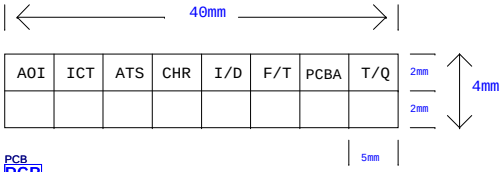
ELITEGROUP COMPUTER SYSTEMS

Project：MB40IAX Schematics Rev : B1

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

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



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)

ECS COMPUTER CORP.

Title: Cover Page

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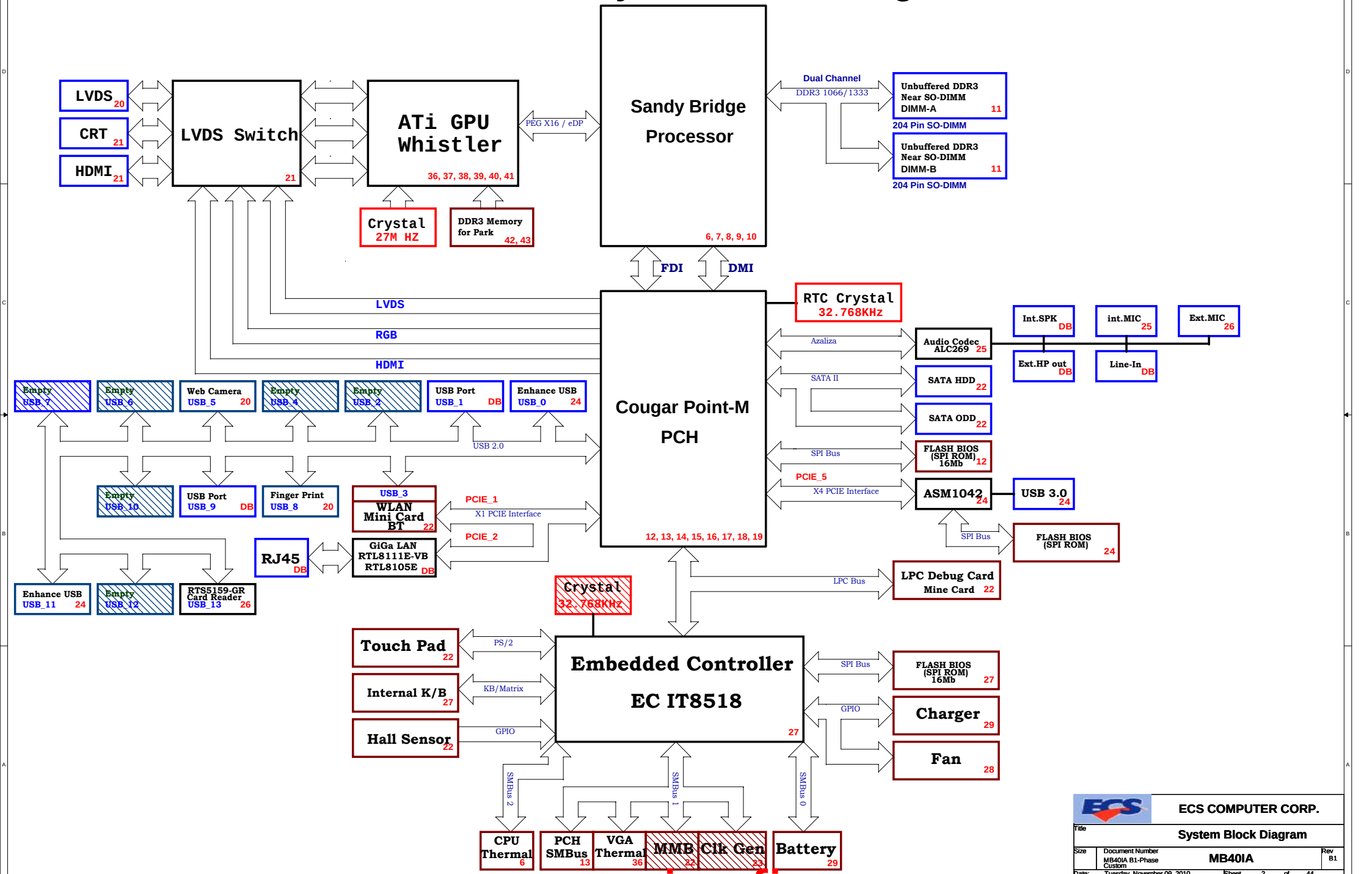
Huron River System Block Diagram



ECS COMPUTER CORP.

Title	System Block Diagram		
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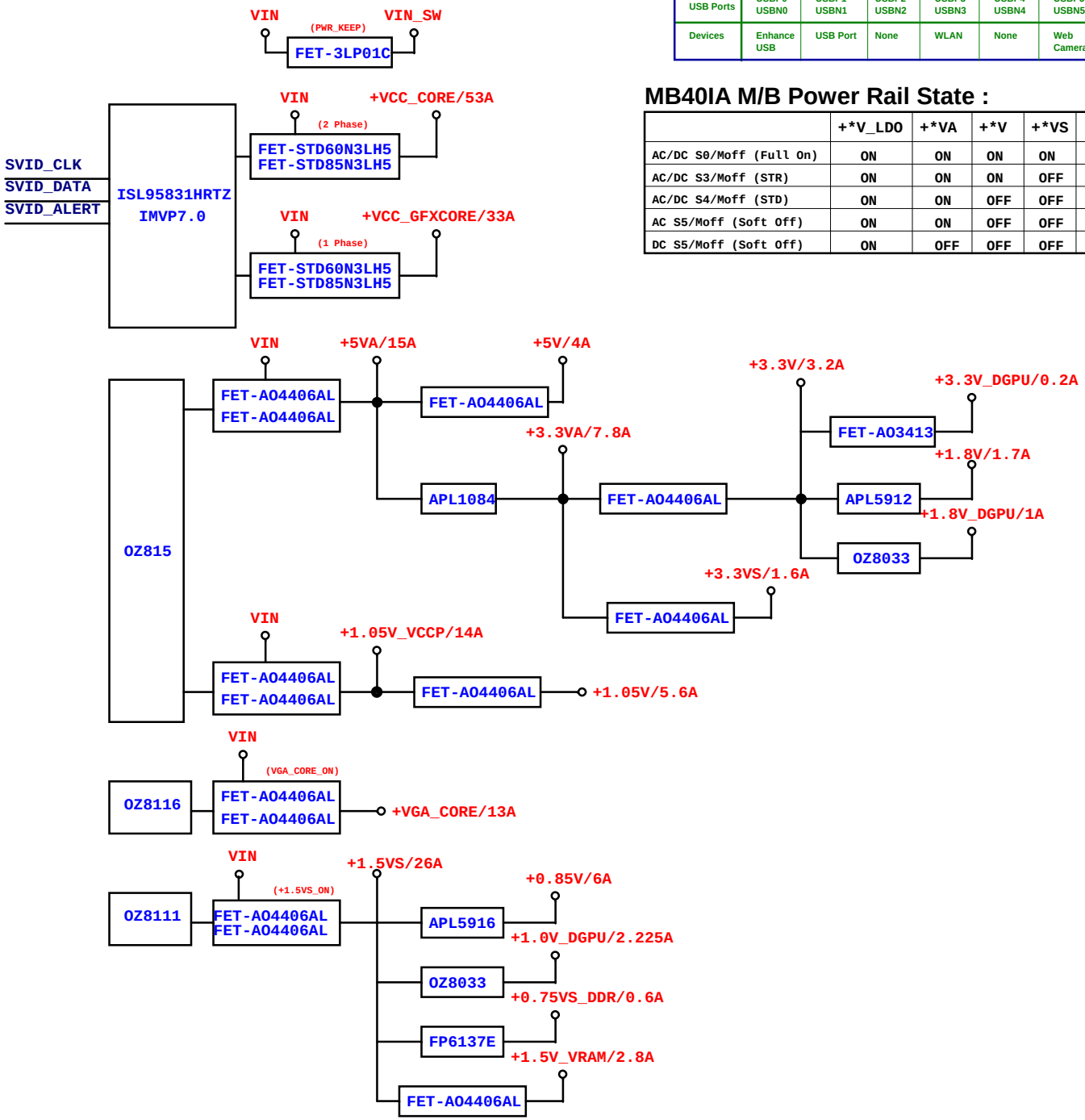
Power Block Diagram



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

MB40IA 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		Laptop Mode				
Voltage Name	Control Pin	S0	S1	S3	S4	S5
+VGFX_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
	DC:AUX_ON	ON	ON	ON	OFF	OFF
+V5_AUX	AC:follow VIN up	ON	ON	ON	ON	ON
	DC:AUX_ON	ON	ON	ON	OFF	OFF

CPU Huron River Power Rail		Laptop Mode				
		S0	S1	S3	S4	S5
VCC	+VCC_CORE	ON	ON	OFF	OFF	OFF
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				
		S0	S1	S3	S4	S5
VCCACLK	+V1.1S	ON	ON	OFF	OFF	OFF
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
VCCADPLLB	+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

ECS COMPUTER CORP.

Title: Power Diagram

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MB40IA B1-Phase Custom

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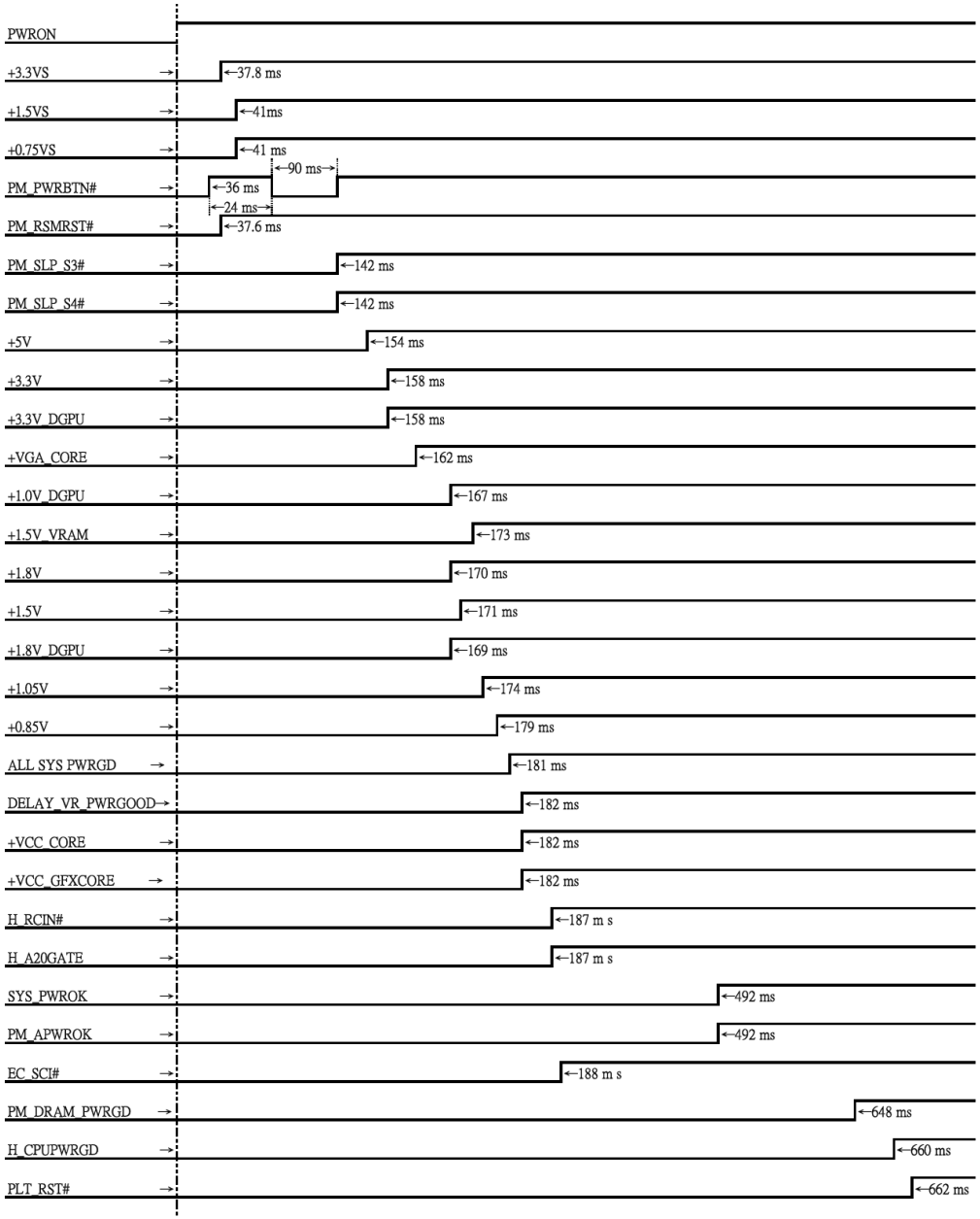
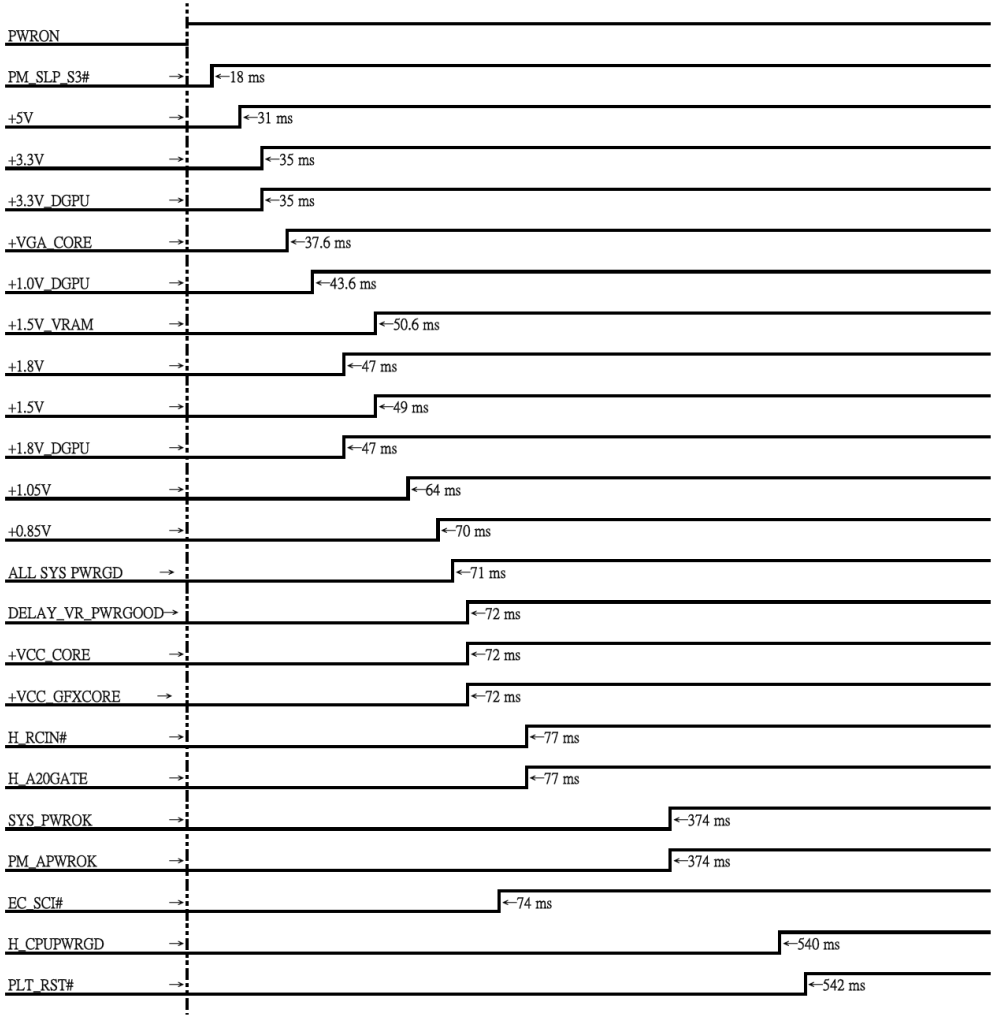
System Power On Sequence

MB40IA A2 Phase Power Sequence(Power ON)



MB40IA A2 Phase Power Sequence(S3)



ECS COMPUTER CORP.

Title	Power Sequence	
Size	Document Number: MB40IA B1-Phase Custom	Rev: B1
	MB40IA	
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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_GPIO049
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#
GPG6	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#
ADC7/GPI7	SUB_PWR_ACK SATA_ODD_DA#_EC PX_MODE

ITE8518 GPIO Pin Definition list

DAC0/GPJ0	Fast-charge-EN
DAC0/GPJ1	CHG_ON
DAC0/GPJ2	FAN_CTRL0
DAC0/GPJ3	CHG_I
DAC0/GPJ4	MMB_RESET#
DAC0/GPJ5	SET_V

ITE8518 KB Matrlk interface

KSI0/STB#	KB_SIN0
KSI1/AFD#	KB_SIN1
KSI2/INIT#	KB_SIN2
KSI3SLIN#	KB_SIN3
KSI4	KB_SIN4
KSI5	KB_SIN5
KSI6	KB_SIN6
KSI7	KB_SIN7
KSO0/PD0	KB_SOUT0
KSO1/PD1	KB_SOUT1
KSO2/PD2	KB_SOUT2
KSO3/PD3	KB_SOUT3
KSO4/PD4	KB_SOUT4
KSO5/PD5	KB_SOUT5
KSO6/PD6	KB_SOUT6
KSO7/PD7	KB_SOUT7
KSO8/ACK#	KB_SOUT8
KSO9/BUSY	KB_SOUT9
KSO10/PE	KB_SOUT10
KSO11/ERR#	KB_SOUT11
KSO12/SLCT	KB_SOUT12
KSO13	KB_SOUT13
KSO14	KB_SOUT14
KSO15	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#
LPCCLK	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		

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		

ITE8518

VCC	ICC(mA)	mW	TEMP(℃)
+3.3VA	100	330	70

Clock Generator

VCC	ICC(mA)	mW	TEMP(℃)
+3.3V	270	891	70

ITE8518 GND

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

Cantiga

VCC	ICC(mA)	W	TEMP(℃)
+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(℃)
+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	

ECS COMPUTER CORP.

Title: GPIO & Power Consumption

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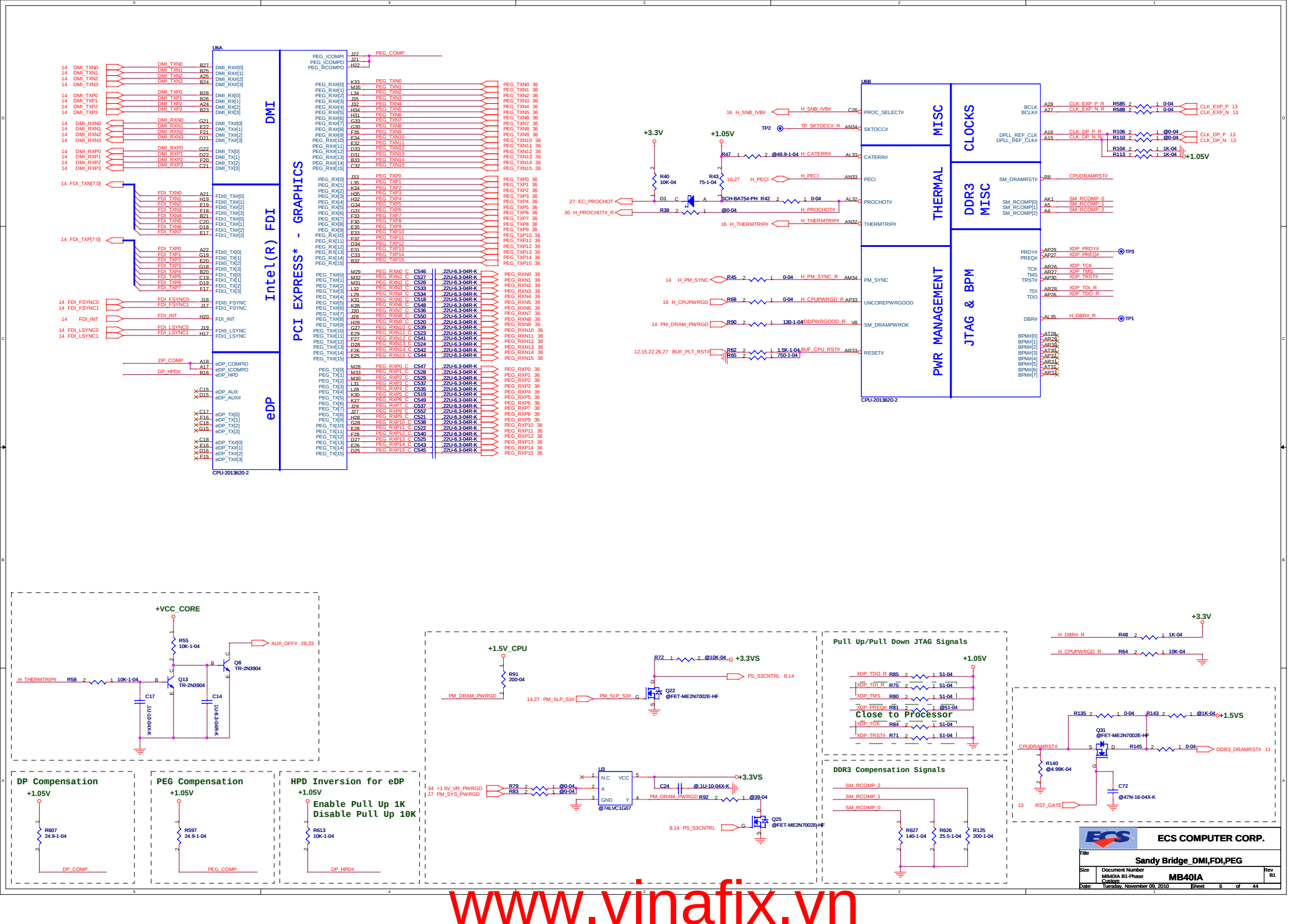

