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[illegible]

P282: NV44/G3-64, BGA MEMORY x32

REV HISTORY

A00: Initial Release

A01: Add HDTV/SDTV Rset, Add Fix for SAA7115
Add 2V5 PLLVDD

REV	VARIANT	NVPN	ASSEMBLY
0	BASE	600-10282-xxxx-vvv	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	0000	600-10282-0000-100	P282.ATX, NV44, 350300, 16MB634 DDR1, VGA + DVI + HDout, Desktop, GEN
2	0001	600-10282-0001-100	P282.ATX, NV44, 350300, 32MB644 DDR1, VGA + DVI + HDout, Desktop, GEN
3	0002	600-10282-0002-100	P282.ATX, NV44, 350300, 32MB644 DDR1, VGA + DVI + VIVO, Desktop, GEN
4	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
5	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
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Cfg8993-NVI 32M + PWM
Cfg8993-NVI-0A 16M + PWM
Cfg8993-NVI-0B 32M + NON PWM
Cfg8993-NVI-0C 16M + NON PWM

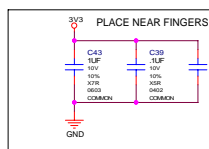
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ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	P282 Overview

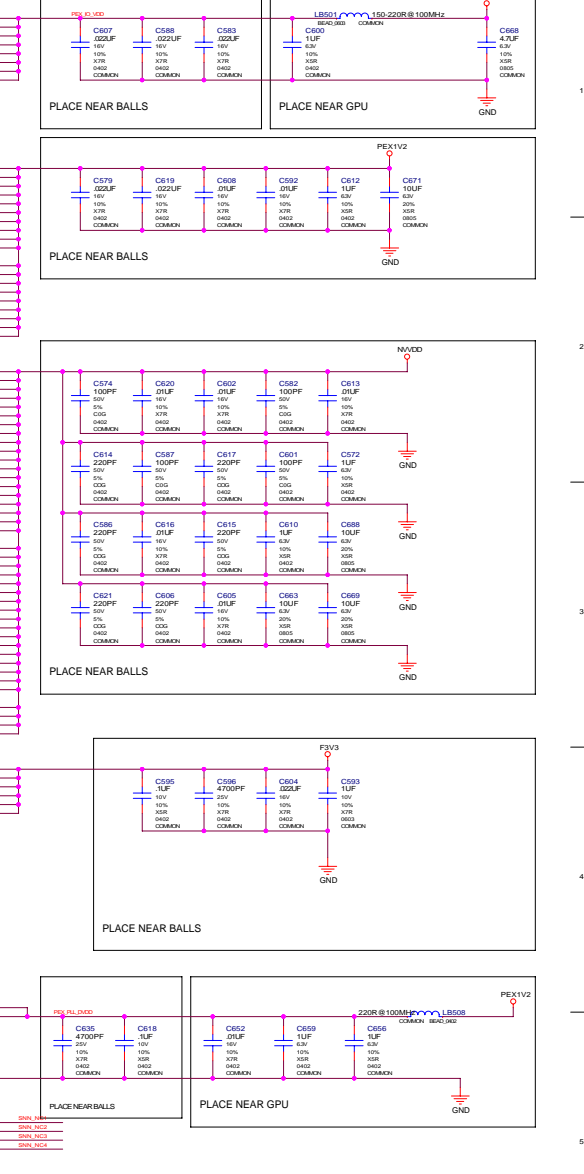
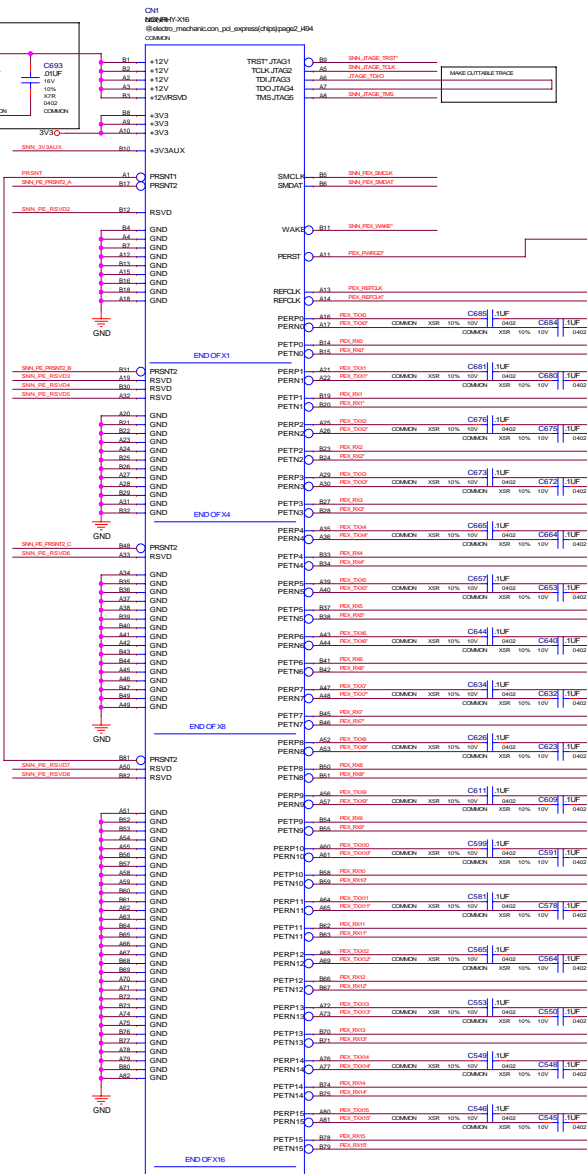


Micro-Star International Co., LTD.			
MS-8993			
Size	Document Number		Rev
Custom	P282 Overview		100
Date	Tuesday, November 24, 2004	Sheet	1 of 14

PEX-Interface



Net Name	DIFF_PAIR	NET_SPACING_TYPE
PEX1000A	PEX1000A	25u
PEX1000B	PEX1000B	25u
PEX1000C	PEX1000C	25u
PEX1000D	PEX1000D	25u
PEX1000E	PEX1000E	25u
PEX1000F	PEX1000F	25u
PEX1000G	PEX1000G	25u
PEX1000H	PEX1000H	25u
PEX1000I	PEX1000I	25u
PEX1000J	PEX1000J	25u
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PEX1000M	PEX1000M	25u
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PEX1000V	PEX1000V	25u
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PEX1000A99	PEX1000A99	25u
PEX1000A100	PEX1000A100	25u



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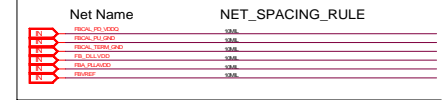
ASSEMBLY PAGE DETAIL
BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO STUFF ASSEMBLY NOTES AND BOARDS NOT FINAL
PCI Express Interface

Micro-Star International Co., LTD.
MS-8993

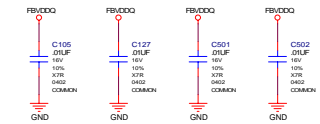
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Document Number: PCI Express Interface
Date: Tuesday, November 23, 2004
Sheet: 2 of 18

