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NEC:Rodem-MA Rodem-VS

MSI:MS-7402N1

Version: 0B



CPU: Conroe family processors in LGA775 Package.

System Chipset:

NVIDIA MCP73PV single-chip

On Board Device:

BIOS -- SPI Flash 4M

LAN -- Broadcom 5787M

Super I/O -- SMSC5617

AUDIO -- Realtek HD ALC262

Main Memory:

signal-channel DDR-II * 2 (667MHZ)


Expansion Slots:

Mini PCIE

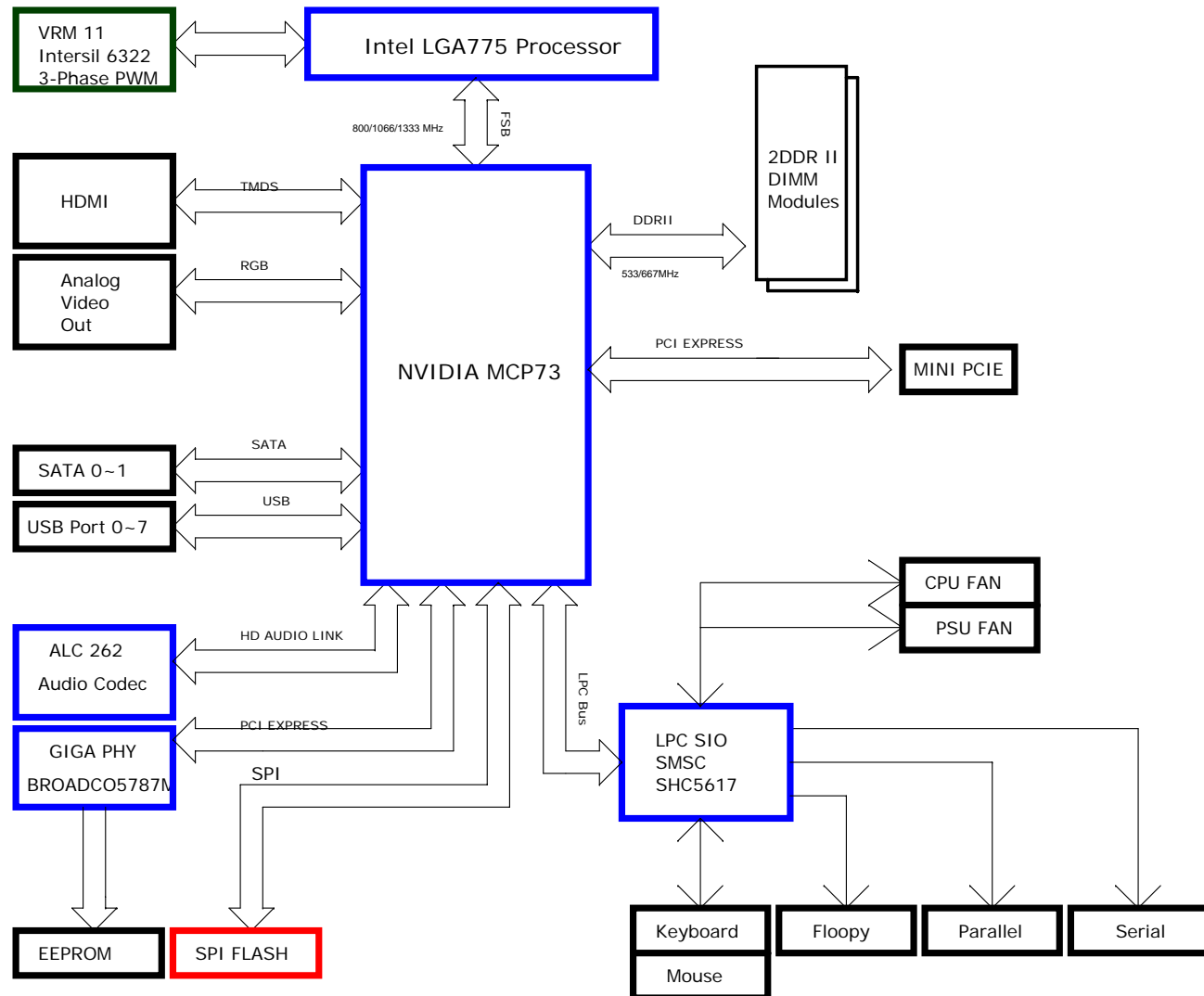
Intersil PWM:

Controller: Intersil ISL6312 (3 Phases)

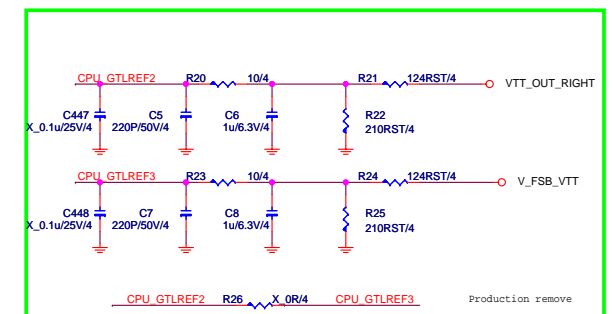
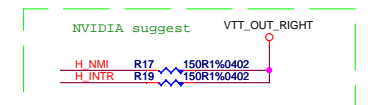
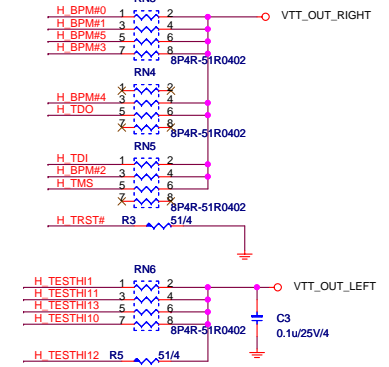
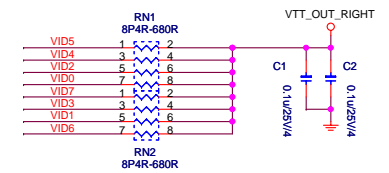
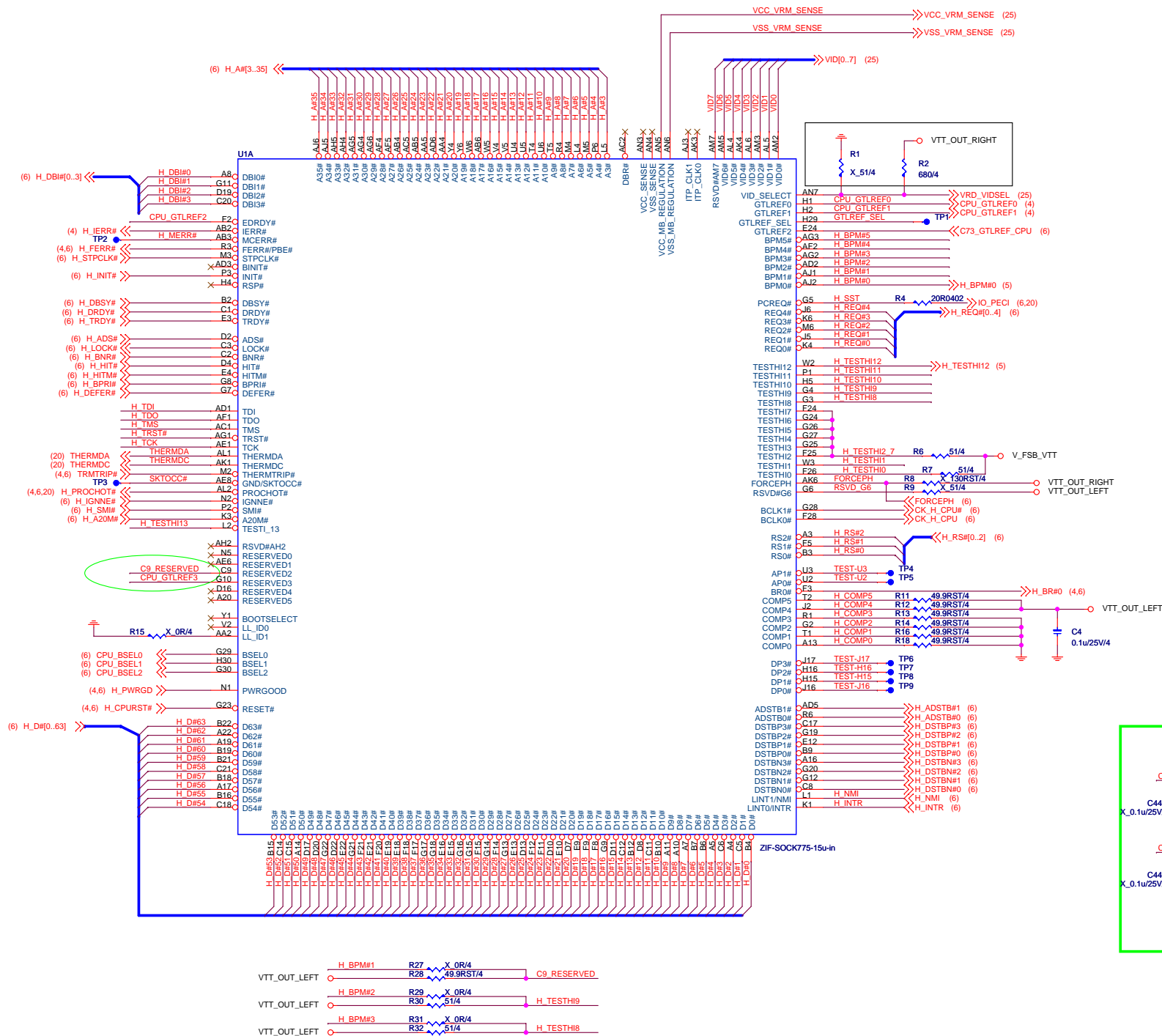
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0A	706-6460N1-01S		Cfg-7402-VS	

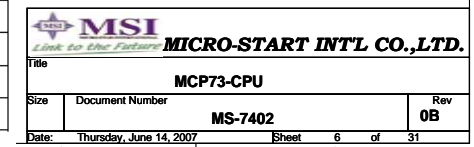
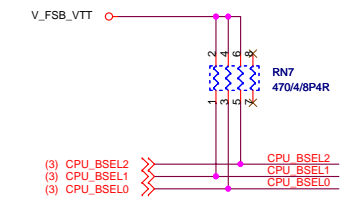
 MICRO-START INTL CO.,LTD.			
Title: COVER SHEET			
Size	Document Number	Rev	
	MS-7402	0B	
Date: Thursday, June 14, 2007	Sheet	1	of 31

