P75, NV17-Pro, 4MX32 DDR BGA, 64MB, RGB, dual DVI-I, VGA TV-out, video capture, stereo, AGP4X

HISTORY:

```
A01-X00:
  started with P75-A00
  added the TV-out filter to the TV_OUT_CX assembly
  fixed strapping bugs for xtal and rom
  remove the Connexant TV encoder
  add serial termination for the DVO port
A01-X01:
  changed switcher input to 3.3V
  added 2.8V supply for IFPPLLVDD
A01-X02:
  added possible OCSet circuit to Semtech switcher (R640,R641,C640)
A01-X03:
  DVO pinswap
A01-X04:
  fixed 0603 caps on 0402 footprints
```

PCI DEVICE ID 0X0 see strapping options.

PAGE OVERVIEW

1 TOP (this) page
2 1. AGP interface, core decoupling
3 2.a NV17 Frame Buffer
4 2.b Frame Buffer 0..63
5 2.b Frame Buffer 64...127
6 3.a DAC_A, DAC_B, XTAL
7 3.c DAC_A VGA
8 3.d DAC_B VGA
9 3.e Int. Transmitter
10 5.b PH-Video Decoder
11 5.c TV out, Video Capture
12 6.a NVVDD Power Supply, VDD33
13 6.b Analog Power Supply, FBVDDQ
14 7 BIOS, Strapping

Stuffing Options	Meaning
COMMON	the common components
1117	stuff fixed 1117 linear regulator for analog 3.3V
1117_ADJ	stuff adjustable 1117 linear regulator for analog 3.3V
NO_1117	bypass the linear regulator for analog 3.3V
BP_FBVDDQ	bypass the linear regulator for FBVDDQ (=> FBVDDQ=FBVDD)
SET_FBVDDQ	set the FBVDDQ voltage (memory IO)
SET_FBVDD	set the FBVDD voltage (memory core)
SET_NVVDD	set the NVVDD voltage (GPU core)
BP_VDD33	bypass the VDD33 voltage for the GPU
VDD33	stuff the VDD33 regulator components
SET_VDD33	set the VDD33 voltage
SC	stuff the Semtech switcher
SC1565	stuff FBVDDQ voltage regulator SC1565
IRU	stuff the IR switcher
IRU_VID	stuff the VID setting resistors of the IR switcher
IRU_POWSEQ	stuff the power sequencing circuit for the IR switcher
VIDCAP	stuff the video capture circuit with SAA7114
TV_OUT_PH	stuff TV-out with the Philips encoder SAA7102
VIVO	stuff video in/out with SAA7108
VGA-B_PROT	stuff the protection diodes around DAC B
DVI-I-A_PROT	stuff the protection diodes around DVI-I A
VGA-B	stuff the VGA connector at DAC B
VGA-B-SYNCBUFF	stuff the sync buffer for DAC B/DVI-I-B
DVI-I-A-SYNCBUFF	stuff the sync buffer for DVI-I-A
NO_DVI-I-A-SYNCBUFF	bypass the sync buffer for DVI-I-A
NO_VGA-B-SYNCBUFF	bypass the sync buffer for DAC B/DVI-I-B
DVI-I-A	stuff the DVI-I at DAC A (and the SII164)
DVI-I-B	stuff the DVI-I at DAC B (and internal transmitter)
STEREOSYNC1	stuff the stereo synchronisation for DAC A
STEREOSYNC2	stuff the stereo synchronisation for DAC B
STEREOSYNCS	stuff the switchable stereo synchronisation
STEREO	stuff the stereo circuit
A_HPLUG	stuff the hot plug detection for DVI-I-A
B_HPLUG	stuff the hot plug detection for DVI-I-B
XOR_HPLUG	stuff the hot plug detection for DVI-I-A and B
VGA-TV-DVI	use the VGA-TV-DVI bracket
VGA-TV	use the VGA-TV bracket
VGA	use the VGA bracket
DVI-TV-DVI	use the DVI-TV-DVI bracket
PASSIVE_HS	use the passive heatsink
FAN	use the fan heatsink and stuff all associated components
TH_Control	stuff the thermal control circuit
MEMORY	the memory stuffing
MEM_STRAP_1111	strap the memory to 1111 (= 4Mx32, 1DQS per 32bit)
MEM_STRAP_1101	strap the memory to 1101 (= 4Mx32, 1DQS per 8bit)
NV17-Pro	stuff the NV17 Pro
NV17-P-GL	stuff the NV17 GL Pro

