

PAGE	CONTENTS
1	INDEX
2	BLOCK DIAGRAM
3	POWER DELIVERY
4	CHANGE LIST
5	CPU PCIEX16/DMI
6	CPU DDR CHANNEL A
7	CPU DDR CHANNEL B
8	CPU MISC
9	CPU POWER/GND
10	DDR3 DIMMA1
11	DDR3 DIMMB1
12	PCH DMI/PCIE/USB
13	PCH CLINK/SATA/CPU HOST
14	PCH LPC/HDA/SPI/MISC
15	PCH NVRAM
16	PCH FDI LINK
17	PCH VGA/DISPLAY PORT
18	PCH CLOCK BUFFER
19	PCH POWER
20	PCH GND
21	SPI ROM/BAT
22	PCIEX16 SLOT
23	PCIEX1 SLOT
24	mSATA
25	AUDIO CODEC ALC892
26	AUDIO CONNECTOR
27	LAN RTL8111G
28	SUPERIO ITE8728FEX
29	SUPERIO PS2/COM
30	SUPERIO FAN CONTROL
31	FRONT USB
32	USB CONNECTOR
33	24PIN POWER CONN&FP
34	RESUME RESET LOGIC
35	ACPI POWER CONTROL
36	LINEAR POWER
37	MEMORY DC-DC Conver
38	ISL95820 PWM
39	AMT POWER
40	OVER VOLTAGE/TEST POINT
41	VGA/DVI CONN
42	BOM

IB85C-AHS TB85

CPU:

LGA1150

System Chipset:

LYNXPOINT-B85

Main Memory:

Dual Channel/DDR-III*2(Max 32GB)

DDR3-2600(OC)/ 2400(OC)/ 2200(OC)/ 2133(OC)/ 1866(OC)/ 1800(OC)/ 1600/ 1333 /1066

Onboard Device:

Super I/O-IT8728F-EX

LAN-Realtek 8111G

HD Codec-ALC892

Power solution:

CPU Voltage Regulators:4Phase by ISL95820

DDR Voltage Regulators:1Phase by UP1514

Expansion Slots:

PCI EXPRESS 16X SLOT*1

PCI EXPRESS 1X SLOT*5

REAR IO:

PS/2 Keyboard + Mouse Ports

VGA Port

DVI Ports

USB3.0 Ports

Gb RJ-45 +2 USB2.0 Ports

Audio Jacks

Front I/O:

SATA3 * 4 + SATA2 * 2

USB 2.0 Header * 2

USB 3.0 Header * 1

CPU /System1/System2 FAN

Front Audio Header * 1

mSATA * 1

COM Header * 1

SPDIF Out * 1

CIR Header * 1

I/O Panel:

47-RIOBRACKET-97AU

IB85D-AHS TB85-BTC

VER 6.0

Table 1-2. Desktop Lync Point SKUs

Feature Set	SKU Name					
	Intel® Q87 Express Chipset	Intel® Q85 Express Chipset	Intel® B85 Express Chipset	Intel® Z87 Express Chipset	Intel® H87 Express Chipset	Intel® H81 Express Chipset
Flexible I/O	Yes	No	No	Yes	Yes	No
PCI Express® 2.0 Ports	8 ¹	8	8	8 ¹	8 ¹	6
Total number of USB ports	14	14	12 ^{2,3}	14	14	12 ²
• USB 3.0 Capable Ports (SuperSpeed and all USB 2.0 speeds)	4 ^{4,5}	4	4	4 ^{4,5}	4 ^{4,5}	2 ²
• USB 2.0 Only Ports	10 ^{6,7}	10	8	10 ^{6,7}	10 ^{6,7}	8
Total number of SATA ports	4 ^{8,9}	6	6	4 ^{8,9}	4 ^{8,9}	4 ¹⁰
• SATA Ports (6 Gb/s, 3 Gb/s, and 1.5 Gb/s)	6	4 ¹¹	4 ¹¹	6	6	2 ¹¹
• SATA Ports (3 Gb/s and 1.5 Gb/s only)	0	2	2	0	0	2
VGA	Yes	Yes	Yes	Yes	Yes	Yes
Intel® Rapid Storage Technology	Intel®	Yes	Yes	Yes	Yes	Yes
	RAID 0/1/5/10 Support	Yes	No	No	Yes	No
Intel® Smart Response Technology ^{1,4}	Yes	No	No	Yes	Yes	No
Intel® Anti-Theft Technology ^{1,5}	Yes	Yes	Yes	Yes	Yes	Yes
Intel® Active Management Technology v9.0	Yes	No	No	No	No	No
Intel® Small Business Advantage ^{1,6}	Yes	Yes	Yes	No	Yes ^{1,7}	No
Intel® Rapid Start Technology ^{1,8}	Yes	Yes	Yes	Yes	Yes	No
Intel® Identity Protection Technology (Intel® IPT) ^{1,9}	Yes	No	No	No	No	No
Near Field Communication ^{1,10}	Yes	Yes	Yes	Yes	Yes	Yes
ACPI S1 State Support	Yes	Yes	Yes	Yes	Yes	Yes

HW Engineer:

Date:

HW Leader1:

Date:

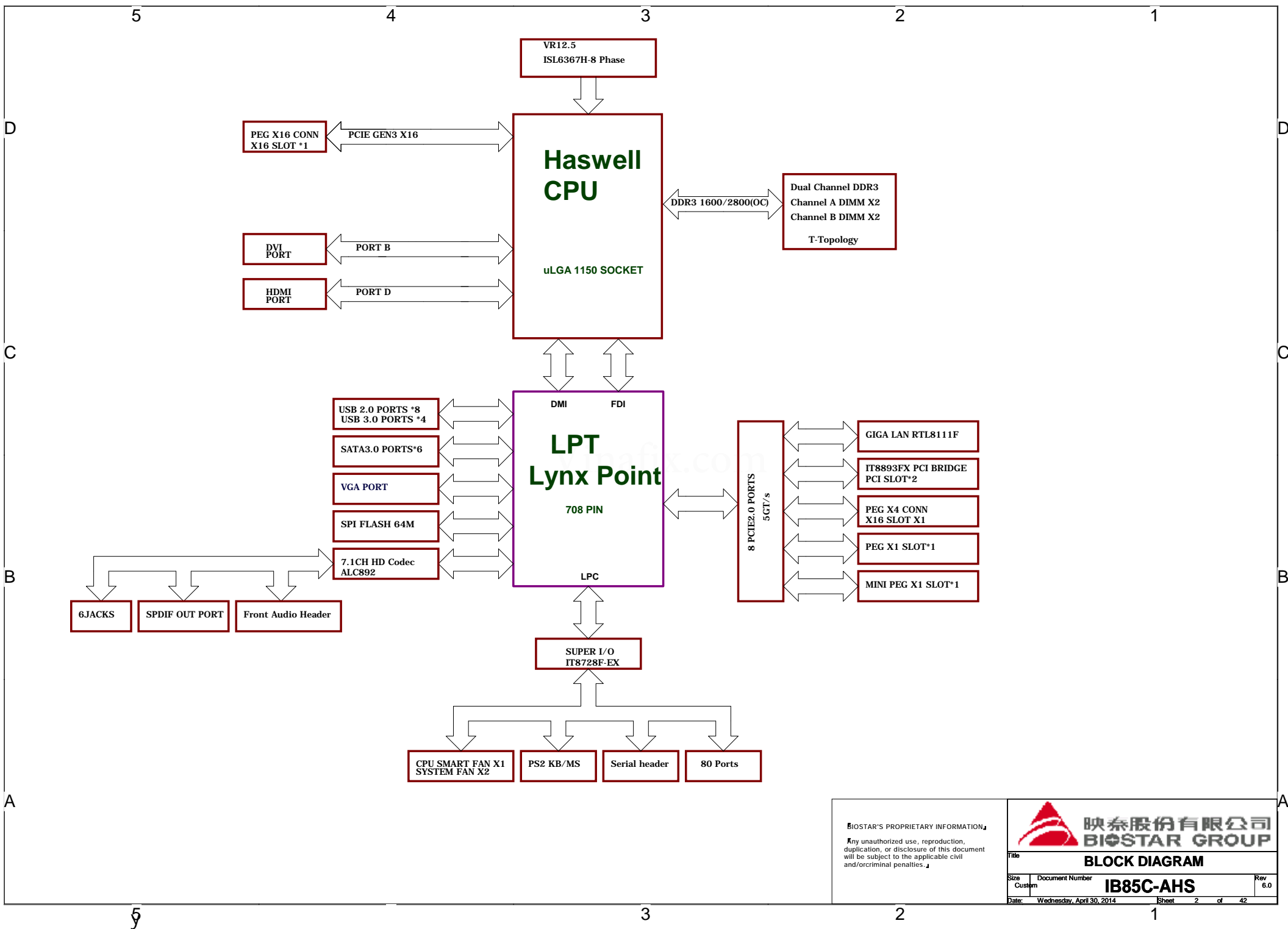
HW Leader2:

Date:

BIOS/STAR'S PROPRIETARY INFORMATION.

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

		映泰股份有限公司 BIOSTAR GROUP	
Title			
INDEX			
Size	Document Number	IB85C-AHS	
Custom			
Date:	Wednesday, April 30, 2014	Sheet	1 of 42
Rev	6.0		



5

4

3

2

1

D

D

C

C

B

B

A

A

Vinafix.com

BIOSTAR'S PROPRIETARY INFORMATION
Any unauthorized use, reproduction,
duplication, or disclosure of this document
will be subject to the applicable civil
and/criminal penalties.



映泰股份有限公司
BIOSTAR GROUP


Title		POWER DELIVERY	
Size	Document Number	IB85C-AHS	Rev
Custom			6.0
Date	Wednesday, April 30, 2014	Sheet	3 of 42

IB85C-AHS-V6.0 changelist:

- 1.Page21:NI +3V3_STBY control circuit
- 2.Page23:NI PEX1_6,PEX1_7 slot
- 3.Page24:NI mSATA circuit
- 4.Page28:Change PWRCONN_OVER_HEAT_PROTECTION circuit
- 5.Page33>Delete PS_ON control circuit
- 6.Page38:Add power solution

Vinafix.com

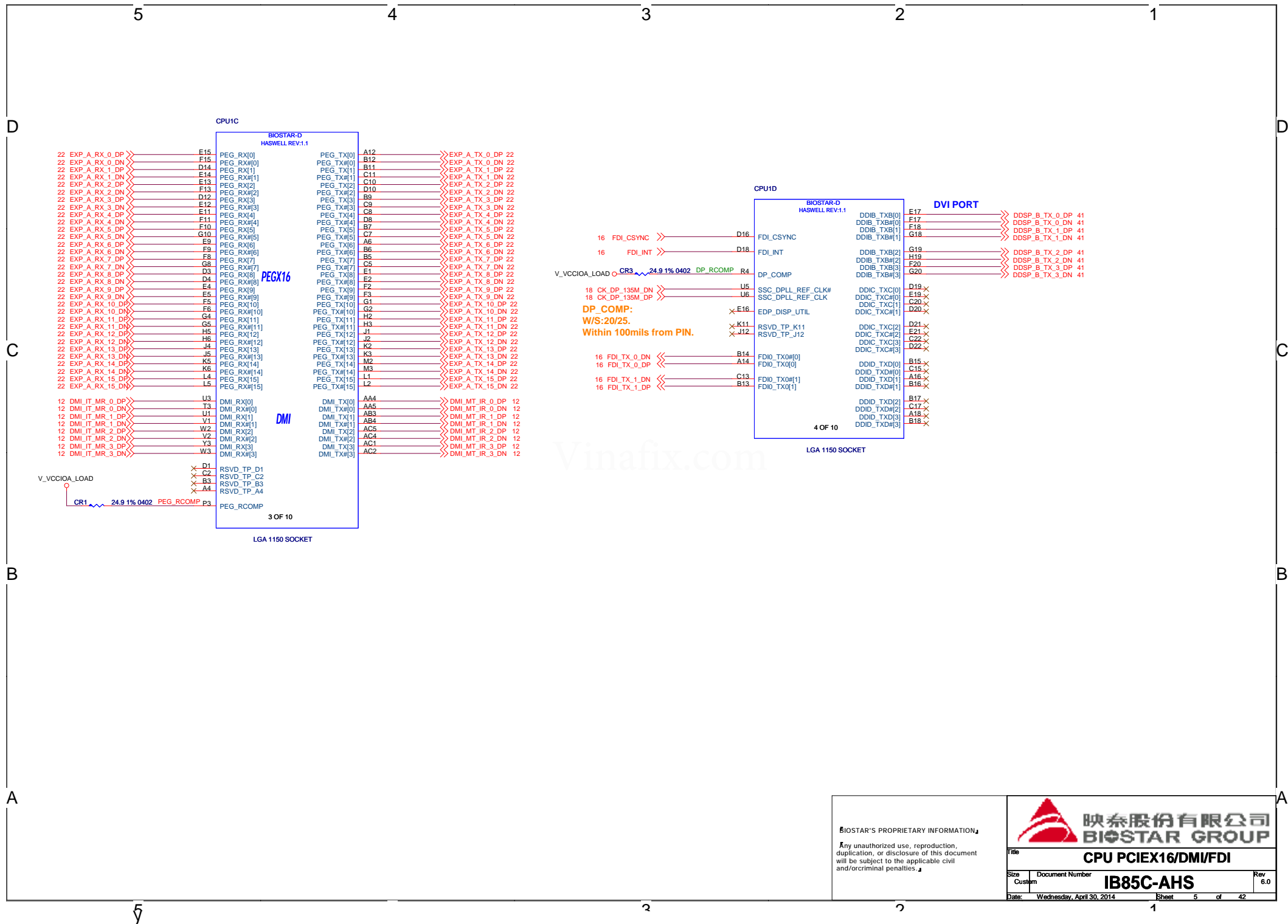
BIOSTAR'S PROPRIETARY INFORMATION
Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