Rev: 100

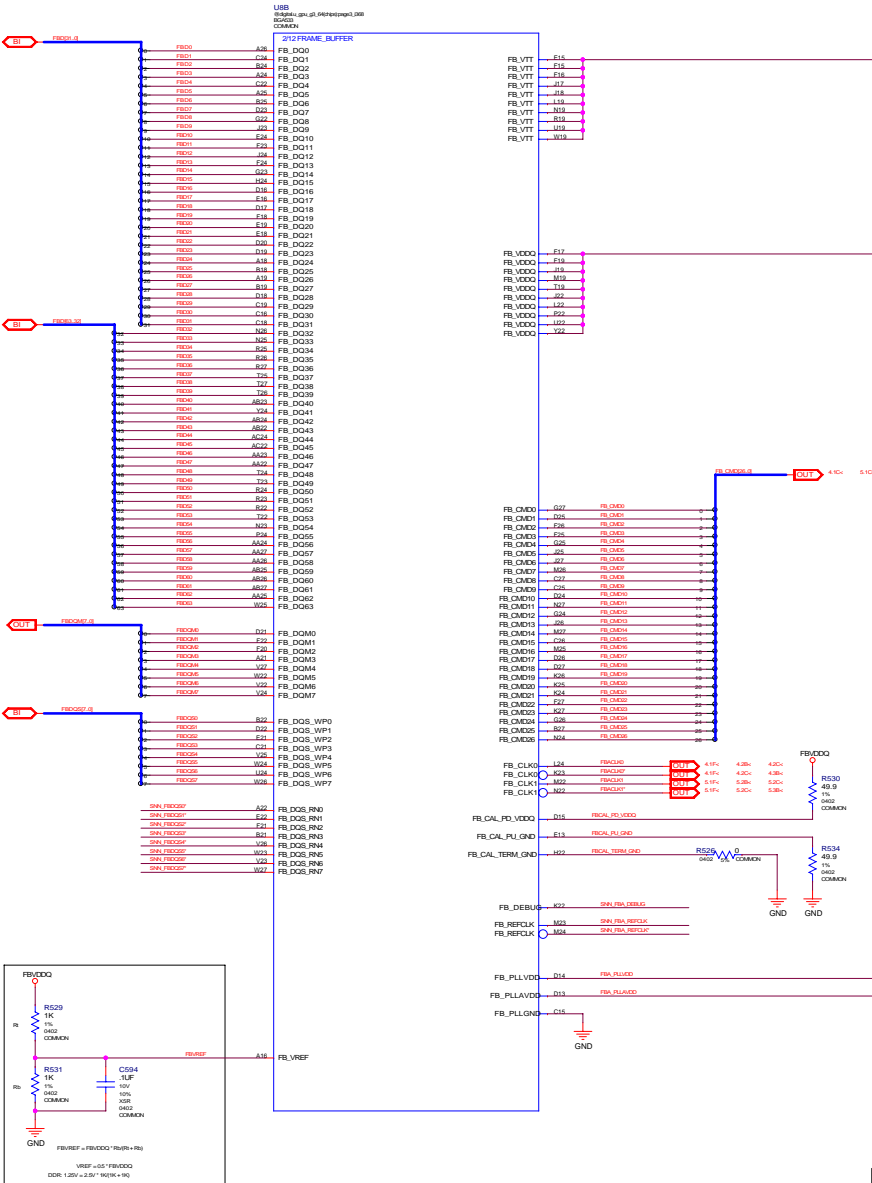
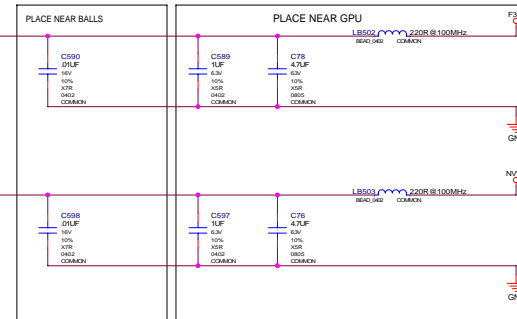
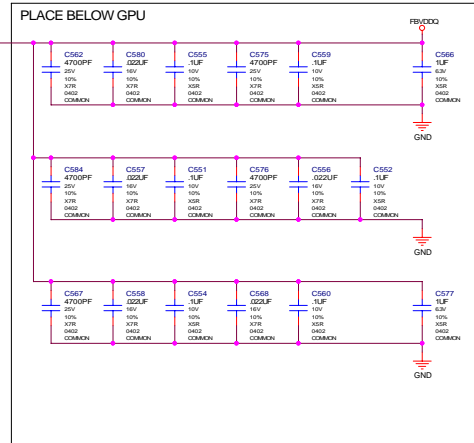
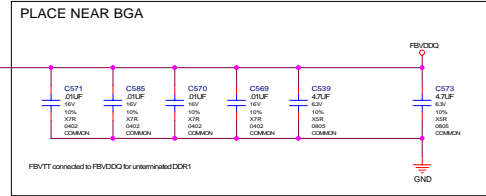
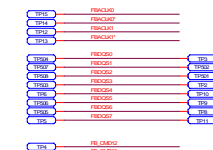
GPU: FB-Interface



X-Caps for FB_CMD BUS



LABTESTPOINTS



ASSEMBLY
PAGE DETAIL

BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL



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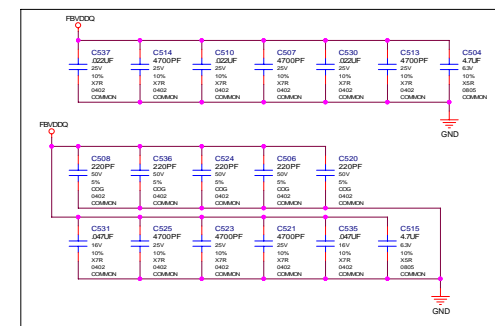
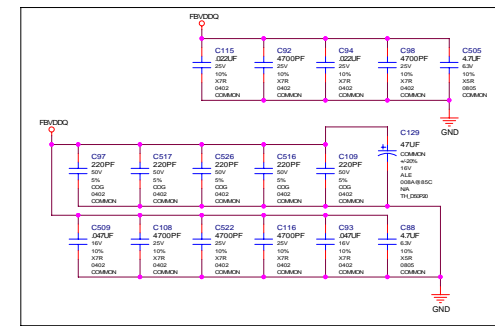
MS-8993


Size	Document Number
Custom	Form D

Custom **Frame Buffer Interface** 100

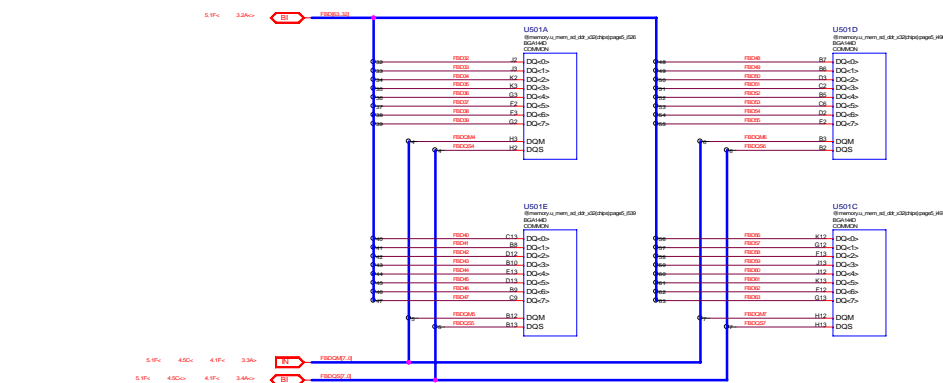
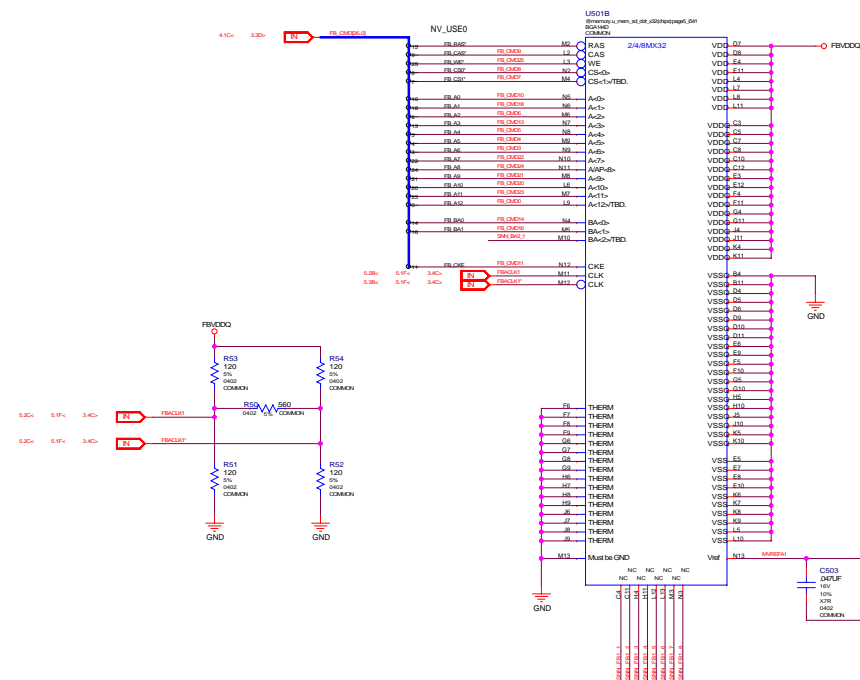
Date: Tuesday, November 23, 2004 Sheet 3 of 19

