HomeTek Technology Inc.

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TEST REPORT
EN 60950-1
Information Technology Equipment – Safety Part 1: General requirements

Report reference No…….. :	:HTTRP7002
Date of issue……..:	June 30, 2007
Testing laboratory……..:	HomeTek Technology Inc.
Address……:	No.96, Jing Hai Middle Road, South of ShaTou, ChangAn Town, Dong Guan,Guang Dong China
Testing location……..:	Same as above
Applicant……:	QNAP SYSTEMS, INC
Address…….	21 F, No. 77, Sec. 1, Xintai 5th Rd., Xizhi City, Taipei County, 221 Taiwan
Manufacturer .....:	QNAP SYSTEMS, INC
Address…….	21 F, No. 77, Sec. 1, Xintai 5th Rd., Xizhi City, Taipei County, 221 Taiwan
Standard……..:	EN 60950-1: 2001 + A11: 2004
Type of test equipment …….	Network Attached Storage
Model/Type reference.....:	TS-109 Pro, TS-109, VioStor-109, VioStor-109P, VioStor-109V, VioStor-109A, VioStor-109C, VioStor-109D, VioStor-109S, VioStor-109PA, VioStor-109VA, VioStor-109CA, VioStor-109SA, VioStor-109AA, VioStor-109DA
Ratings.....:	DC12.0V,3.0A
TRF modified by..... :	N/A
Master TRF ..... :	N/A
Trade mark…… ……..	QNAP
Test procedure ..... :	N/A
TRF originator. ..... :	HomeTek Technology Inc.
Copyright blank test report:	HomeTek Technology Inc.
Equipment mobility	Portable Appliance
Operating Condition	Continuous
Tested for IT power systems	N/A
Non-standard test method ..... :	N/A
National deviations..... :	N/A
Class of equipment ..... :	Switching adapter: Class I, Network Attached Storage: TNV-1
Mass of equipment (Kg)	Approximately 1.72 kg
Protection against ingress of water	IPX20

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"(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory. Until otherwise specified, all tests are done under normal ambient condition 25℃±10℃, Max RH: 75% and air pressure of 860 mbar to 1060 mbar.	Attached with: Attachment - A. Stylebook of Rear Label Attachment - B. Photo Documentation Attachment - C. Electric Circuit Diagram Attachment - D. Printed Wiring Board Layout
Test item particulars..... :	
Supply Connection..... :	Supply cord fitted with a plug(Power supply)
Possible test case verdicts:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement ..... :	P(Pass)
- test object does not meet the requirement ..... :	F(Fail)

Checked by : Jacky (Signature) June 20-26 ,2007 (Date)

Jacky Duan/ Supervisor (Name/title)

Reviewed by : (Signature) June 30, 2007 (Date)

Eric Teng / Manager (Name/title)

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General descriptions:

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The equipment models TS-109 Pro,TS-109,VioStor-109,VioStor-109P,VioStor-109V, VioStor-109A, VioStor-109C,VioStor-109D,VioStor-109S,VioStor-109PA,VioStor-109VA,VioStor-109CA, VioStor-109SA, VioStor-109AA and VioStor-109DA are Network Attached Storage for Information technology equipment, All models are identical to each other except for model name only. All tests were performed by model TS-109 Pro to represent the other identical models.

The switching adapter is already approved according to EN60950-1 by TUV, therefore not part of this test report. Only test cases relevant for the complete configuration are selected. See also appended table 1.5.1.

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict
1	**GENERAL**		P
1.5	**Components**		P
1.5.1	Comply with IEC 60950 or relevant component standard	Components which were found to affect safety aspects comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards. (see appended tables)	P
1.5.2	Evaluation and testing components	Components which are certified to IEC and /or national standards are used correctly within their ratings. Components not covered by IEC Standards are tested under the conditions present in the equipment.	P
	Dimensions (mm) of mains plug for direct plug-in……..……..……...:	Switching Adapter: Approved	N
	Torque and pull test of mains plugs for direct plug-in; torque (Nm); pull (N)	Ditto.	N
1.5.3	Transformers	Only in Switching Adapter	N
1.5.4	High voltage components (component; manufacturer; flammability)……...:	No high voltage components used.	N
1.5.5	Interconnecting cables	Interconnection Cables fulfill requirements in the standard.	P
1.5.6	Mains Capacitors	No X-capacitor used.	N
1.6	**Power interface**		P
1.6.1	Steady state input current	Highest load according to 1.2.2.1 For this equipment	P
	Current deviation during normal operating cycle	<+10%	P
1.6.2	Voltage limit of hand-held equipment	This appliance is not hand-held Equipment.	N
1.6.3	Neutral conductor insulated from earth and body	Switching Adapter: Approved	P
1.6.4	Components in equipment intended for IT Power system	Equipment was not applied for the IT power system.	P
1.6.5	Mains supply tolerance (V)…….:		N
1.7	**Marking and instructions**		P
1.7.1	Rated voltage (V)…….:	Switching Adapter:100-240Vac Network Attached Storage: DC12V	P
	Symbol of nature of supply for d.c……..:		N
	Rated frequency (Hz):	Switching Adapter:50/60Hz	P
	Rated current(A)……..:	Switching Adapter: 0.3A Network Attached Storage:3A	P
	Manufacturer……..……..….		P
	Trademark……...:	QNAP	P
	Type/model……..:	See above.	P
	Symbol of Class II……...:		N
	Certification marks……..:		P

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Clause	Requirement	Result - Remark	Verdict
1.7.2.	Safety instructions	User instruction provided.	P
1.7.3	Short duty cycles	Equipment is designed for Continuous operation.	N
1.7.4	Marking for voltage setting/frequency setting:		N
1.7.5	Marking at power outlets……:	No outlet.	N
1.7.6	Marking at fuseholders……..:	No such component	N
1.7.7.1	Protective earthing terminals	Ditto.	N
1.7.7.2	Terminal for external primary power supply conductors	Switching Adapter: Approved	N
1.7.8.1	Identification and location of switches and controls……..:	No switch.	N
1.7.8.2	Colours of controls and indicators……..:	LED indicator.	P
1.7.8.3	Symbols according to IEC 60417……:	No switch.	N
1.7.8.4	Figures used for marking……:	No indicators for different positions.	N
1.7.8.5	Location of marking and indications for switches and controls……..:		N
1.7.9	Isolation of multiple power sources	Only one supply from the mains.	N
1.7.10	Instructions for installation to IT power system	Equipment was not applied for IT power system.	N
1.7.11	Instructions when protection relies on building Installation		N
1.7.12	Marking when leakage current exceeds 3.5mA		N
1.7.13	Indication at thermostats and regulating devices	No adjustable thermostats.	N
1.7.14	Language of safety marking/instructions	Installation instruction in English. Versions in other languages will be provided when national certificate approval.	P
	Language……..:	English	—
1.7.15	Durability and legibility	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. and then again for 15 sec. with the cloth soaked with petroleum, spirit. After this test there was no damage to the label. The marking on the label did not fade. There was neither curling nor lifting of the label edge.	P
1.7.16	Removable parts	No marking placed on removable parts.	P
1.7.17	Warning text for replaceable lithium batteries	No lithium battery	N
	Language……..:		—
1.7.18	Operator access with a tool……..:	No operator access area with tool.	N
1.7.19	Equipment for restricted access locations…...:	No restricted access location.	N

2	**Protection From Hazards**	P

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Clause	Requirement	Result - Remark	Verdict

2.1	**Protection against electric shock and energy hazards**		P
2.1.1	Access to energized parts	See below	P
2.1.2	Protection in operator access areas	Switching Adapter: operator access to hazardous parts prevented. Network Attached Storage: Access to TNV-1 circuits under the condition specified see below.	P
	Test by inspection……..:	Switching Adapter only SELV plug touchable.	P
	Test with test finger……...:	No touched on TNV-1 circuits	P
	Test with test pin……:	No touched on TNV-1 circuits	P
2.1.3.1	Insulation of internal wiring in an ELV circuit accessible to operator	No ELV wiring in operator accessible area.	N
	Working voltage (V); distance (mm) through insulation……..…:		N
2.1.3.2	Operator accessible insulation of internal Wiring at hazardous voltage	No hazardous voltage wiring in operator accessible area.	N
2.1.4.1	Protection in service access areas	No maintenance work in operation mode necessary.	N
2.1.4.2	Protection in restricted access locations	The unit is not intended to be used in restricted locations.	N
2.1.5	Energy hazard in operator access area	No energy hazard in operator access locations.	P
2.1.6	Clearances behind conductive enclosures	Refer to 4.2.3.	N
2.1.7	Shafts of manual controls	None at ELV or hazardous voltage.	N
2.1.8	Isolation of manual controls	No shafts or knobs etc. in the adapter.	N
2.1.9	Conductive casings of capacitors		N
2.1.10	Risk of electric shock from stored charge on capacitors connected to mains circuit	There is no capacitor connected to the mains circuit.	N
	Time-constant (s); measured voltage (V)…....:		–

2.2	**SELV circuit**		**P**
2.2.1	Voltage of SELV circuit under normal operating conditions and after a single fault condition	The voltage does not exceed the limit for SELV circuit	**P**
2.2.2	Voltage (V) between any two conductor of SELV part and for class Ⅰ equipment between any part of SELV circuit and protective earthing terminal	Switching Adaptor Approved	**P**
2.2.3	Voltage (V) of SELV circuit in the event of a single failure of basic or supplementary insulation or of a component	Not exceed 42.2V peak or 60V d.C for longer than 0,2s	**P**
	Method used for separation	Method 1 used	**P**

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Clause	Requirement	Result - Remark	Verdict
2.2.4	Connection of SELV circuits to other circuits	SELV circuits are only connected to other SELV circuits	**P**
2.3	**TNV circuits**		**P**
2.3.1	Limits of the TNV circuits	Network Attached Storage is connected to ADSL network	**P**
a)	TNV-1 circuits:	Only TNV-1 circuit in the EUT	**P**
b)	TNV-2circuits and TNV-3 circuits		**N**
2.3.2	Separation from other circuits and from accessible parts	SELV-TNV-1 and Accessibles-TNV-1:Basic Insulation	**P**
2.3.3	Separation from hazardous voltages		**N**
	Insulation between TNV-1circuit and circuit at hazardous voltage		**---**
	Method used		**---**
2.3.4	Connection of TNV circuits to other circuits	Only connected to other TNV circuits.	**P**
	Insulation between TNV circuit supplied conductively from secondary circuit and hazardous voltage circuit		**---**
2.3.5	Operating voltages generated externally		**N**
	Voltage in SELV circuit , TNV-1 circuit or accessible conductive part		**---**
2.4	**Limited current circuits**		N
2.4.2	Frequency (Hz)……..…:	Switching Adapter Approved	—
	Measured current (mA)……..:		—
2.4.3	Measured voltage (V)……....:		—
	Measured capacitance (µF)……:		N
2.4.4	Measured voltage (V)……..:		—
	Measured charge (µC)……..:		N
2.4.5	Measured voltage (V)……..:		—
	Measured energy (mJ)……:		N
2.4.6	Limited current circuit supplied from or connected to other circuits……..:		N
2.5	**Limited power sources**		**N**
	Use of limited power sources	Switching Adapter Approved	**N**
2.6	**Provisions for protective earthing**		**N**

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Clause	Requirement	Result - Remark	Verdict
2.6.1	Protection earthing	Switching Adapter Approved	**N**
2.6.2	Functional earthing		**N**
2.6.3	Protective earthing and protective bonding conductors		**N**
2.6.3.1	General		**N**
2.6.3.2	Size of the protective earthing conductors		**N**
2.6.3.3	Size of the protective bonding conductors		**N**
2.6.3.4	Resistance of earthing conductors and their terminations		**N**
	Test current (A)		**N**
2.6.3.5	Color of insulation		**N**
2.6.4	Terminals of the protective conductors		**N**
2.6.4.1	Protective earthing and bonding terminals		**N**
2.6.4.2	Separation of protective earth from protective bonding conductors		**N**
2.6.5	Integrity of protective earthing	See below	**N**
2.6.5.1	Interconnection of equipment		**N**
2.6.5.2	Components in protective earth and bonding conductors		**N**
2.6.5.3	Disconnection of protective earth		**N**
2.6.5.4	Operator removable parts		**N**
2.6.5.5	Parts removed during servicing		**N**
2.6.5.6	Corrosion resistance		**N**
2.6.5.7	Screws for protective bonding		**N**
2.6.5.8	Reliance on telecommunication network		**N**

2.7	**Overcurrent and earth fault protection in primary circuits**		**N**
2.7.1	Basic requirements	Switching Adapter Approved	**N**
2.7.2	Protection against faults not covered in 5.3		**--**
2.7.3	Short-circuit backup protection		**N**
2.7.4	Number and location of protective devices	One fuse used	**N**
2.7.5	Protection by several devices	Only one protector provided	**N**
2.7.6	Warning to service personnel	No service work necessary	**N**

2.8	**Safety interlock**		N
2.8.2	Design		N
2.8.3	Protection against inadvertent reactivation		N
2.8.4	Reliability		N

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Clause	Requirement	Result - Remark	Verdict
2.8.5	Overriding an interlock		N
2.8.6.1	Contact gap (m)……..:		N
2.8.6.2	Switch performing 50 cycles		N
2.8.6.3	Electric strength test: test voltage (V)…….:		N
2.8.7	Protection against overstress		N
2.9	**Insulations**		**P**
2.9.1	Properties of insulation materials	Neither natural rubber, Asbestos or hygroscopic materials are used.	**P**
2.9.2	Humidity conditioning	48h	**P**
	Humidity (%)	93%	**P**
	Temperature (℃)	25℃	**P**
2.9.3	Requirements for insulation	Electric strength test conducted after the humidity conditioning No flash-over and breakdown	**P**
2.9.4	Insulation parameters	Application and working voltage are considered	**P**
2.9.5	Categories of insulation	Insulation is considered to be operational, supplementary, basic, reinforced or double insulation	**P**
2.10	**Clearances, creepage distances and distances through insulation**		**P**
	Nominal voltage (V)..... :	Switching Adapter: 100-240VAC,	**P**
2.10.1	General	Switching Adapter Approved	**P**
2.10.2	Determination of working voltage	Refer to appended table 2.10.2 and 2.10.3	**P**
2.10.3	Clearances	Switching Adapter Approved	**P**
2.10.3.2	Clearance in primary circuit	Switching Adapter Approved	**P**
2.10.3.3	Clearance in secondary circuit		**N**
2.10.3.4	Measurement of transient levels		**N**
2.10.4	Creepage distances	Switching Adapter Approved	**P**
	CTI tests..... :		—
2.10.5	Solid insulation		**P**
2.10.5.1	Distances through insulation	Switching Adapter Approved	**P**
2.10.5.2	Thin sheet material		**N**

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Clause	Requirement	Result - Remark	Verdict
2.10.5.3	Multi-layer boards		**N**
2.10.5.4	Wound components		**N**
2.10.6	Distances on coated printed boards	No coated printed boards.	**N**
2.10.7	Enclosed and sealed parts	No hermetically sealed components.	**N**
2.10.8	Spacing filled by insulating compound		**N**
2.10.9	Spacings between external terminations of components	No such terminations	**N**
2.10.10	Insulation with varying dimensions	No such transformer used	**N**
3	**WIRING, CONNECTIONS AND SUPPLY**		**P**
3.1	**General**		**P**
3.1.1	Current rating and overcurrent protection	Switching Adapter Approved Internal wires are UL recognized wiring gauge is suitable for current	**P**
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges, heatsinks, moving parts, which could damage the insulation and cause a hazard.	**P**
3.1.3	Securing of internal wring	All internal wires are properly secured and routed away from excessive strain or damage of conductor insulation.	**P**
3.1.4	Insulation of conductors	Insulation on internal conductor are considered to be of adequate quality and suitable for the application	**P**
3.1.5	Beads and ceramic insulators	No such insulation used	**N**
3.1.6	Screws for electrical contact pressure		**N**
3.1.7	Non-metallic materials in electrical connections	No such material	**N**
3.1.8	Self-tapping and spaced thread screws		**P**
3.1.9	Termination of conductors	Switching Adapter Approved	**N**
3.1.10	Sleeving on wiring		**N**
3.2	**Connection to a.c. mains supplies**		**N**
3.2.1	Means of connection.....	Switching Adapter Approved	**N**
3.2.2	Multiple supply connections		**N**
3.2.3	Provision for permanent connection		**N**

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Clause	Requirement	Result - Remark	Verdict
3.2.4	Appliance inlets		**N**
3.2.5	Type and cross-sectional area of power supply cord		**N**
3.2.6	Cord anchorage and strain relief		**N**
	Test: 25 times; 1s; pull (N)		**--**
	Longitudinal displacement ≤ 2mm.....		**--**
3.2.7	Protection against mechanical damage		**N**
3.2.8	Cord guards		**N**
	D (mm).....		**N**
	Test: mass (g).....		**N**
	Radius of curvature of the cord ≤ 1.5D		**N**
3.2.9	Supply wiring space		**N**
3.3	**Wiring terminals for external power supply conductors**		**N**
3.3.1	Wiring terminals	Switching Adapter Approved	**N**
3.3.2	Connection of non-detachable power supply cords		**N**
3.3.3	Screws terminals		**N**
3.3.4	Connector sizes to be connected		**N**
3.3.5	Wiring terminal sizes		**N**
	Nominal thread diameter (mm)		**N**
3.3.6	Wiring terminal design		**N**
3.3.7	Grouping of wiring terminals		**N**
3.3.8	Test with 8 mm stranded wire		**N**
3.4	**Disconnection from the a.c. mains supply**		**N**
3.4.1	General requirement	Switching Adapter Approved	**N**
3.4.2	Disconnect devices		**N**
3.4.3	Permanently connected equipment		**N**
3.4.4	Parts remain energized	No such parts	**N**
3.4.5	Switches in flexible cords		**N**
3.4.6	Single phase equipment		**N**
3.4.7	Three phase equipment	No three-phase equipment	**N**
3.4.8	Switches as disconnect devices		**N**
3.4.9	Installations instructions if plug acts as disconnect device		**N**

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Clause	Requirement	Result - Remark	Verdict
3.4.10	Interconnected equipment	SELV circuits	**N**
3.4.11	Multiple power sources		**N**
3.5	**Interconnection of equipment**		**P**
3.5.1	General requirements	Connections TNV-1 to TNV-1 and SELV TO SELV	**P**
3.5.2	Type of interconnection circuits	SELV circuit,TNV-1 circuit	**P**
3.5.3	ELV circuits as interconnection circuits	No ELV circuits as interconnection circuits	**N**
4	**PHYSICAL REQUIREMENTS**		**P**
4.1	**Stability**		**P**
	Stability tests, Angle of 10°		**P**
	Test: force (N) ……:		**N**
4.2	**Mechanical strength and stress relief**		**P**
4.2.1	General		**P**
4.2.2	Steady force test 10N±1N ;5s		**P**
4.2.3	Internal enclosures 30N ± 3 N; 5s	No operator accessible internal enclosure provided.	**N**
4.2.4	External enclosures 250 N ±10 N; 5s		**P**
4.2.5	Impact test		**N**
	Steel sphere approximately 50mm in diameter and a mass of 500g±25g, a vertical distance of 1.3m		**N**
4.2.6	Drop test	No hazards	**P**
	A mass of 5kg or less, 750 mm±10mm for desk top equipment as described above.		**P**
	A mass of 5kg or less, 1000mm±10mm for HAND-HELD, DIRECT PLUG-IN AND TRANSPORTABLE EQUIPMENT		**N**
4.2.7	Stress relief	Switching Adapter Approved	**P**
4.2.8	Cathode ray tubes	No CRT used.	**N**
4.2.9	High pressure lamps	No such lamps	**N**
4.2.10	Wall or ceiling mounted equipment		**N**

