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MS-7399

Version 1.1

CPU:

Intel Prescott (L2=2MB)
Intel Cendar Mill (65nm)
Intel Smithfield (90nm Dual core)
Intel Presler (65nm Dual core)
Intel Conroe (65nm Dual core)
Intel Kentsfield
Intel Yorkfield
Intel Wolfdale

System Chipset:

nVidia - MCP73PV/S

On Board Chipset:

BIOS -- SPI FLASH 4Mb
Azalia CODEC(ALC 888S)
LPC Super I/O -- ITE8718F
LAN-Realtek RTL8211BL
IEEE1394 -- VIA VT6308P

Main Memory:

DDR II * 2 (Max 2GB)

Expansion Slots:

PCI Express X16 SLOT * 1
PCI Express X1 SLOT * 1
PCI 2.3 SLOT * 2

Intersil PWM:

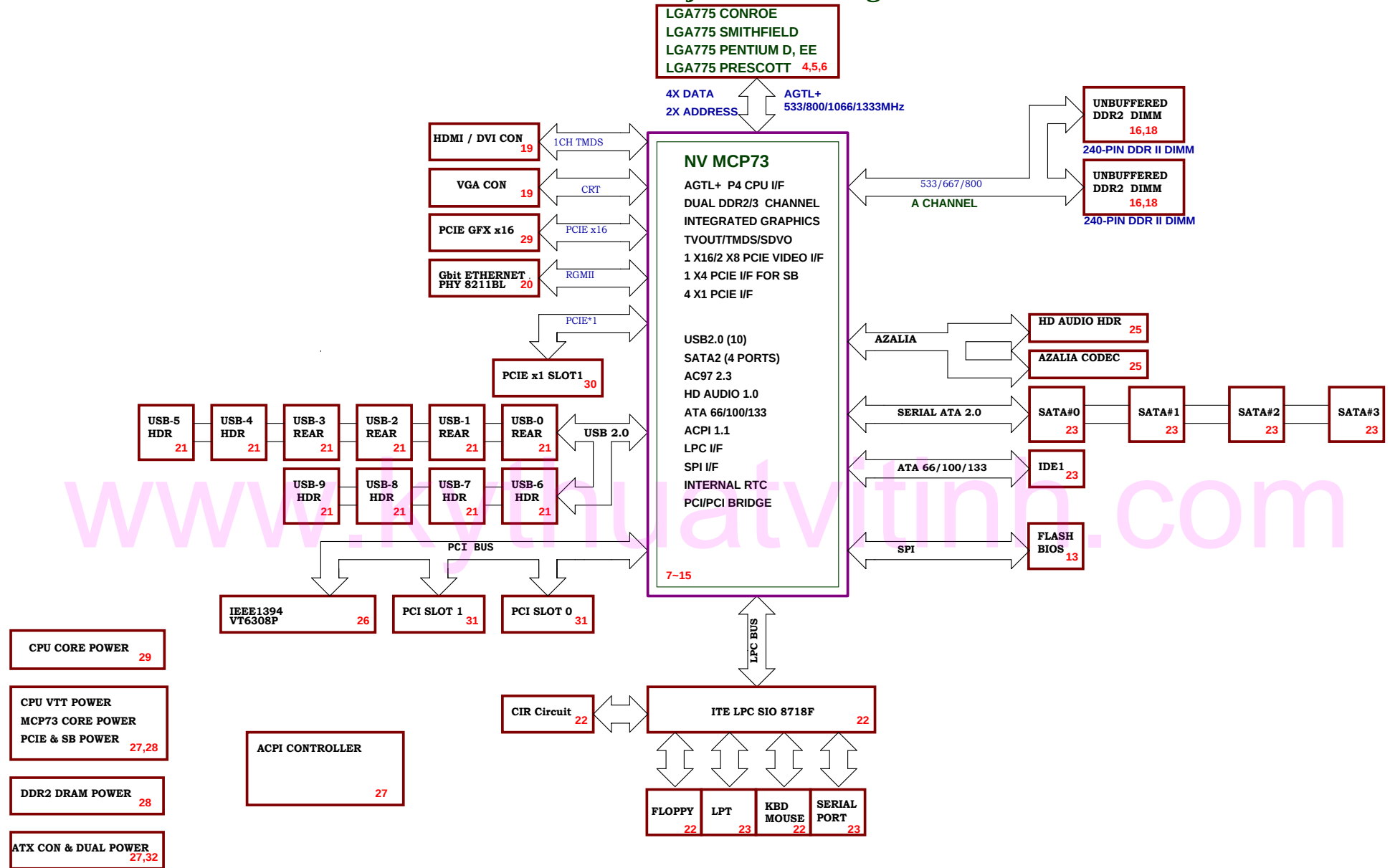
Controller: Intersil 6312 3 Phase



Persian Project

Aspire M5640/M3640
HDMI + 1394

acer Persian Project Block Diagram



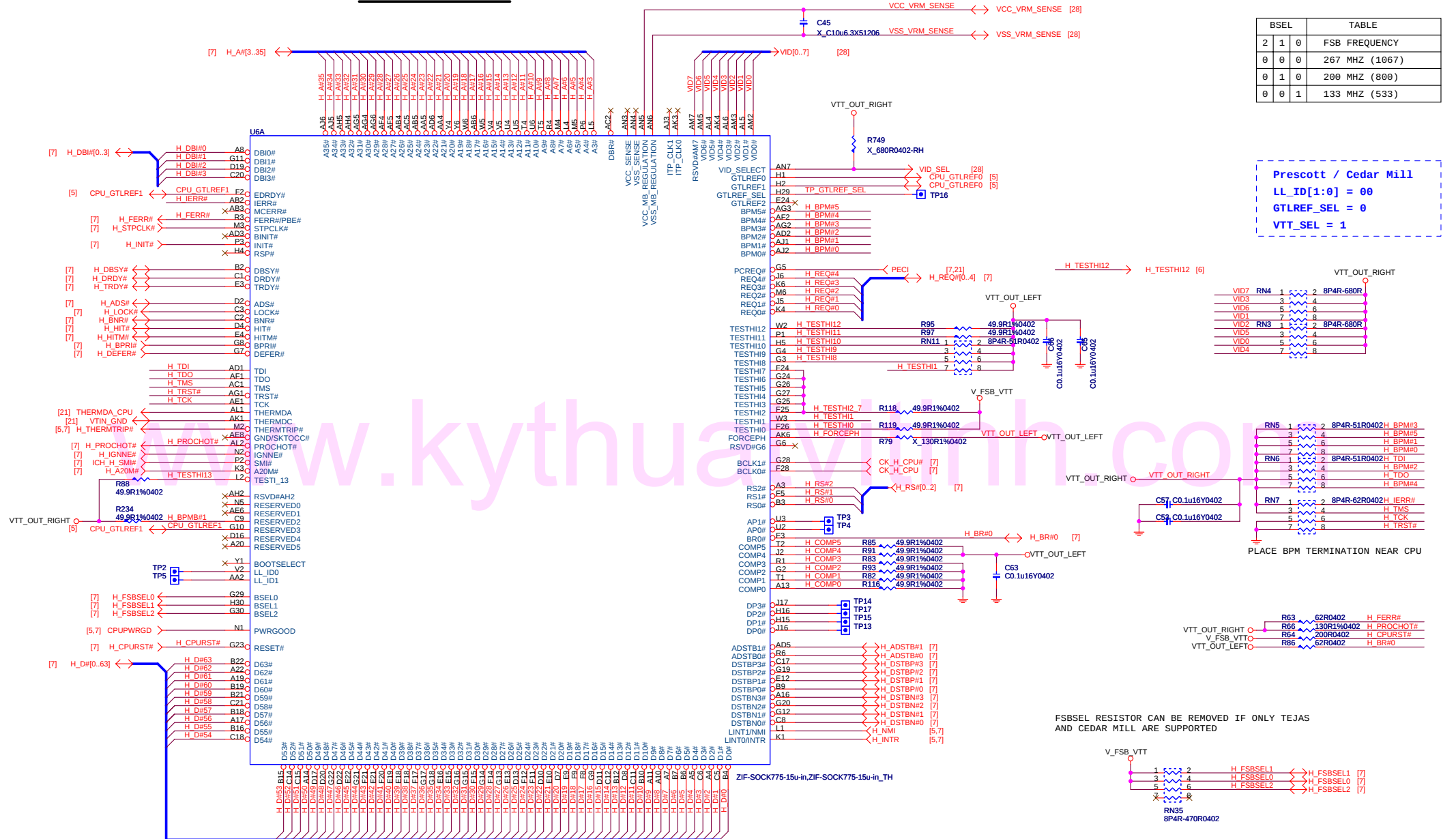
MCP73 GPIO Config.

GPIO Pin	Type	Primary State
GPIO_2/NMI/PS2_CLK0	I/O(S5_3.3V)	TMDS_DET1
GPIO_3/SMI#/PS2_DATA0	I/O(S5_3.3V)	TMDS_DET2
GPIO_4/SCI/INTR/PS2_CLK1	I/O(S5_3.3V)	Unused
GPIO_5/INIT#/PS2_DATA1	I/O(S5_3.3V)	OB1
GPIO_6/FERR#/SYS_SERR#/IGPU_GPIO6	I/O(S5_3.3V)	Unused
GPIO_7/NFERR#/SYS_PERR#/IGPU_GPIO7	I/O(S5_3.3V)	Unused
GPIO_8/SPI_DI	I/O(S5_3.3V)	Unused
GPIO_9/SPI_DO	I/O(S5_3.3V)	Unused
GPIO_10/SPI_CS0	I/O(S5_3.3V)	Unused
GPIO_11/SPI_CLK	I/O(S5_3.3V)	Unused
LPC_DRQ1#/GPIO_19/FANRPM1	I/O(3.3V)	Unused
PROCHOT#/GPIO_20	I/O(CPU_VTT)	H_PROCHOT#
PE_WAKE#/GPIO_21	I/O(S5_3.3V)	WAKE#
HDA_SDATA_IN0/GPIO_22	I/O(S5_3.3V)	HDA_SDATA_IN
HDA_SDATA_IN1/GPIO_23/MGPIO_0	I/O(S5_3.3V)	Unused
HDA_SDATA_IN2/GPIO_24/MGPIO_2	I/O(3.3V)	Unused
USB_OC0#/GPIO_25	I/O(S5_3.3V)	OC#1
USB_OC1#/GPIO_26	I/O(S5_3.3V)	OC#2
USB_OC2#/GPIO_27	I/O(S5_3.3V)	OC#3
USB_OC3#/GPIO_28	I/O(S5_3.3V)	Pull Hi
USB_OC4#/GPIO_29	I/O(S5_3.3V)	Pull Hi
PCI_PME#/GPIO_30	I/O(S5_3.3V)	PCI_PME#
SIO_PME#/GPIO_31	I/O(S5_3.3V)	SIO_PME#
EXT_SMI#/GPIO_32	I/O(S5_3.3V)	LPC_SMI#
SUS_CLK/GPIO_34	I/O(S5_3.3V)	Unused
MII0_INTR/GPIO_35	I/O(S5_3.3V)	RGMI0_INTR#
MII0_PXER/GPIO_36/PWR_LED#	I/O(S5_3.3V)	RGMI0_RX_ER
MII0_PWRDWN/GPIO_37	I/O(S5_3.3V)	RGMI0_PREDN
PCI_REQ3#/GPIO_38/RS232_CTS#	I/O(3.3V)	PREQ#3
PCI_GNT3#/GPIO_39/RS232_RTS#	I/O(3.3V)	Unused
PCI_REQ2#/GPIO_40/RS232_DSR#	I/O(3.3V)	PREQ#2
PCI_GNT2#/GPIO_41/RS232_DTR#	I/O(3.3V)	PGNT#2
LPC_RESET#/GPIO_42	I/O(3.3V)	Unused
PCI_PERR#/GPIO_43/RS232_DCD#	I/O(3.3V)	PERR#
HDA_SYNC/GPIO_44	I/O(3.3V)	AZ_SYNC_R
HDA_SDATA_OUT/GPIO_45	I/O(3.3V)	HDA_SDATA_OUT
LPC_DRQ0#/GPIO_50	I/O(3.3V)	LPC_DRQ#0
PCI_REQ4#/GPIO52/RS232_SIN#	I/O(3.3V)	PREQ#4
PCI_GNT4#/GPIO_53/RS232_SOUT#	I/O(3.3V)	Unused
A20GATE/GPIO_55	I/O(3.3V)	A20GATE
KBRDRSTIN#/GPIO_56	I/O(3.3V)	KBRST#
SATA_LED#/GPIO_57	A(3.3V)	SATALED#
THERMTRIP#/GPIO_58	I/O(CPU_VTT)	H_THERMTRIP#
THERM#/GPIO_59	I/O(3.3V)	Unused
FANRPM0/GPIO_60	I/O(3.3V)	OB1
FANCTL0/GPIO_61	I/O(3.3V)	AUDIO_FRONT_IO
FANCTL1/GPIO_62	I/O(3.3V)	DEPOP_GPIO
CABLE_DET_P/GPIO_63	I/O(3.3V)	ATADET0

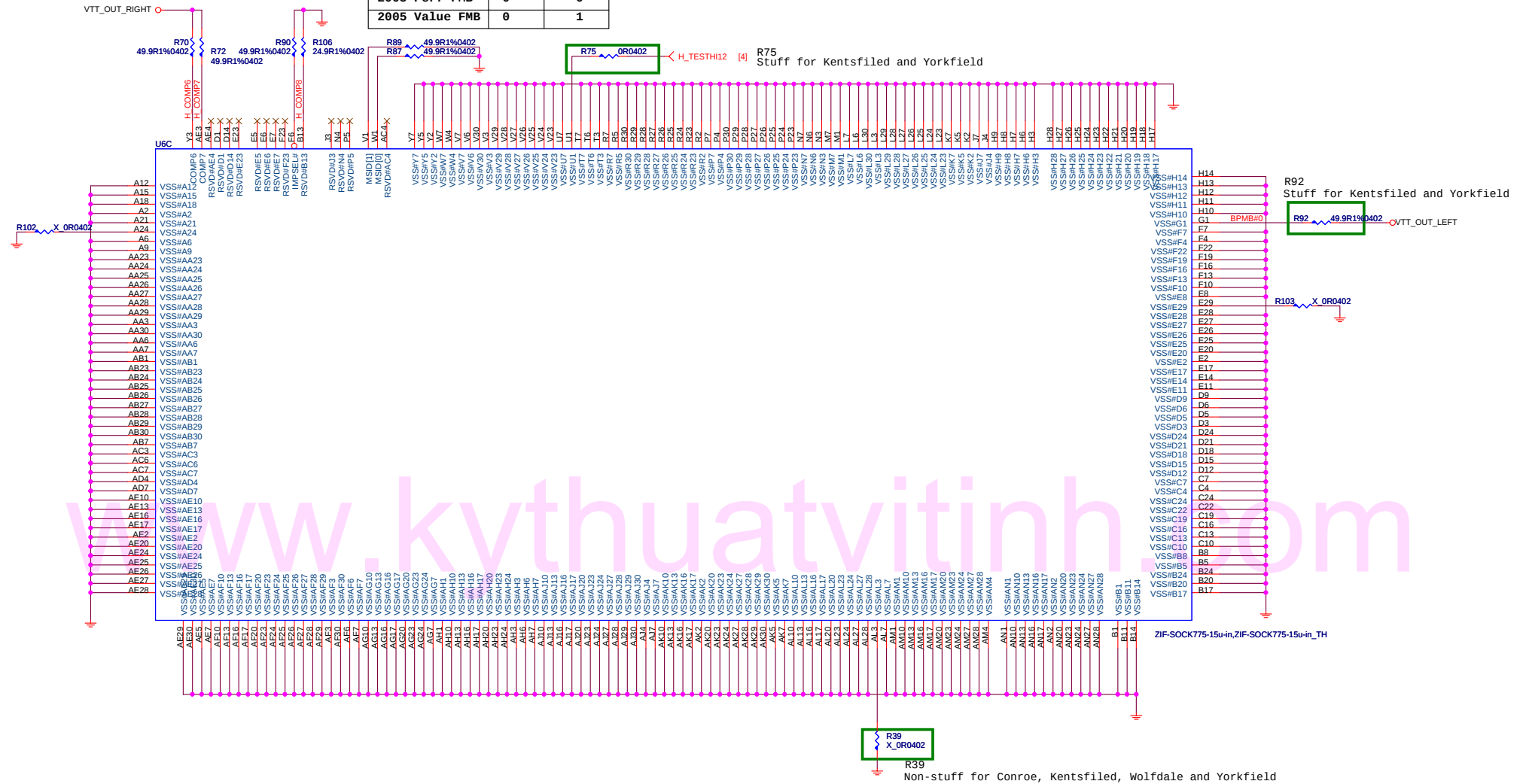
PCI Config.

