

Model Name:GA-F2A88X-UP4


Component value change history

Version: 3.02
P-Code: U13057-0
9MF288XP4-00

[illegible]

Circuit or PCB layout change for next version

[illegible]

				
Title				
BOM & PCB HISTORY				
Size	Document Number		Rev	
Customer	GA-F2A88X-UP4			3.02
Date	Friday, September 13, 2013	Sheet	2	of 35

Clock
Generator
9LPR4850 10

HDMI 32

DVI
DUAL-LINK 32

DISPLAY
PORT 19

VGA
CON 19

PCIE SLOT
X 16 15

PCIE SLOT
X8(2nd) 15

DPO

DP3

DP2

DISPLAY SWITCH

PCIE X16

PCIE GEN3 SWITCH

AMD Fusion FM2+

1 16X PCIE VIDEO I/F
1 4X PCIE I/F WITH
DX11 IGP

UMI GEN2 X4 4,5,6,7

DDRIII 1066,1333, 1600, 1866 2133

DDRIII 1066,1333, 1600, 1866 2133

PCIE X1

PCIE X1

PCIE X1

PCIE X1

UNBUFFERED
DDRIII DIMM1 8

UNBUFFERED
DDRIII DIMM2 9

PCIE SLOT X 1(1st) 17

PCIE SLOT X 1(2st) 17

VIA USB 3.0
VL805 34

GIGABIT
RTL8111F-VL 31

UNBUFFERED
DDRIII DIMM3 8

UNBUFFERED
DDRIII DIMM4 9

DDRIII FIRST LOGICAL DIMM

DDRIII SECOND LOGICAL DIMM

APU POWER
IR3567 +
IR3598 27,28

DDR3 MEMORY
POWER
RT8120 29

Fusion A85 CORE &
PCIE POWER
RT8120 30

USB 3.0

USB-3 35

USB-2 35

USB-1 35

USB-0 35

AMD FCH

USB2.0
USB3.0
AZALIA
SATA III
LPC I/F
INT RTC
HW MONITOR
ACPI

11,12,13,14

HD AUDIO I/F

SATA III I/F

PCIE X4

SPI I/F

LPC
BUS

ALC892 22,23

SATA#0 13

PCIE SLOT
X4 17

PCIE SLOT
X 1 17

SPI
Dual-BIOS 13

PCI BUS

PCI
SLOT 18

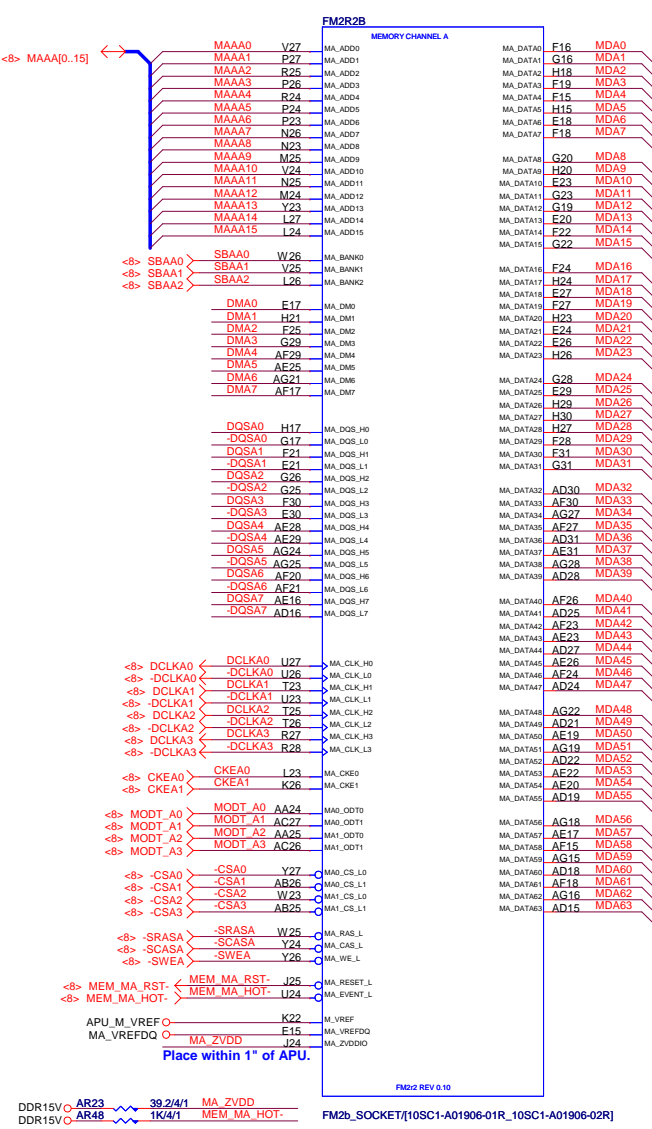
ITE LPC SIO
IT8620E_BX 21

KBD
MOUSE 21

HW
MONITOR 21

GIGABYTE

Title BLOCK DIAGRAM			
Size Custom	Document Number GA-F2A88X-UP4		Rev 3.02
Date: Friday, September 13, 2013	Sheet 3	of 35	

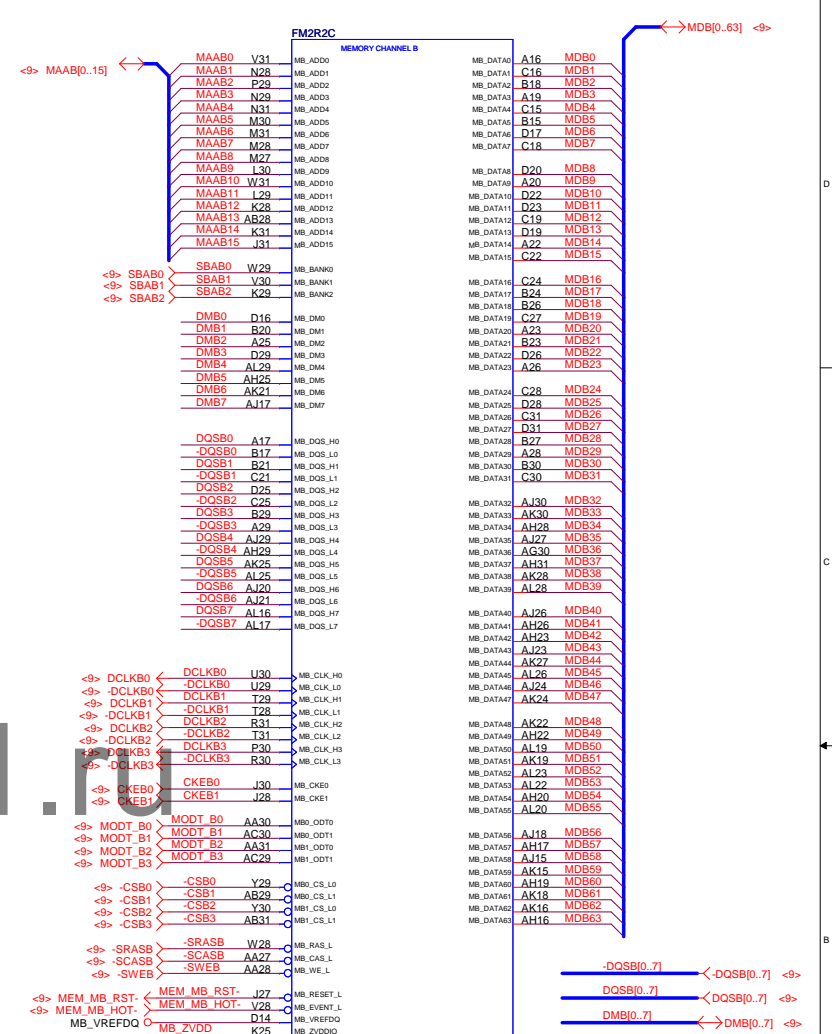


Ver:1.0

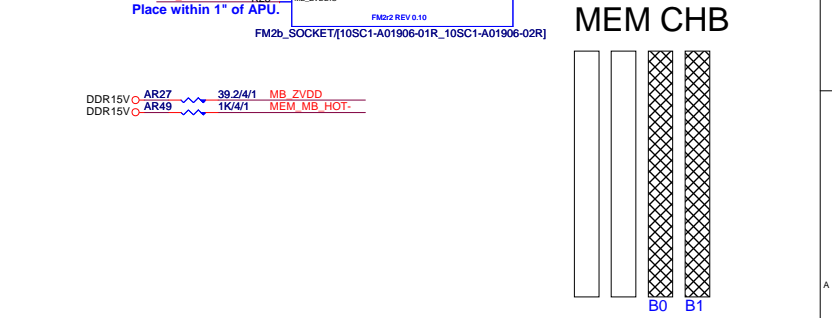
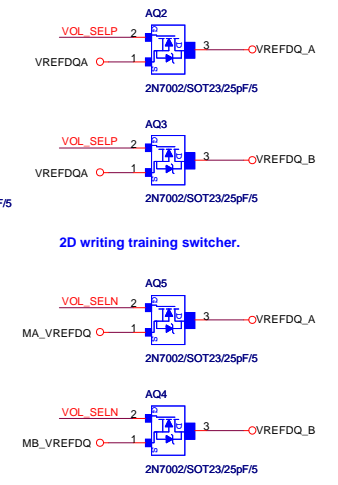
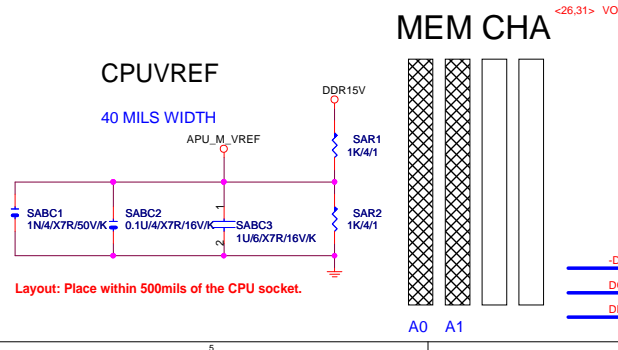
	Impedance	4L-1080-20Z
Clocks	72 ohm	20/7.5/7.5/20
ADDR, CMD, Control	40 ohm	7 mil
DQS	90 ohm	20/5/6/5/20
DATA, DM	40 ohm	7 mil
Others	40-60 ohm	7 mil

Ver:1.01

	Impedance	4L-1080-20Z
Clocks	72 ohm	20/8/5/8/20
ADDR, CMD, Control	40 ohm	8 mil
DQS	90 ohm	20/4.5/7.5/4.5/20
DATA, DM	40 ohm	7 mil
Others	40-60 ohm	4 mil



www.aitech1.ru



GIGABYTE™

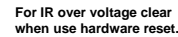
Title: **CPU DDRIII**

Size: Custom Document Number: **GA-F2A88X-UP4** Rev: **3.02**

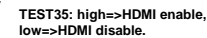
Date: Friday, September 13, 2013 Sheet 4 of 35