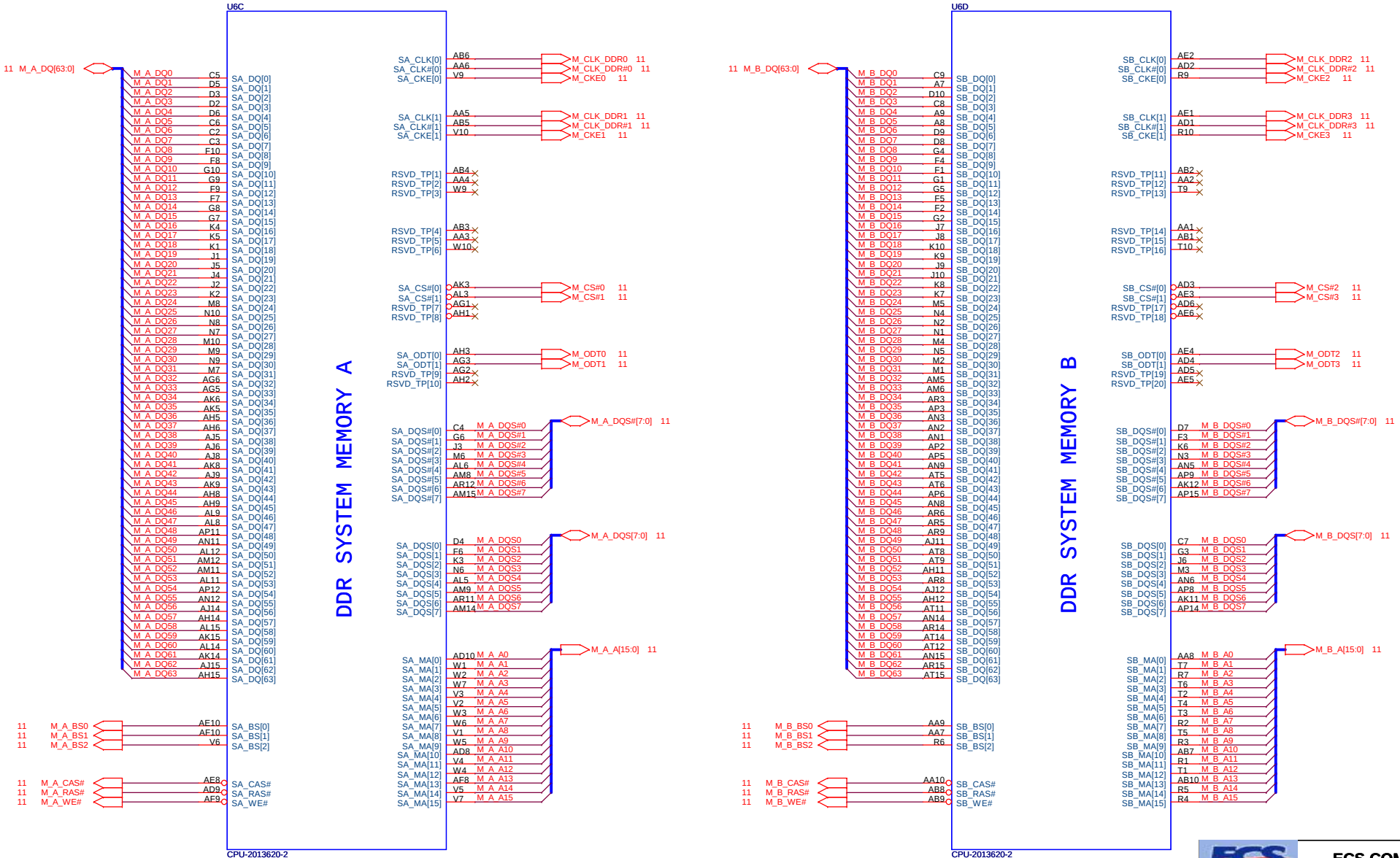

POWER

CPU Core 53000 mA

+VCC_CORE

U6F

CORE SUPPLY

PEG AND DDR

SVID

SENSE LINES

CPU-2013620-2

VCCIO 8500 mA

+1.05V

C609 C47 C605 C48 C607 C49 C602 C45 C44 C606

C604 C46 C603 C601

10U-6.3-08R-K

VCCIO1 VCCIO2 VCCIO3 VCCIO4 VCCIO5 VCCIO6 VCCIO7 VCCIO8 VCCIO9 VCCIO10 VCCIO11 VCCIO12 VCCIO13 VCCIO14 VCCIO15 VCCIO16 VCCIO17 VCCIO18 VCCIO19 VCCIO20 VCCIO21 VCCIO22 VCCIO23 VCCIO24

VCCIO25 VCCIO26 VCCIO27 VCCIO28 VCCIO29 VCCIO30 VCCIO31 VCCIO32 VCCIO33 VCCIO34 VCCIO35 VCCIO36 VCCIO37 VCCIO38 VCCIO39

VCCIO40

+1.05V

R595 0-04

VIDALERT# VIDSCLK VIDSOUT

H_CPU_SVIDALRT# H_CPU_SVIDCLK H_CPU_SVIDDAT

VCC_SENSE VSS_SENSE

R52 100-1-04 R51 100-1-04

+VCC_CORE

VCC_SENSE 30 VSS_SENSE 30

VCCIO_SENSE VSSIO_SENSE

VCCP_SENSE VSSP_SENSE

R115 10-1-04 R120 10-1-04

+1.05V

TP7

Place R115,R120 Near CPU Pins

POWER

+VCC_GFXCORE

VAXG 33000 mA

C600 C26 C27 C29 C592 C40 C33 C42

C573 C577 C578 C589 C591 C590

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

U6G

GRAPHICS

1.8V RAIL

DDR3 -1.5V RAILS

SA RAIL

MISC

SENSE LINES

VREF

When Use UMA R49,R50 Stuff

When Use DGPU Only R49,R50 Unstuff

VAXG_SENSE VSSAXG_SENSE

R50 R49 0-04 0-04

VCCGT_SENSE 30 VSSGT_SENSE 30

Note: +V_SM_VREF Should Have 10 mil Trace Width

SM_VREF +V_SM_VREF_CNT

+1.5V_CPU

VDDQ 10000 mA

C613 C612 C611 C610 C624 C625 C622 C623

VCCSA 6000 mA

+0.85V

C38 C571 C572

VCCPLL 1200 mA

+1.8V

C60 C62 C58

CPU-2013620-2

VCCSA_SENSE VCCSA_VID1

R603 1K-04 R593 1K-04

VCCSA_SENSE 34 VCCSA_SEL 34

FC_C22 FC_C24

+VCC_CORE

C566 C10 C588 C16 C13 C9 C37 C586

C583 C35 C36 C570 C587 C576 C585 C584

C553 C555 C554 C567 C561 C563 C564 C562

C568 C559 C565 C560

10U-6.3-08R-K 1U-25-06R-K 1U-10-04X-K 1N-50-04X-K

SVID Clock

+1.05V

R7 54.9-1-04 Close to Power

H_CPU_SVIDCLK R578 0-04 VR_SVID_CLK 30

SVID Alert

+1.05V

R569 75-1-04 Close to CPU

H_CPU_SVIDALRT# R570 43.2-1-04 VR_SVID_ALERT# 30

SVID Data

+1.05V

R582 130-1-04

+1.05V

R6 130-1-04 Close to Power

H_CPU_SVIDDAT R580 0-04 VR_SVID_DATA 30

+0.75VS_DDR

R124 0-04

Q29 @FET-ME2306

+V_SM_VREF_CNT

R126 @100K-04

VIN_SW

R117 @100K-04

+1.5VS

Q520 @FET-APM4826K

PJP510 OPEN_2A

R640 @0-04

Q28 @FET-ME2N7002E-HF

@10N-25-X04-K

C54

C632 @470P-50-04X-K

+1.5V_CPU

6,14 PS_S3CNTRL PS_S3CNTRL

ECS COMPUTER CORP.

Title: Sandy Bridge_Power

Size	Document Number	Rev
	MB40IA B1-Phase Custom	MB40IA B1

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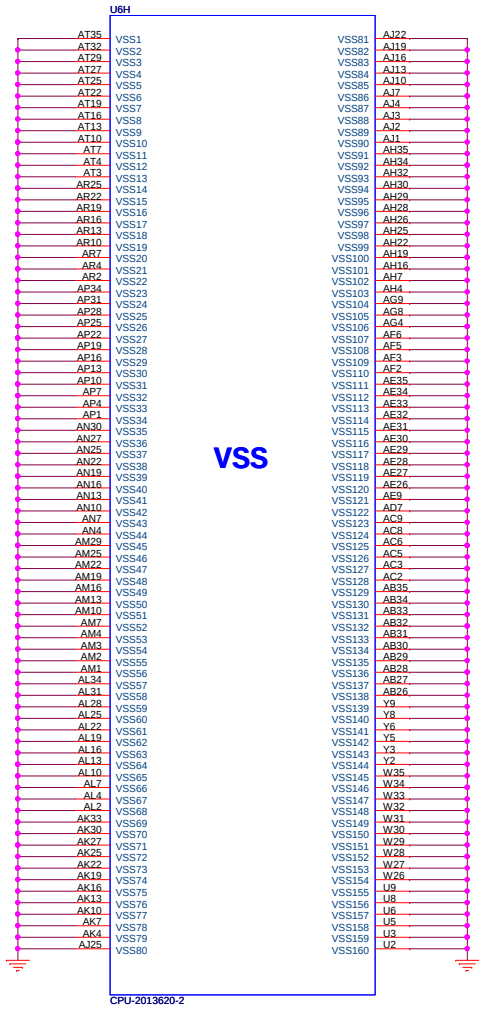

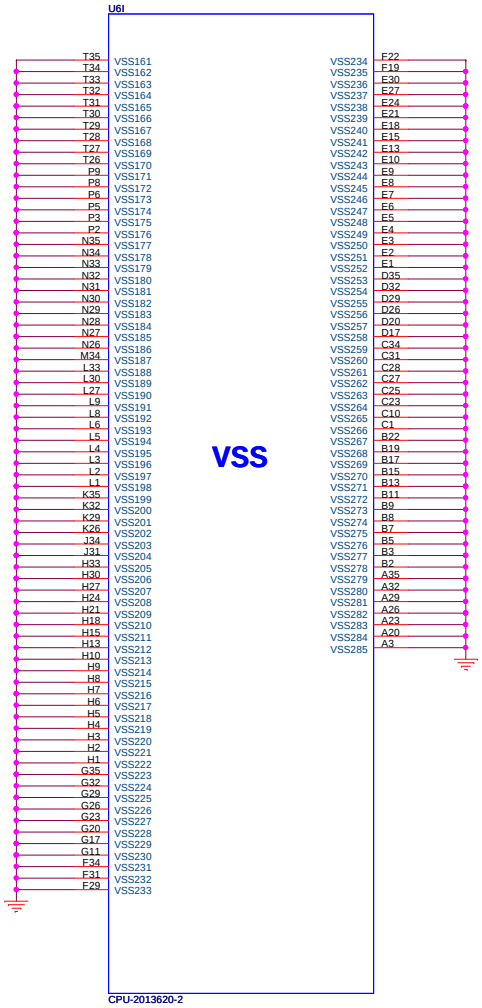

ECS COMPUTER CORP.			
Title: Sandy Bridge_GND			
Size:	Document Number: MB40IA B1-Phase Custom	MB40IA	Rev: B1
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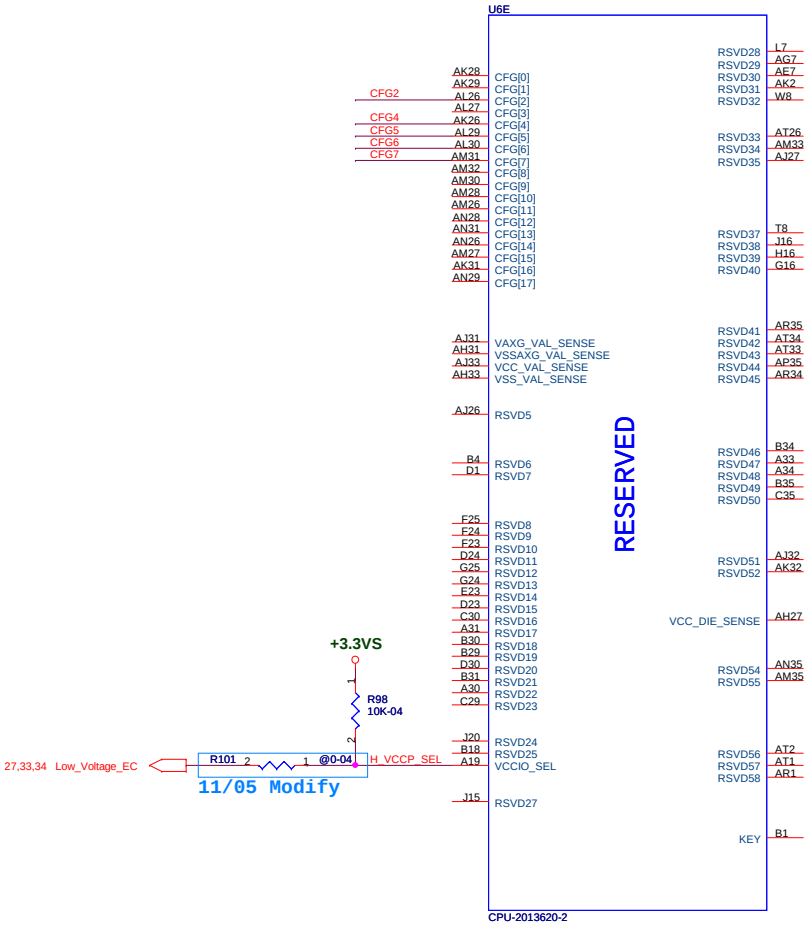

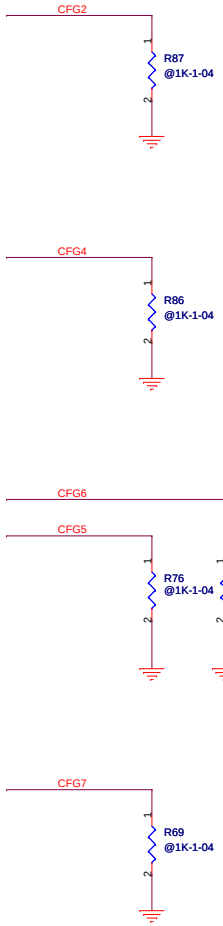

PEG Static Lane Reversal - CFG2 is for the 16x

CFG2	1:(Default) Normal Operation; Lane # definition matches socket pin map definition 0:Lane Reversed

Display Port Presence Strap

CFG4	1:(Default) Disabled; No Physical Display Port attached to Embedded Display Port 0:Enabled; An external Display Port device is connected to the Embedded Display Port

PCIE Port Bifurcation Straps

CFG[6:5]	11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled) 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled

PEG DEFER TRAINING

CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training

ECS COMPUTER CORP.

Title: Sandy Bridge_Reserved

Size | Document Number: MB40IA B1-Phase Custom | MB40IA | Rev: B1

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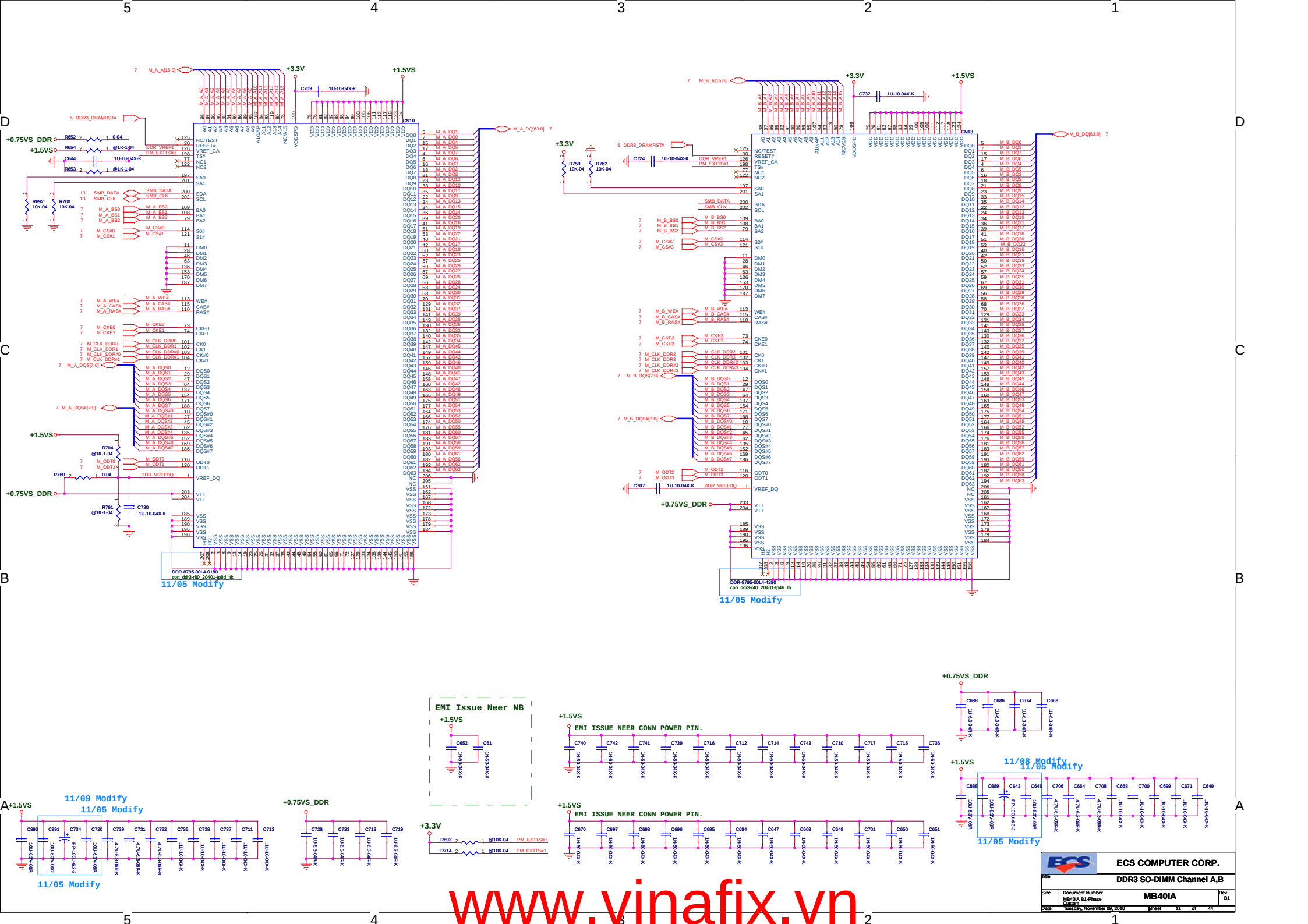

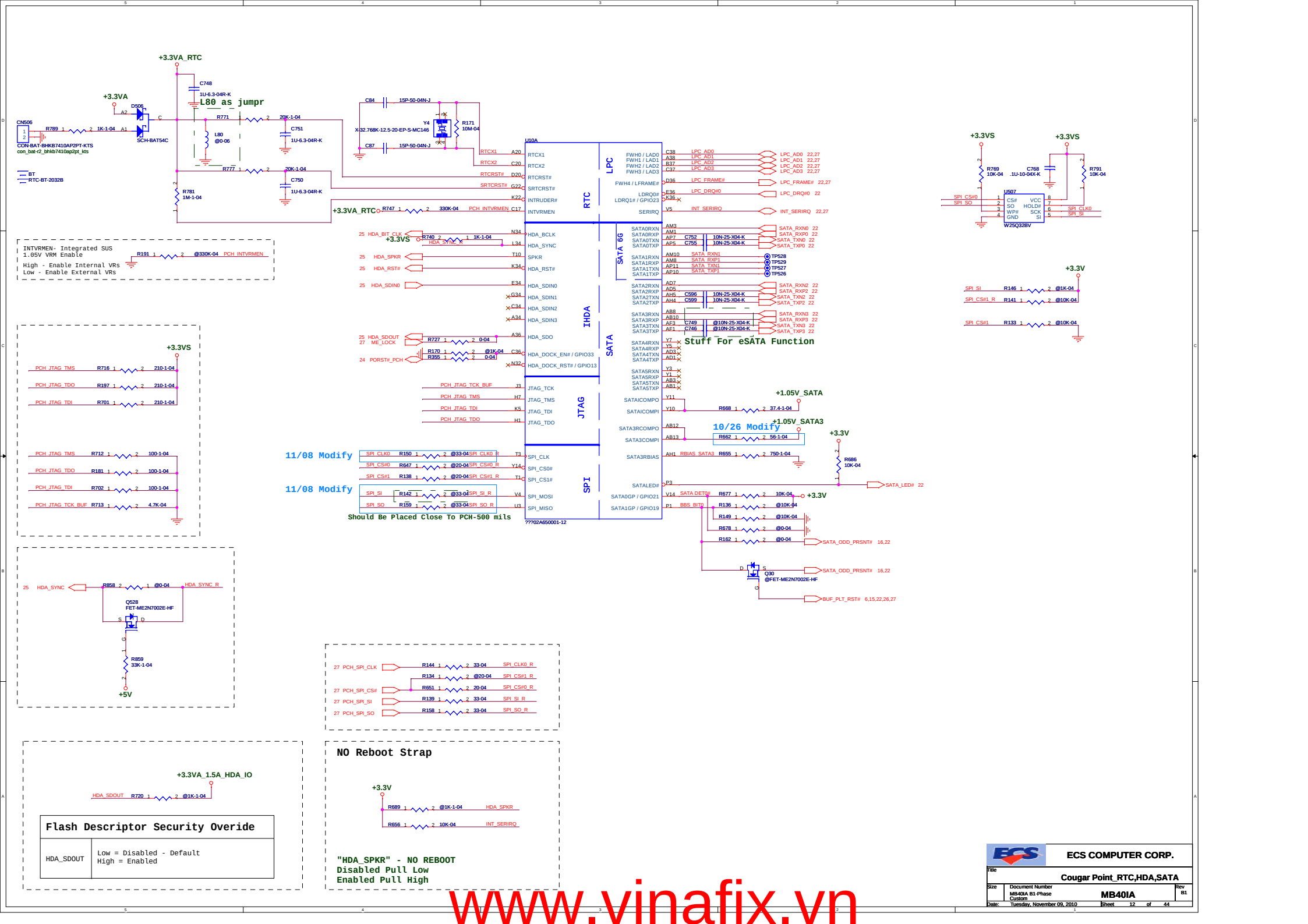

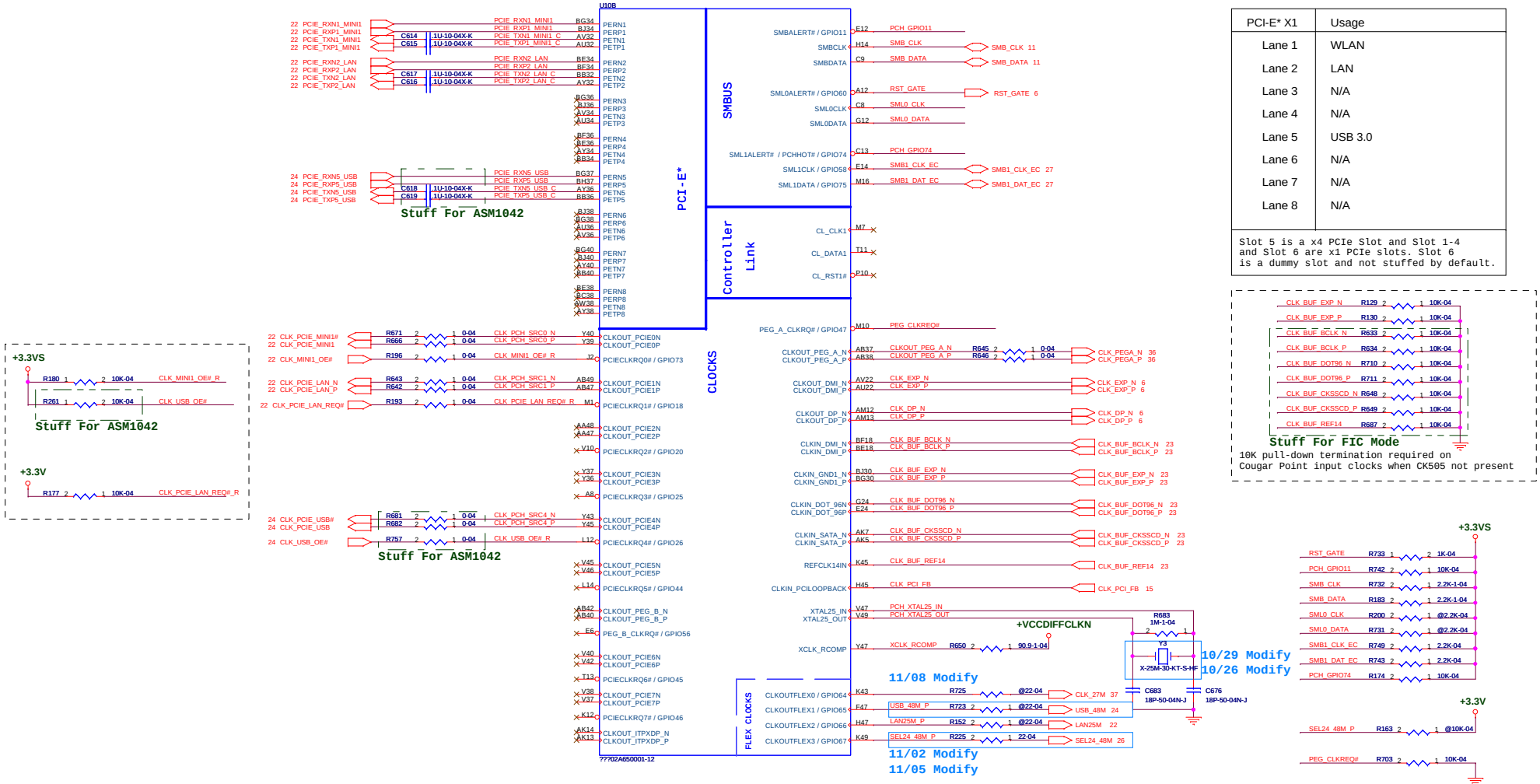

PCI-E* X1	Usage
Lane 1	WLAN
Lane 2	LAN
Lane 3	N/A
Lane 4	N/A
Lane 5	USB 3.0
Lane 6	N/A
Lane 7	N/A
Lane 8	N/A

Slot 5 is a x4 PCIe Slot and Slot 1-4 and Slot 6 are x1 PCIe slots. Slot 6 is a dummy slot and not stuffed by default.

