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HAINAN

CPU : Intel Yonah -2M
 Chip Set : Intel Calistoga & ICH7-M
 Remarks : Mobility Platform

Model Name : HAINAN
 PBA Name : MAIN
 PCB Code : BA41-00574A
 Dev. Step : PR
 Revision : 1.0
 T.R. Date : 2005.11.28

DRAW	CHECK	APPROVAL
KI IM	SS BAIK	KK BIN

■ Owner : SEC Mobile R & D Signature : X

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DRAW	KI IM	DATE	9/15/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	PV			
APPROVAL	KK BIN	REV	1.0		COVER	PART NO.
MODULE CODE		LAST EDIT	September 15, 2005 10:33:16 PM	PAGE	1 OF 55	BA41-00574A

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SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

PCI Devices

Devices	IDSEL#	REQ/GNT#	Interrupts
Cardbus	AD25	0	E,F,G
LAN	AD21	1	G
USB	AD29(internal)	-	USB2.0 #0 : A USB2.0 #1 : D USB2.0 #2 : C
Hub to PCI	AD30(internal)	-	
LPC bridge/IDE/AC97/SMBUS	AD31(internal)	-	B
Internal MAC	AD24(internal)	-	E
AC Link	-	-	B

Voltage Rails

VDC	Primary DC system power supply (7 to 21V)
VCC_CORE	Core voltage for DOTHAN (1.308-1.068V)
VTT	DOTHAN/ALVISO Processor System Bus(PSB) Termination (1.05V) MCH-M Core Voltage
P0.9V	0.9V switched power rail (off in S3-S5)
P1.2V	1.2V switched power rail (off in S3-S5)
P1.5V	1.5V switched power rail (off in S3-S5)
P1.5V_AUX	1.5V power rail (off in S4-S5)
P1.8V	1.8V switched power rail (off in S3-S5)
P1.8V_AUX	1.8V power rail(off in S4-S5)
P2.5V	2.5V switched power rail (off in S3-S5)
MICOM_P3V	3.3V always on power rail for MICOM
P3.3V	3.3V switched power rail (off in S3-S5)
P3.3V_AUX	3.3V power rail (off in S4-S5)
P3.3V_DTV	3.3V power rail (off in S4-S5)
P5V	5.0V switched power rail (off in S3-S5)
P5V_AUX	5.0V power rail (off in S4-S5)
P3.3V_ALWS	3.3V power rail (Always On)
P2.5V_ALWS	2.5V power rail (Always On)
P1.2V_ALWS	1.2V power rail (Always On)

I C / SMB Address

Devices	Address	Hex	Bus
ICH7	Master	-	SMBUS Master
EMC6N300(CPU Thermal Sensor)	1001 110X	9Ch	Thermal Sensor
SODIMM0	1010 0000	A0h	-
SODIMM1	1010 001X	A4h	-
CK408 (Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable

USB PORT Assign

PORT NUMBER	ASSIGNED TO
0,1	SYSTEM PORT A, B
2	SYSTEM PORT C
3	DMB
4	BLUETOOTH
5	DOCKING STATION
6	MINI PCIE EXPRESS CARD
7	EXPRESS CARD

System Power States

- CHP3_SLPS1* S1, Powered-On-Suspend(POS) : In this state, all clocks(except the 32.768KHz clock) are stopped.
The system context is maintained in system DRAM. Power is maintained to PCI, the CPU, memory controller, memory, and all other critical subsystems.
Note that this state does not preclude power being removed from non-essential devices, such as disk drives. During this state, CPU can be selected for either Deep Sleep or Deeper Sleep.
- CHP3_SLPS3* S3, Suspend-To-RAM(STR) : The system context is maintained in system DRAM, but power is shut off to non-critical circuits.
Memory is retained, and refreshes continue. All clocks stop except RTC clock.
- CHP3_SLPS4* S4, Suspend-To-Disk(STD) : The Context of the system is maintained on the disk. All power is then shut off to the system except for the logic required to resume.
Externally appears same as S5, but may have different wake events.
- CHP3_SLPS5* S5, Soft Off(SOFF) : System context is not maintained. All power is shut off except for the logic required to restart. A full boot is required when waking.

Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	ICH7-M	Real Time Clock
Crystal	10MHz	MICOM	HD64F2169/2160
Crystal	14.318MHz	CLOCK-Generator	CK-410M
Crystal	24.576MHz	Cardbus Controller	1394
Crystal	25MHz	LAN	Intel LAN

CPU Core Voltage Table IMVP-6

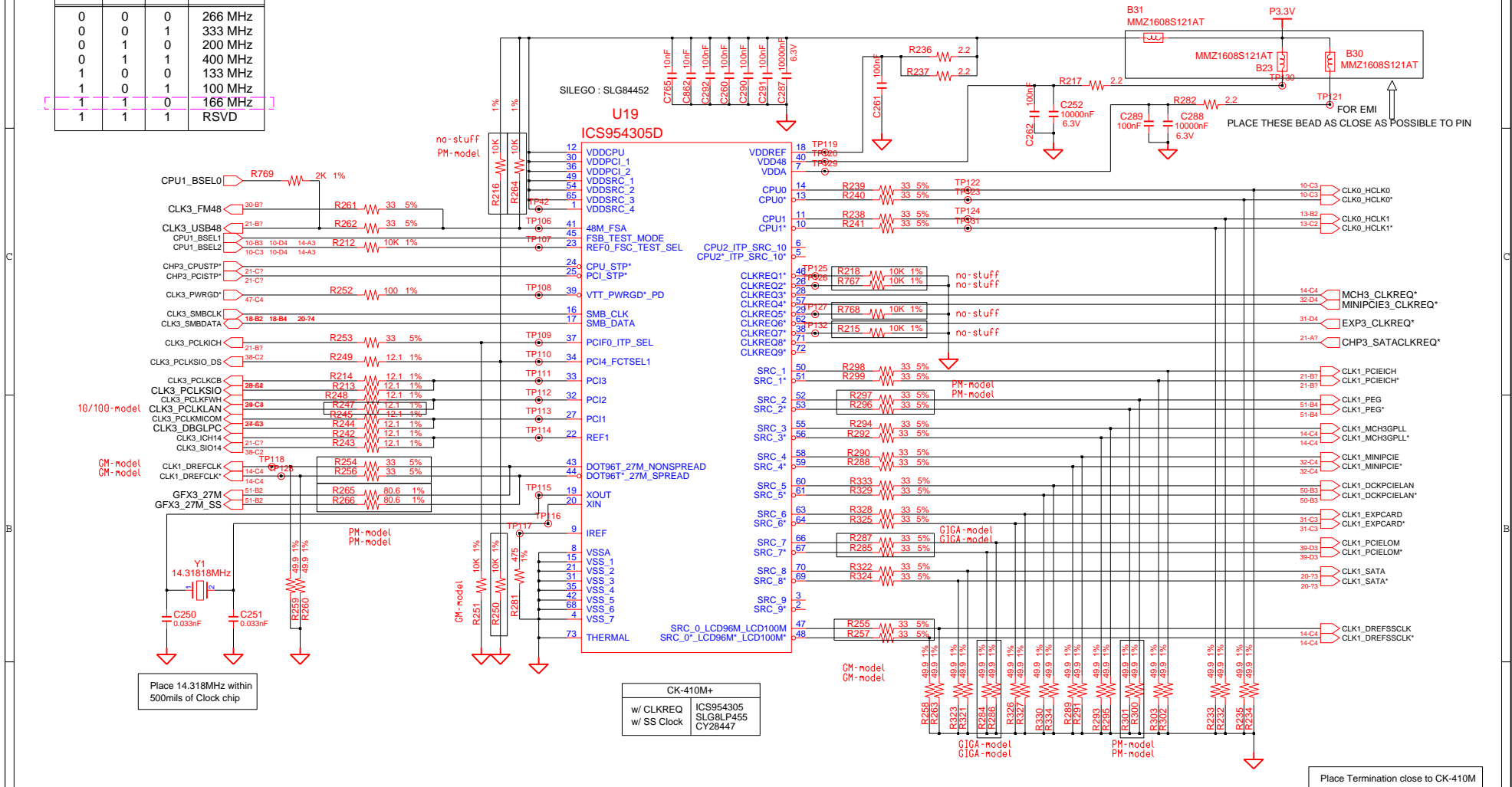
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VID(6:0)	Voltage	VID(6:0)	Voltage	VID(6:0)	Voltage
0 0 0 0 0 0 0 0	1.5000 V	0 1 0 1 0 0 0 0	1.0000 V	1 0 1 0 0 0 0 1	0.4875 V
0 0 0 0 0 0 0 1	1.4875 V	0 1 0 1 0 0 0 1	0.9875 V	1 0 1 0 0 0 1 0	0.4750 V
0 0 0 0 0 0 1 0	1.4750 V	0 1 0 1 0 0 1 0	0.9750 V	1 0 1 0 0 0 1 1	0.4625 V
0 0 0 0 0 0 1 1	1.4625 V	0 1 0 1 0 0 1 1	0.9625 V	1 0 1 0 0 1 0 0	0.4500 V
0 0 0 0 0 1 0 0	1.4500 V	0 1 0 1 0 1 0 0	0.9500 V	1 0 1 0 0 1 0 1	0.4375 V
0 0 0 0 0 1 0 1	1.4375 V	0 1 0 1 0 1 0 1	0.9375 V	1 0 1 0 0 1 1 0	0.4250 V
0 0 0 0 0 1 1 0	1.4250 V	0 1 0 1 0 1 1 0	0.9250 V	1 0 1 0 0 1 1 1	0.4125 V
0 0 0 0 0 1 1 1	1.4125 V	0 1 0 1 0 1 1 1	0.9125 V	1 0 1 0 1 0 0 0	0.4000 V
0 0 0 0 1 0 0 0	1.4000 V	0 1 0 1 0 0 0 0	0.9000 V	1 0 1 0 1 0 0 1	0.3875 V
0 0 0 0 1 0 0 1	1.3875 V	0 1 0 1 0 0 0 1	0.8875 V	1 0 1 0 1 0 1 0	0.3750 V
0 0 0 0 1 0 1 0	1.3750 V	0 1 0 1 0 0 1 0	0.8750 V	1 0 1 0 1 0 1 1	0.3625 V
0 0 0 0 1 0 1 1	1.3625 V	0 1 0 1 0 0 1 1	0.8625 V	1 0 1 0 1 1 0 0	0.3500 V
0 0 0 0 1 1 0 0	1.3500 V	0 1 0 1 0 1 0 0	0.8500 V	1 0 1 0 1 1 0 1	0.3375 V
0 0 0 0 1 1 0 1	1.3375 V	0 1 0 1 0 1 0 1	0.8375 V	1 0 1 0 1 1 1 0	0.3250 V
0 0 0 0 1 1 1 0	1.3250 V	0 1 0 1 0 1 1 0	0.8250 V	1 0 1 0 1 1 1 1	0.3125 V
0 0 0 0 1 1 1 1	1.3125 V	0 1 0 1 0 1 1 1	0.8125 V	1 1 0 0 0 0 0 0	0.3000 V
0 0 0 0 1 0 0 0	1.3000 V	0 1 0 1 0 0 0 0	0.8000 V	1 1 0 0 0 0 0 1	0.2875 V
0 0 0 0 1 0 0 1	1.2875 V	0 1 0 1 0 0 0 1	0.7875 V	1 1 0 0 0 0 1 0	0.2750 V
0 0 0 0 1 0 1 0	1.2750 V	0 1 0 1 0 0 1 0	0.7750 V	1 1 0 0 0 0 1 1	0.2625 V
0 0 0 0 1 0 1 1	1.2625 V	0 1 0 1 0 0 1 1	0.7625 V	1 1 0 0 0 1 0 0	0.2500 V
0 0 0 0 1 0 1 0	1.2500 V	0 1 0 1 0 1 0 0	0.7500 V	1 1 0 0 0 1 0 1	0.2375 V
0 0 0 0 1 0 1 1	1.2375 V	0 1 0 1 0 1 0 1	0.7375 V	1 1 0 0 0 1 1 0	0.2250 V
0 0 0 0 1 1 0 0	1.2250 V	0 1 0 1 0 1 1 0	0.7250 V	1 1 0 0 0 1 1 1	0.2125 V
0 0 0 0 1 1 0 1	1.2125 V	0 1 0 1 0 1 1 1	0.7125 V	1 1 0 0 1 0 0 0	0.2000 V
0 0 0 0 1 1 0 0	1.2000 V	1 0 0 0 0 0 0 0	0.7000 V	1 1 0 0 1 0 0 1	0.1875 V
0 0 0 0 1 1 0 1	1.1875 V	1 0 0 0 0 0 0 1	0.6875 V	1 1 0 0 1 0 1 0	0.1750 V
0 0 0 0 1 1 0 0	1.1750 V	1 0 0 0 0 0 1 0	0.6750 V	1 1 0 0 1 0 1 1	0.1625 V
0 0 0 0 1 0 0 1	1.1625 V	1 0 0 0 0 0 1 1	0.6625 V	1 1 0 0 1 1 0 0	0.1500 V
0 0 0 0 1 0 1 0	1.1500 V	1 0 0 0 0 1 0 0	0.6500 V	1 1 0 0 1 1 0 1	0.1375 V
0 0 0 0 1 0 1 1	1.1375 V	1 0 0 0 0 1 0 1	0.6375 V	1 1 0 0 1 1 1 0	0.1250 V
0 0 0 0 1 1 0 0	1.1250 V	1 0 0 0 0 1 1 0	0.6250 V	1 1 0 0 1 1 1 1	0.1125 V
0 0 0 0 1 1 0 1	1.1125 V	1 0 0 0 0 1 1 1	0.6125 V	1 1 0 0 1 0 0 0	0.1000 V
0 0 0 0 1 0 0 0	1.1000 V	1 0 0 0 0 0 0 0	0.6000 V	1 1 0 0 1 0 0 1	0.0875 V
0 0 0 0 1 0 0 1	1.0875 V	1 0 0 0 0 0 0 1	0.5875 V	1 1 0 0 1 0 1 0	0.0750 V
0 0 0 0 1 0 1 0	1.0750 V	1 0 0 0 0 0 1 0	0.5750 V	1 1 0 0 1 0 1 1	0.0625 V
0 0 0 0 1 0 1 1	1.0625 V	1 0 0 0 0 1 0 0	0.5625 V	1 1 0 0 1 0 1 0	0.0500 V
0 0 0 0 1 0 0 0	1.0500 V	1 0 0 0 0 1 0 1	0.5500 V	1 1 0 0 1 0 1 1	0.0375 V
0 0 0 0 1 0 0 1	1.0375 V	1 0 0 0 0 1 0 0	0.5375 V	1 1 0 0 1 1 0 0	0.0250 V
0 0 0 0 1 0 0 0	1.0250 V	1 0 0 0 0 1 1 0	0.5250 V	1 1 0 0 1 1 0 1	0.0125 V
0 0 0 0 1 0 0 1	1.0125 V	1 0 0 0 0 1 1 1	0.5125 V	1 1 0 0 1 1 0 0	0.0000 V
		1 0 0 0 0 0 0 0	0.5000 V	1 1 0 0 1 1 0 1	0.0000 V
				1 1 0 0 1 1 1 0	0.0000 V
				1 1 0 0 1 1 1 1	0.0000 V
				1 1 0 0 1 0 0 0	0.0000 V
				1 1 0 0 1 0 0 1	0.0000 V
				1 1 0 0 1 0 1 0	0.0000 V
				1 1 0 0 1 0 1 1	0.0000 V
				1 1 0 0 1 1 0 0	0.0000 V
				1 1 0 0 1 1 0 1	0.0000 V
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				1 1 0 0 1 1 1 1	0.0000 V
				1 1 0 0 1 0 0 0	0.0000 V
				1 1 0 0 1 0 0 1	0.0000 V
				1 1 0 0 1 0 1 0	0.0000 V
				1 1 0 0 1 0 1 1	0.0000 V
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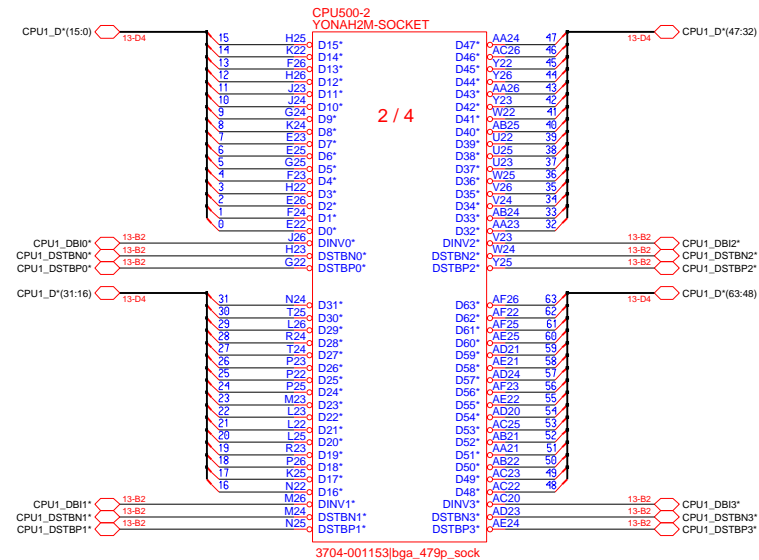
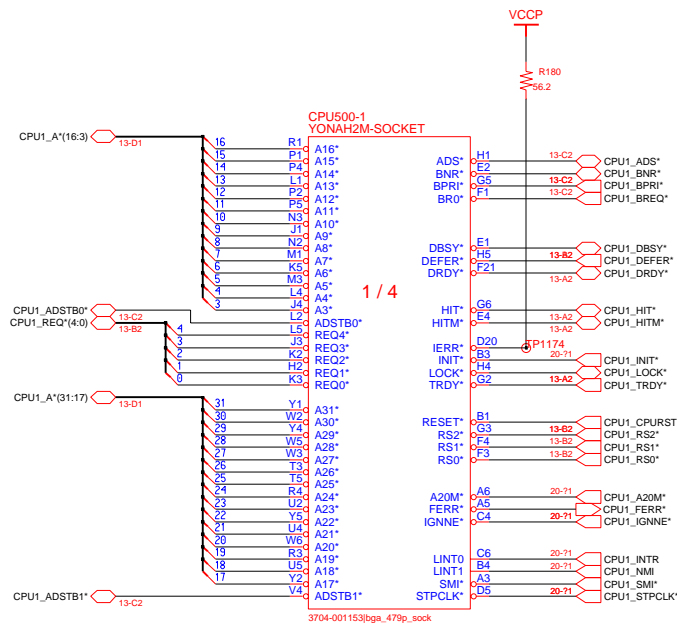
	FSA	FSB	FSC	HOST CLK
<i>CPU</i>	BSEL0	BSEL1	BSEL2	
	0	0	0	266 MHz
	0	0	1	333 MHz
	0	1	0	200 MHz
	0	1	1	400 MHz
	1	0	0	133 MHz
	1	0	1	100 MHz
	1	1	0	166 MHz
	1	1	1	RSVD

PCI4_FCTSEL1(PIN34)	PIN 43, 44	PIN 47, 48
0	DOT96	LCD96/100
1	27MHZ	SRC0



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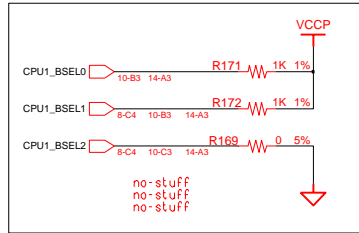
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DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV	MAIN	YONAH CPU (1/3)	
APPROVAL	KK BIN	REV	1.0			PART NO. BA41-*****A
MODULE CODE		LAST EDIT		July 19, 2005 8:53:48 AM	PAGE 9 OF 55	

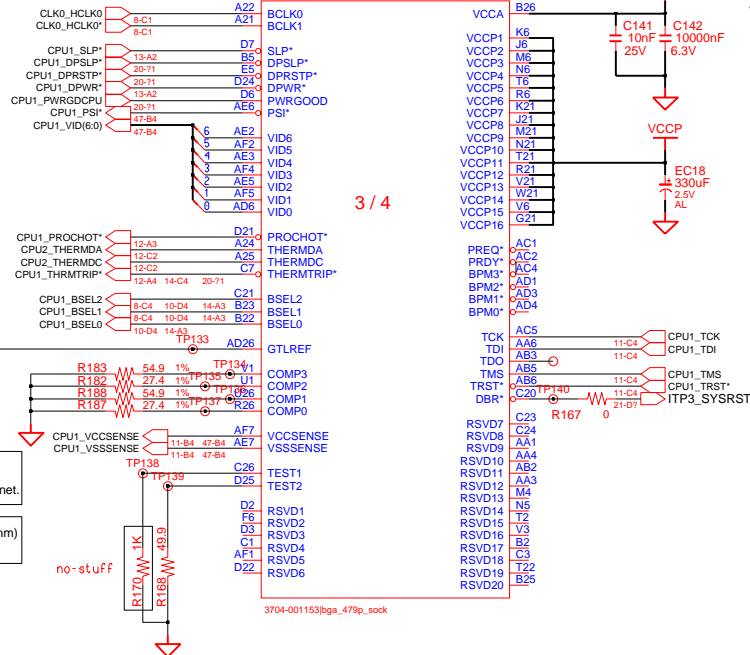
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FSB 533 MHz	Pull-up	Pull-down
FSB 667 MHz	BSEL0, BSEL1	BSEL1, BSEL2 BSEL2

CPU500-3 YONAH2M-SOCKET



CPU Core Voltage Table IMVP-6

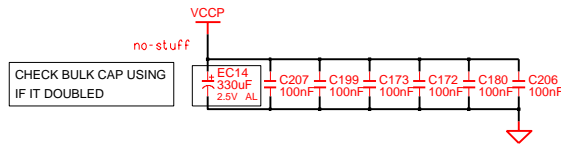
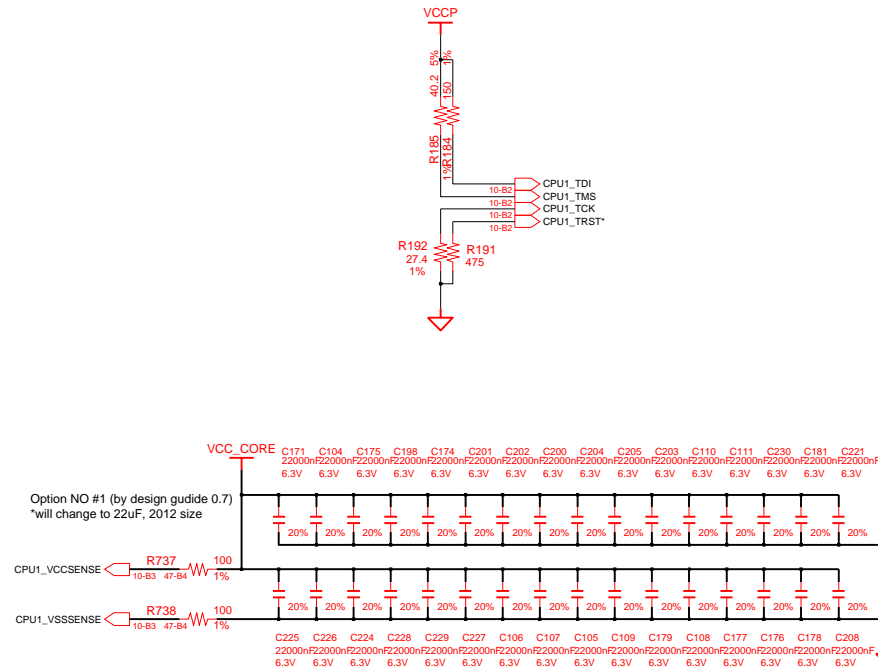
Active Mode		Active/Deeper Sleep Dual Mode Region		Deeper Sleep/Extended Deeper Sleep Dual Mode Region	
VID(6:0)	Voltage	VID(6:0)	Voltage	VID(6:0)	Voltage
0 0 0 0 0 0 0	1.5000 V	0 1 0 1 0 0 0	1.0000 V	1 0 1 0 0 0 1	0.4875 V
0 0 0 0 0 0 1	1.4875 V	0 1 0 1 0 0 1	0.9875 V	1 0 1 0 0 1 0	0.4750 V
0 0 0 0 0 1 0	1.4750 V	0 1 0 1 0 1 0	0.9750 V	1 0 1 0 1 0 1	0.4625 V
0 0 0 0 0 1 1	1.4625 V	0 1 0 1 0 1 1	0.9625 V	1 0 1 0 1 1 0	0.4500 V
0 0 0 0 1 0 0	1.4500 V	0 1 0 1 1 0 0	0.9500 V	1 0 1 1 0 0 1	0.4375 V
0 0 0 0 1 0 1	1.4375 V	0 1 0 1 1 0 1	0.9375 V	1 0 1 1 0 1 0	0.4250 V
0 0 0 0 1 1 0	1.4250 V	0 1 0 1 1 1 0	0.9250 V	1 0 1 1 0 1 1	0.4125 V
0 0 0 0 1 1 1	1.4125 V	0 1 0 1 1 1 1	0.9125 V	1 0 1 1 1 0 0	0.4000 V
0 0 0 1 0 0 0	1.4000 V	0 1 1 0 0 0 0	0.9000 V	1 0 1 1 1 0 1	0.3875 V
0 0 0 1 0 0 1	1.3875 V	0 1 1 0 0 0 1	0.8875 V	1 0 1 1 1 0 1	0.3750 V
0 0 0 1 0 1 0	1.3750 V	0 1 1 0 0 1 0	0.8750 V	1 0 1 1 1 0 1	0.3625 V
0 0 0 1 0 1 1	1.3625 V	0 1 1 0 0 1 1	0.8625 V	1 0 1 1 1 1 0	0.3500 V
0 0 0 1 1 0 0	1.3500 V	0 1 1 0 1 0 0	0.8500 V	1 0 1 1 1 0 1	0.3375 V
0 0 0 1 1 0 1	1.3375 V	0 1 1 0 1 0 1	0.8375 V	1 0 1 1 1 1 1	0.3250 V
0 0 0 1 1 1 0	1.3250 V	0 1 1 0 1 1 0	0.8250 V	1 0 1 1 1 1 1	0.3125 V
0 0 0 1 1 1 1	1.3125 V	0 1 1 1 0 0 0	0.8125 V	1 1 0 0 0 0 0	0.3000 V
0 0 1 0 0 0 0	1.3000 V	0 1 1 1 0 0 0	0.8000 V	1 1 0 0 0 0 1	0.2875 V
0 0 1 0 0 0 1	1.2875 V	0 1 1 1 0 0 1	0.7875 V	1 1 0 0 0 1 0	0.2750 V
0 0 1 0 0 1 0	1.2750 V	0 1 1 1 0 1 0	0.7750 V	1 1 0 0 0 1 1	0.2625 V
0 0 1 0 0 1 1	1.2625 V	0 1 1 1 1 0 0	0.7625 V	1 1 0 0 1 0 0	0.2500 V
0 0 1 0 1 0 0	1.2500 V	0 1 1 1 1 0 0	0.7500 V	1 1 0 0 1 0 1	0.2375 V
0 0 1 0 1 0 1	1.2375 V	0 1 1 1 1 0 1	0.7375 V	1 1 0 0 1 1 0	0.2250 V
0 0 1 0 1 1 0	1.2250 V	0 1 1 1 1 1 0	0.7250 V	1 1 0 0 1 1 1	0.2125 V
0 0 1 0 1 1 1	1.2125 V	0 1 1 1 1 1 1	0.7125 V	1 1 0 1 0 0 0	0.2000 V
0 0 1 1 0 0 0	1.2000 V	1 0 0 0 0 0 0	0.7000 V	1 1 0 1 0 0 1	0.1875 V
0 0 1 1 0 0 1	1.1875 V	1 0 0 0 0 0 1	0.6875 V	1 1 0 1 0 1 0	0.1750 V
0 0 1 1 0 1 0	1.1750 V	1 0 0 0 0 1 0	0.6750 V	1 1 0 1 0 1 1	0.1625 V
0 0 1 1 0 1 1	1.1625 V	1 0 0 0 0 1 1	0.6625 V	1 1 0 1 1 0 0	0.1500 V
0 0 1 1 1 0 0	1.1500 V	1 0 0 0 1 0 0	0.6500 V	1 1 0 1 1 0 1	0.1375 V
0 0 1 1 1 0 1	1.1375 V	1 0 0 0 1 0 1	0.6375 V	1 1 0 1 1 1 0	0.1250 V
0 0 1 1 1 1 0	1.1250 V	1 0 0 0 1 1 0	0.6250 V	1 1 0 1 1 1 1	0.1125 V
0 0 1 1 1 1 1	1.1125 V	1 0 0 0 1 1 1	0.6125 V	1 1 1 0 0 0 0	0.1000 V
0 1 0 0 0 0 0	1.1000 V	1 0 0 1 0 0 0	0.6000 V	1 1 1 0 0 0 1	0.0875 V
0 1 0 0 0 0 1	1.0875 V	1 0 0 1 0 0 1	0.5875 V	1 1 1 0 0 1 0	0.0750 V
0 1 0 0 0 1 0	1.0750 V	1 0 0 1 0 1 0	0.5750 V	1 1 1 0 0 1 1	0.0625 V
0 1 0 0 0 1 1	1.0625 V	1 0 0 1 0 1 1	0.5625 V	1 1 1 0 1 0 0	0.0500 V
0 1 0 0 1 0 0	1.0500 V	1 0 0 1 1 0 0	0.5500 V	1 1 1 0 1 0 1	0.0375 V
0 1 0 0 1 0 1	1.0375 V	1 0 0 1 1 0 1	0.5375 V	1 1 1 0 1 1 0	0.0250 V
0 1 0 0 1 1 0	1.0250 V	1 0 0 1 1 1 0	0.5250 V	1 1 1 0 1 1 1	0.0125 V
0 1 0 0 1 1 1	1.0125 V	1 0 0 1 1 1 1	0.5125 V	1 1 1 1 0 0 0	0.0000 V
0 1 0 1 0 0 0	1.0000 V	1 0 0 1 1 1 1	0.5000 V	1 1 1 1 0 0 1	0.0000 V
				1 1 1 1 0 1 0	0.0000 V
				1 1 1 1 0 1 1	0.0000 V
				1 1 1 1 1 0 0	0.0000 V
				1 1 1 1 1 0 1	0.0000 V
				1 1 1 1 1 1 0	0.0000 V
				1 1 1 1 1 1 1	0.0000 V

*Yonah Processor (2.33 GHz / 800 MHz : TBD)

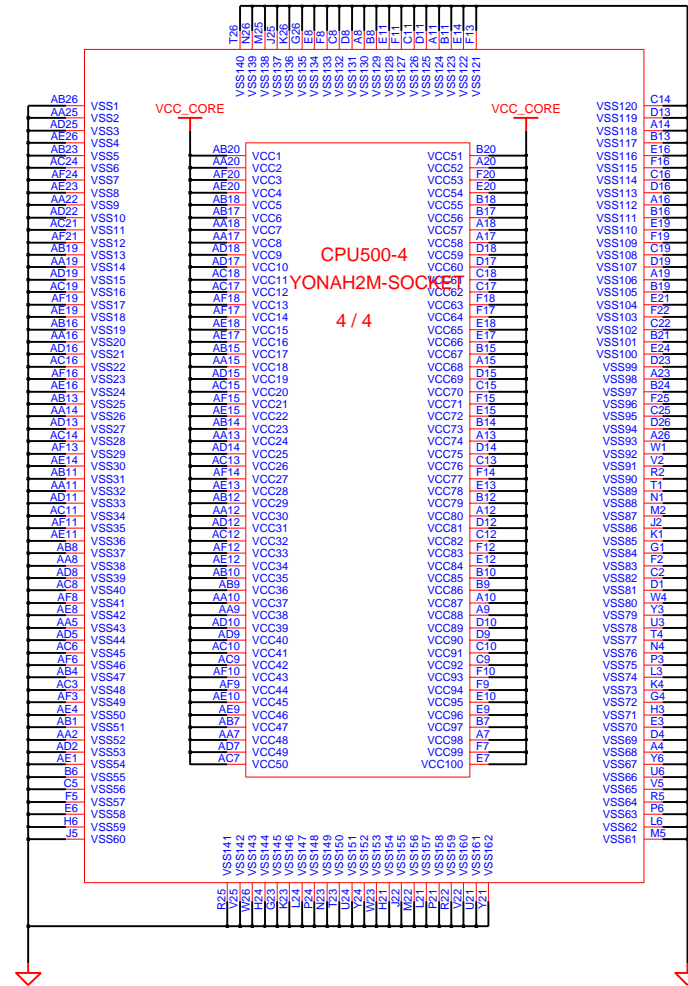
DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG
CHECK	SS BAIK	DEV. STEP	DV	MAIN	ELECTRONICS	
APPROVAL	KK BIN	REV	1.0	YONAH CPU(2/3)	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	10	OF 55

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**Note
THESE ARE JUST TEXT NOT REAL PARTS!!
BULK CAP ARE CPU VRM SCHEMATIC SIDE.



DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG
CHECK	SS BAIK	DEV. STEP	DV	MAIN	MAIN	ELECTRONICS
APPROVAL	KK BIN	REV	1.0	YONAH CPU(3/3)	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	11	OF 55

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CPU / DDR2 Thermal Sensor

Refer To Thermal Sensor Layout Guidelines.

- Place the Thermal Sensor close to a remote diode.
- Keep traces away from high voltage (+12V bus).
- Keep traces away from fast data buses and CRT signal.
- Use recommended trace widths and spacings (10mil)
- Place a ground plane under the traces.
- Use guard traces flanking DXP and DXN and connecting to GND

Place the middle
of CPU & GMCH

$V_{set} = (T_p - 75) / 16$
Guardian Temp-tolerance = $\pm 3^\circ \text{C}$

1) $T_p = 88^\circ \text{C}$, $\Rightarrow V_{set} = 0.9375$

$$\frac{0.9375}{3.3} = \frac{x}{x+y} \quad x : y = 1 : 2.52$$

when $y = 30\text{Kohm}$, $\Rightarrow x = 11.91\text{Kohm}$

2) $x = 12\text{Kohm}$, $y = 30.1\text{Kohm}$

$$V_{set} = 3.3 \times \frac{12.0}{12.0 + 30.1}$$

$$T_p = V_{set} \times 16 + 75 = 90.0496^\circ \text{C} \pm 3$$

Guardian Temp-tolerance = $\pm 3^\circ \text{C}$

PLACE NEAR TO DDR2 SODIMM

PLACE THIS AROUND MEMORY SODIMM

PLACE THIS AT THE OPPOSITE SIDE OF CPU

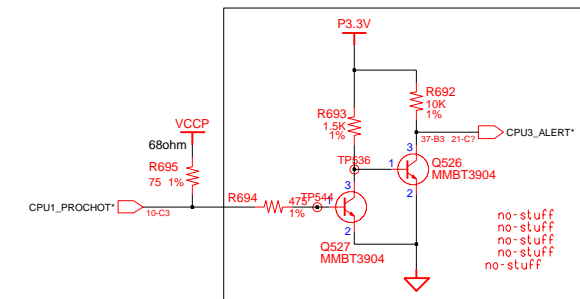
THERMISTOR - NTC : 10Kohm 1%

1. ERTJ1VG103FA - Panasonic
2. TH11-3H103FT - Mitsubishi

- Resistance ratios to R25 at each temperature

Temp(C)	Ratio	Temp(C)	Ratio
-40	20.238	40	0.5826
-30	11.669	50	0.4164
-20	6.984	60	0.3027
-10	4.322	70	0.2233
0	2.755	80	0.1670
10	1.803	90	0.1260
20	1.210	100	0.09570
25	1	110	0.07338
30	0.8309	120	0.05678
35	0.6941	125	0.05011

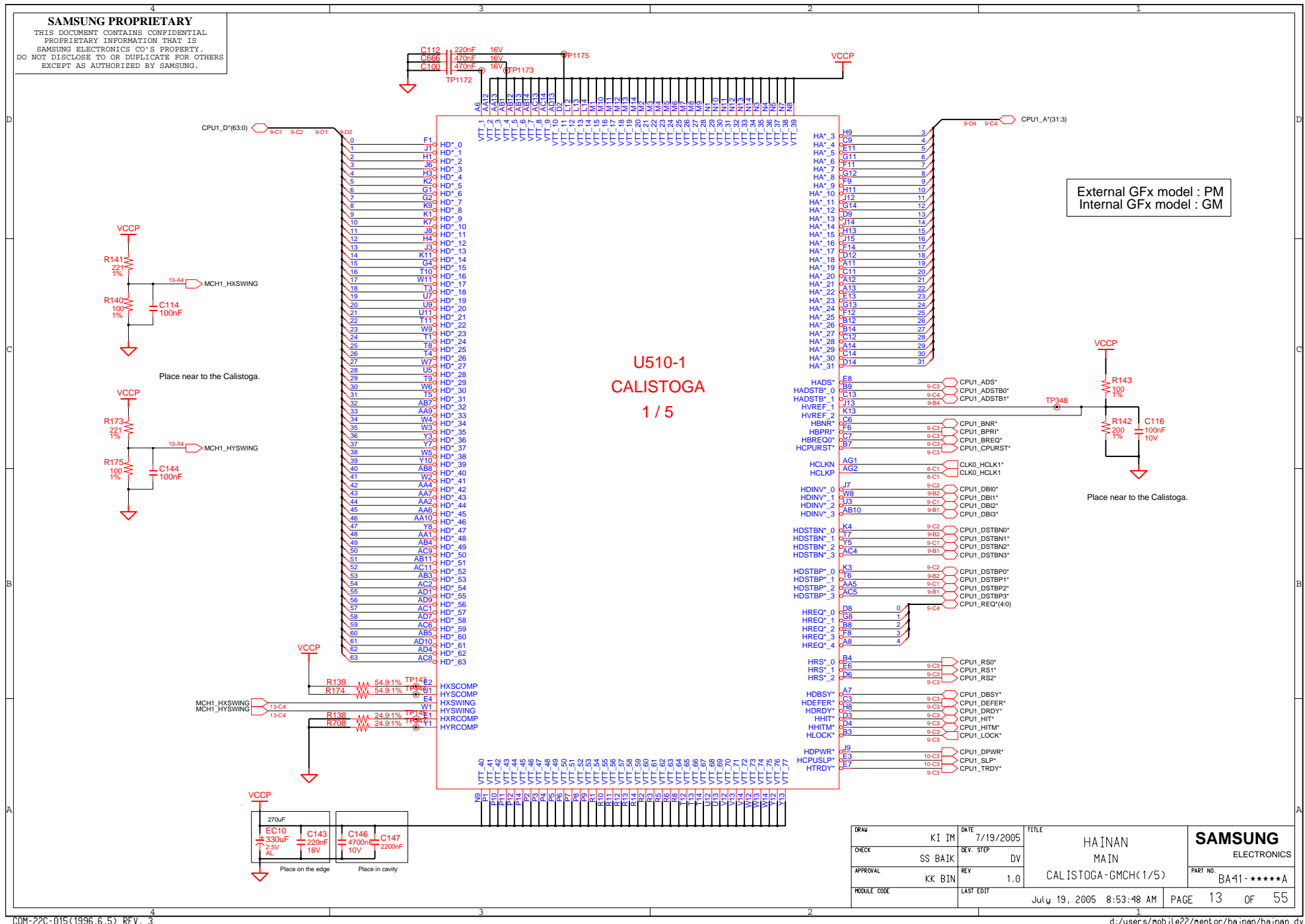
VCP voltage = $5V \times TH1 / (TH1 + 2.21K)$
When TH1 is 10Kohm, VCP is 4.1V.
If TH1 is 1Kohm, VCP is 1.56V.

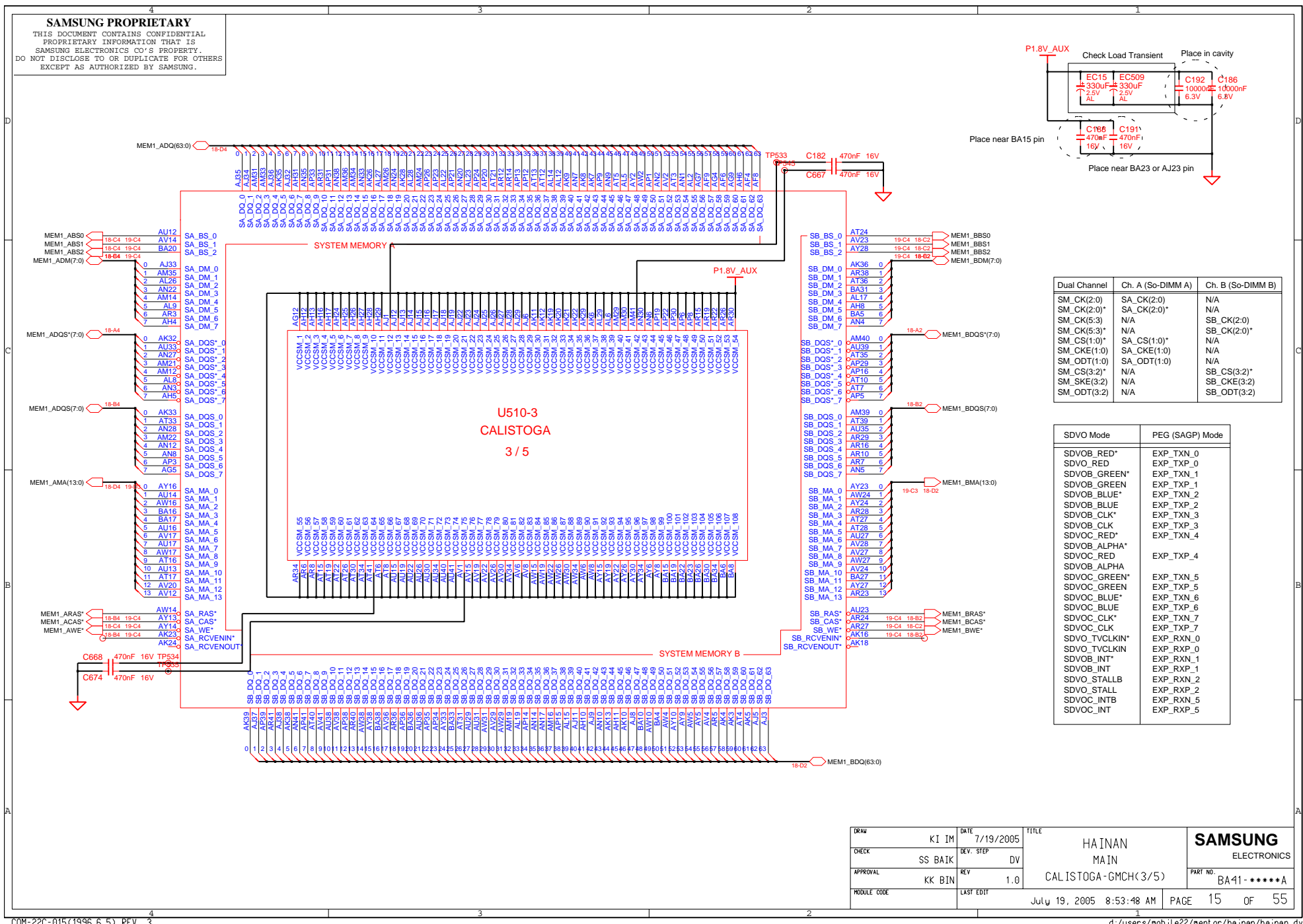


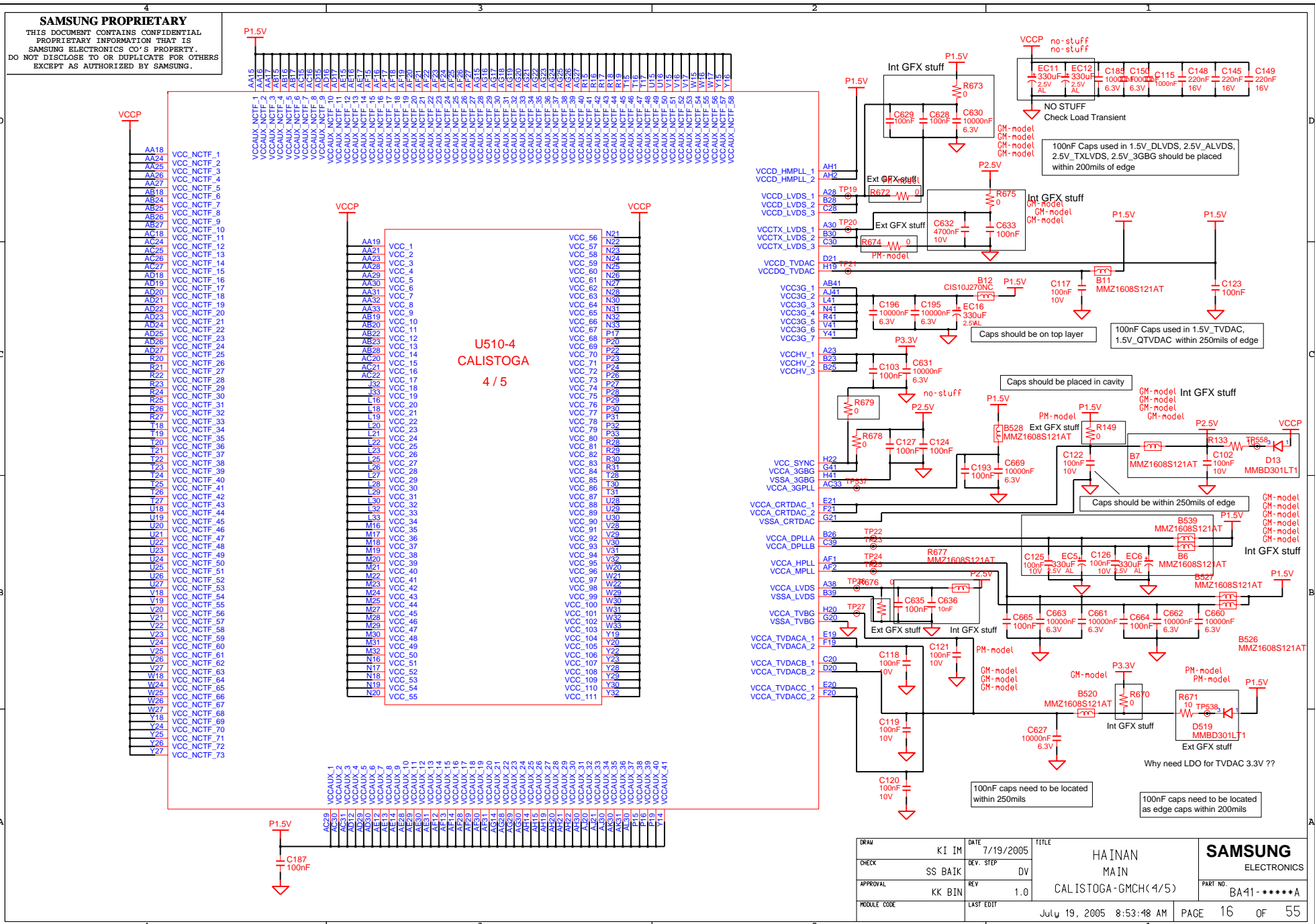
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CHECK	SS BAIK	REV. STEP	DV	MAIN	MAIN	ELECTRONICS
APPROVAL	BIN, KK	REV	1.0	THERMAL SENSOR	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	12	OF 12

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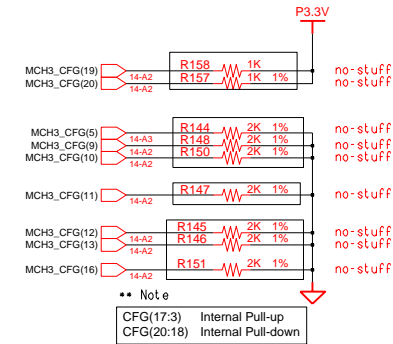
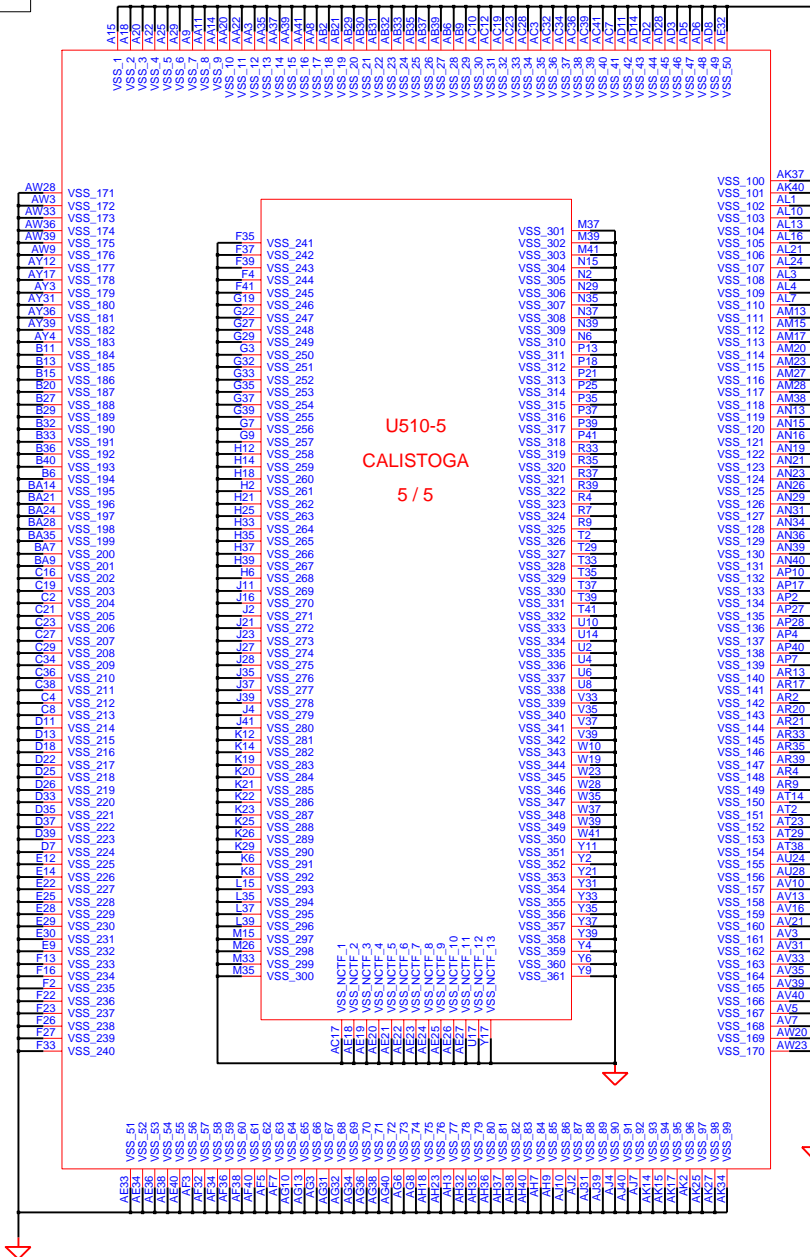






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When CFG13:12 are pulled down to '00', certain clocks within Calistoga will become free-running clocks. This will lead to a rise in avg. power, but eliminates any possible clock-timing marginalities involved in clockpower-up/power-down.
 Intel strongly recommends leaving CFG13:12=NC (Internal PU to '11') to ensure low avg.

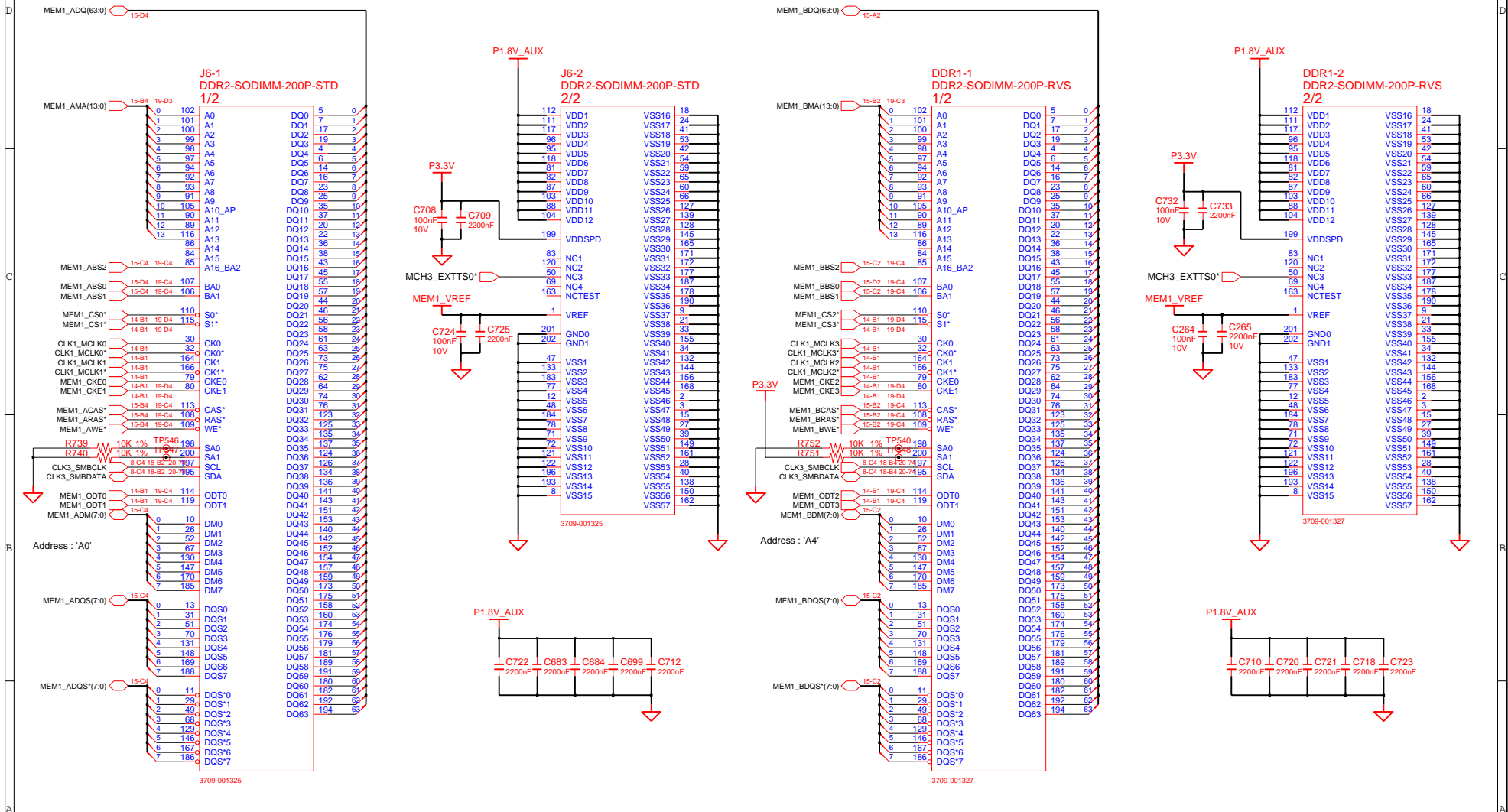
**** Note *POCAFEB-10 Only (Remove in MP Model)**

Current Setting (def.: default Option)		
CFG#	Low	High
CFG(5)	DMix2	DMix4 (def.)
CFG(6)	Reserved	DDR-II (def.)
CFG(7)	DT/Transportable	Mobile CPU (def.)
CFG(9)	PEG Reversal	Normal
CFG(16)	Dynamic ODT Disabled	Dynamic ODT Enabled (def.)
CFG(18)	VCC 1.05V (def.)	VCC 1.5V
CFG(19)	DMI Lane Normal	DMI Lane Reversal
CFG(20)	SDVO or PCIE X1 Only(def.)	SDVO and PCIE X1 Simultaneously

DRAW	K1 IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV	MAIN		
APPROVAL	KK BIN	REV	1.0	CALISTOGA-GMCH(5/5)		PART NO. BA41-*****A
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	17	OF 55

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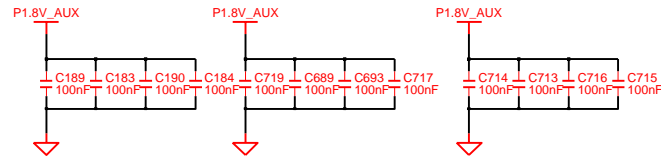
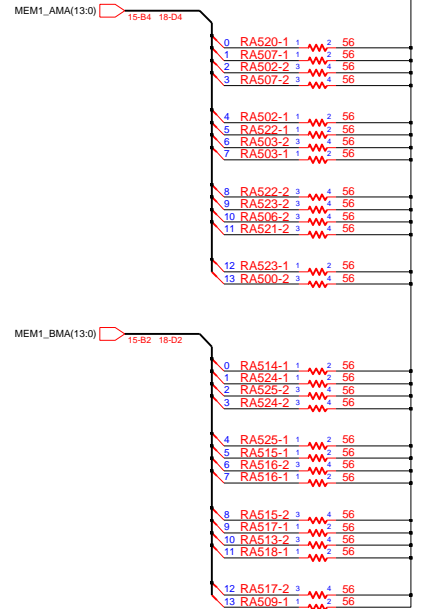
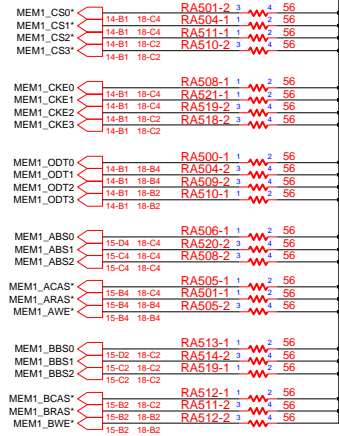
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DRAW	K1 IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	REV. STEP	DV	MAIN		
APPROVAL	KK BIN	REV	1.0	DDR2 - SODIMM	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	18	OF 55

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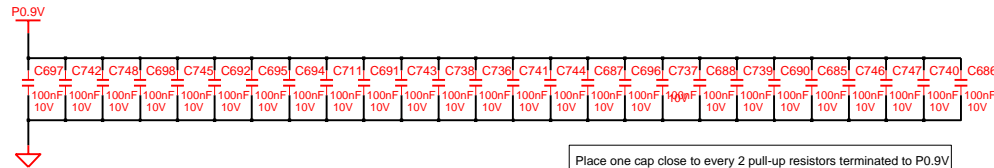
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Place near GMCH

Place near SO-DIMM0

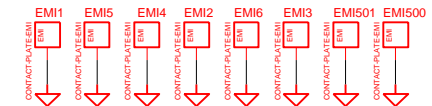
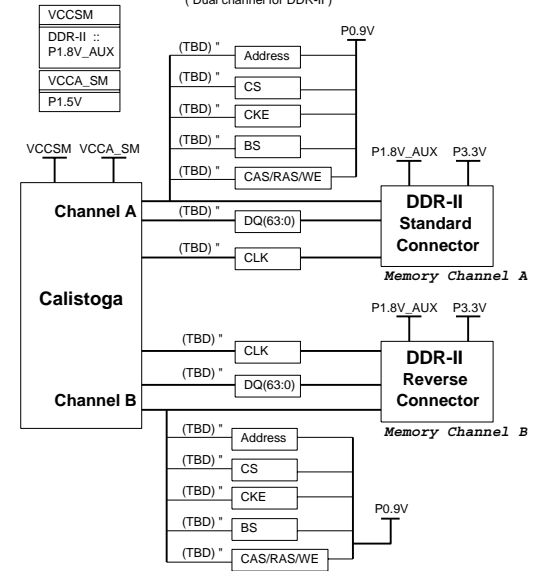
Place near SO-DIMM1



