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Service
Service
Service

For manual LGE plasma panel see: 3122 785 15590

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Service Manual

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

1.1 Technical Specifications
1.2 Connection Overview
1.3 Chassis Overview

Notes:

- Figures can deviate due to the different set executions.
- Specifications are indicative (subject to change).

1.1 Technical Specifications

1.1.1 Vision

Display type	:	Plasma
Screen size	:	42” (107 cm), 16:9
Screen size	:	50” (127 cm), 16:9
Resolution (HxV pixels)	:	42 inch: 852 x 480
	:	50 inch: 1366 x 768
Contrast ratio	:	
- 42PF5320/10	:	10,000:1
- 42PF7320/10	:	13,000:1
- 50PF7320/10	:	10,000:1
Light output (cd/m^2)	:	1500
Viewing angle (HxV degrees)	:	160x160
Tuning system	:	PLL
TV Colour systems	:	PAL B/G, D/K, I
	:	SECAM B/G, D/K, L/L’
Video playback	:	PAL B/G; SECAM L/L’
	:	NTSC M/N 3.58, 4.43
Supported computer formats	:	VGA (640x480)
	:	VGA (720x400)
	:	VGA (720x480)
	:	MAC (640x480)
	:	MAC (832x624)
	:	SVGA (800x600)
	:	XVGA (1024x768)
	:	WXGA (1280x768)
	:	WXGA (1280x960)
	:	WXGA (1280x1024)
Supported video formats	:	640x480i - 1fH
	:	720x576i - 1fH
	:	640x480p - 2fH
	:	720x576p - 2fH
	:	852x480p - 2fH
	:	1920x1080i - 2fH
Presets/channels	:	100 presets
Tuner bands	:	VHF
	:	UHF
	:	S-band
	:	Hyper-band

1.1.2 Sound

Sound systems	:	FM-mono
	:	FM-stereo B/G
	:	NICAM B/G, D/K, I, L
	:	AV Stereo
Maximum power (W_{RMS})	:	2 x 15

1.1.3 Miscellaneous

Power supply:		
- Mains voltage (V_{AC})	:	220 - 240
- Mains frequency (Hz)	:	50 / 60
Ambient conditions:		
- Temperature range (°C)	:	+5 to +40
- Maximum humidity	:	90% R.H.
Power consumption		
- Normal operation (W)	:	≈ 450
- Stand-by (W)	:	< 2
Dimensions (WxHxD cm)	:	42 inch: 124x68x10.4
	:	50 in.:141.5x78x10.4
Weight (kg)	:	42 inch: 42
	:	50 inch: 50

1.2 Connection Overview

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

1.2.1 Side I/O connections

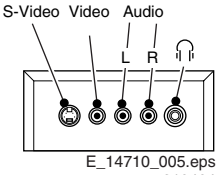

Figure 1-1 Side I/O connections

S-Video (Hosiden): Video Y/C - In

1	- Ground Y	Gnd
2	- Ground C	Gnd
3	- Video Y	1 V_{PP} / 75 ohm
4	- Video C	0.3 V_{PP} / 75 ohm

Cinch: Video CVBS - In, Audio - In

Ye	- Video CVBS	1 V_{PP} / 75 ohm
Wh	- Audio L	0.5 V_{RMS} / 10 kohm
Rd	- Audio R	0.5 V_{RMS} / 10 kohm

Mini Jack: Audio Head phone - Out

Bk	- Head phone	32 - 600 ohm / 10 mW

1.2.2 Rear Connections

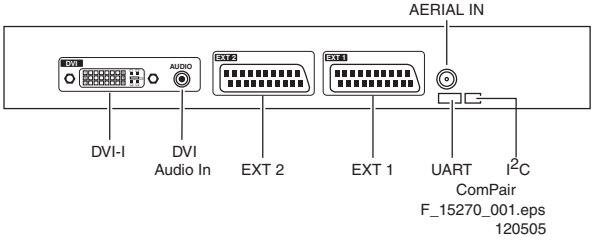

Figure 1-2 Rear I/O

Aerial - In

-	- IEC-type (EU)	Coax, 75 ohm

Mini Jack: Audio - In

1	- Ground	Gnd
2	- Audio L	0.5 V_{RMS} / 10 kohm
3	- Audio R	0.5 V_{RMS} / 10 kohm

Service connector (ComPair)

1	- SDA-S	I^2C Data (0 - 5 V)

2	- SCL-S	I^2C Clock (0 - 5 V)	
3	- Ground	Gnd	

Service connector (UART)

1	- UART_TX	Transmit	
2	- Ground	Gnd	
3	- UART_RX	Receive	

DVI-I: Digital/Analogue Video - In

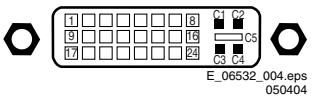

Figure 1-3 DVI-I connector

1	- D2-		
2	- D2+		
3	- Shield	Gnd	
4	- D4-		
5	- D4+		
6	- DDC_SCL	DDC clock	
7	- DDC_SDA	DDC data	
8	- V-sync	0 - 5 V	
9	- D1-		
10	- D1+		
11	- Shield	Gnd	
12	- D3-		
13	- D3+		
14	- +5V		
15	- Ground	Gnd	
16	- HPD	Hot Plug Detect	
17	- D0-		
18	- D0+		
19	- Shield	Gnd	
20	- D5-		
21	- D5+		
22	- Shield	Gnd	
23	- CLK+		
24	- CLK-		
C1	- Video Red	0.7 V_{PP} / 75 ohm	
C2	- Video Green	0.7 V_{PP} / 75 ohm	
C3	- Video Blue	0.7 V_{PP} / 75 ohm	
C4	- H-sync	0 - 5 V	
C5	- Ground	Gnd	

EXT1: Video RGB - In, CVBS - In/Out, Audio - In/Out

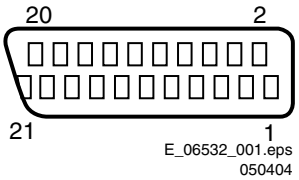

Figure 1-4 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm	
2	- Audio R	0.5 V_{RMS} / 10 kohm	
3	- Audio L	0.5 V_{RMS} / 1 kohm	
4	- Ground Audio	Gnd	
5	- Ground Blue	Gnd	
6	- Audio L	0.5 V_{RMS} / 10 kohm	
7	- Video Blue	0.7 V_{PP} / 75 ohm	
8	- Function Select	0 - 2 V: INT	
		4.5 - 7 V: EXT 16:9	
		9.5 - 12 V: EXT 4:3	
9	- Ground Green	Gnd	
10	- n.c.		
11	- Video Green	0.7 V_{PP} / 75 ohm	
12	- n.c.		
13	- Ground Red	Gnd	
14	- Ground	Gnd	
15	- Video Red	0.7 V_{PP} / 75 ohm	
16	- Status/FBL	0 - 0.4 V: INT	
		1 - 3 V: EXT / 75 ohm	
17	- Ground Video	Gnd	
18	- Ground FBL	Gnd	
19	- Video Terr. CVBS	1 V_{PP} / 75 ohm	
20	- Video CVBS/Y	1 V_{PP} / 75 ohm	
21	- Shield	Gnd	

EXT2: Video Y/C - in, CVBS - In/Out, Audio - In/Out

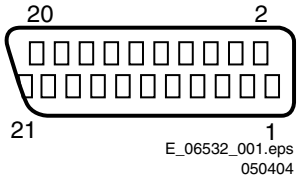

Figure 1-5 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm	
2	- Audio R	0.5 V_{RMS} / 10 kohm	
3	- Audio L	0.5 V_{RMS} / 1 kohm	
4	- Ground Audio	Gnd	
5	- Ground Blue	Gnd	
6	- Audio L	0.5 V_{RMS} / 10 kohm	
7	- n.c.		
8	- Function Select	0 - 2 V: INT	
		4.5 - 7 V: EXT 16:9	
		9.5 - 12 V: EXT 4:3	
9	- Ground Green	Gnd	
10	- n.c.		
11	- n.c.		
12	- n.c.		
13	- Ground Red	Gnd	
14	- Ground	Gnd	
15	- YC/C - in	0.7 V_{PP} / 75 ohm	
16	- n.c.		
17	- Ground Video	Gnd	
18	- Ground	Gnd	
19	- Video Mon. CVBS	1 V_{PP} / 75 ohm	
20	- YC/Y - in	0.7 V_{PP} / 75 ohm	
21	- Shield	Gnd	

1.3 Chassis Overview

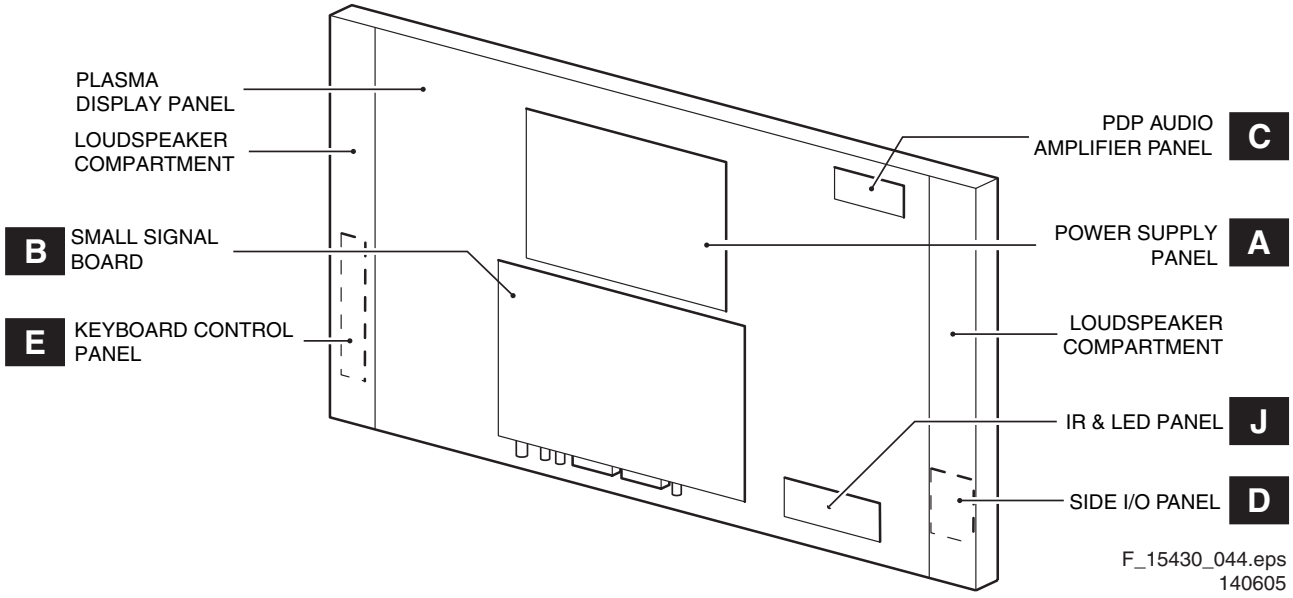

Figure 1-6 PWB locations

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

2.1 Safety Instructions
2.2 Warnings
2.3 Notes

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains (AC Power) via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains (AC Power) lead for external damage.
- Check the strain relief of the Mains (AC Power) cord for proper function.
- Check the electrical DC resistance between the Mains (AC Power) plug and the secondary side (only for sets that have a Mains (AC Power) isolated power supply):
  1. Unplug the Mains (AC Power) cord and connect a wire between the two pins of the Mains (AC Power) plug.
  2. Set the Mains (AC Power) switch to the "on" position (keep the Mains (AC Power) cord unplugged!).
  3. Measure the resistance value between the pins of the Mains (AC Power) plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains (AC Power) plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⏋⏌) and without (⏋⏌) aerial signal. Measure the voltages in the power supply section both in normal operation (⏻) and in stand-by (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= x10^{-6}), nano-farads (n= x10^{-9}), or pico-farads (p= x10^{-12}).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature.
A uniform temperature reduces the risk of warping the PWB. To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.

After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has been shown to result in problems during re-soldering.

Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information
For more information on how to handle BGA devices, visit this URL: *www.atyourservice.ce.philips.com* (needs subscription, not available for all regions). After login, select “Magazine”, then go to “Workshop Information”. Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).

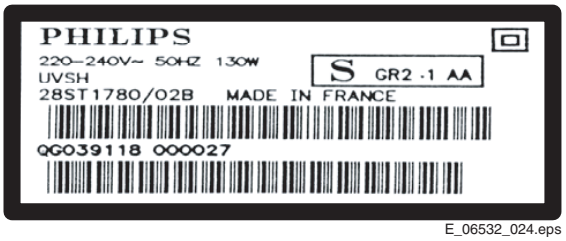

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Figure 2-1 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.

Figure 2-2 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:
- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch “off” unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly **to avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
  Do not re-use BGAs at all!
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:
- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid the mixing of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions).
You will find this and more technical information within the "Magazine", chapter "Workshop information".
For additional questions please contact your local repair help desk.

2.3.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

4. Mechanical Instructions

Index of this chapter:

4.1 Cable Dressing
4.2 Service Positions
4.3 Assy/Panel Removal
4.4 Set Re-assembly

Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassembling instructions in described order.

4.1 Cable Dressing

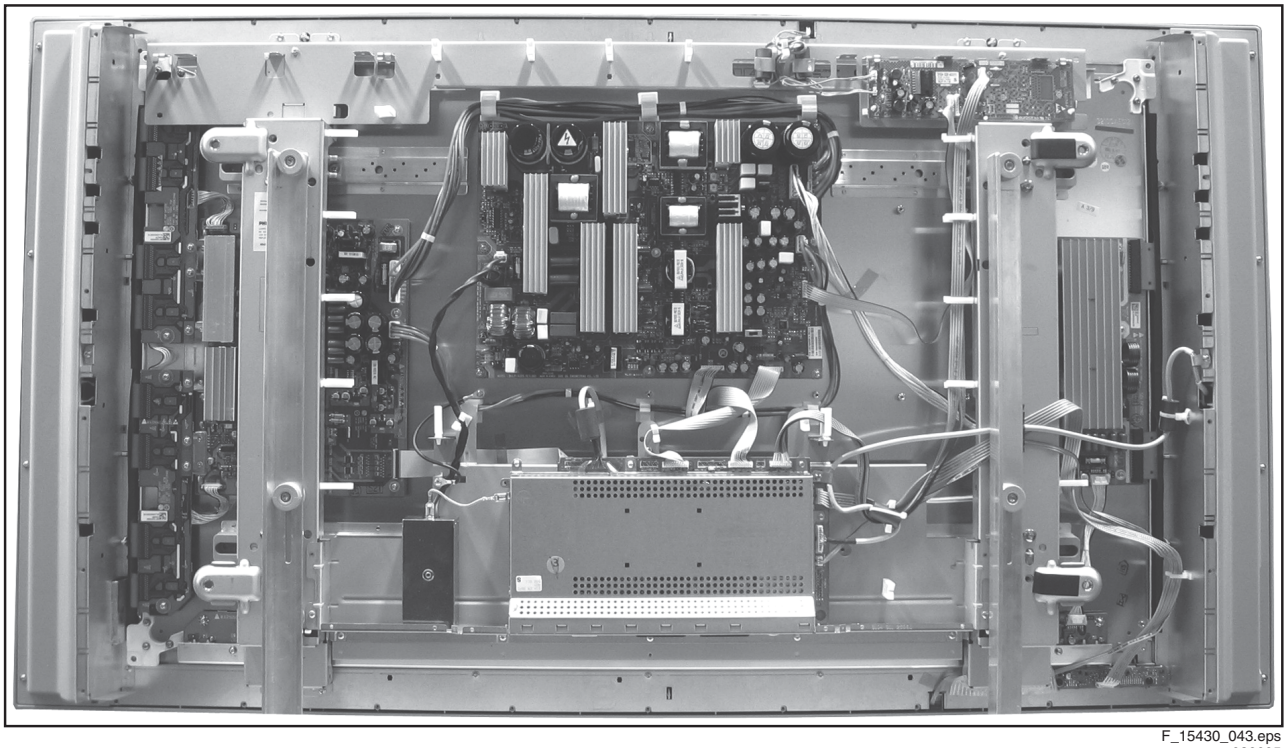

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Figure 4-1 Cable dressing

4.2 Service Positions

For easy servicing of this set, there are a few possibilities created:

- The buffers from the packaging (see figure "Rear cover").
- Foam bars (created for service).
- Aluminium service stands (created for Service).

4.2.1 Foam Bars

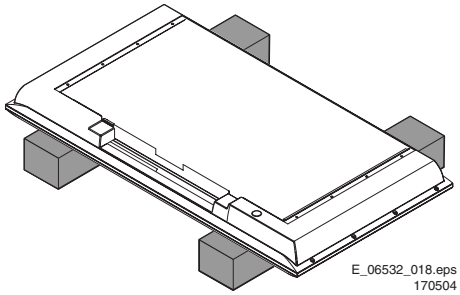

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Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. By laying the TV face down on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments.
By placing a mirror under the TV, you can monitor the screen.

4.2.2 Aluminium Stands

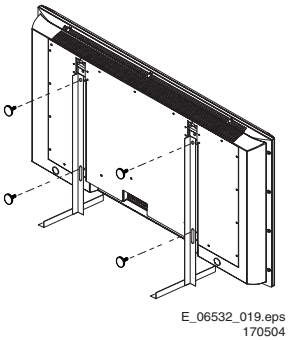

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Figure 4-3 Aluminium stands (drawing of Mkl)

The aluminium stands (order code 3122 785 90480) can be mounted with the back cover removed or still left on. So, the stand can be used to store products or to do measurements. It is also very suitable to perform duration tests without taking much space, without having the risk of overheating, or the risk of products falling. The stands can be mounted and removed

quick and easy with use of the delivered screws that can be tightened and loosened manually without the use of tools. See figure above.

Note: Only use the delivered screws to mount the monitor to the stands.

4.3 Assy/Panel Removal

4.3.1 Metal Rear Cover

Caution: Disconnect the Mains/AC Power cord before you remove the rear cover!

1. Place the TV set upside down on a table top, using the foam bars (see part "Foam Bars").
   Caution: do **not** put pressure on the display, but let the monitor lean on the speakers or the Front cover.
2. Remove all T10 screws around the edges of the metal rear cover: “parker” screws around the outer rim, “tapping” screws around the connector plate.
3. Remove the four "mushrooms" from the rear cover.
4. Lift the metal rear cover from the set. Make sure that wires and flat foils are not damaged.

4.3.2 Speaker Compartment Cover

After removing the metal rear cover, you gain access to the Speaker Compartment covers.

1. Remove all T10 screws [1] around the outer rim of the cover (see Figure “Speaker compartment cover removal”).
2. Remove the T10 screws [2] on top of the inner rim, including the one which secures the grounding clamp (3, see Figure “Grounding clamp”).
3. Now, remove the plastic cable fixation noose (4, see Figure “Cable fixation noose”).
4. After removal of all the screws, slightly push the top of the cover inwards. This will lift the outer rim slightly up so you can take the cover out.

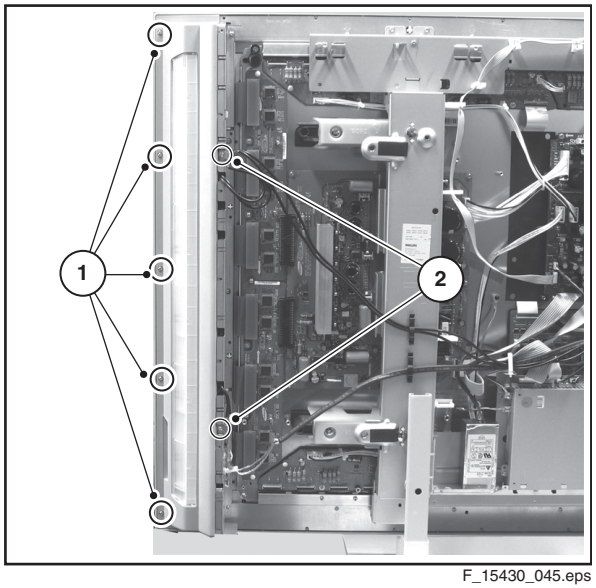

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Figure 4-4 Speaker compartment cover removal

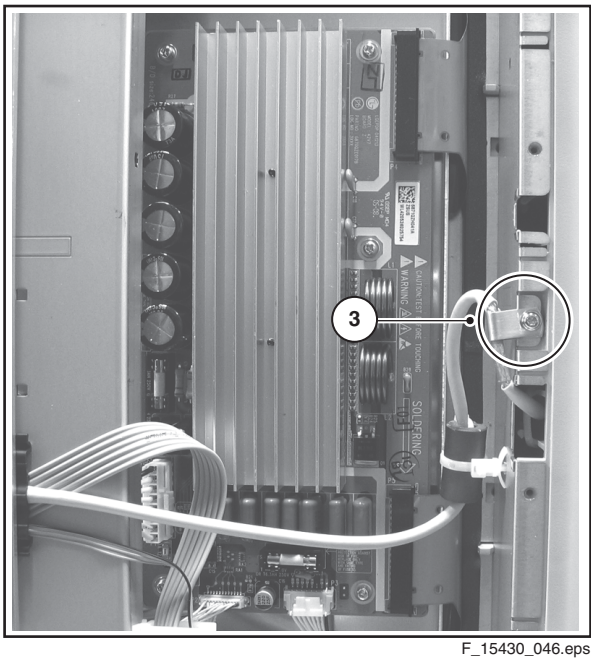

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Figure 4-5 Grounding clamp

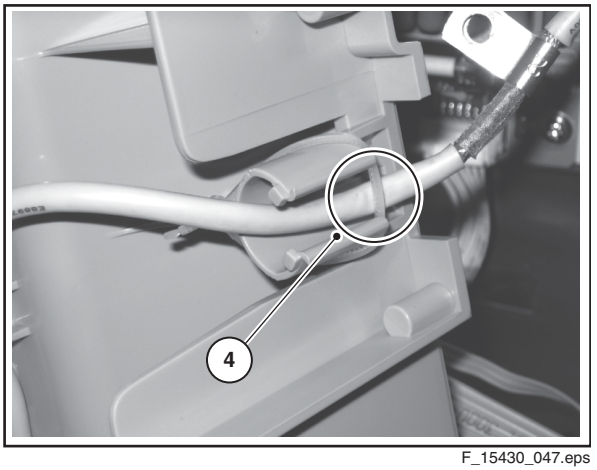

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Figure 4-6 Cable fixation noose

4.3.3 Side I/O Panel

After removal of the Speaker Compartment Covers, this panel is accessible.

1. Disconnect the cable (1) from the panel.
2. Remove the T10 mounting screws [2] that hold the assy.
3. Remove the panel from its bracket [3], by pushing against the front side of the side I/O cinch connectors.

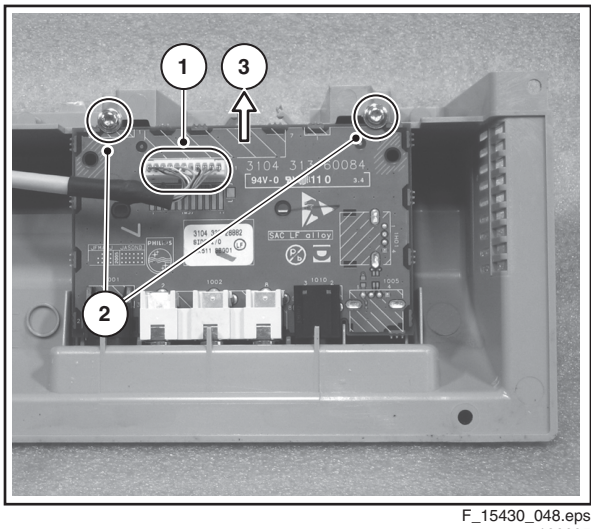

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Figure 4-7 Side I/O panel removal

When it is defective, replace the whole unit.

4.3.4 LED Panel

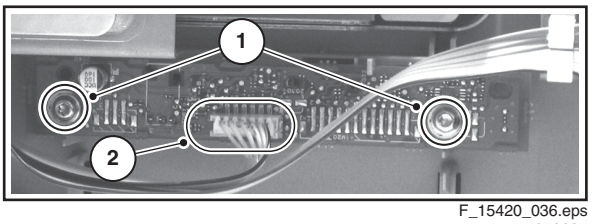

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Figure 4-8 LED panel

1. Remove the fixation screws (1) and take the panel out of its brackets.
2. Disconnect the cable (2) from the panel.

4.3.5 Keyboard Control Panel

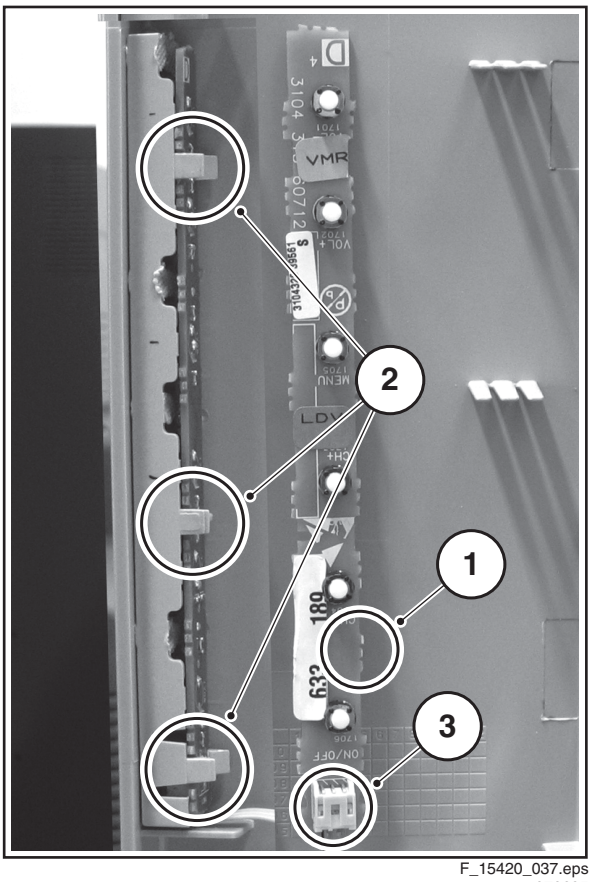

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Figure 4-9 Keyboard control panel

1. Remove the panel (1) from its three brackets (2).
2. Disconnect the cable (3) from the panel.

4.3.6 SSB Board Cover Shield

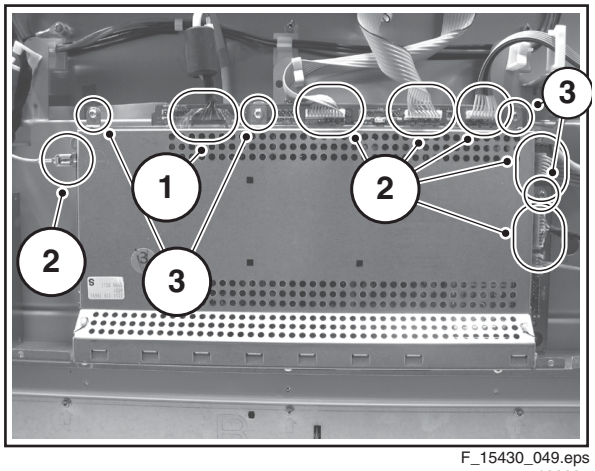

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Figure 4-10 SSB board cover shield

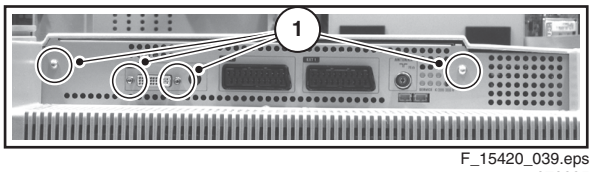

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Figure 4-11 DVI-I connector and rear I/O panel screws

1. Very **cautiously** disconnect the LVDS cable (1) from the SSB panel (see Figure “SSB board cover shield”). Notice that this cable is very fragile.
2. Remove all other cables (2) from the SSB board (see Figure “SSB board cover shield”), including the grounding cable.
3. Remove the fixation screws (3), see Figure “SSB board cover shield” and remove the SSB shield with the SSB board inside, and the rear I/O panel still attached to it.
4. Remove the fixation screws (1) from the DVI-I connector and from the rear panel, see Figure “DVI-I connector and rear panel screws”, and remove the rear I/O panel from the SSB board.
5. Remove the upper part of the shield from the SSB panel, by unhooking it from its brackets. Be careful not to damage the LVDS connector on the SSB board, see Figure “SSB board cover shield”.

4.3.7 SSB Board

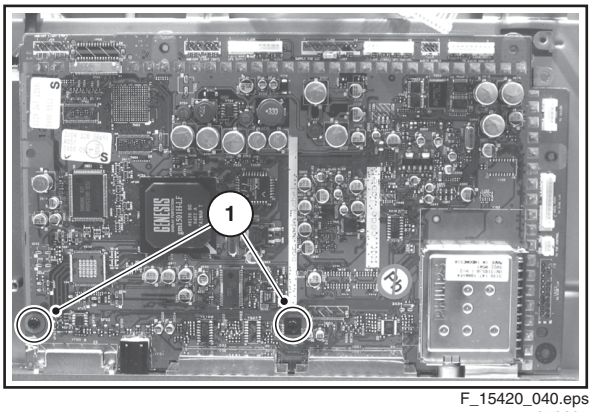

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Figure 4-12 SSB board

1. Remove the two fixation screws (1) that secure the SSB board on the lower part of the SSB shielding, see Figure “SSB board”.
2. Remove the SSB panel.

4.3.8 Power Supply Panel

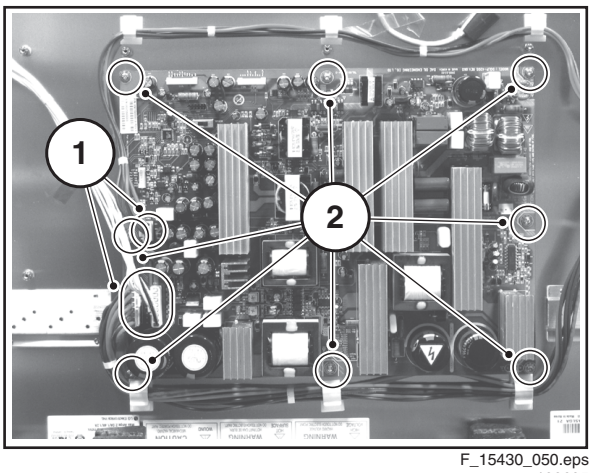

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Figure 4-13 Power supply panel

1. Disconnect all cables (1) from the panel.
2. Remove the fixation screws (2) from the panel.
3. Take the panel out of its brackets.

4.3.9 Class D Audio Amplifier Panel

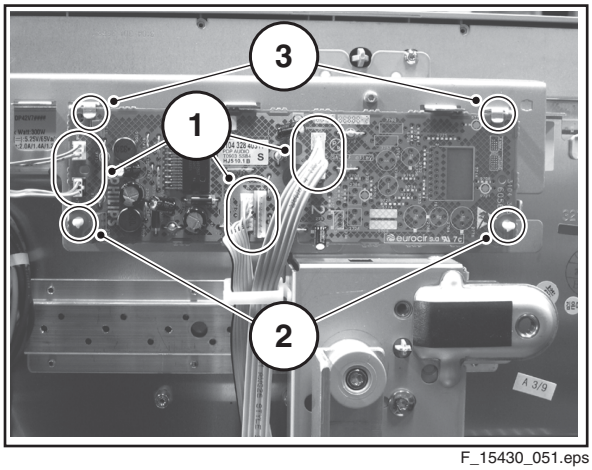

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Figure 4-14 Class D audio amplifier panel

1. Disconnect all cables (1) from the panel.
2. Pinch the plastic fixation clamps (2) firmly between your fingers, and pull the panel upwards.
3. Take the panel out of its brackets (3).

4.3.10 Plasma Display Panel / Glass Plate

1. Remove the T20 display panel mounting screws [1].
2. Remove the T10 screws [2] from the mounting frame.
3. Unplug all cable(s):
   - LVDS cable at SSB side (fragile connector!).
   - SSB supply cables at the Main Supply board.
   - Mains cable at the Main Supply board.
   - Side I/O cable at SSB side (fragile connector!).
   - Cable at LED panel.
   - Keyboard cable at SSB side.
   - Audio Amplifier supply cable at the Main Supply board.
   - Loudspeaker cables (incl. ferrites) at the Audio panel.
4. Lift the metal frame (together with all PWBs) from the display panel (see figure “Frame lift”).
5. After removal of the frame, lift the PDP from the set.

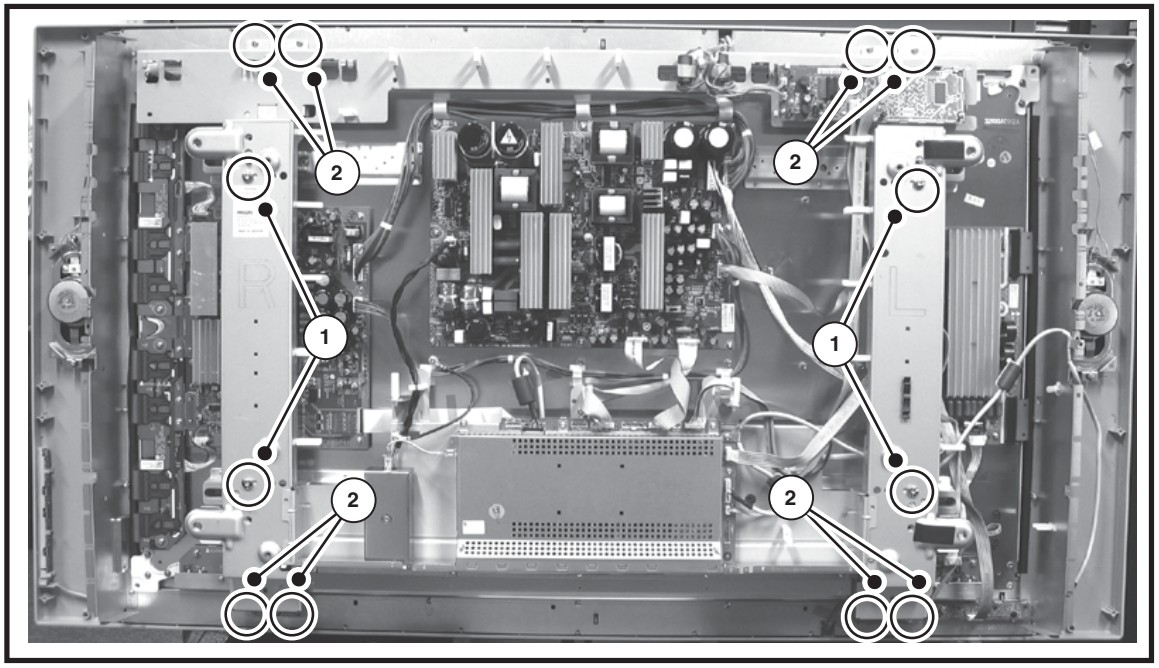

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Figure 4-15 Display panel removal

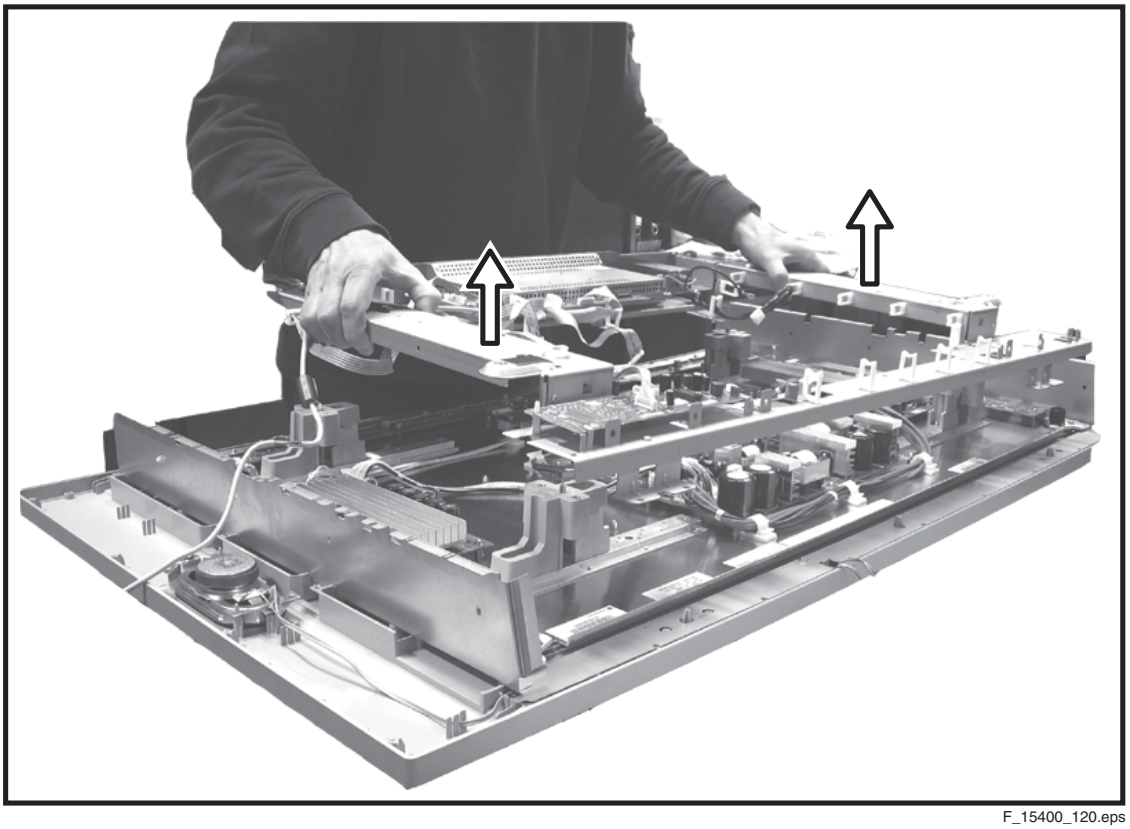

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Figure 4-16 Frame lift

4.3.11 PDP Glass Plate

In order to remove/exchange the PDP glass plate:
1. Remove the PDP as described earlier.
2. Remove the T10 screws [1] from the mounting frame.
3. After removal of the frame, you can lift the glass plate from the set.

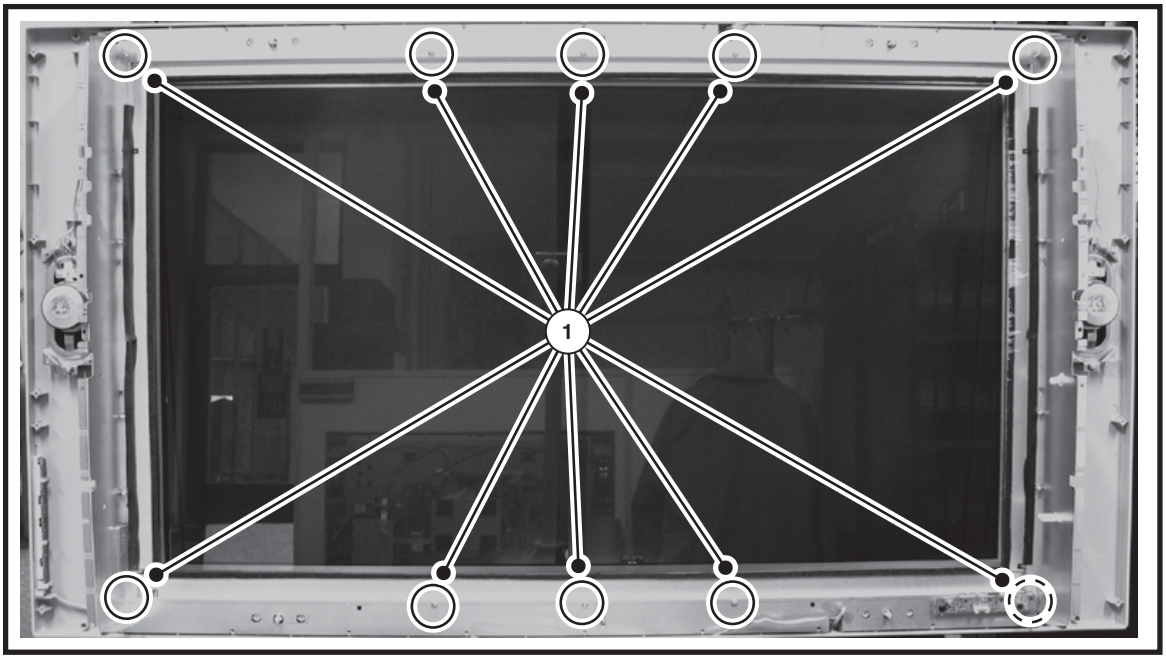

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Figure 4-17 Glass plate removal

4.4 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

Notes:
- While re-assembling, make sure that all cables are placed and connected in their original positions. See Figure "Cable dressing". Be careful with the fragile LVDS cable.
- For a complete description of the Plasma panel, see the LGE plasma panel Service Manual (12nc is listed on the frontpage).

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points
5.2 Service Modes
5.3 Problems and Solving Tips Related to CSM
5.4 Service Tools
5.5 Error Codes
5.6 The Blinking LED Procedure
5.7 Fault Finding and Repair Tips

5.1 Test Points

This chassis is equipped with test points in the service printing. In the schematics test points are identified with a rectangle box around Fxxx or Ixxx.
Perform measurements under the following conditions:

- Television set in Service Default Alignment Mode.
- Video input: Colour bar signal.
- Audio input: 3 kHz left channel, 1 kHz right channel.

5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offers several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the possibilities of structured troubleshooting, error code reading, and software version readout for all chassis.
Minimum requirements for ComPair: a Pentium processor, a Windows OS, and a CD-ROM drive (see also paragraph "ComPair").

5.2.1 Service Default Mode (SDM)

Purpose

- To create a predefined setting for measurements to be made.
- To override software protections.
- To start the blinking LED procedure.
- To inspect the error buffer.
- To check the life timer.

Specifications

- Tuning frequency: 475.25 MHz.
- Colour system: PAL-BG.
- All picture settings at 50% (brightness, colour contrast, hue).
- Bass, treble, and balance at 50 %; volume at 25 %.
- All service-unfriendly modes (if present) are disabled. The service unfriendly modes are:
  - Timer / Sleep timer.
  - Child / parental lock.
  - Blue mute.
  - Hotel / hospital mode.
  - Auto shut off (when no “IDENT” video signal is received for 15 minutes).
  - Skipping of non-favourite presets / channels.
  - Auto-storage of personal presets.
  - Auto user menu time-out.
  - Auto Volume Levelling (AVL).

How to Enter

To enter SDM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: “**062596**” directly followed by the MENU button (do not allow the display to time out between entries while keying the sequence).
- Short "Service" jumpers on the TV board during cold start and apply mains (see Figure "Service jumpers"). Then press the mains button (remove the short after start-up). **Caution**: Entering SDM by shorting "Service" jumpers will override the +8V-protection. Do this only for a short period. When doing this, the service-technician must know exactly what he is doing, as it could damage the television set.
- Or via ComPair.

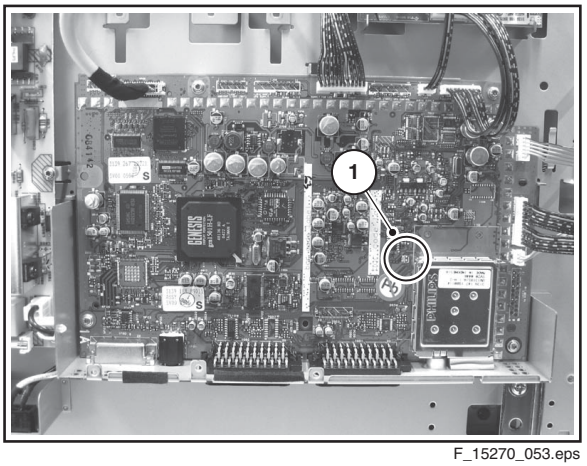

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Figure 5-1 Service jumpers

After entering SDM, the following screen is visible, with SDM in the upper right corner of the screen to indicate that the television is in Service Default Mode.

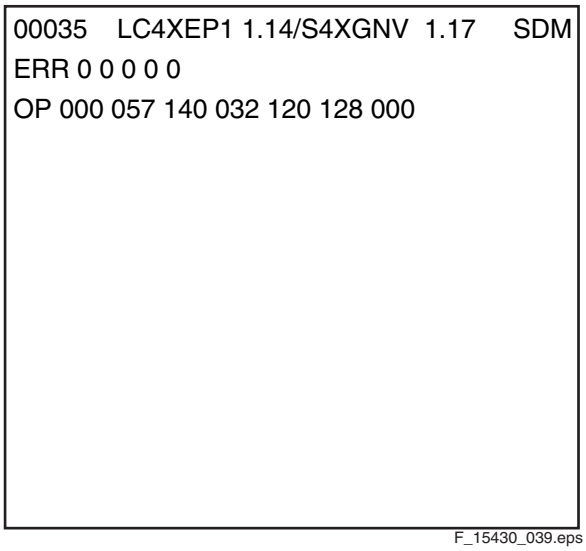

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Figure 5-2 SDM menu

How to Navigate

Use one of the following methods:

- When you press the MENU button on the remote control, the set will switch on the normal user menu in the SDM mode.
- On the TV, press and hold the VOLUME DOWN and press the CHANNEL DOWN for a few seconds, to switch from SDM to SAM and reverse.

How to Exit

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
If you turn the television set off by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To change option settings.
- To display / clear the error code buffer.
- To perform alignments.

Specifications

- Operation hours counter (maximum five digits displayed).
- Software version, Error codes, and Option settings display.
- Error buffer clearing.
- Option settings.
- AKB switching.
- Software alignments (Tuner, White Tone, Geometry & Audio).
- NVM Editor.
- ComPair Mode switching.

How to Enter

To enter SAM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: "**062596**" directly followed by the OSD/ STATUS/INFO(I+) button (do not allow the display to time out between entries while keying the sequence).
- Or via ComPair.

After entering SAM, the following screen is visible, with SAM in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.

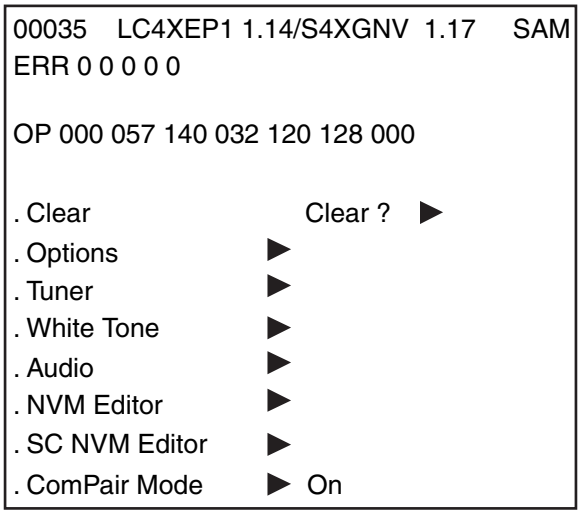

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Figure 5-3 SAM menu

How to Store SAM Settings

To store the settings changed in SAM mode, leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set.

Menu Explanation

1. **LLLLL.** This represents the run timer. The run timer counts normal operation hours, but does not count standby hours.
2. **AAABCD-X.Y.** This is the software identification of the main microprocessor:
   - **A**= the project name (LC04.x).
   - **B**= the region: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM.
   - **C**= the software diversity:
     - **Europe:** T= 1 page TXT, F= Full TXT, V= Voice control.
     - **LATAM and NAFTA:** N= Stereo non-dBx, S= Stereo dBx.
     - **Asian Pacific:** T= TXT, N= non-TXT, C= NTSC.
     - **ALL regions:** M= mono, D= DVD, Q= Mk2.
   - **D**= the language cluster number.
   - **X**= the main software version number (updated with a major change that is incompatible with previous versions).
   - **Y**= the sub software version number (updated with a minor change that is compatible with previous versions).
3. **EEEEE-F.GG.** This is the software identification of the Scaler:
   - **EEEEEE**= the scaler sw cluster
   - **F**= the main sw version no.
   - **GG**= the sub-version no.
4. **SAM.** Indication of the Service Alignment Mode.
5. **Error Buffer.** Shows all errors detected since the last time the buffer was erased. Five errors possible.
6. **Option Bytes.** Used to set the option bytes. See "Options" in the Alignments section for a detailed description. Seven codes are possible.
7. **Clear.** Erases the contents of the error buffer. Select the CLEAR menu item and press the MENU RIGHT key. The content of the error buffer is cleared.
8. **Options.** Used to set the option bits. See "Options" in the Alignments section for a detailed description.
9. **Tuner.** Used to align the tuner. See "Tuner" in the Alignments section for a detailed description.
10. **White Tone.** Used to align the white tone. See "White Tone" in the Alignments section for a detailed description.
11. **Audio.** No audio alignment is necessary for this television set.
12. **NVM Editor.** Can be used to change the NVM data in the television set. See table "NVM data" further on.
13. **SC NVM Editor.** Can be used to edit Scaler NVM.
14. **ComPalr.** Can be used to switch on the television to In System Programming (ISP) mode, for software uploading via ComPair.
    Caution: When this mode is selected without ComPair connected, the TV will be blocked. Remove the AC power to reset the TV.

How to Navigate

- In SAM, select menu items with the MENU UP/DOWN keys on the remote control transmitter. The selected item will be highlighted. When not all menu items fit on the screen, use the MENU UP/DOWN keys to display the next / previous menu items.
- With the MENU LEFT/RIGHT keys, it is possible to:
  - Activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.
- In SAM, when you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the MENU or STATUS/EXIT button.
- When you press the MENU key in while in a submenu, you will return to the previous menu.

How to Exit
Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
If you turn the television set “off” by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SAM when mains is re-applied, and the error buffer is not cleared.

5.2.3 Customer Service Mode (CSM)

Purpose
The Customer Service Mode shows error codes and information on the TV’s operation settings. The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps the call centre to diagnose problems and failures in the TV set before making a service call.
The CSM is a read-only mode; therefore, modifications are not possible in this mode.

How to Enter
To enter CSM, press the following key sequence on the remote control transmitter: “**123654**” (do not allow the display to time out between entries while keying the sequence).

Upon entering the Customer Service Mode, the following screen will appear:

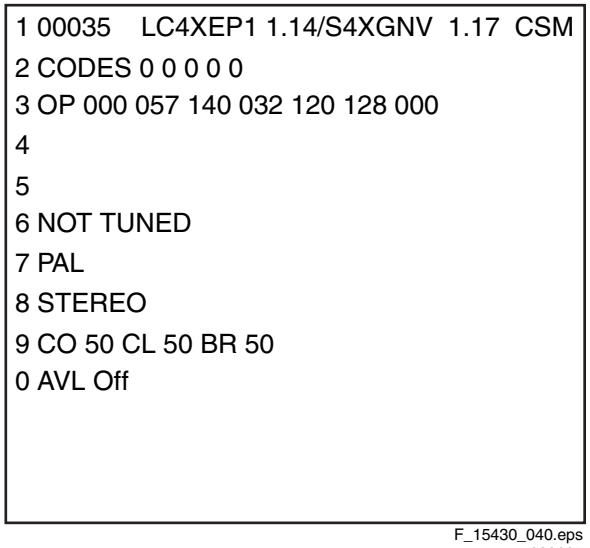

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Figure 5-4 CSM menu

Menu Explanation
1. Indication of the decimal value of the operation hours counter, Software identification of the main microprocessor (see "Service Default or Alignment Mode" for an explanation), and the service mode (CSM = Customer Service Mode).
2. Displays the last five errors detected in the error code buffer.
3. Displays the option bytes.
4. Displays the type number version of the set.
5. Reserved item for P3C call centres (AKBS stands for Advanced Knowledge Base System).
6. Indicates the television is receiving an "IDENT" signal on the selected source. If no "IDENT" signal is detected, the display will read "NOT TUNED"
7. Displays the detected Colour system (e.g. PAL/NTSC).
8. Displays the detected Audio (e.g. stereo/mono).
9. Displays the picture setting information.
10. Displays the sound setting information.

How to Exit
To exit CSM, use one of the following methods:
- Press the MENU, STATUS/EXIT, or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5.3 Problems and Solving Tips Related to CSM

5.3.1 Picture Problems

Note: The problems described below are all related to the TV settings. The procedures used to change the value (or status) of the different settings are described.

Picture too Dark or too Bright

If:
- The picture improves when you press the AUTO PICTURE button on the remote control transmitter, or
- The picture improves when you enter the Customer Service Mode,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys (if necessary) to select BRIGHTNESS.
6. Press the MENU LEFT/RIGHT keys to increase or decrease the BRIGHTNESS value.
7. Use the MENU UP/DOWN keys to select PICTURE.
8. Press the MENU LEFT/RIGHT keys to increase or decrease the PICTURE value.
9. Press the MENU button on the remote control transmitter twice to exit the user menu.
10. The new PERSONAL preference values are automatically stored.

White Line around Picture Elements and Text

If:
The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select SHARPNESS.
6. Press the MENU LEFT key to decrease the SHARPNESS value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Snowy Picture
Check CSM line 6. If this line reads “Not Tuned”, check the following:
- Antenna not connected. Connect the antenna.

- No antenna signal or bad antenna signal. Connect a proper antenna signal.
- The tuner is faulty (in this case line 2, the Error Buffer line, will contain error number 10). Check the tuner and replace/ repair the tuner if necessary.

Black and White Picture

If:
- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select COLOR.
6. Press the MENU RIGHT key to increase the COLOR value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Menu Text not Sharp Enough

If:
- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select PICTURE.
6. Press the MENU LEFT key to decrease the PICTURE value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

5.4 Service Tools

5.4.1 ComPair

Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:
1. ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
2. ComPair allows very detailed diagnostics (on I^2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^2C commands yourself because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS-232) cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair faultfinding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:
- Automatically (by communicating with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^2C/UART level. ComPair can access the I^2C/UART bus of the television. ComPair can send and receive I^2C/UART commands to the microcontroller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^2C/UART buses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the microcontroller of the television is working correctly and only to a certain extent. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions *(e.g. Does the screen give a picture? Click on the correct answer: YES / NO)* and showing you examples *(e.g. Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope)*. You can answer by clicking on a link *(e.g. text or a waveform picture)* that will bring you to the next step in the faultfinding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

How To Connect

This is described in the chassis faultfinding database in ComPair.

Caution: It is compulsory to connect the TV to the PC as shown in the picture below (with the ComPair interface in between), as the ComPair interface acts as a level shifter. If one connects the TV directly to the PC (via UART), ICs will be blown!

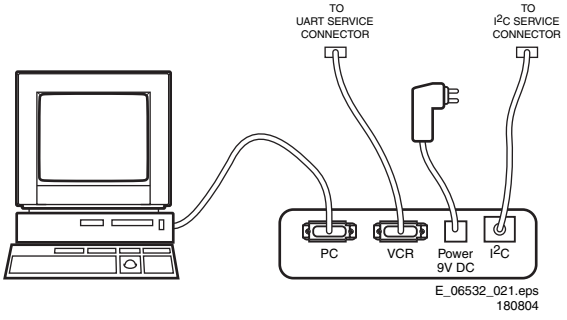


Figure 5-5 ComPair interface connection

How To Order
- ComPair order codes (EU/AP/LATAM):
- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excl. transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.

- ComPair32 CD (update): 3122 785 60070 (year 2002), 3122 785 60110 (year 2003 onwards).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer (UK): 4822 727 21633.
- ComPair interface cable: 3122 785 90004.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630.

Note: If you encounter any problems, contact your local support desk.

5.4.2 LVDS Tool

Introduction
This service tool (also called “ComPair Assistant 1“) may help you to identify, in case the TV does not show any picture, whether the Small Signal Board (SSB) **or** the display of a Flat TV is defective.
Furthermore it is possible to program EPLDs with this tool (Byteblaster). Read the user manual for an explanation of this feature.

Since 2004, the LVDS output connectors in our Flat TV models are standardised (with some exceptions). With the two delivered LVDS interface cables (31p and 20p) you can cover most chassis (in special cases, an extra cable will be offered).

When operating, the tool will show a small (scaled) picture on a VGA monitor. Due to a limited memory capacity, it is not possible to increase the size when processing high-resolution LVDS signals (>= 1280x768). Generally this tool is intended to determine if the SSB is working or not. Thus to determine if LVDS, RGB, and sync signals are okay.

How to Connect
Connections are explained in the user manual, which is delivered with the tool.

Note: To use the LVDS tool, you must have ComPair release 2004-1 (or later) on your PC (engine version >= 2.2.05).
For every TV type number and screen size, one must choose the proper settings via ComPair. The ComPair file will be updated regularly with new introduced chassis information.

How to Order
- LVDS tool (incl. two LVDS cables: 31p and 20p): 3122 785 90671.
- Service Manual LVDS tool: 3122 785 00810.
- LVDS cable 20p (for Telra 14-inch): 3122 785 90810.
- LVDS cable 30p (for LC4.3): 3122 785 90820.
- LVDS cable 41p-to-31p for CA1 (dual -> single LVDS): 3122 785 90830.

5.5 Error Codes

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

5.5.1 How to Read the Error Buffer

You can read the error buffer in 3 ways:
- On screen via the SAM (if you have a picture).
  Examples:
  - ERROR: 0 0 0 0 0 : No errors detected
  - ERROR: 6 0 0 0 0 : Error code 6 is the last and only detected error
  - ERROR: 9 6 0 0 0 : Error code 6 was detected first and error code 9 is the last detected (newest) error
- Via the blinking LED procedure (when you have no picture). See “The Blinking LED Procedure”.
- Via ComPair.

5.5.2 How to Clear the Error Buffer

The error code buffer is cleared in the following cases:
- By using the CLEAR command in the SAM menu:
  - To enter SAM, press the following key sequence on the remote control transmitter: “**062596**” directly followed by the OSD/STATUS button (do not allow the display to time out between entries while keying the sequence).
  - Make sure the menu item CLEAR is highlighted. Use the MENU UP/DOWN buttons, if necessary.
  - Press the MENU RIGHT button to clear the error buffer. The text on the right side of the “CLEAR” line will change from “CLEAR?” to “CLEARED”
- If the contents of the error buffer have not changed for 50 hours, the error buffer resets automatically.

Note: If you exit SAM by disconnecting the mains from the television set, the error buffer is not reset.

5.5.3 Error Codes

In case of non-intermittent faults, write down the errors present in the error buffer and clear the error buffer before you begin the repair. This ensures that old error codes are no longer present.
If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error and not the actual cause of the problem (for example, a fault in the protection detection circuitry can also lead to a protection).

Table 5-1 Error code overview

Error	Device	Error Description	Check Item	Diagram
0	Not applicable	No Error		
1	Not applicable	Mis-match of TV Hercules SW and Scaler SW	-	-
2	Not applicable	-	-	-
3	Not applicable	-	-	-
4	Genesis Scaler Flash-ROM	I^2C error while communicating with the Genesis Scaler and/or Flash-ROM is faulty/empty	7801 7B01	B7 + B8 B10
5	Scaler supply 7752	+5V protection	7752	B6
6	Not applicable	General I^2C error	1102, 7L04, 7M00	B1 + B18 + B19
7	ADC	I^2C error	7L04	B18
8	Scaler EEPROM	I^2C error while communicating with the Scaler EEPROM	7C01	B11
9	Hercules EEPROM	I^2C error while communicating with the Hercules EEPROM (NVM for TV). **Remark:** when the Hercules EEPROM is defective, the Hercules should operate with its default values.	7207	B2
10	Tuner	I^2C error while communicating with the PLL tuner	1102, F102, F104, F107	B1
11	Columbus	I^2C error while communicating with the 2D/3D combfilter Columbus	7M00	B19
12	Not applicable	-	-	-
13	HDMI Panellink Receiver/ Decoder	I^2C error while communicating with the iBoard HDMI Panellink Receiver/ Decoder (only in NAFTA and AP sets)	7D03	B12 (only in NAFTA and AP sets)
14	Scaler SDRAM	Read-write error with the Scaler SDRAM	7B01	B10
15	Not applicable	-	-	-
16	EPLD	I^2C error while communicating with EPLD	7N02	B20 + B21
17	Digital Module (only on Digital sets)	I^2C error while communicating with the Digital Module (only on Digital sets)	Digital Module (only on Digital sets)	
18	Not applicable	-	-	-

5.6 The Blinking LED Procedure

Using this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful when there is no picture.

When the SDM is entered, the front LED will blink the contents of the error-buffer:
- The LED blinks with as many pulses as the error code number, followed by a time period of 1.5 seconds, in which the LED is off.
- Then this sequence is repeated.

Any RC5 command terminates this sequence.

Example of error buffer: **12 9 6 0 0**
After entering SDM, the following occurs:
- 1 long blink of 5 seconds to start the sequence,
- 12 short blinks followed by a pause of 1.5 seconds,
- 9 short blinks followed by a pause of 1.5 seconds,
- 6 short blinks followed by a pause of 1.5 seconds,
- 1 long blink of 1.5 seconds to finish the sequence,
- The sequence starts again with 12 short blinks.

5.7 Fault Finding and Repair Tips

Notes:
- It is assumed that the components are mounted correctly with correct values and no bad solder joints.
- Before any fault finding actions, check if the correct options are set.

5.7.1 NVM Editor

In some cases, it can be handy if one directly can change the NVM contents. This can be done with the “NVM Editor” in SAM mode. With this option, single bytes can be changed.

Caution:
- **Do not change the NVM settings without understanding the function of each setting, because incorrect NVM settings may seriously hamper the correct functioning of the TV set!**
- **Do not change the Scaler NVM settings, as this will hamper the DVI functionality of the TV set!**
- Always note down the existing NVM settings, before changing the settings. This will enable you to return to the orgininal settings, if the new settings turn out to be incorrect.

Table 5-2 NVM editor overview

	Hex	Dec	Description
.ADR	0x000A	10	Existing value
.VAL	0x0000	0	New value
.Store	Store?		

Table 5-3 NVM Default values (option bit settings through NVM Editor in SAM Mode)

Byte Nr.	Bit	Feature/Mode	Description	50PF7320/10	42PF7320/10	42PF5320/10
Byte 0 174(dec)	0	QSS (LSB)	Mode of quasi split sound amplifier	1	1	1
	1	FMI	Connection of output of QSS amplifier	1	1	1
	2	HCO	EHT tracking mode	0	0	0
	3	HP2	Synchronization of OSD/Text display	1	1	1
	4	FSL	Forced slicing level for vertical sync	1	1	1
	5	TFR	DC transfer ratio of luminance signal	1	1	1
	6	OSVE	Black current measuring in overscan	0	0	0
	7	MVK (MSB)	(For Future Usage, as defined by software)	0	0	0
		Total Dec Values		59	59	59
		Total Hex Values		3B	3B	3B
Byte 1 175(dec)	0	PSE	PSE	0	0	0
	1	OPC	OPC	0	0	0
	2	PRIS	PRIS	0	0	0
	3	CONTINUOUS FACTORY	Continuous factory mode	0	0	0
	4	WHITE PATTERN ON	Last color pattern status in factory mode	0	0	0
	5	SDM MODE	Service default mode on/off	0	0	0
	6	SAM MODE	Service Align mode on/off	0	0	0
	7	SVMA	Scavm On / Off	0	0	0
		Total Dec Values		0	0	0
		Total Hex Values		00	00	00
Byte 2 176(dec)	0	MUTE STATUS	Mute status	0	0	0
	1	TUNER AUTO MODE	Auto mode	1	1	1
	2	CABLE MODE	Cable/Antenna mode	0	0	0
	3	LAST POWER MODE	Last power status of the set	1	1	1
	4	CHILD LOCK MODE	Child lock enabled	0	0	0
	5	SURF MODE	Surf mode on/off	0	0	0
	6	FACTORY MODE	Factory mode on	0	0	0
	7	PSNS	For PAL color enhancement in ES4	1	1	1
		Total Dec Values		138	138	138
		Total Hex Values		8A	8A	8A
Byte 3 177(dec)	0	RADIO/TV MODE	Radio mode or TV mode	0	0	0
	1	WAKE-UP MODE	WAKE-UP MODE	0	0	0
	2	HOTEL MODE	TV in Hotel mode	0	0	0
	3	HOTEL KBD LOCK	Keyboard locked	0	0	0
	4	HBL	HBL	0	0	0
	5	BLS	Blue stretch mode	1	1	1
	6	SL	SL	0	0	0
	7	CFA0	Comb filter On/Off	1	1	1
		Total Dec Values		160	160	160
		Total Hex Values		A0	A0	A0
Byte 4 178(dec)	0	Signal Strength	Signal Strength Switch in MK2	0	0	0
	1	LPG	LPG	0	0	0
	2	DVD TRAY LOCK	Lock/Unlock DVD tray	0	0	0
	3	SCRSAVER MODE	Screen saver mode	1	1	1
	4	BKS	Black Stretch Mode	1	1	1
	5	BSD	Black Stretch Depth	1	1	1
	6	CRA0	Coring on SVM	1	1	1
	7	PIP QSS	PIP QSS	0	0	0
		Total Dec Values		120	120	120
		Total Hex Values		78	78	78

Byte Nr.	Bit	Feature/Mode	Description	50PF7320/10	42PF7320/10	42PF5320/10
Byte 5 179(dec)	0	FFI	Fast Filter	0	0	0
	1	NNR	No red reduction during blue stretch	1	1	1
	2	MUS	NTSC matrix	1	1	1
	3	GAM	Gamma control	1	1	1
	4	CBS	Control sequence of beam current limiting	0	0	0
	5	LLB	Low level of beam current limiter	0	0	0
	6	DSA	Dynamic skin tone angle area	1	1	1
	7	DSK	Dynamic skin tone angle on/ off	0	0	0
		Total Dec Values		78	78	78
		Total Hex Values		4E	4E	4E
Byte 6 180(dec)	0	LTI status	LTI last status	1	1	1
	1	Inc_Life_Time	Inc_Life_Time	0	0	0
	2	PC_Mode	PC_Mode	0	0	0
	3	HD_Mode	HD_Mode	0	0	0
	4	Tact_Switch	Tact_Switch	0	0	0
	5	Set_In_Special_Stby	Set_In_Special_Stby	0	0	0
	6	Hotel_OSDDisplay	Hotel_OSDDisplay	0	0	0
	7	Hotel_MonitorOut	Hotel_MonitorOut	0	0	0
		Total Dec Values		1	1	1
		Total Hex Values		01	01	01
Byte 7 181(dec)	0	Hotel_IconMode	Hotel_IconMode	0	0	0
	1	DBE	DBE	1	1	1
	2	SD	SD	0	0	0
	3	Set_in_PC_Sleep_Mode	Set_in_PC_Sleep_Mode	0	0	0
	4	Reserved	Reserved	0	0	0
	5	Reserved	Reserved	0	0	0
	6	Reserved	Reserved	0	0	0
	7	Reserved	Reserved	0	0	0
		Total Dec Values		2	2	2
		Total Hex Values		02	02	02

5.7.2 Load Default NVM Values

In case a blank NVM is placed or when the NVM content is corrupted, default values can be downloaded into the NVM. (For empty NVM replacement, short the SDM with a jumper and apply the mains voltage. Remember to remove the jumper after the reload is completed). After the default values are downloaded, it will be possible to start up and to start aligning the TV set. This is no longer initiated automatically; to initiate the download the following action has to be performed:

1. Switch “off” the TV set by disconnecting the AC Power plug.
2. Short circuit the SDM jumpers (keep short-circuited).
3. Press P+ or Ch+ on the local keyboard (and keep it pressed).
4. Switch on the TV set via the AC Power plug.
5. Keep pressing the P+/Ch+ button until the set has started up and the SDM is shown.

Alternative method:

1. Go to SAM.
2. Select NVM Editor (not SC NVM Editor).
3. Select ADR (address) to 1 (dec).
4. Change the VAL (value) to 170 (dec).
5. Store the value.
6. Disconnect the mains plug and wait for a few seconds.
7. Reconnect the mains plug and wait until the set goes into its standby mode (red LED lights up).
8. Restart the set.

5.7.3 Tuner and IF

No Picture in RF Mode, but there is a Noise Raster

1. Check whether picture is present in AV. If not, go to Video processing troubleshooting section.
2. If present, check if the Option settings are correct.
3. Check if all the supply voltages are present (3.3/5/8/12/33 V).
4. Check if the I^2C lines are working correctly (3.3 V).
5. Manually store a known channel and check if there is IF output at Tuner pin 11.
6. Check the tuning DC voltage at pin 2 of the Tuner. The DC voltage should vary according to the frequency/channel being chosen.
7. If the tuning voltage is OK, check the tuner output, pin 11.
8. If it has no output, the Tuner may have a defect. Change the Tuner.

Sound in Picture Problem for L' System (rolling horizontal lines)

1. Check whether AGC L' in SAM mode is set to 0.
2. If yes, align the set to correct value.

Required System is not Selected Correctly

Check whether a Service jumper (#4204 & 4205, 0805 size) is present. If yes, remove it.

5.7.4 Video Processing

No Power

1. Check +12 V and 3V3 at position 1J02.
2. If no supply, check the connector 1J02.
3. If it is correct, check the power supply board.

Power Supply is Correct, but no Green LED

1. Check if the connectors 1K00 are properly inserted.
2. If they are inserted correctly, check if the 3V3 is present.

No Picture Display (blank screen with correct sound output)

1. Check whether the user menu is visible.
2. If the user menu is OK, activate teletext mode.
3. If teletext is OK, the problem is in the ADC (B18) & Columbus 3D combfilter (B19), if present (depending on model, see also paragraph “Teletext Path” in chapter 9).
4. If the user menu is not visible, check if the LCD panel backlight is ON.
5. If the backlight is OFF, the problem is in the power supply board or LCD panel. Also check pin 12 (LAMP_ON_OFF) of 1J02. It should be HIGH during normal operation.

Note: For faultfinding purposes, it is important to know the following: in Pixel Plus and Digital Crystal Clear models, which have an ADC (B18) and Columbus 3D combfilter (B19), the digital input of the scaler is used for the digital video path (Hercules output), whereas the analogue RGB input (analogue input of the scaler) is only used for teletext. This means that no mixed mode (video plus teletext simultaneously) is possible. If there is sound and teletext, but no video and user menu (blank screen), the digital path (Hercules - ADC - Columbus - Scaler) is faulty. If there is sound but no teletext, the back-end part (Scaler - LCD panel) is faulty. In Crystal Clear models, which do not have an ADC and Columbus, the RGB path (analogue input of scaler) is used for both video and teletext.

No TV, but PC is Present

1. Check if Hsync_SDTV and Vsync_SDTV are present at pin 1 & pin13 of 7E03.
2. If they are present, check teletext output.
3. If there is no teletext output, the IC TDA150xx may be defect.

5.7.5 Power Supply

In case the power supply does not work, check (apart from the obvious fuse-check) if the oscillators in IC7001 (in TV sets with 37 inch screens) or in IC7001 and IC7U01 (in TV sets with 42 inch screens) are working. If not, replace the ICs.