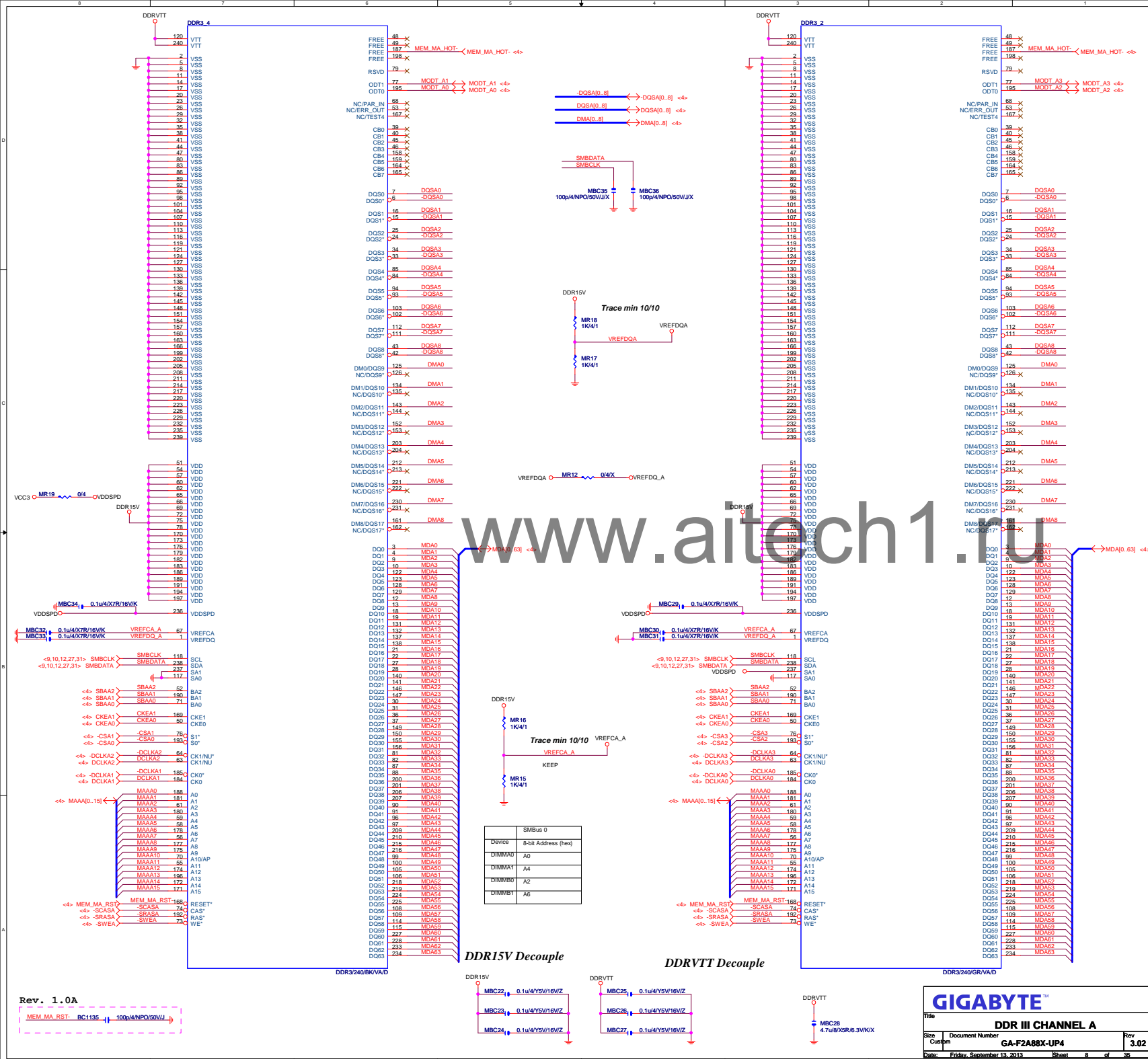


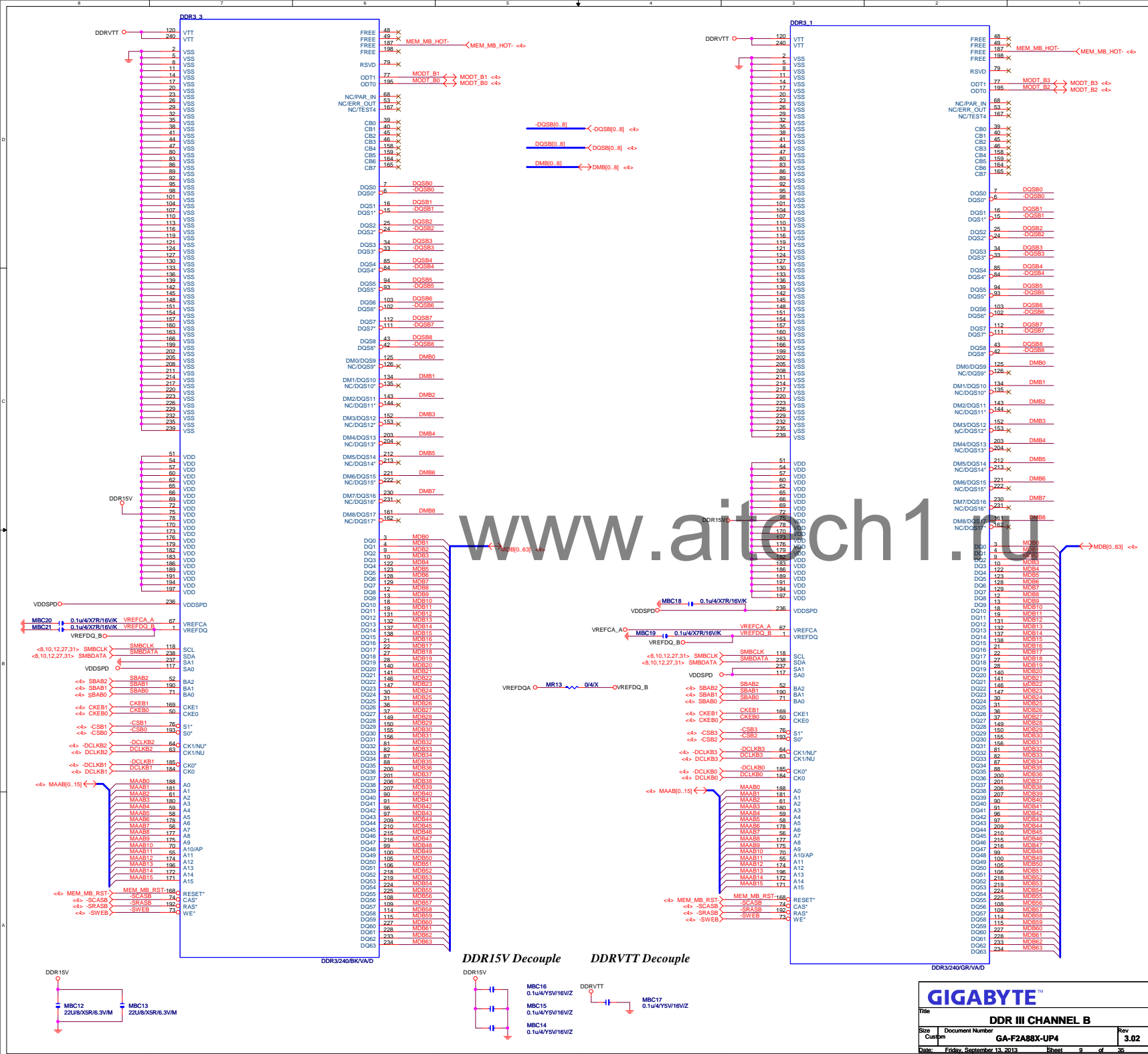
	Impedance	4L-1080
APU Clock	85 ohm	20/4.5/7.5/4.5/20
DISP Clcock	85 ohm	20/4.5/7.5/4.5/20
DP TX/RX	85 ohm	20/4.5/7.5/4.5/20
	55 ohm	4 mil
	40-60 ohm	7 mil



Group A must early than Group B







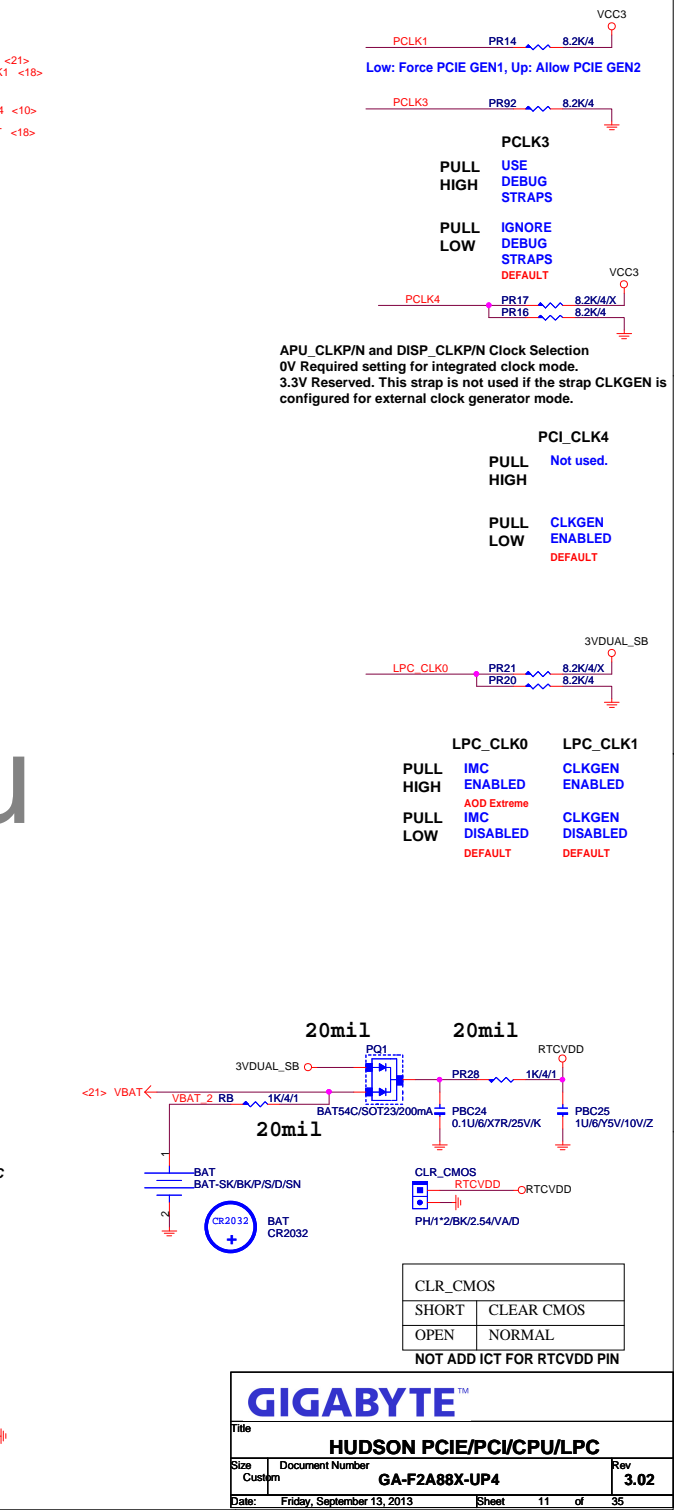
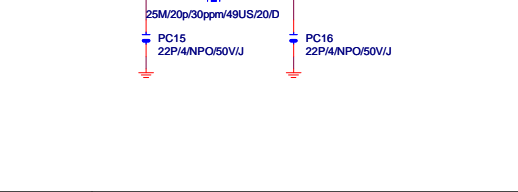
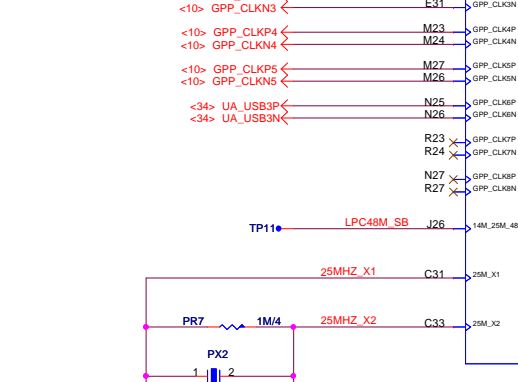
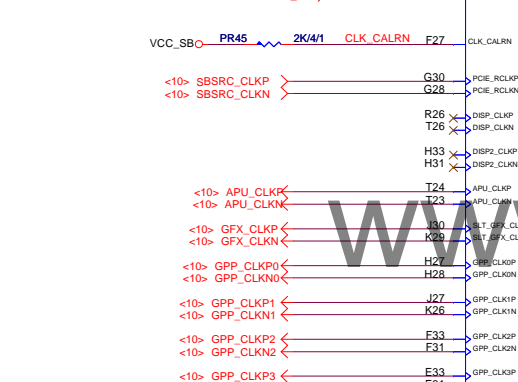
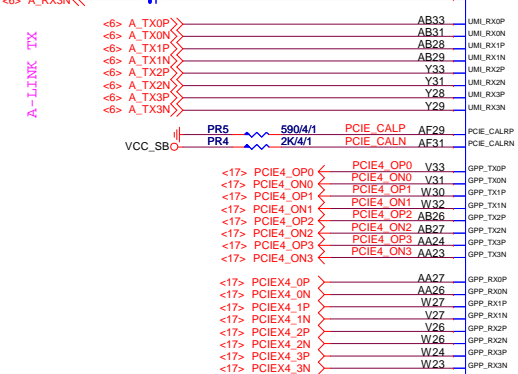
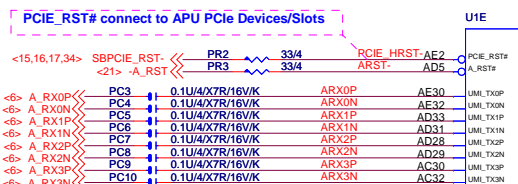
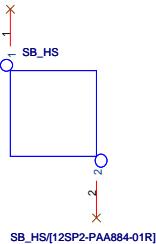


PLACE THESE PCIE AC COUPLING CAPS CLOSE TO HUDSON

A-LINK RX

A-LINK TX

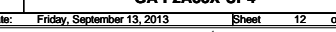
S.B HEATSINK

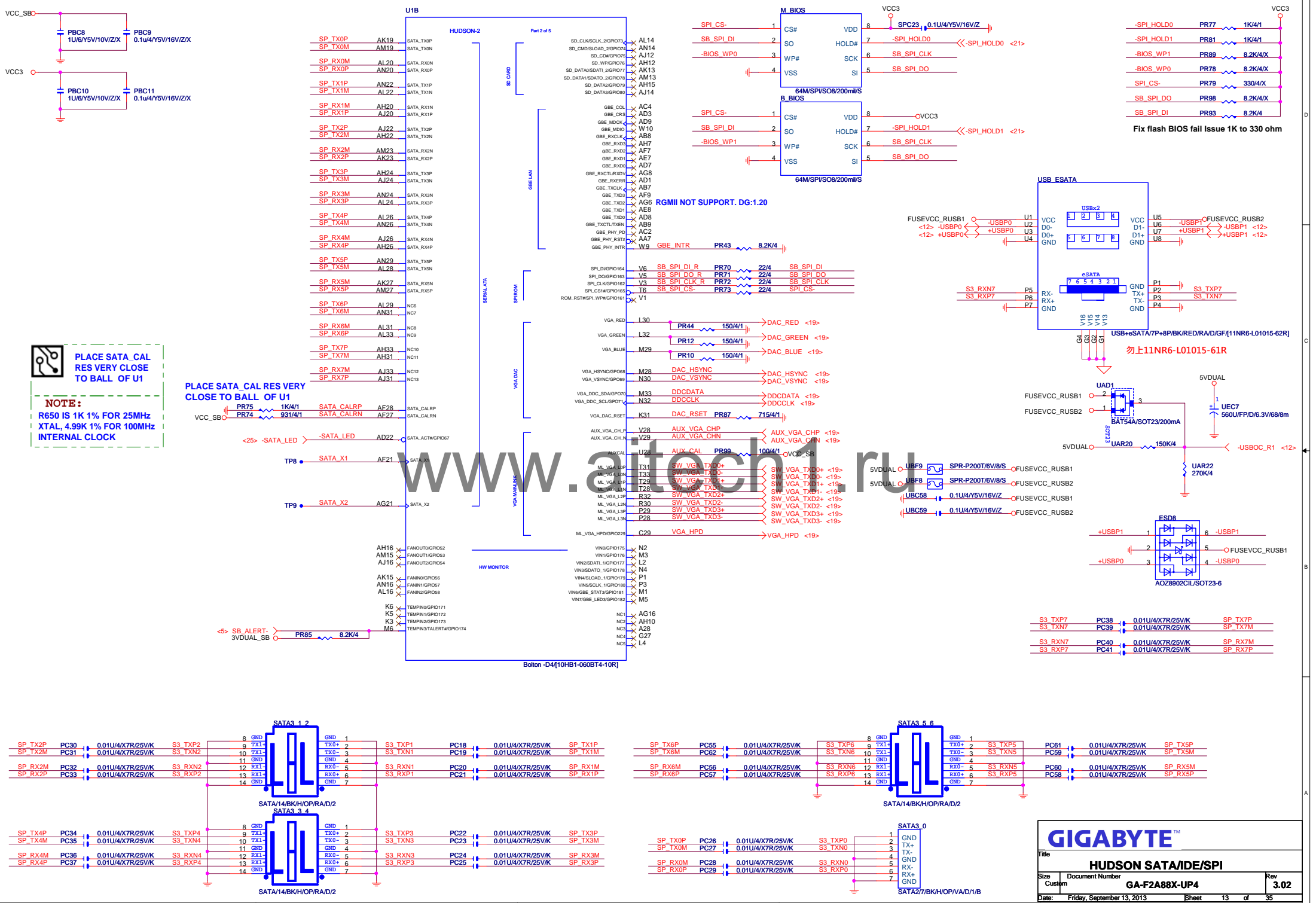


GIGABYTE
Title: HUDSON PCIE/PCI/CPU/LPC
Size: Custom Document Number: GA-F2A88X-UP4 Rev: 3.02
Date: Friday, September 13, 2013 Sheet: 11 of 35

CLR_CMOS	
SHORT	CLEAR CMOS
OPEN	NORMAL

NOT ADD ICT FOR RTCVDD PIN



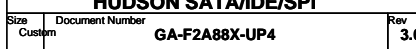
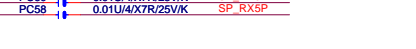
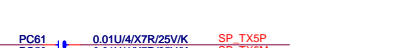
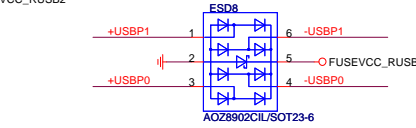