Place one cap close to every 2 pull-up resistors terminated to P0.9V

Memory Topology

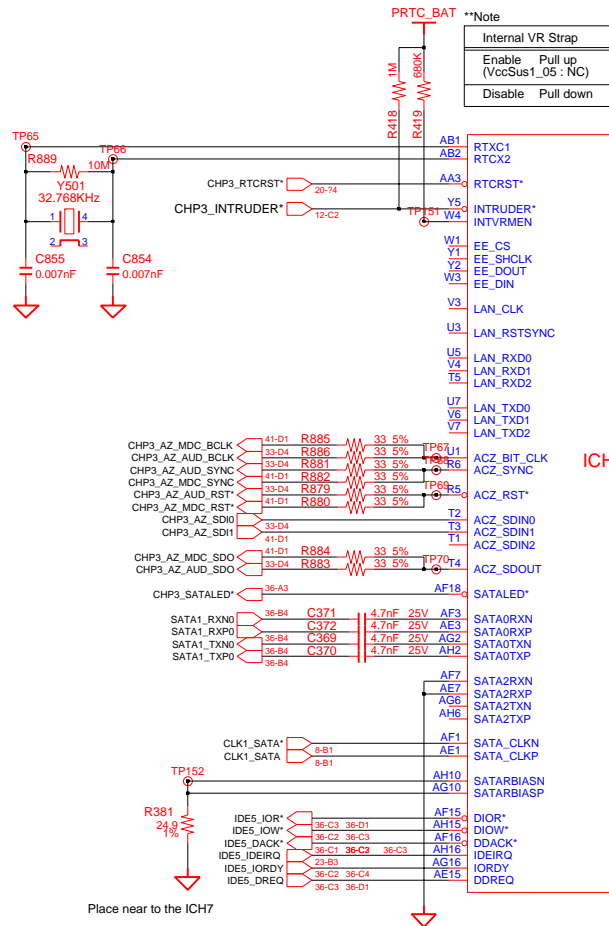
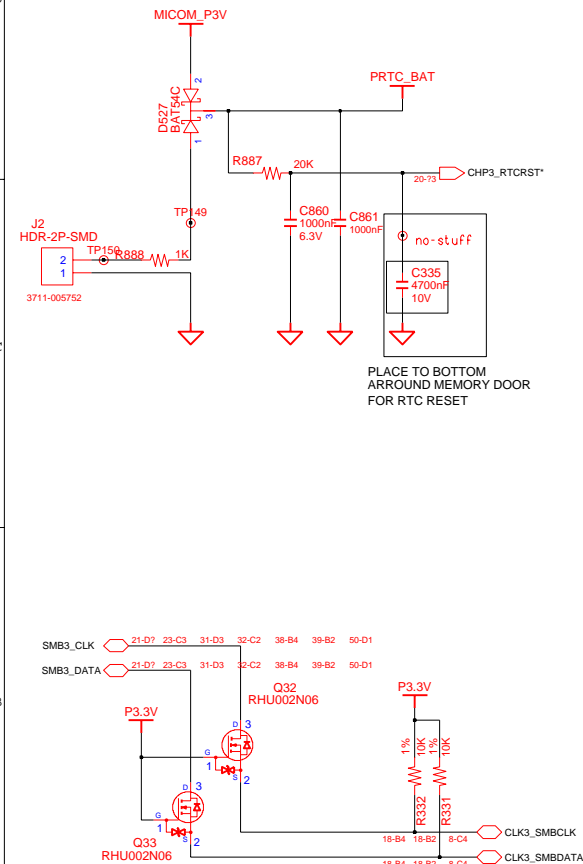
(Dual channel for DDR-II)



DRAW	K1 IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV	MAIN	MAIN	
APPROVAL	KK BIN	REV	1.0	DDR2 - TERMINATION	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	19	OF 55

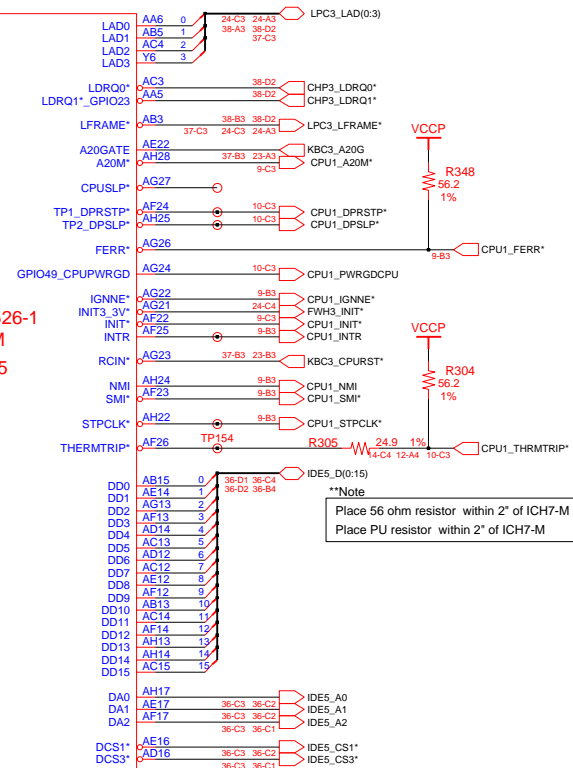
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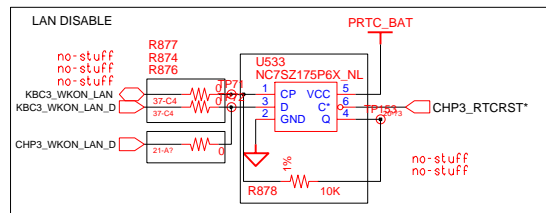
****Note**

Internal VR Strap	
Enable	Pull up (VccSus1_05 : NC)
Disable	Pull down



****Note**

Place 56 ohm resistor within 2" of ICH7-M
Place PU resistor within 2" of ICH7-M

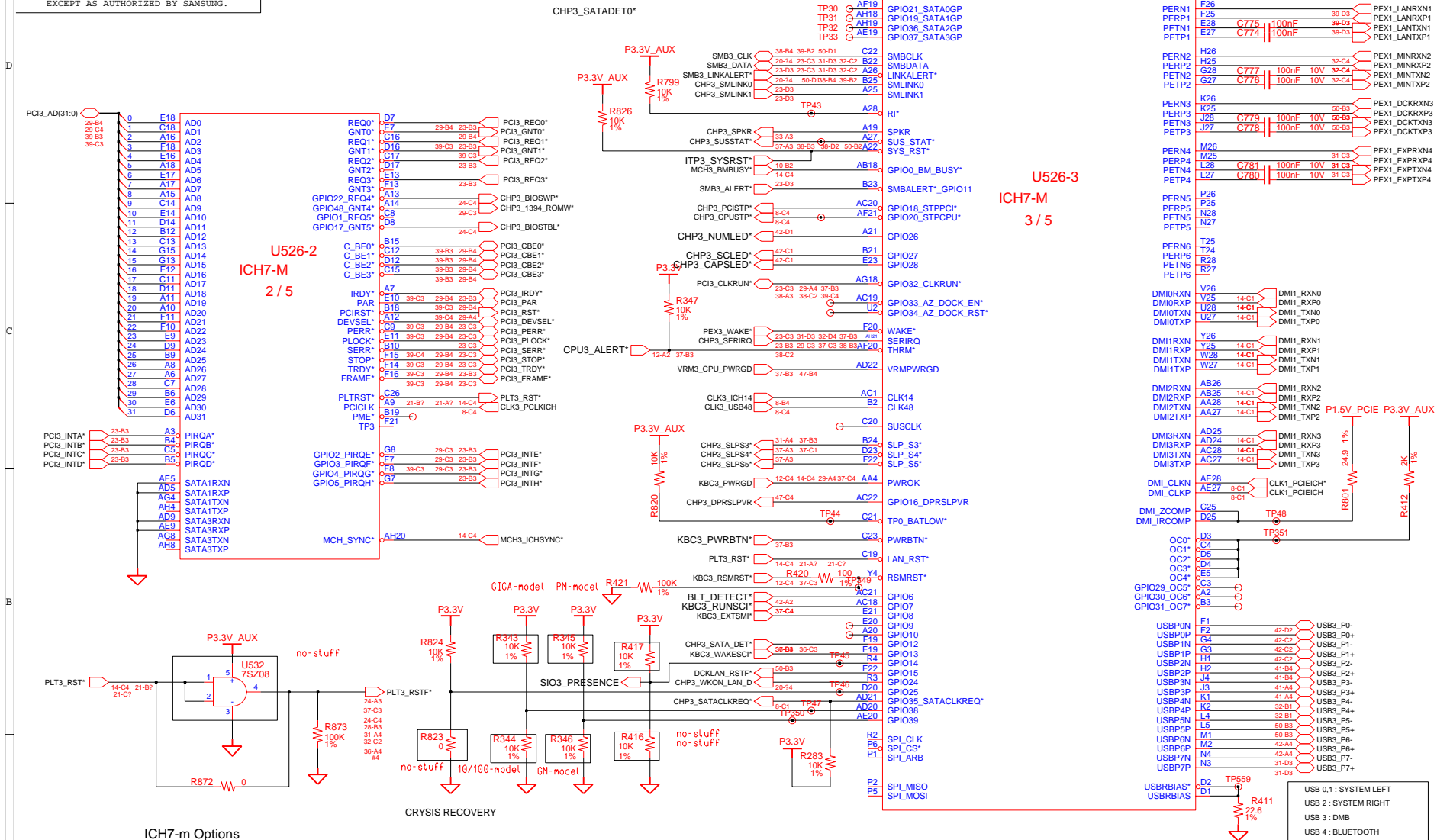


DATE	7/19/2005	TITLE	HAINAN MAIN ICH7 - M(1/4)	SAMSUNG ELECTRONICS	PART NO. BA41-*****A
TIME	11:00				
BY	SS				
REMARKS					
CHECK	SS BAK	DV			
APPROVAL	KK BIN	REV	1.0		
MODULE CODE	LAST EDIT		July 19, 2005 8:53:48 AM	PAGE	20 OF 55

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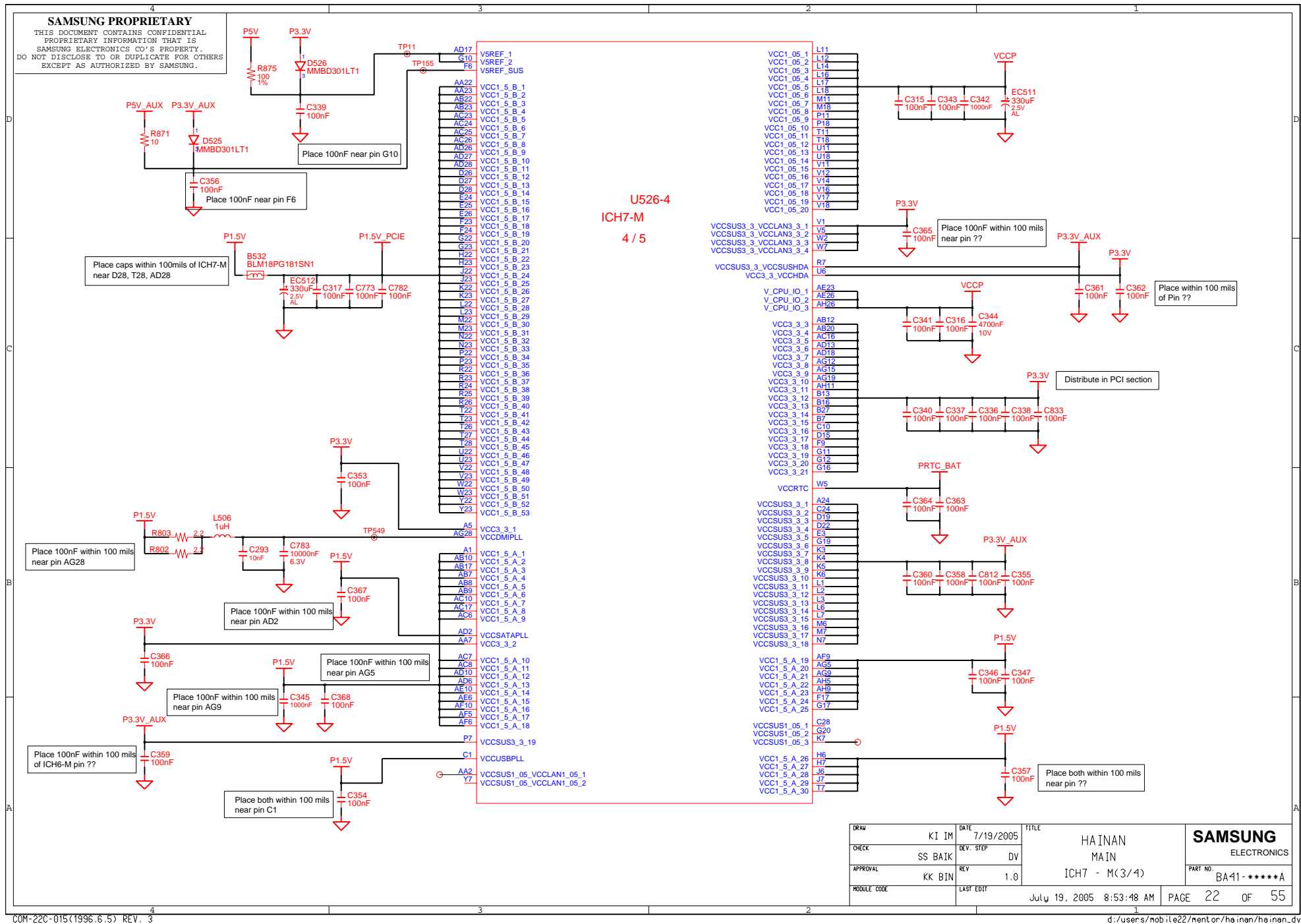
AC caps : PCIE need to be within 250mils of the driver
Resistor for Test : Place Stuffing Option to minimize stubs



ICH7-m Options

	Function	Default
CHP3_SPKR	No Reboot	No Stuff
CHP3_GNT3	A16 swap override	No Stuff
AC97_SDOUT	Safe Mode	TBD
CHP3_GNT(5:4)	Boot BIOS Option	

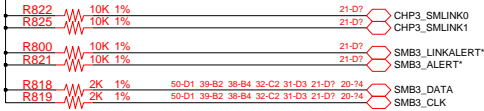
DRAW		DATE	TITLE		SAMSUNG ELECTRONICS
KI IM		7/19/2005	HAINAN		
CHECK	SS BAIK	DEV. STEP	POWER		
APPROVAL	KK BIN	REV	1CH7-M (2/4)		
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM		PART NO. BA41-*****A PAGE 21 OF 55



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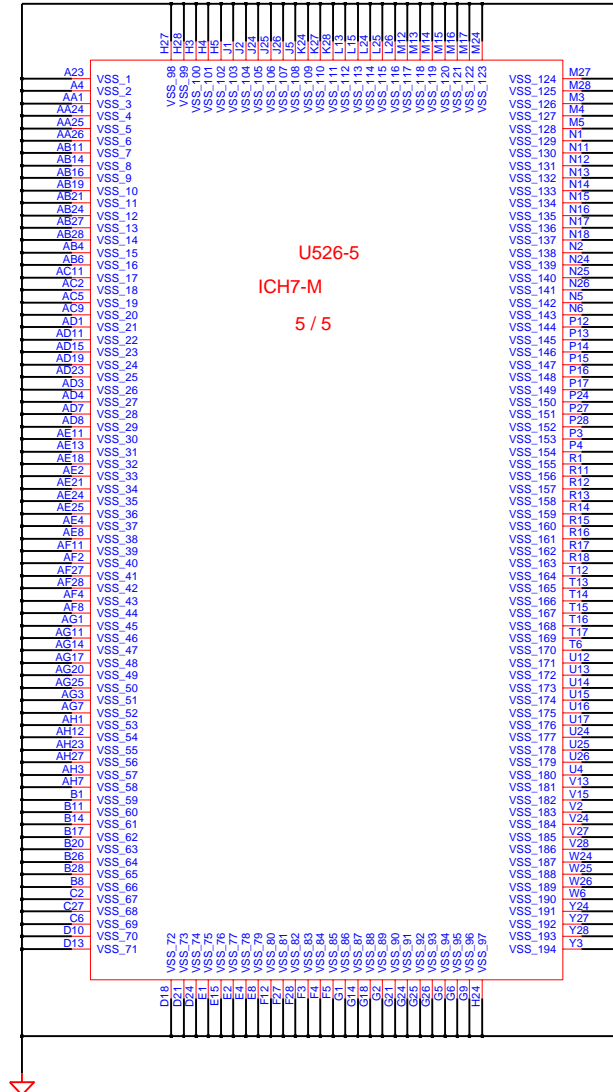
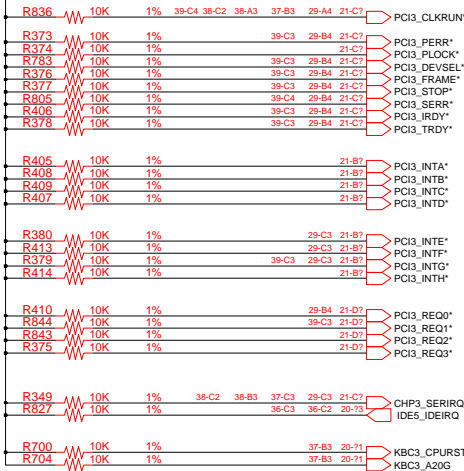
P3.3V_AUX



P3.3V_LAN



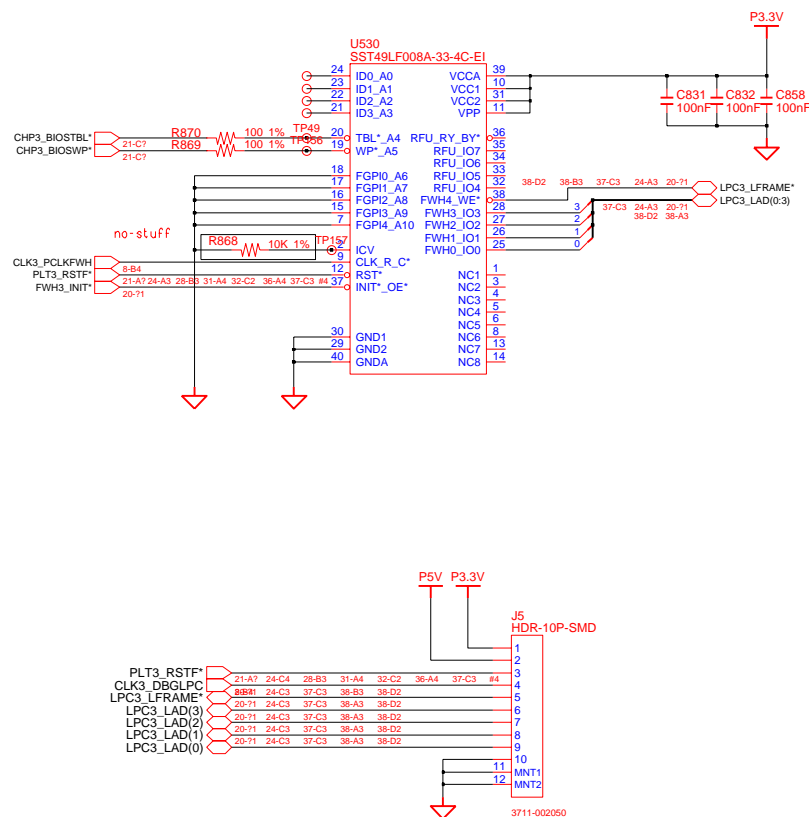
P3.3V



DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV	MAIN	BA41-*****A	
APPROVAL	KK BIN	REV	1.0	ICH7 - M(4/4)		
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	23	OF 55

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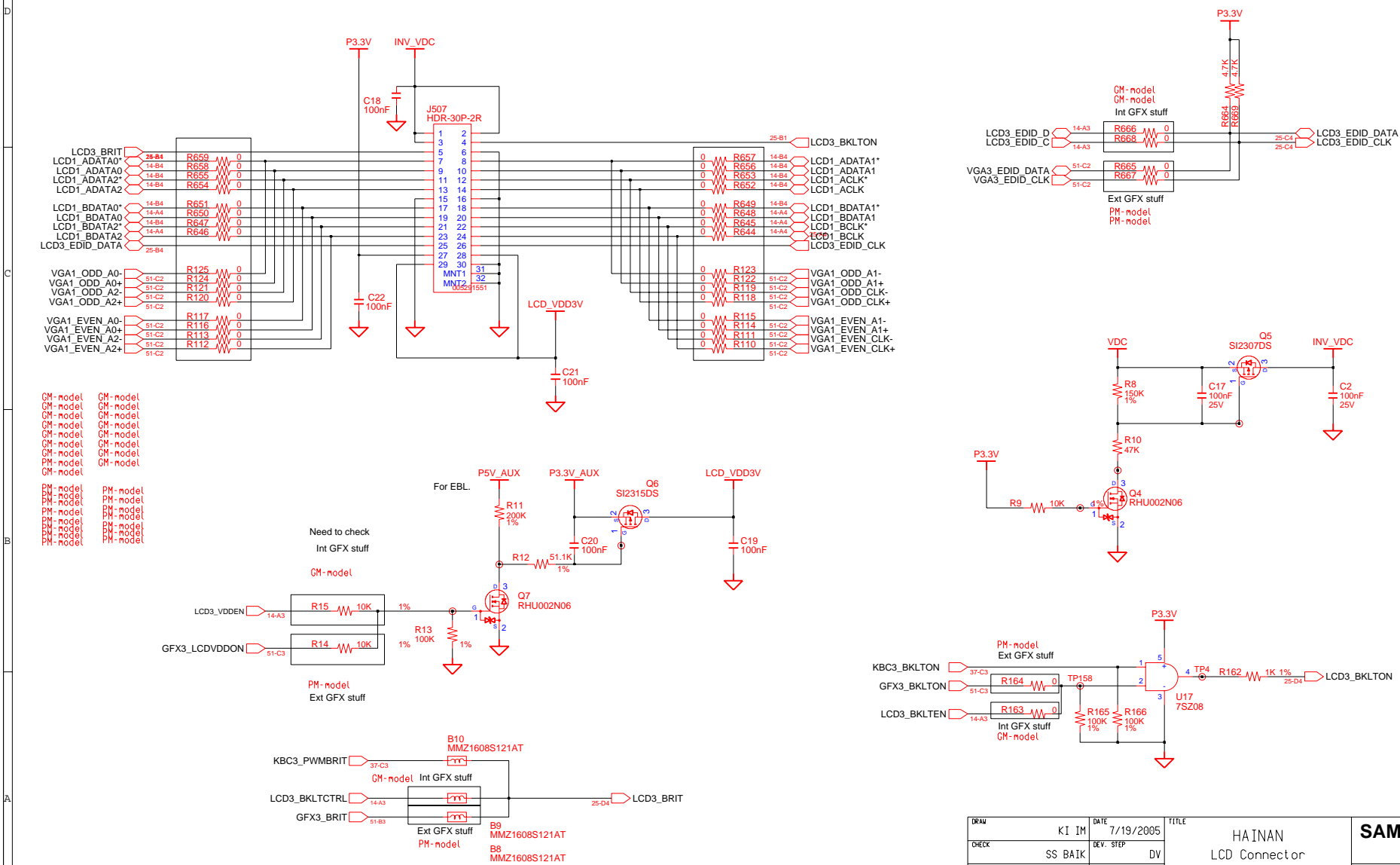


INSERT BIOS CODE

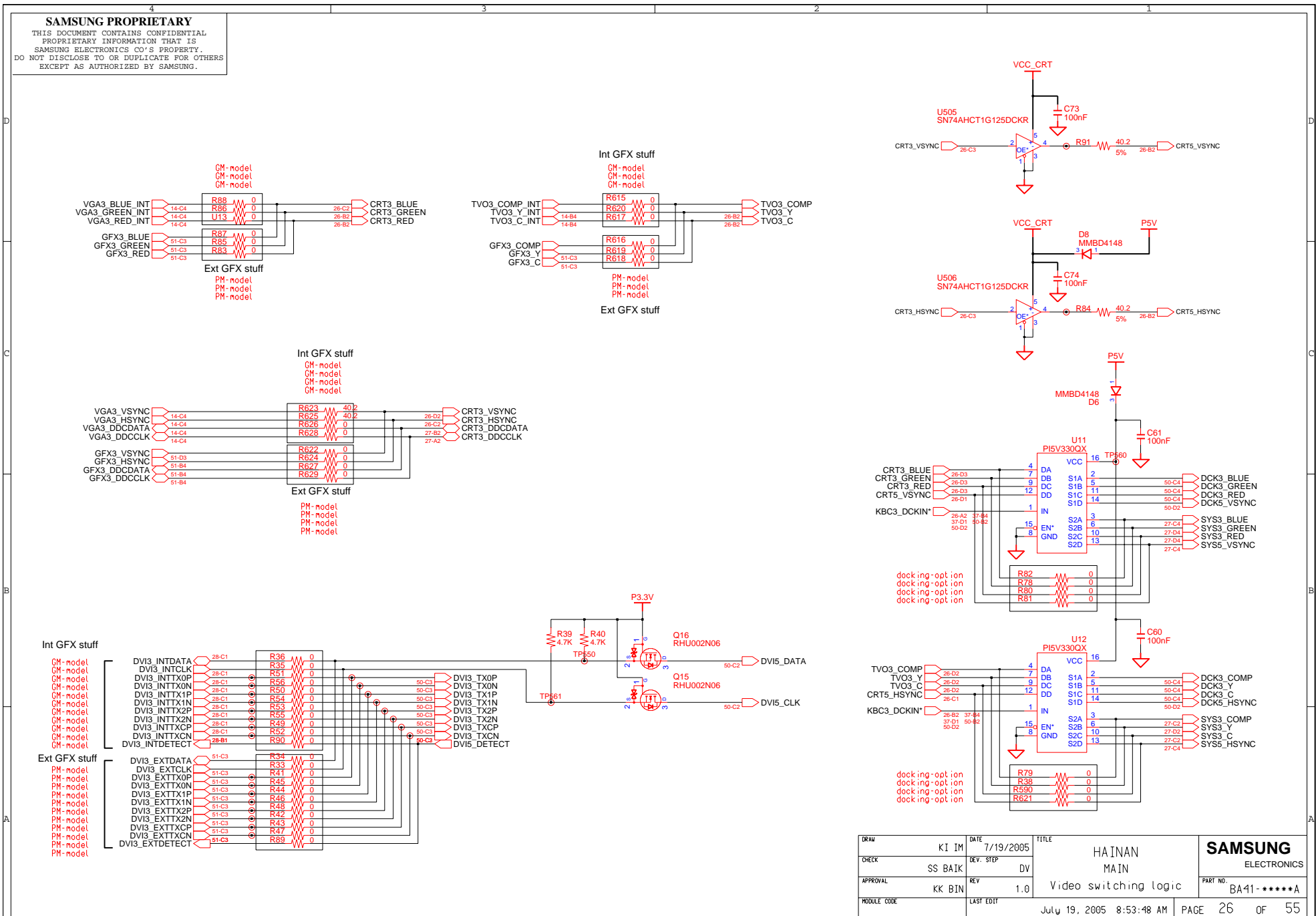
DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN MAIN FIRMWARE HUB	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0			
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	24	OF 55

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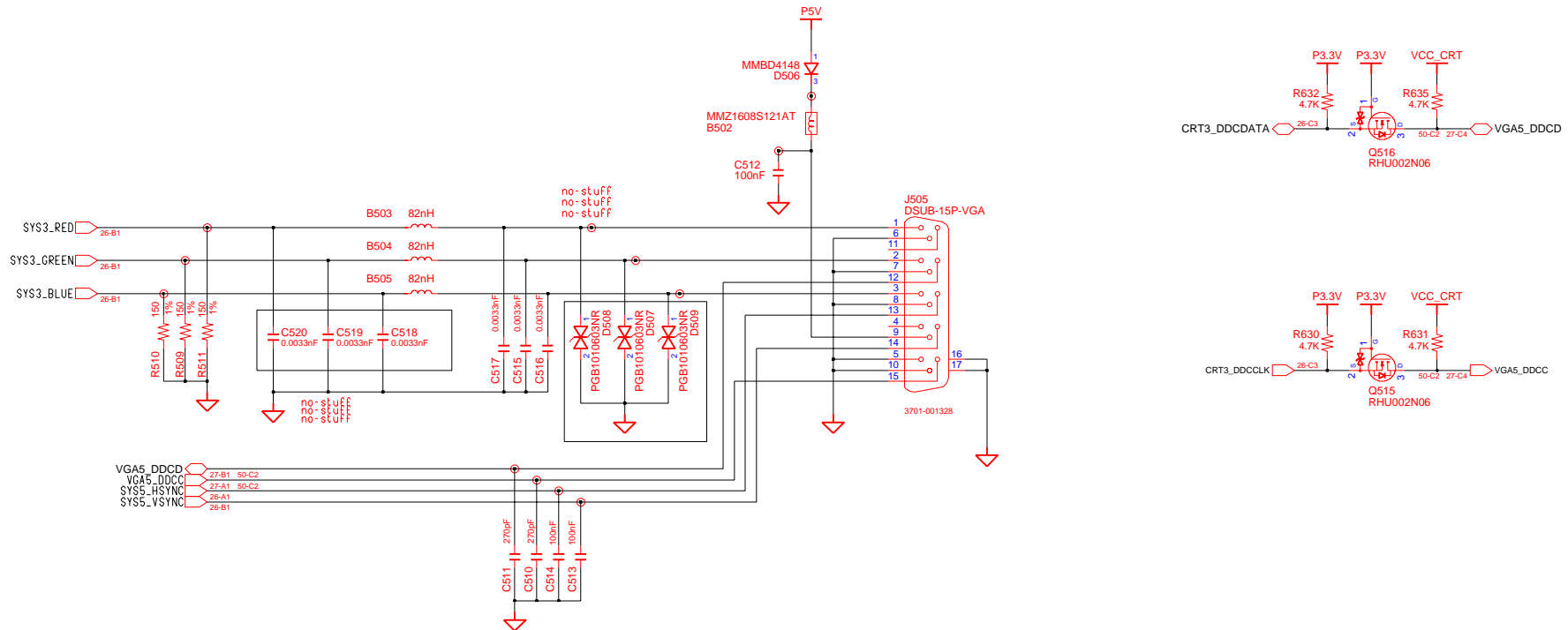
DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN LCD Connector	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			
APPROVAL	KK BIN	REV	1.0			
MODULE CODE		LAST EDIT				



