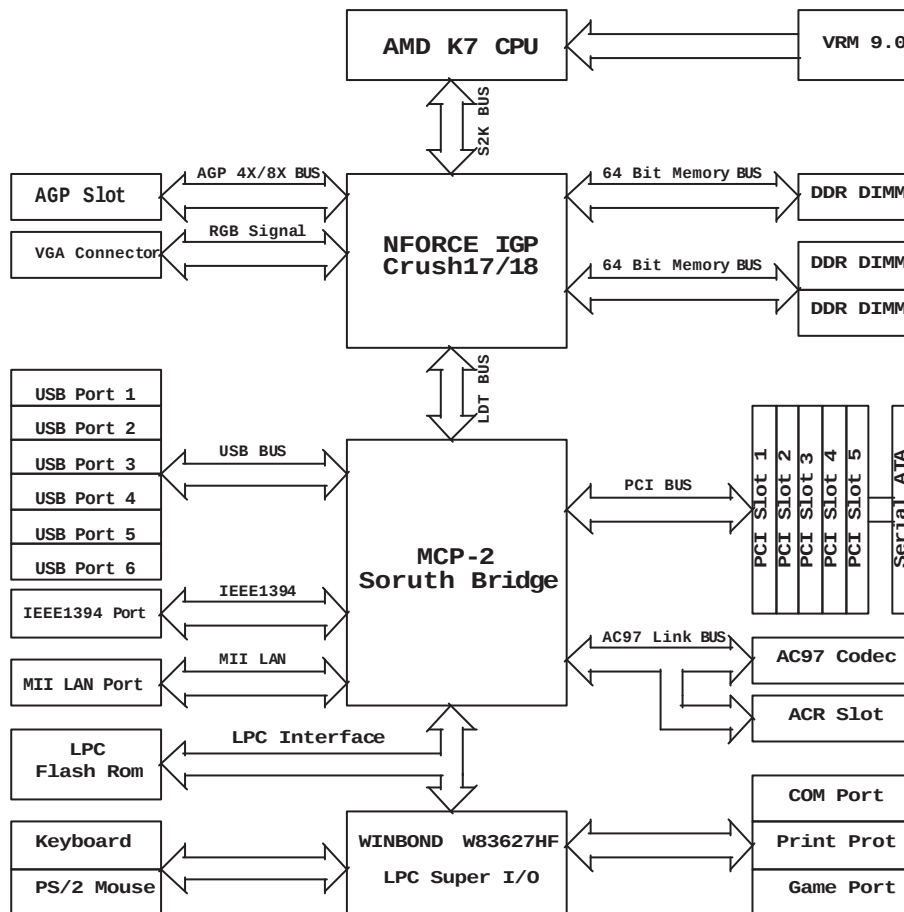


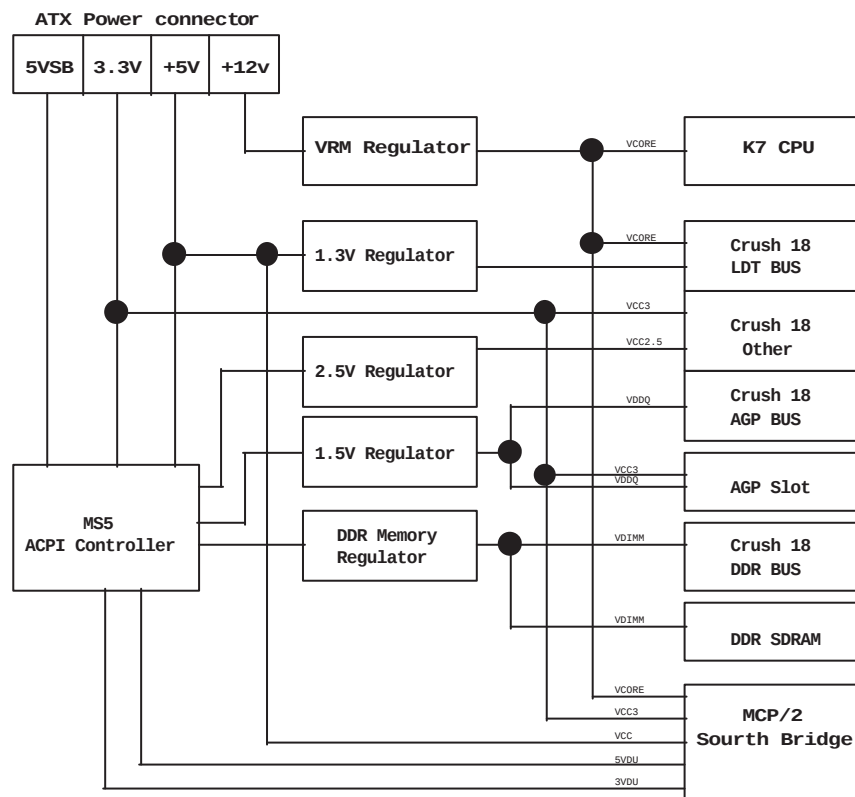


MS-6570 Version: 0B

Powered by
Venson.Chen

003-K7 CPU Part 1
 004-K7 CPU Part 2
 005-VRM 9.0
 006-Crush17/18 Part 1
 007-Crush17/18 Part 2
 008-Crush17/18 Part 3
 009-Crush17/18 Part 4
 Power OK Circuit
 010-AGP Slot & TV-out
 011-DDR DIMM1 & 2
 012-DDR DIMM3
 013-DDR Terminator Resistor
 014-MCP/2 Part 1
 015-MCP/2 Part 2
 016-MCP/2 Part 3
 017-ACR Slot & MS3 & BIOS
 018-MII LAN & USB Connector
 019-IEEE1394 & VGA Connector
 020-Realtek 650 AC97 codec
 021-PCI Slot1 & 2
 022-PCI Slot3 & 4
 023-PCI Slot5 & MS1
 024-On board Serial ATA
 025-K/M Connector & IDE Connector
 026-COM/Print Port
 027-W83627HF LPC SIO & Game Port
 028-MS5 ACPI Controller & Power
 029-ATX Power & Front Panel
 030-History

File		
MS-6570		
Size	Document Number	Rev
	Blockdiagram	0A
Date	Thursday, August 01, 2002	Sheet 1 of 30



