


PAGE	TITLE
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[illegible]

			
Title			
COVER SHEET			
Size	Document Number	Rev	
Custom	GA-F2A58M-HD2	3.11	
Date:	Thursday, June 19, 2014	Sheet	1 of 25

Model Name:GA-F2A58M-HD2

Component value change history

Version: 3.11
P-Code: U98126-0

[illegible]

Circuit or PCB layout change for next version

[illegible]

AMD Fusion Hudson CUSTOMER DESKTOP REFERENCE DESIGN

AMD APU

1 X16 PCIE VIDEO I/F
1 X4 PCIE I/F WITH
DX11 IGP

DDRIII 1066,1333, 1600, 1866

DDRIII 1066,1333, 1600, 1866

UNBUFFERED
DDRIII DIMM1

8

UNBUFFERED
DDRIII DIMM2

8

DDRIII FIRST LOGICAL DIMM

DVI(DPO)

27

RGB (DP1) to
VGA CON

12,17

PCIE SLOT
16X

14

PCIE X16

PCIE SLOT
1X

14

PCIE X1

4,5,6,7

PCIE X1

GIGABIT
RTL8111G

26

Fusion D2 CORE &
PCIE POWER

23,24

DDR3 MEMORY
POWER

25

FCH CORE & PCIE
POWER

24

4X
PCIE

AMDBolton D2

USB2.0
AZALIA
SATA II
LPC I/F
INT RTC
HW MONITOR
ACPI
4 1X PCIE I/F
VGA Translator I/F

HD AUDIO I/F

ALC887-VD2
HD AUDIO CODEC

19,20

SATA II I/F

SATA#0

SATA#1

SATA#2

SATA#3

12

12

12

12

PCI BUS

PCI SLOT #1

15

SPI I/F

SPI
Dual-BIOS

12

LPC BUS

SB_SPI_CS

ITE_SPI_CS1/2

ITE LPC SIO
IT8620

16

COM

17

KBD
MOUSE

16

HW
MONITOR

18

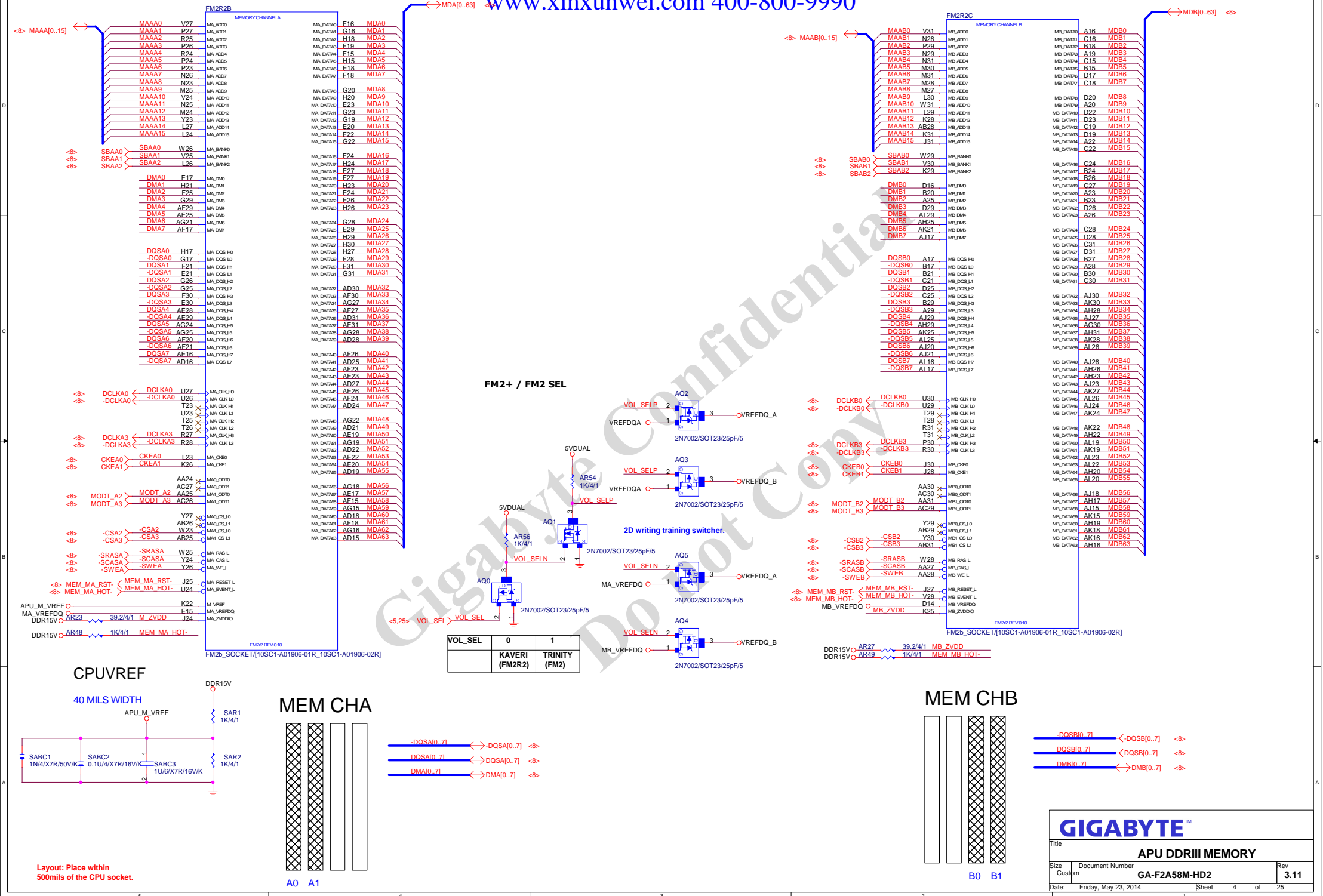
GIGABYTE™

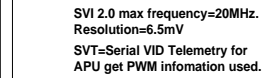
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BLOCK DIAGRAM

Size Custom Document Number
GA-F2A58M-HD2

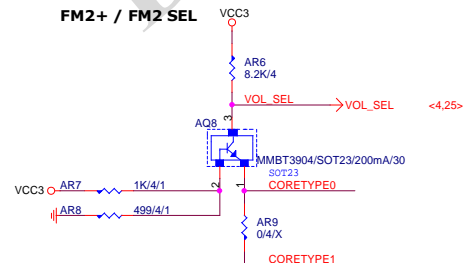
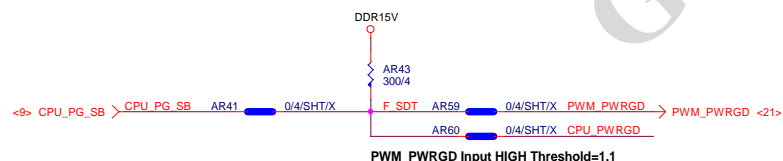
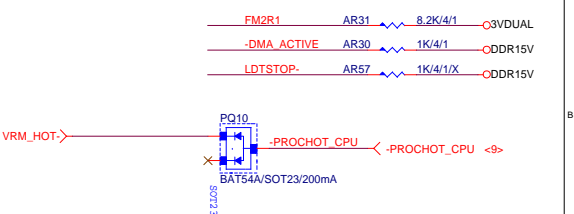
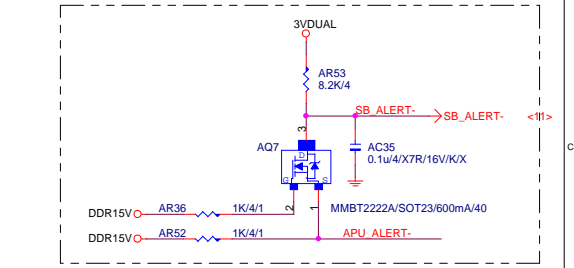
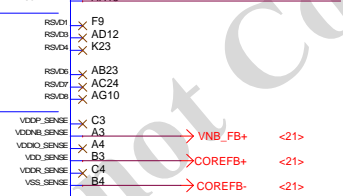
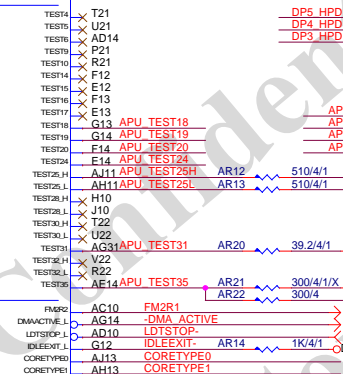
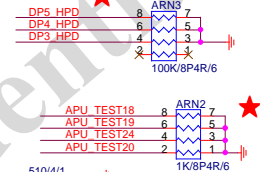
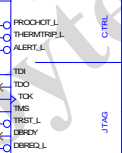
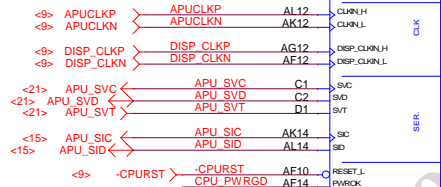
Rev
3.11

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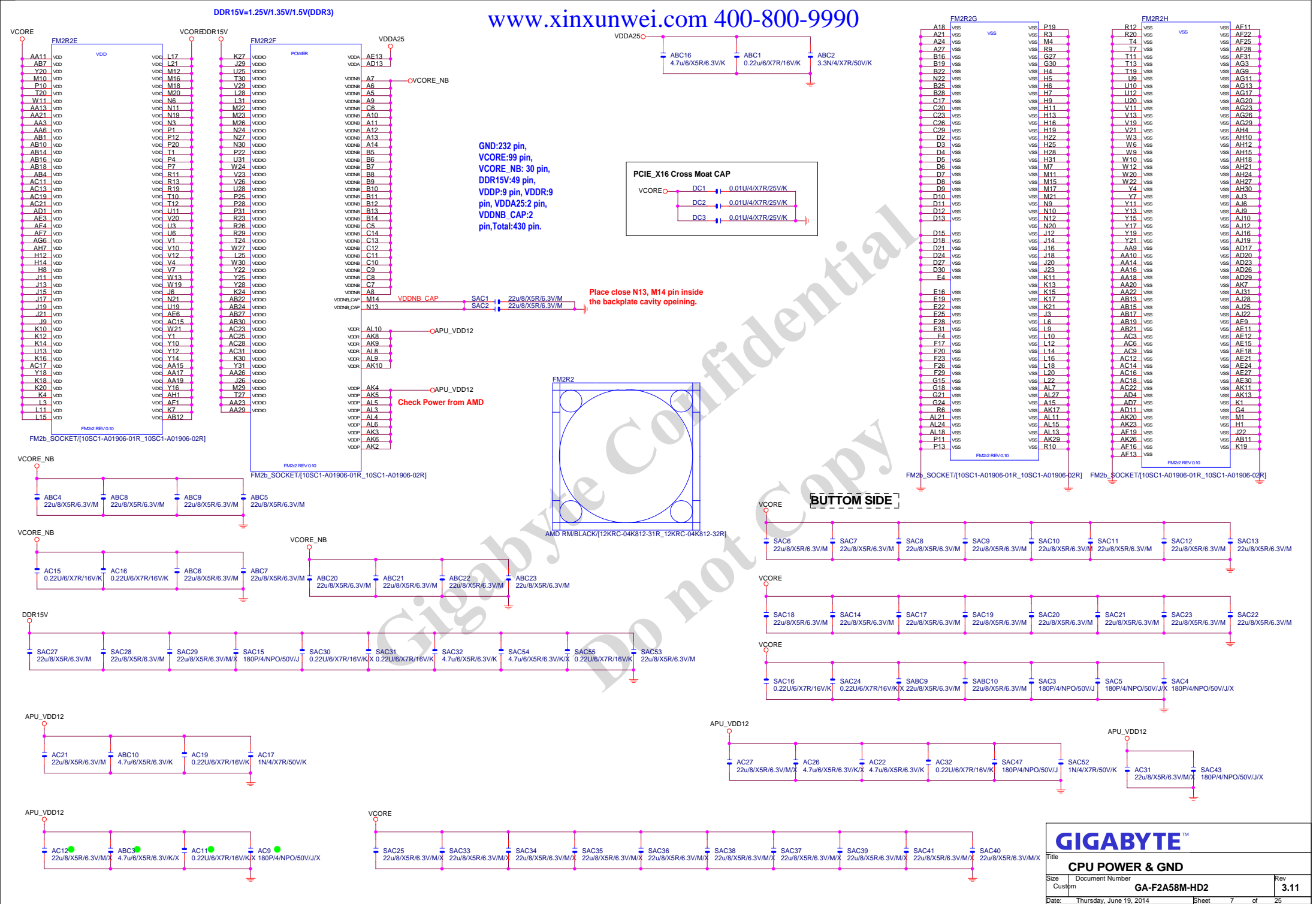