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Clause	Requirement	Result - Remark	Verdict
4.3	**Design and construction**		**P**
4.3.1	Edges and corners	All be rounded and smoothed	**P**
4.3.2.	Fixing knobs, grips, handles, levers	No such construction	**N**
4.3.3.	Adjustable controls	No such parts	**N**
4.3.4	Securing of parts	Screws, nuts, or similar parts are secured and withstand mechanical stress occurring in normal use	**P**
4.3.5	Connection of plug and sockets	In operator and service areas, mismatching prevent by incompatible form or location.	**P**
4.3.6	Direct plug-in equipment		**N**
	The additional torque which was applied to the socket outlet to maintain the engagement face in the vertical plane did not exceed 0.25 N.m		**N**
4.3.7	Heating elements in earthed equipment		**N**
4.3.8	Batteries	Consumer grade battery used.	**P**
4.3.9	Oil and grease	Insulation is not exposed to oil and grease	**N**
4.3.10	Dust, powders, liquids and gases	The equipment does not produce dust or employ liquids or gases	**N**
4.3.11	Containers for liquids or gases	No such containers used	**N**
4.3.12	Flammable liquids	No flammable liquids used	**N**
4.3.13	Radiation	No such component used	**N**

4.4	**Protection against hazardous moving parts**		**N**
4.4.1	General	No moving parts.	**N**
4.4.2	Protection in operator access area		**N**
4.4.3	Protection in restricted area		**N**
4.4.4	Protection in service access area		**N**

4.5	**Thermal requirements**		**P**
4.5.1	Heating		**P**
	Heating test	See append table 4.5.1	**P**
4.5.2	Resistance to abnormal heat	Switching adapter approved	**N**

4.6	**Openings in enclosures**	**N**

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Clause	Requirement	Result - Remark	Verdict
4.6.1	Top and side openings	No opening in enclosures	**N**
4.6.2	Bottoms of fire enclosures		**N**
4.6.3	Doors and covers in fire enclosures		**N**
4.6.4	Openings in transportable equipment		**N**
4.6.5	Adhesives for constructional purposes		**N**
4.7	**Resistance to fire**		**P**
4.7.1	Reducing the risk of ignition and spread of frame	Switching adapter approved	**N**
4.7.2	Conditions for fire enclosures	Compliance with the fault conditions of 5.3	**N**
4.7.2.1	Parts requiring a fire enclosure		**N**
4.7.2.2	Parts not requiring fire enclosure:		**N**
4.7.3	Materials		**P**
4.7.3.1	General rules		**P**
4.7.3.2	Materials for fire enclosures	Ditto.	**P**
4.7.3.3.	Materials for components and other parts outside fire enclosures		**N**
4.7.3.4	Materials for components and other parts inside fire enclosures	The material used be adequately	**P**
4.7.3.5	Materials for air filter assemblies	No air filter assemblies	**N**
4.7.3.6	Materials used in high-voltage components	No high-voltage components used	**N**
5	Electrical requirements and simulated abnormal conditions		**P**
5.1	Touch current and protective conductor current		**P**
	Test voltage (V)	1.06U rated	**P**
	Measured current (mA)	0.21mA	**P**
	Limited current (mA)	0.25mA	**P**
5.1.7	Equipment with touch current exceeding 3.5mA	0.27mA	**P**
5.1.8	Touch current to and from telecommunication network	0.21mA;Limit:0.25mA	**P**
5.2	**Electric strength**		**P**
5.2.1	General	See append table 5.2.2	**P**

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Clause	Requirement	Result - Remark	Verdict
5.2.2	Test procedure	According to the procedure	**P**
		All test voltages were applied for 1 minute between live part and outside of the enclosure after humidity test and in warm conditions after heating test .No insulation breakdown was observed.	**P**
5.3	**Abnormal operating and fault conditions**		**P**
5.3.1	Protection against overload and abnormal operation	Switching adapter approved	**P**
5.3.2	Motors		**N**
5.3.3	Transformers	Switching adapter approved	**N**
5.3.4	Function insulation	Switching adapter approved Network Attached Storage: method b),c)	**P**
5.3.5	Electromechanical components in secondary circuits	No Electromechanical components	**N**
5.3.6	Simulation of faults	See append table 5.3.6	**P**
5.3.7	Unattended equipment		**N**
5.3.8	Compliance criteria for abnormal operating and fault conditions	No flame emitted, no molten material emitted, no deformation of enclosure	**P**
6	**CONNECTION TO TELECOMMUNICATION NETWORKS**		**P**
6.1	**Protection of telecommunication network service personnel, and uses of other equipment connected to the telecommunication network, from hazards in the equipment**		**P**
6.1.1	Protection from hazards voltages		**P**
6.1.2.1	Insulation between TNV circuit and parts or circuits that may be earthed		**N**
6.1.2.2	Exclusions		**N**
6.2	**Protection of equipment users from voltage on the telecommunication networks**		**P**
6.2.1	Separation requirements		**P**

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict
6.2.2	Test procedure		**P**
6.2.2.1	Impulse test: separation betweenTNV-1 circuits/TNV-3 circuits and	TNV-1 Circuits	**N**
a)	Unearthed conductive parts of the equipment expected to be held or touched during normal use 2.5kV		**N**
b)	Parts and circuits that can be touched by test finger except contact of connectors that can not be touched by test probe:1.5kV		**N**
c)	Circuits which is provided for connection of other equipment 1.5kV		**N**
6.2.2.2	Electric strength test: separation between TNV-1 circuits/TNV-3circuits and	TNV-1 Circuits	**P**
a)	Unearthed conductive parts of the equipment expected to be held or touched during normal use :1.5kV	See appended table 5.2	**P**
b)	Parts and circuits that can be touched by test finger except contact of connectors that can not be touched by test probe: 1.0kV		**N**
c)	Circuits which is provided for connection of other equipment 1.0kV		**N**
6.2.2.3	Compliance criteria		**N**
6.3	**Protection of telecommunication wiring system from overheating**		**N**

A	**ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE**		**N**
A.1	Flammability test for fire enclosures of moveable equipment having a total mass less then 18 kg, and of stationary equipment		**N**
A.2	Flammability test for fire enclosures of moveable equipment having a total mass not exceeding 18 kg, and for materials located within fire enclosures		**P**
A.3	High current arcing ignition test		**N**
A3.6	Number of arcs……..:		**N**
A.4	Hot wire ignition test		**N**
A.4.6	Ignition time (s)……..:		**N**
A.5	Hot flaming oil test		**N**
A.6	Flammability test for classifying materials V-O, V-1 or V-2		**N**
A.7	Flammability test for classifying foamed materials HF-1, HF-2 or HBF		**N**
A.8	Flammability test for classifying materials HB		**N**
A.9	Flammability test for classifying materials 5V		
A	Preconditioning: 7 days (168 h); temperature (℃)……..:		**—**

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

	Mounting of samples during test……..:		—
	Wall thickness……..:		—
	Sample 1 burning time……..:		N
	Sample 2 burning time……..……..:		N
	Sample 3 burning time……..……..:		N
	Material: compliance with the requirements		N
	Manufacturer of tested material……..:		—
	Type of tested material……..:		—
	Additional information……:		—

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS		N
B.1	General requirements		N
	Position……..:		—
	Manufacturer……...……..:		—
	Type……..:		—
	Rated voltage (V) or current (A)…...……...:		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days)……..:		—
	Electric strength test: test voltage (V)…….:		—
B.6	Running overload test for DC motor in secondary circuits		N
B.7	Locked-rotor overload test for DC motor in secondary circuits		N
B.7.2	Test time (h)……..:		N
B.7.3	Test time (h)……..:		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Test voltage (V)……...:		—

C	ANNEX C, TRANSFORMERS		N
	Position……..…:		—
	Manufacturer……..…:		—
	Type……..:		—
	Rated values……...:		—
	Thermal cut-out		N
	Temperatures		N
C.1	Overload test		N
	Conventional transformer		N
C.2	Insulation		N
	Precautions……..:		N
	Retaining of end turns of all windings		N
	Earthing test at 25A		N
C.3	Electric strength test	(see 5.3)	N

C.2	Safety isolation transformer	N
	Construction details:	
Transformer T1		
Mfr.: Max Tron Electronic Co., Ltd.		
Type: 883460C (MTE16E)		

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

Both sources are the same except manufacture.		
Recurring peak voltage		
Required clearance for reinforced		
Insulation (from table 3 and 4)		
Effective voltage rms		
Required creepage for reinforced		
Insulation (from table 6 with condition 7)		
Measured min. creepages		
location	Inside (mm)	Outside (mm)
Prim-sec		
Prim-core		
Sec-core		
Prim-prim	%	%
Measured min. creepages		
location	Inside (mm)	Outside (mm)
Prim-sec		
Prim-core		
Sec-core		
Prim-prim	%	%
Construction:		
Concentric windings on EE-16 type bobbin, one layer insulation between primary and secondary windings. Tubing is provided on triple insulated winding exit ends. Primary winding: enameled copper wire. Secondary winding: triple insulated winding wire (Furukawa, type TEX-E)		
Pin numbers		
Prim.		
Sec.		
bobbin		
material		
thickness		
Electric strength test		
With AC 3000V after humidity treatment		
result		

H	**ANNEX H, IONIZING RADIATION**		**N**
	Ionizing radiation		**N**
	Measured radiation……..:		**—**
	Measured high-voltage (kV)……:		**—**
	Measured focus voltage (kV)……..:		**—**
	CRT markings……..:		**—**
	Approved by……:		**—**
	Publication used……..:		**—**

U	**ANNEX U, INSULATED WINDING WIRES FOR USE AS MULTIPLE LAYER INSULATION**		**N**
	See separate test report		**N**

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

1.5.1	TABLE: list of critical components				P
object/part No.	**manufacturer/trademark**	**type/model**	**Technical**	**standard**	**mark(s) of conformity**
Switching Adapter	DEE VAN	DSA-0421S-121	+12VDC,3.0A	EN60950-1	GS,CE,UL
Front and back enclosure	MITSUBISHI RAYON CO .,LTD	IR(d)(bb)	HB,50℃	UL94	UL
PCB	--	--	V-0, min. 105℃	UL 94	UL
Hard Disk	Western	WD 1600AAJS	160.0GB	--	CE,UL
1) an asterisk indicates a mark which assures the agreed level of surveillance					

1.6	TABLE: electrical date (in normal conditions)					P
fuse #	**Irated (mA)**	**U (V)**	**P (W)**	**I (mA)**	**Ifuse (mA)**	**Condition/status**
--	3000	11.8	10.148	86	--	Unit at normal load
--	--					
--						
--						
--						
--						
--						

2.1.5	TABLE: max. V, A, VA test			N
Voltage (Rated) (V)	Current (Rated) (A)	Voltage (Max) (V)	Current (Max) (A)	VA (Max.)

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

2.1.10	TABLE: discharge test			N
Condition	τ calculated (s)	τ measured (s)	tu→0V (s)	comments
Overall capacity : Discharge resistor :				

2.2.7	TABLE:working voltage measurement		N
Location	RMS Voltage (V)	Peak Voltage (V)	comments
Input voltage: an asterisk indicates the highest measured working voltage. .			

2.3.2	TABLE: SEL voltage measurement	N
Location	Voltage measured (Vdc)	Comments

2.4	TABLE: limited current circuit measurement				N
Location	Voltage (V)	Current (mA)	Freq. (kHz)	Limit (mA)	Comments

2.5.11	TABLE: ground continue test	N
Location	Resistant measured (Ω)	Comments

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict
Test current = 25A			

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					P
Clearance and creepage distance dcr at/of:	**Up (V)**	**U r.m.s. (V)**	**required cl (mm)**	**cl (mm)**	**Required dcr (mm)**	**dcr (mm)**
SELV (with 10N force) → TNV-1 circuit (with 10N force)	---	120	1.0	>1.0	1.5	>1.5
Accessible → TNV-1 circuit	---	120	1.0	>1.0	1.5	>1.5
Note: Operational insulation shorted, see 5.4.4.						

2.10.5	TABLE: distance through insulation measurements			N
distance through insulation di at/of:	**U r.m.s. (V)**	**test voltage (V)**	**required di (mm)**	**di (mm)**
Note: In approved switching power supply.				

Table 4.2.7	TABLE: Stress relief test		P
Part	Test temperature (℃)	Test duration	Observation
Whole unit	70℃	7h	No visible defect

4.5	TABLE: temperature rise measurements		P
	test voltage(V)……:	DC11.8V	—
	t1(℃)……..:		—
	t2(℃)……..:		—

Temperature rise dT of part/at:	dT(K)	Required dT (K)
L22 body	18.3	80
CE25 body	21.1	80
Switching adapter body	30.1	65
Battery	28.3	65
Hard Disk	18.2	--
PCB near U12	14.1	80
Enclosure inside	18.2	--
Enclosure outside	9.6	60
Ambient	25.4℃/25.8℃	--

temperature rise dT of winding:	R_1 (Ω)	R_2 (Ω)	dT (K)	required dT (K)	insulation class

Comments:

The temperatures were measured under worst case normal node defined in 1.2.2.1 and as described in 1.6.1 at voltages as described in 1.6.5.

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

Ambient temperature of 25℃ is specified. There, the max. temperature rise is calculated as follows:

- class A →dTmax = 75K - 10K - (25-25)K = 65K
- Class 105℃ →dTmax = 105K - 10K - (25-25)K = 95K

Electrolyte capacitor or components with:

-max. absolute temp. of 105℃ → dTmax = (105-25) K = 80K

accessible parts :

-max. absolute temp. → dTmx = 70K-(25-25)K =70K

4.5.2	TABLE: ball pressure test of thermoplastics		N
Part		test temperature (℃)	Impression diameter (mm)

5.2	TABLE: electric strength measurements		P
test voltage applied between:		**test voltage (V)**	**breakdown**
Line/Neutral and secondary circuits		DC 4242V	No
Line/neutral and user accessible area		DC 4242V	No
SELV (with 10N force) → TNV-1 circuit (with 10N force)		AC1500V	No
Accessible → TNV-1 circuit		AC1500V	No

5.3	TABLE: fault condition tests		P
	ambient temperature (℃)……..:		—
	model/type of power supply……..:		—
	manufacturer of power supply……..…:		—
	rated markings of power supply……..:	See label on this report	—

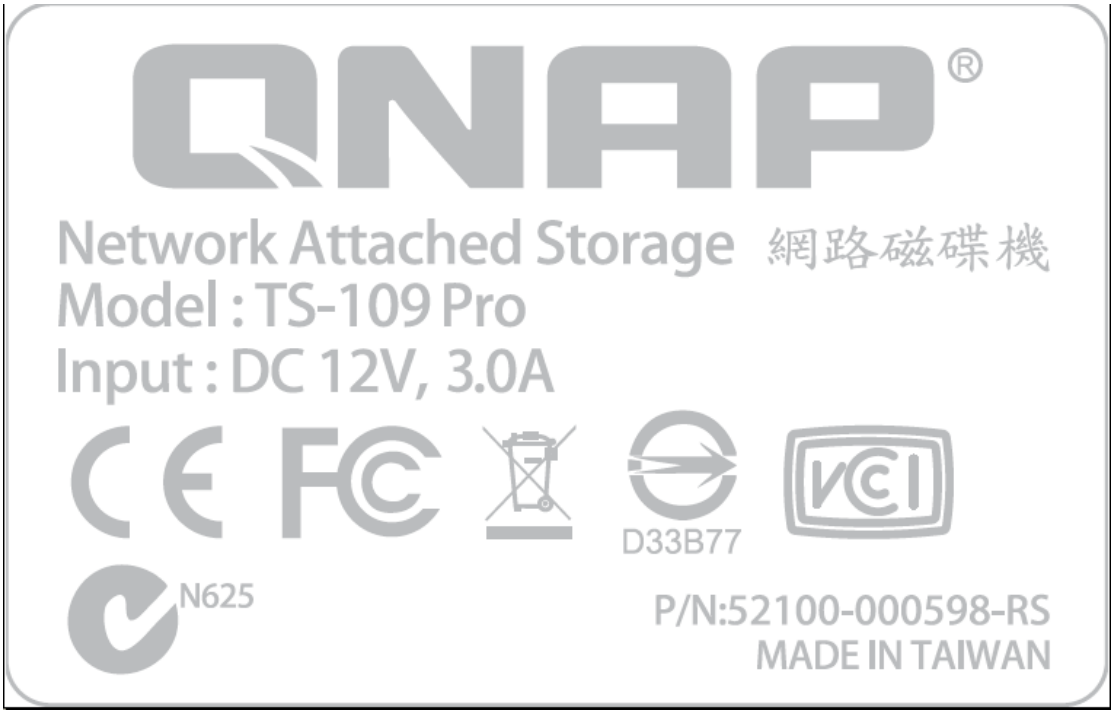
No.	component No.	Fault	test voltage (V)	test time	fuse No.	fuse current (mA)	result
1	CL3	SC	11.8	3 min.	--	--	Work normal and no hazards
2	Q5 (C-E)	SC	11.8	< 1sec.	--	--	Work shutdown. No hazardous.
3	CE20	SC	11.8	< 1sec.	--	--	Unit shutdown. No damadge.
4	L22.	SC	11.8	5 min.	--	--	Work normal and No hazardous.

