



2.a NV17 Frame Buffer

Micro-Star International Co., LTD.



MS 9947 base on D72 modify

Size	Document Number	R
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Custom FB_NV17

Date: Thursday, January 09, 2003 Sheet 1 of 1

P73, NV17, 4/8Mx16 DDR, 32/64MB, Dual RGB, TV-out, Video Capture, AGP4X



PCI DEVICE ID = 0X172 FOR GF4-MX420-XX.

PRIMARY ** VGA1 DAC_A ** I2C1.
SECONDARY ** VGA2 DAC_B ** I2C0.
VIDCAP ** VIP 7114 I2C2.
9pin DIN ** RGB2 I2C2. See PDS for Hookup

P73--A00-X01
Created SCH from P78-X16 for I/O Netlist only

P73-A00-X02
CREATED NX16 MEMORY, DECOUPLING FROM P78

P73-A00-X03
ADDED MEM & CORE FROM P70 PS FOR ISL6529
SAA7114 DECAPS ADDED AND CHANGED TO 0402

P73-A00-X04
PCB Footprint for RAM added

P73-A00-X05
C620, C621 Removed
Extra Mem Decaps removed

P73-A00-X06
PCB Footprint for Inductor, Stacked DB15, ISL6529 added
PCB Footprint for L305, L307, L308, L316-L324
changed to 0603 from 0805.
Added X-Comp R750, R751.

P73-A00-X07
TV-XTAL should be 18pf CL.
Each memory with separate clock

P73-A00-X08
U700-Parallel ROM and C700 decap Removed for space

P73-A00-X09
0603 to 0402 Package Changes for 49 components

P73-A00-X10
Design Review Updates
0603 to 0402 Package Changes for 33 components
0805 to 0603 Package Changes for 17 components
0402 to 0603 Package Changes for 10 components
Removed 25 components

P73-A00-X11
Swaps in Memory termination RN201, RN203, RN205, RN207

P73-A00-X12
C606, C615 TH replacements. Removed for want of space.

P73-A00-X13
Memory bus swaps on 1/11/02-Swap 2

P73-A00-X14
Memory bus swaps on 1/12/02-Swap 3

P73-A00-X15
Memory bus byte swaps as per NV17-Ball
arrangement

P73-A00-X16
Memory bus byte and bit swaps as per layout
TV Filter moved to VGA2 page with more routing notes

P73-A00-X17
The C397, C311, C318 changed to 0603 from 0402
for two trace routing near GPU break out.
P300-2 Mounting pins removed from CGND

P73-A00-X18
Added X Components C824 to C830 to FBVDDQ

P73-A00-X19
Added X Components C831 to C832 to FBVDDQ
R610, R612 for FBVDDQ re-fixed to have <5K for Rfb

P73-A00-X20- X-Rel Candidate
Clean-up for Agile upload
Memory de-coupling values modified as per layout.

P73-A00-X21- ECO-3893
Q600 Should be FET instead of BJT
Transistor.

P73-A00-X22-
Corrected NV17-S sku in the table in this page

P73-A01-X01
The RED and GREEN signal to TV filter
interchanged. Corrected by swapping CVBS_YOUT
and COUT.

P73-A01-X02
Corrected by swapping CVBS_YOUT and COUT at DIN
Type 3 Compensation Values for ISL6529 changed
C616---NS---47nF
R614---NS---8.06K
C618---33nF---70nF
R611---16.2K---6.65K
C619---33nF---1.8nF
AGPSTOP to 3.3V
R616 -47R inseries to 12V for ISL6529 is too
high, changed to 4.7R

P73-A01-X03-Final Netlist
R616 -4.7R inseries to 12V for ISL6529 is changed to 0R
R624 - Added 2.2R inseries to 5V for ISL6529.
ISL6529 Compensation Res to be Type 2 with
Snubber coponents stuffed. Values under test.

P73-A01-X04-For X-Rel
The Type 2 Compensation works better than Type 3 Compensation.
C616, R614 No Stuff, R614 Nostuff, C618 3300pf, R611 16.2K,
C619 33pF, R616 0R
Snubber values are
R626 2.2R, C617 2200PF

P73-A01-X05-ECO4193
The Type 3 Compensation works better than Type 2 Compensation
in the new layout with new values tried at Intersil.
C616-47nF, R614-10R, C618 1000pf, R611-10K, C619 1500pF.

MS-8878 BASE ON P73 MODIFY

- Page 1. Add CE1 and RE1 for EMI solution.
Add compability with M/B.
rename , C22 to C144,R4 to R111,R5 to R112,R6 to R113,U1 to U101
change NET name, U100.AH17 to BUF_PCIRST_ also at the R112 and C144.
- Page 4. U300.9,U300.10,U300.1,U300.2 and U300.7 pin connect to GND.
- Page 5. remove VGA2 function.
- Page 9. Remove SAA7114H function and ADD AV-OUT & S_OUT conector.
remove L500,C500,C505,C506,C538,C539,C507,C508
- Page 10. C613,C604,C605,C614,L600 and L601 change to DIP type,ADD C620 , Q1 change to AOS4800
- Page 11. R704~R719,R726~R733,R745,R746 PAD size change to 0603 type and Add R747 10k ohm.
Add parallel bios function.
R746,R747 stuff (00)
- Page 6 . Add Fan power function.
- MS-8878 VER:310 MODIFY**
Page 2. Add 74XCT74 buffer for PCI_RST function.
Page 5. Add 75ohm and bypass Cap. for TV-OUT function.
Page 9. Swap S-OUT.3 and S-OUT.4 net name.
Page 10. Change DIP type CAP. footprint.
Page 11. Change U1000.22 net name.

Stuff Option	Meaning
COMMON NO STUFF	Common to all assemblies and 1st VGA comps Not present in any assembly
VIDCAP VGA2	Video In or Video Capture 2nd VGA Components and Conenctor
DSUB	Standard single VGA Connector
TV TVO	Second DAC channel goes to Svideo connector as TV Out 4pin DIN for TV Only
1117 1117_ADJ NO_1117	Fixed 1117 linear regulator for A3.3V Adjustable 1117 linear regulator for A3.3V Connect A3.3V to 3.3V. No 1117 regulator.
CLAMP1 RGB_PROT CLAMP2 RGB2_PROT CLAMP3 TVCLAMP	VGA1 Sync/I2C Clamping diodes RGB Protection diodes on primary DAC outputs VGA2 Sync/I2C Clamping diodes RGB Protection diodes on secondary DAC outputs VIDCAP I2C/Video In Clamping diodes TV Red/Green Clamping diodes
GPU NV17-S MEMORY M2-8V M2-5V	GPU ONLY IDSTRAP OPTION-172H Memory only Memory PS output 2.8V Memory PS output 2.5V

PAGE OVERVIEW

- 1 top (this) page
2 1. AGP interface, core decoupling
3 2.a NV17 Frame Buffer
4 3.a Dual DAC, 1st VGA
5 3.b Dual DAC, 2nd VGA
6 3.c TMDS NV17
7 4.a Frame Buffer 0..31
8 4.b Frame Buffer 32...63
9 5. TV-out, video capture, stereo
10 6. Power supply
11 7. BIOS, Strapping

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MS-8847 base on P73 Modify
TOP PAGE

Rev 00A

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Document Number

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Sheet 3 of 11

[Item]\Quantity\Reference\Value\Assembly\{MIL2}\{M100}\Source Package\{AVL1}\{AVL2}\{AVL3}\{AVL4}\{AVL5}
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