MS-6570 Specification

CPU: AMD K7 Serial Socket 462

North Bridge: Nvidia Crush 17/18

South Bridge: Nvidia MCP/2

On Board PCI Device: Serial ATA

On Board Device: RealTek AC97 Codec

On Board Device: IEEE1394 PHY

On Board Device: ICS MII LAN

On Board DDR SDRAM: X3

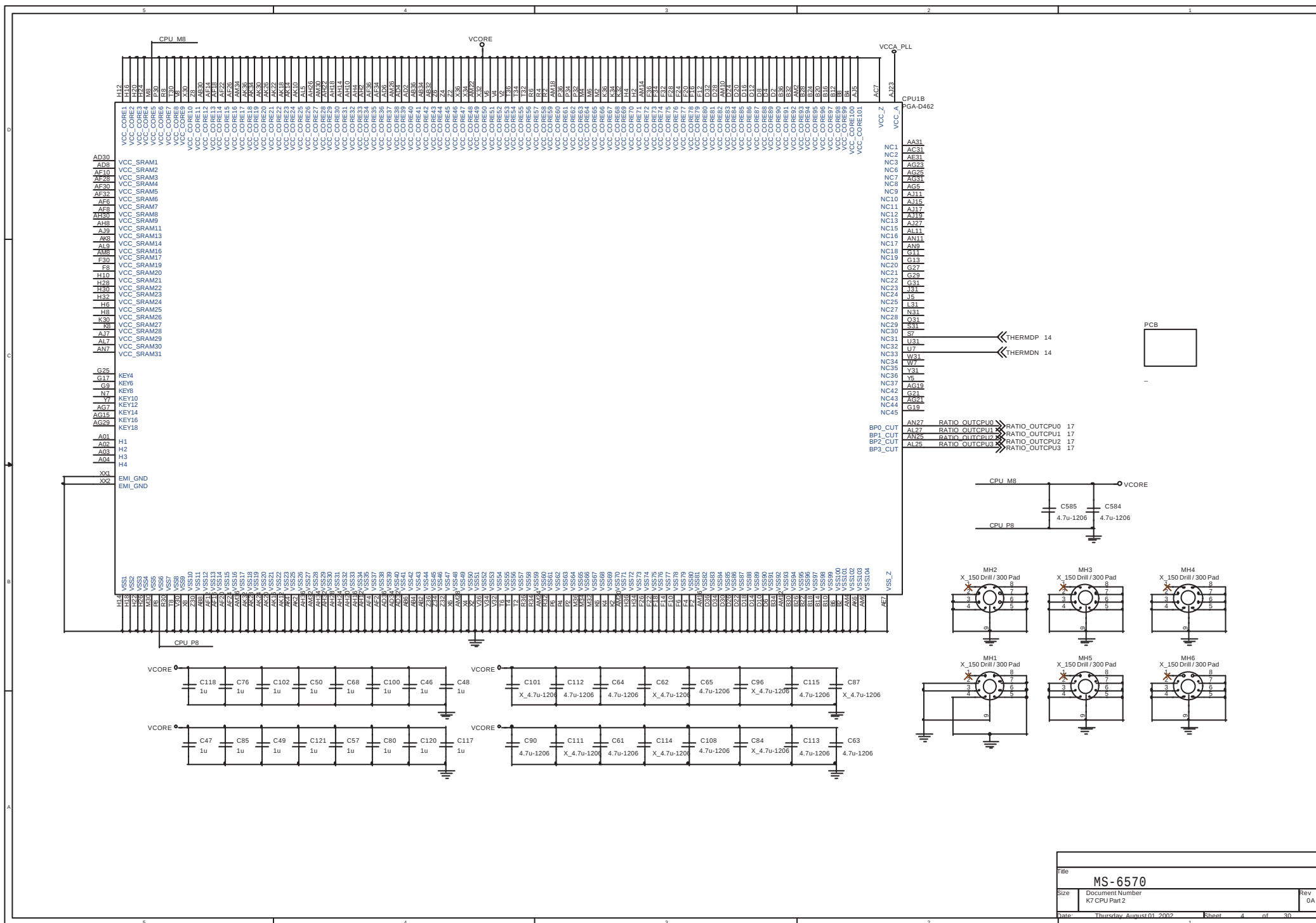
On Board AGP Slot: X1

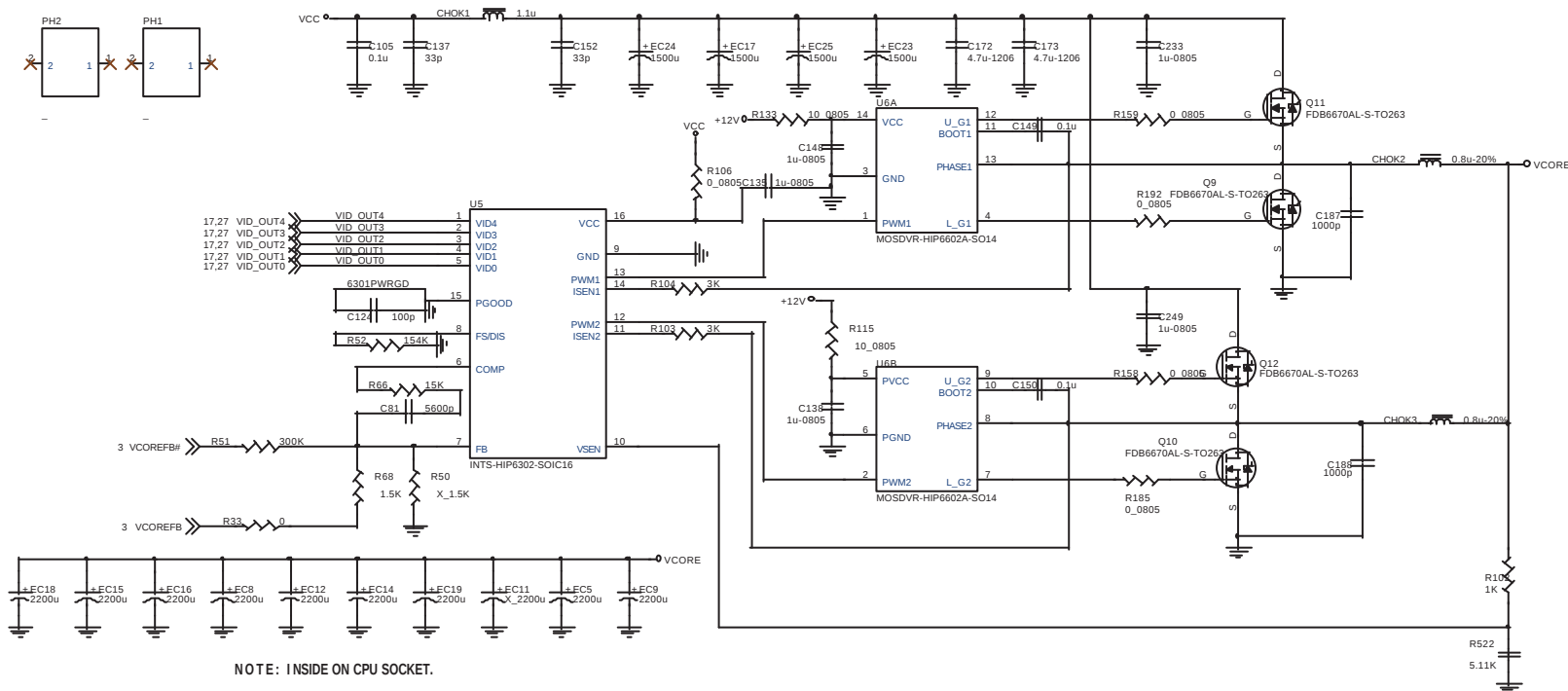
On Board PCI Slot: X5

On Board ACR Slot: X1

GPIO and PCI BUS Address

File		
MS-6570		
Size	Document Number	Rev
	Power and specification	0A
Date	Thursday, August 01, 2002	Sheet 2 of 30





FDB6670 Specification:

Qg= 35nC; Trise= 15ns; Tfall= 42ns

Hi-Side MOSFET:

Switching loss=

$$1/2 \cdot I_o \cdot V_{in} \cdot (T_{rise} + T_{fall}) \cdot F_s$$

$$1/2 \cdot 22.5 \cdot 5 \cdot (15ns + 42ns) \cdot 200K$$

$$P_{switching\ loss} = 0.64W$$

$$\text{Conduction loss} = I_o^2 \cdot R_{ds(on)} \cdot D$$

$$= (22.5 \cdot 22.5) \cdot 0.0065 \cdot 0.33 = 1.1W$$

$$P_{total} = P_{switching\ loss} + P_{conduction\ loss}$$

$$= 0.64W + 1.1W = 1.74W$$

Low-Side MOSFET:

$$P_{total} = (22.5 \cdot 22.5) \cdot 0.0065 \cdot 0.67$$

$$= 2.2W$$

AMD CPU specification:

26Hz CPU: Vcore= 1.65V, P= 74.1W

Vcore_DC= -50mv ~ 50mv

Vcore_AC= -100mv ~ 150mv

$$I_{ripple} = I_o \cdot \sqrt{D(1-D)}$$

$$D = 1.65/5 = 33\%; I_{ripple} = 10.58A$$

The ripple current for each input

Based on temperature coefficient of Rubycon:

漣波電流	溫度係數	溫度
2.55A	1	105
4.3A	1.7	85
5.4A	2.1	under 65

Total 4 pcs input capacitance= 17.2A @85

$$ESR = V_o(\Delta) / I_o(\Delta)$$

$$ESR = 100mv / 45 = 2.22m_ohm$$

ESR for each capacitance is 13m_ohm

Total 10 pcs capacitance are 1.3 m_ohm

1.3 m_ohm < 2.2 m_ohm, so it OK !

Rubycon 2200uF/6.3V capacitor

Rated voltage: 6.3V

Surge voltage: 8V

Leakage current: 415uA/2min

DF= 0.24@120Hz

Ripple current= 2.55A(max)

Vender guaranteed: 3000 Hr/105 degree.C

Actual operating temperature: 55 degree.C @45A

Ambient temperature: 25 degree.C

$$\text{實際壽命} = L_1 \cdot 2^{\frac{(T_1 - T_a)}{10}} \cdot 2^{\frac{(T_a - T_2)}{K}}$$

K= 10, if ripple current within specification

K= 5, if ripple current over specification

$$\text{實際壽命} = L_1 \cdot 2^{\frac{(T_1 - T_2)}{10}}$$

$$\text{實際壽命} = 3000 \cdot 2^{\frac{(105 - 55)}{10}}$$

$$\text{實際壽命} = 96000 \text{ Hr}$$

VID4	VID3	VID2	VID1	VID0
VCC(V)	0	1	1	0
1.30	0	0	0	1
1.425	0	0	0	0
0.45	1	1	1	1
0.475	1	1	1	0
0.500	1	1	0	1
0.525	1	1	0	0
0.550	1	0	1	1
0.575	1	0	1	0
0.600	1	0	0	1
1.625				

VID4	VID3	VID2	VID1	VID0
VCC(V)	1	0	0	0
0.650	0	1	1	1
0.675	0	1	1	0
0.70	0	1	0	1
0.725	0	1	0	0
0.75	0	0	1	1
0.775	0	0	1	0
0.80	0	0	0	1
0.825	0	0	0	0
1.85	1	1	1	1
OFF				