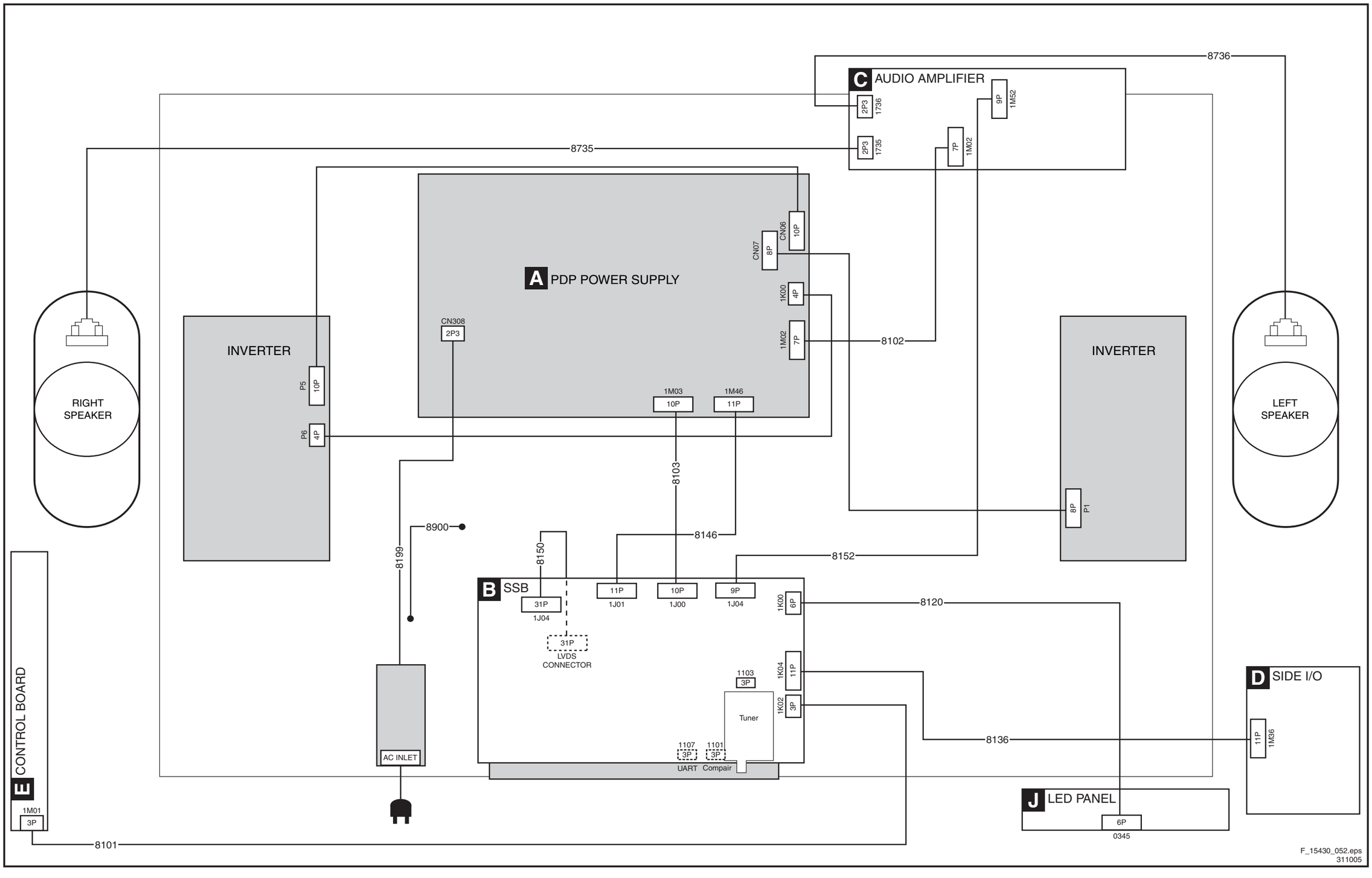
Personal Notes:

E_06532_012.eps
131004

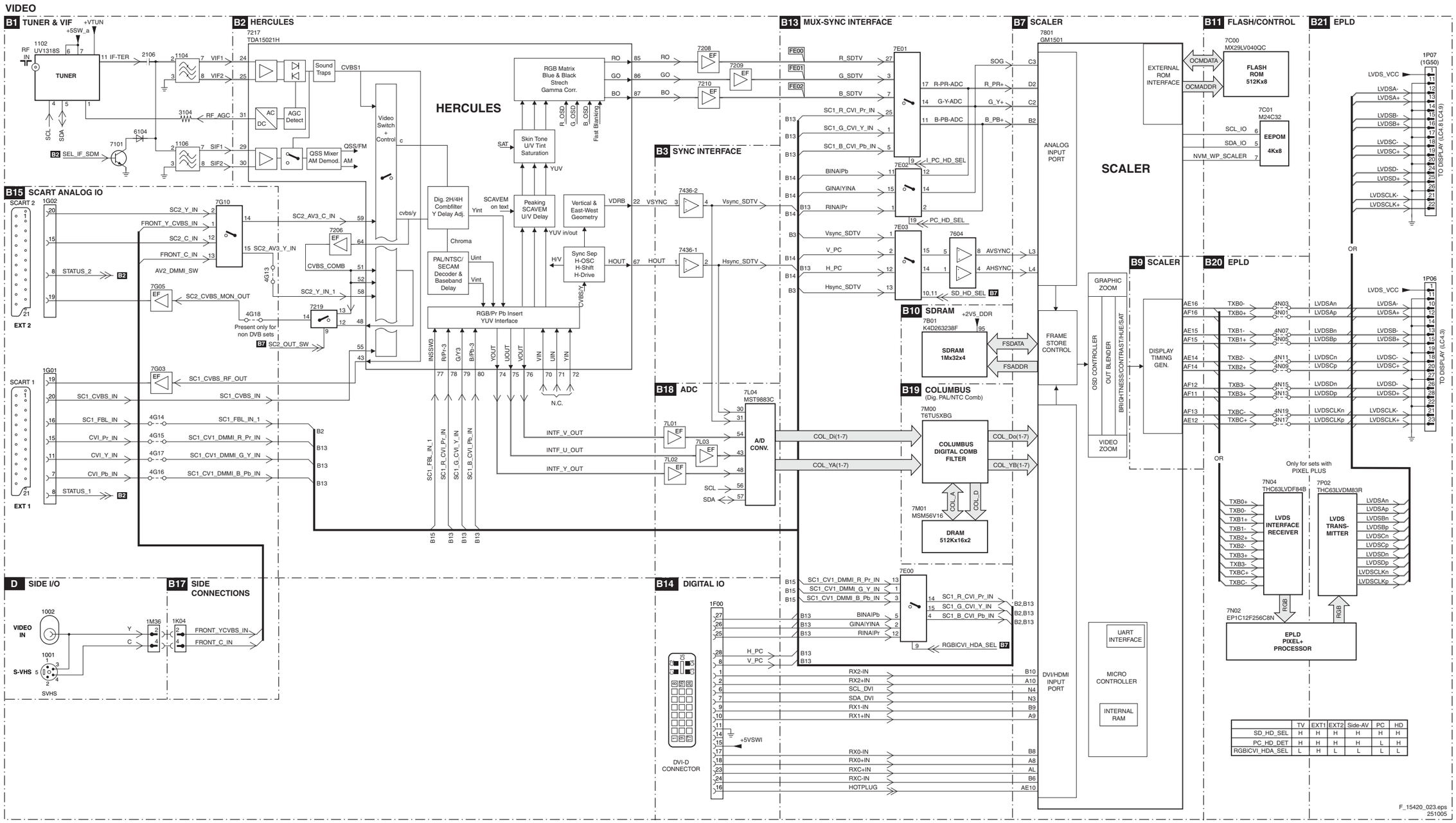
6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram

WIRING 42”



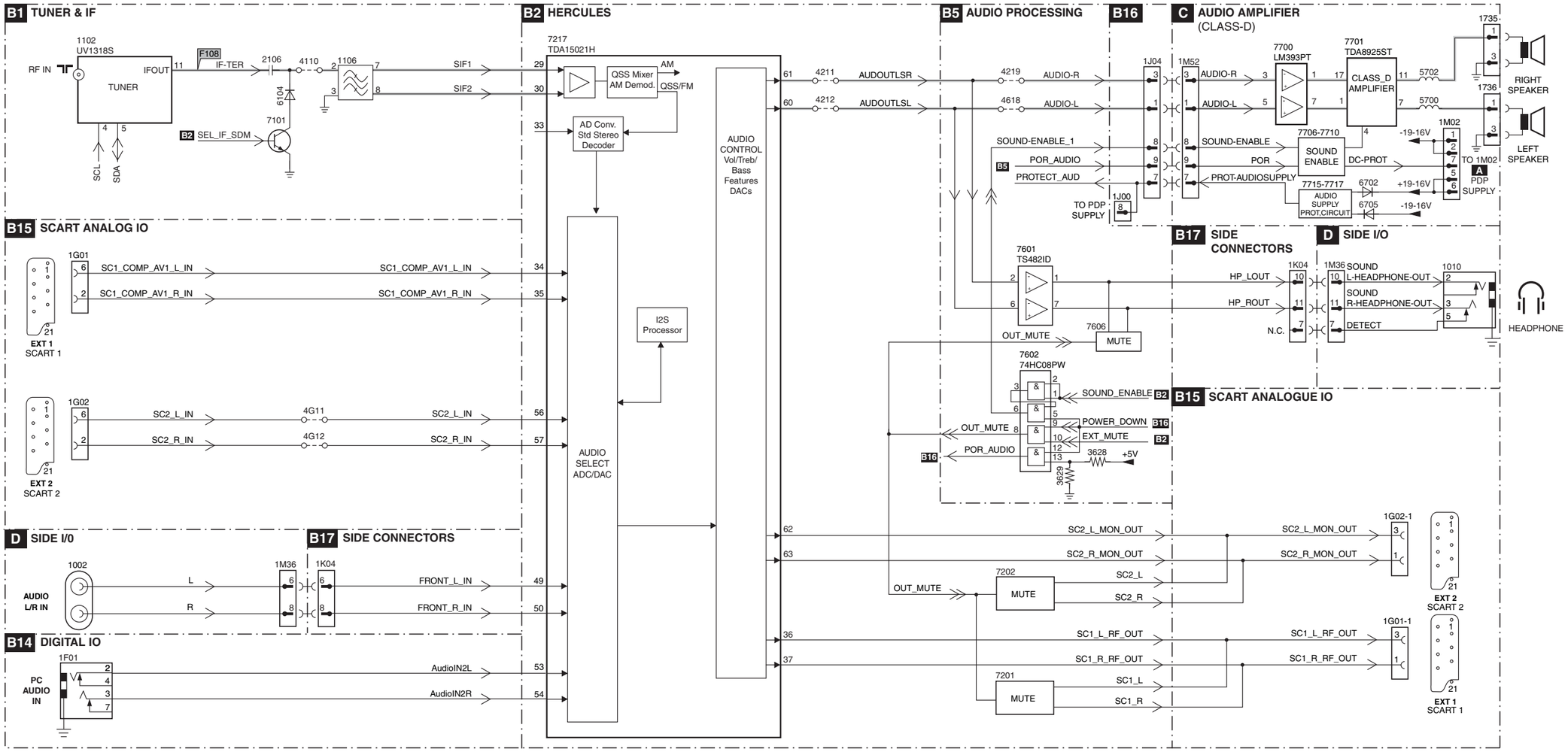
Block Diagram Video



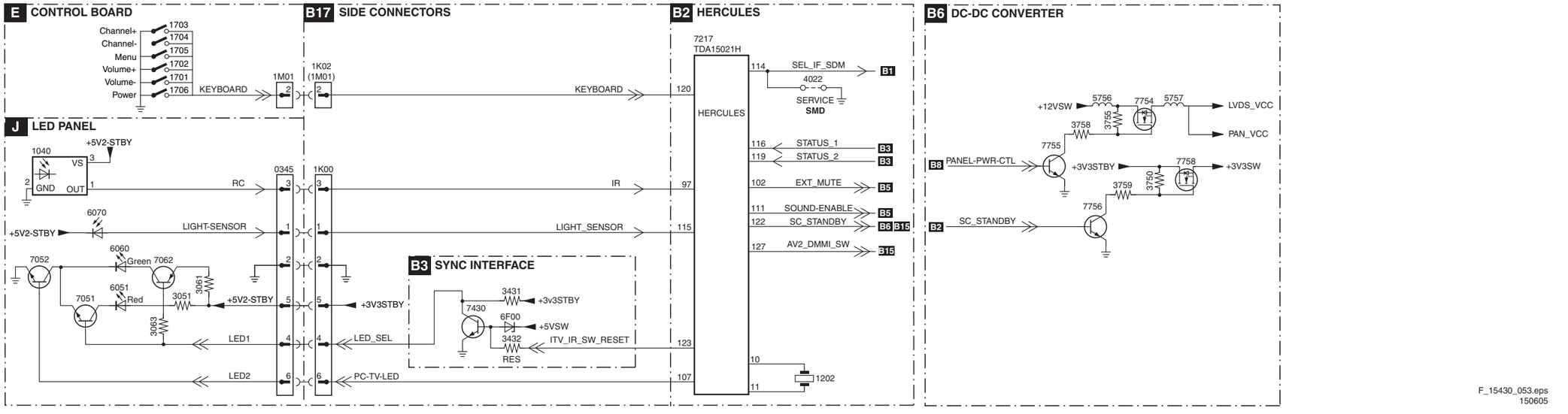
	TV	EXT1	EXT2	Side-AV	PC	HD
SD_HD_SEL	H	H	H	H	H	H
PC_HD_DET	H	H	H	H	L	H
RGB/CVI_HDA_SEL	L	H	L	L	L	L

Block Diagram Audio

AUDIO



CONTROL



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150605

Testpoint Overview SSB (Top Side)

F101 C1 F102 D2 F103 C1 F104 D2 F105 D1 F106 D2 F107 C1 F108 C2 F109 C2 F110 B2 F111 B2 F112 B2 F113 B2
F114 C2 F115 D2 F116 D2 F117 D2 F200 A2 F201 A2 F202 A2 F203 A2 F204 B3 F205 B2 F206 B2 F207 B2 F208 B2 F209 B2
F210 C2 F211 A2 F212 A2 F213 A2 F214 A2 F215 A2 F216 B3 F217 A2 F218 A2 F219 A2 F220 A3 F221 A3 F222 B2 F223 B2
F224 A2 F225 A3 F226 A3 F227 C3 F228 A3 F229 B2 F230 A3 F231 A2 F232 B3 F233 B3 F234 B3 F235 B3 F236 C3
F237 B2 F238 B2 F239 B2 F240 B2 F241 B3 F242 B2 F243 B2 F244 B2 F245 A2 F246 B2 F247 A2 F248 B2 F249 B2
F250 B3 F501 A2 F502 A2 F503 A2 F504 A2 F505 A3 F506 B5 F507 B5 F508 B5 F509 B5 F600 A2 F601 A2 F602 A2
F710 A5 F736 A3 F737 A3 F738 A3 F739 B2 F740 B2 F741 B3 F742 B2 F743 B3 F744 B3 F745 B3 F746 B3 F747 A2
F901 C5 F902 C6 F903 C5 F904 C6 F905 B6 F906 B6 F907 B5 F908 C5 F909 C5 FB01 B7 FC00 B5 FC01 B5 FC02 B5
FC03 B5 FC04 B5 FC05 C5 FC06 B5 FC07 B4 FC08 B5 FC09 B5 FC10 B4 FD00 C7 FD01 D7 FD02 D7 FD03 D7 FD04 C7
FD05 C6 FD06 C6 FD07 C7 FD08 C7 FD09 C7 FD10 C7 FD11 D7 FD12 C7 FD13 C7 FD14 C7 FD15 C7 FD16 C7 FD17 B6
FE00 C5 FE01 C5 FE02 C4 FE03 B5 FE04 D5 FE05 C5 FE06 D5 FE07 D6 FE08 C4 FE09 C5 FE10 C4 FE11 D6 FE12 C5
FE13 C5 FF00 D6 FF01 D6 FF02 D4 FF03 D7 FF04 D7 FF05 D7 FF06 D6 FF07 D6 FF08 D3 FF09 D7 FF10 D6 FF11 D6
FF12 D6 FF13 D6 FG00 D4 FG01 D4 FG02 D3 FG03 D4 FG04 D3 FG05 D3 FG06 D3 FG07 D3 FG08 D3 FG09 D3 FG10 D6
FG11 D3 FG12 D2 FG13 D6 FG14 D6 FG15 D5 FG16 D6 FG17 D6 FG18 D5 FG19 D5 FG20 D5 FG21 D5 FG22 D5 FG23 D4
FG24 D3 FG25 D3 FG26 D5 FG27 D5 FG28 D5 FG30 D5 FG33 D3 FG34 D3 FG35 D3 FG36 D4 FG37 D3 FG38 D3 FG39 D4
FG40 D7 FG41 D3 FG42 D4 FG43 D3 FG44 D4 FG45 D4 FG46 D4 FG47 D4 FG48 D4 FG49 D4 FG50 D4 FG51 C2 FG53 D4
FG54 D4 FG56 D4 FG73 D4 FJ00 A7 FJ01 A5 FJ02 A4 FJ03 A4 FJ04 A4 FJ05 A4 FJ06 A5 FJ07 A5 FJ08 A4 FJ09 A2
FJ10 A5 FJ11 A4 FJ12 A2 FJ13 A2 FJ14 A2 FJ15 A6 FJ16 A6 FJ17 A6 FJ18 A6 FJ19 A6 FJ20 A6 FJ21 A5 FJ22 A5
FJ23 A5 FJ24 A5 FJ25 A5 FJ26 A5 FK00 B1 FK01 B1 FK02 B1 FK03 B1 FK04 B1 FK05 B1 FK06 B1 FK07 C1 FK08 C1
FK09 C1 FK10 B1 FK11 A1 FM00 C4 FM01 C4 FM02 C4 FM03 C4 FM04 C4 FM05 C4 FM06 A6 FM07 A6 FM08 A6 FM09 A6
FN00 A7 FN01 A7 FN02 A6 FN03 A6 FN04 A7 FN05 B1 FN06 A7 FN07 A7 FN08 A7 FN09 A7 FN10 A7 FN11 A7 FN12 A7
FN13 A7 FN14 A7 FN15 A6 FN16 A6 FN17 A6 FN18 B6 FN19 B5 FN20 A7 FN21 A7 FN22 A7 FN23 A7 FN24 A6 FN25 B6
FN26 A7 FN27 A7 FN28 A7 FN29 A7 FN30 A7 FN31 A7 FN32 A7 FN33 A7 FN34 A7 FN35 A7 FP00 A7 FP01 A6 FP02 A6
FP03 A6 FP04 A6 FP05 A6 FP06 A6 FP07 A6 FP08 A7 FP09 A7 FP10 A7 FP11 A7 FP12 A7 FP13 A6 FP14 A7 FP15 A6
FP16 A6 FP17 A7 I100 C2 I101 D2 I102 C2 I103 C2 I104 C2 I105 C2 I106 C2 I107 C2 I108 C2 I109 C2 I110 C2
I111 C1 I112 D2 I113 D2 I200 A2 I201 A2 I202 A2 I203 B2 I204 B2 I205 B2 I206 B2 I207 B2 I208 B2 I209 B2
I210 A3 I211 A3 I212 A3 I213 A2 I214 B2 I215 A2 I216 B2 I217 B3 I218 A3 I219 B3 I220 B3 I221 A2 I222 A2
I223 A2 I224 A3 I225 A2 I226 B2 I227 B2 I228 B3 I229 B2 I230 A3 I231 B2 I232 A2 I233 B2 I234 B2 I235 B2
I236 B2 I237 B2 I238 B2 I239 A2 I240 A3 I241 A2 I242 A2 I243 A3 I244 B3 I246 A3 I247 A3 I248 A3 I249 A2
I254 C3 I255 B3 I256 B2 I257 B3 I258 B2 I259 B3 I262 B2 I263 B2 I264 A2 I265 B3 I266 B3 I267 B3 I268 B3
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I608 A1 I609 A1 I610 A1 I611 B1 I612 A1 I613 A1 I614 A1 I615 A1 I616 A1 I617 A2 I618 A1 I619 A1 I705 A3
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I734 A3 I735 A3 I736 A3 I740 B3 I741 B3 I742 B3 I747 A5 I748 A5 I749 A5 I750 A6 I751 A5 I752 A5 I753 A5
I754 A5 I755 A5 I756 A6 I757 A5 I758 A5 I759 A5 I760 A6 I800 C6 I801 C5 I802 B5 I803 B5 I804 B6 I805 B5
I806 B5 I807 B5 I808 B5 I809 B5 I810 B5 I811 C7 I812 C6 I813 B7 I815 C6 I816 C6 I817 C6 I818 C4 I819 B5
I820 B6 I821 B5 I822 B5 I900 B7 I901 B6 I902 C6 I903 C6 I904 B6 I905 B6 I906 C5 IA00 C6 IA03 B4 IA05 C6
IA06 C6 IA07 C6 IA08 B5 IA09 B6 IB02 B7 IB03 B7 ID00 C7 ID01 D7 ID02 C7 ID03 C7 ID04 C7 ID05 C7 ID06 C7
ID07 C7 ID08 C7 ID09 C7 ID10 C7 ID11 C7 ID12 C7 ID13 C6 ID14 C6 ID15 C7 ID16 C7 ID17 C7 ID18 C7 ID19 C7
ID20 C7 ID21 C7 ID22 C6 IE00 D4 IE01 C4 IE02 D5 IE03 C6 IE04 D5 IE05 C5 IE06 C4 IE07 C4 IE08 C4 IE09 C5
IE10 C5 IE11 C5 IE12 C5 IE13 D5 IE14 D4 IE15 D4 IE16 C4 IE17 C4 IE18 C4 IE19 D5 IE20 D5 IE21 D5 IE22 D5
IE23 C5 IE24 C5 IE25 D5 IE26 D5 IE27 C5 IE28 C4 IE29 C4 IE30 C4 IE31 C5 IE32 C5 IE33 C5 IE34 C5 IE35 D5
IE36 C5 IE37 C5 IF00 D7 IF01 D7 IF02 D7 IF03 D7 IF04 D6 IF05 D6 IF06 D7 IF07 D7 IF08 D7 IF11 D6 IF12 D6
IF13 D7 IF14 D7 IF15 D6 IF17 D7 IF20 D7 IF21 D4 IF22 D6 IF23 D6 IG00 D4 IG01 D4 IG02 D4 IG03 D4 IG04 D3
IG05 D3 IG06 D3 IG07 D3 IG08 D3 IG09 D3 IG10 D3 IG11 D3 IG12 D3 IG13 D2 IG14 D6 IG15 D5 IG16 D6 IG17 D6
IG18 D6 IG19 D5 IG20 D6 IG21 D5 IG23 D5 IG24 D5 IG25 D5 IG26 D5 IG27 D4 IG28 D3 IG29 D3 IG30 D3 IG40 D5
IG42 D5 IG43 D4 IG46 D5 IG47 D5 IG49 D4 IG50 D4 IG52 D5 IG53 D5 IG54 D5 IG55 D5 IG56 D5 IG57 D5 IG58 D5
IG59 D4 IG60 D3 IG61 D2 IG62 D2 IG63 D3 IG64 D3 IG69 D3 IG75 D5 IG76 D6 IG78 D5 IG80 D5 IJ01 A3 IJ02 A3
IJ03 A4 IJ04 A3 IJ05 A3 IJ06 A3 IJ07 A3 IJ08 A3 IJ09 A3 IJ10 A3 IJ11 A3 IJ12 A3 IJ13 A3 IK00 A1 IK01 A1
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IL09 B4 IL10 B4 IL11 B4 IL12 B4 IL13 B4 IL14 B4 IL15 B4 IL16 C3 IL17 B3 IL18 B4 IL19 B4 IM00 C4 IM01 C3
IM03 B4 IM04 B4 IM06 B4 IM07 B4 IM08 B4 IM09 B4 IM10 B3 IM11 C3 IN01 A6 IN02 A6 IN03 A6 IN04 A6 IN05 A6
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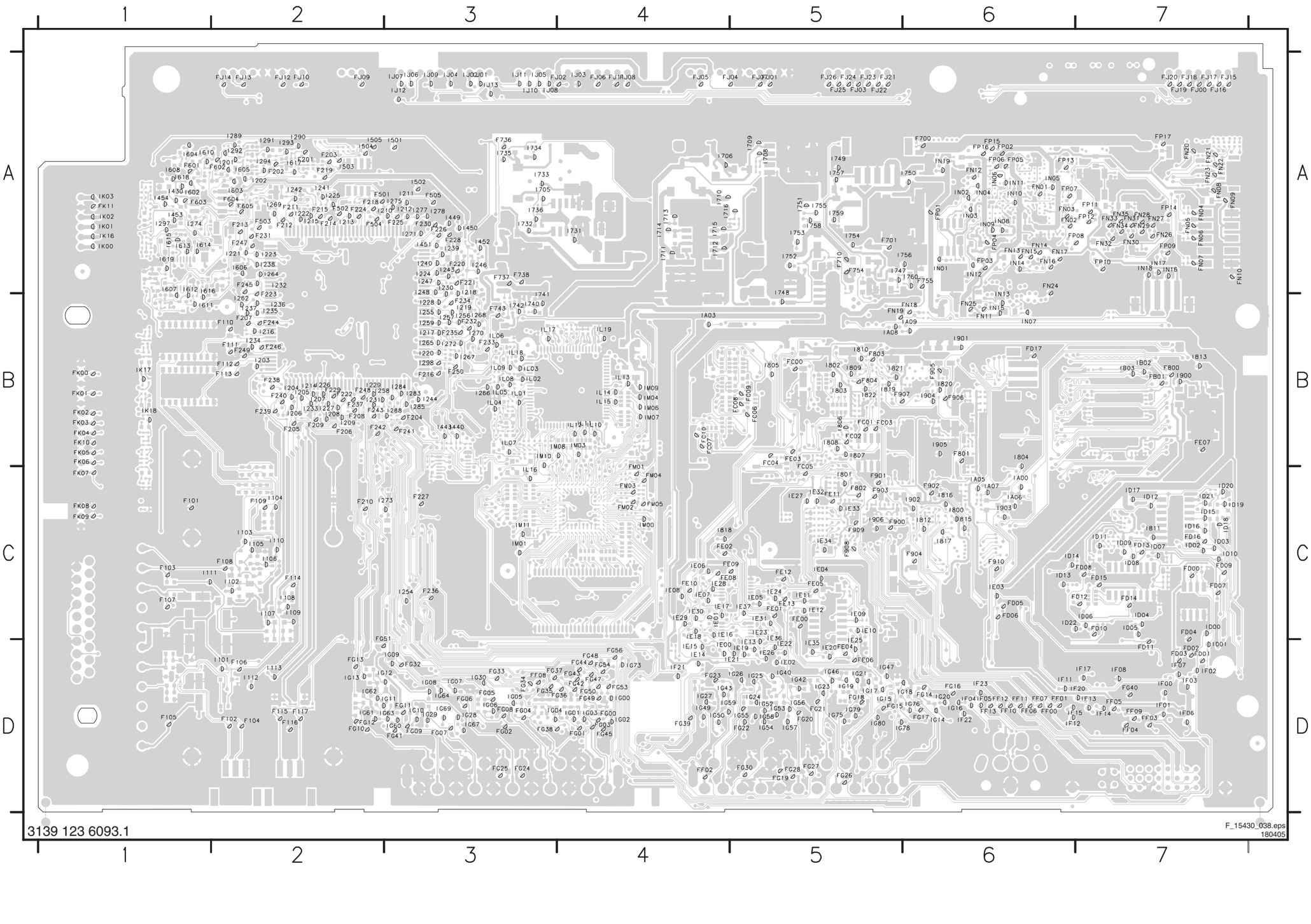
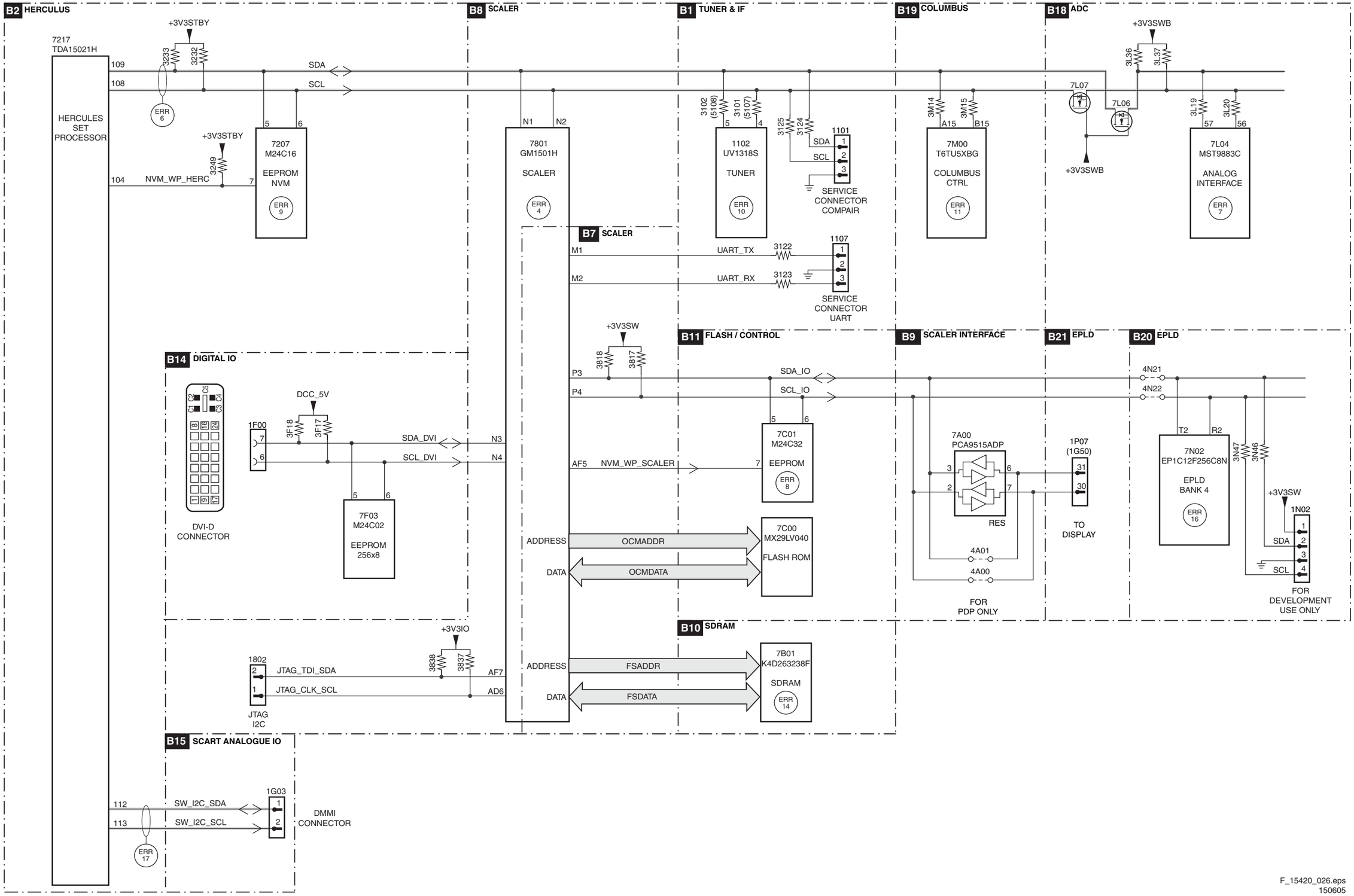


I2C IC Overview

I²C



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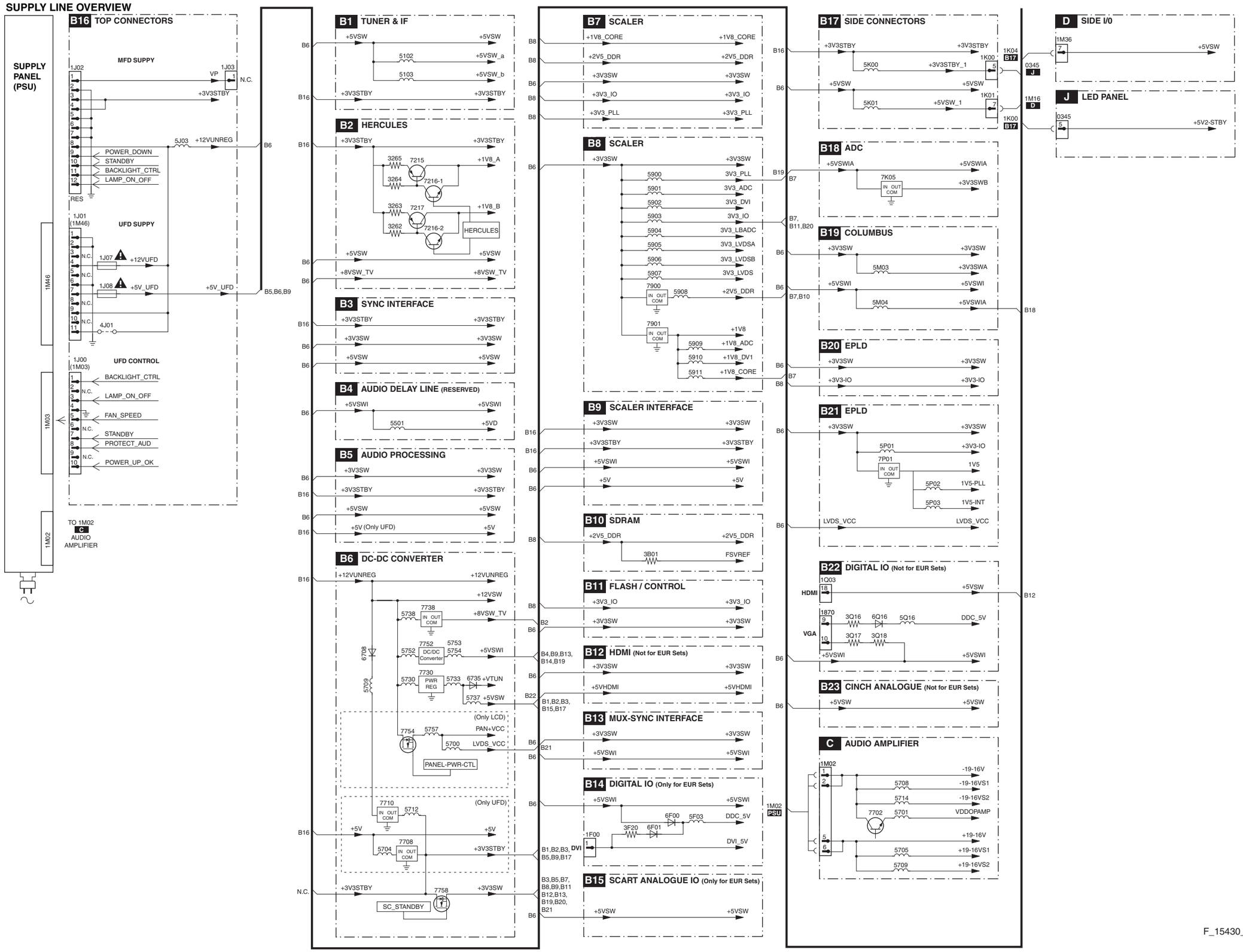
Supply Voltage Overview



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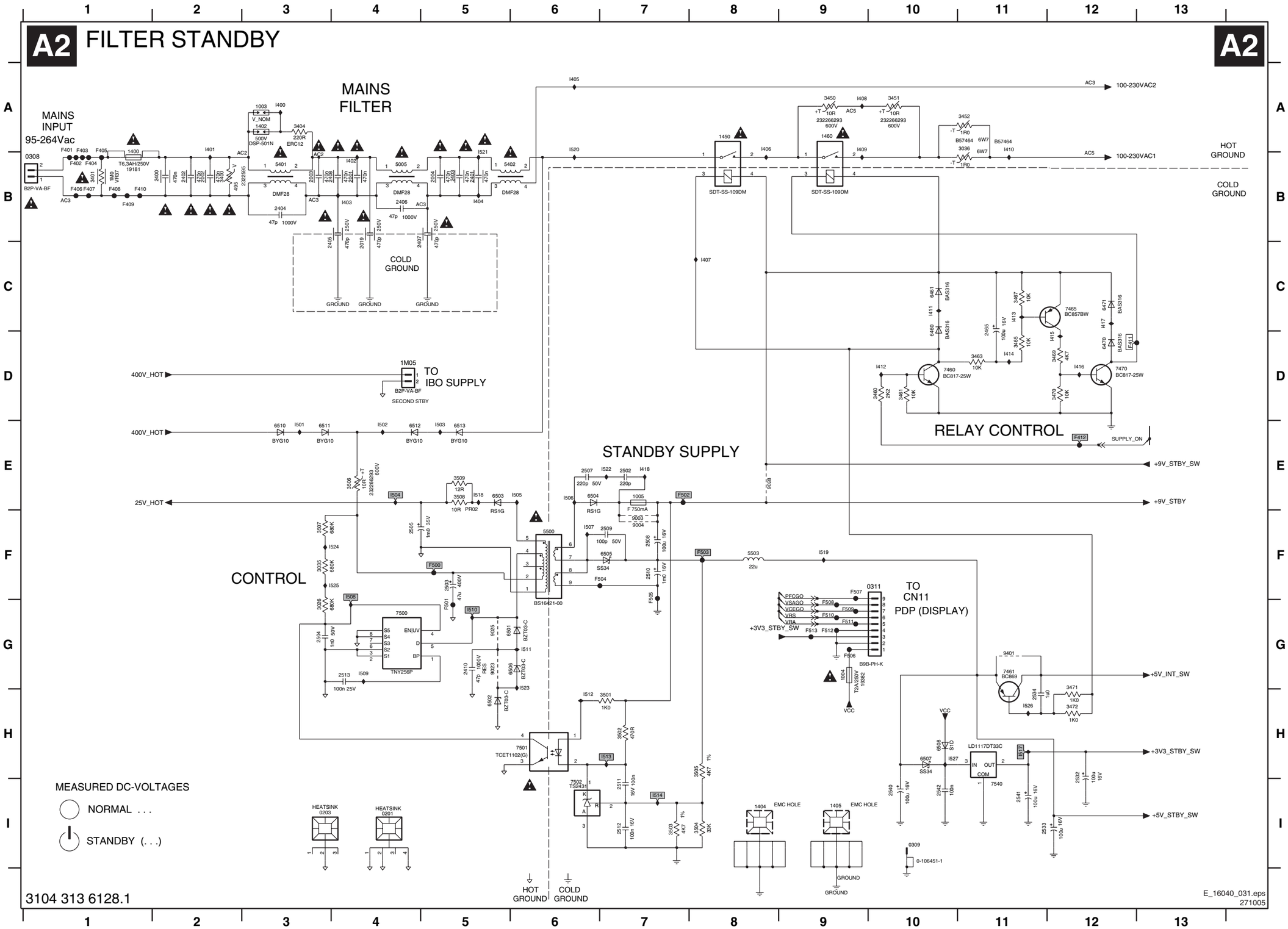
7. Circuit Diagrams and PWB Layouts

PDP FHP Supply: Filter Standby



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0309 I10	7501 H6	3036 A11	I412 D10
0311 F10	7502 I6	3400 B2	I413 C11
1003 A3	7540 I11	3401 B1	I414 D11
1004 G9	9003 F7	3404 A3	I415 D12
1005 E7	9004 F7	3450 A9	I416 D12
1400 B1	9023 G5	3451 A10	I417 C12
1402 A3	9025 G5	3452 A11	I418 E7
1404 I8	9028 E8	3460 D10	I501 E3
1405 I9	9401 G11	3461 D10	I502 E4
1450 A8	F401 A1	3463 D11	I503 E5
1460 A9	F402 B1	3465 D11	I504 E4
1M05 D4	F403 B1	3467 C11	I505 E6
2001 B4	F404 B1	3469 D12	I506 E6
2002 B2	F405 B1	3470 D12	I507 F6
2003 B3	F406 B1	3471 G12	I508 F4
2004 B5	F407 B1	3472 H12	I509 G4
2019 C4	F408 B1	3501 H7	I510 G5
2400 B2	F409 B1	3502 H7	I511 G6
2401 B5	F410 B1	3503 I7	I512 H6
2402 B2	F411 D12	3504 I8	I513 H7
2403 B5	F412 E12	3505 H8	I514 I7
2404 B3	F500 F5	3506 E4	I517 H11
2405 C4	F501 G5	3507 F3	I518 E5
2406 B4	F502 E7	3508 E5	I519 E9
2407 C5	F503 F8	3509 E5	I520 A6
2408 B4	F504 F7	5005 B4	I521 A5
2410 G5	F505 F7	5401 B3	I522 E7
2465 C11	F506 G9	5402 B5	I523 G6
2502 E7	F507 F9	5500 F6	I524 F4
2503 F5	F508 G9	5503 F8	I525 F4
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2505 F4	F510 G9	6461 C10	I527 H10
2507 E6	F511 G9	6470 D12	
2508 F7	F512 G9	6471 C12	
2509 F7	F513 G9	6501 G6	
2510 F7	I400 A3	6502 H5	
2511 I7	I401 A2	6503 E5	
2512 I7	I402 B4	6504 E6	
2513 G4	I403 B4	6505 F7	
2532 H12	I404 B5	6506 G6	
2533 I11	I405 A6	6507 H10	
2534 H11	I406 A8	6508 H10	
2540 I10	I407 C8	6510 E3	
2541 I11	I408 A9	6511 E3	
		6512 E4	
		6513 E5	
		7460 D10	
		7461 G11	

PDP FHP Supply: Protection

1M03 A15	2364 E11	2397 C13	3306 D1	3322 D4	3334 D6	3347 D8	3356 D14	3366 D12	3378 E13	3391 F11	3806 G10	6325 F12	6364 D11	7308-1 D4	7330-4 D5	7366-3 D12	F311 G5	F327 D4	F372 B14	I937 D14	I310 G1	I323 D12	I344 D8	I364 D11	I386 F6	I936 D14
2304 D1	2366 F15	2398 C1	3307 E1	3323 E4	3335 E6	3348 C8	3357 D14	3367 D12	3380 H2	3392 G3	3807 H12	6333 C5	6365 E12	7308-2 D4	7341 C8	7366-4 F11	F312 G9	F328 D5	F374 B15	I301 G4	I311 G2	I325 G12	I345 D8	I367 D11	I387 F6	I939 G10
2305 D1	2376 G2	3068 F10	3308 C2	3324 D1	3340 C7	3349 G3	3358 C11	3368 D13	3381 H2	3393 G4	3808 G10	6334 D5	6366 G11	7308-3 D2	7348 D8	7375 F1	F318 G8	F329 D7	F375 B14	I302 C2	I313 C1	I326 G13	I347 D8	I367 D11	I379 E14	I942 G11
2306 D3	2377 G10	3074 G10	3311 C3	3325 G12	3341 C7	3350 D9	3359 C11	3369 D13	3383 E15	3394 G3	3809 F10	6335 G11	6367 F7	7308-4 D2	7351 D10	7376 H1	F319 H2	F330 C1	F376 B15	I303 F1	I316 D3	I327 F13	I348 D8	I380 E15	I389 F9	
2322 D4	2381 H1	3102 E1	3312 C3	3326 G12	3342 D7	3351 D9	3360 D10	3370 D13	3384 F15	3395 G5	3811 F11	6340 C7	6375 F1	7326 G13	7352 D9	7389 F9	F320 H1	F335 C12	F377 B14	I304 D1	I318 C8	I330 D4	I349 C9	I381 F10	I390 F12	
2324 E6	2385 F5	3103 C4	3313 D3	3327 G13	3343 E7	3352 E9	3361 C10	3373 F1	3386 G4	3396 G5	6312 C2	6341 D7	6376 G1	7327 G14	7362 D11	7391 F12	F322 H2	F343 D7	F378 B15	I305 F1	I319 D8	I332 C6	I350 D9	I382 F1	I391 F13	
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2350 D9	2387 G5	3301 C1	3320 B4	3332 C6	3346 C8	3363 E10	3373 F1	3389 F9	3399 F5	6321 C4	6347 C8	7004 D8	7330-2 D6	7366-1 F6	9006 B13	F325 D13	F370 A14	F381 F13	I307 E1	I321 D11	I339 E11	I352 D10	I384 C4	I393 F14		
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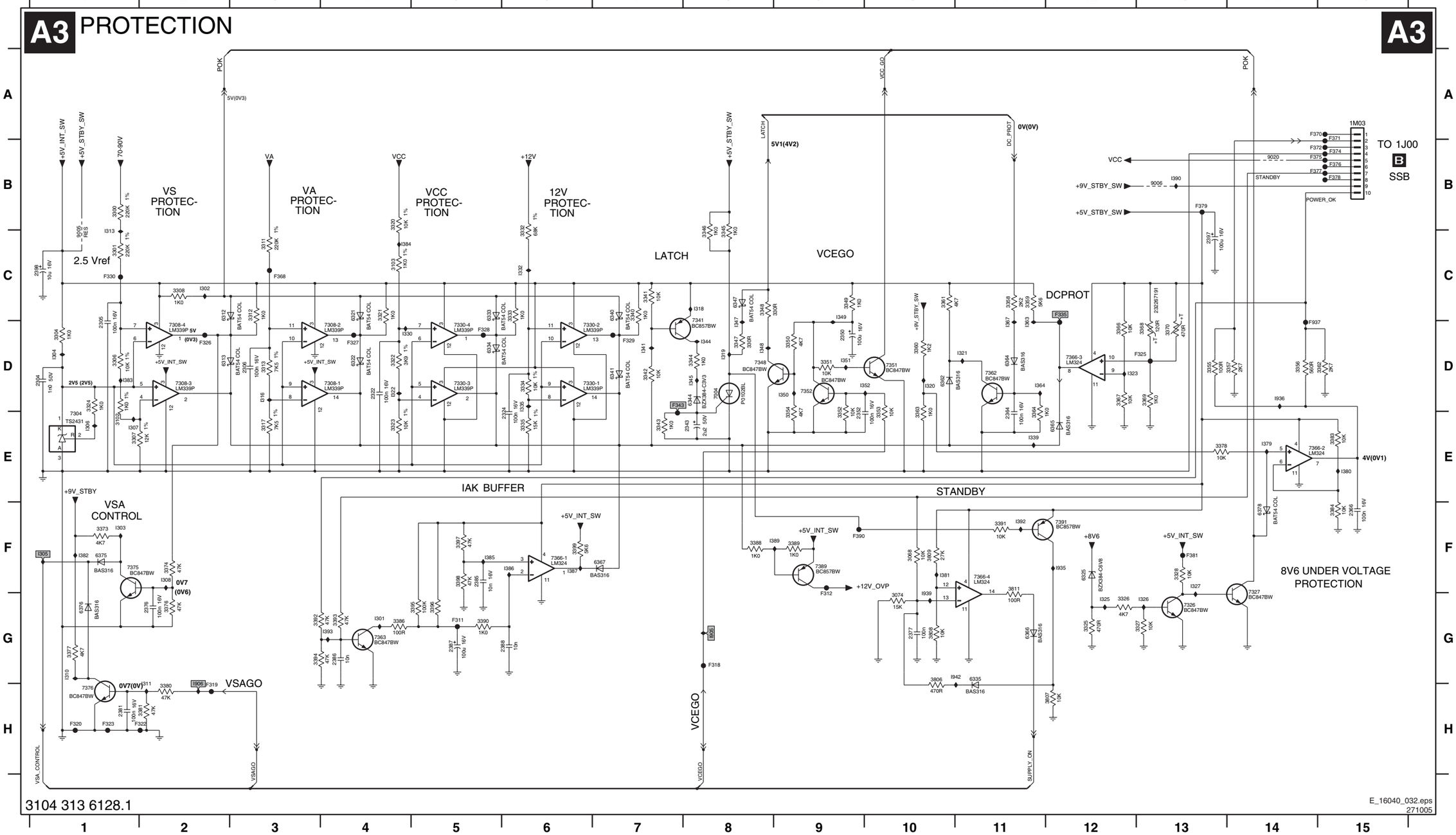
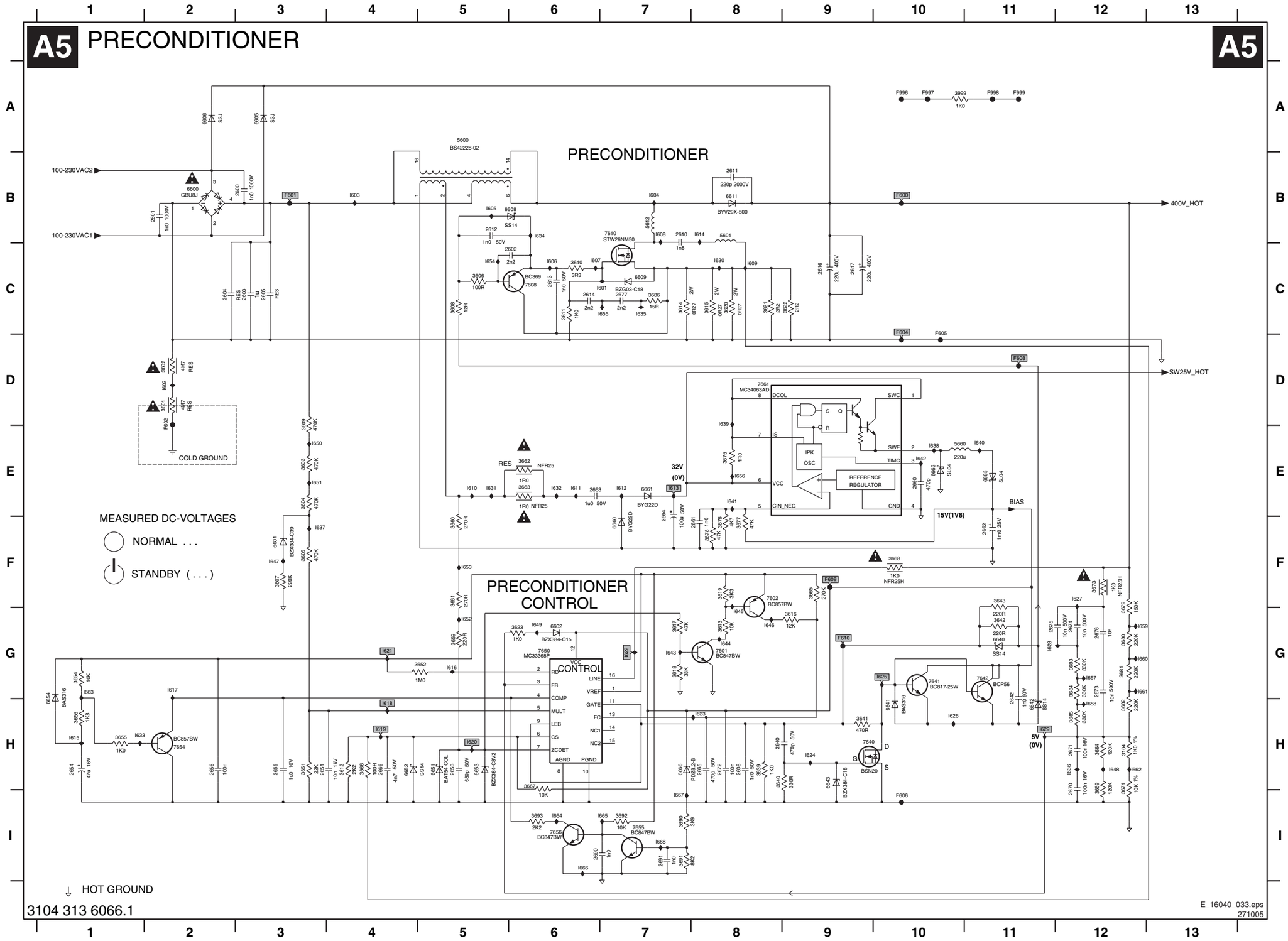


PDP FHP Supply: Pre Conditioner



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2608 H8	5601 B8	I649 G6
2610 B7	5612 B7	I650 E3
2611 B8	5660 E10	I651 E3
2612 B5	6600 B2	I652 G5
2613 C6	6601 F3	I653 F5
2614 C6	6602 G6	I654 C5
2616 C9	6605 A3	I655 C7
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2640 H8	6608 B6	I657 G12
2642 G11	6609 C7	I658 H12
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2653 H5	6640 G11	I660 G12
2654 H1	6641 H10	I661 G12
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2661 F8	6652 H4	I665 I7
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2663 E6	6654 G1	I667 I7
2664 E7	6660 F7	I668 I7
2665 H8	6661 E7	
2666 H4	6663 E10	
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2671 H12	6666 H7	
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2673 G12	7602 F8	
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3666 H4	I625 G10	
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3668 F10	I627 F12	
3669 H12	I628 G11	
3671 H12	I629 H11	
3673 F12	I630 C8	
3675 E8	I631 E5	
3676 F8	I632 E6	
3677 F8	I633 H1	
3678 F8	I634 B6	
3679 F12	I635 C7	
3680 G12	I636 H12	
3681 G12	I637 F3	
3682 H12	I638 E10	
3683 G12	I639 D8	
3684 G12	I640 E11	
3685 H12	I641 E8	
3686 C7	I642 E10	

PDP FHP Supply: LLC Supply

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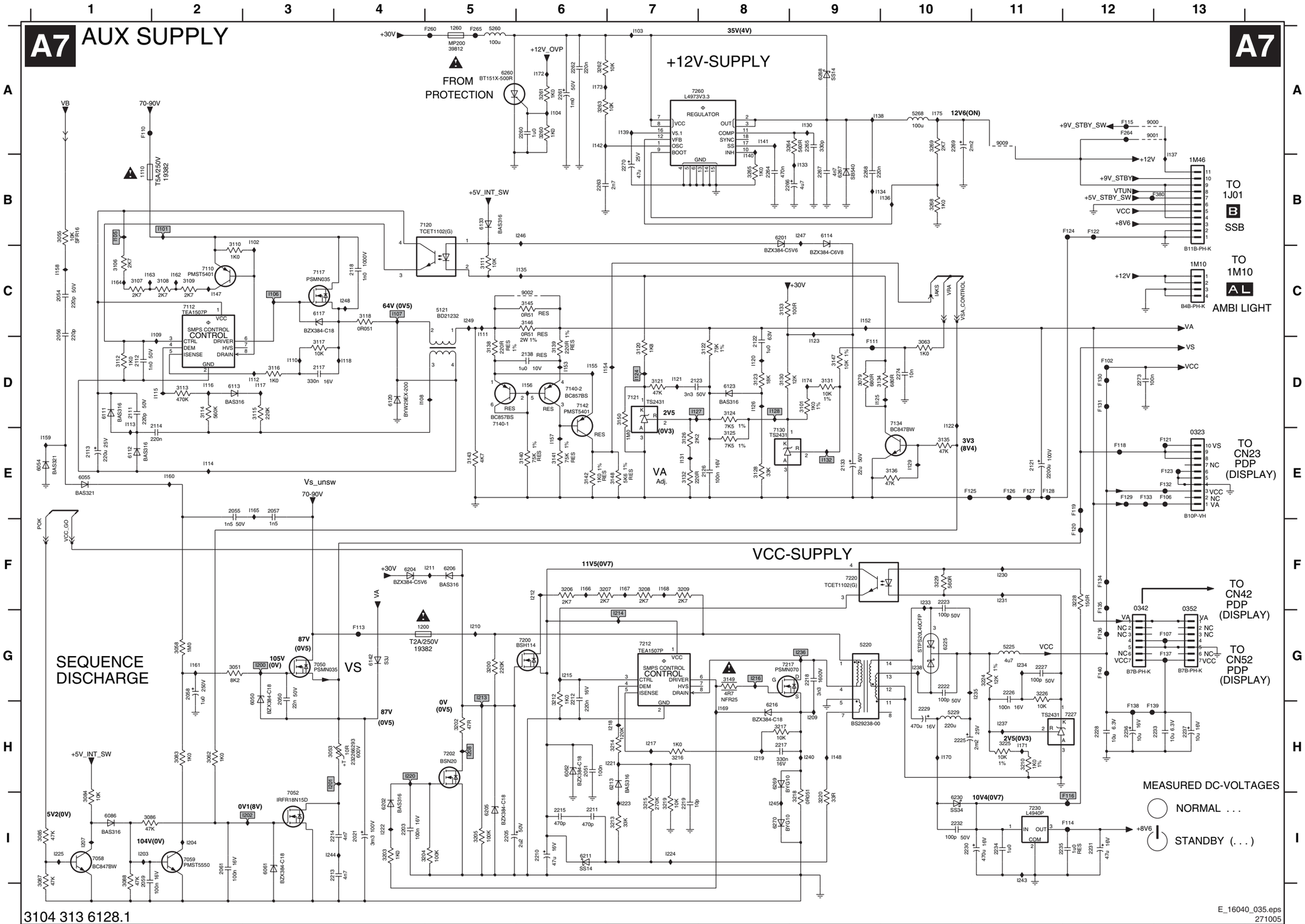

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1260 A5	3203 I4	F260 A5
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1M46 B13	3205 I5	F265 A5
2021 I4	3206 F6	F380 B13
2050 G3	3207 F6	I101 B2
2051 H6	3208 F7	I102 B3
2054 C1	3209 F7	I103 A7
2055 E2	3210 H11	I104 A6
2056 C1	3212 G6	I105 B1
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2058 G2	3214 H7	I107 C4
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2061 I2	3216 H7	I109 C2
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2112 D1	3218 I9	I111 C5
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2210 I6	3265 B8	I125 D9
2211 I6	3268 B10	I126 D8
2212 G6	3269 A10	I127 D7
2213 I4	5121 C5	I128 D8
2214 I4	5220 G9	I129 E10
2215 I6	5225 G11	I130 A9
2217 H8	5229 H10	I131 E7
2218 G9	5260 A5	I132 E9
2219 I7	5268 A10	I133 B9
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2261 A6	6202 I4	I157 E6
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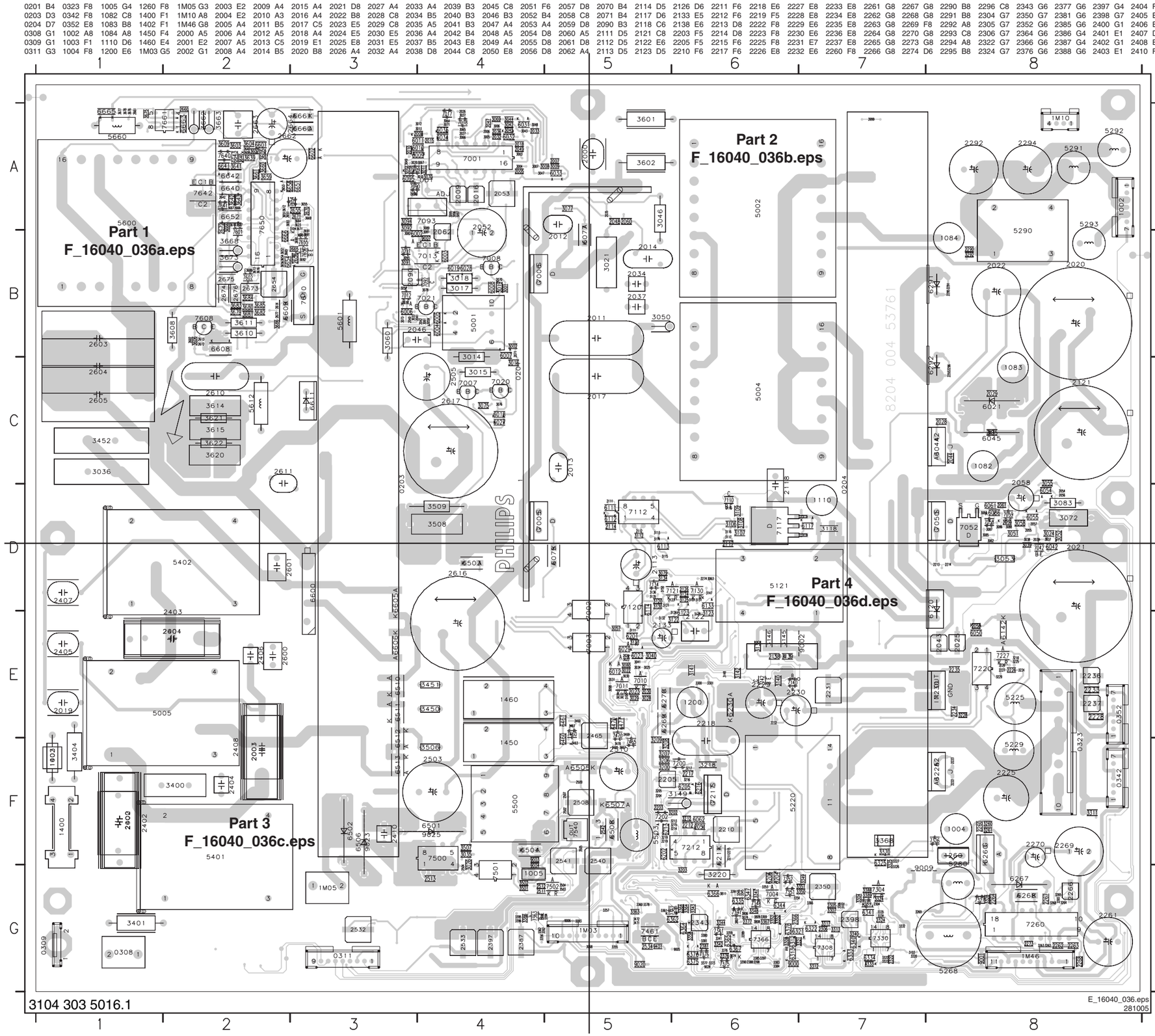
Layout PDP FHP Supply (Overview Top Side)



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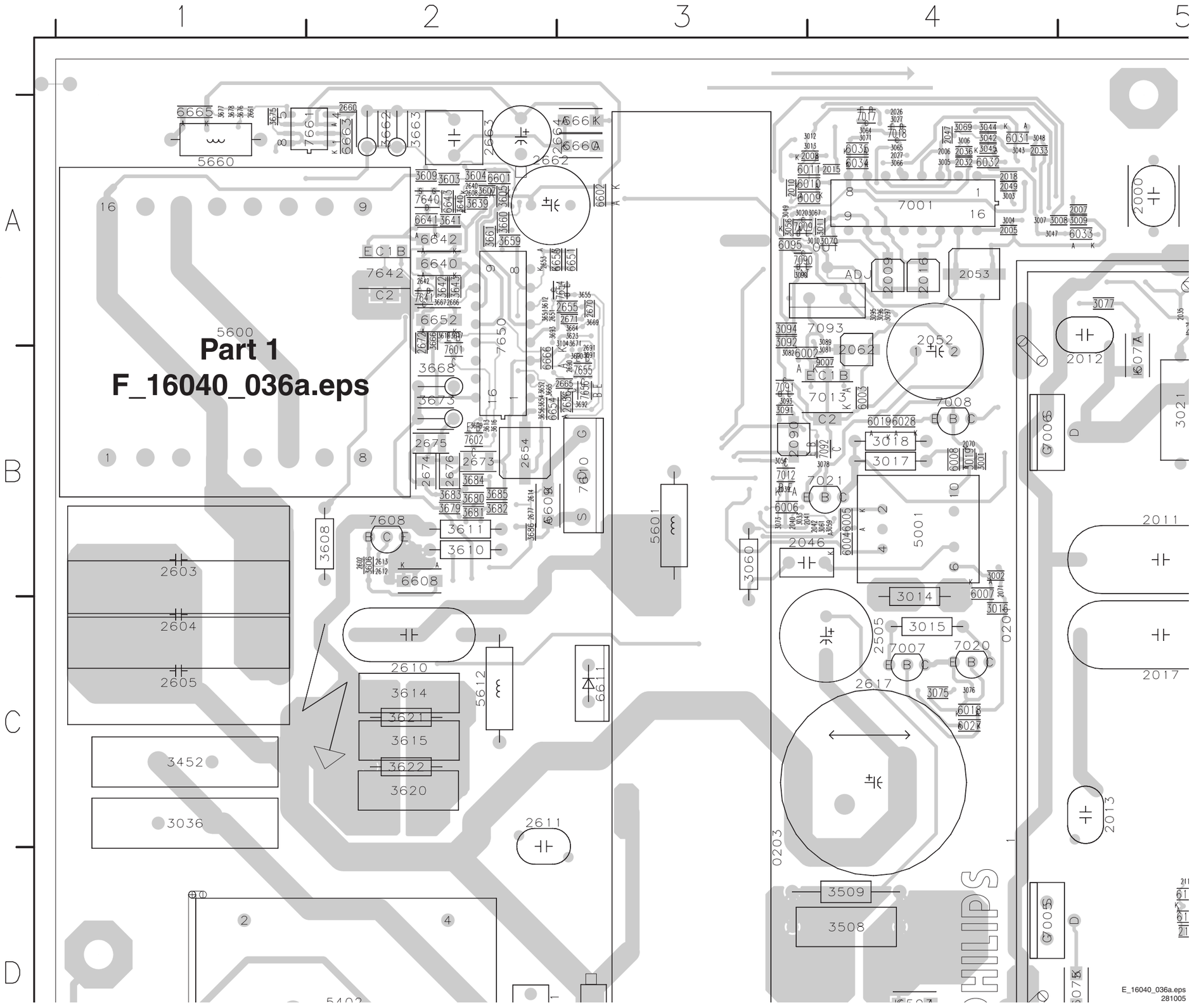
Layout PDP FHP Supply (Part 1 Top Side)



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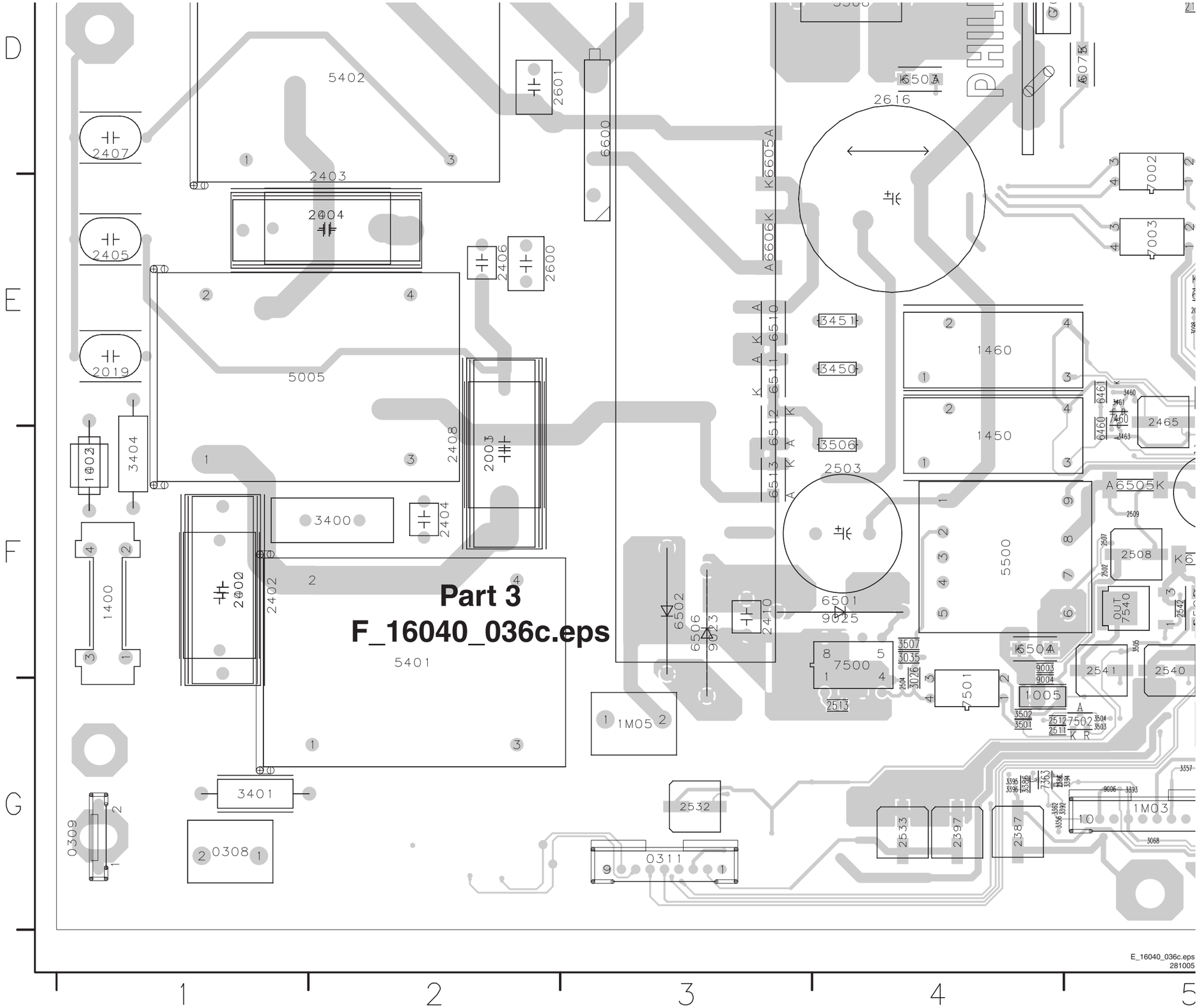

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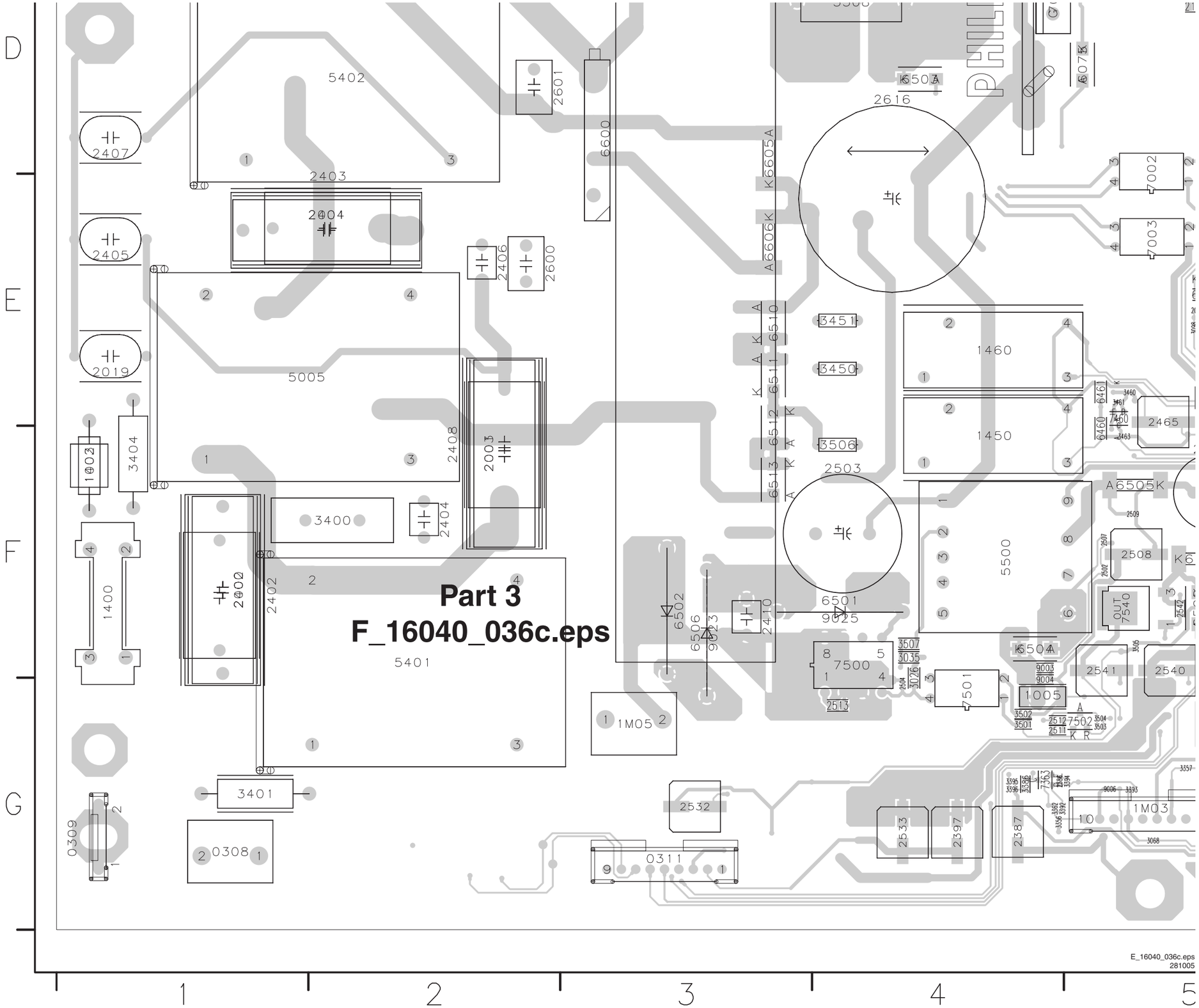

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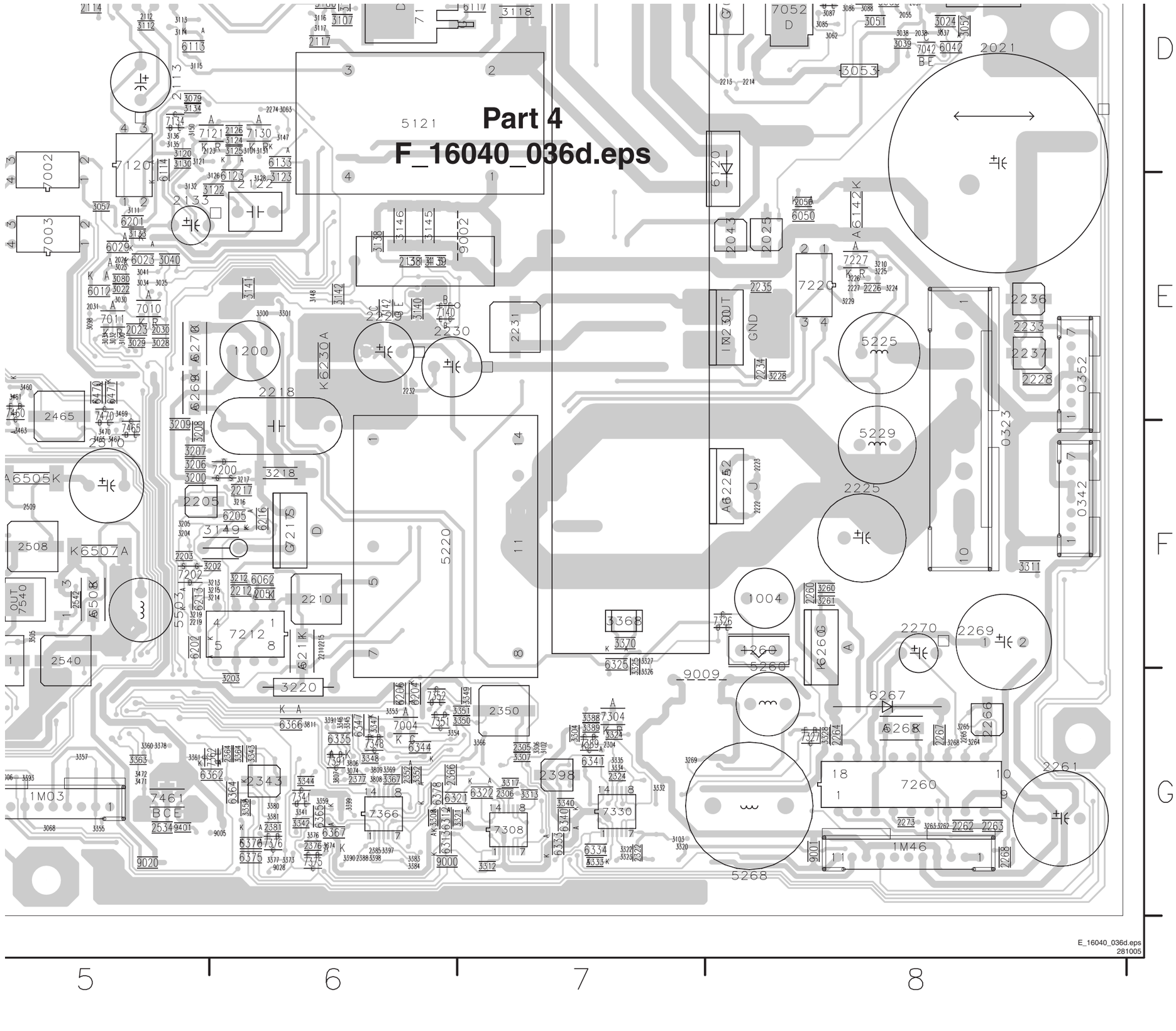