映泰股份有限公司

BIOSTAR GROUP

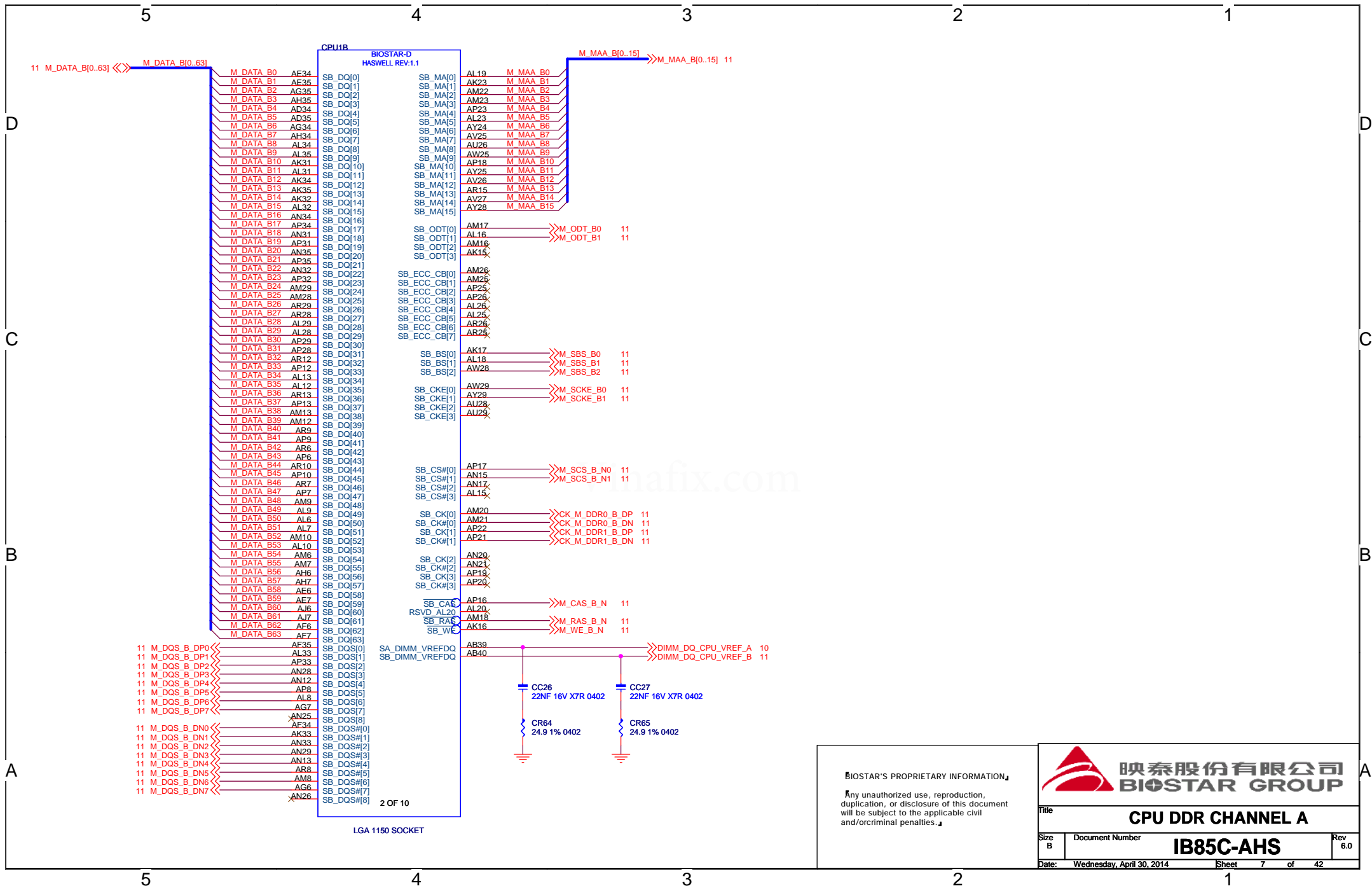
Title		
CHANGELIST		
Size	Document Number	Rev
B	IB85C-AHS	6.0
Date: Wednesday, April 30, 2014		Sheet 4 of 42



BIOS/STAR'S PROPRIETARY INFORMATION. Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



Title		CPU PCIEX16/DMI/FDI	
Size	Document Number	IB85C-AHS	
Customer			Rev 6.0
Date	Wednesday, April 30, 2014	Sheet	5 of 42



BIOSTAR'S PROPRIETARY INFORMATION.

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

映泰股份有限公司
BIOSTAR GROUP

Title: **CPU DDR CHANNEL A**

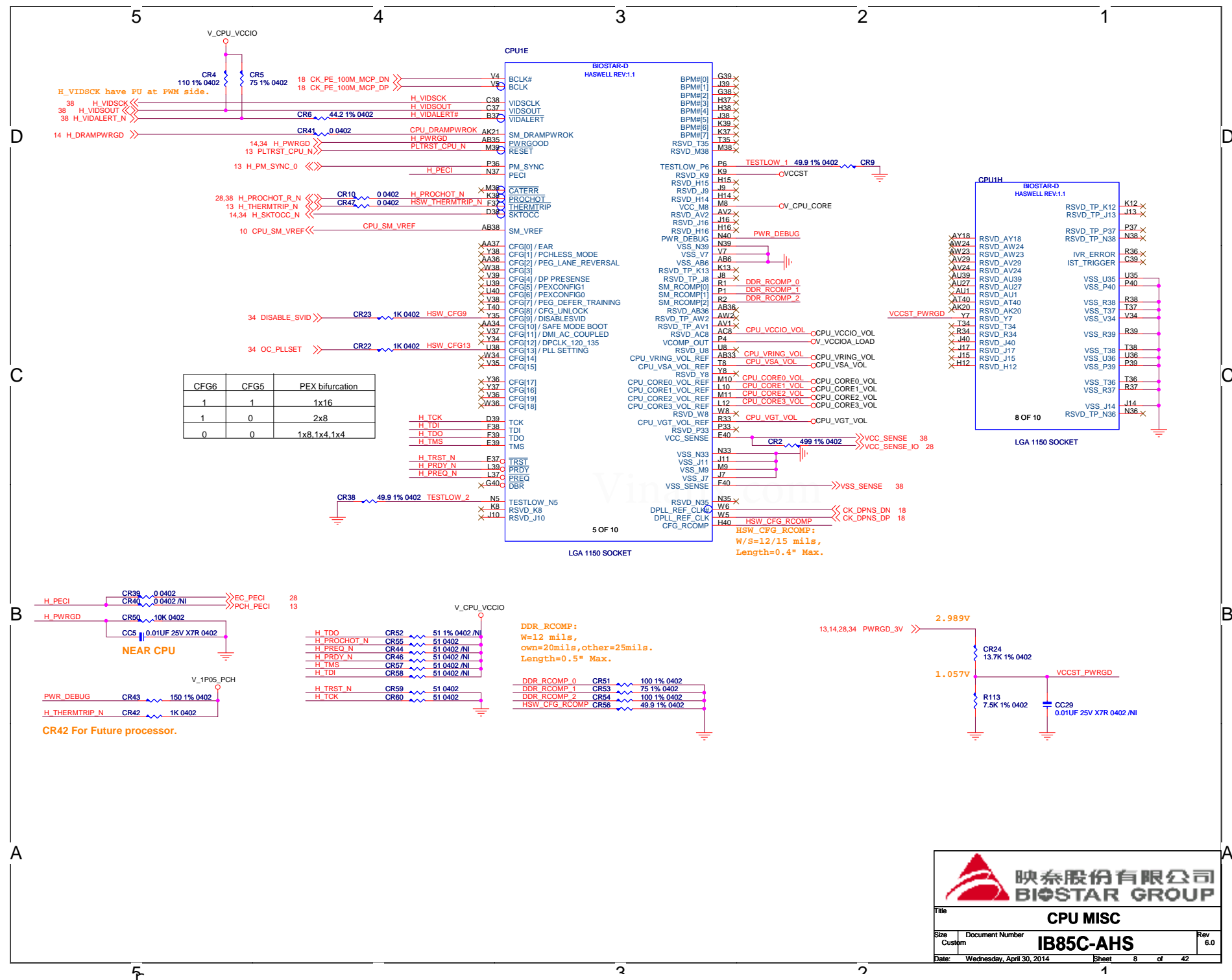
Size B: **IB85C-AHS**

Document Number: **IB85C-AHS**

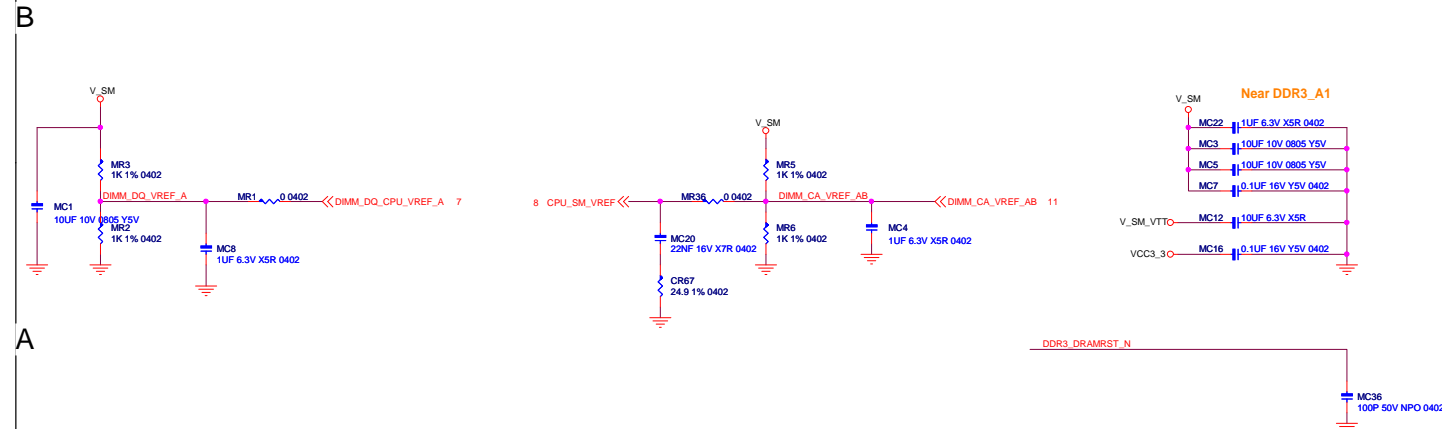
Date: **Wednesday, April 30, 2014**

Sheet **7** of **42**

Rev **6.0**



MEMORY PART: M+Reference



Vinafix.com

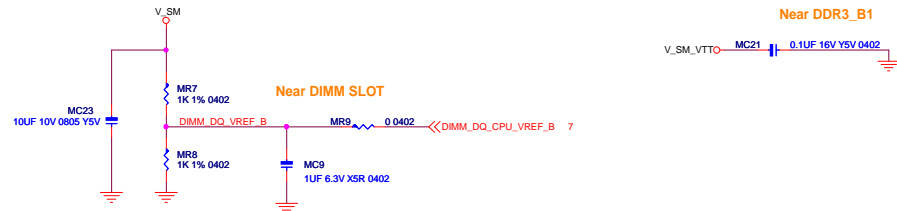
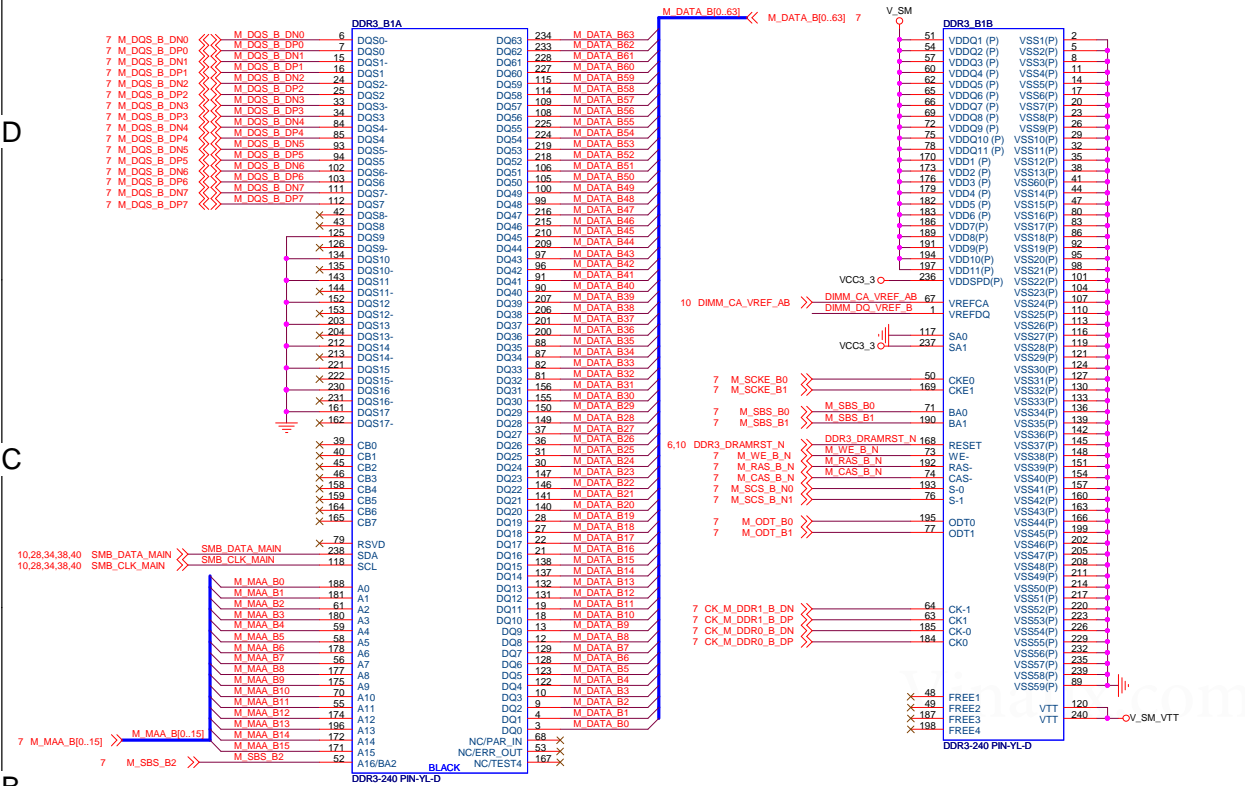
BIOSTAR'S PROPRIETARY INFORMATION.

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/criminal penalties.