Ripple current of Vender's design:

$$I_{ac} =$$

$$\frac{\Delta(T) \cdot B \cdot A \cdot WC}{\tan G}$$

Delta(T): 溫升 ; A= 0.785*{[D(D+4L)]/10}

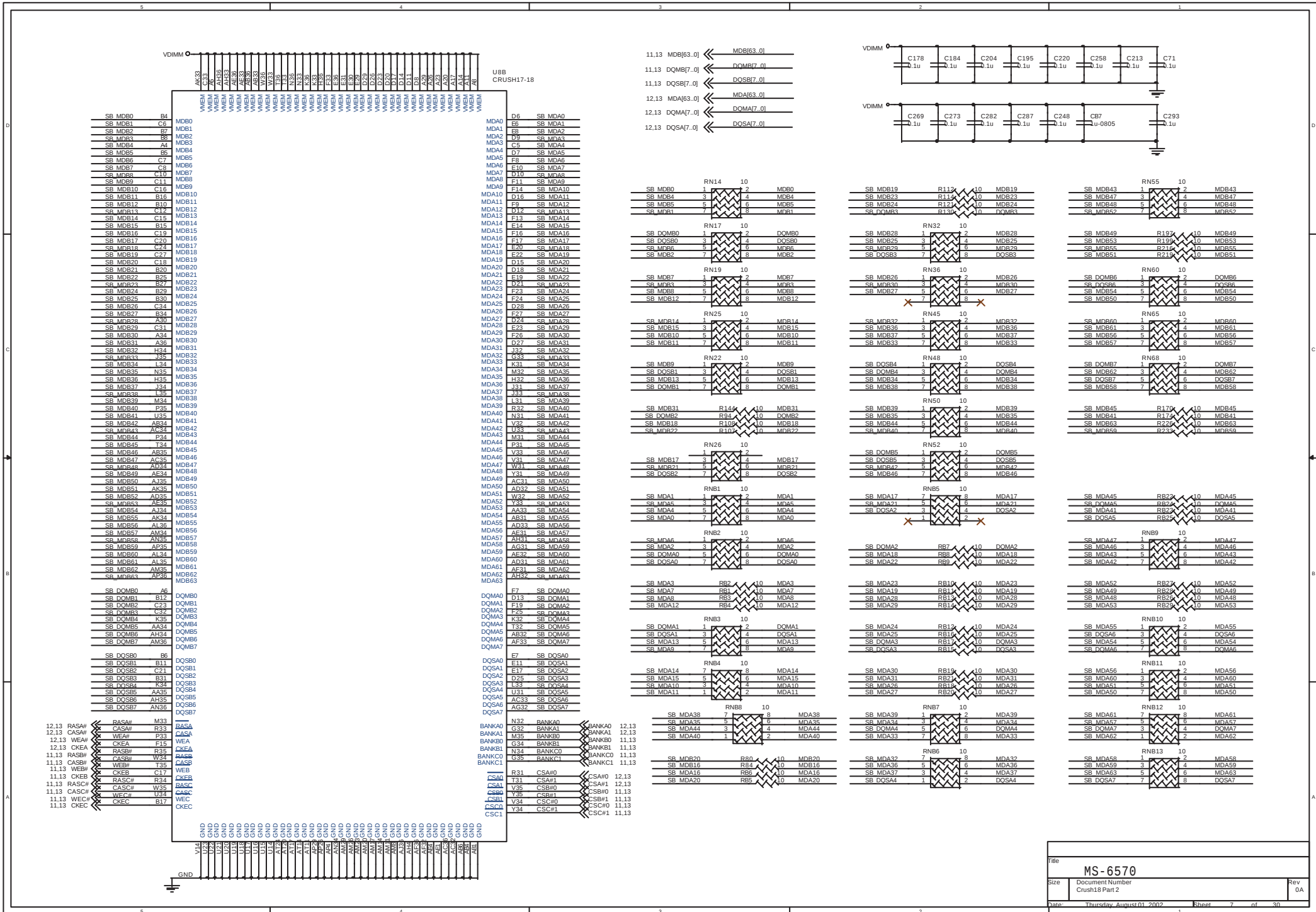
B: 散熱係數 ; WC= 6.28*F*C

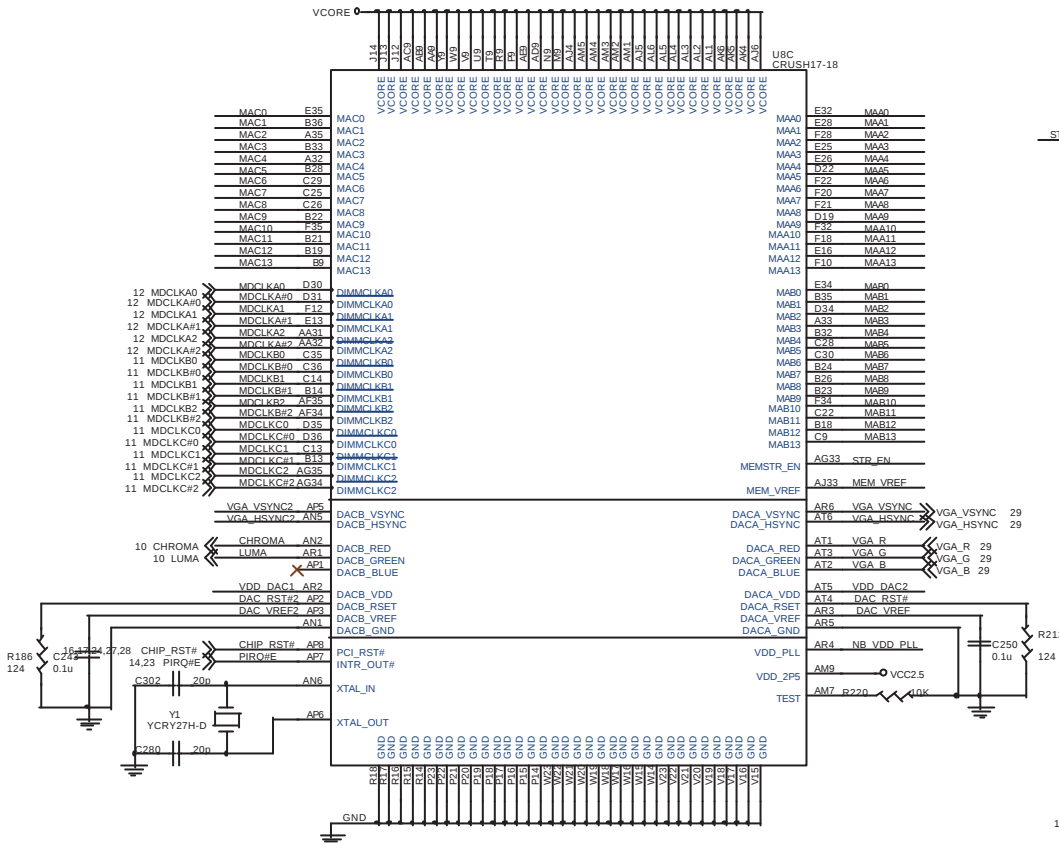
D: 電容外徑 ; L: 電容長度

$$\tan G = R/X_c$$

$$DF(\text{電容損失角}) = \tan G \cdot 100\%$$

File		
MS-6570		
Size	Document Number	Rev
	VPM9.0	0A
Date	Thursday, August 01, 2002	Sheet 5 of 30

