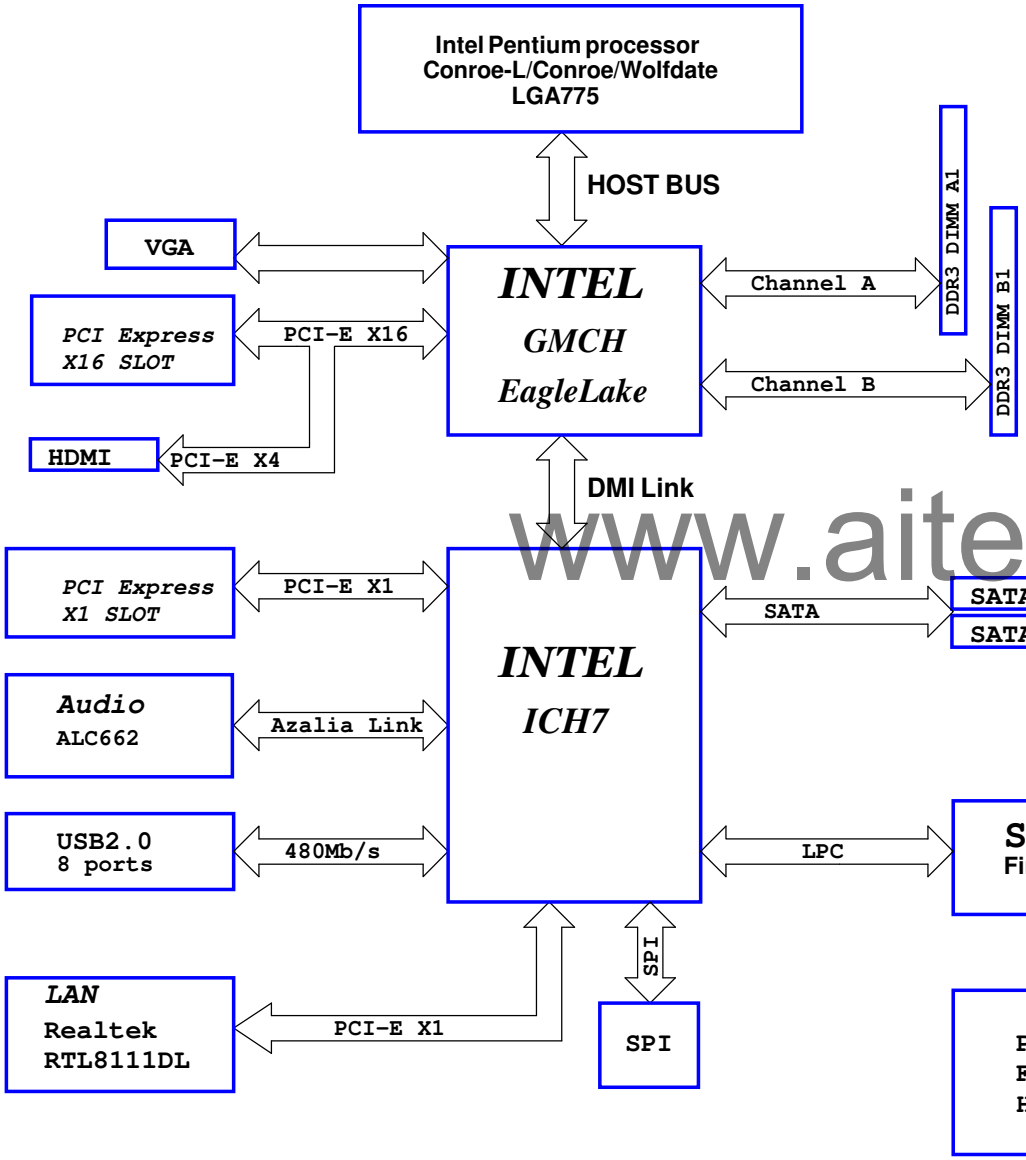
IPX41-D3

Revision:1.02



53	53.+5V_DUAL
54	54.+3P3V_PCIE&+3P3V_LAN
55	
56	

<Variant Name>

PEGATRON Title : Block Diagram

PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 1 of 54

ECN Control Table

ECN No.	DATE	Subject	Schematics Revision	BOM Part Number	PCBA Revision	PCB Revision

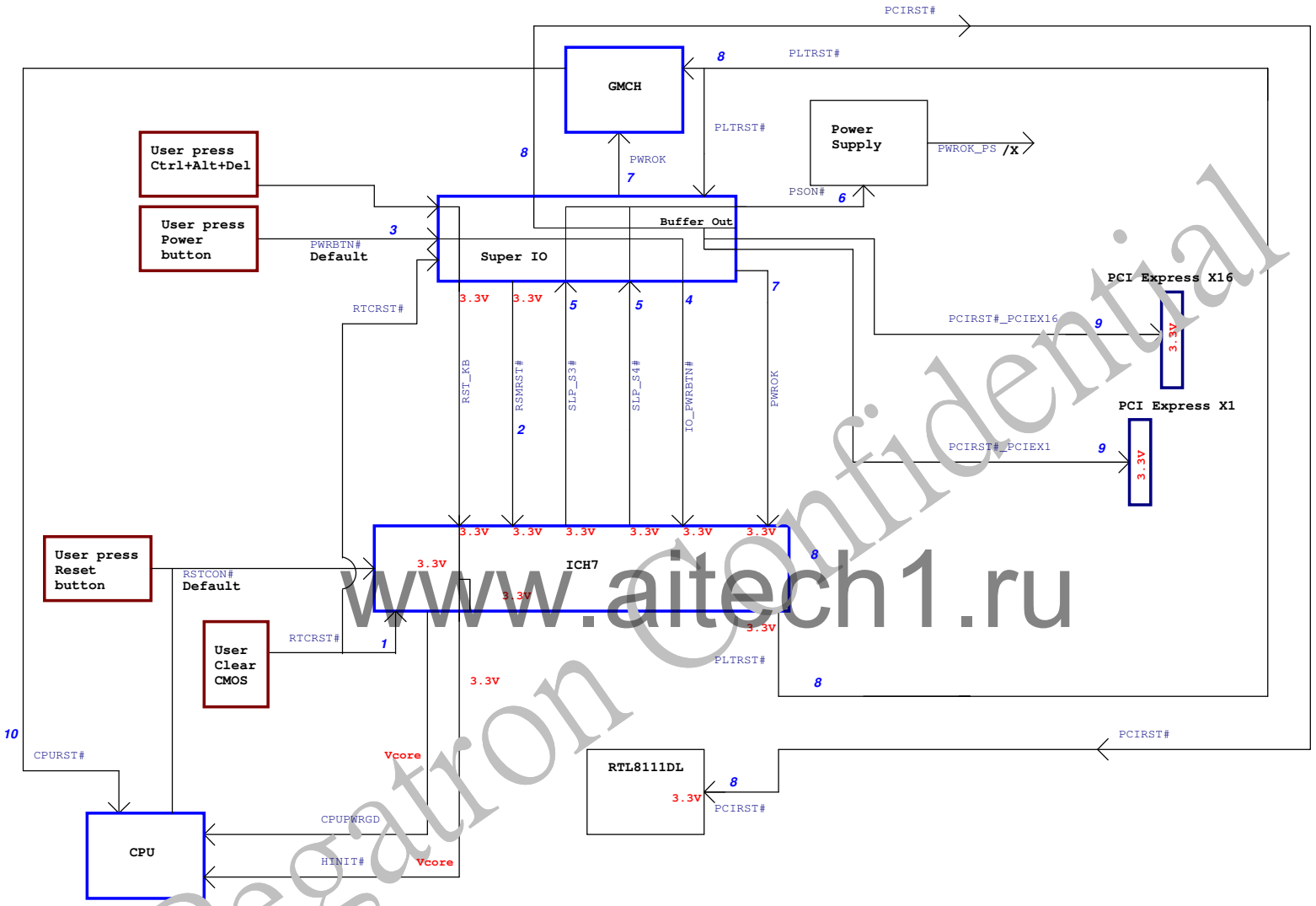
<Variant Name>

PEGATRON Title : ECN

PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 2 of 54



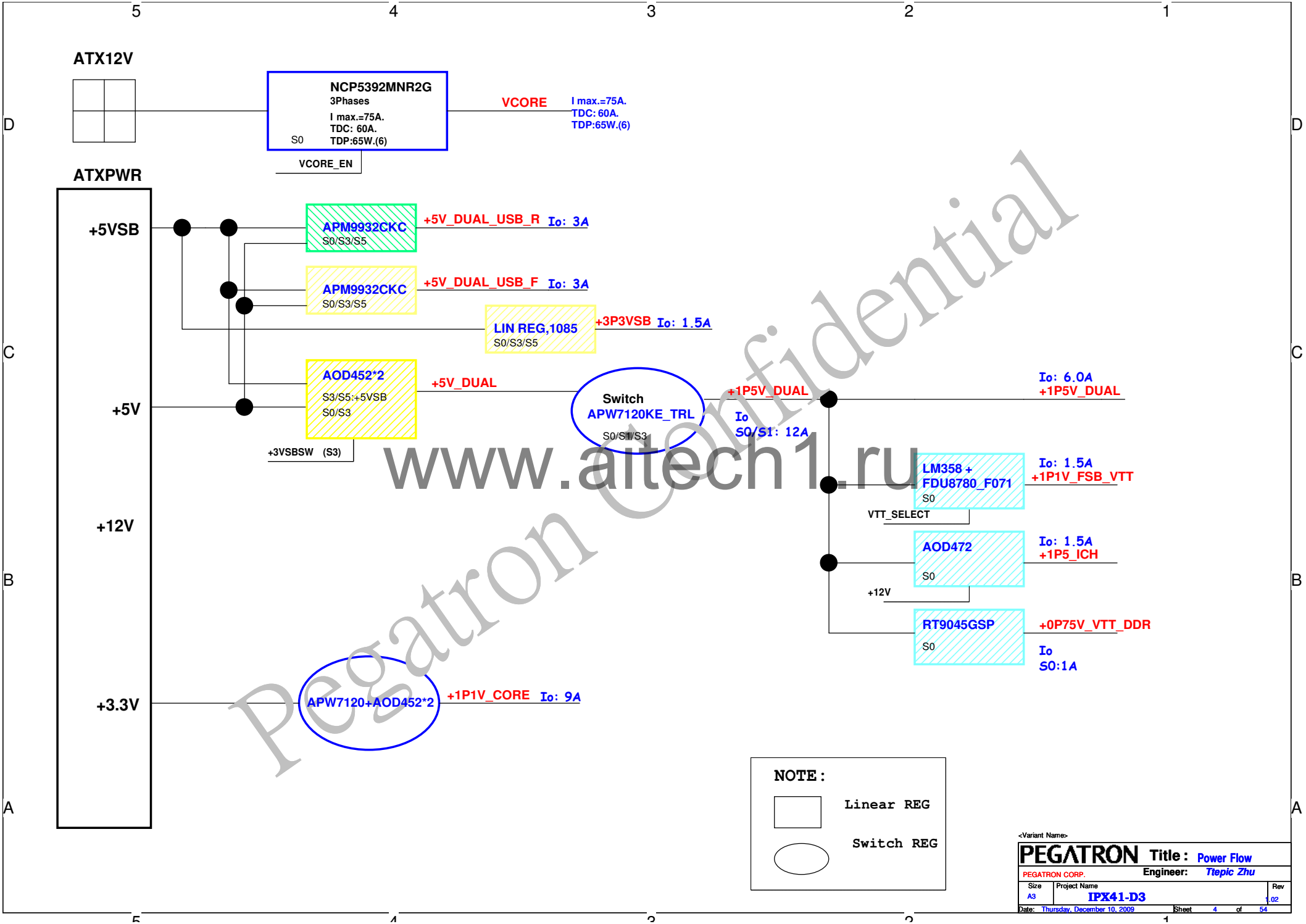
<Variant Name>

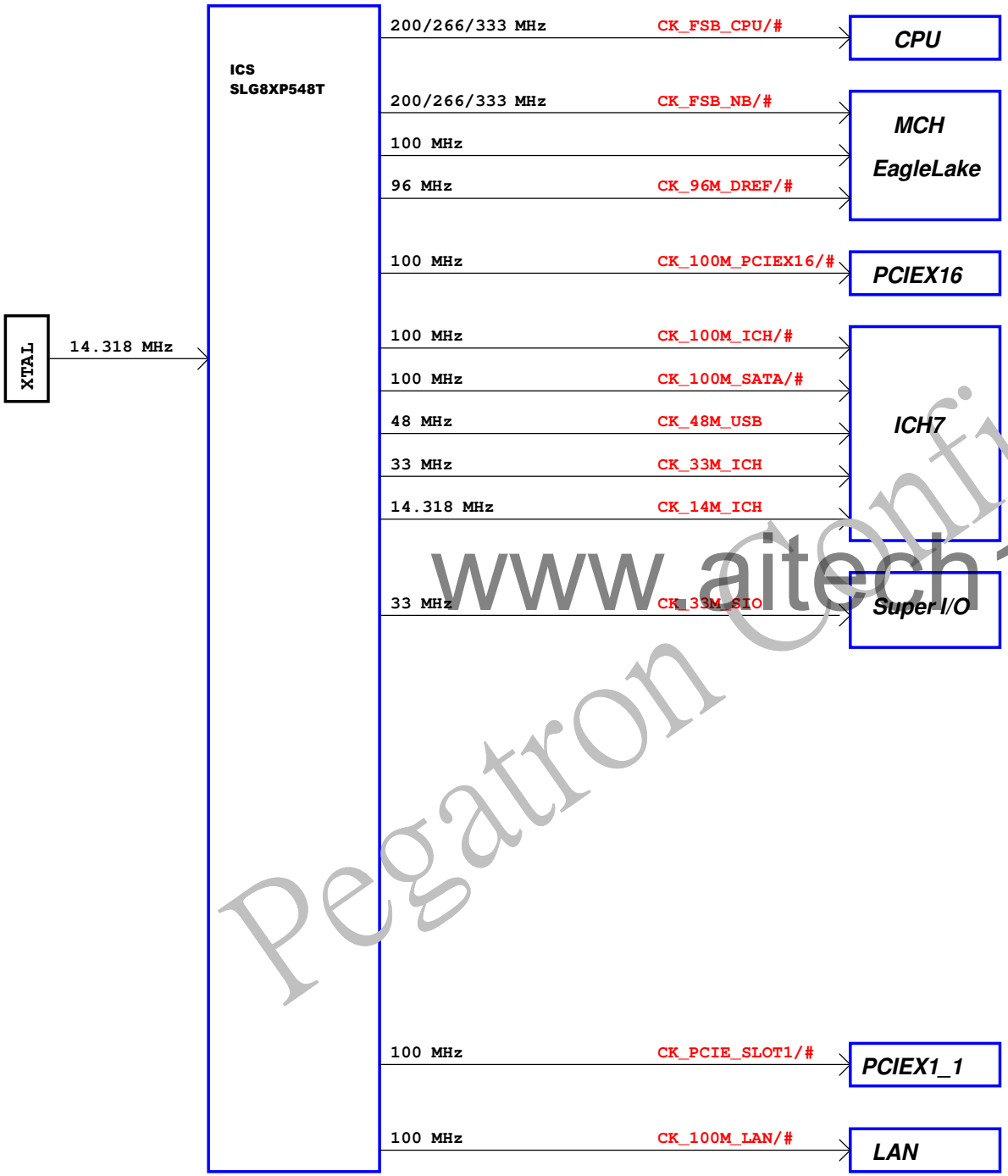
PEGATRON Title : Power Sequence

PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 3 of 54





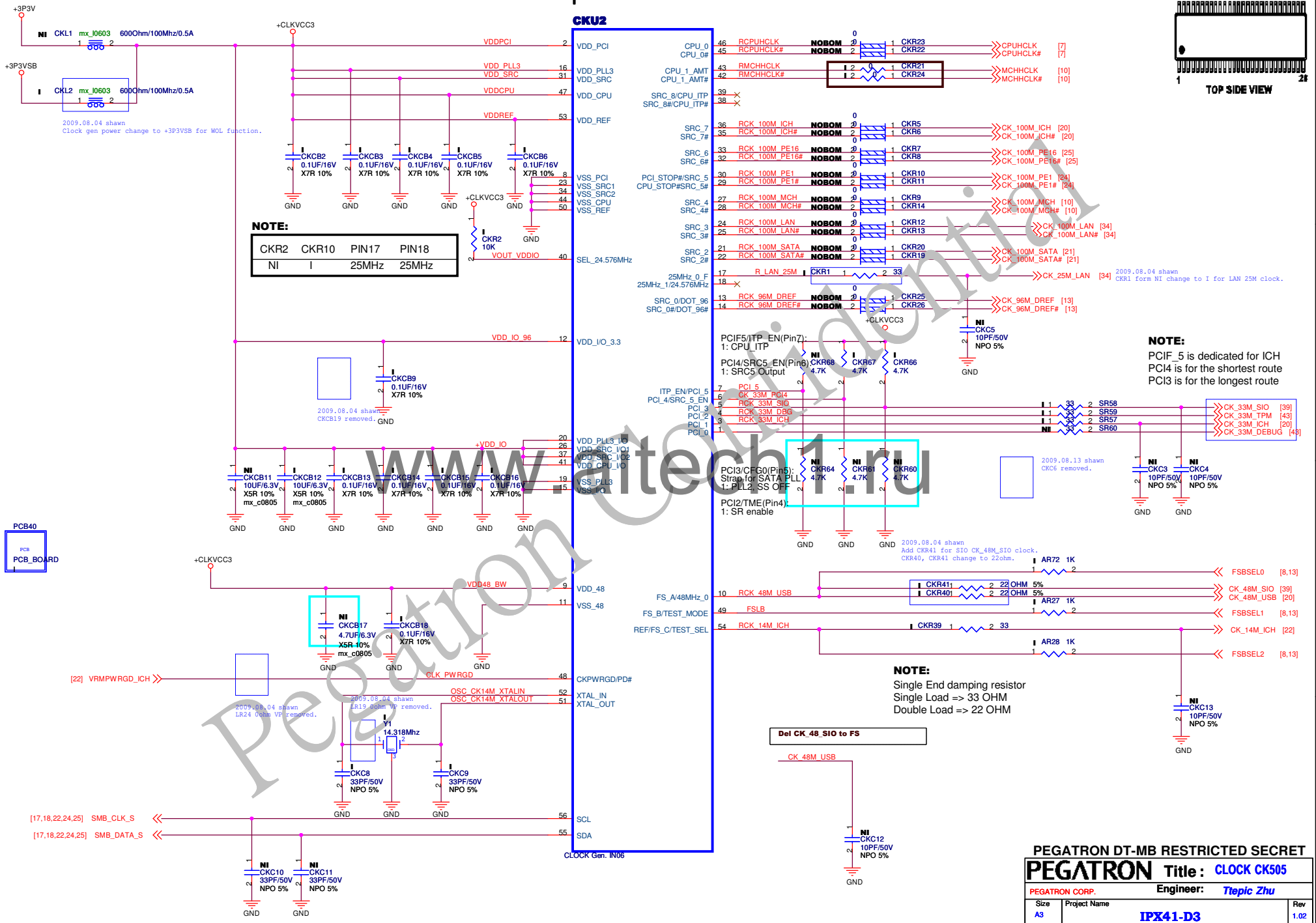
<Variant Name>

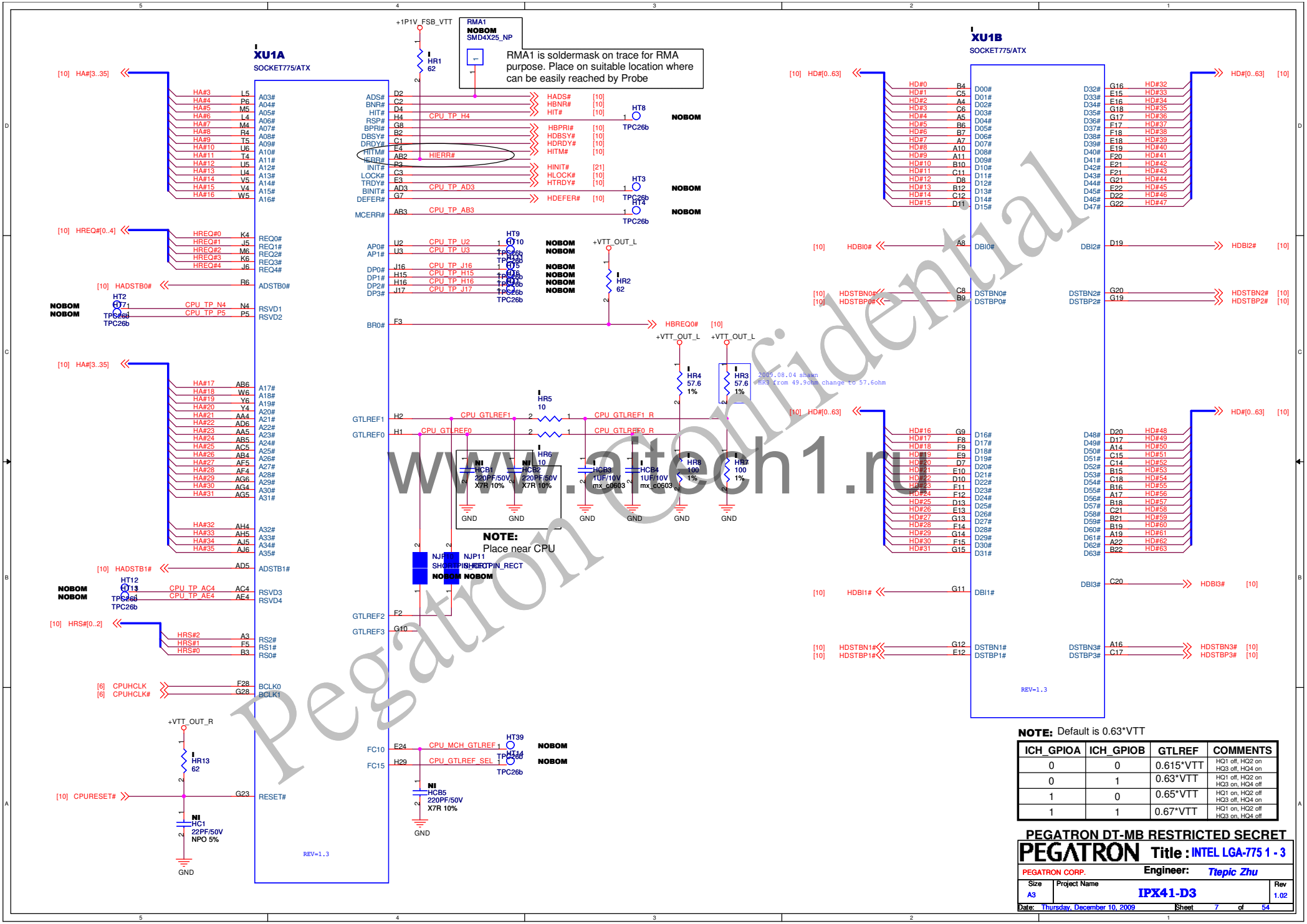
PEGATRON Title : Clock Distribution

PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 5 of 54





NOTE: Default is 0.63*VTT

ICH_GPIOA	ICH_GPIOB	GTLREF	COMMENTS
0	0	0.615*VTT	HQ1 off, HQ2 on HQ3 off, HQ4 on
0	1	0.63*VTT	HQ1 off, HQ2 on HQ3 on, HQ4 off
1	0	0.65*VTT	HQ1 on, HQ2 off HQ3 off, HQ4 on
1	1	0.67*VTT	HQ1 on, HQ2 off HQ3 on, HQ4 off