Title			
DDR3 DIMMA1/A2			
Size	Document Number		Rev
Custom	IB85C-AHS		6.0
Date:	Wednesday, April 30, 2014	Sheet	10 of 42

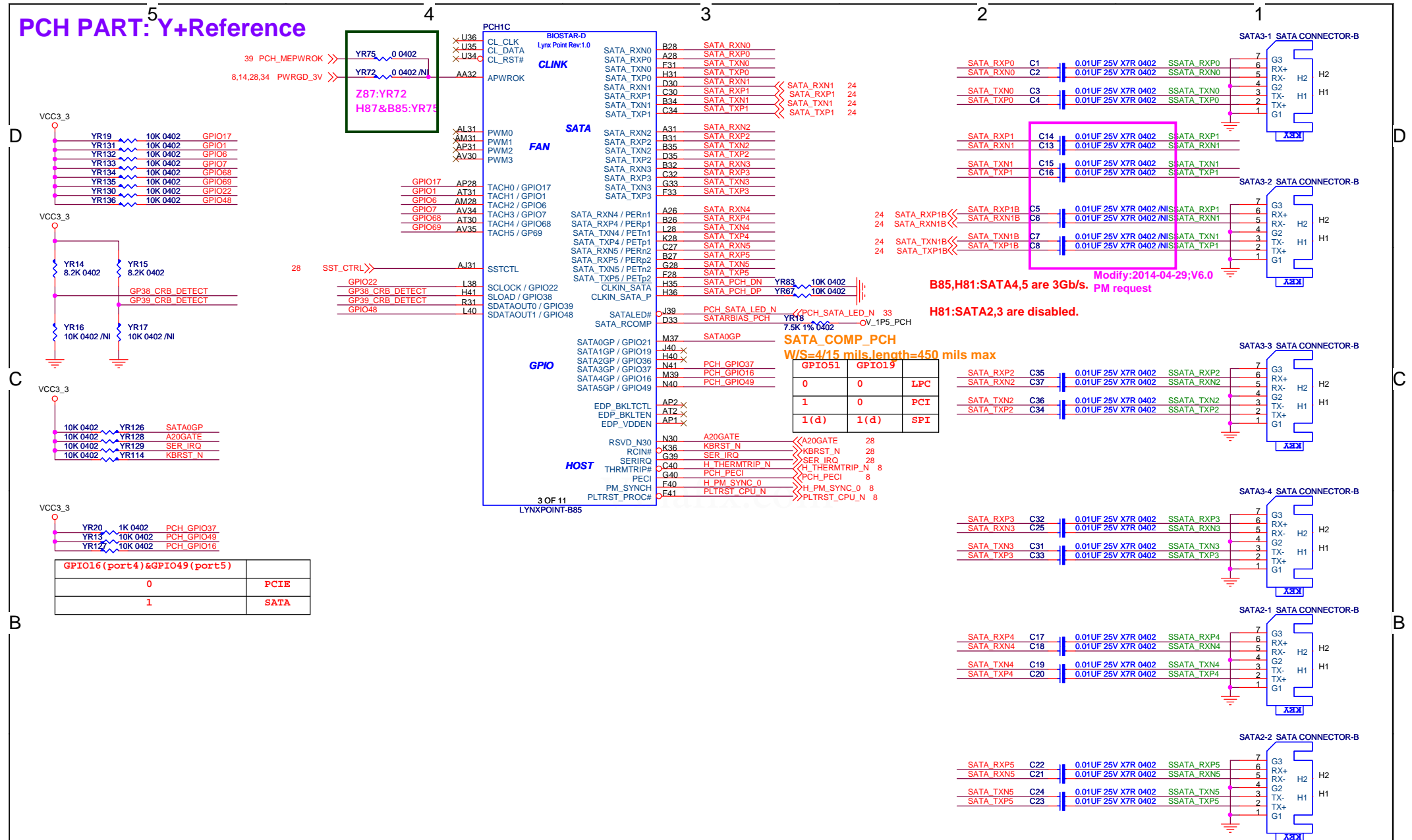
5 MEMORY PART: M+Reference



D



PCH PART: Y+Reference



BIOSTAR'S PROPRIETARY INFORMATION.
Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

映泰股份有限公司
BIOSTAR GROUP

Title **PCH CLINK/SATA/CPU HOST**

Size Custom Document Number **IB85C-AHS** Rev 6.0

Date: Wednesday, April 30, 2014 Sheet 13 of 42

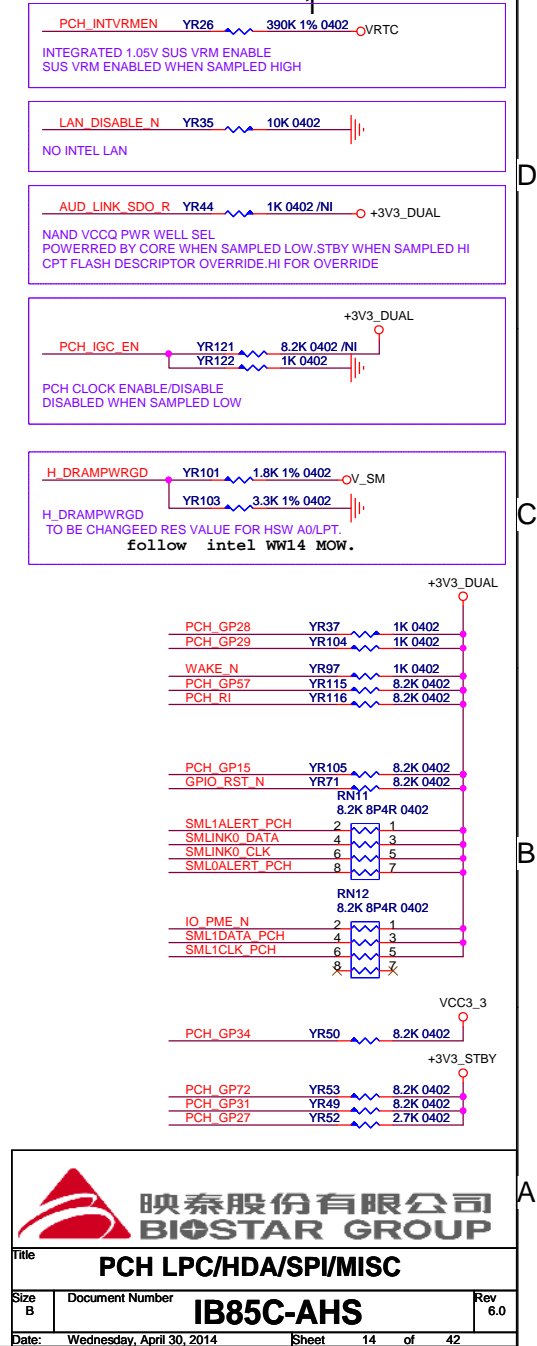
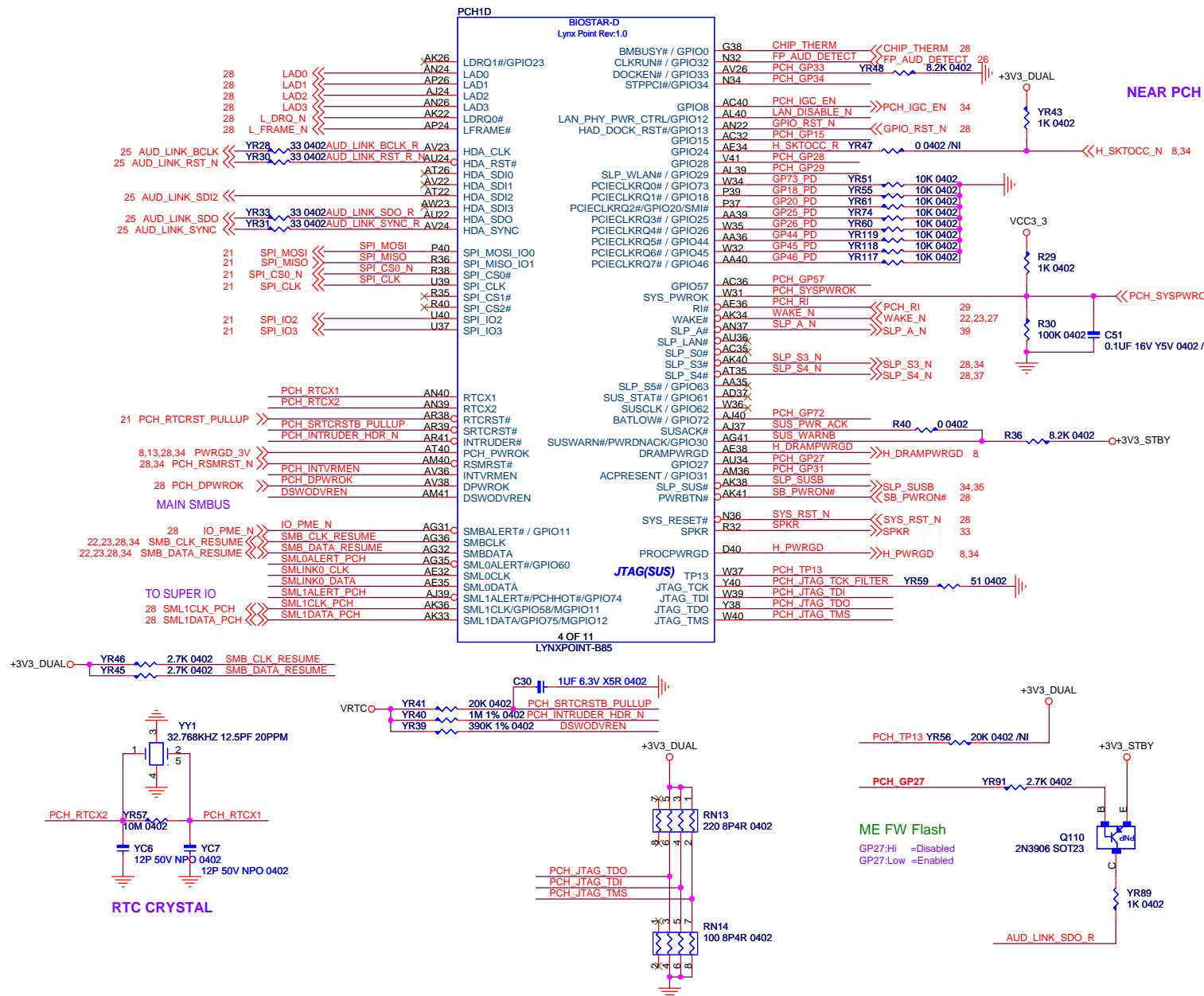
PCH PART: Y+Reference

D

C

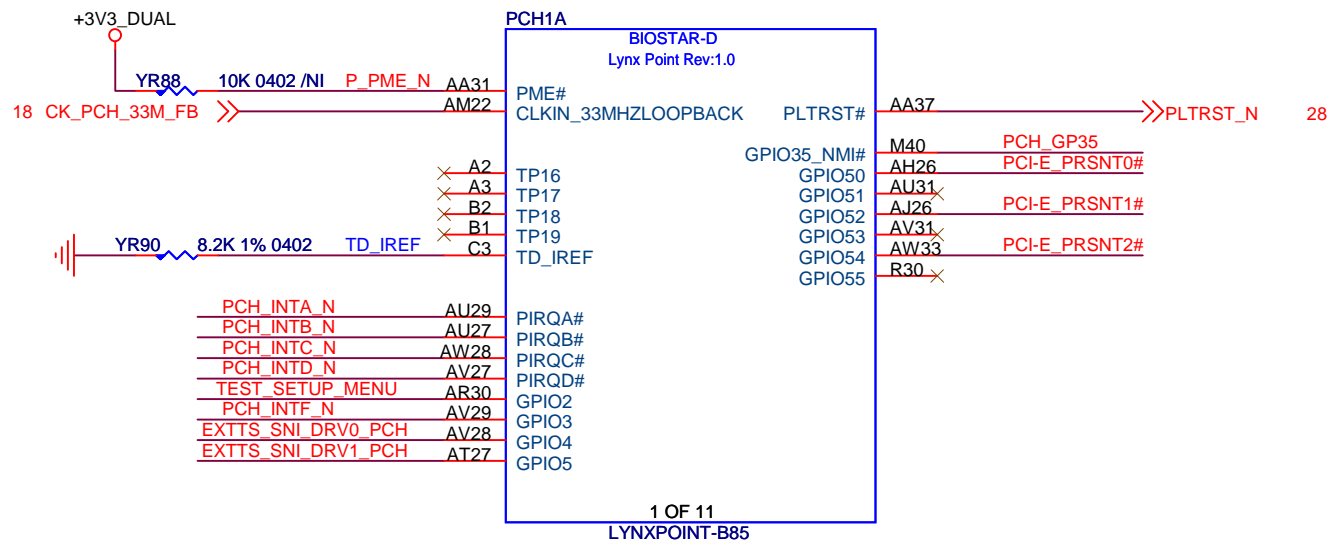
B

A

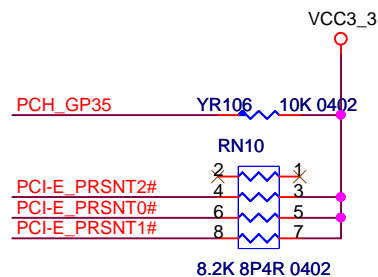
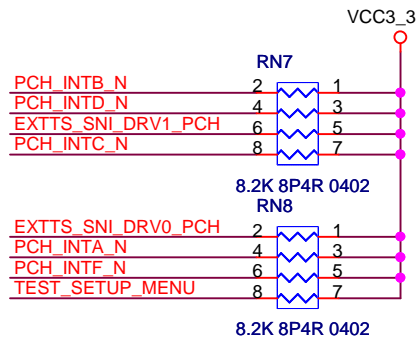


A

PCH PART: Y+Reference



GPIO51	GPIO19	
0	0	LPC
1	0	PCI
1(d)	1(d)	SPI



BIOSTAR'S PROPRIETARY INFORMATION.

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



映泰股份有限公司
BIOSTAR GROUP

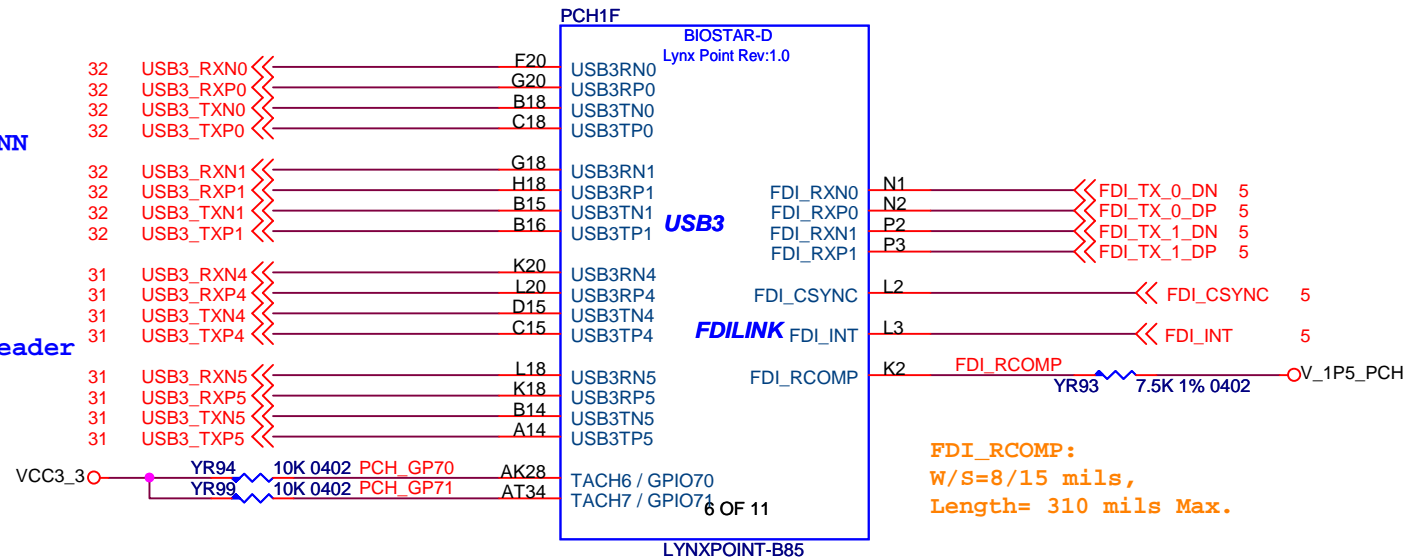
Title **PCH NVRAM**

Size A Document Number **IB85C-AHS**

Rev 6.0

Date: Wednesday, April 30, 2014 Sheet 15 of 42

PCH PART: Y+Reference



FDI_RCOMP:
W/S=8/15 mils,
Length= 310 mils Max.

BIOSTAR'S PROPRIETARY INFORMATION.