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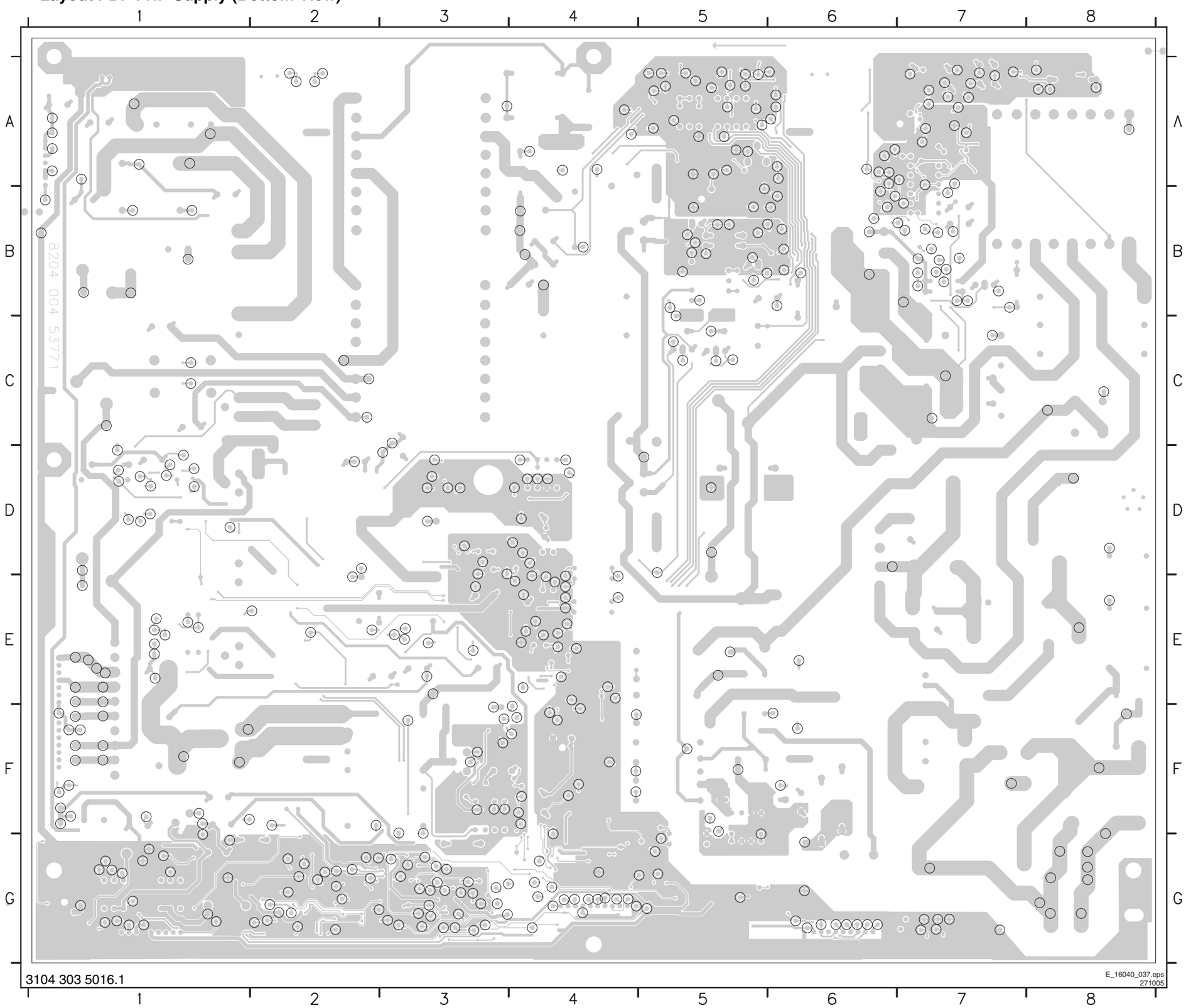

SSB: Tuner and VIF

B1 TUNER & IF

*	STANDARD SD2	IDTV SD2	FM RADIO SD2
EUROPE	UV1318S/AI H N3	UV1318SD/A CPHN 3	UR1316S/A I H3
CHINA	UV1318SI/AI C H3	-	UR1316S/A I H3
AP(PAL)	UV1316E/A I H4	-	UR1316S/A I H3
NA/LA/AP(NTSC)	UV1338/A F SH4	-	UR1336/A F I S H3

*	EU	AP	CHINA	NAFTA
4102	Y	Y	--	Y
4103	--	--	Y	--
4104	--	Y	--	--
4106	Y	--	Y	--
4110	Y	Y	Y	Y
4111	Y	--	--	--
4113	--	Y	Y	--
4107	--	--	Y	--
4108	--	--	Y	--

*	1104	1105	1106
EUROPE	OFWK3953L	--	OFWK9656L
AP	OFWK7265L	--	OFWK9361L
CHINA	OFWK3956L	OFWK9355L	OFWK9352L
NAFTA	OFWM1967L	--	--

*	Non-EU	EU
3104	0R	10K
6103	-	Yes

1101 C1 F106 D2
1102 A1 F107 D3
1103 E2 F108 B4
1104 C9 F109 E5
1105 D8 F110 C10
1106 E9 F111 C10
1107 F3 F112 E10
2101 A6 F113 F10
2102 A6 F114 G7
2103 B6 F115 F3
2104 D3 F116 G3
2105 D3 F117 G3
2106 D5 I101 D3
2107 E2 I102 C6
2108 E3 I103 D6
2109 D4 I104 E5
2110 F6 I105 D6
2111 F7 I106 D7
2112 F7 I107 F6
2113 B6 I108 F7
2114 E7 I109 F7
3101 D2 I110 D7
3102 D2 I111 F6
3103 D3 I112 C1
3104 D4 I113 D2
3105 D2
3106 E3
3107 C6
3108 C6
3109 D6
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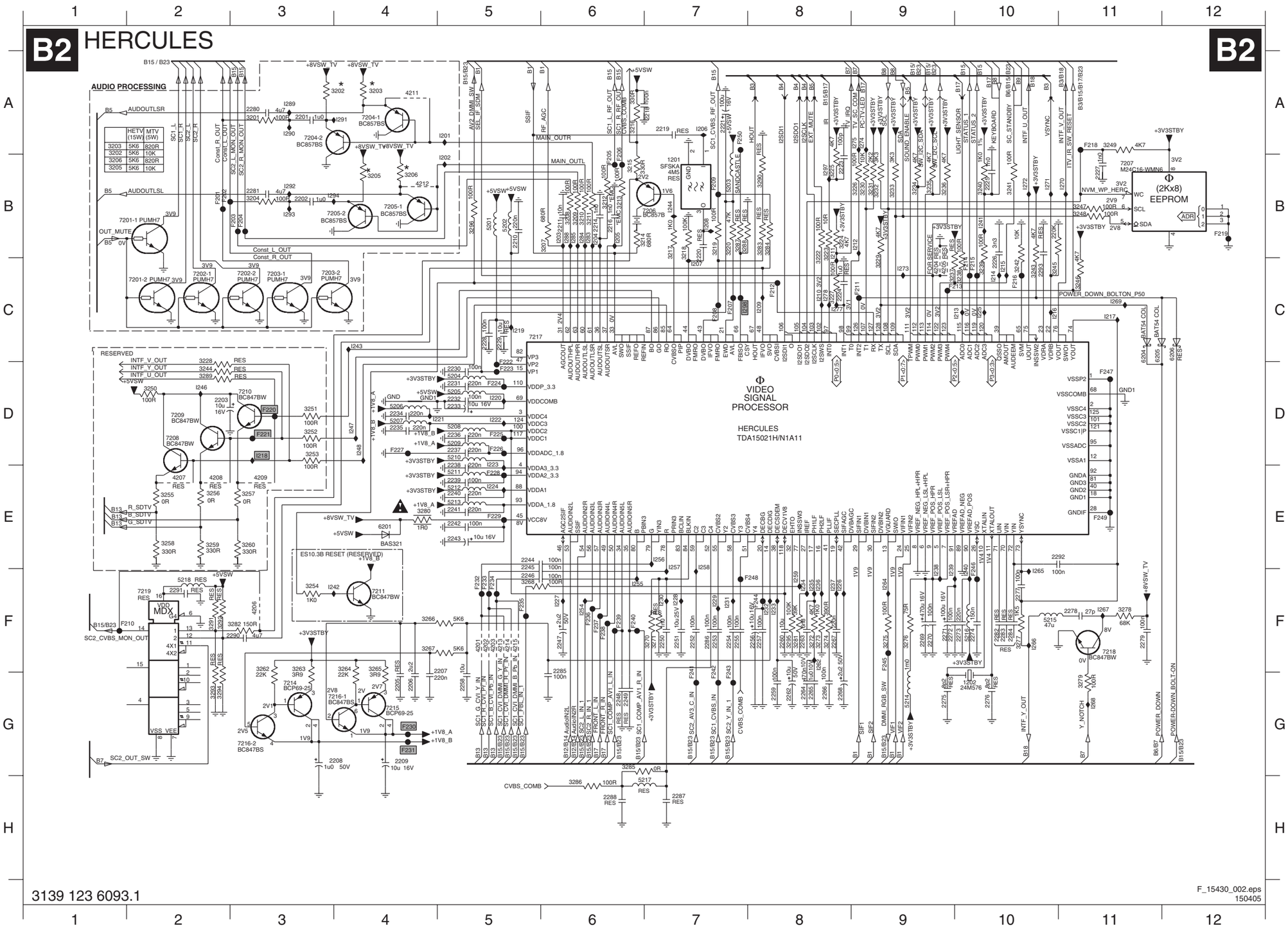
SSB: Histogram and Hercules



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2207 F5	3223 B8	5216 F10	I223 D5	
2208 G4	3224 B8	5217 H7	I224 E5	
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2214 B6	3228 D2	6205 C11	I228 F7	
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2260 F8	3273 F8	F220 D3	I285 B6	
2262 G8	3274 F8	F221 D3	I288 B6	
2263 F8	3275 F9	F222 D5	I289 A3	
2264 G8	3276 F9	F223 D5	I290 A3	
2265 G8	3277 F10	F224 D5	I291 A4	
2266 G8	3278 F11	F225 D5	I292 B3	
2267 F8	3279 G11	F226 D5	I293 B3	
2268 G8	3280 E4	F227 D4	I294 B3	
2269 F9	3281 F8	F228 E5	I297 B8	
2270 F9	3282 F3	F229 E5	I298 C7	
2271 F9	3283 B8	F230 G4		
2272 F9	3284 B8	F231 G4		
2273 F10	3285 G6	F232 F5		
2274 F10	3286 H6	F233 F5		
2275 G9	3287 B7	F234 F5		
2276 G10	3288 B7	F235 F5		
2277 F10	3289 D2	F236 F6		
2278 F11	3290 B8	F237 F6		
2279 F11	3291 F2	F238 F6		
2280 A3	3292 F2	F239 F6		
2281 B3	3293 G2	F240 F6		
2282 F10	3294 G2	F241 G7		
2283 F10	3295 F8	F242 G7		
2284 F10	3296 B5	F243 G7		
2285 F6	4201 F5	F244 F8		
2286 F7	4202 F5	F245 F9		
2287 H7	4203 F5	F246 F10		
2288 H6	4204 C9	F247 D11		
2290 F3	4205 C9	F248 F8		
2291 F2	4206 F3	F249 E11		
2292 E11	4207 E2	F250 A7		
2293 C10	4208 E2	I201 A5		
3201 A3	4209 E3	I202 B5		
3202 A4	4211 A4	I203 B6		
3203 A4	4212 B4	I204 B6		
3204 B3	4213 F5	I205 B6		
3205 B4	4214 F5	I206 A7		
3206 B4	4215 F5	I207 C7		
3207 B6	5201 B5	I208 B7		
3208 B6	5202 B5	I209 C8		
3209 B6	5203 B7	I210 C8		
3210 B6	5204 D5	I211 B8		
3211 B6	5205 D5	I212 B9		
3212 B6	5206 D4	I213 C10		
3213 B6	5207 D4	I214 C10		
3214 B7	5208 D5	I215 C10		

SSB: Sync Interface

B3 SYNC INTERFACE

B3

B 1 7 TO SIDE CONNECTORS

+3V3STBY
+5VSW
3431 1K0
6430 BZX384-C2V7
I453
6431 1N4148
LED_SEL
I454
0V
7430 PDTC114ET
I430
3V1
3432 RES
ITV_IR_SW_RESET

B2

HOUT
I443
+3V3STBY
3451 4K7
4436 RES
+3V3SW
7436-1 74LVC14APW
3453 100R
3454 100R
Hsync_SDTV

B 1 9
B 1 8
B 1 3

VSYNC
I440
4437 RES
+3V3SW
7436-2 74LVC14APW
3455 100R
3456 100R
Vsync_SDTV

B 1 8

COL_HREF
4440
3458 100R
7436-3 74LVC14APW
3463 RES
7436-4 74LVC14APW
3459 100R
H_1FH
H_DELAY
4438 RES

B 1 9

COL_VA
4441
3461 100R
7436-6 74LVC14APW
7436-5 74LVC14APW
2449 100n
3462 100R
V_1FH
Vsync_SDTV
4439 RES

B 1 3

B7

SC1_CVBS_RF_OUT

B2 & B15

1440
I449
I450
BM05B-SRSS-TBT

+12VSW
5431
I451
I452
1441
(NC)
2447 10p
2448 10p
S3B-PH-SM4-TB

FOR ITV ONLY

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140405

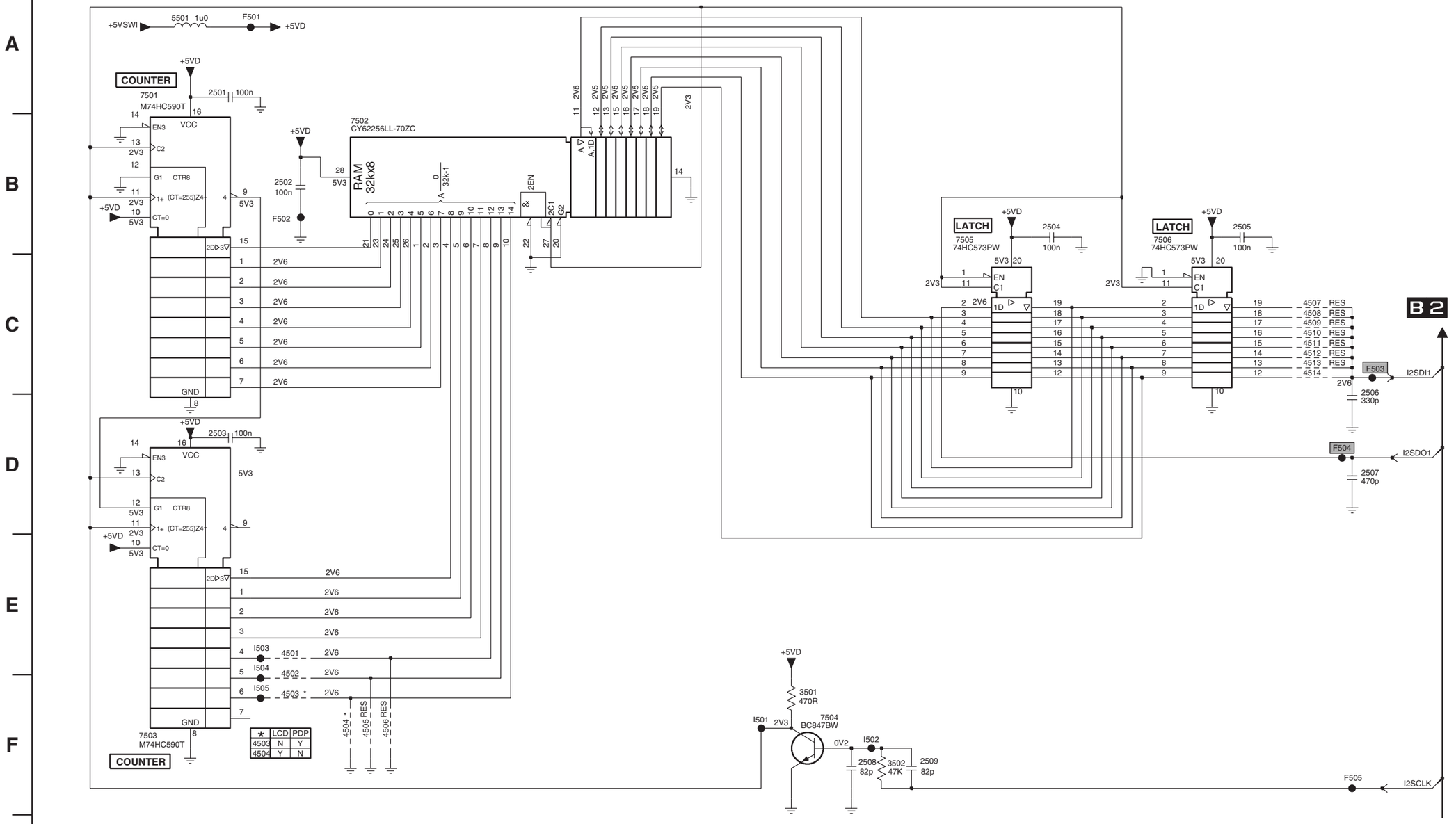
3139 123 6093.1

1440 D9
1441 E9
2447 E8
2448 E9
2449 E4
3431 A3
3432 B3
3451 A5
3453 B6
3454 B7
3455 C6
3456 C7
3458 D2
3459 D4
3461 E2
3462 E4
3463 C4
4436 A6
4437 B6
4438 D2
4439 E2
4440 D2
4441 E2
5431 E8
6430 A3
6431 B3
7430 B3
7436-1 A6
7436-2 C7
7436-3 D3
7436-4 D4
7436-5 E4
7436-6 E3
I430 B3
I440 C6
I443 B5
I449 D8
I450 D8
I451 E9
I452 E9
I453 B3
I454 B2

SSB: Audio Delay line (Reserved)

B4 AUDIO DELAY LINE (RESERVED)

2501 A2
2502 B2
2503 D2
2504 B8
2505 B9
2506 C10
2507 D10
2508 F6
2509 F7
3501 F6
3502 F6
4501 E2
4502 F2
4503 F2
4504 F3
4505 F3
4506 F3
4507 C9
4508 C9
4509 C9
4510 C9
4511 C9
4512 C9
4513 C9
4514 C9
5501 A1
7501 A1
7502 B3
7503 F1
7504 F6
7505 B7
7506 B8
F501 A2
F502 B2
F503 C10
F504 D10
F505 F10
I501 F5
I502 F6
I503 E2
I504 E2
I505 F2



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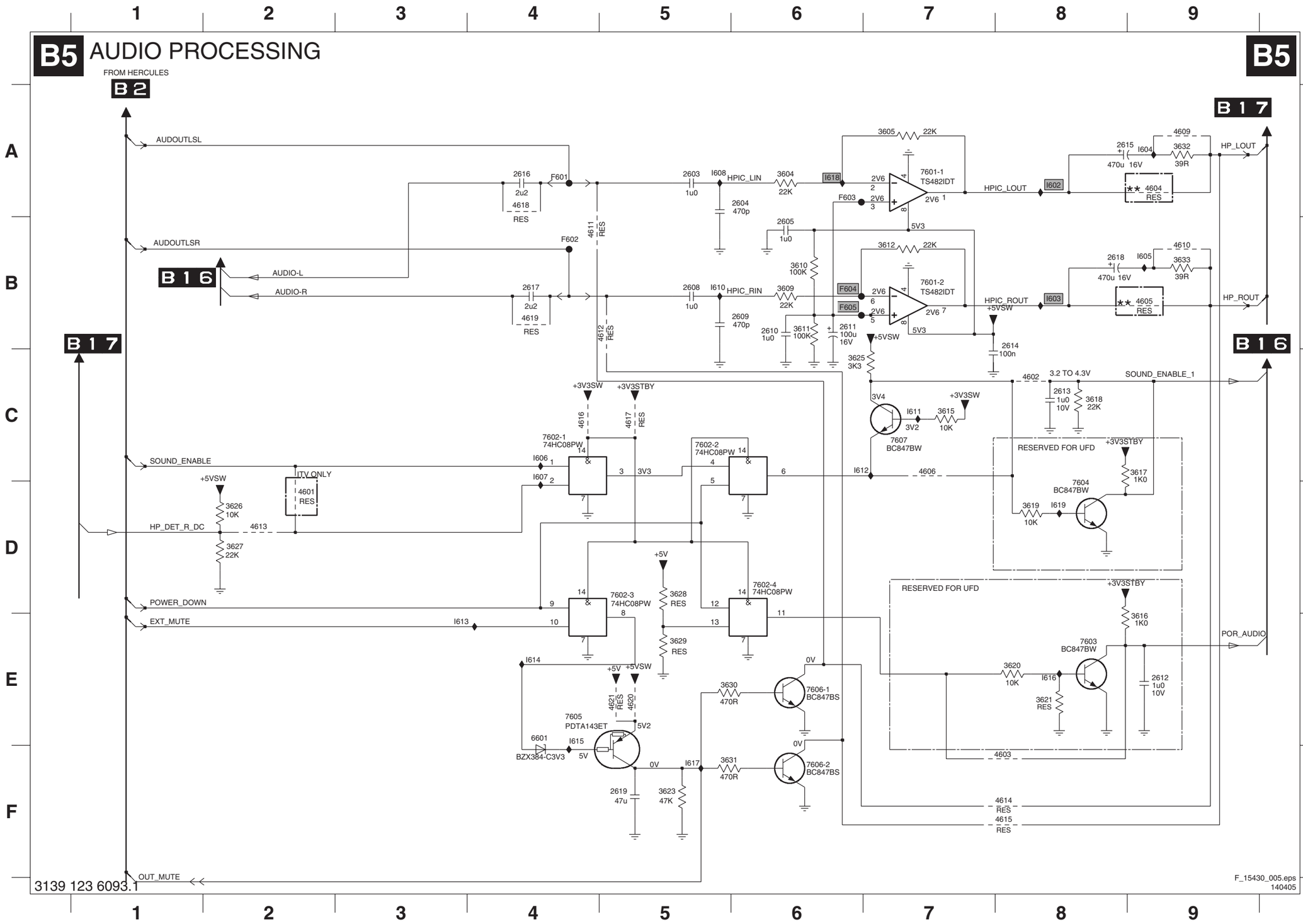
SSB: Audio Processing



2603 A5 I602 A8
2604 A6 I603 B8
2605 B6 I604 A9
2608 B5 I605 B9
2609 B6 I606 C4
2610 B6 I607 C4
2611 B6 I608 A5
2612 E9 I610 B5
2613 C8 I611 C7
2614 B8 I612 C6
2615 A8 I613 E3
2616 A4 I614 E4
2617 B4 I615 E4
2618 B8 I616 E8
2619 F5 I617 F5
3604 A6 I618 A6
3605 A7 I619 D8
3609 B6
3610 B6
3611 B6
3612 B7
3615 C7
3616 E9
3617 C9
3618 C8
3619 D8
3620 E8
3621 E8
3623 F5
3625 C6
3626 D2
3627 D2
3628 D5
3629 E5
3630 E5
3631 F5
3632 A9
3633 B9
4601 D2
4602 C8
4603 F8
4604 A9
4605 B9
4606 C7
4609 A9
4610 B9
4611 B4
4612 B4
4613 D2
4614 F8
4615 F8
4616 C4
4617 C5
4618 A4
4619 B4
4620 E5
4621 E5
6601 E4
7601-1 A7
7601-2 B7
7602-1 C4
7602-2 C5
7602-3 D5
7602-4 D6
7603 E8
7604 D8
7605 E4
7606-1 E6
7606-2 F6
7607 C7
F601 A4
F602 B4
F603 A6
F604 B6
F605 B6

SSB: DC-DC Converter

B6 DC-DC CONVERTER

B6

B16 FROM TOP CONNECTORS

+12VUNREG — F701 — +12VSW

2704 10u 16V

+5V

I706 2706 10u 16V 5704

7708 LF33CPT: IN, OUT, CTRL, NC, COM

I709 I708

+12VUNREG 3708 10K 6708 SS24 6709 SS14 3709 6K8 2708 RES 2709 47u 16V

F710 +3V3STBY

I710 5709 10u

I711 7710 L5973D: VCC, VREF, INH, SYNC, NC, OUT, FB, COMP, GND, HS

2710 10u 2711 10u SUP_GND2

I712 5712 33u I713 5713 10u

I714 I715 2715 22n I716 3712 5K6 1% 3713 3K3 1% 2713 470u 16V

6712 SS36 2714 220p 3716 4K7 2716 470u 16V

FOR UFD ONLY

SUPPLY TO TUNER & HERCULES

+12VSW 5730 10u I731 2730 10u 25V

7730 L5970D: VCC, COMP, INH, GND, OUT, FB, SYNC, VREF

I705 2734 22n 3736 4K7 2733 220p

I733 5733 220u 6733 SS14

7735 BC817-25 I734 I735 3735 1K0 2735 470p

6735 BAV99 2736 22u 35V 6736 BZX384-C33

F736 32V9 +VTUN TO TUNER CELL B1

5735 1m0 I736 5737 10u

3732 1K0 1% 3733 3K3 1% I732

5V2 F737 +5VSW

8V F738 +8VSW_TV

F743 POWER_DOWN B5

+12VSW 5738 7738 L78M08CDT: IN, OUT, COM

2738 47u 16V 2739 47u 16V

+3V3STBY 3743 22K 3742 15K I742 7742 BC847BW

2731 470u 16V 2737 470u 16V B7 B16

+12VUNREG 6740 BZX384-C8V2 I740 3740 1K5 I741 7741 BC847BW

3741 1K5 2741 220n

FOR UFD ONLY

FOR LCD ONLY

+5VSWI +3V3STBY +12VSW

5758 RES 5755 RES 5756

I757 I749 I750 1751 RES

SS = 4V9

I756 7754 SI2301BDS-T1-E3 11V5

5757 3755 10K 2751 100n I747 6V8

5759 RES 7753 L4940D2T12 IN OUT COM RES

I759 PAN_VCC 5700 F700 LVDS_VCC 11V5

B21 TO EPLD

3758 15K 3760 100R

B8 FROM SCALER 7755 PDTC114ET I760

PANEL-PWR-CTL F755 (0V) 0V6

2759 RES 2752 47u 16V 2700 RES 2701 100p

2760 1u0 25V

FOR UFD ONLY

SUPPLY TO SCALER

7752 MC34063AD: DCOL, SWC, SWE, TIMC, IS, VCC, CIN_NEG, GND

+12VSW 5752 10u 3751 1R0 3752 1R0

I751 11V7 I752 6 11V7

IPK OSC

REFERENCE REGULATOR

3734 2K2 I755 I758 2756 470p 5753 220u 6751 SS14

2753 470u 16V 3753 1K0 1% I753 5 1V2

GND SUP_GND3 2754 RES

3754 3K3 1% I754 2755 4n7

5754 10u F754 +5VSWI 5V4

2757 470u 16V 2758 470u 16V

B7 TO SCALER CELL B4 TO LIPSYNC

+3V3STBY 3V2

B2 FROM HERCULES

3750 22K 2750 2u2 2762 22u 16V

7758 SI9433BDY-T1-E3 SI4433DY

3759 1K0 I748 3V2 +3V3SW

SC_STANDBY 3V1 7756 PDTC114ET

3761 100R 2761 1u0 25V

FOR UFD ONLY

B2 TO HERCULES CELL B1 TO TUNER CELL

3139 123 6093.1

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1751 A10	7738 F2
2700 B11	7741 G3
2701 B11	7742 G4
2704 A3	7752 D9
2706 B3	7753 B10
2708 C3	7754 A9
2709 C3	7755 B8
2710 C2	7756 G8
2711 C2	7758 F10
2713 D5	F700 B11
2714 D4	F701 A3
2715 D4	F710 B6
2716 D6	F736 E6
2730 E2	F737 F6
2731 G5	F738 F6
2733 F2	F743 G6
2734 E3	F754 E11
2735 F6	F755 C8
2736 E6	I705 E3
2737 G6	I706 B3
2738 G2	I708 B3
2739 G3	I709 B3
2741 G3	I710 C2
2750 F9	I711 C2
2751 B9	I712 C4
2752 B10	I713 C5
2753 E8	I714 C4
2754 E8	I715 D4
2755 F9	I716 D5
2756 E10	I731 E2
2757 E11	I732 F4
2758 E11	I733 E5
2759 B9	I734 F5
2760 B9	I735 E5
2761 G9	I736 F5
2762 F9	I740 G2
3708 B2	I741 G3
3709 C3	I742 G4
3712 D5	I747 B9
3713 D5	I748 F8
3716 D5	I749 A10
3732 F4	I750 A10
3733 F4	I751 D8
3734 D11	I752 E8
3735 F5	I753 E8
3736 F3	I754 E9
3740 G2	I755 D10
3741 G2	I756 B9
3742 G3	I757 A9
3743 G4	I758 D10
3750 F9	I759 B9
3751 D8	I760 B8
3752 D8	
3753 E8	
3754 E9	
3755 B9	
3758 B8	
3759 F8	
3760 B9	
3761 F9	
5700 B11	
5704 B4	
5709 C2	
5712 C4	
5713 C5	
5730 E2	
5733 F5	
5735 F5	
5737 F5	
5738 F1	
5752 D8	
5753 E11	
5754 E11	
5755 A9	
5756 A9	
5757 A9	
5758 A8	
5759 B9	
6708 C2	
6709 C2	
6712 D4	
6733 F5	
6735 E6	
6736 E6	
6740 G2	
6751 E11	
7708 B4	
7710 C3	
7730 E3	
7735 E5	

SSB: Diversity Tables B1-B6

B1 TUNER & IF

Item	AP - non China	Europe	NAFTA/LT	AP - DVB	Europe - DVB	China	Description
1102						V	TUN V+U PLL IEC BGDKM B
1102		V					TUN V+U PLL IEC BGHIL B
1102			V				TUNER UV1338/A F S H-4
1102	V						TUNER UV1316E/A I H-4
1102				V	V		TUNER UV1318SD/A CP H N-4
1104		V			V		FIL SAW SM 38MHZ9 OFWK3953L R
1104						V	FIL SAW SM 38MHZ OFWM3956L R
1104			V				FIL SAW SM 45MHZ75 OFWM1967L R
1104	V			V			FIL SAW SM 38MHZ9 OFWK7265L R
1105						V	FIL SAW SM 38MHZ OFWK3955L R
1106		V			V		FIL SAW SM 38MHZ9 OFWK9656L R
1106						V	FIL SAW SM 38MHZ OFWK9352L R
1106	V			V			FIL SAW SM 38MHZ9 OFWK9361L R
3101	V		V			V	RST SM 0603 100R PM5 COL
3102	V		V			V	RST SM 0603 100R PM5 COL
3104		V			V		RST SM 0603 10K PM5COL
3104	V		V	V		V	RST SM 0603 JUMP. 0R05 COL
3107	V	V		V	V	V	RST SM 0603 6K8 PM5 COL
3108	V	V		V	V	V	RST SM 0603 2K2 PM5 COL
3109	V	V		V	V	V	RST SM 0603 2K2 PM5 COL
3110						V	RST SM 0603 2K2 PM5 COL
3111	V	V		V	V	V	RST SM 0603 22K PM5 COL
3112	V	V		V	V	V	RST SM 0603 18K PM5 COL
3113						V	RST SM 0603 22K PM5 COL
3114						V	RST SM 0603 47K PM5 COL
4102	V	V	V	V	V		RST SM 0603 JUMP. 0R05 COL
4103						V	RST SM 0603 JUMP. 0R05 COL
4104	V			V			RST SM 0603 JUMP. 0R05 COL
4106		V	V		V	V	RST SM 0603 JUMP. 0R05 COL
4107						V	RST SM 0603 JUMP. 0R05 COL
4108						V	RST SM 0603 JUMP. 0R05 COL
4110	V	V		V	V	V	RST SM 0603 JUMP. 0R05 COL
4111		V			V		RST SM 0603 JUMP. 0R05 COL
4113	V			V		V	RST SM 0603 JUMP. 0R05 COL
5101	V	V		V	V	V	FXDIND SM 0805 0U39 PM10 COL R
5101			V				FXDIND SM 0805 0U68 PM10 COL R
5102	V	V	V	V		V	FXDIND SM 0805 12U PM10 COL R
5102					V		FXDIND SM 1008 6U8 PM5 COL R
5107				V	V		FXDIND 0603 100MHZ 600R COL R
5107		V					RST SM 0603 100R PM5 COL
5108				V	V		FXDIND 0603 100MHZ 600R COL R
5108		V					RST SM 0603 100R PM5 COL
6103		V			V		DIO SIG SM BAS316 (COL) R
6105						V	DIO SIG SM 1SS356 (RHM0) R
7101	V	V		V	V	V	TRA SIG SM BC847BW (COL) R
7102						V	TRA SIG SM BC847BW (COL) R

B2 HERCULES

Item	LC4.3A AB (DVB-T)	LC4.3E AB/LC4.8E AB/LC4.9E AB (DVB-T)	LC4.3U/L	LC4.3E/LC4.8E/LC4.9E	LC4.3E W/O 3D COMB FILTER	LC4.3A - CHINA	LC4.3A - AP (non-China)	Description
2203	V	V		V	V	V	V	ELCAP SM 16V 10U PM20 COL R
2229			V					CER2 0805 X5R 6V3 10U PM10 R
2244	V	V		V	V			CER2 0402 Y5V 16V 100N COL
2245	V	V		V	V			CER2 0402 Y5V 16V 100N COL
2246	V	V		V	V			CER2 0402 Y5V 16V 100N COL
2255	V	V	V	V		V	V	CER2 0402 Y5V 16V 100N COL
2286	V	V	V	V		V	V	CER2 0402 Y5V 16V 100N COL
2289	V							CER2 0805 Y5V 10V 4U7 P8020 R
2289				V				RST SM 0603 150R PM5 COL
2290	V	V		V	V			CER2 0805 Y5V 10V 4U7 P8020 R
2291	V	V		V				CER2 0402 Y5V 16V 100N COL
2292		V						CER2 0402 Y5V 16V 100N COL
3250		V		V	V	V	V	RST SM 0402 100R PM5 COL
3251		V		V	V	V	V	RST SM 0402 100R PM5 COL
3252		V		V	V	V	V	RST SM 0402 100R PM5 COL
3253		V		V	V	V	V	RST SM 0402 100R PM5 COL
3255		V		V	V	V	V	RST SM 0402 JUMP. 0R05 COL
3256		V		V	V	V	V	RST SM 0402 JUMP. 0R05 COL
3257		V		V	V	V	V	RST SM 0402 JUMP. 0R05 COL
3258		V		V	V	V	V	RST SM 0402 1K PM5 COL
3259		V		V	V	V	V	RST SM 0402 1K PM5 COL
3260		V		V	V	V	V	RST SM 0402 1K PM5 COL
3270								RST SM 0402 10K PM5 COL
3282		V						RST SM 0603 150R PM5 COL
3285	V	V	V	V		V	V	RST SM 0402 JUMP. 0R05 COL
3286	V	V	V	V		V	V	RST SM 0402 100R PM5 COL
3291	V							RST SM 0402 47K PM5 COL
3292		V		V				RST SM 0402 12K PM5 COL
3292	V							RST SM 0402 47K PM5 COL
3293	V							RST SM 0402 47K PM5 COL
3294	V	V		V				RST SM 0402 47K PM5 COL
3295	V	V		V	V	V	V	RST SM 0402 100K PM5 COL
3296	V	V						RST SM 0402 100R PM5 COL
4206			V		V	V	V	RST SM 0805 JUMP. 0R05 COL R
4213	V	V						RST SM 0402 JUMP. 0R05 COL
4214	V	V						RST SM 0402 JUMP. 0R05 COL
4215	V	V						RST SM 0402 JUMP. 0R05 COL
5218	V	V		V				IND FXD 1206 EMI 100MHZ 120R R
6206	V	V						DIO SIG SM BAT54 SOD323 COL R
7208		V		V	V	V	V	TRA SIG SM BC847BW (COL) R
7209		V		V	V	V	V	TRA SIG SM BC847BW (COL) R
7210		V		V	V	V	V	TRA SIG SM BC847BW (COL) R
7217			V			V		IC SM TDA15011H/N1BD0 (PHSE) Y
7217	V	V		V	V		V	IC SM TDA15021H/N1B91 (PHSE) Y
7219	V	V		V				IC SM 74HC4053D (PHSE) R

B3 SYNC INTERFACE

Item	26/32PFxxxx - AP/NAFTA/LT	EU & AP DVB sets	LC4.3E/LC4.9x/LC4.8x/LC4.3A-China	26PF4310/10	Description
2449	V	V	V		CER2 0402 Y5V 16V 100N COL
3432		V			RST SM 0402 2K7 PM5 COL
3458	V	V	V		RST SM 0402 100R PM5 COL
3459	V	V	V		RST SM 0402 100R PM5 COL
3461	V	V	V		RST SM 0402 100R PM5 COL
3462	V	V	V		RST SM 0402 100R PM5 COL
4436				V	RST SM 0402 JUMP. 0R05 COL
4437				V	RST SM 0402 JUMP. 0R05 COL
4440	V	V	V		RST SM 0402 JUMP. 0R05 COL
4441	V	V	V		RST SM 0402 JUMP. 0R05 COL
6430	V		V	V	DIO REG SM PDZ2.4B (PHSE) R
6431	V		V	V	DIO SIG SM 1N4148WS (VISH) R
7436	V	V	V		IC SM 74LVC14APW (PHSE) R

B5 AUDIO WITHOUT AMPLIFIER

Item	26/32PF	37/42/50PF	Description
2612		V	CER2 0603 Y5V 10V 1U COL
2613	V		CER2 0603 Y5V 10V 1U COL
2616	V		CER2 0603 X5R 6V3 2U2 PM10 R
2617	V		CER2 0603 X5R 6V3 2U2 PM10 R
3615	V		RST SM 0402 10K PM5 COL
3616		V	RST SM 0402 1K PM5 COL
3617		V	RST SM 0402 1K PM5 COL
3618	V		RST SM 0402 22K PM5 COL
3619		V	RST SM 0402 10K PM5 COL
3620		V	RST SM 0402 10K PM5 COL
3623	V		RST SM 0402 47K PM5 COL
3625	V		RST SM 0402 3K3 PM5 COL
3627	V		RST SM 0402 22K PM5 COL
3628		V	RST SM 0402 10K PM5 COL
3629		V	RST SM 0402 22K PM5 COL
3630	V		RST SM 0402 330R PM5 COL
3630		V	RST SM 0402 470R PM5 COL
3631	V		RST SM 0402 330R PM5 COL
3631		V	RST SM 0402 470R PM5 COL
3632		V	RST SM 0402 RC31 39R PM5 R
3633		V	RST SM 0402 RC31 39R PM5 R
4601		V	RST SM 0603 JUMP. 0R05 COL
4602	V		RST SM 0603 JUMP. 0R05 COL
4603	V		RST SM 0603 JUMP. 0R05 COL
4606		V	RST SM 0603 JUMP. 0R05 COL
4609	V		RST SM 0603 JUMP. 0R05 COL
4610	V		RST SM 0603 JUMP. 0R05 COL
4611	V		RST SM 0603 JUMP. 0R05 COL
4612	V		RST SM 0603 JUMP. 0R05 COL
4613	V		RST SM 0603 JUMP. 0R05 COL
4614		V	RST SM 0603 JUMP. 0R05 COL
4615		V	RST SM 0603 JUMP. 0R05 COL
4616	V		RST SM 0603 JUMP. 0R05 COL
4617		V	RST SM 0603 JUMP. 0R05 COL
4618		V	RST SM 0603 JUMP. 0R05 COL
4619		V	RST SM 0603 JUMP. 0R05 COL
4620	V		RST SM 0603 JUMP. 0R05 COL
4621		V	RST SM 0603 JUMP. 0R05 COL
7603		V	TRA SIG SM BC847BW (COL) R
7604		V	TRA SIG SM BC847BW (COL) R
7607	V		TRA SIG SM BC847BW (COL) R

B6 DC DC CONVERTER

Item	26/32PF LCD	37/42PF LCD	42/50PF PDP	DVB PDP 42PF	DVB LCD 37PF	Description
2701	V	V			V	CER1 0402 NP0 50V 100P COL
2706		V	V	V	V	ELCAP SM 16V 10U PM20 COL R
2709		V	V	V	V	ELCAP SM 16V 47U PM20 COL R
2710		V	V	V	V	CER2 1210 Y5V 25V 10U P8020 R
2711		V	V	V	V	CER2 1210 Y5V 25V 10U P8020 R
2713		V	V	V	V	ELCAP SM SEV 16V 470U PM20 R
2714		V	V	V	V	CER2 0402 X7R 50V 220P COL
2715		V	V	V	V	CER2 0402 X7R 16V 22N PM10 R
2741		V	V	V	V	CER2 0603 X7R 10V 220N COL
2751	V	V			V	CER2 0402 Y5V 16V 100N COL
2752	V	V			V	ELCAP SM 16V 47U PM20 COL R
2760	V	V			V	CER2 1206 X7R 25V 1U PM10 R
2761		V	V	V	V	CER2 1206 X7R 25V 1U PM10 R
3708		V	V	V	V	RST SM 0402 10K PM5 COL
3709		V	V	V	V	RST SM 0402 6K8 PM5 COL
3712		V	V	V	V	RST SM 0603 RC22H 5K6 PM1 R
3713		V	V	V	V	RST SM 0603 RC22H 3K3 PM1 R
3716		V	V	V	V	RST SM 0402 4K7 PM5 COL
3740		V	V	V	V	RST SM 0402 1K5 PM5 COL
3741		V	V	V	V	RST SM 0402 1K5 PM5 COL
3742		V	V	V	V	RST SM 0402 15K PM5 COL
3743		V	V	V	V	RST SM 0402 22K PM5 COL
3755	V	V			V	RST SM 0402 10K PM5 COL
3758	V	V			V	RST SM 0402 15K PM5 COL
3760	V	V			V	RST SM 0402 100R PM5 COL
3761		V	V	V	V	RST SM 0402 100R PM5 COL
5700	V	V			V	IND FXD 1206 EMI 100MHZ 120R R
5704		V	V	V	V	IND FXD SM 1206 10U PM20 R
5709		V	V	V	V	IND FXD SM 7032 10U PM20 R
5712		V	V	V	V	IND FXD SM 12565 33U PM20 R
5713		V	V	V	V	INDFXD SM 10145 10U PM20 R
5756	V	V			V	IND FXD 1206 EMI 100MHZ 120R R
5757	V	V			V	IND FXD 1206 EMI 100MHZ 120R R
6708		V	V	V	V	DIO REC SS24 COL R
6709		V	V	V	V	DIO REC SS14 COL R
6712		V	V	V	V	DIO REC SS36 COL R
6740		V	V	V	V	DIO REG SM PDZ8.2B (PHSE) R
7708		V	V	V	V	IC SM LF33CPT (ST00) R
7710		V	V	V	V	IC SM E-L5973D (ST00) R
7741		V	V	V	V	TRA SIG SM BC847BW (COL) R
7742		V	V	V	V	TRA SIG SM BC847BW (COL) R
7754	V	V			V	FET POW SM SI2301BDS-E3(VISH)R
7755	V	V			V	TRA SIG SM PDTC114ET (COL) R

F_15270_069.eps
230505

SSB: Scaler

B7 SCALER

B7

+2V5_DDR F800 2800 100u 16V I813

2801 2802 2803 2804 2805 2806 2807 2808 2809 2810 2811 2812 100n

+2V5_DDR +2V5_DDR +1V8_CORE

7801-12 GM1501-LF-BD SYSTEM

FS_2.5 FS_2.5 VDDA18_DLL

B11 FROM SDRAM

#RESET K1 RESET_

B10 FROM SDRAM

FSVREF 3800 10K R4 F801 J24 K26 W25 W24 2813 2814 100n 100n

EXTCLK|GPI_02 FSVREF1 FSVREFVSS1 FSVREF2 FSVREFVSS2

FSDATA0 E24 FSDATA1 E25 FSDATA2 E26 FSDATA3 G26 FSDATA4 G24 FSDATA5 H26 FSDATA6 H24 FSDATA7 J25 FSDATA8 J26 FSDATA9 K25 FSDATA10 P24 FSDATA11 P26 FSDATA12 N24 FSDATA13 N26 FSDATA14 M25 FSDATA15 L24 FSDATA16 L25 FSDATA17 M26 FSDATA18 M24 FSDATA19 N25 FSDATA20 N23 FSDATA21 P25 FSDATA22 R26 FSDATA23 R24 FSDATA24 K24 FSDATA25 J26 FSDATA26 H25 FSDATA27 G23 FSDATA28 G25 FSDATA29 F24 FSDATA30 F25 FSDATA31 F26

FSDATA(0) 3801-4 4 5 22R FSDATAU0 FSDATA(1) 3801-3 3 6 22R FSDATAU1 FSDATA(2) 3801-2 2 7 22R FSDATAU2 FSDATA(29) 3801-1 1 8 22R FSDATAU29

FSDATA(26) 3802-4 4 5 22R FSDATAU26 FSDATA(7) 3802-3 3 6 22R FSDATAU7 FSDATA(25) 3802-2 2 7 22R FSDATAU25 FSDATA(24) 3802-1 1 8 22R FSDATAU24

FSDATA(21) 3803-4 4 5 22R FSDATAU21 FSDATA(11) 3803-3 3 6 22R FSDATAU11 FSDATA(10) 3803-2 2 7 22R FSDATAU10 FSDATA(19) 3803-1 1 8 22R FSDATAU19

FSDATA(14) 3804-1 1 8 22R FSDATAU14 FSDATA(18) 3804-2 2 7 22R FSDATAU18 FSDATA(16) 3804-3 3 6 22R FSDATAU16 FSDATA(15) 3804-4 4 5 22R FSDATAU15

FSDATA(17) 3805-4 4 5 22R FSDATAU17 FSDATA(20) 3805-3 3 6 22R FSDATAU20 FSDATA(12) 3805-2 2 7 22R FSDATAU12 FSDATA(13) 3805-1 1 8 22R FSDATAU13

FSDATA(23) 3806-1 1 8 22R FSDATAU23 FSDATA(22) 3806-2 2 7 22R FSDATAU22 FSDATA(9) 3806-3 3 6 22R FSDATAU9 FSDATA(8) 3806-4 4 5 22R FSDATAU8

FSDATA(5) 3807-4 4 5 22R FSDATAU5 FSDATA(6) 3807-3 3 6 22R FSDATAU6 FSDATA(4) 3807-2 2 7 22R FSDATAU4 FSDATA(3) 3807-1 1 8 22R FSDATAU3

FSDATA(30) 3808-2 2 7 22R FSDATAU30 FSDATA(31) 3808-3 3 6 22R FSDATAU31 FSDATA(27) 3808-4 4 5 22R FSDATAU27 FSDATA(28) 3808-1 1 8 22R FSDATAU28

FSDDR0 AD25 FSADDRU0 FSDDR1 AD26 FSADDRU1 FSDDR2 AC24 FSADDRU2 FSDDR3 AC25 FSADDRU3 FSDDR4 AB26 FSADDRU4 FSDDR5 AA24 FSADDRU5 FSDDR6 AA25 FSADDRU6 FSDDR7 AA26 FSADDRU7 FSDDR8 Y24 FSADDRU8 FSDDR9 AB25 FSADDRU9 FSDDR10 AC26 FSADDRU10 FSDDR11 AB24 FSADDRU11

FSADDRU3 3809-4 4 5 22R FSADDR(3) FSADDRU2 3809-3 3 6 22R FSADDR(2) FSADDRU1 3809-2 2 7 22R FSADDR(1) FSADDRU0 3809-1 1 8 22R FSADDR(0)

FSADDRU8 3810-1 1 8 22R FSADDR(8) FSADDRU7 3810-2 2 7 22R FSADDR(7) FSADDRU6 3810-3 3 6 22R FSADDR(6) FSADDRU5 3810-4 4 5 22R FSADDR(5)

FSADDRU4 3811-4 4 5 22R FSADDR(4) FSADDRU9 3811-3 3 6 22R FSADDR(9) FSADDRU11 3811-2 2 7 22R FSADDR(11) FSADDRU10 3811-1 1 8 22R FSADDR(10)

FSBKSEL0 Y25 FSBKSELU0 FSBKSEL1 Y26 FSBKSELU1

FSDQM0 T25 FSDQMU0 FSDQM1 U25 FSDQMU1 FSDQM2 U26 FSDQMU2 FSDQM3 T24 FSDQMU3

FSDQMU0 3812-1 1 8 22R FSDQM(0) FSDQMU1 3812-3 3 6 22R FSDQM(1) FSDQMU2 3812-4 4 5 22R FSDQM(2) FSDQMU3 3812-2 2 7 22R FSDQM(3)

FSWEU 3813-1 1 8 22R FSWE FSCASU 3813-2 2 7 22R FSCAS FSRASU 3813-3 3 6 22R FSRAS FSCKEU 3813-4 4 5 22R FSCKE

FSCKE W26 FSCKEU FSWE V26 FSWEU FSCAS V25 FSCASU FSRAS V24 FSRASU

FSBKSEL0 3814 22R FSBKSEL(0) FSBKSEL1 3815 22R FSBKSEL(1)

FSCLKn U23 FSCLK- FSCLKp U24 FSCLK+

FSDQS L26 3816 22R FSDQS

MSTR_SCL|GPI_03 P4 MSTR_SDA|GPI_04 P3 3817 10K 3818 10K +3V3SW SCL_IO SDA_IO

B9 TO SCALER INTRF B11 TO FLASH CONTROL B12 TO HDMI B20 TO EPLD

B10 TO SDRAM

K25 VSSA18_DLL

+3V3_PLL F802 2815 22u 16V 2816 2817 2818 2819 100n

2820 2821 100n 2822 100n

7801-11 GM1501-LF-BD CLK-SYN

H3 J3 F4 G1 H1 J1 F2 H2 J2 F3 H4 J4 K4 G2 G4 K2 G3

VDDA33_SDDS VDDA33_DDDS VDDA33_RPLL VDDA33_FPLL VDDD33_SDDS VDDD33_DDDS VDDD33_PLL VSSA33_SDDS VSSA33_DDDS VSSA33_RPLL VSSA33_FPLL VSSD33_SDDS VSSD33_DDDS VSSD33_PLL TCLK XTAL ACS_RSET_HD

+3V3_PLL 2823 22p +3V3_PLL 2824 22p I801 3824 3K3 1801 14M31818 SMD-49

B11 TO FLASH / CONTROL

7801-4 GM1501-LF-BD OCM-ADR

OCMADDR(0) AA1 OCMADDR0 OCMADDR10|GPIO_G11_B2 V2 OCMADDR(10)
OCMADDR(1) AA2 OCMADDR1 OCMADDR11|GPIO_G11_B3 V3 OCMADDR(11)
OCMADDR(2) AA3 OCMADDR2 OCMADDR12|GPIO_G11_B4 V4 OCMADDR(12)
OCMADDR(3) Y1 OCMADDR3 OCMADDR13|GPIO_G11_B5 U1 OCMADDR(13)
OCMADDR(4) Y2 OCMADDR4 OCMADDR14|GPIO_G11_B6 U2 OCMADDR(14)
OCMADDR(5) Y3 OCMADDR5 OCMADDR15|GPIO_G11_B7 U3 OCMADDR(15)
OCMADDR(6) W1 OCMADDR6 OCMADDR16|GPIO_19 U4 OCMADDR(16)
OCMADDR(7) W2 OCMADDR7|GPIO_18 OCMADDR17|GPIO_20 T1 OCMADDR(17)
OCMADDR(8) W3 OCMADDR8|GPIO_G11_B0 OCMADDR18|GPIO_21 T2 OCMADDR(18)
OCMADDR(9) V1 OCMADDR9|GPIO_G11_B1 OCMADDR19|GPIO_22 T3 OCMADDR(19)

B11 TO FLASH / CONTROL

7801-5 GM1501-LF-BD OCM_DATA

OCMDATA(0) AD4 OCMDATA0 OCMDATA(1) AE3 OCMDATA1 OCMDATA(2) AE3 OCMDATA2 OCMDATA(3) AD3 OCMDATA3 OCMDATA(4) AF2 OCMDATA4 OCMDATA(5) AE2 OCMDATA5 OCMDATA(6) AD2 OCMDATA6 OCMDATA(7) AF1 OCMDATA7

OCMDATA8|GPIO_G10_B0 AE1 OCMDATA9|GPIO_G10_B1 AD1 OCMDATA10|GPIO_G10_B2 AC1 OCMDATA11|GPIO_G10_B3 AC2 OCMDATA12|GPIO_G10_B4 AB1 OCMDATA13|GPIO_G10_B5 AB2 OCMDATA14|GPIO_G10_B6 AB3 OCMDATA15|GPIO_G10_B7

3825-3 3 6 3825-2 2 7 3825-1 1 8 3826-3 3 6 3826-1 1 8 3823-4 4 5 3826-2 2 7 3826-4 4 5 -10K

I802 I803

OCM_TIMER1|PWM3|GPIO_13 D25 I804 BU_LHT_ADJ1 B9 TO SCALER INTRF
OCM_UDI|GPIO_27 M2 UART_RX B1 TO TUNER
OCM_UDO|GPIO_26 M1 UART_TX
OCM_INT1|GPIO_30 L2 I805 POWER_DOWN B6 TO DC-DC CONVERTER
OCM_INT2|GPI_10 L1 V-CHIP_INT (RESERVED)
OCM_WE_ R3 #OCM_WE
OCM_RE_ R2 #OCM_RE
OCM_CS0_|GPIO_23 T4 I806 3827 10K
OCM_CS1_|GPIO_24 P1 I807 3828 10K
OCM_CS2_|GPIO_25 P2 I808 3829 10K +3V3SW
ROM_CS_|GPI_9 R1 #ROM_CS

B19 TO COLUMBUS

+3V3SW 3819 RES 3820 10K I812 B17 VCLAMP|GPIO_31 COL_DE I818 D20 VDV|VSOG|GPIO07 3839 100R I815 B20 VDOD|HSOUT|GPIO_06 V_1FH I800 C20 VVS|GPIO_05 H_1FH I816 D19 VHS_CSYNC|GPIO_04

FROM SYNC INTERFACE B3

COL_YB(1) A23 COL_YB(2) C22 COL_YB(3) B22 COL_YB(4) A22 COL_YB(5) D21 COL_YB(6) C21 COL_YB(7) B21 COL_YB(8) A21

VGRN0|GPIO_G02_B0 VGRN1|GPIO_G02_B1 VGRN2|GPIO_G02_B2 VGRN3|GPIO_G02_B3 VGRN4|GPIO_G02_B4 VGRN5|GPIO_G02_B5 VGRN6|GPIO_G02_B6 VGRN7|GPIO_G02_B7

COL_Do(1:7)

COL_Do(1) C19 COL_Do(2) B19 COL_Do(3) A19 COL_Do(4) D18 COL_Do(5) C18 COL_Do(6) B18 COL_Do(7) A18 C17

VRED0|GPIO_G01_B0 VRED1|GPIO_G01_B1 VRED2|GPIO_G01_B2 VRED3|GPIO_G01_B3 VRED4|GPIO_G01_B4 VRED5|GPIO_G01_B5 VRED6|GPIO_G01_B6 VRED7|GPIO_G01_B7

B12 FROM HDMI

HDMI_CbCr(0) B25 HDMI_CbCr(1) A25 HDMI_CbCr(2) D24 HDMI_CbCr(3) C24 HDMI_CbCr(4) B24 HDMI_CbCr(5) A24 HDMI_CbCr(6) C23 HDMI_CbCr(7) B23

VBLU0|GPIO_G03_B0 VBLU1|GPIO_G03_B1 VBLU2|GPIO_G03_B2 VBLU3|GPIO_G03_B3 VBLU4|GPIO_G03_B4 VBLU5|GPIO_G03_B5 VBLU6|GPIO_G03_B6 VBLU7|GPIO_G03_B7

FROM MUX-SYNC INTF B13 COL_Do(8)_INV 3840 22R

7801-6 GM1501-LF-BD VIDEO

SVCLK|GPI_0 D16 SVHSYNC|GPIO_02 C14 SVVSYNC|GPIO_01 B14 SVODD|GPIO_00 A14

B13 FROM MUX-SYNC INTF 3823 RES HDMI_VCLK HDMI_VHS HDMI_VVS 3822 100R

B12 FROM HDMI

SVDV|VCOAST|GPIO_03 A17 SVDATA7|GPIO_G00_B7 D14 SVDATA6|GPIO_G00_B6 A15 SVDATA5|GPIO_G00_B5 B15 SVDATA4|GPIO_G00_B4 C15 SVDATA3|GPIO_G00_B3 D15 SVDATA2|GPIO_G00_B2 A16 SVDATA1|GPIO_G00_B1 B16 SVDATA0|GPIO_G00_B0 C16

HDMI_VDV HDMI_Y(7) HDMI_Y(6) HDMI_Y(5) HDMI_Y(4) HDMI_Y(3) HDMI_Y(2) HDMI_Y(1) HDMI_Y(0)

VCLK|GPI_01 A20 I817 COL_CLKASB 4801 COL_CLKASA

FROM COLUMBUS B19

B12 TO HDMI

B22 FROM DIGITAL-IO (CINCH) B23 RESERVED FROM ANALOG-IO (CINCH)

B16 B20 TO EPLD

HDMI_HOTPLUG_RESET PIXEL+_RESET (RESERVED FOR CINCH ONLY) AV3_HDMI-AUDIO_SEL CVI_VGA_SEL 3831 100R PDP_GO_UP I819 3832 100R VS_ON POWER_UP_OK I820 3833 10R I821 HOT_PLUG

B14 TO DIGITAL-IO (SCART)

+3V3_IO 3830 RES

7801-9 GM1501-LF-BD GPIO

AD23 GPIO_G04_B0|DOBLU2 AD24 GPIO_G04_B1|DOBLU3 AE24 GPIO_G04_B2|DOBLU4 AF24 GPIO_G04_B3|DOBLU5 AF25 GPIO_G04_B4|DOBLU6 AF26 GPIO_G04_B5|DOBLU7 AE25 GPIO_G04_B6|DOBLU8 AE26 GPIO_G04_B7|DOBLU9 NC AD21 GPIO_G05_B0|DOGRN2 AD22 GPIO_G05_B3|DOGRN5

AC18 GPIO_G06_B0|DORED2 AD18 GPIO_G06_B1|DORED3 AE18 GPIO_G06_B2|DORED4 AF18 GPIO_G06_B3|DORED5 AE8 GPIO_G07_B0|DERED2 AF8 GPIO_G07_B1|DERED3 AC9 GPIO_G07_B2|DERED4 AD9 GPIO_G07_B3|DERED5 AE9 GPIO_G07_B4|DERED6 AF9 GPIO_G07_B5|DERED7 AD10 GPIO_G07_B6|DERED8 AE10 GPIO_G07_B7|DERED9

SD_HD_SEL

GPIO_G08_B0|JTAG_CLK|DORED0 GPIO_G08_B1|JTAG_MODE|DORED1 GPIO_G08_B2|JTAG_TDI|DOGRN0 GPIO_G08_B3|DVS|DOGRN1 GPIO_G08_B4|JTAG_TDO|DOBLU0 GPIO_G08_B5|JTAG_RESET|DOBLU1

AD6 I809 3834 10K JTAG_CLK_SCL AE6 NC AE7 I810 3835 10K JTAG_TDI_SDA AF7 AD8 I822 3836 10K PC_HD_SEL

GPIO_G09_B0|DERED0 AE4 GPIO_G09_B1|DERED1 AF4 GPIO_G09_B2|DEGRN0 AC5 GPIO_G09_B3|DEGRN1 AD5 GPIO_G09_B4|DEBLU0 AE5 GPIO_G09_B5|DEBLU1 AF5

SC2|AV2_SIDE_SW RGB|CVI_HDA_SEL TV_SC_COM TV_TRG NVM_WP_SCALER SC2_OUT_SW Y_NOTCH

GPIO_14|DHS AF17 GPIO_15|DVS AD16 GPIO_16|DEN AD7

+3V3_IO 3837 10K 3838 10K F803 F804 I811 B3B-PH-SM4-TBT(LF) FOR SW TESTING (RES) 1802

B13 TO MUX-SYNC INTF +3V3_IO B11 TO FLASH / CONTROL 3841 10K COL_RST B19 TO COLUMBUS

TO ANALOG-IO B15/B23 (SCART) (CINCH) TO HERCULES B2

B9B-PH-SM4-TBT(LF)

3139 123 6093.1

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1801 B12 1802 G14 2800 A1 2801 A1 2802 A1 2803 A1 2804 A2 2805 A2 2806 A2 2807 A2 2808 A2 2809 A3 2810 A3 2811 A3 2812 A3 2813 B2 2814 B3 2815 A9 2816 A9 2817 A10 2818 A10 2819 A10 2820 A12 2821 A12 2822 A12 2823 A10 2824 A12 3800 B3 3801-1 I1 3801-2 C1 3801-3 C1 3801-4 C1 3802-1 C1 3802-2 C1 3802-3 C1 3802-4 C1 3803-1 D1 3803-2 D1 3803-3 C1 3803-4 C1 3804-1 D1 3804-2 D1 3804-3 D1 3804-4 D1 3805-1 D1 3805-2 D1 3805-3 D1 3805-4 D1 3806-1 D1 3806-2 E1 3806-3 E1 3806-4 E1 3807-1 E1 3807-2 E1 3807-3 E1 3807-4 E1 3808-1 E1 3808-2 E1 3808-3 E1 3808-4 E1 3809-1 B6 3809-2 B6 3809-3 B6 3809-4 B6 3810-1 B6 3810-2 B6 3810-3 B6 3810-4 B6 3811-1 C6 3811-2 C6 3811-3 C6 3811-4 C6 3812-1 C6 3812-2 C6 3812-3 C6 3812-4 C6 3813-1 C6 3813-2 D6 3813-3 D6 3813-4 D6 3814 D6 3815 D6 3816 D6 3817 D6 3818 E6 3819 F2 3820 F1 3822 G5 3823 F5 3824 B12 3825-1 F9 3825-2 F9 3825-3 F9 3825-4 F9 3826-1 F9 3826-2 F9 3826-3 F9 3826-4 F9 3827 F13 3828 F13 3829 F13 3830 H10 3831 I9 3832 I9 3833 I9 3834 G13 3835 G13 3836 G13 3837 G14 3838 G14 3839 G3 3840 I3 3841 H14 4801 H5 7801-11 A11 7801-12 A4 7801-4 C11 7801-5 E11 7801-6 F4 7801-9 G11 F800 A1 F801 B3 F802 A9 F803 G14 F804 G14 I800 G2 I801 B12 I802 F10 I803 F10 I804 E12 I805 E12 I806 F12 I807 F12 I808 F12 I809 G12 I810 G12 I811 G14 I812 F3 I813 A1 I815 G3 I816 G2 I817 H5 I818 F3 I819 I10 I820 I10 I821 I10 I822 G12

SSB: Scaler Supply

B8 SCALER

SUPPLY FOR SCALER

+3V3SW
5900 +3V3_PLL
5901 +3V3_ADC
5902 +3V3_DVI
5903 +3V3_IO
5904 F900 +3V3_LBADC
5905 +3V3_LVDSA
5906 +3V3_LVDSB
5907 +3V3_LVDS

+3V3SW — 7900 LF25CDT — I900 — 5908 +2V5_DDR
2900 100n, 2901 1n0, 2902 470u 16V

+3V3SW — 7901 LD1086D2T18 — I901 — I902 +1V8 — 5909 +1V8_ADC, 5910 +1V8_DVI, 5911 +1V8_CORE
2903 100n, 2904 47u 16V

+3V3_IO — F901 — 2905 100u 16V; 2906–2916 100n
+1V8_CORE — F902 — 2917 100u 16V; 2918–2929 100n

7801-13 GM1501-LF-BD SUPPLY
IO_3.3: AC10 AC8 AC6 AC4 AB4 AA4 Y4 W4 D23 D22 D17
CORE_1.8: U17 U16 U11 U10 T7 T6 T11 L16 L11 K17 K16 K11 K10
D_GND: A13 B13 K12 K13 K14 K15 L10 L12 L13 L14 L15 L17 M10 M11 M12 M13 M14 M15 M16 M17 N10 N11 N12 N13 N14 N15 N16 N17 P10 P11 P12 P13 P14 P15 P16 P17 R10 R11 R12 R13 R14 R15 R16 R17 T10 T12 T13 T14 T15 U12 U13 U14 U15 AD15
I905

F903 — 2930–2933 100n — +1V8_DVI — D6 D9 D8 D10
+3V3_DVI — F904 — 2934 47u 16V; 2935–2939 100n — C11 C10 C9 C8 C6

B14 TO DIGITAL-IO (SCART ONLY)

7801-2 GM1501-LF-BD DVI (DVI_1.8 / DVI_3.3)
SCL_DVI N4 DVI_SCL|GPI_07
SDA_DVI N3 DVI_SDA|GPI_08
RXC+IN A6, RXC-IN B6 — RXCp, RXCn
RX0+IN A8, RX0-IN B8 — RX0p, RX0n
RX1+IN A9, RX1-IN B9 — RX1p, RX1n
RX2+IN A10, RX2-IN B10 — RX2p, RX2n
B11 REXT
DVI_GND: A7 A11 B5 B7 C7 D7 D11
I906

B2 KEYBOARD 4900 RES

+3V3_LBADC — 2940 47u 16V; 2941 100n
7801-3 GM1501-LF-BD ADC (LBADC_3.3)
C12 LBADC_IN1
(RES) B12 LBADC_IN2
(RES) A12 LBADC_IN3
D12 LBADC_RETURN
LBADC_GND D13
2942 100n

7801-14 GM1501-LF-BD NC
NC A1, AC17 NC; NC C5, K3 NC; NC NC, NC F1 NC; NC D5

7801-10 GM1501-LF-BD DISPLAY PWR
AD19 LVDSA_GND_1, AC19 LVDSA_GND_2, AC20 LVDSA_GND_3, AC13 LVDSB_GND_1, AC14 LVDSB_GND_2, AC15 LVDSB_GND_3, AD17 VSSD33_LVDS
VDDD33_LVDS AE17 F905 +3V3_LVDS
LVDSA_3.3_3 AC22 F906 +3V3_LVDSA
LVDSA_3.3_2 AC21
LVDSA_3.3_1 AD20
LVDSB_3.3_3 AC12 F907 +3V3_LVDSB
LVDSB_3.3_2 AD13
LVDSB_3.3_1 AD12
2945 22u 16V; 2946–2948 100n; 2949 100n
2950 22u 16V; 2951 100n; 2952 100n

B13 TO MUX-SYNC INTERFACE
B18 ADC
B19 TO COLUMBUS & B2 HERCULES

+3V3STBY — 3901 RES, 3902 RES — 2953 100n, 2954 100n — F908 +1V8_ADC
+3V3_ADC — F909 — 2955 22u 16V; 2956–2959 100n

7801-1 GM1501-LF-BD ANA-IN (ADC_1.8 / ADC_3.3)
AVSYNC L3 AVSYNC
AHSYNC L4 AHSYNC
SCL, SDA — 3903 100R N2, 3904 100R N1 — VGA_SCL|GPI_05, VGA_SDA|GPI_06
SOG C3 SOG
R_PR+ D2, R_PR- D1 — REDp, REDn
G_Y+ C2, G_Y- C1 — GREENp, GREENn
B_PB+ B2, B_PB- B1 — BLUEp, BLUEn
ADC_AGND C4 D4 E1 E2 E4; ADC_DGND A5 B4; F910

B16 TO TOP CONN.