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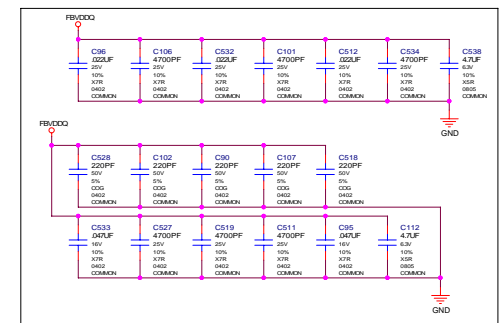
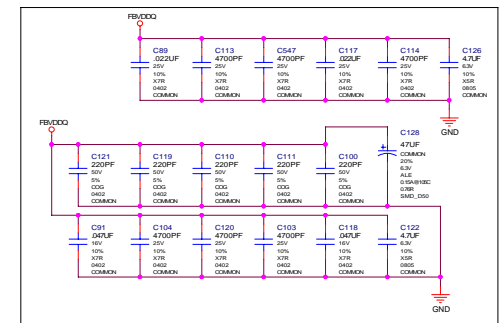
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	Micro-Star International Co., LTD.		
	MS-8993		
	Size	Document Number	Rev
Custom	Memory 1st bank 0.31	1000	
Date:	Tuesday November 23, 2004	Sheet	4 of 19

Memory Bit 32..63

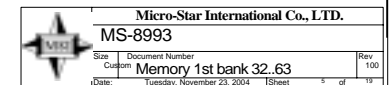


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5.8K, 4.5C, 3.9A	<div> <div>5.8K</div> <div>4.5C</div> <div>3.9A</div> </div>	<div> <div>FD000_32</div> <div>FD000_4</div> <div>FD000_5</div> </div>	<div> <div>100</div> <div>100</div> <div>100</div> </div>



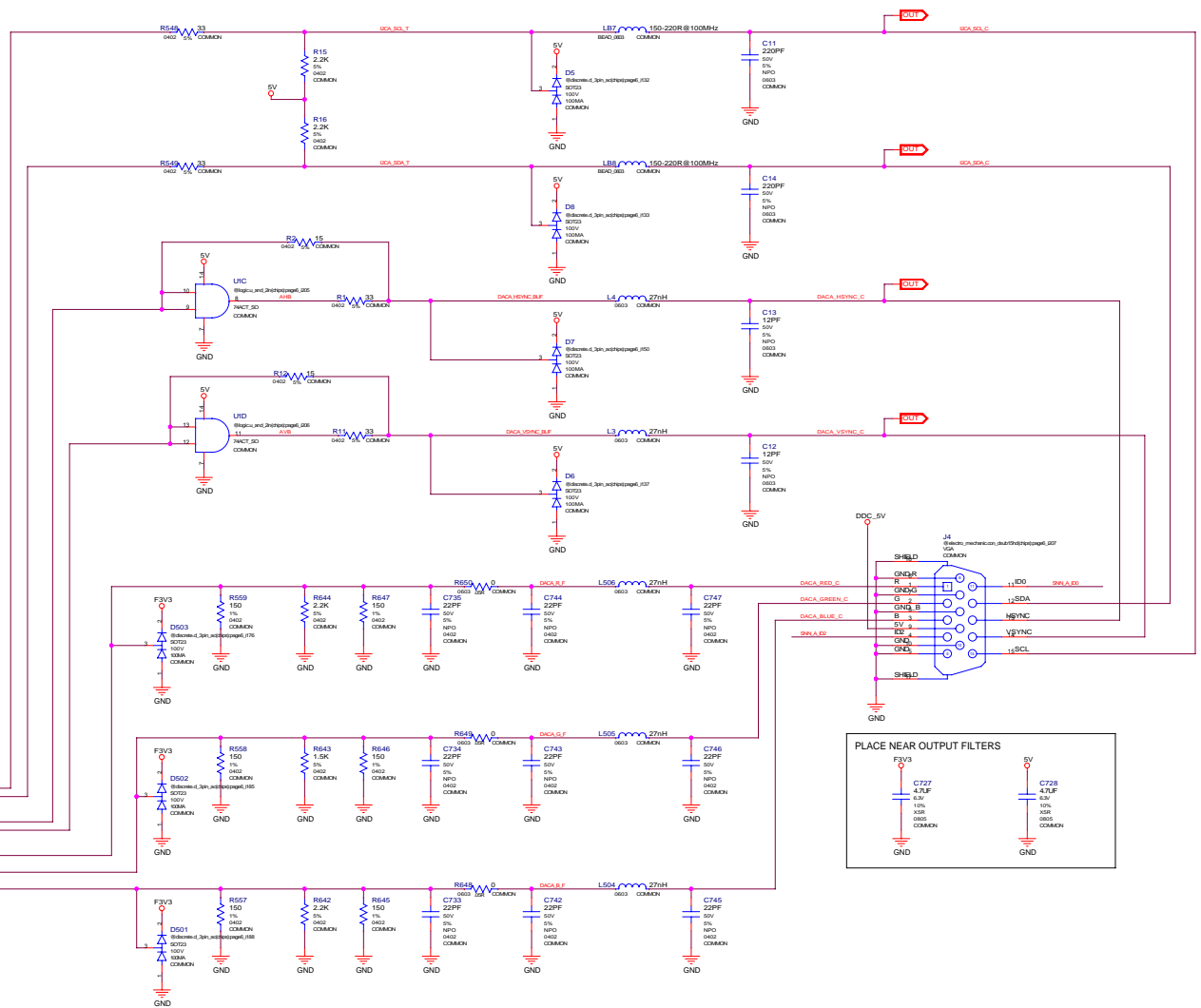
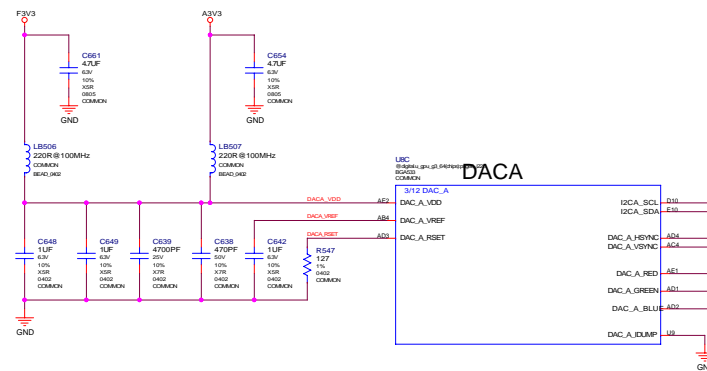
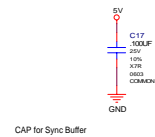
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BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
Memory 1st bank 32..63