Block Diagram

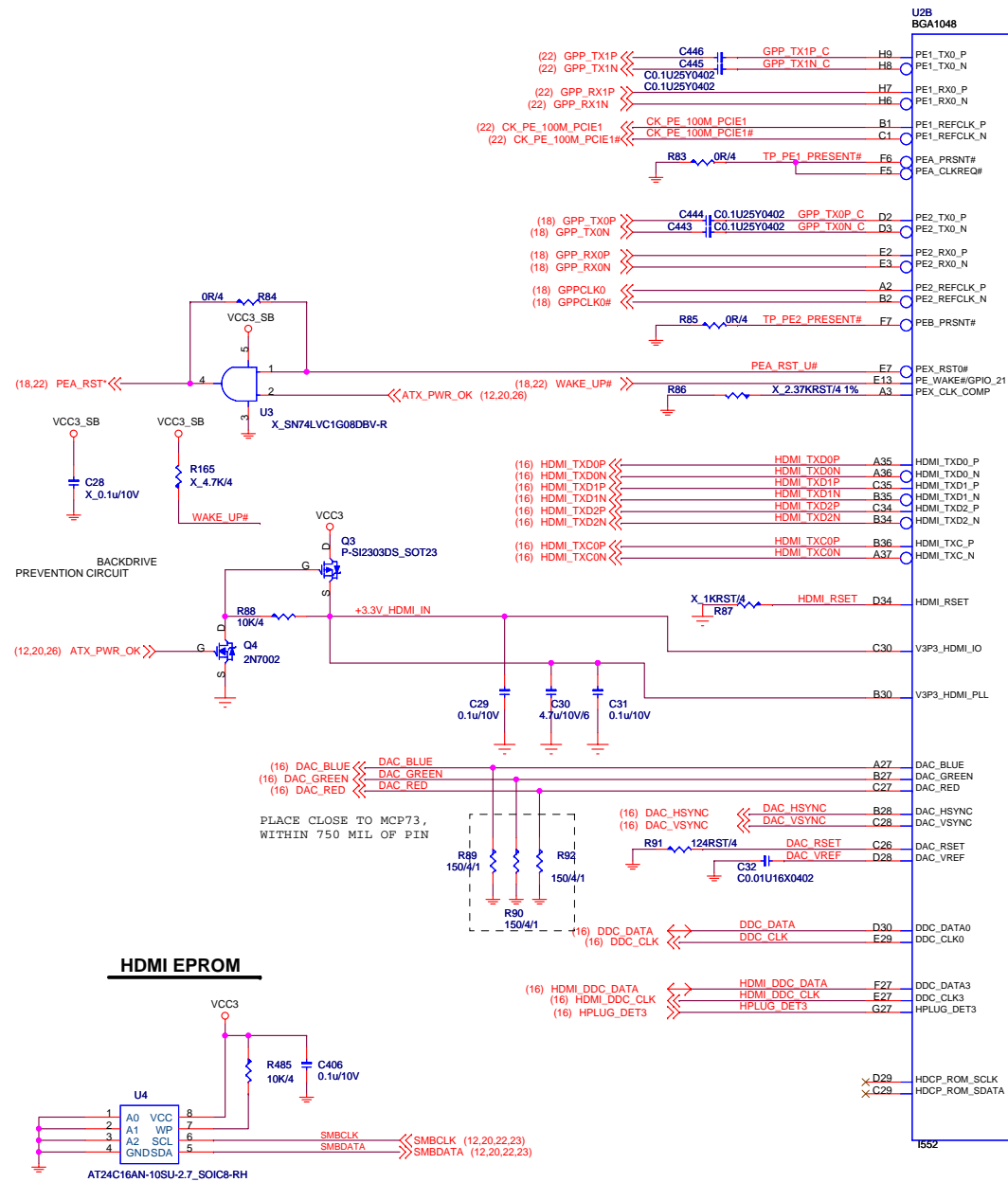


CPU SIGNAL BLOCK

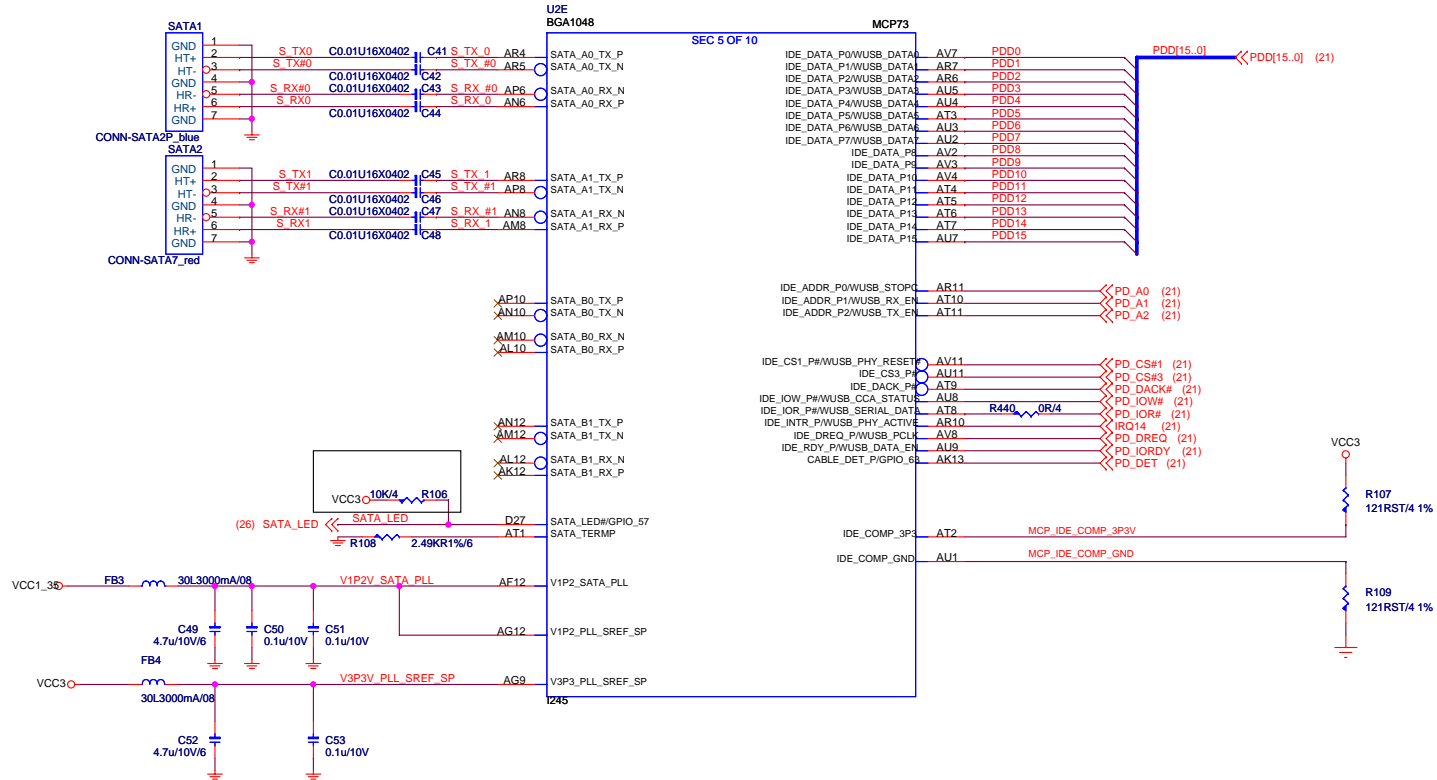




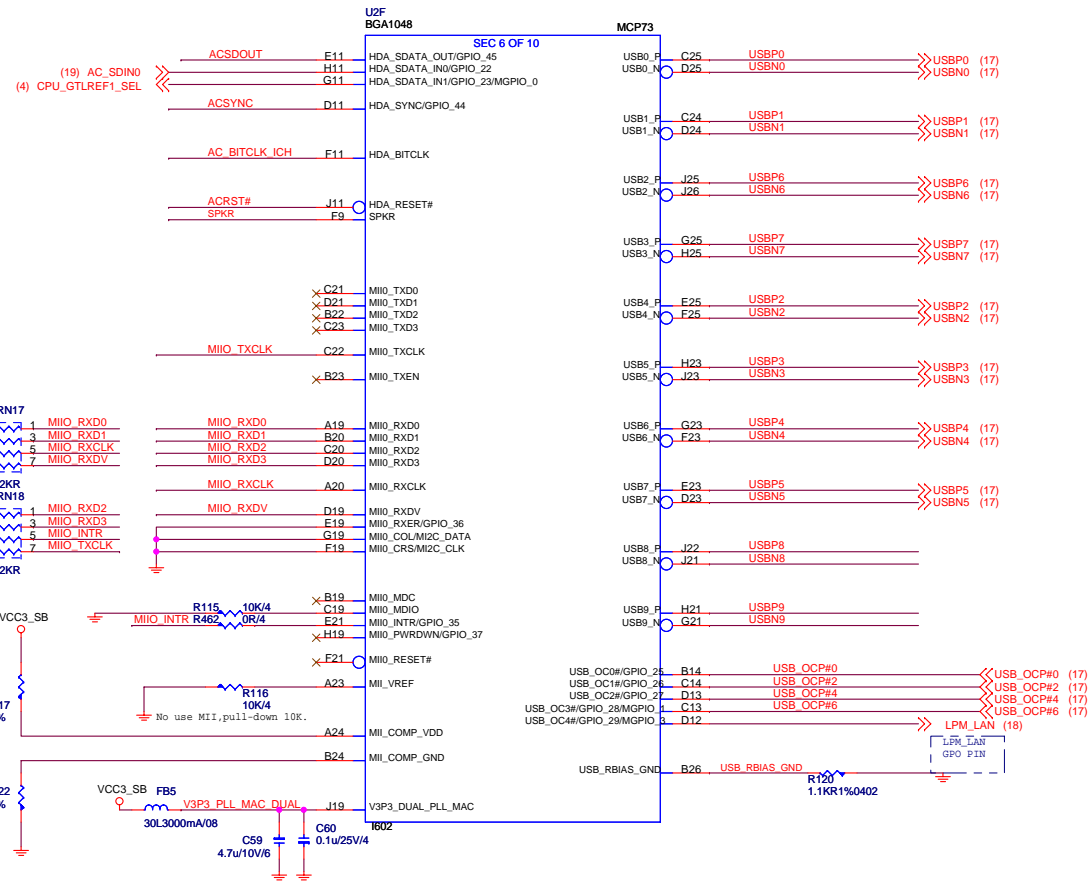
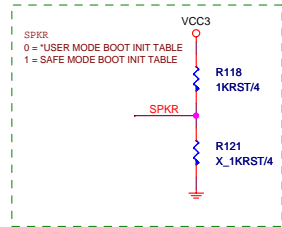
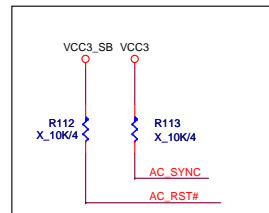
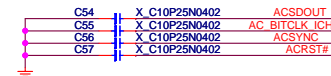




SERIAL ATA CONNECTOR BLOCK



9) AC_SYNC	AC_SYNC	8	7	ACSYNC
AC_SDOUT	AC_SDOUT	6	5	ACSDOUT
AC_BITCLK	AC_BITCLK	4	3	AC_BITCLK ICH
9) AC_RST#	AC_RST#	2	1	ACRST#

