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# NEC:Rodem-MA Rodem-VS

## MSI:MS-7402N1

Version:1.1



**CPU:** Conroe family processors in LGA775 Package.

**System Chipset:**

NVIDIA MCP73PV single-chip

**On Board Device:**

BIOS -- SPI Flash 8M

LAN -- Broadcom 5787M

Super I/O -- SMSC5617

AUDIO -- Realtek HD ALC262


**Main Memory:**

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

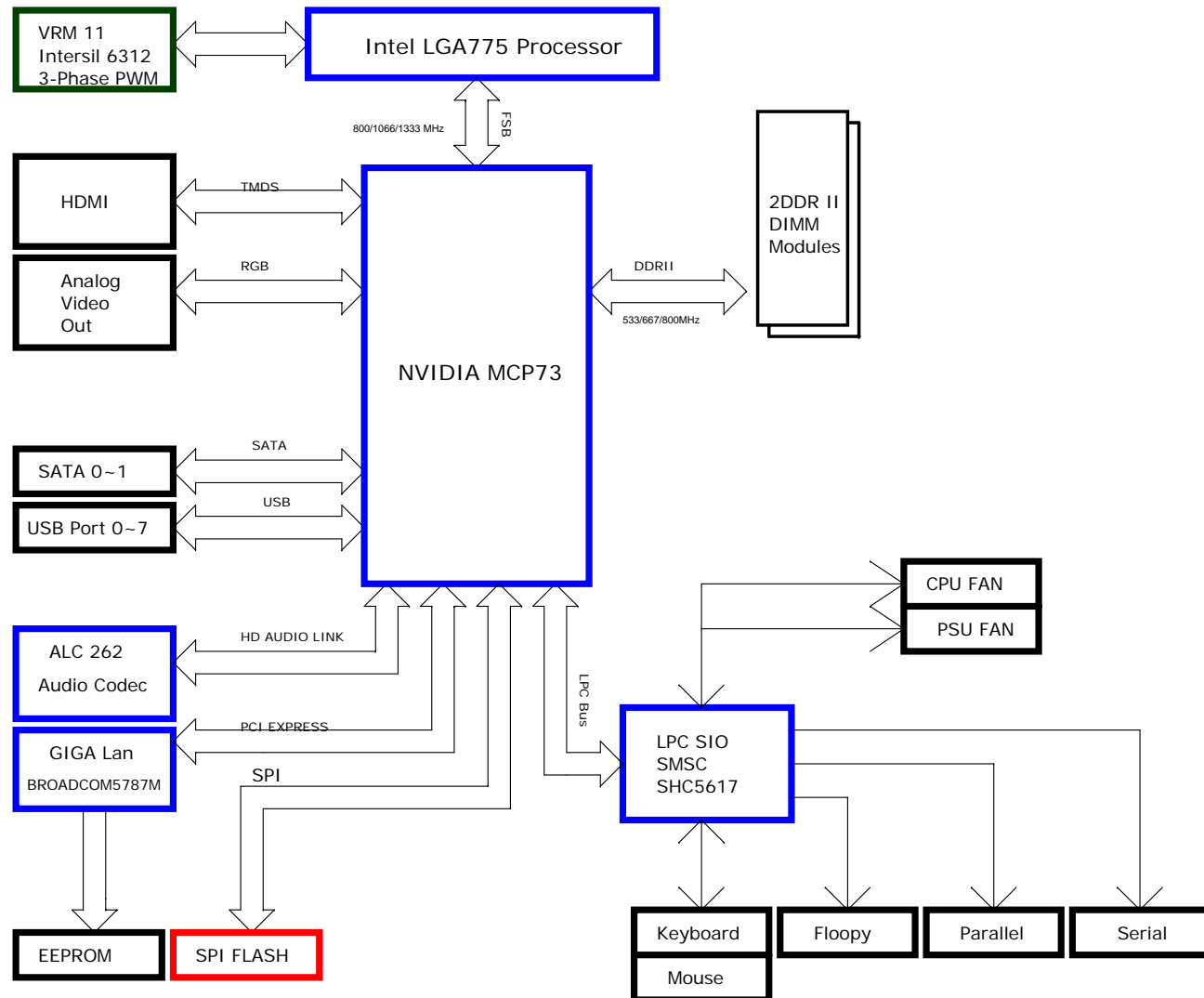
**Intersil PWM:**

Controller: Intersil ISL6312 (3 Phases)

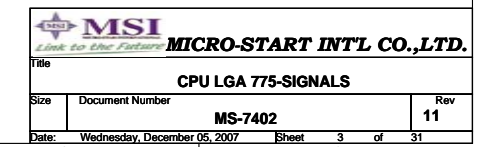
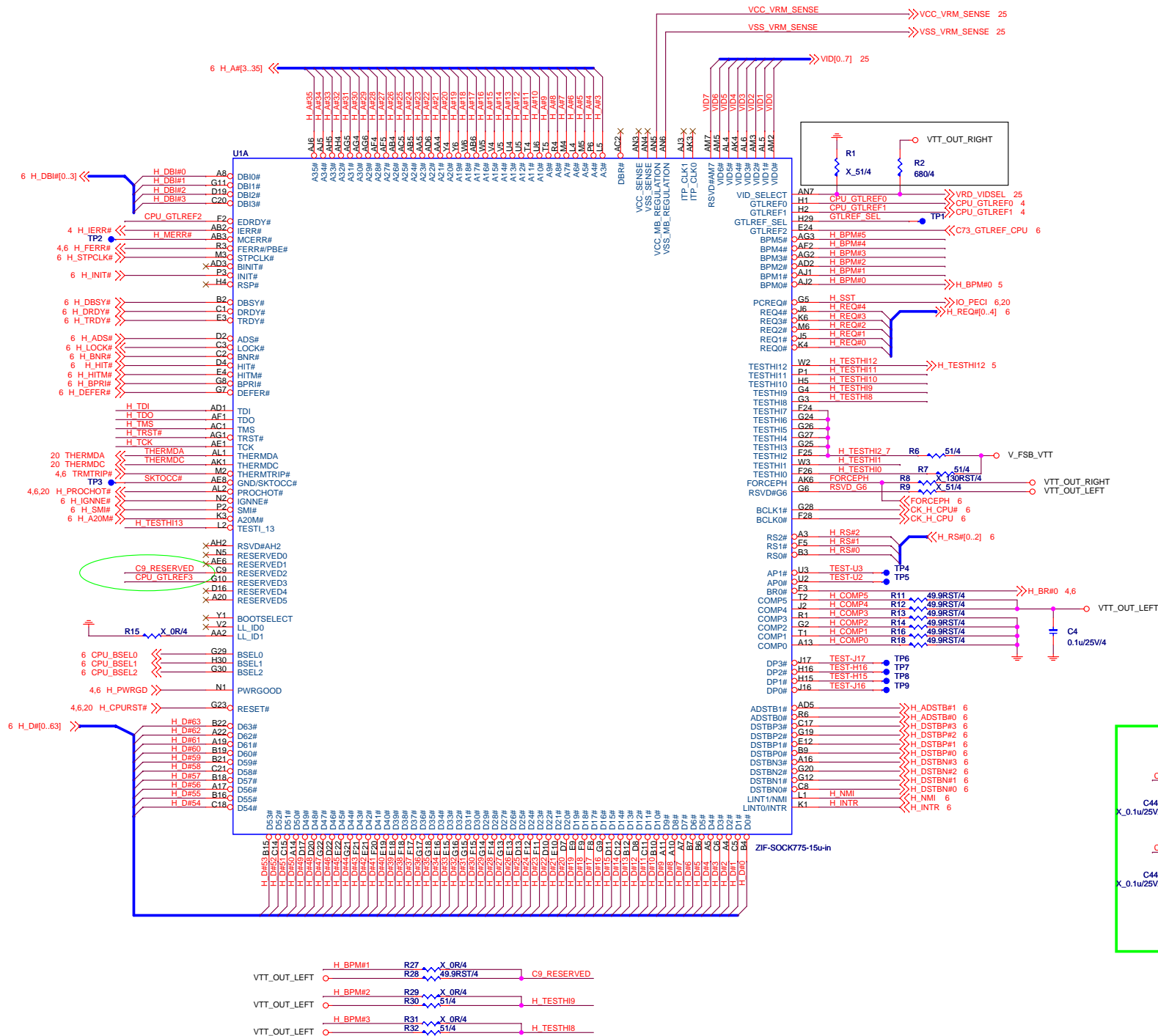
	ERP NUMBER	Orcad Configure	BOM
0C	601-7402-01S	Cfg-7402-MA	
0C	601-7402-02S	Cfg-7402-VS	

 <b>MICRO-START INTL CO.,LTD.</b>			
Title: COVER SHEET			
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	MS-7402	11	
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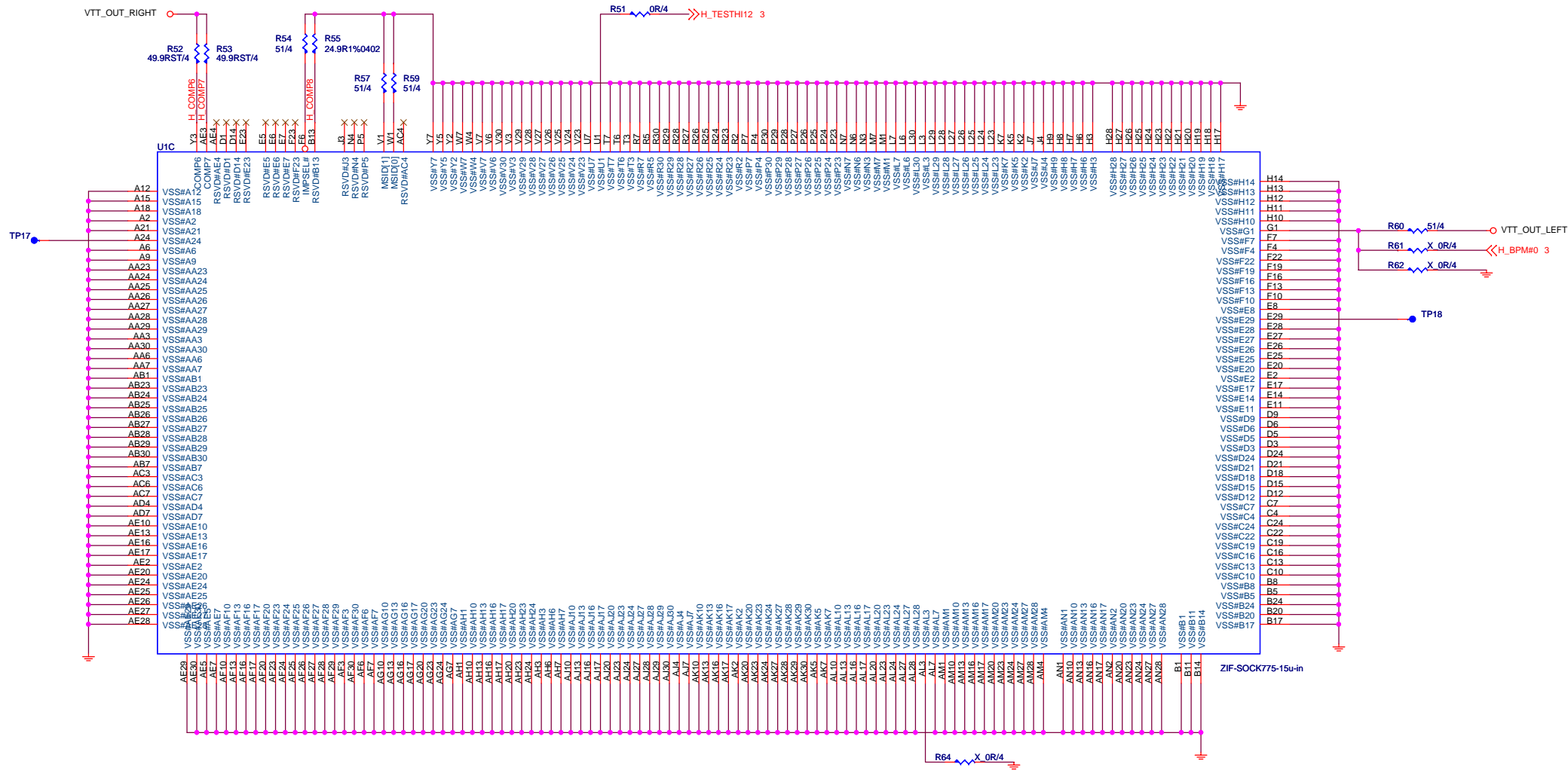
# Block Diagram