DAC-A, DB15 Connector


	Net Name	MIN_LINE_WIDTH	NET_SPACING_TYPE
25	DCA_B1	150u	150u
26	DCA_B2	150u	150u
27	DCA_GREEN1	150u	150u
28	DCA_GREEN2	150u	150u
29	DCA_GREEN3	150u	150u
30	DCA_GREEN4	150u	150u
31	DCA_GREEN5	150u	150u
32	DCA_GREEN6	150u	150u
33	DCA_GREEN7	150u	150u
34	DCA_GREEN8	150u	150u
35	DCA_GREEN9	150u	150u
36	DCA_GREEN10	150u	150u
37	DCA_GREEN11	150u	150u
38	DCA_GREEN12	150u	150u
39	DCA_GREEN13	150u	150u
40	DCA_GREEN14	150u	150u
41	DCA_GREEN15	150u	150u
42	DCA_GREEN16	150u	150u
43	DCA_GREEN17	150u	150u
44	DCA_GREEN18	150u	150u
45	DCA_GREEN19	150u	150u
46	DCA_GREEN20	150u	150u
47	DCA_GREEN21	150u	150u
48	DCA_GREEN22	150u	150u
49	DCA_GREEN23	150u	150u
50	DCA_GREEN24	150u	150u
51	DCA_GREEN25	150u	150u
52	DCA_GREEN26	150u	150u
53	DCA_GREEN27	150u	150u
54	DCA_GREEN28	150u	150u
55	DCA_GREEN29	150u	150u
56	DCA_GREEN30	150u	150u
57	DCA_GREEN31	150u	150u
58	DCA_GREEN32	150u	150u
59	DCA_GREEN33	150u	150u
60	DCA_GREEN34	150u	150u
61	DCA_GREEN35	150u	150u
62	DCA_GREEN36	150u	150u
63	DCA_GREEN37	150u	150u
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97	DCA_GREEN71	150u	150u
98	DCA_GREEN72	150u	150u
99	DCA_GREEN73	150u	150u
100	DCA_GREEN74	150u	150u
101	DCA_GREEN75	150u	150u
102	DCA_GREEN76	150u	150u
103	DCA_GREEN77	150u	150u
104	DCA_GREEN78	150u	150u
105	DCA_GREEN79	150u	150u
106	DCA_GREEN80	150u	150u
107	DCA_GREEN81	150u	150u
108	DCA_GREEN82	150u	150u
109	DCA_GREEN83	150u	150u
110	DCA_GREEN84	150u	150u
111	DCA_GREEN85	150u	150u
112	DCA_GREEN86	150u	150u
113	DCA_GREEN87	150u	150u
114	DCA_GREEN88	150u	150u
115	DCA_GREEN89	150u	150u
116	DCA_GREEN90	150u	150u
117	DCA_GREEN91	150u	150u
118	DCA_GREEN92	150u	150u
119	DCA_GREEN93	150u	150u
120	DCA_GREEN94	150u	150u
121	DCA_GREEN95	150u	150u
122	DCA_GREEN96	150u	150u
123	DCA_GREEN97	150u	150u
124	DCA_GREEN98	150u	150u
125	DCA_GREEN99	150u	1



PLACE NEAR OUTPUT FILTERS

Diagram illustrating the placement of output filters near the output. Two circuit configurations are shown:

- Left Configuration:** A 5V output line is connected to a capacitor labeled C727 (47µF). Below the capacitor is a 10% resistor network connected to GND. The output is labeled 5V.
- Right Configuration:** A 5V output line is connected to a capacitor labeled C728 (47µF). Below the capacitor is a 10% resistor network connected to GND. The output is labeled 5V.

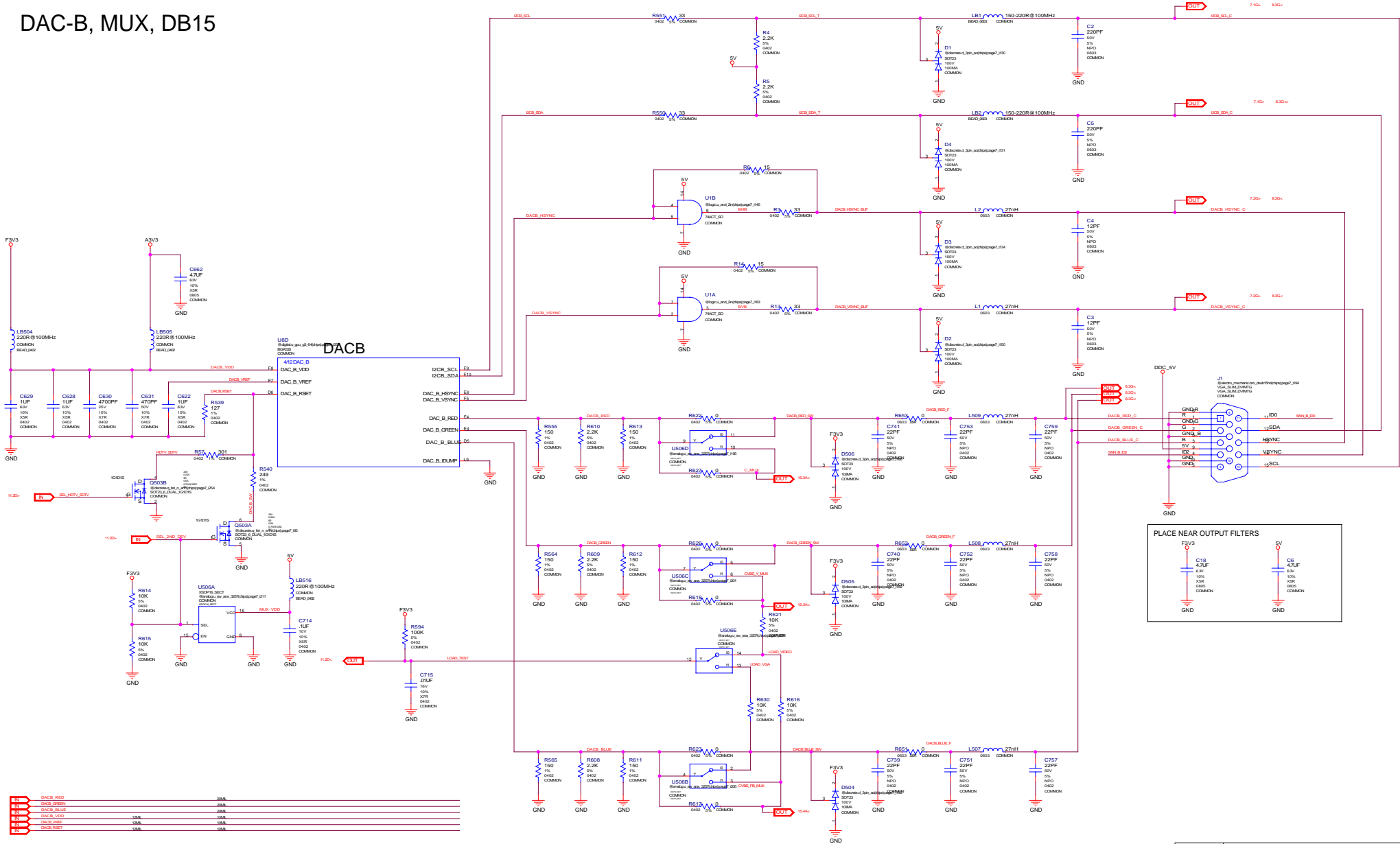
Micro-Star International Co., LTD.			
MS-8993			
	Size	Document Number	Rev
	Custom	DACA, DACB, DACC, Sync Buffers	⁰⁰
Date:	Tuesday, November 23, 2004	Sheet	8 of 19

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BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
DACA, DACB, DACC, Sync Buffers