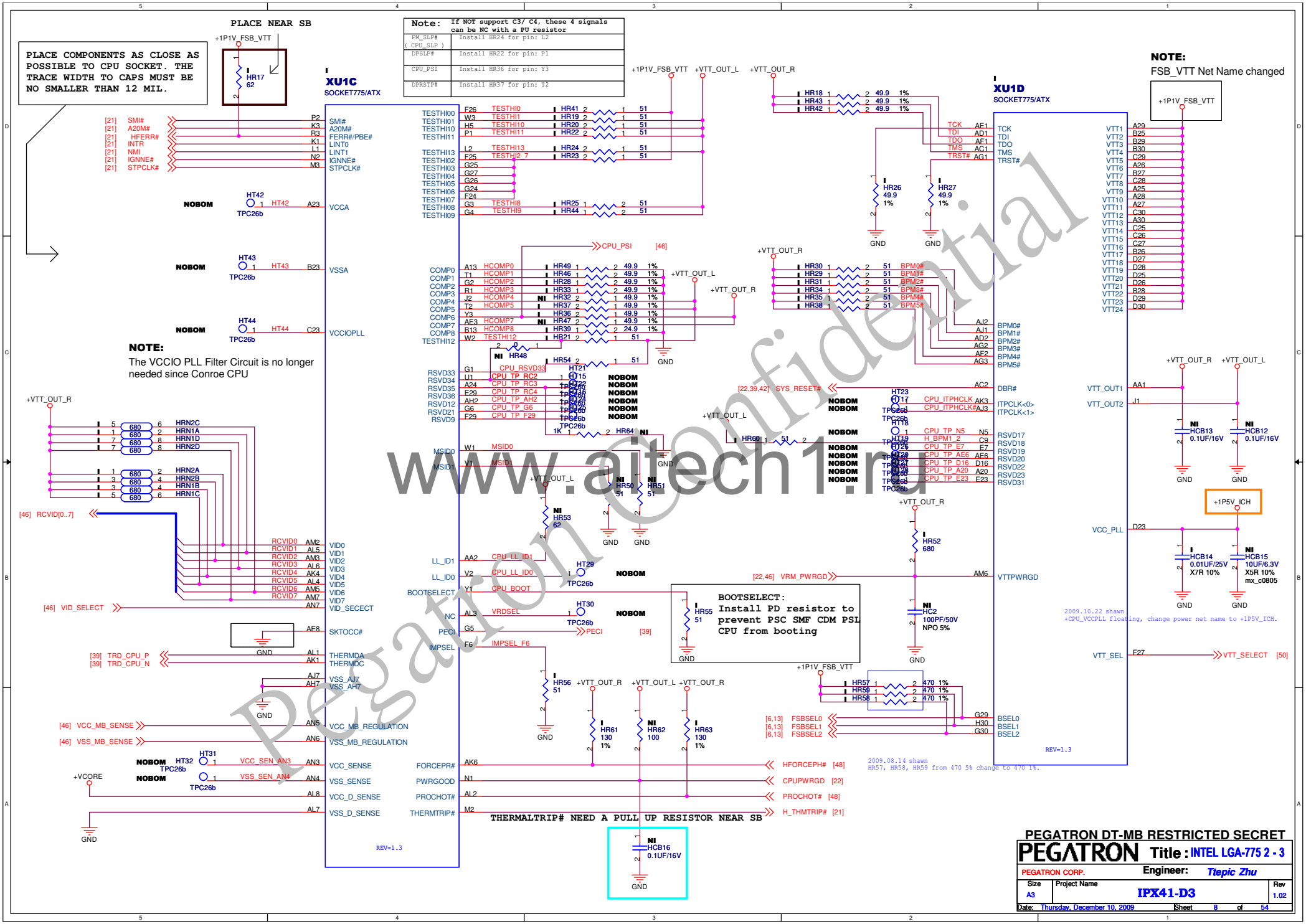
PEGATRON DT-MB RESTRICTED SECRET

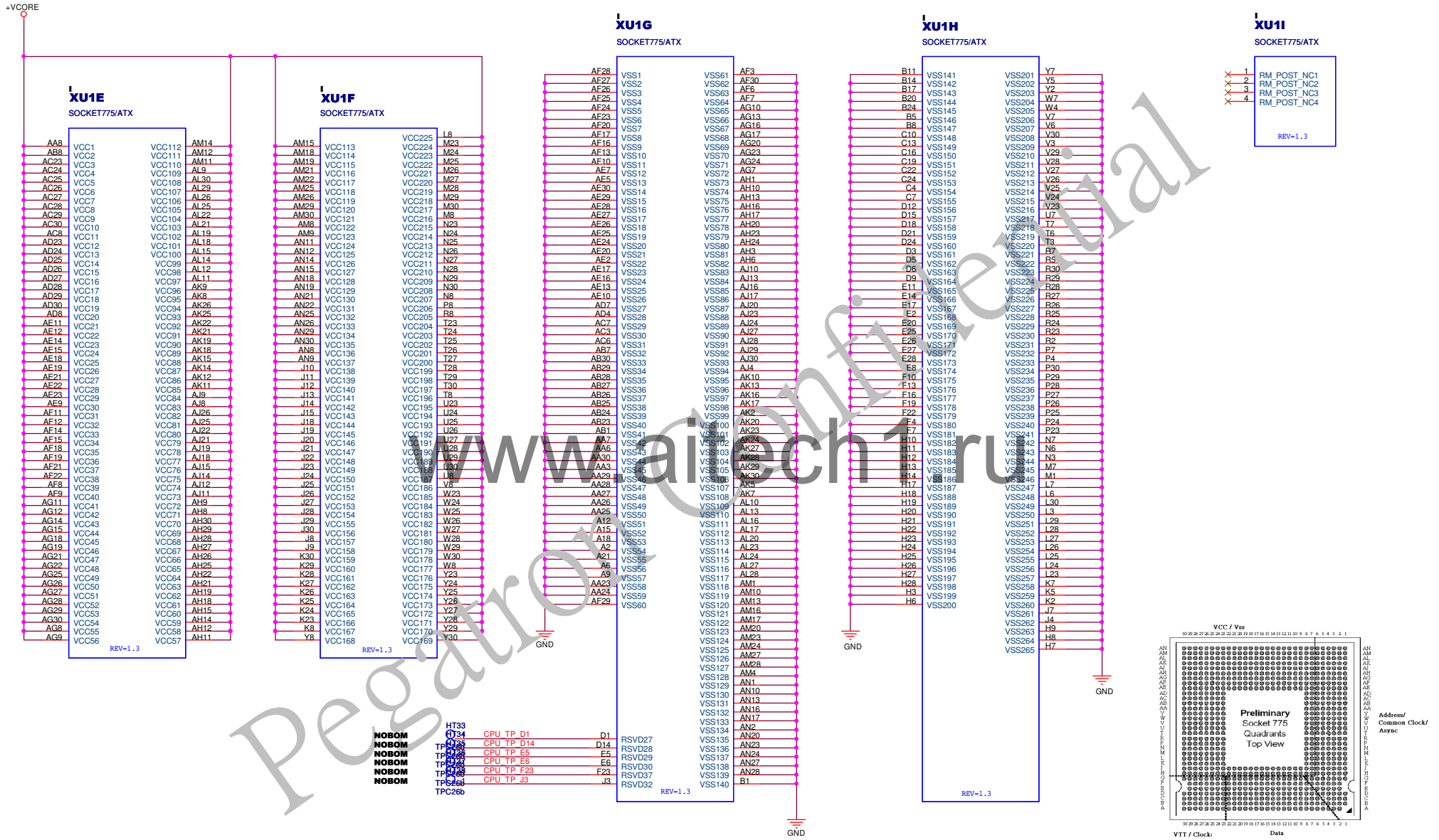
PEGATRON Title : INTEL LGA-775 1 - 3

PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 7 of 54


PLACE NEAR SB
PLACE COMPONENTS AS CLOSE AS POSSIBLE TO CPU SOCKET. THE TRACE WIDTH TO CAPS MUST BE NO SMALLER THAN 12 MIL.
Note: If NOT support C3/ C4, these 4 signals can be NC with a PU resistor
PM_SLP# (CPU_SLP) Install HR24 for pin: L2
DPSLP# Install HR22 for pin: P1
CPU_PSI Install HR36 for pin: Y3
DPRSTP# Install HR37 for pin: T2
XU1C
SOCKET775/ATX
XU1D
SOCKET775/ATX
NOTE:
FSB_VTT Net Name changed
NOTE:
The VCCIO PLL Filter Circuit is no longer needed since Conroe CPU
BOOTSELECT:
Install PD resistor to prevent PSC SMF CDM PSI CPU from booting
THERMALTRIP# NEED A PULL UP RESISTOR NEAR SB
2009.10.22 shawn
+CPU_VCCPLL floating, change power net name to +1P5V_ICH.
2009.08.14 shawn
HR57, HR58, HR59 from 470 5% change to 470 1%.
REV=1.3
REV=1.3
www.aitech1.ru
Pegatron Confidential
PEGATRON DT-MB RESTRICTED SECRET
PEGATRON
Title : INTEL LGA-775 2 - 3
PEGATRON CORP.
Engineer: Ttepic Zhu
Size A3
Project Name IPX41-D3
Rev 1.02
Date: Thursday, December 10, 2009
Sheet 8 of 54



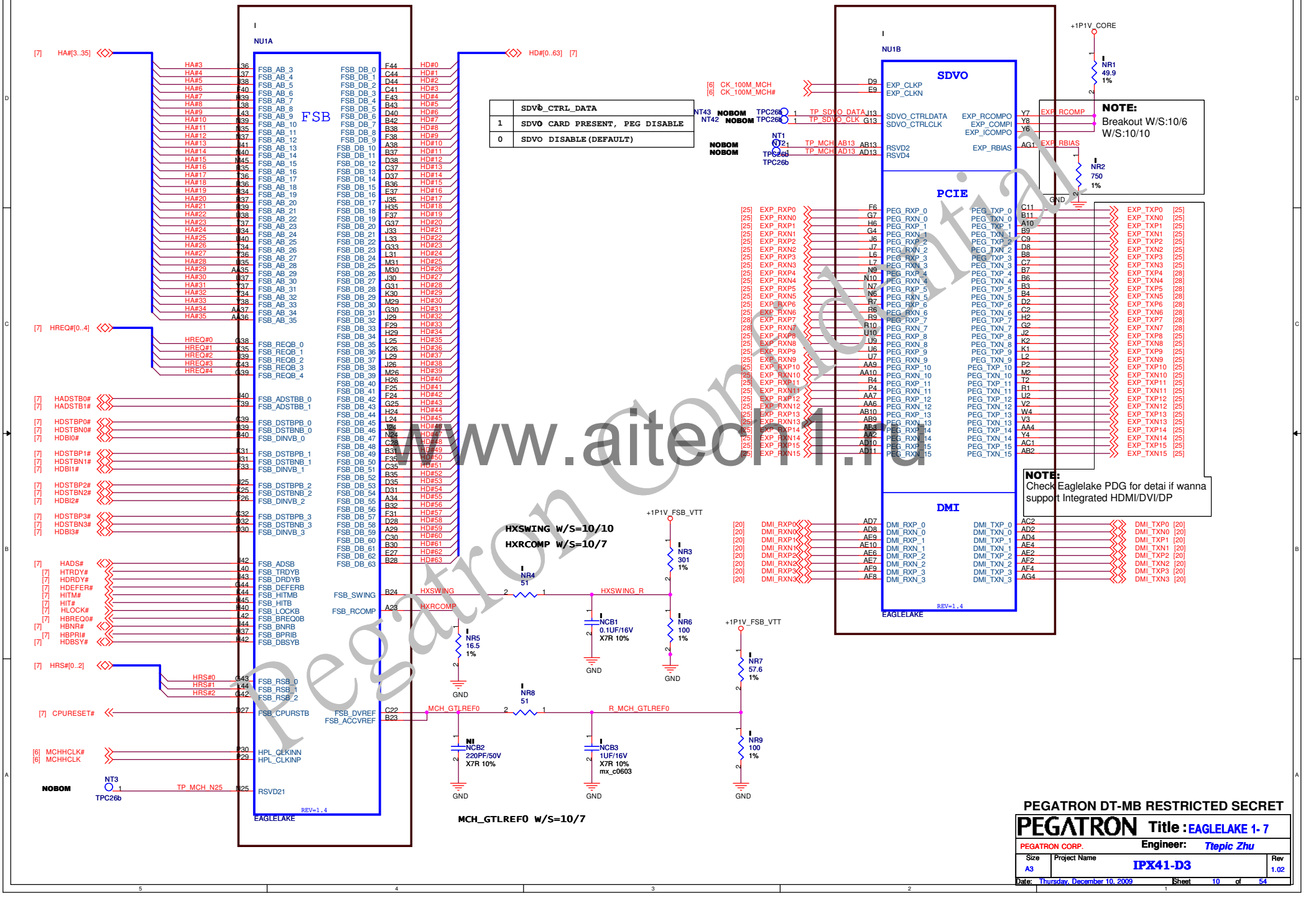
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : INTEL LGA-775 3 - 3

PEGATRON CORP. Engineer: Ttepic Zhu

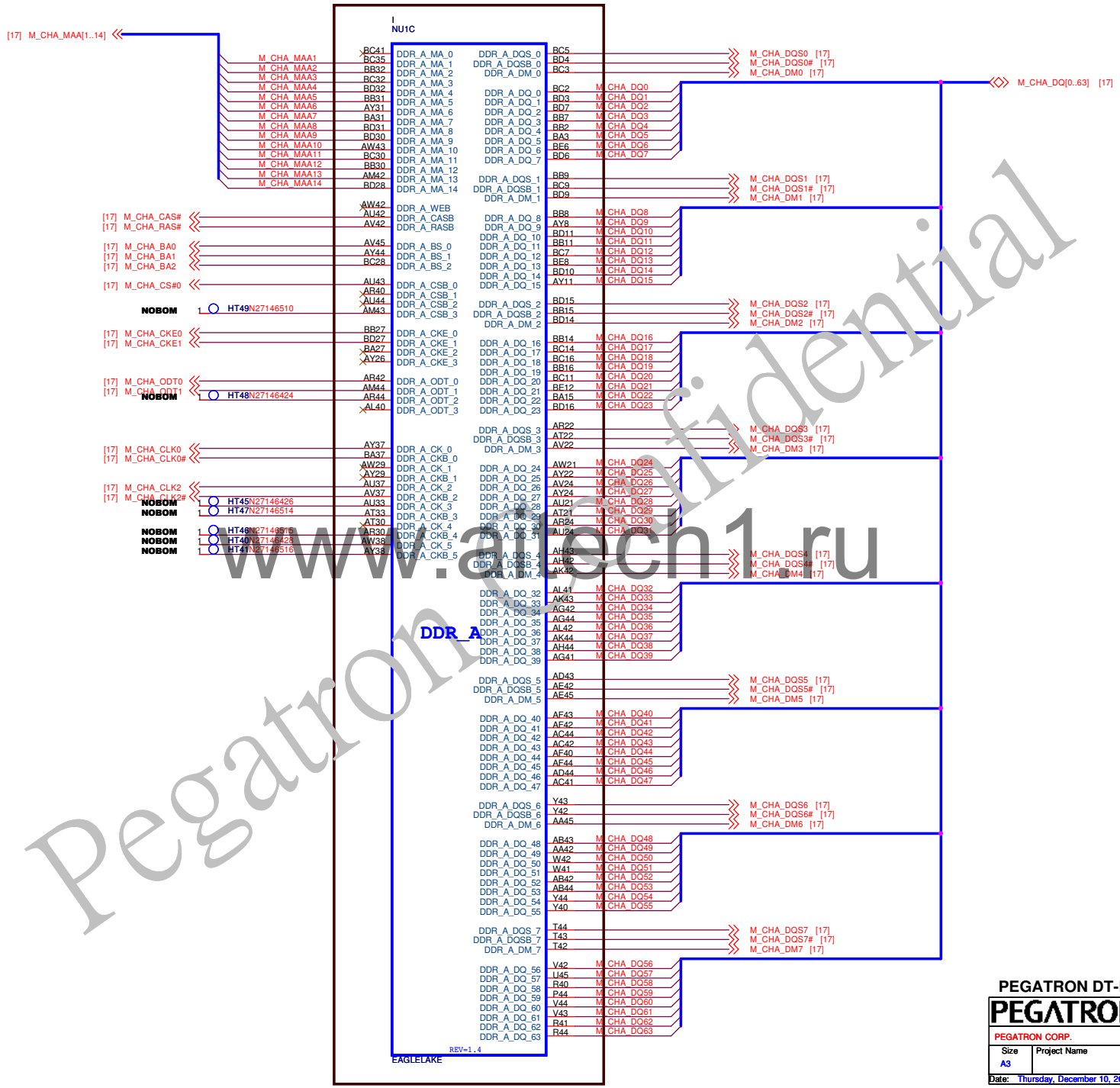
Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 9 of 54



PEGATRON DT-MB RESTRICTED SECRET

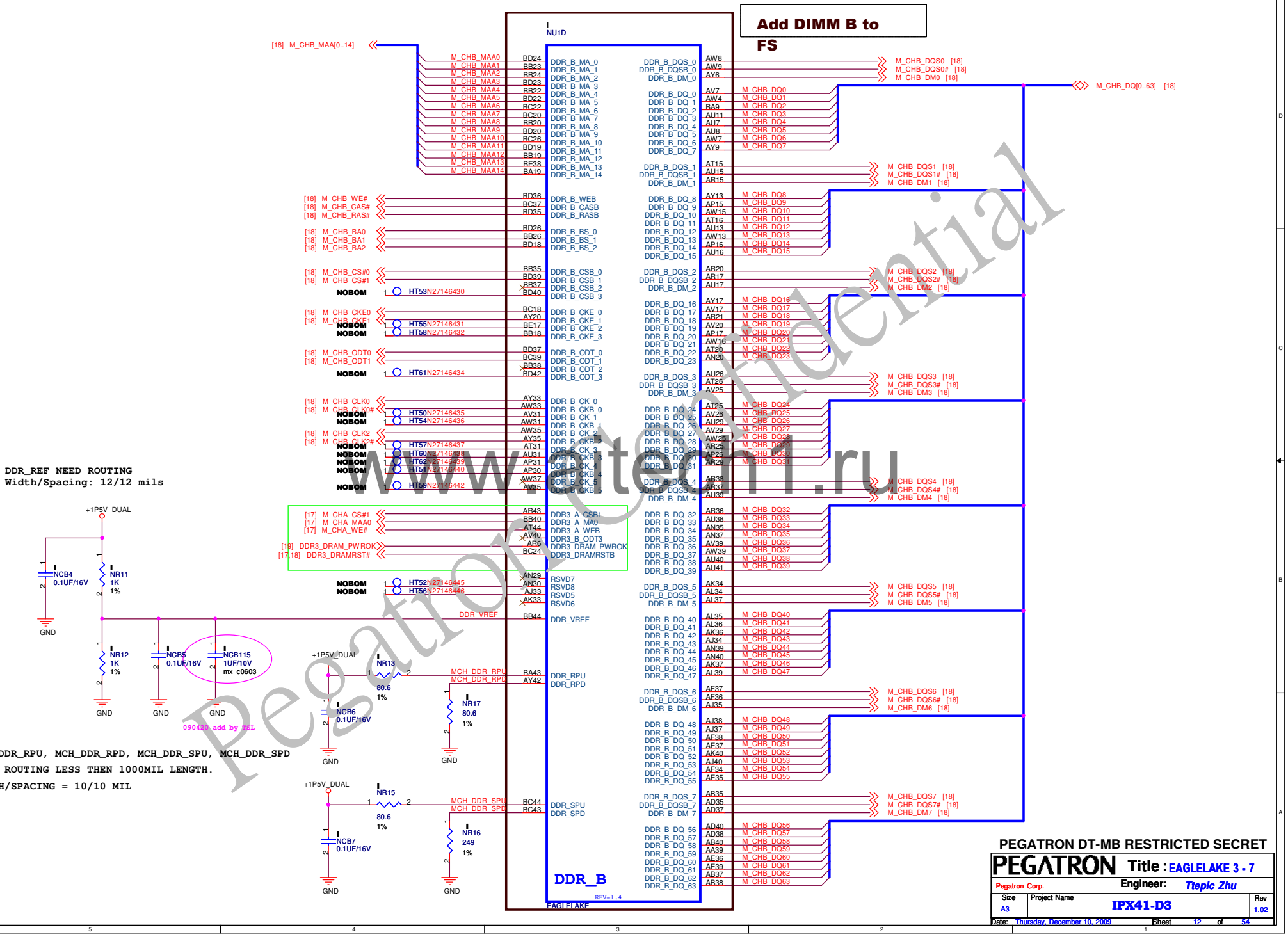
PEGATRON	Title : EAGLELAKE 1- 7		
PEGATRON CORP.	Engineer: Ttepic Zhu		
Size: A3	Project Name: IPX41-D3		Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 10 of 54		



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : EAGELLAKE 2 - 7	
PEGATRON CORP.	Engineer: Titepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 11 of 54	

