

# Service Manual

Notebook Computer

CF-73

**TOUGHBOOK**



This is the Service Manual for  
the following areas.  
M ...for U.S.A. and Canada

## Model Number Reference

The following models are numbered in accordance with the types of CPU, LCD and HDD etc. featured by product.

Model No. CF-731 2 3 4 X 5 6

- 1: CPU type  
E: Intel® Pentium® M Processor 1.4 GHz
- 2: LCD type  
3: 13.3-type TFT /XGA Color
- 3: HDD type / RAM size  
K: 40 GB / 256 MB
- 4: Drive / Modem – LAN  
V: DVD-ROM Drive / Wireless LAN
- 5: Operation System  
D: Microsoft® Windows® 2000  
K: Microsoft® Windows® XP Professional
- 6: Area  
M: Refer to above area table

### WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

**Panasonic®**

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# WARNINGS

For U.K.

## **This apparatus must be earthed for your safety.**

To ensure safe operation the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe.


For your safety, if you have any doubt about the effective earthing of the power point, consult a qualified electrician.

## **FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY**

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 3 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 3 amps and that it is approved by ASTA or BSI to BS 1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

**IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.**

**THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.**

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.


**Warning: THIS APPLIANCE MUST BE EARTHED.**

### **Important**

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  coloured GREEN or GREEN-and-YELLOW.

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured BLACK.

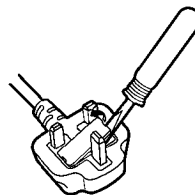
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured RED.

The mains plug on this equipment must be used to disconnect the mains power.

Please ensure that a socket outlet is available near the equipment and shall be easily accessible.

## **How to replace the fuse**

Open the fuse compartment with a screw-driver and replace the fuse.



### **Warnings**

- This equipment is not designed for connection to an IT power system.  
(An IT system is a system having no direct connections between live parts and Earth; the exposed-conductive-parts of the electrical installation are earthed.  
An IT system is not permitted where the computer is directly connected to public supply systems in the U.K.)
- Disconnect the mains plug from the supply socket when the computer is not in use.

This equipment is produced to BS800/1983.

# LASER SAFETY INFORMATION

For U.S.A.

Class 1 LASER-Product

This product is certified to comply with DHHS Rules 21 CFR Subchapter J.

This product complies with European Standard EN60825 (or IEC Publication 825)

For all areas

This equipment is classified as a class 1 level LASER product and there is no hazardous LASER radiation.

**Caution:**

- (1) Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- (2) The drive is designed to be incorporated into a computer-based system or unit which has an enclosing cover. It should never be used as a stand alone drive.

**Danger:**

The serviceman should not remove the cover of drive unit and should not service because the drive unit is a non-serviceable part.

Please check DANGER label on PD-drive unit.

- Unplug the AC power cord to the equipment before opening the top cover of the drive.
- When the power switch it on, do not place your eyes close to the front panel door to look into the interior of the unit.

LASER Specification

Class 1 level LASER Product

Wave Length: DVD 658±8 nm

CD 775~815 nm

Laser safety information is appropriate only when drive with laser is installed.

## Safety precautions

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.

### Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS

#### LITHIUM BATTERY ⚠

##### • CAUTION

Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type recommended by the equipment manufacturer.  
Discard used batteries according to the manufacturer's instructions.

#### LITHIUMBATTERIES ⚠

##### Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

#### PILE AU LITHIUM ⚠

ATTENTION: IL Y A DANGER D'EXPLOSION S' IL Y A REMPLACEMENT INCORRECT DE LA PILE. REMPLACER UNIQUEMENT AVEC UNE PILE DU MÊME TYPE OU D'UN TYPE RECOMMANDÉ PAR LE CONSTRUCTEUR. METTRE AU RÉBUT LES PILES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT.

## For U.S.A. / CANADA



A lithium ion battery that is recyclable powers the product you have purchased. Please call 1-800-8-BATTERY for information on how to recycle this battery.

L'appareil que vous vous êtes procuré est alimenté par une batterie au lithium-ion. Pour des renseignements sur le recyclage de la batterie, veuillez composer le 1-800-8-BATTERY.

### Lithium Battery

#### Lithium Battery!

This computer contains a lithium battery to enable the date, time, and other data to be stored. The battery should only be exchanged by authorized service personnel.

Warning! A risk of explosion from incorrect installation or misapplication may possibly occur.

## Precautions (Battery Pack)

- Care should be exercised with regard to the following in order to avoid the possibility of overheating, fire or damage.



### **Avoid Heat**

Do not throw the battery pack into a fire or expose it to excessive heat.



### **Keep Articles Away**

Do not place the battery pack together with articles such as necklaces or hairpins when carrying or storing.



### **Do Not Disassemble**

Do not insert sharp objects into the battery pack, expose it to bumps or shocks, deform, disassemble, or modify it.



### **Do Not Short**

Do not short the positive (+) and negative (-) contacts.



### **Avoid Extreme Heat, Cold and Direct Sunlight**

Do not charge, use or leave the battery pack for extended periods where it will be exposed to direct sunlight, in a hot place (in an automobile on a sunny day, for example), or in a cold place.



### **Do Not Use With Any Other Computer**

The battery pack is rechargeable and was intended for the specified computer or charger. Do not use it with a computer other than the one for which it was designed.



### **Do Not Put into a Microwave**

Do not put the battery pack into a microwave oven or a pressurized chamber.



### **Discontinue Use**

Should the battery emit an abnormal odor, become hot to the touch, become discolored, change shape, or become in any way different from normal, remove it from the computer or charger and discontinue use.

- Do not touch the terminals on the battery pack. The battery pack may no longer function properly if the contacts are dirty or damaged.
- Do not expose the battery pack to water, or allow it to become wet.

- If the battery pack will not be used for a long period of time (a month or more), charge or discharge (use) the battery pack until the remaining battery level becomes 30% to 40% and store it in a cool, dry place.
- This computer prevents overcharging of the battery by recharging only when the remaining power is less than approx. 95% of capacity.
- The battery pack is not charged when the computer is first purchased. Be sure to charge it before using it for the first time. When the AC adaptor is connected to the computer, charging begins automatically.
- Should the battery leak and the fluid get into your eyes, do not rub your eyes. Immediately flush your eyes with clear water and see a doctor for medical treatment as soon as possible.

### **NOTE**

- The battery pack may become warm during recharging or normal use. This is completely normal.
- Recharging will not commence outside of the allowable temperature range (0 °C to 50 °C {32°F to 122 °F}). (Reference [Manual](#) “Battery Power”) Once the allowable range requirement is satisfied, charging begins automatically. Note that the recharging time varies based on the usage conditions. (Recharging takes longer than usual when the temperature is 10 °C {50 °F} or less.)
- If the temperature is low, the operating time is shortened. Only use the computer within the allowable temperature range.
- The battery pack is a consumable item. If the amount of time the computer can be run off a particular battery pack becomes dramatically shorter and repeated rechargings do not restore its performance, the battery pack should be replaced with a new one.
- When transporting spare batteries inside a package, briefcase, etc., it is recommended that it be placed in a plastic bag so that its contacts are protected.
- Always power off the computer when it is not in use. Leaving the computer on when the AC adaptor is not connected will exhaust the remaining battery capacity.

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# 1 Specification

## ● Main Specifications

<b>CPU</b>		Intel® Pentium M processor 1.4 GHz L2 (Second) Cache Memory: 1 MB	
<b>Memory (Expandable to)</b>		256 MB (768 MB Max.)	
<b>Video Memory</b>		32 MB	
<b>LCD</b>	<b>Type</b>	13.3 type (TFT)	
	<b>Displayed Colors*1</b>	256/65536/16M colors (640 x 480 dots/800 x 600 dots/1024 x 768 dots)	
<b>External Display</b>		256/65536/16M colors (640 x 480 dots/800 x 600 dots/1024 x 768 dots/1280 x 1024 dots/1600 x 1200 dots/2048 x 1536 dots)*2	
<b>Hard Disk Drive</b>		40GB*3	
<b>Keyboard</b>		87 keys	
<b>DVD-ROM Drive</b>	<b>Supports</b>	<b>DVD-ROM</b>	DVD-5, DVD-9, DVD-10, DVD-18, DVD-R*4(3.95 GB, 4.7 GB), DVD-RW*4 (4.7 GB), DVD-RAM*4*5 (2.6 GB, 4.7 GB)
	<b>DVD-ROM read*6</b>		8x speed (Max.)
	<b>CD-ROM read*6</b>		24x speed (Max.)
<b>Slots</b>	<b>PC Card Slots</b>		Two Type I or Type II, or one Type III
	<b>Allowable current (total for two slots)</b>		3.3 V: 400 mA 5 V: 400 mA
	<b>RAM Module Slot*8</b>		200-pin, SO-DIMM, DDR-SDRAM, PC2100 Compliant
<b>Interface</b>	<b>External Display Port</b>		Mini Dsub 15-pin female
	<b>Serial Port</b>		Dsub 9-pin male
	<b>Microphone Jack*9</b>		Miniature jack, 3.5 DIA
	<b>Headphone Jack</b>		Miniature jack, 3.5 DIA Impedance 32 Ω, Output Power 4 mW x 2
	<b>Expansion Bus Connector</b>		Dedicated 84-pin female
	<b>USB Port</b>		4-pin x 2, USB 2.0
	<b>I/O Box Connector</b>		Dedicated 36-pin male
	<b>Modem</b>		RJ-11 jack Data: 56 kbps (V.92) FAX:14.4 kbps
	<b>LAN</b>		RJ-45 jack IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX
<b>Wireless LAN</b>		802.11b	

\*1 A 16M color display is achieved by using the dithering function. **Windows XP** : A 256 color and 640x480 dots are not supported.

\*2 Maximum resolution depends on the specifications of the external display. **Windows XP** : A 256 color and 640x480 dots are not supported.

\*3 1GB = 10<sup>9</sup> bytes

\*4 Read only.

\*5 In the case of DVD-RAM, only non-cartridge discs or removable cartridge discs can be used.

\*6 If an unbalanced disc (e.g., a disc with which the balance has been displaced from the center) is inserted, the speed may become slower if there are large vibrations while the disc is rotating.

\*8 Only a RAM card designed for PC2100 can be added.

\*9 Use only a monaural condenser microphone.

## ● Main Specifications

<b>Pointing Device</b>		Touch Pad	
<b>Speaker</b>		Card Speaker x 2	
<b>Sound</b>		WAVE and MIDI playback	
<b>Battery Pack</b>	<b>Battery Pack</b>		Li-ion 11.1 V, 3.8 Ah
	<b>Operating Time*<sup>1</sup></b>	<b>Main battery</b>	Approx. 5 hours
		<b>Main battery + Second battery</b>	Approx. 9 hours
	<b>Charging Time*<sup>1</sup></b>	<b>Main battery</b>	Approx. 3 hours
		<b>Main battery + Second battery</b>	Approx. 6 hours
<b>Clock Battery</b>		Coin type lithium battery 3.0 V	
<b>AC Adaptor*<sup>2</sup></b>	<b>Input</b>		100 V - 240 V AC, 50 Hz/60 Hz
	<b>Output</b>		15.6 V DC, 5.0 A
<b>Power Consumption*<sup>3</sup></b>			Approx. 43 W* <sup>4</sup> / Approx. 80 W (maximum when recharging in the ON state)
<b>Environment</b>	<b>In use</b>	<b>Temperature</b>	5 °C to 35°C {41 °F to 95 °F}
		<b>Humidity</b>	30% to 80% RH (No condensation)
	<b>Not in use</b>	<b>Temperature</b>	-20 °C to 60 °C {-4 °F to 140 °F}
		<b>Humidity</b>	30% to 90% RH (No condensation)
<b>Physical Dimensions (W x H x D)</b>			297 mm x 32 - 42.5 mm x 254 mm {11.7 " X 1.2 - 1.7 " X 10 "} (excluding the carrying handle)
<b>Weight (including the carrying handle)</b>			Approx. 2.2 kg {Approx. 4.9 lb.}

\*1 The numerical value given for the following conditions varies depending on the usage conditions.

LCD brightness: minimum

[Audio Power Management] in the Setup Utility: [Enable]

[Power schemes] in [Power Options]: [Max Battery]

ATI POWERPLAY: [Optimal Battery Life]

Wireless LAN: radio off

\*2 The AC adaptor is compatible with power sources up to 240 V AC adaptor.

This computer is supplied with a 125 V AC compatible AC cord.

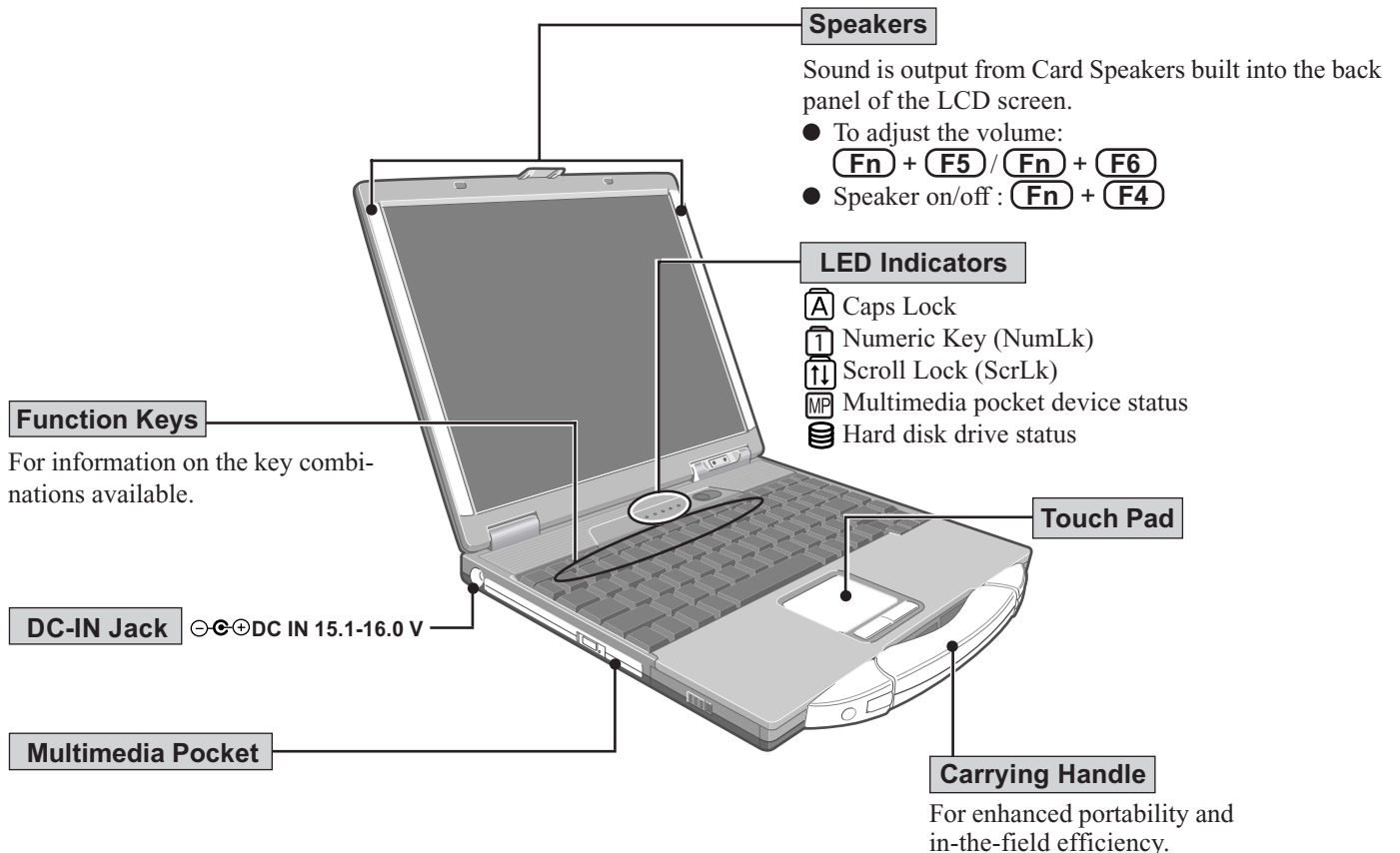
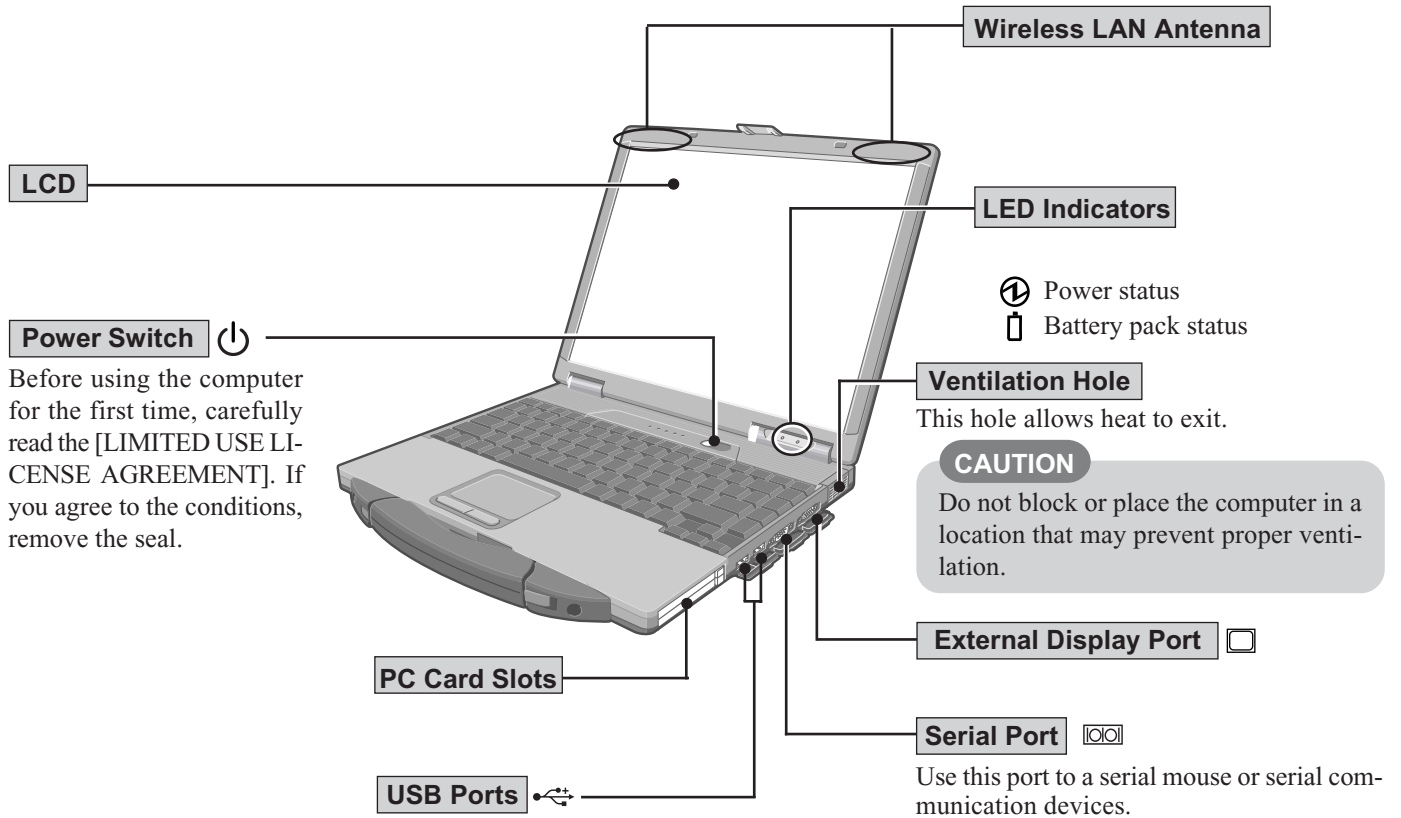
\*3 Approx. 1.0 W when the battery pack is fully charged (or not being charged) and the computer is off.

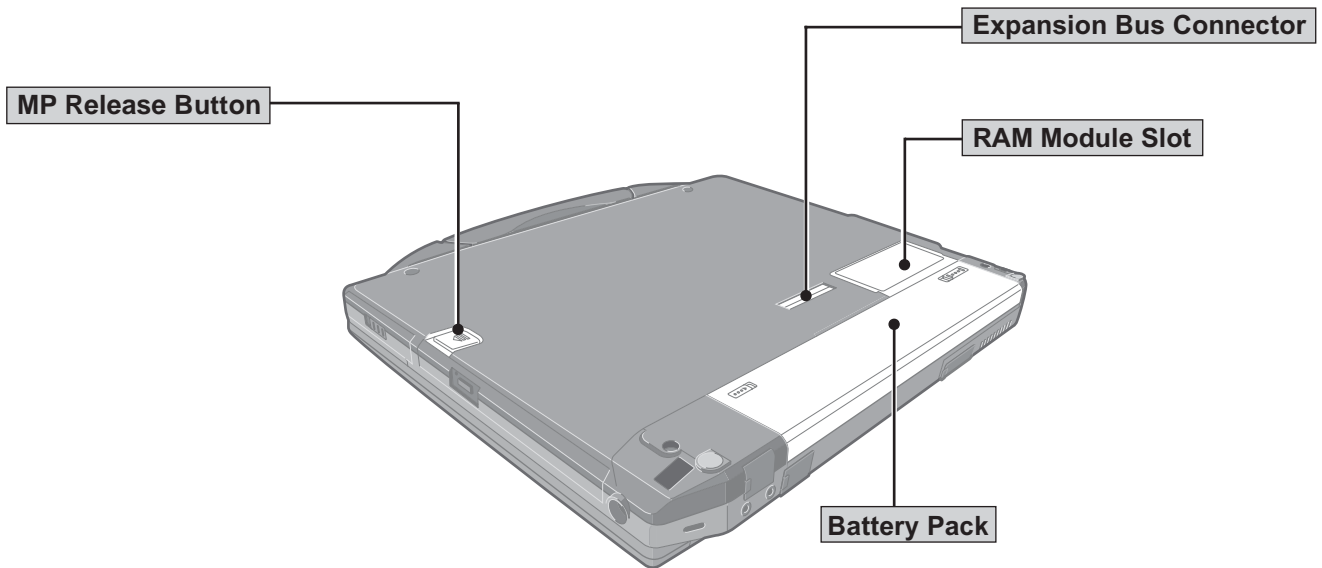
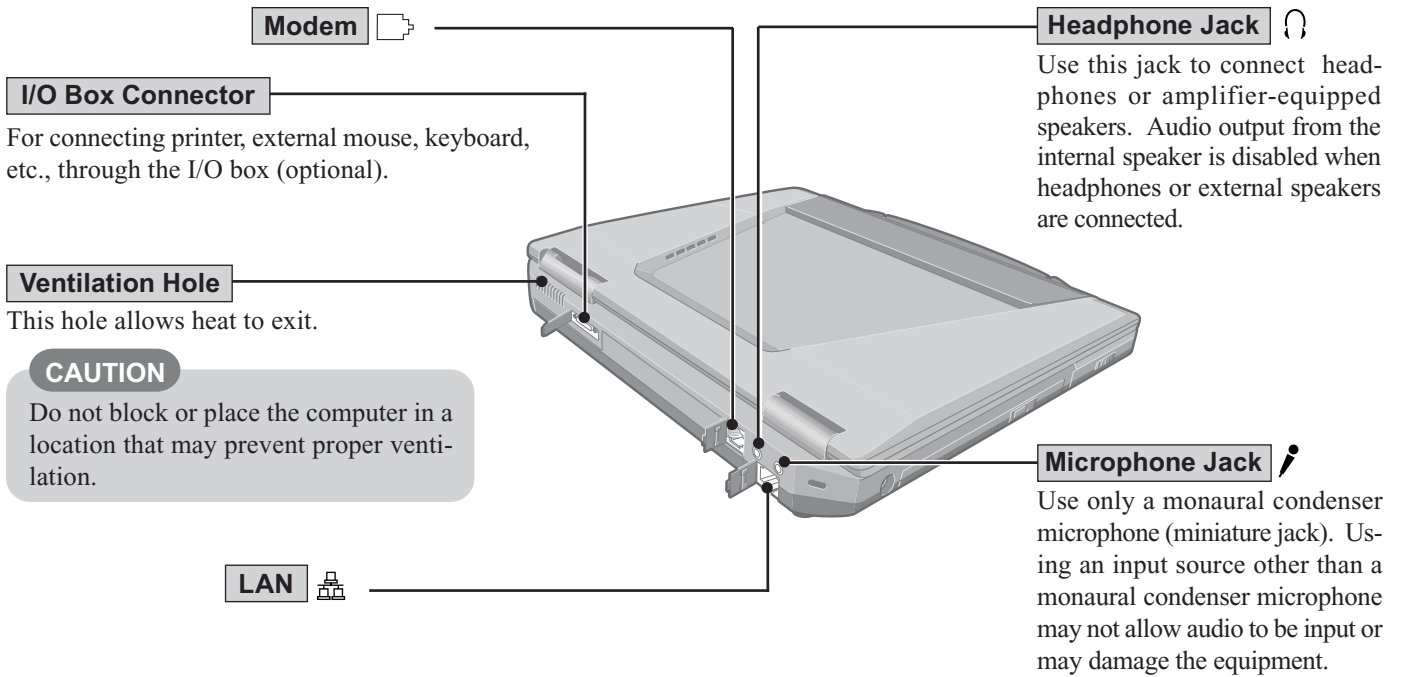
Approx. 1.2 W when the Wake up from LAN function has been enabled.

\*4 Rated power consumption.



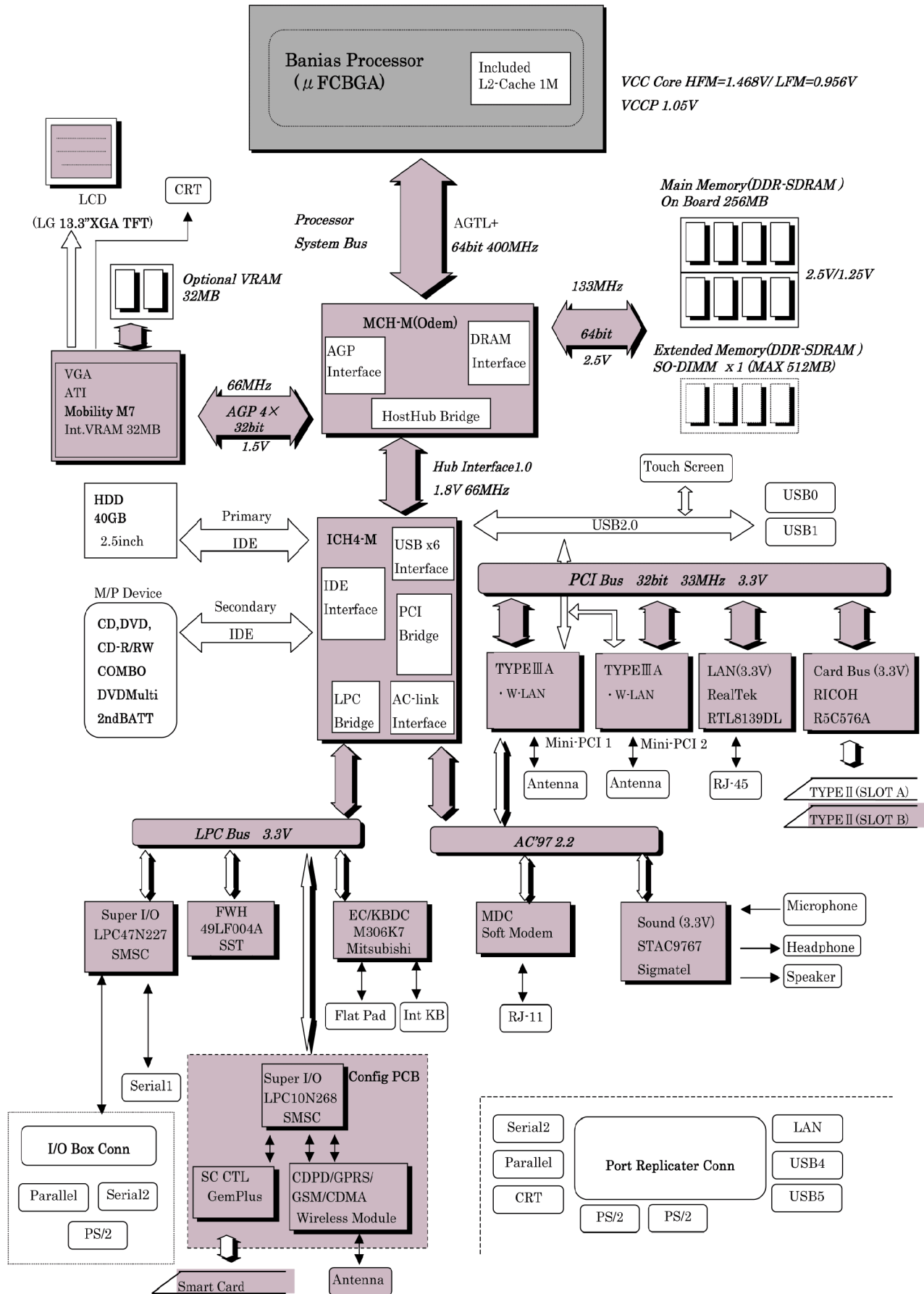
# 2 Names and Functions of Parts



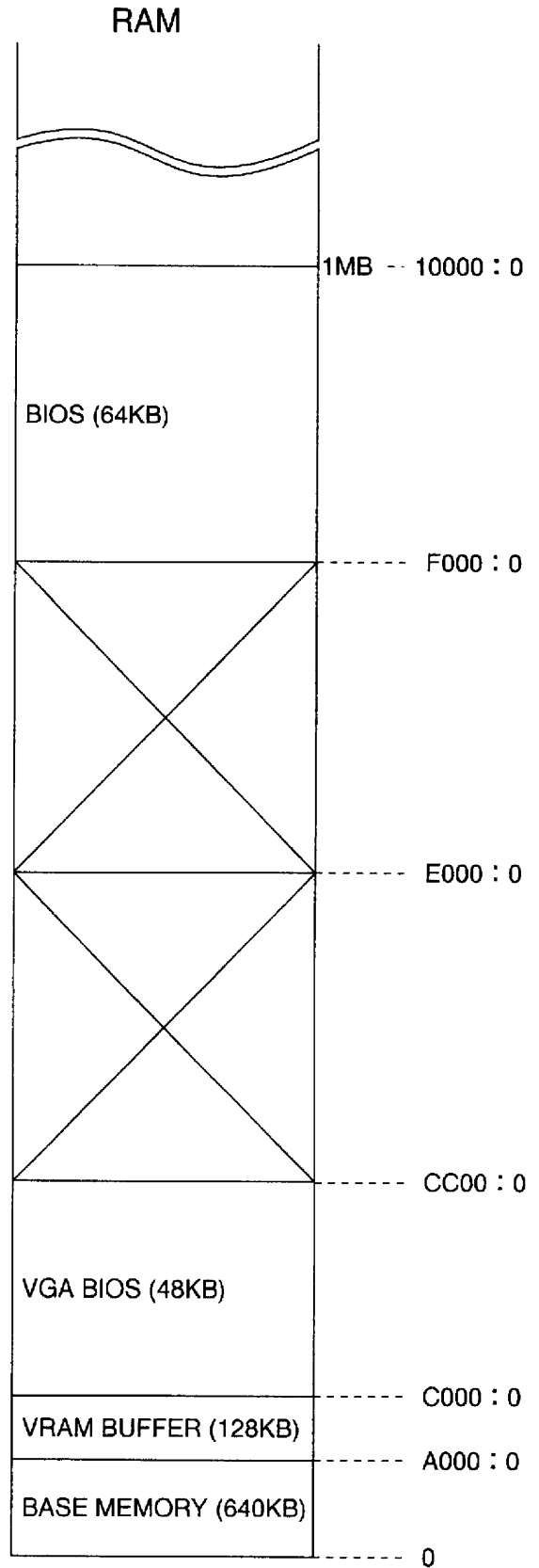
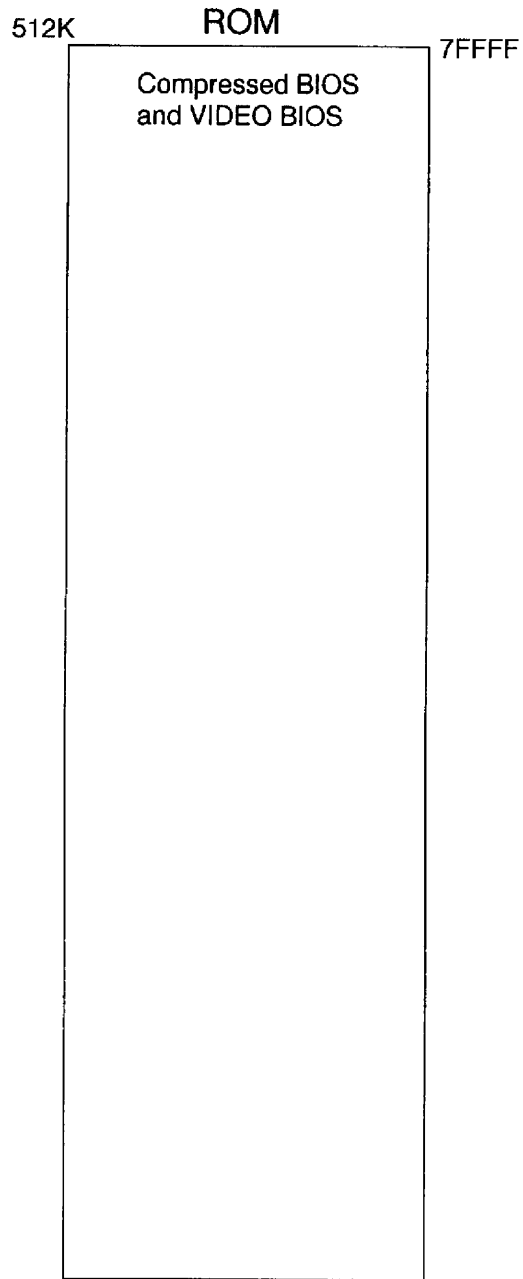


# 3 Block Diagram

## System Configuration Diagram



# 4 System Memory Map



# 5 I/O Address Map

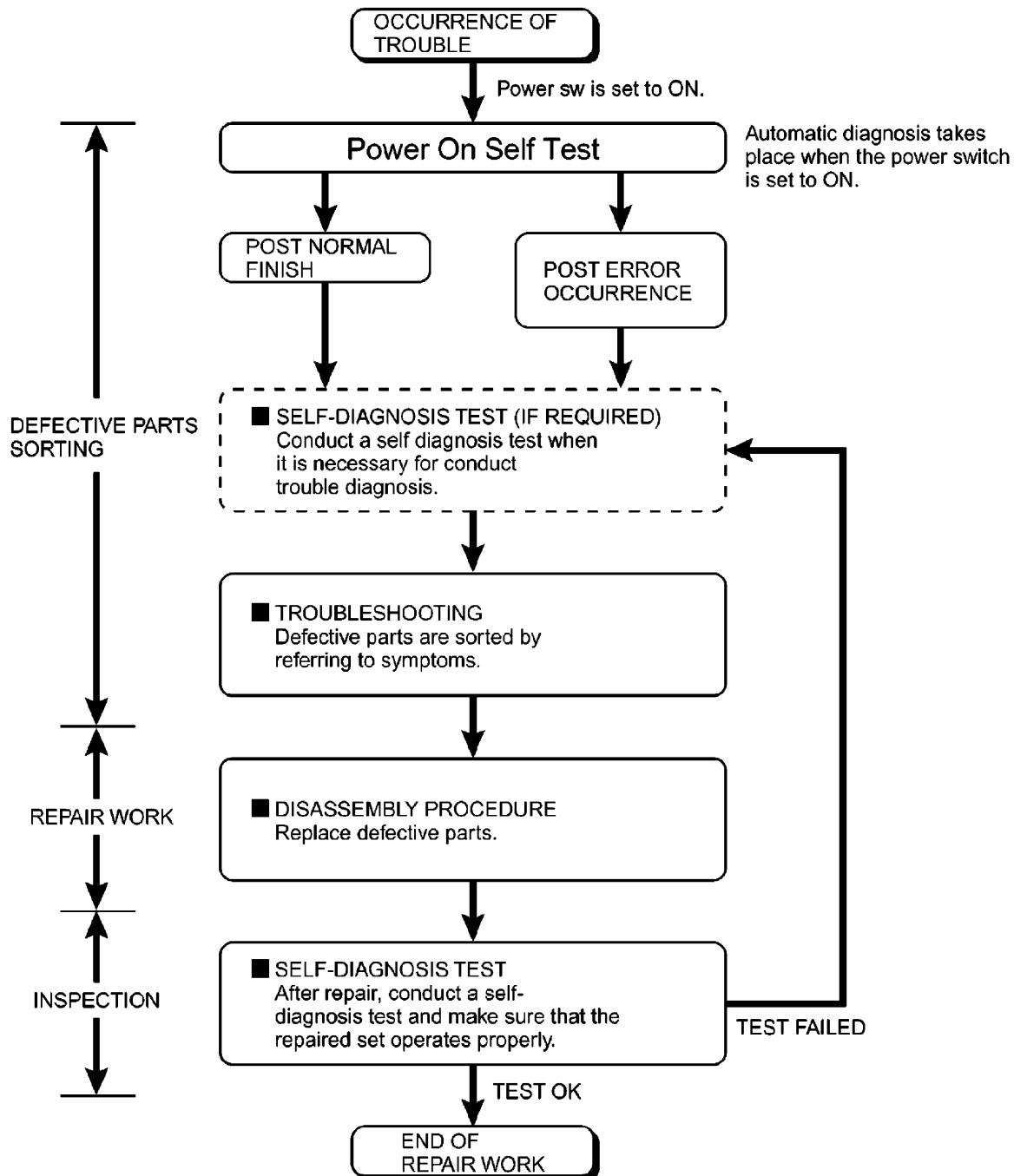
0x0000-0x0CF7	PCI bus
0x0000-0x0CF7	Direct memory access controller
0x0D00-0xFFFF	PCI bus
0x3000-0x3FFF	Intel(R) 82855PM Processor to AGP Controller - 3341
0x3000-0x3FFF	MOBILITY RADEON 7500
0x03B0-0x03BB	Intel(R) 82855PM Processor to AGP Controller - 3341
0x03B0-0x03BB	MOBILITY RADEON 7500
0x03C0-0x03DF	Intel(R) 82855PM Processor to AGP Controller - 3341
0x03C0-0x03DF	MOBILITY RADEON 7500
0x1820-0x183F	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
0x1800-0x181F	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
0x1840-0x185F	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7
0xFD00-0xFDFE	Ricoh R/RL/5C476(II) or Compatible CardBus Controller
0xFC00-0xFCFF	Ricoh R/RL/5C476(II) or Compatible CardBus Controller
0xDFF0-0xDFFF	PCMCIA IDE/ATAPI Controller
0xFA00-0xFAFF	Ricoh R/RL/5C476(II) or Compatible CardBus Controller
0xF900-0xF9FF	Ricoh R/RL/5C476(II) or Compatible CardBus Controller
0x4000-0x40FF	Realtek RTL8139 Family PCI Fast Ethernet NIC
0x0A79-0x0A79	ISAPNP Read Data Port
0x0279-0x0279	ISAPNP Read Data Port
0x0274-0x0277	ISAPNP Read Data Port
0x0081-0x008F	Direct memory access controller
0x00C0-0x00DF	Direct memory access controller
0x0020-0x0021	Programmable interrupt controller
0x00A0-0x00A1	Programmable interrupt controller
0x0040-0x0043	System timer
0x0061-0x0061	System speaker
0x0070-0x0071	System CMOS/real time clock
0x00F0-0x00FF	Numeric data processor
0x0062-0x0062	Microsoft ACPI-Compliant Embedded Controller
0x0066-0x0066	Microsoft ACPI-Compliant Embedded Controller
0x0060-0x0060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x0064-0x0064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x03F8-0x03FF	Communications Port (COM1)
0x02F8-0x02FF	Communications Port (COM2)
0x0378-0x037F	ECP Printer Port (LPT1)
0x0778-0x077F	ECP Printer Port (LPT1)
0x1860-0x186F	Intel(R) 82801DBM Ultra ATA Storage Controller - 24CA
0x01F0-0x01F7	Primary IDE Channel
0x03F6-0x03F6	Primary IDE Channel
0x0170-0x0177	Secondary IDE Channel
0x0376-0x0376	Secondary IDE Channel
0x1880-0x189F	Intel(R) 82801DB/DBM SMBus Controller - 24C3
0x1C00-0x1CFF	SigmaTel C-Major Audio
0x18C0-0x18FF	SigmaTel C-Major Audio
0x2400-0x24FF	PCTEL 2304WT V.92 MDC Modem
0x2000-0x207F	PCTEL 2304WT V.92 MDC Modem

# 6 Diagnosis Procedure

## Basic Procedures

The basic procedures for diagnosis, disassembly, and test of defective parts of a set to be repaired are summarized below. For details, refer to relevant pages in the Service Manual.

### ● Flow Chart



# 7 Power-On Self Test (Boot Check)

## Outline of POST

The set has a boot check function called POST (Power-On Self Test) in it. The condition of the main body is diagnosed by checking beep sound or error code.

- Start .....Test begins automatically when power switch is set to ON.
- Normal finish .....After memory checking, a beep sound is issued once and the set is placed into automatic stop.

Note: If no error occurs, nothing is displayed. (No display of OK, etc.)

## Error Diagnosis by Checking Beep Signal Sound

The beep sound is as follows:



(Length of bar shows length of sound.)

■ = long sound (about 0.4 sec.), ■ = short sound (about 0.2 sec.), Length between sounds is about 0.1 sec.

### ● Table of errors classified by beep sounds

Diagnosis	Beep signal sound	Error message
Main board	1(long sound)-2	BIOS ROM error
	1-2-2-3	BIOS ROM error
	1-3-1-1	RAM error
	1-3-1-3	Keyboard controller error
	1-3-4-1	RAM error
	1-3-4-3	RAM error
	1-4-1-1	RAM error
	2-1-2-3	BIOS ROM error
	2-2-3-1	Occurrence of unexpected offering

(Note) A beep sound is also issued in case of other I/O trouble.

## 8 List of Error Codes <Only when the port replicator is connected>

The following is a list of the messages that BIOS can display. Most of them occur during POST. Some of them display information about a hardware device, e.g., the amount of memory installed. Others may indicate a problem with a device, such as the way it has been configured. Following the list are explanations of the messages and remedies for reported problems. If your system displays one of except the messages marked below with an asterisk (\*), write down the message and contact Panasonic Technical Support. If your system fails after you make changes in the Setup menus, reset the computer, enter Setup and install Setup defaults or correct the error.

### **0200 Failure Fixed Disk**

Fixed disk in not working or not configured properly. Check to see if fixed disk is attached properly. Run Setup. Find out if the fixed-disk type is correctly identified.

### **0210 Stuck key**

Stuck key on keyboard.

### **0211 Keyboard error**

Keyboard not working.

### **0212 Keyboard Controller Failed**

Keyboard controller failed test. May require replacing keyboard controller.

### **0213 Keyboard locked - Unlock key switch**

Unlock the system to proceed.

### **0230 System RAM Failed at offset : *nnnn***

System RAM failed at offset *nnnn* of in the 64k block at which the error was detected.

### **0231 Shadow RAM Failed at offset : *nnnn***

Shadow RAM failed at offset *nnnn* of the 64k block at which the error was detected.

### **0232 Extended RAM Failed at offset : *nnnn***

Extended memory not working or not configured properly at offset *nnnn*.

### **0250 System battery is dead - Replace and run SETUP**

The CMOS clock battery indicator shows the battery is dead. Replace the battery and run Setup to reconfigure the system.

### **\*0251 System CMOS checksum bad - Default configuration used**

System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. The BIOS installed Default SETUP Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery or contact Panasonic Technical Support.

### **0260 System timer error**

The timer test failed. Requires repair of system board.

### **0270 Real time clock error**

Real-time clock fails BIOS test. May require board repair.

### **\*0280 Previous boot incomplete - Default configuration used**

Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail. On systems with control of **wait states**, improper Setup settings can also terminate POST and cause this error on the next boot. Run Setup and verify that the wait-state configuration is correct. This error is cleared the next time the system is booted.

### **0281 Memory Size found by POST differed from EISA CMOS**

Memory size found by POST differed from EISA CMOS.



**02D0 System cache error - Cache disabled**

Contact Panasonic Technical Support.

**02F0: CPU ID:**

CPU socket number for Multi-Processor error.

**02F4: EISA CMOS not writable**

ServerBIOS2 test error: Cannot write to EISA CMOS.

**02F5: DMA Test Failed**

ServerBIOS2 test error: Cannot write to extended DMA (Direct Memory Access) registers.

**02F6: Software NMI Failed**

ServerBIOS2 test error: Cannot generate software NMI (Non-Maskable Interrupt).

**02F7: Fail - Safe Timer NMI Failed**

ServerBIOS2 test error: Fail-Safe Timer takes too long.

***device address Conflict***

Address conflict for specified *device*.

**Allocation Error for: *device***

Run ISA or EISA Configuration Utility to resolve resource conflict for the specified *device*.

**Failing Bits : *nnnn***

The hex number *nnnn* is a map of the bits at the RAM address which failed the memory test.

Each 1 (one) in the map indicates a failed bit. See error 230,231 or 232 for offset address of the failure in System, Extended or Shadow memory.