ECS COMPUTER CORP.

Title: Cougar Point_PCIE,CLK,SMBus

Size: | Document Number: MB40IA B1-Phase Custom | MB40IA | Rev: B1

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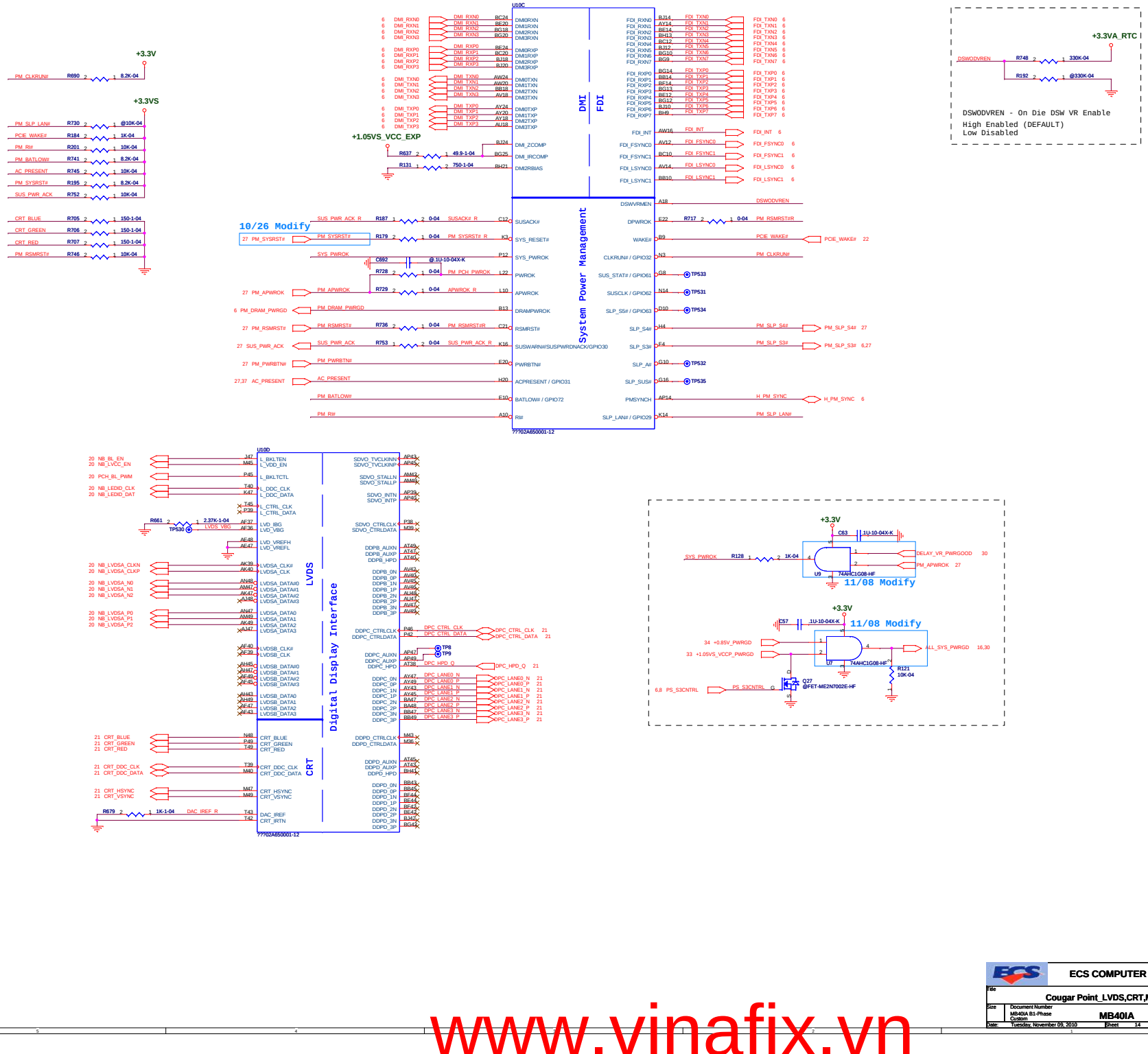

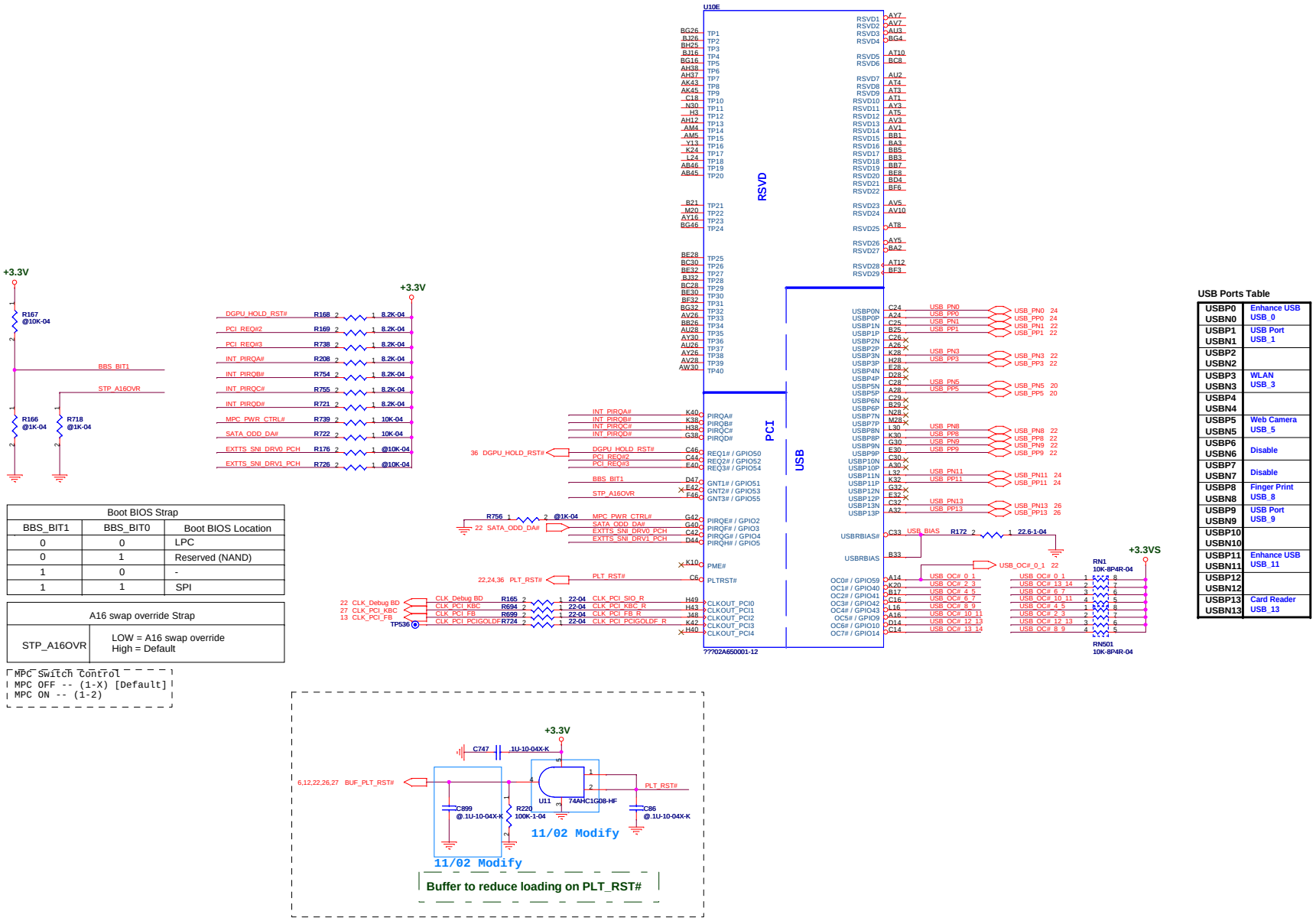

Boot BIOS Strap		
BBS_BIT1	BBS_BIT0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	-
1	1	SPI

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

MPC Switch Control
MPC OFF -- (1-X) [Default]
MPC ON -- (1-2)

USB Ports Table

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

ECS COMPUTER CORP.

Title: Cougar Point_PCI,USB

Size: | Document Number: MB40IA B1-Phase Custom | MB40IA | Rev: B1

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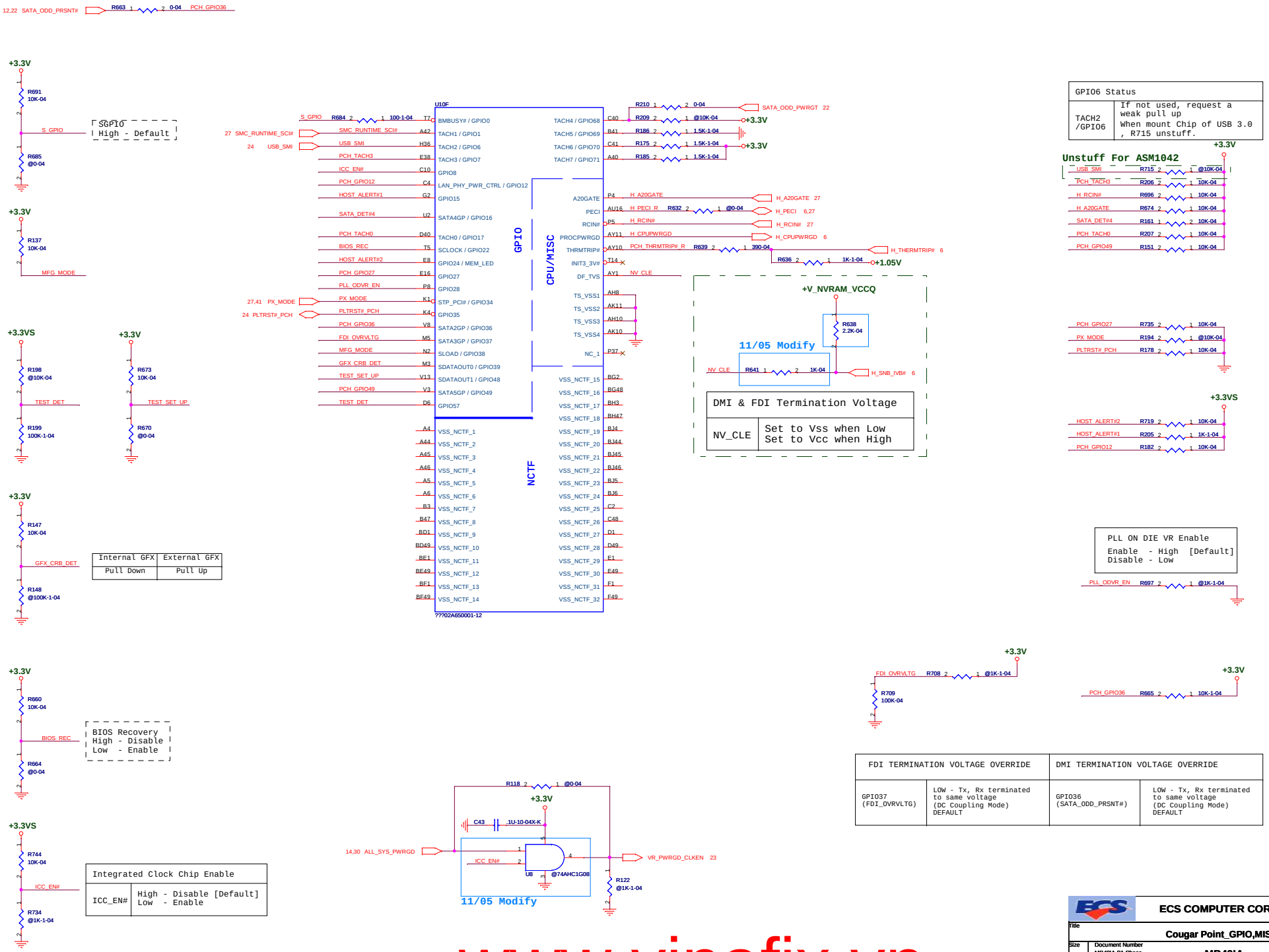
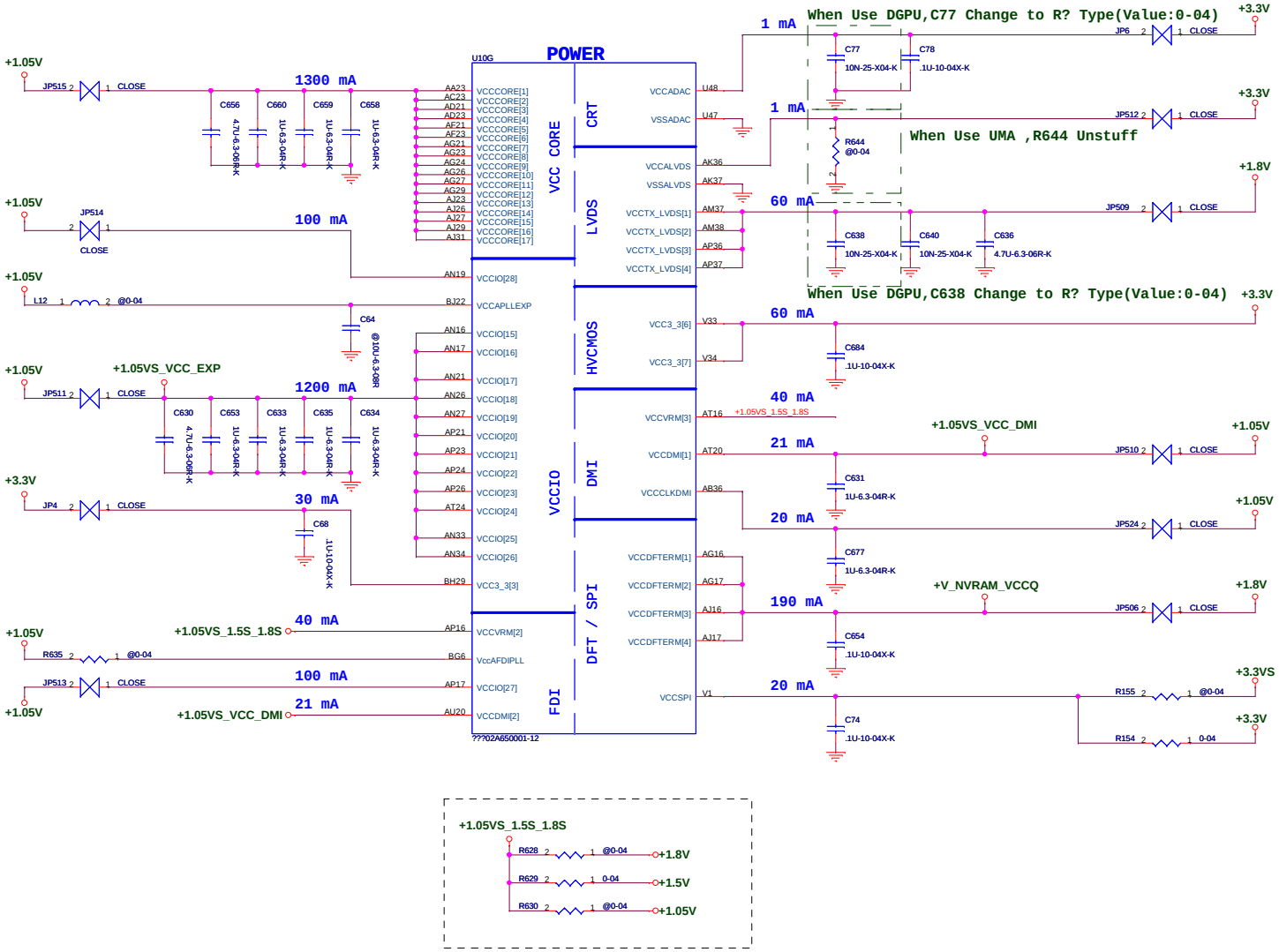
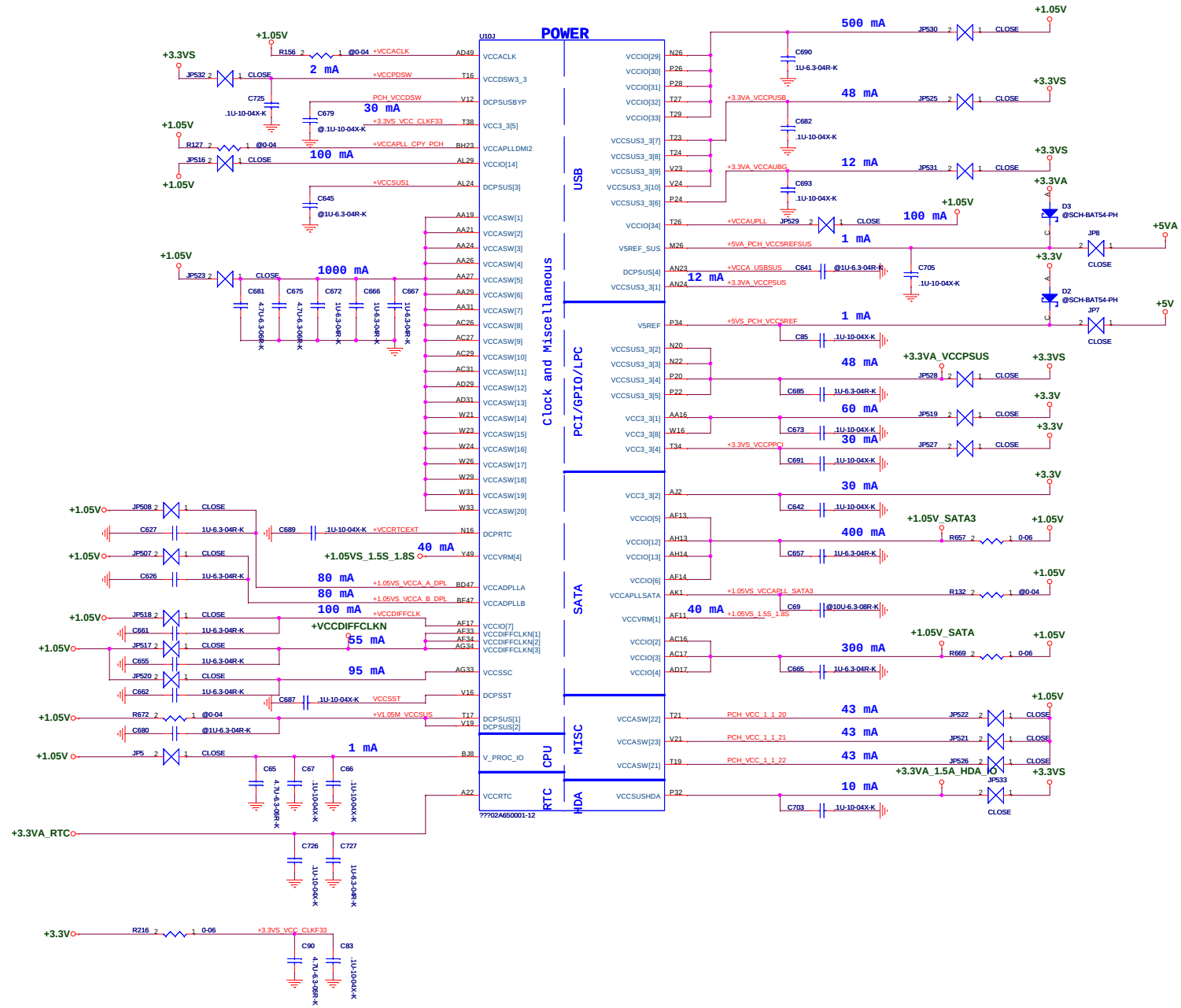




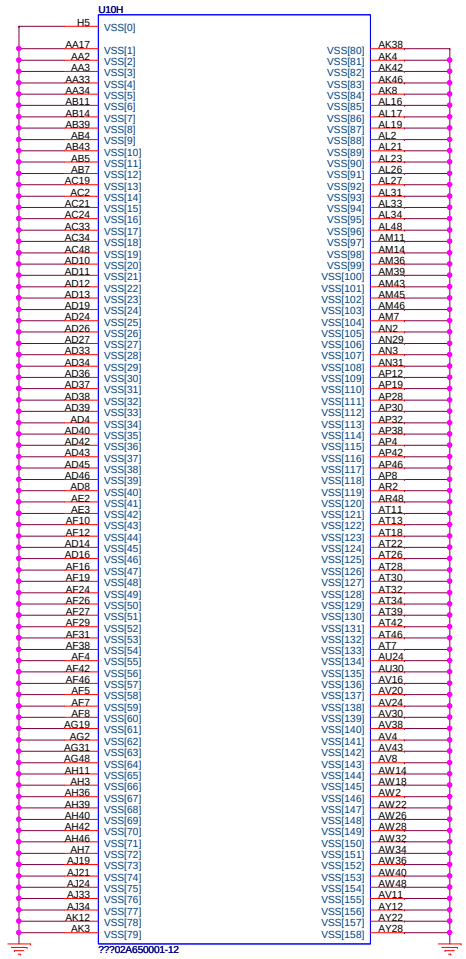
ECS COMPUTER CORP.