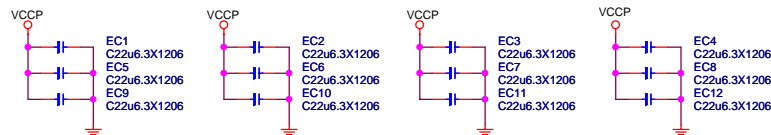
### CPU SIGNAL BLOCK



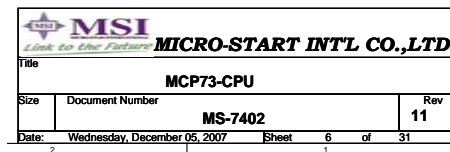


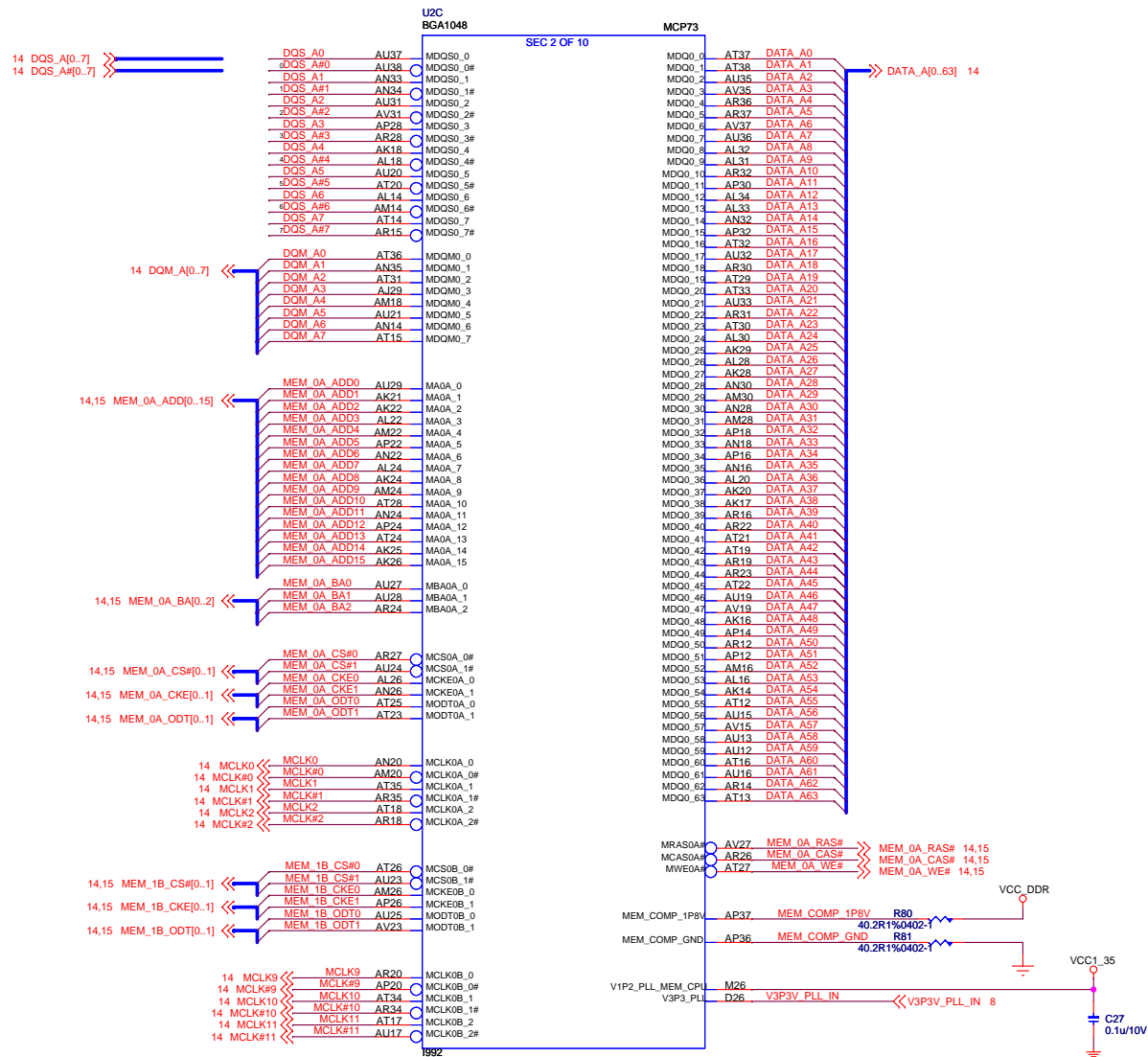


### CPU DECOUPLING CAPACITORS



Place these caps within socket cavity

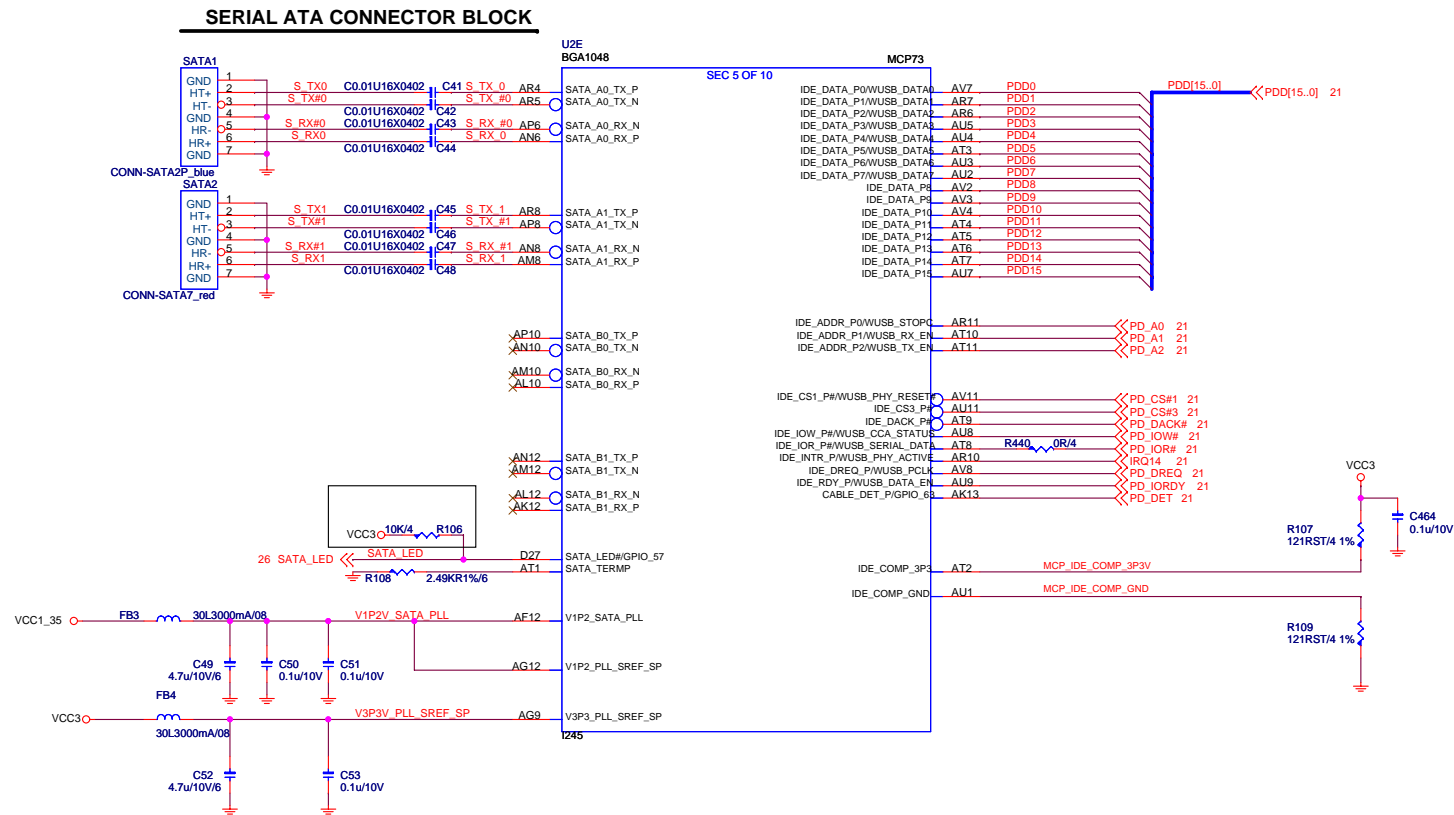




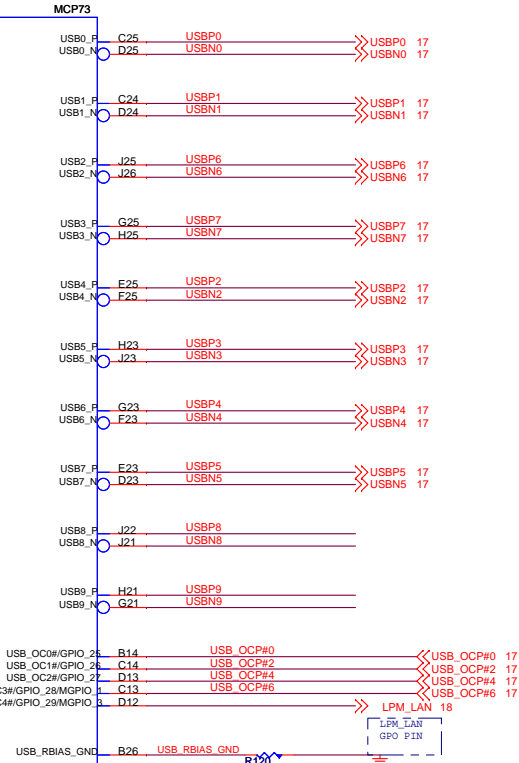
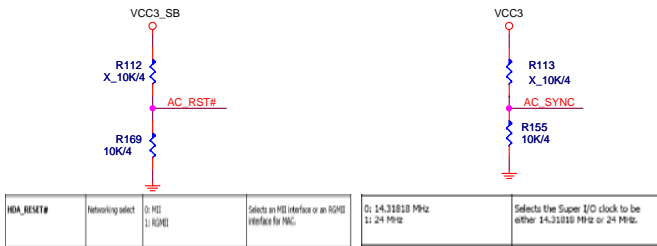
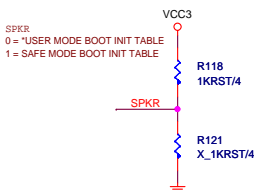
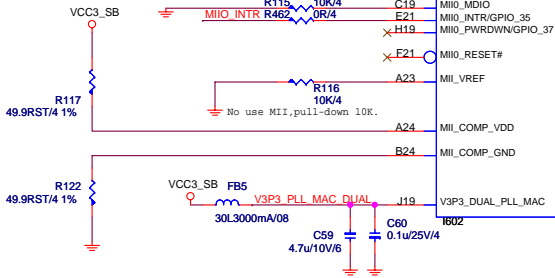
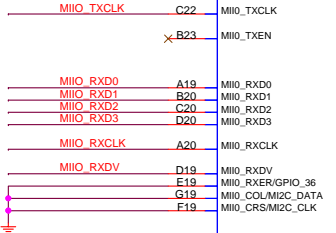
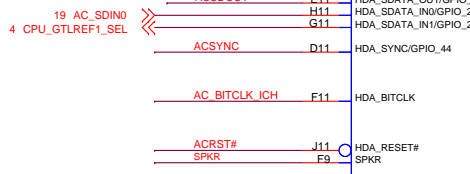
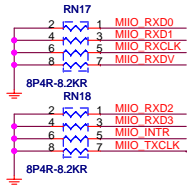
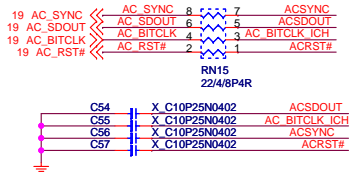




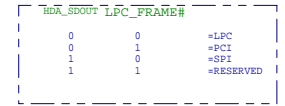
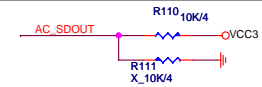