**Invalid System Configuration Data**

Problem with NVRAM (CMOS) data.

**I/O device IRQ conflict**

I/O device IRQ conflict error.

**Operating System not found**

Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified.

**Parity Check 1 *nnnn***

Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. Parity is a method for checking errors in binary data. A parity error indicates that some data has been corrupted.

**Parity Check 2 *nnnn***

Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????.

**Press <F1> to resume, <F2> to Setup**

Displayed after any recoverable error message. Press <F1> to start the boot process or <F2> to enter a Setup and change the settings. Write down and follow the information shown on the screen.

# 9 Diagnosis

## 9.1 MAIN UNIT DIAGNOSIS(1/2)

Make sure that connecting cables, connectors and AC adapter are not loose or disconnected prior to testing.

No.	Symptom	Troubleshooting procedures			Source of problem	Component
		No.		Result		
1	No power is sent to the unit. (When using AC)	1-1	Is 15V applied to pins 1-3 of Q710? (Whichever one)?	YES	Go to No.1-3	_____
				NO	Go to No.1-2	_____
		1-2	Is 15V applied to pins 5-8 of Q699?	YES	Go to No.1-3	Q699
				NO	Go to No.1-2	_____
	1-3	Before setting the power switch to ON, check voltage on either side of SW1000 Is Voltage 3.3V?	YES	If voltage is 0V during the power switch is set to ON.	_____	
				If not 0V	SW1000	
			NO	If voltage of C738 is 3.3V	R705 R706	
1-5	Is 8-12V applied to pins 1 of Q681? (Whichever one)	YES	If voltage is 8-12V	_____		
		NO	Main PCB	Q681		
2	Power cuts off during operation.	2-1	Check soldered parts of D666 ~ D668 D463 ~ D468.	NO	If they show soldered completely	R589 R584, R585 R501 ~R506
				YES	_____	IC605, IC606 IC616

## 9.2 MAIN UNIT DIAGNOSIS(2/2)

Make sure that connecting cables, connectors and AC adapter are not loose or disconnected prior to testing.

No.	Symptom	Troubleshooting procedures			Source of problem	Component
		No.		Result		
1	When a device is selected for "Boot Up Drive", the system boots from a different device.	1-1	Are there system files in the device selected?	YES	Go to No.1-2	_____
				NO	Improper setting	_____
		1-2	Does the unit operate normally after replacing the problem device.	YES	Device for which the problem occurred	_____
				NO	Main PCB	IC3
2	Date or Time cannot be input. Date and Time does not change properly. Date and Time are not displayed.	2-1	Replace the Main PCB.	_____	Main PCB	IC3 X2 RTC battery
3	Memory count is too large or too small.	3-1	Replace the Main PCB.	_____	Main PCB	IC4-11 IC2

No.	Symptom	Troubleshooting procedures			Source of problem	Component
		No.		Result		
4	No Sound Volume does not work.	4-1	Check software setting.	YES	Software setting	————
				NO	Go to No.4-2	————
		4-2	Replace the Speakers. Does operation return to normal?	YES	Speakers	————
				NO	Go to No.4-3	————
		4-3	Replace the Main PCB.	——	Main PCB	IC1000 IC1003 IC1004
5	Default configuration in use	5-1	Check configuration.	——	Configuration	————
6	Interrupt controller failure	6-1	————	——	Main PCB	IC3
7	Timer failure	7-1	————	——	Main PCB	————
8	Expansion card RAM checksum error	8-1	Does the system return to normal if the expansion card is removed?	YES	Go to No.8-2	————
				NO	Main PCB	IC3 IC2
		8-2	Replace the expansion card. Does operation return to normal?	YES	Expansion card	————
				NO	Main PCB	————
9	Real Time Clock failure	9-1	————	——	Main PCB	IC3
10	Dead RTC Battery	10-1	Does resetting through SETUP correct the problem?	YES	Error during SETUP	————
				NO	Go to No.10-2	————
		10-2	Replace the battery. Does operation return to normal?	YES	Battery	RTC battery
				NO	Main PCB	IC3
11	Configuration error	11-1	Check configuration.	——	Configuration	————
12	CMOS Checksum error	12-1	Were the correct settings selected during SETUP?	YES	Go to No.12-2	————
				NO	Go to No.12-4	————
		12-2	Replace the FDD. Does operation return to normal?	YES	FDD	————
				NO	Go to No.12-3	————
		12-3	Replace the HDD. Does operation return to normal?	YES	HDD	————
				NO	Go to No.12-4	————
		12-4	Does resetting through SETUP correct the problem?	YES	Error during SETUP	————
				NO	Main PCB	IC3 X2
13	Real Time Clock is not updating	13-1	Does resetting the date/time in SETUP correct the problem?	YES	Error during SETUP	————
				NO	Main PCB	IC3
14	Memory size/data error	14-1	Replace the expansion RAM card. Does operation return to normal? (Go to "NO" if not connected.)	YES	Expansion RAM card	————
				NO	Main PCB	IC2 IC4-11
15	PCI failure	15-1	Does the system return to normal if the expansion card is removed?	YES	Go to No.15-2	————
				NO	Main PCB	IC2
		15-2	Replace the expansion card. Does operation return to normal?	YES	Expansion card	————
				NO	Main PCB	IC2

## 9.3 LCD DIAGNOSIS

Make sure that connecting cables, connectors and AC adapter are not loose or disconnected prior to testing.

No.	Symptom	Troubleshooting procedures			Source of problem	Component
		No.		Result		
1	No picture appears on the screen.	1-1	Does the LCD display properly after brightness level is adjusted?	YES	Brightness adjustment	_____
			NO	Go to No.1-2	_____	
		1-2	Replace the LCD. Does operation return to normal?	YES	LCD	_____
			NO	Go to No.1-3	_____	
		1-3	Replace the Main PCB. Does operation return to normal?	YES	Main PCB	IC800
			NO	LCD cable	_____	
2	Display is too dark or too bright.	2-1	Does the LCD display properly after brightness level is adjusted?	YES	Brightness adjustment	_____
			NO	Go to No.2-2	_____	
		2-2	Replace the LCD. Does operation return to normal?	YES	LCD	_____
			NO	Go to No.2-3	_____	
		2-3	Replace the Main PCB. Does operation return to normal?	YES	Main PCB	CN801 IC14
			NO	LCD cable	_____	
3	Part of the screen does not display properly. Display quality poor. (Fuzzy or slanted, etc.)	3-1	Replace the LCD. Does operation return to normal?	YES	LCD	_____
			NO	Go to No.3-2	_____	
		3-2	Replace the Main PCB. Does operation return to normal?	YES	Main PCB	IC800
			NO	LCD cable	_____	
4	Backlight does not turn on.	4-1	Replace the Inverter PCB. Does operation return to normal?	YES	Inverter PCB	_____
			NO	Go to No. 4-2	_____	
		4-2	Replace the Inverter cable. Does operation return to normal?	YES	Inverter cable	_____
			NO	Go to No. 4-3	_____	
		4-3	Replace the Backlight. Does operation return to normal?	YES	Backlight	_____
			NO	Main PCB	CN801 IC14	

## 9.4 KEYBOARD

Make sure that connecting cables, connectors and AC adapter are not loose or disconnected prior to testing.

No.	Symptom	Troubleshooting procedures		Result	Source of problem	Component
		No.				
1	Key top cannot be pressed. Key top does not spring back after pressing.	1-1	Keyboard is broken.	—	Keyboard	—
2	None of the keys function. Certain keys do not function.	2-1	Replace the keyboard and see if inputting from the keyboard function normally?	YES	Keyboard	—
				NO	Main PCB	—
3	Input character is displayed as garbage.	3-1	Does the screen mode correspond to the key entry mode?	YES	Go to No.3-2	—
				NO	Operating mistake	—
		3-2	Is the keyboard setting in the operating system correct?	YES	Go to No.3-3	—
				NO	Software setting	—
		3-3	Replace the keyboard and see if inputting from the keyboard functions normally?	YES	Keyboard	—
				NO	Main PCB	IC14
4	Mouse does not function. Inputs from the mouse are not accepted properly.	4-1	Replace the mouse. Does operation return to normal?	YES	Mouse	—
				NO	Main PCB	IC14
5	Touch pad not function. Input from the track ball are not accepted properly.	5-1	Replace the touch pad. Does operation return to normal?	YES	Touch Pad	—
				NO	Go to No.5-2	—
		5-2	Replace the touch pad FPC. Does operation return to normal?	YES	Touch Pad FPC	—
				NO	Main PCB	IC14
6	Keyboard failure	6-1	Is the keyboard properly connected?	YES	Go to No.7	—
				NO	Keyboard was not connected properly	—
7	Keyboard interface failure	7-1	Replace the keyboard. Does operation return to normal?	YES	Keyboard	—
				NO	Main PCB	IC14

## 9.5 HDD DIAGNOSIS

Make sure that connecting cables, connectors and AC adapter are not loose or disconnected prior to testing.

No.	Symptom	Troubleshooting procedures			Source of problem	Component
		No.		Result		
1	Does not boot from HDD.	1-1	Has the HDD been partitioned?	YES	Go to No.3-2	_____
			NO	Improper setting	_____	
		1-2	Are there system files on the HDD?	YES	Go to No.3-2	_____
				NO	Software on the HDD	_____
		1-3	Replace the HDD. Does operation return to normal?	YES	HDD	_____
				NO	Go to No. 1-4	_____
1-4	Replace the HDD cable. Does operation return to normal?	YES	HDD cable	_____		
		NO	Main PCB	IC3		
2	Cannot read from HDD. Cannot write to HDD.	2-1	Has the HDD been formatted?	YES	Go to No. 2-2	_____
			NO	HDD format	_____	
		2-2	Replace the HDD. Does operation return to normal?	YES	HDD	_____
				NO	Go to No. 2-3	_____
		2-3	Replace the HDD cable. Does operation return to normal?	YES	HDD cable	_____
				NO	Main PCB	IC3
3	Damage to data written to HDD. Damage to data read from HDD. HDD contents are destroyed.	3-1	Replace the HDD. Does operation return to normal?	YES	HDD	_____
			NO	Go to No. 3-2	_____	
		3-2	Replace the HDD cable. Does operation return to normal?	YES	HDD cable	_____
				NO	Main PCB	IC3
4	Diagnostic Test reports problem in HDC or HDD.	4-1	Replace the HDD. Does operation return to normal?	YES	HDD	_____
			NO	Main PCB	IC3	
5	Access lamp does not light.	5-1	Has the HDD been configured in the OS?	YES	Go to No. 5-2	_____
			NO	Improper setting	_____	
		5-2	Replace the HDD. Does operation return to normal?	YES	HDD	_____
				NO	Go to No. 5-3	_____
		5-3	Replace the LED PCB. Does operation return to normal?	YES	LED PCB	LD1600
				NO	Go to No. 5-4	_____
5-4	Replace the Main PCB. Does operation return to normal?	YES	Main PCB	IC3		
		NO	HDD cable	_____		
6	Abnormal sound.	6-1	Replace the HDD.	---	HDD	_____
7	Hard disk failure	7-1	Does executing FDISK correct the problem?	YES	Format data destroyed	_____
			NO	Go to No. 7-2	_____	
		7-2	Replace the HDD. Does operation return to normal?	YES	HDD	_____
				NO	Go to No. 7-3	_____
		7-3	Replace the HDD cable. Does operation return to normal?	YES	HDD cable	_____
				NO	Main PCB	IC3

No.	Symptom	Troubleshooting procedures		Result	Source of problem	Component
		No.				
8	An operating system could not be found.	8-1	Does executing FDISK correct the problem?	YES	Format data destroyed	_____
				NO	Go to No.8-2	_____
		8-2	Replace the HDD. Does operation return to normal?	YES	HDD	_____
				NO	Go to No.8-3	_____
		8-3	Replace the HDD cable. Does operation return to normal?	YES	HDD cable	_____
				NO	Main PCB	IC3

## 9.6 SERIAL COMMUNICATION DIAGNOSIS

Make sure that connecting cables, connectors and AC adapter are not loose or disconnected prior to testing.

No.	Symptom	Troubleshooting procedures		Result	Source of problem	Component
		No.				
1	Data cannot be sent or received.	1-1	Is the COM port properly set?	YES	Go to No.1-2	_____
				NO	Improper setting	_____
		1-2	Is the same transmission protocol set for both the sending and receiving units?	YES	Go to No.1-3	_____
				NO	Improper setting	_____
		1-3	Does the RS-232C on the Main PCB operate normally under a loopback test?	YES	Check the interface with the other computer	_____
				NO	Main PCB	IC15 IC35
2	Unit will not communicate with another computer when connected directly.	2-1	Is the connection cable a dedicated cross-patched cable?	YES	Go to No.2-2	_____
				NO	Connection cable	_____
		2-2	Is the same transmission protocol set for both the sending and receiving units?	YES	Go to No.2-3	_____
				NO	Improper setting	_____
		2-3	Does the RS-232C on the Main PCB operate normally under a reverse test?	YES	Check the interface with the other computer	_____
				NO	Main PCB	IC15 IC35
3	Unit will not communicate with modem.	3-1	Is the COM port properly set?	YES	Go to No.3-2	_____
				NO	Improper setting	_____
		3-2	Is the transmission protocol correct?	YES	Go to No.3-3	_____
				NO	Improper setting	_____
		3-3	Does the modem operate normally under a local analog loopback test?	YES	Line	_____
				NO	Go to No.3-4	_____
3-4	Does the RS-232C on the main board operate normally under a loopback test?	YES	Modem	_____		
		NO	Main PCB	IC15 IC35		
4	Diagnostic Test reports problem in serial port.	4-1	Is the loop back device properly attached to the connector (for an external loop back)?	YES	Main PCB	IC15 IC35
				NO	Improper setting	_____

## 9.7 CD-ROM (DVD-ROM) Drive DIAGNOSIS

Make sure that connecting cables, connectors and AC adapter are not loose or disconnected prior to testing.

No.	Symptom	Troubleshooting procedures			Source of problem	Component
		No.		Result		
1	Access lamp does not light.	1-1	Replace the CD-ROM drive. Does operation return to normal?	YES	CD-ROM drive	————
				NO	Go to No. 1-2	————
		1-2	Replace the LED PCB. Does operation return to normal?	YES	LED PCB	LD1007
				NO	Go to No. 1-3	————
		1-3	Replace the Main PCB. Does operation return to normal?	YES	Main PCB	IC3
				NO	CD-ROM FPC	————
2	Cannot read from CD-ROM.	2-1	Replace the media. Does operation return to normal?	YES	Media	————
				NO	Go to No. 2-2	————
		2-2	Replace the CD-ROM drive. Does operation return to normal?	YES	CD-ROM drive	————
				NO	Main PCB	IC3
3	Tray does not open.	3-1	Replace the CD-ROM drive. Does operation return to normal?	YES	CD-ROM drive	————
				NO	Main PCB	IC3
4	Abnormal sound.	4-1	Replace the media. Does operation return to normal?	YES	Media	————
				NO	CD-ROM drive	————



# 10 Diagnostic Test

## Diagnostic Test Procedure

### 10.1. Equipment

(1) Test Computer -----	1 unit
(2) IO BOX (CF-VEBU03) -----	1 unit
(3) External Floppy Disk Drive (USB Port) -----	1 unit
(4) AC Adapter -----	1 pc.
(5) External Printer -----	1 unit
(6) Loopback Plug (Parallel Port Test) [P/N: DFWV95C0081] -----	1 pc.
(7) Loopback Plug (Serial Port Test for RS232C) [P/N: DFWV95C0067] ----	1 pc.
(8) Floppy Disk containing file DIAG -----	1 pc.

### 10.2. Preparation

- (1) Connect the computer to the IO BOX (CF-VEBU03).
- (2) Connect the AC Adapter and External Equipments.
- (3) The System Setup should be set to the factory setting values by executing the "SETUP UTILITY" which can be invoked by F2 key at the POST.  
If not, the messages and items of the diagnostic test may not be displayed properly on the LCD.
- (4) The serial port must be enabled in the "SETUP UTILITY" in order to execute the "1st SERIAL PORT" test.
- (5) Connect the serial loopback plug.
- (6) In order to test the parallel port with Loopback Plug, disconnect the printer cable and connect the parallel loopback plug with Power OFF.

### 10.3. NOTICE

When "Enter password" is displayed, use "Password Skipping Plug" in order to skip the user password.

- 1) Connect the parallel plug to the parallel port.
- 2) Connect the PS/2 mouse plug to the mouse port.
- 3) Power on the computer.

The wiring of the parallel plug is described below.

Connect pins 2-5-6-8-11-13-15-18-19-20-21-22-23 to Shield GND (PS/2 mouse plug pin 3.)

Connect pins 3-4-7-9-10-12 to VC5 (PS/2 mouse plug pin 4) with 4.7KW each.

### CAUTION

The plug described above must be used for servicing purpose only.

Do not use it for other than the above purpose and ensure that it remains confidential.

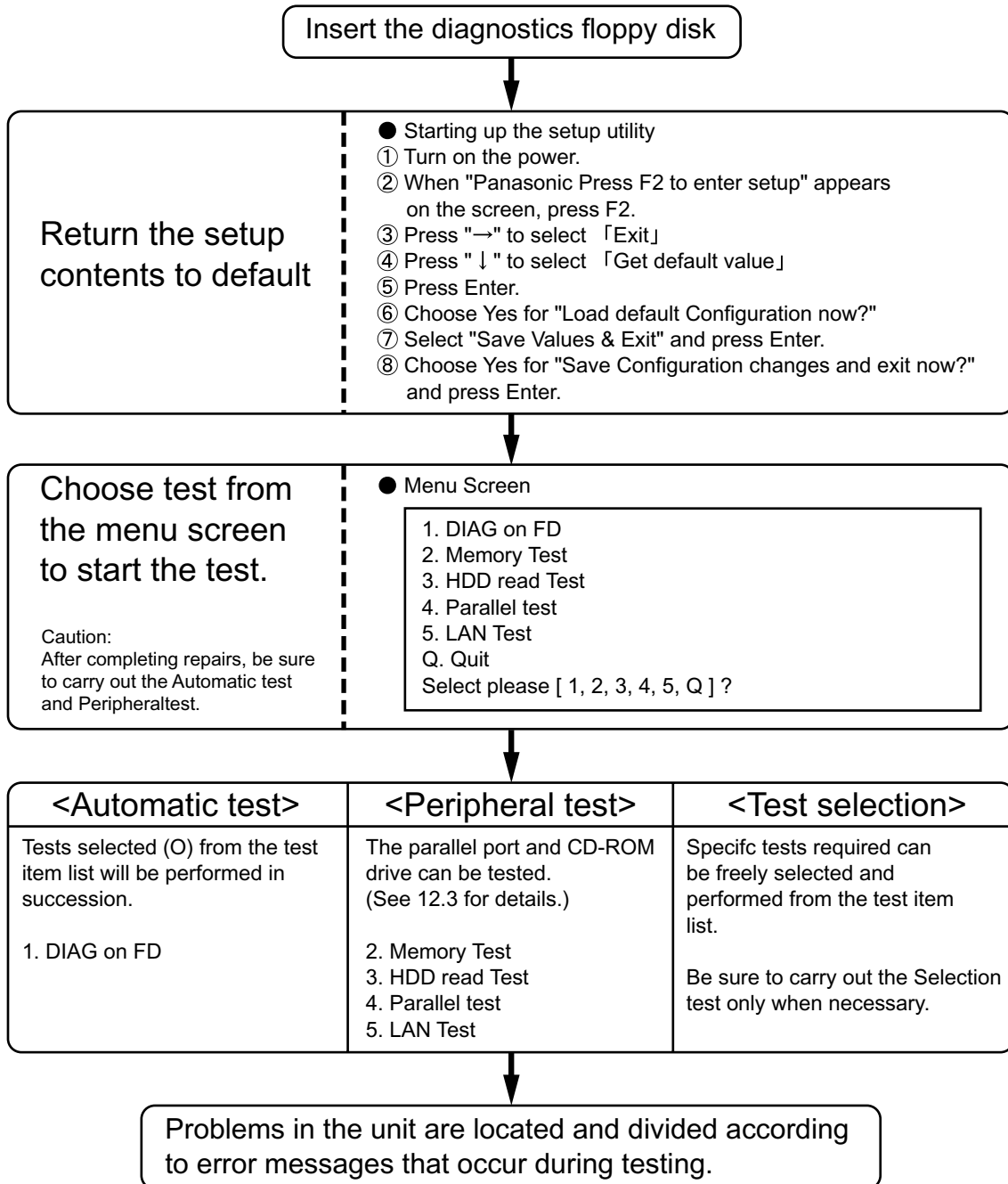
Using the plug enables the user to skip the previous password and disable the password.

# 11 Self Diagnosis Test

Floppy disk is Included for the self-diagnostic tests that should be performed before using this product.  
Important notice

1. System password  
If the password function has been turned on, you will need to ask the user for the password before performing the self-diagnostics.
2. FDD test  
Performing the FDD test will erase the contents of the floppy disk you insert into the drive. Use a formatted disk that has no contents or whose contents are not required. This product has a password function. However, if this function is turned on, the self-diagnostics tests will not work.

## 11.1. Outline of Self Diagnostic Tests



### 11.1.1. List of main test items

The Selection item displays the items selected under Automatic test. If you select Automatic test, these test items will be performed automatically. You can use Selection test to choose items from the menu screen that you want to have tested.

These items are shown below.

	Test classification	Test items shown on the screen	Contents	Select
1		SPEAKER TEST	Speaker test	<input type="radio"/>
2		VESA MODE TEST	VESA mode test	<input type="radio"/>
3	CPU (CPU related)	A20 GATE TEST	Address A20 line	<input type="radio"/>
4		CACHE ON/OFF TEST	Cache memory on/off test	<input type="radio"/>
5		NPU OPERAND TEST	Floating point processor function test	<input type="radio"/>
6	RAM (Memory related)	RAM STANDARD TEST	Memory standard test	<input type="radio"/>
7	CONTROL (Control ICs on the main board, etc.)	DMA PAGE REG TEST	DMA page register test	<input type="radio"/>
8		DMA REGISTER TEST	DAM register test	<input type="radio"/>
9		DMAC TRANSFER TEST	DAM transfer test	<input type="radio"/>
10		PIC HALT INSTRUCTION TEST	Interrupt controller halt instruction test	<input type="radio"/>
11		PIC REGISTER TEST	Interrupt controller register test	<input type="radio"/>
12		RTC CMOS RAM TEST	Real time clock CMOS test	<input type="radio"/>
13		RTC TEST	Real time clock test	<input type="radio"/>
14		PIT CH0 TEST	interrupt timer CH0	<input type="radio"/>
15		PIT CH1 TEST	interrupt timer CH1	<input type="radio"/>
16		PIT CH2 TEST	interrupt timer CH2	<input type="radio"/>
17	IO (Input-output)	KEYBOARD REG TEST	Keyboard test	<input type="radio"/>
18		PS/2 MOUSE REG	Mouse registration test	<input type="radio"/>
19	COMMUNICATION	SERIAL WRAP TEST	Serial loop back (jig required)	—
20		SERIAL ALL INTERNAL TEST	Serial port interior test	<input type="radio"/>
21		PARALLEL REGISTER R/W	Parallel register R/W test	<input type="radio"/>
22	AUX (Auxiliary functions)	PCIC ALL TEST	PCIC test	<input type="radio"/>
23		Card Bus Reg	Card Bus register test	<input type="radio"/>
24		USB Reg	USB register test	<input type="radio"/>
25	VIDEO (Display related)	VGA ALL TEST	VGA test	<input type="radio"/>
26		SVGA RAM TEST	SVGA RAM test	<input type="radio"/>
27	DISK (FDD, HDD)	FD WT/RD/WP TEST	FD WT, RD WP test	—
28		HDD ALL TEST	Only HDD lead test selected	<input type="radio"/>
29	UNIQUE (Individual functions)	ECP REGISTER R/W	ECP register R/W test	<input type="radio"/>
30		EPP REGISTER R/W	EPP register R/W test	<input type="radio"/>
31		EXT. CMOS R/W TEST	Extension CMOS R/W test	<input type="radio"/>

	Test function settings	Test condition save/play	Following file command
		Test automatic execute	Test executed on run settings by selecting command
		Error display (Paging style)	Select displayed items Error, Log, Option

## 11.2. Automatic Test

### Test execution

From the menu screen shown below For Celeron models Select and press Enter for DIAG on FD

```

1. DIAG on FD
2. Memory test
3. HDD read test
4. Parallel test
5. LAN test
Q. Quit
Select please [ 1, 2, 3, 4, 5, Q ] ?

```

menu screen

### Speaker test, VESA test

The speaker test involves listening to music and choosing OK or Not okay. The VESA test involves looking at the display to see if it is satisfactory then choosing OK or Not okay.

### Serial loop back test

The Automatic test's initial settings are set so that the serial loop back test will be executed. Connect the serial loop back jig and then perform the test.

(This test is not executed on default mode)

### Diagnostics result

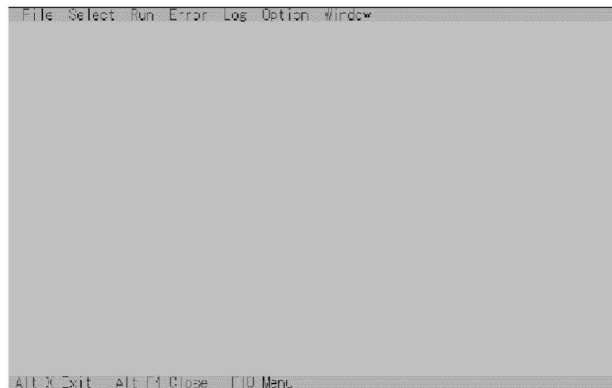
If no errors occur. The screen shows the word "Pass" in large letters.

If errors occur. The test is stopped when an error occurs and the error message is displayed.

For explanations of error messages, see Error Messages and Problem Categories (section 4.5).

### Quitting the test

At the screen shown below, simultaneously press the ALT and X keys.

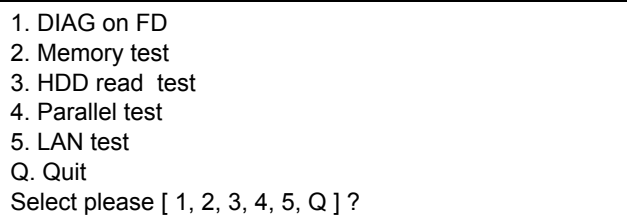


Input screen

## 11.3. Peripheral Test

### Test execution

From the menu screen shown below, be sure to choose the following items and press Enter.



menu screen

### 2. Memory Test

Read/Write test for on-board memory.

### 3. HDD read Test

Read test only.

## 4. Parallel test

This tests the functions of the parallel port.

1. Only prior to executing the parallel port test should you change the setup contents to those shown below.

[Changing the setup utility]

- ① Turn on the power.
- ② When "Panasonic", "Press F2 to enter setup" appears on the screen, press F2.
- ③ Press "→" to select Advanced.
- ④ Press "↓" to choose Mode.
- ⑤ Press Enter, choose Bidirectional, and then press Enter again.
- ⑥ Press "F10".
- ⑦ Choose Yes for "Save Configuration changes and exit now?" and press Enter.

2. Connect the parallel loop back jig to the parallel port.
3. Choose Parallel test and press Enter.
4. After the test is finished, return the setup contents to default.

## 5. LAN Test

This test checks for internal LAN device.

Choose LAN test and press Enter.

### (CD-ROM test)

This tests the internal CD-ROM drive functions.

Choose CD-ROM test and press Enter.

## 11.4. Test Selection

Starting up the input menu

1. From the menu screen shown below, choose Quit and press Enter.

1. DIAG on FD  
2. Memory test  
3. HDD read test  
4. Parallel test  
5. LAN test  
Q. Quit  
Select please [ 1, 2, 3, 4, 5, Q ] ?

menu screen

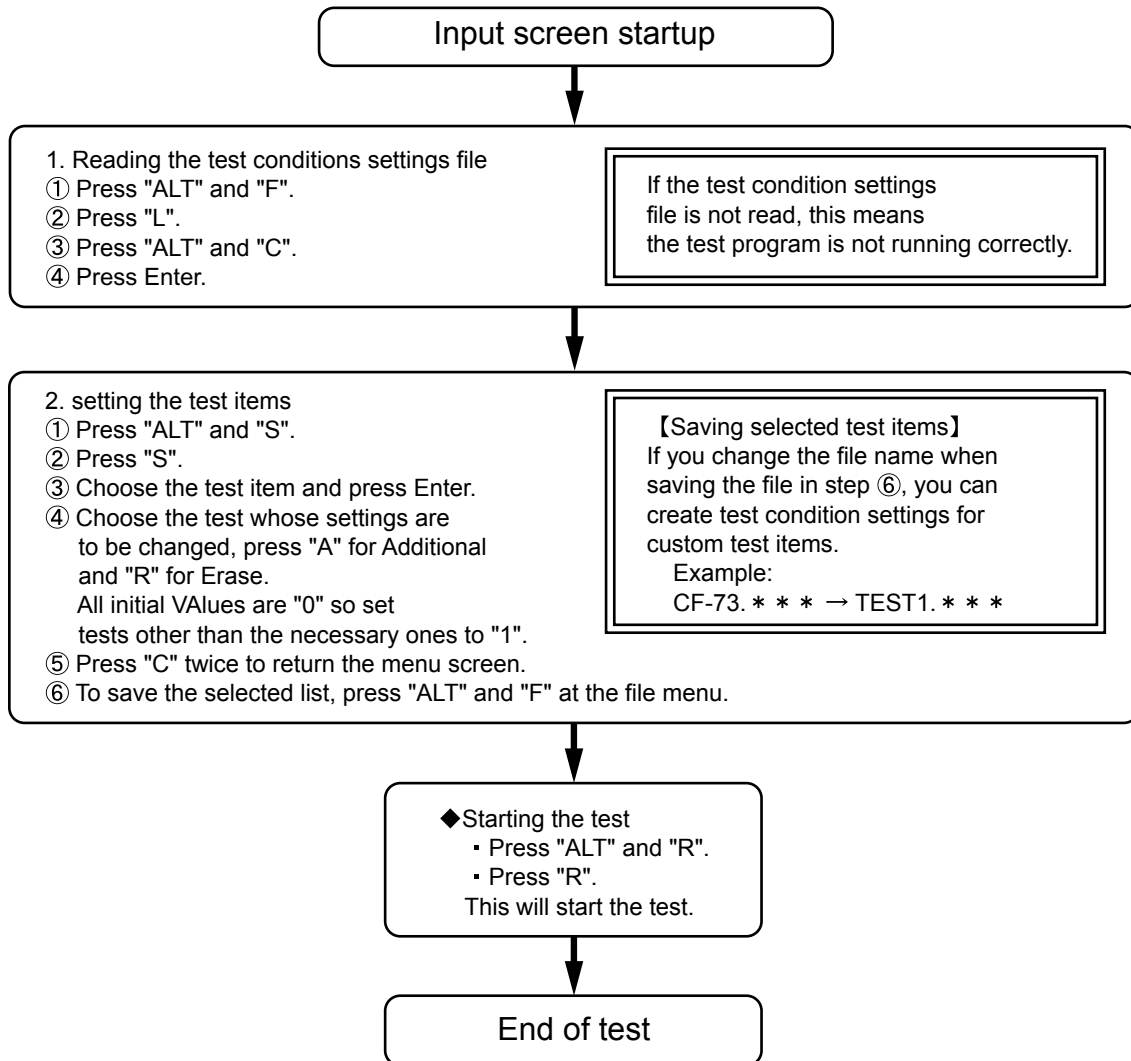
2. When A: \DIAG appears, input "JDG\_73" and press Enter.
3. The input screen shown below will appear.  
To choose menu items, hold down "ALT" and press the selection key.

Example:  
 "ALT" + "F" brings up the File menu.



Input screen

Order of test flow selection

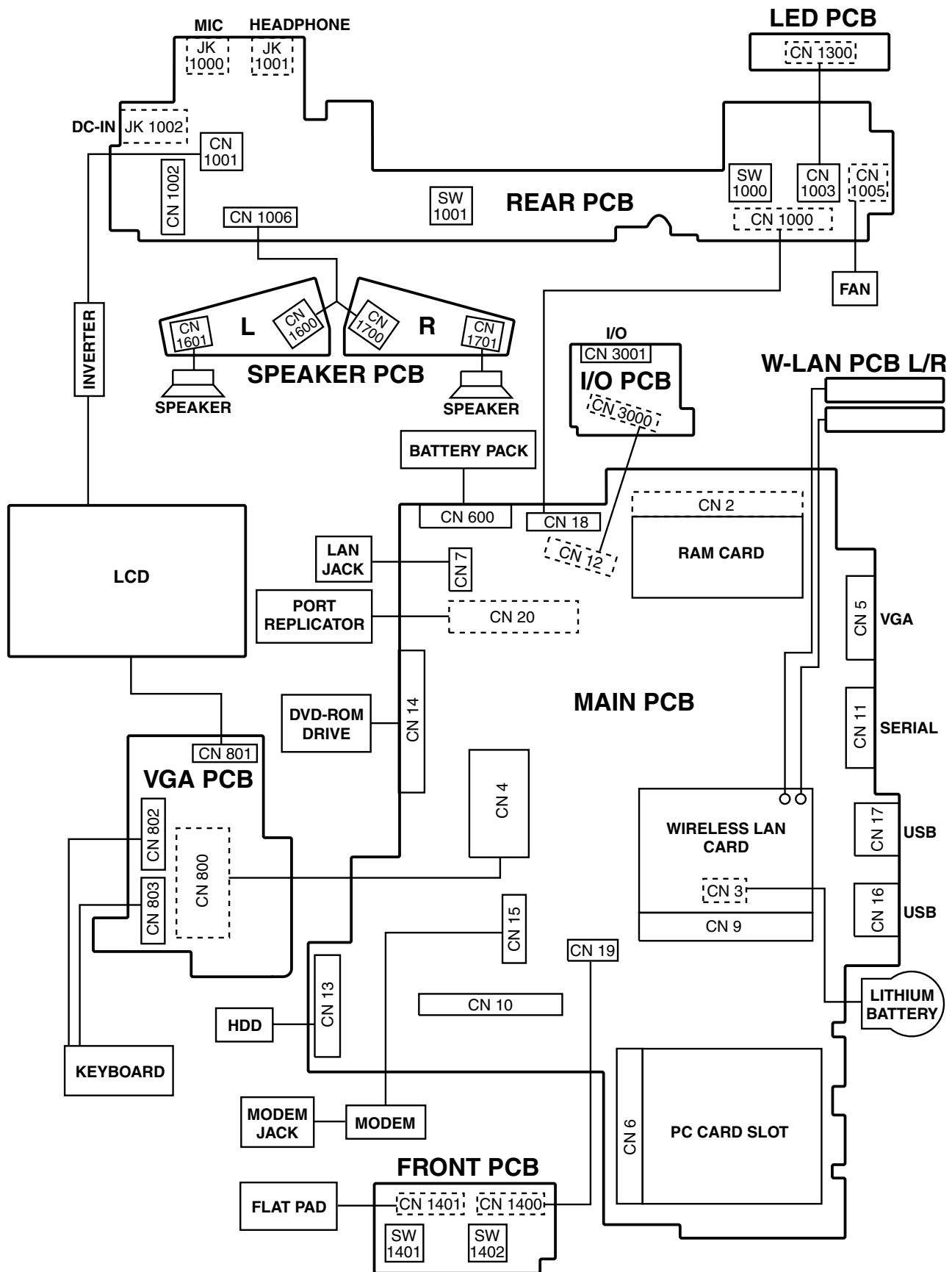


## 11.5. Error Messages and Troubleshooting

The table below explains the parts that may be faulty or damaged should an error message occur while performing the various test items of the self diagnostics program.

	Test classification	Screen display test items	Contents
1	CPU (CPU related)	A20 GATE TEST	Address 20 line
2		CACHE ON/OFF	Cache memory on/off
3		NPU OPERAND TEST	Floating point processor function
4	RAM (Memory related)	RAM STANDARD	Memory standard
5	CONTROL (Control ICs on the main board, etc.)	DMA PAGE REG TEST	DMA page register
6		DMA REGISTER TEST	DAM register
7		DMAC Transfer TEST	DAM transfer test
8		PIC HALT INSTRUCTION TEST	Interrupt controller
9		PIC REGISTER TEST	Interrupt controller
10		RTC CMOS RAM TEST	Real time clock CMOS
11			
12		SPEAKER TEST	Speaker
13	PIT CH0 TEST	Interrupt timer CH0	
14	PIT CH1 TEST	Interrupt timer CH1	
15	PIT CH2 TEST	Interrupt timer CH2	
16	IO (Input-output)	KEYBOARD REG TEST	Keyboard
17		PS/2 MOUSE REG	Mouse
18	COMMUNICATION	SERIAL WRAP TEST	Serial loop back (jig required)
19		SERIAL ALL INTERNAL TEST	Serial port
20		PARALLEL REGISTER R/W	Parallel register
21	AUX (Auxiliary functions)	PCIC ALL TEST	PCIC
		Card Bus REG	Card Bus port
		USB REG	USB port
22	VIDEO (Display related)	VGA ALL TEST	VGA
23		SVGA RAM TEST	SVGA RAM
24		VESA MODE TEST	VESA mode
25	DISK (FDD, HDD)	FD WT/RD/WP TEST	FD write/read/write protection
26		HDD ALL TEST	Only HDD lead selected
27	UNIQUE (Individual functions)	ECP REGISTER R/W	Parallel port
28		EPP REGISTER R/W	Parallel port
29		EXT. CMOS R/W TEST	Extension CMOS R/W test

# 12. Wiring Connection Diagram

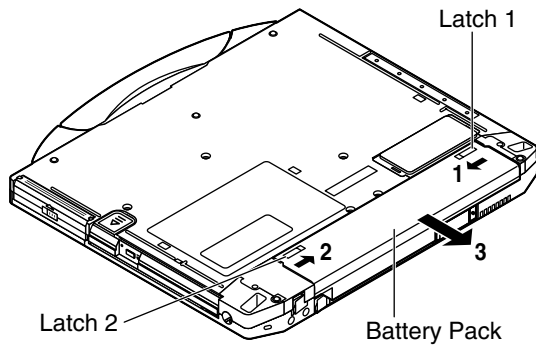




# 13. Disassembly/Reassembly

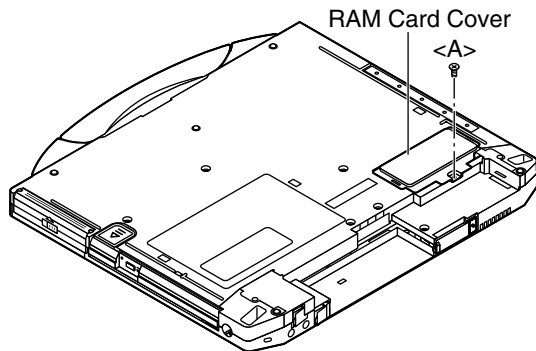
Note: Power off the computer. Do not shut down to the Suspend or hibernation mode.  
Do not add peripherals while the computer is in the Suspend or hibernation mode;  
abnormal operation may result.

## 13.1 Removing the Battery Pack.



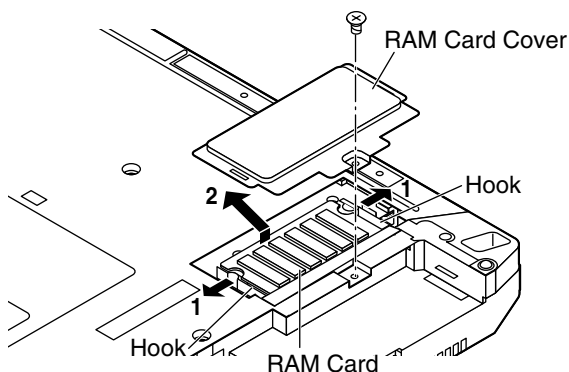
1. Slide the Latch 1 to unlock.(1)
2. Slide the Latch 2 (2), and then without releasing it, slide and remove the Battery Pack.(3)

## 13.2 Removing the RAM Card.



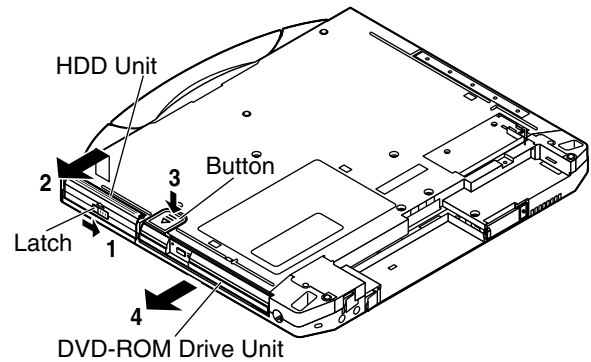
1. Remove the screw <A>, and remove the RAM Card Cover.

**Screw <A>: DXSB2+6FZL**



2. Open the Hooks outward (1), and remove the RAM Card.(2)

## 13.3 Removing the HDD Unit and the DVD-ROM Drive Unit.



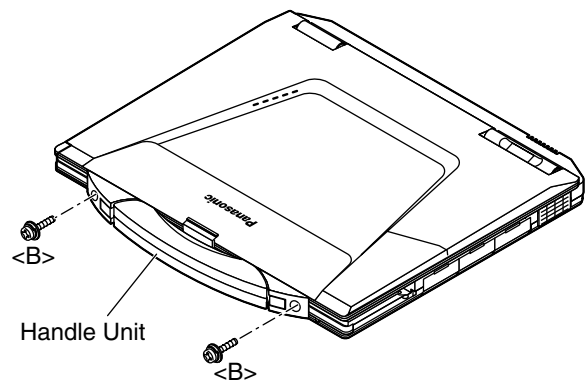
### HDD Unit

1. Slide the Latch to unlock.(1)
2. Lift up the cover of the HDD Unit, and then without releasing it, slide the HDD Unit. (2)

### DVD-ROM Drive Unit

1. Push the Button (3), and then without releasing it, slide the DVD-ROM Drive Unit.(4)

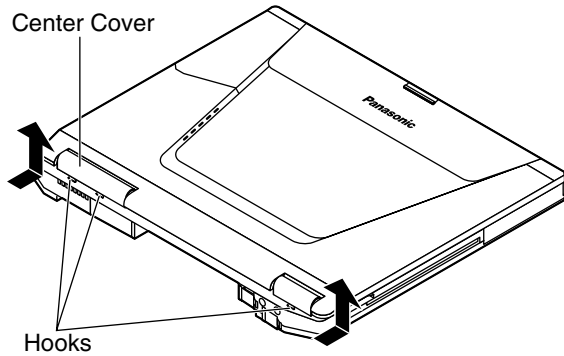
## 13.4 Removing the Handle Unit.



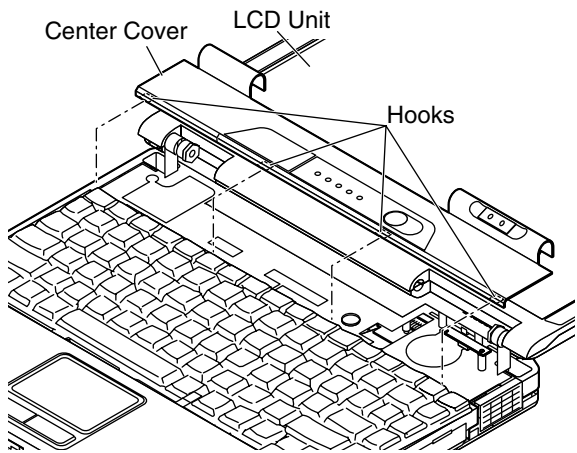
1. Remove the two screws <B>, and remove the Handle Unit.

**Screw <B>: DXYN4+J12FZL**

## 13.5 Removing the Center Cover.

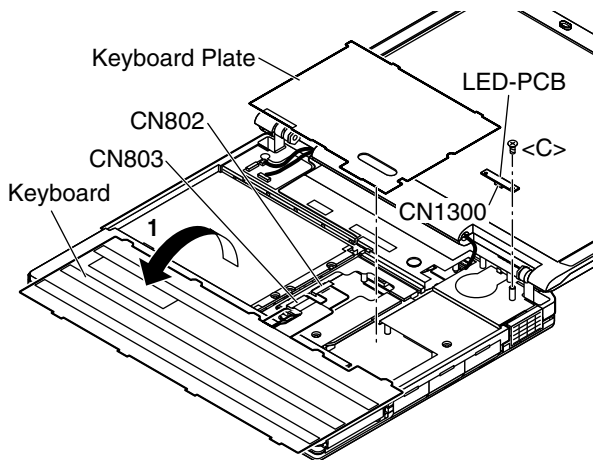


1. Release the three Hooks.



2. Open and level the LCD Unit.
3. Release the four Hooks, and remove the Center Cover.

## 13.6 Removing the Keyboard and the LED-PCB.



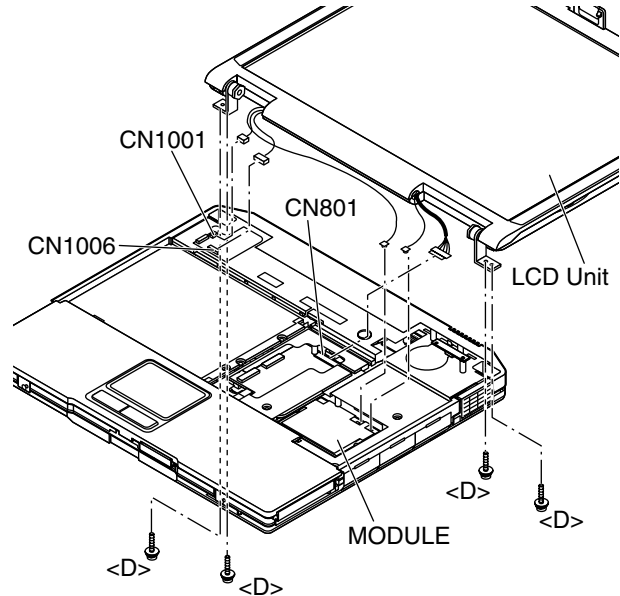
### Keyboard

1. Turn over the Keyboard.(1)
2. Remove the Keyboard Plate.
3. Disconnect the connectors (CN802, CN803), and remove the Keyboard.

