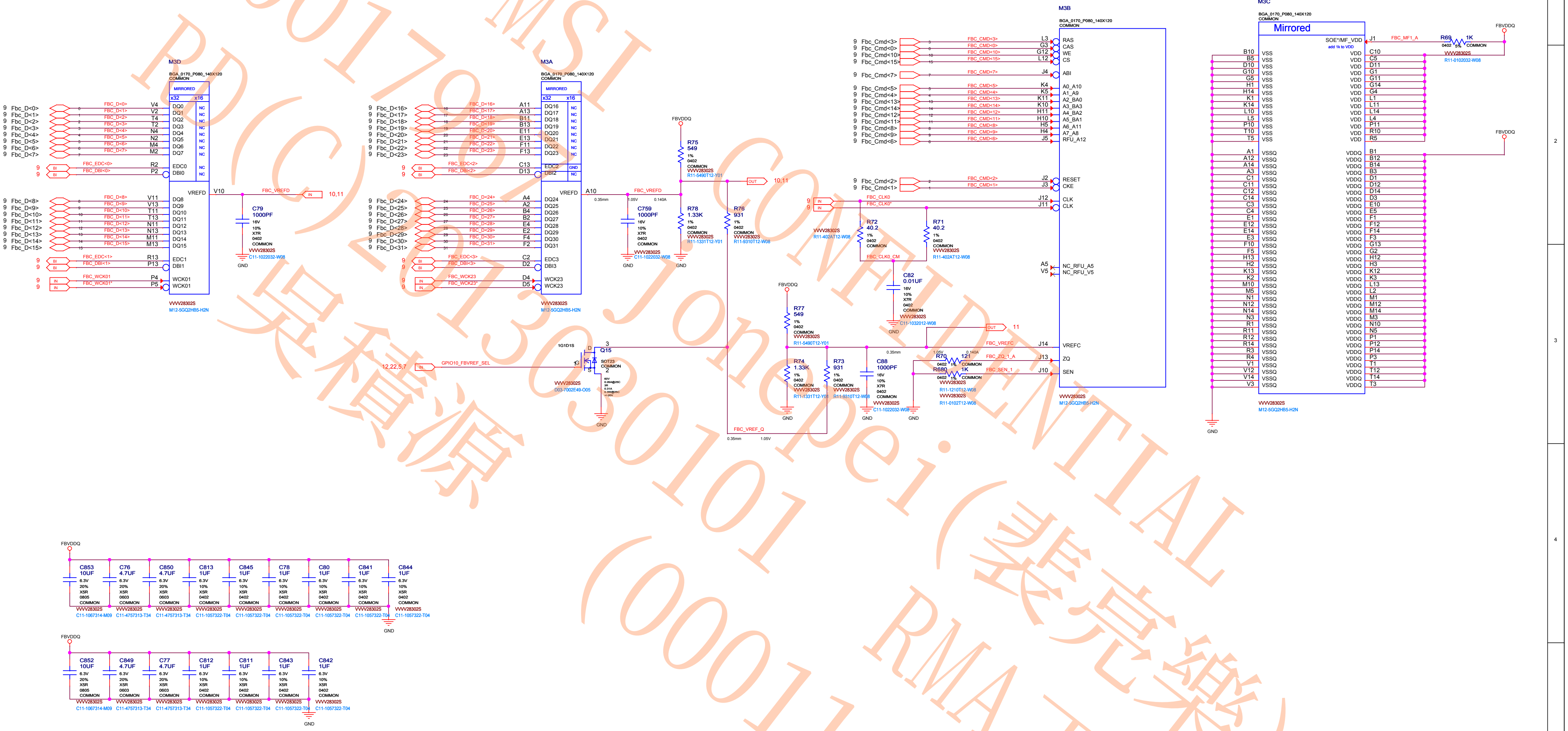
RMA工程課

Page10: MEMORY: FBC Partition 31..0



M3D
BGA_0170_P080_140X120
COMMON
MIRRORED
x32
x16
Fbc_D<0>
Fbc_D<1>
Fbc_D<2>
Fbc_D<3>
Fbc_D<4>
Fbc_D<5>
Fbc_D<6>
Fbc_D<7>
Fbc_D<8>
Fbc_D<9>
Fbc_D<10>
Fbc_D<11>
Fbc_D<12>
Fbc_D<13>
Fbc_D<14>
Fbc_D<15>
FBC_EDC<0>
FBC_DBI<0>
FBC_EDC<1>
FBC_DBI<1>
FBC_WCK01
FBC_WCK01*
DQ0
DQ1
DQ2
DQ3
DQ4
DQ5
DQ6
DQ7
EDC0
DBI0
VREFD
DQ8
DQ9
DQ10
DQ11
DQ12
DQ13
DQ14
DQ15
EDC1
DBI1
WCK01
NC
BI
IN
V10
FBC_VREFD
10,11
C79
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
M12-5GQ2HB5-H2N
M3A
Fbc_D<16>
Fbc_D<17>
Fbc_D<18>
Fbc_D<19>
Fbc_D<20>
Fbc_D<21>
Fbc_D<22>
Fbc_D<23>
Fbc_D<24>
Fbc_D<25>
Fbc_D<26>
Fbc_D<27>
Fbc_D<28>
Fbc_D<29>
Fbc_D<30>
Fbc_D<31>
FBC_EDC<2>
FBC_DBI<2>
FBC_EDC<3>
FBC_DBI<3>
FBC_WCK23
FBC_WCK23*
DQ16
DQ17
DQ18
DQ19
DQ20
DQ21
DQ22
DQ23
EDC2
DBI2
DQ24
DQ25
DQ26
DQ27
DQ28
DQ29
DQ30
DQ31
EDC3
DBI3
WCK23
A10
0.35mm
1.05V
0.140A
C759
1000PF
FBVDDQ
R75
549
1%
R11-5490T12-Y01
OUT
R78
1.33K
R11-1331T12-Y01
R76
931
R11-9310T12-W08
12,22,5,7
GPIO10_FBVREF_SEL
1G1D1S
Q15
SOT23
60V
0.26A@25C
3R
0.31A
0.3W@25C
+/-20V
D03-7002E49-O05
FBC_VREF_Q
R77
549
R74
1.33K
R73
931
C88
1000PF
R72
40.2
R71
40.2
R11-402AT12-W08
FBC_CLK0_CM
C82
0.01UF
C11-1032012-W08
FBC_CLK0
FBC_CLK0*
FBC_VREFC
11
R70
121
FBC_ZQ_1_A
R11-1210T12-W08
R680
1K
FBC_SEN_1
R11-0102T12-W08
M3B
Fbc_Cmd<3>
Fbc_Cmd<0>
Fbc_Cmd<10>
Fbc_Cmd<15>
Fbc_Cmd<7>
Fbc_Cmd<5>
Fbc_Cmd<4>
Fbc_Cmd<13>
Fbc_Cmd<14>
Fbc_Cmd<12>
Fbc_Cmd<11>
Fbc_Cmd<8>
Fbc_Cmd<9>
Fbc_Cmd<6>
Fbc_Cmd<2>
Fbc_Cmd<1>
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
M3C
Mirrored
SOE*/MF_VDD
add 1k to VDD
FBC_MF1_A
R69
1K
5%
R11-0102032-W08
VSS
VDD
VSSQ
VDDQ
C853 10UF
C76 4.7UF
C850 4.7UF
C813 1UF
C845 1UF
C78 1UF
C80 1UF
C841 1UF
C844 1UF
C852 10UF
C849 4.7UF
C77 4.7UF
C812 1UF
C811 1UF
C843 1UF
C842 1UF
6.3V
20%
X5R
0805
0603
C11-1067314-M09
C11-4757313-T34
C11-1057322-T04

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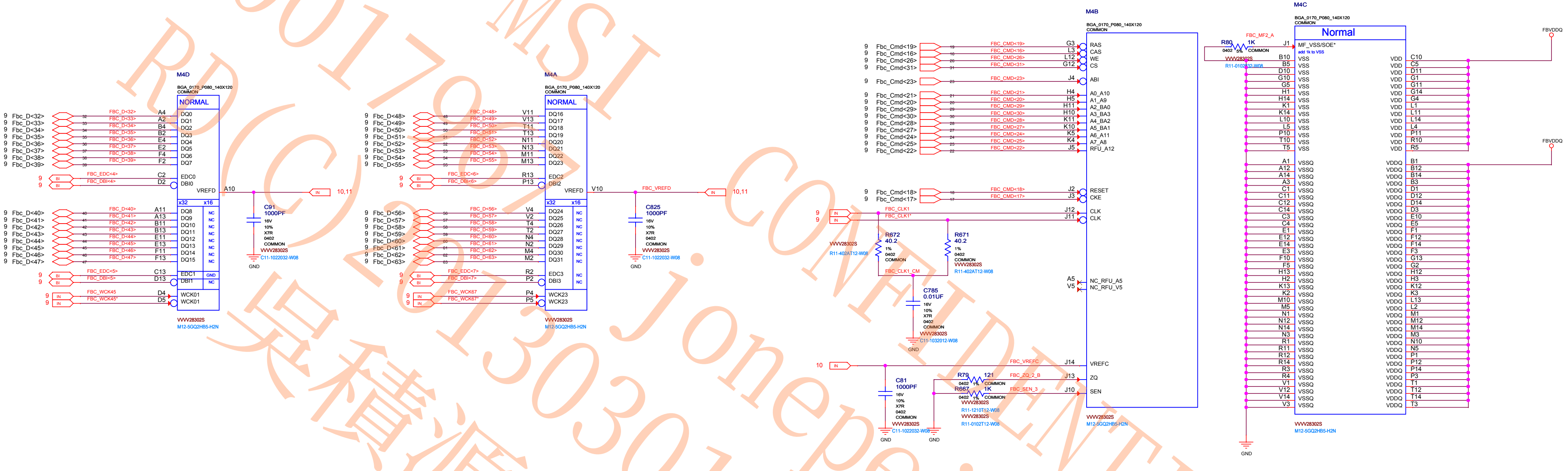
MS-V283

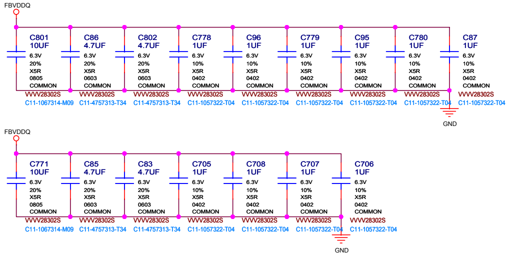
Size	Document Description	Rev
Custom	MEMORY_ FBC[31_0]	1.0

Date: Monday, April 23, 2012 | Sheet 10 of 33

Page11: MEMORY: FBC Partition 63..32



M4D
BGA_0170_P080_140X120
COMMON
NORMAL
9 Fbc_D<32>
9 Fbc_D<33>
9 Fbc_D<34>
9 Fbc_D<35>
9 Fbc_D<36>
9 Fbc_D<37>
9 Fbc_D<38>
9 Fbc_D<39>
FBC_D<32> A4 DQ0
FBC_D<33> A2 DQ1
FBC_D<34> B4 DQ2
FBC_D<35> B2 DQ3
FBC_D<36> E4 DQ4
FBC_D<37> E2 DQ5
FBC_D<38> F4 DQ6
FBC_D<39> F2 DQ7
9 BI FBC_EDC<4> C2 EDC0
9 BI FBC_DBI<4> D2 DBI0
VREFD A10
IN 10,11
C91
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
x32 x16
9 Fbc_D<40>
9 Fbc_D<41>
9 Fbc_D<42>
9 Fbc_D<43>
9 Fbc_D<44>
9 Fbc_D<45>
9 Fbc_D<46>
9 Fbc_D<47>
FBC_D<40> A11 DQ8 NC
FBC_D<41> A13 DQ9 NC
FBC_D<42> B11 DQ10 NC
FBC_D<43> B13 DQ11 NC
FBC_D<44> E11 DQ12 NC
FBC_D<45> E13 DQ13 NC
FBC_D<46> F11 DQ14 NC
FBC_D<47> F13 DQ15 NC
9 BI FBC_EDC<5> C13 EDC1 GND
9 BI FBC_DBI<5> D13 DBI1 NC
9 IN FBC_WCK45 D4 WCK01
9 IN FBC_WCK45* D5 WCK01
VVVV28302S
M12-5GQ2HB5-H2N
M4A
BGA_0170_P080_140X120
COMMON
NORMAL
9 Fbc_D<48>
9 Fbc_D<49>
9 Fbc_D<50>
9 Fbc_D<51>
9 Fbc_D<52>
9 Fbc_D<53>
9 Fbc_D<54>
9 Fbc_D<55>
FBC_D<48> V11 DQ16
FBC_D<49> V13 DQ17
FBC_D<50> T11 DQ18
FBC_D<51> T13 DQ19
FBC_D<52> N11 DQ20
FBC_D<53> N13 DQ21
FBC_D<54> M11 DQ22
FBC_D<55> M13 DQ23
9 BI FBC_EDC<6> R13 EDC2
9 BI FBC_DBI<6> P13 DBI2
VREFD V10
FBC_VREFD
IN 10,11
C825
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
x32 x16
9 Fbc_D<56>
9 Fbc_D<57>
9 Fbc_D<58>
9 Fbc_D<59>
9 Fbc_D<60>
9 Fbc_D<61>
9 Fbc_D<62>
9 Fbc_D<63>
FBC_D<56> V4 DQ24 NC
FBC_D<57> V2 DQ25 NC
FBC_D<58> T4 DQ26 NC
FBC_D<59> T2 DQ27 NC
FBC_D<60> N4 DQ28 NC
FBC_D<61> N2 DQ29 NC
FBC_D<62> M4 DQ30 NC
FBC_D<63> M2 DQ31 NC
9 BI FBC_EDC<7> R2 EDC3 NC
9 BI FBC_DBI<7> P2 DBI3 NC
9 IN FBC_WCK67 P4 WCK23
9 IN FBC_WCK67* P5 WCK23
VVVV28302S
M12-5GQ2HB5-H2N
M4B
BGA_0170_P080_140X120
COMMON
9 Fbc_Cmd<19> FBC_CMD<19> G3 RAS
9 Fbc_Cmd<16> FBC_CMD<16> L3 CAS
9 Fbc_Cmd<26> FBC_CMD<26> L12 WE
9 Fbc_Cmd<31> FBC_CMD<31> G12 CS
9 Fbc_Cmd<23> FBC_CMD<23> J4 ABI
9 Fbc_Cmd<21> FBC_CMD<21> H4 A0_A10
9 Fbc_Cmd<20> FBC_CMD<20> H5 A1_A9
9 Fbc_Cmd<29> FBC_CMD<29> H11 A2_BA0
9 Fbc_Cmd<30> FBC_CMD<30> H10 A3_BA3
9 Fbc_Cmd<28> FBC_CMD<28> K11 A4_BA2
9 Fbc_Cmd<27> FBC_CMD<27> K10 A5_BA1
9 Fbc_Cmd<24> FBC_CMD<24> K5 A6_A11
9 Fbc_Cmd<25> FBC_CMD<25> K4 A7_A8
9 Fbc_Cmd<22> FBC_CMD<22> J5 RFU_A12
9 Fbc_Cmd<18> FBC_CMD<18> J2 RESET
9 Fbc_Cmd<17> FBC_CMD<17> J3 CKE
9 IN FBC_CLK1 J12 CLK
9 IN FBC_CLK1* J11 CLK
R672
40.2
1%
0402
COMMON
VVVV28302S
R11-402AT12-W08
R671
40.2
1%
0402
COMMON
VVVV28302S
R11-402AT12-W08
FBC_CLK1_CM
C785
0.01UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1032012-W08
GND
A5 NC_RFU_A5
V5 NC_RFU_V5
10 IN FBC_VREFC J14 VREFC
C81
1000PF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1022032-W08
GND
R79 121 0402 1% COMMON
FBC_ZQ_2_B J13 ZQ
R667 1K 0402 1% COMMON
FBC_SEN_3 J10 SEN
VVVV28302S
R11-1210T12-W08
VVVV28302S
R11-0102T12-W08
GND
VVVV28302S
M12-5GQ2HB5-H2N
M4C
BGA_0170_P080_140X120
COMMON
Normal
R80 1K 0402 5% COMMON
VVVV28302S
R11-0102032-W08
FBC_MF2_A
J1 MF_VSS/SOE*
add 1k to VSS
B10 VSS VDD C10
B5 VSS VDD C5
D10 VSS VDD D11
G10 VSS VDD G1
G5 VSS VDD G11
H1 VSS VDD G14
H14 VSS VDD G4
K1 VSS VDD L1
K14 VSS VDD L11
L10 VSS VDD L14
L5 VSS VDD L4
P10 VSS VDD P11
T10 VSS VDD R10
T5 VSS VDD R5
A1 VSSQ VDDQ B1
A12 VSSQ VDDQ B12
A14 VSSQ VDDQ B14
A3 VSSQ VDDQ B3
C1 VSSQ VDDQ D1
C11 VSSQ VDDQ D12
C12 VSSQ VDDQ D14
C14 VSSQ VDDQ D3
C3 VSSQ VDDQ E10
C4 VSSQ VDDQ E5
E1 VSSQ VDDQ F1
E12 VSSQ VDDQ F12
E14 VSSQ VDDQ F14
E3 VSSQ VDDQ F3
F10 VSSQ VDDQ G13
F5 VSSQ VDDQ G2
H13 VSSQ VDDQ H12
H2 VSSQ VDDQ H3
K13 VSSQ VDDQ K12
K2 VSSQ VDDQ K3
M10 VSSQ VDDQ L13
M5 VSSQ VDDQ L2
N1 VSSQ VDDQ M1
N12 VSSQ VDDQ M12
N14 VSSQ VDDQ M14
N3 VSSQ VDDQ M3
R1 VSSQ VDDQ N10
R11 VSSQ VDDQ N5
R12 VSSQ VDDQ P1
R14 VSSQ VDDQ P12
R3 VSSQ VDDQ P14
R4 VSSQ VDDQ P3
V1 VSSQ VDDQ T1
V12 VSSQ VDDQ T12
V14 VSSQ VDDQ T14
V3 VSSQ VDDQ T3
FBVDDQ
FBVDDQ
GND
VVVV28302S
M12-5GQ2HB5-H2N



FBVDDQ
C801 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C86 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C802 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C778 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C96 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C779 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C95 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C780 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C87 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND
FBVDDQ
C771 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C85 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C83 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C705 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C708 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C707 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C706 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND

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MS-V283

Size	Document Description	Rev
Custom	MEMORY_ FBC[63_32]	1.0

Date: Monday, April 23, 2012 Sheet 11 of 33

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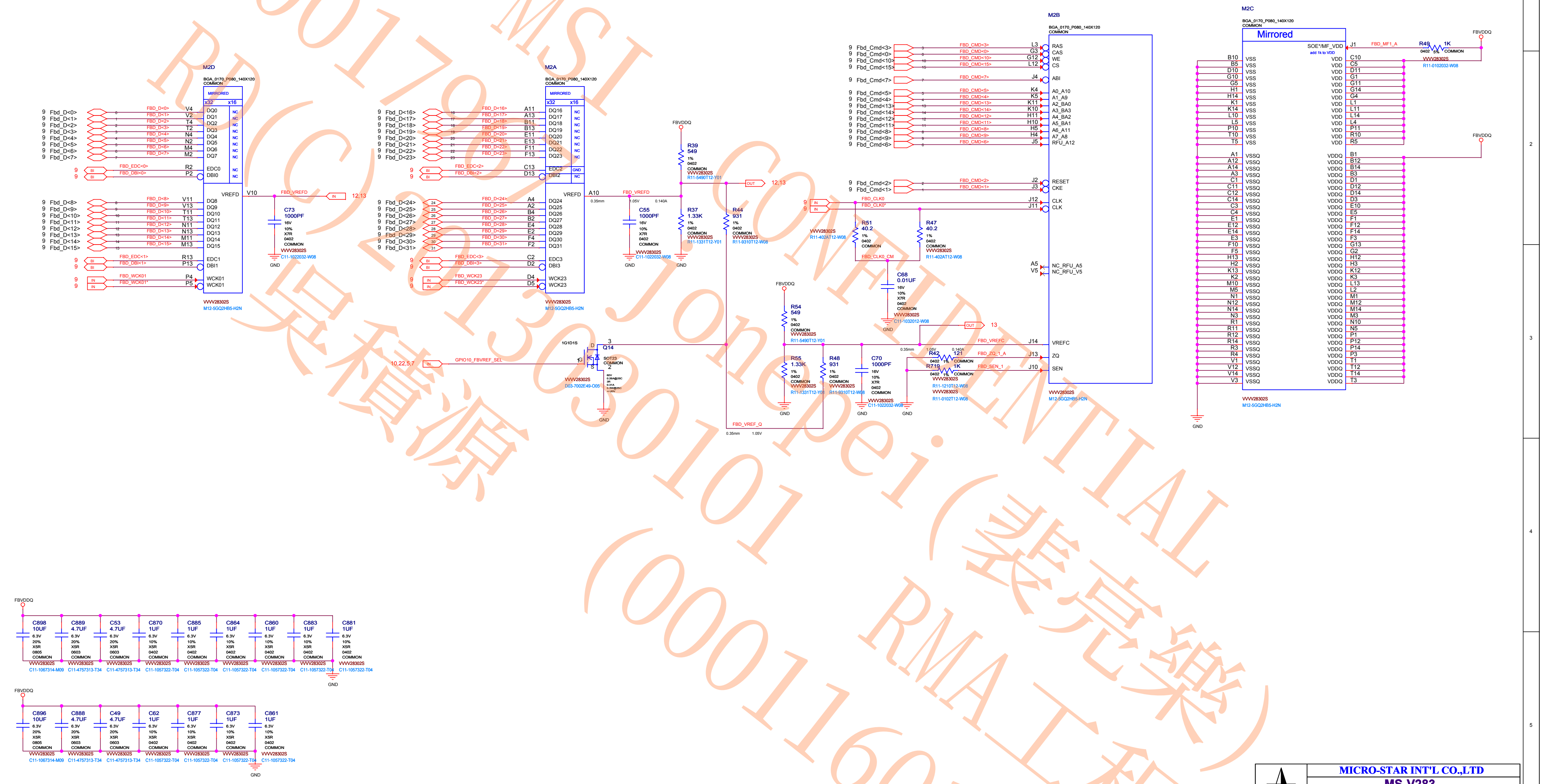
Page12: MEMORY: FBD Partition 31..0