7801-7 GM1501-LF-BD CTRL
3900 3K3 I904 AC16 OEXTR
FAN_SPEED C26 PWM0|GPIO_10
HD_FILTER C25 PWM1|GPIO_11
PPWR|GPIO_08 A26 PANEL-PWR-CTL
PBIAS|GPIO_09 B26 LAMP_ON_OFF
DCLK|GPIO_17 AC7 NC
PWM2|GPIO_12 D26 I903 BU_LHT_ADJ2 (RES)
FROM DC-DC CONVERTER B6

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2900 D1 F906 D10
2901 D2 F907 D10
2902 D2 F908 E9
2903 E1 F909 E10
2904 E2 F910 G9
2905 A4 I900 C2
2906 A4 I901 E1
2907 A4 I902 E2
2908 A4 I903 G6
2909 A4 I904 F4
2910 A5 I905 C4
2911 A5 I906 E6
2912 A5
2913 A5
2914 A6
2915 A6
2916 A6
2917 A7
2918 A7
2919 A7
2920 A7
2921 A7
2922 A8
2923 A8
2924 A8
2925 A8
2926 A9
2927 A9
2928 A9
2929 A9
2930 C5
2931 C5
2932 C5
2933 C5
2934 C7
2935 C7
2936 C7
2937 C8
2938 C8
2939 C8
2940 B9
2941 B10
2942 C9
2945 D10
2946 D11
2947 D11
2948 D11
2949 D11
2950 D10
2951 D11
2952 D11
2953 E8
2954 E8
2955 E10
2956 E10
2957 E10
2958 E11
2959 E11
3900 F4
3901 E8
3902 E8
3903 F8
3904 F8
4900 B9
5900 A1
5901 B1
5902 B1
5903 B1
5904 B1
5905 C1
5906 C1
5907 C1
5908 C2
5909 D2
5910 E2
5911 E2
7801-1 F9
7801-10 C9
7801-13 B6
7801-14 A10
7801-2 C6
7801-3 B10
7801-7 F5
7900 C1
7901 D1
F900 B2
F901 A4
F902 A7
F903 C5
F904 C7
F905 D10

SSB: Scaler Interface

B9 SCALER INTERFACE

B9

7801-8
GM1501-LF-BD

ACp|GPIO_G06_B6|DORED8 AE20
ACn|GPIO_G06_B7|DORED9 AF20
A3p|GPIO_G06_B4|DORED6 AE19
A3n|GPIO_G06_B5|DORED7 AF19
A2p|GPIO_G05_B1|DOGRN3 AE21
A2n|GPIO_G05_B2|DOGRN4 AF21
A1p|GPIO_G05_B4|DOGRN6 AE22
A1n|GPIO_G05_B5|DOGRN7 AF22
A0p|GPIO_G05_B6|DOGRN8 AE23
A0n|GPIO_G05_B7|DOGRN9 AF23
NC
SHIELD5|DEBLU5 AD14
SHIELD4|DEBLU2 AE13
SHIELD3|DEGRN5 AE11
SHIELD2|DEGRN4 AD11
SHIELD1|DEGRN3 AC11
SHIELD0|DEGRN2 AF10
BCp|DEGRN8 AE12
BCn|DEGRN9 AF13
B3p|DEGRN6 AF11
B3n|DEGRN7 AF12
B2p|DEBLU3 AF14
B2n|DEBLU4 AE14
B1p|DEBLU6 AF15
B1n|DEBLU7 AE15
B0p|DEBLU8 AF16
B0n|DEBLU9 AE16
LVDS

TXBC+ TXBC- TXB3+ TXB3- TXB2+ TXB2- TXB1+ TXB1- TXB0+ TXB0-

B20 TO EPLD

B7 TO SCALER

BU_LHT_ADJ1

3A02 1K0

RESERVED

IA07 4A02 RES

RES +5VSWI

3A03 RES

3A05 RES

7A01 SI2301DS-T1

3A04 1K0

IA06 3A06 10K IA00

2A03 1u0

4A03

IA05 BACKLIGHT_DIM

B20 FROM EPLD

B16 TO TOP CONNECTORS

BACKLIGHT_CTRL

BACKLIGHT CONTROL				
	5V DC	5V PWM	3V3 DC	3V3 PWM
3A03	390R	390R	-	-
3A05	-	-	-	-
3A04	1K	1K	-	-
7A01	Y	Y	-	-
4A03	-	-	Y	Y
3A06	10K	0R	10K	0R
2A03	1u	-	1u	-

FOR PDP ONLY

+3V3SW

3A07 10K 3A08 10K

2A00 100n 5A00

7A00 PCA9515ADP

VCC SDA1 SDA0 SCL1 SCL0 EN NC GND

B21 TO EPLD

SDA_DMA_BUS1_DISP 3A00 68R IA08 SDA_IO

SCL_DMA_BUS1_DISP 3A01 68R IA09 SCL_IO

4A04 (PDP) BUF_ENABLE

2A01 100p 2A02 100p

4A00_RES 4A01_RES

FOR UFD ONLY

+3V3STBY

2A13 100n 3A13 10K

3A11 4K7

7A03 BC847BW

+5V 3A14 4K7

B2 FROM HERCULES

SC_STANDBY 3A10 10K IA03

7A02 BC847BW

2A12 10n

6A01 BZX384-C3V9

STANDBY

4A05 4A06

2A00 E3
2A01 F2
2A02 F2
2A03 C7
2A12 F6
2A13 E8
3A00 E2
3A01 E2
3A02 C5
3A03 C6
3A04 C6
3A05 C6
3A06 C7
3A07 E2
3A08 E2
3A10 F6
3A11 E7
3A13 E8
3A14 E9
4A00 F3
4A01 F3
4A02 B6
4A03 D6
4A04 F4
4A05 F6
4A06 F8
5A00 E3
6A01 F8
7801-8 A2
7A00 E4
7A01 C6
7A02 F6
7A03 E8
IA00 C7
IA03 F6
IA05 B8
IA06 C7
IA07 B6
IA08 E3
IA09 E3

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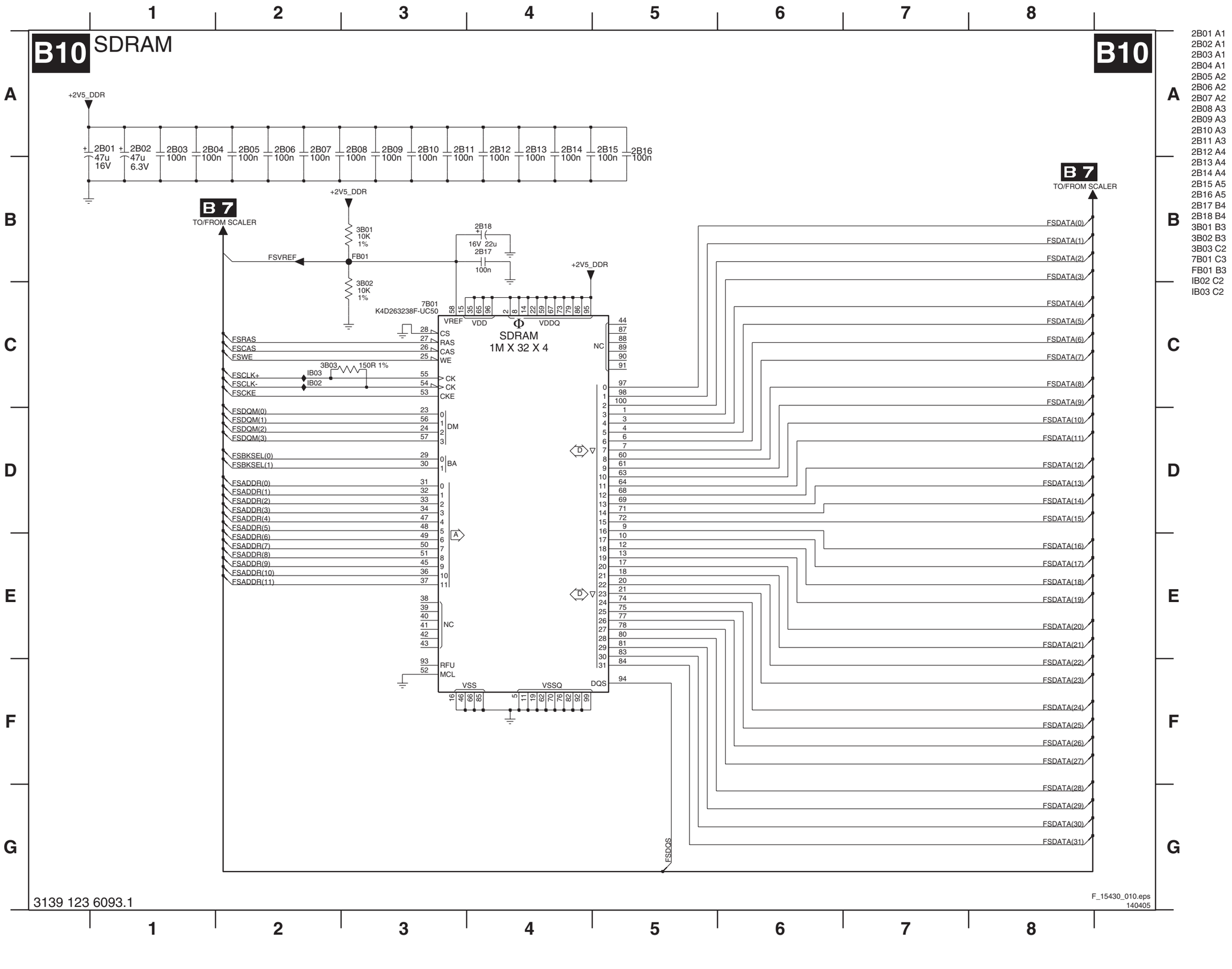
SSB: SDRAM


B10 SDRAM
B10
+2V5_DDR
2B01 47u 16V
2B02 47u 6.3V
2B03 100n
2B04 100n
2B05 100n
2B06 100n
2B07 100n
2B08 100n
2B09 100n
2B10 100n
2B11 100n
2B12 100n
2B13 100n
2B14 100n
2B15 100n
2B16 100n
B 7
TO/FROM SCALER
3B01 10K 1%
3B02 10K 1%
FSVREF
FB01
2B18 16V 22u
2B17 100n
7B01
K4D263238F-UC50
SDRAM
1M X 32 X 4
VREF
VDD
VDDQ
VSS
VSSQ
NC
RFU
MCL
DQS
3B03 150R 1%
IB03
IB02
FSRAS
FSCAS
FSWE
FSCLK+
FSCLK-
FSCKE
FSDQM(0)
FSDQM(1)
FSDQM(2)
FSDQM(3)
FSBKSEL(0)
FSBKSEL(1)
FSADDR(0)
FSADDR(1)
FSADDR(2)
FSADDR(3)
FSADDR(4)
FSADDR(5)
FSADDR(6)
FSADDR(7)
FSADDR(8)
FSADDR(9)
FSADDR(10)
FSADDR(11)
FSDATA(0)
FSDATA(1)
FSDATA(2)
FSDATA(3)
FSDATA(4)
FSDATA(5)
FSDATA(6)
FSDATA(7)
FSDATA(8)
FSDATA(9)
FSDATA(10)
FSDATA(11)
FSDATA(12)
FSDATA(13)
FSDATA(14)
FSDATA(15)
FSDATA(16)
FSDATA(17)
FSDATA(18)
FSDATA(19)
FSDATA(20)
FSDATA(21)
FSDATA(22)
FSDATA(23)
FSDATA(24)
FSDATA(25)
FSDATA(26)
FSDATA(27)
FSDATA(28)
FSDATA(29)
FSDATA(30)
FSDATA(31)
FSDQS
2B01 A1
2B02 A1
2B03 A1
2B04 A1
2B05 A2
2B06 A2
2B07 A2
2B08 A3
2B09 A3
2B10 A3
2B11 A3
2B12 A4
2B13 A4
2B14 A4
2B15 A5
2B16 A5
2B17 B4
2B18 B4
3B01 B3
3B02 B3
3B03 C2
7B01 C3
FB01 B3
IB02 C2
IB03 C2
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SSB: Flash / Control

B11 FLASH / CONTROL

B11

+3V3_IO
5C00
FC00
2C00
100n
2C01
+
10u 16V

7C00
M29W040B-55K1
32
ROM
512Kx8
[FLASH]
A 0 512K-1
DQ 0 7
16

OCMADDR(0) 12
OCMADDR(1) 11
OCMADDR(2) 10
OCMADDR(3) 9
OCMADDR(4) 8
OCMADDR(5) 7
OCMADDR(6) 6
OCMADDR(7) 5
OCMADDR(8) 27
OCMADDR(9) 26
OCMADDR(10) 23
OCMADDR(11) 25
OCMADDR(12) 4
OCMADDR(13) 28
OCMADDR(14) 29
OCMADDR(15) 3
OCMADDR(16) 2
OCMADDR(17) 30
OCMADDR(18) 1

#OCM_RE 24 OE
#OCM_WE 31 WE
#ROM_CS 22 CE

OCMDATA(0) 13
OCMDATA(1) 14
OCMDATA(2) 15
OCMDATA(3) 17
OCMDATA(4) 18
OCMDATA(5) 19
OCMDATA(6) 20
OCMDATA(7) 21

B 7 TO SCALER

B 7 TO SCALER

OCMADDR(0:19)
OCMDATA(0:7)

+3V3_IO
3C04-1 3C04-2 3C04-3 3C04-4 3C05 10K
3C11 RES
3C12 RES
3C13 RES
3C14 RES
3C15 RES

OCMADDR(0) 3C06-1 10K
OCMADDR(1) 3C06-2 10K
OCMADDR(2) 3C06-3 10K
OCMADDR(3) 3C06-4 10K

OCMADDR(4) 3C07-1 10K
OCMADDR(5) 3C07-2 10K
OCMADDR(6) 3C07-3 10K
OCMADDR(7) 3C07-4 10K

OCMADDR(8) 3C08-2 10K
OCMADDR(9) 3C08-1 10K
OCMADDR(10) 3C08-3 10K
OCMADDR(11) 3C08-4 10K

OCMADDR(12) 3C09-1 10K
OCMADDR(15) 3C09-2 10K
OCMADDR(16) 3C09-3 10K
OCMADDR(18) 3C09-4 10K

OCMADDR(17) 3C10-1 10K
OCMADDR(14) 3C10-2 10K
OCMADDR(13) 3C10-3 10K
OCMADDR(19) 3C10-4 10K

+3V3_IO
3C16-4 3C17 10K 3C16-3 10K 3C16-1 3C16-2 3C18 10K

FC09 FC10
FC08
FC07
FC06

3C19 RES 3C20 RES 3C21 RES

+3V3SW
3C00 10K
2C02 100n
3V2
7C01
8 M24C32-WMN6
Φ (4Kx8) EEPROM
ADR 0 1 2
WC SCL SDA
NVM_WP_SCALER 0V FC01 7
SCL_IO 3V2 FC02 6
SDA_IO 3V2 FC03 5
4

+3V3SW
3V2
2C03 100n
1C00 SKQR
For Software Development only - (RES)
FC04
0V
7C02 PST596J
MR SUB VCC GND VOUT
3C01 10K
3C02 1K0
3C03 RES
FC05 3V2
#RESET

B 7 & B 12 TO SCALER TO HDMI
& B 19 TO COLUMBUS

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1C00 E4
2C00 A3
2C01 A3
2C02 E2
2C03 E5
3C00 E2
3C01 E5
3C02 E6
3C03 E6
3C04-1 A6
3C04-2 A6
3C04-3 A6
3C04-4 A6
3C05 A6
3C06-1 B5
3C06-2 B5
3C06-3 B5
3C06-4 B5
3C07-1 B5
3C07-2 B5
3C07-3 B5
3C07-4 B5
3C08-1 B5
3C08-2 B5
3C08-3 C5
3C08-4 C5
3C09-1 C5
3C09-2 C5
3C09-3 C5
3C09-4 C5
3C10-1 C5
3C10-2 C5
3C10-3 C5
3C10-4 C5
3C11 A6
3C12 A6
3C13 A6
3C14 B6
3C15 B6
3C16-1 B7
3C16-2 B7
3C16-3 B6
3C16-4 B6
3C17 B6
3C18 B7
3C19 C6
3C20 C7
3C21 C7
5C00 A3
7C00 A2
7C01 E3
7C02 E5
FC00 A3
FC01 E2
FC02 E2
FC03 E2
FC04 E4
FC05 E6
FC06 C6
FC07 C6
FC08 C7
FC09 B7
FC10 B7

SSB: HDMI (N.A.)

2D00 A3 2D01 C2 2D02 C3 2D03 F4 2D04 F4 2D05 F4
2D06 F4 2D07 A5 2D08 B5 2D09 B5 2D10 B5 2D11 B5
2D12 A5 2D13 B5 2D14 B5 2D15 B5 2D16 B5 2D17 A6
2D18 B6 2D19 B6 2D20 A7 2D21 B6 2D22 B6 2D23 A7
2D24 B7 2D25 B7 2D26 B7 2D27 A8 2D28 B8 2D29 B8
2D30 B8 2D31 B8 2D32 E11 2D33 E11 2D34 E12 2D35 E12
2D36 G11 2D37 H11 2D38 G12 2D39 G12 2D40 G12 2D41 H13
2D44 F14 2D45 G14 3D00 A2 3D01 A3 3D02 A3 3D03 C2
3D04 C2 3D05 C4 3D06 C4 3D07 D4 3D08 D4 3D09 C5
3D10 C5 3D11 F4 3D12 F4 3D15-1 B11 3D15-2 B11 3D15-3 C11
3D15-4 C11 3D16-1 C11 3D16-2 C11 3D16-3 C11 3D16-4 C11 3D17-1 C11
3D17-2 D11 3D17-3 D11 3D17-4 D11 3D18-1 D11 3D18-2 D11 3D18-3 D11
3D18-4 D11 3D19 E12 3D20 E12 3D21-1 G9 3D21-2 G9 3D21-3 F9
3D21-4 F9 3D22 G9 3D23 G9 3D24 G11 3D25 H11 3D26 G12
3D27 H13 3D30 F14 3D31 F14 3D32 G14 3D33 G14 3D34 H11
3D35 H12 4D00 F13 4D01 F13 5D00 A5 5D01 A6 5D02 A6
5D03 A7 5D04 A7 7D00 A2 7D01 D3 7D02 C2 7D03 C5
7D04 E11 7D05 F13 FD00 B3 FD01 C2 FD02 C2 FD03 C2
FD04 D2 FD05 G2 FD06 G2 FD07 A5 FD08 A6 FD09 A6
FD10 A6 FD11 A7 FD12 F9 FD13 E11 FD14 E12 FD15 F10
FD16 E13 FD17 H7 ID00 C3 ID01 D3 ID02 D4 ID03 D4
ID04 F5 ID05 F5 ID06 F5 ID07 G5 ID08 G10 ID09 G11
ID10 G12 ID11 G12 ID12 H12 ID13 H12 ID14 H12 ID15 F13
ID16 E13 ID17 E13 ID18 F14 ID19 G14 ID20 F14 ID21 G14
ID22 F4

B12 HDMI (NOT APPLICABLE IN EUROPE SET)

B12

B 7 FROM SCALER

SCL_IO
SDA_IO

7D00 M24C02-WMN6 (256x8) EEPROM

3D00 4K7 3D01 4K7 3D02 4K7 2D00 100n FD00

B 2 2 FROM DIGITAL-IO (CINCH ONLY)

DOC_SDA FD01 3D03 0R
DOC_SCL FD02 3D04 0R ID00
+5VHDMI FD03

2D01 10n 2D02 1n0 FD04 ID01

3D05 100R 3D06 100R 3D07 4K7 3D08 4K7

7D01 BSN20 7D02 BSN20 ID02 ID03

B 1 1 FROM FLASH/CONTROL

#RESET

+3V3SW

3D09 33R

7D03 SII9993CTG100 Φ HDMI PANELLINK RECEIVER

RESET MCLKIN MCLKOUT CSCL CSDA DSCL DSDA RXC- RXC+ RX0- RX0+ RX1- RX1+ RX2- RX2+ RSET COMP PLLIN PLLOUT EXT-RES HSYNC VSYNC

AVCC VCC PVCC1 PVCC2 DACVCCR DACVCCG DACVCCB OVCC1 NC RSVDL RSVDO

PLLIN COMP

3D10 390R

+3V3SW 5D00 FD07 5D01 FD08 5D02 FD09 5D03 FD10 5D04 FD11

2D07 22u 6.3V 2D08 100n 2D09 1n0 2D10 1n0 2D11 1n0
2D12 22u 6.3V 2D13 100n 2D14 1n0 2D15 1n0 2D16 1n0
2D17 10u 2D18 100n 2D19 1n0
2D20 10u 2D21 100n 2D22 1n0
2D23 22u 6.3V 2D24 100n 2D25 1n0 2D26 1n0
2D27 22u 6.3V 2D28 100n 2D29 1n0 2D30 1n0 2D31 1n0

HDMI_Y(0:7) HDMI_CbCr(0:7)

3D15-11 8 33R HDMI_Y(0)
3D15-22 7 33R HDMI_Y(1)
3D15-33 6 33R HDMI_Y(2)
3D15-44 5 33R HDMI_Y(3)
3D16-11 8 33R HDMI_Y(4)
3D16-22 7 33R HDMI_Y(5)
3D16-33 6 33R HDMI_Y(6)
3D16-44 5 33R HDMI_Y(7)
3D17-11 8 33R HDMI_CbCr(0)
3D17-22 7 33R HDMI_CbCr(1)
3D17-33 6 33R HDMI_CbCr(2)
3D17-44 5 33R HDMI_CbCr(3)
3D18-11 8 33R HDMI_CbCr(4)
3D18-22 7 33R HDMI_CbCr(5)
3D18-33 6 33R HDMI_CbCr(6)
3D18-44 5 33R HDMI_CbCr(7)

B 7 TO SCALER

+3V3SW 3D19 1R0 3D20 1R0 AUDIO DAC

2D32 47u 6.3V 2D33 100n FD13
2D34 47u 6.3V 2D35 100n FD14

7D04 UDA1334BT/N2

VDDA VDDD BCK WS DATAI DIGITAL INTERFACE DE-EMPHASIS SYSCLK INTERPOLATION FILTER MUTE DEEM NOISE SHAPER PCS VQL DAC DAC VOR VSSA VSSD VREF-DAC SEOR0 SEOR1

2D36 1u0 ID09 3D24 100K 3D25 100R 3D34 100K 2D37 10n
2D38 47u 6.3V 2D39 100n ID10
2D40 1u0 10V ID11 3D26 100K 3D27 100R 3D35 100K 2D41 10n

ID12 ID13 ID14

B 2 2 TO DIGITAL-IO (CINCH ONLY)

ID17 FD16 ID16

AV3_LEFT
AV3_HDMI-AUDIO_SEL
AV3_RIGHT

4D00 4D01 FOR SET W/O HDMI

+3V3SW +3V3SW

7D05 HEF4053B VDD MDX VEE_VSS

3D30 RES 3D31 RES 3D32 RES 3D33 RES

2D44 1u0 ID18 AudioIN2R
2D45 1u0 ID19 AudioIN2L

B 2 TO HERCULES

HDMI_VDV
HDMI_VCLK

B 7 FROM SCALER

B 1 3 TO MUX-SYNC INTF

H_HDMI FD05
V_HDMI FD06

3D11 100R ID04 ID05
2D03 10u 2D04 10n
2D05 47n 2D06 10u 3D12 3K9 ID22 ID06 ID07

3D21-44 533R 3D21-33 633R 3D21-22 733R 3D21-11 833R FD15 FD12

3D22 33R 3D23 33R

AGND GND PGND DACGNDR DACGNDG DACGNDB OGND GND_HS

FD17

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SSB: MUX Sync Interface

B13 MUX-SYNC INTERFACE

B13

B2 FROM HERCULES
R_SDTV FE00
G_SDTV FE01
B_SDTV FE02
3E00 56R
3E01 56R
3E02 56R
RESERVED
3E13 330R
3E14 330R
3E15 330R
2E04 1u0
2E05 1u0
2E06 1u0
IE35
IE36
IE37
3E16 330R
3E17 330R
3E18 330R

B7 FROM SCALER
SD_HD_SEL
3V2
4E03 RES
0V I_PC_HD_SEL
IE01
IE02
FE04

B2 TO HERCULES
RGB|CVI_HDA_SEL
FE03

+5VSWI
5E00
IE00
2E03 100n
7E00 ADG733BRU
VDD
EN
A0
A1
A2
3E12 10K

(SCART) (CINCH)
B15/B23 FROM ANALOG-IO
SC1_CVI_DMMI_R_Pr_IN
SC1_CVI_DMMI_G_Y_IN
SC1_CVI_DMMI_B_Pb_IN
2E00 4u7
2E01 4u7
2E02 4u7
IE13
IE14
IE15
3E09 47K
3E10 47K
3E11 47K
3E50 47K
3E51 47K
3E52 47K
3E06 47K
3E07 47K
3E08 47K
RINA|Pr
GINA|YINA
BINA|Pb
2E33 4u7
2E34 4u7
2E35 4u7
IE16
IE18
FROM DIGITAL-IO
B14/B22 (SCART) (CINCH)
3E53 47K
3E54 47K
3E55 47K

S1A S1B S2A S2B S3A S3B
D1 D2 D3
VSS GND
SC1_R_CVI_Pr_IN
SC1_G_CVI_Y_IN
SC1_B_CVI_Pb_IN
IE19
IE21
4E12 RES
4E13 RES
4E14 RES

3E19 56R
3E20 56R
3E21 56R
IE25
IE26
2E07 33p
2E09 33p
2E11 33p
2E08 4u7
2E10 4u7
2E12 4u7

B8 TO SCALER
HD_FILTER
0V
IE03
3E22 100K
2E13 1u0
2E14 33p
3E23 820R

+5VSWI
5E01
FE06
2E16 100n
2E17 100n
2E18 100n
2E19 100n
2E20 47u 6.3V
7E01 SM5301BS-G
VCC Φ VCC
DISABLE
THROUGH
MUXSEL
GSR1
RINA|YINA
RINB|YINB
GSG1
GINA|UINA
GINB|UINB
GSB1
BINA|VINA
BINB|VINB
RFC
VFC
GND GND_HS
FE07
IE20
IE22
IE23
IE04
FE05
ROUT|YOUT
GOUT|UOUT
BOUT|VOUT
NC1 NC2 NC3
17 R-PR-ADC
14 G-Y-ADC
11 B-PB-ADC

+5VSWI
5E02 IE08 2E15 100n
5V4
7E02 ADG781BCP
VDD Φ
SPST SWITCH
NC NC
S1 S2 S3 S4
D1 D2 D3 D4
0V6 2V7 0V8 0V4 2V7
GND_HS GND
IN1 IN2 IN3 IN4
IE17 IE29 IE30
2E21 4u7 IE05
2E22 4u7 IE06
2E23 4u7 IE07
2E37 15p
2E38 15p
2E39 15p
PC_HD_SEL 3V2
FE08 3V3

B7 TO SCALER
B8 TO SCALER
FE09 3E24 470R 2E24 100n IE33 SOG
FE10 FE11 FE12 FE13
3E25 3E26 3E27 3E28 3E29 3E30 39R 22R
IE32 IE34
2E25 2E26 2E27 2E28 2E29 2E30 100n
R_PR+ R_PR- G_Y+ G_Y- B_PB+ B_PB-

B3 SYNC INTERFACE
Hsync_SDTV 3E31 100R IE09
H_PC 3E32 100R IE10
Vsync_SDTV 3E33 100R IE11
V_PC 3E34 100R IE12
FROM DIGITAL-IO
B14/B22 (SCART) (CINCH)
BZX384-C2V7 6E00 6E01 6E02 6E03
4E10 RES
4E11 RES

+3V3SW
5E03
2E31 100n
7E03 74HC4053D
VDD MDX
G4
4X1 4X2
VEE VSS
SD_HD_SEL 3V2

B18 FROM ADC
COL_Di(8) 3E37 22R
COL_Di(8)_INV
COL_Do(8)
3E49 22R
B19
IE28
COL_Do(8)_INV
PC_HD_SEL
I_PC_HD_SEL

7E04-1 74LVC14APW
7E04-2 74LVC14APW
7E04-3 74LVC14APW
7E04-4 74LVC14APW
7E04-5 74LVC14APW
7E04-6 74LVC14APW
3E35 100R
3E36 100R
3E39 100R
3E38 100R
IE27 AHSYNC
IE24 AVSYNC
B12

B12 FROM HDMI
V_HDMI 3E41 100R
H_HDMI 3E42 100R
3E43 100R
7E05-1 74LVC14APW
7E05-2 74LVC14APW
7E05-3 74LVC14APW
7E05-4 74LVC14APW
7E05-5 74LVC14APW
7E05-6 74LVC14APW
3E44 100R
3E45 100R
3E46 (NC)
IE31 HDMI_VVS
HDMI_VHS

B7 TO SCALER

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2E00 C2	3E50 C3	IE34 D10
2E01 C2	3E51 C3	IE35 B7
2E02 C2	3E52 C3	IE36 B7
2E03 B5	3E53 D3	IE37 B7
2E04 B7	3E54 D3	
2E05 B7	3E55 D3	
2E06 B7	4E03 B6	
2E07 C7	4E10 E2	
2E08 C7	4E11 G3	
2E09 C7	4E12 D5	
2E10 C7	4E13 D5	
2E11 D7	4E14 D5	
2E12 D7	5E00 B4	
2E13 D7	5E01 B8	
2E14 D7	5E02 A10	
2E15 A10	5E03 E3	
2E16 B8	6E00 F2	
2E17 B8	6E01 F2	
2E18 B8	6E02 F2	
2E19 B8	6E03 F2	
2E20 B8	7E00 B4	
2E21 A9	7E01 B8	
2E22 B9	7E02 A10	
2E23 B9	7E03 E3	
2E24 C10	7E04-1 E5	
2E25 C10	7E04-2 E6	
2E26 C10	7E04-3 F5	
2E27 C10	7E04-4 F6	
2E28 C10	7E04-5 G5	
2E29 D10	7E04-6 G6	
2E30 D10	7E05-1 E9	
2E31 E3	7E05-2 E10	
2E32 E6	7E05-3 F9	
2E33 C2	7E05-4 F10	
2E34 C2	7E05-5 G9	
2E35 D2	7E05-6 G10	
2E36 E10	FE00 B2	
2E37 B9	FE01 B2	
2E38 B9	FE02 B2	
2E39 B9	FE03 C5	
3E00 A2	FE04 C7	
3E01 A2	FE05 D7	
3E02 A2	FE06 B8	
3E06 C3	FE07 D8	
3E07 C3	FE08 B11	
3E08 C3	FE09 C9	
3E09 C3	FE10 C9	
3E10 C3	FE11 C9	
3E11 C3	FE12 C9	
3E12 C5	FE13 D9	
3E13 B6	IE00 B4	
3E14 B6	IE01 B7	
3E15 B6	IE02 B7	
3E16 B6	IE03 D6	
3E17 B6	IE04 D7	
3E18 B7	IE05 A9	
3E19 C6	IE06 B9	
3E20 C6	IE07 B9	
3E21 D6	IE08 A10	
3E22 D6	IE09 E2	
3E23 D7	IE10 F2	
3E24 C10	IE11 F2	
3E25 C10	IE12 F2	
3E26 C10	IE13 C3	
3E27 C10	IE14 C3	
3E28 C10	IE15 C3	
3E29 D10	IE16 C3	
3E30 D10	IE17 A10	
3E31 E2	IE18 D2	
3E32 F2	IE19 C6	
3E33 F2	IE20 C7	
3E34 F2	IE21 D6	
3E35 E5	IE22 C7	
3E36 F5	IE23 D7	
3E37 G4	IE24 F7	
3E38 F6	IE25 C7	
3E39 E6	IE26 C7	
3E41 E9	IE27 E7	
3E42 F9	IE28 G6	
3E43 G9	IE29 A10	
3E44 E11	IE30 A10	
3E45 F11	IE31 E11	
3E46 G11	IE32 C10	
3E49 G5	IE33 C11	

SSB: Digital I/O

B14 DIGITAL IO

B14

B13 TO MUX-SYNC INTERFACE

B2 To HERCULES

B8 TO SCALER

B7 TO SCALER

RGB/COMPONENT VIDEO INPUT

1F00-4 YKF45-7005

5F00 2F00 RES 3F00 75R IF11 RINA|Pr

5F01 2F02 RES 3F09 75R 3F10 1R0 2F04 100p IF17 GINA|YINA H_PC

5F02 2F05 RES 3F11 75R IF20 BINA|Pb V_PC

PC AUDIO IN

1F01 YKB21-5101A IF05 IF04 S001 S002

3F25 10K IF23 2F13 180p 3F26 15K 2F16 2u2 AudioIN2L

3F24 10K IF22 2F14 180p 3F27 15K 2F15 2u2 AudioIN2R

DDC_5V 2F07 100n 7F03 M24C02-WMN6 (256x8) EEPROM WC SCL SDA ADR IF00 3F16 10K

3F17 10K 3F18 10K SCL_DVI SDA_DVI

DVI INPUT

ROW_A 1F00-1 FF00 FF01 FF02 FF03 FF04 FF05 YKF45-7005

3F28 100R 3F29 100R 3F19 1R0 2F08 330p 2F09 330p 2F10 100p

RX2-IN RX2+IN

ROW_B 1F00-2 FF06 FF07 FF08 IF06 IF07 FF09 YKF45-7005

DVI_5V 3F20 100R IF01 3F21 1K0 2F11 330p 2F12 330p

BAS316 6F00 +5VSWI 6F01 BAS316 3F22 10K 3F23 1K0 5F03 IF03 DDC_5V IF02 IF21 HOT_PLUG

RX1-IN RX1+IN

ROW_C 1F00-3 FF10 FF11 IF08 FF12 FF13 YKF45-7005

RX0-IN RX0+IN

RXC+IN RXC-IN

DVI CONNECTOR

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1F00-1 D1
1F00-2 E1
1F00-3 F1
1F00-4 B1
1F01 A7
2F00 A2
2F02 B2
2F04 B3
2F05 C2
2F07 C3
2F08 E2
2F09 E2
2F10 E3
2F11 F2
2F12 F2
2F13 B9
2F14 B9
2F15 B9
2F16 B9
3F00 A2
3F09 B2
3F10 B3
3F11 C2
3F16 D4
3F17 D4
3F18 D4
3F19 E2
3F20 F2
3F21 F2
3F22 F3
3F23 F3
3F24 B8
3F25 B8
3F26 B9
3F27 B9
3F28 E2
3F29 E2
5F00 A3
5F01 B3
5F02 C3
5F03 F4
6F00 F4
6F01 F3
7F03 D2
FF00 D1
FF01 E1
FF02 E1
FF03 E1
FF04 E1
FF05 E1
FF06 E1
FF07 F1
FF08 F1
FF09 F1
FF10 F1
FF11 G1
FF12 G1
FF13 G1
IF00 D3
IF01 F2
IF02 F4
IF03 F5
IF04 B8
IF05 B8
IF06 F1
IF07 F1
IF08 G1
IF11 A6
IF12 B1
IF13 B1
IF14 B2
IF15 B2
IF17 B6
IF20 C6
IF21 F5
IF22 B9
IF23 B9
S001 B8
S002 B8

SSB: Analog I/O

B15 SCART ANALOGUE IO

B15

SCART 1

1G01-1
Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
RGB-B_in
Function_Sw
RGB-G_in
RGB-R_in
RGB-BL_in
Terr_CVBS_out
Video_in
HR-AR0761S-2
MT 1G01-2

SCART 2

1G02-1
Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
RGB-B_in
Function_Sw
RGB-G_in
RGB-R/YC-C_in
CVBS_out
Video/YC-Y_in
HR-AR0761S-2
MT 1G02-2

TO HERCULES B2

SC1_R
SC1_R_RF_OUT
SC1_COMP_AV1_R_IN
SC1_L
SC1_L_RF_OUT
SC1_COMP_AV1_L_IN
CVI_Pb_IN
CVI_Y_IN
CVI_Pr_IN
STATUS_1
SC1_CVBS_RF_OUT
SC1_CVBS_IN
SC2_R
SC2_R_MON_OUT
SC2_L
SC2_L_MON_OUT
STATUS_2
SC2_CVBS_MON_OUT
SC2_Y_IN

RESERVED FOR DMMI

+5VSW
SC2_L_IN
DMMI_L_IN
AV2_DMMI_SW
DMMI_RGB_SW
SC2_R_IN
DMMI_R_IN
DMMI_CVBS_IN
7G07 74HC4053D
MDX
SC2_Y_IN_1
SC2_L_IN_1
SC2_R_IN_1
7G08 BC847B
BAS316

RESERVED FOR DMMI

+5VSW_5G01
7G09 ADG734BRU
SPDT SWITCH
SC1_FBL_IN
SC1_FBL_IN_1
DMMI_FBL_IN
DMMI_RGB_SW
CVI_Pr_IN
SC1_CVI_DMMI_R_Pr_IN
DMMI_R_Pr_IN
SC1_CVI_DMMI_G_Y_IN
SC1_CVI_DMMI_B_Pb_IN

B13 TO MUX-SYNC INTF
B2 TO HERCULES

B17 FROM SIDE CONNECTOR
FRONT_C_IN
SC2_C_IN
FRONT_Y_CVBS_IN
B7 FROM SCALER
SC2|AV2_SIDE_SW
0V AV2_DMMI_SW
SC2_AV3_C_IN
SC2_AV3_Y_IN

B2 TO HERCULES
SW_I2C_SDA
SW_I2C_SCL
POWER-DOWN_BOLT-ON
DMMI_R_IN
DMMI_L_IN
DMMI_R_Pr_IN
DMMI_FBL_IN
DMMI_B_Pb_IN
DMMI_G_Y_IN
SC2_L_MON_OUT
SC2_R_MON_OUT
SC2_CVBS_MON_OUT
IR
HP_DET_R_DC
SC_STANDBY
ITV_IR_SW_RESET
+3V3STBY
1G03 DMMI CONNECTOR
AF732L-N2G1A

RESERVED FOR DMMI

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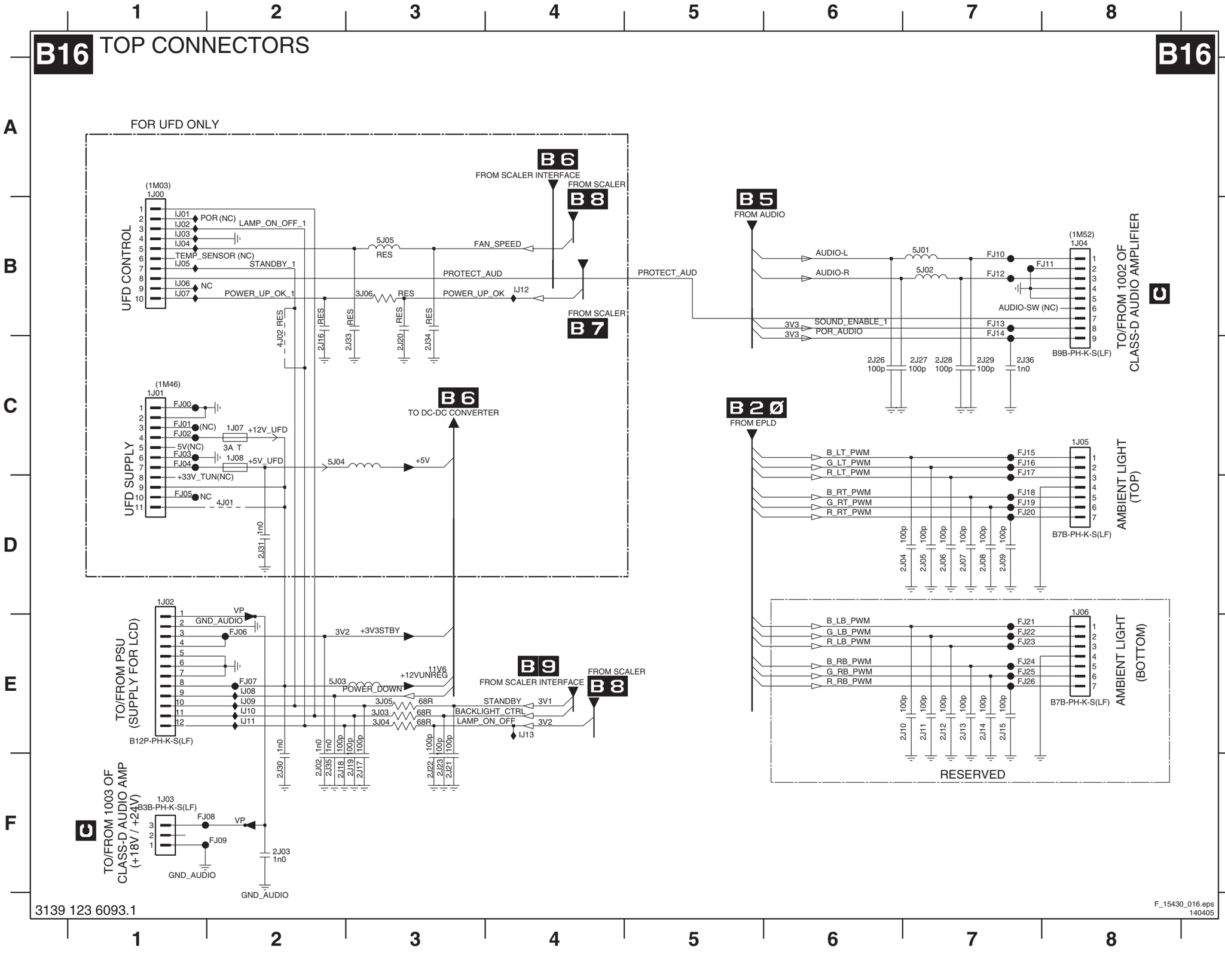
3139 123 6093.1

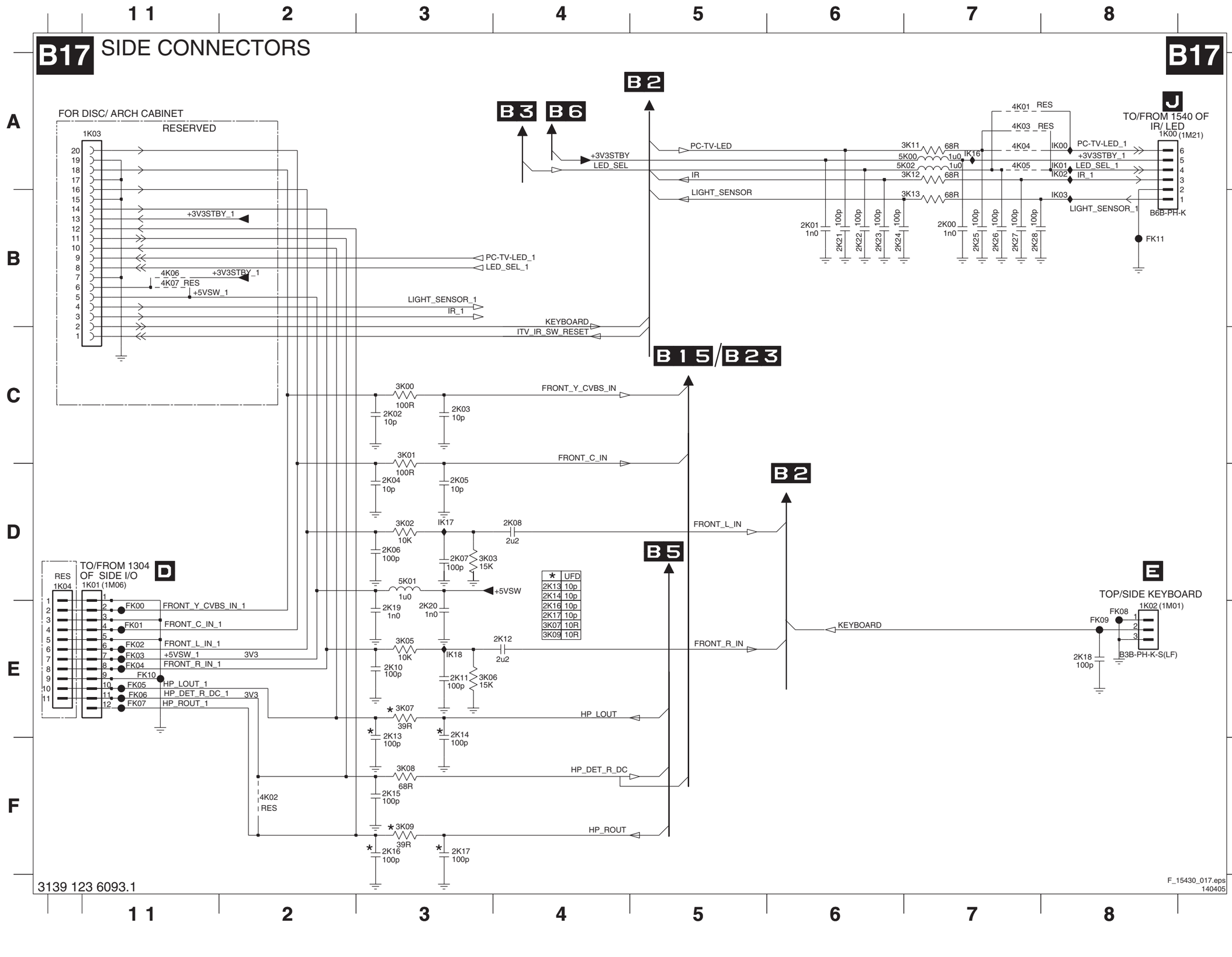
1G01-1 A1
1G01-2 E1
1G02-1 F1
1G02-2 J1
1G03 G15
2G01 A3
2G02 A2
2G03 B3
2G04 B3
2G05 A3
2G06 B3
2G07 A4
2G08 A4
2G09 B3
2G10 B3
2G11 B4
2G12 B4
2G16 E4
2G17 E5
2G18 G4
2G19 G4
2G20 G5
2G21 G4
2G22 H4
2G23 H4
2G24 G5
2G25 H4
2G26 I5
2G28 J4
2G29 B11
2G30 B11
2G31 C11
2G32 C11
2G33 C13
2G34 D11
2G35 D11
2G36 F9
2G37 F9
2G38 F12
2G39 E13
2G40 E13
2G41 F13
2G43 I14
2G45 I14
2G46 I14
2G47 J11
2G48 G3
2G49 G3
2G50 H3
2G51 H3
2G52 F2
2G53 K2
2G55 I8
2G56 J8
2G63 B10
2G64 C10
2G65 K9
2G66 I9
3G00 A3
3G01 A3
3G02 A4
3G03 B4
3G04 B3
3G05 B3
3G06 B4
3G07 B4
3G08 J5
3G09 I4
3G12 C3
3G13 C3
3G14 D3
3G15 C3
3G16 C3
3G17 D3
3G26 D2
3G27 D3
3G28 E3
3G29 E3
3G30 E3
3G31 F3
3G32 E4
3G33 F3
3G34 E5
3G37 G3
3G38 G3
3G39 G4
3G40 G4
3G41 G3
3G42 H3
3G43 H4
3G44 H4
3G45 I3
3G46 I3
3G47 I6
3G48 I6
3G51 H3
3G52 H4
3G53 J3
3G54 J4
3G55 I5
3G56 J5
3G57 K3
3G58 J3
3G59 J4
3G60 K4
3G63 B9
3G64 C9
3G65 B11
3G66 C9
3G67 C10
3G68 C10
3G69 B12
3G70 C12
3G71 C14
3G72 D10
3G73 D10
3G74 D10
3G75 E9
3G76 F9
3G77 F10
3G78 F10
3G79 D12
3G80 D13
3G81 D13
3G82 D13
3G83 E12
3G84 F12
3G85 F13
3G86 F13
3G87 F13
3G88 H12
3G89 F12
3G90 H11
3G91 H12
3G92 J9
3G93 K9
3G94 I9
3G95 I9
3G96 I9
3G99 I8
3S00 J9
3S01 G9
3S03 J8
4G00 A3
4G01 B3
4G05 G3
4G06 G3
4G09 B11
4G10 B11
4G11 D12
4G12 D12
4G13 D12
4G14 E9
4G15 F9
4G16 G11
4G17 G11
4G18 J5
4G19 H9
4G20 K9
4G21 I9
4G22 K10
4G26 E4
5G00 E4
5G01 D10
5G02 I11
6G00 F3
6G01 K3
6G02 B13
6G03 B2
6G04 C2
6G05 A2
6G06 B2
6G07 F2
6G08 F2
6G09 G2
6G10 G2
7G03 E4
7G05 J4
7G07 B11
7G08 B13
7G09 E11
7G10 J10
FG00 A2
FG01 A2
FG02 B1
FG03 B2
FG04 B2
FG05 C2
FG06 C2
FG07 C2
FG08 D2
FG09 E2
FG10 D2
FG11 E2
FG12 F2
FG13 F6
FG14 G2
FG15 G2
FG16 G1
FG17 G2
FG18 H2
FG19 H1
FG20 I2
FG21 H2
FG22 J2
FG23 J2
FG24 C1
FG25 C1
FG26 G2
FG27 H2
FG28 H2
FG30 I2
FG32 G14
FG33 G14
FG34 G14
FG35 G14
FG36 G14
FG37 H14
FG38 H14
FG39 H14
FG40 H15
FG41 H14
FG42 H14
FG43 H14
FG44 H14
FG45 H14
FG47 I14
FG48 I14
FG49 I14
FG50 I14
FG51 I14
FG53 I14
FG54 I14
FG56 I14
IG00 A4
IG01 A4
IG02 A5
IG03 B5
IG04 B4
IG05 B4
IG06 C6
IG07 C6
IG08 D6
IG09 D6
IG10 D6
IG11 E3
IG12 E4
IG13 E6
IG14 G4
IG15 G5
IG16 G5
IG17 G5
IG18 G4
IG19 H4
IG20 G5
IG21 H5
IG23 H5
IG24 J4
IG25 J5
IG26 J5
IG27 K5
IG28 D10
IG29 E11
IG30 F12
IG40 I4
IG42 I5
IG43 J4
IG46 I11
IG47 K9
IG49 B8
IG50 B11
IG52 C11
IG53 C11
IG54 C11
IG55 C11
IG56 D10
IG57 B13
IG58 B13
IG59 D14
IG60 E11
IG61 F11
IG62 F11
IG63 F11
IG64 E12
IG67 F12
IG69 F12
IG73 I8
IG75 I9
IG76 J8
IG78 J9
IG79 K9
IG80 I10
S011 A2
S012 B2
S013 B2
S014 B2
S015 C2
S016 C2
S017 C3
S018 C2
S019 D2
S020 E2
S021 E2
S022 E2
S023 F2
S024 G3
S025 G3
S026 H3
S027 H2
S028 G2
S029 H2
S030 H2
S031 H2
S032 I2
S033 I2
S034 I2
S035 J2
S036 K2

SSB: Top Connectors



1J00 B1 FJ25 E7
1J01 C1 FJ26 E7
1J02 D1 IJ01 B1
1J03 F1 IJ02 B1
1J04 B8 IJ03 B1
1J05 C8 IJ04 B1
1J06 E8 IJ05 B1
1J07 C2 IJ06 B1
1J08 C2 IJ07 B1
2J02 F2 IJ08 E2
2J03 F2 IJ09 E2
2J04 D6 IJ10 E2
2J05 D7 IJ11 E2
2J06 D7 IJ12 B4
2J07 D7 IJ13 E4
2J08 D7
2J09 D7
2J10 E6
2J11 E7
2J12 E7
2J13 E7
2J14 E7
2J15 E7
2J16 C2
2J17 F3
2J18 F2
2J19 F3
2J20 C3
2J21 F3
2J22 F3
2J23 F3
2J26 C6
2J27 C7
2J28 C7
2J29 C7
2J30 F2
2J31 D2
2J33 C2
2J34 C3
2J35 F2
2J36 C7
3J03 E3
3J04 E3
3J05 E3
3J06 B3
4J01 D2
4J02 C2
5J01 B7
5J02 B7
5J03 E2
5J04 C2
5J05 B3
FJ00 C1
FJ01 C1
FJ02 C1
FJ03 C1
FJ04 C1
FJ05 D1
FJ06 E2
FJ07 E2
FJ08 F1
FJ09 F2
FJ10 B7
FJ11 B8
FJ12 B7
FJ13 B7
FJ14 C7
FJ15 C7
FJ16 C7
FJ17 D7
FJ18 D7
FJ19 D7
FJ20 D7
FJ21 E7
FJ22 E7
FJ23 E7
FJ24 E7

SSB: Side Connectors



1K00 A8
1K01 D1
1K02 E8
1K03 A1
1K04 D1
2K00 B7
2K01 B6
2K02 C3
2K03 C3
2K04 D3
2K05 D3
2K06 D3
2K07 D3
2K08 D4
2K10 E3
2K11 E3
2K12 E4
2K13 F3
2K14 E3
2K15 F3
2K16 F3
2K17 F3
2K18 E8
2K19 E3
2K20 E3
2K21 B6
2K22 B6
2K23 B6
2K24 B6
2K25 B7
2K26 B7
2K27 B7
2K28 B7
3K00 C3
3K01 C3
3K02 D3
3K03 D3
3K05 E3
3K06 E3
3K07 E3
3K08 F3
3K09 F3
3K11 A7
3K12 A7
3K13 B7
4K01 A7
4K02 F2
4K03 A7
4K04 A7
4K05 A7
4K06 B1
4K07 B1
5K00 A7
5K01 D3
5K02 A7
FK00 E1
FK01 E1
FK02 E1
FK03 E1
FK04 E1
FK05 E1
FK06 E1
FK07 E1
FK08 E8
FK09 E8
FK10 E1
FK11 B8
IK00 A8
IK01 A8
IK02 A8
IK03 B8
IK16 A7
IK17 D3
IK18 E3

SSB: ADC

B18 ADC

B2 TO HERCULES

B2 FROM HERCULES

B3 FROM SYNC INTERFACE

B3

B13

B19 TO COLUMBUS

B7 TO SCALER

7L05 LD1117DT33

+5VSWIA

+3V3SWB

3V3

IL16

2L30 10u 16V

+3V3SWB

5L00

5L01

5L02

IL18

IL19

IL17

IL07

2L02 10u 2L03 100n 2L04 100n 2L05 100n 2L06 100n 2L27 10u 16V

2L07 10u 2L08 100n 2L09 100n 2L10 100n 2L11 100n 2L33 100n 2L34 100n 2L28 10u 16V

2L29 16V 10u 2L22 10u 2L23 100n 2L24 100n

INTF_V_OUT IL04 3L00 1K0 2L35 RES 3L01 RES 5V4 1V5 7L01 BC847BW 0V9 3L03 RES 3L04 0R 3L33 220R 3L05 150R

CVBS_COMB 4L03 RES IL05 3L06 0R

INTF_Y_OUT 4L02

7L02 BC847BW

3L07 RES 3L09 RES 3L11 150R 3L10 330R 2L38 RES 5L03 10u 2L37 68p 5L04 10u 3L38 0R 2L39 82p 3L08 RES 7L08 RES 3L39 RES

4L04 RES 4L05

Hsync_SDTV 3L21 2K2 30 HSYNC

Vsync_SDTV 3L22 2K2 31 VSYNC

4L00 RES 4L01 RES

2L15 RES 49 SOGIN

3L23 RES 38 CLAMP

3L24 2K2 29 COAST

2L20 100n 58 REF_BYPASS

2L21 100n 37 MIDSCV

2L18 82n 3L18 2K7 33 FILT

2L19 8n2

57 SDA

56 SCL

55 A0

2L13 47n IL01 54 RAIN

2L26 220n IL02 48 GAIN

IL03 43 BAIN

3L34 0R IL08

7L04 ~~AD9985KSTZ~~ 9883(MSTAR)

ANALOG INTERFACE FOR FLAT PANEL DISPLAY

VD Φ VDD PVD

GND

RED: 77 IL10 3L25-1 22R COL_Di(1); 76 IL11 3L25-2 22R COL_Di(2); 75 IL12 3L25-3 22R COL_Di(3); 74 3L25-4 22R COL_Di(4); 73 3L26-1 22R COL_Di(5); 72 3L26-2 22R COL_Di(6); 71 3L26-3 22R COL_Di(7); 70

GREEN: 9 IL13 3L27-4 22R COL_YA(1); 8 IL14 3L27-3 22R COL_YA(2); 7 IL15 3L27-2 22R COL_YA(3); 6 3L27-1 22R COL_YA(4); 5 3L28-4 22R COL_YA(5); 4 3L28-3 22R COL_YA(6); 3 3L28-2 22R COL_YA(7); 2 3L28-1 22R COL_YA(8)

BLUE: 19 18 17 16 15 14 13 12

DATACK 67 COL_CLKASA

HSOUT 66 3L30 22R COL_HREF

VSOUT 64 3L31 22R COL_VA

SOGOUT 65 3L32 2K2

INTF_U_OUT IL06 3L12 1K0 2L36 RES 3L13 RES 5V4 1V5 7L03 BC847BW 0V9 3L16 0R 3L35 220R 3L17 150R IL09 2L17 47n

2L31 100u 16V 2L32 100u 16V

SDA SCL 3L19 150R 3L20 150R

3L36 3K3 3L37 3K3

7L06 BSN20 7L07 BSN20

CLAMP_ADC

+3V3SWB

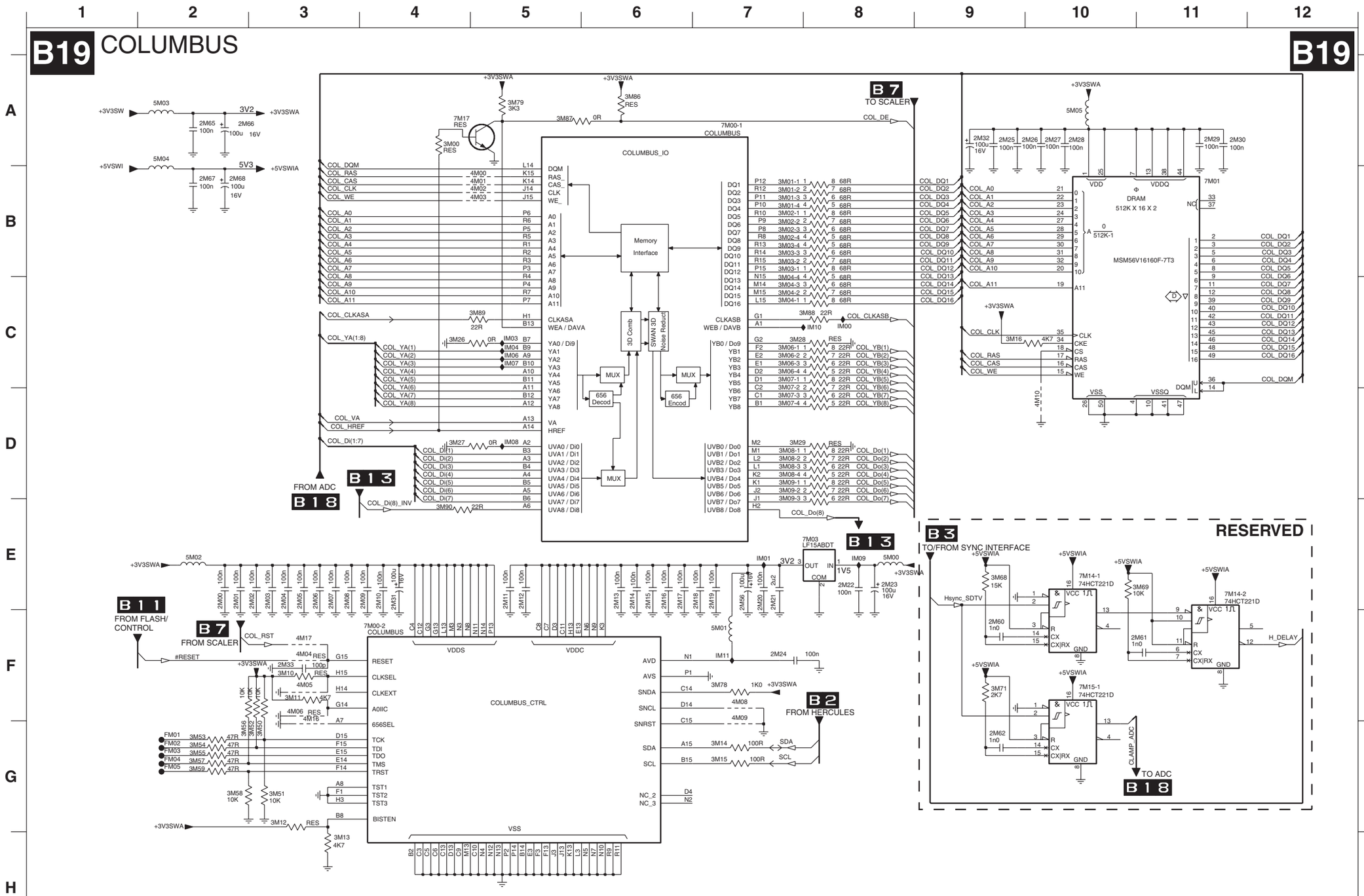
F_15430_018.eps 140405

3139 123 6093.1

2L02	A7	3L37	E3
2L03	A7	3L38	C3
2L04	A7	3L39	C4
2L05	A8	4L00	D3
2L06	A8	4L01	D3
2L07	B7	4L02	C1
2L08	B7	4L03	C1
2L09	B7	4L04	C3
2L10	B8	4L05	C4
2L11	B8	5L00	B4
2L13	C4	5L01	A5
2L15	D4	5L02	A6
2L17	E3	5L03	C3
2L18	E4	5L04	C3
2L19	E4	7L01	B3
2L20	D4	7L02	C2
2L21	D4	7L03	E2
2L22	B5	7L04	C5
2L23	B5	7L05	A2
2L24	B5	7L06	F2
2L26	C4	7L07	F3
2L27	A8	7L08	C3
2L28	B9	IL01	C5
2L29	B4	IL02	C5
2L30	A3	IL03	C5
2L31	E4	IL04	B1
2L32	E5	IL05	C1
2L33	B8	IL06	E1
2L34	B8	IL07	C4
2L35	B2	IL08	C4
2L36	E1	IL09	E3
2L37	C3	IL10	C7
2L38	C3	IL11	C7
2L39	C3	IL12	C7
3L00	B2	IL13	D7
3L01	B2	IL14	D7
3L03	B2	IL15	D7
3L04	B3	IL16	A3
3L05	B3	IL17	B4
3L06	C1	IL18	A5
3L07	C2	IL19	B6
3L08	C3		
3L09	C2		
3L10	C2		
3L11	C2		
3L12	E1		
3L13	D2		
3L15	E2		
3L16	E2		
3L17	E3		
3L18	E4		
3L19	F3		
3L20	F3		
3L21	C4		
3L22	D4		
3L23	D4		
3L24	D4		
3L25-1	C7		
3L25-2	C7		
3L25-3	C7		
3L25-4	C7		
3L26-1	C7		
3L26-2	C7		
3L26-3	C7		
3L27-1	D7		
3L27-2	D7		
3L27-3	D7		
3L27-4	D7		
3L28-1	D7		
3L28-2	D7		
3L28-3	D7		
3L28-4	D7		
3L30	E7		
3L31	E7		
3L32	E7		
3L33	B3		
3L34	C4		
3L35	E3		
3L36	E2		

SSB: Columbus

B19 COLUMBUS



2M00 E2	3M87 A5
2M01 E2	3M88 C8
2M02 E3	3M89 C5
2M03 E3	3M90 E4
2M04 E3	4M00 B5
2M05 E3	4M01 B5
2M06 E3	4M02 B5
2M07 E3	4M03 B5
2M08 E3	4M04 F3
2M09 E4	4M05 F3
2M10 E4	4M06 F3
2M11 E5	4M08 F7
2M12 E5	4M09 F7
2M13 E6	4M10 D10
2M14 E6	4M16 F3
2M15 E6	4M17 F3
2M16 E6	5M00 E8
2M17 E6	5M01 F7
2M18 E7	5M02 E2
2M19 E7	5M03 A2
2M20 E7	5M04 A2
2M21 E7	5M05 A10
2M22 E8	7M00-1 A7
2M23 E8	7M00-2 F4
2M24 F7	7M01 B11
2M25 A9	7M03 E8
2M26 A10	7M14-1 E10
2M27 A10	7M14-2 E11
2M28 A10	7M15-1 F10
2M29 A11	7M17 A4
2M30 A11	FM01 G2
2M31 E4	FM02 G2
2M32 A9	FM03 G2
2M33 F3	FM04 G2
2M56 E7	FM05 G2
2M60 F9	IM00 C8
2M61 F11	IM01 E7
2M62 G9	IM03 C5
2M65 A2	IM04 C5
2M66 A2	IM06 C5
2M67 B2	IM07 C5
2M68 B2	IM08 D5
3M00 A4	IM09 E8
3M01-1 B7	IM10 C8
3M01-2 B7	IM11 F7
3M01-3 B7	
3M01-1 B7	
3M01-2 B7	
3M01-3 B7	
3M01-4 B7	
3M02-1 B7	
3M02-2 B7	
3M02-3 B7	
3M02-4 B7	
3M03-1 B7	
3M03-2 B7	
3M03-3 B7	
3M03-4 B7	
3M04-1 C7	
3M04-2 C7	
3M04-3 C7	
3M04-4 C7	
3M06-1 C7	
3M06-2 C7	
3M06-3 C7	
3M06-4 C7	
3M07-1 C7	
3M07-2 D7	
3M07-3 D7	
3M07-4 D7	
3M08-1 D7	
3M08-2 D7	
3M08-3 D7	
3M08-4 D7	
3M09-1 D7	
3M09-2 D7	
3M09-3 E7	
3M10 F3	
3M11 F3	
3M12 G3	
3M13 H3	
3M14 G7	
3M15 G7	
3M16 C9	
3M26 C4	
3M27 D4	
3M28 C7	
3M29 D7	
3M50 G3	
3M51 G3	
3M52 G3	
3M53 G2	
3M54 G2	
3M55 G2	
3M56 G2	
3M57 G2	
3M58 G2	
3M59 G2	
3M68 E9	
3M69 E11	
3M71 F9	
3M78 F7	
3M79 A5	
3M86 A6	

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150405

SSB: EPLD

B20 EPLD

B20

FOR DEBUGGING

LVDS IN

CONTROL SIGNALS

3139 123 6093.1

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150405

1N01 A9 7N02-2 D7
1N02 D11 7N02-5 D10
1N03 F12 7N03-1 C3
1N05 D5 7N03-2 C2
2N01 A2 7N04 D5
2N02 C1 FN01 B4
2N03 C2 FN02 B6
2N04 C2 FN03 C5
2N05 D4 FN04 A8
2N06 D4 FN05 B8
2N07 D5 FN06 B8
2N08 D5 FN07 B8
2N09 D5 FN08 B8
2N10 D6 FN09 B8
2N11 B7 FN10 B8
2N12 B7 FN11 D5
2N13 B7 FN12 E5
2N14 B7 FN13 E5
2N15 B8 FN14 F5
2N16 E11 FN15 F5
2N17 F11 FN16 F5
2N18 F11 FN17 G5
2N19 F11 FN18 D9
2N20 F11 FN19 D9
3N01 A3 FN20 F9
3N02 A3 FN21 F11
3N03 A3 FN22 F11
3N04 A3 FN23 F11
3N05 A3 FN24 F12
3N06 A3 FN25 F4
3N07 C2 FN26 D2
3N08 C2 FN27 D2
3N09 B4 FN28 D2
3N10 C2 FN29 D2
3N11 C4 FN30 D2
3N12 A5 FN31 D2
3N13 A5 FN32 D2
3N14 A5 FN33 D3
3N15 B6 FN34 D3
3N16 B6 FN35 D3
3N17 B6 IN01 B3
3N18 B6 IN02 B3
3N19 C5 IN03 B3
3N20 C5 IN04 B3
3N21 E3 IN05 B3
3N22 E3 IN06 C2
3N23 E3 IN07 D4
3N24 F3 IN08 C2
3N25 F3 IN09 C2
3N26 D4 IN10 B3
3N27 D6 IN11 B4
3N28 F8 IN12 C5
3N29 E11 IN13 D5
3N30 E11 IN14 D4
3N31 E11 IN15 D11
3N32 E11 IN16 D11
3N33 E11 IN17 D11
3N34 E11 IN18 D11
3N35 E11 IN19 F9
3N36 E11
3N37 E11
3N38 F11
3N39 F11
3N40 F11
3N41 F11
3N42 F11
3N43 F11
3N44 F11
3N45 F11
3N46 D10
3N47 D10
4N01 D2
4N02 D2
4N03 D2
4N04 D2
4N05 D2
4N06 D2
4N07 D2
4N08 D2
4N09 D2
4N10 D2
4N11 D2
4N12 D2
4N13 D2
4N14 D2
4N15 D3
4N16 D3
4N17 D3
4N18 D3
4N19 D3
4N20 D3
4N21 D9
4N22 D9
5N01 A8
5N02 D4
5N03 D4
5N04 D5
5N05 C6
6N01 F9
7N01 A2
7N02-1 A4

SSB: EPLD

B21 EPLD

B21

EAGLE INTERFACE

7N02-3
EP1C12F256C8

BANK 2

LVDS TRANSMITTER

LVDS OUT

7N02-4
EP1C12F256C8

BANK 3

POWER

7N02-6
EP1C12F256C8

BANK1 BANK2 BANK3 BANK4 VCCIO VCCINT PLL1 PLL2 VCCA GND GNDA GNDG

FOR MFD ONLY

*	26"/32" 16X9	23" 15X9
4P01	-	-
4P02	YES	-

FOR UFD ONLY

TO PLASMA PANEL (TIMING CONTROL)

TO LCD PANEL (TIMING CONTROL)

FI-WE31P-HFE-E1500

0-1453230-3

FROM SCALER INTERFACE

FROM EPLD

FROM DC-DC CONVERTER

FOR LCD ONLY

3139 123 6093.1

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150405

1P01 E
1P02 E
1P03 F
1P04 F
1P05 G
1P06 A
1P07 D
2P01 B
2P02 B
2P03 B
2P04 B
2P05 B
2P06 B
2P07 B
2P08 B
2P09 B
2P10 B
2P11 B
2P12 B
2P13 B
2P14 B
2P15 B
2P16 B
2P17 B
2P18 B
2P19 B
2P20 B
2P21 B
2P22 C
2P23 C
2P24 C
2P25 C
2P26 C
2P27 C
2P28 C
2P29 C
2P30 C
2P31 C
2P32 D
2P33 D
2P34 D
2P35 D
2P36 D
2P37 E
2P38 E
2P39 E
2P40 F
2P41 F
2P42 F
2P43 F
2P44 G
2P45 G
3P01 D
3P03 E
3P04 D
3P05 D
4P01 F
4P02 F
4P03 F
4P04 F
4P05 F
4P06 F
4P07 F
4P08 F
4P09 D
4P10 E
5P01 A
5P02 B
5P03 C
5P04 D
5P05 D
5P06 D
7N02-3
7N02-4
7N02-6
7P01 B
7P02 D
FP01 A
FP02 A
FP03 B
FP04 B
FP05 C
FP06 D
FP07 E
FP08 E

SSB: Diversity Tables B9-B21

B9 MUX-SYNC INTERFACE

Item	LC4.3x	LC4.8x	LC4.9x	Description
2A00			V	CER2 0603 X7R 16V 100N COL
2A01			V	CER1 0402 NP0 50V 100P COL
2A02			V	CER1 0402 NP0 50V 100P COL
2A03		V		CER2 0603 Y5V 10V 1U COL
2A12		V	V	CER2 0402 X7R 16V 10N COL
2A13		V	V	CER2 0402 Y5V 16V 100N COL
3A00			V	RST SM 0402 68R PM5 COL
3A01			V	RST SM 0402 68R PM5 COL
3A02	V	V		RST SM 0402 1K PM5 COL
3A06		V		RST SM 0603 10K PM5COL
3A06	V			RST SM 0603 JUMP. 0R05 COL
3A07			V	RST SM 0402 10K PM5 COL
3A07				RST SM 0402 68R PM5 COL
3A08			V	RST SM 0402 10K PM5 COL
3A10		V	V	RST SM 0402 10K PM5 COL
3A11		V	V	RST SM 0402 10K PM5 COL
3A13		V	V	RST SM 0402 10K PM5 COL
3A14		V	V	RST SM 0402 560R PM5 COL
4A03	V	V		RST SM 0603 JUMP. 0R05 COL
4A04			V	RST SM 0402 JUMP. 0R05 COL
4A05	V			RST SM 0402 JUMP. 0R05 COL
4A06	V			RST SM 0402 JUMP. 0R05 COL
5A00			V	FXDIND 0805 100MHZ 30R COL R
6A01		V	V	DIO REG SM BZX384-C3V9 COL R
7A00			V	IC SM PCA9515ADP (PHSE) R
7A02		V	V	TRA SIG SM BC847BW (COL) R
7A03		V	V	TRA SIG SM BC847BW (COL) R

B13 MUX-SYNC INTERFACE

ITEM	AP/EU/AP-DVB (with Teletext)	EU-DVB (with Teletext)	NAFTA/LT & China (non-Teletext)	DESCRIPTION
2E00	V		V	CER2 0603 X5R 6V3 4U7 PM10 R
2E01	V		V	CER2 0603 X5R 6V3 4U7 PM10 R
2E02	V		V	CER2 0603 X5R 6V3 4U7 PM10 R
2E04	V	V		CER2 0402 X5R 6V3 1U PM20 R
2E05	V	V		CER2 0402 X5R 6V3 1U PM20 R
2E06	V	V		CER2 0402 X5R 6V3 1U PM20 R
3E06	V		V	RST SM 0402 47K PM5 COL
3E07	V		V	RST SM 0402 47K PM5 COL
3E08	V		V	RST SM 0402 47K PM5 COL
3E13	V	V		RST SM 0402 330R PM5 COL
3E14	V	V		RST SM 0402 330R PM5 COL
3E15	V	V		RST SM 0402 330R PM5 COL
3E16	V	V		RST SM 0402 330R PM5 COL
3E17	V	V		RST SM 0402 330R PM5 COL
3E18	V	V		RST SM 0402 330R PM5 COL

B15 ANALOG I/O SCART

Item	26/32PF	DVB.T 26/32PF	37/42PF	DVB.T 37/42PF	Description
1G01	V	V			SOC EURO H 21P F BK R-GRND B
1G01			V	V	SOC EURO H 21P F SHD R-GRND Y
1G02	V	V			SOC EURO H 21P F BK R-GRND B
1G02			V	V	SOC EURO H 21P F SHD R-GRND Y
1G03		V		V	CON H 32P F 0.50 SM FPC 0.3 R
2G29		V		V	ELCAP SM 16V 10U PM20 COL R
2G30		V		V	CER2 0603 X7R 16V 100N COL
2G31		V		V	CER2 0603 X7R 16V 100N COL
2G32				V	CER2 0603 Y5V 25V 100N COL
2G33		V		V	CER2 0603 Y5V 16V 220N COL
2G34		V		V	ELCAP SM 16V 10U PM20 COL R
2G35		V		V	CER2 0603 Y5V 25V 100N COL
2G36		V		V	CER2 0603 Y5V 10V 1U COL
2G37		V		V	RST SM 0603 330R PM5 COL
2G38		V		V	CER2 0603 Y5V 10V 1U COL
2G39		V		V	CER2 0603 Y5V 10V 1U COL
2G40		V		V	RST SM 0603 JUMP. 0R05 COL
2G41		V		V	RST SM 0603 330R PM5 COL
2G43		V		V	CER2 0603 X7R 50V 1N COL
2G45		V		V	CER2 0603 X7R 50V 1N COL
2G46		V		V	CER2 0603 X7R 50V 1N COL
2G63		V		V	CER2 0603 X5R 6V3 2U2 PM10 R
2G64		V		V	CER2 0603 X5R 6V3 2U2 PM10 R
2G65		V		V	CER2 0603 X5R 6V3 4U7 PM10 R
2G65		V		V	CER2 0603 X5R 6V3 4U7 PM10 R
2G66		V		V	CER2 0603 X5R 6V3 4U7 PM10 R
2G66		V		V	CER2 0603 X5R 6V3 4U7 PM10 R
3G63		V		V	RST SM 0603 10K PM5COL
3G64		V		V	RST SM 0603 10K PM5COL
3G65		V		V	RST SM 0603 10K PM5COL
3G66				V	RST SM 0603 150R PM5 COL
3G67		V		V	RST SM 0603 15K PM5 COL
3G68		V		V	RST SM 0603 15K PM5 COL
3G69		V		V	RST SM 0603 47K PM5 COL
3G70		V		V	RST SM 0603 47K PM5 COL
3G71		V		V	RST SM 0603 560R PM5 COL
3G72		V		V	RST SM 0603 10K PM5COL
3G73		V		V	RST SM 0603 47K PM5 COL
3G75		V		V	RST SM 0603 100R PM5 COL
3G76		V		V	RST SM 0603 100R PM5 COL
3G77		V		V	RST SM 0603 47K PM5 COL
3G79		V		V	RST SM 0603 47K PM5 COL
3G81		V		V	RST SM 0603 47K PM5 COL
3G83		V		V	RST SM 0603 100R PM5 COL
3G84		V		V	RST SM 0603 100R PM5 COL
3G86		V		V	RST SM 0603 47K PM5 COL
3G88		V		V	RST SM 0603 75R PM5 COL
3G89		V		V	RST SM 0603 47K PM5 COL
3G92		V		V	RST SM 0603 47K PM5 COL
3G93		V		V	RST SM 0603 47K PM5 COL
3G94		V		V	RST SM 0603 47K PM5 COL
3G95		V		V	RST SM 0603 47K PM5 COL
4G09		V		V	RST SM 0603 JUMP. 0R05 COL
4G11	V		V		RST SM 0603 JUMP. 0R05 COL
4G12	V		V		RST SM 0603 JUMP. 0R05 COL
4G13	V		V		RST SM 0603 JUMP. 0R05 COL
4G14	V		V		RST SM 0603 JUMP. 0R05 COL
4G15	V		V		RST SM 0603 JUMP. 0R05 COL
4G16	V		V		RST SM 0603 JUMP. 0R05 COL
4G17	V		V		RST SM 0603 JUMP. 0R05 COL
4G18	V		V		RST SM 0603 JUMP. 0R05 COL
4G19	V		V		RST SM 0603 JUMP. 0R05 COL
4G22		V		V	RST SM 0603 JUMP. 0R05 COL
5G01		V		V	FXDIND 0603 100MHZ 120R COL R
6G02		V		V	DIO SIG SM BAS316 (COL) R
7G07		V		V	IC SM 74HC4053D (PHSE) R
7G08		V		V	TRA SIG SM BC847B (COL) R
7G09		V		V	IC SM ADG734BRUZ (ANA0) R

B16 SIDE CONNECTORS

Item	LC4.3x - CINCH	LC4.3E - SCART	LC4.9x - PDP	LC4.8x - LCD	Description
1J00			V	V	CON V 10P M 2.00 PH B
1J01			V	V	CON V 11P M 2.00 PH B
1J02	V	V			CON V 12P M 2.00 PH B
1J03	V	V			CON V 3P M 2.00 PH B
1J07			V	V	FUSE SM T 3A 125V UL R
1J08			V	V	FUSE SM F 630MA 50V UL R
2J31			V	V	CER1 0402 NP0 50V 100P COL
3J03	V	V		V	RST SM 0402 68R PM5 COL
3J04	V	V		V	RST SM 0402 68R PM5 COL
4J01			V	V	RST SM 0402 JUMP. 0R05 COL
5J04			V	V	IND FXD 1206 EMI 100MHZ 120R R

B17 SIDE CONNECTORS

Item	LC4.3x - ME5 styling	LC4.3x - Arch Styling	LC4.8x - LCD	LC4.9x - PDP	Description
1K00	V		V	V	CON V 6P M 2.00 PH B
1K01	V				CON V 12P M 2.00 PH B
1K03		V			CON V 20P F 1.25 FFC 0.3 B
1K04			V	V	CON V 11P M 2.00 PH B
2K15	V	V			CER1 0402 NP0 50V 100P COL
3K08	V	V			RST SM 0402 68R PM5 COL
4K02			V	V	RST SM 0603 JUMP. 0R05 COL
4K06		V			RST SM 0402 JUMP. 0R05 COL
5K01	V	V		V	FXDIND SM 0603 1U PM10 COL R

B18 ADC

Item	non-DVB sets with 3D Comb Filter	DVB sets with 3D Comb Filter	Description
3L38		V	RST SM 0402 JUMP. 0R05 COL
4L05		V	RST SM 0402 JUMP. 0R05 COL
5L04		V	RST SM 0603 JUMP. 0R05 COL