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

Attachment – A

Stylebook Of Label

Appendix attached with total 1 page


QNAP®
Network Attached Storage 網路磁碟機
Model : TS-109 Pro
Input : DC 12V, 3.0A
D33B77
N625
P/N:52100-000598-RS
MADE IN TAIWAN

EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

Attachment – B

Photo Documentation

Appendix attached with total 3 pages

Photo #1 : Front View OF EUT(TS-109 PRO)

Photo #2 : Rear View OF EUT(TS-109 PRO)

Photo #3 : Inside View OF EUT(TS-109 PRO)

Photo #4 : Inside View OF EUT(TS-109 PRO)

Photo #5: PCB View OF EUT(TS-109 PRO)

Photo #6: PCB View OF EUT(TS-109 PRO)

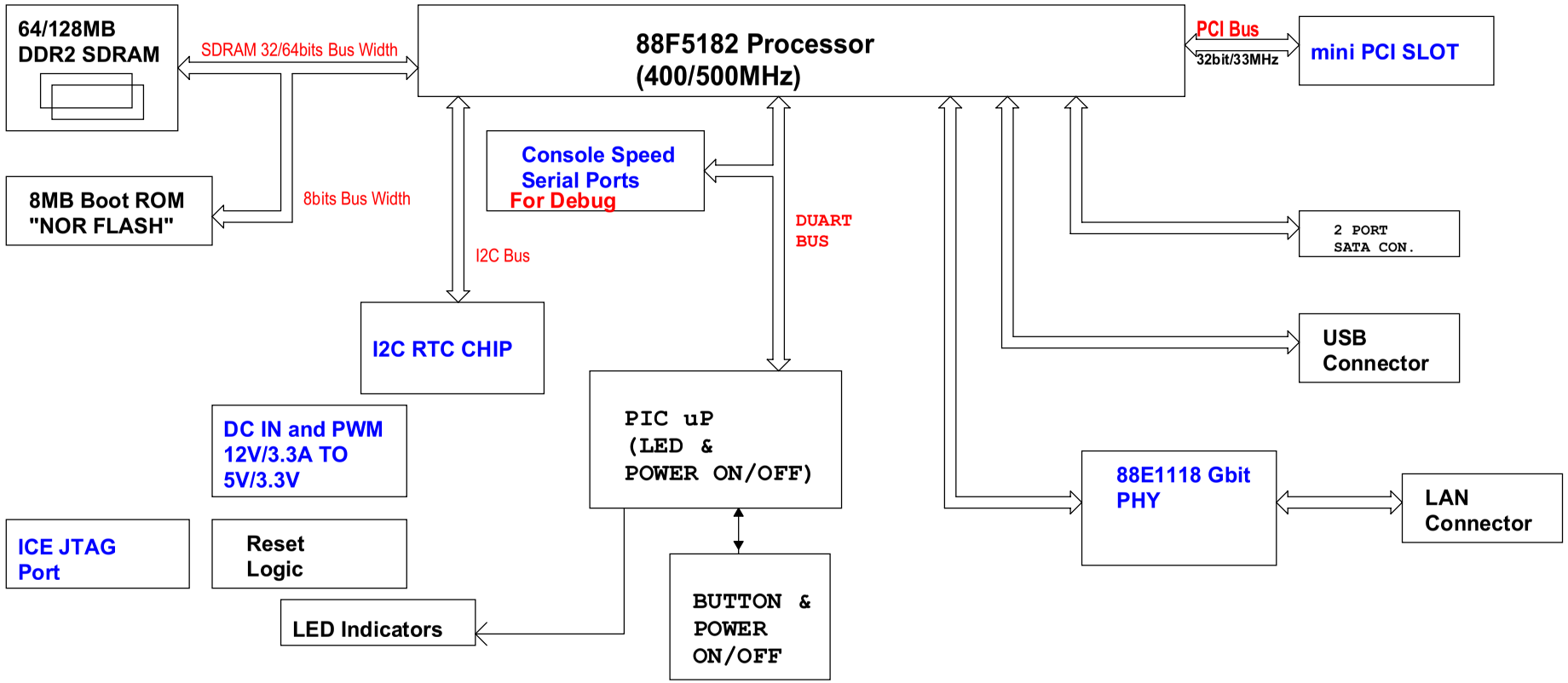
EN 60950-1			
Clause	Requirement	Result - Remark	Verdict

Attachment – C

Electric Circuit Diagram

Appendix attached with total 16 pages

TS-109 SYSTEM BLOCK DIAGRAM



#	Schematic Page Title
1	Block Diagram & Revision History
2	DC/DC 12V/5V
3	System Power
4	JTAG_UART_Reset_Clk
5	MV_Initialization
6	MV_Power
7	MV_Sdram_Device_Ge_Usb
8	MV_PEX_SATA_And_PCI
9	MV_Mpp_Misc
10	DDR2_SDRAM
11	Ge_Phy-88E1118
12	Flash_Interface
13	Mini_Pci
14	SATA_CON.
15	USB_HUB_CON
16	APM_LED_CONTROLLER

```
DEVICE    IDSEL   INT    REQJ/GNTJ    CLK

miniPCI     AD24    4       4           4
```

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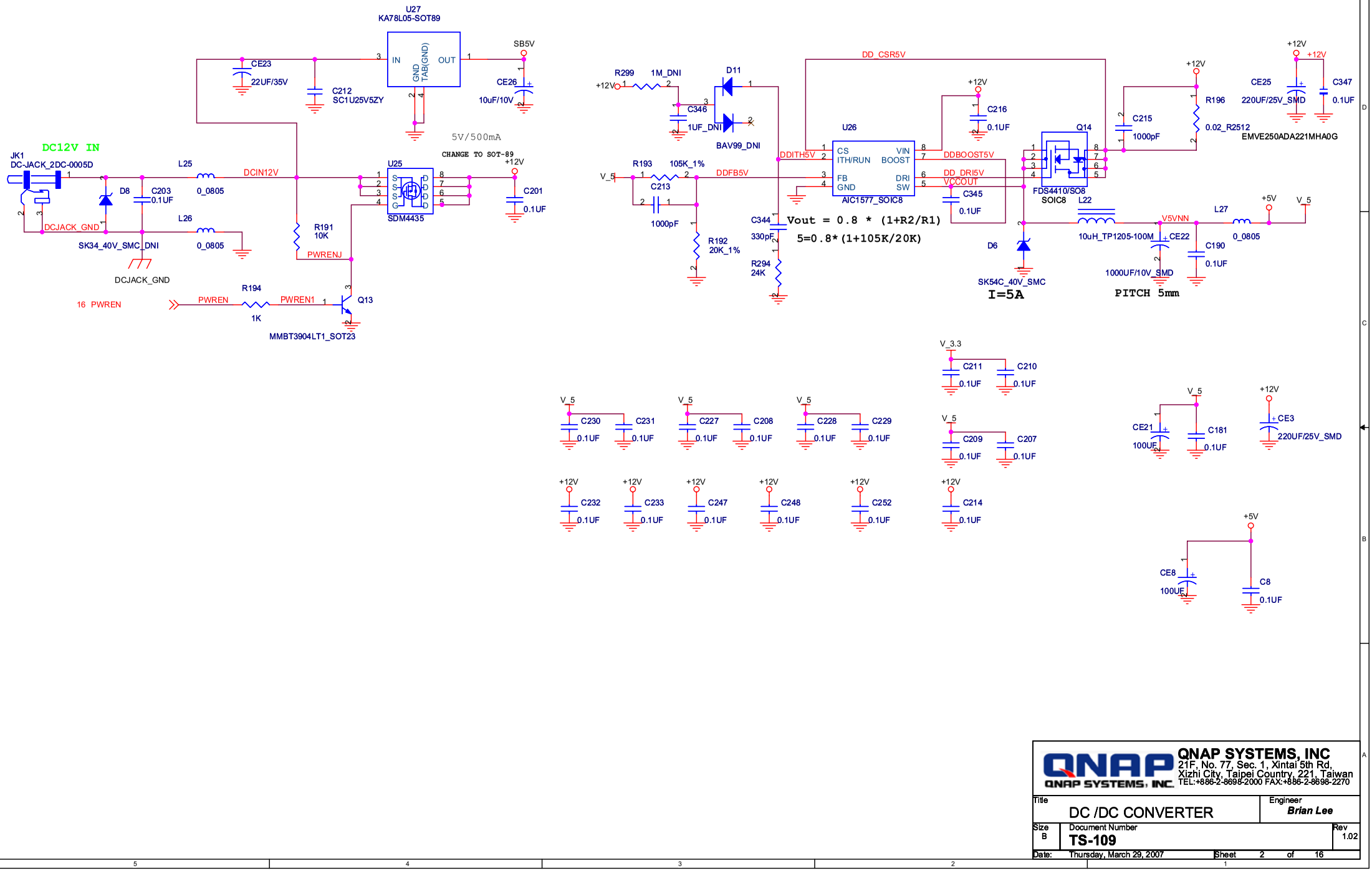
Title	Engineer
Block Diagram	Brian Lee

Size	Document Number	Rev
Custom	TS-109	1.02

Date: Tuesday, May 29, 2007 Sheet 1 of 16



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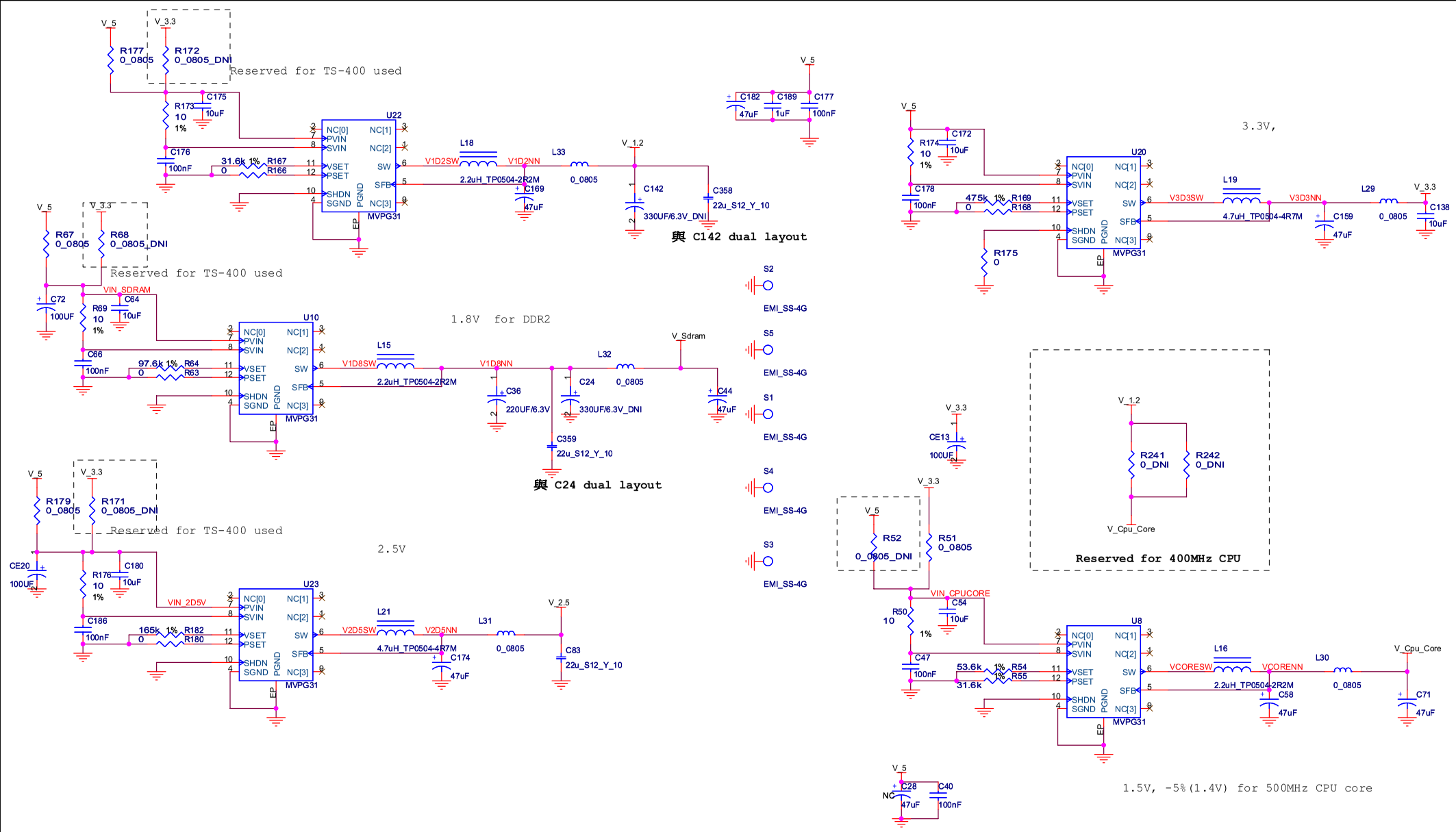
Title: DC /DC CONVERTER		Engineer: Brian Lee
Size: B	Document Number: TS-109	Rev: 1.02
Date: Thursday, March 29, 2007	Sheet 2 of 16	



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Title	SYSTEM DC/DC CONVERTER	Engineer	Brian Lee
Size B	Document Number TS-109		Rev 1.02
Date: Thursday, March 29, 2007	Sheet 3 of 16		

9 Jt_Tdo — Jt_Tdo

9 Ua0_Txd — Ua0_Txd

Jt_Tms_Arm — Jt_Tms_Arm 9

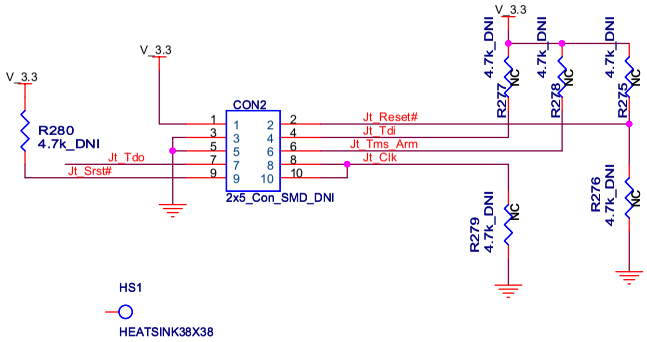
Jt_Reset# — Jt_Reset# 9

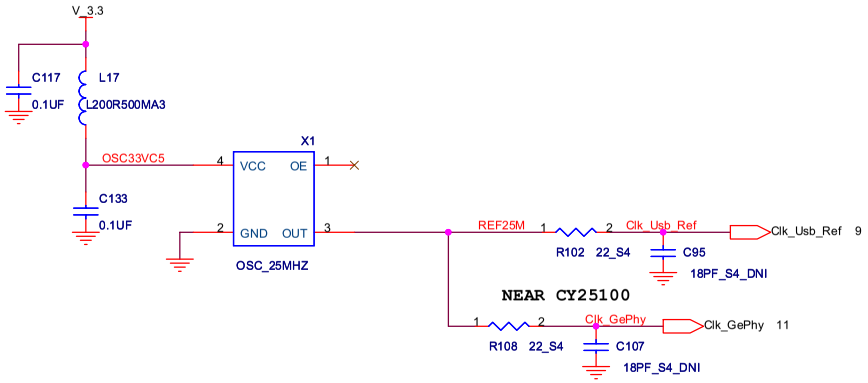
Jt_Clk — Jt_Clk 9

Jt_Tdi — Jt_Tdi 9

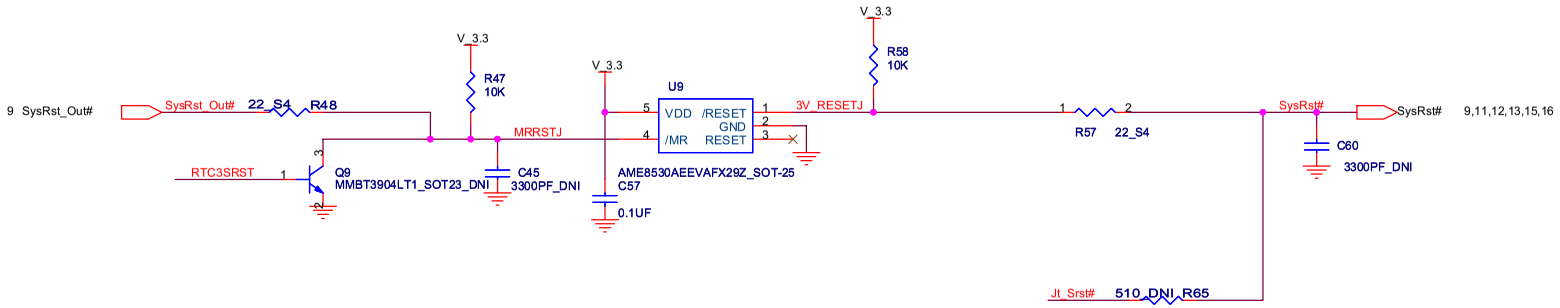
Ua0_Rxd — Ua0_Rxd 9

ARM JTAG
SCAN JTAG





9 Rtc_Int#2 — Rtc_Int#2



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Title: RESET, CLOCK		Engineer: *Brian Lee*
Size: B	Document Number: **TS-109**	Rev: 1.02
Date: Wednesday, March 28, 2007	Sheet 4 of 16	

7 Dev_A[2:0] — Dev_A[2:0]

7,12 Dev_D[15:0] — Dev_D[15:0]

7 Dev_Ale[1:0] — Dev_Ale[1:0]

Serial ROM initialization
1: Enable
0: Disable

V_3.3
R123 1k_DNI
Dev_D0
R119 1k

R164 1k_DNI
V_3.3
Dev_D6 R161 1k

TCLK Frequency.
Dev[7:6]= 1 0: 166 MHz
Dev[7:6]= 0 0: 133 MHz

V_3.3
R96 1k
Dev_D7
R95 1k_DNI

Big Endian initialization
0= Little Endian(Default internal pull 0)
1 = Big Endian

V_3.3
R78 1k_DNI
Dev_D13
R79 1k

PCI Clock output control
PCI clock out on MPP[21:20]

V_3.3
Dev_D14 R77 1k

Watchdog Enable
1-2: Enable
2-3: Disable

V_3.3
R122 1k_DNI
Dev_D1
R118 1k

Reserved: must pull high

Dev_Ale0 R156 1k
V_3.3
PEX internal regulators
1: Disable (Connect 2.5V and 1.5V)
0: Enable (Connect 3.3V)

PCI-Express mode select
Endpoint

V_3.3
Dev_D3 R149 1k

Reserved: must pull 0

V_3.3
R154 1k_DNI
Dev_Ale1
R155 1k

ARM/DDR Clock Frequency Ratio
3 (500/167)

V_3.3
R121 1k
LSB
Dev_D2
R117 1k_DNI

ARM/DDR Clock Frequency Ratio
0 =333/167
1 =400/200
2 =400/133
3 =500/167 (Set as default)
4 =Reserved