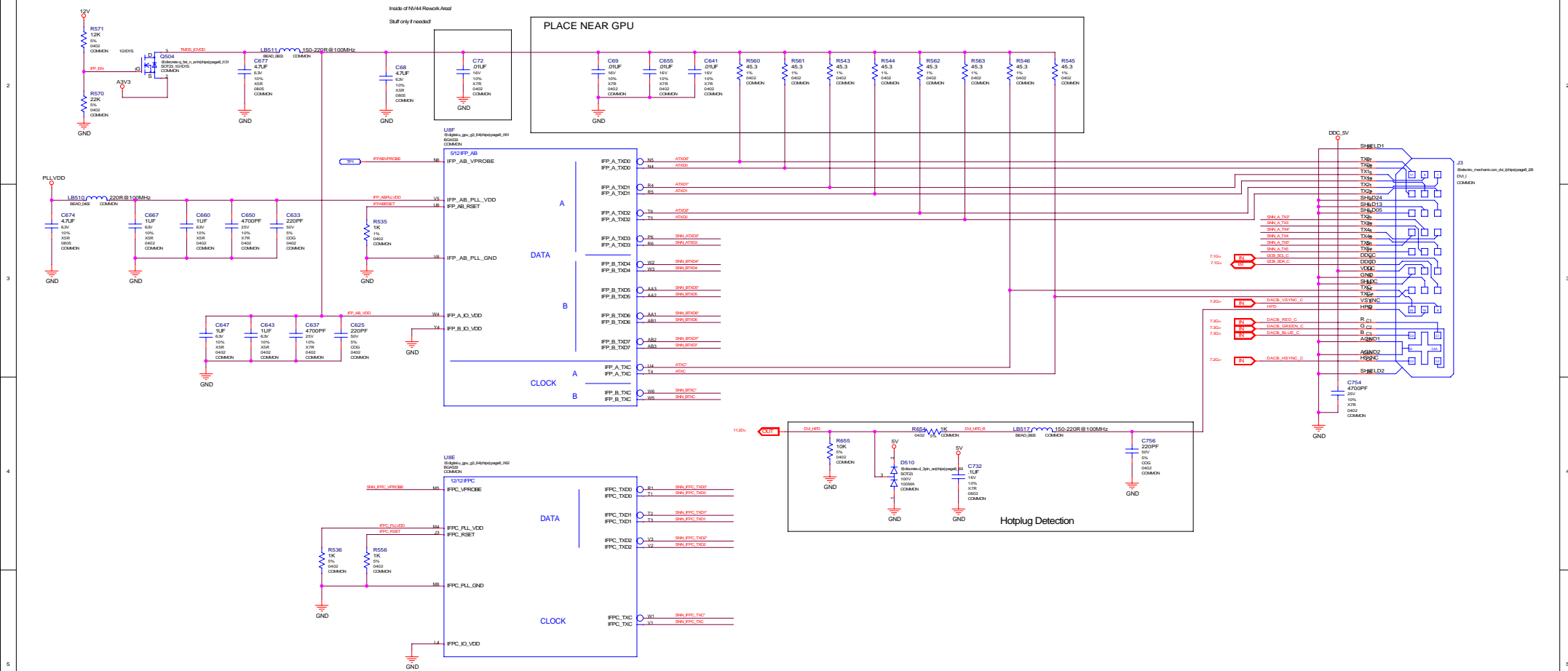
Size	Document Number	Rev
Custom	DACA, DACB, DACC, Sync Buffers	100
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DAC-B, MUX, DB15



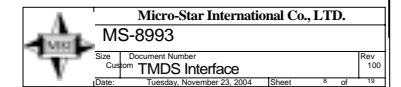
Internal TMDS, DVI-Connector

	F	G	H
	Net Name	Diffpair	NET_SPACING_RULE
0.2	PS_ABL_U0D0		33u
0.2	PS_AB_V0D0		33u
0.2	AD0C	AD0C	20u
0.2	AD0C	AD0C	20u
0.2	AD0D	AD0D	20u
0.2	AD0D	AD0D	20u
0.2	AD0E	AD0E	20u
0.2	AD0E	AD0E	20u
0.2	AD0F	AD0F	20u
0.2	AD0F	AD0F	20u

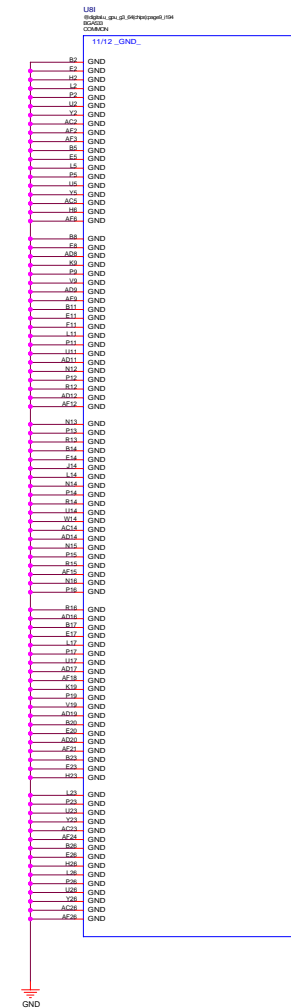
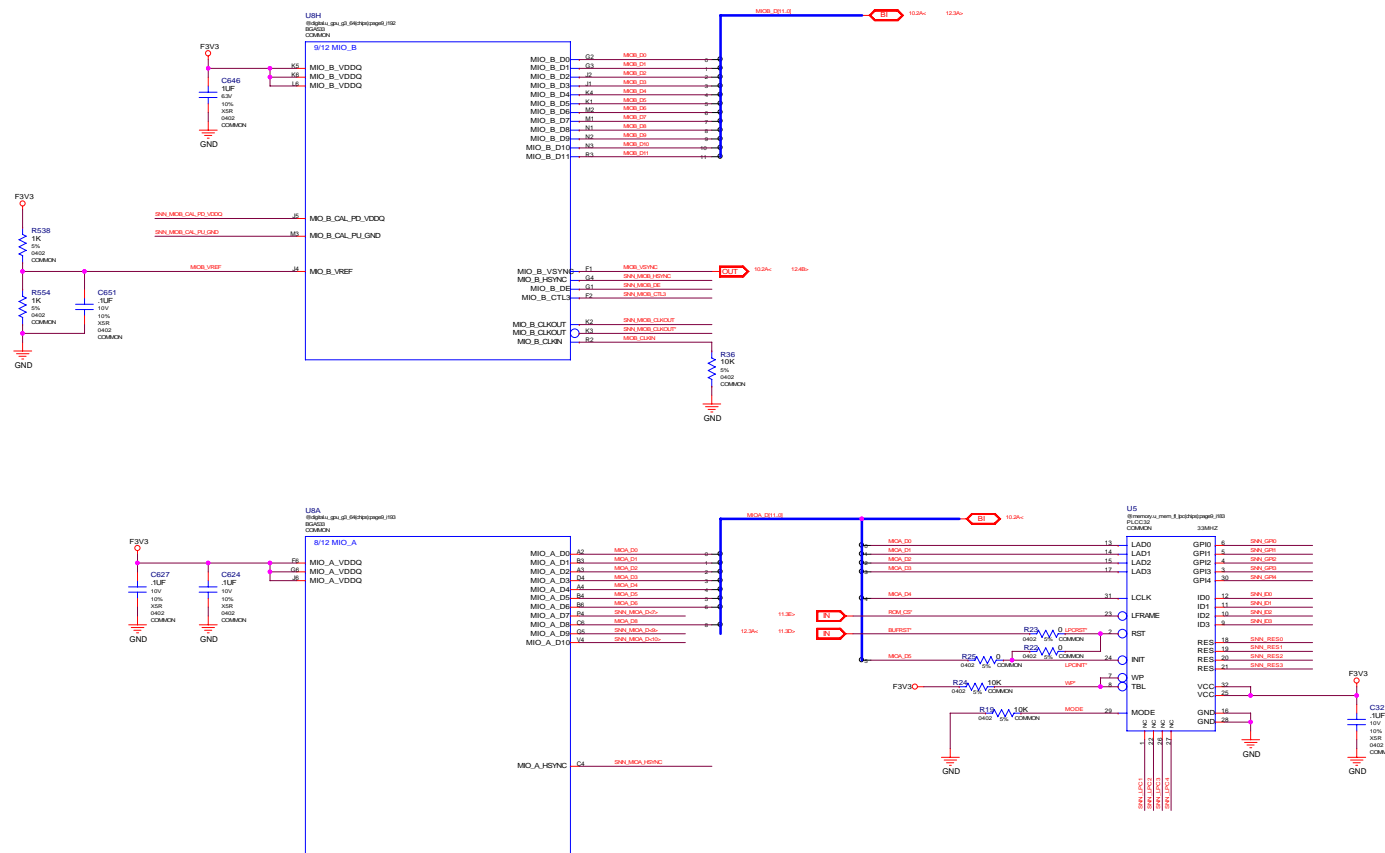


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MIOA, MIOB Interface, LPC-ROM