### LED-PCB

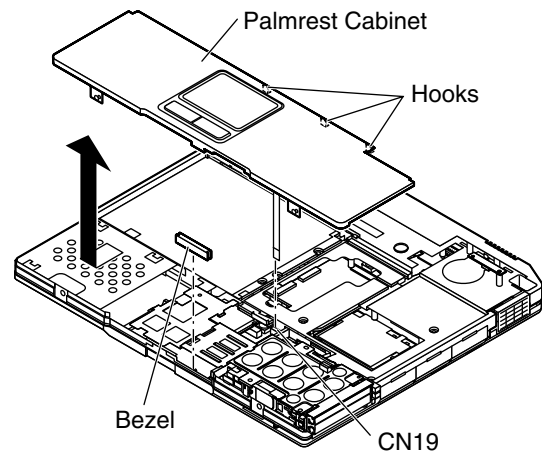
1. Remove the screw <C>.  
**Screw <C>: DFHE5025YA**
2. Disconnect the connector (CN1300), and remove the LED-PCB.

## 13.7 Removing the LCD Unit.



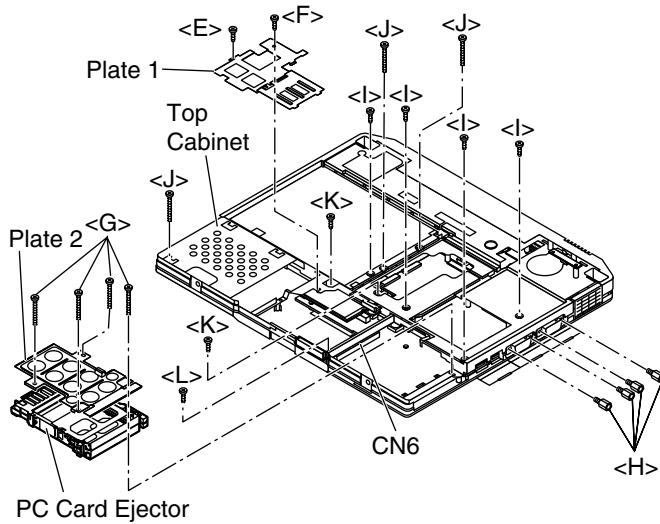
1. Disconnect the connectors (CN1001, CN1006, CN801, MODULE).
2. Remove the four screws <D>, and remove the LCD Unit.  
**Screw <D>: DXYN3+J8FZL**

## 13.8 Removing the Palmrest Cabinet.

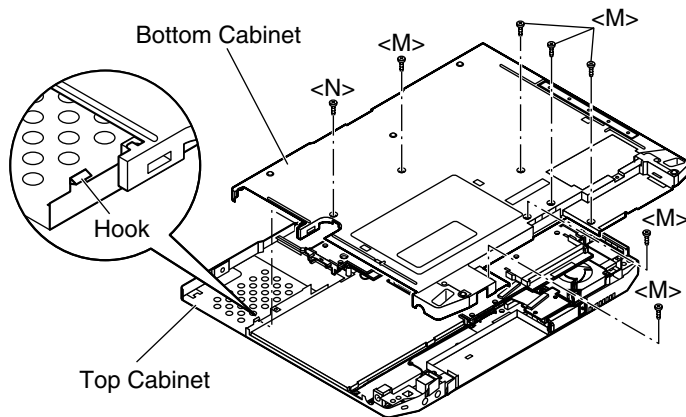


1. Release the three Hooks.
2. Disconnect the connector (CN19), and remove the Palmrest Cabinet.
3. Remove the Bezel.

## 13.9 Removing the Bottom Cabinet.

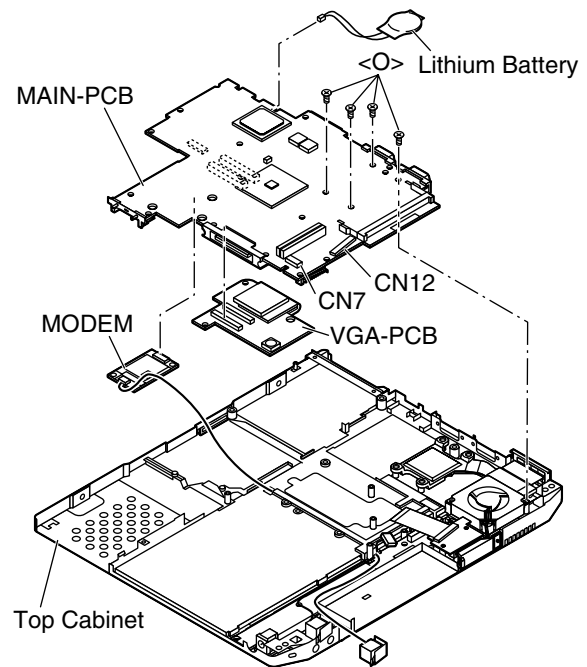


1. Remove the screw <E> and the screw <F>, and then remove the Plate 1.  
**Screw <E>: DXSB2+6FZL**  
**Screw <F>: DFHE5025YA**
2. Remove the four screws <G>, and remove the Plate 2.  
**Screw <G>: DXSB2+16FNL**
3. Disconnect the connector (CN6), and remove the PC Card Ejector.
4. Remove the four screws <H>, the four screws <I>, the three screws <J>, the two screws <K>, and the screw <L> from the Top Cabinet.  
**Screw <H>: DFHE5035ZA**  
**Screw <I>: DXQT2+G4FCL**  
**Screw <J>: DXSN2+12FZL**  
**Screw <K>: DFHE5025YA**  
**Screw <L>: DXSB2+6FZL**



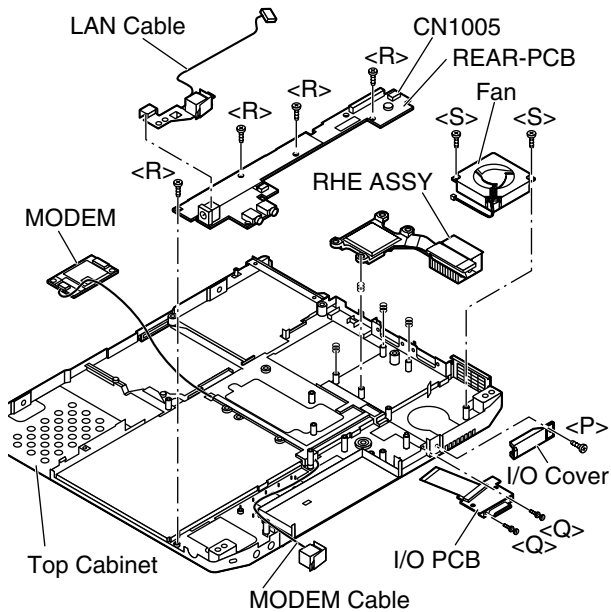
5. Remove the six screws <M> and the screw <N> from the Bottom Cabinet.  
**Screw <M>: DXSB2+6FZL**  
**Screw <N>: DFHE5025YA**
6. Release the Hook and remove the Bottom Cabinet.

## 13.10 Removing the MAIN-PCB and the VGA-PCB.



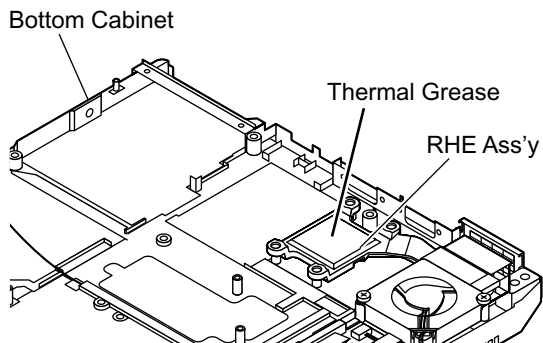
1. Remove the four screws <O>, and disconnect the connector (CN7, CN12).  
**Screw <O>: DFHE5025YA**
2. Remove the MAIN-PCB from the Top Cabinet.
3. Remove the VGA-PCB from the MAIN-PCB.
4. Remove the MODEM and the Lithium Battery from the MAIN-PCB.

### 13.11 Removing the REAR-PCB, the I/O-PCB, the Fan, the LAN Cable and the MODEM Cable.



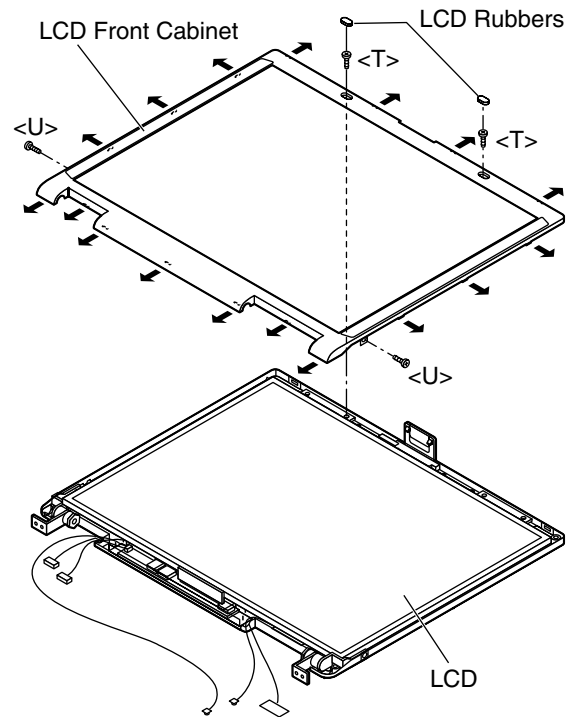
1. Remove the RHE ASSY.
2. Remove the screw <P>, and remove the I/O Cover.  
**Screw <P>: DXSB2+6FZL**
3. Remove the two screws <Q>, and remove the I/O-PCB.  
**Screw <Q>: K1YE6800007**
4. Remove the four screws <R>, and disconnect the connector (CN1005).  
**Screw <R>: DFHE5025YA**
5. Remove the REAR-PCB, the LAN Cable and the MODEM Cable.
6. Remove the two screws <S>, and remove the Fan.  
**Screw <S>: DXQT2+G4FCL**

**[!]** When you fix, please be sure to apply Grease (pea-size).



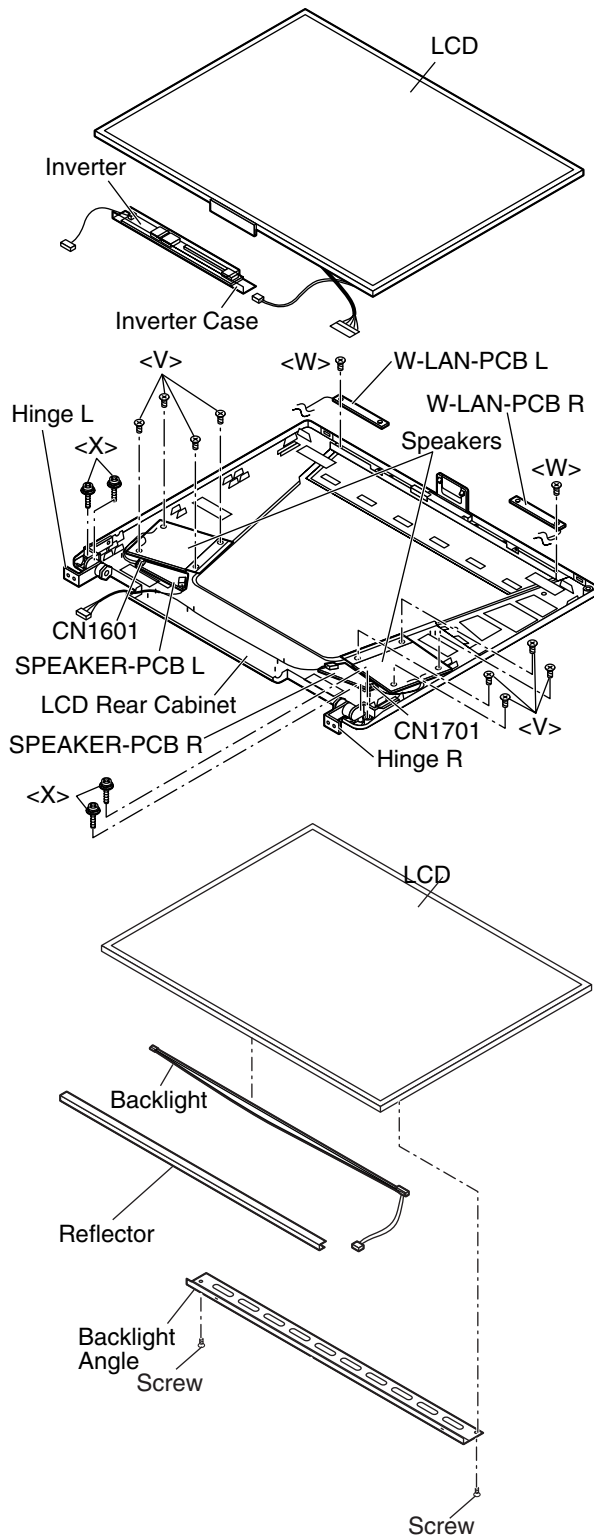
G751 Thermal Grease from Shin-Etsu Chemical Co.,Ltd.

### 13.12 Removing the LCD Front Cabinet.



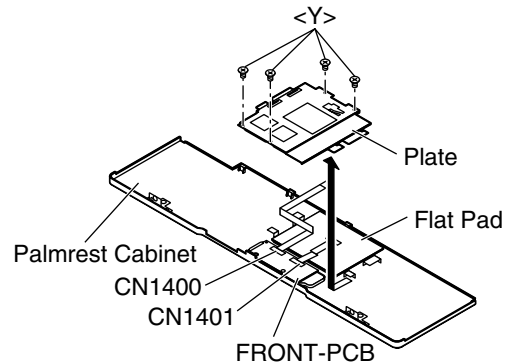
1. Remove the two LCD Rubbers.
2. Remove the two screws <T>, and the two screws <U>.  
**Screw <T>: DXQT2+G4FCL**  
**Screw <U>: DXQT26+D4FNL**
3. Release the seventeen Hooks on the LCD Front Cabinet outward. (See the Figure)
4. Remove the LCD Front Cabinet.

### 13.13 Removing the LCD, the Inverter, the Speaker, the SPEAKER-PCB and the W-LAN-PCB.



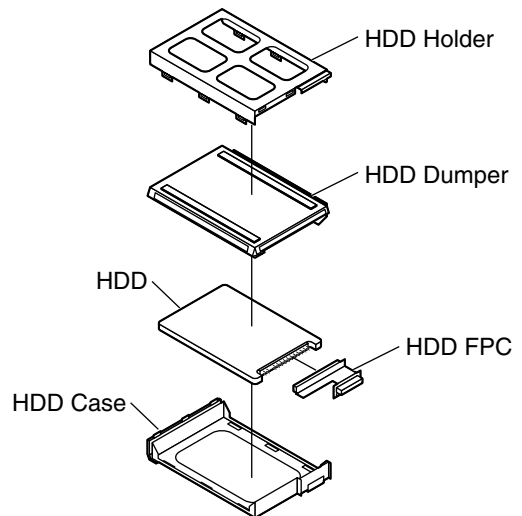
1. Remove the LCD and the Inverter with the Inverter Case.
2. Disconnect the connectors (CN1601, CN1701), and remove the SPEAKER-PCB L/R.
3. Remove the eight screws <V>, and remove the Speakers.  
**Screw <V>: DXQT2+I35FZL**
4. Remove the two screws <W>, and remove the W-LAN-PCB L/R.  
**Screw <W>: DFHE5025YA**
5. Remove the four screws <X>, and remove the Hinge L/R.  
**Screw <X>: DXYN3+J8FZL**
6. Remove the two screws and Backlight Angle.
7. Draw the Backlight unit slowly from the LCD Unit.

### 13.14 Removing the FRONT-PCB and the Flat Pad.



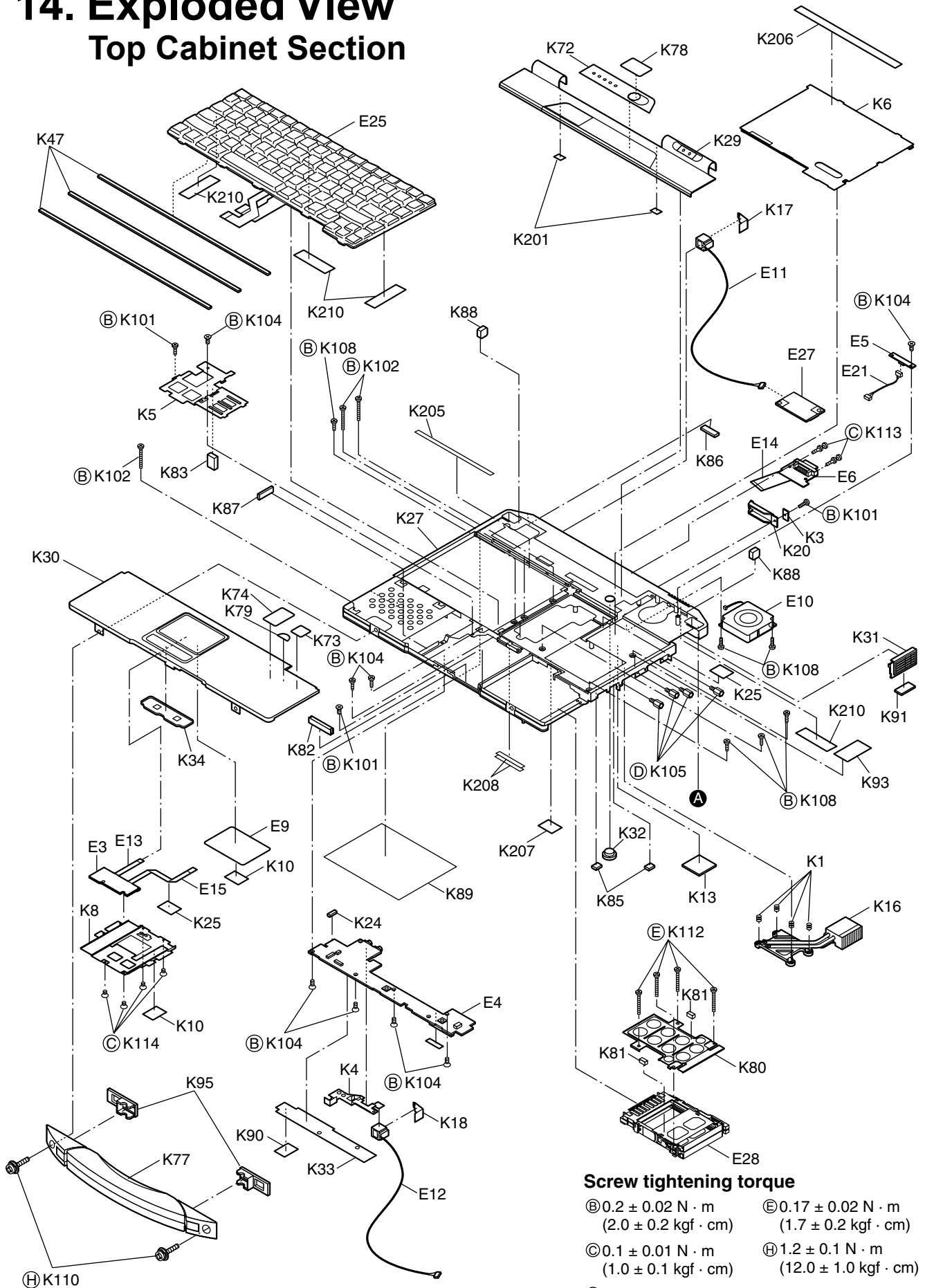
1. Remove the four screws <Y>, and remove the Plate from the Palmrest Cabinet.  
**Screw <Y>: DXHM0035ZA**
2. Disconnect the connectors (CN1400, CN1401), and remove the FRONT-PCB and the Flat Pad.

### 13.15 Removing the HDD.



1. Remove the HDD Holder, the HDD Case and the HDD Dumper.
2. Remove the HDD FPC from the HDD.

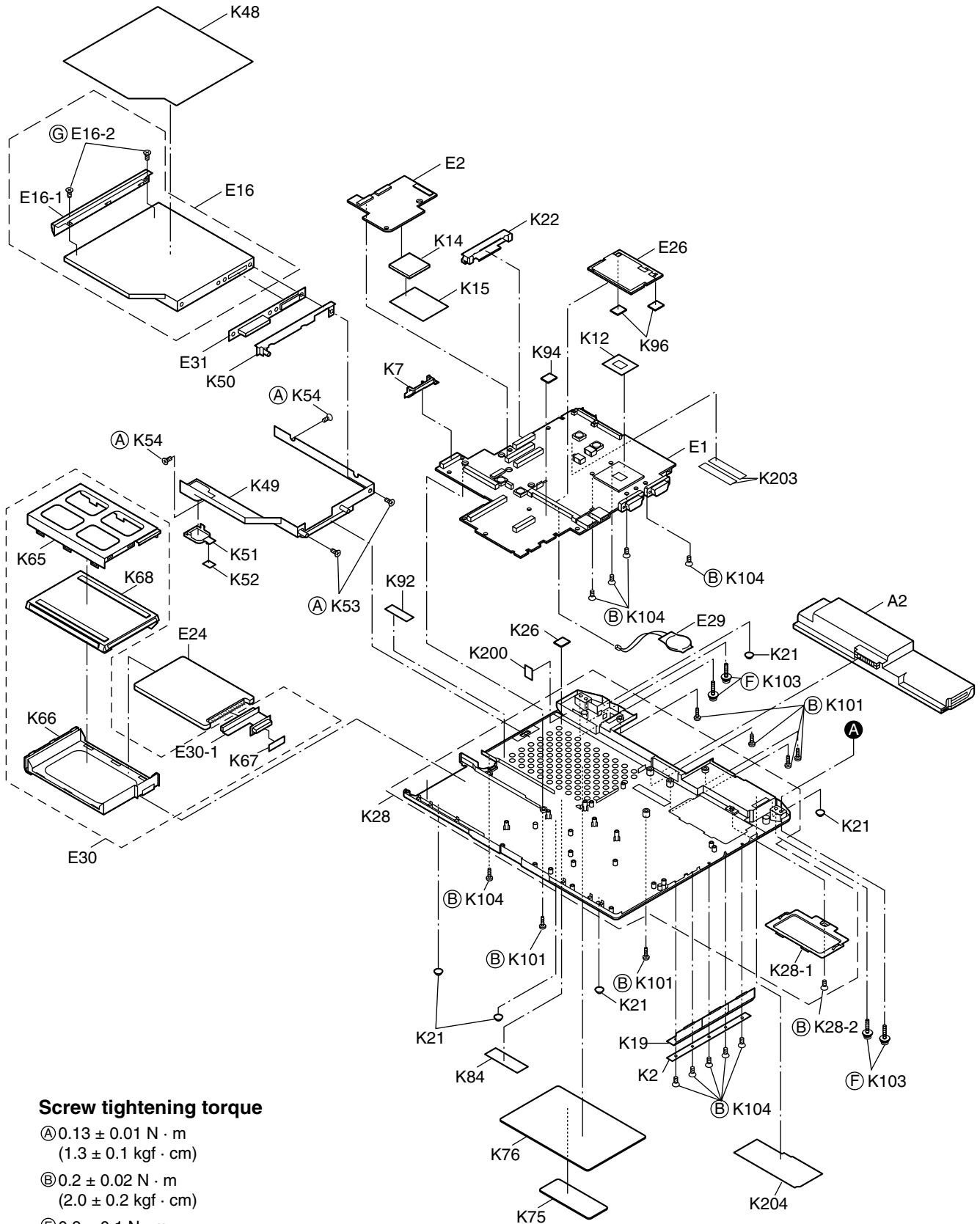
# 14. Exploded View Top Cabinet Section



### Screw tightening torque

- ⓑ 0.2 ± 0.02 N · m (2.0 ± 0.2 kgf · cm)
- Ⓒ 0.1 ± 0.01 N · m (1.0 ± 0.1 kgf · cm)
- Ⓓ 0.4 ± 0.02 N · m (4.0 ± 0.2 kgf · cm)
- Ⓔ 0.17 ± 0.02 N · m (1.7 ± 0.2 kgf · cm)
- Ⓕ 1.2 ± 0.1 N · m (12.0 ± 1.0 kgf · cm)

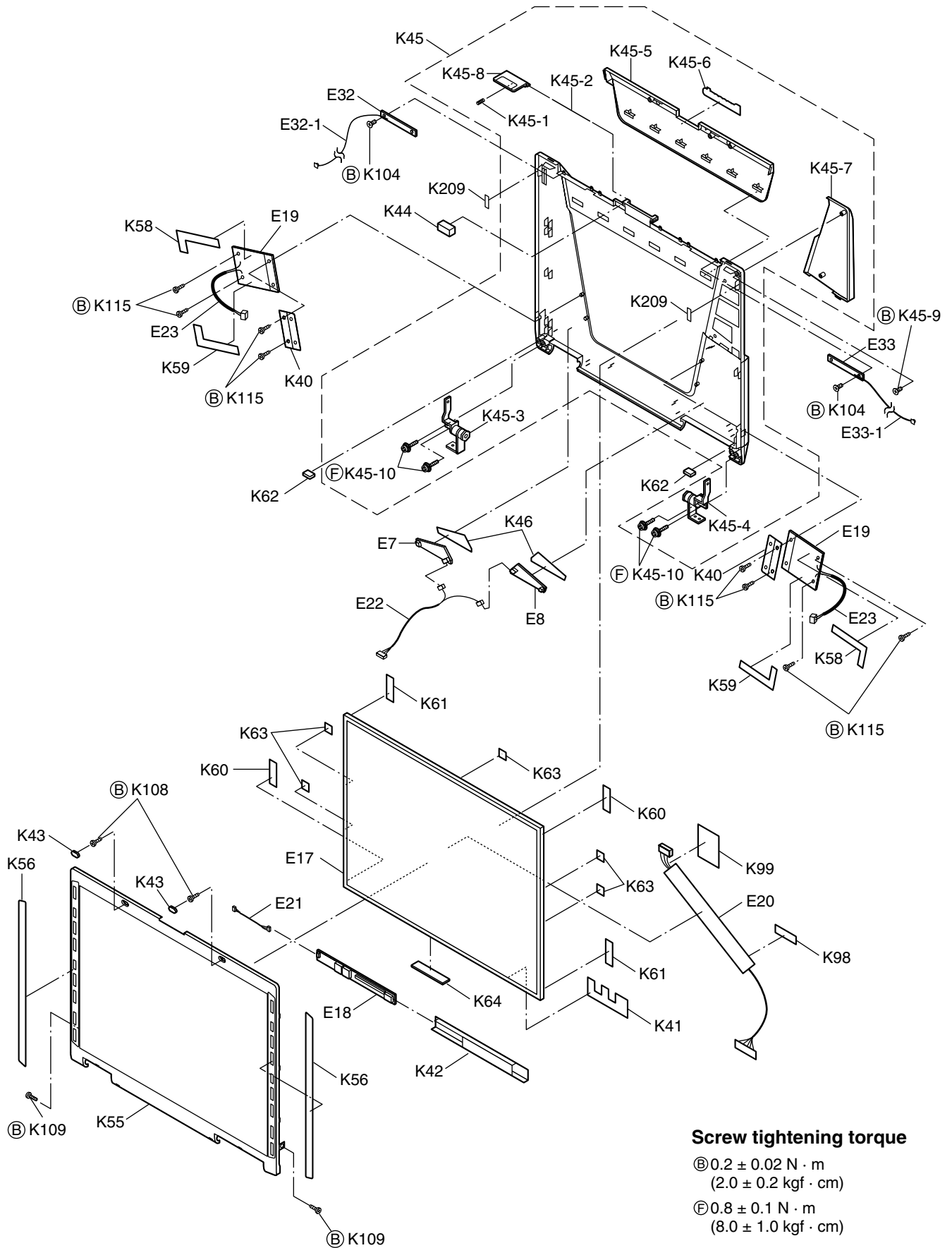
# Bottom Cabinet Section



## Screw tightening torque

- Ⓐ  $0.13 \pm 0.01 \text{ N} \cdot \text{m}$   
( $1.3 \pm 0.1 \text{ kgf} \cdot \text{cm}$ )
- Ⓑ  $0.2 \pm 0.02 \text{ N} \cdot \text{m}$   
( $2.0 \pm 0.2 \text{ kgf} \cdot \text{cm}$ )
- Ⓕ  $0.8 \pm 0.1 \text{ N} \cdot \text{m}$   
( $8.0 \pm 1.0 \text{ kgf} \cdot \text{cm}$ )
- Ⓒ  $0.1 \pm 0.02 \text{ N} \cdot \text{m}$   
( $1.0 \pm 0.2 \text{ kgf} \cdot \text{cm}$ )


# Display Section










# 15. Replacement Parts List

Note: Important Safety Notice

Components identified by  mark have special characteristics important for safety.  
When replacing any of these components, use only manufacturer's specified parts.

## CF-73E3KVXxM

REF. NO and AREA	PART NO.	DESCRIPTION	Q'TY
<b>Main Block Unit</b>			
E 1	DL3U11256BAA	PCB, MAIN	RTL 1
E 2	DL3U21256BAA	PCB, VGA	RTL 1
E 3	DL3U11258AAA	PCB, FRONT	RTL 1
E 4	DL3U21258AAA	PCB, REAR	RTL 1
E 5	DL3U31258AAA	PCB, LED	RTL 1
E 6	DL3U41258AAA	PCB, I/O	RTL 1
E 7	DL3U61258AAA	PCB, SPEAKER L	RTL 1
E 8	DL3U71258AAA	PCB, SPEAKER R	RTL 1
E 9	N2EAJFD00002	TOUCH PAD	1
E 10	UDQFSEH23	FAN	1
E 11	DFJS810ZA	CABLE, MODEM	1
E 12	DFJS811ZA	CABLE, LAN	1
E 13	DFJE12T037DS	FFC, PAD	1
E 14	DFJE36T040BS	FFC, I/O	1
E 15	DFJE9174ZB	FFC, FRONT	1
E 16	DFWV78A0187	DRIVE, DVD-ROM	1
E 16-1	LMYP0472A	ASS'Y, BEZEL	1
E 16-2	JDLB0007ZA	SCREW	2
E 17	L5BDD3Q00016	LCD	1
E 18	 N0GF1J000004	INVERTER	1
E 19	WM-R57A	SPEAKER	2
E 20	DFJS813ZA	CABLE, LCD	1
E 21	DFJS814ZB	CABLE, INVERTER/LCD	2
E 22	DFJS815YA	CABLE, SP	1
E 23	DFJS826ZA	CABLE, SP UNIT	2
E 24	N3CABRD00003	HDD	1
E 25	ESU64TN305AC	KEYBOARD	1
E 26	N5HZC0000005	WIRELESS MODULE	1
E 27	N5HAZ0000004	MODEM, MDC	1
E 28	K1YYZZ000041	PC CARD EJECTOR	1
E 29	BR2330A/SB	LITHIUM BATTERY	1
E 30	DFWV99A0066	HDD Mounting Kit	1
E 30-1	DL3UP1259AAA	FPC, HDD	1
E 31	DL3UP1260AAA	FPC, MP DRIVE	1
E 32	DL3U11296AAA	PCB, W-LAN L	RTL 1
E 32-1	DFJS817ZA	CABLE, W-LAN L	1
E 33	DL3U21296AAA	PCB, W-LAN R	RTL 1
E 33-1	DFJS825ZA	CABLE, W-LAN R	1
<b>Accessories</b>			
A 1	 CF-AA1653AM1	AC ADAPTER	1
A 2	 N4HUNRA00002	BATTERY PACK	1
A 3	 K2CG3DR00003	AC CABLE	1
A 4	DFJS535ZA	CABLE, MODEM	1
A 5	 DFQX5379ZA	MANUAL	1
A 6	DFQX7018WA	CARD, WARRANTY (M2)	1
<b>Packing Material</b>			
P 1	DFPH0069ZA	PROTECT SHEET	1
P 2	DFPN0797ZA	CUSHION, T	2
P 3	DFPN0798ZA	CUSHION, B	2
P 4	DFPK1136ZA	CASE, PACKING	1
P 5	DFPP0048ZA	PROTECTION BAG	1
P 6	DFPE0404ZA	HOLDER	1

<b>Mechanical Parts</b>			
K 1	DFUQ0096ZA	SPRING, RHE	4
K 2	DFMD4042ZA-0	PLATE, CON COVER	1
K 3	DFMD4043ZA-0	PLATE, REAR I/O COVER	1
K 4	DFMD7916ZB	ANGLE, DC IN	1
K 5	DFMD7917ZA	REINFORCE PLATE L	1
K 6	DFMD7919ZB	PLATE, KB	1
K 7	DFMD7920ZA	GUIDE, HDD	1
K 8	DFMD8035ZA	ASS'Y, ANGLE, PAD	1
K 10	DFMX0778ZA	INSULATION SHEET 3	3
K 12	DFMX1028ZA	SHEET, CPU INSULATOR	1
K 13	DFMY0331ZA	RUBBER, RHE RADIATION	1
K 14	DFMY0332ZB	RUBBER, VGA RADIATION	1
K 15	DFMY3142ZB	SHEET, VGA RADIATION	1
K 16	DFMY5033ZB	ASS'Y RHE	1
K 17	DFHG1623ZA-0	COVER, MODEM	1
K 18	DFHG1624ZA-0	COVER, LAN	1
K 19	DFHG1625ZA-0	COVER, CON	1
K 20	DFHG1626ZA-0	COVER, REA I/O	1
K 21	DFHG371ZA-0	LEG RUBBER	5
K 22	DFHG6034ZA	GUIDE, MP	1
K 24	DFHE0218ZA	GASKET	1
K 25	DFHE0513ZA	SHEET, EMI	2
K 26	DFHE0784ZB	GASKET, MP	1
K 27	DFKM8152ZA-0	ASS'Y, TOP CABINET	1
K 28	DFKF8147ZA-0	ASS'Y, BOTTOM CABINET	1
K 28-1	DFGX0368ZA-0	COVER, DIMM	1
K 28-2	DFHE5025YA	SCREW	1
K 29	DFKE8151ZB-0	ASS'Y, CENTER COVER	1
K 30	DFKE8152ZA-0	ASS'Y, PALM REST CAB	1
K 31	DFGX0371ZA-0	COVER, FIN	1
K 32	DFBC0301ZA-0	BUTTON, POWER SW	1
K 33	DFHR3398ZA	SHEET, PCB SLIDE	1
K 34	DFHR8437ZA	SHEET, PAD BUTTON WATER PROOF	1
K 40	DFMD4044ZB	PLATE, SP	2
K 41	DFMX0785ZA	SHEET, INV CABLE	1
K 42	DFMX1079ZB	CASE, INVERTER	1
K 43	DFHG1399XA-0	RUBBER, LCD LEG	2
K 44	DFHE0418ZA	MAGNET, LID	1
K 45	DFKM8153ZA-0	ASS'Y LCD REAR CABINET	1
K 45-1	DFUQ0095ZA	SPRING, LCD LATCH	1
K 45-2	DFDF3147ZA	SHAFT, LCD LATCH	1
K 45-3	DFBH1167ZA	HINGE, L	1
K 45-4	DFBH1168ZA	HINGE, R	1
K 45-5	DFKE0706ZA-0	COVER, LCD W LAN	1
K 45-6	DFGB0106ZA-0	LABEL, PANASONIC	1
K 45-7	DFGX0396ZA-0	DUMMY, ANTENNA COVER	1
K 45-8	DFBS0065ZA-0	LCD LATCH	1
K 45-9	DFHE5025XA	SCREW	1
K 45-10	DXYN3+J6FZL	SCREW	4
K 46	DFHR3517ZA	SHEET, SP PCB	2
K 47	DFHR3519ZB	SPACER, K/B UNDER	3
K 48	△DFGT0944YA	LABEL, DRIVE	1
K 49	DFKE0709ZA-0	MP CABINET BOTTOM	1
K 50	DFKE0710ZA-0	MP CABINET TOP	1
K 51	DFHR5892YA-0	MP CABINET LOCK	1
K 52	DFHR8448ZA	CUSHION, MP LOCK	1
K 53	DXQT2+D8FZL	SCREW	2
K 54	DFHE5067YA	SCREW	2
K 55	DFKF0235ZA-0	LCD FRONT CABINET	1
K 56	DFGE0072ZB-0	SHEET, SP FRONT	2
K 58	DFHR3418ZB	SHEET, SP A	2
K 59	DFHR3419ZB	SHEET, SP B	2
K 60	DFHR8439ZA	DUMPER, LCD A	2

K 61	DFHR8440ZA	DUMPER, LCD B	2
K 62	DFHR8441ZB	DUMPER, LCD C	2
K 63	DFHR8443ZA	DUMPER, LCD D	5
K 64	DFHR8444ZA	DUMPER, LCD E	1
K 65	DFMD2152ZA	HOLDER, HDD	1
K 66	DFKE8153ZA-0	ASS'Y, HDD CASE	1
K 67	DFHR6071ZA	CUSHION, HDD FPC	1
K 68	DFHR8442ZA	DUMPER, HDD	1
K 72	DFGL0121ZA-0	SHEET, INDICATOR C	1
K 73	DFQT9853ZA	LABEL, CENTRINO	1
K 74	DFQT9775ZA	LABEL, WIN LOGO (XP)	1
K 75	DFQX3986XA	LABEL, WIN 2000 PROFESSIONAL COA	1
K 76	△ DFGT0936ZA	RATING LABEL	1
K 77	DFKH1013ZA	HANDLE	1
K 78	DFQT9616ZB	LABEL, MS (US)	1
K 79	DFQT9675ZA	LABEL, ENERGY STAR	1
K 80	DFMD7918ZA	PLATE, REINFORCE R	1
K 81	DFHE0772ZA	GASKET	2
K 82	DFGX0370ZA-0	BEZEL, DUMMY	1
K 83	DFHR3420ZA	HOLDER	1
K 84	DFQT9848YA	LABEL, W-LAN (M)	1
K 85	DFHE0790ZA	GASKET, USB	2
K 86	DFHE0791ZA	GASKET, JACK	1
K 87	DFHE0792ZA	GASKET, HDD	1
K 88	DFHE0793ZB	GASKET, HINGE	2
K 89	DFHR3500ZB	SHEET, MP CAB 1	1
K 90	DFHR3532ZA	SHEET, MP CAB 2	1
K 91	DFHR6070ZA	COVER, WATER PROOF	1
K 92	DFHR8449ZB	CUSHION, DRIVE SUPPORT	1
K 93	DFHR8455ZA	SHEET, WATER PROOF	1
K 94	DFHR8456ZA	SPACER, TOP	1
K 96	DFHR8458ZB	DAMPER, MINI PCI	2
K 98	DFHE0277ZA	GASKET, CONFIG	1
K 99	DFHE0465ZA	SHEET 5, EMI	1
K 101	DXSB2+6FZL	SCREW	9
K 102	DXSN2+12FZL	SCREW	3
K 103	DXYN3+J8FZL	SCREW	4
K 104	DFHE5025YA	SCREW	20
K 105	DFHE5035ZA	SCREW	4
K 108	DXQT2+G4FCL	SCREW	8
K 109	DXQT26+D4FNL	SCREW	2
K 110	DXYN4+J12FZL	SCREW	2
K 112	DXSB2+16FNL	SCREW	4
K 113	K1YE68000007	SCREW	2
K 114	DXHM0035ZA	SCREW	4
K 115	DXQT2+I35FZL	SCREW	8
K 200	DFMX0743ZA	INSULATION SHEET	1
K 201	DFHE0416ZA	TAPE, KB	2
K 203	DFHR3542ZA	SHEET, BUS	2
K 204	DFHR3545ZA	SHEET, BATT	1
K 205	DFHR3547ZA	SHEET, KB	1
K 206	DFHR3548ZA	SHEET 2, KB	1
K 207	DFHR8459ZA	SHEET, WLAN	1
K 208	DFHR8460ZA	SHEET, KB FFC	2
K 209	DFHR8461ZA	LCD DUMPER F	2
K 210	DFHR3546ZA	SHEET, KB FIX	4

# Electrical Replacement Parts List

Note: Important Safety Notice

Components identified by  mark have special characteristics important for safety.

When replacing any of these components use only manufacturer's specified parts.