M2D
BGA_0170_P080_140X120
COMMON
MIRRORED
x32 x16
9 Fbd_D<0> FBD_D<0> V4 DQ0 NC
9 Fbd_D<1> FBD_D<1> V2 DQ1 NC
9 Fbd_D<2> FBD_D<2> T4 DQ2 NC
9 Fbd_D<3> FBD_D<3> T2 DQ3 NC
9 Fbd_D<4> FBD_D<4> N4 DQ4 NC
9 Fbd_D<5> FBD_D<5> N2 DQ5 NC
9 Fbd_D<6> FBD_D<6> M4 DQ6 NC
9 Fbd_D<7> FBD_D<7> M2 DQ7 NC
9 BI FBD_EDC<0> R2 EDC0 NC
9 BI FBD_DBI<0> P2 DBI0 NC
VREFD V10 FBD_VREFD IN 12,13
9 Fbd_D<8> FBD_D<8> V11 DQ8
9 Fbd_D<9> FBD_D<9> V13 DQ9
9 Fbd_D<10> FBD_D<10> T11 DQ10
9 Fbd_D<11> FBD_D<11> T13 DQ11
9 Fbd_D<12> FBD_D<12> N11 DQ12
9 Fbd_D<13> FBD_D<13> N13 DQ13
9 Fbd_D<14> FBD_D<14> M11 DQ14
9 Fbd_D<15> FBD_D<15> M13 DQ15
9 BI FBD_EDC<1> R13 EDC1
9 BI FBD_DBI<1> P13 DBI1
9 IN FBD_WCK01 P4 WCK01
9 IN FBD_WCK01* P5 WCK01
VVVV28302S
M12-5GQ2HB5-H2N
C73 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
GND
M2A
BGA_0170_P080_140X120
COMMON
MIRRORED
x32 x16
9 Fbd_D<16> FBD_D<16> A11 DQ16 NC
9 Fbd_D<17> FBD_D<17> A13 DQ17 NC
9 Fbd_D<18> FBD_D<18> B11 DQ18 NC
9 Fbd_D<19> FBD_D<19> B13 DQ19 NC
9 Fbd_D<20> FBD_D<20> E11 DQ20 NC
9 Fbd_D<21> FBD_D<21> E13 DQ21 NC
9 Fbd_D<22> FBD_D<22> F11 DQ22 NC
9 Fbd_D<23> FBD_D<23> F13 DQ23 NC
9 BI FBD_EDC<2> C13 EDC2 GND
9 BI FBD_DBI<2> D13 DBI2 NC
VREFD A10 FBD_VREFD 0.35mm 1.05V 0.140A
9 Fbd_D<24> FBD_D<24> A4 DQ24
9 Fbd_D<25> FBD_D<25> A2 DQ25
9 Fbd_D<26> FBD_D<26> B4 DQ26
9 Fbd_D<27> FBD_D<27> B2 DQ27
9 Fbd_D<28> FBD_D<28> E4 DQ28
9 Fbd_D<29> FBD_D<29> E2 DQ29
9 Fbd_D<30> FBD_D<30> F4 DQ30
9 Fbd_D<31> FBD_D<31> F2 DQ31
9 BI FBD_EDC<3> C2 EDC3
9 BI FBD_DBI<3> D2 DBI3
9 IN FBD_WCK23 D4 WCK23
9 IN FBD_WCK23* D5 WCK23
VVVV28302S
M12-5GQ2HB5-H2N
C55 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
GND
FBVDDQ
R39 549 1% 0402 COMMON VVVV28302S R11-5490T12-Y01
OUT 12,13
R37 1.33K 1% 0402 COMMON VVVV28302S R11-1331T12-Y01
R44 931 1% 0402 COMMON VVVV28302S R11-9310T12-W08
GND
1G1D1S
Q14 SOT23 COMMON
D 3 G 1 S 2
60V 0.26A@25C 3R 0.31A 0.3W@25C +/-20V
VVVV28302S D03-7002E49-O05
10,22,5,7 IN GPIO10_FBVREF_SEL
GND
FBD_VREF_Q 0.35mm 1.05V
FBVDDQ
R54 549 1% 0402 COMMON VVVV28302S R11-5490T12-Y01
R55 1.33K 1% 0402 COMMON VVVV28302S R11-1331T12-Y01
R48 931 1% 0402 COMMON VVVV28302S R11-9310T12-W08
C70 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
GND
OUT 13
FBD_VREFC 0.35mm J14 VREFC
R42 121 0402 1% COMMON 1.05V 0.140A FBD_ZQ_1_A J13 ZQ
R719 1K 0402 1% COMMON FBD_SEN_1 J10 SEN
VVVV28302S R11-1210T12-W08
VVVV28302S R11-0102T12-W08
9 IN FBD_CLK0 J12 CLK
9 IN FBD_CLK0* J11 CLK
R51 40.2 1% 0402 COMMON VVVV28302S R11-402AT12-W08
R47 40.2 1% 0402 COMMON VVVV28302S R11-402AT12-W08
FBD_CLK0_CM
C68 0.01UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1032012-W08
M2B
BGA_0170_P080_140X120
COMMON
9 Fbd_Cmd<3> FBD_CMD<3> L3 RAS
9 Fbd_Cmd<0> FBD_CMD<0> G3 CAS
9 Fbd_Cmd<10> FBD_CMD<10> G12 WE
9 Fbd_Cmd<15> FBD_CMD<15> L12 CS
9 Fbd_Cmd<7> FBD_CMD<7> J4 ABI
9 Fbd_Cmd<5> FBD_CMD<5> K4 A0_A10
9 Fbd_Cmd<4> FBD_CMD<4> K5 A1_A9
9 Fbd_Cmd<13> FBD_CMD<13> K11 A2_BA0
9 Fbd_Cmd<14> FBD_CMD<14> K10 A3_BA3
9 Fbd_Cmd<12> FBD_CMD<12> H11 A4_BA2
9 Fbd_Cmd<11> FBD_CMD<11> H10 A5_BA1
9 Fbd_Cmd<8> FBD_CMD<8> H5 A6_A11
9 Fbd_Cmd<9> FBD_CMD<9> H4 A7_A8
9 Fbd_Cmd<6> FBD_CMD<6> J5 RFU_A12
9 Fbd_Cmd<2> FBD_CMD<2> J2 RESET
9 Fbd_Cmd<1> FBD_CMD<1> J3 CKE
A5 NC_RFU_A5
V5 NC_RFU_V5
VVVV28302S
M12-5GQ2HB5-H2N
M2C
BGA_0170_P080_140X120
COMMON
Mirrored
SOE*/MF_VDD J1 FBD_MF1_A
add 1k to VDD
R49 1K 0402 5% COMMON VVVV28302S R11-0102032-W08
FBVDDQ
VSS: B10 B5 D10 G10 G5 H1 H14 K1 K14 L10 L5 P10 T10 T5
VDD: C10 C5 D11 G1 G11 G14 G4 L1 L11 L14 L4 P11 R10 R5
VSSQ: 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
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
GND
VVVV28302S
M12-5GQ2HB5-H2N
FBVDDQ
C898 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C889 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C53 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C870 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C885 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C864 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C860 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C883 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C881 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND
FBVDDQ
C896 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C888 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C49 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C62 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C877 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C873 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C861 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND

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MS-V283

Size	Document Description	Rev
Custom	MEMORY_ FBD[31_0]	1.0
Date: Monday, April 23, 2012	Sheet 12 of 33	

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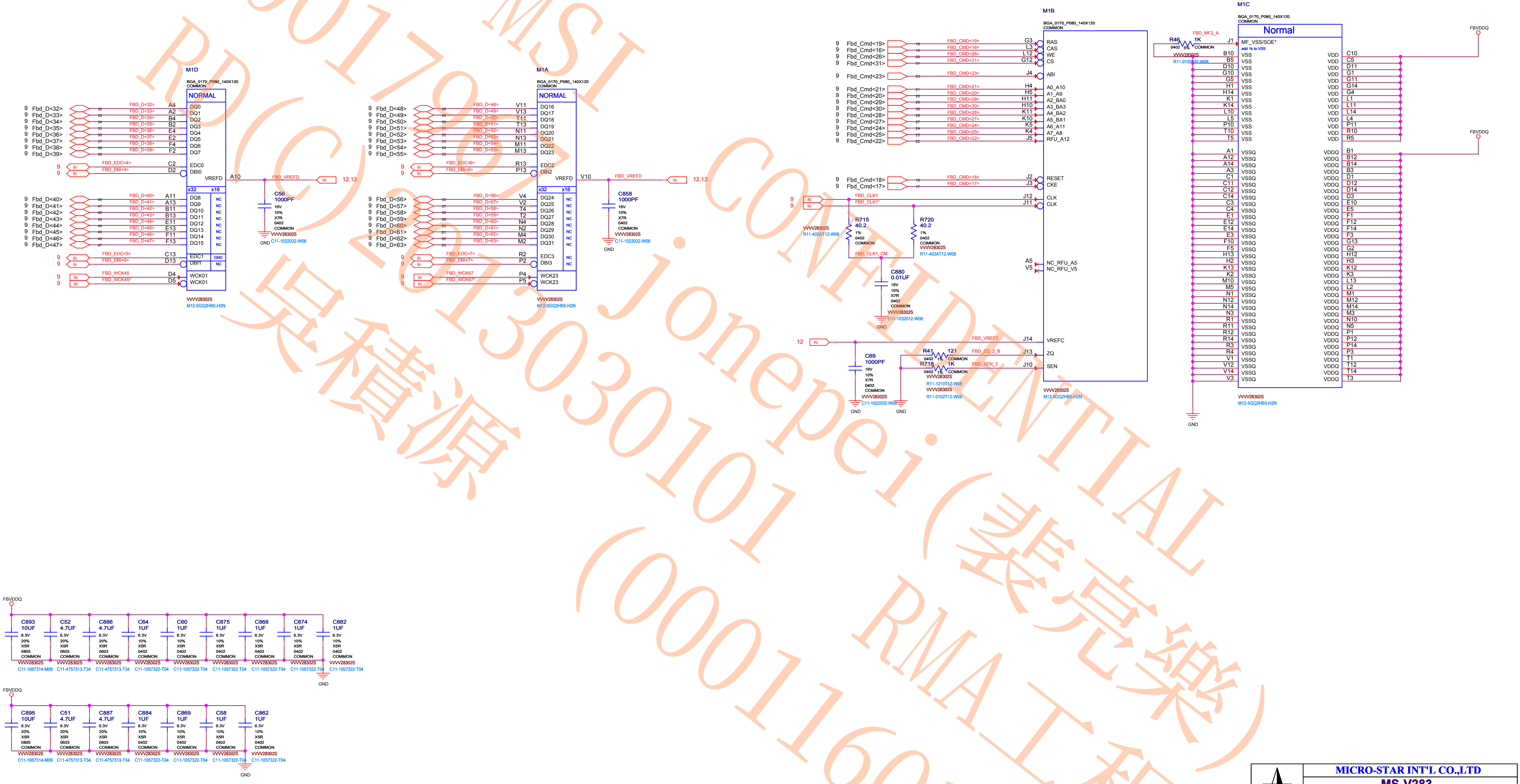
Page13: MEMORY: FBD Partition 63..32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V13
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T13
N11
N13
M11
M13
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DQ17
DQ18
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DBI2
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X7R
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V2
T4
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M2
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DQ25
DQ26
DQ27
DQ28
DQ29
DQ30
DQ31
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EDC3
DBI3
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P5
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G12
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WE
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ABI
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FBD_CMD<25>
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H5
H11
H10
K11
K10
K5
K4
J5
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A1_A9
A2_BA0
A3_BA3
A4_BA2
A5_BA1
A6_A11
A7_A8
RFU_A12
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J3
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FBD_CLK1*
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J11
CLK
CLK
R715
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1%
0402
COMMON
VVVV28302S
R11-402AT12-W08
R720
40.2
1%
0402
COMMON
VVVV28302S
R11-402AT12-W08
FBD_CLK1_CM
C880
0.01UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1032012-W08
GND
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V5
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NC_RFU_V5
12
FBD_VREFC
J14
VREFC
C69
1000PF
16V
10%
X7R
0402
COMMON
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C11-1022032-W08
GND
R41
121
0402
1%
COMMON
FBD_ZQ_2_B
J13
ZQ
R718
1K
0402
1%
COMMON
VVVV28302S
R11-1210T12-W08
VVVV28302S
R11-0102T12-W08
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J10
SEN
VVVV28302S
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Normal
R46
1K
0402
5%
COMMON
VVVV28302S
R11-0102832-W08
FBD_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
GND
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
FBVDDQ
VVVV28302S
M12-5GQ2HB5-H2N
FBVDDQ
C893 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C52 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C886 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C64 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C60 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C875 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C868 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C874 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C882 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND
FBVDDQ
C895 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C51 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C887 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C884 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C869 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C58 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C862 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
GND

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MS-V283

Size	Document Description	Rev
Custom	MEMORY_ FBD[63_32]	1.0

Date: Monday, April 23, 2012 Sheet 13 of 33

000179073 RD(C)201303010 吳積源
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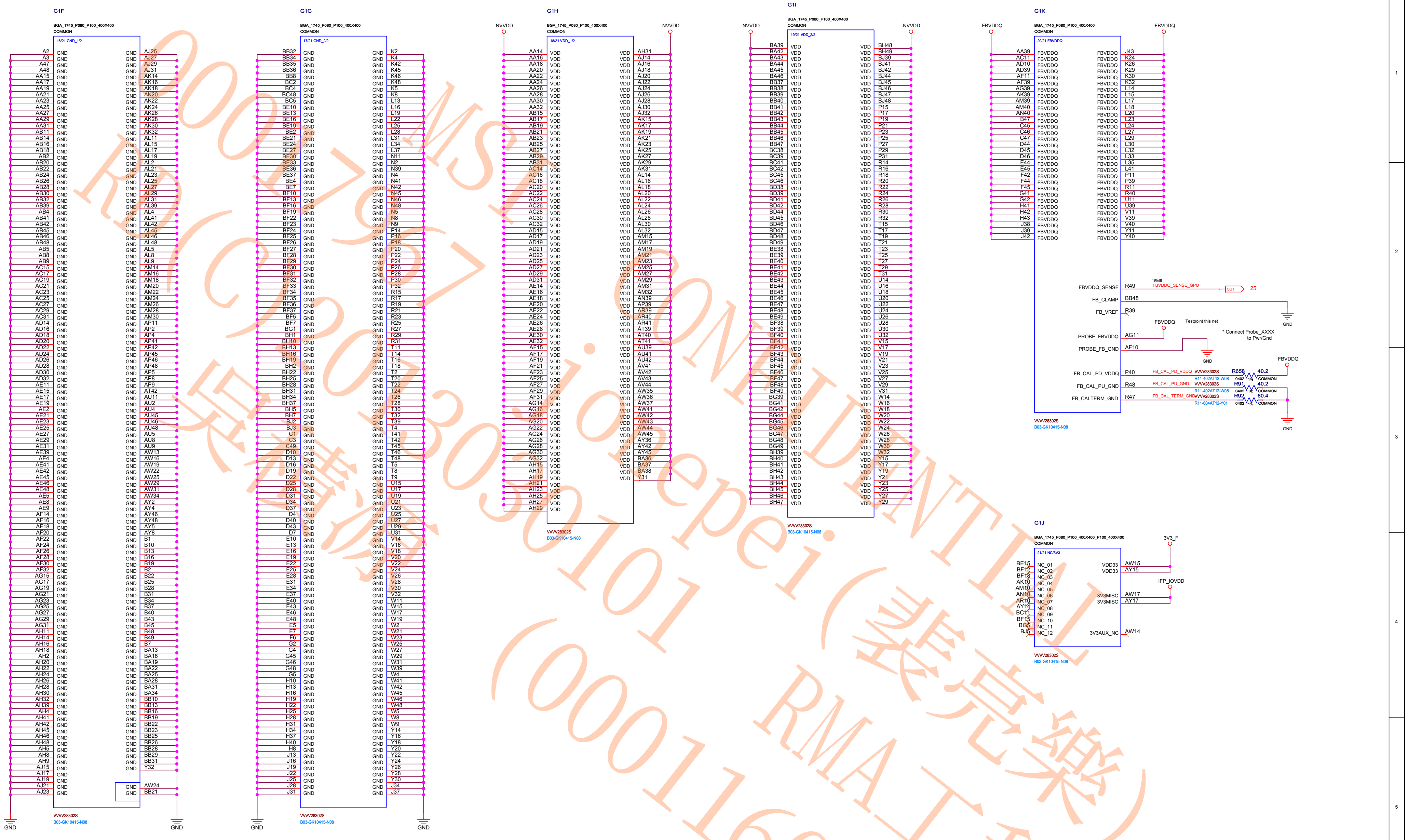
Page14: GPU PWR and GND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GND
VVVV28302S
B03-GK10415-N08
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FBVDDQ_SENSE
R49
16MIL
FBVDDQ_SENSE_GPU
OUT
25
FB_CLAMP
BB48
FB_VREF
R39
Testpoint this net
* Connect Probe_XXXX to Pwr/Gnd
PROBE_FBVDDQ
AG11
PROBE_FB_GND
AF10
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P40
FB_CAL_PD_VDDQ
VVVV28302S
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0402
1%
COMMON
FB_CAL_PU_GND
R48
FB_CAL_PU_GND
VVVV28302S
R91
40.2
R11-402AT12-W08
0402
1%
COMMON
FB_CALTERM_GND
R47
FB_CAL_TERM_GND
VVVV28302S
R92
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COMMON
GND
VVVV28302S
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BF18 NC_03
AK10 NC_04
AM10 NC_05
AN10 NC_06
AR10 NC_07
AY14 NC_08
BC11 NC_09
BF15 NC_10
BG5 NC_11
BJ5 NC_12
3V3_F
VDD33 AW15
VDD33 AY15
IFP_IOVDD
3V3MISC AW17
3V3MISC AY17
3V3AUX_NC AW14
VVVV28302S
B03-GK10415-N08

000(79597) RD(C)20130101 吳淸海
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MS-V283

Size	Document Description	Rev
Custom	GPU PWR and GND	1.0

Date: Monday, April 23, 2012 Sheet 14 of 33

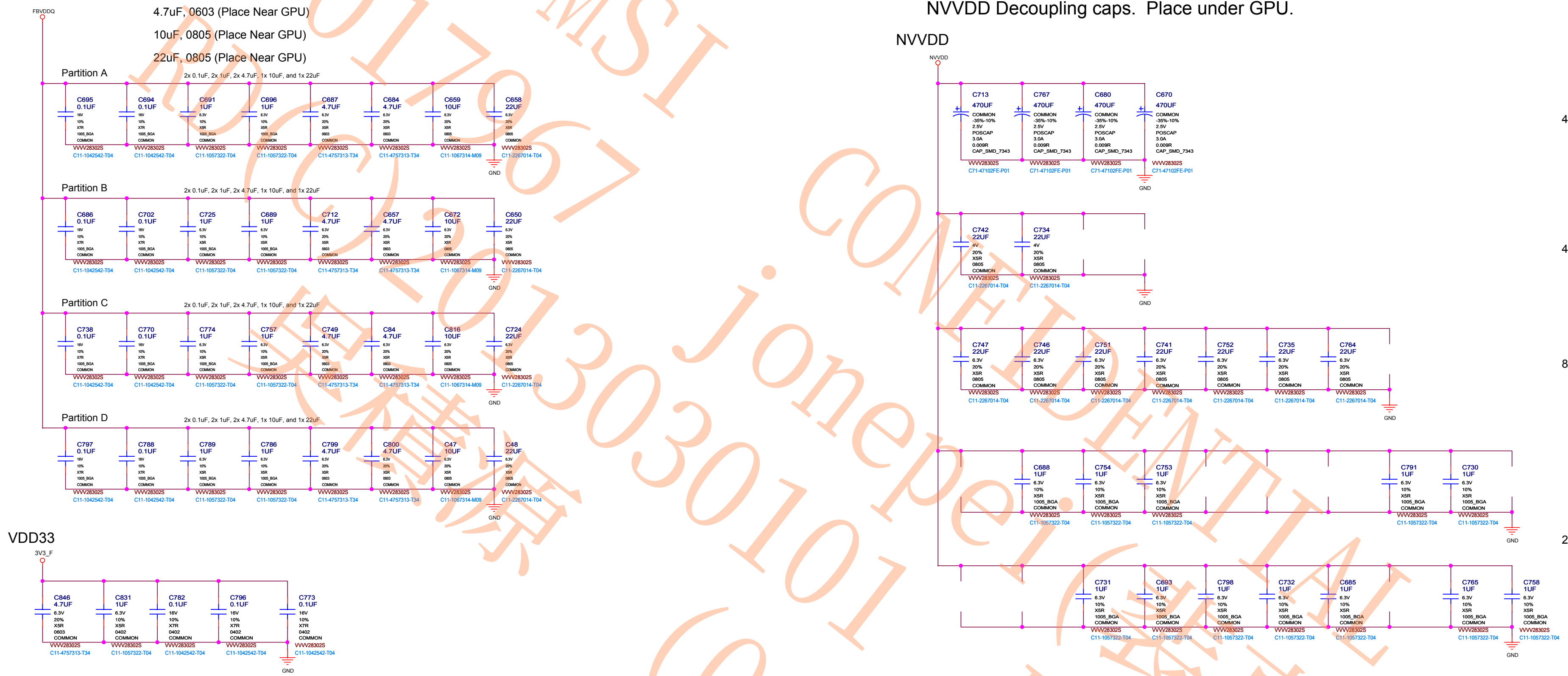
Page15: GPU Decoupling

Based on GB2-X GDDR5 FBVDDQ Decap Guideline

FBVDDQ

0.1uF, 0.47uF & 1uF, 0402 (Place Under GPU)
4.7uF, 0603 (Place Near GPU)
10uF, 0805 (Place Near GPU)
22uF, 0805 (Place Near GPU)

NVVDD Decoupling caps. Place under GPU.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Partition A
2x 0.1uF, 2x 1uF, 2x 4.7uF, 1x 10uF, and 1x 22uF
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C694 0.1UF 16V 10% X7R 1005_BGA COMMON VVVV28302S C11-1042542-T04
C691 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C696 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C687 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C684 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C659 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C658 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
GND
Partition B
2x 0.1uF, 2x 1uF, 2x 4.7uF, 1x 10uF, and 1x 22uF
C686 0.1UF 16V 10% X7R 1005_BGA COMMON VVVV28302S C11-1042542-T04
C702 0.1UF 16V 10% X7R 1005_BGA COMMON VVVV28302S C11-1042542-T04
C725 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C689 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C712 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C657 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C672 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C650 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
GND
Partition C
2x 0.1uF, 2x 1uF, 2x 4.7uF, 1x 10uF, and 1x 22uF
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C770 0.1UF 16V 10% X7R 1005_BGA COMMON VVVV28302S C11-1042542-T04
C774 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C757 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C749 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C84 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C816 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C724 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
GND
Partition D
2x 0.1uF, 2x 1uF, 2x 4.7uF, 1x 10uF, and 1x 22uF
C797 0.1UF 16V 10% X7R 1005_BGA COMMON VVVV28302S C11-1042542-T04
C788 0.1UF 16V 10% X7R 1005_BGA COMMON VVVV28302S C11-1042542-T04
C789 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C786 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C799 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C800 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C47 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C48 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
GND
VDD33
3V3_F
C846 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C831 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C782 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C796 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C773 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
GND
NVVDD
NVVDD
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C767 470UF COMMON -35%-10% 2.5V POSCAP 3.0A 0.009R CAP_SMD_7343 VVVV28302S C71-47102FE-P01
C680 470UF COMMON -35%-10% 2.5V POSCAP 3.0A 0.009R CAP_SMD_7343 VVVV28302S C71-47102FE-P01
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GND
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C741 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
C752 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
C735 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
C764 22UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-2267014-T04
GND
C688 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C754 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C753 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C791 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C730 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
GND
C731 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C693 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C798 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C732 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C685 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C765 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
C758 1UF 6.3V 10% X5R 1005_BGA COMMON VVVV28302S C11-1057322-T04
GND

4x 330uF, 7343

4x 47uF, 0805

8x 22uF, 0805

20x 1uF, 0402

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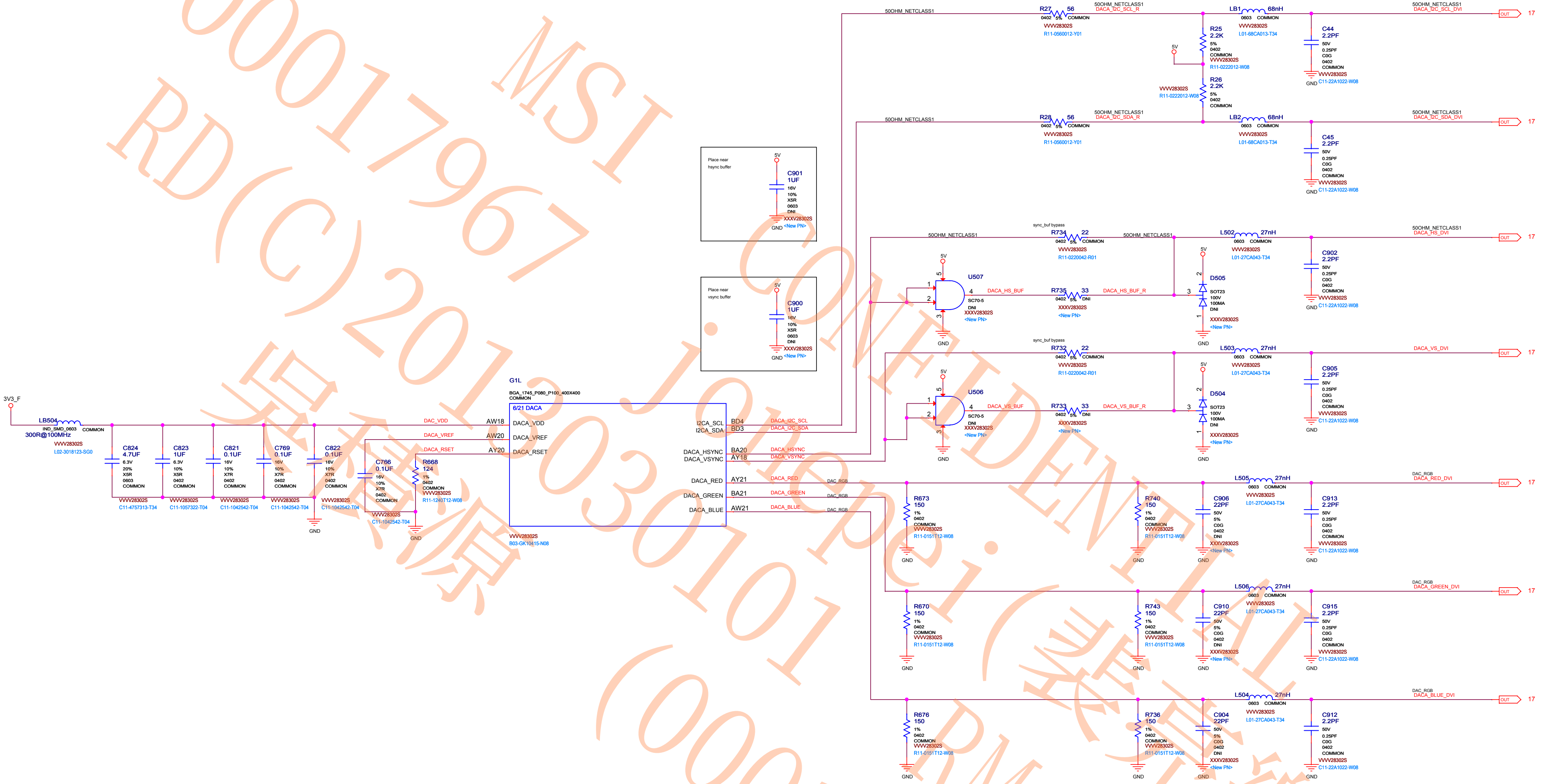
MS-V283