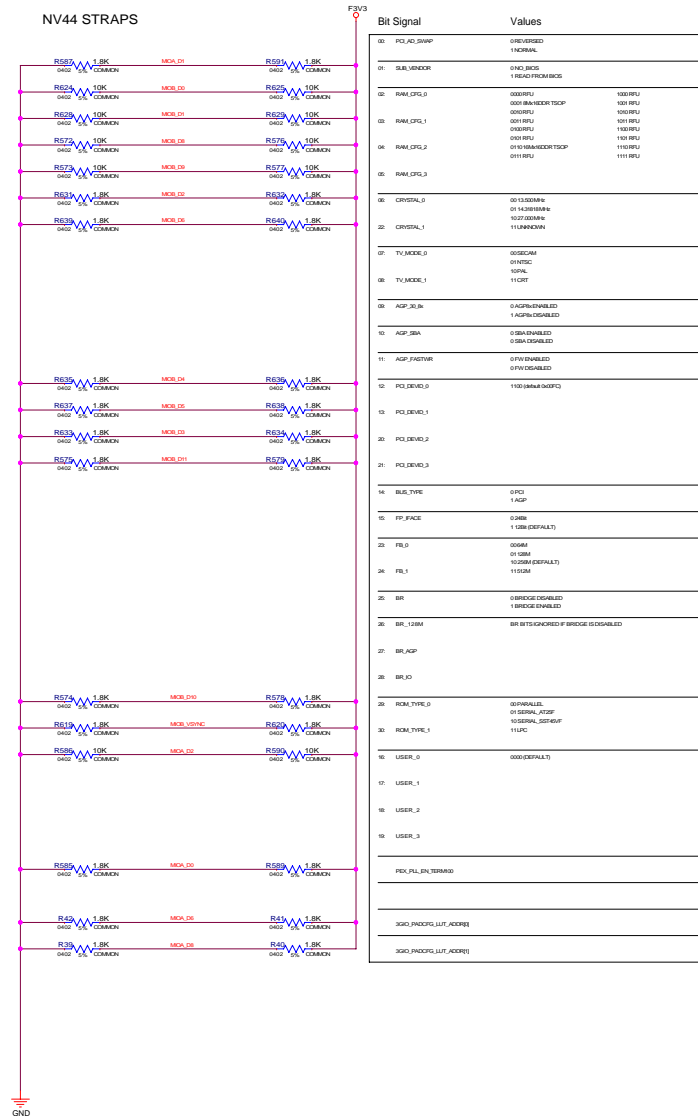
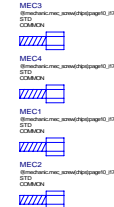
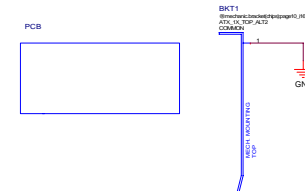
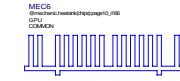
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MIOA, MIOB Interface, LPC-ROM

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Date:	Tuesday, November 23, 2004	Sheet	9 of 19

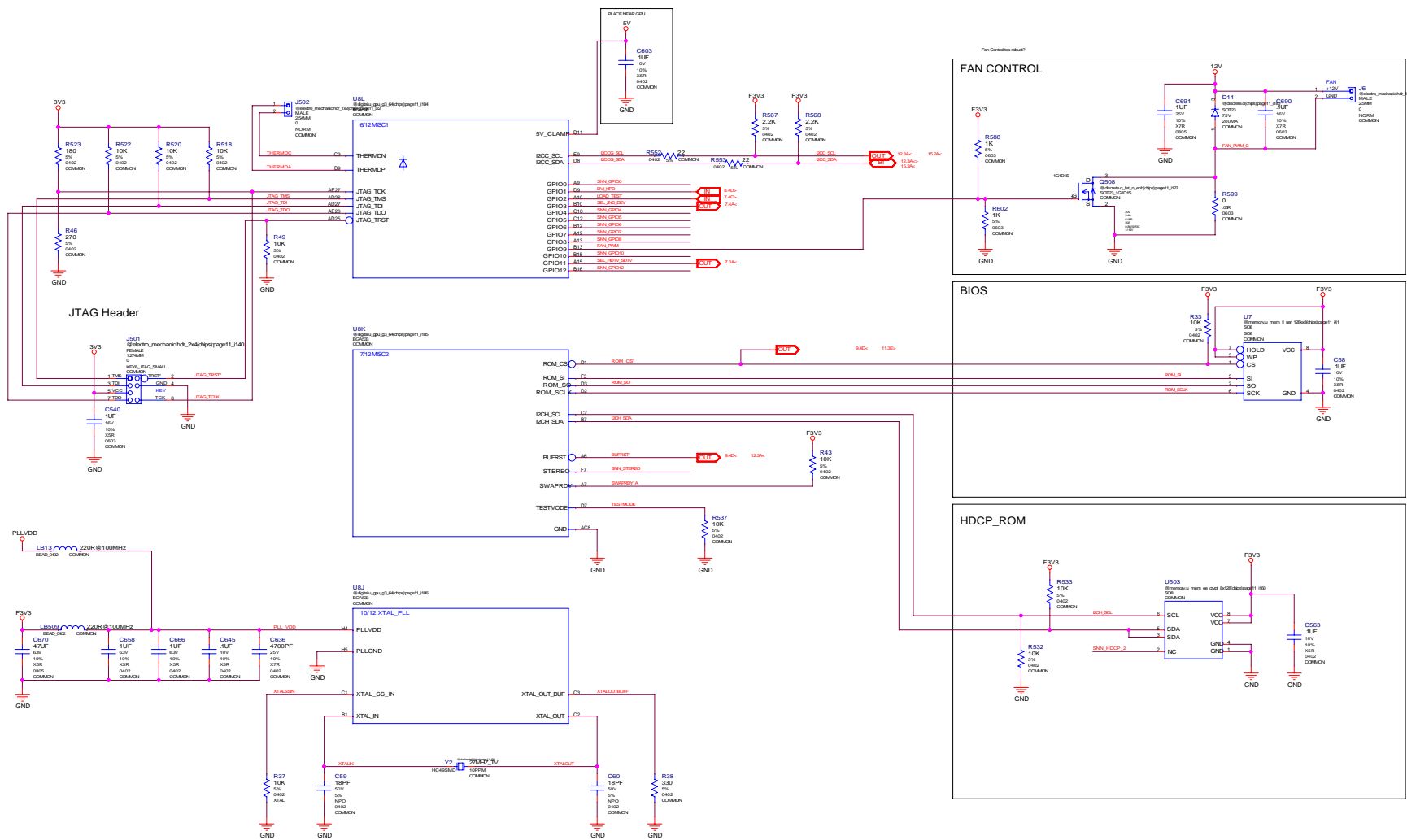
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STRAPS, Mechanical Parts

[illegible]


XTAL, GPIO, BIOS, Fan Control, JTAG Headers

Net Name	NET_PHYSICAL_TYPE	NET_SPACING_RULE
XTALIN	048_TRACE	048A
XTALOUT	048_TRACE	048A
PLL_VDD0	048_TRACE	048A
GPIO_PULLUP0	048_TRACE	048A