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CRT CONNECTOR

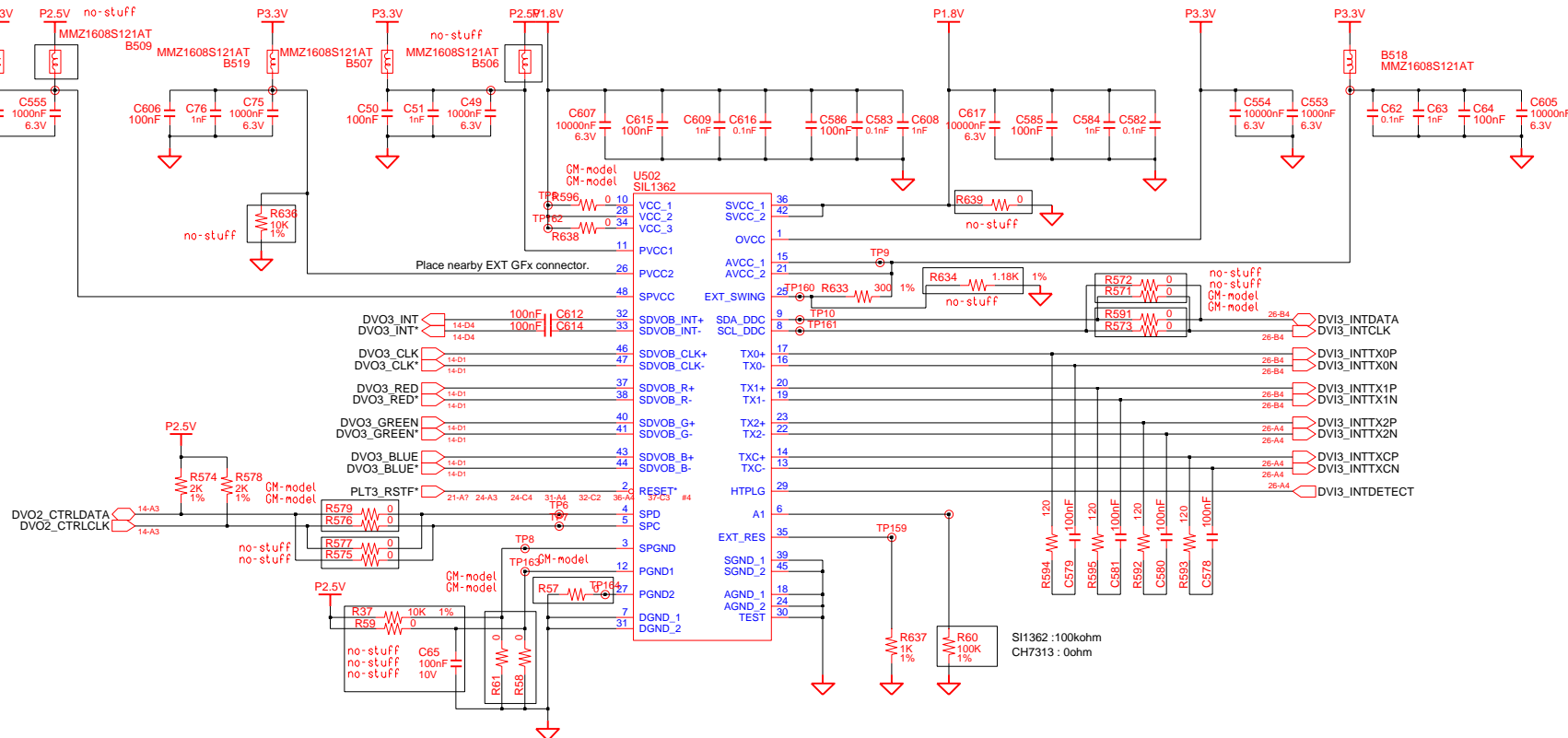


DRAW	IM, KI	DATE	7/19/2005	TITLE	HAINAN POWER CRT connector	SAMSUNG ELECTRONICS
CHECK	BAIK, SS	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	BIN, KK	REV	1.0			
MODULE CODE		LAST EDIT	July, 19, 2005 8:59:59 AM	PAGE	27 OF 27	

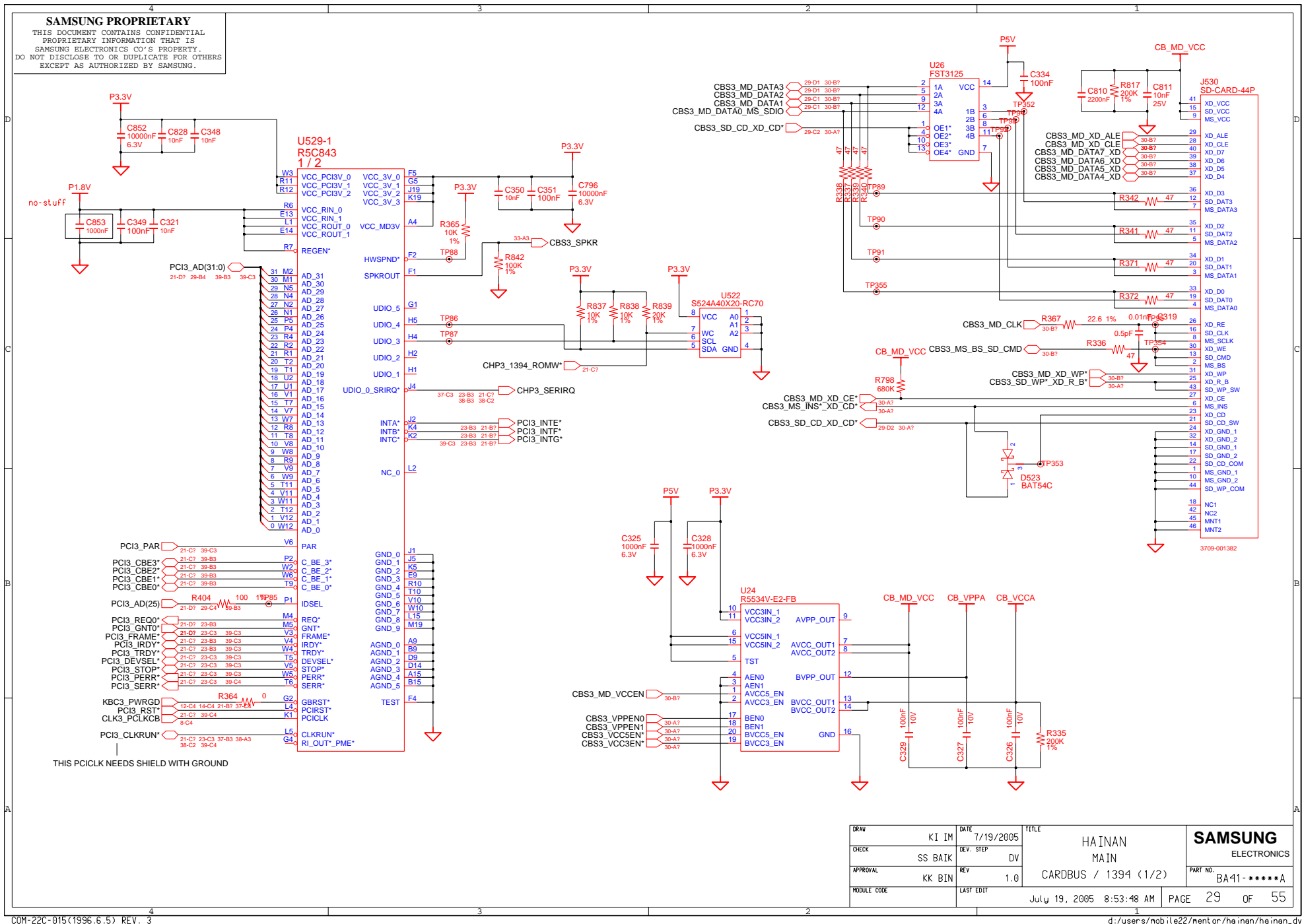
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GM-model

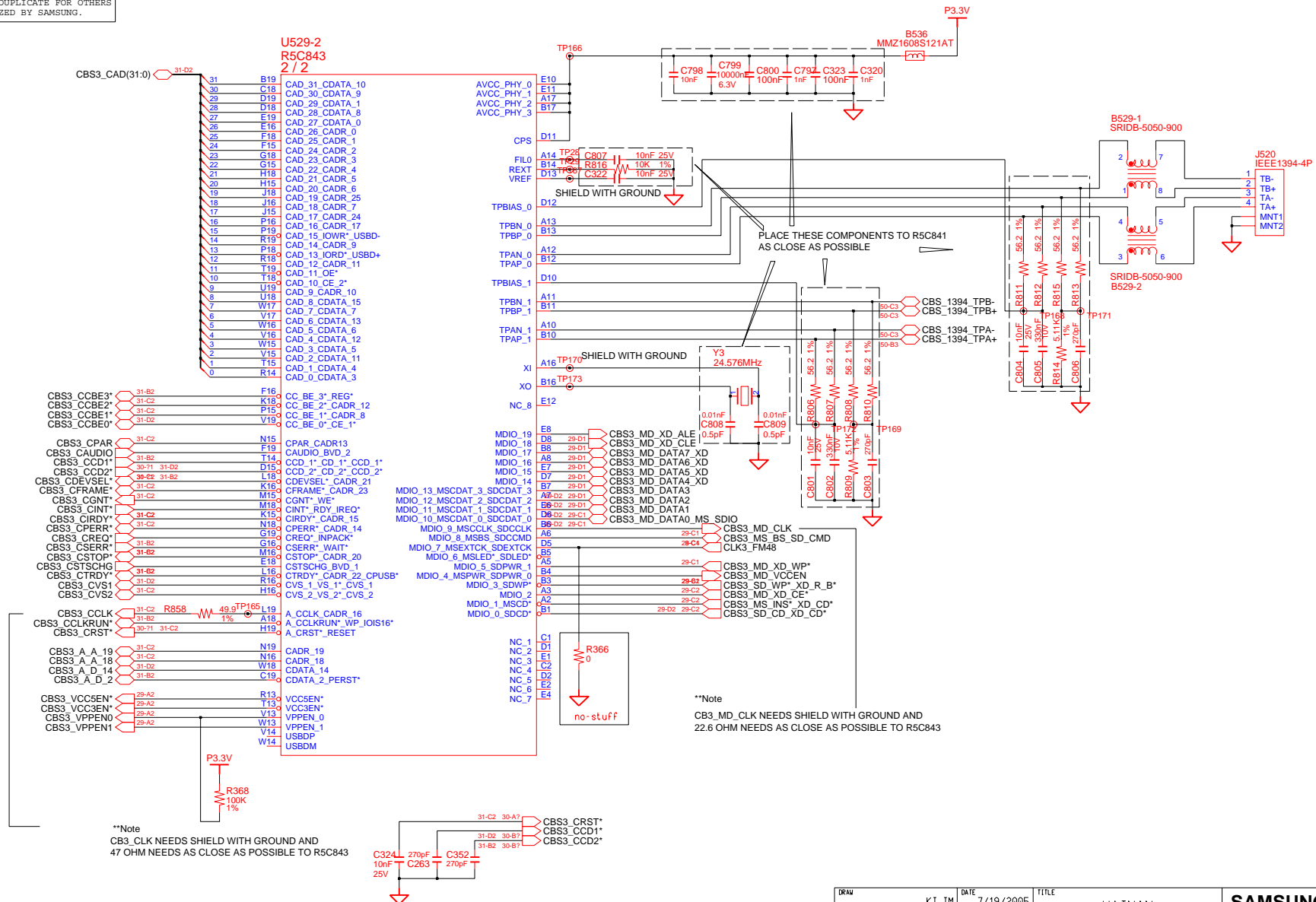


DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN POWER DVI transmitter	SAMSUNG ELECTRONICS
CHECK	SS BAIK	REV.	STEP	DV		PART NO. BA41-*****A
APPROVAL	KK BIN	REV.	1.0			
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	28	OF 55



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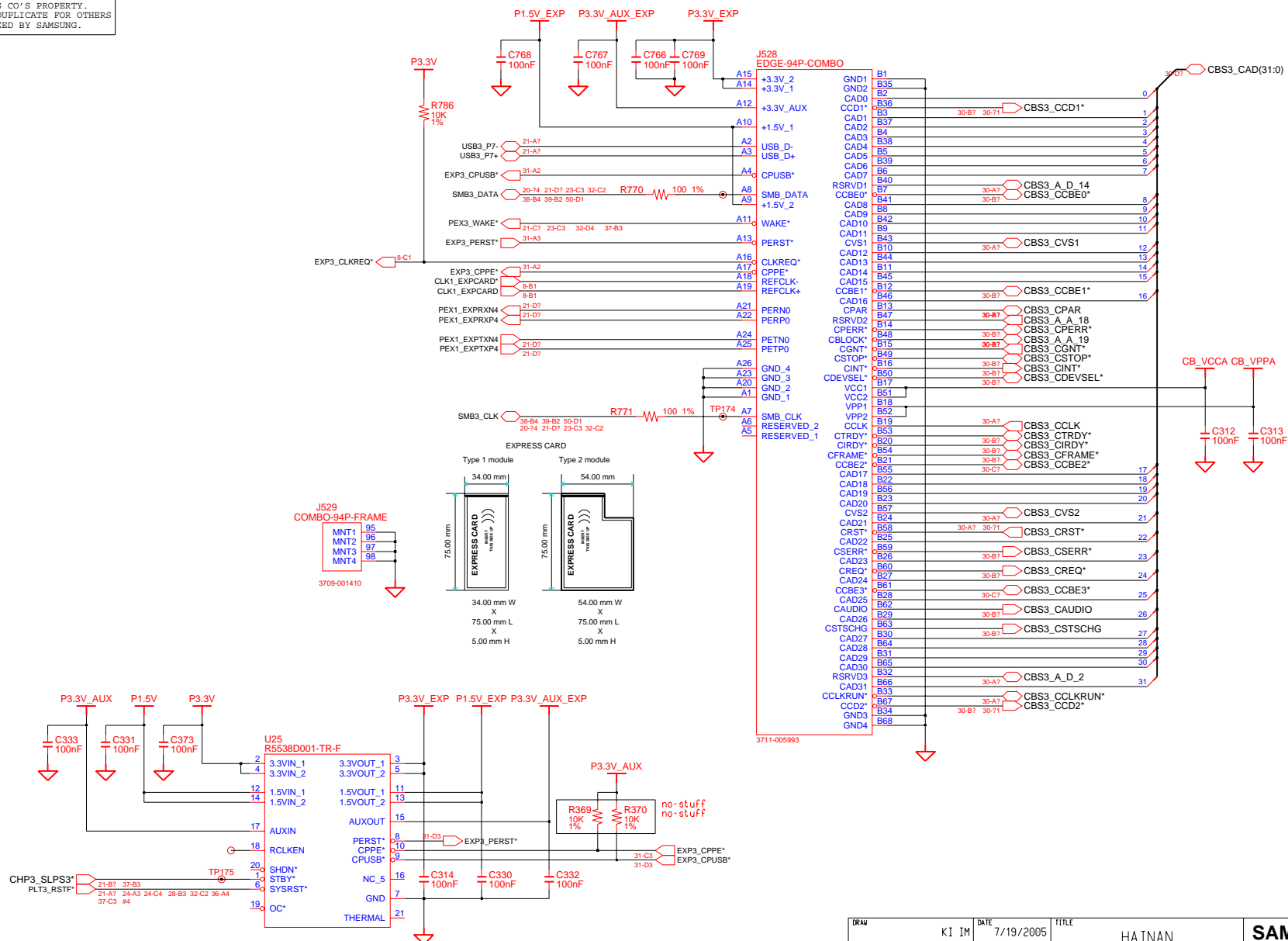
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DRAW		DATE	TITLE		SAMSUNG ELECTRONICS	
KI IM		7/19/2005	HAINAN POWER CardBus & 1394 (2/2)			
CHECK	SS BAIK	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0			
MODULE CODE		LAST EDIT		July 19, 2005 8:53:48 AM	PAGE	30 OF 55

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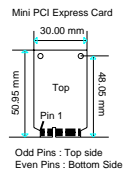
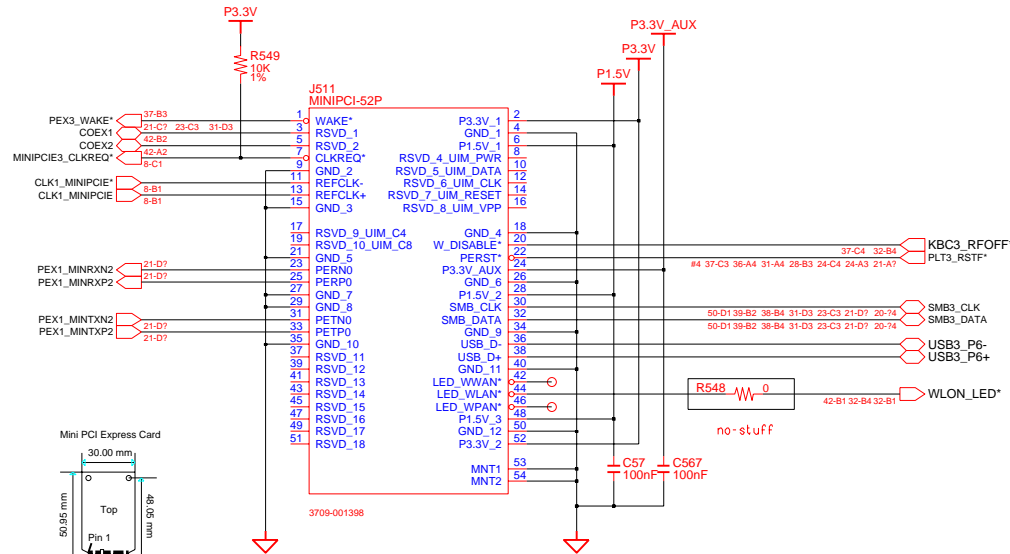
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DRAM	KI IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			
APPROVAL	KK BIN	REV	1.0			
MODULE CODE	LAST EDIT		July 19, 2005 8:53:48 AM			
EXPRESS CARD & PCMCIA				PART NO.	BA41-*****A	

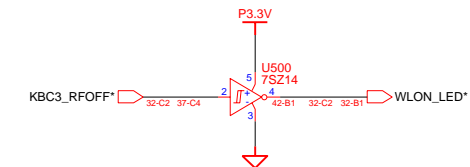
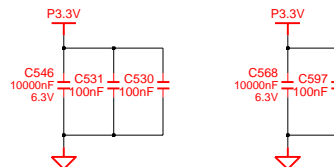
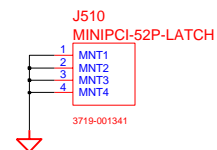
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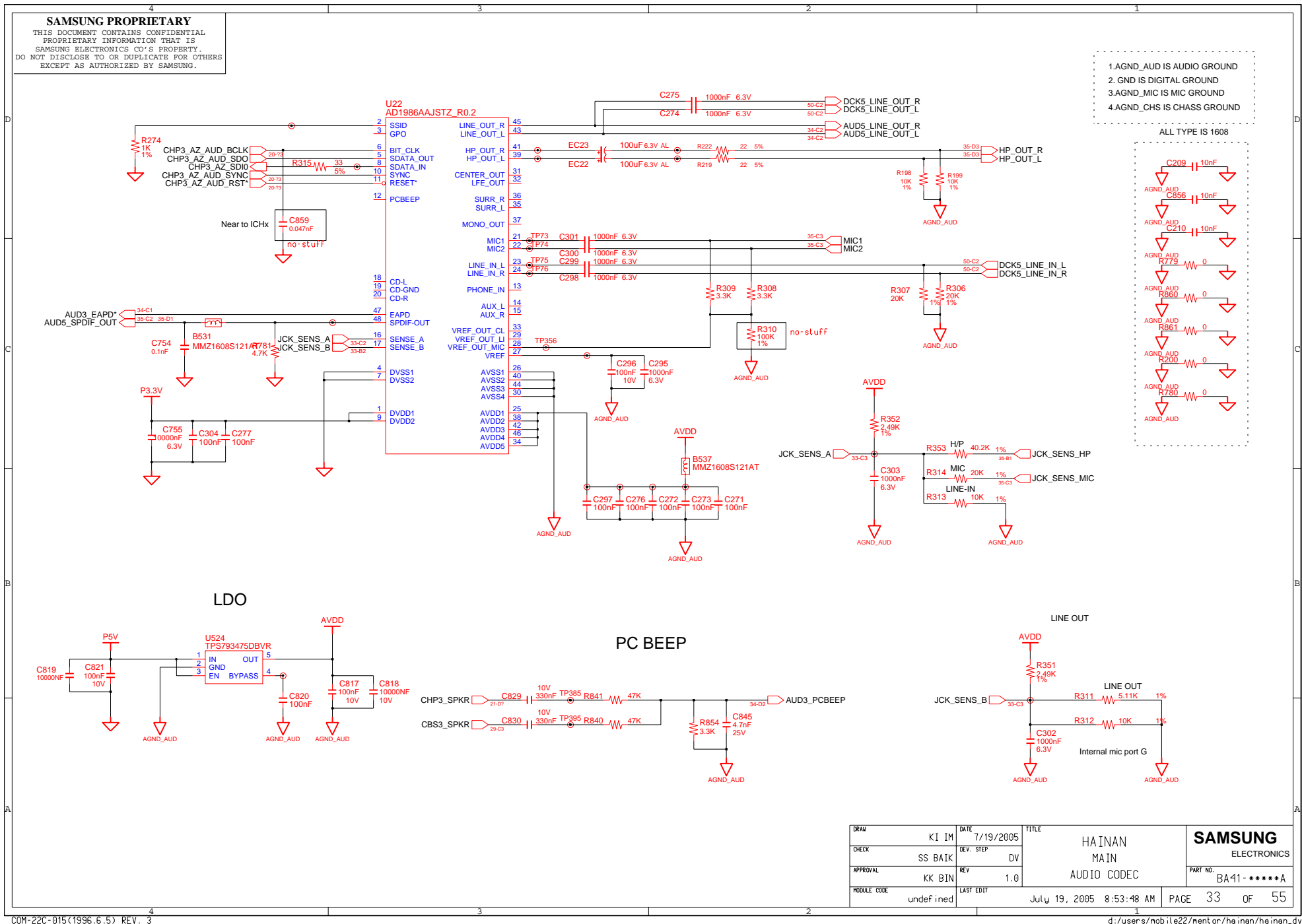


Mini PCI Express

PCI Express Mini Card ElectroMechanical Spec. 1.0

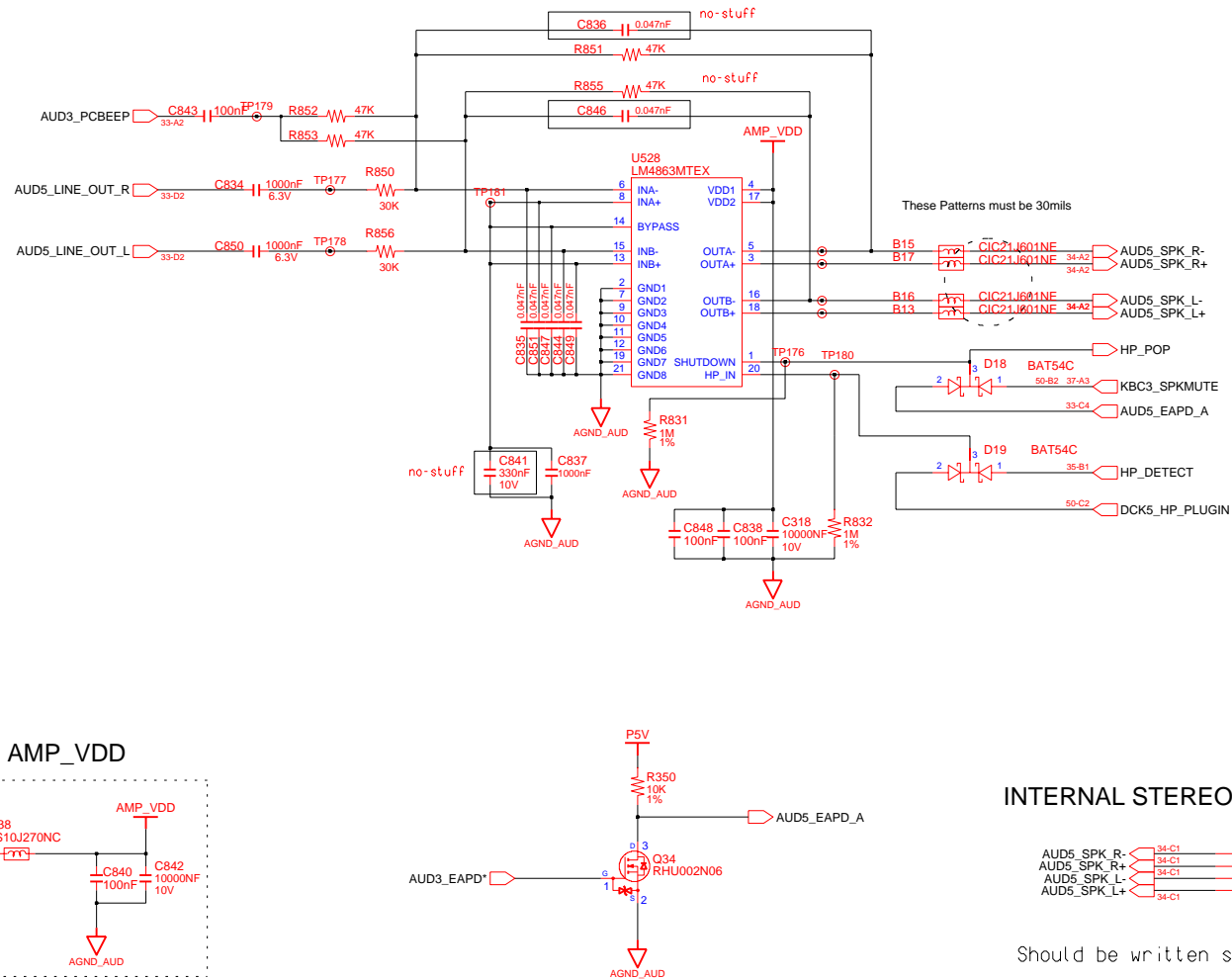


DRAW	IM, KI	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	BAIK, SS	DEV. STEP	DV	MAIN	MAIN	
APPROVAL	BIN, KK	REV	1.0	MINI PCIE & DMB & IR	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	Jul, 19, 2005 9:01:07 AM	PAGE	32	OF 32



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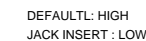
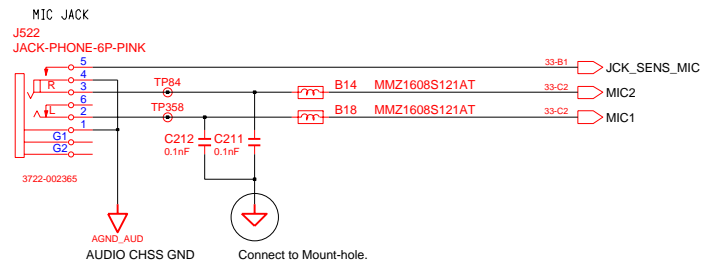
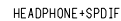
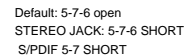
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DRAW	K1 IM	DATE	7/19/2005	TITLE	HAINAN MAIN LIMITER & AMP	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0			
MODULE CODE	undefined	LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	34	OF 55

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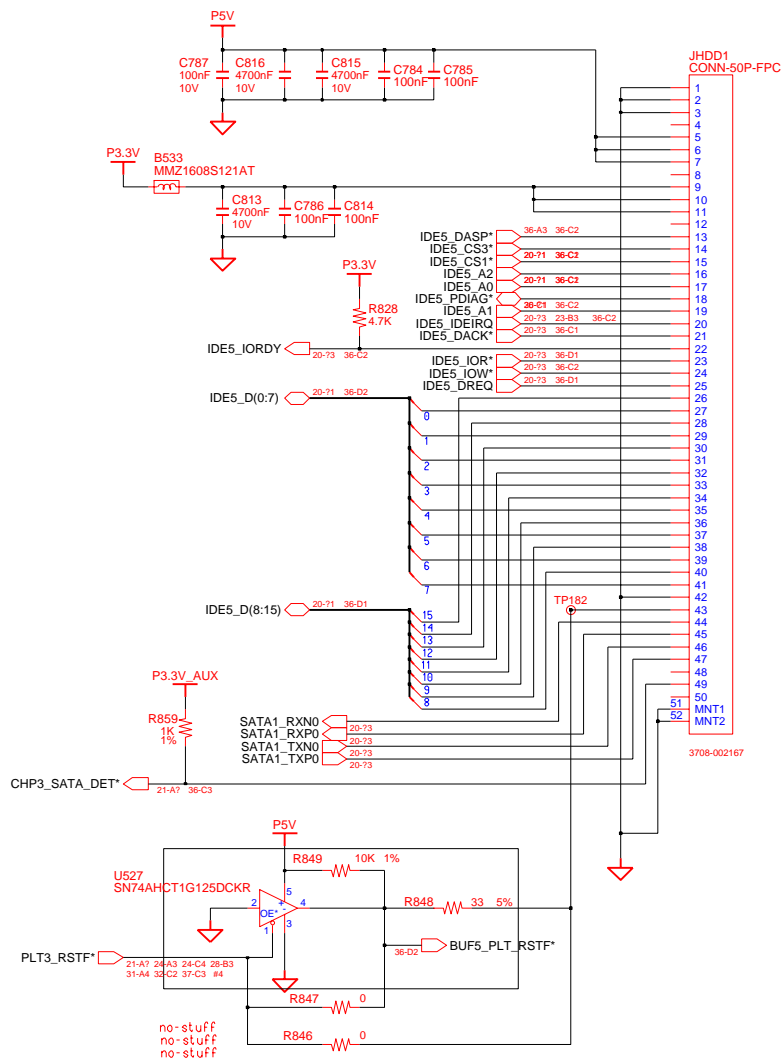
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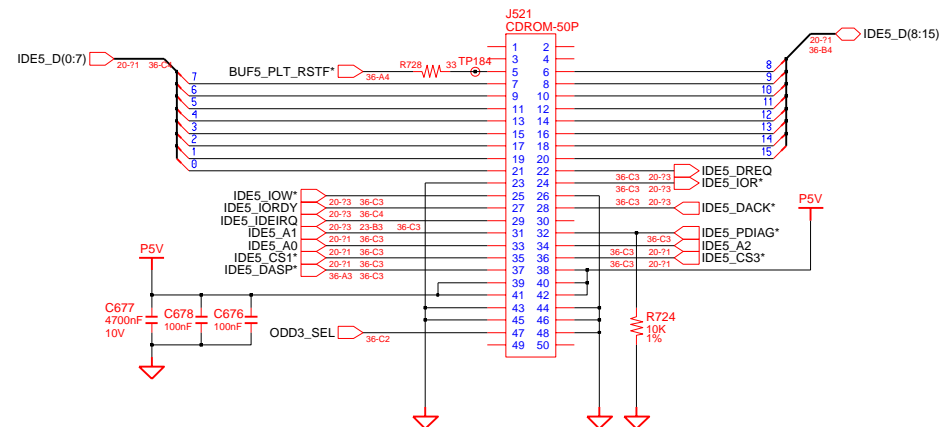
DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN MAIN Headphone & MIC Jack	SAMSUNG ELECTRONICS	
CHECK	SS BAIK	DEV. STEP	DV				
APPROVAL	KK BIN	REV	1.0				
MODULE CODE	LAST EDIT		July 19, 2005 8:53:48 AM				PAGE
				PART NO.	BA41-*****A		