B20 & B21 PIXEL PLUS

Item	LC4.3 non PIXEL+	LC4.3 with PIXEL+	42PF7320/28	LC4.8/LC4.9 non PIXEL+	LC4.8/LC4.9 with PIXEL+	Description
1N02		V	V		V	CON V 4P M 2.00 SM PH R
1N05		V	V		V	OSC XTL SM 14M31818 15P OC R
1P06	V	V				CON V 30P M 1.25 SM 1453230 R
1P07			V	V	V	CON H 31P F 1.25 SM FI-WE R
2N01		V	V		V	CER2 0402 Y5V 16V 100N COL
2N02		V	V		V	CER2 0402 Y5V 16V 100N COL
2N03		V	V		V	CER2 0402 X5R 6V3 1U PM20 R
2N04		V	V		V	CER2 0402 X7R 50V 1N COL
2N05		V	V		V	CER2 0402 Y5V 16V 100N COL
2N06		V	V		V	CER2 0402 Y5V 16V 100N COL
2N07		V	V		V	CER2 0402 Y5V 16V 100N COL
2N08		V	V		V	CER2 0402 Y5V 16V 100N COL
2N09		V	V		V	CER2 0402 Y5V 16V 100N COL
2N10		V	V		V	CER2 0402 Y5V 16V 100N COL
2N11		V	V		V	CER1 0402 NP0 50V 100P COL
2N12		V	V		V	CER1 0402 NP0 50V 100P COL
2N13		V	V		V	CER1 0402 NP0 50V 100P COL
2N14		V	V		V	CER1 0402 NP0 50V 100P COL
2N15		V	V		V	CER1 0402 NP0 50V 100P COL
2N16		V	V		V	CER1 0402 NP0 50V 100P COL
2P01		V	V		V	CER2 0603 X5R 6V3 2U2 PM10 R
2P02		V	V		V	CER2 0402 Y5V 16V 100N COL
2P03		V	V		V	CER2 0402 Y5V 16V 100N COL
2P04		V	V		V	CER2 0402 Y5V 16V 100N COL
2P05		V	V		V	CER2 0402 Y5V 16V 100N COL
2P06		V	V		V	CER2 0402 Y5V 16V 100N COL
2P07		V	V		V	CER2 0402 Y5V 16V 100N COL
2P08		V	V		V	CER2 0402 Y5V 16V 100N COL
2P09		V	V		V	CER2 0402 Y5V 16V 100N COL
2P10		V	V		V	CER2 0402 Y5V 16V 100N COL
2P11		V	V		V	CER2 0402 Y5V 16V 100N COL
2P12		V	V		V	CER2 0402 Y5V 16V 100N COL
2P13		V	V		V	CER2 0402 Y5V 16V 100N COL
2P14		V	V		V	CER2 0402 Y5V 16V 100N COL
2P15		V	V		V	ELCAP SM 16V 100U PM20 COL R
2P16		V	V		V	CER2 0402 Y5V 16V 100N COL
2P17		V	V		V	CER2 0603 X5R 6V3 2U2 PM10 R
2P18		V	V		V	CER2 0603 X5R 6V3 2U2 PM10 R
2P19		V	V		V	CER2 0402 Y5V 16V 100N COL
2P20		V	V		V	CER2 0402 Y5V 16V 100N COL
2P21		V	V		V	CER2 0402 Y5V 16V 100N COL
2P22		V	V		V	CER2 0603 X5R 6V3 2U2 PM10 R
2P23		V	V		V	CER2 0402 Y5V 16V 100N COL
2P24		V	V		V	CER2 0402 Y5V 16V 100N COL
2P25		V	V		V	CER2 0402 Y5V 16V 100N COL
2P26		V	V		V	CER2 0402 Y5V 16V 100N COL
2P27		V	V		V	CER2 0402 Y5V 16V 100N COL
2P28		V	V		V	CER2 0402 Y5V 16V 100N COL
2P29		V	V		V	CER2 0402 Y5V 16V 100N COL
2P30		V	V		V	CER2 0402 Y5V 16V 100N COL
2P31		V	V		V	CER2 0402 Y5V 16V 100N COL
2P32		V	V		V	CER2 0402 Y5V 16V 100N COL
2P33		V	V		V	CER2 0402 Y5V 16V 100N COL
2P34		V	V		V	CER2 0402 Y5V 16V 100N COL
2P35		V	V		V	CER2 0402 Y5V 16V 100N COL
3N01		V	V		V	RST SM 0402 10K PM5 COL
3N02		V	V		V	RST SM 0402 10K PM5 COL
3N03		V	V		V	RST SM 0402 10K PM5 COL
3N04		V	V		V	RST SM 0402 10K PM5 COL
3N05		V	V		V	RST SM 0402 10K PM5 COL
3N06		V	V		V	RST SM 0402 10K PM5 COL
3N07		V	V		V	RST SM 0603 33K PM5 COL
3N08		V	V		V	RST SM 0402 10K PM5 COL
3N09		V	V		V	RST SM 0402 1K PM5 COL
3N10		V	V		V	RST SM 0402 33K PM5 COL
3N11		V	V		V	RST SM 0402 47R PM5 COL
3N12		V	V		V	RST SM 0402 10K PM5 COL
3N13		V	V		V	RST SM 0402 10K PM5 COL
3N14		V	V		V	RST SM 0402 10K PM5 COL
3N15		V	V		V	RST SM 0402 47R PM5 COL
3N16		V	V		V	RST SM 0402 47R PM5 COL

Item	LC4.3 non PIXEL+	LC4.3 with PIXEL+	42PF7320/28	LC4.8/LC4.9 non PIXEL+	LC4.8/LC4.9 with PIXEL+	Description
3N17		V	V		V	RST SM 0402 47R PM5 COL
3N18		V	V		V	RST SM 0402 47R PM5 COL
3N19		V	V		V	RST SM 0402 10K PM5 COL
3N20		V	V		V	RST SM 0402 47R PM5 COL
3N21		V	V		V	RST SM 0402 100R PM5 COL
3N22		V	V		V	RST SM 0402 100R PM5 COL
3N23		V	V		V	RST SM 0402 100R PM5 COL
3N24		V	V		V	RST SM 0402 100R PM5 COL
3N25		V	V		V	RST SM 0402 100R PM5 COL
3N26		V	V		V	RST SM 0402 4K7 PM5 COL
3N27		V	V		V	RST SM 0402 47R PM5 COL
3N28		V	V		V	RST SM 0603 180R PM5 COL
3N29		V	V		V	RST SM 0402 100R PM5 COL
3N30		V	V		V	RST SM 0402 100R PM5 COL
3N31		V	V		V	RST SM 0402 100R PM5 COL
3N32		V	V		V	RST SM 0402 100R PM5 COL
3N33		V	V		V	RST SM 0402 100R PM5 COL
3N34		V	V		V	RST SM 0402 100R PM5 COL
3N35		V	V		V	RST SM 0402 100R PM5 COL
3N46		V	V		V	RST SM 0402 100R PM5 COL
3N47		V	V		V	RST SM 0402 100R PM5 COL
3P01		V	V		V	RST SM 0402 4K7 PM5 COL
3P03		V	V		V	RST SM 0402 47R PM5 COL
3P04				V		RST SM 0402 100R PM5 COL
3P04					V	RST SM 0402 JUMP. 0R05 COL
3P05				V		RST SM 0402 100R PM5 COL
3P05					V	RST SM 0402 JUMP. 0R05 COL
4N01	V			V		RST SM 0402 JUMP. 0R05 COL
4N02	V			V		RST SM 0402 JUMP. 0R05 COL
4N03	V			V		RST SM 0402 JUMP. 0R05 COL
4N04	V			V		RST SM 0402 JUMP. 0R05 COL
4N05	V			V		RST SM 0402 JUMP. 0R05 COL
4N06	V			V		RST SM 0402 JUMP. 0R05 COL
4N07	V			V		RST SM 0402 JUMP. 0R05 COL
4N08	V			V		RST SM 0402 JUMP. 0R05 COL
4N09	V			V		RST SM 0402 JUMP. 0R05 COL
4N10	V			V		RST SM 0402 JUMP. 0R05 COL
4N11	V			V		RST SM 0402 JUMP. 0R05 COL
4N12	V			V		RST SM 0402 JUMP. 0R05 COL
4N13	V			V		RST SM 0402 JUMP. 0R05 COL
4N14	V			V		RST SM 0402 JUMP. 0R05 COL
4N15	V			V		RST SM 0402 JUMP. 0R05 COL
4N16	V			V		RST SM 0402 JUMP. 0R05 COL
4N17	V			V		RST SM 0402 JUMP. 0R05 COL
4N18	V			V		RST SM 0402 JUMP. 0R05 COL
4N19	V			V		RST SM 0402 JUMP. 0R05 COL
4N20	V			V		RST SM 0402 JUMP. 0R05 COL
4N21		V	V		V	RST SM 0402 JUMP. 0R05 COL
4N22		V	V		V	RST SM 0402 JUMP. 0R05 COL
4P01						RST SM 0402 JUMP. 0R05 COL
4P02						RST SM 0402 JUMP. 0R05 COL
4P07				V		RST SM 0402 JUMP. 0R05 COL
5N01		V	V		V	FXDIND 0805 100MHZ 30R COL R
5N02		V	V		V	FXDIND 0805 100MHZ 30R COL R
5N03		V	V		V	FXDIND 0805 100MHZ 30R COL R
5N04		V	V		V	FXDIND 0805 100MHZ 30R COL R
5N05		V	V		V	FXDIND 0805 100MHZ 30R COL R
5P01		V	V		V	FXDIND 0805 100MHZ 30R COL R
5P02		V	V		V	FXDIND 0805 100MHZ 30R COL R
5P03		V	V		V	FXDIND 0805 100MHZ 30R COL R
5P04		V	V		V	FXDIND 0805 100MHZ 30R COL R
5P05		V	V		V	FXDIND 0805 100MHZ 30R COL R
5P06		V	V		V	FXDIND 0805 100MHZ 30R COL R
6N01		V	V		V	LED VS SM TLMG3100 (VISH) R
7N01		V	V		V	IC SM EPCS4SI8N (ALT0) R
7N02		V	V		V	IC SM EP1C12F256C8N (ALT0) Y
7N03		V	V		V	TRA SIG SM BC847BS (PHSE) R
7N04		V	V		V	IC SM THC63LVDF84B (THIN) R
7P01		V	V		V	IC SM LF15ABDT (ST00) R
7P02		V	V		V	IC SM THC63LVDM83R (THIN) R

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Layout Small Signal Board (Top Side Overview)

1101 D2 2109 D1 2282 B3 2701 A6 2803 B6 2823 C5 2922 C6 2945 B6 2B07 B7 2D10 C7 2E25 C5 2G09 D4 2G52 D2 2K18 C1 2L18 B3 2N03 A6 2P02 A6 2P22 A6 3106 D2 3125 D1 3233 A2 3258 B3 3458 B3 3625 B1 3741 B3 3828 B5 3A02 C6 3C14 B5 3D25 C7 3E32 C5 3G02 D4 3G31 D2 3G54 D5 3N35 A7 5735 A3 7E04 C5
1104 B1 2110 C2 2283 B3 2708 A5 2804 B6 2824 C5 2923 B6 2946 B6 2B08 B7 2D11 C7 2E26 C5 2G10 D3 2G53 D5 2K19 B1 2L19 B4 2N04 A6 2P03 A6 2P23 A6 3107 C2 3201 A2 3237 A2 3259 A3 3459 B3 3626 B1 3742 B3 3829 B5 3A03 C6 3C15 B4 3D26 C7 3E33 C5 3G03 D4 3G32 D2 3G55 D5 3N42 A7 5738 A3 7E05 C5
1106 B1 2111 C2 2284 B3 2710 A4 2805 B6 2900 B7 2924 B6 2947 B6 2B09 B7 2D13 C7 2E27 C5 2G12 D3 2K00 A1 2K20 B1 2L23 B4 2N05 A6 2P04 A6 2P24 A6 3108 C2 3202 A2 3238 A2 3260 A3 3461 C3 3627 B1 3743 B3 3830 B5 3A04 C6 3C16 B5 3D27 C7 3E34 C5 3G04 D3 3G33 D2 3G56 D5 3N43 A7 5755 A5 7G03 D3
1107 D2 2112 C2 2292 B3 2711 A4 2806 B6 2905 B5 2925 B6 2948 B6 2B10 B7 2D14 C7 2E28 C5 2G16 D2 2K01 A1 2K21 A1 2L24 B4 2N06 A6 2P05 A6 2P25 A6 3109 C2 3203 A2 3239 A2 3275 A2 3462 C3 3628 A1 3750 A5 3831 B5 3A05 C6 3C17 B4 3D30 C7 3E35 C5 3G05 D3 3G34 D2 3G57 D5 3N44 A7 5756 A5 7G05 D5
1751 A5 2113 C2 2293 B2 2714 A5 2807 B6 2906 B5 2926 B6 2949 B6 2B11 B7 2D16 C7 2E29 C5 2G17 D2 2K02 B1 2K22 A1 2L26 B3 2N07 B6 2P06 A6 2P26 A6 3110 C2 3204 A2 3240 A2 3276 A2 3463 B3 3629 A1 3755 A5 3832 B5 3A06 C6 3C18 B4 3D31 C7 3E36 C5 3G06 D3 3G37 D6 3G58 D4 3N45 A7 5757 A5 7L01 B3
1802 B6 2114 C2 2449 C3 2715 A5 2808 C6 2907 B5 2927 B5 2950 B5 2B12 B7 2D18 C7 2E30 C5 2G18 D6 2K03 B1 2K23 A1 2L33 B4 2N08 B6 2P07 A6 2P27 A6 3111 C2 3205 A2 3241 A2 3283 B2 3604 A1 3630 A2 3758 A6 3833 B5 3C00 B5 3C19 B4 3D32 C7 3E37 C4 3G07 D3 3G38 D5 3G59 D4 3N46 B7 5758 A5 7L02 B3
1C00 C5 2201 A2 2603 A1 2730 A4 2809 C6 2908 B5 2928 B5 2951 B6 2B13 B7 2D19 C7 2E31 C5 2G19 D5 2K04 B1 2K24 A1 2L34 B4 2N09 B6 2P08 A6 2P28 A6 3112 C2 3206 A2 3243 A2 3284 B2 3605 A1 3631 A1 3759 A5 3834 B5 3C01 B5 3C20 B5 3D33 C7 3E38 C5 3G08 D5 3G39 D6 3G60 D4 3N47 B7 5759 A5 7L03 B3
1N01 A7 2202 A2 2604 A1 2733 A3 2810 C6 2909 B5 2929 B5 2952 B6 2B14 B7 2D28 C7 2E32 C4 2G21 D5 2K05 B1 2K25 A1 2L35 B3 2N10 A7 2P09 A6 2P29 A6 3113 C2 3208 B3 3246 A2 3287 B3 3609 A1 3632 A1 3760 A5 3835 B5 3C02 C5 3C21 B5 3D34 C7 3E39 C5 3G09 D5 3G40 D5 3K00 B1 3P01 A6 5901 C5 7L04 B4
1N02 B7 2219 B2 2605 A2 2734 A3 2811 C6 2910 B5 2930 C5 2953 C5 2B15 B7 2D29 C7 2E36 D4 2G22 D5 2K06 B1 2K26 A1 2L36 B3 2N11 A7 2P10 A6 2P30 A6 3114 C2 3209 B3 3247 A2 3288 B3 3610 A2 3633 A2 3761 A5 3836 B5 3C03 C5 3D00 C7 3D35 C7 3E41 D5 3G12 D3 3G41 D5 3K01 B1 3P03 A6 5902 C6 7L06 C3
1N03 A7 2220 B2 2608 A2 2735 A3 2812 C6 2911 B5 2931 C5 2954 C5 2B16 B7 2D30 C7 2E37 C5 2G23 D5 2K07 B1 2K27 A1 2L37 B3 2N12 A7 2P11 A6 2P31 A7 3115 C1 3210 B3 3248 A2 3289 B3 3611 A2 3708 A5 3800 B5 3837 B5 3C04 B5 3D01 C7 3E01 D4 3E42 C5 3G13 D3 3G42 D5 3K02 B1 3S01 D4 5903 B5 7L07 C3
1N05 A7 2225 A2 2609 A1 2741 B3 2813 B6 2912 B5 2932 C5 2955 C5 2C00 B5 2D33 C7 2E38 C5 2G25 D5 2K08 B1 2K28 A1 2L38 B3 2N13 A7 2P12 A6 2P32 A7 3116 C2 3211 B3 3249 A2 3290 B2 3612 A2 3709 A5 3817 B5 3838 B5 3C05 B4 3D02 C7 3E02 C4 3E43 C4 3G14 D3 3G43 D6 3K03 B1 4102 C2 5904 C5 7L08 B3
2101 C1 2227 A2 2610 A2 2750 A5 2814 B6 2913 B5 2933 C5 2956 C5 2C01 B5 2D35 C7 2E39 C5 2G26 D5 2K10 C1 2L07 B4 2L39 B3 2N14 A7 2P13 A6 2P33 A7 3117 C2 3212 B2 3250 A3 3296 A2 3615 B1 3712 A4 3818 B5 3839 C6 3C06 B4 3D03 D7 3E24 C5 3E44 C5 3G15 D3 3G44 D5 3K05 B1 4103 C2 5905 B6 7M00 C4
2102 C1 2239 A3 2612 A2 2751 A6 2816 C5 2914 C6 2935 C5 2957 C5 2C02 B5 2D36 C7 2G01 D4 2G28 D4 2K11 B1 2L08 B4 2M24 C3 2N15 A7 2P14 A6 2P34 A7 3118 C2 3213 B2 3251 A3 3431 A1 3616 A2 3713 A4 3820 C6 3840 C6 3C07 B4 3D04 D7 3E25 C5 3E45 C5 3G16 D3 3G45 D5 3K06 B1 4104 C2 5906 B6 7M01 C4
2103 C2 2252 B3 2613 A1 2759 A5 2817 C5 2915 C6 2936 C5 2958 C5 2C03 B5 2D37 C7 2G02 D4 2G45 D4 2K12 B1 2L09 B4 2M25 C4 2N16 A6 2P16 A6 2P35 A7 3119 C2 3218 B2 3252 A3 3432 A1 3617 A1 3716 A5 3822 C6 3841 B6 3C08 B4 3D11 C7 3E26 C5 3E46 C4 3G17 D3 3G46 D5 3K07 B1 4105 C2 5907 B6 7M17 B4
2104 D1 2253 B2 2614 A2 2760 A5 2818 C5 2916 C6 2937 C5 2959 C5 2D00 C7 2D39 C7 2G03 D3 2G46 D4 2K13 B1 2L10 B3 2M26 C3 2N17 A7 2P17 A6 3101 D1 3120 D2 3219 B2 3253 A3 3451 B3 3618 A1 3732 A3 3823 C6 3900 B6 3C09 B4 3D19 C7 3E27 C5 3E49 C4 3G26 D3 3G47 D5 3K08 B1 4106 C2 5908 B7 7N01 A6
2105 D1 2254 B2 2616 A1 2761 A5 2819 C5 2918 C5 2938 C5 2A03 C6 2D01 D7 2D40 C7 2G04 D3 2G48 D6 2K14 B1 2L11 B4 2M65 B4 2N18 A7 2P18 A6 3102 D1 3121 D2 3220 B2 3254 A2 3453 B3 3619 A1 3733 A3 3824 C5 3901 B5 3C10 B4 3D21 C7 3E28 C5 3E51 D4 3G27 D3 3G48 D5 3K09 C1 4109 C2 5909 C5 7N03 A6
2106 C2 2273 A3 2617 A1 2762 A5 2820 C5 2919 C5 2939 C5 2B03 B7 2D02 D7 2D44 C7 2G05 D4 2G49 D5 2K15 B1 2L13 B3 2M67 B3 2N19 A7 2P19 A6 3103 D2 3122 D2 3228 B3 3255 B3 3454 B3 3620 A1 3735 A3 3825 B5 3902 B5 3C11 B4 3D22 C6 3E29 C5 3E54 D4 3G28 D3 3G51 D5 3K11 A1 4110 C2 5910 C5 7P01 A6
2107 C1 2280 A2 2619 A2 2801 B6 2821 C5 2920 C6 2941 C6 2B04 B7 2D08 C7 2D45 C7 2G06 D4 2G50 D6 2K16 C1 2L15 B3 2N01 A6 2N20 A7 2P20 A6 3104 D2 3123 D2 3229 A2 3256 A3 3455 B3 3621 A1 3736 A3 3826 B5 3903 B5 3C12 B5 3D23 C7 3E30 C5 3G00 D4 3G29 D3 3G52 D5 3K12 A1 4111 C2 5911 C6
2108 C1 2281 A2 2700 A6 2802 B6 2822 C5 2921 C6 2942 C5 2B06 B7 2D09 C7 2E24 C5 2G08 D4 2G51 D5 2K17 C1 2L17 B3 2N02 A6 2P01 A6 2P21 A6 3105 C1 3124 D1 3232 A2 3257 A3 3456 B3 3623 A1 3740 B3 3827 B5 3904 B5 3C13 B5 3D24 C7 3E31 C5 3G01 D4 3G30 D3 3G53 D5 3K13 A1 4112 C2 5C00 B5

3L00 B3 4113 C2 5E03 C5
3L01 B3 4114 C2 5G00 D2
3L03 B3 4115 C2 5K00 A1
3L04 B3 4116 C2 5K01 B1
3L05 B3 4204 C3 5K02 A1
3L06 B3 4207 B3 5L03 B3
3L08 B3 4208 A3 5L04 B3
3L10 B3 4209 A3 5M00 B4
3L11 B3 4211 A2 5M01 C3
3L12 B3 4212 A2 5M03 B4
3L13 B3 4436 B3 5M04 B3
3L15 B3 4437 B3 5N01 A7
3L16 B3 4438 B3 5N02 A6
3L17 B3 4439 B3 5N03 B6
3L18 B3 4440 B3 5N04 B6
3L19 B3 4441 C3 5N05 A7
3L20 B3 4501 A2 5P01 A6
3L21 B4 4502 A2 5P02 A6
3L22 B4 4503 A2 5P03 A6
3L23 B3 4504 A2 5P04 A7
3L24 B4 4505 A2 5P05 A7
3L25 B4 4506 A2 5P06 A7
3L26 B4 4601 A1 6101 D1
3L27 B4 4602 A1 6102 D1
3L28 B4 4603 A2 6103 D2
3L30 B3 4604 A1 6104 C2
3L31 B3 4605 A2 6105 C2
3L32 B3 4606 B1 6106 D2
3L33 B3 4609 A1 6107 D2
3L34 B3 4610 A2 6204 A2
3L35 B3 4611 A1 6205 A2
3L36 B3 4612 A1 6206 A2
3L37 B3 4613 B1 6430 A1
3L38 B3 4614 A1 6431 A1
3L39 B3 4615 A1 6601 A1
3M00 B4 4618 A1 6709 A4
3M01 C4 4619 A1 6712 A4
3M02 C4 4801 C6 6733 A4
3M03 C4 4A02 C6 6740 B3
3M04 C4 4A03 C6 6E00 C5
3M06 C3 4D00 C7 6E01 C5
3M07 C3 4D01 C7 6E02 C5
3M08 C3 4E03 D5 6E03 C5
3M09 C3 4E10 C5 6G00 D2
3M10 C4 4E11 C5 6G01 D5
3M11 C4 4G00 D4 6G07 D5
3M14 B4 4G01 D3 6G08 D5
3M15 C4 4G05 D6 6G09 D5
3M27 B3 4G06 D5 6G10 D5
3M29 C3 4G19 D4 6N01 A7
3M50 C4 4G26 D2 7101 C2
3M51 C4 4K01 A1 7102 C2
3M52 C4 4K02 C1 7103 C2
3M53 C4 4K03 A1 7201 A2
3M54 C4 4K04 A1 7202 A2
3M55 C4 4K05 A1 7203 A2
3M56 C4 4K06 B1 7204 A2
3M57 C4 4K07 B1 7205 A2
3M58 C4 4L00 B4 7207 A2
3M59 C4 4L01 B4 7208 B3
3M78 C4 4L02 B3 7209 A3
3M79 B4 4L03 B3 7210 A3
3M86 B4 4L04 B3 7211 A2
3M87 B4 4L05 B3 7217 B2
3N01 A6 4M00 C4 7430 A1
3N02 A6 4M01 C4 7436 C3
3N03 A6 4M02 C4 7601 A1
3N04 A6 4M03 C4 7602 A1
3N05 A6 4M05 C4 7603 A2
3N06 A6 4M06 C4 7604 A1
3N07 A6 4M08 C4 7605 A1
3N08 A6 4M09 C4 7606 A1
3N09 A6 4M10 C4 7607 B1
3N10 A6 4N21 B6 7708 A5
3N11 A6 4N22 B6 7710 A4
3N12 A6 4P09 A6 7730 A4
3N13 A6 4P10 A6 7735 A3
3N14 A6 5101 C2 7738 A3
3N15 A7 5102 C2 7741 B3
3N16 A7 5103 C2 7742 B3
3N17 A7 5105 B2 7753 A5
3N18 A7 5106 B2 7754 A5
3N19 A6 5107 D1 7755 A6
3N20 A6 5108 D1 7756 A5
3N26 B6 5211 A3 7758 A5
3N27 A6 5214 A2 7900 B7
3N28 A7 5216 A3 7A01 C6
3N29 A6 5700 A6 7C01 B5
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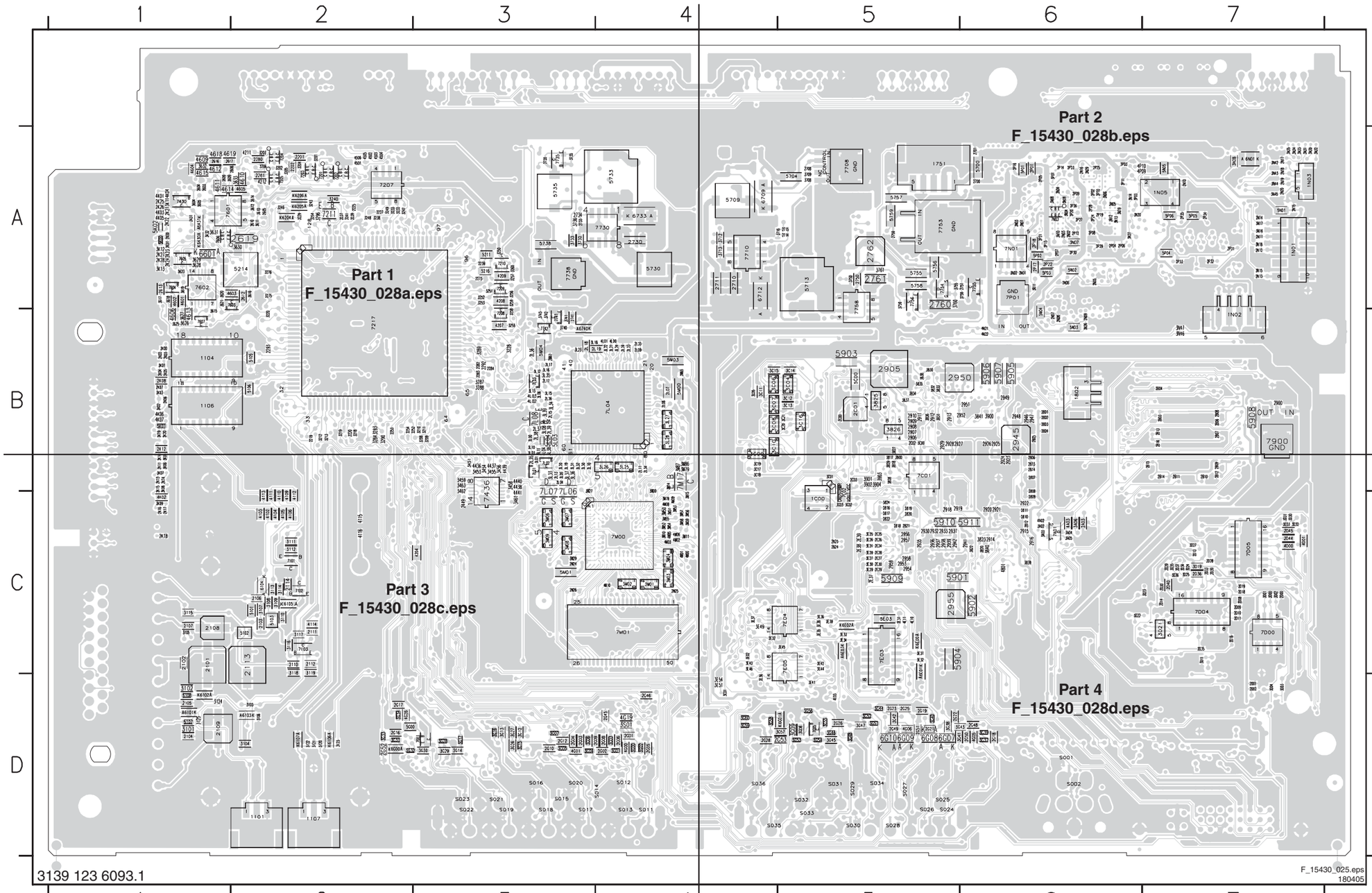

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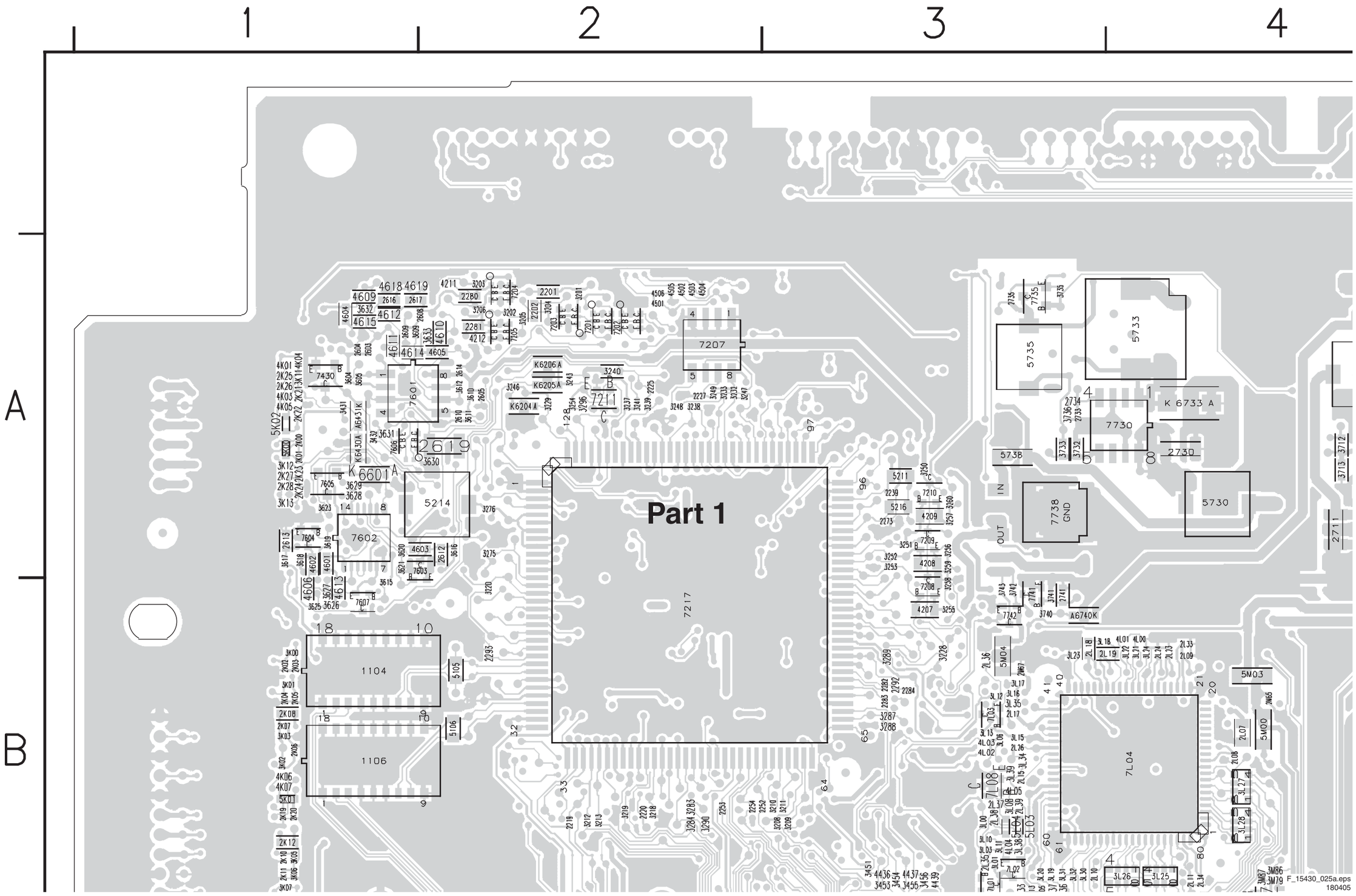

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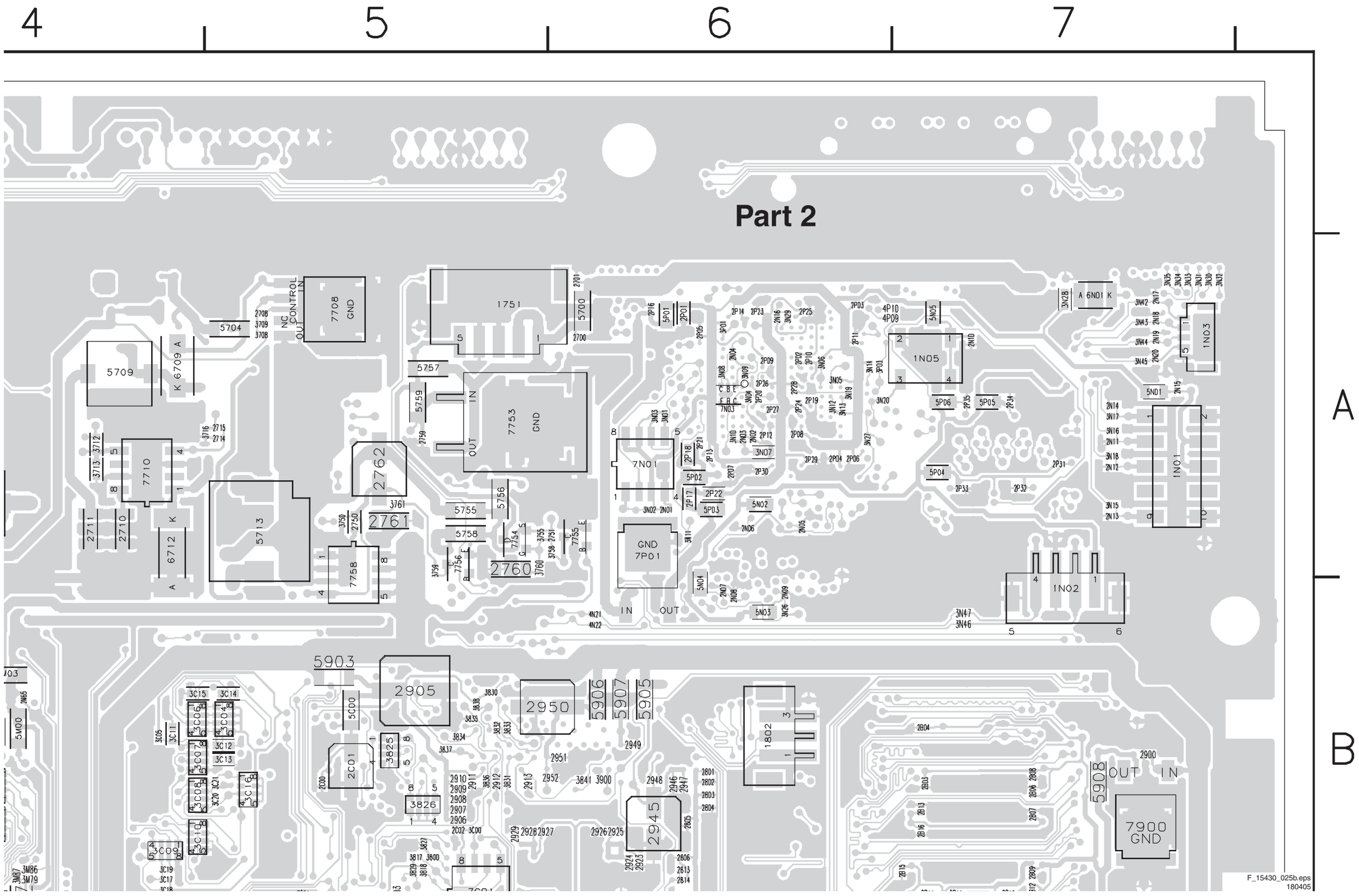

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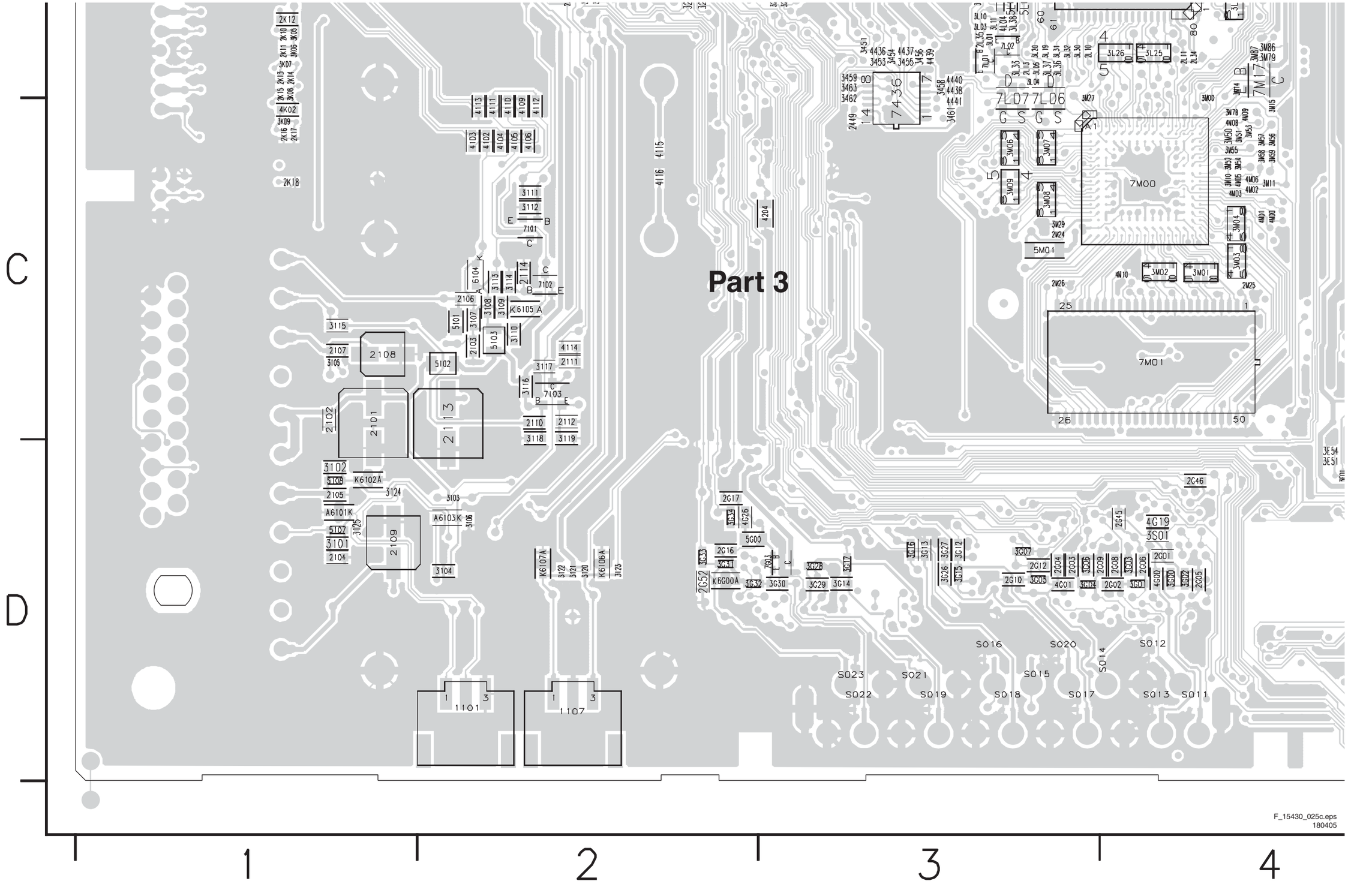

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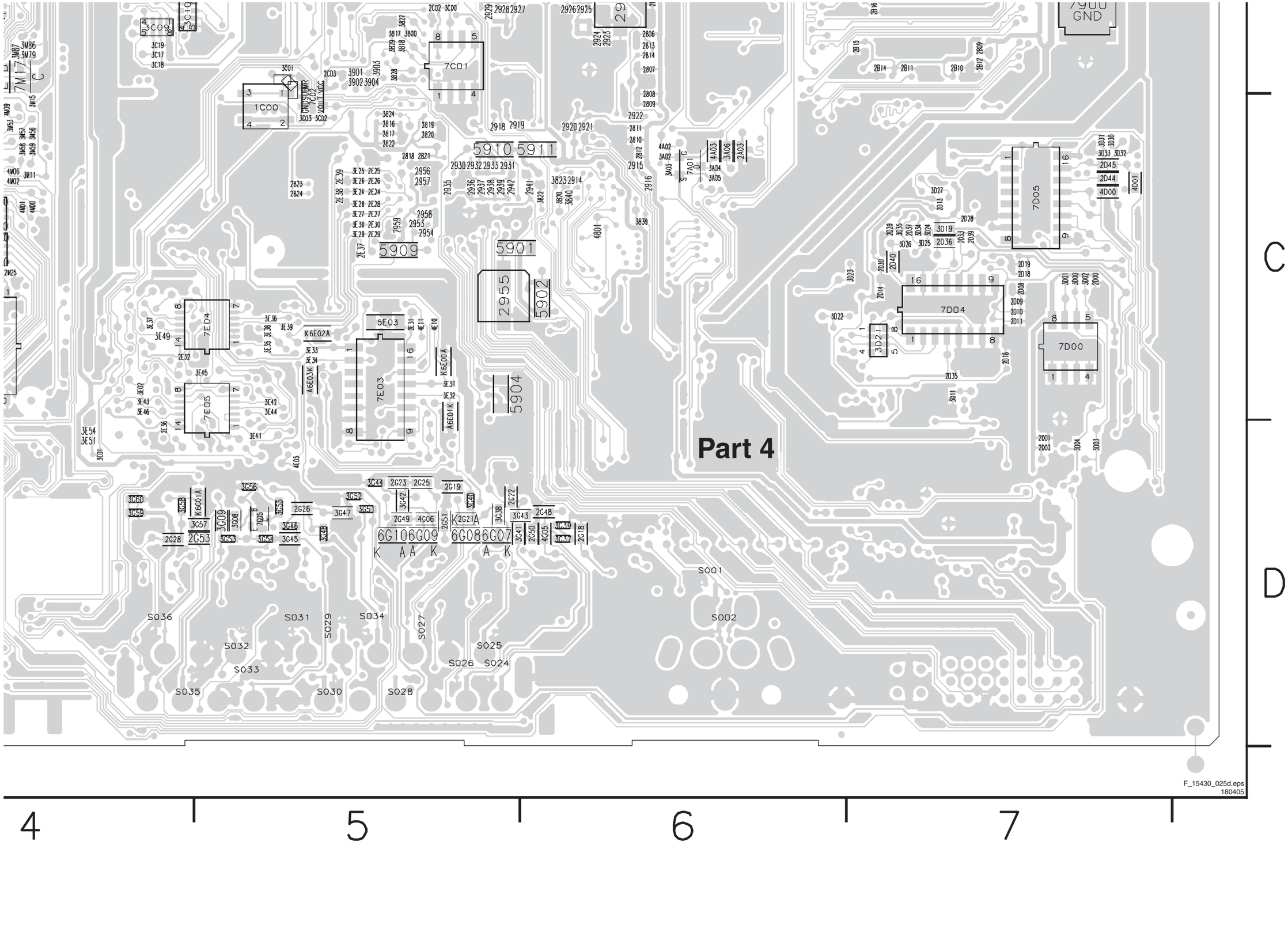

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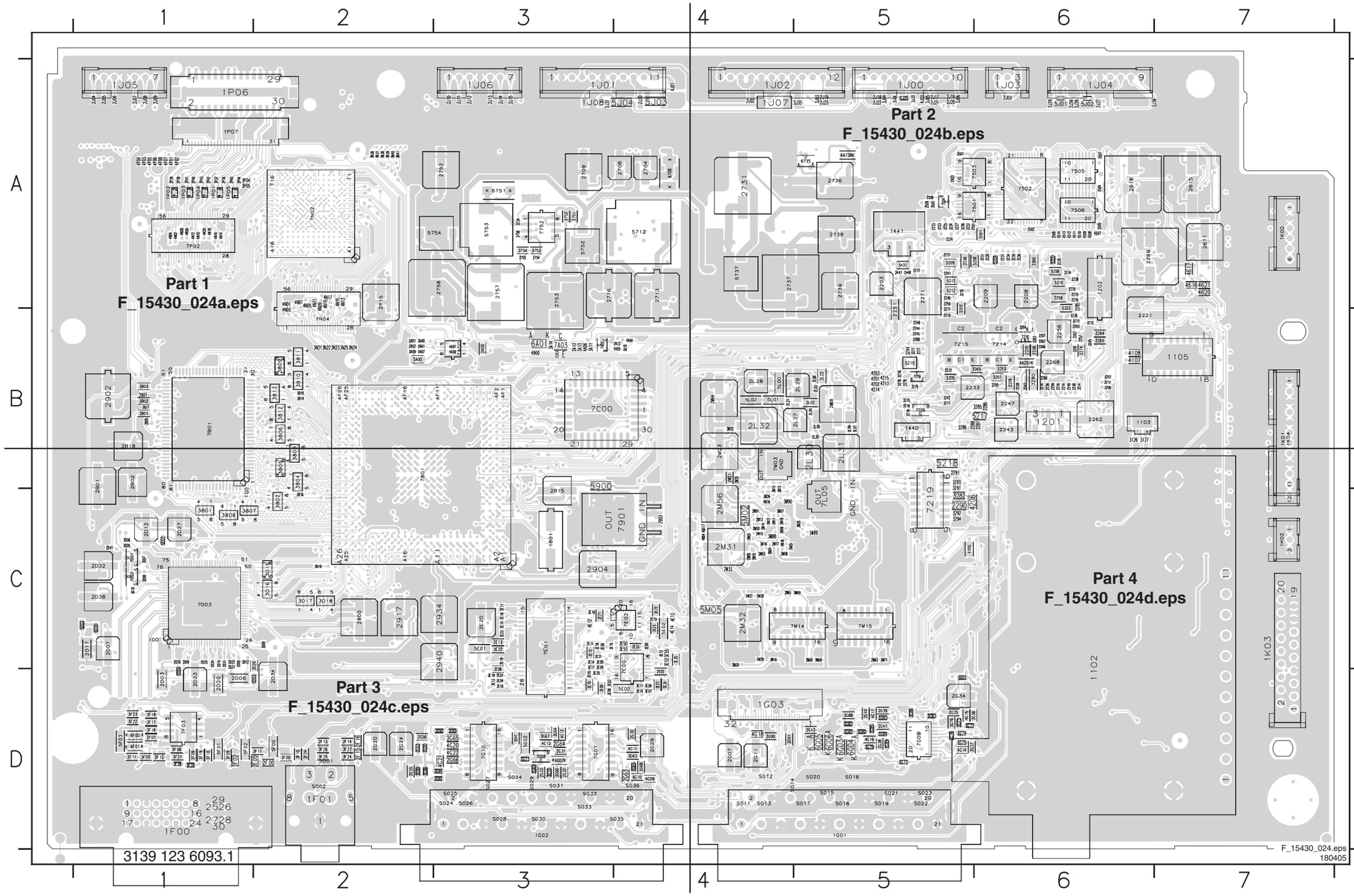
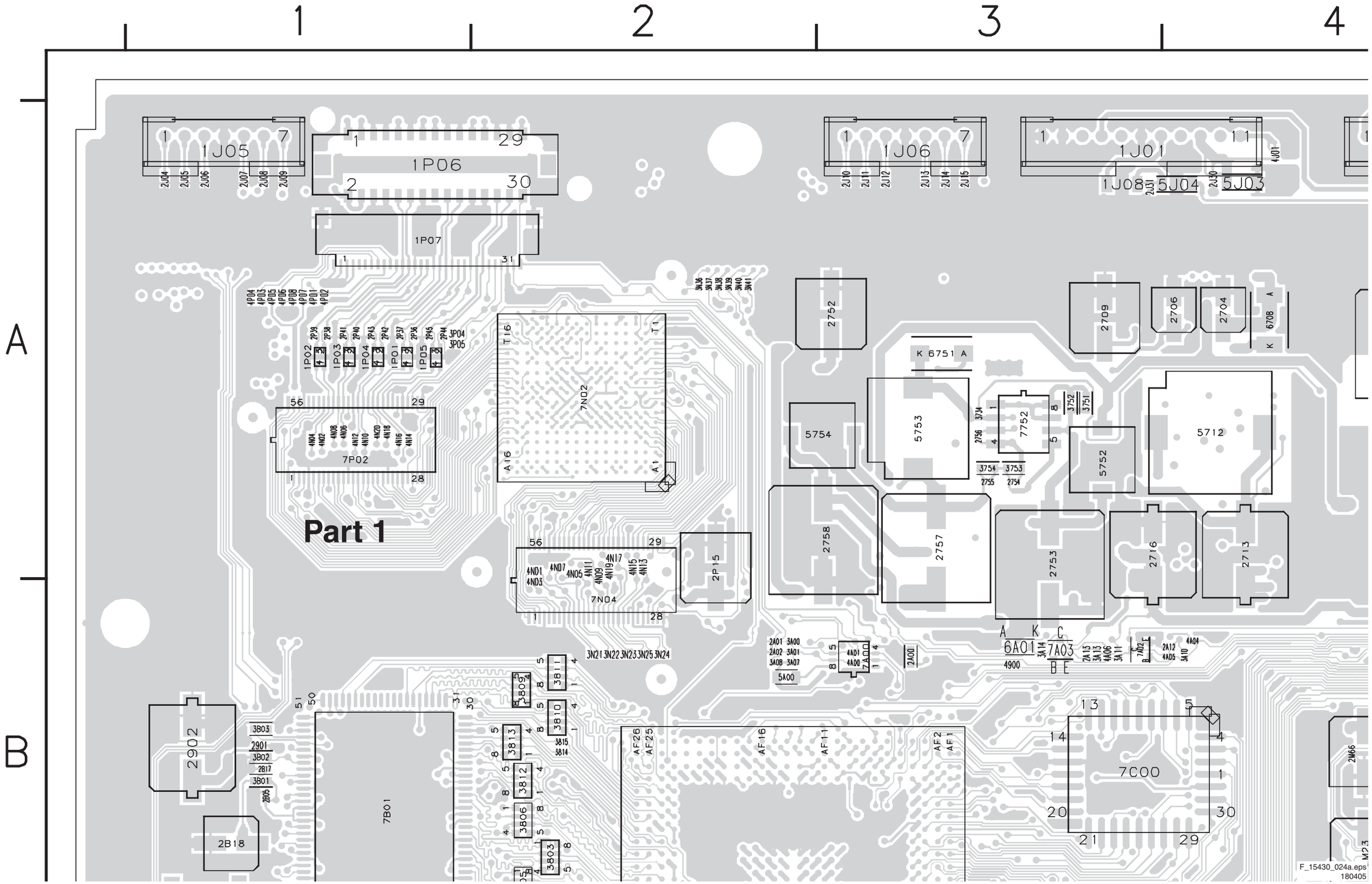


Layout Small Signal Board (Bottom Side Part 1)



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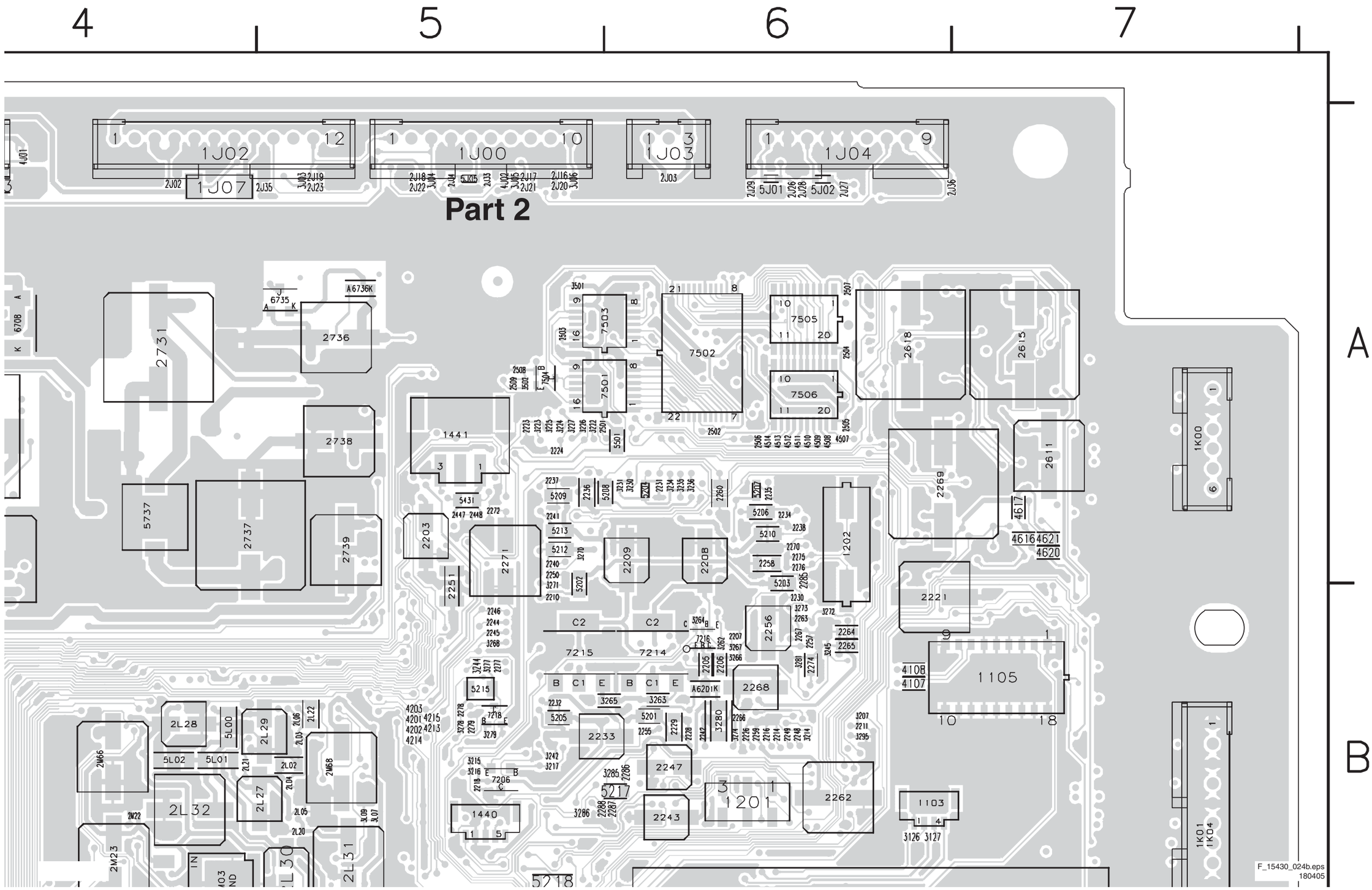

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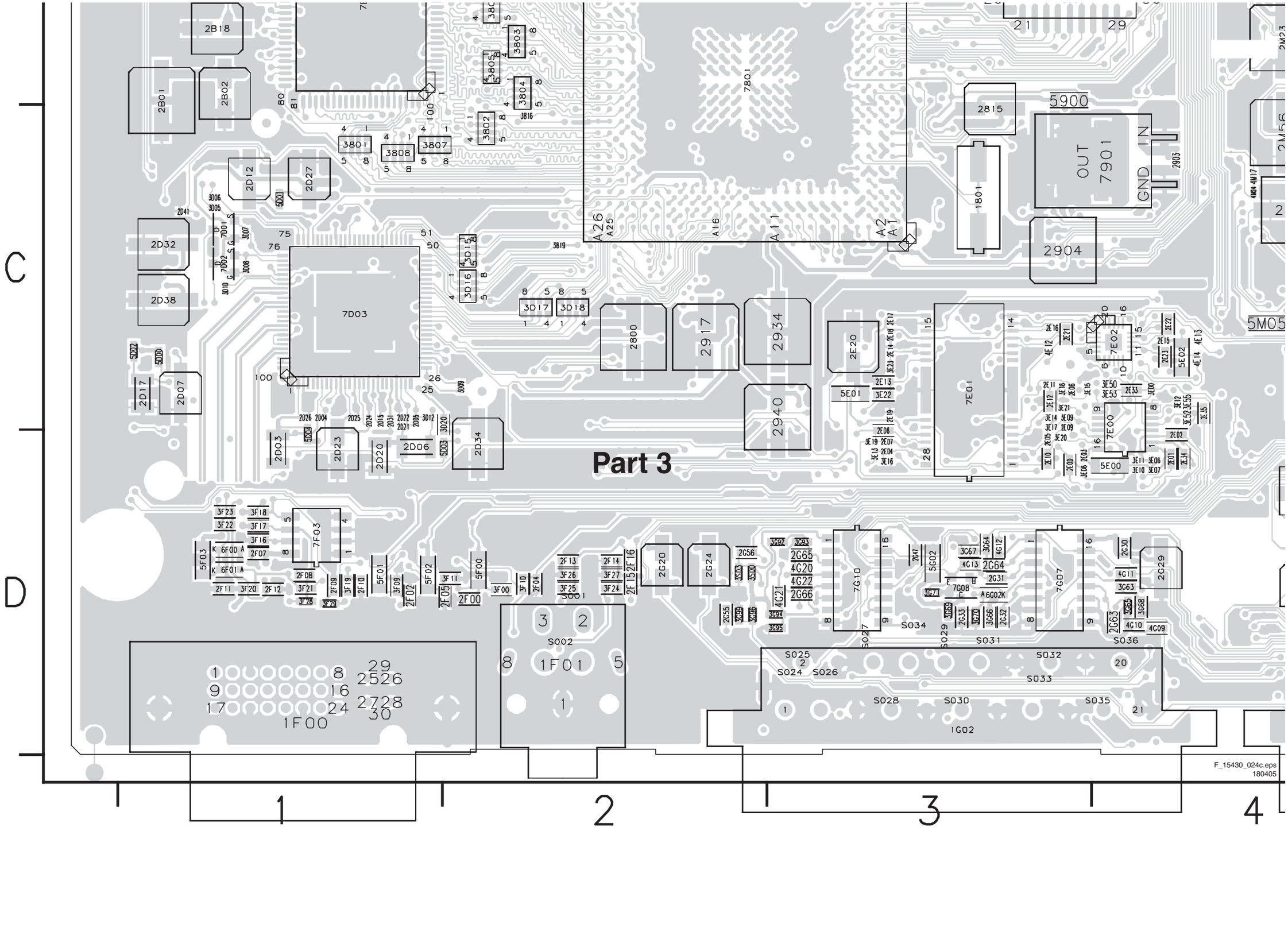

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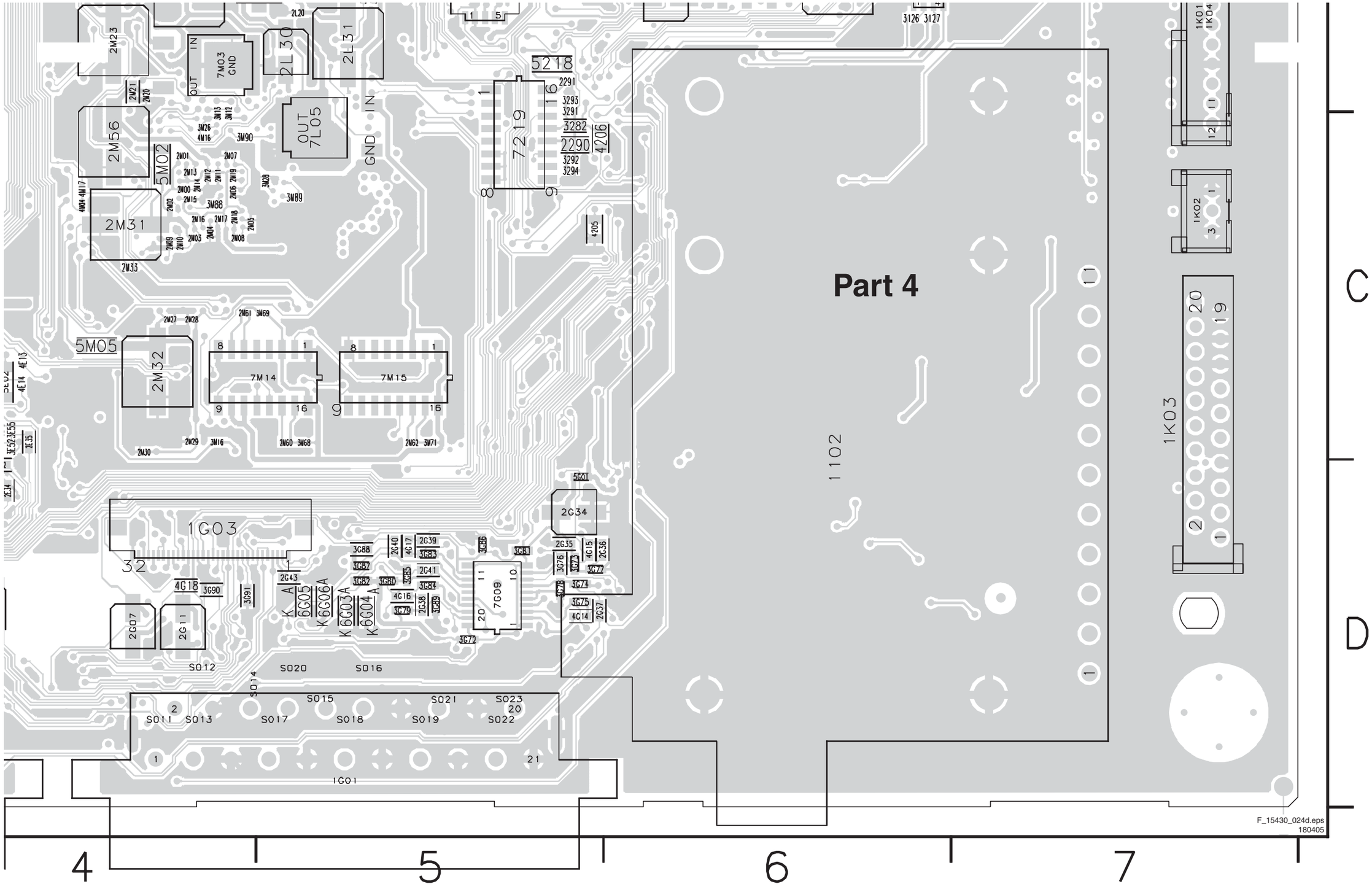

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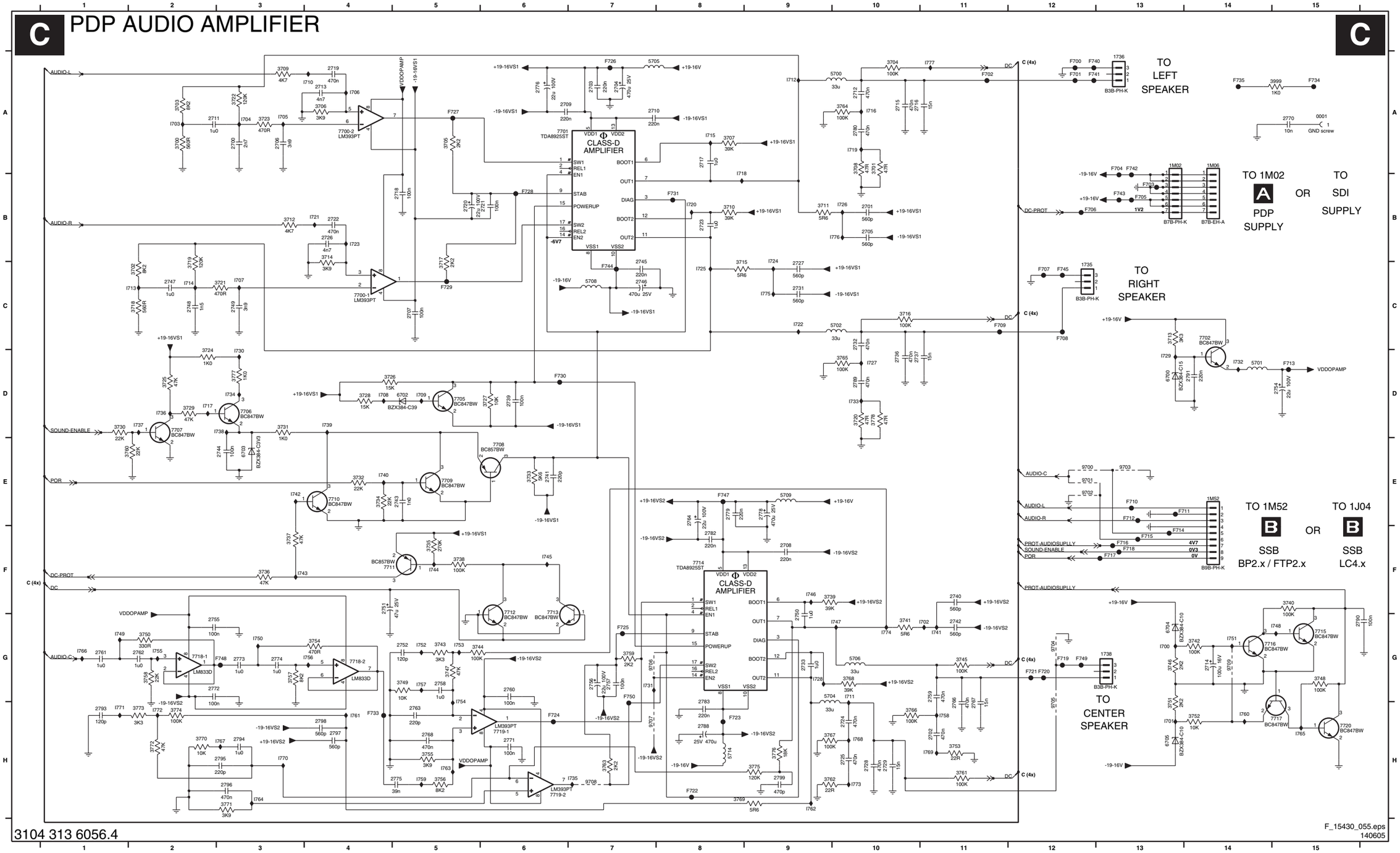

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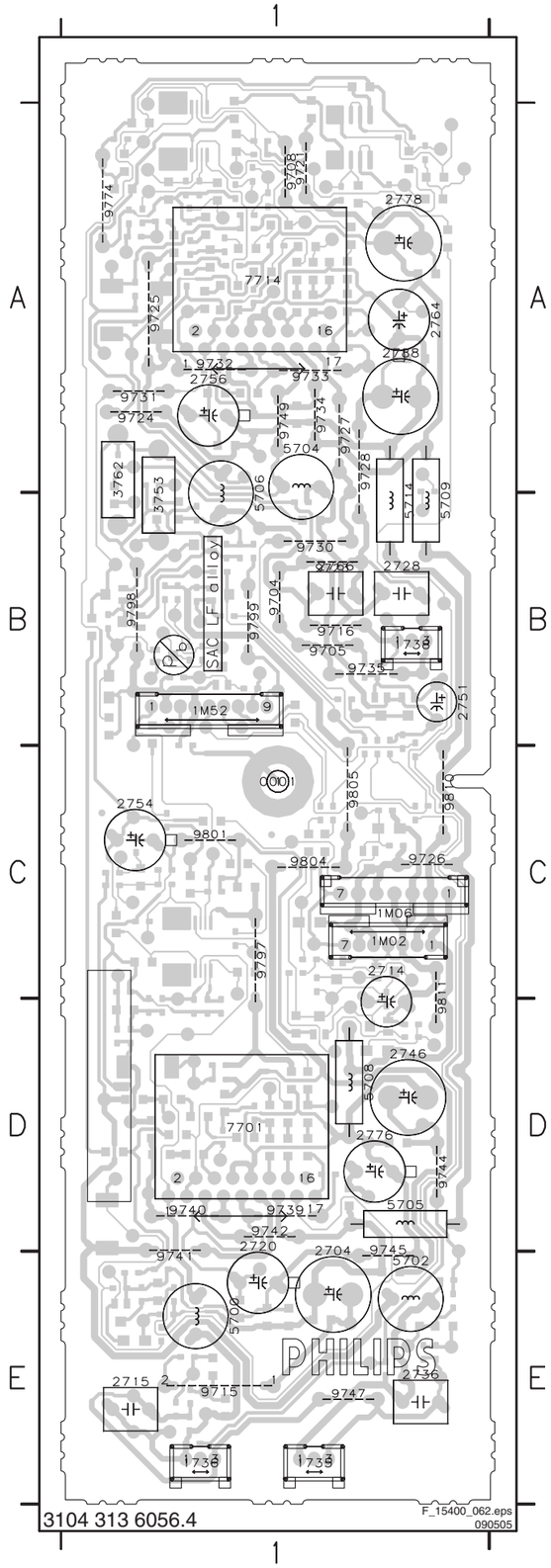

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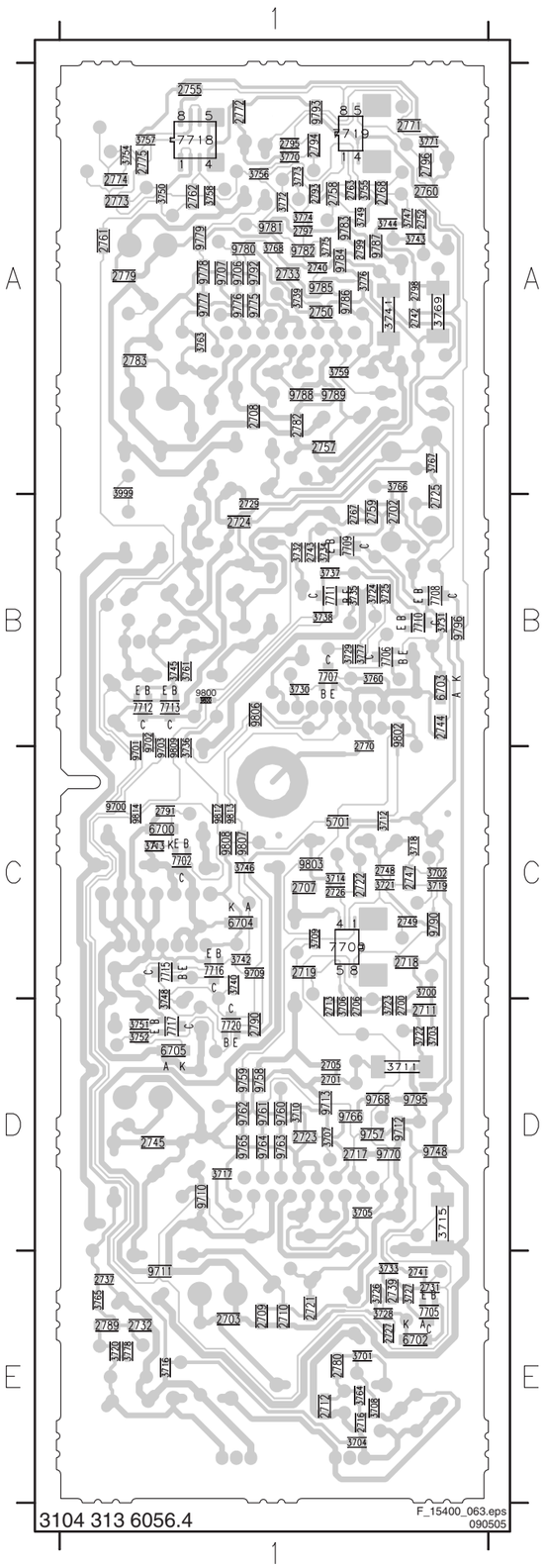