NVIDIA

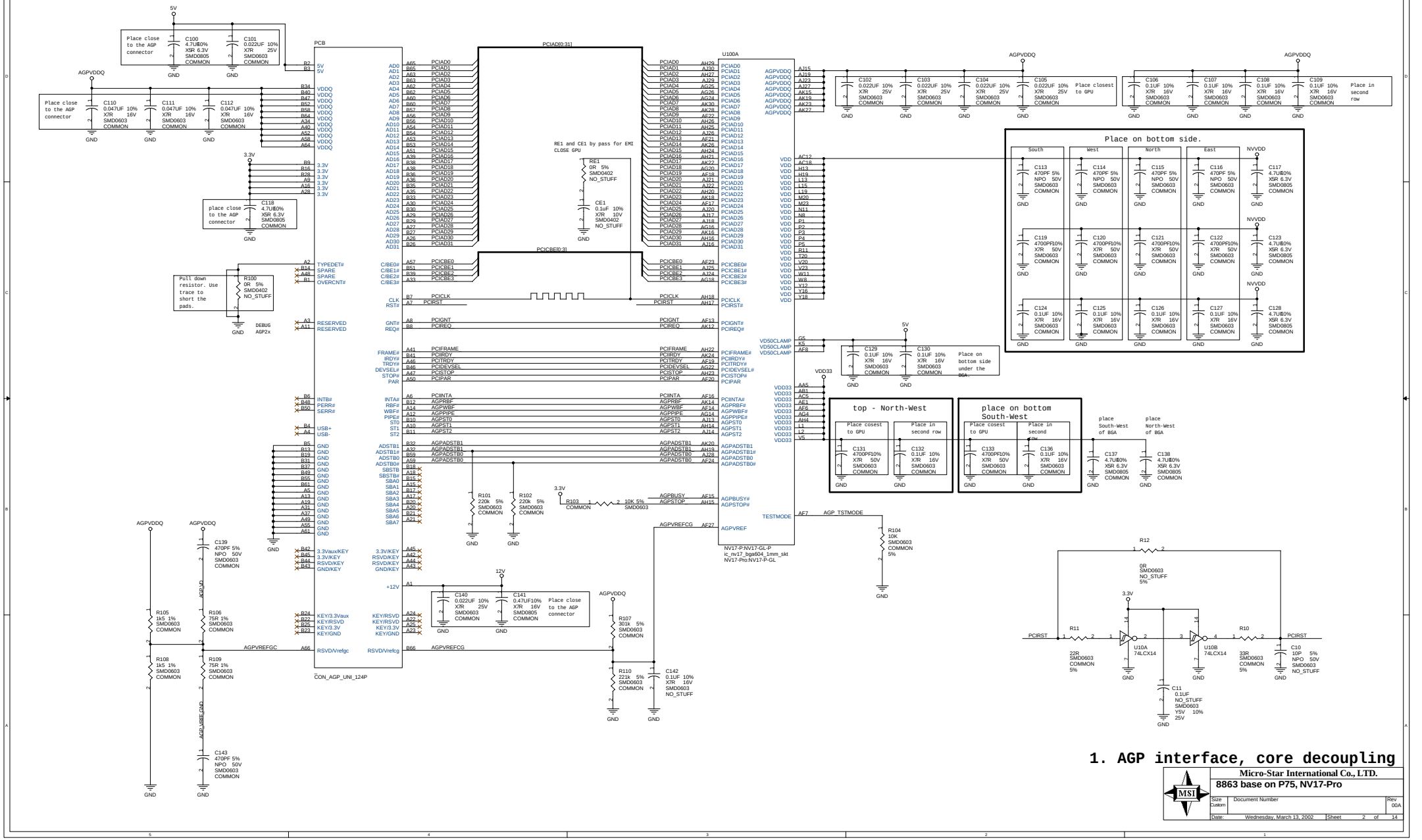
MSI

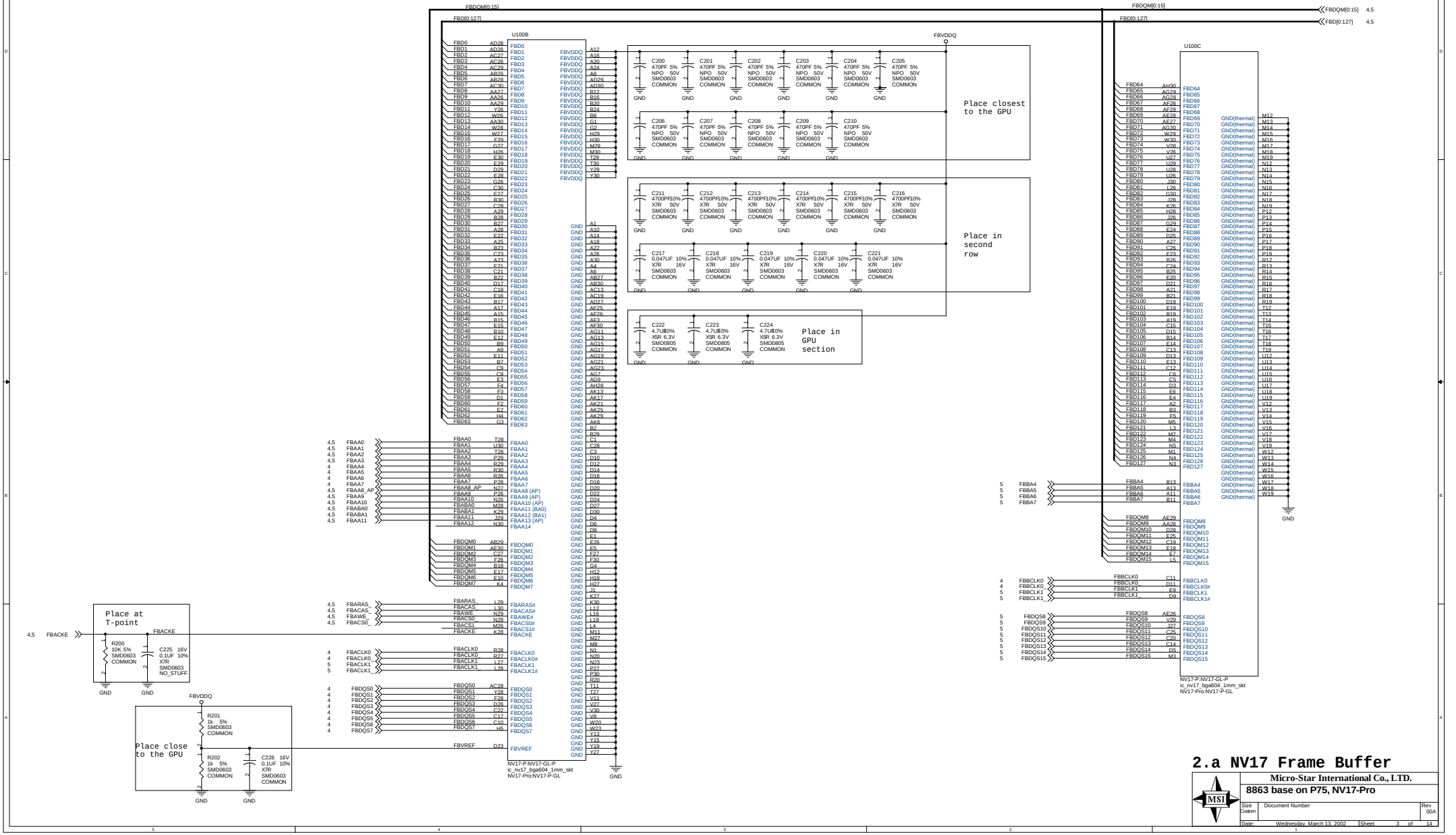
Micro-Star International Co., LTD.

8863 base on P75, NV17-Pro

Size: Custom | Document Number | Rev: 00A

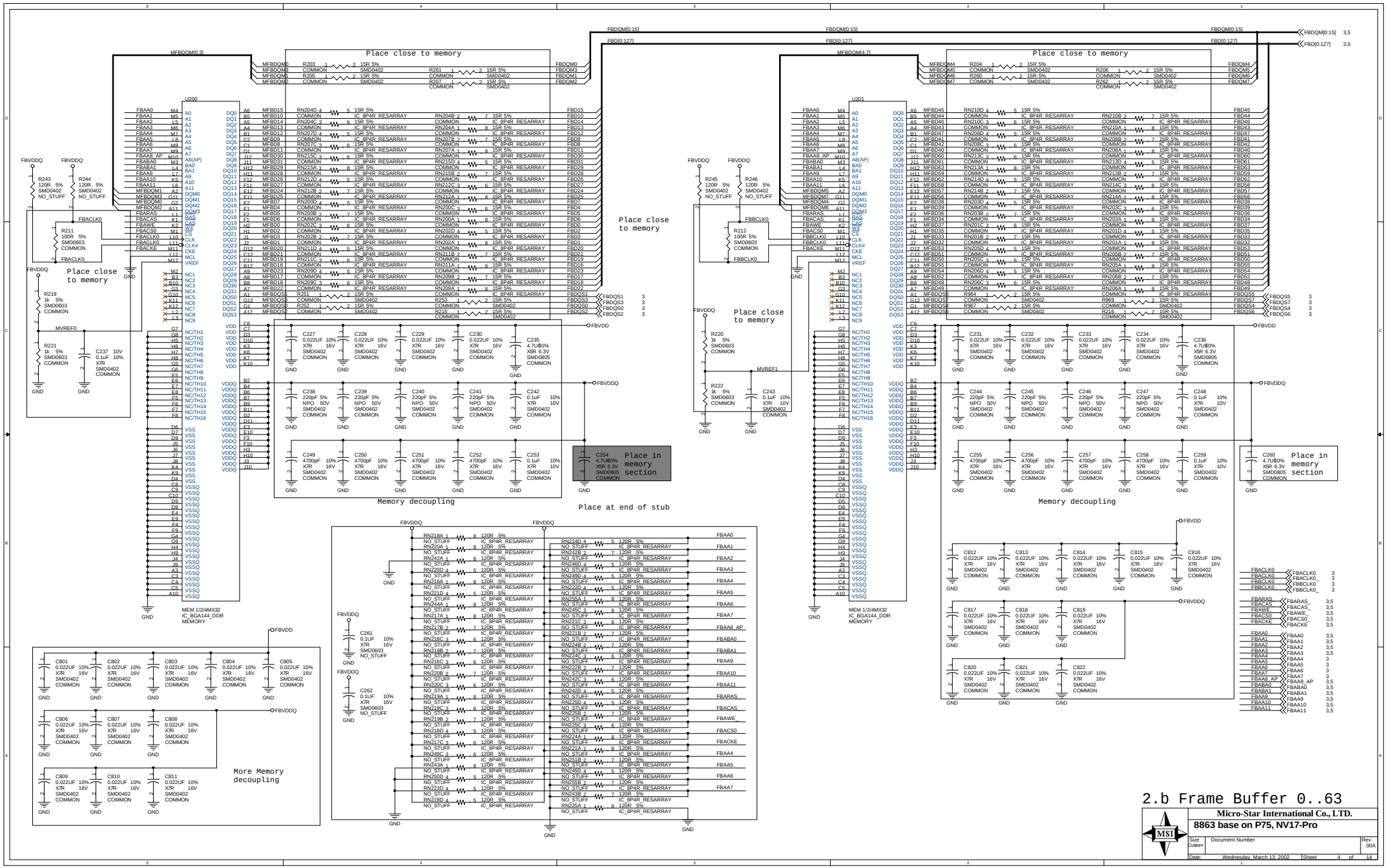
Date: Wednesday, March 13, 2002 | Sheet 1 of 14