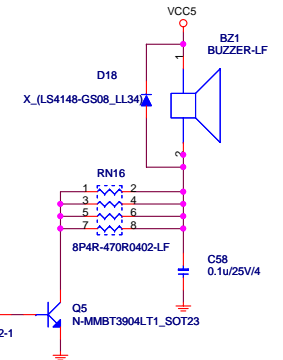
## Codec damping resistor/EMI caps



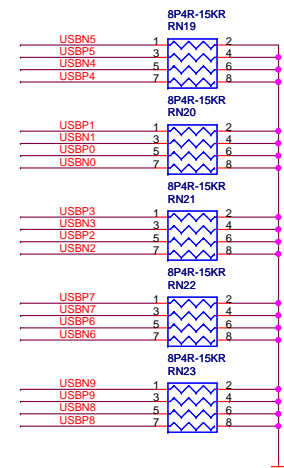
## ROM mode strapping



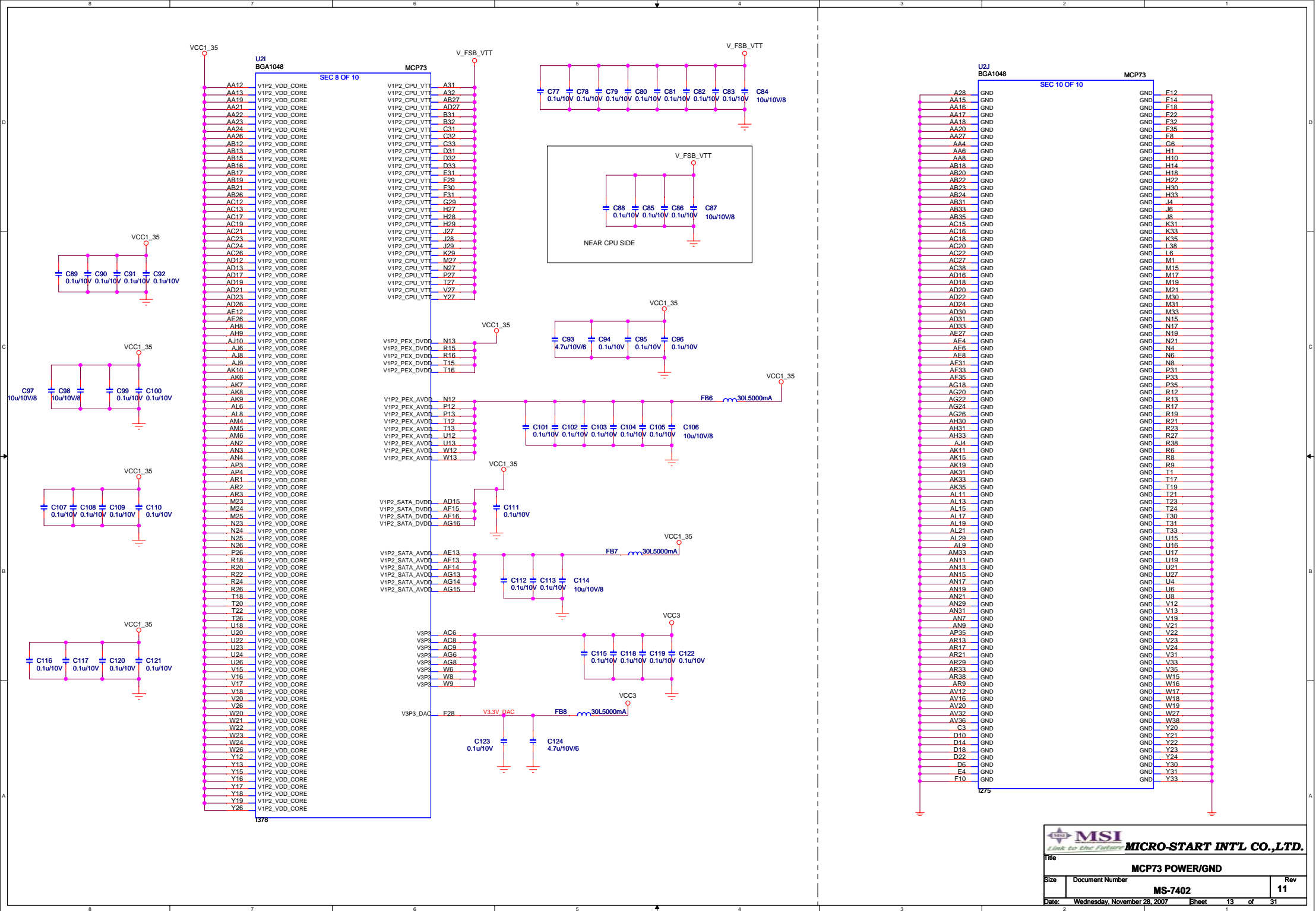
## SPEAKER



## For USB differetial resistor




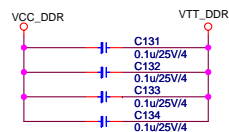




Pin	Signal	Power	Ground	Function
1	VCC3	X		
2	VCC3	X		
3	VCC3	X		
4	VCC3	X		
5	VCC3	X		
6	VCC3	X		
7	VCC3	X		
8	VCC3	X		
9	VCC3	X		
10	VCC3	X		
11	VCC3	X		
12	VCC3	X		
13	VCC3	X		
14	VCC3	X		
15	VCC3	X		
16	VCC3	X		
17	VCC3	X		
18	VCC3	X		
19	VCC3	X		
20	VCC3	X		
21	VCC3	X		
22	VCC3	X		
23	VCC3	X		
24	VCC3	X		
25	VCC3	X		
26	VCC3	X		
27	VCC3	X		
28	VCC3	X		
29	VCC3	X		
30	VCC3	X		
31	VCC3	X		
32	VCC3	X		
33	VCC3	X		
34	VCC3	X		
35	VCC3	X		
36	VCC3	X		
37	VCC3	X		
38	VCC3	X		
39	VCC3	X		
40	VCC3	X		
41	VCC3	X		
42	VCC3	X		
43	VCC3	X		
44	VCC3	X		
45	VCC3	X		
46	VCC3	X		
47	VCC3	X		
48	VCC3	X		
49	VCC3	X		
50	VCC3	X		
51	VCC3	X		
52	VCC3	X		
53	VCC3	X		
54	VCC3	X		
55	VCC3	X		
56	VCC3	X		
57	VCC3	X		
58	VCC3	X		
59	VCC3	X		
60	VCC3	X		
61	VCC3	X		
62	VCC3	X		
63	VCC3	X		
64	VCC3	X		
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66	VCC3	X		
67	VCC3	X		
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78	VCC3	X		
79	VCC3	X		
80	VCC3	X		
81	VCC3	X		
82	VCC3	X		
83	VCC3	X		
84	VCC3	X		
85	VCC3	X		
86	VCC3	X		
87	VCC3	X		
88	VCC3	X		
89	VCC3	X		
90	VCC3	X		
91	VCC3	X		
92	VCC3	X		
93	VCC3	X		
94	VCC3	X		
95	VCC3	X		
96	VCC3	X		
97	VCC3	X		
98	VCC3	X		
99	VCC3	X		
100	VCC3	X		
101	VCC3	X		
102	VCC3	X		
103	VCC3	X		
104	VCC3	X		
105	VCC3	X		
106	VCC3	X		
107	VCC3	X		
108	VCC3	X		
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110	VCC3	X		
111	VCC3	X		
112	VCC3	X		
113	VCC3	X		
114	VCC3	X		
115	VCC3	X		
116	VCC3	X		
117	VCC3	X		
118	VCC3	X		
119	VCC3	X		
120	VCC3	X		
121	VCC3	X		
122	VCC3	X		
123	VCC3	X		
124	VCC3	X		
125	VCC3	X		
126	VCC3	X		

DIMM2		VCC_DDR	
DATA_A0	2	55	51
DATA_A1	4	16	56
DATA_A2	9	18	72
DATA_A3	10	19	73
DATA_A4	122	NC	74
DATA_A5	123	NC	75
DATA_A6	128	NC	76
DATA_A7	129	NC	77
DATA_A8	129	NC	78
DATA_A9	13	NC	79
DATA_A10	21	NC	80
DATA_A11	22	NC	81
DATA_A12	131	NC	82
DATA_A13	132	NC	83
DATA_A14	140	NC	84
DATA_A15	141	NC	85
DATA_A16	24	NC	86
DATA_A17	25	NC	87
DATA_A18	30	NC	88
DATA_A19	31	NC	89
DATA_A20	143	NC	90
DATA_A21	144	NC	91
DATA_A22	149	NC	92
DATA_A23	150	NC	93
DATA_A24	33	NC	94
DATA_A25	34	NC	95
DATA_A26	39	NC	96
DATA_A27	40	NC	97
DATA_A28	152	NC	98
DATA_A29	153	NC	99
DATA_A30	158	NC	100
DATA_A31	159	NC	101
DATA_A32	80	NC	102
DATA_A33	81	NC	103
DATA_A34	86	NC	104
DATA_A35	87	NC	105
DATA_A36	199	NC	106
DATA_A37	200	NC	107
DATA_A38	205	NC	108
DATA_A39	206	NC	109
DATA_A40	89	NC	110
DATA_A41	90	NC	111
DATA_A42	95	NC	112
DATA_A43	96	NC	113
DATA_A44	208	NC	114
DATA_A45	209	NC	115
DATA_A46	214	NC	116
DATA_A47	215	NC	117
DATA_A48	98	NC	118
DATA_A49	99	NC	119
DATA_A50	107	NC	120
DATA_A51	108	NC	121
DATA_A52	217	NC	122
DATA_A53	218	NC	123
DATA_A54	226	NC	124
DATA_A55	227	NC	125
DATA_A56	110	NC	126
DATA_A57	111	NC	127
DATA_A58	116	NC	128
DATA_A59	117	NC	129
DATA_A60	229	NC	130
DATA_A61	230	NC	131
DATA_A62	235	NC	132
DATA_A63	236	NC	133
	2		VDD0
	5		VDD1
	8		VDD2
	11		VDD3
	14		VDD4
	17		VDD5
	20		VDD6
	23		VDD7
	26		VDD8
	29		VDD9
	32		VDD10
	35		VDD11
	38		VDD12
	41		VDD13
	44		VDD14
	47		VDD15
	50		VDD16
	53		VDD17
	56		VDD18
	59		VDD19
	62		VDD20
	65		VDD21
	68		VDD22
	71		VDD23
	74		VDD24
	77		VDD25
	80		VDD26
	83		VDD27
	86		VDD28
	89		VDD29
	92		VDD30
	95		VDD31
	98		VDD32
	101		VDD33
	104		VDD34
	107		VDD35
	110		VDD36
	113		VDD37
	116		VDD38
	119		VDD39
	122		VDD40
	125		VDD41
	128		VDD42
	131		VDD43
	134		VDD44
	137		VDD45
	140		VDD46
	143		VDD47
	146		VDD48
	149		VDD49
	152		VDD50
	155		VDD51
	158		VDD52
	161		VDD53
	164		VDD54
	167		VDD55
	170		VDD56
	173		VDD57
	176		VDD58
	179		VDD59
	182		VDD60
	185		VDD61
	188		VDD62
	191		VDD63

 <b>MSI</b> <i>Link to the Future</i>					<b>MICRO-START INT'L CO.,LTD.</b>				
Title									
<b>DIMM1 DIMM2</b>									
Size		Document Number						Rev	
		<b>MS-7402</b>						<b>11</b>	
Date		Wednesday November 28 2007				Sheet		14 of 31	

[illegible]

**DIMM1/DIMM2 VDD to VTT decoupling**

Place near ADDR/CTRL traces

**DIMM1/DIMM2 VTT decoupling**

**DIMM1 decoupling**

**DIMM2 decoupling**

**Terminator**

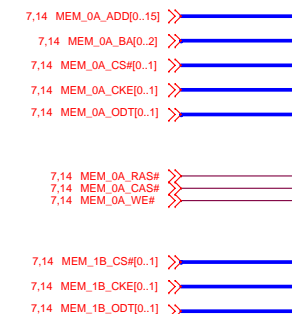
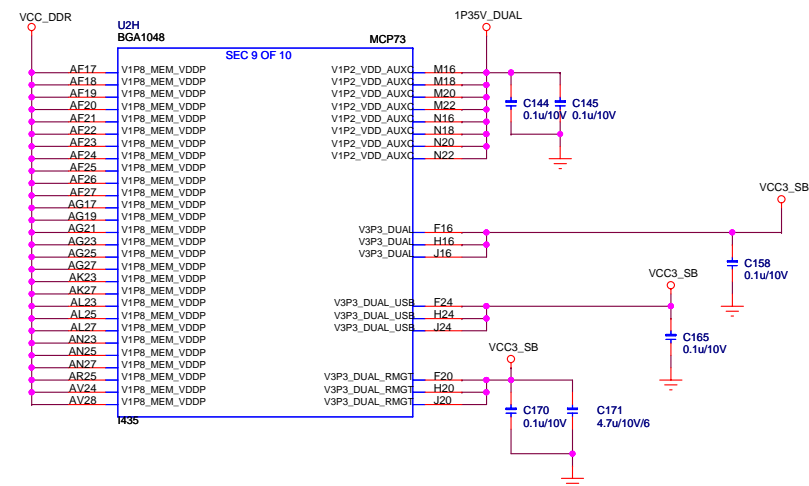
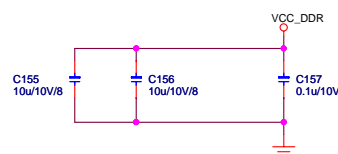
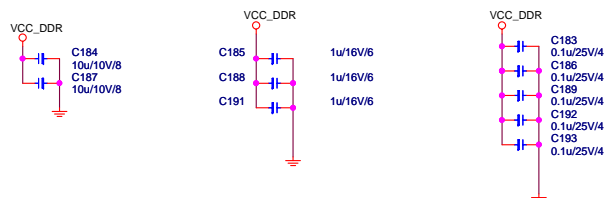
**VTT\_DDR**