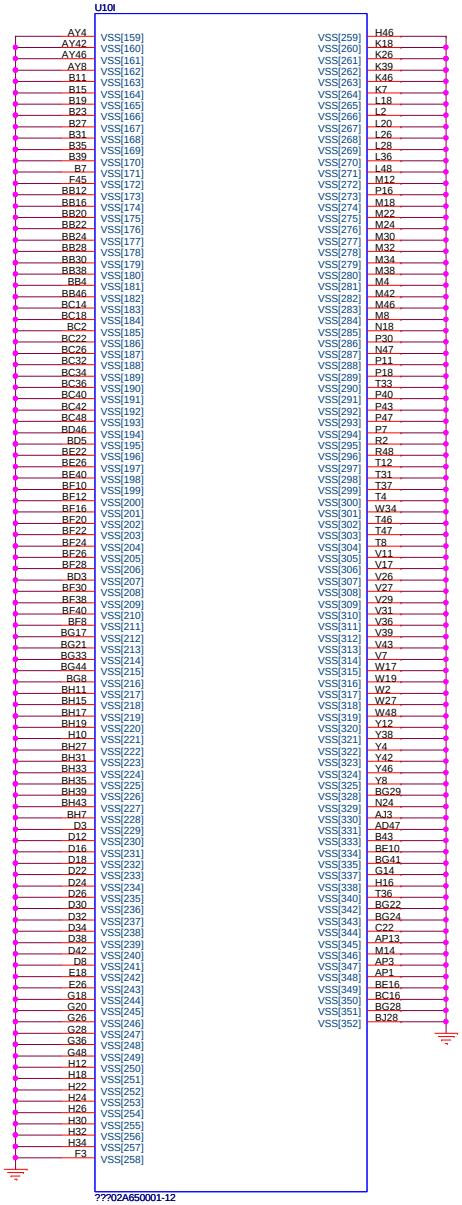
Title: Cougar Point_Power1

Size	Document Number	Rev
	MB40IA B1-Phase Custom MB40IA	B1
Date: Tuesday, November 09, 2010	Sheet 17 of 44	



ECS COMPUTER CORP.		
Title	Cougar Point_Power2	
Size	Document Number: MB40IA B1-Phase Custom	Rev: B1
Date: Tuesday, November 09, 2010	Sheet 18 of 44	





ECS COMPUTER CORP.

Title: Cougar Point_GND

Size: Document Number: MB40IA B1-Phase Custom | MB40IA | Rev: B1

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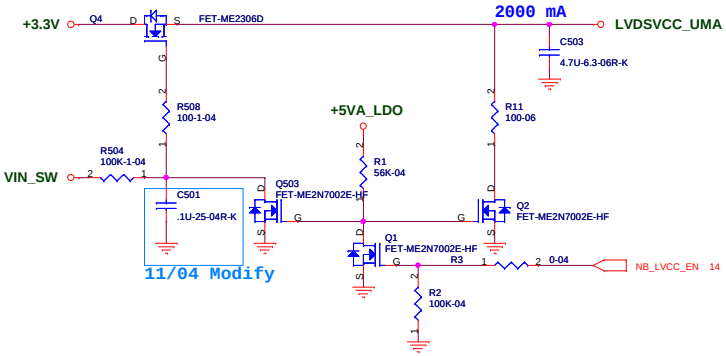
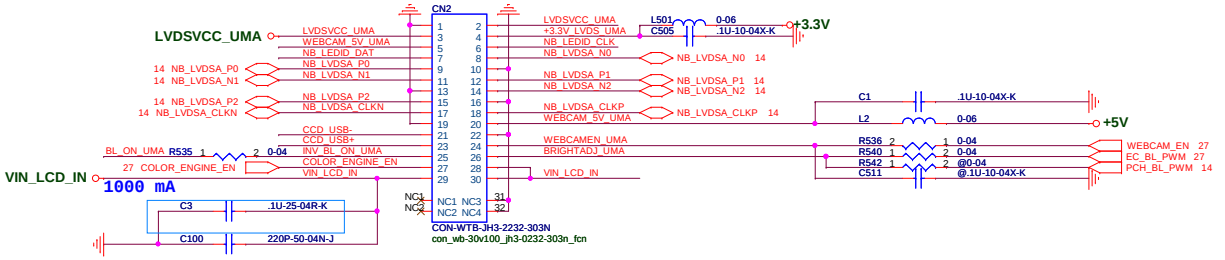
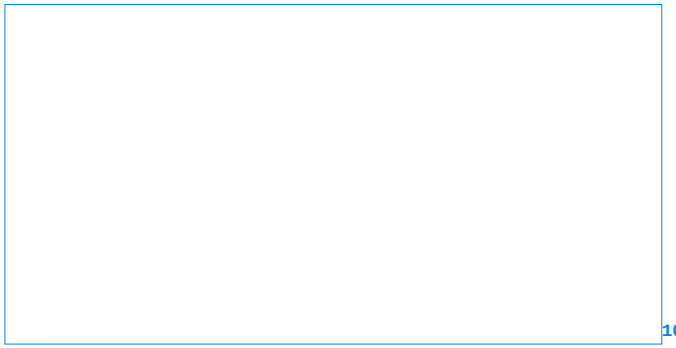
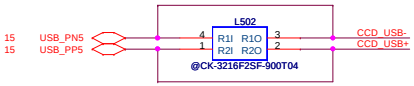
LVDS + Webcam Connector

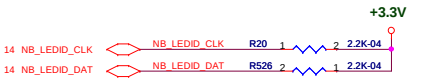






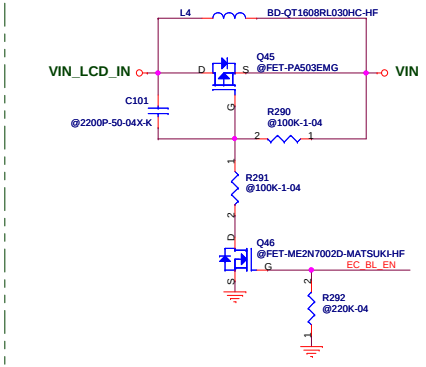
10/28 Modify

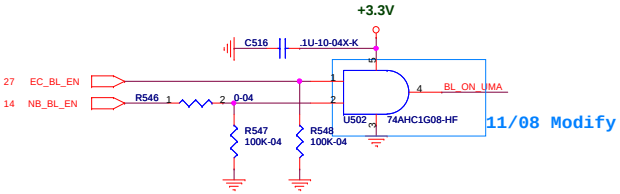


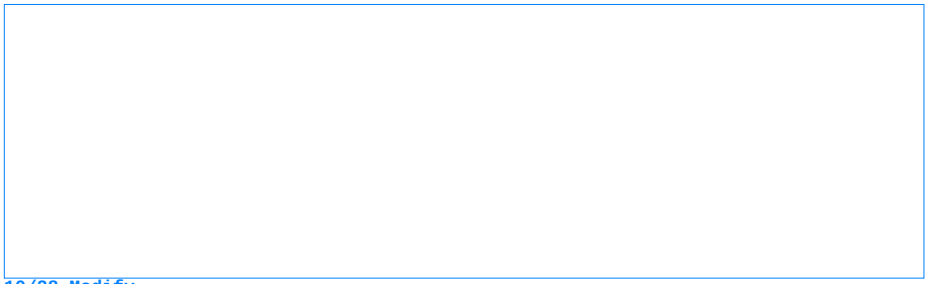


10/28 Modify

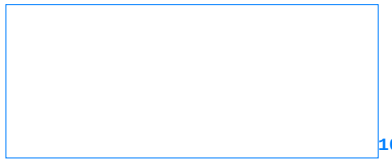
For LCD Timing Solution







10/28 Modify



10/28 Modify

ECS COMPUTER CORP.

Title	LVDS/Webcam		
Size	Document Number: MB40IA B1-Phase Custom	MB40IA	Rev: B1
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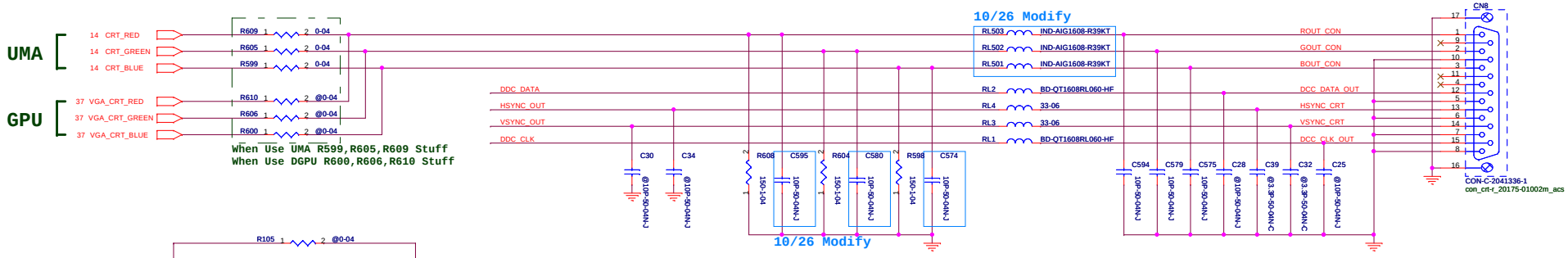
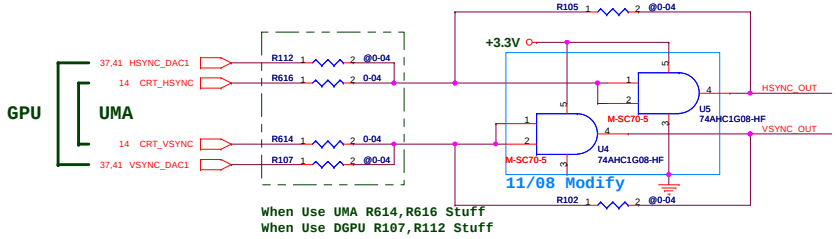
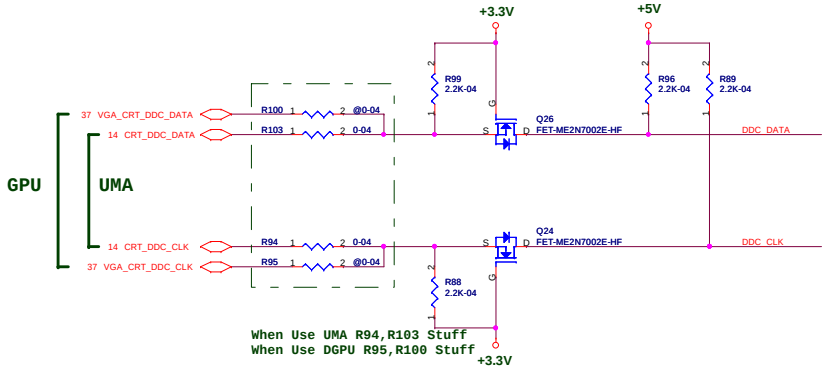
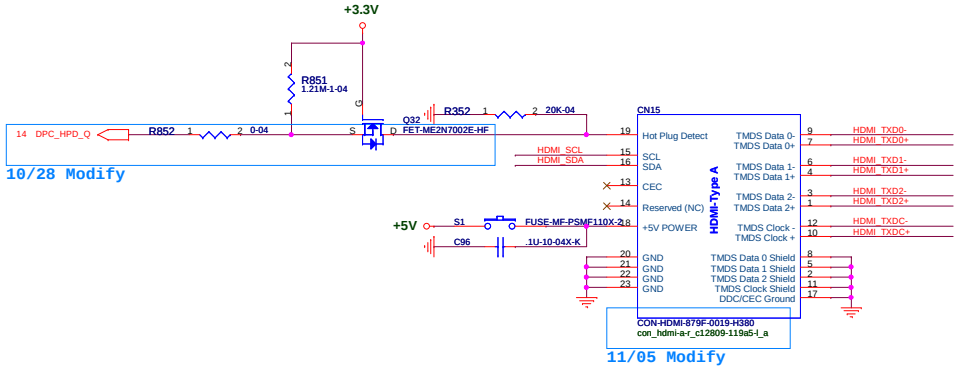
CRT Connector



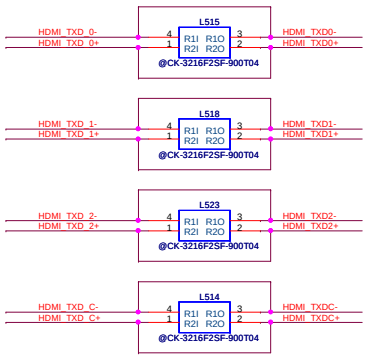


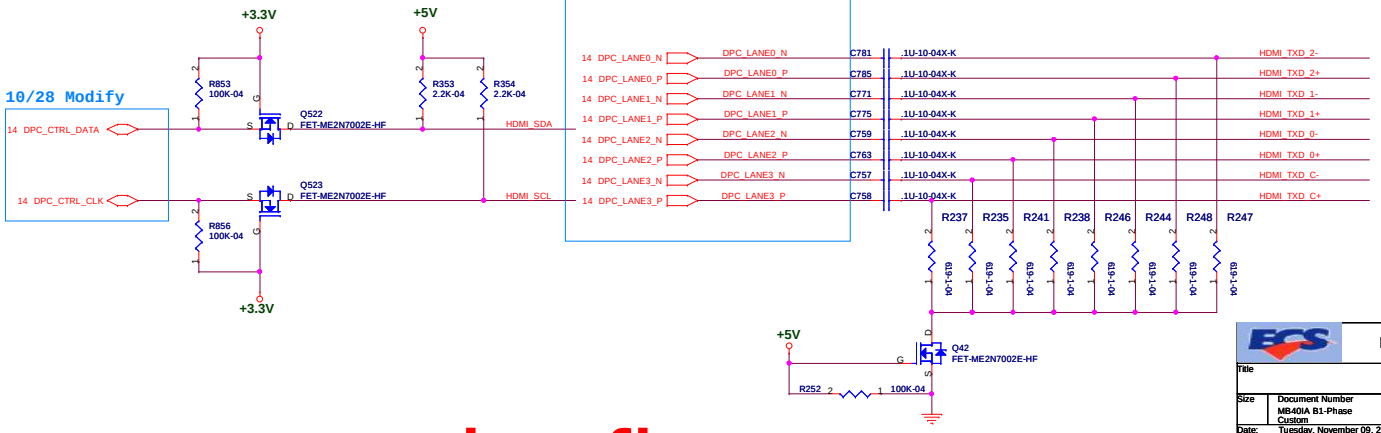


HDMI Connector



EMI Issue





ECS COMPUTER CORP.

Title	CRT/HDMI	
Size	Document Number: MB40IA B1-Phase Custom	Rev: B1
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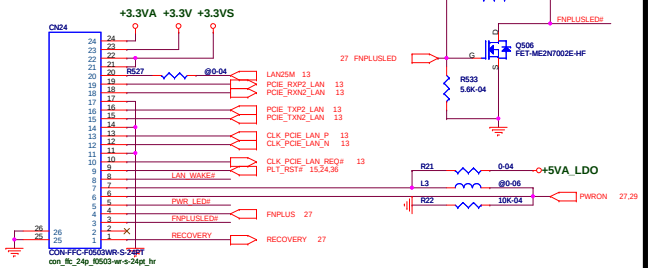
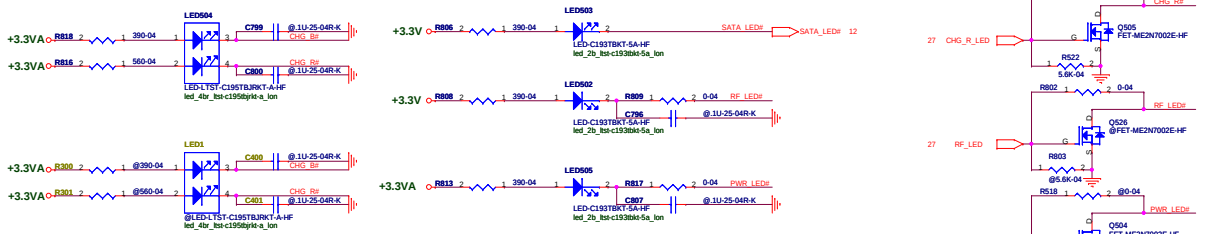
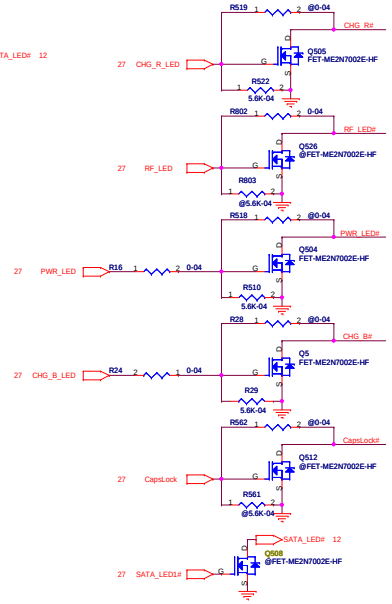
PWR SW + LAN Connector



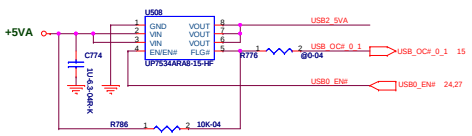
LED



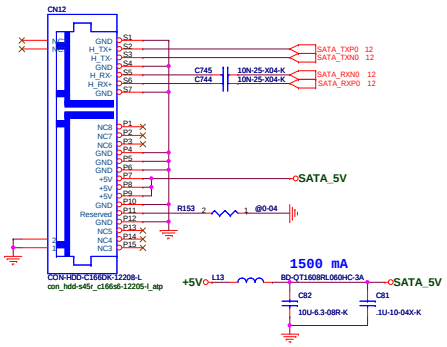


LED Select Table					
	MB40IA		MB40II		
	ID2	ID3	ID4	ID5	ID6
CHG_LED LED504	Blue 20A419300-00	Blue 20A419300-00	None	None	None
SATA_LED	Blue 20A419300-00	Blue 20A419300-00	None	None	None
RF_LED	Blue 20A419300-00	Blue 20A419300-00	None	None	None
PWR_LED	Blue 20A419300-00	Blue 20A419300-00	None	None	None
CHG_LED LED1	Blue/Red 20G419501-00	Blue/Red 20G419501-00	Blue/Red 20G419501-00	Blue/Red 20G419501-00	Green/Red 20G419500-00

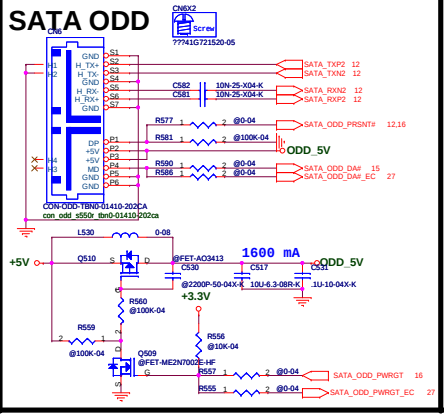
USB Port 2.0
USB 1 & USB 9



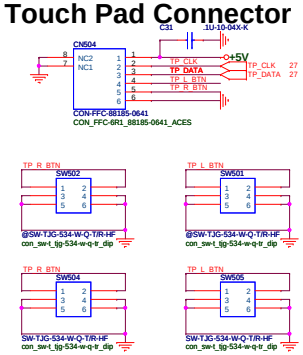
SATA HDD



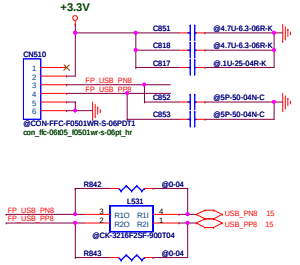
SATA ODD



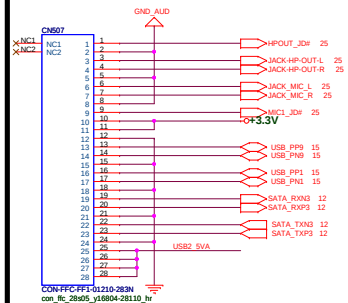
Touch Pad Connector



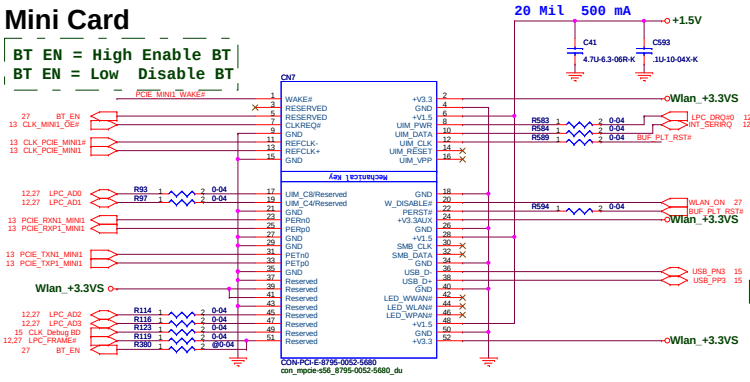
Finger Print Connector

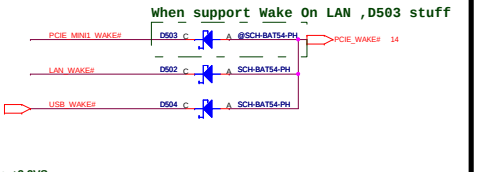


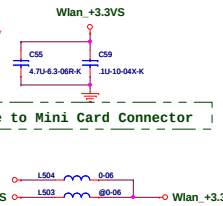
I/O Board Conn



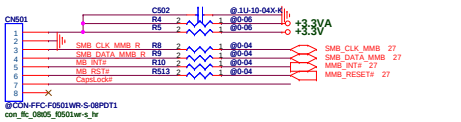
Mini Card



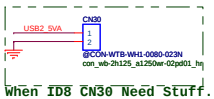




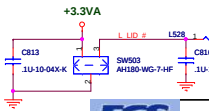
MMB Connector



USB 5VA



LID SW



ECS COMPUTER CORP.