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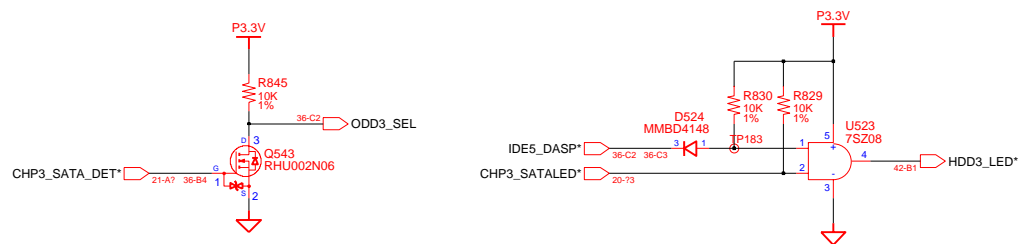
Main to HDD



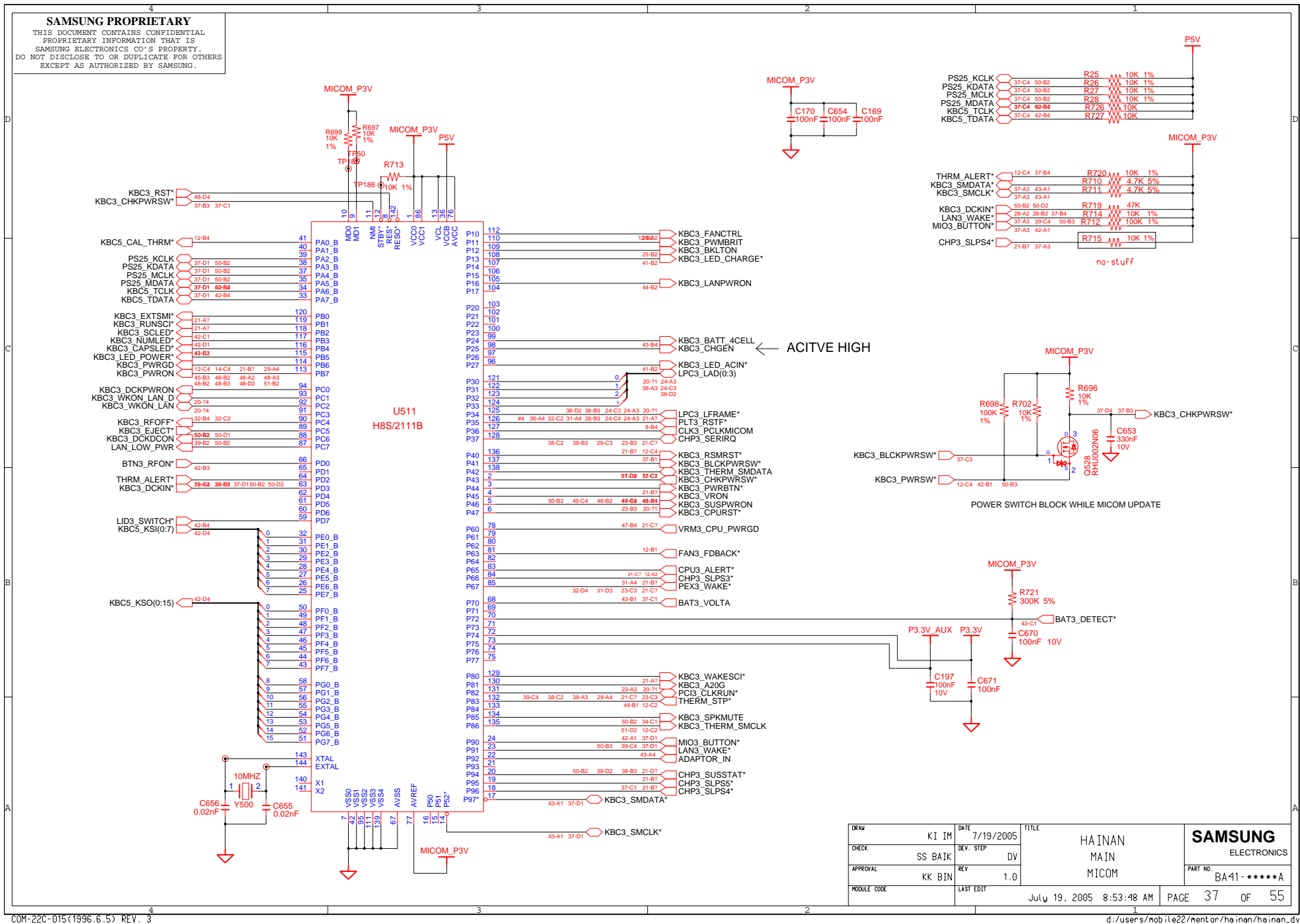
Main to Swap B'd



	SATA_DET*	ODD (IDE)	2nd HDD (IDE)
If SATA Detected	0	CSEL(#47) : Open (Master)	CSEL(#28) : GND (Slave)
If SATA not Detected	1	CSEL(#47) : GND (Slave)	CSEL(#28) : Open (Master)

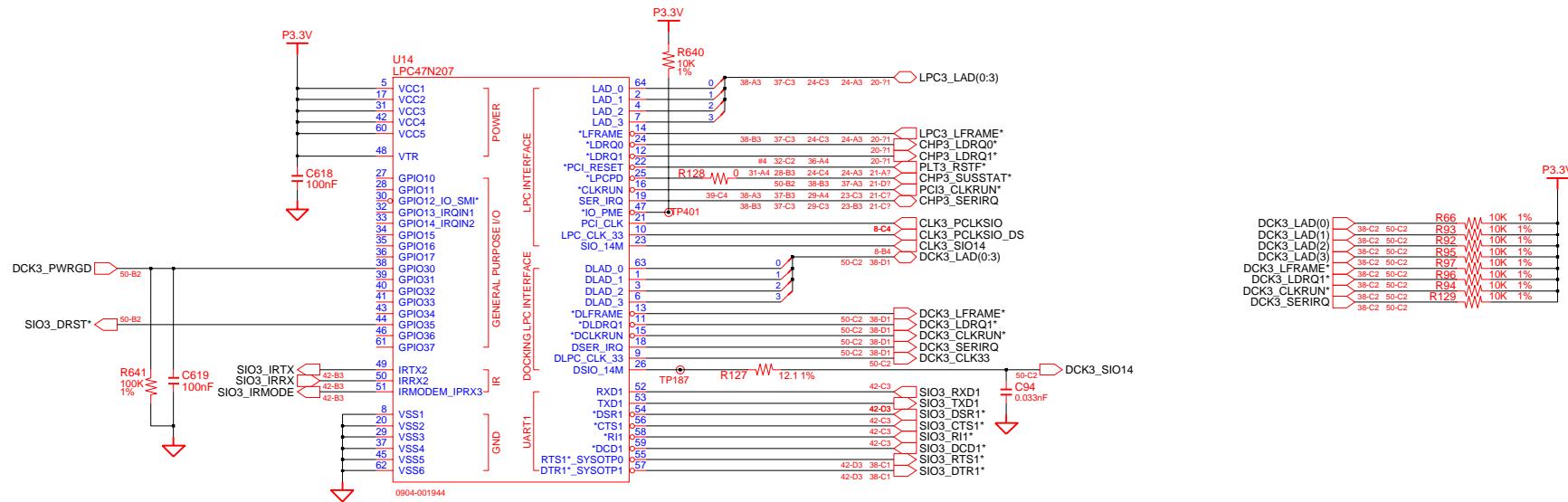


DRAM	KI IM	DATE	7/19/2005	TITLE	HAINAN MAIN HDD ODD CONNECTOR	SAMSUNG ELECTRONICS
CHECK	SS BAK	DEV. STEP	DV			
APPROVAL	KK BIN	REV	1.0			
MODULE CODE	LAST EDIT		July 19, 2005 8:53:48 AM			
				PART NO.	BA41-*****A	

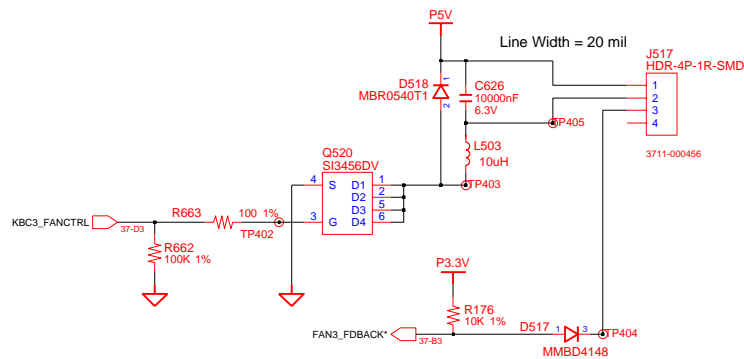


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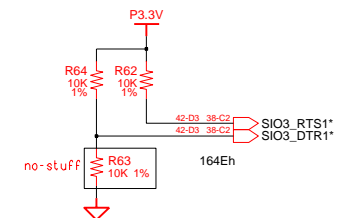
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FAN Control Logic



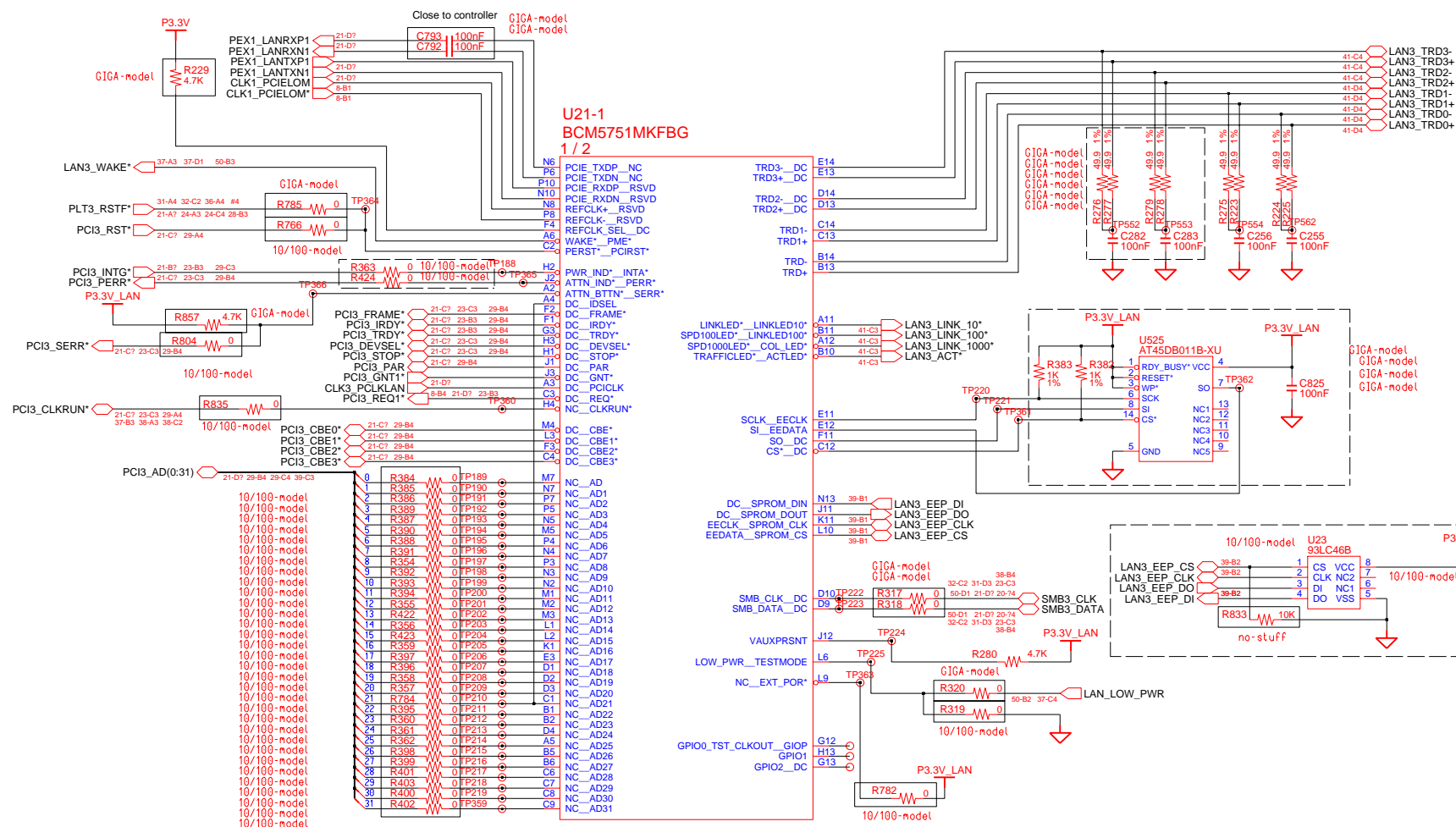
Changed to Control Methode(EBL)



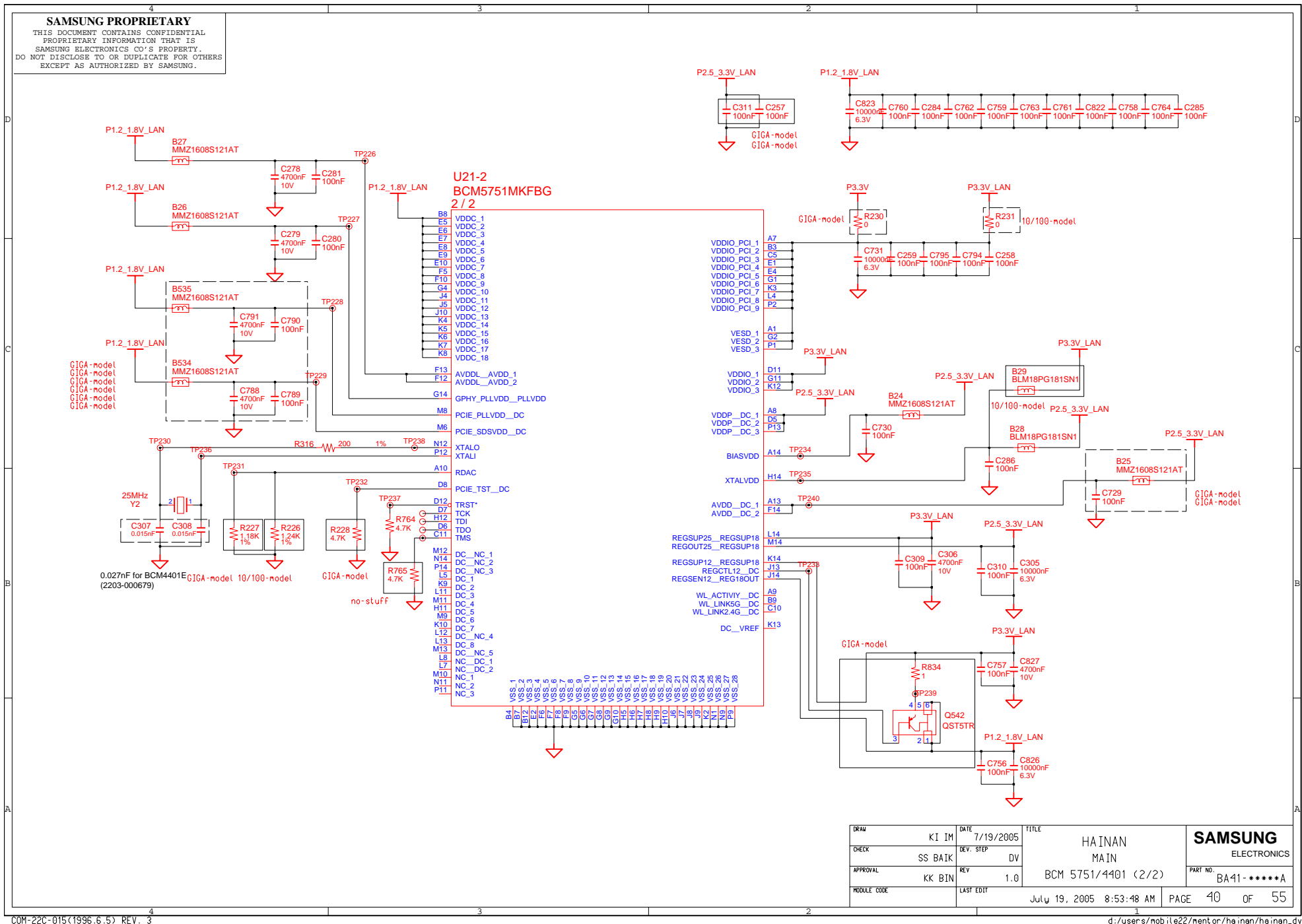
DRAM	IM, K1	DATE	7/19/2005	HAINAN MAIN		SAMSUNG ELECTRONICS	
CHECK	BAIK, SS	DEV. STEP	DV				
APPROVAL	BIN, KK	REV	1.0	SUPER IO & FAN CONTROLLER		PART NO.	BA41-*****A
MODULE CODE	LAST EDIT		July, 19, 2005 9:02:46 AM			PAGE	38 OF 38

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DATE	7/19/2005	TITLE	HAINAN MAIN BCM 5751/4401 (1/2)		SAMSUNG ELECTRONICS		
DRAM	KI IM	DEV. STEP				DV	PART NO.
CHECK	SS BAIK	REV				1.0	BA41-*****A
APPROVAL	KK BIN	LAST EDIT	July 19, 2005 8:53:48 AM		PAGE 39 OF 55		
MODULE CODE		undef ined					

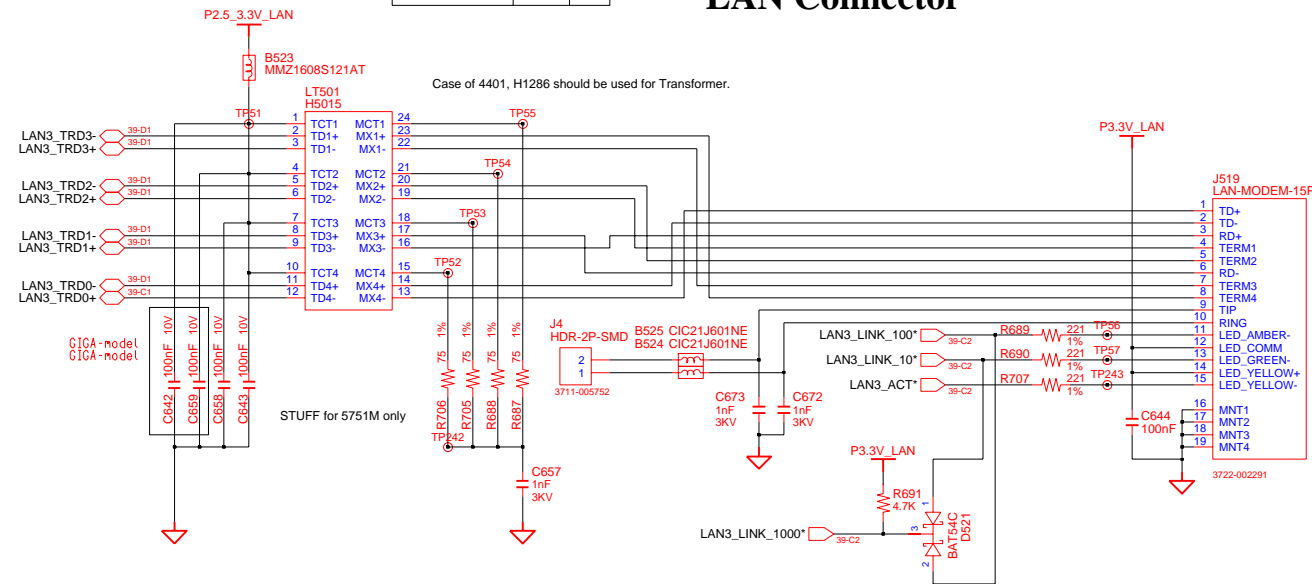


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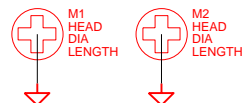
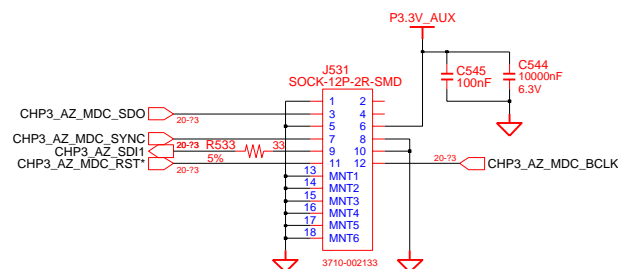
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LAN CONTROLLER	4401E	5751
TRANSFORMER	H1321NL	H5015

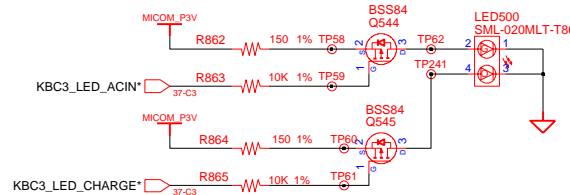
LAN Connector



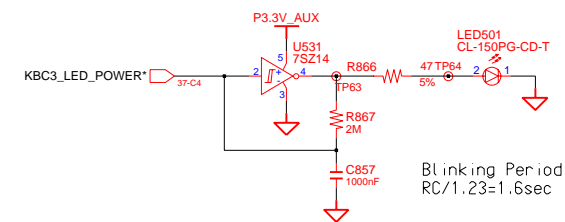
MDC Connector



ADAPTERIN/CHARGING LED



POWER_ON / LB LED

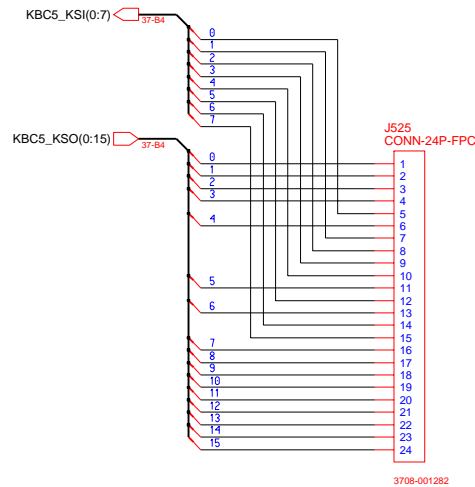


DRAW	IM, KI	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	BAIK, SS	DEV. STEP	DV	MAIN		
APPROVAL	BIN, KK	REV	1.0	LAN MODEM Conn & LED.	PART NO. BA41-*****A	
MODULE CODE		LAST EDIT	July, 19, 2005 9:04:06 AM	PAGE	41 OF 41	

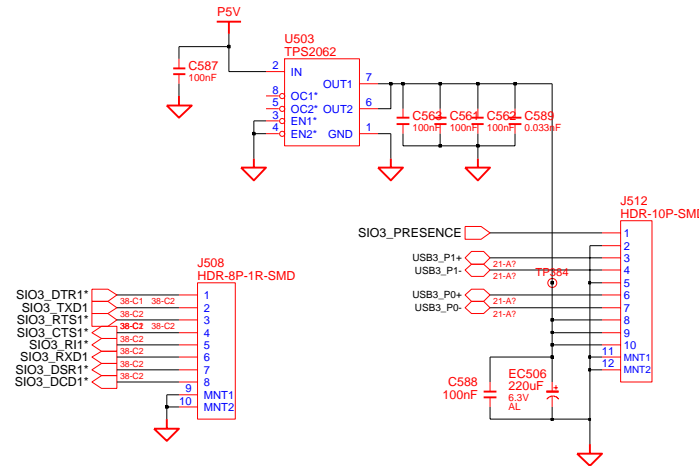
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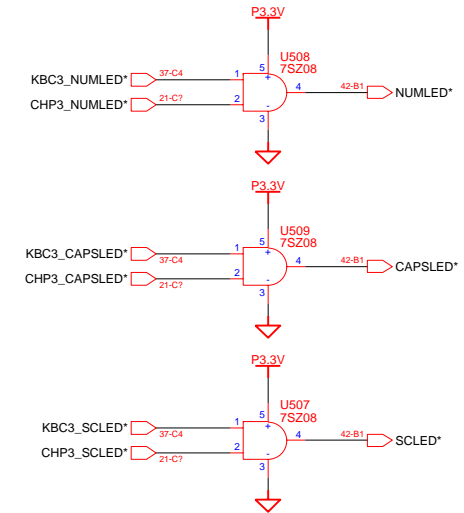
KEYBOARD



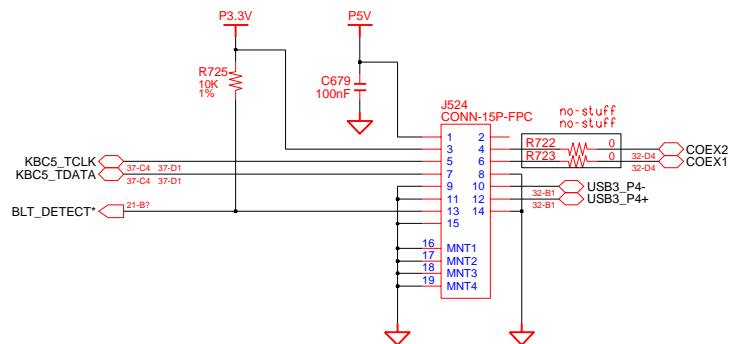
USB_SIO BOARD



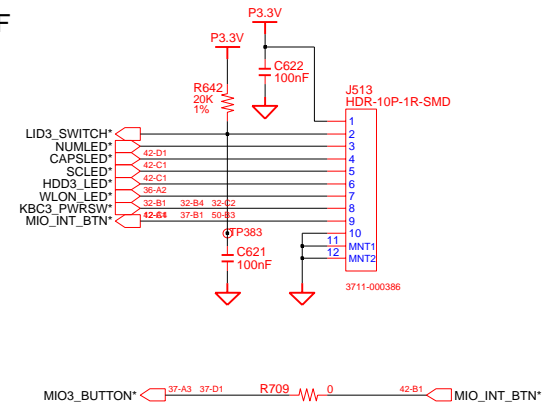
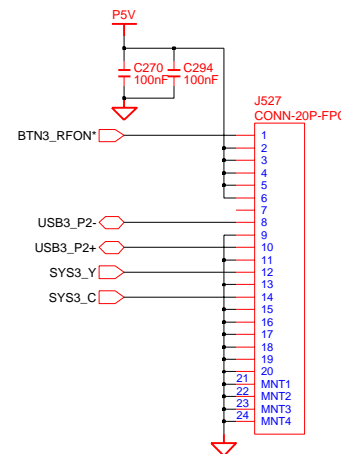
LED BOARD



TOUCHPAD BLUETOOTH I/F



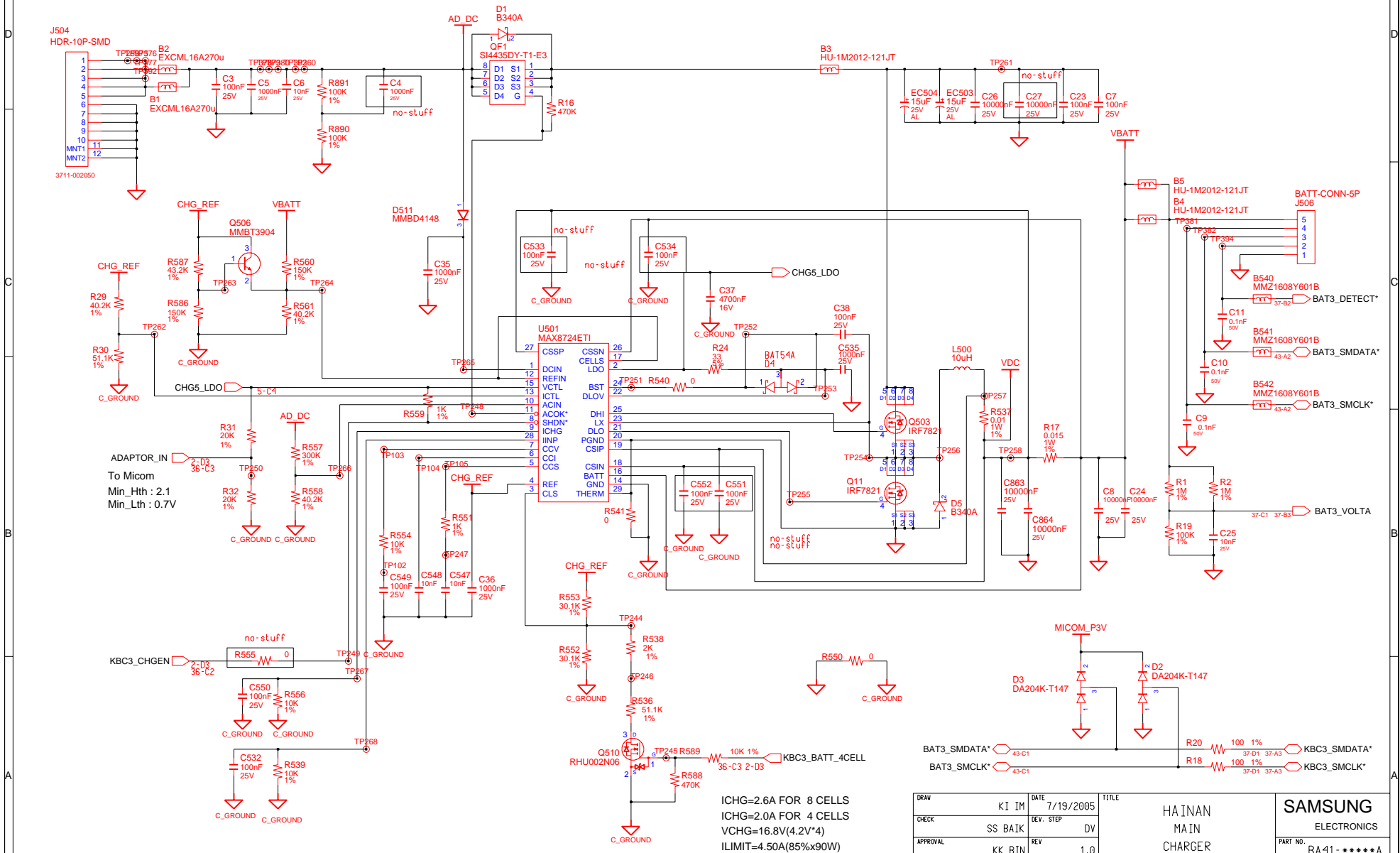
USB_SVHS_RF OFF SWITCH I/F



DRAW	K1 IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV	MAIN	MAIN	
APPROVAL	KK BIN	REV	1.0	SUB B'D CONNECTOR	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	42	OF 55

