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IG41S-M7S

Intel G41 + ICH7

VER:7.0

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Title: Cover Sheet		
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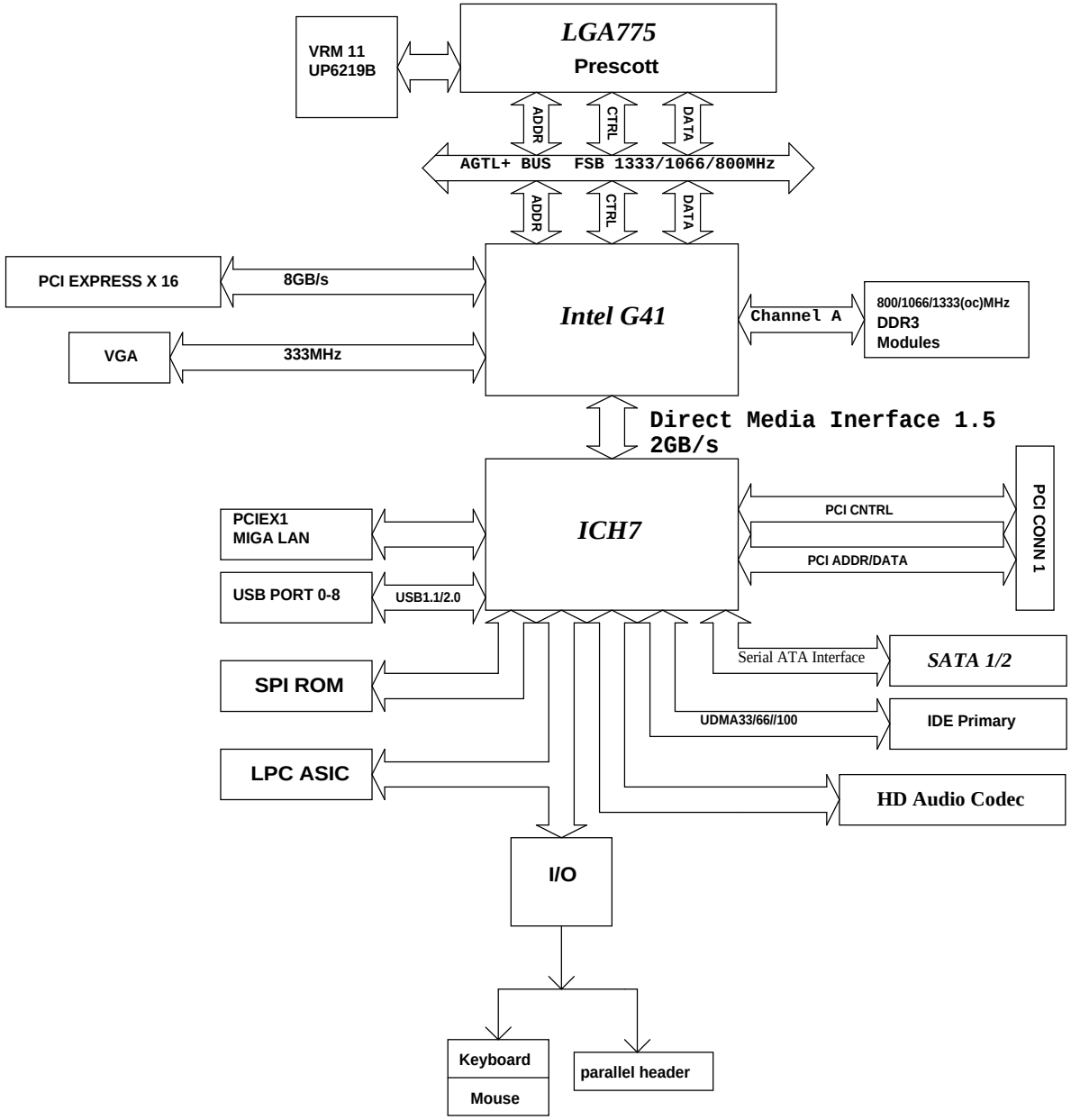
BLOCK DIAGRAM



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Title: Block Diagram		
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PCI SLOT	IDE SEL	INT#	GNT#	REQ#	CLOCK
SLOT 1	AD17	A	0	0	PCLK_SLOT0

SUPERIO	GP NUM	TYPE	POWER	FUNCTION
PIN5	GP64	DIOD8	AVCC3	OV_FSB0
PIN6	GP63	DIOD8	AVCC3	OV_CHIP0
PIN25	GP22	DIOD8	3VSB	MCH_BSEL2_R
PIN28	GP17	DIOD8	AVCC3	VDIMM0
PIN24	GP23	DIOD8	3VSB	OVCPU_CORE0
PIN79	GP40	DIOD8	3VSB	IO_LED2
PIN70	GP47	DIOD8	3VSB	THERMAL#

IG41S-M7S V0.7

CPU:
Intel Core 2 Duo / Quad / Extreme, Celeron 4xx, Pentium Dual-Core, Celeron Dual-core (FSB1600/1333/1066/800) 95W 3-Phase Power

SYSTEM CHIP:
Intel ICH7 (South Bridge)
Intel EaglelakeG41-A3 GMCH (North Bridge)

ONBOARD CHIP:
SUPERIO: ITE 8728BX
AUDIO CODE: VT1708B 5.1Channel Audio
LAN CHIP: Realtek Atheros AR8158
CLOCK GEN:RTM876-665
DDR/CHIP PWM: UP6109
DDR VTT: FP6137E

MEMORY SPEC:
DDR3 1333(OC)/1066/800
MAX 4G DUAL CHANNEL

CPU PWM:
PWM: UP6219B 2PHASE UP1 LOW2 95W

PCB SIZE
uATX,170.0mmx225.0mm, 4-Layer

EXPANSION SLOTS:
1x PCIEX16 SLOT;
1x PCI SLOT;
1x IDE connector;
2x SATA connectors;
1x CPU Fan header;
1x System Fan Header;
1 x Front Panel Header;
1 x Front Panel Audio Header;
8 x USB 2.0/1.1 Headers

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Title		
GENERAL SPEC		
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V7.0

1.R57=2K,R59=1K
2.AR16=2.7 0805
3.OVCPU_CORE0 change GPIO23 BSEL2 control change to GPIO22
4.add FPR6=4.7K FOR IO_LED2
5.CT18=820UF-S 2.5V 6.3X8 8X12
6.PC40=47NF

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Title	Change List	
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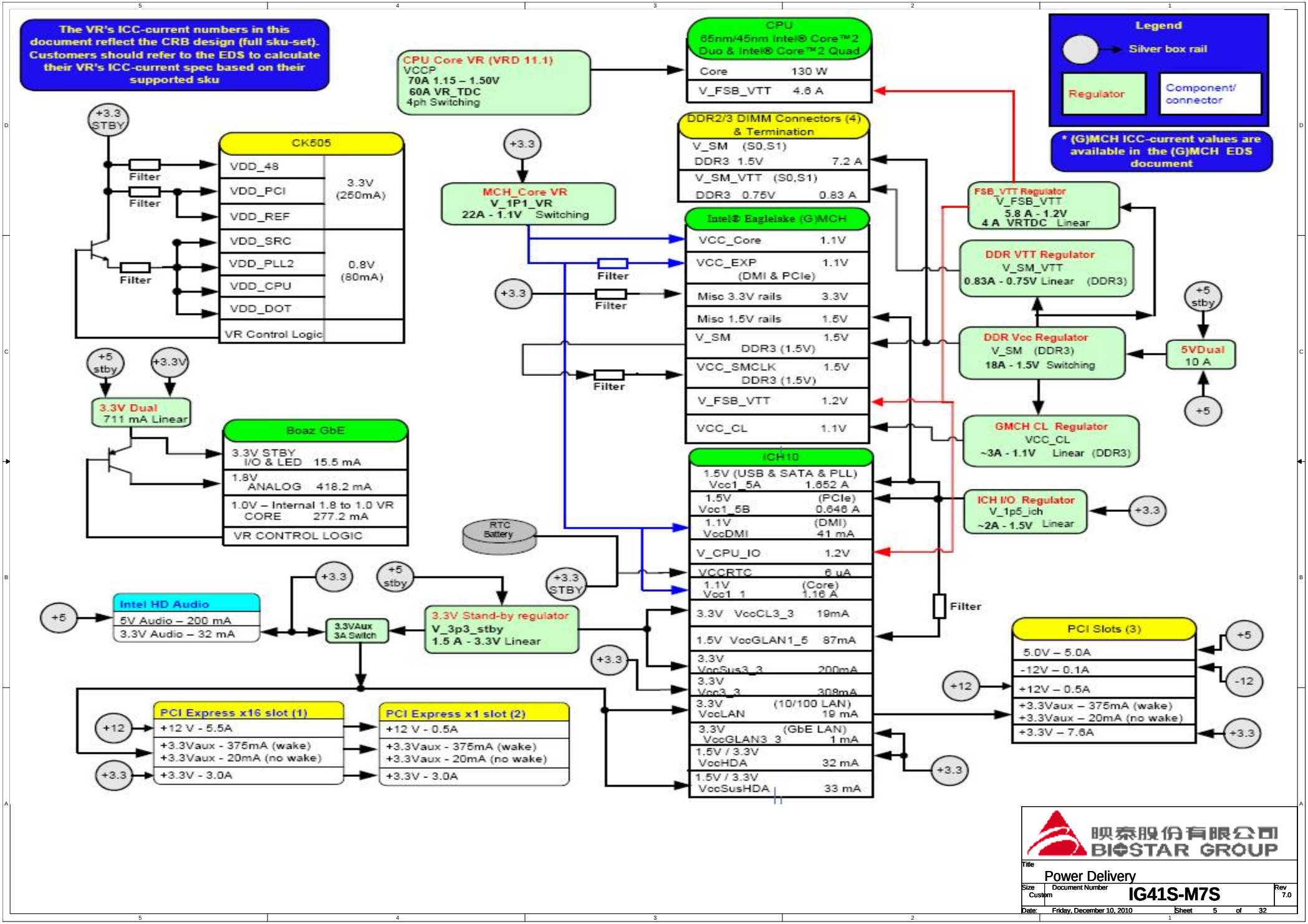
The VR's ICC-current numbers in this document reflect the CRB design (full sku-set). Customers should refer to the EDS to calculate their VR's ICC-current spec based on their supported sku
CPU
65nm/45nm Intel® Core™2 Duo & Intel® Core™2 Quad
Core 130 W
V_FSB_VTT 4.6 A
CPU Core VR (VRD 11.1)
VCCP
70A 1.15 – 1.50V
60A VR_TDC
4ph Switching
Legend
Silver box rail
Regulator
Component/ connector
* (G)MCH ICC-current values are available in the (G)MCH EDS document
+3.3 STBY
CK505
VDD_48
VDD_PCI
VDD_REF
3.3V (250mA)
VDD_SRC
VDD_PLL2
VDD_CPU
VDD_DOT
0.8V (80mA)
VR Control Logic
Filter
+3.3
MCH_Core VR
V_1P1_VR
22A - 1.1V Switching
DDR2/3 DIMM Connectors (4) & Termination
V_SM (S0,S1)
DDR3 1.5V 7.2 A
V_SM_VTT (S0,S1)
DDR3 0.75V 0.83 A
Intel® Eaglelake (G)MCH
VCC_Core 1.1V
VCC_EXP 1.1V
(DMI & PCIe)
Misc 3.3V rails 3.3V
Misc 1.5V rails 1.5V
V_SM 1.5V
DDR3 (1.5V)
VCC_SMCLK 1.5V
DDR3 (1.5V)
V_FSB_VTT 1.2V
VCC_CL 1.1V
FSB_VTT Regulator
V_FSB_VTT
5.8 A - 1.2V
4 A VRTDC Linear
DDR VTT Regulator
V_SM_VTT
0.83A - 0.75V Linear (DDR3)
DDR Vcc Regulator
V_SM (DDR3)
18A - 1.5V Switching
5VDual
10 A
+5 stby
+5
GMCH CL Regulator
VCC_CL
~3A - 1.1V Linear (DDR3)
+5 stby
+3.3V
3.3V Dual
711 mA Linear
Boaz GbE
3.3V STBY
I/O & LED 15.5 mA
1.8V
ANALOG 418.2 mA
1.0V – Internal 1.8 to 1.0 VR
CORE 277.2 mA
VR CONTROL LOGIC
ICH10
1.5V (USB & SATA & PLL)
Vcc1_5A 1.652 A
1.5V (PCIe)
Vcc1_5B 0.646 A
1.1V (DMI)
VccDMI 41 mA
V_CPU_IO 1.2V
VCCRTC 6 uA
1.1V (Core)
Vcc1_1 1.16 A
3.3V VccCL3_3 19mA
1.5V VccGLAN1_5 87mA
3.3V
VccSus3_3 200mA
3.3V
Vcc3_3 308mA
3.3V (10/100 LAN)
VccLAN 19 mA
3.3V (GbE LAN)
VccGLAN3_3 1 mA
1.5V / 3.3V
VccHDA 32 mA
1.5V / 3.3V
VccSusHDA 33 mA
ICH I/O Regulator
V_1p5_ich
~2A - 1.5V Linear
RTC Battery
+3.3 STBY
Filter
Intel HD Audio
5V Audio – 200 mA
3.3V Audio – 32 mA
+5
3.3VAux 3A Switch
3.3V Stand-by regulator
V_3p3_stby
1.5 A - 3.3V Linear
PCI Express x16 slot (1)
+12 V - 5.5A
+3.3Vaux - 375mA (wake)
+3.3Vaux - 20mA (no wake)
+3.3V - 3.0A
PCI Express x1 slot (2)
+12 V - 0.5A
+3.3Vaux - 375mA (wake)
+3.3Vaux - 20mA (no wake)
+3.3V - 3.0A
PCI Slots (3)
5.0V – 5.0A
-12V – 0.1A
+12V – 0.5A
+3.3Vaux – 375mA (wake)
+3.3Vaux – 20mA (no wake)
+3.3V – 7.6A
+12
-12
映泰股份有限公司
BIOSTAR GROUP
Title
Power Delivery
Size Custom
Document Number
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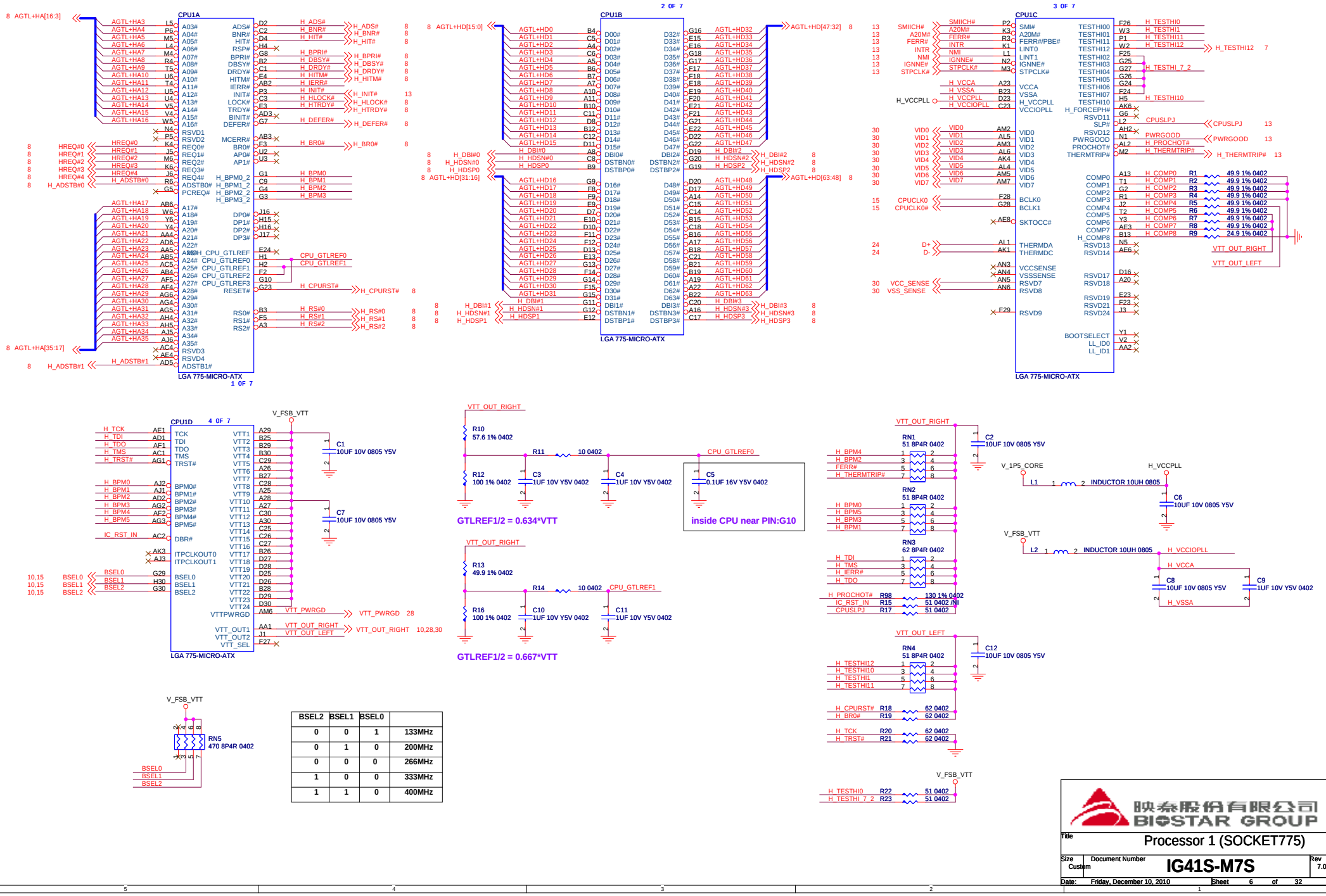
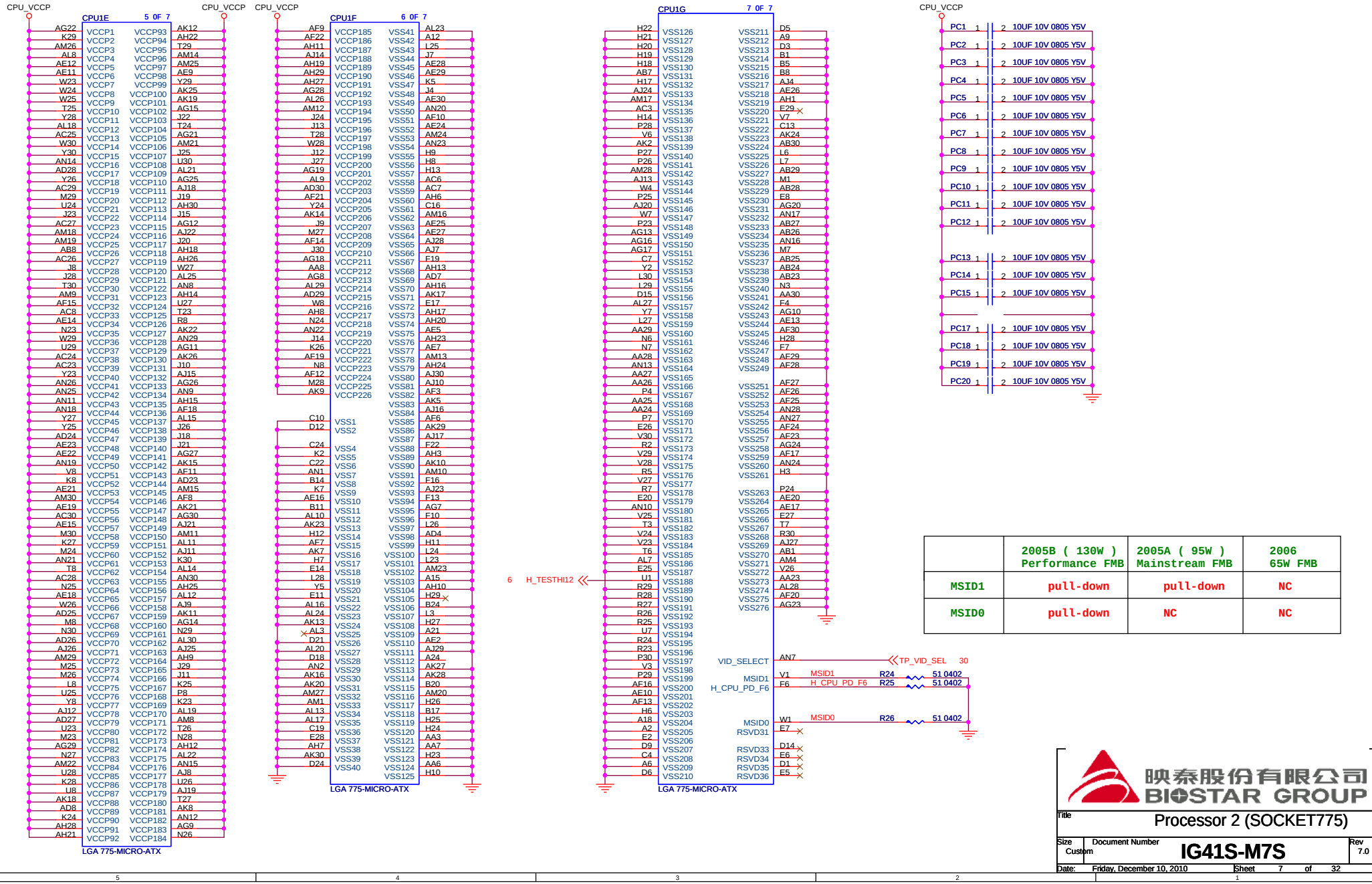