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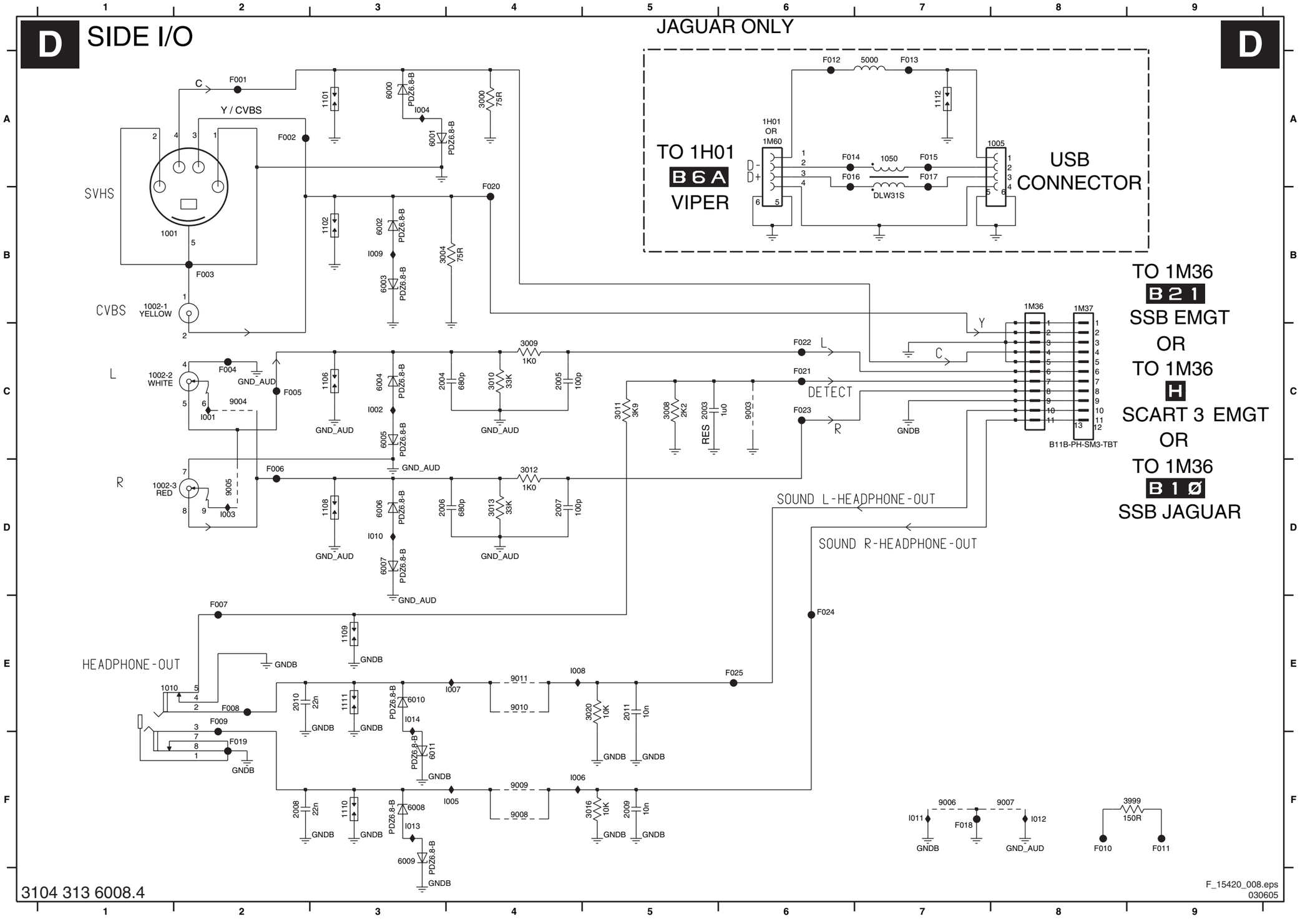
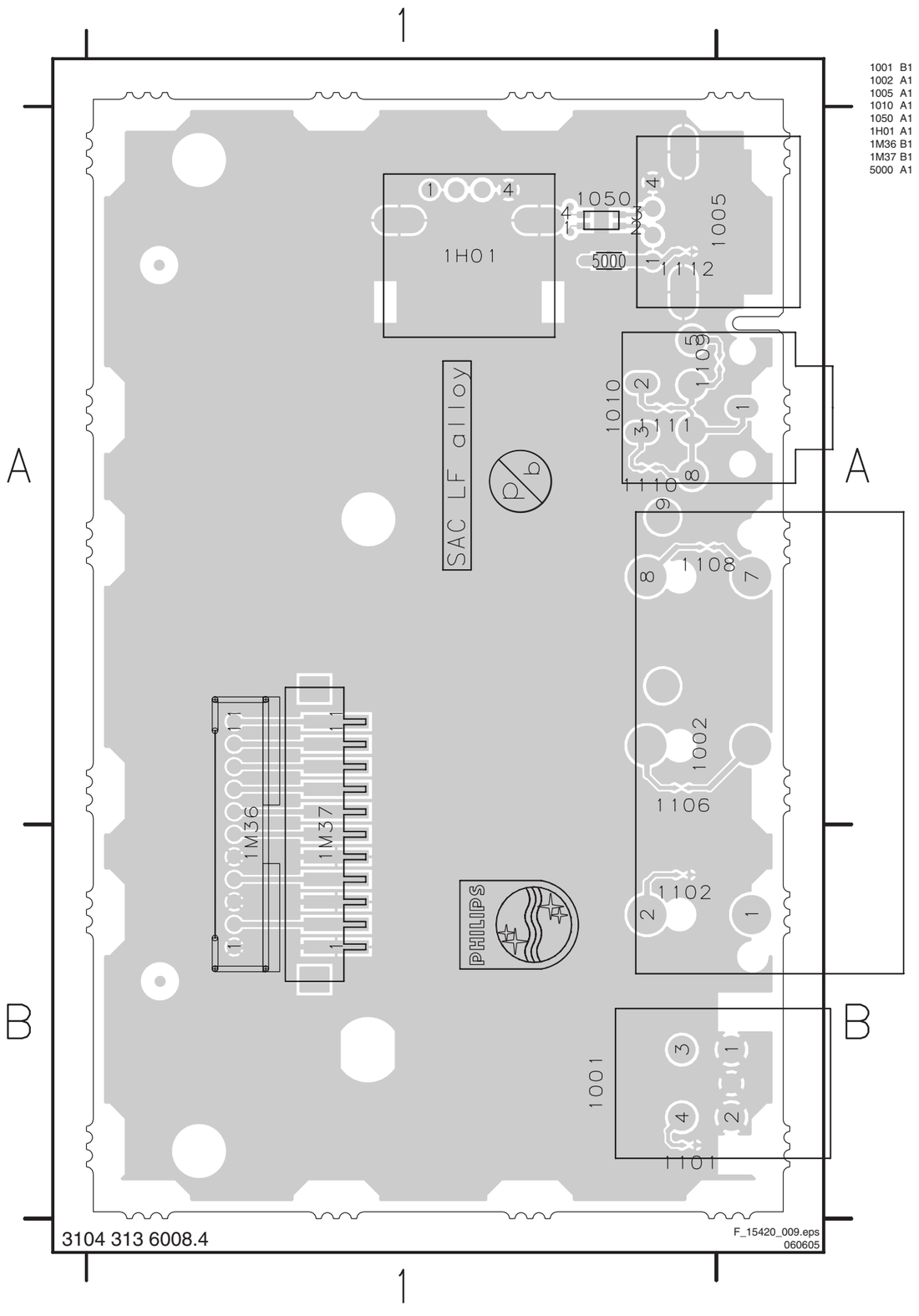
2779 A1
2780 E1
2782 A1
2783 A1
2789 E1
2790 D1
2791 C1
2793 A1
2794 A1
2795 A1
2796 A1
2797 A1
2798 A1
2799 A1
3700 C1
3701 E1
3702 C1
3703 D1
3704 E1
3705 D1
3706 D1
3707 D1
3708 E1
3709 C1
3710 D1
3711 D1
3712 C1
3713 C1
3714 C1
3715 D1
3716 E1
3717 D1
3718 C1
3719 C1
3720 E1
3721 C1
3722 D1
3723 D1
3724 B1
3725 B1
3726 E1
3727 E1
3728 E1
3729 B1
3730 B1
3731 B1
3732 B1
3733 E1
3734 B1
3735 B1
3736 C1
3737 B1
3738 B1
3739 A1
3740 C1
3741 A1
3742 C1
3743 A1
3744 A1
3745 B1
3746 A1
3747 A1
3748 D1
3749 A1
3750 A1
3751 D1
3752 D1
3754 A1
3755 A1
3756 A1
3757 A1
3758 A1
3759 A1
3760 B1
3761 B1
3763 A1
3764 E1
3765 E1
3766 A1
3767 A1
3768 A1
3769 A1
3770 A1
3771 A1
3772 A1
3773 A1
3774 A1
3775 A1
3776 A1
3777 B1
3778 E1
3999 A1
5701 C1
6700 C1
6702 E1
6703 B1
6704 C1
6705 D1
6706 C1
6707 B1
6708 B1
7700 C1
7702 C1
7705 E1
7706 B1
7707 B1
7708 B1
7709 B1
7710 B1
7711 B1
7712 B1
7713 B1
9800 A1
9801 C1
9802 B1
9803 C1
9806 B1
9807 C1
9808 C1
9809 C1
9812 C1
9813 C1
9814 C1

Side I/O Panel

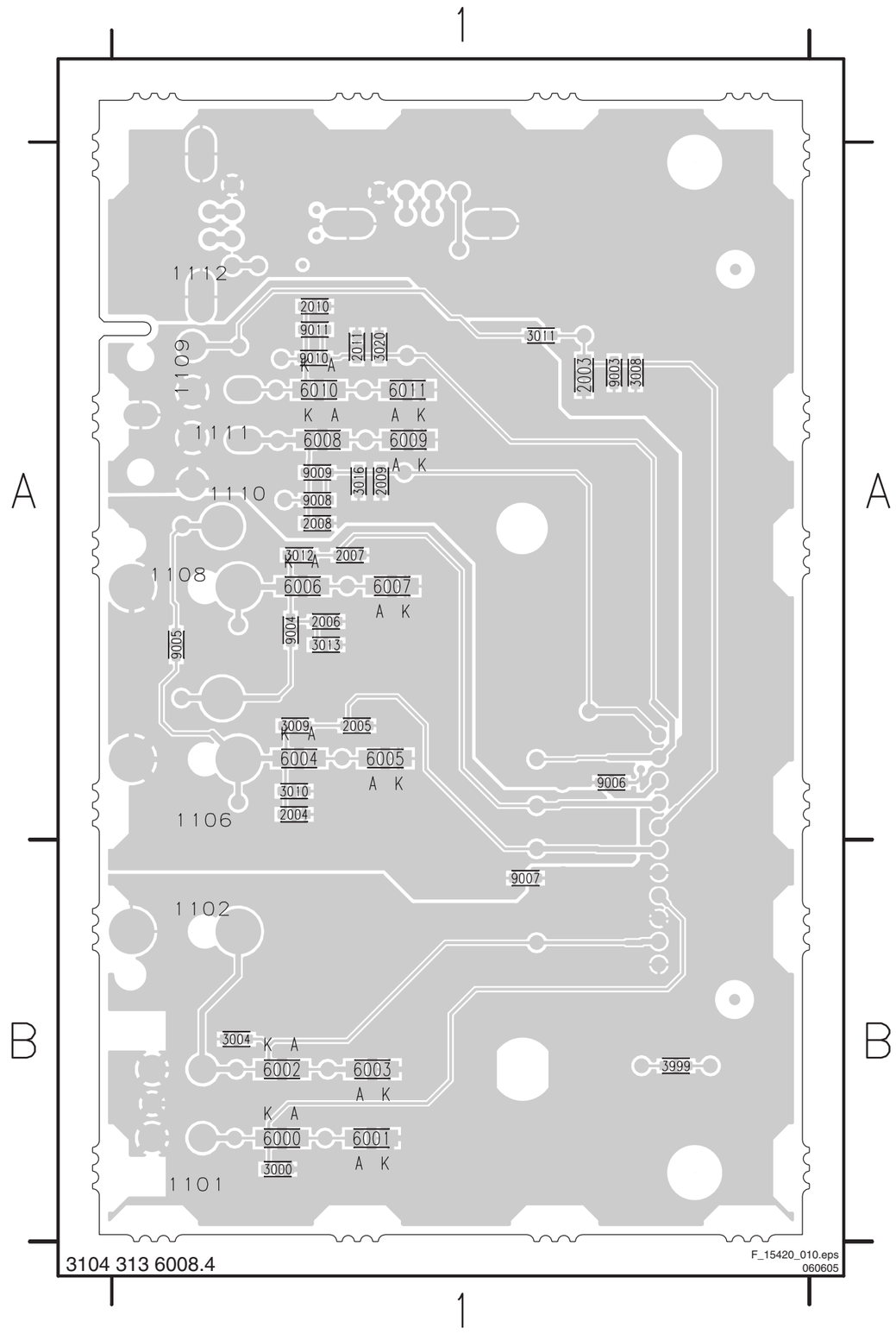


1001 B2	F002 A2
1002-1 B1	F003 B2
1002-2 C1	F004 C2
1002-3 D1	F005 C2
1005 A8	F006 D2
1010 E1	F007 E2
1050 A7	F008 E2
1101 A3	F009 E2
1102 B3	F010 F8
1106 C3	F011 F9
1108 D3	F012 A6
1109 E3	F013 A7
1110 F3	F014 A6
1111 E3	F015 A7
1112 A7	F016 A6
1H01 A6	F017 A7
1M36 B8	F018 F7
1M37 B8	F019 F2
2003 C5	F020 B4
2004 C3	F021 C6
2005 C4	F022 C6
2006 D3	F023 C6
2007 D4	F024 E6
2008 F2	F025 E6
2009 F5	I001 C2
2010 E2	I002 C3
2011 E5	I003 D2
3000 A4	I004 A3
3004 B3	I005 F4
3008 C5	I006 F4
3009 C4	I007 E4
3010 C4	I008 E4
3011 C5	I009 B3
3012 D4	I010 D3
3013 D4	I011 F7
3016 F5	I012 F8
3020 E5	I013 F3
3999 F9	I014 E3
5000 A7	
6000 A3	
6001 A3	
6002 B3	
6003 B3	
6004 C3	
6005 C3	
6006 D3	
6007 D3	
6008 F3	
6009 F3	
6010 E3	
6011 F3	
9003 C6	
9004 C2	
9005 D2	
9006 F7	
9007 F8	
9008 F4	
9009 F4	
9010 E4	
9011 E4	
F001 A2	

Layout Side I/O Panel (Top Side)

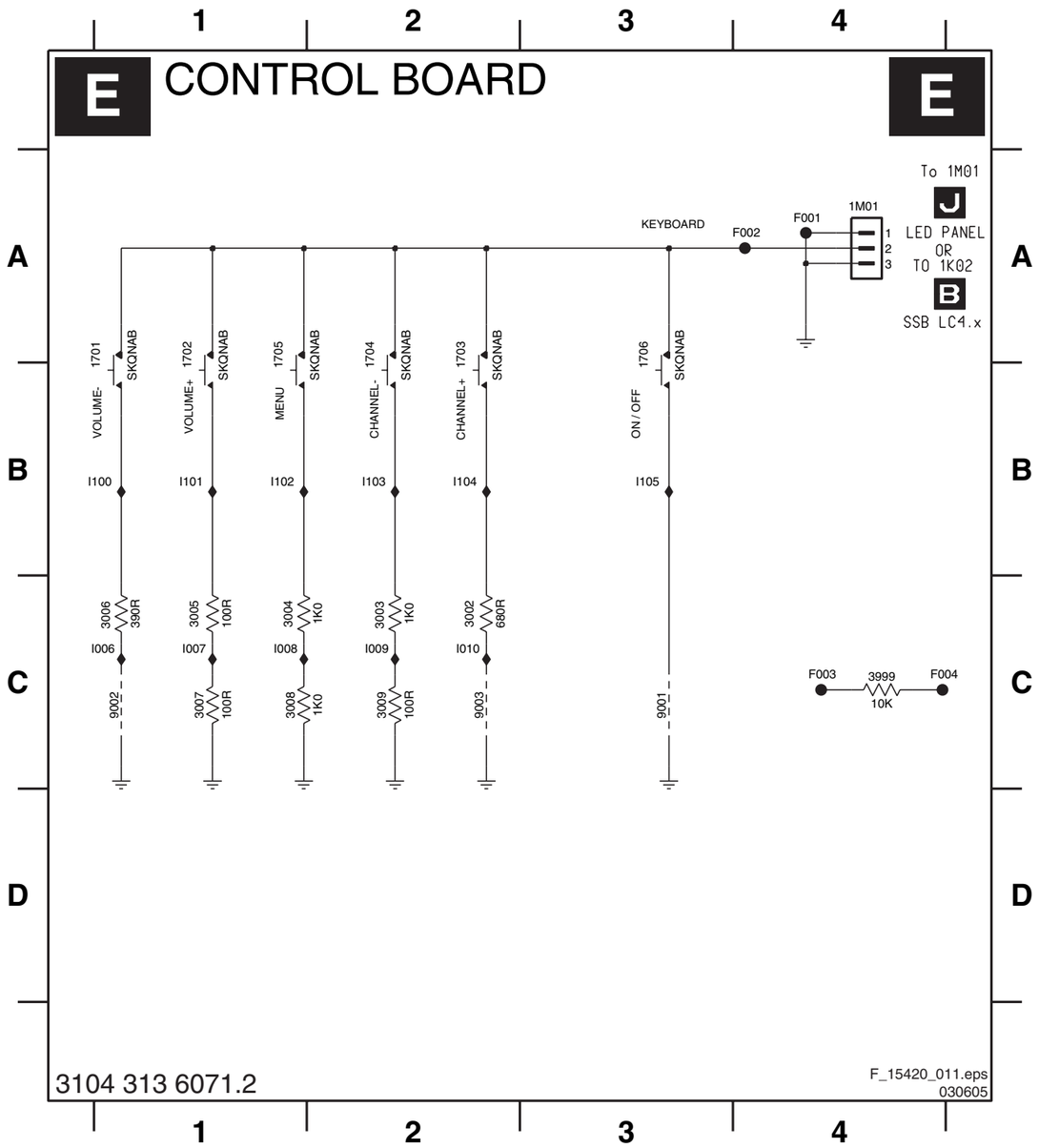


Layout Side I/O Panel (Bottom Side)



Control Board

1701 A1	1704 A2	1M01 A4	3004 C1	3007 C1	3999 C4	9003 C2	F003 C4	I007 C1	I010 C2	I102 B1	I105 B3
1702 A1	1705 A1	3002 C2	3005 C1	3008 C1	9001 C3	F001 A4	F004 C4	I008 C1	I100 B1	I103 B2	
1703 A2	1706 A3	3003 C2	3006 C1	3009 C2	9002 C1	F002 A4	I006 C1	I009 C2	I101 B1	I104 B2	



3104 313 6071.2

F_15420_011.eps
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Personal Notes:

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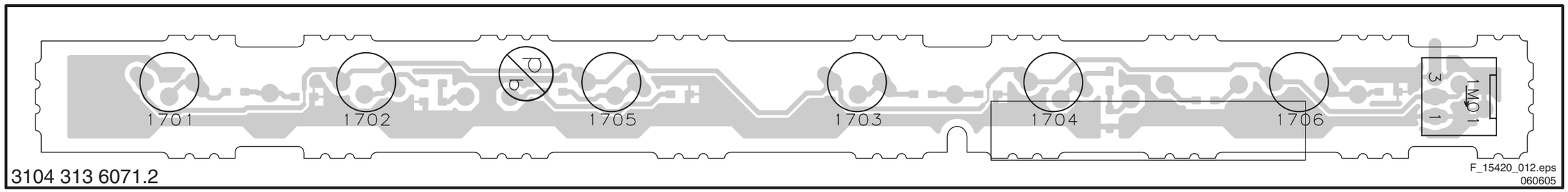
131004

Layout Control Board (Top Side)

1701 -- 1702 -- 1703 -- 1704 -- 1705 -- 1706 -- 1M01 --



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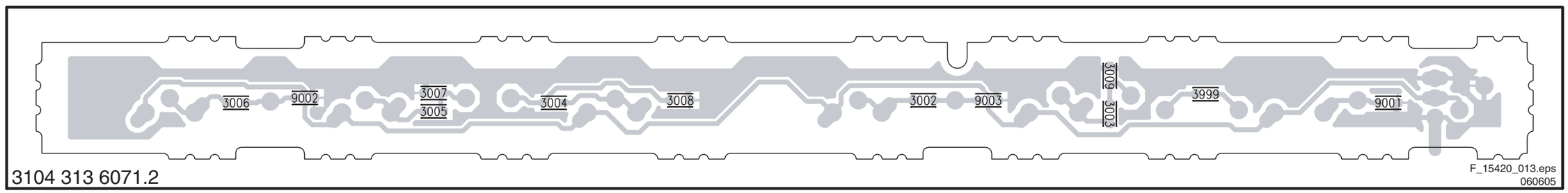
Layout Control Board (Bottom Side)

3002 -- 3003 -- 3004 -- 3005 -- 3006 -- 3007 -- 3008 -- 3009 -- 3999 -- 9001 -- 9002 -- 9003 --



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LED Panel

J LED PANEL

TO 1M20 B SSB JL2.x / LC4.x OR TO 1M20 B E EXTERNALS FTx2.x / Bx2.x

TO 1M01 E CONTROL BOARD

TO 0345 E TOP CONTROL

"BLUE" or "GREEN"

"RED"

"LED DIMMING"

"IR RECEIVER"

"LIGHT SENSOR"

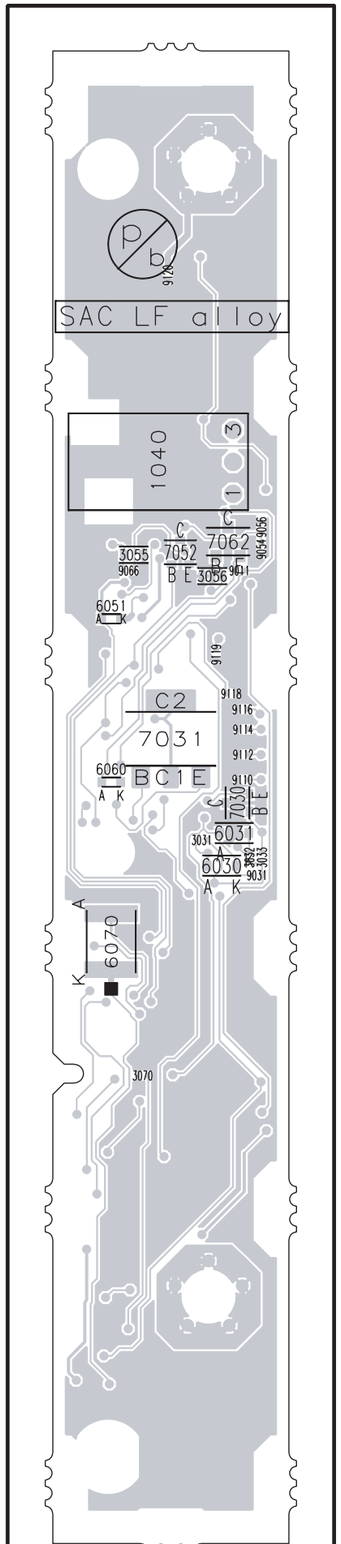
0001 EMC HOLE

0002 EMC HOLE

0001 A10 9119 E2
0002 A11 9120 B10
0345 D2 9121 B11
1040 F9 9122 F11
1M01 C2 F010 A3
1M20 A2 F011 A3
2014 C4 F012 A3
2030 G5 F013 B3
2040 F9 F014 B3
2070 F12 F015 A3
2071 G12 F016 B3
3011 A4 F017 B3
3030 G4 F018 B2
3031 G5 F021 C3
3032 G5 F038 B12
3033 G5 F039 B12
3034 G6 F083 D3
3035 G6 F084 D3
3036 G7 F086 E3
3037 G7 F089 E3
3040 F9 I010 F2
3041 G9 I011 G2
3042 F9 I012 E3
3051 B8 I013 E4
3052 B8 I026 F12
3053 C8 I033 G4
3054 C8 I037 G7
3055 C8 I038 G6
3056 D6 I039 G4
3061 B6 I040 G5
3062 B6 I041 G9
3063 D5 I042 G9
3064 D5 I043 F9
3070 G11 I044 F9
3071 F12 I045 F9
3072 G13 I046 E9
3073 G13 I047 G4
3074 F13 I048 G5
3075 F14 I049 G7
3076 G14 I051 D8
3077 G12 I052 C8
3078 G11 I053 B9
3091 G2 I054 D7
3092 F2 I061 D6
3093 F3 I062 C6
3094 F2 I063 D7
3096 G3 I064 D5
3999 B12 I065 C9
6030 G4 I071 F11
6031 G4 I072 F14
6051 C8 I073 G12
6060 C6 I074 G12
6070 G11 I075 F12
7030 G6 I076 F13
7031 G7 I093 F2
7032 G4 I094 F3
7051 C8 I095 C6
7052 D8
7061 D6
7062 C6
7070-1 F12
7070-2 G13
7092 F2
9011 C6
9012 B4
9015 A4
9016 A4
9017 A4
9031 G4
9040 G9
9041 F9
9042 G9
9043 F9
9052 C9
9053 C8
9054 D9
9056 D7
9062 D7
9063 D6
9064 B7
9065 B7
9066 D7
9070 F11
9071 F11
9072 G11
9081 E4
9082 E3
9083 D3
9093 G2
9110 D2
9111 D4
9112 D2
9113 D4
9114 E2
9115 E4
9116 E2
9117 E4
9118 E2

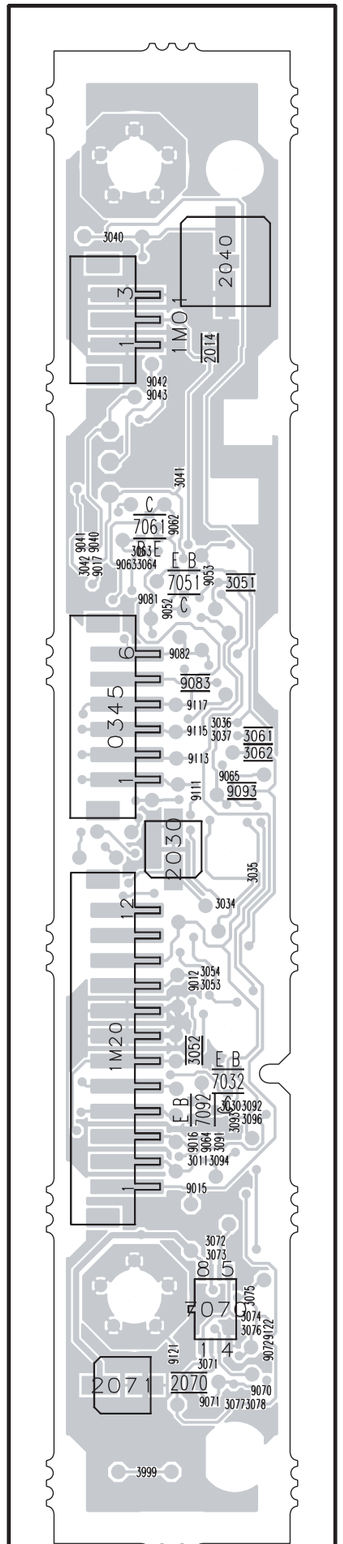
F_15420_014.eps 030605

Layout LED Panel



1040 --
3031 --
3032 --
3033 --
3055 --
3056 --
3070 --
6030 --
6031 --
6051 --
6060 --
6070 --
7030 --
7031 --
7052 --
7062 --
9011 --
9031 --
9054 --
9056 --
9066 --
9110 --
9112 --
9114 --
9116 --
9118 --
9119 --
9120 --

3104 313 6074.3 F_15420_015.eps 060605



0345 --
1M01 --
1M20 --
2014 --
2030 --
2040 --
2070 --
2071 --
3011 --
3030 --
3034 --
3035 --
3036 --
3037 --
3040 --
3041 --
3042 --
3051 --
3052 --
3053 --
3054 --
3061 --
3062 --
3063 --
3064 --
3071 --
3072 --
3073 --
3074 --
3075 --
3076 --
3077 --
3078 --
3091 --
3092 --
3093 --
3094 --
3096 --
3999 --
7032 --
7051 --
7061 --
7070 --
7092 --
9012 --
9015 --
9016 --
9017 --
9040 --
9041 --
9042 --
9043 --
9052 --
9053 --
9062 --
9063 --
9064 --
9065 --
9070 --
9071 --
9072 --
9081 --
9082 --
9083 --
9093 --
9111 --
9113 --
9115 --
9117 --
9121 --
9122 --

3104 313 6074.3 F_15420_016.eps 060605

Personal Notes:

E_06532_012.eps
131004

8. Alignments

Index of this chapter:
8.1 General Alignment Conditions
8.2 Hardware Alignments
8.3 Software Alignments

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

General: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the Cursor Up, Down, Left or Right keys of the remote control transmitter.

8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:
Mains voltage and frequency: 100-240 V / 50/60 Hz.
Allow the set to warm up for approximately 10 minutes.
Test probe: Ri > 10 MΩ; Ci < 2.5 pF.

8.2 Hardware Alignments

There are no hardware alignments foreseen for the plasma-TV.

8.3 Software Alignments

With the software alignments of the Service Alignment Mode (SAM) the geometry, white tone and tuner (IF) can be aligned.
To store the data: Use the RC button Menu to switch to the main menu and next, switch to ‘Stand-by’ mode.

8.3.1 SAM Menu

Figure 8-1 Overview SAM menu.

8.3.2 Tuner Adjustment

AGC (RF AGC Take Over Point)

- Activate the SAM menu.
- Go to the sub-menu Tuner.
- Select the AGC sub-menu.
- Adjust the AGC value to AGC = 27.
- Adjust the AGC L' value to AGC L' = 27 (Europe only).
- Adjust the IFPLL value to IFPLL = 32 (Europe only).
- Switch the set to standby to store the data.

8.3.3 DCXO (Digital Xtal Oscillator) Alignment (for NICAM sets only)

- Input a Colour bar signal with a colour subcarier frequency of 4.43 MHz on SCART1 or SCART2.
- Select as a signal source EXT1 or AV1.
- Go to the SAM menu and select Audio.
- Activate DCXO Alignment and wait until this process has finished (DONE).
- Check if the NICAM audio reception is OK, if not: repeat the procedure.
- Switch the set to standby to store the data.

8.3.4 ADC Gain and Grey Scale Alignment

The table below shows a number of NVM settings used for each model of TV set. Be sure to use the correct editor in the SAM menu (NVM Editor or SC NVM Editor), because the first one is used for the Hercules NVM, and the second one for the SCALER (SC) part of the TV set. For further important NVM settings, see also the other NVM tables elsewhere in this manual.

Caution:

- **Do not change the NVM settings without understanding the function of each setting, because incorrect NVM settings may seriously hamper the correct functioning of the TV set!**
- **Do not change the Scaler NVM settings, as this will hamper the DVI functionality of the TV set!**
- Always note down the existing NVM settings, before changing the settings. This will enable you to return to the orgininal settings, if the new settings turn out to be incorrect.

Table 8-1 ADC gain and grey scale alignment

SDTV ADC Gain settings: Use the NVM Editor in SAM to set these values in the Hercules NVM					
		These models are with ADC & Columbus 3D Combfilter			
Setting	Hercules NVM Address (decimal value)	50PF7320/10	42PF7320/10	42PF5320/10	Settings Range (decimal value)
NVM_ADC_GAIN_R	006	143	143	143	075 - 155
NVM_ADC_GAIN_G	007	191	191	191	200 - 250
NVM_ADC_GAIN_B	008	143	143	143	075 - 155

SDTV Greyscale settings: Use the SC NVM Editor in SAM to set these values in the Scaler NVM					
		These models are with ADC & Columbus 3D Combfilter			
Setting	Scaler NVM Address (decimal value)	50PF7320/10	42PF7320/10	42PF5320/10	Settings Range (decimal value)
ADC_RED_OFFSET2	338	080	080	080	050 - 110
ADC_GRN_OFFSET2	339	080	080	080	050 - 110
ADC_BLU_OFFSET2	340	080	080	080	050 - 110
ADC_RED_GAIN	341	154	154	154	045 - 095
ADC_GRN_GAIN	343	154	154	154	045 - 095
ADC_BLU_GAIN	345	154	154	154	045 - 095
PC Greyscale settings					
		These models are with ADC & Columbus 3D Combfilter			
Setting	Scaler NVM Address (decimal value)	50PF7320/10	42PF7320/10	42PF5320/10	Settings Range (decimal value)
ADC_RED_OFFSET2	325	080	080	080	040 - 090
ADC_GRN_OFFSET2	326	080	080	080	040 - 090
ADC_BLU_OFFSET2	327	080	080	080	040 - 090
ADC_RED_GAIN	328	154	154	154	180 - 270
ADC_GRN_GAIN	330	154	154	154	180 - 270
ADC_BLU_GAIN	332	154	154	154	180 - 270
HD Greyscale settings					
		These models are with ADC & Columbus 3D Combfilter			
Setting	Scaler NVM Address (decimal value)	50PF7320/10	42PF7320/10	42PF5320/10	Settings Range (decimal value)
ADC_RED_OFFSET2	351	064	064	064	050 - 090
ADC_GRN_OFFSET2	352	082	082	082	050 - 090
ADC_BLU_OFFSET2	353	064	064	064	050 - 090
ADC_RED_GAIN	354	159	159	159	120 - 200
ADC_GRN_GAIN	356	144	144	144	120 - 200
ADC_BLU_GAIN	358	147	147	147	120 - 200

8.3.5 Sound

- For NICAM sets: see paragraph 8.3.3.
- For other sets: No adjustments needed for sound.

8.3.6 Options

Options OP1...OP7 in the SAM menu can be used for quickly restoring 64 features or settings of the HERCULES part of the TV set to their orginal default factory values (8 groups of 8 features/settings each). When the decimal value of one option byte OP1...OP7 is changed (see the first table below) then a group of 8 bits, representing 8 HERCULES options or features, is changed as well (see the second table below for a detailed description of the features or settings that are changed).
The second table shows which option byte (OP1...OP7) represents which group of 8 option bits. Each bit (0...7) switches a particular HERCULES feature or setting ON or OFF, depending on its value (1 or 0).
It is also possible to change the features or settings mentioned in the second table directly at bit level, by means of the NVM Editor in the SAM menu. In the NVM Editor, first the correct NVM address (ADR) has to be entered, then the correct value (VAL, 1 or 0) for each bit (see second table), and finally the settings have to be stored (STORE). For quickly restoring the HERCULES part of the TV set to its original factory settings, however, it is more convenient to simply enter the default factory settings OP1...OP7 that are given in the first table below. How to do this, is described in the next paragraph.

How to Change an Option Byte

As has been explained above, an Option byte (OP) represents a number of different HERCULES options. Changing these bytes directly makes it possible to set all HERCULES options very fast. All options are controlled via seven option bytes. Select the option byte (OP1.. OP7) with the Menu Up/ Down keys, and enter the new (decimal) value. For the correct Factory Default settings, see the first table below. For more detailed information, see the second table.

Leaving the Option submenu saves the changes in the Option Byte settings. Some changes will only take effect after the set has been switched “off” and “on” with the AC power switch (cold start).

Table 8-2 Option codes OP1...OP7

Option table for quickly restoring the HERCULES to its Factory Default settings			
Model number	50PF7320/10	42PF7320/10	42PF5320/10
OP1	152	152	152
OP2	37	37	37
OP3	79	79	15
OP4	241	241	241
OP5	252	252	252
OP6	27	27	27
OP7	19	19	19
Options (can be changed only via the SAM menu)	Total decimal value for each option per model number		

How to Change Options at Bit Level

If you wish to know which features or settings of the HERCULES are changed via OP1...OP7, or if you want to change each option or feature bit by bit, use the more detailed table below.

Note: the table below contains only part of the NVM settings that can be changed. A second range of settings and features can be found in Chapter 5 of this manual, in table **NVM Default values**. The settings mentioned there can only be changed via the NVM editor. For further settings, see also the table “ADC Gain and Grey scale alignment” elsewhere in this manual.

Table 8-3 Option codes in detail, at bit level

Option byte & bit table for restoring the TV set to its original Factory Default settings via the NVM Editor in the SAM menu				
	Model number	50PF7320/10	42PF7320/10	42PF5320/10
OP1	**Description of feature/option to be switched ON or OFF**			
bit 7 (msb)	OP_PHILIPS_TUNER	1	1	1
bit 6	OP_FM_RADIO	0	0	0
bit 5	OP_LNA	0	0	0
bit 4	OP_ATS // for EU	1	1	1
bit 3	OP_ACI	1	1	1
bit 2	OP_UK_PNP	0	0	0
bit 1	OP_VIRGIN_MODE	0	0	0
bit 0 (lsb)	OP_CHINA	0	0	0
	Total DEC Value	152	152	152
	Total HEX Value	98	98	98
OP2				
bit 7 (msb)	OP_SC	0	0	0
bit 6	OP_IBEX	0	0	0
bit 5	OP_CHANNEL_NAMING	1	1	1
bit 4	OP_LTI (Lum Transcient Improvmt)	0	0	0
bit 3	OP_TILT	0	0	0
bit 2	OP_FINE_TUNING	1	1	1
bit 1	OP_PIP_PHILIPS_TUNER	0	0	0
bit 0 (lsb)	OP_HUE	1	1	1
	Total DEC Value	37	37	37
	Total HEX Value	25	25	25
OP3				
bit 7 (msb)	OP_EW_FUNCTION	0	0	0
bit 6	OP_PIXEL_PLUS	1	1	0
bit 5	OP_PIP_SPLITTER // temp	0	0	0
bit 4	OP_SPLITTER // temp	0	0	0
bit 3	OP_VIRTUAL_DOLBY	1	1	1
bit 2	OP_WIDE_SCREEN	1	1	1
bit 1	OP_WSSB	1	1	1
bit 0 (lsb)	OP_OP_ME5 // OP_ME5 - 5/6 local buttons implementation	1	1	1
	Total DEC Value	79	79	15
	Total HEX Value	4F	4F	0F
OP4				
bit 7 (msb)	OP_LIP_SYNC	1	1	1
bit 6	OP_HD	1	1	1
bit 5	OP_ULTRA_BASS	1	1	1
bit 4	OP_DELTA_VOLUME	1	1	1
bit 3	OP_TAIWAN_KOREA	0	0	0
bit 2	OP_VOLUME_LIMITER	0	0	0
bit 1	OP_STEREO_DBX	0	0	0
bit 0 (lsb)	OP_STEREO_NICAM_2CS	1	1	1
	Total DEC Value	241	241	241
	Total HEX Value	F1	F1	F1
OP5				
bit 7 (msb)	OP_AV1	1	1	1
bit 6	OP_AV2	1	1	1
bit 5	OP_AV3	1	1	1
bit 4	OP_CVI	1	1	1
bit 3	OP_SVHS2	1	1	1
bit 2	OP_SVHS3	1	1	1
bit 1	OP_HOTEL_MODE	0	0	0
bit 0 (lsb)	OP_SIMPLY_FACTORY=OP_BTSC_AVSTEREO	0	0	0
	Total DEC Value	252	252	252
	Total HEX Value	FC	FC	FC
OP6				
bit 7 (msb)	OP_PERSONAL_ZAPPING	0	0	0
bit 6	OP_SMART_SURF	0	0	0
bit 5	OP_FMTRAP	0	0	0
bit 4	OP_COMBFILTER	1	1	1
bit 3	OP_ACTIVE_CONTROL	1	1	1
bit 2	OP_VIDEO_TEXT	0	0	0
bit 1	OP_LIGHT_SENSOR	1	1	1
bit 0 (lsb)	OP_TWIN_TEXT	1	1	1
	Total DEC Value	27	27	27
	Total HEX Value	1B	1B	1B
OP7				
bit 7 (msb)	OP_TIME_WIN1	0	0	0
bit 6	OP_DVB_USB = OP_MALAY	0	0	0
bit 5	OP_AMBILIGHT	0	0	0
bit 4	OP_COLUMBUS	1	1	1
bit 3	OP_DUMMY6	0	0	0
bit 2	OP_DUMMY7	0	0	0
bit 1	OP_WEST_EU	1	1	1
bit 0 (lsb)	OP_MULTI_STANDARD_EUR	1	1	1
	Total DEC Value	19	19	19
	Total HEX Value	03	03	03

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

9.1 Introduction
9.2 Block Diagram
9.3 Input/Output
9.4 Tuner and IF
9.5 Video: TV Part (Diagrams B1, B2, and B3)
9.6 Columbus
9.7 Video: Scaler Part (Diagram B7, B8 and B9)
9.8 Audio Processing
9.9 Control
9.10 Abbreviation List
9.11 IC Data Sheets

9.1 Introduction

The “LC4.9 Plasma TV” is a global plasma TV for the year 2005. It is the successor of the “LC4.7” and has a screen size of 42 inch or 50 inch (in 16:9 ratio); it has a new styling, called Entry+ 05. There are two different picture qualities available, depending on the model: Pixel Plus and Digital Crystal Clear. The block diagram below (Figure “Block diagram”) shows the Pixel Plus architecture; the architecture of the Digital Crystal Clear model is shown in the block diagram on the next page (Figure “Block diagram of the internal building blocks”).

The architecture consists of a TV and Scaler panel, an EPLD (only in the Pixel Plus model), an I/O panel, a Side I/O and Local Keyboard panel and a Power Supply panel.
The functions for video/audio processing, microprocessor (µP), and CC/Teletext (TXT) decoder are all combined in one IC (TDA150xx, item 7217), the so-called third generation Ultimate One Chip (UOC-III) or “Hercules”. This chip has the following features:

- Control, small signal, mono/stereo, and extensive Audio/ Video switching in one IC.
- Upgrade with digital sound & video processing.
- Alignment free IF, including SECAM-L/L1 and AM.
- FM sound 4.5/5.5/6.0/6.5, no traps/bandpass filters.
- Full multi-standard colour decoder.
- One Xtal reference for all functions (microprocessor, RCP, TXT/CC, RDS, colour decoder, and stereo sound processor).

9.2 Block Diagram

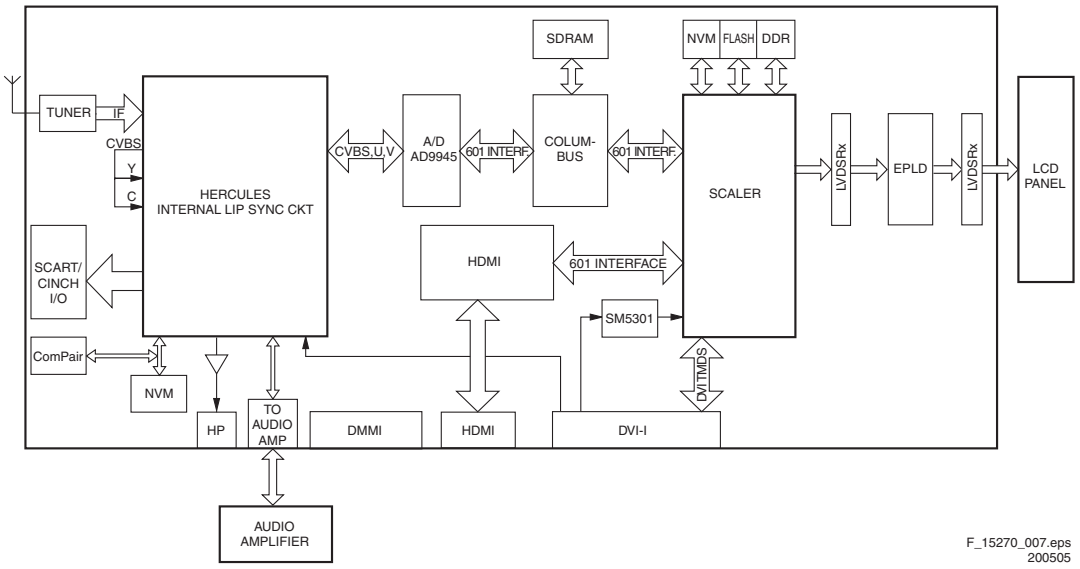


Figure 9-1 Block Diagram

The PLL tuner UV1318 delivers the IF-signal, via audio & video SAW-filters, to the Video Signal Processor and FLASH embedded TEXT/Control/Graphics Micro Controller TDA120x1 (item 7011, also called Hercules). This IC has the following functions:

- Analogue Video Processing
- Sound Demodulation
- Audio Interfaces and switching
- Volume and tone control for loudspeakers
- Reflection and delay for loudspeaker channels
- Micro Controller
- Data Capture
- Display

The Hercules has one input for the internal CVBS signal and a video switch with 3 external CVBS inputs and a CVBS output. All CVBS inputs can be used as Y-input for Y/C signals. However, only 2 Y/C sources can be selected because the circuit has 2 chroma inputs. It is possible to add an additional CVBS(Y)/C input (CVBS/YX and CX) when the YUV interface and the RGB/YPRPB input are not needed. Two SCART-connectors are used: SCART1 is for RGB-in, video in (CVBS) and terrestrial out (CVBS), and SCART2 is meant for VCR (CVBS out and Y/C in). The CVBS-out on pin 19 of SCART2 can be used for monitoring purposes: WYSIWYR (What You See Is What You Record).
Depending on the model of the TV set, the Hercules delivers its RGB signals either directly to the Scaler IC or indirectly, via a Columbus chip (for 2D/3D comb filtering and spatial/temporal noise reduction, for its description: see further down in this text). The EPLD, which is present in Pixel Plus models, provides additional sharpening to the picture. For a general outline, see the table and the block diagrams below, in which the architectures of the various models are given, together with their electronic building blocks.

Table 9-1 Models and picture quality

Model	Picture quality
50PF7320/10	Pixel Plus
42PF7320/10	Pixel Plus
42PF5320/10	Digital Crystal Clear

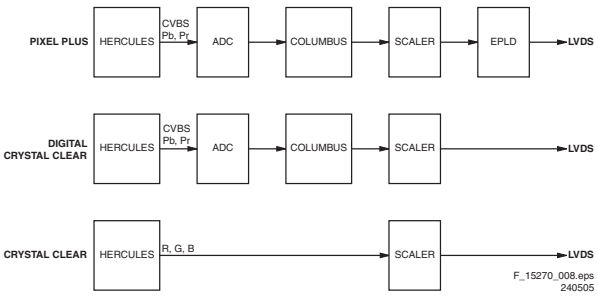


Figure 9-2 Block diagram of the internal building blocks

The Genesis GM1501 Malibu Scaler IC can receive two video input signals: SDTV (directly from Hercules or via Columbus), DVI (from an external DVI source), or PC (from external computer).
After the video processing, the digital data is sent via a Low Voltage Differential Signalling bus to the LCD panel. LVDS is used to improve data speed and to reduce EMI significantly.
There are two I^2C lines and two interrupt and communication lines (TV_IRQ and TV_SC_COM) for the Scaler control. The Scaler communicates with the Hercules as a slave device. To avoid buffer overflow at the Scaler side, the TV_SC_COM line provides the necessary hardware flow control. To allow bi-directional communication, the Scaler can initiate a service interrupt-request to the Hercules via the TV_IRQ line.

The Hercules, and EEPROM are supplied with 3.3 V, which is also present during STANDBY.
The EEPROM, or NVM (Non Volatile Memory) is used to store the settings.

The sound part is built up around the Hercules. The Source Selection, Decoding and Processing are all done by the Hercules.

Power supply input are several DC voltages coming from a supply panel.

9.3 Input/Output

The I/O is divided over two parts: Rear I/O and Side I/O. The rear has two SCART inputs, a PC/DVI-I input (VGA to DVI-I via an external adaptor) and an Audio input. The side has a CVBS and Y/C (SVHS) input, combined with L+R audio inputs, and has also a headphone output.

EXT1: The input of SCART1 is CVBS + RGB + L/R and the output is the video (+ sound) signal from the tuner (SC1_CVBS_RF_OUT).

EXT2: The input of SCART2 is Y/C + CVBS + L/R. The output signal is CVBS_SC2_MON_OUT (+ sound).
SCART2 is meant for VCR and has therefore some additional signals in relation to EXT1 but no RGB: it has the possibility for Y/C_in: Y_in on pin 20 and Chroma_in on pin 15.
The selection of the external I/O's is controlled by the Hercules.

PC in (DVI-I, or VGA via external VGA to DVI-I adaptor): This input is directly going to the Scaler IC. See paragraph “Video: Scaler Part”.

9.4 Tuner and IF

A Philips UV1318 Tuner is used in the TV board. The SIF signals are decoded by the Hercules. Tuning is done via I^2C.

9.4.1 Video IF Amplifier

The IF-filter is integrated in a SAW (Surface Acoustic Wave) filter. One for filtering IF-video (1104, in some models: 1105) and one for IF-audio (1106). The type of these filters depends on the standard(s) that has/have to be received.

The output of the tuner is controlled via an IF-amplifier with AGC-control. This is a voltage feedback from pin 31 of the Hercules to pin 1 of the tuner. The AGC-detector operates on top sync and top white level. AGC take-over point is adjusted via the service alignment mode ’Tuner' - 'AGC’. If there is too much noise in the picture, then it could be that the AGC setting is wrong. The AGC-setting could also be mis-aligned if the picture deforms with perfect signal; the IF-amplifier amplifies too much.

9.5 Video: TV Part (Diagrams B1, B2, and B3)

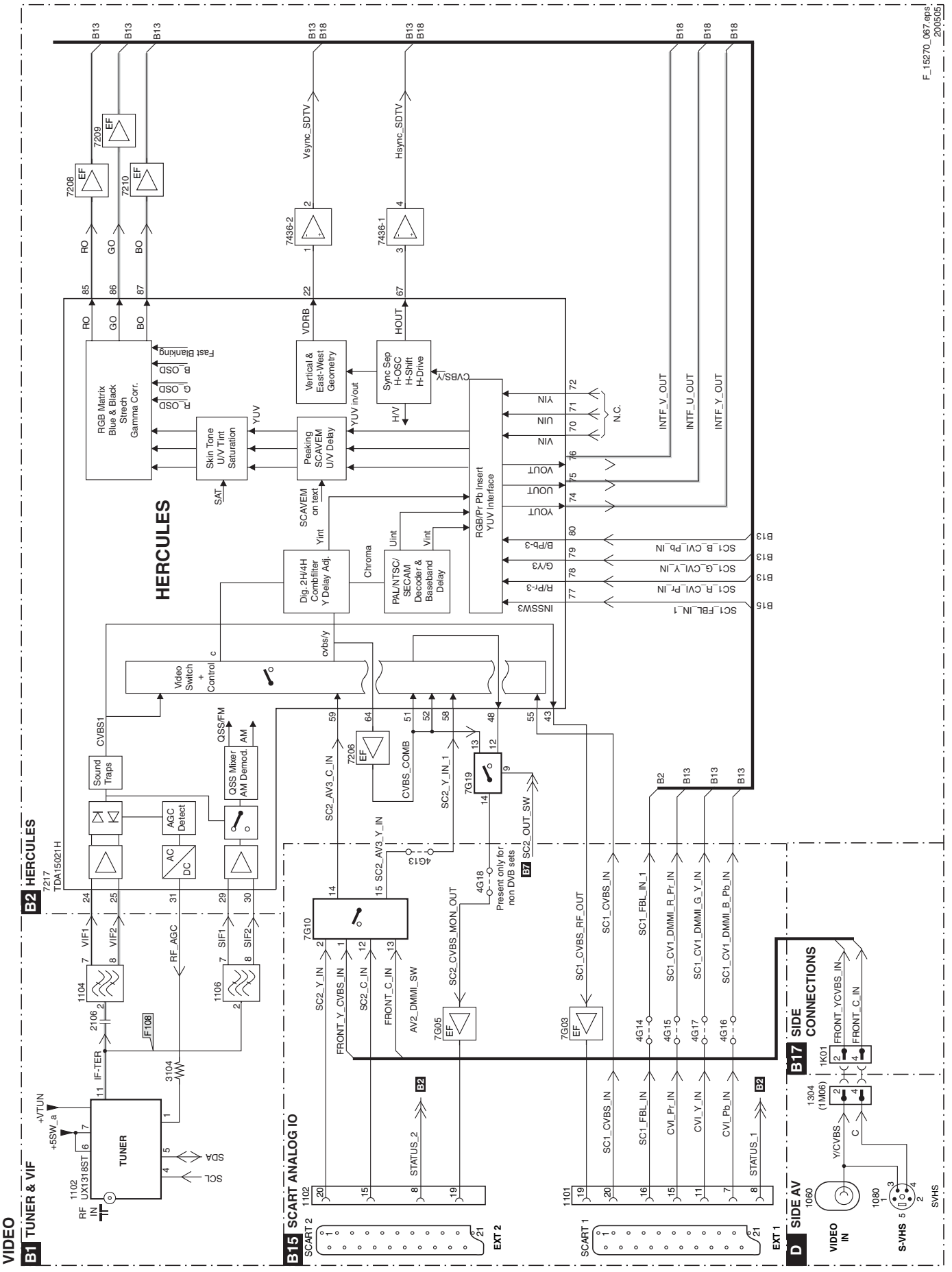


Figure 9-3 Block diagram video processing

The video processing is completely handled by the Hercules
- IF demodulator.
- Chrominance decoder
- Sync separator.
- Horizontal & vertical drive.
- RGB processing.
- CVBS and SVHS source select.

It has also built-in features like:
- CTI.
- Black stretch.
- Blue stretch.
- White stretch.
- Slow start up.
- Dynamic skin tone correction etc.

Further, it also incorporates sound IF traps and filters, and requires only one crystal for all systems.

9.6 Columbus

9.6.1 Introduction

The Columbus is a combination of:
- A **2D/3D Comb filter** for both PAL and NTSC, and
- A **spatial/temporal noise reduction system** for both colour and luminance signals.

The Columbus 3D Comb filter uses digitalised CVBS, U, and V (or C) signals and can be used with or without an external 16 Mbit SDRAM. Without external 16Mbit SDRAM, 3D comb filtering and temporal noise reduction are not possible.

The noise reduction part of the Columbus is controlled by the FBX software using the SNERT interface. The 2D/3D Comb filter part is controlled by the Main software using the I^2C bus.

9.6.2 2D/3D Comb Filter

Introduction
The "3D Comb filter Columbus" is a combined 2D/3D Comb filter function that is part of the Columbus chip (circuit diagram B19, item 7M00). It is a comb filter for both PAL and NTSC.

The 3D Comb filter is used to separate chroma and luminance components out of a CVBS signal. It is of no use when the CVBS signal is a SECAM signal (SECAM signals cannot be combed) The Columbus chip can be used with or without 16 Mbit external SDRAM (circuit diagram B10, item 7B01). When an external SDRAM is connected to the IC, the Comb filter function can work in combined 2D/3D processing (depending on the detected pixel based motion). When no external SDRAM is connected, only 2D Comb filtering is possible.

The Columbus can comb the following standard signals:
- PAL B, PAL G, PAL H, PAL I, PAL D, PAL K: Colour standard PAL, Colour carrier at 4.43 MHz, field frequency: 50 Hz
- PAL M: Colour standard PAL, Colour carrier at 3.58 MHz, field frequency: 60 Hz
- PAL N: Colour standard PAL, Colour carrier at 3.58 MHz, field frequency: 50 Hz
- NTSC M: Colour standard NTSC, Colour carrier at 3.58 MHz, field frequency: 60 Hz

For NTSC signals, the PAL delay line must always be bypassed.

The following signals CANNOT be combed:
- Double Window signals or Multi PIP. For these signals, only one part or even no part of the signal is in relation with the burst. The part that is not in relation with the burst can become very blurred when combed by the Columbus Comb filter. Such a signal must be bypassed. Notch mode is not even an option since e.g. in double window, one part can be a PAL signal while the other part is NTSC or SECAM.
- In cases where a SECAM signal is presented to the Columbus Comb filter; both the luminance and UV path must be bypassed. The PAL delay line inside the Columbus cannot be used for SECAM signals so it must also be bypassed. The luminance path must have luminance at its input instead of CVBS. A chroma delay line outside Columbus must be used for SECAM signals. Reason for this: the Columbus PAL delay line halves the output of the chroma signals in case of SECAM.
- Y/C, YPbPr, and RGB signals do not have to be combed. So both the luminance and UV path must be bypassed. The PAL delay line will also be bypassed.
- In cases where the Columbus Comb filter does not receive a CVBS signal with burst at the right place according to the standard (this includes black and white signals without burst), phase correction results become unpredictable and the Comb filter must be set in bypass (= luminance path bypassed, UV path bypassed, PAL delay line bypassed)
- VCR signals cannot be combed and must be processed in notch mode, or bypassed.

Columbus Modes
The several modes of the Columbus 3D Comb filter are:
- Bypass mode.
- Band-Pass-Notch mode.
- 2D Comb filter modes.
  - Simple median.
  - Median.
- Field Comb filter mode.
- Frame Comb filter mode.

Bypass Mode
The 3D Comb filter can be set in bypass mode. In this mode, the CVBS, U and V signals are just bypassed to the output.

Band-Pass-Notch Mode
This is a mode where no Comb filtering is applied. A "Band Pass Filter" is used to filter the chroma information out of the CVBS signal. A "Notch Filter" is used to subtract the sub carrier out of the CVBS in order to make a luminance signal without chroma sub carrier.
In terms of cross colour and cross luminance, this mode has the worst performance of all. It is only used on these signals where no comb filtering can be applied (non-standard signals and most VCR signals for example).

2D Comb Filter Modes
A Comb filter does an action on a current pixel and a delayed pixel. When the delayed pixel is a line-delayed pixel, we talk about a "Spatial or 2D Comb Filter" (for NTSC the delay must be 1 line, for PAL it must be 2 lines).
Spatial or 2D Comb filters show problems on vertical colour transients and on single coloured lines. For these situations, extra hardware is added in the Columbus chip to avoid these kinds of problems. However even with these extra measures, there are still situations where the 2D Comb filter does not perform optimally (diagonal resolution and single lines with equal luminance content). In order to restrict the working area of the 2D Comb filter to the frequencies where the sub carrier is present, a horizontal band pass filter always precedes a 2D Comb filter.
When a 2D Comb filter has no extra hardware to avoid problems at vertical colour transients (or this extra hardware is switched "off"), the Comb filter is called a "simple median filter". When there is extra hardware to avoid these kinds of problems, the filter is called a "median filter".

Field Comb Filter Mode
A Comb filter does an action on a current pixel and a delayed pixel. When the delayed pixel is a field-delayed pixel, we talk

about a “Field Comb Filter”. Field Comb filters are only for PAL of commercial interest.
Field Comb filters show also problems on vertical colour transients and on motion. For the vertical transients, a hanging dots detector has been added, however the performance on vertical transients of the field Comb filter, even with this hanging dots detector, is worse than the performance of the 2D Comb filter. On motion, the field Comb filter performs very badly. A motion detector must detect the pixels where there is motion and on these pixels, the Comb filter must be forced back to 2D Comb filter mode. This switching back is not implemented with a hard switch, but with a motion controlled fader. When there is a lot of motion, the fader will take a lot of the 2D Comb filter output, when there is less motion, more field-combed signal will be taken.
A field Comb filter is also called a “vertical-temporal filter” because it filters in the vertical and temporal direction.

Frame Comb Filter Mode
A Comb filter does an action on a current pixel and a delayed pixel. When the delay is a frame, we talk about a “Frame Comb Filter”. For NTSC we need a delay of one frame, for PAL however the delay must be two frames.
Frame Comb filters have the best performance, but just like the Field Comb filter, they perform very badly on motion. A motion detector will have to detect motion and on these motion pixels, 2D Comb filtering will have to be applied. A frame Comb filter is a pure “temporal filter”.
The Columbus needs an external memory connected to it, before it can do a temporal or vertical-temporal Comb filter action. When no external memory is connected, field or frame Comb filtering is impossible.

Block Diagram
In the next block diagram, two main parts of the Columbus 2D/3D Comb filter can be seen:

- The upper part is what is called the luminance Comb filter. It tries to make an as clean as possible luminance signal out of the CVBS signal at the input.
- The lower part receives U and V signals (sequentially) that are normally only band pass filtered in front of the 3D Comb filter. It filters all left over luminance signals out of it, in order to make an as clean as possible U and V signal.

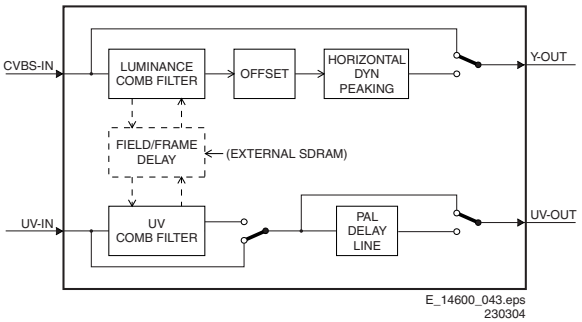


Figure 9-4 Columbus 2D/3D Comb Filter block diagram

The Comb filter has two inputs. One is the CVBS where clean luminance (Y) will be extracted from; the other one is UV where a clean U and V signal will be extracted. Both input signals are **digital** signals.

The field or frame delay is used for the Field and Frame Comb filter mode. An external memory connected to the Columbus IC provides this delay.

Phase correction is done at the inputs of both the Comb filter blocks. There is a phase correction for spatial filtering (called the spatial phase corrector) and a separate phase correction on the signals used for temporal (Frame or Field) Comb filtering (called the temporal phase corrector).

The offset block receives the motion dependant 2D/3D Comb filtered signal as input. The black level of the luminance signal is restored and the result is output. The black level restoration is corrected continuously. However, on VCR signals, this restoration can become unstable. Therefore, on VCR signals, a fixed black level restoration value must be forced.

A horizontal dynamic peaking can be done on the luminance signal. This peaking is adaptive in order not to amplify any cross luminance distortion. It detects where there could be left over sub carrier in the luminance signal and reduces the peaking over there. The detection of the left over cross luminance is different depending on the pre-filter or post-filter mode.
The amount of peaking and coring can be chosen. The peaking algorithm behind it is a simplified copy of the luminance peaking of picnic. After the peaking block, the signal is output as clean luminance.

The bypass switches have the obvious purpose of bypassing the input signal, in case no Comb filtering is wanted.

A PAL delay line is added in the UV path. This is done because a delay line in front of the 3D Comb filter does need an extra vertical filter action on the UV signals. This vertical filtering deteriorates the vertical transient performance for colours. The Columbus Comb filter cannot undo this. However, this reduction in performance can be omitted by putting the PAL delay line after the 3D Comb filter block.
For PAL signals, the PAL delay line in front of the Columbus 3D Comb filter is bypassed and the Columbus delay line is switched “on”. In cases where the delay line in front of Columbus cannot be bypassed, the Columbus PAL delay line is bypassed.
For NTSC signals, the PAL delay line is bypassed as usual.

9.6.3 Noise Reduction and Noise Estimator

The noise reduction function is a sophisticated successor of the noise reduction module from the PICNIC-chip, also known as “LIMERIC”.

Besides the noise reduction part, the Columbus noise reduction module also comprises a noise estimator. This noise estimator (the LORE-noise estimator) is a new design with the ambition of more accuracy and with less control complexity than the existing noise estimators.

9.7 Video: Scaler Part (Diagram B7, B8 and B9)

The Genesis gm1501 Scaler is a dual channel graphics and video processing IC for LCD and plasma monitors and televisions incorporating Picture in Picture, up to SXGA output resolutions. The Scaler controls the display processing in an LCD or plasma TV, e.g. like the deflection circuit in a CRT-based TV. It controls all the view modes (e.g. like "zooming" and "shifting"). Features like PC (VGA) or HD inputs, are also handled by this part.

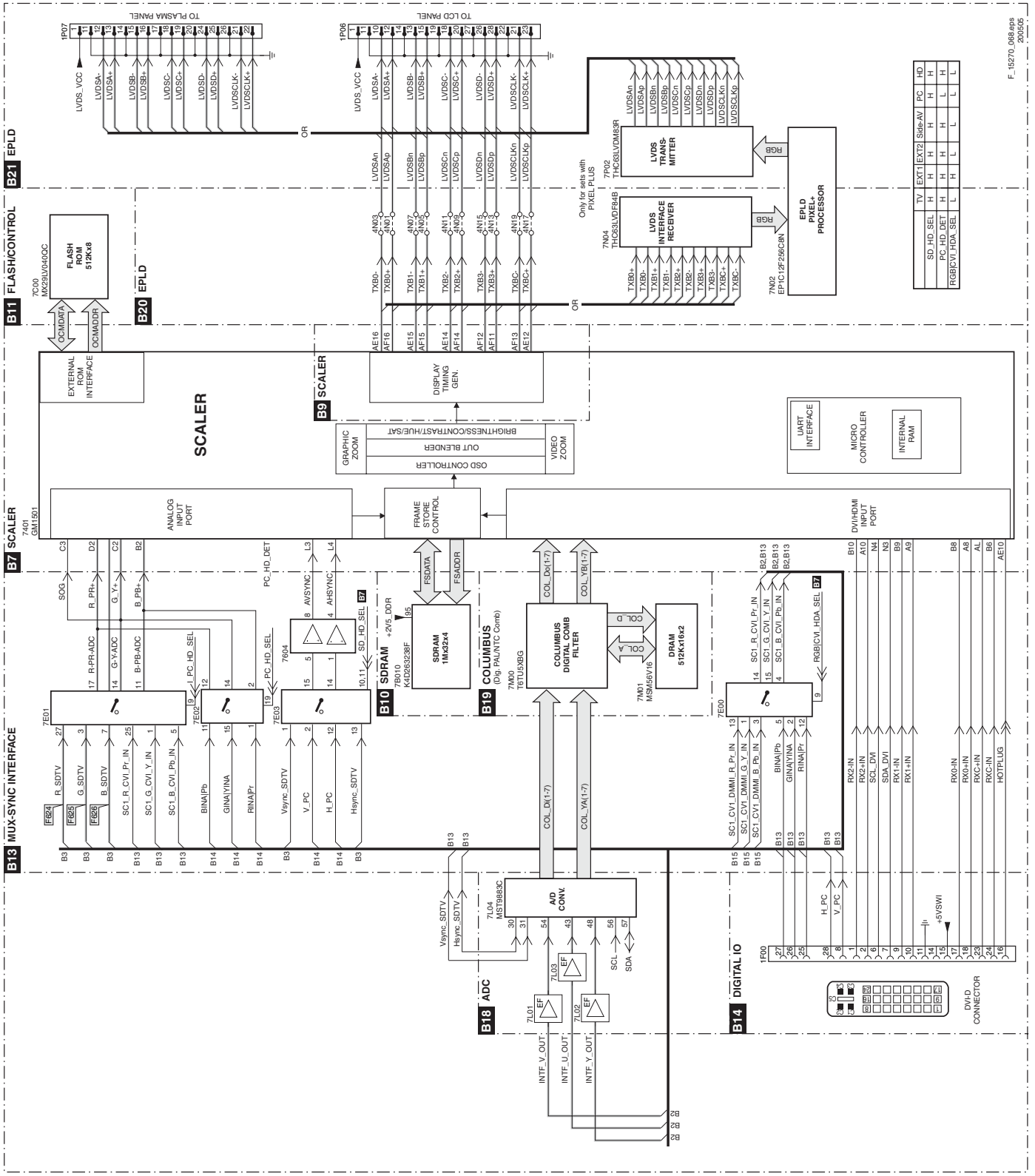


Figure 9-5 Block diagram scaler part

9.7.1 Teletext Path

In Pixel Plus and Digital Crystal Clear models, which have an ADC (B18) and Columbus 3D combfilter (B19), the digital input of the scaler is used for the digital video signal (Columbus output), whereas the analogue RGB input input of the scaler is used for teletext. This means that no mixed mode (video plus teletext simultaneously) is possible. In Crystal Clear models, which do not have an ADC and Columbus, the analogue RGB input of scaler is used for both video and teletext (generated by the Hercules). The digital input of the Scaler is not used in Crystal Clear TV sets. See also the block diagrams at the beginning of this chapter. When faultfinding, checking the teletext path may be useful: if there is sound and teletext, but no video and user menu (blank screen), the digital path (Hercules - ADC - Columbus - Scaler) is faulty. If there is sound but no teletext, the back-end part (Scaler - LCD panel) is faulty.

9.7.2 Features

The Scaler provides several key IC functions:
- Scaling.
- Auto-configuration/ Auto-Detection.
- Various Input Ports:
  - Analog RGB.
  - Video Graphics.
- Integrated LVDS Transmitter.
- On-chip Micro-controller

9.7.3 Inputs

Analog RGB
The RGB input is fed to pins B2, C2 and D2 of the Scaler IC (Genesis GM1501, item 7801, see circuit diagram B8). This input consists of either the Hercules RGB output or the RGB/ YpbPr input of the VGA connector. The Scaler can switch between the two signals via the PC_HD_SEL signal and selection IC SM5301 (see circuit diagram B13).

PC (VGA) Input
The VGA input is processed by the VGA block of the Scaler. The Scaler supports pixel frequencies up to 165MHz. YpbPr format is also supported via the VGA interface and covers a resolution of 480p/560p/720p/1080i.

9.7.4 Output

The Display Output Port provides data and control signals that permit the Scaler to connect to a variety of display devices using a TTL or LVDS interface. The output interface is configurable for single or dual wide TTL/LVDS in 18, 24 or 30-bit RGB pixels format. All display data and timing signals are synchronous with the DCLK output clock. The integrated LVDS transmitter is programmable to allow the data and control signals to be mapped into any sequence depending on the specified receiver format.

9.8 Audio Processing

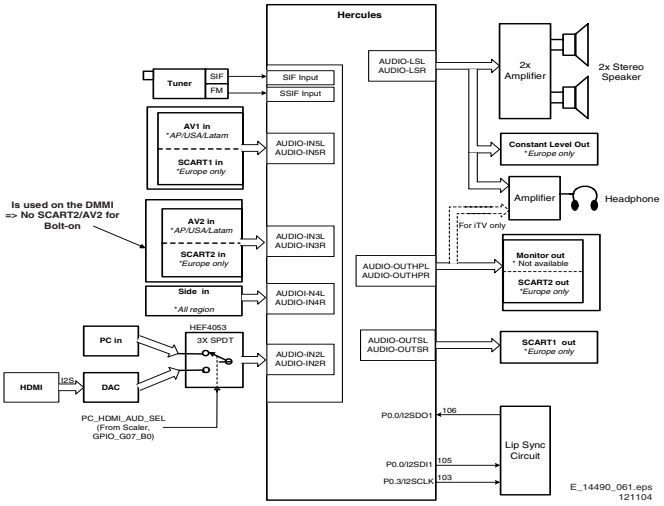


Figure 9-6 Block diagram audio processing

The audio decoding is done entirely via the Hercules. The IF output from the Tuner is fed directly to either the Video-IF or the Sound-IF input depending on the type of concept chosen. There are mainly two types of decoder in the Hercules, an analogue decoder that decodes only Mono, regardless of any standards, and a digital decoder (or DEMDEC) that can decode both Mono as well as Stereo, again regardless of any standards.

In this chassis, the analogue decoder is used in two cases:
- It is used for AM Sound demodulation in the Europe SECAM LL' transmission.
- It is used for all FM demodulation in AV-Stereo sets.

9.8.1 Diversity

The diversity for the Audio decoding can be broken up into two main concepts:
- The Quasi Split Sound concept used in Europe and some AP sets.
- The Inter Carrier concept, used in NAFTA and LATAM.

The UOC-III family makes no difference anymore between QSS- and Intercarrier IF, nearly all types are software-switchable between the two SAW-filter constructions.

Simple data settings are required for the set to determine whether it is using the Inter Carrier or the QSS concept. These settings are done via the "QSS" and "FMI" bit found in SAM mode. Due to the diversity involved, the data for the 2 bits are placed in the NVM location and it is required to write once during startup.

On top of that, it can be further broken down into various systems depending on the region. The systems or region chosen, will in turn affect the type of sound standard that is/are allowed to be decoded.
- For the case of Europe, the standard consists of BG/DK/I/ LL' for a Multi-System set. There are also versions of Eastern Europe and Western Europe set and the standard for decoding will be BG/DK and I/DK respectively. FM Radio (not applicable for the models discussed in this manual) is a feature diversity for some Europe TV sets. The same version can have either FM Radio or not, independent of the system (e.g. sets with BG/DK/I/LL' can have or not have FM radio).
- For the case of NAFTA and LATAM, there is only one transmission standard, which is the M standard. The diversity then will be based on whether it has a dBx noise reduction or a Non-dBx (no dBx noise reduction).

- For the case of AP, the standard consists of BG/DK/I/M for a Multi-System set. The diversity here will then depend on the region. AP China can have a Multi-System and I/DK version. For India, it might only be BG standard.

9.8.2 Functionality

The features available in the Hercules are as follows:
- Treble and Bass Control.
- Surround Sound Effect that includes:
  - Incredible Stereo.
  - Incredible Mono.
  - 3D Sound (not for AV Stereo).
  - TruSurround (not for AV Stereo).
  - Virtual Dolby Surround, VDS422 (not for AV Stereo).
  - Virtual Dolby Surround, VDS423 (not for AV Stereo).
  - Dolby Pro-Logic (not for AV Stereo).
- Bass Feature that includes:
  - Dynamic Ultra-Bass.
  - Dynamic Bass Enhancement.
  - BBE (not for AV Stereo).
- Auto-Volume Leveler.
- 5 Band Equalizer.
- Loudness Control.

All the features stated are available for the Full Stereo versions and limited features for the AV Stereo

9.8.3 Audio Amplifier

The audio amplifier part is very straightforward. It uses two integrated TDA8931T power amplifiers for the L and R channels; each amplifier IC is able to deliver a maximum output of 20 W_{RMS} continuously in a 4-6 ohm speaker without needing a heatsink.
The operating supply for the amplifier may range from 12 V to 32 V; in the LC04x TV set, depending on the model, supply voltages of 18 V (for the 5 W / 8 ohm version) or 24 V (for the 15 W / 4 ohm version) are used.
Muting is done via the SOUND_ENABLE line connected to pins 7 of both amplifier-ICs, which comes from the Hercules.

9.8.4 Audio: Lip Sync

No Lip Sync adjustments are neccessary in this model.

9.9 Control

9.9.1 Hercules

The System Board has two main micro-controllers on board. These are:
- On-chip x86 micro-controller (OCM) from Genesis LCD or plasma TV/Monitor Controller.
- On-chip 80C51 micro-controller from Philips Semiconductor UOCIII (Hercules) series.

Each micro-controller has it own I^2C bus which hosts its own internal devices.
The Hercules is integrated with the Video and Audio Processor. For dynamic data storage, such as SMART PICTURE and SMART SOUND settings, an external NVM IC is being used. Another feature includes an optional Teletext/Closed Caption decoder with the possibility of different page storage depending on the Hercules type number.

9.9.2 Block Diagram

The block diagram of the Micro Controller application is shown below.