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



映泰股份有限公司
BIOSTAR GROUP

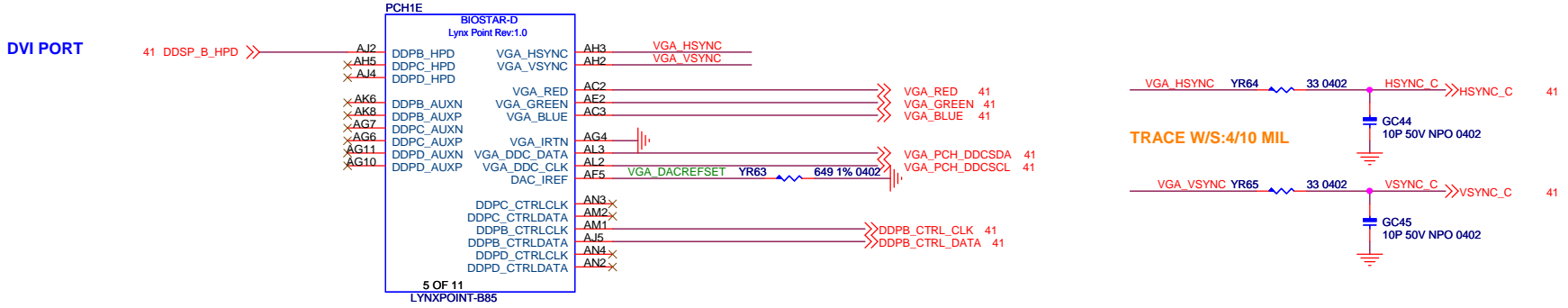
Title PCH USB3/FDI LINK

Size A Document Number IB85C-AHS

Rev 6.0

Date: Wednesday, April 30, 2014 Sheet 16 of 42

PCH PART: Y+Reference



Vinafix.com

BIOSTAR'S PROPRIETARY INFORMATION.

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

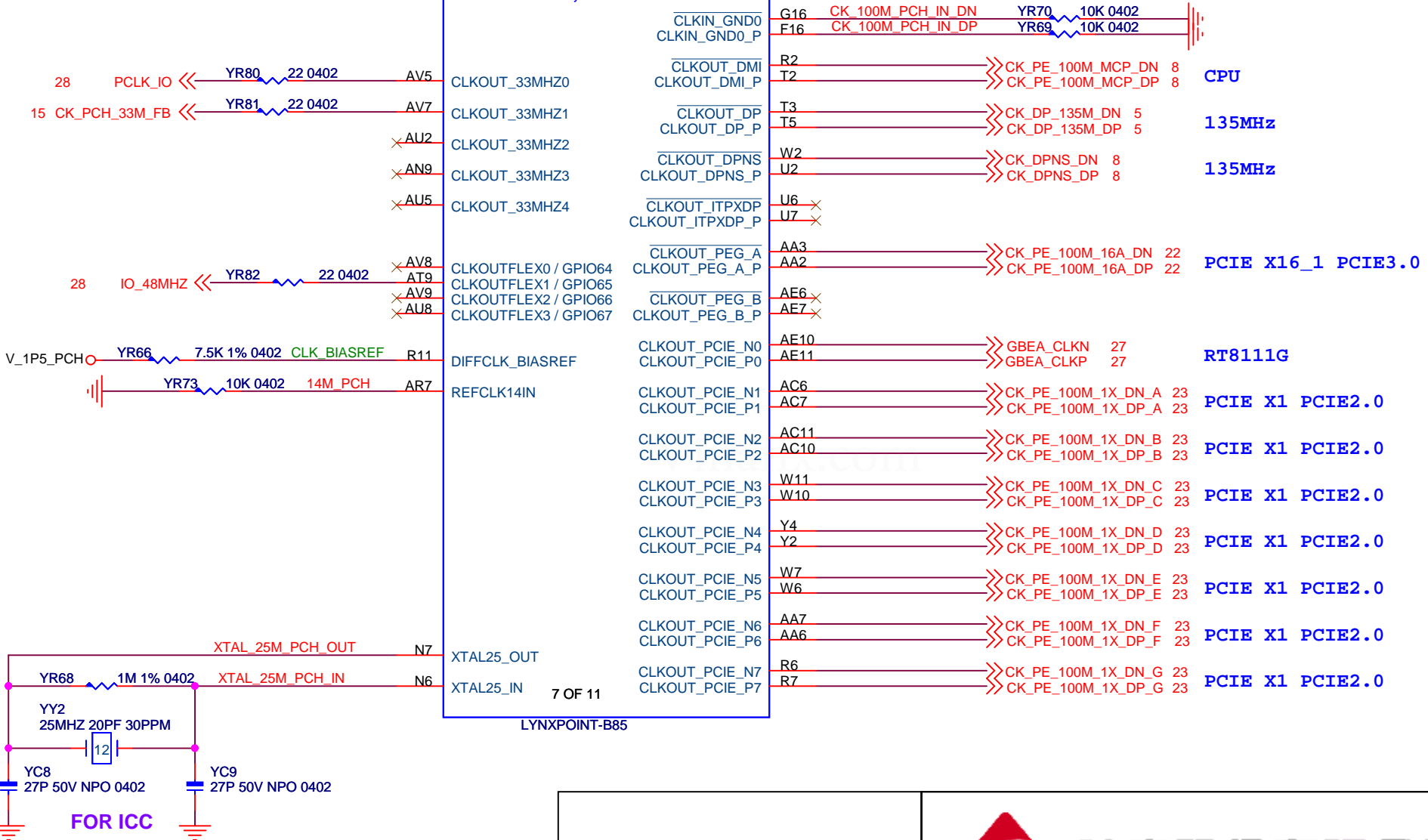
映泰股份有限公司
BIOSTAR GROUP

Title PCH VGA/DISPLAY PORT		
Size B	Document Number IB85C-AHS	Rev 6.0
Date: Wednesday, April 30, 2014		Sheet 17 of 42

PCH PART: Y+Reference

PCH1G

BIOSTAR-D
Lynx Point Rev:1.0



BIOSTAR'S PROPRIETARY INFORMATION.

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



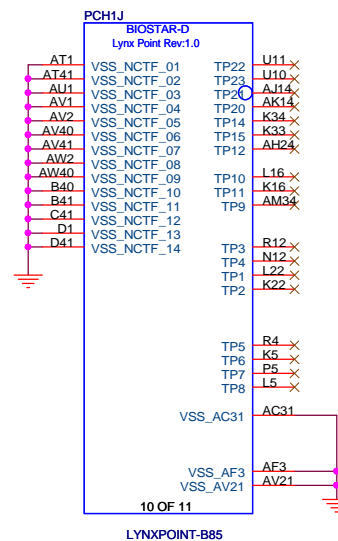
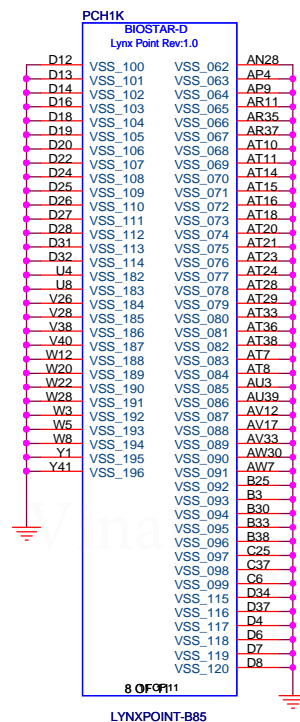
映泰股份有限公司
BIOSTAR GROUP

Title **PCH CLOCK BUFFER**

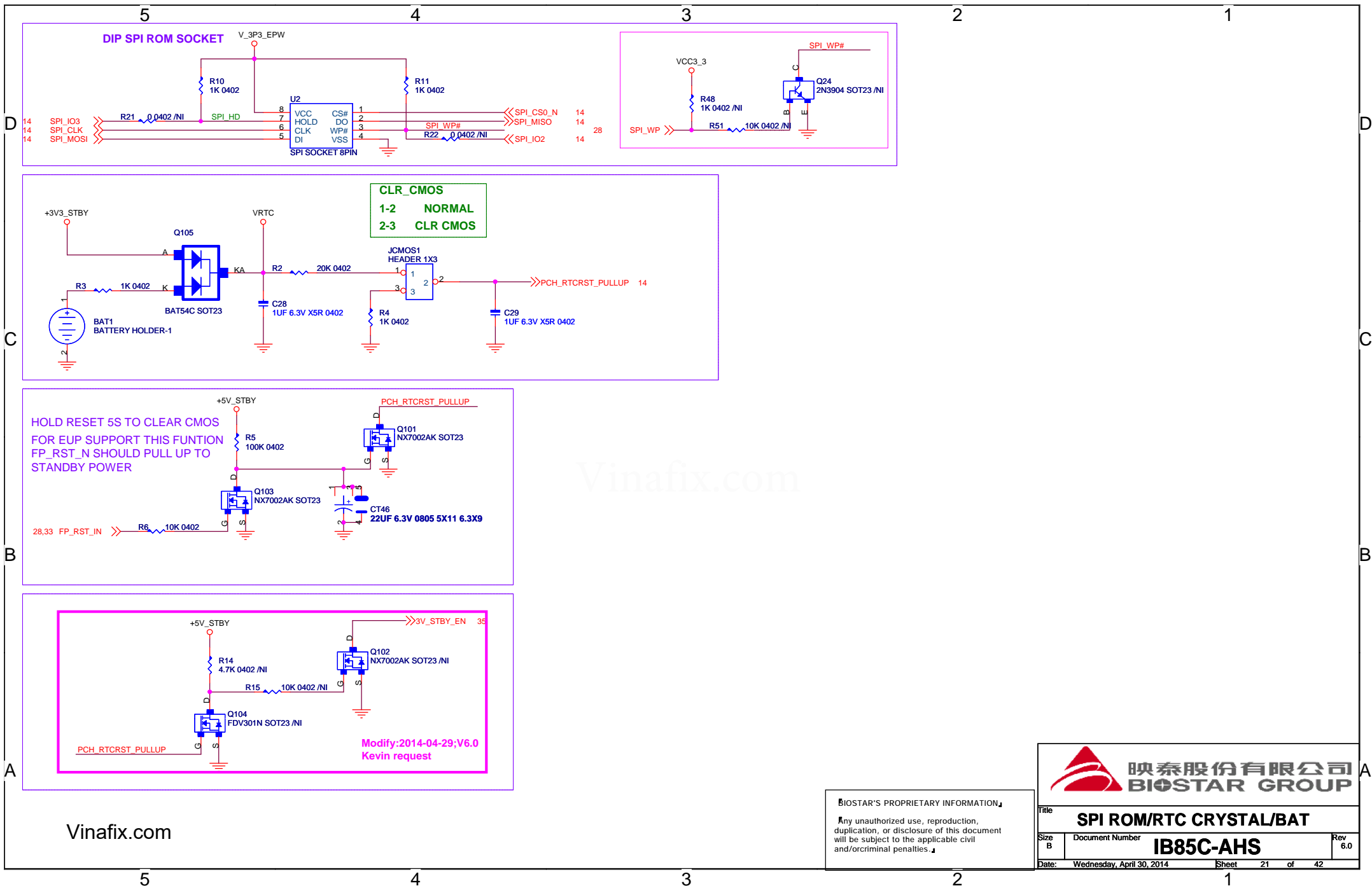
Size A Document Number **IB85C-AHS**

Rev 6.0

Date: Wednesday, April 30, 2014 Sheet 18 of 42

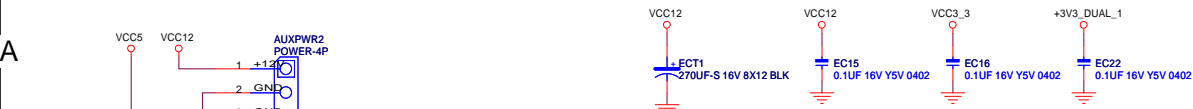
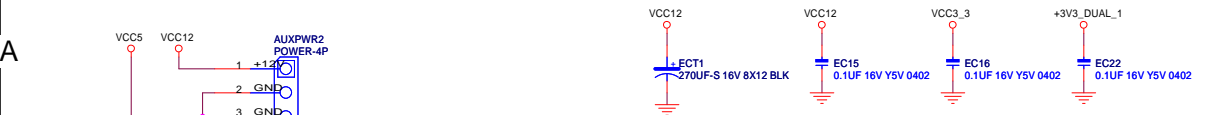
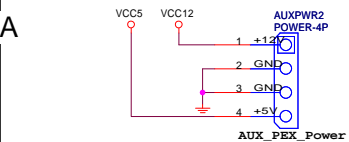
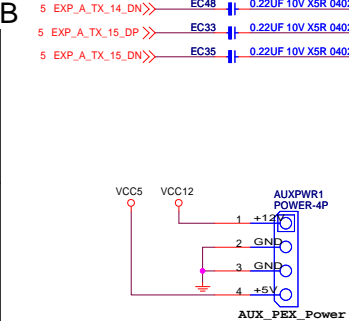
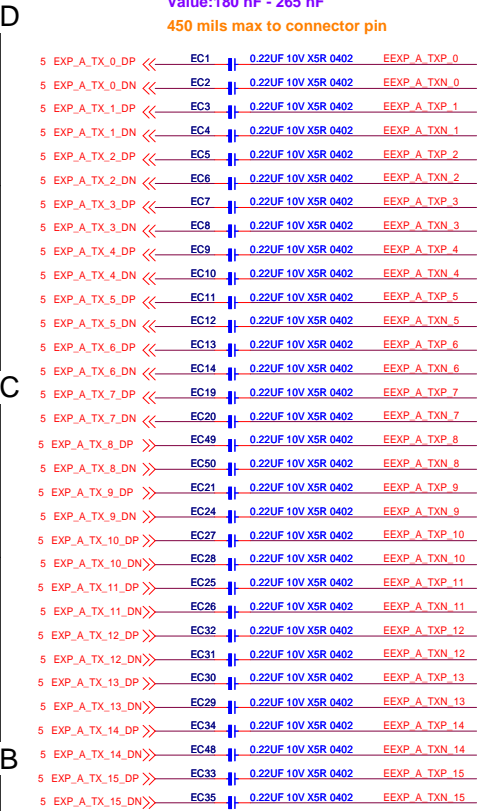


Title				PCH GND			
Size B	Document Number					Rev	
	IB85C-AHS					6.0	
Date:	Wednesday, April 30, 2014			Sheet	20	of	42