BSEL2	BSEL1	BSEL0	
0	0	1	133MHz
0	1	0	200MHz
0	0	0	266MHz
1	0	0	333MHz
1	1	0	400MHz



	2005B (130W) Performance FMB	2005A (95W) Mainstream FMB	2006 65W FMB
MSID1	pull-down	pull-down	NC
MSID0	pull-down	NC	NC

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Title	Processor 2 (SOCKET775)		
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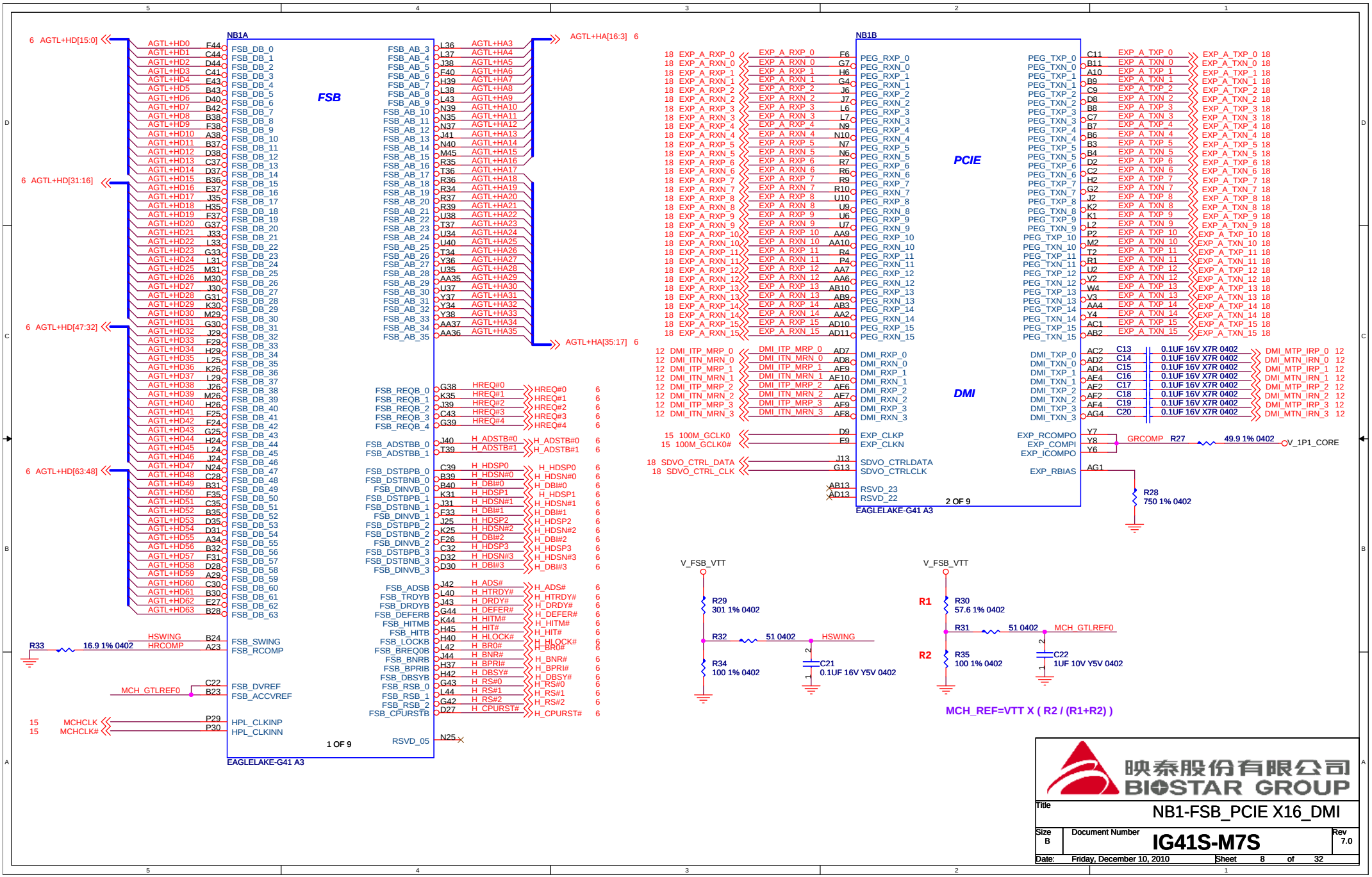
NB1A
FSB
1 OF 9
EAGLELAKE-G41 A3
NB1B
PCIE
DMI
2 OF 9
EAGLELAKE-G41 A3
6 AGTL+HD[15:0]
6 AGTL+HD[31:16]
6 AGTL+HD[47:32]
6 AGTL+HD[63:48]
AGTL+HA[16:3] 6
AGTL+HA[35:17] 6
R33 16.9 1% 0402
MCH_GTLREF0
15 MCHCLK
15 MCHCLK#
V_FSB_VTT
R29 301 1% 0402
R32 51 0402
R34 100 1% 0402
C21 0.1UF 16V Y5V 0402
R1
R30 57.6 1% 0402
R31 51 0402
R2
R35 100 1% 0402
C22 1UF 10V Y5V 0402
MCH_REF=VTT X (R2 / (R1+R2))
R27 49.9 1% 0402
V_1P1_CORE
R28 750 1% 0402
0.1UF 16V X7R 0402
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Title
NB1-FSB_PCIE X16_DMI
Size B
Document Number
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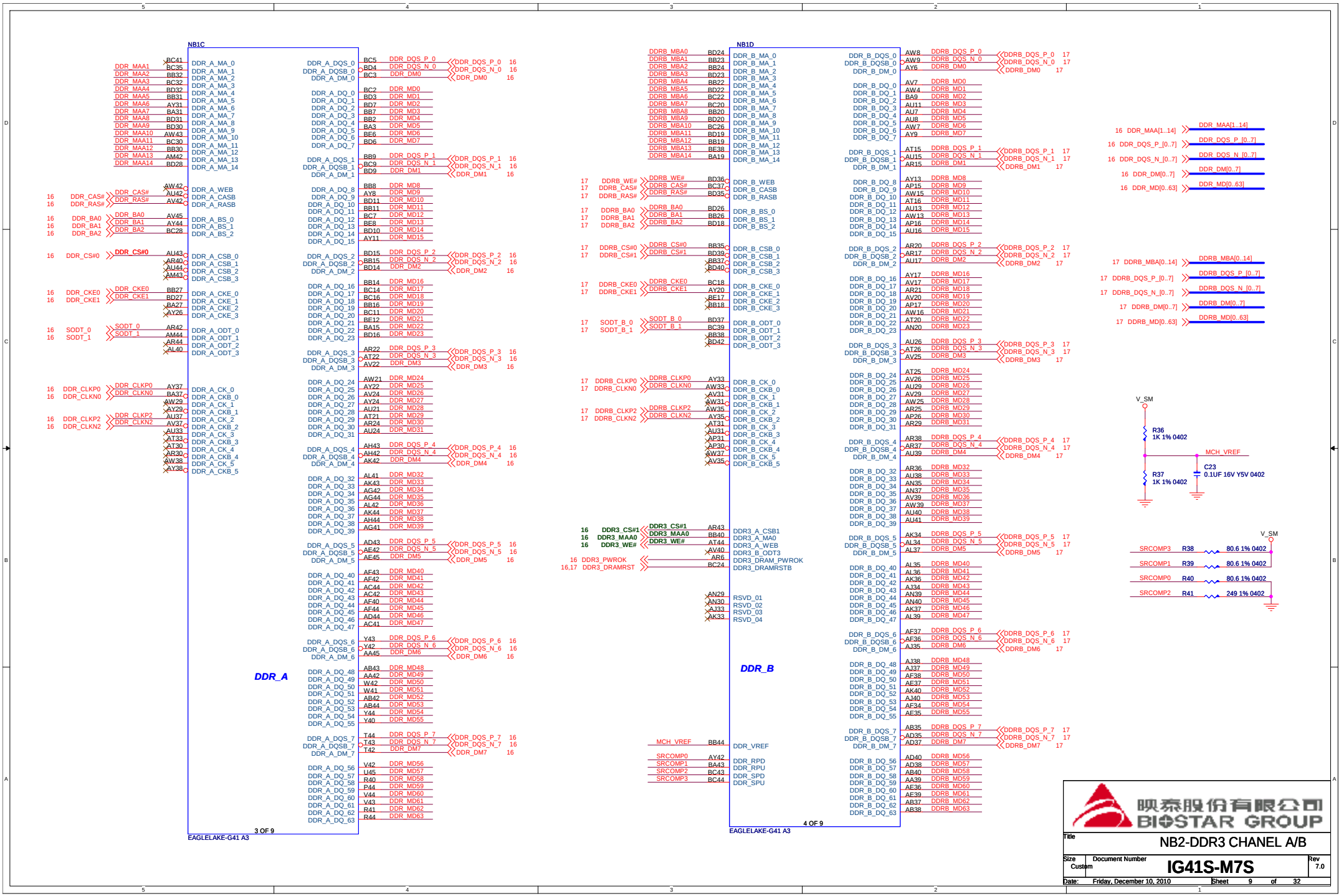
NB1C
DDR_A
3 OF 9
EAGLELAKE-G41 A3
NB1D
DDR_B
4 OF 9
EAGLELAKE-G41 A3
V_SM
R36
1K 1% 0402
MCH_VREF
C23
0.1UF 16V Y5V 0402
R37
1K 1% 0402
SRCOMP3 R38 80.6 1% 0402
SRCOMP1 R39 80.6 1% 0402
SRCOMP0 R40 80.6 1% 0402
SRCOMP2 R41 249 1% 0402
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Title
NB2-DDR3 CHANEL A/B
Size
Custom
Document Number
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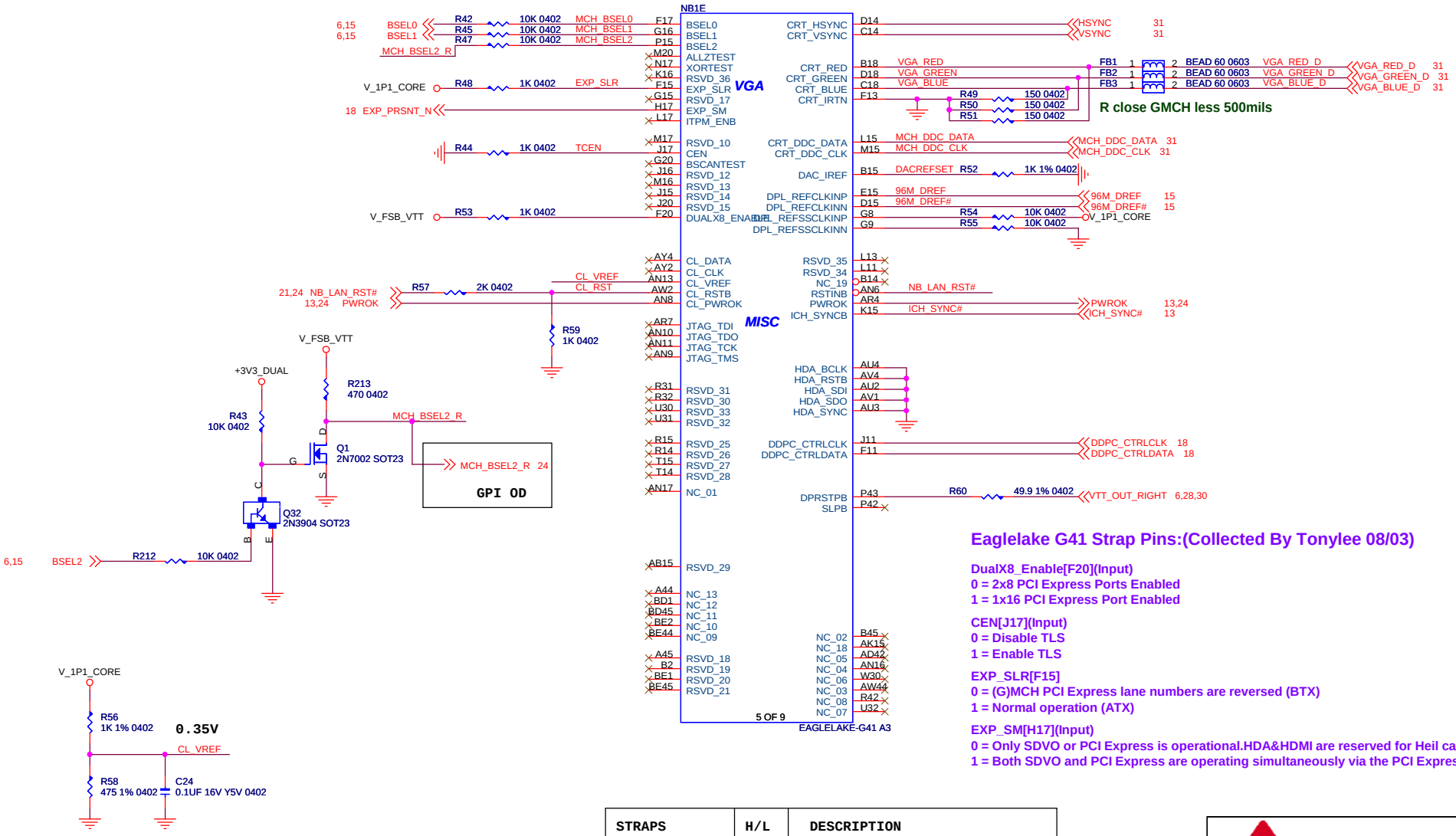

Eaglelake G41 Strap Pins:(Collected By Tonylee 08/03)

DualX8_Enable[F20](Input)
0 = 2x8 PCI Express Ports Enabled
1 = 1x16 PCI Express Port Enabled

CEN[J17](Input)
0 = Disable TLS
1 = Enable TLS

EXP_SLR[F15]
0 = (G)MCH PCI Express lane numbers are reversed (BTX)
1 = Normal operation (ATX)

EXP_SM[H17](Input)
0 = Only SDVO or PCI Express is operational.HDA&HDMI are reserved for Heil card.
1 = Both SDVO and PCI Express are operating simultaneously via the PCI Express port.