PLACE SATA_CAL RES VERY CLOSE TO BALL OF U1

NOTE:
R650 IS 1K 1% FOR 25MHz XTAL, 4.99K 1% FOR 100MHz INTERNAL CLOCK

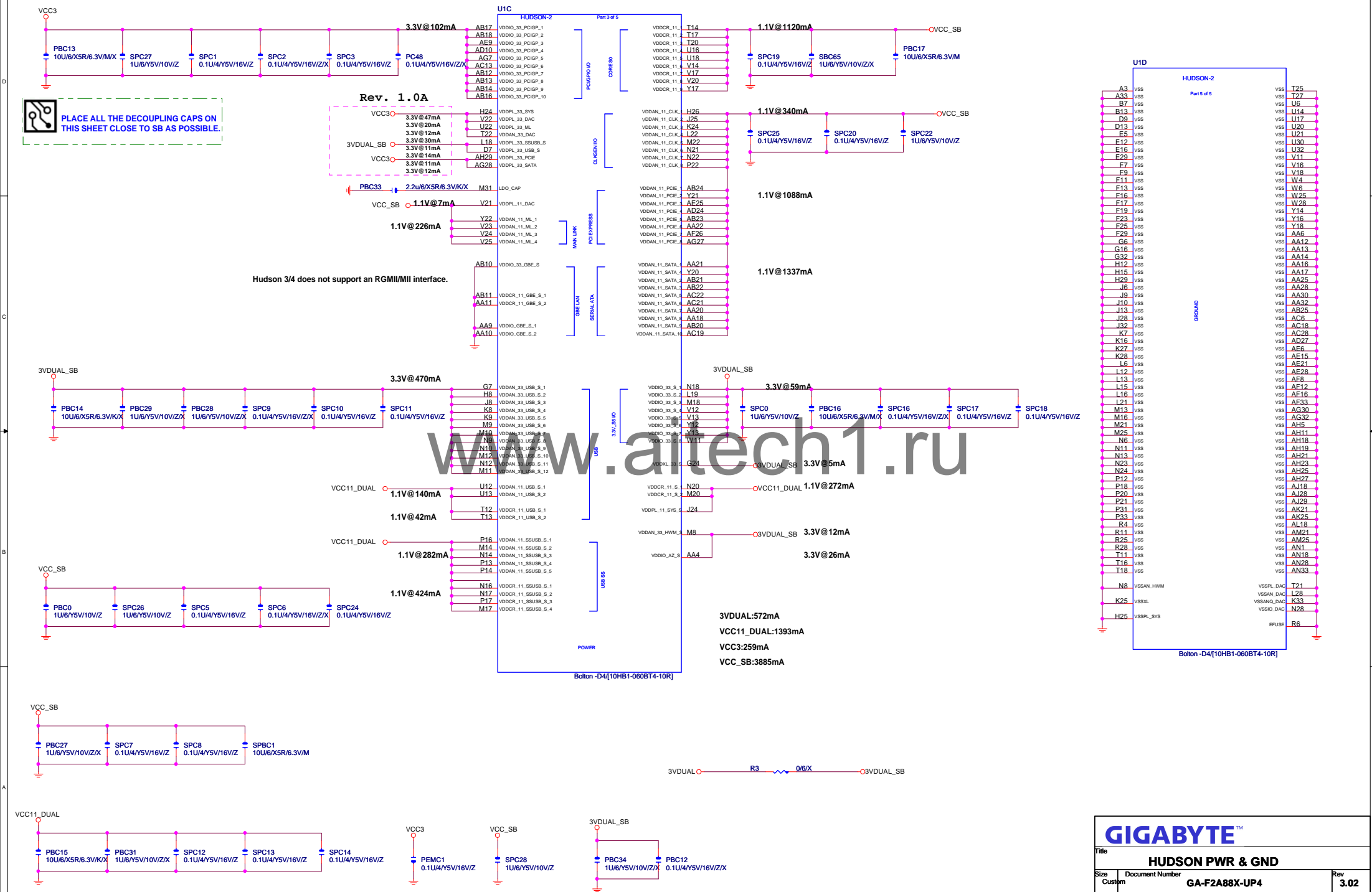
PLACE SATA_CAL RES VERY CLOSE TO BALL OF U1

Fix flash BIOS fail issue 1K to 330 ohm

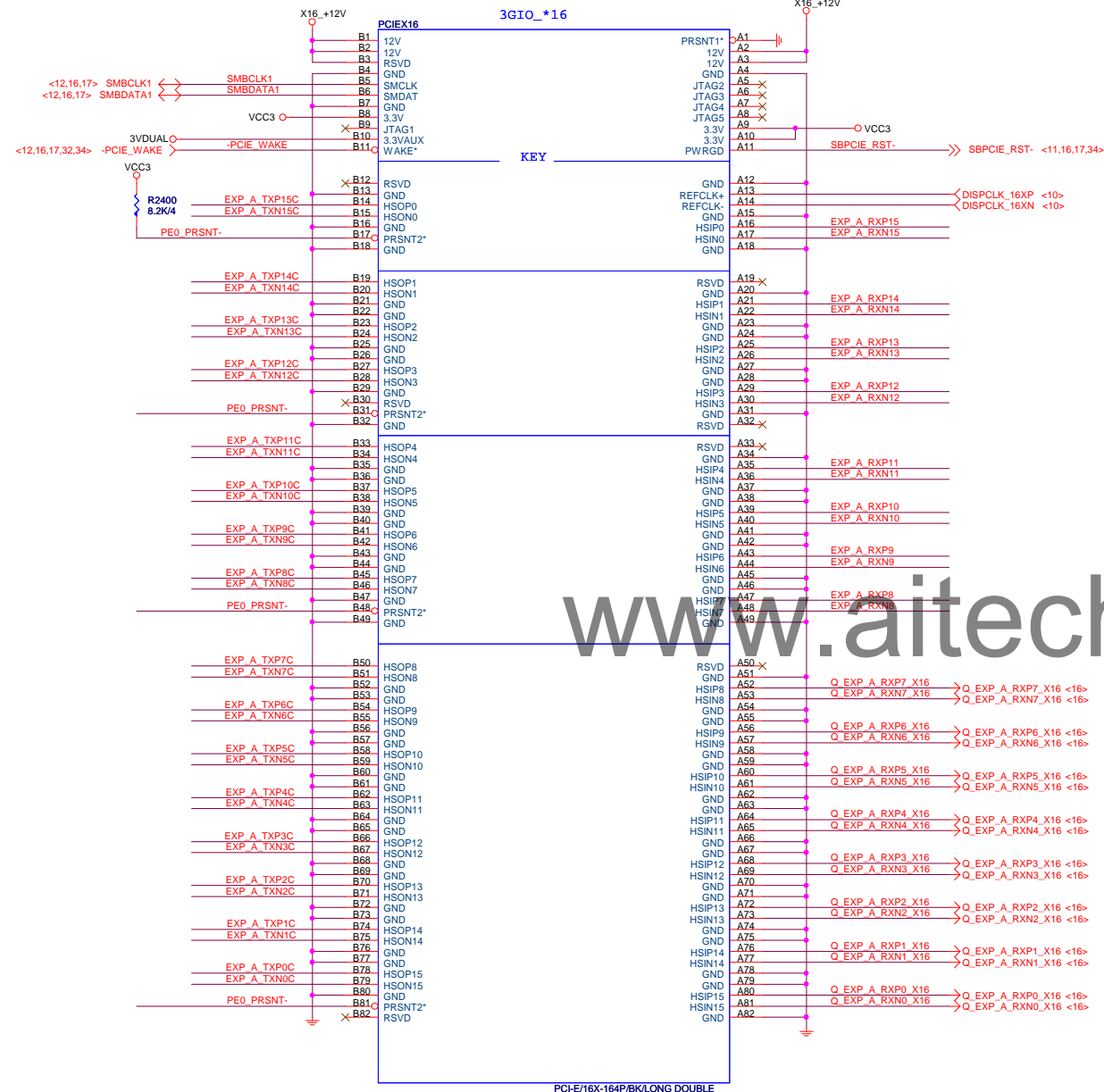
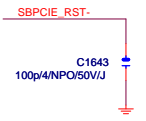
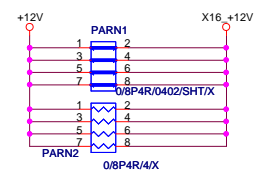


HUDSON SATA/IDE/SPI

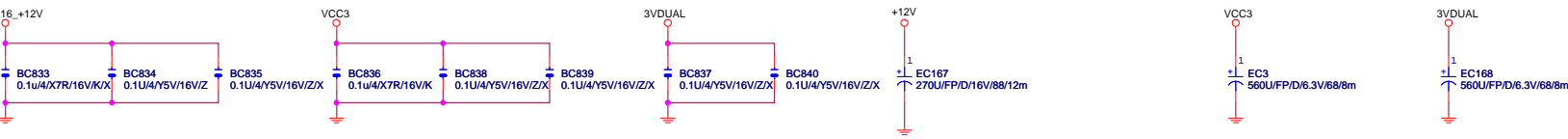
Title	Document Number	Rev
	GA-F2A88X-UP4	3.02
Date:	Friday, September 13, 2013	Sheet 13 of 35



EXP_A_RXP[8..15] >> EXP_A_RXP[8..15] << EXP_A_TXP[8..15] >> EXP_A_TXP[8..15]
EXP_A_RXN[8..15] >> EXP_A_RXN[8..15] << EXP_A_TXN[8..15] >> EXP_A_TXN[8..15]



<16> Q_EXP_A_TXP0_X16	C1644	0.22u4/X5R/6.3V/K	EXP_A_TXP0C
<16> Q_EXP_A_TXN0_X16	C1645	0.22u4/X5R/6.3V/K	EXP_A_TXN0C
<16> Q_EXP_A_TXP1_X16	C1646	0.22u4/X5R/6.3V/K	EXP_A_TXP1C
<16> Q_EXP_A_TXN1_X16	C1647	0.22u4/X5R/6.3V/K	EXP_A_TXN1C
<16> Q_EXP_A_TXP2_X16	C1648	0.22u4/X5R/6.3V/K	EXP_A_TXP2C
<16> Q_EXP_A_TXN2_X16	C1649	0.22u4/X5R/6.3V/K	EXP_A_TXN2C
<16> Q_EXP_A_TXP3_X16	C1650	0.22u4/X5R/6.3V/K	EXP_A_TXP3C
<16> Q_EXP_A_TXN3_X16	C1651	0.22u4/X5R/6.3V/K	EXP_A_TXN3C
<16> Q_EXP_A_TXP4_X16	C1652	0.22u4/X5R/6.3V/K	EXP_A_TXP4C
<16> Q_EXP_A_TXN4_X16	C1653	0.22u4/X5R/6.3V/K	EXP_A_TXN4C
<16> Q_EXP_A_TXP5_X16	C1654	0.22u4/X5R/6.3V/K	EXP_A_TXP5C
<16> Q_EXP_A_TXN5_X16	C1655	0.22u4/X5R/6.3V/K	EXP_A_TXN5C
<16> Q_EXP_A_TXP6_X16	C1656	0.22u4/X5R/6.3V/K	EXP_A_TXP6C
<16> Q_EXP_A_TXN6_X16	C1657	0.22u4/X5R/6.3V/K	EXP_A_TXN6C
<16> Q_EXP_A_TXP7_X16	C1658	0.22u4/X5R/6.3V/K	EXP_A_TXP7C
<16> Q_EXP_A_TXN7_X16	C1659	0.22u4/X5R/6.3V/K	EXP_A_TXN7C
<16> Q_EXP_A_TXP8_X16	C1660	0.22u4/X5R/6.3V/K	EXP_A_TXP8C
<16> Q_EXP_A_TXN8_X16	C1661	0.22u4/X5R/6.3V/K	EXP_A_TXN8C
<16> Q_EXP_A_TXP9_X16	C1662	0.22u4/X5R/6.3V/K	EXP_A_TXP9C
<16> Q_EXP_A_TXN9_X16	C1663	0.22u4/X5R/6.3V/K	EXP_A_TXN9C
<16> Q_EXP_A_TXP10_X16	C1664	0.22u4/X5R/6.3V/K	EXP_A_TXP10C
<16> Q_EXP_A_TXN10_X16	C1665	0.22u4/X5R/6.3V/K	EXP_A_TXN10C
<16> Q_EXP_A_TXP11_X16	C1666	0.22u4/X5R/6.3V/K	EXP_A_TXP11C
<16> Q_EXP_A_TXN11_X16	C1667	0.22u4/X5R/6.3V/K	EXP_A_TXN11C
<16> Q_EXP_A_TXP12_X16	C1668	0.22u4/X5R/6.3V/K	EXP_A_TXP12C
<16> Q_EXP_A_TXN12_X16	C1669	0.22u4/X5R/6.3V/K	EXP_A_TXN12C
<16> Q_EXP_A_TXP13_X16	C1670	0.22u4/X5R/6.3V/K	EXP_A_TXP13C
<16> Q_EXP_A_TXN13_X16	C1671	0.22u4/X5R/6.3V/K	EXP_A_TXN13C
<16> Q_EXP_A_TXP14_X16	C1672	0.22u4/X5R/6.3V/K	EXP_A_TXP14C
<16> Q_EXP_A_TXN14_X16	C1673	0.22u4/X5R/6.3V/K	EXP_A_TXN14C
<16> Q_EXP_A_TXP15_X16	C1674	0.22u4/X5R/6.3V/K	EXP_A_TXP15C
<16> Q_EXP_A_TXN15_X16	C1675	0.22u4/X5R/6.3V/K	EXP_A_TXN15C



