EF5 BLOCK DIAGRAM

NORTHWOOD-PRESCOOT/RC300ML/IXP150

PCB STACK UP

- LAYER 1 : TOP
- LAYER 2 : VCC
- LAYER 3 : IN1
- LAYER 4 : IN2
- LAYER 5 : GND
- LAYER 6 : BOT

POWER-SOURCE CONTROL

- AC-IN_BATT CHARGER — MAX1772 — PAGE 35
- CPU CORE POWER — ISL6248 — PAGE 36,37
- SYSTEM POWER(3/5V) — MAX1999 — PAGE 38
- SYSTEM POWER(1.5V/2.5V) — MAX1845 — PAGE 39
- SYSTEM POWER — DDR_VTERM 1.25V/1.8V — GMT-LP2996,SC1565 — PAGE 39

INTEL CPU
NORTHWOOD/ PRESCOOT
478 Pins (micro FC-PGA)
PAGE 3, 4

CPU THERMAL SENSOR — GMT781 — PAGE 3
IIC BUS

CLOCK GENERATOR — ICS 951402 — PAGE 13
14.318MHz
HCLK_CPU/HCLK_CPU#
HCLK_NB/HCLK_NB#
NB_DDRCLK
AGPCLK
CLK_ALINK_SB
REFCLK1_NB
CLK_SB_14M

PSB
4X133MHZ

NORTH BRIDGE
RC300ML
718 BGA
INTEGRADED VGA FUNCTION
PAGE 5, 6, 7, 8, 9, 10

CRT port — PAGE 14
R.G,B
To P/R
LCD CONN — PAGE 14
LVDS

DDR I/F 2.5V, 333/400MHz
DDR-SODIMM1 — PAGE 11,12
DDR-SODIMM2 — PAGE 11,12

ALINK
66MHZ

SOUTH BRIDGE
IXP150
457 BGA
INTEGRADED PCI-CLK FUNCTION
PAGE 15,16,17,18

USB PORT 0,1
USB PORT 2,3 — PAGE 26
USB 2.0 * 4

1st IDE - HDD — PAGE 25
ATA 66/100

2nd IDE - CDROM — PAGE 25
ATA 66/100

PORT-REPLICATOR — PAGE 34
USB 2.0 * 2

33MHZ, 3.3V PCI
AC-LINK

AMCODEC — CONEXANT 20468-31 — PAGE 27
MODEM DAA — CONEXANT 20463-31 — PAGE 28
LAN — BROADCOM 4401(10/100M) — PAGE 22
MINI-PCI — WIRELESS LAN — PAGE 24
CARDBUS CONTROLLER (EMBEDDED CARDER I/F) — TI 1610 — PAGE 19

WIRE

RTC Power — PAGE 29

3.3V LPC, 33MHz

SIO PC87383 — MTDPA-64P — PAGE 33
To P/R
COM*1
PRT*1

PCPP97551VPC
TQFP 176S
PAGE 30
To P/R
PS/2 Interface

MIC IN JACK — PAGE 29
AMP — TPA0212 — PAGE 29
To P/R
To P/R
H/P JACK — PAGE 29
RJ45 JACK
RJ11 JACK

CARDBUS SLOT — PAGE 20
CAREADER CONN.(3*1) — PAGE 21

CRT PORT
COM&PRT PORT
USB PORT 5,6
RJ45 JACK
PS/2 CONN.
H/P JACK
POWER JACK
FAN — PAGE 32
Touchpad — PAGE 34
Keyboard — PAGE 31
FLASH — PAGE 30
SWITCH & LED — PAGE 31

PCI BUS ROUTING TABLE

VGA	--	INTA#
PCMCIA	--	AD17, INTB#, INTC#, REQ0#, GNT0#
MINIPCI	--	AD18, INTC#, INTD#, REQ1#, GNT1#
LAN	--	AD16, INTD#, REQ2#, GNT2#

PROJECT : EF5
Quanta Computer Inc.

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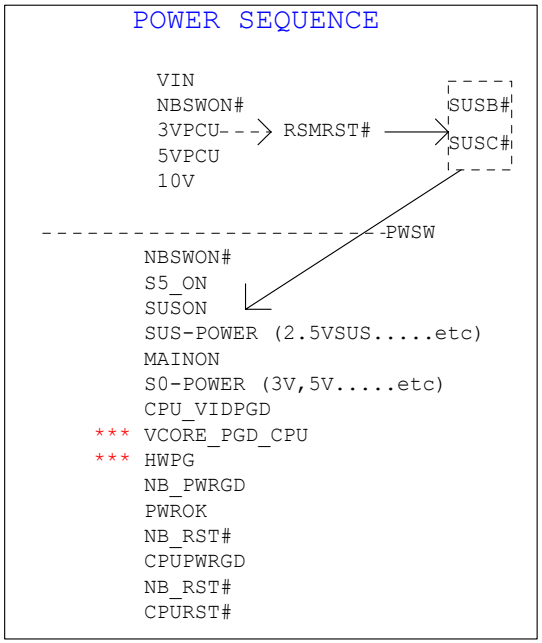
Custom	BLOCK DIAGRAM	1A
Date: Thursday, June 10, 2004	Sheet 1 of 40	

SYSTEM INFORMATION

Voltage Rails	Core voltage for Processor	ON S0~S1	ON S3	ON S4	ON S5	Control signal
VCC_CORE	Core voltage for Processor	X				VR_ON
SMDDR_VREF	1.25V for DDR Reference voltage	X	X			SUSON
SMDDR_VTERM	1.25V for DDR Termination voltage	X				MAINON
1.5V		X				MAINON
1.8V		X				MAINON
2.5VSUS		X	X			SUSON
2.5V		X				MAINON
2.5VPCU		X	X	X	X	VL
3VPCU		X	X	X	X	VL
3VSUS		X	X			SUSON
3V		X				MAINON
5VPCU		X	X	X	X	VL
5VSUS		X	X			SUSON
5V		X				MAINON

PCI DEVICE	IDSEL#	REQ/GNT#	Interrupts
LAN(10/100)	AD16	2/2	INTD#
CARDBUS	AD17	0/0	INTB#, INTC#
MINI-PCI	AD18	1/1	INTC#, INTD#

POWER SEQUENCE



PROJECT : EF5
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Size	Document Number	Rev
Custom	SYSTEM INFORMATION	1A
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NORTHWOOD/Mobile-PRESCOTT CPU - HOST BUS

03

U35A

PRESCOTT

1 OF 3

EC1,Apr/04

EC2,Apr/04

EC36,May/14

EC37,May/14

CPU Thermal Sensor.

U10

GMT_G781/MAX6657

SOIC8

Address : 4C

Route both signals on the same layer

Close to CPU

NORTHWOOD/Mobile-PRESCOTT

PROJECT : EF5

Quanta Computer Inc.

Size	Document Number	Rev
Custom	PRESCOTT(HOST BUS)	1A

Date: Thursday, June 10, 2004 Sheet 3 of 40

NORTHWOOD/Mobile-PRESCOTT CPU - PWR/GND

EC38,May/24

04

U35B

PRESCOOT 2 OF 3

VID

POWER

NORTHWOOD/Mobile-PRESCOTT

U35C

PRESCOOT 3 OF 3

GROUND

NORTHWOOD/Mobile-PRESCOTT

EC3,Apr/04

EC39,May/24

EC40,May/24

0.63VCC_VORE of GTLREF voltage for Prescott CPU .

The 220p needs to close to CPU AA21 pin.

NORTHWOOD/PRESCOOT REQUIRED

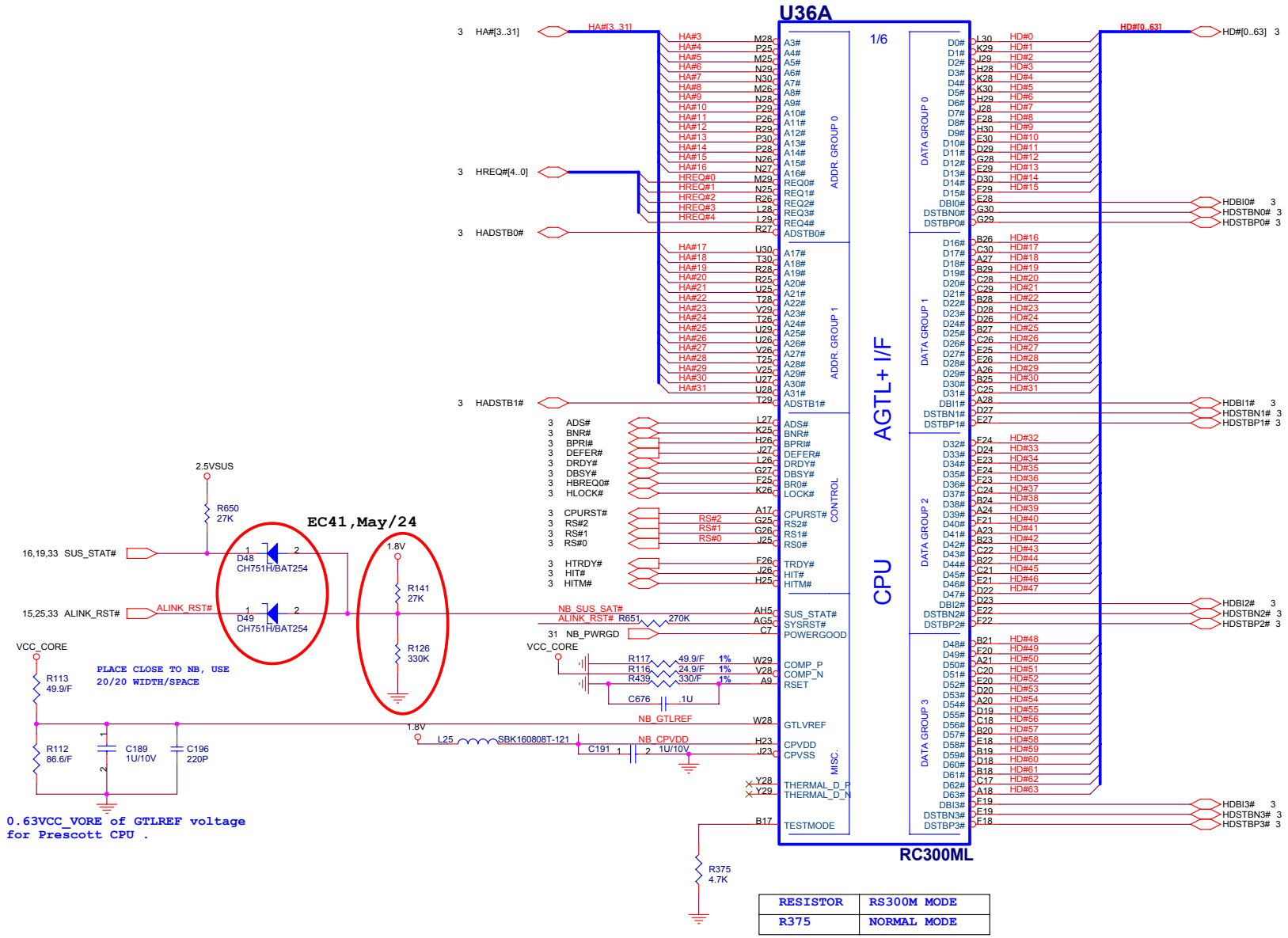
PROJECT : EF5

Quanta Computer Inc.

Size	Document Number	Rev
Custom	PRESCOTT(POWER/NC)	1A

Date: Thursday, June 10, 2004 Sheet 4 of 40

NorthBridge-ATI RC300M - AGTL+ I/F



RESISTOR	RS300M MODE
R375	NORMAL MODE

PROJECT : EF5
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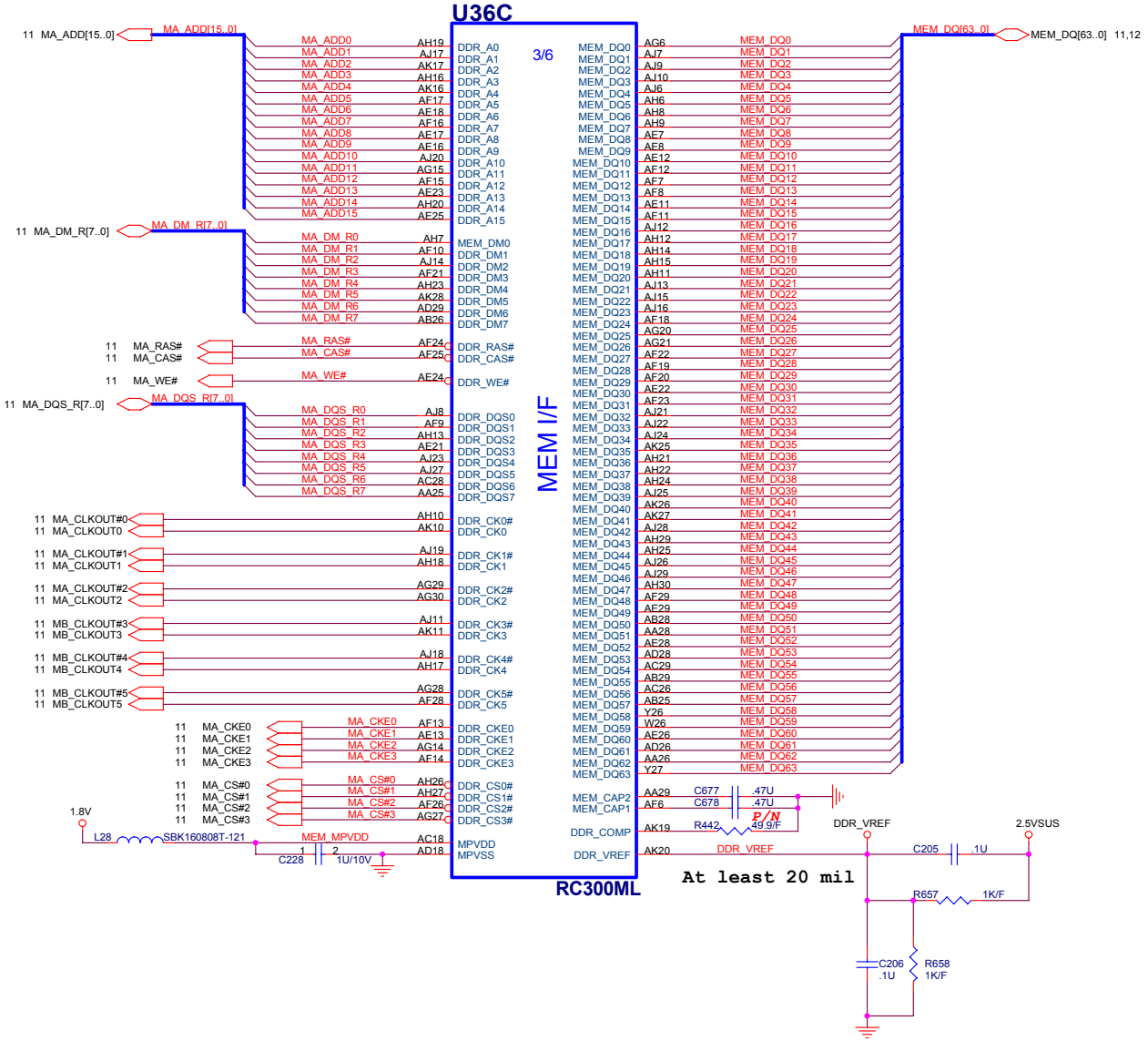
Size	Document Number	Rev
Custom	RC300M-AGTL+ I/F	1A
Date: Thursday, June 10, 2004	Sheet 5 of 40	

NorthBridge-ATI RC300ML-DDR I/F

06



PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RC300ML-DDR I/F	1A
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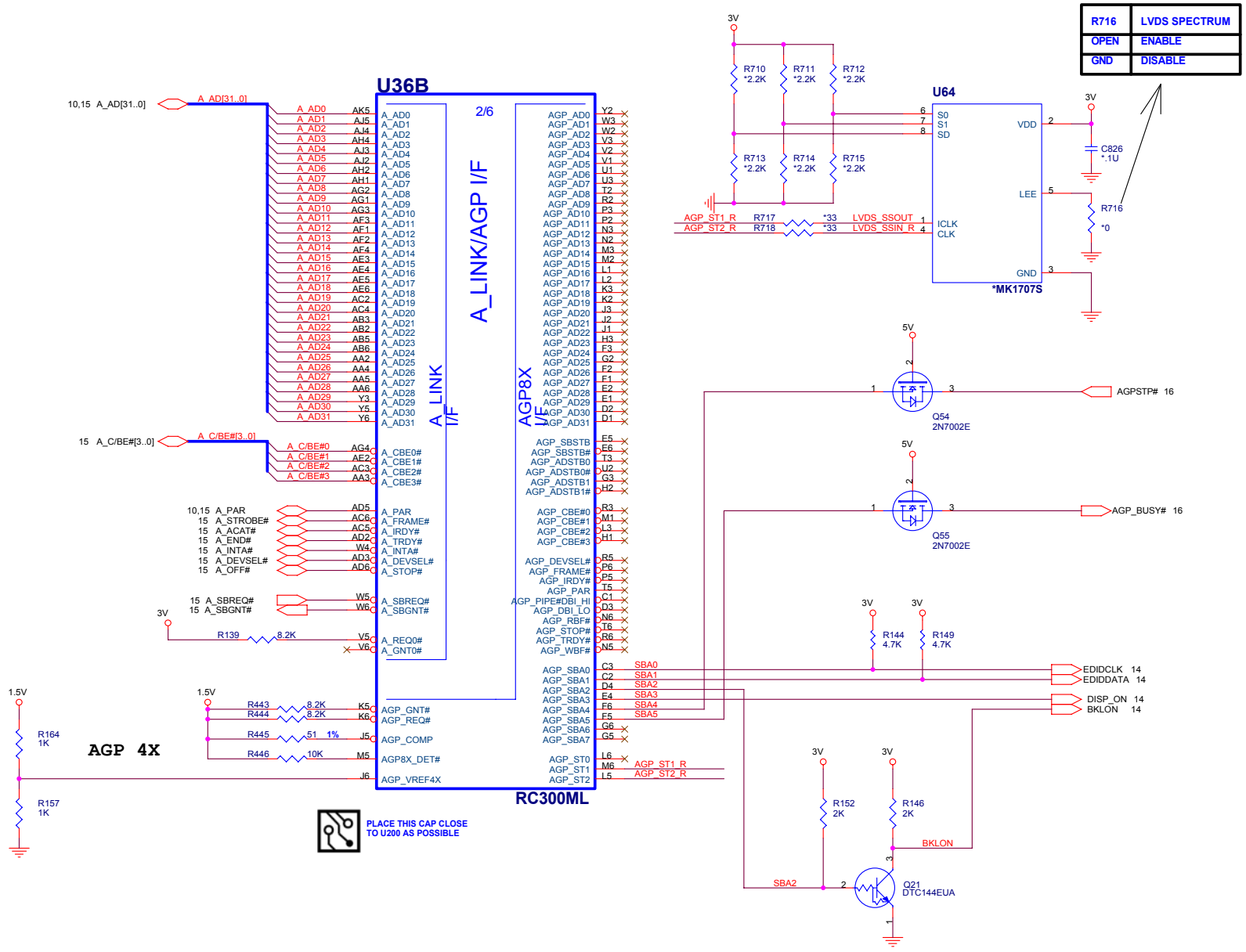
NorthBridge-ATI RC300ML-AGP & A_LINK I/F

