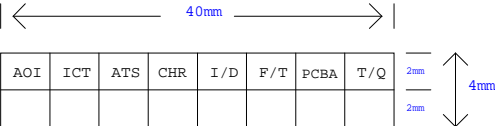


Project : MB40IAX Schematics Rev : B1

Intel Sandy Bridge CPU + Intel Cougar Point Chipset + ATi Whistler XT

Page	Content
01	Cover Page
02	System Block Diagram
03	Power Diagram
04	Power Sequence
05	GPIO & Power Consumption
06	Sandy Bridge_DMI,FDI,PEG
07	Sandy Bridge_DDR3
08	Sandy Bridge_Power
09	Sandy Bridge_GND
10	Sandy Bridge_Reserved
11	DDR3 SO-DIMM Channel A,B
12	Cougar Point_RTC,HDA,SATA
13	Cougar Point_PCIE,CLK,SMBus
14	Cougar Point_LVDS,CRT,Manage
15	Cougar Point_PCI,USB
16	Cougar Point_GPIO,MISC
17	Cougar Point_Power1
18	Cougar Point_Power2
19	Cougar Point_GND
20	LVDS/Webcam
21	CRT/HDMI
22	Mini Card/LED/LID/MMB/TP/HDD/ODD/IO Conn
23	Clock Gen (ICS9LRS3197)
24	USB 3.0 (ASMI042)
25	Audio Codec (ALC269)
26	Card Reader (RTS5159-GR)
27	EC (IT8518)/BIOS/KBC
28	Power Switch/Hole/FAN
29	DC In & Charger (OZ8618)
30	+VCC_Core (ISL95831HRTZ)
31	+VGFX_Core (ISL95831HRTZ)
32	+1.0/0.75/1.8/1.8V_DGPU/3VA
33	+5VA/+1.05V_VCCP(OZ815)
34	+1.5VS (OZ8111)/+0.85V
35	+VGA_Core (OZ8117)
36	VGA PCIE/LVDS
37	VGA I/O
38	VGA MEM_Interface
39	VGA Power 1
40	VGA Power 2
41	VGA GND/Straps
42	VGA DDR3_MEM_A
43	VGA DDR3_MEM_B
44	Change Notes

Phase	Revision History	
A0	06/30/2010	Initial REV.A
A1	08/13/2010	Release REV.A1
A2	09/13/2010	Release REV.A2
B0	10/20/2010	Release REV.B
B1	11/08/2010	Release REV.B1
C	??/??/2010	Release REV.C
10	??/??/2010	Release REV.10



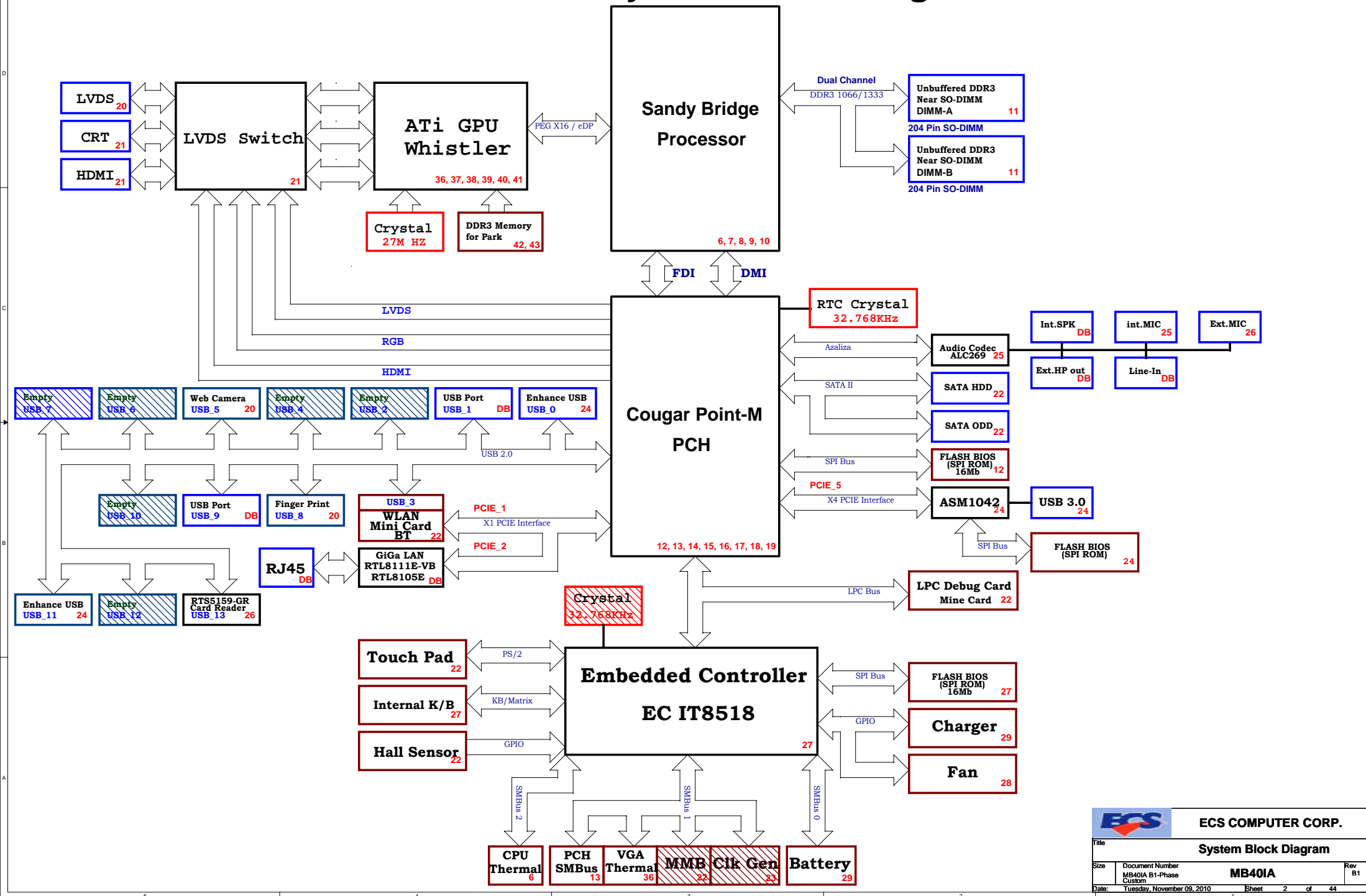
PCB
 PCB
 37GMB4100-B1

MB40IA MB Ver:B1
 P/N:37GMB4100-B1
 PCB M/B MB40IA1 R:B1 201.9*178.0*1.2 6L

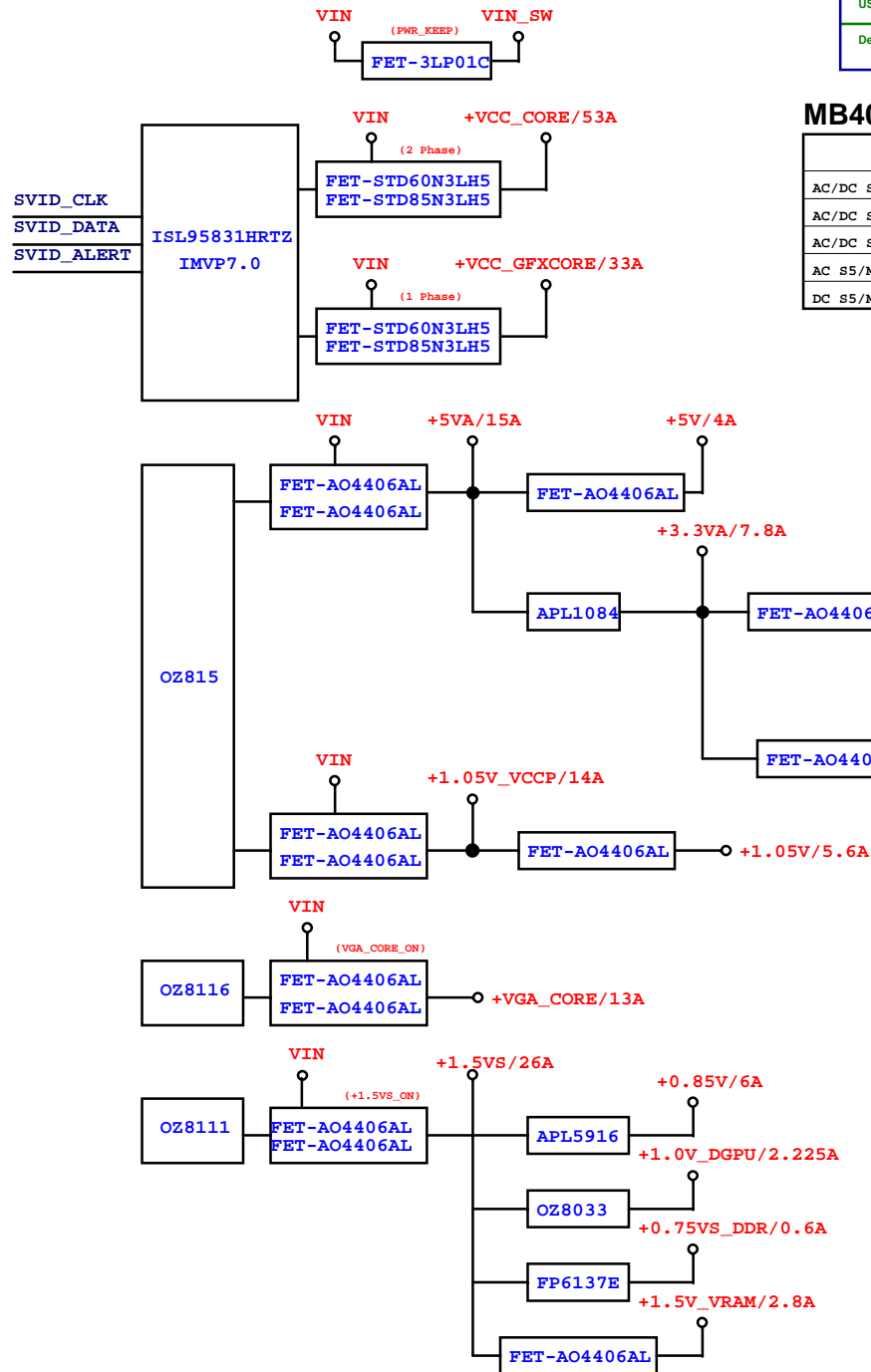
MB40IA Rev. P/N List :

Phase Revision	PCB P/N	PCBA P/N	PCBA P/N
Initial REV.A0	37GMB4100-A0	82GMB4100-A0	None
Release REV.A1	37GMB4100-A1	82GMB4B00-A1	82GMB4110-A1
Release REV.A2	37GMB4100-A2	82GMB4C00-A2	82GMB4D00-A2
Release REV.B0	37GMB4100-B0	82GXXXXXX-B0	82GMB4D00-B0
Release REV.B1	37GMB4100-B1	82GXXXXXX-B1	82GXXXXXX-B1
Release REV.C	37GXXXXXX-C0	82GXXXXXX-C0	82GXXXXXX-C0
Release REV.10	37GXXXXXX-10	82GXXXXXX-10	82GXXXXXX-10
		Whistler ?G MB40IA2(Haier)	WhistlerPro ?G MB40IA3(Hasee)

Huron River System Block Diagram



Power Block Diagram



USB Port Devices Table

USB Ports	USBP0 USBN0	USBP1 USBN1	USBP2 USBN2	USBP3 USBN3	USBP4 USBN4	USBP5 USBN5	USBP6 USBN6	USBP7 USBN7	USBP8 USBN8	USBP9 USBN9	USBP10 USBN10	USBP11 USBN11	USBP12 USBN12	USBP13 USBN13
Devices	Enhance USB	USB Port	None	WLAN	None	Web Camera	Disable	Disable	Finger Print	USB Port	None	Enhance USB	None	Card Reader

MB401A M/B Power Rail State :

	+*V_LDO	+*VA	+*V	+*VS	CLK
AC/DC S0/Moff (Full On)	ON	ON	ON	ON	ON
AC/DC S3/Moff (STR)	ON	ON	ON	OFF	Only MCH BCLK
AC/DC S4/Moff (STD)	ON	ON	OFF	OFF	OFF
AC S5/Moff (Soft Off)	ON	ON	OFF	OFF	OFF
DC S5/Moff (Soft Off)	ON	OFF	OFF	OFF	OFF

System Power Rail

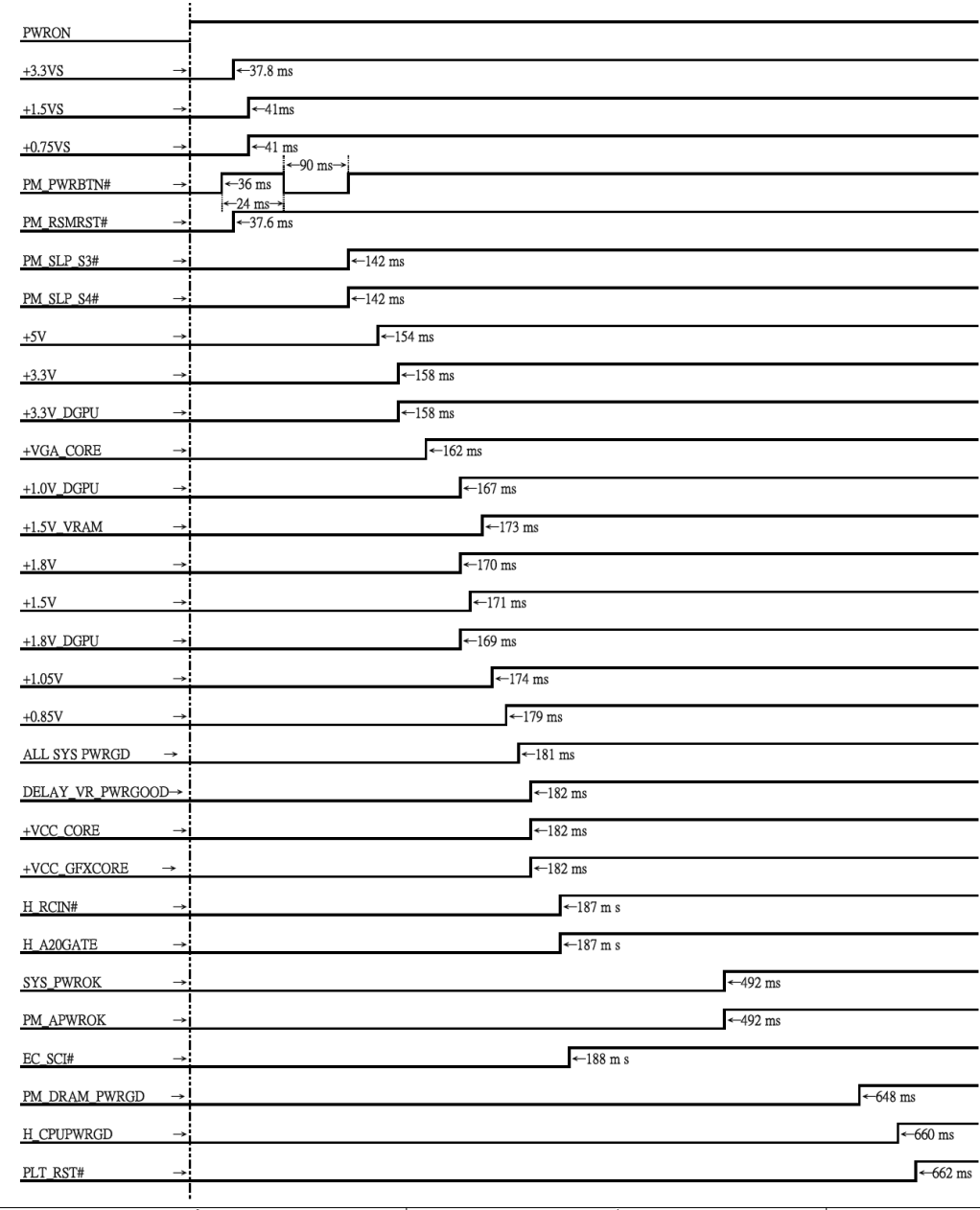
System Power Rail		Laptop Mode				
Voltage Name	Control Pin	S0	S1	S3	S4	S5
+V GFX_CORE	GFX_IMON	ON	ON	OFF	OFF	OFF
+VCC_CORE	+VCC_CORE_ON	ON	ON	OFF	OFF	OFF
+V1.05S	+V1.5S_ON	ON	ON	OFF	OFF	OFF
+V1.5S	+V1.5S_ON	ON	ON	OFF	OFF	OFF
+V3.3S	+V3.3S_ON	ON	ON	OFF	OFF	OFF
+V5S	+V5S_ON	ON	ON	OFF	OFF	OFF
+V1.1S_VTT	+V5S	ON	ON	OFF	OFF	OFF
+V1.8S	+V5S	ON	ON	OFF	OFF	OFF
+V1.1S	+V5S	ON	ON	OFF	OFF	OFF
+V0.75DDR	+V1.5	ON	ON	ON	OFF	OFF
+V1.5	+V1.5_ON	ON	ON	ON	OFF	OFF
+V3.3	+V3.3_ON	ON	ON	ON	OFF	OFF
+V5	+V5_ON	ON	ON	ON	OFF	OFF
VIN_SW	PWR_KEEP	ON	ON	ON	OFF	OFF
+V3.3_AUX	AC:follow VIN up	ON	ON	ON	ON	ON
+V5_AUX	DC:AUX_ON	ON	ON	ON	OFF	OFF
	AC:follow VIN up	ON	ON	ON	ON	ON
	DC:AUX_ON	ON	ON	ON	OFF	OFF

