

TITLE	SHEET
Cover Sheet	1
Block Diagram	2
General Spec.	3
Change List	4
Component Size	5
Processor	6,7
North Bridge	8,9,10,11,12
South Bridge	13,14,15
Clock Synthesizer	16
Sdram Dimms	17,18,19
PCI-Ex16 Slot	20
Pci Slot	21
Reserve	22
IDE Connectors	23
ATX Power & Bypass CAP	24
COM, PS2, USB, FPY	25
FPY Front PAN USB WOL FANS	26
Audio Codec	27
AUDIO Connector	28
VCC_CORE DC-DC Converter	29
Miscellaneous DC-DC Converters	30
V_SM & V_IP25_CORE	31
LPC / SUPER I / O	32
VGA conector	33
MH & Coupon	34
RTL8103EL LAN Chips	35
BOM	36

Model Name : IG31K-M7S

Marketing name : G31M+

VER: 6.1

CPU :

Intel Core 2 Quad /Core 2 Duo/ Pentium Dual-Core /
Celeron Dual Core /Celeron 4xx

System Chipset :

INTEL G31
INTEL ICH7

On Board Chip :

Clock Gen. -- REALTEK RTM876-665
Audio Codec -- REALTEK ALC662
Lan Chip -- REALTEK 8102EL/8103EL
PWM Controller -- ST L6703 + NIKO-SEM MOS
Super I/O -- ITE 8721FBX
SPI Flash 4M

Main Memory :

2 Channel DDR II * 2 (Max 4GB)

Expansion Slot :

PCI Express x16 Slot * 1
PCI Slot * 2

Heatsink :


NB: SBLS-T
SB: BNP SMALL-L

I/O Pannel :

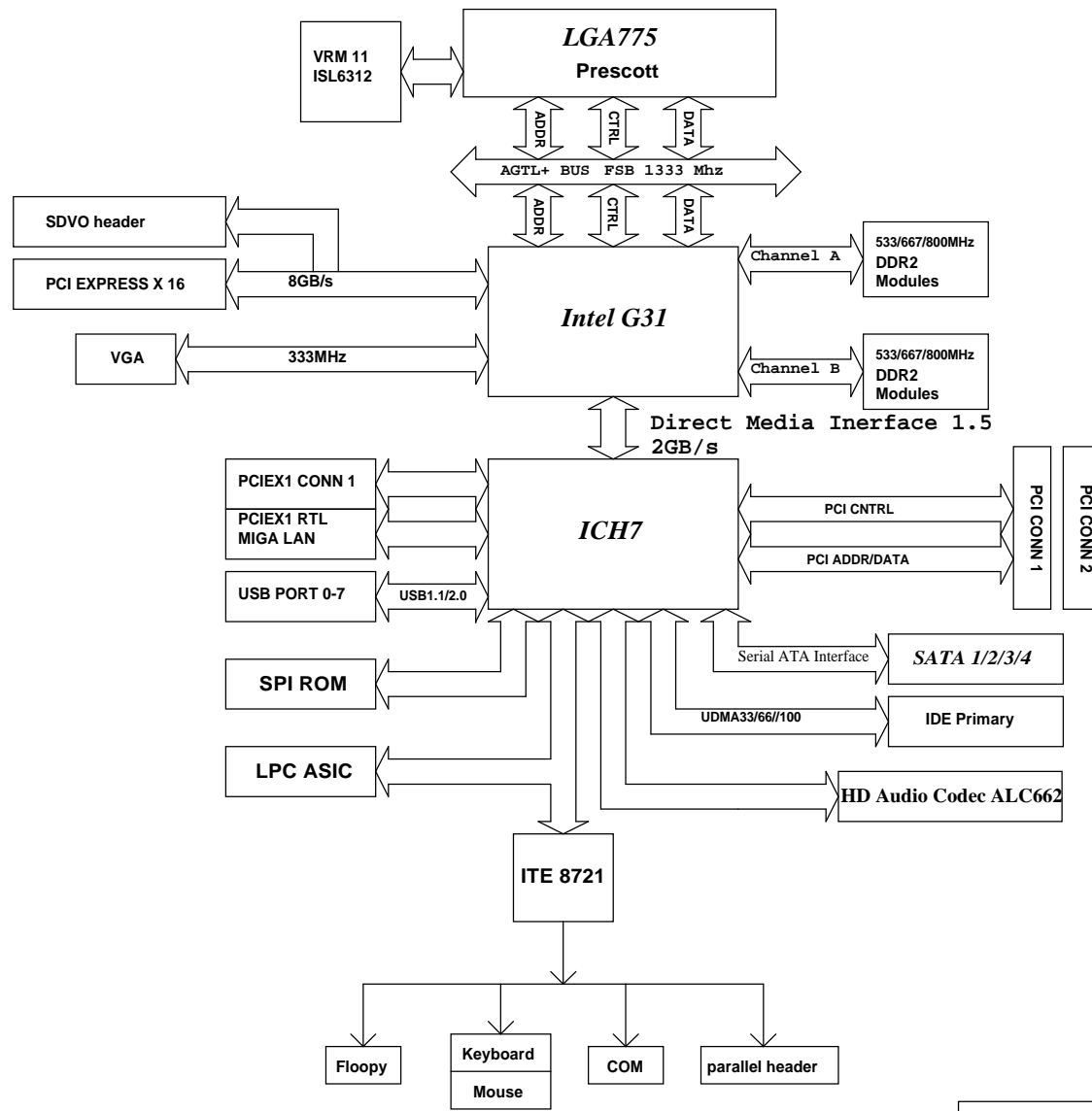
47-RIOBRACKET-68

PCB SIZE :

179.00 X 235.00mm
4-layers-1080


HW Engineer:		Date:	
HW Leader:		Date:	
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		Cover Sheet	
		Size: Custom Document Number: IG31K-M7S Date: Friday, July 16, 2010	Rev: 6.1 Sheet 1 of 36

BLOCK DIAGRAM



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Title: **Block Diagram**


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Date: Friday, July 16, 2010 Sheet: 2 of 36

PCI Slot	IDE SEL	INT#	GNT#	REQ#	CLOCK
1					
2					

Chips	IDE SEL	INT#	GNT#	REQ#	CLOCK	GPIO
PATA						
ICH7S						
I/O BIOS						
LAN						
ANTI-POP						
DIMM-OV						
CPU-OV						
SATA-LED						
S I/O						

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Title: **General Spec.**


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Date: Friday, July 16, 2010 Sheet 3 of 36

FROM V6.0 TO V6.1:

- 1.(Page06) Change R353 to 220 ohm
- 2.(Page27) AQ5,AR26,AR37 NI
- 3.(Page29) Remove CPU POWER over voltage circuit,remove R262,R266
- 4.(Page31) Add NB POWER control circuit,R298,R303 10K 0402,Q58,Q66 2N3904 SOT23
Add MEM POWER over voltage circuit,R341 3.3K 1% 0402,R342 1.8K 1% 0402
Change CT10 to 820UF-S 2.5V 6.3X8 ELITE,CT14 NI,change CT5 to 10UF 10V 0805 Y5V
Add V_FSB_VTT over voltage circuit,R206 14.7K 1% 0402,R209 8.2K 1% 0402
- 5.(Page32) Change HW monitor VIN0,VIN1 resistors

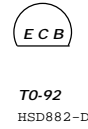
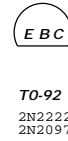
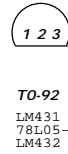
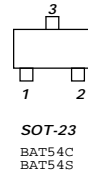
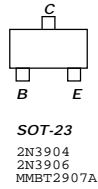
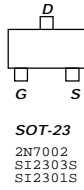
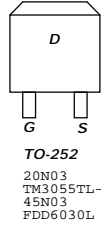
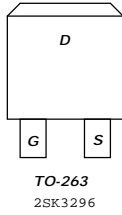
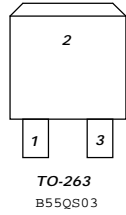
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Title		Rev
Change List		6.1
Size	Document Number	
Custom	IG31K-M7S	
Date:	Friday, July 16, 2010	Sheet 4 of 36

22U/25DE	5*7 mm
100U/16DE	6.3*11 mm
220U/10DE	6.3*11 mm
470U/16DE	8*11 mm
1000U/10DE	8*14 mm
1500U/16DE	10*25 mm
3300U/25DE	10*25 mm



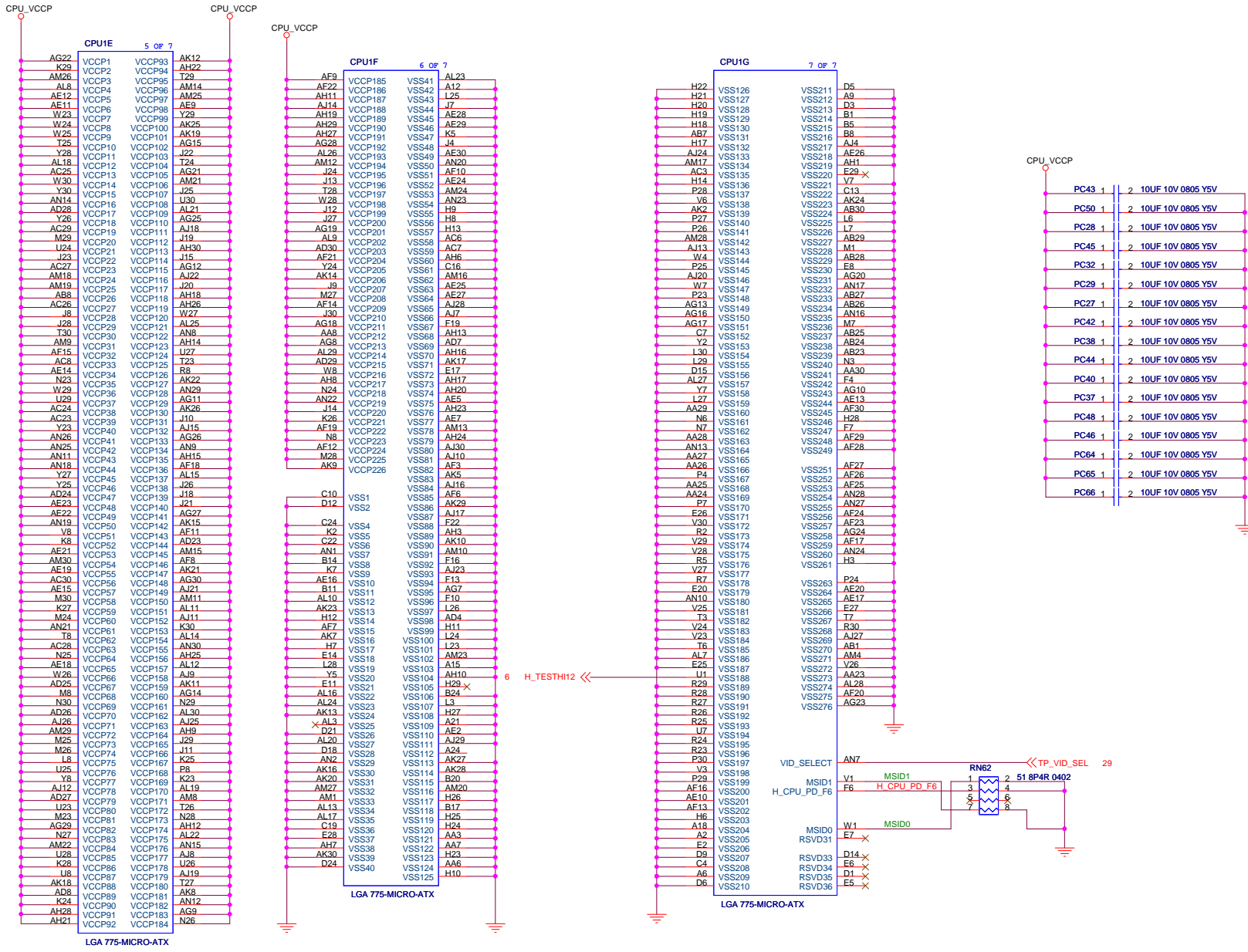
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Title: **Component Size**