**VCC\_DDR**

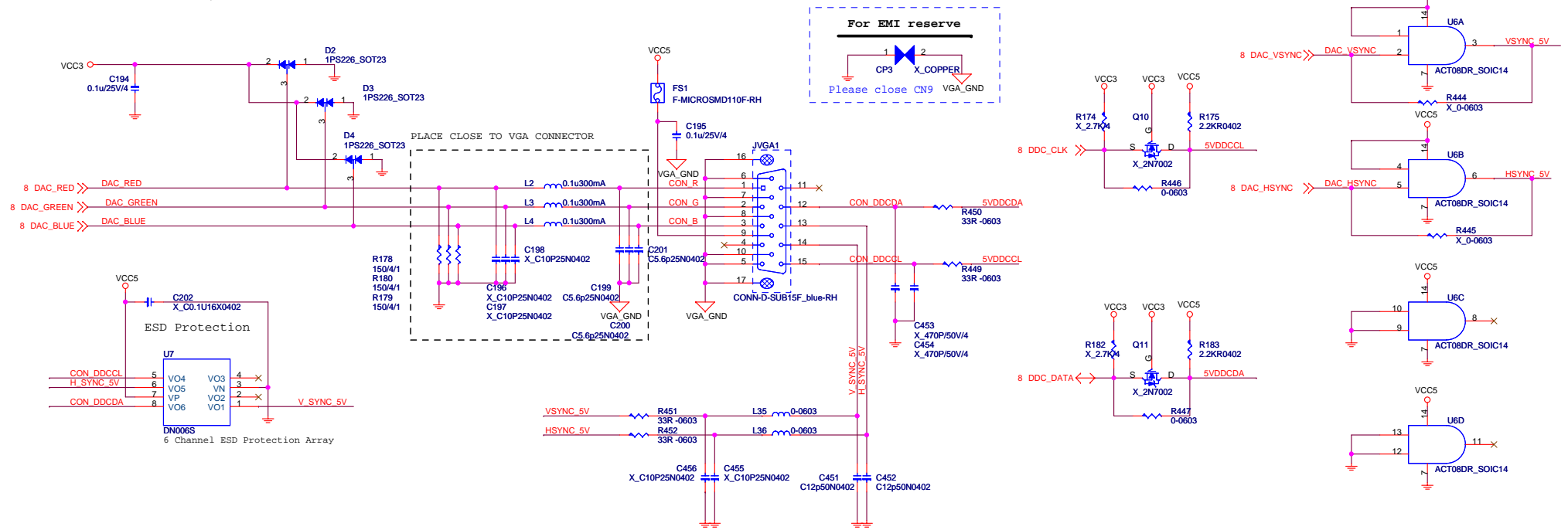
**U2H BGA1048**

**MCP73**

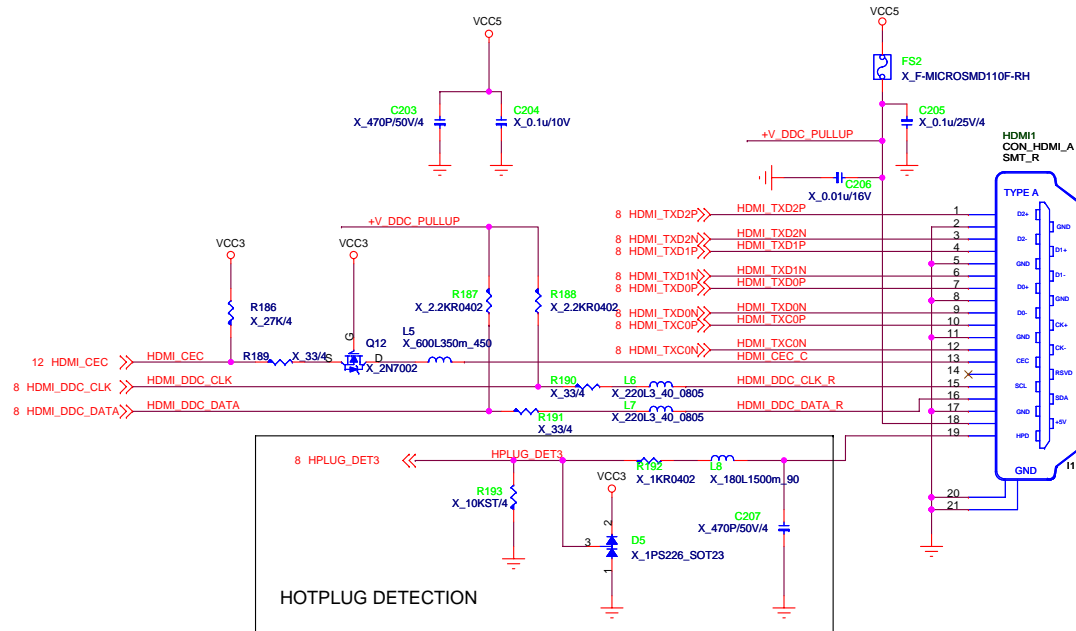
**SEC 9 OF 10**

[illegible][illegible]

## Video Connector

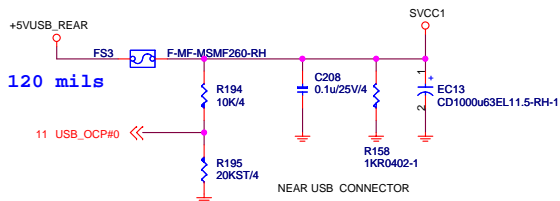


## HDMI Connector

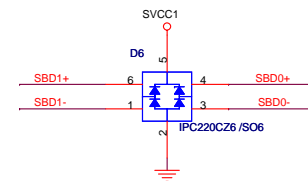




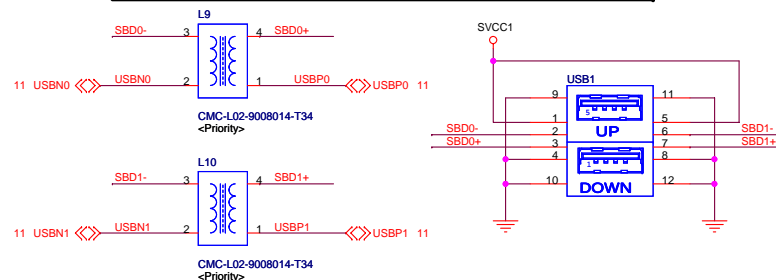
## POWER CIRCUIT FOR USB PORT 0,1



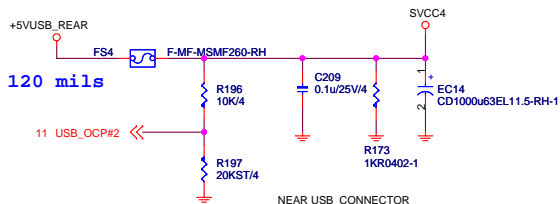
## ESD Protection



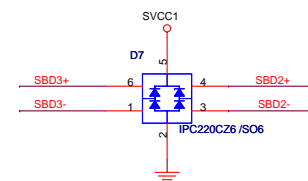
## REAR PANEL USB CONNECTOR FOR USB PORT 0,1



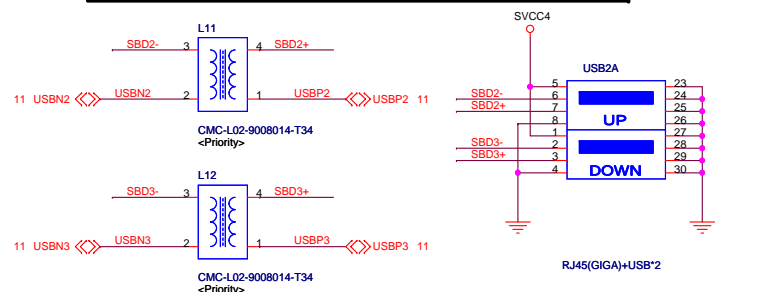
## POWER CIRCUIT FOR USB PORT 4,5



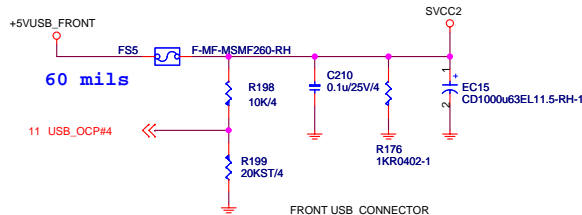
## ESD Protection



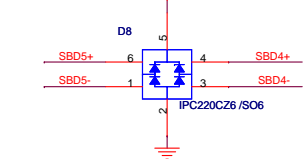
## REAR PANEL USB CONNECTOR FOR USB PORT 4,5



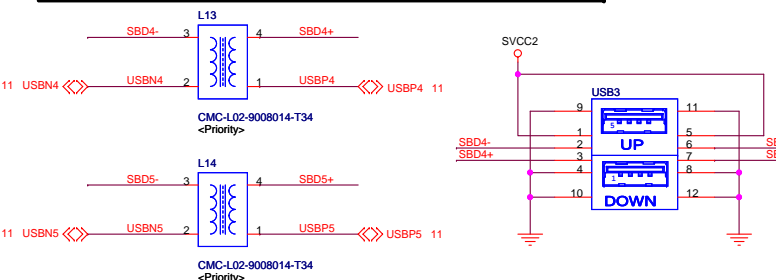
## POWER CIRCUIT FOR USB PORT 6,7



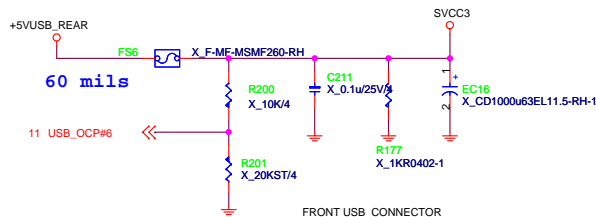
## ESD Protection



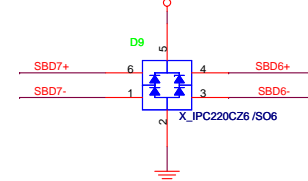
## FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



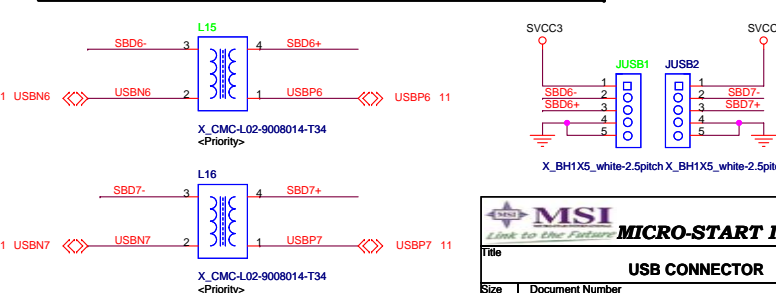
## POWER CIRCUIT FOR USB PORT 2,3



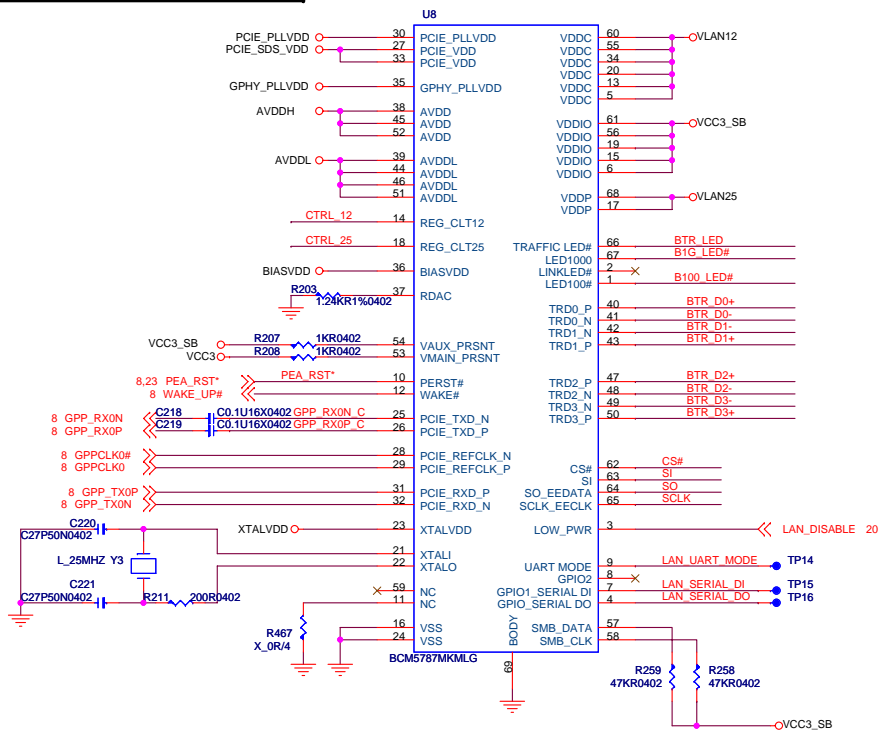
## ESD Protection



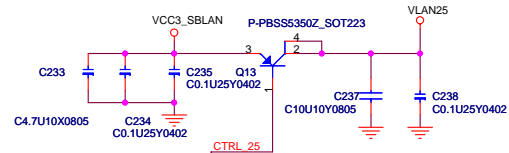
## Memory card reader USB CONNECTOR FOR USB PORT 2,3



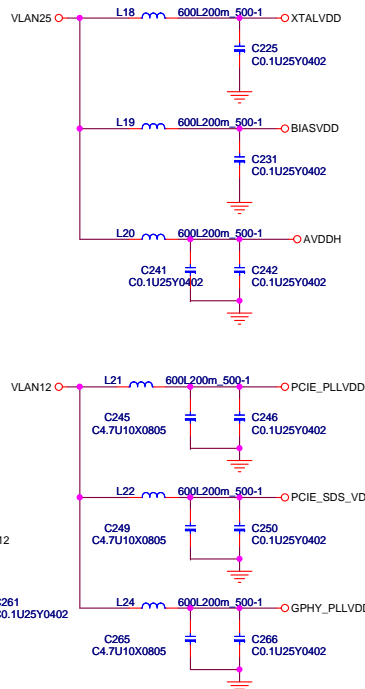
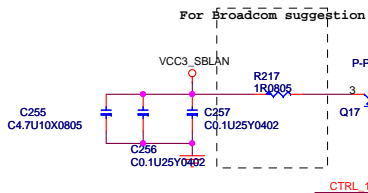
# BCM5787M LAN CHIP