CPU Huron River Power Rail		Laptop Mode				
VCC	+VCC_CORE	S0	S1	S3	S4	S5
VTT	+V1.1S	ON	ON	OFF	OFF	OFF
VAXG	+VCC_CORE	ON	ON	OFF	OFF	OFF
VCCPLL1	+V1.8S	ON	ON	OFF	OFF	OFF
VDDQ	+V1.5S	ON	ON	OFF	OFF	OFF

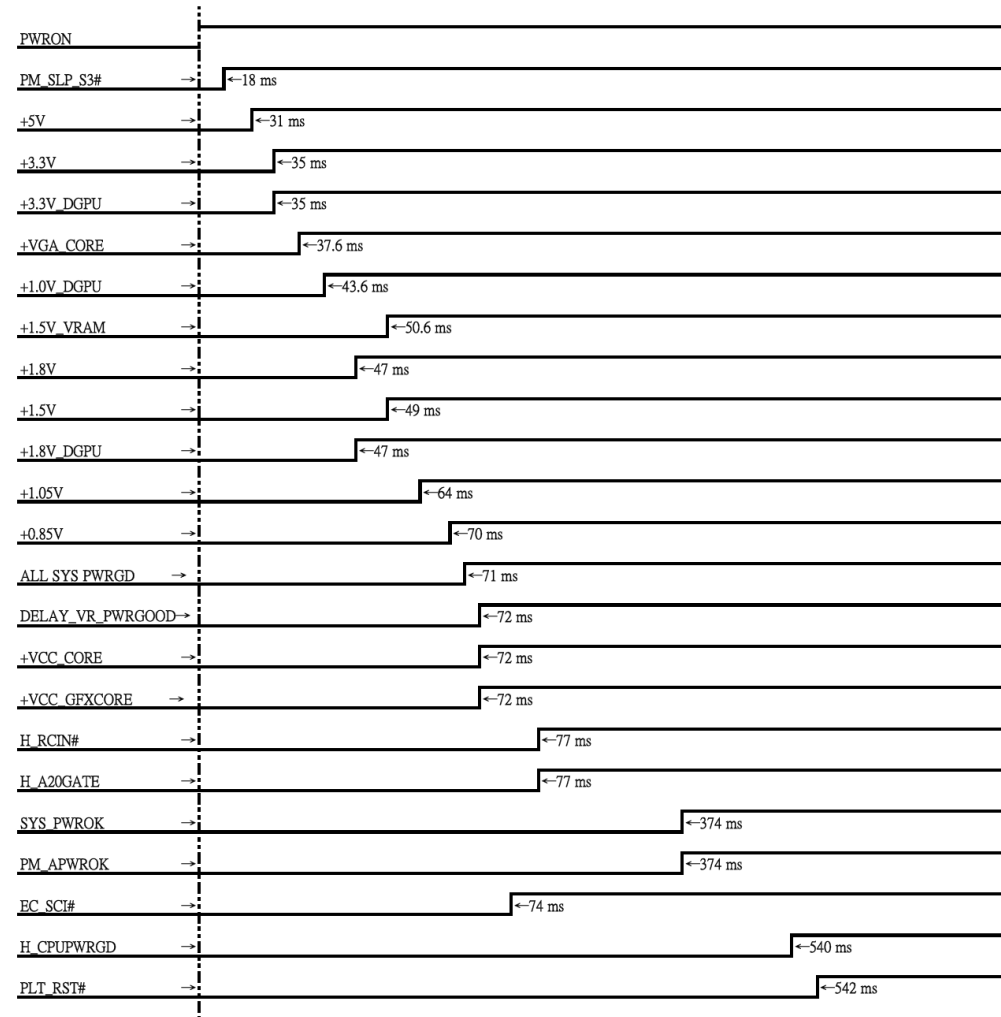
SB Ibex Peak Power Rail		Laptop Mode				
VCCACLK	+V1.1S	S0	S1	S3	S4	S5
VCCCORE	+V1.1S	ON	ON	OFF	OFF	OFF
VCCAPLLEXP	+V1.1S	ON	ON	OFF	OFF	OFF
VCCIO	+V1.1S	ON	ON	OFF	OFF	OFF
VCC3_3	+V3.3S	ON	ON	OFF	OFF	OFF
VCCFDIPLL	+V1.1S	ON	ON	OFF	OFF	OFF
VCCVRM	+V1.8S	ON	ON	OFF	OFF	OFF
VCCPNAND	+V1.8S	ON	ON	OFF	OFF	OFF
VCCDMI	+V1.1S_VTT	ON	ON	OFF	OFF	OFF
VCCALVDS	+V3.3S	ON	ON	OFF	OFF	OFF
VCCTX_LVDS	+V1.8S	ON	ON	OFF	OFF	OFF
VCCADAC	+V3.3S	ON	ON	OFF	OFF	OFF
V5REF	+V5S	ON	ON	OFF	OFF	OFF
VCCADPLL	+V1.1S	ON	ON	OFF	OFF	OFF
VCCSATAPLL	+V1.1S	ON	ON	OFF	OFF	OFF
V_CPU_IO	+V1.1S	ON	ON	OFF	OFF	OFF
VCCADPLLA	+V1.1S	ON	ON	OFF	OFF	OFF
VCCLAN	+V1.1S	ON	ON	OFF	OFF	OFF
VCCSUSHDA	+V3.3A	ON	ON	ON	ON	ON
VCCSUS3_3	+V3.3A	ON	ON	ON	ON	ON
VCCRTC	+V3A	ON	ON	ON	ON	ON
V5REF_SUS	+V5A	ON	ON	ON	ON	ON

System Power On Sequence

MB40IA A2 Phase Power Sequence(Power ON)



MB40IA A2 Phase Power Sequence(S3)



PCH GPIO	
GPIO0	S_GPIO
GPIO1	SMC_RUNTIME_SCI#
GPIO2	MPC_PWR_CTRL#
GPIO3	SATA_ODD_DA#
GPIO4	EXTTS_SNI_DRV0_PCH
GPIO5	EXTTS_SNI_DRV1_PCH
GPIO6	USB_SMI
GPIO7	PCH_TACH3
GPIO8	ICC_EN#
GPIO9	USB_OC#_10_11
GPIO10	USB_OC#_12_13
GPIO11	PCH_GPIO11
GPIO12	PCH_GPIO12
GPIO13	NC
GPIO14	USB_OC#_13_14
GPIO15	HOST_ALERT#1
GPIO16	SATA_DET#4
GPIO17	PCH_TACH0
GPIO18	CLK_PCIE_LAN_REQ#_R
GPIO19	BBS_BIT0
GPIO20	NC
GPIO21	SATA_DET0#
GPIO22	BIOS_REC
GPIO23	NC
GPIO24	HOST_ALERT#2
GPIO25	NC
GPIO26	CLK_USB_OE#_R
GPIO27	PCH_GPIO27
GPIO28	PLL_ODVR_EN
GPIO29	PM_SLP_LAN#
GPIO30	SUS_PWR_ACK_R
GPIO31	AC_PRESENT
GPIO32	PM_CLKRUN#
GPIO33	PORST#_PCH
GPIO34	PX_MODE
GPIO35	PLTRST#_PCH
GPIO36	PCH_GPIO36
GPIO37	FDI_OVRVLTG
GPIO38	MFG_MODE
GPIO39	GFX_CRB_DET
GPIO40	USB_OC#_2_3
GPIO41	USB_OC#_4_5
GPIO42	USB_OC#_6_7
GPIO43	USB_OC#_8_9
GPIO44	NC
GPIO45	NC
GPIO46	NC
GPIO47	PEG_CLKREQ#
GPIO48	TEST_SET_UP
GPIO49	PCH_GPIO49
GPIO50	DGPU_HOLD_RST
GPIO51	BBS_BIT1
GPIO52	PCI_REQ#2
GPIO53	NC
GPIO54	PCI_REQ#3
GPIO55	STP_A16OVR
GPIO56	NC
GPIO57	TEST_DET
GPIO58	SMB1_CLK_EC
GPIO59	USB_OC#_0_1
GPIO60	RST_GATE
GPIO61	NC
GPIO62	NC
GPIO63	NC
GPIO64	NC
GPIO65	USB_48M_P
GPIO66	LAN25M_P
GPIO67	SEL24_48M_P
GPIO68	10K to +3.3V
GPIO69	1.5K to GND
GPIO70	1.5K to +3.3V
GPIO71	1.5K to +3.3V
GPIO72	PM_BATLOW#
GPIO73	CLK_MINI1_OE#_R
GPIO74	PCH_GPIO74
GPIO75	SMB1_DAT_EC

ITE8518 GPIO Pin Definition list	
GPA0	BTL_BEEP
GPA1	EC_BL_PWM
GPA2	WLAN_ON
GPA3	WEBCAM_EN
GPA4	RF_LED
GPA5	+0.85V_ON
GPA6	RECOVERY
GPA7	BT_EN#
GPB0	SENBAT_V
GPB1	COLOR_ENGINE_EN
GPB2	+VGA_BACO
GPB3	SMBCLK_EC0
GPB4	SMBDAT_EC0
GPB5	H_A20GATE
GPB6	H_RCIN#
GPB7	OPTION2
GPC0	+1.8V_ON
GPC1	SMBCLK_EC1
GPC2	SMBDAT_EC1
GPC3	SAFETY
GPC4	+3.3V_ON
GPC5	+5V_ON
GPC6	+1.05V_VCCP_ON
GPC7	PM_PWRBTN#
GPD0	AC_IN
GPD1	OPTION1
GPD2	BUF_PLT_RST#
GPD3	EC_SCI#
GPD4	SATA_ODD_PWRGT_EC
	+1.8V_DGPU_ON
GPD5	AC_PRESENT
GPD6	+1.5VS_ON
GPD7	+1.2V_ON
GPE0	PM_RSMRST#
GPE1	FNOPTION
GPE2	PM_APWROK
GPE3	+VGA_ON
GPE4	PWRON
GPE5	OPTION3
GPE6	SATA_LED1#
GPE7	MUTE_AMP#
GPF0	EC_PROCHOT
GPF1	CHG_R_LED
GPF2	CHG_B_LED
GPF3	PWR_LED
GPF4	TP_CLK
GPF5	TP_DATA
GPF6	EC_PECI
GPF7	PM_SYSRST#
GPH0	PWR_KEEP
GPH1	ME_LOCK
GPH2	USB0_EN#
GPH3	PCH_SPI_CS#
GPH4	PCH_SPI_CLK
GPH5	PCH_SPI_SO
GPH6	PCH_SPI_SI
GPG0	EC_BL_EN
GPG1	+3.3VS_ON
GPG2	FLFRAME#
CPG6	LID#
ADC0/GPI0	BATT_TEMP
ADC1/GPI1	ADAPTOR_I
ADC2/GPI2	BAT_I
ADC3/GPI3	BAT_V
ADC4/GPI4	NC
ADC5/GPI5	PM_SLP_S4#
ADC6/GPI6	PM_SLP_S3#
	SUB_PWR_ACK
ADC7/GPI7	SATA_ODD_DA#_EC
	PX_MODE

ITE8518 GPIO Pin Definition list	
DAC0/GPV0	Past-charge-EN
DAC0/GPV1	CHG_ON
DAC0/GPV2	FAN_CTRL0
DAC0/GPV3	CHG_I
DAC0/GPV4	MMB_RESET#
DAC0/GPV5	SET_V

ITE8518 KB Matrk interface	
KS10/STB#	KB_SIN0
KS11/AFD#	KB_SIN1
KS12/INIT#	KB_SIN2
KS13SLIN#	KB_SIN3
KS14	KB_SIN4
KS15	KB_SIN5
KS16	KB_SIN6
KS17	KB_SIN7
KS00/PD0	KB_SOUT0
KS01/PD1	KB_SOUT1
KS02/PD2	KB_SOUT2
KS03/PD3	KB_SOUT3
KS04/PD4	KB_SOUT4
KS05/PD5	KB_SOUT5
KS06/PD6	KB_SOUT6
KS07/PD7	KB_SOUT7
KS08/ACK#	KB_SOUT8
KS09/BUSY	KB_SOUT9
KS10/PE	KB_SOUT10
KS011/ERR#	KB_SOUT11
KS012/SLCT	KB_SOUT12
KS013	KB_SOUT13
KS014	KB_SOUT14
KS015	KB_SOUT15

ITE8518 SPI Flash ROM interface	
FSSCE0#//GPG2	FLFRAME#
FSCE#	EC_SPI_CS#
FMOSI	EC_SPI_SI
FMOSO	EC_SPI_SO
DSR0#//GPG6	LID#
FSCK	EC_SPI_CLK
SCI#//GPG0	EC_BL_EN

ITE8518 System & LPC Bus	
LAD0	LPC_AD0
LAD1	LPC_AD1
LAD2	LPC_AD2
LAD3	LPC_AD3
SERIRQ	INT_SERIRQ
LFRAME#	LPC_FRAME#
LPCCCLK	CLK_PCI_KBC
WRST#	LRST1#

ITE8518 Clock	
CLK32K	EC32KI
CK32KE	EC32KO

ITE8518 Power	
VSTBY0	+3.3VA
VSTBY1	+3.3VA
VSTBY2	+3.3VA
VSTBY3	+3.3VA
VSTBY4	+3.3VA
VSTBY5	+3.3VA
VBAT	+3.3VA_RTC
AVCC	+3.3VA
VCC	+3.3V

Gantiga TDP				
	CPU Socket P	GMCH GFX Freq/Core Volt	Memory	TDP
Gantiga	Penryn SV/FSB800	800MHZ/1.05V	DDR3-1066/ 2 CH	12.0W
Gantiga	Penryn SV/FSB800	800MHZ/1.05V	DDR3-1066/ 2 CH	12.0W
Gantiga	Penryn LV/FSB800	800MHZ/1.05V	DDR3-800/ 2 CH	10.5W
Gantiga	Penryn ULV/FSB800	800MHZ/1.05V	DDR3-800/ 2 CH	9.5W

Sandy Bridge CPU			
IMVP-7.0			
Voltage (V)	Current (mA)	Measure	Watt
+VCC_CORE	36000		
+VCC_GFXCORE	33000		
+1.05V_VCCP	8500		
+0.85V	6000		
+1.5VS	3000		
+1.8V	1200		

ITE8518 GND	
AVSS	GND
VSS0	GND
VSS1	GND
VSS2	GND
VSS3	GND
VSS4	GND
VSS5	GND
VSS6	GND

Cantiga			
VCC	ICC (mA)	W	TEMP (°C)
+3.3VS	269	0.887	105
+1.8V	192	0.345	
+1.5VS	76	1.14	
+1.05VS	6013	6.313	
GFX_CORE	6326	6.642	

PCH			
VCC	ICC (mA)	mW	TEMP (°C)
+5V	2	10	70
+5VS	2	10	
+3.3VA	162	534.6	
+3.3VS	320	1056	
+1.5VS	2220	3330	
+1.05V	1636	1717.8	

ITE8518			
VCC	ICC (mA)	mW	TEMP (°C)
+3.3VA	100	330	70

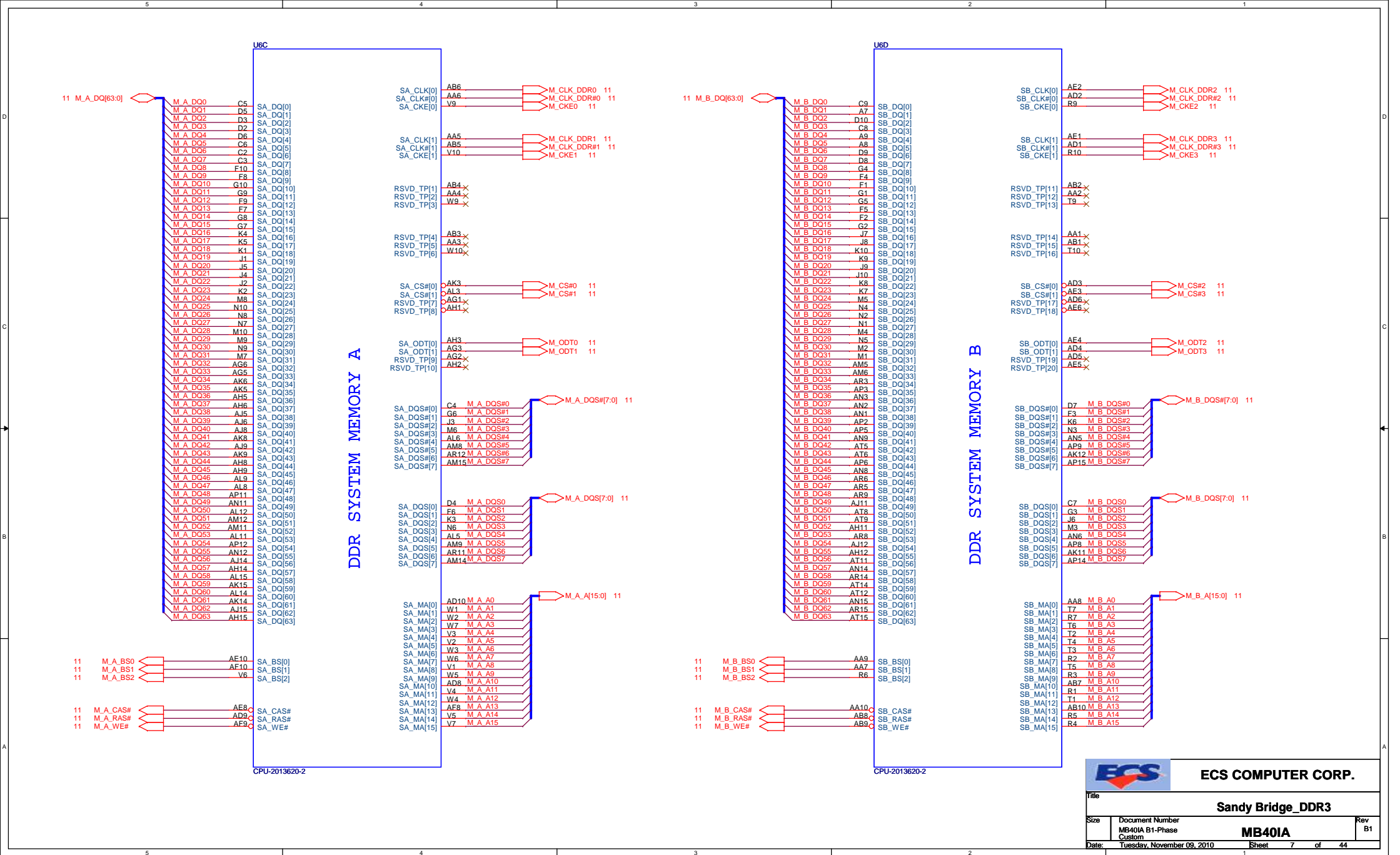
Clock Generator			
VCC	ICC (mA)	mW	TEMP (°C)
+3.3V	270	891	70

Cougar Point PCH			
Voltage (V)	Current (mA)	Measure	Watt
+1.05V_VCCP	43		
+1.05V	5565		
+1.8V	250		
+3.3VS	129		
+3.3V	260		
+5VA	1		
+5V	1		



ECS COMPUTER CORP.