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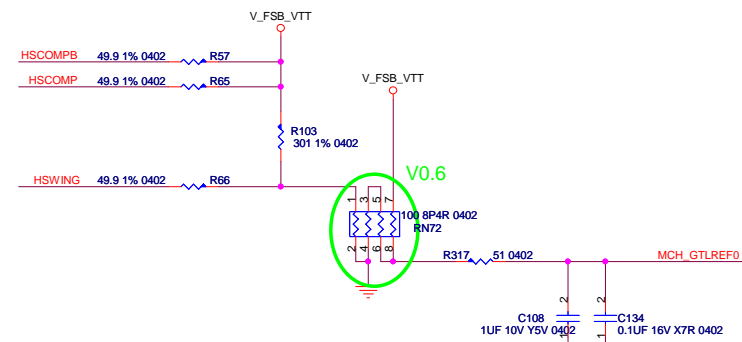
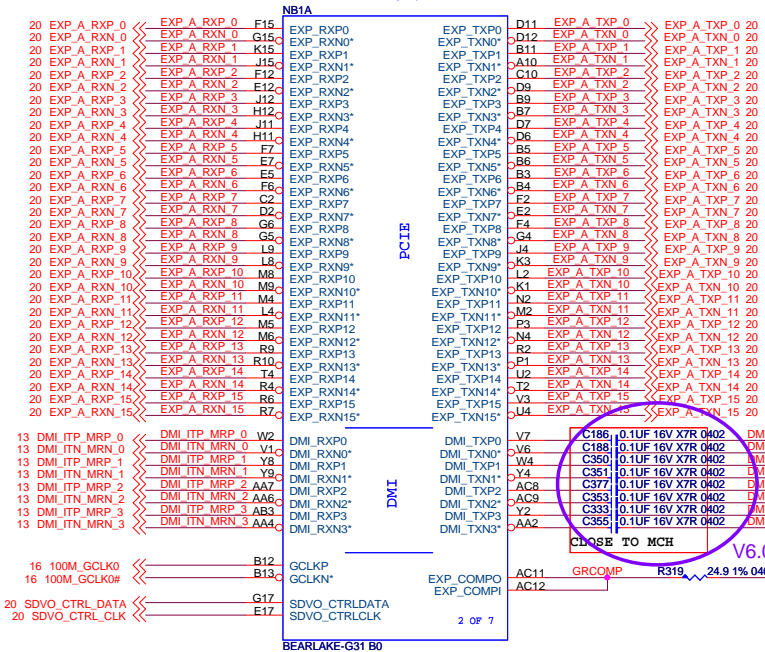
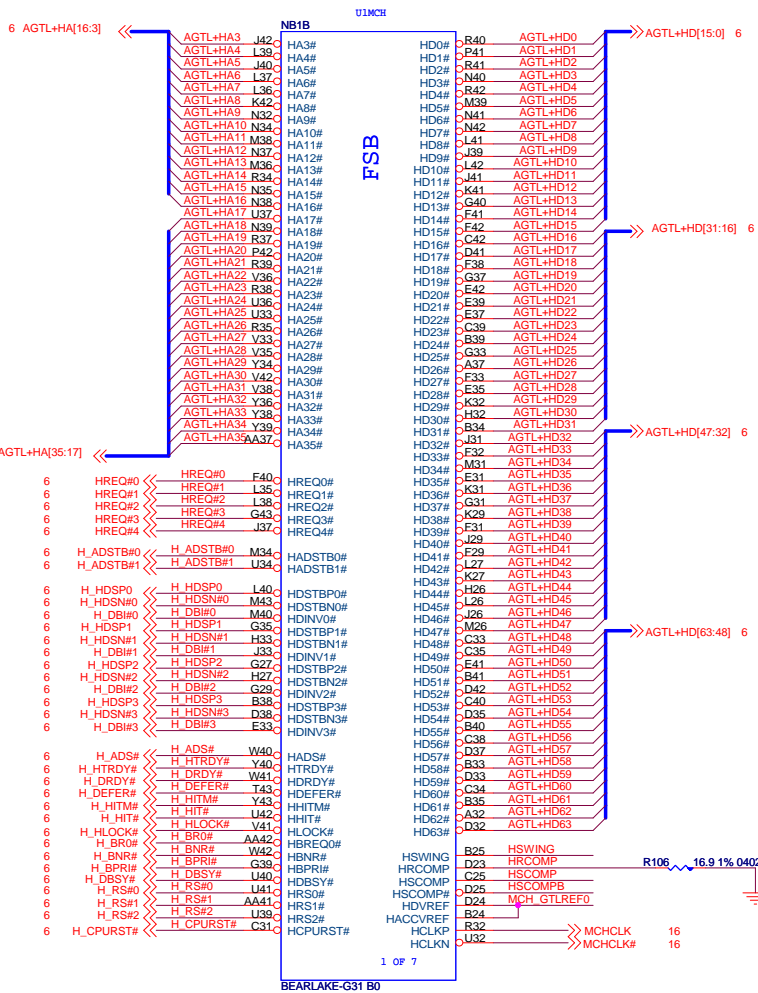
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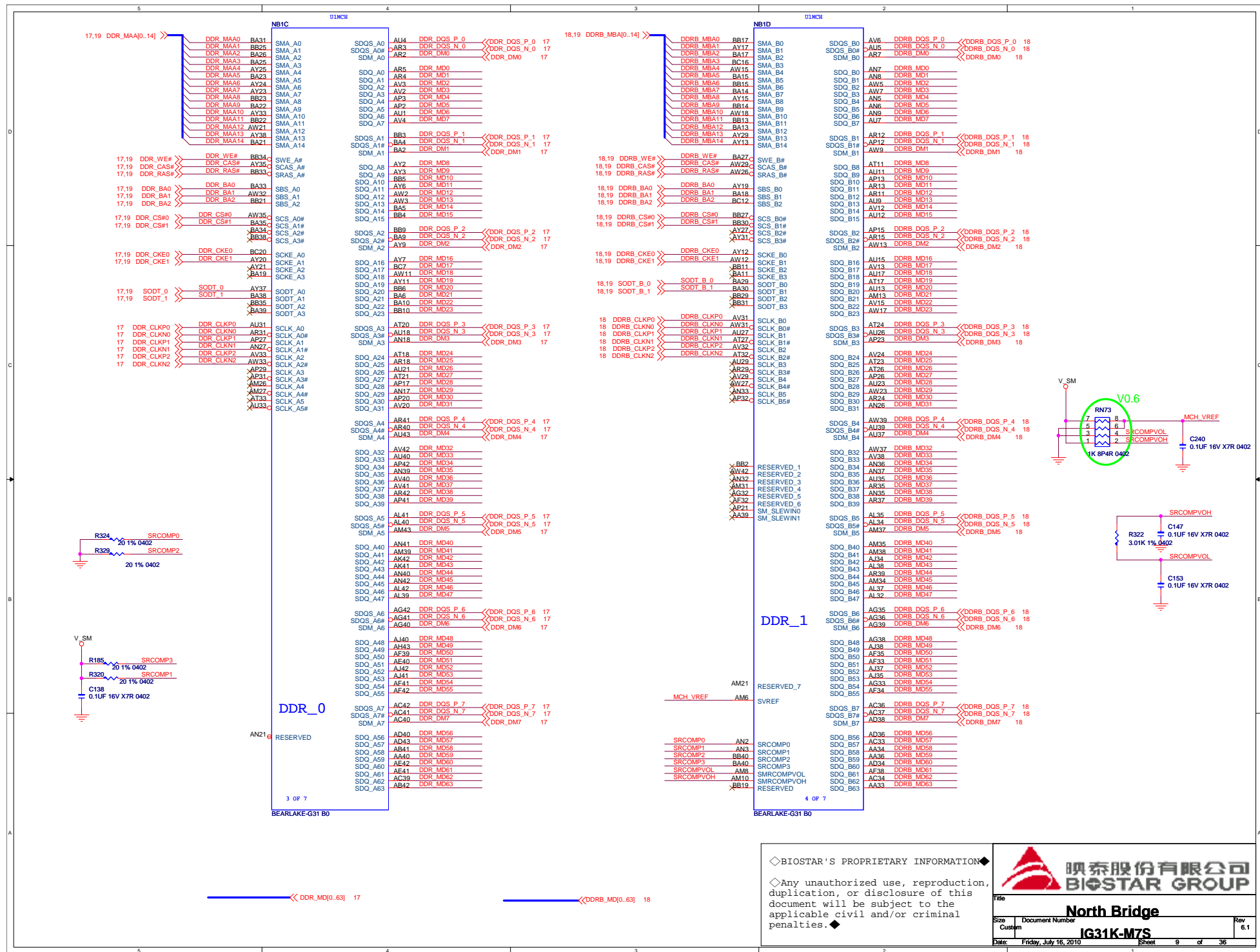
Processor SOCKET 775
IG31K-M7S

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 BIOSTAR GROUP
 North Bridge
 I931K-M7S
 Date: Friday, July 16, 2010 Sheet 8 of 36



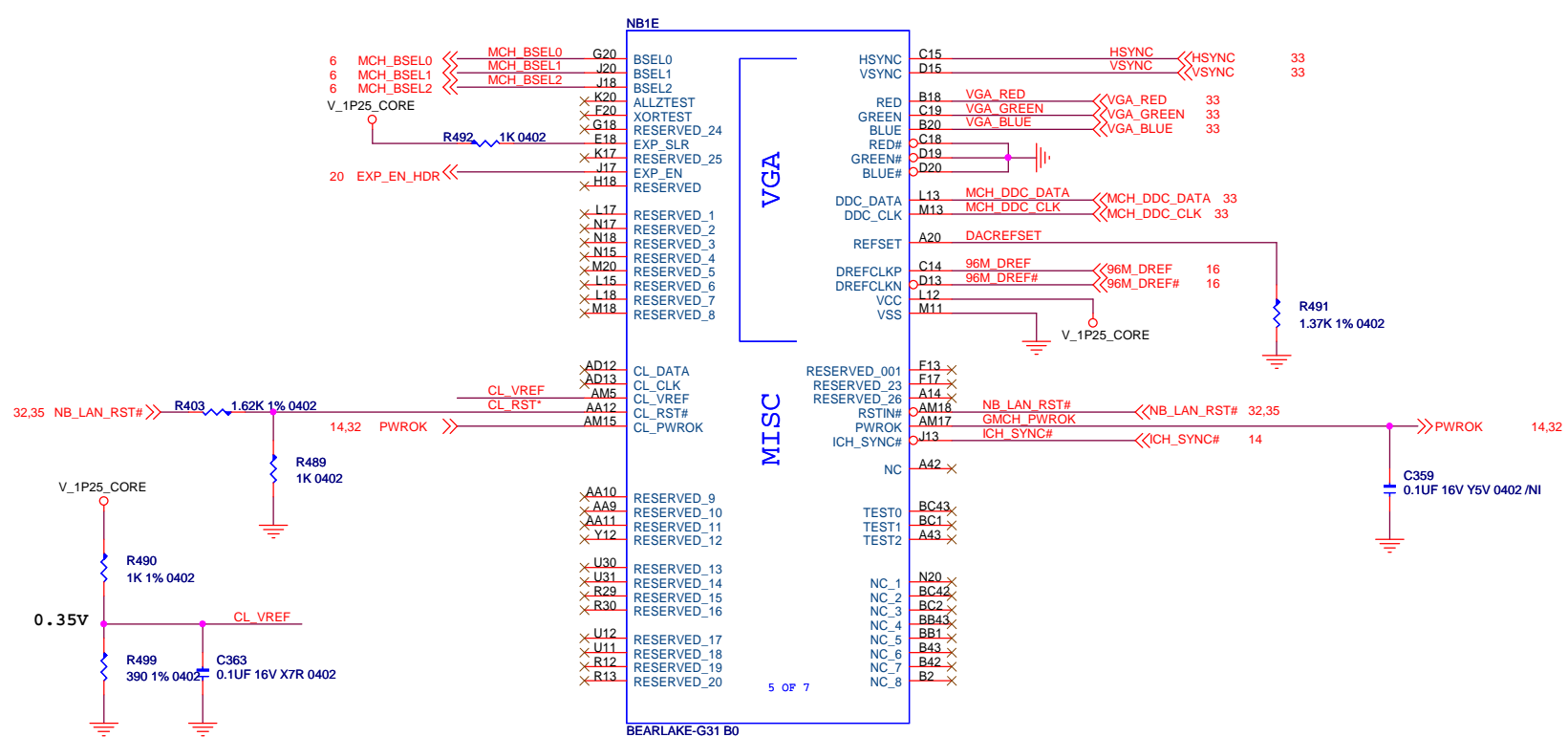
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Title: **North Bridge**

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Date: Friday, July 16, 2010 Sheet: 9 of 36



BSEL TABLE

2	1	0	PSB FREQUENCY
0	0	0	266 MHZ (1066)
0	0	1	133 MHZ (533)
0	1	0	200 MHZ (800)
1	0	0	333 MHZ (1333)

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Title: **NB(4)**

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Date: Friday, July 16, 2010 Sheet 11 of 36

M80		
BC01	VSS_1	VSS_181
BC02	VSS_2	VSS_182
BC03	VSS_3	VSS_183
BC04	VSS_4	VSS_184
BC05	VSS_5	VSS_185
BC06	VSS_6	VSS_186
BC07	VSS_7	VSS_187
AV01	VSS_8	VSS_188
AV02	VSS_9	VSS_189
AV03	VSS_10	VSS_190
AV04	VSS_11	VSS_191
AV05	VSS_12	VSS_192
AV06	VSS_13	VSS_193
AV07	VSS_14	VSS_194
AV08	VSS_15	VSS_195
AV09	VSS_16	VSS_196
AV10	VSS_17	VSS_197
AV11	VSS_18	VSS_198
AV12	VSS_19	VSS_199
AV13	VSS_20	VSS_200
AU01	VSS_21	VSS_201
AU02	VSS_22	VSS_202
AU03	VSS_23	VSS_203
AU04	VSS_24	VSS_204
AU05	VSS_25	VSS_205
AU06	VSS_26	VSS_206
AU07	VSS_27	VSS_207
AU08	VSS_28	VSS_208
AT01	VSS_29	VSS_209
AT02	VSS_30	VSS_210
AT03	VSS_31	VSS_211
AT04	VSS_32	VSS_212
AT05	VSS_33	VSS_213
AS01	VSS_34	VSS_214
AS02	VSS_35	VSS_215
AS03	VSS_36	VSS_216
AS04	VSS_37	VSS_217
AS05	VSS_38	VSS_218
AS06	VSS_39	VSS_219
AS07	VSS_40	VSS_220
AS08	VSS_41	VSS_221
AS09	VSS_42	VSS_222
AS10	VSS_43	VSS_223
AS11	VSS_44	VSS_224
AS12	VSS_45	VSS_225
AS13	VSS_46	VSS_226
AS14	VSS_47	VSS_227
AN01	VSS_48	VSS_228
AN02	VSS_49	VSS_229
AN03	VSS_50	VSS_230
AN04	VSS_51	VSS_231
AN05	VSS_52	VSS_232
AN06	VSS_53	VSS_233
AN07	VSS_54	VSS_234
AN08	VSS_55	VSS_235
AN09	VSS_56	VSS_236
AN10	VSS_57	VSS_237
AN11	VSS_58	VSS_238
AN12	VSS_59	VSS_239
AM01	VSS_60	VSS_240
AM02	VSS_61	VSS_241
AM03	VSS_62	VSS_242
AM04	VSS_63	VSS_243
AM05	VSS_64	VSS_244
AM06	VSS_65	VSS_245
AM07	VSS_66	VSS_246
AM08	VSS_67	VSS_247
AM09	VSS_68	VSS_248
AM10	VSS_69	VSS_249
AM11	VSS_70	VSS_250
AM12	VSS_71	VSS_251
AM13	VSS_72	VSS_252
AL01	VSS_73	VSS_253
AL02	VSS_74	VSS_254
AL03	VSS_75	VSS_255
AL04	VSS_76	VSS_256
AL05	VSS_77	VSS_257
AL06	VSS_78	VSS_258
AL07	VSS_79	VSS_259
AL08	VSS_80	VSS_260
AL09	VSS_81	VSS_261
AL10	VSS_82	VSS_262
AL11	VSS_83	VSS_263
AL12	VSS_84	VSS_264
AL13	VSS_85	VSS_265
AL14	VSS_86	VSS_266
AL15	VSS_87	VSS_267
AL16	VSS_88	VSS_268
AL17	VSS_89	VSS_269
AL18	VSS_90	VSS_270
AL19	VSS_91	VSS_271
AL20	VSS_92	VSS_272
AL21	VSS_93	VSS_273
AL22	VSS_94	VSS_274
AL23	VSS_95	VSS_275
AL24	VSS_96	VSS_276
AL25	VSS_97	VSS_277
AL26	VSS_98	VSS_278
AL27	VSS_99	VSS_279
AL28	VSS_100	VSS_280
AL29	VSS_101	VSS_281
AL30	VSS_102	VSS_282
AL31	VSS_103	VSS_283
AL32	VSS_104	VSS_284
AL33	VSS_105	VSS_285
AL34	VSS_106	VSS_286
AL35	VSS_107	VSS_287
AL36	VSS_108	VSS_288
AL37	VSS_109	VSS_289
AL38	VSS_110	VSS_290
AL39	VSS_111	VSS_291
AL40	VSS_112	VSS_292
AL41	VSS_113	VSS_293
AL42	VSS_114	VSS_294
AL43	VSS_115	
AL44	VSS_116	
AL45	VSS_117	
AL46	VSS_118	
AL47	VSS_119	
AL48	VSS_120	
AL49	VSS_121	
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AL97	VSS_169	
AL98	VSS_170	
AL99	VSS_171	
AL100	VSS_172	
AL101	VSS_173	
AL102	VSS_174	
AL103	VSS_175	
AL104	VSS_176	
AL105	VSS_177	
AL106	VSS_178	
AL107	VSS_179	
AL108	VSS_180	