Title: Mini Card/LED/LID/MMB/TP/HDD/ODD/IO Conn

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	MB40IA B1-Phase Custom	B1
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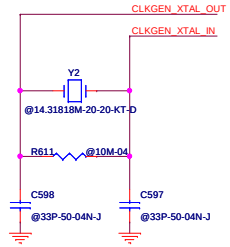
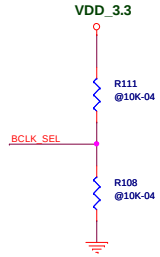
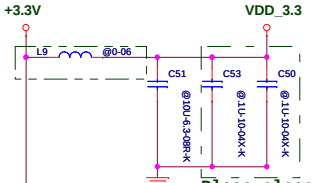
Clock Gen

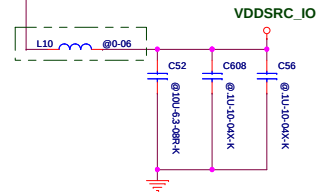


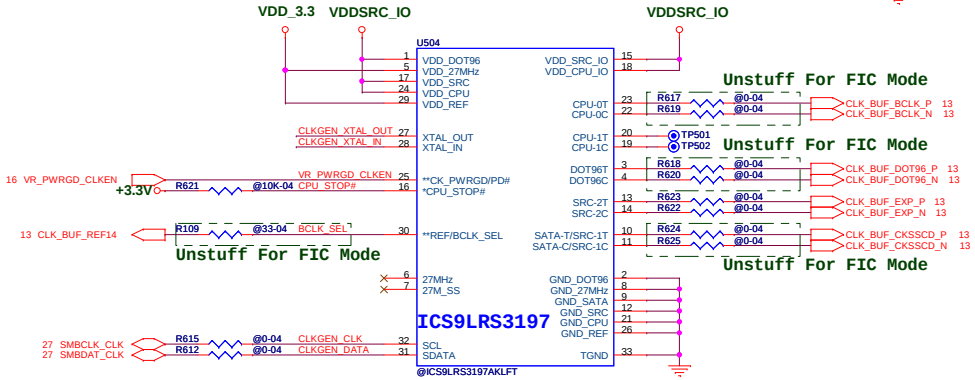


BCLK SEL input	BCLK	NOTE
0	133MHz	
1	100MHz	Default



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





Unstuff For FIC Mode

Unstuff For FIC Mode

Unstuff For FIC Mode

Unstuff For FIC Mode

ECS COMPUTER CORP.

Title: Clock Gen (ICS9LRS3197)

Size | Document Number: MB40IA B1-Phase Custom: MB40IA | Rev: B1

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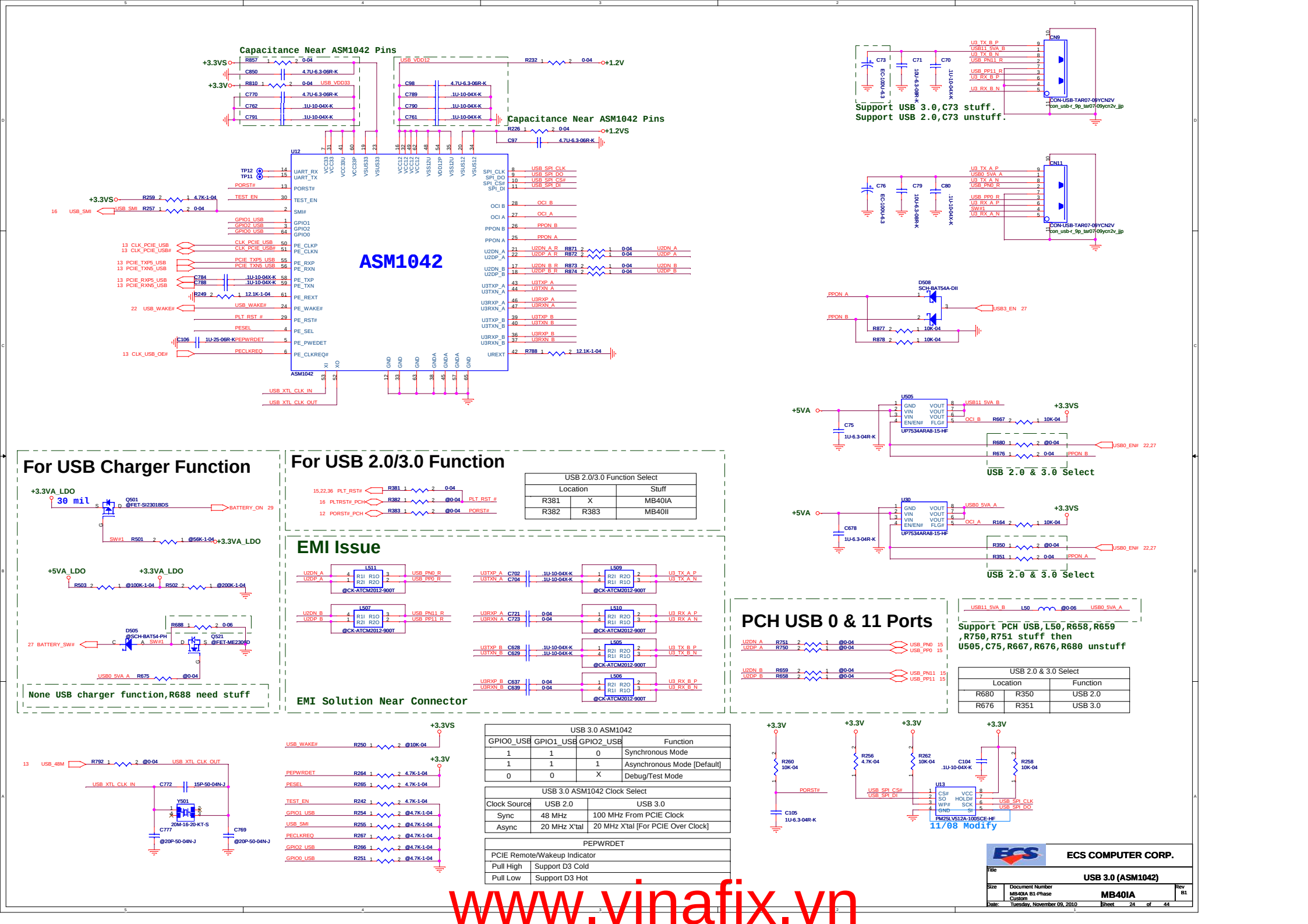
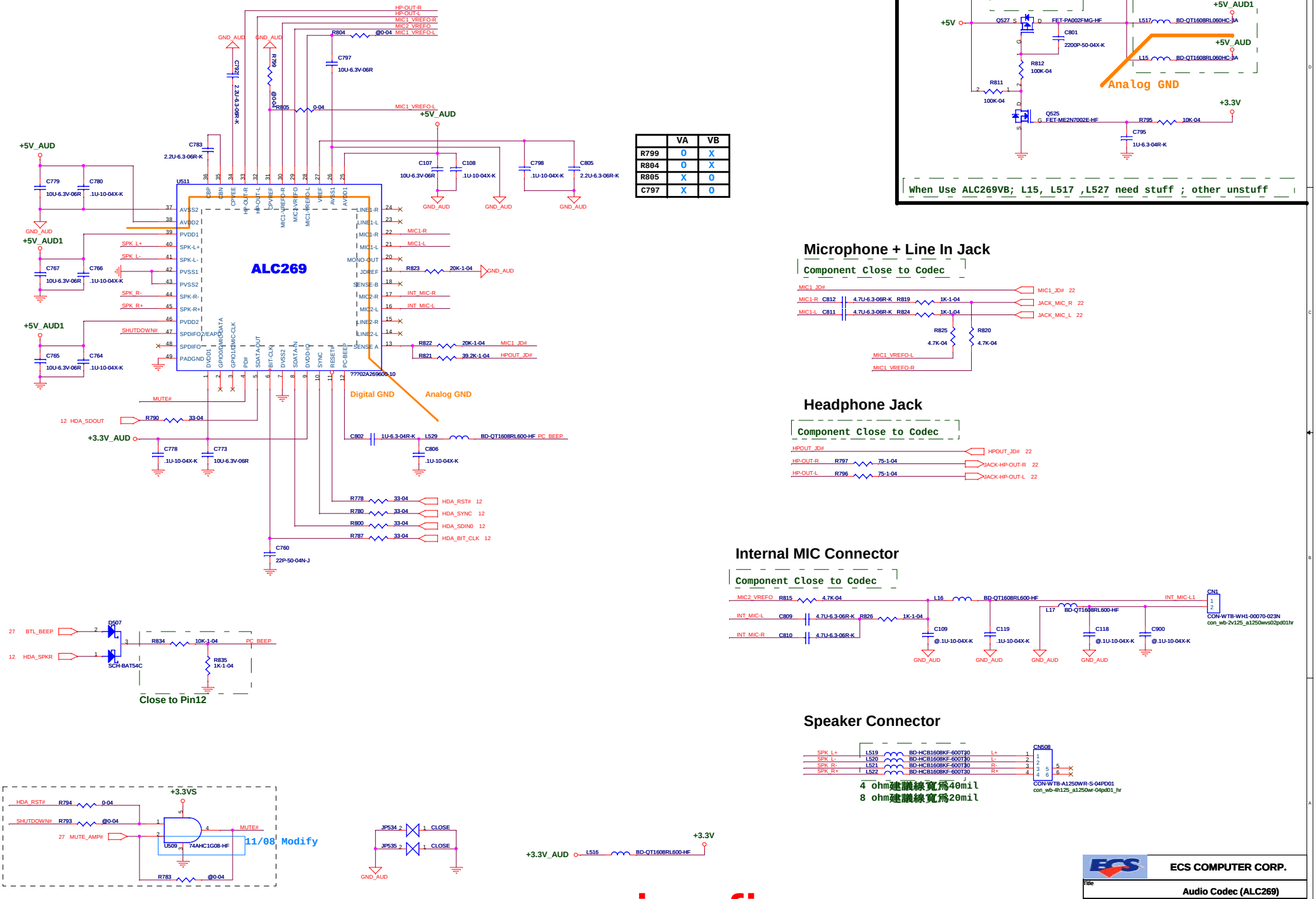




Card Reader

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

11/05 Modify
11/02 Modify
10/28 Modify
10/26 Modify

+3.3V — 400 mA — D3V3
L526 0-06
C793 4.7U-25-08R-K
C794 .1U-10-04X-K
C861 .1U-10-04X-K
Close to Chip Pin11/33

+3.3V
C856 1U-6.3-04R-K
C857 .1U-10-04X-K
Close to Chip Pin8

D3V3
R775 100K-04
R863 @0-04
C858 @47P-50-04N-J
R870 @0-04 BUF_PLT_RST# 6,12,15,22,27
C756 1U-6.3-04R-K

11/02 Modify

U510 RTS5159-HF

RTS5159

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

11/08 Modify
D3V3 R807 0-04
11/02 Modify
11/05 Modify

R889 0-04 SEL24_48M — SEL24_48M 13
Y5 @X-12-20-30-KT-S
R890 @270K-04
C897 @5.6P-50-04N-D
C898 @5.6P-50-04N-D

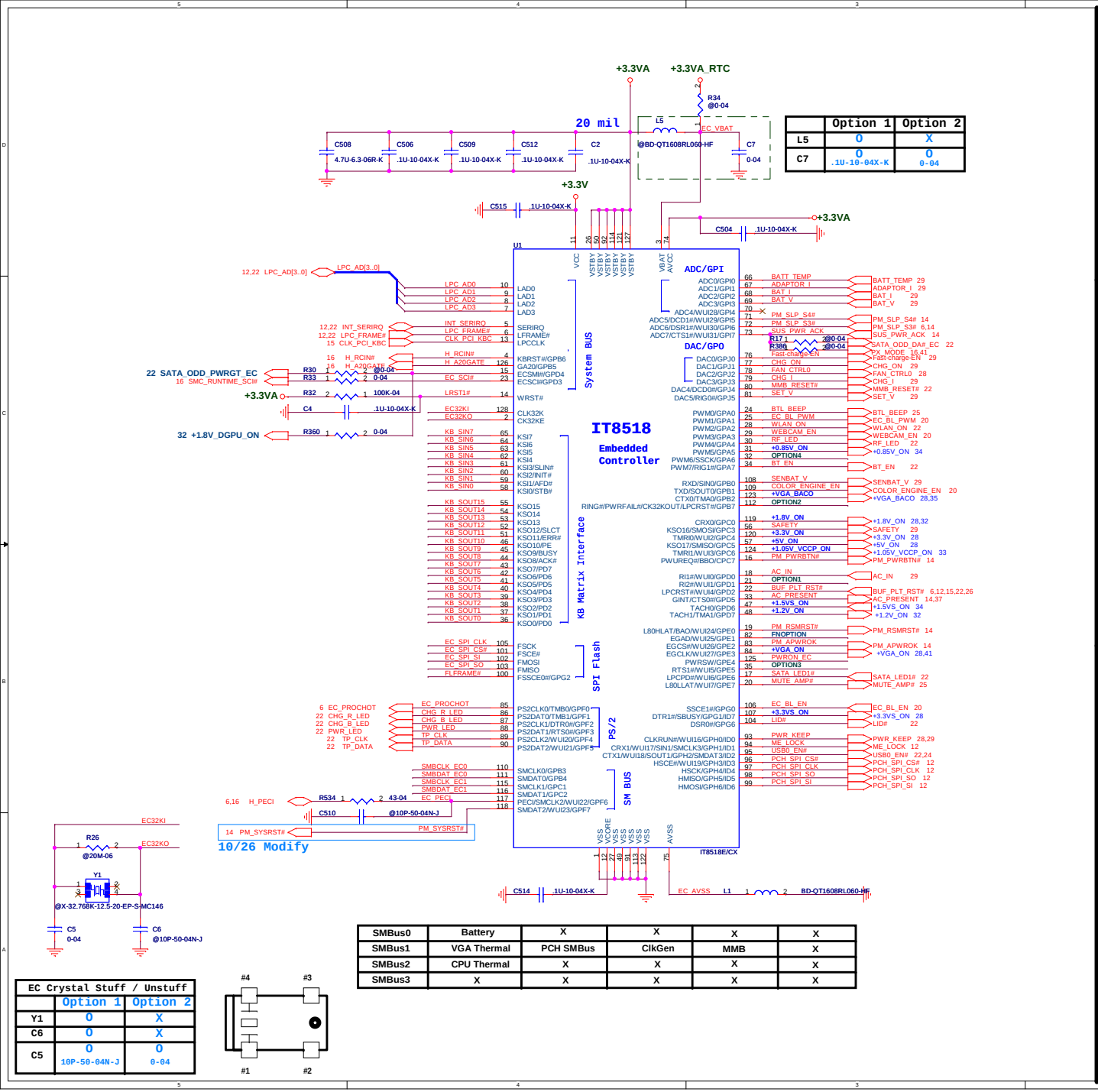
R864 0-04
L532 @CK-ATCM2012-900T
R865 0-04
15 USB_PN13 — USB_PN13_IO_R
15 USB_PP13 — USB_PP13_IO_R

C860 .1U-10-04X-K
C859 1U-6.3-04R-K
R866 0-04
R867 6.2K-1-04 RREF
C895 .1U-10-04X-K
C874 1U-10-04X-K
C110 1U-10-04X-K

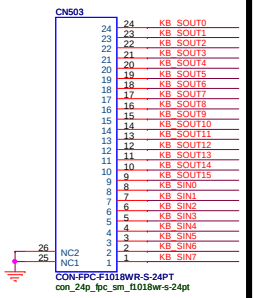
CN14 ????31AK01910-00 CON_3IN1-R_MDR019-C0-1042_PRO

Title	Card Reader (RTS5159-GR)
Size	Document Number: MB40IA B1-Phase Custom
Rev	B1
Date:	Tuesday, November 09, 2010
Sheet	26 of 44

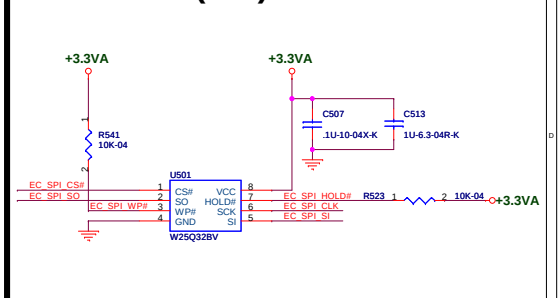
ECS COMPUTER CORP.



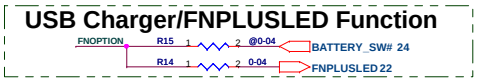
K/B Connector



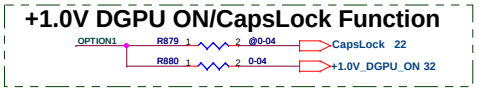
Flash ROM (SPI)



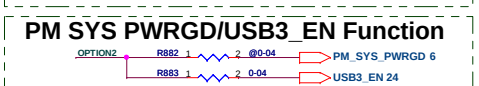
USB Charger/FNPLUSLED Function



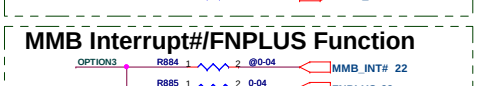
+1.0V DGPU ON/CapsLock Function



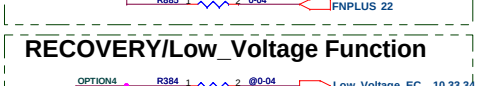
PM SYS PWRGD/USB3_EN Function



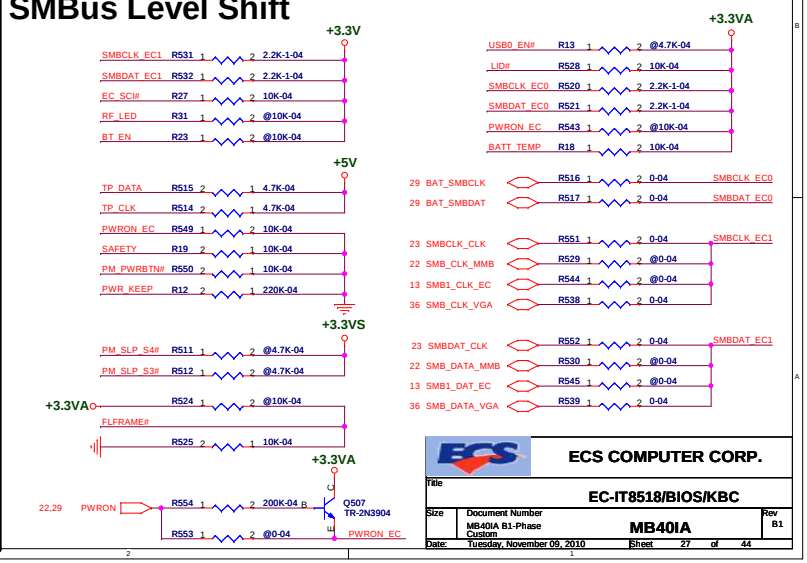
MMB Interrupt#/FNPLUS Function



RECOVERY/Low_Voltage Function



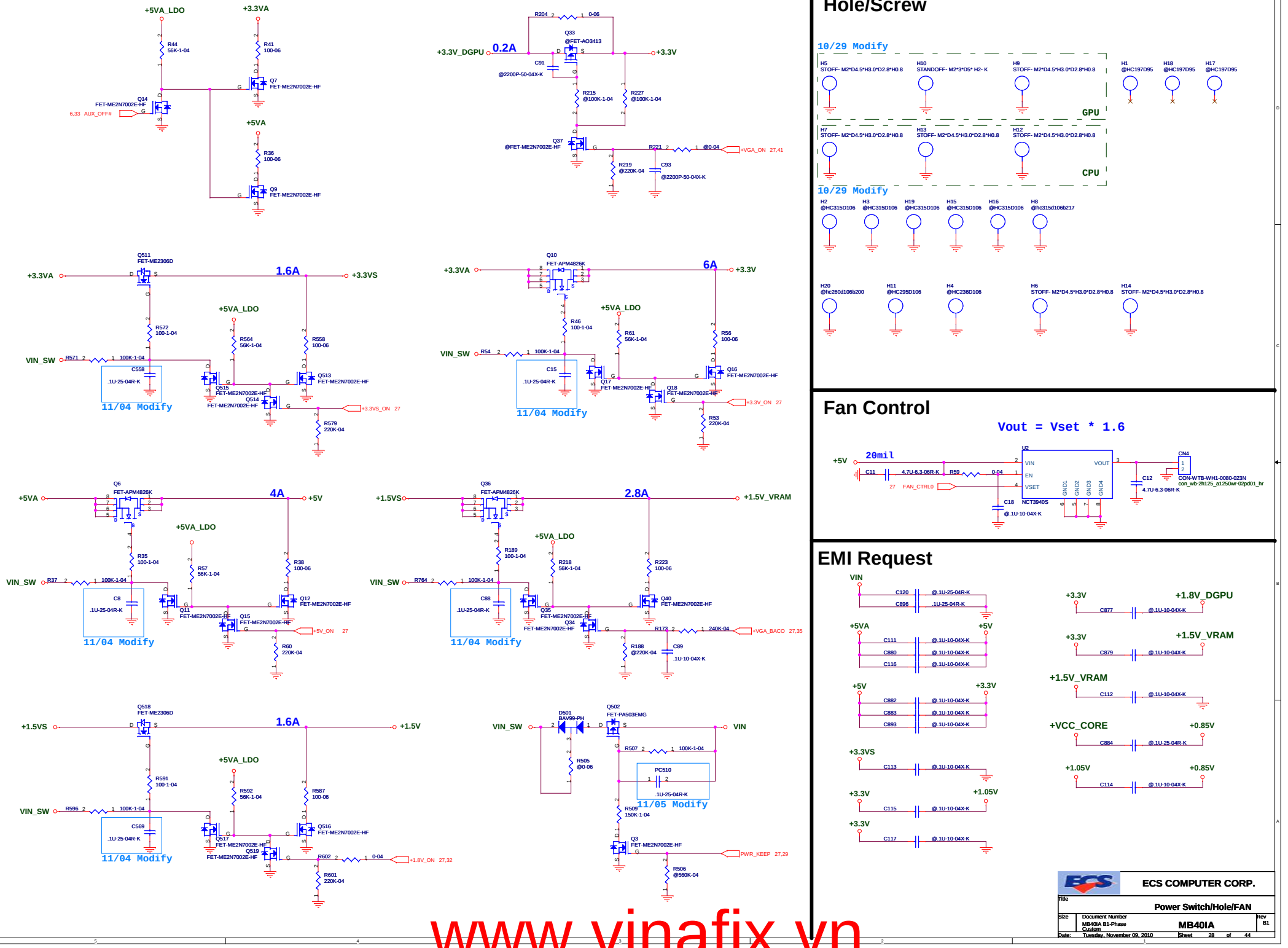
SMBus Level Shift



ECS COMPUTER CORP.