## CF-73E3KVXxM

REF. NO and AREA	PART NO.	DESCRIPTION	Q'TY
<b>Main PCB</b>			
C1 3	EEFCD0D101R	CAPACITOR, 2V, 100µF	2
C4 5 7 8 9 11 12 13 15 16 17 19 20 21 24 25 26 29 30 31 33 34 35 37 38 39 41 42 43 45 46 47 54 56 60 202 203 206 212 213 222 232 237 238 239 256 258 268 269 293 297 308 311 313 315 317 328 329 332 333 337 352 364 365 398 402 403 417 538	F1J0J106A013	CAPACITOR, 6.3V, 10µF	69
C10 14 18 22 27 32 36 40 44 48 61 123 126 128 132 137 164 176 186 187 190 193 194 197 204 205 207 208 209 210 211 214 215 216 217 218 219 220 221 223 224 234 235 240 241 250 251 252 253 254 259 260 261 262 263 276 283 284 287 288 289 290 291 292 298 301 306 307 309 310 327 330 331 334 335 338 348 351 354 357 358 361 362 363 370 397 414 415 416 418 419 420 434 435 436 437 438 500 506 542	F1G1C104A042	CAPACITOR, 16V, 0.1µF	100
C49 51 55 183 185 257 278 314 323 324 325 367 408 423	F1G1E103A062	CAPACITOR, 25V, 0.01µF	14
C50 52 80 83 84 89 93 99 100 105 111 117 165 166 180 225 226 229 233 236 316 318 319 320 321 374 377 378 394 426 427 428 429 430 431 432 433	F1J0J106A013	CAPACITOR, 6.3V, 10µF	37
C53 63 64 72 74 78 79 82 86 88 90 91 94 95 168 539	F1G1E103A062	CAPACITOR, 25V, 0.01µF	16
C59	F1G1H222A450	CAPACITOR, 50V, 2200pF	1
C62 71 75 76 81 85 96 97 98 101 102 103 104 106 107 108 109 110 112 113 114 115 116 118 119 122 127 131 135 136 138 139 141 142 145 147 148 151 152 153 154 155 156 157 158 159 160 161 162 163 167 169 170 171 174 175 177 178 179 200 227 230 231 249 286 294 296 347 356 359 373 375 376 379 380 381 382 383 384 385 387 391 396 401 421 422	F1G1C104A042	CAPACITOR, 16V, 0.1µF	86
C65 67 70 533 536 549	F1G1H221A495	CAPACITOR, 50V, 220pF	6
C66 87 92 120 124 129 133 143 144 149 150	DCUM1A1051BD	CAPACITOR, 10V, 1µF	11
C73 272 273 302 303 368 369 399 400 545	F1G1H1010005	CAPACITOR, 50V, 100pF	10

C121 125 130 134 195 196 198 201 277 504	DCUM1A1051BD	CAPACITOR, 10V, 1µF	10
C172 173	F1G1H6R0A452	CAPACITOR, 50V, 6pF	2
C188	F1G1H7R0A452	CAPACITOR, 50V, 7pF	1
C189	F1G1H5R00004	CAPACITOR, 50V, 5pF	1
C199 407	F1G1C473A004	CAPACITOR, 16V, 0.047µF	2
C228 547	ECJ3YB1E106M	CAPACITOR, 25V, 10µF	2
C242 243 244 245 246 247 248	F1G1H330A451	CAPACITOR, 50V, 33pF	7
C270 410 411 412 523	F1G1H102A496	CAPACITOR, 50V, 1000pF	5
C271 501 527 528 548 552	F1G1H102A496	CAPACITOR, 50V, 1000pF	6
C274 275	F1G1H1010005	CAPACITOR, 50V, 100pF	2
C279 281	F1G1H8R0A452	CAPACITOR, 50V, 8pF	2
C295	F1L3D102A012	CAPACITOR, 2000V, 1000pF	1
C299 300	F1G1H470A451	CAPACITOR, 50V, 47pF	2
C326	ECJ3YB1E106M	CAPACITOR, 25V, 10µF	1
C339 340 341 342 343 344 345 346 507 508	F1J1E105A009	CAPACITOR, 25V, 1µF	10
C355 360	ECST1AC476R	CAPACITOR, 10V, 47µF	2
C371 372	F4Z0J1570003	CAPACITOR, 6.3V, 150µF	2
C409	F1G0J683A001	CAPACITOR, 6.3V, 0.068µF	1
C516	F1L1E106A017	CAPACITOR, 25V, 10µF	1
C520 541 546	F1H1H104A748	CAPACITOR, 50V, 0.1µF	3
C525 526	F1H1H152A748	CAPACITOR, 50V, 1500pF	2
C531 532 550	F1G1H220A451	CAPACITOR, 50V, 22pF	3
C544	F1G1H471A496	CAPACITOR, 50V, 470pF	1
C551	F4Z1A1070002	CAPACITOR, 10V, 100µF	1
C553	F1G1H152A450	CAPACITOR, 50V, 1500pF	1
C556	F1H1H104A748	CAPACITOR, 50V, 0.1µF	1
C600 601 611 612	F1G1H102A496	CAPACITOR, 50V, 1000pF	4
C609 615 648 649 660 661 691	F1J0J106A013	CAPACITOR, 6.3V, 10µF	7
C614	F1G1C104A042	CAPACITOR, 16V, 0.1µF	1
C616	F1H1H223A783	CAPACITOR, 50V, 0.022µF	1
C617 667 670 672	F1H1H104A748	CAPACITOR, 50V, 0.1µF	4
C642 643 644 654 655 656	F1L1E106A017	CAPACITOR, 25V, 10µF	6
C646 658	F1H1C334A072	CAPACITOR, 16V, 0.33µF	2
C647 659	F1J1C475A083	CAPACITOR, 16V, 4.7µF	2
C650 651 662 663	EEFUD0D271XR	CAPACITOR, 2V, 270µF	4
C666 673	F1J0J106A013	CAPACITOR, 6.3V, 10µF	2
C668 674	ECJ3YB1E106M	CAPACITOR, 25V, 10µF	2
C669	F1J1C475A083	CAPACITOR, 16V, 4.7µF	1
C671 675	F1G1H821A450	CAPACITOR, 50V, 820pF	2
C676 677 693	EEFCD0D101R	CAPACITOR, 2V, 100µF	3
C697	F1H1H222A748	CAPACITOR, 50V, 2200pF	1
C701	F1J0J475A009	CAPACITOR, 6.3V, 4.7µF	1
C704 726 733 742 743 744 746 779 794 799	F1G1E103A062	CAPACITOR, 25V, 0.01µF	10
C705	F1J1H224A533	CAPACITOR, 50V, 0.22µF	1
C706 735 736 760	F1L1E106A017	CAPACITOR, 25V, 10µF	4
C707 784 786	F1J0J106A013	CAPACITOR, 6.3V, 10µF	3
C722	F4Z1A107A002	CAPACITOR, 10V, 100µF	1
C723	F4Z1A1070002	CAPACITOR, 10V, 100µF	1
C727 728 734 791	DCUM1A1051BD	CAPACITOR, 10V, 1µF	4
C729 732 762 764 796	F1H1H104A748	CAPACITOR, 50V, 0.1µF	5
C730 772 773 774	DCUI1C106HDB	CAPACITOR, 16V, 10µF	4
C731	F1J1E105A009	CAPACITOR, 25V, 1µF	1
C738 739	F4Z0J1570003	CAPACITOR, 6.3V, 150µF	2
C741	F1G1C104A042	CAPACITOR, 16V, 0.1µF	1
C763	DCUM1A1051BD	CAPACITOR, 10V, 1µF	1
C781 783 785	F4Z0J1570004	CAPACITOR, 6.3V, 150µF	3
C787	EEFCD0D101R	CAPACITOR, 2V, 100µF	1

C797	F1G1E103A062	CAPACITOR, 25V, 0.01µF	1
CA1 2	EZASCE101M	CAPACITOR ARRAY	2
CN2	K1MMZZB00002	CONNECTOR, MINI PCI	1
CN3	DFJP201ZA002	CONNECTOR	1
CN4	K1KBZZA00030	CONNECTOR, STACK	1
CN5	K1FB315B0008	CONNECTOR, VGA	1
CN6	K1NAF0D00002	CONNECTOR, CARD BUS	1
CN7	K1KA08B00137	CONNECTOR, BOARD TO WIRE	1
CN9	K1MMC4B00007	CONNECTOR, MINI-PCI	1
CN10	K1KAG0A00011	CONNECTOR	1
CN11	K1FA109B0053	CONNECTOR, SERIAL	1
CN12	K1MN36B00019	CONNECTOR	1
CN13	K1KB40B00024	CONNECTOR	1
CN14	K1KA62B00002	CONNECTOR	1
CN15	K1KB30A00131	CONNECTOR	1
CN16 17	K1FB104B0033	CONNECTOR, USB	2
CN18	K1KAC0A00041	CONNECTOR, STACK	1
CN19	DFJS243ZA012	CONNECTOR	1
CN20	K1KA84A00003	CONNECTOR, DOCKING	1
CN600	K1KA10B00198	CONNECTOR, BATTERY	1
D1 9 10	MA2J72900L	DIODE	3
D3	B0JDBE000002	DIODE	1
D4 8	MA2J72900L	DIODE	2
D5 6 7 11 12 13 14	MA3J14700L	DIODE	7
D15 22	MA3S132E0L	DIODE	2
D16	MA3S132E0L	DIODE	1
D17 23 24 25	MA3J14700L	DIODE	4
D20	B0KB00000035	DIODE	1
D21	B0KB00000035	DIODE	1
D600 601	B0JCCE000002	DIODE	2
D604	B0JDAE000004	DIODE	1
D606	B0JCCE000002	DIODE	1
D609 612	MA3S132D0L	DIODE	2
D616	MA3S132D0L	DIODE	1
D627 634 636	EC10QS04TL	DIODE	3
D629 630	DEDRB081L20	DIODE	2
D631 632 633	MA3J14700L	DIODE	3
D635 637 638	EC10QS04TL	DIODE	3
D640	MA132WK-TX	DIODE	1
D641	DED03P2JT1-D	DIODE	1
D643	MAZ80620ML	DIODE	1
D644 645 646 647 648 666 667 668	MAZ80620ML	DIODE	8
D651	DEDSPB64SVR	DIODE	1
D652 655	B0JDBE000002	DIODE	2
D656	MA2S111-TX	DIODE	1
D657 658 663	DEDF1J3ETP	DIODE	3
D659	B0JDBE000002	DIODE	1
D660	MAZ81200ML	DIODE	1
D661	MAZ81800ML	DIODE	1
D664 665	DEDRB081L20	DIODE	2
F1	 K5H2021A0003	FUSE, 63V, 2A	1
IC1	C2GBC0000182	IC, CPU	1
IC2	C1DB00001001	IC, MCH-M	1
IC3	C1DB00001002	IC, ICH4-M	1
IC4 5 6 7	C3ABRG000017	IC, DDR SDRAM	4
IC8 9 10 11	C3ABRG000017	IC, DDR SDRAM	4
IC12	C1DB00000900	IC, PCMCIA CONTROLLER	1
IC13	C1DB00000902	IC, LAN CONTROLLER	1
IC14	C2CBHF000243	IC, EC	1

IC15	C1DB00000941	IC, SUPER I/O	1
IC17	C3FBKC000076	IC, FWH	1
IC18	C0JBZZ000299	IC, THERMAL SENSOR	1
IC19	C0JBZZ000300	IC, CLOCK GENERATOR	1
IC20	DA2205IDBLET	IC, BIPOLAR LOGIC	1
IC21 22	C0JBAZ001978	IC, QUICK SW	2
IC24	DA7W66UT12L0	IC, CMOS	1
IC25 28 31	DA7SH08U85L0	IC, AND GATE	3
IC27 37	DA7W14UT12L0	IC, INVERTER	2
IC29 30	DA7ST08U85L0	IC, AND GATE	2
IC32	DA7S32UT85L0	IC, OR GATE	1
IC33	93LC46BT/SN	IC, EEPROM	1
IC34	C0CBABC00140	IC, REGULATOR	1
IC35 36	ADM211EARSRL	IC, RS232C TRANSCEIVER	2
IC40 41	C0DBZH000004	IC, USB POWER CONTROL	2
IC42 43 44	C0EBE0000204	IC, VOLTAGE DETECTOR	3
IC600	C0DBAFH00019	IC, DC/DC CONTROLLER	1
IC601	C0DBALH00001	IC, DC/DC CONVERTER	1
IC602 614	C0DBZZZ00057	IC, DRIVER	2
IC605 616	C0DBAHH00009	IC, DC/DC CONVERTER	2
IC606	C0DBAFH00011	IC, DC/DC CONTROLLER	1
IC608	DA7W02UT12L0	IC, CMOS	1
IC609	DA7S14UT85L0	IC, INVERTER	1
IC613	C0DBDJH00007	IC, CHARGER	1
IC615	C0DBEGH00003	IC, REGULATOR	1
IC617	C0DBAZZ00039	IC, DC/DC CONVERTER	1
IC618	C0ABBA000093	IC, OP AMP	1
IC619	C0ABZA000036	IC, AMP	1
IC620 621	C0EBH0000216	IC, RESET	2
IC622	C0DBAKZ00005	IC, DC/DC CONTROLLER	1
L1 15	J0JGC0000038	INDUCTOR	2
L2 3 4 13 14	J0JGC0000038	INDUCTOR	5
L5 6 7 8 9 10 11	J0JCC0000186	INDUCTOR	7
L12	G5BYC0000008	INDUCTOR	1
L16 17 21 28	J0JHC0000074	INDUCTOR	4
L19 20 22 23 24 29	J0JHC0000074	INDUCTOR	6
L25	J0MAB0000116	INDUCTOR	1
L26	J0MAB0000116	FILTER	1
L600 612	G1CR60ZA0045	INDUCTOR	2
L601	G1C6R8ZA0044	INDUCTOR	1
L602	G1C4R7ZA0044	INDUCTOR	1
L604	G1C4R7MA0022	INDUCTOR	1
L608 611	DDAZS100MT3T	INDUCTOR	2
L610	G1A160H00001	INDUCTOR	1
L613 614	G1A4R7ZA0001	COIL	2
L615	G1A220ZA0002	INDUCTOR	1
PS1	△ ERY32SA120VA	POLY SW	1
PS2	△ ERY32SA120VA	POLY SW	1
Q1 2	DETU3904T106	TRANSISTOR	2
Q3 4 24	DA3LN01STL	TRANSISTOR	3
Q5 15	UNR9213J0L	TRANSISTOR	2
Q6 8 12 13 14 29	B1DHDC000021	TRANSISTOR	6
Q7 10 11 17 19 21 27 31 32	XP0421300L	TRANSISTOR	9
Q9	B1ADKD000004	TRANSISTOR	1
Q16 34	UNR9213J0L	TRANSISTOR	2
Q18	XP0421300L	TRANSISTOR	1
Q23	B1DHDC000021	TRANSISTOR	1
Q25	UNR9113J0L	TRANSISTOR	1
Q30 33	UNR9113J0L	TRANSISTOR	2
Q600 654	DA3LN01STL	TRANSISTOR	2


Q601	UNR9113J0L	TRANSISTOR	1
Q603 607 618 619 693 694	B1DBGD000002	TRANSISTOR	6
Q604 605 608 609	B1DFGC000001	TRANSISTOR	4
Q612 613	DAFDS6912A	TRANSISTOR	2
Q617	DAFDN359AN	TRANSISTOR	1
Q622 623 628 630	DAFDS6912A	TRANSISTOR	4
Q625 626	B1GKCFJN0004	TRANSISTOR	2
Q627 629 631 632 633 634 635 636 664 665 666 677 678 679 680 692	UNR9213J0L	TRANSISTOR	16
Q651 652	UNR9214J0L	TRANSISTOR	2
Q653	B1MBEDA00007	TRANSISTOR	1
Q661 669 670 698	UNR9213J0L	TRANSISTOR	4
Q663	DAFDN359AN	TRANSISTOR	1
Q667	XP0331200L	TRANSISTOR	1
Q671 676 690 691	UNR9113J0L	TRANSISTOR	4
Q672 675 683 684 687 689 697	UNR9214J0L	TRANSISTOR	7
Q673	DA3LN01STL	TRANSISTOR	1
Q674	B1DDDC000002	TRANSISTOR	1
Q681 685	B1DDED000002	TRANSISTOR	2
Q682 686	B1DDED000002	TRANSISTOR	2
Q695	XP0421400L	TRANSISTOR	1
Q699	B1DHGC000005	TRANSISTOR	1
Q700	B1DDDC000002	TRANSISTOR	1
Q701 702	DA3LN01STL	TRANSISTOR	2
Q703 716 726 731	B1CFGD000004	TRANSISTOR	4
Q704 705	B1DHDC000021	TRANSISTOR	2
Q706	DA3LN01STL	TRANSISTOR	1
Q707 728	UNR9113J0L	TRANSISTOR	2
Q708 722 723 724	DAFDN359AN	TRANSISTOR	4
Q709	B1CFGD000004	TRANSISTOR	1
Q710	B1DHGC000005	TRANSISTOR	1
Q711 714 715	UNR9213J0L	TRANSISTOR	3
Q712 727	UNR9113J0L	TRANSISTOR	2
Q713	XP0421300L	TRANSISTOR	1
Q717	B1DDED000002	TRANSISTOR	1
Q718 720	XP0331200L	TRANSISTOR	2
Q730 732	UNR9213J0L	TRANSISTOR	2
R1	ERJ2GEJ681X	RESISTER, 1/16W, 680Ω	1
R3 38 39	ERJ2RKF27R4X	RESISTER, 1/16W, 27.4Ω	3
R5	ERJ2RKF54R9X	RESISTER, 1/16W, 54.9Ω	1
R6	ERJ2RKF39R2X	RESISTER, 1/16W, 39.2Ω	1
R7	ERJ2GEJ151X	RESISTER, 1/16W, 150Ω	1
R11 28 30	ERJ2GEJ331X	RESISTER, 1/16W, 330Ω	3
R12 47 281	ERJ2GEJ560X	RESISTER, 1/16W, 56Ω	3
R16 17	ERJ2RKF27R4X	RESISTER, 1/16W, 27.4Ω	2
R18 19	ERJ2RKF54R9X	RESISTER, 1/16W, 54.9Ω	2
R25	ERJ2RKF1001X	RESISTER, 1/16W, 1KΩ	1
R26	ERJ2RKF2001X	RESISTER, 1/16W, 2KΩ	1
R27 184 538 539	ERJ2GEJ562X	RESISTER, 1/16W, 5.6KΩ	4
R29	ERJ2GEJ132X	RESISTER, 1/16W, 1.3KΩ	1
R31	ERJ2RKF30R1X	RESISTER, 1/16W, 30.1Ω	1
R32 34	ERJ2RKF3010X	RESISTER, 1/16W, 301Ω	2
R33 35	ERJ2RKF1500X	RESISTER, 1/16W, 150Ω	2
R36	ERJ2RKF49R9X	RESISTER, 1/16W, 49.9Ω	1
R37	ERJ2RKF1000X	RESISTER, 1/16W, 100Ω	1
R40 41 112	ERJ2RKF36R5X	RESISTER, 1/16W, 36.5Ω	3
R43	ERJ2GEJ220X	RESISTER, 1/16W, 22Ω	1
R44 45 596	ERJ2RKF1001X	RESISTER, 1/16W, 1KΩ	3



R48 49 50 51 52 53 54 55 56 57 58 562 563	ERJ2GEJ100X	RESISTER, 1/16W, 10Ω	13
R59	ERJ2RKF1200X	RESISTER, 1/16W, 120Ω	1
R60	ERJ2RKF1200X	RESISTER, 1/16W, 120Ω	1
R61	DBT10KC1513P	THERMISTOR	1
R62 67 106 107 118 126 154 155 165 167 168 200 227 228 229 240 269 284 289 290 291 293 547 548	ERJ2GEJ103X	RESISTER, 1/16W, 10KΩ	24
R64 65 66 141 142 143 170 180 235 252	ERJ2GEJ102X	RESISTER, 1/16W, 1KΩ	10
R68 183	ERJ2GEJ221X	RESISTER, 1/16W, 220Ω	2
R70	ERJ2RKF4750X	RESISTER, 1/16W, 475Ω	1
R71 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 103	ERJ2GEJ330X	RESISTER, 1/16W, 33Ω	20
R92 93 94 95 185 187 188 189	ERJ2RKF49R9X	RESISTER, 1/16W, 49.9Ω	8
R100 102 174 207 218 297	ERJ2GEJ473X	RESISTER, 1/16W, 47KΩ	6
R101 104 105 110 149 150 151 162 164 166 175 178 193 194 247 253 254 268 292 295 296 298 515 516 529 530 551 574	ERJ2GEJ473X	RESISTER, 1/16W, 47KΩ	28
R108 109 111 114 125 169 179 204 222 223 224 225 226 246	ERJ2GEJ104X	RESISTER, 1/16W, 100KΩ	14
R113 119 120 129	ERJ2GEJ560X	RESISTER, 1/16W, 56Ω	4
R115 116	ERJ2RKF1500X	RESISTER, 1/16W, 150Ω	2
R122 124 217 532 534 543	ERJ2GE0R00X	RESISTER, 1/16W, 0Ω	6
R128	ERJ2RKF22R6X	RESISTER, 1/16W, 22.6Ω	1
R130	ERJ2GEJ470X	RESISTER, 1/16W, 47Ω	1
R131 177 202 213 214 244 248 249 250 271 286 287 528 549 550 570 571 575	ERJ2GE0R00X	RESISTER, 1/16W, 0Ω	18
R132 133	ERJ3GEYJ106V	RESISTER, 1/16W, 10MΩ	2
R134 135 234 513 552	ERJ2GEJ472X	RESISTER, 1/16W, 4.7KΩ	5
R136	ERJ2RKF1803X	RESISTER, 1/16W, 180KΩ	1
R144 163 181 232 233	ERJ2GEJ101X	RESISTER, 1/16W, 100Ω	5
R157 158 159	ERJ3EKF75R0V	RESISTER, 1/16W, 75Ω	3
R160 161 205 206 231 236 237 242 537 561 564 578 593 599	ERJ2GEJ103X	RESISTER, 1/16W, 10KΩ	14
R171 172	ERJ2GEJ100X	RESISTER, 1/16W, 10Ω	2
R173	DBT10KC1513P	THERMISTOR	1
R182 569	ERJ2GEJ105X	RESISTER, 1/16W, 1MΩ	2
R186	ERJ2RKF5601X	RESISTER, 1/16W, 5.6KΩ	1
R191	ERJ3GEY0R00V	RESISTER, 1/16W, 0Ω	1
R192 195 196	ERJ2RKF1002X	RESISTER, 1/16W, 10KΩ	3
R215 220	ERJ2GEJ101X	RESISTER, 1/16W, 100Ω	2
R239 541 542	ERJ2GEJ104X	RESISTER, 1/16W, 100KΩ	3
R241 581 582	ERJ2GEJ474X	RESISTER, 1/16W, 470KΩ	3
R243 567 568	ERJ2GEJ105X	RESISTER, 1/16W, 1MΩ	3
R256	ERJ2GEJ223X	RESISTER, 1/16W, 22KΩ	1
R258 259 260 261 262	ERJ2GEJ333X	RESISTER, 1/16W, 33KΩ	5
R265	ERJ2GEJ472X	RESISTER, 1/16W, 4.7KΩ	1
R501 592	ERJ3GEYJ101V	RESISTER, 1/16W, 100Ω	2
R502 503 504 505 506 531 584 585 589 590	ERJ3GEYJ101V	RESISTER, 1/16W, 100Ω	10
R507 573	ERJ2GEJ223X	RESISTER, 1/16W, 22KΩ	2
R509 510	ERJ6GEYJ222V	RESISTER, 1/10W, 2.2KΩ	2
R511 519	ERJ2GEJ474X	RESISTER, 1/16W, 470KΩ	2
R514 522	ERJ2RHD473X	RESISTER, 1/16W, 47KΩ	2
R517 518 545 554	ERJ2GEJ564X	RESISTER, 1/16W, 560KΩ	4
R520 524	ERJ2RHD104X	RESISTER, 1/16W, 100KΩ	2
R521 525	ERJ3GEYJ3R3V	RESISTER, 1/16W, 3.3Ω	2

R523 526	ERJ2RHD333X	RESISTER, 1/16W, 33KΩ	2
R535	RL1220SR47F	RESISTER, 1/8W, 0.47Ω	1
R536	ERJ2GEJ562X	RESISTER, 1/16W, 5.6KΩ	1
R544	ERJ3GEYJ562V	RESISTER, 1/16W, 5.6KΩ	1
R546 553	D0HA103ZA001	RESISTER, 1/16W, 10KΩ	2
R556 558	D1BDR0470002	RESISTER, 1/8W, 0.047Ω	2
R557 583	D1BDR0330001	RESISTER, 1/8W, 0.033Ω	2
R560	ERJ2GEJ153X	RESISTER, 1/16W, 15KΩ	1
R565 566	D1BDR0470002	RESISTER, 1/8W, 0.047Ω	2
R577	RL1220SR10F	RESISTER, 1/8W, 0.1Ω	1
R579	ERJ2RKF3902X	RESISTER, 1/16W, 39KΩ	1
R580	ERJ2RKF1102X	RESISTER, 1/16W, 11KΩ	1
R600 606 608	ERJ3EKF2150V	RESISTER, 1/16W, 215Ω	3
R601 603 610 611	ERJ3EKF1100V	RESISTER, 1/16W, 110Ω	4
R604	ERJ3EKF4531V	RESISTER, 1/16W, 4.53KΩ	1
R605	ERJ3EKF7501V	RESISTER, 1/16W, 7.5KΩ	1
R607 659	ERJ2GE0R00X	RESISTER, 1/16W, 0Ω	2
R609	ERJ3EKF5101V	RESISTER, 1/16W, 5.1KΩ	1
R612 658	ERJ3GEYJ100V	RESISTER, 1/16W, 10Ω	2
R613	ERJ3EKF5103V	RESISTER, 1/16W, 510KΩ	1
R614	ERJ3EKF5361V	RESISTER, 1/16W, 5.36KΩ	1
R615 651	ERJ2GEJ103X	RESISTER, 1/16W, 10KΩ	2
R616	ERJ2GEJ103X	RESISTER, 1/16W, 10KΩ	1
R634 639	ERJM1WSF3M0U	RESISTER, 1W, 3MΩ	2
R636 638 642 644	ERJ3GEYJ3R3V	RESISTER, 1/16W, 3.3Ω	4
R637 643	ERJ3GEY0R00V	RESISTER, 1/16W, 0Ω	2
R649 674	ERJ2RKF2002X	RESISTER, 1/16W, 20KΩ	2
R650	ERJ2RKF1002X	RESISTER, 1/16W, 10KΩ	1
R652	ERJ2GEJ223X	RESISTER, 1/16W, 22KΩ	1
R653	ERJ2GE0R00X	RESISTER, 1/16W, 0Ω	1
R655	ERJ2RKF4701X	RESISTER, 1/16W, 4.7KΩ	1
R656	ERJ2RKF1502X	RESISTER, 1/16W, 15KΩ	1
R657	ERJ2GEJ153X	RESISTER, 1/16W, 15KΩ	1
R660 661	ERJ2GEJ100X	RESISTER, 1/16W, 10Ω	2
R673	ERJ2RKF2402X	RESISTER, 1/16W, 24KΩ	1
R675 676	ERJ2GEJ105X	RESISTER, 1/16W, 1MΩ	2
R681	ERJ3GEYJ100V	RESISTER, 1/16W, 10Ω	1
R700 707	ERJ2GEJ224X	RESISTER, 1/16W, 220KΩ	2
R701	D1BDR0470002	RESISTER, 1/8W, 0.047Ω	1
R702 703 705 706	D1BDR0330001	RESISTER, 1/8W, 0.033Ω	4
R708	ERJ3GEYJ100V	RESISTER, 1/16W, 10Ω	1
R709 710 711 713 714	ERJ2GEJ105X	RESISTER, 1/16W, 1MΩ	5
R712	ERJ2GEJ824X	RESISTER, 1/16W, 820KΩ	1
R740 776 779	ERJ2GEJ103X	RESISTER, 1/16W, 10KΩ	3
R742 759	ERJ3GEY0R00V	RESISTER, 1/16W, 0Ω	2
R743 744 745	RL1220SR10F	RESISTER, 1/8W, 0.1Ω	3
R746	RL1220SR15F	RESISTER, 1/8W, 0.15Ω	1
R747	ERJ2GEJ472X	RESISTER, 1/16W, 4.7KΩ	1
R750	ERJ2GEJ562X	RESISTER, 1/16W, 5.6KΩ	1
R752	ERJ2GEJ154X	RESISTER, 1/16W, 150KΩ	1
R753	ERJ2GEJ474X	RESISTER, 1/16W, 470KΩ	1
R754 755	D0HA302ZA001	RESISTER, 1/16W, 3KΩ	2
R756	ERJ2RKD114X	RESISTER, 1/16W, 110KΩ	1
R757	D1BA3652A005	RESISTER, 1/16W, 36.5KΩ	1
R758	D1BDR0330001	RESISTER, 1/8W, 0.033Ω	1
R760	ERA3EKB1623V	RESISTER, 1/16W, 162KΩ	1
R761	ERA3EEB1692V	RESISTER, 1/16W, 16.9KΩ	1
R773	ERJ2RKF4701X	RESISTER, 1/16W, 4.7KΩ	1
R774	ERJ2RKF1002X	RESISTER, 1/16W, 10KΩ	1
R777	ERJ2RKF1203X	RESISTER, 1/16W, 120KΩ	1

R778	ERJ2RKF1503X	RESISTOR, 1/16W, 150KΩ	1
R783	ERJ2GE0R00X	RESISTOR, 1/16W, 0Ω	1
R784 786	ERJ2GEJ101X	RESISTOR, 1/16W, 100Ω	2
R787 788	ERJ2GEJ105X	RESISTOR, 1/16W, 1MΩ	2
R789	D0HA104ZA001	RESISTOR, 1/16W, 100KΩ	1
R790	D0HB154ZA002	RESISTOR, 1/16W, 150KΩ	1
R791	D0HB154ZA002	RESISTOR, 1/16W, 150KΩ	1
R792	D0HA104ZA001	RESISTOR, 1/16W, 100KΩ	1
R794 797	ERJ2GE0R00X	RESISTOR, 1/16W, 0Ω	2
R795	D1ZZ00000046	RESISTOR, 1W, 5MΩ	1
RA1 2 3 4 5 6 7 8 9 10	DEARA8CJ100M	RESISTOR ARRAY	10
RA11 12 13 14 15 16 17 18 19 20 21 22 23	D1HA56080001	RESISTOR ARRAY	13
RA24 29 34 49	D1H84734A024	RESISTOR ARRAY	4
RA25 26 27 28 32 35 37 38 48	DEARA8AJ103M	RESISTOR ARRAY	9
RA30	D1H84734A024	RESISTOR ARRAY	1
RA31	D1H87504A024	RESISTOR ARRAY	1
RA33 46 50	D1H81034A024	RESISTOR ARRAY	3
RA36 47	D1H81044A024	RESISTOR ARRAY	2
RA40 41 42	D1H82204A024	RESISTOR ARRAY	3
RA43 44	DEARA8AJ472M	RESISTOR ARRAY	2
RA45	D1H81014A024	RESISTOR ARRAY	1
X1	H0J143500040	OSCILLATOR, 14.31818MHz	1
X2	H0J327200051	OSCILLATOR, 32.768KHz	1
X3	H0J250500025	OSCILLATOR, 25MHz	1
X5	H2D800400015	OSCILLATOR, 8MHz	1
<b>VGA PCB</b>			
C800 801 807 808 811 812 813 814 866 867 868 870 892 893 896	F1J0J106A013	CAPACITOR, 6.3V, 10μF	15
C802 809 810 815 816 817 821 822 824 871 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 894 895 897 898 899	F1G1C104A042	CAPACITOR, 16V, 0.1μF	34
C803 805 806	F1G1C104A042	CAPACITOR, 16V, 0.1μF	3
C804 869 872	F1J0J106A013	CAPACITOR, 6.3V, 10μF	3
C819 820	F1G1H100A452	CAPACITOR, 50V, 10pF	2
C865	EEFCD0D101R	CAPACITOR, 2V, 100μF	1
C900 941	F1J0J106A013	CAPACITOR, 6.3V, 10μF	2
C901 918 922	F1G1C104A042	CAPACITOR, 16V, 0.1μF	3
C902 904 906 907 952	F1J0J106A013	CAPACITOR, 6.3V, 10μF	5
C903 905 908 909 928 933 953	F1G1C104A042	CAPACITOR, 16V, 0.1μF	7
C910 911 912 913 914 915 916 917	F1G1H102A496	CAPACITOR, 50V, 1000pF	8
C919 920 921 923 924 925 926 927	F1G1H100A452	CAPACITOR, 50V, 10pF	8
C929	F1H1H472A748	CAPACITOR, 50V, 4700pF	1
C930	F1G1H471A496	CAPACITOR, 50V, 470pF	1
C931	F1G1H1010005	CAPACITOR, 50V, 100pF	1
C934	F1G1E103A062	CAPACITOR, 25V, 0.01μF	1
C935	F1J0J475A009	CAPACITOR, 6.3V, 4.7μF	1
C936	F1H1H104A748	CAPACITOR, 50V, 0.1μF	1
C937	F1J1H224A533	CAPACITOR, 50V, 0.22μF	1
C938	ECJ3YB1E106M	CAPACITOR, 25V, 10μF	1
C942 943	EEFCD0D101R	CAPACITOR, 2V, 100μF	2
CN800	K1KAZZA00021	CONNECTOR, STACK	1
CN801	K1KA20B00112	CONNECTOR, PLUG	1
CN802	K1MN13B00073	CONNECTOR, CIC	1
CN803	K1MN16B00123	CONNECTOR, CIC	1

D800	B0JCCE000002	DIODE	1
D801	EC10QS04TL	DIODE	1
D802	MAZ80620ML	DIODE	1
F800	 K5H2021A0003	FUSE, 63V, 2A	1
IC800	C1DB00000907	IC, VGA CONTROLLER	1
IC801	C0JBZZ000297	IC, CLOCK GENERATOR	1
IC804	DA7S14UT85L0	IC, INVERTER	1
IC805	C0DBAFH00011	IC, DC/DC CONTROLLER	1
L800 801 802 804 805 806 808	J0JGC0000038	INDUCTOR	7
L803	J0JGC0000038	INDUCTOR	1
L807	G1C4R7MA0022	INDUCTOR	1
Q800	UNR9213J0L	TRANSISTOR	1
Q801	B1DHDC000021	TRANSISTOR	1
Q802 803	B1CFGD000004	TRANSISTOR	2
Q804 806	B1DBGD000002	TRANSISTOR	2
Q805	XP0421300L	TRANSISTOR	1
R801 810 819 843 880 881	ERJ2GEJ103X	RESISTOR, 1/16W, 10KΩ	6
R802 861 862	ERJ2GEJ103X	RESISTOR, 1/16W, 10KΩ	3
R804 848	ERJ2GEJ470X	RESISTOR, 1/16W, 47Ω	2
R805 840 841 844 845	ERJ2RKF1001X	RESISTOR, 1/16W, 1KΩ	5
R806 818 842	ERJ2GEJ220X	RESISTOR, 1/16W, 22Ω	3
R807	ERJ2GEJ102X	RESISTOR, 1/16W, 1KΩ	1
R809	ERJ2RKF4990X	RESISTOR, 1/16W, 499Ω	1
R832 833	ERJ2GEJ330X	RESISTOR, 1/16W, 33Ω	2
R834 836	ERJ2GEJ222X	RESISTOR, 1/16W, 2.2KΩ	2
R835	ERJ2GEJ105X	RESISTOR, 1/16W, 1MΩ	1
R837	ERJ2GEJ331X	RESISTOR, 1/16W, 330Ω	1
R838	ERJ2GEJ822X	RESISTOR, 1/16W, 8.2KΩ	1
R839	ERJ3GEYJ100V	RESISTOR, 1/16W, 10Ω	1
R846 847	ERJ2RKF1200X	RESISTOR, 1/16W, 120Ω	2
R849 850	ERJ2GEJ472X	RESISTOR, 1/16W, 4.7KΩ	2
R860	ERJ2GEJ104X	RESISTOR, 1/16W, 100KΩ	1
R863 869 872	ERJ2GE0R00X	RESISTOR, 1/16W, 0Ω	3
R864	D0HA103ZA001	RESISTOR, 1/16W, 10KΩ	1
R865	D0HA183ZA001	RESISTOR, 1/16W, 18KΩ	1
R868	ERJ2GEJ223X	RESISTOR, 1/16W, 22KΩ	1
R871	ERJ2RKF5601X	RESISTOR, 1/16W, 5.6KΩ	1
R873	ERJ2GEJ105X	RESISTOR, 1/16W, 1MΩ	1
R875	ERJ2GEJ100X	RESISTOR, 1/16W, 10Ω	1
R878	ERJ3GEYJ472V	RESISTOR, 1/16W, 4.7KΩ	1
X800	H0J270500050	OSCILLATOR, 27MHz	1
<b>Rear PCB</b>			
C1000 1004 1013 1023 1025 1109	F1H1H103A748	CAPACITOR, 50V, 0.01μF	6
C1001	F1L1E106A017	CAPACITOR, 25V, 10μF	1
C1002 1057 1078	F1J0J106A013	CAPACITOR, 6.3V, 10μF	3
C1003	F1H1H103A748	CAPACITOR, 50V, 0.01μF	1
C1007 1011 1014 1016 1027 1032 1063 1066 1093 1100 1105 1107	F1H1H104A748	CAPACITOR, 50V, 0.1μF	12
C1008 1070	F1J0J106A013	CAPACITOR, 6.3V, 10μF	2
C1009 1012 1104	F1H1H102A748	CAPACITOR, 50V, 1000pF	3
C1010 1015 1018 1019 1024 1026 1094 1097 1101 1102 1103	F1H0J224A002	CAPACITOR, 6.3V, 0.22μF	11
C1022 1028	DCUM1A1051BD	CAPACITOR, 10V, 1μF	2
C1053 1089	DCUM1A1051BD	CAPACITOR, 10V, 1μF	2
C1054 1055	F1H1H101A737	CAPACITOR, 50V, 100pF	2
C1056 1060 1077	F1H1H104A748	CAPACITOR, 50V, 0.1μF	3
C1061	F1H0J224A002	CAPACITOR, 6.3V, 0.22μF	1
C1062 1065	F1H1H102A737	CAPACITOR, 50V, 1000pF	2

C1064	F1H1H222A748	CAPACITOR, 50V, 2200pF	1
C1068	F1H1H221A748	CAPACITOR, 50V, 220pF	1
C1072 1074 1075	F1L1E106A017	CAPACITOR, 25V, 10µF	3
C1079 1080 1081	F1H1H104A731	CAPACITOR, 50V, 0.1µF	3
C1082	F1H1H104A731	CAPACITOR, 50V, 0.1µF	1
C1086 1087	F4Z1A107A002	CAPACITOR, 10V, 100µF	2
C1088 1090	F1H1A474A028	CAPACITOR, 10V, 0.47µF	2
C1091	ECST1CY105R	CAPACITOR, 16V, 1µF	1
C1096 1098	F1H1H272A748	CAPACITOR, 50V, 2700pF	2
C1106 1108	ECST0JC476R	CAPACITOR, 6.3V, 47µF	2
CA1000 1001	EZASCE101M	CAPACITOR ARRAY	2
CN1000	K1KBC0A00056	CONNECTOR	1
CN1001 1003	DFJP201ZA005	CONNECTOR	2
CN1002	K1KA08B00137	CONNECTOR	1
CN1005	DFJP02C75YAJ	CONNECTOR	1
CN1006	K1KA09B00048	CONNECTOR	1
D1000	DEDEC31QS03L	DIODE	1
D1002	MAZ81800ML	DIODE	1
D1003 1004	DEDF1J3ETP	DIODE	2
F1000	△ K5H2021A0003	FUSE, 63V, 2A	1
F1001	△ K5H1021A0003	FUSE, 63V, 1A	1
F1002	△ K5H2021A0003	FUSE, 63V, 2A	1
IC1000	C1BB00000773	IC, AC97 CODEC	1
IC1001	C0CBCBD00005	IC, REGULATOR	1
IC1005	DA7W14UT12L0	IC, INVERTER	1
IC1006	C0ABBA000075	IC, OP AMP	1
IC1007	C0DBAZZ00052	IC, REGULATOR	1
IC1008	C1BB00000776	IC, HEADPHONE AMP	1
IC1009	C0ABBA000075	IC, OP AMP	1
IC1010	DA7W66UT12L0	IC, OP AMP	1
IC1011	C1BB00000293	IC, DETECTOR	1
JK1000 1001	DFJJD6S10ZAG	JACK	2
JK1002	K2EZ2B000039	JACK, DC	1
L1000	J0JGC0000038	INDUCTOR	1
L1001	J0JHC0000074	INDUCTOR	1
L1002	J0JHC0000074	INDUCTOR	1
L1005 1006 1007 1008 1009 1010	J0JCC0000186	INDUCTOR	6
L1011	G1C4R7ZA0047	INDUCTOR	1
L1012	DDB5Z028C-L	INDUCTOR	1
LD1000 1001 1002 1003 1004 1006	SEC1703C	LED	6
LD1005	B3ACB0000097	LED	1
LD1007	SEC2764C	LED	1
Q1000 1001 1002 1003 1004 1005 1006	UNR9113J0L	TRANSISTOR	7
Q1007 1013	XP0421300L	TRANSISTOR	2
Q1008 1014 1015 1017	XP0421300L	TRANSISTOR	4
Q1009	UNR9213J0L	TRANSISTOR	1
Q1010	B1DFGD000013	TRANSISTOR, SINGLE N-CH MOSFET	1
Q1011	DA3LN01STL	TRANSISTOR, FET	1
Q1018	B1DDED000002	TRANSISTOR; FET	1
R1000 1001 1002 1003 1004	ERJ3GEYJ331V	RESISTOR, 1/16W, 330Ω	5
R1005 1007	ERJ3GEYJ471V	RESISTOR, 1/16W, 470Ω	2
R1006 1102 1103	ERJ3GEYJ102V	RESISTOR, 1/16W, 1KΩ	3
R1008	ERJ3GEYJ221V	RESISTOR, 1/16W, 220Ω	1
R1009	ERJ3GEYJ101V	RESISTOR, 1/16W, 100Ω	1
R1010 1011 1012	ERJ3GEYJ470V	RESISTOR, 1/16W, 47Ω	3
R1016 1018 1020 1024 1026 1059 1085	ERJ3GEYJ103V	RESISTOR, 1/16W, 10KΩ	7

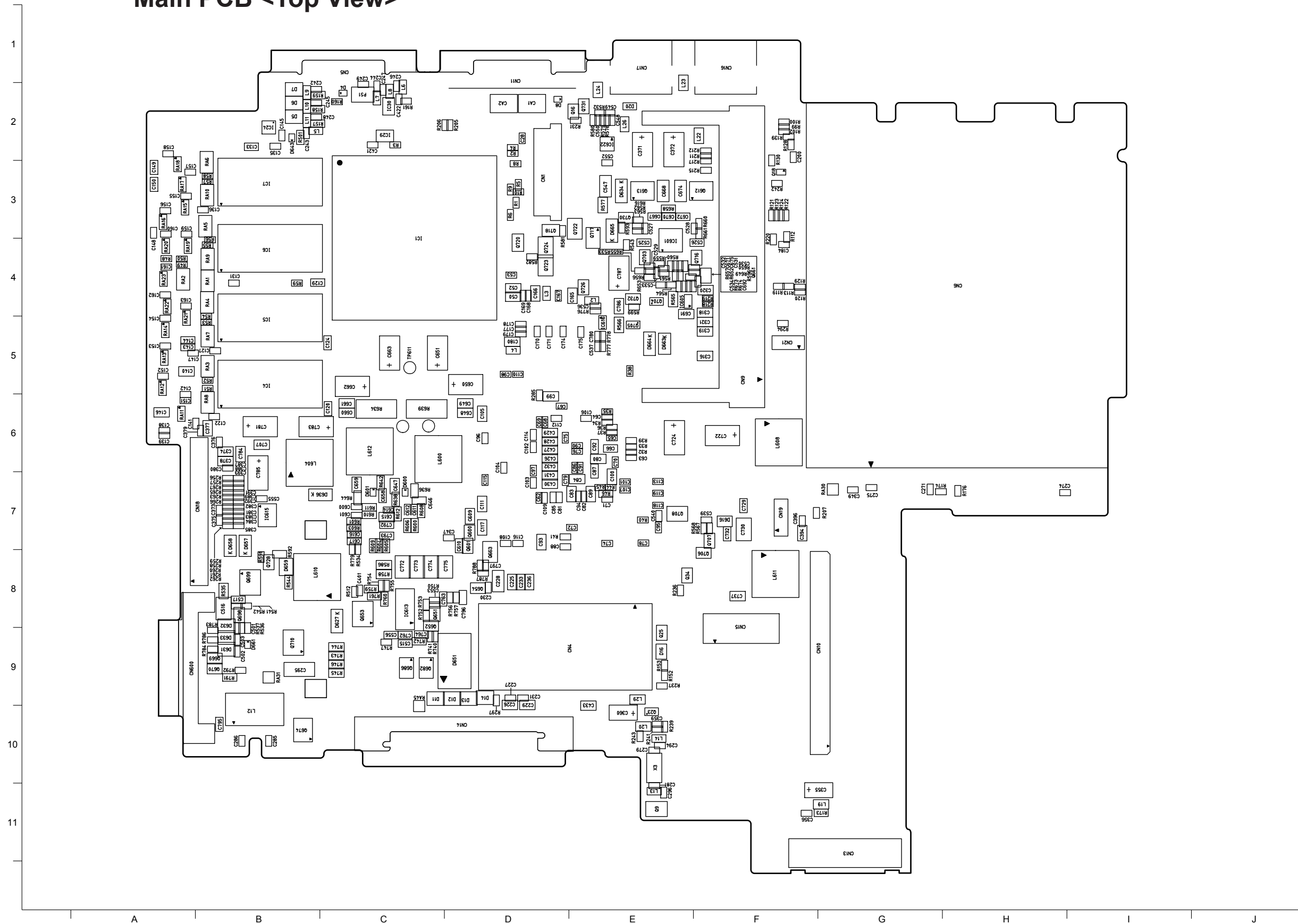
R1017 1032 1057	ERJ3GEYJ473V	RESISTOR, 1/16W, 47KΩ	3
R1027 1028 1054 1091 1093	ERJ3GEYJ223V	RESISTOR, 1/16W, 22KΩ	5
R1029 1060 1069	ERJ3GEYJ472V	RESISTOR, 1/16W, 4.7KΩ	3
R1045 1100 1101	ERJ3GEYJ102V	RESISTOR, 1/16W, 1KΩ	3
R1046	ERJ3GEYJ104V	RESISTOR, 1/16W, 100KΩ	1
R1047 1055 1104 1105	ERJ3GEYJ103V	RESISTOR, 1/16W, 10KΩ	4
R1048	ERJ3GEYJ471V	RESISTOR, 1/16W, 470Ω	1
R1049 1050	ERJ6GEYJ222V	RESISTOR, 1/10W, 2.2KΩ	2
R1051 1052 1109	ERJ3GEY0R00V	RESISTOR, 1/16W, 0Ω	3
R1053 1092 1096	ERJ3GEYJ333V	RESISTOR, 1/16W, 33KΩ	3
R1056 1058	ERJ3GEYJ473V	RESISTOR, 1/16W, 47KΩ	2
R1061 1067 1068	ERJ3GEYJ104V	RESISTOR, 1/16W, 100KΩ	3
R1062	ERJ3GEYJ100V	RESISTOR, 1/16W, 10Ω	1
R1063	ERJL14UJ30MU	RESISTOR, 1/4W, 0.03Ω	1
R1065	ERJ3EKF3902V	RESISTOR, 1/16W, 39KΩ	1
R1066	ERJ3EKF2201V	RESISTOR, 1/16W, 2.2KΩ	1
R1070	ERJ3GEYJ562V	RESISTOR, 1/16W, 5.6KΩ	1
R1072 1073 1074 1075	ERJ3GEYJ203V	RESISTOR, 1/16W, 20KΩ	4
R1077 1078 1099	ERJ3GEY0R00V	RESISTOR, 1/16W, 0Ω	3
R1086 1088 1090 1095 1098	ERJ3GEYJ153V	RESISTOR, 1/16W, 15KΩ	5
R1089 1094	ERJ3GEYJ224V	RESISTOR, 1/16W, 220KΩ	2
R1095 1099	ERJ3GEY0R00V	RESISTOR, 1/16W, 0Ω	2
SW1000 1001	EVQPLDA15	SWITCH, PUSH	2
X1000	DECU01590003	OSCILLATOR, 24.576MHz	1
<b>LED PCB</b>			
CN1300	DFJP217ZA005	CONNECTOR	1
LD1300	SEC2764C	LED	1
LD1301	SEC1703C	LED	1
Q1300	XP0421300L	TRANSISTOR	1
Q1301	XP0421300L	TRANSISTOR	1
R1300	ERJ3GEYJ471V	RESISTOR, 1/16W, 470Ω	1
R1301	ERJ3GEYJ221V	RESISTOR, 1/16W, 220Ω	1
R1302	ERJ3GEYJ331V	RESISTOR, 1/16W, 330Ω	1
<b>Front PCB</b>			
C1400	F1H1H104A748	CAPACITOR, 50V, 0.1μF	1
C1401	F1J0J106A013	CAPACITOR, 6.3V, 10μF	1
C1402	F1H1H103A748	CAPACITOR, 50V, 0.01μF	1
CN1400 1401	K1MN12B00115	CONNECTOR	2
R1400	ERJ3GEYJ101V	RESISTOR, 1/16W, 100Ω	1
SW1400	K0ZZ00000613	SWITCH, LID	1
SW1401 1402	EVQPLDA15	SWITCH, TOUCH PAD	2
<b>Speaker L PCB</b>			
C1600 1601	F1H1C224A074	CAPACITOR, 16V, 0.22μF	2
C1602	F1L1C685A008	CAPACITOR, 16V, 6.8μF	1
C1603	F1H1H104A748	CAPACITOR, 50V, 0.1μF	1
C1605 1607 1609 1612 1613	F1L1E106A017	CAPACITOR, 25V, 10μF	5
C1611	F1H1H223A783	CAPACITOR, 50V, 0.022μF	1
CN1600	K1KA04B00137	CONNECTOR, B TO W	1
CN1601	DFJP201ZA002	CONNECTOR	1
IC1600	C0ABZA000039	IC, POWER AMP	1
R1600	ERJ3GEYJ100V	RESISTOR, 1/16W, 10Ω	1
R1601 1602	ERJ1TYJ5R6U	RESISTOR, 1W, 5.6Ω	2
<b>Speaker R PCB</b>			
C1700 1701	F1H1C224A074	CAPACITOR, 16V, 0.22μF	2
C1702	F1L1C685A008	CAPACITOR, 16V, 6.8μF	1
C1703	F1H1H104A748	CAPACITOR, 50V, 0.1μF	1
C1705 1707 1709 1712 1713	F1L1E106A017	CAPACITOR, 25V, 10μF	5
C1711	F1H1H223A783	CAPACITOR, 50V, 0.022μF	1
CN1700	K1KA04B00137	CONNECTOR, B TO W	1