STRAPS	H/L	DESCRIPTION
DDPC_CTRLDATA	L	DIGITAL DISPLAY PORT C DISABLE
	H	DIGITAL DISPLAY PORT C ENABLE
SDVO_CTRLDATA	L	DIGITAL DISPLAY PORT B DISABLE
	H	DIGITAL DISPLAY PORT B ENABLE

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Title	NB3-MISC_GFX	
Size: B	Document Number: IG41S-M7S	Rev: 7.0
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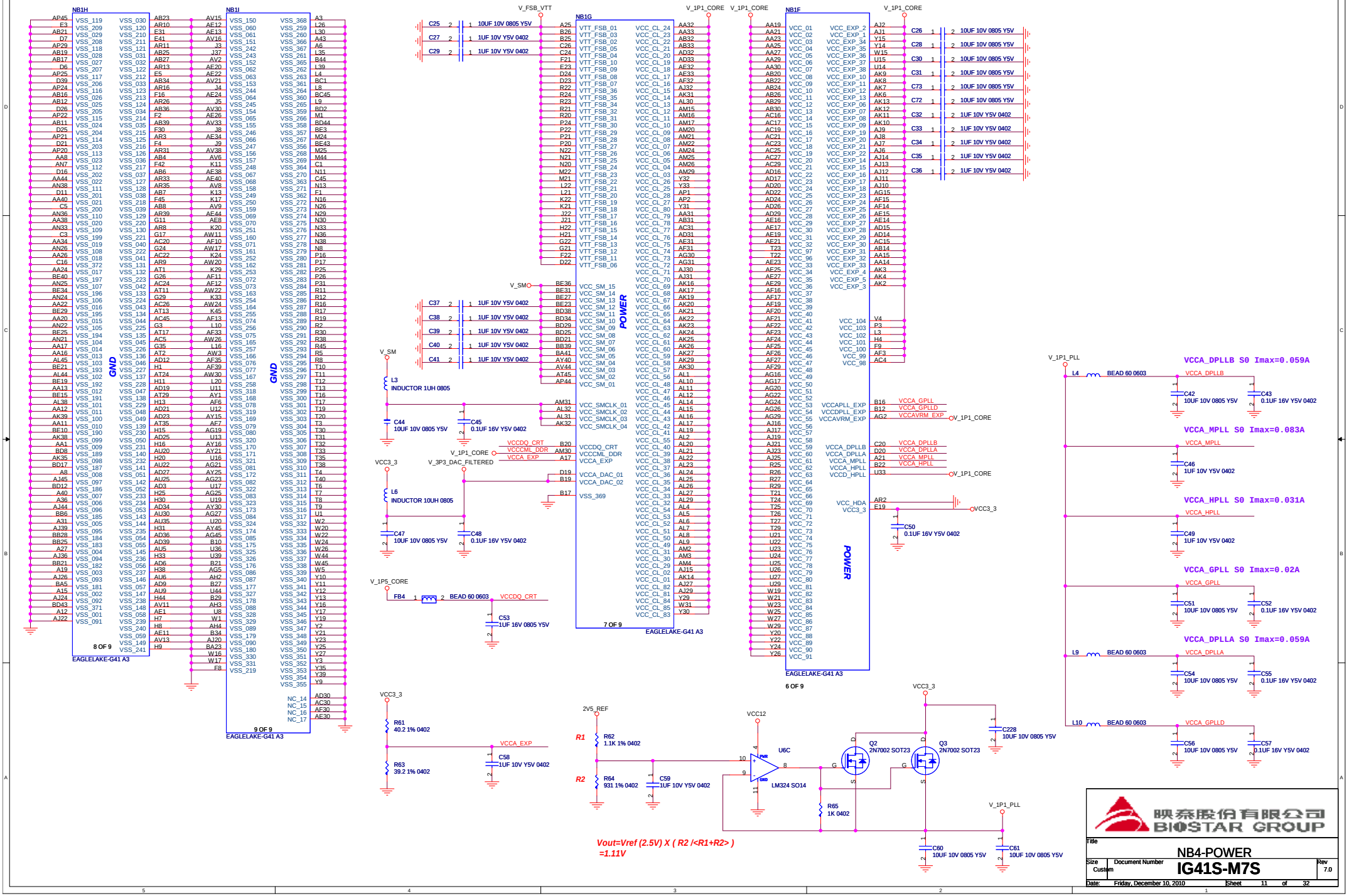
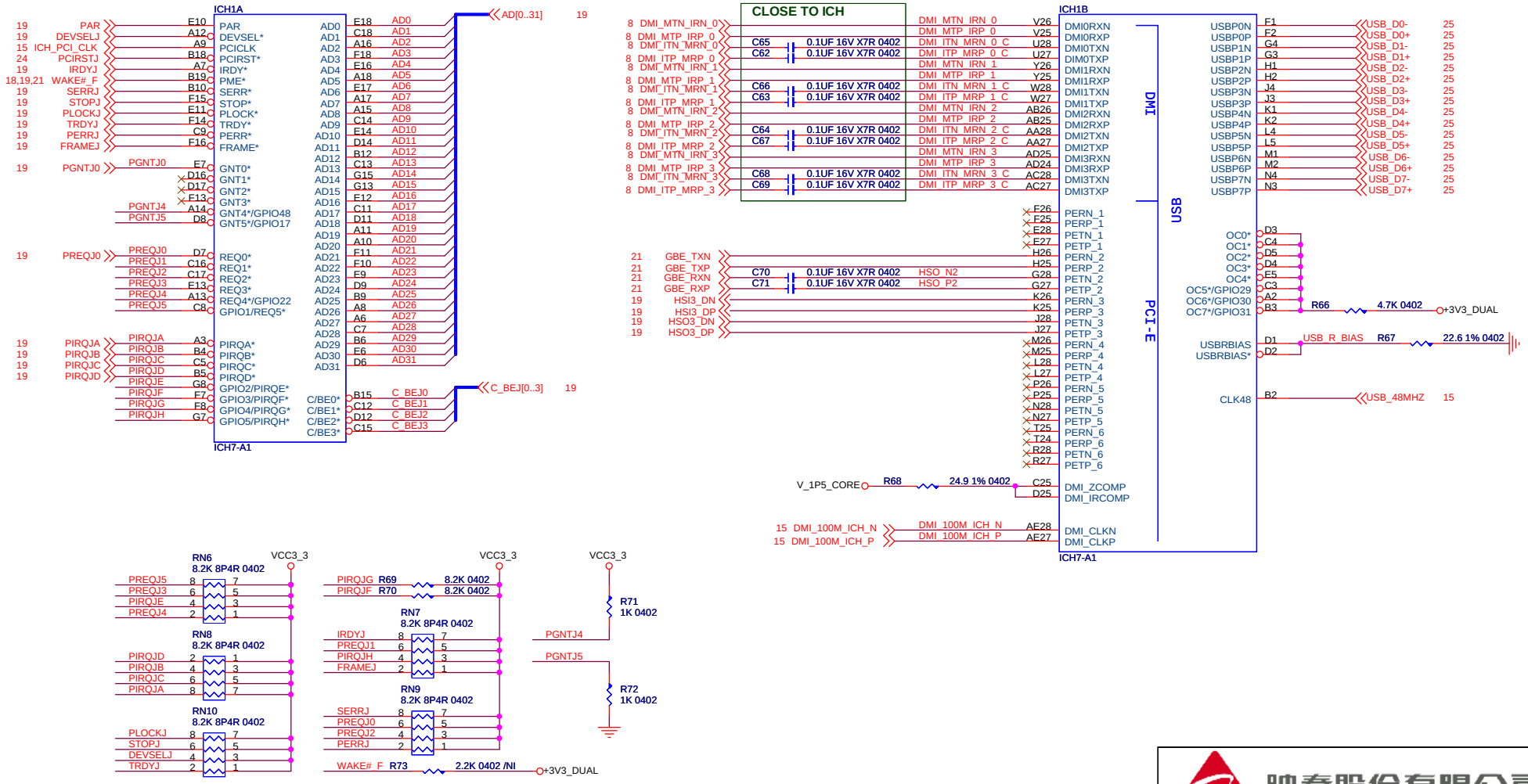

NB1H
NB1I
NB1G
NB1F
GND
POWER
8 OF 9
9 OF 9
7 OF 9
6 OF 9
EAGLELAKE-G41 A3
V_FSB_VTT
V_1P1_CORE
V_SM
V_SMO
V_3P3_DAC_FILTERED
V_1P5_CORE
VCC3_3
2V5_REF
VCC12
V_1P1_PLL
L3 INDUCTOR 1UH 0805
L6 INDUCTOR 10UH 0805
FB4 BEAD 60 0603
U6C
LM324 SO14
Q2 2N7002 SOT23
Q3 2N7002 SOT23
VCCA_DPLLB S0 Imax=0.059A
VCCA_MPLL S0 Imax=0.083A
VCCA_HPLL S0 Imax=0.031A
VCCA_GPLL S0 Imax=0.02A
VCCA_DPLLA S0 Imax=0.059A
Vout=Vref (2.5V) X (R2 /<R1+R2>)
=1.11V
BIOSTAR GROUP
NB4-POWER
IG41S-M7S
Friday, December 10, 2010



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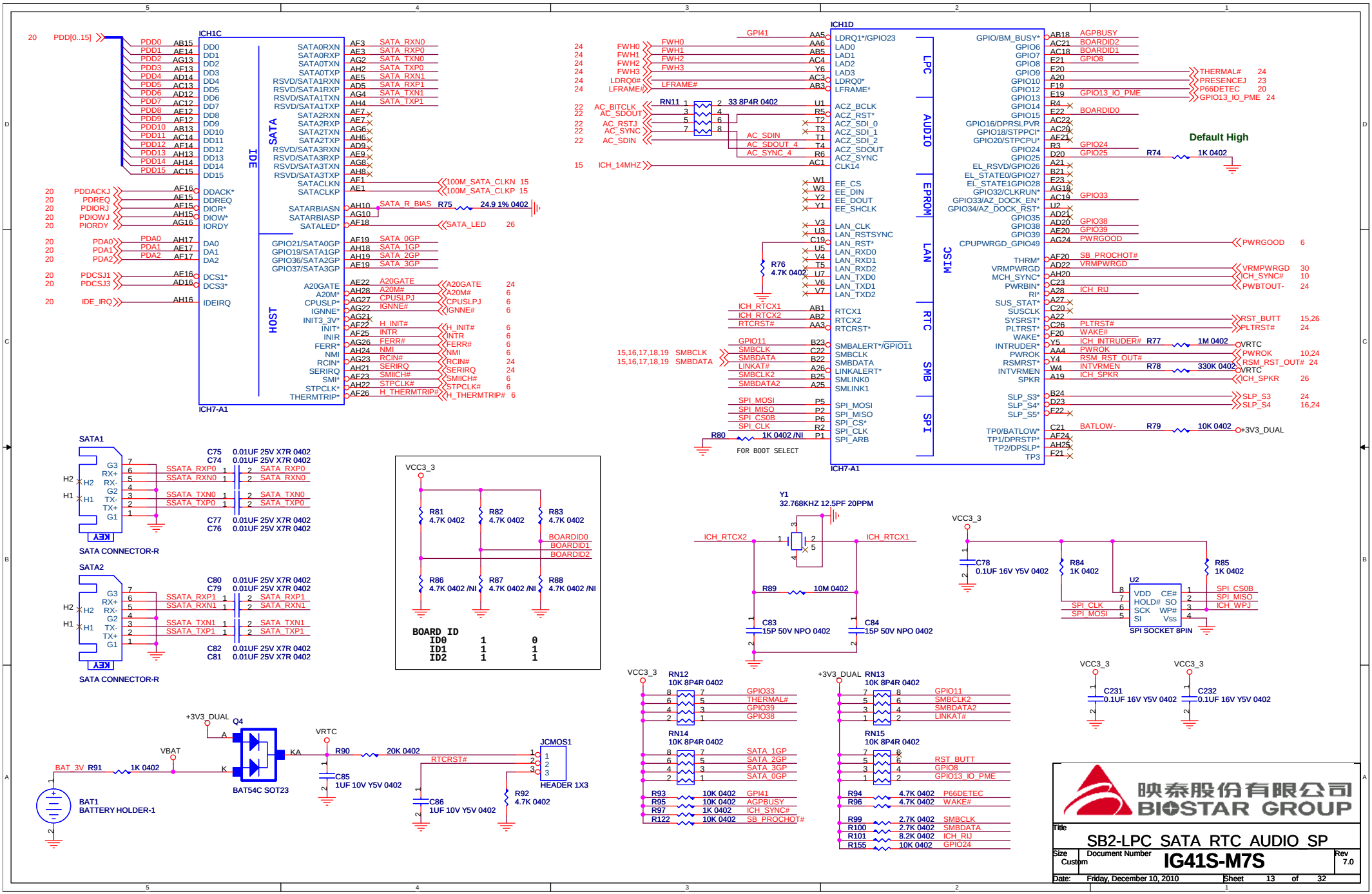
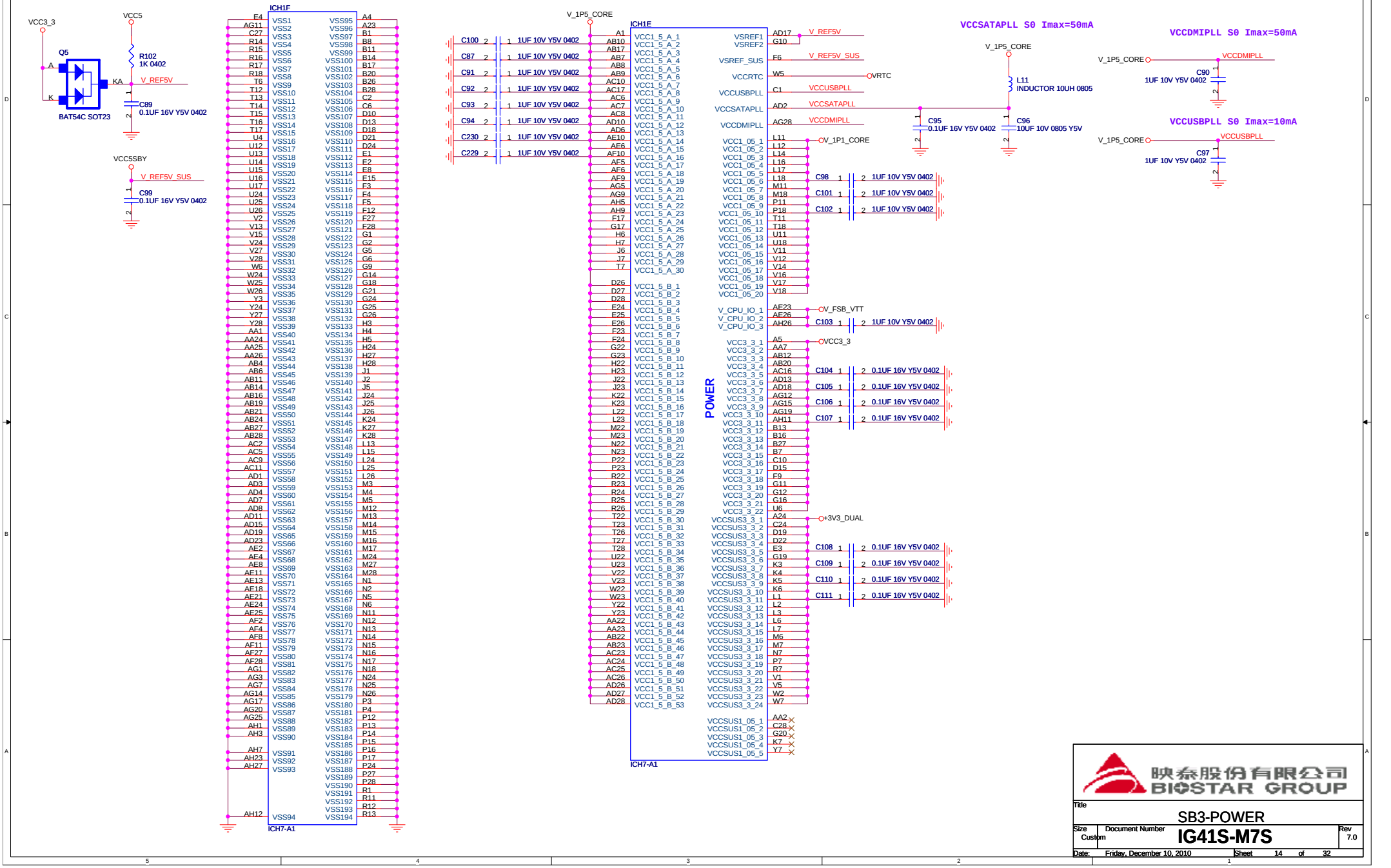
Title	SB1-PCI_PCIE_USB_DMI	
Size: B	Document Number: IG41S-M7S	Rev: 7.0
Date: Friday, December 10, 2010	Sheet 12 of 32	


ICH1C
IDE
SATA
HOST
ICH7-A1
ICH1D
LPC
AUDIO
EEPROM
LAN
RTC
SMB
SPI
MISC
ICH7-A1
Default High
SATA1
SATA CONNECTOR-R
SATA2
SATA CONNECTOR-R
BOARD ID
ID0 1 0
ID1 1 1
ID2 1 1
Y1
32.768KHZ 12.5PF 20PPM
SPI SOCKET 8PIN
BAT1
BATTERY HOLDER-1
BAT54C SOT23
HEADER 1X3
FOR BOOT SELECT
BIOSTAR GROUP
SB2-LPC_SATA_RTC_AUDIO_SP
IG41S-M7S
Friday, December 10, 2010