Title: EC-IT8518/BIOS/KBC

Size	Document Number	Rev
	MB40IA B1-Phase Custom	B1
Date: Tuesday, November 09, 2010	Sheet 27 of 44	



Hole/Screw

10/29 Modify

H5 STOFF- M2*D4.5*H3.0*D2.8*H0.8
H10 STANDOFF- M2*3*D5* H2- K
H9 STOFF- M2*D4.5*H3.0*D2.8*H0.8
GPU
H7 STOFF- M2*D4.5*H3.0*D2.8*H0.8
H13 STOFF- M2*D4.5*H3.0*D2.8*H0.8
H12 STOFF- M2*D4.5*H3.0*D2.8*H0.8
CPU
H1 @HC197D95
H18 @HC197D95
H17 @HC197D95

10/29 Modify

H2 @HC315D106
H3 @HC315D106
H19 @HC315D106
H15 @HC315D106
H16 @HC315D106
H8 @hc315d106b217
H20 @hc260d106b200
H11 @HC295D106
H4 @HC236D106
H6 STOFF- M2*D4.5*H3.0*D2.8*H0.8
H14 STOFF- M2*D4.5*H3.0*D2.8*H0.8

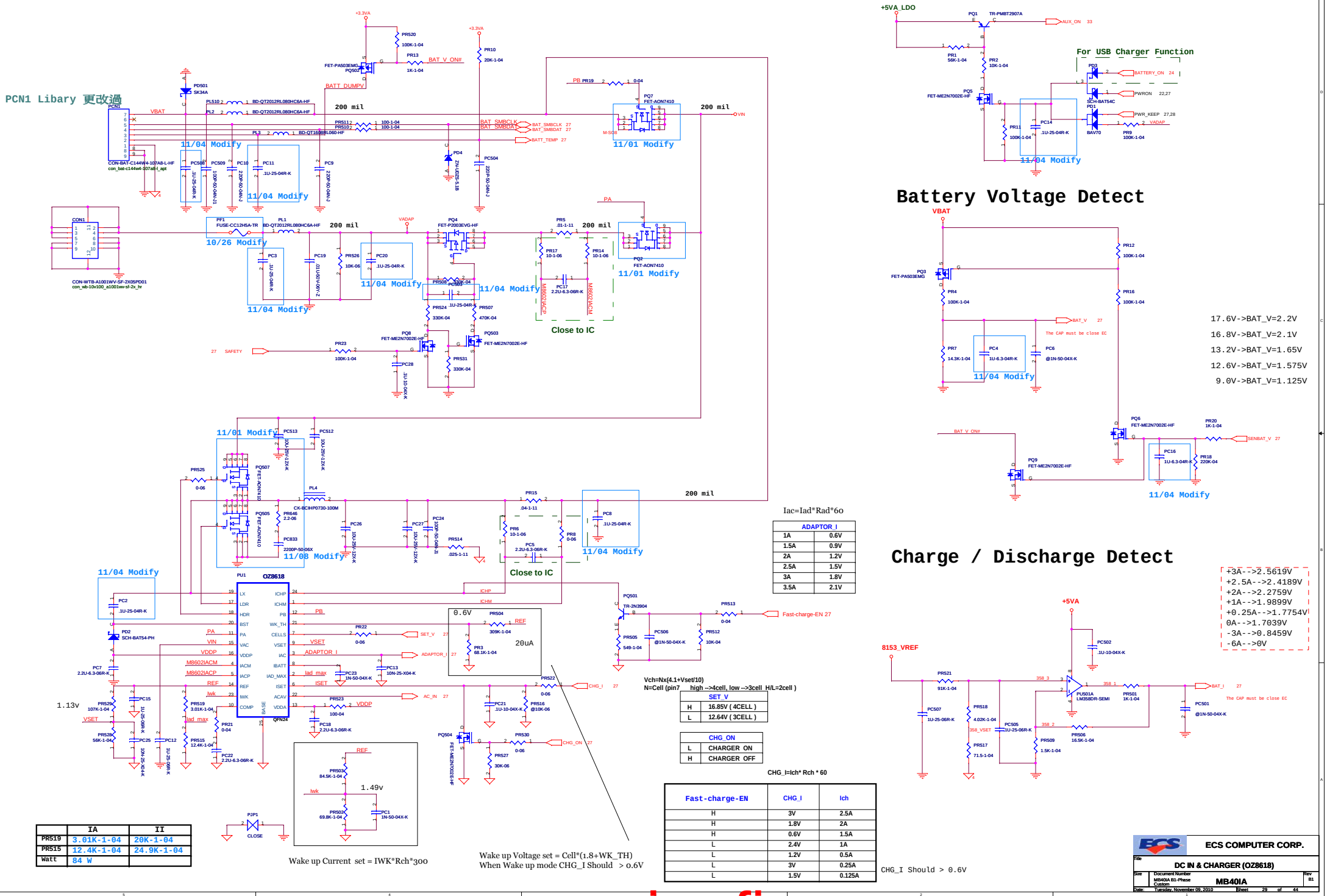
Fan Control

Vout = Vset * 1.6

EMI Request

ECS COMPUTER CORP.

Title	Power Switch/Hole/FAN	
Size	Document Number: MB40IA B1-Phase Custom	Rev: B1
	MB40IA	
Date: Tuesday, November 09, 2010	Sheet 28 of 44	



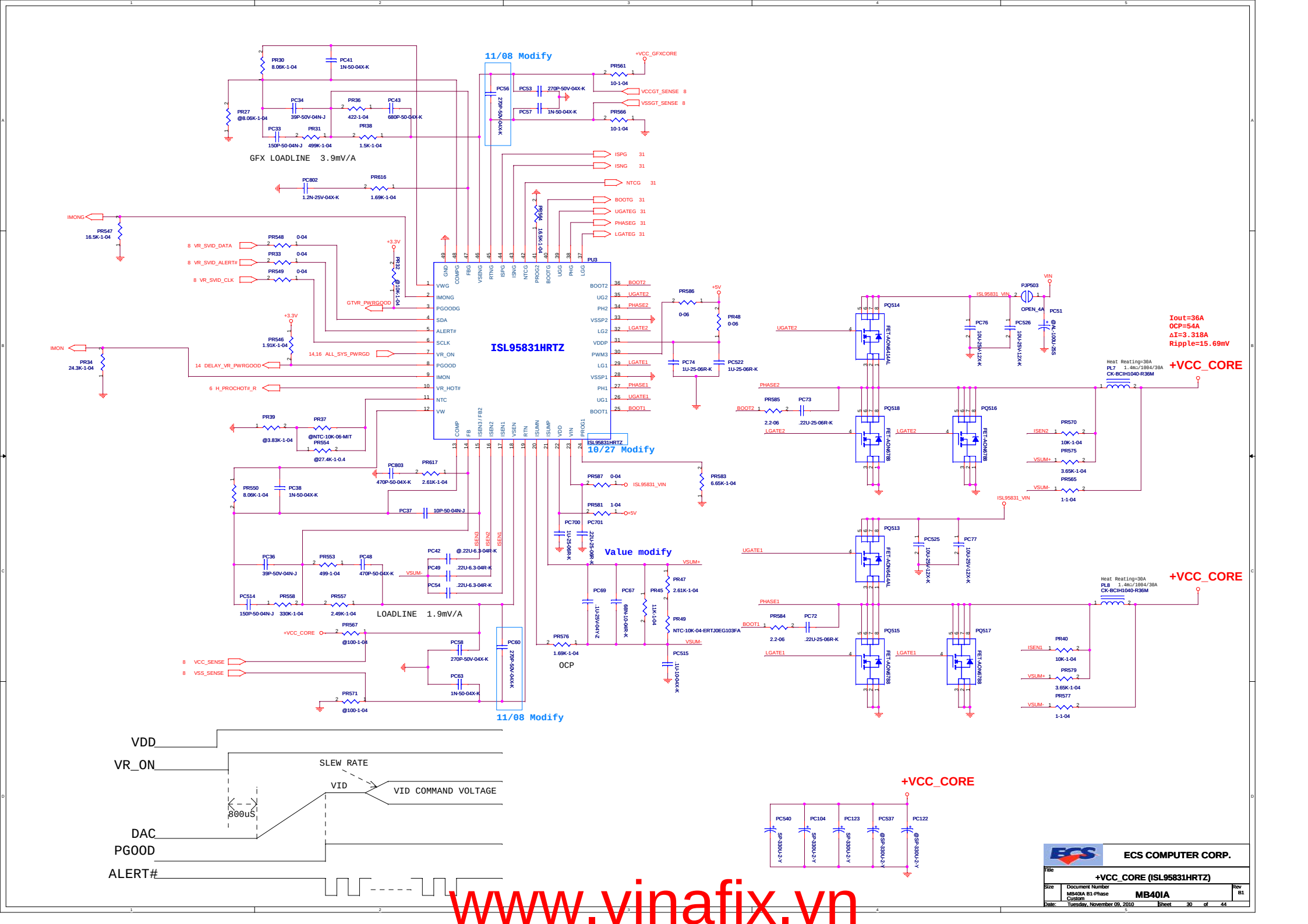
ADAPTOR_I	
1A	0.6V
1.5A	0.9V
2A	1.2V
2.5A	1.5V
3A	1.8V
3.5A	2.1V

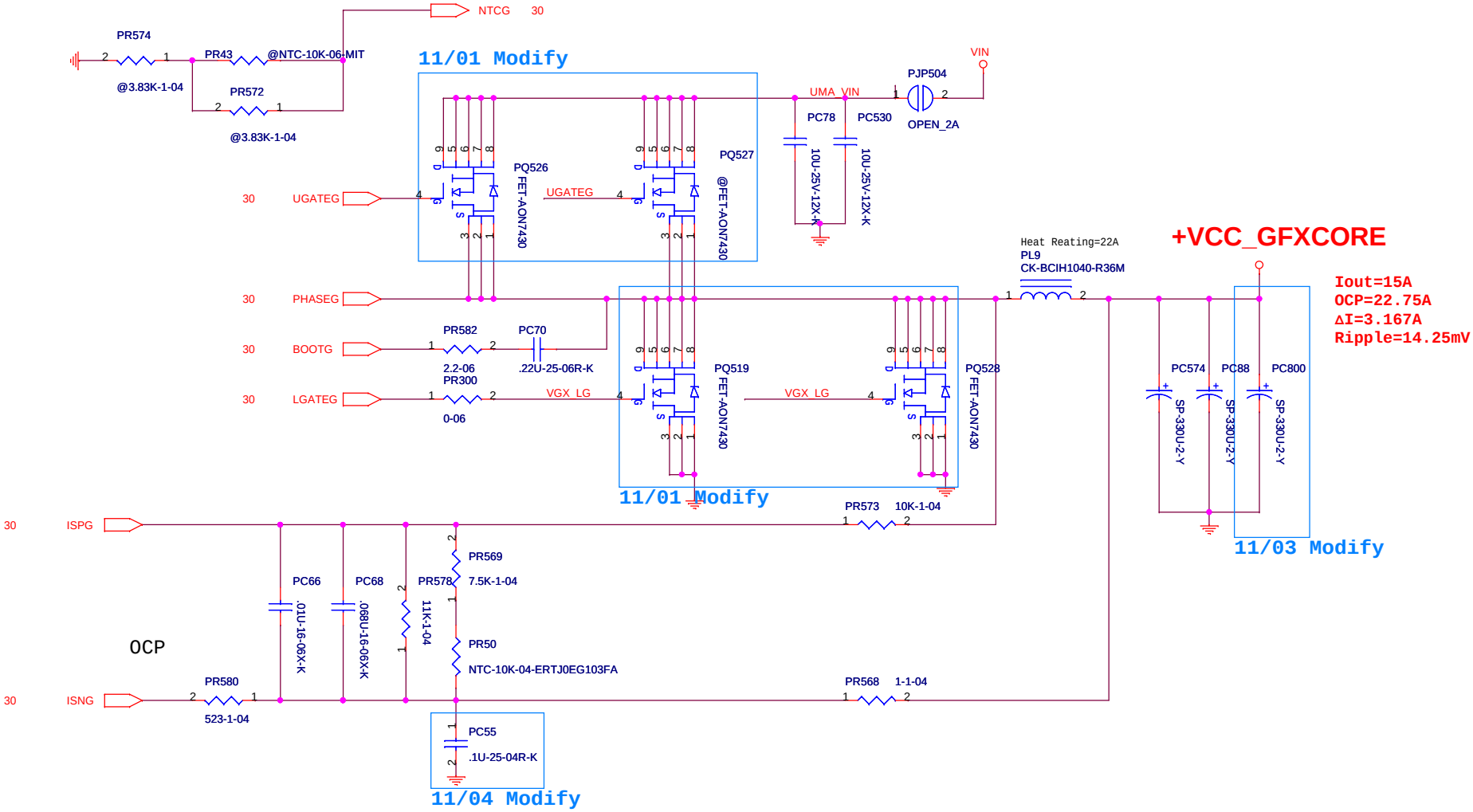
SET_V	
H	16.85V (4CELL)
L	12.64V (3CELL)

CHG_ON	
L	CHARGER ON
H	CHARGER OFF

Fast-charge-EN	CHG_I	Ich
H	3V	2.5A
H	1.8V	2A
H	0.6V	1.5A
L	2.4V	1A
L	1.2V	0.5A
L	3V	0.25A
L	1.5V	0.125A

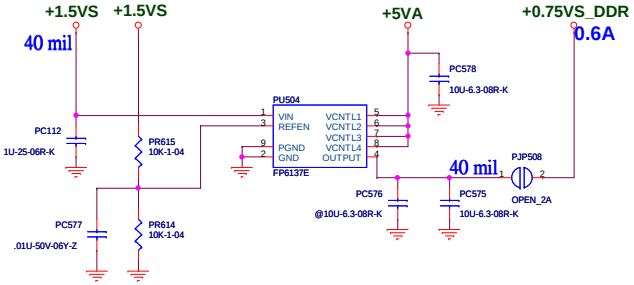
	IA	II
PR519	3.01K-1-04	20K-1-04
PR515	12.4K-1-04	24.9K-1-04
Watt	84 W	

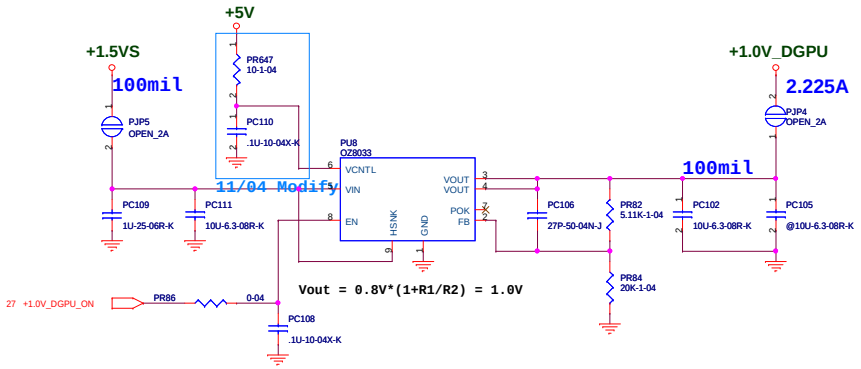


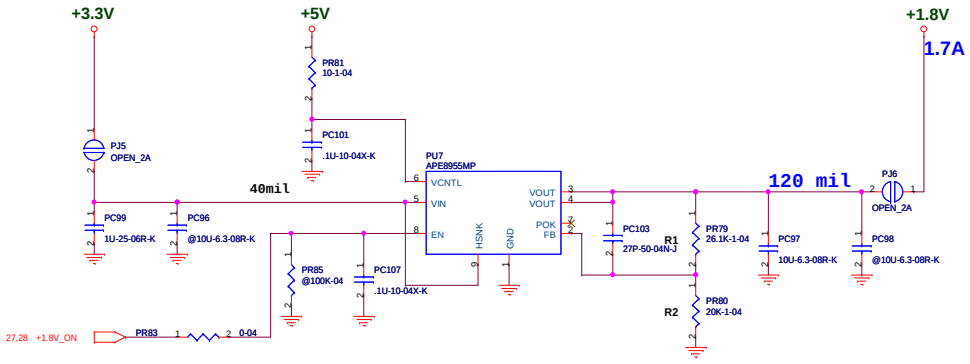


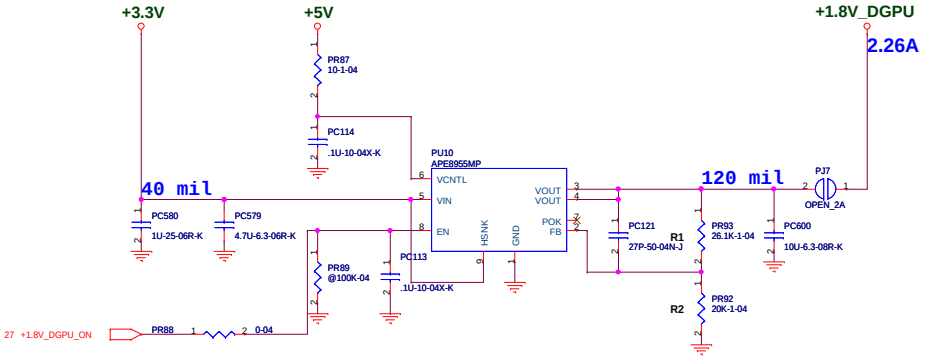
ECS COMPUTER CORP.

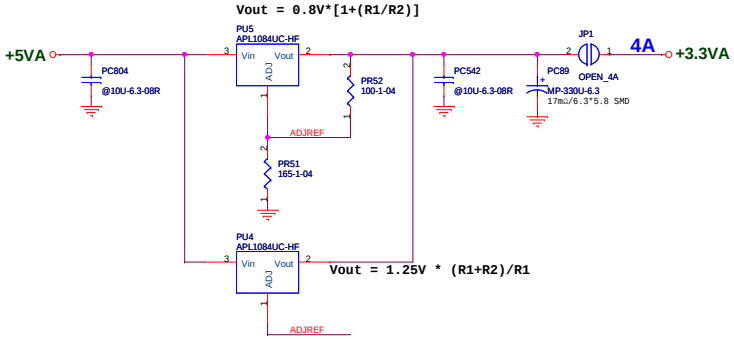
Title	+VGFX_CORE (ISL95831HRTZ)	
Size	Document Number: MB40IA B1-Phase Custom — MB40IA	Rev: B1
Date: Tuesday, November 09, 2010	Sheet 31 of 44	

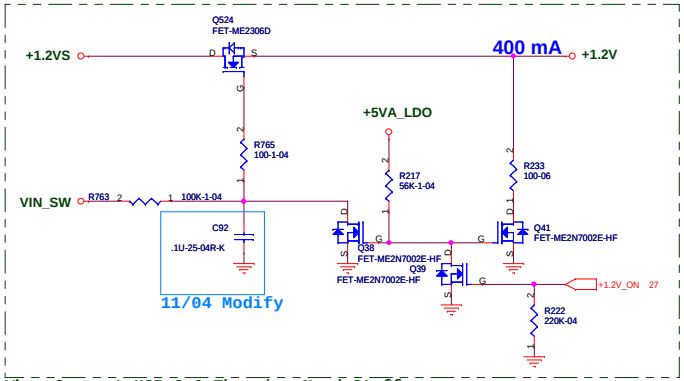




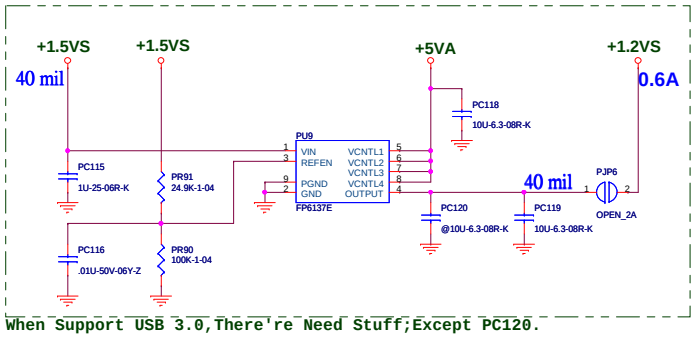








When Support USB 3.0,There're Need Stuff.



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

ECS COMPUTER CORP.