Add DIMM B to FS



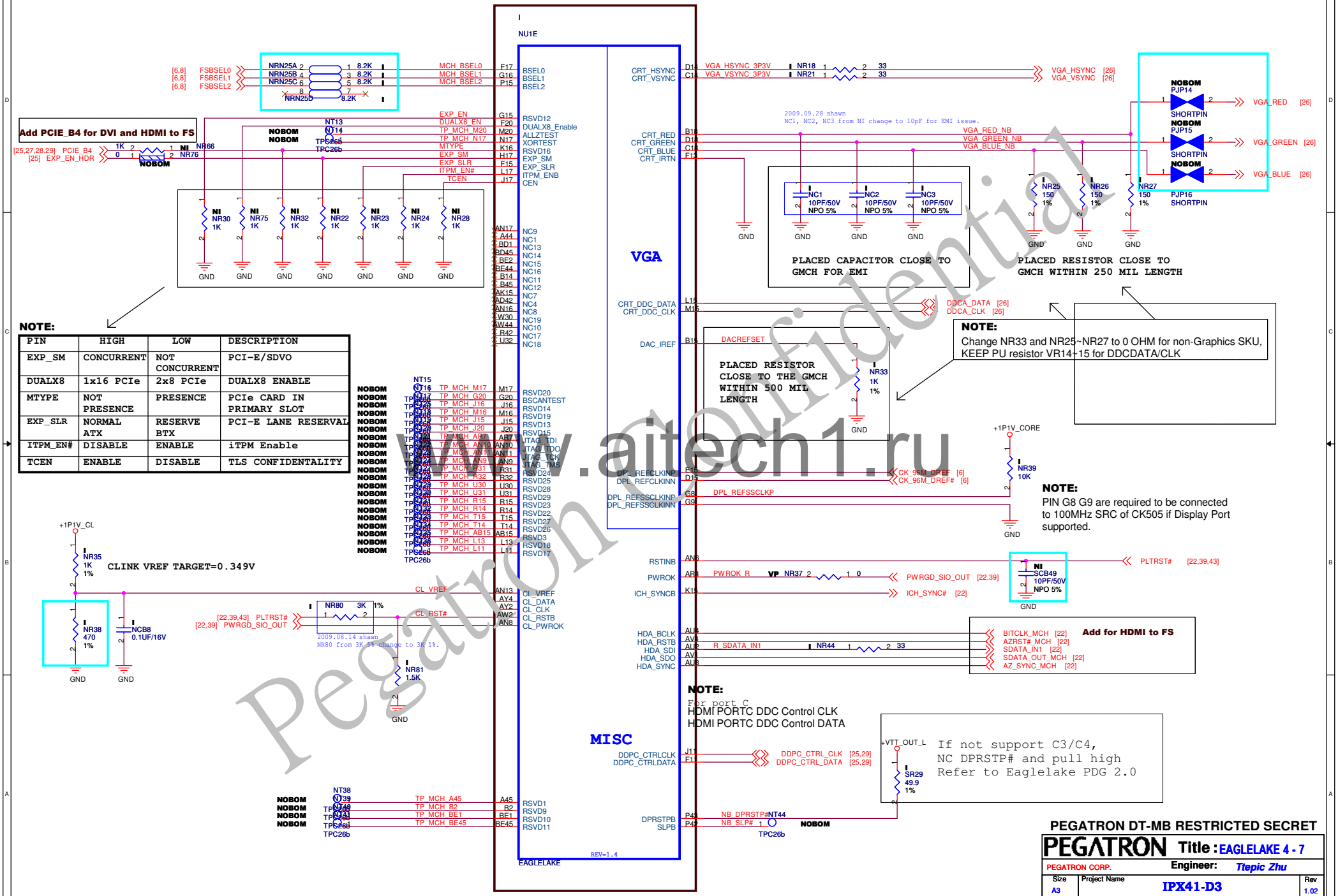
PEGATRON DT-MB RESTRICTED SECRET

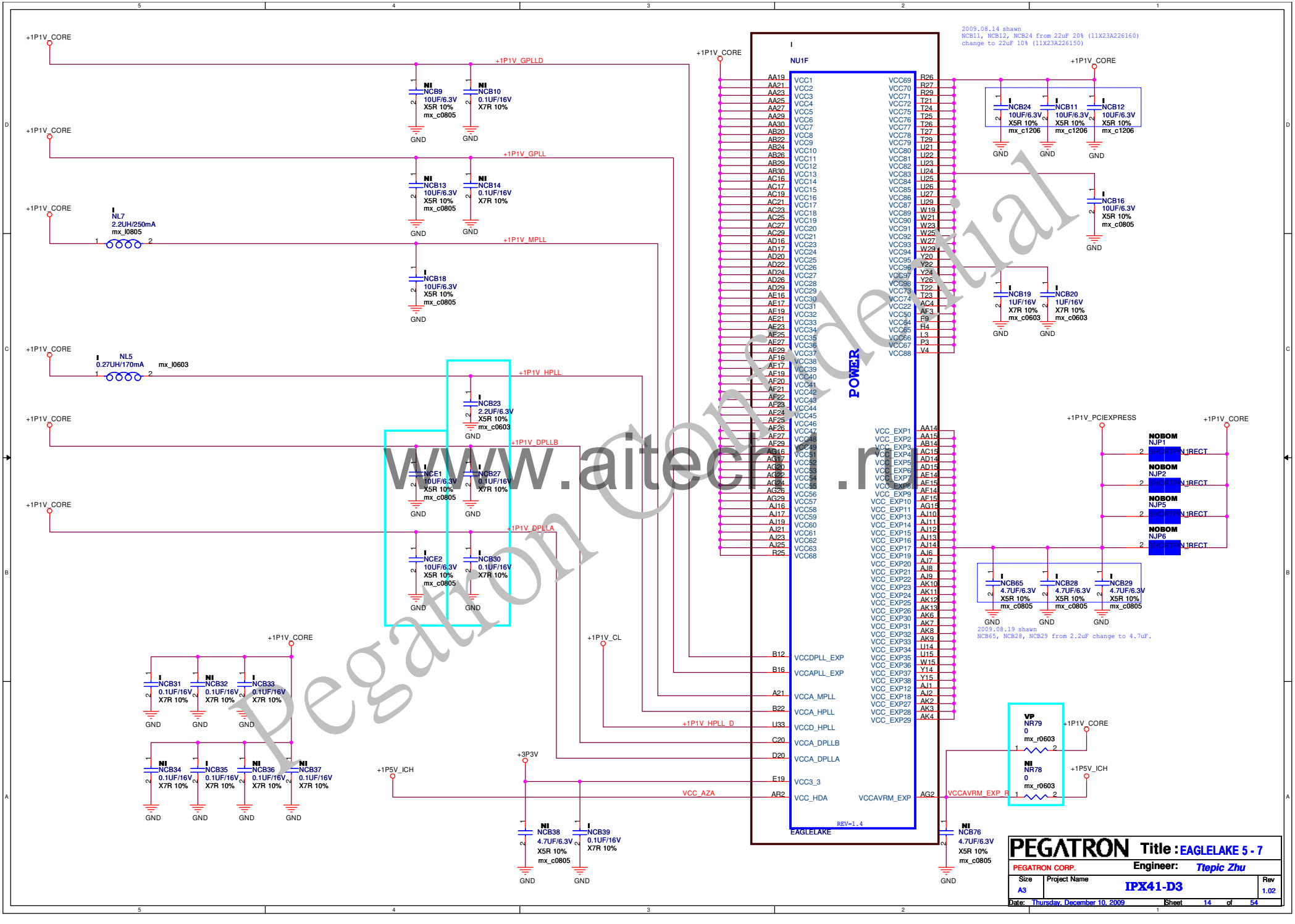
PEGATRON Title : EAGLELAKE 3 - 7

Pegatron Corp. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 12 of 54



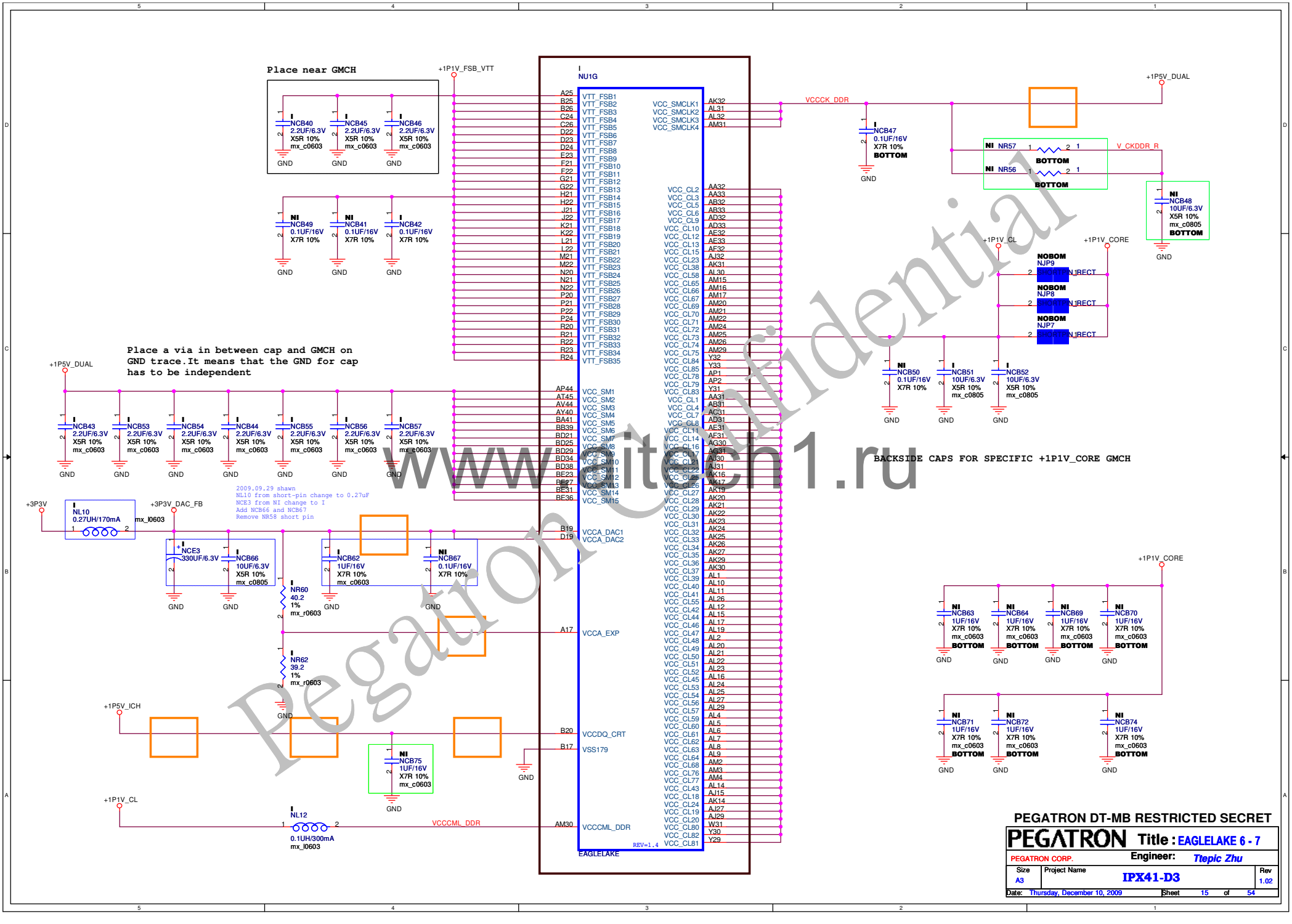


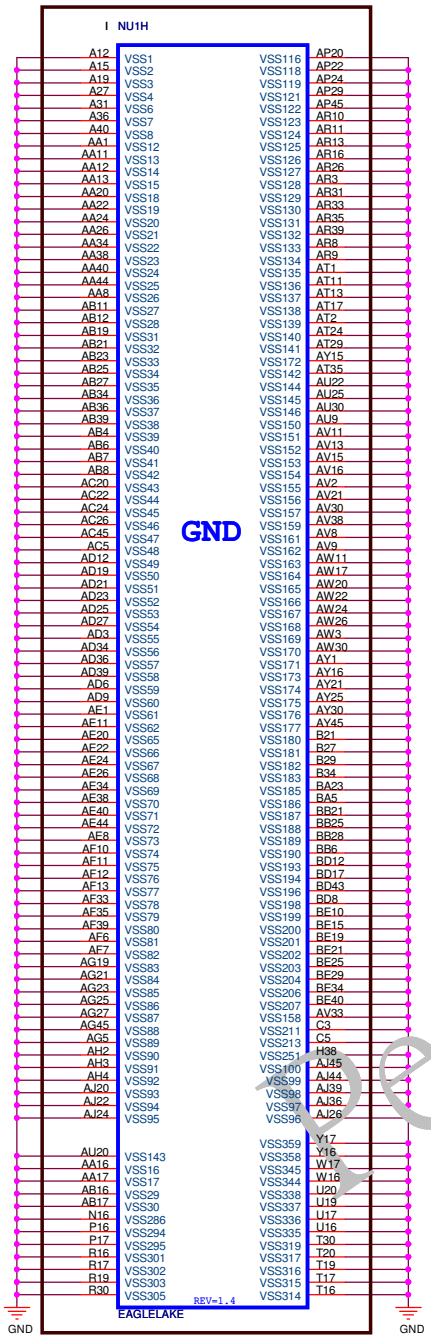
PEGATRON Title : EAGLELAKE 5 - 7

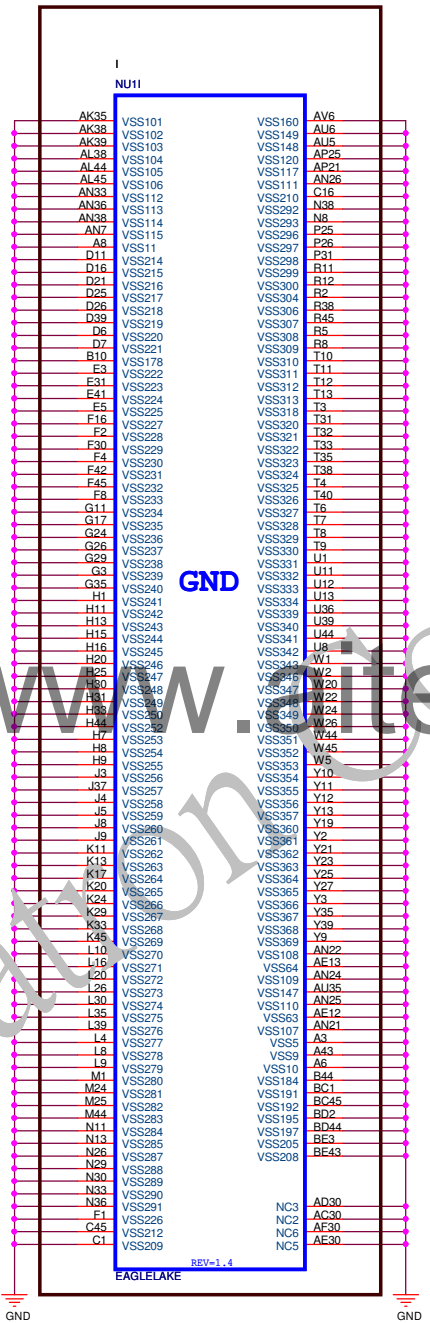
PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 14 of 54





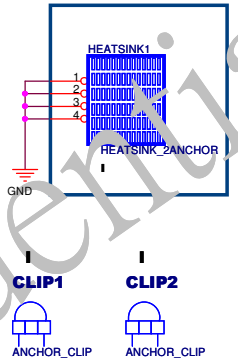


EAGLELAKE-P/Q/G

13G070110360 HEATSINK 42.2*42.2*30mm SILVER

13G070183000 HEATSINK 42.3*42.3*30mm GLUE

13G070308012 HEATSINK 42.3*42.3*30mm SILVER



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : EAGLELAKE 7 - 7

PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 16 of 54

NOTE:
Below 4 signals are different connection in Eaglelake platform
Channel A : CS1/WE/MA0
Channel B : ODT3 (G41 No ODT3)

XMM1 COLOR: BLUE

M_CHA_DQ[0..63] [11]
M_CHA_MAA[1..14] [11]
M_CHA_MAA0 [12]

DIMMA0A

NOTE:
Check clock source if Eaglelake implemented

06/03 Important! follow Intel MRC code, only DIMMA need.

SWAP DATA signal

DDR3_DIMM_240P

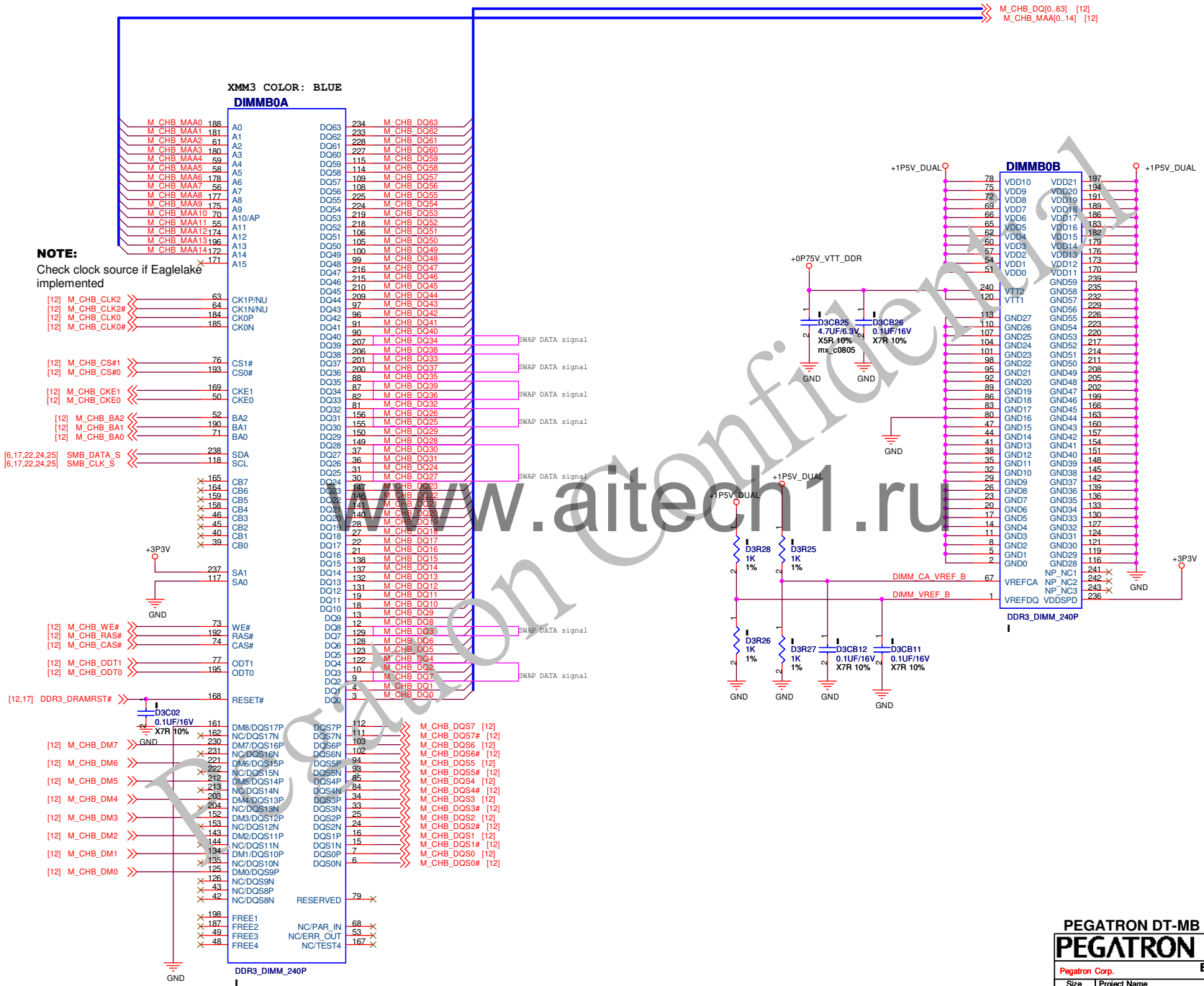
DIMMA0B

+1P5V_DUAL
+0P75V_VTT_DDR
D3CB17 4.7UF/6.3V X5R 10% mx_c0805
D3CB18 0.1UF/16V X7R 10%
D3R17 1K 1%
D3R15 1K 1%
D3R18 1K 1%
D3R16 1K 1%
D3CB6 0.1UF/16V X7R 10%
D3CB5 0.1UF/16V X7R 10%
DIMM_CA_VREF_A
DIMM_VREF_A
+3P3V
GND

DDR3_DIMM_240P

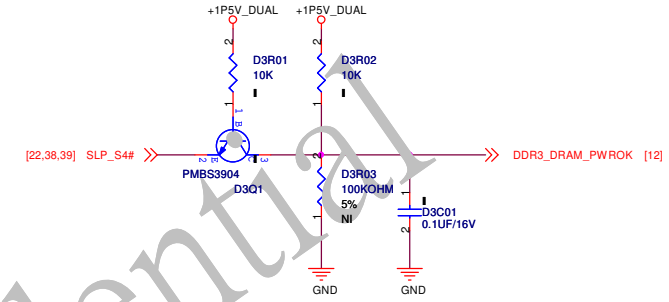
PEGATRON DT-MB RESTRICTED SECRET

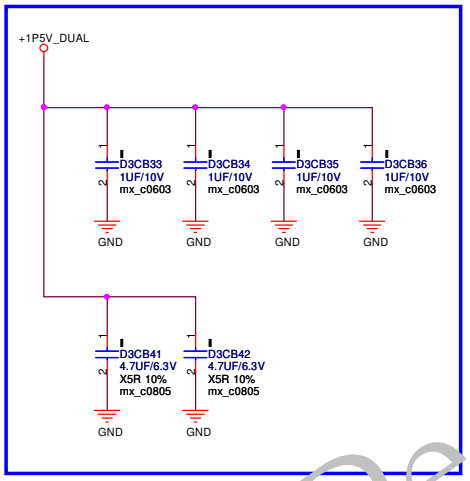
PEGATRON	Title : DDR3 DIMMA	
Pegatron Corp.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 17 of 54	



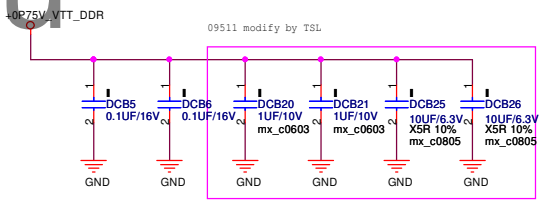
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : DDR3 DIMMB		
Pegatron Corp.	Engineer: Ttepic Zhu		
Size: A3	Project Name: IPX41-D3		Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 18 of 54		



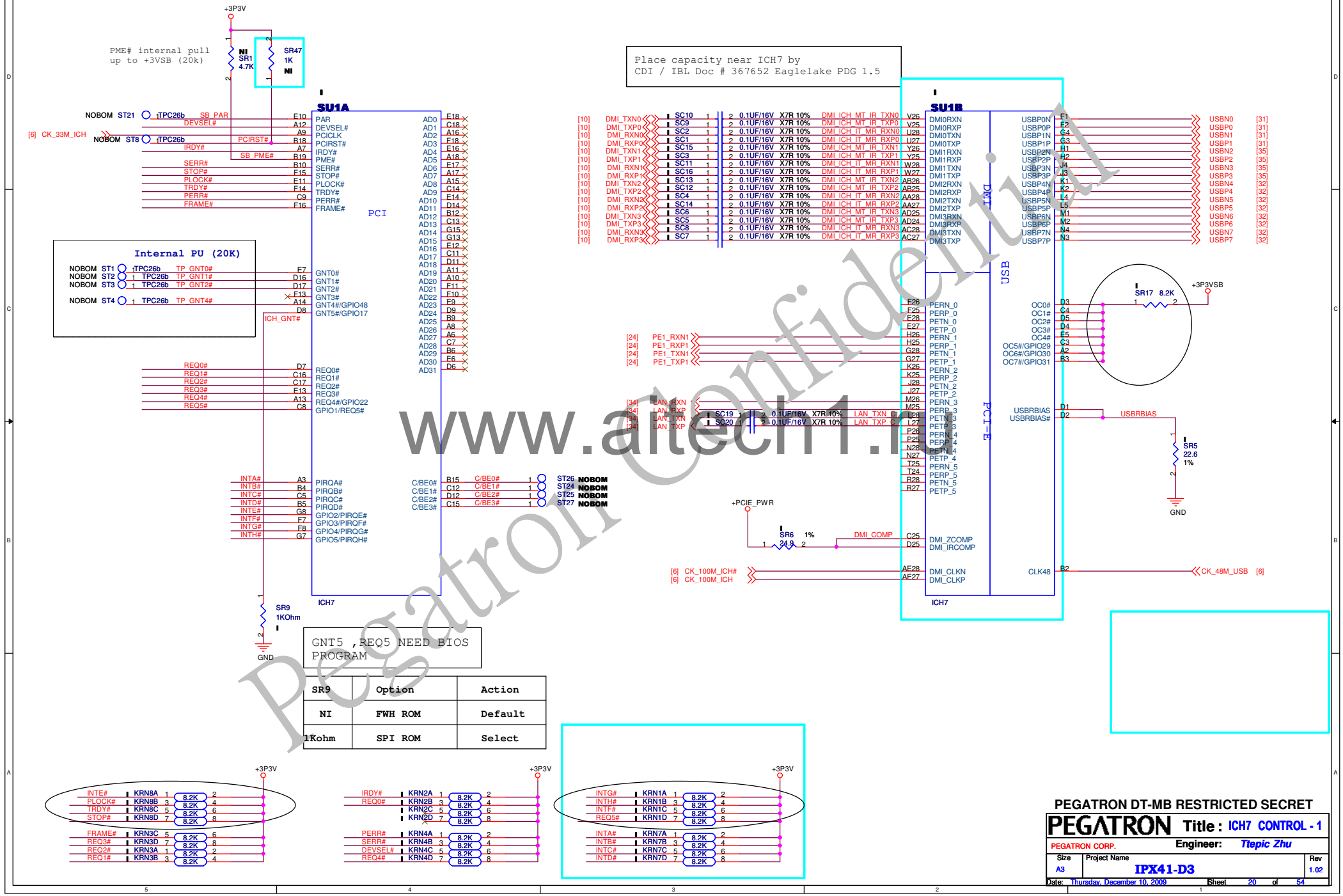


09511 modify by TSL

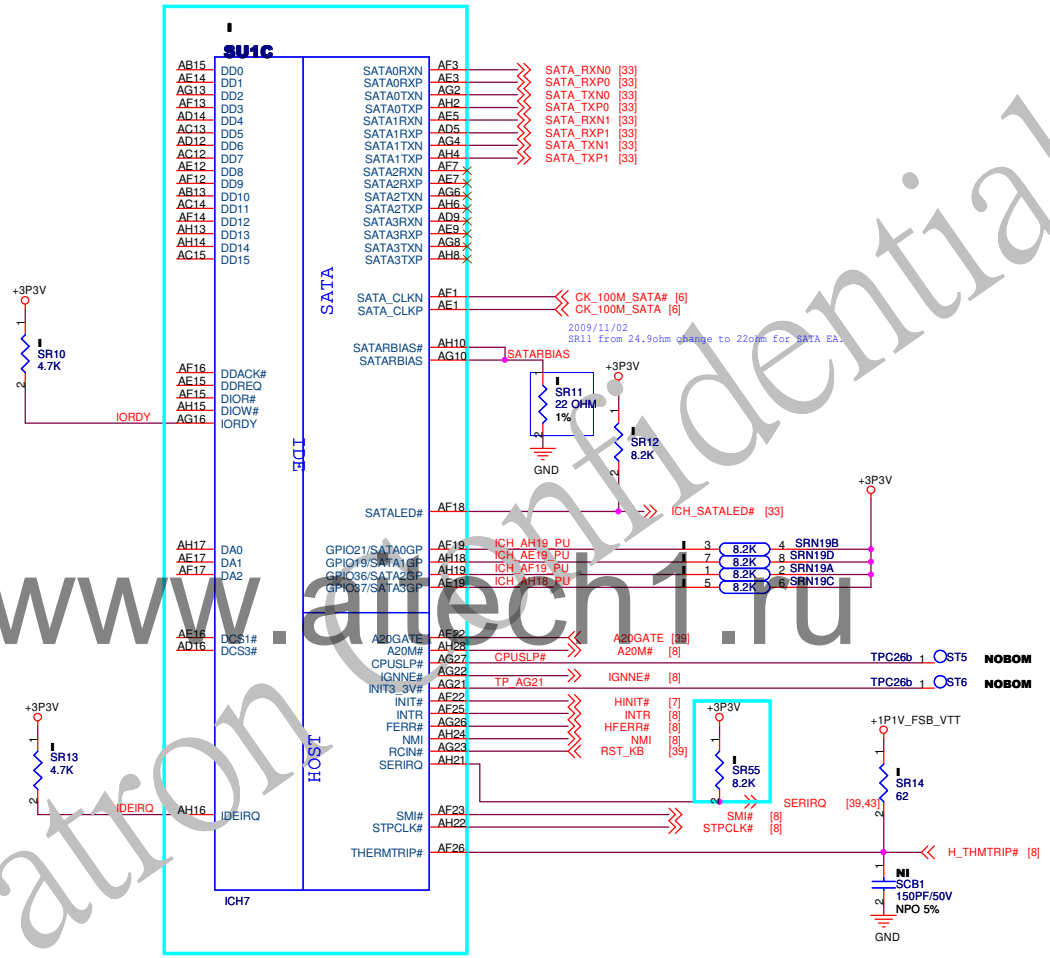


PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : DDR3 Termination A&B	
Pegatron Corp.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 19 of 54	