VCC3_3
VCC5
Q5
A
K
KA
BAT54C SOT23
R102
1K 0402
V_REF5V
C89
0.1UF 16V Y5V 0402
VCC5SBY
V_REF5V_SUS
C99
0.1UF 16V Y5V 0402
ICH1F
VSS1 VSS2 VSS3 VSS4 VSS5 VSS6 VSS7 VSS8 VSS9 VSS10 VSS11 VSS12 VSS13 VSS14 VSS15 VSS16 VSS17 VSS18 VSS19 VSS20 VSS21 VSS22 VSS23 VSS24 VSS25 VSS26 VSS27 VSS28 VSS29 VSS30 VSS31 VSS32 VSS33 VSS34 VSS35 VSS36 VSS37 VSS38 VSS39 VSS40 VSS41 VSS42 VSS43 VSS44 VSS45 VSS46 VSS47 VSS48 VSS49 VSS50 VSS51 VSS52 VSS53 VSS54 VSS55 VSS56 VSS57 VSS58 VSS59 VSS60 VSS61 VSS62 VSS63 VSS64 VSS65 VSS66 VSS67 VSS68 VSS69 VSS70 VSS71 VSS72 VSS73 VSS74 VSS75 VSS76 VSS77 VSS78 VSS79 VSS80 VSS81 VSS82 VSS83 VSS84 VSS85 VSS86 VSS87 VSS88 VSS89 VSS90 VSS91 VSS92 VSS93 VSS94
VSS95 VSS96 VSS97 VSS98 VSS99 VSS100 VSS101 VSS102 VSS103 VSS104 VSS105 VSS106 VSS107 VSS108 VSS109 VSS110 VSS111 VSS112 VSS113 VSS114 VSS115 VSS116 VSS117 VSS118 VSS119 VSS120 VSS121 VSS122 VSS123 VSS124 VSS125 VSS126 VSS127 VSS128 VSS129 VSS130 VSS131 VSS132 VSS133 VSS134 VSS135 VSS136 VSS137 VSS138 VSS139 VSS140 VSS141 VSS142 VSS143 VSS144 VSS145 VSS146 VSS147 VSS148 VSS149 VSS150 VSS151 VSS152 VSS153 VSS154 VSS155 VSS156 VSS157 VSS158 VSS159 VSS160 VSS161 VSS162 VSS163 VSS164 VSS165 VSS166 VSS167 VSS168 VSS169 VSS170 VSS171 VSS172 VSS173 VSS174 VSS175 VSS176 VSS177 VSS178 VSS179 VSS180 VSS181 VSS182 VSS183 VSS184 VSS185 VSS186 VSS187 VSS188 VSS189 VSS190 VSS191 VSS192 VSS193 VSS194
ICH7-A1
V_1P5_CORE
C100 C87 C91 C92 C93 C94 C230 C229
1UF 10V Y5V 0402
ICH1E
VCC1_5_A_1 VCC1_5_A_2 VCC1_5_A_3 VCC1_5_A_4 VCC1_5_A_5 VCC1_5_A_6 VCC1_5_A_7 VCC1_5_A_8 VCC1_5_A_9 VCC1_5_A_10 VCC1_5_A_11 VCC1_5_A_12 VCC1_5_A_13 VCC1_5_A_14 VCC1_5_A_15 VCC1_5_A_16 VCC1_5_A_17 VCC1_5_A_18 VCC1_5_A_19 VCC1_5_A_20 VCC1_5_A_21 VCC1_5_A_22 VCC1_5_A_23 VCC1_5_A_24 VCC1_5_A_25 VCC1_5_A_26 VCC1_5_A_27 VCC1_5_A_28 VCC1_5_A_29 VCC1_5_A_30
VCC1_5_B_1 VCC1_5_B_2 VCC1_5_B_3 VCC1_5_B_4 VCC1_5_B_5 VCC1_5_B_6 VCC1_5_B_7 VCC1_5_B_8 VCC1_5_B_9 VCC1_5_B_10 VCC1_5_B_11 VCC1_5_B_12 VCC1_5_B_13 VCC1_5_B_14 VCC1_5_B_15 VCC1_5_B_16 VCC1_5_B_17 VCC1_5_B_18 VCC1_5_B_19 VCC1_5_B_20 VCC1_5_B_21 VCC1_5_B_22 VCC1_5_B_23 VCC1_5_B_24 VCC1_5_B_25 VCC1_5_B_26 VCC1_5_B_27 VCC1_5_B_28 VCC1_5_B_29 VCC1_5_B_30 VCC1_5_B_31 VCC1_5_B_32 VCC1_5_B_33 VCC1_5_B_34 VCC1_5_B_35 VCC1_5_B_36 VCC1_5_B_37 VCC1_5_B_38 VCC1_5_B_39 VCC1_5_B_40 VCC1_5_B_41 VCC1_5_B_42 VCC1_5_B_43 VCC1_5_B_44 VCC1_5_B_45 VCC1_5_B_46 VCC1_5_B_47 VCC1_5_B_48 VCC1_5_B_49 VCC1_5_B_50 VCC1_5_B_51 VCC1_5_B_52 VCC1_5_B_53
POWER
VSREF1 VSREF2 VSREF_SUS VCCRTC VCCUSBPLL VCCSATAPLL VCCDMIPLL
V_CPU_IO_1 V_CPU_IO_2 V_CPU_IO_3
VCC3_3_1 VCC3_3_2 VCC3_3_3 VCC3_3_4 VCC3_3_5 VCC3_3_6 VCC3_3_7 VCC3_3_8 VCC3_3_9 VCC3_3_10 VCC3_3_11 VCC3_3_12 VCC3_3_13 VCC3_3_14 VCC3_3_15 VCC3_3_16 VCC3_3_17 VCC3_3_18 VCC3_3_19 VCC3_3_20 VCC3_3_21 VCC3_3_22
VCCSUS3_3_1 VCCSUS3_3_2 VCCSUS3_3_3 VCCSUS3_3_4 VCCSUS3_3_5 VCCSUS3_3_6 VCCSUS3_3_7 VCCSUS3_3_8 VCCSUS3_3_9 VCCSUS3_3_10 VCCSUS3_3_11 VCCSUS3_3_12 VCCSUS3_3_13 VCCSUS3_3_14 VCCSUS3_3_15 VCCSUS3_3_16 VCCSUS3_3_17 VCCSUS3_3_18 VCCSUS3_3_19 VCCSUS3_3_20 VCCSUS3_3_21 VCCSUS3_3_22 VCCSUS3_3_23 VCCSUS3_3_24
VCCSUS1_05_1 VCCSUS1_05_2 VCCSUS1_05_3 VCCSUS1_05_4 VCCSUS1_05_5
ICH7-A1
V_REF5V
V_REF5V_SUS
VRTC
VCCUSBPLL
VCCSATAPLL
VCCDMIPLL
V_1P1_CORE
V_FSB_VTT
VCC3_3
+3V3_DUAL
C103 C104 C105 C106 C107 C108 C109 C110 C111
0.1UF 16V Y5V 0402
C98 C101 C102
1UF 10V Y5V 0402
VCCSATAPLL S0 Imax=50mA
V_1P5_CORE
L11
INDUCTOR 10UH 0805
C95
0.1UF 16V Y5V 0402
C96
10UF 10V 0805 Y5V
VCCDMIPLL S0 Imax=50mA
C90
1UF 10V Y5V 0402
VCCUSBPLL S0 Imax=10mA
C97
1UF 10V Y5V 0402
映泰股份有限公司
BIOSTAR GROUP
Title
SB3-POWER
Size
Custom
Document Number
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Rev
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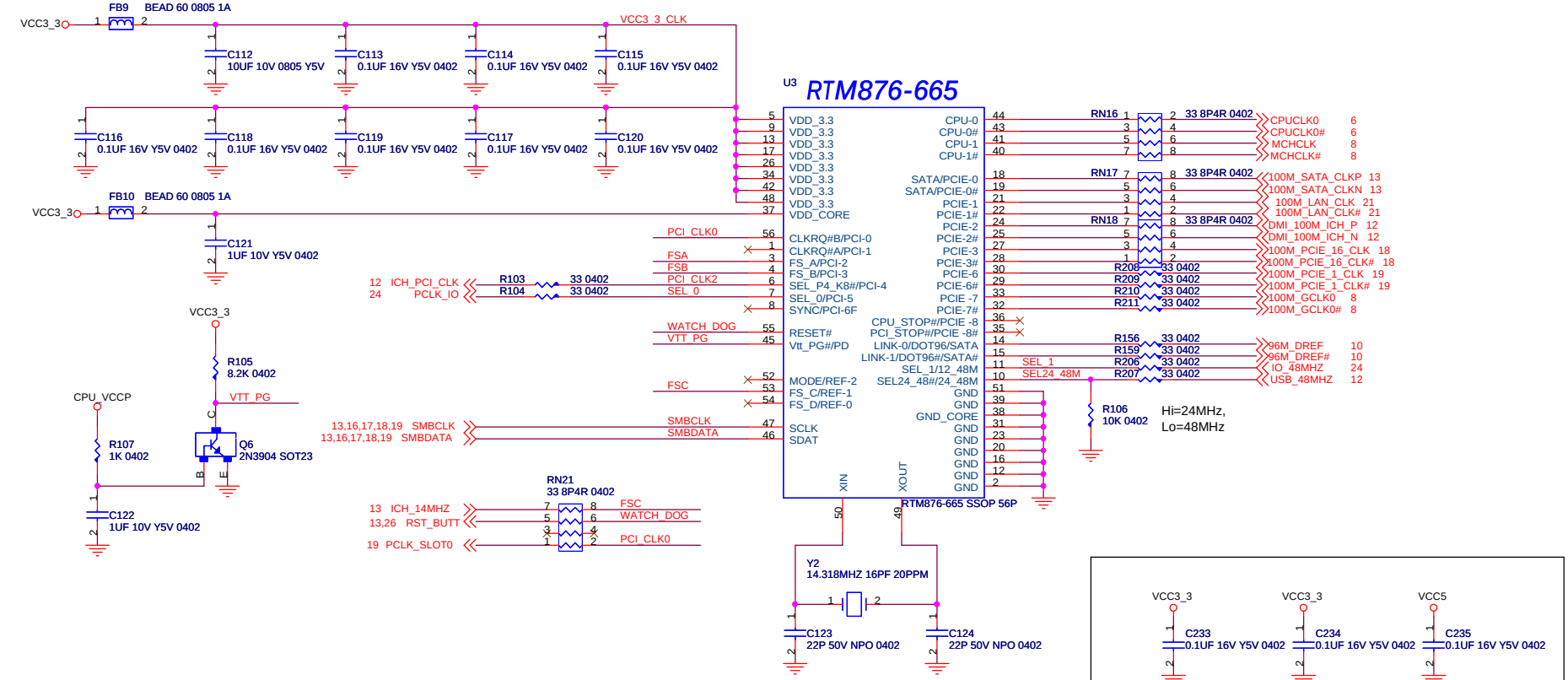
of
32



BSEL2	BSEL1	BSEL0	
0	0	1	133MHz
0	1	0	200MHz
0	0	0	266MHz
1	0	0	333MHz

Pin11 Sel-1	Pin7 Sel-0	Pin14/15 Link/DOT/SATA	Pin18/19 SATA/PCIE	Pin11 12-48M	Chipset
0	0	Link	SATA	12M	Sis
0	1	DOT	SATA	48M	Intel W/GFX
1	0	Link	PCIEX	48M	VIA
1	1	SATA	PCIEX	48M	Intel

For Intel Chipset w/o GFX (SEL-1/0 = 11)
DOT96 is not necessary

PIN6 PCIE_CLK1=SEL P4/K8(internal pull high)
Hi = P4 0.8V push-pull CPU clock
Lo = K8 3.3V push-pull CPU clock

PIN52 MOD_SEL=SEL PIN35/36=PCIE-8(internal pull low)
MODE=0 PIN35/36 is PCIE8#/PCIE8
MODE=1 PIN35/36 is PCI_STOP#/CPU_STOP#