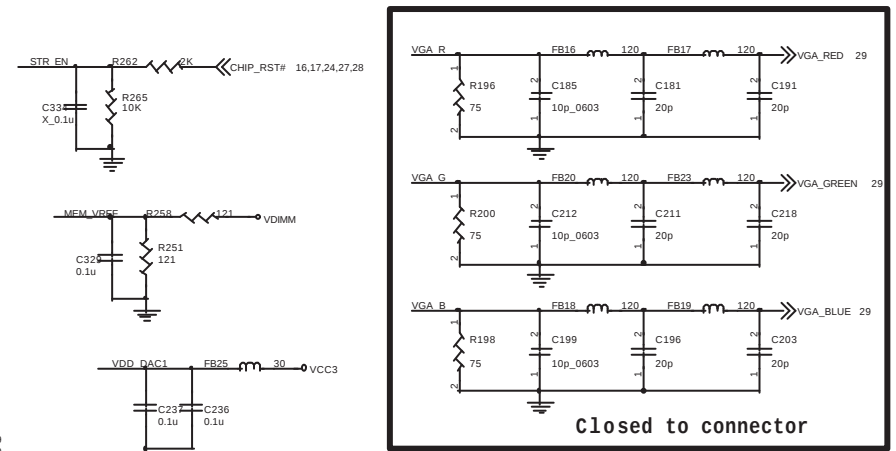




6/28新修正

J10: 1= USER MODE
J10: 0= SAFE MODE

6/28新修正

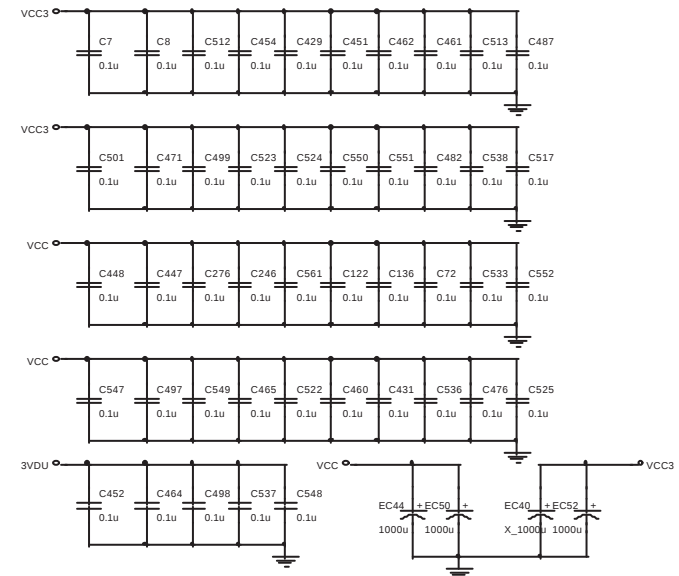
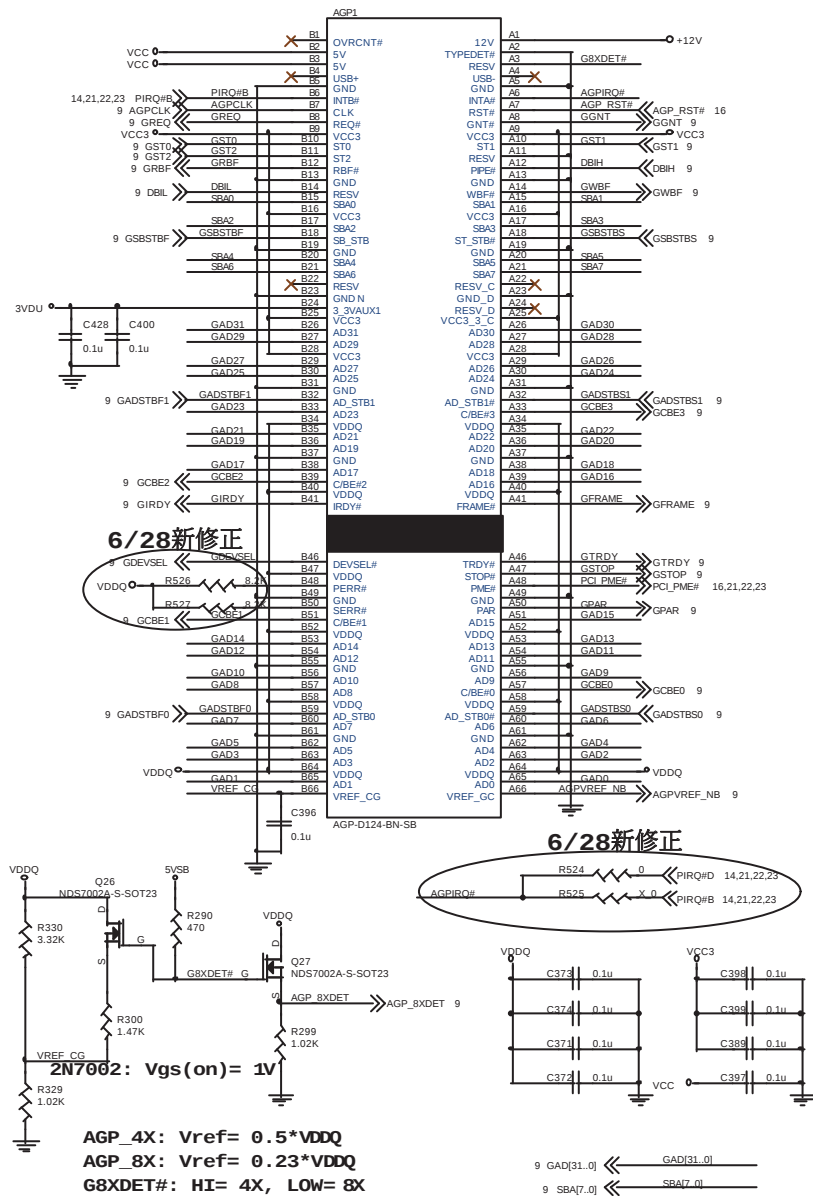