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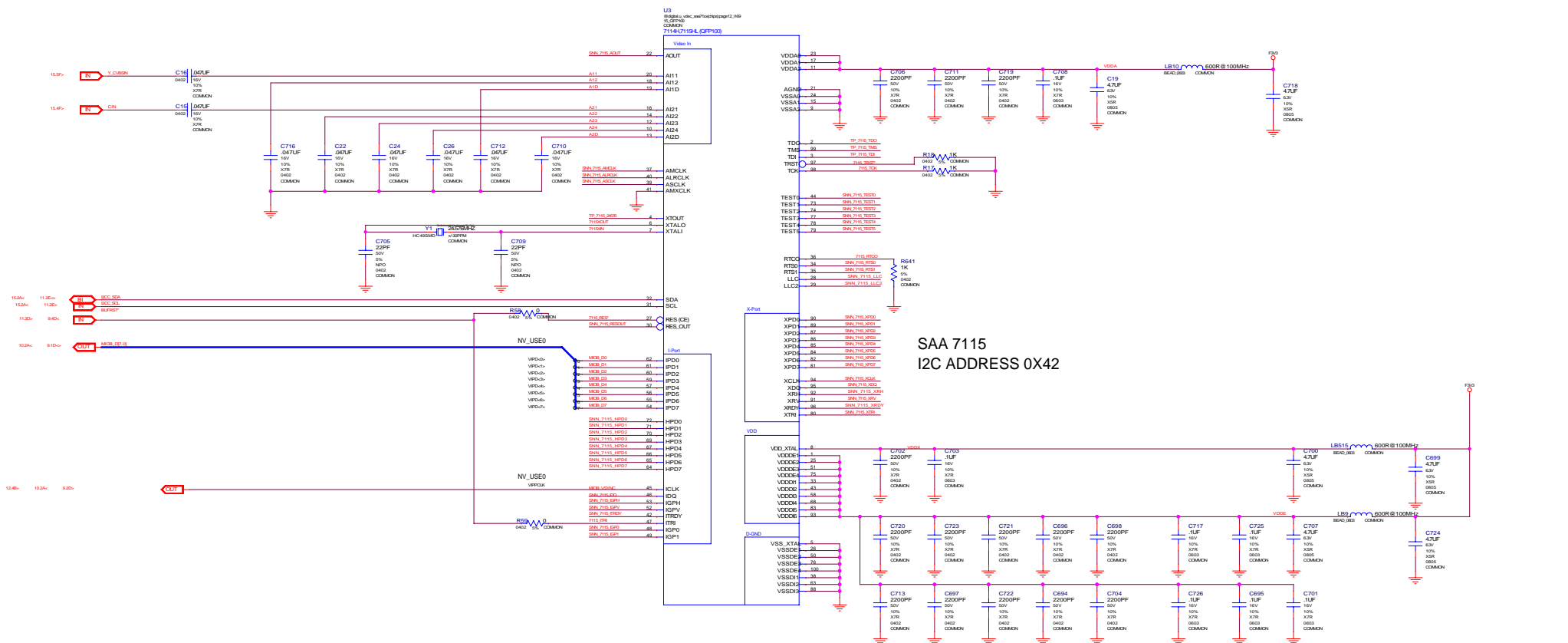


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Size: Custom
Document Number: XTAL, GPIO, BIOS, Fan Control, JTAG Headers
Date: Tuesday, November 23, 2004
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VIDEO CAPTURE: SAA7115



SAA 7115
I2C ADDRESS 0X42

ASSEMBLY
PAGE DETAIL

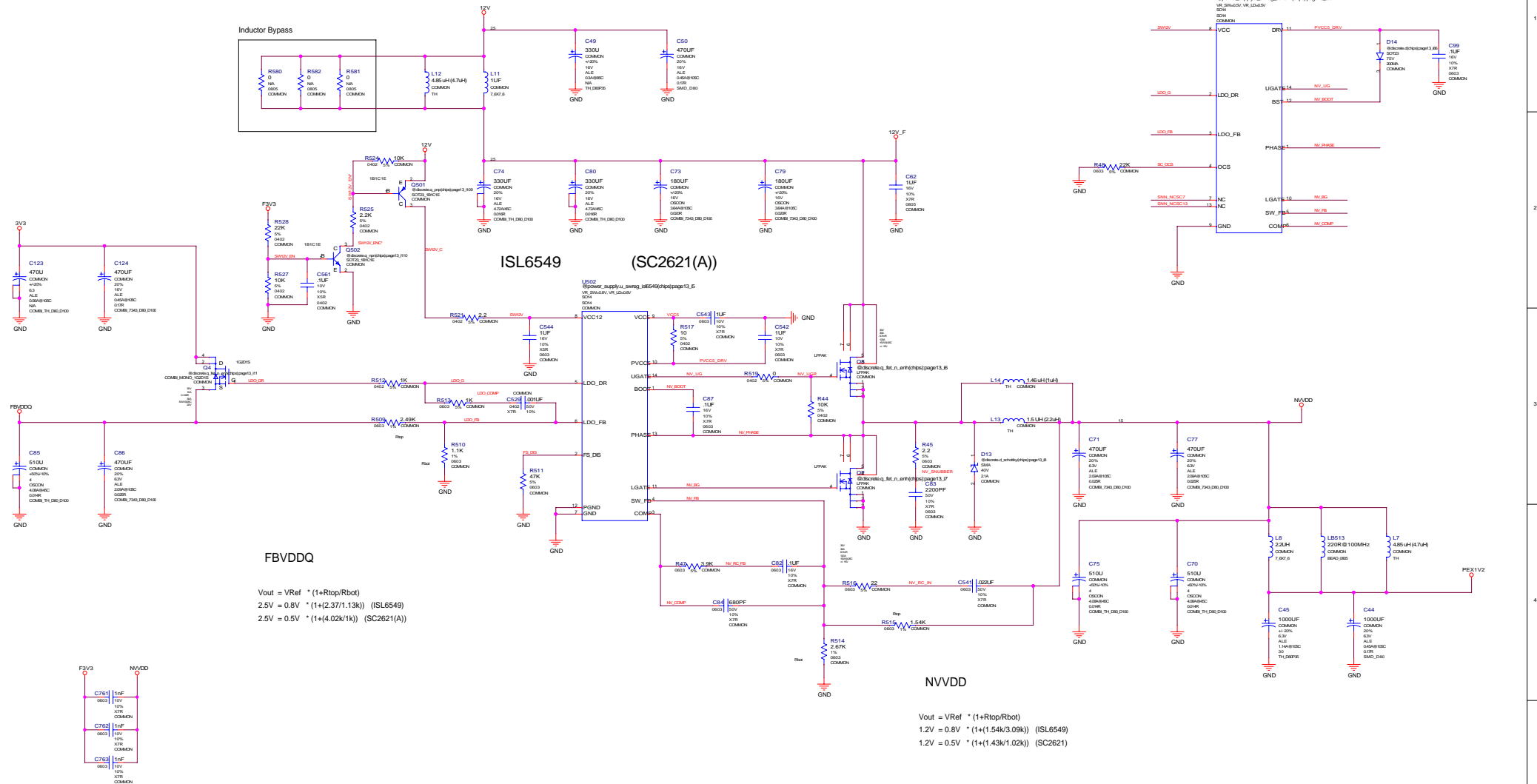
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VIDEO CAPTURE: SAA7115

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	Size Custom	Document Number VIDEO CAPTURE: SAA7115	Rev 1000
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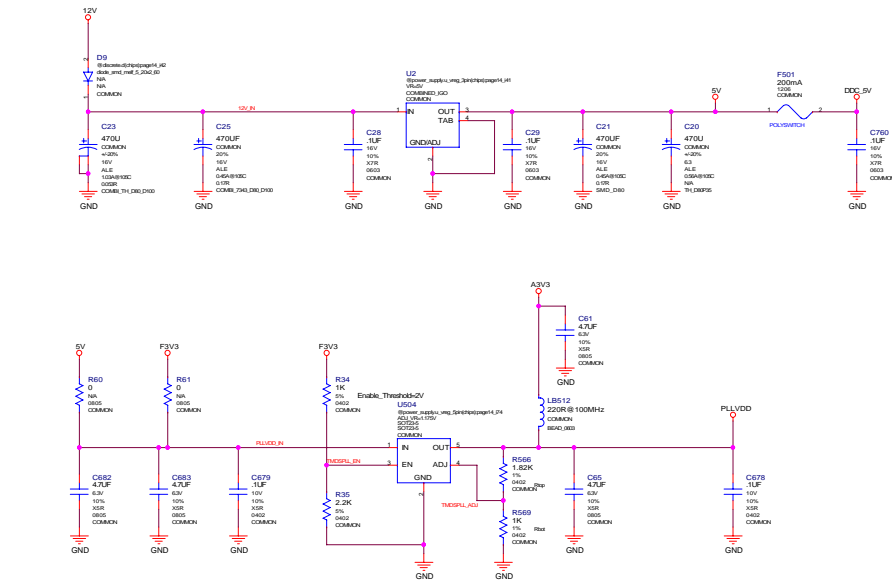
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PowerSupply: NVVDD, FBVDDQ