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Title	CLK GEN RTM876-665		
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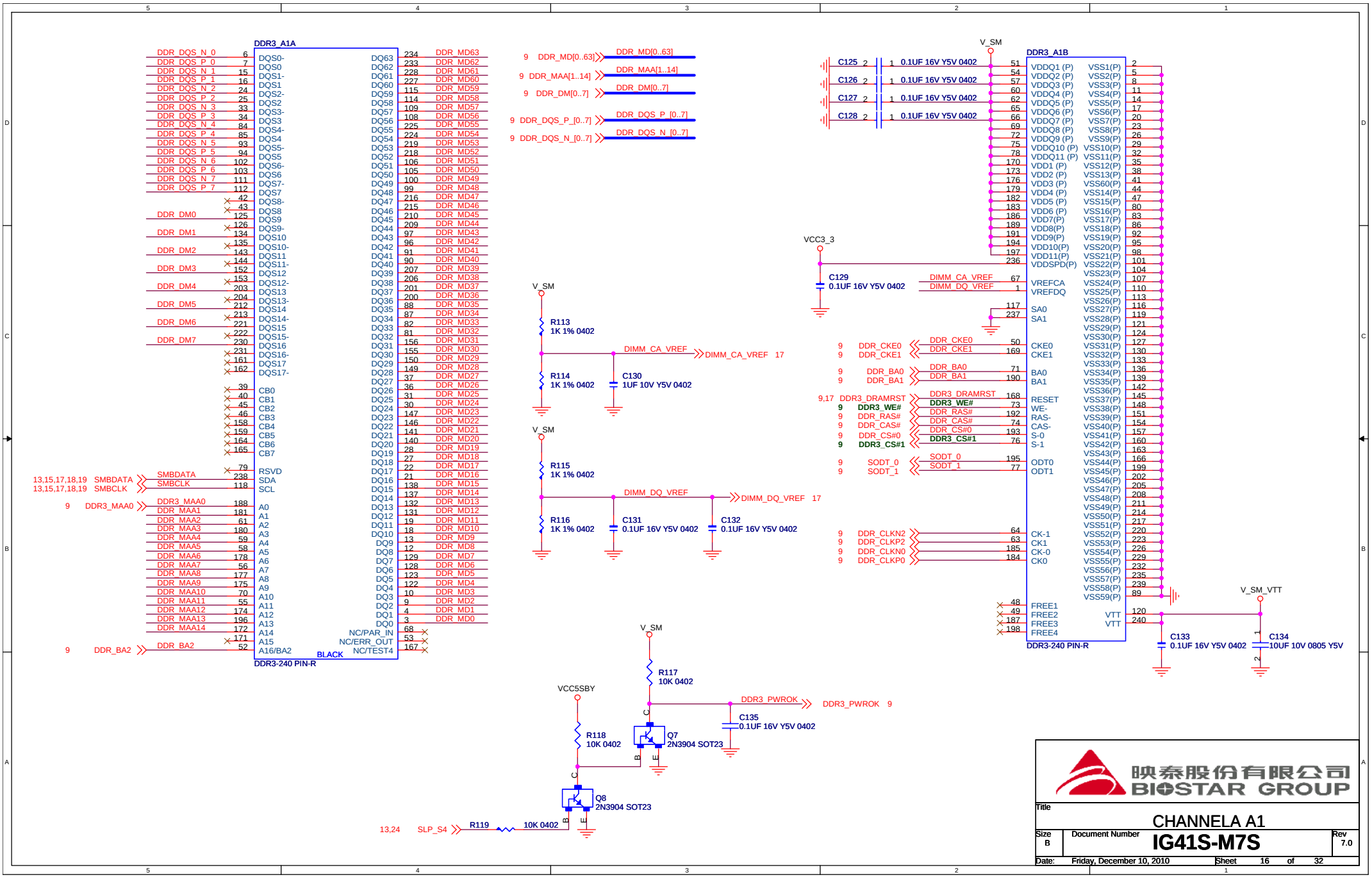
DDR3_A1A
DDR3-240 PIN-R
BLACK
DDR3_A1B
DDR3-240 PIN-R
V_SM
VCC3_3
VCC5SBY
V_SM_VTT
R113 1K 1% 0402
R114 1K 1% 0402
R115 1K 1% 0402
R116 1K 1% 0402
R117 10K 0402
R118 10K 0402
R119 10K 0402
C129 0.1UF 16V Y5V 0402
C130 1UF 10V Y5V 0402
C131 0.1UF 16V Y5V 0402
C132 0.1UF 16V Y5V 0402
C133 0.1UF 16V Y5V 0402
C134 10UF 10V 0805 Y5V
C135 0.1UF 16V Y5V 0402
Q7 2N3904 SOT23
Q8 2N3904 SOT23
DDR_MD[0..63]
DDR_MAA[1..14]
DDR_DM[0..7]
DDR_DQS_P_[0..7]
DDR_DQS_N_[0..7]
DIMM_CA_VREF
DIMM_DQ_VREF
SMBDATA
SMBCLK
DDR3_MAA0
DDR_BA2
SLP_S4
DDR3_PWROK
DDR3_DRAMRST
DDR_CKE0
DDR_CKE1
DDR_BA0
DDR_BA1
DDR_RAS#
DDR_CAS#
DDR_CS#0
DDR3_CS#1
DDR3_WE#
SODT_0
SODT_1
DDR_CLKN2
DDR_CLKP2
DDR_CLKN0
DDR_CLKP0
映泰股份有限公司
BIOSTAR GROUP
Title
CHANNELA A1
Size B
Document Number
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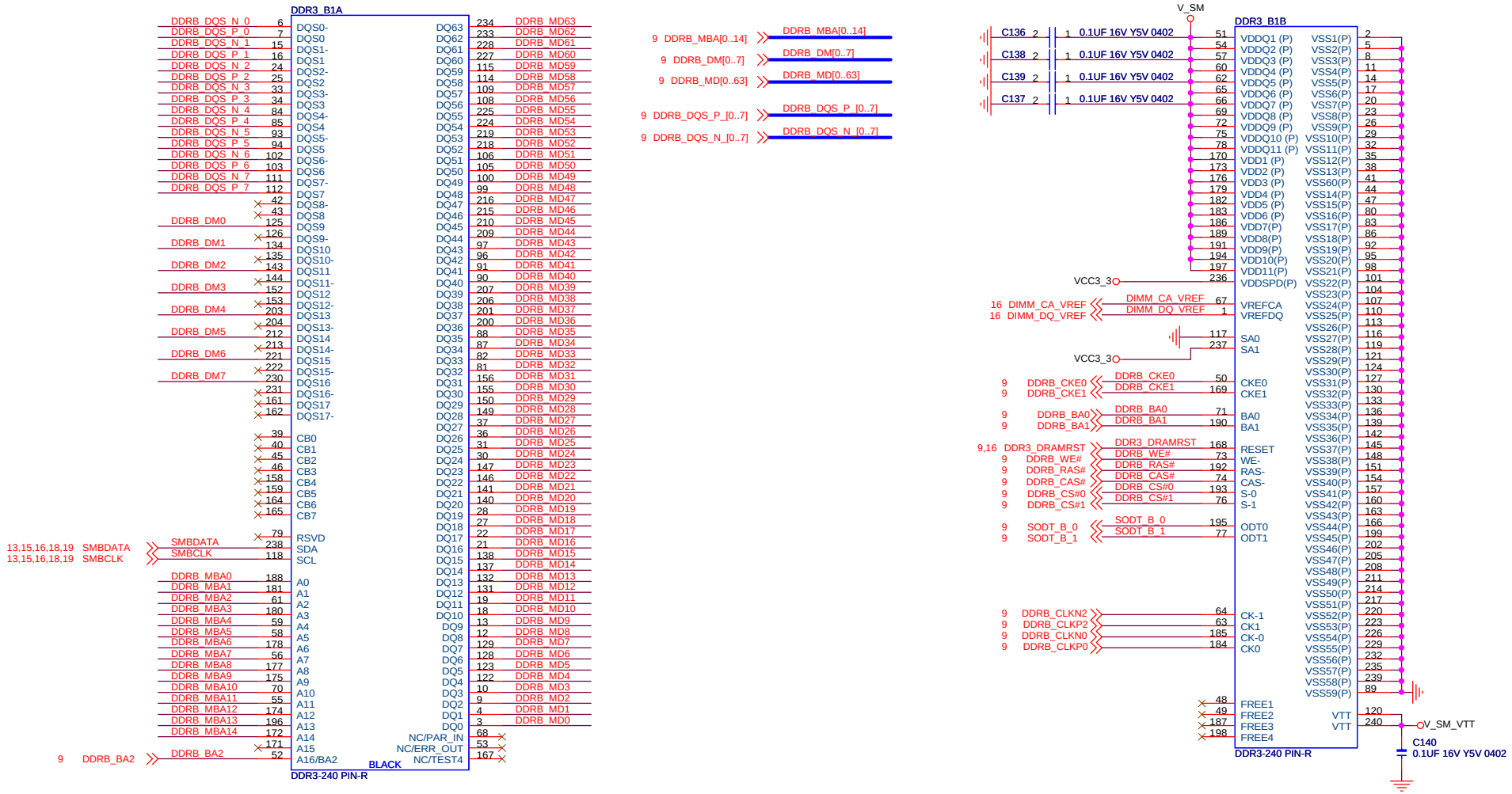
DDR3_B1A
DDRB_DQS_N_0 6
DDRB_DQS_P_0 7
DDRB_DQS_N_1 15
DDRB_DQS_P_1 16
DDRB_DQS_N_2 24
DDRB_DQS_P_2 25
DDRB_DQS_N_3 33
DDRB_DQS_P_3 34
DDRB_DQS_N_4 84
DDRB_DQS_P_4 85
DDRB_DQS_N_5 93
DDRB_DQS_P_5 94
DDRB_DQS_N_6 102
DDRB_DQS_P_6 103
DDRB_DQS_N_7 111
DDRB_DQS_P_7 112
DDRB_DM0 125
DDRB_DM1 134
DDRB_DM2 143
DDRB_DM3 152
DDRB_DM4 203
DDRB_DM5 212
DDRB_DM6 221
DDRB_DM7 230
DQS0- DQS0 DQS1- DQS1 DQS2- DQS2 DQS3- DQS3 DQS4- DQS4 DQS5- DQS5 DQS6- DQS6 DQS7- DQS7 DQS8- DQS8 DQS9- DQS9 DQS10- DQS10 DQS11- DQS11 DQS12- DQS12 DQS13- DQS13 DQS14- DQS14 DQS15- DQS15 DQS16- DQS16 DQS17-
CB0 CB1 CB2 CB3 CB4 CB5 CB6 CB7
RSVD
SMBDATA 238
SMBCLK 118
SDA SCL
13,15,16,18,19 SMBDATA
13,15,16,18,19 SMBCLK
DDRB_MBA0 188
DDRB_MBA1 181
DDRB_MBA2 61
DDRB_MBA3 180
DDRB_MBA4 59
DDRB_MBA5 58
DDRB_MBA6 178
DDRB_MBA7 56
DDRB_MBA8 177
DDRB_MBA9 175
DDRB_MBA10 70
DDRB_MBA11 55
DDRB_MBA12 174
DDRB_MBA13 196
DDRB_MBA14 172
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15
DDRB_BA2 52
A16/BA2
9 DDRB_BA2
DQ63 234 DDRB_MD63
DQ62 233 DDRB_MD62
DQ61 228 DDRB_MD61
DQ60 227 DDRB_MD60
DQ59 115 DDRB_MD59
DQ58 114 DDRB_MD58
DQ57 109 DDRB_MD57
DQ56 108 DDRB_MD56
DQ55 225 DDRB_MD55
DQ54 224 DDRB_MD54
DQ53 219 DDRB_MD53
DQ52 218 DDRB_MD52
DQ51 106 DDRB_MD51
DQ50 105 DDRB_MD50
DQ49 100 DDRB_MD49
DQ48 99 DDRB_MD48
DQ47 216 DDRB_MD47
DQ46 215 DDRB_MD46
DQ45 210 DDRB_MD45
DQ44 209 DDRB_MD44
DQ43 97 DDRB_MD43
DQ42 96 DDRB_MD42
DQ41 91 DDRB_MD41
DQ40 90 DDRB_MD40
DQ39 207 DDRB_MD39
DQ38 206 DDRB_MD38
DQ37 201 DDRB_MD37
DQ36 200 DDRB_MD36
DQ35 88 DDRB_MD35
DQ34 87 DDRB_MD34
DQ33 82 DDRB_MD33
DQ32 81 DDRB_MD32
DQ31 156 DDRB_MD31
DQ30 155 DDRB_MD30
DQ29 150 DDRB_MD29
DQ28 149 DDRB_MD28
DQ27 37 DDRB_MD27
DQ26 36 DDRB_MD26
DQ25 31 DDRB_MD25
DQ24 30 DDRB_MD24
DQ23 147 DDRB_MD23
DQ22 146 DDRB_MD22
DQ21 141 DDRB_MD21
DQ20 140 DDRB_MD20
DQ19 28 DDRB_MD19
DQ18 27 DDRB_MD18
DQ17 22 DDRB_MD17
DQ16 21 DDRB_MD16
DQ15 138 DDRB_MD15
DQ14 137 DDRB_MD14
DQ13 132 DDRB_MD13
DQ12 131 DDRB_MD12
DQ11 19 DDRB_MD11
DQ10 18 DDRB_MD10
DQ9 13 DDRB_MD9
DQ8 12 DDRB_MD8
DQ7 129 DDRB_MD7
DQ6 128 DDRB_MD6
DQ5 123 DDRB_MD5
DQ4 122 DDRB_MD4
DQ3 10 DDRB_MD3
DQ2 9 DDRB_MD2
DQ1 4 DDRB_MD1
DQ0 3 DDRB_MD0
NC/PAR_IN 68
NC/ERR_OUT 53
NC/TEST4 167
BLACK
DDR3-240 PIN-R
9 DDRB_MBA[0..14] DDRB_MBA[0..14]
9 DDRB_DM[0..7] DDRB_DM[0..7]
9 DDRB_MD[0..63] DDRB_MD[0..63]
9 DDRB_DQS_P_[0..7] DDRB_DQS_P_[0..7]
9 DDRB_DQS_N_[0..7] DDRB_DQS_N_[0..7]
V_SM
C136 2 1 0.1UF 16V Y5V 0402
C138 2 1 0.1UF 16V Y5V 0402
C139 2 1 0.1UF 16V Y5V 0402
C137 2 1 0.1UF 16V Y5V 0402
DDR3_B1B
VDDQ1 (P) 51
VDDQ2 (P) 54
VDDQ3 (P) 57
VDDQ4 (P) 60
VDDQ5 (P) 62
VDDQ6 (P) 65
VDDQ7 (P) 66
VDDQ8 (P) 69
VDDQ9 (P) 72
VDDQ10 (P) 75
VDDQ11 (P) 78
VDD1 (P) 170
VDD2 (P) 173
VDD3 (P) 176
VDD4 (P) 179
VDD5 (P) 182
VDD6 (P) 183
VDD7(P) 186
VDD8(P) 189
VDD9(P) 191
VDD10(P) 194
VDD11(P) 197
VDDSPD(P) 236
VCC3_3
DIMM_CA_VREF 67
DIMM_DQ_VREF 1
16 DIMM_CA_VREF
16 DIMM_DQ_VREF
VREFCA VREFDQ
117 237
SA0 SA1
VCC3_3
DDRB_CKE0 50
DDRB_CKE1 169
9 DDRB_CKE0
9 DDRB_CKE1
CKE0 CKE1
DDRB_BA0 71
DDRB_BA1 190
9 DDRB_BA0
9 DDRB_BA1
BA0 BA1
DDR3_DRAMRST 168
DDRB_WE# 73
DDRB_RAS# 192
DDRB_CAS# 74
DDRB_CS#0 193
DDRB_CS#1 76
9,16 DDR3_DRAMRST
9 DDRB_WE#
9 DDRB_RAS#
9 DDRB_CAS#
9 DDRB_CS#0
9 DDRB_CS#1
RESET WE- RAS- CAS- S-0 S-1
SODT_B_0 195
SODT_B_1 77
9 SODT_B_0
9 SODT_B_1
ODT0 ODT1
9 DDRB_CLKN2
9 DDRB_CLKP2
9 DDRB_CLKN0
9 DDRB_CLKP0
64 63 185 184
CK-1 CK1 CK-0 CK0
48 49 187 198
FREE1 FREE2 FREE3 FREE4
VSS1(P) 2 VSS2(P) 5 VSS3(P) 8 VSS4(P) 11 VSS5(P) 14 VSS6(P) 17 VSS7(P) 20 VSS8(P) 23 VSS9(P) 26 VSS10(P) 29 VSS11(P) 32 VSS12(P) 35 VSS13(P) 38 VSS60(P) 41 VSS14(P) 44 VSS15(P) 47 VSS16(P) 80 VSS17(P) 83 VSS18(P) 86 VSS19(P) 92 VSS20(P) 95 VSS21(P) 98 VSS22(P) 101 VSS23(P) 104 VSS24(P) 107 VSS25(P) 110 VSS26(P) 113 VSS27(P) 116 VSS28(P) 119 VSS29(P) 121 VSS30(P) 124 VSS31(P) 127 VSS32(P) 130 VSS33(P) 133 VSS34(P) 136 VSS35(P) 139 VSS36(P) 142 VSS37(P) 145 VSS38(P) 148 VSS39(P) 151 VSS40(P) 154 VSS41(P) 157 VSS42(P) 160 VSS43(P) 163 VSS44(P) 166 VSS45(P) 199 VSS46(P) 202 VSS47(P) 205 VSS48(P) 208 VSS49(P) 211 VSS50(P) 214 VSS51(P) 217 VSS52(P) 220 VSS53(P) 223 VSS54(P) 226 VSS55(P) 229 VSS56(P) 232 VSS57(P) 235 VSS58(P) 239 VSS59(P) 89
VTT 120 VTT 240
V_SM_VTT
C140
0.1UF 16V Y5V 0402
DDR3-240 PIN-R
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BIOSTAR GROUP
Title
CHANNELB B1
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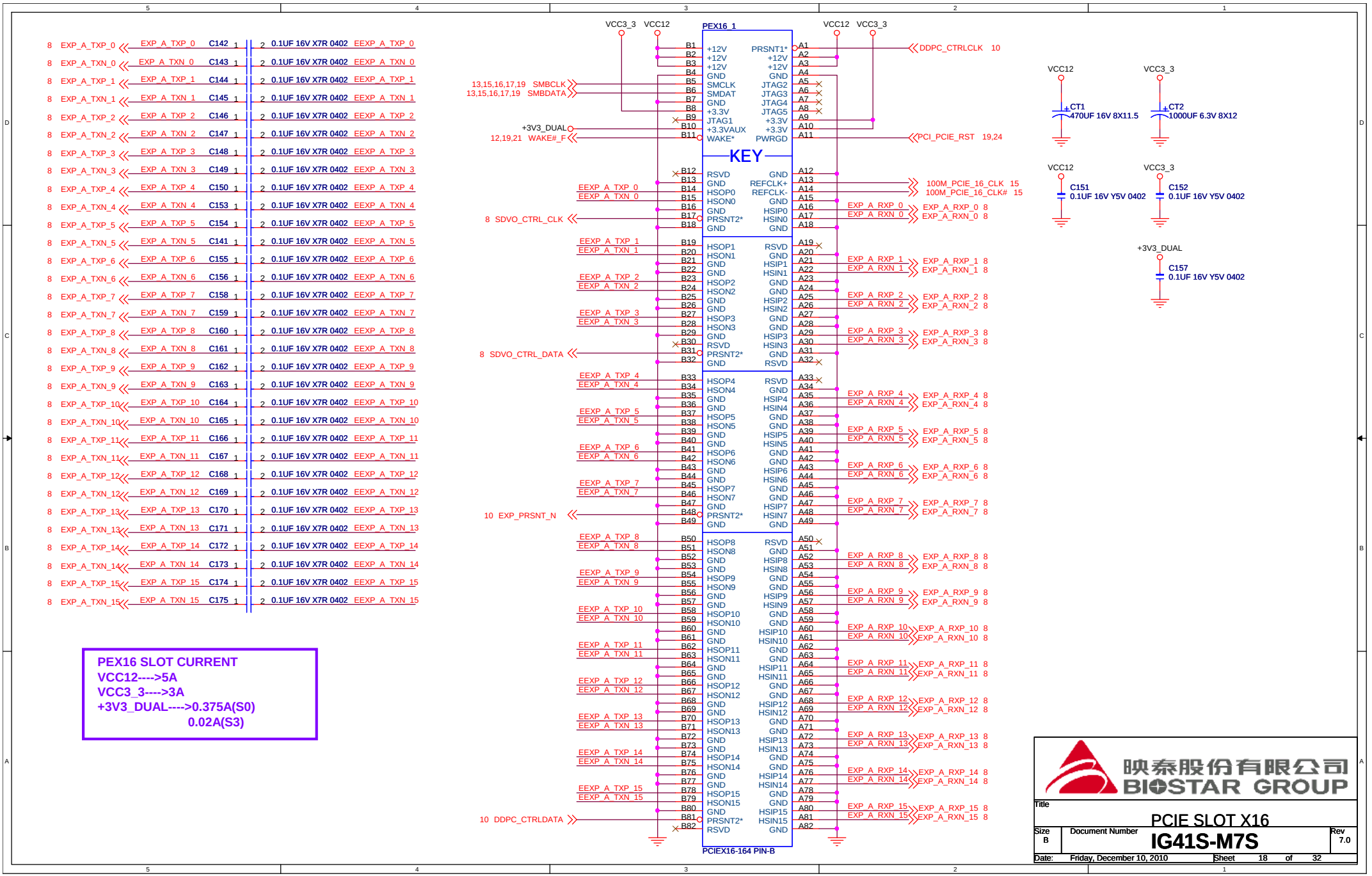
8 EXP_A_TXP_0 EXP_A_TXP_0 C142 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_0
8 EXP_A_TXN_0 EXP_A_TXN_0 C143 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_0
8 EXP_A_TXP_1 EXP_A_TXP_1 C144 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_1
8 EXP_A_TXN_1 EXP_A_TXN_1 C145 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_1
8 EXP_A_TXP_2 EXP_A_TXP_2 C146 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_2
8 EXP_A_TXN_2 EXP_A_TXN_2 C147 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_2
8 EXP_A_TXP_3 EXP_A_TXP_3 C148 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_3
8 EXP_A_TXN_3 EXP_A_TXN_3 C149 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_3
8 EXP_A_TXP_4 EXP_A_TXP_4 C150 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_4
8 EXP_A_TXN_4 EXP_A_TXN_4 C153 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_4
8 EXP_A_TXP_5 EXP_A_TXP_5 C154 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_5
8 EXP_A_TXN_5 EXP_A_TXN_5 C141 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_5
8 EXP_A_TXP_6 EXP_A_TXP_6 C155 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_6
8 EXP_A_TXN_6 EXP_A_TXN_6 C156 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_6
8 EXP_A_TXP_7 EXP_A_TXP_7 C158 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_7
8 EXP_A_TXN_7 EXP_A_TXN_7 C159 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_7
8 EXP_A_TXP_8 EXP_A_TXP_8 C160 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_8
8 EXP_A_TXN_8 EXP_A_TXN_8 C161 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_8
8 EXP_A_TXP_9 EXP_A_TXP_9 C162 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_9
8 EXP_A_TXN_9 EXP_A_TXN_9 C163 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_9
8 EXP_A_TXP_10 EXP_A_TXP_10 C164 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_10
8 EXP_A_TXN_10 EXP_A_TXN_10 C165 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_10
8 EXP_A_TXP_11 EXP_A_TXP_11 C166 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_11
8 EXP_A_TXN_11 EXP_A_TXN_11 C167 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_11
8 EXP_A_TXP_12 EXP_A_TXP_12 C168 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_12
8 EXP_A_TXN_12 EXP_A_TXN_12 C169 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_12
8 EXP_A_TXP_13 EXP_A_TXP_13 C170 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_13
8 EXP_A_TXN_13 EXP_A_TXN_13 C171 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_13
8 EXP_A_TXP_14 EXP_A_TXP_14 C172 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_14
8 EXP_A_TXN_14 EXP_A_TXN_14 C173 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_14
8 EXP_A_TXP_15 EXP_A_TXP_15 C174 1 2 0.1UF 16V X7R 0402 EEXP_A_TXP_15
8 EXP_A_TXN_15 EXP_A_TXN_15 C175 1 2 0.1UF 16V X7R 0402 EEXP_A_TXN_15
PEX16 SLOT CURRENT
VCC12----->5A
VCC3_3---->3A
+3V3_DUAL---->0.375A(S0)
0.02A(S3)
VCC3_3 VCC12
PEX16_1
13,15,16,17,19 SMBCLK
13,15,16,17,19 SMBDATA
+3V3_DUAL
12,19,21 WAKE#_F
KEY
8 SDVO_CTRL_CLK
8 SDVO_CTRL_DATA
10 EXP_PRSNT_N
10 DDPC_CTRLDATA
PCIEX16-164 PIN-B
VCC12 VCC3_3
DDPC_CTRLCLK 10
PCI_PCIE_RST 19,24
100M_PCIE_16_CLK 15
100M_PCIE_16_CLK# 15
VCC12 VCC3_3
CT1 470UF 16V 8X11.5
CT2 1000UF 6.3V 8X12
VCC12 VCC3_3
C151 0.1UF 16V Y5V 0402
C152 0.1UF 16V Y5V 0402
+3V3_DUAL
C157 0.1UF 16V Y5V 0402
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BIOSTAR GROUP
Title
PCIE SLOT X16
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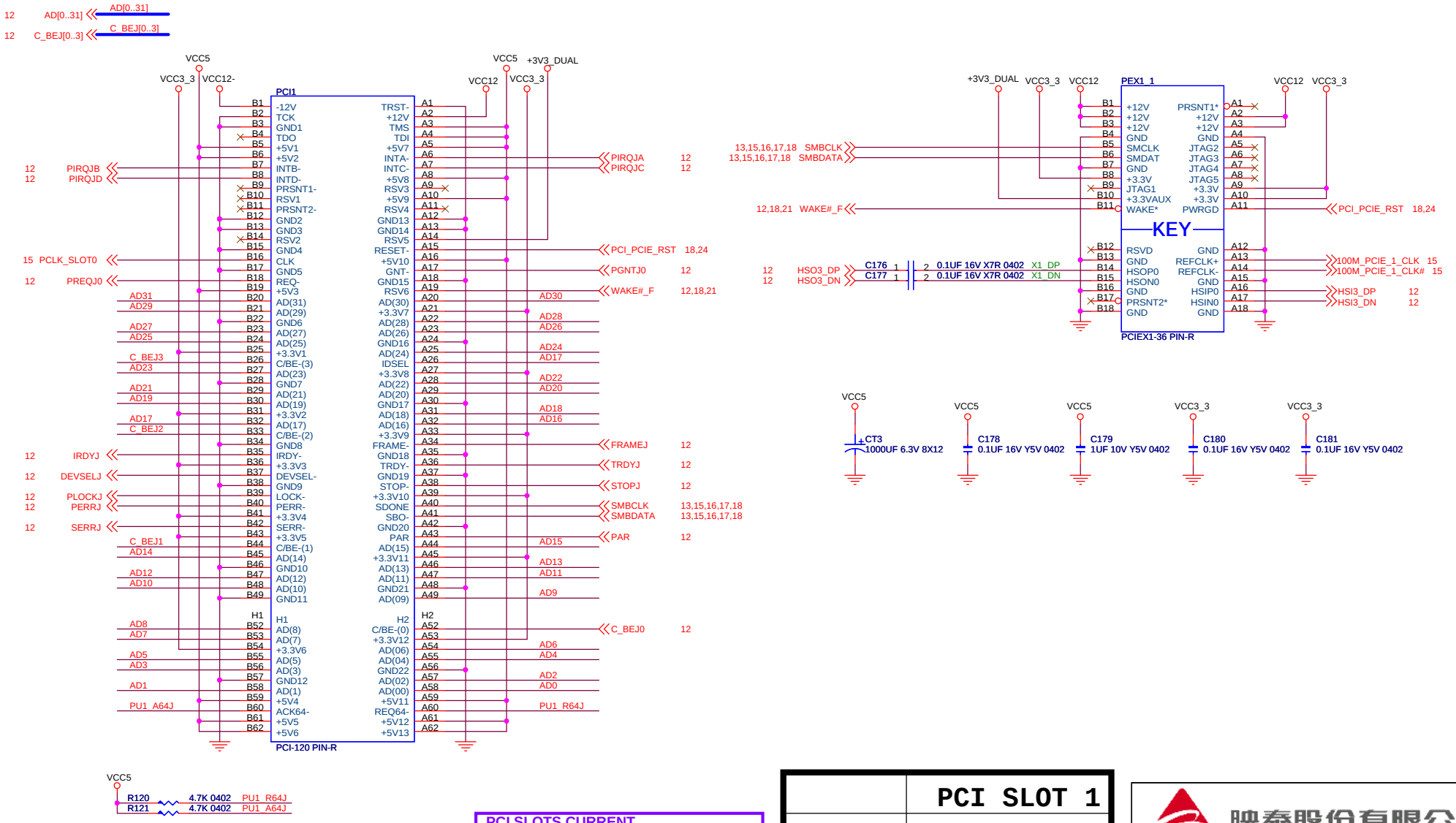