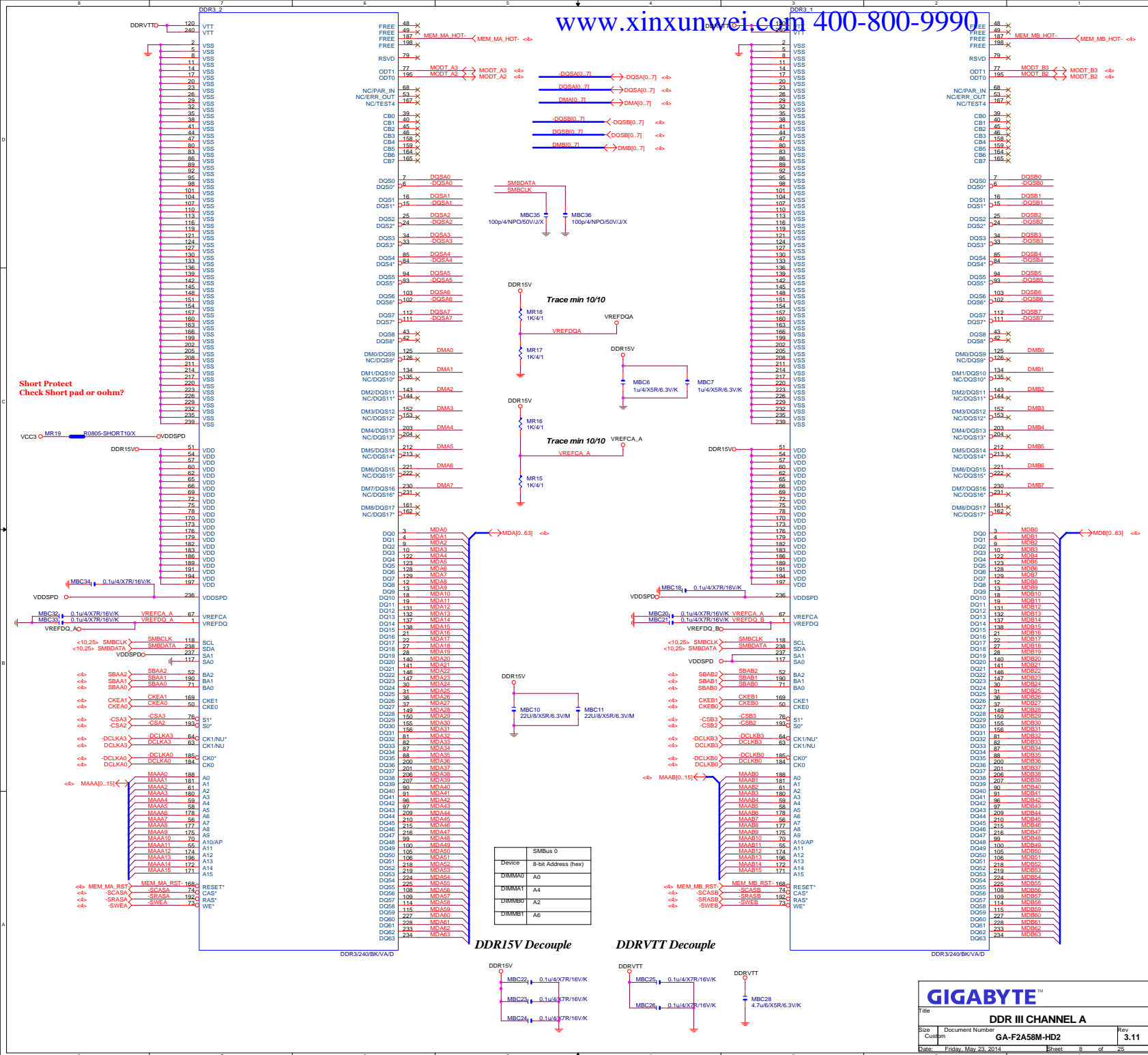
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<14>	DP0_TXP2	DP0_TXN2	L2	DP0_TSP2	
<14>	DP0_TXN2		L1	DP0_TSP2	
<14>	DP0_TXP3	DP0_TXN3	L4	DP0_TSP3	
<14>	DP0_TXN3		L5	DP0_TSP3	
<17>	DP1_TXP0	DP1_TXN0	K2	DP1_TSP0	
<17>	DP1_TXN0		K3	DP1_TXN0	
<17>	DP1_TXP1	DP1_TXN1	J2	DP1_TSP1	
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VOL_SEL	0	1
	KAVERI (FM2R2)	TRINITY (FM2)



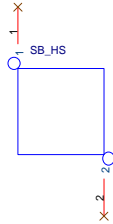






PLACE THESE PCIE AC COUPLING
CAPS CLOSE TO SB850

S.B HEATSINK



SB_HS[12SP2-SA0301-01R_12SP2-SA0301-02R_12SP2-SA0301-03R]

VCC_SB PR4 590/4/1 2K/4/1 CALRP CALRN

<5> DISP_CLKP

<5> DISP_CLKN

<5> APUCLKP

<5> APUCLKN

<13> SRCCLK_16XP

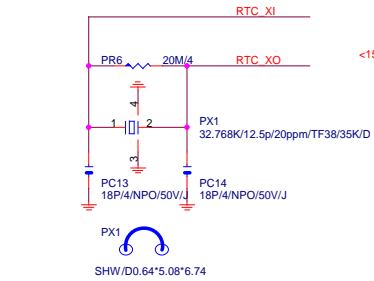
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<24> SRCCLK_LAN

<24> -SRCCLK_LAN

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<13> SRCCLK_1XN



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LPC48 PR94 22/4 LPC48 C

25MHZ_X1 C31 25ALX1

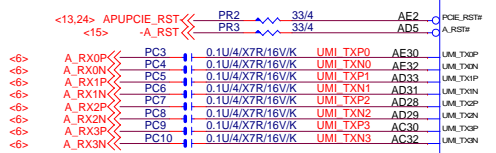
25MHZ_X2 C33 25ALX2

25M/20p/30ppm/49US/20/D

PC15 22P/4/NPO/50V/J

PC16 22P/4/NPO/50V/J

For APU PCI_E devices.



VCC_SB PR5 590/4/1 2K/4/1 CALRP CALRN

PR4

V33 GPP_TX0P

V31 GPP_TX0N

W30 GPP_TX1P

W32 GPP_TX1N

AB26 GPP_TX2P

AB27 GPP_TX2N

AA24 GPP_TX3P

AA23 GPP_TX3N

AA27 GPP_RX0P

AA26 GPP_RX0N

W27 GPP_RX1P

V27 GPP_RX1N

V26 GPP_RX2P

W26 GPP_RX2N

W24 GPP_RX3P

W23 GPP_RX3N

G30 POE_RX0P

G28 POE_RX0N

R26 DISP_CLKP

T26 DISP_CLKN

H33 DISP2_CLKP

H31 DISP2_CLKN

T24 APU_CLKP

T23 APU_CLKN

I30 SLT_GFX_CLKP

K29 SLT_GFX_CLKN

H27 GPP_CLKP

H28 GPP_CLKN

J27 GPP_CLKP

K26 GPP_CLKN

F33 GPP_CLKP

F31 GPP_CLKN

E33 GPP_CLKP

E31 GPP_CLKN

M23 GPP_CLKP

M24 GPP_CLKN

M27 GPP_CLKP

M26 GPP_CLKN

N25 GPP_CLKP

N26 GPP_CLKN

R23 GPP_CLKP

R24 GPP_CLKN

N27 GPP_CLKP

R27 GPP_CLKN

14M_25M/49M/COC

J26

25ALX1

25ALX2

25M/20p/30ppm/49US/20/D

PC15 22P/4/NPO/50V/J

PC16 22P/4/NPO/50V/J

218-0755099[S10HB1-060BT2-10R]

www.xinxunwei.com 400-800-9990

HUDSON2

Part 1 of 5

PCI CLKs

PCI EXPRESS INTERFACES

PCI INTERFACE

CLOCK GENERATOR

APU

RE PLUS

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

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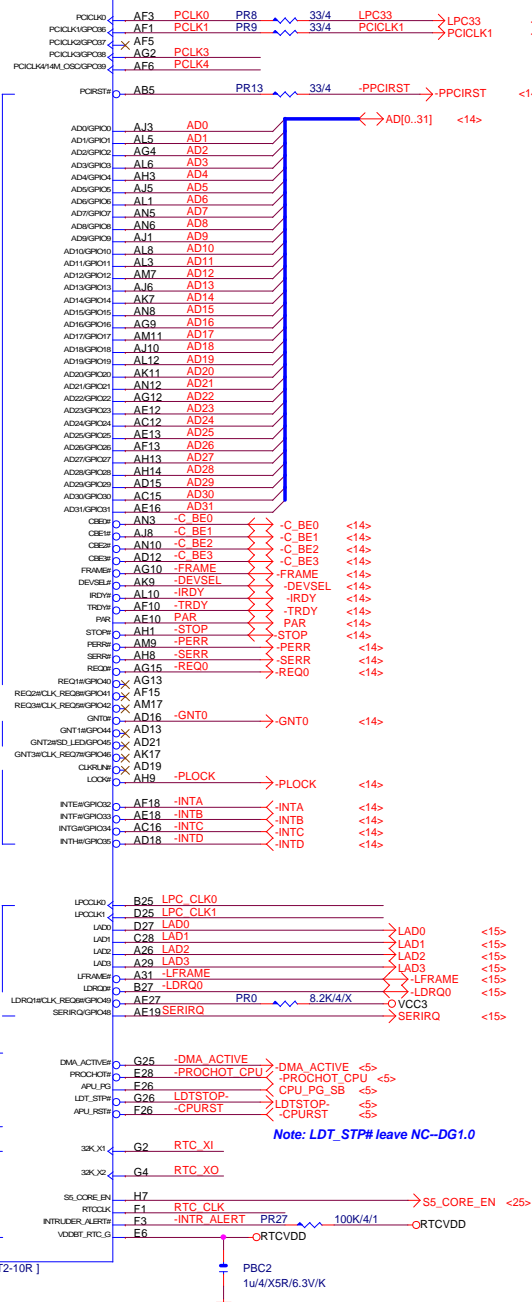
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218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]



Note: LDT_STP# leave NC-DG1.0

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

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218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

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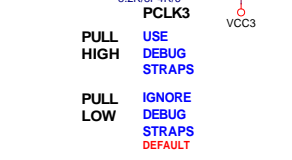
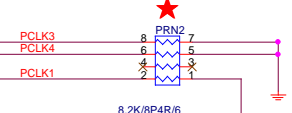
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218-0755099[S10HB1-060BT2-10R]

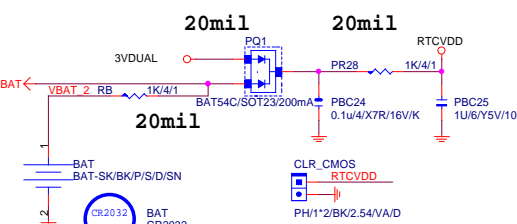
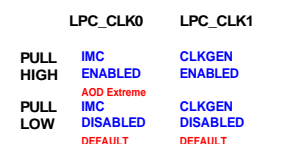
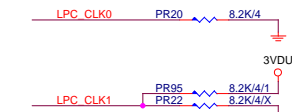
218-0755099[S10HB1-060BT2-10R]

218-0755099[S10HB1-060BT2-10R]

Low: Force PCIE GEN1, Up: Allow PCIE GEN2



CLKGEN Mode: Only for integrated clock mode.