For A2 only

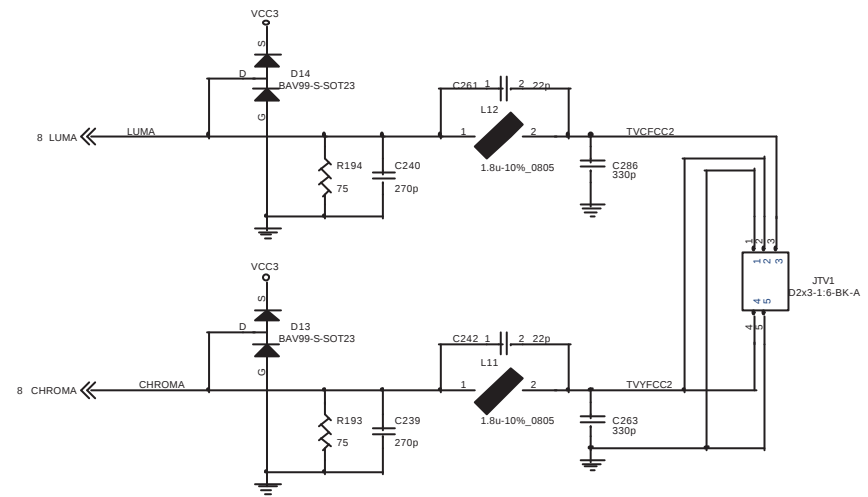
6/28新修正

6/28新修正

12.13 MAA[13..0] << MAA[13..0]
11.13 MAB[13..0] << MAB[13..0]
11.13 MAC[13..0] << MAC[13..0]

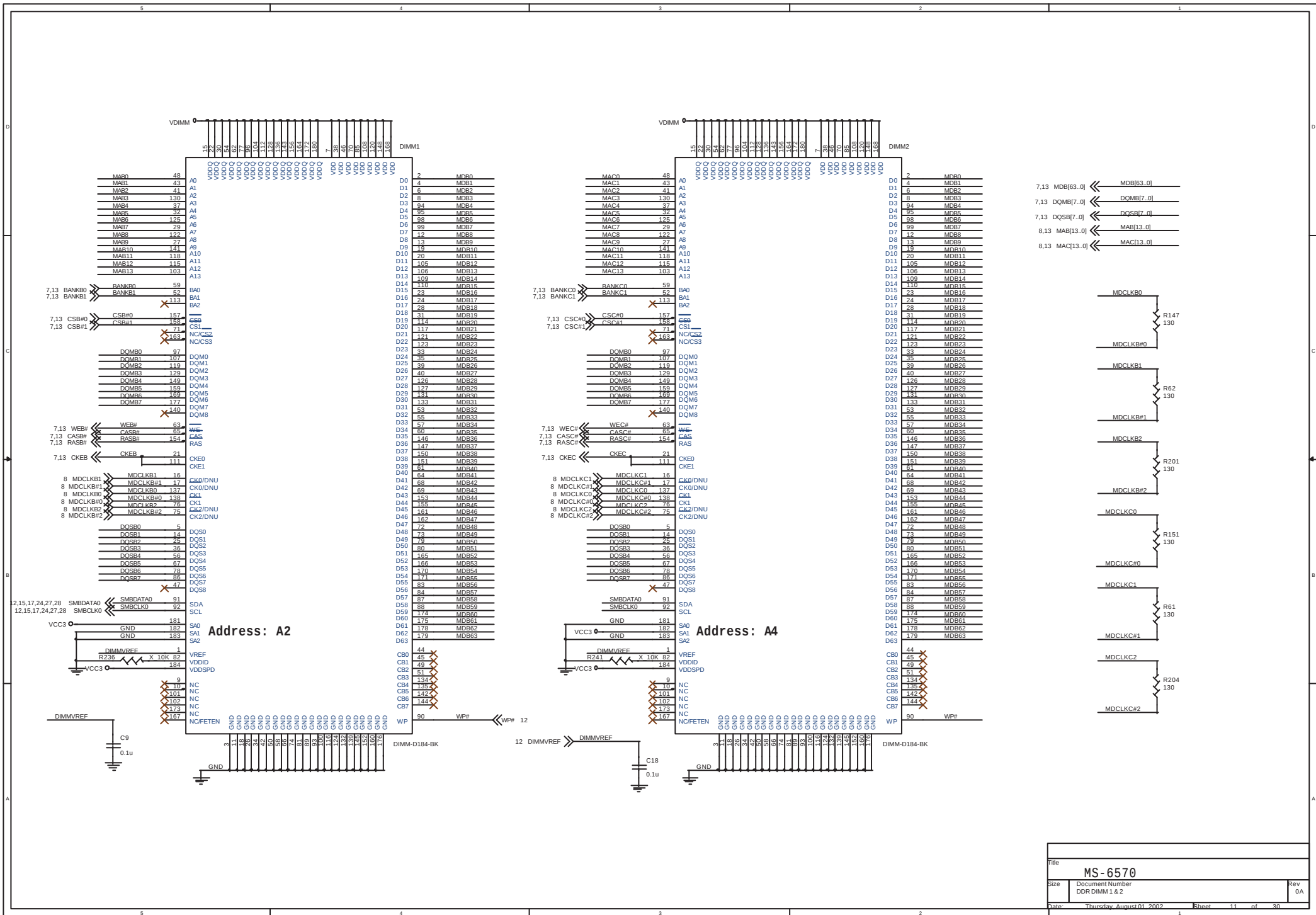


These Capacitance closed to PCI Slot

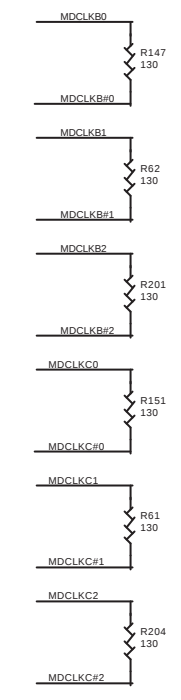


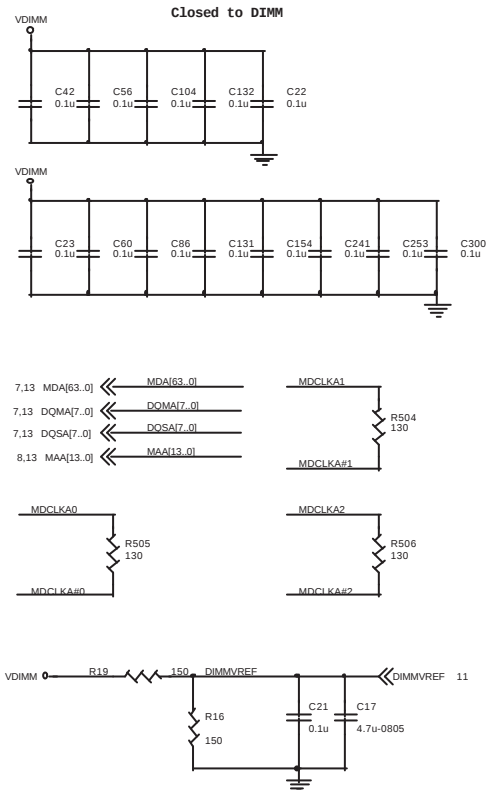
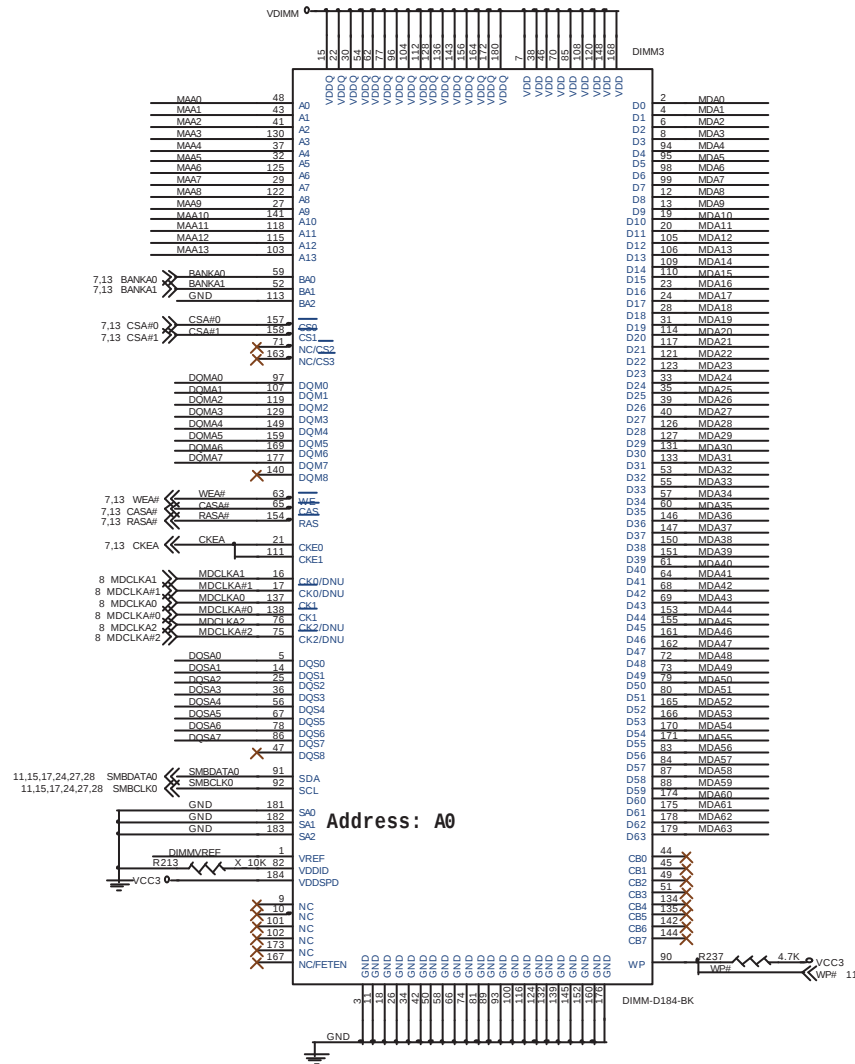
TV OUT Circuit

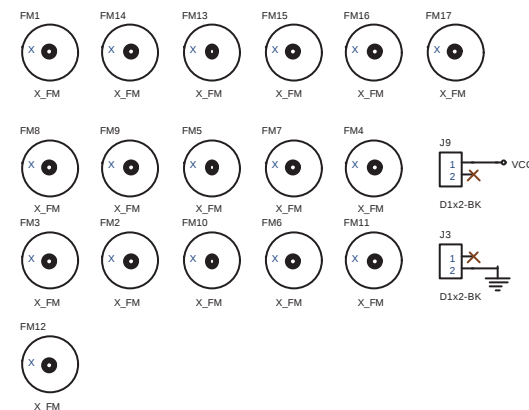
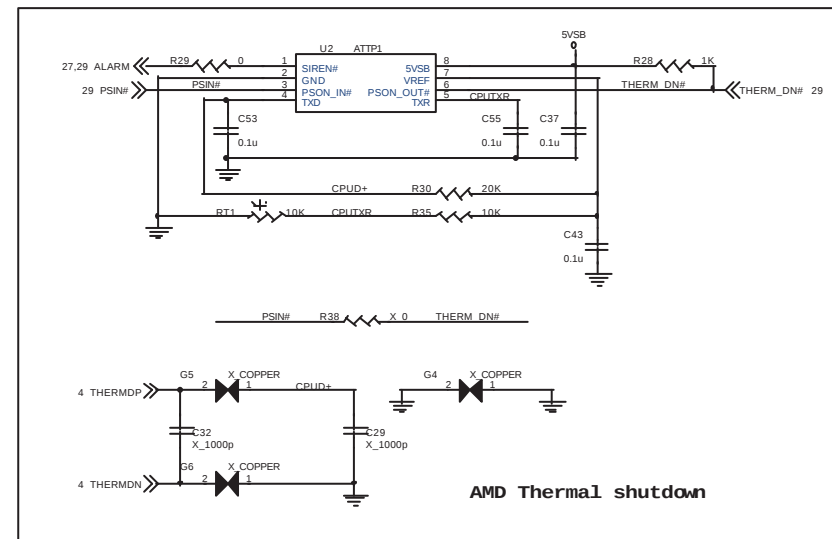
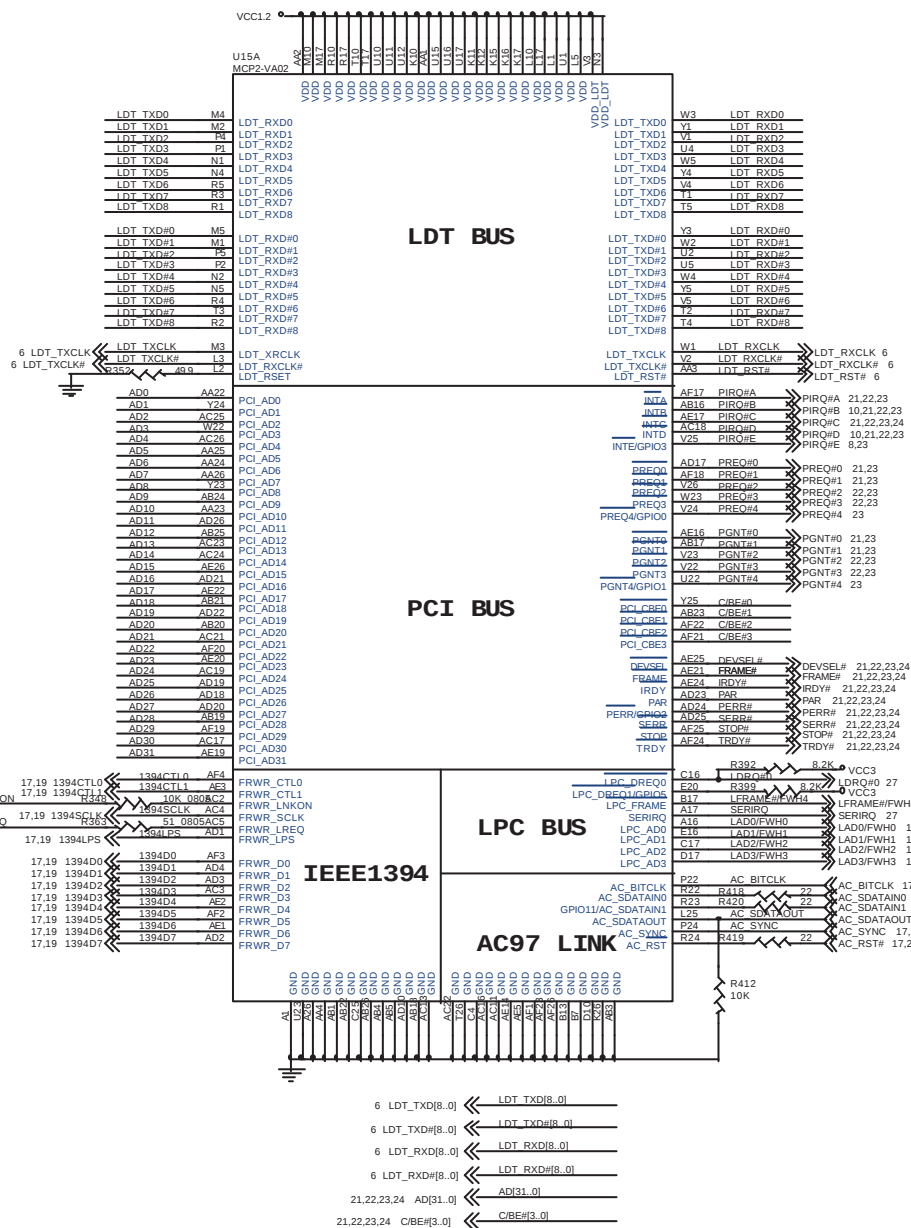
File			
MS-6570			
Size	Document Number	Rev	
	AGP Slot 1.5V	0A	
Date	Thursday, August 01, 2002	Sheet	10 of 30