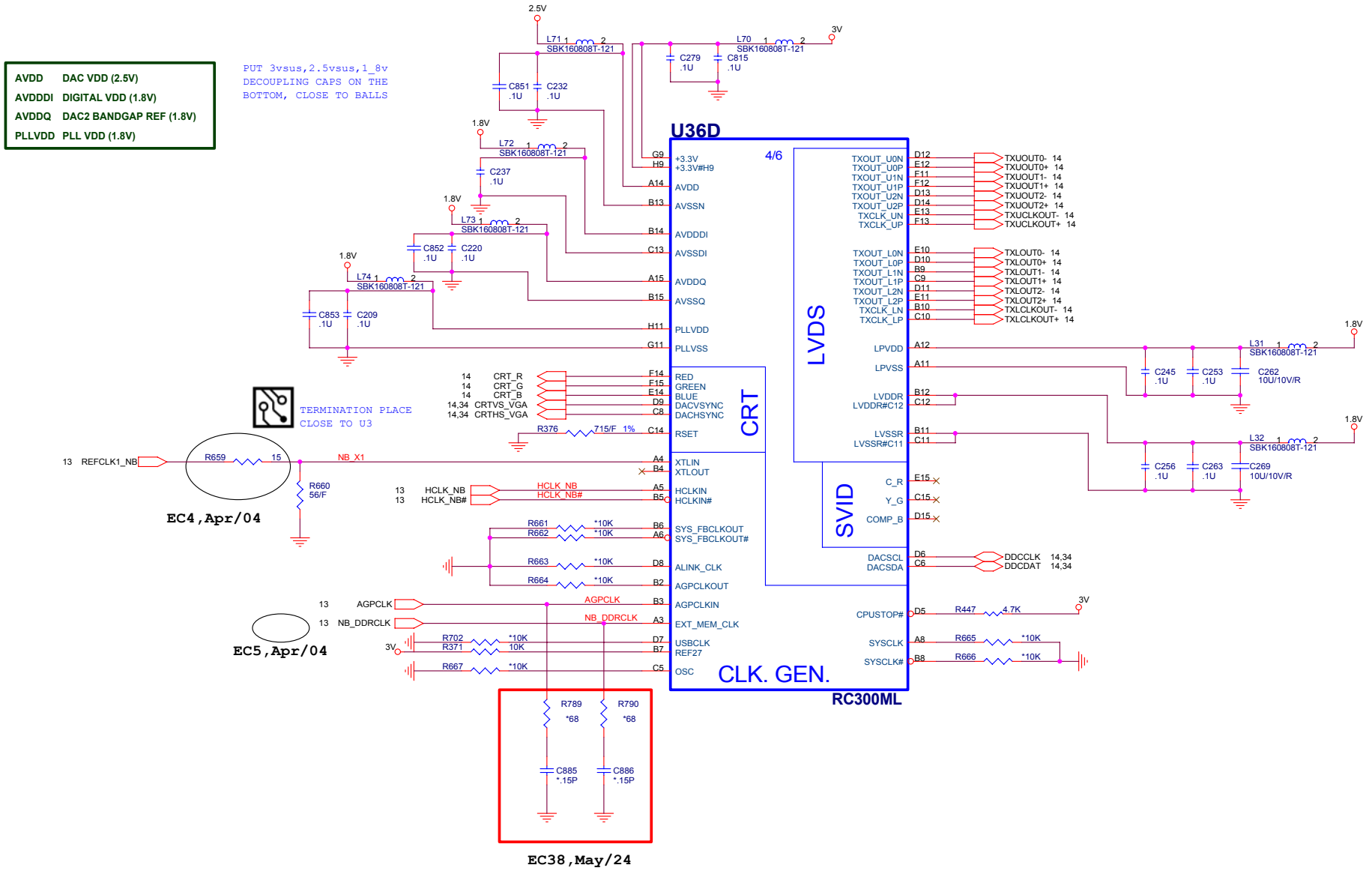
07



PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RC300ML-AGP & A_LINK I/F	1A
Date: Thursday, June 10, 2004	Sheet 7 of 40	

NorthBridge-ATI RC300ML-VIDEO I/F & CLKGEN



PROJECT : EF5
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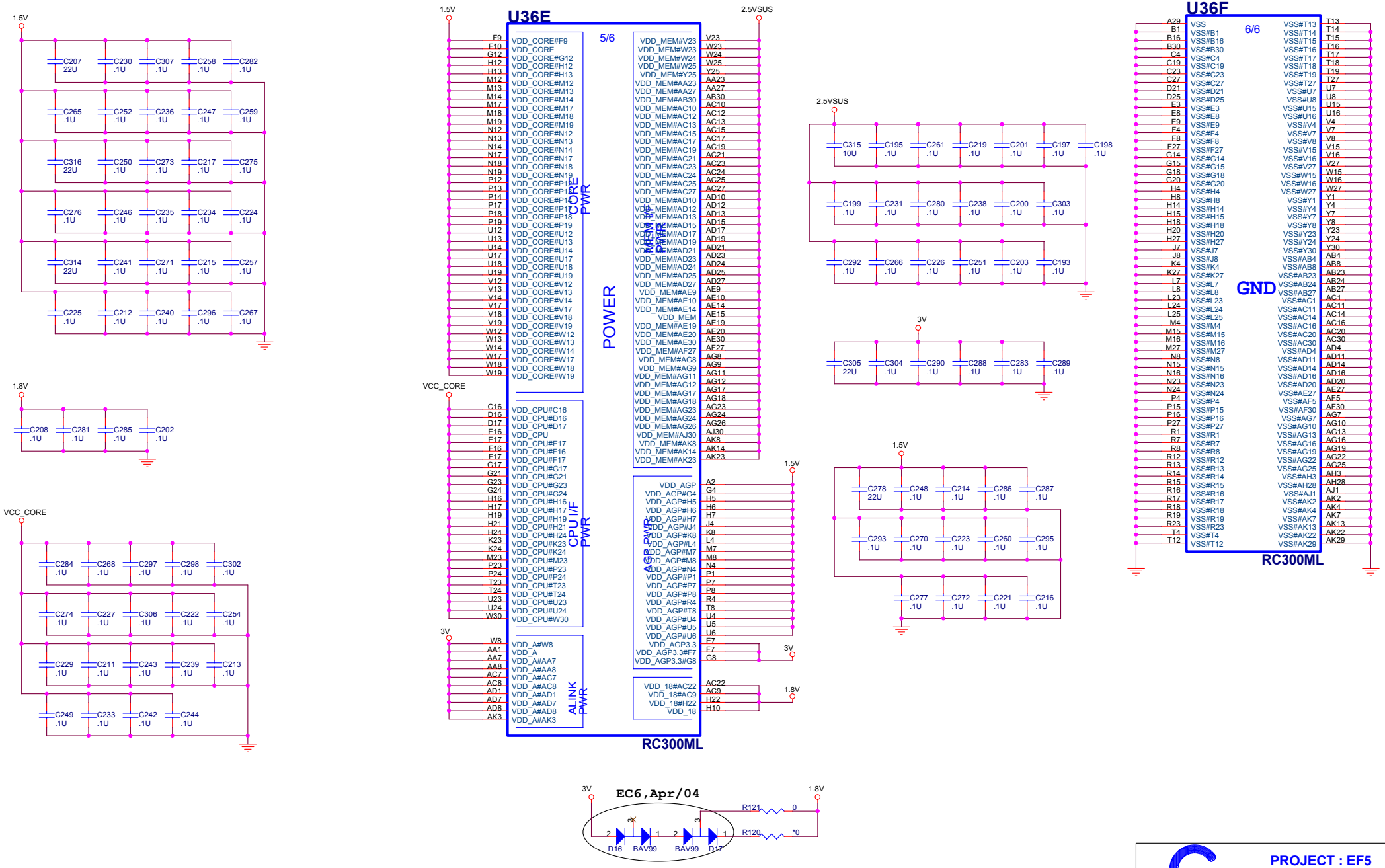
Size	Document Number	Rev
Custom	RC300ML-VIDEO I/F & CLKGEN	1A
Date: Thursday, June 10, 2004	Sheet 8 of 40	

NorthBridge-ATI RC300ML-POWER

09



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Custom	RC300ML-POWER	1A
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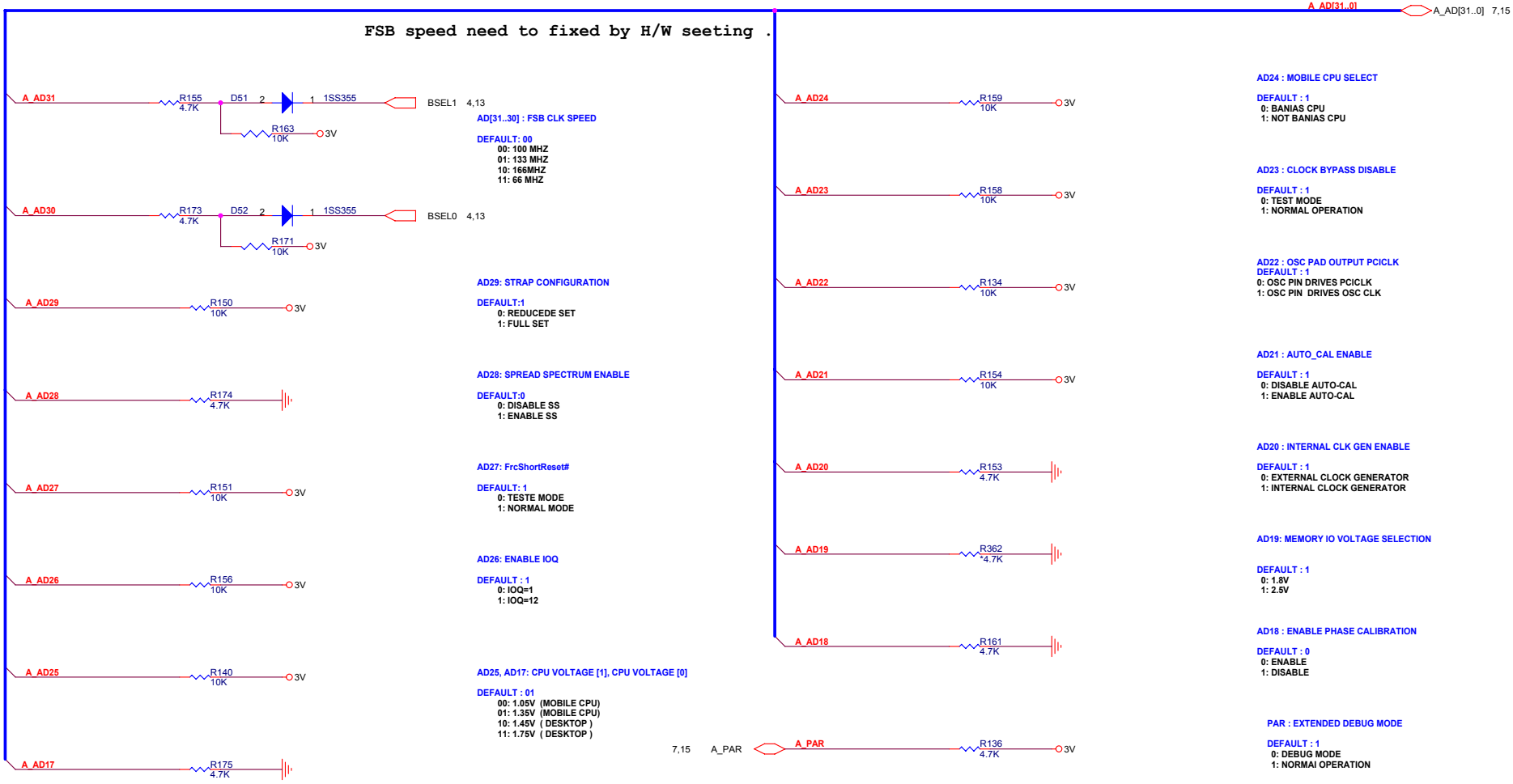
NorthBridge-ATI RC300ML-STRAPS



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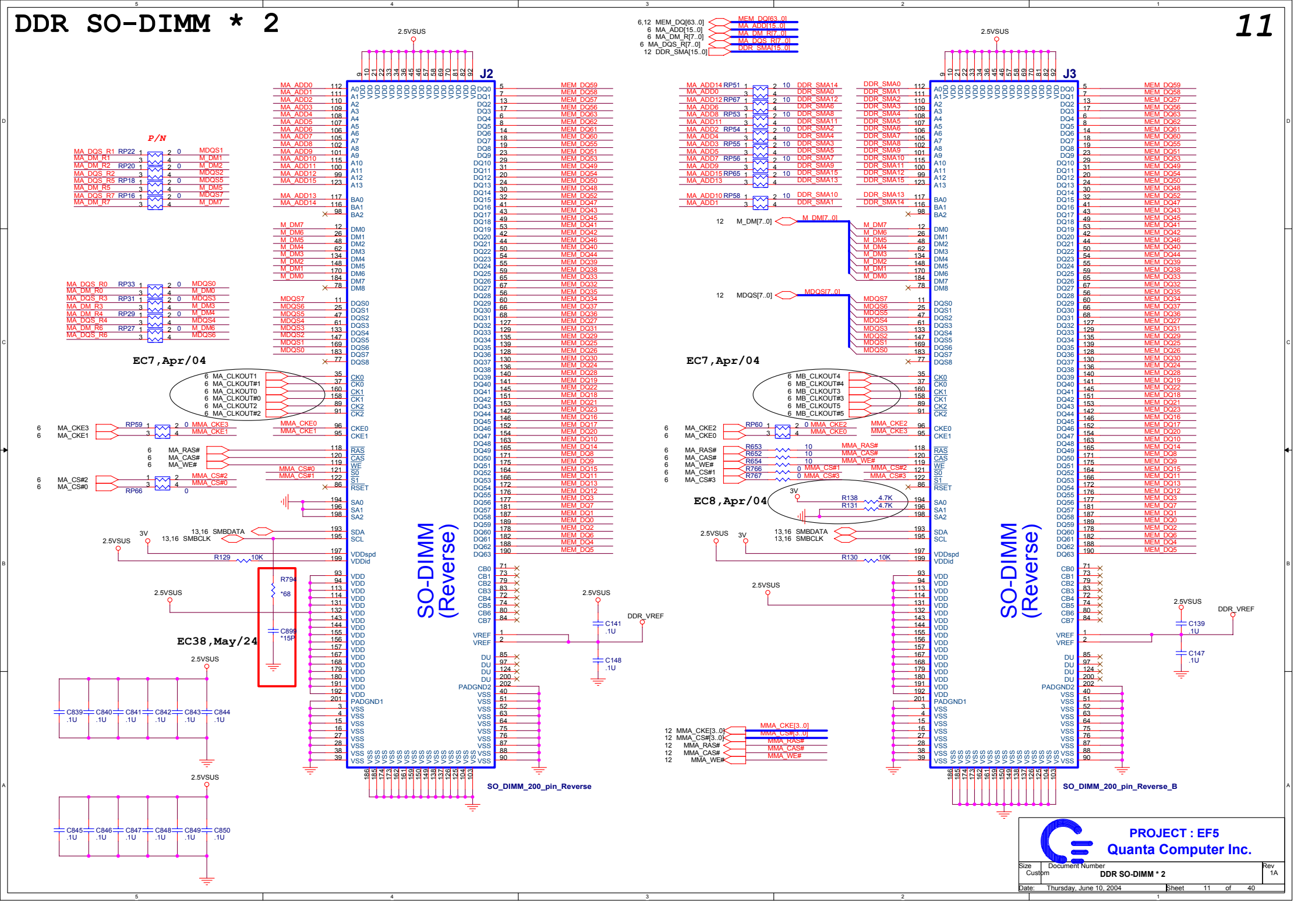
DDR SO-DIMM * 2


P/N
J2
J3
SO-DIMM (Reverse)
SO_DIMM_200_pin_Reverse
SO_DIMM_200_pin_Reverse_B
EC7,Apr/04
EC8,Apr/04
EC38,May/24
2.5VSUS
3V
DDR_VREF
SMBDATA
SMBCLK
MA_CKE3
MA_CKE1
MA_CKE0
MA_CKE2
MA_RAS#
MA_CAS#
MA_WE#
MA_CS#2
MA_CS#0
MA_CS#1
MA_CS#3
MMA_CKE[3..0]
MMA_CS#[3..0]
MMA_RAS#
MMA_CAS#
MMA_WE#
M_DM[7..0]
MDQS[7..0]
MEM_DQ[63..0]
MA_ADD[15..0]
MA_DM_R[7..0]
MA_DQS_R[7..0]
DDR_SMA[15..0]
PROJECT : EF5
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DDR SO-DIMM * 2
Size Custom
Rev 1A
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DDR TERMINATION

11 DDR_SMA[15..0] — DDR_SMA[15..0]
6,11 MEM_DQ[63..0] — MEM_DQ[63..0]
11 M_DM[7..0] — M_DM[7..0]
11 MDQS[7..0] — MDQS[7..0]
11 MMA_CKE[3..0] — MMA_CKE[3..0]

SMDDR_VTERM 2.5VSUS

RN9 33X4: DDR_SMA7, DDR_SMA9, DDR_SMA5, DDR_SMA1 → CA107 .1U, CA108 .1U
RN10 33X4: DDR_SMA3, DDR_SMA10, DDR_SMA13 → CA1 .1U, CA50 .1U
11 MMA_WE#
RN81 33X4: DDR_SMA14 → CA98 .1U, CA37 .1U
11 MMA_RAS#
11 MMA_CAS#
11 MMA_CS3#

SMDDR_VTERM 2.5VSUS

RN37 33X4: MMA_CKE3, MMA_CKE0, DDR_SMA12, DDR_SMA11 → CA54 .1U, CA23 .1U, CA104 .1U, CA81 .1U
RN41 33X4: MMA_CKE2, MMA_CKE1, DDR_SMA8

2.5VSUS

RN30 33X4: DDR_SMA6, DDR_SMA4, DDR_SMA2, DDR_SMA0 → CA65 .1U, CA66 .1U
11 MMA_CS#1
RN32 33X4: DDR_SMA15 → CA88 .1U, CA82 .1U
11 MMA_CS#2
11 MMA_CS#0

2.5VSUS

RN40 56X4: MEM_DQ7, MEM_DQ3, MEM_DQ6, MEM_DQ2, MEM_DQ4, MEM_DQ0, MEM_DQ1, MEM_DQ5 → CA43 .1U, CA68 .1U, CA56 .1U, CA85 .1U
RN36 56X4

SMDDR_VTERM 2.5VSUS

RN44 56X4: MEM_DQ8, MEM_DQ9, M_DM0, MDQS0, MEM_DQ14, MEM_DQ10, MDQS1, MEM_DQ13 → CA29 .1U, CA63 .1U, CA103 .1U, CA99 .1U
RN12 56X4

2.5VSUS

RN60 56X4: MEM_DQ12, M_DM1, MEM_DQ11, MEM_DQ15, MEM_DQ27, MEM_DQ31, MDQS3, MEM_DQ30 → CA22 .1U, CA33 .1U, CA76 .1U, CA28 .1U
RN15 56X4

SMDDR_VTERM 2.5VSUS

RN61 56X4: MEM_DQ20, M_DM2, MEM_DQ23, MEM_DQ16 → CA51 .1U, CA89 .1U
RN57 56X4: MEM_DQ28, MEM_DQ24, M_DM3, MEM_DQ26 → CA14 .1U, CA26 .1U
RN56 56X4: MEM_DQ29, MEM_DQ25, MEM_DQ22, MEM_DQ19 → CA12 .1U, CA42 .1U
RN51 56X4: MEM_DQ17, MEM_DQ18, MDQS2, MEM_DQ21 → CA18 .1U, CA77 .1U
RN50 56X4: MEM_DQ36, M_DM4, MEM_DQ37, MEM_DQ34 → CA71 .1U, CA7 .1U
RN47 56X4: MEM_DQ44, M_DM5, MEM_DQ46, MEM_DQ42 → CA92 .1U, CA48 .1U
RN45 56X4: MEM_DQ39, MEM_DQ33, MDQS4, MEM_DQ32 → CA25 .1U, CA55 .1U
RN52 56X4: MEM_DQ43, MEM_DQ47, MDQS5, MEM_DQ40 → CA46 .1U, CA38 .1U
RN23 56X4: MEM_DQ41, MEM_DQ45, MEM_DQ35, MEM_DQ38 → CA59 .1U, CA73 .1U
RN26 56X4: MEM_DQ52, M_DM6, MEM_DQ48, MEM_DQ50 → CA64 .1U, CA87 .1U
RN21 56X4: MEM_DQ51, MEM_DQ53, MDQS6, MEM_DQ49 → CA6 .1U, CA13 .1U
RN19 56X4: MEM_DQ60, M_DM7, MEM_DQ62, MEM_DQ63 → CA24 .1U, CA19 .1U
RN27 56X4: MEM_DQ58, MEM_DQ59, MDQS7, MEM_DQ61 → CA32 .1U, CA11 .1U
RN16 56X4: MEM_DQ56, MEM_DQ57, MEM_DQ54, MEM_DQ55 → CA95 .1U, CA102 .1U