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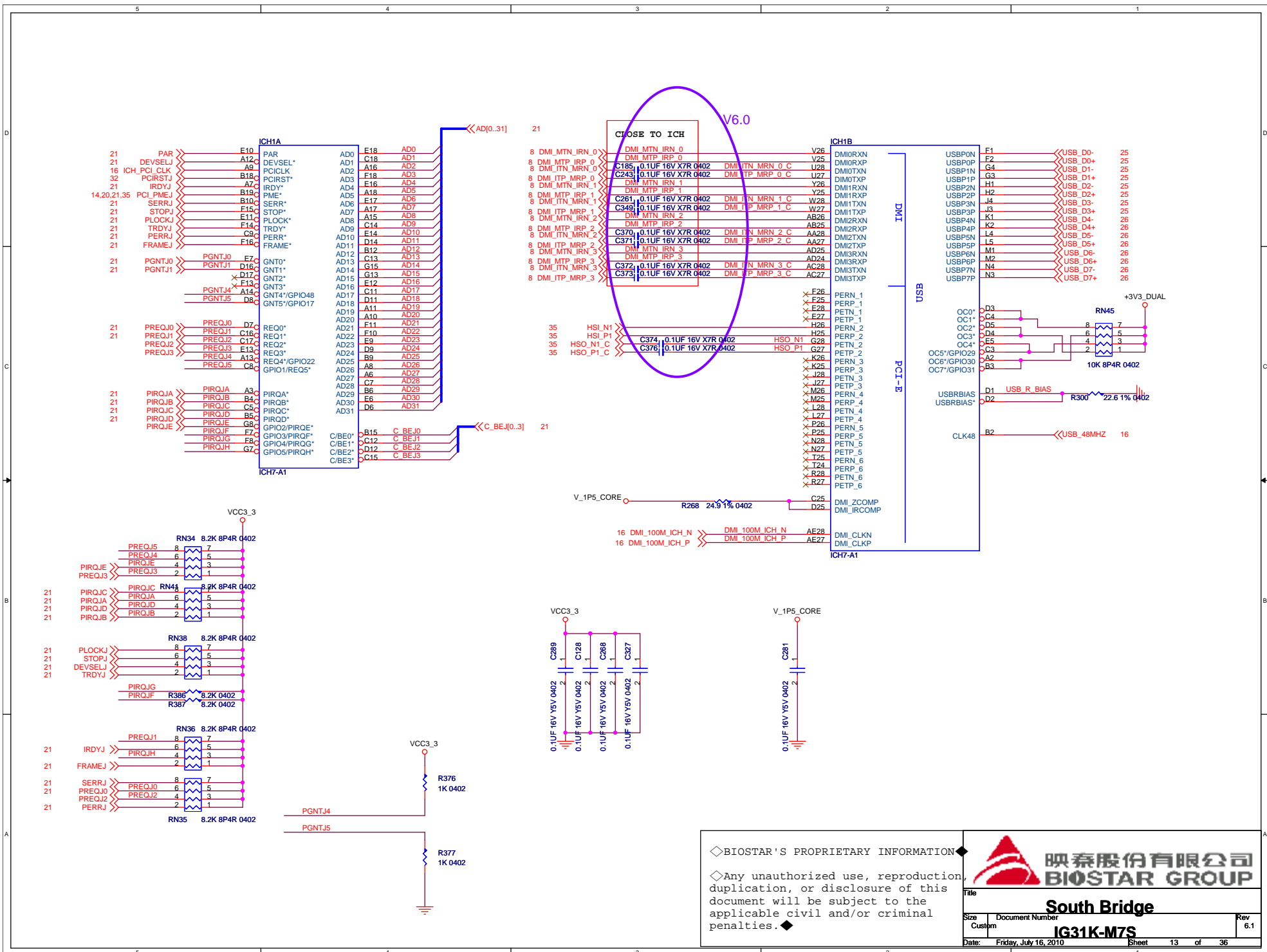
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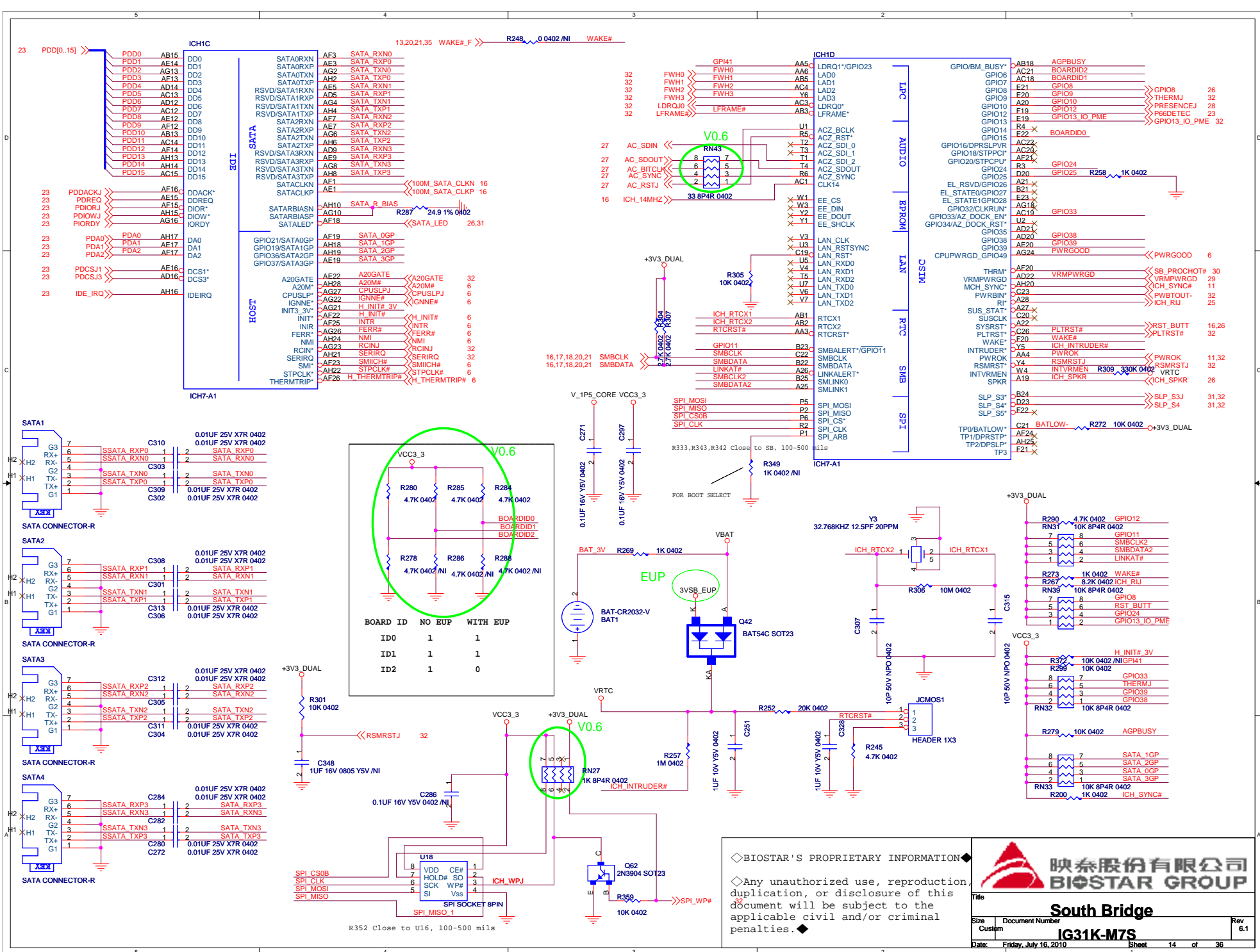
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South Bridge

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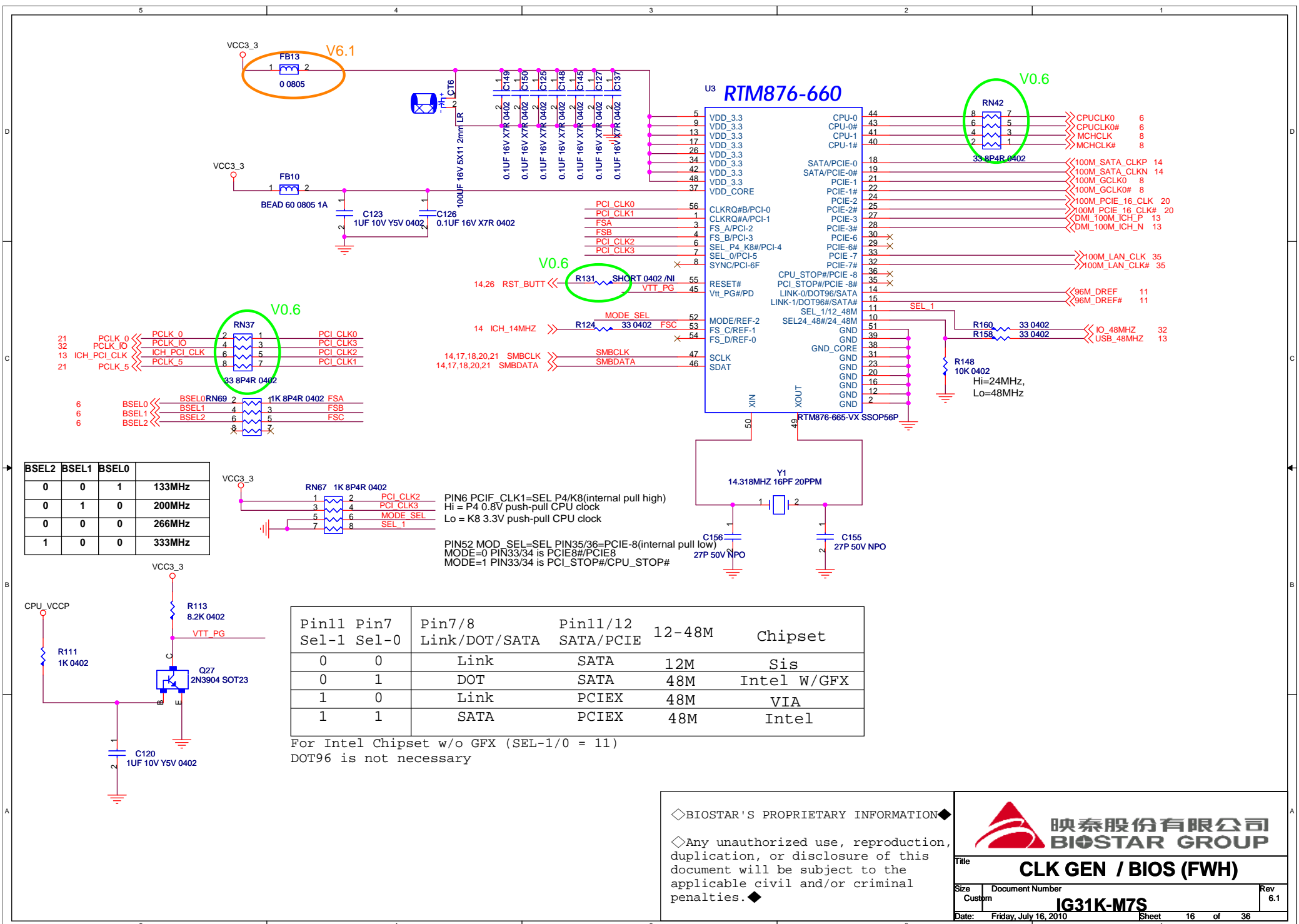


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South Bridge
IG31K-M7S

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 Document Number: IG31K-M7S
 Date: Friday, July 16, 2010
 Sheet: 14 of 36
 Rev: 6.1



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

PIN6 PCIF_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 PIN33/34 is PCIE8#/PCIE8
 MODE=1 PIN33/34 is PCL_STOP#/CPU_STOP#

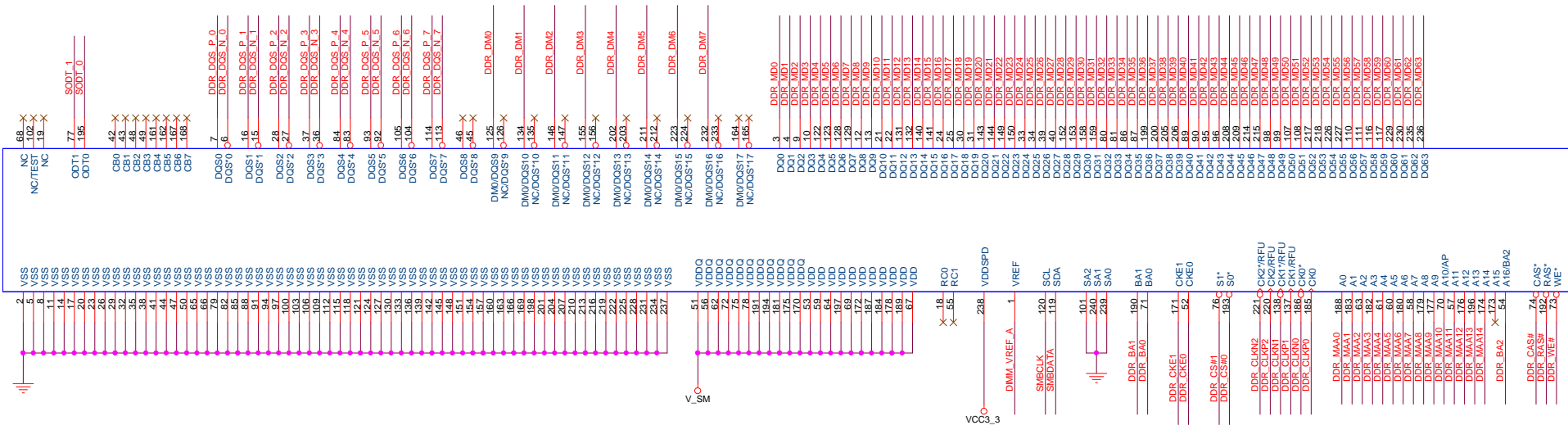
Pin11 Sel-1	Pin7 Sel-0	Pin7/8 Link/DOT/SATA	Pin11/12 SATA/PCIE	12-48M	Chipset
0	0	Link	SATA	12M	Sis
0	1	DOT	SATA	48M	Intel W/GFX
1	0	Link	PCIEX	48M	VIA
1	1	SATA	PCIEX	48M	Intel

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

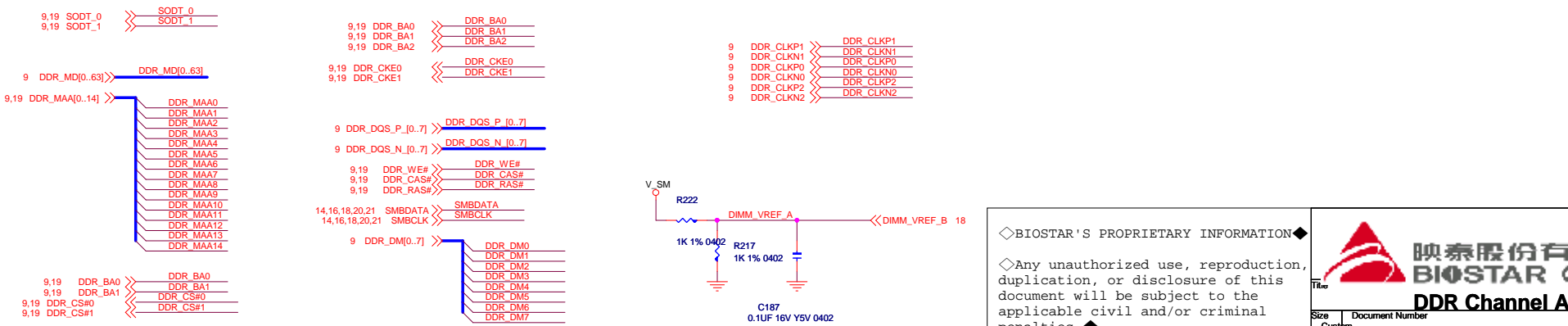
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Title: **CLK GEN / BIOS (FWH)**
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 Document Number: **IG31K-M7S**
 Date: Friday, July 16, 2010
 Sheet: 16 of 36
 Rev: 6.1