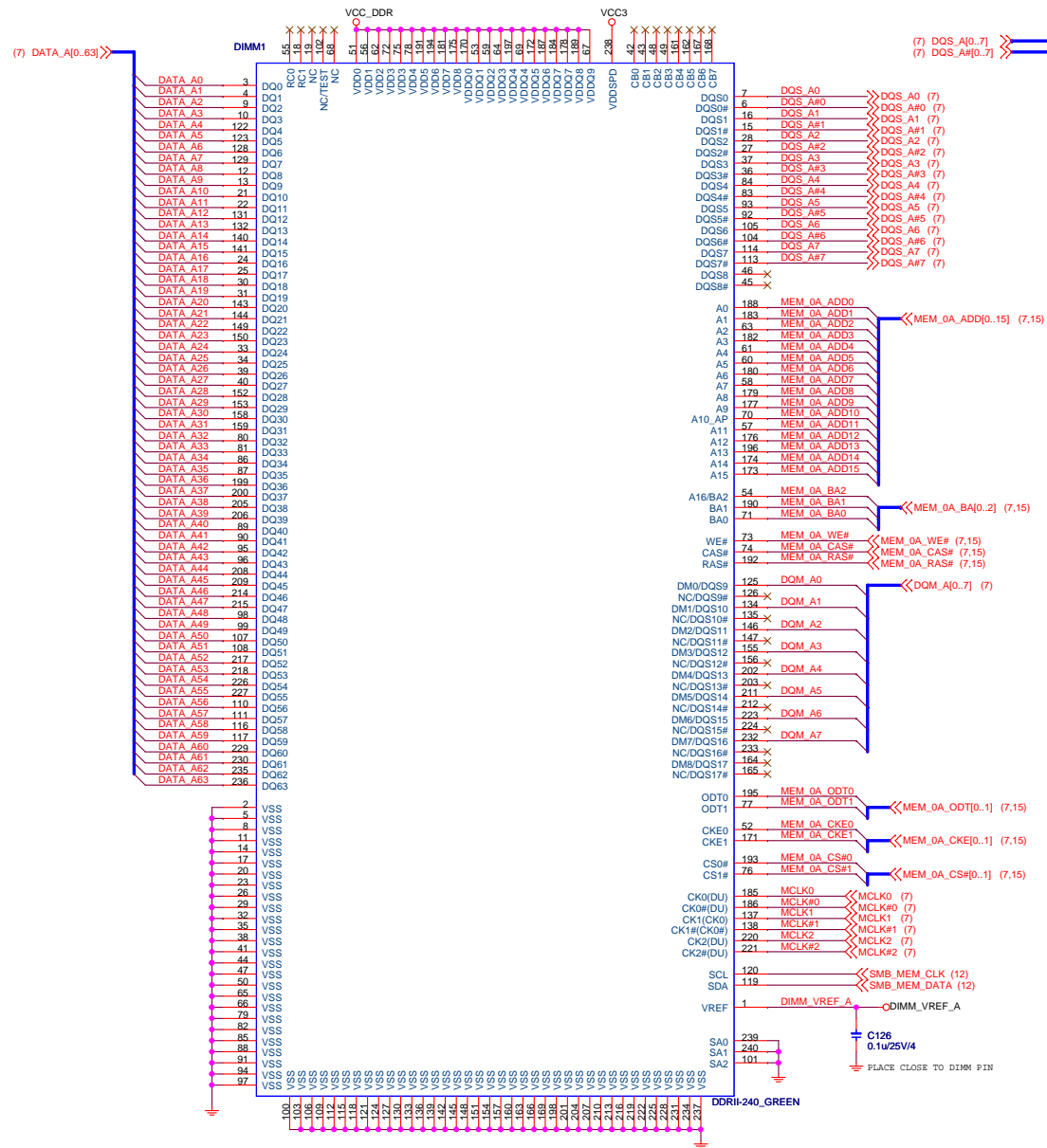


HDA_SDOUT	LPC_FRAME#	
0	0	=LPC
0	1	=PCI
1	0	=SPI
1	1	=RESERVED

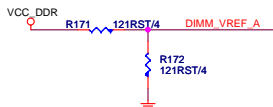
Figure 1 illustrates the pin connections for the 8P4R-15KR relays. The diagram shows four identical relay modules, each with 8 pins. The connections are as follows:

- Relay 1 (RN19):** Pin 1 to USB5, Pin 2 to USB4, Pin 3 to USB5, Pin 4 to USB4, Pin 5 to USB4, Pin 6 to USB5, Pin 7 to USB4, Pin 8 to USB5.
- Relay 2 (RN20):** Pin 1 to USB1, Pin 2 to USB1, Pin 3 to USB0, Pin 4 to USB0, Pin 5 to USB0, Pin 6 to USB1, Pin 7 to USB0, Pin 8 to USB1.
- Relay 3 (RN21):** Pin 1 to USB3, Pin 2 to USB3, Pin 3 to USB2, Pin 4 to USB2, Pin 5 to USB2, Pin 6 to USB3, Pin 7 to USB2, Pin 8 to USB3.
- Relay 4 (RN22):** Pin 1 to USB7, Pin 2 to USB7, Pin 3 to USB6, Pin 4 to USB6, Pin 5 to USB6, Pin 6 to USB7, Pin 7 to USB6, Pin 8 to USB7.
- Relay 5 (RN23):** Pin 1 to USB9, Pin 2 to USB9, Pin 3 to USB8, Pin 4 to USB8, Pin 5 to USB8, Pin 6 to USB9, Pin 7 to USB8, Pin 8 to USB9.

DIMM1




ADDRESS: 000
0xA0



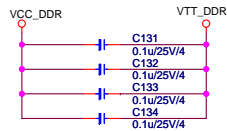
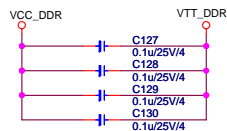
DIMM2



ADDRESS: 001
0xA2

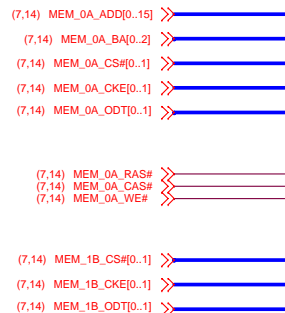
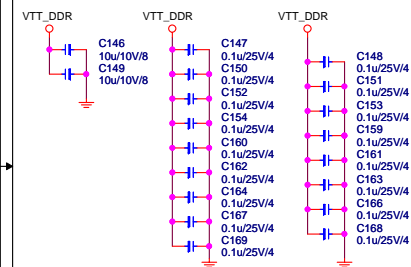
 MICRO-START INT'L CO.,LTD.		
Title		
DIMM1 DIMM2		
Size	Document Number	Rev
	MS-7402	0B
Date:	Thursday, June 14, 2007	Sheet 14 of 31

DIMM1/DIMM2 VDD to VTT decoupling

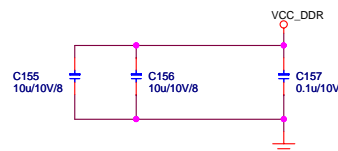
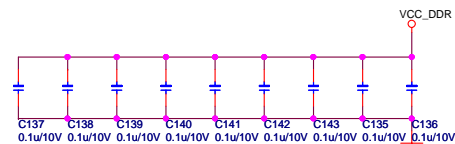
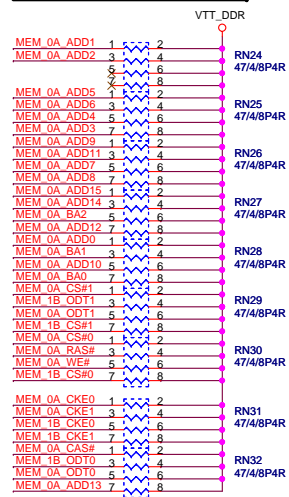


Place near ADDR/CTRL traces

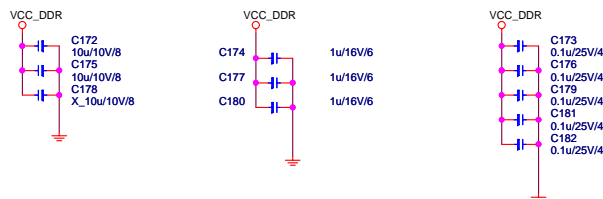
DIMM1/DIMM2 VTT decoupling



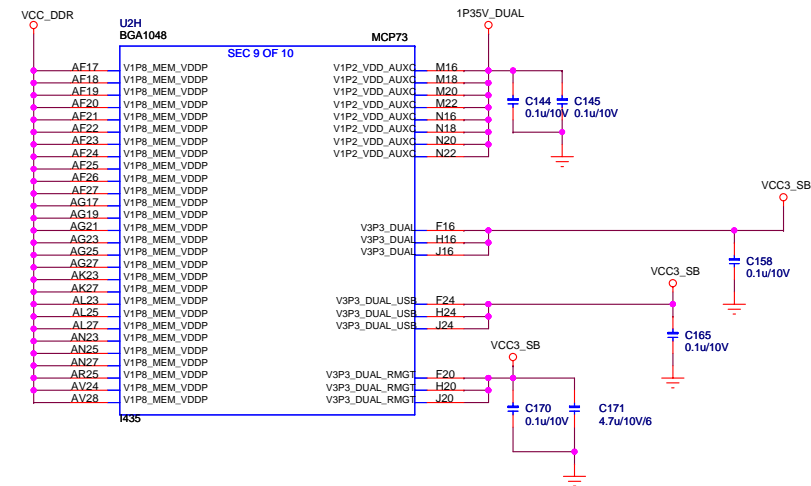
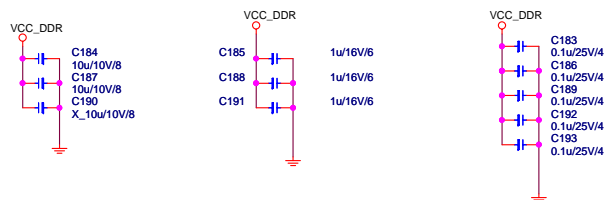
Terminator