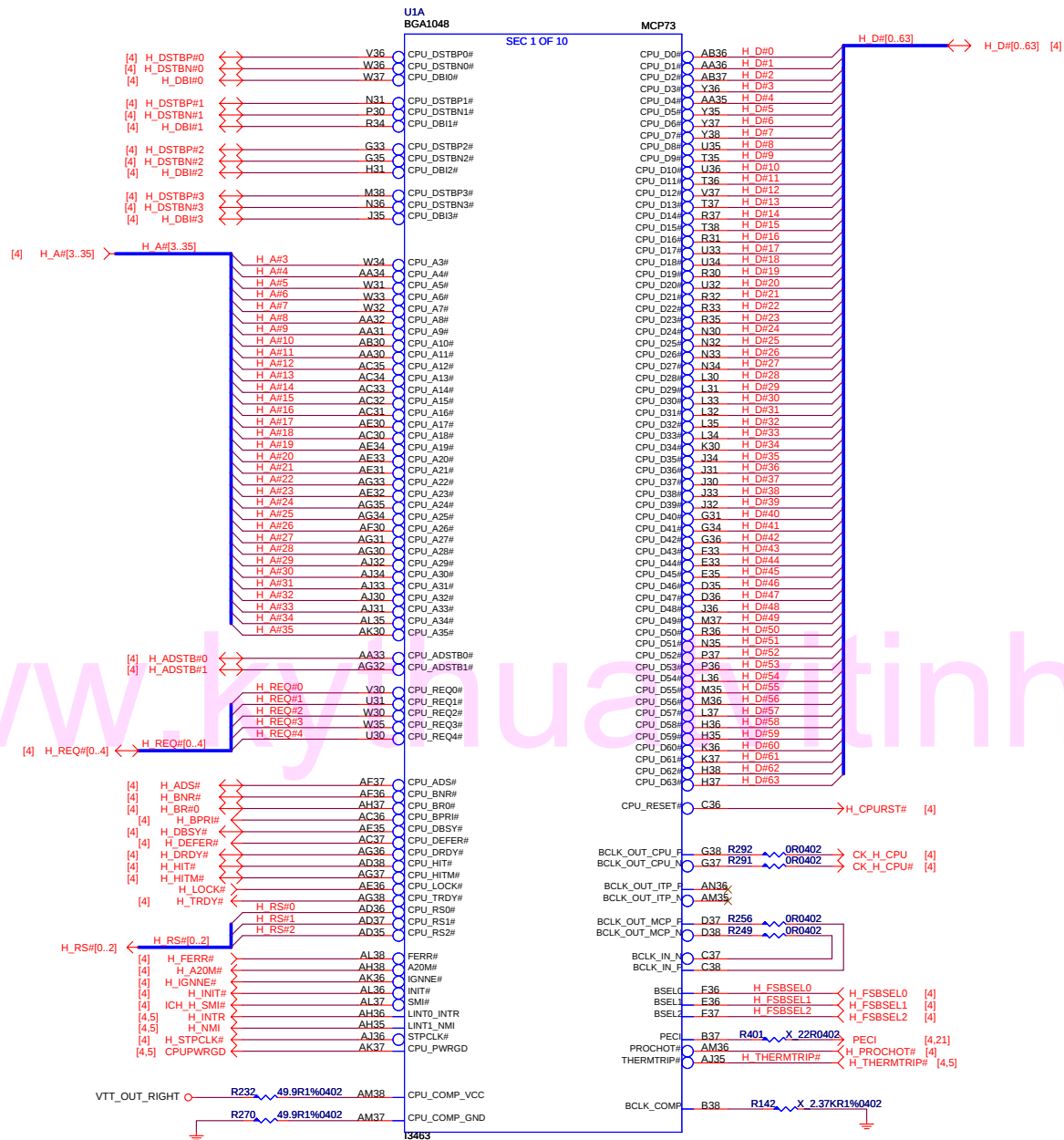
DEVICE	MCP1 INT Pin	REQ# / GNT#	IDSEL	CLOCK
PCI Slot 1	PCI_INTX# PCI_INTY# PCI_INTZ# PCI_INTW#	PREQ#0 PGNT#0	AD21	PCICLK0
PCI Slot 2	PCI_INTY# PCI_INTZ# PCI_INTW# PCI_INTX#	PREQ#1 PGNT#1	AD22	PCICLK1
1394	PCI_INTW#	PREQ#2 PGNT#2	AD23	1394_PCLK

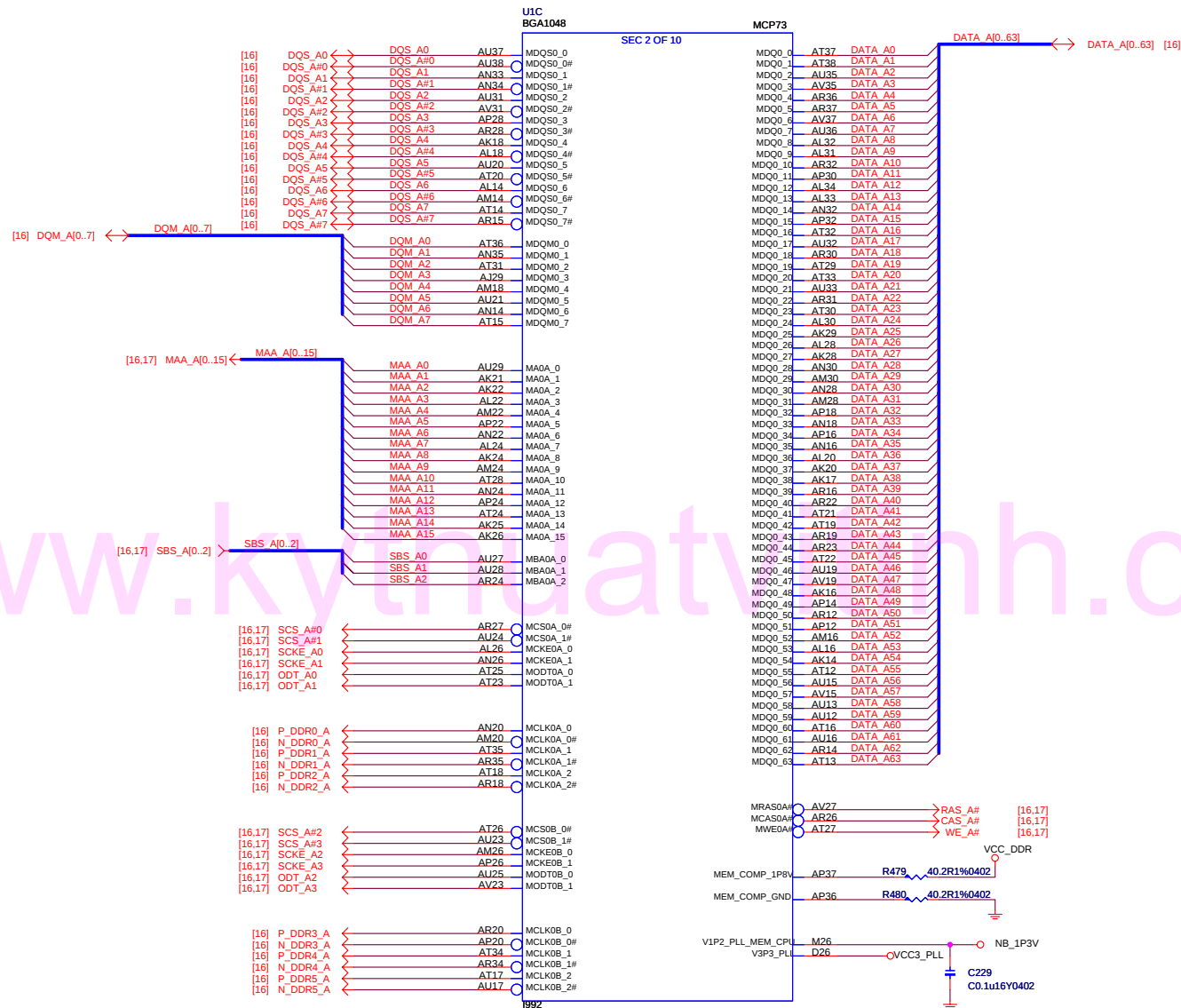
CPU SIGNAL BLOCK



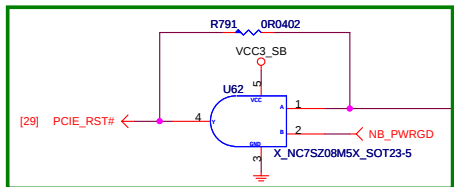
	MSID1	MSID0
2005 Perf FMB	0	0
2005 Value FMB	0	1



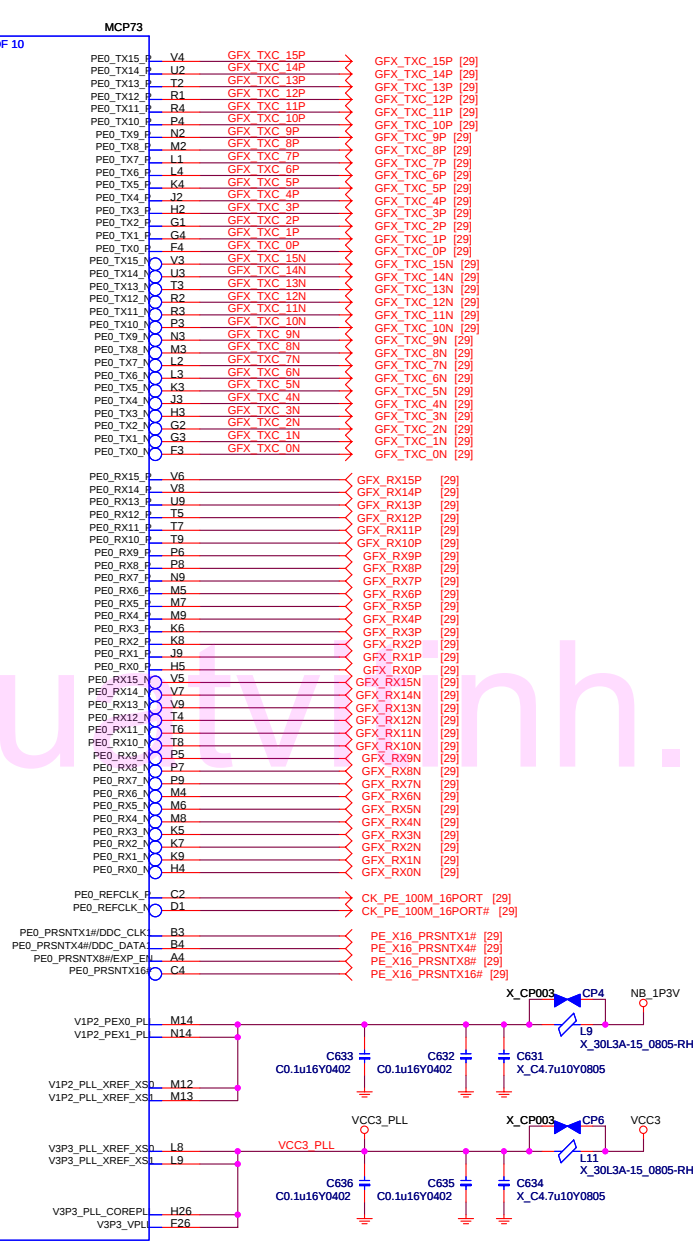
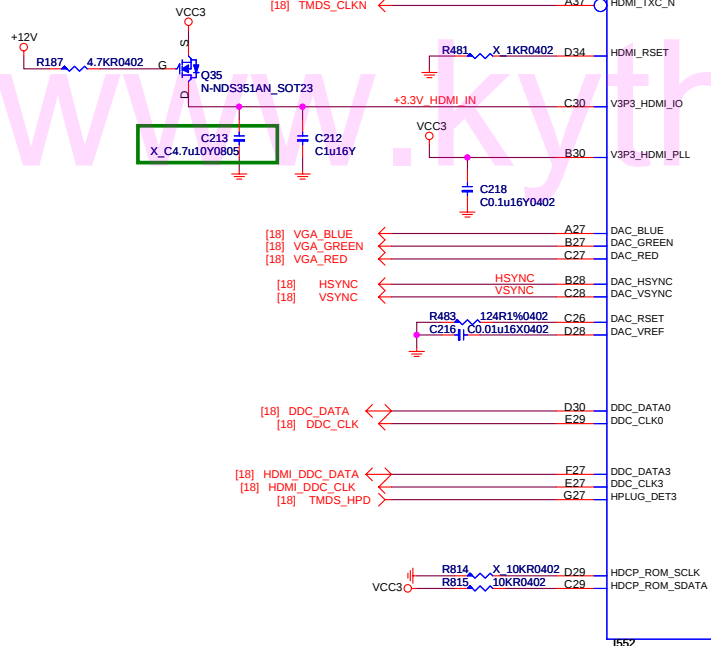


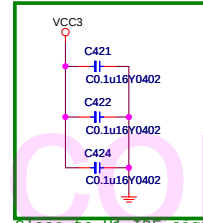
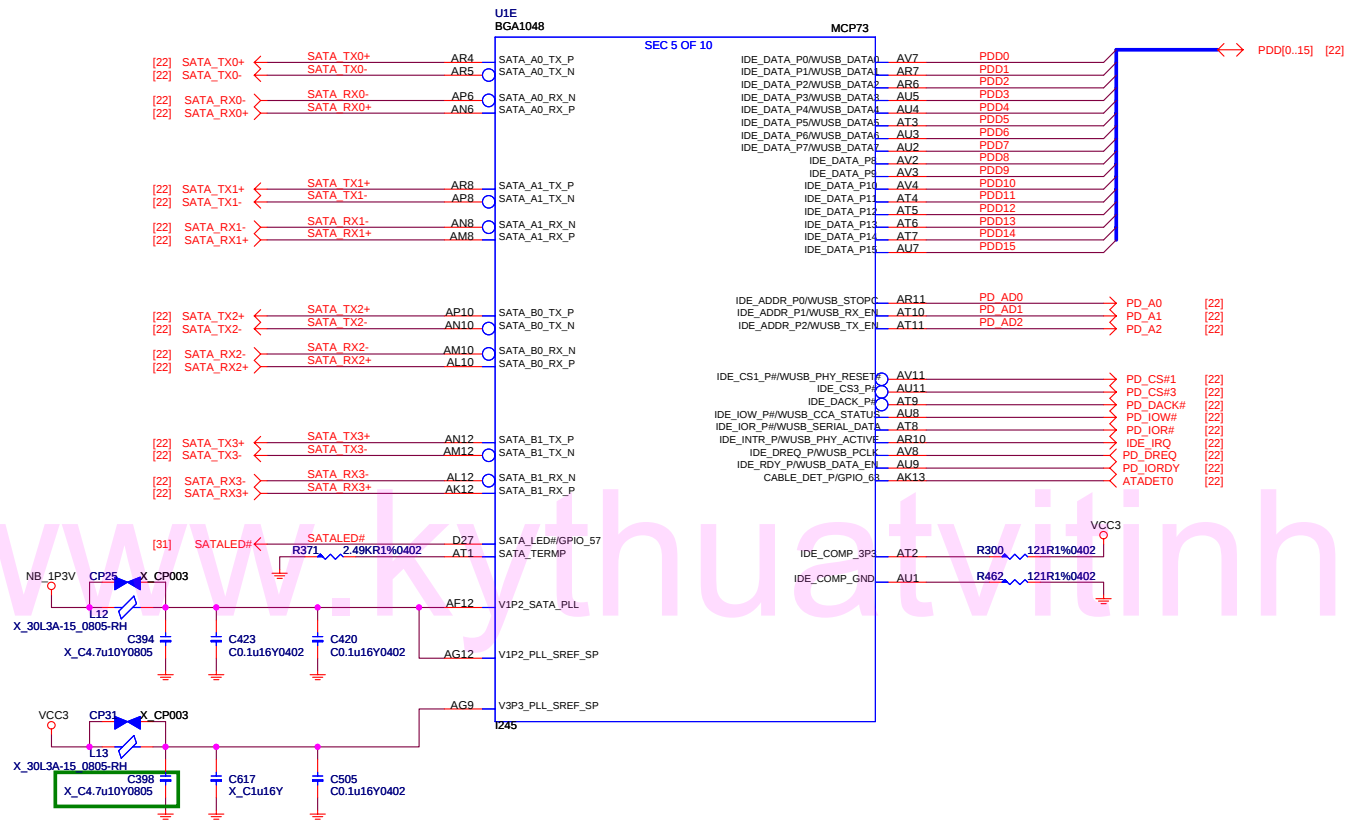