Title: +3.3VA/0.75VS_DDR/1.8V/1.8V_DGPU/+1.0V_DGPU

Size: C | Document Number: MB40IA B1-Phase | MB40IA | Rev: B1

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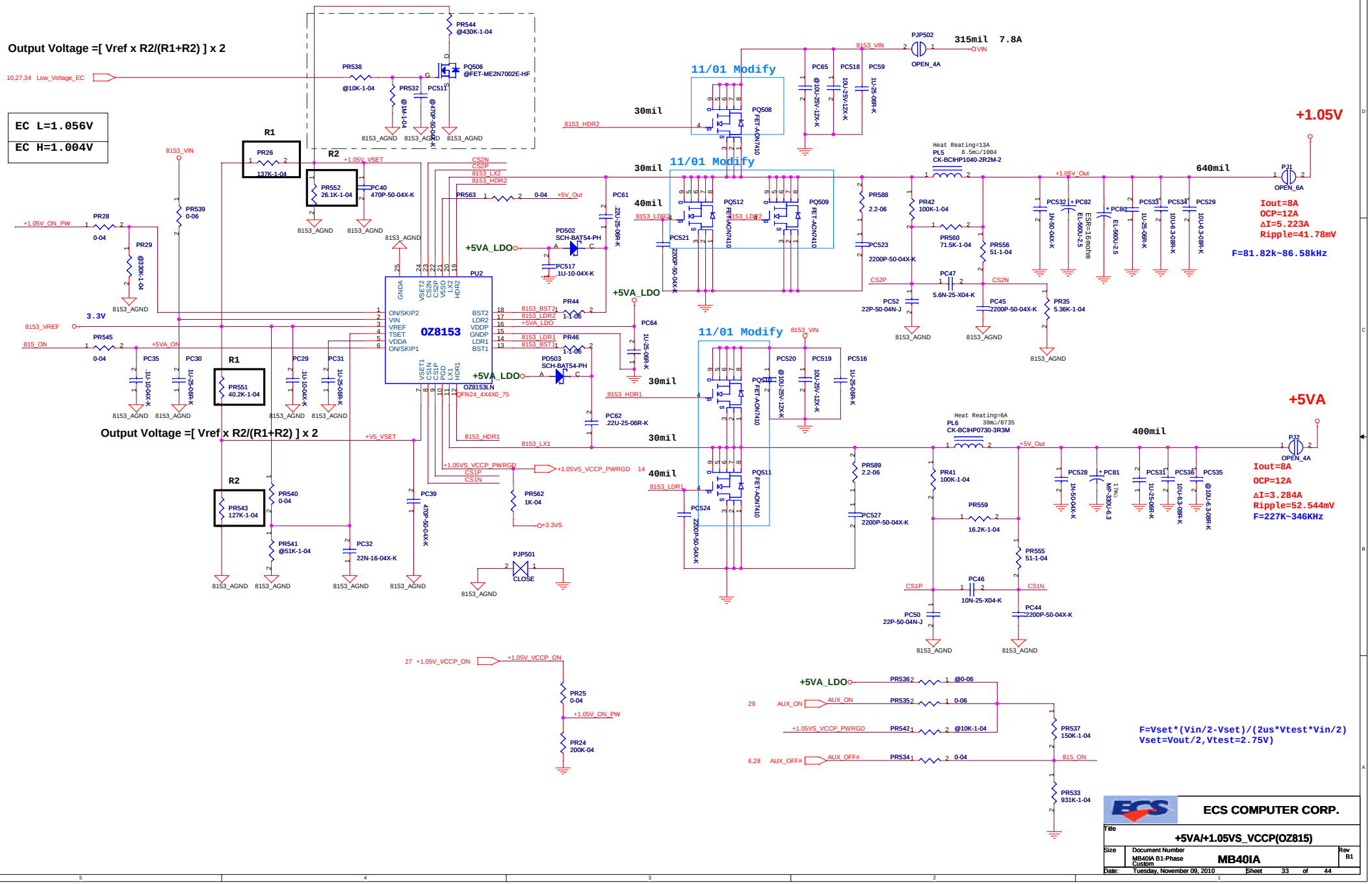

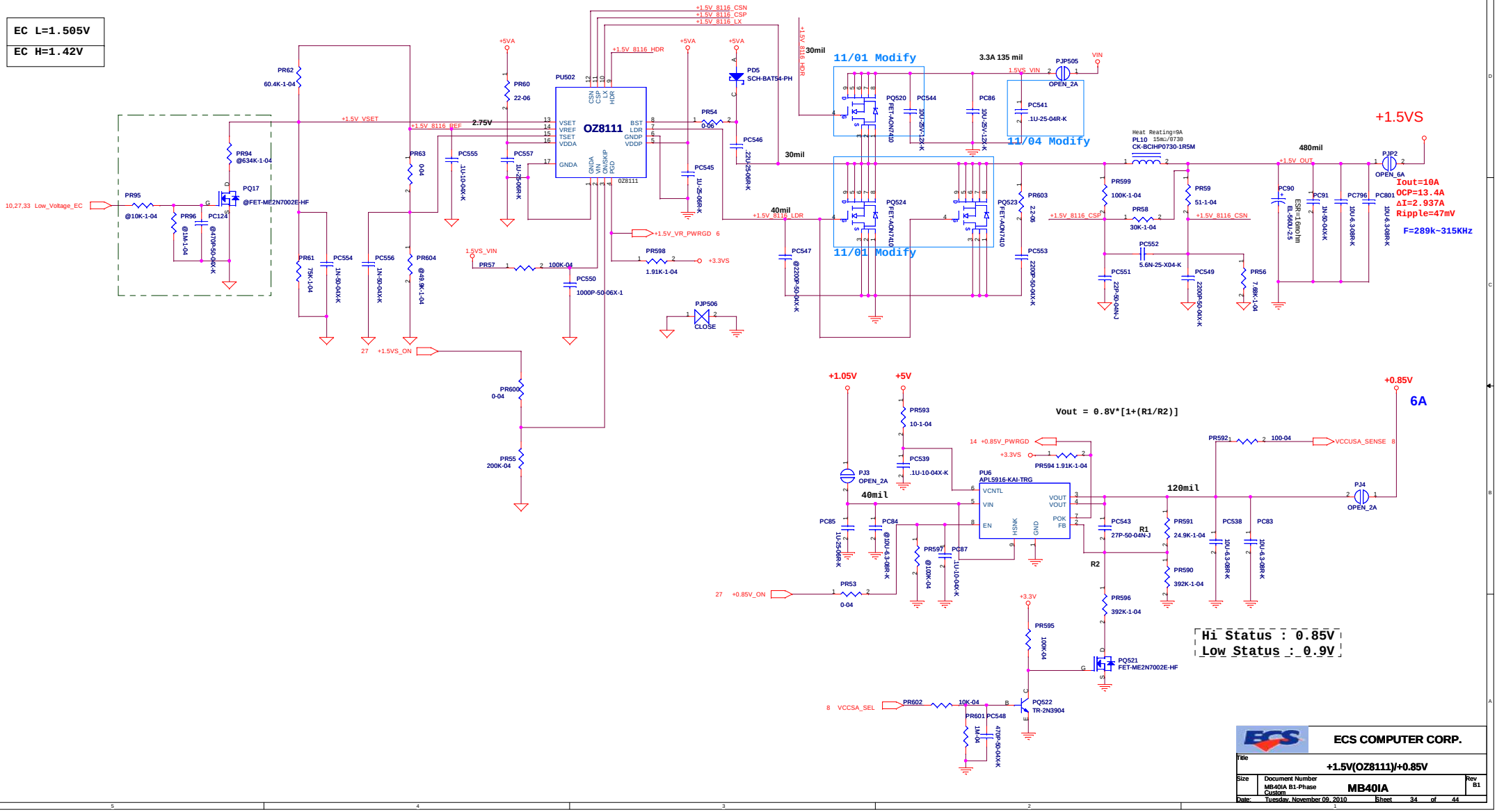

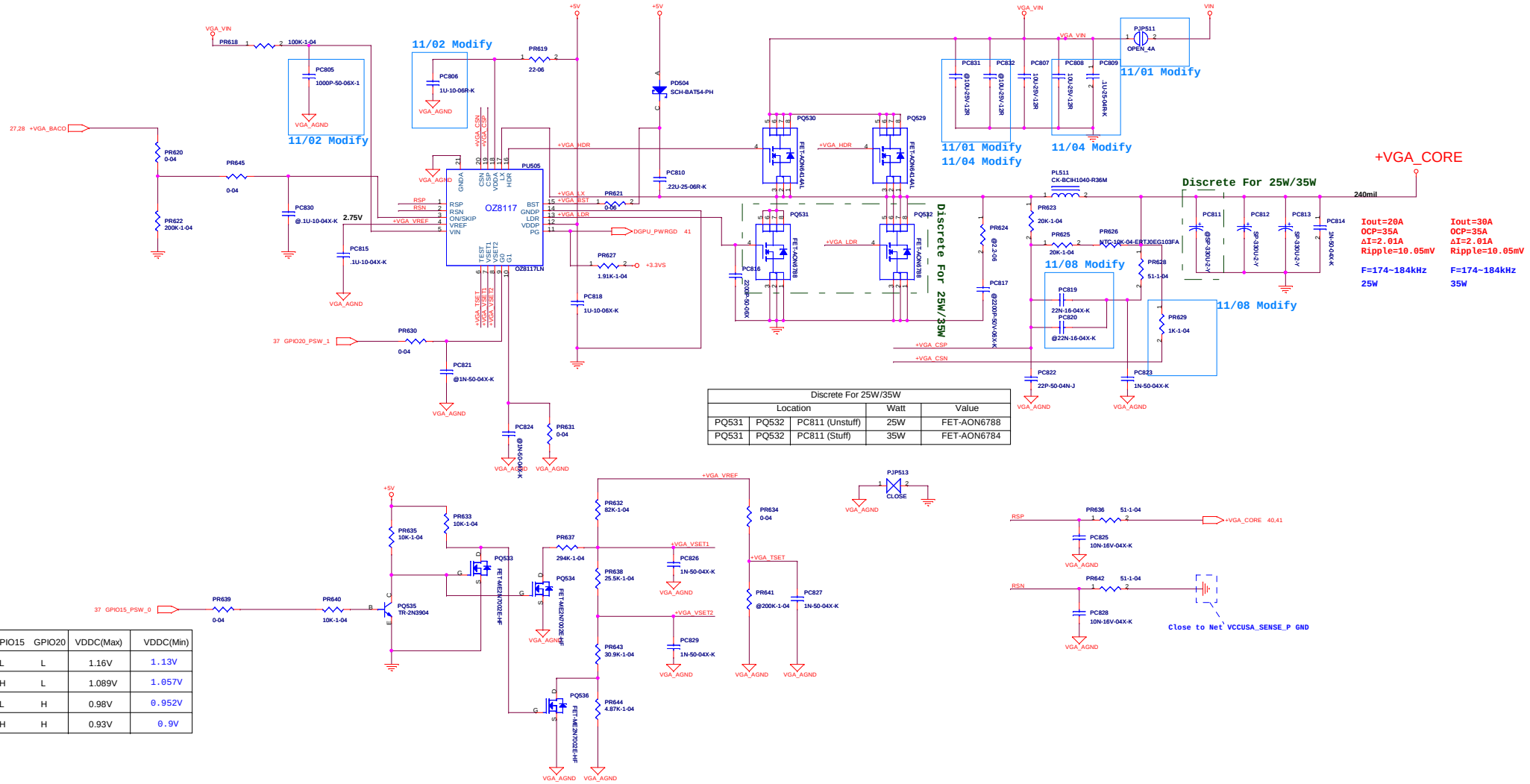

Discrete For 25W/35W				
Location			Watt	Value
PQ531	PQ532	PC811 (Unstuff)	25W	FET-AON6788
PQ531	PQ532	PC811 (Stuff)	35W	FET-AON6784

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

ECS COMPUTER CORP.

Title: +VGA_CORE(OZ8116)

Size: | Document Number: MB40IA B1-Phase Custom | MB40IA | Rev: B1

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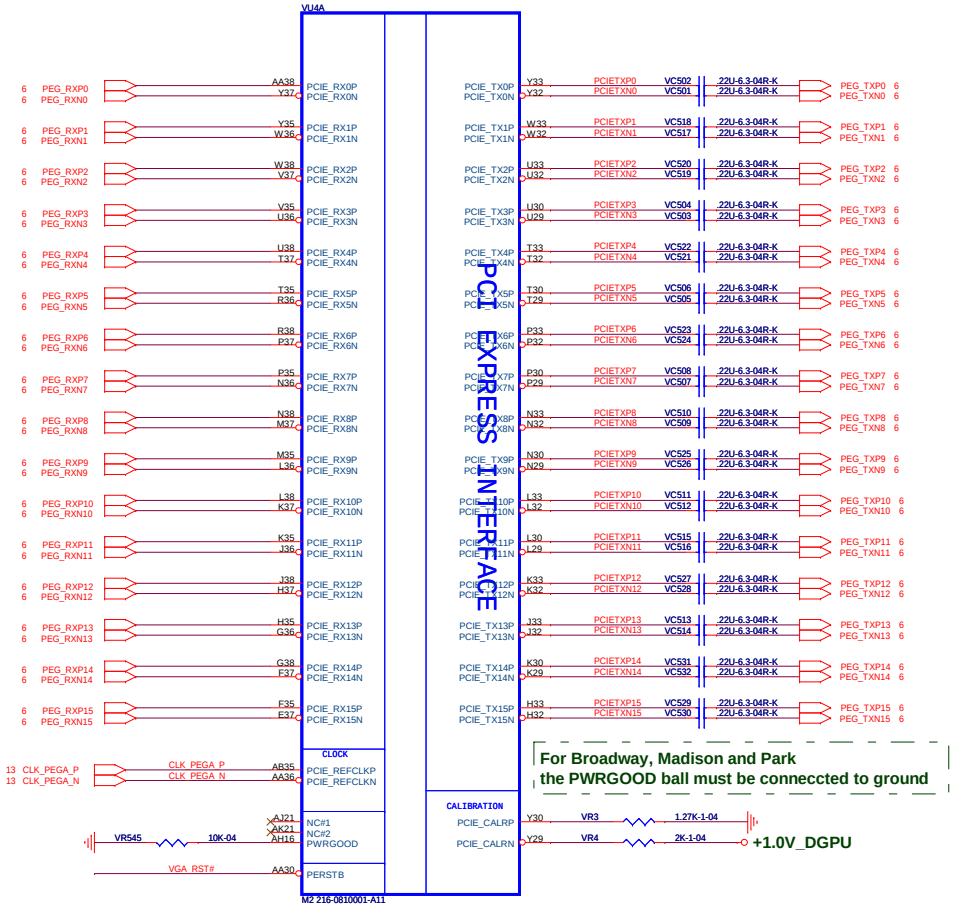
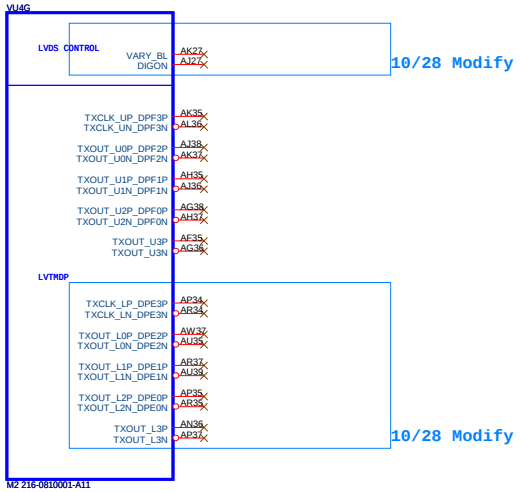
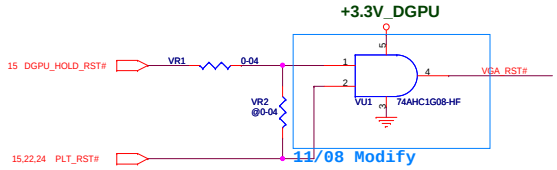


For Broadway, Madison and Park
the PWRGOOD ball must be conneccted to ground

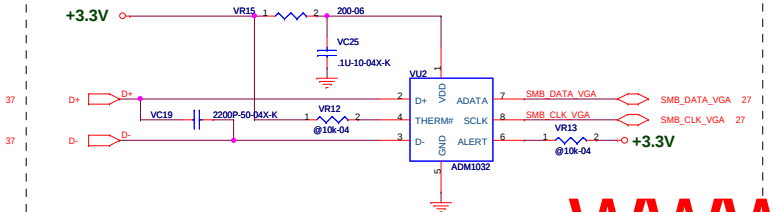
LVDS Interface



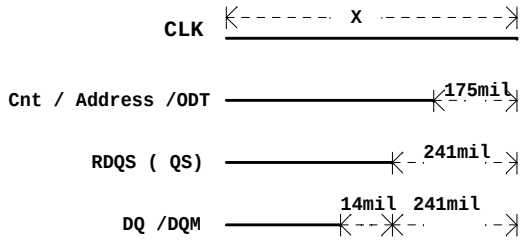


VGA Chip Select		
Name	Value	Material
Whistler XT	M2 216-0810001-A11	02A216081-10
Whistler Pro	216-0810005	02A216082-10
Seymour	216-0809000-A11	02A216080-10

VGA Thermal Sensor



Madison of the trace length - <skew >

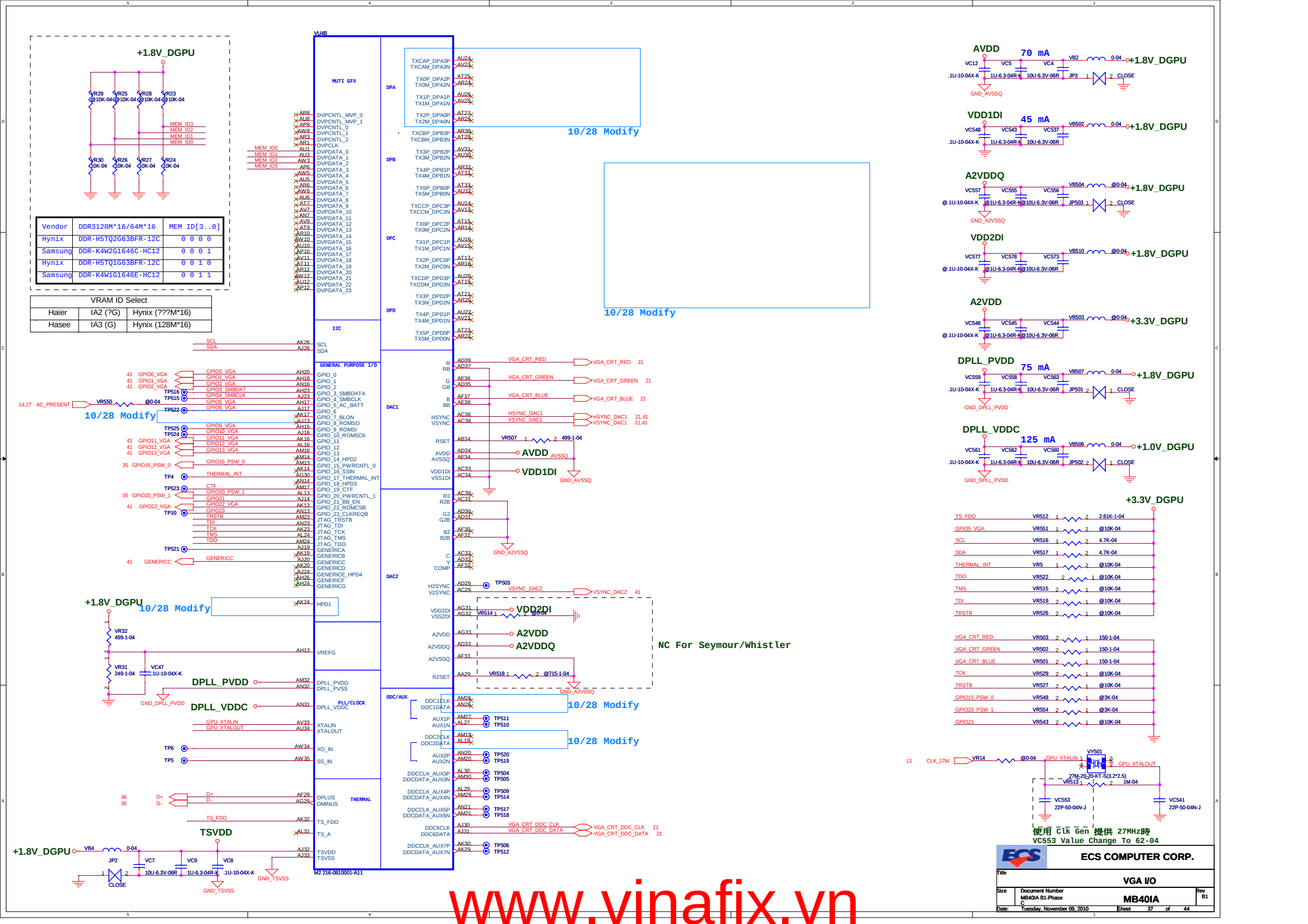


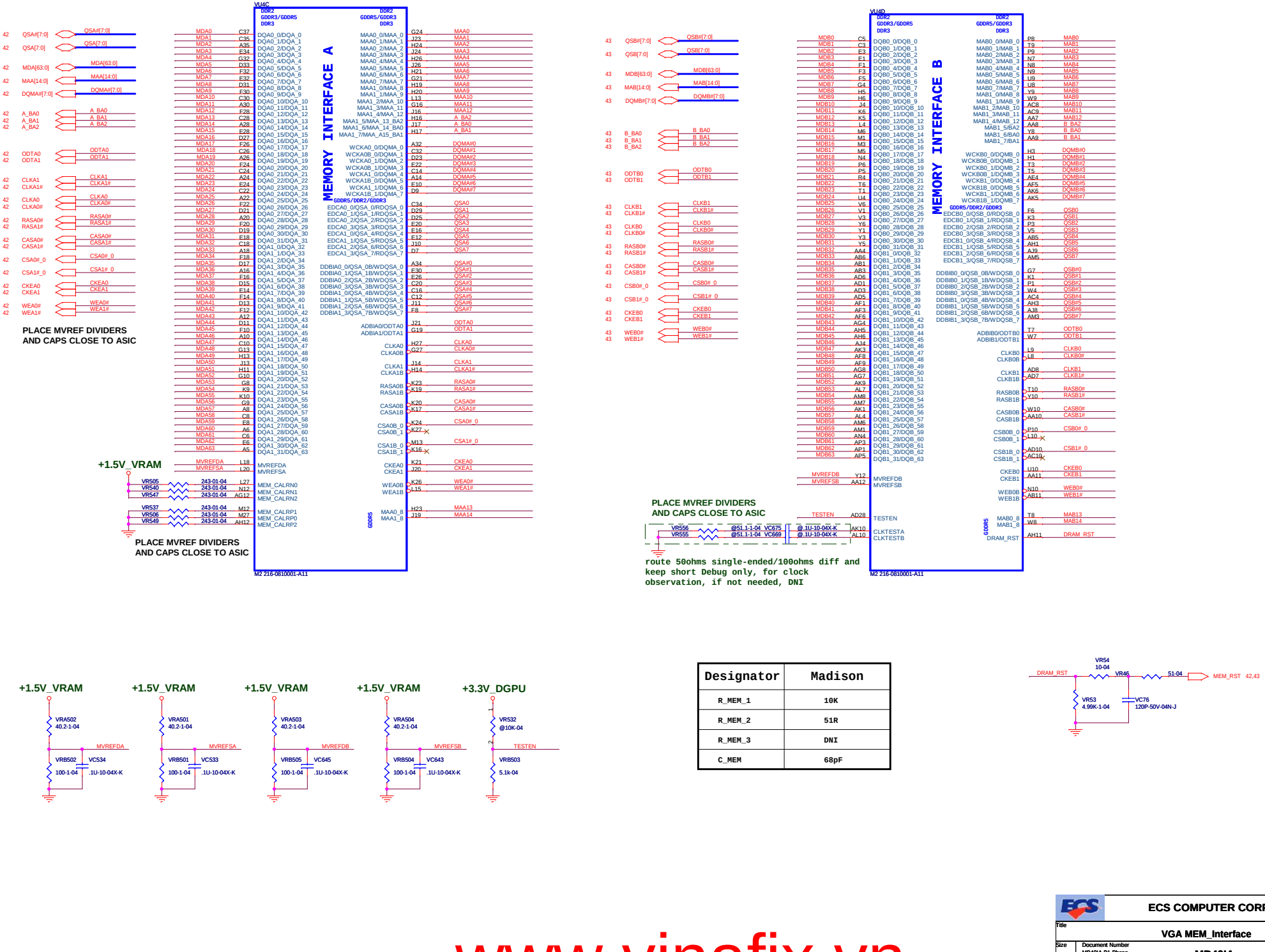
ECS COMPUTER CORP.