1) 2 DE-COUPLING CAPS PER RPAK
2) PLACE RPACKS&RESISTORS AFTER THE LAST DIMM

2.5VSUS
CA105 22U, CA57 .1U, CA39 .1U, CA21 .1U, CA20 .1U, CA45 .1U, CA86 .1U, CA79 .1U, CA72 .1U, CA47 .1U, CA40 .1U
DE-COUPLING FOR DIMM 0 OF A CHANNEL

2.5VSUS
CA106 22U, CA8 .1U, CA74 .1U, CA35 .1U, CA31 .1U, CA83 .1U, CA15 .1U, CA93 .1U, CA100 .1U, CA96 .1U, CA58 .1U
DE-COUPLING FOR DIMM 1 OF A CHANNEL

PROJECT : EF5
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Custom	DDR TERMINATION	1A
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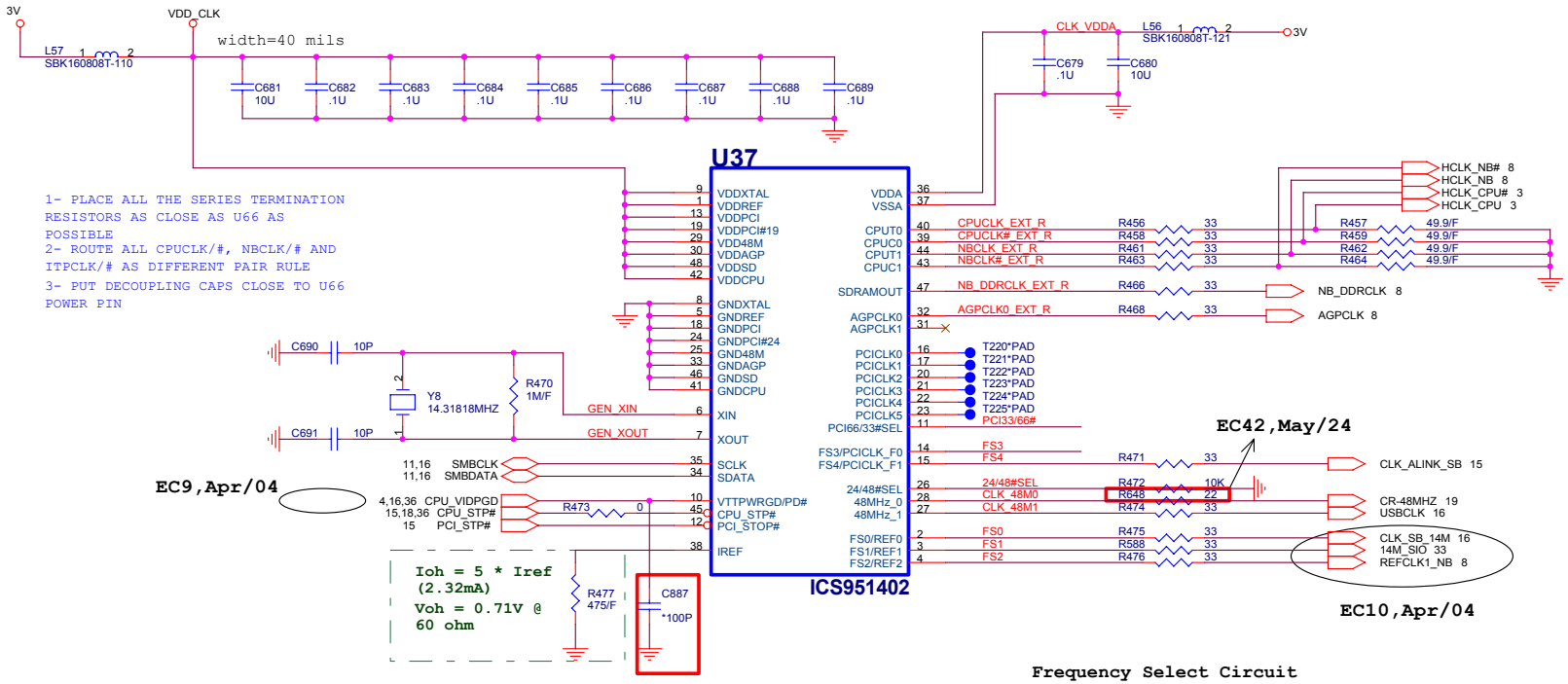
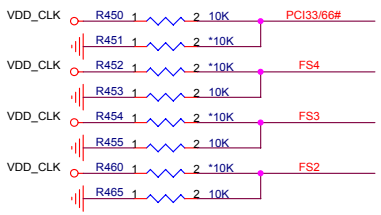
CLK GEN. & MEM CLK BUFFER



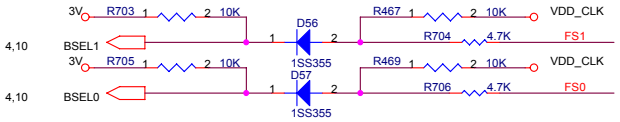
EXT CLK FREQUENCY SELECT TABLE(MHZ)

FS4	FS3	FS2	FS1	FS0	CPU	MEM	AGP	PCI	FS4	FS3	FS2	FS1	FS0	CPU	MEM	AGP	PCI
0	0	0	0	0	100.01	100.01	66.66	66.66	1	0	0	0	0	99.51	99.51	66.66	66.66
0	0	0	0	1	133.33	133.33	66.66	66.66	1	0	0	0	1	132.69	132.69	66.66	66.66
0	0	0	1	0	200.01	200.01	66.66	66.66	1	0	0	1	0	199.02	199.02	66.66	66.66
0	0	0	1	1	166.64	166.64	66.66	66.66	1	0	0	1	1	165.85	165.85	66.66	66.66
0	0	1	0	0	100.01	133.34	66.66	66.66	1	0	1	0	0	99.51	99.51	66.66	66.66
0	0	1	0	1	133.34	100.01	66.66	66.66	1	0	1	0	1	132.68	132.68	66.66	66.66
0	0	1	1	0	133.16	166.45	66.66	66.66	1	0	1	1	0	132.59	132.59	66.66	66.66
0	0	1	1	1	166.45	133.16	66.66	66.66	1	0	1	1	1	165.73	165.73	66.66	66.66
0	1	0	0	0	105.00	105.00	66.66	66.66	1	1	0	0	0	99.38	99.38	66.66	66.66
0	1	0	0	1	140.00	140.00	66.66	66.66	1	1	0	0	1	132.52	132.52	66.66	66.66
0	1	0	1	0	66.67	66.67	66.66	66.66	1	1	0	1	0	198.77	198.77	66.66	66.66
0	1	0	1	1	175.00	175.00	66.66	66.66	1	1	0	1	1	165.64	165.64	66.66	66.66
0	1	1	0	0	109.99	109.99	66.66	66.66	1	1	1	0	0	99.38	132.51	66.66	66.66
0	1	1	0	1	146.66	146.66	66.66	66.66	1	1	1	0	1	132.51	99.38	66.66	66.66
0	1	1	1	0	210.00	210.00	66.66	66.66	1	1	1	1	0	132.36	165.45	66.66	66.66
0	1	1	1	1	183.27	183.27	66.66	66.66	1	1	1	1	1	165.45	132.36	66.66	66.66

Frequency Select Circuit



INTERNAL PULL DOWN



PROJECT : EF5
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Custom	CLK GEN. & MEM CLK BUFFER	1A
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CRT & LCD CONN

B: Delete R148, R161,Q15,Q17,Q18
B: Change Q21 from SI3456 to AAT4280-3

Q33 AAT4280-3 (IN, IN, ON/OFF, OUT, GND, GND)
DISP_ON
LCDVCC-1 L53 PBY201209T-4A LCDVCC
C535 .1U, C539 .1U, C540 10U/10V/R
R384 10K

CN28 LID SWITCH PROTECT

EC43,May/24

CN4 LCDCON40P
VADJ R396 0
EDIDCLK, EDIDDATA
TXLOUT0+/-, TXLOUT1+/-, TXLOUT2+/-
TXLCLKOUT+/-, TXUOUT0+/-, TXUOUT1+/-, TXUOUT2+/-, TXUCLKOUT+/-
BLON, VIN, LCDVCC
SHIELD1, SHIELD2

C891 .1U, C892 .1U, C893 .1U, C894 *15P
C888 *15P, C889 .1U, C890 .1U

EC38,May/24

CH2

D36, D33, D35 *DA204U
CRT_R_1, CRT_B_1, CRT_G_1

BKLON, D31 1SS355, D30 1SS355
R378 10K, R86 10K
BLON, BLON-1, R85 1K, MXLID#
C181 .1U
CN8 LID-SWITCH
COVERSW#
FPBACK#, Q31 PDTC144EU
C188 1000P

40 PIN LED: HDD, CD, MS, Power/Suspend, Charge/Full

VADJ, BLON, VIN
C541 10U/25V, C544 .1U/25V, C549 .1U, C551 .1U, C534 .1U

Standard Norm

CRT PORT

D34 1SS355, CRTVDD2, F1 POLY SWITCH 1.1A, CRTVDD3
L52 PBY201209T-4A, C536 .1U

CN18 CRT_CONN_DIP
CRT_SENSE# 15
C88 *330P

EC38,May/24

CRT_Q_RED, CRT_Q_GREEN, CRT_Q_BLUE
L8 SBK160808T-110Y CRT_R_1
L11 SBK160808T-110Y CRT_G_1
L14 SBK160808T-110Y CRT_B_1

EC44,May/24

R383 75/F, R386 75/F, R394 75/F
C532 *15P, C538 *15P, C545 *15P
C146 15P, C119 15P, C99 15P
T53 CRT-4 PAD

C: Change the net to Port Replicator.

D32 *DA204U DDCCLK_1
D2 *DA204U DDCDAT_1
D10 *DA204U CRT_VS_1
D5 *DA204U CRT_HS_1

Modified.Feb/25

CRT_Q_RED R751 *0 CRT_R
CRT_Q_GREEN R749 *0 CRT_G
CRT_Q_BLUE R750 *0 CRT_B

8,34 DDCCLK, R377 4.7K, Q13 2N7002E
C876 .1U
EC45,May/24
U66A TC7W126FU

8,34 CRTVS_VGA, R672 4.7K
8,34 CRTHS_VGA
U66B TC7W126FU

DDCCLK2 L21 SBK160808T-121 DDCCLK_1
CRT_VS2 L18 27 CRT_VS_1
CRT_HS2 L12 27 CRT_HS_1
DDCDAT2 L9 SBK160808T-121 DDCDAT_1

R379 2K, R382 *2K, R385 *2K, R392 2K
Modified.Feb/22

C528 22P, C531 22P, C537 22P, C542 22P

8,34 DDCDAT, R389 4.7K, Q6 2N7002E

SWITCHING BETWEEN SYSTEM AND PORT REPLICATOR

EC38,May/24

34 PR_RED, PR_GRN, PR_BLU
R791 0 PR_RED_1
R792 0 PR_GREEN_1
R793 0 PR_BLUE_1
C895 *15P, C896 *15P, C897 *15P

U59 PI3L110/74CBT3257

PR_RED_1, CRT_Q_RED, PR_GREEN_1, CRT_Q_GREEN, PR_BLUE_1, CRT_Q_BLUE
IA0, IA1, IB0, IB1, IC0, IC1, ID0, ID1, SEL /E
YA CRT_R, YB CRT_G, YC CRT_B, YD
VCC 3V, GND
CRT_R 8, CRT_G 8, CRT_B 8

23,30,34 PR_INSERT#, D62 1SS355, R655 10K, R656 10K
C898 .1U, R674 10K

EC38,May/24

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Custom	CRT & LCD CONN	1A
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IXP150-ALINK/PCI/CPU/LPC

LENGTH OF (PCI_CLK7_R + PCI_CLK7FB)
SHOULD BE AS SHORT AS POSSIBLE

EC46,May/24

PULL DOWN FOR S3

U17A
SB200 SB
Part 1 of 3
IXP150

A-LINK INTERFACE
PCI INTERFACE
PCI CLKS
XTAL
CPU
LPC
RTC

FOLLOW RTC LAYOUT GUIDE ON THIS

EC38,May/24

EXTENDING DELAY FROM 22MS TO 240MS

240ms delay

Change Value from 15K to 10K

U28 7SH08
U67 7SH08

EC38,May/24

PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	IXP150-ALINK/PCI/CPU/LPC	1A

Date: Thursday, June 10, 2004 Sheet 15 of 40

IXP150-IDE/USB/MII

16

U17B

SB200 SB

Part 2 of 3

IXP150

EC11,May/24

EC40,May/24

EC47,May/24

EC48,May/24

EC48,May/24

EC12,Apr/04

EC49,May/24

5/31 CHANGE NET FOR DAMPING

USB INTERFACE

ACPI / WAKE UP EVENTS

ETHERNET MII

PRIMARY ATA 66/100

EEPROM

SECONDARY ATA 66/100

CLK / RST

GPIO_XTRA GPIO

AC97

USB OVER CURRENT

SB200 PIN	MB SIGNAL
USB_OC0#	USB_OCP#0
USB_OC1#	USB_OCP#1
USB_OC2#	USB_OCP#2
USB_OC3#	USB_OCP#3
USB_OC4#	USB_OCP#4
USB_OC5#	USB_OCP#5

INTERNAL PULL UPS

EEDI, MC01, RXCLK, RXD[3:0], RXDV, RXERR, TXCLK

INTERNAL PULL DOWNS

USBCLK48, SDATAIN[2:0], BITCLK, EECS, MCRS, MDIO

INTERNAL PULL UPS

EEDI, MC01, RXCLK, RXD[3:0], RXDV, RXERR, TXCLK

INTERNAL PULL DOWNS

USBCLK48, SDATAIN[2:0], BITCLK, EECS, MCRS, MDIO

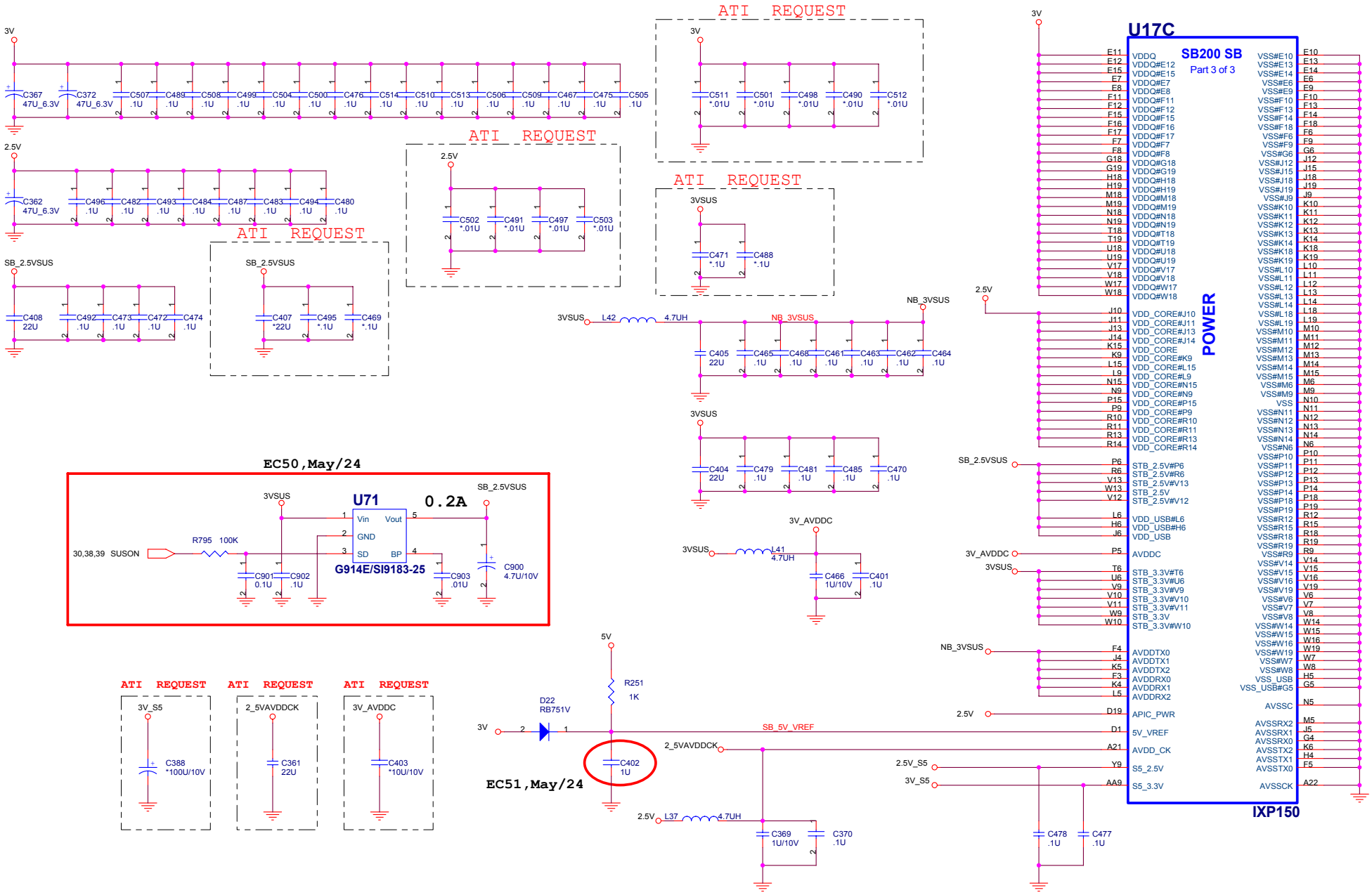
PROJECT : EF5

Quanta Computer Inc.

Size	Document Number	Rev
Custom	IXP150-IDE/USB/MII	1A

Date: Thursday, June 10, 2004 Sheet 16 of 40

IXP150-PWR & DECOUPLING

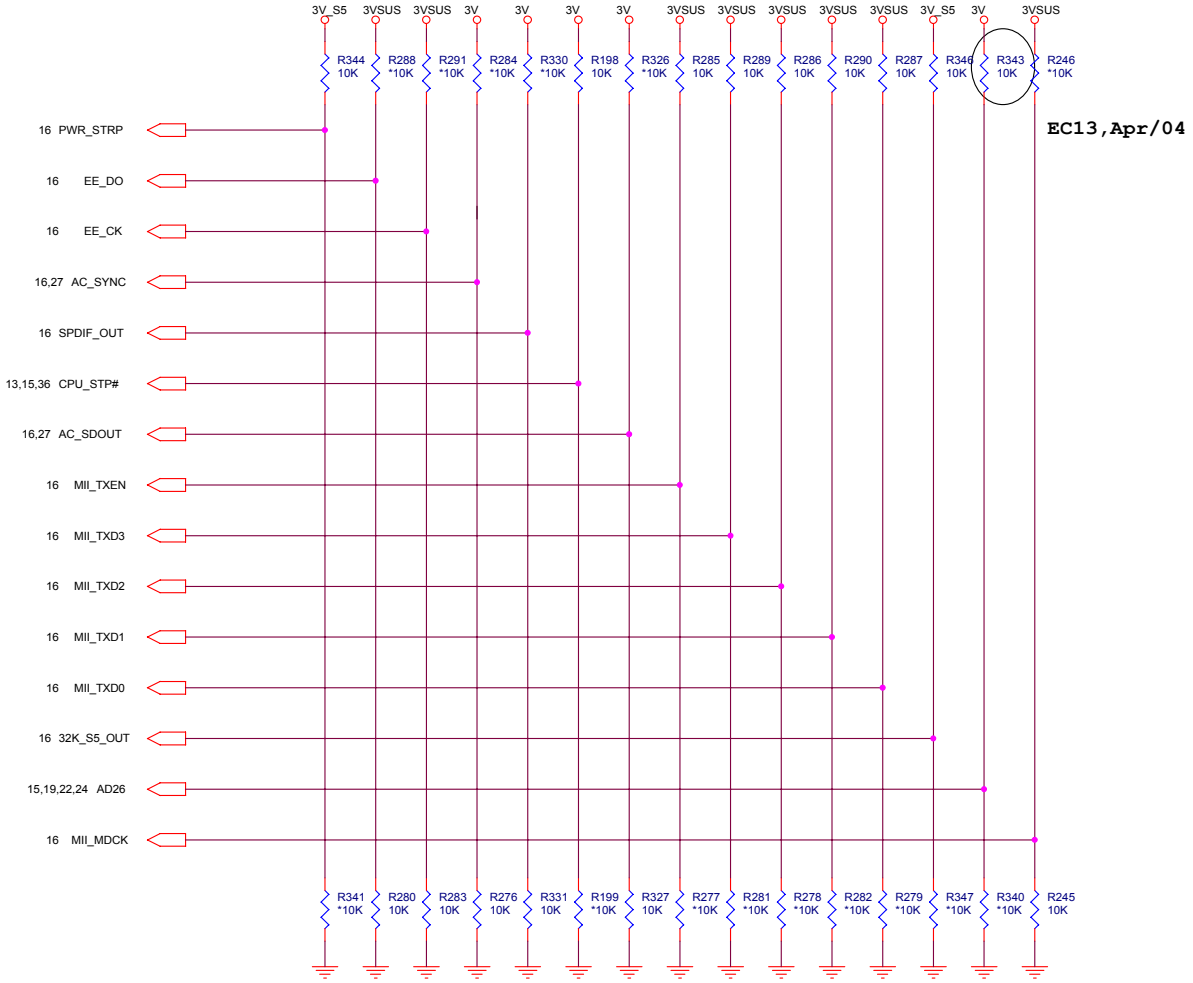


PROJECT : EF5
Quanta Computer Inc.