TMDS_00N	R796	158R1%0402	TMDS_00P
TMDS_01N	R797	158R1%0402	TMDS_01P
TMDS_02N	R798	158R1%0402	TMDS_02P
TMDS_CLKN	R799	158R1%0402	TMDS_CLKP

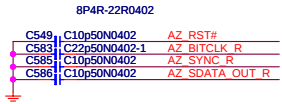
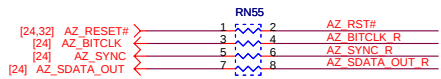


to prevent glitches during power-up



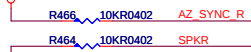


Strapping 10K ohm to VCC3_SB: RGMII



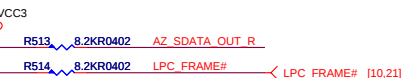
HDA_SYNC (SIO CLK)

0 = 14.318MHZ
1 = 24MHZ *

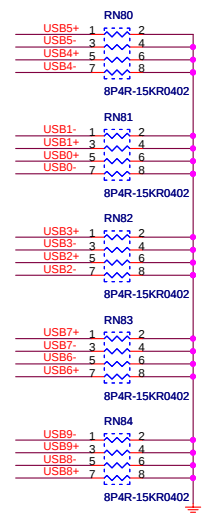
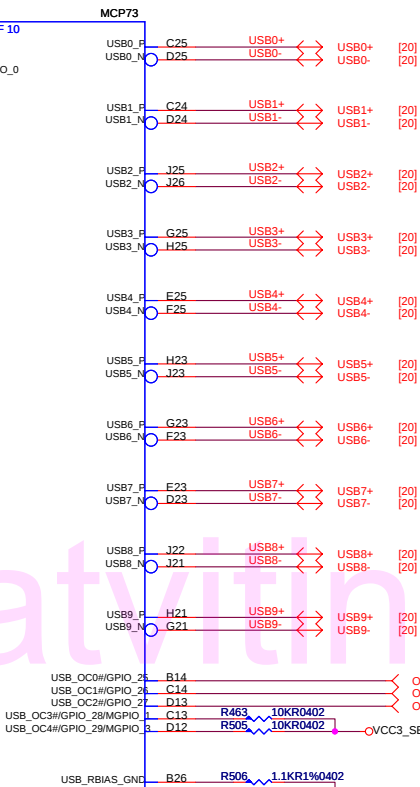
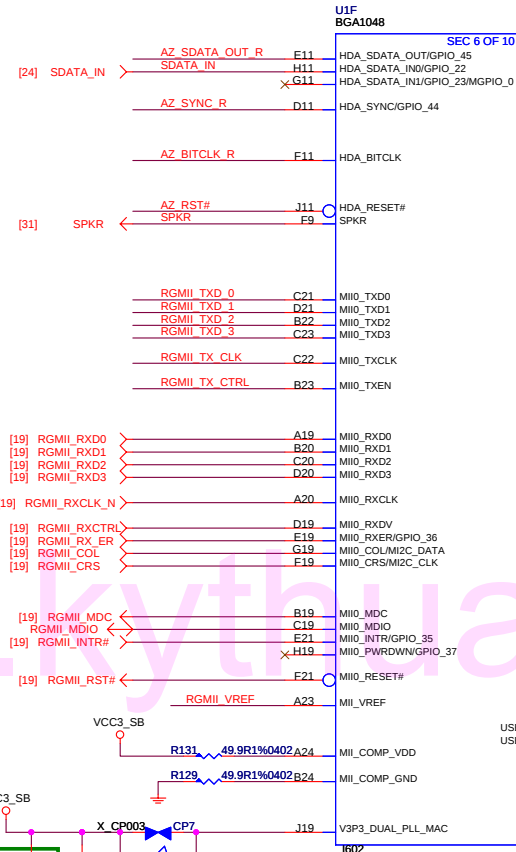
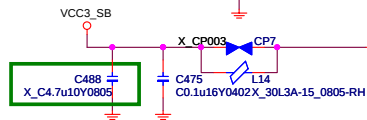
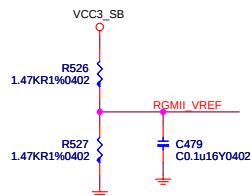


SPKR

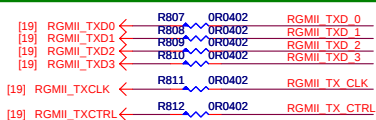
0 = USER MODE
1 = SAFE MODE

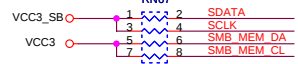
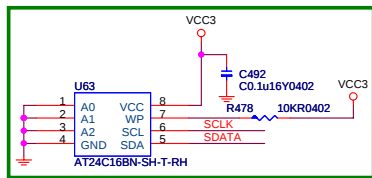


STRAP	HDA_SDOUT	LPC_FRAME
LPC BIOS	0	0
PCI BIOS	0	1
SPI BIOS	1	0
RESERVED	1	1

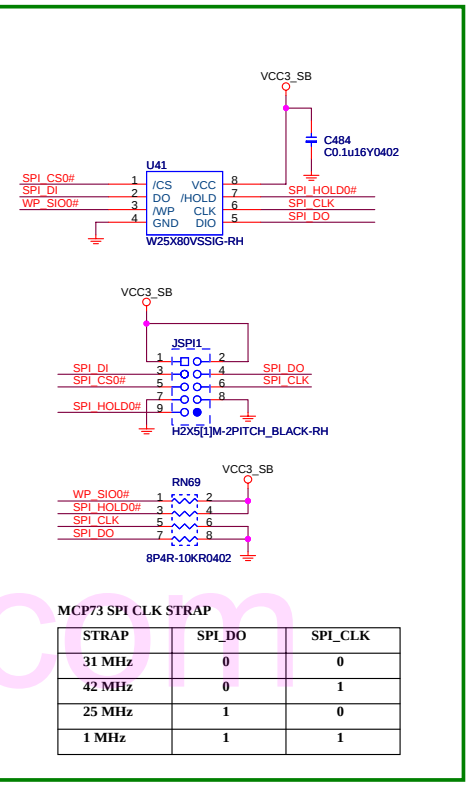
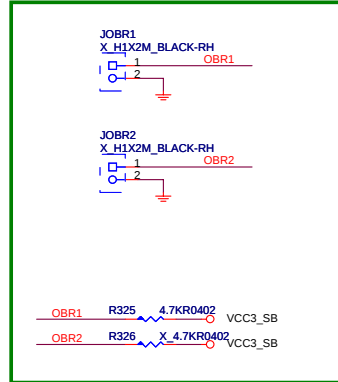
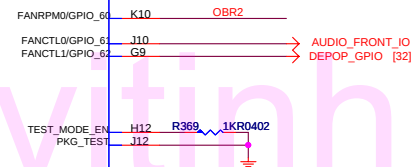
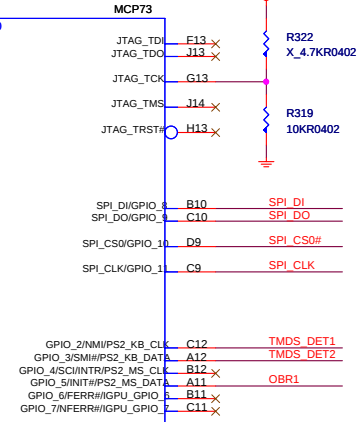
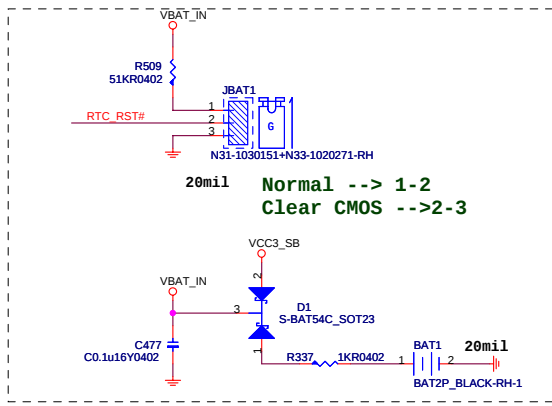
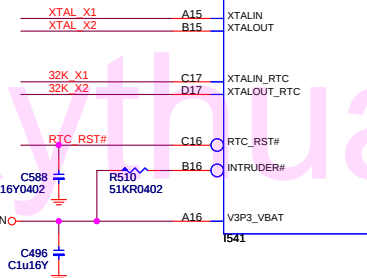
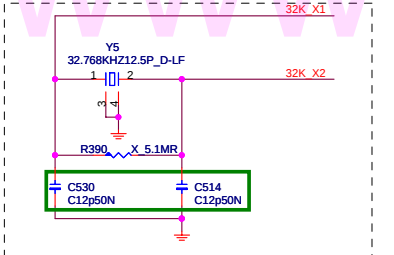
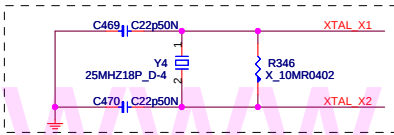
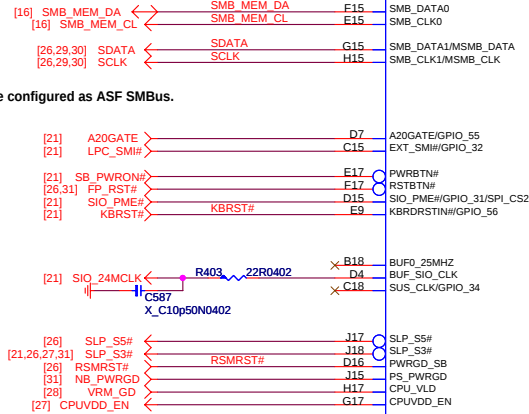
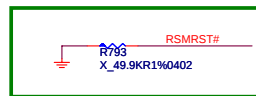
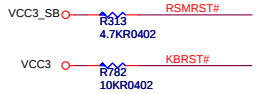


Close to U1



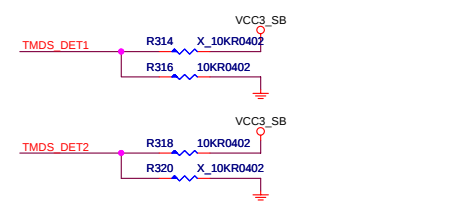


When SDATA/SCLK are not used, it can be configured as ASF SMBus.



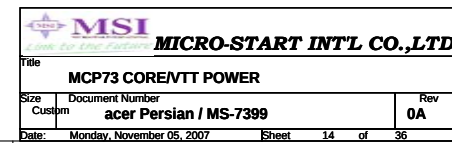
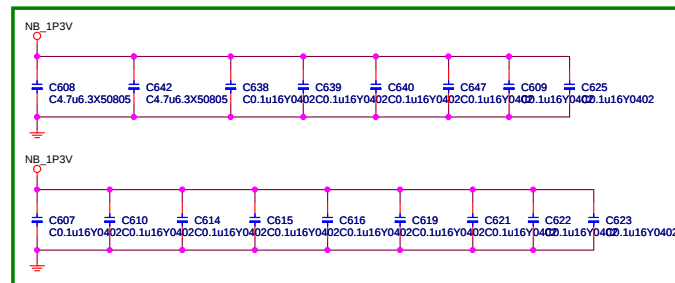
MCP73 SPI CLK STRAP

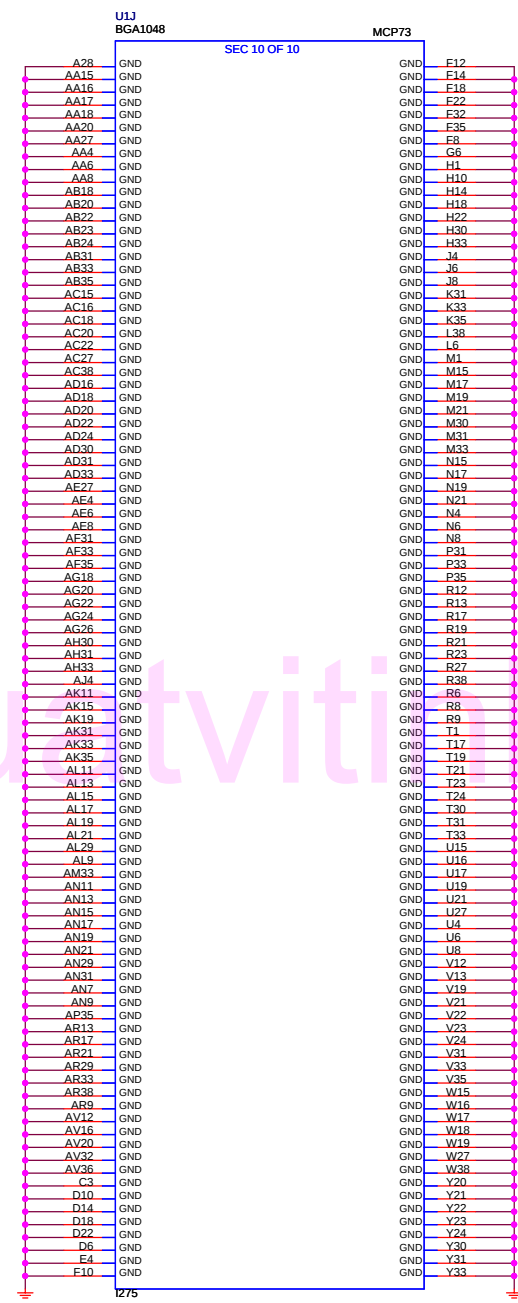
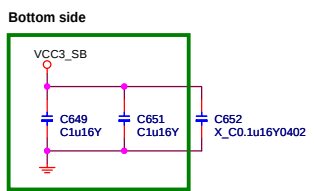
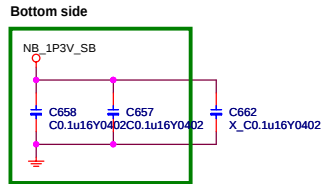
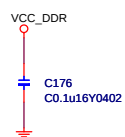
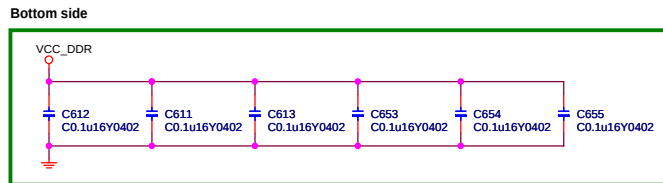
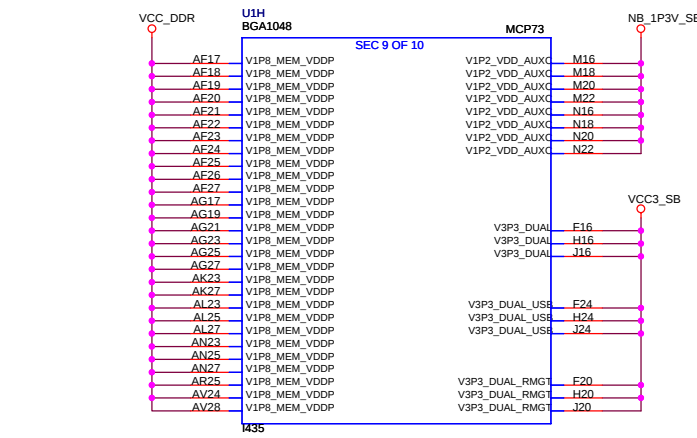
STRAP	SPI_DO	SPI_CLK
31 MHz	0	0
42 MHz	0	1
25 MHz	1	0
1 MHz	1	1