CN1701	DFJP201ZA002	CONNECTOR	1
IC1700	C0ABZA000039	IC, POWER AMP	1
R1700	ERJ3GEYJ100V	RESISTOR, 1/16W, 10Ω	1
R1701 1702	ERJ1TYJ5R6U	RESISTOR, 1W, 5.6Ω	2
<b>I/O PCB</b>			
C3000	F1J0J106A013	CAPACITOR, 6.3V, 10μF	1
CA3000 3001 3002 3003 3004 3005	EZASCE181M	CAPACITOR ARRAY	6
CA3006 3007	EZASCE101M	CAPACITOR ARRAY	2
CN3000	K1MN36B00019	CONNECTOR	1
CN3001	K1FB136B0039	CONNECTOR	1
L3000	J0JHC0000074	INDUCTOR	1

# CF-73E3

## Printed Circuit Board

### Main PCB <Top View>



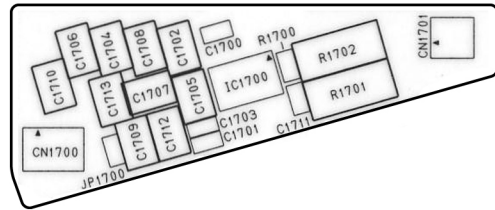




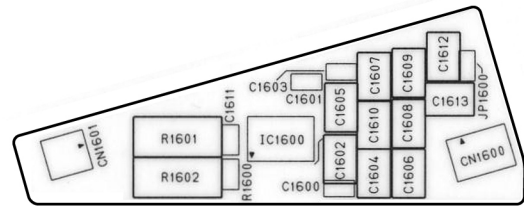




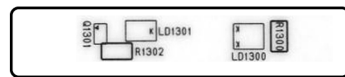
Speaker PCB R <Top View>



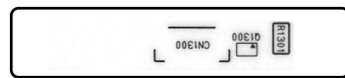
Speaker PCB L <Top View>



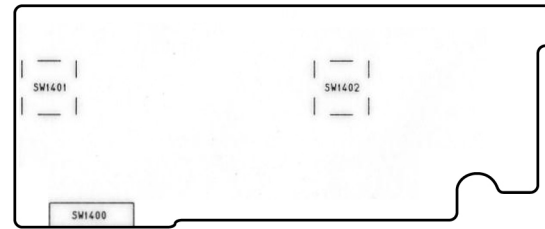
LED PCB <Top View>



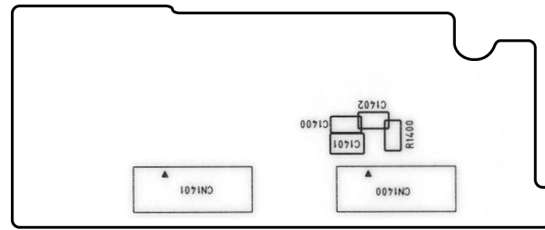
LED PCB <Bottom View>



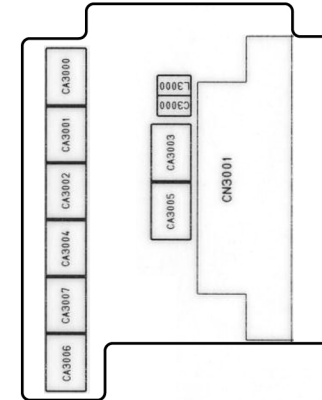
Front PCB <Top View>



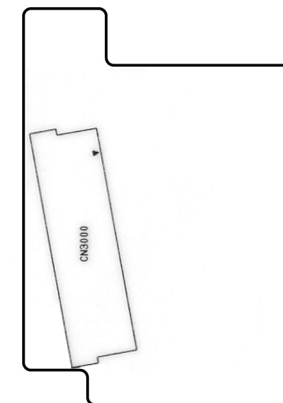
Front PCB <Bottom View>



I/O PCB <Top View>



I/O PCB <Bottom View>

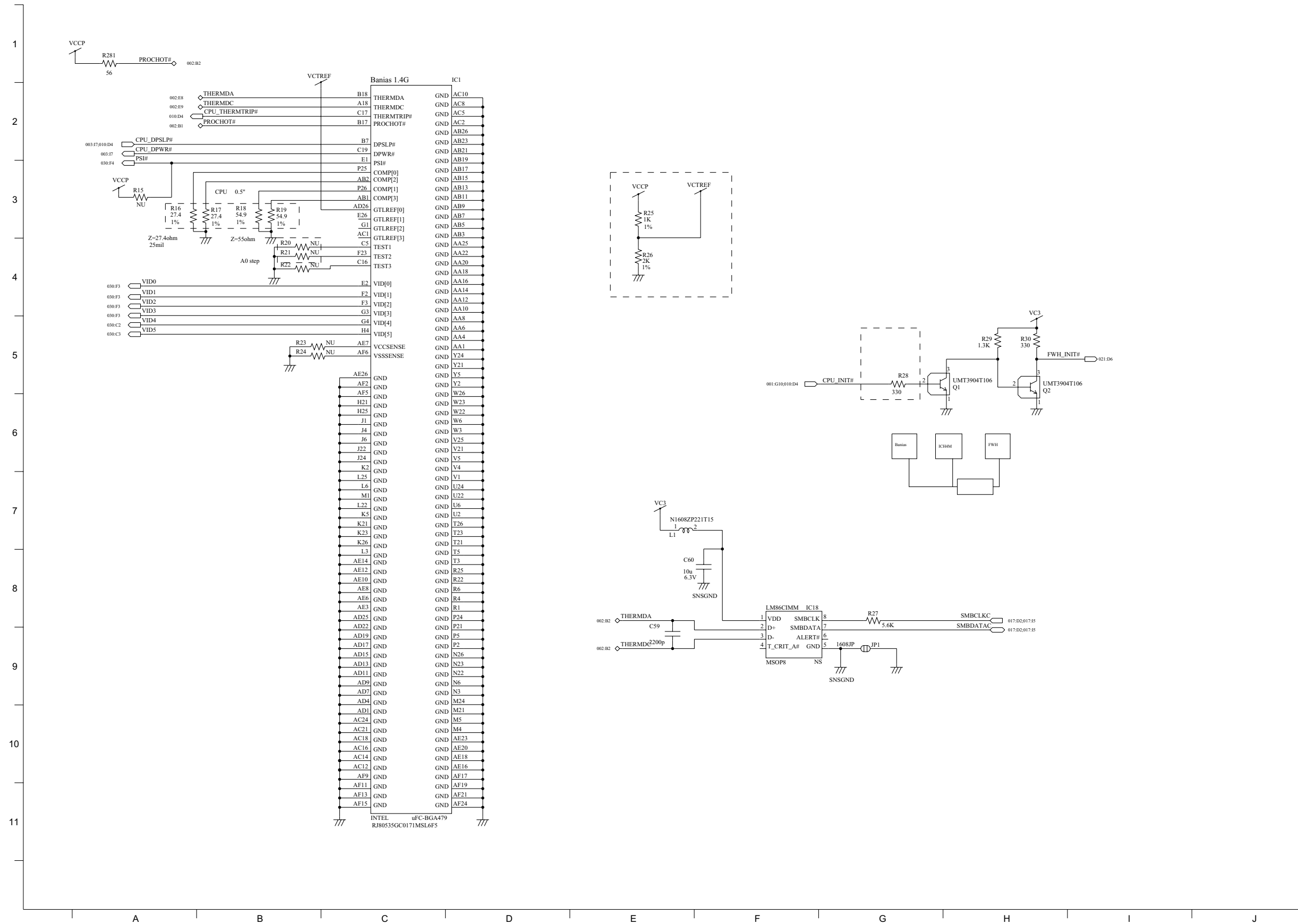


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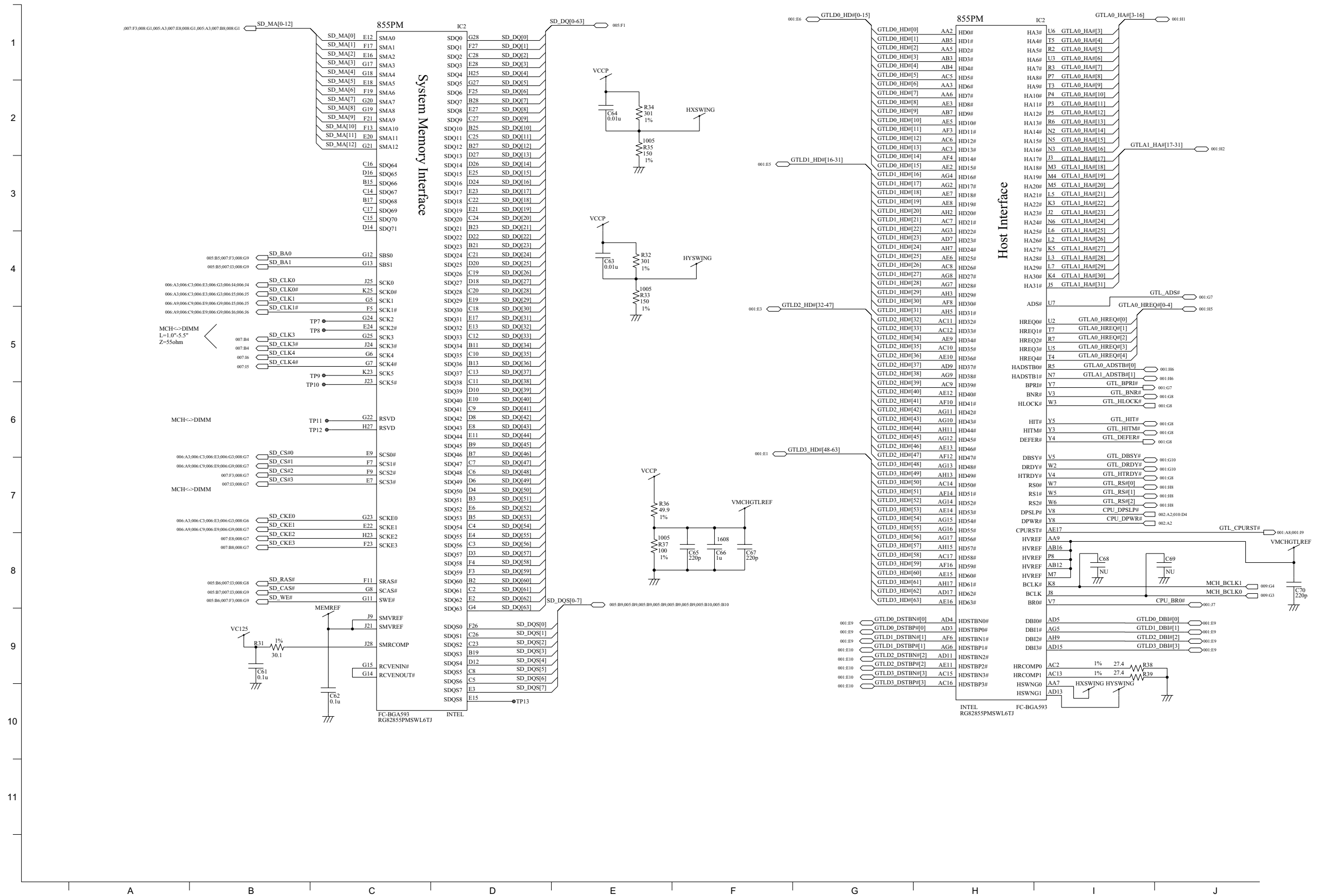
A B C D E F G H I J



# Main 2 CPU (2/2)



# Main 3 MCH-M (1/2)

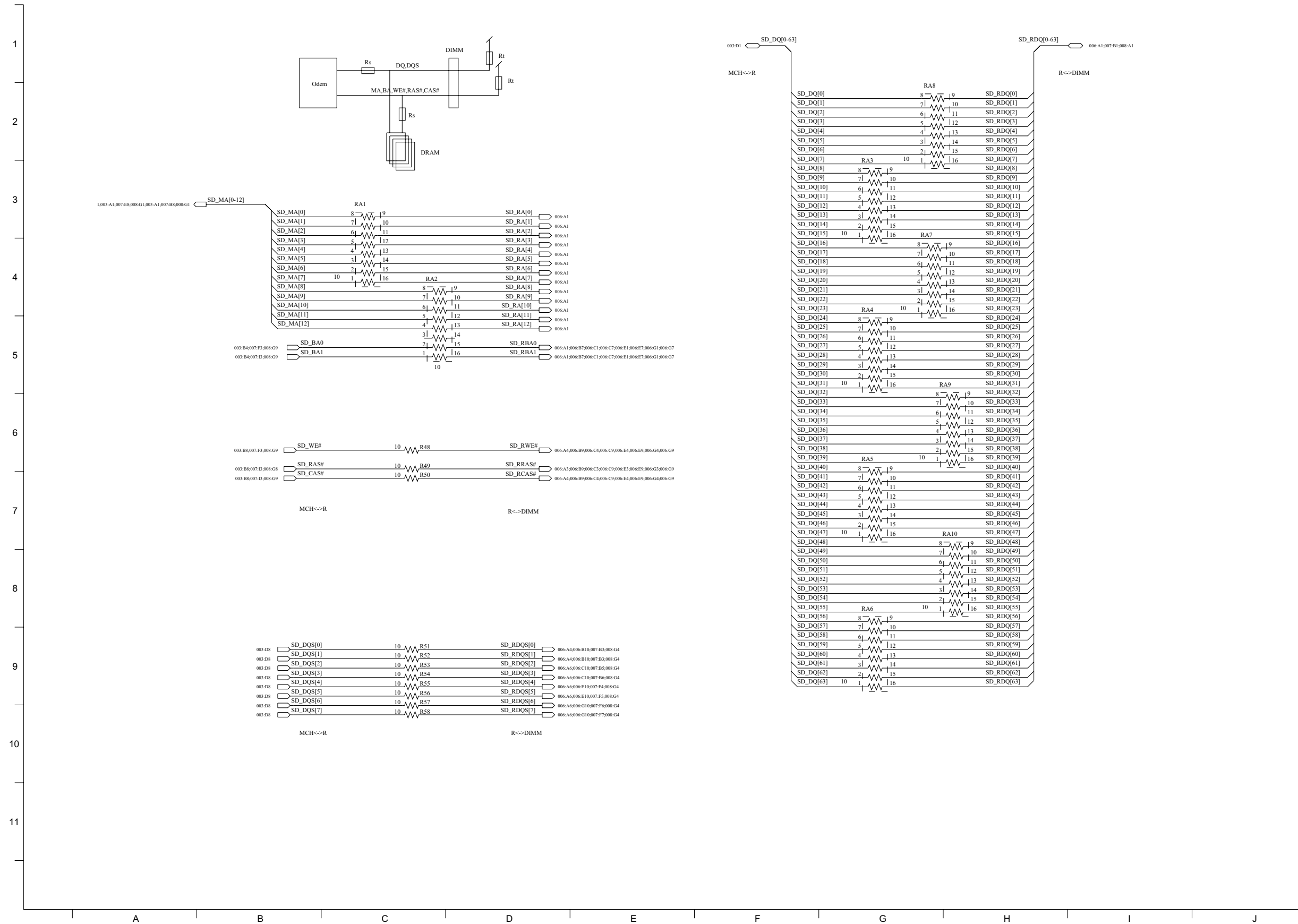




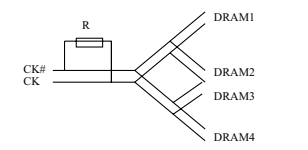
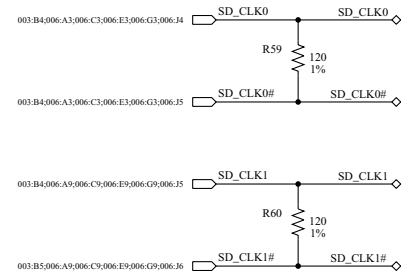
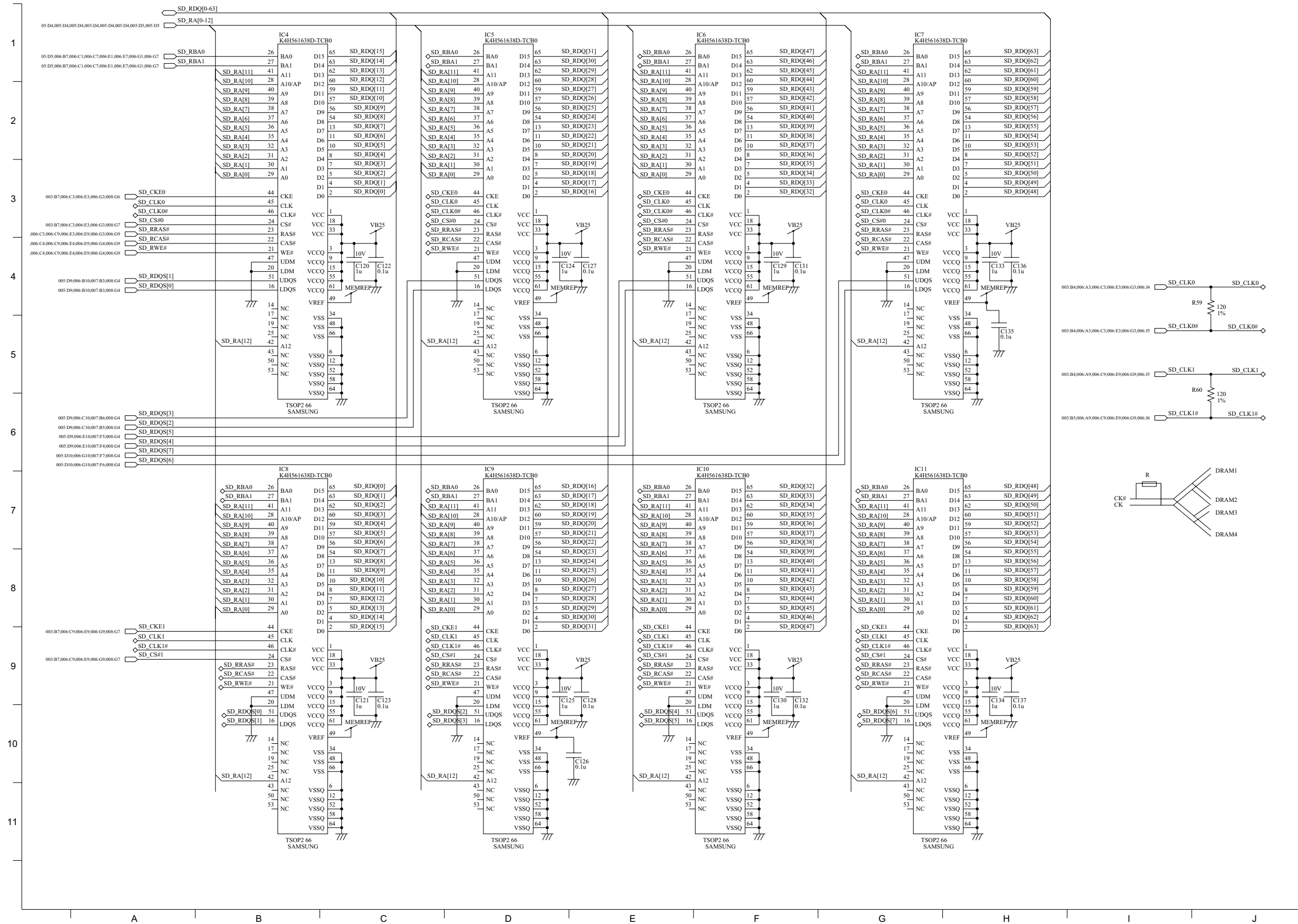




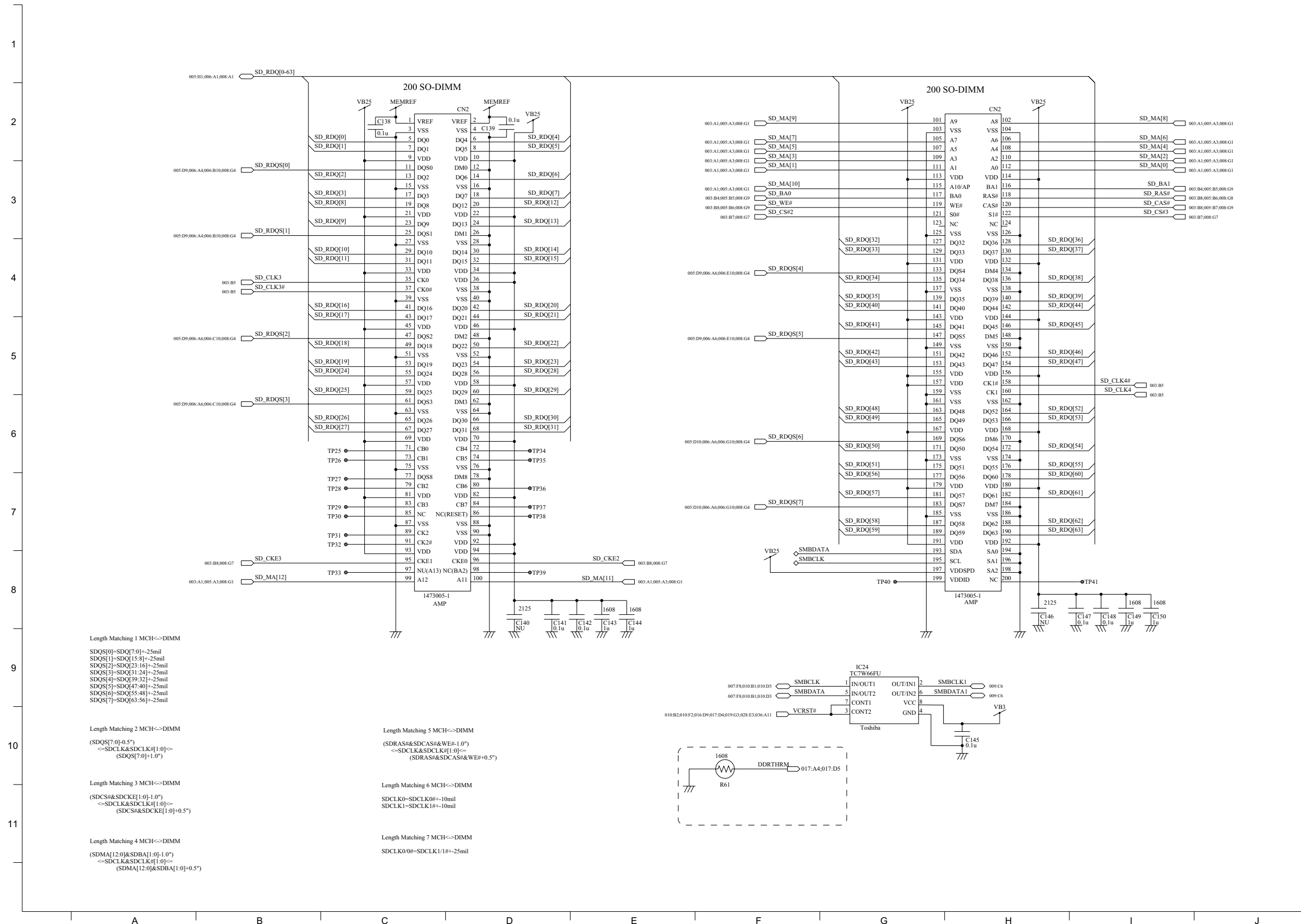
# Main 5 Memory Resistors



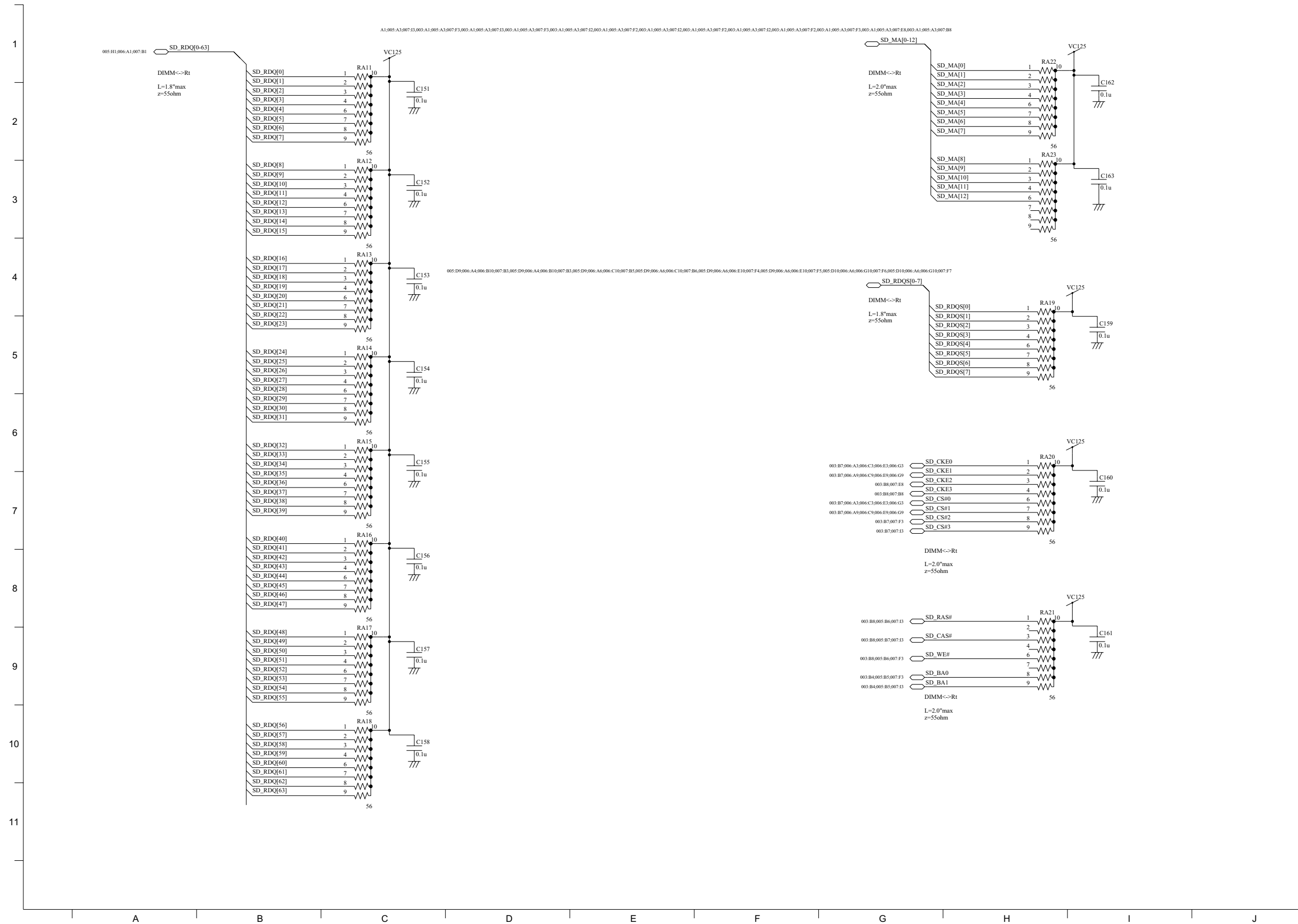
# Main 6 Memory



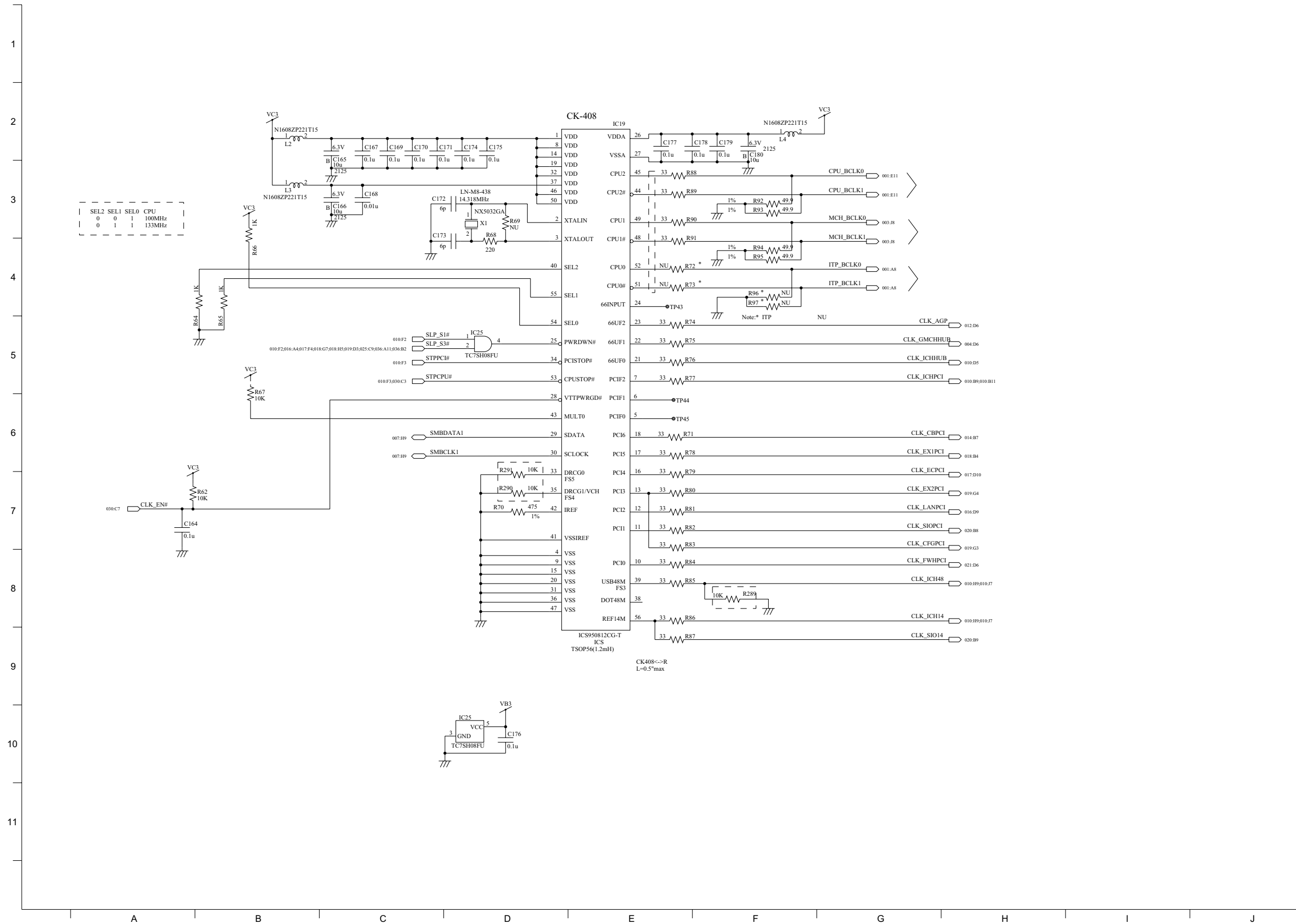
# Main 7 SO-DIMM



# Main 8 Memory Terminator

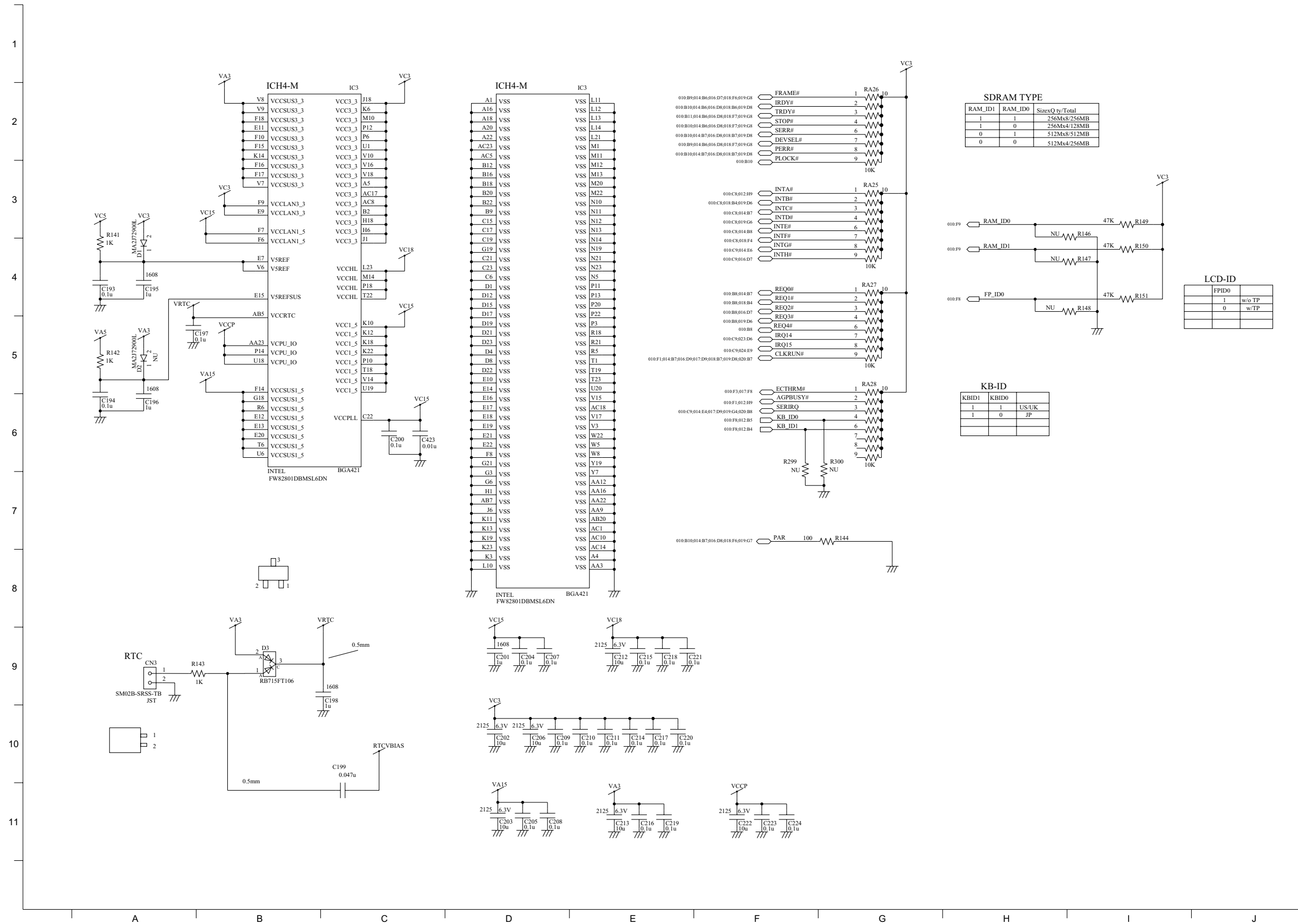


# Main 9 CK-408 Clock





# Main 11 ICH4-M (2/2)



**SDRAM TYPE**

RAM_ID1	RAM_ID0	SizeQb/Total
1	1	256Mx8/256MB
1	0	256Mx4/128MB
0	1	512Mx8/512MB
0	0	512Mx4/256MB