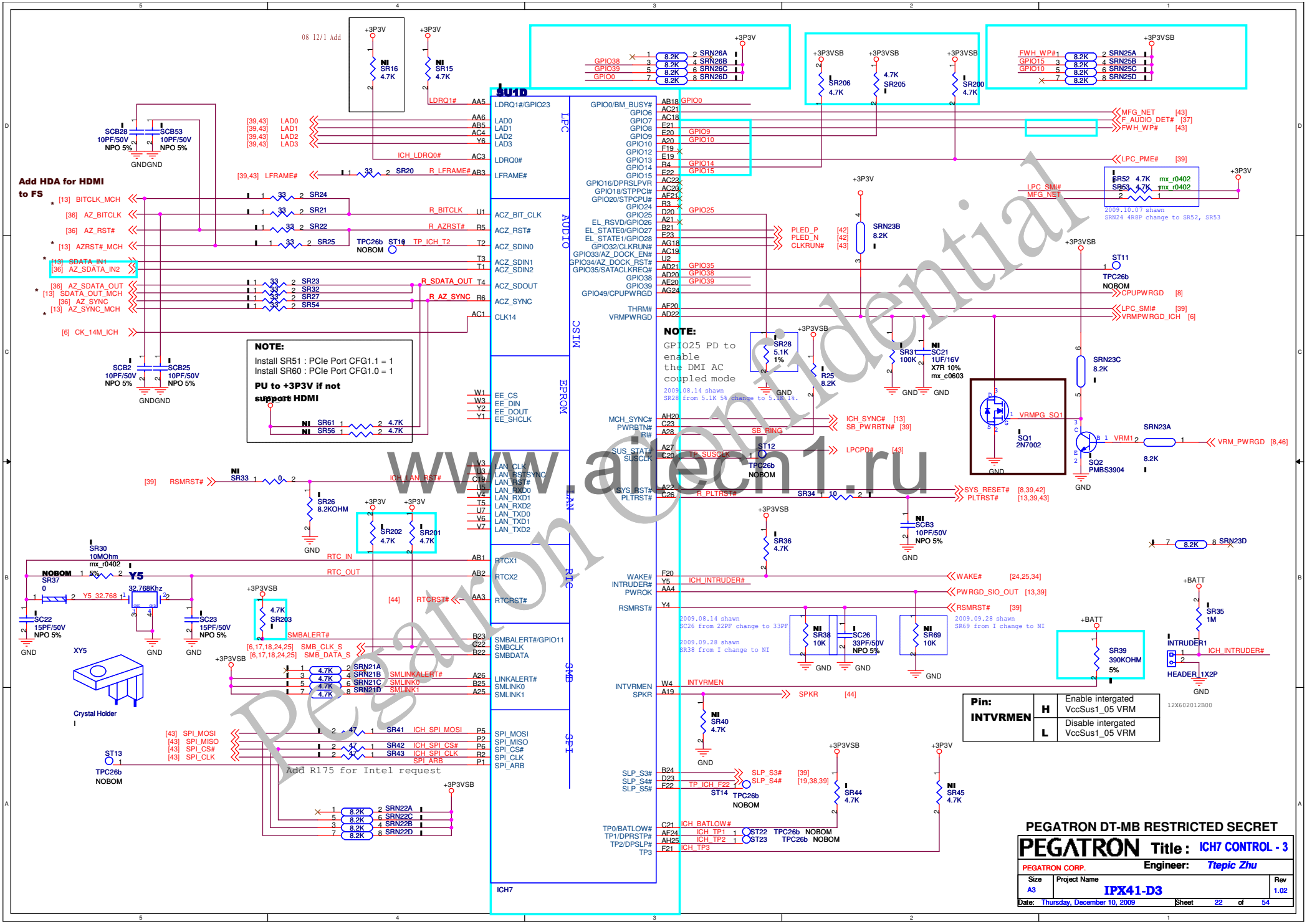


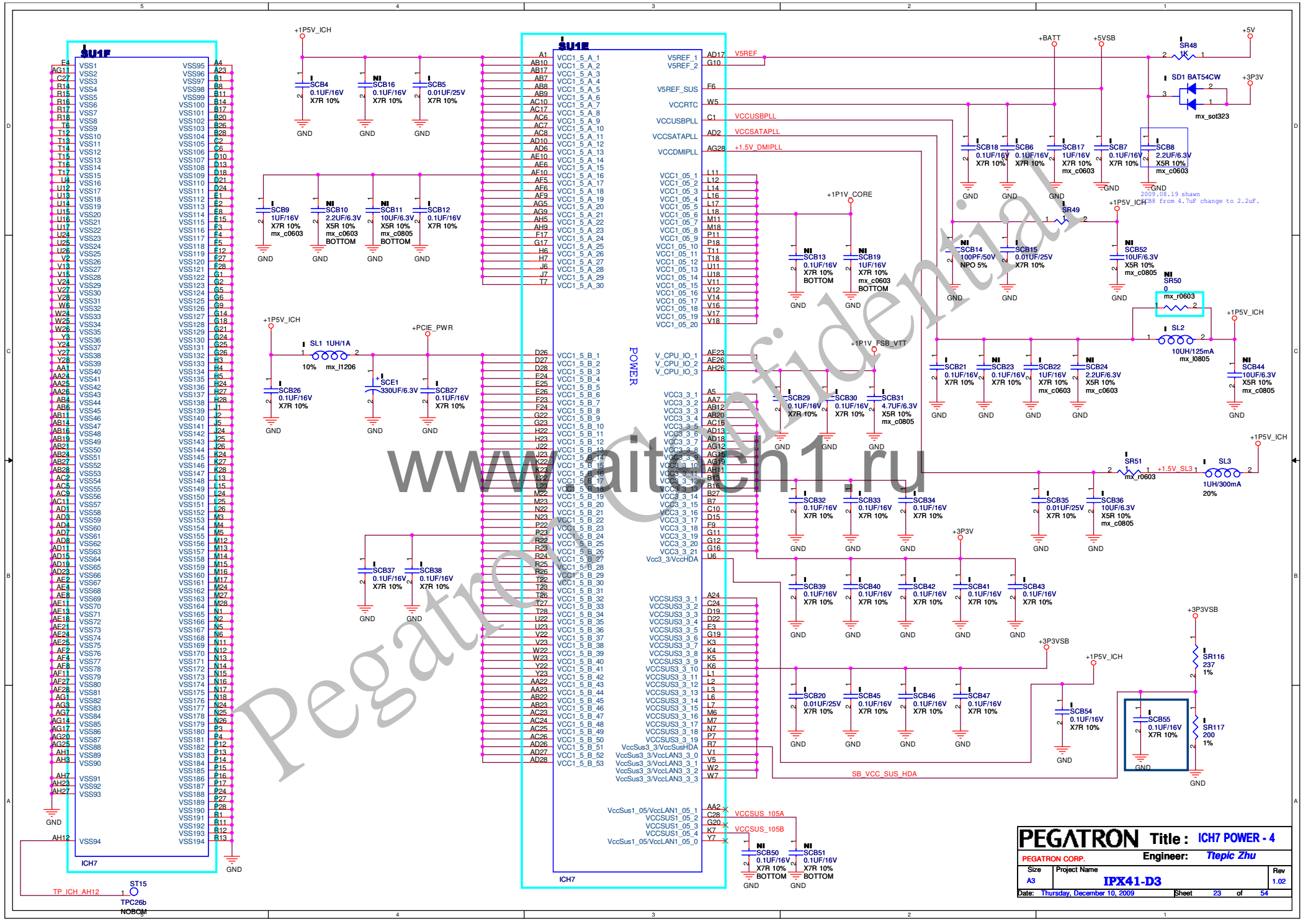
SR9	Option	Action
NI	FWH ROM	Default
1Kohm	SPI ROM	Select



PEGATRON DT-MB RESTRICTED SECRET

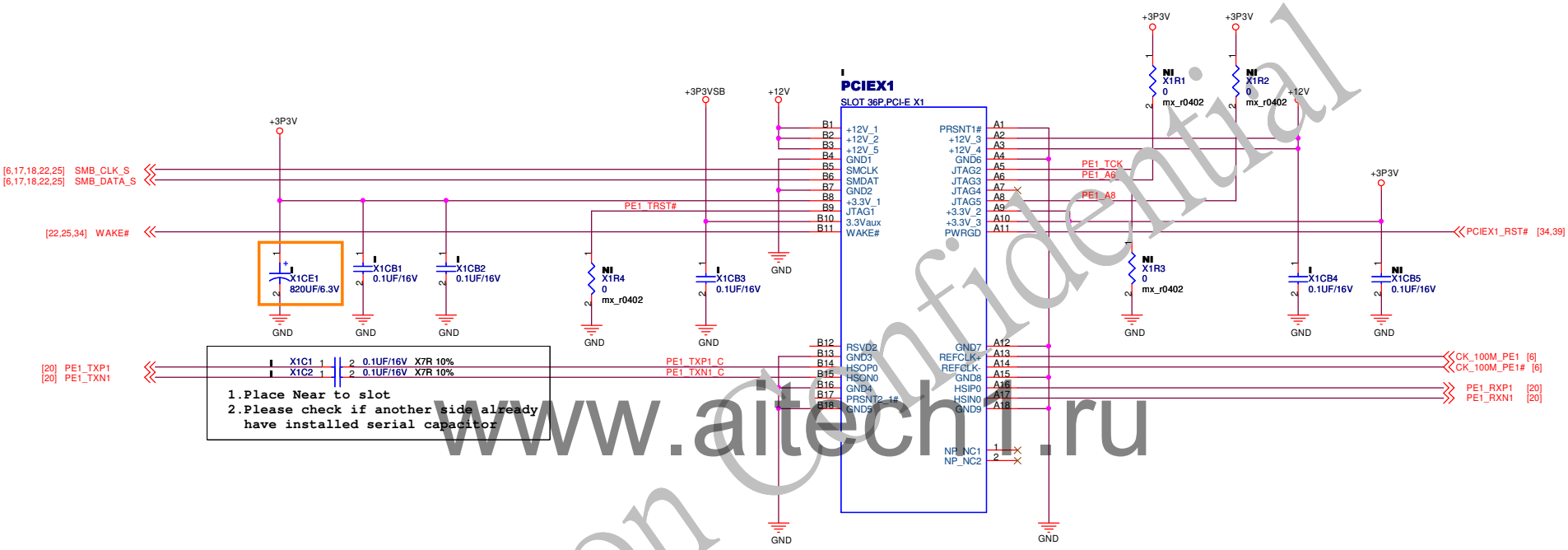
PEGATRON	Title : ICH7 CONTROL - 2	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 21 of 54	

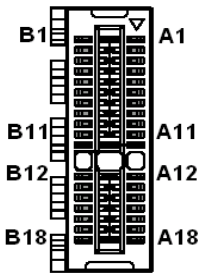




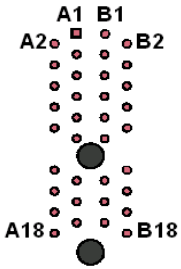
PEGATRON	Title :	ICH7 POWER - 4	
PEGATRON CORP.	Engineer:	Ttepic Zhu	
Size: A3	Project Name: IPX41-D3		Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 23 of 54		

PCI Express x1 SLOT





TOP SIDE VIEW

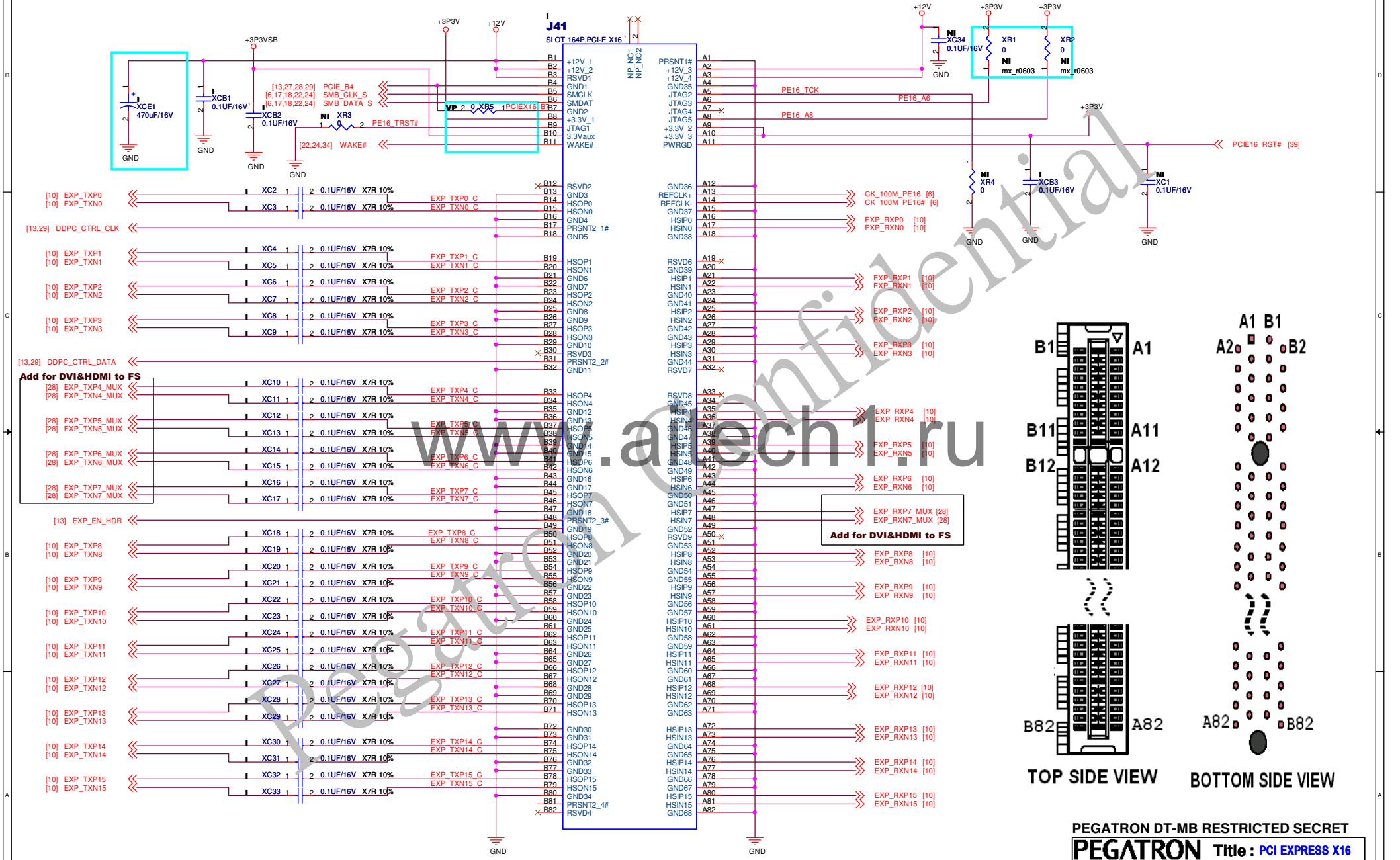


BOTTOM SIDE VIEW

PEGATRON DT-MB RESTRICTED SECRET

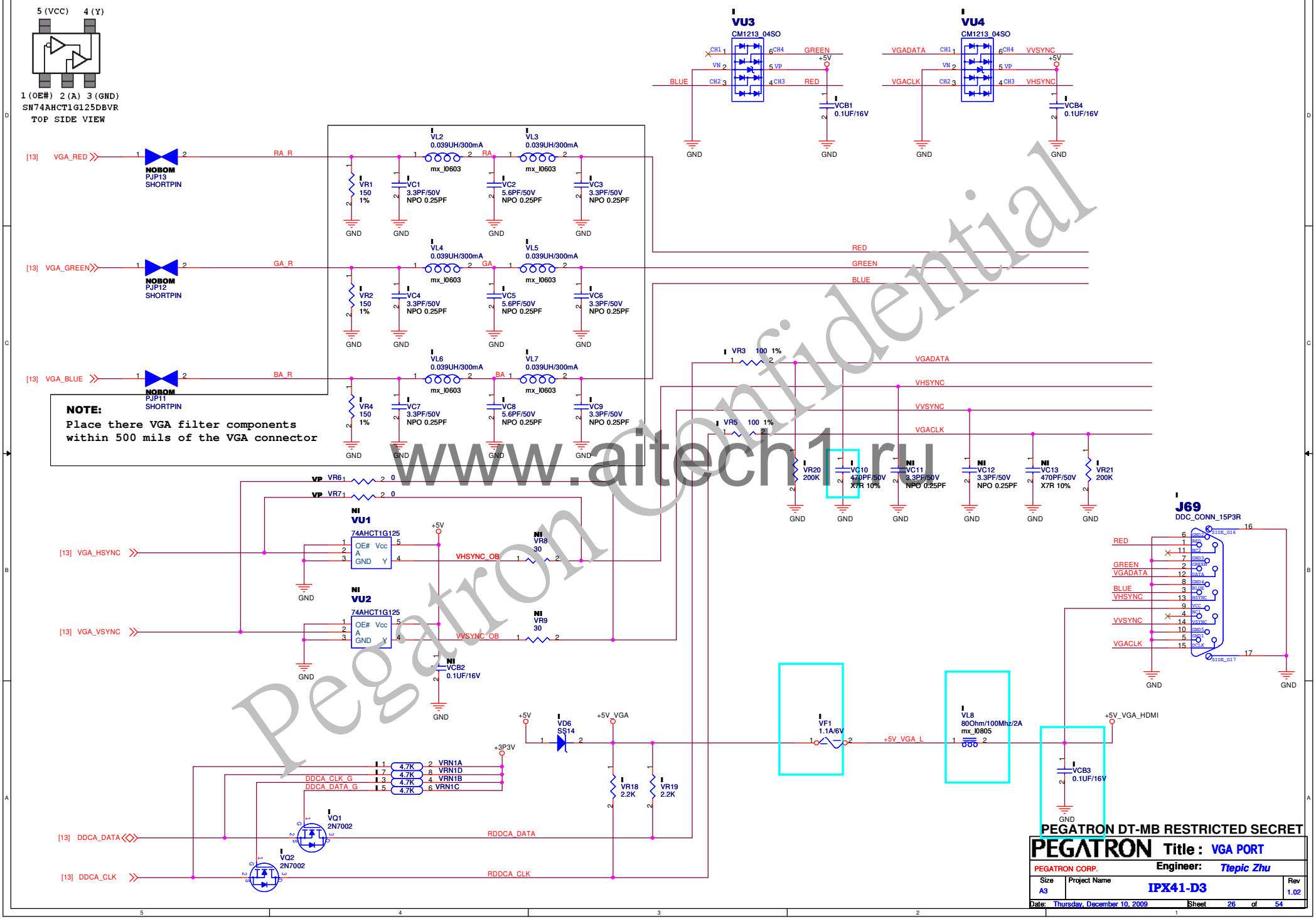
PEGATRON	Title : PCI EXPRESS X1	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 24 of 54	

PCI EXPRESS X16 Graphics Card Slot



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : PCI EXPRESS X16	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 25 of 54	

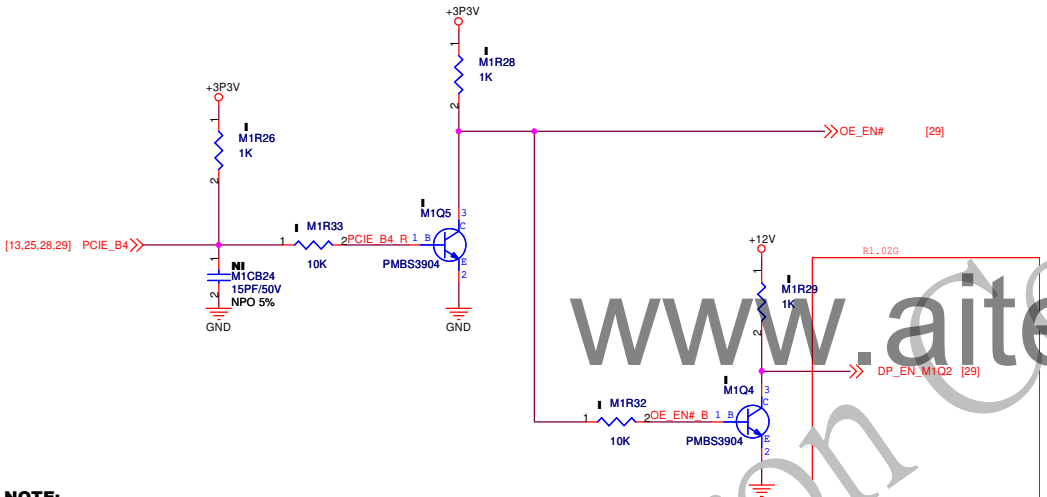


PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : VGA PORT	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size A3	Project Name IPX41-D3	Rev 1.02
Date: Thursday, December 10, 2009	Sheet 26 of 54	