CLR_CMOS	
SHORT	CLEAR CMOS
OPEN	NORMAL

NOT ADD ICT FOR RTCVDD PIN

GIGABYTE™

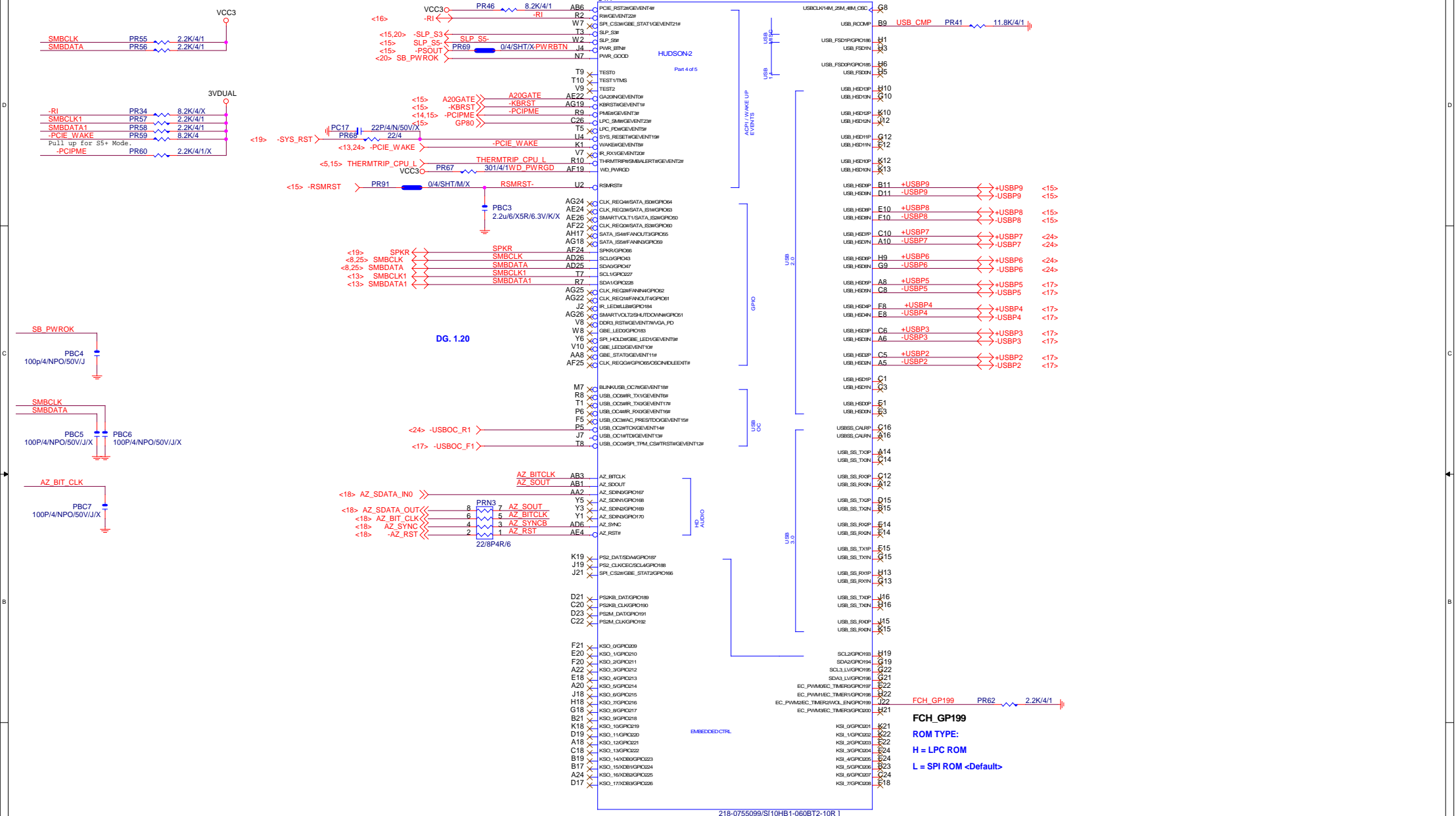
Hudson D3 PCIE/PCI/CPU/LPC

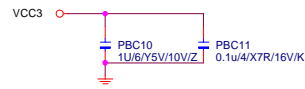
GA-F2A58M-HD2

3.11

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SP TX0P C AK19 SATA_TX0P
SP TX0M C AM19 SATA_TX0N
SP RX0M C AL20 SATA_RX0N
SP RX0P C AN20 SATA_RX0P
SP TX1P C AN22 SATA_TX1P
SP TX1M C AL22 SATA_TX1N
SP RX1M C AH20 SATA_RX1N
SP RX1P C AJ20 SATA_RX1P
SP TX2P C AJ22 SATA_TX2P
SP TX2M C AH22 SATA_TX2N
SP RX2M C AM23 SATA_RX2N
SP RX2P C AK23 SATA_RX2P
SP TX3P C AH24 SATA_TX3P
SP TX3M C AJ24 SATA_TX3N
SP RX3M C AN24 SATA_RX3N
SP RX3P C AL24 SATA_RX3P

SATA 6-7 for Hudson D4.

PLACE SATA_CAL RES VERY CLOSE TO BALL OF U1

VCC_SB0 PR75 1K/4/1 SATA_CALRP AF28 SATA_CALRP
PR74 931/4/1 SATA_CALRN AF27 SATA_CALRN

<19> -SATA_LED -SATA_LED AD22 SATA_ACT#GPI067

AF21 SATA_X1

AG21 SATA_X2

AH16 FANOUT1GPI062
AM15 FANOUT1GPI063
AJ16 FANOUT2GPI064
AK15 FANING1GPI066
AN16 FANIN1GPI067
AL16 FANIN2GPI068
K6 TEMPIN1GPI071
K5 TEMPIN1GPI072
K3 TEMPIN2GPI073
M6 TEMPIN3ALERT1GPI074

<5> SB_ALERT-

HUDSON-2

Part 2 of 5

SD_CLK0GPI075 AL14
SD_CLK0GPI076 AN14
SD_CLK0GPI077 AH12
SD_CLK0GPI078 AH12
SD_DATA0SDAT12GPI077 AK13
SD_DATA0SDAT12GPI078 AM13
SD_DATA0SDAT12GPI079 AH15
SD_DATA0SDAT12GPI080 AJ14

RGMI NOT SUPPORT. DG:1.20

GBE_COL AD3
GBE_ROW AD9
GBE_N0CK AD9
GBE_M0CK W10
GBE_P0CK AB8
GBE_P0CK AH7
GBE_P0CK AF7
GBE_P0CK AE7
GBE_P0CK AD7
GBE_P0CK AG8
GBE_P0CK AD1
GBE_P0CK AB7
GBE_P0CK AF9
GBE_P0CK AG6
GBE_P0CK AE8
GBE_P0CK AD8
GBE_P0CK AB9
GBE_P0CK AC2
GBE_P0CK AA7
GBE_P0CK AA7
GBE_P0CK AA7

GBE_INTR PR43 8.2K/4

SPL_DGPI084 V6 SB_SPI_DI_R PRN0 7 SB_SPI_DI
SPL_DGPI085 V5 SB_SPI_DO_R PRN0 5 SB_SPI_DO
SPL_CLKGPI086 V3 SB_SPI_CLK_R PRN0 4 SB_SPI_CLK
SPL_CS1GPI086 T6 SB_SPI_CS- PRN0 1 SB_SPI_CS_ITE

ROM_RST#SPL_VWPGPI081 V1 22/8P4R/6

VGA_RED L30 PR44 150/4/1 DAC_RED <16>

VGA_GREEN L32 PR12 150/4/1 DAC_GREEN <16>

VGA_BLUE M29 PR10 150/4/1 DAC_BLUE <16>

VGA_HSYNGGPI089 M28 DAC_HSYNG DAC_HSYNG <16>

VGA_VSYNGGPI089 N30 DAC_VSYNG DAC_VSYNG <16>

VGA_DDC_SDVGPI090 M33 DDCDATA DDCDATA <16>

VGA_DDC_SQVGPI091 N32 DDCCLK DDCCLK <16>

VGA_DAC_RSET K31 DAC_RSET PR87 715/4/1

AUX_VGA_CH1P V28 VGA_CH1P PC11 0.1U/4X7R/16V/K DP1_AUXP <5>

AUX_VGA_CH1N V29 VGA_CH1N PC12 0.1U/4X7R/16V/K DP1_AUXN <5>

AUX_CAL U28 AUX_CAL PR99 100/4/1 VCC_SB

ML_VGA_L1P T31 SW_VGA_TXD0+ HC19 0.1U/4X7R/16V/K DP1_TXP0 <5>

ML_VGA_L1N T33 SW_VGA_TXD0- HC20 0.1U/4X7R/16V/K DP1_TXN0 <5>

ML_VGA_L1P T29 SW_VGA_TXD1+ HC15 0.1U/4X7R/16V/K DP1_TXP1 <5>

ML_VGA_L1N T28 SW_VGA_TXD1- HC16 0.1U/4X7R/16V/K DP1_TXN1 <5>

ML_VGA_L1P R32 SW_VGA_TXD2+ HC17 0.1U/4X7R/16V/K DP1_TXP2 <5>

ML_VGA_L1N R30 SW_VGA_TXD2- HC18 0.1U/4X7R/16V/K DP1_TXN2 <5>

ML_VGA_L1P P29 SW_VGA_TXD3+ HC21 0.1U/4X7R/16V/K DP1_TXP3 <5>

ML_VGA_L1N P28 SW_VGA_TXD3- HC22 0.1U/4X7R/16V/K DP1_TXN3 <5>

ML_VGA_HPDPGPI092 C29 VGA_HPD

VIN1GPI075 N2

VIN1GPI076 M3

VIN2SDAT11GPI077 L2

VIN2SDAT11GPI078 N4

VIN2SDAT11GPI079 P1

VIN2SDAT11GPI080 P3

VIN2SDAT11GPI081 M1

VIN2SDAT11GPI082 M5

NC1 AG16

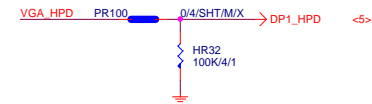
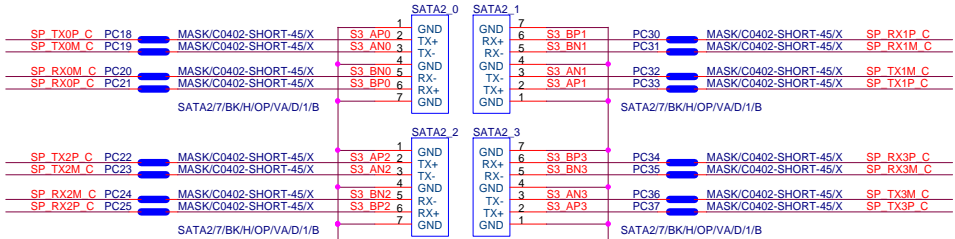
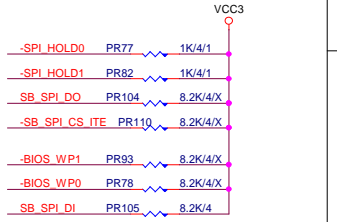
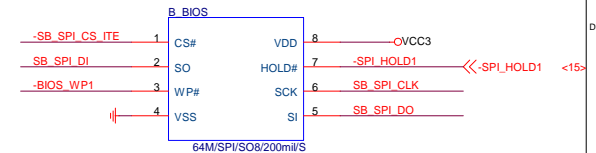
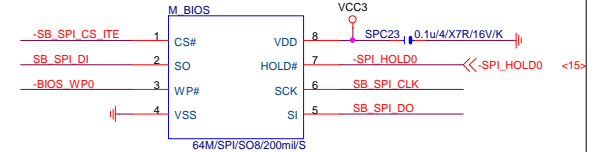
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NC3 A28

NC4 G27

NC5 L4

218-0755099[S10HB1-060BT2-10R]