Size	Document Description	Rev
Custom	GPU Decoupling	1.0

Date: Monday, April 23, 2012 Sheet 15 of 33

Page16: DACA Interface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L02-3018123-SG0
C824 4.7UF 6.3V 20% X5R 0603 COMMON
VVVV28302S C11-4757313-T34
C823 1UF 6.3V 10% X5R 0402 COMMON
VVVV28302S C11-1057322-T04
C821 0.1UF 16V 10% X7R 0402 COMMON
VVVV28302S C11-1042542-T04
C769 0.1UF 16V 10% X7R 0402 COMMON
VVVV28302S C11-1042542-T04
C822 0.1UF 16V 10% X7R 0402 COMMON
VVVV28302S C11-1042542-T04
C766 0.1UF 16V 10% X7R 0402 COMMON
VVVV28302S C11-1042542-T04
R668 124 1% 0402 COMMON
VVVV28302S R11-1240T12-W08
GND
DAC_VDD
DACA_VREF
DACA_RSET
AW18
AW20
AY20
G1L
BGA_1745_P080_P100_400X400
COMMON
6/21 DACA
DACA_VDD
DACA_VREF
DACA_RSET
I2CA_SCL
I2CA_SDA
DACA_HSYNC
DACA_VSYNC
DACA_RED
DACA_GREEN
DACA_BLUE
BD4
BD3
BA20
AY18
AY21
BA21
AW21
VVVV28302S
B03-GK10415-N08
DACA_I2C_SCL
DACA_I2C_SDA
DACA_HSYNC
DACA_VSYNC
DACA_RED
DACA_GREEN
DACA_BLUE
DAC_RGB
Place near hsync buffer
5V
C901 1UF 16V 10% X5R 0603 DNI
XXXV28302S
GND <New PN>
Place near vsync buffer
C900 1UF 16V 10% X5R 0603 DNI
XXXV28302S
GND <New PN>
50OHM_NETCLASS1
R27 56 0402 5% COMMON
VVVV28302S R11-0560012-Y01
DACA_I2C_SCL_R
R25 2.2K 5% 0402 COMMON
VVVV28302S R11-0222012-W08
R26 2.2K 5% 0402 COMMON
VVVV28302S R11-0222012-W08
LB1 68nH 0603 COMMON
VVVV28302S L01-68CA013-T34
C44 2.2PF 50V 0.25PF C0G 0402 COMMON
VVVV28302S C11-22A1022-W08
DACA_I2C_SCL_DVI
OUT 17
R28 56 0402 5% COMMON
VVVV28302S R11-0560012-Y01
DACA_I2C_SDA_R
LB2 68nH 0603 COMMON
VVVV28302S L01-68CA013-T34
C45 2.2PF 50V 0.25PF C0G 0402 COMMON
VVVV28302S C11-22A1022-W08
DACA_I2C_SDA_DVI
OUT 17
sync_buf bypass
R734 22 0402 5% COMMON
VVVV28302S R11-0220042-R01
U507
SC70-5 DNI
XXXV28302S <New PN>
DACA_HS_BUF
R735 33 0402 5% DNI
XXXV28302S <New PN>
DACA_HS_BUF_R
D505 SOT23 100V 100MA DNI
XXXV28302S <New PN>
L502 27nH 0603 COMMON
VVVV28302S L01-27CA043-T34
C902 2.2PF 50V 0.25PF C0G 0402 COMMON
VVVV28302S C11-22A1022-W08
DACA_HS_DVI
OUT 17
sync_buf bypass
R732 22 0402 5% COMMON
VVVV28302S R11-0220042-R01
U506
SC70-5 DNI
XXXV28302S <New PN>
DACA_VS_BUF
R733 33 0402 5% DNI
XXXV28302S <New PN>
DACA_VS_BUF_R
D504 SOT23 100V 100MA DNI
XXXV28302S <New PN>
L503 27nH 0603 COMMON
VVVV28302S L01-27CA043-T34
C905 2.2PF 50V 0.25PF C0G 0402 COMMON
VVVV28302S C11-22A1022-W08
DACA_VS_DVI
OUT 17
R673 150 1% 0402 COMMON
VVVV28302S R11-0151T12-W08
R740 150 1% 0402 COMMON
VVVV28302S R11-0151T12-W08
C906 22PF 50V 5% C0G 0402 DNI
XXXV28302S <New PN>
L505 27nH 0603 COMMON
VVVV28302S L01-27CA043-T34
C913 2.2PF 50V 0.25PF C0G 0402 COMMON
VVVV28302S C11-22A1022-W08
DAC_RGB
DACA_RED_DVI
OUT 17
R670 150 1% 0402 COMMON
VVVV28302S R11-0151T12-W08
R743 150 1% 0402 COMMON
VVVV28302S R11-0151T12-W08
C910 22PF 50V 5% C0G 0402 DNI
XXXV28302S <New PN>
L506 27nH 0603 COMMON
VVVV28302S L01-27CA043-T34
C915 2.2PF 50V 0.25PF C0G 0402 COMMON
VVVV28302S C11-22A1022-W08
DACA_GREEN_DVI
OUT 17
R676 150 1% 0402 COMMON
VVVV28302S R11-0151T12-W08
R736 150 1% 0402 COMMON
VVVV28302S R11-0151T12-W08
C904 22PF 50V 5% C0G 0402 DNI
XXXV28302S <New PN>
L504 27nH 0603 COMMON
VVVV28302S L01-27CA043-T34
C912 2.2PF 50V 0.25PF C0G 0402 COMMON
VVVV28302S C11-22A1022-W08
DACA_BLUE_DVI
OUT 17

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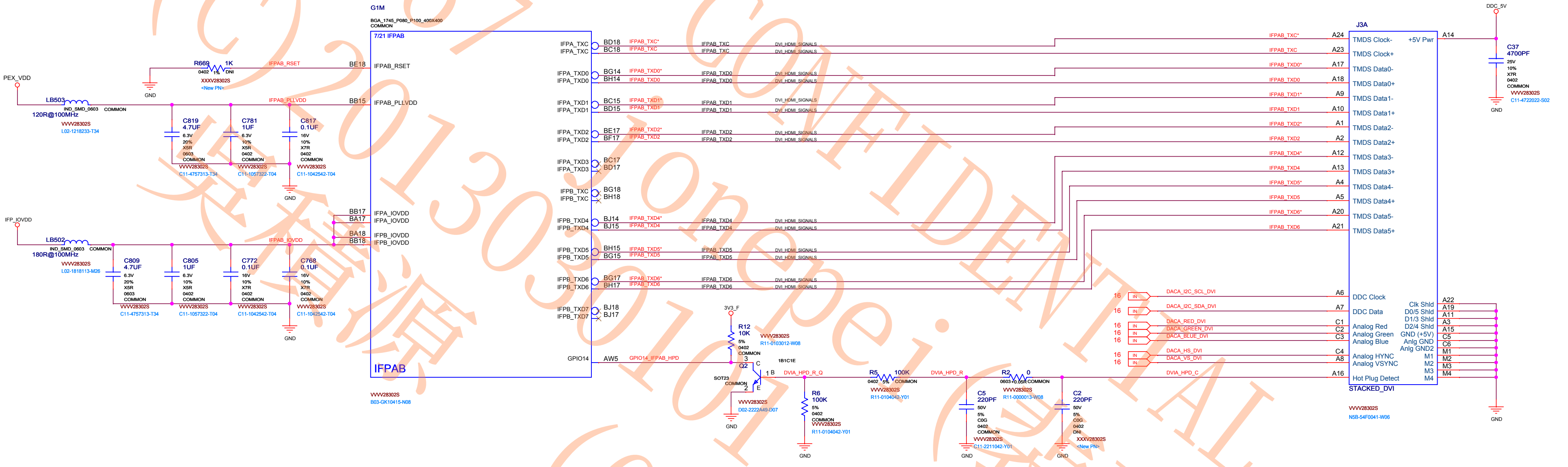
MS-V283

Size	Document Description	Rev
Custom	DACA Interface	1.0

Date: Monday, April 23, 2012 Sheet 16 of 33

Page17: IFPAB DVI-I-DL


G1M
BGA_1745_P080_P100_400X400
COMMON
7/21 IFPAB
IFPAB
VVVV28302S
B03-GK10415-N08
PEX_VDD
LB503
IND_SMD_0603 COMMON
120R@100MHz
VVVV28302S
L02-1218233-T34
R669 1K
0402 1% DNI
XXXV28302S
<New PN>
GND
IFPAB_RSET
BE18 IFPAB_RSET
IFPAB_PLLVDD
BB15 IFPAB_PLLVDD
C819 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C781 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C817 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
IFP_IOVDD
LB502
IND_SMD_0603 COMMON
180R@100MHz
VVVV28302S
L02-1818113-M26
IFPAB_IOVDD
BB17 IFPA_IOVDD
BA17 IFPA_IOVDD
BA18 IFPB_IOVDD
BB18 IFPB_IOVDD
C809 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C805 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C772 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C768 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
IFPA_TXC BD18 IFPAB_TXC*
IFPA_TXC BC18 IFPAB_TXC
IFPA_TXD0 BG14 IFPAB_TXD0*
IFPA_TXD0 BH14 IFPAB_TXD0
IFPA_TXD1 BC15 IFPAB_TXD1*
IFPA_TXD1 BD15 IFPAB_TXD1
IFPA_TXD2 BE17 IFPAB_TXD2*
IFPA_TXD2 BF17 IFPAB_TXD2
IFPA_TXD3 BC17
IFPA_TXD3 BD17
IFPB_TXC BG18
IFPB_TXC BH18
IFPB_TXD4 BJ14 IFPAB_TXD4*
IFPB_TXD4 BJ15 IFPAB_TXD4
IFPB_TXD5 BH15 IFPAB_TXD5*
IFPB_TXD5 BG15 IFPAB_TXD5
IFPB_TXD6 BG17 IFPAB_TXD6*
IFPB_TXD6 BH17 IFPAB_TXD6
IFPB_TXD7 BJ18
IFPB_TXD7 BJ17
GPIO14 AW5 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
R12 10K 5% 0402 COMMON
VVVV28302S
R11-0103012-W08
Q2 SOT23 COMMON
1B1C1E
3 C
1 B
2 E
VVVV28302S
D02-2222A49-D07
DVIA_HPD_R_Q
R6 100K 5% 0402 COMMON VVVV28302S R11-0104042-Y01
R5 100K 0402 5% COMMON VVVV28302S R11-0104042-Y01
DVIA_HPD_R
R2 0 0603+0.05R COMMON VVVV28302S R11-0000013-W08
C5 220PF 50V 5% C0G 0402 COMMON VVVV28302S C11-2211042-Y01
C2 220PF 50V 5% C0G 0402 DNI XXXV28302S <New PN>
DVIA_HPD_C
16 IN DACA_I2C_SCL_DVI
16 IN DACA_I2C_SDA_DVI
16 IN DACA_RED_DVI
16 IN DACA_GREEN_DVI
16 IN DACA_BLUE_DVI
16 IN DACA_HS_DVI
16 IN DACA_VS_DVI
J3A
IFPAB_TXC* A24 TMDS Clock-
IFPAB_TXC A23 TMDS Clock+
IFPAB_TXD0* A17 TMDS Data0-
IFPAB_TXD0 A18 TMDS Data0+
IFPAB_TXD1* A9 TMDS Data1-
IFPAB_TXD1 A10 TMDS Data1+
IFPAB_TXD2* A1 TMDS Data2-
IFPAB_TXD2 A2 TMDS Data2+
IFPAB_TXD4* A12 TMDS Data3-
IFPAB_TXD4 A13 TMDS Data3+
IFPAB_TXD5* A4 TMDS Data4-
IFPAB_TXD5 A5 TMDS Data4+
IFPAB_TXD6* A20 TMDS Data5-
IFPAB_TXD6 A21 TMDS Data5+
A6 DDC Clock
A7 DDC Data
C1 Analog Red
C2 Analog Green
C3 Analog Blue
C4 Analog HYNC
A8 Analog VSYNC
A16 Hot Plug Detect
+5V Pwr A14
Clk Shld A22
D0/5 Shld A19
D1/3 Shld A11
D2/4 Shld A3
GND (+5V) A15
Anlg GND C5
Anlg GND2 C6
M1 M1
M2 M2
M3 M3
M4 M4
STACKED_DVI
VVVV28302S
N5B-54F0041-W06
DDC_5V
C37 4700PF 25V 10% X7R 0402 COMMON
VVVV28302S
C11-4722022-S02
GND

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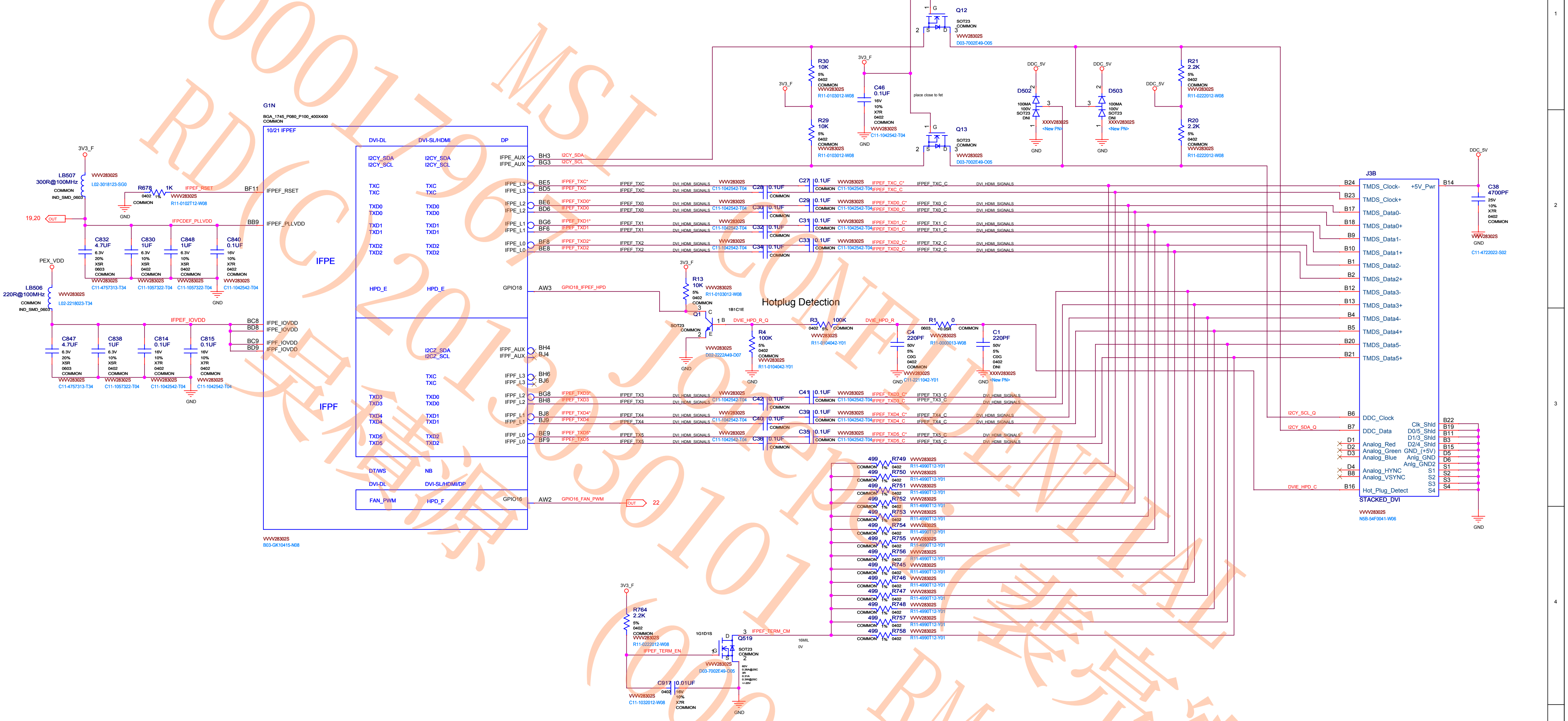
Size	Document Description	Rev
Custom	IFPAB DVI-I-DL	1.0

Date: Monday, April 23, 2012 Sheet 17 of 33

Page18: IFPEF DVI-D-DL


G1N
BGA_1745_P080_P100_400X400
10/21 IFPEF
DVI-DL
DVI-SL/HDMI
DP
IFPE
IFPF
I2CY_SDA
I2CY_SCL
IFPE_AUX
IFPEF_RSET
IFPEF_PLLVDD
IFPE_IOVDD
IFPF_IOVDD
HPD_E
GPIO18
FAN_PWM
HPD_F
GPIO16
TXC
TXD0
TXD1
TXD2
TXD3
TXD4
TXD5
I2CZ_SDA
I2CZ_SCL
IFPF_AUX
DT/WS
NB
VVV28302S
B03-GK10415-N08
3V3_F
LB507
300R@100MHz
PEX_VDD
LB506
220R@100MHz
R678
1K
19,20
OUT
C832 4.7UF
C830 1UF
C848 1UF
C840 0.1UF
C847 4.7UF
C838 1UF
C814 0.1UF
C815 0.1UF
GND
GPIO18_IFPEF_HPD
GPIO16_FAN_PWM
22
Q12
Q13
SOT23
D03-7002E49-O05
R30 10K
R29 10K
C46 0.1UF
place close to fet
DDC_5V
D502
D503
XXXV28302S
<New PN>
R21 2.2K
R20 2.2K
C27 0.1UF
C29 0.1UF
C31 0.1UF
C33 0.1UF
C28 0.1UF
C30 0.1UF
C32 0.1UF
C34 0.1UF
C41 0.1UF
C39 0.1UF
C35 0.1UF
C42 0.1UF
C40 0.1UF
C36 0.1UF
DVI_HDMI_SIGNALS
Hotplug Detection
R13 10K
Q1
R4 100K
R3 100K
C4 220PF
R1 0
C1 220PF
DVIE_HPD_R
DVIE_HPD_R_Q
J3B
TMDS_Clock-
TMDS_Clock+
TMDS_Data0-
TMDS_Data0+
TMDS_Data1-
TMDS_Data1+
TMDS_Data2-
TMDS_Data2+
TMDS_Data3-
TMDS_Data3+
TMDS_Data4-
TMDS_Data4+
TMDS_Data5-
TMDS_Data5+
DDC_Clock
DDC_Data
Analog_Red
Analog_Green
Analog_Blue
Analog_HYNC
Analog_VSYNC
Hot_Plug_Detect
+5V_Pwr
Clk_Shld
D0/5_Shld
D1/3_Shld
D2/4_Shld
GND_(+5V)
Anlg_GND
Anlg_GND2
STACKED_DVI
N58-54F0041-W06
C38 4700PF
C11-4722022-S02
I2CY_SCL_Q
I2CY_SDA_Q
DVIE_HPD_C
R749 499
R750 499
R751 499
R752 499
R753 499
R754 499
R755 499
R756 499
R745 499
R746 499
R747 499
R748 499
R757 499
R758 499
R11-4990T12-Y01
R764 2.2K
Q519
IFPEF_TERM_CM
IFPEF_TERM_EN
C917 0.01UF

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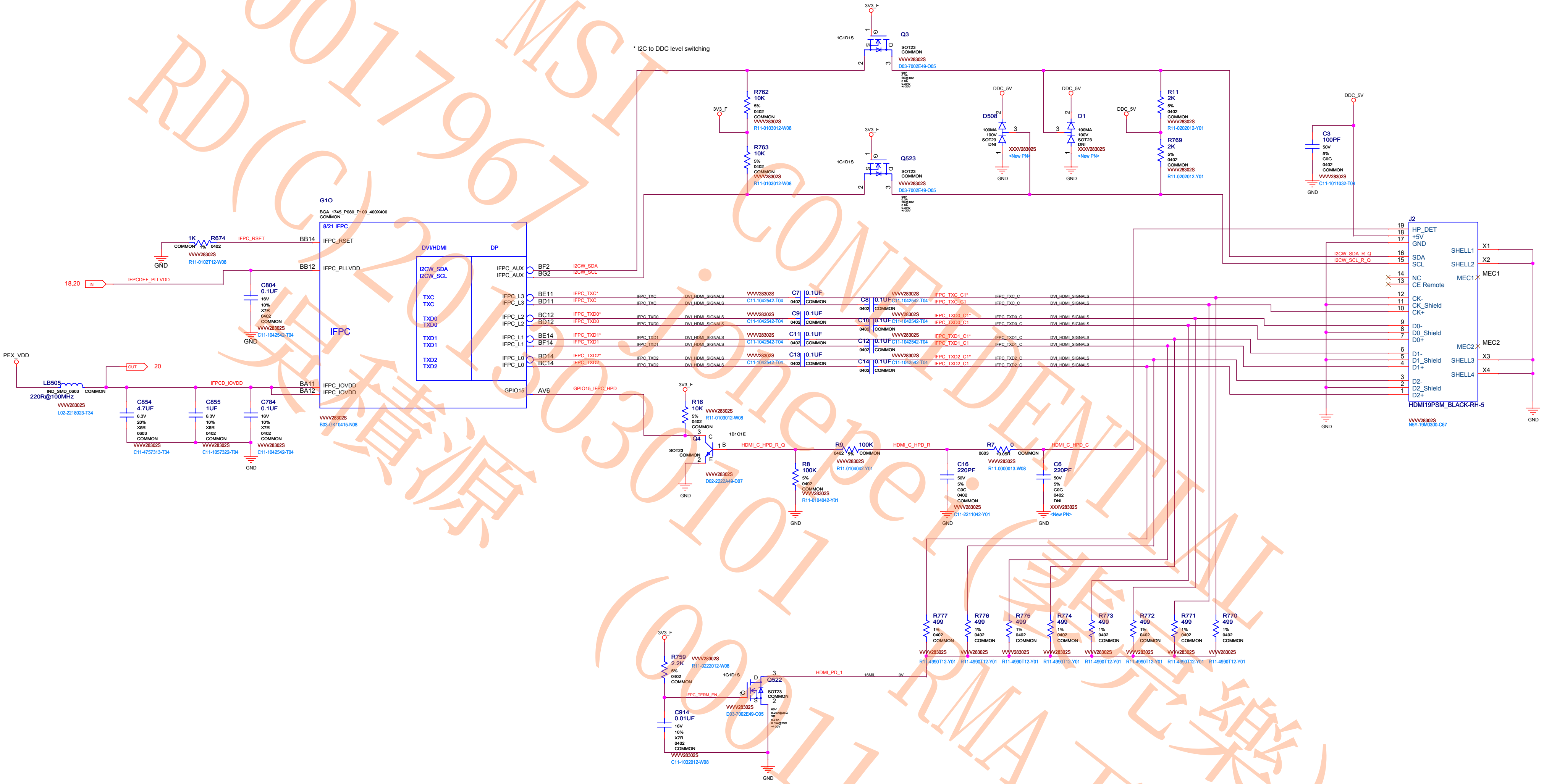
MS-V283

Size	Document Description	Rev
Custom	IFPEF DVI-D-DL	1.0

Date: Monday, April 23, 2012 | Sheet 18 of 33

Page19: IFPC HDMI


* I2C to DDC level switching
G1O
BGA_1745_P080_P100_400X400
COMMON
8/21 IFPC
IFPC_RSET
IFPC_PLLVDD
IFPC
IFPC_IOVDD
IFPC_IOVDD
DVI/HDMI
DP
I2CW_SDA
I2CW_SCL
TXC
TXD0
TXD1
TXD2
IFPC_AUX
IFPC_L3
IFPC_L2
IFPC_L1
IFPC_L0
GPIO15
BB14
BB12
BA11
BA12
BF2
BG2
BE11
BD11
BC12
BD12
BE14
BF14
BD14
BC14
AV6
VVVV28302S
B03-GK10415-N08
R674
1K
1%
0402
COMMON
R11-0102T12-W08
IFPC_RSET
GND
18,20
IN
IFPCDEF_PLLVDD
C804
0.1UF
16V
10%
X7R
0402
C11-1042542-T04
PEX_VDD
LB505
IND_SMD_0603
220R@100MHz
L02-2218023-T34
OUT
20
IFPCD_IOVDD
C854
4.7UF
6.3V
20%
X5R
0603
C11-4757313-T34
C855
1UF
6.3V
10%
X5R
0402
C11-1057322-T04
C784
0.1UF
16V
10%
X7R
0402
C11-1042542-T04
I2CW_SDA
I2CW_SCL
IFPC_TXC*
IFPC_TXC
IFPC_TXD0*
IFPC_TXD0
IFPC_TXD1*
IFPC_TXD1
IFPC_TXD2*
IFPC_TXD2
DVI_HDMI_SIGNALS
C7
C8
C9
C10
C11
C12
C13
C14
0.1UF
C11-1042542-T04
IFPC_TXC_C1*
IFPC_TXC_C1
IFPC_TXD0_C1*
IFPC_TXD0_C1
IFPC_TXD1_C1*
IFPC_TXD1_C1
IFPC_TXD2_C1*
IFPC_TXD2_C1
IFPC_TXC_C
IFPC_TXD0_C
IFPC_TXD1_C
IFPC_TXD2_C
3V3_F
Q3
1G1D1S
SOT23
D03-7002E49-O05
60V
0.3A
2R@10V
0.8A
0.35W
+/-20V
Q523
R762
10K
5%
R11-0103012-W08
R763
10K
D508
100MA
100V
SOT23
DNI
XXXV28302S
<New PN>
D1
DDC_5V
R11
2K
R11-0202012-Y01
R769
2K
C3
100PF
50V
5%
C0G
C11-1011032-T04
J2
HP_DET
+5V
GND
SDA
SCL
NC
CE Remote
CK-
CK_Shield
CK+
D0-
D0_Shield
D0+
D1-
D1_Shield
D1+
D2-
D2_Shield
D2+
SHELL1
SHELL2
MEC1
MEC2
SHELL3
SHELL4
X1
X2
X3
X4
I2CW_SDA_R_Q
I2CW_SCL_R_Q
HDMI19PSM_BLACK-RH-5
N5Y-19M0300-C67
GPIO15_IFPC_HPD
R16
10K
R11-0103012-W08
Q4
1B1C1E
SOT23
D02-2222A49-D07
HDMI_C_HPD_R_Q
R8
100K
R11-0104042-Y01
R9
100K
HDMI_C_HPD_R
C16
220PF
C11-2211042-Y01
R7
0
0603
+0.05R
R11-0000013-W08
HDMI_C_HPD_C
C6
220PF
R777
R776
R775
R774
R773
R772
R771
R770
499
1%
R11-4990T12-Y01
3V3_F
R759
2.2K
R11-0222012-W08
IFPC_TERM_EN
Q522
1G1D1S
D03-7002E49-O05
60V
0.26A@25C
3R
0.31A
0.3W@25C
+/-20V
HDMI_PD_1
16MIL
0V
C914
0.01UF
16V
10%
X7R
0402
C11-1032012-W08
GND