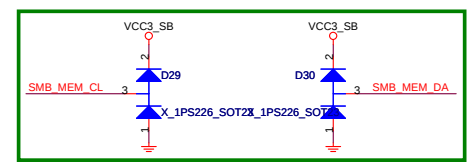
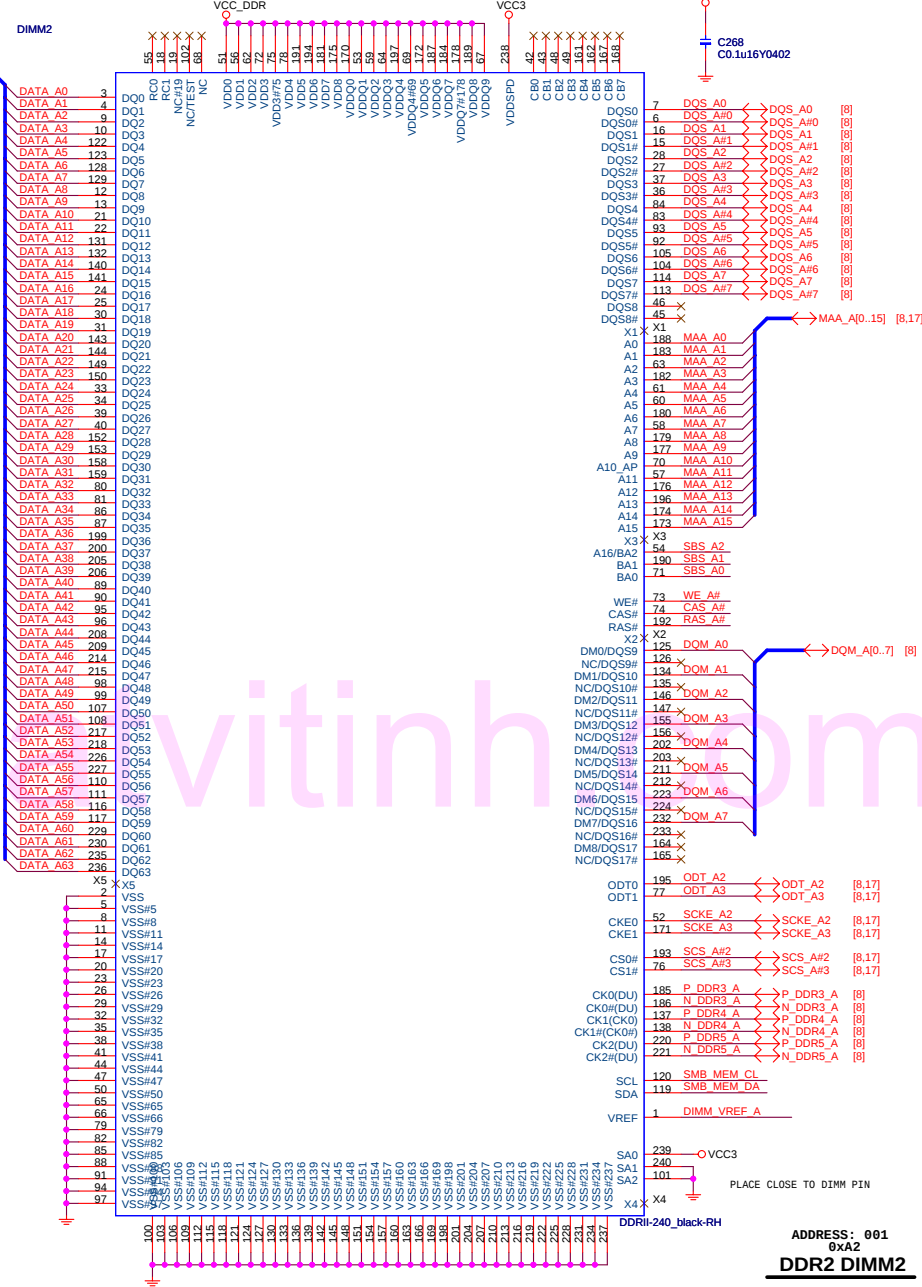


HDMI/DVI Detect

	TMDS_DET1	TMDS_DET2
DVI	1	0
HDMI	0	1
N/A	0	0







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

DDR II DIMM 1&2

Size: Custom

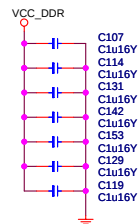
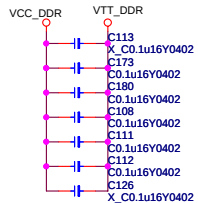
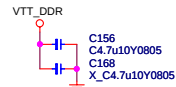
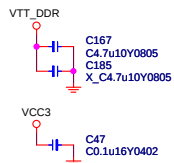
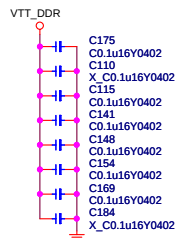
Document Number: acer Persian / MS-7399

Date: Monday, September 17, 2007

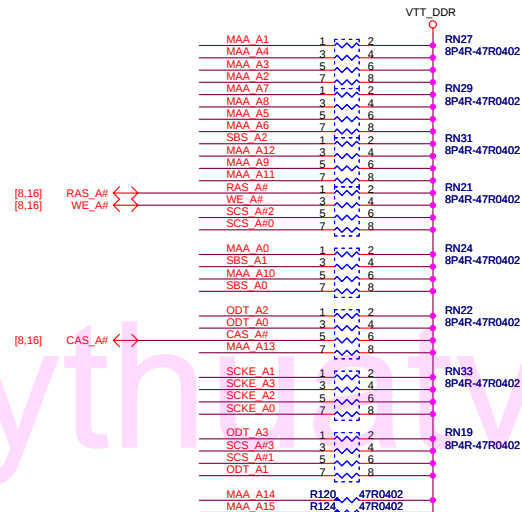
Sheet: 16 of 36

Rev: 0A

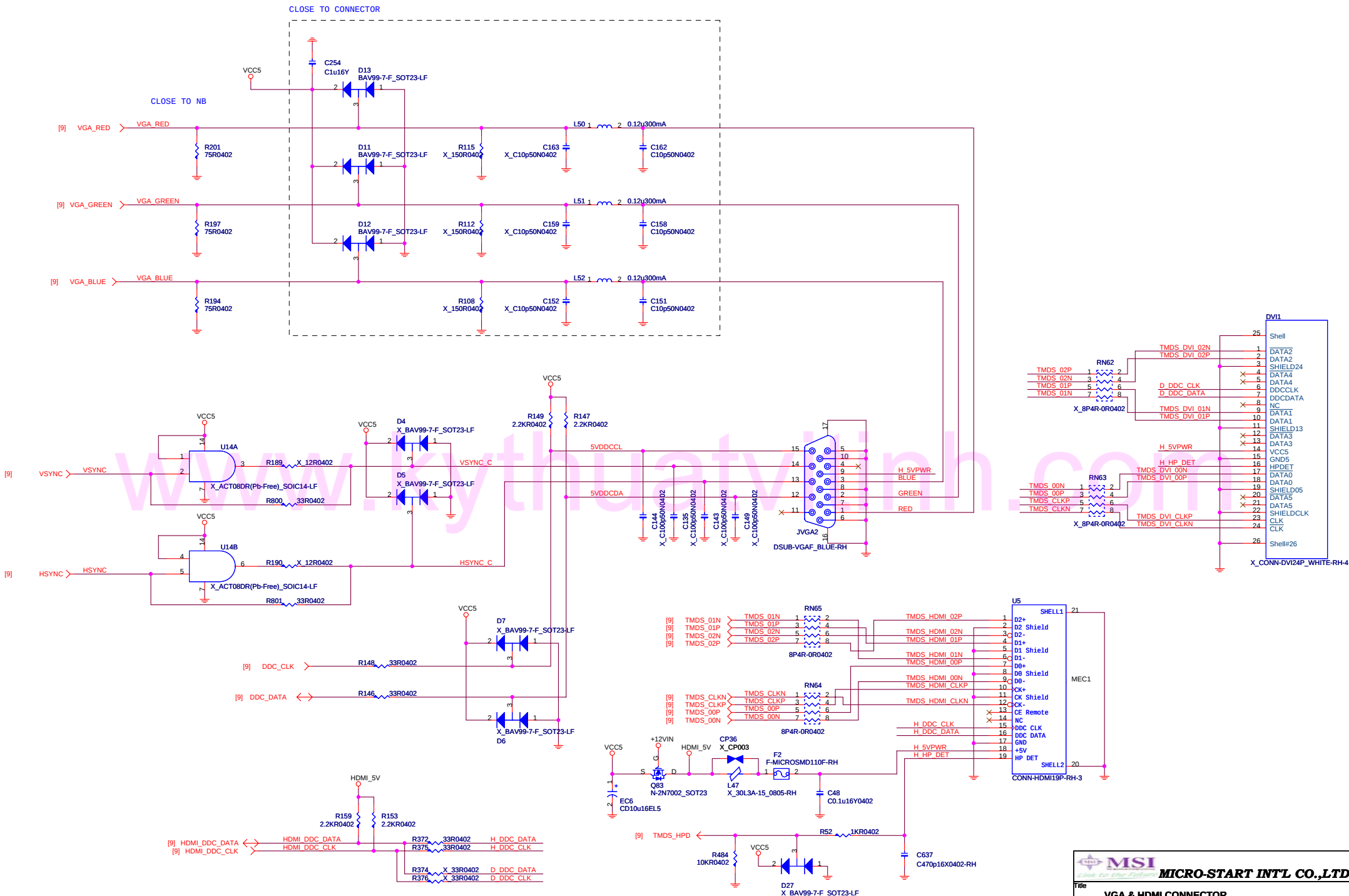
CHANNEL A VTT_DDR
DECOULPING CAPS

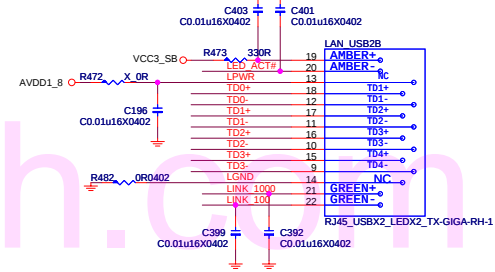
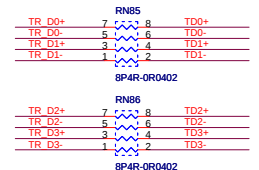


DDR II TERMINATION

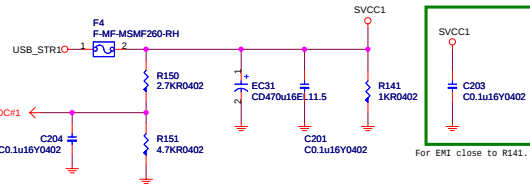


[8.16] MAA_A[0..15] <->
[8.16] SBS_A[0..2] <->
[8.16] SCS_A#[0..3] <->
[8.16] SCKE_A[0..3] <->
[8.16] ODT_A[0..3] <->

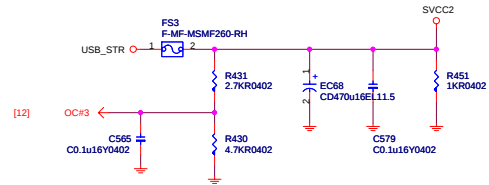




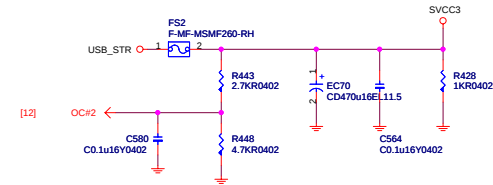
POWER CIRCUIT FOR USB PORT 0,1,2,3



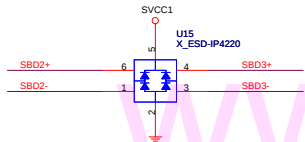
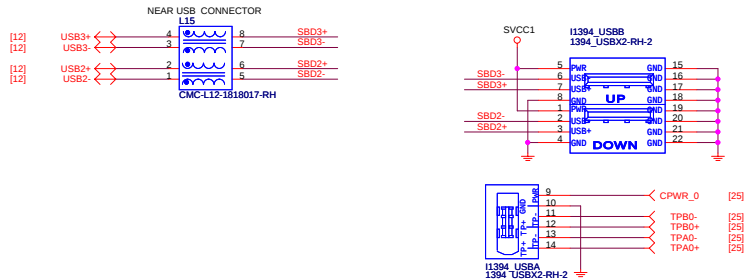
POWER CIRCUIT FOR USB PORT 4,5,6,7



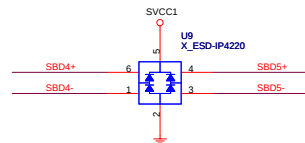
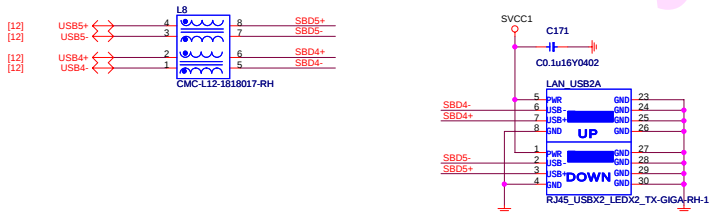
POWER CIRCUIT FOR USB PORT 8,9



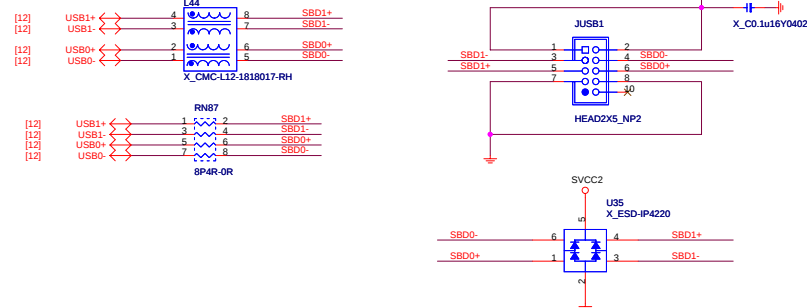
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



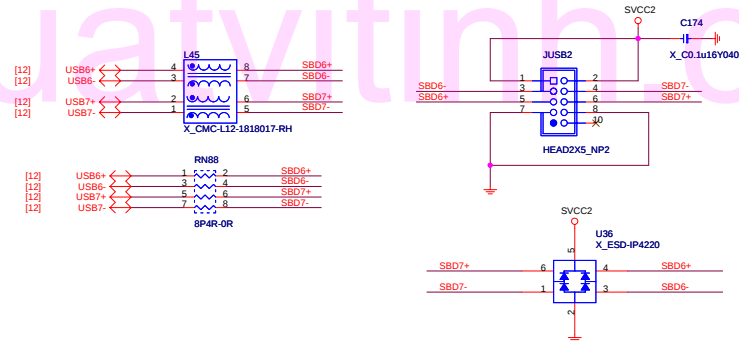
REAR PANEL USB CONNECTOR FOR USB PORT 2,3