R150 1k_DNI
V_3.3
Dev_A2 R145 1k

V_3.3
R98 1k
Dev_D4
R97 1k_DNI

Gigabit Ethernet Port Mode Select
RGMII

Dev_D8 R178 1k
V_3.3
Dev_D9 R91 1k

V_3.3
R84 1k_DNI
Dev_D15
R82 1k

DEV_BootCEn Device Width
8 bits

V_3.3
R85 1k_DNI
MSB
Dev_D12
R83 1k

R81 1k_DNI
V_3.3
Dev_D11 R80 1k

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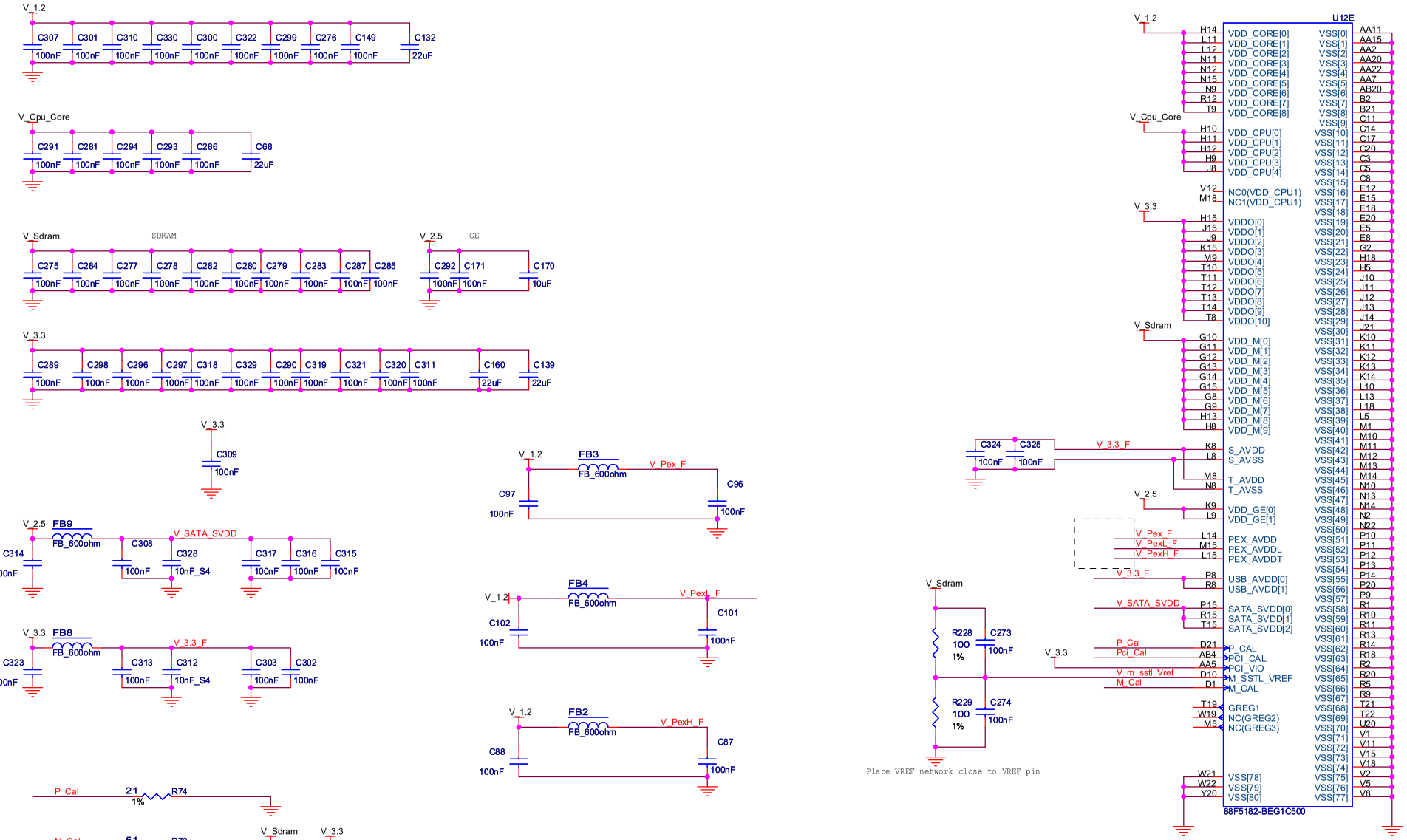
Title	Engineer
CONFIGURATION SETTING	Brian Lee

Size	Document Number	Rev
B	TS-109	1.02

Date: Wednesday, April 04, 2007 Sheet 5 of 16



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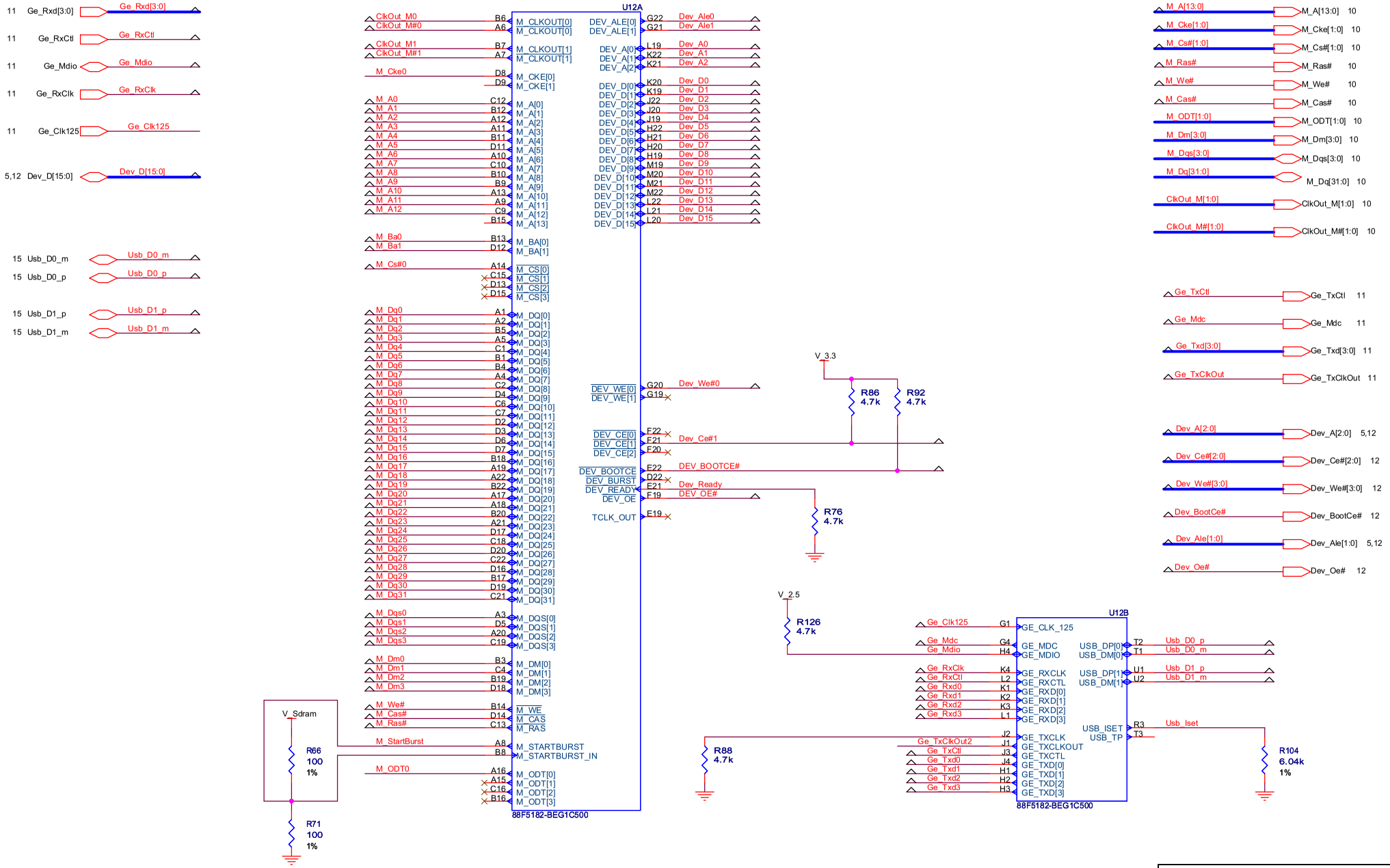
Title: 88F5182 POWER		Engineer: *Brian Lee*
Size: B	Document Number: **TS-109**	Rev: 1.02
Date: Friday, March 30, 2007	Sheet 6 of 16	



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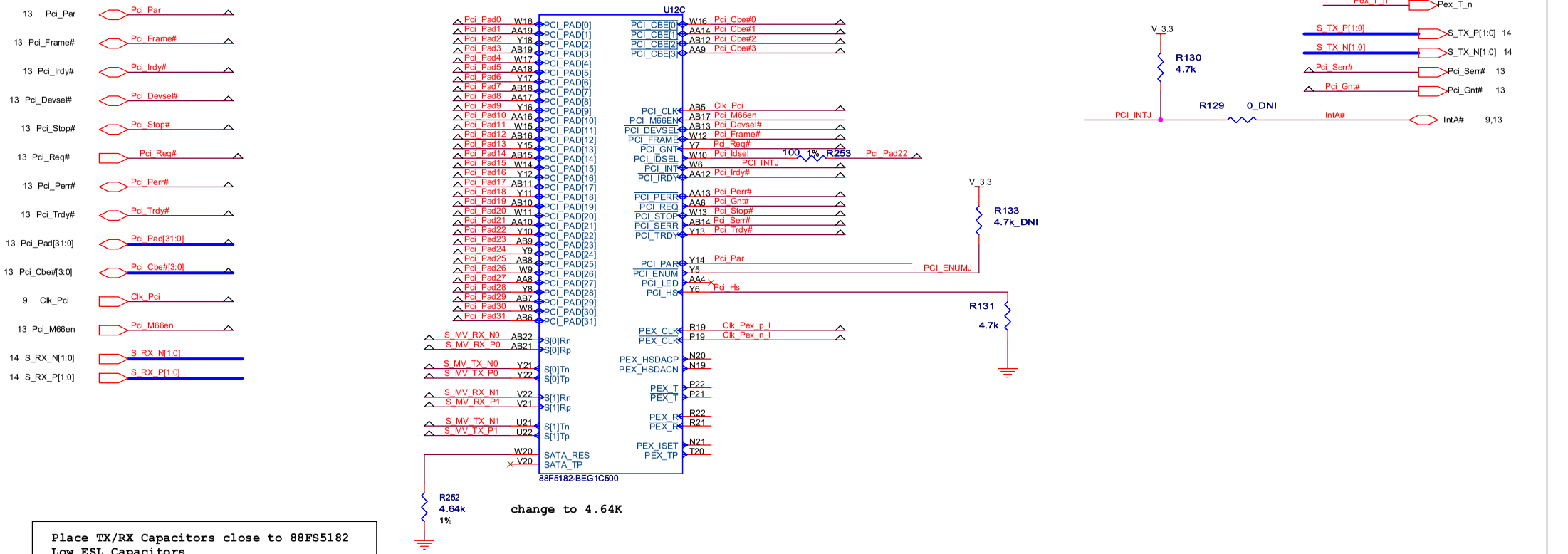
Title: 88F5182 SDRAM Ge USB		Engineer: Brian Lee	
Size: B	Document Number: TS-109		Rev: 1.02
Date: Friday, March 30, 2007	Sheet 7 of 16		



SATA TX/RX Max Length: 2 inch traces

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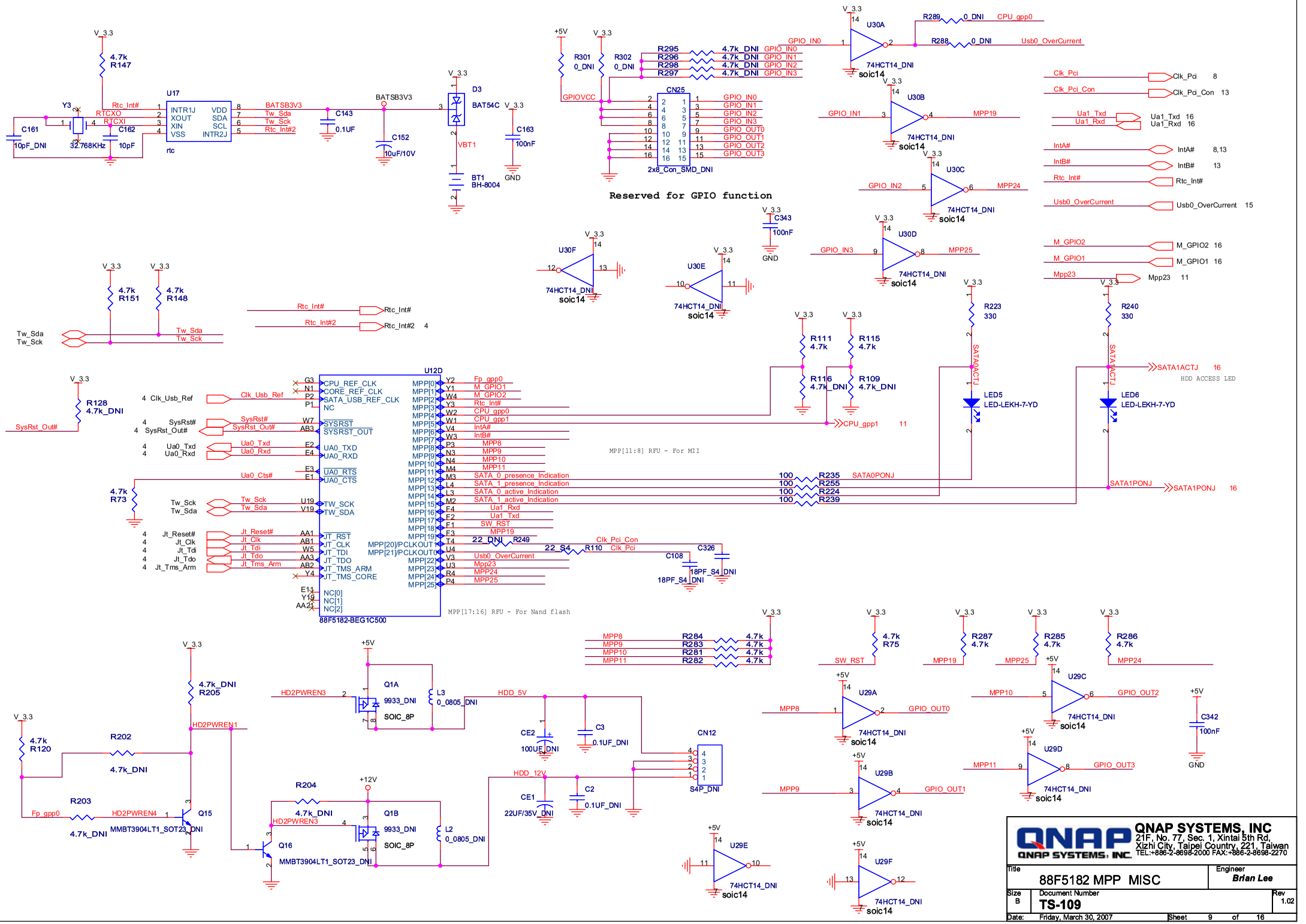
Title: 88F5182 PEX SATA PCI		Engineer: Brian Lee	
Size: B	Document Number: TS-109		Rev: 1.02
Date: Friday, March 30, 2007	Sheet 8 of 16		


Reserved for GPIO function
MPP[11:8] RFU - For MII
MPP[17:16] RFU - For Nand flash
88F5182-BEG1C500
2x8_Con_SMD_DNI
S4P_DNI
QNAP SYSTEMS, INC.
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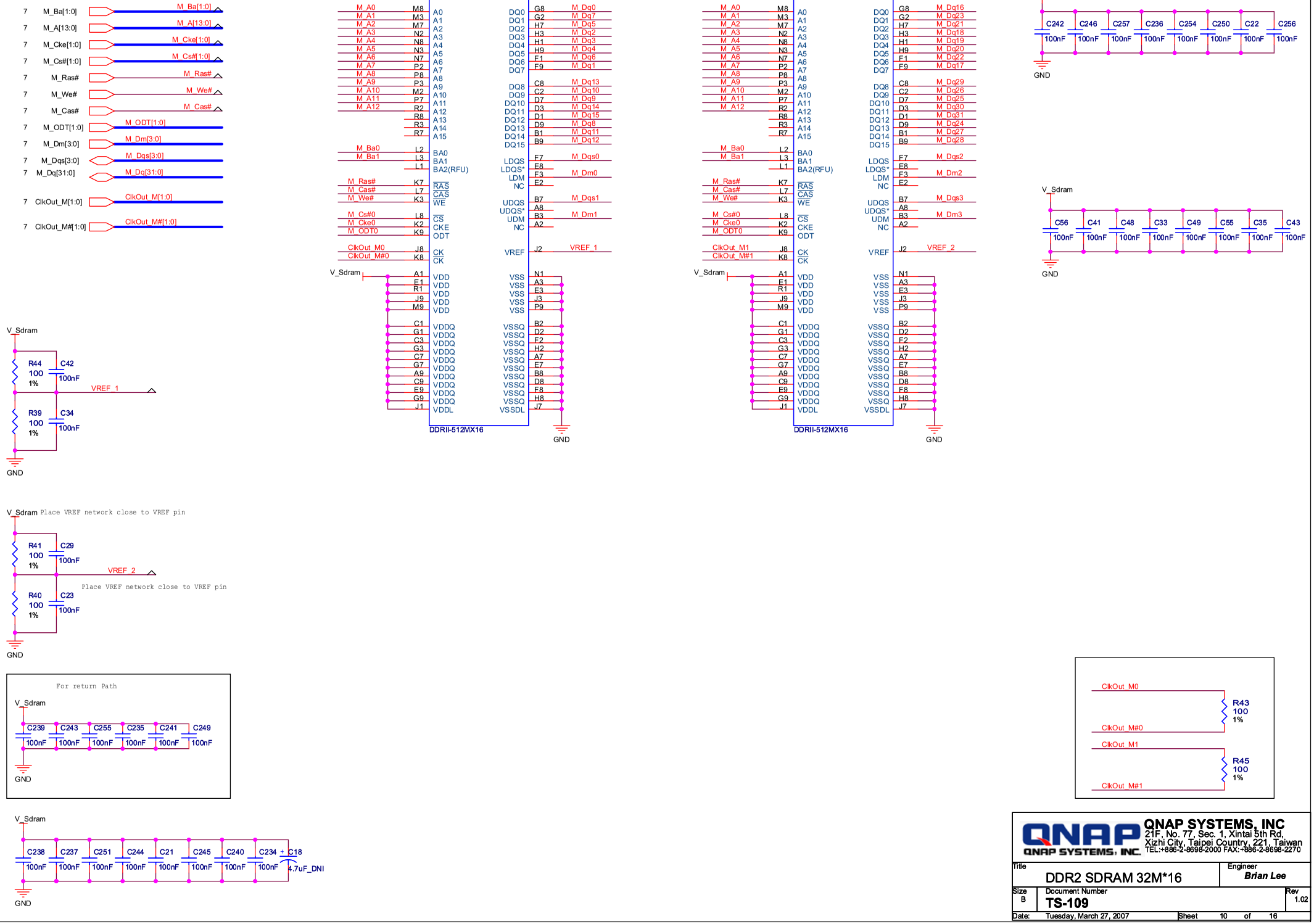
Title
88F5182 MPP MISC
Engineer
Brian Lee
Size
B
Document Number
TS-109
Rev
1.02
Date:
Friday, March 30, 2007
Sheet
9
of
16