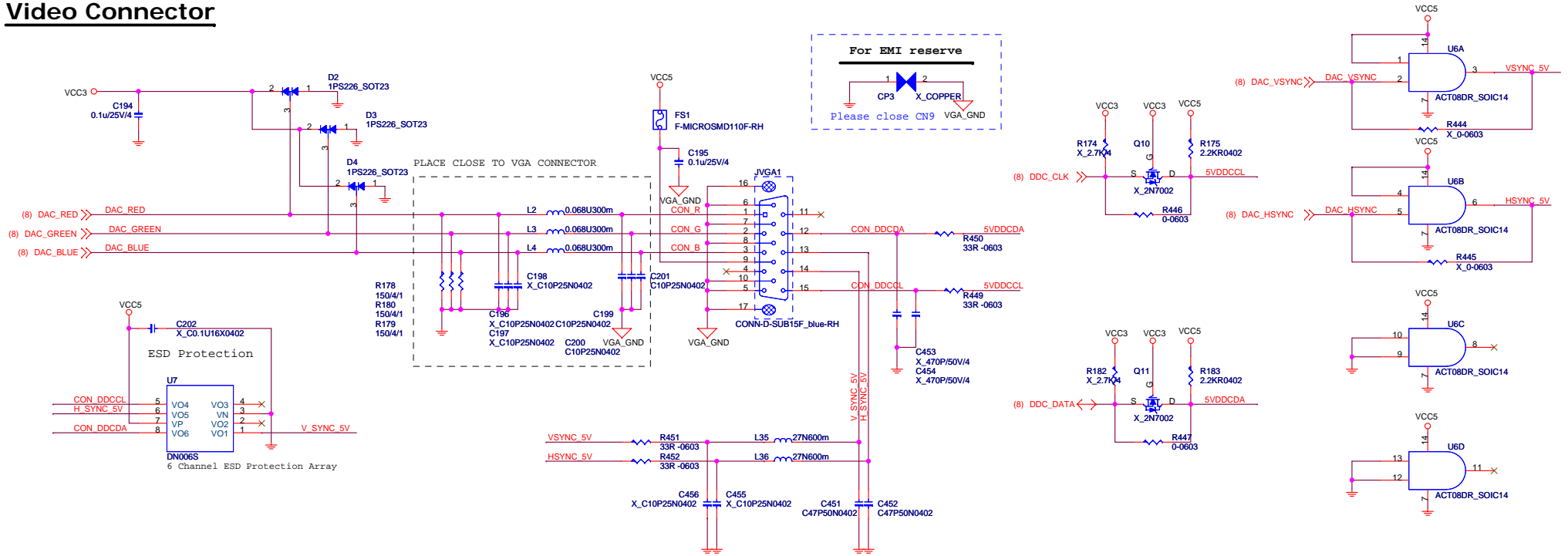
DIMM1 decoupling



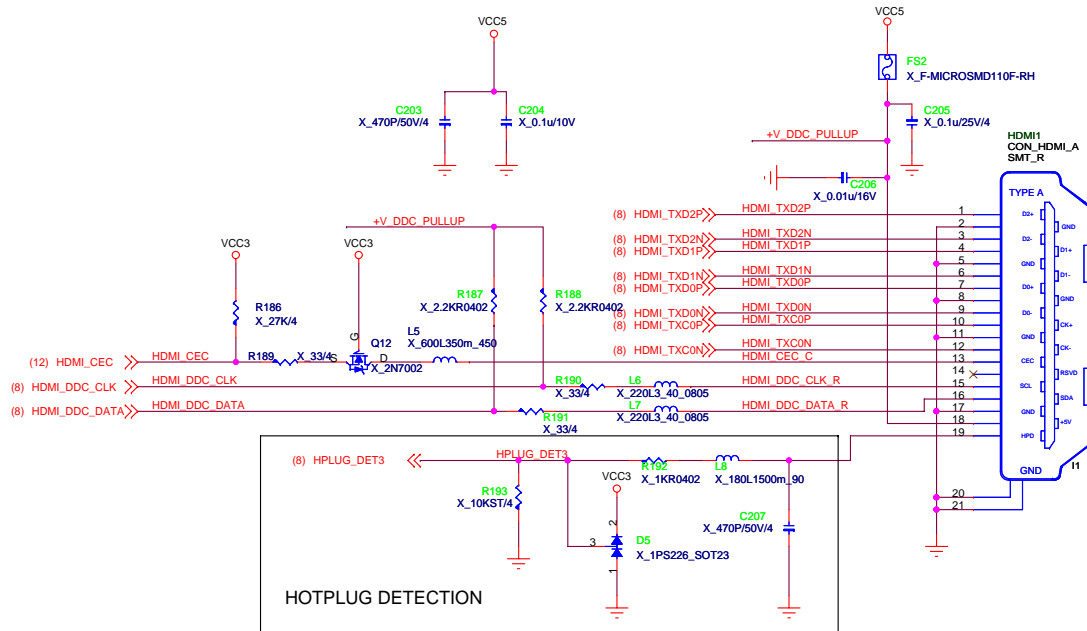
DIMM2 decoupling



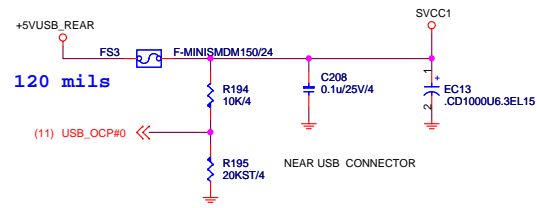
Video Connector



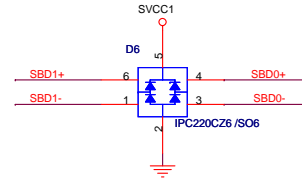
HDMI Connector



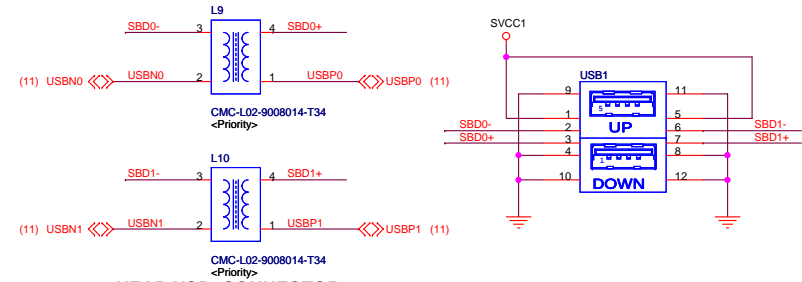
POWER CIRCUIT FOR USB PORT 0,1



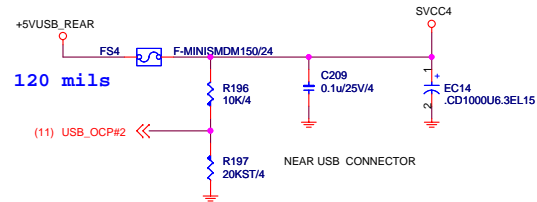
ESD Protection



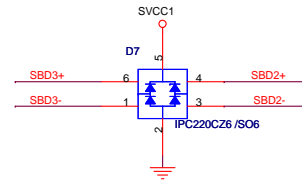
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



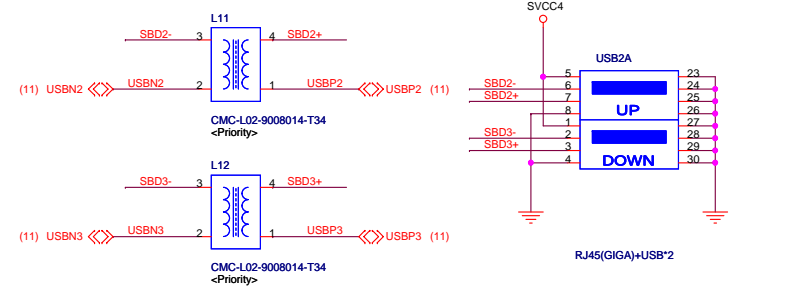
POWER CIRCUIT FOR USB PORT 2,3



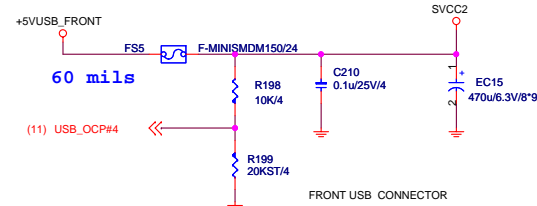
ESD Protection



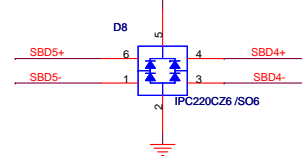
REAR PANEL USB CONNECTOR FOR USB PORT 2,3



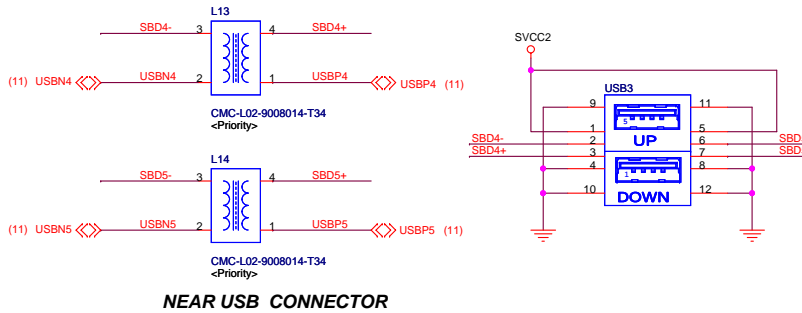
POWER CIRCUIT FOR USB PORT 4,5



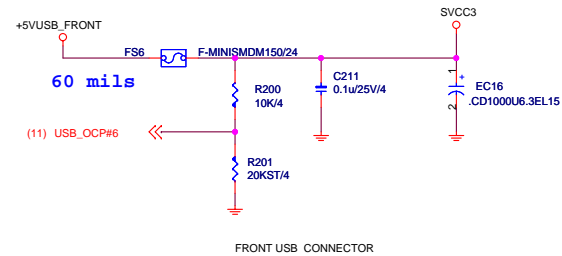
ESD Protection



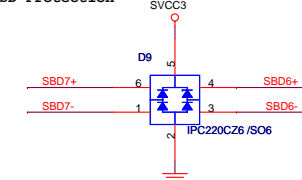
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



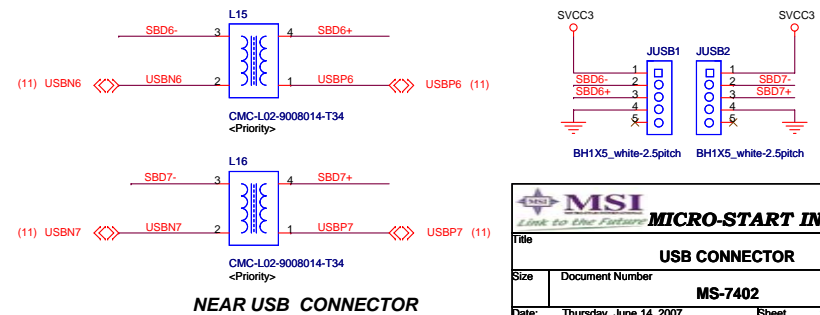
POWER CIRCUIT FOR USB PORT 6,7



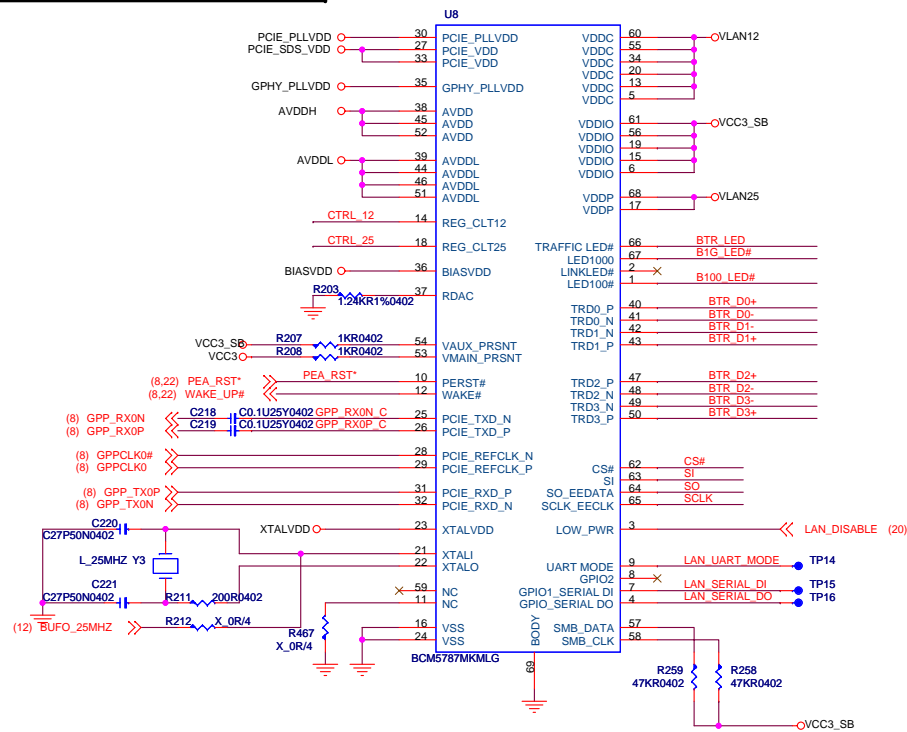
ESD Protection



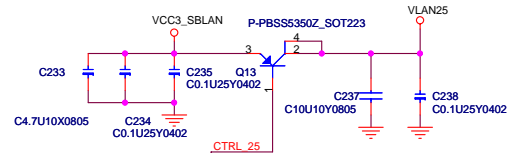
Memory card reader USB CONNECTOR FOR USB PORT 6,7



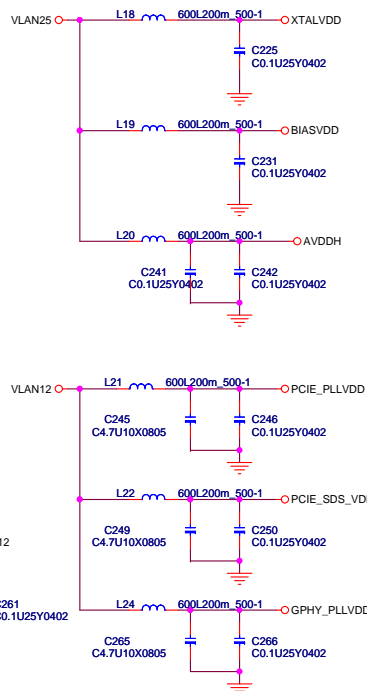
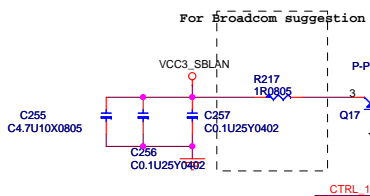
BCM5787M LAN CHIP



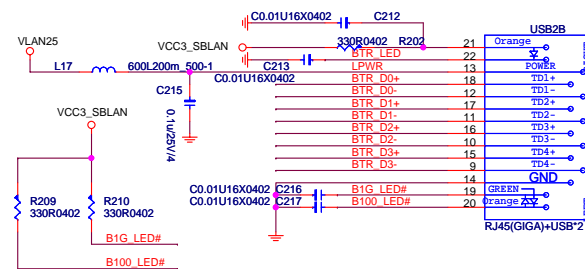
LAN 2.5 POWER
(235mA)