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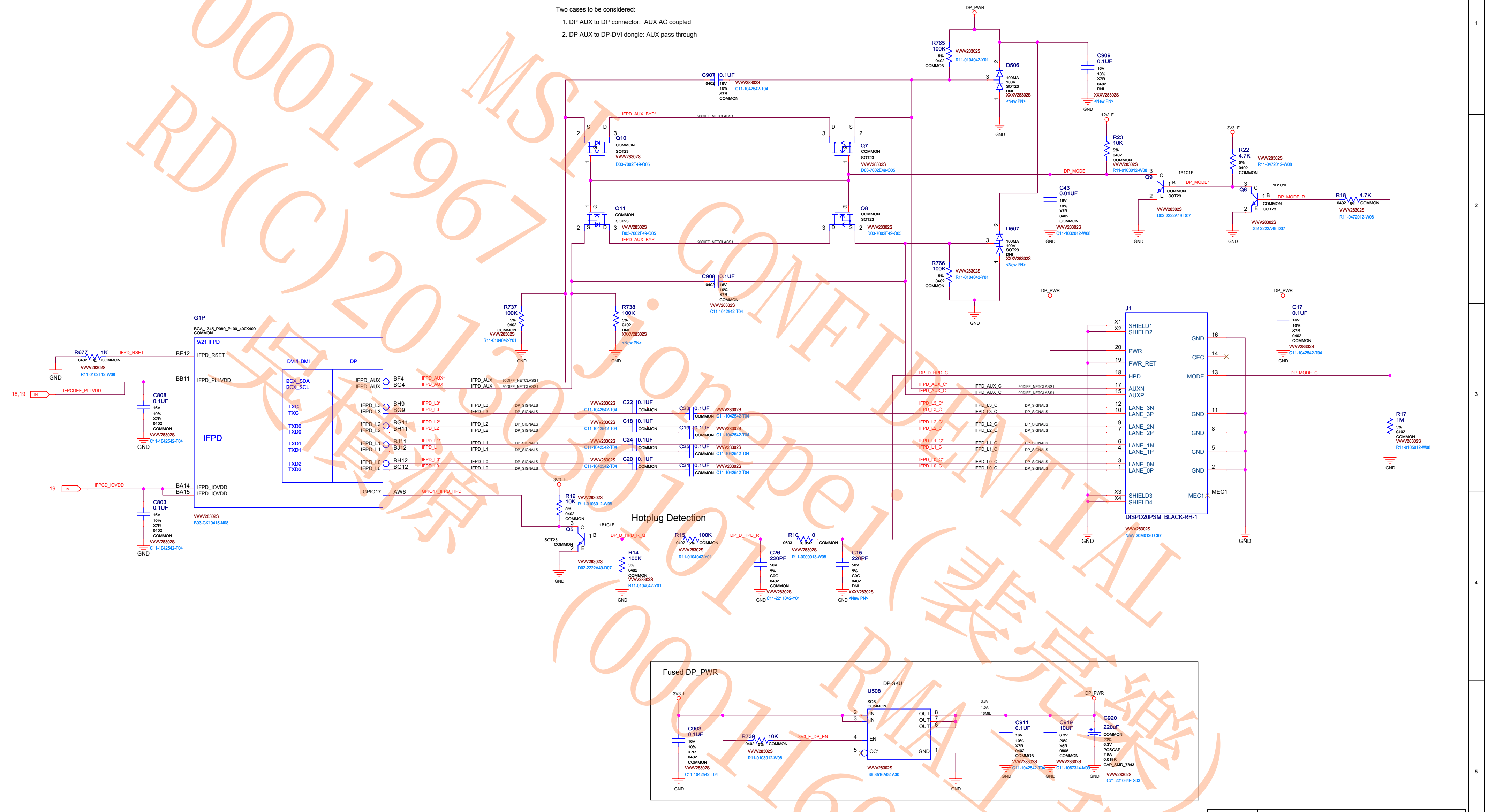
Size Custom	Document Description IFPC HDMI	Rev 1.0
Date: Monday, April 23, 2012	Sheet 19 of 33	

Page20: 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



DP_PWR
R765 100K 5% 0402 COMMON VVVV28302S R11-0104042-Y01
D506 100MA 100V SOT23 DNI XXXV28302S <New PN>
C909 0.1UF 16V 10% X7R 0402 DNI XXXV28302S <New PN>
C907 0.1UF 0402 16V 10% X7R COMMON VVVV28302S C11-1042542-T04
IFPD_AUX_BYP*
90DIFF_NETCLASS1
Q10 COMMON SOT23 VVVV28302S D03-7002E49-O05
Q7 COMMON SOT23 VVVV28302S D03-7002E49-O05
Q11 COMMON SOT23 VVVV28302S D03-7002E49-O05
Q8 COMMON SOT23 VVVV28302S D03-7002E49-O05
IFPD_AUX_BYP
D507 100MA 100V SOT23 DNI XXXV28302S <New PN>
R766 100K 5% 0402 COMMON VVVV28302S R11-0104042-Y01
C908 0.1UF 0402 16V 10% X7R COMMON VVVV28302S C11-1042542-T04
R737 100K 5% 0402 COMMON VVVV28302S R11-0104042-Y01
R738 100K 5% 0402 DNI XXXV28302S <New PN>
GND
12V_F
R23 10K 5% 0402 COMMON VVVV28302S R11-0103012-W08
DP_MODE
C43 0.01UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1032012-W08
Q9 1B1C1E COMMON SOT23 VVVV28302S D02-2222A49-D07
DP_MODE*
3V3_F
R22 4.7K 5% 0402 COMMON VVVV28302S R11-0472012-W08
Q6 1B1C1E COMMON SOT23 VVVV28302S D02-2222A49-D07
DP_MODE_R
R18 4.7K 0402 5% COMMON VVVV28302S R11-0472012-W08
G1P BGA_1745_P080_P100_400X400 COMMON
9/21 IFPD
R677 1K 0402 1% COMMON VVVV28302S R11-0102T12-W08
IFPD_RSET
BE12 IFPD_RSET
BB11 IFPD_PLLVDD
18,19 IN IFPCDEF_PLLVDD
C808 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
IFPD
DVI/HDMI
DP
I2CX_SDA
I2CX_SCL
TXC
TXD0
TXD1
TXD2
IFPD_AUX
IFPD_L3
IFPD_L2
IFPD_L1
IFPD_L0
BF4 BG4 BH9 BG9 BG11 BH11 BJ11 BJ12 BH12 BG12
IFPD_AUX* IFPD_L3* IFPD_L2* IFPD_L1* IFPD_L0*
DP_SIGNALS
C22 0.1UF COMMON VVVV28302S C11-1042542-T04
C23 0.1UF COMMON VVVV28302S C11-1042542-T04
C18 0.1UF COMMON VVVV28302S C11-1042542-T04
C19 0.1UF COMMON VVVV28302S C11-1042542-T04
C24 0.1UF COMMON VVVV28302S C11-1042542-T04
C25 0.1UF COMMON VVVV28302S C11-1042542-T04
C20 0.1UF COMMON VVVV28302S C11-1042542-T04
C21 0.1UF COMMON VVVV28302S C11-1042542-T04
19 IN IFPCD_IOVDD
BA14 BA15 IFPD_IOVDD
C803 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
VVVV28302S B03-GK10415-N08
GPIO17 AW6 GPIO17_IFPD_HPD
DP_D_HPD_C
IFPD_AUX_C* IFPD_AUX_C
IFPD_L3_C* IFPD_L3_C
IFPD_L2_C* IFPD_L2_C
IFPD_L1_C* IFPD_L1_C
IFPD_L0_C* IFPD_L0_C
J1
SHIELD1 SHIELD2 PWR PWR_RET HPD AUXN AUXP LANE_3N LANE_3P LANE_2N LANE_2P LANE_1N LANE_1P LANE_0N LANE_0P SHIELD3 SHIELD4
GND CEC MODE MEC1
DISPO20PSM_BLACK-RH-1 VVVV28302S N5W-20M0120-C67
DP_MODE_C
C17 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R17 1M 5% 0402 COMMON VVVV28302S R11-0105012-W08
Hotplug Detection
R19 10K 5% 0402 COMMON VVVV28302S R11-0103012-W08
Q5 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
DP_D_HPD_R_Q
R14 100K 5% 0402 COMMON VVVV28302S R11-0104042-Y01
R15 100K 0402 5% COMMON VVVV28302S R11-0104042-Y01
DP_D_HPD_R
R10 0 0603 +0.05R COMMON VVVV28302S R11-0000013-W08
C26 220PF 50V 5% C0G 0402 COMMON VVVV28302S C11-2211042-Y01
C15 220PF 50V 5% C0G 0402 DNI XXXV28302S <New PN>
Fused DP_PWR
DP-SKU
U508 SO8 COMMON
IN IN EN OC* OUT OUT OUT GND
C903 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R739 10K 0402 5% COMMON VVVV28302S R11-0103012-W08
3V3_F_DP_EN
VVVV28302S I36-3516A02-A30
3.3V 1.0A 16MIL
C911 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C919 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C920 220uF COMMON 20% 6.3V POSCAP 2.8A 0.018R CAP_SMD_7343 VVVV28302S C71-221064E-S03

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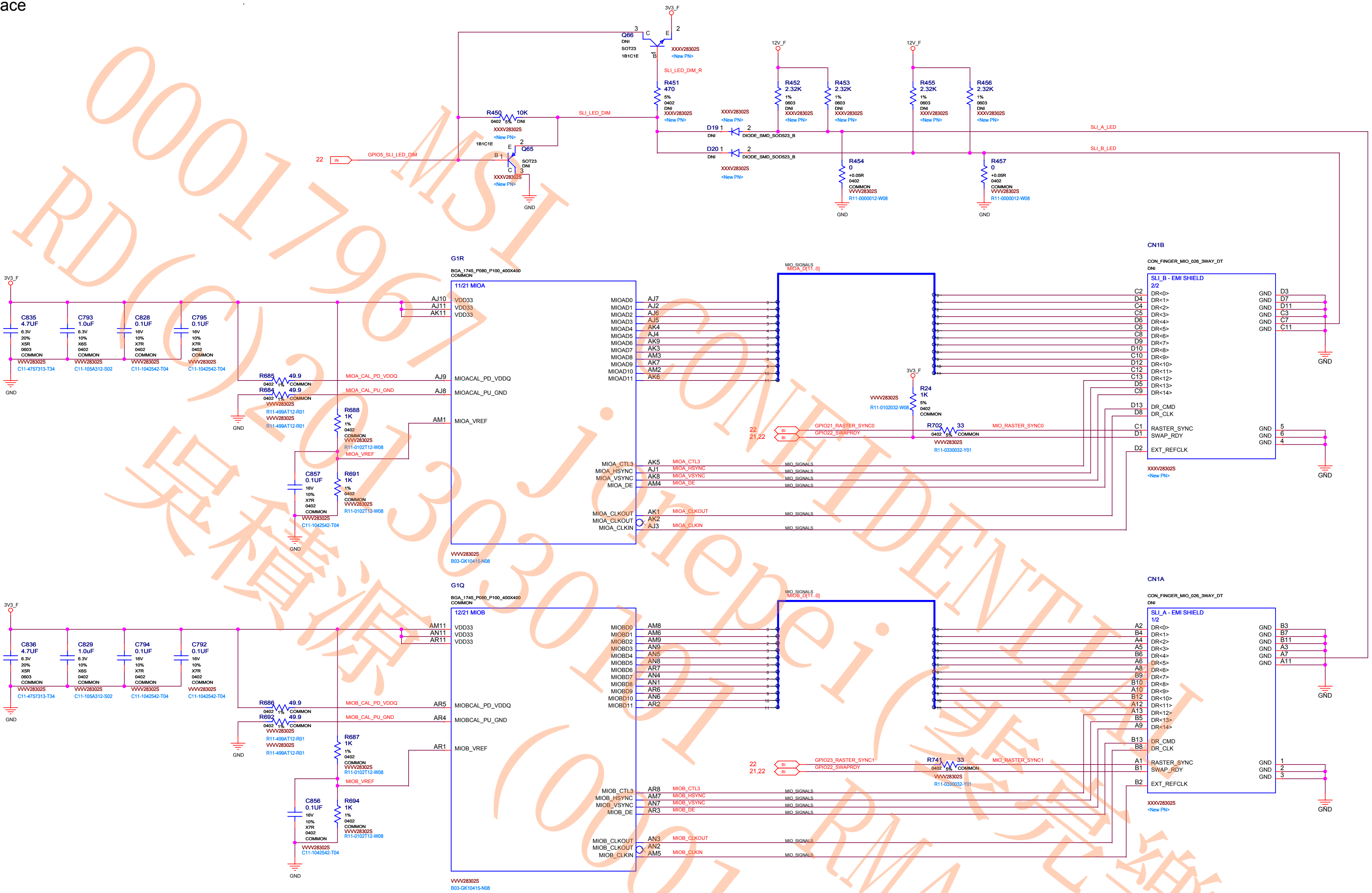
MS-V283

Size	Document Description	Rev
Custom	IFPD DP	1.0

Date: Monday, April 23, 2012 Sheet 20 of 33

00017967 RD(C)20130301吳振源
MSI Jonpei CONFIDENTIAL
(裴亮樂)(00011601) RMA工程課

Page21: MIOA/B Interface


3V3_F
Q66 DNI SOT23 1B1C1E
XXXV28302S <New PN>
SLI_LED_DIM_R
R451 470 5% 0402 DNI
R450 10K 0402 5% DNI
SLI_LED_DIM
22 IN GPIO5_SLI_LED_DIM
Q65 SOT23 DNI 1B1C1E
GND
12V_F
R452 2.32K 1% 0603 DNI
R453 2.32K 1% 0603 DNI
R455 2.32K 1% 0603 DNI
R456 2.32K 1% 0603 DNI
D19 DNI DIODE_SMD_SOD523_B
D20 DNI DIODE_SMD_SOD523_B
R454 0 +0.05R 0402 COMMON VVVV28302S R11-0000012-W08
R457 0 +0.05R 0402 COMMON VVVV28302S R11-0000012-W08
SLI_A_LED
SLI_B_LED
G1R BGA_1745_P080_P100_400X400 COMMON
11/21 MIOA
VDD33 AJ10 AJ11 AK11
MIOAD0 AJ7
MIOAD1 AJ2
MIOAD2 AJ6
MIOAD3 AJ5
MIOAD4 AK4
MIOAD5 AJ4
MIOAD6 AK9
MIOAD7 AK3
MIOAD8 AM3
MIOAD9 AK7
MIOAD10 AM2
MIOAD11 AK6
MIOACAL_PD_VDDQ AJ9
MIOACAL_PU_GND AJ8
MIOA_VREF AM1
MIOA_CTL3 AK5
MIOA_HSYNC AJ1
MIOA_VSYNC AK8
MIOA_DE AM4
MIOA_CLKOUT AK1
MIOA_CLKOUT AK2
MIOA_CLKIN AJ3
VVVV28302S B03-GK10415-N08
C835 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C793 1.0uF 6.3V 10% X6S 0402 COMMON VVVV28302S C11-105A312-S02
C828 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C795 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R685 49.9 0402 1% COMMON
R684 49.9 0402 1% COMMON VVVV28302S R11-499AT12-R01
MIOA_CAL_PD_VDDQ
MIOA_CAL_PU_GND
R688 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
MIOA_VREF
C857 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R691 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
MIO_SIGNALS MIOA_D[11..0]
R24 1K 5% 0402 COMMON VVVV28302S R11-0102032-W08
22 21,22 BI GPIO21_RASTER_SYNC0 BI GPIO22_SWAPRDY
R702 33 0402 5% COMMON VVVV28302S R11-0330032-Y01
MIO_RASTER_SYNC0
CN1B CON_FINGER_MIO_026_3WAY_DT DNI
SLI_B - EMI SHIELD 2/2
C2 DR<0>
D4 DR<1>
C4 DR<2>
C5 DR<3>
D6 DR<4>
C6 DR<5>
C8 DR<6>
D9 DR<7>
D10 DR<8>
C10 DR<9>
D12 DR<10>
C12 DR<11>
C13 DR<12>
D5 DR<13>
C9 DR<14>
D13 DR_CMD
D8 DR_CLK
C1 RASTER_SYNC
D1 SWAP_RDY
D2 EXT_REFCLK
GND D3 D7 D11 C3 C7 C11
GND 5 6 4
XXXV28302S <New PN>
G1Q BGA_1745_P080_P100_400X400 COMMON
12/21 MIOB
VDD33 AM11 AN11 AR11
MIOBD0 AM8
MIOBD1 AM6
MIOBD2 AM9
MIOBD3 AN9
MIOBD4 AN5
MIOBD5 AN8
MIOBD6 AR7
MIOBD7 AN4
MIOBD8 AN1
MIOBD9 AR6
MIOBD10 AN6
MIOBD11 AR2
MIOBCAL_PD_VDDQ AR5
MIOBCAL_PU_GND AR4
MIOB_VREF AR1
MIOB_CTL3 AR8
MIOB_HSYNC AM7
MIOB_VSYNC AN7
MIOB_DE AR3
MIOB_CLKOUT AN3
MIOB_CLKOUT AN2
MIOB_CLKIN AM5
VVVV28302S B03-GK10415-N08
C836 4.7UF 6.3V 20% X5R 0603 COMMON VVVV28302S C11-4757313-T34
C829 1.0uF 6.3V 10% X6S 0402 COMMON VVVV28302S C11-105A312-S02
C794 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C792 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R686 49.9 0402 1% COMMON
R692 49.9 0402 1% COMMON VVVV28302S R11-499AT12-R01
MIOB_CAL_PD_VDDQ
MIOB_CAL_PU_GND
R687 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
MIOB_VREF
C856 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R694 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
MIO_SIGNALS MIOB_D[11..0]
22 21,22 BI GPIO23_RASTER_SYNC1 BI GPIO22_SWAPRDY
R741 33 0402 5% COMMON VVVV28302S R11-0330032-Y01
MIO_RASTER_SYNC1
CN1A CON_FINGER_MIO_026_3WAY_DT DNI
SLI_A - EMI SHIELD 1/2
A2 DR<0>
B4 DR<1>
A4 DR<2>
A5 DR<3>
B6 DR<4>
A6 DR<5>
A8 DR<6>
B9 DR<7>
B10 DR<8>
A10 DR<9>
B12 DR<10>
A12 DR<11>
A13 DR<12>
B5 DR<13>
A9 DR<14>
B13 DR_CMD
B8 DR_CLK
A1 RASTER_SYNC
B1 SWAP_RDY
B2 EXT_REFCLK
GND B3 B7 B11 A3 A7 A11
GND 1 2 3
XXXV28302S <New PN>

Pin C7 is removed from GND
and connected SLI_B_LED
on boards supporting
lighted SLI Bridges

Pin A7 is removed from GND
and connected SLI_A_LED
on boards supporting
lighted SLI Bridges

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MS-V283

Size	Document Description	Rev
Custom	MIOA_B Interface	1.0

Date: Monday, April 23, 2012 | Sheet 21 of 33

00017967
RD(C)2013030101
吳積源
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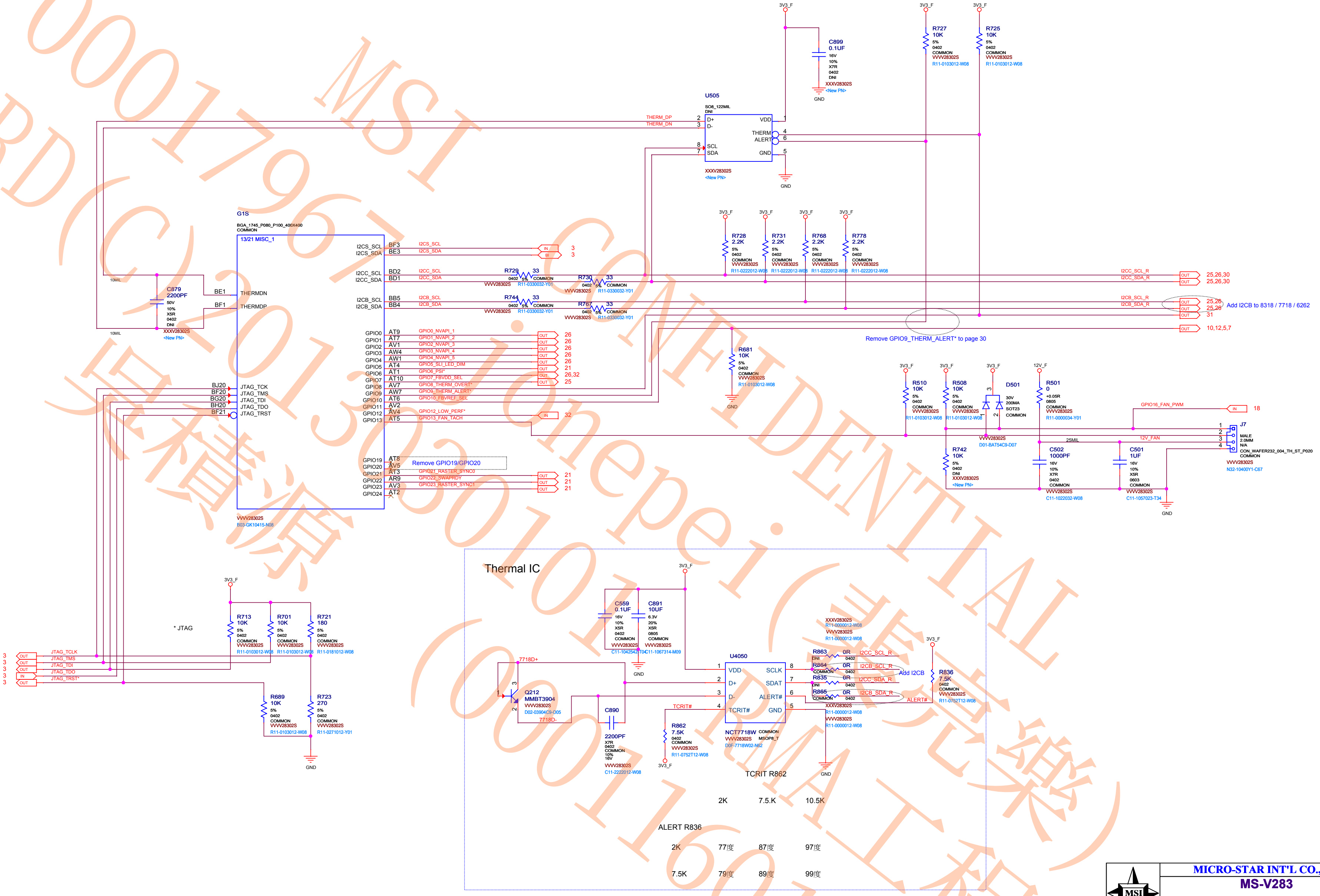
jonepei(裴亮樂)
(00011601)
RMA工程課