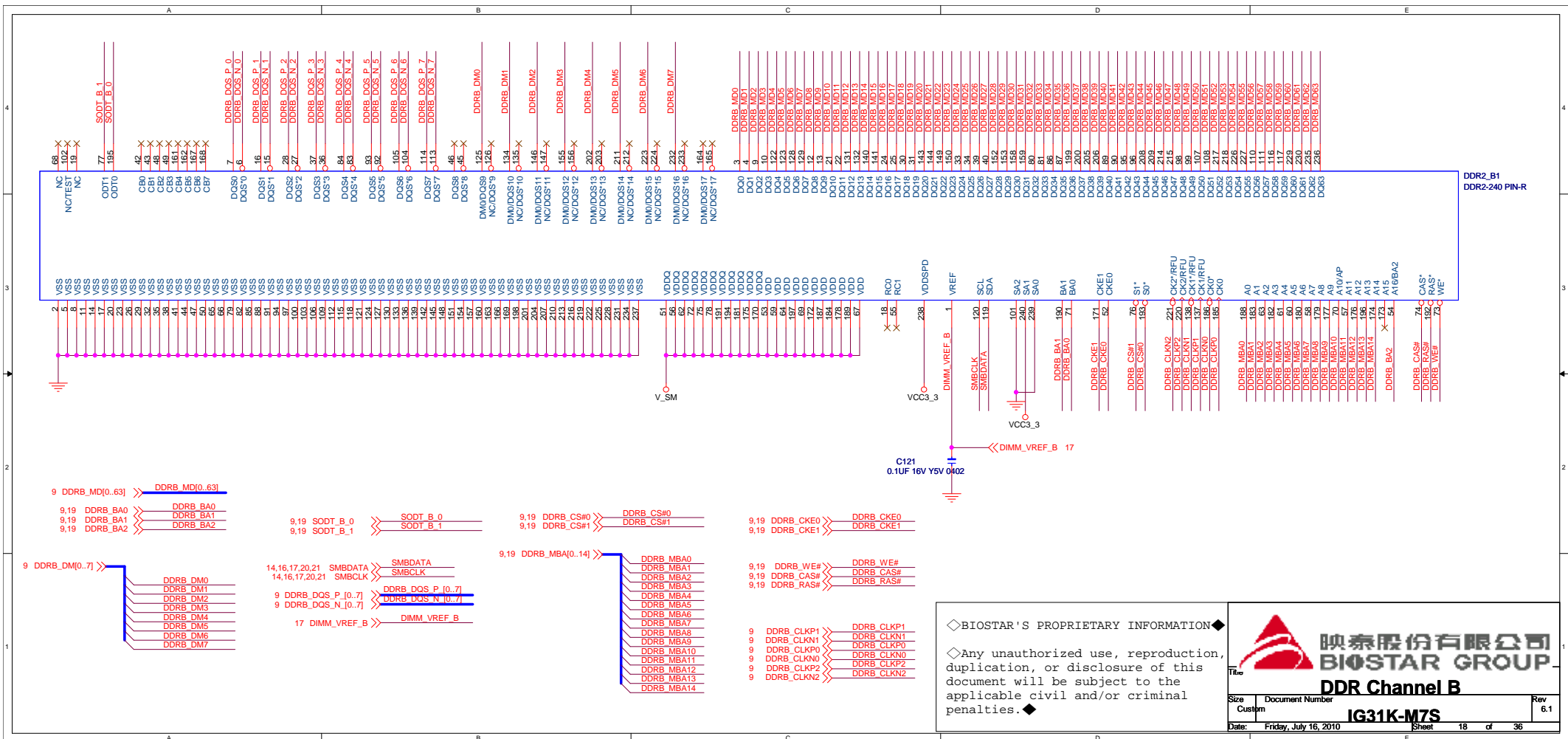
DDR2_A1
DDR2-240 PIN-R




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DDR Channel A

Size	Document Number	Rev
Custom	IG31K-M7S	6.1
Date:	Friday, July 16, 2010	Sheet 17 of 36



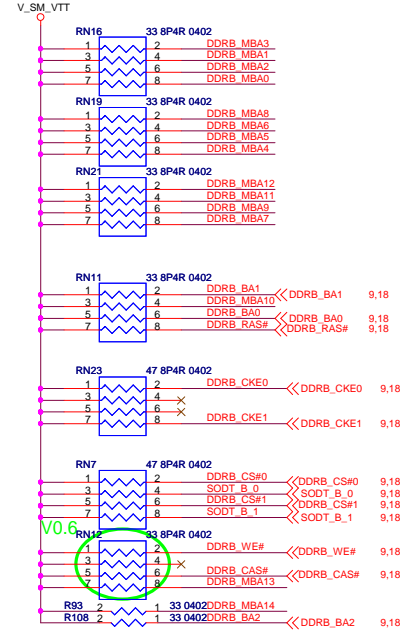
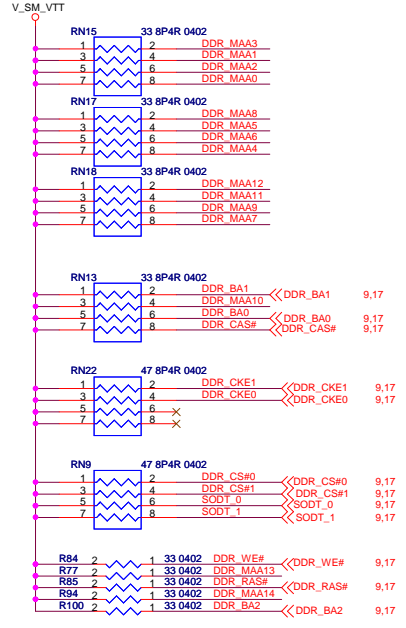
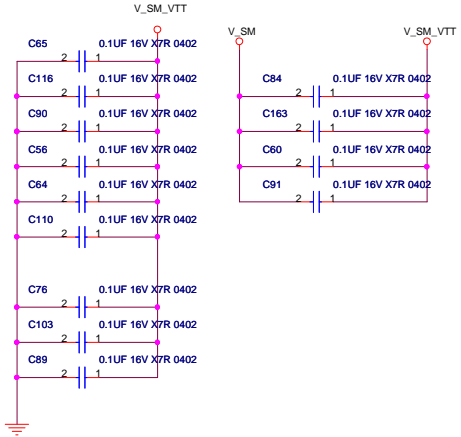
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DDR Channel B

Size	Document Number	Rev
Custom	IG31K-M7S	6.1
Date:	Friday, July 16, 2010	Sheet 18 of 36



- <<DDR_MAA[0..14] 9,17
- <<DDR_DM[0..7] 9,17
- <<DDR_MD[0..63] 9,17
- <<DDRB_MBA[0..14] 9,18
- <<DDRB_DM[0..7] 9,18
- <<DDRB_MD[0..63] 9,18

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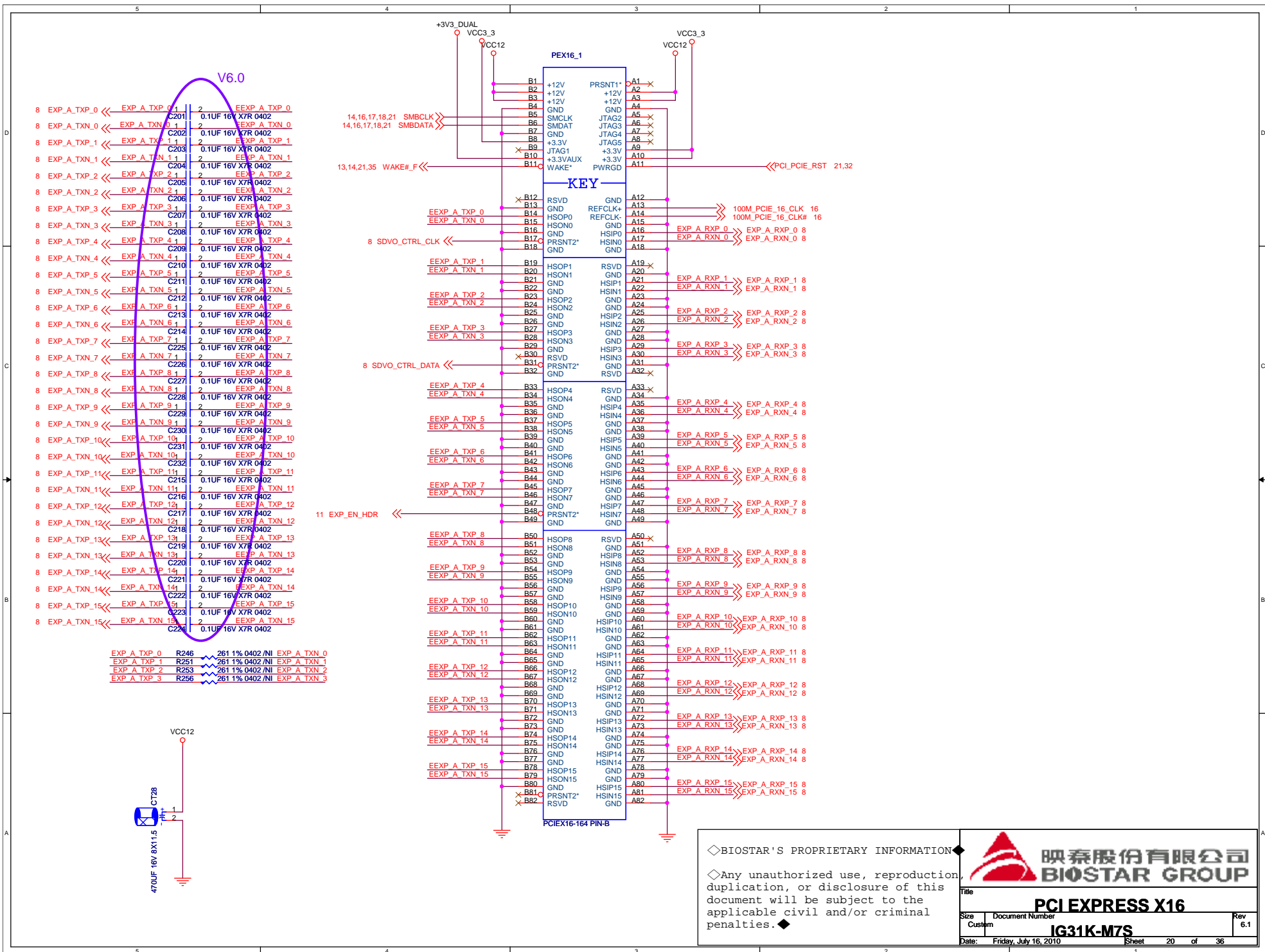
DDR TERMINATION& SERIAL R

Title: **DDR TERMINATION& SERIAL R**

Size: Custom Document Number

Customer: **IG31K-M7S**

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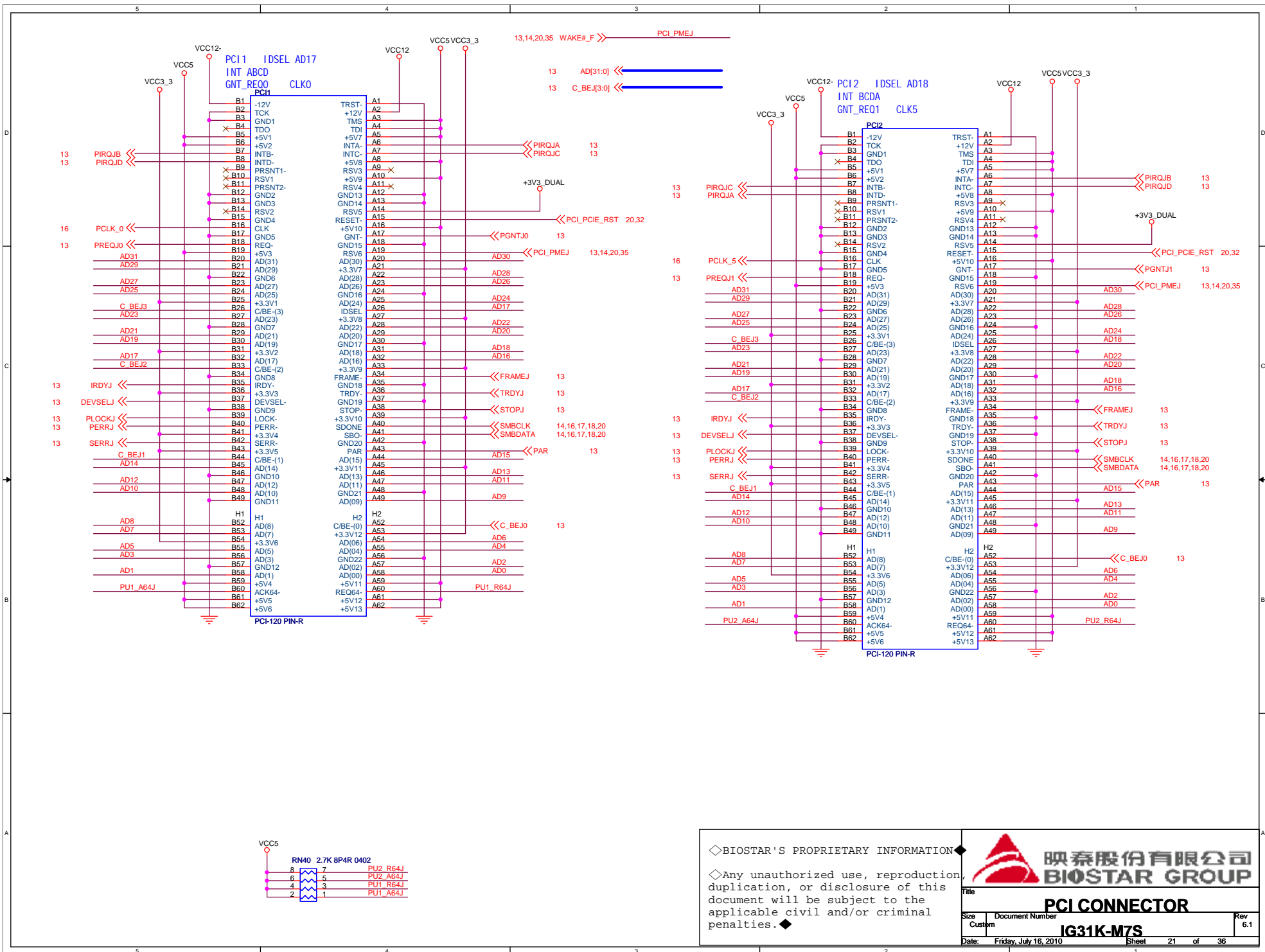
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Title: **PCI EXPRESS X16**

Size: Custom Document Number: **IG31K-M7S** Rev: 6.1

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Title: **PCI CONNECTOR**

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Date: Friday, July 16, 2010 Sheet: 21 of 36

5

4

3

2

1

D

D

C

C

B

B

A

A

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Title		
reserve		
Size	Document Number	Rev
A	IG31K-M7S	6.1
Date:	Friday, July 16, 2010	Sheet 22 of 36