GPIO & Power Consumption			
Title	Document Number	Rev	B1
Size	MB40A B1-Phase Custom	MB40IA	
Date	Tuesday, November 09, 2010	Sheet	5 of 44



ECS COMPUTER CORP.

Title				Sandy Bridge_DDR3			
Size	Document Number MB401A B1-Phase Custom					Rev B1	
MB401A							
Date:	Tuesday, November 09, 2010			Sheet	7	of	44

POWER

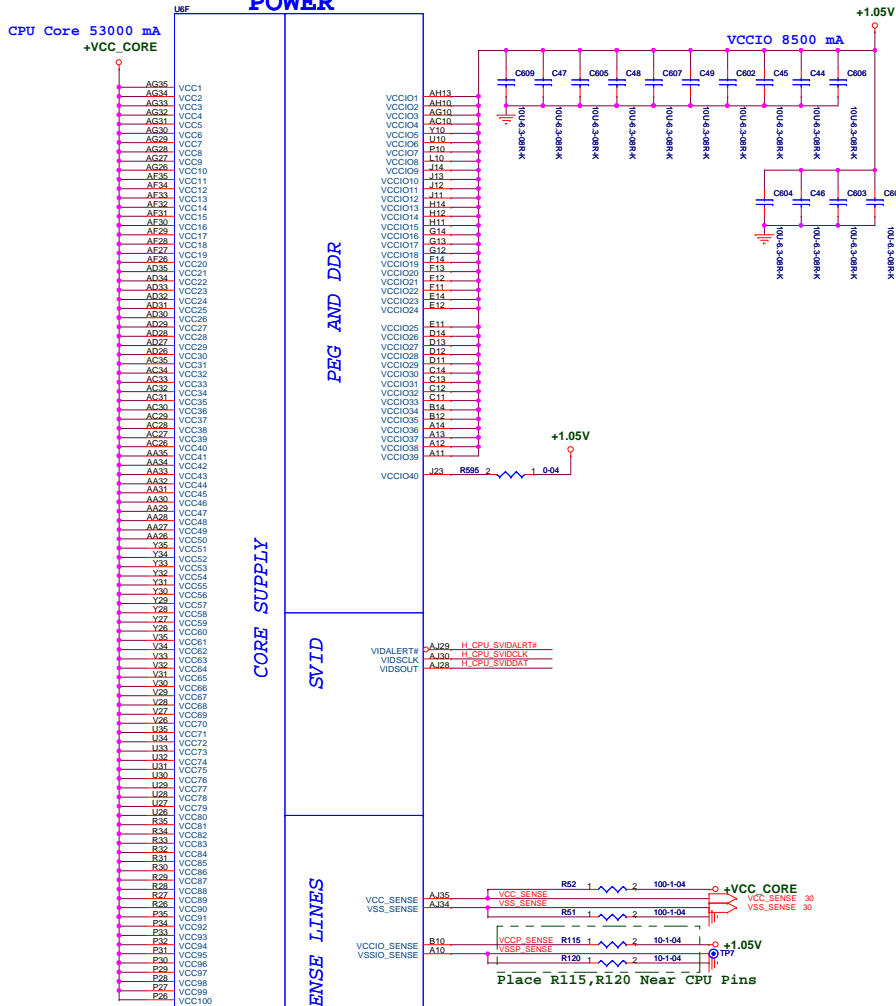
CPU Core 53000 mA
+VCC_CORE

PEG AND DDR

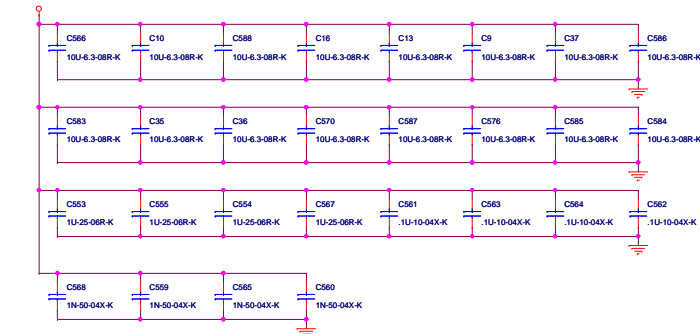
CORE SUPPLY

SVID

SENSE LINES



+VCC_CORE



SVID Clock

H_CPU_SVIDCLK R578 2 1 0-04 -> VR_SVID_CLK 30

SVID Alert

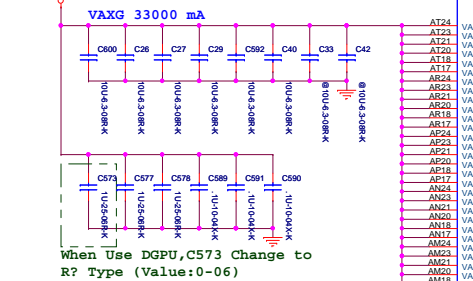
H_CPU_SVIDALRT R570 1 2 43.2-1-04 -> VR_SVID_ALERT# 30

SVID Data

H_CPU_SVIDDAT R580 2 1 0-04 -> VR_SVID_DATA 30

POWER

+VCC_GFXCORE

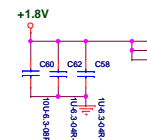


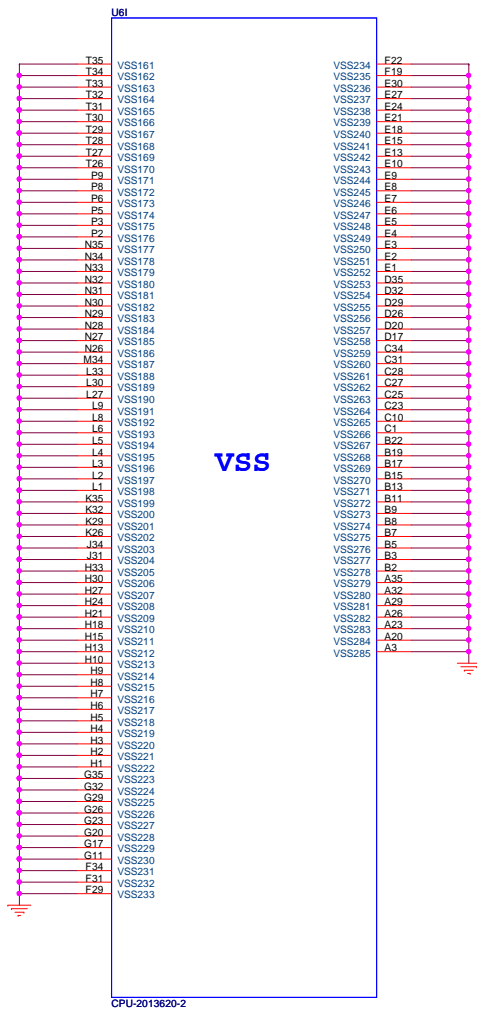
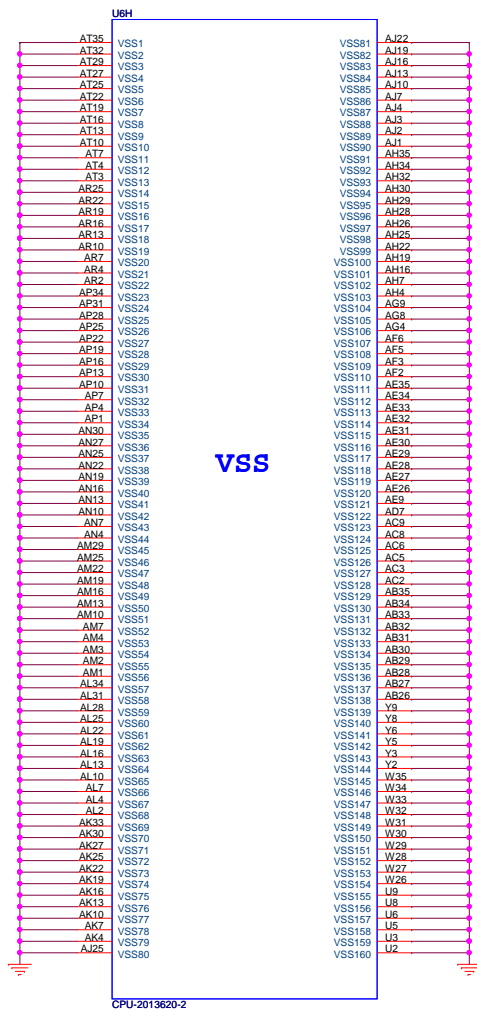
When Use DGPU, C573 Change to R? Type (Value:0-06)

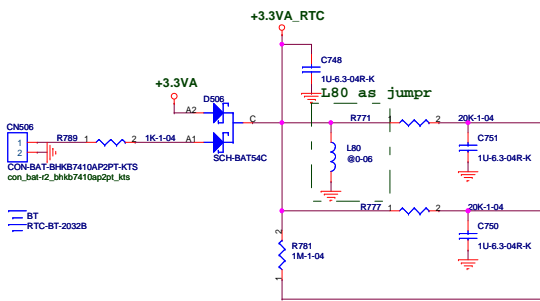
GRAPHICS

1.8V RAIL

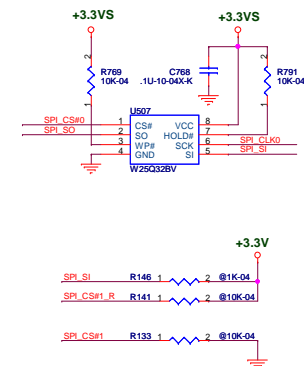
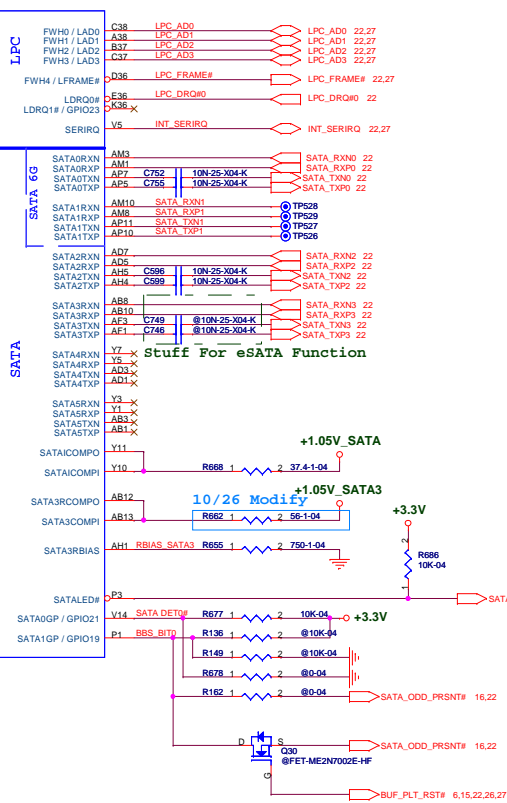
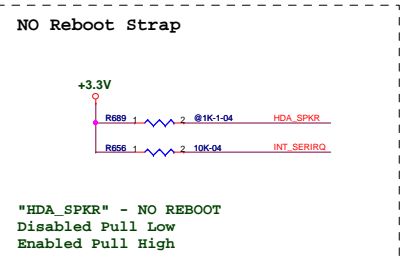
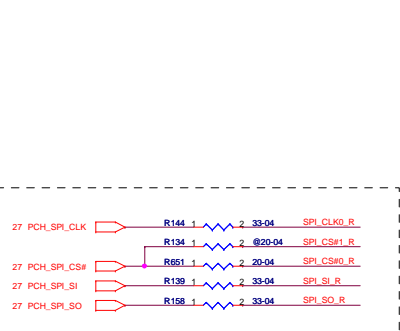
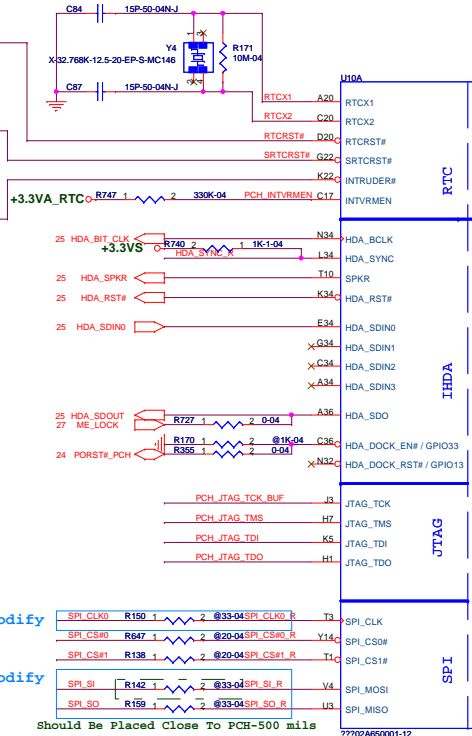
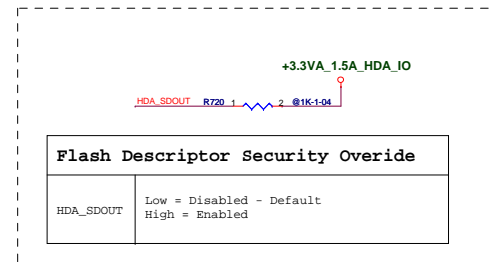
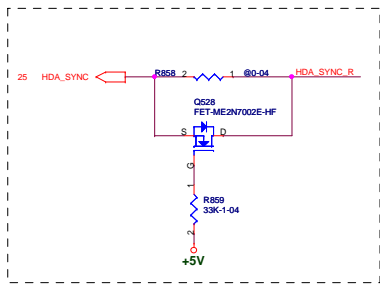
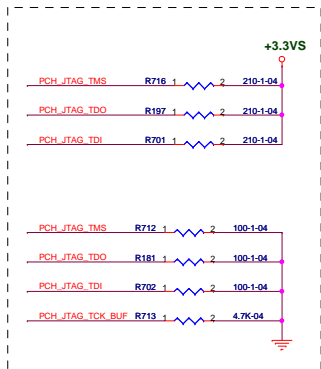
VCCPLL 1200 mA

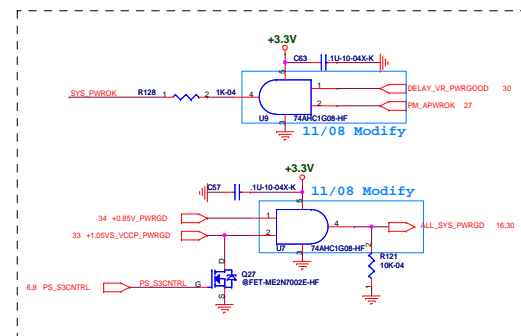
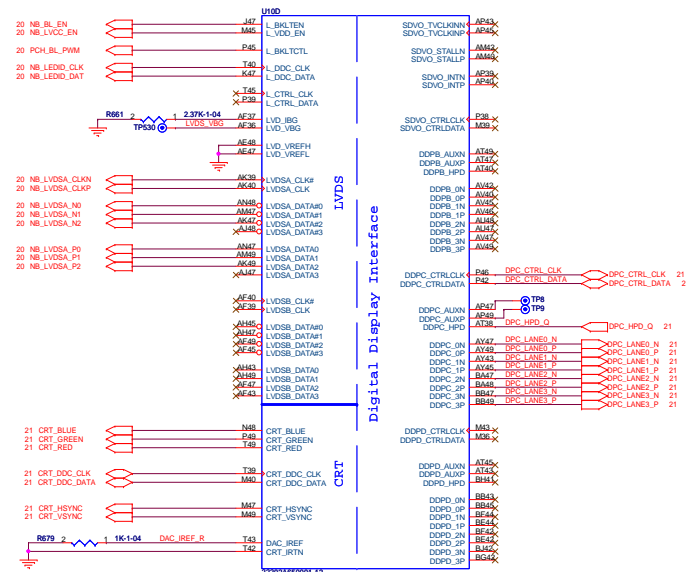
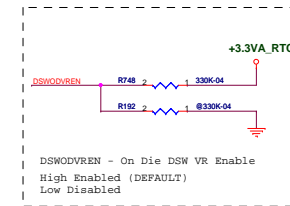
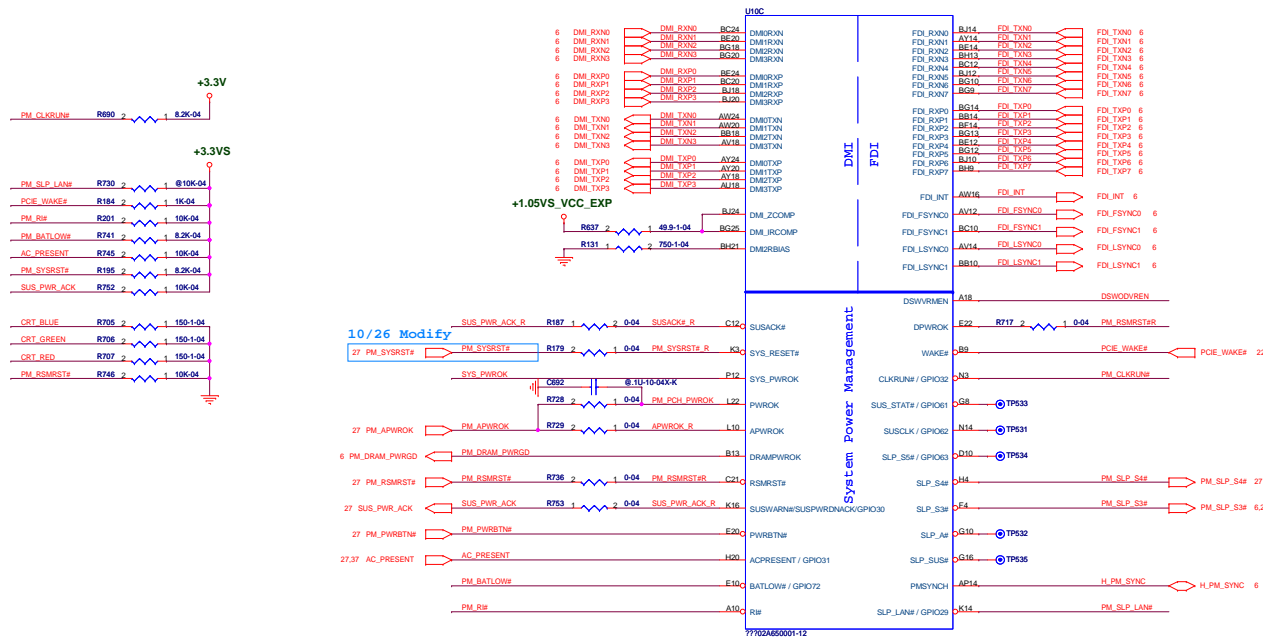