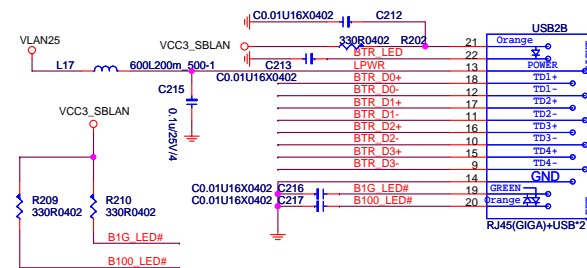
**LAN 2.5 POWER**  
( 235mA )



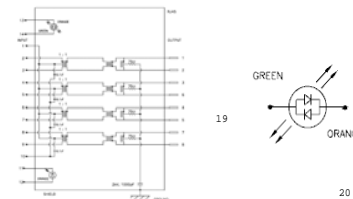
## LAN 1.2 POWER



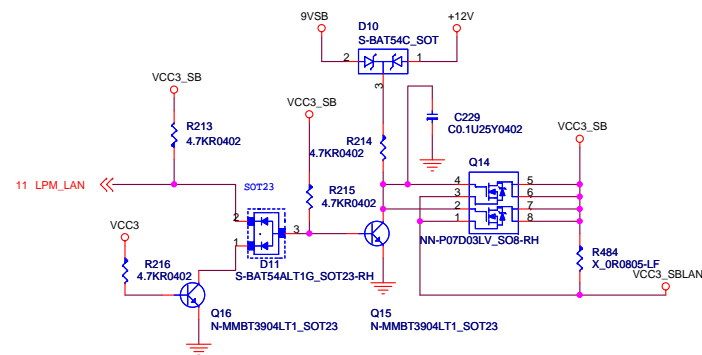
## LAN Connector



## USB1 structure

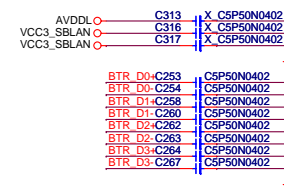


## Power control for power consumption

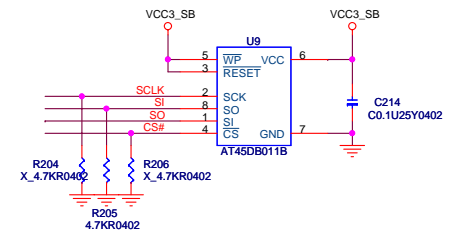


### EMI SUGGESTION

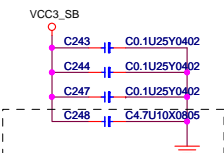
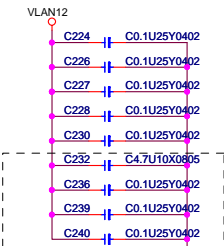
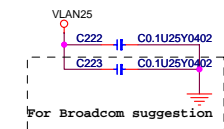
## EMI SUGGESTION



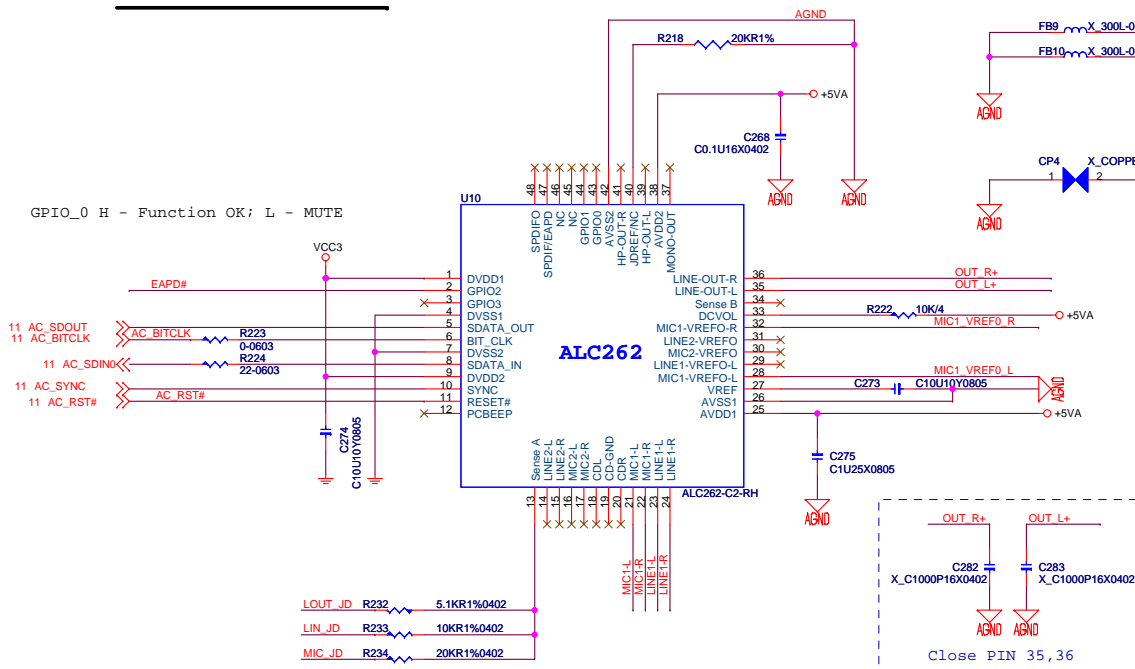
## LAN EEPROM



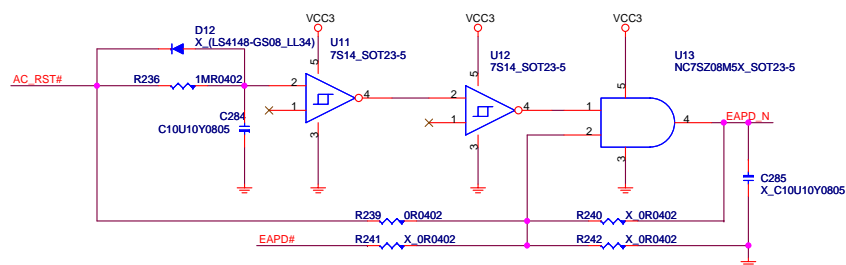
## Bypass CAPs



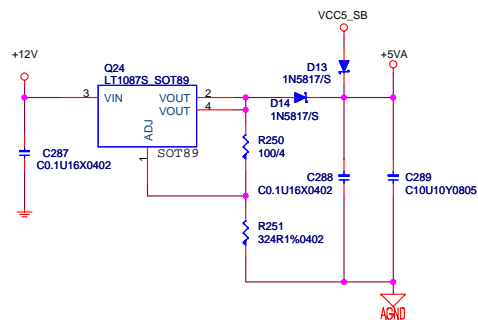
## Reltek HD ALC262



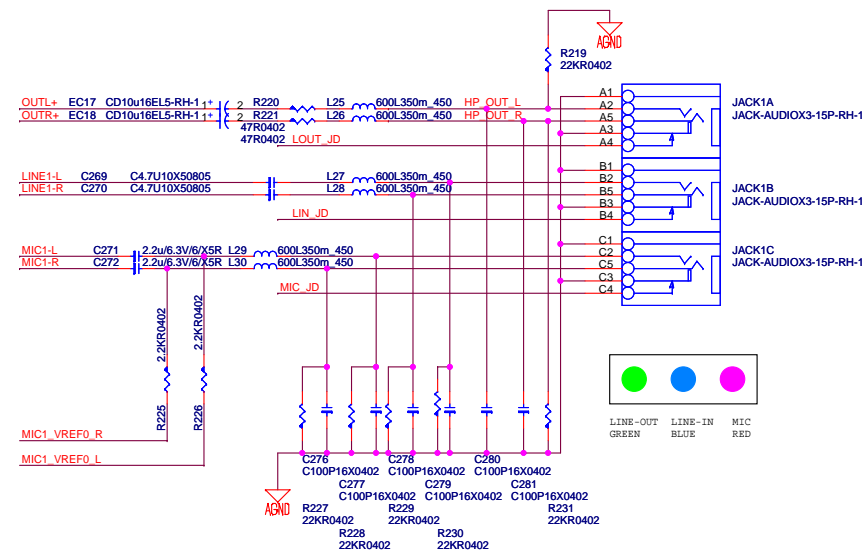
### POP noise circuit



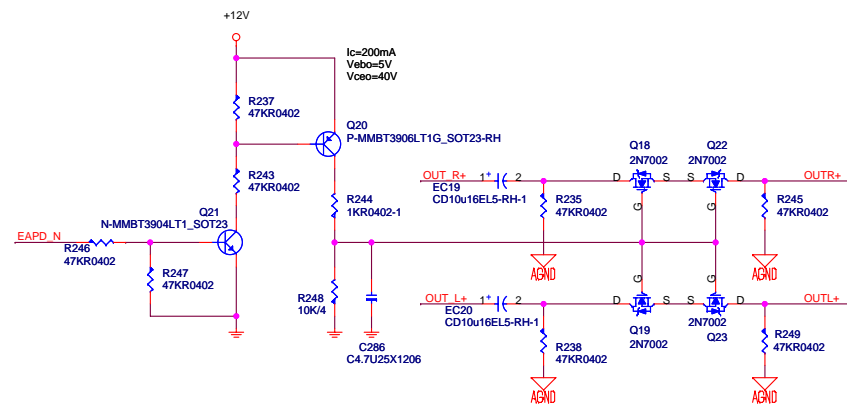
## AUDIO CODE REGULATORS

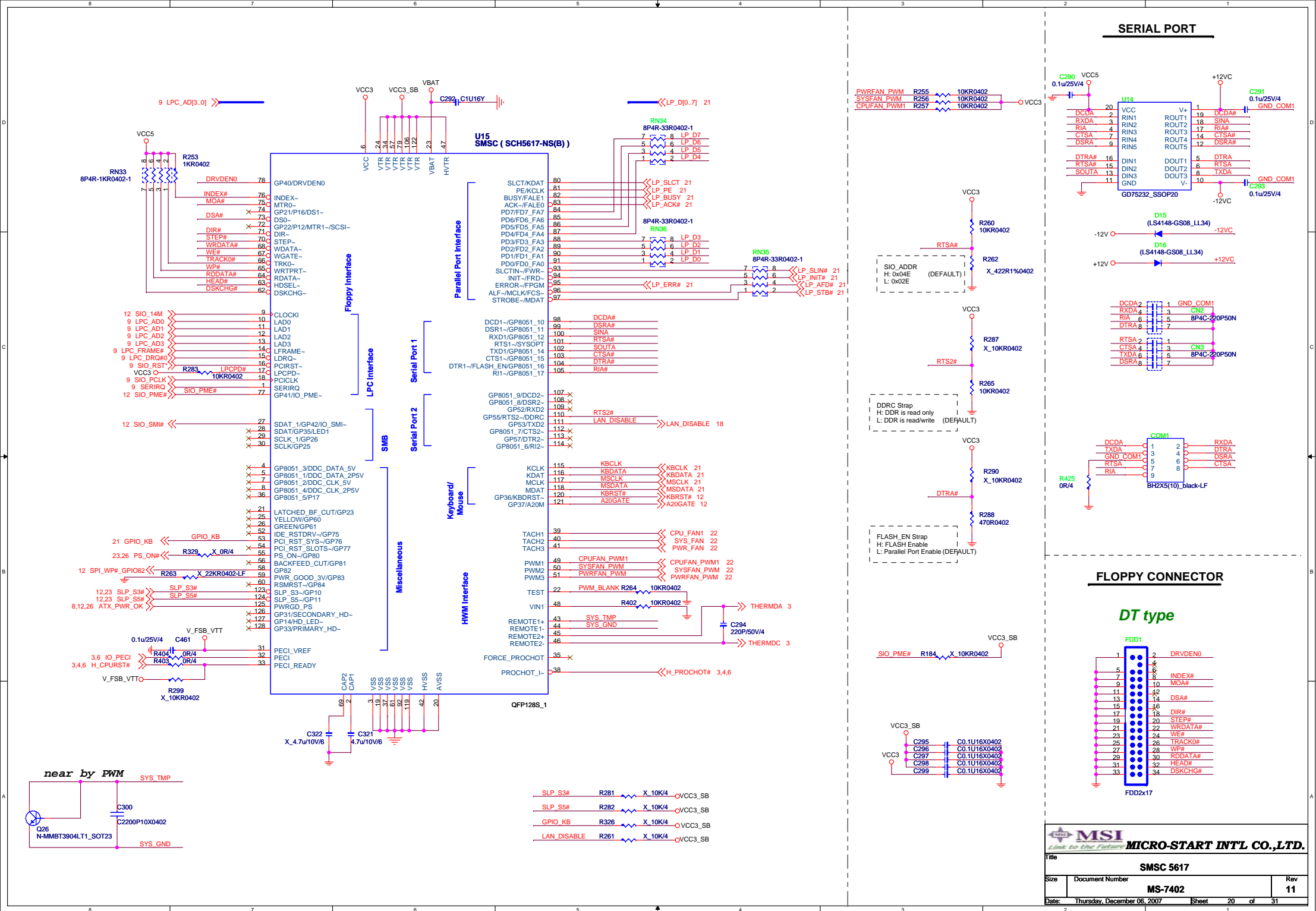


PHONE JACK.