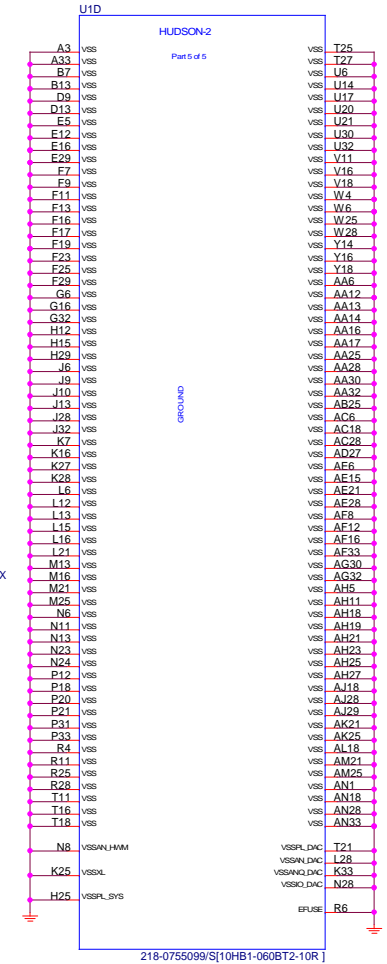
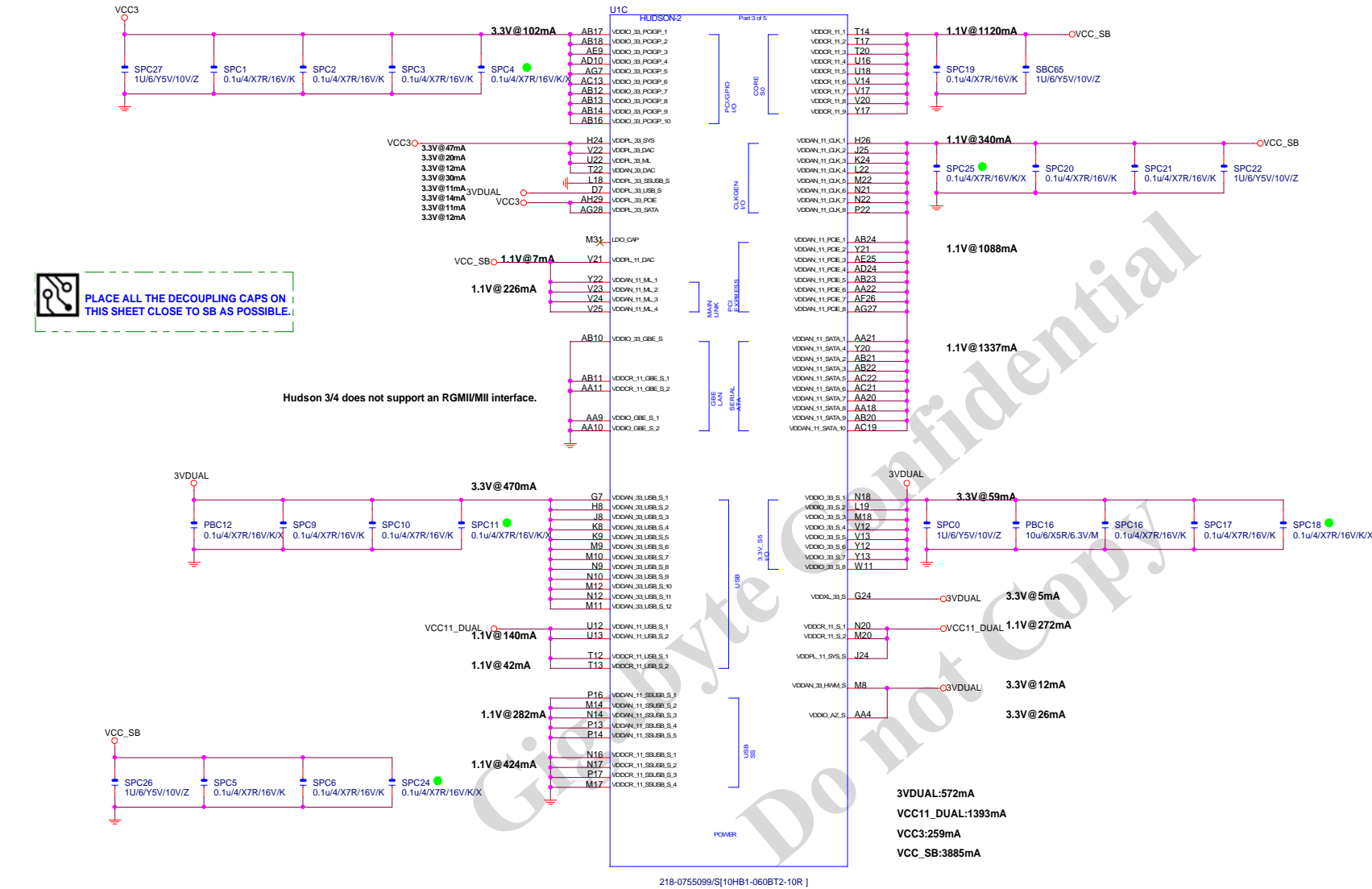


GIGABYTE™			
Title			
Hudson D3 SATA/HWM/SPI			
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PLACE ALL THE DECOUPLING CAPS ON THIS SHEET CLOSE TO SB AS POSSIBLE.

Hudson 3/4 does not support an RGMII/MII interface.

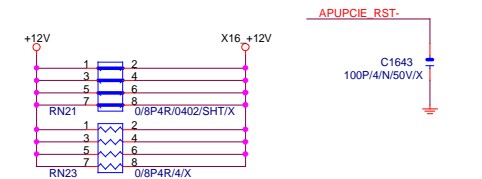
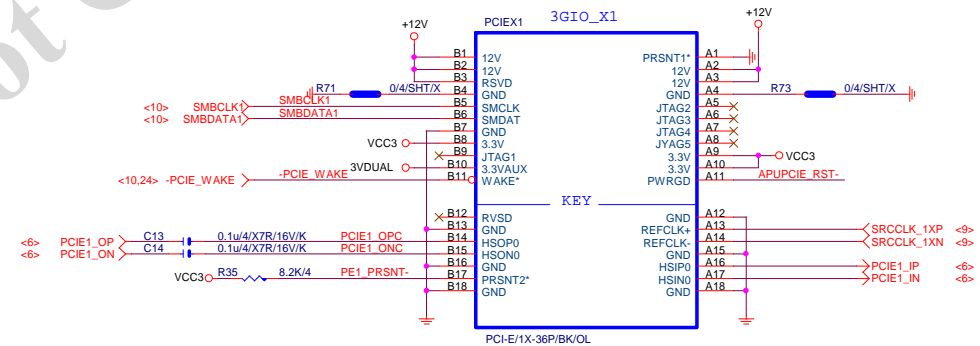
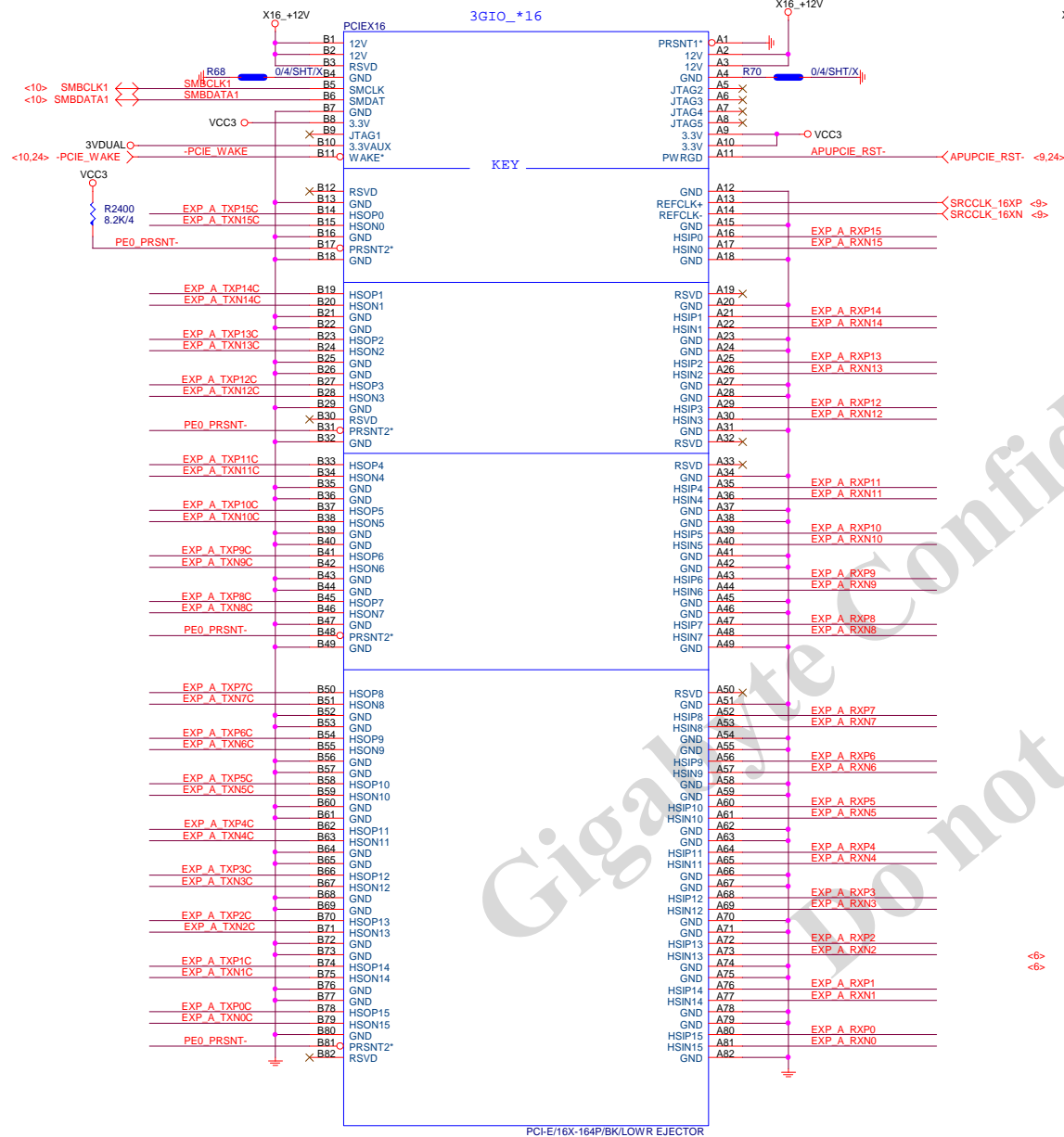