Page22: MISC1: Fan, Thermal, JTAG, GPIO



U505
SO8_122MIL
DNI
D+
D-
VDD
THERM
ALERT
SCL
SDA
GND
XXXV28302S
<New PN>
THERM_DP
THERM_DN
C899
0.1UF
16V
10%
X7R
0402
DNI
R727
10K
R725
10K
R11-0103012-W08
3V3_F
GND
G1S
BGA_1745_P080_P100_400X400
COMMON
13/21 MISC_1
THERMDN
THERMDP
BE1
BF1
C879
2200PF
50V
X5R
10MIL
I2CS_SCL
I2CS_SDA
I2CC_SCL
I2CC_SDA
I2CB_SCL
I2CB_SDA
BF3
BE3
BD2
BD1
BB5
BB4
R729
R730
R744
R767
33
R11-0330032-Y01
R728
R731
R768
R778
2.2K
R11-0222012-W08
I2CC_SCL_R
I2CC_SDA_R
I2CB_SCL_R
I2CB_SDA_R
25,26,30
25,26
31
10,12,5,7
Add I2CB to 8318 / 7718 / 6262
Remove GPIO9_THERM_ALERT* to page 30
R681
10K
GPIO0 AT9 GPIO0_NVAPI_1 26
GPIO1 AT7 GPIO1_NVAPI_2 26
GPIO2 AV1 GPIO2_NVAPI_3 26
GPIO3 AW4 GPIO3_NVAPI_4 26
GPIO4 AW1 GPIO4_NVAPI_5 26
GPIO5 AT4 GPIO5_SLI_LED_DIM 21
GPIO6 AT1 GPIO6_PSI* 26,32
GPIO7 AT10 GPIO7_FBVDD_SEL 25
GPIO8 AV7 GPIO8_THERM_OVERT*
GPIO9 AW7 GPIO9_THERM_ALERT*
GPIO10 AT6 GPIO10_FBVREF_SEL
GPIO11 AV2
GPIO12 AV4 GPIO12_LOW_PERF*
GPIO13 AT5 GPIO13_FAN_TACH 32
GPIO19 AT8
GPIO20 AV5
Remove GPIO19/GPIO20
GPIO21 AT3 GPIO21_RASTER_SYNC0
GPIO22 AR9 GPIO22_SWAPRDY 21
GPIO23 AV3 GPIO23_RASTER_SYNC1 21
GPIO24 AT2
BJ20 JTAG_TCK
BF20 JTAG_TMS
BG20 JTAG_TDI
BH20 JTAG_TDO
BF21 JTAG_TRST
VVVV28302S
B03-GK10415-N08
R510
10K
R508
10K
D501
30V
200MA
SOT23
D01-BAT54C9-D07
R501
0
+0.05R
0805
R11-0000034-Y01
12V_F
GPIO16_FAN_PWM
18
12V_FAN
25MIL
J7
MALE
2.0MM
N/A
CON_WAFER232_004_TH_ST_P020
N32-10400Y1-C67
R742
10K
C502
1000PF
C11-1022032-W08
C501
1UF
C11-1057023-T34
* JTAG
JTAG_TCLK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRST*
R713
10K
R701
10K
R721
180
R11-0181012-W08
R689
10K
R723
270
R11-0271012-Y01
Thermal IC
C559
0.1UF
C891
10UF
C11-1067314-M09
U4050
VDD
D+
D-
TCRIT#
SCLK
SDAT
ALERT#
GND
NCT7718W
MSOP8_T
D0F-7718W02-N62
Q212
MMBT3904
D02-03904C9-D05
7718D+
7718D-
C890
2200PF
C11-2222012-W08
R862
7.5K
R11-0752T12-W08
R863
R864
R835
R865
0R
Add I2CB
R836
7.5K
ALERT#
TCRIT#
R11-0000012-W08

TCRIT R862	2K	7.5.K	10.5K
ALERT R836			
2K	77度	87度	97度
7.5K	79度	89度	99度

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MS-V283

Size: Custom
Document Description: MISC1_Fan, Thermal, JTAG, GPIO
Rev: 1.0
Date: Monday, April 23, 2012
Sheet 22 of 33

0001796 MSI CONFIDENTIAL RD(C)2013020101 Onepei 吳積源 (0001601) RMA工程課

Page23: MISC2: ROM, XTAL, Straps

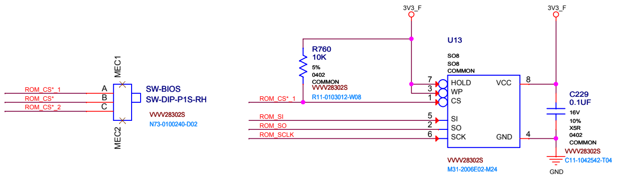
MSI CONFIDENTIAL
00017967
RD(C)20130301
吳檀源
jonepei(吳宗樂)
(00011601)
RMA工程課

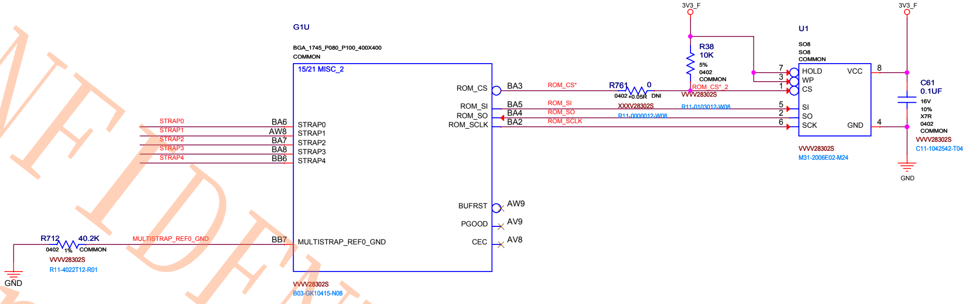
STRAP0	USER_BIT [3:0]*	0000*		5K PD*	
STRAP1	3GIO_PADCFG_LUT_ADR*	0000*		5K PD Desktop*	
STRAP2	PCI_DEVID [3:0]*	0000 - (0x1180)*		5K PD -400 GPU*	
STRAP3	SOR_EXPOSED [3:0]*	1111*		45K PU*	
STRAP4	DP_PLL_VDD_33V*	1*	FOR 3_3V*	45K PD*	
	PEX_MAX_SPEED*	1*	FOR GEN2/3*		
	PEX_SPD_CHANGE_GEN3*	1*	ENABLED*		
	*				
ROM_SI	RAMCFG[0]*	0*		35K PD*	0110 for 64Mx32 256 bit Hynix for SKU 0 primary memory
	RAMCFG[1]*	1*			
	RAMCFG[2]*	1*			
	RAMCFG[3]*	0*			
ROM_SO	VGA_DEVICE*	1*		10k PU*	
	SMB_ALT_ADDR*	0*			
	FB[0]_APERTURE_SIZE*	0*	For 256MB*		
	FB[1]_APERTURE_SIZE*	1*	For 256MB*		
ROM_SCLK	PEX_PLL_EN_TERM100*	0*	DISABLED*	25K PD*	
	PCI_DEVID_EXT[5]*	0*	For 0x1180*		
	SUB_VENDOR*	1*	Dedicated BIOS*		
	PCI_DEVID_EXT[4]*	0*	For 0x1180*		

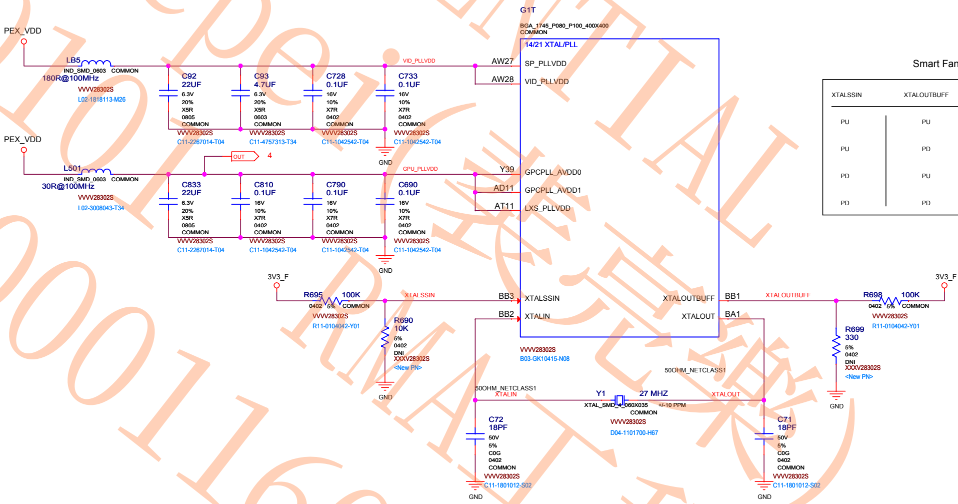
	GND	3V3
5k	0000	1000
10k	0001	1001
15k	0010	1010
20k	0011	1011
25k	0100	1100
30k	0101	1101
35k	0110	1110
45k	0111	1111

CFG[3:0]	Config Width Vendor
0000	Reserved
0001	32Mx32 256-bit Elpida
0010	32Mx32 256-bit Hynix
0011	32Mx32 256-bit Samsung
0100	Reserved
0101	64Mx32 256-bit Elpida
0110	64Mx32 256-bit Hynix
0111	64Mx32 256-bit Samsung
1000	Reserved
1001	32Mx32 192-bit Elpida
1010	32Mx32 192-bit Hynix
1011	32Mx32 192-bit Samsung
1100	Reserved
1101	64Mx32 192-bit Elpida
1110	64Mx32 192-bit Hynix
1111	64Mx32 192-bit Samsung

Dual BIOS


ROM_CS*_1
ROM_CS*
ROM_CS*_2
A
B
C
MEC1
MEC2
SW-BIOS
SW-DIP-P1S-RH
VVVV28302S
N73-0100240-D02
3V3_F
3V3_F
R760
10K
5%
0402
COMMON
VVVV28302S
R11-0103012-W08
ROM_CS*_1
ROM_SI
ROM_SO
ROM_SCLK
U13
SO8
SO8
COMMON
HOLD
WP
CS
SI
SO
SCK
VCC
GND
7
3
1
5
2
6
8
4
VVVV28302S
M31-2006E02-M24
C229
0.1UF
16V
10%
X5R
0402
COMMON
VVVV28302S
C11-1042542-T04
GND

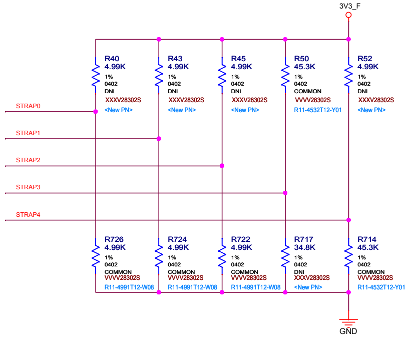

G1U
BGA_1745_P080_P100_400X400
COMMON
15/21 MISC_2
STRAP0
STRAP1
STRAP2
STRAP3
STRAP4
BA6
AW8
BA7
BA8
BB6
STRAP0
STRAP1
STRAP2
STRAP3
STRAP4
ROM_CS
ROM_SI
ROM_SO
ROM_SCLK
BA3
BA5
BA4
BA2
ROM_CS*
ROM_SI
ROM_SO
ROM_SCLK
R761
0
0402 +0.05R
DNI
XXXV28302S
R11-0000012-W08
3V3_F
R38
10K
5%
0402
COMMON
VVVV28302S
R11-0103012-W08
ROM_CS*_2
U1
SO8
SO8
COMMON
HOLD
WP
CS
SI
SO
SCK
VCC
GND
7
3
1
5
2
6
8
4
VVVV28302S
M31-2006E02-M24
3V3_F
C61
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
GND
BUFRST
PGOOD
CEC
AW9
AV9
AV8
R712
40.2K
0402
1%
COMMON
VVVV28302S
R11-4022T12-R01
MULTISTRAP_REF0_GND
BB7
MULTISTRAP_REF0_GND
GND
VVVV28302S
B03-GK10415-N08

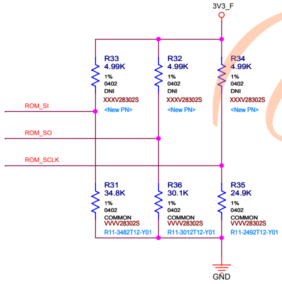

G1T
BGA_1745_P080_P100_400X400
COMMON
14/21 XTAL/PLL
PEX_VDD
LB5
IND_SMD_0603
COMMON
180R@100MHz
VVVV28302S
L02-1818113-M26
C92
22UF
6.3V
20%
X5R
0805
COMMON
VVVV28302S
C11-2267014-T04
C93
4.7UF
6.3V
20%
X5R
0603
COMMON
VVVV28302S
C11-4757313-T34
C728
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
C733
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
GND
VID_PLLVDD
AW27
AW28
SP_PLLVDD
VID_PLLVDD
PEX_VDD
L501
IND_SMD_0603
COMMON
30R@100MHz
VVVV28302S
L02-3008043-T34
OUT
4
C833
22UF
6.3V
20%
X5R
0805
COMMON
VVVV28302S
C11-2267014-T04
C810
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
C790
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
C690
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
GND
GPU_PLLVDD
Y39
AD11
AT11
GPCPLL_AVDD0
GPCPLL_AVDD1
LXS_PLLVDD
3V3_F
R695
100K
0402
5%
COMMON
VVVV28302S
R11-0104042-Y01
XTALSSIN
BB3
XTALSSIN
BB2
XTALIN
R690
10K
5%
0402
DNI
XXXV28302S
<New PN>
GND
XTALOUTBUFF
XTALOUT
BB1
BA1
XTALOUTBUFF
VVVV28302S
B03-GK10415-N08
R698
100K
0402
5%
COMMON
VVVV28302S
R11-0104042-Y01
3V3_F
R699
330
5%
0402
DNI
XXXV28302S
<New PN>
GND
50OHM_NETCLASS1
XTALIN
50OHM_NETCLASS1
XTALOUT
Y1
27 MHZ
XTAL_SMD_4_060X035
+/-10 PPM
COMMON
VVVV28302S
D04-1101700-H67
C72
18PF
50V
5%
C0G
0402
COMMON
VVVV28302S
C11-1801012-S02
GND
C71
18PF
50V
5%
C0G
0402
COMMON
VVVV28302S
C11-1801012-S02
GND

Smart Fan

XTALSSIN	XTALOUTBUFF	Inverted PWM %
PU	PU	66 (33% HIGH)
PU	PD	50 (50% HIGH)
PD	PU	33 (66% HIGH)
PD	PD	0 (100% HIGH)

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


3V3_F
R40
4.99K
1%
0402
DNI
XXXV28302S
<New PN>
R43
4.99K
1%
0402
DNI
XXXV28302S
<New PN>
R45
4.99K
1%
0402
DNI
XXXV28302S
<New PN>
R50
45.3K
1%
0402
COMMON
VVVV28302S
R11-4532T12-Y01
R52
4.99K
1%
0402
DNI
XXXV28302S
<New PN>
STRAP0
STRAP1
STRAP2
STRAP3
STRAP4
R726
4.99K
1%
0402
COMMON
VVVV28302S
R11-4991T12-W08
R724
4.99K
1%
0402
COMMON
VVVV28302S
R11-4991T12-W08
R722
4.99K
1%
0402
COMMON
VVVV28302S
R11-4991T12-W08
R717
34.8K
1%
0402
DNI
XXXV28302S
<New PN>
R714
45.3K
1%
0402
COMMON
VVVV28302S
R11-4532T12-Y01
GND


3V3_F
R33
4.99K
1%
0402
DNI
XXXV28302S
<New PN>
R32
4.99K
1%
0402
DNI
XXXV28302S
<New PN>
R34
4.99K
1%
0402
DNI
XXXV28302S
<New PN>
ROM_SI
ROM_SO
ROM_SCLK
R31
34.8K
1%
0402
COMMON
VVVV28302S
R11-3482T12-Y01
R36
30.1K
1%
0402
COMMON
VVVV28302S
R11-3012T12-Y01
R35
24.9K
1%
0402
COMMON
VVVV28302S
R11-2492T12-Y01
GND

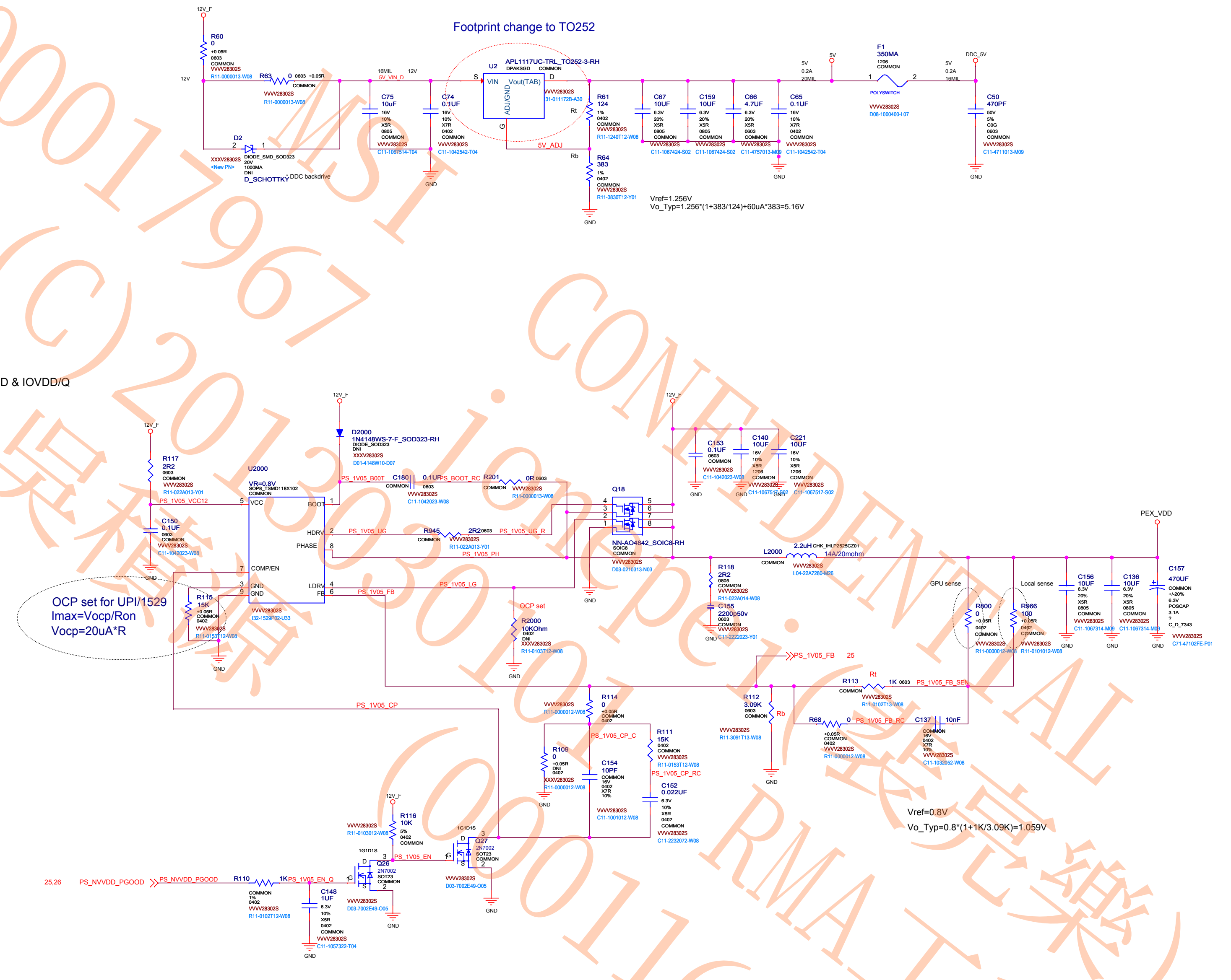
MICRO-STAR INT'L CO.,LTD

MS-V283

Size	Document Description	Rev
Custom	MISC2_ ROM, XTAL, Straps s	1.0

Date: Monday, April 23, 2012 Sheet 23 of 33

Page24: PS: 5V, PEX_VDD



12V_F
R60
0
+0.05R
0603
COMMON
VVVV28302S
R11-0000013-W08
12V
R63
0 0603 +0.05R
COMMON
VVVV28302S
R11-0000013-W08
D2
2 1
XXXV28302S
<New PN>
DIODE_SMD_SOD323
20V
1000MA
DNI
D_SCHOTTKY
DDC backdrive
16MIL
5V_VIN_D
12V
C75
10uF
16V
10%
X5R
0805
COMMON
VVVV28302S
C11-1067514-T04
C74
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
GND
U2
APL1117UC-TRL_TO252-3-RH
DPAKSGD COMMON
S
VIN
Vout(TAB)
ADJ/GND
G
D
VVVV28302S
I31-011172B-A30
Rt
5V_ADJ
Rb
R61
124
1%
0402
COMMON
VVVV28302S
R11-1240T12-W08
R64
383
1%
0402
COMMON
VVVV28302S
R11-3830T12-Y01
GND
C67
10UF
6.3V
20%
X5R
0805
COMMON
VVVV28302S
C11-1067424-S02
C159
10UF
6.3V
20%
X5R
0805
COMMON
VVVV28302S
C11-1067424-S02
C66
4.7UF
6.3V
20%
X5R
0603
COMMON
VVVV28302S
C11-4757013-M09
C65
0.1UF
16V
10%
X7R
0402
COMMON
VVVV28302S
C11-1042542-T04
GND
5V
0.2A
20MIL
5V
F1
350MA
1206
COMMON
1 2
POLYSWITCH
VVVV28302S
D08-1000400-L07
5V
0.2A
16MIL
DDC_5V
C50
470PF
50V
5%
C0G
0603
COMMON
VVVV28302S
C11-4711013-M09
GND
12V_F
R117
2R2
0603
COMMON
VVVV28302S
R11-022A013-Y01
PS_1V05_VCC12
C150
0.1UF
0603
COMMON
VVVV28302S
C11-1042023-W08
GND
U2000
VR=0.8V
SOP8_TSMD118X102
COMMON
5 VCC
7 COMP/EN
3 GND
9 GND
BOOT 1
HDRV 2
PHASE 8
LDRV 4
FB 6
VVVV28302S
I32-1529P02-U33
R115
15K
+0.05R
COMMON
0402
VVVV28302S
R11-0153T12-W08
GND
12V_F
D2000
1N4148WS-7-F_SOD323-RH
DIODE_SOD323
DNI
XXXV28302S
D01-4148W10-D07
PS_1V05_BOOT
C180
0.1UF
COMMON
0603
VVVV28302S
C11-1042023-W08
PS_BOOT_RC
R201
0R 0603
COMMON
VVVV28302S
R11-0000013-W08
PS_1V05_UG
R945
2R2 0603
COMMON
VVVV28302S
R11-022A013-Y01
PS_1V05_UG_R
PS_1V05_PH
PS_1V05_LG
PS_1V05_FB
OCP set
R2000
10KOhm
0402
DNI
XXXV28302S
R11-0103T12-W08
GND
Q18
4 3 2 1
5 6 7 8
NN-AO4842_SOIC8-RH
SOIC8
COMMON
VVVV28302S
D03-0210313-N03
GND
12V_F
C153
0.1UF
0603
COMMON
VVVV28302S
C11-1042023-W08
C140
10UF
16V
10%
X5R
1206
COMMON
VVVV28302S
C11-1067517-S02
C221
10UF
16V
10%
X5R
1206
COMMON
VVVV28302S
C11-1067517-S02
GND
L2000
COMMON
2.2uH CHK_IHLP2525CZ01
14A/20mohm
VVVV28302S
L04-22A7280-M26
R118
2R2
0805
COMMON
VVVV28302S
R11-022A014-W08
C155
2200p50v
0603
COMMON
VVVV28302S
C11-2222023-Y01
GND
PEX_VDD
GPU sense
Local sense
R800
0
+0.05R
0402
COMMON
VVVV28302S
R11-0000012-W08
R966
100
+0.05R
0402
COMMON
VVVV28302S
R11-0101012-W08
C156
10UF
6.3V
20%
X5R
0805
COMMON
VVVV28302S
C11-1067314-M09
C136
10UF
6.3V
20%
X5R
0805
COMMON
VVVV28302S
C11-1067314-M09
C157
470UF
COMMON
+/-20%
6.3V
POSCAP
3.1A
?
C_D_7343
VVVV28302S
C71-47102FE-P01
GND
PS_1V05_FB 25
Rt
R113
1K 0603
COMMON
VVVV28302S
R11-0102T13-W08
PS_1V05_FB_SEN
R112
3.09K
0603
COMMON
Rb
VVVV28302S
R11-3091T13-W08
GND
R68
0
+0.05R
COMMON
0402
VVVV28302S
R11-0000012-W08
PS_1V05_FB_RC
C137
10nF
COMMON
16V
0402
X7R
10%
VVVV28302S
C11-1032052-W08
PS_1V05_CP
R114
0
+0.05R
COMMON
0402
VVVV28302S
R11-0000012-W08
PS_1V05_CP_C
R109
0
+0.05R
DNI
0402
XXXV28302S
R11-0000012-W08
GND
C154
10PF
COMMON
16V
0402
X7R
10%
VVVV28302S
C11-1001012-W08
R111
15K
0402
COMMON
VVVV28302S
R11-0153T12-W08
PS_1V05_CP_RC
C152
0.022UF
6.3V
10%
X5R
0402
COMMON
VVVV28302S
C11-2232072-W08
12V_F
R116
10K
5%
0402
COMMON
VVVV28302S
R11-0103012-W08
1G1D1S
Q27
2N7002
SOT23
COMMON
VVVV28302S
D03-7002E49-O05
GND
1G1D1S
Q26
2N7002
SOT23
COMMON
VVVV28302S
D03-7002E49-O05
PS_1V05_EN
GND
25,26
PS_NVVDD_PGOOD
PS_NVVDD_PGOOD
R110
1K
COMMON
1%
0402
VVVV28302S
R11-0102T12-W08
PS_1V05_EN_Q
C148
1UF
6.3V
10%
X5R
0402
COMMON
VVVV28302S
C11-1057322-T04
GND