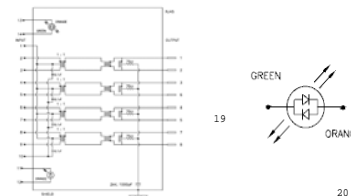
LAN 1.2 POWER



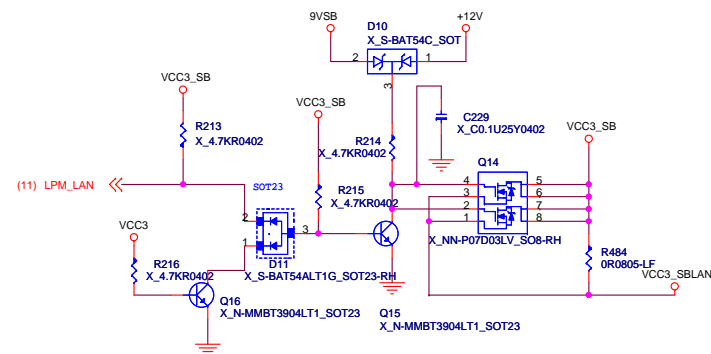
LAN Connector



USB1 structure

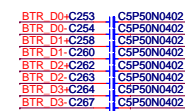


Power control for power consumption

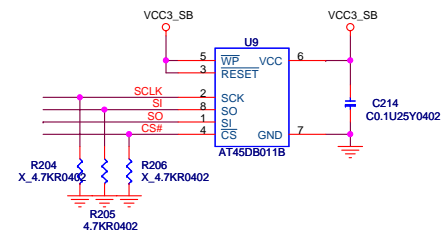


EMI SUGGESTION

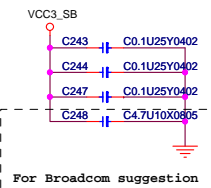
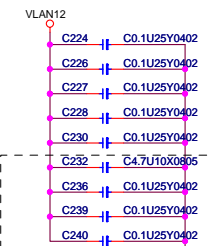
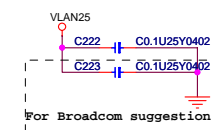
EMI SUGGESTION



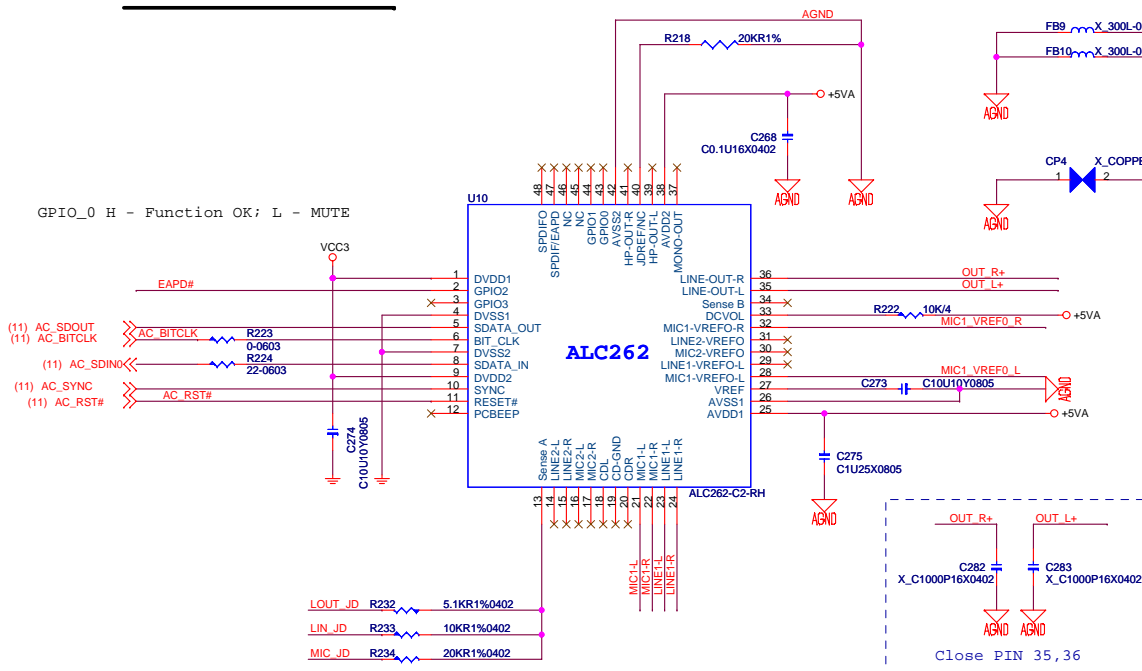
LAN EEPROM



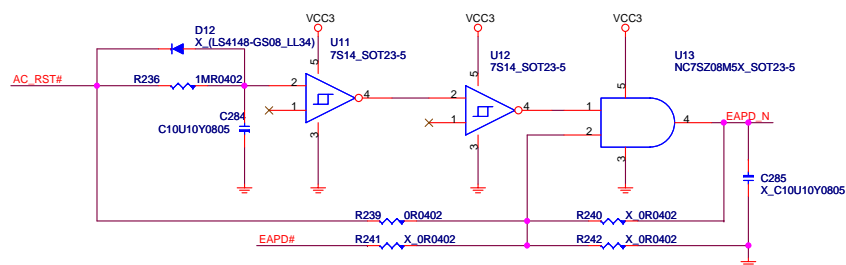
Bypass CAPs



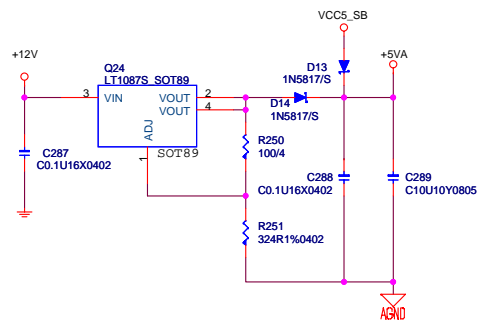
Reltek HD ALC262



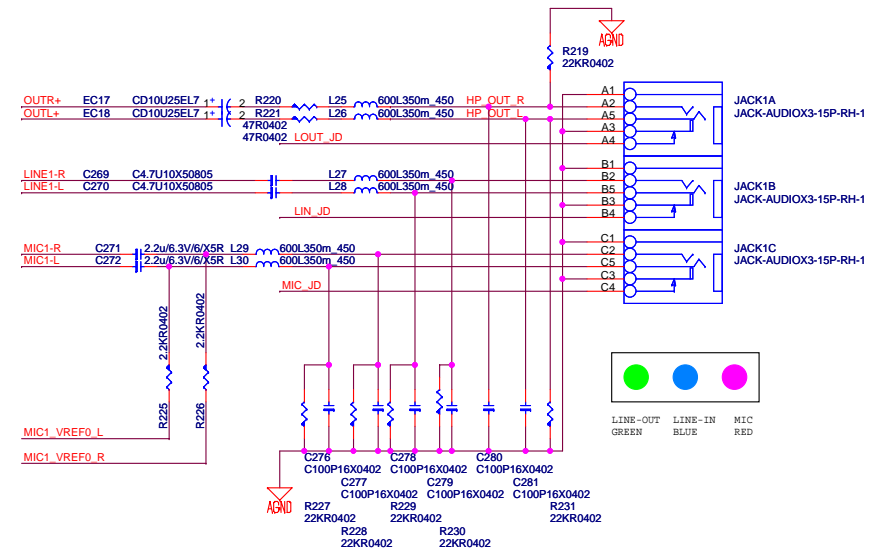
POP noise circuit



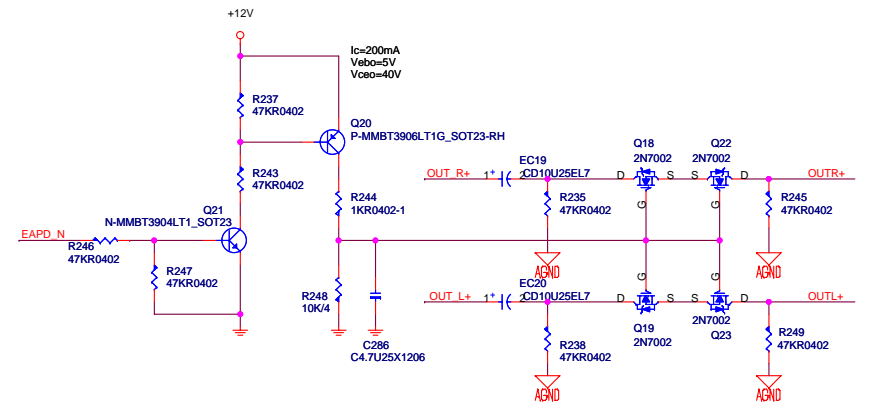
AUDIO CODE REGULATORS



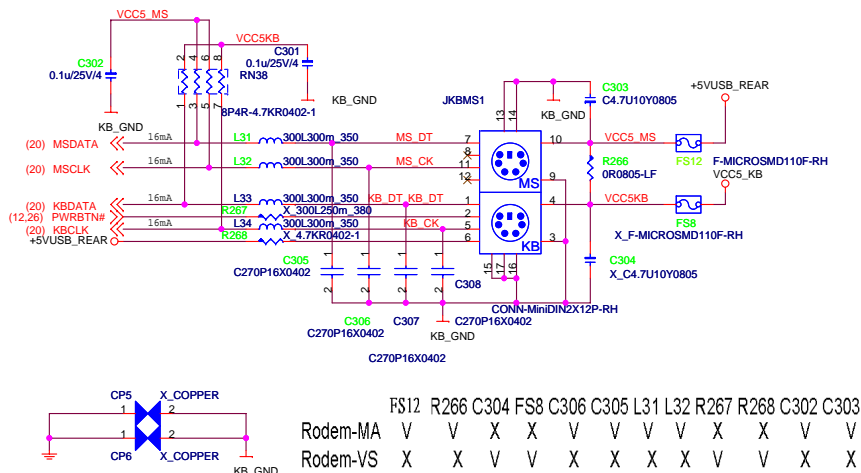
PHONE JACK.