GIGABYTE™

Title
PCI EXPRESS X 16

Size
Custom

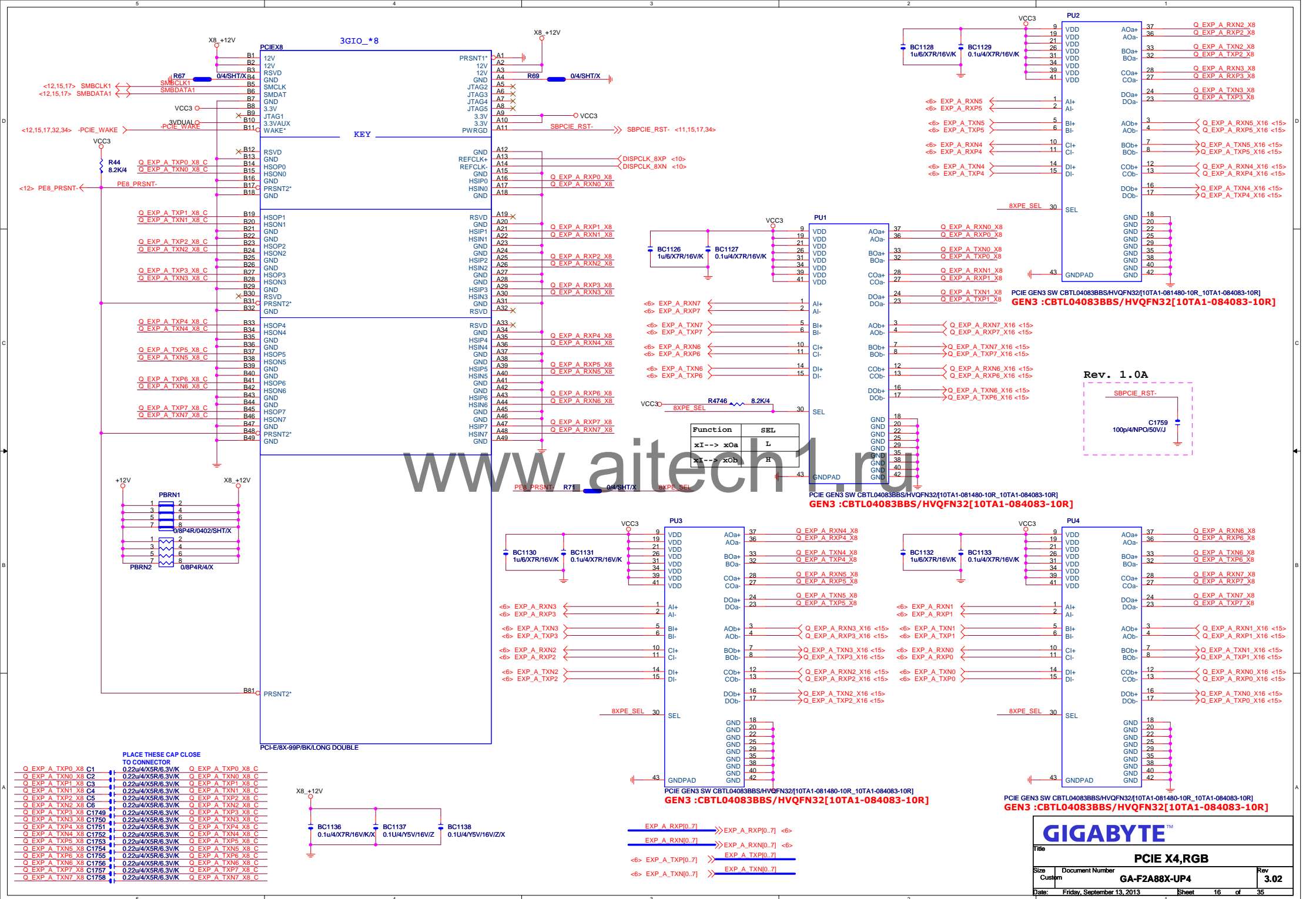
Document Number
GA-F2A88X-UP4

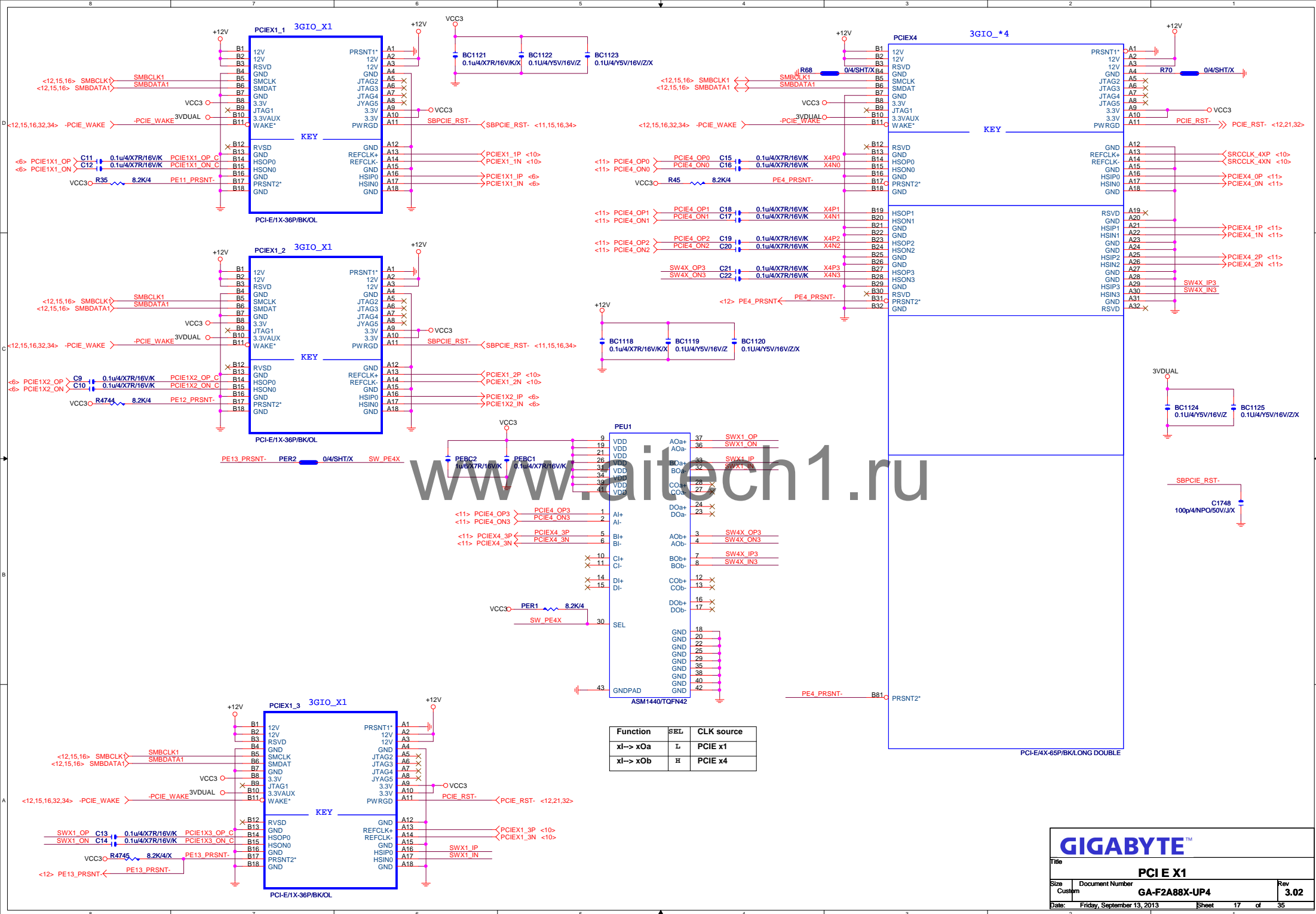
Rev
3.02

Date
Friday, September 13, 2013

Sheet
15

of
35

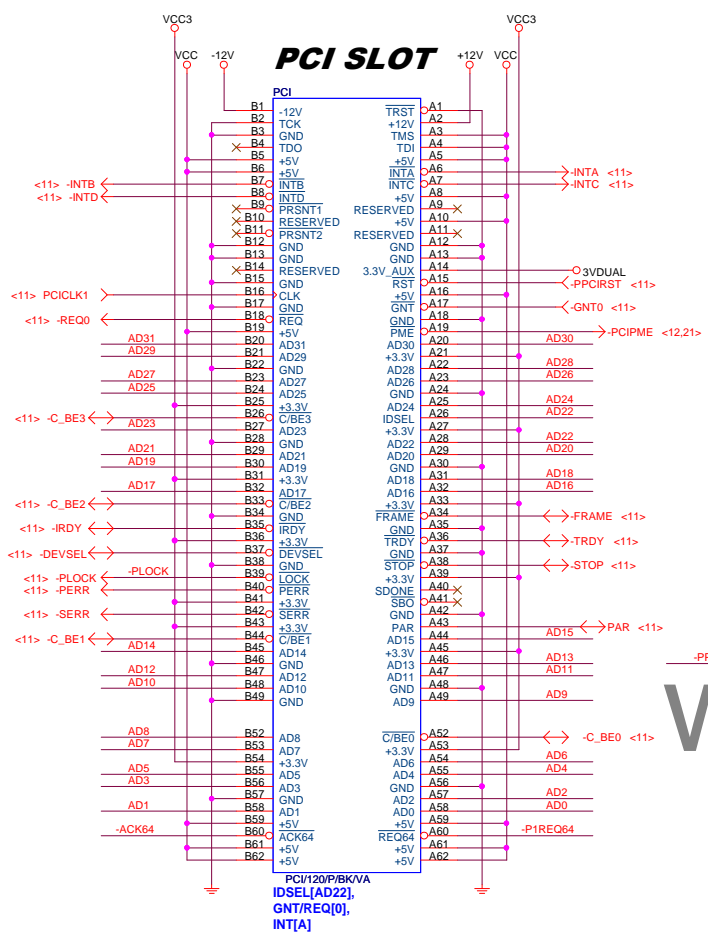




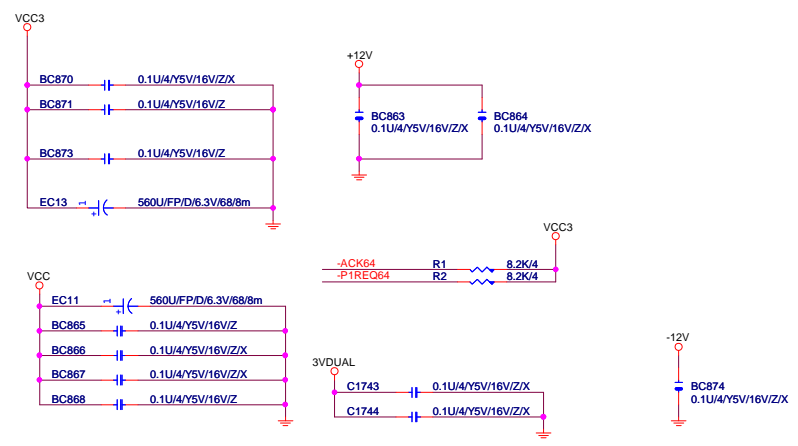
PCI SLOT 1,2

<11> AD[0..31] <-> AD[0..31]

PCI SLOT



www.aitech1.ru

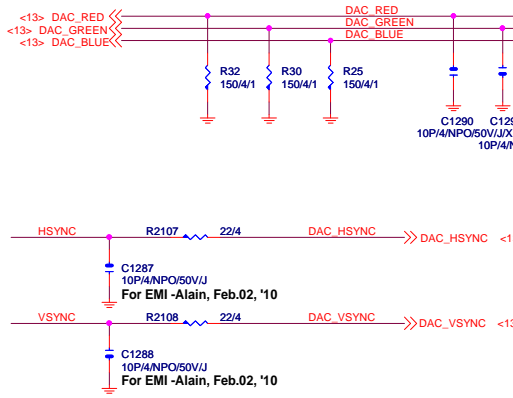
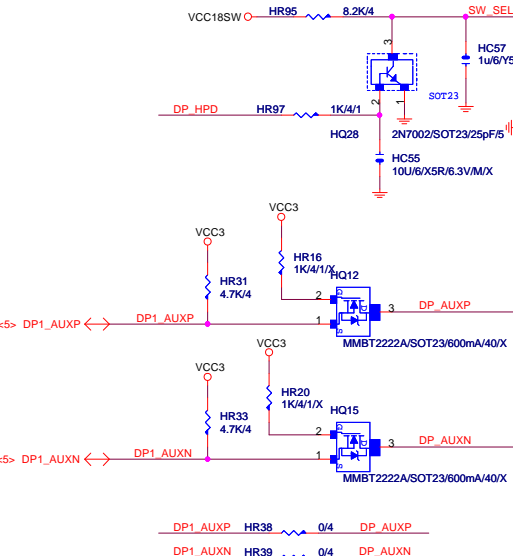


GIGABYTE™			
Title			
PCI SLOT			
Size	Document Number	Rev	
Custom	GA-F2A88X-UP4	3.02	
Date:	Friday, September 13, 2013	Sheet	18 of 35

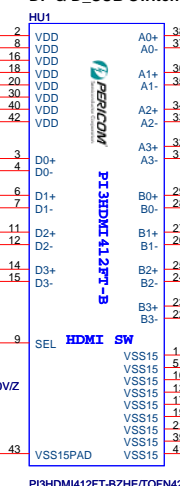
DP & D_SUB Control Table

SEL	Display Type
L	DP
H	D_SUB

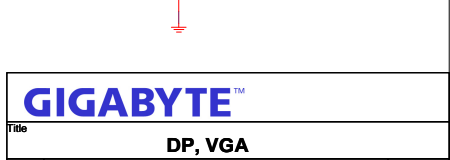
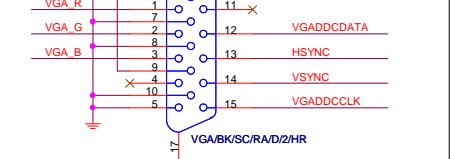
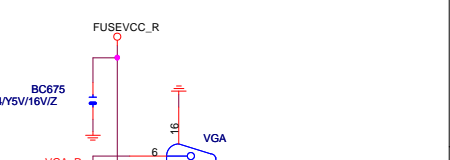
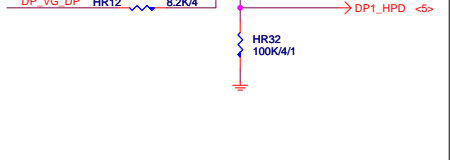
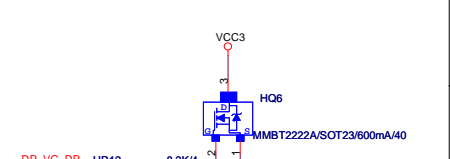
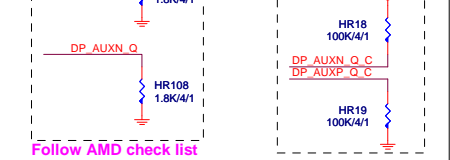
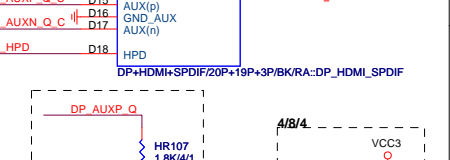
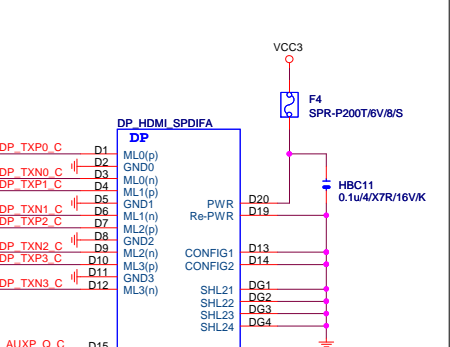
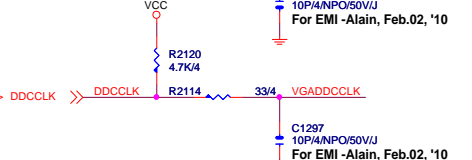
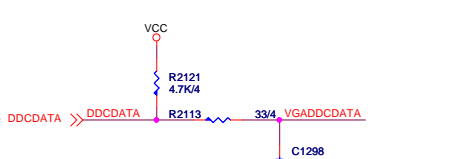
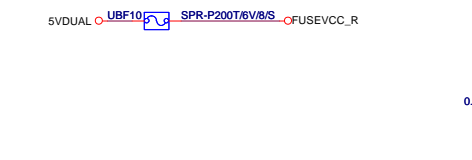
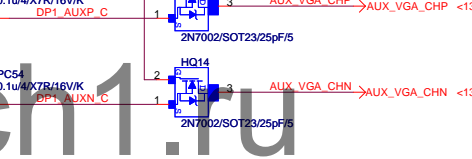
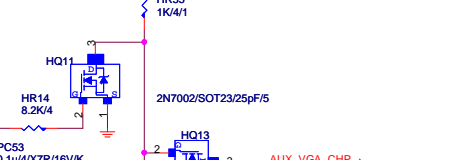
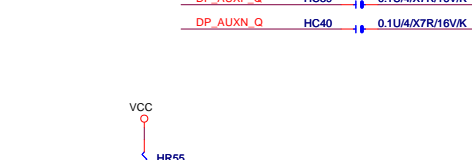
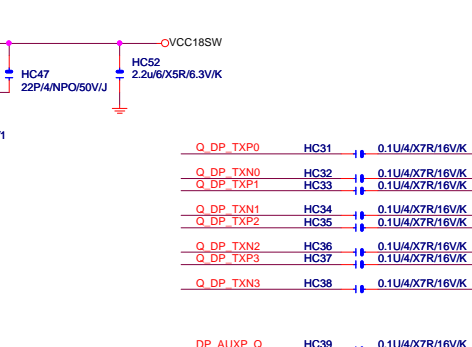
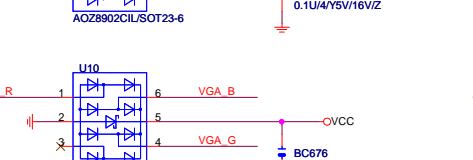
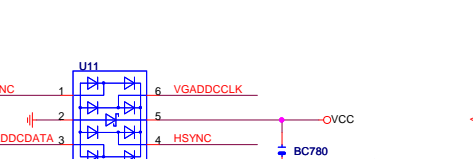
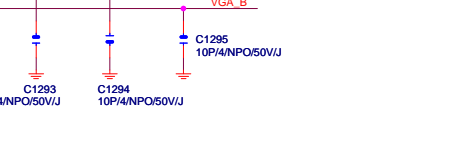
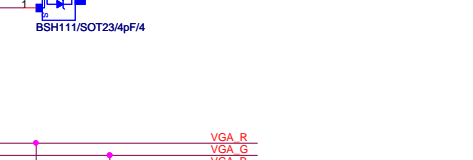
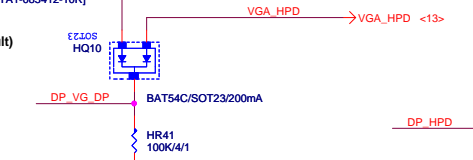
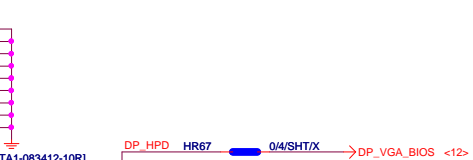
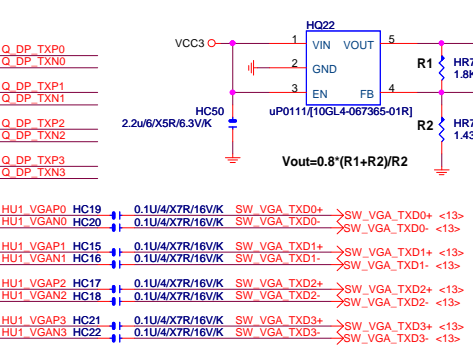
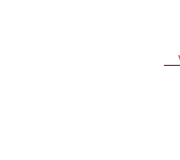
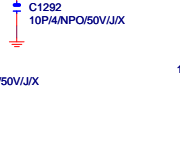
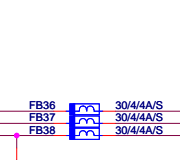
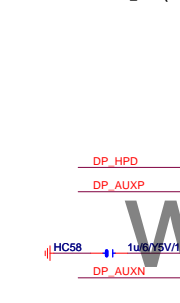
<5> DP1_TXP0	DP1_TXP0	3	D0+
<5> DP1_TXN0	DP1_TXN0	4	D0-
<5> DP1_TXP1	DP1_TXP1	6	D1+
<5> DP1_TXN1	DP1_TXN1	7	D1-
<5> DP1_TXP2	DP1_TXP2	11	D2+
<5> DP1_TXN2	DP1_TXN2	12	D2-
<5> DP1_TXP3	DP1_TXP3	14	D3+
<5> DP1_TXN3	DP1_TXN3	15	D3-