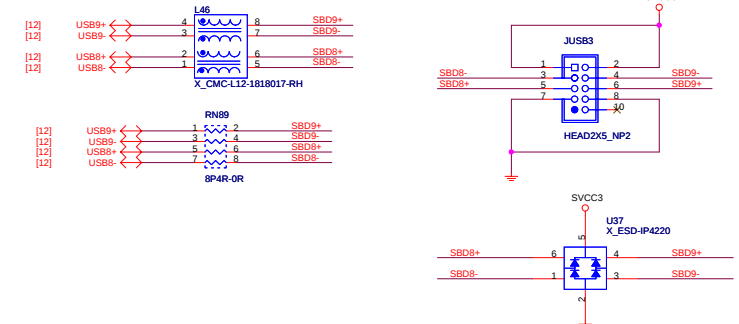
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



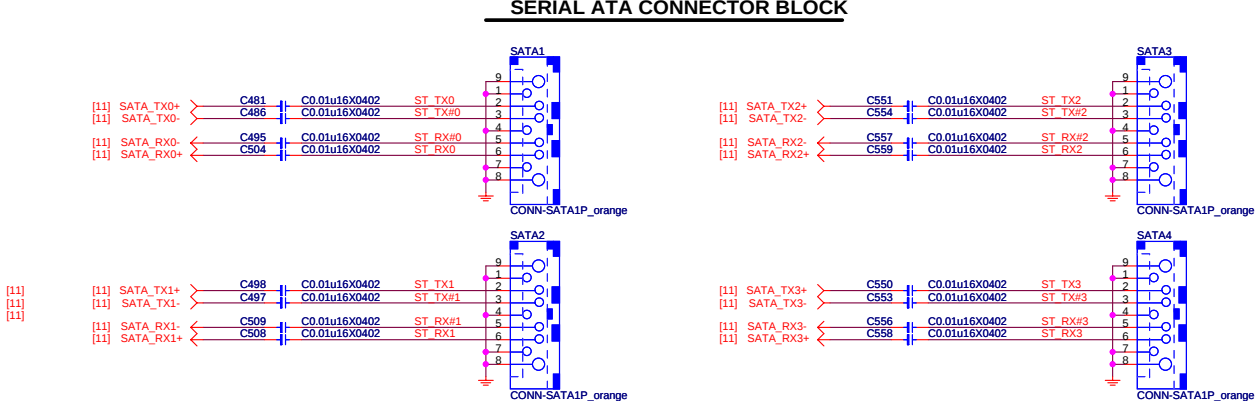
FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



USB CARD READER + IR MODULE FOR USB PORT 8,9



[11] PDD[0..15] $\longleftrightarrow$



UT75232L_SSOP20-RH

VCC5 ○

RTSB# [21]
DTRB# [21]
SOUTB [21]

NRIB [21]
NCTSB# [21]
NDSRB# [21]
NSINB [21]
NDCDB# [21]

RTSB# [21]
DTRB# [21]
SOUTB [21]

UT75232L_SSOP20-RH

VDD 1
VCC 2
RA1 3
RY1 4
RY2 5
RA2 6
RY3 7
RA3 8
RY4 9
RA4 10
RY5 11
DA1 12
DY1 13
DY2 14
DY3 15
GND 16
VSS 17

+12COM_2

RIB# [21]
CTSB# [21]
RSB# [21]
DSRB# [21]
SINB [21]
DCDB# [21]

NRTSB [21]
NDRB [21]
NSOUTB [21]

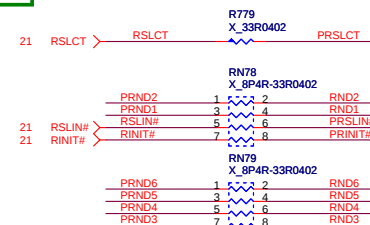
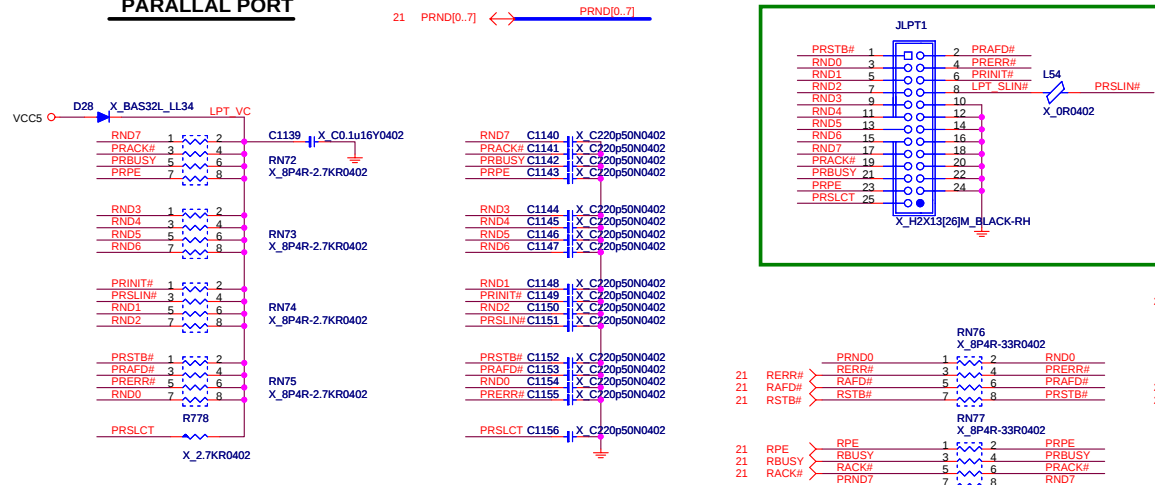
-12COM_2

NDCDB# [21]
NSOUTB [21]
NSINB [21]
NDRB# [21]
NCTSB# [21]

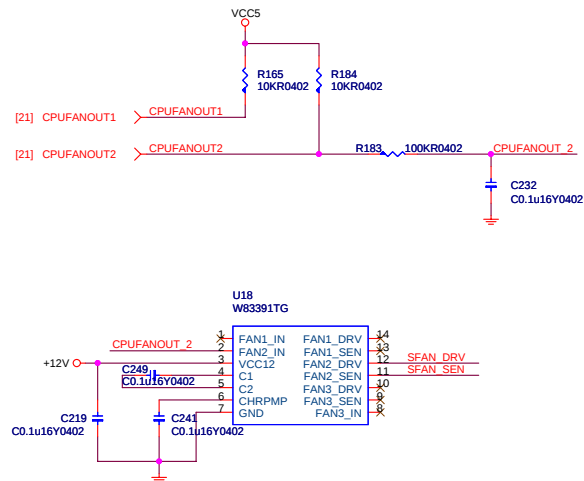
COM2

H2X5(10)_white

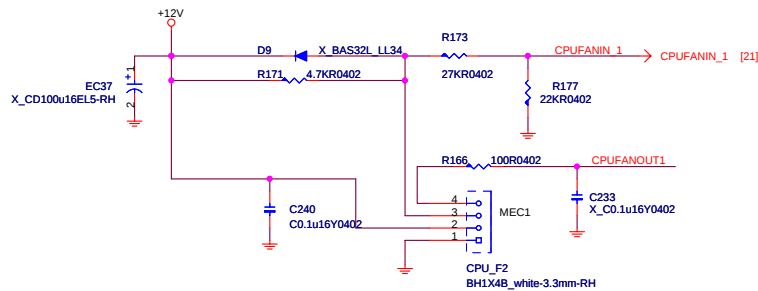
21 PRND[0..7] ↔ PRND[0..7]