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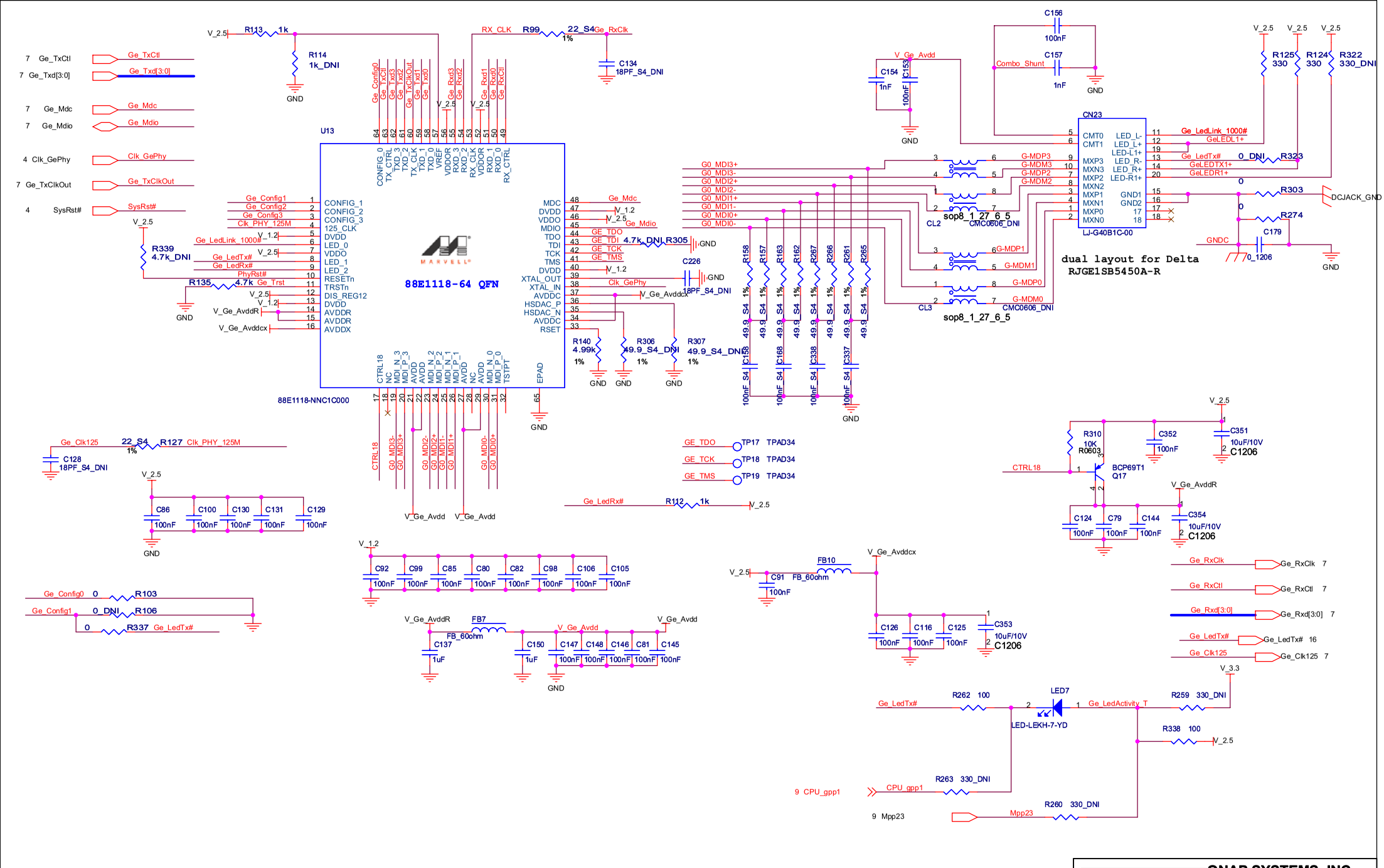
TEL:+886-2-8698-2000 FAX:+886-2-8698-2270

Title: DDR2 SDRAM 32M*16		Engineer: *Brian Lee*
Size: B	Document Number: **TS-109**	Rev: 1.02
Date: Tuesday, March 27, 2007	Sheet 10 of 16	



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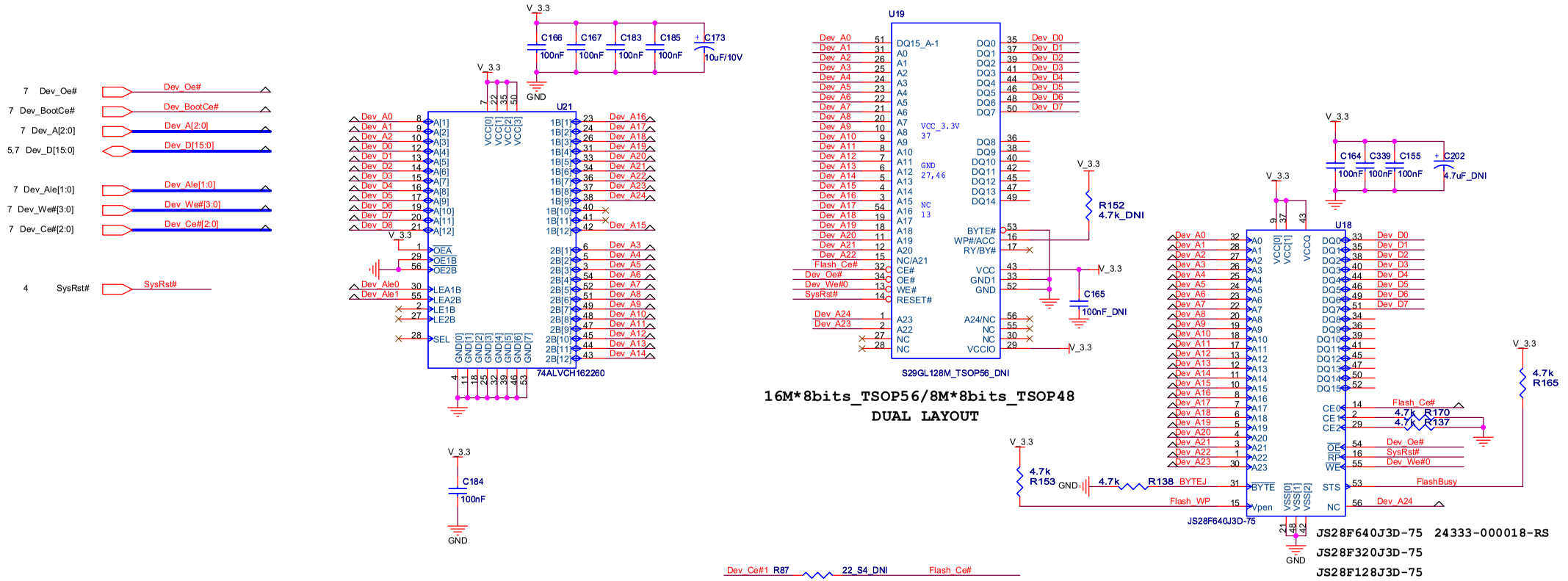
Title	Gbit PHY 88E1118-NNC1
Engineer	Brian Lee
Size B	Document Number TS-109
Rev	1.02
Date:	Tuesday, April 17, 2007
Sheet	11 of 16



QNAP SYSTEMS, INC.			
Title: BOOT ROM		Engineer: Brian Lee	
Size: B	Document Number: TS-109		Rev: 1.02
Date: Tuesday, March 27, 2007	Sheet 12 of 16		

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Xizhi City, Taipei Country, 221, Taiwan
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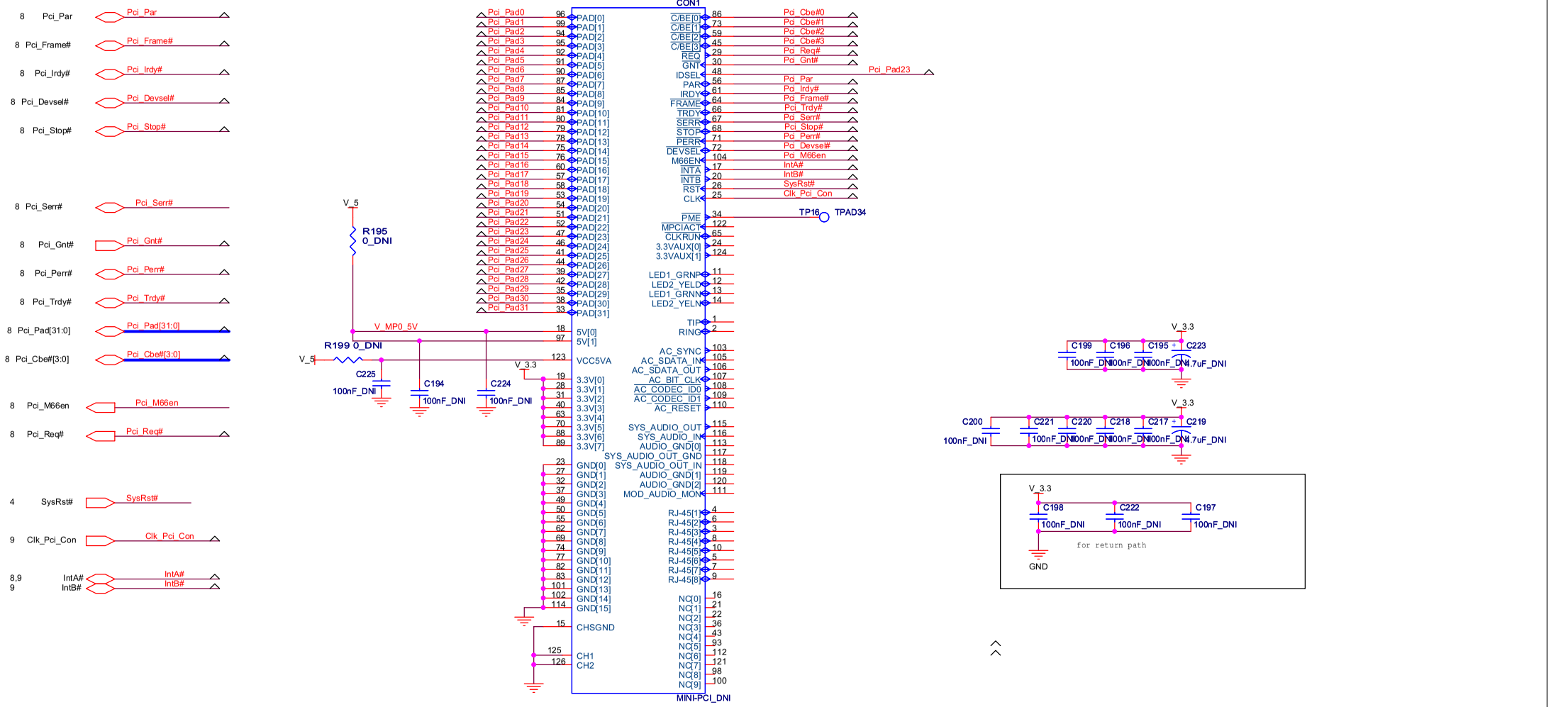

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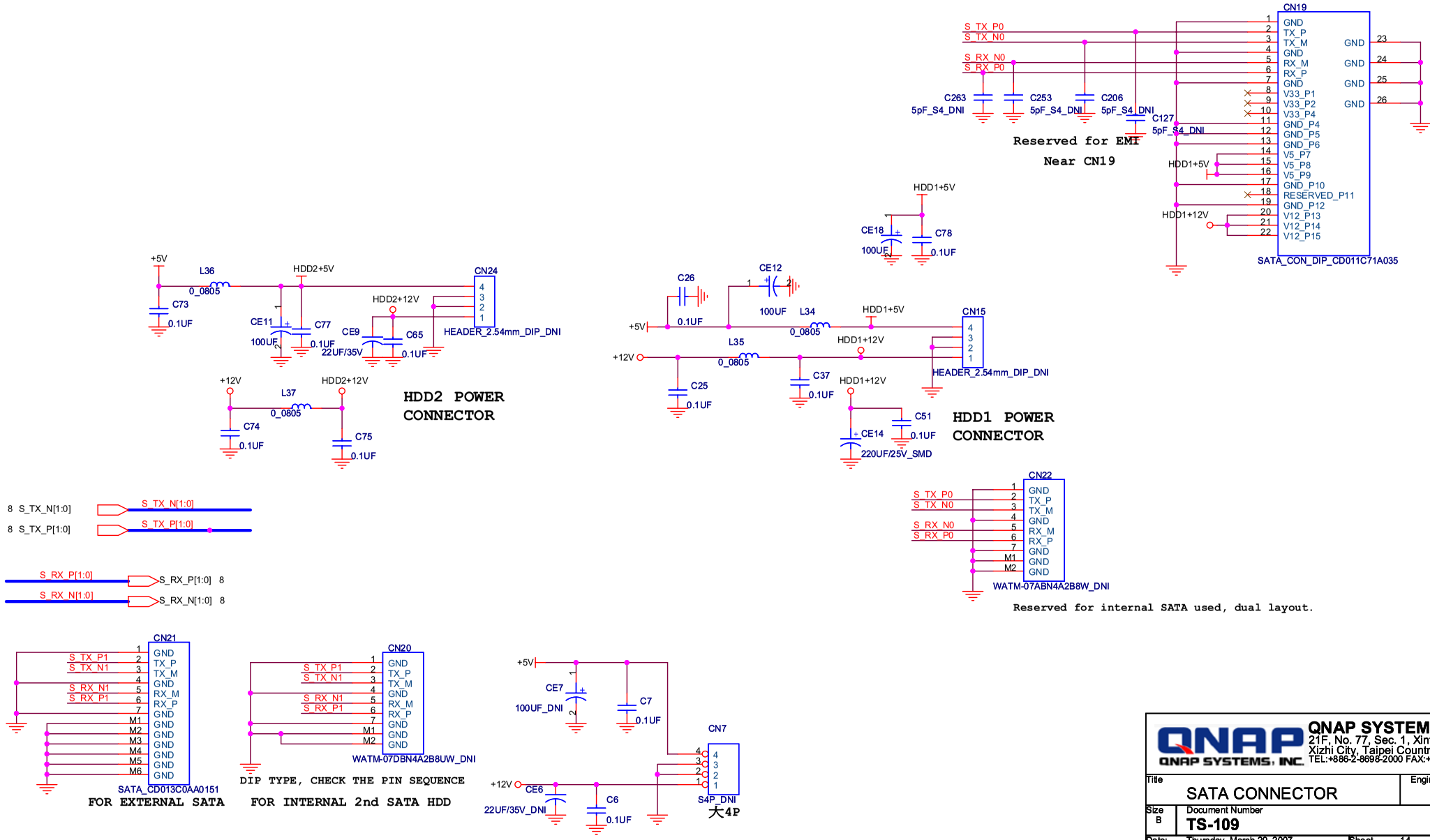
Title: Mini PCI		Engineer: Brian Lee
Size: B	Document Number: TS-109	Rev: 1.02
Date: Tuesday, March 27, 2007	Sheet 13 of 16	



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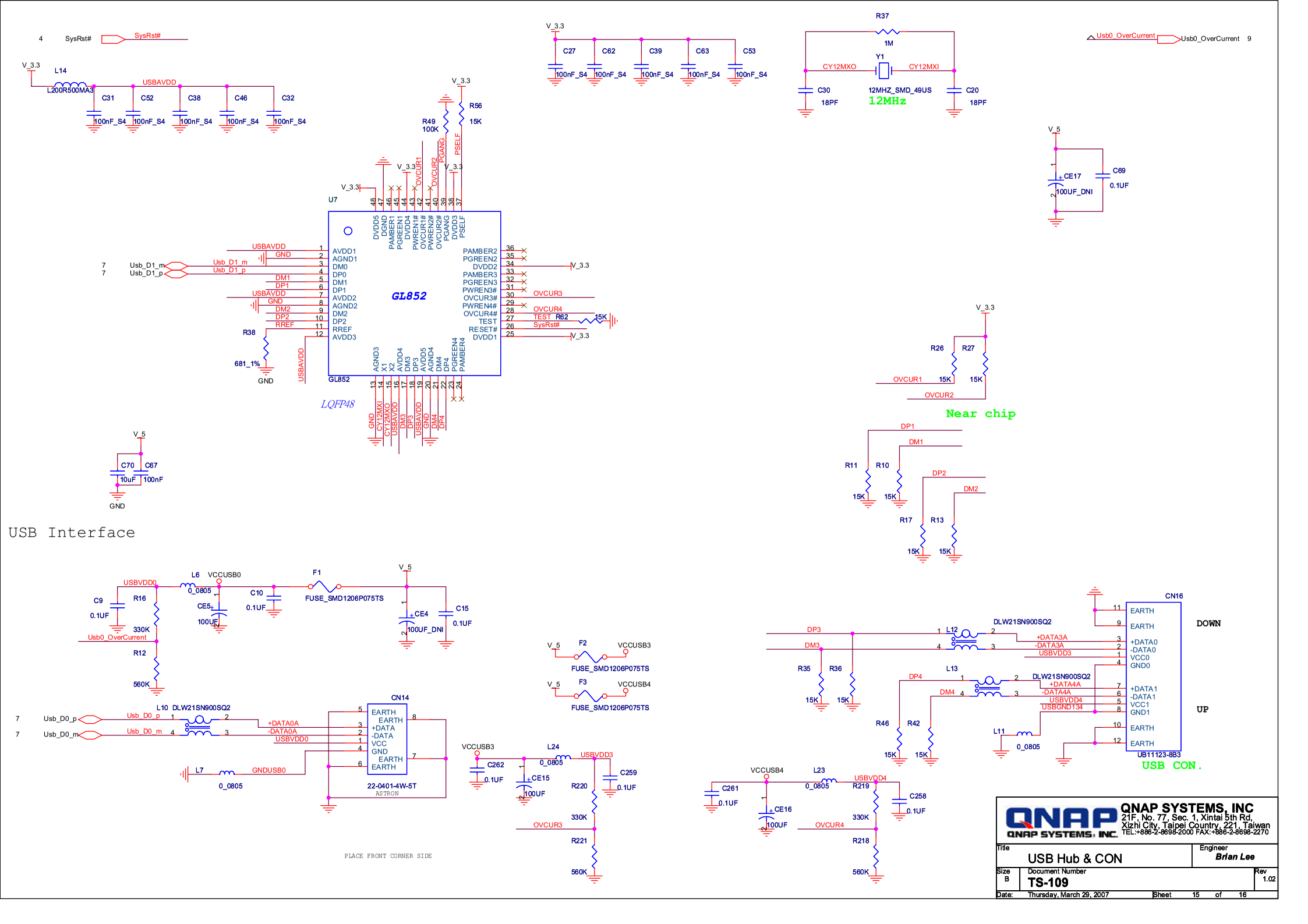
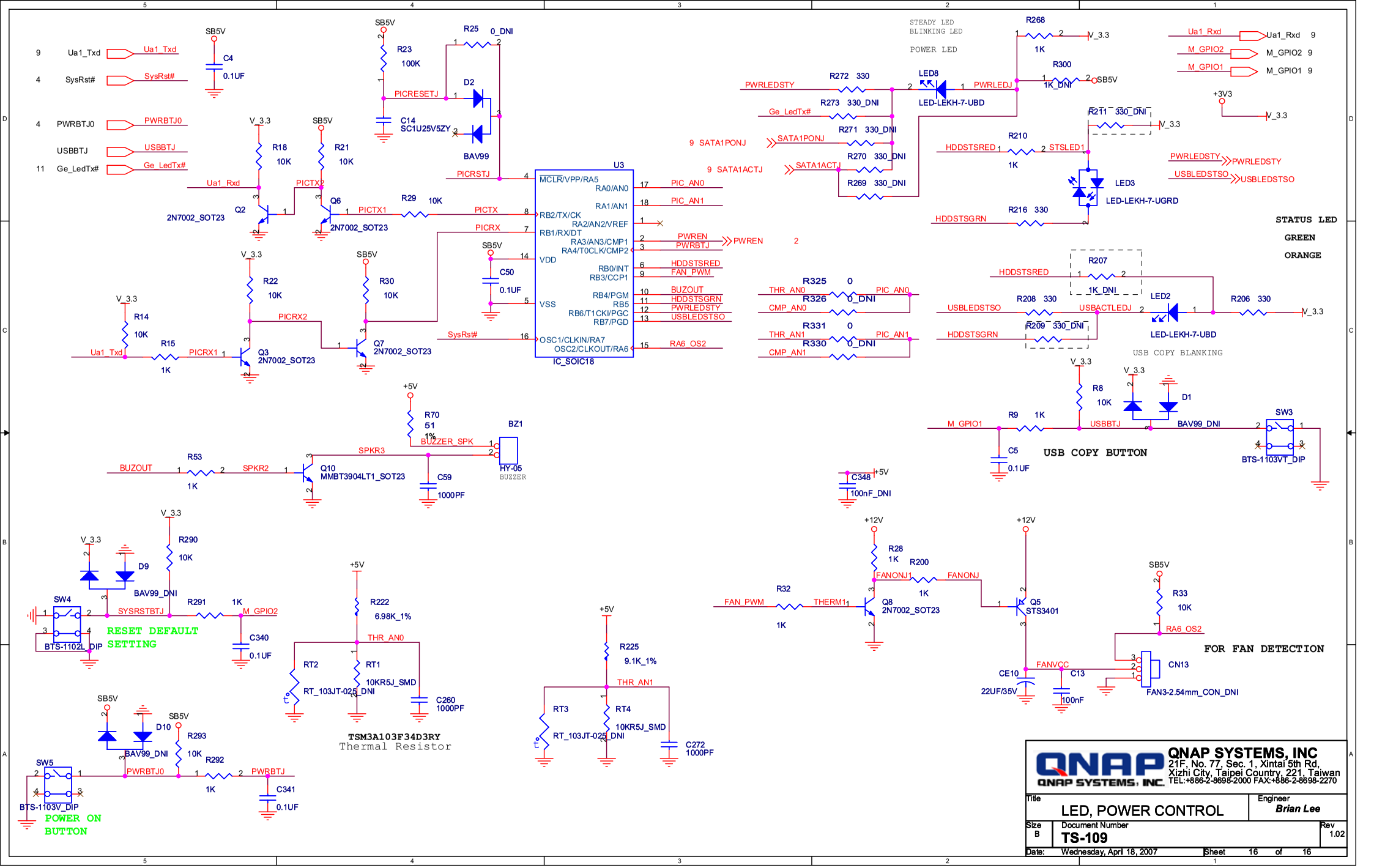
Title: SATA CONNECTOR		Engineer: *Brian Lee*	
Size: B	Document Number: TS-109		Rev: 1.02
Date: Thursday, March 29, 2007	Sheet 14 of 16		