Footprint change to TO252

Vref=1.256V
Vo_Typ=1.256*(1+383/124)+60uA*383=5.16V

PEXVDD - PLLVDD & IOVDD/Q

OCP set for UPI/1529
Imax=Vocp/Ron
Vocp=20uA*R

Vref=0.8V
Vo_Typ=0.8*(1+1K/3.09K)=1.059V

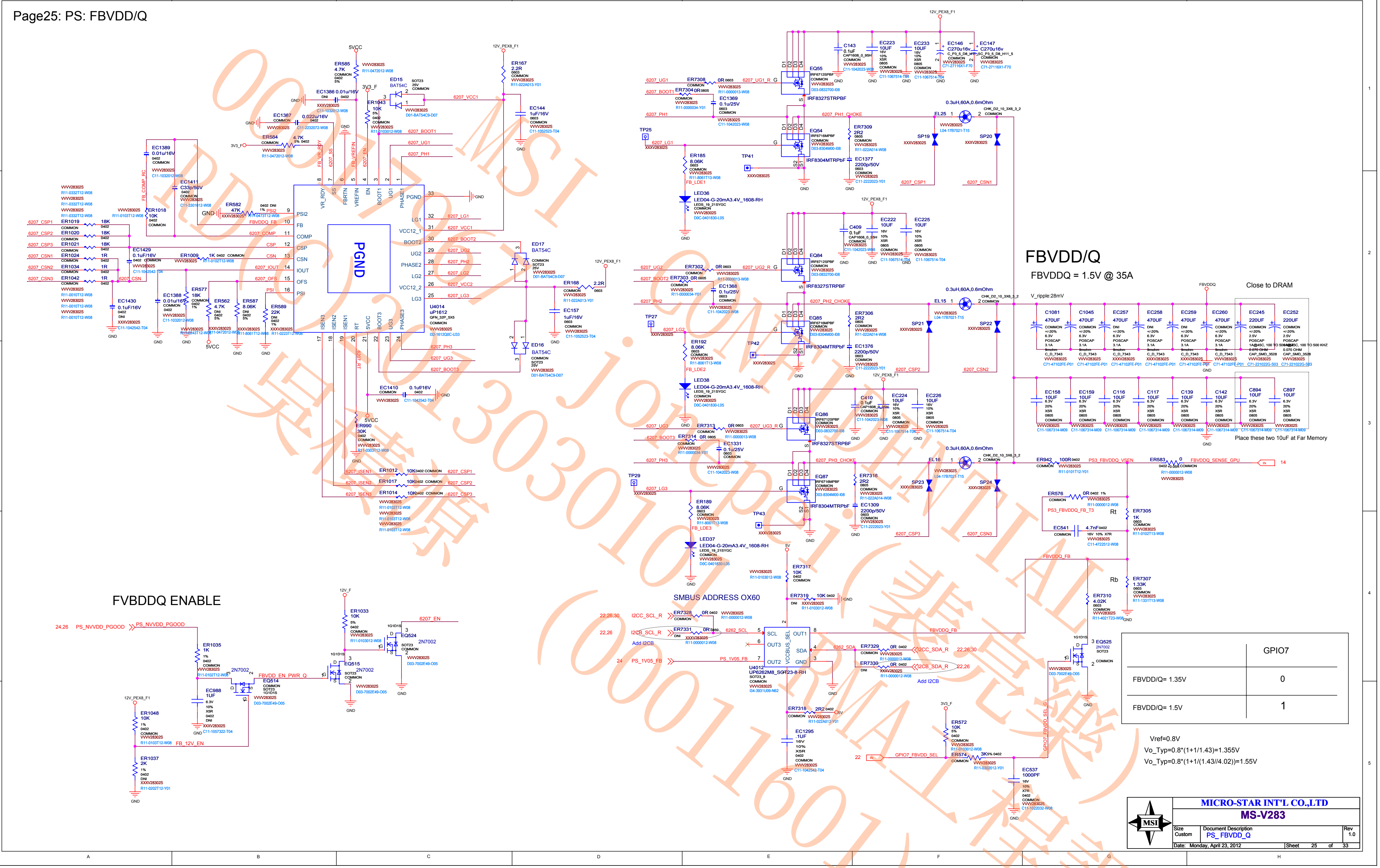
00017967
RD(C)2013030101
MSI
CONFIDENTIAL
jone.pei

MICRO-STAR INT'L CO.,LTD

MS-V283

Size: Custom
Document Description: PS_ 5V, PEX_VDD
Rev: 1.0
Date: Monday, April 23, 2012
Sheet 24 of 33

Page25: PS: FBVDD/Q


U4014
uP1612
QFN_32P_5X5
PGND
VR_RDY
SS
FBRTN
VREFIN
EN
BOOT1
UG1
PHASE1
PSI2
FB
COMP
CSP
CSN
IOUT
OFS
PSI
LG1
VCC12_1
BOOT2
UG2
PHASE2
LG2
VCC12_2
LG3
ISEN3
ISEN2
ISEN1
RT
5VCC
BOOT3
UG3
PHASE3
5VCC
3V3_F
12V_PEX8_F1
12V_F
5V
GND
ER585 4.7K
EC1386 0.01u/16V DNI
ED15 BAT54C
ER1043 10K
EC1387 0.022u/16V
ER584 4.7K
EC1389 0.01u/16V
EC1411 C33p/50V
ER582 47K DNI
ER1018 10K
ER1019 18K
ER1020 18K
ER1021 18K
ER1024 1R
ER1034 1R
ER1042 1R
EC1429 0.1uF/16V
ER1009 1K
EC1430 0.1uF/16V DNI
EC1388 0.01u/16V
ER577 18K
ER562 4.7K DNI
ER587 8.06K DNI
ER589 22K DNI
ER167 2.2R
EC144 1uF/16V
ED17 BAT54C
ED16 BAT54C
ER168 2.2R
EC157 1uF/16V
EC1410 0.1uf/16V
ER990 30K
ER1012 10K
ER1017 10K
ER1014 10K
6207_CSP1
6207_CSP2
6207_CSP3
6207_CSN1
6207_CSN2
6207_CSN3
6207_COMP
6207_IOUT
6207_OFS
6207_VCC1
6207_VCC2
6207_BOOT1
6207_BOOT2
6207_BOOT3
6207_UG1
6207_UG2
6207_UG3
6207_PH1
6207_PH2
6207_PH3
6207_LG1
6207_LG2
6207_LG3
6207_ISEN1
6207_ISEN2
6207_ISEN3
6207_RT
6207_SS
6207_EN
FB_VR_RDY
FB_VREFIN
FB_COMP_RC
FBVDDQ_FB
PSI2
PSI
CSP
CSN
EQ55 IRF6712SPBF
EQ84 IRF6712SPBF
EQ86 IRF6712SPBF
IRF8327STRPBF
EQ54 IRF6716MPBF
EQ85 IRF6716MPBF
EQ87 IRF6716MPBF
IRF8304MTRPbF
ER7308 0R
ER7304 0R
ER7302 0R
ER7303 0R
ER7313 0R
ER7314 0R
EC1369 0.1u/25V
EC1368 0.1u/25V
EC1331 0.1u/25V
6207_UG1_R
6207_UG2_R
6207_UG3_R
6207_PH1_CHOKE
6207_PH2_CHOKE
6207_PH3_CHOKE
ER7309 2R2
ER7306 2R2
ER7316 2R2
EC1377 2200p/50V
EC1376 2200p/50V
EC1309 2200p/50V
ER185 8.06K
ER192 8.06K
ER189 8.06K
FB_LDE1
FB_LDE2
FB_LDE3
LED36 LED04-G-20mA3.4V_1608-RH
LED38 LED04-G-20mA3.4V_1608-RH
LED37 LED04-G-20mA3.4V_1608-RH
TP25
TP27
TP29
TP41
TP42
TP43
C143 0.1uF
C409 0.1uF
C410 0.1uF
EC223 10UF
EC233 10UF
EC222 10UF
EC225 10UF
EC224 10UF
EC226 10UF
EC146 C270u16v
EC147 C270u16v
0.3uH,60A,0.6mOhm
EL25
EL15
EL16
CHK_D2_10_3X6_3_2
SP19
SP20
SP21
SP22
SP23
SP24
V_ripple:28mV
FBVDDQ
Close to DRAM
C1081 470UF
C1045 470UF
EC257 470UF DNI
EC258 470UF DNI
EC259 470UF DNI
EC260 470UF
EC245 220UF
EC252 220UF
EC158 10UF
EC159 10UF
C116 10UF
C117 10UF
C139 10UF
C142 10UF
C894 10UF
C897 10UF
Place these two 10uF at Far Memory
ER942 100R
PS3_FBVDDQ_VSEN
ER583 0
FBVDDQ_SENSE_GPU
14
ER576 0R
PS3_FBVDDQ_FB_T3
Rt
ER7305 1K
EC541 4.7nF
FBVDDQ_FB
Rb
ER7307 1.33K
ER7310 4.02K
EQ525 2N7002
GPIO7_FBVDD_SEL_G
ER572 10K
ER574 3K
GPIO7_FBVDD_SEL
22
EC537 1000PF
U4012
UP6262M8_SOT23-8-RH
SCL
OUT3
OUT2
OUT1
SDA
GND
VCCBUS_SEL
ER7317 10K
ER7319 10K DNI
ER7328 0R
ER7331 0R DNI
6262_SCL
6262_SDA
I2CC_SCL_R
I2CB_SCL_R
22,26,30
22,26
Add I2CB
PS_1V05_FB
24
ER7329 0R
ER7330 0R DNI
I2CC_SDA_R
I2CB_SDA_R
ER7318 2R2
EC1295 .1UF
24,26
PS_NVVDD_PGOOD
ER1035 1K
EC988 1UF DNI
EQ514 2N7002
FBVDD_EN_PWR_Q
EQ515 2N7002
EQ524 2N7002
ER1033 10K
6207_EN
ER1048 10K
ER1037 2K DNI
FB_12V_EN

FBVDD/Q

FBVDDQ = 1.5V @ 35A

FVBDDQ ENABLE

SMBUS ADDRESS OX60

	GPIO7
FBVDD/Q= 1.35V	0
FBVDD/Q= 1.5V	1

Vref=0.8V

Vo_Typ=0.8*(1+1/1.43)=1.355V

Vo_Typ=0.8*(1+1/(1.43//4.02))=1.55V

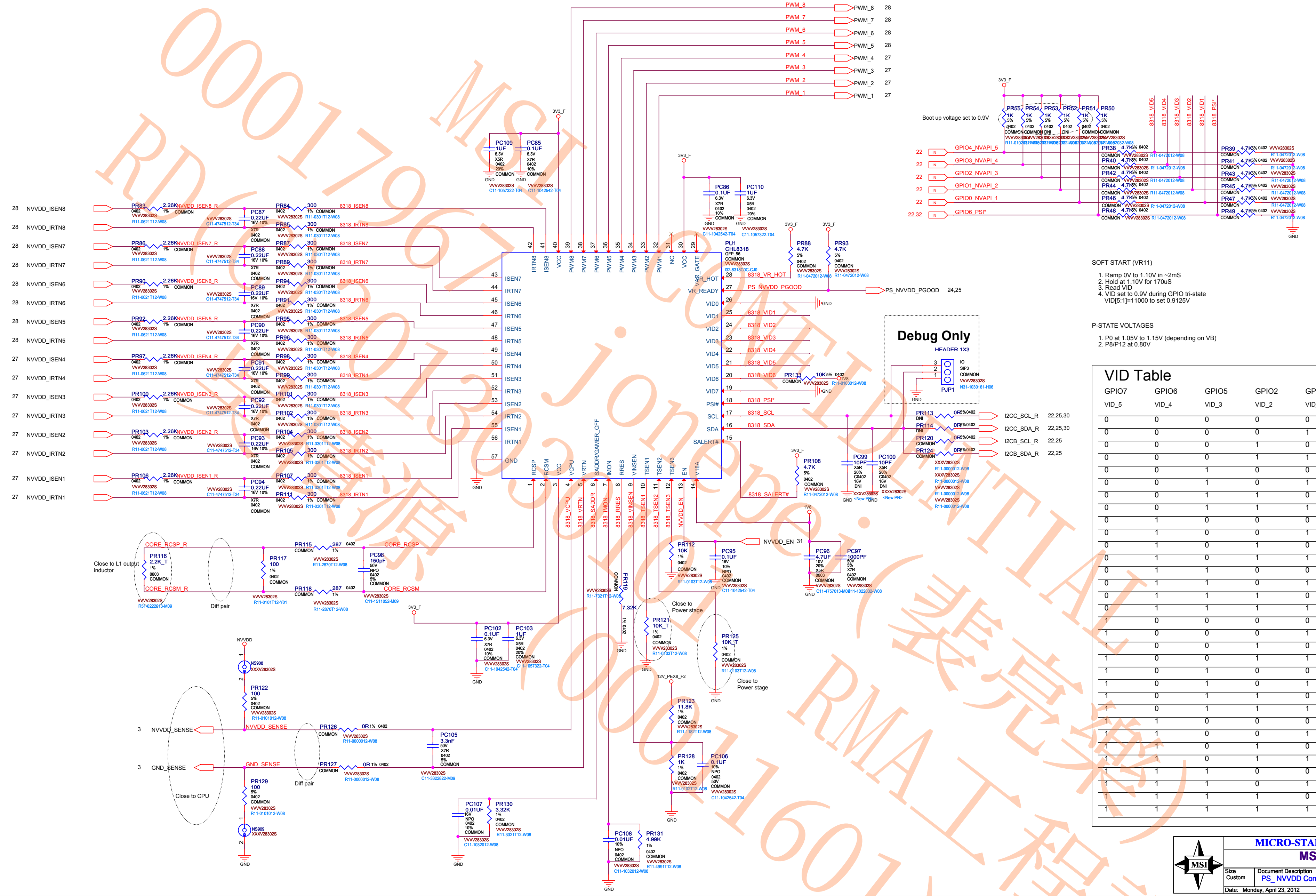
MICRO-STAR INT'L CO.,LTD

MS-V283

Size	Document Description	Rev
Custom	PS_ FBVDD_Q	1.0

Date: Monday, April 23, 2012 Sheet 25 of 33

Page26: PS: NVVDD Controller (CHIL 8318)


PWM_8 28
PWM_7 28
PWM_6 28
PWM_5 28
PWM_4 27
PWM_3 27
PWM_2 27
PWM_1 27
3V3_F
PC109 1UF 6.3V X5R 0402 20% COMMON
PC85 0.1UF 6.3V X7R 0402 10% COMMON
PC86 0.1UF 6.3V X7R 0402 10% COMMON
PC110 1UF 6.3V X5R 0402 20% COMMON
GND
28 NVVDD_ISEN8
28 NVVDD_IRTN8
28 NVVDD_ISEN7
28 NVVDD_IRTN7
28 NVVDD_ISEN6
28 NVVDD_IRTN6
28 NVVDD_ISEN5
28 NVVDD_IRTN5
27 NVVDD_ISEN4
27 NVVDD_IRTN4
27 NVVDD_ISEN3
27 NVVDD_IRTN3
27 NVVDD_ISEN2
27 NVVDD_IRTN2
27 NVVDD_ISEN1
27 NVVDD_IRTN1
PR83 PR86 PR90 PR92 PR97 PR100 PR103 PR106 2.26K 0402 1% COMMON R11-0621T12-W08
NVVDD_ISEN8_R NVVDD_ISEN7_R NVVDD_ISEN6_R NVVDD_ISEN5_R NVVDD_ISEN4_R NVVDD_ISEN3_R NVVDD_ISEN2_R NVVDD_ISEN1_R
PC87 PC88 PC89 PC90 PC91 PC92 PC93 PC94 0.22UF 16V 10% X7R 0402 COMMON C11-4747512-T34
PR84 PR85 PR87 PR89 PR94 PR91 PR95 PR96 PR98 PR99 PR101 PR102 PR104 PR105 PR107 PR111 300 0402 1% COMMON R11-0301T12-W08
8318_ISEN8 8318_IRTN8 8318_ISEN7 8318_IRTN7 8318_ISEN6 8318_IRTN6 8318_ISEN5 8318_IRTN5 8318_ISEN4 8318_IRTN4 8318_ISEN3 8318_IRTN3 8318_ISEN2 8318_IRTN2 8318_ISEN1 8318_IRTN1
VVVV28302S
PU1 CHL8318 QFP_56 COMMON VVVV28302S I32-8318C0C-CJ0
IRTN8 ISEN8 VCC PWM8 PWM7 PWM6 PWM5 PWM4 PWM3 PWM2 PWM1 NC VCC VAR_GATE
ISEN7 IRTN7 ISEN6 IRTN6 ISEN5 IRTN5 ISEN4 IRTN4 ISEN3 IRTN3 ISEN2 IRTN2 ISEN1 IRTN1 GND
VR_HOT VR_READY VID0 VID1 VID2 VID3 VID4 VID5 VID6 VID7 PSI# SCL SDA SALERT#
RCSP RCSM VCC VCPU VRTN SADDR/GAMER_OFF IMON RRES VINSEN TSEN1 TSEN2 TSEN3 EN V18A
8318_VR_HOT
PS_NVVDD_PGOOD
PS_NVVDD_PGOOD 24,25
8318_VID1 8318_VID2 8318_VID3 8318_VID4 8318_VID5 8318_VID6 8318_PSI* 8318_SCL 8318_SDA 8318_SALERT#
PR88 4.7K 5% 0402 COMMON R11-0472012-W08
PR93 4.7K 5% 0402 COMMON R11-0472012-W08
PR133 10K 5% 0402 COMMON R11-0103012-W08
1V8
Debug Only
HEADER 1X3
PJP1 IO SIP3 COMMON VVVV28302S N31-1030161-H06
PR113 DNI 0R 5% 0402
PR114 DNI 0R 5% 0402
PR120 COMMON 0R 5% 0402
PR124 COMMON 0R 5% 0402
I2CC_SCL_R 22,25,30
I2CC_SDA_R 22,25,30
I2CB_SCL_R 22,25
I2CB_SDA_R 22,25
XXXV28302S R11-0000012-W08
PC99 10PF X5R 20% C0402 16V DNI
PC100 10PF X5R 20% C0402 16V DNI
<New PN>
PR108 4.7K 5% 0402 COMMON R11-0472012-W08
Boot up voltage set to 0.9V
PR55 PR54 PR53 PR52 PR51 PR50 1K 5% 0402
22 GPIO4_NVAPI_5
22 GPIO3_NVAPI_4
22 GPIO2_NVAPI_3
22 GPIO1_NVAPI_2
22 GPIO0_NVAPI_1
22,32 GPIO6_PSI*
IN
8318_VID5 8318_VID4 8318_VID3 8318_VID2 8318_VID1 8318_PSI*
PR38 PR40 PR42 PR44 PR46 PR48 4.7K 5% 0402 COMMON R11-0472012-W08
PR39 PR41 PR43 PR45 PR47 PR49 4.7K 5% 0402 COMMON R11-0472012-W08
CORE_RCSP_R
CORE_RCSM_R
Close to L1 output inductor
PR116 2.2K_T 1% 0603 COMMON R51-0222013-M09
Diff pair
PR117 100 1% 0402 COMMON R11-0101T12-Y01
PR115 287 0402 1% COMMON R11-2870T12-W08
PR118 287 0402 1% COMMON R11-2870T12-W08
PC98 150pF 50V NPO 0402 5% COMMON C11-1511052-M09
CORE_RCSP
CORE_RCSM
PC102 0.1UF 6.3V X7R 0402 10% COMMON C11-1042542-T04
PC103 1UF 6.3V X5R 0402 20% COMMON C11-1057322-T04
NVVDD
NS908 XXXV28302S
PR122 100 5% 0402 COMMON R11-0101012-W08
3 NVVDD_SENSE
3 GND_SENSE
Close to CPU
PR126 0R 1% 0402 COMMON R11-0000012-W08
PR127 0R 1% 0402 COMMON R11-0000012-W08
PC105 3.3nF 50V X7R 0402 5% COMMON C11-3322822-M09
PR129 100 5% 0402 COMMON R11-0101012-W08
NS909 XXXV28302S
8318_VCPU 8318_VRTN 8318_SADDR 8318_IMON 8318_RRES 8318_VINSEN 8318_TSEN1 8318_TSEN2 8318_TSEN3 NVVDD_EN
PR119 7.32K 1% 0402 COMMON R11-7321T12-W08
PR112 10K 1% 0402 COMMON R11-0103T12-W08
PC95 0.1UF 16V 10% NPO 0402 COMMON C11-1042542-T04
NVVDD_EN 31
PC96 4.7UF 10V 20% X5R 0603 COMMON C11-4757013-M08
PC97 1000PF 50V 5% X7R 0402 COMMON C11-1022032-W08
Close to Power stage
PR121 10K_T 1% 0402 COMMON R11-0103T12-W08
PR125 10K_T 1% 0402 COMMON R11-0103T12-W08
12V_PEX8_F2
PR123 11.8K 1% 0402 COMMON R11-1182T12-W08
PR128 1K 1% 0402 COMMON R11-0102T12-W08
PC106 0.1UF 10% NPO 0402 50V COMMON C11-1042542-T04
PC107 0.01UF 16V NPO 0402 10% COMMON C11-1032012-W08
PR130 3.32K 1% 0402 COMMON R11-3321T12-W08
PC108 0.01UF 10% NPO 0402 COMMON C11-1032012-W08
PR131 4.99K 1% 0402 COMMON R11-4991T12-W08

SOFT START (VR11)

1. Ramp 0V to 1.10V in ~2mS
2. Hold at 1.10V for 170uS
3. Read VID
4. VID set to 0.9V during GPIO tri-state
   VID[5:1]=11000 to set 0.9125V

P-STATE VOLTAGES

1. P0 at 1.05V to 1.15V (depending on VB)
2. P8/P12 at 0.80V

VID Table

GPIO7	GPIO6	GPIO5	GPIO2	GPIO17	VOUT
VID_5	VID_4	VID_3	VID_2	VID_1	
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

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MS-V283

Size	Document Description	Rev
Custom	PS_ NVVDD Controller	1.0

Date: Monday, April 23, 2012 Sheet 26 of 33

16V

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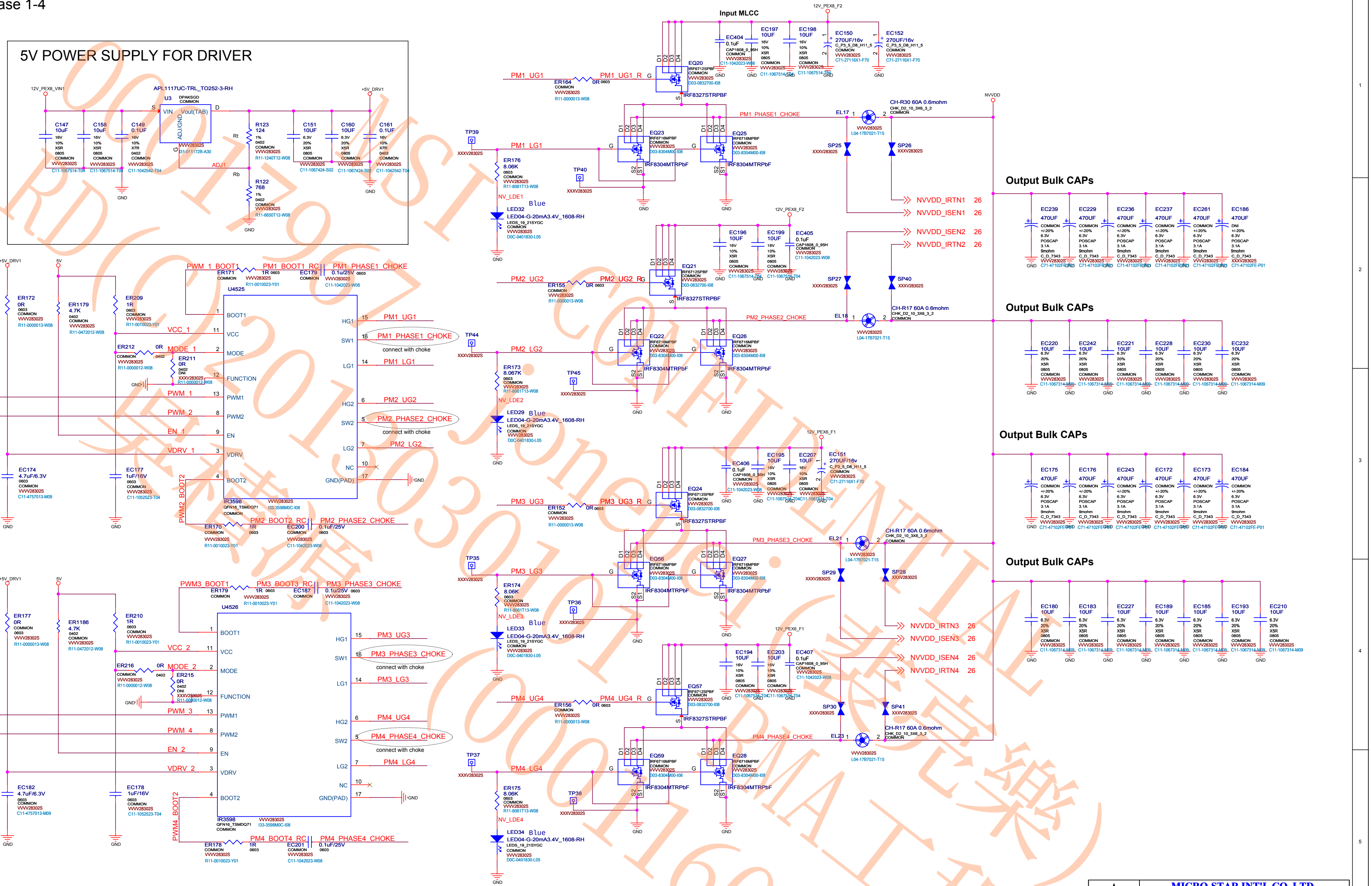
Page27: PS: NVVDD Phase 1-4