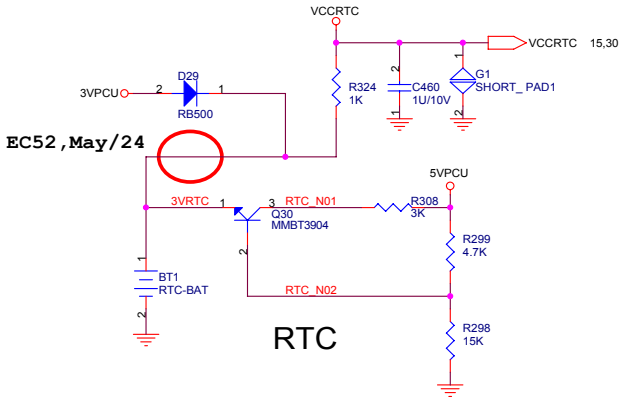
Size	Document Number	Rev
Custom	IXP150-PWR & DECOUPLING	1A
Date: Thursday, June 10, 2004	Sheet 17 of 40	

IXP150-STRAPS

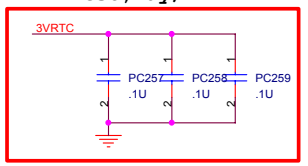
There is no such strap for A41 SB200



EC13,Apr/04



EC38,May/24



OVERLAP COMMON PADS FOR DUAL-OP RESISTORS

REQUIRED SYSTEM STRAPS

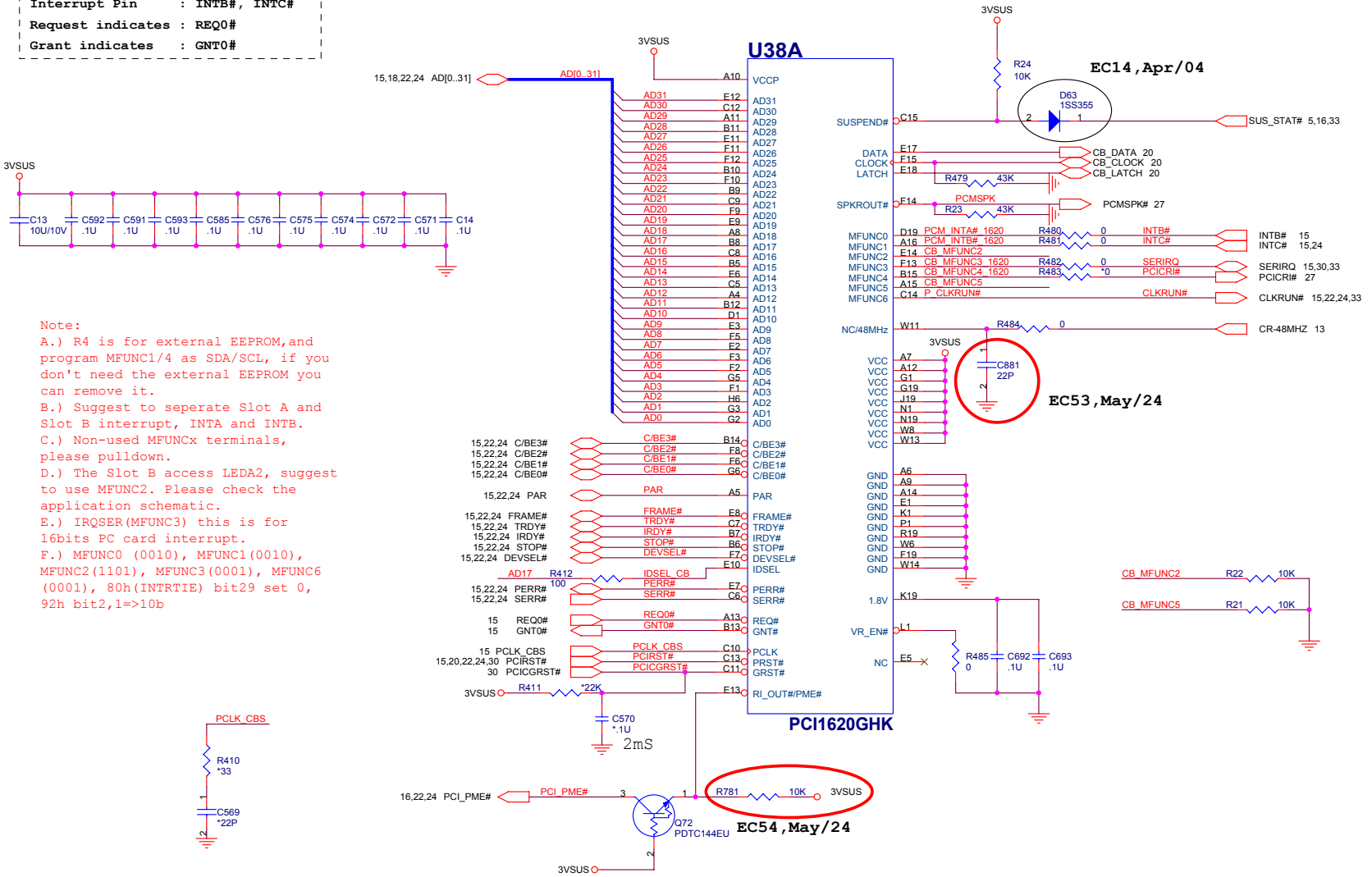
	PWR_STRP	EEDO	EECK	AC_SYNC	AC_SDOUT	SPDIF_OUT	CPU_STP#	TX_EN	ETHERNET TXD[3:0]	32KHZ_S5	PCI_AD26
STRAP HIGH	MANUAL PWR ON DEFAULT	USE DEBUG STRAPS DEFAULT	ROM ON PCI BUS	INIT ACTIVE HIGH(AMD)	33MHz NB BUS	SIO 24MHz	ENABLE SPEED STEP DEFAULT	DISABLE CPU FREQ SETTING DEFAULT	PROCESSOR FREQ MULTIPLIER	32KHZ OUTPUT FROM SB200 (INT RTC) DEFAULT	BIOS use LPC cycle DEFAULT
STRAP LOW	AUTO PWR ON	IGNORE DEBUG STRAPS	ROM ON LPC BUS DEFAULT	INIT ACTIVE LOW (P4) DEFAULT	HI SPEED A-LINK DEFAULT	SIO 48MHz DEFAULT	DISABLE SPEED STEP	ENABLE CPU FREQSETTING		32KHZ INPUT TO SB200 (EXT RTC)	BIOS uSE FWH Cycle

PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	IXP150-STRAPS	1A
Date: Thursday, June 10, 2004	Sheet 18 of 40	

CARDBUS/CARDREADER PCI1620

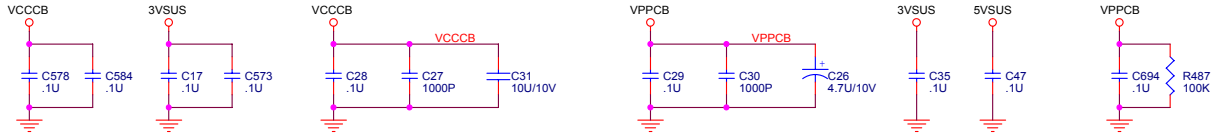
ID Select	: AD17
Interrupt Pin	: INTB#, INTC#
Request indicates	: REQ0#
Grant indicates	: GNT0#

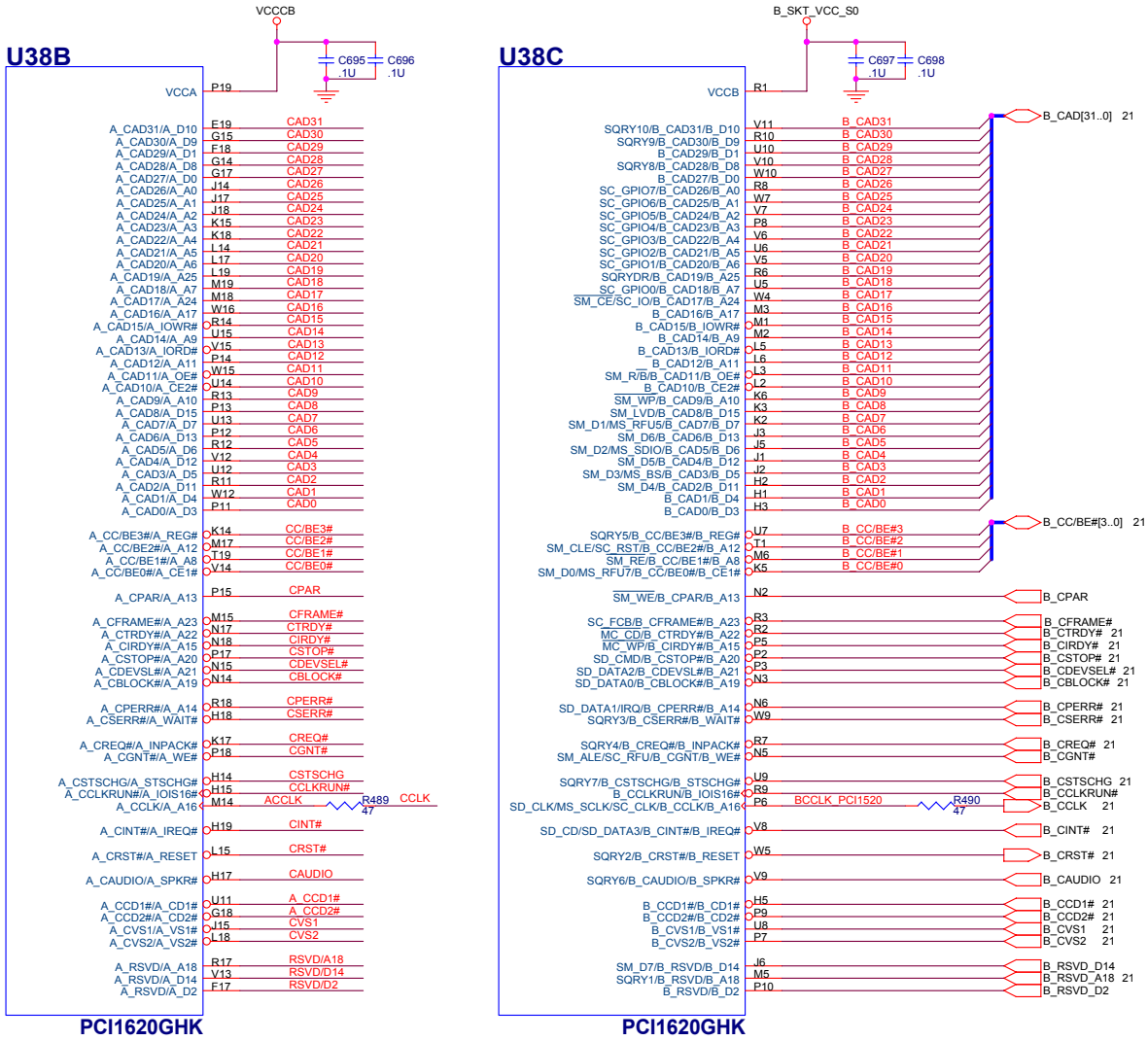


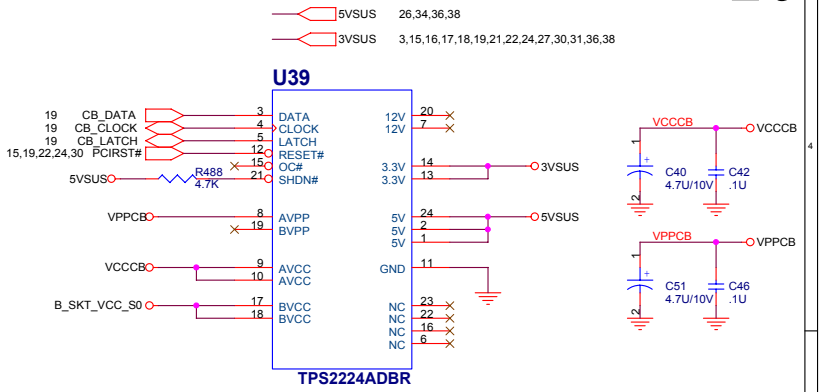
PROJECT : EF5
Quanta Computer Inc.

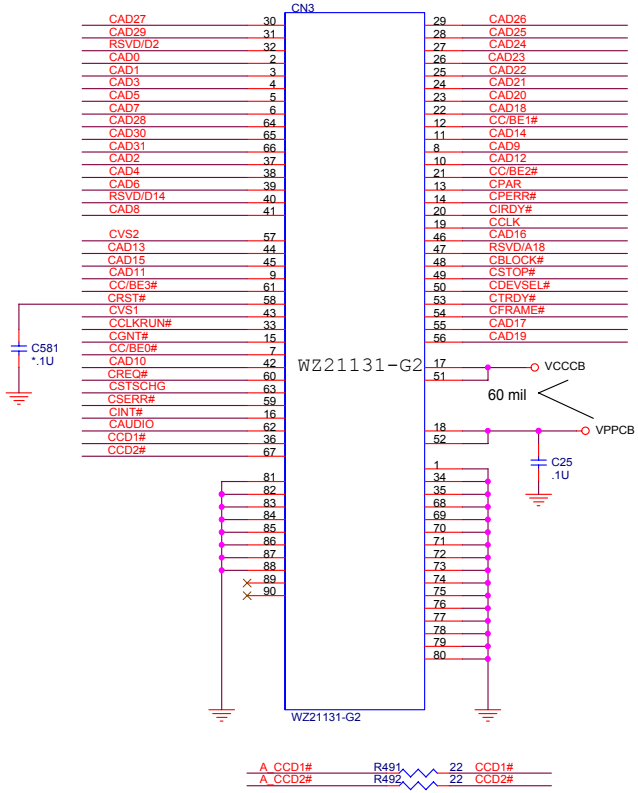
Size	Document Number	Rev
Custom	CARDBUS/CARDREADER PCI1620	1A
Date: Thursday, June 10, 2004	Sheet 19 of 40	

CARDREADER I/F & CARDBUS SLOT







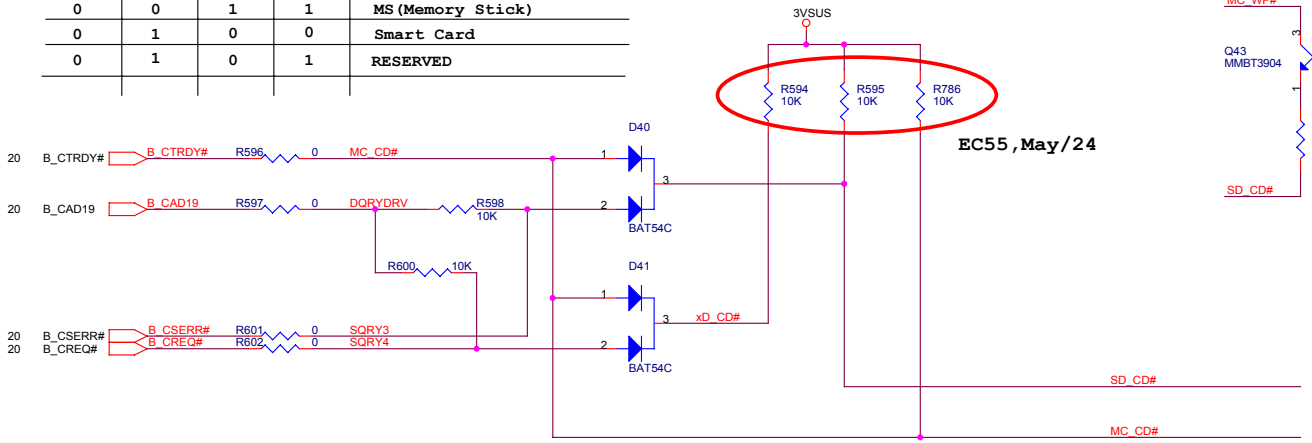


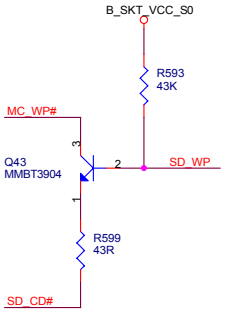
PROJECT : EF5
Quanta Computer Inc.

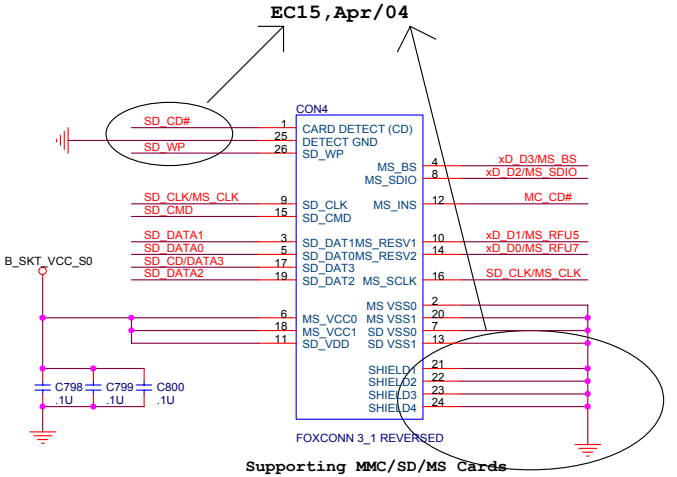
Size	Document Number	Rev
Custom	CARDREADER I/F & CARDBUS SLOT	1A
Date: Thursday, June 10, 2004	Sheet 20 of 40	

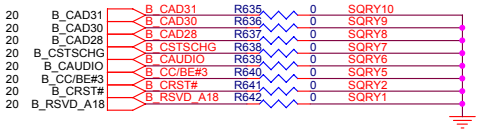
CARD READER CONN.