4 SysRst# SysRst#
V_3.3
L14
L200R500MA3
USBAVDD
C31 C52 C38 C46 C32
100nF_S4
C27 C62 C39 C63 C53
R37
1M
Y1
CY12MXO
CY12MXI
C30 18PF
12MHZ_SMD_49US
12MHz
C20 18PF
Usb0_OverCurrent Usb0_OverCurrent 9
V_5
CE17
100UF_DNI
C69
0.1UF
R56
15K
R49
100K
PSELF
PGANG
OVCUR1
OVCUR2
U7
GL852
LQFP48
USBAVDD
GND
Usb_D1_m
Usb_D1_p
DM1
DP1
DM2
DP2
RREF
R38
681_1%
OVCUR3
OVCUR4
TEST
R62
SysRst#
R26
R27
OVCUR1
OVCUR2
Near chip
DP1
DM1
DP2
DM2
R11
R10
R17
R13
C70
C67
10uF
100nF
USB Interface
L6
VCCUSB0
F1
FUSE_SMD1206P075TS
C9
R16
330K
R12
560K
C10
CE5
100UF
C15
CE4
100UF_DNI
Usb0_OverCurrent
F2
F3
VCCUSB3
VCCUSB4
CN14
L10 DLW21SN900SQ2
Usb_D0_p
Usb_D0_m
+DATA0A
-DATA0A
USBVDD0
L7
GNDUSB0
0_0805
22-0401-4W-5T
ASTRON
L24
C262
CE15
R220
330K
R221
560K
C259
PLACE FRONT CORNER SIDE
L12
L13
L11
R35
R36
R46
R42
CN16
DOWN
UP
USB CON.
UB11123-8B3
L23
C261
CE16
R219
R218
C258
QNAP SYSTEMS, INC.
21F, No. 77, Sec. 1, Xintai 5th Rd,
Xizhi City, Taipei Country, 221, Taiwan
TEL:+886-2-8698-2000 FAX:+886-2-8698-2270
Title
USB Hub & CON
Engineer
Brian Lee
Size B
Document Number
TS-109
Rev 1.02
Date: Thursday, March 29, 2007
Sheet 15 of 16


Ua1_Txd
SysRst#
PWRBTJ0
USBBTJ
Ge_LedTx#
SB5V
C4
0.1UF
R25 0_DNI
R23 100K
D2
C14 SC1U25V5ZY
BAV99
PICRESETJ
V_3.3
R18 10K
R21 10K
Ua1_Rxd
PICTX2
Q2 2N7002_SOT23
Q6 2N7002_SOT23
PICTX1
R29 10K
PICTX
PICRX
R22 10K
R30 10K
R14 10K
R15 1K
PICRX1
Q3 2N7002_SOT23
Q7 2N7002_SOT23
PICRX2
C50 0.1UF
SysRst#
U3
MCLR/VPP/RA5
RA0/AN0
RA1/AN1
RB2/TX/CK
RA2/AN2/VREF
RB1/RX/DT
RA3/AN3/CMP1
RA4/T0CLK/CMP2
VDD
RB0/INT
RB3/CCP1
RB4/PGM
RB5
VSS
RB6/T1CKI/PGC
RB7/PGD
OSC1/CLKIN/RA7
OSC2/CLKOUT/RA6
IC_SOIC18
PIC_AN0
PIC_AN1
PWREN
PWRBTJ
HDDSTSRED
FAN_PWM
BUZOUT
HDDSTSGRN
PWRLEDSTY
USBLEDSTSO
RA6_OS2
STEADY LED
BLINKING LED
POWER LED
R268 1K
LED8
LED-LEKH-7-UBD
PWRLEDSTY
PWRLEDJ
R272 330
R273 330_DNI
R271 330_DNI
R270 330_DNI
R269 330_DNI
SATA1PONJ
SATA1ACTJ
R300 1K_DNI
R211 330_DNI
R210 1K
STSLED1
LED3
LED-LEKH-7-UGRD
R216 330
Ua1_Rxd
M_GPIO2
M_GPIO1
+3V3
STATUS LED
GREEN
ORANGE
R325 0
R326 0_DNI
R331 0
R330 0_DNI
THR_AN0
CMP_AN0
THR_AN1
CMP_AN1
R207 1K_DNI
R208 330
R209 330_DNI
USBACTLEDJ
LED2
LED-LEKH-7-UBD
R206 330
USB COPY BLANKING
R8 10K
R9 1K
D1
BAV99_DNI
USBBTJ
C5 0.1UF
USB COPY BUTTON
SW3
BTS-1103VT_DIP
R70 51 1%
BZ1
HY-05
BUZZER
SPKR3
SPKR2
R53 1K
Q10 MMBT3904LT1_SOT23
C59 1000PF
C348 100nF_DNI
R290 10K
D9
BAV99_DNI
SW4
SYSRSTBTJ
R291 1K
M_GPIO2
C340 0.1UF
RESET DEFAULT SETTING
BTS-1102L_DIP
R222 6.98K_1%
THR_AN0
RT2
RT1
10KR5J_SMD
RT_103JT-025_DNI
C260 1000PF
TSM3A103F34D3RY
Thermal Resistor
R225 9.1K_1%
RT3
RT4
C272 1000PF
D10
R293 10K
R292 1K
PWRBTJ
C341 0.1UF
SW5
BTS-1103V_DIP
POWER ON BUTTON
+12V
R28 1K
R200 1K
FANONJ1
FANONJ
Q8 2N7002_SOT23
R32 1K
FAN_PWM
THERM1
Q5 STS3401
R33 10K
RA6_OS2
FOR FAN DETECTION
FANVCC
CE10 22UF/35V
C13 100nF
CN13
FAN3-2.54mm_CON_DNI
QNAP SYSTEMS, INC
21F, No. 77, Sec. 1, Xintai 5th Rd,
Xizhi City, Taipei Country, 221, Taiwan
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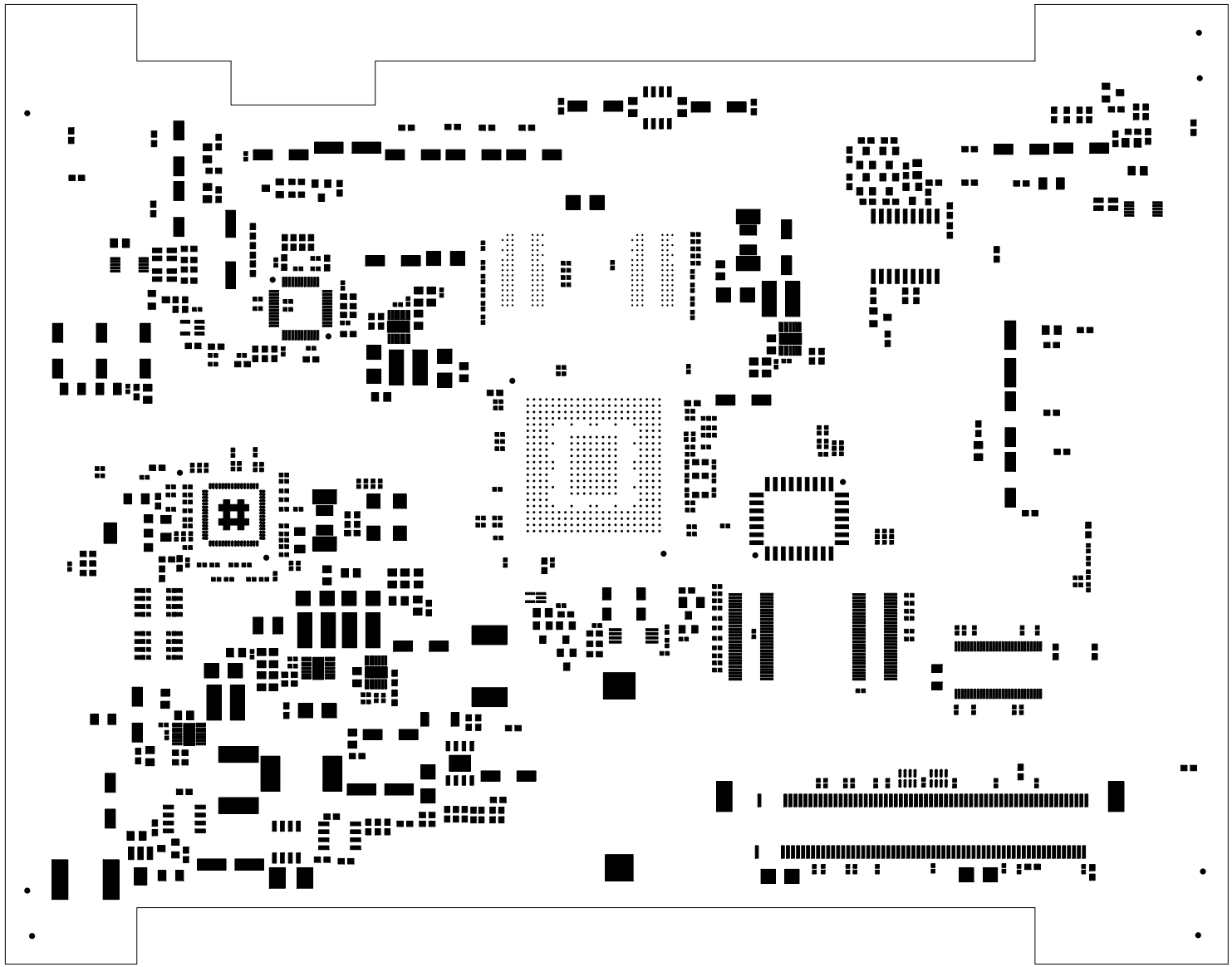
Title
LED, POWER CONTROL
Engineer
Brian Lee
Size B
Document Number
TS-109
Rev 1.02
Date: Wednesday, April 18, 2007
Sheet 16 of 16