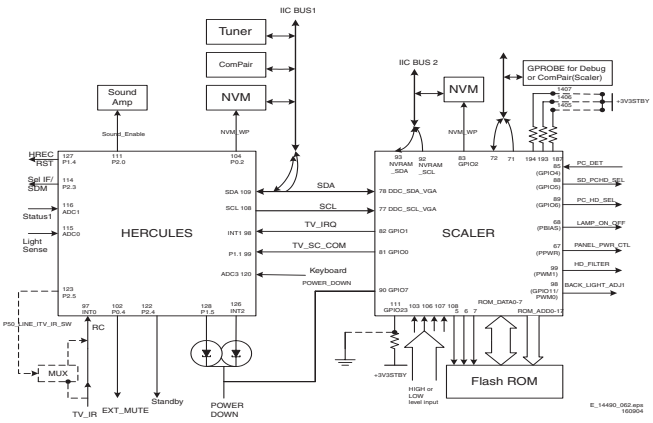


Figure 9-7 Micro Controller block diagram

9.9.3 Basic Specification

The Micro Controller operates at the following supply voltages:
- +3.3 V_{DC} at pins 4, 88, 94, and 109.
- +1.8 V_{DC} at pins 93, 96, and 117.
- I^2C pull up supply: +3.3V_{DC}.

9.9.4 Pin Configuration and Functionality

The ports of the Micro Controller can be configured as follows:
- A normal input port.
- An input ADC port.
- An output Open Drain port.
- An output Push-Pull port.
- An output PWM port.
- Input/Output Port

The following table shows the ports used for the LC04 control:

Table 9-2 Micro Controller ports overview

Pin	Name	Description	Configuration
97	INT0/ P0.5	IR	INT0
98	P1.0/ INT1	TV_IRQ	INT2
99	P1.1/ T0	TV_SC_COM	P1.1
102	P0.4/ I2SWS	EXT_MUTE	P0.4
103	P0.3/ I2SCLK	Lip Sync	I2SCLK
104	P0.2/ I2SDO2	NVM_WP	P0.2
105	P0.1/ I2SDO1	Lip Sync	I2SDO1
106	P0.0/ I2SDI/O	Lip Sync	I2SDI/O
107	P1.3/ T1	PC-TV_LED	P1.3
108	P1.6/ SCL	SCL	SCL
109	P1.7/ SDA	SDA	SDA
111	P2.0/ TPWM	SOUND_ENABLE	P2.0
112	P2.1/ PWM0	(for future use)	-
113	P2.2/ PWM1	(for future use)	-
114	P2.3/ PWM2	SEL_IF	P2.3
115	P3.0/ ADC0	Light Sensor - SDM	ADC0
116	P3.1/ ADC1	STATUS_1	ADC1
119	P3.2/ ADC2	STATUS_2	ADC2
120	P3.3/ ADC3	KEYBOARD	ADC3
122	P2.4/ PWM3	STANDBY	P2.4
123	P2.5/ PWM4	(for future use)	-
126	P1.2/ INT2	(for future use)	-
127	P1.4/ RX	HERC_RESET	-
128	P1.5/ TX	POWER_DOWN	P1.5

The description of each functional pin is explained below:

- **LED.** This signal is used as an indication for the Standby, Remote and Error Indicator. Region diversity:
  - During protection mode, the LED blinks and the set is in standby mode.
  - During error conditions it blinks at a predefined rate.
  - After receiving a valid RC-5 or local keyboard command it flashes once.
  - For sets with error message indication, the LED blinks when message is active and the set is in standby mode.
- **SCL.** This is the clock wire of the two-wire single master bi-directional I^2C bus.
- **SDA.** This is the data wire of the two-wire single master bi-directional I^2C bus.
- **STANDBY.** The Hercules generates this signal. This can enable the power supply in normal operation and disable it during Standby. It is of logic “high” (3.3 V) under normal operation and “low” (0 V) during Standby.
- **IR.** This input pin is connected to an RC5 remote control receiver.
- **SEL-IF.** This is an output pin to switch the Video SAW filter between M system and other systems.
  - 0: NTSC M (default)
  - 1: PAL B/G, DK, I, L
- **NVM_WP.** The global protection line is used to enable and disable write protection to the NVM. When write to the NVM is required, pin 7 of the NVM must be pulled to logic ‘0’ first (via Write_Protect of the micro-controller pin) before a write is performed. Otherwise pin 7 of NVM must always be at logic “1”
  - 0: Disabled
  - 1: Enabled (default)
- **SOUND_ENABLE.** This pin is used to MUTE the audio amplifier. It is configured as push pull.
- **STATUS_1.** This signal is used to read the status of the SCART 1 input.
- **STATUS_2.** This signal is used to read the status of the SCART 2 input.
- **HERC_RESET.** This pin is used to switch the +1.8V supply.
- **POWER_DOWN**. The power supply generates this signal. Logic “high” (3.3 V) under normal operation of the TV and goes “low” (0 V) when the Mains input voltage supply goes below 70 V_{AC}.
- **KEYBOARD**. Following are the Keyboard functions and the step values (8 bit) for it.

Table 9-3 Local keyboard values

Function	Voltage (V_{DC})	Step values (8 bit)
NAFTA Standby	0	0 - 6
Ch +	0.43	7 - 33
Exit Factory (Ch- and Vol-)	0.69	34 - 53
Ch -	0.93	54 - 73
Menu (Vol - and Vol +)	1.19	74 - 96
Vol -	1.49	97 - 121
DVD Eject (not applicable)	1.8	122 - 147
Vol +	2.12	148 - 169

- **TV_IRQ.** This signal is the interrupt from the Scaler IC.
- **TV_SC_COM.** This signal is used for the communication with the Scaler IC.
- **EXT_MUTE.** This signal is used to reduce the Switch-off plop.

9.10 Abbreviation List

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format
1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
2CS	2 Carrier Sound (or 2 Channel Stereo)
480i	480 visible lines, interlaced
480p	480 visible lines, progressive scan
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control; Control signal used to tune and lock to the correct frequency
AGC	Automatic gain control (feedback) signal to the tuner. This circuit ensures a constant output amplitude regardless of the input amplitude
AM	Amplitude Modulation; A "data encoding to a carrier" method, such that the carrier amplitude is proportional to the data value
AP or A/P	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASD	Automatic Standard Detection
AV	External Audio Video
B-SC1-IN	Blue SCART1/EXT1 in
B-SC2-IN	Blue SCART2/EXT2 in
B-TXT	Blue TeleteXT
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz. B= VHF-band, G= UHF-band
BOCMA	Bimos one Chip Mid-end Architecture: video and chroma decoder
C-FRONT	Chrominance front input
CBA	Circuit Board Assembly (also called PCB or PWB)
CL	Constant Level: audio output to connect with an external amplifier
CLUT	Colour Look-Up Table
COLUMBUS	COLour LUMinance Baseband Universal Subsystem. IC performing noise reduction and 2D/3D comb filtering
ComPair	Computer aided rePair. A tool for diagnosing a TV through a PC controlled interface
CSM	Customer Service Mode
CVBS	Composite Video and Blanking Signal; A single video signal that contains luminance, colour, and timing information
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from internal Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS TERrestrial OUTput signal
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DFU	Directions For Use: Owner's manual
DNR	Dynamic Noise Reduction / Digital Noise Reduction; Noise reduction feature of the set
DRAM	Dynamic RAM; dynamically refreshed RAM
DSP	Digital Signal Processing
DST	Dealer Service Tool; Special remote control designed for dealers to enter

	e.g. service mode (a DST-emulator is available in ComPair)
DTS	Digital Theatre System; A multi-channel surround sound format, similar to Dolby Digital
DVD	Digital Versatile Disc
EEPROM	Electrically Erasable and Programmable Read Only Memory
EPLD	Erasable Programmable Logic Device
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView)
EU	Europe
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast BLanking; DC signal accompanying RGB signals. To blank the video signal when it is returning from the right side of the screen to the left side. The video level is brought down below the black video level
FBL-SC1-IN	Fast blanking signal for SCART1 in
FBL-SC2-IN	Fast blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FM	Field Memory; A memory chip that is capable of storing one or more TV picture fields / Frequency Modulation; A technique that sends data as frequency variations of a carrier signal
FMR	Radio receiver that can receive the FM Band 87.5 - 108 MHz
FRC	Frame Rate Converter
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Control line for detection of headphone insertion, Service Mode jumper, power failure detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
G-SC1-IN	Green SCART1/EXT1 in
G-SC2-IN	Green SCART2/EXT2 in
G-TXT	Green teletext
H	H_sync to the module
HA	Horizontal Acquisition; horizontal sync pulse
HD	High Definition
HP	HeadPhone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz. VHF- and UHF-band
I^2C	Integrated IC bus
I^2S	Integrated IC Sound bus
IC	Integrated Circuit
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR	Infra Red
IRQ	Interrupt ReQuest
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences
LATAM	LATin AMerica
LC04	Philips chassis name for LCD TV 2004 project
LCD	Liquid Crystal Display
LED	Light Emitting Diode; A semiconductor diode that emits light when a current is passed through it
LINE-DRIVE	Horizontal (line) deflection drive signal (for the Line transistor)
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LS	LoudSpeaker
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz. M= 525 lines @ 60 Hz, N= 625 lines @ 50 Hz
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MPEG	Motion Pictures Experts Group. An ISO/IEC body that has given its name to an image compressing scheme for moving video
MSP	Multi-standard Sound Processor: ITT sound decoder
MUTE	MUTE Line
NC	Not Connected
NICAM	Near Instantaneously Companded Audio Multiplexing; This is a digital sound system, mainly used in Europe
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory; IC containing data such as alignment values, preset stations
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
PAL	Phase Alternating Line. Colour system used mainly in Western Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PC	Personal Computer
PCB	Printed Circuit Board (or PWB)
PIG	Picture In Graphic
PIP	Picture In Picture
PLL	Phase Locked Loop. Used, for example, in FST tuning systems. The customer can directly provide the desired frequency
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PWB	Printed Wiring Board (also called PCB or CBA)
RAM	Random Access Memory
RC	Remote Control transmitter
RC5 or 6	Remote Control system 5 or 6, the signal from the remote control receiver
RGB	Red, Green, and Blue colour space; The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
ROM	Read Only Memory
SAM	Service Alignment Mode
SC	SandCastle: two-level pulse derived from sync signals
SC-IN	SCART in
SC-OUT	SCART out
S/C	Short Circuit
SCART	Syndicat des Constructeurs d'Appareils Radiorécepteurs et

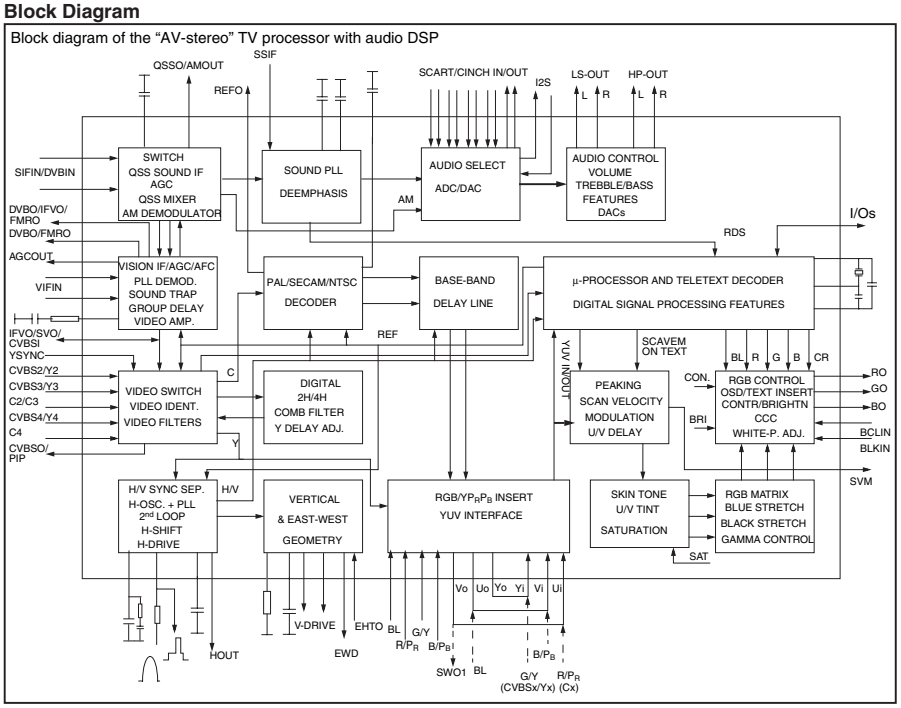
	Téléviseurs; This is a 21-pin connector used in EU, that carries various audio, video, and control signals (it is also called Péritel connector)
SCL	Serial CLock Signal on I^2C bus
SD	Standard Definition
SDA	Serial DAta Signal on I^2C bus
SDRAM	Synchronous DRAM
SECAM	SÉquence Couleur Avec Mémoire; Colour system mainly used in France and East Europe. The chroma is FM modulated and the R-Y and B-Y signals are transmitted line sequentially. Colour carriers= 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SMPS	Switched Mode Power Supply
SND	SouND
SNDL-SC1-IN	Sound left SCART1 in
SNDL-SC1-OUT	Sound left SCART1 out
SNDL-SC2-IN	Sound left SCART2 in
SNDL-SC2-OUT	Sound left SCART2 out
SNDR-SC1-IN	Sound right SCART1 in
SNDR-SC1-OUT	Sound right SCART1 out
SNDR-SC2-IN	Sound right SCART2 out
SNDR-SC2-OUT	Sound right SCART2 out
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace; This is a consumer interface used to transfer digital audio
SRAM	Static RAM
STBY	STandBY
SVHS	Super Video Home System
SW	Software or Subwoofer or Switch
THD	Total Harmonic Distortion
TXT	Teletext; TXT is a digital addition to analogue TV signals that contain textual and graphical information (25 rows x 40 columns). The information is transmitted within the first 25 lines during the Vertical Blank Interval (VBI)
µP	Microprocessor
VA	Vertical Acquisition
VL	Variable Level out: processed audio output towards external amplifier
VCR	Video Cassette Recorder
VGA	Video Graphics Array; 640x480 (4:3)
WD	Watch Dog
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XTAL	Quartz crystal
Y	Luminance signal
Y/C	Y consists of luminance signal, blanking level and sync; C consists of chroma (colour) signal
YPbPr	This is a scaled version of the YUV colour space. Y= Luminance, Pb/Pr= Colour difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV
YUV	Colour space used by the NTSC and PAL video systems. Y is the luminance and U/V are the colour difference signals

9.11 IC Data Sheets

This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.11.1 Diagram B2, Type TDA15021H (IC7217, Hercules)

Block Diagram



Pin Configuration

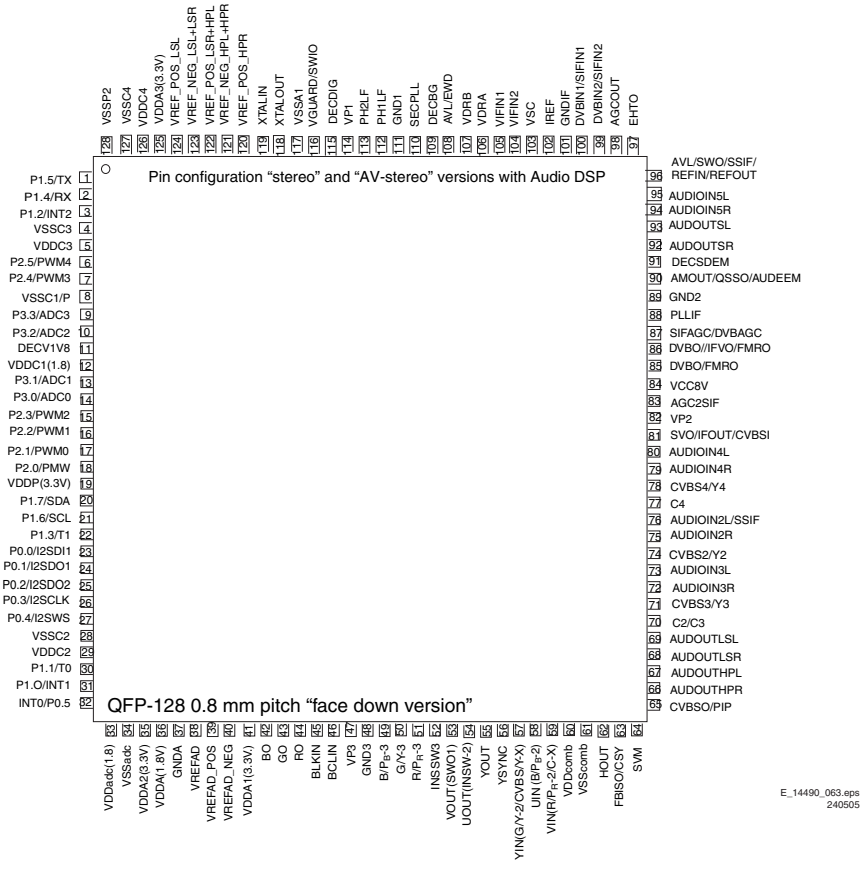


Figure 9-8 Internal block diagram and pin configuration

9.11.2 Diagram B19, Type T6TU5XB (IC7M00, Columbus)

Figure 1 Package outline (top view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
A	WEB/ DAVB	UVA0 /Di0	UVA2 /Di2	UVA4 /Di4	UVA6 /Di6	UVA8 /Di8	SEL656	TST1	YA2	YA4	YA6	YA8	VA	HREF	SDA	A
B	YB8	VSS	UVA1 /Di1	UVA3 /Di3	UVA5 /Di5	UVA7 /Di7	YA0 /Di9	BISTEN	YA1	YA3	YA5	YA7	WEA/ DAVA	VSS	SCL	B
C	YB7	YB6	VSS	VDDS	VSS	VSS	VDDC	VDDC	VSS	VSS	VDDC	VDDS	VSS	SNDA	SNRST	C
D	YB5	YB4	VDDC	N.C.									VSS	SNCL	TCK	D
E	YB3	YB2	VSS										VDDC	TMS	TDO	E
F	TST2	YB1	VSS										VSS	TRST	TDI	F
G	CLKASB	YB0 /Do9	VDDS										VDDS	A0ICC	RESET	G
H	CLKASA	UVB8/ Do8	TST3										VDDC	CLK EXT	CLKSEL	H
J	UVB7 /Do7	UVB6/ Do6	VSS										VSS	CLK	WEN	J
K	UVB5 /Do5	UVB4/ Do4	VDDC										VSS	CASN	RASN	K
L	UVB3 /Do3	UVB2 /Do2	VSS										VDDS	DQM	DQ16	L
M	UVB1 /Do1	UVB0 /Do0	VDDS										VSS	DQ14	DQ15	M
N	AVD	N.C.	VDDS	VSS	VSS	VDDC	VSS	VDDS	VDDC	VSS	VDDS	VSS	VSS	VDDS	DQ13	N
P	AVS	VSS	A7	A9	A2	A0	A11	DQ7	DQ6	DQ4	DQ3	DQ1	VDDS	VSS	DQ12	P
R	A4	A5	A6	A8	A3	A1	A10	DQ8	VSS	DQ5	VSS	DQ2	DQ9	DQ10	DQ11	R
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

COLUMBUS TOP-VIEW

PPA Version 2.7

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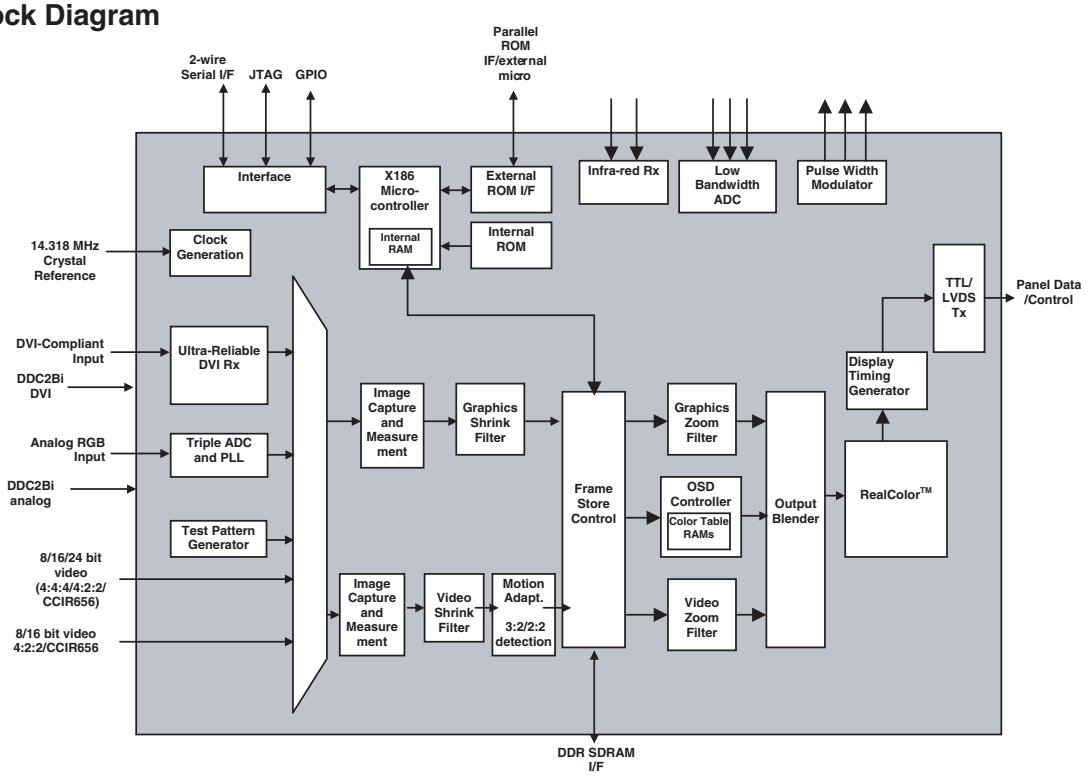
200804

Figure 9-9 Pin configuration

9.11.3 Diagram B7+B8+B9, Type GM1501 (IC7401, Genesis)

Block Diagram



Pin Configuration

	1	2	3	4	5	6	7	8	9	10	11	12	13
A	NC	ADC_3.3	ADC_1.8	ADC_1.8	ADC_DGND	RXC+	DVI_GND	RX0+	RX1+	RX2+	DVI_GND	LBADC_IN3	D_GND
B	BLUE-	BLUE+	ADC_3.3	ADC_DGND	DVI_GND	RXC-	DVI_GND	RX0-	RX1-	RX2-	REXT	LBADC_IN2	D_GND
C	GREEN-	GREEN+	SOG	ADC_AGND	NC	DVI_3.3	DVI_GND	DVI_3.3	DVI_3.3	DVI_3.3	DVI_3.3	LBADC_IN1	LBADC_33
D	RED-	RED+	ADC_3.3	ADC_AGND	NC	DVI_1.8	DVI_GND	DVI_1.8	DVI_1.8	DVI_1.8	DVI_GND	LBADC_ RETURN	LBADC_GND
E	ADC_AGND	ADC_AGND	ADC_3.3	ADC_AGND									
F	NC	VDDD33_ PLL	VSSA33_ RPLL	VDDA33_ RPLL									
G	VDDA33_ FPLL	VSSD33_ PLL	TCLK	XTAL									
H	VDDD33_ SDDS	VSSA33_ SDDS	VDDA33_ SDDS	VSSA33_ FPLL									
J	VDDD33_ DDDS	VSSA33_ DDDS	VDDA33_ DDDS	VSSD33_ SDDS									
K	RESETn	ACS_ RSET_HD	NC	VSSD33_ DDDS						CORE_1.8	CORE_1.8	D_GND	D_GND
L	OCM_INT2	OCM_INT1	AVSYNC	AHSYNC						D_GND	CORE_1.8	D_GND	D_GND
M	OCM_UDO	OCM_UDI	IR0	IR1						D_GND	D_GND	D_GND	D_GND
N	VGA_SDA	VGA_SCL	DVI_SDA	DVI_SCL						D_GND	D_GND	D_GND	D_GND
P	OCM_CS1n	OCM_CS2n	MSTR_SDA	MSTR_SCL						D_GND	D_GND	D_GND	D_GND
R	ROM_CSn	OCM_REn	OCM_WEn	EXTCLK						D_GND	D_GND	D_GND	D_GND
T	OCMADDR 17	OCMADDR 18	OCMADDR 19	OCM_CS0n						D_GND	CORE_1.8	D_GND	D_GND
U	OCMADDR 13	OCMADDR 14	OCMADDR 15	OCMADDR 16						CORE_1.8	CORE_1.8	D_GND	D_GND
V	OCMADDR 9	OCMADDR 10	OCMADDR 11	OCMADDR 12									
W	OCMADDR 6	OCMADDR 7	OCMADDR 8	IO_3.3									
Y	OCMADDR 3	OCMADDR 4	OCMADDR 5	IO_3.3									
AA	OCMADDR 0	OCMADDR 1	OCMADDR 2	IO_3.3									
AB	OCMDATA13	OCMDATA14	OCMDATA15	IO_3.3									
AC	OCMDATA10	OCMDATA11	OCMDATA12	IO_3.3	GPIO_G09_ B2 (DEGRN0)	IO_3.3	DCLK	IO_3.3	GPIO_G07_ B2 (DERED4)	IO_3.3	SHIELD[1] (DEGRN3)	LVDSB_3.3	LVDSB_GND
AD	OCMDATA9	OCMDATA6	OCMDATA3	OCMDATA0	GPIO_G09_ B3 (DEGRN1)	GPIO_G08_ B0 (DORED0)	DEN	GPIO_G08_ B5 (DOBLU1)	GPIO_G07_ B3 (DERED5)	GPIO_G07_ B6 (DERED8)	SHIELD[2] (DEGRN4)	LVDSB_3.3	LVDSB_3.3
AE	OCMDATA8	OCMDATA5	OCMDATA2	GPIO_G09_ B0 (DERED0)	GPIO_G09_ B4 (DEBLU0)	GPIO_G08_ B1 (DORED1)	GPIO_G08_ B3 (DOGRN1)	GPIO_G07_ B0 (DERED2)	GPIO_G07_ B4 (DERED6)	GPIO_G07_ B7 (DERED9)	SHIELD[3] (DEGRN5)	BC+ (DEGRN8)	SHIELD[4] (DEBLU2)
AF	OCMDATA7	OCMDATA4	OCMDATA1	GPIO_G09_ B1 (DERED1)	GPIO_G09_ B5 (DEBLU1)	GPIO_G08_ B2 (DOGRN0)	GPIO_G08_ B4 (DOBLU0)	GPIO_G07_ B1 (DERED3)	GPIO_G07_ B5 (DERED7)	SHIELD[0] (DEGRN2)	B3+ (DEGRN6)	B3- (DEGRN7)	BC- (DEGRN9)

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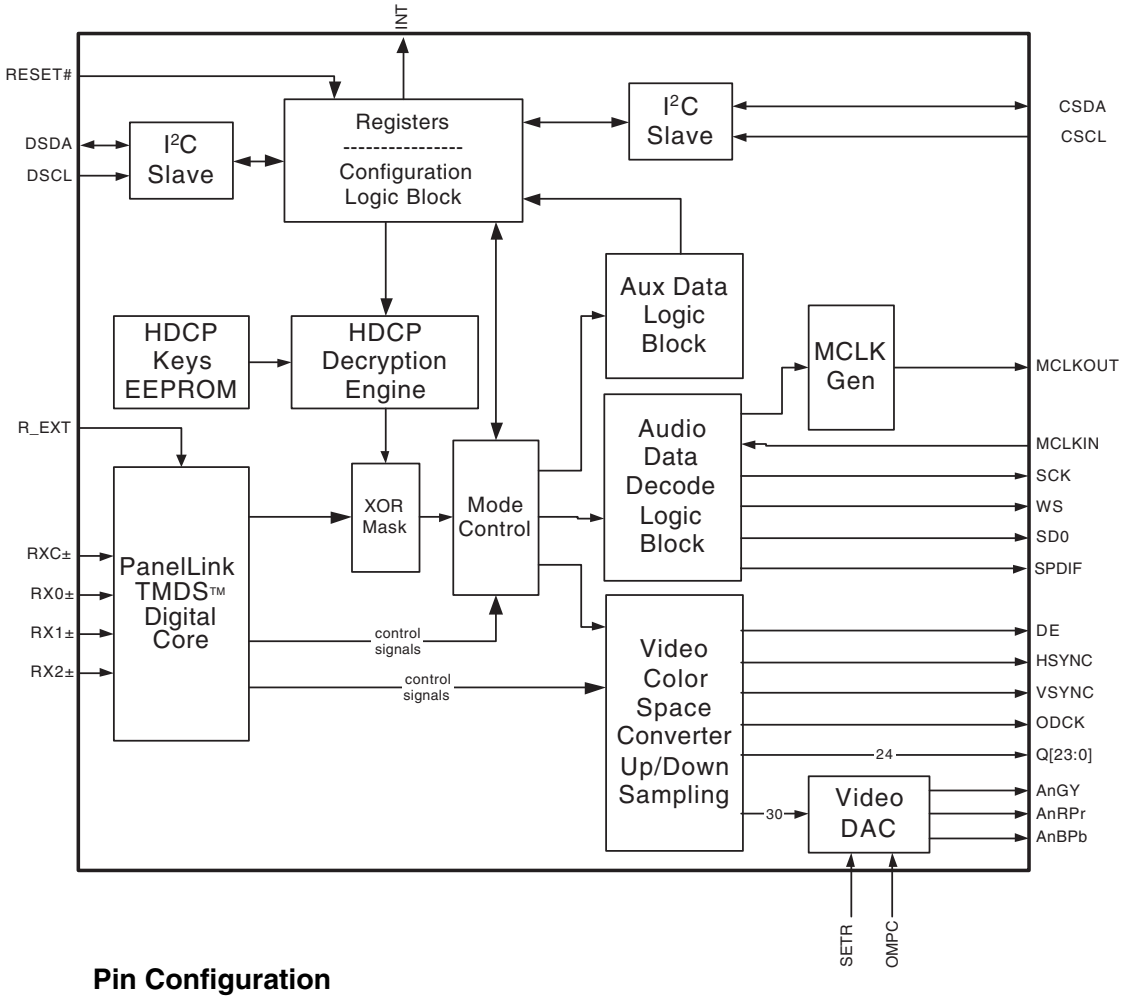
241204

Figure 9-10 Internal block diagram and pin configuration

9.11.4 Diagram B12, Type S9993CT (IC7D03, HDMI Panellink), Reserved

Block Diagram



Pin Configuration

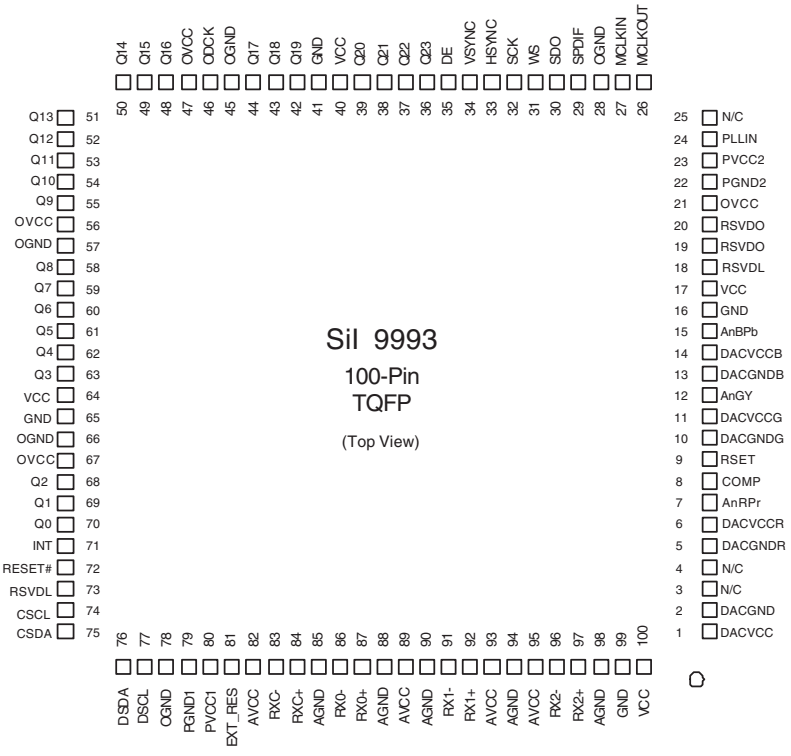


Figure 9-11 Internal block diagram and pin configuration

10. Spare Parts List

Set Level

Various

1004	8204 000 78181	PDP S42SD-YD07
1004⚠	9322 224 88682	PDP PDP42V7A062
1012	3104 328 39571	LED panel LC04SD2
8102	3104 311 03601	Cable 7p/400/7p
8102	3104 311 07241	Cable 7P/1000/7P
8103	3104 311 06511	Cable 10p/280/10p
8103	3104 311 07391	Cable 10P/220/10P
8120⚠	3104 311 07421	Cable 6P/680/6P
8146	3104 311 08621	Cable 11P/220/11P
8150	3104 311 08831	Cable 31P/300/31P
8150	3104 311 10493	Cable 31P/220/31P
8152⚠	3104 311 09921	Cable 9P/680/9P
8900⚠	3104 311 07911	Cable ring/180/ring

Set Level

Various

1014	3104 328 39561	Side control LC04SD2
1116	3104 328 40501	Side I/O Assy LC04SD2
8101	3104 311 10751	Cable 3P/1K7/3P
8136	3104 311 10733	Cable 11P/1K/11P
8735	3104 311 10601	Cable 2P3/1400/POSI
8736	3104 311 10591	Cable 2P3/1000/POSI

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5213	2441 257 30020	Loudspeaker 8Ω 10W
5214	2441 257 30020	Loudspeaker 8Ω 10W

Power Supply Unit [A]

Various

1002	4822 267 10618	Connector 7p
1004	2422 086 00676	Fuse 2A T 250V
1082	2422 086 00677	Fuse 2.5A T 250V
1083	2422 086 00677	Fuse 2.5A T 250V
1084	2422 086 10849	Fuse 1A F 250V
1110	2422 086 00678	Fuse 5A T 250V
1200	2422 086 00676	Fuse 2A T 250V
1260	4822 252 51186	Fuse 2A
1400	4822 070 36302	Fuse 6.3A
1402	4822 252 60151	Surge protect
1450	4822 280 10382	SDT-SS-109DM
1460	4822 280 10382	SDT-SS-109DM
1M03	2422 025 10771	Connector 10p m
1M05	2422 025 16374	Connector 2p m
1M10	2422 025 09406	Connector 4p m
1M46	2422 025 10655	Connector 11p m

–⊣⊢–

2000	2252 811 95017	470pF 10% 250V
2001	2222 338 22474	470nF 20% 275V
2005	2238 867 18101	100pF 1% 50V 0603
2006	2020 552 96618	1nF 10% 50V 0402
2007	2238 586 59812	100nF 20% 50V 0603
2008	5322 126 11583	10nF 10% 50V 0603
2010	5322 126 11583	10nF 10% 50V 0603
2011	2222 375 24153	15nF 5% 1kV
2012	4822 126 11254	330pF 10% 2kV
2013	4822 126 11254	330pF 10% 2kV
2014	4822 126 13862	1.5nF 10% 2kV
2015	5322 126 11583	10nF 10% 50V 0603
2017	2222 375 24153	15nF 5% 1kV
2018	2238 867 18101	100pF 1% 50V 0603
2019	2252 811 95017	470pF 10% 250V
2020	2020 024 90737	3300µF 20% 100V
2021	2020 024 90737	3300µF 20% 100V
2022	2020 021 91354	1000µF 20% 50V
2023	2222 580 15649	100nF 10% 50V 0805
2024	3198 035 03320	3.3nF 5% 50V 0402
2025	4822 124 12084	1µF 20% 50V
2026	2020 552 96623	2.2nF 10% 50V 0402
2027	2020 552 96631	15nF 10% 16V 0402
2028	2238 930 11541	220pF 5% 200V
2029	2238 930 11541	220pF 5% 200V
2030	2238 586 59812	100nF 20% 50V 0603
2031	2020 552 96628	10nF 10% 16V 0402
2032	2238 586 15641	22nF 10% 50V 0603
2033	2238 586 59812	100nF 20% 50V 0603
2034	4822 126 14525	47pF 5% 1kV
2035	2020 552 96618	1nF 10% 50V 0402
2036	2238 586 15641	22nF 10% 50V 0603
2037	4822 126 14525	47pF 5% 1kV
2038	2020 552 96618	1nF 10% 50V 0402
2039	2020 552 96623	2.2nF 10% 50V 0402
2040	3198 034 02790	47pF 1% 50V 0402
2041	2238 869 15101	100pF 5% 50V 0402
2042	3198 035 03310	330pF 5% 50V 0402
2043	4822 124 12084	1µF 20% 50V
2044	2238 930 11541	220pF 5% 200V
2045	2238 930 11541	220pF 5% 200V
2046	2252 568 08305	33pF 5% 500V
2047	2238 586 59812	100nF 20% 50V 0603
2048	2020 552 96683	220nF 10% 50V
2049	2238 867 18101	100pF 1% 50V 0603
2050	2238 586 15641	22nF 10% 50V 0603
2051	4822 122 33177	10nF 20% 50V
2052	4822 124 12056	1000µF 20% 35V
2053	2022 031 00308	22µF 20% 35V
2054	2020 552 00216	220pF 5% 50V 0402
2055	2020 552 96621	1.5nF 10% 50V 0402
2056	2020 552 00216	220pF 5% 50V 0402
2057	2020 552 96621	1.5nF 10% 50V 0402
2058	4822 124 41828	1µF 20% 250V
2059	2238 586 59812	100nF 20% 50V 0603
2060	2020 552 96683	220nF 10% 50V
2061	2238 586 59812	100nF 20% 50V 0603
2070	2020 552 96618	1nF 10% 50V 0402
2071	2020 552 96618	1nF 10% 50V 0402
2090	2020 021 91729	4.7µF 20% 35V
2112	2020 552 96618	1nF 10% 50V 0402
2113	4822 124 12379	220µF 25V
2114	2020 552 96683	220nF 10% 50V
2118	4822 126 13449	1nF 10% 2kV
2121	2020 024 90736	2200µF 20% 100V
2122	4822 121 51319	1µF 10% 63V
2123	3198 035 03320	3.3nF 5% 50V 0402
2126	2238 586 59812	100nF 20% 50V 0603
2133	4822 124 81151	22µF 50V
2203	2238 586 59812	100nF 20% 50V 0603
2205	2020 021 91729	4.7µF 20% 35V
2210	4822 124 80151	47µF 16V
2211	3198 035 04710	470pF 50V 0402
2212	2020 552 96326	220nF 10% 16V
2213	3198 035 03320	3.3nF 5% 50V 0402
2214	3198 035 03320	3.3nF 5% 50V 0402
2215	3198 035 04710	470pF 50V 0402
2218	2222 375 90141	3.3nF 1.6kV 5%
2222	2238 869 15101	100pF 5% 50V 0402
2223	2238 869 15101	100pF 5% 50V 0402
2225	2020 021 91551	2200µF 20% 25V
2226	2238 586 59812	100nF 20% 50V 0603
2227	2238 869 15101	100pF 5% 50V 0402
2229	2020 021 00036	470µF 20% 16V
2230	2020 021 00036	470µF 20% 16V
2231	4822 124 80151	47µF 16V
2232	2238 869 15101	100pF 5% 50V 0402
2234	2022 552 05679	1µF 10% 16V 0805
2236	4822 124 23002	10µF 16V
2237	4822 124 23002	10µF 16V
2263	2222 861 15272	2.7nF 5% 50V 0805
2264	4822 126 14583	470nF 10% 16V 0805
2265	3198 035 03310	330pF 5% 50V 0402
2266	2020 021 91729	4.7µF 20% 35V
2267	5322 122 32531	100pF 5% 50V
2268	2020 552 96683	220nF 10% 50V
2269	4822 123 14025	2200µF 20% 16V
2270	4822 124 40433	47µF 20% 25V
2273	2238 586 59812	100nF 20% 50V 0603
2274	2020 552 96628	10nF 10% 16V 0402
2290	5322 126 11583	10nF 10% 50V 0603
2291	3198 035 04710	470pF 50V 0402
2293	3198 035 04710	470pF 50V 0402
2295	3198 035 04710	470pF 50V 0402
2296	3198 035 04710	470pF 50V 0402
2304	2020 552 96618	1nF 10% 50V 0402
2305	2238 586 59812	100nF 20% 50V 0603
2306	2238 586 59812	100nF 20% 50V 0603
2322	2238 586 59812	100nF 20% 50V 0603
2324	2238 586 59812	100nF 20% 50V 0603
2350	4822 124 12095	100µF 20% 16V
2352	2238 586 59812	100nF 20% 50V 0603
2364	2238 586 59812	100nF 20% 50V 0603
2376	2238 586 59812	100nF 20% 50V 0603
2377	2238 586 59812	100nF 20% 50V 0603
2381	2238 586 59812	100nF 20% 50V 0603
2385	2020 552 96628	10nF 10% 16V 0402
2386	2020 552 96628	10nF 10% 16V 0402
2387	4822 124 12095	100µF 20% 16V
2388	2020 552 96628	10nF 10% 16V 0402
2397	4822 124 12095	100µF 20% 16V
2398	4822 124 23002	10µF 16V
2400	2222 338 22474	470nF 20% 275V
2401	2222 338 22474	470nF 20% 275V
2404	4822 126 14525	47pF 5% 1kV
2405	2252 811 95017	470pF 10% 250V
2406	4822 126 14525	47pF 5% 1kV
2407	2252 811 95017	470pF 10% 250V
2465	4822 124 12095	100µF 20% 16V
2502	2238 869 15101	100pF 5% 50V 0402
2503	2020 024 90708	47µF 400V 20%
2504	2020 552 96618	1nF 10% 50V 0402
2507	2238 869 15101	100pF 5% 50V 0402
2508	4822 124 12095	100µF 20% 16V
2509	2238 869 15101	100pF 5% 50V 0402
2510	2020 021 91506	1000µF 20% 16V
2511	2238 586 59812	100nF 20% 50V 0603
2512	2238 586 59812	100nF 20% 50V 0603
2513	2222 580 15649	100nF 10% 50V 0805
2532	4822 124 12095	100µF 20% 16V
2533	4822 124 12095	100µF 20% 16V
2534	2022 552 05679	1µF 10% 16V 0805
2540	4822 124 12095	100µF 20% 16V
2541	4822 124 12095	100µF 20% 16V
2542	2238 586 59812	100nF 20% 50V 0603
2600	4822 122 33799	1nF 10% 1kV
2601	4822 122 33799	1nF 10% 1kV
2602	2020 552 96623	2.2nF 10% 50V 0402
2603	2222 383 90136	1µF 5% 400V
2605	2222 383 90136	1µF 5% 400V
2608	2020 552 96618	1nF 10% 50V 0402
2610	4822 121 70584	1.8nF 5% 2kV
2611	4822 126 12263	220pF 10% 2kV
2612	2020 552 96618	1nF 10% 50V 0402
2614	2020 552 96623	2.2nF 10% 50V 0402
2616	4822 124 12415	220µF 20% 400V
2617	4822 124 12415	220µF 20% 400V
2640	3198 035 04710	470pF 50V 0402
2642	2020 552 96618	1nF 10% 50V 0402
2651	2020 552 96628	10nF 10% 16V 0402
2653	3198 035 06810	680pF 5% 50V 0402
2654	4822 124 80151	47µF 16V
2655	2022 552 05679	1µF 10% 16V 0805
2656	2222 580 15649	100nF 10% 50V 0805
2660	4822 126 13881	470pF 5% 50V
2661	2020 552 96618	1nF 10% 50V 0402
2662	4822 124 80061	1000µF 20% 25V
2663	4822 121 51319	1µF 10% 63V
2664	4822 124 40255	100µF 20% 63V
2665	4822 126 13881	470pF 5% 50V
2666	2020 552 96793	4.7nF 10% 50V 0402
2670	2238 586 59812	100nF 20% 50V 0603
2671	2238 586 59812	100nF 20% 50V 0603
2672	2222 580 15649	100nF 10% 50V 0805
2673	2020 558 90621	10nF 630V
2674	2020 558 90621	10nF 630V
2675	2020 558 90621	10nF 630V
2676	2020 558 90621	10nF 630V
2677	2020 552 96623	2.2nF 10% 50V 0402
2690	2020 552 96618	1nF 10% 50V 0402

–WW–

3001	4822 051 30471	47Ω 5% 0.062W
3002	4822 051 30471	47Ω 5% 0.062W
3003	4822 117 11297	100kΩ 5% 0.1W
3004	3198 031 01530	15kΩ 5% 0.01W 0402
3005	3198 031 02730	27kΩ 5% 0402
3006	4822 117 13606	10kΩ 5% 0.01W 0402
3007	3198 031 04720	4.7kΩ 5% 0402
3008	4822 051 30102	1kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3010	3198 031 01530	15kΩ 5% 0.01W 0402
3011	4822 051 30561	560Ω 5% 0.062W
3012	3198 031 04720	4.7kΩ 5% 0402
3013	4822 117 13606	10kΩ 5% 0.01W 0402
3014	4822 050 23309	33Ω 1% 0,6W
3015	4822 050 21009	10Ω 1% 0.6W
3016	4822 051 10102	1kΩ 2% 0.25W
3017	4822 050 23309	33Ω 1% 0,6W
3018	4822 050 21009	10Ω 1% 0.6W
3019	4822 051 10102	1kΩ 2% 0.25W
3020	3198 031 05630	56kΩ 5% 0402
3022	4822 051 30681	680Ω 5% 0.062W
3023	3198 031 04730	47Ω 5% 0402

3024	4822 117 12306	150kΩ 1% 0.1W
3025	2322 706 71802	1.8kΩ 5% 0402
3026	4822 051 20684	680kΩ 5% 0.1W
3027	3198 031 04730	47Ω 5% 0402
3028	2322 704 67502	7.5kΩ 1% 0.5W
3029	4822 051 30123	12kΩ 5% 0.1W
3030	3198 031 01830	18kΩ 5% 0.01W 0402
3031	2322 706 71003	10kΩ 5% 0402
3032	2322 706 71003	10kΩ 5% 0402
3033	2322 705 70184	180Ω 5% 0402
3034	4822 117 13596	220Ω 5% 0.01W 0402
3035	4822 051 20684	680kΩ 5% 0.1W
3036	2122 612 00068	NTC 1Ω 20% 6W
3037	4822 117 13606	10kΩ 5% 0.01W 0402
3038	4822 117 11297	100kΩ 5% 0.1W
3039	4822 051 30105	1MΩ 5% 0.062W
3040	4822 117 10837	100kΩ 1% 0.1W
3041	4822 117 13603	33kΩ 5% 0402
3042	4822 051 30471	47Ω 5% 0.062W
3043	3198 031 04720	4.7kΩ 5% 0402
3044	4822 051 30102	1kΩ 5% 0.062W
3045	4822 051 30102	1kΩ 5% 0.062W
3046	4822 053 20565	5.6MΩ 5% 0.25W
3047	3198 031 01540	150kΩ 5% 0402
3048	3198 031 04720	4.7kΩ 5% 0402
3049	3198 031 01230	12kΩ 5% 0402
3050	4822 052 10398	3.9Ω 5% 0,33W
3051	4822 051 20822	8.2kΩ 5% 0.1W
3052	4822 117 12306	150kΩ 1% 0.1W
3053	2322 662 93131	PTC 10Ω
3054	4822 117 13543	470Ω 5% 0402
3055	4822 117 10833	10kΩ 1% 0.1W
3056	4822 051 30331	330Ω 5% 0.062W
3057	4822 051 30101	100Ω 5% 0.062W
3058	4822 051 20105	1MΩ 5% 0.1W
3059	3198 031 05630	56kΩ 5% 0402
3060	4822 050 22204	220kΩ 1% 0.6W
3061	3198 031 01830	18kΩ 5% 0.01W 0402
3062	4822 117 13548	1kΩ 5% 0402
3063	4822 117 13548	1kΩ 5% 0402
3064	4822 117 13606	10kΩ 5% 0.01W 0402
3065	4822 117 13548	1kΩ 5% 0402
3066	4822 117 13606	10kΩ 5% 0.01W 0402
3067	3198 031 01530	15kΩ 5% 0.01W 0402
3068	4822 117 13606	10kΩ 5% 0.01W 0402
3069	4822 051 30471	47Ω 5% 0.062W
3070	4822 051 30103	10kΩ 5% 0.062W
3071	3198 031 04730	47Ω 5% 0402
3073	3198 031 01050	1MΩ 5% 0402
3074	3198 031 01530	15kΩ 5% 0.01W 0402
3075	4822 051 20105	1MΩ 5% 0.1W
3076	4822 117 11297	100kΩ 5% 0.1W
3077	4822 051 20105	1MΩ 5% 0.1W
3078	4822 117 11297	100kΩ 5% 0.1W
3079	4822 051 30681	680Ω 5% 0.062W
3080	4822 051 30681	680Ω 5% 0.062W
3081	3198 031 01520	1.2kΩ 5% 0.01W 0402
3082	3198 031 01520	1.2kΩ 5% 0.01W 0402
3083	2312 915 11002	1kΩ 1% 0.5W
3084	4822 117 13606	10kΩ 5% 0.01W 0402
3085	3198 031 04730	47Ω 5% 0402
3086	3198 031 04730	47Ω 5% 0402
3087	3198 031 04730	47Ω 5% 0402
3088	3198 031 04730	47Ω 5% 0402
3089	4822 117 13606	10kΩ 5% 0.01W 0402
3090	4822 117 13545	100Ω 1% 0402
3091	4822 051 30102	1kΩ 5% 0.062W
3092	4822 051 10102	1kΩ 2% 0.25W
3093	4822 117 13548	1kΩ 5% 0402
3094	4822 051 10102	1kΩ 2% 0.25W
3095	4822 117 13543	470Ω 5% 0402
3096	3198 031 05620	5.6kΩ 5% 0.01W 0402
3097	3198 031 08210	820Ω 5% 0.5W
3098	4822 117 13548	1kΩ 5% 0402
3100	2322 706 71002	1kΩ 1% 0402
3101	2322 706 71002	1kΩ 1% 0402
3102	2322 706 71002	1kΩ 1% 0402
3103	2322 706 71002	1kΩ 1% 0402
3104	2322 706 71002	1kΩ 1% 0402
3106	4822 117 12955	2.7kΩ 1% 0.1W 0805
3107	4822 117 12955	2.7kΩ 1% 0.1W 0805
3108	4822 117 12955	2.7kΩ 1% 0.1W 0805
3109	4822 117 12955	2.7kΩ 1% 0.1W 0805
3110	4822 117 13548	1kΩ 5% 0402
3112	4822 051 30102	1kΩ 5% 0.062W
3114	2322 705 70564	560kΩ 5% 0402
3115	3198 031 02240	220kΩ 5% 0.1W 0402
3116	4822 117 13548	1kΩ 5% 0402
3117	4822 117 13606	10kΩ 5% 0.01W 0402
3118	2122 118 06084	0.051Ω 5% 1W 2512
3120	3198 021 31820	1.8kΩ 5% 0.062W 0603
3121	3198 031 04730	47Ω 5% 0402
3123	4822 117 10965	18kΩ 1% 0.1W
3124	2322 704 67502	7.5kΩ 1% 0.5W
3125	2322 704 67502	7.5kΩ 1% 0.5W
3126	2322 706 72202	2.2kΩ 5% 0402
3128	4822 117 13603	33kΩ 5% 0402
3130	4822 051 30123	12kΩ 5% 0.1W
3131	2322 706 71003	10kΩ 5% 0402
3132	4822 117 13596	220Ω 5% 0.01W 0402
3133	4822 051 30101	100Ω 5% 0.062W
3134	4822 051 30681	680Ω 5% 0.062W
3135	3198 031 04730	47Ω 5% 0402
3136	3198 031 04730	47Ω 5% 0402
3143	4822 053 12472	4.7kΩ 5% 3W
3147	2322 706 71003	10kΩ 5% 0402
3149	4822 052 10478	4.7Ω 5% 0.33W
3150	3198 031 01050	1MΩ 5% 0402
3200	4822 051 20334	330kΩ 5% 0.1W
3202	4822 051 30479	47Ω 5% 0.062W
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 117 11297	100kΩ 5% 0.1W
3205	3198 031 01540	150kΩ 5% 0402
3206	4822 117 12955	2.7kΩ 1% 0.1W 0805
3207	4822 117 12955	2.7kΩ 1% 0.1W 0805
3208	4822 117 12955	2.7kΩ 1% 0.1W 0805
3209	4822 117 12955	2.7kΩ 1% 0.1W 0805
3210	2322 706 71002	1kΩ 1% 0402
3212	4822 051 30102	1kΩ 5% 0.062W
3213	4822 117 13603	33kΩ 5% 0402
3214	2322 705 70124	120kΩ 5% 0402
3215	2322 705 70274	270kΩ 5% 0402
3216	4822 117 13548	1kΩ 5% 0402
3217	4822 117 13606	10kΩ 5% 0.01W 0402
3218	2122 118 06084	0.051Ω 5% 1W 2512
3219	4822 117 13606	10kΩ 5% 0.01W 0402
3220	4822 050 23309	33Ω 1% 0,6W
3224	2322 706 71203	12kΩ 5% 0402
3225	2322 706 71003	10kΩ 5% 0402
3226	4822 117 13606	10kΩ 5% 0.01W 0402
3228	4822 051 30151	150Ω 5% 0.062W
3262	2322 706 71003	10kΩ 5% 0402
3263	2322 706 71003	10kΩ 5% 0402
3265	4822 117 13548	1kΩ 5% 0402
3268	4822 117 13548	1kΩ 5% 0402
3269	3198 031 02720	2.7kΩ 5% 0.01W 0402
3292	4822 051 30561	560Ω 5% 0.062W
3300	2322 706 72204	220kΩ 5% 0402
3301	2322 706 72204	220kΩ 5% 0402
3304	4822 051 30102	1kΩ 5% 0.062W
3306	2322 706 71003	10kΩ 5% 0402
3307	5322 117 13028	12kΩ 1% 0.063W 0603
3308	4822 051 30102	1kΩ 5% 0.062W
3311	4822 117 13579	220kΩ 1% 0.1W 0805
3312	4822 051 30102	1kΩ 5% 0.062W
3313	2322 704 67502	7.5kΩ 1% 0.5W
3317	2322 704 67502	7.5kΩ 1% 0.5W
3320	2322 706 71003	10kΩ 5% 0402
3321	4822 051 30102	1kΩ 5% 0.062W
3322	2322 706 73902	3.9kΩ 1% 0402
3323	2322 706 71003	10kΩ 5% 0402
3324	4822 051 30102	1kΩ 5% 0.062W
3325	4822 051 30471	47Ω 5% 0.062W
3326	3198 031 04720	4.7kΩ 5% 0402
3327	4822 117 13606	10kΩ 5% 0.01W 0402
3328	4822 051 30103	10kΩ 5% 0.062W
3332	2322 706 76803	68kΩ 5% 0402
3333	4822 051 30102	1kΩ 5% 0.062W
3334	2322 706 71003	10kΩ 5% 0402
3335	2322 706 71503	15kΩ 5% 1W 0402
3340	4822 051 30102	1kΩ 5% 0.062W
3341	4822 117 13606	10kΩ 5% 0.01W 0402
3342	4822 051 30103	10kΩ 5% 0.062W
3343	4822 051 30102	1kΩ 5% 0.062W
3344	4822 051 30102	1kΩ 5% 0.062W
3345	4822 117 13548	1kΩ 5% 0402
3346	4822 117 13548	1kΩ 5% 0402
3347	4822 051 30331	330Ω 5% 0.062W
3348	4822 051 30331	330Ω 5% 0.062W
3349	4822 051 30102	1kΩ 5% 0.062W
3350	4822 051 30472	4.7Ω 5% 0.062W
3351	4822 051 30103	10kΩ 5% 0.062W
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 117 13606	10kΩ 5% 0.01W 0402
3354	3198 031 04720	4.7kΩ 5% 0402
3358	4822 051 30222	2.2kΩ 5% 0.062W
3359	3198 031 05620	5.6kΩ 5% 0.01W 0402
3360	3198 031 01220	1.2kΩ 5% 0.01W 0402
3361	3198 031 04720	4.7kΩ 5% 0402
3362	3198 031 02720	2.7kΩ 5% 0.01W 0402
3363	4822 051 30102	1kΩ 5% 0.062W
3364	4822 051 30272	2.7kΩ 5% 0.062W
3366	4822 117 13606	10kΩ 5% 0.01W 0402
3367	4822 051 30103	10kΩ 5% 0.062W
3369	3198 031 04720	4.7kΩ 5% 0402
3370	2322 675 20907	PTC 470Ω 50% 25V 0805
3373	3198 031 04720	4.7kΩ 5% 0402
3374	3198 031 04730	47Ω 5% 0402
3376	3198 031 04730	47Ω 5% 0402
3377	3198 031 04720	4.7kΩ 5% 0402
3378	4822 117 13606	10kΩ 5% 0.01W 0402
3380	3198 031 04730	47Ω 5% 0402
3381	3198 031 04730	47Ω 5% 0402
3383	4822 117 13606	10kΩ 5% 0.01W 0402
3384	4822 117 13606	10kΩ 5% 0.01W 0402
3386	4822 051 30101	100Ω 5% 0.062W
3388	4822 051 30102	1kΩ 5% 0.062W
3389	4822 051 30102	1kΩ 5% 0.062W
3390	4822 117 13548	1kΩ 5% 0402
3391	4822 117 13606	10kΩ 5% 0.01W 0402
3392	3198 031 04730	47Ω 5% 0402
3393	3198 031 04730	47Ω 5% 0402
3394	3198 031 04730	47Ω 5% 0402
3395	3198 031 01540	150kΩ 5% 0402
3397	3198 031 04730	47Ω 5% 0402
3398	3198 031 04730	47Ω 5% 0402
3399	3198 031 05620	5.6kΩ 5% 0.01W 0402
3400	2122 550 00158	VDR 1mA 612V
3401	4822 117 10118	1MΩ 5% 0.5W
3404	4822 116 83872	220Ω 5% 0.5W
3450	2322 662 93131	PTC 10Ω
3451	2322 662 93131	PTC 10Ω
3452	2122 612 00068	NTC 1Ω 20% 6W
3460	4822 117 13602	2.2kΩ 5% 0.01W 0402
3461	4822 117 13606	10kΩ 5% 0.01W 0402
3463	4822 117 13606	10kΩ 5% 0.01W 0402
3465	4822 117 13606	10kΩ 5% 0.01W 0402
3467	4822 117 13606	10kΩ 5% 0.01W 0402
3469	3198 031 04720	4.7kΩ 5% 0402
3470	4822 117 13606	10kΩ 5% 0.01W 0402
3471	4822 117 13548	1kΩ 5% 0402
3472	4822 117 13548	1kΩ 5% 0402
3501	4822 051 30102	1kΩ 5% 0.062W
3502	4822 051 30471	47Ω 5% 0.062W
3503	2322 706 74702	4.7kΩ 5% 0402
3504	2322 706 73303	33kΩ 5% 0402
3505	2322 706 74702	4.7kΩ 5% 0402
3506	2322 662 93131	PTC 10Ω
3507	4822 051 20684	680kΩ 5% 0.1W
3509	2312 915 11209	12Ω 1% 0.5W
3603	4822 051 20474	470kΩ 5% 0.1W
3604	4822 051 20474	470kΩ 5% 0.1W
3605	4822 051 20474	470kΩ 5% 0.1W
3606	4822 051 30101	100Ω 5% 0.062W
3607	4822 117 12891	220kΩ 1%
3608	2312 915 11209	12Ω 1% 0.5W
3609	4822 051 20474	470kΩ 5% 0.1W
3610	4822 050 23308	3.3Ω 1% 0.6W
3611	4822 050 21003	10kΩ 1% 0.6W
3613	4822 117 13606	10kΩ 5% 0.01W 0402
3614	2322 194 95001	0.27Ω 5% 2W
3615	2322 194 95001	0.27Ω 5% 2W
3616	3198 031 01230	12kΩ 5% 0402
3617	3198 031 04730	47Ω 5% 0402
3618	4822 117 13603	33kΩ 5% 0402
3619	3198 031 03320	3.3kΩ 5% 0402
3620	2322 194 95001	0.27Ω 5% 2W
3621	4822 050 22208	2.2Ω 1% 0,6W
3622	4822 050 22208	2.2Ω 1% 0,6W
3623	4822 117 13548	1kΩ 5% 0402
3639	4822 051 10102	1kΩ 2% 0.25W
3640	4822 051 30331	330Ω 5% 0.062W
3641	4822 051 20471	470Ω 5% 0.1W
3642	4822 117 11503	220Ω 1% 0.1W
3643	4822 117 11503	220Ω 1% 0.1W
3651	4822 117 13601	22kΩ 5% 0402
3652	3198 031 01050	1MΩ 5% 0402
3654	4822 117 13606	10kΩ 5% 0.01W 0402
3655	4822 117 13548	1kΩ 5% 0402
3656	3198 031 01820	1.8kΩ 5% 0.01W 0402
3659	4822 117 11503	220Ω 1% 0.1W
3660	4822 117 11504	270Ω 1% 0.1W
3661	4822 117 11504	270Ω 1% 0.1W
3663	4822 052 10108	1Ω 5% 0.33W
3664	2322 706 71204	120kΩ 5% 0402
3665	2322 705 70274	270kΩ 5% 0402
3666	4822 051 30101	100Ω 5% 0.062W
3668	4822 052 11102	1kΩ 5% 0.5W
3669	2322 706 71204	120kΩ 5% 0402
3671	2322 706 71003	10kΩ 5% 0402
3673	4822 052 11102	1kΩ 5% 0.5W
3675	2322 702 60158	1.5Ω
3676	2322 706 74702	4.7kΩ 5% 0402
3677	2322 706 74703	47kΩ 1% 0402
3678	3198 031 04730	47Ω 5% 0402
3679	4822 117 12306	150kΩ 1% 0.1W
3680	4822 117 13579	220kΩ 1% 0.1W 0805
3681	4822 117 13579	220kΩ 1% 0.1W 0805
3682	4822 117 13579	220kΩ 1% 0.1W 0805
3683	4822 051 20334	330kΩ 5% 0.1W
3684	4822 051 20334	330kΩ 5% 0.1W
3685	4822 051 20334	330kΩ 5% 0.1W

3686	4822 117 12971	15Ω 5% 0603 0.62W
3690	3198 031 03920	3.9kΩ 5% 0402
3691	3198 031 08220	8.2kΩ 5% 0.5W
3692	4822 117 13606	10kΩ 5% 0.01W 0402
3693	4822 117 13602	2.2kΩ 5% 0.01W 0402
3806	4822 117 13543	470Ω 5% 0402
3807	4822 117 13606	10kΩ 5% 0.01W 0402
3808	4822 117 13606	10kΩ 5% 0.01W 0402
3809	3198 031 02730	27kΩ 5% 0402
3811	4822 117 13545	100Ω 1% 0402
3999	4822 117 13548	1kΩ 5% 0402
9001	4822 051 20008	Jumper 0805
9020	4822 051 20008	Jumper 0805
9028	4822 117 13605	Jumper 0402

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5001	2422 531 02444	Transf. S13932-04Y
5002⚠	3104 308 21022	Transf. BS42315-02
5004⚠	3104 308 21022	Transf. BS42315-02
5005	3122 138 38901	Mains filter CU28D3
5121	3104 308 20771	Bridge coil BD21232-00
5220	3104 308 20911	Transf. BS29238-00
5225	2422 536 00672	4.7µH 20%
5229	2422 536 00826	220µH 10%
5290	3104 308 21171	Transf. BD15403-00
5291	4822 157 11737	22µH 10%
5292	4822 157 11737	22µH 10%
5293	4822 157 11737	22µH 10%
5401	3122 138 38901	Mains filter CU28D3
5402	3122 138 38901	Mains filter CU28D3
5500	2422 531 00102	Transf. BS16510-01 Y
5503	2422 535 94639	10µH 20%
5600	3104 308 20821	Coil BS42228-00 B
5601	4822 157 11411	Bead 80Ω at 100MHz
5612	4822 157 11411	Bead 80Ω at 100MHz
5660	4822 157 51192	220µH 10%

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6002	4822 130 11397	BAS316
6003	9340 548 71115	PDZ33B
6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6006	4822 130 11397	BAS316
6007	4822 130 11397	BAS316
6008	4822 130 11397	BAS316
6009	4822 130 11397	BAS316
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6012	3198 020 55680	BZX384-C5V6
6018	4822 130 11397	BAS316
6019	4822 130 11397	BAS316
6021	4822 130 32961	BYV28-200
6023	4822 130 11397	BAS316
6027	4822 130 11397	BAS316
6028	4822 130 11397	BAS316
6029	4822 130 11416	PDZ6.8B
6031	3198 020 55680	BZX384-C5V6
6032	3198 020 55680	BZX384-C5V6
6033	9322 150 18685	BZX384-C47
6034	4822 130 11397	BAS316
6035	4822 130 11397	BAS316
6042	9322 150 18685	BZX384-C47
6044	9322 202 88687	STTH2003CFP
6045	4822 130 32961	BYV28-200
6050	4822 130 11152	UDZ18B
6054	9340 553 52115	BAS321
6055	9340 553 52115	BAS321
6061	4822 130 11152	UDZ18B
6062	4822 130 11152	UDZ18B
6075	9340 292 80135	BZG03-C270
6077	9340 292 80135	BZG03-C270
6086	4822 130 11397	BAS316
6111	9340 553 52115	BAS321
6112	9340 553 52115	BAS321
6113	4822 130 11397	BAS316
6114	4822 130 11416	PDZ6.8B
6117	4822 130 11152	UDZ18B
6120	9322 202 75687	BYW29FP-200
6123	4822 130 11397	BAS316
6133	4822 130 11397	BAS316
6142	9322 192 15668	SM S3J
6201	3198 020 55680	BZX384-C5V6
6202	4822 130 11397	BAS316
6204	3198 020 55680	BZX384-C5V6
6205	4822 130 11152	UDZ18B
6206	4822 130 11397	BAS316
6211	9322 202 55685	BYG22D
6213	4822 130 11397	BAS316
6216	4822 130 11152	UDZ18B
6225	9322 173 47687	STPS20L40CFP
6230	9322 155 79685	EC31QS04
6267	4822 130 82627	SB540
6269	9322 099 61685	BYG10J
6270	9322 099 61685	BYG10J
6291	4822 130 11572	STPS8H100F
6292	4822 130 11572	STPS8H100F
6312	4822 130 80622	BAT54
6313	4822 130 80622	BAT54
6321	4822 130 80622	BAT54
6322	4822 130 80622	BAT54
6325	4822 130 11416	PDZ6.8B
6333	4822 130 80622	BAT54
6334	4822 130 80622	BAT54
6335	4822 130 11397	BAS316
6340	4822 130 80622	BAT54
6341	4822 130 80622	BAT54
6344	4822 130 10838	UDZ3.3B
6347	4822 130 80622	BAT54
6362	4822 130 11397	BAS316
6364	4822 130 11397	BAS316
6365	4822 130 11397	BAS316
6366	4822 130 11397	BAS316
6367	4822 130 11397	BAS316
6375	4822 130 11397	BAS316
6376	4822 130 11397	BAS316
6378	4822 130 80622	BAT54
6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6470	4822 130 11397	BAS316
6471	4822 130 11397	BAS316
6501	9322 218 64673	BZT03C200
6502	9322 218 64673	BZT03C200
6503	9322 176 76668	RS1J
6504	9322 176 76668	RS1J
6505	9322 155 79685	EC31QS04
6506	9322 218 64673	BZT03C200
6507	9322 155 79685	EC31QS04
6508	9322 128 69685	S1D
6510	9322 099 61685	BYG10J
6511	9322 099 61685	BYG10J
6512	9322 099 61685	BYG10J
6513	9322 099 61685	BYG10J
6600	9322 177 84667	GBU8JL-7014
6601	9322 150 17685	BZX384-C39
6602	4822 130 11522	UDZ15B
6605	9322 192 15668	SM S3J
6606	9322 192 15668	SM S3J
6608	9322 128 70685	SMSS14
6609	9322 208 81685	BZG05C18
6611	3139 120 52021	BYV29X-500
6640	9322 128 70685	SMSS14
6641	4822 130 11397	BAS316
6642	9322 128 70685	SMSS14
6643	4822 130 11152	UDZ18B
6651	4822 130 80622	BAT54
6652	9322 128 70685	SMSS14
6653	4822 130 10837	UDZS8.2B
6654	4822 130 11397	BAS316
6660	9322 202 55685	BYG22D
6661	9322 202 55685	BYG22D
6663	9322 198 81685	SL04
6665	9322 198 81685	SL04
6666	4822 130 10837	UDZS8.2B

7001	9322 108 21682	MC34067P
7002	9322 149 04682	TCET1102
7003	9322 149 04682	TCET1102
7004	9322 192 17685	P0102BL
7005	9322 192 18687	STP15NK50ZFP
7006	9322 192 18687	STP15NK50ZFP
7007	4822 130 41246	BC327-25
7008	4822 130 41246	BC327-25
7009	3198 010 42310	BC847BW
7010	9322 192 16685	TS2431AI
7011	9322 192 16685	TS2431AI
7012	3198 010 42310	BC847BW
7013	5322 130 63033	BCP56
7017	3198 010 42320	BC857BW
7018	3198 010 42310	BC847BW
7020	9335 671 30126	BC517
7021	9335 671 30126	BC517
7042	9340 308 50135	PMST5401
7050	9340 557 16127	PSMN035-150P
7052	9340 557 58118	PSMN063-150D
7058	3198 010 42310	BC847BW
7059	9340 308 60135	PMST5550
7090	3198 010 42320	BC857BW
7091	3198 010 42320	BC857BW
7092	3198 010 44350	BC807-25W
7093	4822 209 80591	LM317T
7110	9340 308 50135	PMST5401
7112	9352 673 56112	TEA1507p/N1
7117	9340 557 17118	PSMN035-150B
7120	9322 149 04682	TCET1102
7121	9322 192 16685	TS2431AI
7130	9322 192 16685	TS2431AI
7134	3198 010 42310	BC847BW
7200	9340 565 06215	BSH114
7202	9965 000 04199	BSN20
7212	9352 673 56112	TEA1507p/N1
7217	9340 557 18127	PSMN070-200P
7220	9322 149 04682	TCET1102
7227	9322 192 16685	TS2431AI
7230	9322 205 64687	L4940P85
7260	9322 166 31682	L4973V3.3
7304	9322 192 16685	TS2431AI
7308	9322 213 35668	LM339P
7326	3198 010 42310	BC847BW
7327	3198 010 42310	BC847BW
7330	9322 213 35668	LM339P
7341	3198 010 42320	BC857BW
7348	3198 010 42310	BC847BW
7351	3198 010 42310	BC847BW
7352	3198 010 42310	BC847BW
7362	3198 010 42310	BC847BW
7363	3198 010 42310	BC847BW
7366	9322 213 19668	LM324APW
7375	3198 010 42310	BC847BW
7376	3198 010 42310	BC847BW
7391	3198 010 42320	BC857BW
7460	9340 219 30115	BC817-25W
7461	4822 130 60142	BC869
7465	3198 010 42320	BC857BW
7470	9340 219 30115	BC817-25W
7500	9322 037 99682	TNY256P
7501	9322 149 04682	TCET1102
7502	9322 192 16685	TS2431AI
7540	4822 209 17398	LD1117DT33
7601	3198 010 42310	BC847BW
7602	3198 010 42320	BC857BW
7608	5322 130 44593	BC369
7610	9322 223 21687	STW29NK50Z
7640	9965 000 04199	BSN20
7641	9340 219 30115	BC817-25W
7650	9322 130 69682	MC33368P
7654	3198 010 42320	BC857BW
7655	3198 010 42310	BC847BW
7656	3198 010 42310	BC847BW
7661	5322 209 90529	MC34063AD

Small Signal Board [B]

Various

1062	2422 549 00148	Socket 3p m
1062⚠	2422 549 00151	Socket 3p m
1101	2422 025 18749	Connector 3p m
1102	3139 147 19801	Tuner UV1318S/A IH -3
1104	2422 549 44372	SAW 38.9MHz K3953L
1106	2422 549 44369	SAW 38.9MHz K9656L
1107	2422 025 18749	Connector 3p m
1202	2422 543 01414	Xtal 24.576MHz
1801	2422 543 01133	Xtal 14.32MHz 20pF
1F00	2422 033 00515	Socket DVI-I 29p f
1F01	2422 026 05703	Socket 1P f
1G01	2422 025 18959	Socket 21P f shd
1G02	2422 025 18959	Socket 21P f shd
1J00	2422 025 10771	Connector 10p m
1J01	2422 025 10655	Connector 11p m
1J04	2422 025 10769	Connector 9p m
1J07⚠	2422 086 11081	Fuse T3A 125V
1J08⚠	2422 086 11105	Fuse F630mA 50V
1K00	2422 025 08149	Connector 6p m
1K02	2422 025 10768	Connector 3p m
1K04	2422 025 10655	Connector 11p m
1N01	2422 025 17274	Connector 10p m
1N02	2422 025 18779	Connector 4P m
1N05	2722 171 08825	Xtal 14.31818Mhz 15pF
1P01	2422 549 45325	Bead 67Ω at 100MHz
1P02	2422 549 45325	Bead 67Ω at 100MHz
1P03	2422 549 45325	Bead 67Ω at 100MHz
1P04	2422 549 45325	Bead 67Ω at 100MHz
1P05	2422 549 45325	Bead 67Ω at 100MHz
1P07	2422 025 18427	Connector 31p f
8321	3104 311 08731	Cable POSI/100/POSI

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2101	4822 124 12095	100µF 20% 16V
2102	5322 126 11583	10nF 10% 50V 0603
2103	5322 126 11583	10nF 10% 50V 0603
2104	4822 122 33761	22pF 5% 50V