GIGABYTE

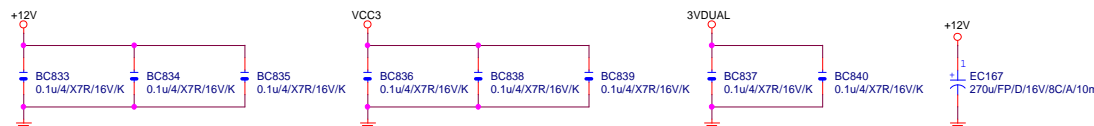
Title **ATI HUDSON PWR & GND**

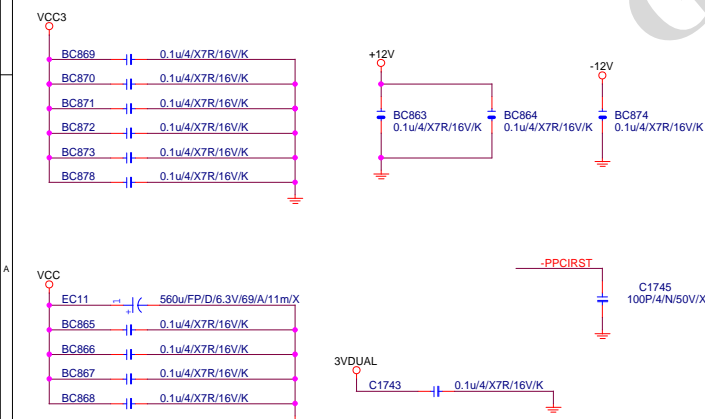
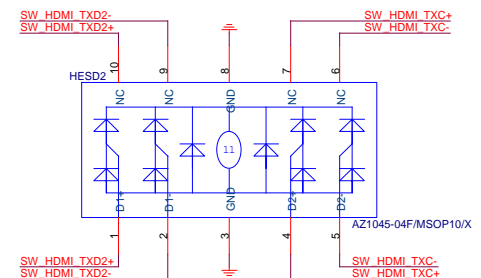
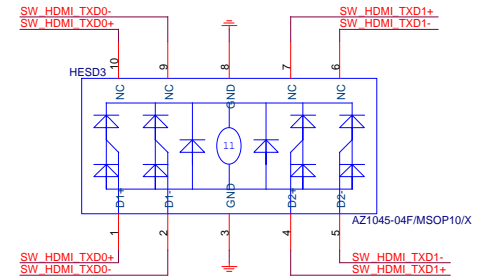
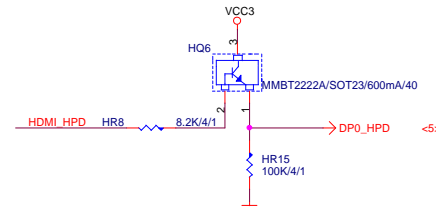
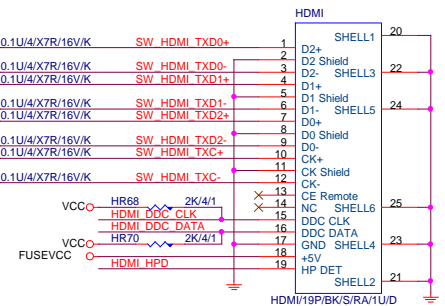
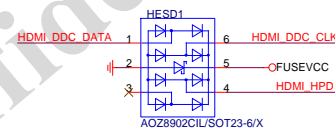
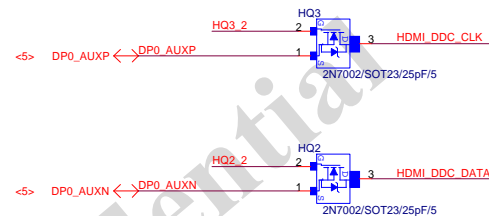
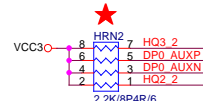
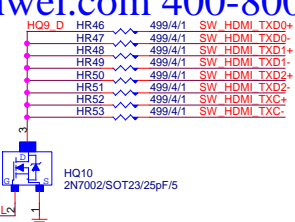
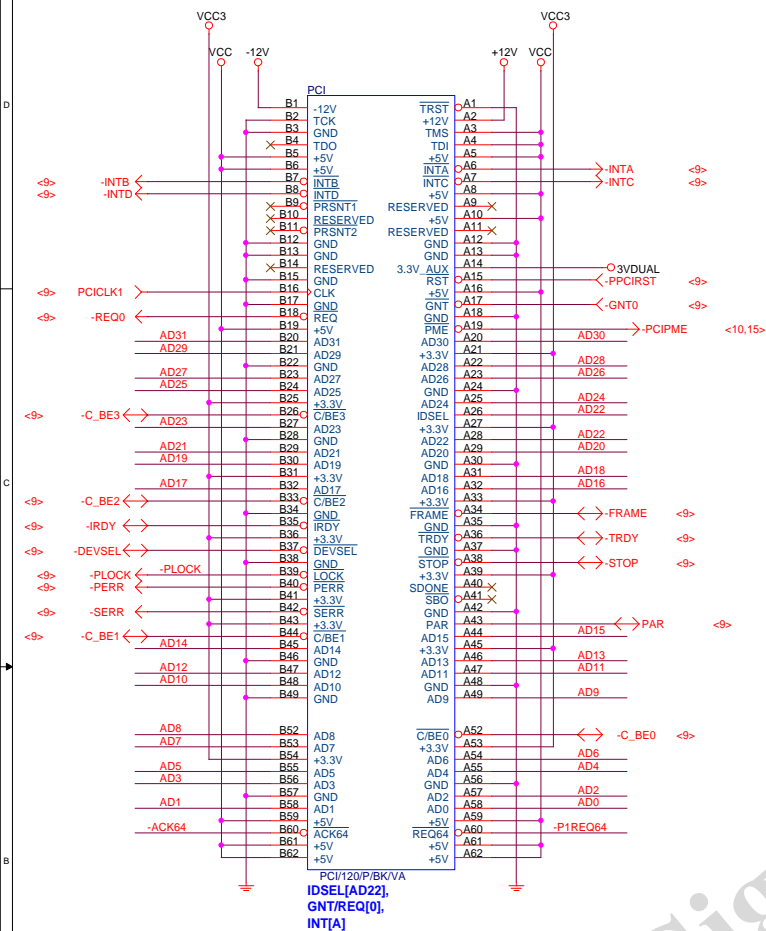
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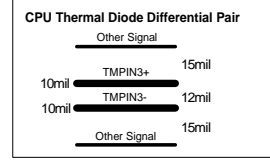
Date: **Thursday, June 19, 2014** Sheet **12** of **25**



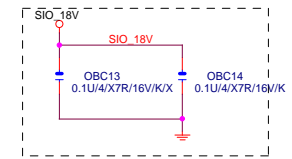
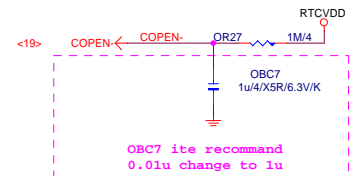
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EXP A TXP1	C1646	0.22U/4/X5R/6.3V/KEXP A TXP1C
EXP A TXN1	C1647	0.22U/4/X5R/6.3V/KEXP A TXN1C
EXP A TXP2	C1648	0.22U/4/X5R/6.3V/KEXP A TXP2C
EXP A TXN2	C1649	0.22U/4/X5R/6.3V/KEXP A TXN2C
EXP A TXP3	C1650	0.22U/4/X5R/6.3V/KEXP A TXP3C
EXP A TXN3	C1651	0.22U/4/X5R/6.3V/KEXP A TXN3C
EXP A TXP4	C1652	0.22U/4/X5R/6.3V/KEXP A TXP4C
EXP A TXN4	C1653	0.22U/4/X5R/6.3V/KEXP A TXN4C
EXP A TXP5	C1654	0.22U/4/X5R/6.3V/KEXP A TXP5C
EXP A TXN5	C1655	0.22U/4/X5R/6.3V/KEXP A TXN5C
EXP A TXP6	C1656	0.22U/4/X5R/6.3V/KEXP A TXP6C
EXP A TXN6	C1657	0.22U/4/X5R/6.3V/KEXP A TXN6C
EXP A TXP7	C1658	0.22U/4/X5R/6.3V/KEXP A TXP7C
EXP A TXN7	C1659	0.22U/4/X5R/6.3V/KEXP A TXN7C
EXP A TXP8	C1660	0.22U/4/X5R/6.3V/KEXP A TXP8C
EXP A TXN8	C1661	0.22U/4/X5R/6.3V/KEXP A TXN8C
EXP A TXP9	C1662	0.22U/4/X5R/6.3V/KEXP A TXP9C
EXP A TXN9	C1663	0.22U/4/X5R/6.3V/KEXP A TXN9C
EXP A TXP10	C1664	0.22U/4/X5R/6.3V/KEXP A TXP10C
EXP A TXN10	C1665	0.22U/4/X5R/6.3V/KEXP A TXN10C
EXP A TXP11	C1666	0.22U/4/X5R/6.3V/KEXP A TXP11C
EXP A TXN11	C1667	0.22U/4/X5R/6.3V/KEXP A TXN11C
EXP A TXP12	C1668	0.22U/4/X5R/6.3V/KEXP A TXP12C
EXP A TXN12	C1669	0.22U/4/X5R/6.3V/KEXP A TXN12C
EXP A TXP13	C1670	0.22U/4/X5R/6.3V/KEXP A TXP13C
EXP A TXN13	C1671	0.22U/4/X5R/6.3V/KEXP A TXN13C
EXP A TXP14	C1672	0.22U/4/X5R/6.3V/KEXP A TXP14C
EXP A TXN14	C1673	0.22U/4/X5R/6.3V/KEXP A TXN14C
EXP A TXP15	C1674	0.22U/4/X5R/6.3V/KEXP A TXP15C
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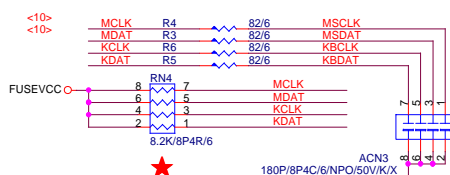
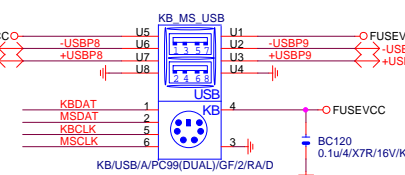
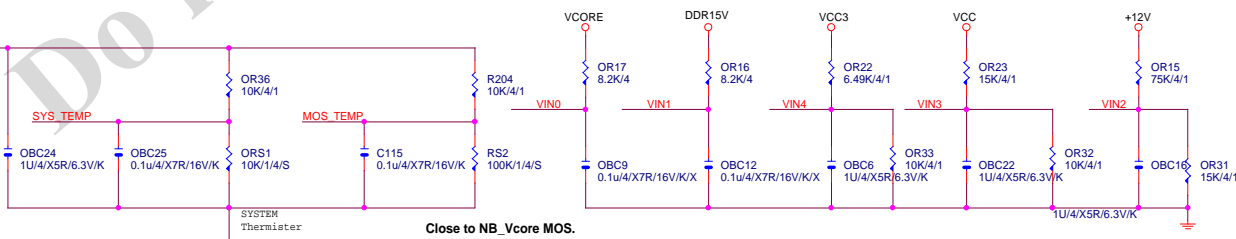