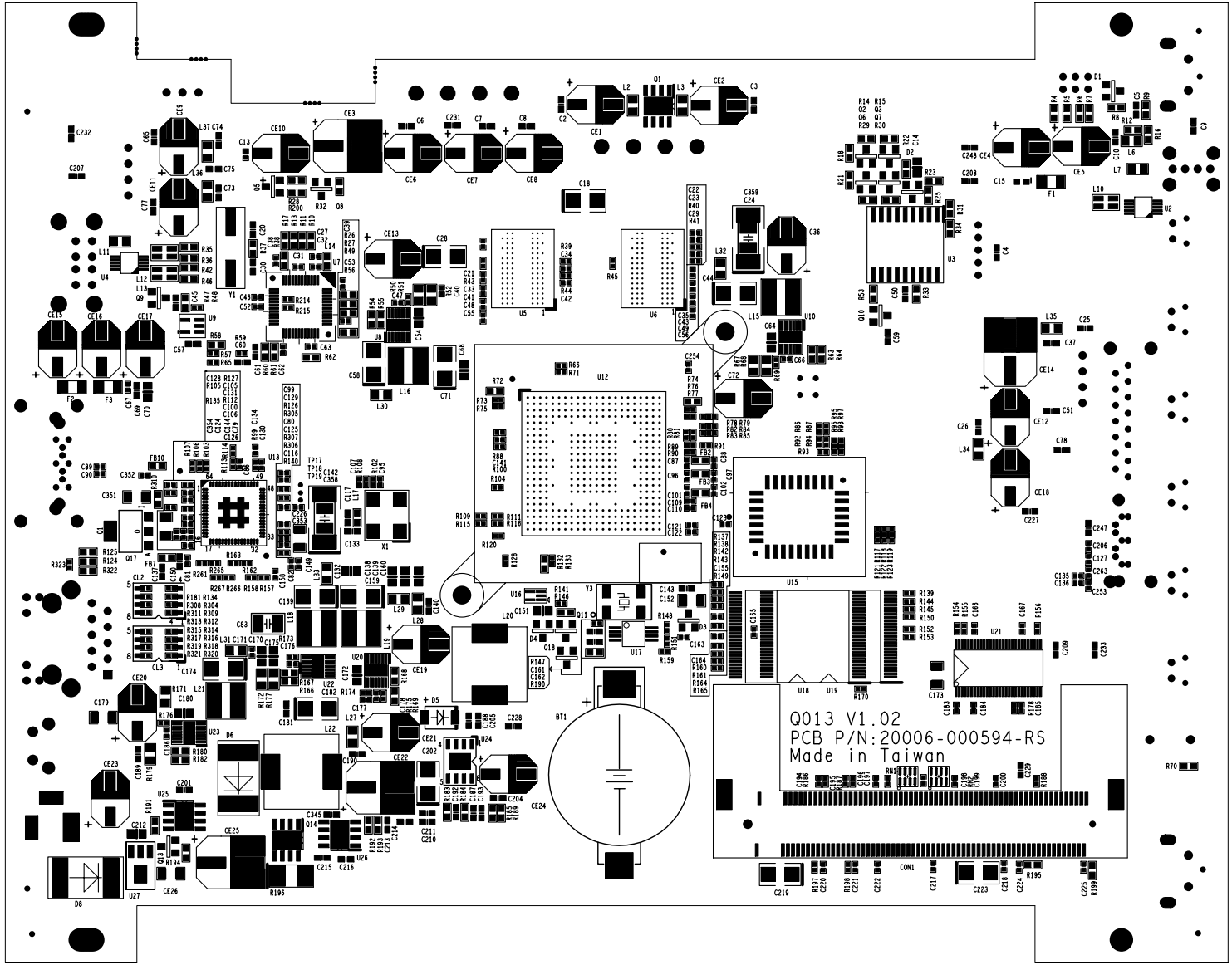
Attachment – D

Printed Wiring Board Layout

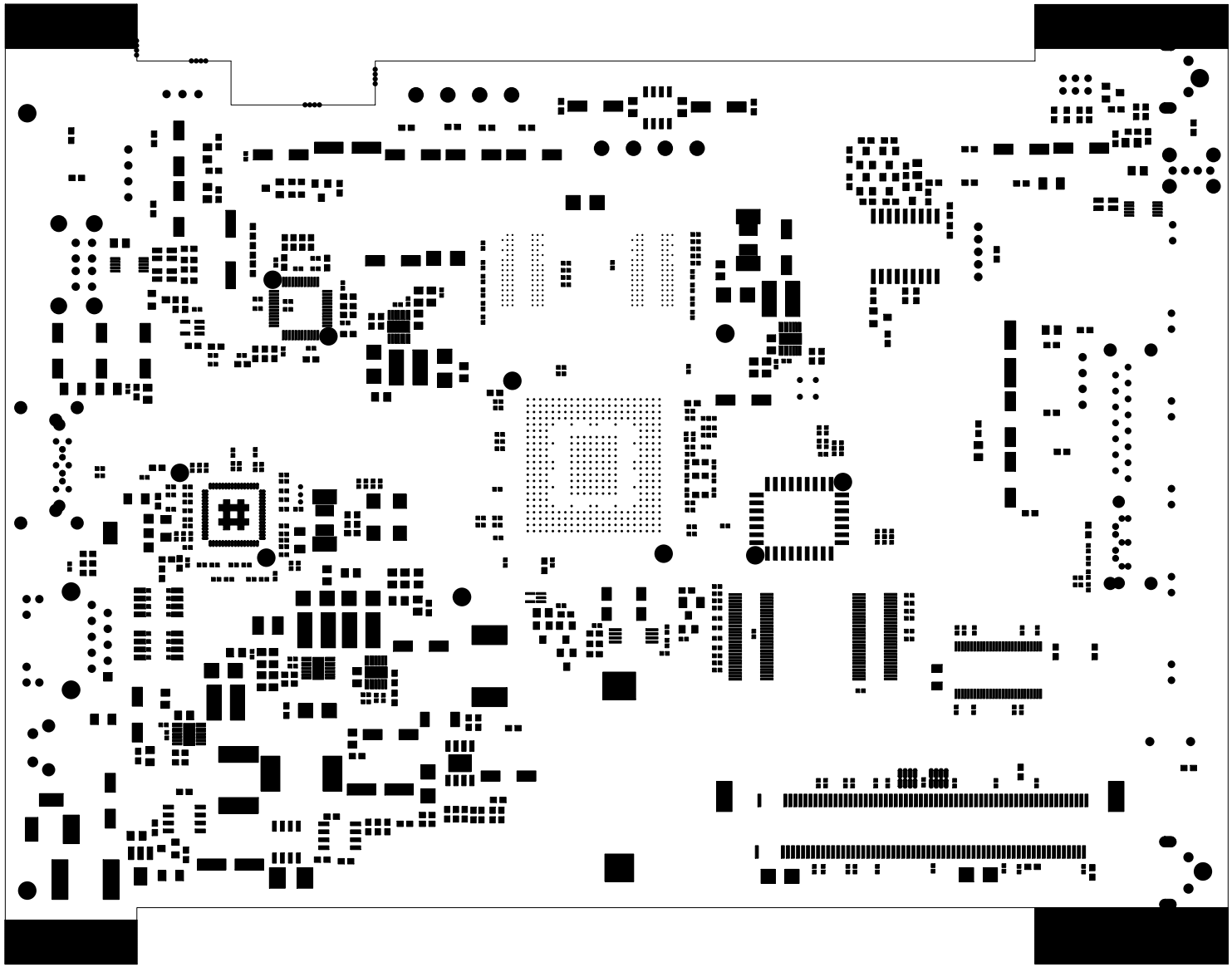
Appendix attached with total 13 pages



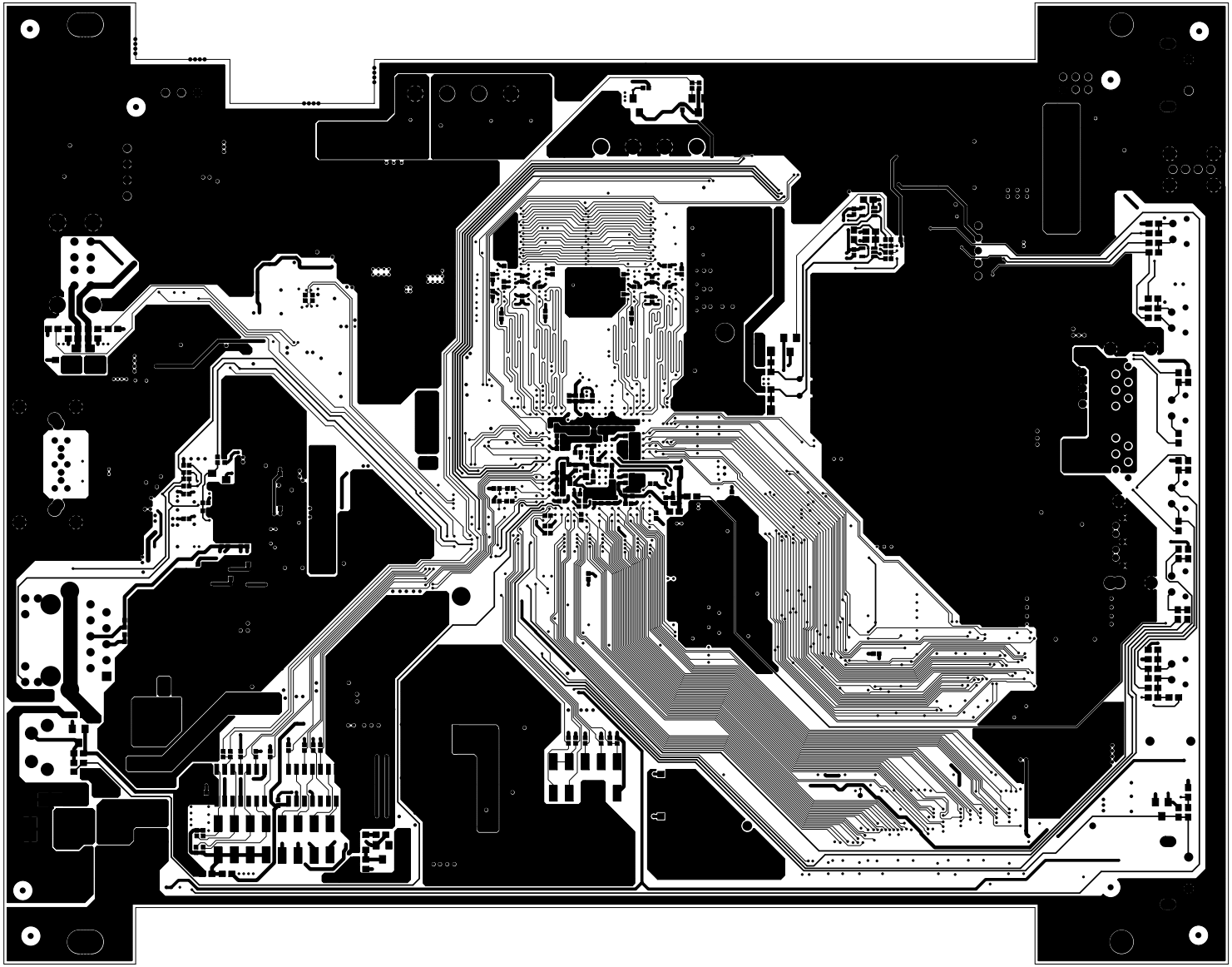
Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	TSMD		



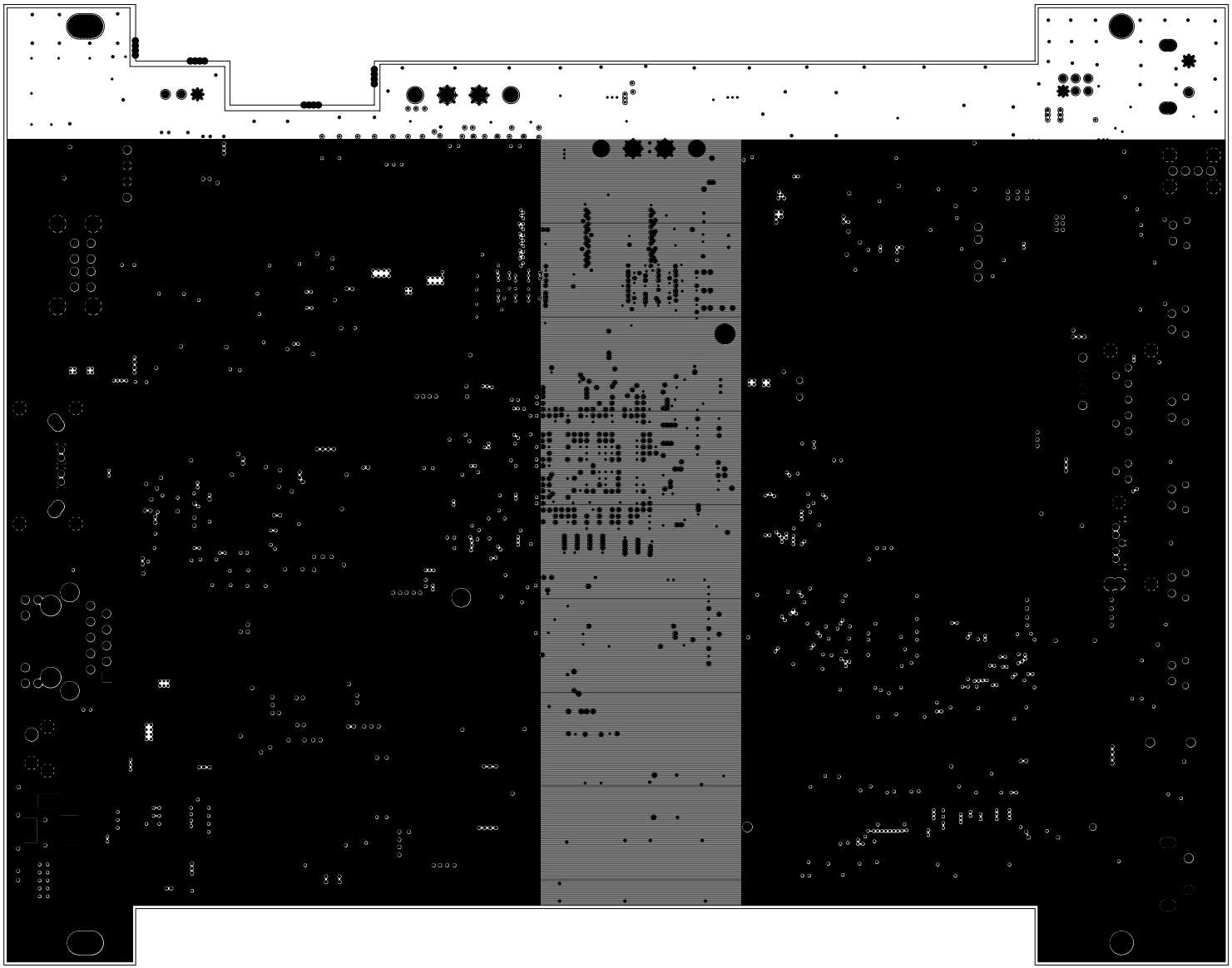
Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	SILKSCREEN FOR COMP		



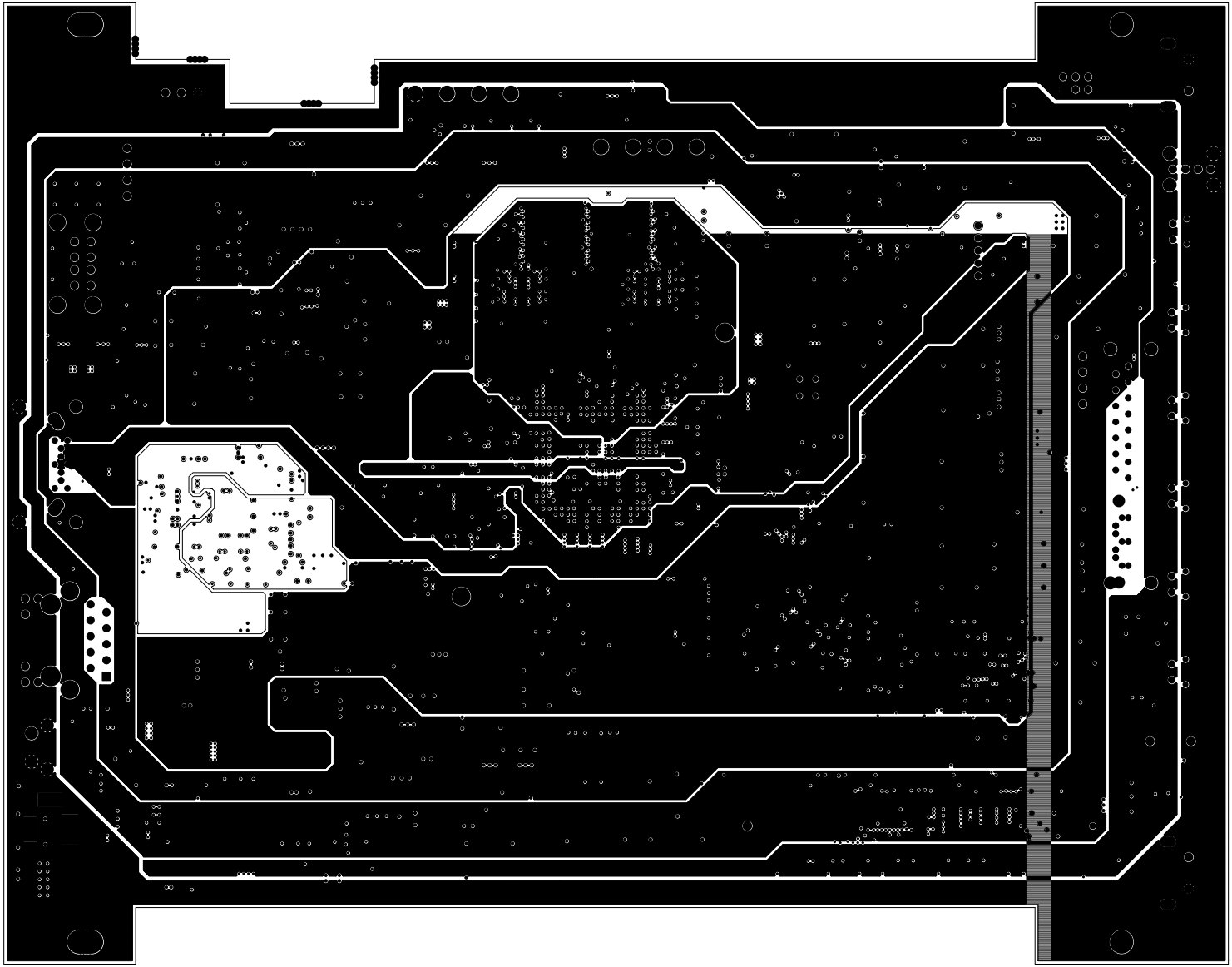
Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	SOLDER MASK FOR COMP		



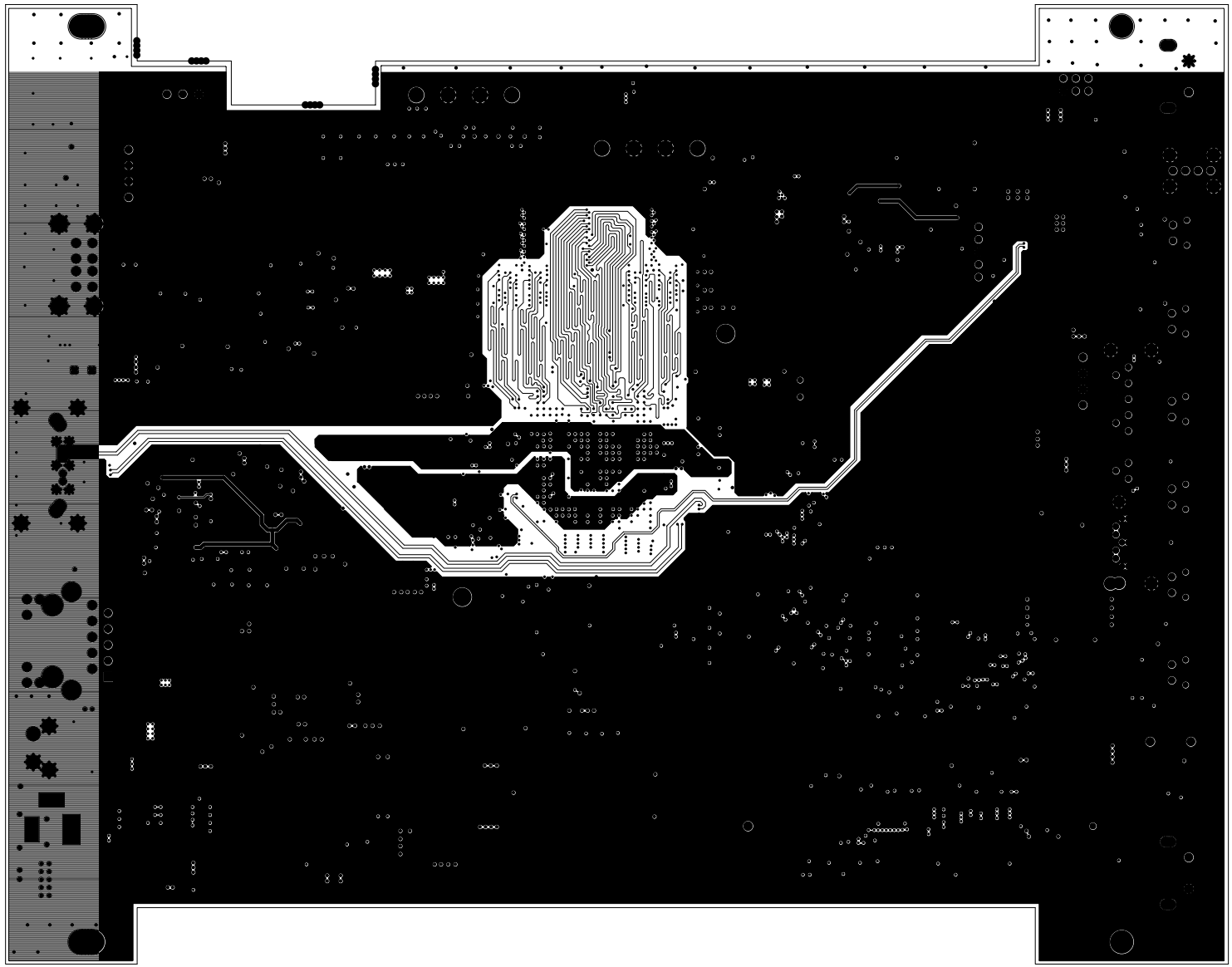
Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	SOLDER SIDE(L6)		



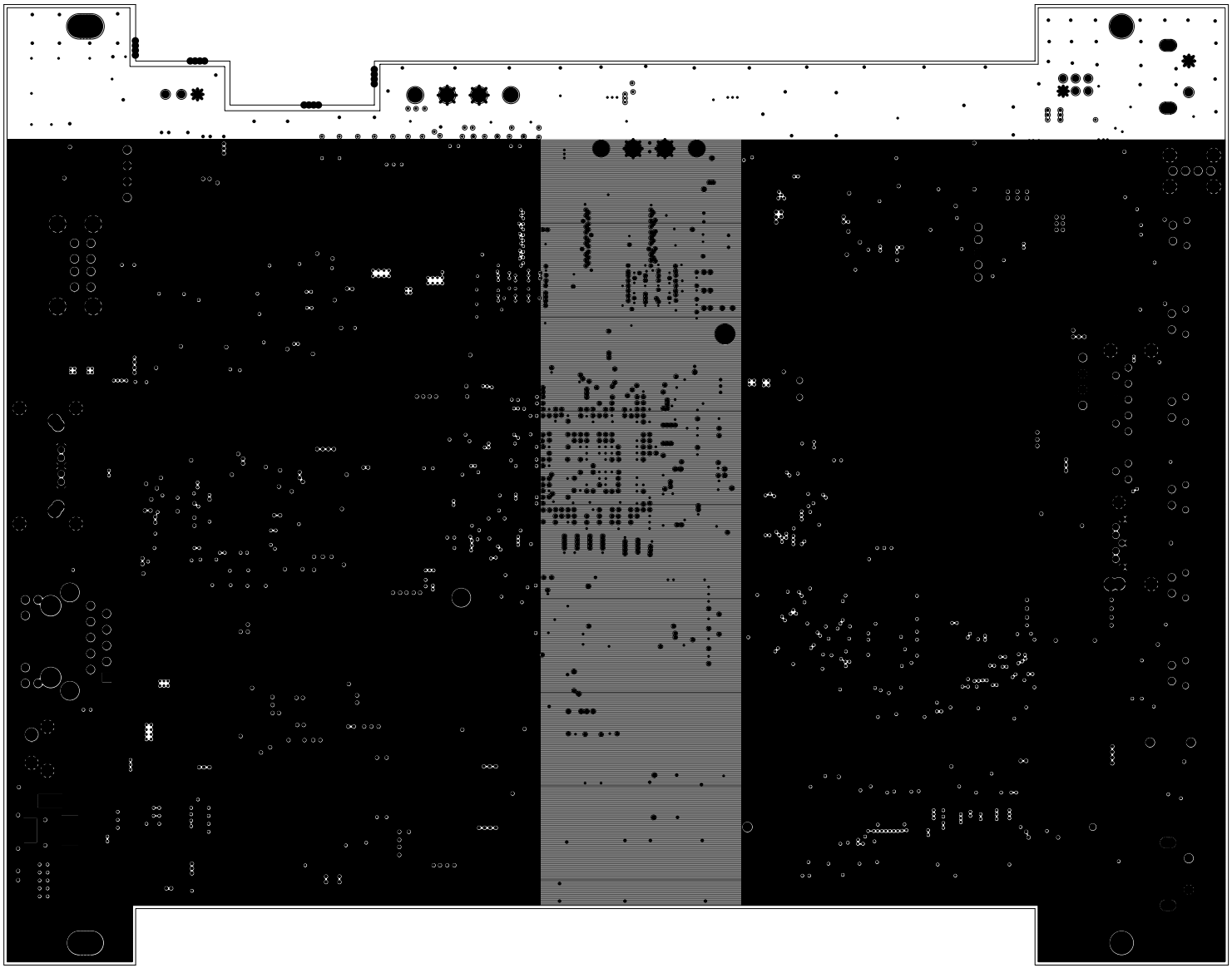
Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	GND1 LAYER(L5)		