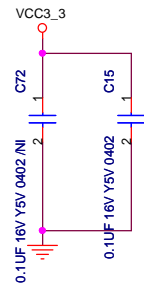
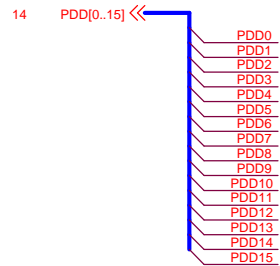
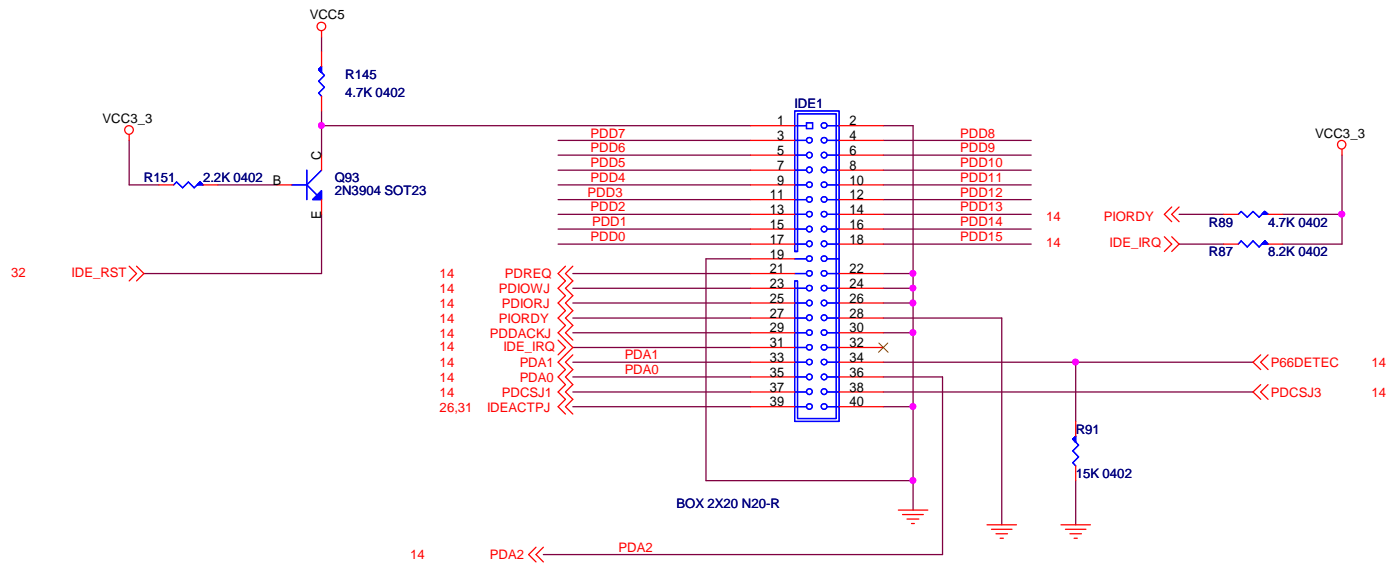
5

4

3


2

1

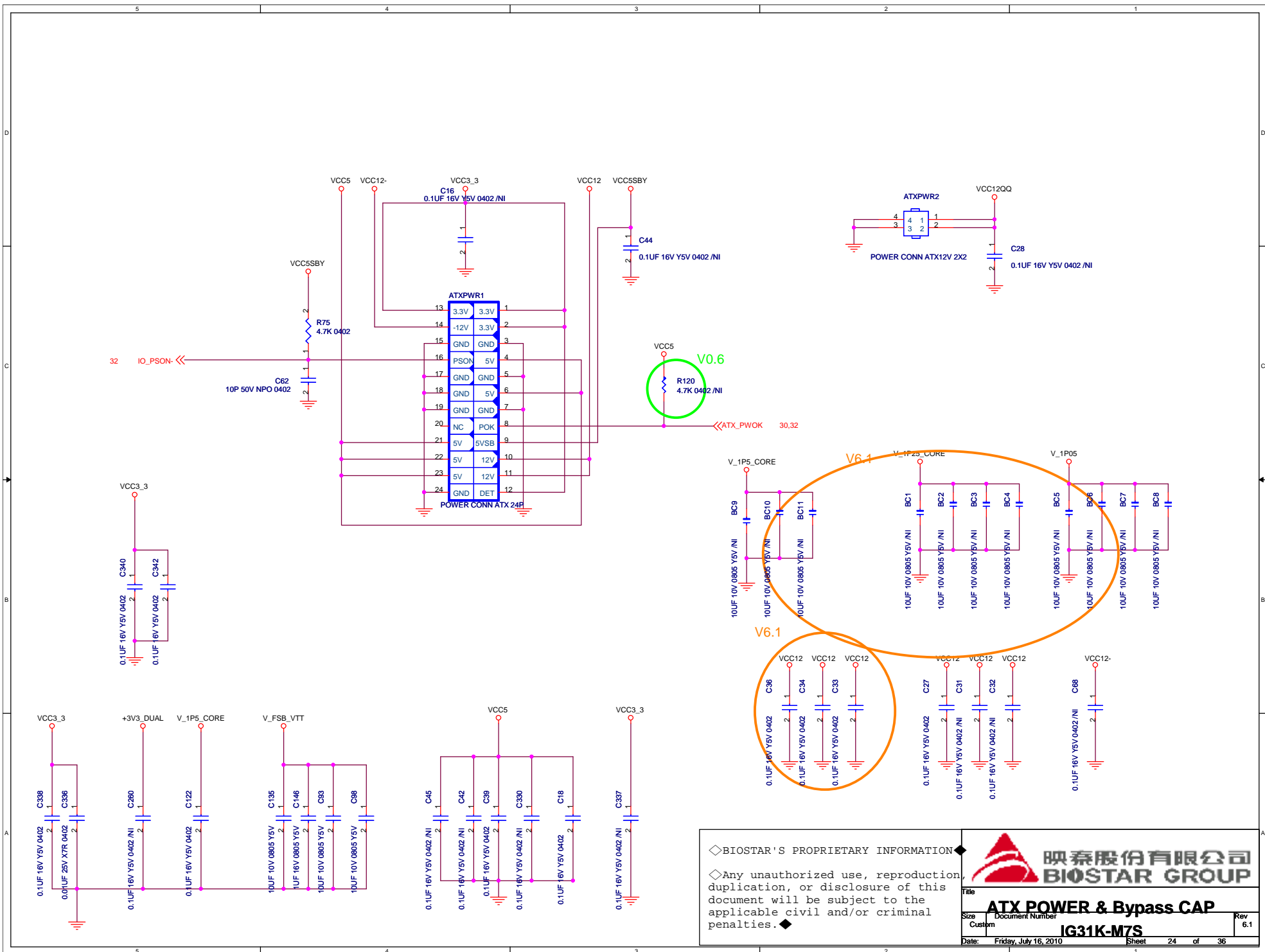


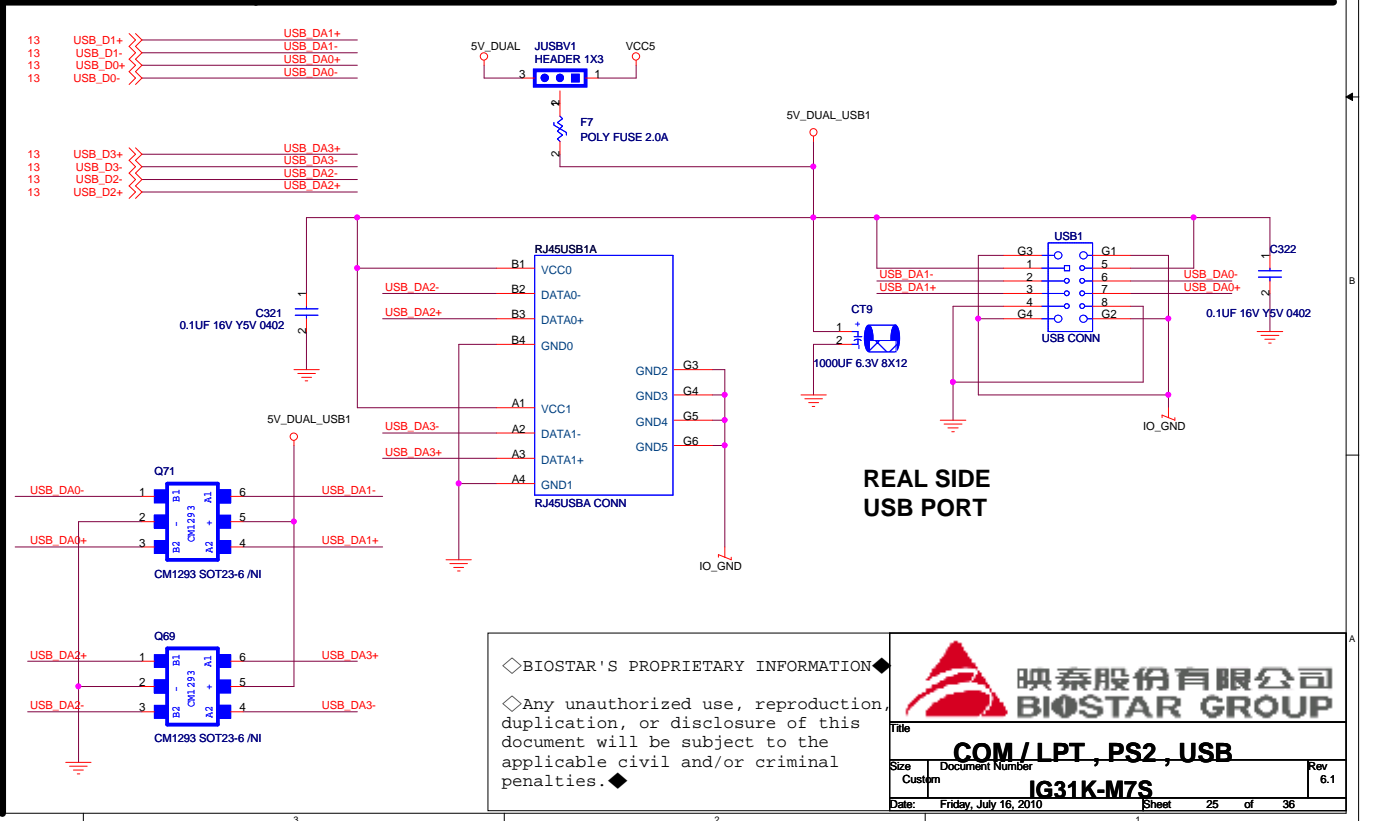
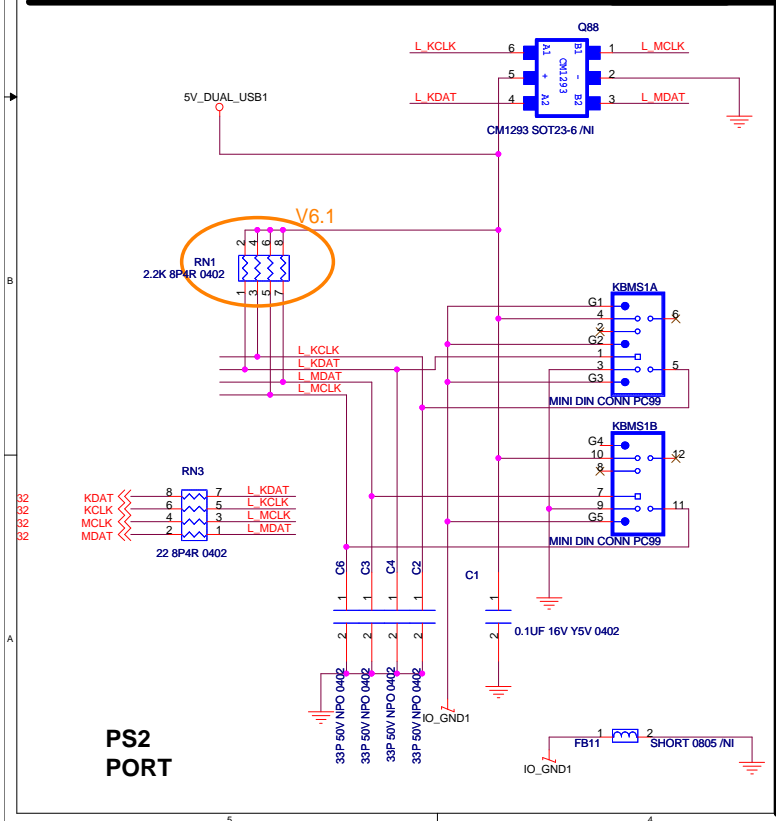
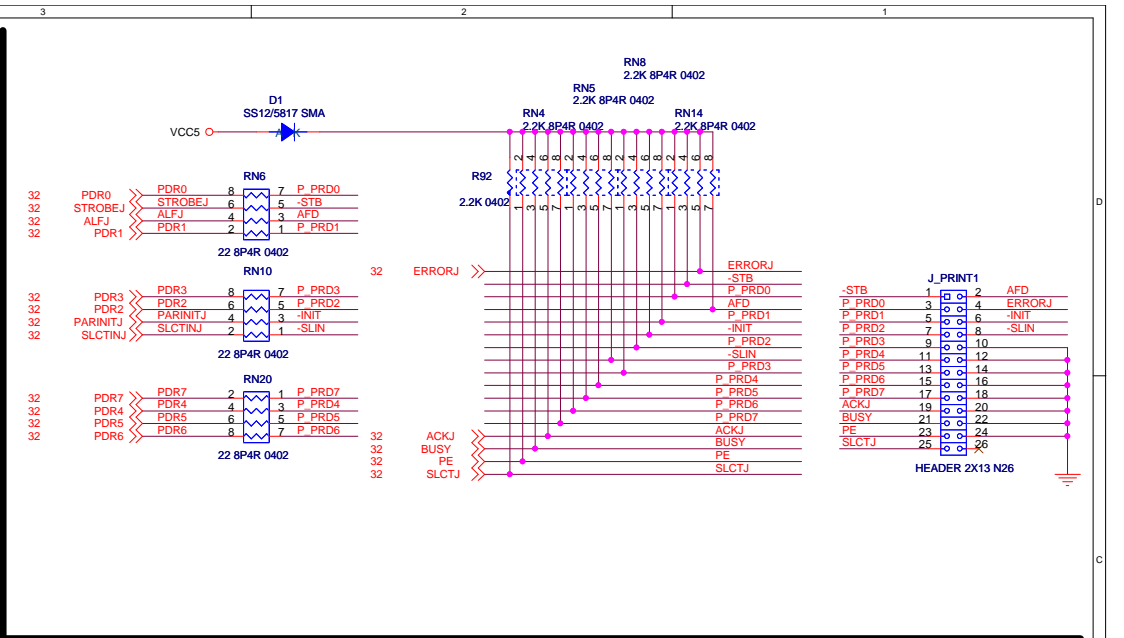
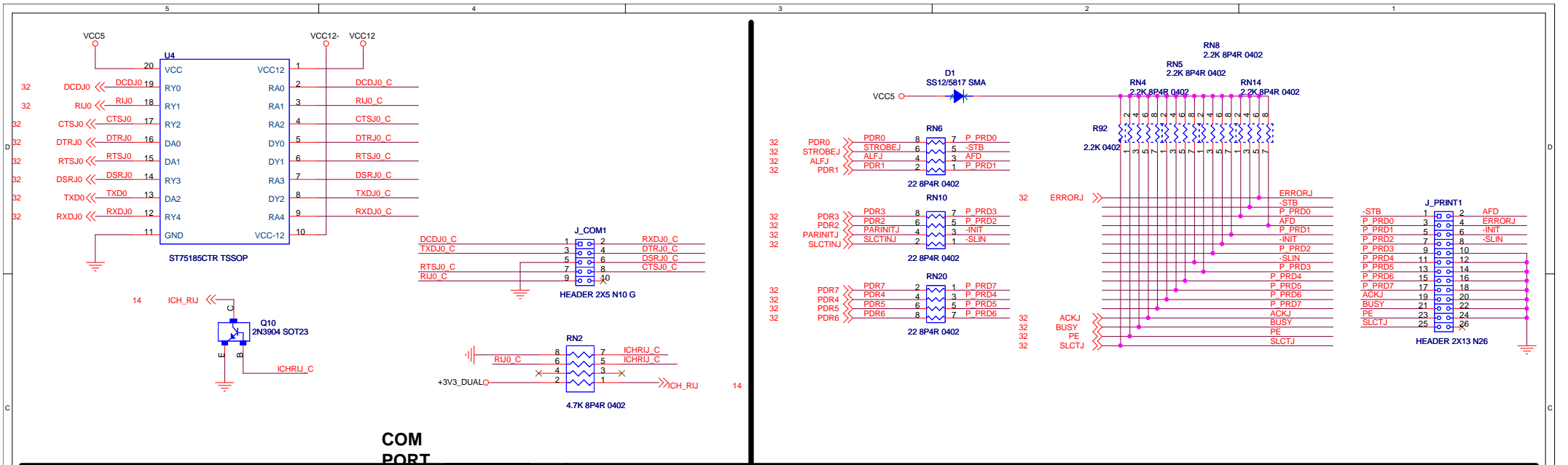
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IDE CONNECTOERS			
Size	Document Number	Rev	
Custom	IG31K-M7S	6.1	
Date:	Friday, July 16, 2010	Sheet	23 of 36