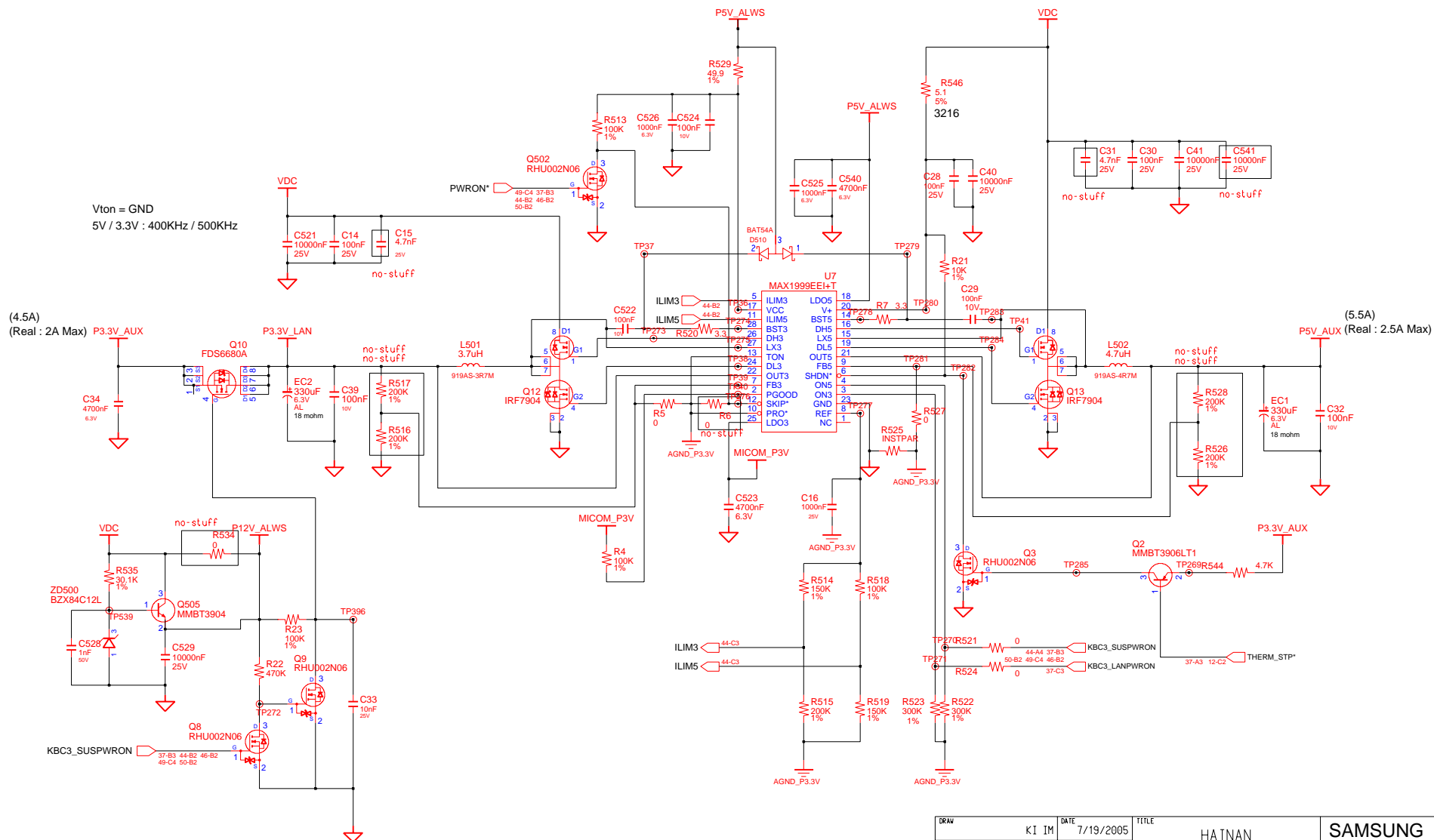
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CHARGER & POWER MANAGEMENT



DRAW		DATE	TITLE		SAMSUNG ELECTRONICS	
KI IM		7/19/2005	HAINAN			
CHECK	SS BAIK	DEV. STEP	MAIN			
APPROVAL		REV	CHARGER		PART NO.	BA41 - *****A
KK BIN		1.0				
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM		PAGE	43 OF 55

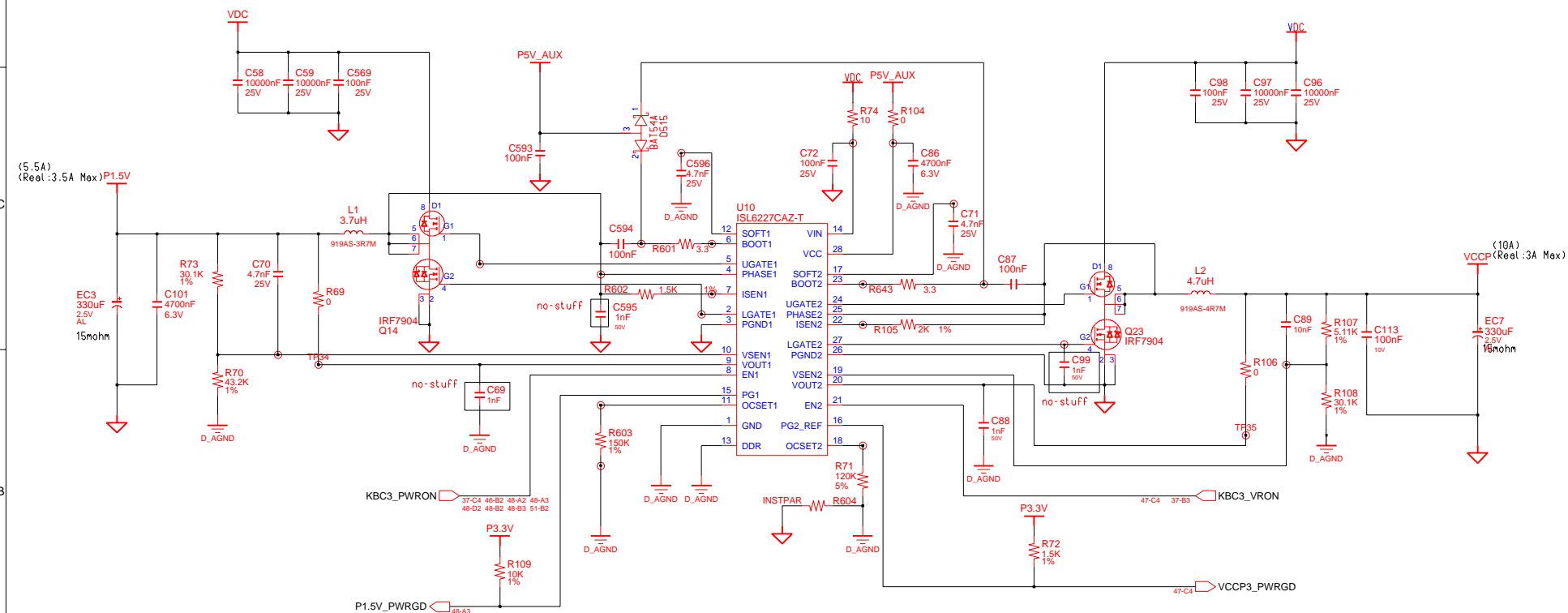
Vton = GND
5V / 3.3V : 400KHz / 500KHz



DRAW	KI IM	DATE	7/19/2005	TITLE HAINAN POWER P3.3V LAN & P5V_AUX		SAMSUNG ELECTRONICS	
CHECK	SS BAIK	DEV. STEP	DV				
APPROVAL	KK BIN	REV	1.0				
MODULE CODE	LAST EDIT						
				July 19, 2005 8:53:48 AM	PAGE	44	OF 55

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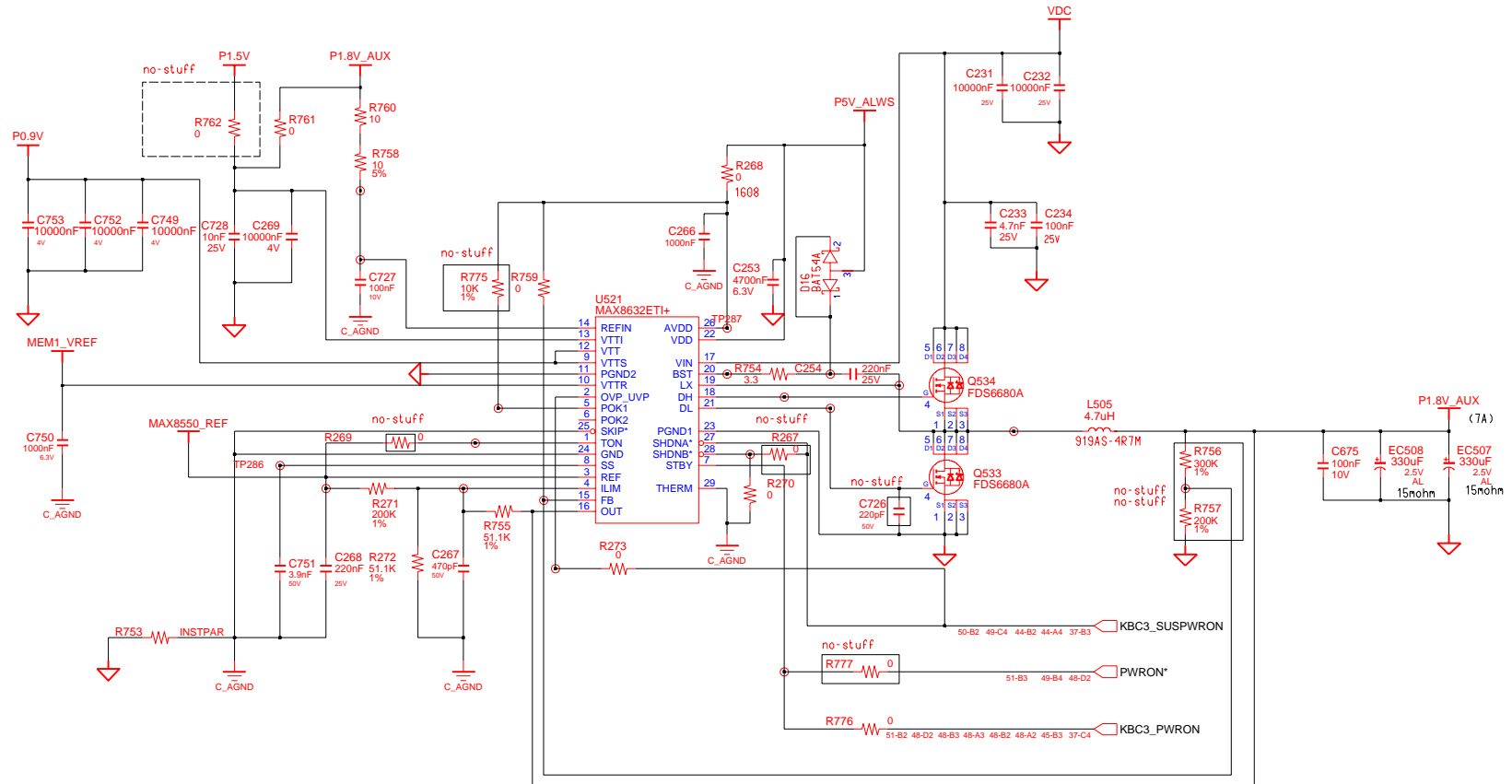
P1.5V & VCCP (1.05V)



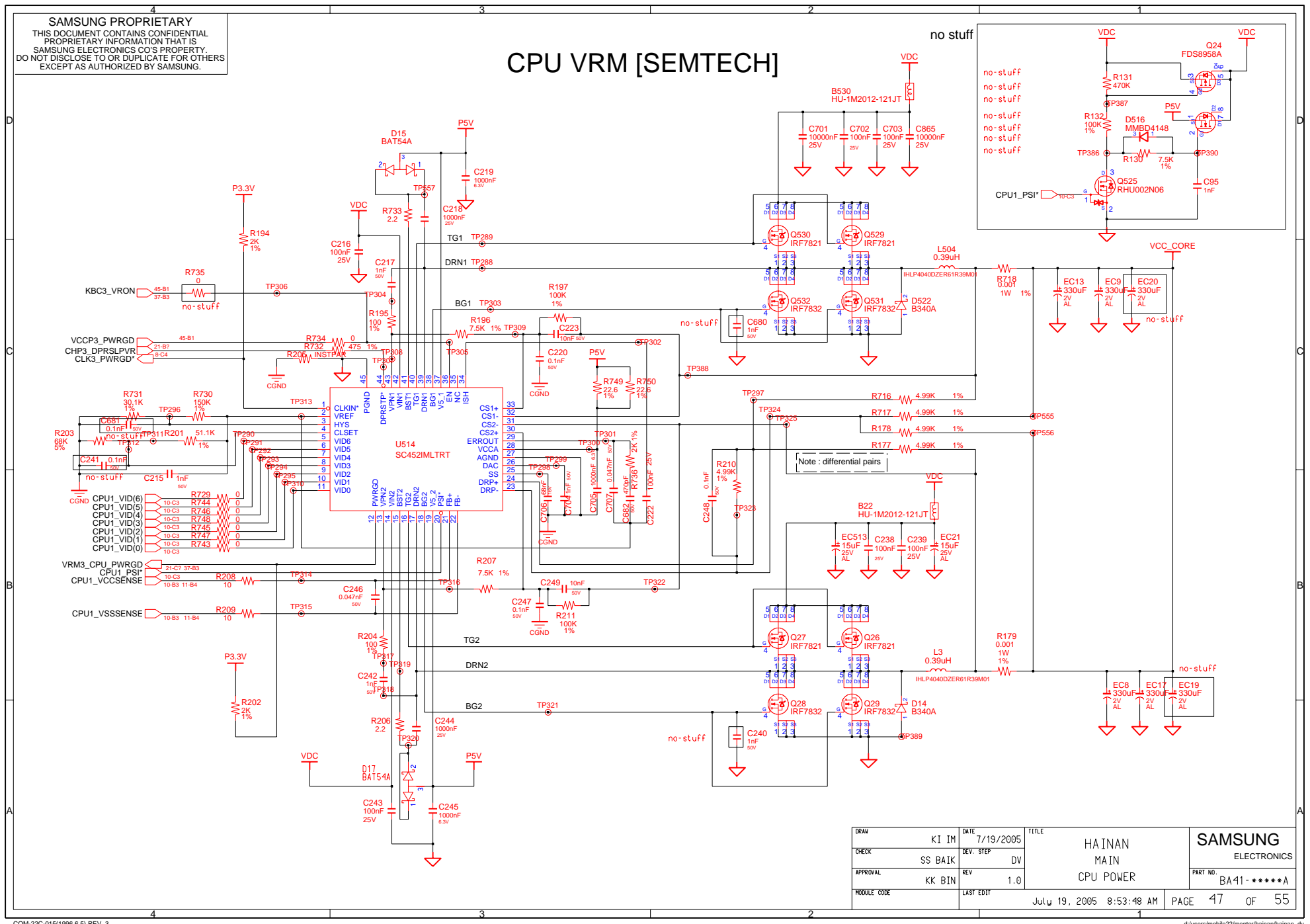
DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN POWER P1.5V & VCCP	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0			
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	45	OF 55

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DDR2 Power

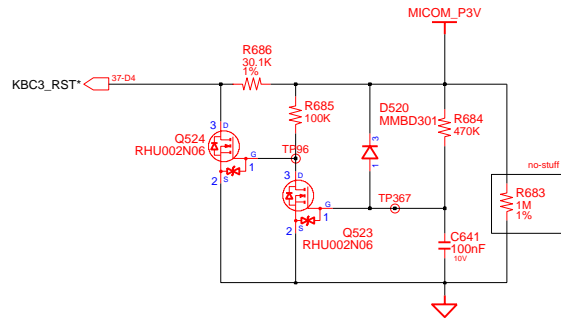


DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN MAIN DDR2 POWER	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0			
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	46	OF 55

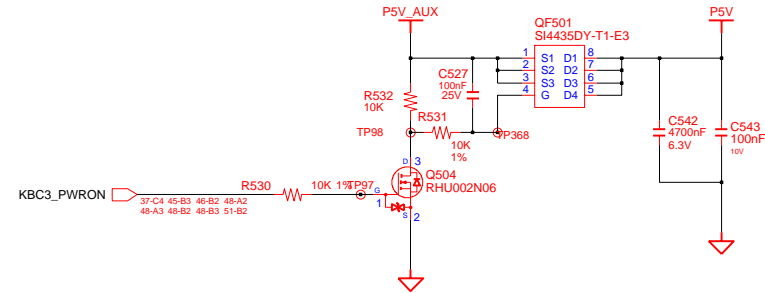


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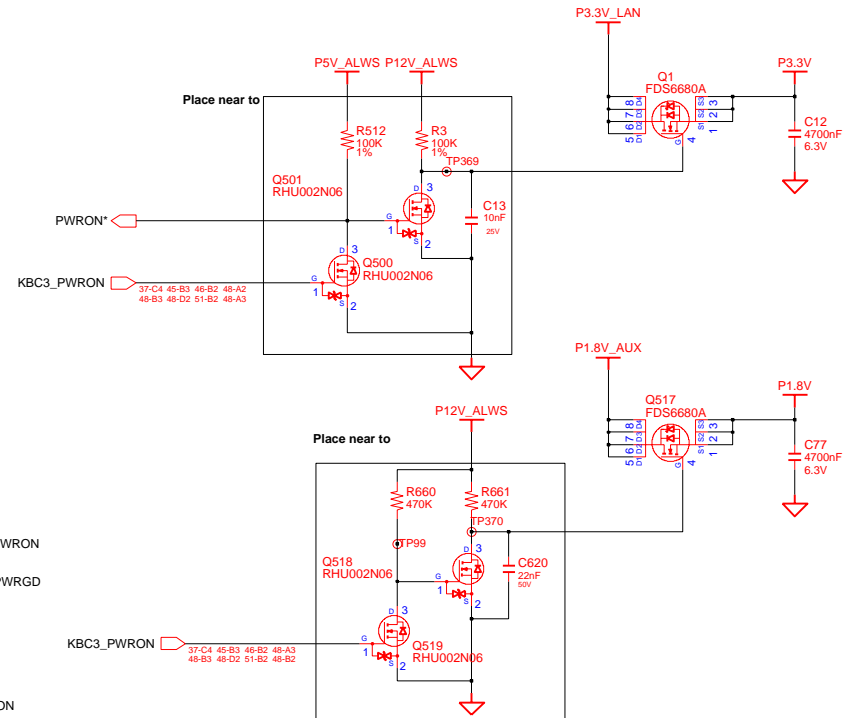
MICOM RESET



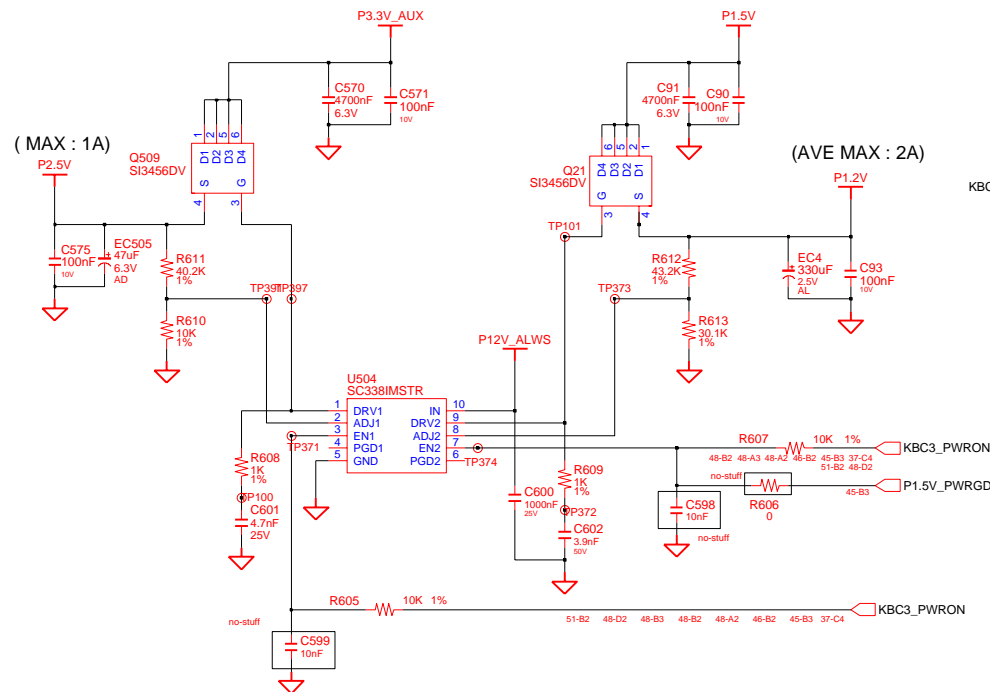
Switched Power On (P5V)



Switched Power On (P3.3V & 1.8V)

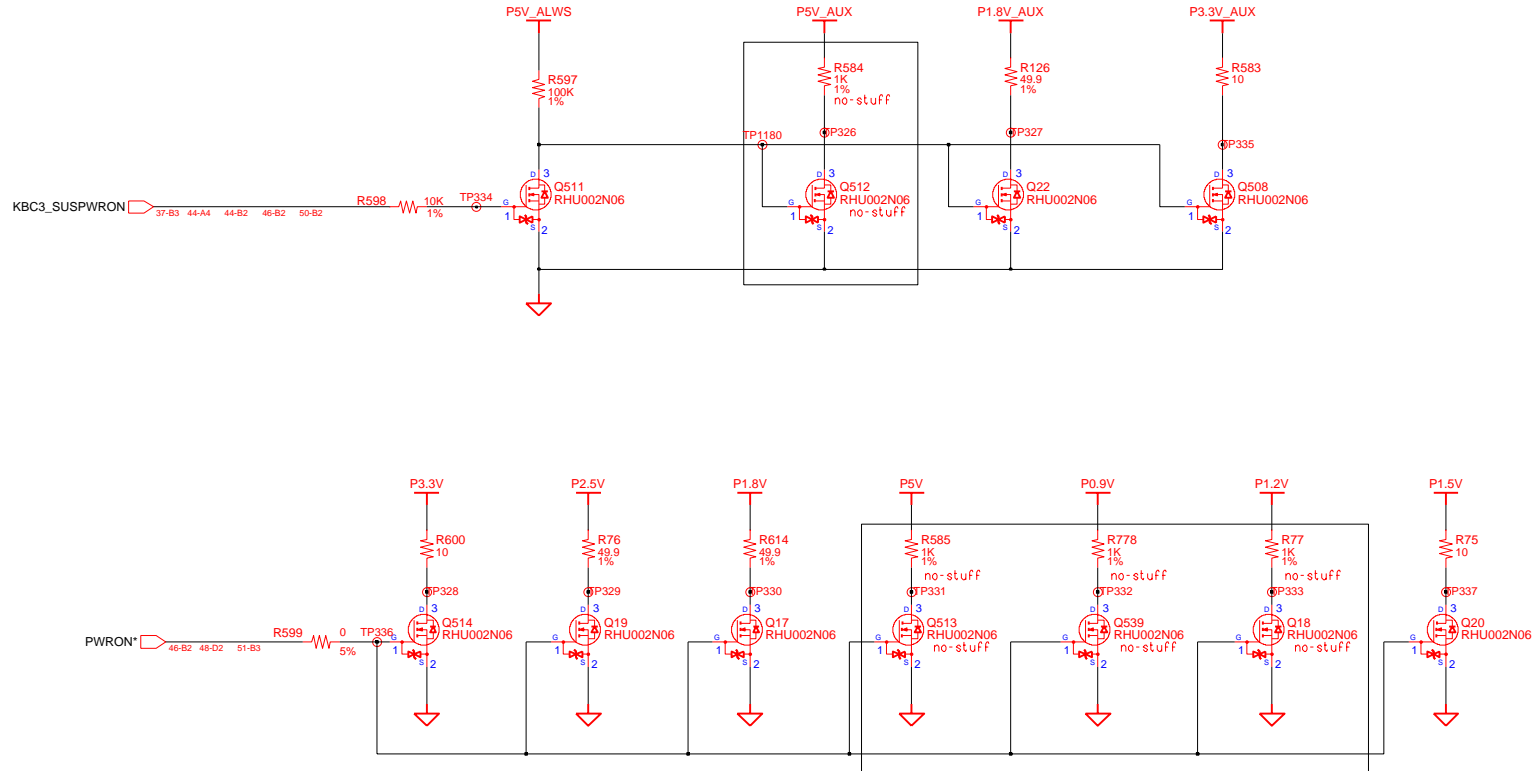


P1.2V / P2.5V POWER



DATE	7/19/2005	TITLE	HAINAN MAIN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	REV. STEP	DV	PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0	MICOM & SWITCHED POWER
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE 48 OF 55

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DRW	KI IM	DATE	7/19/2005	TITLE	HAINAN GFX POWER Discharging Logic	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0			
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	49	OF 55

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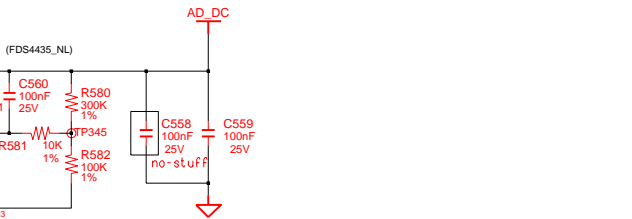
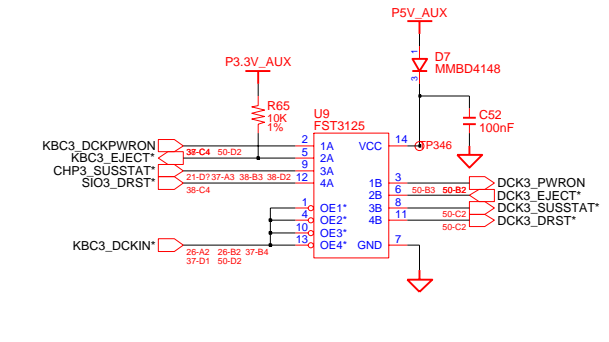
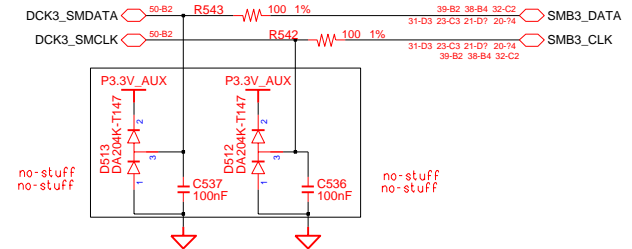
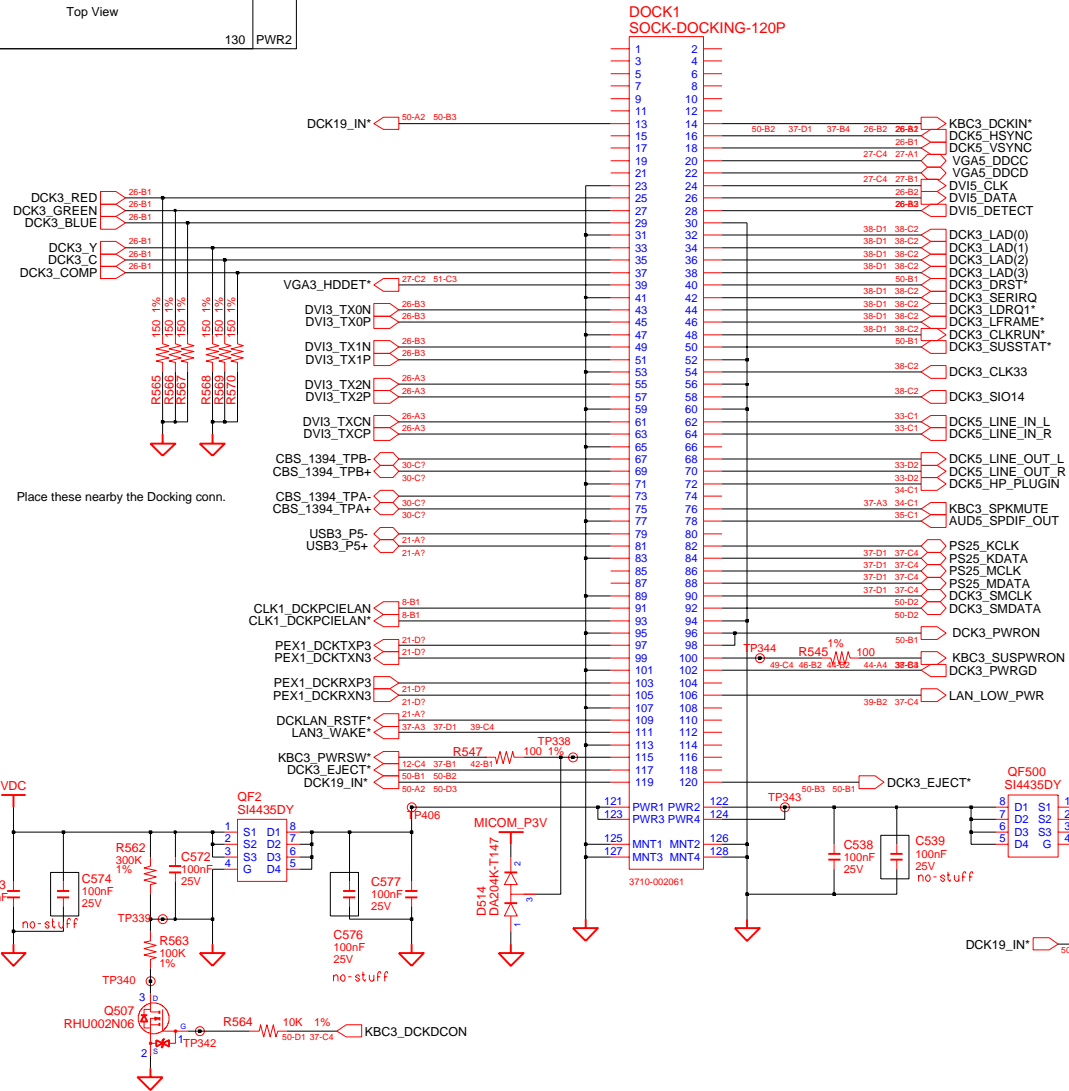
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DOCKING CONNECTOR (130PIN)