SLOT PART	5	4	3	2	1
E. Reference					

D 450 mils max to connector pin

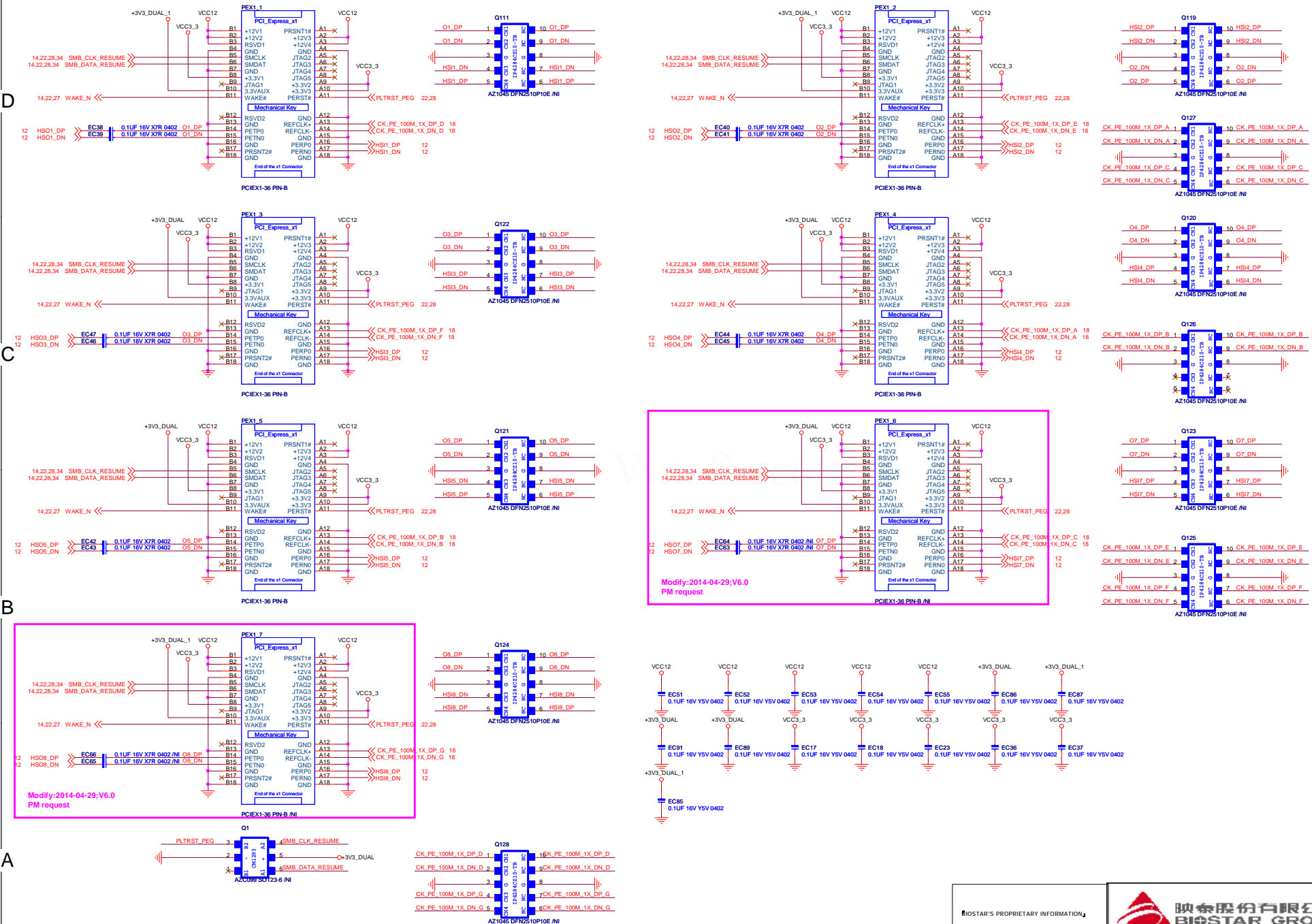


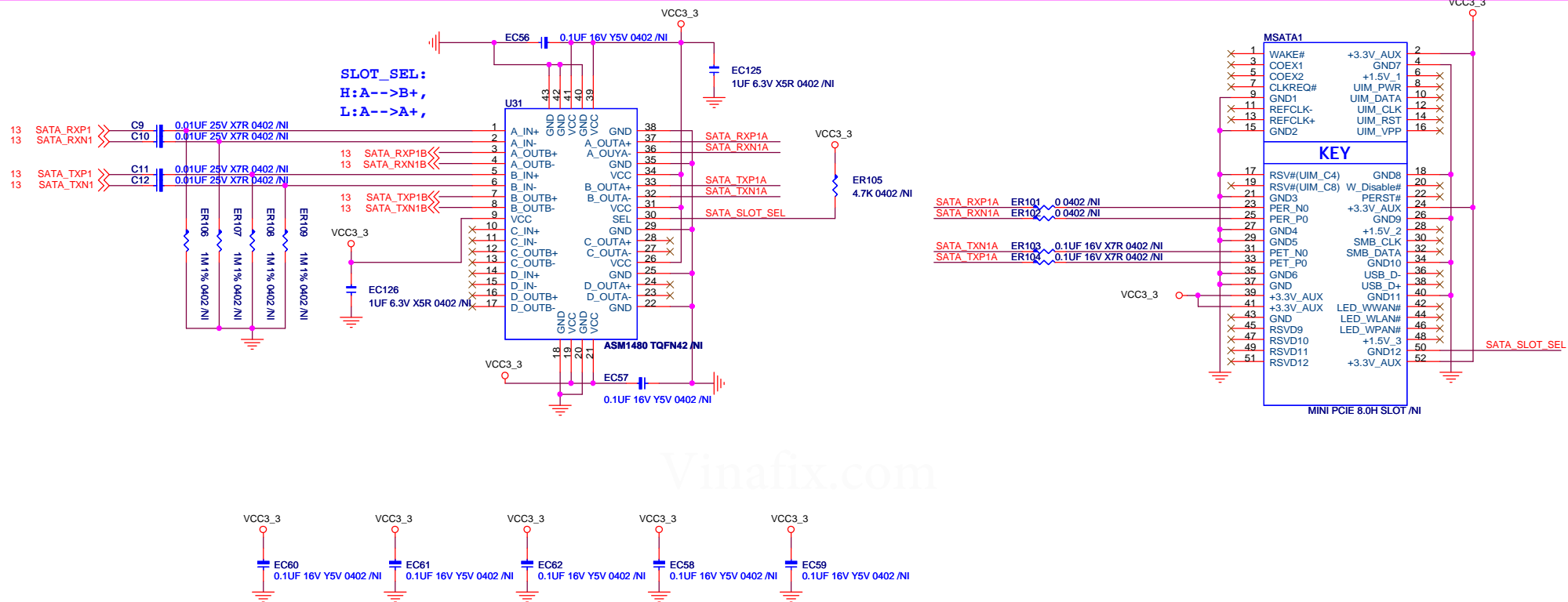
Title	PCIEX16 SLOT
-------	---------------------

Size Custom	Document Number IB85C-AHS	Rev 6.0
----------------	-------------------------------------	------------

Date: Wednesday, April 30, 2014 Sheet 22 of 42

SLOT PART: E+Reference





Modify:2014-04-29;V6.0
PM request

BIOSTAR'S PROPRIETARY INFORMATION.

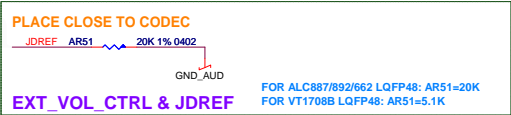
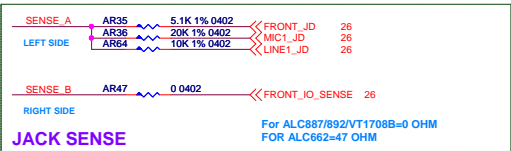
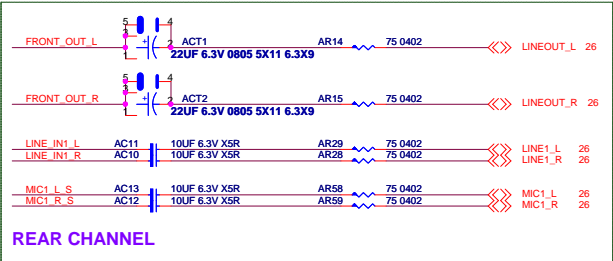
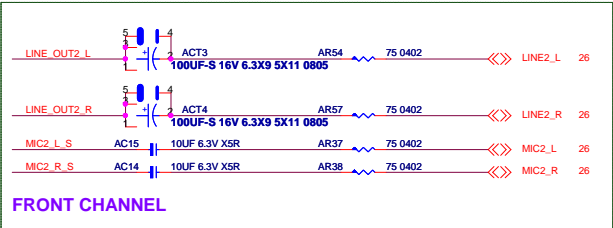
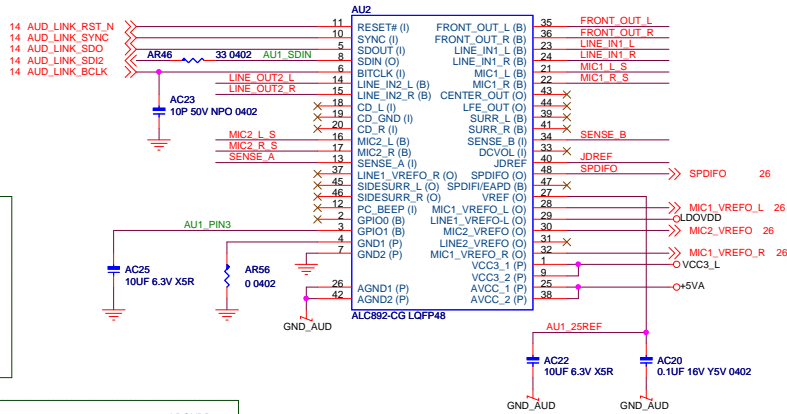
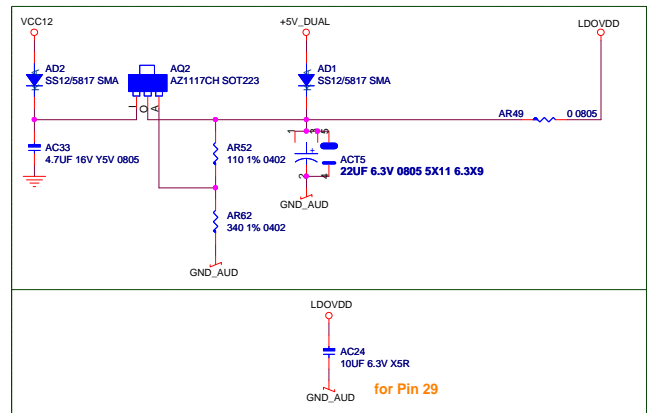
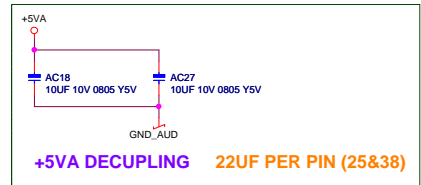
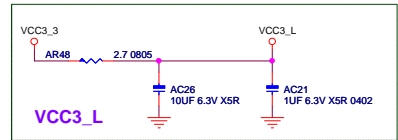
Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

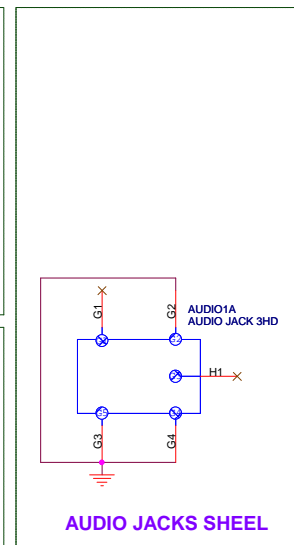
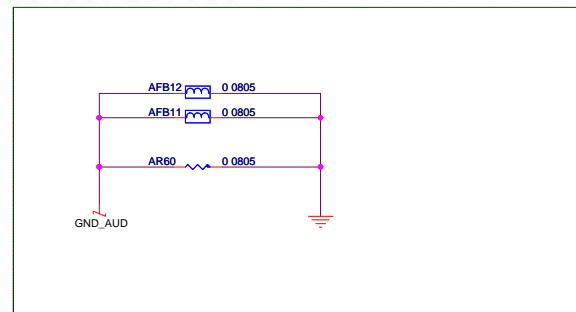
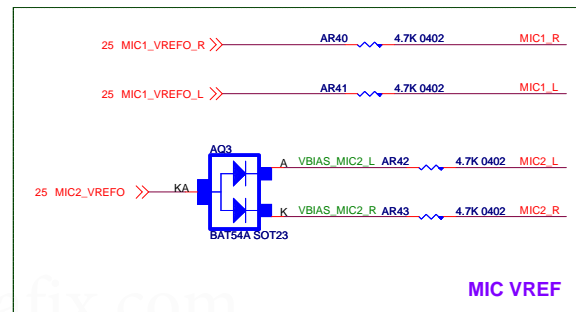
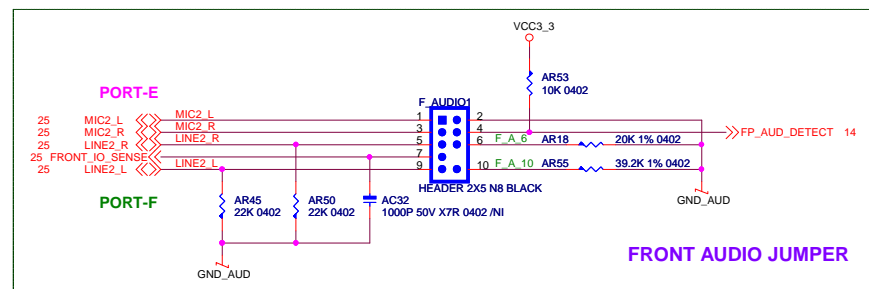
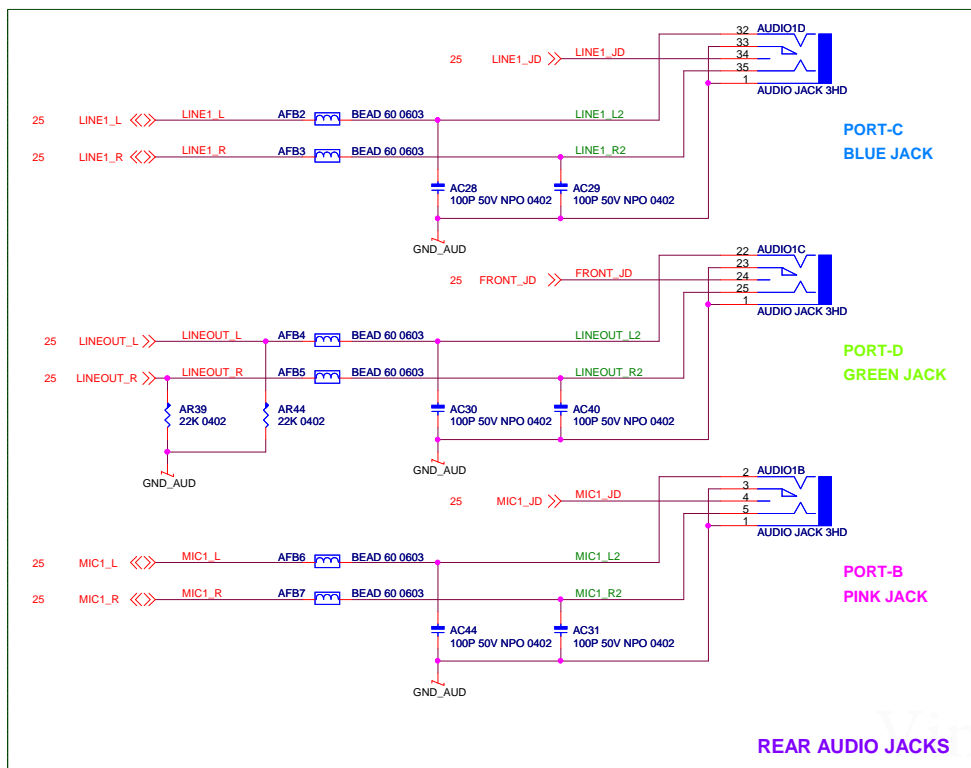