SC2621 (optional)

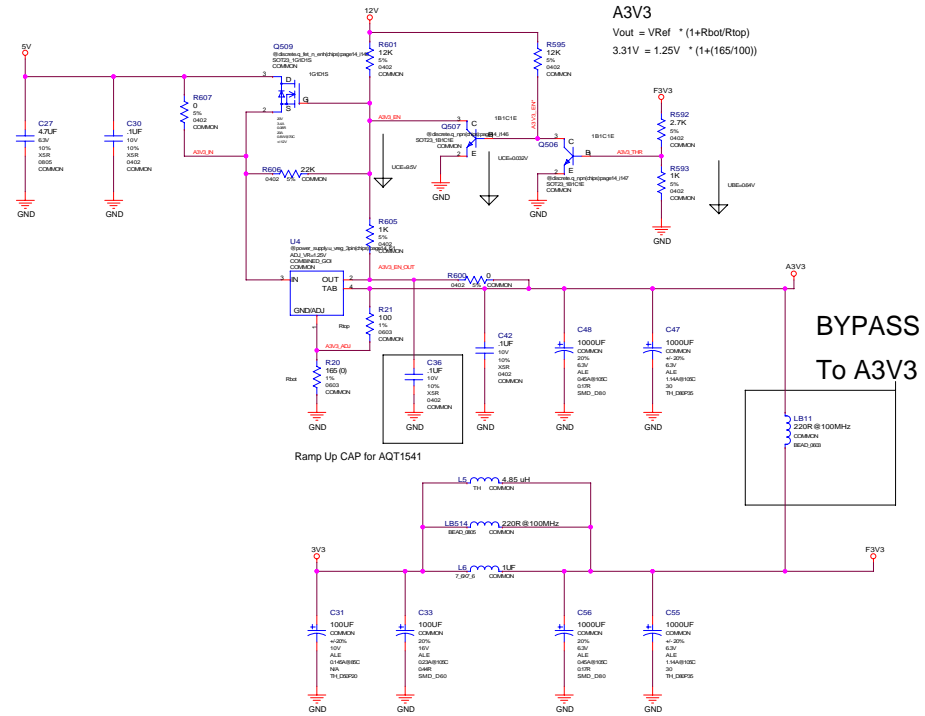


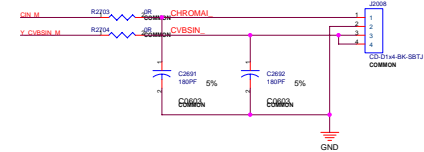
PowerSupplyII: 5V, DDC5V, A3V3, F3V3, TMD5_PLLVDD



TMD5_PLLVDD
 $V_{out} = V_{Ref} * (1 + R_{top}/R_{bot})$
 $3.31V = 1.175V * (1 + (1.82k/1k))$
 $2.52V = 1.175V * (1 + (1.15k/1k))$

Net Name	NET_PHYSICAL_TYPE	Voltage
5V	5V	5V
DDC5V	5V	5V
A3V3	3V3	3.3V
F3V3	3V3	3.3V
PLLVD0	3V3	3.3V
12V	12V	12V



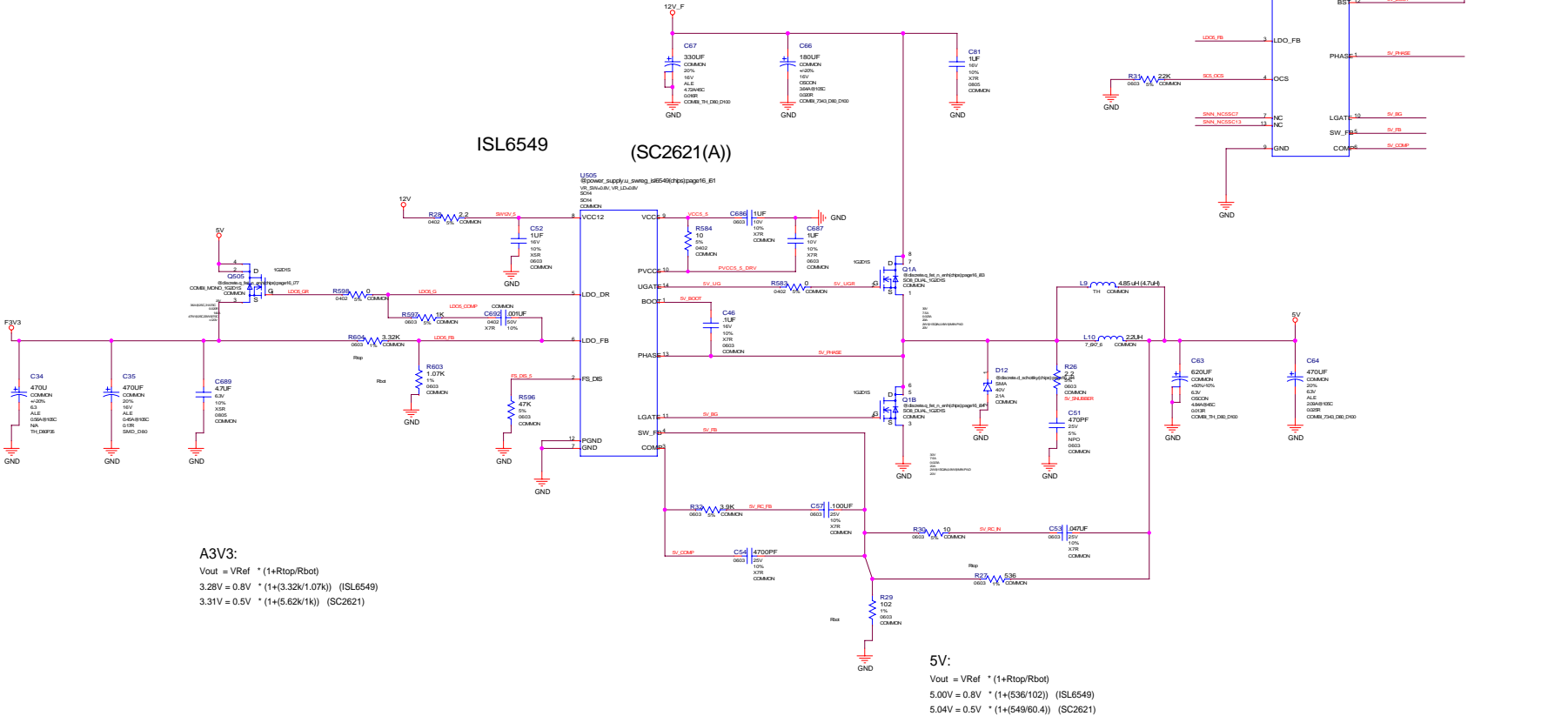
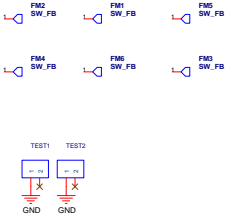


F3V3
C755
4.7UF
63V
10%
XSR
0805
COMMON

BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
VIDEO CONNECTORS: MiniDIN, 2x6 HDR

Date: Wednesday, November 24, 2004 Sheet 15 of 19

PowerSupplyIII: 5V, F3V3 (Optional for higher current)



A3V3:
 $V_{out} = V_{Ref} \cdot (1 + R_{top}/R_{bot})$
 $3.28V = 0.8V \cdot (1 + (3.32k/1.07k))$ (ISL6549)
 $3.31V = 0.5V \cdot (1 + (5.62k/1k))$ (SC2621)

5V:
 $V_{out} = V_{Ref} \cdot (1 + R_{top}/R_{bot})$
 $5.00V = 0.8V \cdot (1 + (536/102))$ (ISL6549)
 $5.04V = 0.5V \cdot (1 + (549/60.4))$ (SC2621)

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PowerSupplyIII: 5V, F3V3 (Optional for higher current)



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Document Number: PowerSupplyIII: 5V, F3V3 (Optional for higher current)

Date: Wednesday, November 24, 2004 Sheet 16 of 19