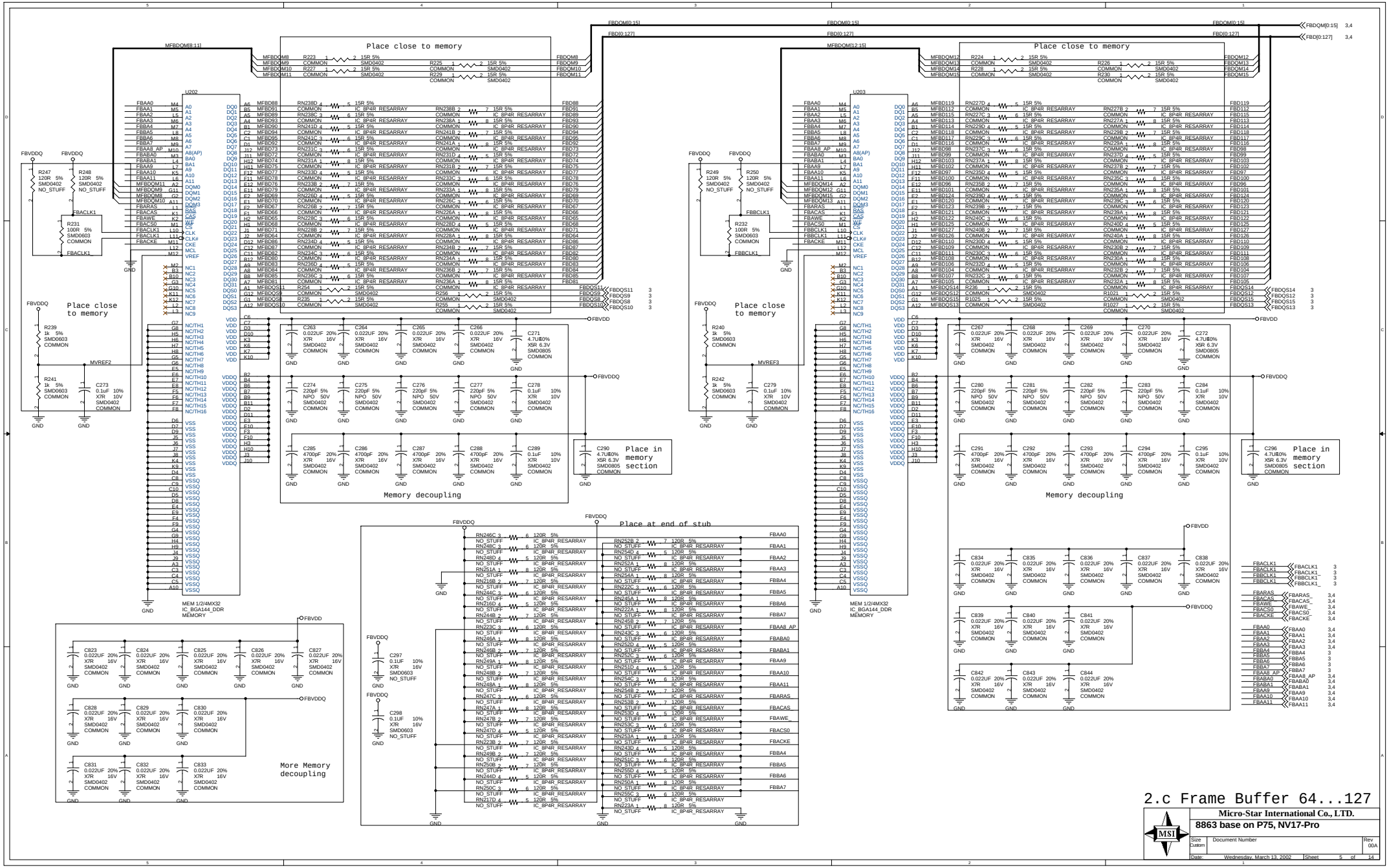

PCB
CON_AGP_UNI_124P
U100A
NV17-P:NV17-GL-P
ic_nv17_bga604_1mm_skt
NV17-Pro:NV17-P-GL
PCIAD[0:31]
PCICBE[0:3]
RE1 and CE1 by pass for EMI CLOSE GPU
Place on bottom side.
top - North-West
place on bottom South-West
1. AGP interface, core decoupling
Micro-Star International Co., LTD.
8863 base on P75, NV17-Pro
Size Custom
Document Number
Rev 00A
Date: Wednesday, March 13, 2002
Sheet 2 of 14

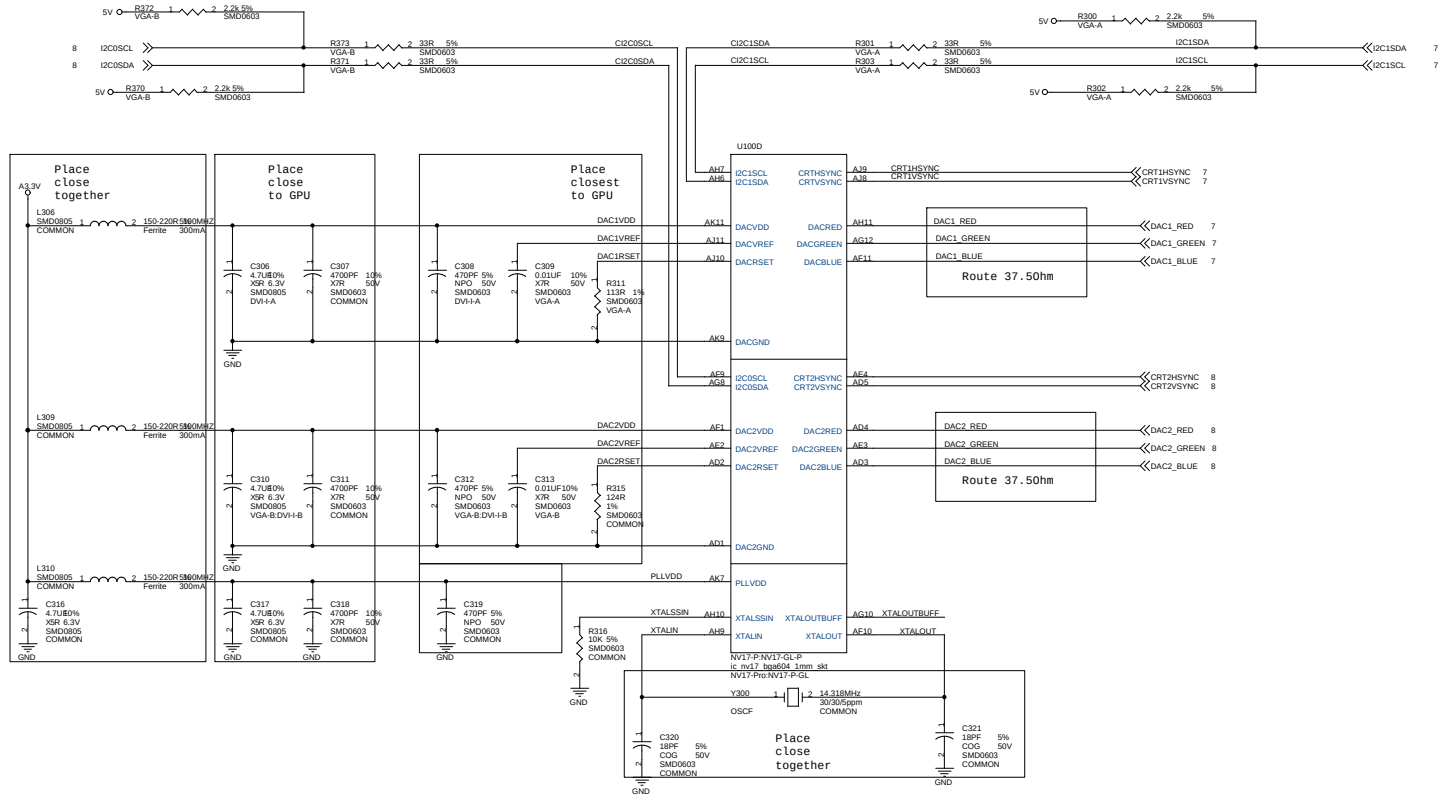


2.a NV17 Frame Buffer

Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number:
Rev: 00A	
Date: Wednesday, March 13, 2002	Sheet 3 of 14