PCI SLOTS CURRENT
VCC5----->5A
VCC3_3----->7.6A
+3V3_DUAL----->0.375A(S0)/0.02A(S3)
VCC12----->0.5A
-VCC12----->0.1A

	PCI SLOT 1
PCICLK	PCLK_SLOT0
INTR	ABCD
IDSEL	AD17

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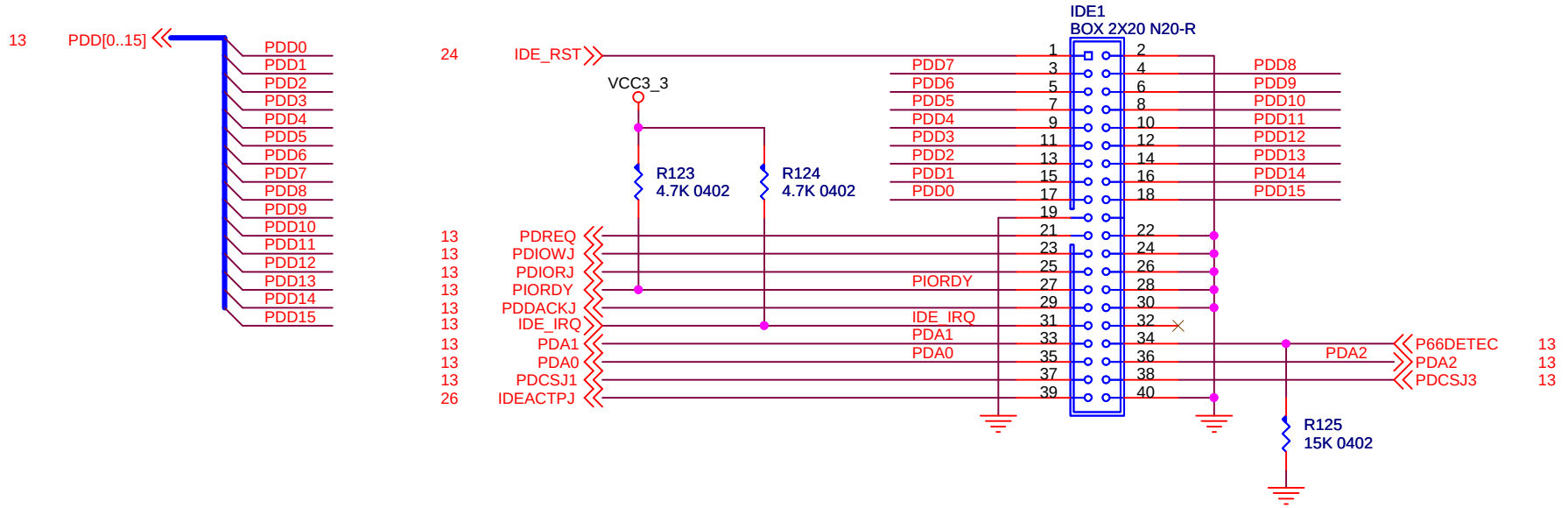

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BIOSTAR GROUP

Title: IDE CONNECTOERS

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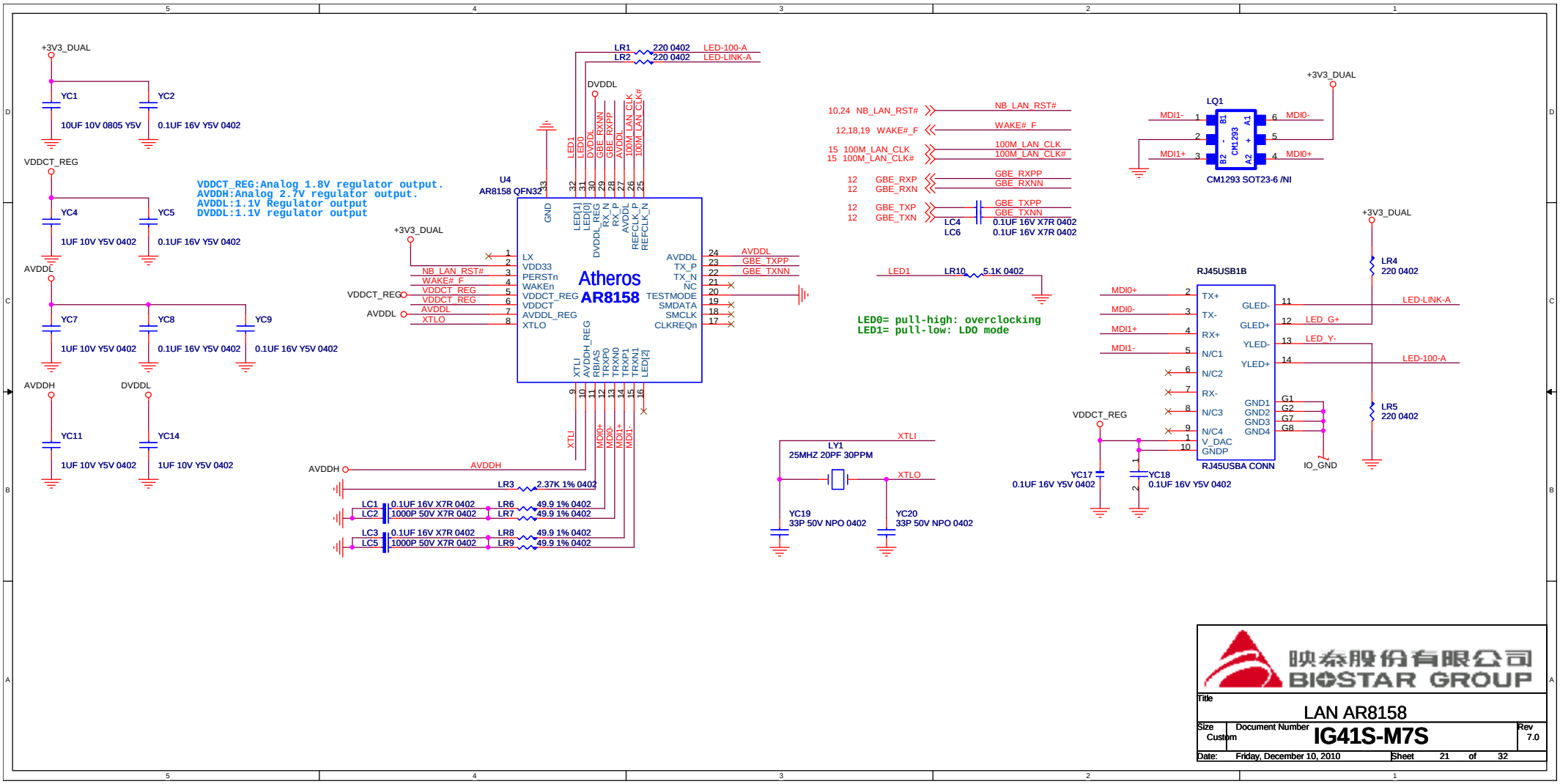

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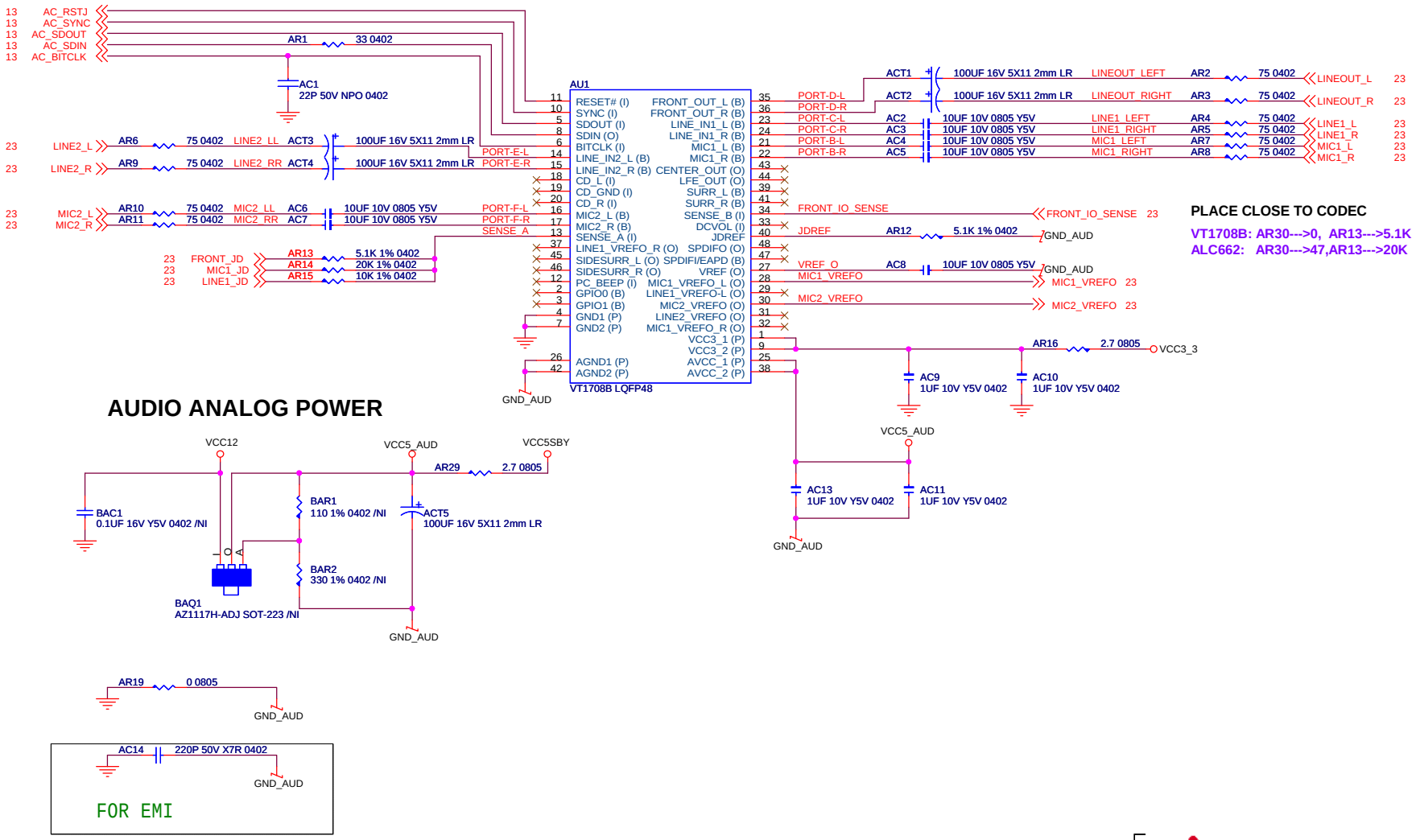
Title	LAN AR8158		
Size: Custom	Document Number: IG41S-M7S		Rev: 7.0
Date: Friday, December 10, 2010	Sheet 21 of 32		



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BIOSTAR GROUP

Title	AUDIO CODEC VT1708B	
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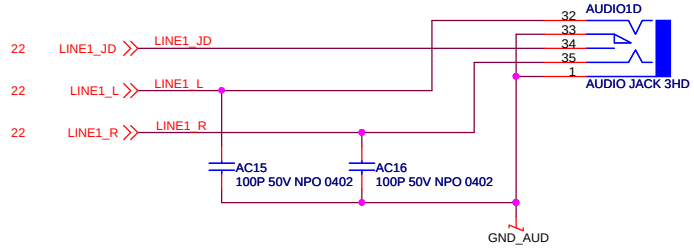
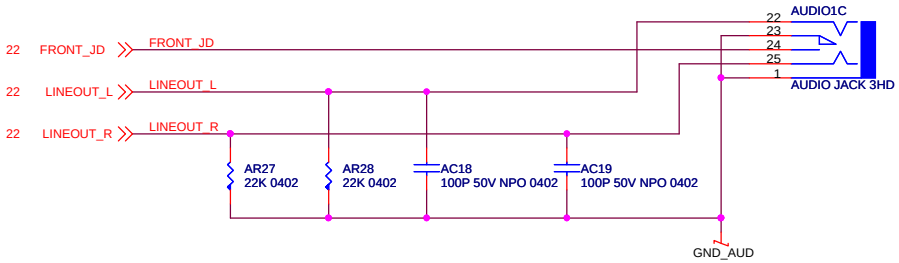
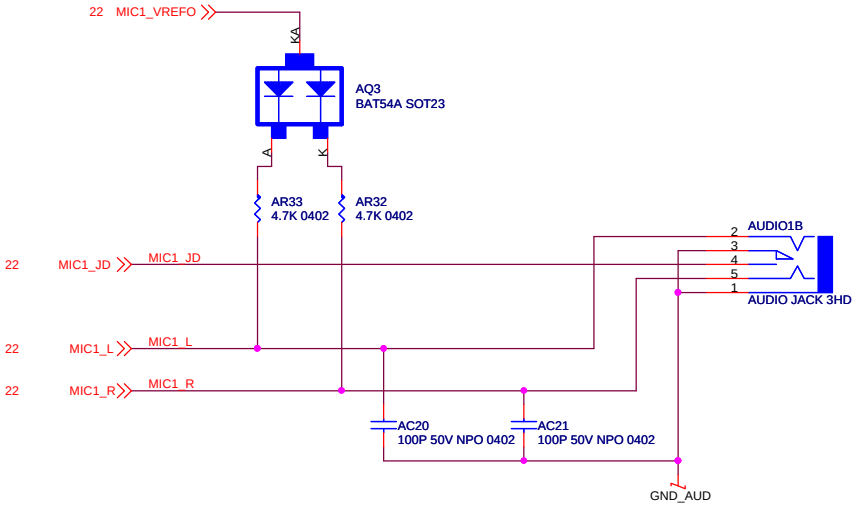
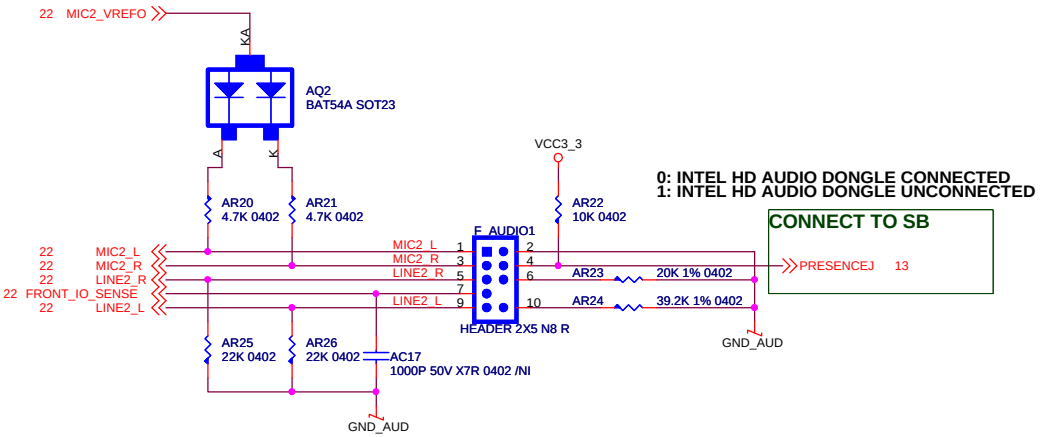
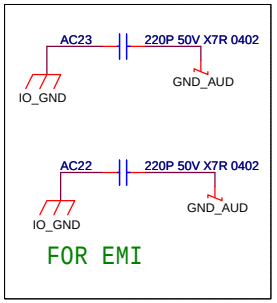
Rear Panel Onboard Analog I/O