DP & D_SUB Switch



SEL="0" -> A -> DP
SEL="1" -> B -> D_SUB(Default)



DP, VGA

Size: Custom

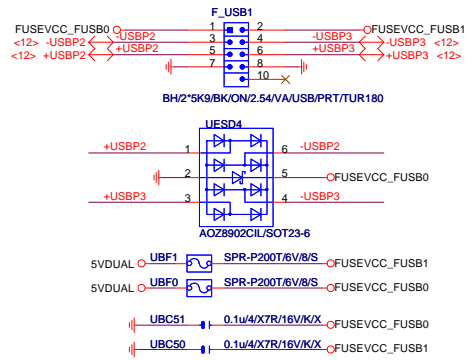
Document Number: **GA-F2A88X-UP4**

Date: Friday, September 13, 2013

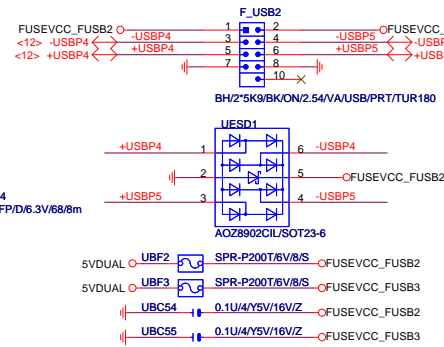
Rev: **3.02**

Sheet 19 of 35

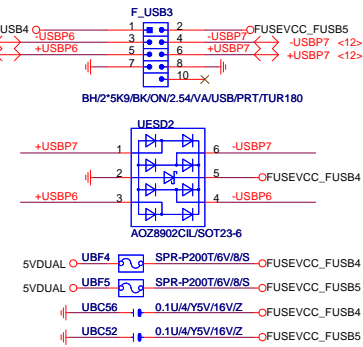
FRONT SIDE USB1



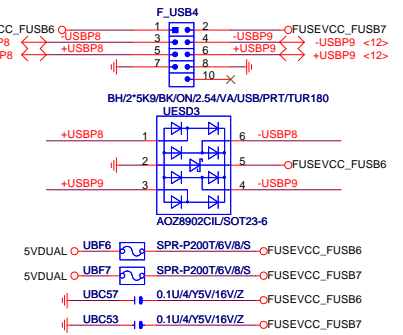
FRONT SIDE USB2



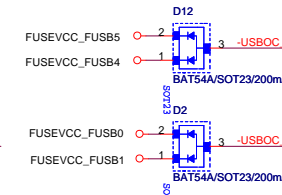
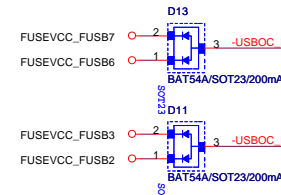
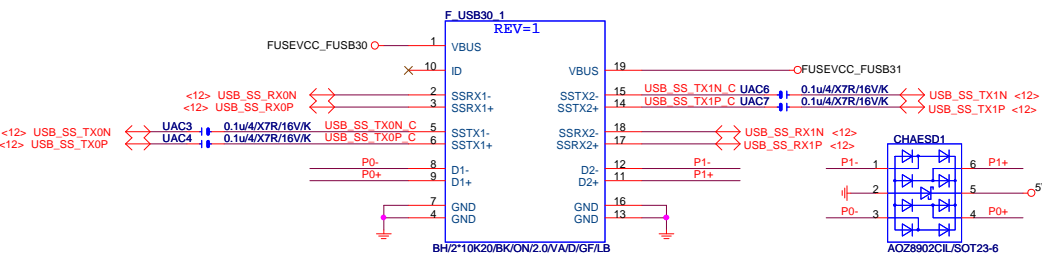
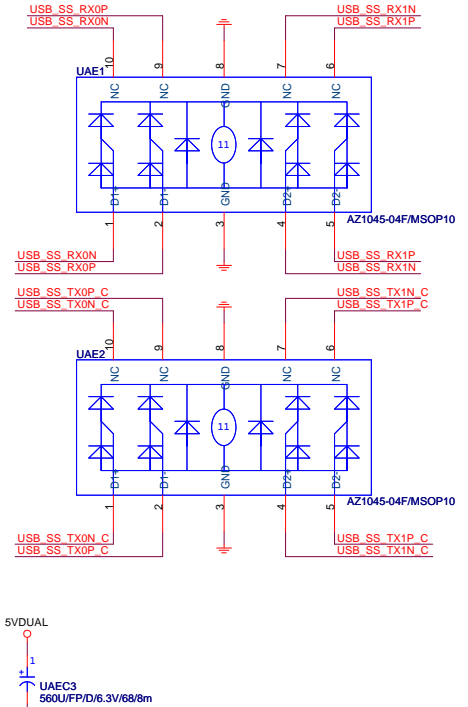
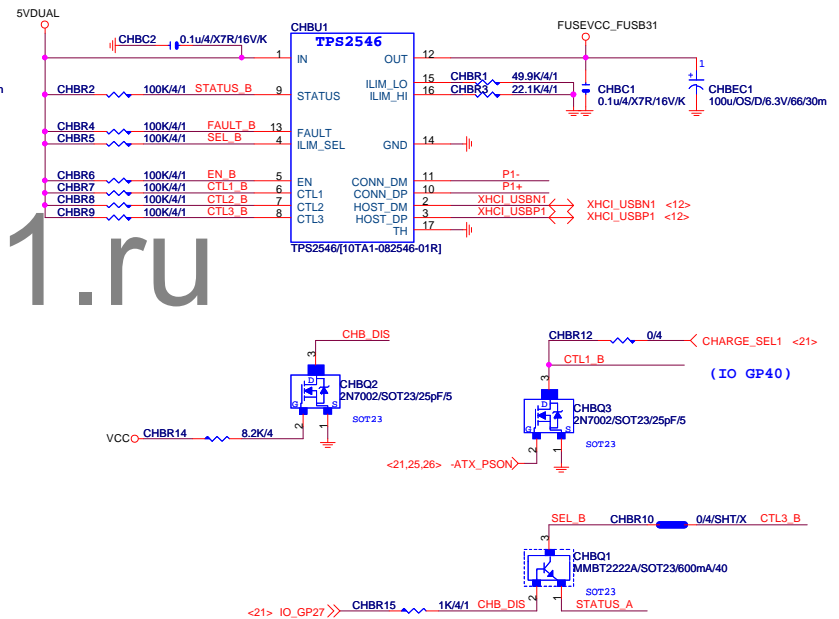
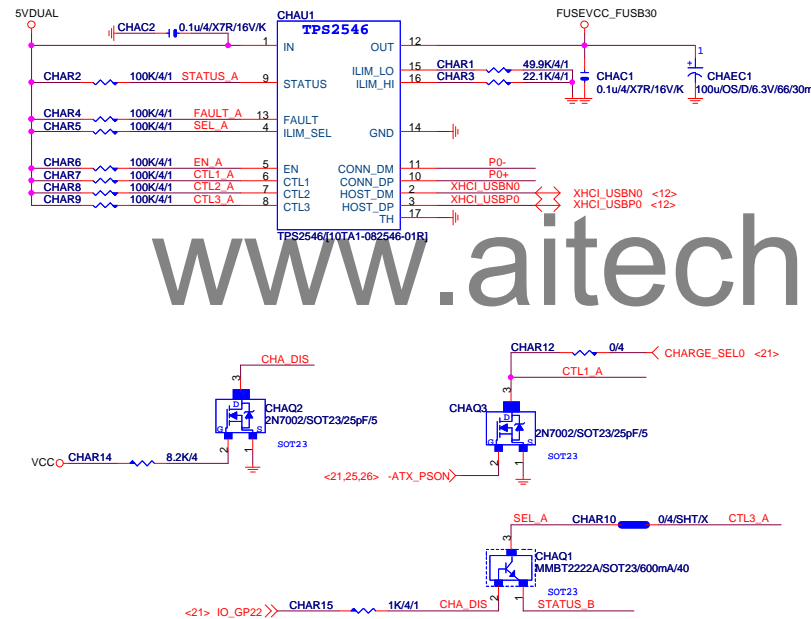
FRONT SIDE USB3