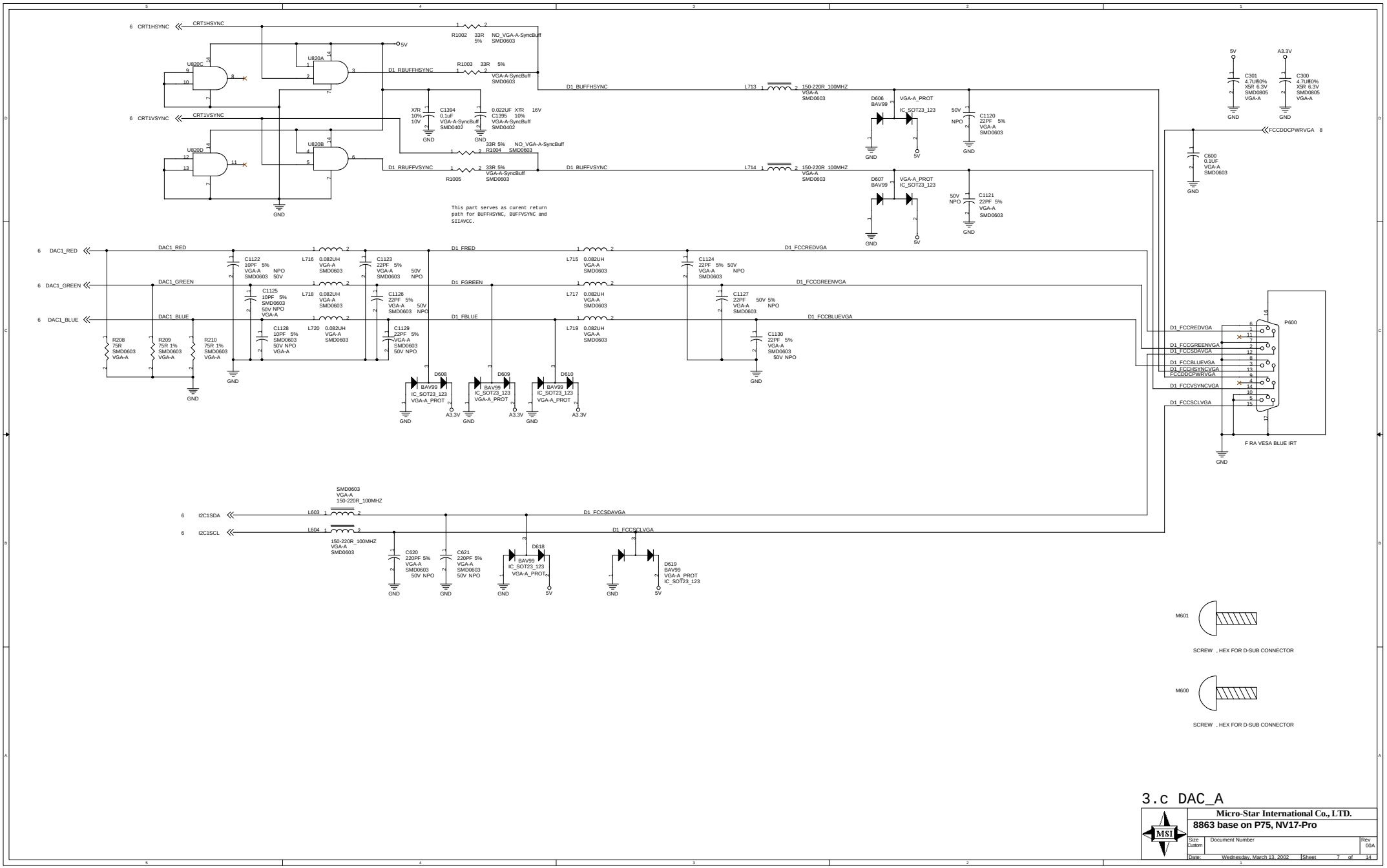

Place close to memory
Place close to memory
Place close to memory
Place close to memory
Place close to memory
Memory decoupling
Memory decoupling
Place at end of stub
Place in memory section
Place in memory section
More Memory decoupling
MEM 1/2/4MX32 IC_BGA144_DDR MEMORY
MEM 1/2/4MX32 IC_BGA144_DDR MEMORY
2.b Frame Buffer 0..63
Micro-Star International Co., LTD.
8863 base on P75, NV17-Pro
Size Custom
Document Number
Rev 00A
Date: Wednesday, March 13, 2002
Sheet 4 of 14


Place close to memory
Place close to memory
Place close to memory
Place close to memory
Memory decoupling
Memory decoupling
Place at end of stub
Place in memory section
Place in memory section
More Memory decoupling
MEM 1/2/4MX32 IC_BGA144_DDR MEMORY
MEM 1/2/4MX32 IC_BGA144_DDR MEMORY
2.c Frame Buffer 64...127
Micro-Star International Co., LTD.
8863 base on P75, NV17-Pro
Size Custom
Document Number
Rev 00A
Date: Wednesday, March 13, 2002
Sheet 5 of 14