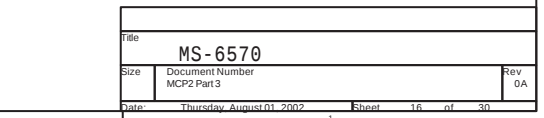
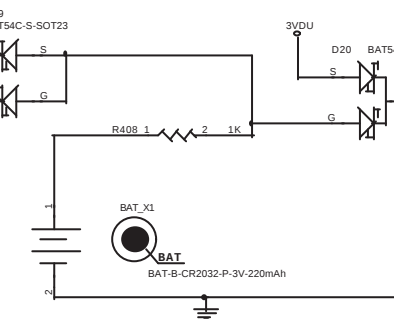
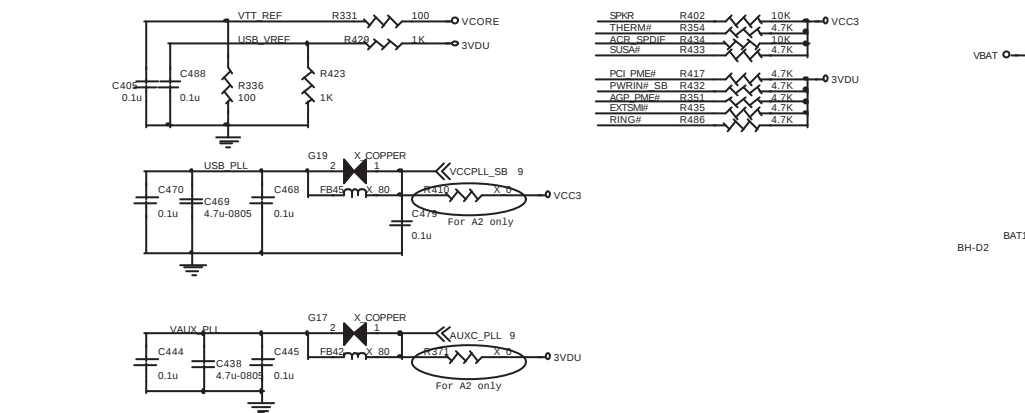


7.13 MDR[63..0] << MDR[63..0]
7.13 DQMB[7..0] << DQMB[7..0]
7.13 DQSB[7..0] << DQSB[7..0]
8.13 MAB[13..0] << MAB[13..0]
8.13 MAC[13..0] << MAC[13..0]

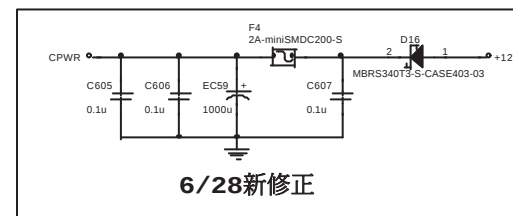


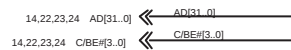


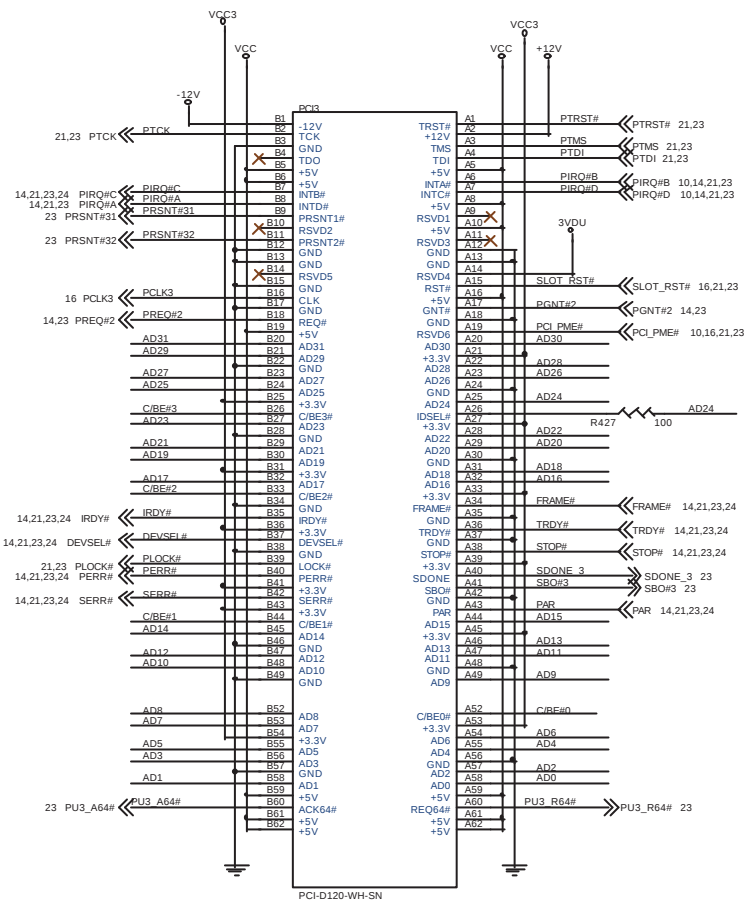




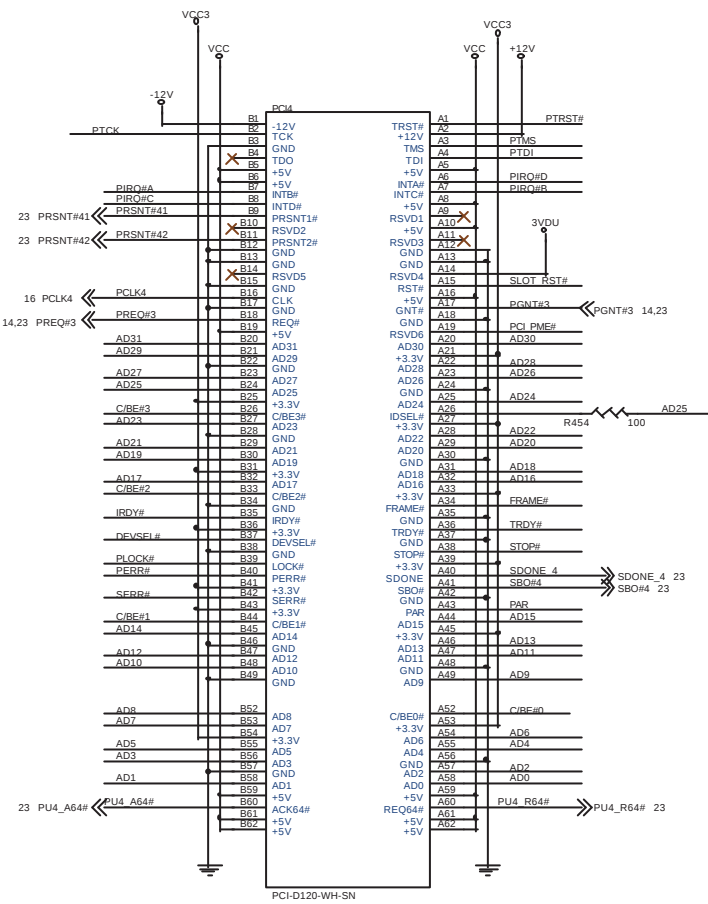
Title			
MS-6570			
Size	Document Number Mill L&N		Rev 0A
Date	Thursday, August 01, 2002	Sheet	18 of 30