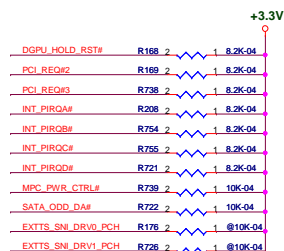




INTVRMEN- Integrated SUS
1.05V VRM Enable
High - Enable Internal VRs
Low - Enable External VRs







A16 swap override Strap	
STP_A16OVR	LOW = A16 swap override High = Default

6.12.22.26.27 BUF_PLT_RST#

+3.3V

C747 1U-10-04X-K

U11 74AHC1G08-HF

PLT_RST#

R899 10K-1-04

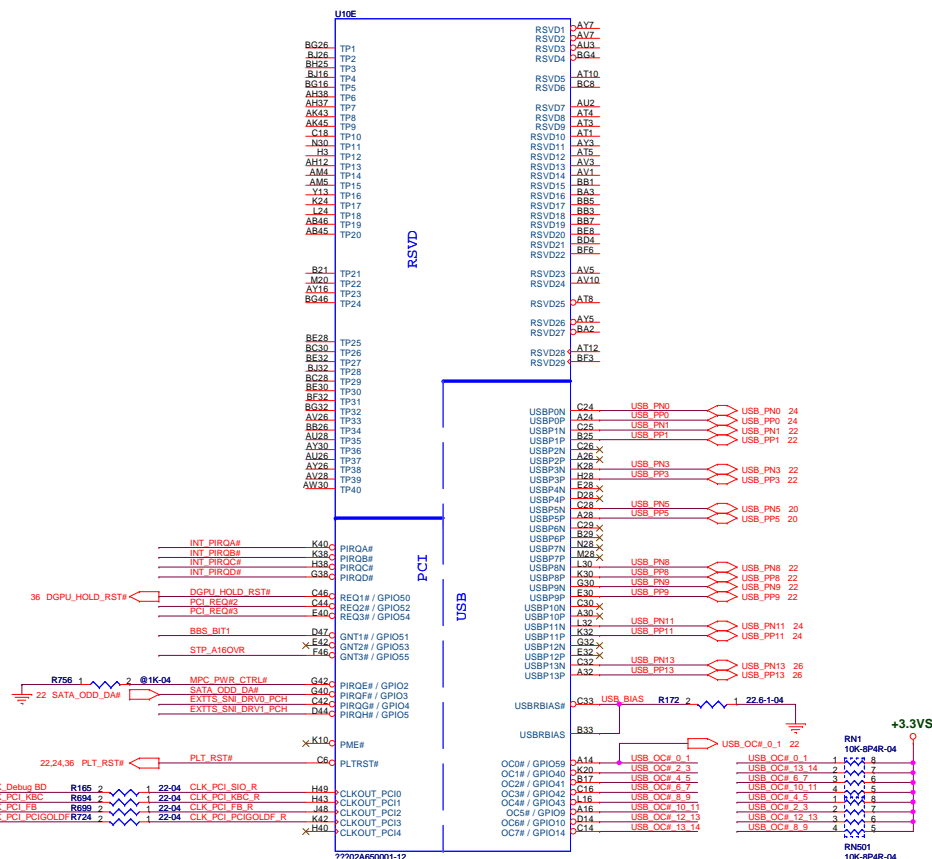
R220 10K-1-04

C86 1U-10-04X-K

11/02 Modify

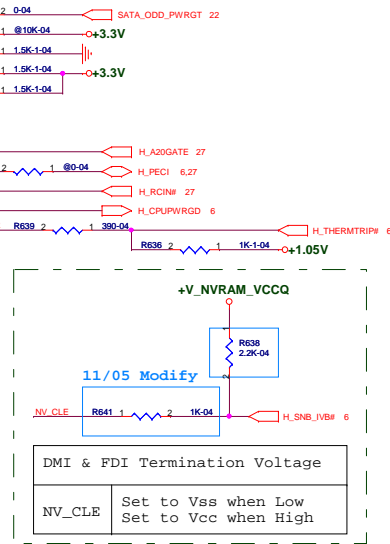
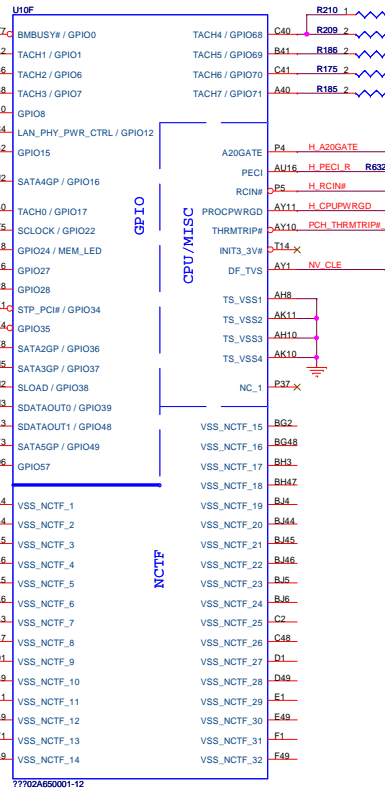
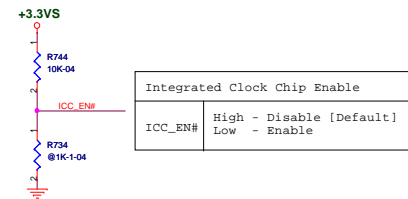
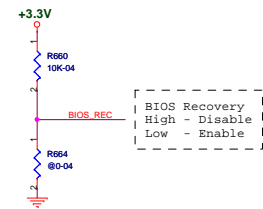
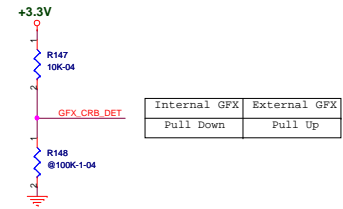
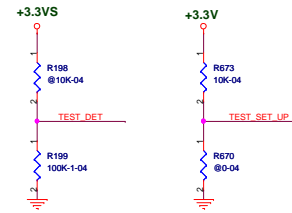
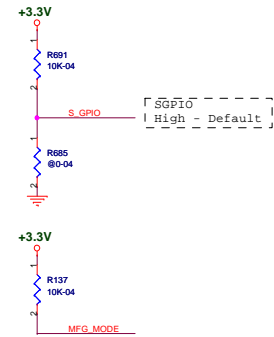
11/02 Modify

Buffer to reduce loading on PLT_RST#

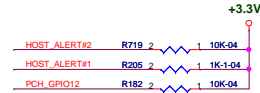
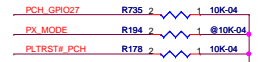
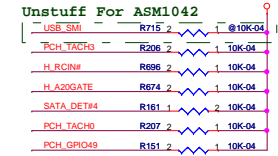


USBP0	Enhance USB
USBN0	USB_0
USBP1	USB Port
USBN1	USB_1
USBP2	
USBN2	
USBP3	WLAN
USBN3	USB_3
USBP4	
USBN4	
USBP5	Web Camera
USBN5	USB_5
USBP6	Disable
USBN6	
USBP7	Disable
USBN7	
USBP8	Finger Print
USBN8	USB_8
USBP9	USB Port
USBN9	USB_9
USBP10	
USBN10	
USBP11	Enhance USB
USBN11	USB_11
USBP12	
USBN12	
USBP13	Card Reader
USBN13	USB_13

12.22 SATA_ODD_PRSNT# R663 1 2 0-04 PCH_GPIO36



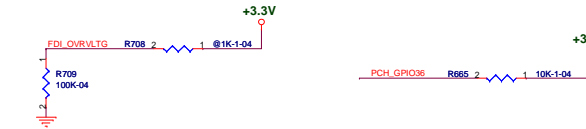
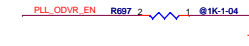
GPIO6 Status	
TACH2 /GPIO6	If not used, request a weak pull up When mount Chip of USB 3.0 , R715 unstuff.



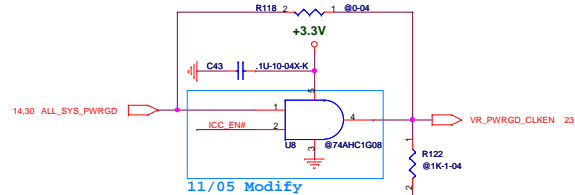
PLL ON DIE VR Enable

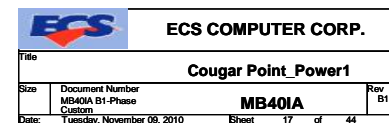
Enable - High [Default]

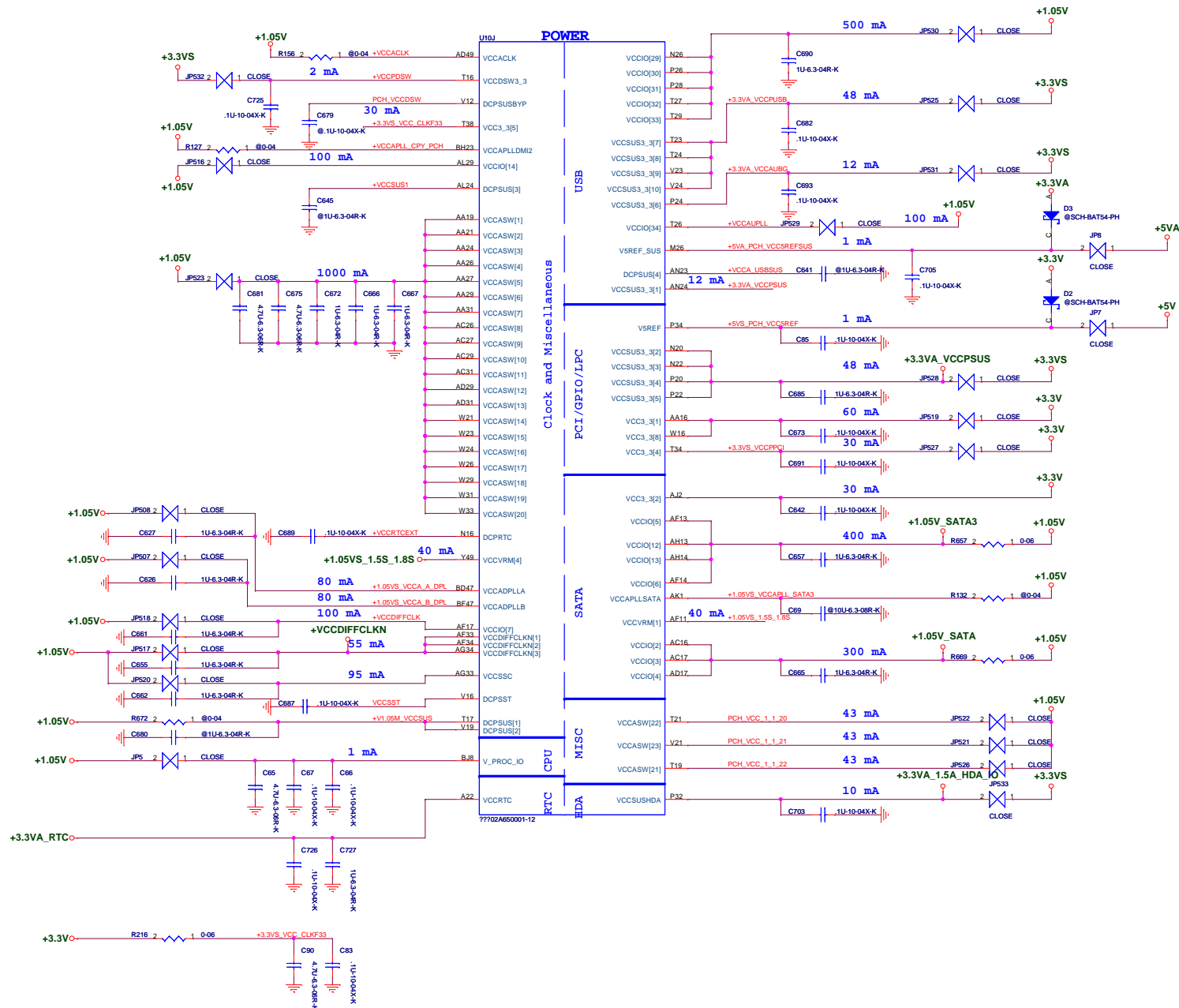
Disable - Low

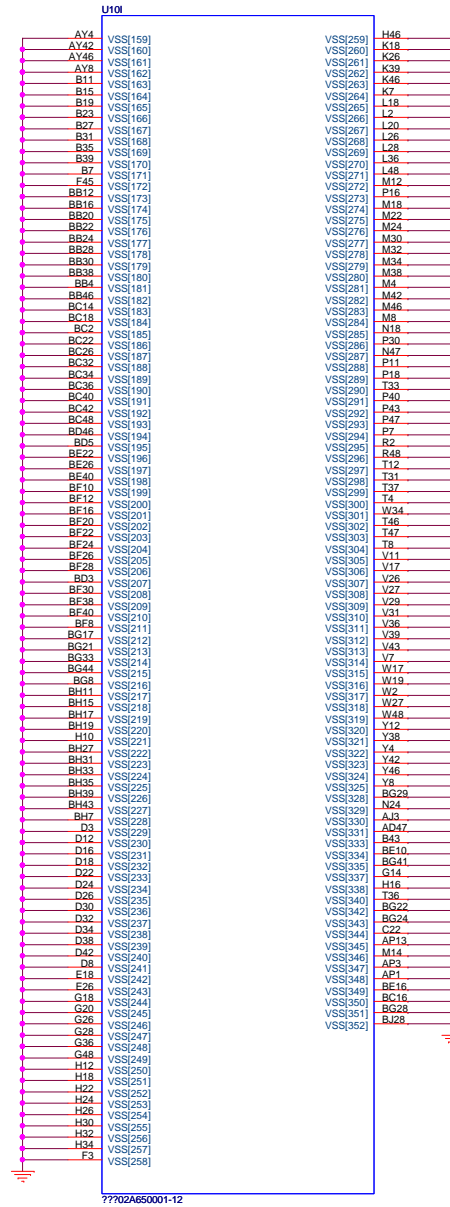
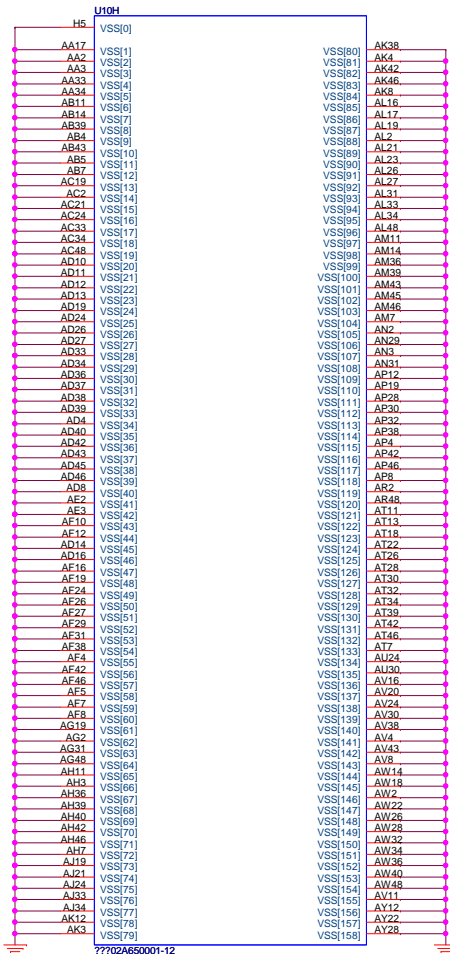


FDI TERMINATION VOLTAGE OVERRIDE		DMI TERMINATION VOLTAGE OVERRIDE	
GPIO37 (FDI_OVRVLTG)	LOW - Tx, Rx terminated to same voltage (DC Coupling Mode) DEFAULT	GPIO36 (SATA_ODD_PRSNT#)	LOW - Tx, Rx terminated to same voltage (DC Coupling Mode) DEFAULT