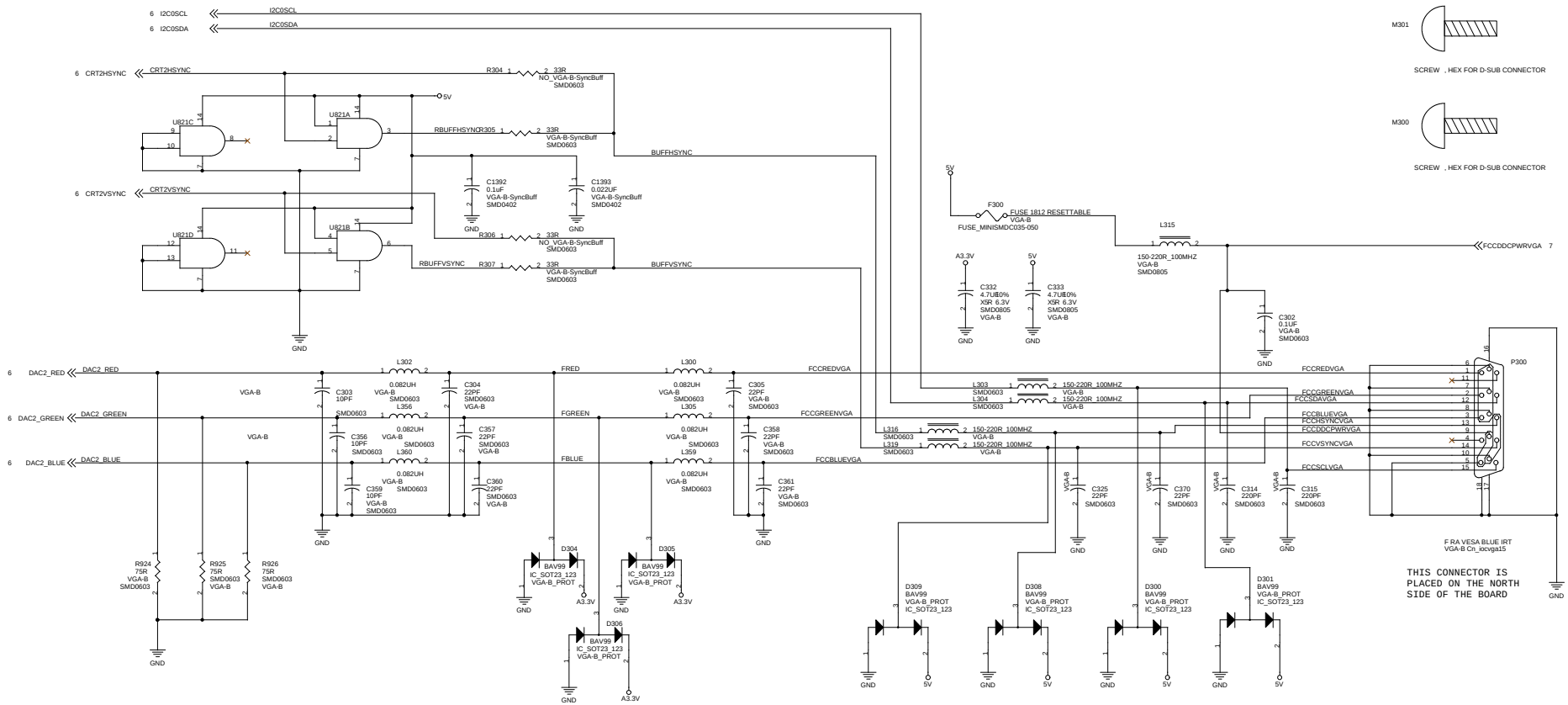
3.a DACA, DACB, PLL, XTAL

Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number: Rev: 00A
Date: Wednesday, March 13, 2002	Sheet 6 of 14



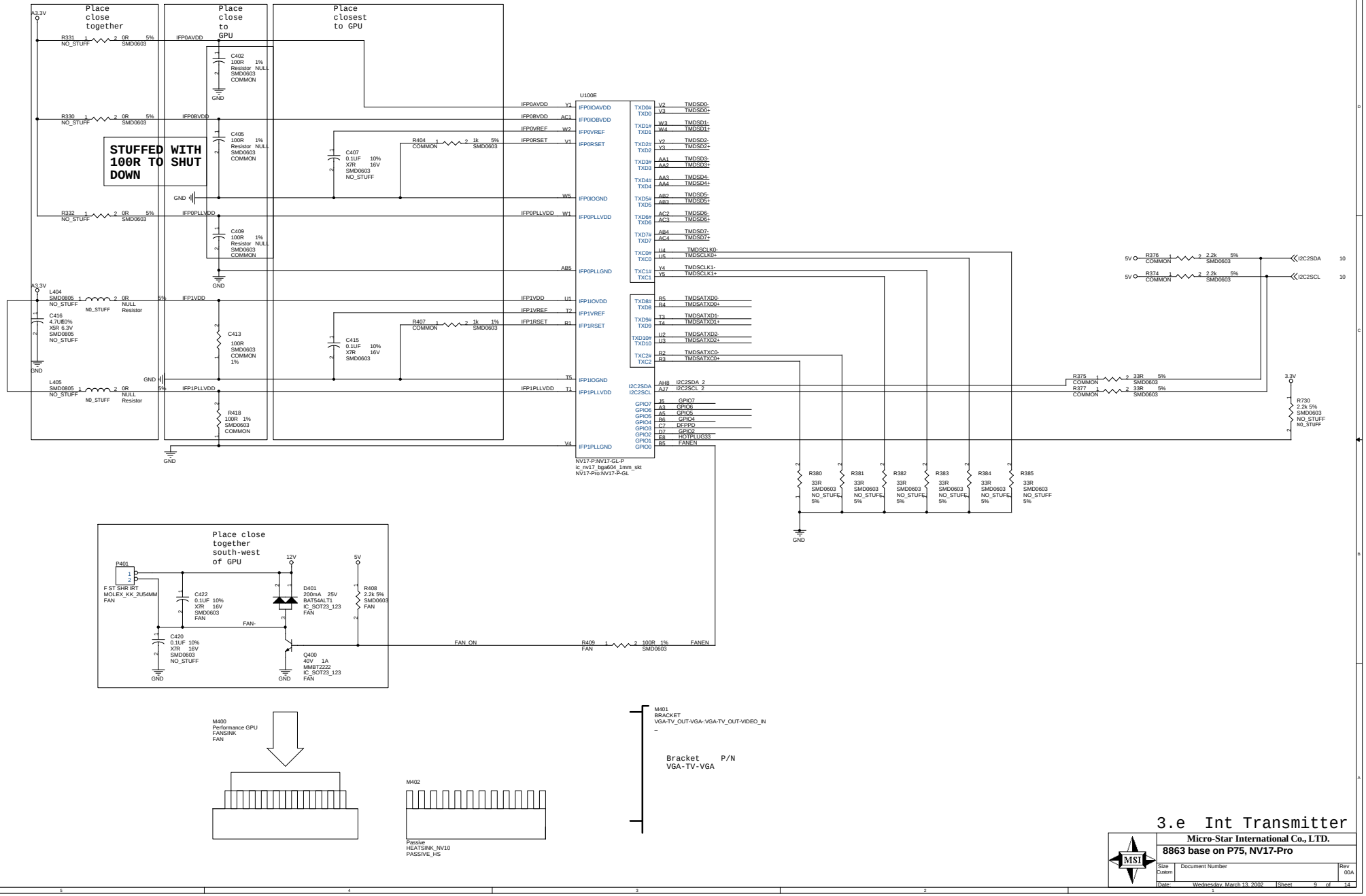
3.c DAC_A

Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number: Rev: 00A
Date: Wednesday, March 13, 2002	Sheet 7 of 14



3.d DACB, 2nd VGA

Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number: Rev 00A
Date: Wednesday, March 13, 2002	Sheet 8 of 14