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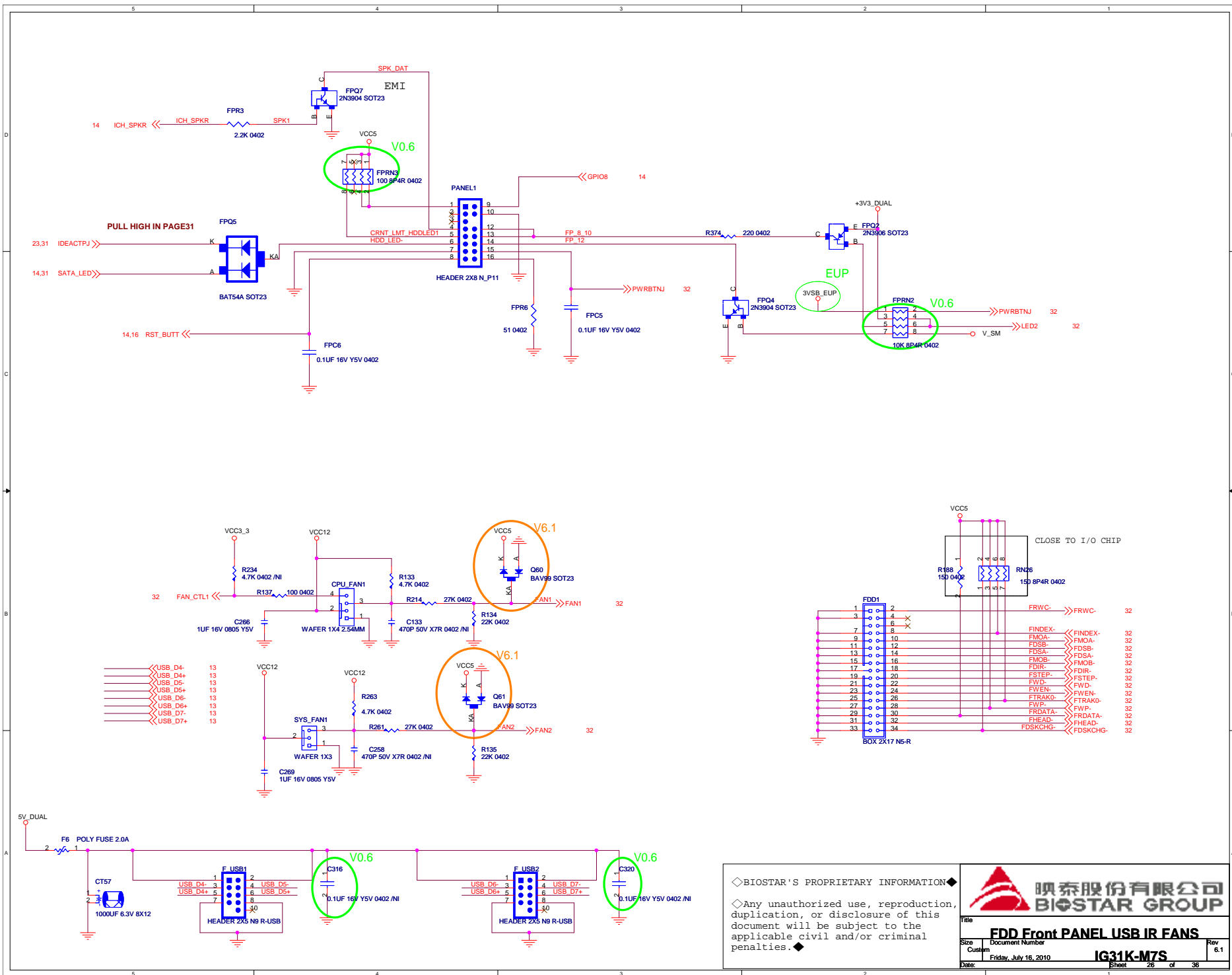
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Title: **COM / LPT, PS2, USB**

Size: Custom Document Number: IG31K-M7S Rev: 6.1

Date: Friday, July 16, 2010 Sheet: 25 of 36



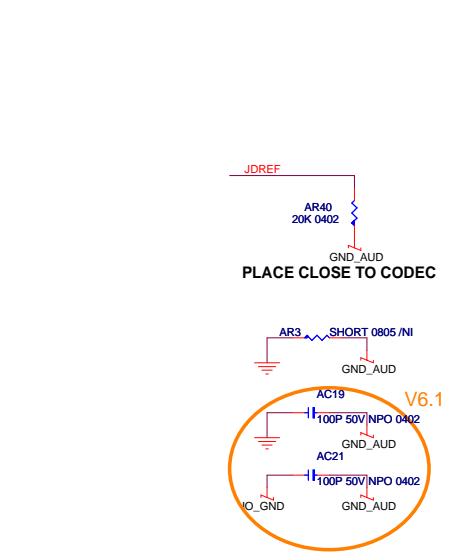
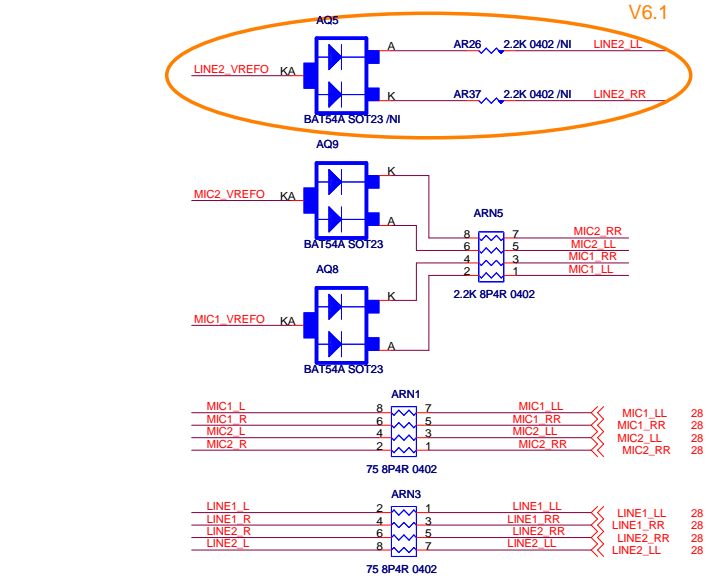
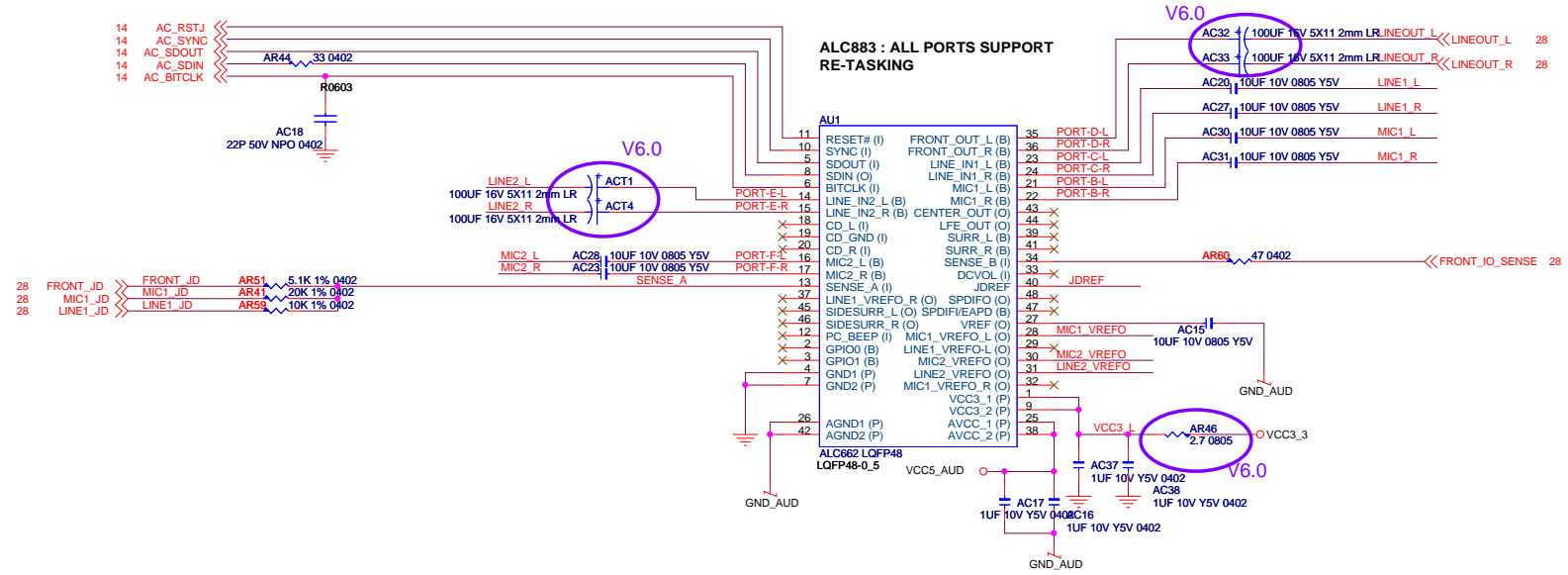
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Title: **FDD Front PANEL USB IR FANS**

Size: Custom Document Number: Friday, July 16, 2010

Date: Sheet 26 of 36

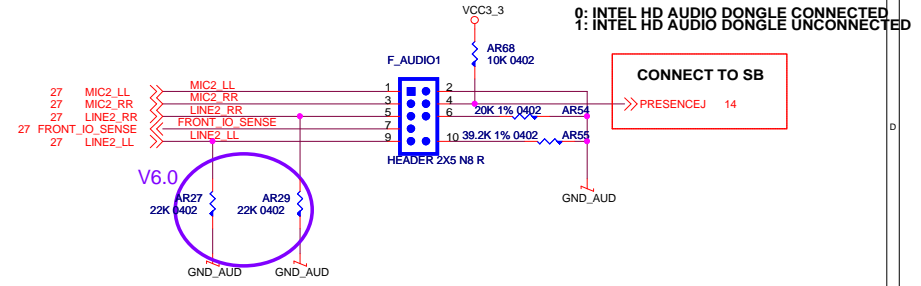
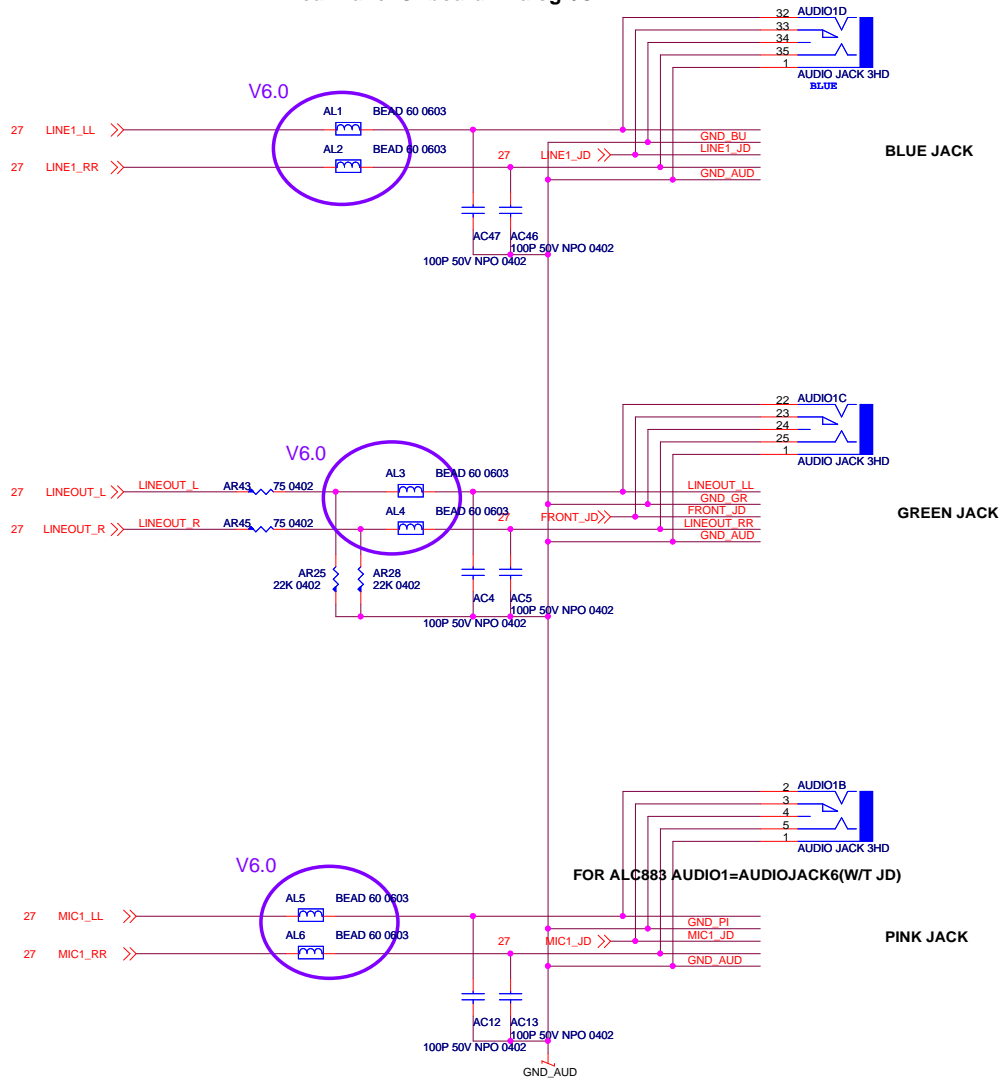