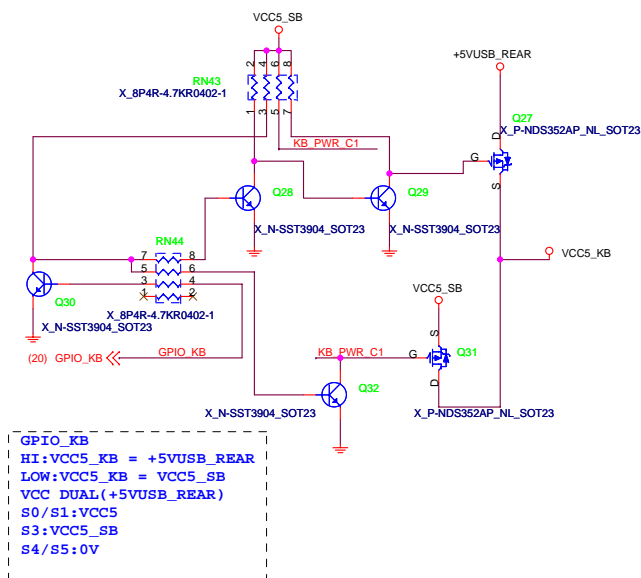
Smooth pop noise circuit for Line-out



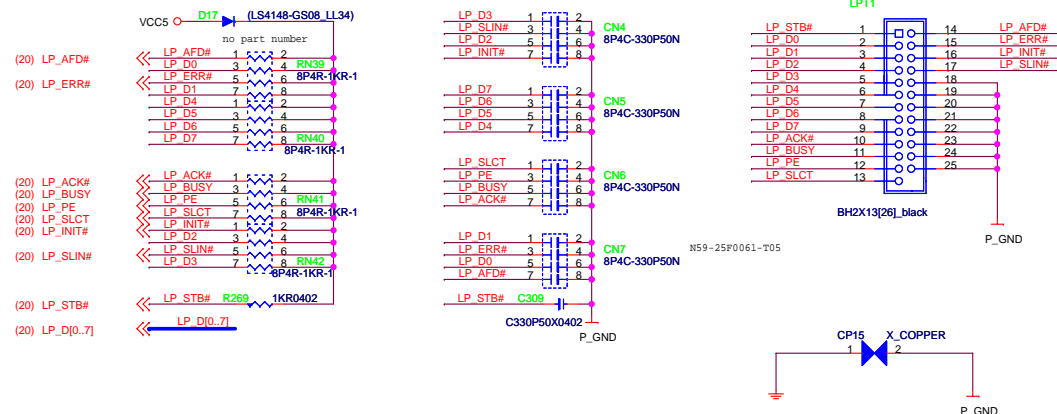
PS2 KEYBOARD & MOUSE CONNECTOR



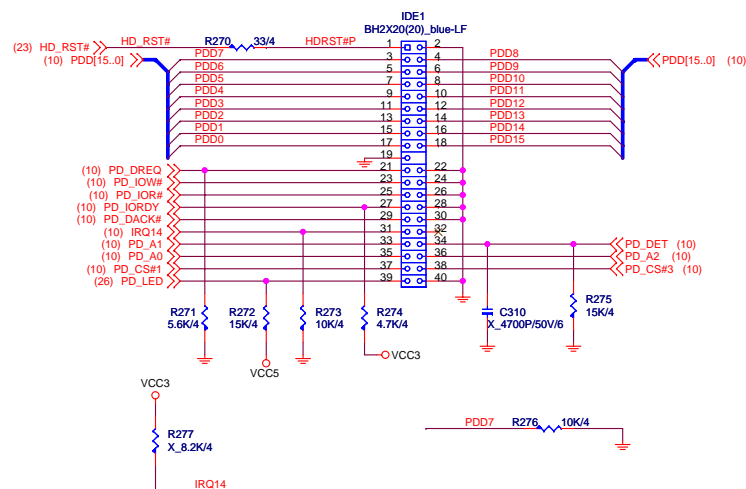
K/B Power supply function for Rodem-VS



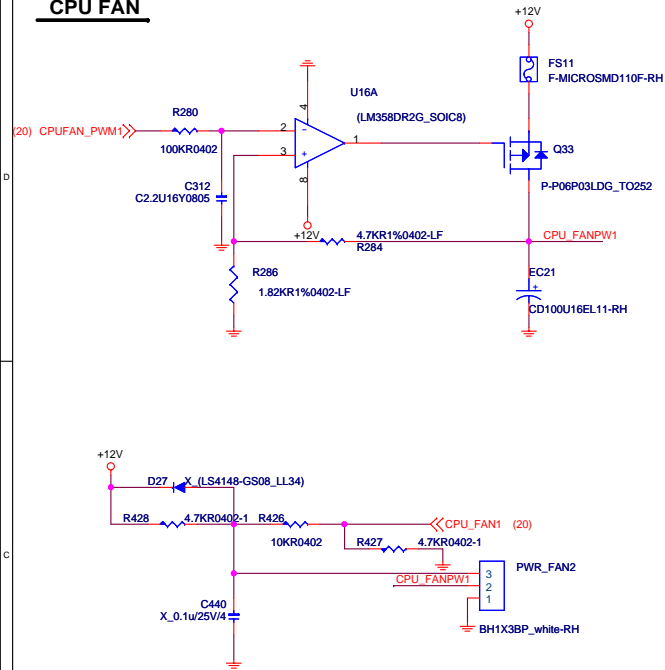
PARALLAL PORT



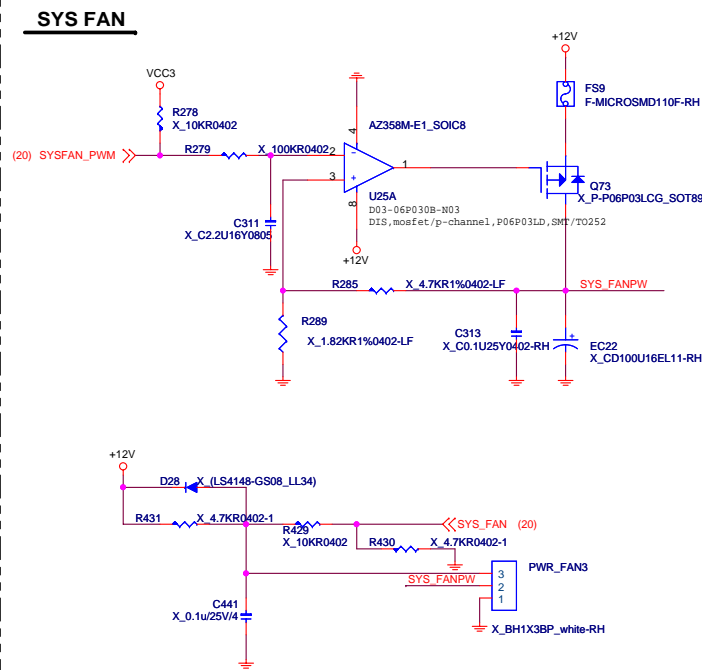
ATA-133 IDE connector



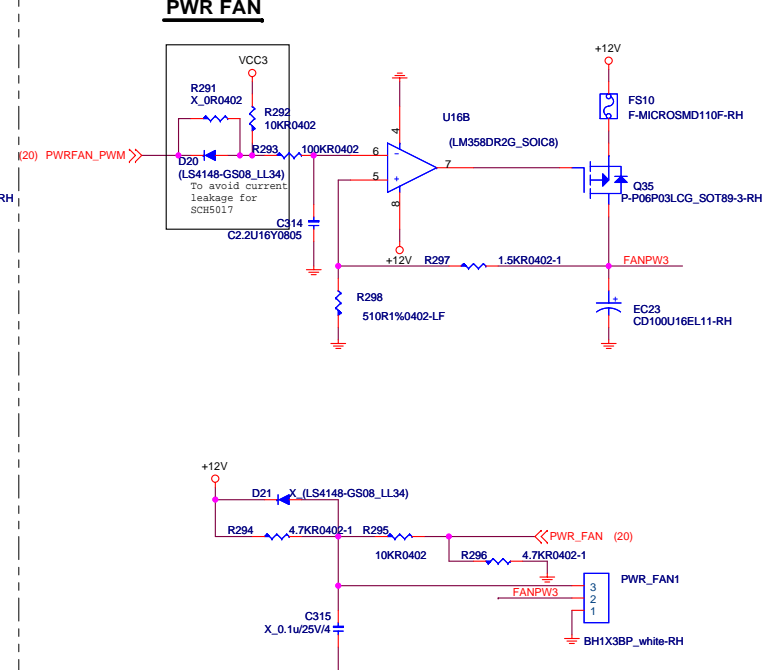
CPU FAN



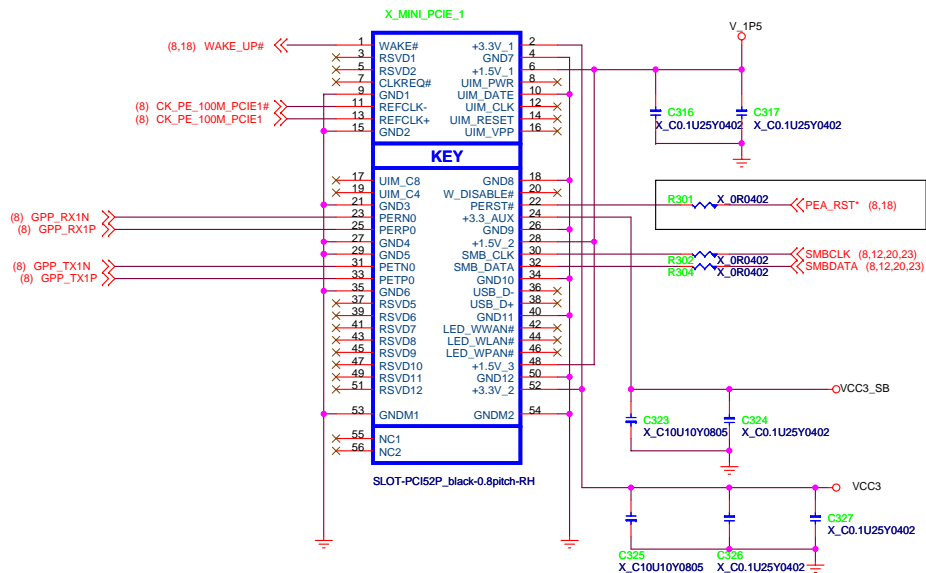
SYS FAN



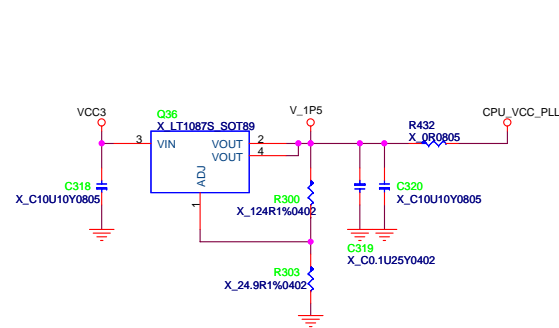
PWR FAN



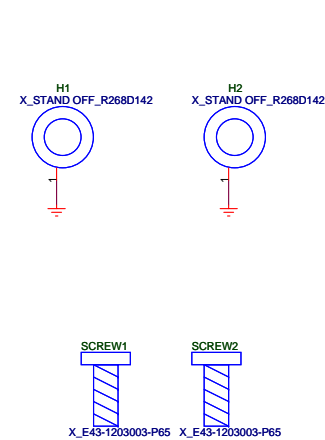
Mini PCIE

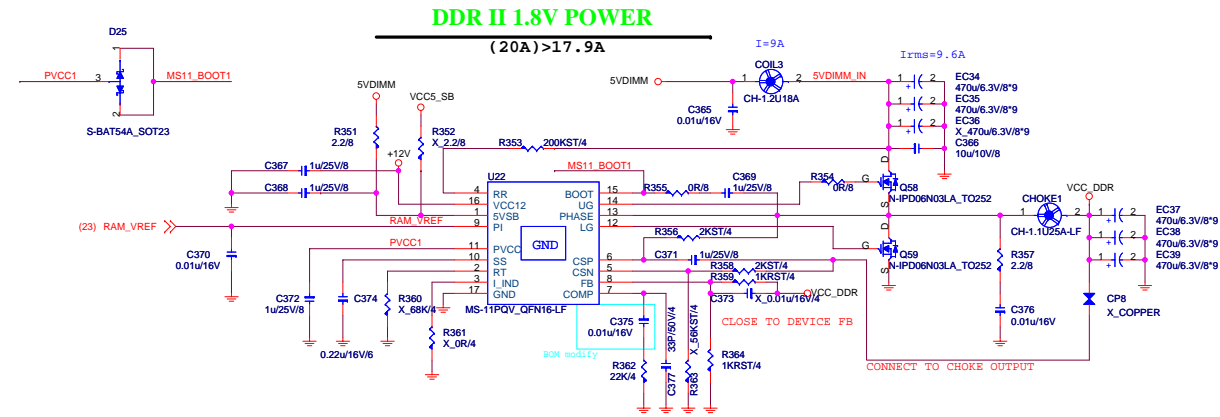
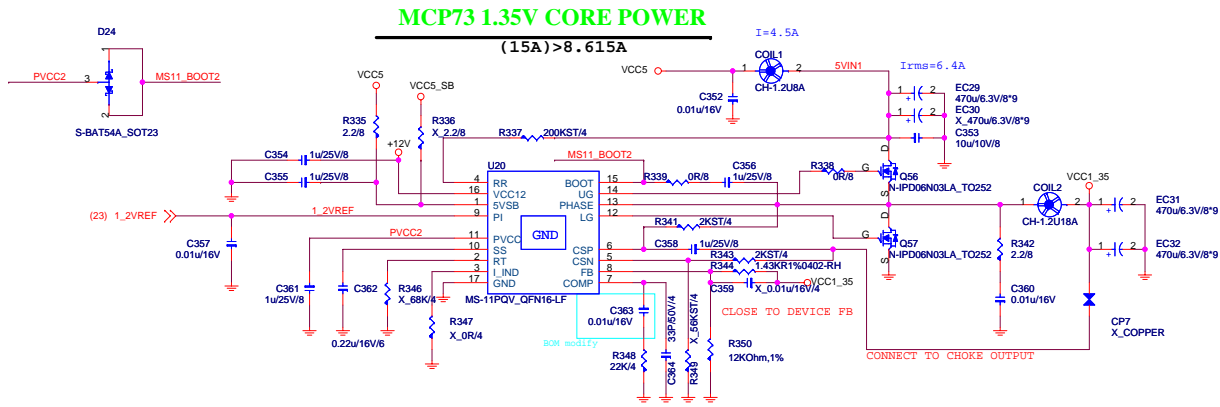