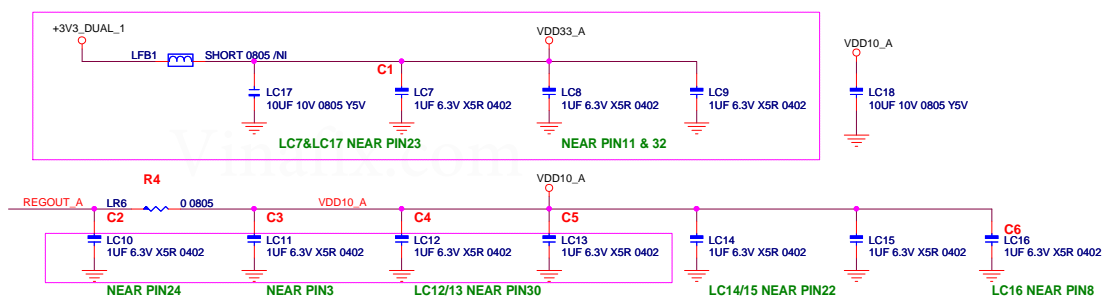
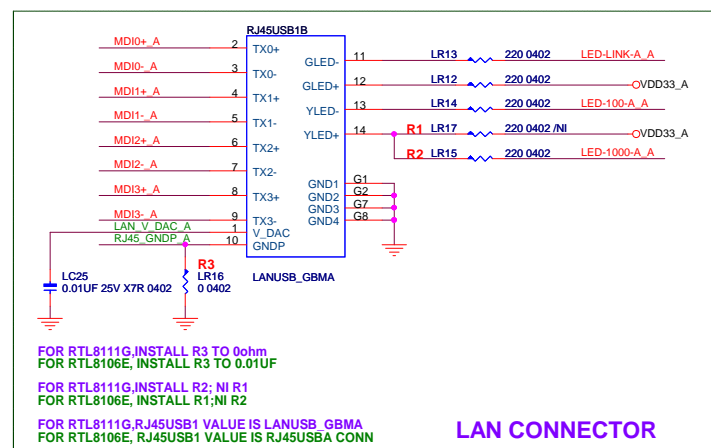
映泰股份有限公司
BIOSSTAR GROUP

Title			mSATA
Size	Document Number	IB85C-AHS	
B		Rev	6.0
Date:	Wednesday, April 30, 2014	Sheet	24 of 42

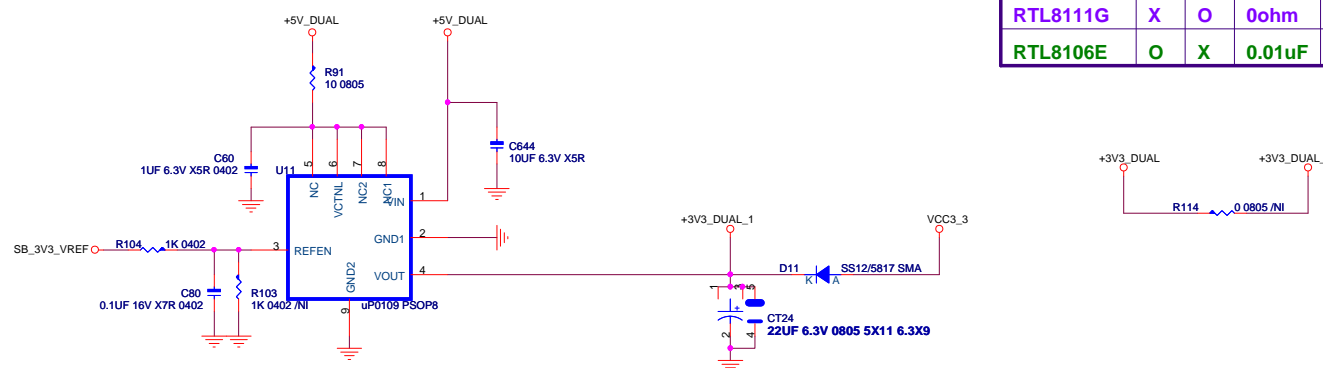
AUDIO PART: A+Reference



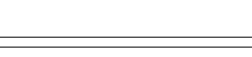
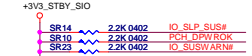
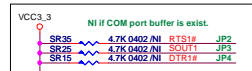




LAN PARTS	R1	R2	R3	R4	C1	C2	C3	C4	C5	C6	RJ45 CONN
RTL8111G	X	O	0ohm	O	O	O	O	O	O	O	LANUSB_GBMA
RTL8106E	O	X	0.01uF	X	X	X	X	X	X	O	RJ45USBA CONN



SUPERIO PART: S+Reference



IT8728FEX

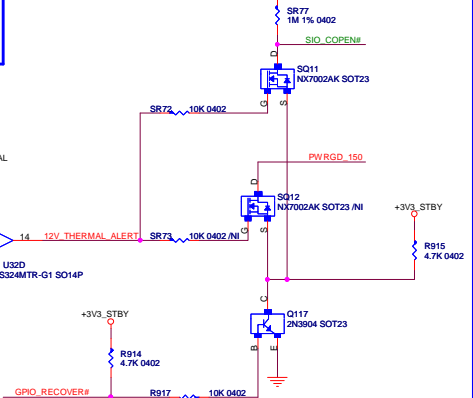
Place at the location on the +12V polygon where near 24Pin Power conn

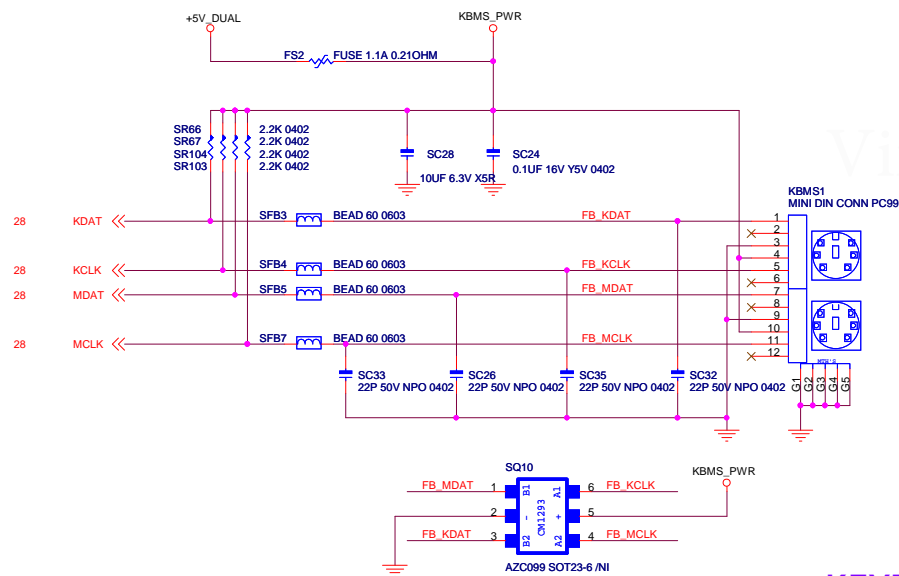
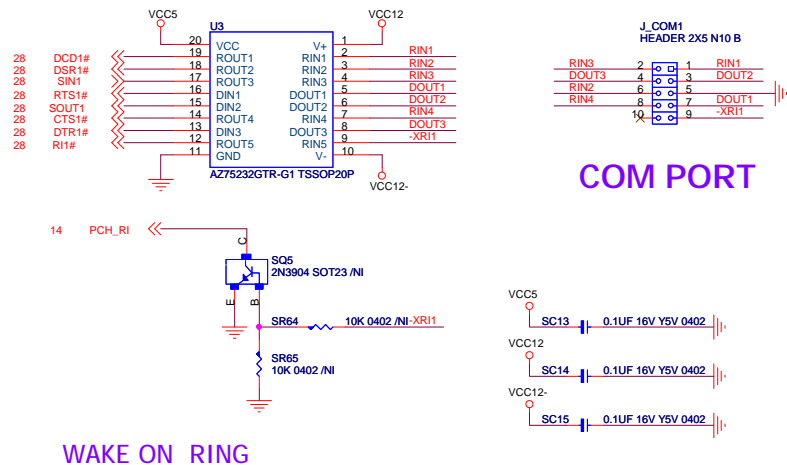
PSU shutdown threshold set at 90 degree C

PWRCONN_OVER_HEAT_PROTECTION

Vinafix.com

Modify: 2014-04-29; V6.0 Kevin request



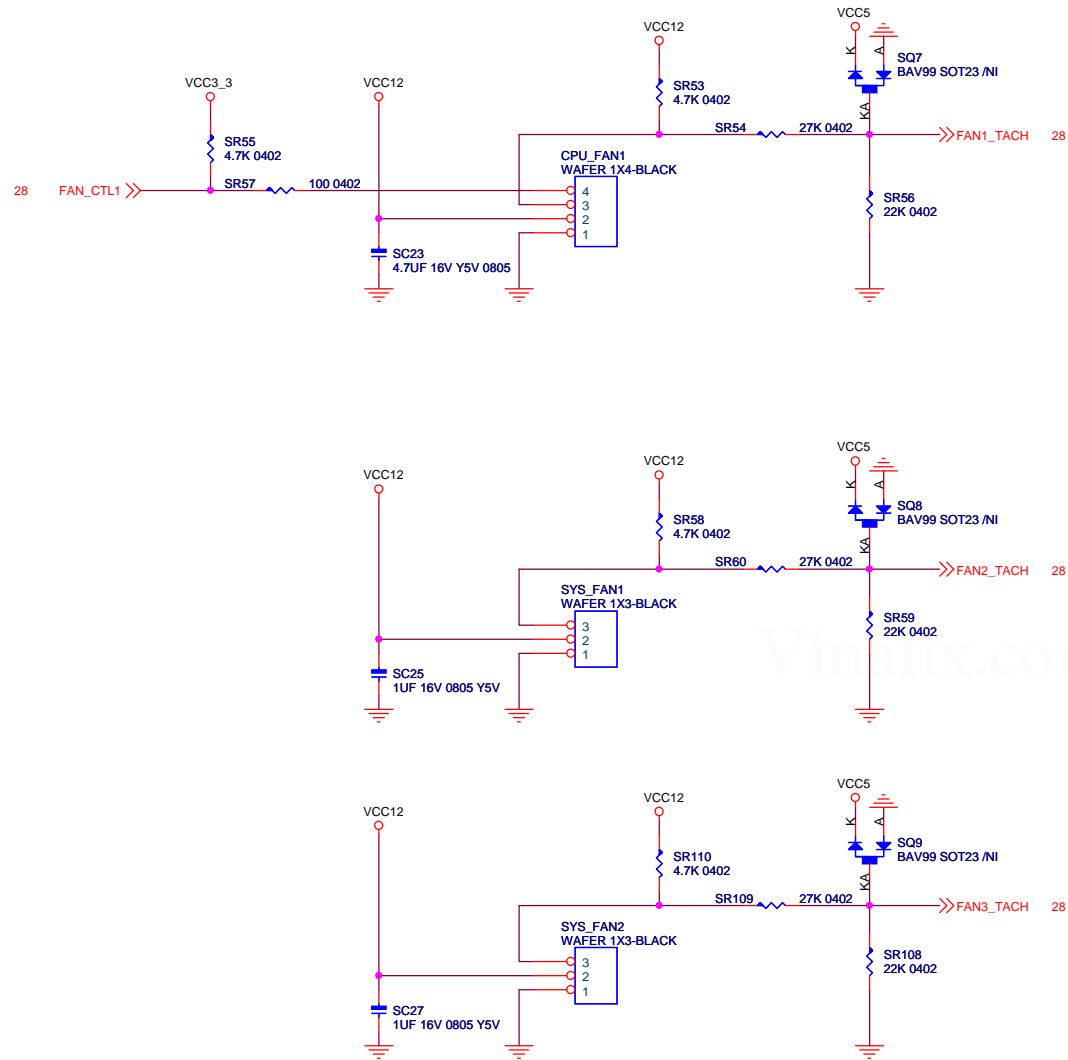


BIOSTAR'S PROPRIETARY INFORMATION

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

 映泰股份有限公司 BIOSTAR GROUP		COM1 / PS2 CONN	
Title Size Custom	Document Number IB85C-AHS	Date Wednesday, April 30, 2014	Sheet 29 of 42
		Rev 6.0	