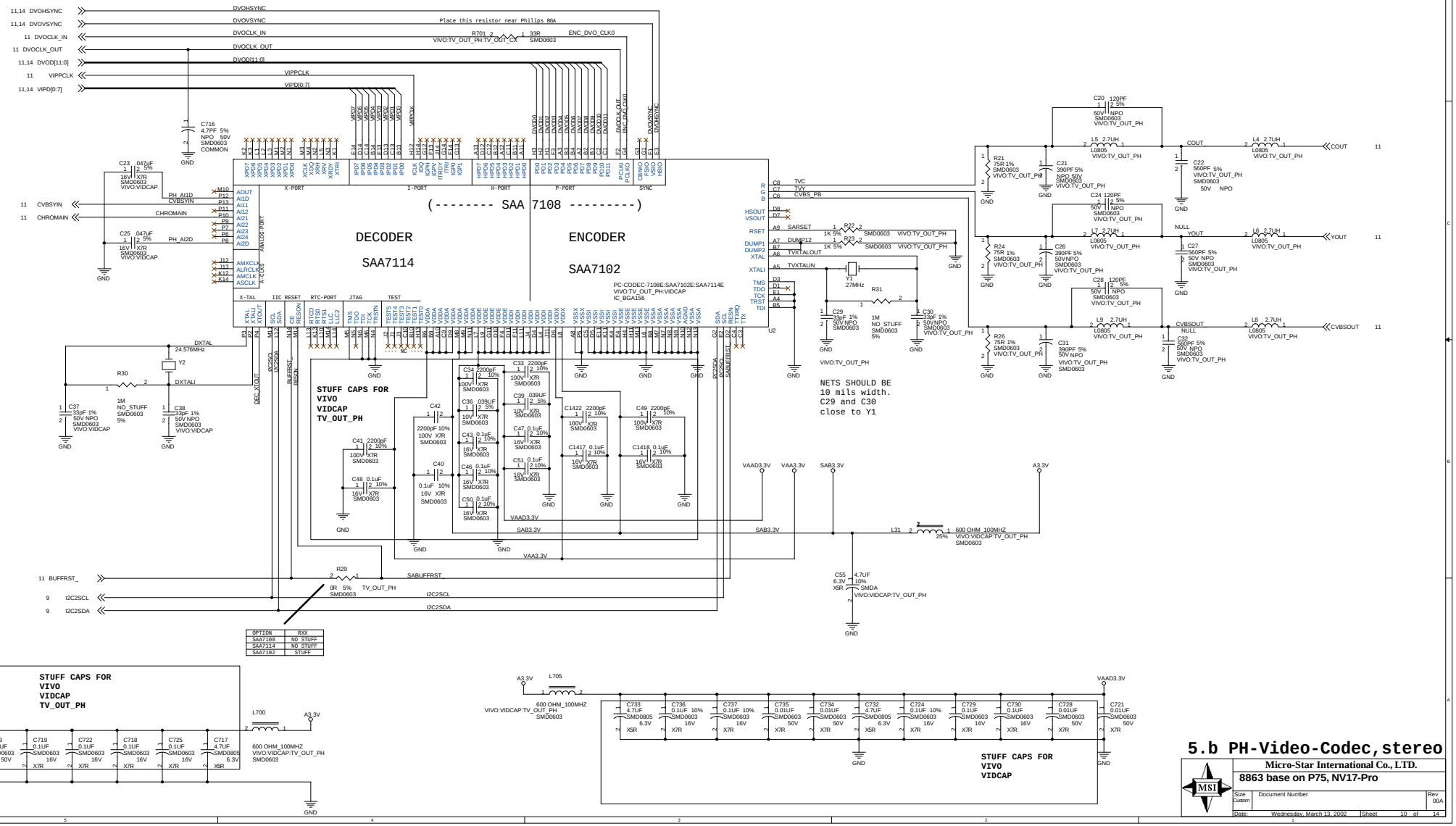
3.e Int Transmitter

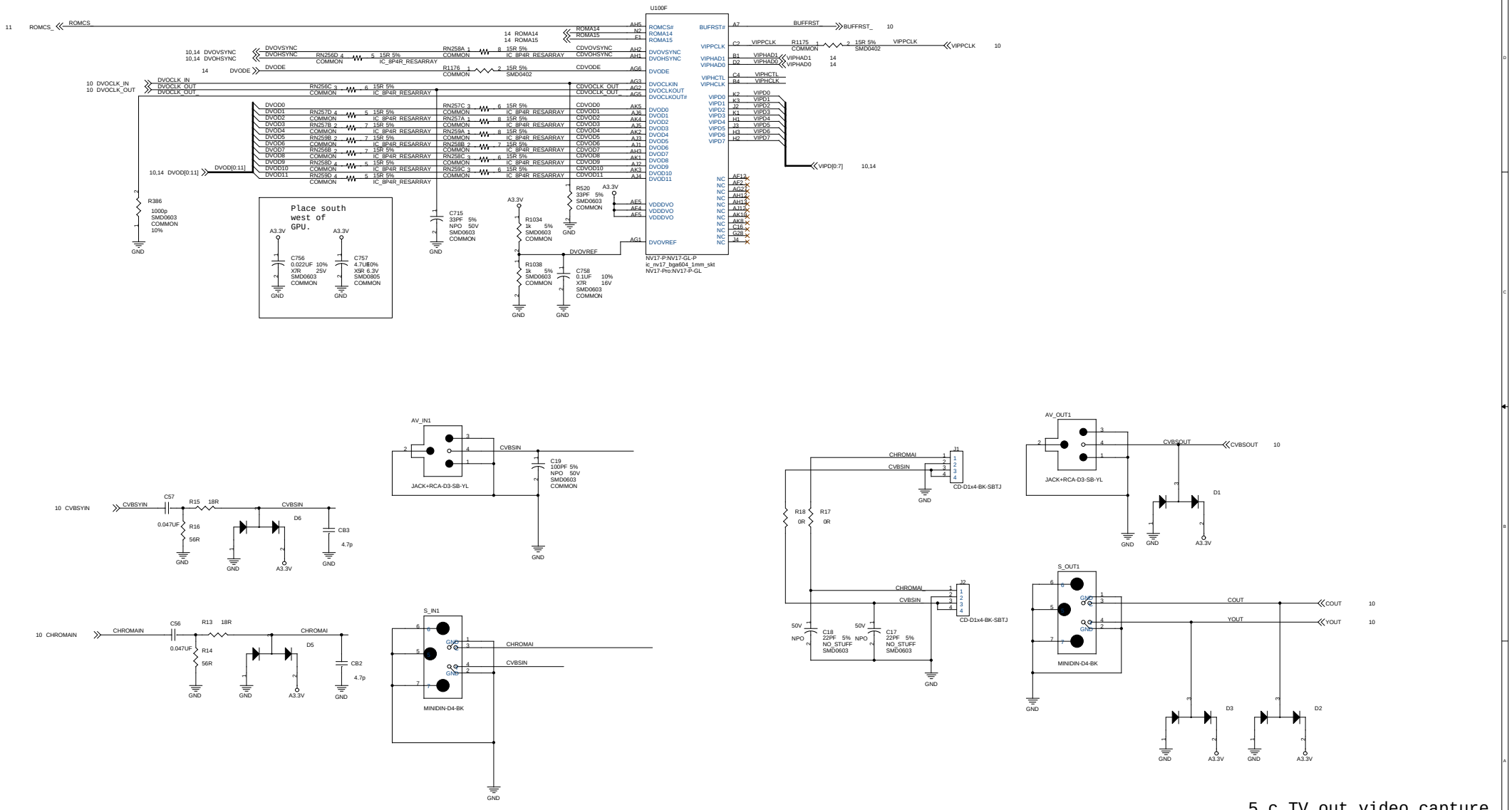
Micro-Star International Co., LTD.

8863 base on P75, NV17-Pro

Size	Document Number	Rev
Custom		00A

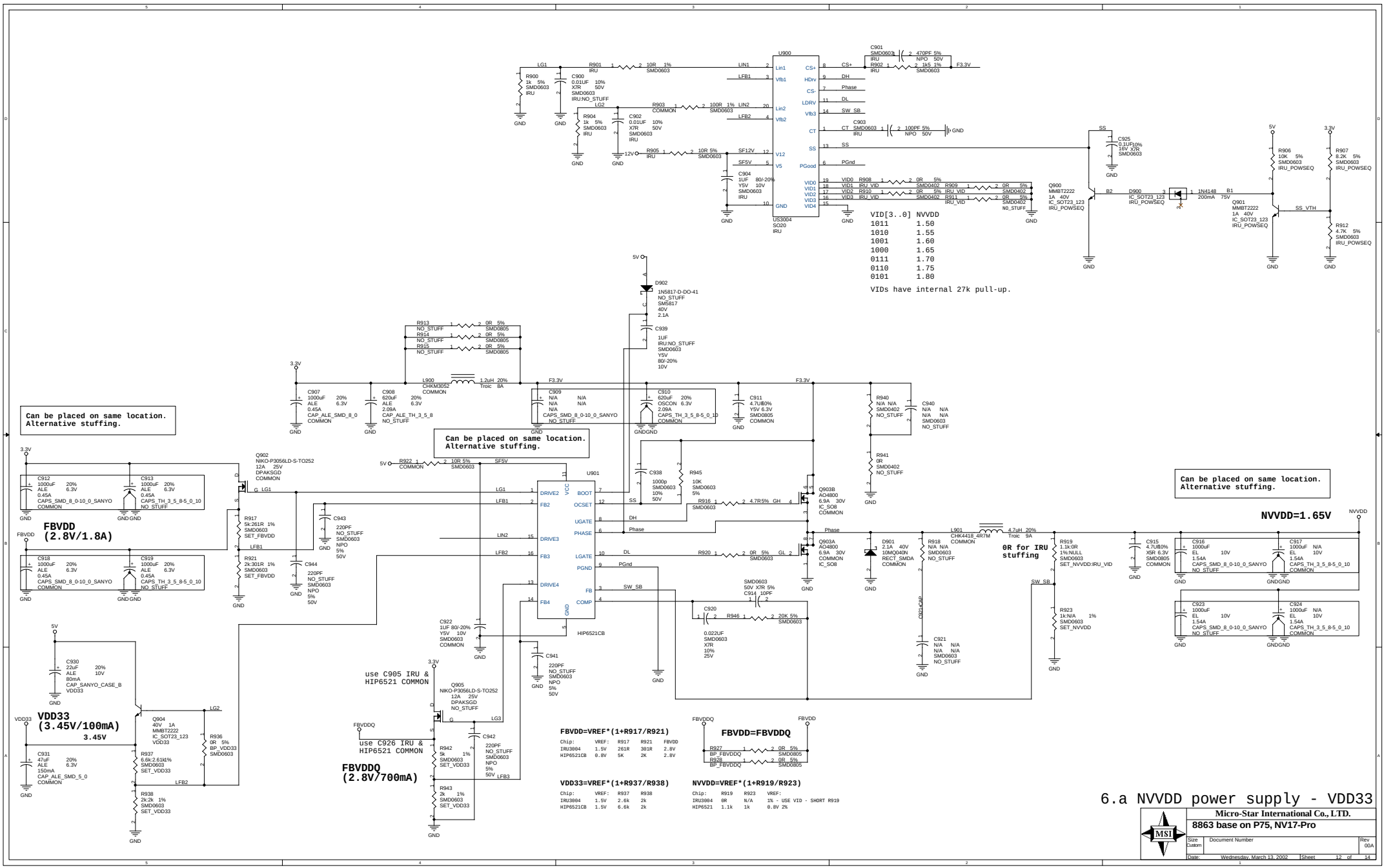
Date: Wednesday, March 13, 2002 Sheet 9 of 14