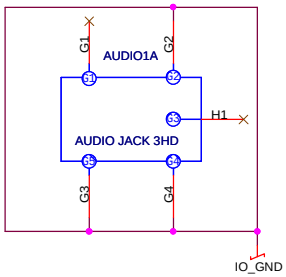












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Title	AUDIO CONNECTOR	
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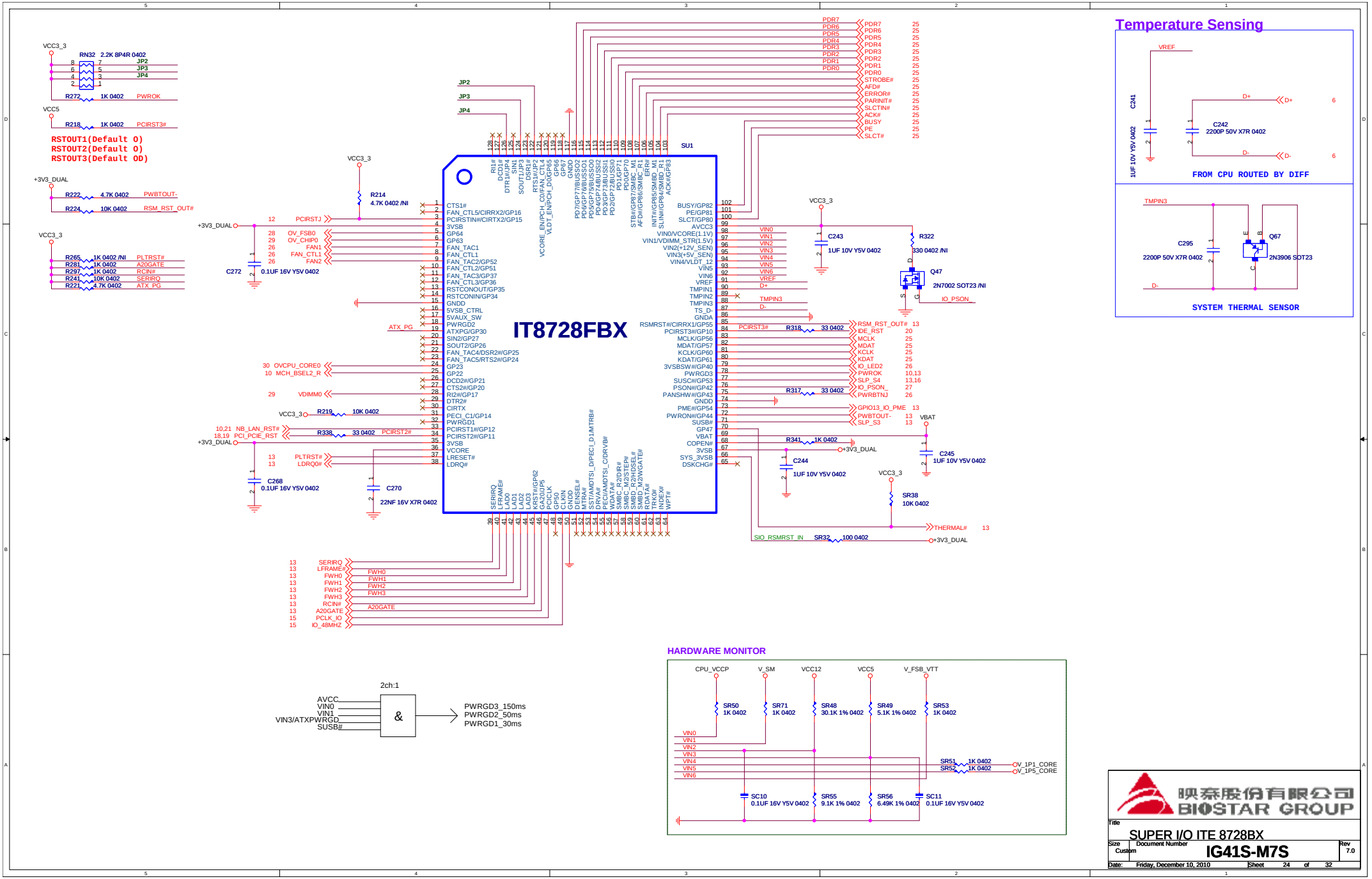
IT8728FBX
SU1
Temperature Sensing
FROM CPU ROUTED BY DIFF
SYSTEM THERMAL SENSOR
HARDWARE MONITOR
RSTOUT1(Default O)
RSTOUT2(Default O)
RSTOUT3(Default OD)
2ch:1
AVCC
VIN0
VIN1
VIN3/ATXPWRGD
SUSB#
PWRGD3_150ms
PWRGD2_50ms
PWRGD1_30ms
CPU_VCCP
V_SM
VCC12
VCC5
V_FSB_VTT
SUPER I/O ITE 8728BX
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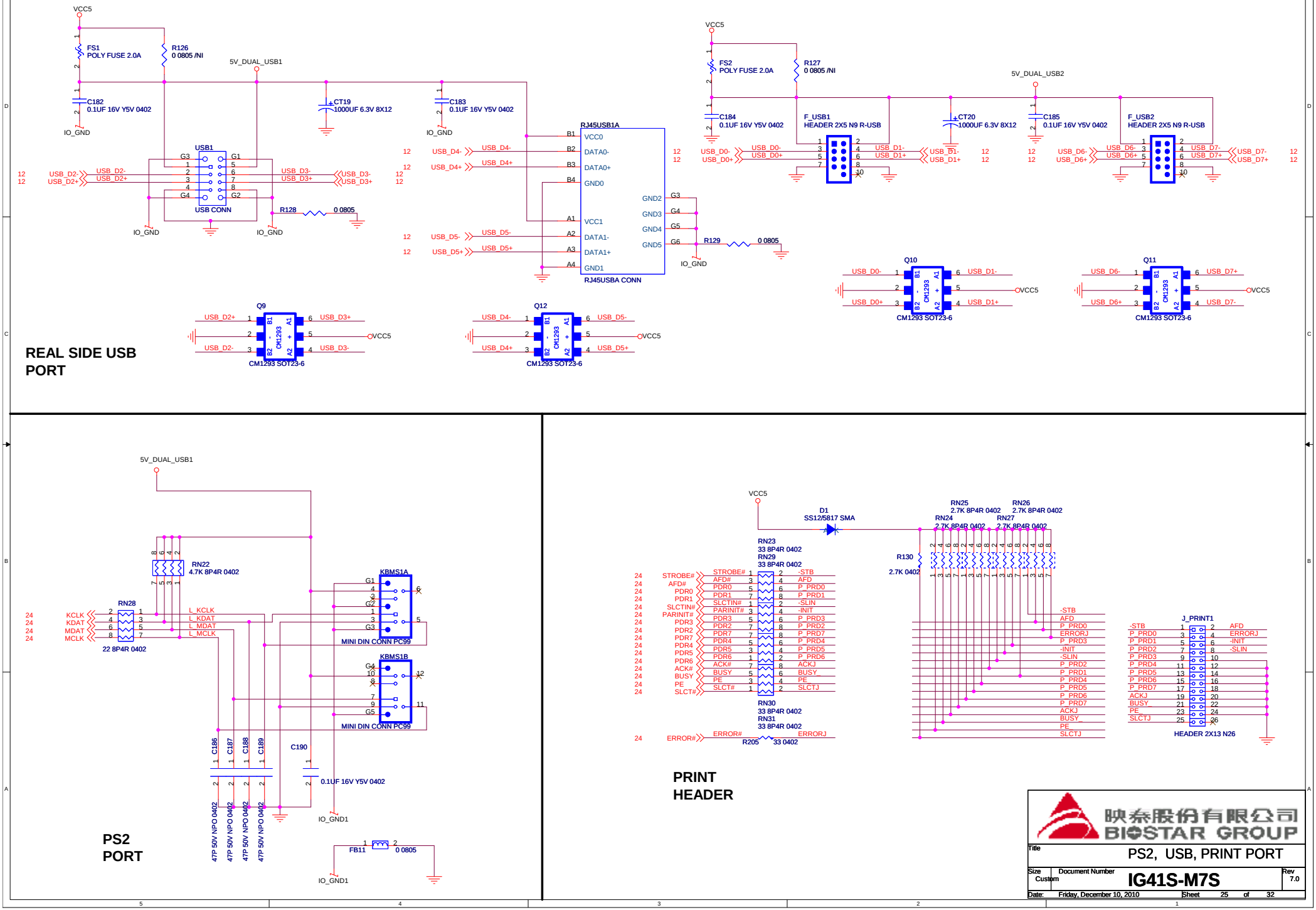
VCC5
FS1
POLY FUSE 2.0A
R126
0 0805 /NI
5V_DUAL_USB1
C182
0.1UF 16V Y5V 0402
IO_GND
CT19
1000UF 6.3V 8X12
C183
0.1UF 16V Y5V 0402
USB1
USB CONN
R128
0 0805
RJ45USB1A
VCC0
DATA0-
DATA0+
GND0
VCC1
DATA1-
DATA1+
GND1
GND2
GND3
GND4
GND5
R129
0 0805
RJ45USBA CONN
FS2
POLY FUSE 2.0A
R127
0 0805 /NI
5V_DUAL_USB2
C184
0.1UF 16V Y5V 0402
F_USB1
HEADER 2X5 N9 R-USB
CT20
1000UF 6.3V 8X12
C185
0.1UF 16V Y5V 0402
F_USB2
HEADER 2X5 N9 R-USB
Q9
Q10
Q11
Q12
CM1293
CM1293 SOT23-6
REAL SIDE USB PORT
5V_DUAL_USB1
RN22
4.7K 8P4R 0402
RN28
22 8P4R 0402
KBMS1A
KBMS1B
MINI DIN CONN PC99
C186
C187
C188
C189
C190
47P 50V NPO 0402
0.1UF 16V Y5V 0402
IO_GND1
FB11
0 0805
PS2 PORT
VCC5
D1
SS12/5817 SMA
RN23
RN29
RN30
RN31
33 8P4R 0402
R205
33 0402
RN24
RN25
RN26
RN27
2.7K 8P4R 0402
R130
2.7K 0402
J_PRINT1
HEADER 2X13 N26
PRINT HEADER
映泰股份有限公司
BIOSTAR GROUP
Title
PS2, USB, PRINT PORT
Size
Custom
Document Number
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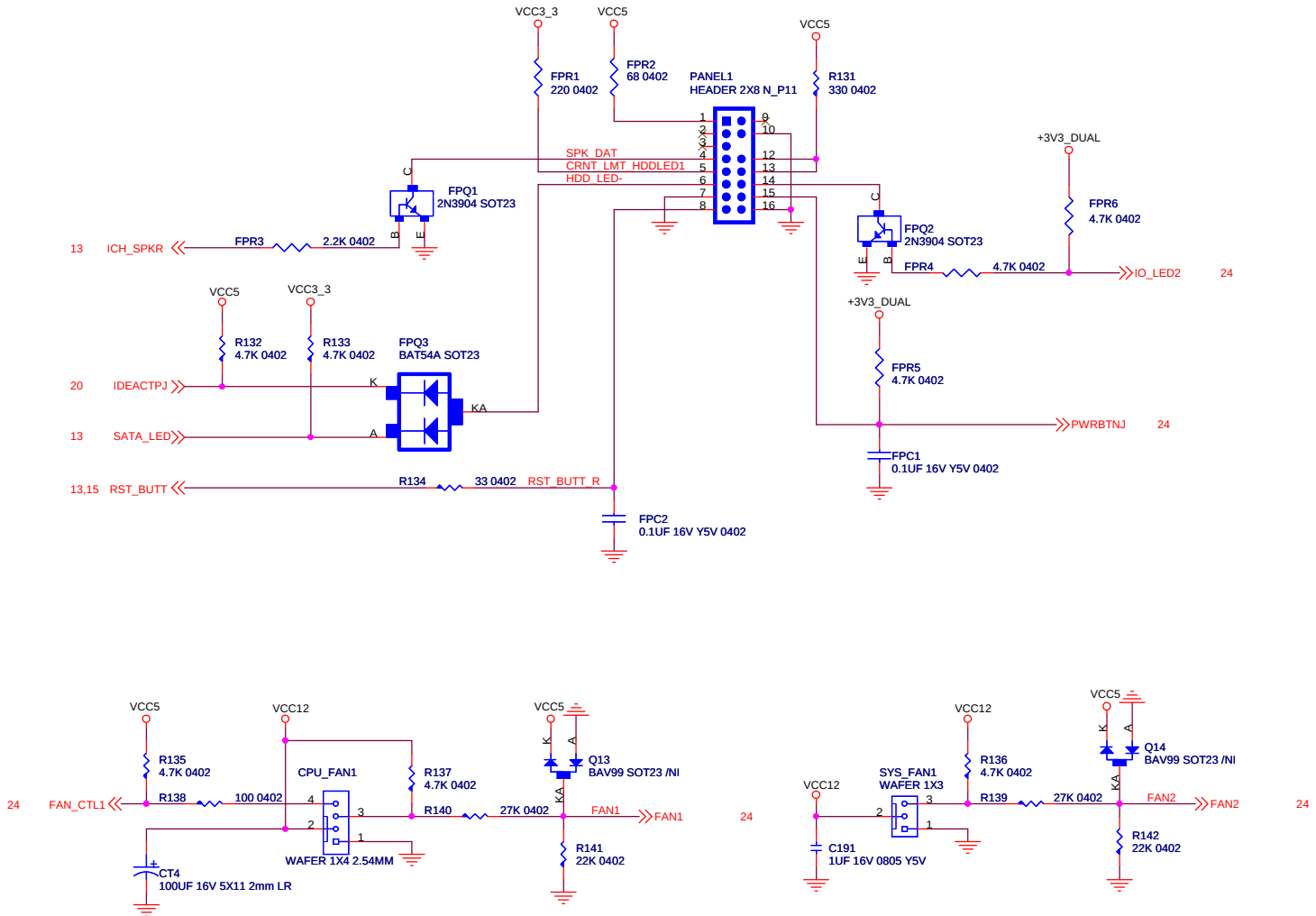

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Title	FRONT PANEL, USB(FRONT), FAN	
Size B	Document Number IG41S-M7S	Rev 7.0
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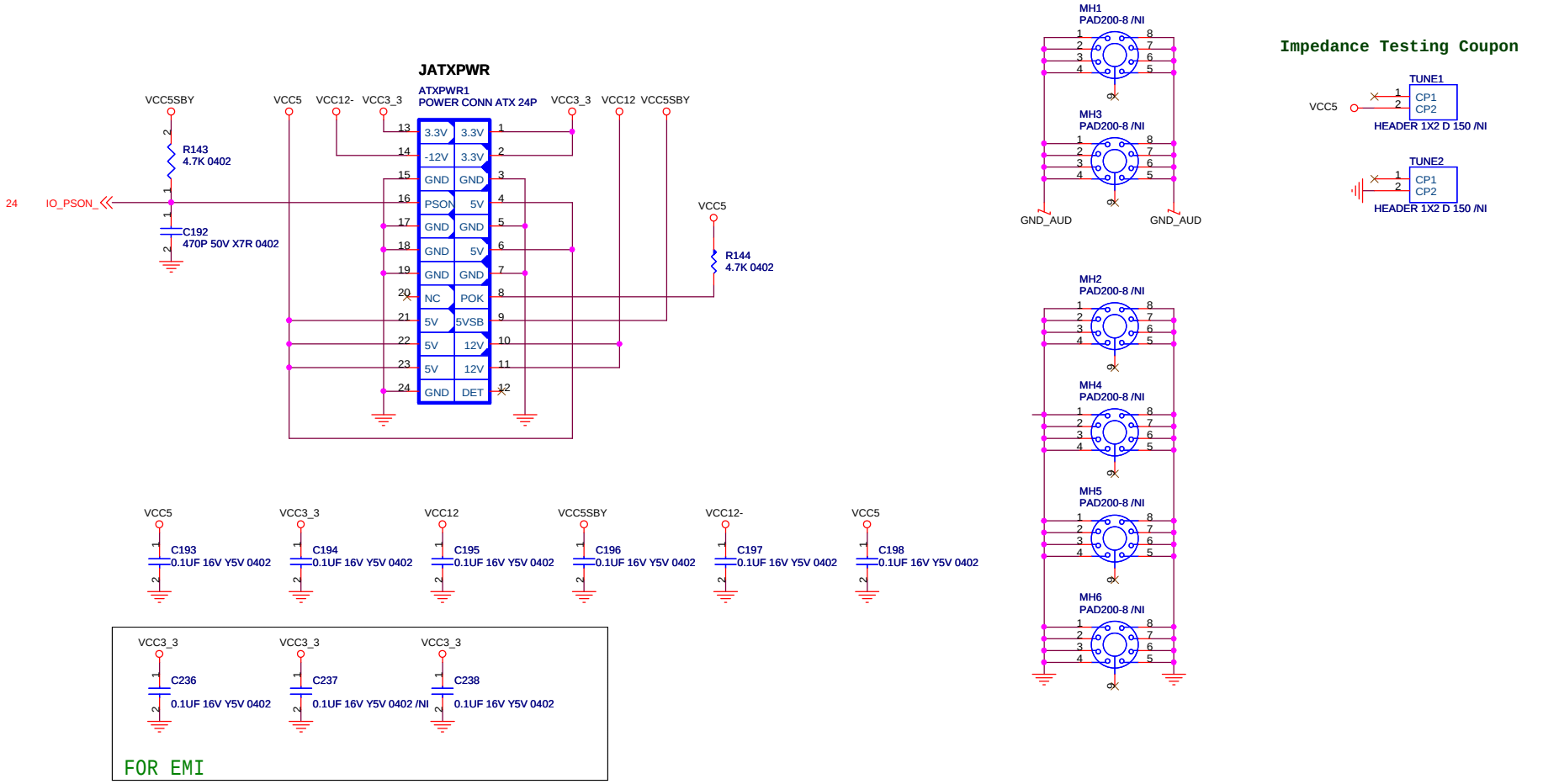