For IT8721 Power leakag

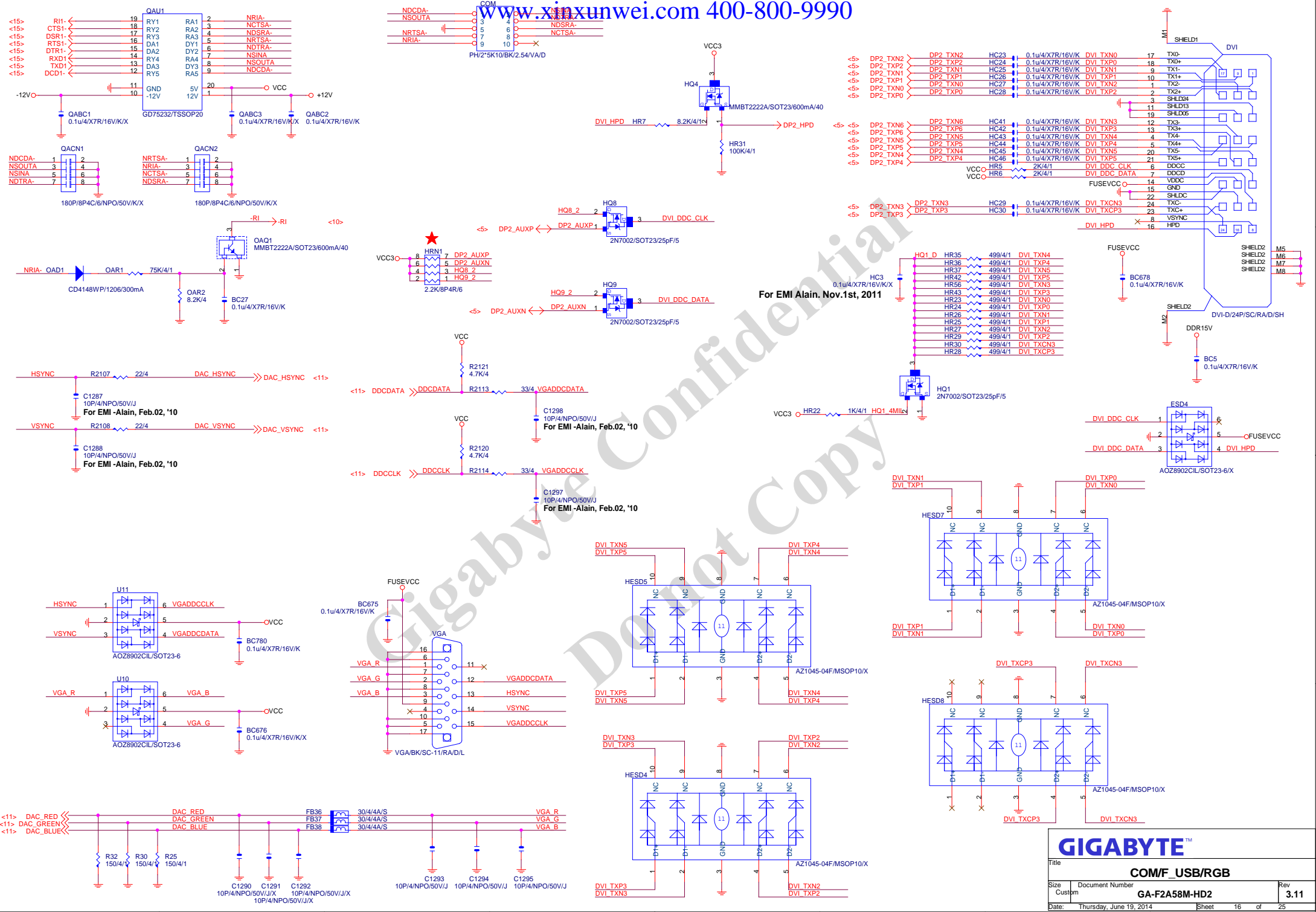


OBC13=>0.1U confirm by Tom

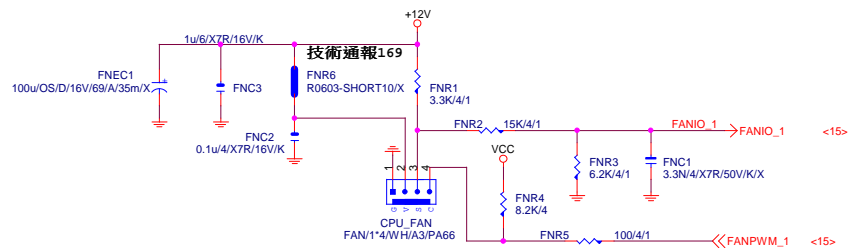
Hardware Monitor circuits



			
Title			
ITE 8728 LPC IO, TPM			
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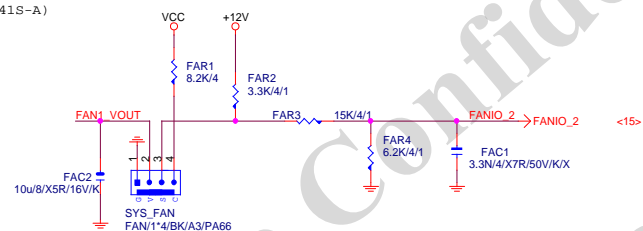
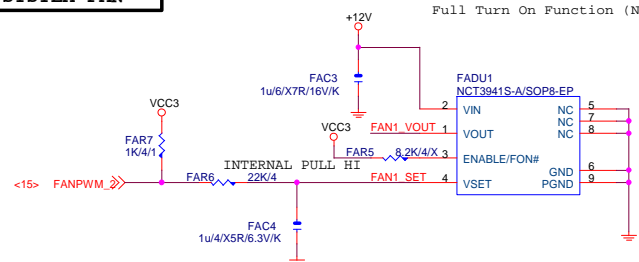
CPU FAN



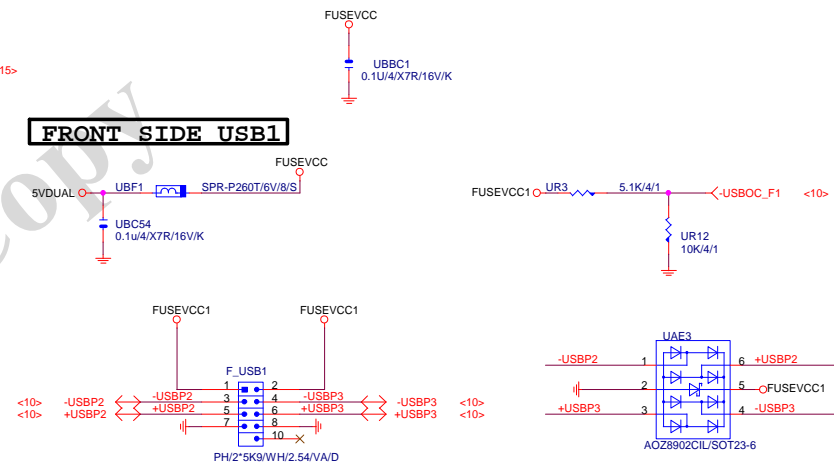
SYSTEM FAN

Linear SYS_FAN

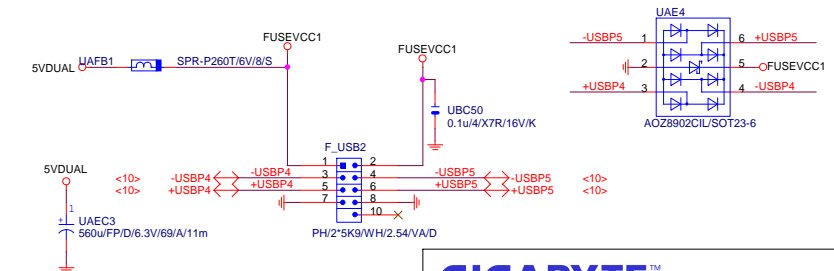
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)



FRONT SIDE USB1



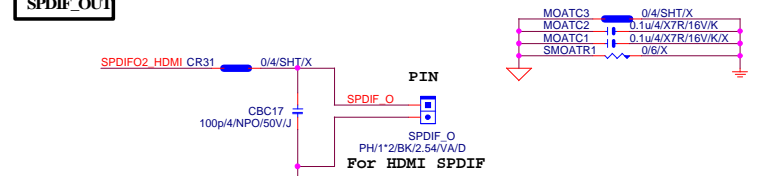
FRONT SIDE USB2



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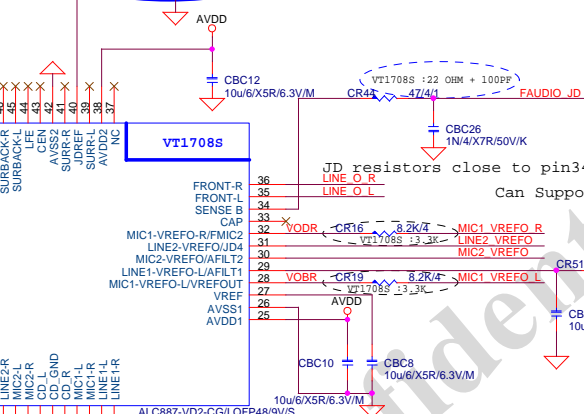
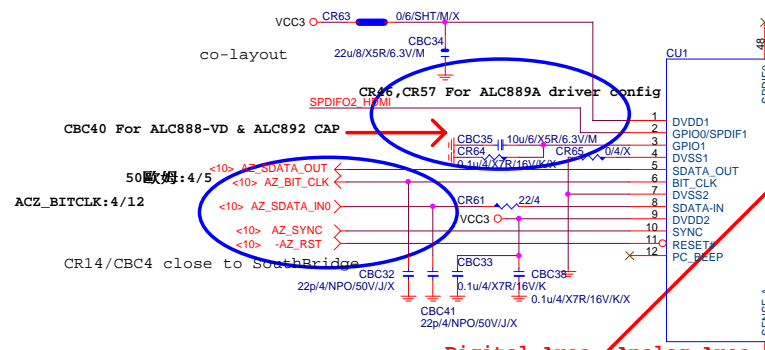
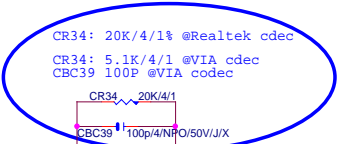
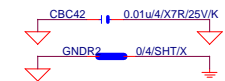
Title			
FAN , HWMO , R_USB			
Size	Document Number	Rev	
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SPDIF OUT

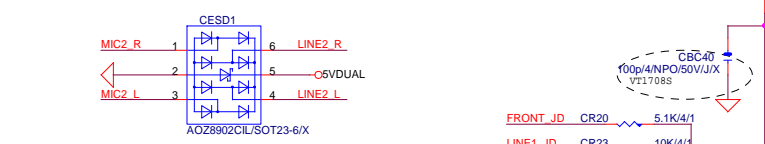
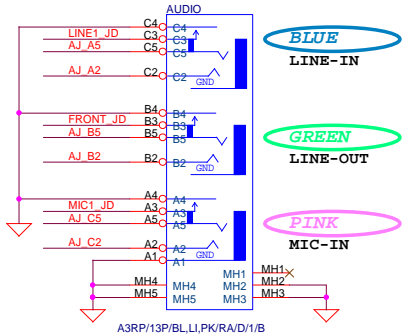


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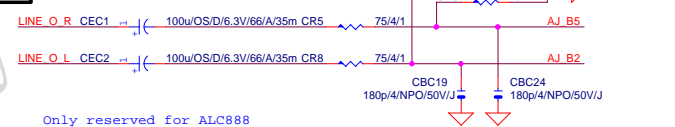
CODEC POWER/EMI PAD



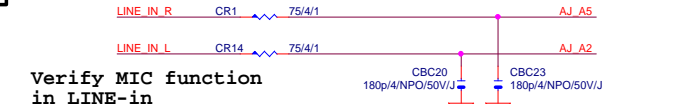
ADD CD2 For ESD PROTECT DIODE



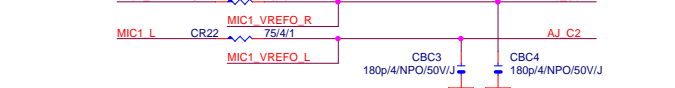
LINE-OUT



LINE-IN



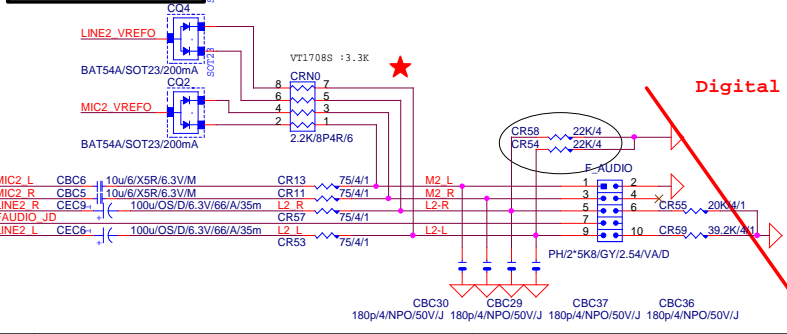
MIC-IN



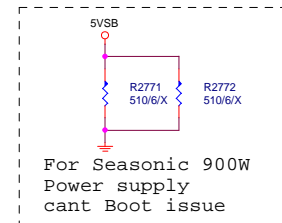
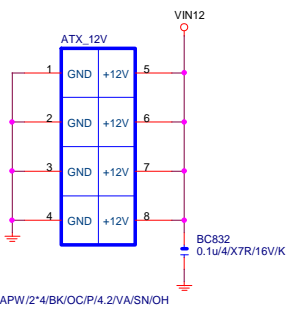
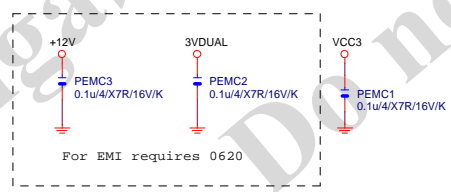
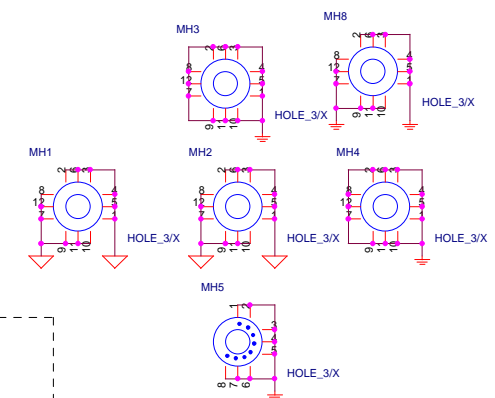
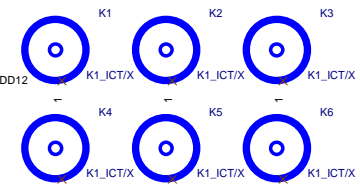
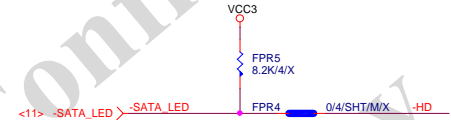
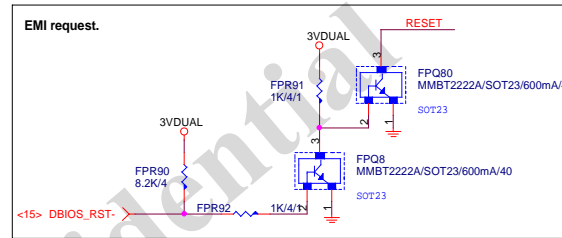
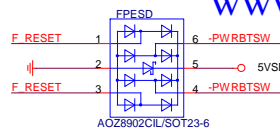
AZALIA CODEC ALC887-VD2/ALC889/VT1708S/VT1708SCE Colay