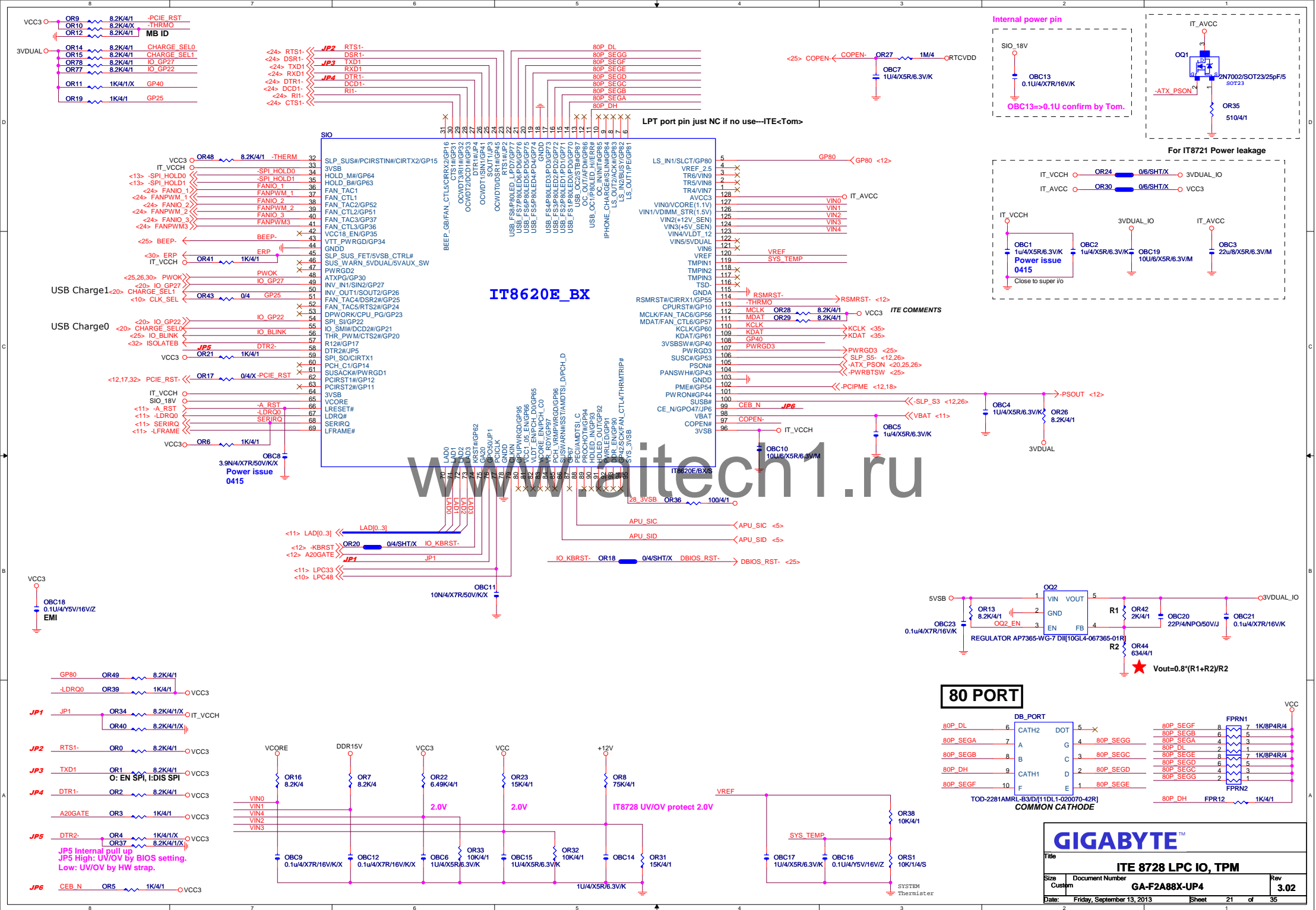


FRONT SIDE USB4

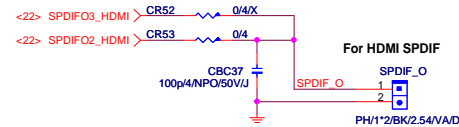


TPS2546 ON/OFF CHARGER

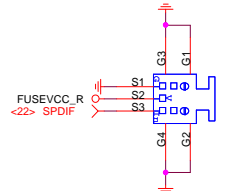




SPDIF

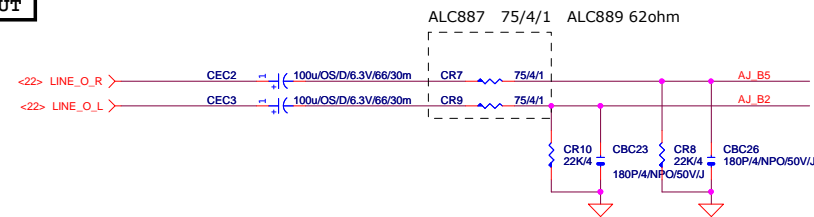


DP_HDMI_SPDIFC

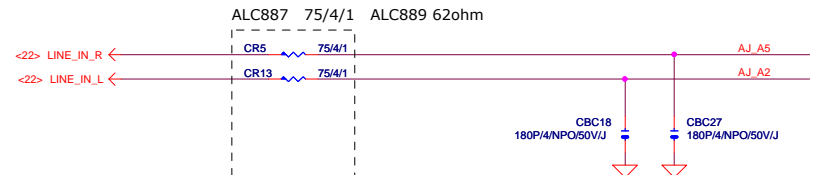


DP+HDMI+SPDIF/20P+19P+3P/BK/RA:DP_HDMI_SPDIF

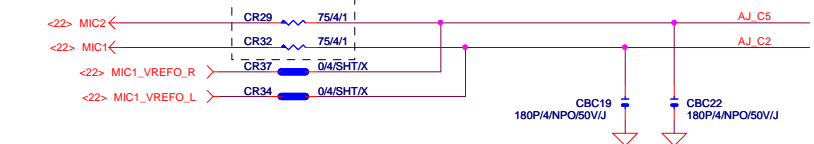
LINE OUT FRONT OUT



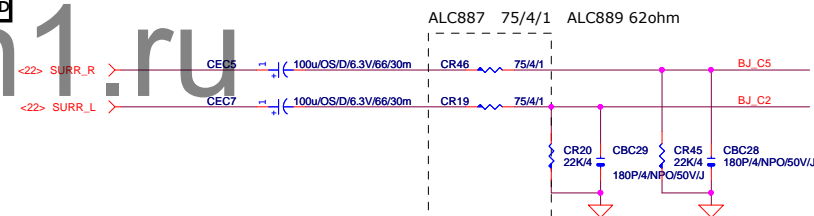
LINE-IN



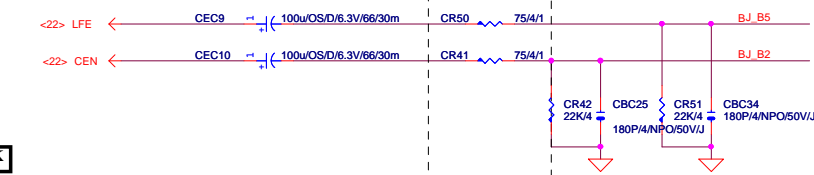
MIC



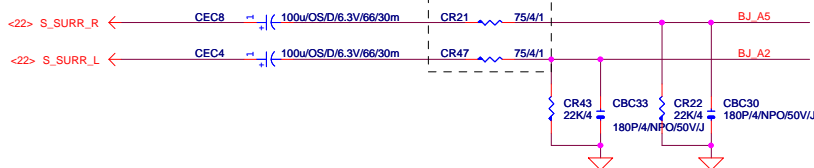
SURROUND



CEN/LFE



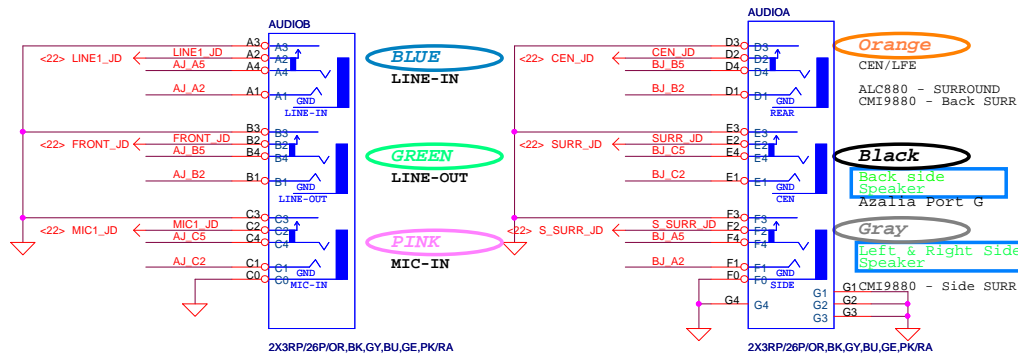
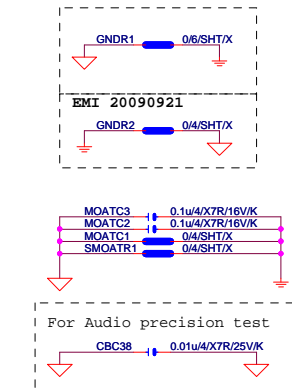
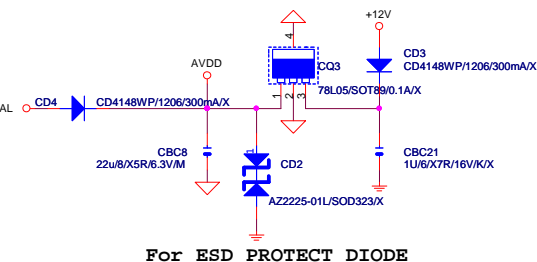
SURR BACK



GIGABYTE

Title			
AUDIO JACK			
Size	Document Number	Rev	
Custom	GA-F2A88X-UP4	3.02	
Date:	Friday, September 13, 2013	Sheet	23 of 35

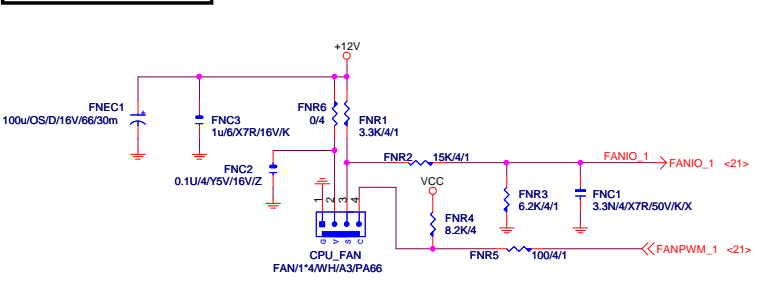
www.aitech1.ru



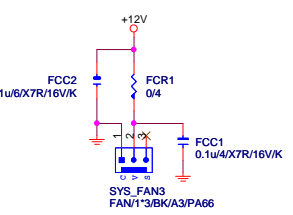
A3RJ/13P/B/11NR6-403006-01_11NR6-403006-02
3RJ+15P/11NR6-403004-11

A3RJ/13P/OBG/11NR6-403006-71
3RJ+15P/11NR6-403004-31

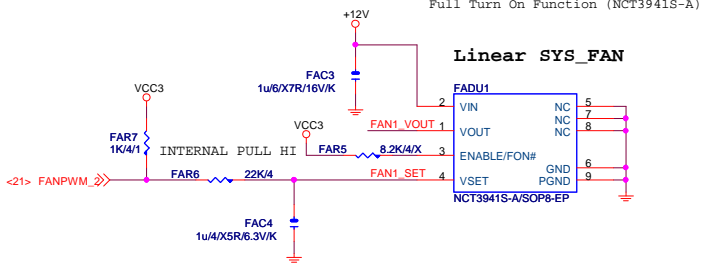
CPU Fan PWM Mode



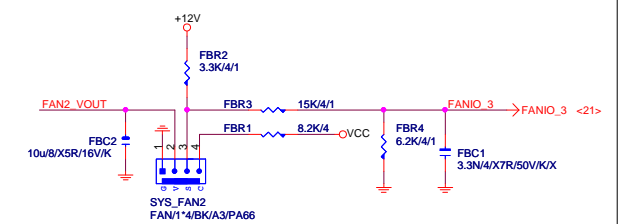
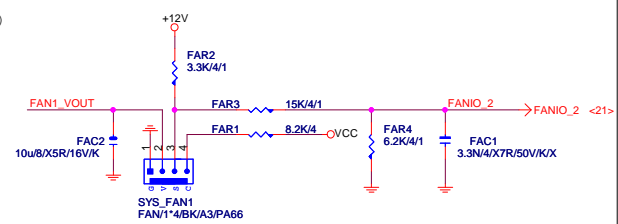
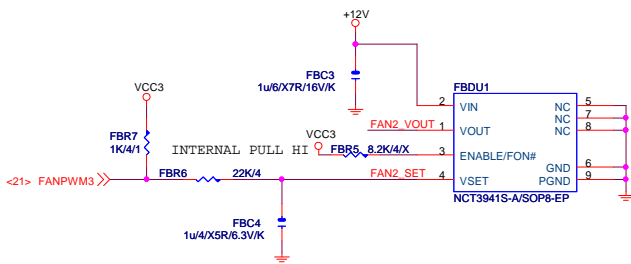
SYSTEM FAN3	PWR FAN
-------------	---------



```
SYSTEM FAN1 Voltage Mode
```

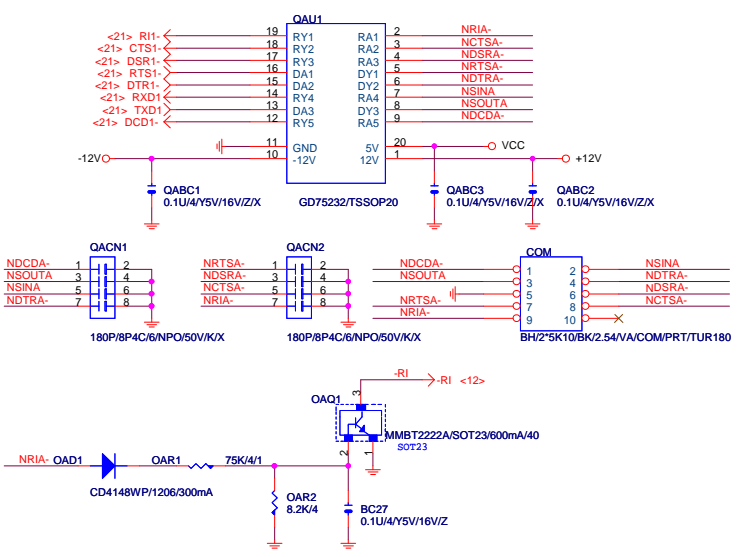


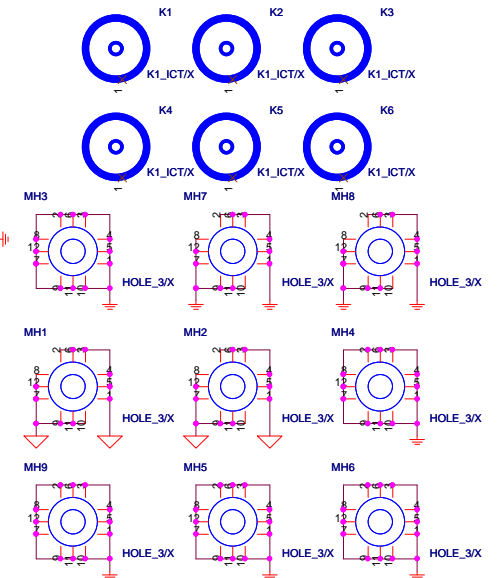
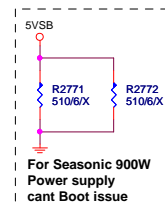
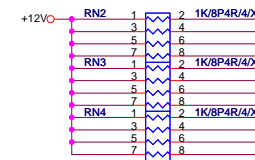
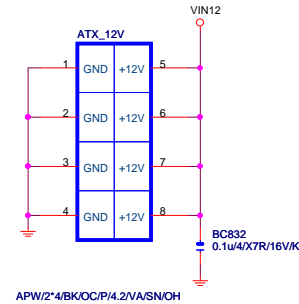
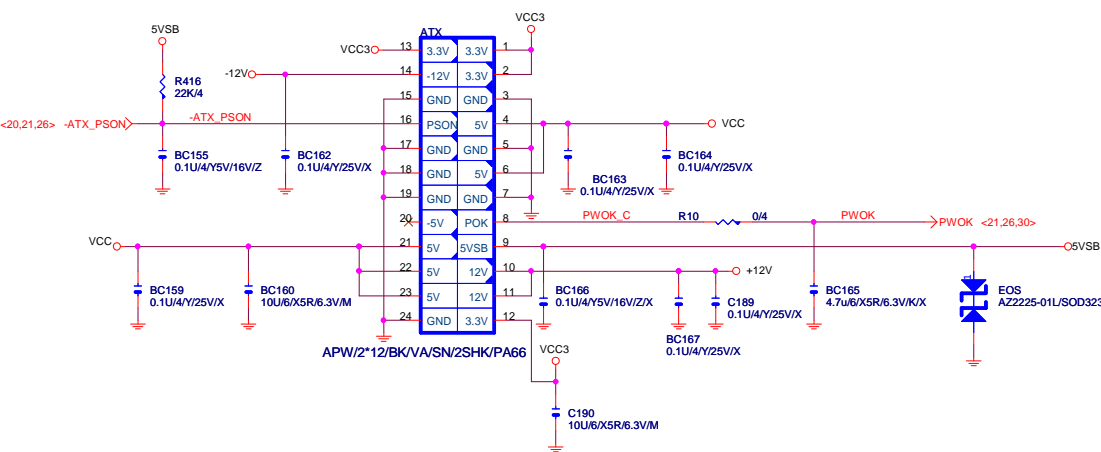
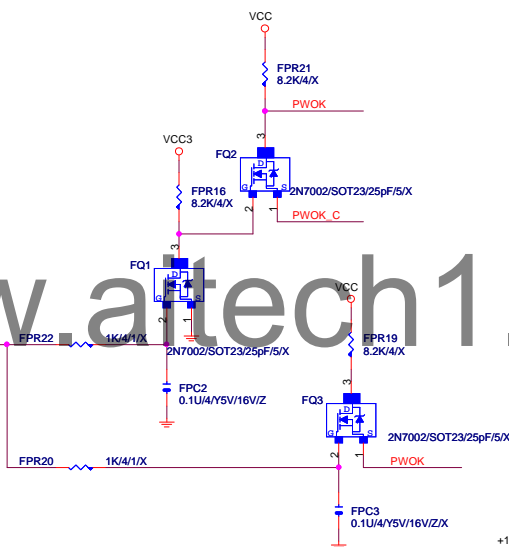
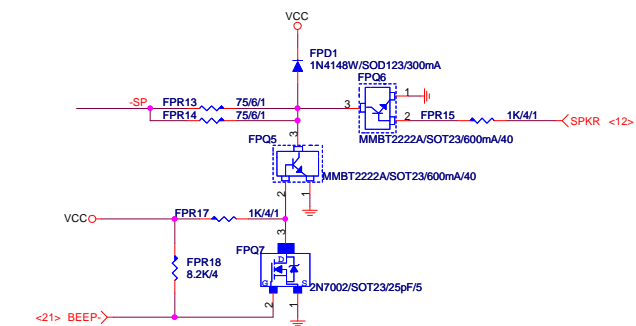
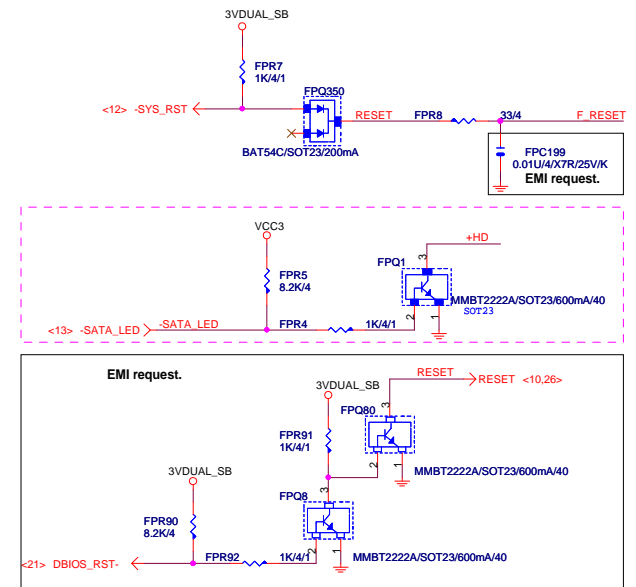
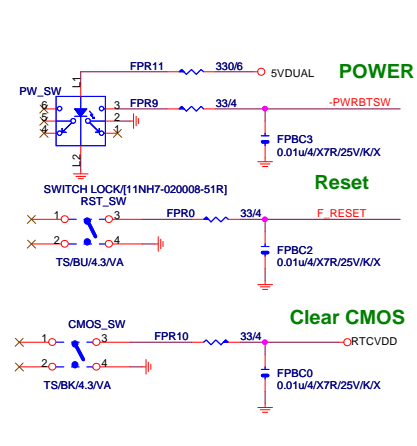
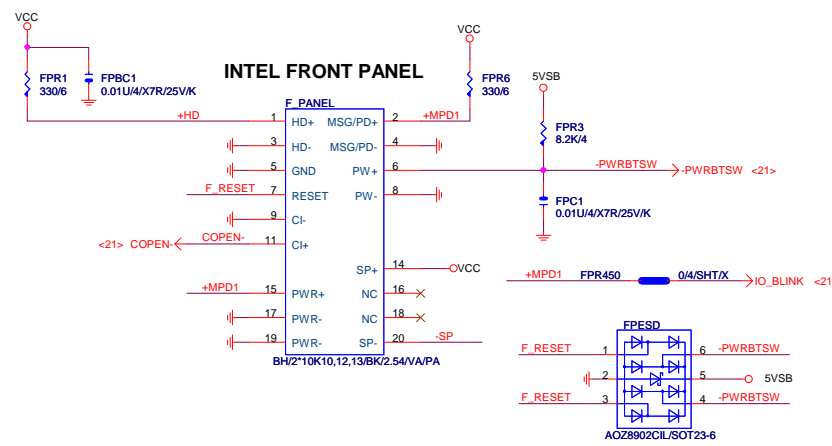
SYSTEM FAN2 Voltage Mode