DVOHSYNC
DVOVSYNC
DVOCLK_IN
DVOCLK_OUT
DVOD[11:0]
VIPPCLK
VIPD[0:7]
Place this resistor near Philips BGA
R701 33R SMD0603
ENC_DVO_CLK0
VIVO:TV_OUT_PH:TV_OUT_CX
C716 4.7PF 5% NPO 50V SMD0603 COMMON
GND
C23 .047uF 10% 16V X7R SMD0603 VIVO:VIDCAP
C25 .047uF 10% 16V X7R SMD0603 VIVO:VIDCAP
PH_AI1D
PH_AI2D
CVBSYIN
CHROMAIN
X-PORT
I-PORT
H-PORT
P-PORT
SYNC
(-------- SAA 7108 ---------)
DECODER
SAA7114
ENCODER
SAA7102
PC-CODEC-7108E:SAA7102E:SAA7114E
VIVO:TV_OUT_PH:VIDCAP
IC_BGA156
X-TAL
IIC RESET
RTC-PORT
JTAG
TEST
U2
C8 TVC
C7 TVY
C9 CVBS_PB
R21 75R 1% SMD0603 VIVO:TV_OUT_PH
R24 75R 1% SMD0603 VIVO:TV_OUT_PH
R26 75R 1% SMD0603 VIVO:TV_OUT_PH
C20 120PF 5% 50V NPO SMD0603 VIVO:TV_OUT_PH
C24 120PF 5% 50V NPO SMD0603 VIVO:TV_OUT_PH
C28 120PF 5% 50V NPO SMD0603 VIVO:TV_OUT_PH
L5 2.7UH L0805 VIVO:TV_OUT_PH
L7 2.7UH L0805 VIVO:TV_OUT_PH
L9 2.7UH L0805 VIVO:TV_OUT_PH
C21 390PF 5% NPO 50V SMD0603 VIVO:TV_OUT_PH
C26 390PF 5% NPO 50V SMD0603 VIVO:TV_OUT_PH
C31 390PF 5% 50V NPO VIVO:TV_OUT_PH SMD0603
COUT
YOUT
CVBSOUT
NULL
C22 560PF 5% 50V NPO SMD0603 VIVO:TV_OUT_PH
C27 560PF 5% 50V NPO SMD0603 VIVO:TV_OUT_PH
C32 560PF 5% 50V NPO SMD0603 VIVO:TV_OUT_PH
L4 2.7UH L0805 VIVO:TV_OUT_PH
L6 2.7UH L0805 VIVO:TV_OUT_PH
L8 2.7UH L0805 VIVO:TV_OUT_PH
R22 1K 5% SMD0603 VIVO:TV_OUT_PH
R23 1K 5% SMD0603 VIVO:TV_OUT_PH
SARSET
DUMP12
TVXTALOUT
TVXTALIN
Y1 27MHz
R31 1M NO_STUFF SMD0603 5%
C29 33pF 1% 50V NPO SMD0603
C30 33pF 1% 50V NPO SMD0603 VIVO:TV_OUT_PH
VIVO:TV_OUT_PH
NETS SHOULD BE 10 mils width. C29 and C30 close to Y1
DXTAL 24.576MHz
Y2
DXTALI
R30 1M NO_STUFF SMD0603 5%
C37 33pF 1% 50V NPO SMD0603 VIVO:VIDCAP
C38 33pF 1% 50V NPO SMD0603 VIVO:VIDCAP
STUFF CAPS FOR VIVO VIDCAP TV_OUT_PH
C34 2200pF 10% 100V X7R SMD0603
C33 2200pF 10% 100V X7R SMD0603
C36 .039UF 5% 10V X7R SMD0603
C39 .039UF 5% 10V X7R SMD0603
C42 2200pF 10% 100V X7R SMD0603
C43 0.1uF 10% 16V X7R SMD0603
C47 0.1uF 10% 16V X7R SMD0603
C41 2200pF 10% 100V X7R SMD0603
C46 0.1uF 10% 16V X7R SMD0603
C51 0.1uF 10% 16V X7R SMD0603
C40 0.1uF 10% 16V X7R SMD0603
C48 0.1uF 10% 16V X7R SMD0603
C50 0.1uF 10% 16V X7R SMD0603
C1422 2200pF 10% 100V X7R SMD0603
C49 2200pF 10% 100V X7R SMD0603
C1417 0.1uF 10% 16V X7R SMD0603
C1418 0.1uF 10% 16V X7R SMD0603
VAAD3.3V
VAA3.3V
SAB3.3V
A3.3V
L31 600 OHM_100MHZ 25% VIVO:VIDCAP-TV_OUT_PH SMD0603
C55 4.7UF 6.3V 10% X5R SMDA VIVO:VIDCAP:TV_OUT_PH
R29 0R 5% SMD0603 TV_OUT_PH
SABUFFRST
I2C2SCL
I2C2SDA
OPTION RXX
SAA7108 NO STUFF
SAA7114 NO STUFF
SAA7102 STUFF
STUFF CAPS FOR VIVO VIDCAP TV_OUT_PH
L700 600 OHM_100MHZ VIVO:VIDCAP:TV_OUT_PH SMD0603
C720 0.01UF 50V X7R SMD0603
C723 0.01UF 50V X7R SMD0603
C719 0.1UF 16V X7R SMD0603
C722 0.1UF 16V X7R SMD0603
C718 0.1UF 16V X7R SMD0603
C725 0.1UF 16V X7R SMD0603
C717 4.7UF 6.3V X5R SMD0805
L705 600 OHM_100MHZ VIVO:VIDCAP:TV_OUT_PH SMD0603
C733 4.7UF 6.3V X5R SMD0805
C736 0.1UF 10% 16V X7R SMD0603
C737 0.1UF 10% 16V X7R SMD0603
C735 0.01UF 50V X7R SMD0603
C734 0.01UF 50V X7R SMD0603
C732 4.7UF 6.3V X5R SMD0805
C724 0.1UF 10% 16V X7R SMD0603
C729 0.1UF 16V X7R SMD0603
C730 0.1UF 16V X7R SMD0603
C728 0.01UF 50V X7R SMD0603
C721 0.01UF 50V X7R SMD0603
STUFF CAPS FOR VIVO VIDCAP
5.b PH-Video-Codec,stereo
Micro-Star International Co., LTD.
8863 base on P75, NV17-Pro
Size Custom
Document Number
Rev 00A
Date: Wednesday, March 13, 2002
Sheet 10 of 14