	ALC887-VD2	ALC889	VT1708S	VT1708SCE
CR65	X	O	O	X
CR64	X	X	X	O
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR34	20K/1%	20K/1%	5.1K/1%	20K/1%
CR31	O	O	O	O
CR30	X	X	X	X
CBC1/CBC2	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R
CR20	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CBC35	O	X	X	O
CBC39/CBC40	N/A	N/A	100P/4	100P/4
CR6/CR7/CR54/CR58	22K/4	22K/4	10K/4	10K/4
CR5/CR8/CR13/CR11/CR57/CR53	75 ohm	62 ohm	75 ohm	75 ohm
CR51/CD1/CBC7	O	X	X	O
CD2/CD3/CQ3/CQ5	X	O	O	X
CR1/CR14/CR17/CR22	75 ohm	62 ohm	1K ohm	1K ohm

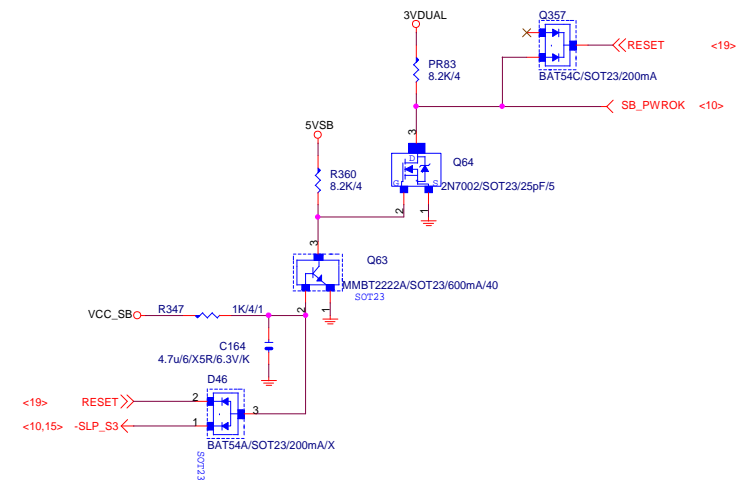
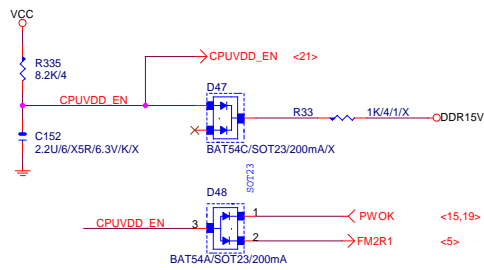
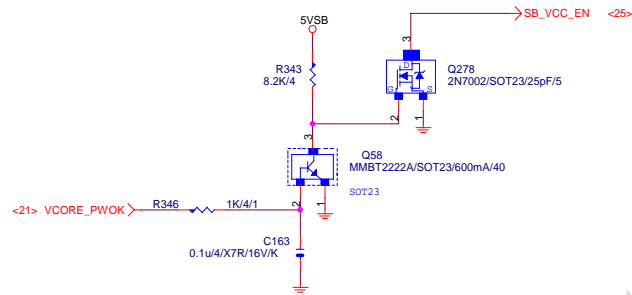
AZALIA FRONT PANEL



GIGABYTE		
HD AUDIO ALC887-VD2		
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Do not Copy