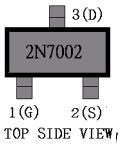
Add HDMI CONTROL to FS

Digital Port Switch Control Logic



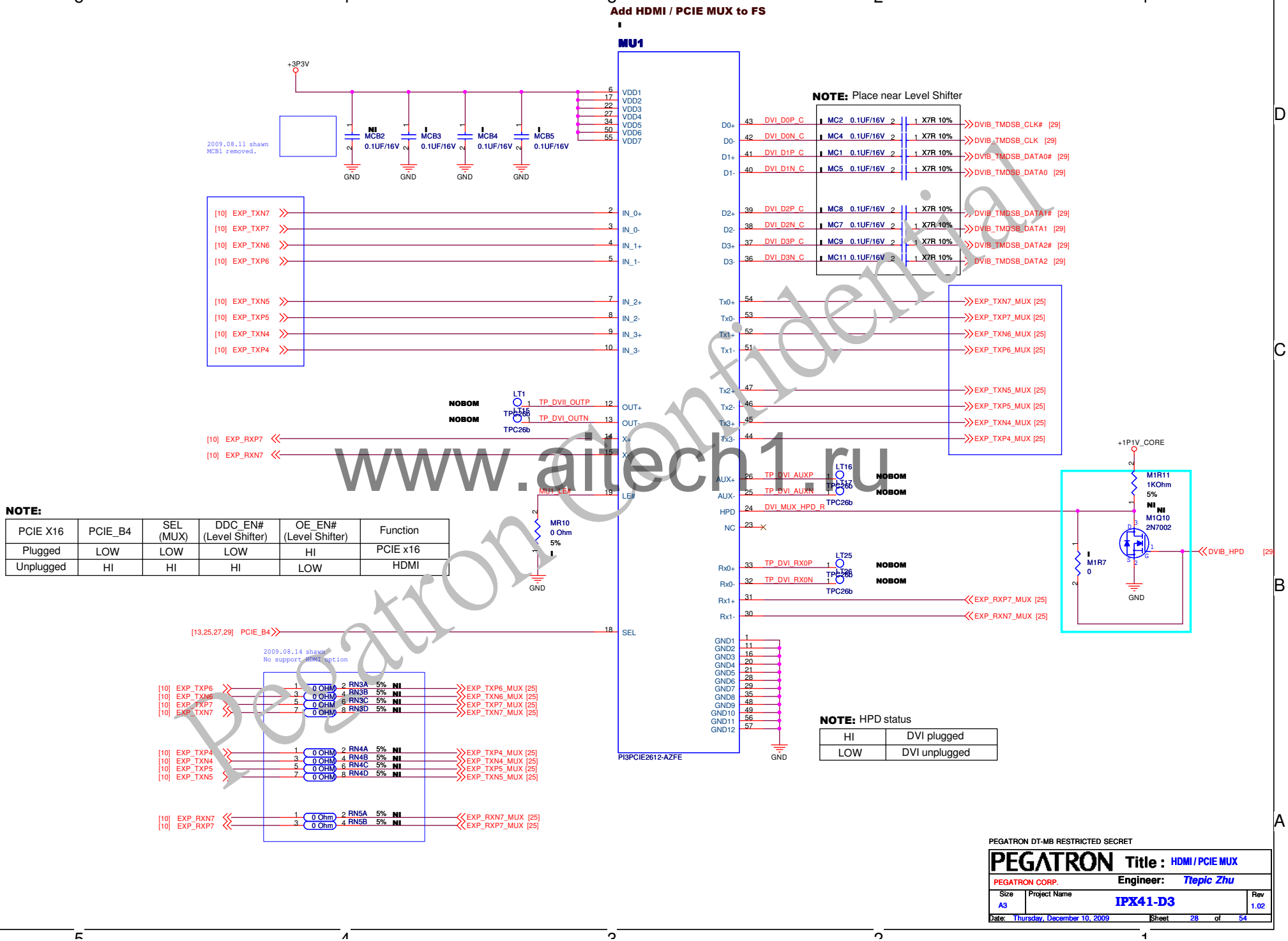
NOTE:

PCIE X16	PCIE_B4	SEL (MUX)	DDC_EN# (Level Shifter)	OE_EN# (Level Shifter)	Function
Plugged	LOW	LOW	LOW	HI	PCIE x16
Unplugged	HI	HI	HI	LOW	HDMI



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : HDMI CONTROL	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 27 of 54	



NOTE:

PCIE X16	PCIE_B4	SEL (MUX)	DDC_EN# (Level Shifter)	OE_EN# (Level Shifter)	Function
Plugged	LOW	LOW	LOW	HI	PCIE x16
Unplugged	HI	HI	HI	LOW	HDMI

NOTE: HPD status

HI	DVI plugged
LOW	DVI unplugged

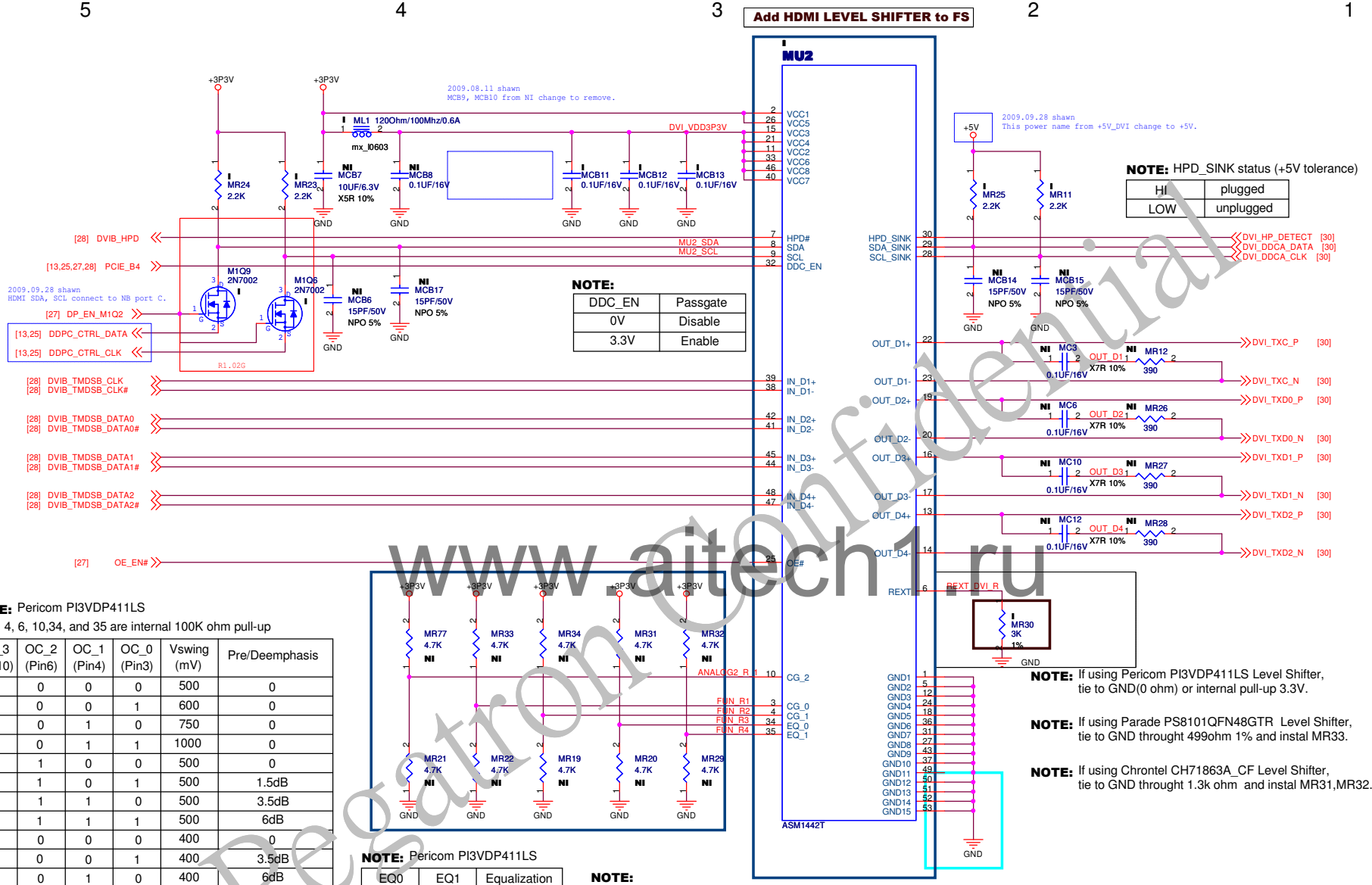
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : HDMI / PCIE MUX

PEGATRON CORP. Engineer: Ttepic Zhu

Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 28 of 54



NOTE: HPD_SINK status (+5V tolerance)

HI	plugged
LOW	unplugged

NOTE:

DDC_EN	Passgate
0V	Disable
3.3V	Enable

NOTE: If using Pericom PI3VDP411LS Level Shifter, tie to GND(0 ohm) or internal pull-up 3.3V.

NOTE: If using Parade PS8101QFN48GTR Level Shifter, tie to GND throught 499ohm 1% and instal MR33.

NOTE: If using Chrontel CH71863A_CF Level Shifter, tie to GND throught 1.3k ohm and instal MR31,MR32.

NOTE: Pericom PI3VDP411LS

Pin 3, 4, 6, 10,34, and 35 are internal 100K ohm pull-up

OC_3 (Pin10)	OC_2 (Pin6)	OC_1 (Pin4)	OC_0 (Pin3)	Vswing (mV)	Pre/Deemphasis
0	0	0	0	500	0
0	0	0	1	600	0
0	0	1	0	750	0
0	0	1	1	1000	0
0	1	0	0	500	0
0	1	0	1	500	1.5dB
0	1	1	0	500	3.5dB
0	1	1	1	500	6dB
1	0	0	0	400	0
1	0	0	1	400	3.5dB
1	0	1	0	400	6dB
1	0	1	1	400	9dB
1	1	0	0	1000	0
1	1	0	1	1000	-3.5dB
1	1	1	0	1000	-6dB
1	1	1	1	1000	-9dB

NOTE: Pericom PI3VDP411LS

EQ0 (Pin34)	EQ1 (Pin35)	Equalization (dB)
0	0	3
0	1	7.2
1	0	10
1	1	12

NOTE:

OE*	IN_D Termination	OUT_D Outputs
1	Hi-Z	Hi-Z
0	50ohm	Active

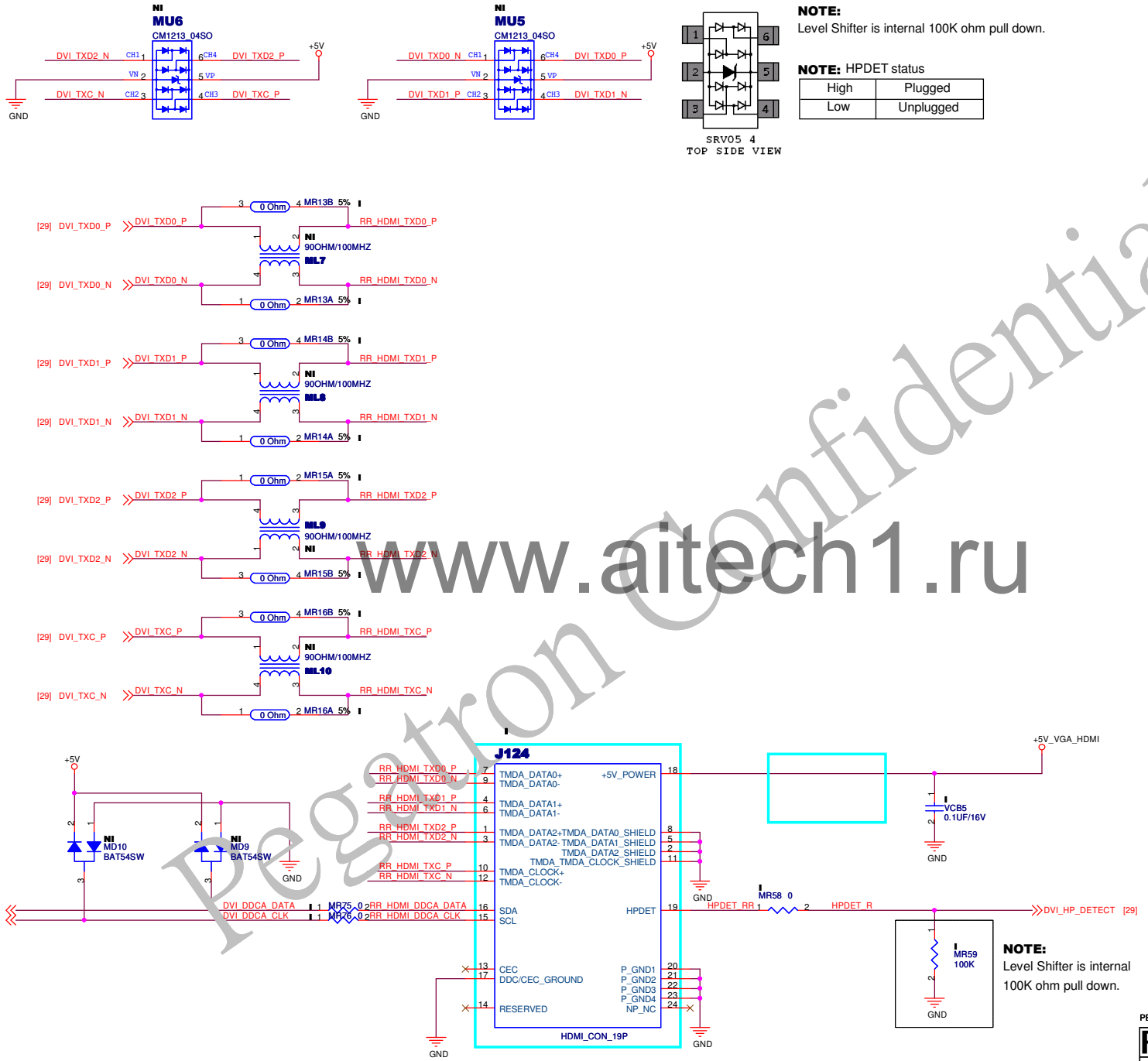
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : HDMI LEVEL SHIFTER

PEGATRON CORP. Engineer: Ttepic Zhu

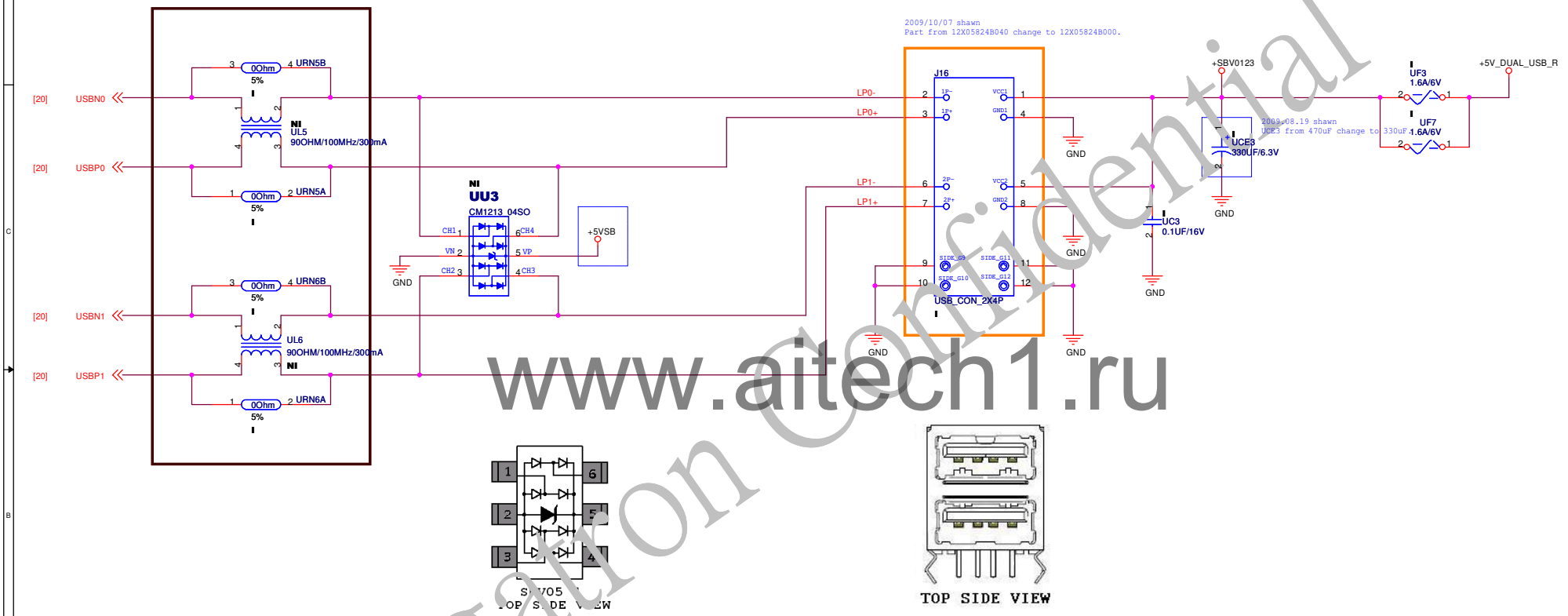
Size	Project Name	Rev
A3	IPX41-D3	1.02

Date: Thursday, December 10, 2009 Sheet 29 of 54



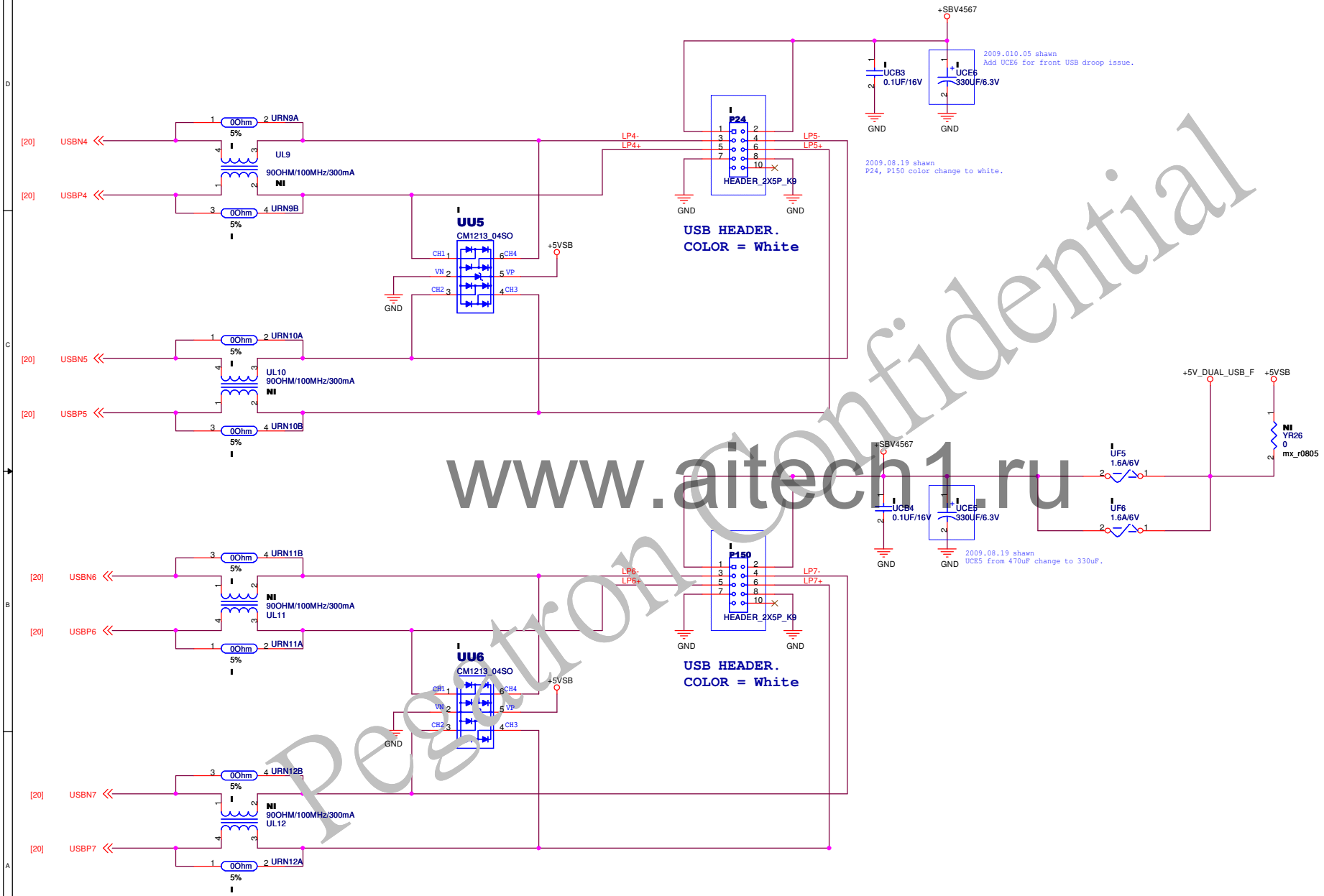
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : HDMI PORT	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 30 of 54	



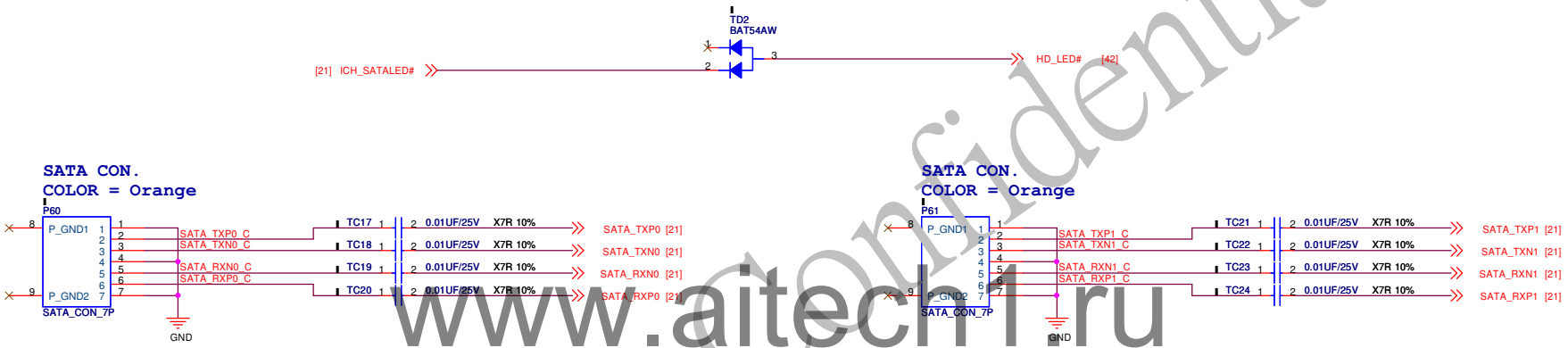
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : DOUBLE USB CON.	
Pegatron Corp.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 31 of 54	



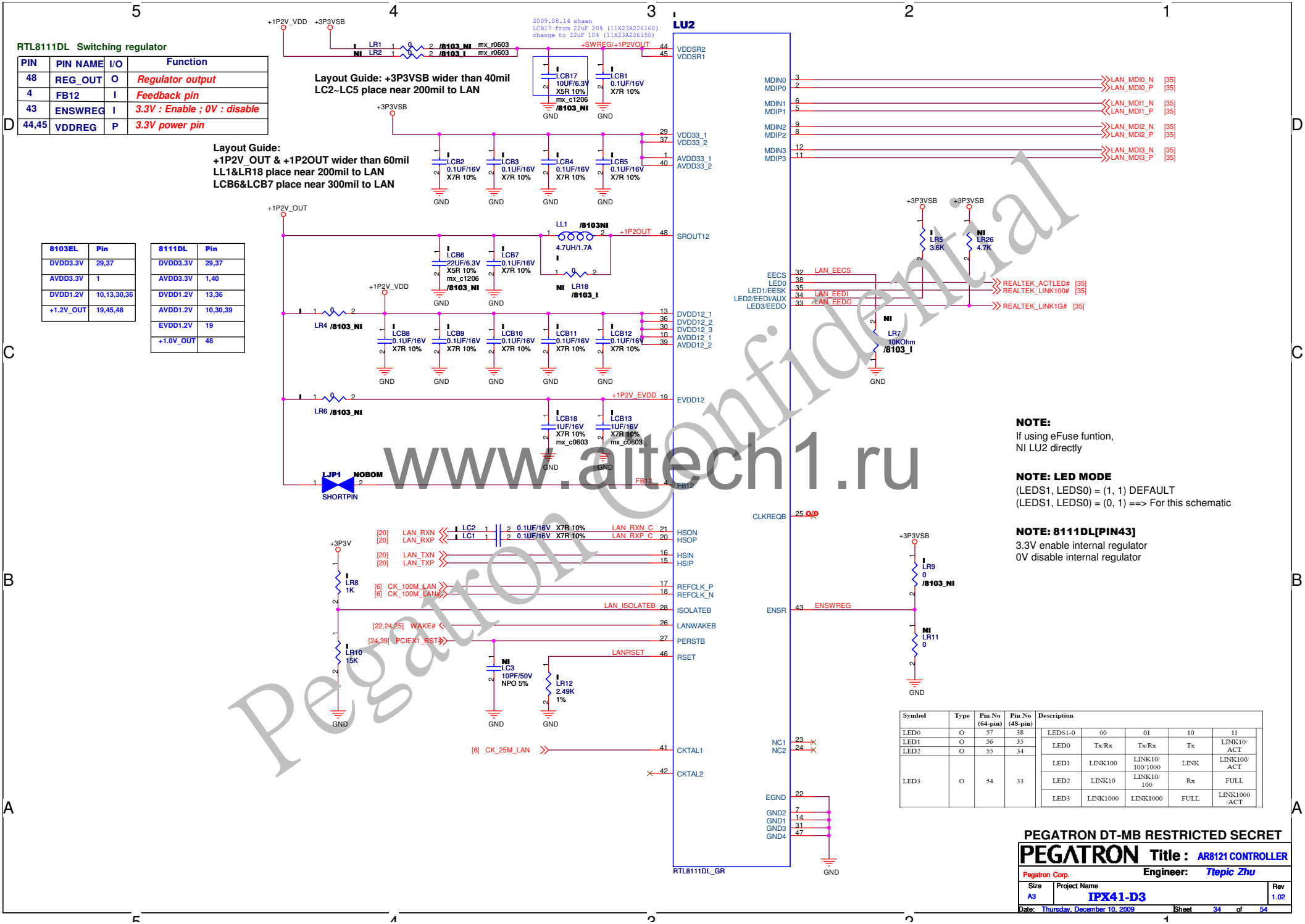
PEGATRON	Title :	USB HEADER CON.
PEGATRON CORP.	Engineer:	Ttepic Zhu
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 32 of 54	