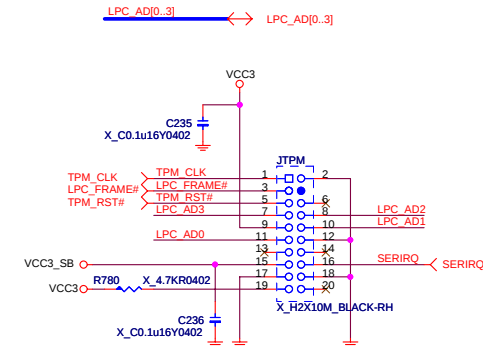
PWM FAN CONTROL



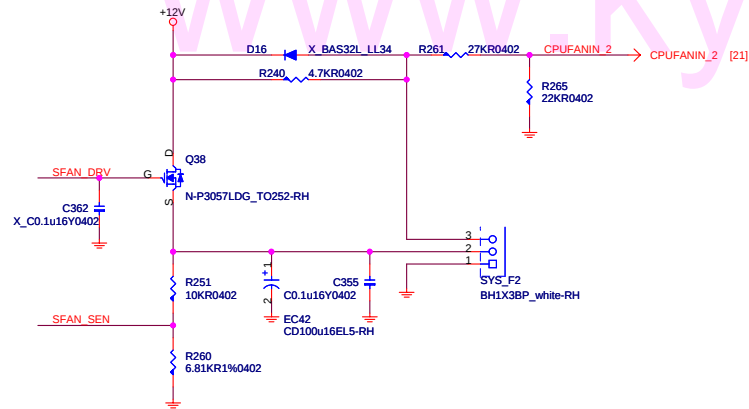
CPU FAN



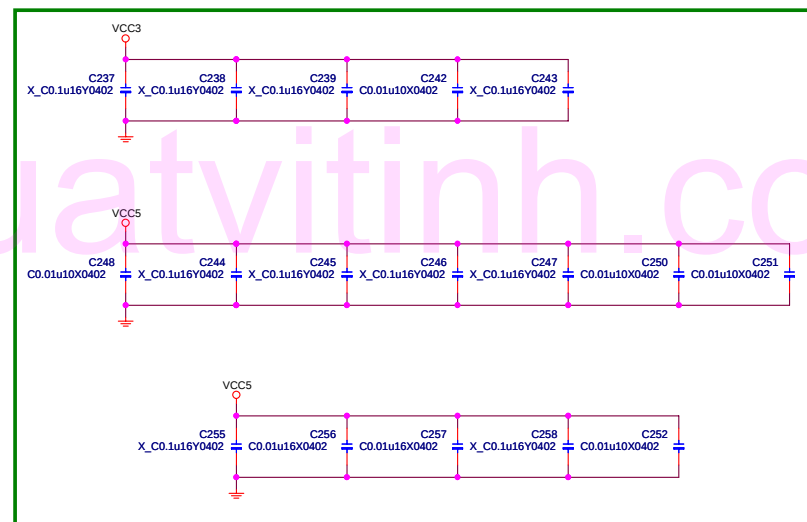
TPM Header

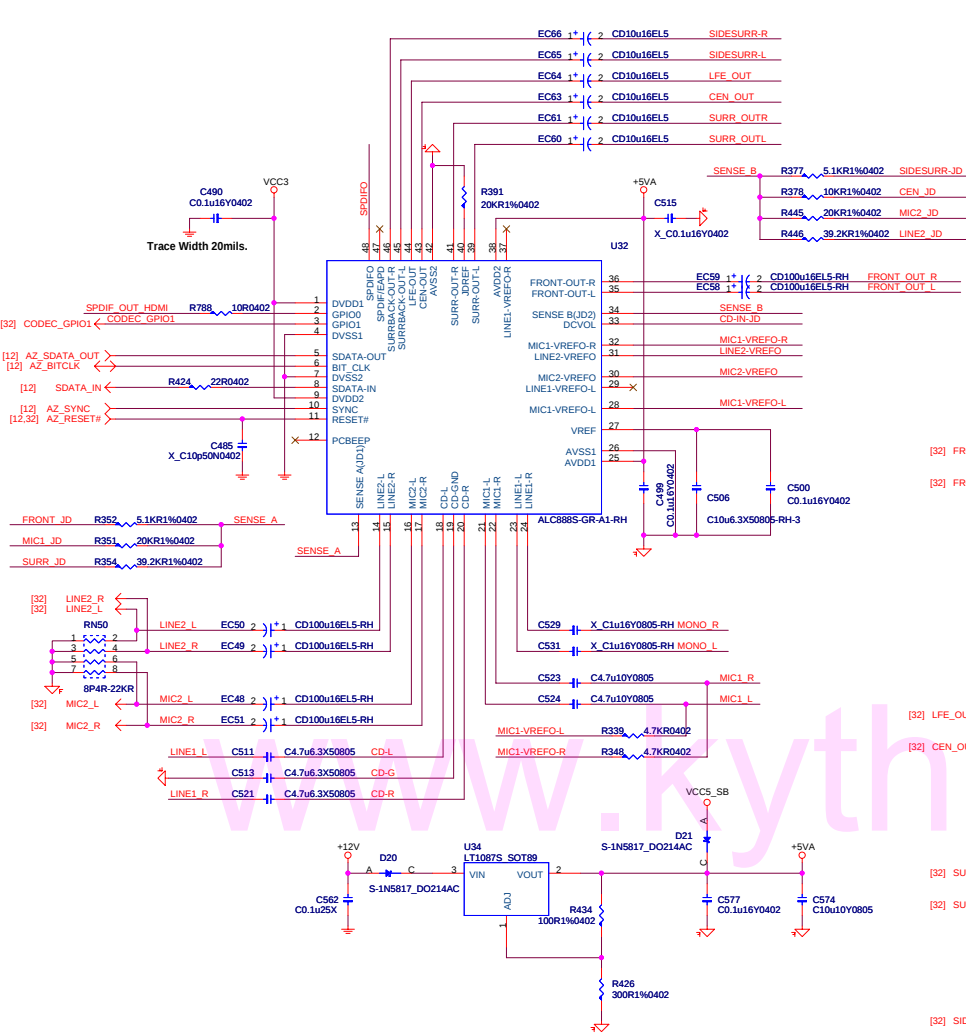


SYS FAN

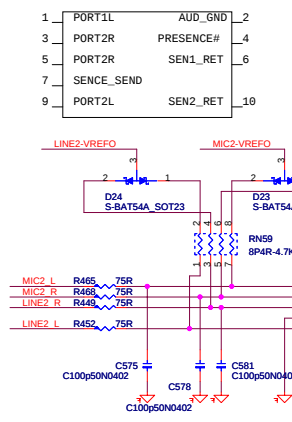


For EMI

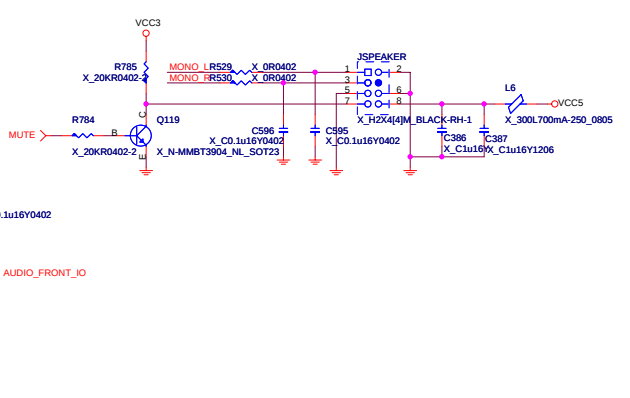




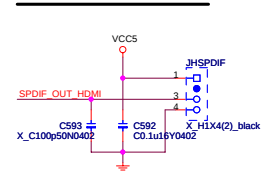
FRONT AUDIO PIN HEADER FOR AZALIA



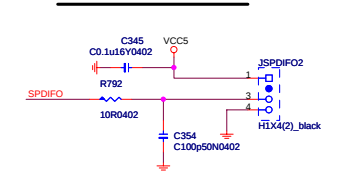
Internal Speaker



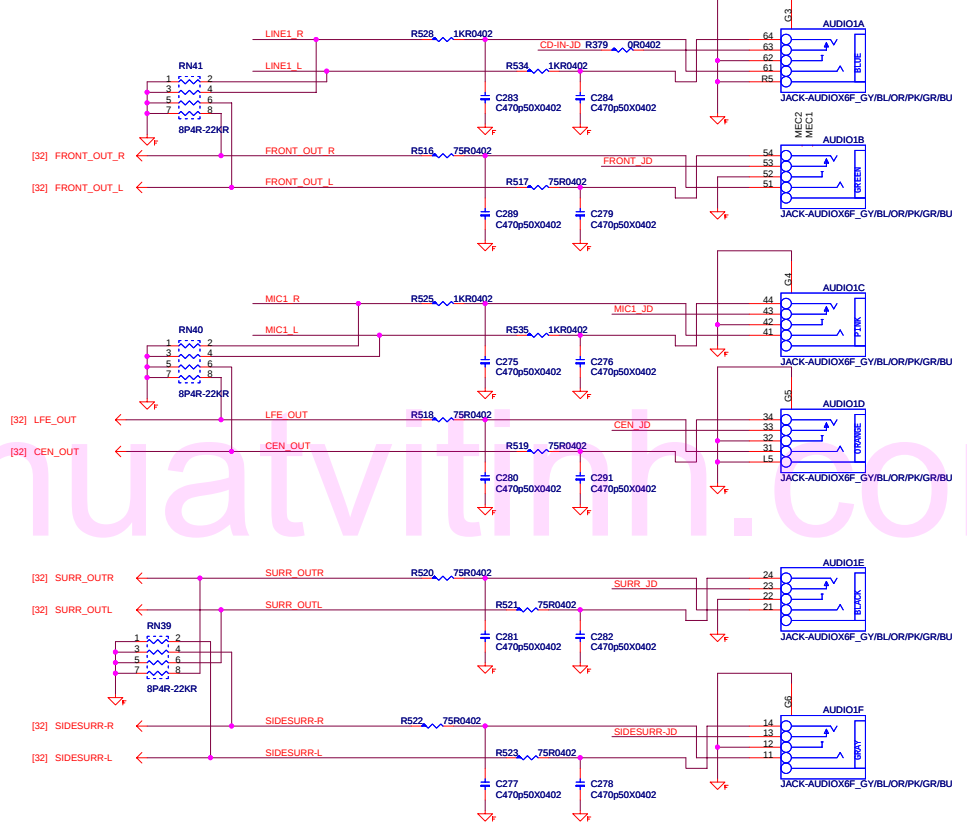
HDMI SPDIF HEADER



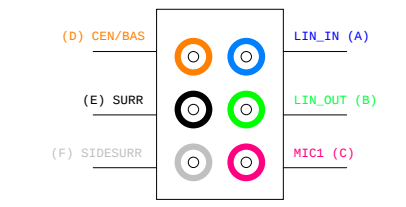
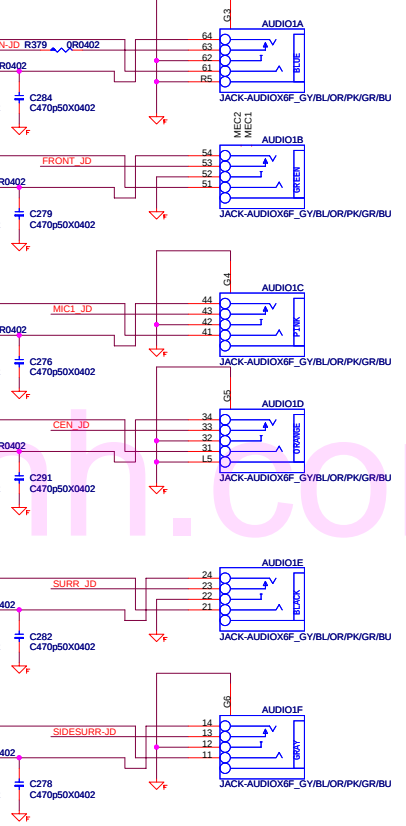
SPDIF HEADER



Rear audio jack



ALC888S JACK



3VSB MODE SELECT	
3VSB MODE	3VSDC#
SINGLE MOSFET	PULL HIGH
DUAL MOSFET	PULL LOW

VDIMM MODE	EXTRAM
LINEAR REGULATOR	PULL LOW
PWM REGULATOR	PULL HIGH

[illegible]

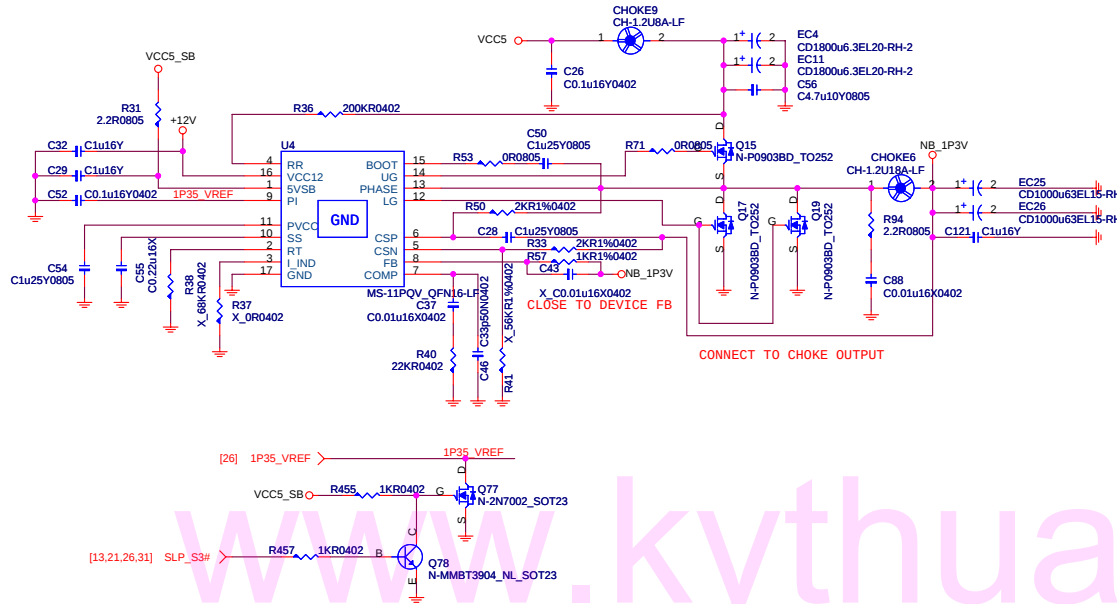
Close to MS-11

NB 1.3V CORE POWER

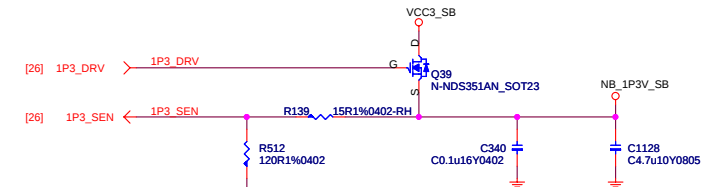
(1.3V--8.776A+V_FSB_VTT---5.6A=14.376)

The Ripple Current For V_1P25_CORE:
 $Duty = (1.35V/5V) * (100\%/80\%) = 0.3375$ (Efficiency: 80%)
 $I_{rms} = I_o * \{ [Duty * (1 - Duty)] ^ 0.5 \}$
 $= 14.4 * \{ [0.27 * 0.73] ^ 0.5 \} = 6.393$ (A)

Rated Ripple Current (65 degree): $1800mA * 2.3 * 2 = 8.28A > 6.393A$

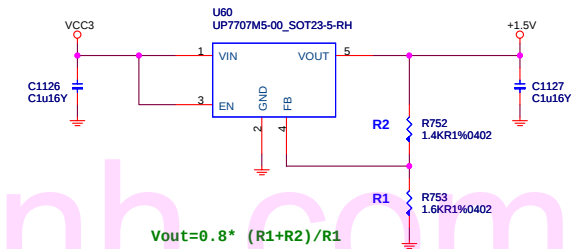


NB 1.3VSB POWER 25mA

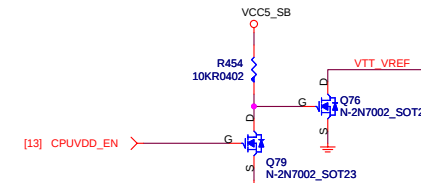
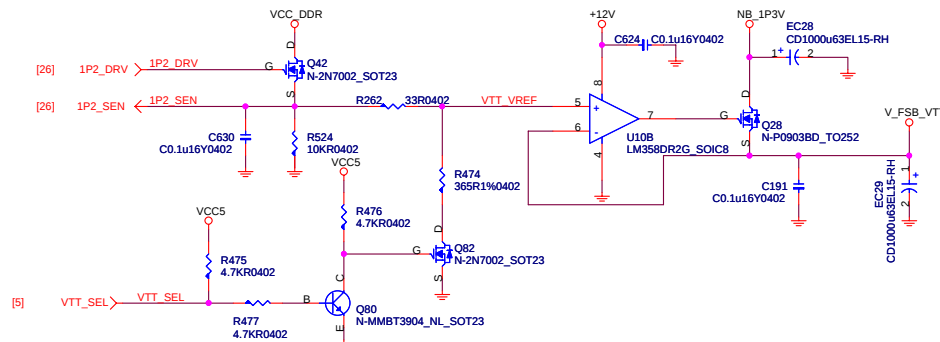


+1.5V POWER

up7707: 600mA Low Dropout Linear Regulator

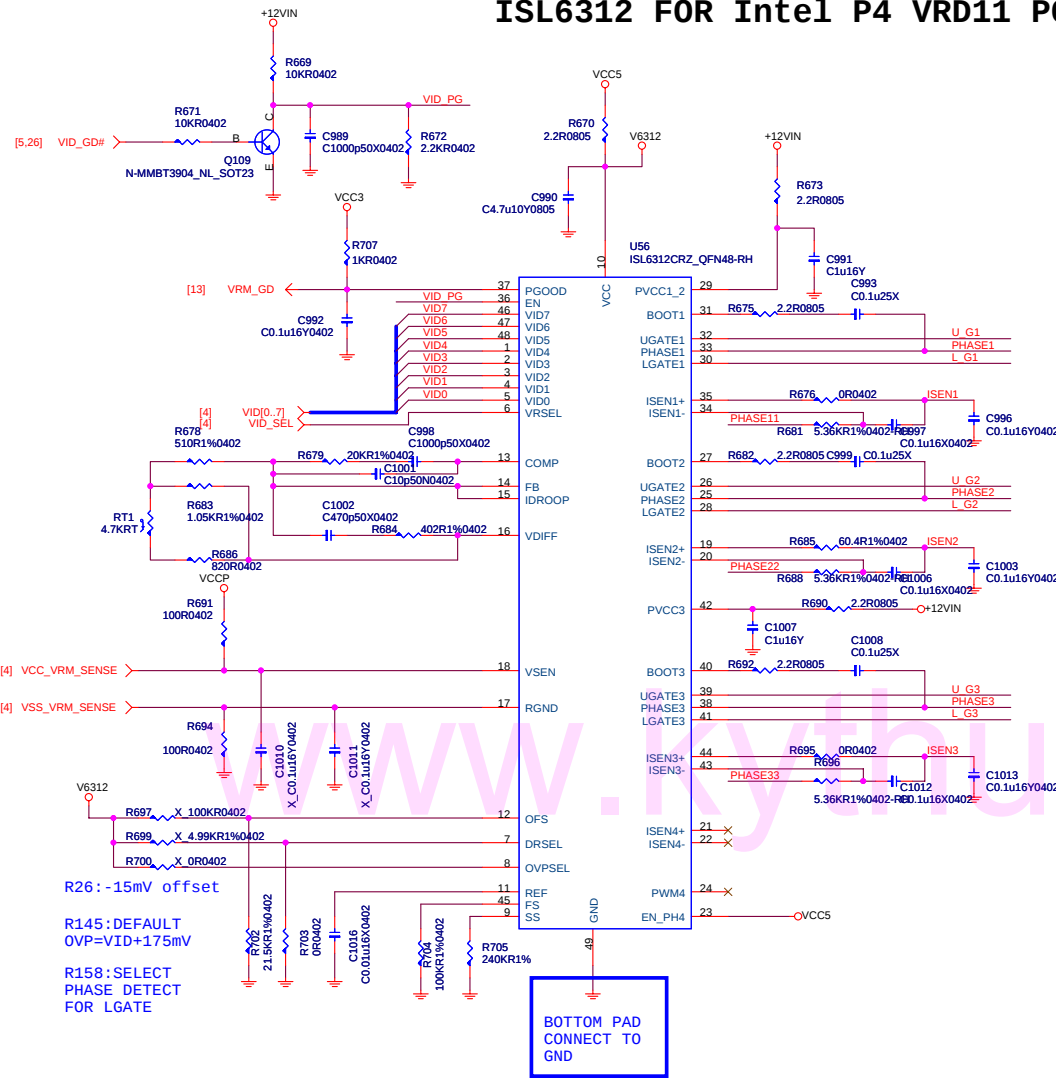


CPU FSB VTT POWER



VTT_SEL = L	V_FSB_VTT=1.1V	For future KENTSFIELD processor. (FSB1333, Quad-Core)
VTT_SEL = H	V_FSB_VTT=1.2V	For normal processors.

ISL6312 FOR Intel P4 VRD11 POWER CKT

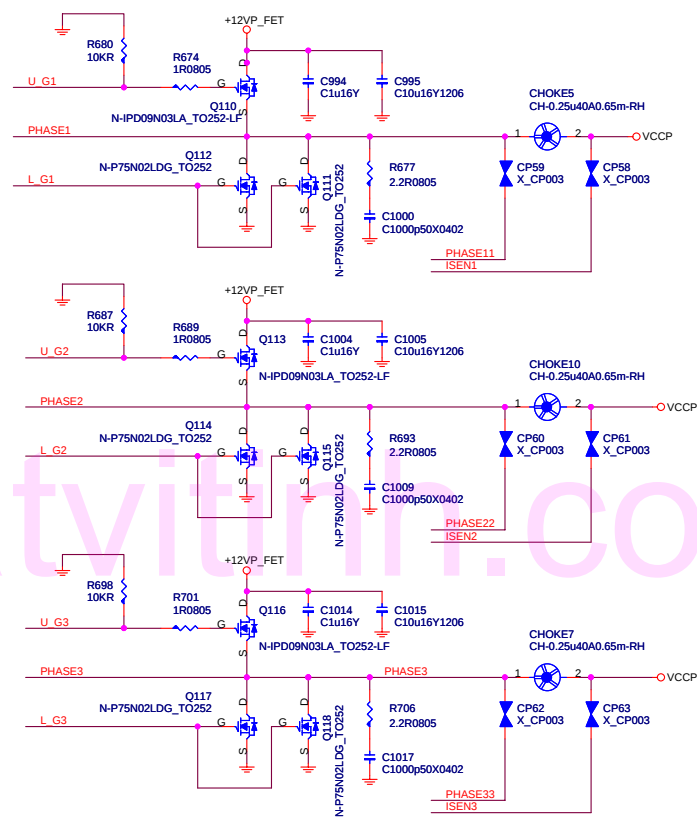
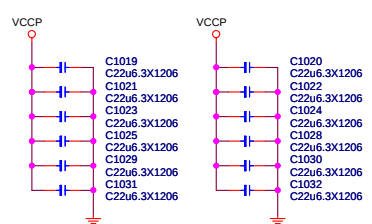


R26: -15mV offset
 R145: DEFAULT
 OVP=VID+175mV
 R158: SELECT
 PHASE DETECT
 FOR LGATE

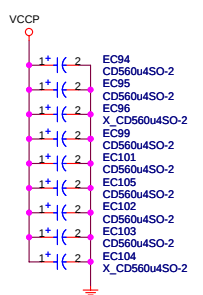
BOTTOM PAD
 CONNECT TO
 GND

CPU DECOUPLING CAPACITORS

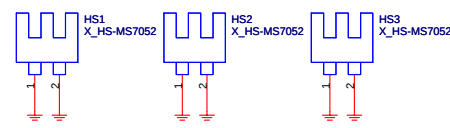
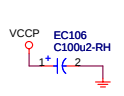
Place these caps within socket cavity