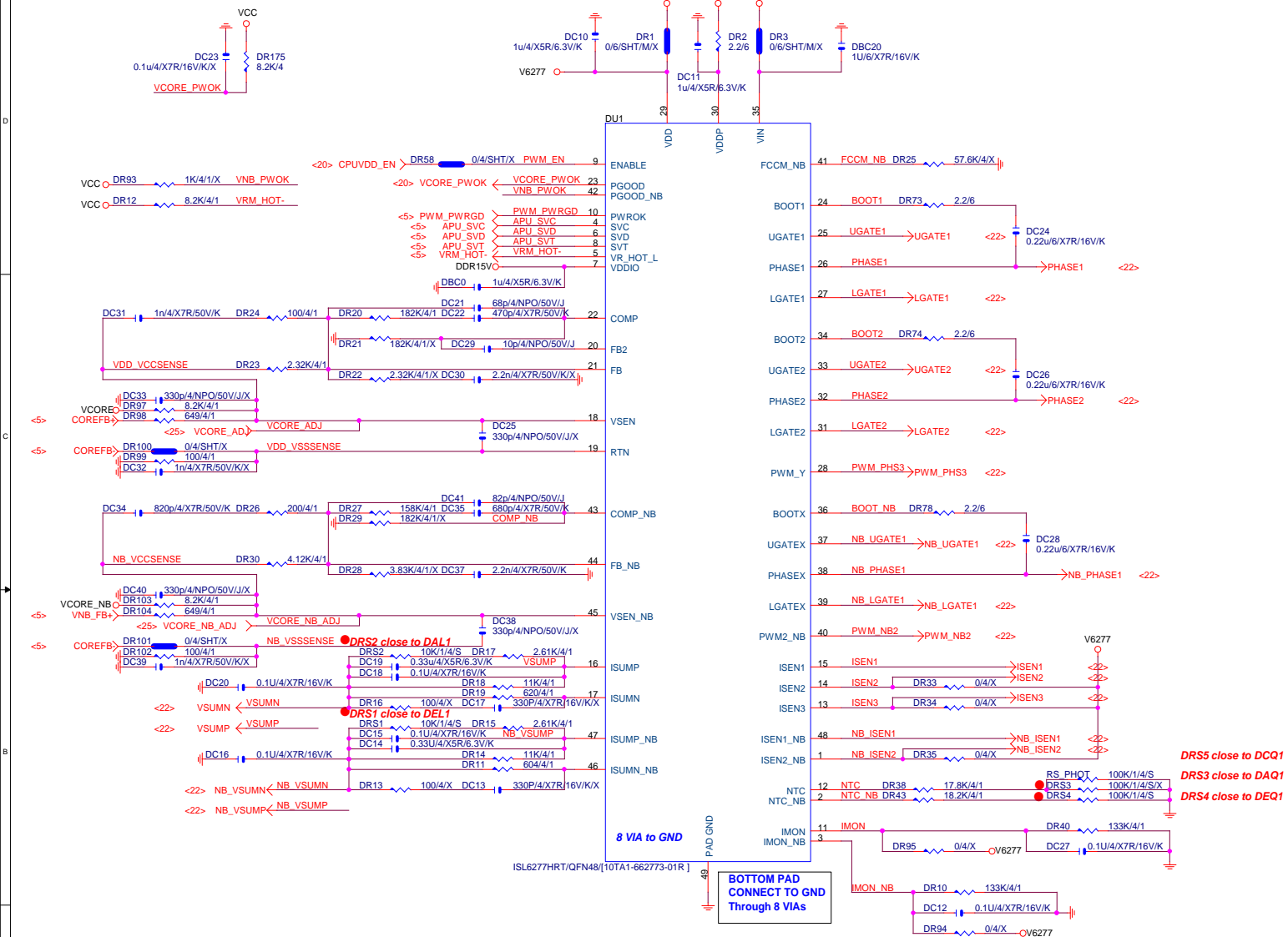


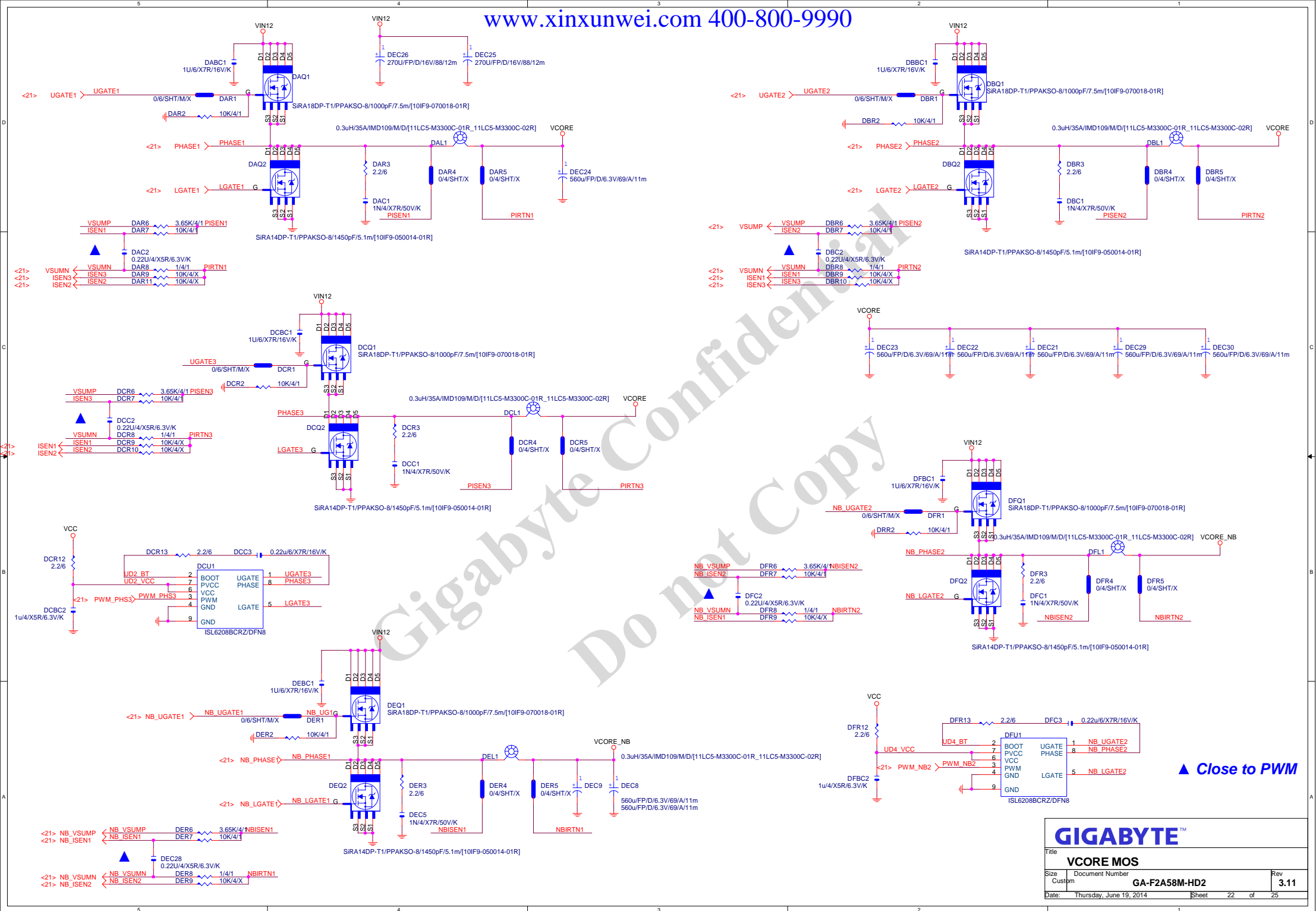
GIGABYTE

Title **POWER SEQUENCE**

Size Document Number **GA-F2A58M-HD2** Rev **3.11**

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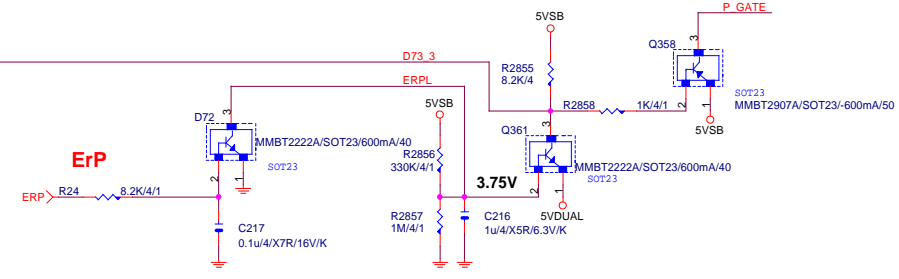
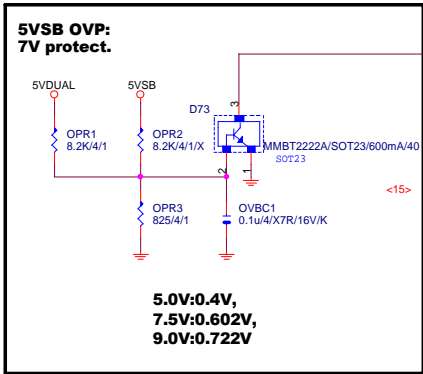
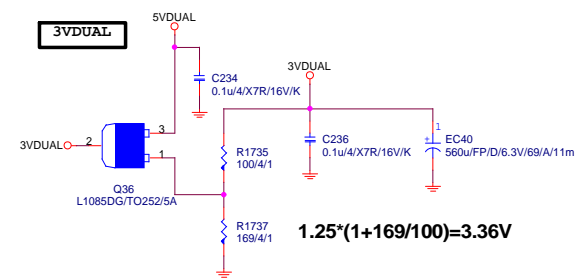
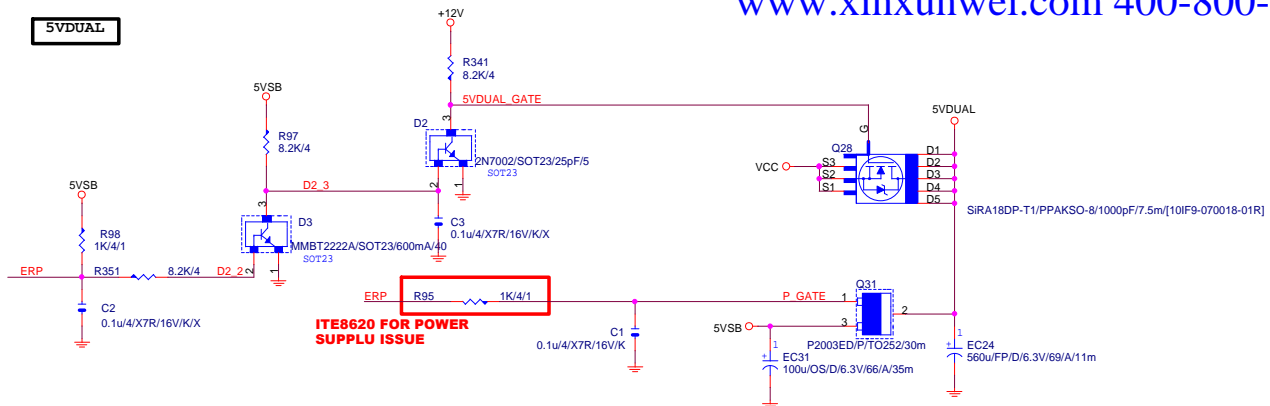




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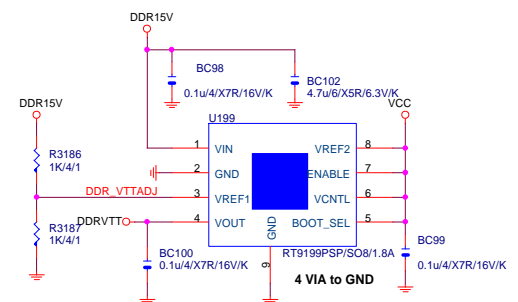
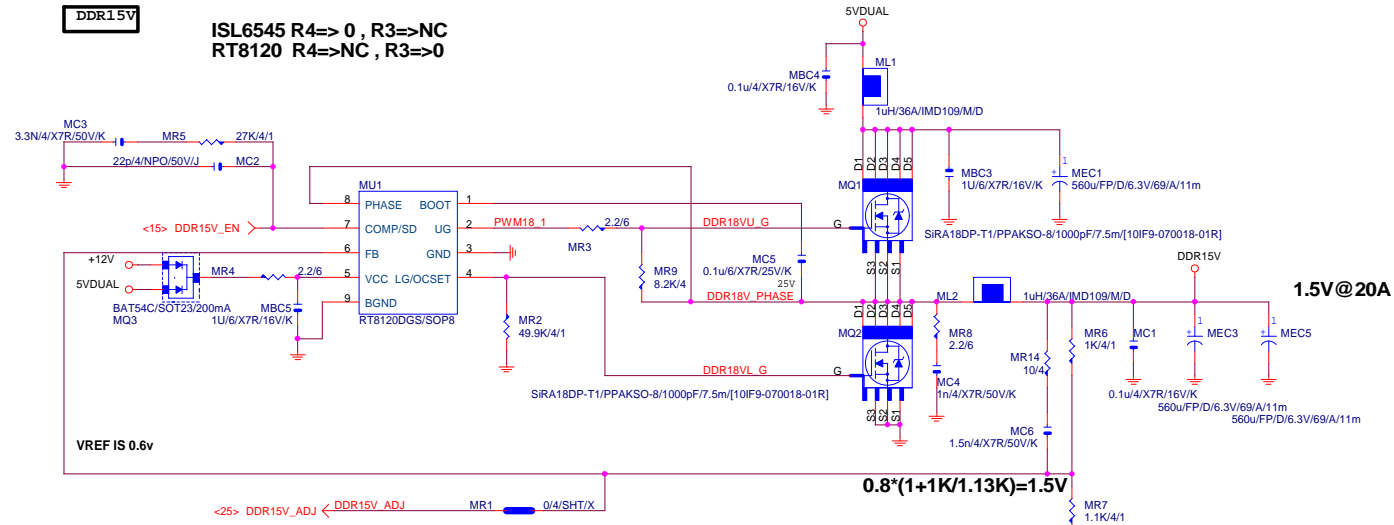
Title
Vcore MOSSize
Custom Document Number
GA-F2A58M-HD2Rev
3.11

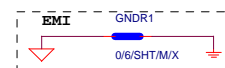
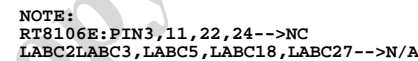
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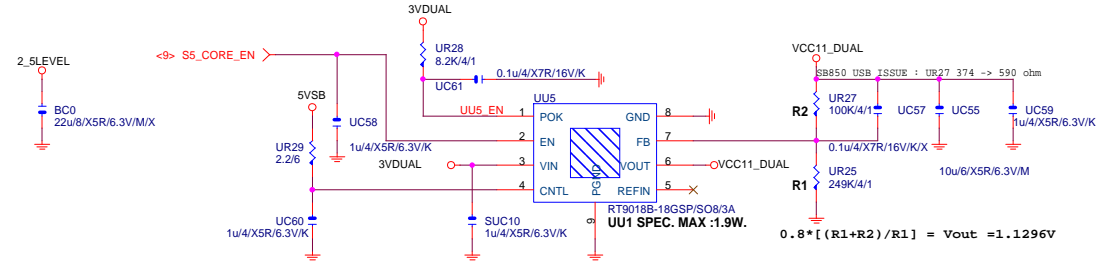
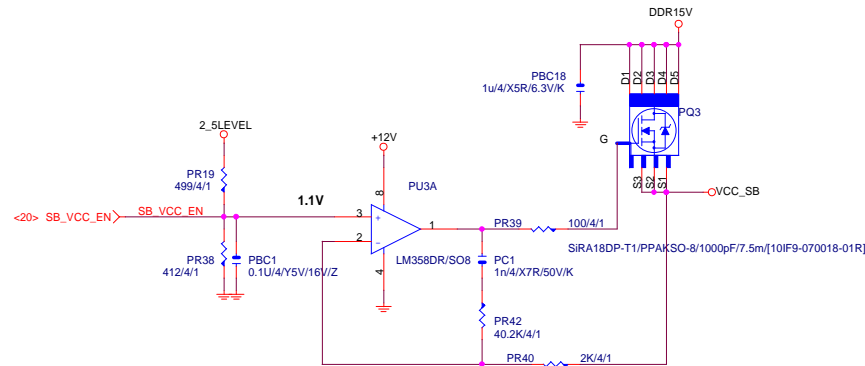
DDR15V

ISL6545 R4=> 0, R3=>NC
RT8120 R4=>NC, R3=>0

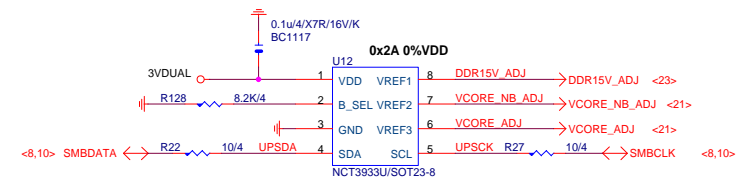
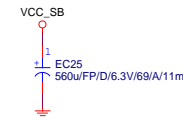




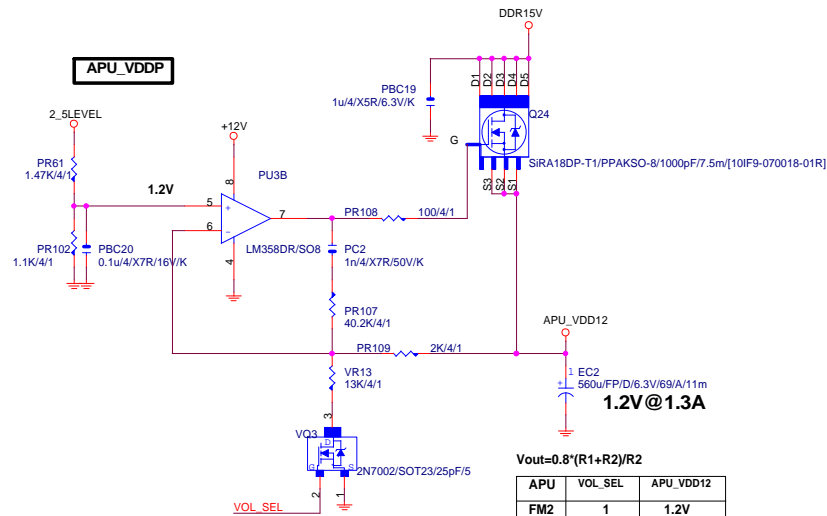
VCC_SB



1.2V@1.69A

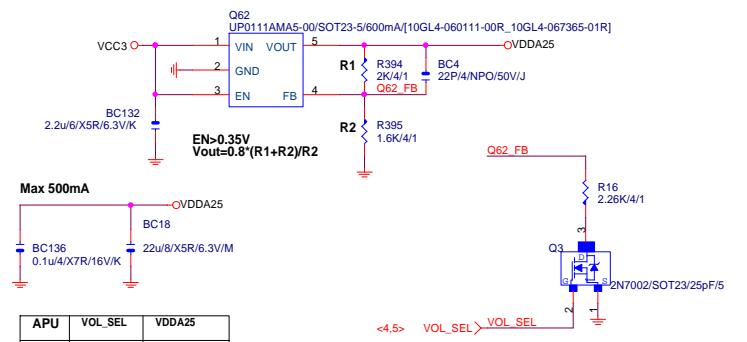


APU_VDDP



$$V_{out} = 0.8 * (R1 + R2) / R2$$

APU	VOL_SEL	APU_VDD12
FM2	1	1.2V
FM2+	0	1.05V



APU	VOL_SEL	VDDA25
FM2	1	2.5V
FM2+	0	1.8V

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VCC_SB , APU_VDDPA , VCC11_DUAL , VDDA25			
Title	Document Number	Rev	3.11
Size	Custom	GA-F2A58M-HD2	
Date:	Thursday, June 19, 2014	Sheet	25 of 25