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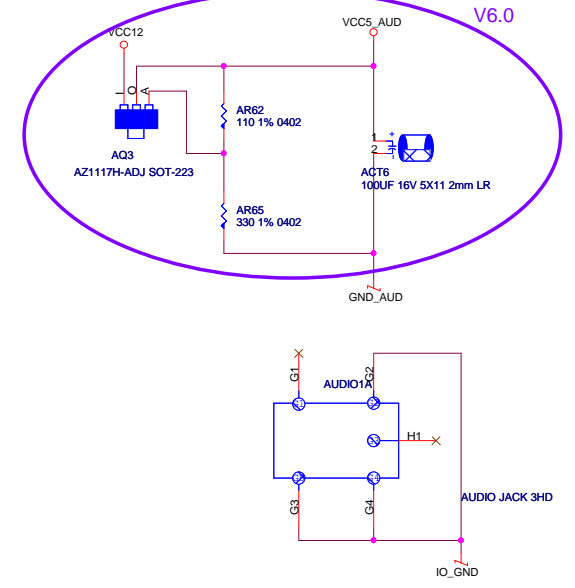
ALC662
IG31K-M7S

Size	Document Number	Rev
Custom	IG31K-M7S	6.1
Date:	Friday, July 16, 2010	Sheet 27 of 36

Rear Panel Onboard Analog I/O



AUDIO ANALOG POWER

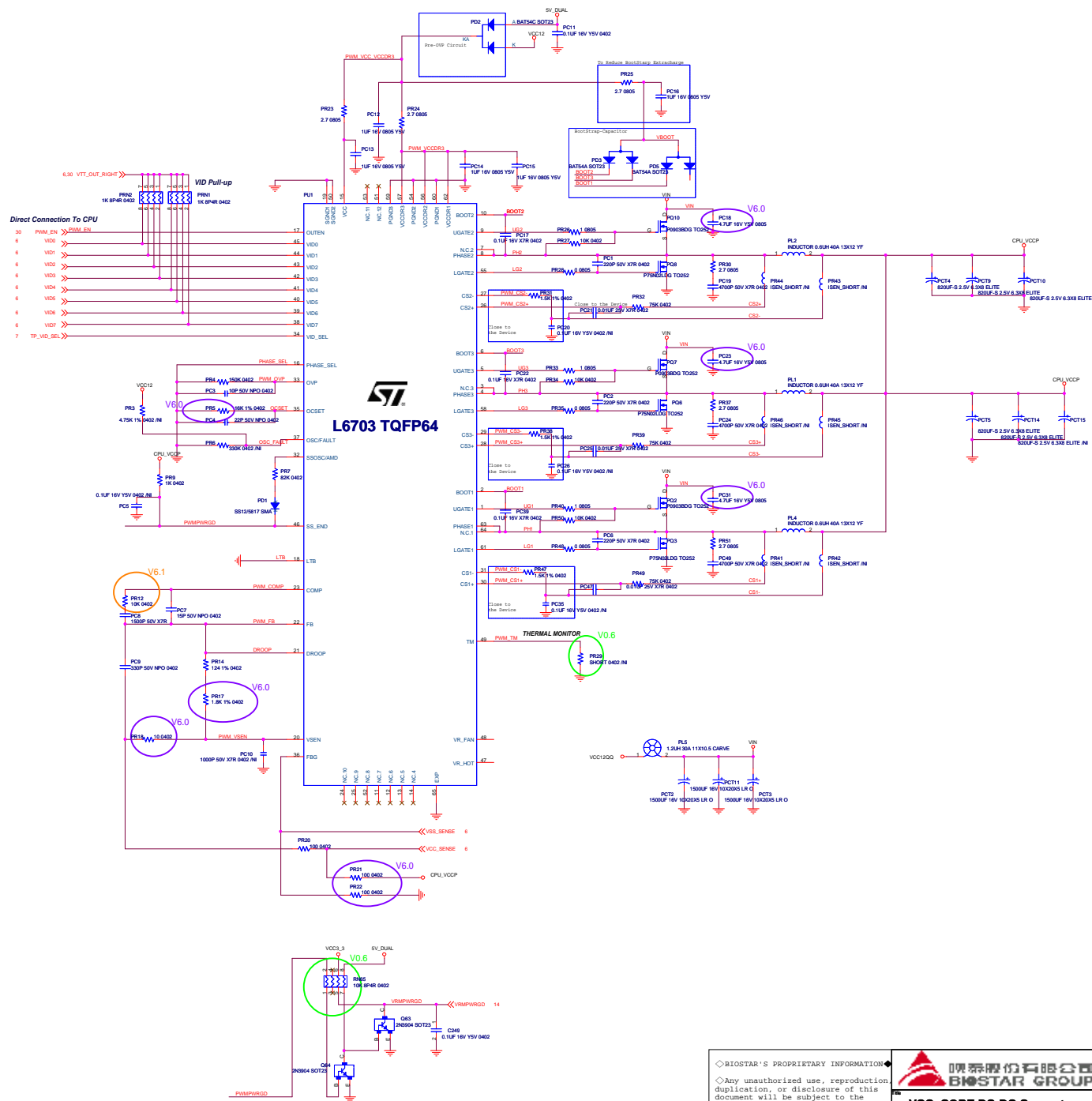


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Title: **audio connector**

Size	Document Number	Rev
Custom	Friday, July 16, 2010	6.1
Date:	IG31K-M7S	
Sheet 28 of 36		



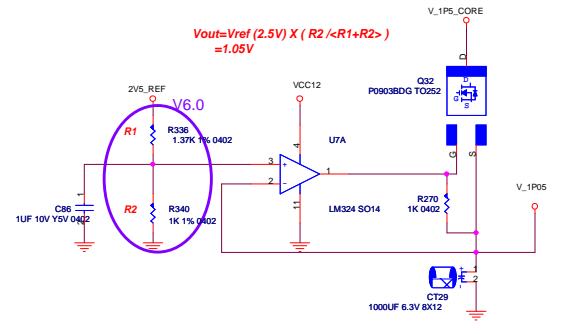
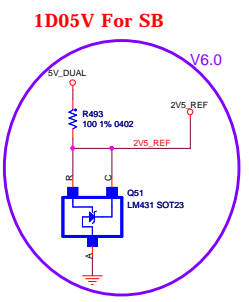
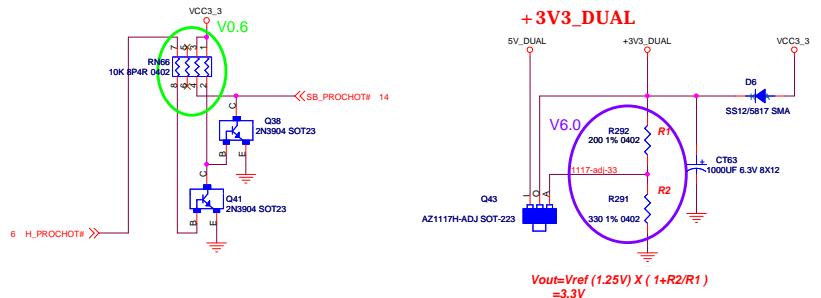
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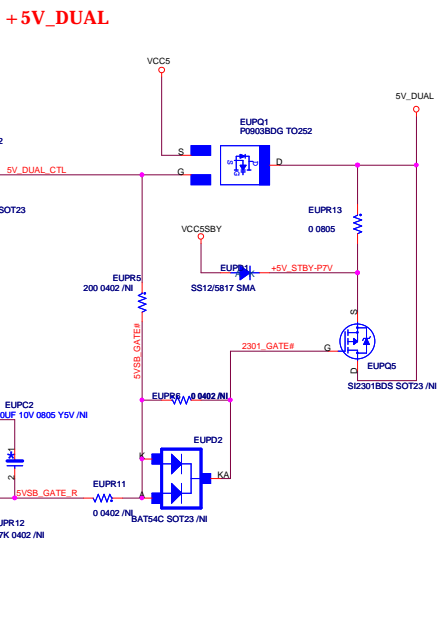
BIOS 映泰股份有限公司
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VCC CORE DC-DC Converter
IG31K-M7S

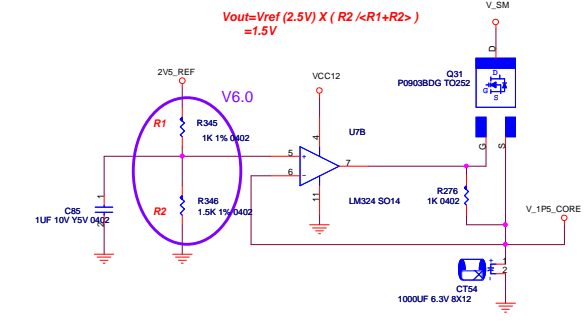
Doc No: IG31K-M7S-01
Date: 2010.10.14
Page: 29 of 30



Energy-Using Product(EUP)



1D5V For SB

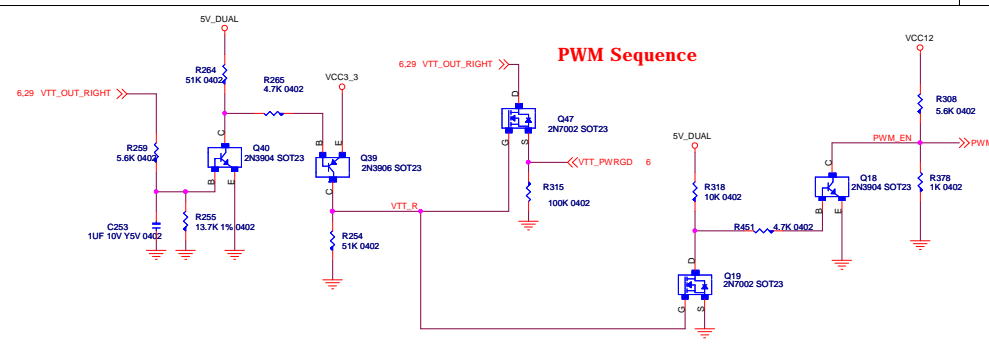


PowerGood from ATX PSU

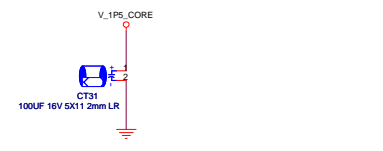
PowerGood from SIO

IT8721BX - Pin16

SVSB_CTRL LOW(S5): +5V_DUAL=0V
 SVSB_CTRL HIGH(ATX_PWRGD) LOW: +5V_DUAL FORM +5V_STBY
 SVSB_CTRL HIGH(ATX_PWRGD) HIGH: +5V_DUAL FORM VCC5



1D5V For VCCD_CRT



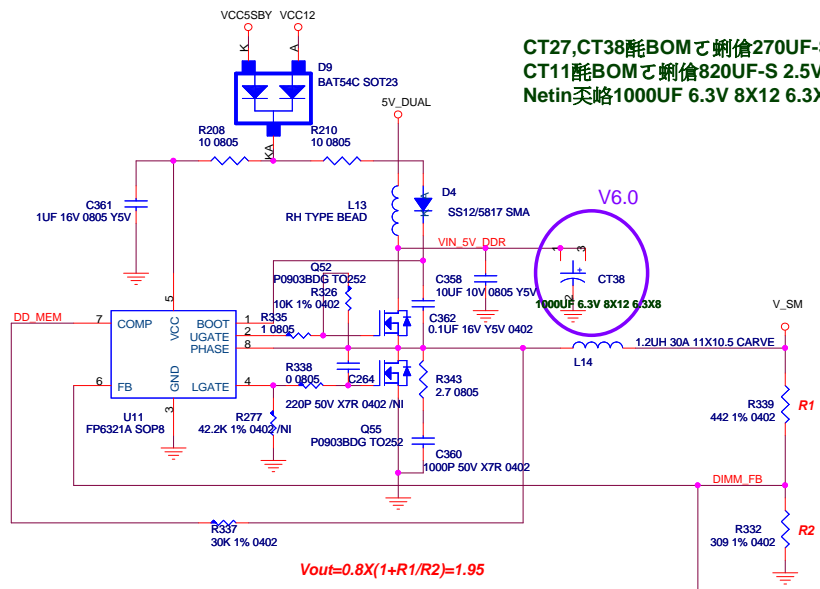
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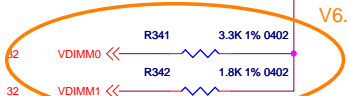
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File: **Miscellaneous DC-DC Converters**
 Size: **IG31K-M7S**
 Custom: **IG31K-M7S**
 Date: Friday, July 16, 2010 Sheet 30 of 36

CT27,CT38 駝BOMで蝟倉270UF-S 16V 8X11 ELITE
 CT11駝BOMで蝟倉820UF-S 2.5V 6.3X8 ELITE
 Netin実略1000UF 6.3V 8X12 6.3X8

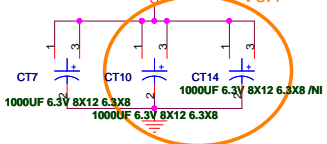


$V_{out} = 0.8X(1+R1/R2) = 1.95$

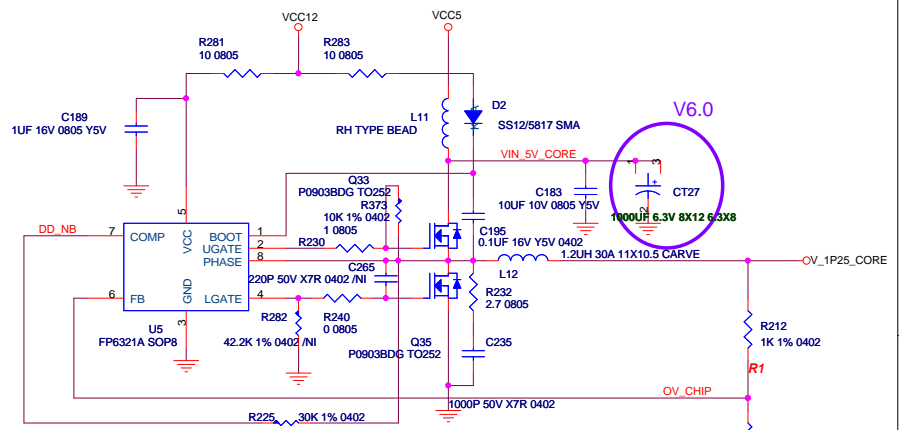
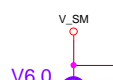
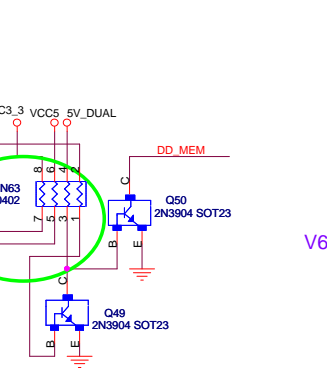


VDIMM0	VDIMM1	V_SM
1	1	Default (1.95V)
0	1	2.05V
1	0	2.15V
0	0	2.25V

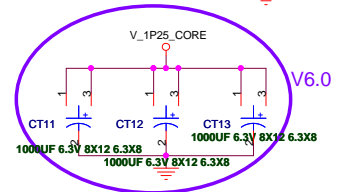
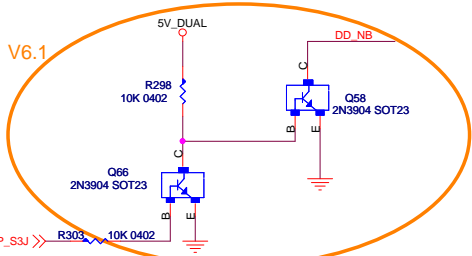
CT10駝BOMで蝟倉820UF-S 2.5V 6.3X8 ELITE
 CT14 NI