SQRY6	SQRY5	SQRY4	SQRY3	Interface Implement
0	0	0	0	RESERVED
0	0	0	1	SM/XD
0	0	1	0	SD/MMC
0	0	1	1	MS(Memory Stick)
0	1	0	0	Smart Card
0	1	0	1	RESERVED

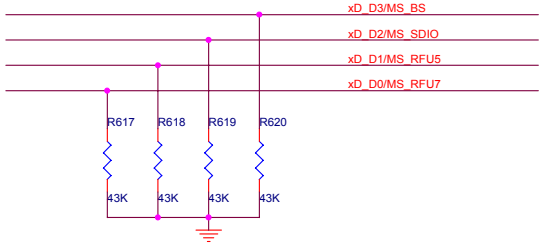


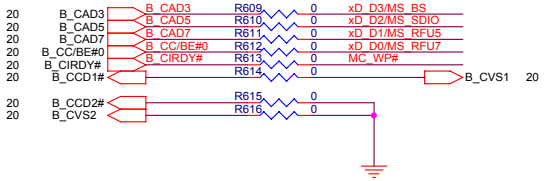






SQRY2	SQRY1	Card Voltage
0	0	Vcc=3.3V,Vpp/Vcore=1.8V
0	1	Vcc=5V,Vpp=3.3V
1	0	RESERVED





PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CARD READER CONN.	1A
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LAN-BCM4401KFB(10/100M)

BCM4401--10/100
BCM5705--10/100/GIGA

EC56,May/24

3VSUS L77 BK2125HM121
3V L81 *BK2125HM121
FOR 4401--3VSUS
FOR 5705--3V

C703 10U C704 .1U C705 .1U C706 .1U C707 .01U C708 .01U C709 .01U C710 .01U

C711 C712 C713 C714 C715 C716 C717 C718 C719 C720 C721 C722 C723 C724 .1U
VLAN_12V C725 10U

LANVCC C726 .1U C727 .1U C728 10U

VLAN_25V_1 L90 BK1608HM121 VLAN_25V
C859 .1U
EC17,Apr/16

EC57,May/24

U40

15,18,19,24 AD[0..31]

ID Select : AD16
Interrupt Pin : INTD#
Request indicates : REQ2#
Grant indicates : GNT2#

EC16,Apr/16

LANVCC R782 10K
16,19,24 PCI_PME# 2 D60 1SS355 1 S5LAN_PME#
EC58,May/24

30 S5LAN_PME#

PCLK_LAN R554 *33 C734 *22P
EC18,Apr/16

15,19,24 C/BE0# C/BE0# M4
15,19,24 C/BE1# C/BE1# L3
15,19,24 C/BE2# C/BE2# F3
15,19,24 C/BE3# C/BE3# C4

P/N
LANVCC R558 1K J12 VAUXPRSNT

15 REQ2# REQ2# C3
15 GNT2# GNT# J3
15,19,24 FRAME# FRAME# F2
15,19,24 IRDY# IRDY# F1
15,19,24 DEVSEL# DEVSEL# H3
15,19,24 STOP# STOP# H1
15,19,24 TRDY# TRDY# G3
15,19,24 PAR PAR J1
15,19,24 PERR# PERR# J2
15,19,24 SERR# SERR# A2
15,24 INT# INT# H2
15,19,20,24,30 PCIRST# PCI_RST# C2
PCLK_LAN PCLK_LAN A3
LAN_IDSEL R562 100 S5LAN_PME# PME# A6

3V C861 .1U
16 GPOC2
AD16
U69 7SH08
R783 *0
EC48,May/48

15,19,24,33 CLKRUN# R563 R737 *0 R564 10K
T234 0 C8 CSTSCHG
T240 H4 CLKRUN#
T241 A10 SMB_CLK
C9 SMB_DATA
M11 LOW_PWR

F4 M66EN

VLAN_25V L61 BK1608HM121
C744 27P C745 .1U C746 27P
Y9 25.0000 MHz
R568 200
J14 XTALVDD
N11 XTALI
N10 XTALO

T272 P7 PLLVDD3
H14 PLLVDD2

L8 NC
M9 NC
N8 NC

VLAN_12V L62 LI0603B121R
C747 .1U C748 1000P C749 1U

15mm x 15mm
BGA196

BCM4401KFB

BIASVDD A14
VDDIO A11
VDDIO E11
VDDIO K12
VDDIO L12
BK1608HM121 L79 VLAN_25V
LANVCC C729 1000P
FOR 5705--3V
FOR 4401--3VSUS

VESD1 P1 L78 BK1608HM121 3VSUS
VESD2 G2
VESD3 A1 L59 *BK1608HM121 3V

VDDP K14
VDDP L13
VDDP P11
AVDD A13
AVDD F14
VLAN_25V
VLAN_25V_1
C730 .1U
L80 BK1608HM121 VLAN_12V
C733 .1U

AVDDL F12
AVDDL F13

RP47 4P2R-S-49.9 RP48 4P2R-S-49.9 RP49 4P2R-S-49.9 RP50 4P2R-S-49.9
C860 .1U C731 .1U C882 .1U C732 .1U

TRD[3]- E14 TRDM3 TRDM3 23
TRD[3]+ E13 TRDP3 TRDP3 23
TRD[2]- D14 TRDM2 TRDM2 23
TRD[2]+ D13 TRDP2 TRDP2 23
TRD[1]- C14 TRDM1 TRDM1 23
TRD[1]+ C13 TRDP1 TRDP1 23
TRD[0]- B14 TRDM0 TRDM0 23
TRD[0]+ B13 TRDP0 TRDP0 23

LINKLEDB G13 LINK_LED# LINK_LED# 23,34
SPD100LEDB H13
SPD1000LEDB G12 R555 *0
TRAFFICLEDB G14 ACT_LED# ACT_LED# 23,34

FOR 5705--1.24K/F
FOR 4401--1.27K/F

200 mil length
RDAC D10 R557 *1.24K/F R728 1.27K/F
VAUX_33
R162 1K_0402

GPIO0 H12 T227 EEWP#
GPIO1 K13
GPIO2 J13 T228

R735 *4.7K R736 *4.7K

EECLK M10 EECLK
EEDATA P10 EEDATA

U65
CS SK DI DO VCC NC ORG GND
4*AT93C46
C832 .1U
R565 *4.7K R566 *4.7K R567 *4.7K

SPROMDOUT N9 SPROMDOUT
SPROMDIN P9 SPROMDIN

U41
VCC WP SCL SDA A0 A1 NC GND
*FM24C64FLM8X

EEWP#
EECLK
EEDATA

TRST# D11 R559 4.7K
TDI D12 T231
TCK C12 T242
TMS A12 T232
TDO B12 T233

FOR 5705--FM24C64
FOR 4401--AT93C46

REGSUP25 B11 VAUX_33
REGCTL25 C11 VAUX_25_CTL
REGSEN25 C10 VLAN_25V
REGSUP12 B9
REGCTL12 B10 VAUX_12_CTL
REGSEN12 A9 VLAN_12V

NC L7
NC K11
NC K4
NC J11
NC J4
NC H10
NC M8
NC L14
NC L11

SI E10 T236
SO G11 T237
SCLK E11 T238
CS# H11 T239

FOR 4401-- NO Stuff
Q41,Q42

FOR 5705--All
stuff

R787 0B
R788 0B
R569 0B
R570 0B
GND_LAN

EC59,May/24

VAUX_33
R556 BK2125HM121 LANVCC
C862 0.01U C863 0.01U

VAUX_25_CTL Q41 *BCP69/SOT
C735 10U C736 .1U
VLAN_25V
C737 10U C738 .1U C739 .1U

VAUX_12_CTL Q42 *BCP69/SOT
VLAN_12V
C740 10U C741 .1U C742 .1U

EC19,Apr/04
EC60,May/24

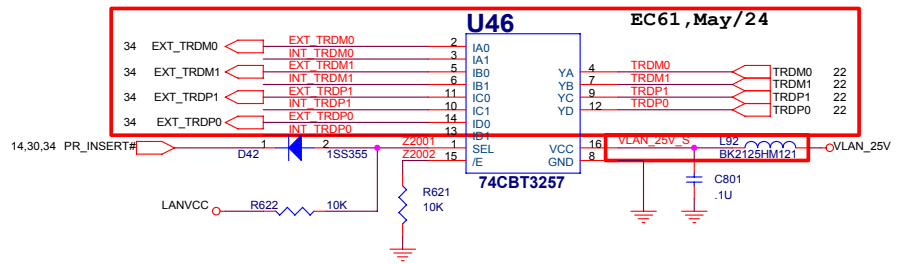
Change the part to support 400KHz

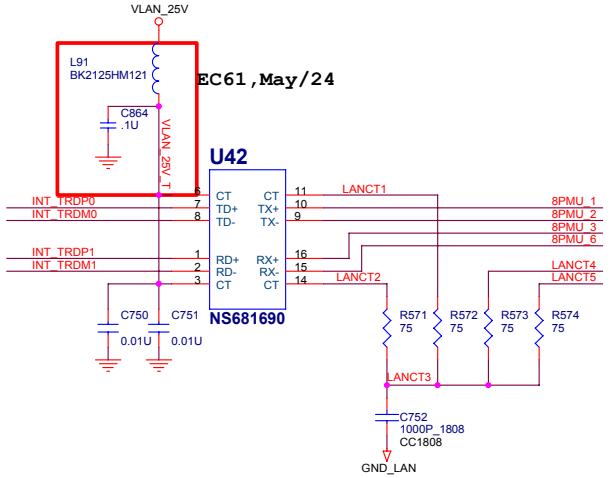
PROJECT : EF5
Quanta Computer Inc.

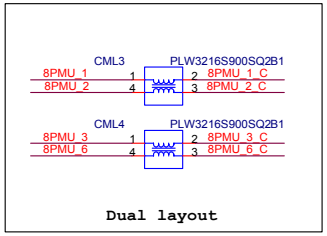
Size	Document Number	Rev
Custom	LAN--BCM4401KFB(10/100M)	1A
Date: Thursday, June 10, 2004	Sheet 22 of 40	

LAN TR & CONNECTOR

SWITCHING BETWEEN SYSTEM AND PORT REPLICATOR



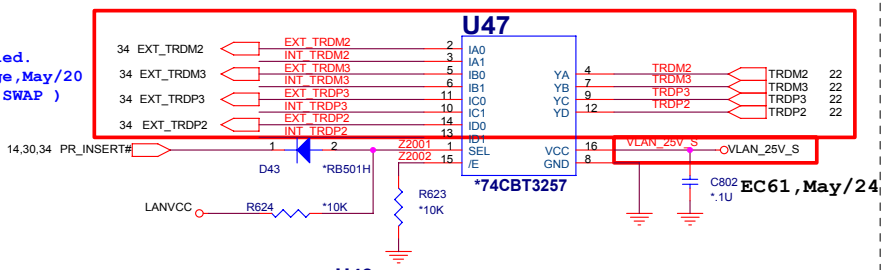


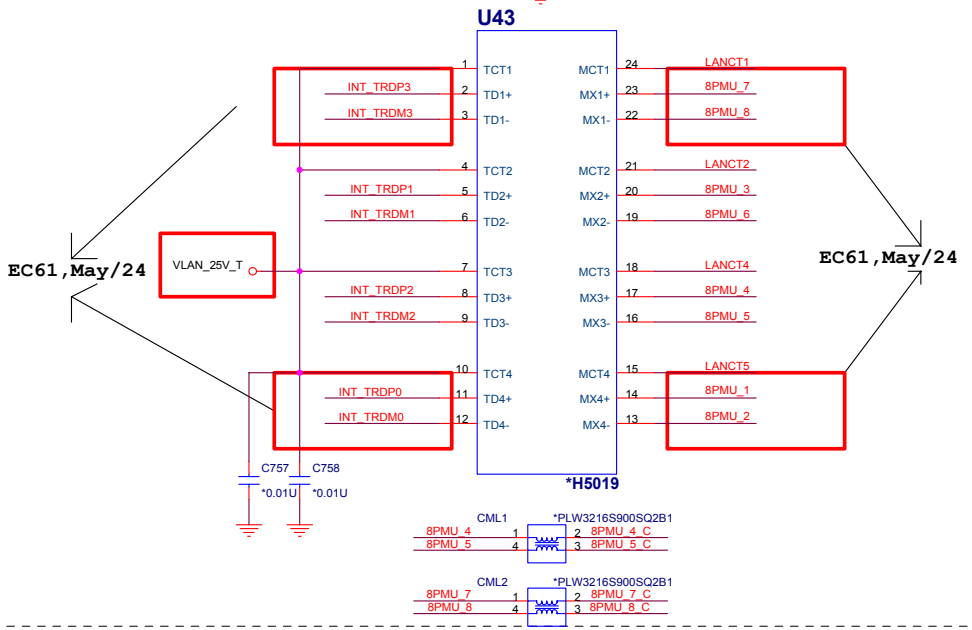


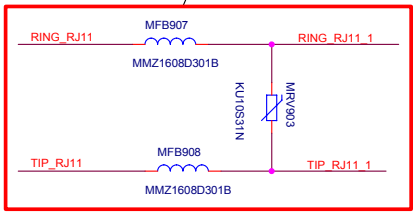
Reserved for Gigabit

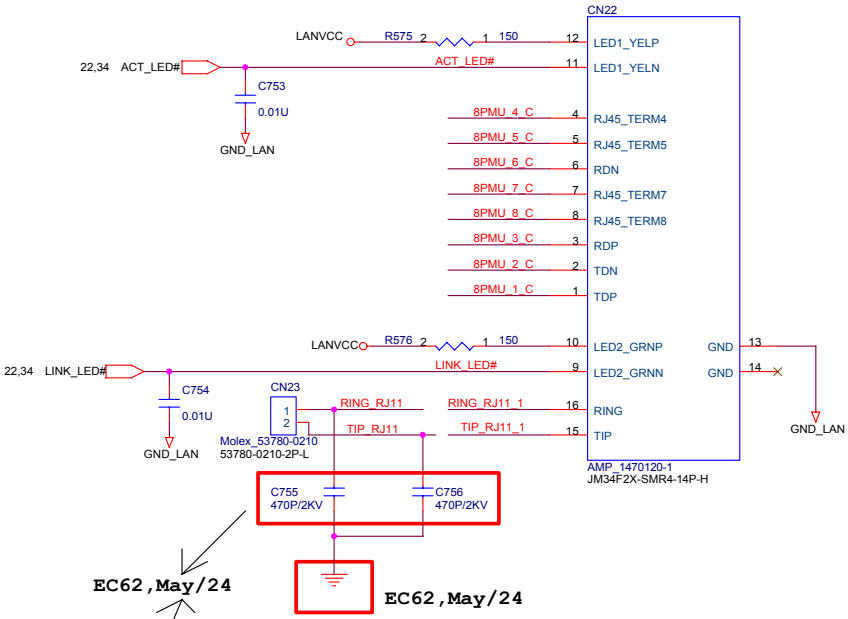
EC61,May/24

Modified.
C-Stage,May/20
(PIN SWAP)









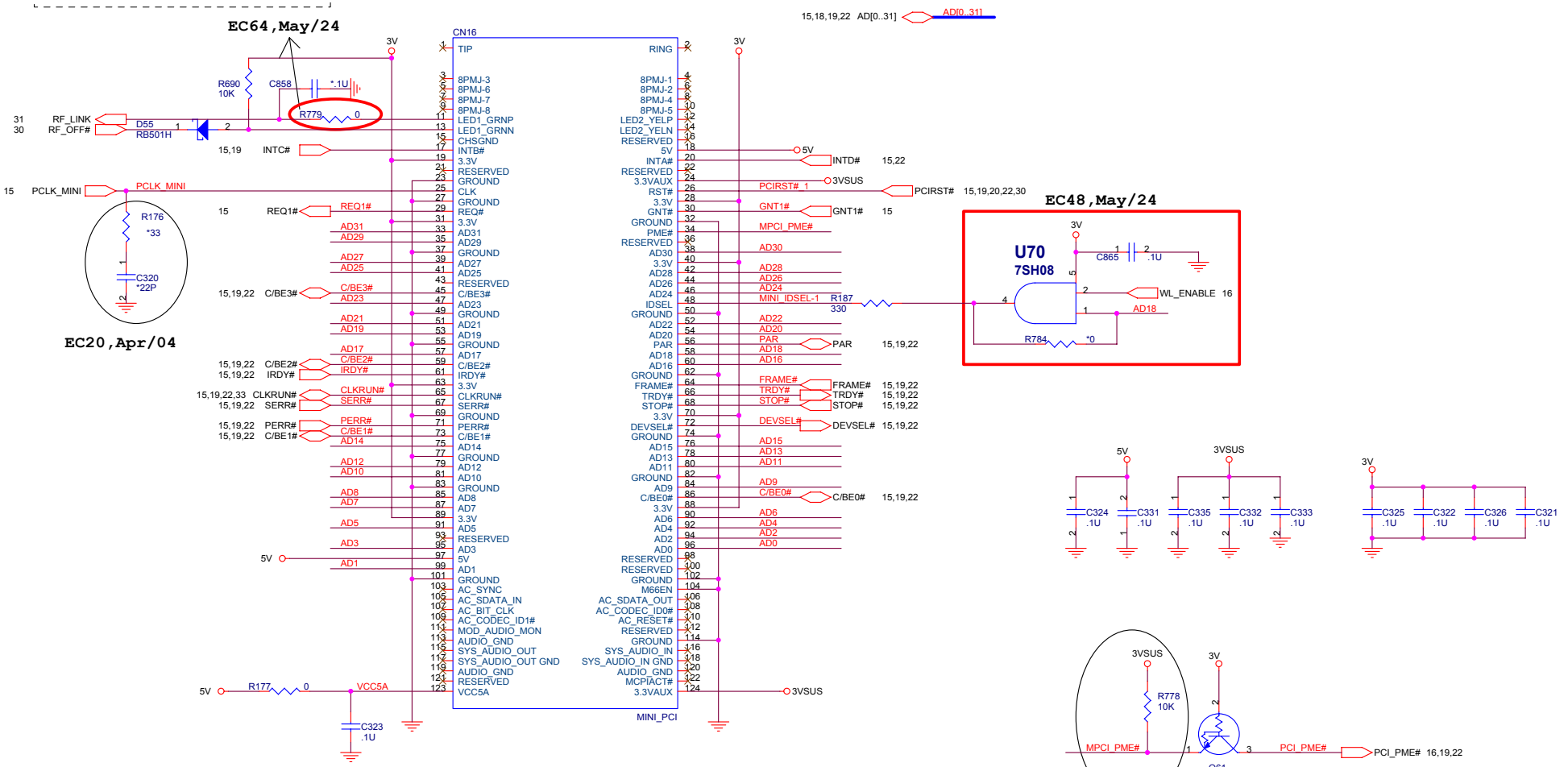
PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
	LAN TR & CONNECTOR	2A
Date: Thursday, June 10, 2004	Sheet 23 of 40	

MINIPCI SLOT

ID Select	:	AD18
Interrupt Pin	:	INTC# , INTD#
Request indicates	:	REQ1#
Grant indicates	:	GNT1#

EC64,May/24



EC20,Apr/04

EC48,May/24

EC21,Apr/04

PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MINI_PCI SLOT	1A
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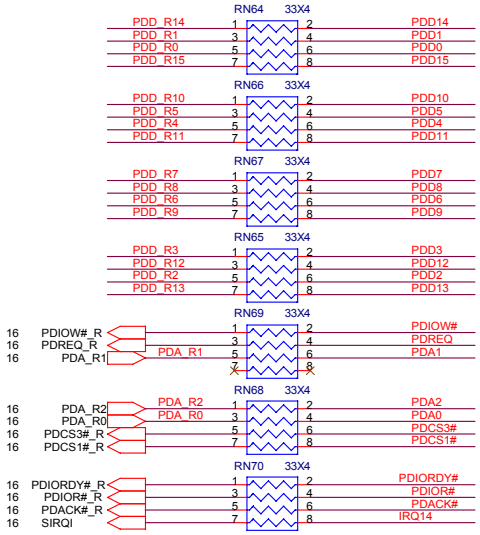
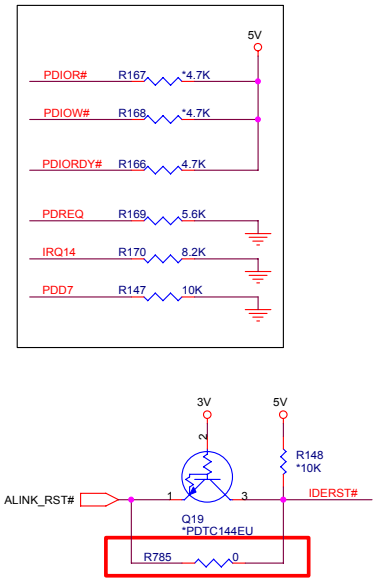
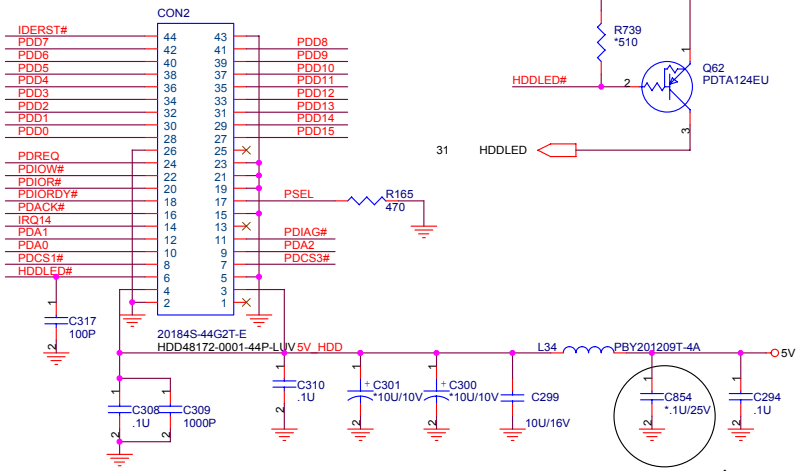
HDD , CD-ROM CONNECTOR