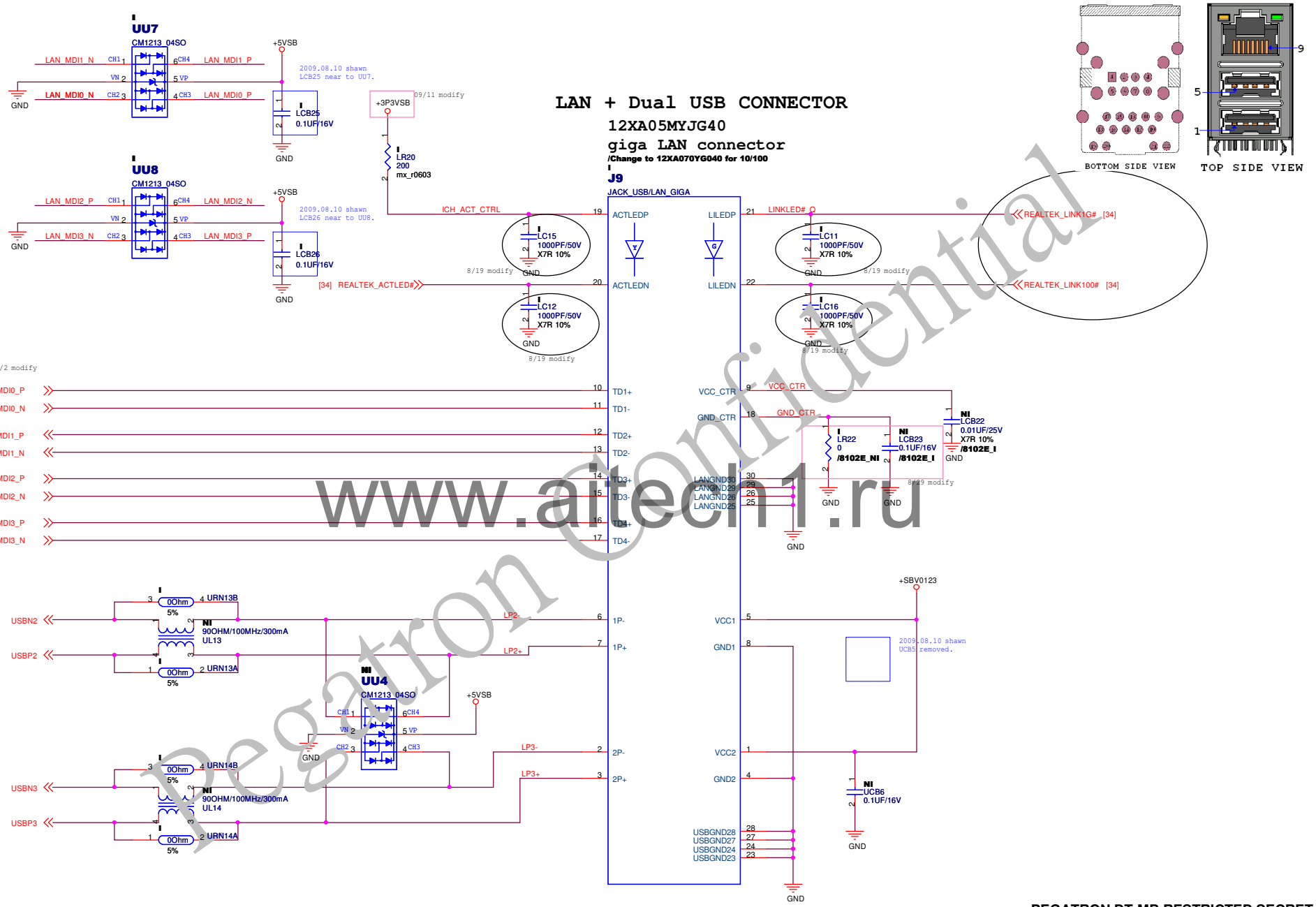
SATA CONNECTOR FOR CPC



PEGATRON DT-MB RESTRICTED SECRET

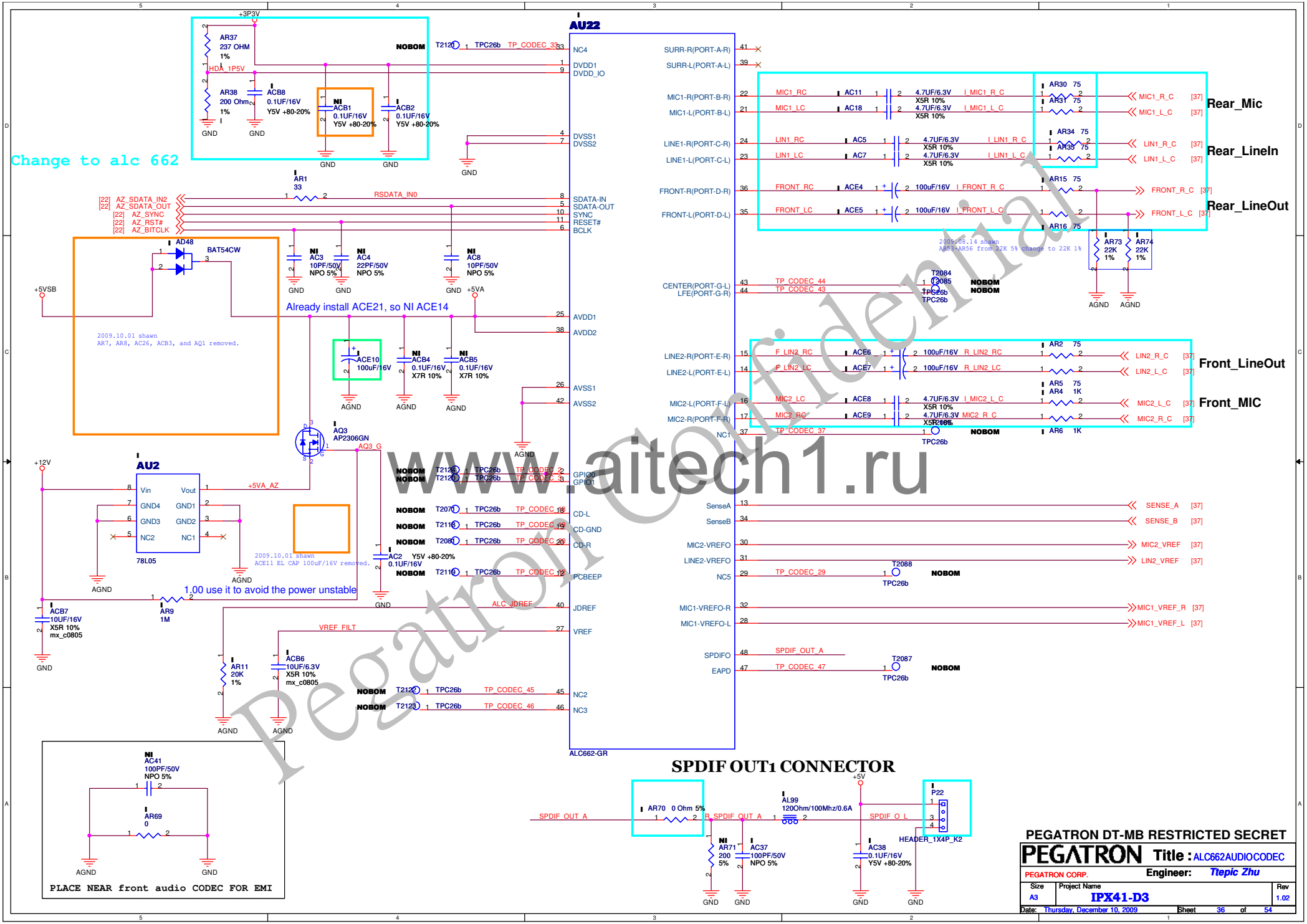
PEGATRON	Title : SATA2 FOR CPC	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 33 of 54	

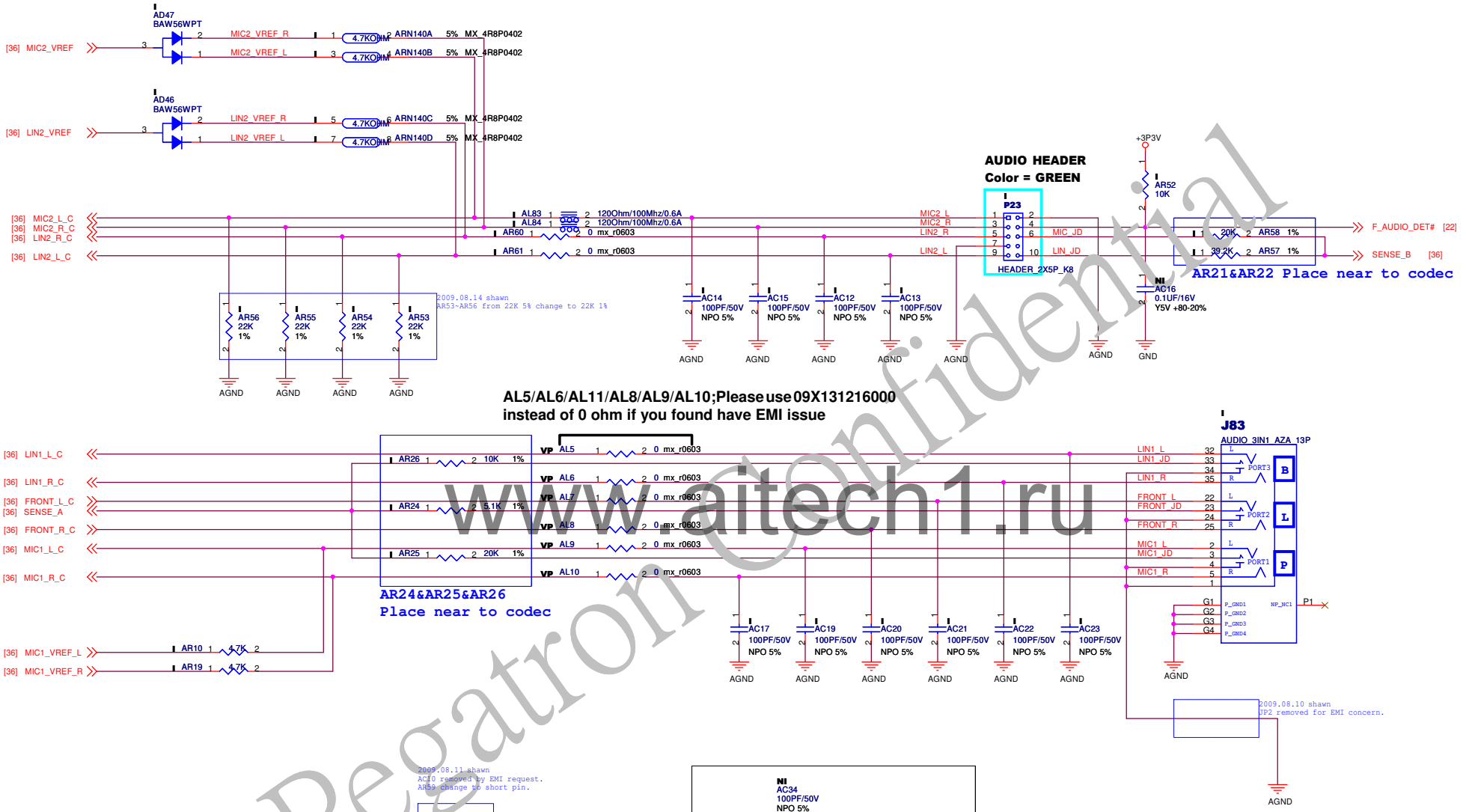




PEGATRON DT-MB RESTRICTED SECRET

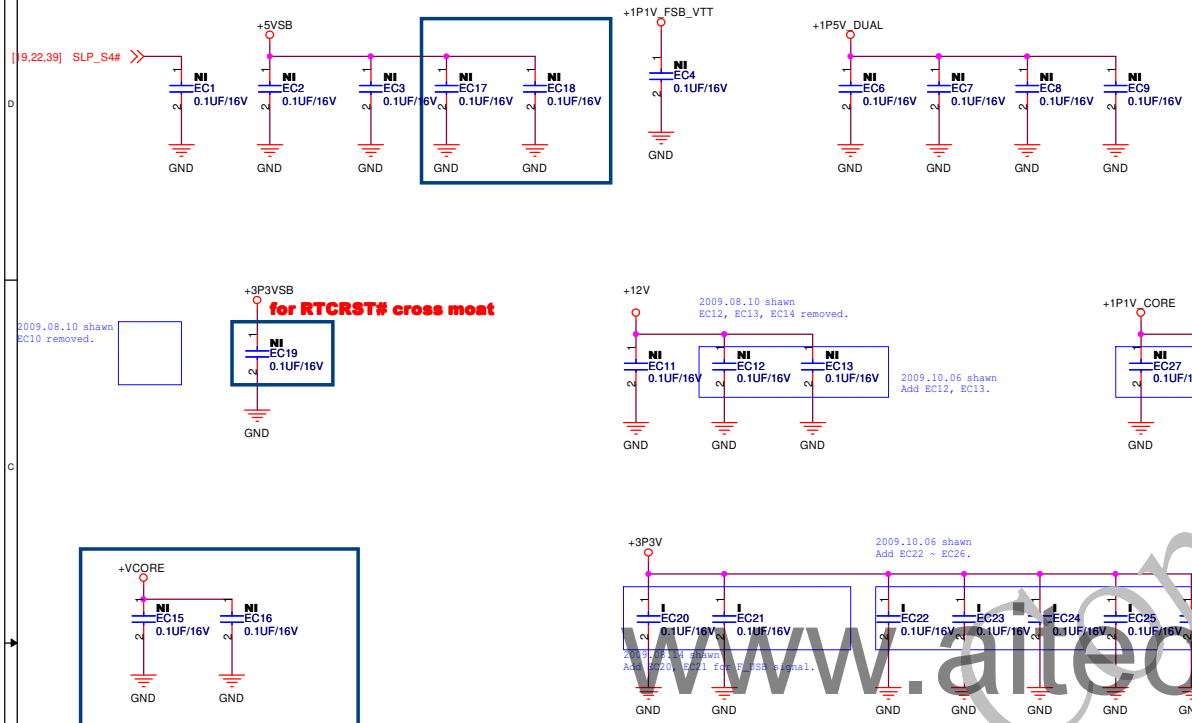
PEGATRON	Title : RJ45+USB CONN.	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 35 of 54	


Change to alc 662
AU22
ALC662-GR
Rear_Mic
Rear_LineIn
Rear_LineOut
Front_LineOut
Front_MIC
Already install ACE21, so NI ACE14
1.00 use it to avoid the power unstable
SPDIF OUT1 CONNECTOR
PLACE NEAR front audio CODEC FOR EMI
2009.10.01 shawn
AR7, AR8, AC26, ACB3, and AQ1 removed.
2009.08.14 shawn
AR53~AR56 from 22K 5% change to 22K 1%
2009.10.01 shawn
ACE11 EL CAP 100uF/16V removed.
www.aitech1.ru
Pegatron Confidential
PEGATRON DT-MB RESTRICTED SECRET
PEGATRON Title : ALC662AUDIOCODEC
PEGATRON CORP. Engineer: Ttepic Zhu
Size A3 Project Name IPX41-D3 Rev 1.02
Date: Thursday, December 10, 2009 Sheet 36 of 54



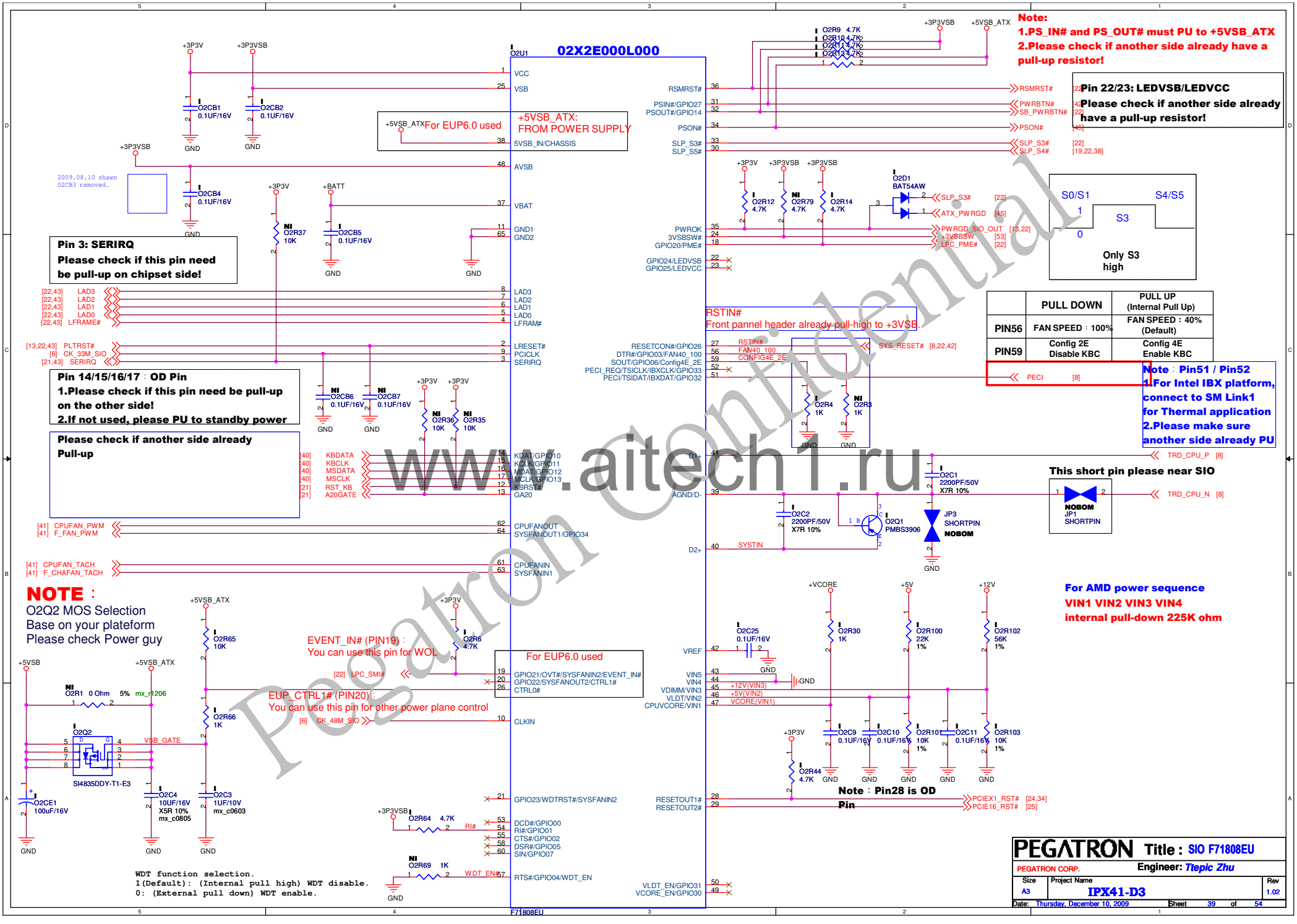
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title :	AUDIOCONN
PEGATRON CORP.	Engineer:	Tiepic Zhu
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 37 of 54	



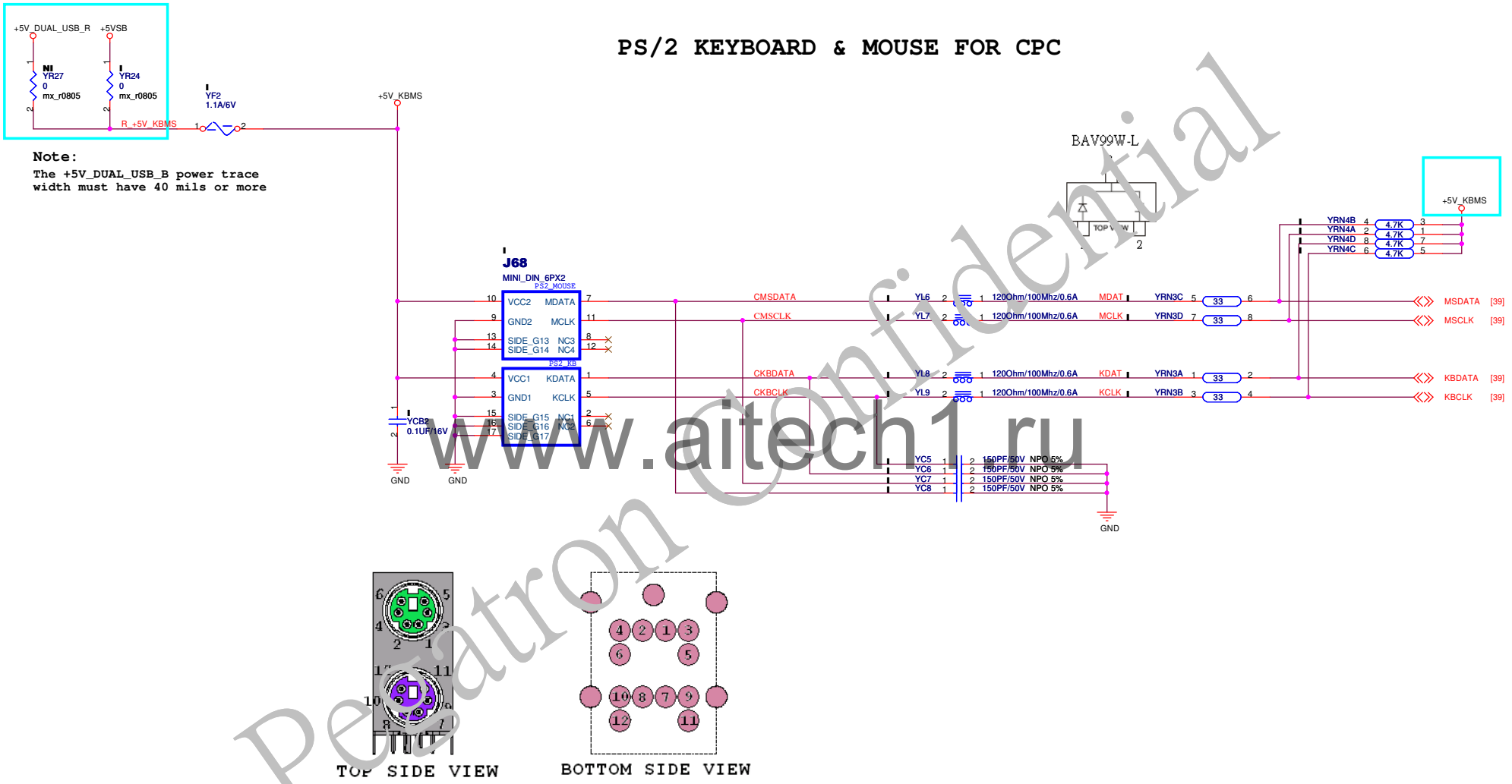
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : EMICAP	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 38 of 54	