2105	4822 122 33761	22pF 5% 50V
2106	5322 126 11583	10nF 10% 50V 0603
2107	3198 024 44730	47nF 50V 0603
2109	5322 124 41945	22µF 20% 35V
2113	4822 124 12095	100µF 20% 16V
2203	4822 124 23002	10µF 16V
2206	2020 552 00035	2.2µF 6.3V 10% 0603
2207	2020 552 96718	220nF 10% 6.3V 0402
2208	4822 124 12084	1µF 20% 50V
2209	4822 124 23002	10µF 16V
2210	2020 552 96718	220nF 10% 6.3V 0402
2211	2020 552 96628	10nF 10% 16V 0402
2214	2020 552 96618	1nF 10% 50V 0402
2216	2020 552 96618	1nF 10% 50V 0402
2218	3198 035 71040	100nF 10% 16V 0402
2221	4822 124 12095	100µF 20% 16V
2223	2238 869 15101	100pF 5% 50V 0402
2225	2020 552 96618	1nF 10% 50V 0402
2226	3198 035 03320	3.3nF 5% 50V 0402
2227	2020 552 96618	1nF 10% 50V 0402
2228	3198 035 71040	100nF 10% 16V 0402
2230	3198 035 71040	100nF 10% 16V 0402
2231	2020 552 96718	220nF 10% 6.3V 0402
2232	3198 035 71040	100nF 10% 16V 0402
2233	4822 124 23002	10µF 16V
2234	2020 552 96718	220nF 10% 6.3V 0402
2235	2020 552 96718	220nF 10% 6.3V 0402
2236	4822 126 14076	220nF +80/-20% 25V
2237	2020 552 96718	220nF 10% 6.3V 0402
2238	2020 552 96718	220nF 10% 6.3V 0402
2239	3198 035 71040	100nF 10% 16V 0402
2240	2020 552 96718	220nF 10% 6.3V 0402
2241	2020 552 96718	220nF 10% 6.3V 0402
2242	3198 035 71040	100nF 10% 16V 0402
2243	4822 124 23002	10µF 16V
2244	3198 035 71040	100nF 10% 16V 0402
2245	3198 035 71040	100nF 10% 16V 0402
2246	3198 035 71040	100nF 10% 16V 0402
2250	2020 552 96618	1nF 10% 50V 0402
2251	2020 552 96656	10µF 20% 25V 1210
2252	3198 035 71040	100nF 10% 16V 0402
2253	3198 035 71040	100nF 10% 16V 0402
2254	3198 035 71040	100nF 10% 16V 0402
2255	3198 035 71040	100nF 10% 16V 0402
2256	4822 124 23002	10µF 16V
2257	3198 035 71040	100nF 10% 16V 0402
2258	2020 552 96637	10µF 10% 6.3V 0805
2259	3198 035 71040	100nF 10% 16V 0402
2260	2020 552 96637	10µF 10% 6.3V 0805
2262	4822 124 12082	10µF 20% 50V
2263	3198 035 26820	6.8nF 10% 16V 0402
2264	3198 017 44740	470nF 10V 0603
2265	3198 017 41050	1µF 10V 0603
2266	3198 035 71040	100nF 10% 16V 0402
2267	2020 552 96718	220nF 10% 6.3V 0402
2269	2020 012 00003	470µF 16V 20% SMD
2270	3198 035 71040	100nF 10% 16V 0402
2271	4822 124 12095	100µF 20% 16V
2272	3198 035 71040	100nF 10% 16V 0402
2273	2020 552 96718	220nF 10% 6.3V 0402
2274	3198 017 31540	150nF 10V 0603
2277	3198 035 71040	100nF 10% 16V 0402
2280	2020 552 00027	4.7µF 2% 6.3V 0603
2281	2020 552 00027	4.7µF 2% 6.3V 0603
2285⚠	3198 035 71040	100nF 10% 16V 0402
2286	3198 035 71040	100nF 10% 16V 0402
2289⚠	4822 051 30151	150Ω 5% 0.062W
2290⚠	2222 240 59872	4.7µF 5% 10V 0805
2291⚠	3198 035 71040	100nF 10% 16V 0402
2449	3198 035 71040	100nF 10% 16V 0402
2501	3198 035 71040	100nF 10% 16V 0402
2502	3198 035 71040	100nF 10% 16V 0402
2503	3198 035 71040	100nF 10% 16V 0402
2504	3198 035 71040	100nF 10% 16V 0402
2505	3198 035 71040	100nF 10% 16V 0402
2506	3198 035 03310	330pF 5% 50V 0402
2507	3198 035 04710	470pF 50V 0402
2508	2238 869 15829	82pF 5% 50V 0402
2509	2238 869 15829	82pF 5% 50V 0402
2603	2020 552 96834	1µF 20% 6.3V 0402
2604	3198 035 04710	470pF 50V 0402
2605	2020 552 96834	1µF 20% 6.3V 0402
2608	2020 552 96834	1µF 20% 6.3V 0402
2609	3198 035 04710	470pF 50V 0402
2610	2020 552 96834	1µF 20% 6.3V 0402
2611	4822 124 12095	100µF 20% 16V
2612	3198 017 41050	1µF 10V 0603
2614	3198 035 71040	100nF 10% 16V 0402
2615	2020 012 00003	470µF 16V 20% SMD
2618	2020 012 00003	470µF 16V 20% SMD
2704	4822 124 23002	10µF 16V
2706	4822 124 23002	10µF 16V
2709	4822 124 80151	47µF 16V
2710	2020 552 96656	10µF 20% 25V 1210
2711	2020 552 96656	10µF 20% 25V 1210
2713	2020 012 00028	470µF 20% 16V
2714	3198 035 02210	220pF 5% 50V 0402
2715	2020 552 96455	22nF 10% 16V 0402
2716	2020 012 00028	470µF 20% 16V
2730	2020 552 96656	10µF 20% 25V 1210
2731	2020 012 00003	470µF 16V 20% SMD
2733	3198 035 02210	220pF 5% 50V 0402
2734	2238 787 16641	22nF 10% 16V 0402
2735	3198 035 04710	470pF 50V 0402
2736	2022 031 00308	22µF 20% 35V
2737	2020 012 00003	470µF 16V 20% SMD
2738	4822 124 80151	47µF 16V
2739	4822 124 80151	47µF 16V
2741	4822 126 13879	220nF +80-20% 16V
2750	2020 552 00035	2.2µF 6.3V 10% 0603
2753	2020 012 00003	470µF 16V 20% SMD
2755	3198 035 14720	4.7nF 5% 25V 0402
2756	3198 035 04710	470pF 50V 0402
2757	2020 012 00003	470µF 16V 20% SMD
2758	2020 012 00003	470µF 16V 20% SMD
2761	2020 552 96671	1µF 10% 25V
2762	4822 124 23237	22µF 6.3V
2800	2020 021 91557	100µF 20% 16V
2801	3198 035 71040	100nF 10% 16V 0402
2802	3198 035 71040	100nF 10% 16V 0402
2803	3198 035 71040	100nF 10% 16V 0402
2804	3198 035 71040	100nF 10% 16V 0402
2805	3198 035 71040	100nF 10% 16V 0402
2806	3198 035 71040	100nF 10% 16V 0402
2807	3198 035 71040	100nF 10% 16V 0402
2808	3198 035 71040	100nF 10% 16V 0402
2809	3198 035 71040	100nF 10% 16V 0402
2810	3198 035 71040	100nF 10% 16V 0402
2811	3198 035 71040	100nF 10% 16V 0402
2812	3198 035 71040	100nF 10% 16V 0402
2813	3198 035 71040	100nF 10% 16V 0402
2814	3198 035 71040	100nF 10% 16V 0402
2815	5322 124 41945	22µF 20% 35V
2816	3198 035 71040	100nF 10% 16V 0402
2817	3198 035 71040	100nF 10% 16V 0402
2818	3198 035 71040	100nF 10% 16V 0402
2819	3198 035 71040	100nF 10% 16V 0402
2820	3198 035 71040	100nF 10% 16V 0402
2821	3198 035 71040	100nF 10% 16V 0402
2822	3198 035 71040	100nF 10% 16V 0402
2823	4822 126 14519	22pF 5% 50V 0402
2824	4822 126 14519	22pF 5% 50V 0402
2900	3198 035 71040	100nF 10% 16V 0402
2901	2020 552 96618	1nF 10% 50V 0402
2902	2020 021 00046	470µF 20% 16V
2903	3198 035 71040	100nF 10% 16V 0402
2904	4822 124 80151	47µF 16V
2905	2020 021 91557	100µF 20% 16V
2906	3198 035 71040	100nF 10% 16V 0402
2907	3198 035 71040	100nF 10% 16V 0402
2908	3198 035 71040	100nF 10% 16V 0402
2909	3198 035 71040	100nF 10% 16V 0402
2910	3198 035 71040	100nF 10% 16V 0402
2911	3198 035 71040	100nF 10% 16V 0402
2912	3198 035 71040	100nF 10% 16V 0402
2913	3198 035 71040	100nF 10% 16V 0402
2914	3198 035 71040	100nF 10% 16V 0402
2915	3198 035 71040	100nF 10% 16V 0402
2916	3198 035 71040	100nF 10% 16V 0402
2917	2020 021 91557	100µF 20% 16V
2918	3198 035 71040	100nF 10% 16V 0402
2919	3198 035 71040	100nF 10% 16V 0402
2920	3198 035 71040	100nF 10% 16V 0402
2921	3198 035 71040	100nF 10% 16V 0402
2922	3198 035 71040	100nF 10% 16V 0402
2923	3198 035 71040	100nF 10% 16V 0402
2924	3198 035 71040	100nF 10% 16V 0402
2925	3198 035 71040	100nF 10% 16V 0402
2926	3198 035 71040	100nF 10% 16V 0402
2927	3198 035 71040	100nF 10% 16V 0402
2928	3198 035 71040	100nF 10% 16V 0402
2929	3198 035 71040	100nF 10% 16V 0402
2930	3198 035 71040	100nF 10% 16V 0402
2931	3198 035 71040	100nF 10% 16V 0402
2932	3198 035 71040	100nF 10% 16V 0402
2933	3198 035 71040	100nF 10% 16V 0402
2934	4822 124 80151	47µF 16V
2935	3198 035 71040	100nF 10% 16V 0402
2936	3198 035 71040	100nF 10% 16V 0402
2937	3198 035 71040	100nF 10% 16V 0402
2938	3198 035 71040	100nF 10% 16V 0402
2939	3198 035 71040	100nF 10% 16V 0402
2940	4822 124 80151	47µF 16V
2941	3198 035 71040	100nF 10% 16V 0402
2942	3198 035 71040	100nF 10% 16V 0402
2945	5322 124 41945	22µF 20% 35V
2946	3198 035 71040	100nF 10% 16V 0402
2947	3198 035 71040	100nF 10% 16V 0402
2948	3198 035 71040	100nF 10% 16V 0402
2949	3198 035 71040	100nF 10% 16V 0402
2950	5322 124 41945	22µF 20% 35V
2951	3198 035 71040	100nF 10% 16V 0402
2952	3198 035 71040	100nF 10% 16V 0402
2953	3198 035 71040	100nF 10% 16V 0402
2954	3198 035 71040	100nF 10% 16V 0402
2955	5322 124 41945	22µF 20% 35V
2956	3198 035 71040	100nF 10% 16V 0402
2957	3198 035 71040	100nF 10% 16V 0402
2958	3198 035 71040	100nF 10% 16V 0402
2959	3198 035 71040	100nF 10% 16V 0402
2A00	2238 586 59812	100nF 20% 50V 0603
2A01	2238 869 15101	100pF 5% 50V 0402
2A02	2238 869 15101	100pF 5% 50V 0402
2A12	2020 552 96628	10nF 10% 16V 0402
2A13	3198 035 71040	100nF 10% 16V 0402
2B01	4822 124 80151	47µF 16V
2B02	4822 124 11131	47µF 6.3V
2B03	3198 035 71040	100nF 10% 16V 0402
2B04	3198 035 71040	100nF 10% 16V 0402
2B05	3198 035 71040	100nF 10% 16V 0402
2B06	3198 035 71040	100nF 10% 16V 0402
2B07	3198 035 71040	100nF 10% 16V 0402
2B08	3198 035 71040	100nF 10% 16V 0402
2B09	3198 035 71040	100nF 10% 16V 0402
2B10	3198 035 71040	100nF 10% 16V 0402
2B11	3198 035 71040	100nF 10% 16V 0402
2B12	3198 035 71040	100nF 10% 16V 0402
2B13	3198 035 71040	100nF 10% 16V 0402
2B14	3198 035 71040	100nF 10% 16V 0402
2B15	3198 035 71040	100nF 10% 16V 0402
2B16	3198 035 71040	100nF 10% 16V 0402
2B17	3198 035 71040	100nF 10% 16V 0402
2B18	5322 124 41945	22µF 20% 35V
2C00	3198 035 71040	100nF 10% 16V 0402
2C01	4822 124 23002	10µF 16V
2C02	3198 035 71040	100nF 10% 16V 0402
2C03	3198 035 71040	100nF 10% 16V 0402
2E00	2020 552 00005	4.7µF 10% 6.3V 0603
2E01	2020 552 00005	4.7µF 10% 6.3V 0603
2E02	2020 552 00005	4.7µF 10% 6.3V 0603
2E03	3198 035 71040	100nF 10% 16V 0402
2E04	2020 552 96834	1µF 20% 6.3V 0402
2E05	2020 552 96834	1µF 20% 6.3V 0402
2E06	2020 552 96834	1µF 20% 6.3V 0402
2E07	4822 126 14324	33pF 5% 50V 0402
2E08	2020 552 00005	4.7µF 10% 6.3V 0603
2E09	4822 126 14324	33pF 5% 50V 0402
2E10	2020 552 00005	4.7µF 10% 6.3V 0603
2E11	4822 126 14324	33pF 5% 50V 0402
2E12	2020 552 00005	4.7µF 10% 6.3V 0603
2E13	3198 017 41050	1µF 10V 0603
2E14	4822 126 14324	33pF 5% 50V 0402
2E15	3198 035 71040	100nF 10% 16V 0402
2E16	3198 035 71040	100nF 10% 16V 0402
2E17	3198 035 71040	100nF 10% 16V 0402
2E18	3198 035 71040	100nF 10% 16V 0402
2E19	3198 035 71040	100nF 10% 16V 0402
2E20	4822 124 11131	47µF 6.3V
2E21	2020 552 00005	4.7µF 10% 6.3V 0603
2E22	2020 552 00005	4.7µF 10% 6.3V 0603
2E23	2020 552 00005	4.7µF 10% 6.3V 0603
2E24	3198 035 71040	100nF 10% 16V 0402
2E25	3198 035 71040	100nF 10% 16V 0402
2E26	3198 035 71040	100nF 10% 16V 0402
2E27	3198 035 71040	100nF 10% 16V 0402
2E28	3198 035 71040	100nF 10% 16V 0402
2E29	3198 035 71040	100nF 10% 16V 0402
2E30	3198 035 71040	100nF 10% 16V 0402
2E31	3198 035 71040	100nF 10% 16V 0402
2E32	3198 035 71040	100nF 10% 16V 0402
2E33	2020 552 00005	4.7µF 10% 6.3V 0603
2E34	2020 552 00005	4.7µF 10% 6.3V 0603
2E35	2020 552 00005	4.7µF 10% 6.3V 0603
2E36	3198 035 71040	100nF 10% 16V 0402
2F04	2020 552 94427	100pF 5% 50V
2F07	2238 586 59812	100nF 20% 50V 0603
2F08	4822 126 14241	330pF 0603 50V
2F09	4822 126 14241	330pF 0603 50V
2F10	2020 552 94427	100pF 5% 50V
2F11	4822 126 14241	330pF 0603 50V
2F12	4822 126 14241	330pF 0603 50V
2F13	4822 126 14508	180pF 5% 50V 0603
2F14	4822 126 14508	180pF 5% 50V 0603
2F15	2020 552 00035	2.2µF 6.3V 10% 0603
2F16	2020 552 00035	2.2µF 6.3V 10% 0603
2G05	4822 126 14241	330pF 0603 50V
2G06	4822 126 14508	180pF 5% 50V 0603
2G07	4822 124 23002	10µF 16V
2G08	2020 552 00035	2.2µF 6.3V 10% 0603
2G09	4822 126 14241	330pF 0603 50V
2G10	4822 126 14508	180pF 5% 50V 0603
2G11	4822 124 23002	10µF 16V

2G12	2020 552 00035	2.2µF 6.3V 10% 0603
2G18	4822 126 14241	330pF 0603 50V
2G19	4822 126 14508	180pF 5% 50V 0603
2G20	4822 124 23002	10µF 16V
2G21	2020 552 00035	2.2µF 6.3V 10% 0603
2G22	4822 126 14241	330pF 0603 50V
2G23	4822 126 14508	180pF 5% 50V 0603
2G24	4822 124 23002	10µF 16V
2G25	2020 552 00035	2.2µF 6.3V 10% 0603
2G26	2020 552 00005	4.7µF 10% 6.3V 0603
2G28	2020 552 00005	4.7µF 10% 6.3V 0603
2G47	2238 586 59812	100nF 20% 50V 0603
2G55	2020 552 00005	4.7µF 10% 6.3V 0603
2G56	2020 552 00005	4.7µF 10% 6.3V 0603
2J02	2020 552 96618	1nF 10% 50V 0402
2J03	2020 552 96618	1nF 10% 50V 0402
2J17	2020 552 96618	1nF 10% 50V 0402
2J18	2238 869 15101	100pF 5% 50V 0402
2J19	2238 869 15101	100pF 5% 50V 0402
2J21	2238 869 15101	100pF 5% 50V 0402
2J22	2238 869 15101	100pF 5% 50V 0402
2J23	2238 869 15101	100pF 5% 50V 0402
2J26	2238 869 15101	100pF 5% 50V 0402
2J27	2238 869 15101	100pF 5% 50V 0402
2J28	2238 869 15101	100pF 5% 50V 0402
2J29	2238 869 15101	100pF 5% 50V 0402
2J30	2020 552 96618	1nF 10% 50V 0402
2J31	2238 869 15101	100pF 5% 50V 0402
2J35	2020 552 96618	1nF 10% 50V 0402
2K00	2020 552 96618	1nF 10% 50V 0402
2K01	2020 552 96618	1nF 10% 50V 0402
2K02	2238 869 15109	10pF 5% 50V 0402
2K03	2238 869 15109	10pF 5% 50V 0402
2K04	2238 869 15109	10pF 5% 50V 0402
2K05	2238 869 15109	10pF 5% 50V 0402
2K06	2238 869 15101	100pF 5% 50V 0402
2K07	2238 869 15101	100pF 5% 50V 0402
2K08	2020 552 00035	2.2µF 6.3V 10% 0603
2K10	2238 869 15101	100pF 5% 50V 0402
2K11	2238 869 15101	100pF 5% 50V 0402
2K12	2020 552 00035	2.2µF 6.3V 10% 0603
2K13	2238 869 15101	100pF 5% 50V 0402
2K14	2238 869 15101	100pF 5% 50V 0402
2K16	2238 869 15101	100pF 5% 50V 0402
2K17	2238 869 15101	100pF 5% 50V 0402
2K18	2238 869 15101	100pF 5% 50V 0402
2K19	2020 552 96618	1nF 10% 50V 0402
2K20	2020 552 96618	1nF 10% 50V 0402
2K21	2238 869 15101	100pF 5% 50V 0402
2K22	2238 869 15101	100pF 5% 50V 0402
2K23	2238 869 15101	100pF 5% 50V 0402
2K24	2238 869 15101	100pF 5% 50V 0402
2K25	2238 869 15101	100pF 5% 50V 0402
2K26	2238 869 15101	100pF 5% 50V 0402
2K27	2238 869 15101	100pF 5% 50V 0402
2K28	2238 869 15101	100pF 5% 50V 0402
2L02	2020 552 96637	10µF 10% 6.3V 0805
2L03	3198 035 71040	100nF 10% 16V 0402
2L04	3198 035 71040	100nF 10% 16V 0402
2L05	3198 035 71040	100nF 10% 16V 0402
2L06	3198 035 71040	100nF 10% 16V 0402
2L07	2020 552 96637	10µF 10% 6.3V 0805
2L08	3198 035 71040	100nF 10% 16V 0402
2L09	3198 035 71040	100nF 10% 16V 0402
2L10	3198 035 71040	100nF 10% 16V 0402
2L11	3198 035 71040	100nF 10% 16V 0402
2L13	3198 035 74730	47nF 5% 16V 0402
2L17	3198 035 74730	47nF 5% 16V 0402
2L20	3198 035 71040	100nF 10% 16V 0402
2L21	3198 035 71040	100nF 10% 16V 0402
2L22	2020 552 96637	10µF 10% 6.3V 0805
2L23	3198 035 71040	100nF 10% 16V 0402
2L24	3198 035 71040	100nF 10% 16V 0402
2L26	2020 552 96718	220nF 10% 6.3V 0402
2L27	4822 124 23002	10µF 16V
2L28	4822 124 23002	10µF 16V
2L29	4822 124 23002	10µF 16V
2L30	4822 124 23002	10µF 16V
2L31	4822 124 12095	100µF 20% 16V
2L32	4822 124 12095	100µF 20% 16V
2L33	3198 035 71040	100nF 10% 16V 0402
2L34	3198 035 71040	100nF 10% 16V 0402
2L37	4822 126 14524	68pF 5% 50V 0402
2L39	2238 869 15829	82pF 5% 50V 0402
2M00	3198 035 71040	100nF 10% 16V 0402
2M01	3198 035 71040	100nF 10% 16V 0402
2M02	3198 035 71040	100nF 10% 16V 0402
2M03	3198 035 71040	100nF 10% 16V 0402
2M04	3198 035 71040	100nF 10% 16V 0402
2M05	3198 035 71040	100nF 10% 16V 0402
2M06	3198 035 71040	100nF 10% 16V 0402
2M07	3198 035 71040	100nF 10% 16V 0402
2M08	3198 035 71040	100nF 10% 16V 0402
2M09	3198 035 71040	100nF 10% 16V 0402
2M10	3198 035 71040	100nF 10% 16V 0402
2M11	3198 035 71040	100nF 10% 16V 0402
2M12	3198 035 71040	100nF 10% 16V 0402
2M13	3198 035 71040	100nF 10% 16V 0402
2M14	3198 035 71040	100nF 10% 16V 0402
2M15	3198 035 71040	100nF 10% 16V 0402
2M16	3198 035 71040	100nF 10% 16V 0402
2M17	3198 035 71040	100nF 10% 16V 0402
2M18	3198 035 71040	100nF 10% 16V 0402
2M19	3198 035 71040	100nF 10% 16V 0402
2M20	3198 035 71040	100nF 10% 16V 0402
2M21	2020 552 00035	2.2µF 6.3V 10% 0603
2M22	3198 035 71040	100nF 10% 16V 0402
2M23	4822 124 12095	100µF 20% 16V
2M24	3198 035 71040	100nF 10% 16V 0402
2M25	3198 035 71040	100nF 10% 16V 0402
2M26	3198 035 71040	100nF 10% 16V 0402
2M27	3198 035 71040	100nF 10% 16V 0402
2M28	3198 035 71040	100nF 10% 16V 0402
2M29	3198 035 71040	100nF 10% 16V 0402
2M30	3198 035 71040	100nF 10% 16V 0402
2M31	4822 124 12095	100µF 20% 16V
2M32	4822 124 12095	100µF 20% 16V
2M56	4822 124 12095	100µF 20% 16V
2M65	3198 035 71040	100nF 10% 16V 0402
2M66	4822 124 12095	100µF 20% 16V
2M67	3198 035 71040	100nF 10% 16V 0402
2M68	4822 124 12095	100µF 20% 16V
2N01	3198 035 71040	100nF 10% 16V 0402
2N02	3198 035 71040	100nF 10% 16V 0402
2N03	2020 552 96834	1µF 20% 6.3V 0402
2N04	2020 552 96618	1nF 10% 50V 0402
2N05	3198 035 71040	100nF 10% 16V 0402
2N06	3198 035 71040	100nF 10% 16V 0402
2N07	3198 035 71040	100nF 10% 16V 0402
2N08	3198 035 71040	100nF 10% 16V 0402
2N09	3198 035 71040	100nF 10% 16V 0402
2N10	3198 035 71040	100nF 10% 16V 0402
2N11	2238 869 15101	100pF 5% 50V 0402
2N12	2238 869 15101	100pF 5% 50V 0402
2N13	2238 869 15101	100pF 5% 50V 0402
2N14	2238 869 15101	100pF 5% 50V 0402
2N15	2238 869 15101	100pF 5% 50V 0402
2N16	2238 869 15101	100pF 5% 50V 0402
2P01	2020 552 00035	2.2µF 6.3V 10% 0603
2P02	3198 035 71040	100nF 10% 16V 0402
2P03	3198 035 71040	100nF 10% 16V 0402
2P04	3198 035 71040	100nF 10% 16V 0402
2P05	3198 035 71040	100nF 10% 16V 0402
2P06	3198 035 71040	100nF 10% 16V 0402
2P07	3198 035 71040	100nF 10% 16V 0402
2P08	3198 035 71040	100nF 10% 16V 0402
2P09	3198 035 71040	100nF 10% 16V 0402
2P10	3198 035 71040	100nF 10% 16V 0402
2P11	3198 035 71040	100nF 10% 16V 0402
2P12	3198 035 71040	100nF 10% 16V 0402
2P13	3198 035 71040	100nF 10% 16V 0402
2P14	3198 035 71040	100nF 10% 16V 0402
2P15	4822 124 12095	100µF 20% 16V
2P16	3198 035 71040	100nF 10% 16V 0402
2P17	2020 552 00035	2.2µF 6.3V 10% 0603
2P18	2020 552 00035	2.2µF 6.3V 10% 0603
2P19	3198 035 71040	100nF 10% 16V 0402
2P20	3198 035 71040	100nF 10% 16V 0402
2P21	3198 035 71040	100nF 10% 16V 0402
2P22	2020 552 00035	2.2µF 6.3V 10% 0603
2P23	3198 035 71040	100nF 10% 16V 0402
2P24	3198 035 71040	100nF 10% 16V 0402
2P25	3198 035 71040	100nF 10% 16V 0402
2P26	3198 035 71040	100nF 10% 16V 0402
2P27	3198 035 71040	100nF 10% 16V 0402
2P28	3198 035 71040	100nF 10% 16V 0402
2P29	3198 035 71040	100nF 10% 16V 0402
2P30	3198 035 71040	100nF 10% 16V 0402
2P31	3198 035 71040	100nF 10% 16V 0402
2P32	3198 035 71040	100nF 10% 16V 0402
2P33	3198 035 71040	100nF 10% 16V 0402
2P34	3198 035 71040	100nF 10% 16V 0402
2P35	3198 035 71040	100nF 10% 16V 0402
2P36	2238 869 15109	10pF 5% 50V 0402
2P37	2238 869 15109	10pF 5% 50V 0402
2P38	2238 869 15109	10pF 5% 50V 0402
2P39	2238 869 15109	10pF 5% 50V 0402
2P40	2238 869 15109	10pF 5% 50V 0402
2P41	2238 869 15109	10pF 5% 50V 0402
2P42	2238 869 15109	10pF 5% 50V 0402
2P43	2238 869 15109	10pF 5% 50V 0402
2P44	2238 869 15109	10pF 5% 50V 0402
2P45	2238 869 15109	10pF 5% 50V 0402

–WW–

3103	4822 117 13606	10kΩ 5% 0.01W 0402
3104	4822 051 30103	10kΩ 5% 0.062W
3105	4822 117 13548	1kΩ 5% 0402
3107	4822 051 30682	6.8Ω 5% 0.062W
3108	4822 051 30222	2.2kΩ 5% 0.062W
3109	4822 051 30222	2.2kΩ 5% 0.062W
3111	4822 051 30223	22kΩ 5% 0.062W
3112	4822 051 30183	18kΩ 5% 0.062W
3120	4822 117 13606	10kΩ 5% 0.01W 0402
3121	4822 117 13606	10kΩ 5% 0.01W 0402
3122	4822 117 13545	100Ω 1% 0402
3123	4822 117 13545	100Ω 1% 0402
3124	4822 117 13545	100Ω 1% 0402
3125	4822 117 13545	100Ω 1% 0402
3207	3198 031 06810	680Ω 5% 0.01W 0402
3208	4822 117 13545	100Ω 1% 0402
3209	4822 117 13545	100Ω 1% 0402
3210	4822 117 13545	100Ω 1% 0402
3211	4822 117 13545	100Ω 1% 0402
3212	4822 117 13545	100Ω 1% 0402
3213	4822 117 13545	100Ω 1% 0402
3214	3198 031 06810	680Ω 5% 0.01W 0402
3215	3198 031 02710	270Ω 5% 0.1W 0402
3216	4822 117 13597	330Ω 5% 0402 0.01W
3217	4822 117 13548	1kΩ 5% 0402
3218	4822 117 11297	100kΩ 5% 0.1W
3219	4822 117 13545	100Ω 1% 0402
3220	3198 031 04730	47Ω 5% 0402
3222	4822 117 13545	100Ω 1% 0402
3223	3198 031 01090	10Ω 5% 0.01W 0402
3224	3198 031 04720	4.7kΩ 5% 0402
3225	3198 031 04720	4.7kΩ 5% 0402
3226	4822 117 13545	100Ω 1% 0402
3227	4822 117 13545	100Ω 1% 0402
3229	3198 031 04720	4.7kΩ 5% 0402
3230	4822 117 13606	10kΩ 5% 0.01W 0402
3231	4822 117 13602	2.2kΩ 5% 0.01W 0402
3232	3198 031 03320	3.3kΩ 5% 0402
3233	3198 031 03320	3.3kΩ 5% 0402
3234	3198 031 04720	4.7kΩ 5% 0402
3235	3198 031 04720	4.7kΩ 5% 0402
3236	3198 031 04720	4.7kΩ 5% 0402
3238	4822 117 13545	100Ω 1% 0402
3239	4822 117 13545	100Ω 1% 0402
3240	2322 704 61002	1kΩ 1%
3241	4822 117 13545	100Ω 1% 0402
3242	4822 117 13606	10kΩ 5% 0.01W 0402
3243	3198 031 04720	4.7kΩ 5% 0402
3245	3198 031 02240	220kΩ 5% 0.1W 0402
3246	3198 031 04720	4.7kΩ 5% 0402
3247	4822 117 13545	100Ω 1% 0402
3248	4822 117 13545	100Ω 1% 0402
3249	3198 031 04720	4.7kΩ 5% 0402
3250	4822 117 13545	100Ω 1% 0402
3251	4822 117 13545	100Ω 1% 0402
3252	4822 117 13545	100Ω 1% 0402
3253	4822 117 13545	100Ω 1% 0402
3255	4822 117 13605	Jumper 0402
3256	4822 117 13605	Jumper 0402
3257	4822 117 13605	Jumper 0402
3258	4822 117 13548	1kΩ 5% 0402
3259	4822 117 13548	1kΩ 5% 0402
3260	4822 117 13548	1kΩ 5% 0402
3262	4822 117 13601	22kΩ 5% 0402
3263	2322 702 70398	3.9Ω 5% 0603
3264	4822 117 13601	22kΩ 5% 0402
3265	2322 702 70398	3.9Ω 5% 0603
3266	3198 031 05620	5.6kΩ 5% 0.01W 0402
3267	3198 031 05620	5.6kΩ 5% 0.01W 0402
3268	4822 117 13545	100Ω 1% 0402
3272	3198 031 04720	4.7kΩ 5% 0402
3273	4822 117 13548	1kΩ 5% 0402
3274	3198 031 03910	390Ω 1% 0402
3275	4822 117 13545	100Ω 1% 0402
3276	3198 031 07590	75Ω 5% 0402
3277	3198 031 01520	1.2kΩ 5% 0.01W 0402
3280▲	4822 117 11151	1Ω 5%
3281	3198 031 03930	39kΩ 5% 0402
3285	4822 117 13605	Jumper 0402
3286	4822 117 13545	100Ω 1% 0402
3292▲	3198 031 01230	12kΩ 5% 0402
3294▲	3198 031 04730	47Ω 5% 0402
3295▲	4822 117 11297	100kΩ 5% 0.1W
3431	4822 117 13548	1kΩ 5% 0402
3451	3198 031 04720	4.7kΩ 5% 0402
3453	4822 117 13545	100Ω 1% 0402
3454	4822 117 13545	100Ω 1% 0402
3455	4822 117 13545	100Ω 1% 0402
3456	4822 117 13545	100Ω 1% 0402
3458	4822 117 13545	100Ω 1% 0402
3459	4822 117 13545	100Ω 1% 0402
3461	4822 117 13545	100Ω 1% 0402
3462	4822 117 13545	100Ω 1% 0402
3501	4822 117 13543	470Ω 5% 0402
3502	3198 031 04730	47Ω 5% 0402

3604	4822 117 13601	22kΩ 5% 0402
3605	4822 117 13601	22kΩ 5% 0402
3609	4822 117 13601	22kΩ 5% 0402
3610	4822 117 11297	100kΩ 5% 0.1W
3611	4822 117 11297	100kΩ 5% 0.1W
3612	4822 117 13601	22kΩ 5% 0402
3616	4822 117 13548	1kΩ 5% 0402
3617	4822 117 13548	1kΩ 5% 0402
3619	4822 117 13606	10kΩ 5% 0.01W 0402
3620	4822 117 13606	10kΩ 5% 0.01W 0402
3628	4822 117 13606	10kΩ 5% 0.01W 0402
3629	4822 117 13601	22kΩ 5% 0402
3630	4822 117 13602	2.2kΩ 5% 0.01W 0402
3631	4822 117 13602	2.2kΩ 5% 0.01W 0402
3632	2322 705 70569	56Ω 5% 0402
3633	2322 705 70569	56Ω 5% 0402
3708	4822 117 13606	10kΩ 5% 0.01W 0402
3709	3198 031 06820	6.8kΩ 5% 0.01W 0402
3712	5322 117 13031	5.6kΩ 1% 0.063W 0603
3713	2322 704 63302	3.3kΩ 1% 0603
3716	3198 031 04720	4.7kΩ 5% 0402
3732	2322 704 61002	1kΩ 1%
3733	2322 704 63302	3.3kΩ 1% 0603
3734	4822 117 13602	2.2kΩ 5% 0.01W 0402
3735	4822 117 13548	1kΩ 5% 0402
3736	3198 031 04720	4.7kΩ 5% 0402
3740	3198 031 01520	1.2kΩ 5% 0.01W 0402
3741	3198 031 01520	1.2kΩ 5% 0.01W 0402
3742	3198 031 01530	15kΩ 5% 0.01W 0402
3743	4822 117 13601	22kΩ 5% 0402
3750	4822 117 13601	22kΩ 5% 0402
3751	3198 021 31080	1Ω 5% 0603
3752	3198 021 31080	1Ω 5% 0603
3753	2322 704 61002	1kΩ 1%
3754	2322 704 63302	3.3kΩ 1% 0603
3759	3198 031 01230	12kΩ 5% 0402
3761	4822 117 13545	100Ω 1% 0402
3800	4822 117 13606	10kΩ 5% 0.01W 0402
3801	2350 035 10229	4 x 22Ω 5% 1206
3802	2350 035 10229	4 x 22Ω 5% 1206
3803	2350 035 10229	4 x 22Ω 5% 1206
3804	2350 035 10229	4 x 22Ω 5% 1206
3805	2350 035 10229	4 x 22Ω 5% 1206
3806	2350 035 10229	4 x 22Ω 5% 1206
3807	2350 035 10229	4 x 22Ω 5% 1206
3808	2350 035 10229	4 x 22Ω 5% 1206
3809	2350 035 10229	4 x 22Ω 5% 1206
3810	2350 035 10229	4 x 22Ω 5% 1206
3811	2350 035 10229	4 x 22Ω 5% 1206
3812	2350 035 10229	4 x 22Ω 5% 1206
3813	2350 035 10229	4 x 22Ω 5% 1206
3814	3198 031 02290	22Ω 5% 0.1W 0402
3815	3198 031 02290	22Ω 5% 0.1W 0402
3816	3198 031 02290	22Ω 5% 0.1W 0402
3817	4822 117 13606	10kΩ 5% 0.01W 0402
3818	4822 117 13606	10kΩ 5% 0.01W 0402
3820	4822 117 13606	10kΩ 5% 0.01W 0402
3822	4822 117 13545	100Ω 1% 0402
3824	3198 031 03320	3.3kΩ 5% 0402
3825	3198 031 11030	4 x 10kΩ 5% 1206
3826	3198 031 11030	4 x 10kΩ 5% 1206
3827	4822 117 13606	10kΩ 5% 0.01W 0402
3828	4822 117 13606	10kΩ 5% 0.01W 0402
3829	4822 117 13606	10kΩ 5% 0.01W 0402
3831	4822 117 13545	100Ω 1% 0402
3832	4822 117 13545	100Ω 1% 0402
3833	3198 031 01090	10Ω 5% 0.01W 0402
3834	4822 117 13606	10kΩ 5% 0.01W 0402
3835	4822 117 13606	10kΩ 5% 0.01W 0402
3836	4822 117 13606	10kΩ 5% 0.01W 0402
3837	4822 117 13606	10kΩ 5% 0.01W 0402
3838	4822 117 13606	10kΩ 5% 0.01W 0402
3839	4822 117 13545	100Ω 1% 0402
3840	3198 031 02290	22Ω 5% 0.1W 0402
3841	4822 117 13606	10kΩ 5% 0.01W 0402
3900	3198 031 03320	3.3kΩ 5% 0402
3901	4822 117 13606	10kΩ 5% 0.01W 0402
3902	4822 117 13606	10kΩ 5% 0.01W 0402
3903	4822 117 13545	100Ω 1% 0402
3904	4822 117 13545	100Ω 1% 0402
3A00	3198 031 06890	68Ω 5% 0402
3A01	3198 031 06890	68Ω 5% 0402
3A07	4822 117 13606	10kΩ 5% 0.01W 0402
3A08	4822 117 13606	10kΩ 5% 0.01W 0402
3A10	4822 117 13606	10kΩ 5% 0.01W 0402
3A11	4822 117 13606	10kΩ 5% 0.01W 0402
3A13	4822 117 13606	10kΩ 5% 0.01W 0402
3A14	3198 031 04720	4.7kΩ 5% 0402
3B01	4822 117 12706	10kΩ 1% 0.063W 0603
3B02	4822 117 12706	10kΩ 1% 0.063W 0603
3B03	2322 704 61501	150Ω 1% 0603
3C00	4822 117 13606	10kΩ 5% 0.01W 0402
3C01	4822 117 13606	10kΩ 5% 0.01W 0402
3C02	4822 117 13548	1kΩ 5% 0402
3C04	3198 031 11030	4 x 10kΩ 5% 1206
3C05	4822 117 13606	10kΩ 5% 0.01W 0402
3C06	3198 031 11030	4 x 10kΩ 5% 1206
3C07	3198 031 11030	4 x 10kΩ 5% 1206
3C08	3198 031 11030	4 x 10kΩ 5% 1206
3C09	3198 031 11030	4 x 10kΩ 5% 1206
3C10	3198 031 11030	4 x 10kΩ 5% 1206
3C16	3198 031 11030	4 x 10kΩ 5% 1206
3C17	4822 117 13606	10kΩ 5% 0.01W 0402
3C18	4822 117 13606	10kΩ 5% 0.01W 0402
3E00	2322 705 70569	56Ω 5% 0402
3E01	2322 705 70569	56Ω 5% 0402
3E02	2322 705 70569	56Ω 5% 0402
3E06	3198 031 04730	47Ω 5% 0402
3E07	3198 031 04730	47Ω 5% 0402
3E08	3198 031 04730	47Ω 5% 0402
3E09	3198 031 04730	47Ω 5% 0402
3E10	3198 031 04730	47Ω 5% 0402
3E11	3198 031 04730	47Ω 5% 0402
3E12	4822 117 13606	10kΩ 5% 0.01W 0402
3E13	4822 117 13597	330Ω 5% 0402 0.01W
3E14	4822 117 13597	330Ω 5% 0402 0.01W
3E15	4822 117 13597	330Ω 5% 0402 0.01W
3E16	4822 117 13597	330Ω 5% 0402 0.01W
3E17	4822 117 13597	330Ω 5% 0402 0.01W
3E18	4822 117 13597	330Ω 5% 0402 0.01W
3E19	2322 705 70569	56Ω 5% 0402
3E20	2322 705 70569	56Ω 5% 0402
3E21	2322 705 70569	56Ω 5% 0402
3E22	4822 117 13632	100kΩ 1% 0603 0.62W
3E23	3198 031 08210	820Ω 5% 0.5W
3E24	4822 117 13543	470Ω 5% 0402
3E25	2322 705 70399	39Ω 5% 0402
3E26	3198 031 02290	22Ω 5% 0.1W 0402
3E27	2322 705 70399	39Ω 5% 0402
3E28	3198 031 02290	22Ω 5% 0.1W 0402
3E29	2322 705 70399	39Ω 5% 0402
3E30	3198 031 02290	22Ω 5% 0.1W 0402
3E31	4822 117 13545	100Ω 1% 0402
3E32	4822 117 13545	100Ω 1% 0402
3E33	4822 117 13545	100Ω 1% 0402
3E34	4822 117 13545	100Ω 1% 0402
3E35	4822 117 13545	100Ω 1% 0402
3E36	4822 117 13545	100Ω 1% 0402
3E37	3198 031 02290	22Ω 5% 0.1W 0402
3E38	4822 117 13545	100Ω 1% 0402
3E39	4822 117 13545	100Ω 1% 0402
3E41	4822 117 13545	100Ω 1% 0402
3E42	4822 117 13545	100Ω 1% 0402
3E43	4822 117 13545	100Ω 1% 0402
3E44	4822 117 13545	100Ω 1% 0402
3E45	4822 117 13545	100Ω 1% 0402
3E49	3198 031 02290	22Ω 5% 0.1W 0402
3E50	3198 031 04730	47Ω 5% 0402
3E51	3198 031 04730	47Ω 5% 0402
3E52	3198 031 04730	47Ω 5% 0402
3E53	3198 031 04730	47Ω 5% 0402
3E54	3198 031 04730	47Ω 5% 0402
3E55	3198 031 04730	47Ω 5% 0402
3F00	4822 051 30759	75Ω 5% 0.062W
3F09	4822 051 30759	75Ω 5% 0.062W
3F10	3198 021 31080	1Ω 5% 0603
3F11	4822 051 30759	75Ω 5% 0.062W
3F16	4822 051 30103	10kΩ 5% 0.062W
3F17	4822 051 30103	10kΩ 5% 0.062W
3F18	4822 051 30103	10kΩ 5% 0.062W
3F19	3198 021 31080	1Ω 5% 0603
3F20	4822 051 30101	100Ω 5% 0.062W
3F21	4822 051 30102	1kΩ 5% 0.062W
3F22	4822 051 30103	10kΩ 5% 0.062W
3F23	4822 051 30102	1kΩ 5% 0.062W
3F24	4822 051 30103	10kΩ 5% 0.062W
3F25	4822 051 30103	10kΩ 5% 0.062W
3F26	4822 051 30153	15kΩ 5% 0.062W
3F27	4822 051 30153	15kΩ 5% 0.062W
3F28	4822 051 30101	100Ω 5% 0.062W
3F29	4822 051 30101	100Ω 5% 0.062W
3G00	4822 051 30151	150Ω 5% 0.062W
3G01	4822 051 30103	10kΩ 5% 0.062W
3G02	4822 117 12891	220kΩ 1%
3G03	4822 051 30153	15kΩ 5% 0.062W
3G04	4822 051 30151	150Ω 5% 0.062W
3G05	4822 051 30103	10kΩ 5% 0.062W
3G06	4822 117 12891	220kΩ 1%
3G07	4822 051 30153	15kΩ 5% 0.062W
3G08	4822 051 30151	150Ω 5% 0.062W
3G12	2122 118 06408	91Ω 5% 0603
3G13	2122 118 06408	91Ω 5% 0603
3G14	2122 118 06408	91Ω 5% 0603
3G15	4822 051 30101	100Ω 5% 0.062W
3G16	4822 051 30101	100Ω 5% 0.062W
3G17	4822 051 30101	100Ω 5% 0.062W
3G26	4822 051 30273	27kΩ 5% 0.062W
3G27	4822 051 30682	6.8Ω 5% 0.062W
3G28	4822 051 30759	75Ω 5% 0.062W
3G29	4822 051 30331	330Ω 5% 0.062W
3G30	4822 051 30689	68Ω 5% 0.063W 0603
3G31	4822 051 30759	75Ω 5% 0.062W
3G32	4822 051 30102	1kΩ 5% 0.062W
3G33	4822 051 30101	100Ω 5% 0.062W
3G34	4822 051 30102	1kΩ 5% 0.062W
3G37	4822 051 30151	150Ω 5% 0.062W
3G38	4822 051 30103	10kΩ 5% 0.062W
3G39	4822 117 12891	220kΩ 1%
3G40	4822 051 30153	15kΩ 5% 0.062W
3G41	4822 051 30151	150Ω 5% 0.062W
3G42	4822 051 30103	10kΩ 5% 0.062W
3G43	4822 117 12891	220kΩ 1%
3G44	4822 051 30153	15kΩ 5% 0.062W
3G45	4822 051 30759	75Ω 5% 0.062W
3G46	4822 051 30101	100Ω 5% 0.062W
3G47	4822 117 12925	47kΩ 1% 0.063W 0603
3G48	4822 117 12925	47kΩ 1% 0.063W 0603
3G51	4822 051 30273	27kΩ 5% 0.062W
3G52	4822 051 30682	6.8Ω 5% 0.062W
3G53	4822 051 30689	68Ω 5% 0.063W 0603
3G54	4822 051 30102	1kΩ 5% 0.062W
3G57	4822 051 30759	75Ω 5% 0.062W
3G58	4822 051 30101	100Ω 5% 0.062W
3G59	4822 117 12925	47kΩ 1% 0.063W 0603
3G60	4822 117 12925	47kΩ 1% 0.063W 0603
3G96	4822 117 12925	47kΩ 1% 0.063W 0603
3G99	4822 117 12925	47kΩ 1% 0.063W 0603
3J05	3198 031 06890	68Ω 5% 0402
3K00	4822 117 13545	100Ω 1% 0402
3K01	4822 117 13545	100Ω 1% 0402
3K02	4822 117 13606	10kΩ 5% 0.01W 0402
3K03	3198 031 01530	15kΩ 5% 0.01W 0402
3K05	4822 117 13606	10kΩ 5% 0.01W 0402
3K06	3198 031 01530	15kΩ 5% 0.01W 0402
3K07	2322 705 70399	39Ω 5% 0402
3K09	2322 705 70399	39Ω 5% 0402
3K11	3198 031 06890	68Ω 5% 0402
3K12	3198 031 06890	68Ω 5% 0402
3K13	3198 031 06890	68Ω 5% 0402
3L00	4822 117 13548	1kΩ 5% 0402
3L04	4822 117 13605	Jumper 0402
3L05	3198 031 01510	150Ω 5% 0.01W 0402
3L06	4822 117 13605	Jumper 0402
3L10	4822 117 13597	330Ω 5% 0402 0.01W
3L11	3198 031 01510	150Ω 5% 0.01W 0402
3L12	4822 117 13548	1kΩ 5% 0402
3L16	4822 117 13605	Jumper 0402
3L17	3198 031 01510	150Ω 5% 0.01W 0402
3L19	3198 031 01510	150Ω 5% 0.01W 0402
3L20	3198 031 01510	150Ω 5% 0.01W 0402
3L21	4822 117 13602	2.2kΩ 5% 0.01W 0402
3L22	4822 117 13602	2.2kΩ 5% 0.01W 0402
3L24	4822 117 13602	2.2kΩ 5% 0.01W 0402
3L25	2350 035 10229	4 x 22Ω 5% 1206
3L26	2350 035 10229	4 x 22Ω 5% 1206
3L27	2350 035 10229	4 x 22Ω 5% 1206
3L28	2350 035 10229	4 x 22Ω 5% 1206
3L30	3198 031 02290	22Ω 5% 0.1W 0402
3L31	3198 031 02290	22Ω 5% 0.1W 0402
3L32	4822 117 13602	2.2kΩ 5% 0.01W 0402
3L33	4822 117 13596	220Ω 5% 0.01W 0402
3L34	4822 117 13605	Jumper 0402
3L35	4822 117 13596	220Ω 5% 0.01W 0402
3L36	3198 031 03320	3.3kΩ 5% 0402
3L37	3198 031 03320	3.3kΩ 5% 0402
3M01	2350 035 10689	4 x 68Ω 5%
3M02	2350 035 10689	4 x 68Ω 5%
3M03	2350 035 10689	4 x 68Ω 5%
3M04	2350 035 10689	4 x 68Ω 5%
3M06	2350 035 10229	4 x 22Ω 5% 1206
3M07	2350 035 10229	4 x 22Ω 5% 1206
3M08	2350 035 10229	4 x 22Ω 5% 1206
3M09	2350 035 10229	4 x 22Ω 5% 1206
3M11	3198 031 04720	4.7kΩ 5% 0402
3M13	3198 031 04720	4.7kΩ 5% 0402
3M14	4822 117 13545	100Ω 1% 0402
3M15	4822 117 13545	100Ω 1% 0402
3M16	3198 031 04720	4.7kΩ 5% 0402
3M26	4822 117 13605	Jumper 0402
3M27	4822 117 13605	Jumper 0402
3M50	4822 117 13606	10kΩ 5% 0.01W 0402
3M51	4822 117 13606	10kΩ 5% 0.01W 0402
3M52	4822 117 13606	10kΩ 5% 0.01W 0402
3M53	4822 117 13546	47Ω 5% 0402
3M54	4822 117 13546	47Ω 5% 0402
3M55	4822 117 13546	47Ω 5% 0402
3M56	4822 117 13606	10kΩ 5% 0.01W 0402
3M57	4822 117 13546	47Ω 5% 0402
3M58	4822 117 13606	10kΩ 5% 0.01W 0402
3M59	4822 117 13546	47Ω 5% 0402
3M78	4822 117 13548	1kΩ 5% 0402
3M79	3198 031 03320	3.3kΩ 5% 0402

3M87	4822 117 13605	Jumper 0402
3M89	3198 031 02290	22Ω 5% 0.1W 0402
3M90	3198 031 02290	22Ω 5% 0.1W 0402
3N01	4822 117 13606	10kΩ 5% 0.01W 0402
3N02	4822 117 13606	10kΩ 5% 0.01W 0402
3N03	4822 117 13606	10kΩ 5% 0.01W 0402
3N04	4822 117 13606	10kΩ 5% 0.01W 0402
3N05	4822 117 13606	10kΩ 5% 0.01W 0402
3N06	4822 117 13606	10kΩ 5% 0.01W 0402
3N07	4822 051 30333	33kΩ 5% 0.062W
3N08	4822 117 13606	10kΩ 5% 0.01W 0402
3N09	4822 117 13548	1kΩ 5% 0402
3N10	4822 117 13603	33kΩ 5% 0402
3N11	4822 117 13546	47Ω 5% 0402
3N12	4822 117 13606	10kΩ 5% 0.01W 0402
3N13	4822 117 13606	10kΩ 5% 0.01W 0402
3N14	4822 117 13606	10kΩ 5% 0.01W 0402
3N15	4822 117 13546	47Ω 5% 0402
3N16	4822 117 13546	47Ω 5% 0402
3N17	4822 117 13546	47Ω 5% 0402
3N18	4822 117 13546	47Ω 5% 0402
3N19	4822 117 13606	10kΩ 5% 0.01W 0402
3N20	4822 117 13546	47Ω 5% 0402
3N21	4822 117 13545	100Ω 1% 0402
3N22	4822 117 13545	100Ω 1% 0402
3N23	4822 117 13545	100Ω 1% 0402
3N24	4822 117 13545	100Ω 1% 0402
3N25	4822 117 13545	100Ω 1% 0402
3N26	3198 031 04720	4.7kΩ 5% 0402
3N27	4822 117 13546	47Ω 5% 0402
3N28	4822 051 30181	180Ω 5% 0.062W
3N29	4822 117 13545	100Ω 1% 0402
3N30	4822 117 13545	100Ω 1% 0402
3N31	4822 117 13545	100Ω 1% 0402
3N32	4822 117 13545	100Ω 1% 0402
3N33	4822 117 13545	100Ω 1% 0402
3N34	4822 117 13545	100Ω 1% 0402
3N35	4822 117 13545	100Ω 1% 0402
3N46	4822 117 13545	100Ω 1% 0402
3N47	4822 117 13545	100Ω 1% 0402
3P01	3198 031 04720	4.7kΩ 5% 0402
3P03	4822 117 13546	47Ω 5% 0402
3P04	4822 117 13545	100Ω 1% 0402
3P04	4822 117 13605	Jumper 0402
3P05	4822 117 13545	100Ω 1% 0402
3P05	4822 117 13605	Jumper 0402
3S00	4822 117 12925	47kΩ 1% 0.063W 0603
3S03	4822 117 12925	47kΩ 1% 0.063W 0603
4211	4822 117 13605	Jumper 0402
4212	4822 117 13605	Jumper 0402
4440	4822 117 13605	Jumper 0402
4441	4822 117 13605	Jumper 0402
4501	4822 117 13605	Jumper 0402
4502	4822 117 13605	Jumper 0402
4504	4822 117 13605	Jumper 0402
4511	4822 117 13605	Jumper 0402
4801	4822 117 13605	Jumper 0402
4A04	4822 117 13605	Jumper 0402
4J01	4822 117 13605	Jumper 0402
4K04	4822 117 13605	Jumper 0402
4K05	4822 117 13605	Jumper 0402
4L02	4822 117 13605	Jumper 0402
4M00	4822 117 13605	Jumper 0402
4M01	4822 117 13605	Jumper 0402
4M02	4822 117 13605	Jumper 0402
4M03	4822 117 13605	Jumper 0402
4M05	4822 117 13605	Jumper 0402
4M08	4822 117 13605	Jumper 0402
4M09	4822 117 13605	Jumper 0402
4M10	4822 117 13605	Jumper 0402
4M16	4822 117 13605	Jumper 0402
4M17	4822 117 13605	Jumper 0402
4N01	4822 117 13605	Jumper 0402
4N02	4822 117 13605	Jumper 0402
4N03	4822 117 13605	Jumper 0402
4N04	4822 117 13605	Jumper 0402
4N05	4822 117 13605	Jumper 0402
4N06	4822 117 13605	Jumper 0402
4N07	4822 117 13605	Jumper 0402
4N08	4822 117 13605	Jumper 0402
4N09	4822 117 13605	Jumper 0402
4N10	4822 117 13605	Jumper 0402
4N11	4822 117 13605	Jumper 0402
4N12	4822 117 13605	Jumper 0402
4N13	4822 117 13605	Jumper 0402
4N14	4822 117 13605	Jumper 0402
4N15	4822 117 13605	Jumper 0402
4N16	4822 117 13605	Jumper 0402
4N17	4822 117 13605	Jumper 0402
4N18	4822 117 13605	Jumper 0402
4N19	4822 117 13605	Jumper 0402
4N20	4822 117 13605	Jumper 0402
4N21	4822 117 13605	Jumper 0402
4N22	4822 117 13605	Jumper 0402
4P07	4822 117 13605	Jumper 0402

5101	3198 018 33970	0.39µF 10% 0805
5103	4822 157 71334	0.68µH 5% 1008
5107	4822 051 30101	100Ω 5% 0.062W
5108	4822 051 30101	100Ω 5% 0.062W
5201	4822 157 11716	Bead 30Ω at 100MHz
5202	4822 157 11716	Bead 30Ω at 100MHz
5203	4822 157 11716	Bead 30Ω at 100MHz
5204	2422 549 42896	Bead 120Ω 100MHz
5205	4822 157 11716	Bead 30Ω at 100MHz
5206	4822 157 11716	Bead 30Ω at 100MHz
5207	2422 549 42896	Bead 120Ω 100MHz
5208	4822 157 11716	Bead 30Ω at 100MHz
5209	4822 157 11716	Bead 30Ω at 100MHz
5210	4822 157 11716	Bead 30Ω at 100MHz
5211	4822 157 11716	Bead 30Ω at 100MHz
5212	4822 157 11716	Bead 30Ω at 100MHz
5213	4822 157 11716	Bead 30Ω at 100MHz
5214	2422 536 00667	1000µF 20% 7032
5216	4822 157 11716	Bead 30Ω at 100MHz
5218▲	2422 549 45333	Bead 120Ω 100MHz
5501	3198 018 31080	1µF 10% 0805
5704	4822 157 63635	10µF 20% 1206
5709	2422 535 94134	10µH 20% 0805
5712	2422 536 00339	33µ 20%
5713	2422 535 94995	10µF 20% 10145
5730	2422 535 94134	10µH 20% 0805
5733	2422 536 00689	220µF 20%
5735	2422 536 00667	1000µF 20% 7032
5737	2422 535 94134	10µH 20% 0805
5738	2422 549 45333	Bead 120Ω 100MHz
5752	2422 535 94134	10µH 20% 0805
5753	2422 536 00689	220µF 20%
5754	2422 535 94134	10µH 20% 0805
5900	2422 549 45333	Bead 120Ω 100MHz
5901	2422 549 45333	Bead 120Ω 100MHz
5902	2422 549 45333	Bead 120Ω 100MHz
5903	2422 549 45333	Bead 120Ω 100MHz
5904	2422 549 45333	Bead 120Ω 100MHz
5905	2422 549 45333	Bead 120Ω 100MHz
5906	2422 549 45333	Bead 120Ω 100MHz
5907	2422 549 45333	Bead 120Ω 100MHz
5908	2422 549 45333	Bead 120Ω 100MHz
5909	2422 549 45333	Bead 120Ω 100MHz
5910	2422 549 45333	Bead 120Ω 100MHz
5911	2422 549 45333	Bead 120Ω 100MHz
5A00	4822 157 11716	Bead 30Ω at 100MHz
5C00	2422 549 45333	Bead 120Ω 100MHz
5E00	2422 549 45333	Bead 120Ω 100MHz
5E01	2422 549 45333	Bead 120Ω 100MHz
5E02	2422 549 45333	Bead 120Ω 100MHz
5E03	2422 549 45333	Bead 120Ω 100MHz
5F00	2422 549 45333	Bead 120Ω 100MHz
5F01	2422 549 45333	Bead 120Ω 100MHz
5F02	2422 549 45333	Bead 120Ω 100MHz
5F03	2422 549 45333	Bead 120Ω 100MHz
5G02	2422 549 45333	Bead 120Ω 100MHz
5J01	2422 549 42896	Bead 120Ω 100MHz
5J02	2422 549 42896	Bead 120Ω 100MHz
5J03	2422 549 45333	Bead 120Ω 100MHz
5J04	2422 549 45333	Bead 120Ω 100MHz
5L00	2422 549 45333	Bead 120Ω 100MHz
5L01	2422 549 45333	Bead 120Ω 100MHz
5L02	2422 549 45333	Bead 120Ω 100MHz
5M00	2422 549 45333	Bead 120Ω 100MHz
5M01	2422 549 45333	Bead 120Ω 100MHz
5M02	2422 549 45333	Bead 120Ω 100MHz
5M03	2422 549 45333	Bead 120Ω 100MHz
5M04	2422 549 45333	Bead 120Ω 100MHz
5M05	2422 549 45333	Bead 120Ω 100MHz
5N01	4822 157 11716	Bead 30Ω at 100MHz
5N02	4822 157 11716	Bead 30Ω at 100MHz
5N03	4822 157 11716	Bead 30Ω at 100MHz
5N04	4822 157 11716	Bead 30Ω at 100MHz
5N05	4822 157 11716	Bead 30Ω at 100MHz
5P01	4822 157 11716	Bead 30Ω at 100MHz
5P02	4822 157 11716	Bead 30Ω at 100MHz
5P03	4822 157 11716	Bead 30Ω at 100MHz
5P04	4822 157 11716	Bead 30Ω at 100MHz
5P05	4822 157 11716	Bead 30Ω at 100MHz
5P06	4822 157 11716	Bead 30Ω at 100MHz

6101	4822 130 11416	PDZ6.8B
6102	4822 130 11416	PDZ6.8B
6103	4822 130 11397	BAS316
6104	4822 130 11525	1SS356
6204	4822 130 80622	BAT54
6205	4822 130 80622	BAT54
6430	9340 548 42115	PDZ2.4B
6431	9965 000 20150	1N4148WS SOD-323
6601	4822 130 10838	UDZ3.3B
6708	3198 010 10720	SS24
6709	9322 128 70685	SMSS14
6712	3198 010 10730	SS36
6733	9322 128 70685	SMSS14
6735	5322 130 34337	BAV99
6736	9340 548 71115	PDZ33B
6740	4822 130 10837	UDZS8.2B
6751	9322 128 70685	SMSS14
6E01	9322 102 64685	UDZ2.7B
6E03	9322 102 64685	UDZ2.7B
6F00	4822 130 11397	BAS316
6F01	4822 130 11397	BAS316
6G03	4822 130 11416	PDZ6.8B
6G04	4822 130 11416	PDZ6.8B
6G05	4822 130 11416	PDZ6.8B
6G06	4822 130 11416	PDZ6.8B
6G07	4822 130 11416	PDZ6.8B
6G08	4822 130 11416	PDZ6.8B
6G09	4822 130 11416	PDZ6.8B
6G10	4822 130 11416	PDZ6.8B
6N01	9322 085 77685	TLMG3100

Software 42PF 7320/10 (See Product Survey)

7050	3104 337 00881	
7051	3104 337 31181	
7052	3104 317 09141	
7055	3104 317 08881	

Software 42PF 5320/10 (See Product Survey)

7050	3104 337 00881	
7051	3104 337 01191	
7055	3104 317 08891	

Software 50 PF 7320/10 (See Product Survey)

7050	3104 337 00881	
7051	3104 337 01191	
7055	3104 317 08881	For SDI Sets
7055	3104 317 08891	For LG Sets

7101	3198 010 42310	BC847BW
7201	9340 550 49115	PUMH7
7202	9340 550 49115	PUMH7
7206	4822 130 60373	BC856B
7207	9322 214 45668	M24C16-WMN6P
7208	3198 010 42310	BC847BW
7209	3198 010 42310	BC847BW
7210	3198 010 42310	BC847BW
7214	9339 693 90135	BCP69-25
7215	9339 693 90135	BCP69-25
7216	9340 425 20115	BC847BS
7217		For SW see item 7050
7219▲	4822 209 60792	74HC4053D
7430	4822 130 11155	PDTC114ET
7436	9352 607 39118	74LVC14APW
7501	9322 199 16668	M74HC590T
7502	9322 201 05671	CY62256LL-70ZC
7503	9322 199 16668	M74HC590T
7504	3198 010 42310	BC847BW
7505	9351 870 00118	74HC573PW
7506	9351 870 00118	74HC573PW
7601	9322 183 05668	TS482ID
7602	9351 742 70118	74HC08PW
7603	3198 010 42310	BC847BW
7604	3198 010 42310	BC847BW
7605	9340 310 50215	PDTA143ET
7606	9340 425 20115	BC847BS
7708	9322 139 16668	LF33CPT
7710	9322 202 34668	L5973D
7730	9322 191 07668	IC SM L5970D
7735	4822 130 42804	BC817-25
7738	9322 163 24668	L78M08CDT
7741	3198 010 42310	BC847BW
7742	3198 010 42310	BC847BW
7752	5322 209 90529	MC34063AD
7756	4822 130 11155	PDTC114ET
7758	9322 212 14668	SI4423DY
7801	9322 219 57671	GM1501H-LF-BD
7900	9322 142 88668	LF25CDT
7901	9322 189 19668	LD1086D2T18

7A00	9352 759 98118	PCA9515ADP
7A02	3198 010 42310	BC847BW
7A03	3198 010 42310	BC847BW
7B01	9322 214 42671	K4D263238F-QC50
7C00		For SW see item 7051
7C01	9322 206 23668	M24C32-WMN6P
7C02	9322 215 39685	PST596JN
7E00	9322 195 23668	ADG733BRU
7E01	9322 199 80668	SM5301BS-G
7E02	9322 199 56668	ADG781BCP
7E03	4822 209 60792	74HC4053D
7E04	9352 607 39118	74LVC14APW
7E05	9352 607 39118	74LVC14APW
7F03		For SW see item 7055
7G03	3198 010 42310	BC847BW
7G05	3198 010 42310	BC847BW
7G10	4822 209 60792	74HC4053D
7L01	3198 010 42310	BC847BW
7L02	3198 010 42310	BC847BW
7L03	3198 010 42310	BC847BW
7L04	9322 212 77672	MST9883C-LF-110
7L05	4822 209 17398	LD1117DT33
7L06	9965 000 04199	BSN20
7L07	9965 000 04199	BSN20
7M00	9322 204 76671	T6TU5XBG-0001
7M01	9322 206 19672	MSM56V16160F-7T3-FG
7N01		For SW see item 7052
7N02	9322 217 35671	EP1C12F256C8N
7N03	9340 425 20115	BC847BS
7N04	9322 210 59668	THC63LVDF84B
7P01	9322 170 14668	LF15ABDT
7P02	9322 201 03668	THC63LVDM83R

PDP Audio [C]

Various

1735	4822 267 10918	Connector 3p
1736	2422 025 10768	Connector 3p m
1M02	4822 267 10618	Connector 7p
1M06	2422 025 11244	Connector 7p m
1M52	2422 025 10769	Connector 9p m

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2700	4822 126 14247	1.5nF 50V 0603
2701	4822 126 14249	560pF 10% 50V 0603
2703	2020 552 96683	220nF 10% 50V
2704	4822 124 11767	470µF 20% 25V
2705	4822 126 14249	560pF 10% 50V 0603
2706	5322 126 11579	3.3nF 10% 63V
2707	2222 580 15649	100nF 10% 50V 0805
2709	2020 552 96683	220nF 10% 50V
2710	2020 552 96683	220nF 10% 50V
2711	2022 552 05679	1µF 10% 16V 0805
2712	4822 126 14583	470nF 10% 16V 0805
2713	4822 126 13193	4.7nF 10% 63V
2715	4822 121 51252	470nF 5% 63V
2716	3198 017 31530	15nF 20% 50V 0603
2717	2022 552 05679	1µF 10% 16V 0805
2718	2222 580 15649	100nF 10% 50V 0805
2719	4822 126 14583	470nF 10% 16V 0805
2720	2020 021 91431	22µF 20% 100V
2721	2222 580 15649	100nF 10% 50V 0805
2722	4822 126 14583	470nF 10% 16V 0805
2723	2022 552 05679	1µF 10% 16V 0805
2726	4822 126 13193	4.7nF 10% 63V
2727	4822 126 14249	560pF 10% 50V 0603
2731	4822 126 14249	560pF 10% 50V 0603
2732	4822 126 14583	470nF 10% 16V 0805
2736	4822 121 51252	470nF 5% 63V
2737	3198 017 31530	15nF 20% 50V 0603
2739	2222 580 15649	100nF 10% 50V 0805
2741	4822 126 13883	220pF 5% 50V
2743	3198 016 31020	1nF 25V 0603
2744	2222 580 15649	100nF 10% 50V 0805
2745	2020 552 96683	220nF 10% 50V
2746	4822 124 11767	470µF 20% 25V
2747	2022 552 05679	1µF 10% 16V 0805
2748	4822 126 14247	1.5nF 50V 0603
2749	5322 126 11579	3.3nF 10% 63V
2751	4822 124 40433	47µF 20% 25V
2754	2020 021 91431	22µF 20% 100V
2770	3198 017 41050	1µF 10V 0603
2776	2020 021 91431	22µF 20% 100V
2780	4822 126 14583	470nF 10% 16V 0805
2789	4822 126 14583	470nF 10% 16V 0805
2791	4822 126 13879	220nF +80-20% 16V

⊣WW⊢

3700	4822 051 30561	560Ω 5% 0.062W
3701	4822 051 30479	47Ω 5% 0.062W
3702	3198 021 38220	8.2kΩ 5% 0.062W 0603
3703	3198 021 38220	8.2kΩ 5% 0.062W 0603
3704	4822 117 13632	100kΩ 1% 0603 0.62W
3705	4822 051 30222	2.2kΩ 5% 0.062W
3706	4822 051 30682	6.8Ω 5% 0.062W
3707	4822 051 30393	39kΩ 5% 0.062W
3708	4822 051 30479	47Ω 5% 0.062W
3709	4822 051 30272	2.7kΩ 5% 0.062W
3710	4822 051 30393	39kΩ 5% 0.062W
3711	2322 762 60568	5.6Ω 5% 5% 2512
3712	4822 051 30272	2.7kΩ 5% 0.062W
3713	4822 051 30332	3.3Ω 5% 0.062W
3714	4822 051 30682	6.8Ω 5% 0.062W
3715	2322 762 60568	5.6Ω 5% 5% 2512
3716	4822 117 13632	100kΩ 1% 0603 0.62W
3717	4822 051 30222	2.2kΩ 5% 0.062W
3718	4822 051 30561	560Ω 5% 0.062W
3719	4822 051 30124	120kΩ 5% 0.062W
3720	4822 051 30479	47Ω 5% 0.062W
3721	4822 051 30471	47Ω 5% 0.062W
3722	4822 051 30124	120kΩ 5% 0.062W
3723	4822 051 30471	47Ω 5% 0.062W
3724	4822 051 30102	1kΩ 5% 0.062W
3725	4822 117 12925	47kΩ 1% 0.063W 0603
3726	4822 051 30153	15kΩ 5% 0.062W
3727	4822 051 30103	10kΩ 5% 0.062W
3728	4822 051 30153	15kΩ 5% 0.062W
3729	4822 117 12925	47kΩ 1% 0.063W 0603
3730	4822 051 30223	22kΩ 5% 0.062W
3731	4822 051 30102	1kΩ 5% 0.062W
3732	4822 051 30223	22kΩ 5% 0.062W
3733	4822 051 30562	5.6kΩ 5% 0.063W 0603
3734	4822 051 30223	22kΩ 5% 0.062W
3735	4822 117 12889	270kΩ 1% 0.063W 0603
3736	4822 117 12925	47kΩ 1% 0.063W 0603
3737	4822 117 12925	47kΩ 1% 0.063W 0603
3738	4822 117 13632	100kΩ 1% 0603 0.62W
3760	4822 051 30223	22kΩ 5% 0.062W
3764	4822 117 13632	100kΩ 1% 0603 0.62W
3765	4822 117 13632	100kΩ 1% 0603 0.62W
3777	4822 051 30102	1kΩ 5% 0.062W
3778	4822 051 30479	47Ω 5% 0.062W
3999	4822 051 30472	4.7Ω 5% 0.062W
9710	4822 051 20008	Jumper 0805
9711	4822 051 20008	Jumper 0805
9712	4822 051 20008	Jumper 0805
9713	4822 051 20008	Jumper 0805
9748	4822 051 20008	Jumper 0805
9757	4822 051 20008	Jumper 0805
9758	4822 051 20008	Jumper 0805
9759	4822 051 20008	Jumper 0805
9760	4822 051 20008	Jumper 0805
9761	4822 051 20008	Jumper 0805
9762	4822 051 20008	Jumper 0805
9763	4822 051 20008	Jumper 0805
9764	4822 051 20008	Jumper 0805
9765	4822 051 20008	Jumper 0805
9766	4822 051 20008	Jumper 0805
9768	4822 051 20008	Jumper 0805
9770	4822 051 20008	Jumper 0805
9790	4822 051 20008	Jumper 0805
9795	4822 051 20008	Jumper 0805
9796	4822 051 20008	Jumper 0805
9806	4822 051 20008	Jumper 0805
9807	4822 051 20008	Jumper 0805
9808	4822 051 20008	Jumper 0805

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5700	2422 536 00942	33µH 20%
5701	4822 157 11716	Bead 30Ω at 100MHz
5702	2422 536 00942	33µH 20%
5705	4822 157 11411	Bead 80Ω at 100MHz
5708	4822 157 11411	Bead 80Ω at 100MHz

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6700	4822 130 11522	UDZ15B
6702	9322 150 18685	BZX384-C47
6703	4822 130 10838	UDZ3.3B

7700	9322 202 89668	LM393P
7701	9352 729 65112	TDA8925ST/N1
7702	3198 010 42310	BC847BW
7705	3198 010 42310	BC847BW
7706	3198 010 42310	BC847BW
7707	3198 010 42310	BC847BW
7708	3198 010 42320	BC857BW
7709	3198 010 42310	BC847BW
7710	3198 010 42310	BC847BW
7711	3198 010 42320	BC857BW
7712	3198 010 42310	BC847BW
7713	3198 010 42310	BC847BW

LED Panel [J]

Various

0345	2422 025 18741	Connector 6p m
1040	9322 206 81667	TSOP34836YA1

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2040	4822 124 12095	100µF 20% 16V

⊣WW⊢

3040	4822 117 13597	330Ω 5% 0402 0.01W
3051	4822 051 30221	220Ω 5% 0.062W
3061	4822 051 30221	220Ω 5% 0.062W
3063	4822 117 13606	10kΩ 5% 0.01W 0402
3078	3198 031 02250	2.2MΩ 5% 0.1W 0402
9012	4822 117 13605	Jumper 0402
9041	4822 117 13605	Jumper 0402
9042	4822 117 13605	Jumper 0402
9062	4822 117 13605	Jumper 0402
9066	4822 117 13606	10kΩ 5% 0.01W 0402
9070	4822 117 13605	Jumper 0402
9081	4822 117 13605	Jumper 0402
9082	4822 117 13605	Jumper 0402
9111	4822 117 13605	Jumper 0402
9112	4822 117 13605	Jumper 0402
9115	4822 117 13605	Jumper 0402
9122	4822 117 13605	Jumper 0402

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6051	9322 218 97685	SML-310VTK
6060	9322 134 46685	SML-310MT
6070	9322 140 63685	TEMD5000

7051	3198 010 42310	BC847BW
7052	3198 010 42310	BC847BW
7062	4822 130 60373	BC856B

11. Revision List

Manual xxxx xxx xxxx.0

- First release.

Manual xxxx xxx xxxx.1

- Diversity tables in chapter 7 added.

Manual xxxx xxx xxxx.2

- Corrected several errors in the text.

Manual xxxx xxx xxxx.3

- Chapter 7: PSU schematics and PWB's [A] added.
- Chapter 10: PSU parts list [A] added and software items updated.