MINI PCIESLOT V_1P5 POWER

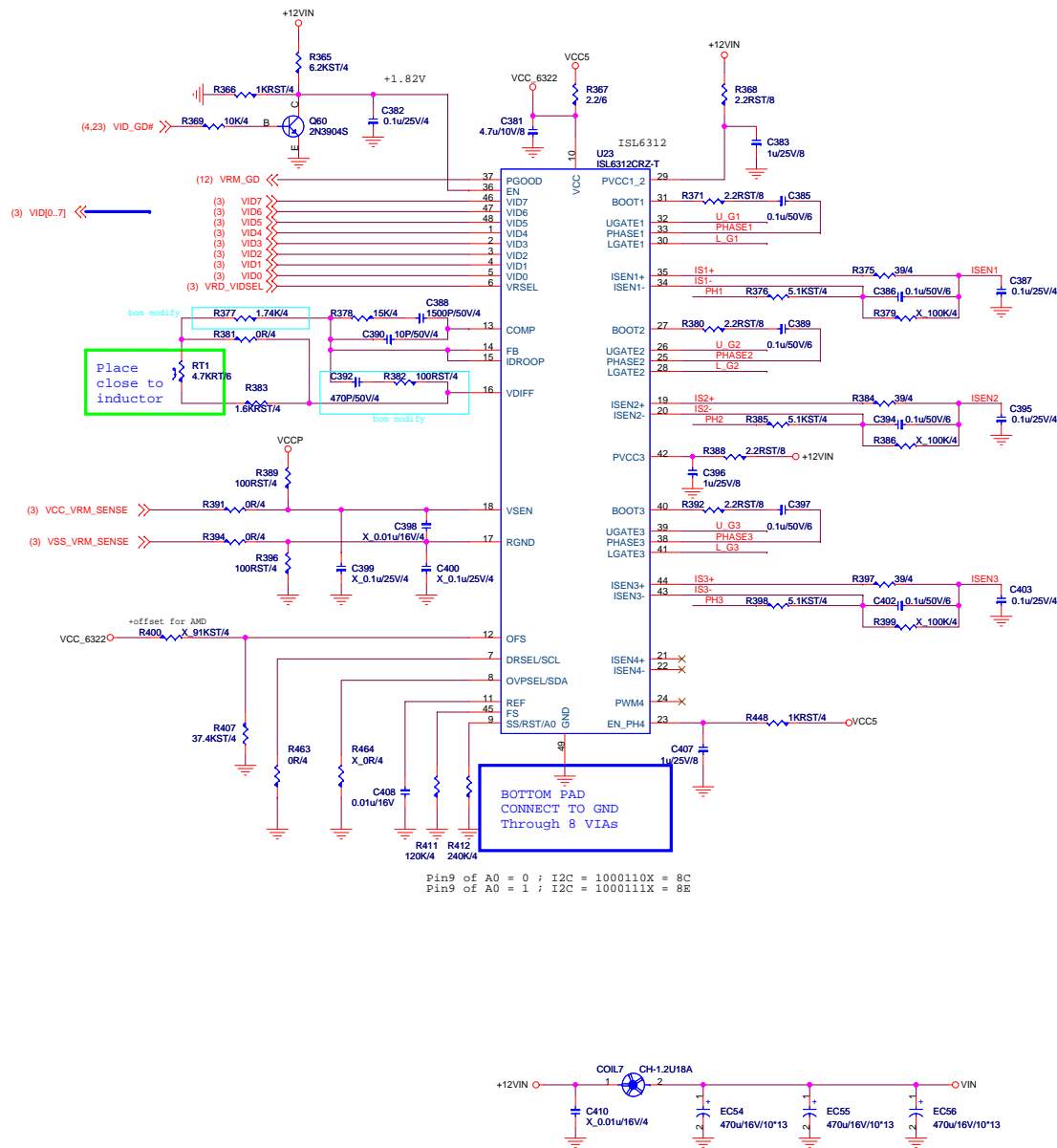
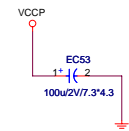
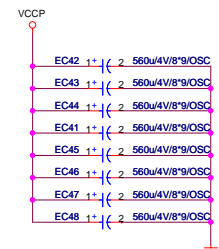
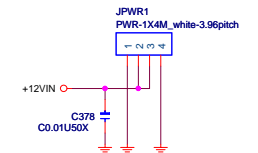


MINI PCIESLOT SCREW





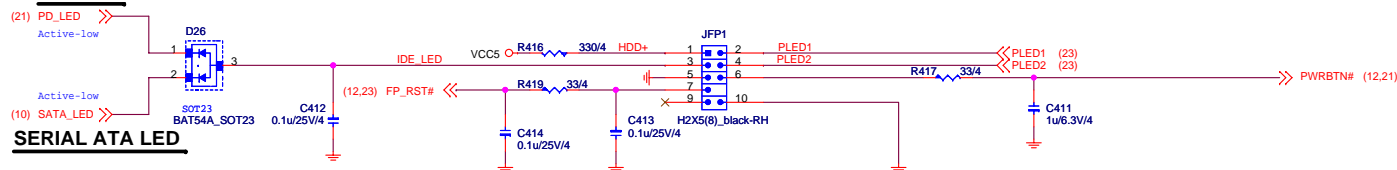
ATX12V Power Connector



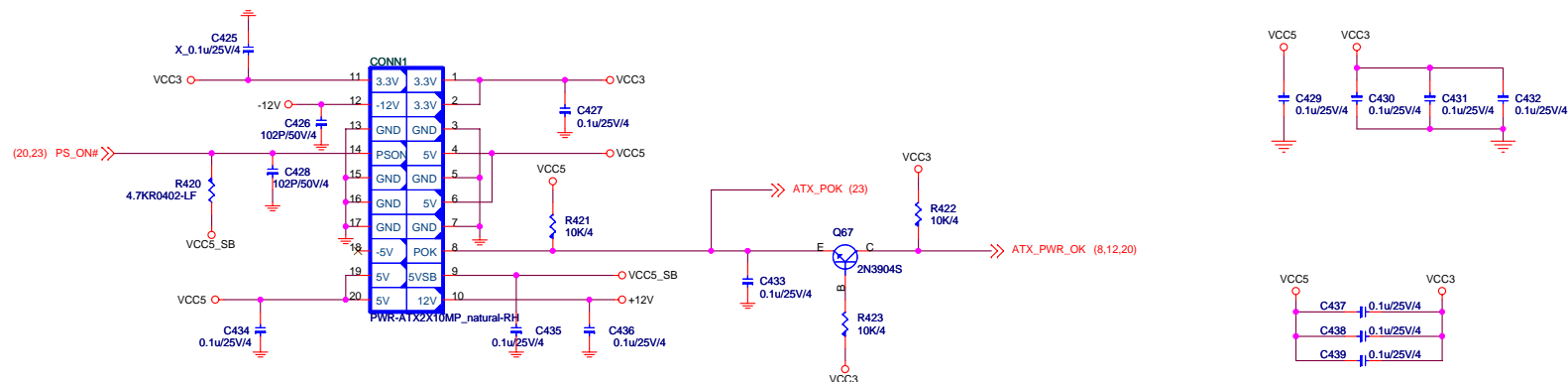
ATX connector / Front Panel

Front Panel

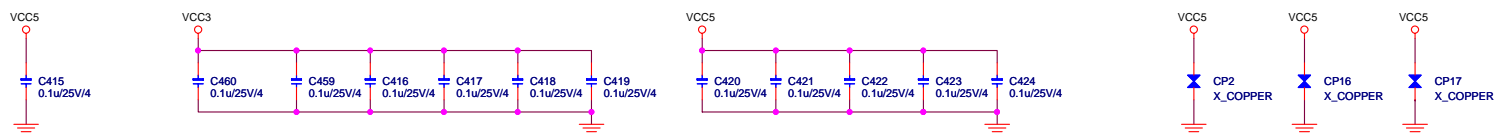
IDE LED



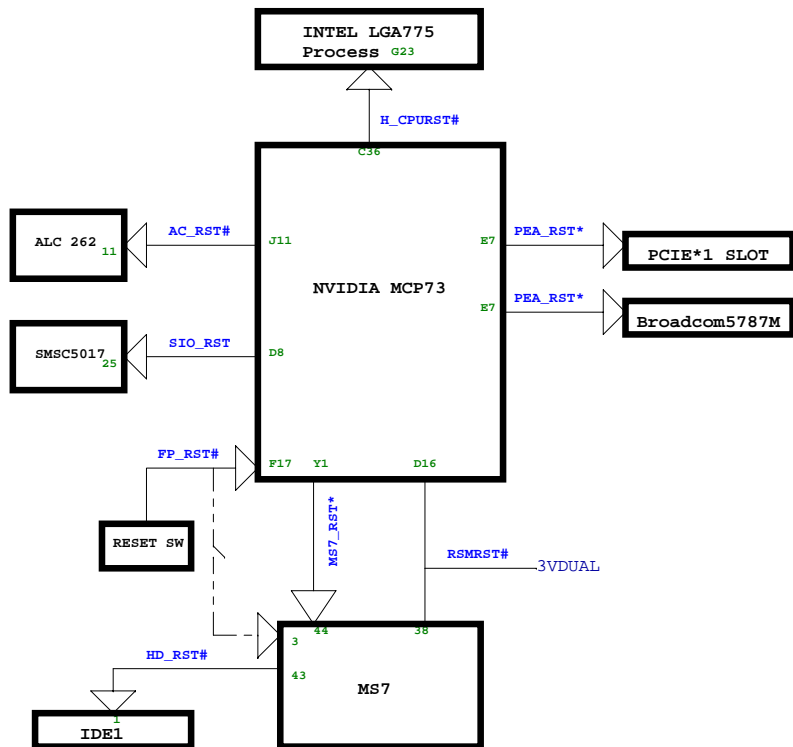
ATX Connector



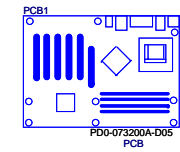
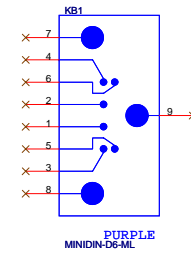
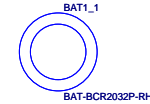
For EMI reserve



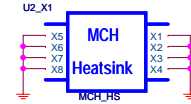
RESET MAP



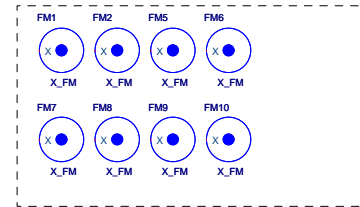
MANUAL PARTS



wait for 7402 parts number



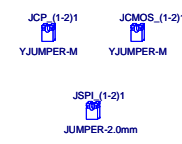
Optics Orientation Holes



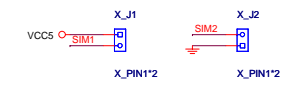
For power cable holder and FP:
HOLES315D189