ADD FOR PS/2 WAKE ON IN S5

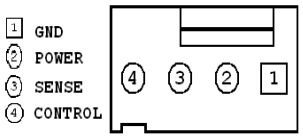
PS/2 KEYBOARD & MOUSE FOR CPC



PEGATRON DT-MB RESTRICTED SECRET

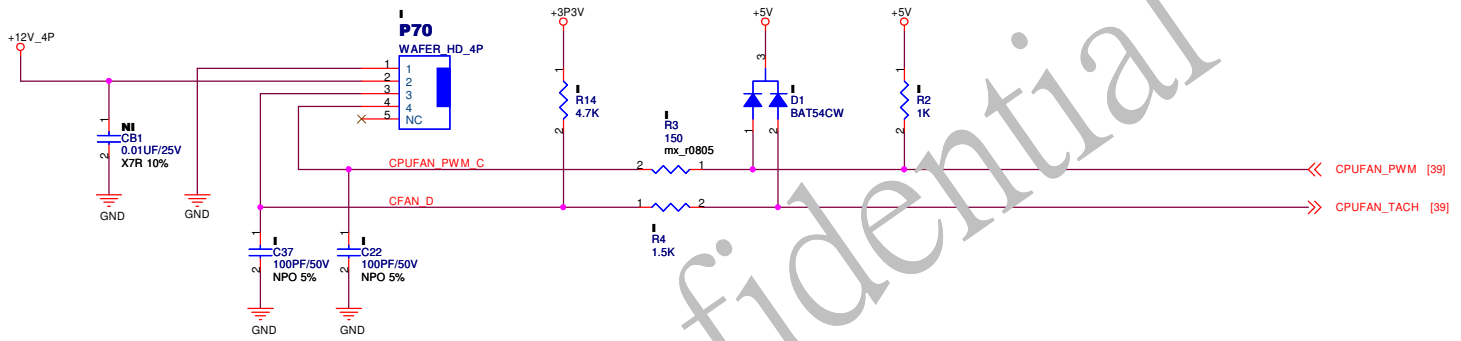
PEGATRON	Title : KB & MS FOR CPC	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 40 of 54	

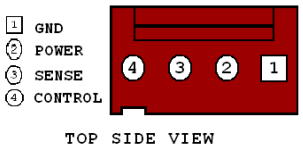
BOTTOM SIDE VIEW



TOP SIDE VIEW

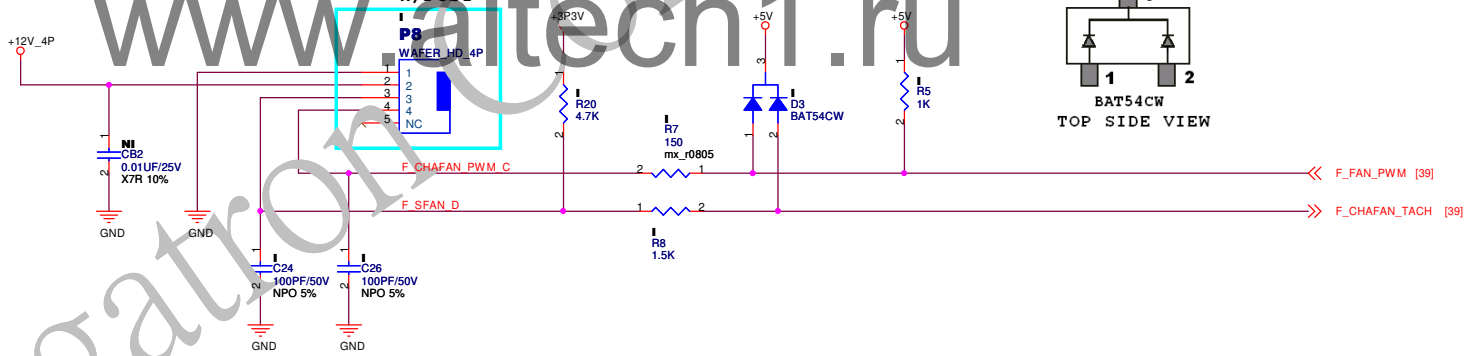
CPU FAN CON.
COLOR = White
W/POST





TOP SIDE VIEW

CHASSIS FAN CON.
COLOR = White
W/POST



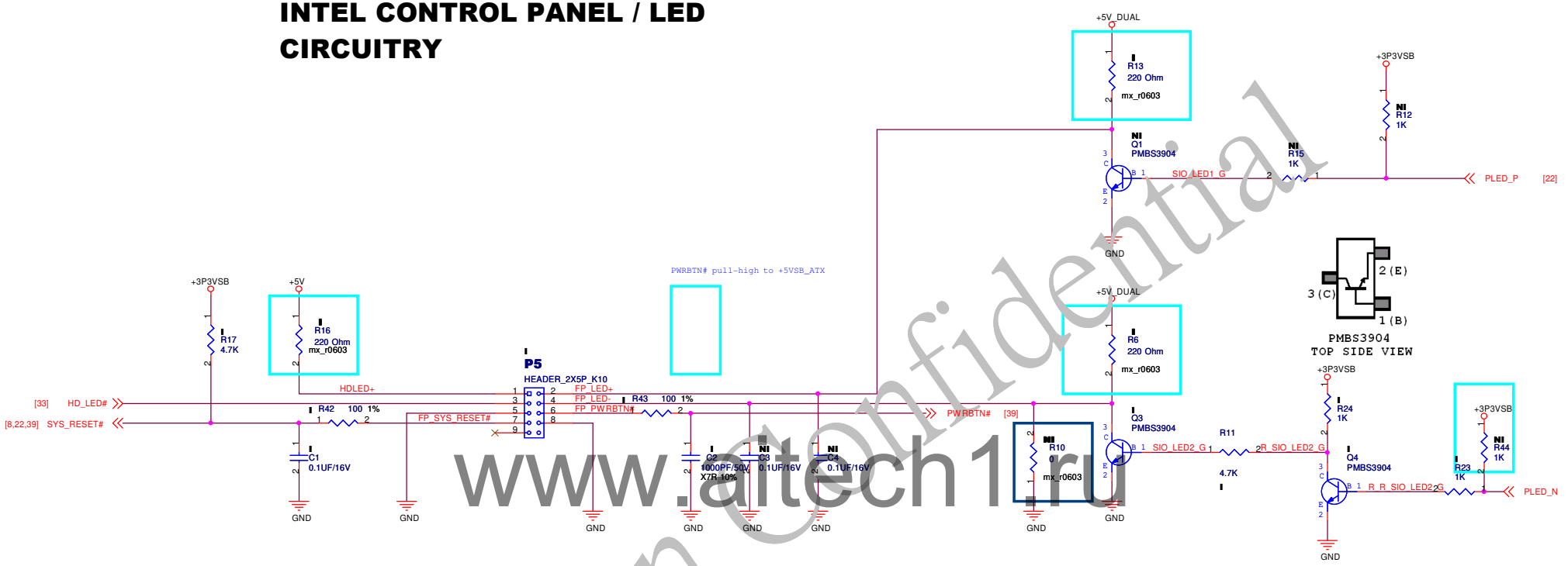
BAT54CW
TOP SIDE VIEW

BOTTOM SIDE VIEW

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : FAN CIRCUIT	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 41 of 54	

INTEL CONTROL PANEL / LED CIRCUITRY

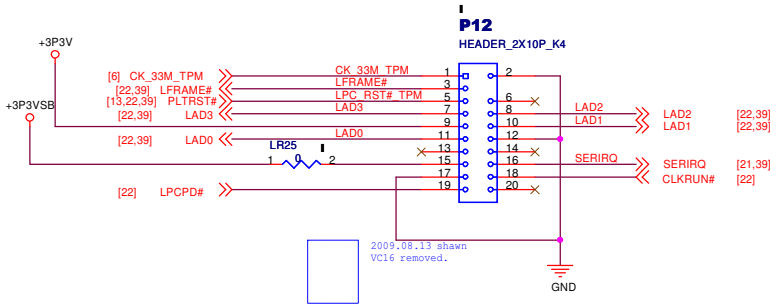


FRONT POWER LED COLOR SUPPORT	R10	Q2	R6	R11
SINGLE COLOR	I	NI	NI	NI
DUAL COLOR	NI	I	I	I

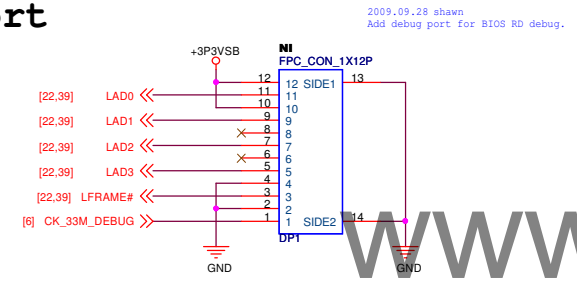
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title :	FRONT_PANEL
PEGATRON CORP.	Engineer:	Ttepic Zhu
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 42 of 54	

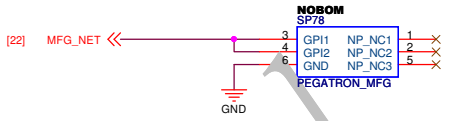
TPM



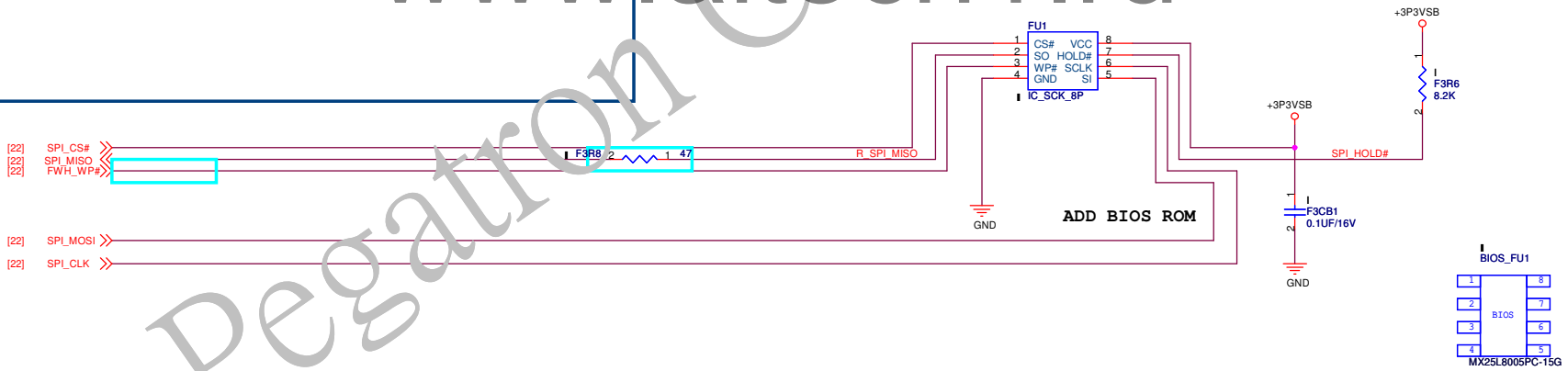
Debug Port



Add MFG header 7/30



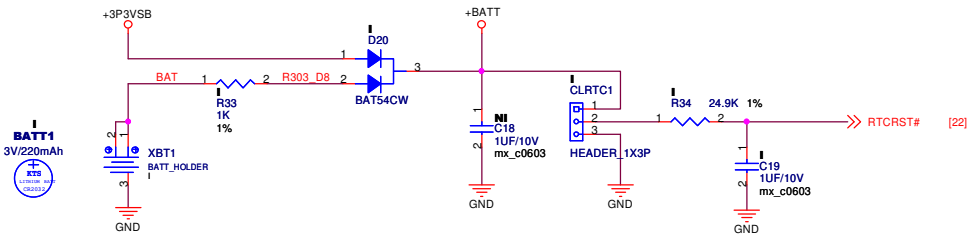
SPI BIOS ROM - 8Mbit



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : SPI FLASH - 8M	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 43 of 54	

External RTC Circuitry

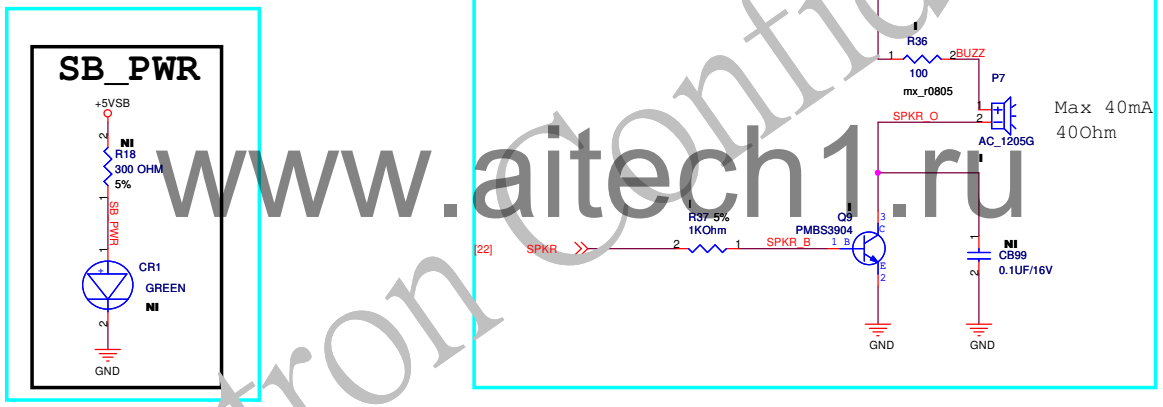


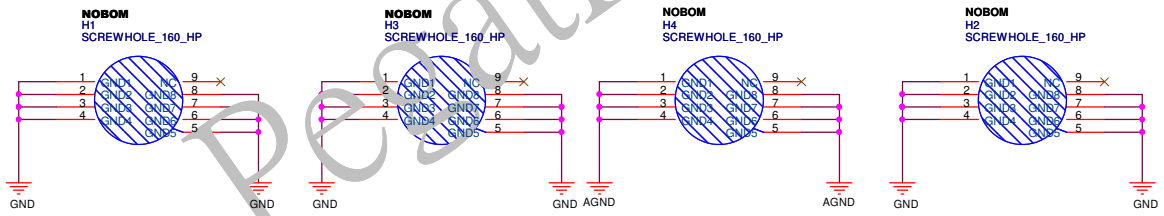
Battery Socket

CLEAR CMOS

	CMOS RTC
1-2	Default
2-3	CLEAR

SPEAKER





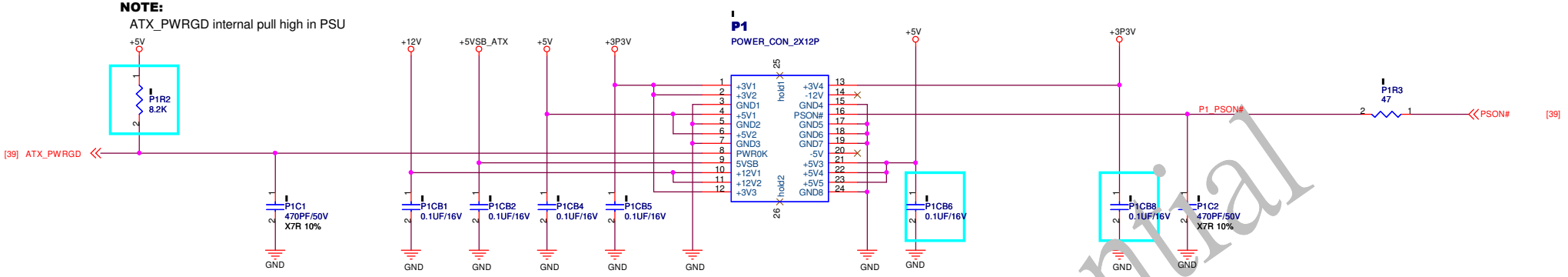
ONLY FOR SCREW HOLE

PEGATRON DT-MB RESTRICTED SECRET

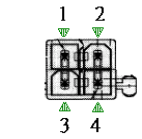
PEGATRON	Title : RTC / CMOS / SPKR	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 44 of 54	

ATX POWER_24P SUPPLY CONNECTOR

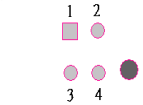
NOTE:
ATX_PWRGD internal pull high in PSU



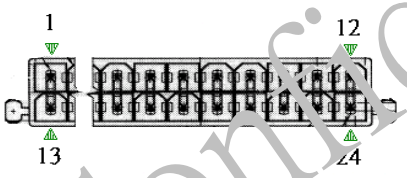
All of the Caps Around the ATX Power Connector



TOP SIDE VIEW



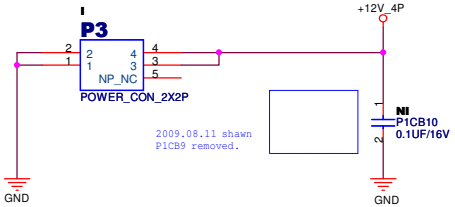
BOTTOM SIDE VIEW

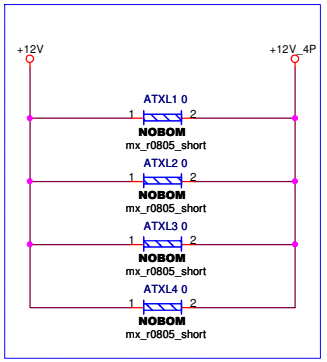


TOP SIDE VIEW

BOTTOM SIDE VIEW

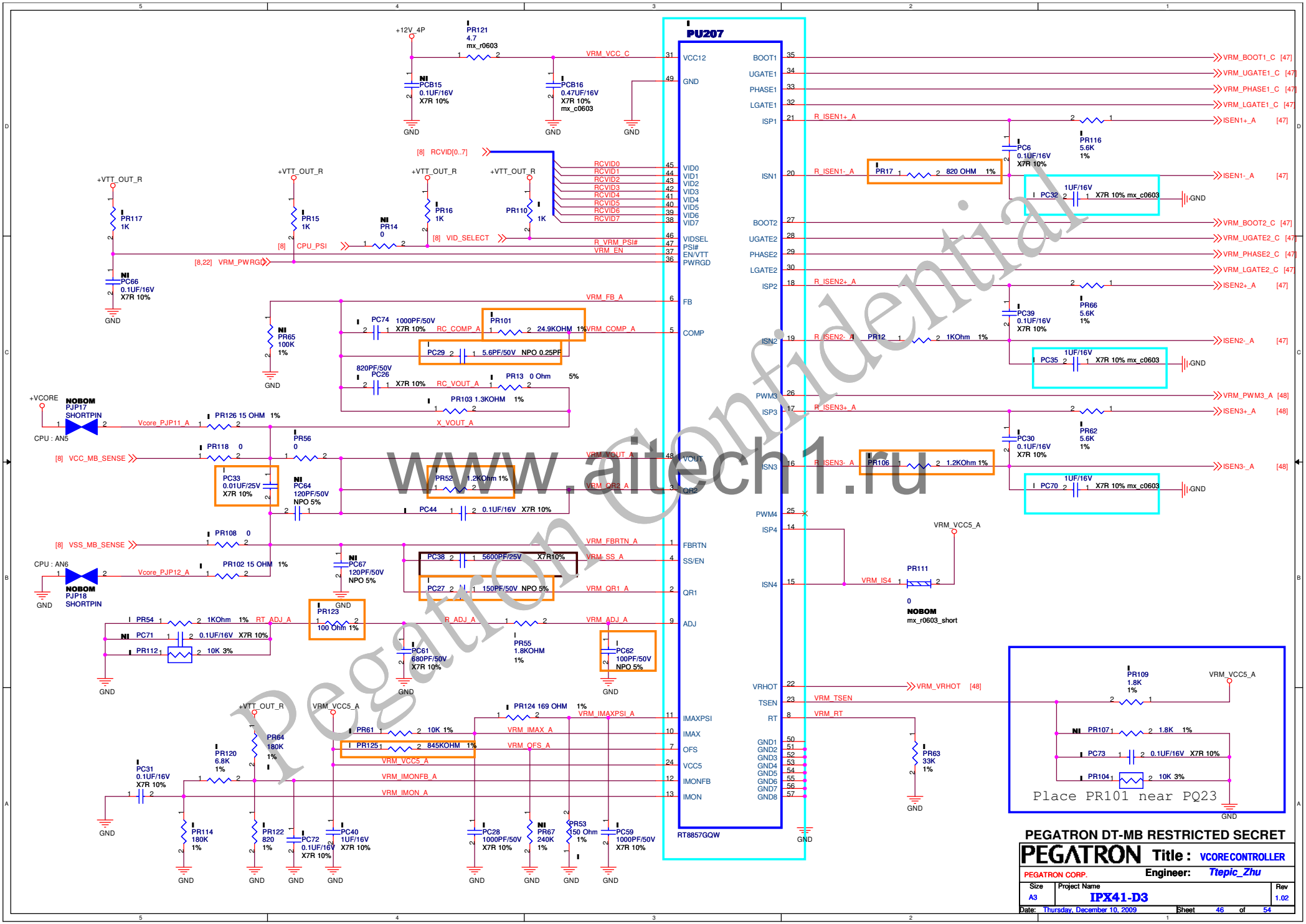
VRM POWER_4P SUPPLY CONNECTOR





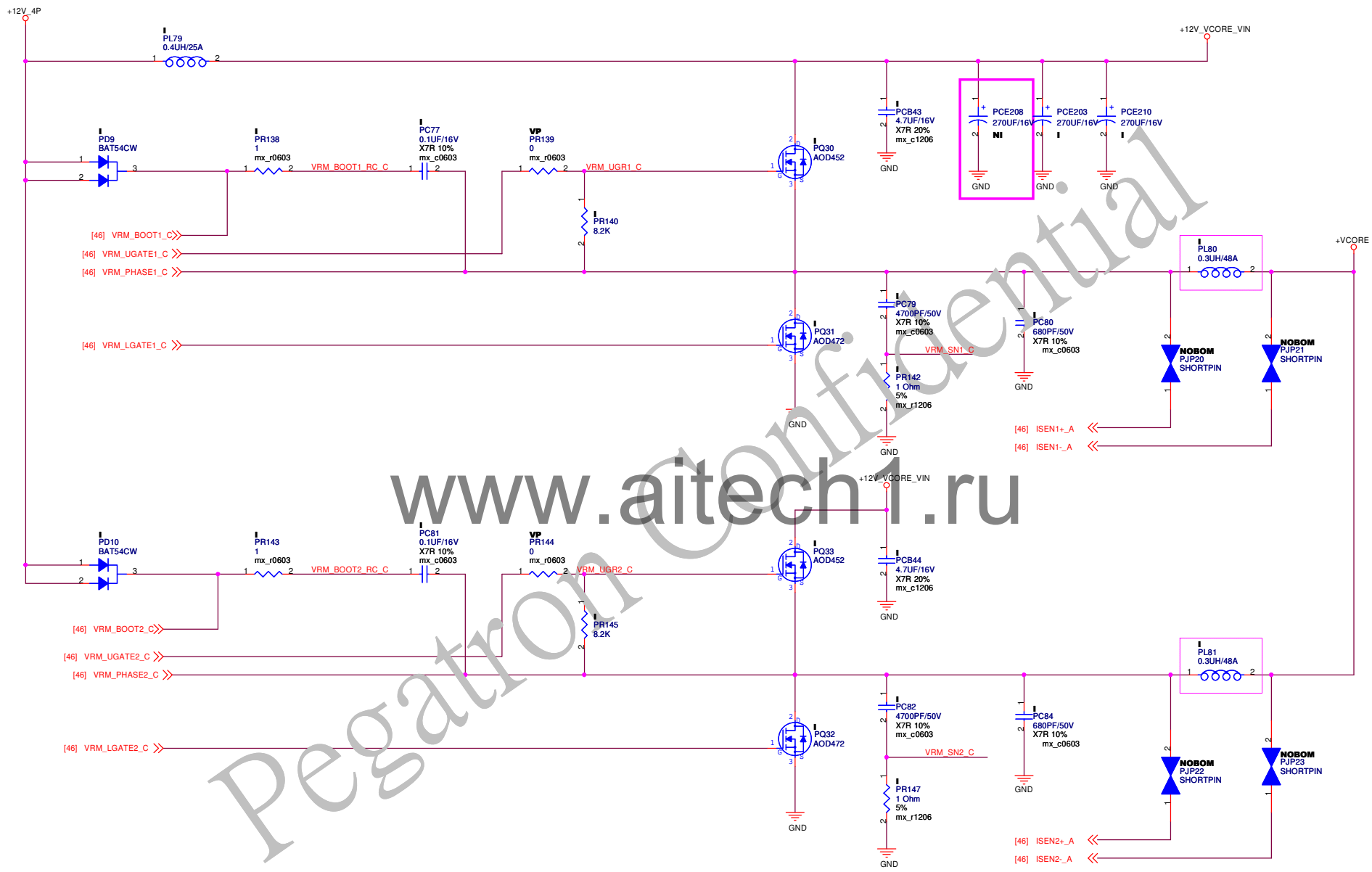
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : ATX POWER	
PEGATRON CORP.	Engineer: Ttepic Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 45 of 54	