**LCD-ID**

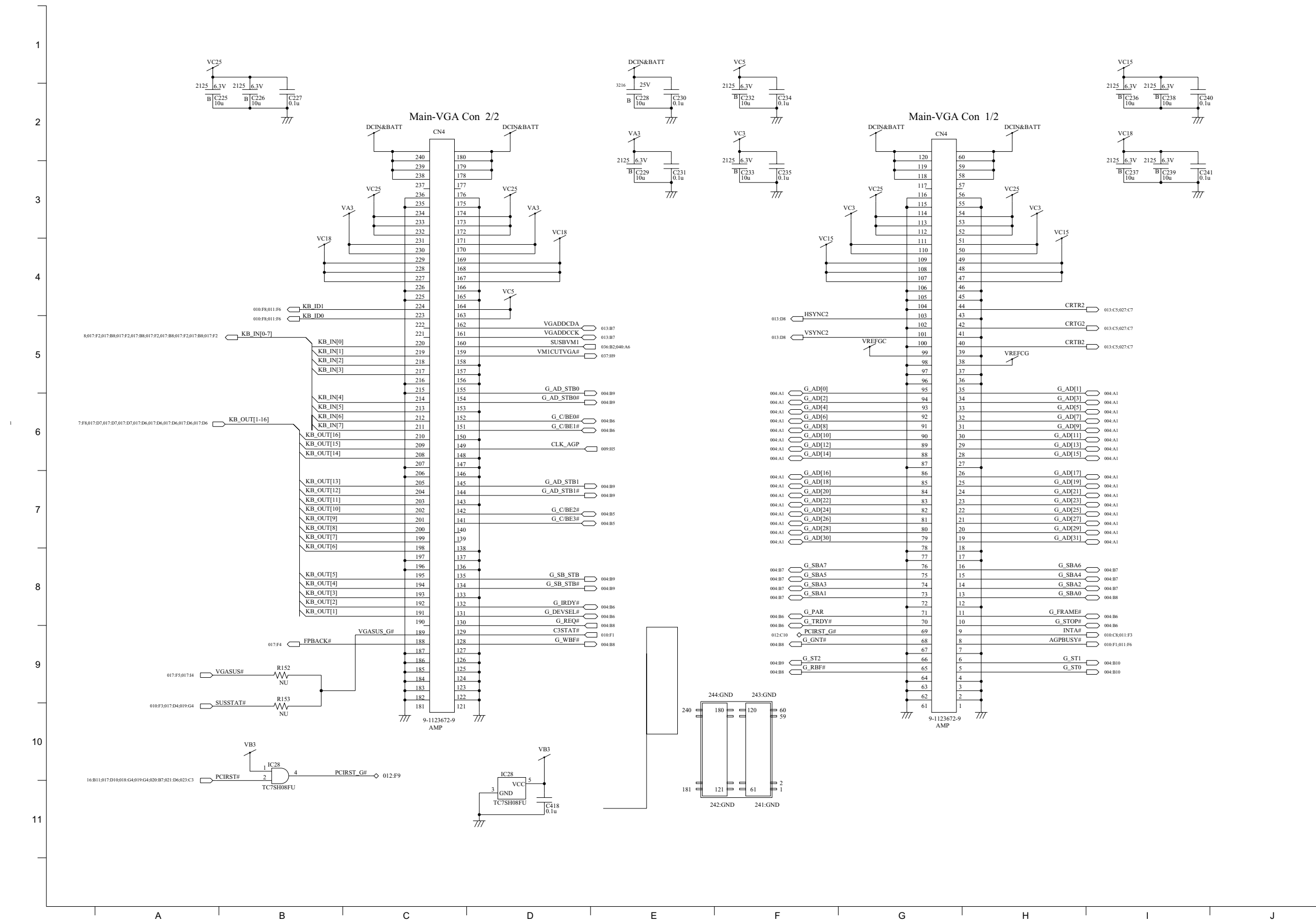
FPID0	
1	w/o TP
0	w/TP

**KB-ID**

KBID1	KBID0	
1	1	US/UK
1	0	JP

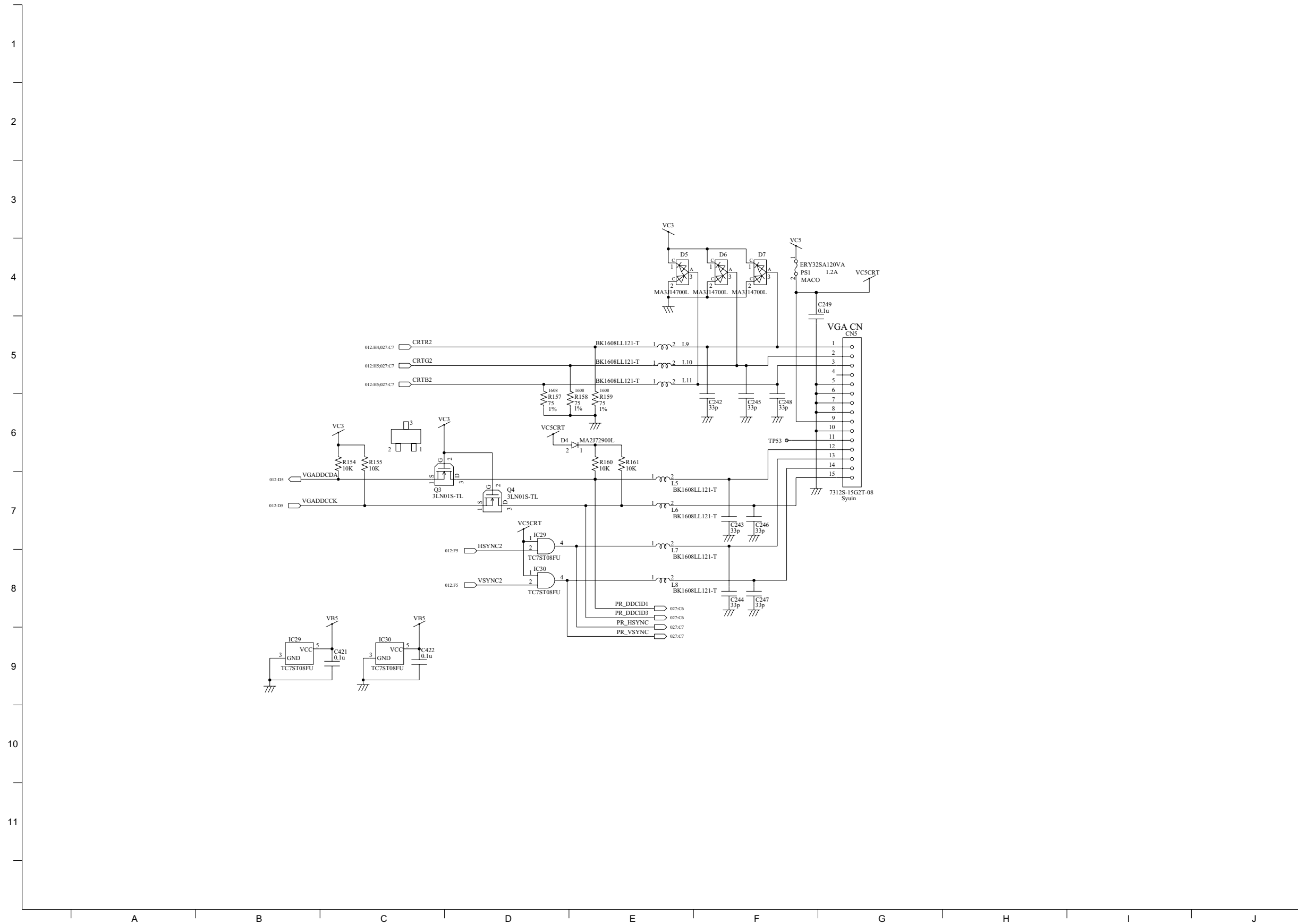


# Main 12 Main-VGA Con



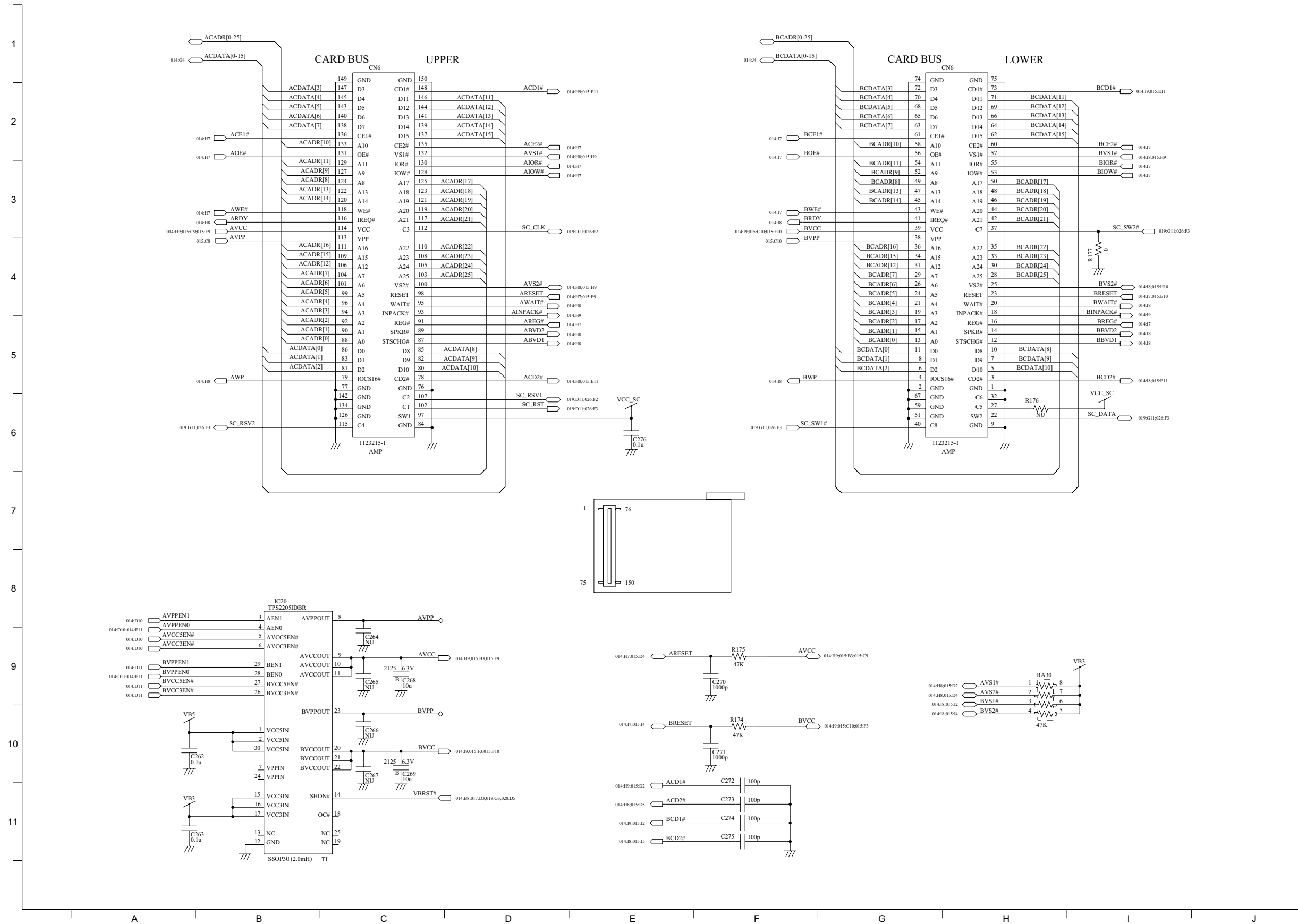


# Main 13 VGA Con

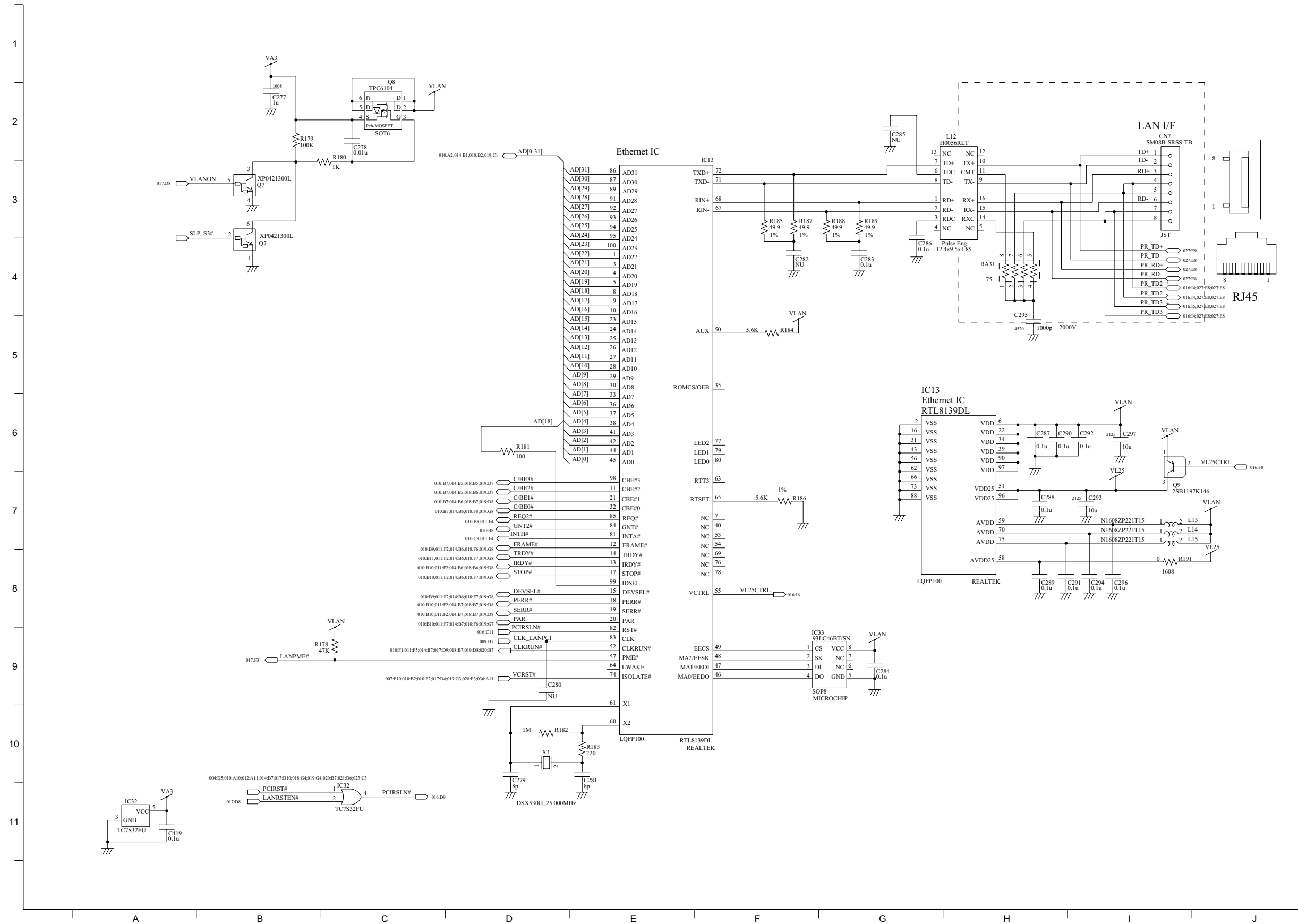




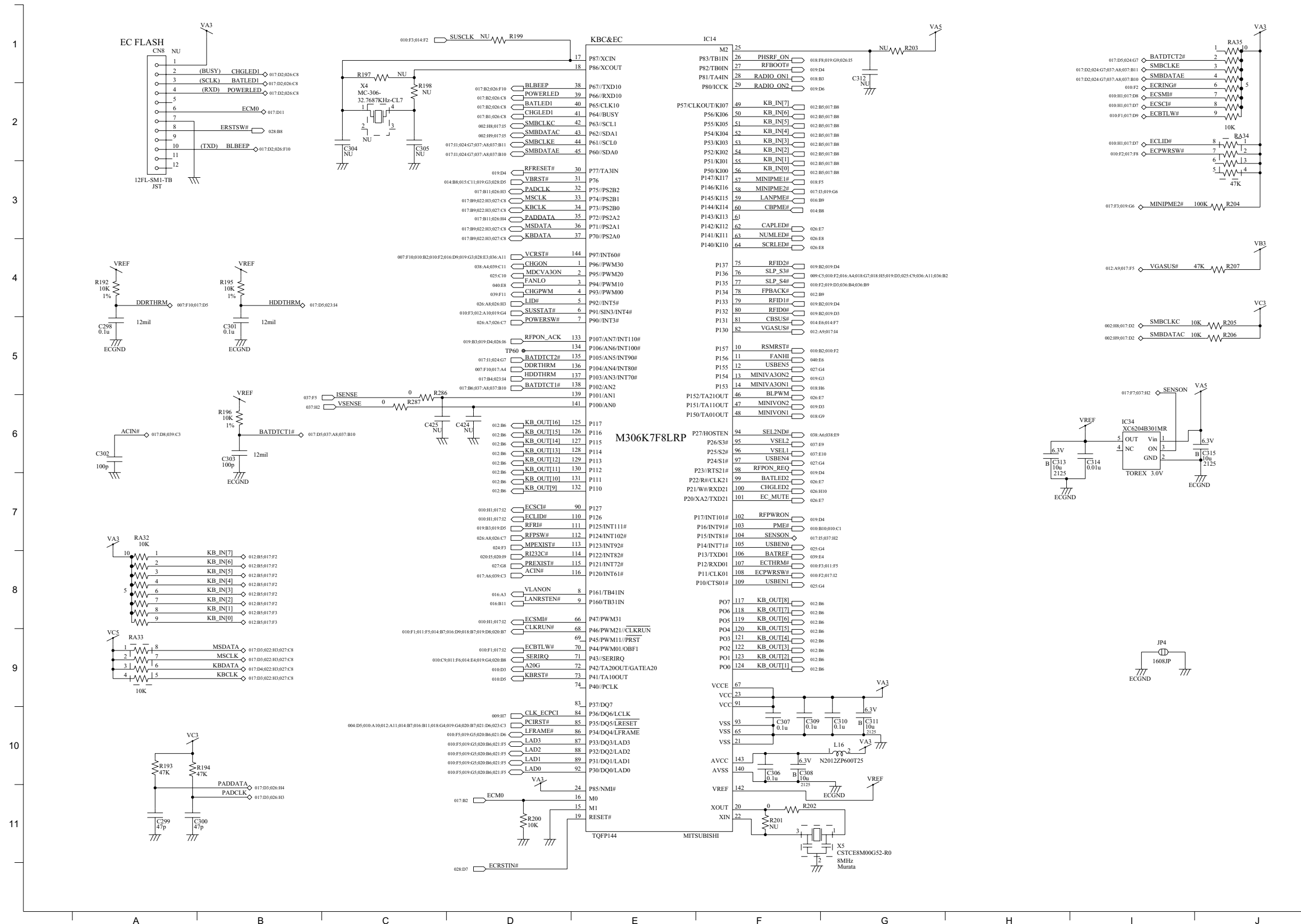
# Main 15 PCMCIA Slot



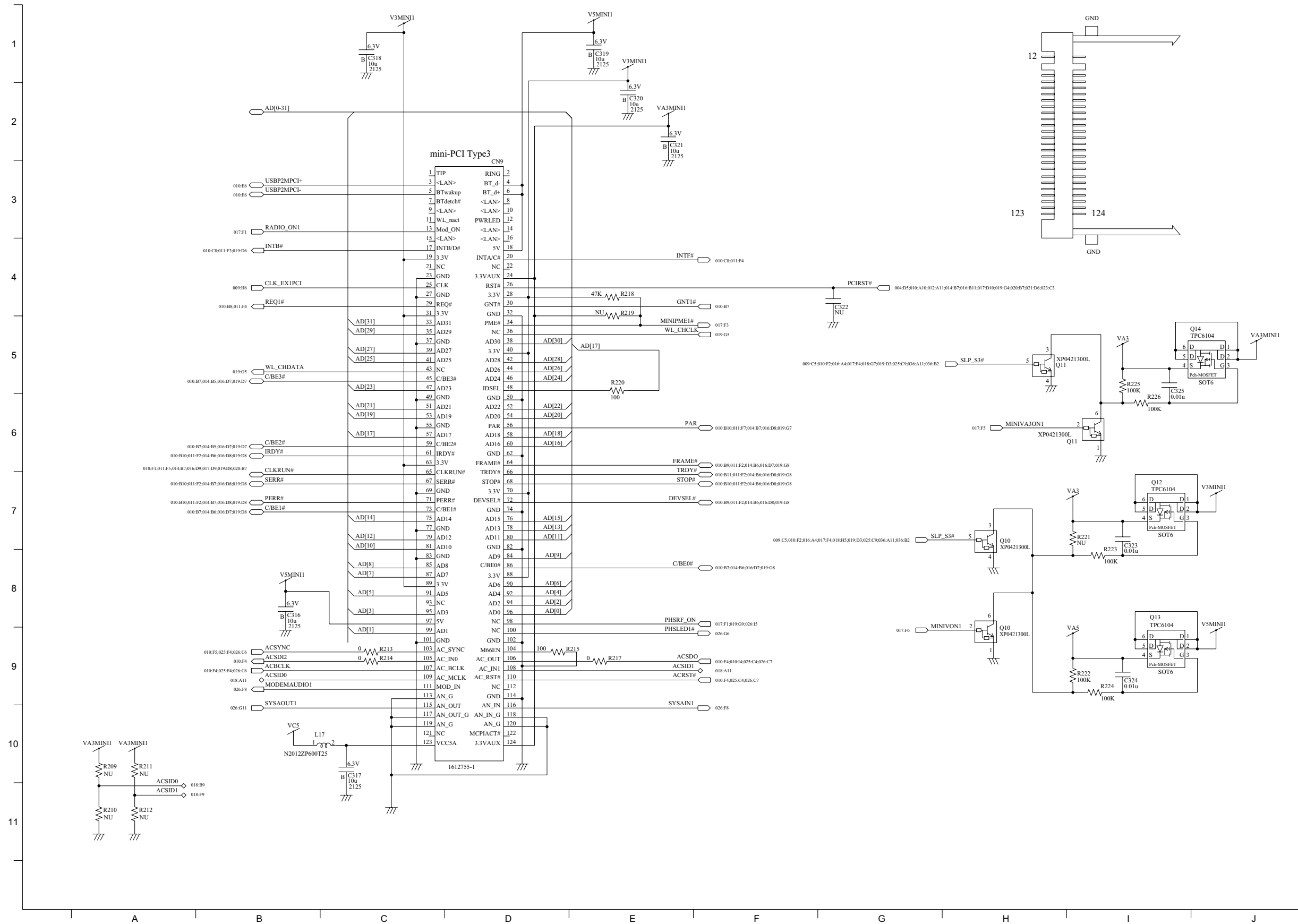
# Main 16 Ethernet CTL



# Main 17 EC/KBD CTL

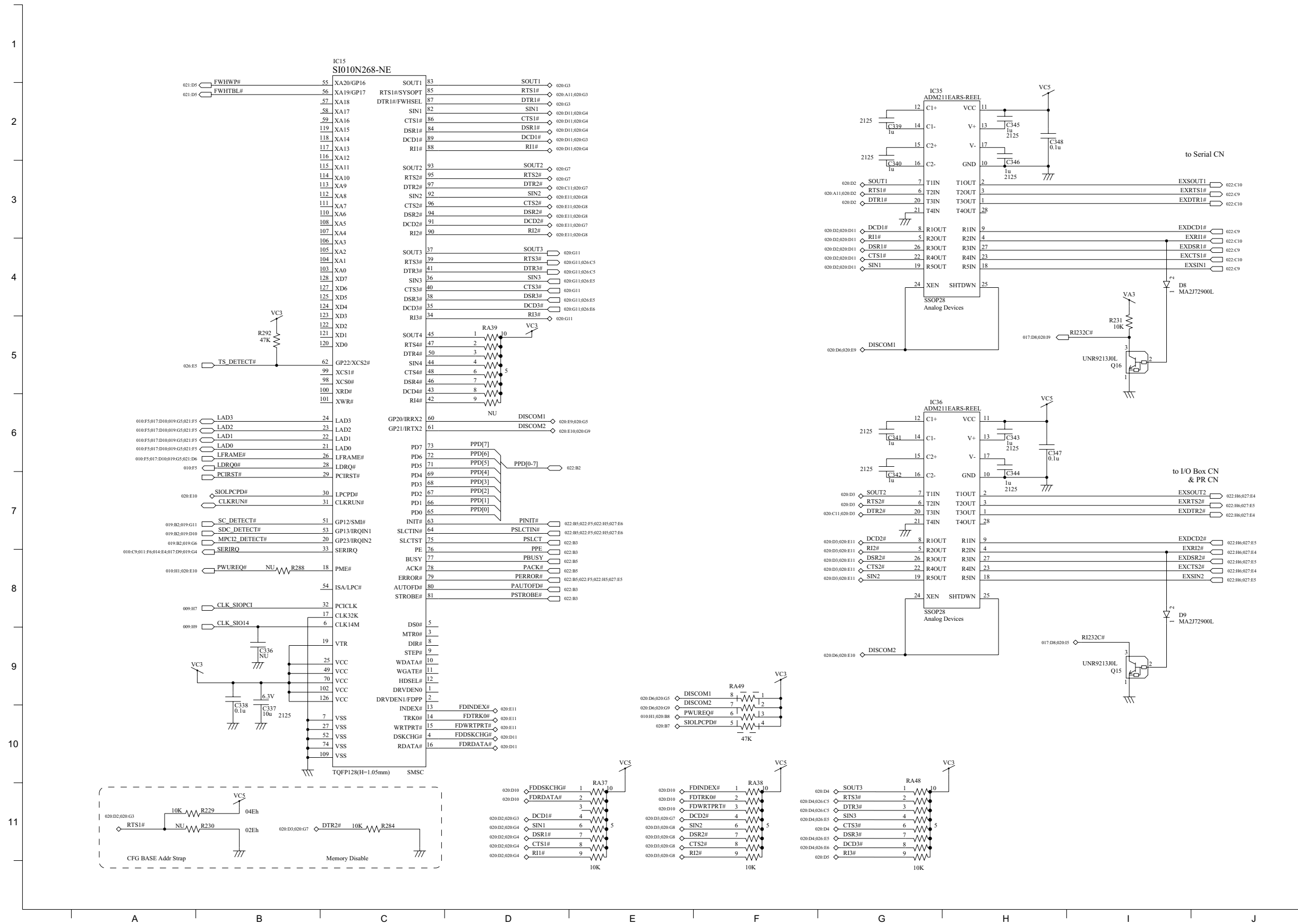


# Main 18 Mini PCI Slot



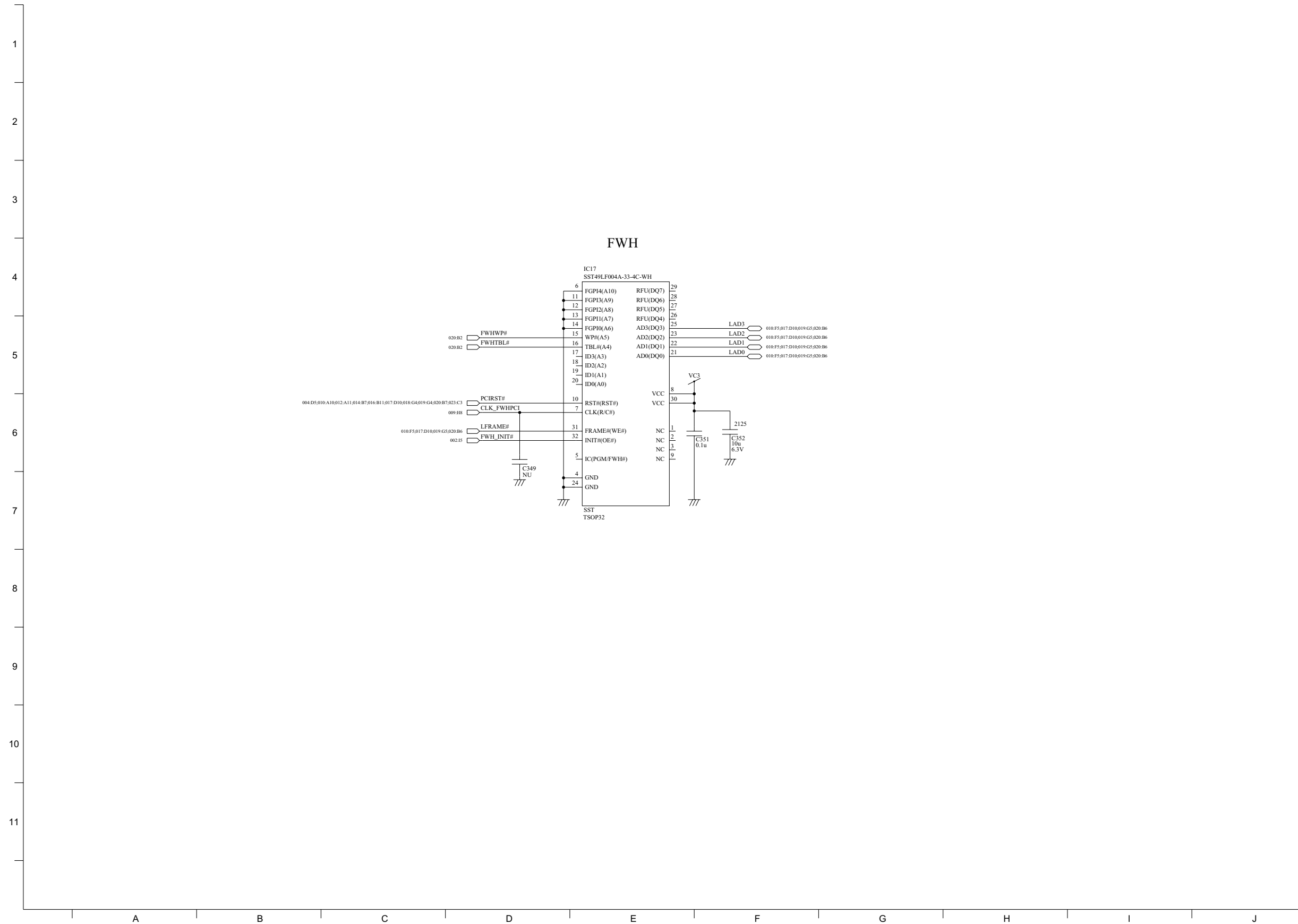


# Main 20 Super I/O

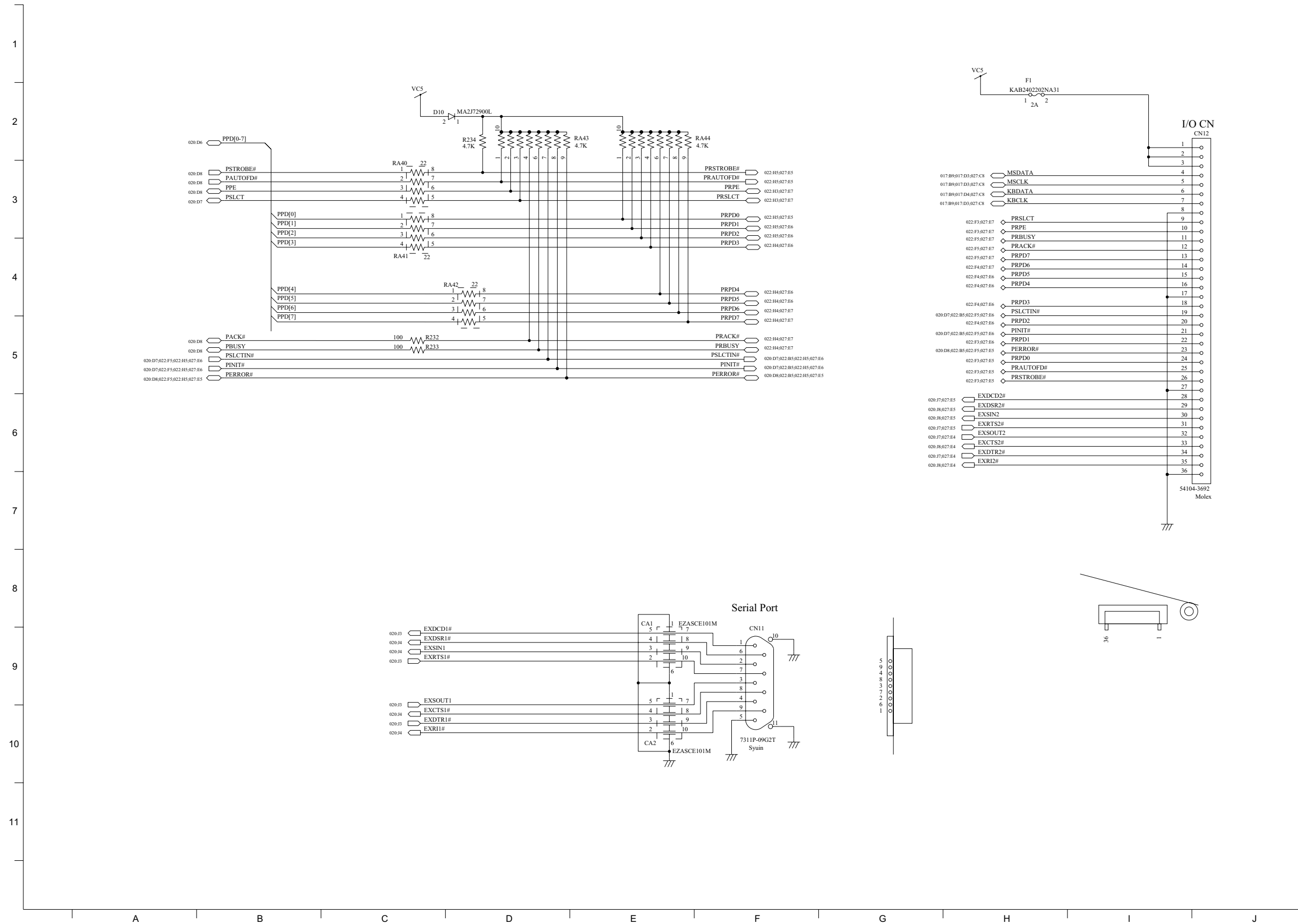




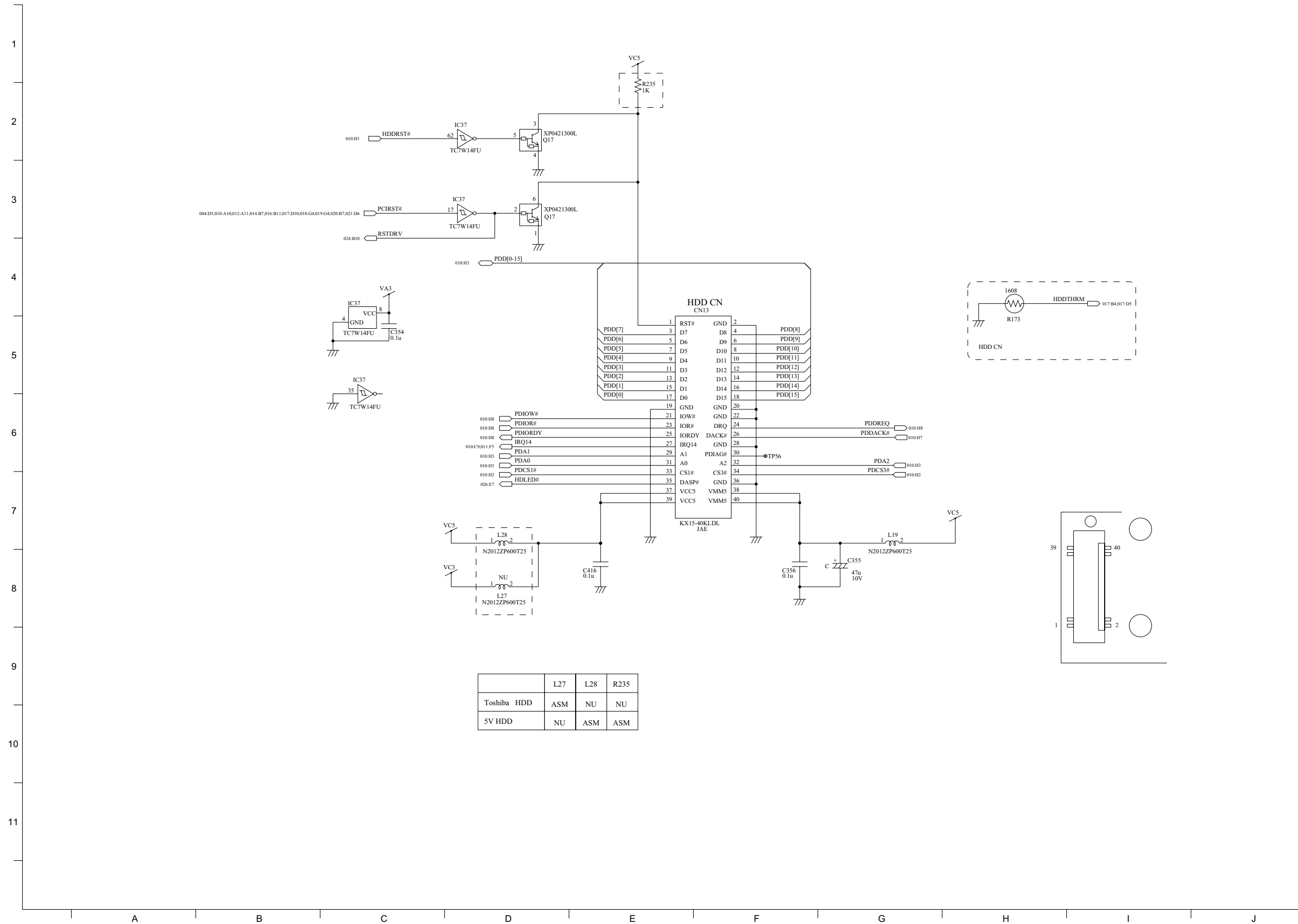
# Main 21 FWH



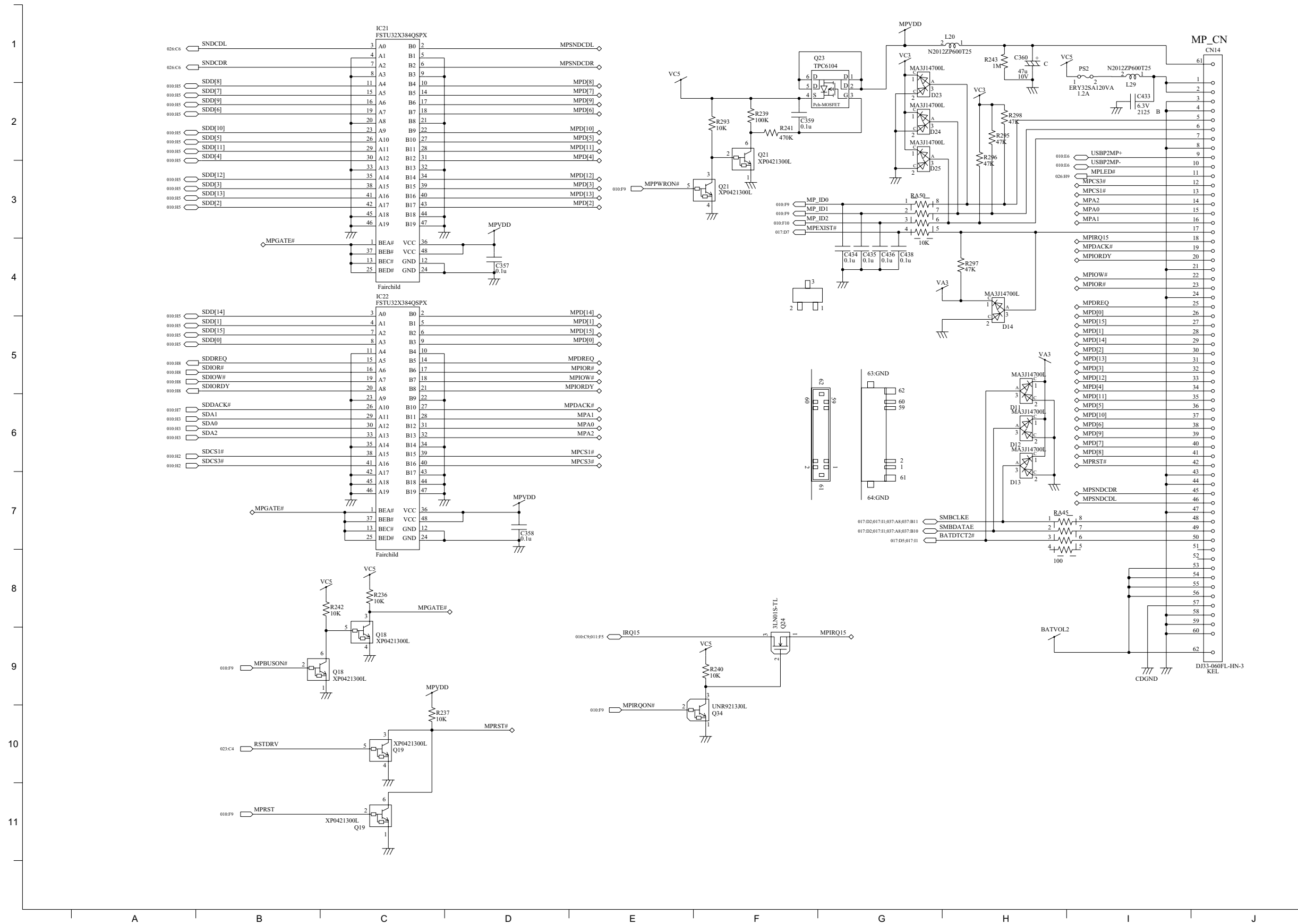
# Main 22 I/O, Serial Con



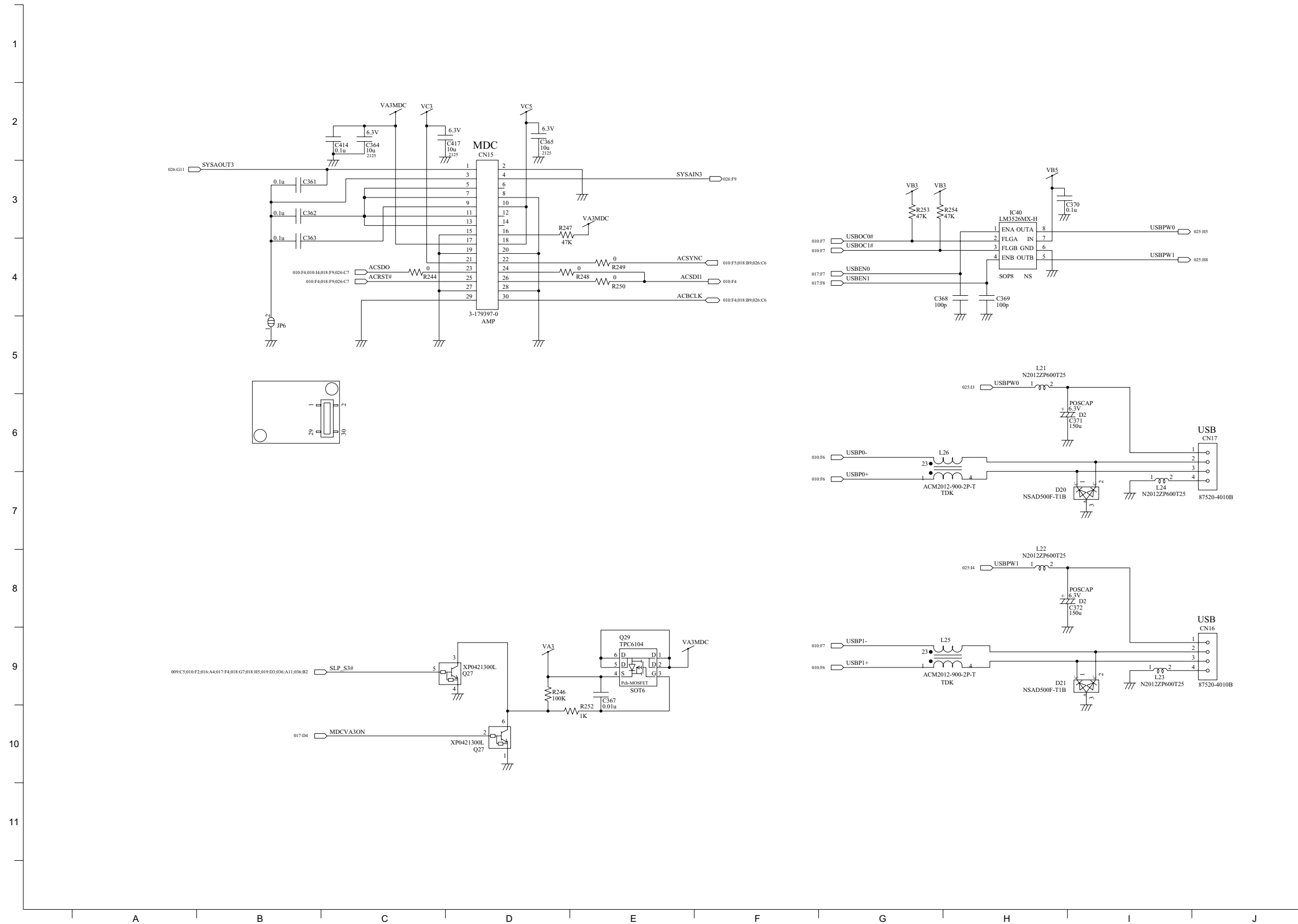
# Main 23 HDD Con



# Main 24 MP



# Main 25 MDC, USB Con

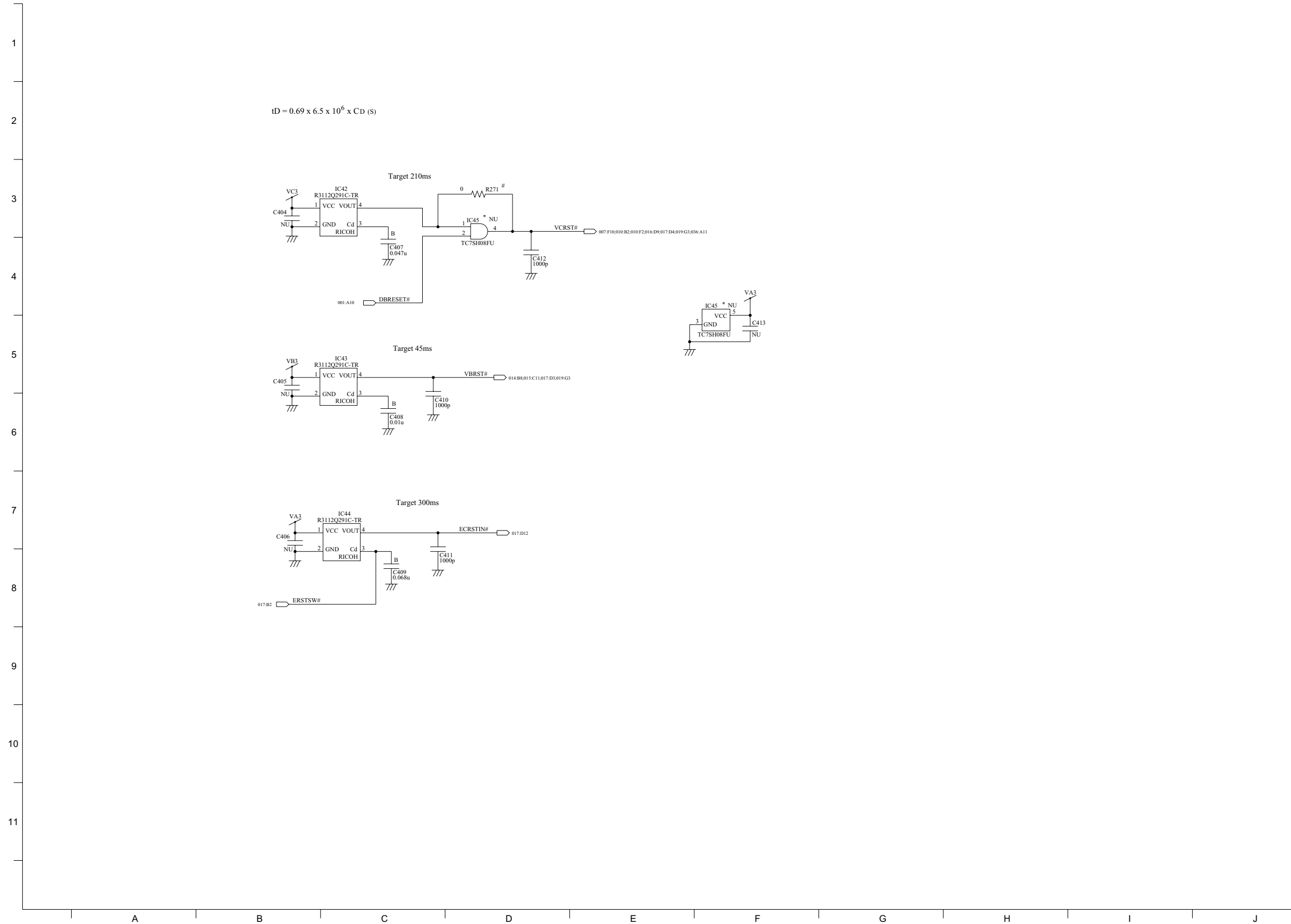
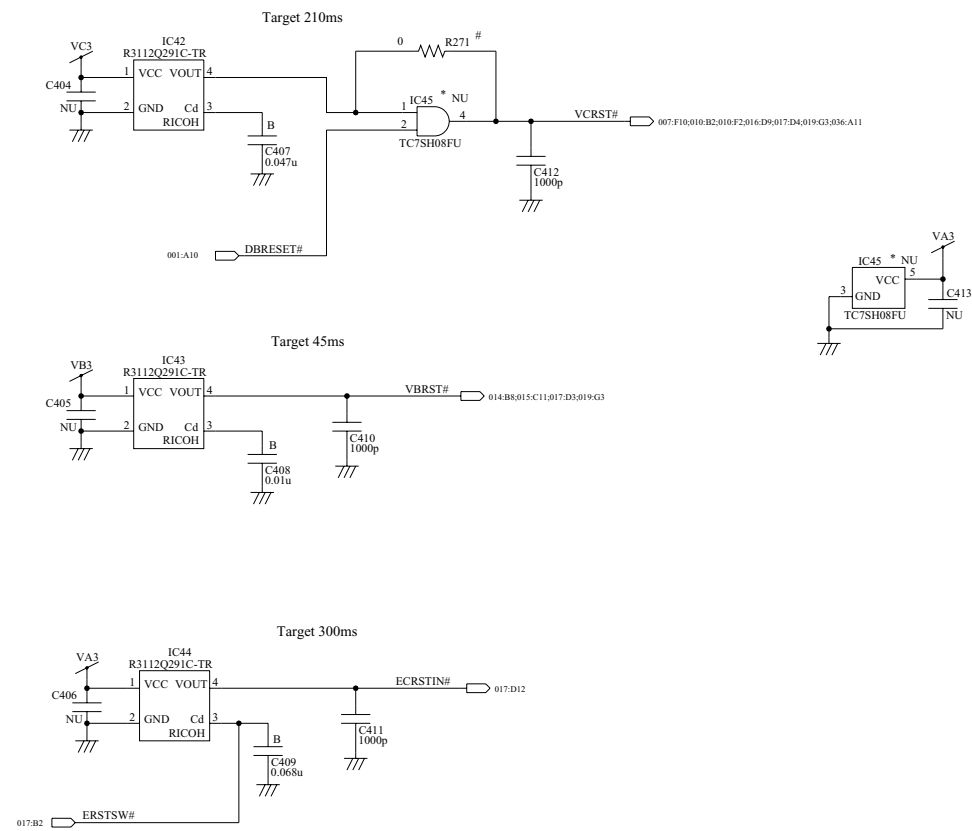






# Main 28 Reset

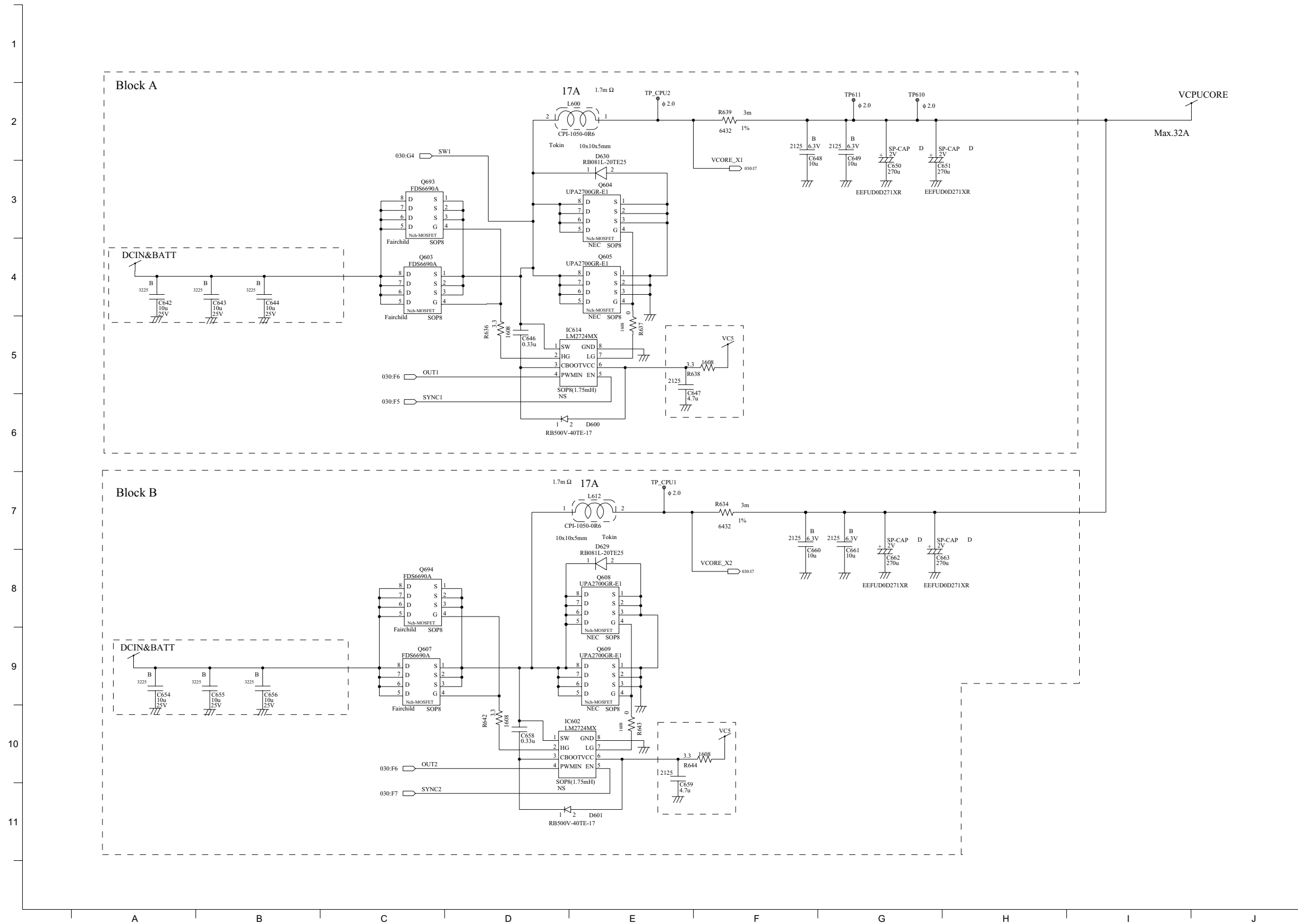
$$tD = 0.69 \times 6.5 \times 10^6 \times CD \text{ (s)}$$