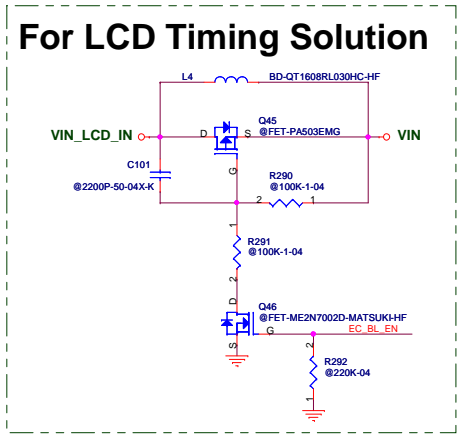
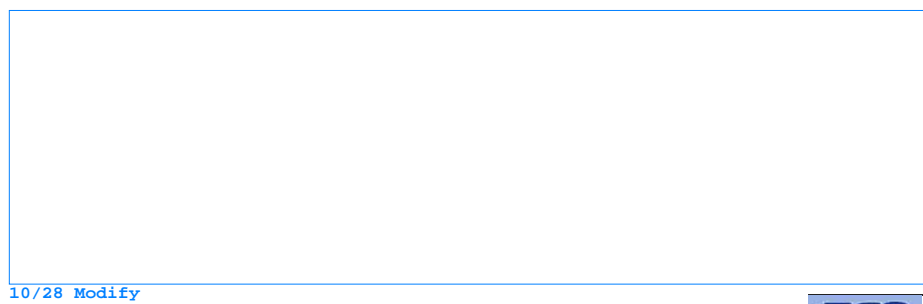
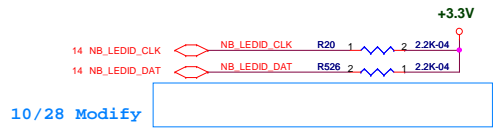
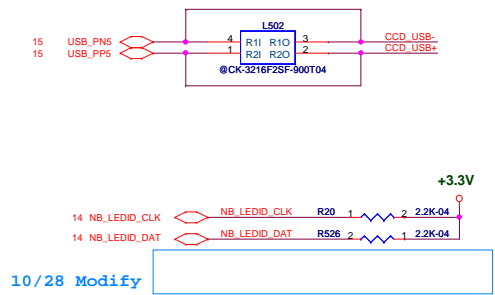
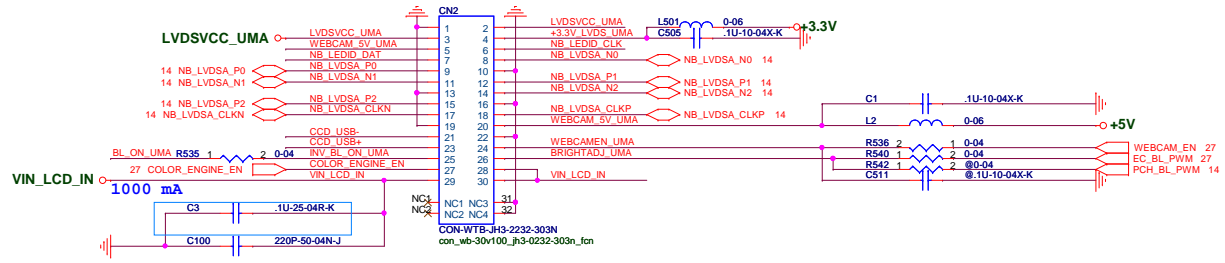
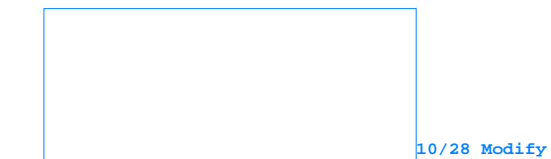
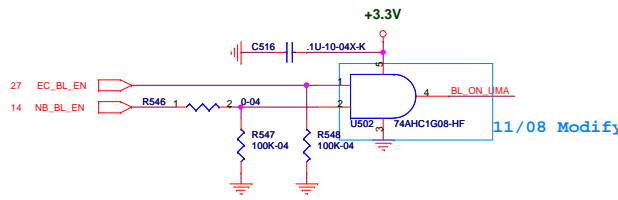
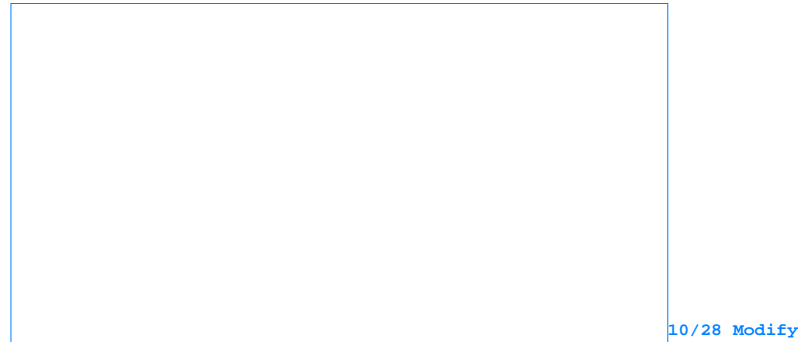
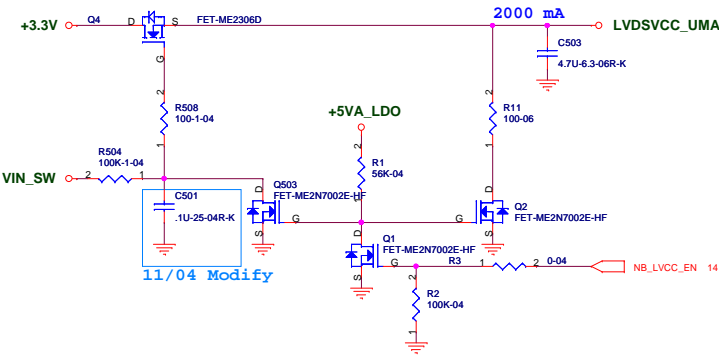




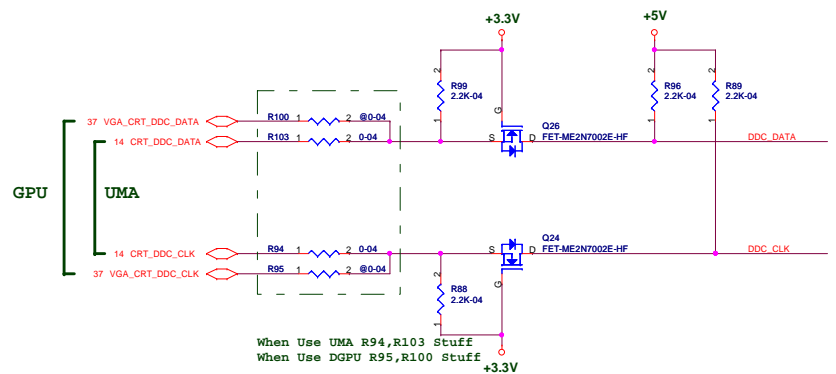
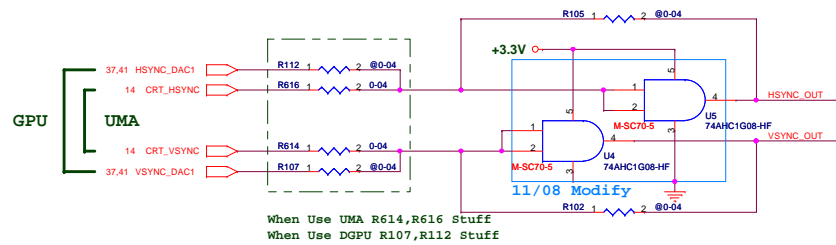
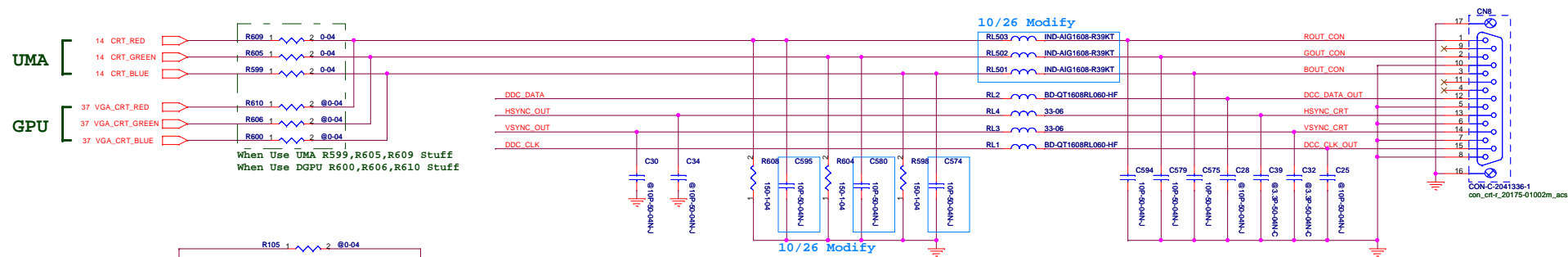




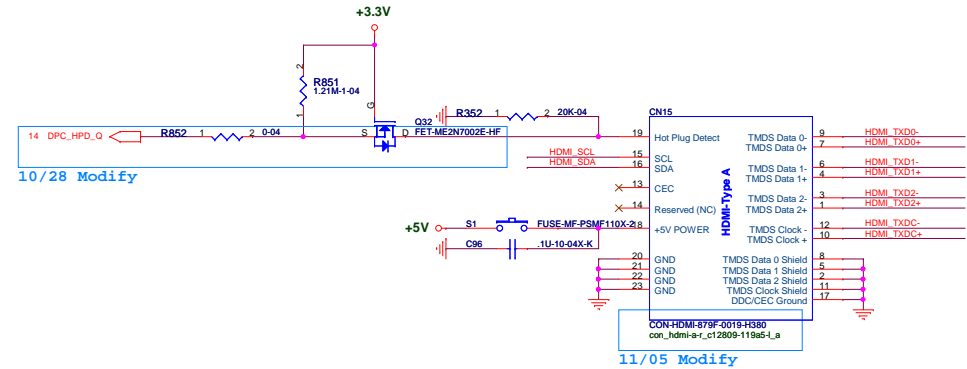
LVDS + Webcam Connector



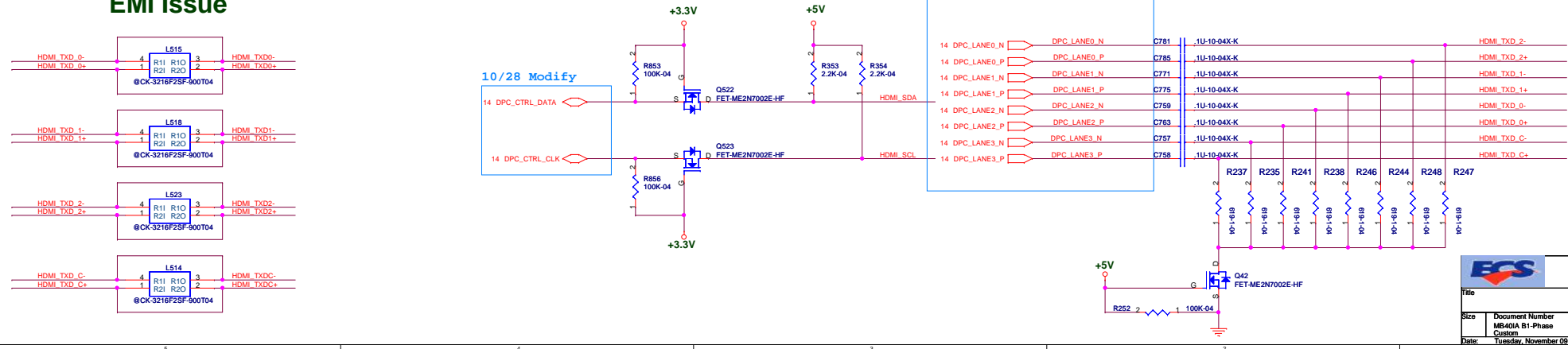
CRT Connector



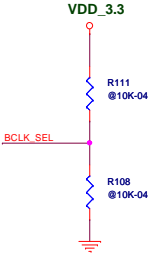
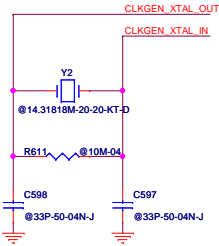
HDMI Connector



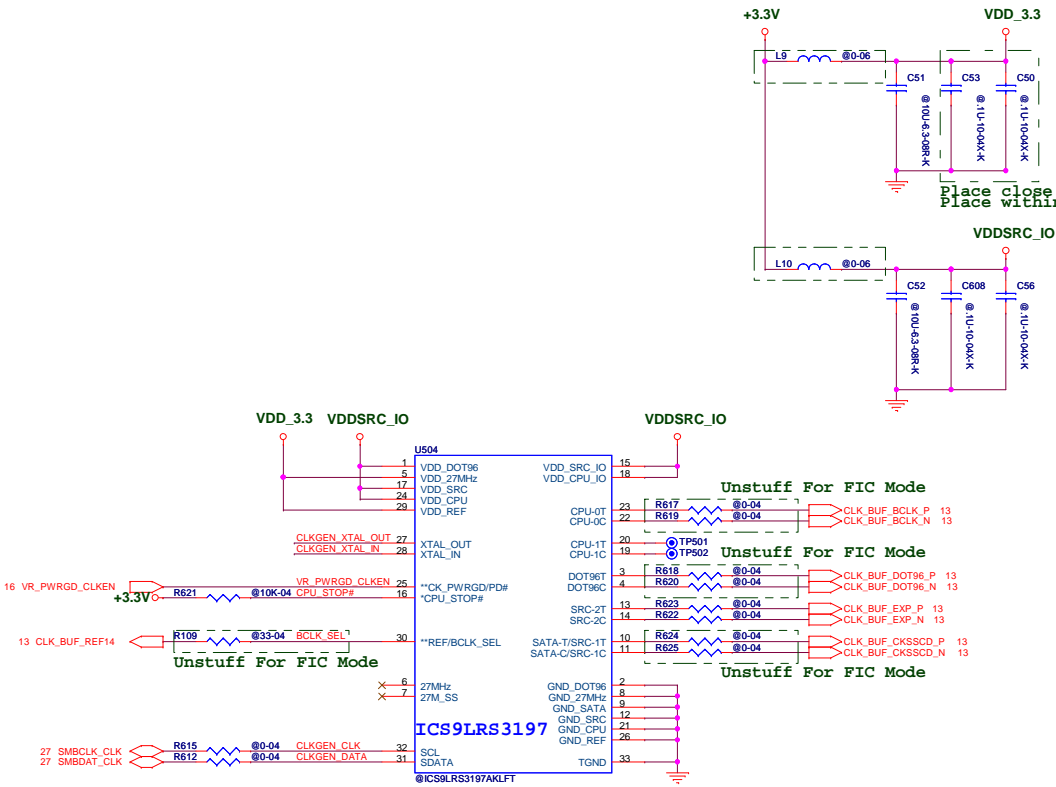
EMI Issue



Clock Gen



BCLK_SEL input	BCLK	NOTE
—		
0	133MHz	
1	100MHz	Default

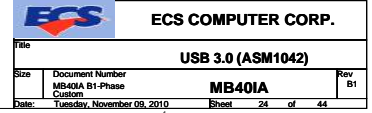


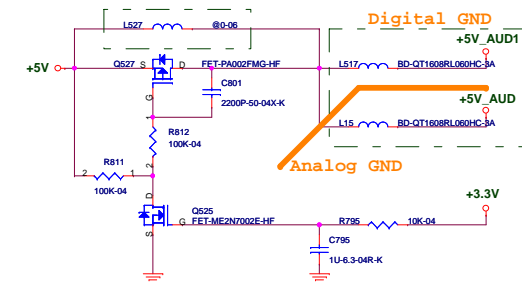
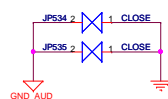
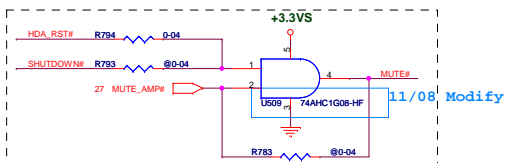
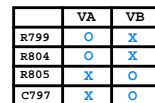
Place close to each VDD pin as possible.
Place within 0.5" of CLKGEN



ECS COMPUTER CORP.