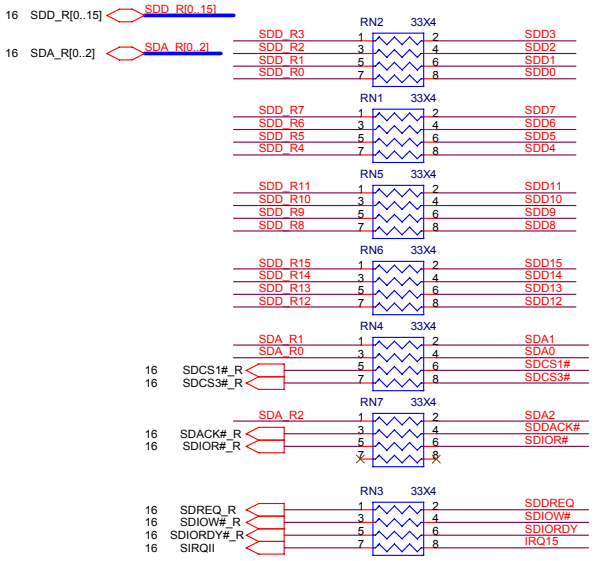


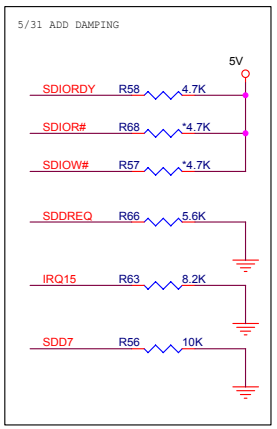
EC64,May/24

HDD connector



EC22,Apr/04



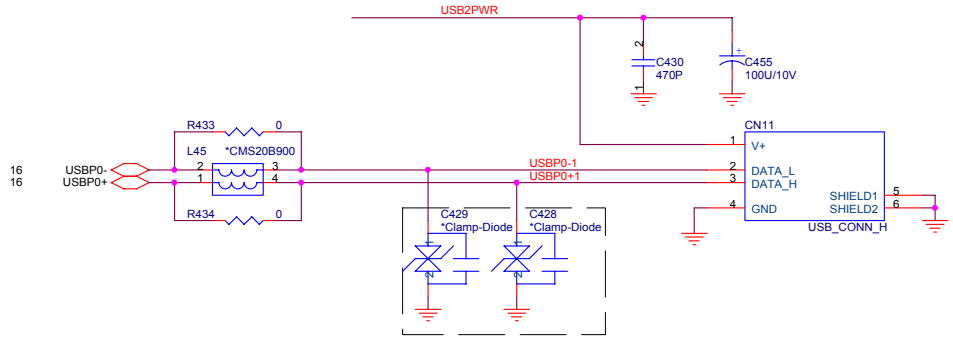


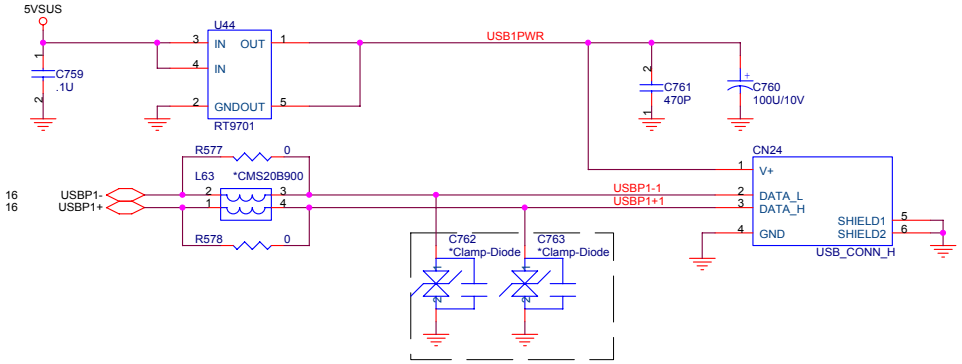
CD-ROM connector

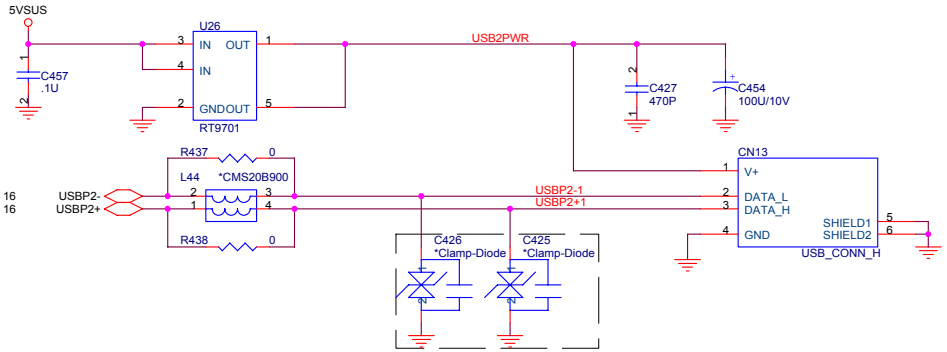
PROJECT : EF5
Quanta Computer Inc.

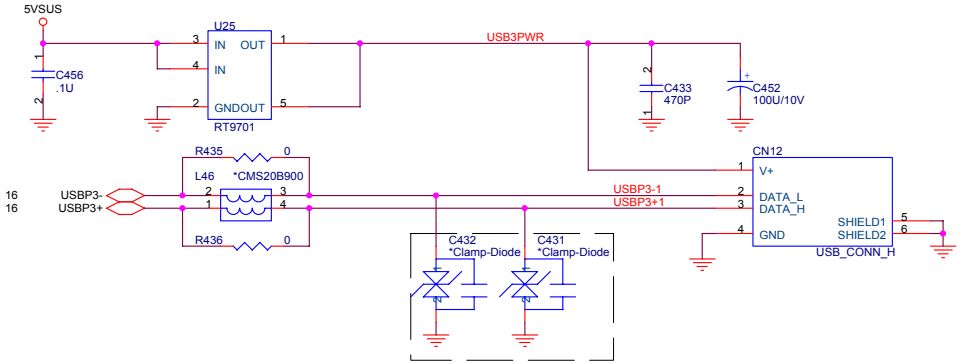
Size	Document Number	Rev
	HDD,CD-ROM CONNECTOR	2A
Date: Thursday, June 10, 2004	Sheet 25 of 40	

USB CONNECTOR









PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	USB CONNECTOR	1A
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For Layout:
Place decoupling caps near the power pins of SmartAMC device.

EC65,May/24

EC38,May/24

For Layout: Close to SmartAMC device.

15:5:15 routing , 50 mil to other signal

EC23,Apr/04

Check this pin fumction .

<Conexant Name>

20468-31

CODEC POWER

U51 GMT_G960T63U 800mA (30MIL)

SOFTWARE EQ CONTROL TABLE

GPIO4	GOIO5	S/W EQ
LOW	LOW	ON
LOW	HIGH	OFF
HIGH	LOW	OFF
HIGH	HIGH	OFF

RI FUNCTION

EC24,Apr/04

Ground Tie

For Layout:
Place crystal and associated circuitry very near SmartAMC Device.

PC BEEP CONTROL

EC66,May/24

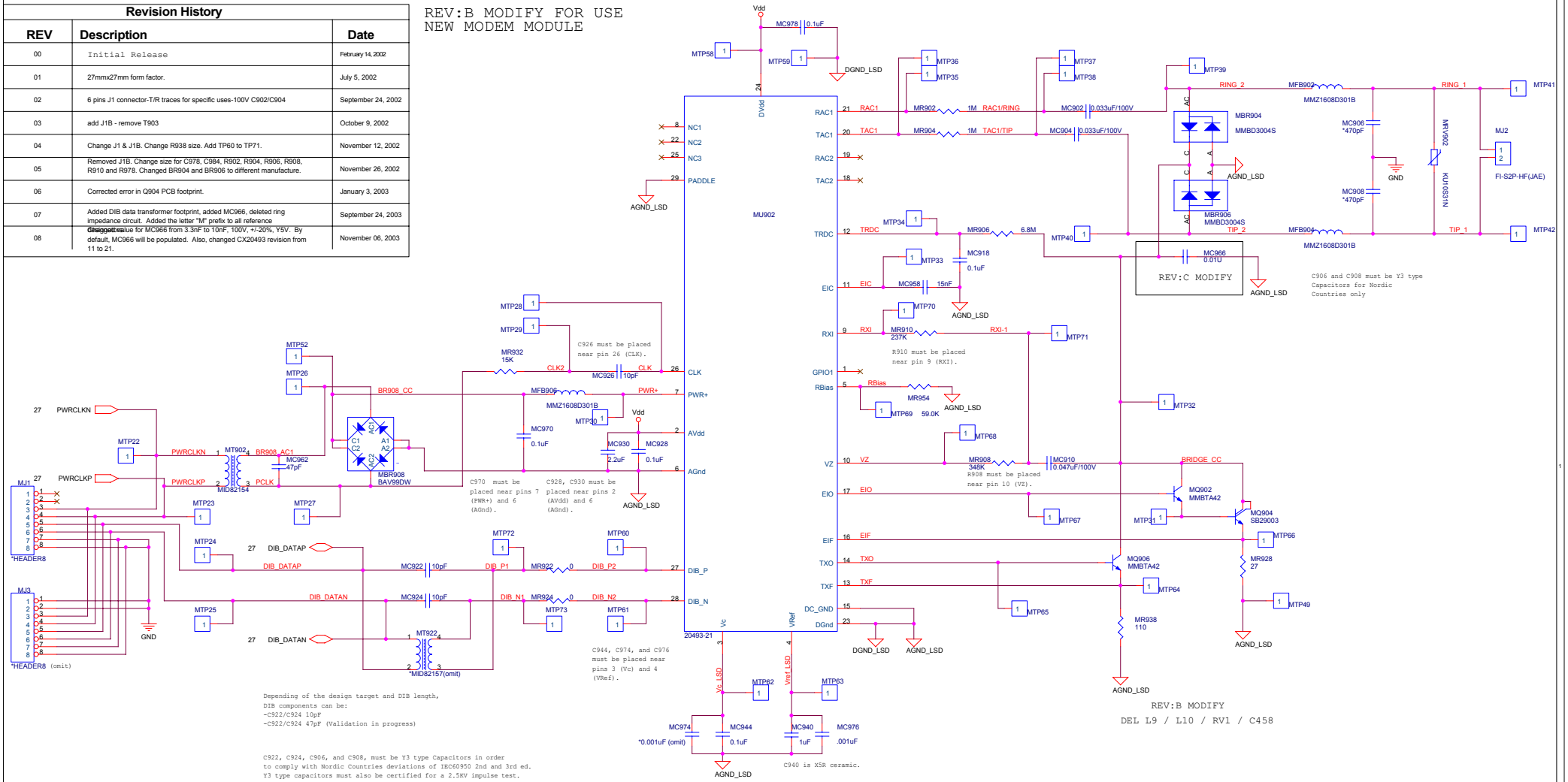
NORMAL : LOW

U50 7SH86

PROJECT : EF5	
Quanta Computer Inc.	
Size	Document Number: SMARTAMC-CONEXANT_20468-31 Rev 2A
Date: Thursday, June 10, 2004	Sheet 27 of 40

Revision History		
REV	Description	Date
00	Initial Release	February 14, 2002
01	27mmx27mm form factor.	July 5, 2002
02	6 pins J1 connector-T/R traces for specific uses-100V C902/C904	September 24, 2002
03	add J1B - remove T903	October 9, 2002
04	Change J1 & J1B. Change R938 size. Add TP60 to TP71.	November 12, 2002
05	Removed J1B. Change size for C978, C984, R902, R904, R906, R908, R910 and R978. Changed BR904 and BR906 to different manufacture.	November 26, 2002
06	Corrected error in Q904 PCB footprint.	January 3, 2003
07	Added DIB data transformer footprint, added MC966, deleted ring impedance circuit. Added the letter "M" prefix to all reference designators.	September 24, 2003
08	Changed value for MC966 from 3.3nF to 10nF, 100V, +/-20%, Y5V. By default, MC966 will be populated. Also, changed CX20493 revision from 11 to 21.	November 06, 2003

REV:B MODIFY FOR USE
NEW MODEM MODULE



REV:B MODIFY
DEL L9 / L10 / RV1 / C458

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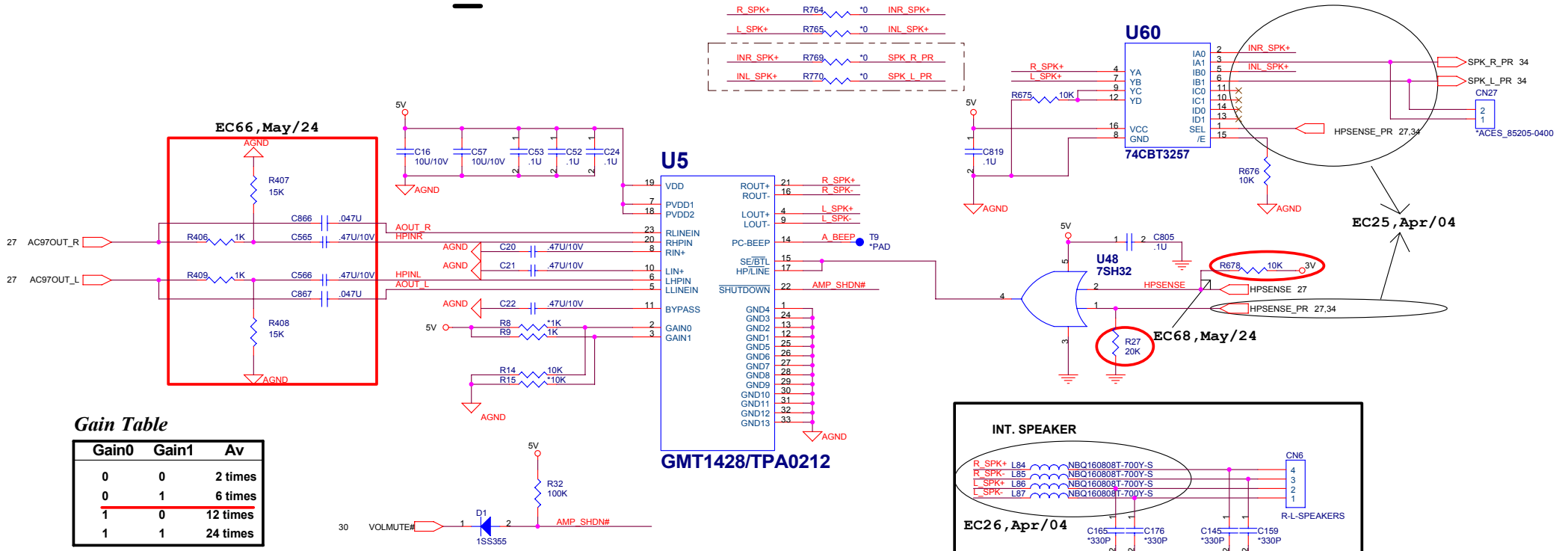
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SMARTAMC-DAA_20493-21	1A
Date: Thursday, June 10, 2004	Sheet 28 of 40	

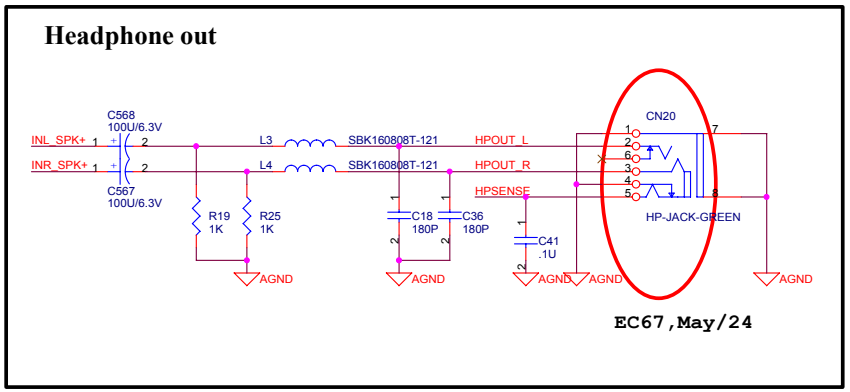
AUDIO AMPLIFIER-GMT_1428

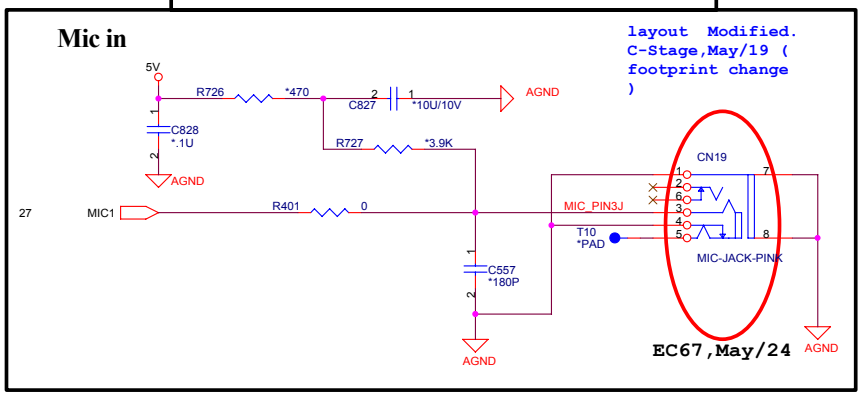
To Port-Replicator

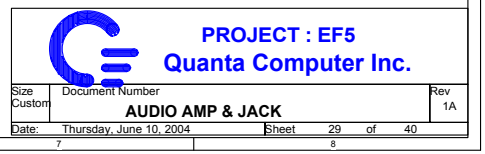


Gain Table

Gain0	Gain1	Av
0	0	2 times
0	1	6 times
1	0	12 times
1	1	24 times







KBC-NS87551L

Modifed at Feb/15

LDRQ#(pin 8) internal is no use

EC27,Apr/04

EC71,May/24

EC72,May/24

EC28,Apr/04

Should have a 0.1uF capacitor close to every GND-VCC pair + one larger cap on the supply.

SHBM=1: Enable shared memory with host BIOS

I/O Address		
BADDR1-0	Index	Data
0 0	2E	2F
0 1	4E	4F
1 0	(HCFGBAH, HCFGBAL)	(HCFGBAH, HCFGBAL)+1
1 1	Reserved	

Pin 103 internal is "A19",Can't use to GPIO

PROJECT : EF5

Quanta Computer Inc.