CPU FAN/SYSTEM FAN1/SYSTEM FAN2



BIOSTAR'S PROPRIETARY INFORMATION

Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

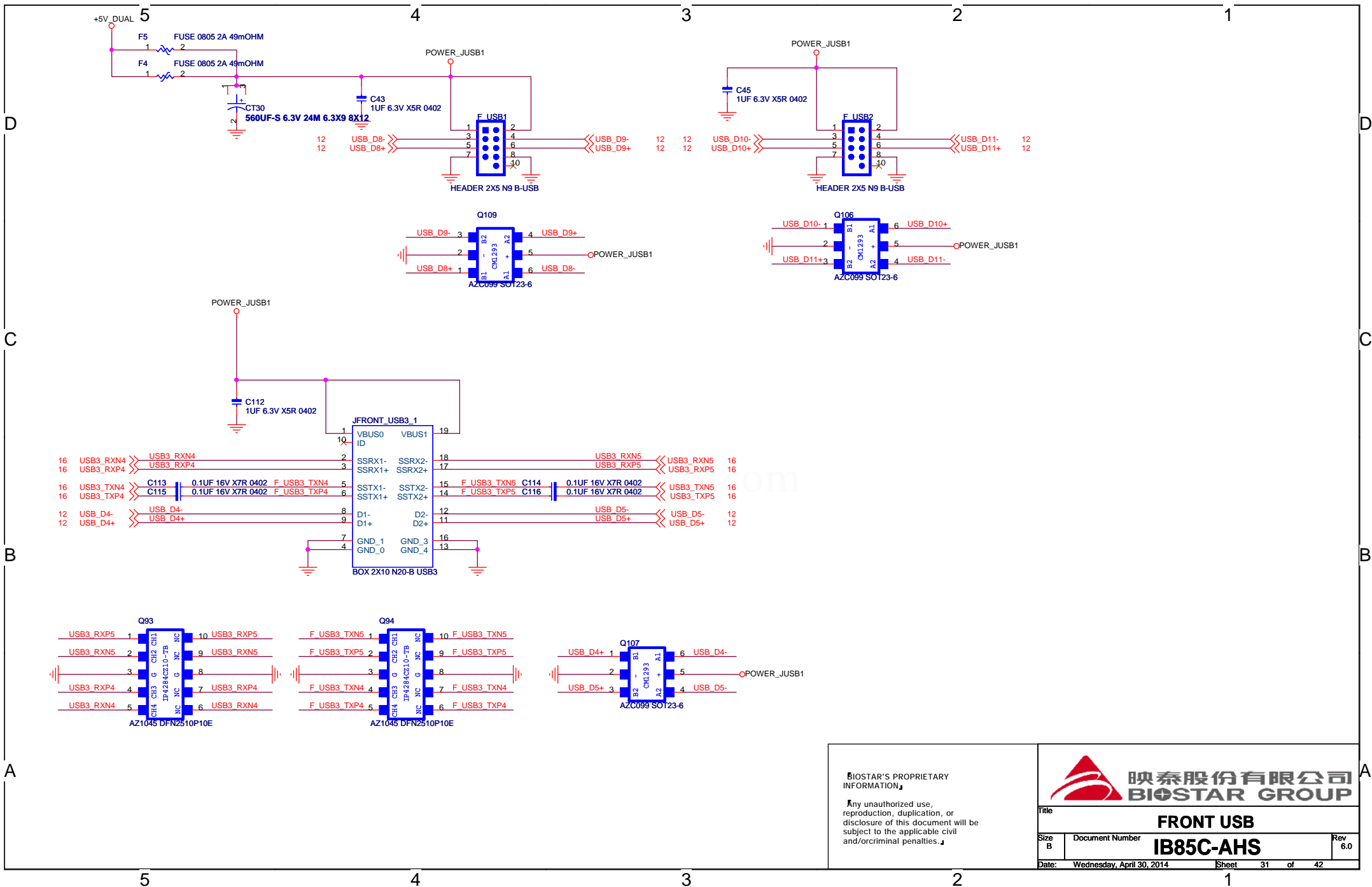


映泰股份有限公司
BIOSTAR GROUP

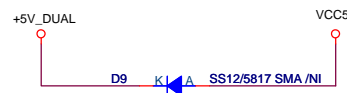
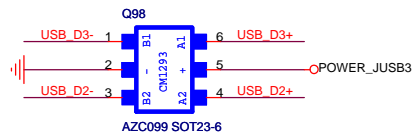
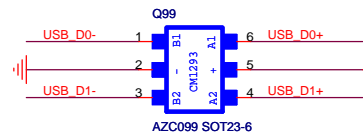
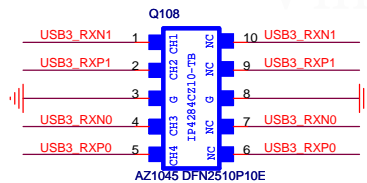
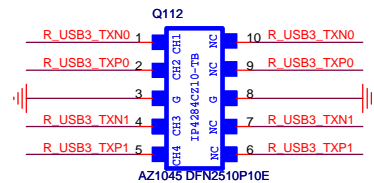
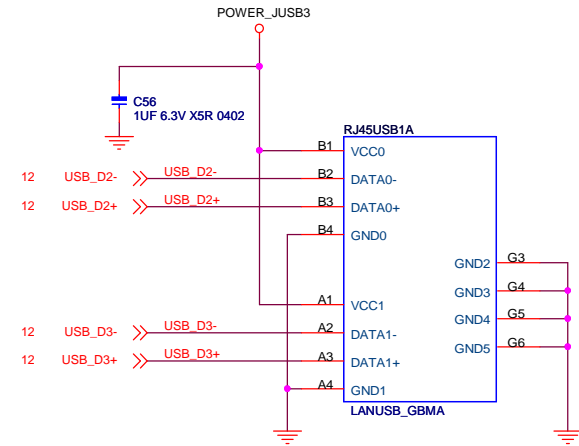
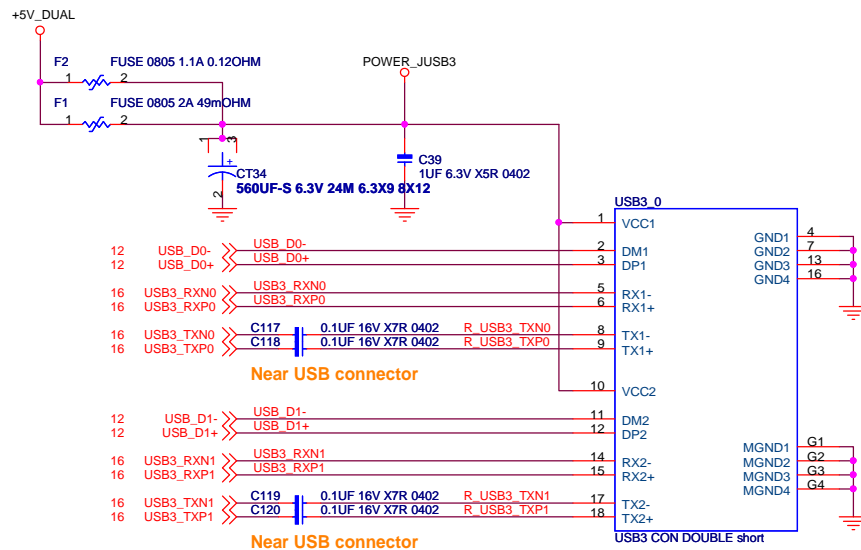
Title: **SUPERIO FAN**

Size B Document Number: **IB85C-AHS** Rev 6.0

Date: Wednesday, April 30, 2014 Sheet 30 of 42



BIOSTAR'S PROPRIETARY INFORMATION
Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



BIOSTAR'S PROPRIETARY INFORMATION. Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

映泰股份有限公司
BIOSTAR GROUP

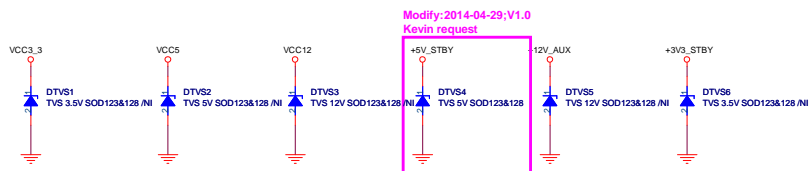
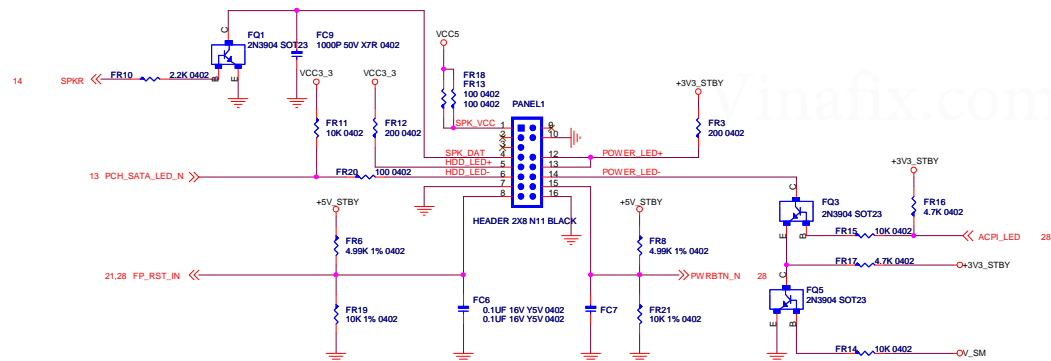
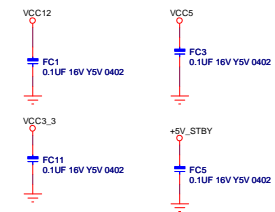
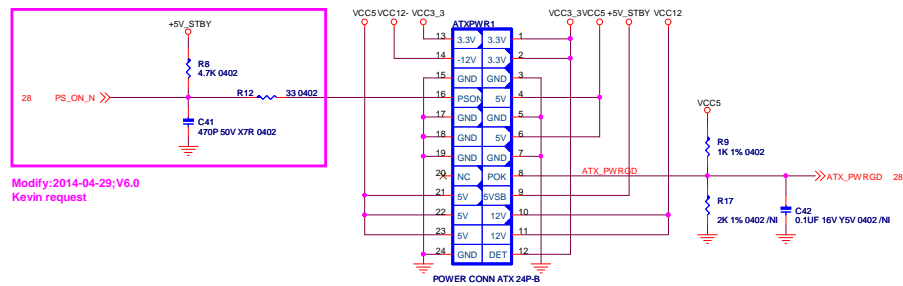
USB CONN

IB85C-AHS

Rev 6.0

Date: Wednesday, April 30, 2014 **Sheet** 32 **of** 42

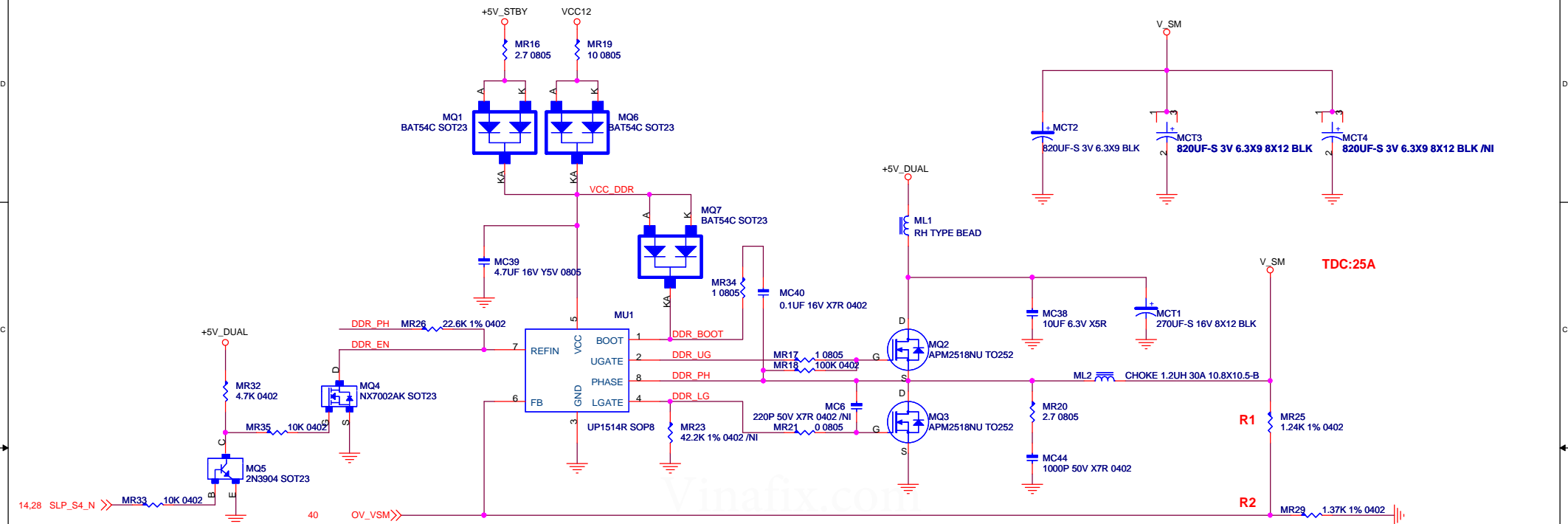
FP PART: F+Reference



BIOSTAR'S PROPRIETARY INFORMATION.
Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



MEMORY PART:M+Reference



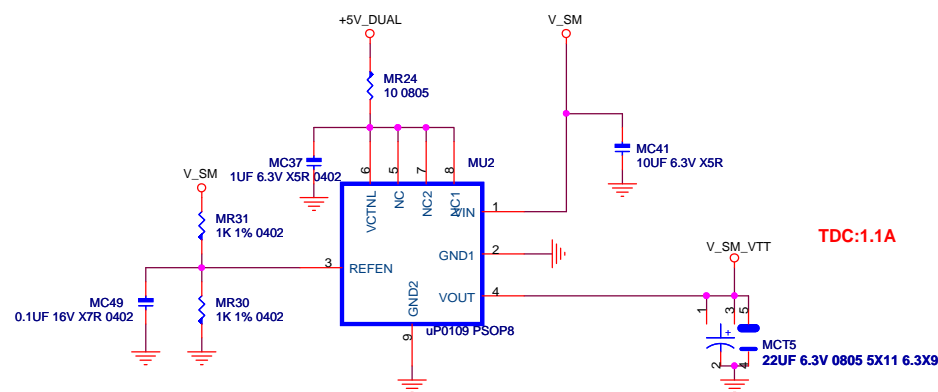
$V_{SM}=0.8(1+R1/R2)=1.524V$
 $(40\mu A \cdot R5 - 0.4V) / R_{ds} = I_{loc}$
 FOR ONE LS MOSFET, $R5=22.6K \ 1\%$

R4 Only For UP6109
 OCP Set : 50A
 FOR ONE LS MOSFET, P0603BDL : $R4=42.2K \ 1\%$

UP1514 Rooster Table

MOSFET 型号	P0603BDL TO252	P0603BDL TO252	APM2518NU TO252	APM2518NU TO252	APM2518NU TO252	APM2518NU TO252
LS MOSFET 数量	1	2	1	2	1	2
效率 (满载 @ 40°C)	32.0%	16.0%	16.0%	13.9%	22.0%	16.0%
OC1 效率	31.50A	30.00A	30.00A	31.00A	25.00A	24.00A
OC2 效率	31.00A	30.50A	30.00A	31.00A	25.00A	24.00A

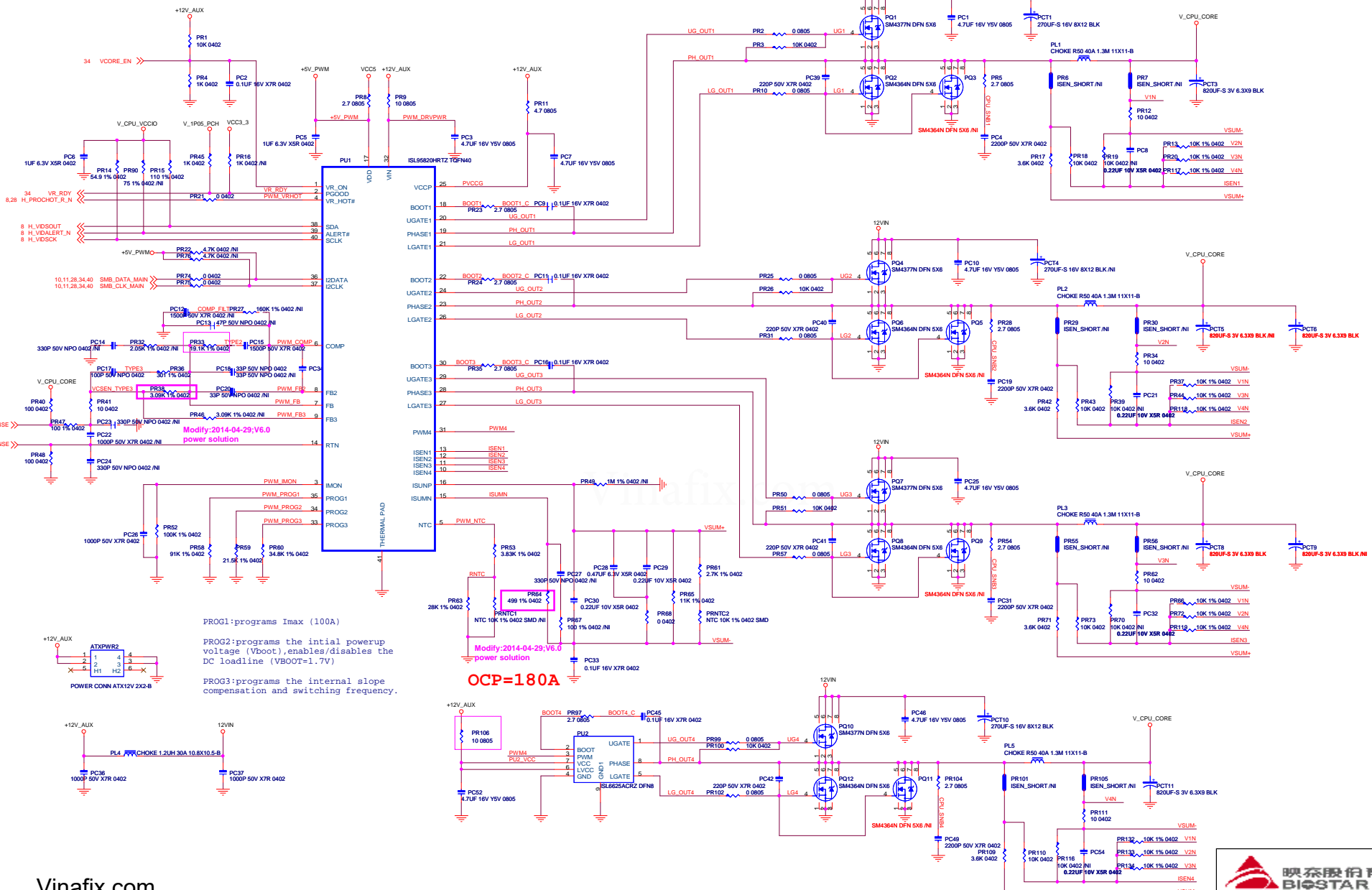
TDC:1.1A



BIOSTAR'S PROPRIETARY INFORMATION.
 Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