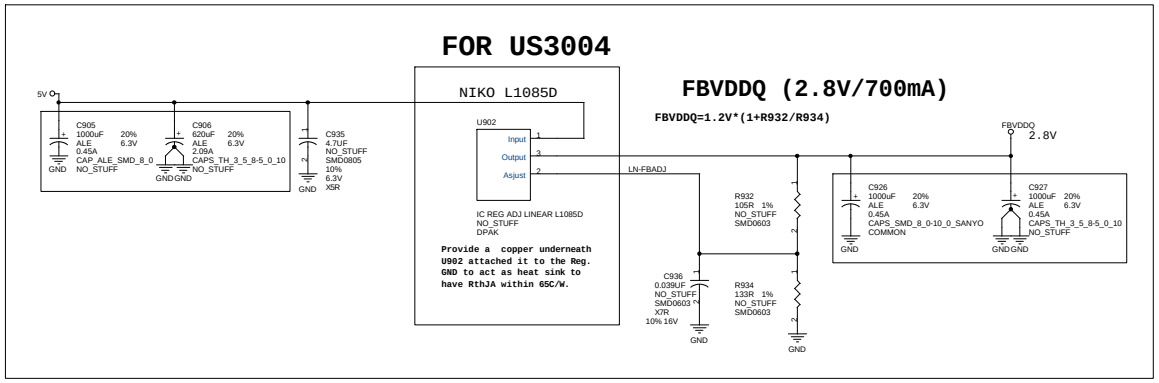
5.c TV out,video capture

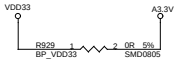
Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number:
Rev: 00A	
Date: Wednesday, March 13, 2002	Sheet 11 of 14

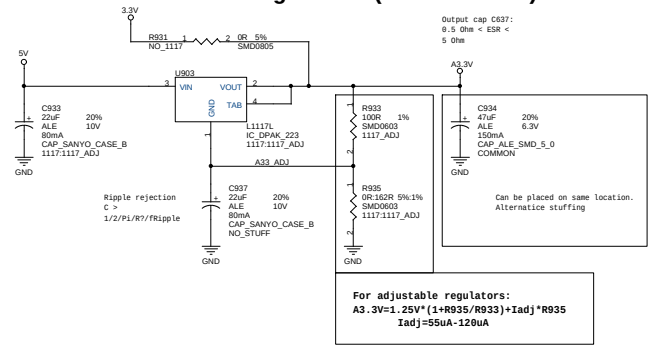


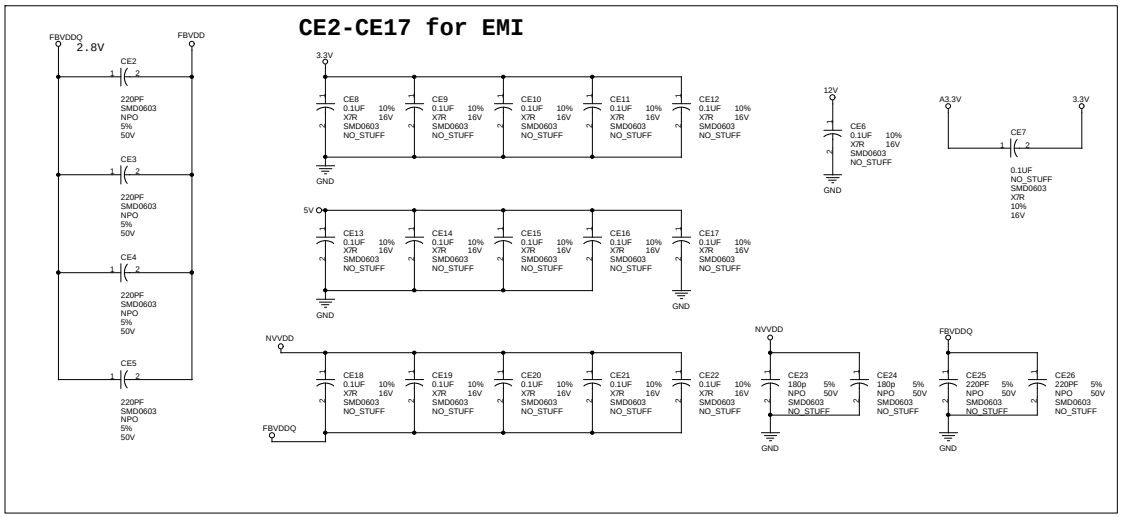
6.a NVVDD power supply - VDD33

Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number: Rev: 00A
Date: Wednesday, March 13, 2002	Sheet 12 of 14



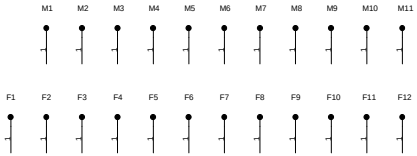




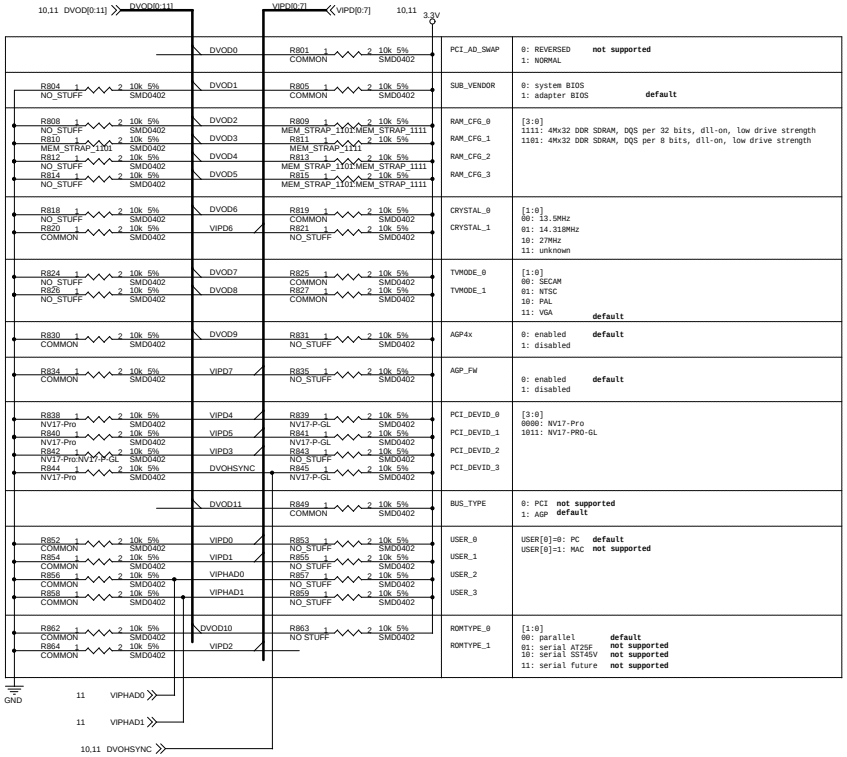


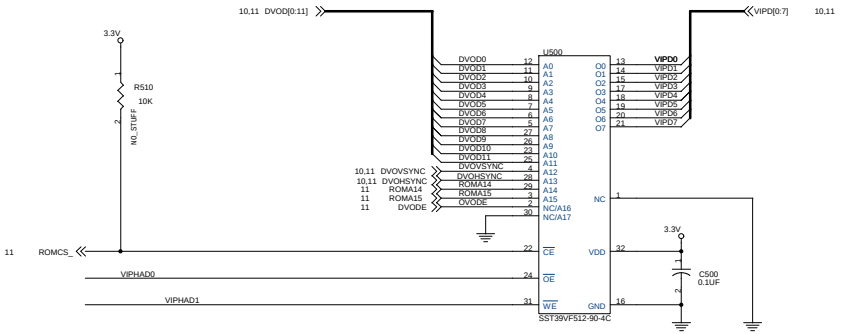
6.b Analog power supply, FBVDDQ

Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number: Rev: 00A
Date: Wednesday, March 13, 2002	Sheet 13 of 14



Strapping





7. BIOS, Strapping

Micro-Star International Co., LTD.	
8863 base on P75, NV17-Pro	
Size: Custom	Document Number:
Rev: 00A	
Date: Wednesday, March 13, 2002	Sheet 14 of 14