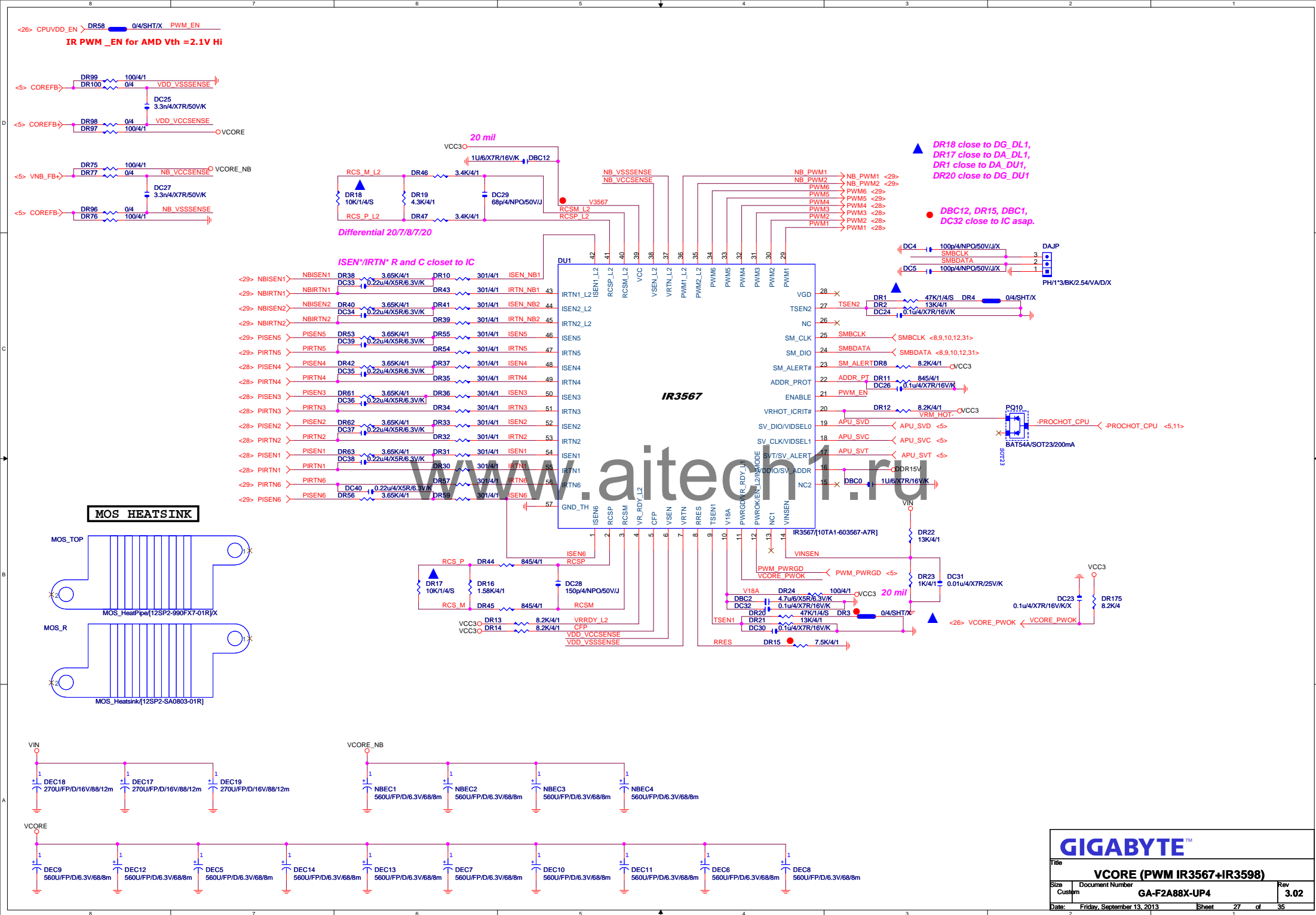


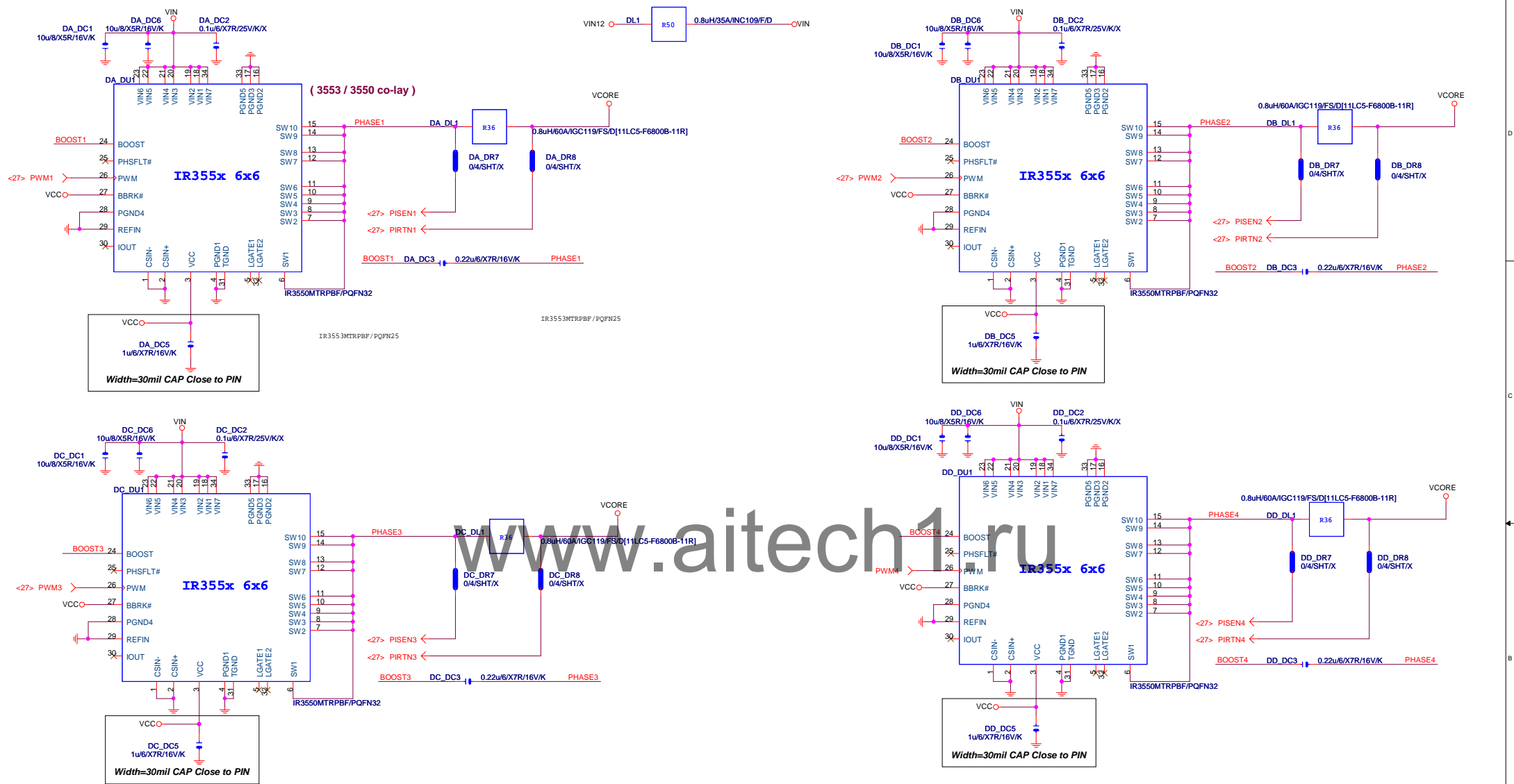
www.aitech1.ru

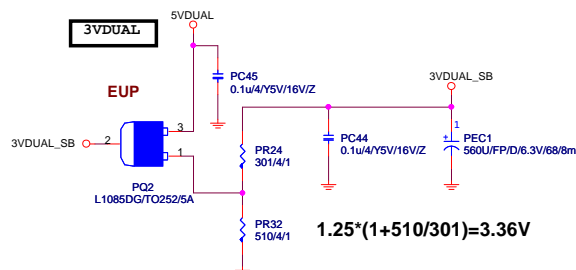
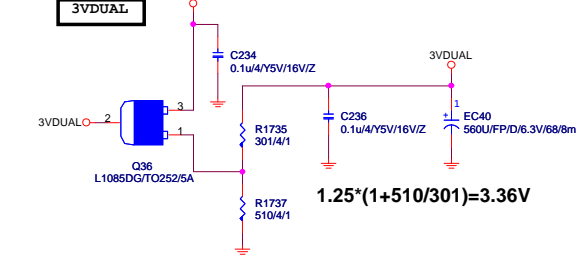
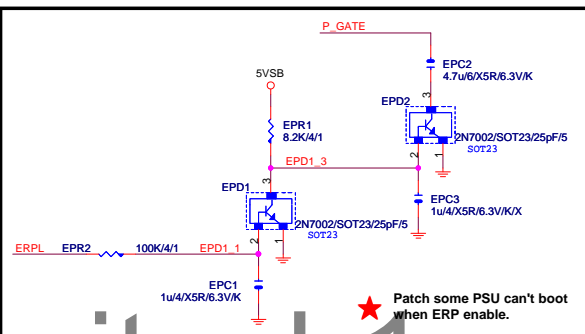
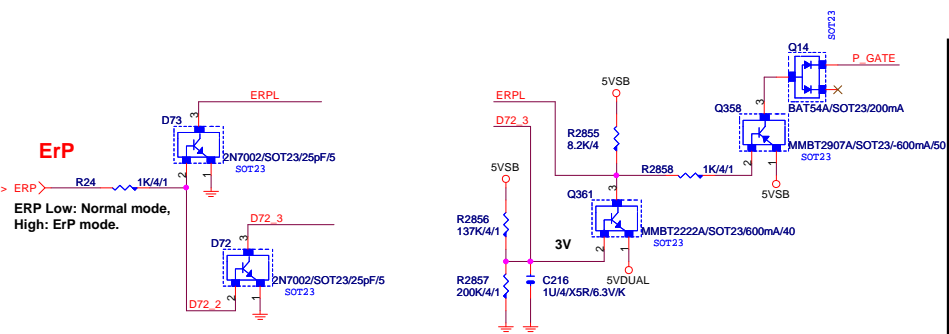
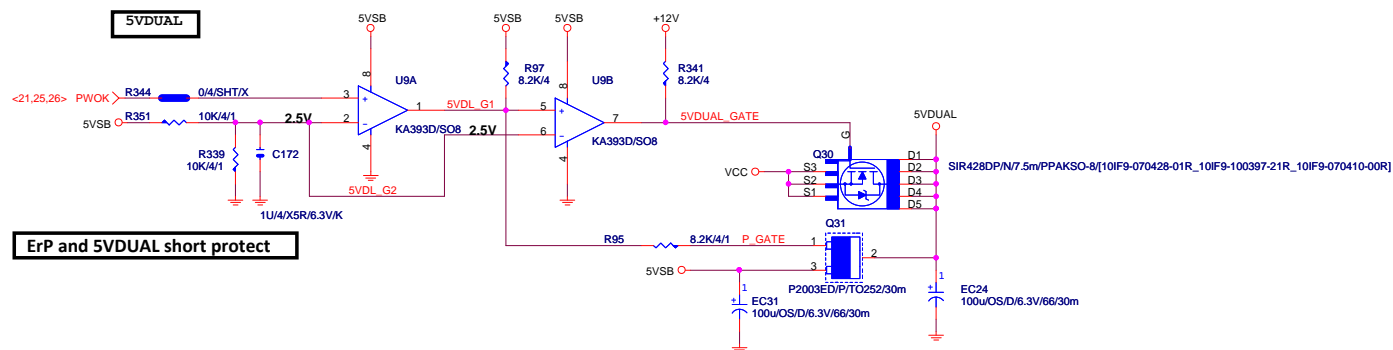
COM PORT