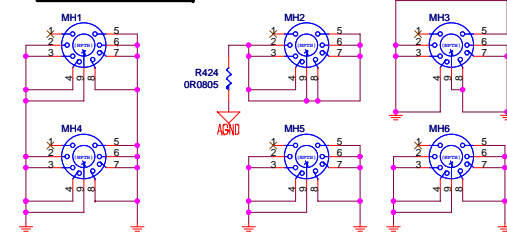
Jumper setting



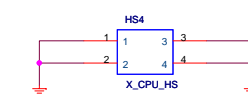
Simulation



Mounting Holes

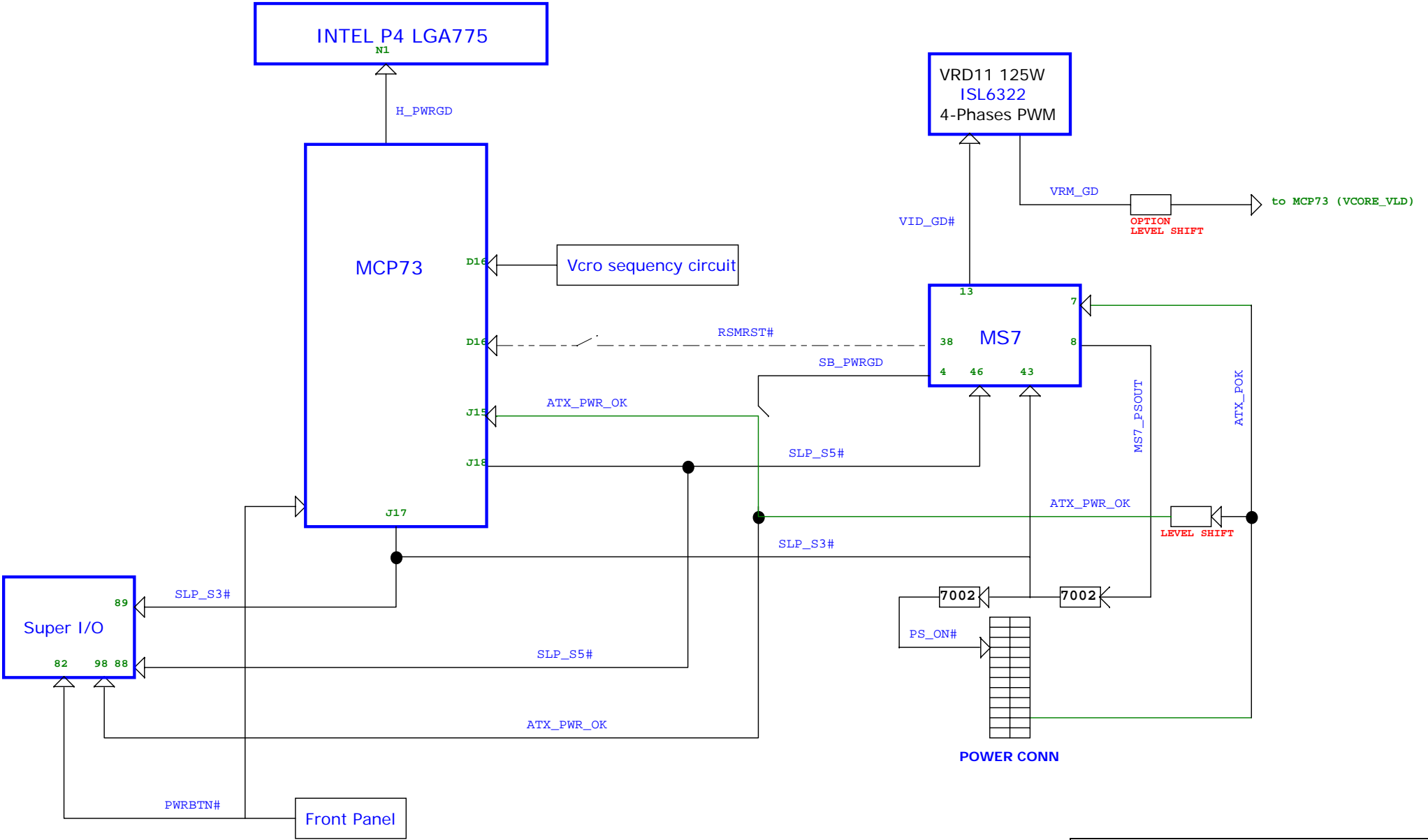


CPU Cooling Holes



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RESET MAP & MANUAL PARTS			
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PWROK MAP



NVIDIA MCP73

GPIO Pin	Default States	Function	Change default	Pin-out
GPIO 2	GPIO INPUT	Pull-up to VCC3 with 10K		C1
GPIO 3	GPIO INPUT	Pull-up to VCC3 with 10K		C2
GPIO 4	GPIO INPUT	Pull-up to VCC3 with 10K		C3
GPIO 5	GPIO INPUT	Pull-up to VCC3 with 10K		C4
GPIO 6	GPIO INPUT	HDMI_CEC,Pull-up to VCC3 with 10K		C5
GPIO 7	GPIO INPUT	SIO HWM_INT,pull_up VCC3 with 10K		C6
GPIO 8	TER FUNCT.	SPI_DI		C7
GPIO 9	TER FUNCT.	SPI_DO		C8
GPIO 10	TER FUNCT.	SPI_DCS0		C9
GPIO 11	TER FUNCT.	SPI_CLK		CA
GPIO 19	GPIO INPUT	NC		D2
GPIO 20	PRI FUNCT.	H_PROCHOT#,pull-up to VTT_OUT_RIHGHT with 10K		D3
GPIO 21	PRI FUNCT.	WAKE_UP#		D4
GPIO 22	PRI FUNCT.	AC_SDINO		D5
GPIO 23	PRI FUNCT.	Pull-up to VCC3_SB with 10K directly	SEC Function,GPIO OUTPUT	D6
GPIO 24	PRI FUNCT.	NC		D7
GPIO 25	PRI FUNCT.	OC#0 connect to USB connector		D8
GPIO 26	PRI FUNCT.	OC#2 connect to USB connector		D9
GPIO 27	PRI FUNCT.	OC#4 connect to USB connector		DA
GPIO 28	PRI FUNCT.	OC#6 connect to USB connector		DB
GPIO 29	PRI FUNCT.	LPM_LAN,pull_up 3VDUAL with 10K	SEC Function,GPIO OUTPUT	DC
GPIO 30	PRI FUNCT.	PME#,Pull-up to 3VDUAL with 8.2K		DD
GPIO 31	PRI FUNCT.	SIO_PME#,Internal pull-up to 3VDUAL		DE
GPIO 32	PRI FUNCT.	SIO_SMI#,Internall pull-up to 3VDUAL		DF
GPIO 34	PRI FUNCT.	SUS_CLK		E1
GPIO 35	PRI FUNCT.	Pull-low to GND with 10K	SEC Function,GPIO OUTPUT	E2
GPIO 36	PRI FUNCT.	Connect to GND		E3
GPIO 37	PRI FUNCT.	NC		E4
GPIO 38	GPIO INPUT	PCI3REQ#,Pull-up to VCC3 with 8.2K		E5
GPIO 39	GPIO OUTPUT	NC		E6
GPIO 40	GPIO INPUT	PCI2REQ#,Pull-up to VCC3 with 8.2K		E7
GPIO 41	GPIO OUTPUT	NC		E8
GPIO 42	PRI FUNCT.	PCICLKRUN#		E9
GPIO 43	GPIO INPUT	PERR#,Pull-up to VCC3 with 8.2K		EA
GPIO 44	PRI FUNCT.	ACSYNC		EB
GPIO 45	PRI FUNCT.	ACSDOUT,Pull-up to VCC3 with 8.2K		EC
GPIO 50	PRI FUNCT.	LPC_DRO#0,Pull-up to VCC3 with 10K		F1
GPIO 52	GPIO INPUT	PCI4REQ#,Pull-up to VCC3 with 8.2K		F3
GPIO 53	GPIO OUTPUT	SPI_WP#	SEC Function,GPIO OUTPUT	F4
GPIO 55	PRI FUNCT.	A2OGATE,Pull-up to VCC3 with 8.2K		F6
GPIO 56	PRI FUNCT.	KBRST#,Pull-up to VCC3 with 8.2K		F7
GPIO 57	PRI FUNCT.	SATA_LED,Pull-up to VCC3 with 8.2K		F8
GPIO 58	PRI FUNCT.	Thermtrip#		F9
GPIO 59	PRI FUNCT.	Therm#		FA
GPIO 60	PRI FUNCT.	NC		FB
GPIO 61	PRI FUNCT.	NC		FC
GPIO 62	PRI FUNCT.	NC		FD
GPIO 63	PRI FUNCT.	PD_DET,Pull-down to GND with 15K		FE

PRI FUNCT.:Primary Function
SEC FUNCT.:Second Function
TER FUNCT.:Tertiary Function

PCI Configuration

DEVICE	MCP1 INT Pin	REQ#/GNT#	IDSEL	CLOCK
EMPTY	EMPTY	EMPTY	EMPTY	EMPTY
EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

DDRII DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 1	0A0H	MCLK_A0/MCLK_A0# MCLK_A1/MCLK_A1# MCLK_A2/MCLK_A2#
DIMM 2	0A2H	MCLK_A9/MCLK_A9# MCLK_A10/MCLK_A10# MCLK_A11/MCLK_A11#

SIO SCH5017


PIN NAME	PIN#	USAGE	Input/Output
GP12	96	GPIO_KB	OUTPUT
GP27	36	SIO_SMI#	OUTPUT
GP42	90	SIO_PME#	OUTPUT
INTRD_IN~	33	CLEAR_PASSWORD	INPUT

SMBus DISTRIBUTION

SMBus	Power	Load
SMBCLK	3VDUAL	MCP73, SIO,LAN,MiniPCIE,MS7,PWM
SMB_MEM_CLK	VCC3	DIMM

JUMPER SETTING

JBAT1	(1-2)Normal	(2-3)Clear
JCP1	(1-2) open clear	(1-2)short Normal
JCMOS	(1-2) Normal	(2-3) Clear



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INTEL 775		
0.8375V - 1.6000V Core	-	84A
1.2V FSB Vtt	-	5.3A

MCP73		
V1P2_CPU_VTT	-	800mA
H_VCCPLL	-	200 mA
V1P2_SATA_PLL	-	75mA
V1P2_VDD_CORE	-	5.7A
V1P2_PEX_DVDD	-	450mA
V1P2_PEX_AVDD	-	1.8A
V1P2_VDD_AUXC	-	25mA
3P3_DUAL_RMGT	-	35mA
V3P3_DUAL	-	50mA
3P3_DUAL_USB	-	75mA
V3P3_BAT	-	3mA
V1P2_PLL_MEM_CPU	-	60mA
V1P2_PEX0/1_PLL	-	170mA
V1P2_SATA_DVDD	-	95mA
V1P2_SATA_AVDD	-	380mA
V3P3	-	340mA
V3P3_DAC	-	130mA
V3P3_HDMI_IO	-	60mA

Audio		
3.3V AUDIO	-	40mA
5V AUDIO	-	200mA

SPI		
+3.3V (S0,S1)	-	30mA

5VAudio
+5VR
500mA

3V
Battery

+12V
ATX
2x2

+12V +5V +3.3V +5VSB
ATX POWER

ISL6322
VCCP VRM 11
0.8375V-1.6000V 84A
3-Phase Switch

W83310DS
VTT_DDR
0.9V Linear 1A

MS7 Regulator
V_FSB_VTT
1.2V Linear 10A
CPU_VCC_PLL
3.3V Linear 300mA
3VDUAL
3.3V Linear 1.5A
5VUSB_REAR/FRONT
5V Linear 2A / 2A
5VSB 500mA
5VDIMM
5V 11.24A
5VSB 700mA

W83310DS
1P2V_DUAL
0.9V Linear 850mA

MS11 Regulator
VCC1_3
1.2V Switch 15A

MS11 Regulator
VCC_DDR
1.8V Switch 20A

DDR DIMM & TERMINATOR		
0.9V VTT_DDR	-	1A
1.8V VCC_DDR (S0,S1)	-	9.4A
1.8V VCC_DDR (S3)	-	400mA
MCP73		
V3P3_HDMI_PLL	-	10mA
V3P3_PLL	-	30mA
V1P8_MEM_VDDP	-	2.4A
V1P2_PEX0/1_PLL	-	45mA
V1P2_PLL_SREF_SP	-	10mA
V3P3_PLL_COREPLL	-	5mA
V3P3_VPLL	-	5mA
V3P3_XREF0/1_XS0/1	-	21mA
V3P3_PLL_SREF_SP	-	15mA
V3P3_DUAL_PLL_MAC	-	5mA

PCI Express x1 slot(MiniPCIE)		
V_1P5	-	TBD
+3.3V	-	TBD

PCI Express x1 slot(BCM5787M)		
VLAN12	-	590mA
VLAN25	-	235mA
VDD	-	7mA


USB		
+5V (S0,S1)	-	4.0A
+5V (S3)	-	20mA

PS2		
+5V (S0,S1)	-	345mA
+5V (S3)	-	2.0mA

SIO		
3VDUAL	-	10mA

0A==>0B 2007.06.14

1.change super I/O from SMSC5017 to SMSC5617
2.del ALARM signal(page11)
3.del R135 & signal SUSCLK(page12)
4.del signal HWM_INT and rename to GPIO7(page12)
5.SPI WP# change to SPI_WP#_GPIO82(page12)

 MSI <i>Link to the Future</i>		
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