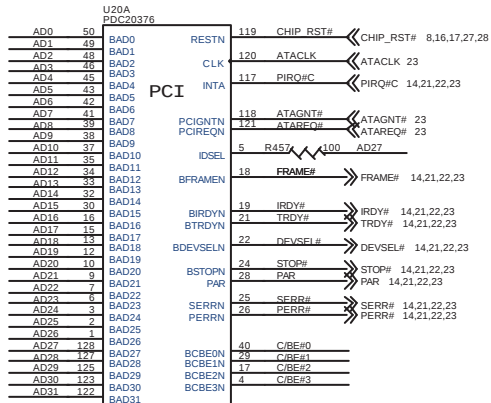




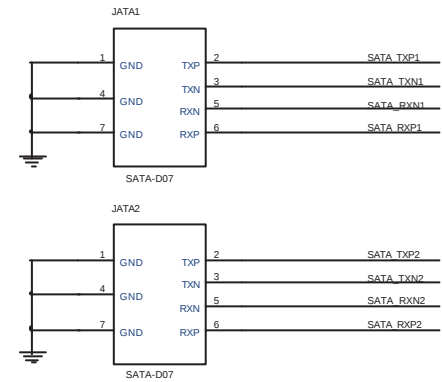
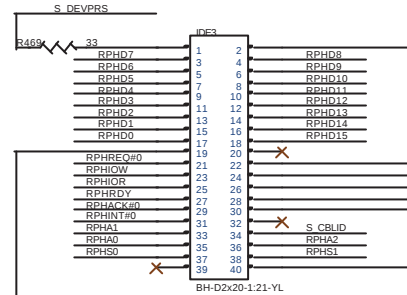
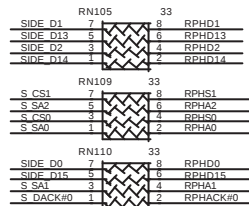
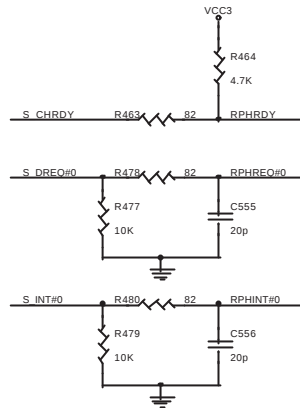
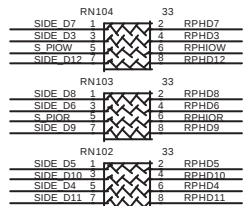
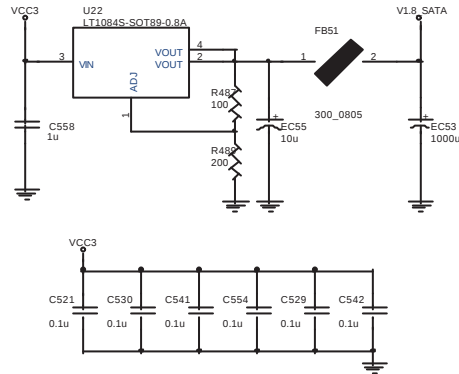
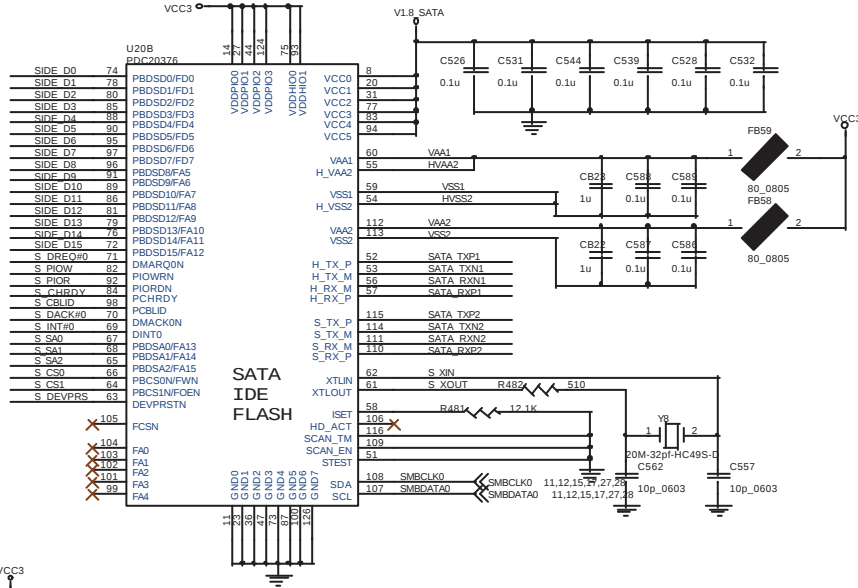
14,21,23,24 AD[31:0] <<<
14,21,23,24 C/BE#[3:0] <<<

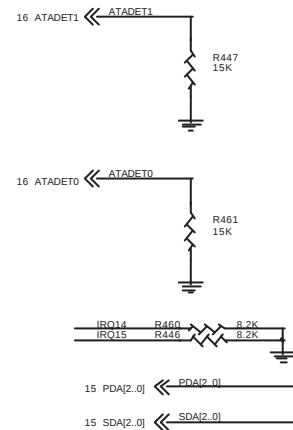
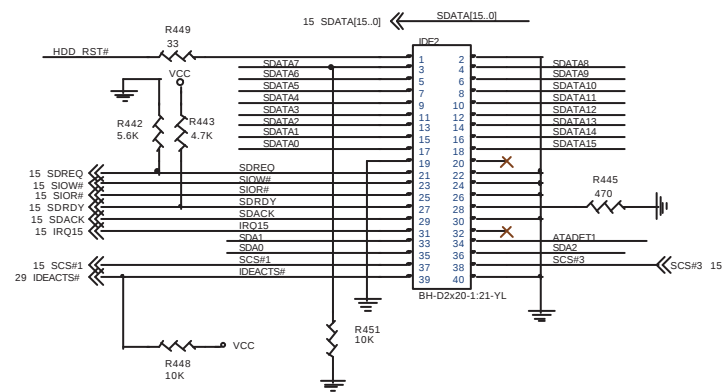


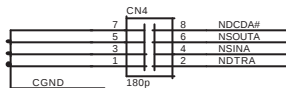
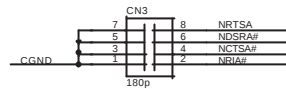
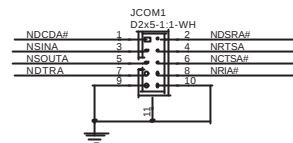
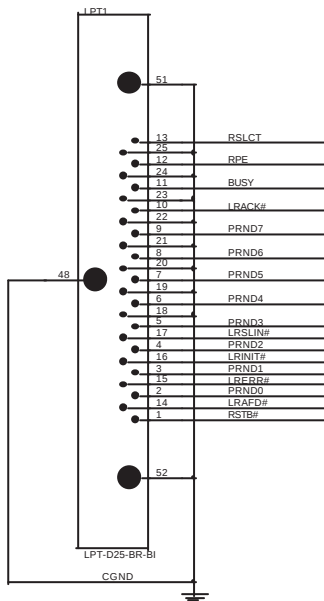
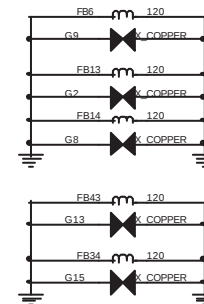
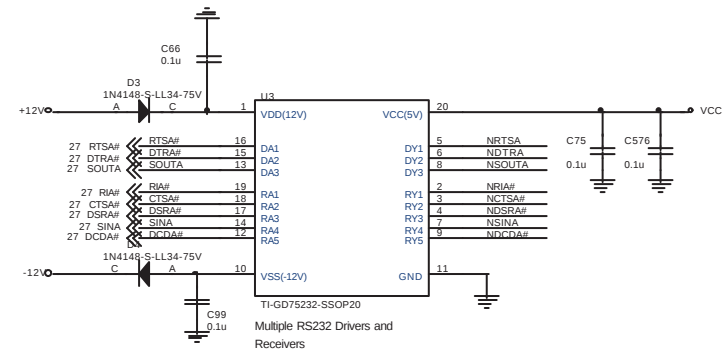
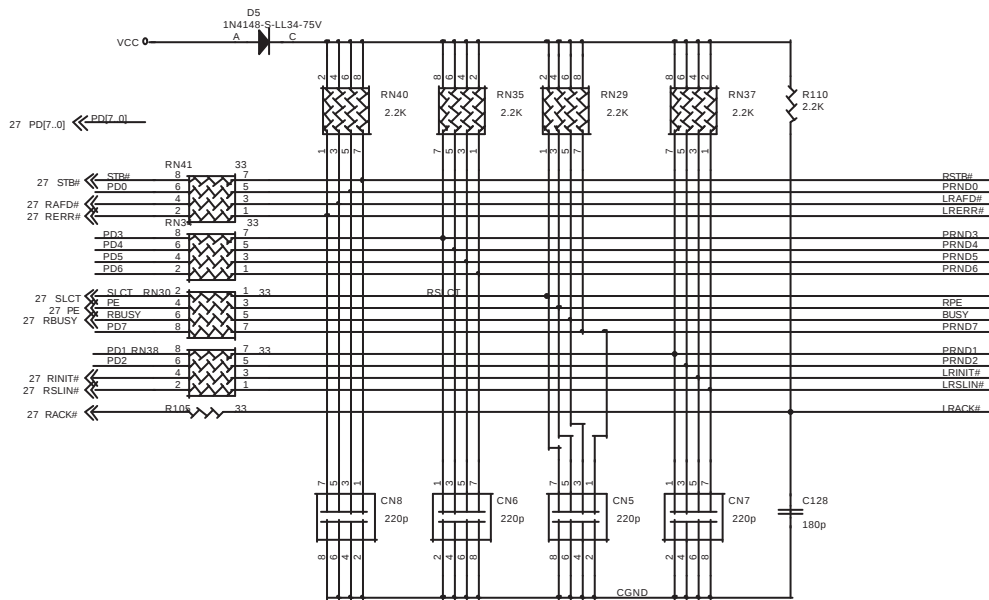
File		
MS-6570		
Size	Document Number	Rev
PCI Slot 3 & 4		0A
Date	Thursday, August 01, 2002	Sheet 22 of 30