Title			Clock Gen (ICS9LRS3197)	
Size	Document Number	MB401A B1-Phase Custom		Rev B1
Date:		Tuesday, November 09, 2010	Sheet 23 of 44	

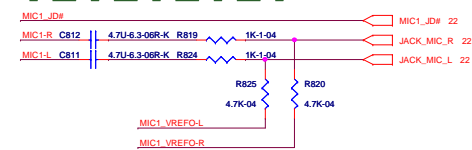




When Use ALC269VB; L15, L517 ,L527 need stuff ; other unstuff

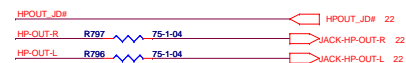
Microphone + Line In Jack

Component Close to Codec



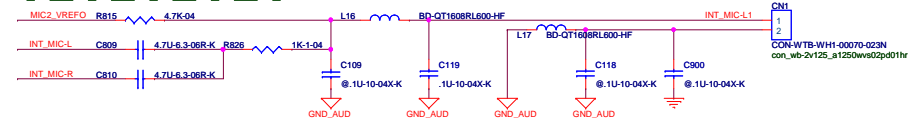
Headphone Jack

Component Close to Codec



Internal MIC Connector

Component Close to Codec

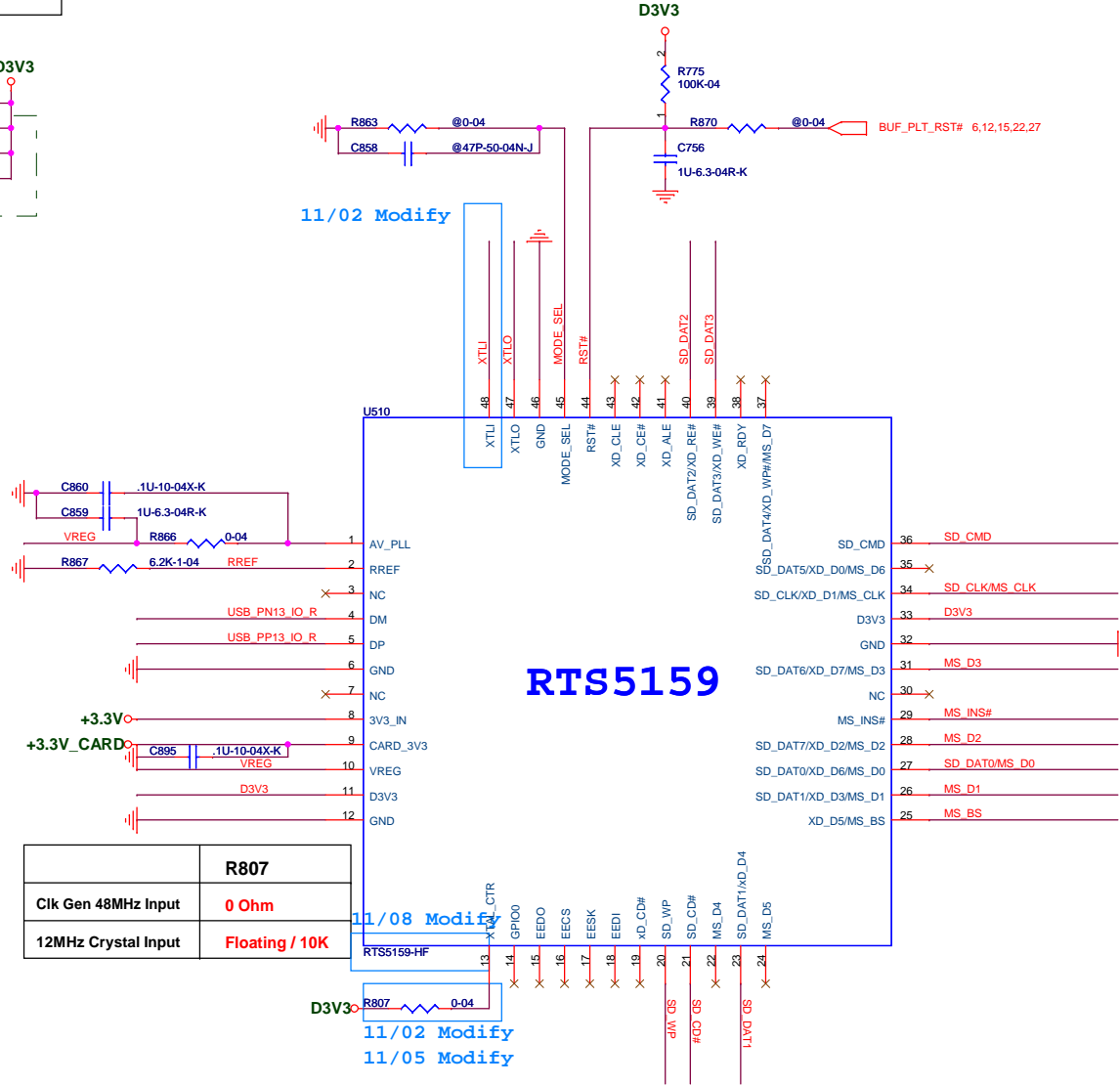
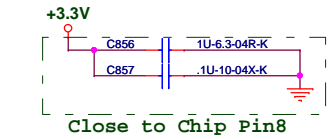
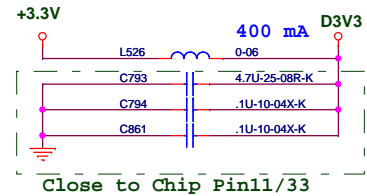


Speaker Connector

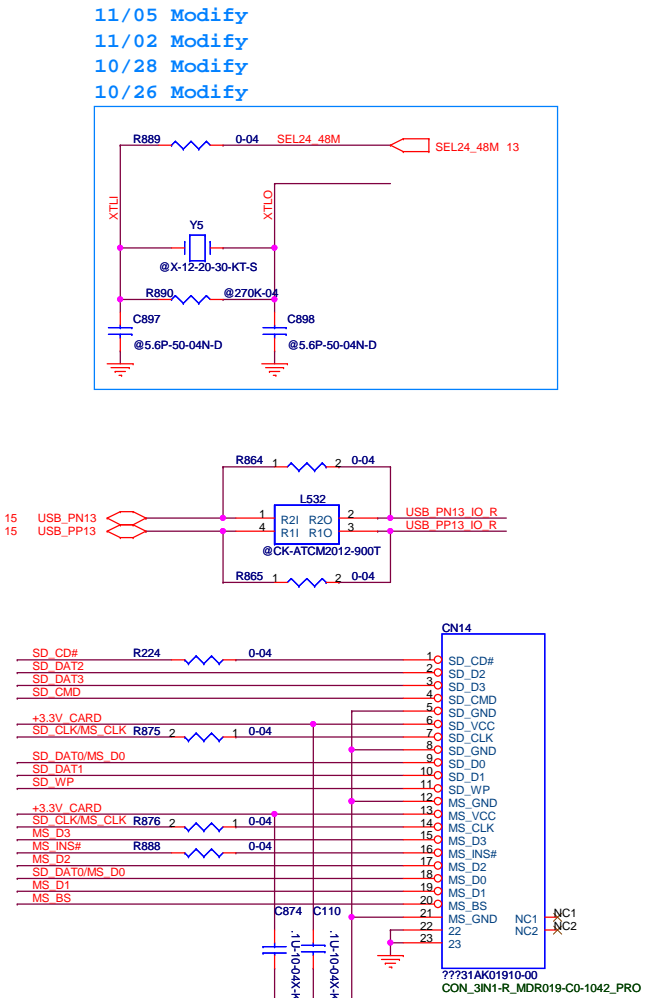



Card Reader

CardReader ID Select		
Haier	IA2	Nustuff; @ Small BD
Hasee	IA3	Stuff; @ MB



	R807
Clk Gen 48MHz Input	0 Ohm
12MHz Crystal Input	Floating / 10K





ECS COMPUTER CORP.

Title

Card Reader (RTS5159-GR)

Size

Document Number

MB40IA B1-Phase

Custom

Rev

B1

Date:

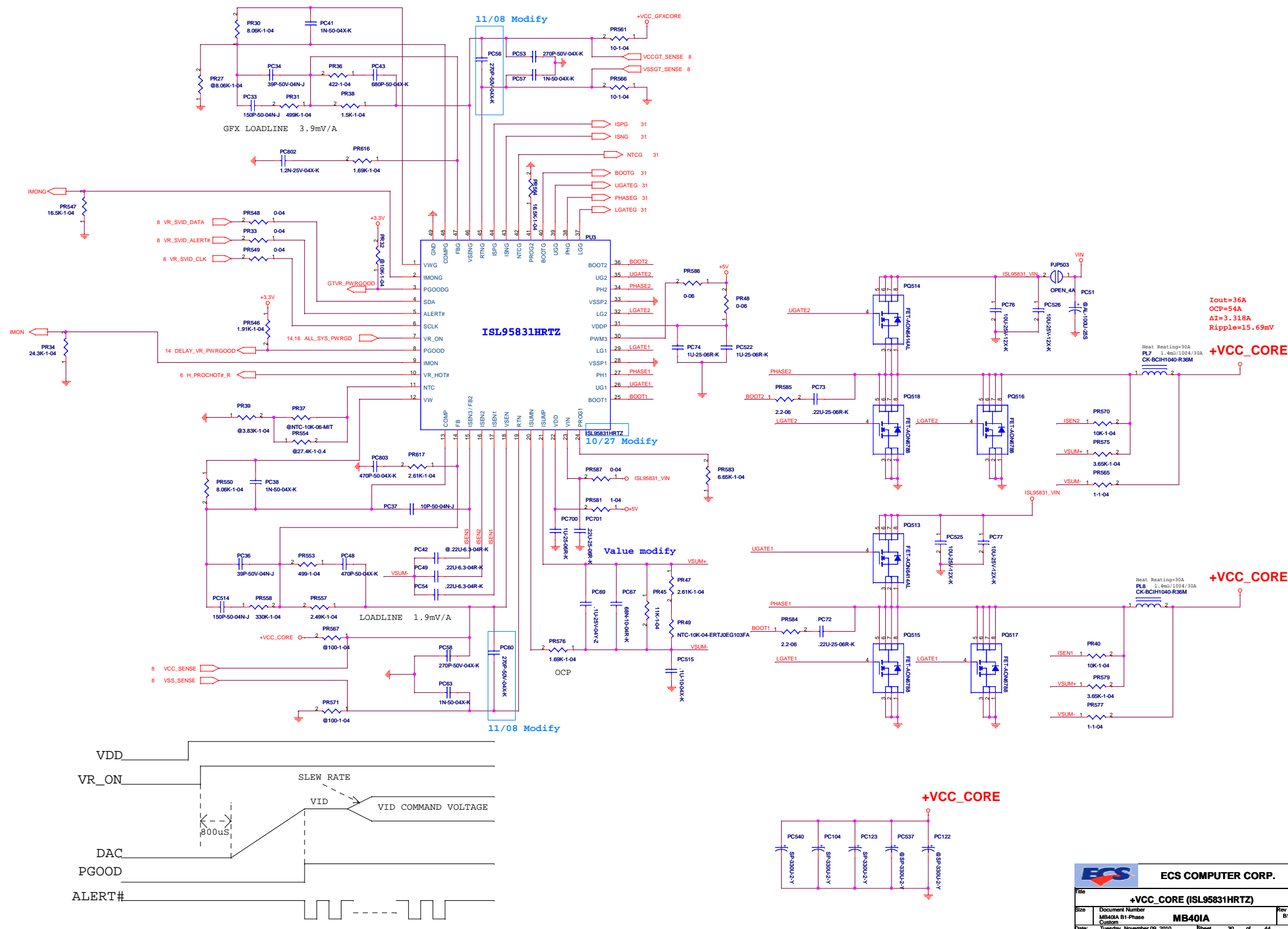
Tuesday, November 09, 2010

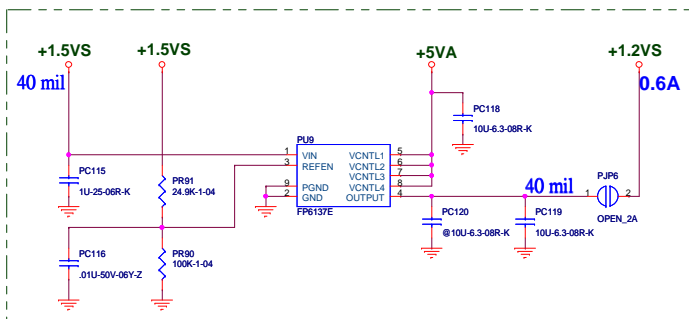
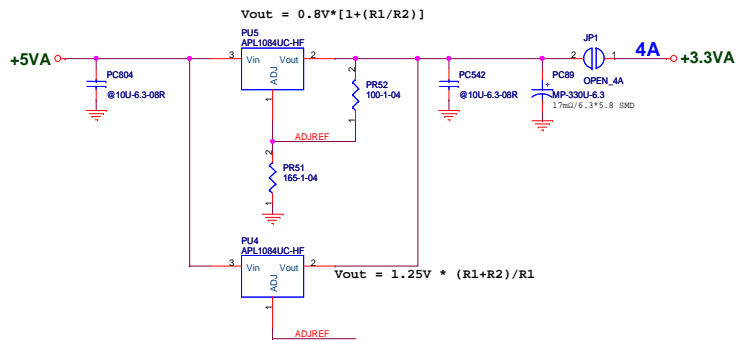
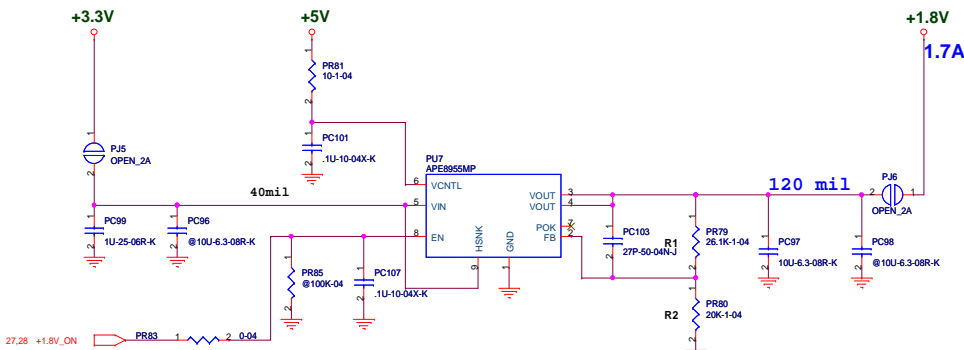
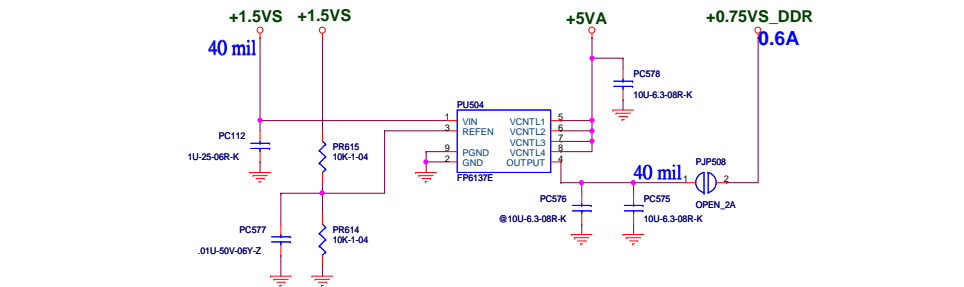
Sheet

26

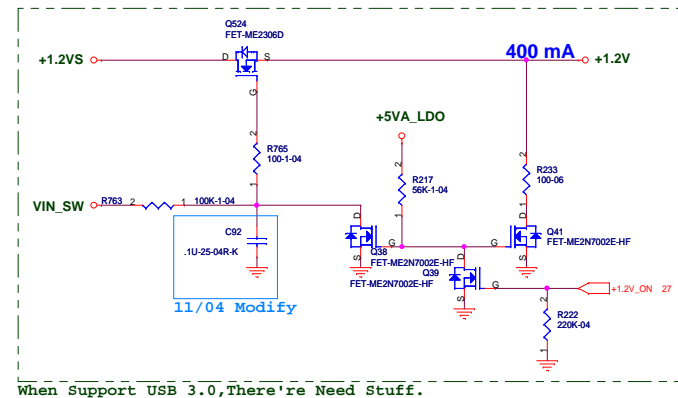
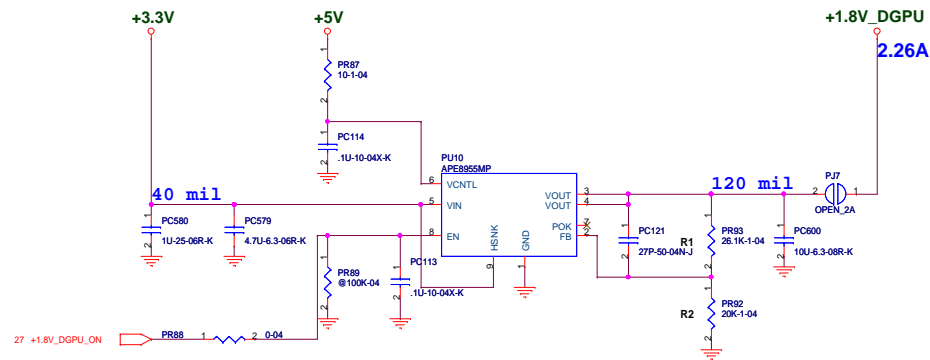
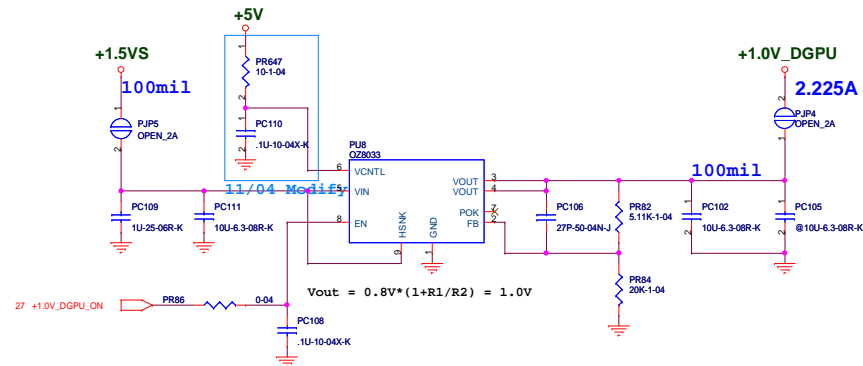
of