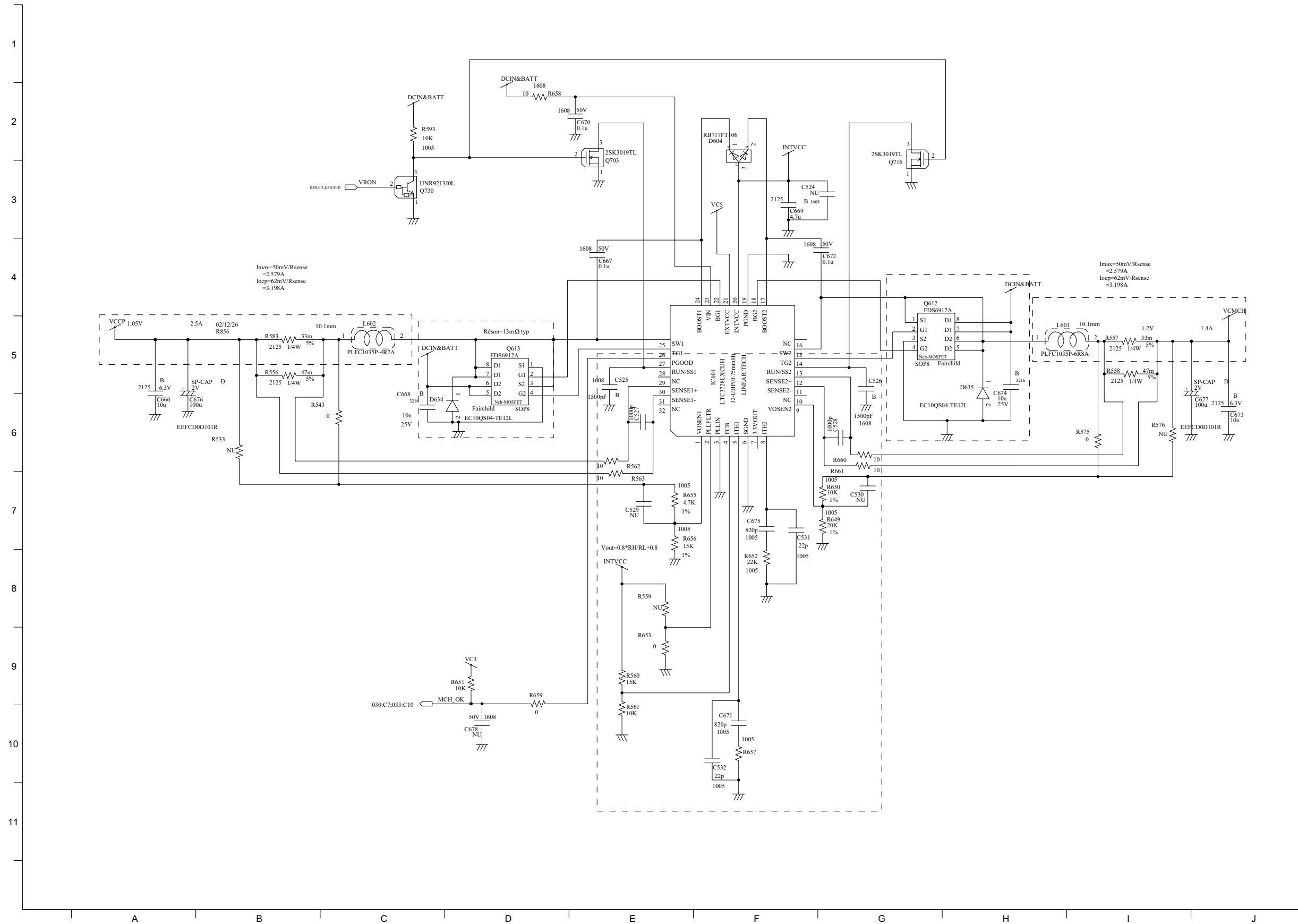




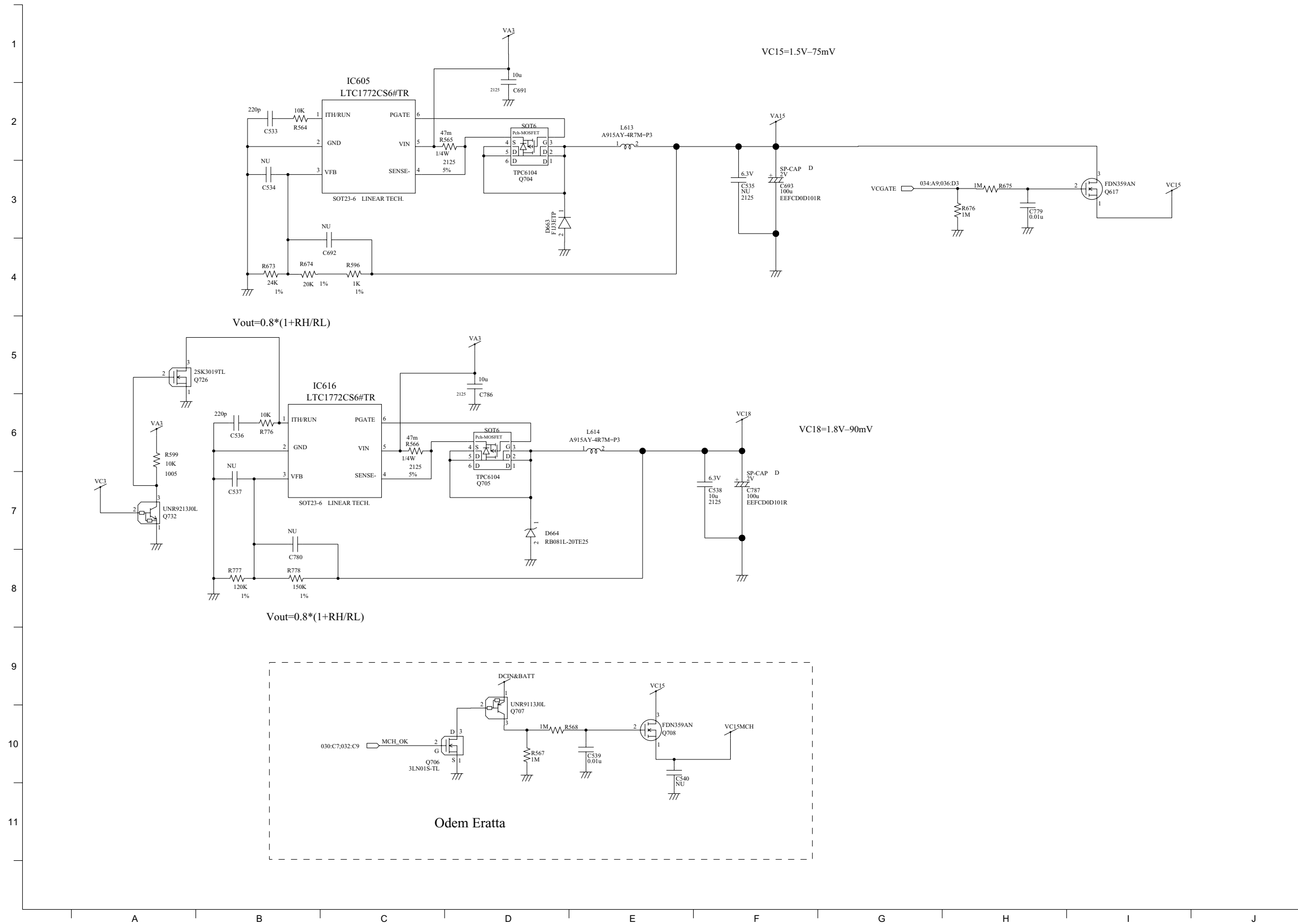
# Main 31 VCPUCORE (2/2)



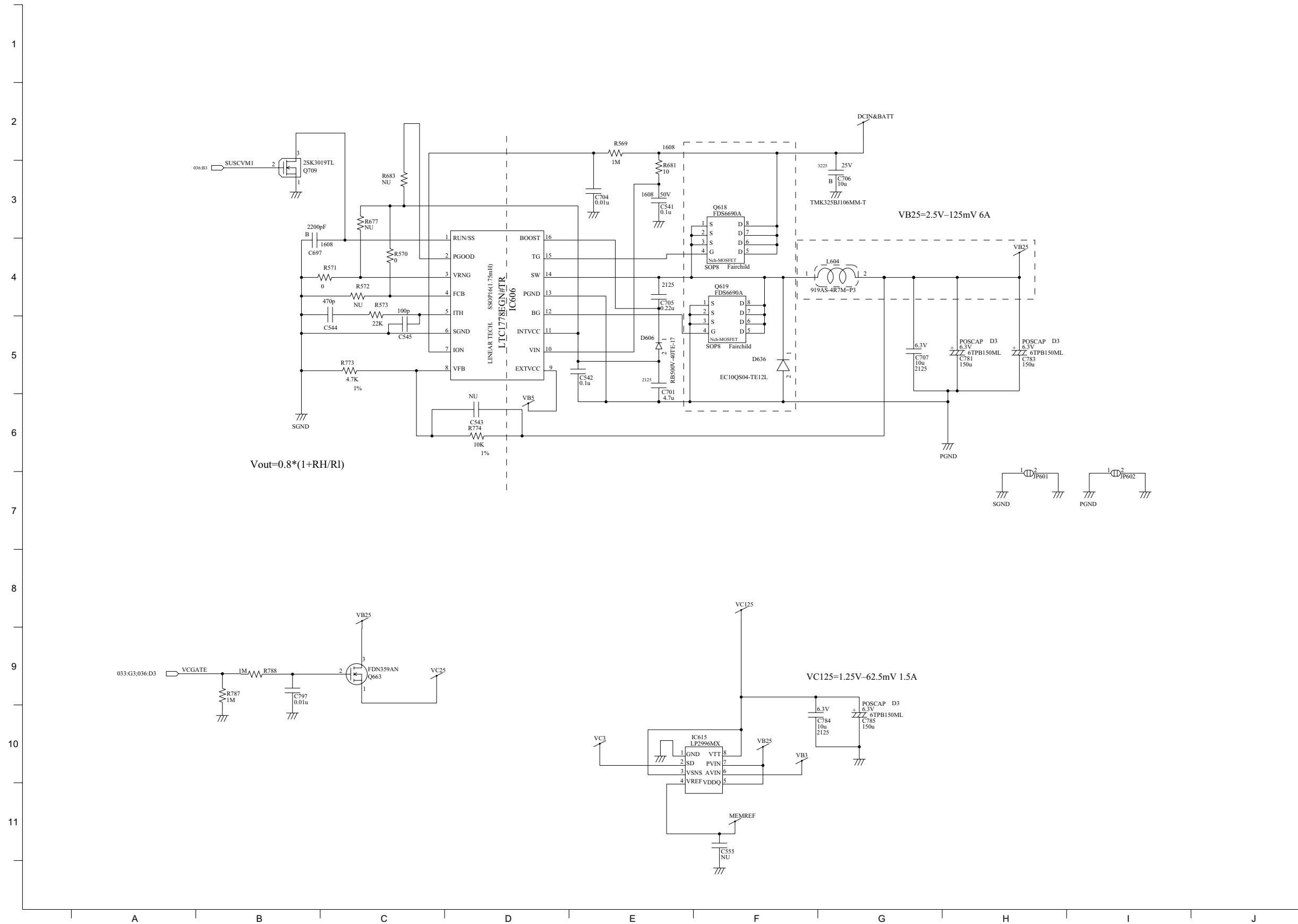
# Main 32 VCCP, VCMCH



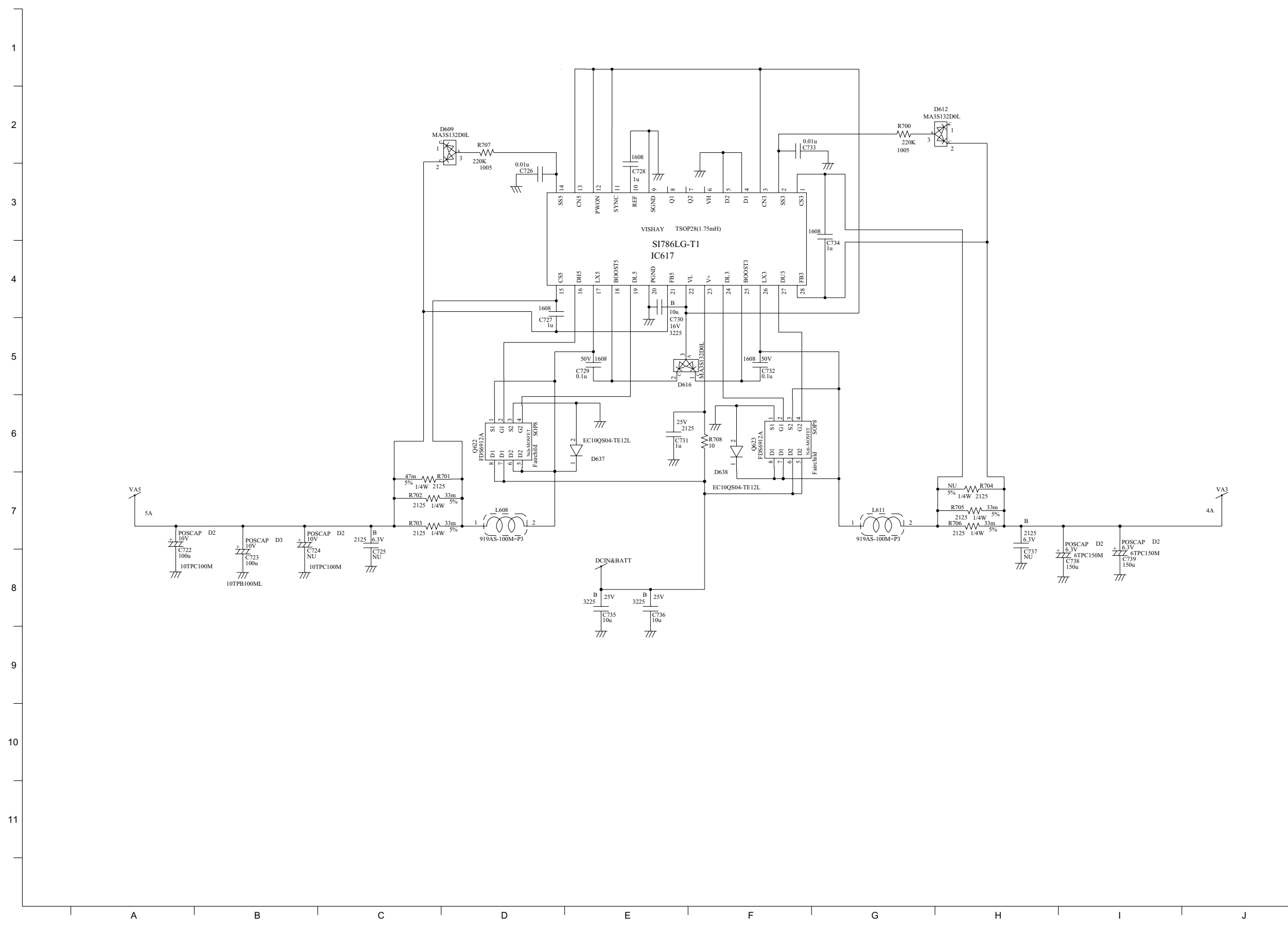
# Main 33 VA15, VC15, VC18



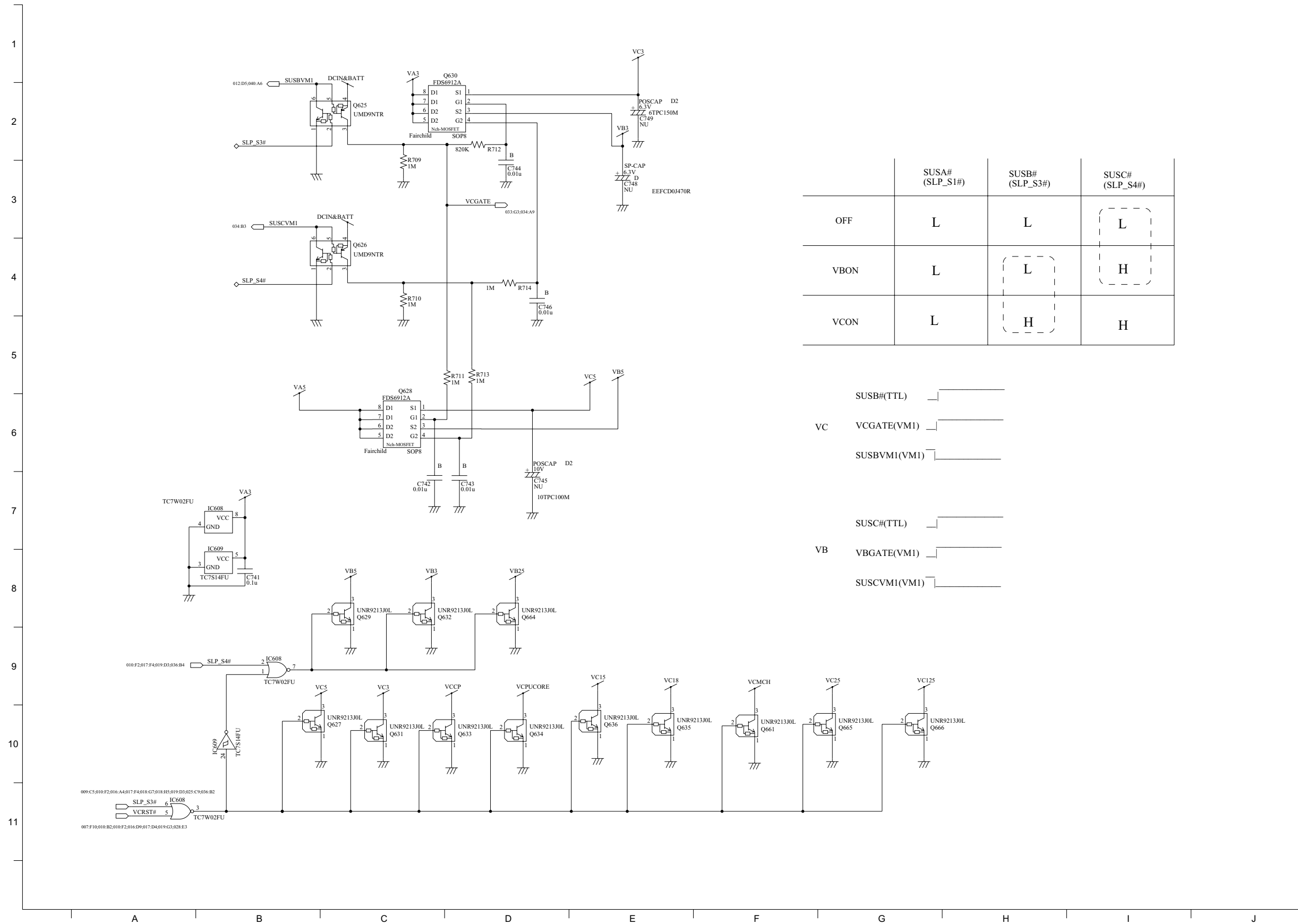
# Main 34 VB25, VC25, VC125



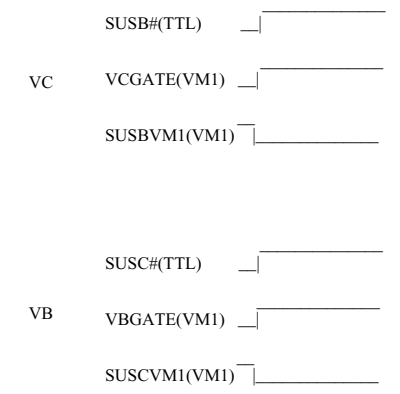
# Main 35 VA3, VA5



# Main 36 VB3, VC3, VB5, VC5



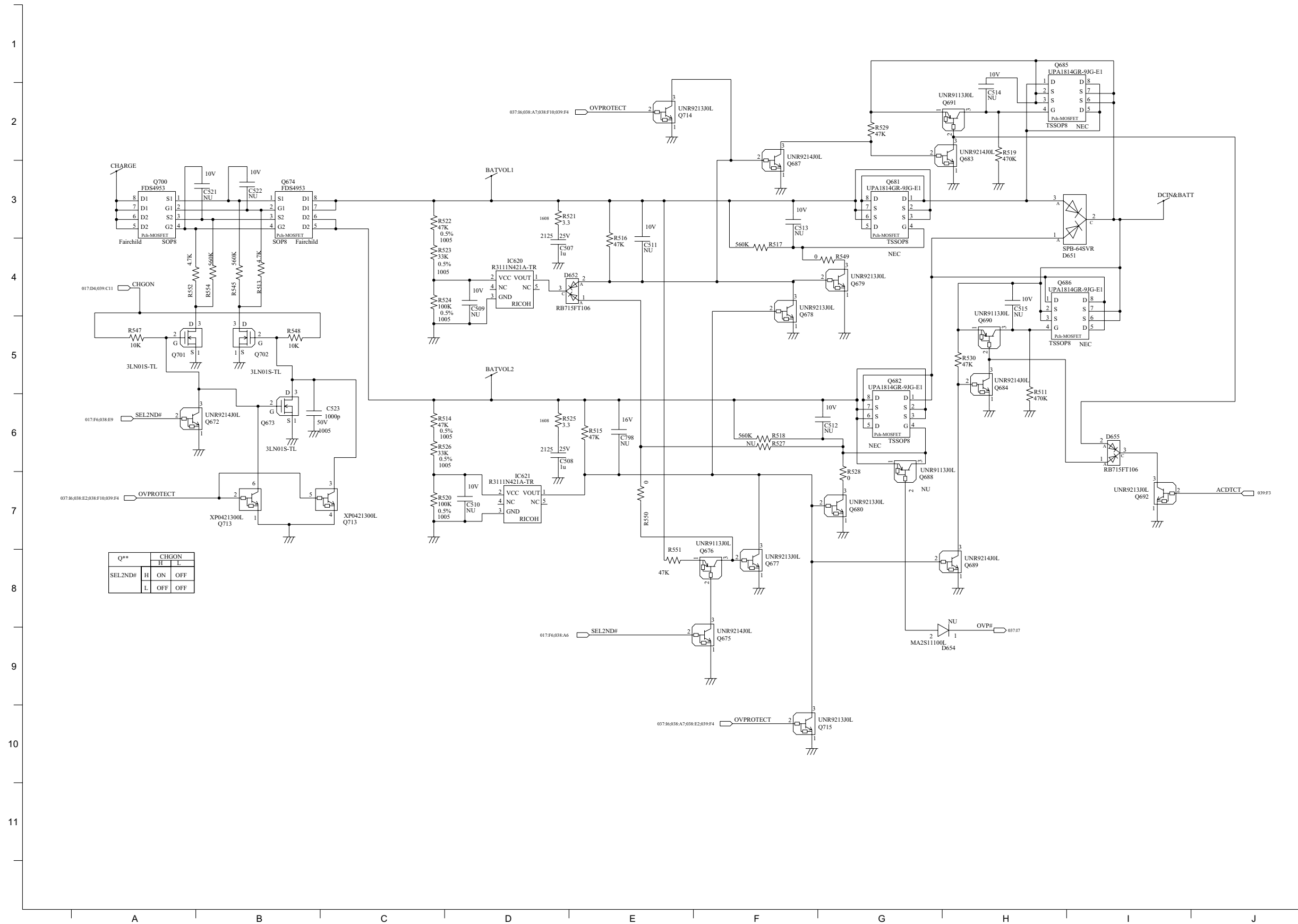
	SUSA# (SLP_S1#)	SUSB# (SLP_S3#)	SUSC# (SLP_S4#)
OFF	L	L	L
VBON	L	L	H
VCON	L	H	H





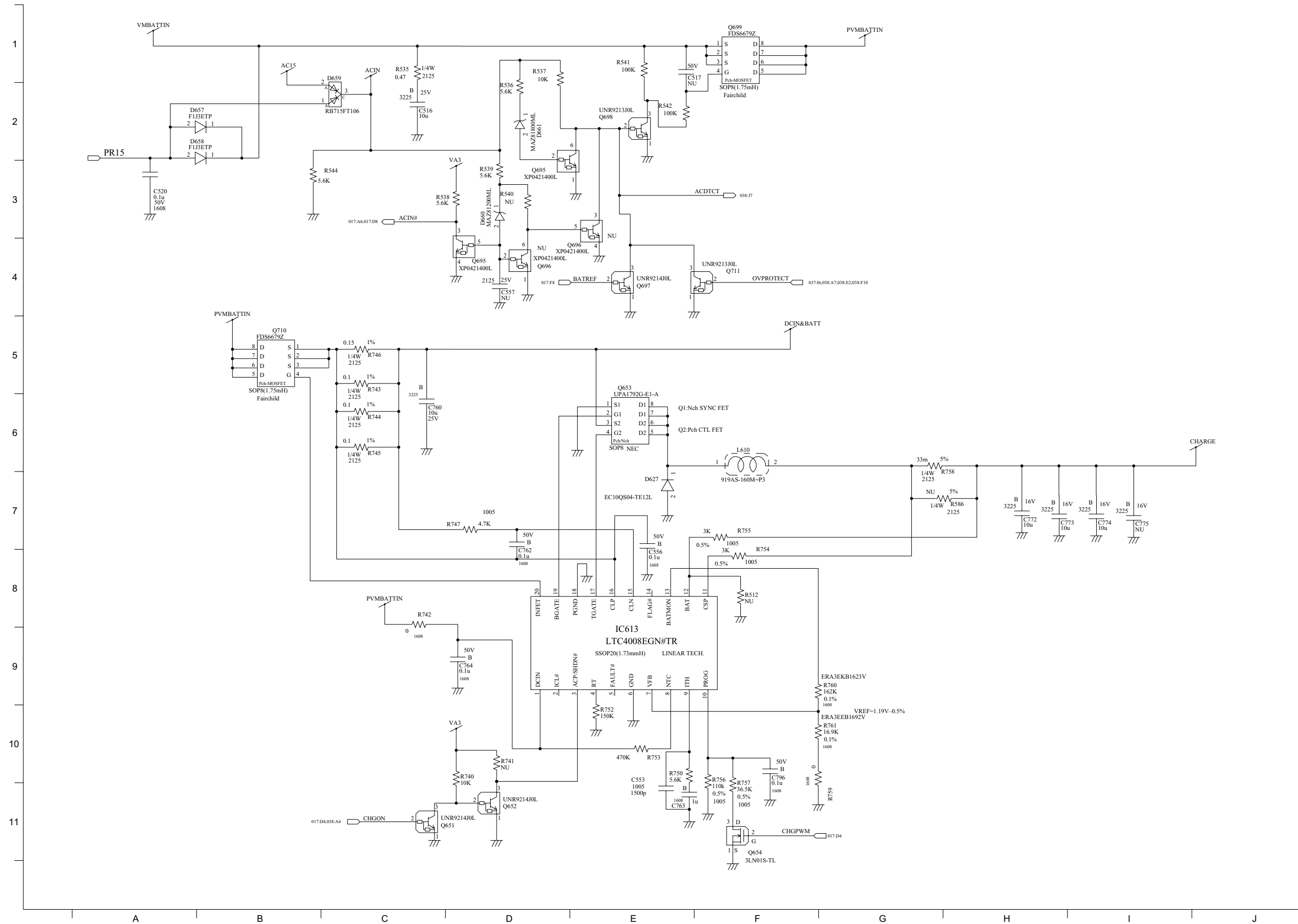


# Main 38 Battery

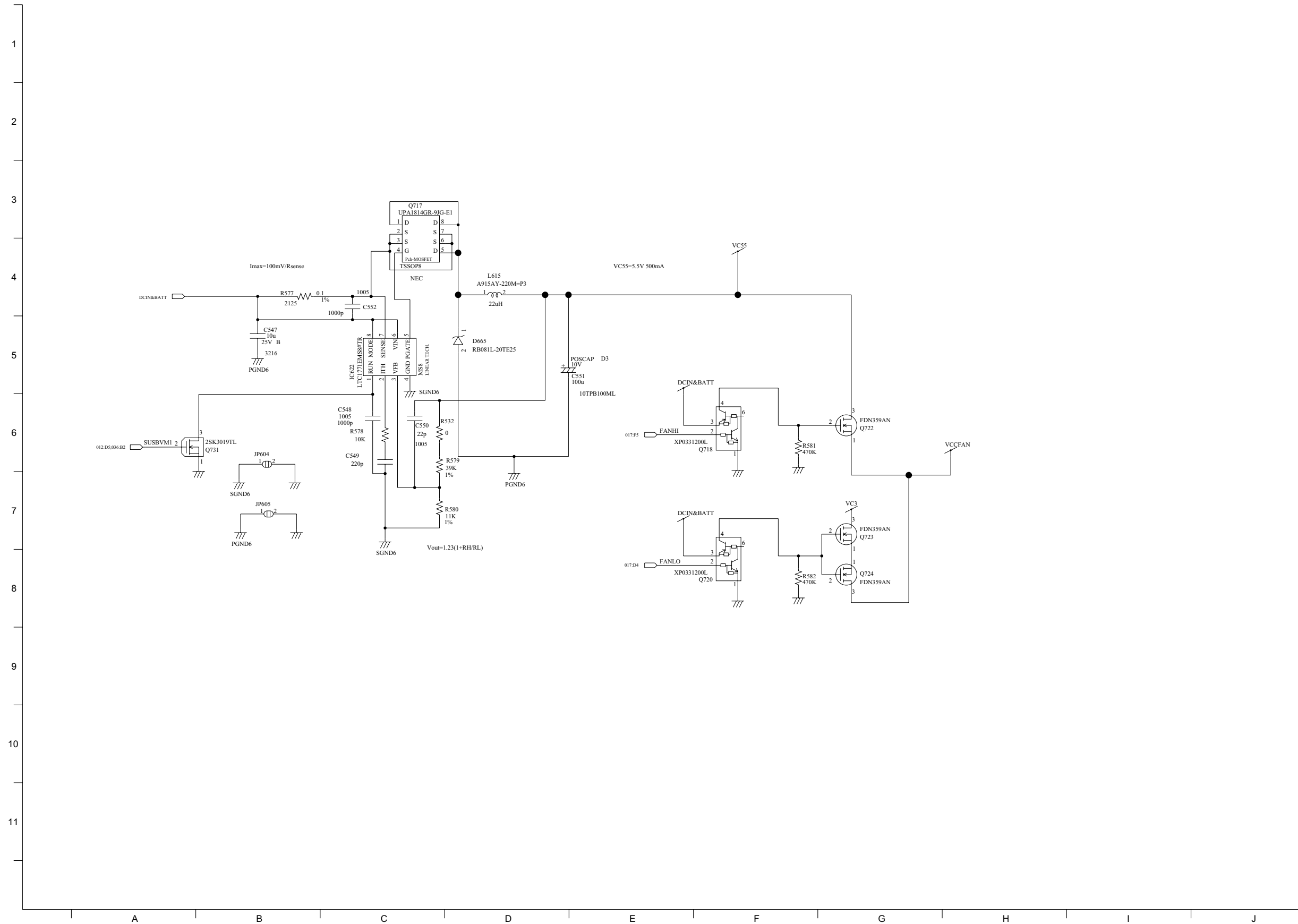


Q**	CHGON	
	H	L
SEL2ND#	ON	OFF
	L	OFF

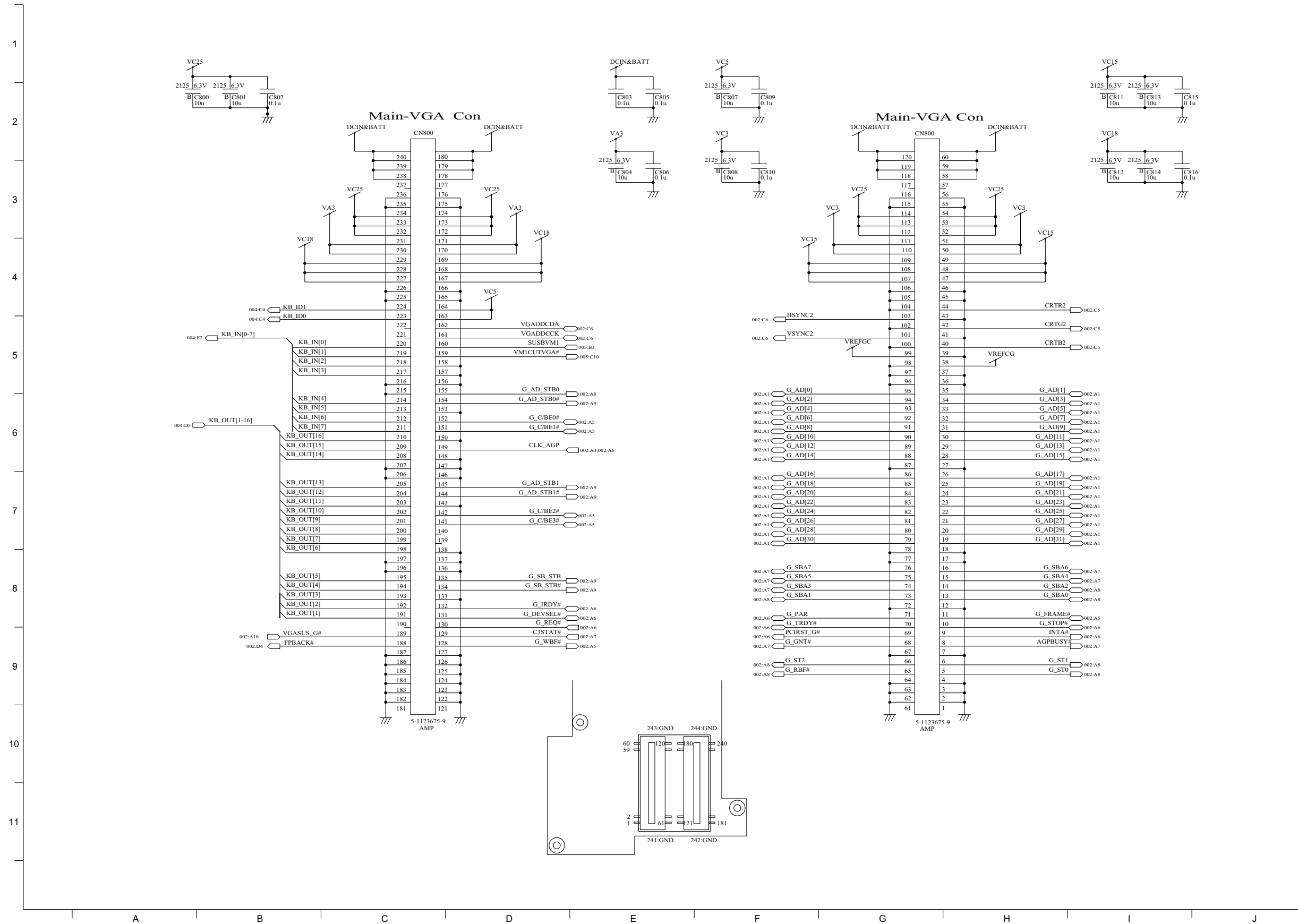
# Main 39 Charger



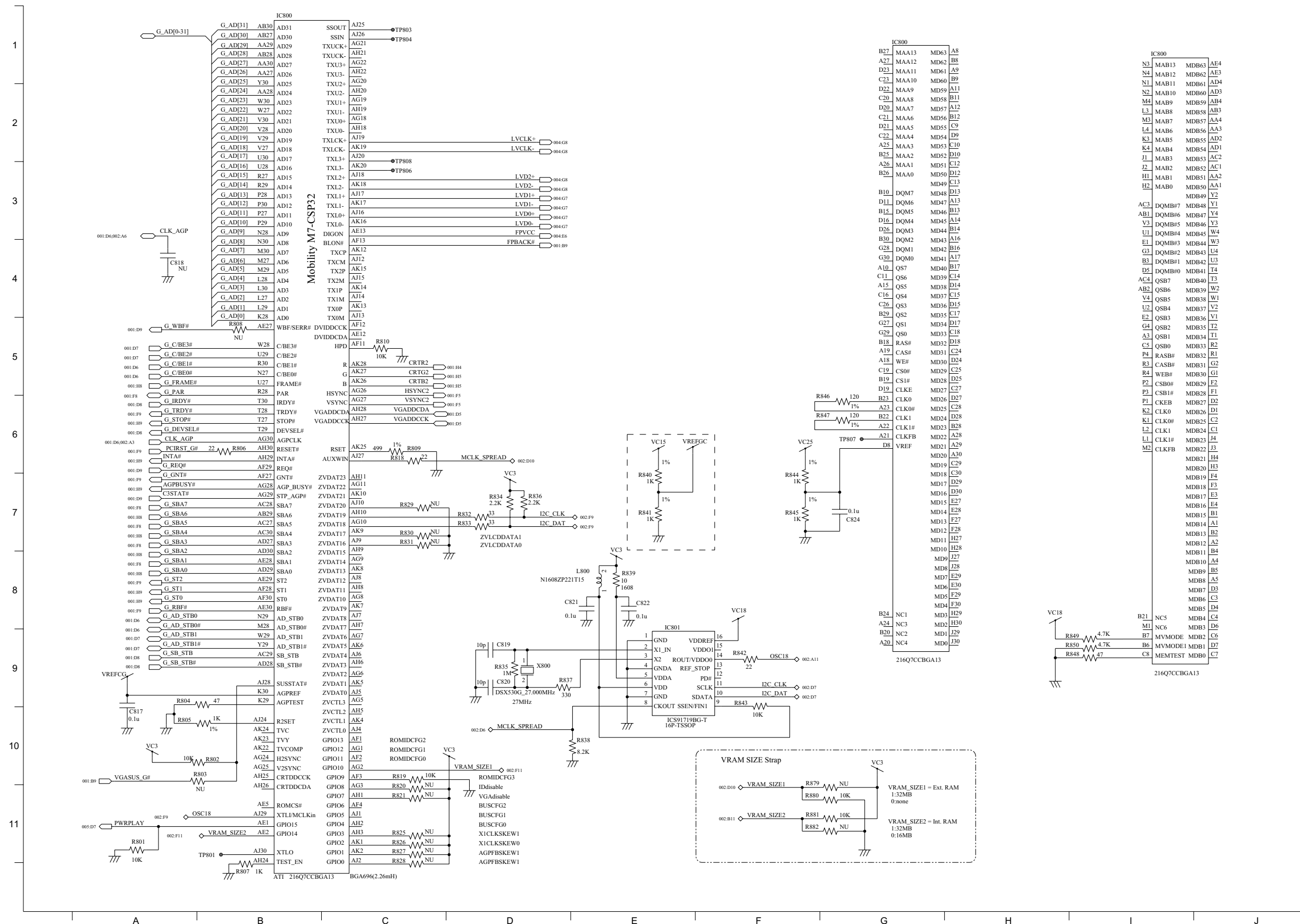
# Main 40 VCCFAN



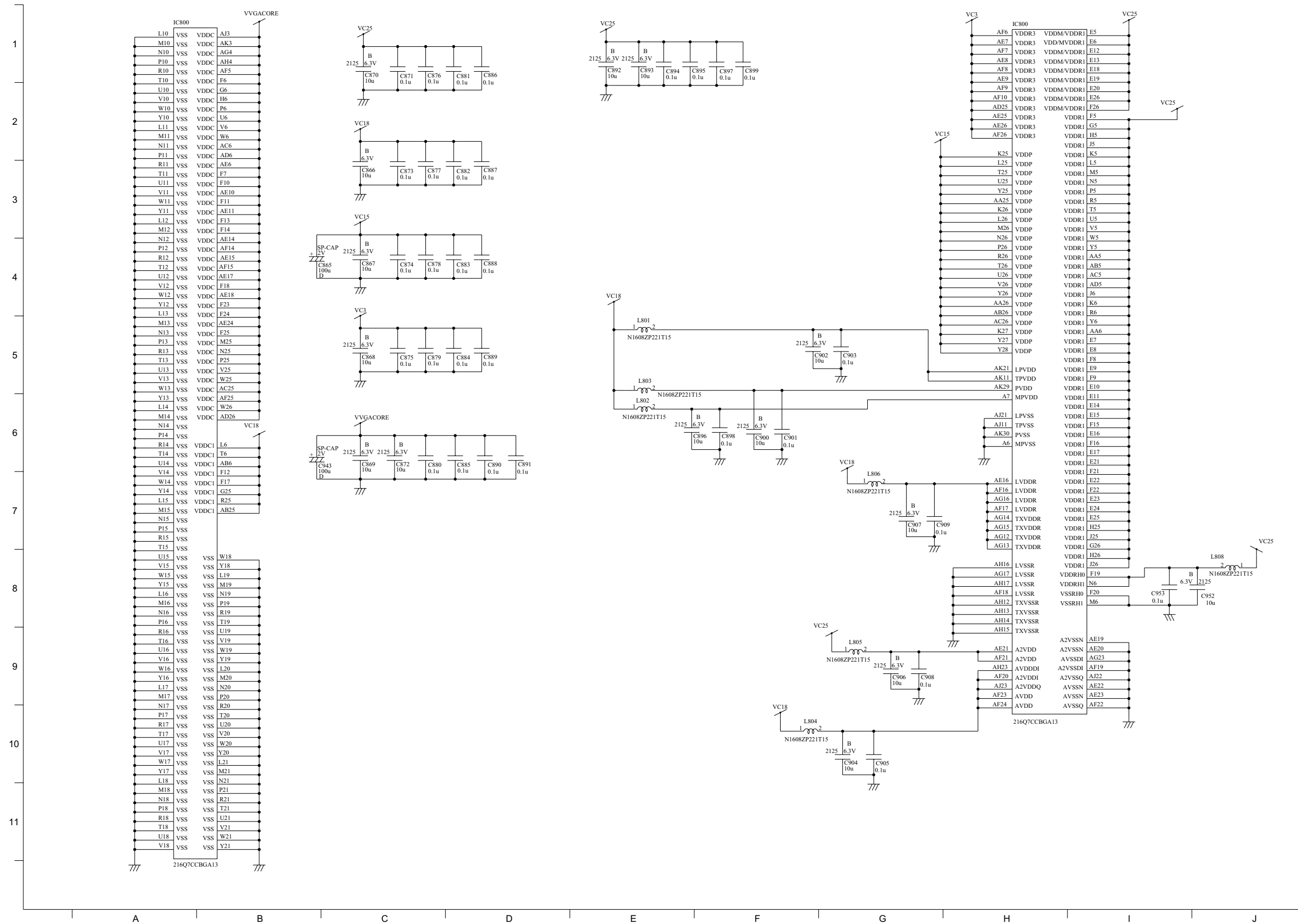
# Main-VGA Con



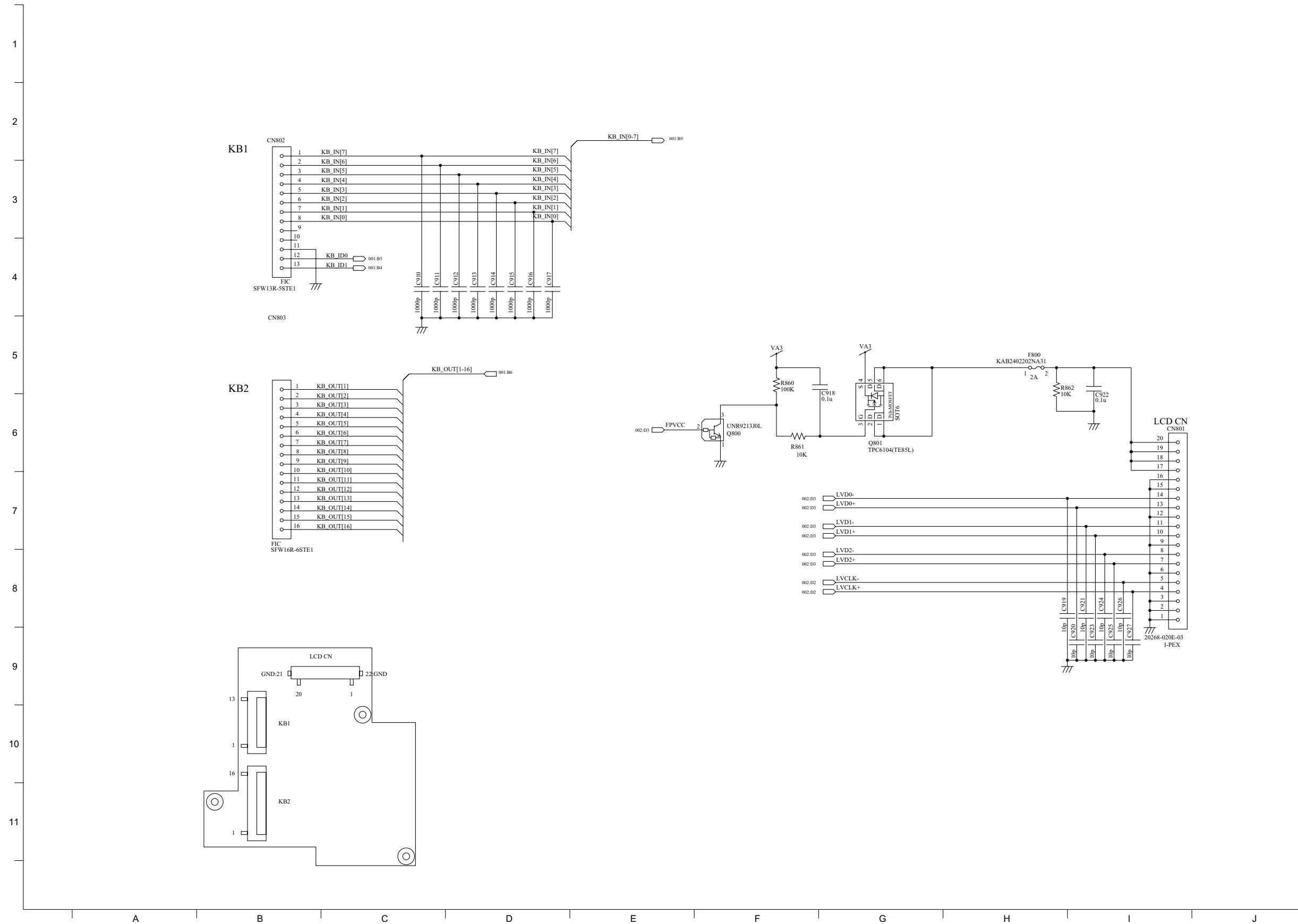
# VGA Controller (1/2)