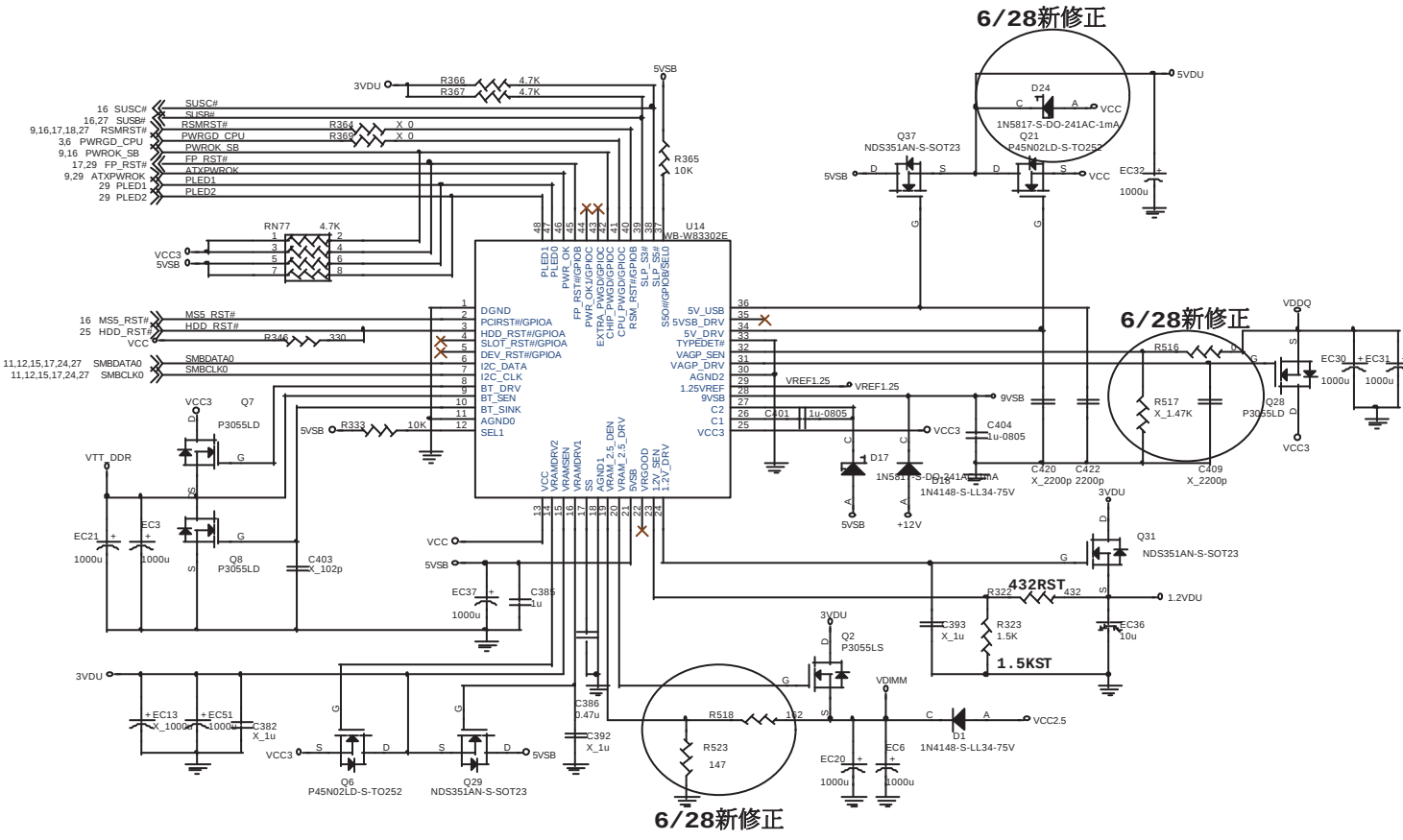
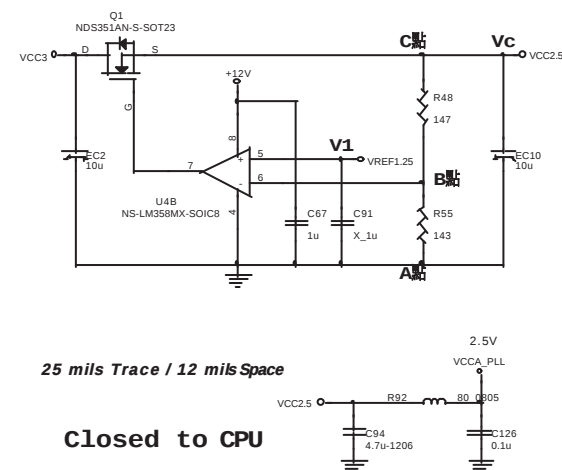
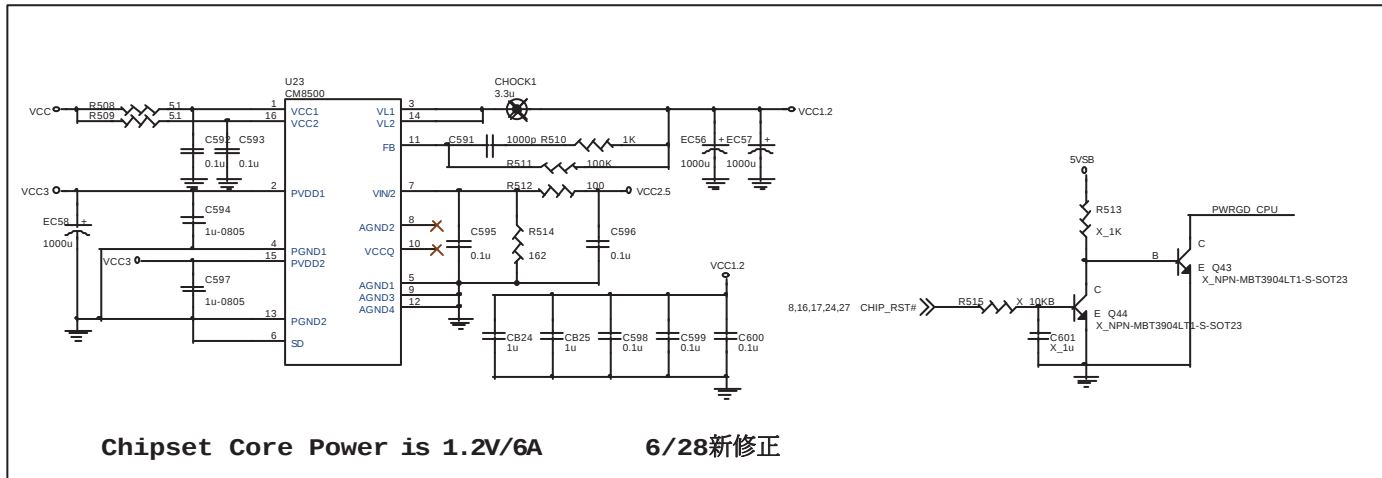


14,21,22,23 AD[31..0] << AD[31..0]
14,21,22,23 C/BE#[3..0] << C/BE#[3..0]









運算放大器分析

工作原理：藉由 B 點的回授，運算放大器可決定 MOSFET 的導通量。
理想運算放大器中，跨在 +, - 兩端電壓為 0V。
依據 KVL, $-V_{ba} + V_{bc} + V_c = 0$ 或 $V_{bc} = V_{ba} - V_c = V_1 - V_c$
由 B 點的 KCL 可得: $(V_1/R_{55}) + [(V_1 - V_c)/R_{48}] = 0$
則 $V_c = uV_1$, $u = 1 + (R_{48}/R_{55})$
故 $V_c = (1 + R_{48}/R_{55}) * V_1$

File		
MS-6570		
Size	Document Number	Rev
	MS6 ACPI Controller	0A
Date	Thursday, August 01, 2002	Sheet 28 of 30

DATE	DESCRIPTION
4/16	1. First version initiated.

DATE	DESCRIPTION

DATE	DESCRIPTION
7/5 Rev.0B	Changed HSDIN#[0..1] form pull_down to pull_up Vcore
	Added J10 for user/safe mode selection
	Changed R203/R207 from pull_down to pull_up
	Added R507 where connected to VCCA_PLL
	Used VCCPLL_NB to control PWROK_SB delay
	Added pull_up resistor R526/R527 for PERR#/SERR# of AGP slot
	Swap APICD[0..1] for correct connection
	Added comm chock for USB 2.0
	IEEE1394 power circuit modified

Title			
MS-6570			
Size	Document Number		Rev
	History		0A
Date	Thursday, August 01, 2002		
	Sheet	30	of 30