Docking Placement

PWR1	1	129	PWR4
PWR3	2	130	PWR2

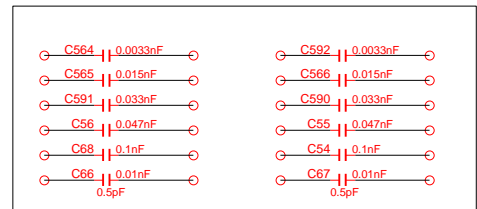
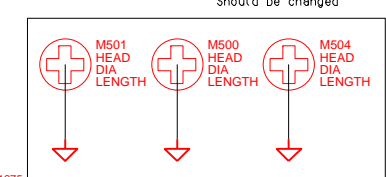
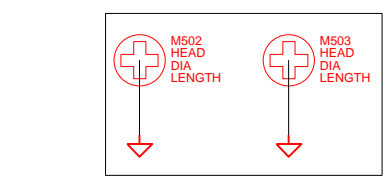
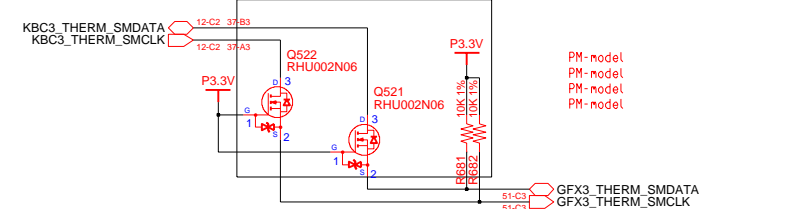
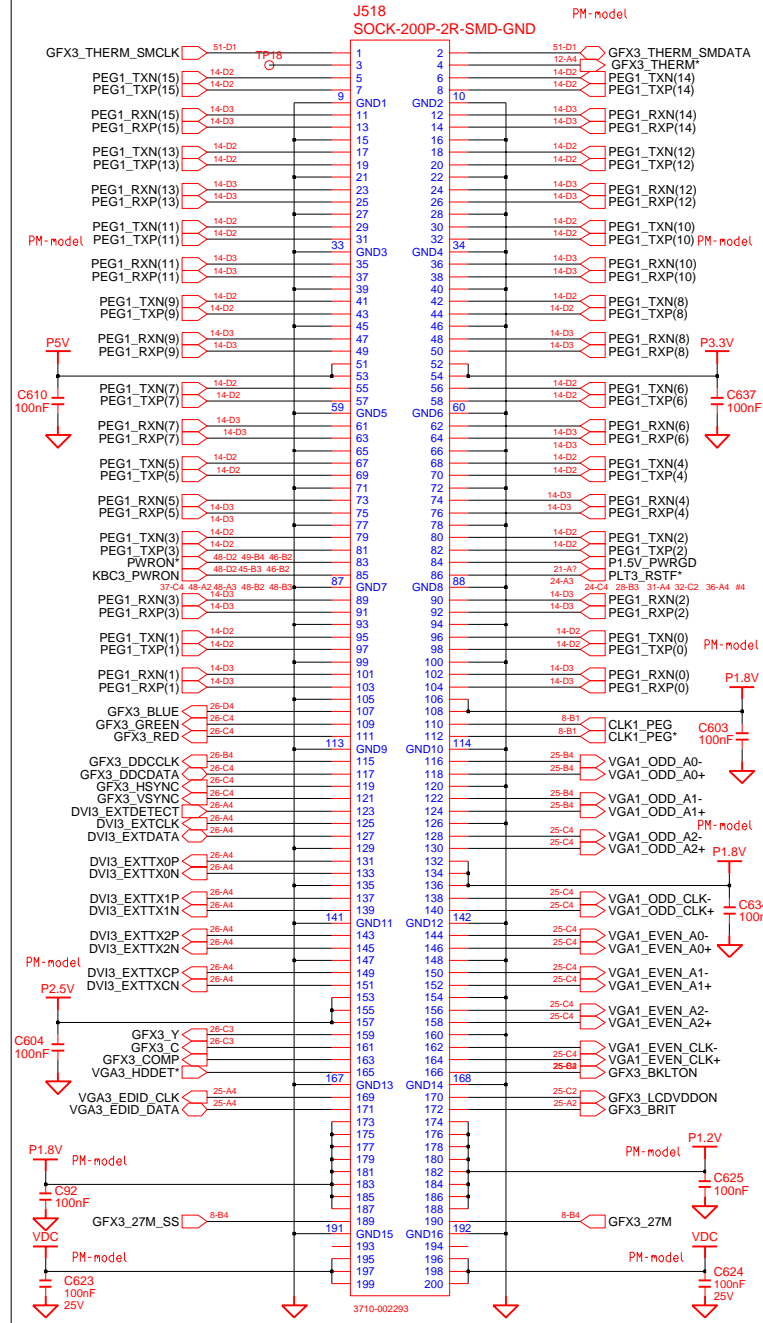
Top View



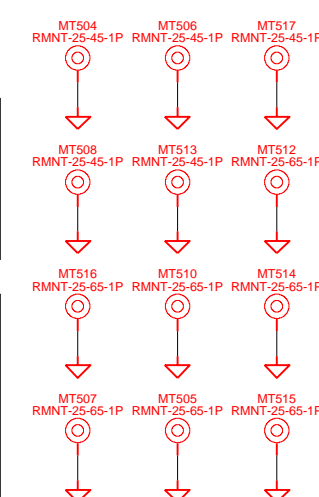
DATE	7/19/2005	TITLE	HAINAN MAINBD Docking connector	SAMSUNG ELECTRONICS
CHECK	SS BAIK	REV	1.0	PART NO. BA41-*****A
APPROVAL	KK BIN	LAST EDIT	July 19, 2005 8:53:48 AM	PAGE 50 OF 55
MODULE CODE				

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These are for ICT using.



PCB REVISION CONTROL (ICT)				
NO	CONNECTION	DATE(Y/M/D)	REVISION	STEP
1	N.C.			
2	1-2			
3	2-3			
4	3-1			
5	1-2-3			
6	N.C.			
7	1-2			
8	2-3			
9	3-1			
10	1-2-3			

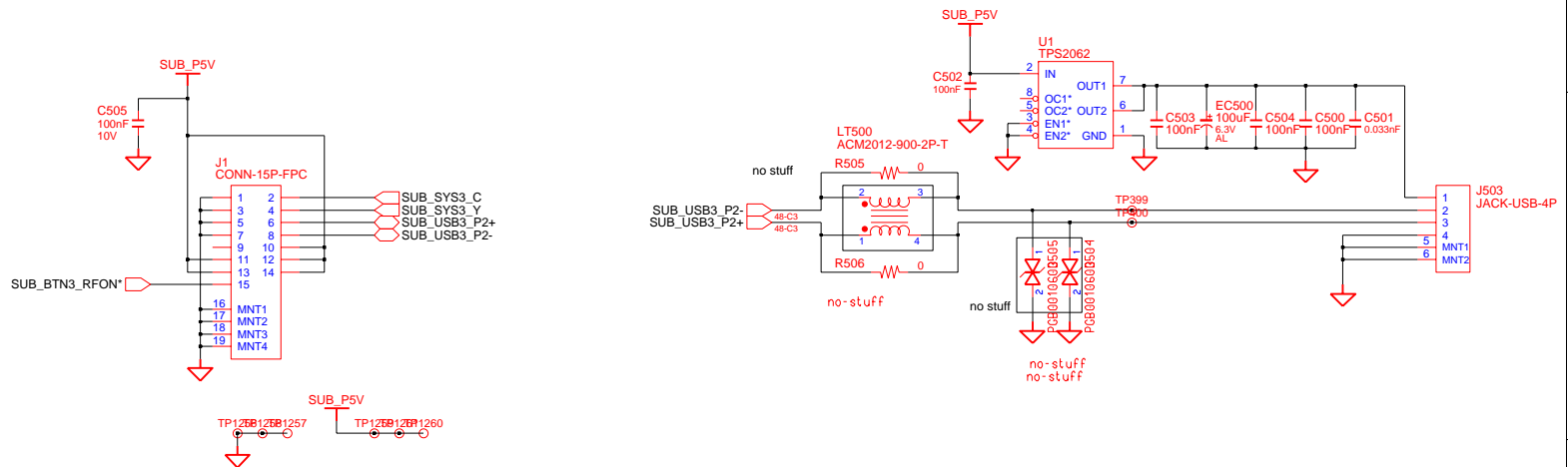
DRAW	K1 IM	DATE	7/19/2005	TITLE	HAINAN	SAMSUNG ELECTRONICS
CHECK	SS BAIK	REV. STEP	DV		MAIN	
APPROVAL	KK BIN	REV	1.0		Ext Gfx connector	PART NO. BA41-****A
MODULE CODE		LAST EDIT				

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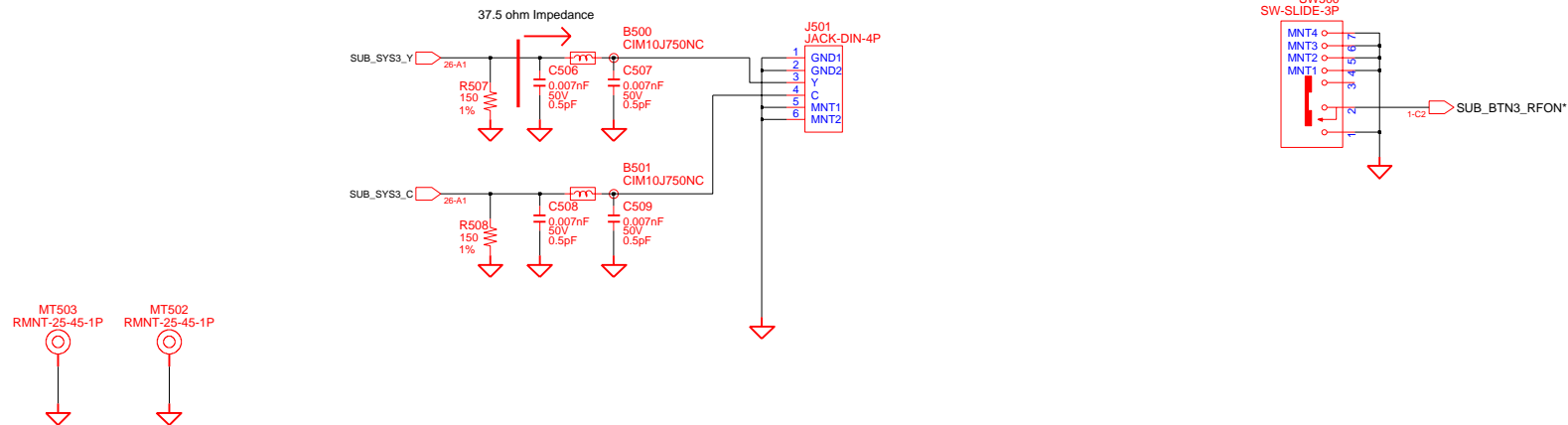
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USB Connector

USB_SVHS_SLIDE SWITCH BOARD



TV-OUT(S-VHS,COMPONENT)



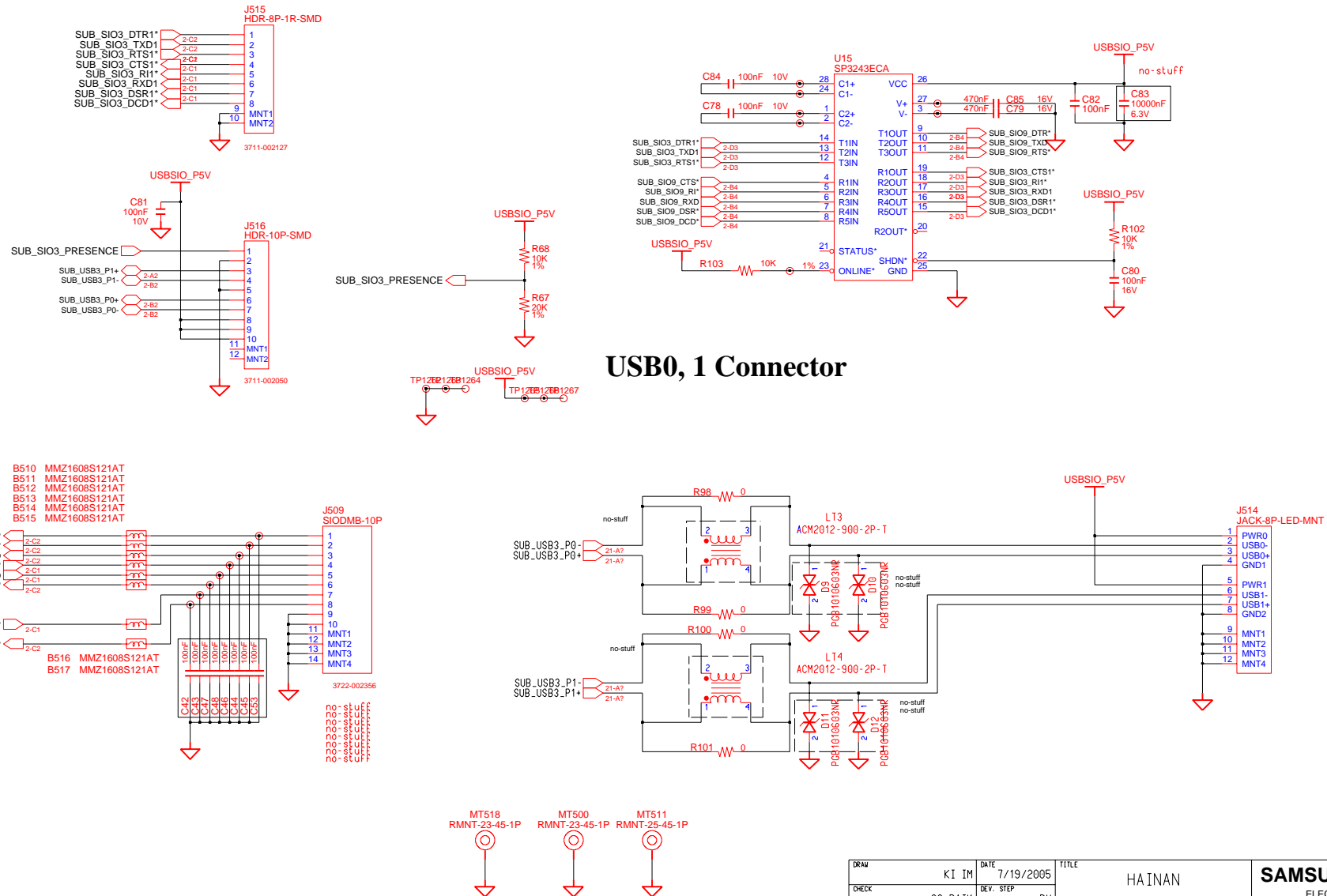
DRAM	KI IM	DATE	7/19/2005	TITLE	HAINAN POWER Audio Sub B'd	SAMSUNG ELECTRONICS		
CHECK	SS BAK	DEV. STEP	DV					
APPROVAL	KK BIN	REV	1.0				PART NO.	BA41-*****A
MODULE CODE	undefined	LAST EDIT	July 19, 2005 8:53:48 AM				PAGE	52 OF 55

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USB_SIO BOARD

USB0, 1 Connector



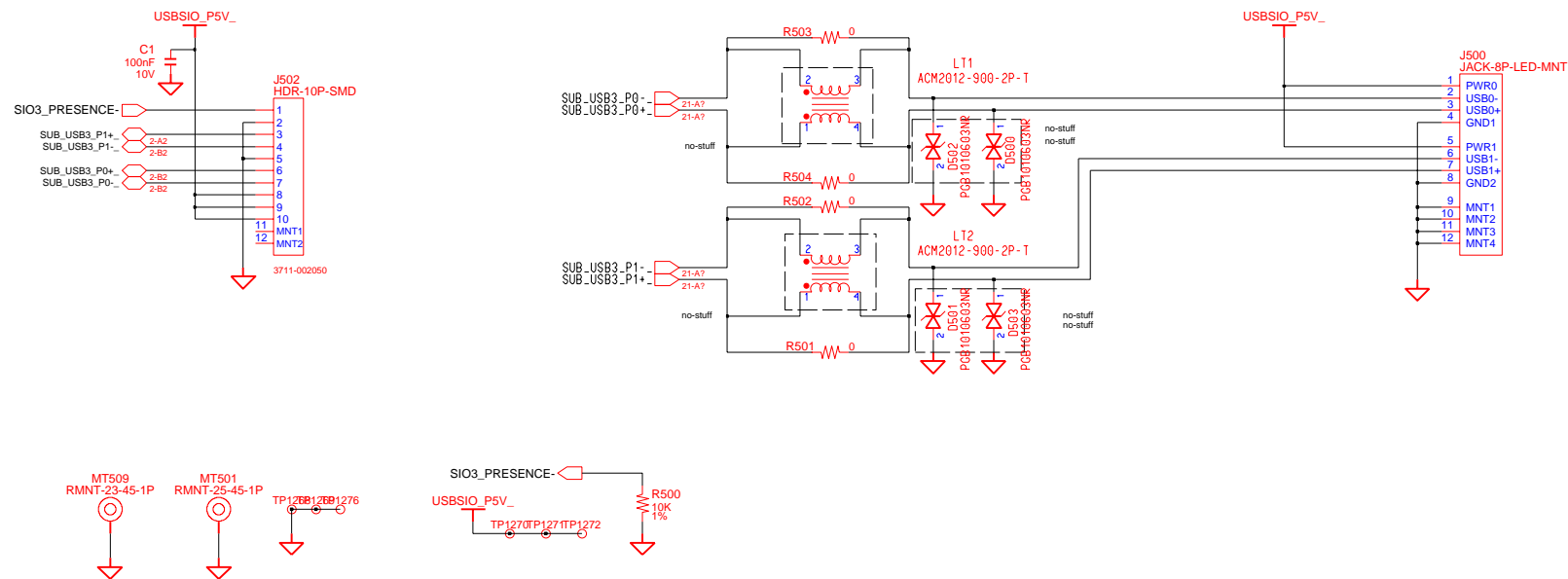
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APPROVAL	KK BIN	REV	1.0		BA41-*****A	
MODULE CODE	LAST EDIT			July 19, 2005 8:53:48 AM	PAGE 53 OF 55	

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USB & DMB SUBBOARD

USB0, 1 Connector



DRAW	KI IM	DATE	7/19/2005	TITLE	HAINAN POWER AUDIO SUB B'D	SAMSUNG ELECTRONICS
CHECK	SS BAIK	DEV. STEP	DV			PART NO. BA41-*****A
APPROVAL	KK BIN	REV	1.0			
MODULE CODE		LAST EDIT	July 19, 2005 8:53:48 AM	PAGE	54	OF 55

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D	TP775OCPU1_VSSSENDA TP776OCPU2_THERMIDA TP777OCPU2_THERMDC TP778OCPU2_ALERT1 TP779OCPU3_THRMTRIP+ TP780OCPU3_THRMTRIP- TP781OCRT3_DDDCLK TP782OCRT3_DDDDATA TP783OCRT3_GREEN TP784OCRT3_HSYNCC TP785OCRT3_VSYNC TP786OCRT3_RED TP787OCRT5_HSYNCC TP788OCRT5_VSYNCC TP789OCCK3_AZ_0 TP790OCCK3_BLUE TP791OCCK3_C TP792OCCK3_CLKP33 TP793OCCK3_CLKP33+ TP794OCCK3_CLKP33- TP795OCCK3_DRST+ TP796OCCK3_EJECT+ TP797OCCK3_GREEN TP798OCCK3_LAD(0) TP799OCCK3_LAD(1) TP800OCCK3_LAD(2) TP801OCCK3_LAD(3) TP802OCCK3_LFRAME+ TP803OCCK3_PWRGD TP804OCCK3_PWRON TP805OCCK3_SENCAIRO TP806OCCK3_SIO1A TP807OCCK3_SMCLK TP808OCCK3_SMDATA+ TP809OCCK3_SUGSTAT+ TP810OCCK3_Y TP811OCCK5_HP_PLUGIN TP812OCCK5_HSYNCC TP813OCCK5_LINE_IN+L TP814OCCK5_LINE_IN+R TP815OCCK5_LINE_OUT+L TP816OCCK5_LINE_OUT+R TP817OCCK5_VSYNCC TP818OCCK3_LAN_RSTF+ TP819OCV13_EXTCLK TP820OCV13_EXTDATA TP821OCV13_EXTIDTECT TP822OCV13_INTCLK TP823OCV13_INTDATA+ TP824OCV13_INTIDTECT TP825OCV15_CLK TP826OCV15_DATA TP827OCV15_DETECT TP828OCV15_CTRLDATA 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---	--

EXT GFx

CPU :
Chip Set : NVIDIA 7X series
Remarks :

Model Name : HABANA EXT GFx
PBA Name :
PCB Code :
Dev. Step : MP
Revision : 1.0
T.R. Date : 2005.11.14

Sheet 1. COVER
Sheet 2. GFX CONNECTOR
Sheet 3~6. GFX CHIP (G73M)
Sheet 7. GFX STRAP OPTION
Sheet 8~9. GDDR3 MEMORY
Sheet 10. GDDR3 TERMINATION, THERMAL SENSOR, HDCP ROM
Sheet 11. GFX CORE REGULATOR

DRAW	CHECK	APPROVAL
SE LEE	ES CHO	BL LEE

DRAW	LEE, SE	DATE	11/14/2005	TITLE	HABANA EXT GFX COVER	SAMSUNG ELECTRONICS
CHECK	CHO, ES	DEV. STEP	MP			
APPROVAL	LEE, BL	REV	1.0			
MODULE CODE	LAST EDIT			November 14, 2005 10:24:53 PM	PAGE	1 OF 12

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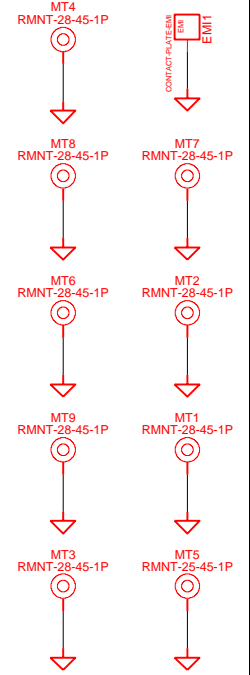
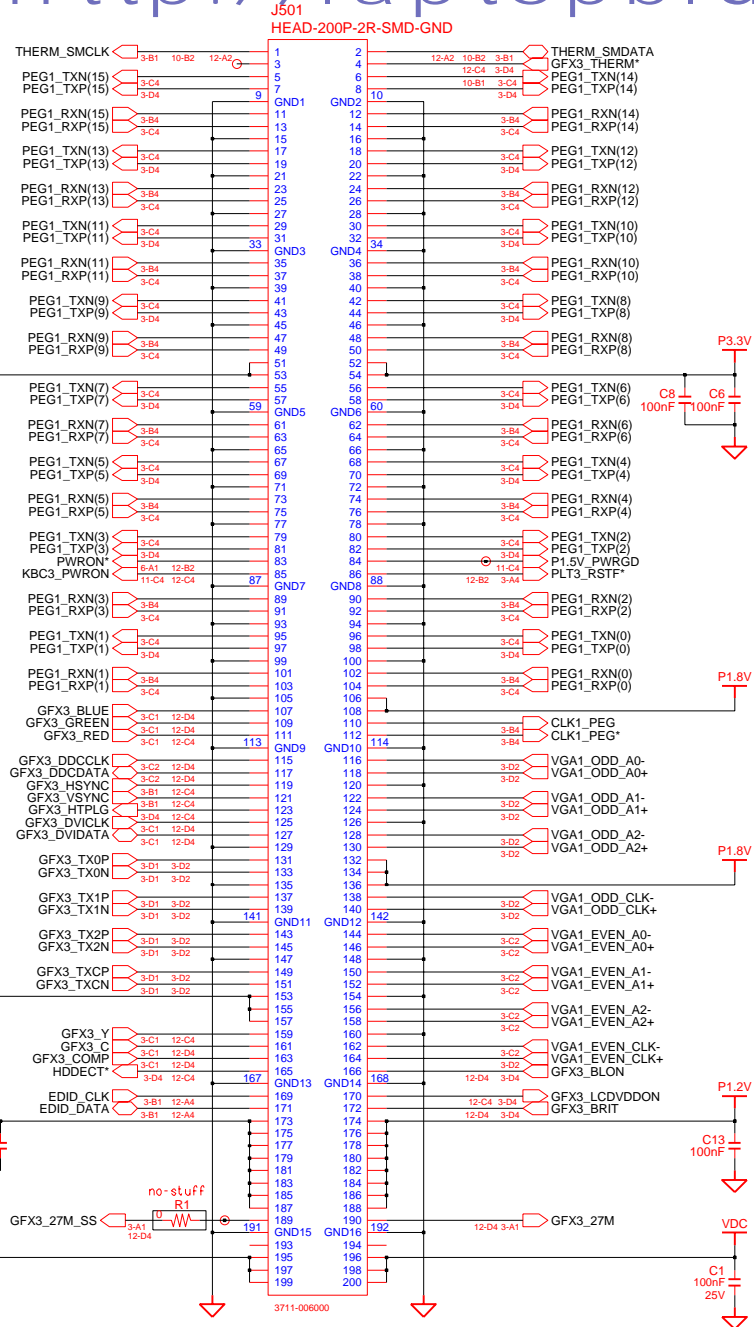
D

C

B

A

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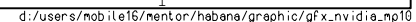
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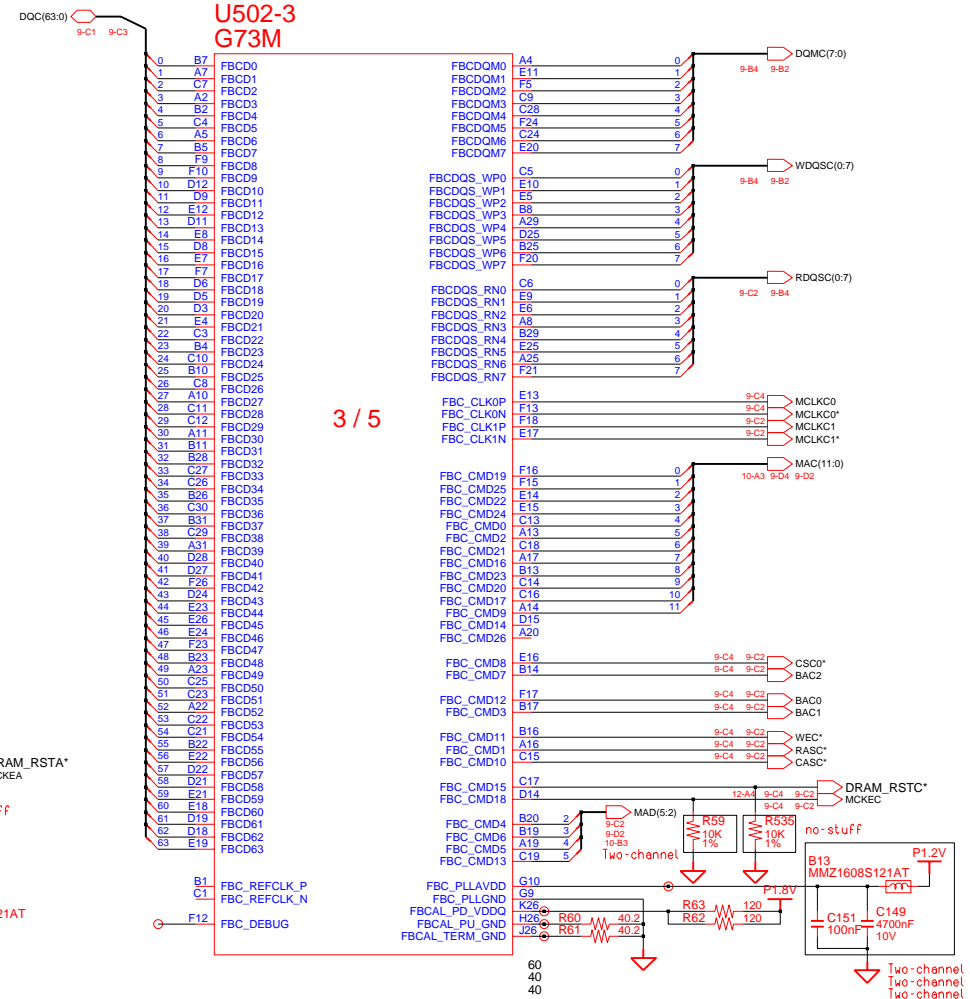
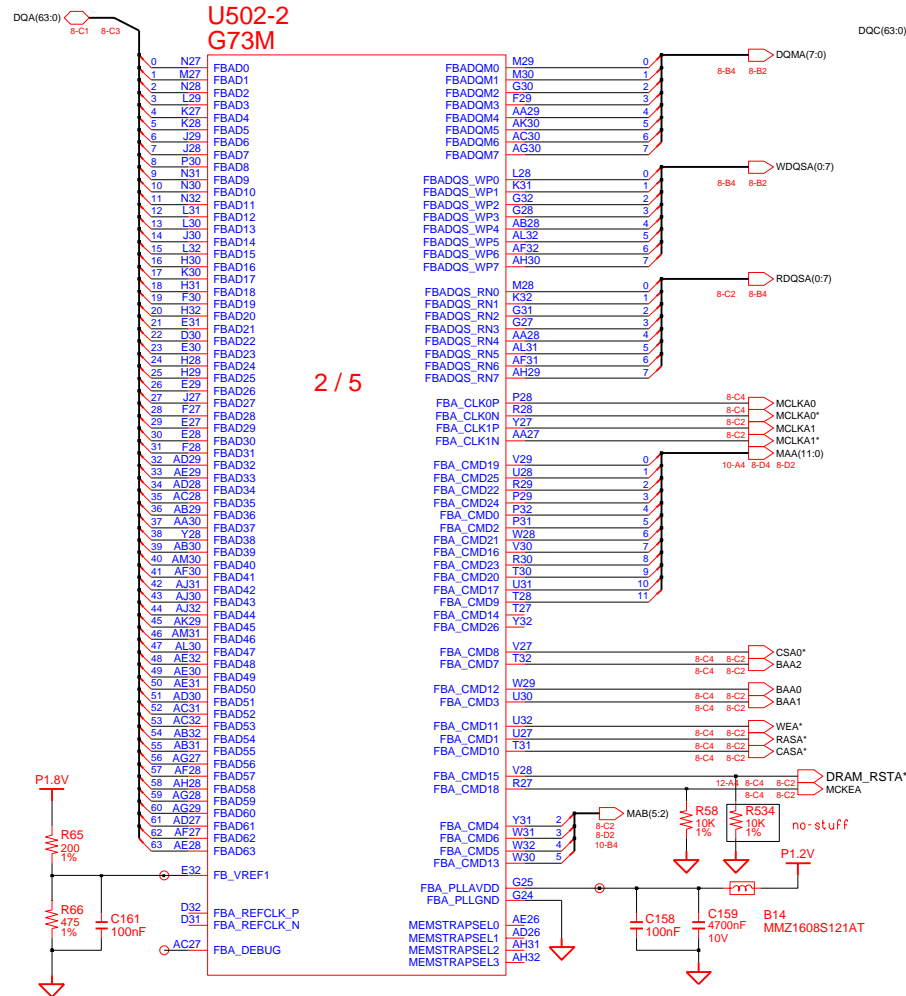
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APPROVAL	LEE, BL	REV	1.0		Gfx connector	
MODULE CODE		LAST EDIT	November 14, 2005 10:24:53 PM	PAGE	2	OF 12