Size	Document Number	Rev
Custom	KBC-NS87591L	1A

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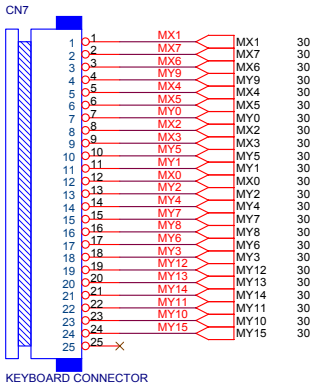
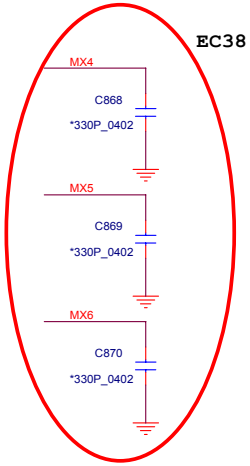
KEYBOARD CONN & INDICATOR

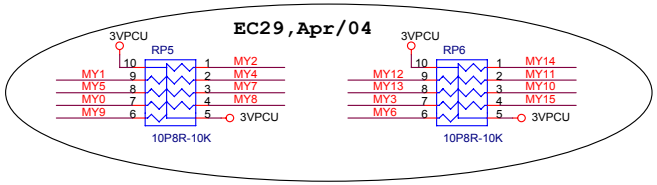
KEYBOARD CONNECTOR

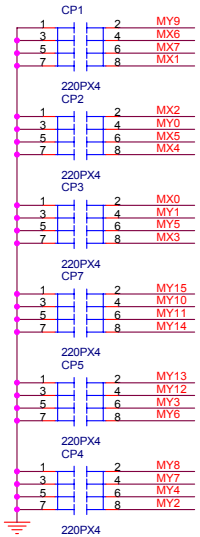


EC38,May/24

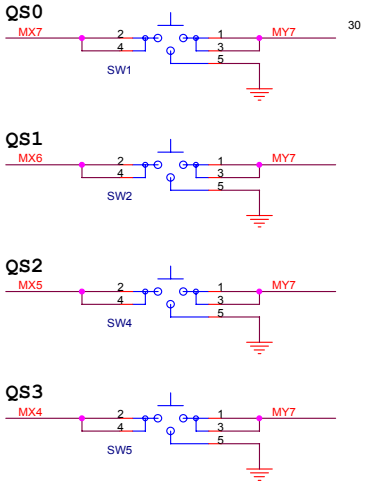


EC29,Apr/04

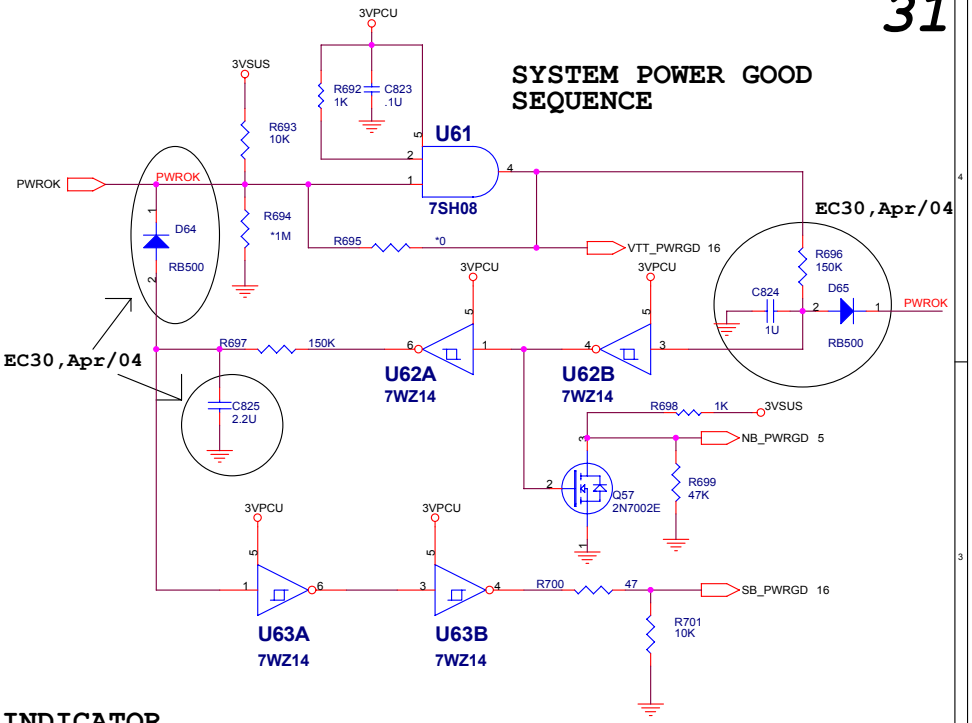




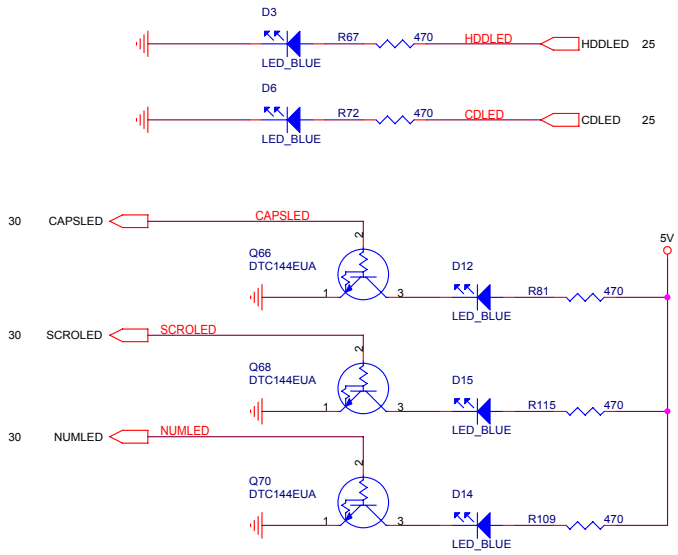
QUICK SWITCH

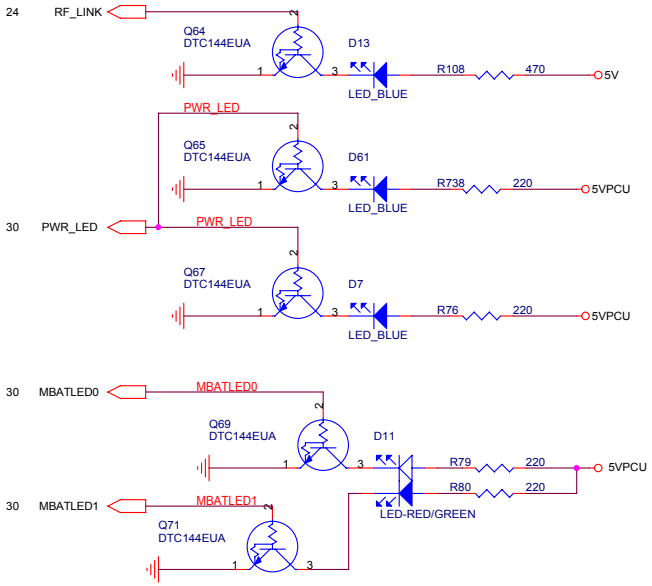


SYSTEM POWER GOOD SEQUENCE



SYSTEM INDICATOR





PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	KEYBOARD CONN & INDICATOR	1A
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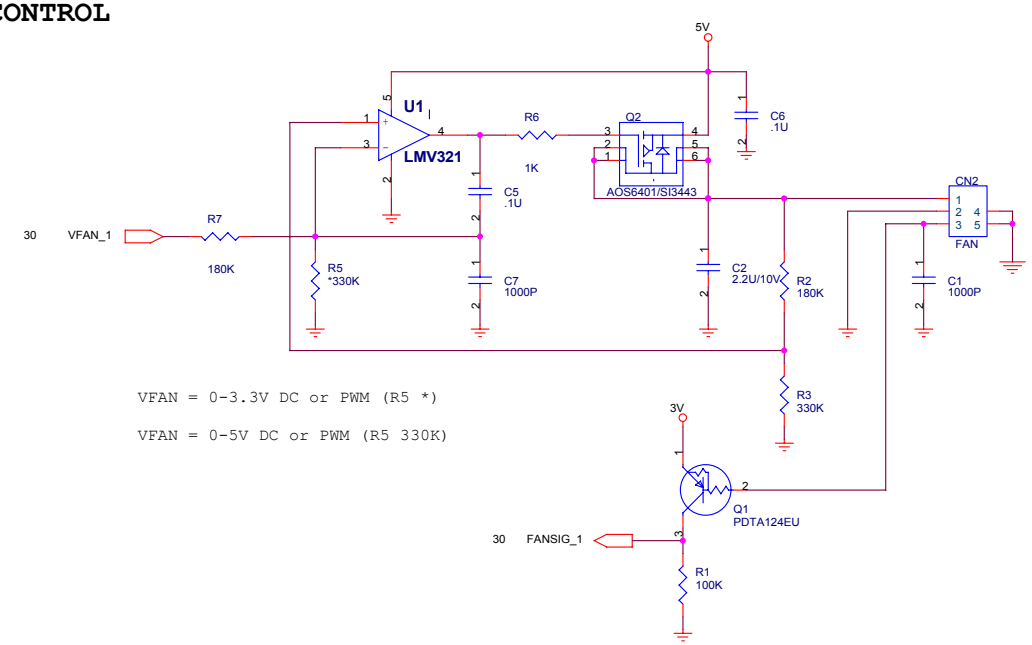
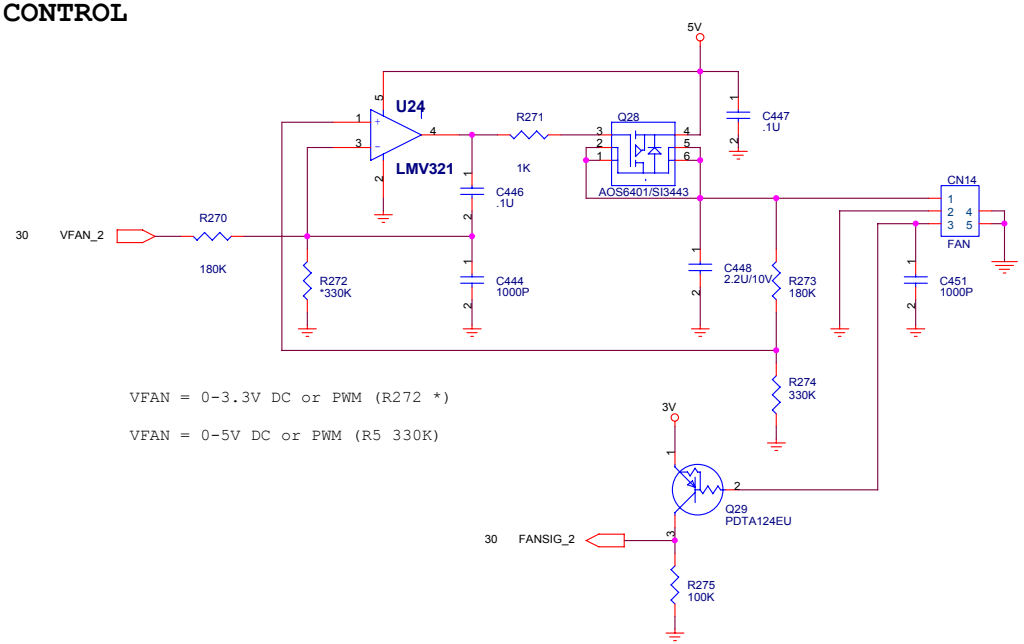
FAN CONTROL & T/P CONNECTOR

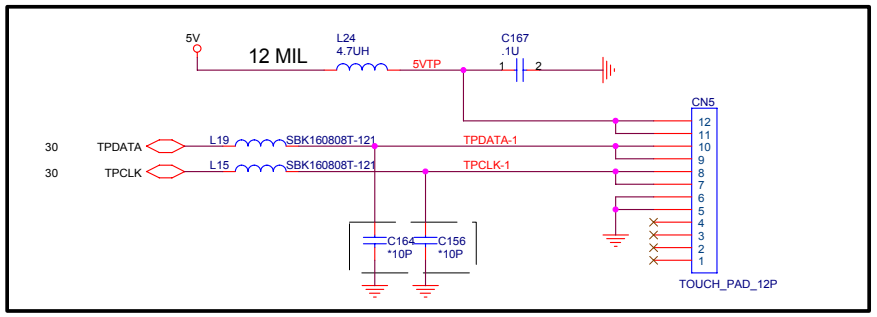
FAN1 CONTROL



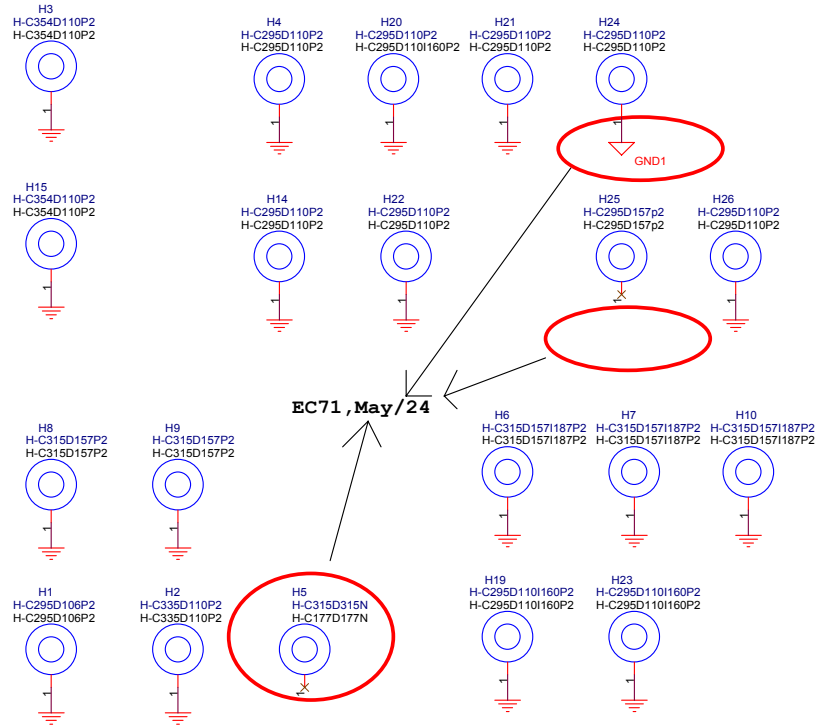
FAN2 CONTROL



TOUCH PAD CONN.



SCREW HOLE



PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	FAN CONTROL & T/P CONNECTOR	1A
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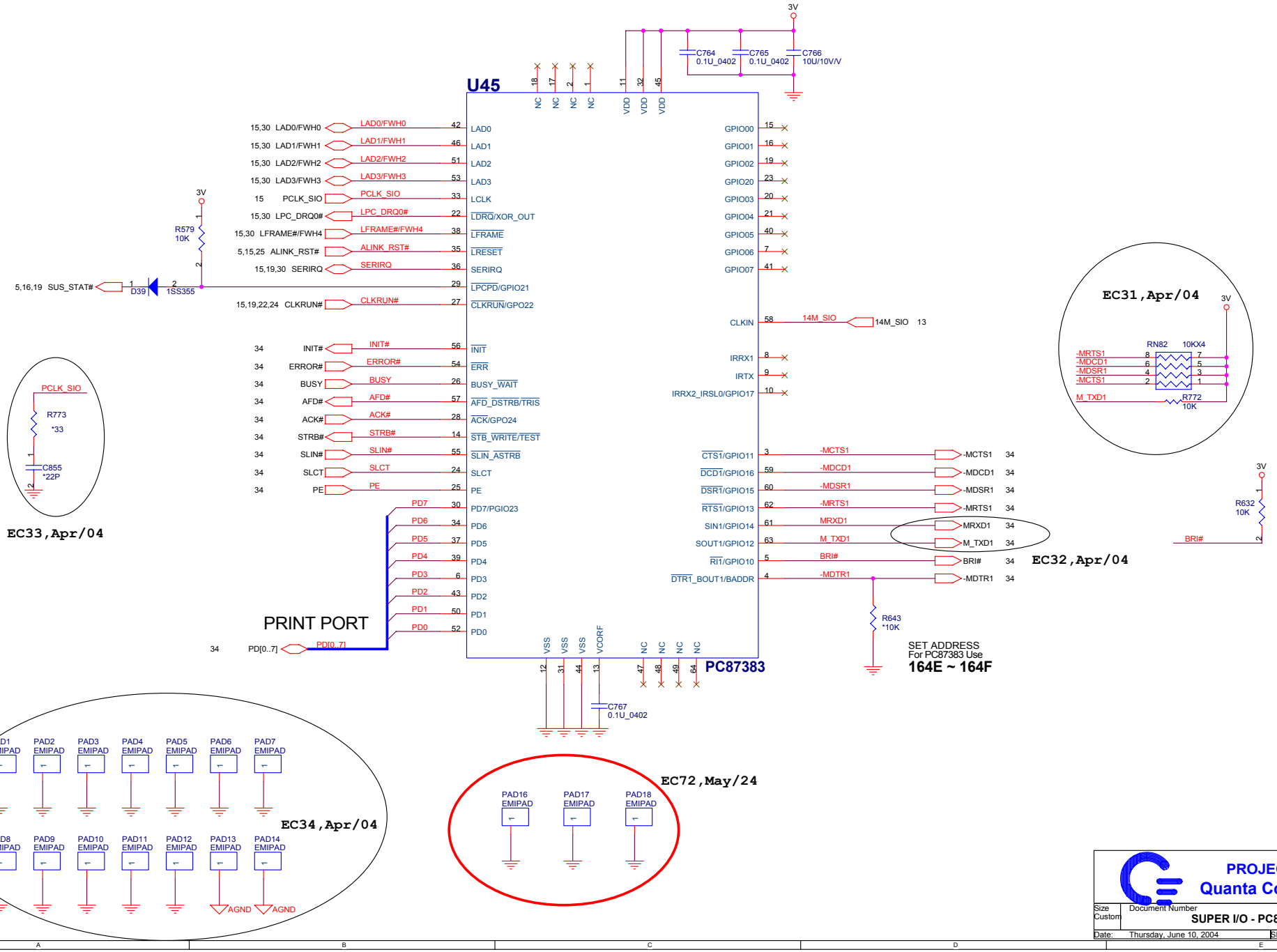

PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SUPER I/O - PC87383	1A

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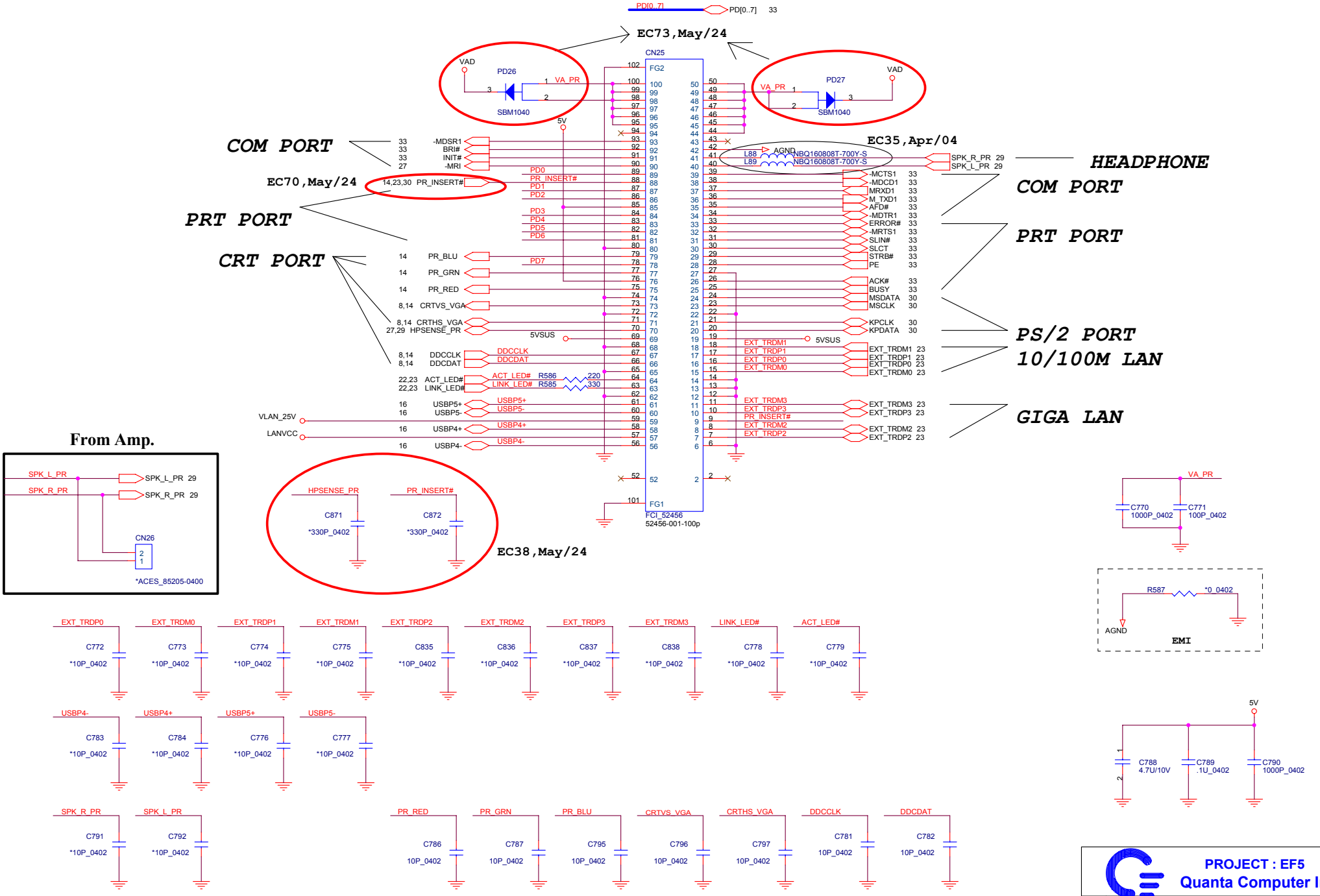
PORT REPLICATOR



PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	PORT REPLICATOR	1A
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BATTERY CHARGER

BOM Modified.
C-Stage,May/31

EC73,May/24

EC74,May/24

EC75,May/24

EC76,May/24

EC77,May/24

EC78,May/24

300mV/A for Batt I
dicharge sensing

300mV/A for Adp
Iin sensing

CV for 4S ====16.9V
for 3S ====12.7V

1.Charging Current (A) = Victl (V)* 1.55
2.Less then REFIN(3.3V) / 100 for
Charging Shutdown threshold

PU9
MAX1772EEI

PROJECT : EF5
Quanta Computer Inc.