Function	Mode	PWM Mode	Phase Mode
0	1	IR ATL	Dual
1	1	IR ATL	Doublar
0	0	tri-state	Dual
1	0	tri-state	Doublar



5V POWER SUPPLY FOR DRIVER
12V_PEX8_VIN1
APL1117UC-TRL_TO252-3-RH
U3
DPAKSGD
COMMON
VIN
Vout(TAB)
ADJ/GND
S
D
G
VVVV28302S
I31-011172B-A30
ADJ1
Rt
Rb
C147 10uF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
C158 10uF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
C149 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R123 124 1% 0402 COMMON VVVV28302S R11-1240T12-W08
R122 768 1% 0402 COMMON VVVV28302S R11-6650T12-W08
C151 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067424-S02
C160 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067424-S02
C161 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
+5V_DRV1
GND
5V
ER172 0R 0603 COMMON VVVV28302S R11-0000013-W08
ER1179 4.7K 0402 COMMON VVVV28302S R11-0472012-W08
ER209 1R 0603 COMMON VVVV28302S R11-0010023-Y01
ER212 0R COMMON 0402 VVVV28302S R11-0000012-W08
ER211 0R 0402 DNI XXXV28302S R11-0000012-W08
EC174 4.7uF/6.3V 0603 COMMON VVVV28302S C11-4757013-M09
EC177 1uF/16V 0603 COMMON VVVV28302S C11-1052523-T04
PWM_1_BOOT1
ER171 COMMON 1R 0603 VVVV28302S R11-0010023-Y01
PM1_BOOT1_RC
EC179 COMMON 0.1u/25V 0603 VVVV28302S C11-1042023-W08
PM1_PHASE1_CHOKE
U4525
BOOT1
VCC
MODE
FUNCTION
PWM1
PWM2
EN
VDRV
BOOT2
HG1
SW1
LG1
HG2
SW2
LG2
NC
GND(PAD)
IR3598
QFN16_TSMDQ71
COMMON
VVVV28302S
I33-3598M0C-I08
VCC_1
MODE_1
PWM_1
PWM_2
EN_1
VDRV_1
PWM2_BOOT2
26 PWM_1
26 PWM_2
PM1_UG1
PM1_PHASE1_CHOKE
connect with choke
PM1_LG1
PM2_UG2
PM2_PHASE2_CHOKE
PM2_LG2
ER170 COMMON 1R 0603 VVVV28302S R11-0010023-Y01
PM2_BOOT2_RC
EC200 COMMON 0.1uF/25V 0603 VVVV28302S C11-1042023-W08
ER177 0R COMMON 0603 VVVV28302S R11-0000013-W08
ER1186 4.7K 0402 COMMON VVVV28302S R11-0472012-W08
ER210 1R 0603 COMMON VVVV28302S R11-0010023-Y01
ER216 0R COMMON 0402 VVVV28302S R11-0000012-W08
ER215 0R 0402 DNI XXXV28302S R11-0000012-W08
EC182 4.7uF/6.3V 0603 COMMON VVVV28302S C11-4757013-M09
EC178 1uF/16V 0603 COMMON VVVV28302S C11-1052523-T04
PWM3_BOOT1
ER179 COMMON 1R 0603 VVVV28302S R11-0010023-Y01
PM3_BOOT3_RC
EC187 COMMON 0.1u/25V 0603 VVVV28302S C11-1042023-W08
PM3_PHASE3_CHOKE
U4526
VCC_2
MODE_2
PWM_3
PWM_4
EN_2
VDRV_2
PWM4_BOOT2
26 PWM_3
26 PWM_4
PM3_UG3
PM3_LG3
PM4_UG4
PM4_PHASE4_CHOKE
PM4_LG4
ER178 COMMON 1R 0603 VVVV28302S R11-0010023-Y01
PM4_BOOT4_RC
EC201 COMMON 0.1uF/25V 0603 VVVV28302S C11-1042023-W08
Input MLCC
12V_PEX8_F2
EQ20 IRF6712SPBF COMMON VVVV28302S D03-0832700-I08
IRF8327STRPBF
ER164 COMMON 0R 0603 VVVV28302S R11-0000013-W08
PM1_UG1_R
EC404 0.1uF CAP1608_0_95H COMMON VVVV28302S C11-1042023-W08
EC197 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC198 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC150 270UF/16v C_P3_5_D8_H11_5 COMMON VVVV28302S C71-27116X1-F70
EC152 270UF/16v C_P3_5_D8_H11_5 COMMON VVVV28302S C71-27116X1-F70
TP39 XXXV28302S
ER176 8.06K 0603 COMMON VVVV28302S R11-8061T13-W08
NV_LDE1
LED32 Blue LED04-G-20mA3.4V_1608-RH LEDS_19_21SYGC COMMON VVVV28302S D0C-0401830-L05
TP40 XXXV28302S
EQ23 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
EQ25 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
IRF8304MTRPbF
EL17
CH-R30 60A 0.6mohm CHK_D2_10_3X6_3_2 COMMON
VVVV28302S L04-17B7021-T15
SP25 XXXV28302S
SP26 XXXV28302S
NVVDD
NVVDD_IRTN1 26
NVVDD_ISEN1 26
NVVDD_ISEN2 26
NVVDD_IRTN2 26
EC196 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC199 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC405 0.1uF CAP1608_0_95H COMMON VVVV28302S C11-1042023-W08
EQ21 IRF6712SPBF COMMON VVVV28302S D03-0832700-I08
ER155 COMMON 0R 0603 VVVV28302S R11-0000013-W08
PM2_UG2_R
SP27 XXXV28302S
SP40 XXXV28302S
EL18
CH-R17 60A 0.6mohm CHK_D2_10_3X6_3_2 COMMON
TP44 XXXV28302S
ER173 8.067K 0603 COMMON VVVV28302S R11-8061T13-W08
NV_LDE2
LED29 Blue LED04-G-20mA3.4V_1608-RH LEDS_19_21SYGC COMMON VVVV28302S D0C-0401830-L05
TP45 XXXV28302S
EQ22 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
EQ26 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
12V_PEX6_F1
EC406 0.1uF CAP1608_0_95H COMMON VVVV28302S C11-1042023-W08
EC195 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC207 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC151 270UF/16v C_P3_5_D8_H11_5 COMMON VVVV28302S C71-27116X1-F70
EQ24 IRF6712SPBF COMMON VVVV28302S D03-0832700-I08
ER152 COMMON 0R 0603 VVVV28302S R11-0000013-W08
PM3_UG3_R
EL21
TP35 XXXV28302S
ER174 8.06K 0603 COMMON VVVV28302S R11-8061T13-W08
NV_LDE3
LED33 Blue LED04-G-20mA3.4V_1608-RH LEDS_19_21SYGC COMMON VVVV28302S D0C-0401830-L05
TP36 XXXV28302S
EQ56 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
EQ27 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
SP29 XXXV28302S
SP28 XXXV28302S
NVVDD_IRTN3 26
NVVDD_ISEN3 26
NVVDD_ISEN4 26
NVVDD_IRTN4 26
EC194 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC203 10UF 16V 10% X5R 0805 COMMON VVVV28302S C11-1067514-T04
EC407 0.1uF CAP1608_0_95H COMMON VVVV28302S C11-1042023-W08
EQ57 IRF6712SPBF COMMON VVVV28302S D03-0832700-I08
ER156 COMMON 0R 0603 VVVV28302S R11-0000013-W08
PM4_UG4_R
SP30 XXXV28302S
SP41 XXXV28302S
EL23
TP37 XXXV28302S
ER175 8.06K 0603 COMMON VVVV28302S R11-8061T13-W08
NV_LDE4
LED34 Blue LED04-G-20mA3.4V_1608-RH LEDS_19_21SYGC COMMON VVVV28302S D0C-0401830-L05
TP38 XXXV28302S
EQ59 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
EQ28 IRF6716MPBF COMMON VVVV28302S D03-8304M00-I08
Output Bulk CAPs
EC239 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC229 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC236 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC237 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC261 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC186 470UF DNI +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 XXXV28302S C71-47102FE-P01
EC220 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC242 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC221 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC228 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC230 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC232 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC175 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC176 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC243 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC172 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC173 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC184 470UF COMMON +/-20% 6.3V POSCAP 3.1A 9mohm C_D_7343 VVVV28302S C71-47102FE-P01
EC180 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC183 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC227 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC189 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC185 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC193 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
EC210 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09

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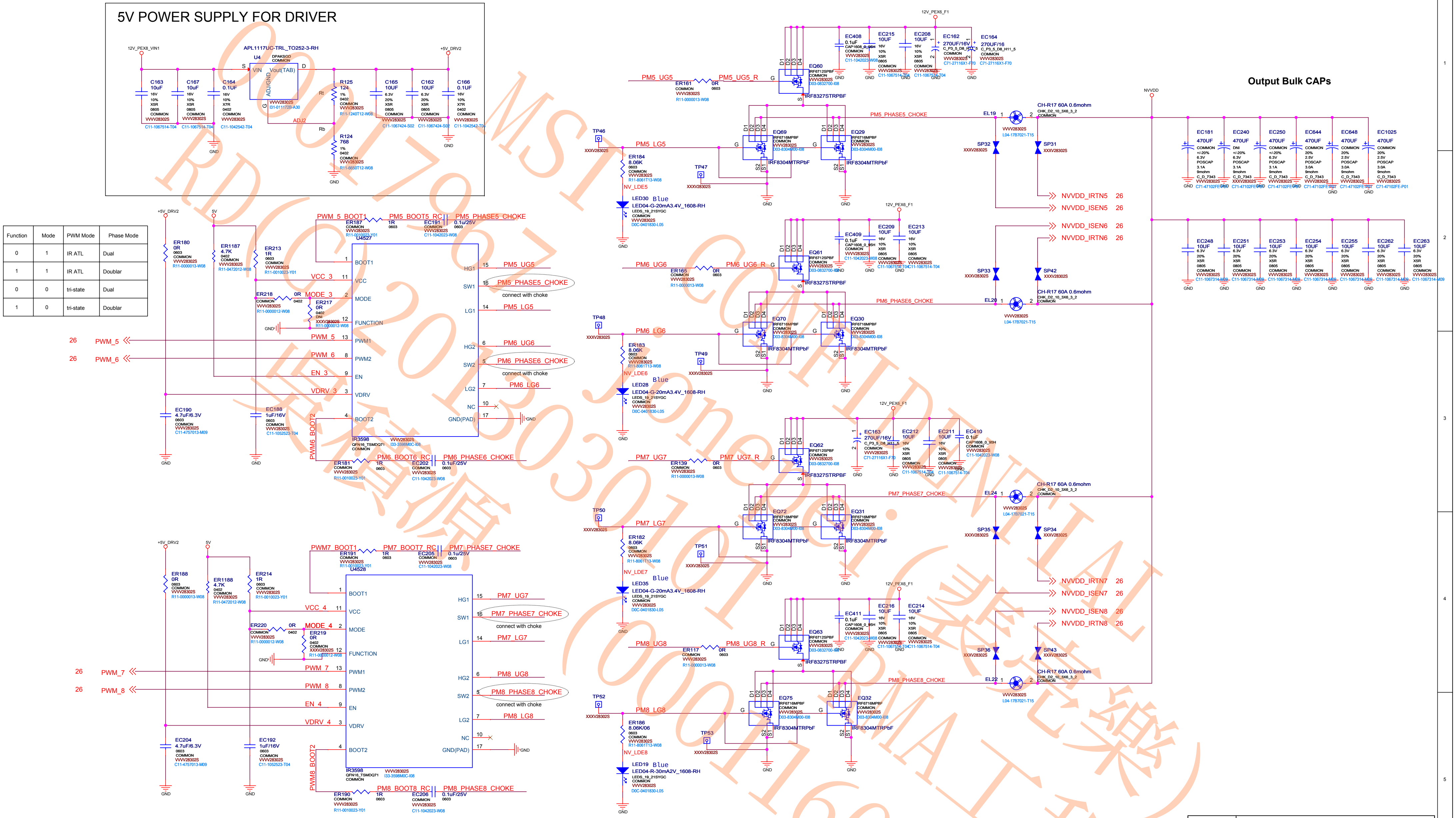
MS-V283

Size	Document Description	Rev
Custom	PS_ NVVDD Phase 1-4	1.0
Date: Monday, April 23, 2012	Sheet 27 of 33	

Page28: PS: NVVDD Phase 5-8


5V POWER SUPPLY FOR DRIVER
12V_PEX8_VIN1
APL1117UC-TRL_TO252-3-RH
U4
DPAKSGD
VIN
Vout(TAB)
ADJ/GND
ADJ2
+5V_DRV2
C163 10uF 16V 10% X5R 0805
C167 10uF 16V 10% X5R 0805
C164 0.1UF 16V 10% X7R 0402
R125 124 1% 0402
Rt
Rb
R124 768 1% 0402
C165 10UF 6.3V 20% X5R 0805
C162 10UF 6.3V 20% X5R 0805
C166 0.1UF 16V 10% X7R 0402
GND
Output Bulk CAPs
NVVDD
EC181 470UF
EC240 470UF DNI
EC250 470UF
EC644 470UF
EC648 470UF
EC1025 470UF
EC248 10UF
EC251 10UF
EC253 10UF
EC254 10UF
EC255 10UF
EC262 10UF
EC263 10UF
U4527
U4528
IR3598
QFN16_TSMDQ71
BOOT1
VCC
MODE
FUNCTION
PWM1
PWM2
EN
VDRV
BOOT2
HG1
SW1
LG1
HG2
SW2
LG2
NC
GND(PAD)
+5V_DRV2
5V
ER180 0R
ER1187 4.7K
ER213 1R
ER218 0R
ER217 0R DNI
EC190 4.7uF/6.3V
EC188 1uF/16V
ER188 0R
ER1188 4.7K
ER214 1R
ER220 0R
ER219 0R
EC204 4.7uF/6.3V
EC192 1uF/16V
PWM_5 BOOT1
PM5_BOOT5_RC
PM5_PHASE5_CHOKE
ER187 1R
EC191 0.1u/25V
PWM6_BOOT2
PM6_BOOT6_RC
PM6_PHASE6_CHOKE
ER181 1R
EC202 0.1uF/25V
PWM7_BOOT1
PM7_BOOT7_RC
PM7_PHASE7_CHOKE
ER191 1R
EC205 0.1u/25V
PWM8_BOOT2
PM8_BOOT8_RC
PM8_PHASE8_CHOKE
ER190 1R
EC206 0.1uF/25V
VCC_3
MODE_3
PWM_5
PWM_6
EN_3
VDRV_3
VCC_4
MODE_4
PWM_7
PWM_8
EN_4
VDRV_4
26 PWM_5
26 PWM_6
26 PWM_7
26 PWM_8
PM5_UG5
PM5_LG5
PM6_UG6
PM6_LG6
PM7_UG7
PM7_LG7
PM8_UG8
PM8_LG8
connect with choke
12V_PEX6_F1
EQ60 IRF6712SPBF
EQ61 IRF6712SPBF
EQ62 IRF6712SPBF
EQ63 IRF6712SPBF
IRF8327STRPBF
EQ69 IRF6716MPBF
EQ29 IRF6716MPBF
EQ70 IRF6716MPBF
EQ30 IRF6716MPBF
EQ72 IRF6716MPBF
EQ31 IRF6716MPBF
EQ75 IRF6716MPBF
EQ32 IRF6716MPBF
IRF8304MTRPbF
ER161 0R
ER165 0R
ER139 0R
ER117 0R
PM5_UG5_R
PM6_UG6_R
PM7_UG7_R
PM8_UG8_R
EC408 0.1uF
EC215 10UF
EC208 10UF
EC162 270UF/16V
EC164 270UF/16
EC409 0.1uF
EC209 10UF
EC213 10UF
EC163 270UF/16V
EC212 10UF
EC211 10UF
EC410 0.1uF
EC411 0.1uF
EC216 10UF
EC214 10UF
TP46
TP47
TP48
TP49
TP50
TP51
TP52
TP53
ER184 8.06K
ER183 8.06K
ER182 8.06K
ER186 8.06K/06
NV_LDE5
NV_LDE6
NV_LDE7
NV_LDE8
LED30 Blue LED04-G-20mA3.4V_1608-RH
LED28 Blue LED04-G-20mA3.4V_1608-RH
LED35 Blue LED04-G-20mA3.4V_1608-RH
LED19 Blue LED04-R-30mA2V_1608-RH
EL19
EL20
EL24
EL22
CH-R17 60A 0.6mohm
CHK_D2_10_3X6_3_2
SP31
SP32
SP33
SP42
SP34
SP35
SP36
SP43
NVVDD_IRTN5 26
NVVDD_ISEN5 26
NVVDD_ISEN6 26
NVVDD_IRTN6 26
NVVDD_IRTN7 26
NVVDD_ISEN7 26
NVVDD_ISEN8 26
NVVDD_IRTN8 26

Function	Mode	PWM Mode	Phase Mode
0	1	IR ATL	Dual
1	1	IR ATL	Doublar
0	0	tri-state	Dual
1	0	tri-state	Doublar

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MS-V283

Size	Document Description	Rev
Custom	PS_ NVVDD Phase 5-8	1.0

Date: Monday, April 23, 2012 Sheet 28 of 33

MSI CONFIDENTIAL
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Page29: PS: NVVDD Phase 9-10 (N/A)

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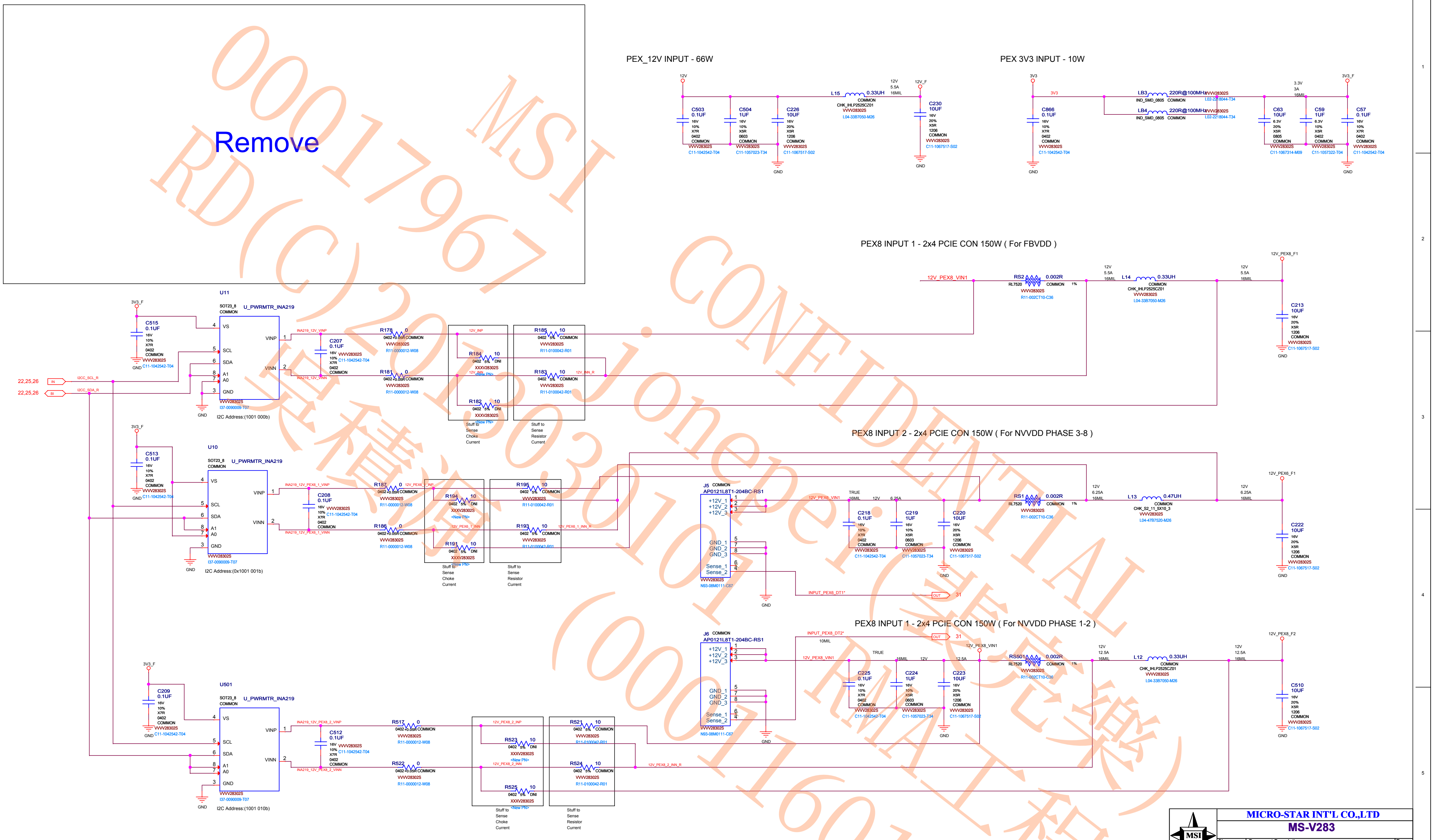
RD(C)20130101 RMA工程課
吳積源(00011601)

MICRO-STAR INT'L CO.,LTD
MS-V283
Size: Custom
Document Description: PS_ NVVDD Phase 9-10
Rev: 1.0
Date: Friday, April 20, 2012
Sheet 29 of 33

Page30: PS: Inputs, Filtering, and Monitoring


Remove
PEX_12V INPUT - 66W
12V
C503 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C504 1UF 16V 10% X5R 0603 COMMON VVVV28302S C11-1057023-T34
C226 10UF 16V 20% X5R 1206 COMMON VVVV28302S C11-1067517-S02
L15 0.33UH COMMON CHK_IHLP2525CZ01 VVVV28302S L04-33B7050-M26
12V 5.5A 16MIL
12V_F
C230 10UF 16V 20% X5R 1206 COMMON VVVV28302S C11-1067517-S02
GND
PEX 3V3 INPUT - 10W
3V3
C866 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
LB3 220R@100MHz IND_SMD_0805 COMMON VVVV28302S L02-2218044-T34
LB4 220R@100MHz IND_SMD_0805 COMMON VVVV28302S L02-2218044-T34
3.3V 3A 16MIL
3V3_F
C63 10UF 6.3V 20% X5R 0805 COMMON VVVV28302S C11-1067314-M09
C59 1UF 6.3V 10% X5R 0402 COMMON VVVV28302S C11-1057322-T04
C57 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
PEX8 INPUT 1 - 2x4 PCIE CON 150W (For FBVDD)
12V_PEX8_VIN1
RS2 0.002R RL7520 COMMON 1% VVVV28302S R11-002CT10-C36
12V 5.5A 16MIL
L14 0.33UH COMMON CHK_IHLP2525CZ01 VVVV28302S L04-33B7050-M26
12V_PEX8_F1
C213 10UF 16V 20% X5R 1206 COMMON VVVV28302S C11-1067517-S02
U11 SOT23_8 COMMON U_PWRMTR_INA219
VS SCL SDA A1 A0 GND VINP VINN
VVVV28302S I37-0090009-T07
I2C Address:(1001 000b)
3V3_F
C515 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
22,25,26 IN I2CC_SCL_R
22,25,26 BI I2CC_SDA_R
INA219_12V_VINP
INA219_12V_VINN
C207 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R178 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
R181 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
12V_INP
12V_INN
R184 10 0402 5% DNI XXXV28302S <New PN>
R182 10 0402 5% DNI XXXV28302S <New PN>
R185 10 0402 5% COMMON VVVV28302S R11-0100042-R01
R183 10 0402 5% COMMON VVVV28302S R11-0100042-R01
12V_INN_R
Stuff to Sense Choke Current
Stuff to Sense Resistor Current
PEX8 INPUT 2 - 2x4 PCIE CON 150W (For NVVDD PHASE 3-8)
U10 SOT23_8 COMMON U_PWRMTR_INA219
I2C Address:(0x1001 001b)
C513 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
INA219_12V_PEX6_1_VINP
INA219_12V_PEX6_1_VINN
C208 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R187 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
R186 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
12V_PEX6_1_INP
12V_PEX6_1_INN
R194 10 0402 5% DNI XXXV28302S <New PN>
R191 10 0402 5% DNI XXXV28302S <New PN>
R195 10 0402 5% COMMON VVVV28302S R11-0100042-R01
R193 10 0402 5% COMMON VVVV28302S R11-0100042-R01
12V_PEX6_1_INN_R
J5 COMMON AP0121L8T1-204BC-RS1
+12V_1 +12V_2 +12V_3 GND_1 GND_2 GND_3 Sense_1 Sense_2
VVVV28302S N93-08M0111-C67
12V_PEX6_VIN1
TRUE 16MIL 12V 6.25A
C218 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C219 1UF 16V 10% X5R 0603 COMMON VVVV28302S C11-1057023-T34
C220 10UF 16V 20% X5R 1206 COMMON VVVV28302S C11-1067517-S02
INPUT_PEX6_DT1* OUT 31
RS1 0.002R RL7520 COMMON 1% VVVV28302S R11-002CT10-C36
12V 6.25A 16MIL
L13 0.47UH COMMON CHK_S2_11_5X10_3 VVVV28302S L04-47B7520-M26
12V_PEX6_F1
C222 10UF 16V 20% X5R 1206 COMMON VVVV28302S C11-1067517-S02
PEX8 INPUT 1 - 2x4 PCIE CON 150W (For NVVDD PHASE 1-2)
J6 COMMON AP0121L8T1-204BC-RS1
INPUT_PEX8_DT2* 10MIL OUT 31
12V_PEX8_VIN1
TRUE 16MIL 12V 12.5A
C225 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
C224 1UF 16V 10% X5R 0603 COMMON VVVV28302S C11-1057023-T34
C223 10UF 16V 20% X5R 1206 COMMON VVVV28302S C11-1067517-S02
RS501 0.002R RL7520 COMMON 1% VVVV28302S R11-002CT10-C36
12V 12.5A 16MIL
L12 0.33UH COMMON CHK_IHLP2525CZ01 VVVV28302S L04-33B7050-M26
12V_PEX8_F2
C510 10UF 16V 20% X5R 1206 COMMON VVVV28302S C11-1067517-S02
U501 SOT23_8 COMMON U_PWRMTR_INA219
I2C Address:(1001 010b)
C209 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
INA219_12V_PEX8_2_VINP
INA219_12V_PEX8_2_VINN
C512 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R517 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
R522 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
12V_PEX8_2_INP
12V_PEX8_2_INN
R523 10 0402 5% DNI XXXV28302S <New PN>
R525 10 0402 5% DNI XXXV28302S <New PN>
R521 10 0402 5% COMMON VVVV28302S R11-0100042-R01
R524 10 0402 5% COMMON VVVV28302S R11-0100042-R01
12V_PEX8_2_INN_R