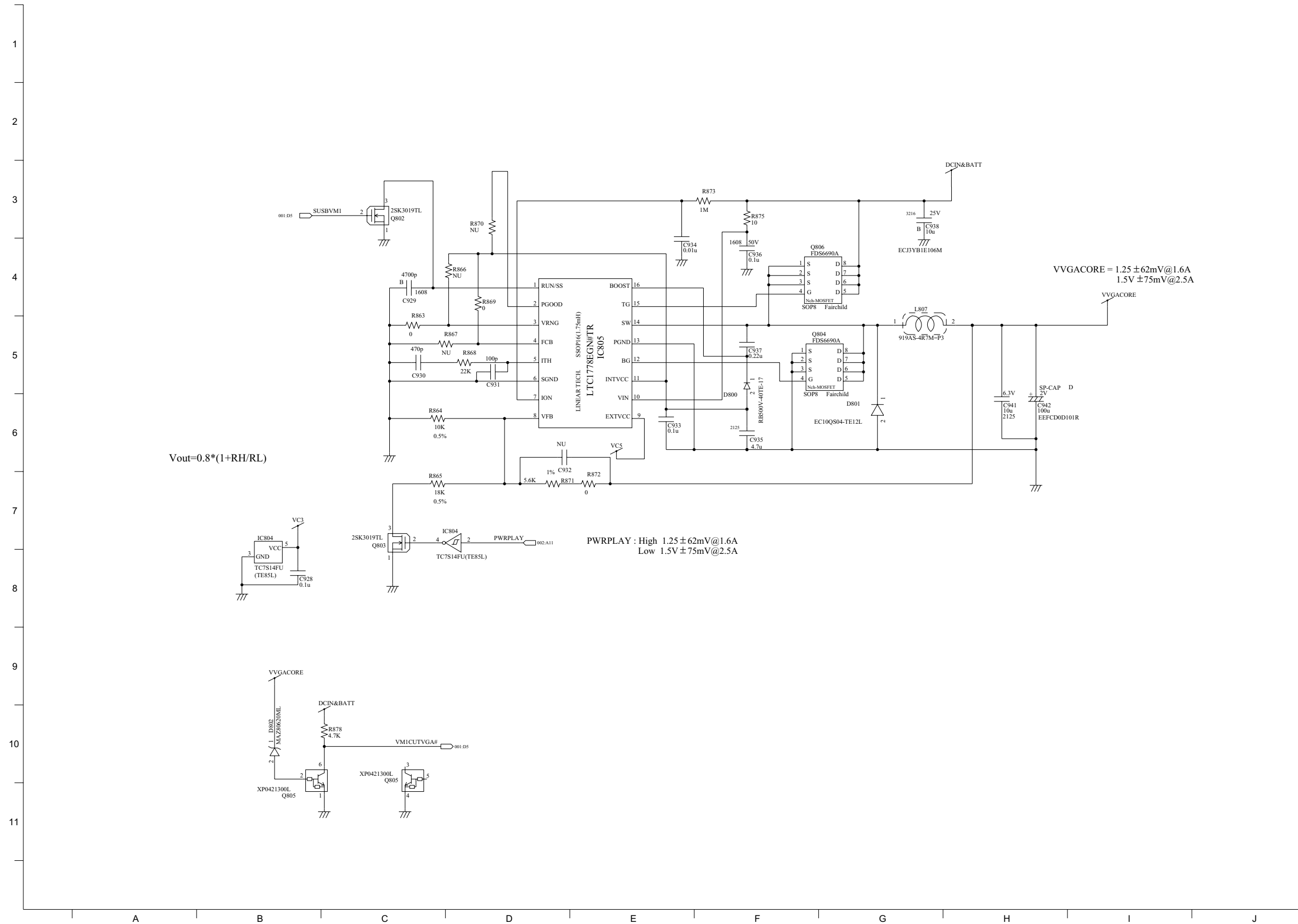
# VGA Coneroller (2/2)



# LCD, KBD Con

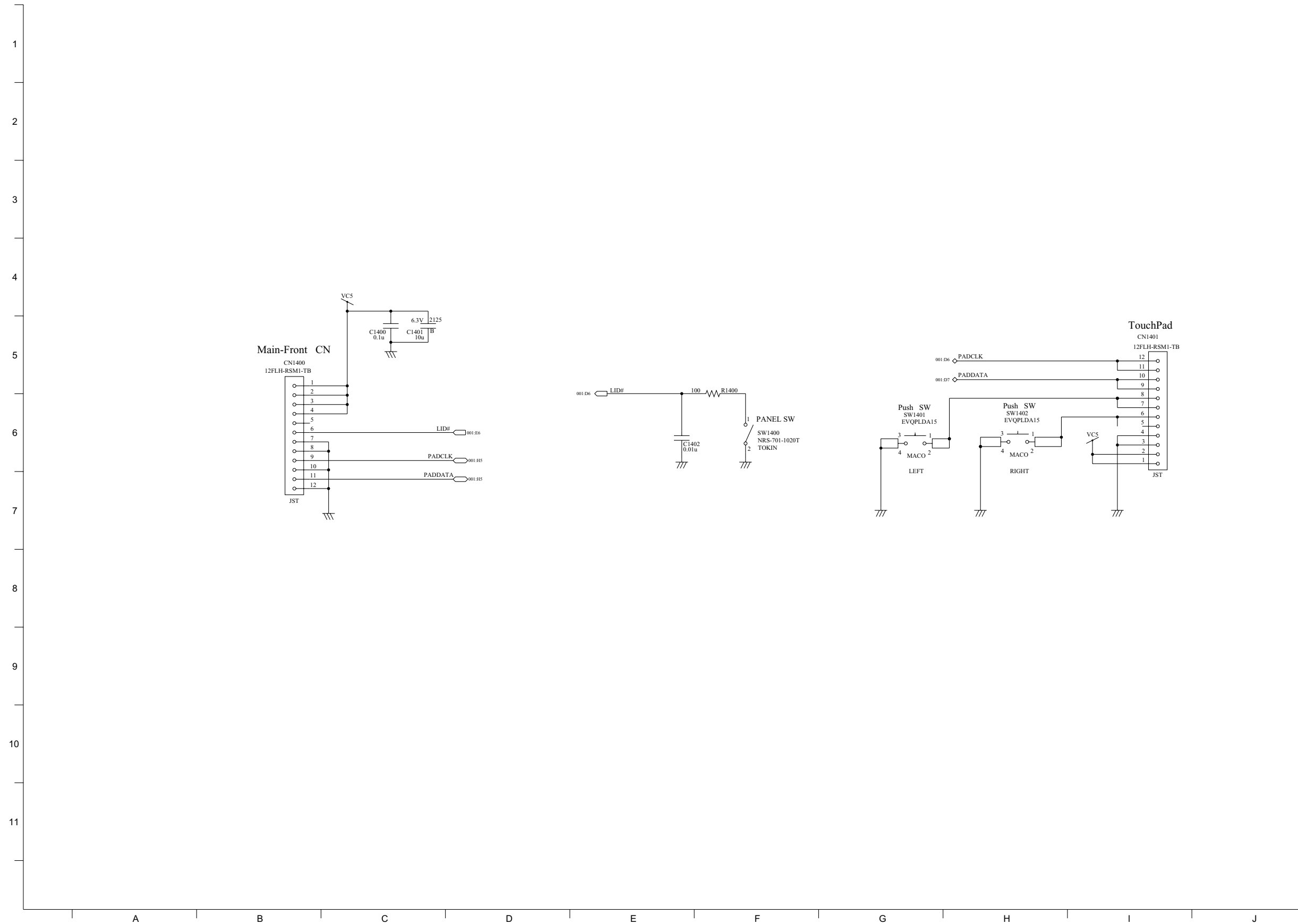


# VGA CORE DC/DC

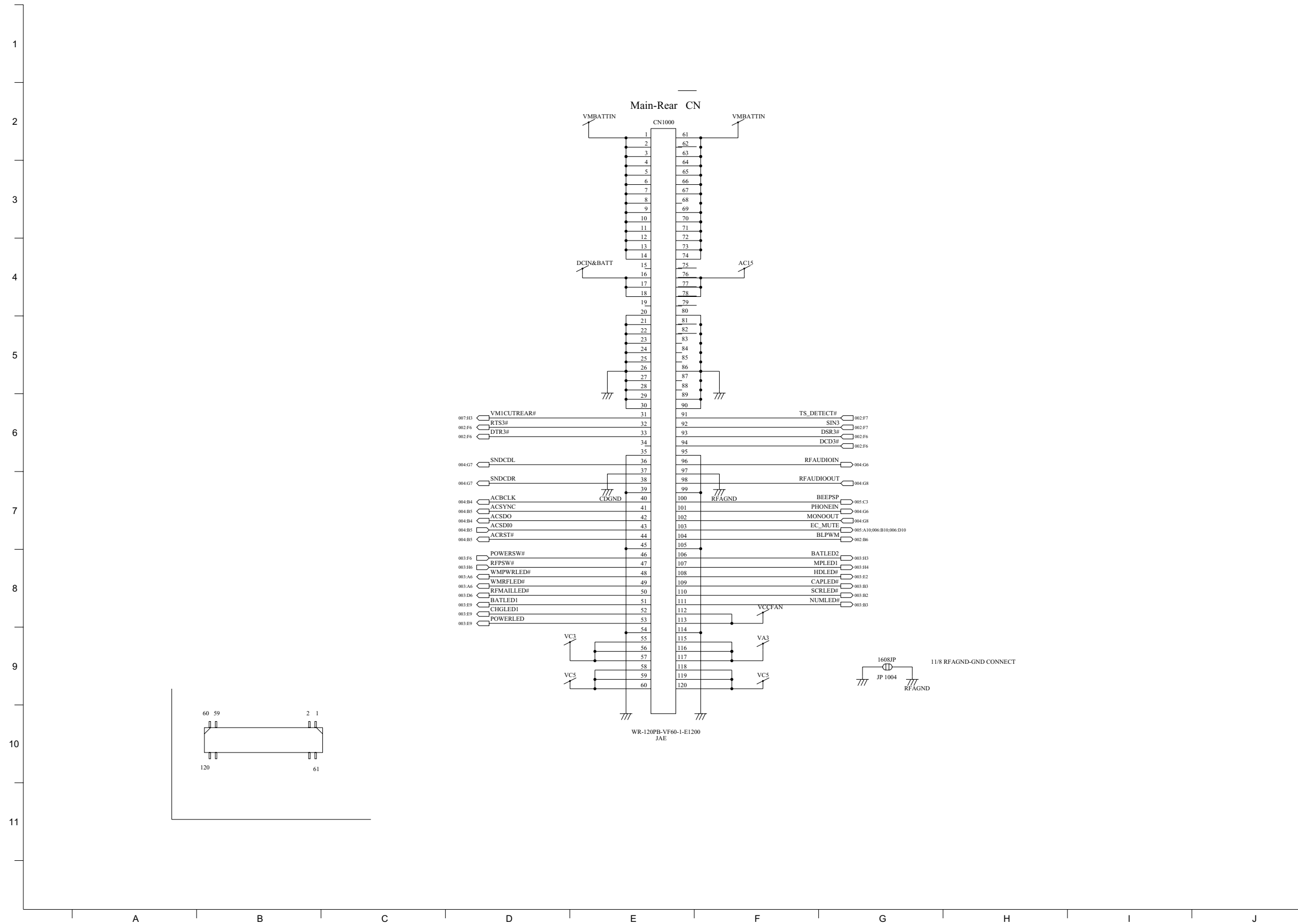




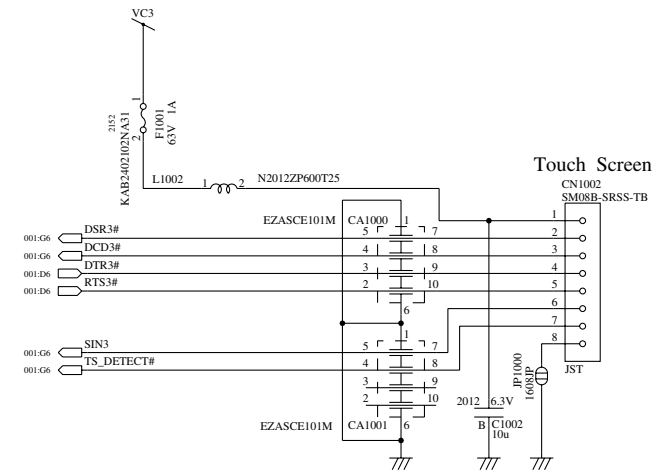
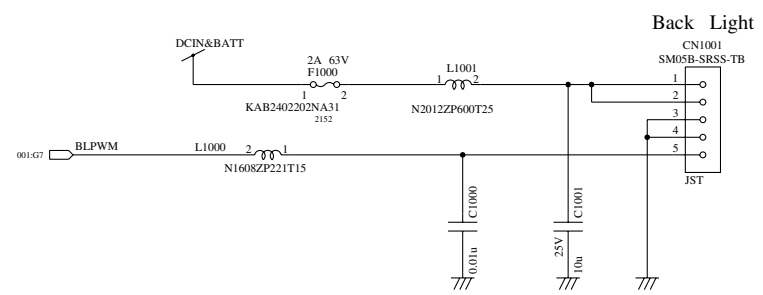
# Front PCB Main-Front Con, Touch Pad Con



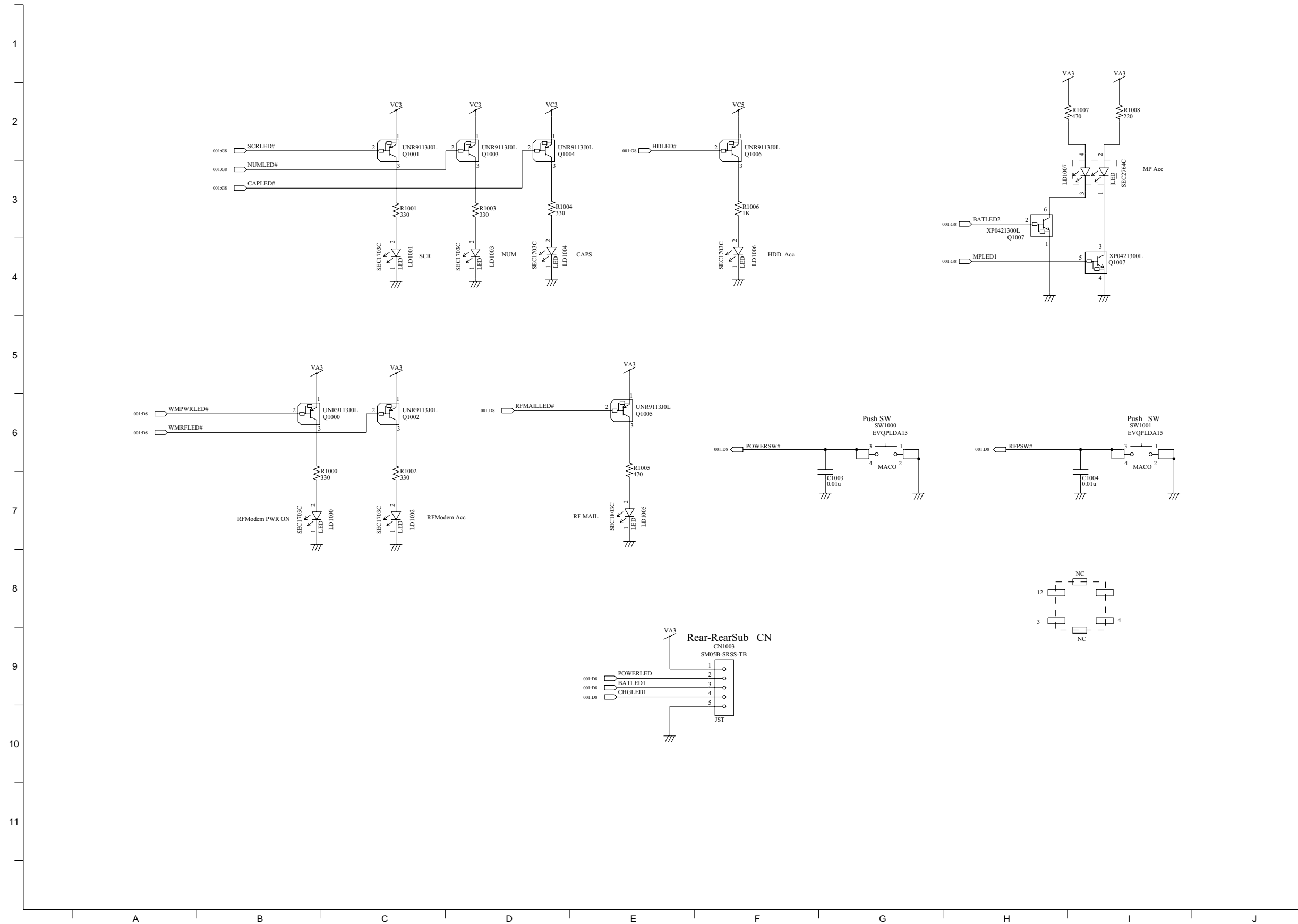
# Rear PCB 1 Main-Rear Con



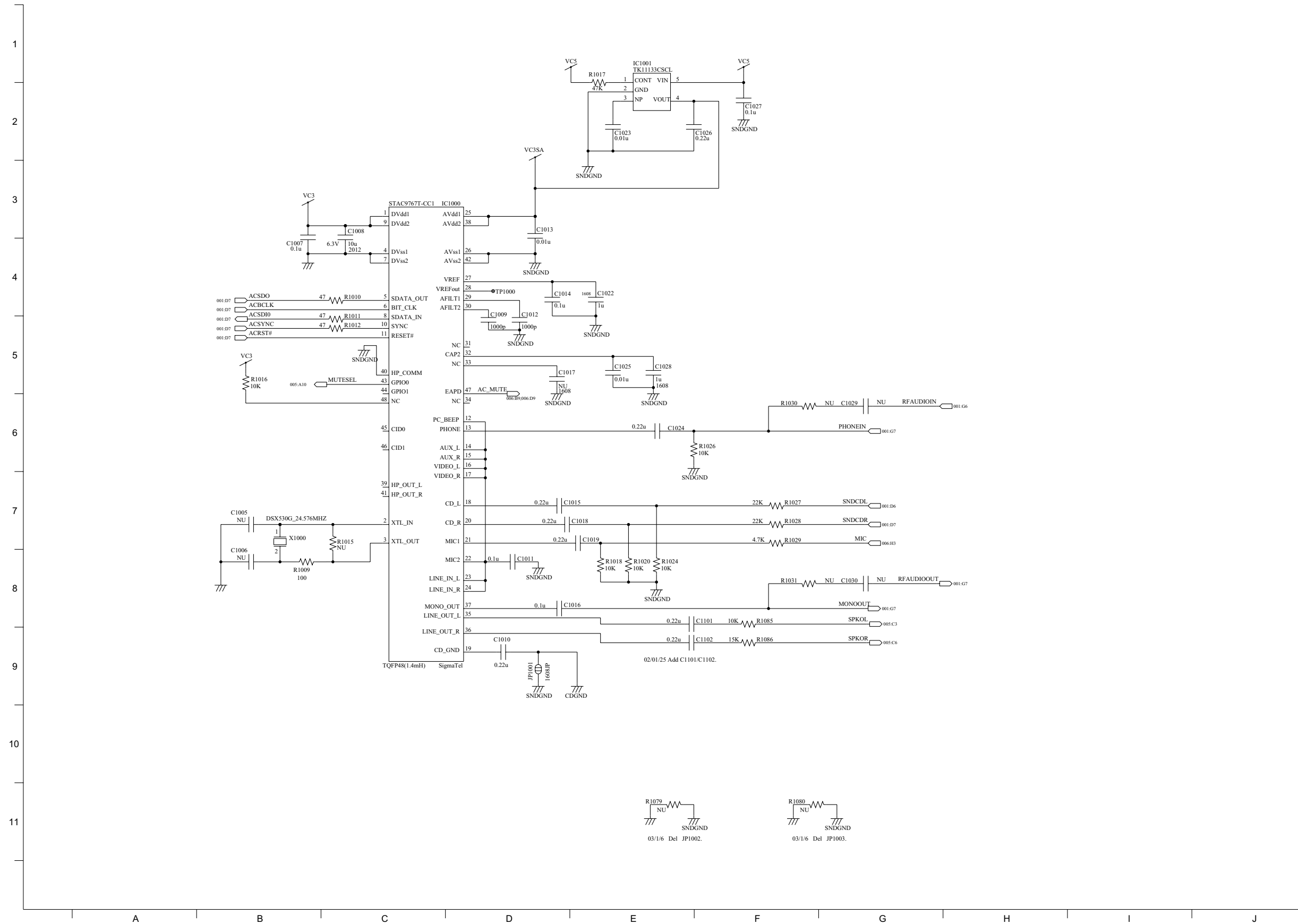
# Rear PCB 2 BL, TS I / F



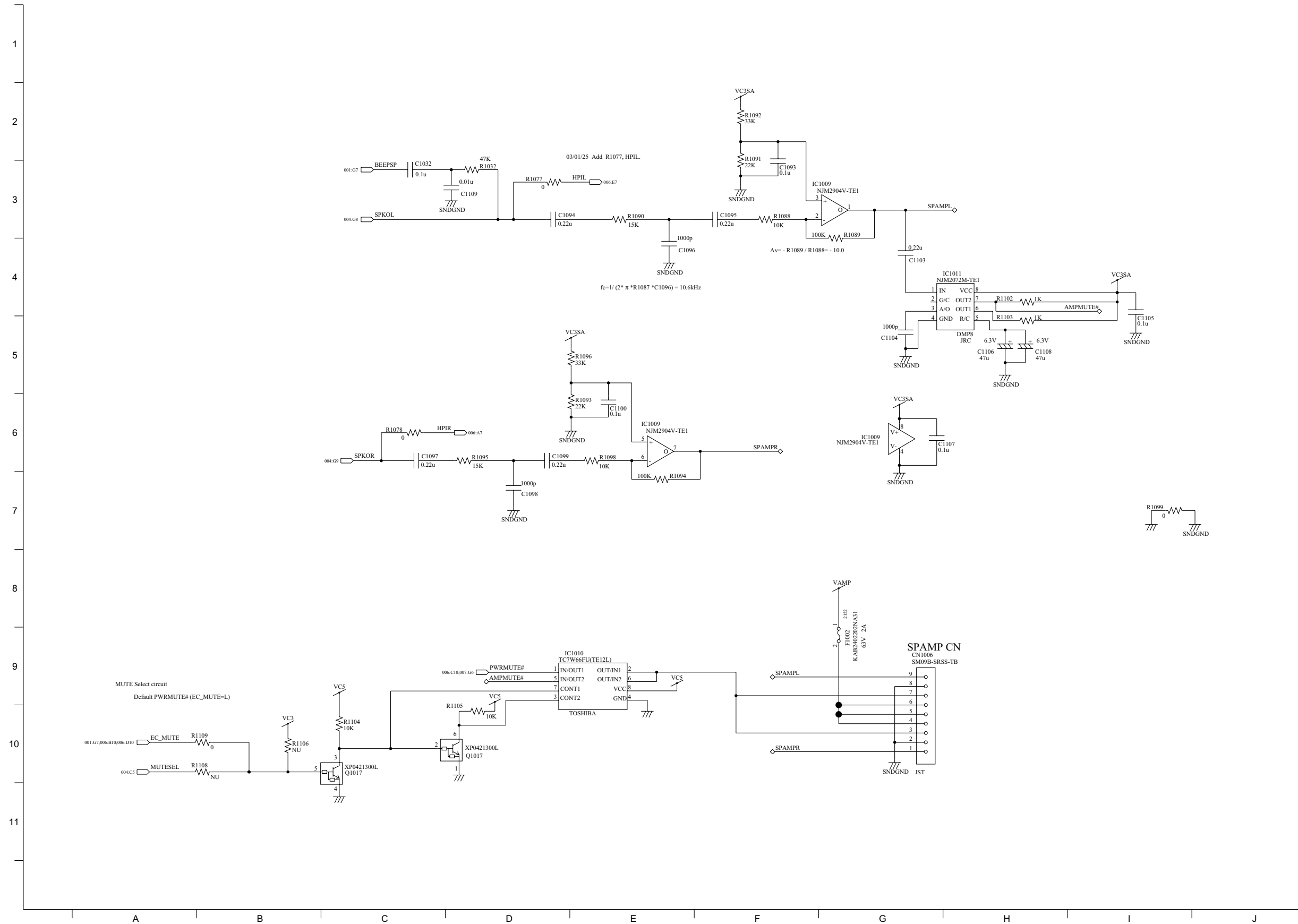
# Rear PCB 3 LED, SW



# Rear PCB 4 AC97, CODEC

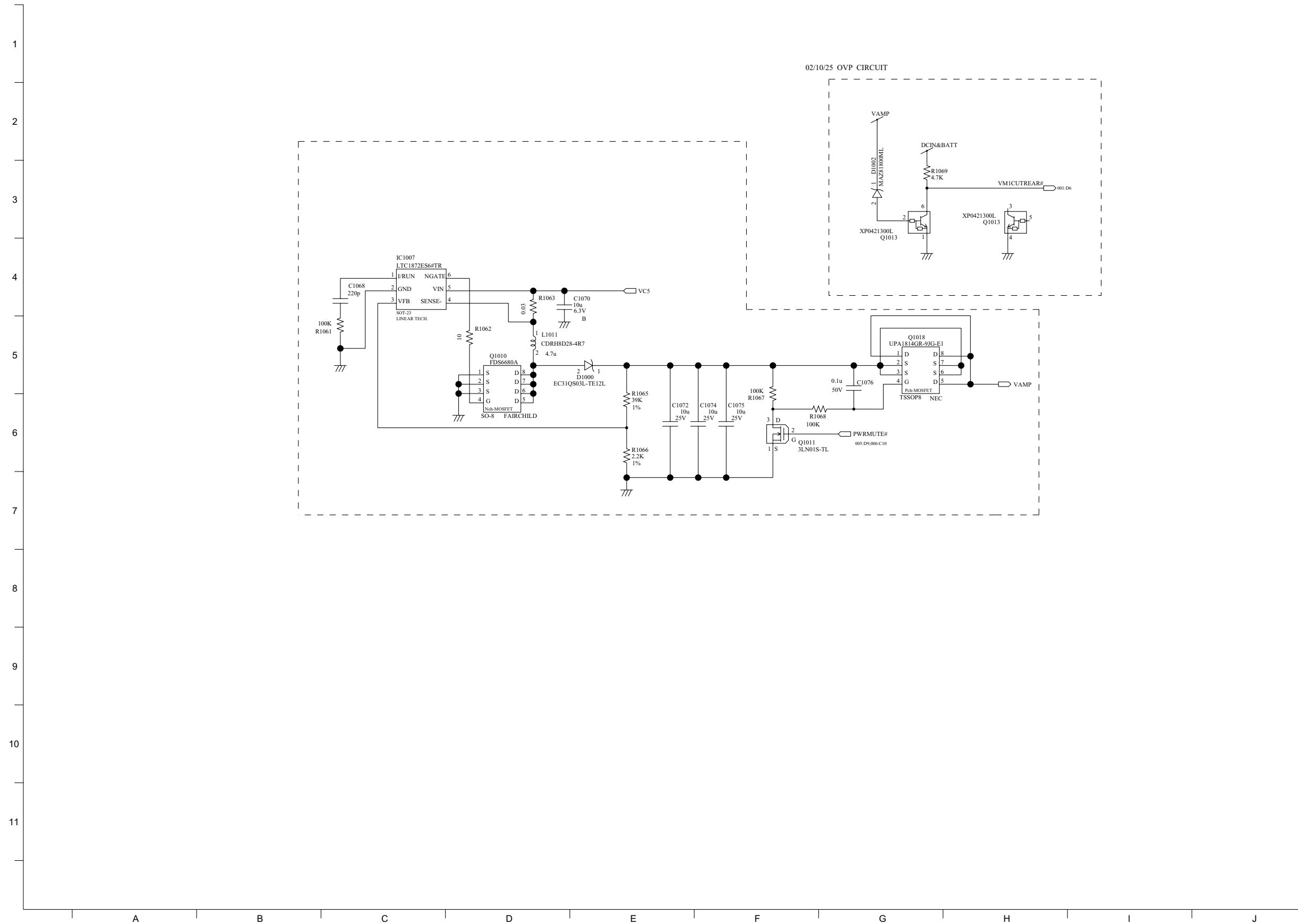


# Rear PCB 5 Rear-Spamp Con



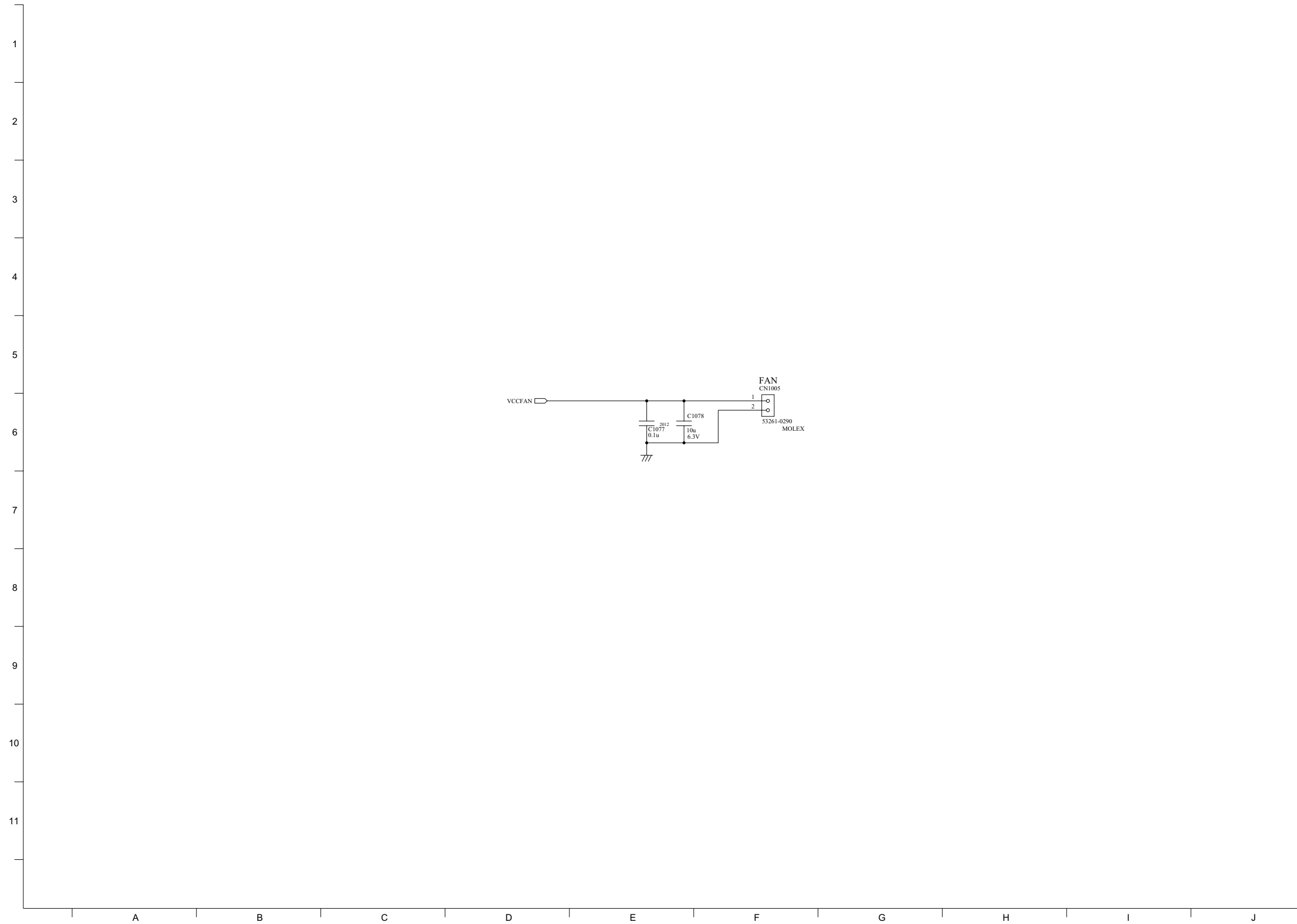


# Rear PCB 7 DC / DC for Card SP AMP

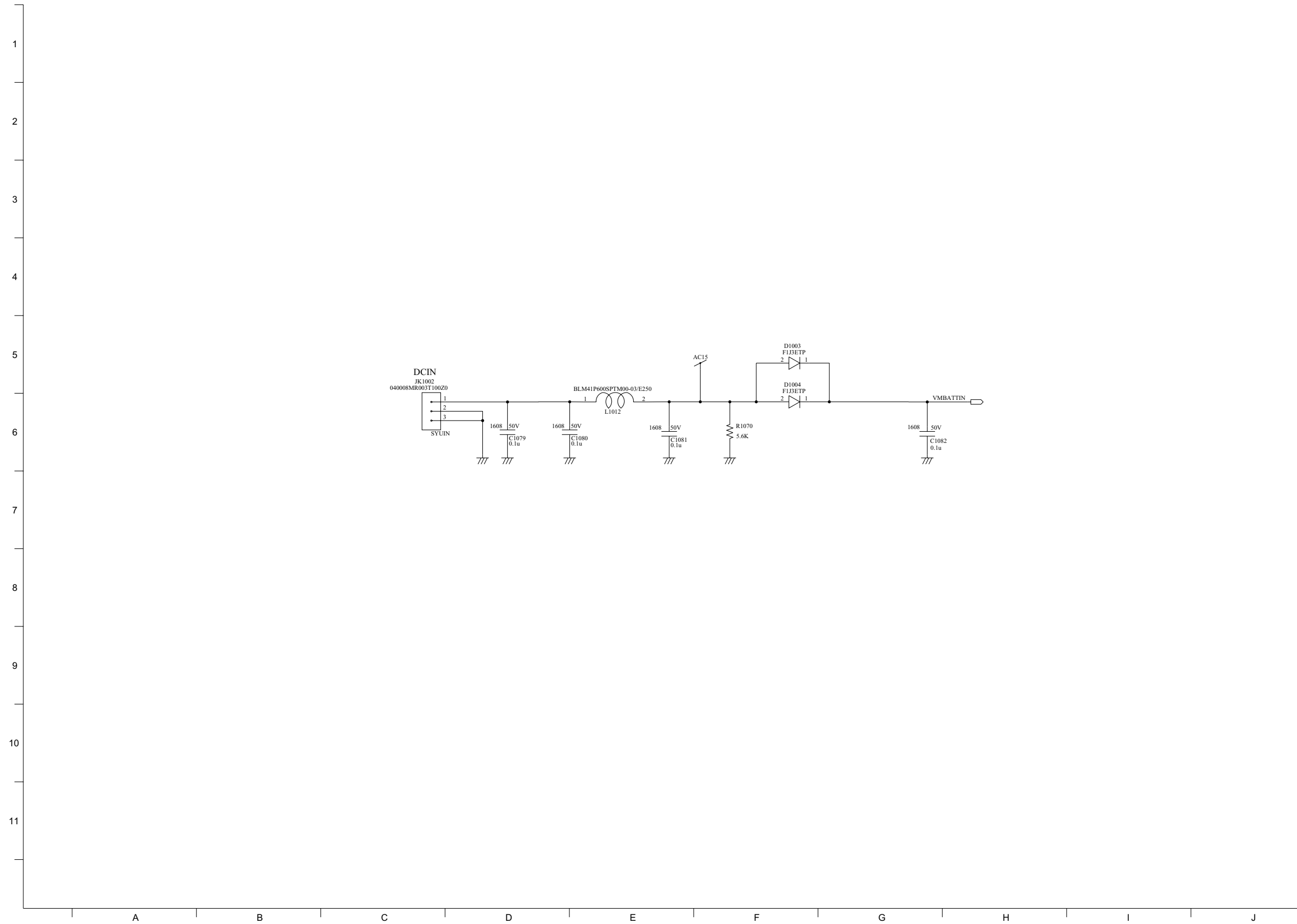




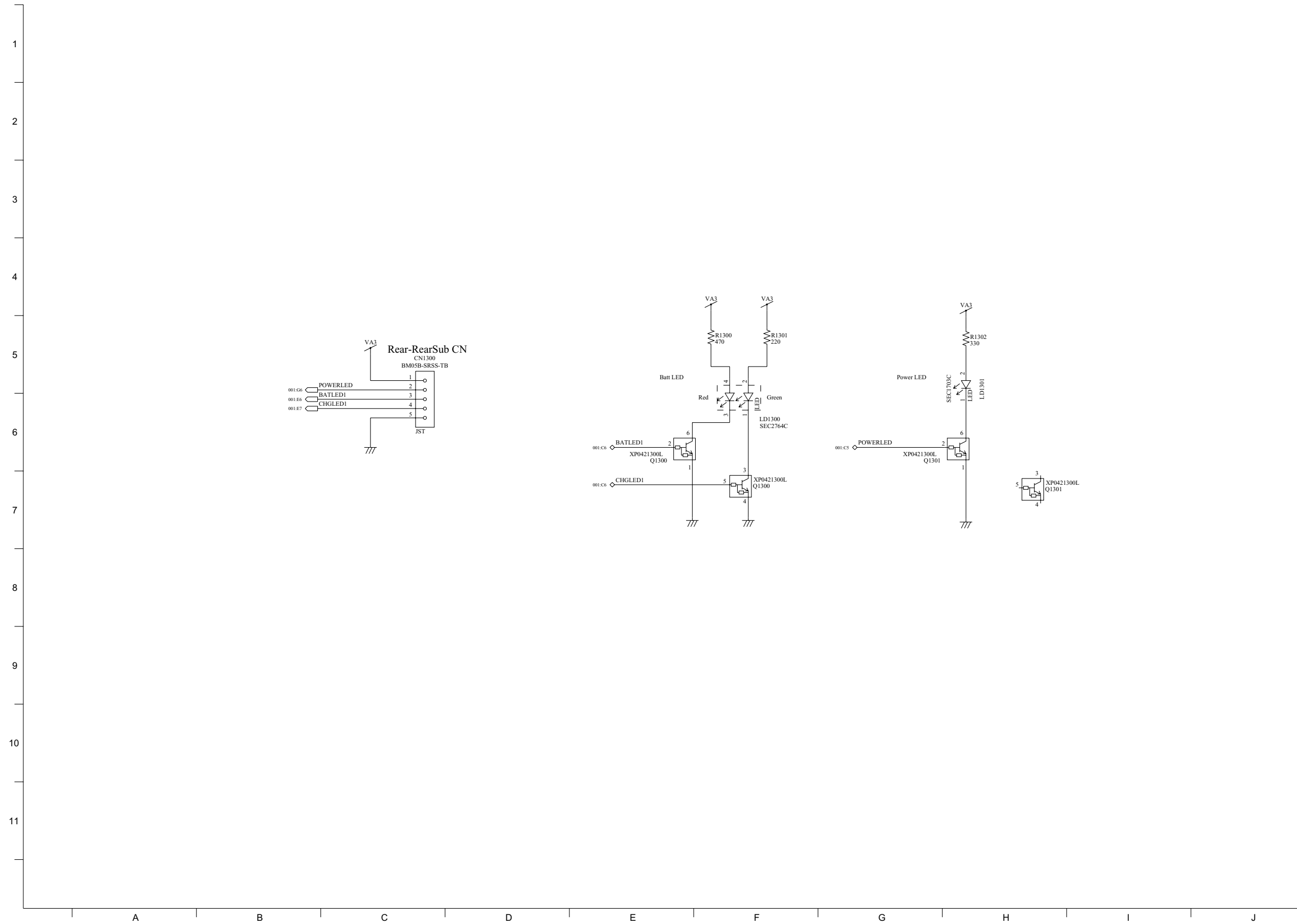
# Rear PCB 8 Fan



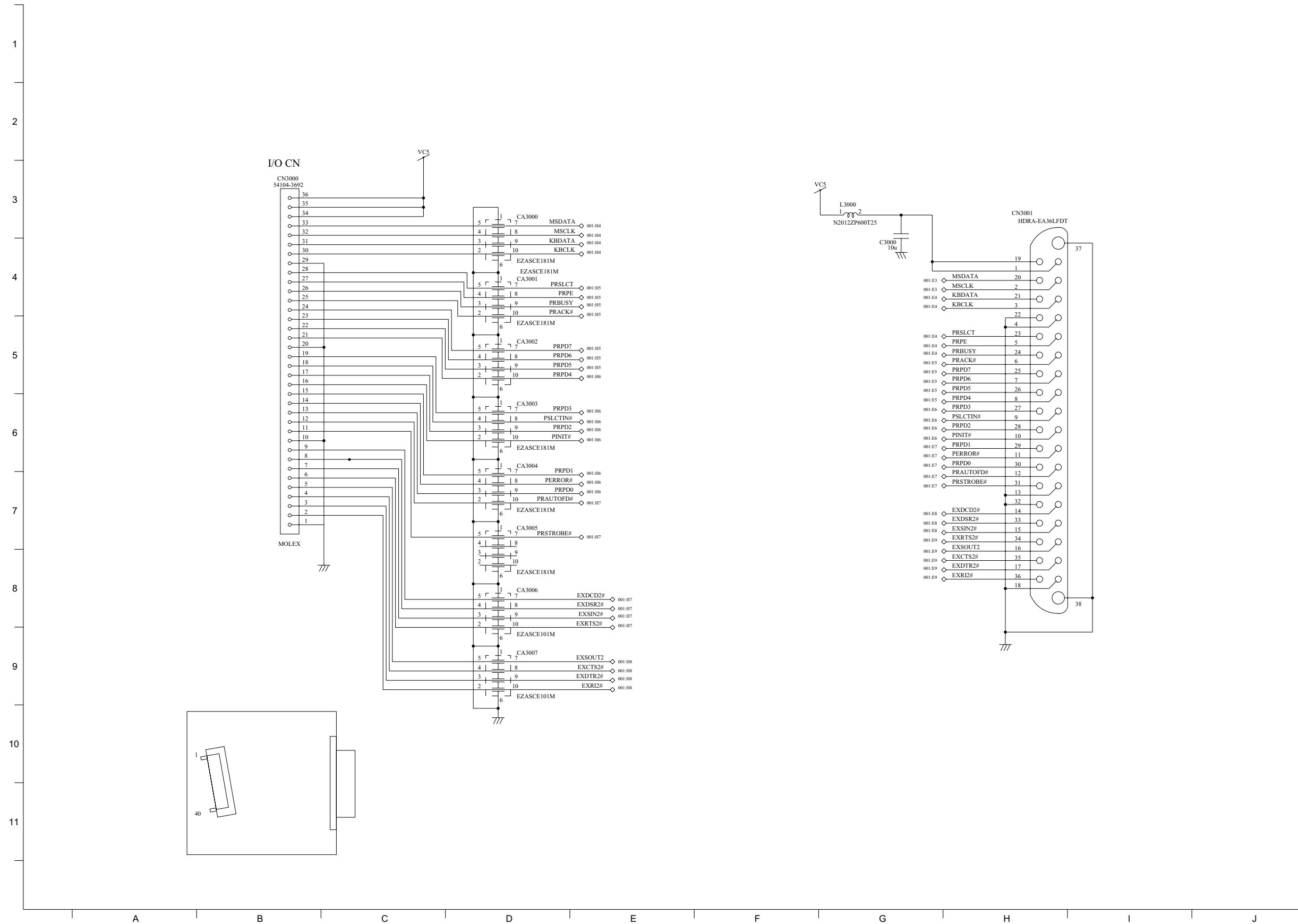
# Rear PCB 9 DC JK



# LEB PCB Rear-Rear Sub Con



# I / O PCB Main-I / O Box Con



# SPAMP\_L PCB AMP For Card SP L