Graphic Memory I/F (Using FBA Channel)

Graphic Memory I/F (Using FBC Channel)



DRAW	LEE, SE	DATE	11/14/2005	TITLE	HABANA EXT GFX	SAMSUNG ELECTRONICS PART NO. BA41-00545A
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APPROVAL	LEE, BL	REV	1.0	LAST EDIT	November 14, 2005 10:24:53 PM	
MODULE CODE					PAGE 4 OF 12	

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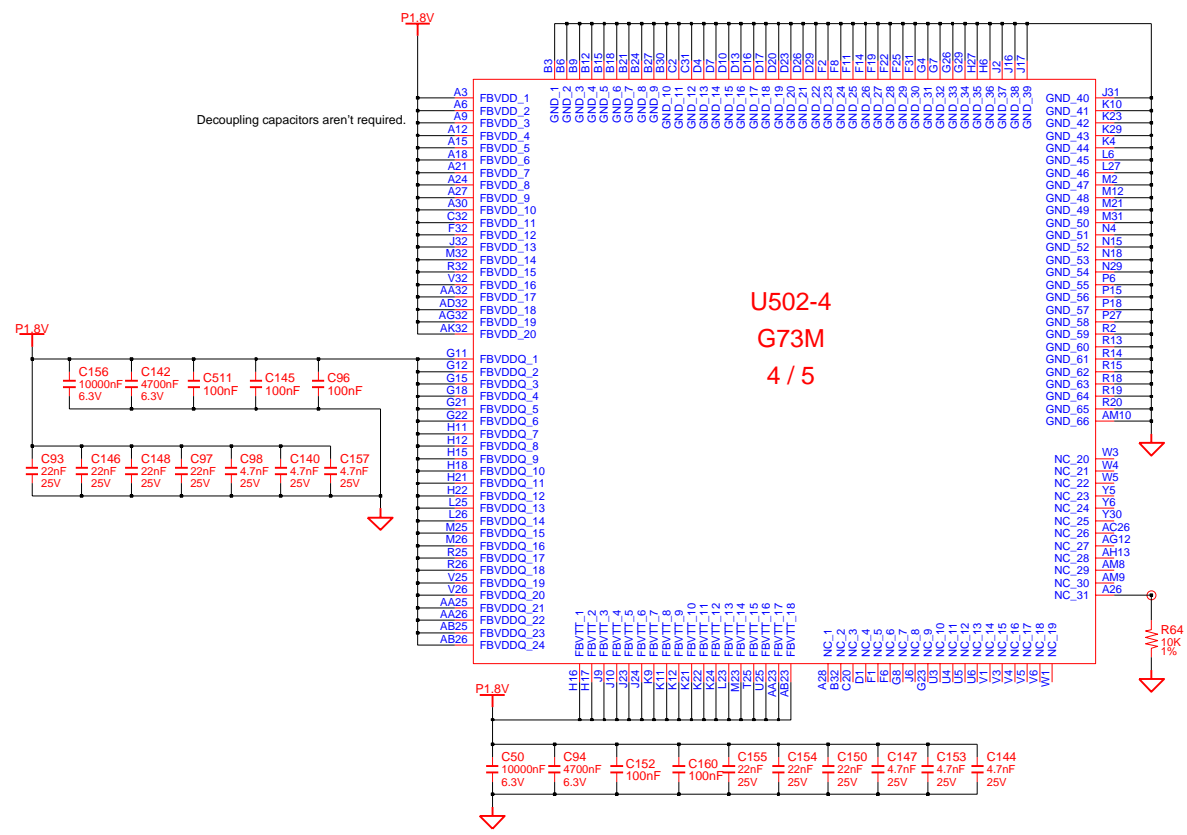
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C

B

A

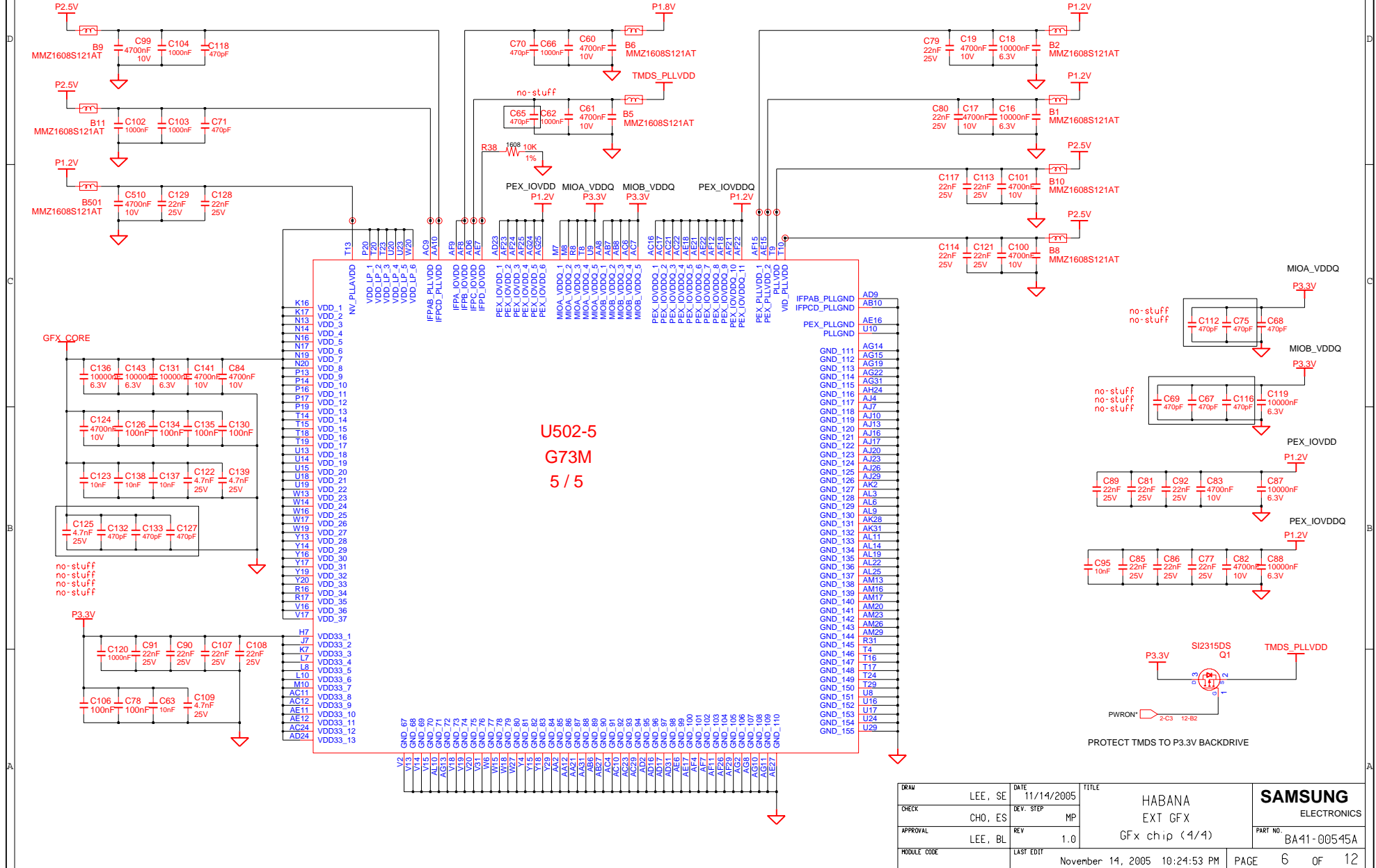
Decoupling capacitors aren't required.



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CHECK	CHO, ES	DEV. STEP	MP			PART NO. BA41-00545A
APPROVAL	LEE, BL	REV	1.0		Gfx chip (3/4)	
MODULE CODE		LAST EDIT	November 14, 2005 10:24:53 PM	PAGE	5 OF 12	

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DRAW	LEE, SE	DATE	11/14/2005	TITLE	HABANA EXT GFX	SAMSUNG ELECTRONICS
CHECK	CHO, ES	DEV. STEP	MP			
APPROVAL	LEE, BL	REV	1.0		Gfx chip (4/4)	PART NO. BA41-00545A
MODULE CODE		LAST EDIT	November 14, 2005 10:24:53 PM	PAGE	6	OF 12

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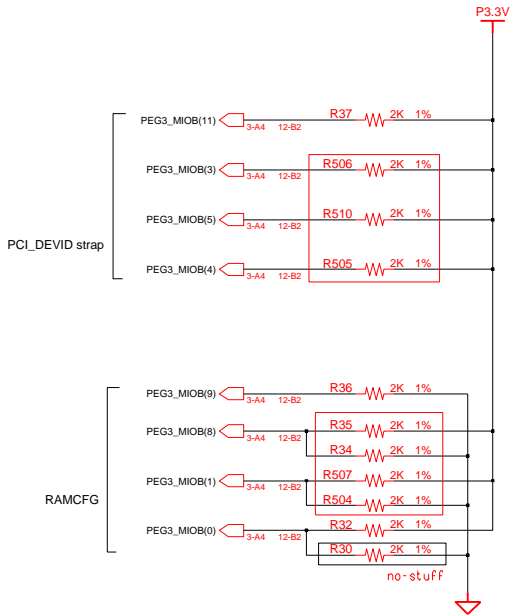
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A

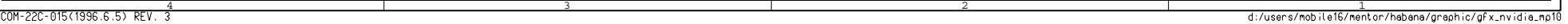
	R37	R506	R510	R505
72M-V	no-stuff	stuff	stuff	stuff
72M	stuff	no-stuff	no-stuff	no-stuff
73M	stuff	no-stuff	no-stuff	no-stuff

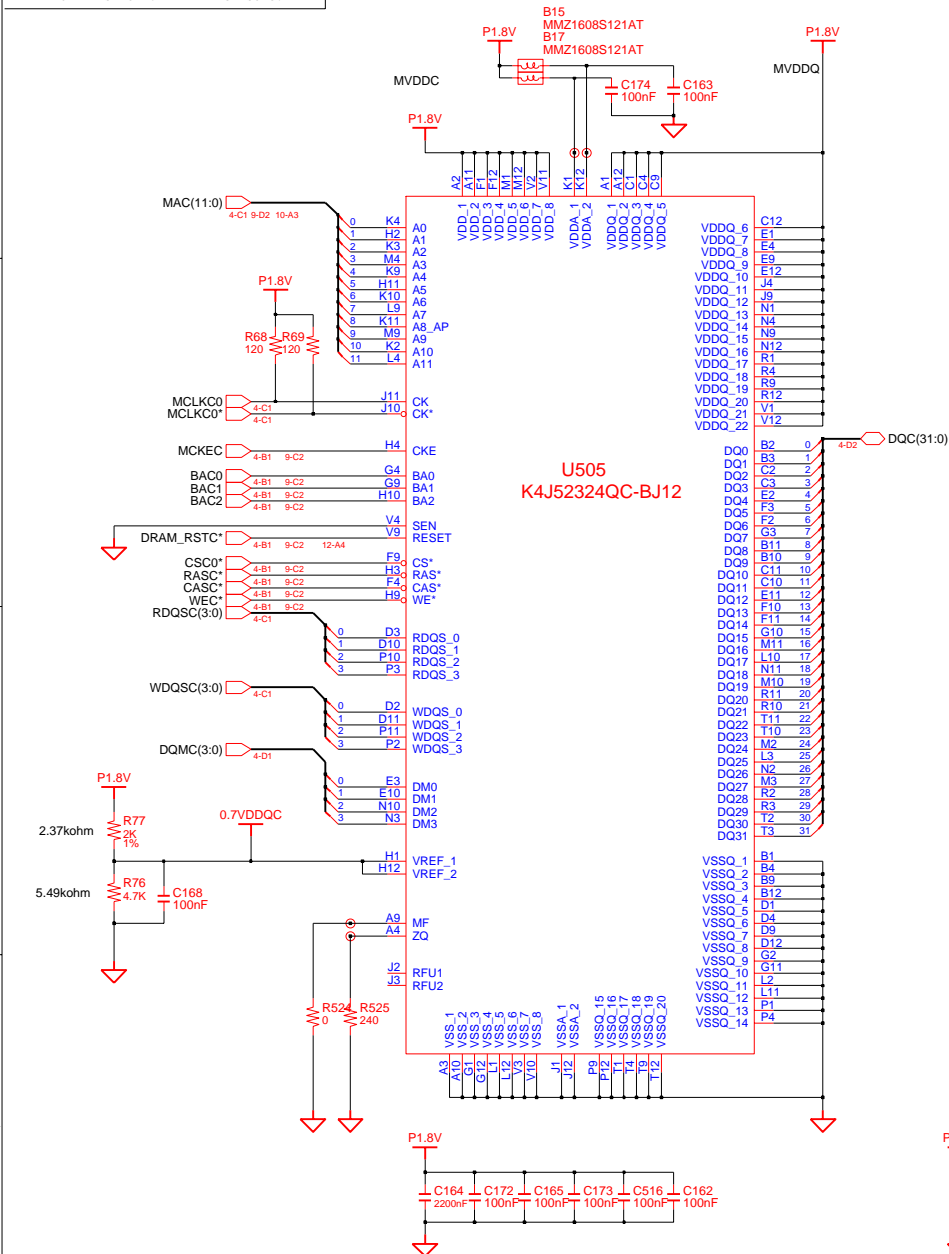
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SS 256Mb	stuff	no-stuff	stuff	no-stuff
INF 256Mb	stuff	no-stuff	no-stuff	stuff
SS 512Mb	no-stuff	stuff	stuff	no-stuff
INF 512Mb	no-stuff	stuff	no-stuff	stuff



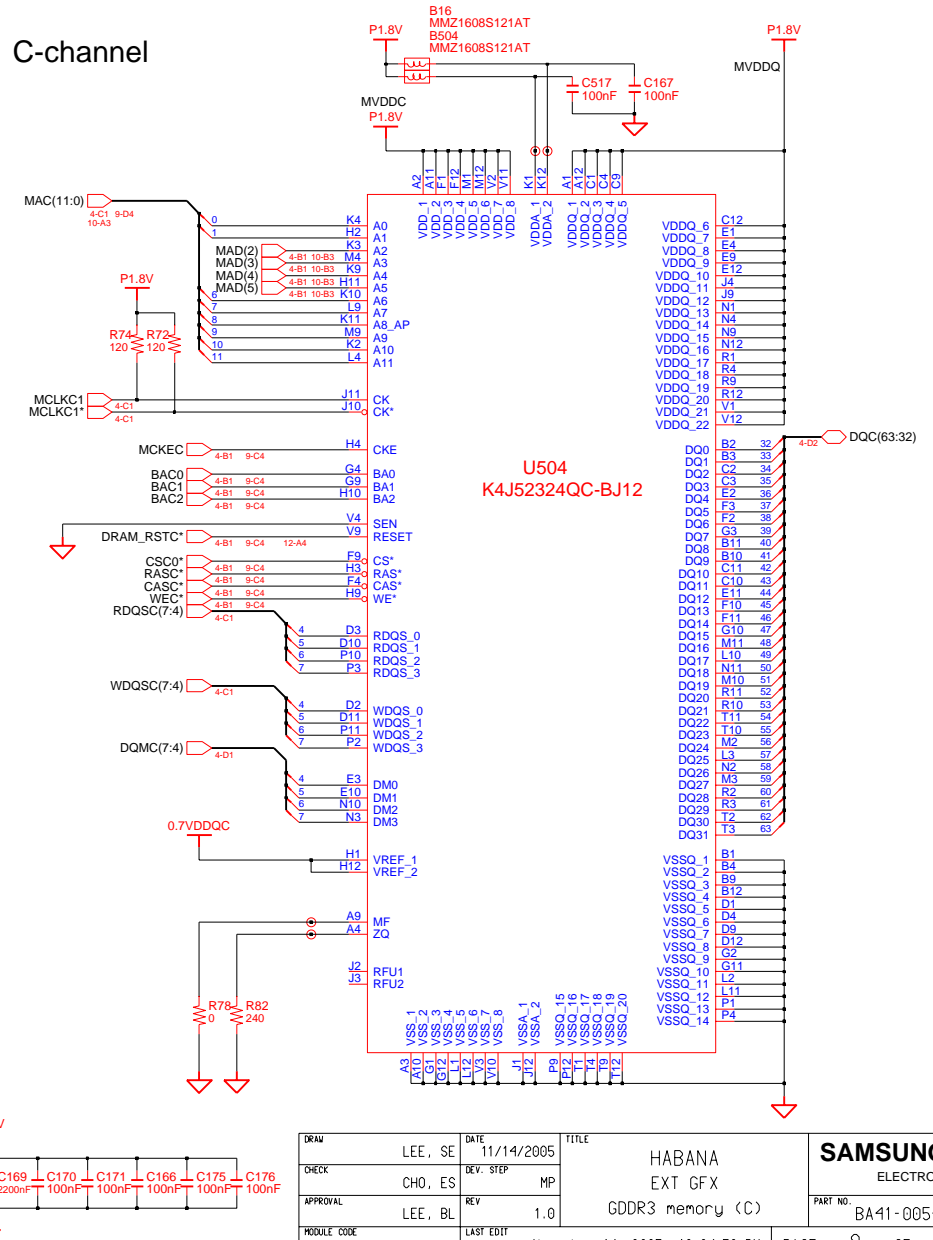
Straps	Pin # (Rev.A02)	Descriptions
SUB_VENDOR	MIOAD(1)	0 : No BIOS 1 : Read from BIOS(Default)
RAMCFG(3:0) [9,8,1,0]	MIOB(9) MIOB(8) MIOB(1) MIOB(0)	0111 : samsung GDDR3 256Mbit 0101 : infineon GDDR3 256Mbit 0011 : samsung GDDR3 512Mbit 0001 : infineon GDDR3 512Mbit
CRYSTAL(1:0)	MIOB(2) MIOB(6)	01 : 14.318 MHz 10 : 27 MHz (Default) 11 : Unknown 00 : 13.5 MHz
TV_MODE(1:0)	MIOAD(7) MIOAD(10)	00 : SECAM 01 : NTSC (Default) 10 : PAL 11 : CRT
PCI_DEVID(3:0) [11,3,5,4]	MIOB(11) MIOB(3) MIOB(5) MIOB(4)	72M : 0X01D8 72M-V : 0X01D7 73M : 0X0398
ROM_TYPE(1:0)	MIOB(10) MIOBVSYN	No ROM (NC)
USER STRAP	MIOAD(2:5)	EDID

DRAW	LEE, SE	DATE	11/14/2005	TITLE	HABANA EXT GFX	SAMSUNG ELECTRONICS PART NO. BA41-00545A
CHECK	CHO, ES	DEV. STEP	MP			
APPROVAL	LEE, BL	REV	1.0	Gfx strap option		
MODULE CODE		LAST EDIT	November 14, 2005 10:24:53 PM	PAGE	7 OF 12	

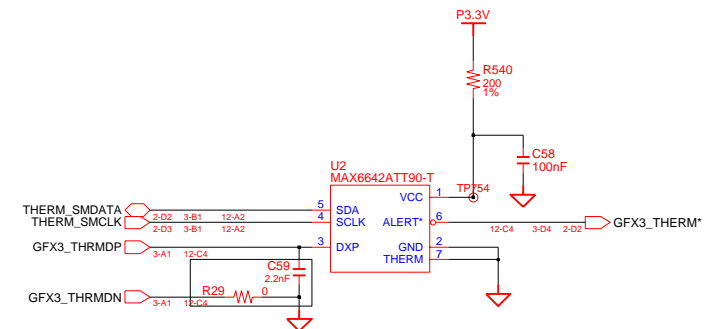
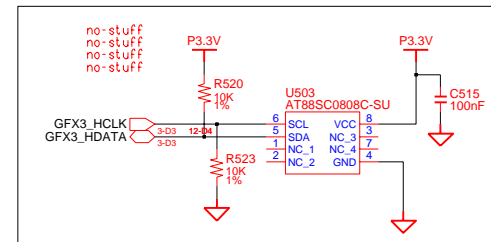




C-channel



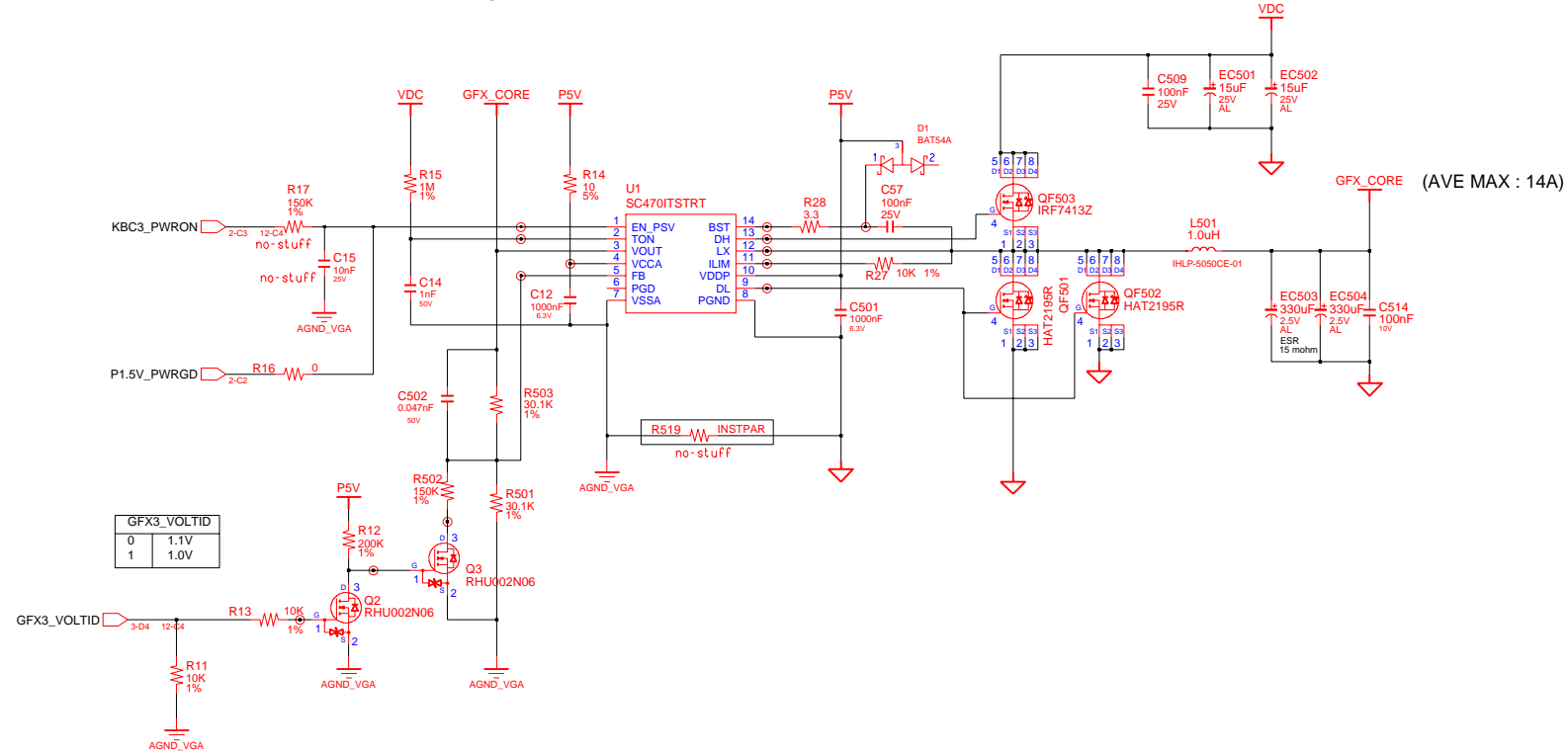
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CHECK	CHO, ES	DEV. STEP	MP			
APPROVAL	LEE, BL	REV	1.0		GDDR3 memory (C)	
MODULE CODE		LAST EDIT				
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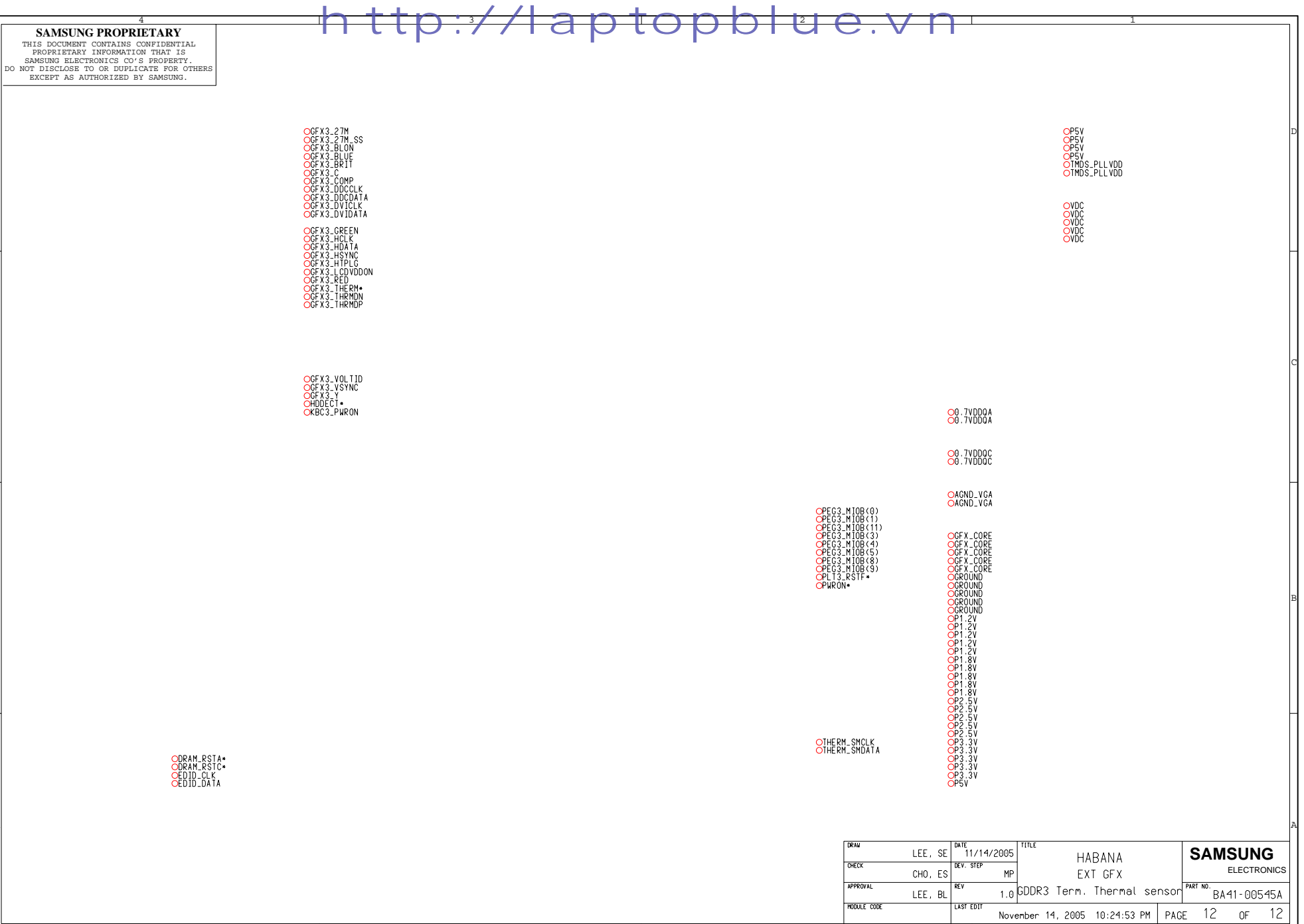
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CHECK	CHO, ES	DEV. STEP	MP					
APPROVAL	LEE, BL	REV	1.0	GDDR3 Term. Thermal sensor			PART NO.	BA41-00545A
MODULE CODE		LAST EDIT	November 14, 2005 10:24:53 PM				PAGE	10 OF 12

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Graphic Core Power



DRAW	LEE, SE	DATE	11/14/2005	TITLE	HABANA EXT GFX	SAMSUNG ELECTRONICS PART NO. BA41-00545A
CHECK	CHO, ES	DEV. STEP	MP	REV	1.0	
APPROVAL	LEE, BL	LAST EDIT	November 14, 2005 10:24:53 PM	PAGE	11 OF 12	
MODULE CODE						



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2

1

DRAM_RSTA•
DRAM_RSTC•
EDID_CLK
EDID_DATA

GFX3_27M
GFX3_27M_SS
GFX3_BLON
GFX3_BLUE
GFX3_BRIT
GFX3_C
GFX3_COMP
GFX3_DDCCLK
GFX3_DDCDATA
GFX3_DVICLK
GFX3_DVIDATA

GFX3_GREEN
GFX3_HCLK
GFX3_HDATA
GFX3_HSYNC
GFX3_HITPLG
GFX3_LCDVDDON
GFX3_RED
GFX3_THERM•
GFX3_THRMDN
GFX3_THRMDP

GFX3_VOLTID
GFX3_VSYNC
GFX3_Y
HDDTECT•
KBC3_PWRON

PEG3_MIOB(0)
PEG3_MIOB(1)
PEG3_MIOB(11)
PEG3_MIOB(3)
PEG3_MIOB(4)
PEG3_MIOB(5)
PEG3_MIOB(8)
PEG3_MIOB(9)
PL13_RSTIF•
PWRON•

THERM_SMCLK
THERM_SMDATA

P5V
P5V
P5V
P5V
TMDS_PLLVDD
TMDS_PLLVDD

VDC
VDC
VDC
VDC
VDC

0.7VDDQA
0.7VDDQA

0.7VDDQC
0.7VDDQC

AGND_VGA
AGND_VGA

GFX_CORE
GFX_CORE
GFX_CORE
GFX_CORE
GFX_CORE
GROUND
GROUND
GROUND
GROUND
GROUND
P1.2V
P1.2V
P1.2V
P1.2V
P1.2V
P1.8V
P1.8V
P1.8V
P1.8V
P1.8V
P2.5V
P2.5V
P2.5V
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P2.5V
P2.5V
P3.3V
P3.3V
P3.3V
P3.3V
P3.3V
P5V

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CHECK	CHO, ES	DEV. STEP	MP				
APPROVAL	LEE, BL	REV	1.0	GDDR3 Term. Thermal sensor			
MODULE CODE		LAST EDIT	November 14, 2005 10:24:53 PM	PAGE	12	OF	12