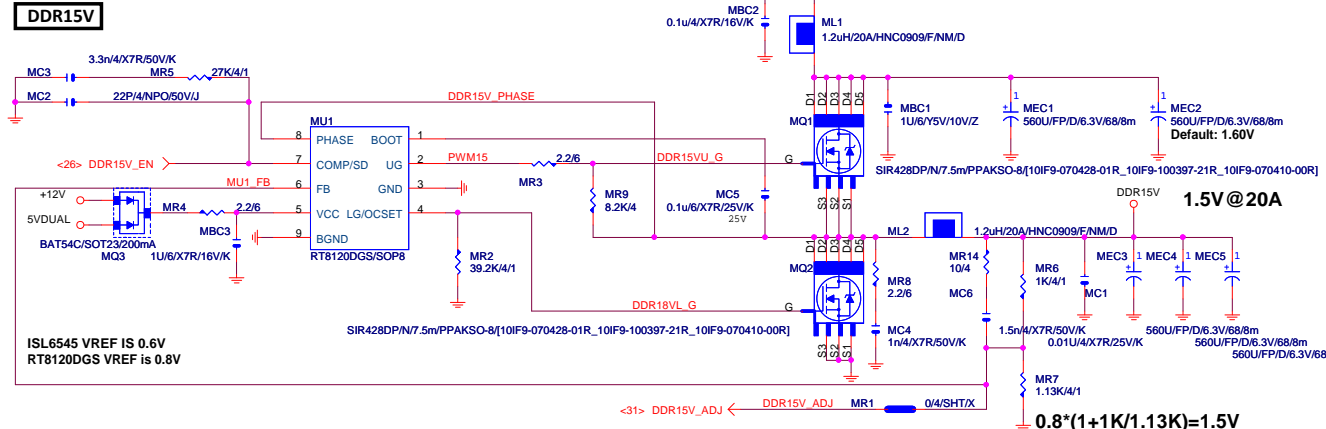


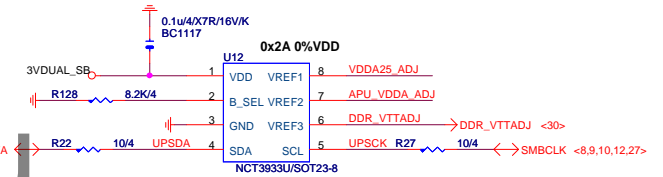




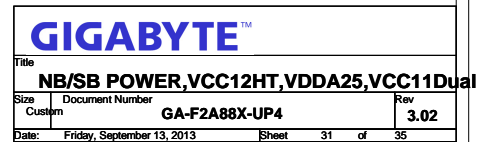


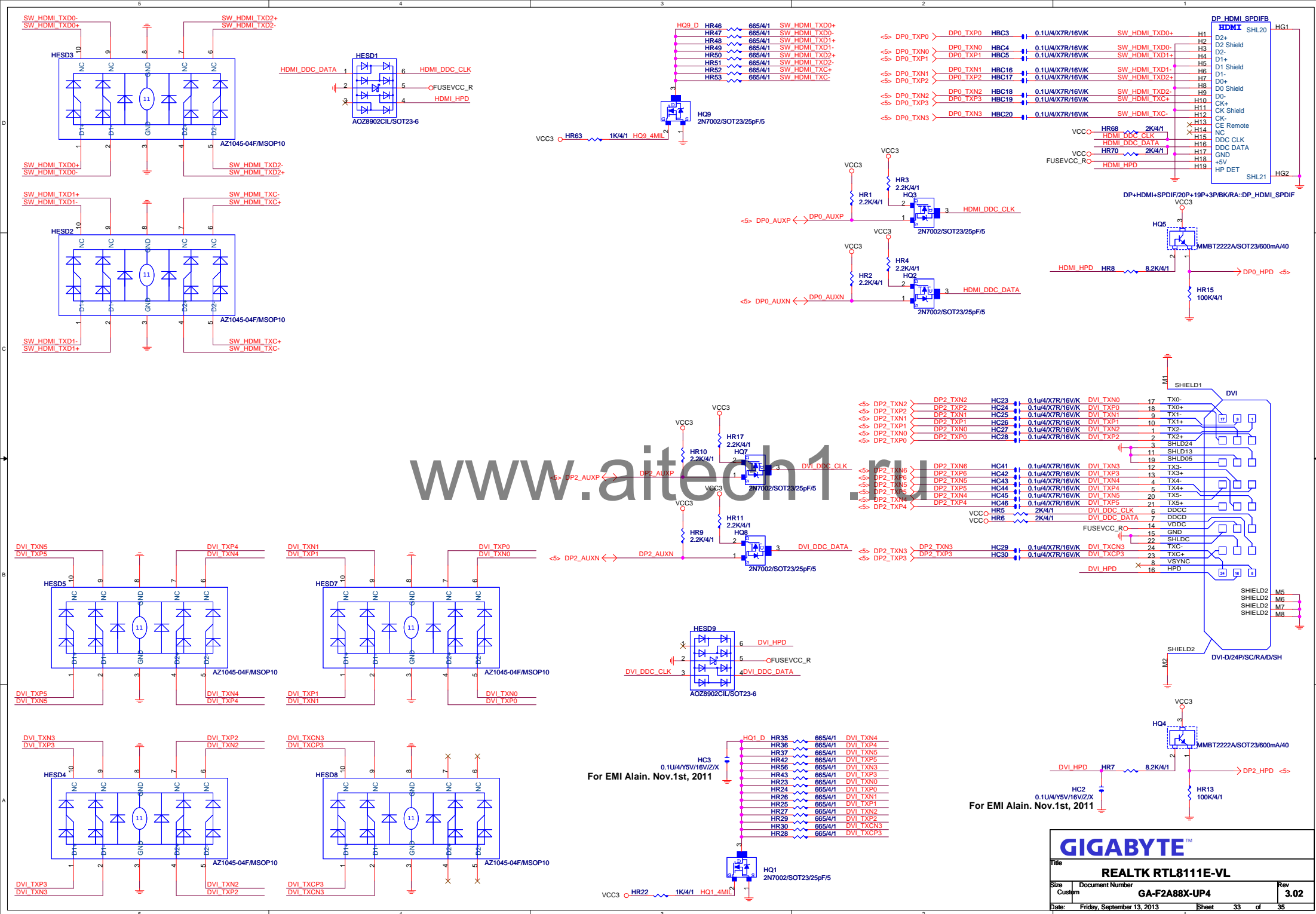
www.aitech1.ru

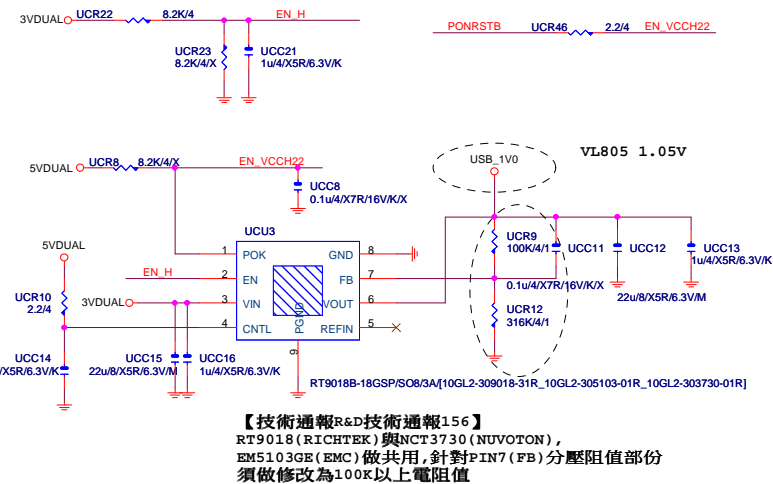
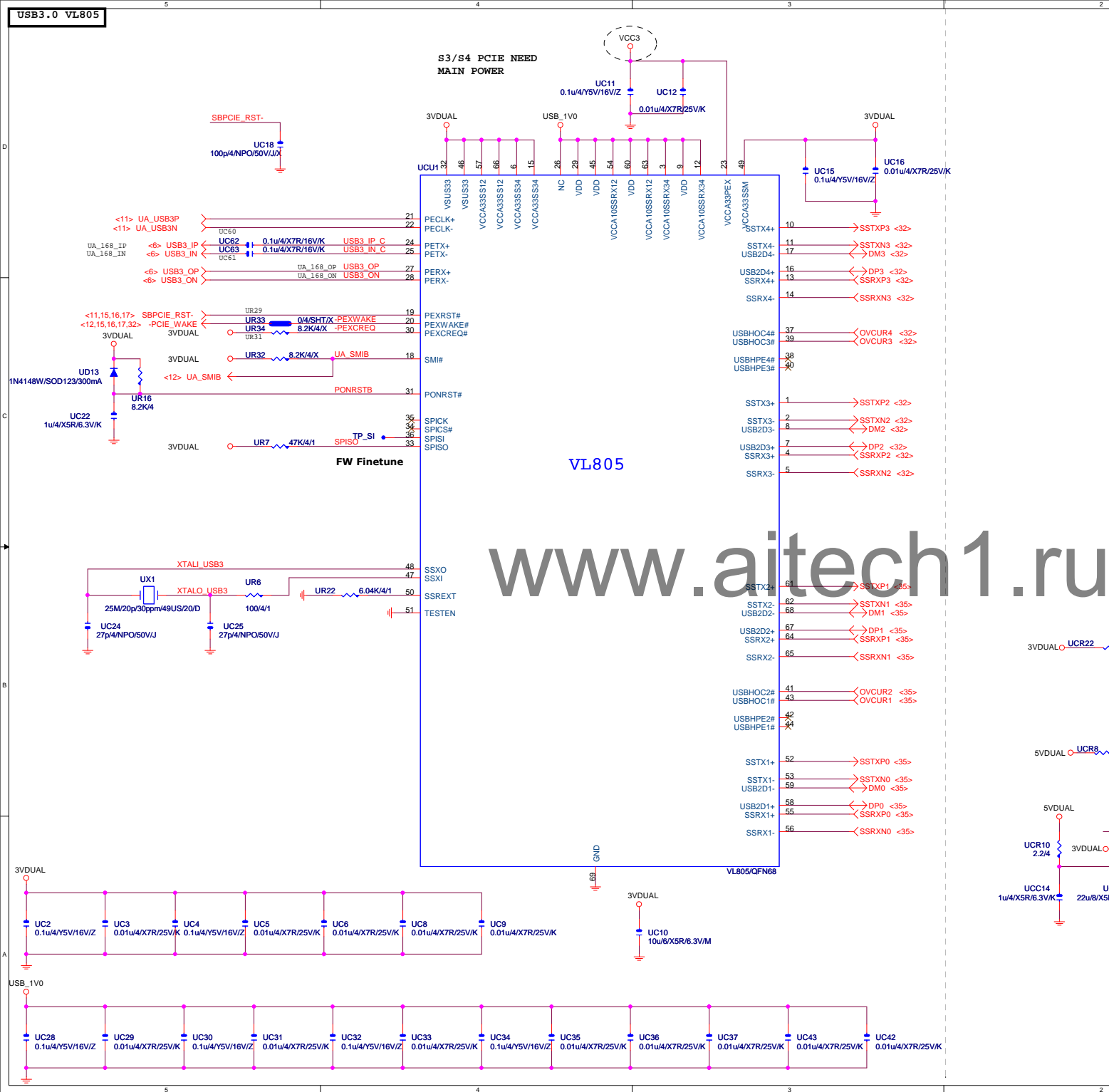




Q62_FB
R16
2.2K/4/1
R16=1.90K→VDDA25=2.46V,
R16=1.91K→VDDA25=2.62V
←8,9,10,12,25→ SMADATA ←

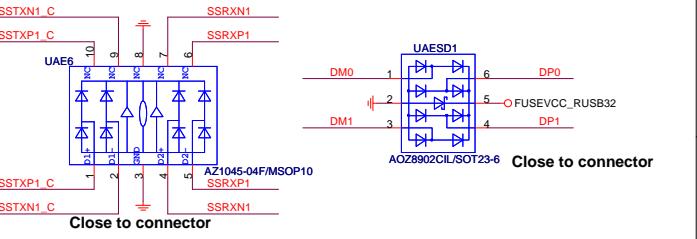
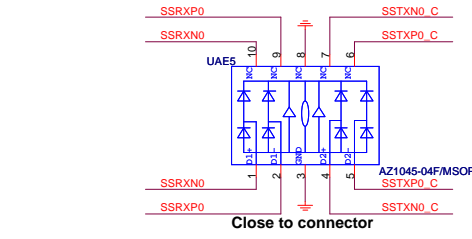
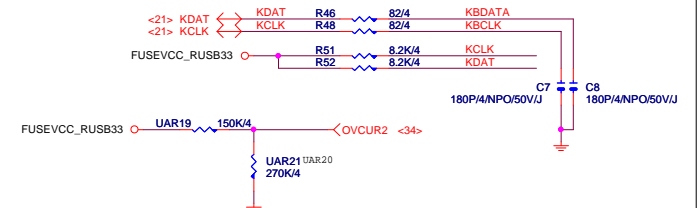
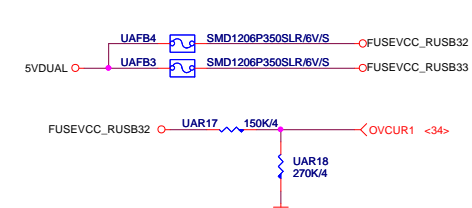
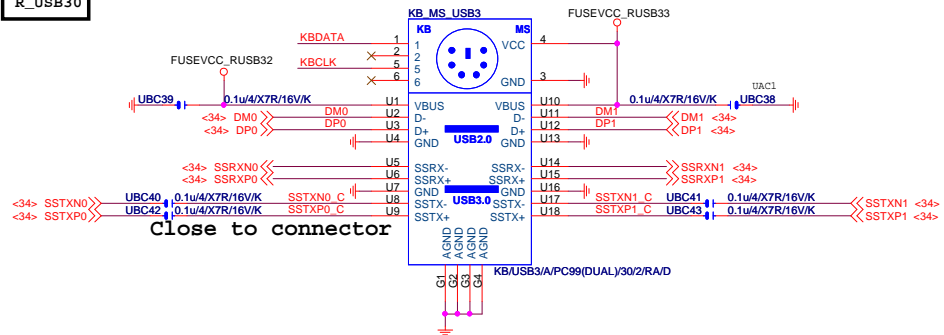




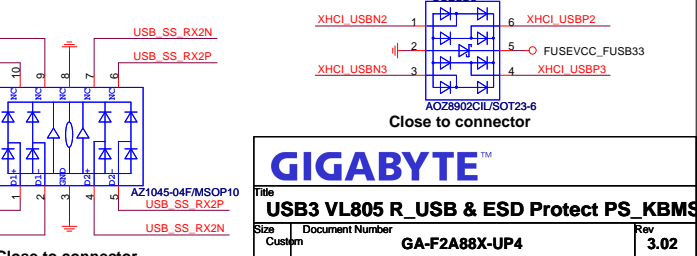
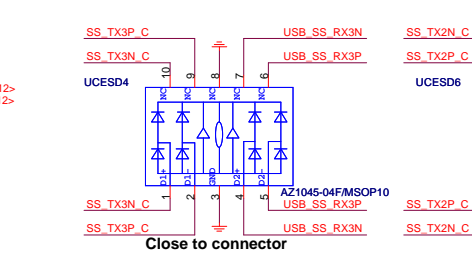
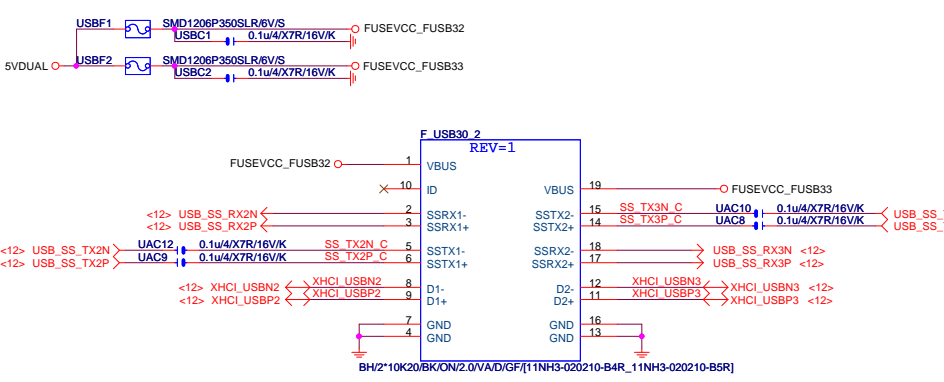


GIGABYTE			
Title			
USB3 VL805 HOST CTRL			
Size	Document Number	GA-F2A88X-UP4	Rev
Custom			3.02
Date: Friday, September 13, 2013			Sheet 34 of 35

R_USB30



F_USB30



www.aitech1.ru

GIGABYTE

Title: **USB3 VL805 R_USB & ESD Protect PS_KBMS**

Size: Custom

Document Number: **GA-F2A88X-UP4**

Date: Friday, September 13, 2013

Sheet: 35 of 35

Rev: **3.02**