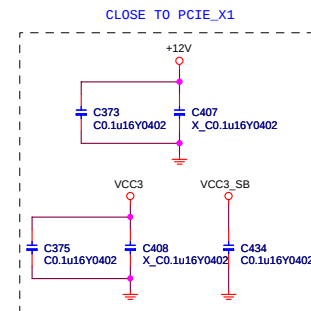
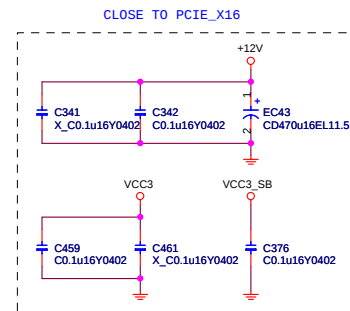
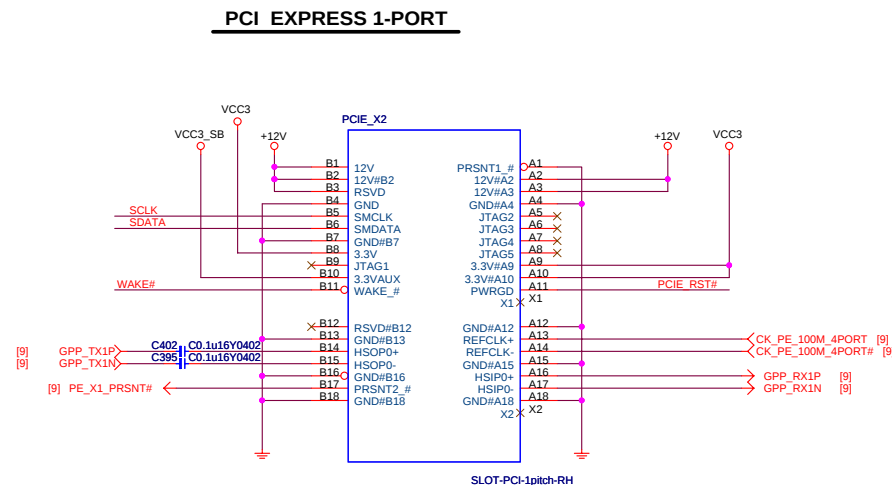


OS-CON Capacitors

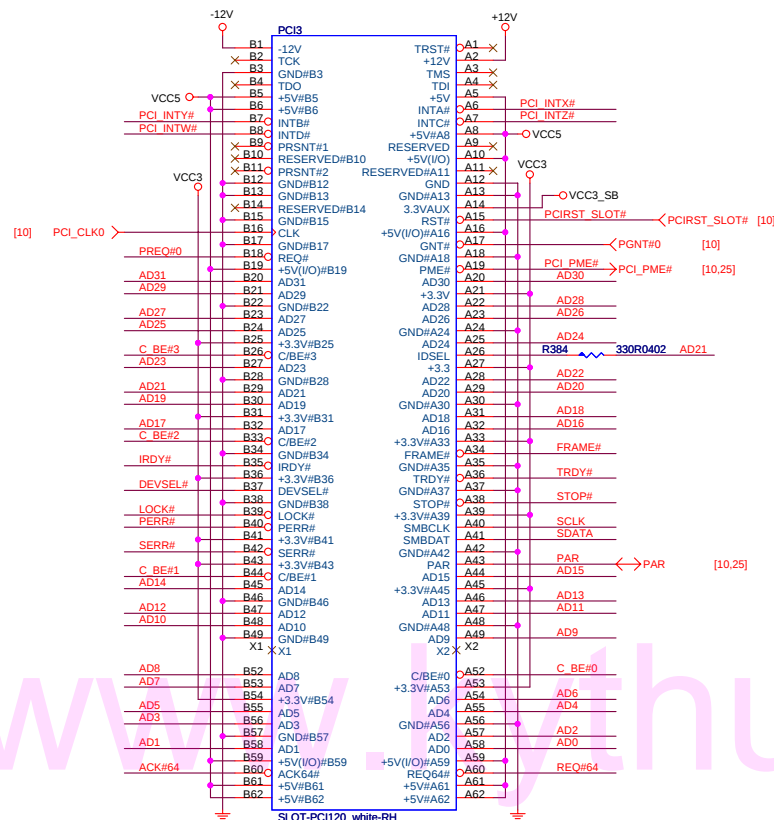


SP Capacitors



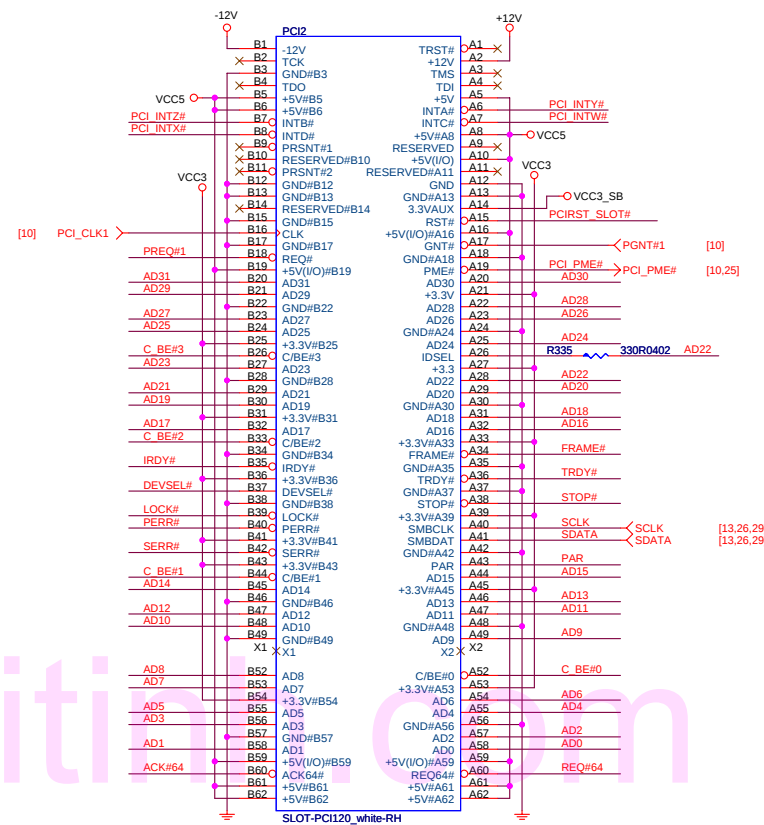


PCI SLOT 1 (PCI VER: 2.3 COMPLY)



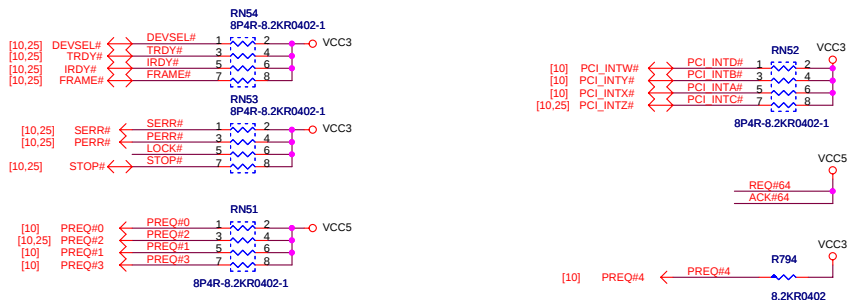
IDSEL = AD21
MASTER = PREQ#0
PCI_INTX#

PCI SLOT 2 (PCI VER: 2.3 COMPLY)