BATTERY CHARGER(MAX1873)

Size: Custom | Document Number | Rev: 1A

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VCORE-1(ISL6248)

Northwood : Rdroop=2.26K
Vdroop=40.2uA*2.26K=91mV
Prescott : Rdroop=2.26K//16.2K=1.98K
Vdroop=49uA*1.98K=97mV

2V/ROFS=VOFS/RFB
Prescott : ROFS=PR14//PR79=265K
2V/265K=VOFS/1.98K;VOFS=15mV
Northwood : ROFS=340K
2V/340K=VOFS/2.26K;VOFS=13mV

Prescott:	Northood:
HFM=1.325V/80A	HFM=1.55V/66A
LFM=1.15V/32A	LFM=1.20V/34A
DRSM=0.8V/6A	DRSM=1.0V/6A
Vos=1.7%	Vos=1.7%
Load line=1.3mV/A	Load line=1.5mV/A
Vdroop=80A*1.3mV=104mV	Vdroop=66A*1.5mV=99mV

Battery Feed Forward

Load For destop solution

EC38,May/24
EC79,May/24
EC80,May/24
EC81,May/24
EC82,May/24
EC83,May/24

FREQ=200KHZ

PU10 ISL6248

PU11 MAX1982

PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	VCORE-1(ISL6248)	1A
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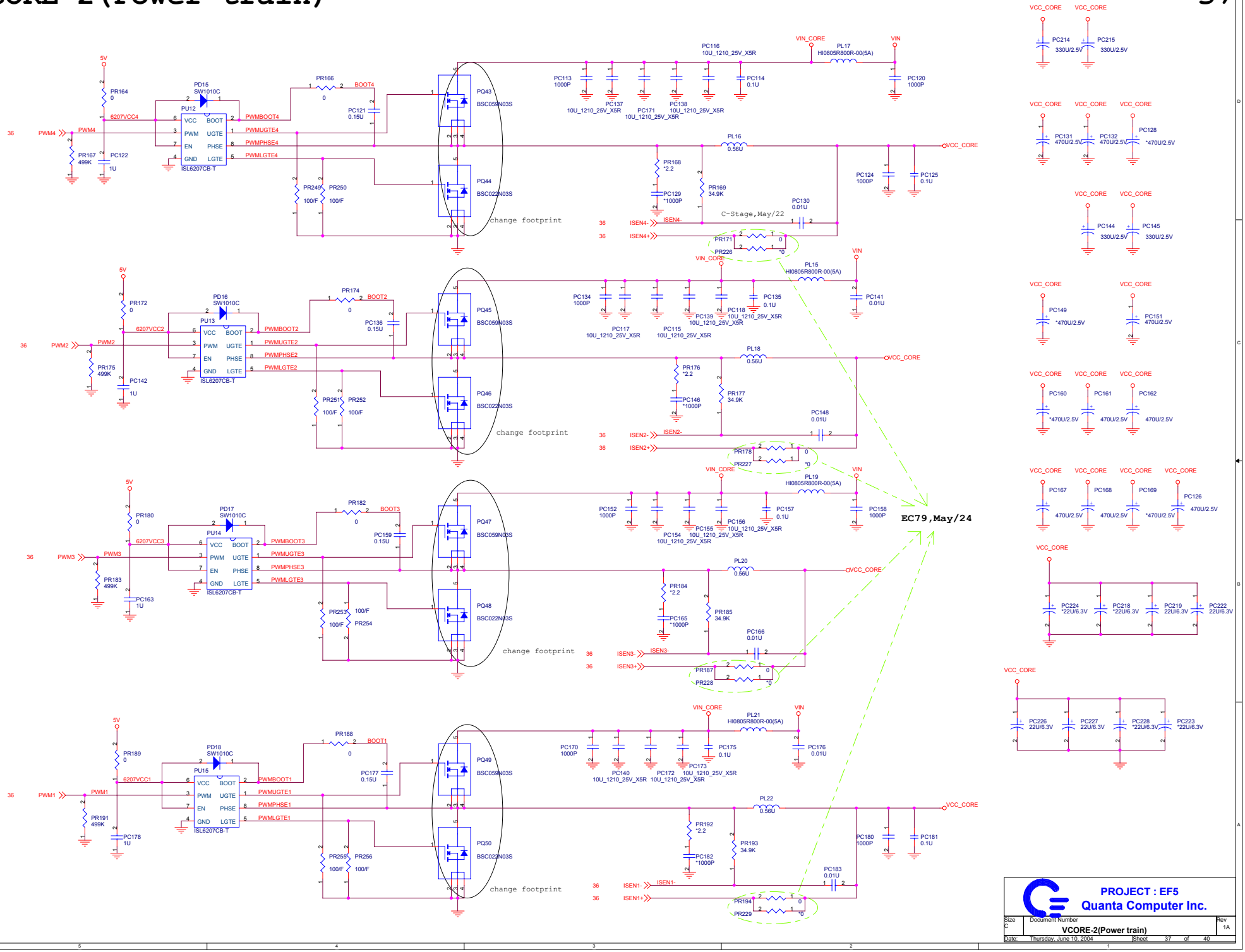
VCORE-2(Power train)



PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
C	VCORE-2(Power train)	1A
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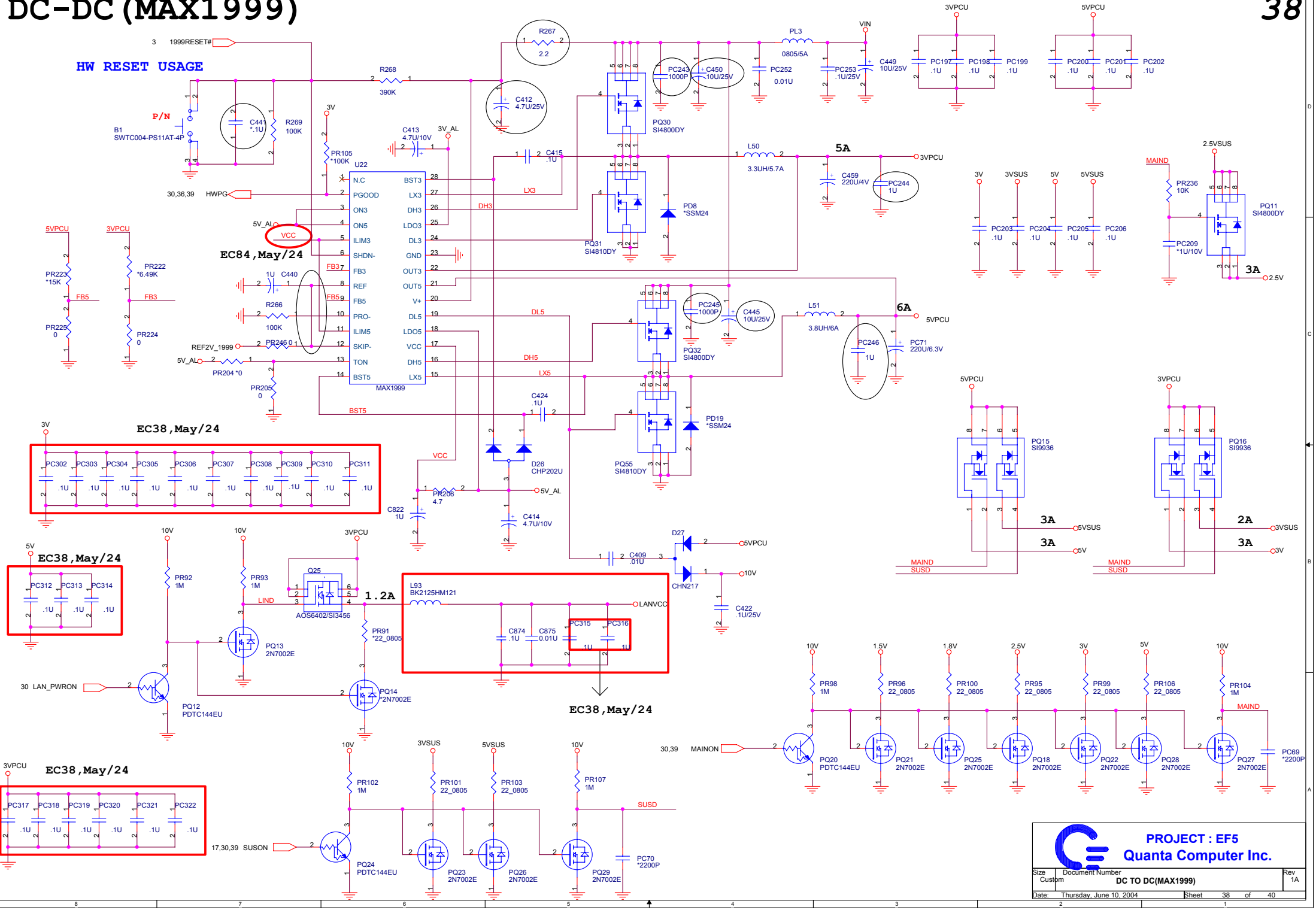
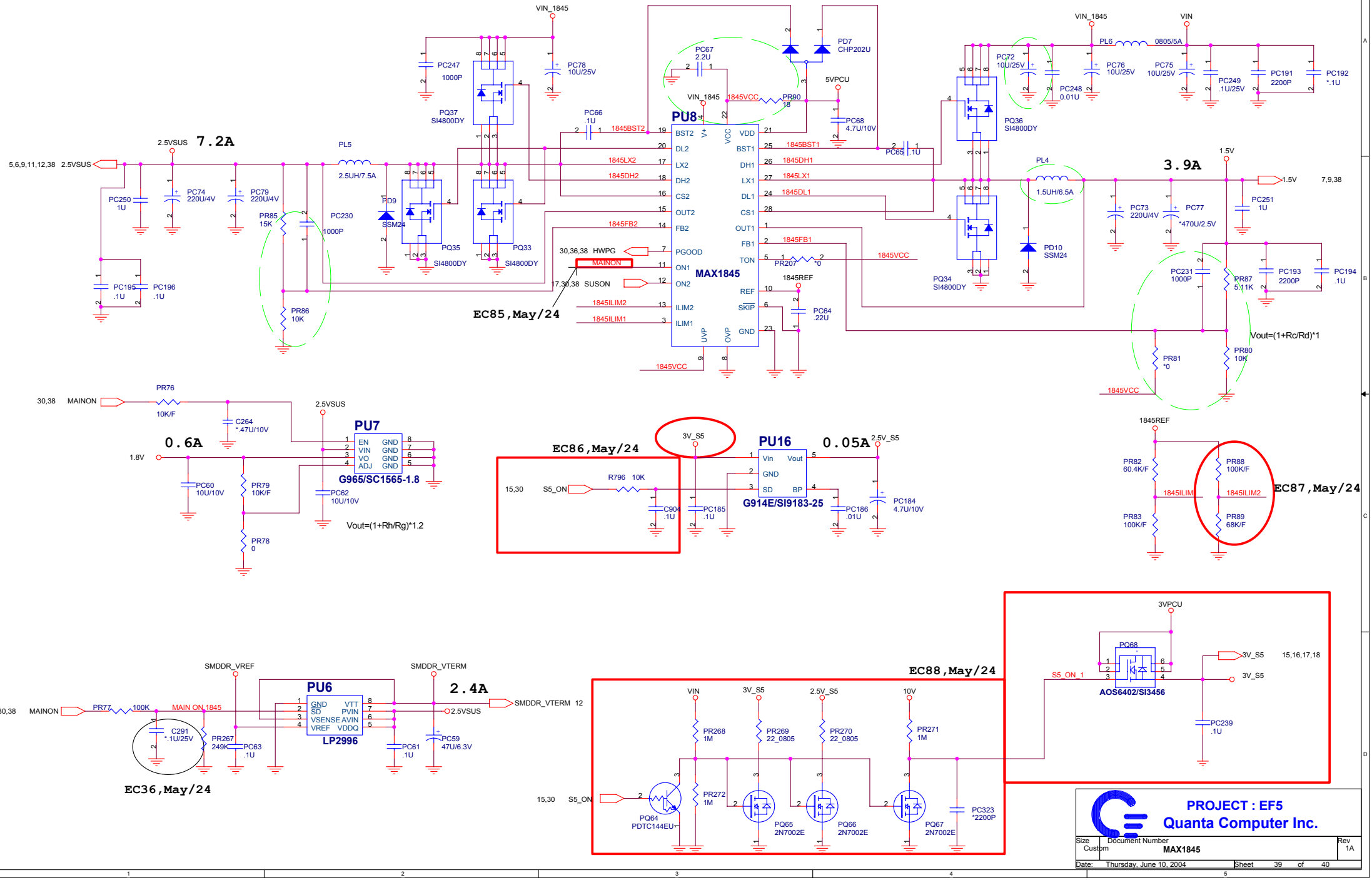
DC-DC (MAX1999)



DC/DC MAX1845(2.5V&1.5V),1.8V&1.25V



EF5

Main Board

MODEL	REV	CHANGE LIST		
	1A	First Release		
	2A	SHEET	EC.	
		P.3	1	EC recommend
			2	Intel recommend
		P.4	3	Intel recommend
		P.8	4	Waveform fine tune for ATi recommend
			5	Layout modify for EMI concern.
		P.9	6	ATi recommend
		P.11	7	Layout modify for pin swap - easy routing
			8	DDR-Module recognize modify
		P.13	9	ATi recommend
			10	Pin swap for CLK frequency select control
		P.16	11	USB port pull down resistor placement from Port Replicator to system
			12	ATi recommend
		P.18	13	Strapping-pin swap for PMC flash rom used
		P.19	14	Added diode to avoid leakage
		P.21	15	Pin define swap
		P.22	16	Delete resistor for double pull up
			17	Separated power well with different analog power pin
			18	Reserved for waveform fine tune
			19	No stuff for BCM4401
		P.24	20	Reserved for waveform fine tune
			21	Added pull up resistor for PME event
		P.25	22	Reserved for EMI fine tune
		P.27	23	BOM change for Conexant recommend
			24	Ring function modify
		P.29	25	Quick switch pin control for internal & external speaker out
			26	EMI recommend
		P.30	27	Reserved for waveform fine tune
			28	Package change for layout issue
		P.31	29	Change power well for Quick button wake up event
			30	Power sequence fine tune for ATi recommend
		P.33	31	Added pull up resistor for input pin
			32	Fixed serial port could not transfer data
			33	Reserved for waveform fine tune
			34	Added spring for EMI
		P.34	35	EMI recommend
	3A	P.3	36	CPU throttling support by Battery mode
			37	Intel recommend
		P.4,8, 11,13 14,15 19,31 34,36 38	38	Reserved for EMI fine tune
		P.4	39	Intel recommend
		P.4	40	ATi recommend
		P.5	41	ATi recommend
		P.13	42	Value change for waveform fine tune
		P.14	43	Added part for Lid switch protect
		P.14	44	Waveform fine tune to meet VESA specification
		P.14	45	Waveform fine tune to meet VESA specification

MODEL / PAGE	EF5 FROM	EF5 TO
01	1A	
02	1A	
03	1A	
04	1A	
05	1A	
06	1A	
07	1A	
08	1A	
09	1A	
10	1A	
11	1A	
12	1A	
13	1A	
14	1A	
15	1A	
16	1A	
17	1A	
18	1A	
19	1A	
20	1A	
21	1A	
22	1A	
23	1A	
24	1A	
25	1A	
26	1A	
27	1A	
28	1A	
29	1A	
30	1A	
31	1A	
32	1A	
33	1A	
34	1A	
35	1A	
36	1A	
37	1A	
38	1A	
39	1A	

PROJECT : EF5

Quanta Computer Inc.

Size	Document Number	Rev
Custom	RELEASE NOTE	1A

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MODEL	REV	CHANGE LIST
EF5 Main Board	3A	

SHEET	EC.	
P.15	46	Value change for waveform fine tune
P.16	47	ATi recommend
P.16,24	48	Software specification implement
P.16	49	ATi recommend
P.17	50	ATi recommend
	51	ATi recommend
P.18	52	ATi recommend
P.19	53	Added capacitor for waveform fine tune
	54	Added resistor for PME function
P.21	55	TI recommend
P.22	56	Added one capacitor for Broadcom recommend
	57	Added capacitors for Broadcom recommend
	58	Circuit modify for PME function
	59	Added capacitors for Broadcom recommend
	60	Added capacitors for Broadcom recommend
P.23	61	Pin swap for Broadcom recommend
	62	EMI suggestion
P.24	63	Added resistor for Wireless Lan indicator
P.25	64	Fine tune the IDE reset waveform
P.27,29	65	Fixed Wake On Ring function
	66	Fine tune the Audio quality
P.29	67	Layout package modify
	68	Fine tune the trigger level
P.30	69	Power saving control for Battery only mode
P.30,32	70	Power well modify and pin swap
P.32	71	Modify for EMI & ESD issue
P.33	72	Added spring for SMT issue
P.34,35	73	Added diode to avoid spark while insert P.R.
P.35	74	EMI suggestion
	75	Battery learning and power throttling
	76	Bom error
	77	Added capacitors for input current limit
	78	Value change for ACIN detect
P.36	79	Modify feedback sense current
	80	Modify CPU OCP
	81	Modify compesation
	82	Fine tune Prescott CPU load line
	83	Fine tune Northwood CPU load line
P.38	84	Modify 3V/5V OCP
P.39	85	Fine tune power sequence
	86	Fine tune power sequence
	87	Modify 2.5V OCP
	88	Fine tune power sequence

MODEL / PAGE	EF5 FROM	EF5 TO
01	1A	
02	1A	
03	1A	
04	1A	
05	1A	
06	1A	
07	1A	
08	1A	
09	1A	
10	1A	
11	1A	
12	1A	
13	1A	
14	1A	
15	1A	
16	1A	
17	1A	
18	1A	
19	1A	
20	1A	
21	1A	
22	1A	
23	1A	
24	1A	
25	1A	
26	1A	
27	1A	
28	1A	
29	1A	
30	1A	
31	1A	
32	1A	
33	1A	
34	1A	
35	1A	
36	1A	
37	1A	
38	1A	
39	1A	

PROJECT : EF5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RELEASE NOTE	1A

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