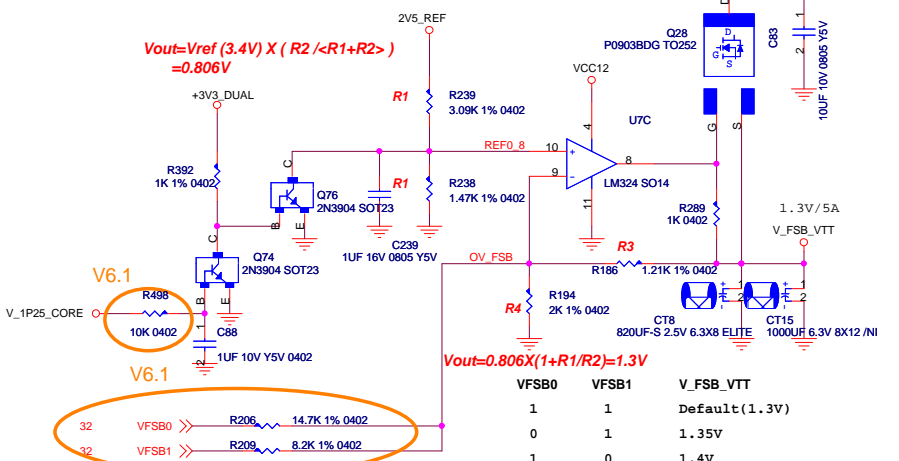
CT10駝BOMで蝟倉820UF-S 2.5V 6.3X8 ELITE
 CT14 NI



$V_{out} = 0.8X(1+R1/R2) = 1.25V$



$V_{out} = V_{ref}(3.4V) X (R2 / (R1+R2)) = 0.806V$



$V_{out} = 0.806X(1+R1/R2) = 1.3V$

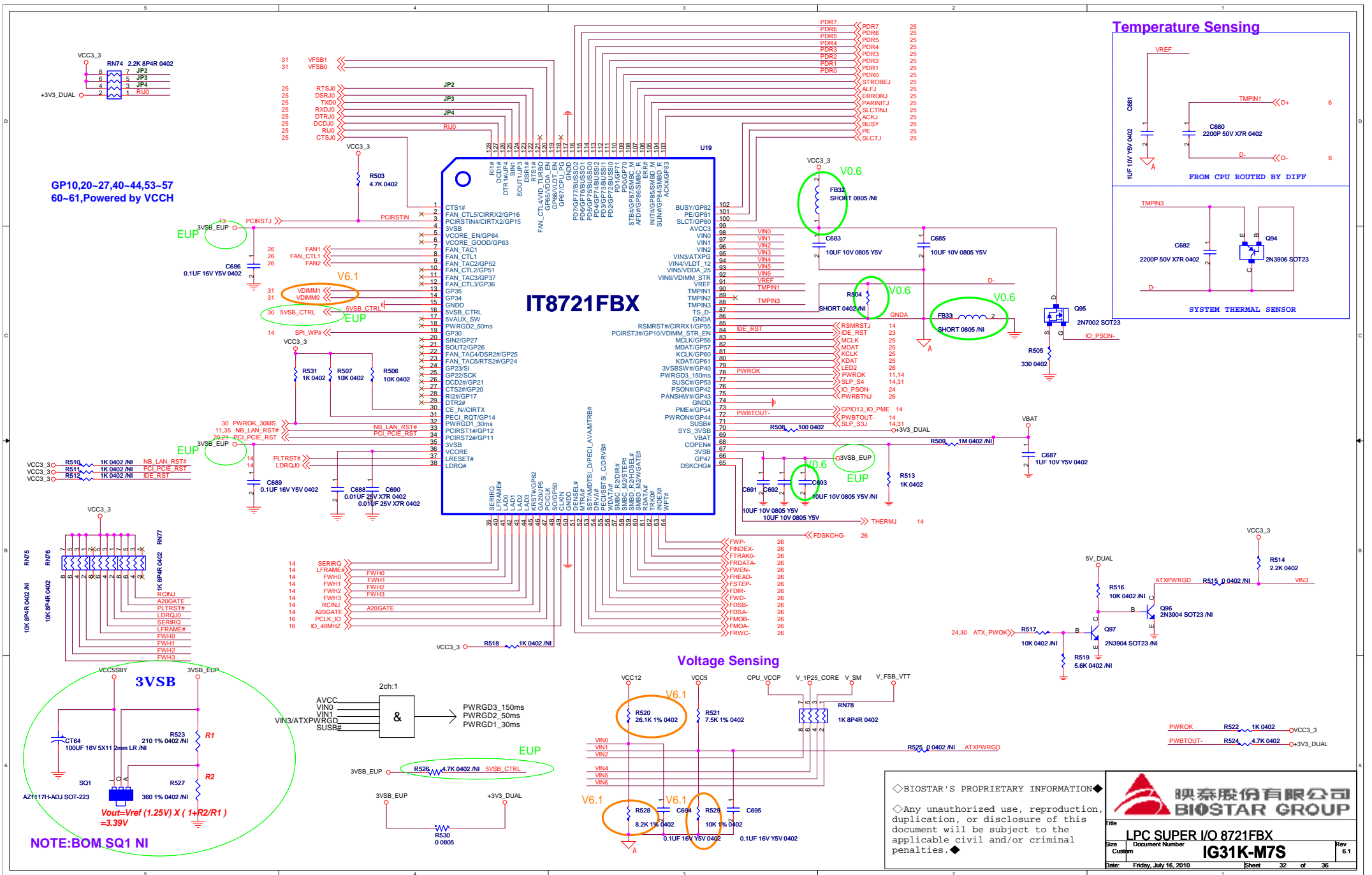
VFSB0	VFSB1	V_FSB_VTT
1	1	Default (1.3V)
0	1	1.35V
1	0	1.4V
0	0	1.45V

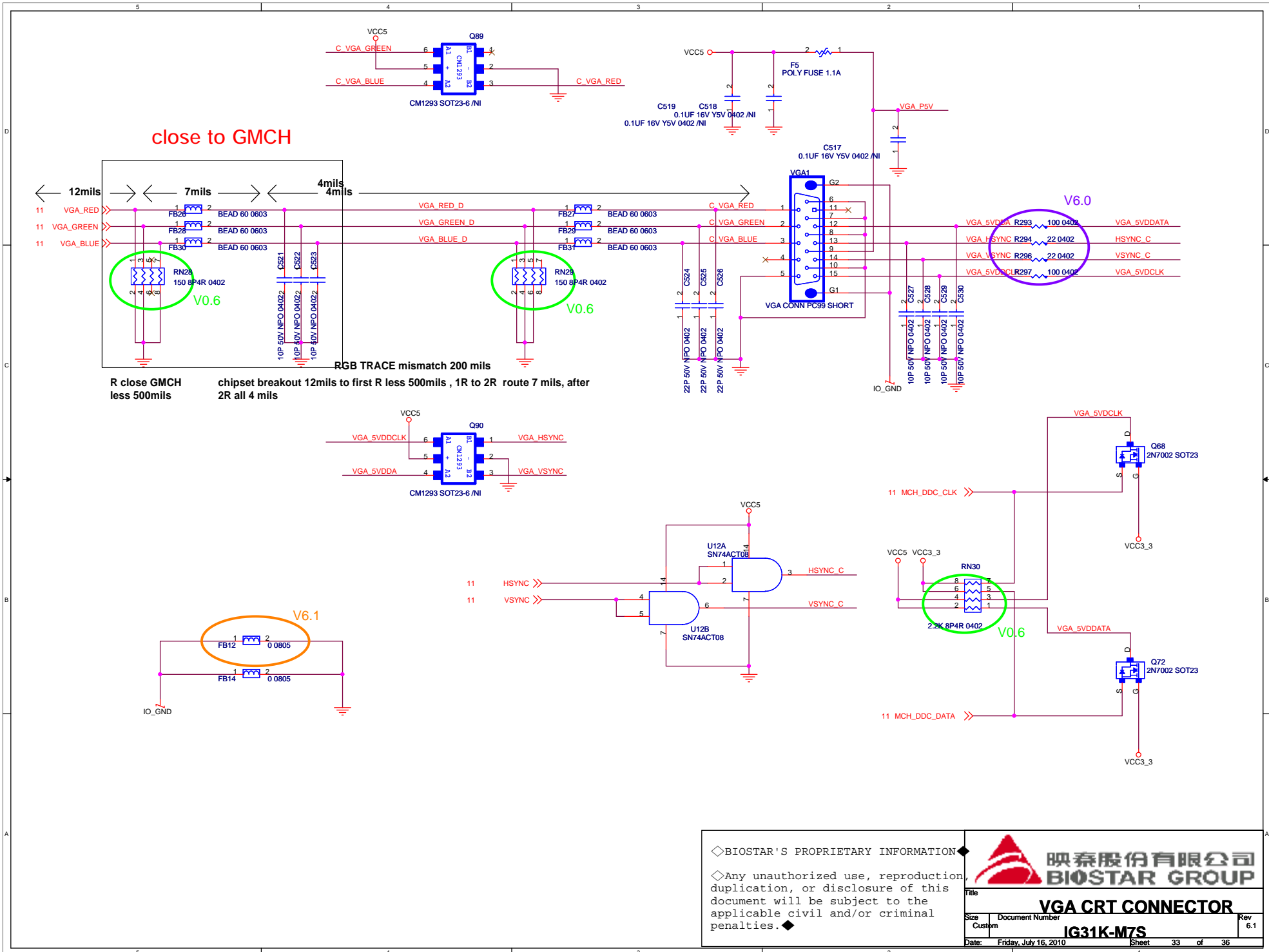
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Title: V_SM & V_1P25_CORE
 Size: Custom
 Date: Friday, July 16, 2010
 Sheet: 31 of 36
 Rev: 6.1





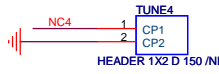
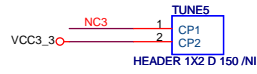
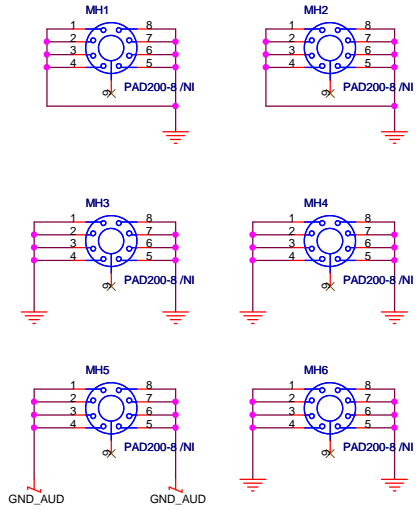
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Title: **VGA CRT CONNECTOR**
 Size: Custom Document Number: **IG31K-M7S** Rev: 6.1
 Date: Friday, July 16, 2010 Sheet: 33 of 36

Impedance Testing Coupon



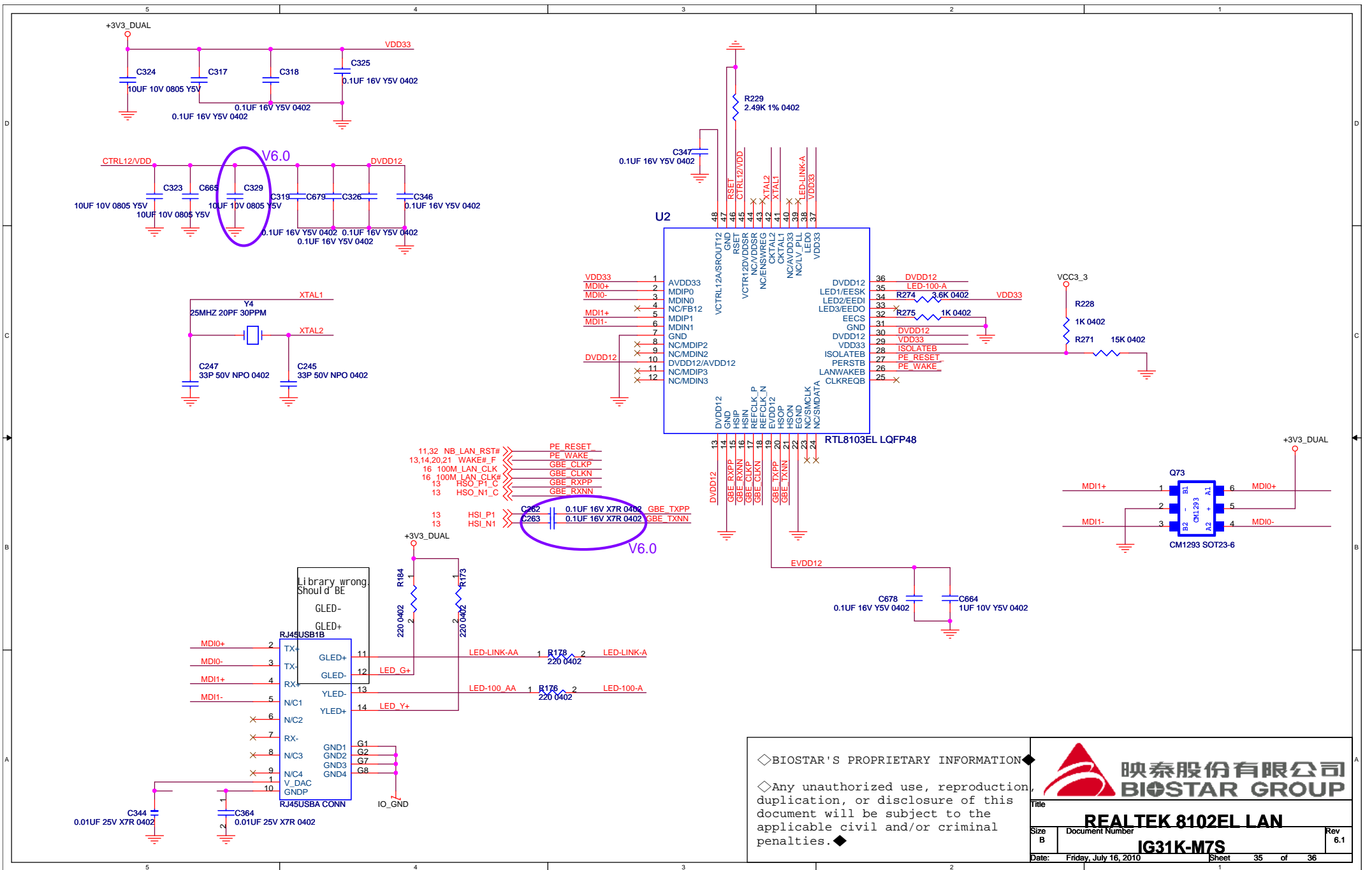
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Title: **MH & Coupon**

Size: Custom	Document Number: IG31K-MZS	Rev: 6.1
Date: Friday, July 16, 2010	Sheet: 34 of 36	



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Title: REALTEK 8102EL LAN

Size B Document Number IG31K-M7S Rev 6.1

Date: Friday, July 16, 2010 Sheet 35 of 36

JUSBV1(1_2)
JUMPER 2P R

JCMOS1(1_2)
JUMPER 2P B

(Y3)
XTAL WIRE

PCB
IG31K-M7S V6.0

(PCB)
泡棉
POLON 235X182

(BAT1)
電池
3V BATTERY SONY

(U18)
FLASH ROM
SPI MX25L4005 DIP

(NB1)
北橋散熱片
SBSL-T

(ICH1)
北橋散熱片
BNP SMALL-L

15-N29-160000R11 ... IG31K-M7S VER:6.0 筭 OSP+窪(179.00*235.00*1.5)mm 4L ?
86-IG31KM7S-R01P-60
96-IG31KM7S-R01P-60

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Title

BOM

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Sheet 36 of 36