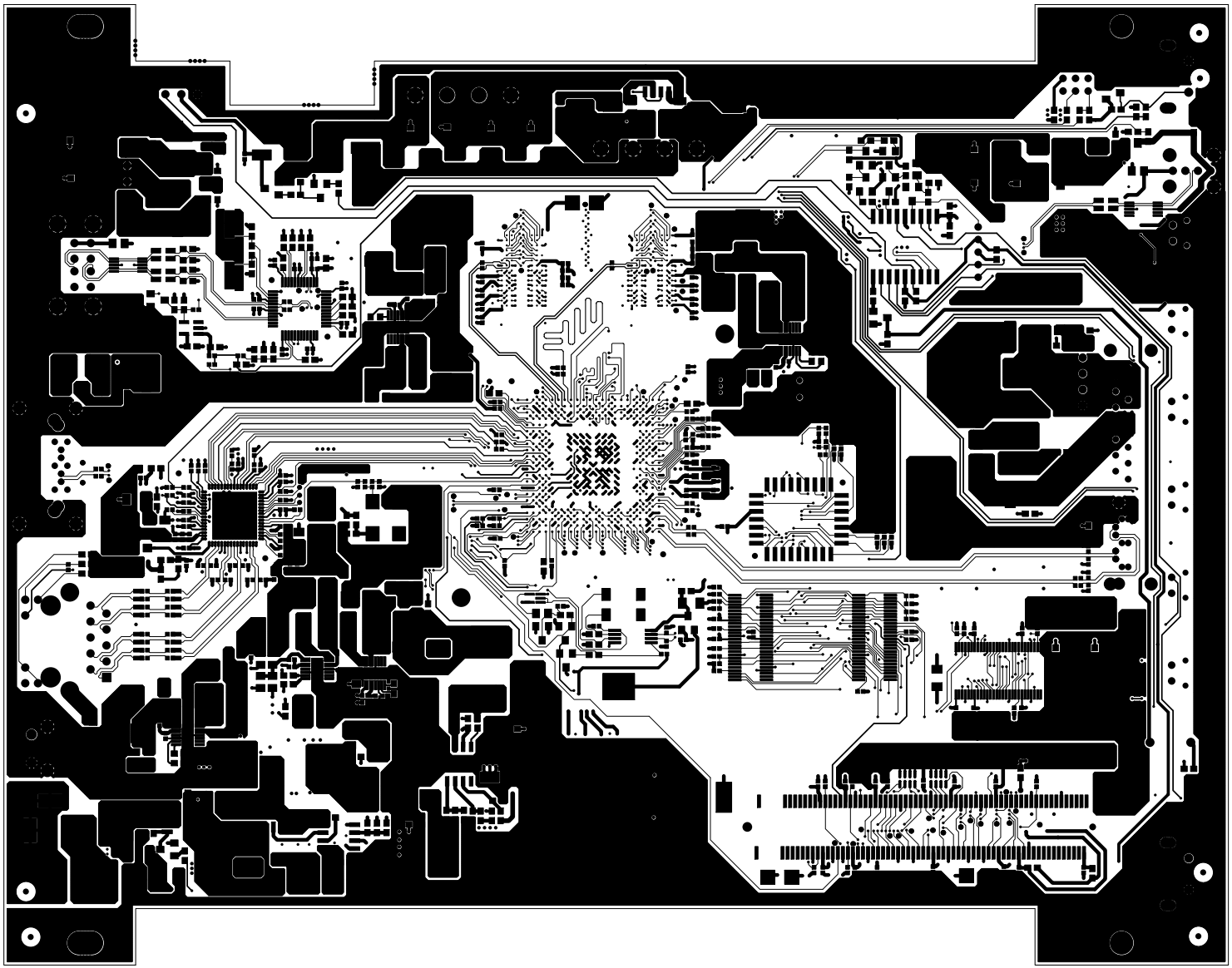
Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	VCC(L4)		



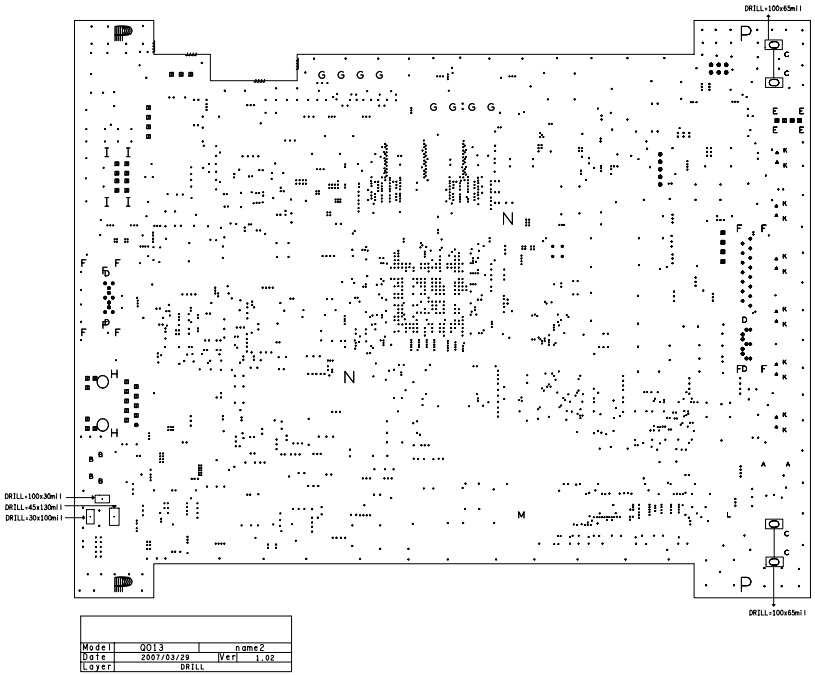
Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	IN1(L3)		



Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	GND LAYER (L2)		

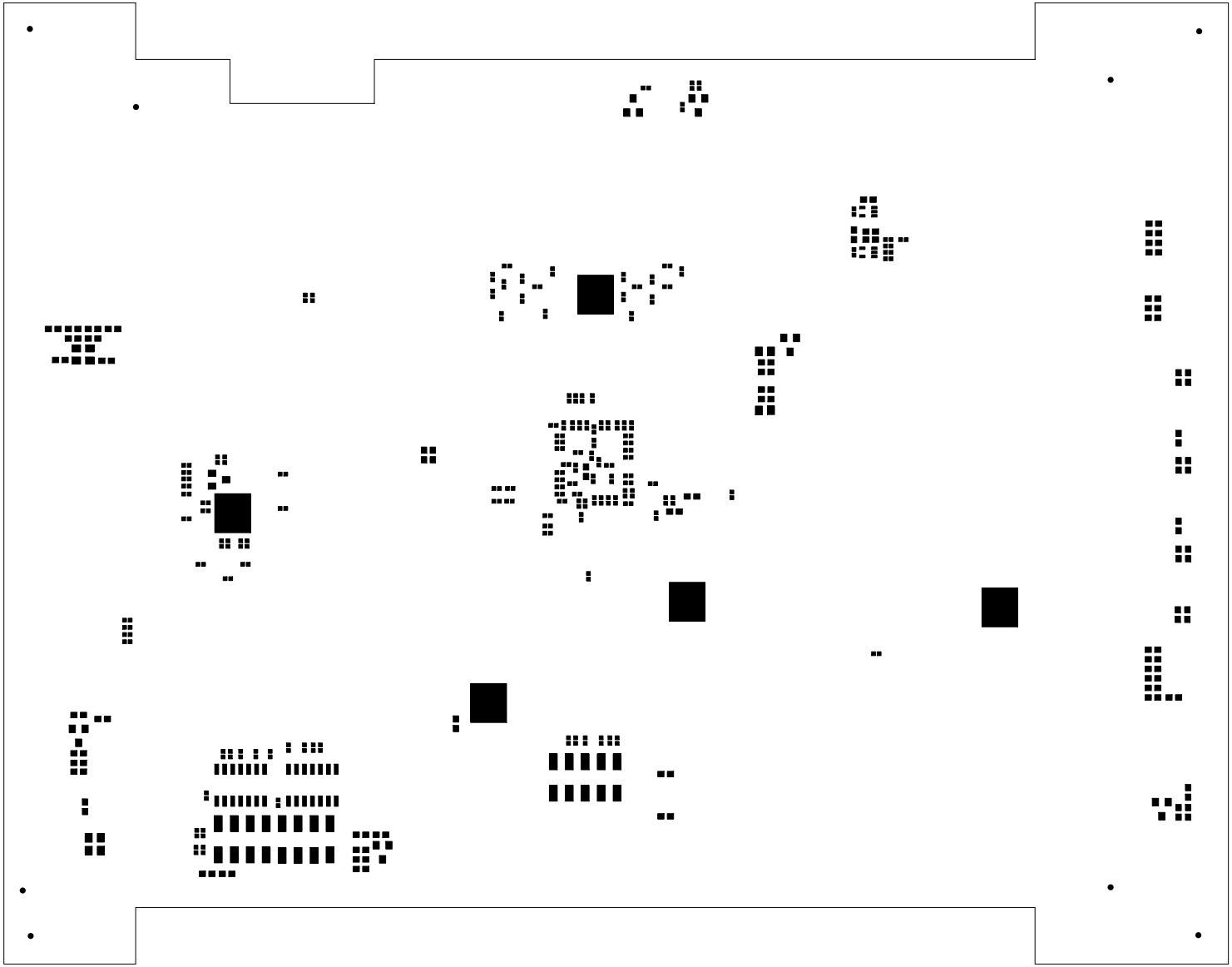


Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	COMPONENT SIDE(L1)		



Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	DRILL		

DRILL CHART: TOP to BOTTOM			
ALL UNITS ARE IN MILS			
FIGURE	SIZE	PLATED	QTY
·	3.0	PLATED	3
·	10.0	PLATED	1395
·	12.0	PLATED	665
•	24.0	PLATED	4
•	30.0	PLATED	21
•	32.0	PLATED	12
•	32.0	PLATED	22
•	35.0	PLATED	5
•	35.0	PLATED	6
■	39.0	PLATED	38
■	39.0	PLATED	1
A	41.0	PLATED	2
B	45.0	PLATED	4
C	47.0	PLATED	4
D	55.0	PLATED	4
E	59.0	PLATED	4
F	70.0	PLATED	10
G	71.0	PLATED	8
H	80.0	PLATED	2
I	91.0	PLATED	4
J	28.0	NON-PLATED	16
K	40.0	NON-PLATED	12
L	44.0	NON-PLATED	1
M	63.0	NON-PLATED	1
N	120.0	NON-PLATED	2
O	130.0	NON-PLATED	2
P	150.0	NON-PLATED	12
○	100.0x65.0	NON-PLATED	4



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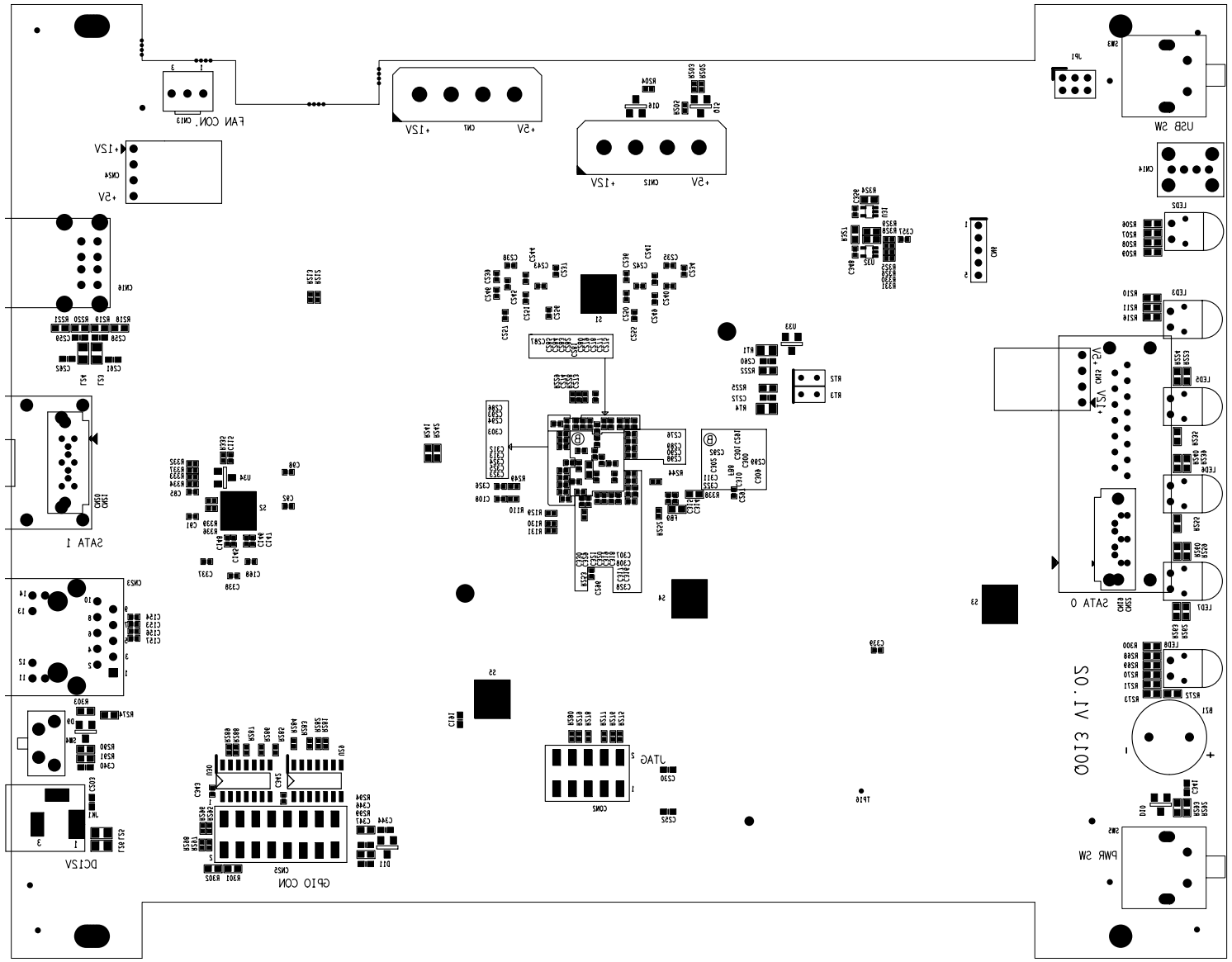
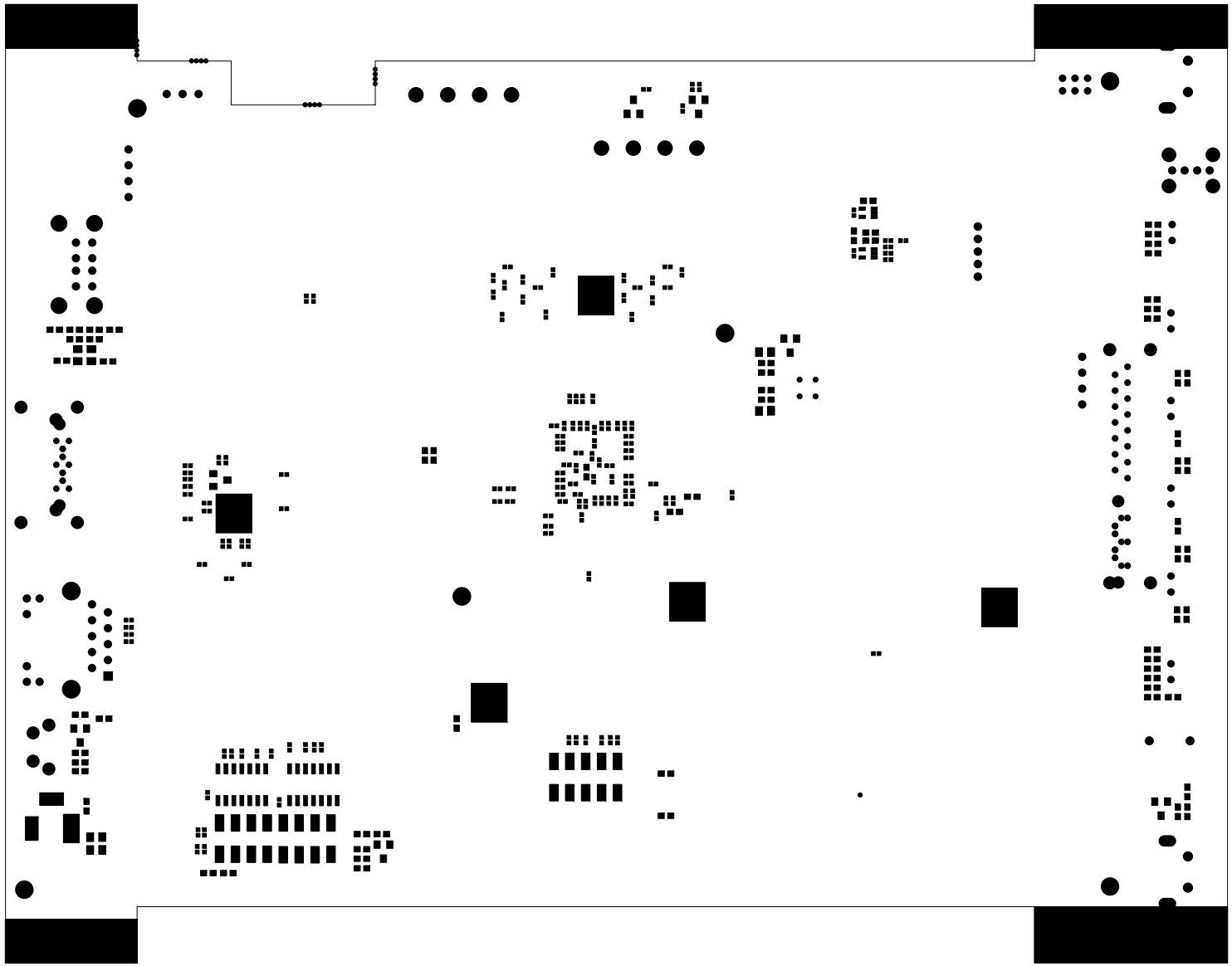
Layer	BSMD		



Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	SILKSCREEN FOR SOLD		



Model	Q013	name2	
Date	2007/03/29	Ver	1.02
Layer	SOLDER MASK FOR SOLDER		