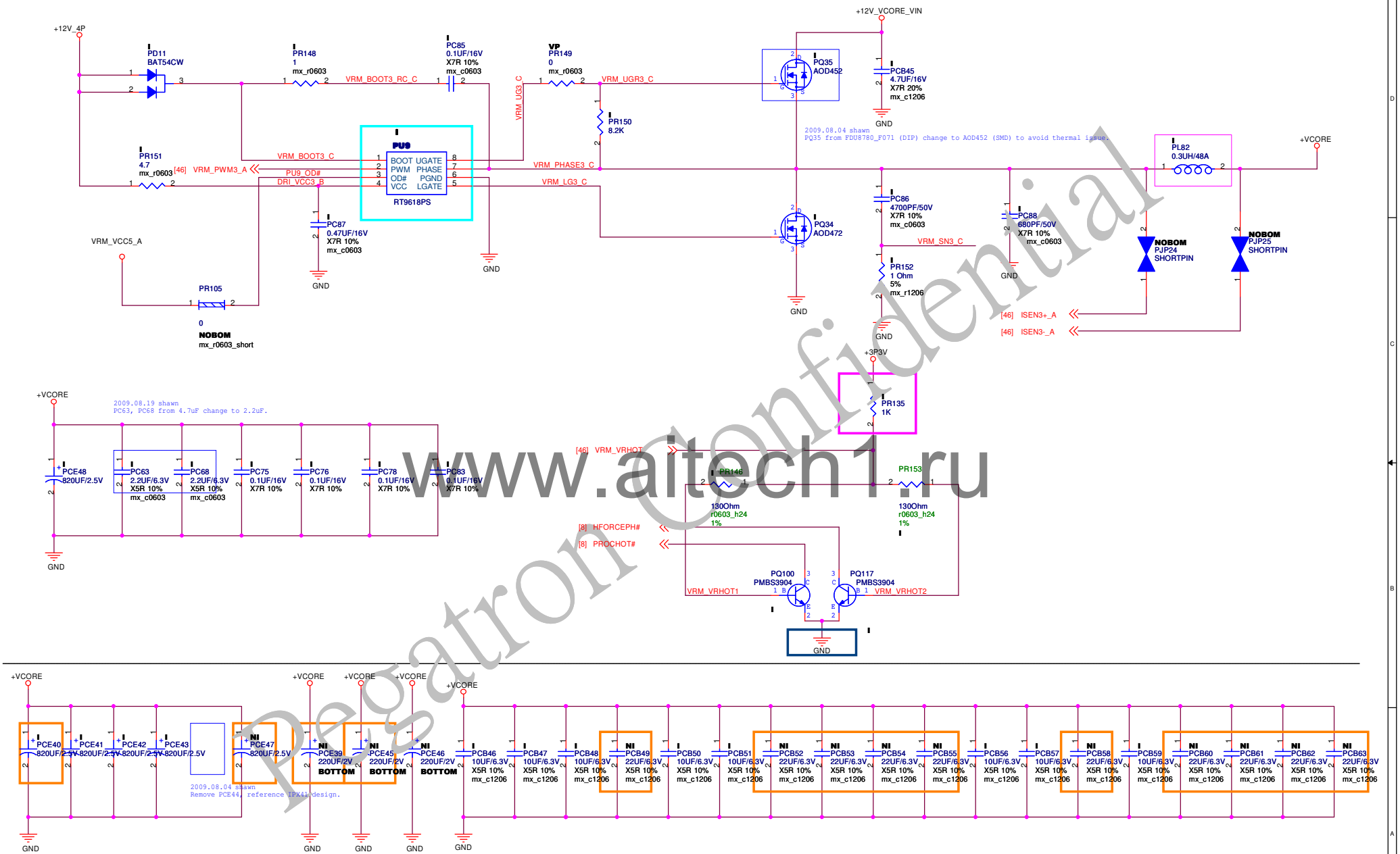
PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : VCORECONTROLLER	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 46 of 54	



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : VCOREDRIVER-1	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 47 of 54	



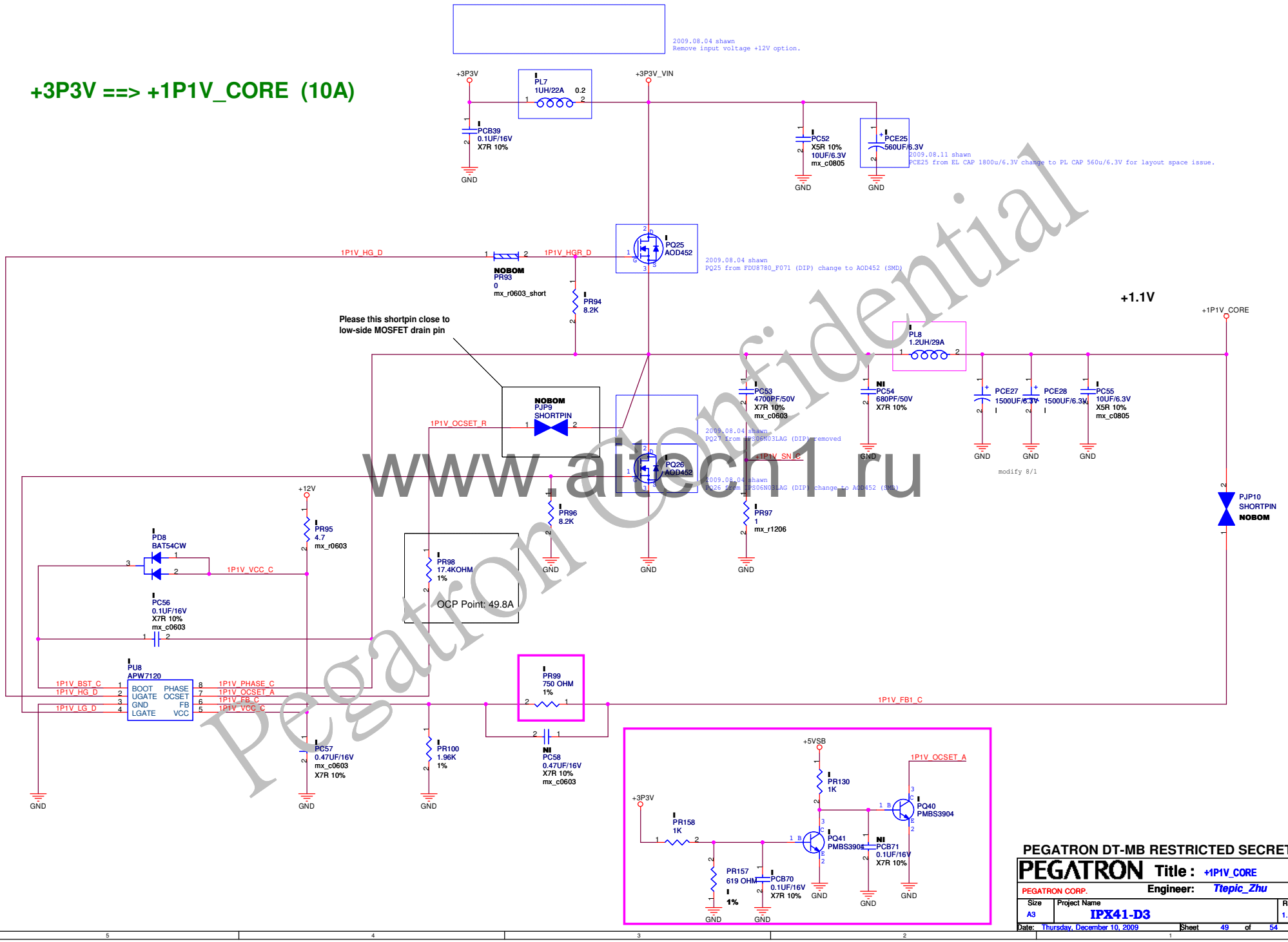
+CPU VCORE OUTPUT CAPs

11X23A106150

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : VCOREDRIVER-2	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 48 of 54	

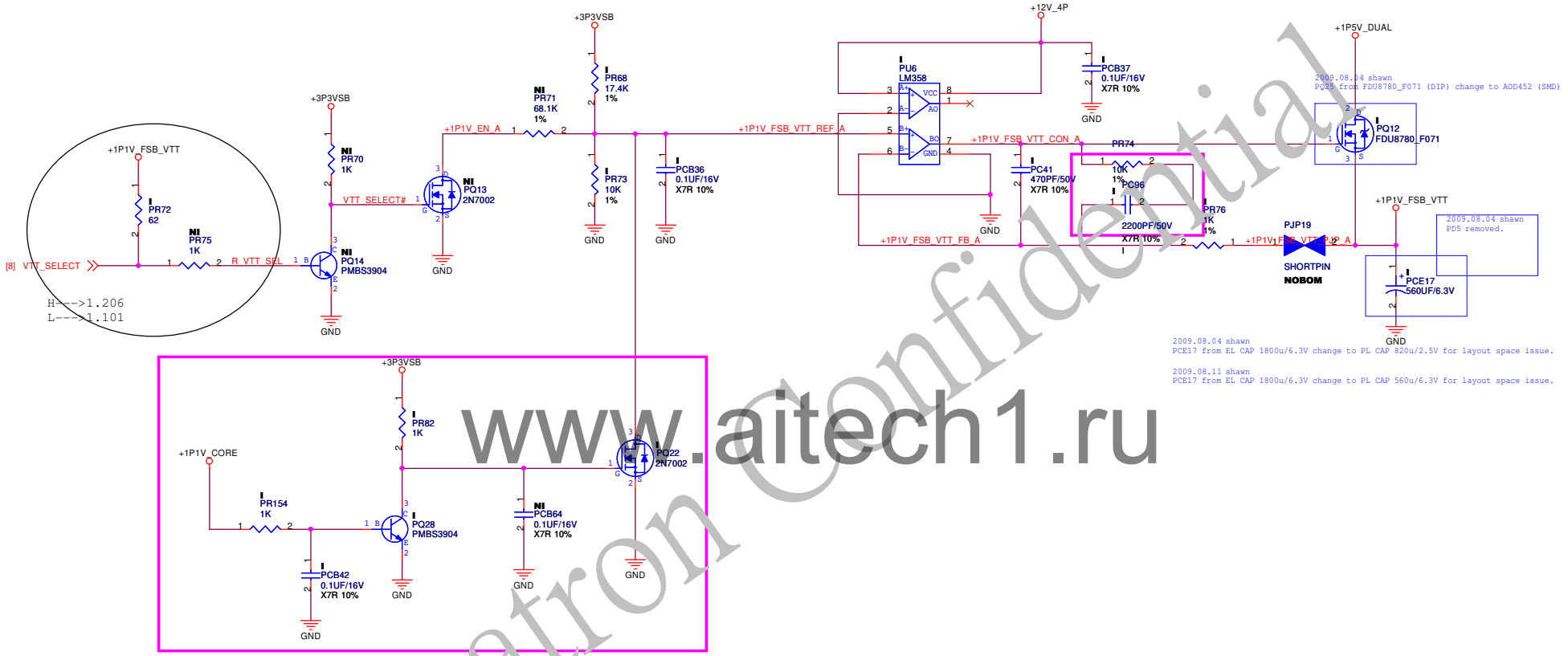
+3P3V ==> +1P1V_CORE (10A)



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : +1P1V_CORE	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 49 of 54	

+1P5V_DUAL ==> +1P1V_FSB_VTT (1.5A)

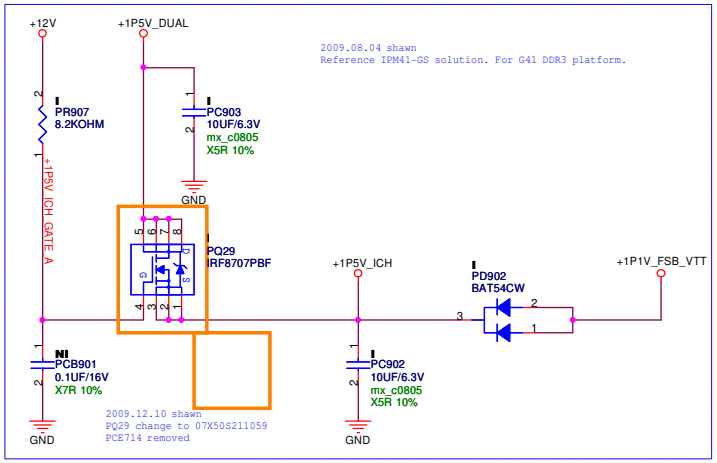


PEGATRON DT-MB RESTRICTED SECRET

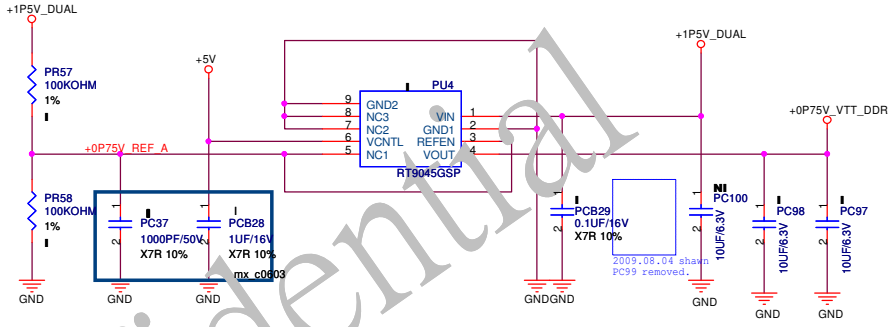
PEGATRON	Title : +1P1V_FSB_VTT_LDO	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 50 of 54	

+1P5V_DUAL ==> +1P5V_ICH (2A)

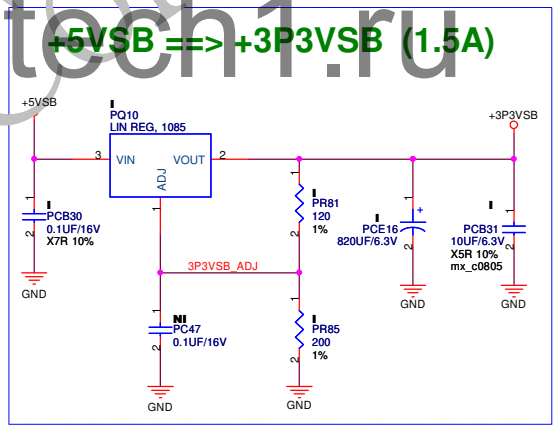
+1P5V_ICH (2A) For G41 DDR3 Platform



+1P5V_DUAL ==> +0P75V_VTT_DDR (2A)



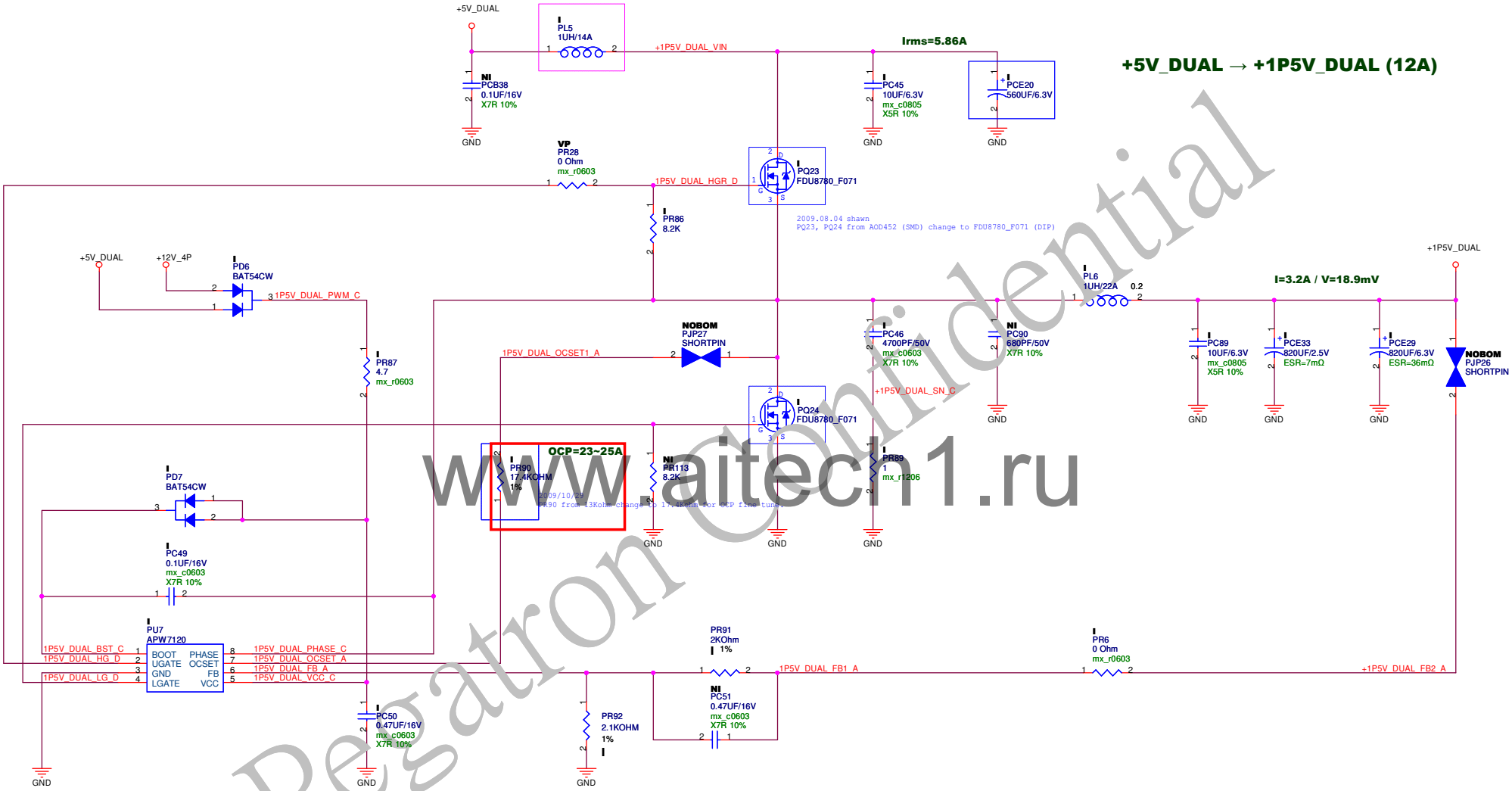
+5VSB ==> +3P3VSB (1.5A)



2009.08.04 shawn
→ Removed switch regulator solution.
→ Add Linear regulator solution.

PEGATRON DT-MB RESTRICTED SECRET

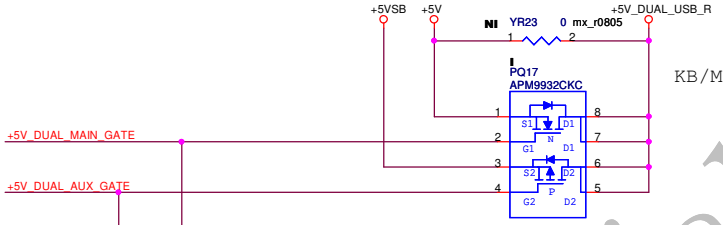
PEGATRON	Title : +0P9V_VTT_DDR_LDO	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 51 of 54	



PEGATRON DT-MB RESTRICTED SECRET

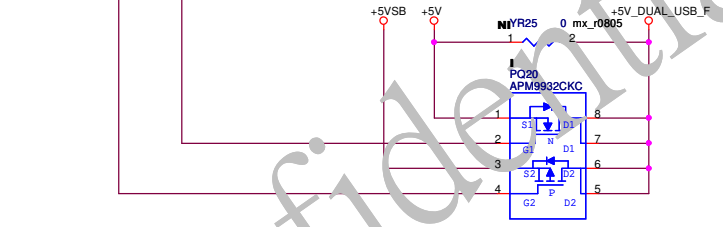
PEGATRON	Title : +1P5V_DUAL_SW	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 52 of 54	

+5V_DUAL_USB_R.....3A



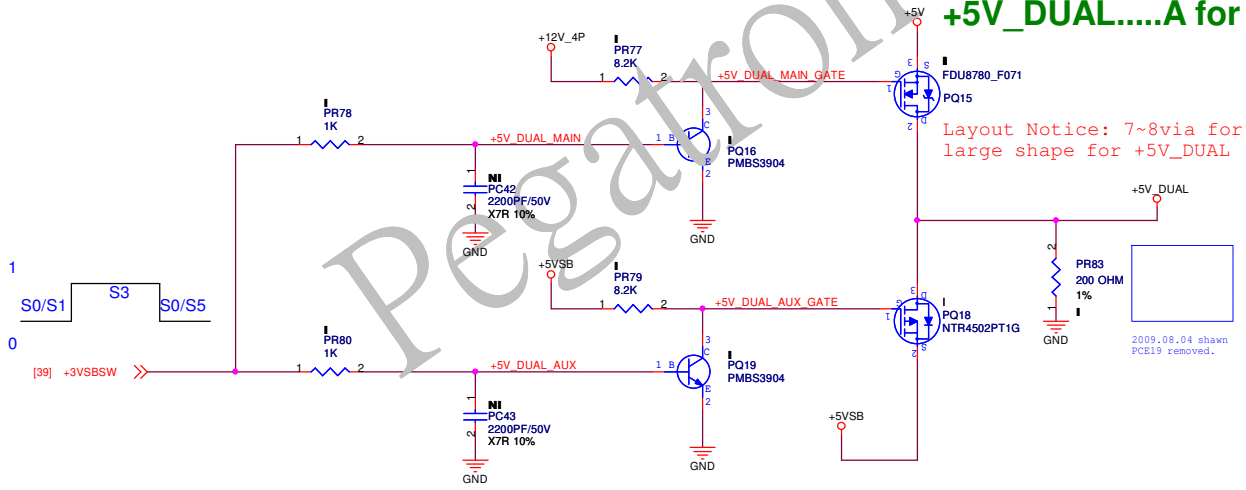
KB/MS connect to +5V_DUAL_USB_R

+5V_DUAL_USB_F.....3A



Layout Notice: 3~4via for +5V, 2via for +5VSB,
large shape for +5V_DUAL

+5V_DUAL.....A for DRAM



Layout Notice: 7~8via for +5V, 2via for +5VSB,
large shape for +5V_DUAL

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : +1P1V_FSB_VTT_LDO	
PEGATRON CORP.	Engineer: Ttepic_Zhu	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 53 of 54	

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : +3P3V_PCIE&+3P3V_LAN	
PEGATRON COMPUTER INC	Engineer: Hemine_He	
Size: A3	Project Name: IPX41-D3	Rev: 1.02
Date: Thursday, December 10, 2009	Sheet 54 of 54	