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Title	ATX POWER & BPCAP MH & EMI	
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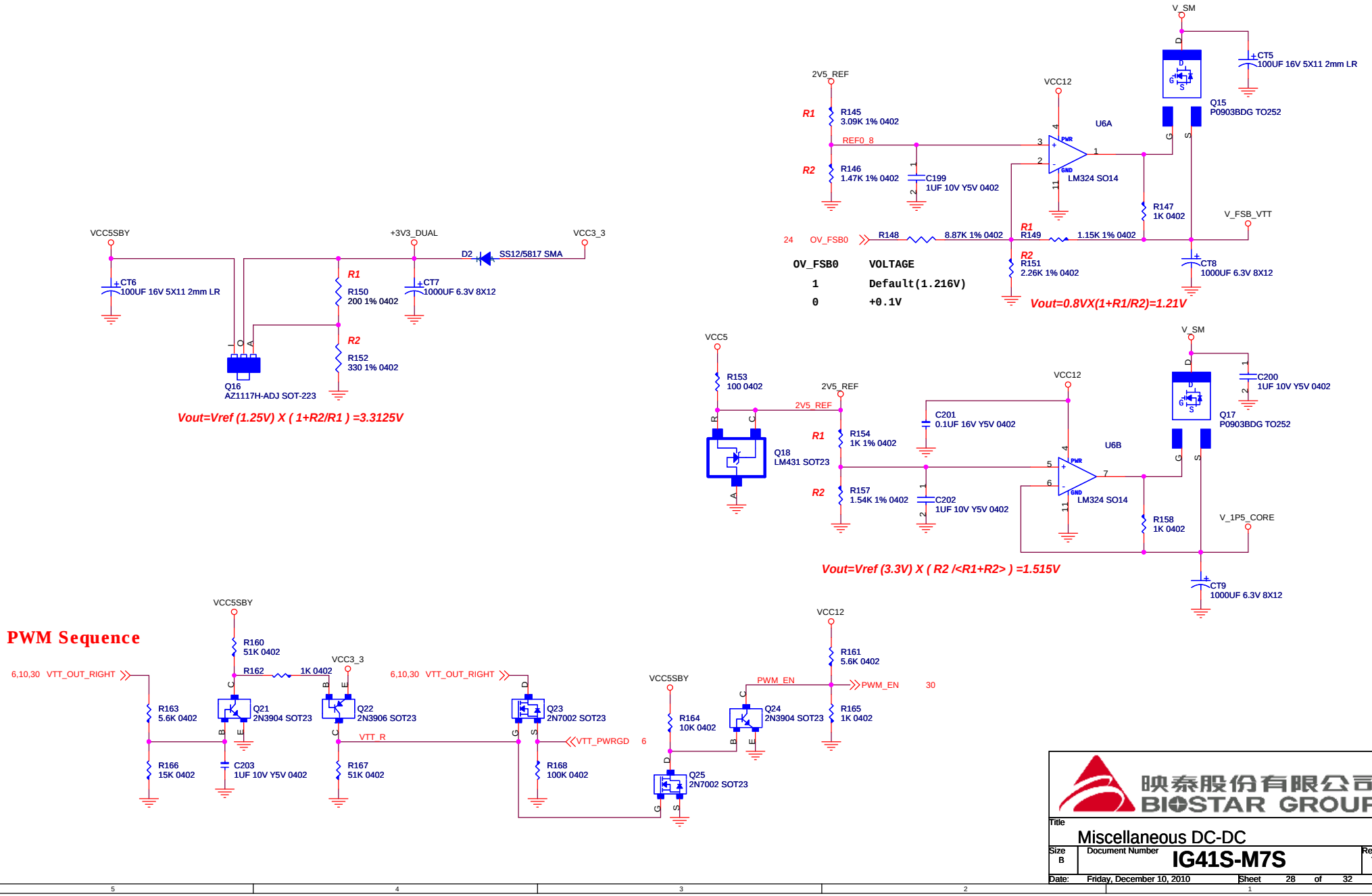
VCC5SBY
CT6
100UF 16V 5X11 2mm LR
+3V3_DUAL
D2
SS12/5817 SMA
VCC3_3
R1
R150
200 1% 0402
CT7
1000UF 6.3V 8X12
R2
R152
330 1% 0402
Q16
AZ1117H-ADJ SOT-223
Vout=Vref (1.25V) X (1+R2/R1) =3.3125V
V_SM
CT5
100UF 16V 5X11 2mm LR
Q15
P0903BDG TO252
2V5_REF
R1
R145
3.09K 1% 0402
REF0_8
R2
R146
1.47K 1% 0402
C199
1UF 10V Y5V 0402
VCC12
U6A
LM324 SO14
R147
1K 0402
V_FSB_VTT
24 OV_FSB0
R148
8.87K 1% 0402
R1
R149
1.15K 1% 0402
R2
R151
2.26K 1% 0402
CT8
1000UF 6.3V 8X12
OV_FSB0 VOLTAGE
1 Default(1.216V)
0 +0.1V
Vout=0.8VX(1+R1/R2)=1.21V
VCC5
R153
100 0402
2V5_REF
Q18
LM431 SOT23
R1
R154
1K 1% 0402
R2
R157
1.54K 1% 0402
C201
0.1UF 16V Y5V 0402
C202
1UF 10V Y5V 0402
VCC12
U6B
LM324 SO14
R158
1K 0402
V_SM
Q17
P0903BDG TO252
C200
1UF 10V Y5V 0402
V_1P5_CORE
CT9
1000UF 6.3V 8X12
Vout=Vref (3.3V) X (R2 /<R1+R2>) =1.515V
PWM Sequence
VCC5SBY
R160
51K 0402
R162
1K 0402
VCC3_3
6,10,30 VTT_OUT_RIGHT
R163
5.6K 0402
Q21
2N3904 SOT23
Q22
2N3906 SOT23
R166
15K 0402
C203
1UF 10V Y5V 0402
VTT_R
R167
51K 0402
6,10,30 VTT_OUT_RIGHT
Q23
2N7002 SOT23
VTT_PWRGD 6
R168
100K 0402
VCC5SBY
R164
10K 0402
Q25
2N7002 SOT23
VCC12
R161
5.6K 0402
PWM_EN
Q24
2N3904 SOT23
R165
1K 0402
PWM_EN 30
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Title
Miscellaneous DC-DC
Size B
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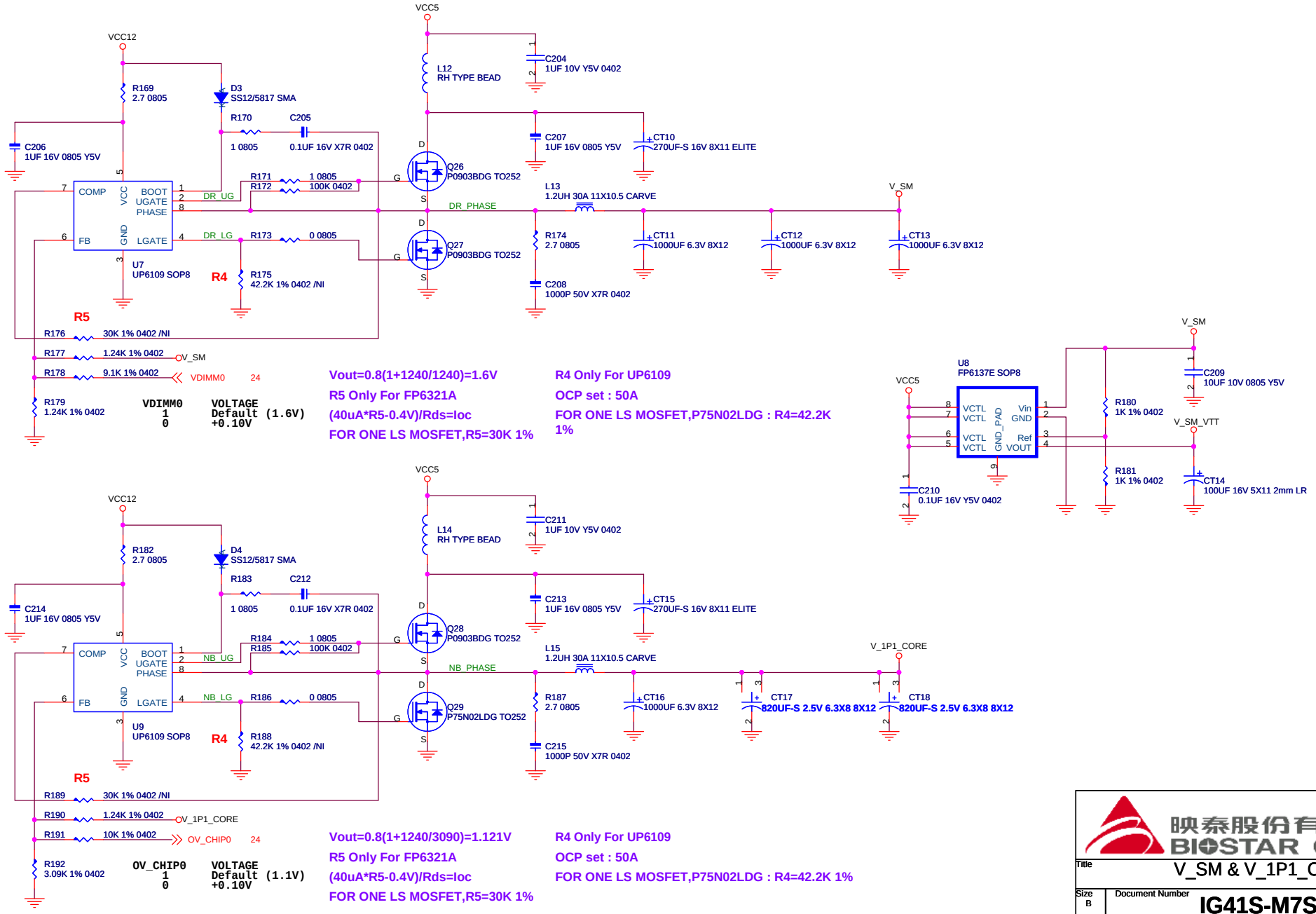

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Title	V_SM & V_1P1_CORE	
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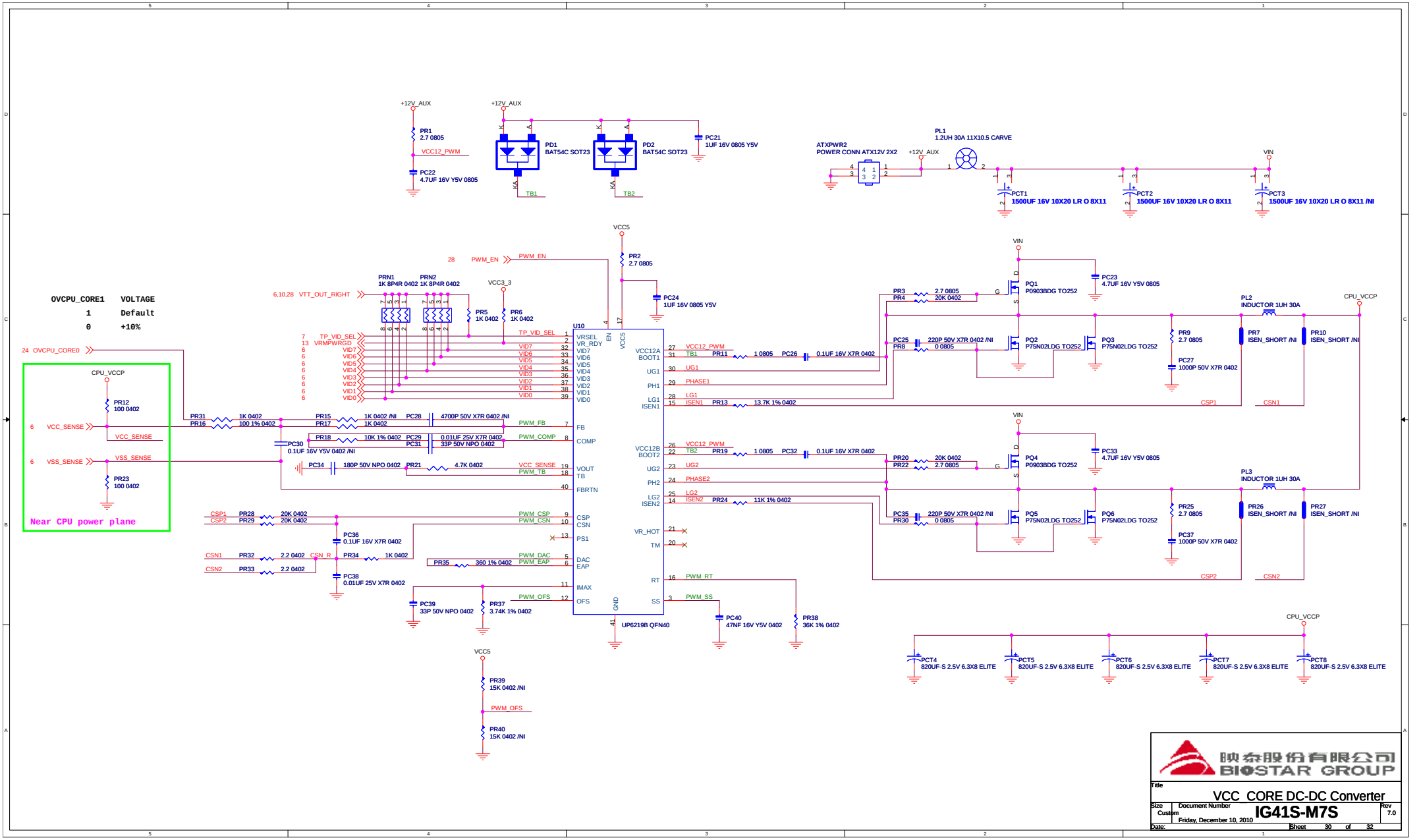
OVCPU_CORE1 VOLTAGE
1 Default
0 +10%
Near CPU power plane
U10
UP6219B QFN40
ATXPWR2
POWER CONN ATX12V 2X2
PL1
1.2UH 30A 11X10.5 CARVE
PL2
INDUCTOR 1UH 30A
PL3
INDUCTOR 1UH 30A
PD1
BAT54C SOT23
PD2
BAT54C SOT23
PQ1
P0903BDG TO252
PQ2
P75N02LDG TO252
PQ3
P75N02LDG TO252
PQ4
P0903BDG TO252
PQ5
P75N02LDG TO252
PQ6
P75N02LDG TO252
PCT1
1500UF 16V 10X20 LR O 8X11
PCT2
1500UF 16V 10X20 LR O 8X11
PCT3
1500UF 16V 10X20 LR O 8X11 /NI
PCT4
820UF-S 2.5V 6.3X8 ELITE
PCT5
820UF-S 2.5V 6.3X8 ELITE
PCT6
820UF-S 2.5V 6.3X8 ELITE
PCT7
820UF-S 2.5V 6.3X8 ELITE
PCT8
820UF-S 2.5V 6.3X8 ELITE
Title
VCC CORE DC-DC Converter
Size
Custom
Document Number
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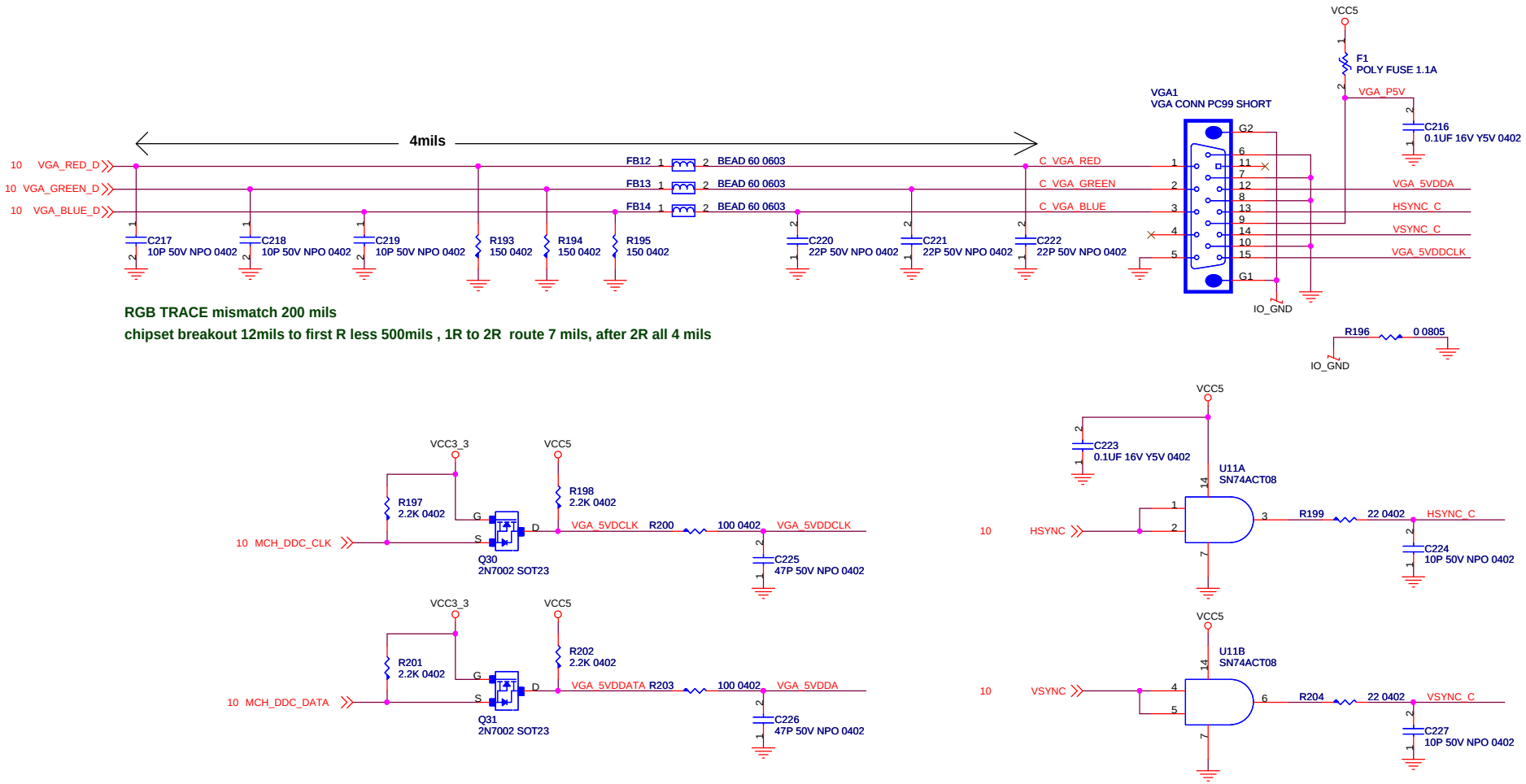

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Title	VGA CONNECTOR	
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(BAT1)

3V BATTERY SONY

(U2)

SPI MX25L8005 DIP

(Y1)

X'TAL WIRE

JCMOS1(1_2)
JUMPER 2P B

PCB

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(NB1)

SBLS-T

(PCB)

POLON 235X182

(SB1)

BNP SMALL-L

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