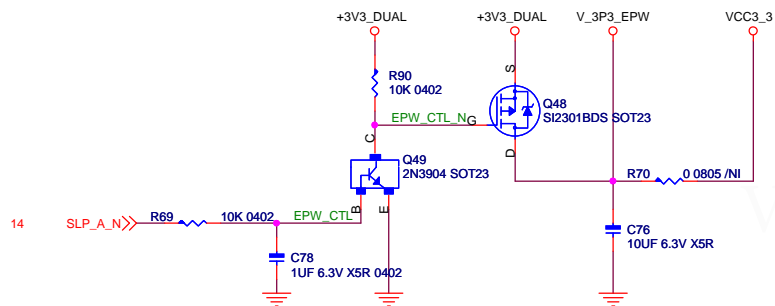
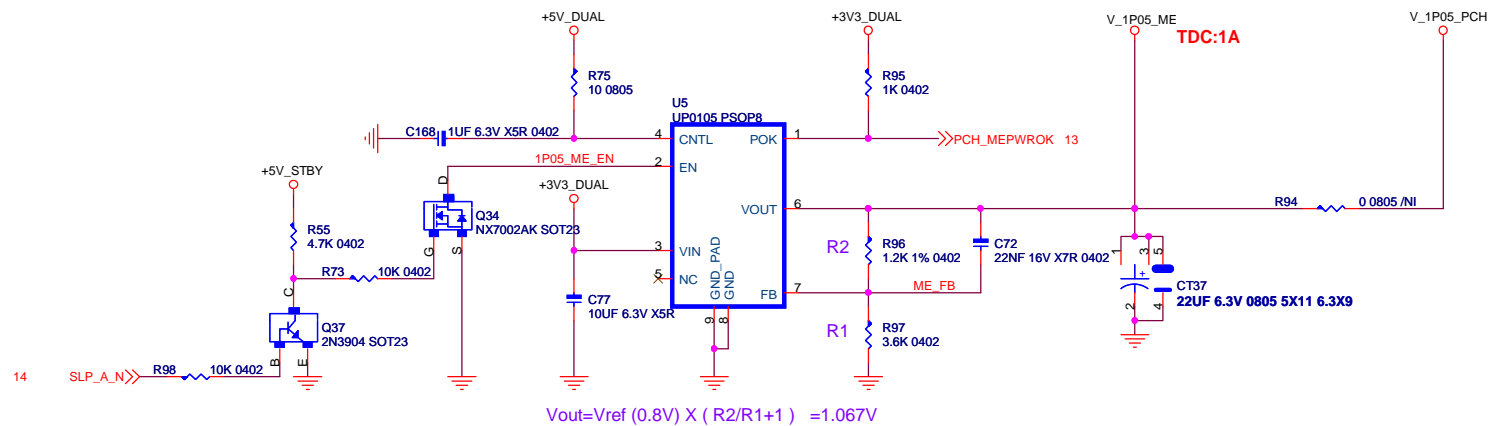
Title		
VSM DC-DC Converter		
Size B	Document Number	Rev 6.0
IB85C-AHS		
Date:	Wednesday, April 30, 2014	Sheet 37 of 42



PROG1:programs Imax (100A)
 PROG2:programs the initial powerup voltage (Vboot),enables/disables the DC loadline (VBOOT=1.7V)
 PROG3:programs the internal slope compensation and switching frequency.

OCP=180A

Vinafix.com



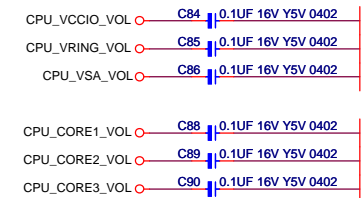
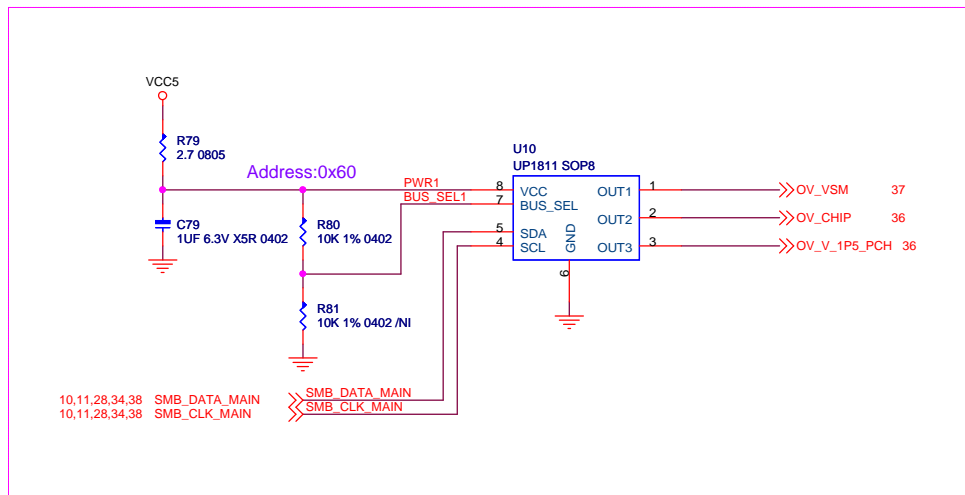


Table 1. Recommended Address Programming

Address	0x6A	0x68	0x66	0x64	0x62	0x60
R1 (kΩ)	open	3.9	3	2.2	1.3	10
R2 (kΩ)	10	1.3	2.3	3	3.9	open
BUS_SEL Voltage (% of VCC)	0	25	40	60	75	100

BIOSTAR'S PROPRIETARY
INFORMATION

Any unauthorized use,
reproduction, duplication, or
disclosure of this document will be
subject to the applicable civil
and/or criminal penalties.

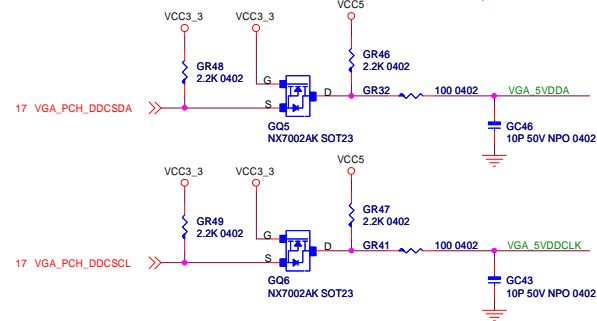
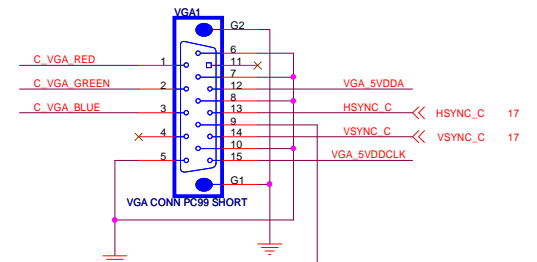
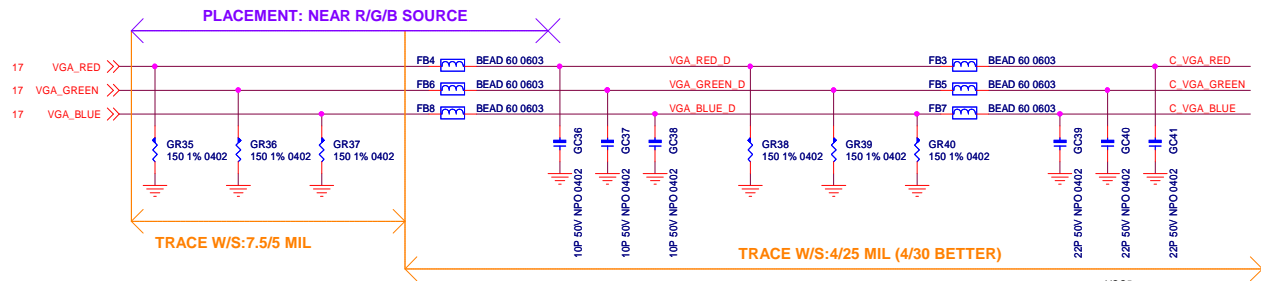


映泰股份有限公司
BIOSTAR GROUP

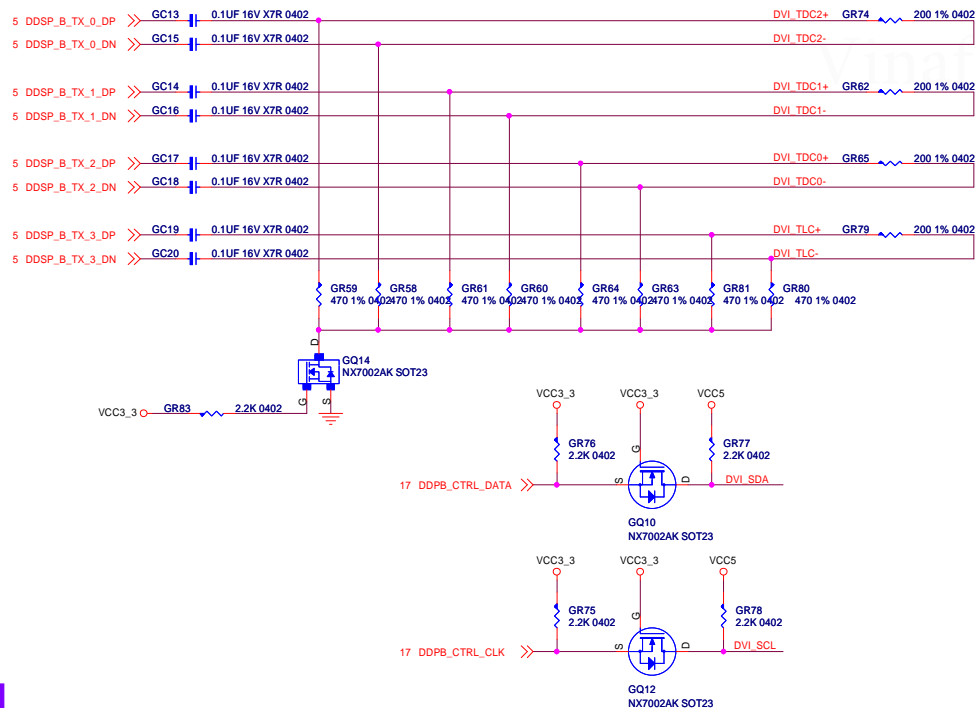
Title OVER VOLTAGE/TEST POINT

Size B Document Number IB85C-AHS Rev 6.0

Date: Wednesday, April 30, 2014 Sheet 40 of 42

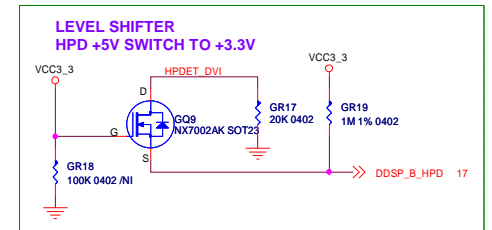
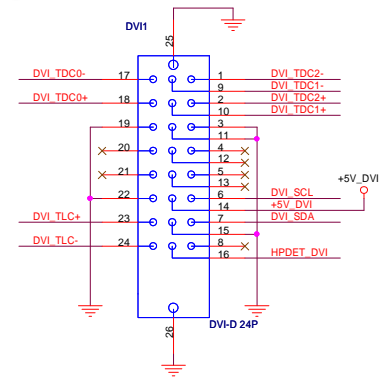


D_SUB



DVI CONNECTOR

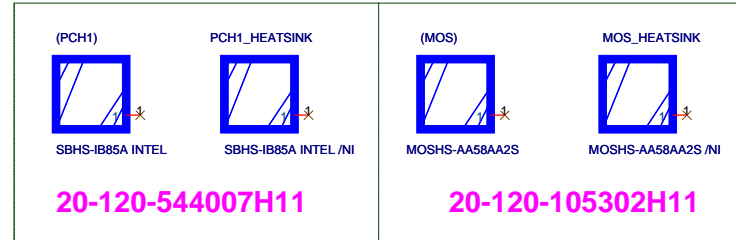
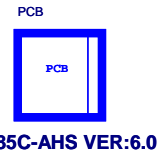
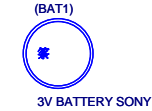
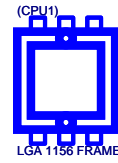
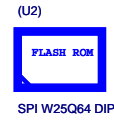
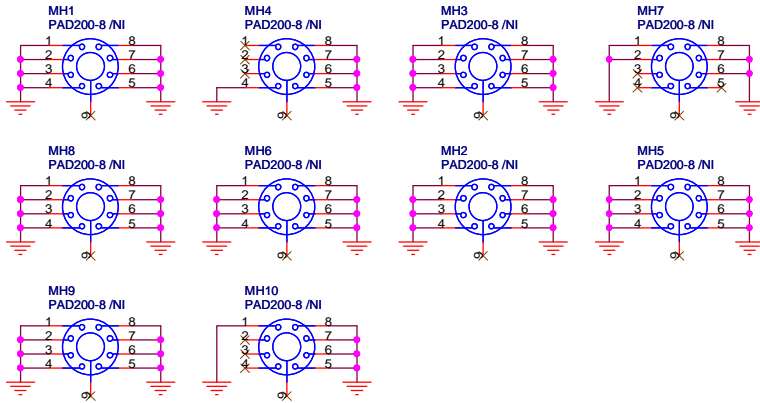
DVI CONNECTOR TYPE ACCORD WITH SPEC



DVI

BIOSTAR'S PROPRIETARY INFORMATION.
Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.

		
VGA/DVI CONNECTOR		
Size Custom	Document Number IB85B-AHS	Rev 6.0
Date: Wednesday, April 30, 2014	Sheet 41	of 42



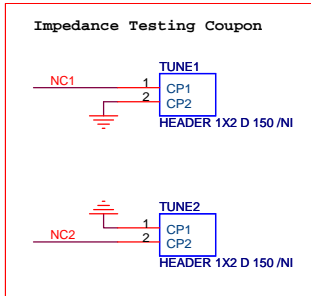
58-TB8500-01 LABEL "TB85" 40X5.5mm/Silver

58-TB85BTC00-01 LABEL"TB85-BTC"40X5.5mm/Silver

15-X58-160040R11 IB85C-AHS VER:6.0 /OSP/BLACK/(210.00*295.00*1.5)mm/4L /TT

86-IB85CAHS-R01P-60
96-IB85CAHS-R01P-60

86-IB85DAHS-R01P-60
96-IB85DAHS-R01P-60



BIOSTAR'S PROPRIETARY INFORMATION.
Any unauthorized use, reproduction, duplication, or disclosure of this document will be subject to the applicable civil and/or criminal penalties.



Title		
BOM		
Size B	Document Number	Rev
	IB85C-AHS	6.0
Date: Wednesday, April 30, 2014 Sheet 42 of 42		