44





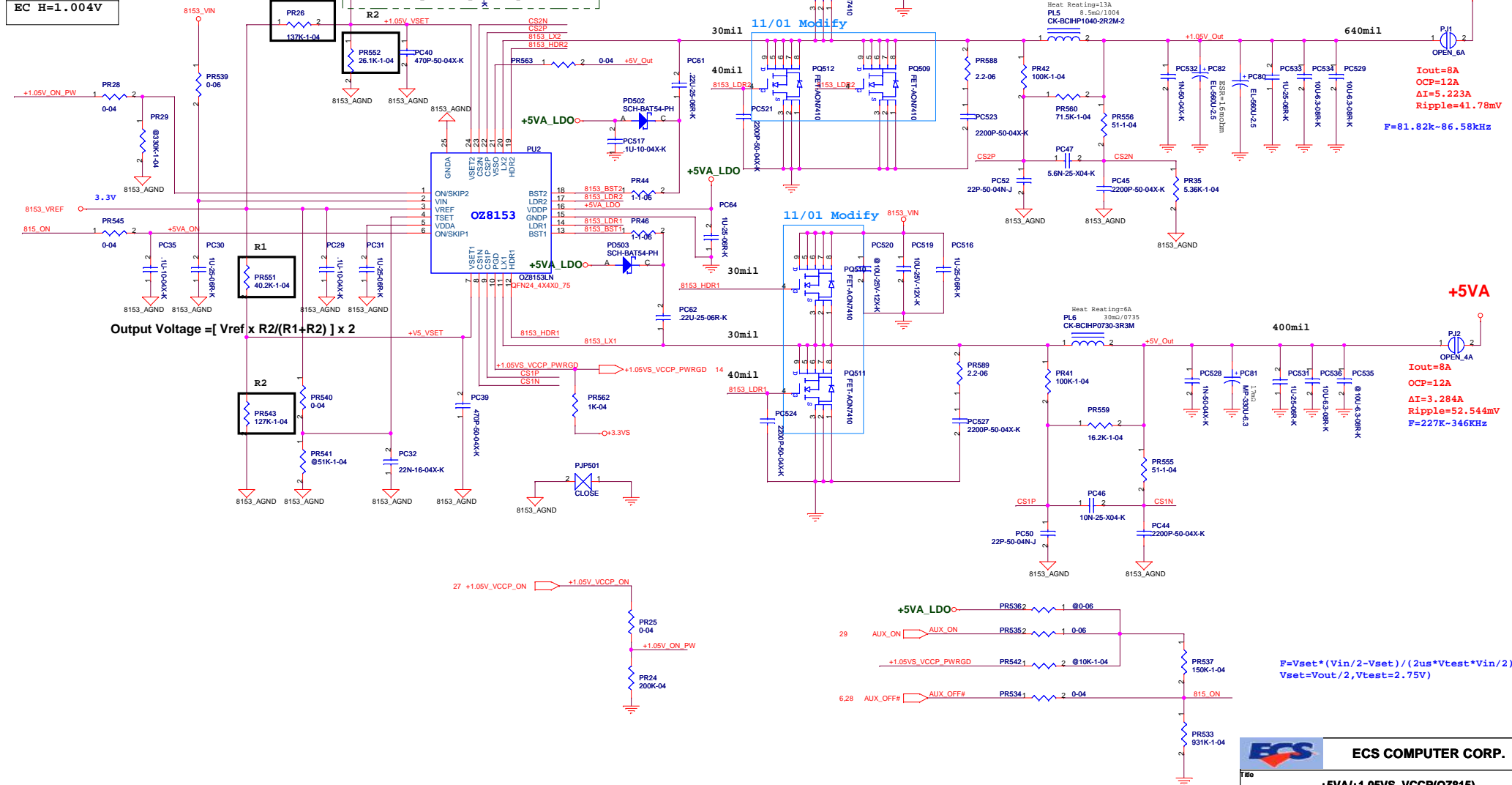
When Support USB 3.0, There're Need Stuff; Except PC120.



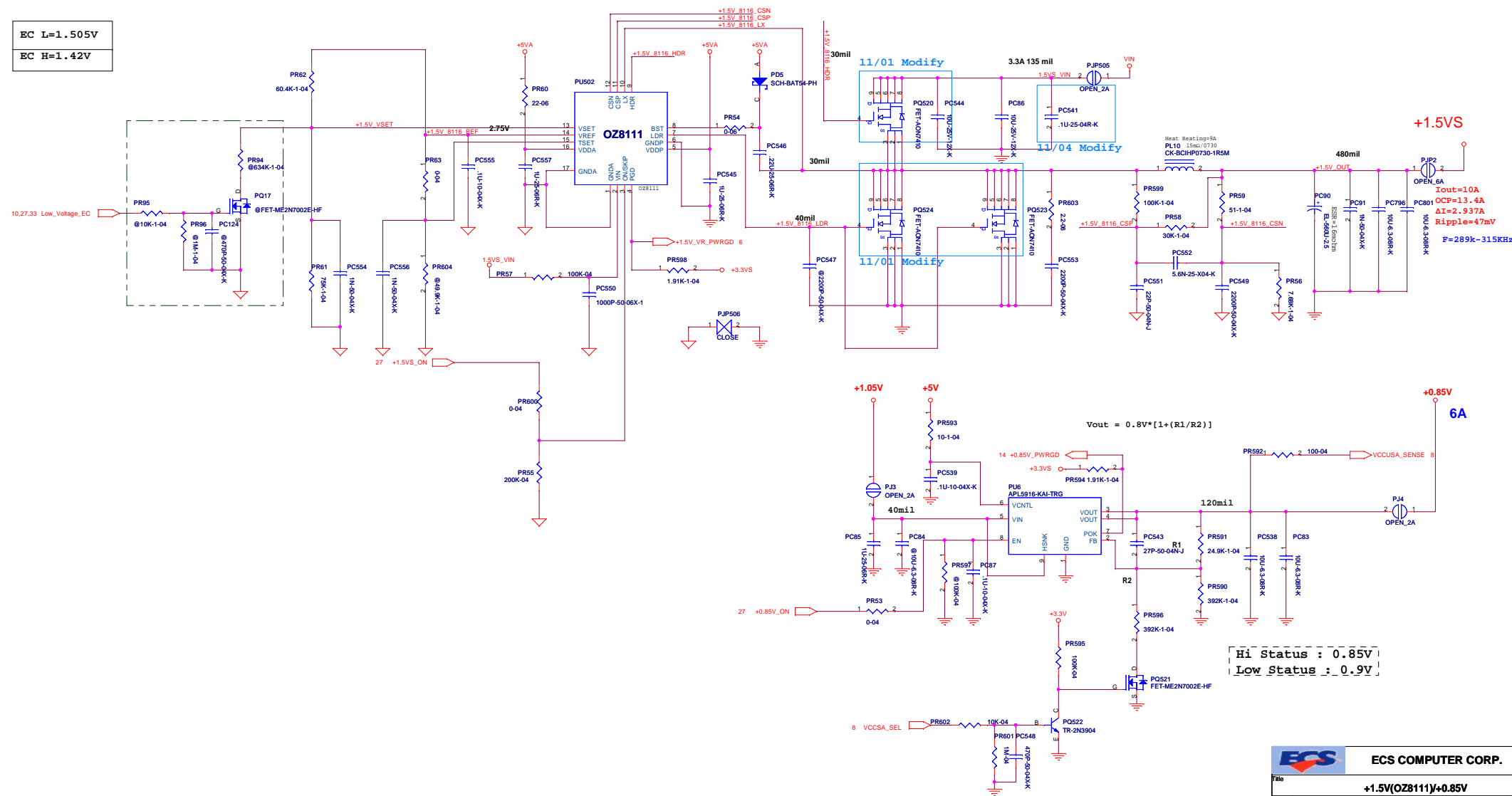
When Support USB 3.0, There're Need Stuff.

$$\text{Output Voltage} = \left[\text{Vref} \times \frac{R2}{R1+R2} \right] \times 2$$

EC L=1.056V
EC H=1.004V



EC H=1.42V



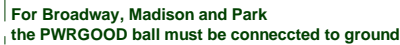
GPIO15	GPIO20	VDDC(Max)	VDDC(Min)
L	L	1.16V	1.13V
H	L	1.089V	1.057V
L	H	0.98V	0.952V
H	H	0.93V	0.9V

Discrete For 25W/35W			
Location	Watt	Value	
PQ531 PQ532	25W	FET-AON6788	
PQ531 PQ532 PC811 (Stuff)	35W	FET-AON6784	

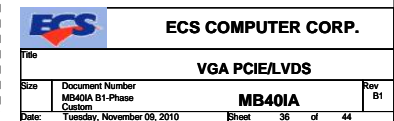
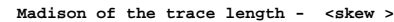


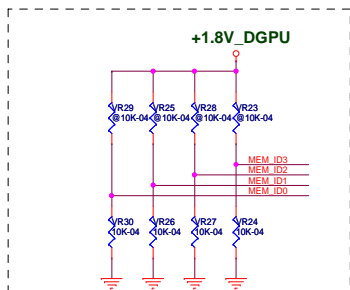
ECS COMPUTER CORP.

+VGA_CORE(OZ8116)			
Size	Document Number	Rev	
	MB40A B1-Phase	B1	
	Custom		
Date:	Tuesday, November 09, 2010	Sheet	35 of 44



VGA Thermal Sensor





Vendor	DDR3128M*16/64M*16	MEM ID[3..0]
Hynix	DDR-H5TQ2G63BFR-12C	0 0 0 0
Samsung	DDR-K4W2G1646E-HC12	0 0 0 1
Hynix	DDR-H5TQ1G63BFR-12C	0 0 1 0
Samsung	DDR-K4W1G1646E-HC12	0 0 1 1

VRAM ID Select			
Haier	IA2 (?G)	Hynix (???M*16)	
Hasee	IA3 (G)	Hynix (128M*16)	

MEM ID0
MEM ID1
MEM ID2
MEM ID3

MEM ID0
MEM ID1
MEM ID2
MEM ID3

SCL
SDA

AK26
AJ26

GPIO0_VGA
GPIO1_VGA
GPIO2_VGA
GPIO3_SMBCLK
GPIO4_SMBCLK
GPIO5_VGA
GPIO6_VGA

TP516
TP515
TP522

GPIO15_PSW_0

TP4

GPIO20_PSW_1

GPIO22_VGA

TP521

GPIO21

GPIO23

GPIO24

GPIO25

GPIO26

GPIO27

GPIO28

GPIO29

GPIO30

GPIO31

GPIO32

GPIO33

GPIO34

GPIO35

GPIO36

GPIO37

GPIO38

GPIO39

GPIO40

GPIO41

GPIO42

GPIO43

GPIO44

GPIO45

GPIO46

GPIO47

GPIO48

GPIO49

GPIO50

GPIO51

GPIO52

GPIO53

GPIO54

GPIO55

GPIO56

GPIO57

GPIO58

GPIO59

GPIO60

GPIO61

GPIO62

GPIO63

GPIO64

GPIO65

GPIO66

GPIO67

GPIO68

GPIO69

GPIO70

GPIO71

GPIO72

GPIO73

GPIO74

GPIO75

GPIO76

GPIO77

GPIO78

GPIO79

GPIO80

GPIO81

GPIO82

GPIO83

GPIO84

GPIO85

GPIO86

GPIO87

GPIO88

GPIO89

GPIO90

GPIO91

GPIO92

GPIO93

GPIO94

GPIO95

GPIO96

GPIO97

GPIO98

GPIO99

GPIO100

GPIO101

GPIO102

GPIO103

GPIO104

GPIO105

GPIO106

GPIO107

GPIO108

GPIO109

GPIO110

GPIO111

GPIO112

GPIO113

GPIO114

GPIO115

GPIO116

GPIO117

GPIO118

GPIO119

GPIO120

GPIO121

GPIO122

GPIO123

GPIO124

GPIO125

GPIO126

GPIO127

GPIO128

GPIO129

GPIO130

GPIO131

GPIO132

GPIO133

GPIO134

GPIO135

GPIO136

GPIO137

GPIO138

GPIO139

GPIO140

GPIO141

GPIO142

GPIO143

GPIO144

GPIO145

GPIO146

GPIO147

GPIO148

GPIO149

GPIO150

GPIO151

GPIO152

GPIO153

GPIO154

GPIO155

GPIO156

GPIO157

GPIO158

GPIO159

GPIO160

GPIO161

GPIO162

GPIO163

GPIO164

GPIO165

GPIO166

GPIO167

GPIO168

GPIO169

GPIO170

GPIO171

GPIO172

GPIO173

GPIO174

GPIO175

GPIO176

GPIO177

GPIO178

GPIO179

GPIO180

GPIO181

GPIO182

GPIO183

GPIO184

GPIO185

GPIO186

GPIO187

GPIO188

GPIO189

GPIO190

GPIO191

GPIO192

GPIO193

GPIO194

GPIO195

GPIO196

GPIO197

GPIO198

GPIO199

GPIO200

GPIO201

GPIO202

GPIO203

GPIO204

GPIO205

GPIO206

GPIO207

GPIO208

GPIO209

GPIO210

GPIO211

GPIO212

GPIO213

GPIO214

GPIO215

GPIO216

GPIO217

GPIO218

GPIO219

GPIO220

GPIO221

GPIO222

GPIO223

GPIO224

GPIO225

GPIO226

GPIO227

GPIO228

GPIO229

GPIO230

GPIO231

GPIO232

GPIO233

GPIO234

GPIO235

GPIO236

GPIO237

GPIO238

GPIO239

GPIO240

GPIO241

GPIO242

GPIO243

GPIO244

GPIO245

GPIO246

GPIO247

GPIO248

GPIO249

GPIO250

GPIO251

GPIO252

GPIO253

GPIO254

GPIO255

GPIO256

GPIO257

GPIO258

GPIO259

GPIO260

GPIO261

GPIO262

GPIO263

GPIO264

GPIO265

GPIO266

GPIO267

GPIO268

GPIO269

GPIO270

GPIO271

GPIO272

GPIO273

GPIO274

GPIO275

GPIO276

GPIO277

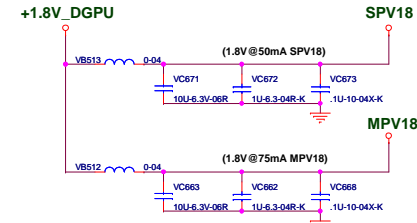
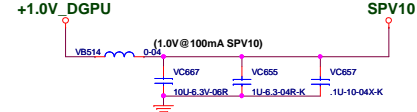
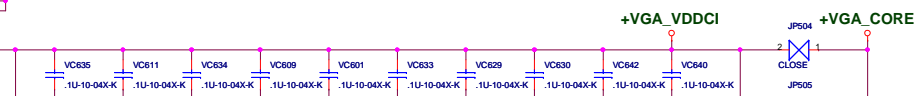
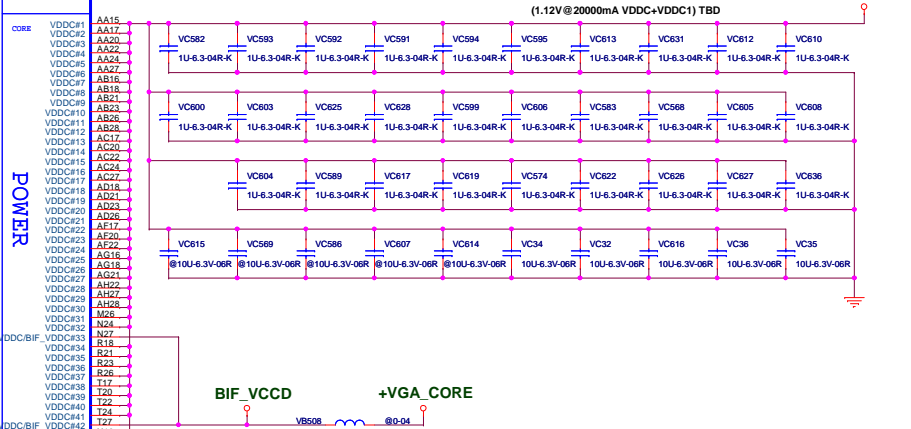
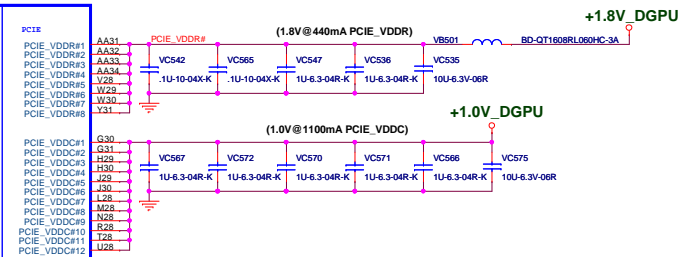
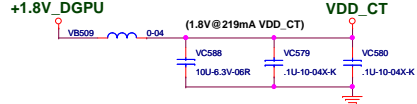
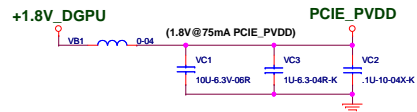
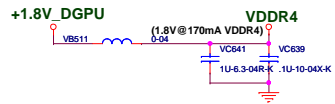
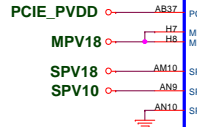
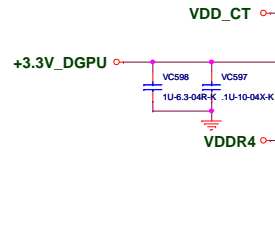
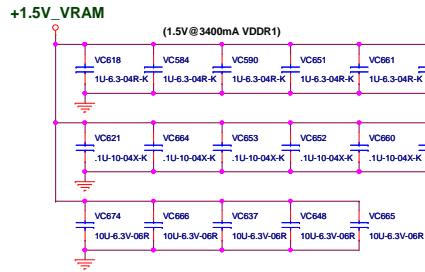
GPIO278