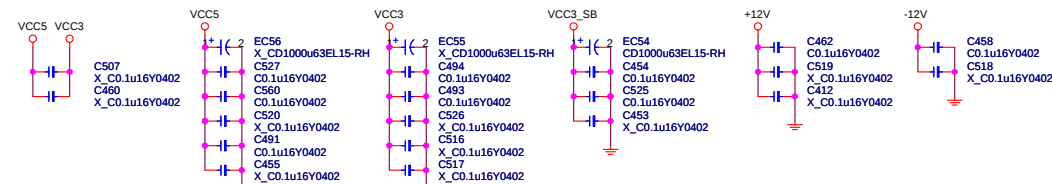


IDSEL = AD22
MASTER = PREQ#1
PCI_INTX#

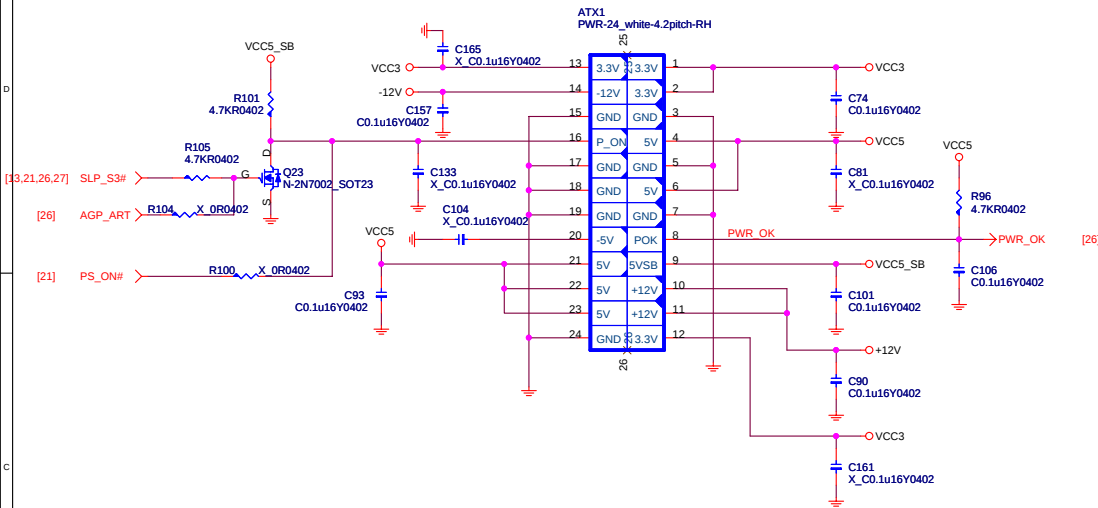
PCI PULL-UP / DOWN RESISTORS



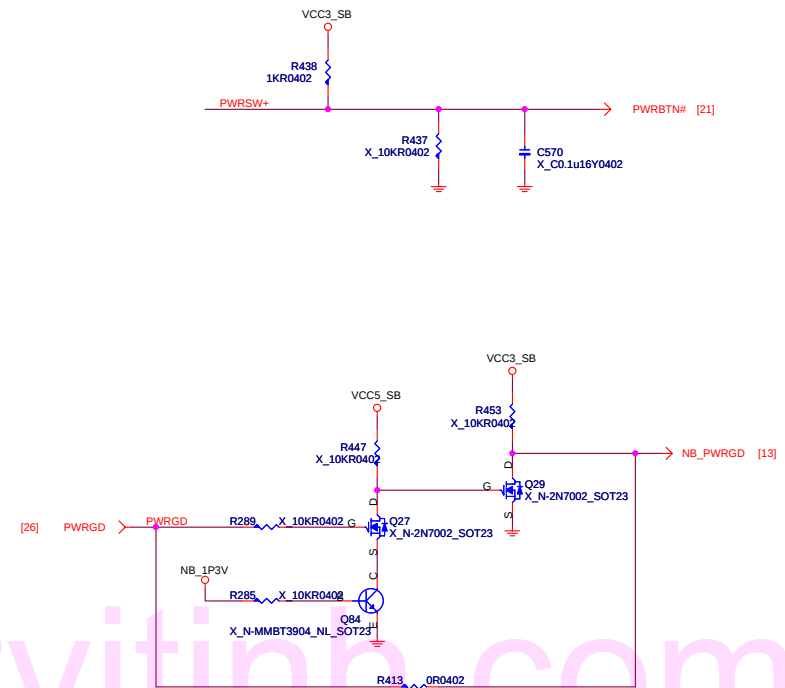
PCI SLOT DECOUPLING CAPACITORS



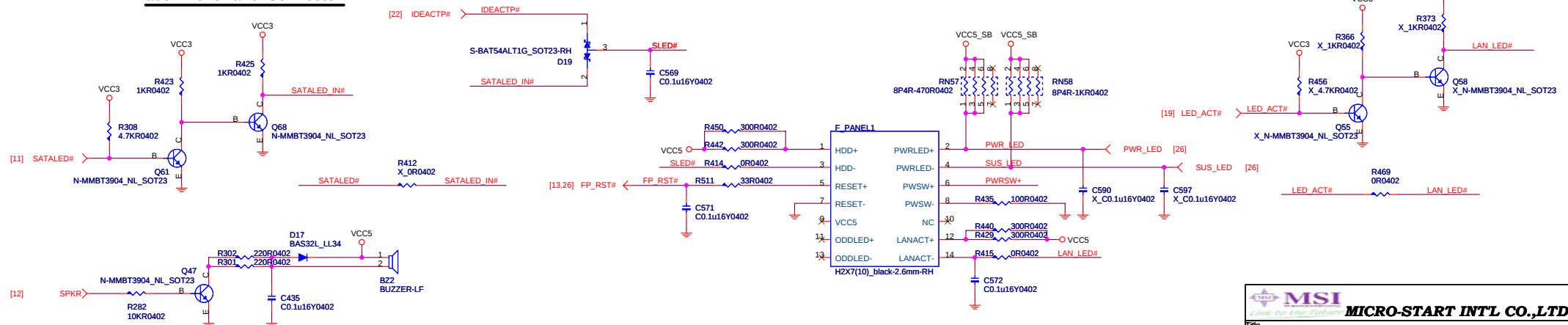
ATX CONNECTOR



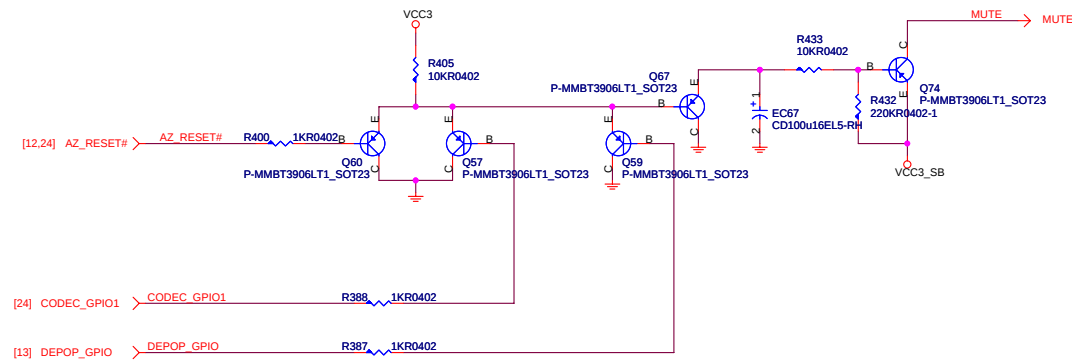
POWER BUTTON



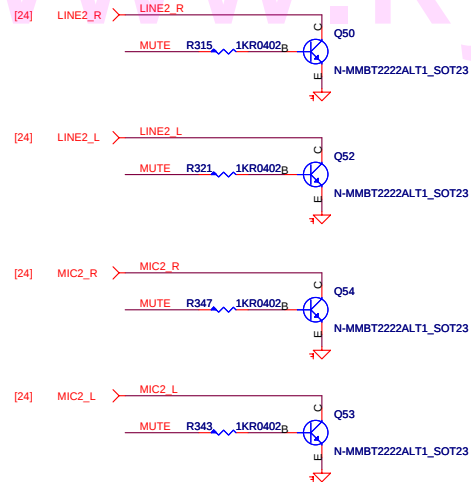
acer Front Panel Connector



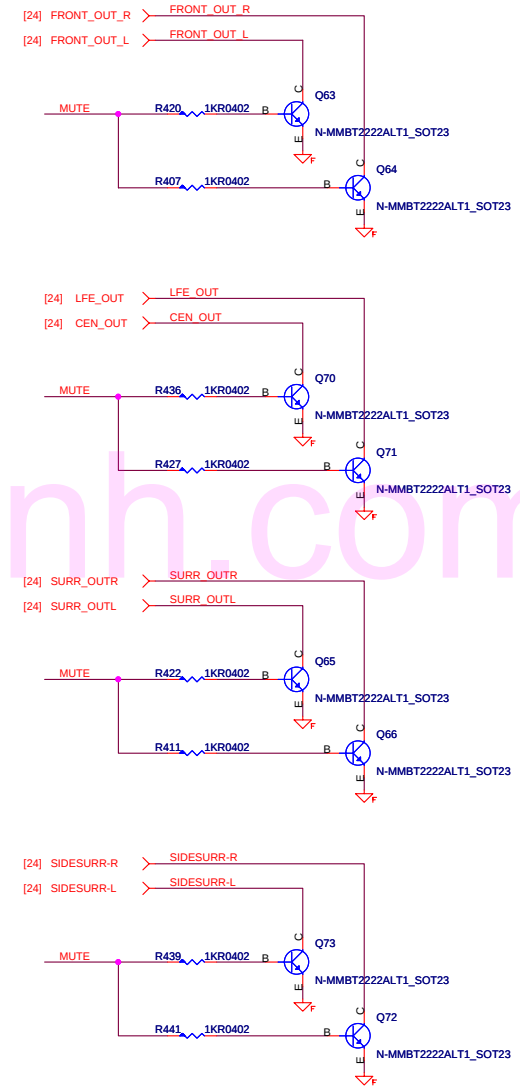
Audio De-Pop Control Circuit



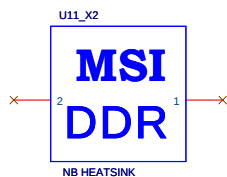
Front Audio Port De-Pop Circuit



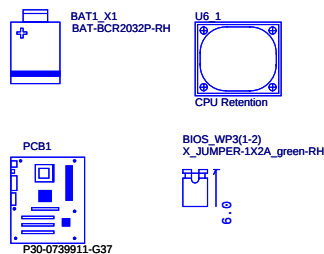
Rear Audio Port De-Pop Circuit



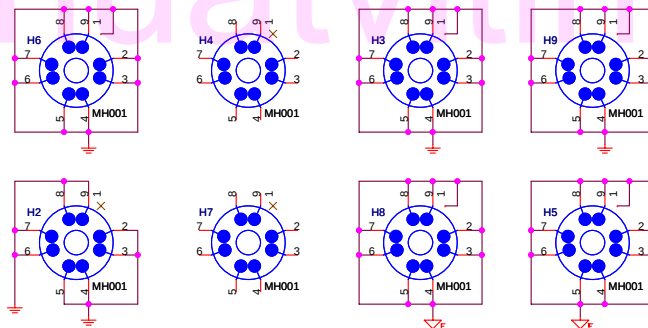
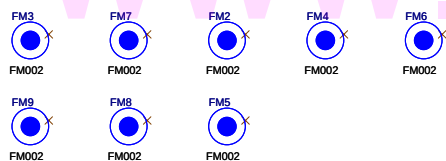
HEAT SINK



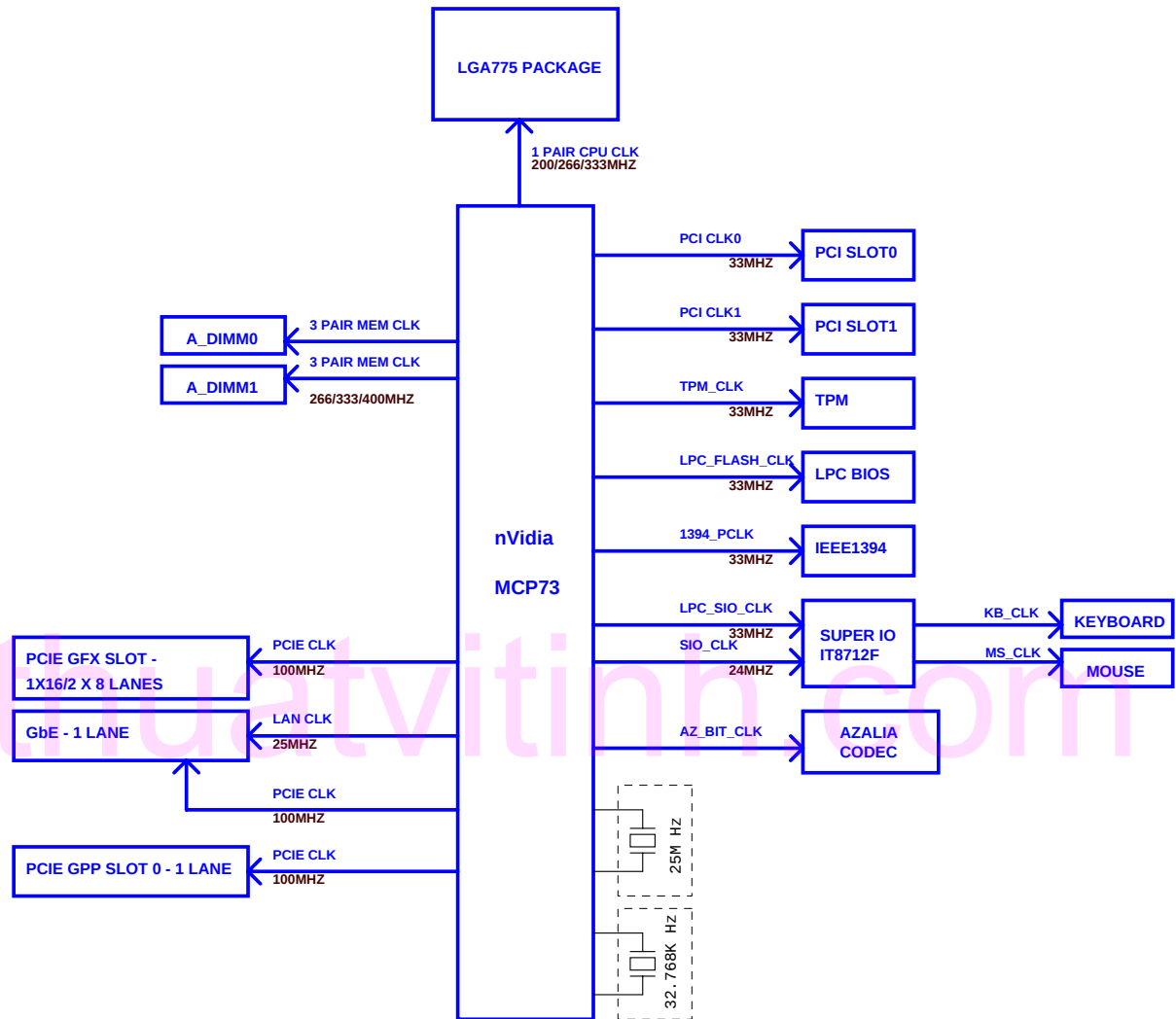
MANUAL PART

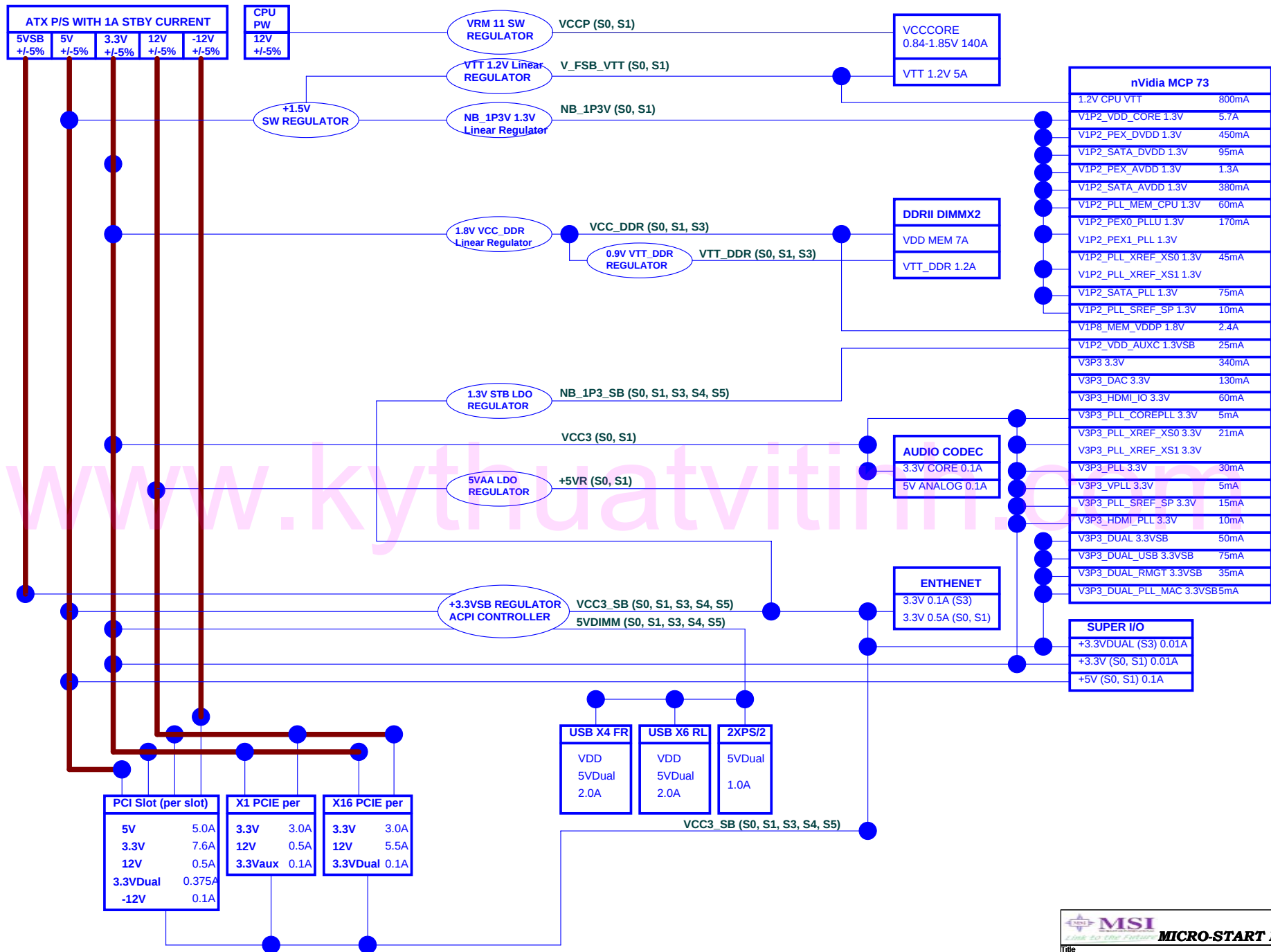


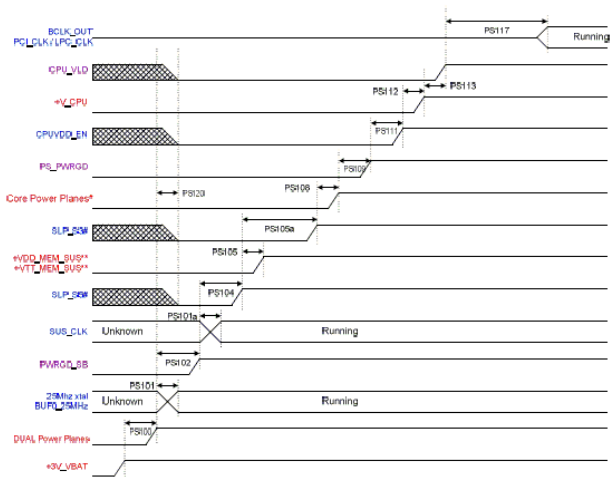
Optics Orientation Holes



www.kytronic.com





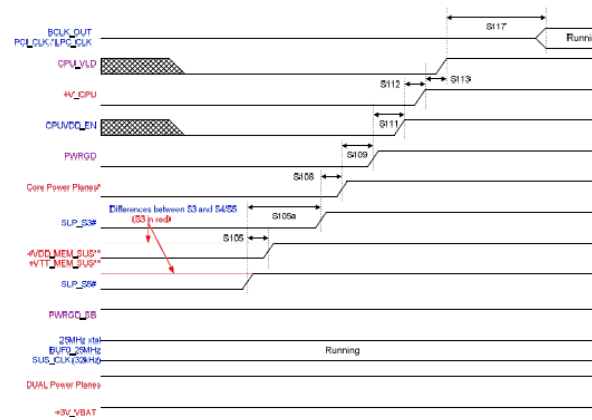


Power Planes in Red MCP73 output signals in Blue Motherboard generated signals in Purple

* Core Planes include:
All power planes without _DUAL or _SUS in the name except:
CPU Core Power Plane

** DDR2 Memory Power Planes:
VDD = 1.8V
VTT = 0.9V

MCP73 G3-to-S0 Power-Up Sequence

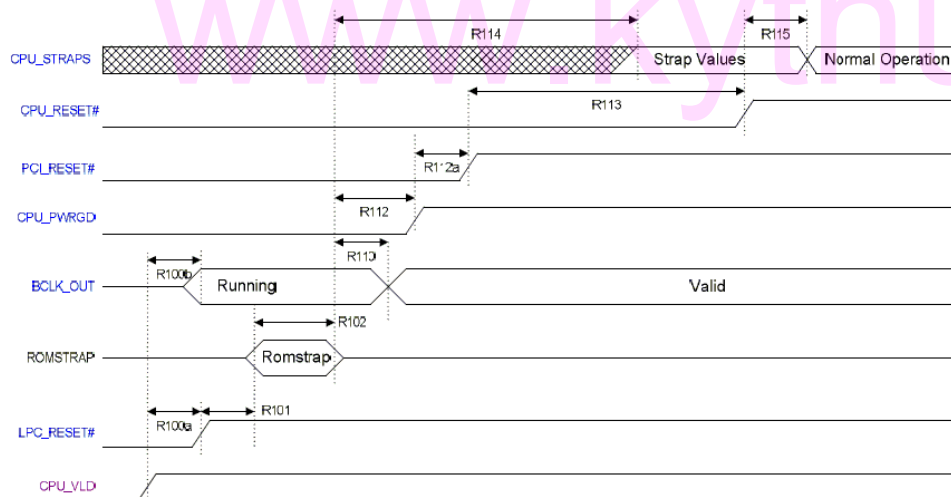


Power Planes in Red MCP73 output signals in Blue Motherboard generated signals in Purple

* Core Planes include:
All power planes without _DUAL or _SUS in the name except:
- CPU Core Power Plane

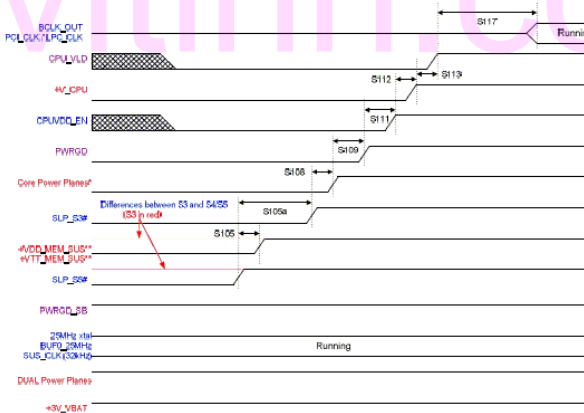
** DDR2 Memory Power Planes:
VDD = 1.8V
VTT = 0.9V

MCP73 S3/S4/S5 to S0 Power Resume Sequence



MCP73 output signals in Blue Motherboard generated signals in Purple

MCP73 Cold Reset Power-Up Sequence



Power Planes in Red MCP73 output signals in Blue Motherboard generated signals in Purple

* Core Planes include:
All power planes without _DUAL or _SUS in the name except:
- CPU Core Power Plane

** DDR2 Memory Power Planes:
VDD = 1.8V
VTT = 0.9V

MCP73 S3/S4/S5 to S0 Power Resume Sequence