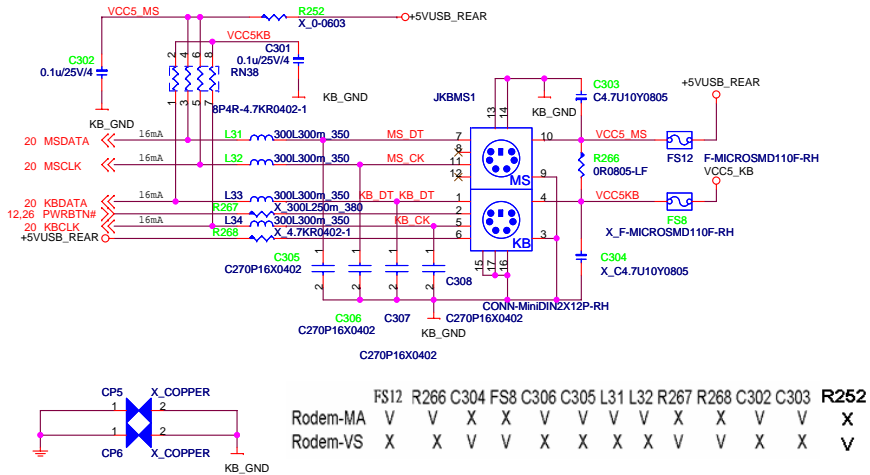


### Smooth pop noise circuit for Line-out

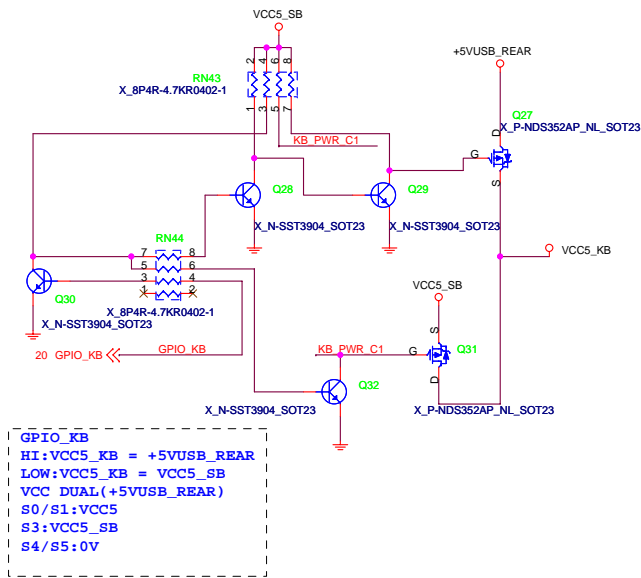




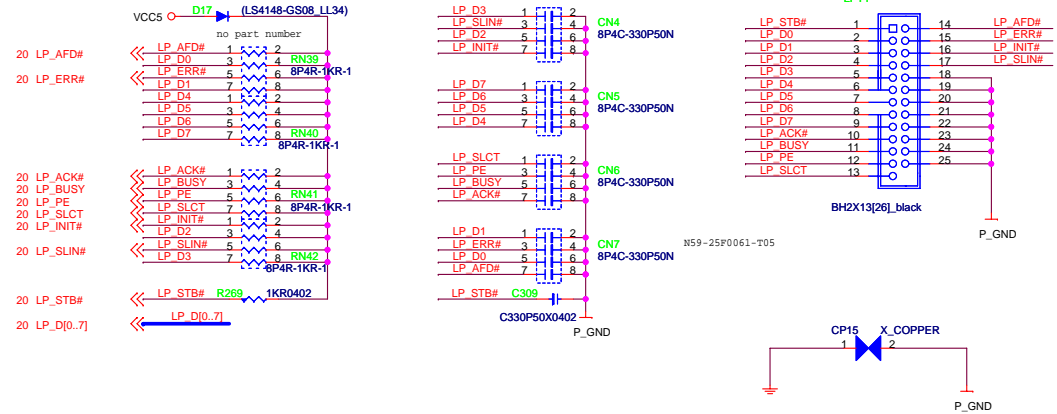
## PS2 KEYBOARD & MOUSE CONNECTOR



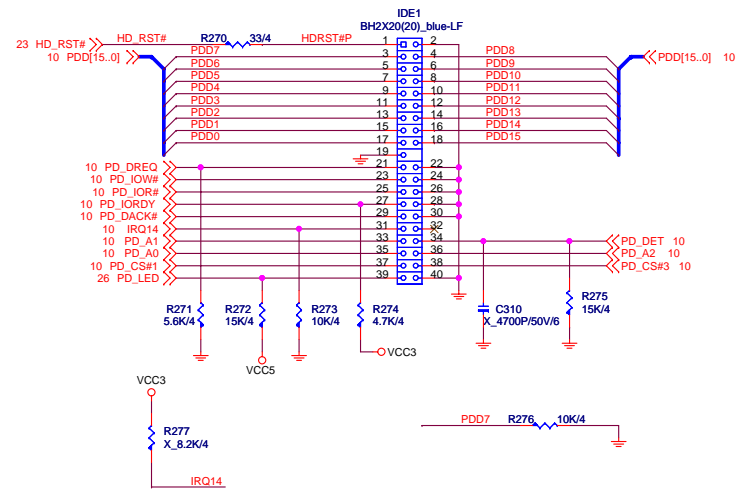
### K/B Power supply function for Rodem-VS



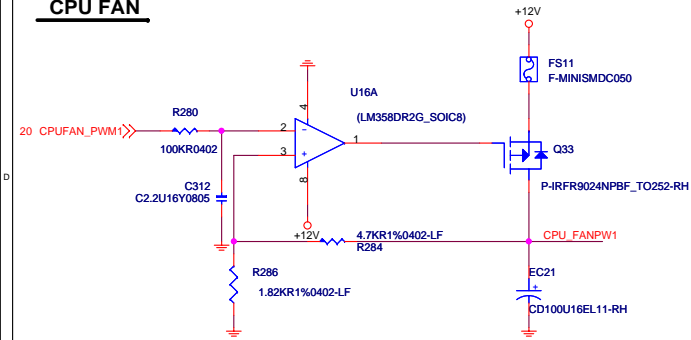
## PARALLAL PORT



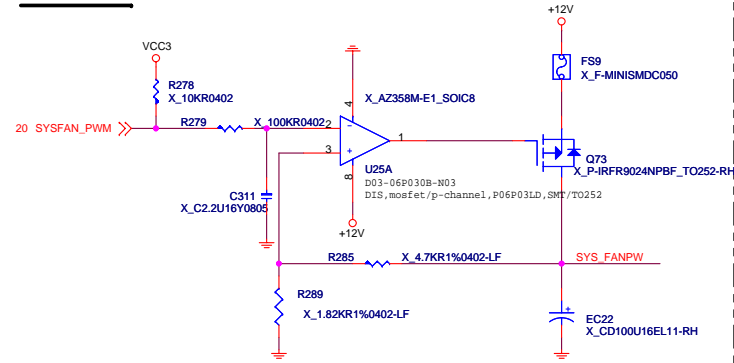
IDE connector



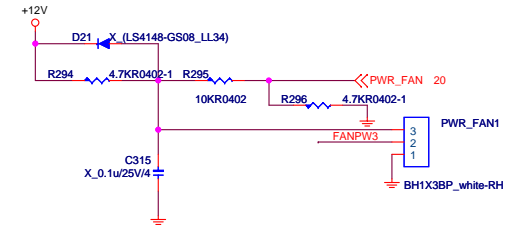
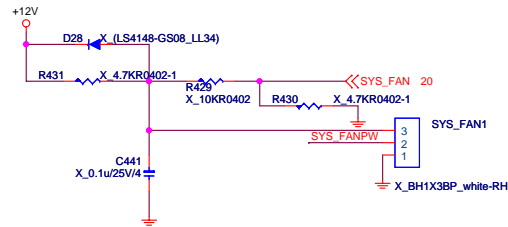
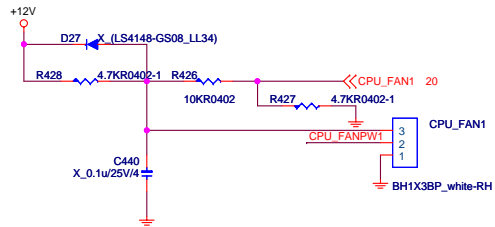
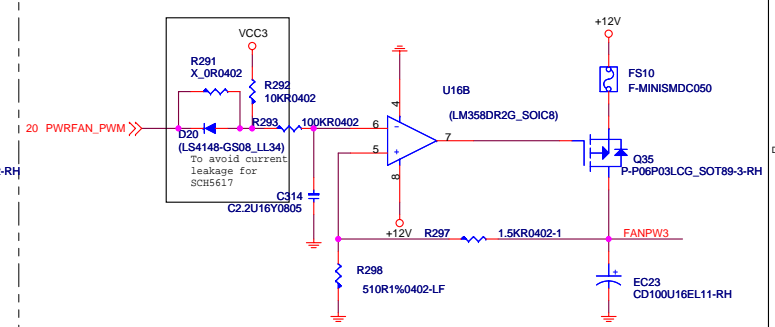
## CPU FAN



## SYS FAN



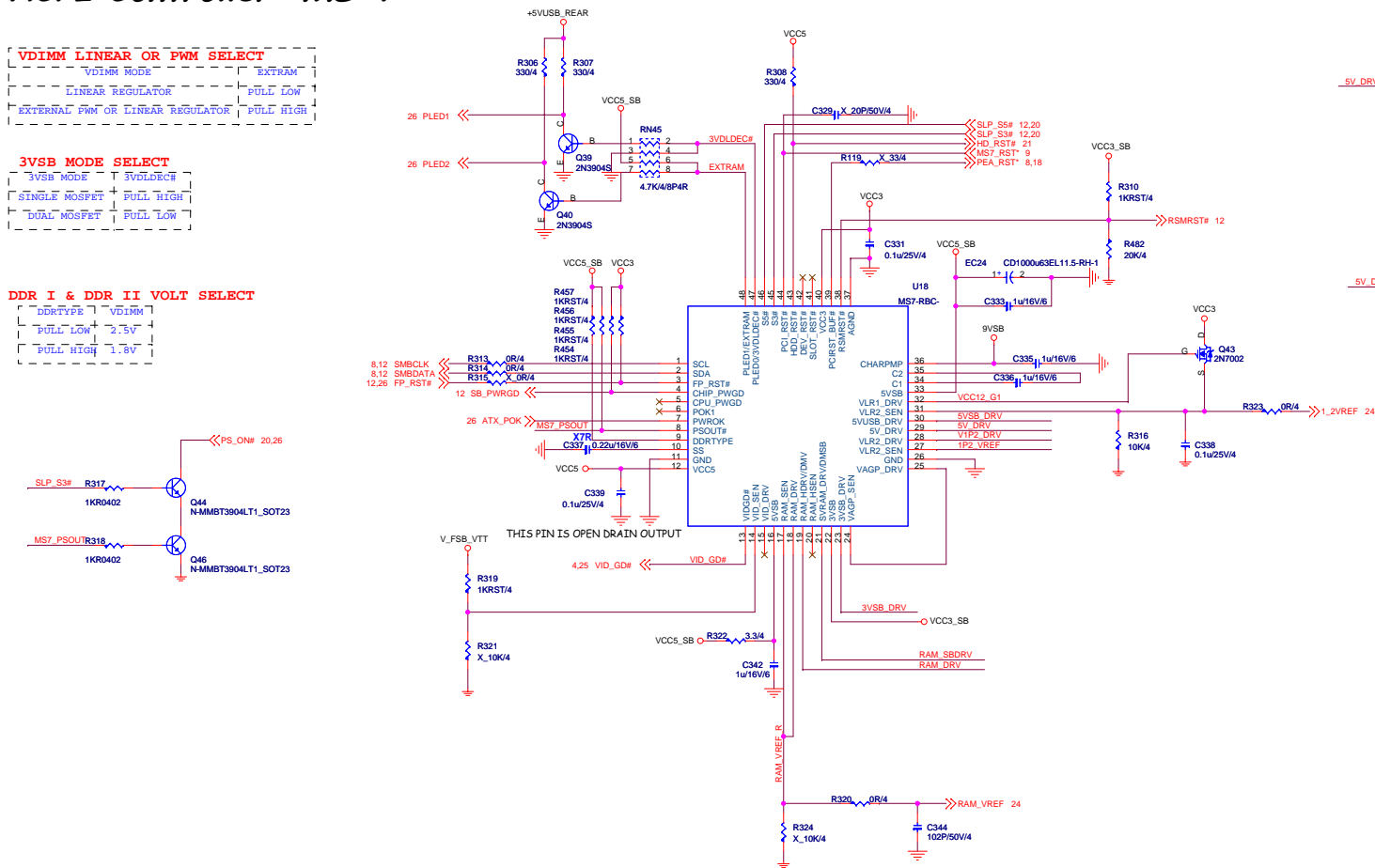
## PWR FAN

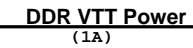
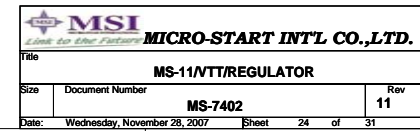