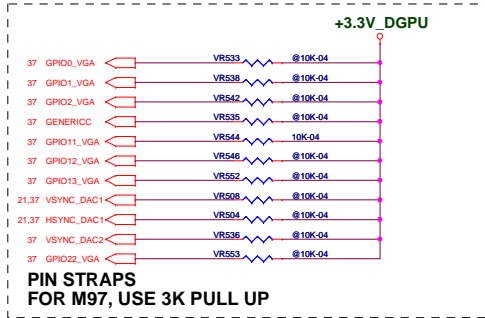
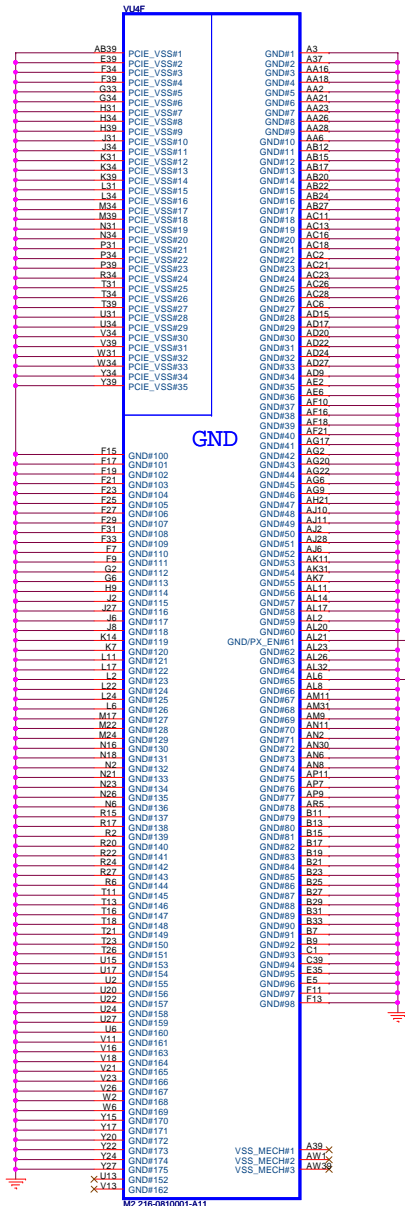
GPIO279

GPIO280

GPIO281

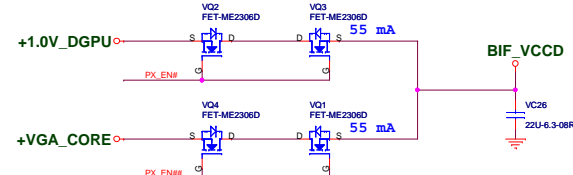
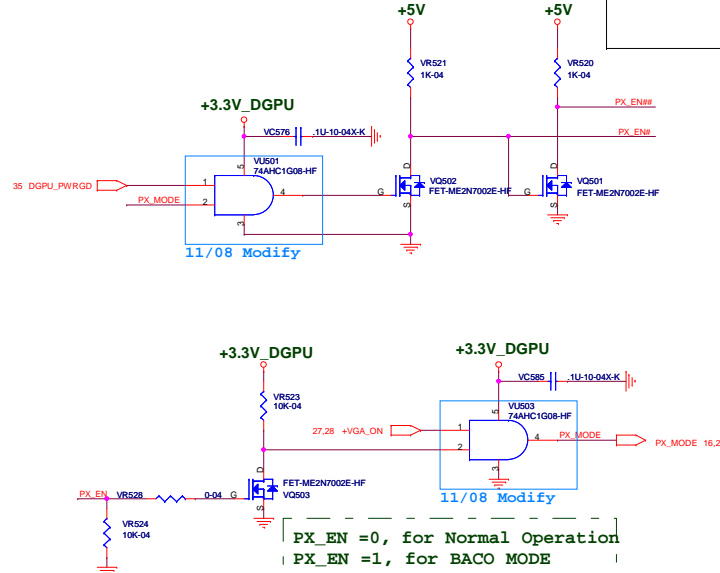
GPIO282



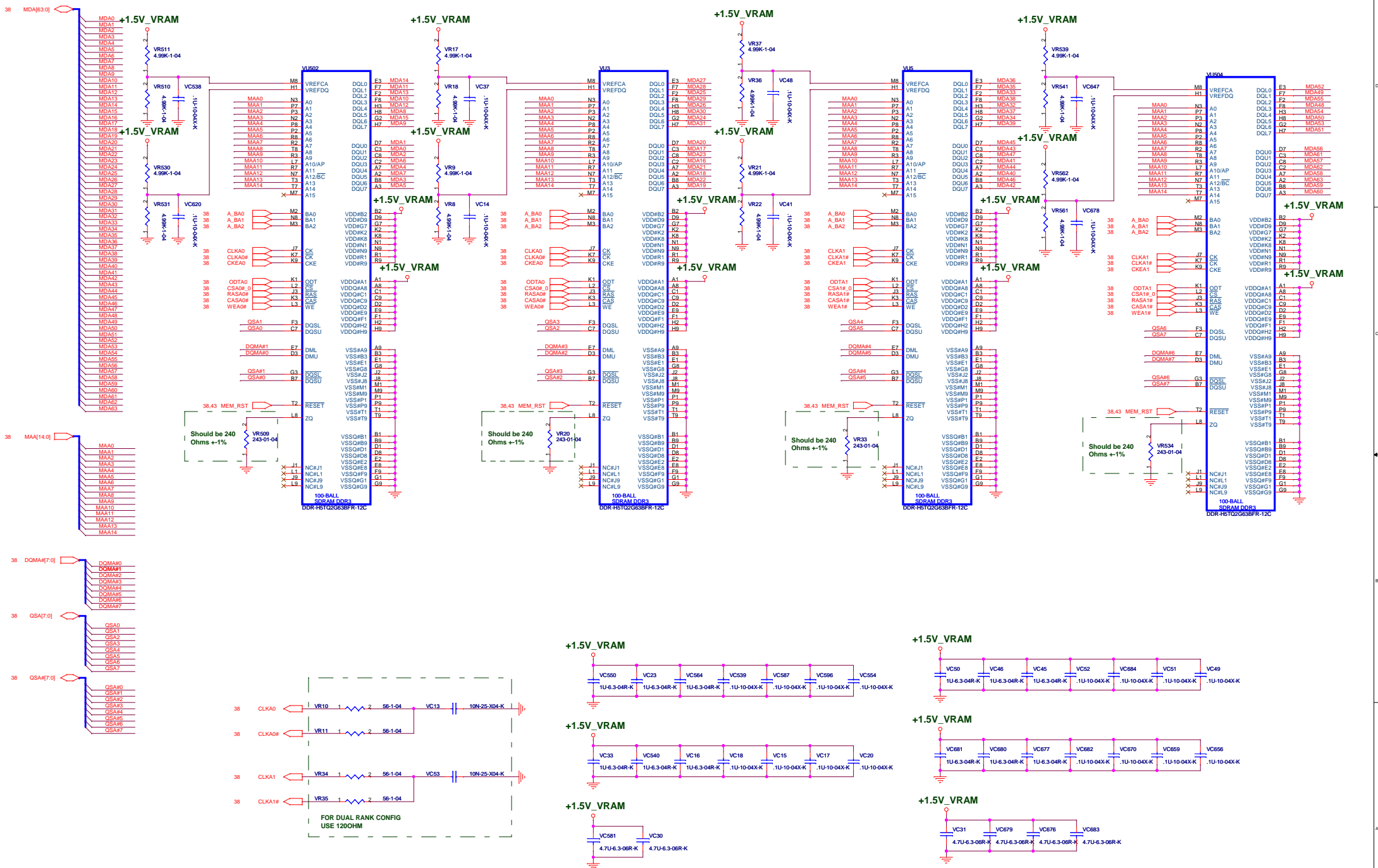


**PIN STRAPS
FOR M97, USE 3K PULL UP**

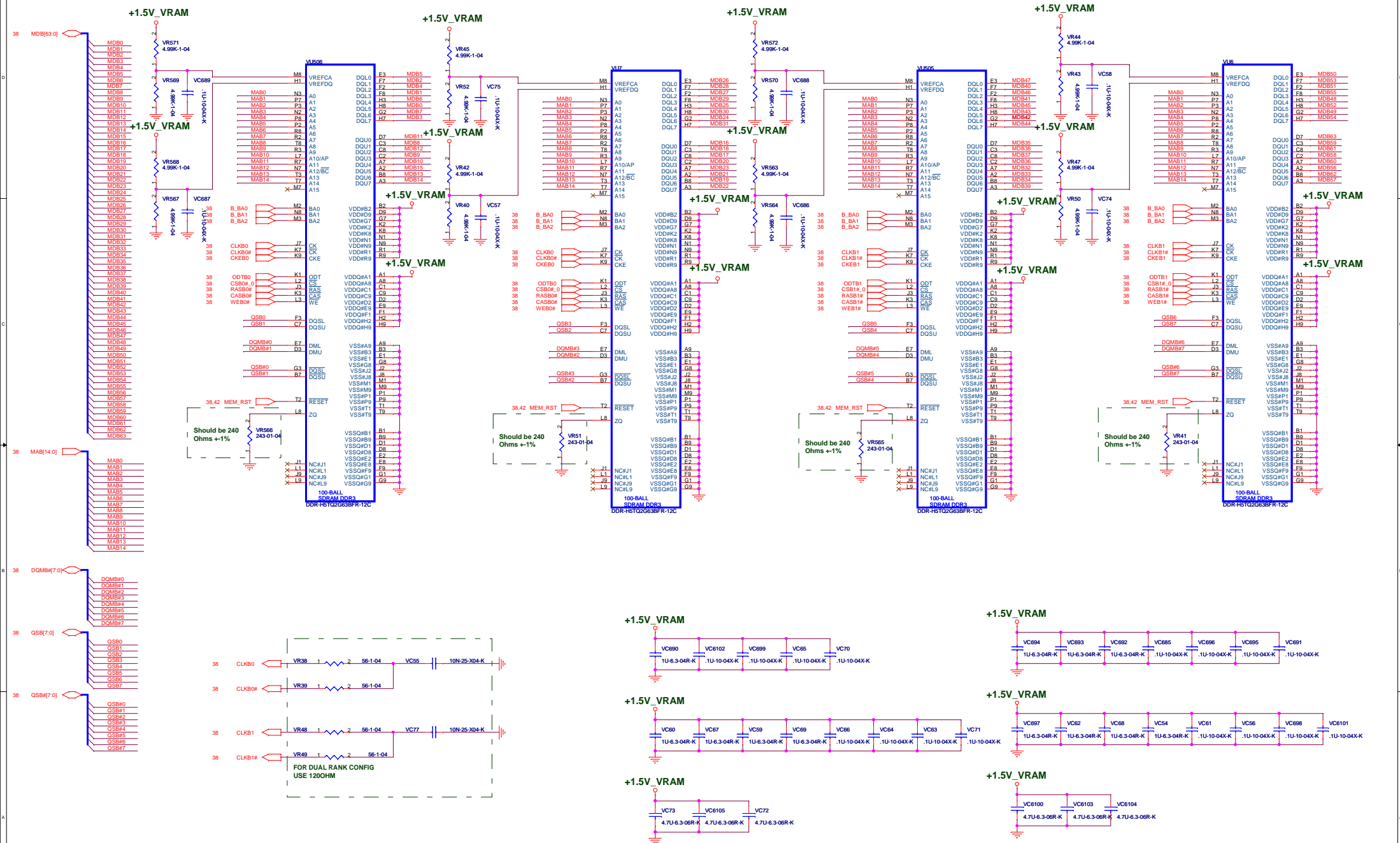
STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	Default	Setting
TX_PWRS_ENB	GPIO0	PCIE FULL TX OUTPUT SWING	LOW	LOW
TX_DEEMPH_ENB	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED	LOW	LOW
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS	LOW	
BIF_VGA_DIS	GPIO9	VGA ENABLED	LOW	LOW
AUD[1]	HSYNC	AUD[1] AUD[0] 0 0 No audio function 0 1 Audio for Displayport only 1 0 Audio for Displayport and HDMI if dongle is detected 1 1 Audio for both Displayport and HDMI	00	
AUD[0]	VSXNC			
GPIO22_ROMCSB	GPIO22	ENABLE EXTERNAL BIOS ROM NO EXTERNAL BIOS ROM:LOW , if GPIO22 is high GPIO11-13 is primary memory aperture size	LOW	LOW
ROM_ID(0:2)	GPIO11 GPIO12 GPIO13	GPIO22:high GPIO22:low	XXX	001
RESERVED	H28VNC GPIO_8 GPIO_2 GENERIC	GPIO21 MUST BE LOW DURING PERSTB WHEN BEING USED TO CONTROL MVDOD FOR BROADWAY, MADISON AND PARK	LOW	



CHANNEL A: 256MB/512MB DDR3 (RANK0)



CHANNEL B: 256MB/512MB DDR3 (RANK1)



EE Schematics Modify

10/16 Modify

- 01. Page 12 : R662 change value to 56-1-04.
- 02. Page 13 : Y3 modify;value is X-25M-30-KT-S-HF & footprint is HC-49_3HSM.
- 03. Page 14 : PM_SYSTRS# net connect with 118 pin of EC.
- 04. Page 20 : Add LCD timing solution for GPU.
- 05. Page 21 : RL501/RL502/RL503 change value to IND-AIG1608-R39KT;595/C580/C574 stuff.
- 06. Page 26 : Add Y5 crystal For CardReader.
- 07. Page 29 : PF1 cahnge value to FUSE-CC12H5A-TR.
- 08. Page 30 : PU3 change footprint to qfn48_6x6x1.

10/28 Modify

- 01. Page 20 : Del R576,R575.
- 02. Page 37 : Del VGA_LEDID_CLK net & VGA_LEDID_DAT net.
- 03. Page 37 : Del VGA_BL_EN net
- 04. Page 20 : Del U503/C557/R574/R568R567.
- 05. Page 36 : Del TXCLK_L+TXCLK_L-/TXOUT_L0+TXOUT_L1-/TXOUT_L1+TXOUT_L2-/TXOUT_L2- net
- 06. Page 36 : Del VGA_LCDBL_PWM/VGA_LVDD_EN net.
- 07. Page 20 : Del CN5 & Peripheral schematics / Del GPU power switch schematics.
- 08. Page 37 : Del VR557/VR558/VQ504/VR560/VR559.
- 09. Page 21 : Del R854/R855 & Del R766/R768 then be short.
- 10. Page 21 : Del VGA_HDMI_DAT net/VGA_HDMI_CLK net.
- 11. Page 37 : Del VGA_HDMI_DAT net/VGA_HDMI_CLK net.
- 12. Page 21 : Del RP1/RP2 ;Del RP502/RP504 then be short.
- 13. Page 21 : Del VGA_TMDS2+ net/VGA_TMDS2- net/VGA_TMDS1+ net/VGA_TMDS1- net/VGA_TMDS0+ net/VGA_TMDS0- net/VGA_TMD_CLK+ net/VGA_TMD_CLK- net.

10/29 Modify

- 01. Page 29 : H7/H13/H12/H5/H10/H9 change footprint to hc236d118.
- 02. Page XX : Y3/Y5 change footprint to XTAL-2P-11_4X4_6X3_1.
- 03. Page XX : PQ2/PQ7/PQ505/PQ507/PQ508/PQ509/PQ510/PQ511/PQ512/PQ519/PQ520/PQ523/PQ524/PQ526/PQ527/PQ528 change footprint to TDFN8_3X3X0_8.
- 04. Page 35 : Add PC831/PC832.

11/02 Modify

- 01. Page 13 : R225 unstuff.
- 02. Page 26 : R889 unstuff;Y5/R890/C897/C898 stuff.
- 03. Page 35 : PC806/PC805 change footprint to M-R0603.
- 04. Page 29 : Add PR646/PC833.
- 05. Page 15 : Add C899.
- 06. Page 26 : R807 unstuff.

11/03 Modify

- 01. Page 31 : Add PC800.(@ bottom side)
- 02. Page 35 : Modify PJP511 (Support 4A.;TOPOPEN-4MM)

11/04 Modify

- 01. Page 35 : PC808 stuff;PC832 unstuff.
- 02. Page 24 : USB Charger Function unstuff.
- 03. Page XX : +1.5VS & +1.05V "Low_Voltage_EC" peripheral component all unstuff.

11/05 Modify

- 01. Page 25 : C118 connect with GND_AUD.
- 02. Page 10 : R101 unsufft.
- 03. Page 11 : C889/C881 stuff;C646/C720 change value to 10U-6.3V-06R.
- 04. Page 16 : R638 change value to 2.2K-04;R641 change value to 1K-04;
- 05. Page 16 : U8 unstuff.
- 06. Page 13 : R225 stuff.
- 07. Page 26 : R807/R889 stuff;Y5/R890/C897/C898 unstuff.
- 08. Page 11 : CN13 chane value to DDR-8795-00L4-4280.
- 09. Page 11 : CN10 chane value to DDR-8795-00L4-0180.
- 10. Page 26 : CN14 chane value to ???31AK01910-00.
- 11. Page 21 : CN15 chane value to CON-HDMI-879F-0019-H380.
- 12. Page 25 : Add C900.

11/08 Modify

- 01. Page 13 : R723 unstuff.
- 02. Page 13 : PC60/PC56 stuff.
- 03. Page 35 : PC819/PC820 change value to 22N-16-04X-K.
- 04. Page 33 : PC833 change value to 2200P-50-06X.
- 05. Page 35 : PR629 change value to 1K-1-04.
- 06. Page 32 : PU4/PU5 change value to APL1084UC-HF.
- 07. Page 35 : PU505 change value to OZ8117LN.
- 08. Page 25 : U509/VU1/U4/U5/U7/U9/U11/VU501/VU502/VU503 change value to 74AHC1G08-HF.
- 09. Page 24 : U13 change value to PM25LV512A-100SCE-HF.
- 10. Page 26 : U510 change value to RTS5159-HF.
- 11. Page XX : U508/U505/U30 change value to UP7534ARA8-15-HF.
- 12. Page 35 : PC811 unstuff;PQ531/PQ532 change value to FET-AON6788. (For 25W)
- 13. Page 12 : R150/R142/R159 unstuff.

11/09 Modify

- 01. Page XX : U10 change value to ??702A650001-12.
- 02. Page 11 : C734/C643 stuff.
- 03. Page 22 : CN30 unstuff.

Power Schematics Modify

www.s-manuals.com