Title: VGA PCIE/LVDS

Size | Document Number: MB40IA B1-Phase Custom | Rev: B1

Date: Tuesday, November 09, 2010 | Sheet 36 of 44





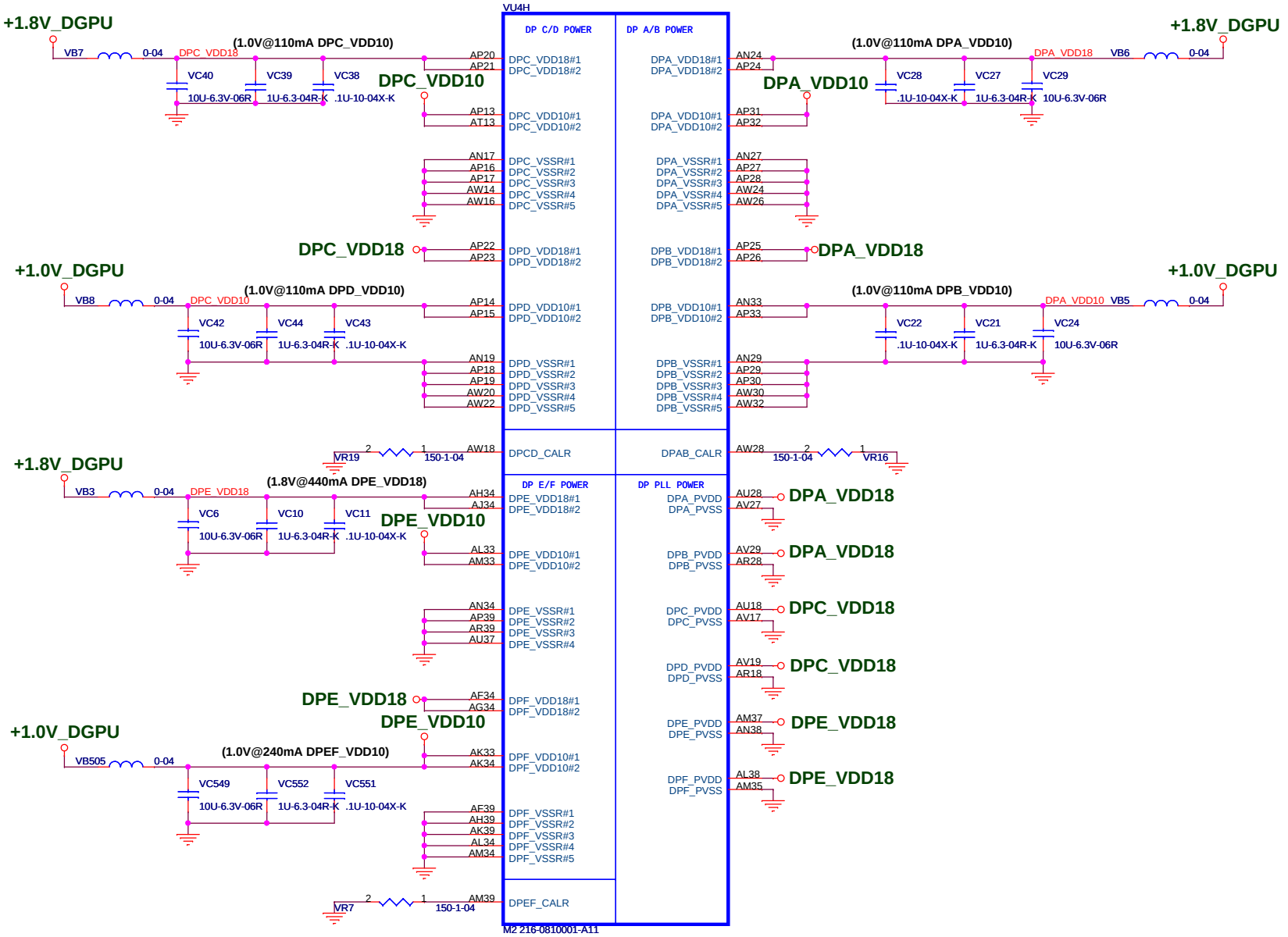
Designator	Madison
R_MEM_1	10K
R_MEM_2	51R
R_MEM_3	DNI
C_MEM	68pF

ECS COMPUTER CORP.

Title: VGA MEM_Interface

Size: C | Document Number: MB40IA B1-Phase C | MB40IA | Rev: B1

Date: Tuesday, November 09, 2010 | Sheet 38 of 44



For M97/M96, DPF_VDD18 can be shared with DPE_VDD18

For M97/M96, DPF_VDD10 can be shared with DPE_VDD10

For dual link DVI using DPA AND DPB, DPA_VDDxx and DPB_VDDxx can be shared respectively

For dual link DVI using DPC AND DPD, DPC_VDDxx and DPD_VDDxx can be shared respectively

For dual link LVDS, DPE_VDDxx and DPF_VDDxx can be shared respectively

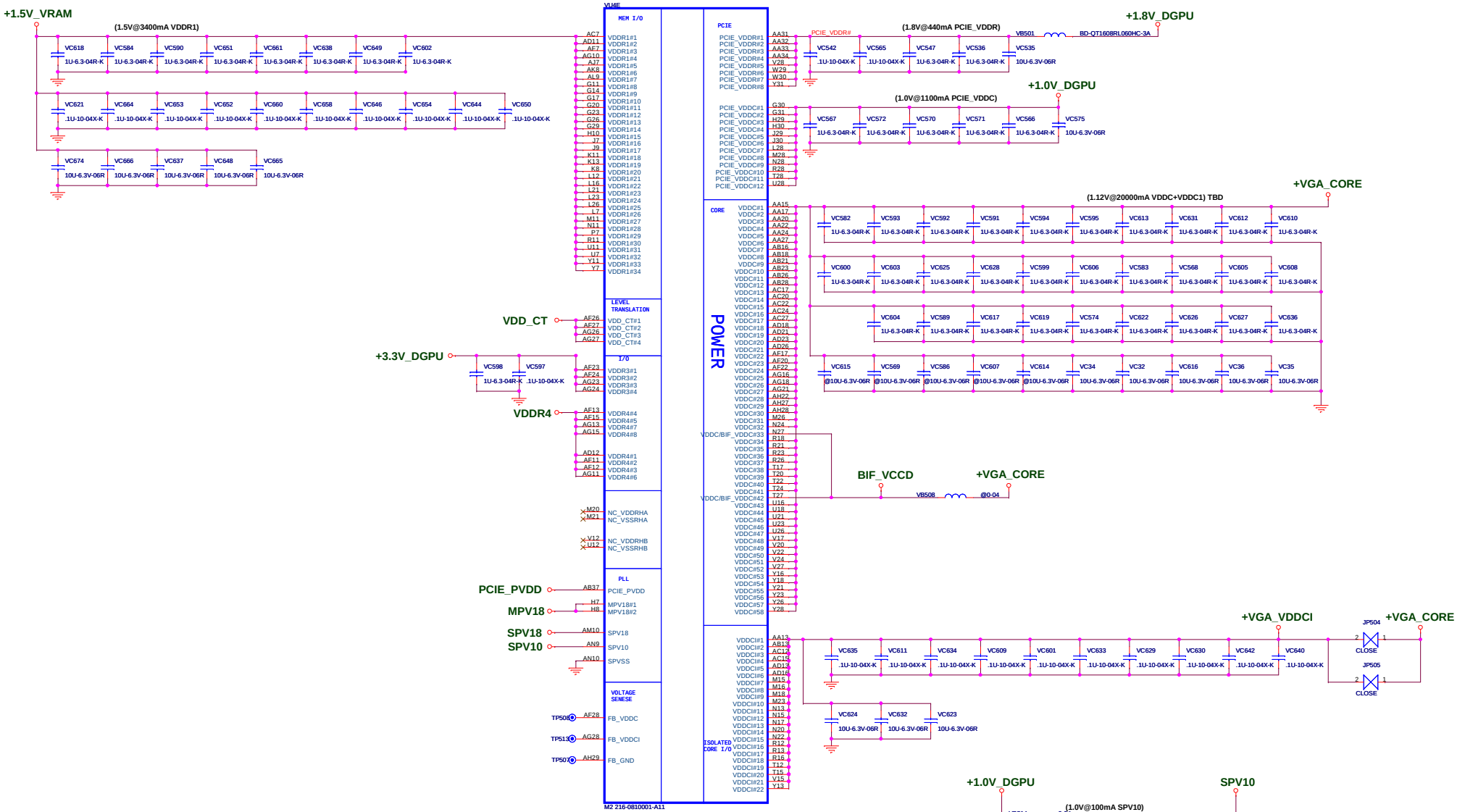
ECS COMPUTER CORP.

Title: VGA Power 1

Size: | Document Number: MB40IA B1-Phase Custom | Rev: B1

MB40IA

Date: Tuesday, November 09, 2010 | Sheet 39 of 44

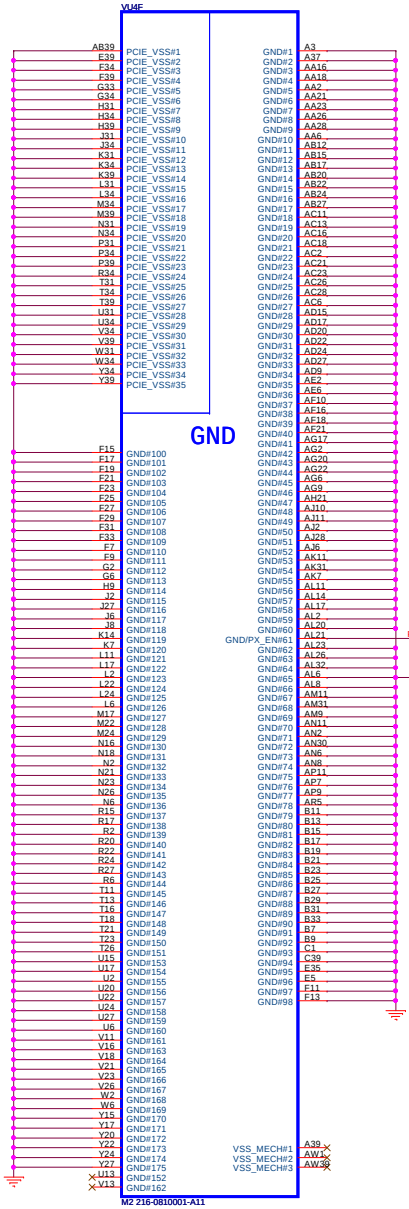


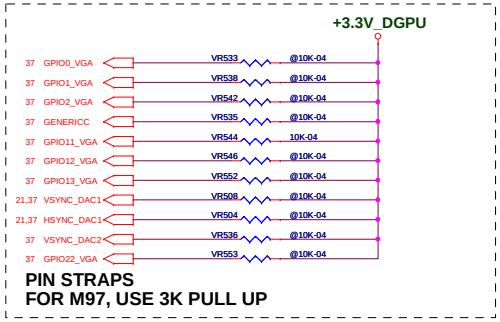
ECS COMPUTER CORP.

Title: VGA Power 2

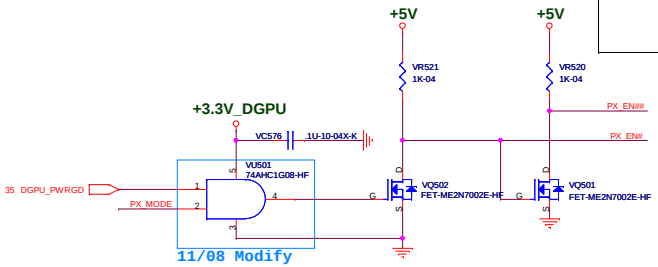
Size	Document Number	Rev
	MB40IA B1-Phase Custom	MB40IA B1

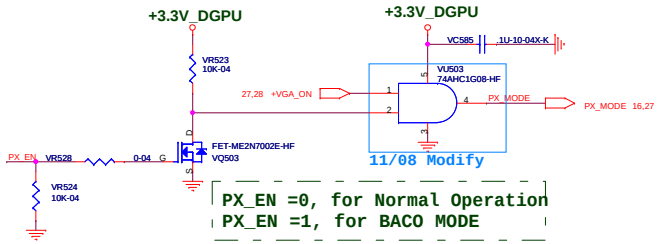
Date: Tuesday, November 09, 2010 Sheet 40 of 44

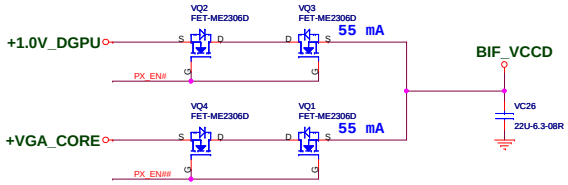




STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	Default	Setting
TX_PWRS_ENB	GPIO0	PCIE FULL TX OUTPUT SWING	LOW	LOW
TX_DEEMPH_ENB	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED	LOW	LOW
VIP_DEVICE _STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS	LOW	
BIF_VGA DIS	GPIO9	VGA ENABLED	LOW	LOW
AUD[1] AUD[0]	HSYNC VSYNC	AUD[1] 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	
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 ROM_ID(2:0) / Part 010 / AT25F512A 100 / PM25LV512A GPIO22:low ROM_ID(2:0) / Size 000 / 128MB 001 / 256MB 010 / 64MB 011 / 32MB	XXX	001
RESERVED	H2SYNC GPIO_8 GPIO_2 GPIO_21 GENERICC	GPIO21 MUST BE LOW DURING PERSTB WHEN BEING USED TO CONTROL MVDDQ FOR BROADWAY, MADISON AND PARK	LOW	







ECS COMPUTER CORP.

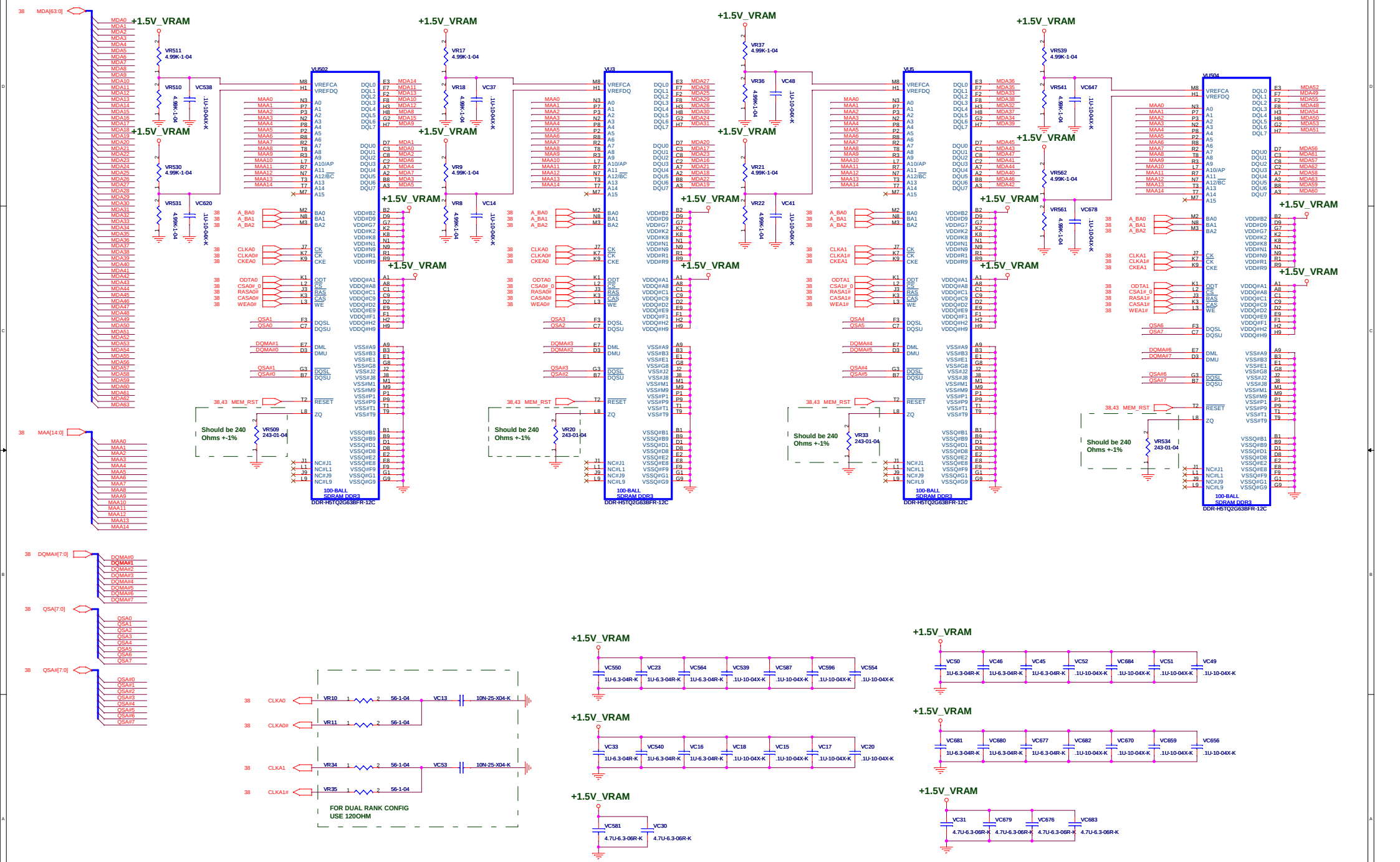
Title: VGA_GND/Straps/BACO

Size: | Document Number: MB40IA B1-Phase Custom | Rev: B1

MB40IA

Date: Tuesday, November 09, 2010 | Sheet 41 of 44

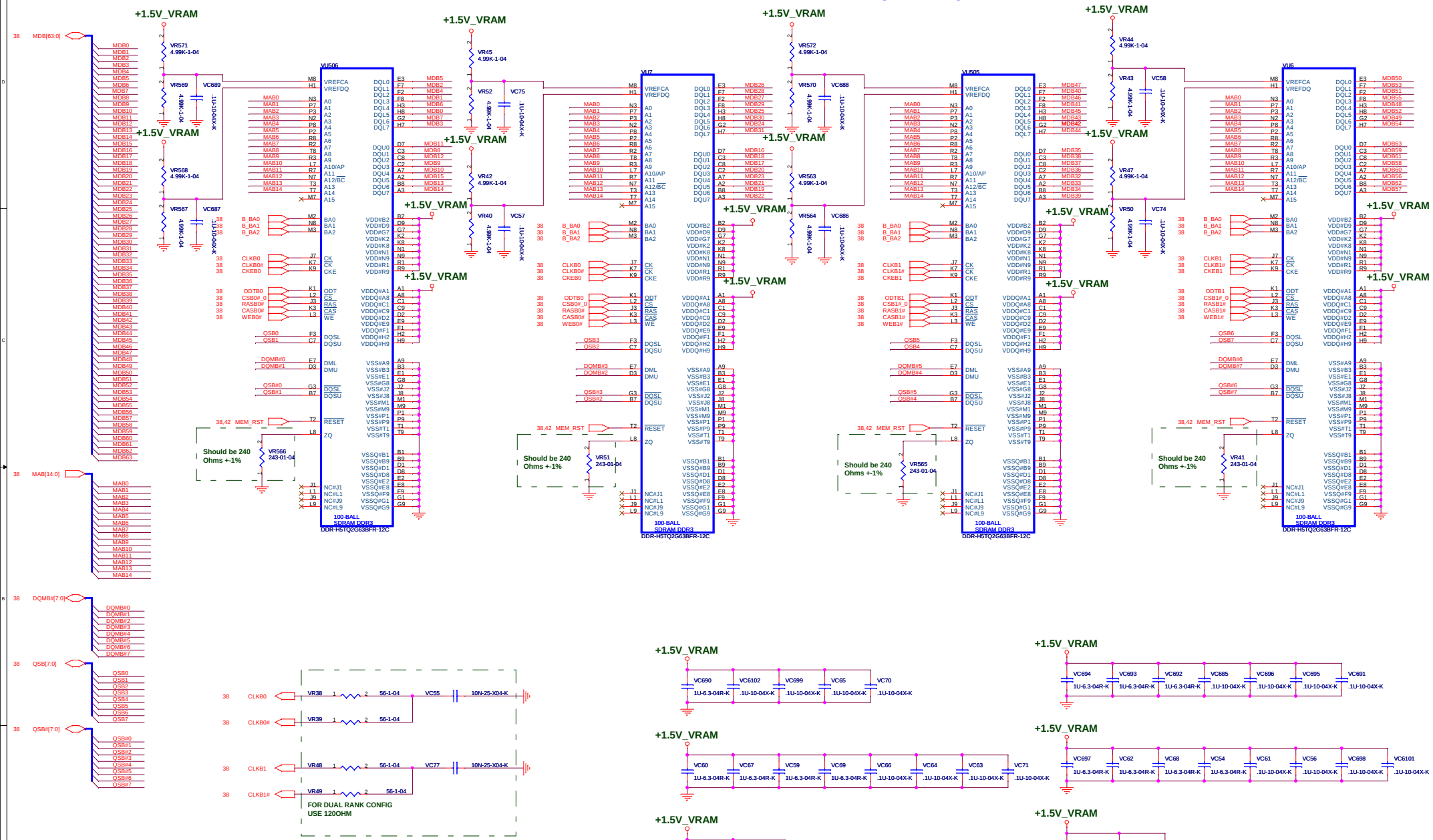
CHANNEL A: 256MB/512MB DDR3 (RANK0)



ECS COMPUTER CORP.

Title	VGA DDR3_MEM_A	
Size	Document Number: MB40IA B1-Phase Custom	Rev: B1
	MB40IA	
Date: Tuesday, November 09, 2010	Sheet 42 of 44	

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



ECS COMPUTER CORP.

Title	VGA DDR3_MEM_B	
Size	Document Number: MB40IA B1-Phase Custom	Rev: B1
Date: Tuesday, November 09, 2010	Sheet 43 of 44	

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_SYSRTS# 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_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 unsutff.
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 ???02A650001-12.
02. Page 11 ：C734/C643 stuff.
03. Page 22 ：CN30 unstuff.

Power Schematics Modify

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