VDIMM LINEAR OR PWM SELECT	
VDIMM MODE	EXTRAM
LINEAR REGULATOR	PULL LOW
EXTERNAL PWM OR LINEAR REGULATOR	PULL HIGH

3VSB MODE	3VDLDEC#
SINGLE MOSFET	PULL HIGH
DUAL MOSFET	PULL LOW

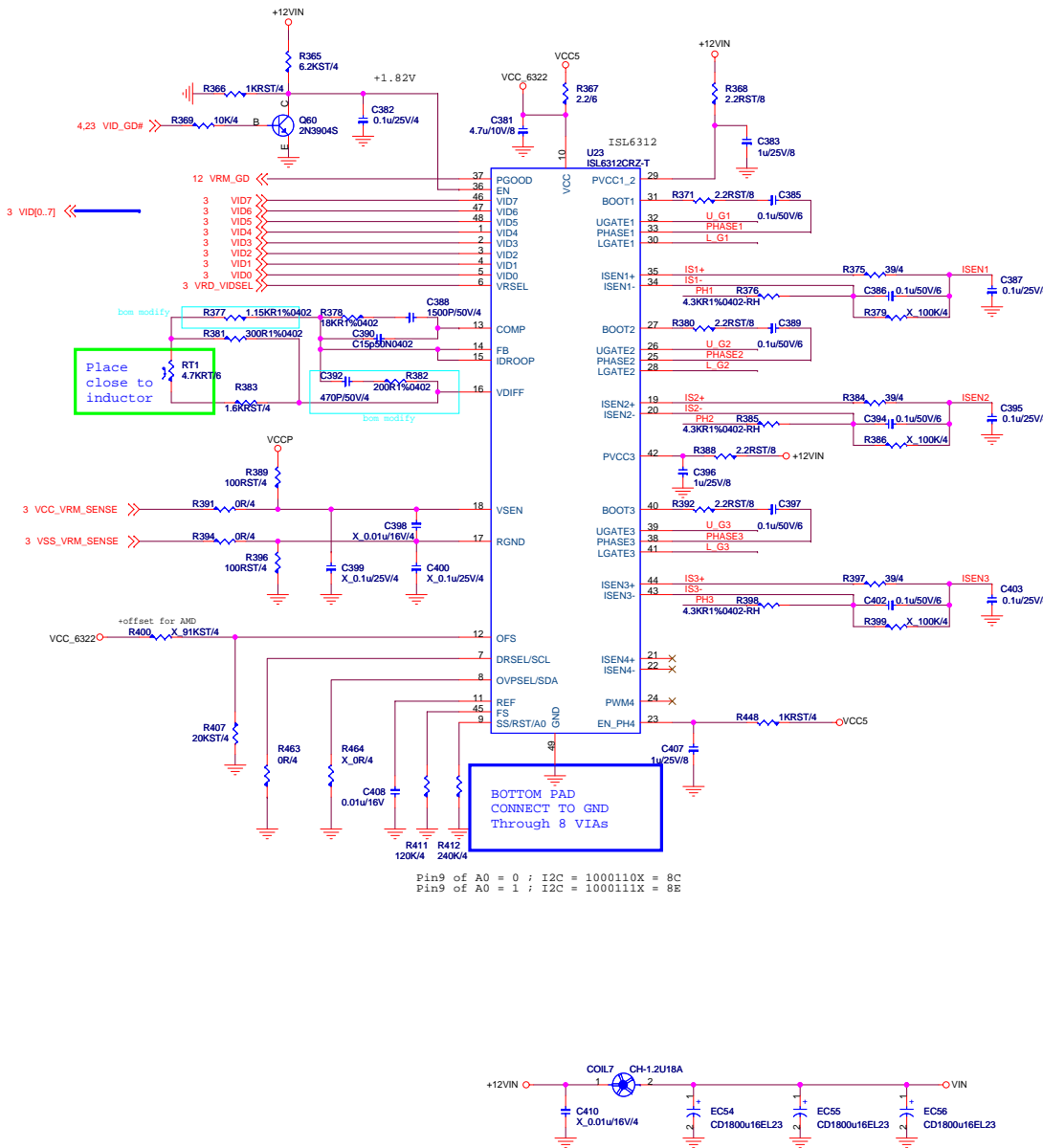
DDRTYPE	VDIMM
PULL LOW	2.5V
PULL HIGH	1.8V

[illegible][illegible]

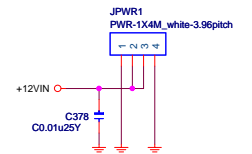
$$(15A) > 14.885A$$

$$(20A) > 13.2A$$




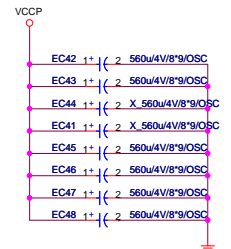
# Voltage Regular Module



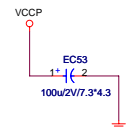
## ATX12V Power Connector



## OS-CON Capacitors



## SP Capacitors



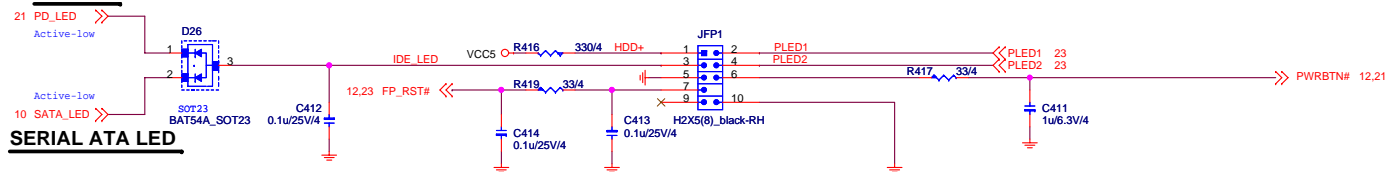
TPD:06B

CP25,CP26,CP27,CP28 PLACE ON THE SOLDER SIDE, CLOSE TO INDUCTOR

# ATX connector / Front Panel

## Front Panel

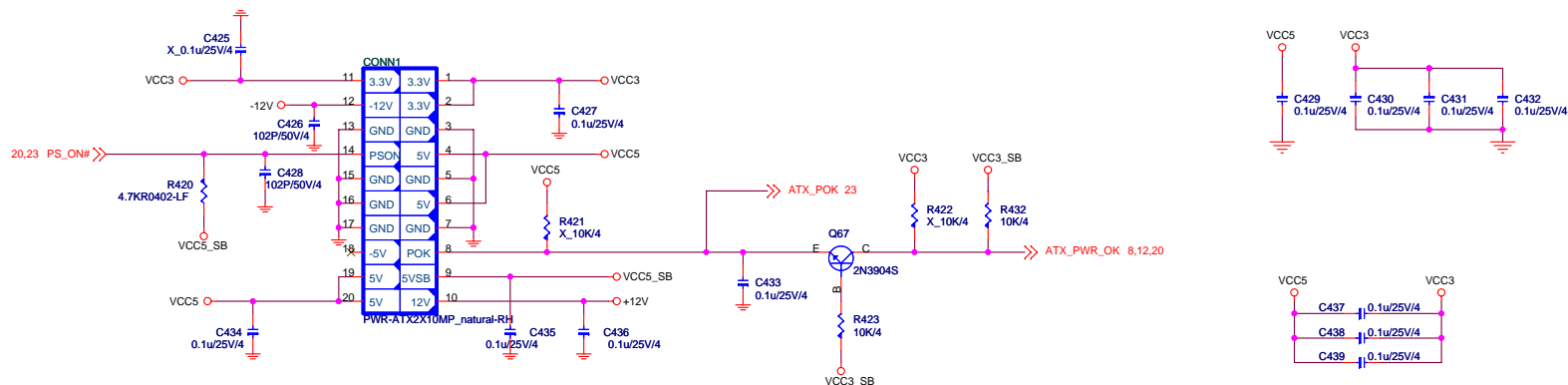
### IDE LED



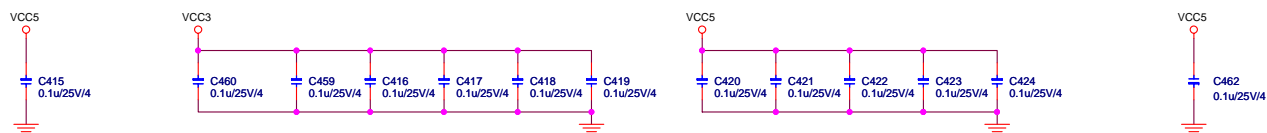
ME switch cable color  
dification

Switch+	white
Switch-	black
PLED1(+)	blue
PLED1(-)	green
HD(+)	yellow
HD(-)	brown

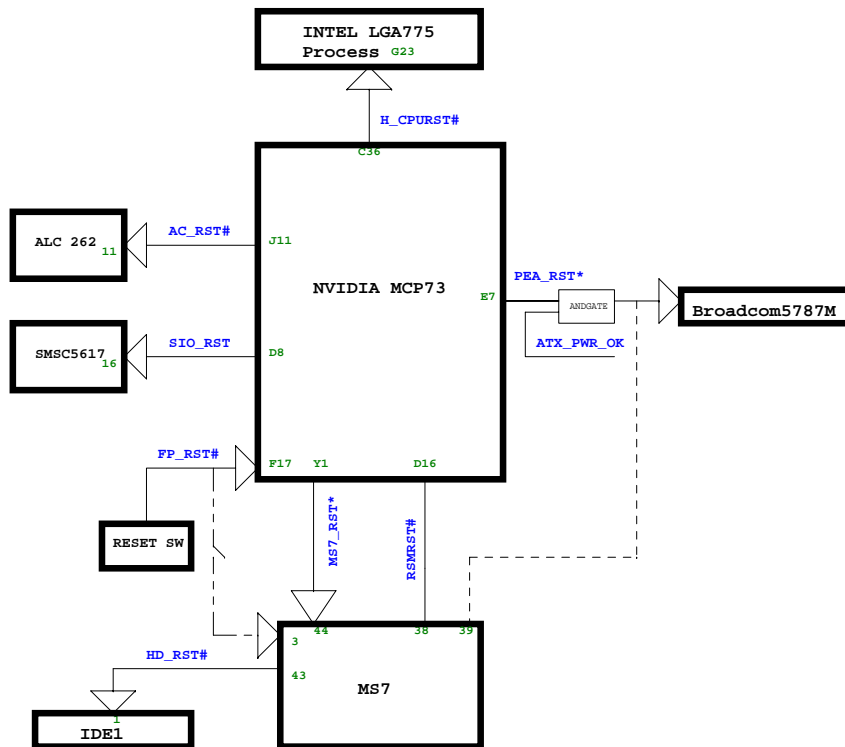
## ATX Connector



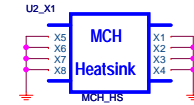
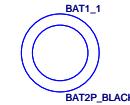
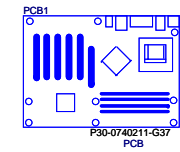
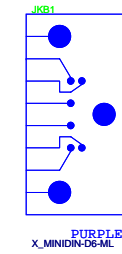
## For EMI reserve



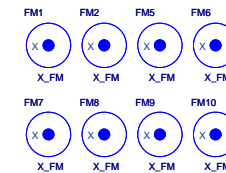
## RESET MAP



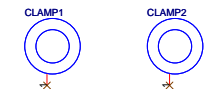
## MANUAL PARTS



### Optics Orientation Holes



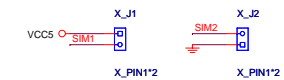
For power cable holder and FP:  
HOLES315D189