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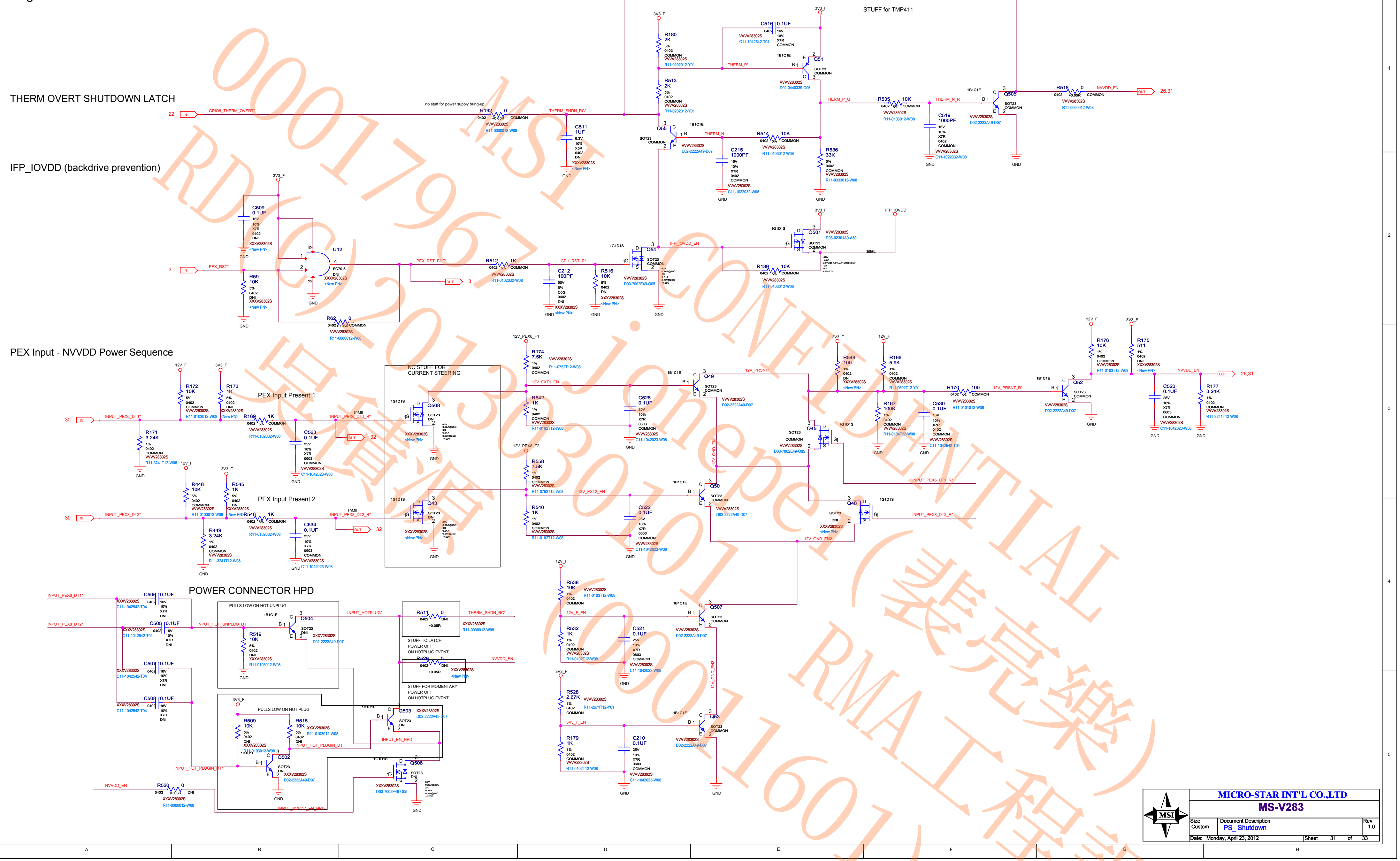
MS-V283

Size	Document Description	Rev
Custom	PS_ Inputs, Filtering, and Monitoring	1.0

Date: Monday, April 23, 2012 Sheet 30 of 33

Page31: PS: Shutdown


THERM OVERT SHUTDOWN LATCH
IFP_IOVDD (backdrive prevention)
PEX Input - NVVDD Power Sequence
POWER CONNECTOR HPD
STUFF for TMP411
no stuff for power supply bring-up
22 IN GPIO8_THERM_OVERT*
R192 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
THERM_SHDN_RC*
C511 1UF 6.3V 10% X5R 0402 DNI XXXV28302S <New PN>
R180 2K 5% 0402 COMMON VVVV28302S R11-0202012-Y01
R513 2K 5% 0402 COMMON VVVV28302S R11-0202012-Y01
R188 0 0402 +0.05R DNI XXXV28302S <New PN>
THERM_N_Q
3V3_F
C516 0.1UF 0402 16V 10% X7R COMMON VVVV28302S C11-1042542-T04
THERM_P*
Q51 1B1C1E SOT23 COMMON VVVV28302S D02-0440339-O05
THERM_P_Q
R535 10K 0402 5% COMMON VVVV28302S R11-0103012-W08
THERM_N_R
C519 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
Q505 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
R518 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
NVVDD_EN
OUT 26,31
Q55 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
THERM_N
C215 1000PF 16V 10% X7R 0402 COMMON VVVV28302S C11-1022032-W08
R514 10K 0402 5% COMMON VVVV28302S R11-0103012-W08
R536 33K 5% 0402 COMMON VVVV28302S R11-0333012-W08
C509 0.1UF 16V 10% X7R 0402 DNI XXXV28302S <New PN>
3 IN PEX_RST*
R59 10K 5% 0402 DNI XXXV28302S <New PN>
U12 SC70-5 DNI XXXV28302S <New PN>
PEX_RST_BUF*
OUT 3
R62 0 0402 +0.05R COMMON VVVV28302S R11-0000012-W08
R512 1K 0402 5% COMMON VVVV28302S R11-0102032-W08
GPU_RST_R*
C212 100PF 50V 5% C0G 0402 DNI XXXV28302S <New PN>
R516 10K 5% 0402 DNI XXXV28302S <New PN>
Q54 1G1D1S SOT23 COMMON VVVV28302S D03-7002E49-O05
60V 0.26A@25C 3R 0.31A 0.3W@25C +/-20V
IFP_IOVDD_EN
Q501 1G1D1S SOT23 COMMON VVVV28302S D03-02301A9-A30
-20V -3.0A 0.070@-4.5V,0.115R@-2.5V -9A N/A +12/-12V
IFP_IOVDD
36MIL
R189 10K 0402 5% COMMON VVVV28302S R11-0103012-W08
GND
PEX Input Present 1
PEX Input Present 2
12V_F
30 IN INPUT_PEX6_DT1*
R172 10K 5% 0402 COMMON VVVV28302S R11-0103012-W08
R173 1K 5% 0402 DNI XXXV28302S <New PN>
R171 3.24K 1% 0402 COMMON VVVV28302S R11-3241T12-W08
R169 1K 0402 5% COMMON VVVV28302S R11-0102032-W08
C563 0.1UF 25V 10% X7R 0603 COMMON VVVV28302S C11-1042023-W08
10MIL INPUT_PEX6_DT1_R*
OUT 32
NO STUFF FOR CURRENT STEERING
Q508 1G1D1S SOT23 DNI XXXV28302S <New PN>
30 IN INPUT_PEX8_DT2*
R448 10K 5% 0402 COMMON VVVV28302S R11-0103012-W08
R545 1K 5% 0402 DNI XXXV28302S <New PN>
R449 3.24K 1% 0402 COMMON VVVV28302S R11-3241T12-W08
R546 1K 0402 5% COMMON VVVV28302S R11-0102032-W08
C534 0.1UF 25V 10% X7R 0603 COMMON VVVV28302S C11-1042023-W08
10MIL INPUT_PEX8_DT2_R*
Q43 1G1D1S SOT23 DNI XXXV28302S <New PN>
12V_PEX6_F1
R174 7.5K 1% 0402 COMMON VVVV28302S R11-0752T12-W08
12V_EXT1_EN
R542 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
C528 0.1UF 25V 10% X7R 0603 COMMON VVVV28302S C11-1042023-W08
Q49 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
12V_PRSNT*
12V_GND_EN1
12V_PEX8_F2
R558 7.5K 1% 0402 COMMON VVVV28302S R11-0752T12-W08
12V_EXT2_EN
R540 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
C522 0.1UF 25V 10% X7R 0603 COMMON VVVV28302S C11-1042023-W08
Q50 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
Q45 1G1D1S SOT23 COMMON VVVV28302S D03-7002E49-O05
Q48 1G1D1S SOT23 DNI XXXV28302S <New PN>
12V_GND_EN2
INPUT_PEX6_DT1_R*
INPUT_PEX8_DT2_R*
R549 100 1% 0402 DNI XXXV28302S <New PN>
R166 5.9K 1% 0402 COMMON VVVV28302S R11-0592T12-Y01
R167 100K 1% 0402 COMMON VVVV28302S R11-0104T22-W08
C530 0.1UF 16V 10% X7R 0402 COMMON VVVV28302S C11-1042542-T04
R170 100 0402 5% COMMON VVVV28302S R11-0101012-W08
12V_PRSNT_R*
Q52 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
R176 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
R175 511 1% 0402 DNI XXXV28302S <New PN>
C520 0.1UF 25V 10% X7R 0603 COMMON VVVV28302S C11-1042023-W08
R177 3.24K 1% 0402 COMMON VVVV28302S R11-3241T12-W08
R538 10K 1% 0402 COMMON VVVV28302S R11-0103T12-W08
12V_F_EN
R532 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
C521 0.1UF 25V 10% X7R 0603 COMMON VVVV28302S C11-1042023-W08
Q507 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
12V_GND_EN3
R528 2.67K 1% 0402 COMMON VVVV28302S R11-2671T12-Y01
3V3_F_EN
R179 1K 1% 0402 COMMON VVVV28302S R11-0102T12-W08
C210 0.1UF 25V 10% X7R 0603 COMMON VVVV28302S C11-1042023-W08
Q53 1B1C1E SOT23 COMMON VVVV28302S D02-2222A49-D07
INPUT_PEX6_DT1*
INPUT_PEX8_DT2*
C506 0.1UF 0402 16V 10% X7R DNI XXXV28302S C11-1042542-T04
C505 0.1UF 0402 16V 10% X7R DNI XXXV28302S C11-1042542-T04
C507 0.1UF 0402 16V 10% X7R DNI XXXV28302S C11-1042542-T04
C508 0.1UF 0402 16V 10% X7R DNI XXXV28302S C11-1042542-T04
PULLS LOW ON HOT UNPLUG
INPUT_HOT_UNPLUG_DT
R519 10K 5% 0402 DNI XXXV28302S R11-0103012-W08
Q504 1B1C1E SOT23 DNI XXXV28302S D02-2222A49-D07
INPUT_HOTPLUG*
R511 0 0402 DNI +0.05R XXXV28302S R11-0000012-W08
THERM_SHDN_RC*
STUFF TO LATCH POWER OFF ON HOTPLUG EVENT
R529 0 0402 DNI +0.05R XXXV28302S <New PN>
NVVDD_EN
STUFF FOR MOMENTARY POWER OFF ON HOTPLUG EVENT
PULLS LOW ON HOT PLUG
R509 10K 5% 0402 DNI XXXV28302S R11-0103012-W08
R515 10K 5% 0402 DNI XXXV28302S R11-0103012-W08
INPUT_HOT_PLUGIN_DT
Q502 1B1C1E SOT23 DNI XXXV28302S D02-2222A49-D07
INPUT_HOT_PLUGIN_DT*
Q503 1B1C1E SOT23 DNI XXXV28302S D02-2222A49-D07
INPUT_EN_HPD
Q506 1G1D1S SOT23 DNI XXXV28302S D03-7002E49-O05
NVVDD_EN
R520 0 0402 +0.05R DNI XXXV28302S R11-0000012-W08
INPUT_NVVDD_EN_HPD

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MS-V283

Size	Document Description	Rev
Custom	PS_ Shutdown	1.0

Date: Monday, April 23, 2012 Sheet 31 of 33

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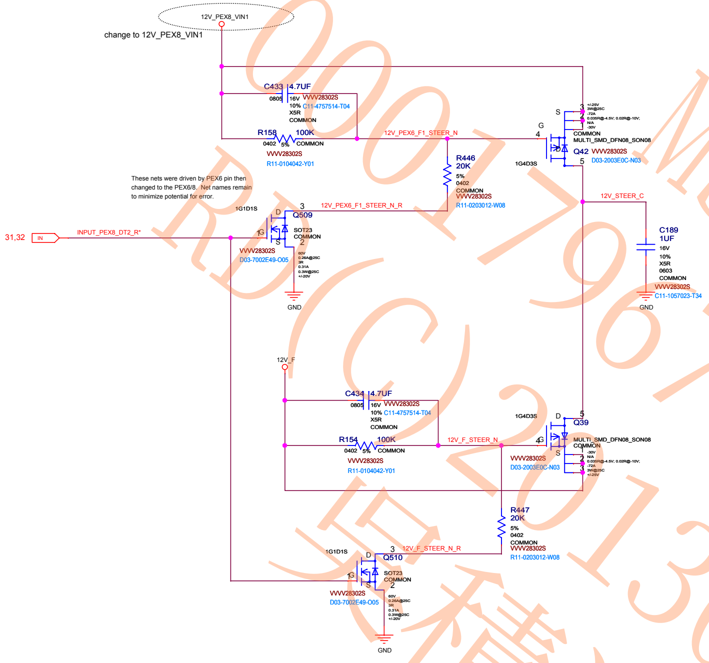
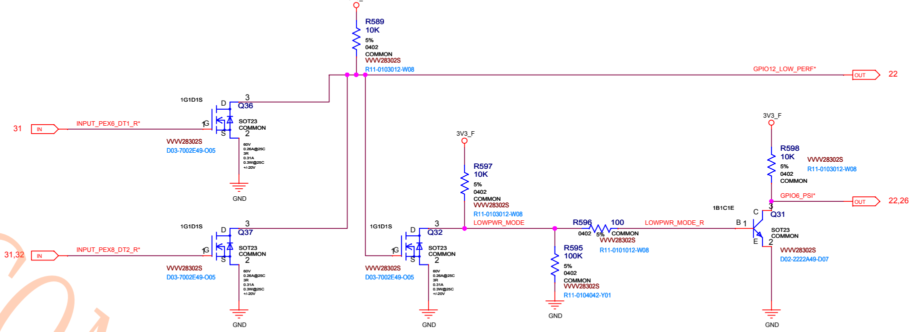
Page32: PS: 12V Current Steering, PSI Control, and LED

PEX Input - 12V Current Steering FETs


12V_PEX8_VIN1
change to 12V_PEX8_VIN1
C433 4.7UF
0805 16V 10% X5R COMMON
VVVV28302S
C11-4757514-T04
R158 100K
0402 5% COMMON
VVVV28302S
R11-0104042-Y01
12V_PEX6_F1_STEER_N
R446 20K
5% 0402 COMMON
VVVV28302S
R11-0203012-W08
Q42
MULTI_SMD_DFN08_SON08
COMMON
1G4D3S
VVVV28302S
D03-2003E0C-N03
+/-25V 3W@25C -72A 0.035R@-4.5V; 0.02R@-10V; N/A -30V
G S D
12V_STEER_C
C189 1UF
16V 10% X5R 0603 COMMON
VVVV28302S
C11-1057023-T34
GND
These nets were driven by PEX6 pin then changed to the PEX6/8. Net names remain to minimize potential for error.
31,32
IN
INPUT_PEX8_DT2_R*
12V_PEX6_F1_STEER_N_R
Q509
1G1D1S
SOT23 COMMON
VVVV28302S
D03-7002E49-O05
60V 0.26A@25C 3R 0.31A 0.3W@25C +/-20V
12V_F
C434 4.7UF
0805 16V 10% X5R COMMON
VVVV28302S
C11-4757514-T04
R154 100K
0402 5% COMMON
VVVV28302S
R11-0104042-Y01
12V_F_STEER_N
Q39
1G4D3S
MULTI_SMD_DFN08_SON08
COMMON
VVVV28302S
D03-2003E0C-N03
R447 20K
5% 0402 COMMON
VVVV28302S
R11-0203012-W08
12V_F_STEER_N_R
Q510
1G1D1S
SOT23 COMMON
VVVV28302S
D03-7002E49-O05
GND

PEX Input - Power Level/PSI* Control

GPIO12_LOW_PERF*	GPU SPEED
0	Slow
1	Normal


3V3_F
R589 10K
5% 0402 COMMON
VVVV28302S
R11-0103012-W08
GPIO12_LOW_PERF*
OUT
22
31
IN
INPUT_PEX6_DT1_R*
Q36
1G1D1S
SOT23 COMMON
VVVV28302S
D03-7002E49-O05
60V 0.26A@25C 3R 0.31A 0.3W@25C +/-20V
GND
31,32
INPUT_PEX8_DT2_R*
Q37
1G1D1S
SOT23 COMMON
VVVV28302S
D03-7002E49-O05
Q32
1G1D1S
SOT23 COMMON
VVVV28302S
D03-7002E49-O05
R597 10K
5% 0402 COMMON
VVVV28302S
R11-0103012-W08
LOWPWR_MODE
R596 100
0402 5% COMMON
VVVV28302S
R11-0101012-W08
LOWPWR_MODE_R
R595 100K
5% 0402 COMMON
VVVV28302S
R11-0104042-Y01
R598 10K
5% 0402 COMMON
VVVV28302S
R11-0103012-W08
GPIO6_PSI*
OUT
22,26
Q31
1B1C1E
SOT23 COMMON
VVVV28302S
D02-2222A49-D07
B C E
GND

GeForce Logo LED

LED HEADER
(C0MM0N)

Remove

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MS-V283

Size	Document Description	Rev
Custom	PS_ 12V Current Steering P	1.0

Date: Monday, April 23, 2012 | Sheet 32 of 33

0001796 7 MSI
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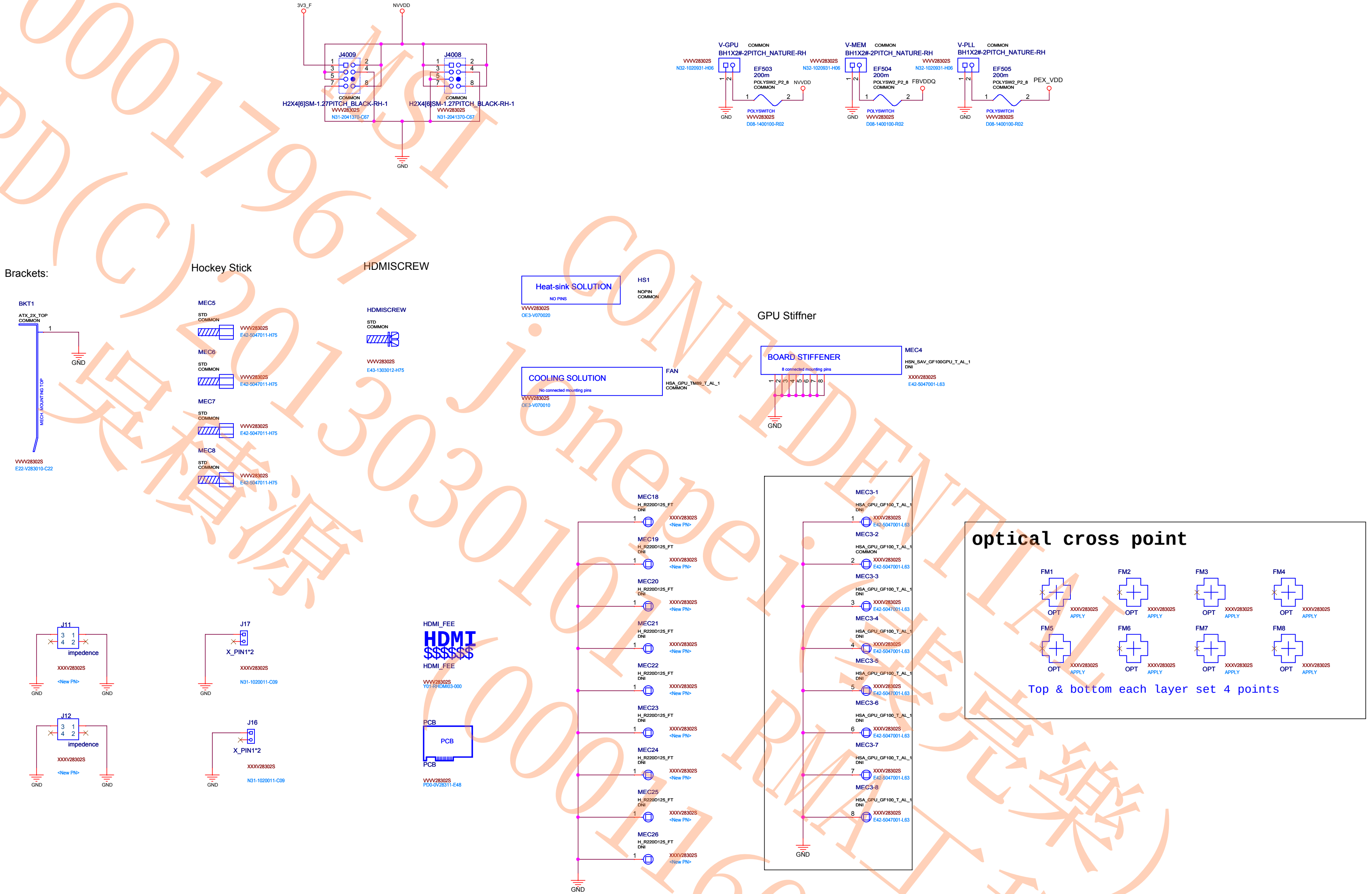
Page33: Mechanical: Bracket/Thermal Solution



3V3_F
NVVDD
J4009
J4008
COMMON
H2X4[6]SM-1.27PITCH_BLACK-RH-1
VVVV28302S
N31-2041370-C67
GND
V-GPU
V-MEM
V-PLL
BH1X2#-2PITCH_NATURE-RH
N32-1020931-H06
EF503
EF504
EF505
200m
POLYSW2_P2_8
NVVDD
FBVDDQ
PEX_VDD
POLYSWITCH
D08-1400100-R02
Brackets:
BKT1
ATX_2X_TOP
MECH_MOUNTING TOP
E22-V283010-C22
Hockey Stick
MEC5
MEC6
MEC7
MEC8
STD
E42-5047011-H75
HDMISCREW
E43-1303012-H75
Heat-sink SOLUTION
NO PINS
OE3-V070020
HS1
NOPIN
COOLING SOLUTION
No connected mounting pins
OE3-V070010
FAN
HSA_GPU_TM89_T_AL_1
GPU Stiffner
BOARD STIFFENER
8 connected mounting pins
MEC4
HSN_SAV_GF100GPU_T_AL_1
DNI
XXXV28302S
E42-5047001-L63
MEC18
MEC19
MEC20
MEC21
MEC22
MEC23
MEC24
MEC25
MEC26
H_R220D125_FT
<New PN>
MEC3-1
MEC3-2
MEC3-3
MEC3-4
MEC3-5
MEC3-6
MEC3-7
MEC3-8
HSA_GPU_GF100_T_AL_1
J11
J12
impedence
J17
J16
X_PIN1*2
N31-1020011-C09
HDMI_FEE
HDMI
$$$$$$
Y01-RHDMI03-000
PCB
PD0-0V28311-E48
optical cross point
FM1
FM2
FM3
FM4
FM5
FM6
FM7
FM8
OPT
APPLY
Top & bottom each layer set 4 points

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MS-V283

Size: Custom

Document Description: MECH_ Bracket_Thermal

Rev: 1.0

Date: Monday, April 23, 2012 Sheet 33 of 33

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