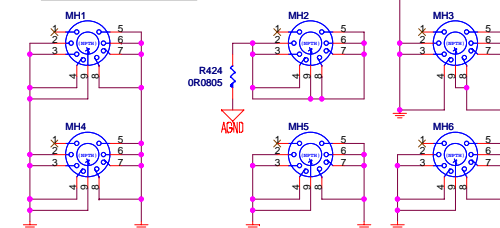
### Jumper setting



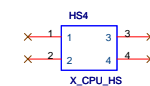
### Simulation



### Mounting Holes

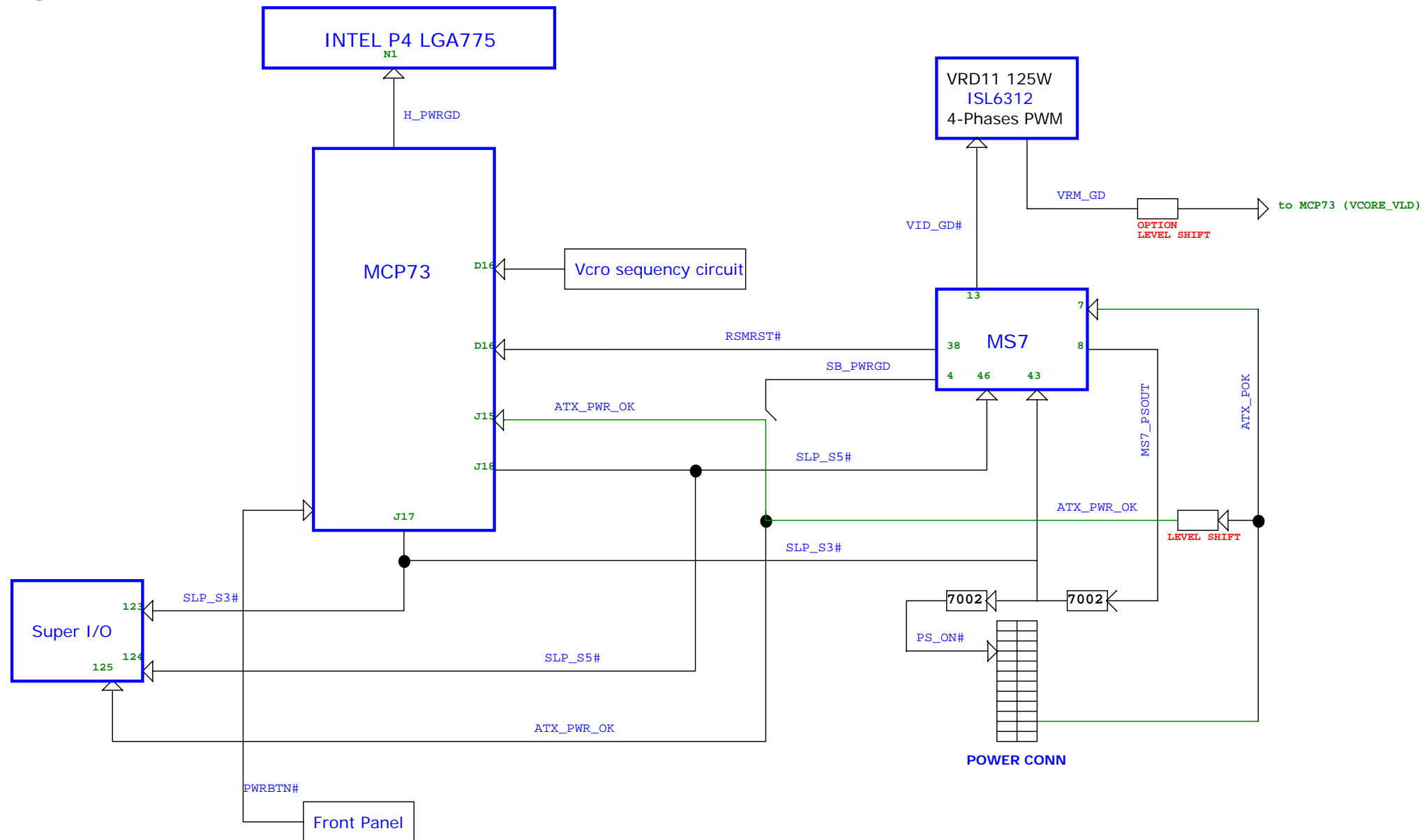


### CPU Cooling Holes



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Size			
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Rev 11			
MS-7402			

# 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	pull_up to 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_DRQ#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	NC		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 SCH5617


PIN NAME	PIN#	USAGE	Input/Output
GP57	113	GPIO_KB	OUTPUT
GP42	27	SIO_SMI#	OUTPUT
GP41	77	SIO_PME#	OUTPUT
GP82	58	SPI_WP#_GPIO82	OUTPUT

SMBus DISTRIBUTION

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

JUMPER SETTING

<b>JBAT1</b>	(1-2)Normal	(2-3)Clear
<b>JCP1</b>	(1-2 ) open clear	(1-2)short normal
<b>JCMOS</b>	(1-2 ) Normal	(2-3 ) Clear



**MICRO-START INT'L CO.,LTD.**

Title		
GPIO & JUMPER SETTING		
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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

3V  
Battery

5VAudio  
+5VR  
500mA

+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

3VDUAL  
3.3V Linear 1.5A

5VUSB\_REAR/FRONT  
5V Linear 2A / 2A  
5VSB 500mA

5VDIMM  
5V 11.24A  
5VSB 700mA

LT1087  
1P35V\_DUAL  
Linear 300mA

LT1087  
CPU\_VCC\_PLL  
3.3V Linear 200mA

MS11 Regulator  
VCC1\_35  
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(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

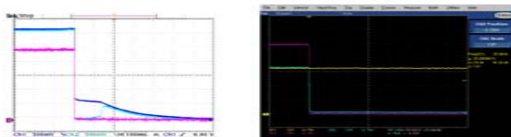
SIO		
3VDUAL	-	10mA

0A====>0B 2007.06.14

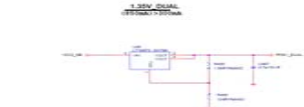
- 1.change super I/O from SMSC5017 to SMSC5617(for future CPU have support PECI)
- 2.del ALARM signal(page11)(SMSC5617 limitation)
- 3.del R135 & signal SUSCLK(page12)(SMSC5617 limitation)
- 4.del signal HWM\_INT and rename to GPIO7(page12)(SMSC5617 limitation)
- 5.SPI WP# change to SPI\_WP#\_GPIO82(page12)(for spi rom hardware write protect)
- 6.BOM R43 62ohm change to 200ohm(nvidia checklist v05 request)
- 7.BOM R69,R70,R73,R75 33ohm change to 0ohm & R71,R72,R74,R76 unmount(nvidia checklist v05 request)
- 8.change U21 library to N-SOP8L\_150PAD90 (for solder issue)
- 9.JCMOS reverse 180 degree (for mechanical request)
- 10.CLEAR PASSWORD connect to MCP73's pin:B16 intruder#
- 11.del CP2 & add C462,modify CP16&CP17 GND to GND for EMI
- 12.HS4 change to dummy net
- 13.BOM BAT1\_1 change to N91-01F0151-L06(BOM error)
- 14.BOM H4 change to E24-6406200-K23(BOM error)
- 15.BOM FS9 remove(BOM redundant)
- 16.BOM R465 change to 1K ohm & R350 unmount (1.35V modify to 1.2V for mcp73 ver:A01 bug)
- 17.BOM del R487,R148 & add R142 (for cancel hardware spi protect function)
- 18.VS-BOM del SCREW L&2 (for nec req.)
- 19.BOM SPI ROM change to 8Mb (for bios code over 4Mb)
- 20.BOM R36 change to 0402, CLAMP change to level 60,R466 change to 2K,R112&R113 mount 10K(for BOM error)
- 21.BOM super i/o 5617 change part number to B02-0561704-S32

0B====>0C 2007.8.23

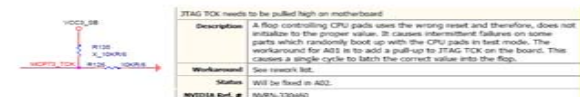
- 1.Remove R41,already internal pull-high.
- 2.Change R423 and R422 connect to VCC3\_SB,remove R421.



3. Change 1.35V\_DUAL power solution, the current only 300mA,so,just to use1087 is already enough.



- 4.Reserve pull-high JTAG\_TCK,NVIDIA ERRATA.



- 5.EC28 change to 1000uF (LESR=31m ohm) to improve FSB VTT and VCC DDR power.
- 6.Change FS11,FS10 poly-fuse to 0.5A.0.5A is enough to meet cooling FAN spec.
- 7.Change V3P3\_HDMI\_PLL(B30 pin) to VCC3 directly, NV suggestion.
- 8.Add a 0.1uF cap at MCP73 ball AT2 (VCC3 to GND) and refer to NV new design guide, change IDE second layout to GND.
- 9.Remove R112 resistor, we don't have MII RGMII function.



- 10.Chane 14MHz.24MHz strap pin, remove R112risistor and pull down R155.



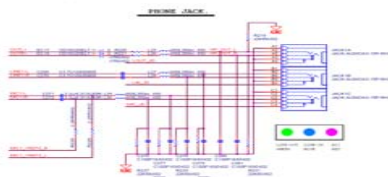
- 11.Delete below circuit, it is surplus ,short MS-17 pin 17,18 to produce RAM\_VREF directly.



- 12.Change MCP73 - 1.5VDUAL Power design, PLL current only 200mA,It use 1087 regulator is enough.



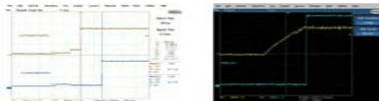
- 13.Follow NEC SPEC, only support one JUSB, change JUSB2 L16 to un-mount.
- 14.USB full-speed signal fail, R120 change to 910 ohm, EC15 change to 1000uF, need to confirm in next version.
15. Modify +5VUSB\_FRONT placement and Change FS3,FS4, FS5,FS6 to 2.6A (low Rs.) to meet voltage drop. (NEC spec 250mV).
- 16.Audio R.L reverse



- 17.Phase VRM solution

R407 →20KR  
R377 →1.15KR  
R381 →300R  
R378 →18KR  
C390 →15pF  
C392 →470pF  
R382 →200R  
R378, 385, 398 →4.3KR  
EC44, 41 →N/C  
EC1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 22uF/X5R

18. Change EC31,EC32,EC37,EC38,EC39 to 820uF
- 19.WP# function · remove R142 ,R487 and R148 mount, guarantee G3 to S5 states is low ,BIOS try to programming WP# pin.
- 20.Un-mount R160,C74,Q6,R161,Q7,R162,mount R159,R146 to follow NV SPEC.



- 1.H/V SYNC rising time over spec ,C451,C452 change to 12pF follow NV Bring\_UP V6  
SPI ROM vendor recommend, change SMT filter cap to EL cap.

- 23.Follow NV MBC ,add pull-high resistor at MCP73 pin C29 (HDCP\_ROM\_SDATA).
- 24.Due to layout factor, change FS6,R306,R307 power source to +5VUSB\_FRONT.
- 25.JUSB1,JUSB2 pin5 connect to GND.
26. Add discharge resistor R158,R173,R176,R177.
27. follow NV Bring UP V6 ,change L2,L3L4to 100nH,C199~C201 change to 5.6PF.
- 28.Remove R44 · already internal pull-up.

1.0====>1.1 2007.11.28

- 1.Change SIO version to B02-0561714-S32
- 2.Follow SMSC suggestion ,change R288 to 470ohm.
- 3.Follow SMSC suggestion ,update R299,C461 R403, connect way for SMSC 5617 B version.
- 4.reserve D18.
- 5.move R4 to close MCP73 and remove it.
- 6.Add Q34.R185 for wolfdal CPU.

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1. Add SIO pin 48(input pin) pull down resistor



- 2.Due to SMSC5617 limitation, add a pull up resistor for Rodem-VS MS can't to setup GPIO issue



- 3.Follow DRD spec, remove JUSB1 circuit for MA,stuff JUSB1 circuit for VS.
- 4.Delete all Mini-PCIE circuit.
- 5.Add back pull-up resistor 200 ohm for H\_PWRGD (MCP73\_Bring\_Up\_Support\_V10)

Amendment to Required Board Level Changes 6-2 : Do not remove the pull up resistor on CPU\_FERR# and CPU\_PWRGD. CPU\_PWRGD needs a 200 ohms pull up resistor to CPU VTT power rail.

6. fine tuning D-sub signal  
change a)L2,L3,L4 to 0.1uH  
b)C199,C200,C201 change to 5.6PF  
c)L35,L36 change to 0ohm
- 7.Due to MCP73 INTRUDER (clear password) pin only accept low active to recorder states, so add a inverter circuit to solve it.

Clear password



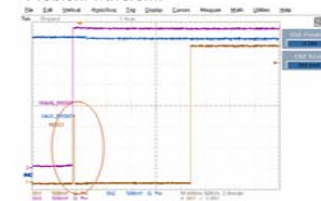
- 8.Add back LAN power control circuit to reduce power consumption

Power control for power consumption



- 9.Add R316 to improve VCC1\_35 ripple current.
- 10.Change PEA\_RST to MS7 PCI\_RST for WOL can not wake up issue.
- 1)remove R84
- 2)add R119 between PEA\_RST and MS7 pin39

Problem waveform



- 11.Delete R212 ,R133, BUFO\_25MHZ, it is no use.
- 12.Delete R82 and short with VCC1\_35 directly.
- 13.Delete C62,no use.
- 14 Add C359,C373 6.8pF to improve VCC1\_35,VCC\_DDR dynamic voltage.
- 15.Remove SMBUS of SIO.
- 16.Follow SMSC new datasheet, remove C323
- 17.Reserve SIO PME pull-up
- 19.Delete C63 ,doesn't use.
- 20.Delete D23, doesn't use.
- 21.Add C190 to improve ripple current.
22. Remove Jump 2.0mm location:JSP11
- 23.Change FSB\_POWER source to 1.35V
- 24.Reserve FRONT USB pin header

- 25.Add C58 for Beep issue

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HISTORY		
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